
41 GPRS Paging, TBF establishment/release and DCCH related procedures

41.1 RR / Paging

The paging procedure is used by the network to cause the MS to establish either an RR connection for circuit switched services or a downlink GPRS packet transfer. Normally the MS listens to its paging sub-channel when DRX is used, but this can be modified by the use of different page mode. The correct monitoring of its paging sub-channel on PCCCH or CCCH in different control channel configurations and correct implementation of the paging procedure in the MS are essential. They are the test objectives of this subclause.

41.1.1 Void

41.1.2 Void

41.1.3 Void

41.1.4 Void

41.1.5 RR / Paging / on CCCH for GPRS service

41.1.5.1 RR / Paging / on CCCH for GPRS service / normal paging

41.1.5.1.1 RR / Paging / on CCCH for GPRS service / normal paging with P-TMSI successful

41.1.5.1.1.1 Conformance requirements

1. The network initiates the paging procedure by sending a paging request message on an appropriate paging sub-channel on CCCH. Paging initiation using a paging sub-channel on CCCH is used when sending paging information to a mobile station and PCCCH is not present in the cell.
2. The mobile station in packet idle mode is required to receive and analyse the paging messages and immediate assignment messages sent on the paging sub-channels on CCCH corresponding to the paging groups determined for it in packet idle mode.
3. A PAGING REQUEST message may include more than one mobile station identification.
4. In a PAGING REQUEST message used for the packet paging procedure, the mobile station shall be identified by the P-TMSI (GPRS TMSI) or its IMSI. If the mobile station is identified by the P-TMSI, it shall indicate the receipt of a paging request to the MM sub-layer.

If the mobile station identified by its IMSI, it shall parse the message for a corresponding *Packet Page Indication* field:

- if the *Packet Page Indication* field indicates a paging procedure for RR connection establishment, or the field is not present in the message, the mobile station shall initiate the immediate assignment procedure;
- if the *Packet Page Indication* field indicates a packet paging procedure, the mobile station shall indicate the receipt of a paging request to the MM sub-layer.

5. The mobile station initiates the packet access procedure by scheduling the sending of CHANNEL REQUEST messages on RACH.

References

3GPP TS 04.08 / 3GPP TS 44.018, subclauses 3.3.2.1.1, 3.5.1.1, 3.5.1.2 and 3.5.2.1.

3GPP TS 05.02, subclause 6.5.6.

41.1.5.1.1.2 Test purpose

1. To verify that the MS in packet idle mode, GPRS attached state, is able to determine its CCCH group and PAGING group and that the MS responds correctly with CHANNEL REQUEST on RACH with cause value of 'packet access' upon receipt of a PAGING REQUEST TYPE 1 message for packet access with paging mode set to normal.
2. To verify that the MS is able to respond to PAGING REQUEST TYPE 1 for packet access when the MS is addressed with its P-TMSI, but another field of the paging message contains an IMSI different from that of the MS.
3. To verify that the MS is able to respond to PAGING REQUEST TYPE 2 for packet access when the MS is addressed with its P-TMSI, but other fields of the paging message contain a TMSI and an IMSI different from that of the MS.
4. To verify that the MS is able to respond to PAGING REQUEST TYPE 3 for packet access when the MS is addressed with its P-TMSI, but other fields of the paging message contain TMSIs different from that of the MS.

41.1.5.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, GPRS supported, PCCCH absent, Max-Retrans = 2, BS_AG_BLK_RES = 2, BS_PA_MFRMS = 6, SPLIT_PG_CYCLE is supported on CCCH in the cell.

Mobile Station:

The MS is GPRS attached with a TMSI (only for MS operation mode A or MS operation mode B) and a P-TMSI allocated, SPLIT_PG_CYCLE negotiated. The mobile station is in packet idle mode and has left the Transfer non-DRX mode period, i.e. for a R99 or later MS the system simulator shall wait for a period equivalent to the value of the NON_DRX_TIMER parameter before sending the first paging message to the MS.

Specific PICS Statements

- MS operation mode A (TSPC_operation_mode_A)
- MS operation mode B (TSPC_operation_mode_B)

PIXIT Statements

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Test Procedure

The test is repeated three times. Each time the MS is paged for the packet paging procedure through a different paging request type message. After receiving a CHANNEL REQUEST with the establishment cause 'one phase access', an open-end TBF is assigned. A USF is assigned to the MS to enable it to transfer an uplink RLC data block. The received data block is acknowledged by the SS with , Final Ack Indicator = '1' , a valid RRBP. The MS sends PACKET CONTROL ACKNOWLEDGEMENT.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is repeated for k = 1 ... 3.

Step	Direction	Message	Comments
1A	SS -> MS	PAGING REQUEST TYPE 1	k=1 1 st Mobile Identity contains P-TMSI of the MS, 2 nd Mobile Identity not present. Sent on PCH.
1B	SS -> MS	PAGING REQUEST TYPE 2	k=2 1 st Mobile Identity contains P-TMSI of the MS, the other two Mobile Identities not addressing the MS. Sent on PCH.
1C	SS -> MS	PAGING REQUEST TYPE 3	k=3 1 st Mobile Identity contains P-TMSI of the MS, the remaining Mobile Identities not addressing the MS. Sent on PCH.
2	MS -> SS	CHANNEL REQUEST	Establishment Cause = "one phase access", received on RACH.
4	SS -> MS	IMMEDIATE ASSIGNMENT	Request Reference = pertaining to the message received in step 2. Uplink assignment, sent on AGCH.
5	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PACCH containing USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK (not L3 Message)	LLC PDU implicitly indicating paging response, containing TLLI in the RLC/MAC header. Received on uplink PDTCH assigned in step 4.
7	SS -> MS	PACKET UPLINK ACK/NACK	acknowledge the received RLC data block, Final Ack Indicator = '1', a valid RRBP. Sent on PACCH.
8	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	acknowledge the RLC control message. Received on PACCH.

Specific Message Contents

IMMEDIATE ASSIGNMENT message in step 4:

Dedicated mode or TBF	TBF
- T/D	0 , no meaning
- Downlink	0, no meaning
- TMA	
Packet Channel Description	'00001' spared
- Channel Type	Chosen arbitrarily
- TN	Chosen arbitrarily
- TSC	0
-	00 (Binary)
-	For GSM 450: 267
- ARFCN	For GSM 480: 315
	For GSM 700, T-GSM 810: 470
	For GSM 850: 160
	For GSM 900: 30
	For DCS 1 800: 650
	For PCS 1 900: 650
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	
-	HH
-	00 (packet uplink assignment)
- Packet Uplink Assignment	
- Assign a TBF	1, Dynamic allocation
- TFL_ASSIGNMENT	chosen arbitrarily
- POLLING	0, no
-	0, dynamic allocation
- USF	chosen arbitrarily
- USF granularity	0, single block
- 0 1 <P0 >	0
- CHANNEL_CODING_COMMAND	00, CS-1
- TLLI_BLOCK_CHANNEL_CODING	00, CS-1
- 0 1 <ALPHA >	1
- ALPHA	0.5
- GAMMA	For GSM 450, +8 dBm
	For GSM 480, +8 dBm
	For GSM 700, T-GSM 810, +8 dBm
	For GSM 850, +8 dBm
	For GSM 900, +8 dBm
	For DCS 1 800, +6 dBm
	For PCS 1 900, +6 dBm
- {0 1<TIMING_ADVANCE_INDEX>}	0 (no timing advance index)
- {0 1<TBF_STARTING_TIME>}	0 (starting time field is absent)
- spare padding	Spare Padding

41.1.5.1.2 RR / Paging / on CCCH for GPRS service / normal paging with IMSI successful

41.1.5.1.2.1 Conformance requirements

1. If the MS was paged by the network with the IMSI (for GPRS service), the MS shall delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number stored. The MS shall then perform a GPRS attach or combined GPRS attach procedure.

References

3GPPTS 04.08 / 3GPP TS 24.008, subclause 4.7.9.1.2.

41.1.5.1.2.2 Test purpose

To verify that the MS is able to respond to PAGING REQUEST TYPE 1 when the MS is addressed with its IMSI with *Packet Page Indication* set to packet paging procedure, and that the MS then performs a GPRS attach or combined GPRS attach procedure.

41.1.5.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, GPRS supported, PCCCH absent, Max-Retrans = 2, BS_AG_BLK_RES = 2, BS_PA_MFRMS = 9.

Mobile Station:

The MS is in GPRS attached with a TMSI (only for MS operation mode A or MS operation mode B) and a P-TMSI allocated, SPLIT PG CYCLE negotiated. The mobile station is in packet idle mode and has left the Transfer non-DRX mode period, i.e. for a R99 or later MS the system simulator shall wait for a period equivalent to the value of the NON_DRX_TIMER parameter before sending the first paging message to the MS.

Specific PICS Statements

- MS operation mode A Yes/No (TSPC_operation_mode_A)
- MS operation mode B Yes/No (TSPC_operation_mode_B)

PIXIT Statements

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Test Procedure

The MS is paged on PCH with IMSI for packet paging procedure. After receiving the CHANNEL REQUEST from the MS a TBF is assigned. The MS sends an LLC PDU containing TLLI in the RLC/MAC header and ATTACH REQUEST, implicitly indicating a paging response. The SS verifies the completeness of ATTACH REQUEST and acknowledges the received RLC data blocks with a valid RRBP and Final Ack indicator = '1'.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	PAGING REQUEST TYPE 1	1 st Mobile Identity contains IMSI of the MS, second Mobile Identity not present. Packet page indication indicates packet paging procedure. Sent on PCH.
2	MS -> SS	CHANNEL REQUEST	Establishment Cause = = "one phase packet access". Received on RACH.
3	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, one phase access.
4	MS -> SS	UPLINK RLC DATA BLOCK (ATTACH REQUEST)	LLC PDU containing a TLLI and the first part of ATTACH REQUEST, the implicit paging response to step 1. Received on the uplink PDTCH assigned in step 3.
5	SS -> MS	PACKET UPLINK ACK/NACK	Contention resolution, acknowledge the received RLC data blocks, No USF assigned. Sent on PACCH.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
7	MS -> SS	UPLINK RLC DATA BLOCK	Repeat step 6 & 7 until the CV = 0 to receive the complete ATTACH REQUEST message
8	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge the received RLC data blocks. Final Ack Indicator = 1 containing valid RRBP sent on PACCH
9	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	acknowledge the RLC control messages. Received on PACCH.

Specific Message Contents

Contents for SYSTEM INFORMATION:

RACH Control Parameters - Max Retrans	Max 2 retransmission
SI 13 Rest Octets - ACC_BURST_TY	8 bit access burst

41.1.5.1.3 RR / Paging / on CCCH for GPRS service / normal paging with P-TMSI ignored

The MS shall ignore paging not addressing to it. If paging is not implemented correctly unnecessary accesses will be provoked on CCCH which is shared by all MS in a same cell. This kind of the wrong paging behaviour of the same type of MS in a GSM network can block the use of CCCH and will, therefore, cause an unacceptable degradation of the both GSM GPRS and circuit-switched services to other users of the mobile stations.

41.1.5.1.3.1 Conformance requirements

In a PAGING REQUEST message used for the packet paging procedure, the mobile station shall be identified by the TMSI (GPRS TMSI) or its IMSI. A PAGING REQUEST message may include more than one mobile station identification.

References

3GPP TS 04.08 / 3GPP TS 44.018, subclauses 3.3.2.1.1 and 3.5.1.1.

41.1.5.1.3.2 Test purpose

To verify that the MS ignores a PAGING REQUEST TYPE 1, 2 messages where both P-TMSI and IMSI do not address the MS although the paging message is sent on the CCCH to which the CCCH_GROUP belongs.

41.1.5.1.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, GPRS supported, PCCCH absent, Max-Retrans = 2, BS_AG_BLK_RES = 2, BS_PA_MFRMS = 7, .

Mobile Station:

The MS is GPRS attached with a TMSI (only for MS operation mode A or MS operation mode B) and a P-TMSI allocated and SPLIT PG CYCLE negotiated. The mobile station is in packet idle mode and has left the Transfer non-DRX mode period, i.e. for a R99 or later MS the system simulator shall wait for a period equivalent to the value of the NON_DRX_TIMER parameter before sending the first paging message to the MS.

Specific PICS Statements

- MS operation mode A Yes/No (TSPC_operation_mode_A)

- MS operation mode B Yes/No (TSPC_operation_mode_B)

PIXIT Statements

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Test Procedure

The test is repeated twice. Each time a different paging message not addressing the MS is sent on the PCH belonging to the MS. It is checked that the no access attempt is made by the MS for 5 s.

The MS is then paged for packet paging. The MS attempts a random access for GPRS Attach and is allowed to complete the procedure.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test steps 1 - 2 is repeated for k = 1 .. 2.

Step	Direction	Message	Comments
1A	SS -> MS	PAGING REQUEST TYPE 1	k=1, The two packet page indications are set to packet paging procedure. 1st Mobile Identity contains P-TMSI, 2nd Mobile Identity contains IMSI, both Identities do not address the MS. Sent on PCH belonging to the MS.
1B	SS -> MS	PAGING REQUEST TYPE 2	k=2, Packet page indication 3 is set to packet paging procedure. 1st Mobile Identity contains P-TMSI, 2nd Mobile Identity contains P-TMSI, 3rd Identity contains IMSI, all identities not addressing the MS. Sent on PCH belonging to the MS.
2	SS		Check that no CHANNEL REQUEST is sent from the MS for 5s.
3	SS -> MS	PAGING REQUEST TYPE 1	1 st Mobile Identity contains IMSI of the MS, second Mobile Identity not present. Packet page indication indicates packet paging procedure. Sent on PCH belonging to the MS.
4	MS -> SS	CHANNEL REQUEST	Establishment Cause "one phase packet access". Received on RACH.
5	SS<->MS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.

Specific Message Contents

PAGING REQUEST TYPE 1 message:

Mobile Identity 1 - odd/even indication - Type of Identity - Identity Digits Mobile Identity 2 P1 rest octets - Packet Page Indication 1 - Packet Page Indication 2	Even. P-TMSI. P-TMSI value not allocated to MS. IMSI different from the value stored on the SIM. H, Packet Paging H, Packet Paging
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PAGING REQUEST TYPE 2 message:

Mobile Identity 1 - TMSI value P2 rest octets - Packet Page Indication 3	P-TMSI value not allocated to the MS. LLLL H, Packet Paging
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41.1.5.2 RR / Paging / on CCCH for GPRS service / extended paging

41.1.5.2.1 RR / Paging / on CCCH for GPRS service / extended paging with P-TMSI successful

41.1.5.2.1.1 Conformance requirements

The paging and immediate assignment type messages contain a page mode information element. This information element controls possible additional requirements on mobile stations belonging to the paging subgroup corresponding to the paging subchannel the message was sent on. This implies that a given mobile station shall take into account the page mode information element of any message sent on its own paging subchannel whatever the nature of this message (paging messages or immediate assignment messages). This further implies that the mobile station does not take into account page mode information element of messages sent on paging subchannels other than its own paging subchannel. The requirements yielded by the page mode information element are as follows:

b) extended paging: the mobile station is required in addition to receive and analyse the next but one message on the PCH.

References

3GPP TS 04.18/44.018, subclauses 3.3.2.1.1, 3.5.2.1.2, 9.1.18, 9.1.19 and 9.1.20.

41.1.5.2.1.2 Test purpose

1. To verify that the MS operates in the extended page mode when it is ordered by the SS in PAGING REQUEST TYPE 1 which does not address the MS, but on the paging sub-channel corresponding to the MS identity.
2. To verify that the MS operates in the extended page mode when it is ordered by the SS in PAGING REQUEST TYPE 2 which does not address the MS, but on the paging sub-channel corresponding to the MS identity.
3. To verify that the MS operates in the extended page mode when it is ordered by the SS in PAGING REQUEST TYPE 3 which does not address the MS, but on the paging sub-channel corresponding to the MS identity.
4. To verify that the MS operates in the extended page mode when it is ordered by the SS in IMMEDIATE ASSIGNMENT on the paging sub-channel corresponding to the MS identity.
5. To verify that the MS operates in the extended page mode when it is ordered by the SS in IMMEDIATE ASSIGNMENT EXTENDED on the paging sub-channel corresponding to the MS identity.
6. To verify that the MS operates in the extended page mode when it is ordered by the SS in IMMEDIATE ASSIGNMENT REJECT on the paging sub-channel corresponding to the MS identity.

41.1.5.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, GPRS supported, PCCCH absent, Max-Retrans = 2, CCCH_CONF = 1 basic physical channel used for CCCH with non-combined SDCCH, BS_AG_BLKs_RES = 3, BS_PA_MFRMS = 8.

Mobile Station:

The MS is GPRS attached with a TMSI (only for MS operation mode A or MS operation mode B) and a P-TMSI allocated and SPLIT PG CYCLE negotiated. The mobile station is in packet idle mode and has left the Transfer non-DRX mode period, i.e. for a R99 or later MS the system simulator shall wait for a period equivalent to the value of the NON_DRX_TIMER parameter before sending the first paging message to the MS.

Specific PICS Statements

- MS operation mode A Yes/No (TSPC_operation_mode_A)

- MS operation mode B Yes/No (TSPC_operation_mode_B)

PIXIT Statements

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Test Procedure

The test is repeated 6 times. Each time a different downlink message is sent on PCH or AGCH for setting the page mode to extended paging. The MS is paged on the next but one page block for the packet paging procedure. The MS starts a random accesses which are rejected by the SS.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is repeated for k = 1 ... 6.

Step	Direction	Message	Comments
1A	SS -> MS	PAGING REQUEST TYPE 1	k=1, All mobile Identities do not address the MS. Page mode is set to "extended paging". Packet page indication indicates packet paging procedure. Sent on PCH.
1B	SS -> MS	PAGING REQUEST TYPE 2	k=2, All mobile Identities do not address the MS. Page mode is set to "extended paging". Packet page indication indicates packet paging procedure. Sent on PCH.
1C	SS -> MS	PAGING REQUEST TYPE 3	k=3, All mobile Identities do not address the MS. Page mode is set to "extended paging". Channel Needed IE's are coded with 00. Sent on PCH.
1D	SS -> MS	IMMEDIATE ASSIGNMENT	k=4, Page mode is set to "extended paging". Request Reference does not address any request references sent by the MS in previous test steps. Sent on paging channel (PCH).
1E	SS -> MS	IMMEDIATE ASSIGNMENT EXTENDED	Page mode is set to "extended paging". Request Reference does not address any request references sent by the MS in previous test steps. Sent on paging channel (PCH).
1F	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	k=6, Page mode is set to "extended paging". Request Reference does not address any request references sent by the MS in previous test steps. Sent on paging channel (PCH).
2	SS -> MS	PAGING REQUEST TYPE 1	1st Mobile Identity contains P-TMSI of the MS, 2nd Mobile Identity not present. Page mode is set to "normal paging". Packet page indication indicates packet paging procedure. Sent on the next but one subblock on the same CCCH as previous paging message.
3	MS -> SS	CHANNEL REQUEST	Establishment Cause = "One phase access". Received on RACH.
4	MS -> SS	CHANNEL REQUEST	Establishment Cause "One phase access". Received on RACH.
5	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	Request Reference = pertaining to the message received in step 4. Page mode is set to "normal paging". Sent on AGCH.

41.1.5.3 RR / Paging / on CCCH for GPRS service / paging reorganisation

41.1.5.3.1 Conformance requirements

The paging and immediate assignment type messages contain a page mode information element. This information element controls possible additional requirements on mobile stations belonging to the paging subgroup corresponding to the paging subchannel the message was sent on. This implies that a given mobile station shall take into account the page mode information element of any message sent on its own paging subchannel whatever the nature of this message (paging messages or immediate assignment messages). This further implies that the mobile station does not take into account page mode information element of messages sent on paging subchannels other than its own paging subchannel. The requirements yielded by the page mode information element are as follows:

c) paging reorganization: The mobile station shall receive all messages on the CCCH regardless of the BS-AG-BLKS-RES setting. It is required to receive all BCCH messages. When the mobile station receives the next message to its (possibly new) paging subgroup the subsequent action is defined in the page mode information element in that message.

References

3GPP TS 04.18/44.018, subclause 3.3.2.1.1, 3.5.2.1.2.

3GPP TS 04.60/44.060, subclause 7.1.2.1

41.1.5.3.2 Test purpose

1. To verify that the MS, after reception of a message with page mode set to "paging reorganisation", answers to paging messages (with page mode set to "normal paging") sent on its old CCCH in paging blocks which do not belong to the MS's paging sub-channel.
2. To test that the MS correctly determines its new paging sub-channel when the number of reserved blocks, BS_AG_BLK_RES, and the number of 51-multiframes between transmissions of paging messages for mobile stations of the same paging group BS_PA_MFRMS are changed.
3. To test that the MS correctly determines its new paging sub-channel when the number of basic physical channels for CCCH is changed.

41.1.5.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, GPRS supported, PCCCH absent, Max-Retrans = 2, CCCH_CONF = 0 (1 basic physical channel used for CCCH with non-combined SDCCH), BS_AG_BLK_RES = 3, BS_PA_MFRMS = 6. SPGC_CCCH_SUP = 0 (SPLIT_PG_CYCLE is not supported on CCCH in the cell).

Mobile Station:

The MS is GPRS attached with a TMSI (only for MS operation mode A or MS operation mode B) and a P-TMSI allocated and SPLIT_PG_CYCLE negotiated. The mobile station is in packet idle mode and has left the Transfer non-DRX mode period, i.e. for a R99 or later MS the system simulator shall wait for a period equivalent to the value of the NON_DRX_TIMER parameter before sending the first paging message to the MS.

Specific PICS Statements

- MS operation mode A Yes/No (TSPC_operation_mode_A)
- MS operation mode B Yes/No (TSPC_operation_mode_B)

PIXIT Statements

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Test Procedure

The page mode is set to paging reorganisation. The MS is paged for packet paging procedure through PAGING REQUEST TYPE 1 which is sent before the MS's original paging sub-channel re-occurs, but later than the next paging block of that CCCH. The MS starts the random access. The access attempt is rejected.

The SS changes the CCCH configuration with BS_AG_BLK_RES=2 and BS_PA_MFRMS=5 and waits two SI13 repeat periods, and then sets the page mode to Normal Paging. The MS is paged for packet paging procedure through PAGING REQUEST TYPE 2 sent on the new paging sub-channel. The MS starts the random access. The access attempt is rejected via IMMEDIATE ASSIGNMENT REJECT'. PAGING REQUEST TYPE 1 with paging fill frame and page mode set to "paging reorganisation" is sent.

Two additional CCCHs are activated by the SS. The same test procedure as above is repeated.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT EXTENDED	Page mode set to "paging reorganisation"
2	SS -> MS	PAGING REQUEST TYPE 1	Sent before the MS's original paging sub-channel re-occurs, but later than the next paging block of that CCCH. Page mode set to "normal paging", for packet paging procedure.
3	MS -> SS	CHANNEL REQUEST	Establishment Cause = "one phase access", received on RACH.
4	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	Request Reference = pertaining to the message received in step 3. Sent on AGCH.
5	SS	PAGING REQUEST TYPE 1	Sent on the MS's paging sub-channel. Paging fill frame and page mode set to "paging reorganisation". All L3 messages sent on any paging sub-channel are paging fill frame specify Paging Reorganisation.
6	SS		Set BS_AG_BLKs_RES=2 and BS_PA_MFRMS=5 in SI's. The value of the BCCH_CHANGE_MARK in the SI13 is altered to indicate the changes. SI_CHANGE_FIELD = 3.
7	SS		Wait two SI13 repeat periods. All L3 messages sent on any paging sub-channel are paging fill frame specify Normal Paging. Wait for the time required for BS_PA_MFRMS Multi-Frames.
8	SS -> MS	PAGING REQUEST TYPE 2	1 st Mobile Identity contains P-TMSI of the MS. 2 nd Mobile Identity contains P-TMSI, 3 rd Identity contains IMSI, the last two identities not addressing the MS. Packet page indication indicates packet paging procedure. Page mode = "same as before", sent on the new PCH belonging to the MS.
9	MS -> SS	CHANNEL REQUEST	Establishment Cause = "one phase access". Received on RACH.
10	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	Request Reference = pertaining to the message received in step 9.
11	SS	PAGING REQUEST TYPE 1	Sent on the MS's paging sub-channel. Paging fill frame and page mode set to "paging reorganisation". All L3 messages sent on any paging sub-channel are paging fill frame specify Paging Reorganisation.
12	SS		Reconfigure the SS channels so that additional two CCCH's are set on slot 2 and slot 4, Set CCCH_CONF = 4 in SI's. The value of the BCCH_CHANGE_MARK in the SI13 is altered to indicate the changes. SI_CHANGE_FIELD = 3.
13	SS		Wait two SI13 repeat periods. All L3 messages sent on any paging sub-channel are paging fill frame specify Normal Paging. Wait for the time required for BS_PA_MFRMS Multi-Frames.
14	SS -> MS	PAGING REQUEST TYPE 2	1 st Mobile Identity contains P-TMSI of the MS. 2 nd Mobile Identity contains P-TMSI, 3 rd Identity contains IMSI, the last two identities not addressing the MS. Packet page indication indicates packet paging procedure. Page mode = "same as before", sent on the new PCH belonging to the MS.
15	MS -> SS	CHANNEL REQUEST	Establishment Cause = "one phase access". Received on RACH.
16	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	Request Reference = pertaining to the message received in step 15. Sent on AGCH.

Specific Message Contents

41.1.5.4 RR / Paging / on CCCH for GPRS service / default message contents

Contents for SYSTEM INFORMATION and PACKET SYSTEM INFORMATION Messages:

System information Type 13

L2 Pseudo Length	0
RR management Protocol Discriminator	RR
Skip Indicator	0000
System Information Type 13 Message Type	00
SI 13 Rest Octets	
-	H (SI 13 Rest Octets are not spare)
- BCCH_CHANGE_MARK	000
- SI_CHANGE_FIELD	0 Update of unspecified message
- {0 1}	0 GPRS Mobile Allocation IE not present
- {0 1}	0 (PBCCH not present in cell)
- RAC	00000101 (Binary)
-SPGC_CCCH_SUP	1 supported
-PRIORITY_ACCESS_THR	110 PA allowed for priority level 1 to 4
-NETWORK_CONTROL_ORDER	00 NC0
-GPRS Cell Options	Present
-Network Mode of Operation	NMO 1
-T3168	2 seconds
-T3192	1.5 seconds
-DRX_TIMER_MAX	000 Non-DRX not supported
-ACCESS_BURST_TYPE	0 Use 8 bits access burst
-CONTROL_ACK_TYPE	1 RLC/MAC control block
-BS_CV_MAX	0111 value 7
-PAN_DEC	011 value 3
-PAN_INC	011 value 3
-PAN_MAX	010 Max value for counter N3102=12
-Optional extension information	0 Extension information not present
For R99/Rel 4/Rel 6 network simulation:	
Optional extension information	1 Extension information present
- Extension length	R99: 000011
	Rel 4: 000101
	Rel 6: 001001
- {0 1} <Extension Information>	0 EGPRS not supported by the cell.
- PFC_FEATURE_MODE	0 Packet Flow Context Procedures not supported
- DTM_SUPPORT	Default:
	0.....The cell does not support DTM procedures
	For DTM test cases:
	1.....The cell supports DTM procedures
- BSS_PAGING_COORDINATION	0 Circuit-Switched paging coordination not supported in cell
For Rel 4 network simulation	
- CNN_ACTIVE	0 CNN is disabled in the cell
- NW_EXT_UTBF	0 Ext UL TBF not supported in the cell
For Rel 6 network simulation	
- MULTIPLE_TBF_CAPABILITY	0 Cell does not support multiple TBF procedures
- EXT_UTBF_NO_DATA	0 MS shall send a PACKET UPLINK DUMMY CONTROL BLOCK message when there is no other RLC/MAC block ready to send in an uplink radio block allocated by the network
- DTM_ENHANCEMENTS_CAPABILITY	0 Cell does not support enhanced DTM CS establishment and enhanced DTM CS release procedures
- {0 1}	0 -- MBMS procedures not supported by the cell
End Rel 6	
End Rel 4	
End R99	
-GPRS Power Control Parameters	Present
-ALPHA	0101 Alpha = 0.5
-T_AVG_W	01100 value 12
-T_AVG_T	01100 value 12
-PC_MEAS_CHAN	0 BCCH

-N_AVG_I For R99/Rel 4/Rel 6 network simulation: - Additions in R99 - SGSNR bit - Additions in Rel 4 - SI_STATUS_IND bit - Additions in Rel 6	0111 value 7 H 1 SGSN is Release '99 onwards H 0 PACKET SI STATUS message not supported H
{LB_MS_TXPWR_MAX_CCH}	1 LB_MS_TXPWR_MAX_CCH present
- LB_MS_TXPWR_MAX_CCH	01010
- SI2n_SUPPORT	00
End Rel 6	
End Rel 4	
End R99	
-spare padding	Spare Padding

41.1.6 Void

41.2 RR procedures on CCCH related to temporary block flow establishment

This clause presents tests for "RR procedures on CCCH related to temporary block flow establishment" which are specified in 3GPP TS 04.08 / 3GPP TS 44.018, subclause 3.5.

Default conditions

The SS default conditions simulate one cell with default settings as defined in the GPRS general defaults section, except:

- SI 13 Rest Octets contains no PCCCH description (PCCCH is not supported by the network).

The MS default initial condition is GPRS attached. Unless otherwise stated, no PDP context is required.

Default message contents and signaling macros are also defined in the GPRS general defaults section, except for those messages and macros specified at the end of this clause.

41.2.1 Permission to access the network

41.2.1.1 Permission to access the network / priority classes

41.2.1.1.1 Conformance requirements

Access to the network is allowed:

- if packet access is allowed in the cell for the priority class associated with the packet transfer, as indicated by the PRIORITY_ACCESS_THR parameter broadcast in SI 13 message.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.1.

41.2.1.1.2 Test purpose

To verify that the MS accesses the network only if packet access is allowed in the cell for the priority class associated with the packet transfer.

41.2.1.1.3 Method of test

Initial conditions

System Simulator:

Network Mode of Operation is set to NMO II.

Mobile Station:

For PRIORITY_ACCESS_THR >2 MS is GPRS attached, a PDP context has been established (with priority level as specified below).

For PRIORITY_ACCESS_THR <=2 MS is Idle Updated.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

Specific test parameters:

PRIORITY_ACCESS_THR is chosen from {0, 1, 2, 3, 4, 5, 6, 7}.

priority level is chosen from {1, 2, 3, 4}.

Expected sequence

For PRIORITY_ACCESS_THR >2.

Step	Direction	Message	Comments
1			The MS is triggered to transfer data
2	SS		See verification

Verification:

The SS verifies for 10 s that MS access (or not) to the network according to the PRIORITY_ACCESS_THR values below.

- 0 1 1 packet access is allowed for priority level 1;
- 1 0 0 packet access is allowed for priority level 1 to 2;
- 1 0 1 packet access is allowed for priority level 1 to 3;
- 1 1 0 packet access is allowed for priority level 1 to 4;
- 1 1 1 spare, shall be interpreted as(packet access allowed).

For PRIORITY_ACCESS_THR <=2.

Step	Direction	Message	Comments
1			The MS is triggered to do Attach procedure
2	SS		The SS verifies for 10 s that MS does not try to access to the network.

41.2.2 Initiation of the packet access procedure

41.2.2.1 Initiation of the packet access procedure / establishment causes

41.2.2.1.1 Conformance requirements

The CHANNEL REQUEST messages are sent on RACH and contain the parameters:

- an establishment cause which indicates packet access, and as applicable, a request for one phase packet access or single block packet access;
- a random reference which is drawn randomly from a uniform probability distribution for every new transmission.

If the requested RLC mode is *unacknowledged mode*, the mobile station shall request a single block packet access and attempt a two phase packet access.

If the purpose of the packet access procedure is to send a Page Response, Cell Update, for a GPRS Mobility Management or a GPRS Session Management procedure the mobile station shall request a one phase packet access.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.2

Justification

41.2.2.1.2 Test purpose

To verify that the CHANNEL REQUEST message sent by the MS contains the correct establishment cause when initiating a packet access procedure.

41.2.2.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is switched off.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate a GPRS attach procedure. The SS verifies that the MS attempts a one phase packet access.

APDP context for RLC unacknowledged is established and the MS is triggered to transfer RLC data blocks. The SS verifies that the MS correctly sets the Establishment Cause in the CHANNEL REQUEST message.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		MS is switched on and triggered to initiate a GPRS attach procedure.
2	MS -> SS	CHANNEL REQUEST	SS verifies that Establishment Cause is 'one phase'.
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	SS <-> MS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.
5	MS<->SS		A PDP context is established for RLC unacknowledged data transfer.
6	MS		MS is triggered to transfer data.
7	MS -> SS	CHANNEL REQUEST	SS verifies that Establishment Cause is 'single block access'.
8	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	

41.2.2.2 Random references for single block packet access

41.2.2.2.1 Conformance requirements

The random reference in the CHANNEL REQUEST messages shall be randomly drawn from a uniform probability distribution for every new transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.2.

41.2.2.2.2 Test purpose

To verify that the MS produces different Random References when accessing the network for single block access.

41.2.2.2.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH, Parameter MAX_RETRANS is set to 4 retransmissions.

Mobile Station:

MS is GPRS attached, a PDP context in RLC unacknowledged mode has been established and the MS is in Packet Idle mode.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to transfer data, it shall attempt a single block packet access (3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.2). The SS does not answer to the access bursts but stores N (= 80) Random References and verifies that the MS uses all possible values (0 ... 7) in its Random Reference.

Justification

The length of the Random Reference is 3 bits for single block packet access (3GPP TS 04.08 / 3GPP TS 44.018 / table 9.9). This test verifies that the MS uses all values (0 ... 7) in its Random Reference.

The probability that in a sequence of N samples one of the possible value does not appear is $8^{-(7/8)*N}$ for large N.

NOTE: The number of samples N has been computed such that the probability of refusing a correct MS is less than 0,02 %.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		MS is triggered to transfer data.
2	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
3	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
4	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
5	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
6	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
7	SS		SS waits 5.5 seconds (Maximum value of T3146 is 5 seconds) Note: Test Case executes Step 8A or 8B depending on MS behaviour. If any CHANNEL REQUEST is received during the wait time, SS continues with Step 8A else SS continues with Step 8B
8A (Conditional)	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References and repeats the Steps 3 to 7.
8B (Conditional)	SS		Repeat Steps 1 to 7
9	MS<->SS		Steps 1 to 8 are repeated until 80 CHANNEL REQUEST messages have been received
10	SS		SS verifies that all Request Reference values (0 to 7) come out in the stored samples.

41.2.2.3 Random references for one phase packet access

41.2.2.3.1 Conformance requirements

The random reference in the CHANNEL REQUEST messages shall be randomly drawn from a uniform probability distribution for every new transmission.

References

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.2.

41.2.2.3.2 Test purpose

To verify that the MS produces different Random References when accessing the network for one phase access.

41.2.2.3.3 Method of test

Initial conditions

System Simulator: default settings except:

- Parameter MAX_RETRANS is set to 4 retransmissions.
- T3302 = 1 minute, T3212 sent in SI3 is set to 6 minutes.

Mobile Station:

Note: MS may be brought into the required condition by causing it to be triggered to perform GPRS attach and the SS responding with ATTACH REJECT in which T3302 is set to 1 minute and the cause set to "MSC temporarily not reachable". MS treats this as a temporary failure and enters the test sequence by restarting the attach procedure.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS shall attempt a one phase packet access (3GPP TS 04.08 / 3GPP TS 44.018, subclause 3.5.2.1.2). The SS does not answer to the access bursts but stores N (= 80) Random References and verifies that the MS uses all possible values (0 ... 3) in its Random Reference and does not use value '111' as a value of the 3 least significant bits for channel request octet (see 3GPP TS 04.08 / 3GPP TS 44.018 / table 9.9).

Justification

Possible values for Random Reference for one phase packet access are 0 to 3 (value '111' is not allowed). This test verifies that the MS uses all values (0 ... 3) in its Random Reference.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
	MS		MS re-starts the Attach Procedure.
1	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
2	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
3	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
4	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
5	MS -> SS	CHANNEL REQUEST	SS stores the value of Request References
			Step 6 is optional and depends on the mobile implementation.
6		{Location Update Procedure}	Macro for Location Updating.
7	MS<->SS		Steps 1 to 6 are repeated N/5 = 16 times
8	SS		SS verifies that all Random Reference values (Random Reference field is filled with "x") in the range 0 to 3 come out in the stored samples and that value '111' is not used as a value of the 3 least significant bits for channel request octet.

The Channel Request message is coded as follows (reference 3GPP TS 04.08 / 3GPP TS 44.018 table 9.1.8.1):

011110xx	One phase packet access with request for single timeslot uplink transmission; one PDCH is needed.
01111x0x	
01111xx0	

41.2.2.4 Initiation of the packet access procedure / timer T3146

41.2.2.4.1 Conformance requirements

Having sent the maximum number of CHANNEL REQUEST messages, the mobile station starts timer T3146. At expiry of timer T3146, the packet access procedure is aborted and a packet access failure is indicated to upper layers.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.2.

41.2.2.4.2 Test purpose

To verify that the MS waits T3146 seconds before aborting the packet access procedure.

41.2.2.4.3 Method of test

Initial conditions

System Simulator: Default settings except:

System Information parameter MAX_RETRANS is set to 2 retransmissions.

CCCH non-combined with SDCCH.

System Information parameter TX_INTEGER in RACH Control Parameters is set to 3.

Mobile Station:

MS is switched off.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate the GPRS attach procedure, the SS waits until the MS sends all M+1 CHANNEL REQUEST messages, where M is the parameter Max Retrans broadcast on BCCH. The SS waits until T3146 seconds elapse and sends an IMMEDIATE ASSIGNMENT which shall be ignored by the MS since the access procedure should be aborted.

The MS shall retry the access procedure (according to 3GPP TS 04.60 subclause 7.1.2.3). Again, the SS waits until the MS sends all M+1 CHANNEL REQUEST messages, and then sends an IMMEDIATE ASSIGNMENT before T3146 seconds elapse. In this case the MS shall correctly send the LLC PDU on the assigned PDCH.

Note:

Timer T3146 (3GPP TS 04.08 / 3GPP TS 44.018, clause 11) depends on parameter TX_INTEGER broadcast on BCCH.

The minimum value of the timer is $2 \cdot S + TX_INTEGER$ slots, where S is given in 3GPP TS 04.08 / 3GPP TS 44.018, table 3.1.

The maximum value of this timer is 5 s (subclause 11.1.1 in 3GPP TS 04.08).

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	The MS turned on and triggered to initiate the GPRS attach procedure.
2	MS -> SS	CHANNEL REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS		SS waits 5.5 seconds (Maximum value of T3146 is 5 seconds)
5	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, one phase access.
6	SS		MS shall ignore the message, SS verifies that MS does not send any RLC data or control blocks.
7	MS -> SS	CHANNEL REQUEST	MS attempts a second time to access the network.
8	MS -> SS	CHANNEL REQUEST	
9	MS -> SS	CHANNEL REQUEST	
10	SS		SS waits $T3146 - 0.1 \cdot T3146$ (using minimum value of T3146, which is $2 \cdot S + TX_INTEGER$ slots)
11	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, one phase access.
12	SS <-> MS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.

The complete test is repeated for:

- TX_INTEGER set to 20; and for

- TX_INTEGER set to 32.

41.2.2.5 Initiation of the packet access procedure / Request Reference

41.2.2.5.1 Conformance requirements

On receipt of an IMMEDIATE ASSIGNMENT message corresponding to one of its 3 last CHANNEL REQUEST messages, the mobile stops sending CHANNEL REQUEST messages and switches to the assigned PDCH.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.1.

41.2.2.5.2 Test purpose

1. To verify that the MS continues sending CHANNEL REQUEST messages when receiving an IMMEDIATE ASSIGNMENT containing an incorrect Request Reference.
2. To verify that the MS stops sending CHANNEL REQUEST messages and switches to the assigned PDCH when receiving an IMMEDIATE ASSIGNMENT containing a Request Reference IE corresponding to one of its last 3 CHANNEL REQUEST messages.

41.2.2.5.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH, Parameter MAX_RETRANS is set to 7 retransmissions.

Mobile Station:

The MS is switched off.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate the GPRS attach procedure. After 3 CHANNEL REQUEST messages, the SS sends an IMMEDIATE ASSIGNMENT including an incorrect Request Reference. The SS verifies that the MS continues sending CHANNEL REQUEST messages.

After the 5th CHANNEL REQUEST message the SS sends an IMMEDIATE ASSIGNMENT including a correct Request Reference. The SS verifies that the MS stops sending CHANNEL REQUEST messages, switches to the assigned PDCH and completes the attach procedure.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
0	MS		The MS is turned on and triggered to initiate the GPRS attach procedure.
1	MS -> SS	CHANNEL REQUEST	
2	MS -> SS	CHANNEL REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, one phase access, dynamic allocation and including a Request Reference different from those included in previous CHANNEL REQUEST messages.
5	MS -> SS	CHANNEL REQUEST	MS continues sending CHANNEL REQUEST messages.
6	MS -> SS	CHANNEL REQUEST	
7	SS -> MS	IMMEDIATE ASSIGNMENT	with Request Reference corresponding to step 3. MS shall stop sending further access bursts.
8	MS -> SS	RLC data block (GMM ATTACH REQUEST)	(see message contents in default section)
9	MS<->SS	Completion of macro {GPRS attach procedure}	SS allows MS to complete the attach procedure.

41.2.3 Packet immediate assignment / One phase packet access

41.2.3.1 Two-message assignment / Successful case

41.2.3.1.1 Conformance requirements

If the mobile station receives an IMMEDIATE ASSIGNMENT message and the Dedicated mode or TBF information element indicates that this is the first message in a two-message assignment, the mobile station shall continue to listen to the full CCCH. The network may send a second IMMEDIATE ASSIGNMENT message within two multiframe periods following the first IMMEDIATE ASSIGNMENT, specifying the packet channel description and, if required, a mobile allocation for the assignment.

On receipt of an IMMEDIATE ASSIGNMENT message or, in case of a two-message assignment, a matching pair of IMMEDIATE ASSIGNMENT messages corresponding to one of its 3 last CHANNEL REQUEST messages, the mobile station stops T3146 (if running), stops sending CHANNEL REQUEST messages, and switches to the assigned PDCH.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.1.

41.2.3.1.2 Test purpose

To verify that the MS correctly decodes a two-message assignment and switches to the assigned PDCH.

41.2.3.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is switched off.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate the GPRS attach procedure. After reception of CHANNEL REQUEST the SS sends a two-message IMMEDIATE ASSIGNMENT which actually describe a default IMMEDIATE ASSIGNMENT message, except that it is split in two parts: basically, the first part contains the IA Rest Octets, and the second part the Packet Channel Description IE.

The SS verifies that the MS correctly switches to the assigned PDCH and completes GPRS attach.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		MS is turned on and triggered to initiate the GPRS attach procedure.
2	MS -> SS	CHANNEL REQUEST	
3	SS -> MS	IMMEDIATE ASSIGNMENT	first message of two-message assignment
4	SS -> MS	IMMEDIATE ASSIGNMENT	second message (see specific message contents), sent within two multiframes after step 3.
5	MS<->SS	Completion of macro {GPRS attach procedure}	SS allows MS to complete the GPRS attach procedure.

Specific message contents:

IMMEDIATE ASSIGNMENT (first message)

Information Element	Value
as default except:	
Dedicated mode or TBF:	
- TMA	1 (is first message of a two-message assignment)
- Downlink	0
- T/D	1 (assign a TBF)
Packet Channel Description:	all bits are set to '0'
Request Reference:	as default
Timing Advance:	as default
Starting Time:	not present
IA Rest Octets:	as default

IMMEDIATE ASSIGNMENT (second message)

Information Element	Value
as default except:	
Dedicated mode or TBF:	
- TMA	0
- Downlink	0
- T/D	1 (assign a TBF)
Packet Channel Description:	as default
Request Reference:	as default
Timing Advance:	as default
Starting Time:	not present
IA Rest Octets:	Second Part Packet Assignment

41.2.3.2 Two-message assignment / Failure cases

41.2.3.2.1 Conformance requirements

If the indirect encoding is used, the IMMEDIATE ASSIGNMENT message may contain a CHANGE_MARK_1 field. If that is present, the mobile station shall verify the validity of the SI13_CHANGE_MARK associated with the GPRS mobile allocation to which the message refers, see 3GPP TS 04.60. If the CHANGE_MARK_1 field and the SI13_CHANGE_MARK do not match, the message does not satisfactorily define a PDCH.

The two IMMEDIATE ASSIGNMENT messages in a two-message assignment shall have the same contents of the Request Reference information elements.

If the mobile station does not receive the second IMMEDIATE ASSIGNMENT messages in a two-message assignment within two multiframe periods following the first message, the mobile station shall discard the first IMMEDIATE ASSIGNMENT message received.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.1.

41.2.3.2.2 Test purpose

To verify that the MS does not respond to a two-message assignment if:

- CHANGE_MARK_1 does not match SI13 CHANGE_MARK.
- The second IMMEDIATE ASSIGNMENT message is not received within two multiframe after the first -message.
- Request References in both messages do not have same contents.

41.2.3.2.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH, CHANGE_MARK in SI13 is set to 1, TX-INTEGER = 7.

Mobile Station:

MS is switched off.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate the GPRS attach procedure. After reception of CHANNEL REQUEST the SS sends a two-message IMMEDIATE assignment:

- first attempt: CHANGE_MARK does not match SI13 CHANGE_MARK. MS shall re-initiate packet access (see 3GPP TS 04.08 / 3GPP TS 24.008, subclause 4.7.3.1.5, GPRS attach procedure / Abnormal cases).
- second attempt: the second IMMEDIATE ASSIGNMENT message is not received within two multiframe after the first message. MS shall discard the first IMMEDIATE ASSIGNMENT message received.
- third attempt: Request References in both messages do not have same contents. MS shall re-initiate packet access.
- fourth attempt: the second IMMEDIATE ASSIGNMENT message is received in the last access grant block before the second multiframe after the first message. In this case the MS shall successfully switch to the assigned PDCH and complete the GPRS attach procedure.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is triggered to initiate the GPRS attach procedure.
2	MS -> SS	CHANNEL REQUEST	first message of two-message assignment with contents as specified below (see specific message contents).
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	CHANNEL REQUEST	MS shall re-initiate packet access first message of two-message assignment (see specific message contents)
6	SS -> MS	IMMEDIATE ASSIGNMENT	
7	SS -> MS	IMMEDIATE ASSIGNMENT	
8	MS -> SS	CHANNEL REQUEST	MS shall discard the IMMEDIATE ASSIGNMENT message and continue with Packet Access procedure.
9	SS -> MS	IMMEDIATE ASSIGNMENT	
10	SS -> MS	IMMEDIATE ASSIGNMENT	
11	MS -> SS	CHANNEL REQUEST	MS shall re-initiate packet access first message of two-message assignment (see specific message contents)
12	SS -> MS	IMMEDIATE ASSIGNMENT	
13	SS -> MS	IMMEDIATE ASSIGNMENT	
14	MS<->SS	Completion of macro {GPRS attach procedure}	
			second message (see specific message contents) sent after two multiframe after the first message.
			second message (see specific message contents) sent after two multiframe after the first message.
			second message (see specific message contents) sent after two multiframe after the first message.
			second message (see specific message contents) sent in the last access grant block before the second multiframe after the first message elapses.
			SS allows MS to complete the GPRS attach procedure.

Specific message contents:

IMMEDIATE ASSIGNMENT (first message)

Information Element	Value
as default except:	
Dedicated mode or TBF:	
- TMA	1 (is first message of a two-message assignment)
- Downlink	0
- T/D	1 (assign a TBF)
Packet Channel Description:	all bits are set to '0'
Request Reference:	as default
Timing Advance:	as default
Starting Time:	not present
IA Rest Octets:	as default

IMMEDIATE ASSIGNMENT (second message)

Information Element	Value
as default except:	
Dedicated mode or TBF:	
- TMA	0
- Downlink	0
- T/D	1 (assign a TBF)
Packet Channel Description:	as default
Request Reference:	as default
Timing Advance:	as default
Starting Time:	not present
IA Rest Octets:	Second Part Packet Assignment

41.2.3.3 Packet uplink assignment / Polling bit set

41.2.3.3.1 Conformance requirement

If the Polling bit is set to 1, MS shall send a PACKET CONTROL ACKNOWLEDGEMENT message (see 04.60) on the assigned PDCH, in the uplink block specified by the TBF Starting Time. In this case the TBF Starting Time is used both to indicate when the assigned PDCH becomes valid and to specify the uplink block.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

41.2.3.3.2 Test purpose

To verify that the MS sends a PACKET CONTROL ACKNOWLEDGEMENT message in the correct uplink block if the Polling bit is set in packet uplink assignment construction.

41.2.3.3.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is switched off.

Specific PICS Statements

- MS operation mode B Yes/No (TSPC_operation_mode_B)
- Automatic GPRS attach procedure at switch on or power on Yes/No (TSPC_AddInfo_on_auto_GPRS_AP)

PIXIT Statements

-

Test procedure

The MS is triggered to initiate the GPRS attach procedure. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access and with the Polling bit set. The MS shall send a PACKET CONTROL ACKNOWLEDGMENT on the assigned uplink block and then complete the GPRS attach procedure.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is powered up or switched on.
2		{Location Update Procedure}	This step is for class B non auto attach mobiles only. Macro. Location Update Procedure initiated from the MS. Parameter mobile identity is IMSI.
3	MS		MS is triggered to initiate GPRS attach.
4	MS -> SS	CHANNEL REQUEST	
5	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, one phase access and Polling bit set, and arbitrarily chosen TBF starting time in the future.
6	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	sent on the block indicated by TBF starting time in step 3.
7	SS<->MS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.

41.2.3.4 One phase packet access / Contention resolution / Successful case

41.2.3.4.1 Conformance requirements

After receiving an IMMEDIATE ASSIGNMENT message in which one phase packet access for an uplink transfer is granted, the mobile station shall start timer T3164 and proceed with the contention resolution at one phase access defined in 3GPP TS 04.60.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

3GPP TS 04.60 subclause 7.1.2.3.

41.2.3.4.2 Test purpose

To verify that the MS includes the correct TLLI (Temporary Logical Link Identifier) in the first RLC data blocks until contention resolution is completed.

41.2.3.4.3 Method of test

Initial conditions

System Simulator:

1cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data blocks including the correct TLLI in the RLC data blocks which are sent preceding the reception of PACKET UPLINK ACK/NACK.

Maximum duration of the test

5 minutes.

Expected sequence

Step	Direction	Message	Comments
0	MS		The MS is triggered to transfer 200 octets of data.
1	MS -> SS	CHANNEL REQUEST	
1A			If the MS requests two phase access the Test Case is terminated
2	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, one phase access
3	MS -> SS	3 RLC data blocks	SS verifies correct TLLI in RLC headers.
4	SS -> MS	PACKET UPLINK ACK/NACK	Including correct TLLI
5	MS<->SS	Completion of macro {Uplink data transfer}	SS allows MS to complete data transfer.

41.2.3.5 One phase packet access / Contention resolution / TLLI mismatch

41.2.3.5.1 Conformance requirement

If the TLLI in the PACKET UPLINK ACK/NACK message differs from that sent by the MS in the RLC block headers, the MS shall immediately stop transmitting on this TBF and re-initiate the packet access procedure unless it has already been repeated 4 times.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

3GPP TS 04.60 subclause 7.1.2.3.

41.2.3.5.2 Test purpose

To verify that the MS immediately stops transmitting if it receives a PACKET UPLINK ACK/NACK with incorrect TLLI.

41.2.3.5.3 Method of test

Initial conditions

System Simulator:

1cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data blocks including the correct TLLI in the first three blocks. The SS acknowledges the RLC block transfer with a PACKET UPLINK ACK/NACK including an incorrect TLLI. The SS shall verify that the MS 'immediately' stops transmitting (see note below) and retries packet access procedure.

NOTE: The MS is allowed to transmit n RLC blocks after the block containing the PACKET UPLINK ACK/NACK message (the exact value of n is specified in 3GPP TS 05.10 subclause 6.11).

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
0	MS		The MS is triggered to transfer 200 octets of data.
1	MS -> SS	CHANNEL REQUEST	
1A			If the MS requests two phase access the Test Case is terminated
2	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, one phase packet access granted, dynamic allocation.
3	MS -> SS	3 RLC data blocks	SS verifies correct TLLI in RLC headers.
4	SS -> MS	PACKET UPLINK ACK/NACK	Including incorrect TLLI
5	SS		The SS verifies that the MS transmits at most further n (=6) data blocks after step 4 (see Note) before re-initiating packet access.
6	MS -> SS	CHANNEL REQUEST	MS re-initiates packet access procedure.
6A			If the MS requests two phase access the Test Case is terminated
7	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, one phase packet access granted, dynamic allocation.
8	MS<->SS	Completion of macro {Uplink data transfer}	SS allows MS to complete uplink data transfer.

41.2.3.6 One phase packet access / Contention resolution / Counter N3104

41.2.3.6.1 Conformance requirement

The contention resolution has failed on the mobile station when the counter N3104 has reached its maximum value.

Reference

3GPP TS 04.60 subclause 7.1.2.3

41.2.3.6.2 Test purpose

To verify that the MS correctly sets and considers counter N3104.

NOTE: Counter N3104 is incremented by 1 with each new RLC/MAC block the mobile station sends until the first PACKET UPLINK ACK/NACK message is received.

Its maximum value is $N3104_MAX = 3 * (BS_CV_MAX + 3) * \text{number of uplink timeslots assigned}$, where BS_CV_MAX is broadcast in SI 13 Rest Octets.

41.2.3.6.3 Method of test

Initial conditions

System Simulator: Default settings except:

1 cell, CCCH combined with SDCCH, BS_CV_MAX value in System Information Type 13 arbitrarily chosen in the range 3 to 6.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer 440 octets of data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data blocks. The SS acknowledges the RLC block transfer with a correct PACKET UPLINK ACK/NACK sent after N3104_MAX data blocks. The SS verifies that the MS stops transmitting and restarts packet access procedure.

At the second attempt, the SS sends PACKET UPLINK ACK/NACK exactly after N3104_MAX - 1 data blocks. The SS verifies that this time the MS does not abort the access procedure and successfully completes uplink transfer.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS -> SS	CHANNEL REQUEST	MS is triggered to transfer 440 data octets.
1A			If the MS requests two phase access the Test Case is terminated
2	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, indicating one phase packet access.
3	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	With MS USF
4	MS -> SS	RLC data block	
5			Step 3 and 4 are repeated until N3104_MAX data blocks are received.
6	MS -> SS	CHANNEL REQUEST	SS verifies that MS does not send further RLC data blocks and MS re-initiates packet access procedure.
6A			If the MS requests two phase access the Test Case is terminated
7	SS -> MS	IMMEDIATE ASSIGNMENT	For uplink TBF, indicating one phase packet access granted.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	With MS USF
9	MS -> SS	RLC data block	
10			Step 13 and 14 are repeated until N3104_MAX - 1 data blocks are received.
11	SS -> MS	PACKET UPLINK ACK/NACK	
12	MS<->SS	Completion of macro {Uplink data transfer}	SS allows MS to complete uplink data transfer.

41.2.3.7 One phase packet access / Contention resolution / Timer T3166

41.2.3.7.1 Conformance requirement

The contention resolution has failed on the mobile station when the counter N3104 has reached its maximum value, or on expiry of timer T3166.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

41.2.3.7.2 Test purpose

To verify that the MS correctly considers timer T3166.

41.2.3.7.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX value in System Information Type 13 is set to 6.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer 440 octets of data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access and dynamic allocation. The MS shall start transferring RLC data blocks. The SS reduces the block transfer rate by controlling the USF flag. In this way, the SS forces T3166 (with value 5 s) to expire before counter N3104 reaches N3104_MAX (with value 28 blocks for current settings). The SS verifies that the MS stops transmitting and restarts packet access procedure.

At the second attempt, the SS sends PACKET UPLINK ACK/NAK before T3166 seconds. The SS verifies that this time the MS does not abort the access procedure and successfully completes the data transfer.

Maximum duration of the test

5 minutes.

Expected sequence

Step	Direction	Message	Comments
1 1A	MS -> SS	CHANNEL REQUEST	MS is triggered to transfer 440 data octets. If the MS requests two phase access the Test Case is terminated
2	SS -> MS	IMMEDIATE ASSIGNMENT	Indicating one phase packet access granted, dynamic allocation. CS1 shall be used.
3	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF addressing the MS
4	MS -> SS	RLC data block	
5	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
7	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
9	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
11	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
12	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
14	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
15	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF not addressing the MS
16	MS<->SS		Steps 3 to 15 are repeated at most 22 times or until MS does not send further RLC data blocks at step 4. Note: steps 3 to 15 transfer one block every 52 frames, or 240 ms. 22 repetitions require about 5.5 s. (Timer T3166 shall expire)
17 17A	MS -> SS	CHANNEL REQUEST	MS re-initiates packet access procedure. If the MS requests two phase access the Test Case is terminated
18	SS -> MS	IMMEDIATE ASSIGNMENT	Indicating one phase packet access granted, dynamic allocation.
19	MS<->SS		Steps 3 to 15 are repeated 17 times. Note: 17 repetitions require about 4.3 s. (Timer T3166 should not expire)
20 21	SS -> MS MS<->SS	PACKET UPLINK ACK/NACK Completion of macro {Uplink data transfer}	SS allows MS to complete uplink data transfer.

41.2.3.8 One phase packet access / Contention resolution / 4 access repetition attempts

41.2.3.8.1 Conformance requirement

If contention resolution for packet access fails, the mobile station shall reinitiate the packet access procedure unless it has already been repeated 4 times.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

41.2.3.8.2 Test purpose

To verify that the MS attempts the packet access procedure 4 or 5 times.

41.2.3.8.3 Method of test

Initial conditions

System Simulator:

1cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

- GPRS Release (TSPC_MS_GPRS_RELEASE)

PIXIT Statements

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Test procedure

The MS is triggered to transfer 200 octets of data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data blocks including the correct TLLI in the first three blocks. The SS acknowledges the RLC block transfer with a PACKET UPLINK ACK/NACK including a TLLI not corresponding to the MS. The SS shall verify that the MS stops transmitting blocks and attempts packet access a total of four or five times.

Note:

The MS is allowed to transmit n RLC blocks after the block containing the PACKET UPLINK ACK/NACK message (the exact value of n is specified in 3GPP TS 05.10 subclause 6.11).

Maximum duration of the test

5 minutes.

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is triggered to transfer 200 octets of data.
2 2A	MS -> SS	CHANNEL REQUEST	If the MS requests two phase access the Test Case is terminated indicating one phase packet access granted, dynamic allocation. including incorrect TLLI MS aborts packet access procedure, and is allowed to transmit at most n RLC data blocks (see Note above).
3	SS -> MS	IMMEDIATE ASSIGNMENT	
4	MS -> SS	3 RLC data blocks	
5	SS -> MS	PACKET UPLINK ACK/NACK	
6	MS -> SS		
7	MS<->SS		
8	MS<->SS		repetition 2: MS reinitiates a packet access procedure, steps 2 to 6 are repeated.
9	MS<->SS		repetition 3: MS reinitiates a packet access procedure, steps 2 to 6 are repeated.
A10 (optional step)	MS<->SS		If PICS 'Release of GPRS supported' for MS is Release 97, 98, 99 or 4, this step is optional. If PICS 'Release of GPRS supported' for MS is Release 5 or later, this step is not allowed. repetition 4: MS reinitiates a packet access procedure, steps 2 to 6 are repeated.
NOTE:	After step A10 the MS may reinitiate a packet access procedure, since higher layers may request to restart the access procedure.		

41.2.3.9 One phase packet access / TBF starting time

41.2.3.9.1 Conformance requirement

In case the packet uplink assignment construction contains a TBF starting time and the mobile station receives the IMMEDIATE ASSIGNMENT message before the TBF starting time has expired, it shall wait until the frame number indicated by the TBF starting time before accessing the channel. If the mobile station receives the message after the TBF starting time has expired, it shall ignore the TBF starting time and may immediately access the channel.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

41.2.3.9.2 Test purpose

To verify that the MS correctly considers the TBF Starting Time included in the IMMEDIATE ASSIGNMENT message.

41.2.3.9.3 Method of test

Initial conditions

System Simulator:

Icell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access and containing a TBF starting time. The MS shall start transferring RLC data blocks after the TBF starting time.

The test is repeated with a TBF starting time in the past. In this case the MS may 'immediately' (see note below) send RLC data blocks .

Note:

The MS shall start transmitting RLC blocks within n blocks after the block containing the IMMEDIATE ASSIGNMENT message (the exact value of n is specified in 3GPP TS 05.10 subclause 6.11).

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments	
0	MS		The MS is triggered to transfer 200 octets of data.	
1 1A	MS -> SS	CHANNEL REQUEST	If the MS requests two phase access the Test Case is terminated indicating one phase packet access granted, dynamic allocation, and an arbitrarily chosen TBF Starting Time (indicating a future frame number). SS continually sends PACKET DOWNLINK DUMMY CONTROL BLOCK containing USF assigned to the MS. SS verifies that MS does not transmit for frame numbers below TBF Starting Time.	
2	SS -> MS	IMMEDIATE ASSIGNMENT		
3	SS			
4	MS -> SS	3 RLC data blocks		
5	SS -> MS	PACKET UPLINK ACK/NACK		
6	MS -> SS	RLC data blocks		
7	SS<->MS	Completion of macro {Uplink data transfer}		
8	MS		The MS is triggered again to transfer 200 octets of data.	
9 9A	MS -> SS	CHANNEL REQUEST	If the MS requests two phase access the Test Case is terminated Indicating one phase packet access granted, dynamic allocation and an arbitrarily chosen TBF Starting Time with value less than current frame number. SS continually sends PACKET DOWNLINK DUMMY CONTROL BLOCK containing USF assigned to the MS. SS verifies that MS starts sending RLC data blocks. The SS shall not check the number of blocks before the MS starts to send RLC blocks. Including correct TLLI.	
10	SS -> MS	IMMEDIATE ASSIGNMENT		
A11 (Optional step)	MS -> SS	3 RLC data blocks		
A12 (Optional step)	SS -> MS	PACKET UPLINK ACK/NACK		
A13 (Optional step)	MS -> SS	RLC data blocks		
B11 (Optional step)	MS -> SS	CHANNEL REQUEST		
B12 (Optional step)				
B13 (Optional step)	SS -> MS	IMMEDIATE ASSIGNMENT		
C11 (Optional step)				
14	SS<->MS	Completion of macro {Uplink data transfer}		
15				
				Go to step 14
				Go to step 14
				Verify that the MS does not send anything. Go to step 15
			SS allows MS to complete data transfer.	

41.2.3.10 One phase packet access / Timing Advance Index present

41.2.3.10.1 Conformance requirement

If the timing advance index (TAI) is included in the packet uplink assignment construction, the mobile station shall use the continuous update timing advance mechanism, see 3GPP TS 05.10, using PTCCCH in the same timeslot as the assigned PDCH.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

3GPP TS 03.64 subclause 6.5.7.2.

41.2.3.10.2 Test purpose

To verify that the MS uses the continuous update timing advance mechanism and sends access bursts in the PTCCH slots as determined by the Timing Advance Index (TAI) sent in the IMMEDIATE ASSIGNMENT.

41.2.3.10.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered for uplink data transfer. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access and containing a Timing Advance Index. During TBF transfer, the SS shall verify the access bursts sent by the MS in the PTCCH.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
0	MS		The MS is triggered to transfer 440 octets of data.
1 1A	MS -> SS	CHANNEL REQUEST	If the MS requests two phase access the Test Case is terminated
2	SS -> MS	IMMEDIATE ASSIGNMENT	For one phase packet access, dynamic allocation and including Timing Advance Index TAI=0.
3	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigning the USF assigned in step 2. Sent on PDTCH, 3 block after the message sent in step 2
4	MS -> SS	RLC data block	
5	SS -> MS	PACKET UPLINK ACK/NACK	Including correct TLLI.
6			Wait for 3 blocks.
7	MS<->SS	Completion of macro {Uplink data transfer}	SS allows MS to complete data transfer. During the data transfer, USF is assigned to MS once in 250ms

Verification

During TBF transfer (steps 3 to 7) the SS monitors access bursts on PTCCH which are located on slots with numbers FN, such that $(FN \bmod (8 \cdot 52)) = 12$ for TAI = 0 (3GPP TS 03.64 subclause 6.5.7.2 and 3GPP TS 05.02 table 6). The access burst contents shall be '11111111 111'.

The test is repeated once more with an arbitrarily chosen TAI in the range 1 to 15. SS shall verify that the access bursts are sent in the correct PTCCH slots as specified in 3GPP TS 05.02 table 6.

41.2.3.11 One phase packet access / Timing Advance Index not present

41.2.3.11.1 Conformance requirement

If a timing advance index (TAI) field is not included, the continuous update timing advance mechanism shall not be used.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.2.

41.2.3.11.2 Test purpose

To verify that the MS does not send any access bursts on PTCCH (i.e. it does not use the continuous update timing advance mechanism) if TAI is not present in the IMMEDIATE ASSIGNMENT message.

41.2.3.11.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, the PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer data. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message not including a Timing Advance Index. During TBF transfer, the SS shall verify that the MS does not send any access bursts in idle frames.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	MS		The MS is triggered to transfer 440 octets of data.
2	MS -> SS	CHANNEL REQUEST	
2A			If the MS requests two phase access the Test Case is terminated
3	SS -> MS	IMMEDIATE ASSIGNMENT	not including Timing Advance Index
4	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigning the USF assigned in step 3. Sent on PDTCH, 3 block after the message sent in step 3
5	MS -> SS	RLC data block	
6	SS -> MS	PACKET UPLINK ACK/NACK	Including correct TLLI.
7			Wait for 3 blocks.
8	SS<->MS	Completion of macro {Uplink data transfer}	SS allows MS to complete data transfer. During the data transfer, USF is assigned to MS once in 250ms

Verification

The SS verifies that the MS does not transmit in idle frames during data block transfer (steps 4 to 8). Idle frame numbers are 12, 25, 38 and 51 in the 52-multiframe structure.

41.2.4 Packet immediate assignment / Single block packet access

41.2.4.1 Single block packet access / Packet Resource Request

41.2.4.1.1 Conformance requirement

The network shall use the TBF starting time to indicate the first frame number belonging to the single block period granted for packet access. The mobile station may use that block period to send a PACKET RESOURCE REQUEST message to initiate the two phase access defined in 3GPP TS 04.60, or to send a PACKET MEASUREMENT REPORT message, see 3GPP TS 04.60.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.3.

41.2.4.1.2 Test purpose

To verify that the MS sends PACKET RESOURCE REQUEST in the assigned block as indicated by the TBF starting time when it is triggered for uplink transfer.

41.2.4.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, a PDP context has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to initiate uplink data transfer. The SS assigns packet uplink resources for single block in an IMMEDIATE ASSIGNMENT message including a TBF starting time. The SS verifies that the MS sends a PACKET RESOURCE REQUEST at the first allowed block as indicated by the TBF starting frame.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
0	MS		
1	MS -> SS	CHANNEL REQUEST	The MS is triggered to transfer 200 octets of data.
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	PACKET RESOURCE REQUEST	For uplink TBF, single block assignment for an arbitrarily chosen TBF Starting Time in the future. SS verifies that first block is on first allowed block starting at frame number given by TBF Starting Time.
4	SS -> MS	PACKET ACCESS REJECT	with default contents.

41.2.4.2 Single block packet access / Packet Measurement Report

41.2.4.2.1 Conformance requirement

1. The network shall use the TBF starting time to indicate the first frame number belonging to the single block period granted for packet access. The mobile station may use that block period to send a PACKET RESOURCE REQUEST message to initiate the two phase access defined in 3GPP TS 04.60, or to send a PACKET MEASUREMENT REPORT message, see 3GPP TS 04.60.

2. In packet idle mode, the reporting period is NC_REPORTING_PERIOD_I rounded off to the nearest smaller integer multiple of DRX period if NC_REPORTING_PERIOD_I is greater than DRX period, else, the reporting period is DRX period.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.3.

3GPP TS 45.008 (ex 05.08) subclause 10.1.4.1.

41.2.4.2.2 Test purpose

To verify that the MS sends PACKET MEASUREMENT REPORT in the assigned uplink block when performing a measurement report procedure.

Further on, this tests verifies that the MS correctly considers reporting parameter NC_REPORTING_PERIOD_I.

41.2.4.2.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, in Ready state and in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Foreseen final state of the MS

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Test procedure

The SS requests the MS via a PACKET MEASUREMENT ORDER to periodically send measurement reports. When the MS attempts a measurement report procedure, the SS assigns a single block for uplink TBF with an arbitrarily

chosen TBF starting time (not yet elapsed). The SS verifies that the MS sends PACKET MEASUREMENT REPORT in the assigned block.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	for single block downlink assignment on PCH corresponding to MS.
2	SS -> MS	PACKET MEASUREMENT ORDER	Including parameters: NETWORK_CONTROL_ORDER = '01' NC_REPORTING_PERIOD_I = '011' (3.84 s.)
3	MS -> SS	CHANNEL REQUEST	with establishment cause 'single block access'.
4	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, single block assignment with an arbitrarily chosen TBF starting time in the future in the range 0.5 to 2 seconds.
5	MS -> SS	PACKET MEASUREMENT REPORT	Shall be sent in the assigned block.
6	MS -> SS	CHANNEL REQUEST	SS verifies that the time interval between steps 3 and 6 corresponds to the time +/- 10% which is calculated from the NC_REPORTING_PERIOD_I rounded off to the nearest smaller integer multiple of DRX period if NC_REPORTING_PERIOD_I is greater than DRX period, else, the reporting period is DRX period. (3GPP TS 04.08 § 10.1.4.1)
7	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, single block assignment with an arbitrarily chosen TBF starting time in the future.
8	MS -> SS	PACKET MEASUREMENT REPORT	Shall be sent in the assigned block.

41.2.5 Packet immediate assignment / Packet access rejection

41.2.5.1 Packet access rejection / wait indication

41.2.5.1.1 Conformance requirement

On receipt of an IMMEDIATE ASSIGNMENT REJECT message corresponding to one of its 3 last CHANNEL REQUEST messages, the mobile station stops sending CHANNEL REQUEST messages, starts timer T3142 with the indicated value, ("wait indication" information element), starts T3146 if it has not already been started, and listens to the downlink CCCH until T3146 expires. During this time, additional IMMEDIATE ASSIGNMENT REJECT messages are ignored, but any immediate assignment corresponding to any other of its 3 last CHANNEL REQUEST messages make the mobile station follow the assignment procedure. If no such immediate assignment is received, the mobile station returns to packet idle mode.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.4.

41.2.5.1.2 Test purpose

To verify that the MS stops sending CHANNEL REQUEST messages when receiving an IMMEDIATE ASSIGNMENT REJECT containing a Request Reference IE corresponding to one of its last 3 CHANNEL REQUEST messages.

Further on, the SS verifies that the MS makes a new attempt for uplink transfer only after T3142 seconds ("wait indication" timer) after last IMMEDIATE ASSIGNMENT REJECT elapse.

41.2.5.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH, Parameter MAX_RETRANS is set to 7 retransmissions.

Mobile Station: MS is switched off.

Specific PICS Statements

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PIXIT Statements

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Foreseen final state of the MS

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Test procedure

The MS is triggered to initiate the GPRS attach procedure. After reception of 3 CHANNEL REQUEST messages, the SS sends an IMMEDIATE ASSIGNMENT REJECT with correct Request Reference and including a waiting indication (T3142). The SS verifies that the MS stops sending CHANNEL REQUEST messages and does not attempt a new packet access until T3142 seconds elapse.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
0	MS		MS is triggered to initiate GPRS attach procedure
1	MS -> SS	CHANNEL REQUEST	including Request Reference corresponding to the CHANNEL REQUEST in step 1, and waiting time indication with value T3142=50s.
2	MS -> SS	CHANNEL REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	
5	SS		SS verifies that MS does not send any further access bursts (see note below).
6	MS -> SS	CHANNEL REQUEST	SS verifies that the access burst does not arrive before $T3142 - 0.1 * T3142 (=45s)$ after last IMMEDIATE ASSIGNMENT REJECT message.
7	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, one phase access
8	MS<->SS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.

The test is repeated with an arbitrarily chosen value of T3142 in the range 2 to 60 s.

NOTE: The number of frames between successive access bursts considering the default Sys Info parameters used in the test is larger than 58 frames (see 3GPP TS 04.08 / 3GPP TS 44.018, table 3.1). This value is large enough to allow the MS to respond to the IMMEDIATE ASSIGNMENT REJECT message by stopping sending the next access bursts.

41.2.5.2 Packet access rejection / assignment before T3142 expires

41.2.5.2.1 Conformance requirement

On receipt of an IMMEDIATE ASSIGNMENT REJECT message corresponding to one of its 3 last CHANNEL REQUEST messages, the mobile station stops sending CHANNEL REQUEST messages, starts timer T3142 with the

indicated value, ("wait indication" information element), starts T3146 if it has not already been started, and listens to the downlink CCCH until T3146 expires. During this time, additional IMMEDIATE ASSIGNMENT REJECT messages are ignored, but any immediate assignment corresponding to any other of its 3 last CHANNEL REQUEST messages make the mobile station follow the assignment procedure. If no such immediate assignment is received, the mobile station returns to packet idle mode.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.2.1.3.4.

41.2.5.2.2 Test purpose

To verify that the MS stops sending CHANNEL REQUEST messages when receiving an IMMEDIATE ASSIGNMENT REJECT and, if an IMMEDIATE ASSIGNMENT containing a correct Request Reference arrives before $T = \min \{T3142, T3146\}$ seconds elapse, then the MS shall accept this assignment (see below for a note on T3146).

41.2.5.2.3 Method of test

Initial conditions

System Simulator: Default settings except:

Parameter MAX_RETRANS is set to 7 retransmissions.

Parameter TX_INTEGER is set to 32.

CCCH combined with SDCCH.

Mobile Station:

MS is switched off.

Specific PICS Statements

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PIXIT Statements

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Foreseen final state of the MS

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Test procedure

The MS is triggered to initiate GPRS attach. After reception of 3 CHANNEL REQUEST messages, the SS sends an IMMEDIATE ASSIGNMENT REJECT with correct Request Reference and including a waiting indication (T3142). The SS verifies that the MS stops sending CHANNEL REQUEST messages.

Before $T = \min \{T3142, T3146\}$ seconds elapse, the SS sends an IMMEDIATE ASSIGNMENT with correct Request Reference. The MS shall switch to the assigned PDCH and transfer the data.

NOTE: T3146 is started when sending the last CHANNEL REQUEST or when receiving the IMMEDIATE ASSIGNMENT REJECT. At its expiry, the packet access is aborted.

The value of T3146 is given by $T+2*S$ (3GPP TS 04.08 / 3GPP TS 24.008, subclause 11.1.1), where T is TX_INTEGER and S is given in 3GPP TS 04.08 / 3GPP TS 44.018, table 3.1. The value of T3146 is 2,15 s. for the current settings.

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
0	MS		MS is triggered to initiate GPRS attach.
1	MS -> SS	CHANNEL REQUEST	
2	MS -> SS	CHANNEL REQUEST	
3	MS -> SS	CHANNEL REQUEST	
4	SS -> MS	IMMEDIATE ASSIGNMENT REJECT	including Request Reference corresponding to the CHANNEL REQUEST in step 2, and waiting time indication with value T3142 = 2 s.
5			The SS verifies that the MS stops sending CHANNEL REQUEST messages.
6	SS -> MS	IMMEDIATE ASSIGNMENT	sent after 1.5s. (of the last IMMEDIATE ASSIGNMENT REJECT) and including Request Reference corresponding to step 1.
7	SS<->MS	Completion of macro {GPRS attach procedure}	SS allows MS to complete GPRS attach.

41.2.6 Packet downlink assignment procedure using CCCH

41.2.6.1 Initiation of packet downlink assignment procedure / MS listens to correct CCCH block

41.2.6.1.1 Conformance requirement

The network initiates the packet downlink assignment procedure by sending an IMMEDIATE ASSIGNMENT message in unacknowledged mode on the CCCH timeslot corresponding to CCCH group the mobile station belongs to.

On receipt of an IMMEDIATE ASSIGNMENT message [the MS] stops monitoring downlink CCCH and switches to the assigned PDCH and starts listening for downlink RLC/MAC blocks identified by the assigned TFI; it starts timer T3190.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.1.2.

41.2.6.1.2 Test purpose

To verify that the MS responds to an IMMEDIATE ASSIGNMENT for downlink TBF sent on PCH blocks corresponding to the MS's paging group.

41.2.6.1.3 Method of test

Initial conditions

System Simulator: Default settings except:

Parameters CCCH_CONF, BS_AG_BLK_RES, and BS_PA_MFRMS are arbitrarily chosen.

Mobile Station:

MS is GPRS attached, DRX have been negotiated, MS is in Ready state.

PDP context 2 has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS sends an IMMEDIATE ASSIGNMENT for downlink transfer on a PCH block corresponding to its paging group (see 3GPP TS 05.02 subclause 6.5.2) which depends on Sys Info parameters and the MS's IMSI. The MS shall switch to the assigned PDCH and exercise downlink transfer.

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment with correct TLLI.
2	MS<->SS	Completion of macro {Downlink data transfer}	SS completes downlink transfer of 200 octets of data.

41.2.6.2 Initiation of packet downlink assignment procedure / timer T3190

41.2.6.2.1 Conformance requirement

On receipt of an IMMEDIATE ASSIGNMENT message [the MS] stops monitoring downlink CCCH and switches to the assigned PDCH and starts listening for downlink RLC/MAC blocks identified by the assigned TFI; it then starts timer T3190.

If the mobile station does not receive a RLC/MAC block on the assigned PDCHs before timer T3190 expires, then a TBF establishment failure has occurred.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.1.2.

41.2.6.2.2 Test purpose

To verify that the MS returns to packet idle updated if RLC/MAC blocks are sent after T3190 s, and that the MS correctly receives RLC/MAC blocks if they are sent before T3190 s.

41.2.6.2.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, a PDP context has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS assigns a PDCH for downlink transfer but does not send any RLC/MAC blocks until T3190 s have elapsed. The MS shall return to packet idle updated and ignore the RLC/MAC blocks.

To verify that the MS returned to packet idle updated, the SS again assigns a PDCH and sends RLC/MAC blocks before T3190 s elapse. The SS shall successfully transfer all RLC data blocks.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	for downlink TBF on a PCH block corresponding to the MS, including a packet downlink assignment. SS waits T3190 + 10% (=5.5s) after the last IMMEDIATE ASSIGNMENT.
2	SS		
3	SS -> MS	RLC data blocks	SS sends data SS verifies for 10s. that the MS does not respond.
4	SS		
5	SS -> MS	IMMEDIATE ASSIGNMENT	SS assigns again a PDCH. SS waits T3190 – 10% (=4.5s) after the last IMMEDIATE ASSIGNMENT
6	SS		
7	SS -> MS	RLC data blocks	SS starts sending 200 octets of data. indicating correct reception of data blocks. SS completes downlink transfer.
8	MS -> SS	PACKET DOWNLINK ACK/NACK	
9	MS<->SS	Completion of macro {Downlink data transfer}	

41.2.6.3 Initiation of packet downlink assignment procedure / TBF starting time

41.2.6.3.1 Conformance requirement

The IMMEDIATE ASSIGNMENT message may indicate a TBF starting time. If the mobile station receives the message before the TBF starting time has expired, it shall wait until the frame number indicated by the TBF starting time, start timer T3190 and switch to the assigned PDCH. If the mobile station receives the message after the TBF starting time has expired, it shall ignore the indicated TBF starting time, immediately start timer T3190 and switch to the assigned PDCH.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.1.2.

41.2.6.3.2 Test purpose

To verify that the MS correctly considers the TBF starting time during downlink assignment.

41.2.6.3.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, a PDP context has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS assigns a PDCH via an IMMEDIATE ASSIGNMENT including a TBF starting time. The SS does not send RLC data blocks after TBF starting time + T3190 elapses. The MS shall return to packet idle updated and ignore the RLC data blocks.

The SS assigns again a PDCH, and this time the SS sends RLC data blocks before TBF starting time + T3190 expires. The MS shall successfully receive the RLC data blocks.

Finally, the SS assigns the third time a PDCH, but including a TBF starting time which expired. The SS immediately sends RLC data blocks which shall be acknowledged by the MS.

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	including a packet downlink assignment with a TBF Starting Time corresponding to 10s after the current frame number.
2	SS		SS waits $1.1 * (TBF \text{ Starting Time} + T3190)$ (=16.5 s) after the last IMMEDIATE ASSIGNMENT.
3	SS -> MS	RLC data block	including Polling bit set and valid RRBP field.
4	SS		SS verifies for that the MS does not respond in the assigned block in step 3.
5	SS -> MS	IMMEDIATE ASSIGNMENT	SS assigns again a PDCH with TBF Starting Time corresponding to 10s after the current frame number.
6	SS		SS waits $0.9 * (TBF \text{ Starting Time} + T3190)$ (= 13.5 s) after the last IMMEDIATE ASSIGNMENT.
7	SS -> MS	RLC data block	including Polling bit set and valid RRBP field.
8	MS -> SS	PACKET DOWNLINK ACK/NACK	sent in the assigned block at step 7 indicating correct reception of downlink RLC block.
9	MS<->SS	Completion of macro {Downlink data transfer}	SS completes data transfer.
10	SS -> MS	IMMEDIATE ASSIGNMENT	SS assigns again a PDCH with TBF Starting Time which already elapsed.
11	SS -> MS	RLC data block	sent in the third block after the block containing the message in step 10 (see note below), including Polling bitset and valid RRBP field.
12	MS -> SS	PACKET DOWNLINK ACK/NACK	indicating correct reception of RLC block.
13	MS<->SS	Completion of macro {Downlink data transfer}	SS completes data transfer.

NOTE: The requirements to uplink and downlink assignment reaction times are stated in 3GPP TS 05.10 subclause 6.11: An MS shall be ready to transmit and receive using a new assignment no later than the next occurrence of block $B((x+3) \bmod 12)$ where block $B(x)$ is the last radio block containing the uplink assignment.

41.2.6.4 Initiation of packet downlink assignment procedure / incorrect TFI

41.2.6.4.1 Conformance requirement

On receipt of an IMMEDIATE ASSIGNMENT message [the MS] stops monitoring downlink CCCH and switches to the assigned PDCH and starts listening for downlink RLC/MAC blocks identified by the assigned Temporary Flow Identifier (TFI).

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.1.2.

41.2.6.4.2 Test purpose

To verify that the MS correctly considers the TFI in the RLC/MAC blocks.

41.2.6.4.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached, a PDP context has been established and the MS is in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS assigns a PDCH and starts transmitting RLC/MAC blocks with incorrect TFI. The MS shall ignore these RLC/MAC blocks and, after T3190 expires, return to packet idle mode.

To prove that the MS returns to idle mode, the SS assigns again a PDCH, and this time the SS sends RLC/MAC blocks with correct TFI. The MS shall successfully receive the data packets.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	for downlink TBF
2	SS -> MS	RLC data block	SS sends RLC blocks with incorrect TFI (i.e. not corresponding to the last IMMEDIATE ASSIGNMENT), including Polling bit set and valid RRBp field.
3	SS		SS verifies that the MS does not respond in the assigned block.
4	SS		SS waits value of T3190 + 10% (=5.5s).
5	SS -> MS	IMMEDIATE ASSIGNMENT	for downlink TBF
6	SS -> MS	RLC data block	with correct TFI, including Polling bit set and valid RRBp field.
7	MS -> SS	PACKET DOWNLINK ACK/NACK	indicating correct reception of RLC block.
8	MS<->SS	Completion of macro {Downlink data transfer}	SS completes downlink transfer.

41.2.7 Single block packet downlink assignment

41.2.7.1 Single block packet downlink assignment / TBF Starting Time

41.2.7.1.1 Conformance requirement

The sending of an RLC/MAC control message to a mobile station in packet idle mode may be initiated by the RR entity on network side using the packet downlink assignment procedure. The procedure is used to assign a single downlink block on a PDCH for the transfer of the RLC/MAC control message.

The packet downlink construction in the IMMEDIATE ASSIGNMENT message shall contain only:

- the TLLI; and
- the TBF starting time.

If the mobile station receives the IMMEDIATE ASSIGNMENT message before the TBF starting time has expired, it shall wait until the frame number indicated by the TBF starting time. The network shall use the TBF starting time to indicate the first frame number belonging to the single block period assigned to the mobile station. The mobile station shall switch to the assigned PDCH and attempt to decode an RLC/MAC control message in the assigned downlink block.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.2.

41.2.7.1.2 Test purpose

To verify that the MS correctly decodes the RLC control block sent by the network on the assigned downlink block given by TBF starting time in the IMMEDIATE ASSIGNMENT message.

41.2.7.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH. The parameter CONTROL_ACK_TYPE in SI13 indicates four access bursts.

Mobile Station:

MS is GPRS attached, in Ready state and in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS assigns a single block for downlink via an IMMEDIATE ASSIGNMENT message on CCCH including a TBF starting time. The SS sends a PACKET MEASUREMENT ORDER message addressing the MS with Polling Bit set and a valid RRBP field.

The MS shall respond with a PACKET CONTROL ACKNOWLEDGMENT message on the assigned TBF block. This verifies that the MS correctly received the RLC control block sent in the assigned single block TBF.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	for single block downlink assignment, including a TBF starting time arbitrarily chosen in the range 0.5 to 50 s. after the current frame number.
2	SS -> MS	PACKET MEASUREMENT ORDER	sent on the block indicated by TBF starting time in step 1, including Polling bit set and valid RRBP field and addressing the MS.
3	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	sent on the block indicated by the RRBP field in step 2. 4 access bursts, received on PACCH

41.2.7.2 Single block packet downlink assignment / MS returns to packet idle mode

41.2.7.2.1 Conformance requirement

1. Unless otherwise indicated by the RLC/MAC control message, the mobile station remains in packet idle mode. If the mobile station remains in packet idle mode, it shall continue to monitor downlink CCCH once the block period indicated by the TBF starting time has passed.
2. In packet idle mode, the reporting period is NC_REPORTING_PERIOD_I rounded off to the nearest smaller integer multiple of DRX period if NC_REPORTING_PERIOD_I is greater than DRX period, else, the reporting period is DRX period.

Reference

3GPP TS 04.08 / 3GPP TS 44.018 subclause 3.5.3.2.

3GPP TS 45.008 (ex 05.08) subclause 10.1.4.1.

41.2.7.2.2 Test purpose

To verify that the MS remains in packet idle mode and monitors downlink CCCH once the block period indicated by the TBF starting time has passed.

41.2.7.2.3 Method of test

Initial conditions

System Simulator: Default settings except:

NETWORK_CONTROL_ORDER in SI 13 Rest Octets set to '00' (no measurement reporting).

CCCH combined with SDCCH.

Mobile Station:

MS is GPRS attached in Packet Idle mode.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS assigns a single block for downlink via an IMMEDIATE ASSIGNMENT message on CCCH including a TBF starting time. The SS sends a PACKET MEASUREMENT ORDER message requesting the MS to periodically send measurement reports.

The SS shall wait until the MS attempts two periodic measurement report procedures, in order to make sure that the MS correctly decoded the PACKET MEASUREMENT ORDER on the assigned single block for downlink.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	for single block downlink assignment, including a TBF starting time arbitrarily chosen. on the assigned single block. NETWORK_CONTROL_ORDER = '01' NC_REPORTING_PERIOD_I = '100' (7,68 s.)
2	SS -> MS	PACKET MEASUREMENT ORDER	
3	MS -> SS	CHANNEL REQUEST	for uplink TBF, single block assignment
4	SS -> MS	IMMEDIATE ASSIGNMENT	
5	MS -> SS	PACKET MEASUREMENT REPORT	
6	MS -> SS	CHANNEL REQUEST	The SS verifies reporting period: the time interval between CHANNEL REQUESTS messages in steps 3 and 6 corresponds to the time +/- 10% which is calculated from the NC_REPORTING_PERIOD_I rounded off to the nearest smaller integer multiple of DRX period if NC_REPORTING_PERIOD_I is greater than DRX period, else, the reporting period is DRX period. (3GPP TS 04.08 § 10.1.4.1)
7	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, single block assignment
8	MS -> SS	PACKET MEASUREMENT REPORT	

41.2.8 Macros and default message contents

41.2.8.1 Macros

In order to simplify the process of writing and coding test cases, macros are referenced in the expected signaling tables. These macros provide all additional signaling needed to complete the particular test but are not relevant to its purpose.

41.2.8.1.1 GPRS attach procedure

The following table describes a signaling sequence performing the GPRS attach procedure. Note that there are different possible sequences implementing the GPRS attach procedure.

The macros {Completion of GPRS attach} in the test cases refer to the table below starting at the step required for the particular sequence.

{ GPRS attach procedure }

Step	Direction	Message	Comments
0			MS is triggered to initiate the GPRS attach procedure.
1	MS -> SS	CHANNEL REQUEST	Establishment Cause is 'one phase packet access'. For uplink TBF, single phase access, dynamic allocation. Transporting: ATTACH REQUEST Indicating correct reception of uplink blocks, including RRBp field set. Sent on PACCH
2	SS -> MS	IMMEDIATE ASSIGNMENT	
3	MS -> SS	RLC data blocks	
4	SS -> MS	PACKET UPLINK ACK/NACK	
5	MS -> SS	PACKET CONTROL ACKNOWLEDGMENT	
6	SS -> MS	IMMEDIATE ASSIGNMENT	For downlink TBF, sent 1 s. after setp 5 on AGCH. Transporting: ATTACH ACCEPT. Last block containing a valid RRBp field and FBI set.
7	SS -> MS	RLC data blocks	
8A	MS -> SS	PACKET DOWNLINK ACK/NACK	Including Channel Request Description. Sent on PACH. Transporting: ATTACH COMPLETE Including valid RRBp field
9A	SS -> MS	PACKET UPLINK ASSIGNMENT	
10A	MS -> SS	RLC data blocks	
11A	SS -> MS	PACKET UPLINK ACK/NACK	
12A	MS -> SS	PACKET CONTROL ACKNOWLEDGMENT	
8B	MS -> SS	PACKET DOWNLINK ACK/NACK	Not including Channel Request Description.
9B	MS->SS	CHANNEL REQUEST	For uplink TBF, single phase access, dynamic allocation. Transporting: ATTACH COMPLETE Indicating correct reception of uplink blocks, including RRBp field set.
10B	SS -> MS	IMMEDIATE ASSIGNMENT	
11B	MS -> SS	RLC data blocks	
12B	SS -> MS	PACKET UPLINK ACK/NACK	
13B	MS -> SS	PACKET CONTROL ACKNOWLEDGMENT	

41.2.8.1.2 Uplink data transfer

The following table describes a sequence performing uplink data transfer in acknowledged mode.

{Uplink data transfer, acknowledged mode}

Step	Direction	Message	Comments
0			A PDP context (in acknowledged RLC mode) has been established. The MS is triggered to send data.
1	MS -> SS	CHANNEL REQUEST	
2	SS -> MS	IMMEDIATE ASSIGNMENT	for uplink TBF, single block access.
3	MS -> SS	PACKET RESOURCE REQUEST	
4	SS -> MS	PACKET UPLINK ASSIGNMENT	for dynamic allocation
5			Steps 6 to 8 are executed 0 to n times as needed.
6	MS -> SS	RLC data block	
7			Step 6 is repeated at most 14 times (resulting in at most 15 uplink data blocks)
8	SS -> MS	PACKET UPLINK ACK/NACK	indicating correct reception of uplink data blocks
9			Countdown procedure: Step 10 is repeated as needed.
10	MS -> SS	RLC data block	The MS shall correctly set the CV value in the RLC header, the last one being 0.
11	SS -> MS	PACKET UPLINK ACK/NACK	indicating correct reception of uplink blocks, and valid RRBP field and Final Ack Indicator set.
12	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	

41.2.8.1.3 Downlink data transfer

The following table describes a sequence performing downlink data transfer in acknowledged mode.

{Downlink data transfer, acknowledged mode}

Step	Direction	Message	Comments
0			A PDP context (in acknowledged RLC mode) has been established.
1	SS -> MS	IMMEDIATE ASSIGNMENT	for downlink TBF, sent on CCCH on the correct CCCH block the MS belongs to.
2			Steps 3 to 6 are executed 0 to n times as needed.
3	SS -> MS	RLC data block	
4			Step 3 is repeated at most 14 times
5	SS -> MS	RLC data block	with polling bit set.
6	MS -> SS	PACKET DOWNLINK ACK/NACK	indicating correct reception of downlink data blocks.
7	SS -> MS	RLC data block	
8			Step 7 is repeated as needed.
9	SS -> MS	RLC data block	Last data block with FBI bit set and a valid RRBP field.
10	MS -> SS	PACKET DOWNLINK ACK/NACK	indicating correct reception of downlink data blocks.

41.2.8.2 Default message contents

IMMEDIATE ASSIGNMENT for downlink TBF

Protocol Discriminator	RR Management
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging
Dedicated mode or TBF	
- TMA	0 (not a two-message assignment)
- Downlink	0 ('no meaning')
- T/D	1 (assign a Temporary Block Flow)
Packet Channel Description	
- Channel Type	PDCH
- TN	slot 4
- TSC	3
-	0
-	00 (Binary)
- ARFCN	For GSM 700, T-GSM 810: 470 For GSM 850: 160 For GSM 900: 30 For DCS 1800: 650 For PCS 1900: 650
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	
-	HH01 (Packet Downlink Assignment)
- Packet Downlink Assignment	
- TLLI	Corresponding to the value allocated to the MS.
-	1
- TFI_ASSIGNMENT	00001 (binary)
- RLC_MODE	1 (RLC acknowledged mode)
- ALPHA	0.5
- GAMMA	For GSM 700, T-GSM 810: +8 dBm For GSM 850: +8 dBm For GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm
- POLLING	0
- TA_VALID	1 (valid)
- REL_OR_ABS_FN	1
-	0 (TIMING_ADVANCE_INDEX not present)
-	1 (TBF starting time is present)
- TBF_STARTING_TIME	arbitrarily chosen in the future
- spare padding	Spare Padding

IMMEDIATE ASSIGNMENT for downlink single block assignment

Protocol Discriminator	RR Management
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging
Dedicated mode or TBF	
- TMA	0 (not a two-message assignment)
- Downlink	0 ('no meaning')
- T/D	1 (assign a Temporary Block Flow)
Packet Channel Description	
- Channel Type	PDCH
- TN	slot 4
- TSC	3
-	0
-	00 (Binary)
- ARFCN	For GSM 700, T-GSM 810: 470 For GSM 850: 160 For GSM 900: 30 For DCS 1800: 650 For PCS 1900: 650
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	
-	HH01 (Packet Downlink Assignment)
- Packet Downlink Assignment	
- TLLI	Corresponding to the value allocated to the MS.
-	0 (parameters TFI_ASSIGNMENT, RLC_MODE, ALPHA, GAMMA, POLLING, TA_VALID and REL_OR_ABS_FN not present)
-	1 (TBF starting time is present)
- TBF_STARTING_TIME	arbitrarily chosen in the future
- spare padding	Spare Padding

IMMEDIATE ASSIGNMENT for uplink TBF, one phase access, dynamic allocation

Protocol Discriminator	RR Management
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging
Dedicated mode or TBF	
- TMA	0 ('no meaning')
- Downlink	0 ('no meaning')
- T/D	1 (assign a Temporary Block Flow)
Packet Channel Description	
- Channel Type	PDCH
- TN	slot 4
- TSC	3
-	0
-	00 (Binary)
- ARFCN	For GSM 700, T-GSM 810: 460 For GSM 850: 150 For GSM 900: 30 For DCS 1 800: 650 For PCS 1 900: 650
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	
-	HH00 (Packet Uplink Assignment)
- Packet Uplink Assignment	
-	1
- TFI_ASSIGNMENT	00001
- POLLING	0
-	0 (Dynamic Allocation)
- USF	001
- USF_GRANULARITY	0 (MS shall transmit one RLC/MAC block)
- CHANNEL_CODING_CMD	01 (CS-2)
- TLLI_BLOCK_CH_CODING	00 (CS-1)
-	1 (ALPHA is present)
- ALPHA	0.5
- GAMMA	For GSM 700, T-GSM 810: +8 dBm For GSM 850: +8 dBm For GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm
-	0 (TIMING_ADVANCE_INDEX not present)
-	1 (TBF_STARTING_TIME is present)
- TBF_STARTING_TIME	arbitrarily chosen in the future
- spare padding	Spare Padding

IMMEDIATE ASSIGNMENT for uplink TBF, single block access

Protocol Discriminator	RR Management
Skip Indicator	0000
Message Type	00111111
Page Mode	
- Page Mode	Normal Paging
Dedicated mode or TBF	
- TMA	0 'no meaning'
- Downlink	0 'no meaning'
- T/D	1 assign a Temporary Block Flow
Packet Channel Description	
- Channel Type	PDCH
- TN	slot 4
- TSC	3
-	0
-	00 (Binary)
- ARFCN	For GSM 700, T-GSM 810: 460 For GSM 850: 150 For GSM 900: 30 For DCS 1 800: 650 For PCS 1 900: 650
Request Reference	Pertaining to last Channel Request sent by the MS.
Timing Advance	
- Timing advance value	30 bit periods.
Mobile Allocation	
- Length	0
Starting Time	Not present.
IA rest octets	
-	HH00 (Packet Uplink Assignment)
- Packet Uplink Assignment	
-	1
- TFI_ASSIGNMENT	00001
- POLLING	0
-	0 (Dynamic Allocation)
- USF	001
- USF_GRANULARITY	0 (MS shall transmit one RLC/MAC block)
- 0	No PR_MODE
- CHANNEL_CODING_CMD	01 (CS-2)
- TLLI_BLOCK_CH_CODING	00 (CS-1)
-	1 (ALPHA is present)
- ALPHA	0.5
- GAMMA	For GSM 700, T-GSM 810: +8 dBm For GSM 850: +8 dBm For GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm
-	0 (TIMING_ADVANCE_INDEX not present)
-	1 (TBF_STARTING_TIME is present)
- TBF_STARTING_TIME	arbitrarily chosen in the future
- spare padding	Spare Padding

PAGING REQUEST TYPE 1

Protocol Discriminator	RR Management.
Skip Indicator	0000
Message Type	00100001
Page Mode	
- Page Mode	Normal Paging.
Channels needed	
- first channel	00
- second channel	00
Mobile Identity 1	
- odd/even indication	Even.
- Type of Identity	P-TMSI.
- Identity Digits	P-TMSI previously allocated to MS.
Mobile Identity 2	Not present.
P1 rest octets	
-	L (no Notification List Number(PCH))
-	L (no priority specified for mobile Id 1)
-	L (no priority specified for mobile Id 2)
- Packet Page Indication 1	H
- Packet Page Indication 2	L (Not present)
-	L (no Group call Information)
-	L (no Notification List Number status)
- spare padding	Spare Padding

PACKET UPLINK ASSIGNMENT

MESSAGE_TYPE	001110
PAGE_MODE	Normal Paging
Referenced Address	
-	1 (not Global TFI)
-	1 (not TLLI)
-	1 (not TQI)
-	1 (Packet Request Reference)
- Packet Request Reference	information field sent in PACKET CHANNEL REQUEST and frame number in which PACKET CHANNEL REQUEST was received
CHANNEL_CODING_COMMAND	CS-2 coding
TLLI_BLOCK_CHANNEL_CODING	CS-1 coding
{L H<UPLINK_TFI_ASSIGNMENT>}	H (assign an uplink TFI)
- UPLINK_TFI_ASSIGNMENT	0000110 (uplink TBF identifier)
Packet Timing Advance	
-	1 (timing advance value)
- TIMING_ADVANCE_VALUE	30 bit periods
-	0 (no timing advance index)
{L H<Frequency Parameters>}	H (Frequency Parameters present)
- Frequency Parameters	
- TSC	5
-	00 (no hopping)
- ARFCN	For GSM 700, T-GSM 810: 460
	For GSM 850: 150
	For GSM 900: 30
	For DCS 1 800: 650
	For PCS 1 900: 650
{0 1<List of Reference Frequency lists>}	0 (no reference frequencies)
{0 1<Mobile Allocation list>}	0 (no MA)
Dynamic Allocation	LL (Dynamic Allocation)
-	H (Contention Resolution TLLI is present)
- CONTENTION_RESOLUTION_TLLI	As allocated to the MS
-	H (power control parameters)
- ALPHA	0.5
- GAMMA_TN0	0 (not present)
- GAMMA_TN1	0 (not present)
- GAMMA_TN2	1
- GAMMA_TN2	8 dBm (GSM 700), 8 dBm (T-GSM 810), 8 dBm (GSM 850), 8 dBm (GSM 900), 6 dBm (DCS 1 800), 6 dBm (PCS 1 900)
- GAMMA_TN3	0 (not present)
- GAMMA_TN4	0 (not present)
- GAMMA_TN5	0 (not present)
- GAMMA_TN6	0 (not present)
- GAMMA_TN7	0 (not present)

PACKET DOWNLINK ASSIGNMENT

MESSAGE_TYPE	000100
PAGE_MODE	Normal Paging
Referenced Address	
-	
- TLLI	1 (address is TLLI) as allocated for MS.
MAC_MODE	Dynamic Allocation
RLC_MODE	acknowledged mode
CONTROL_ACK	0
TIMESLOT_ALLOCATION	slot 2
Packet Timing Advance	
-	
- TIMING_ADVANCE_VALUE	1 (timing advance value) 30 bit periods
-	0 (no timing advance index)
{L H<Frequency Parameters>}	H (Frequency Parameters present)
- Frequency Parameters	
- TSC	5
-	
- ARFCN	00 (non-hopping channel) For GSM 700, T-GSM 810: 470 For GSM 850: 160 For GSM 900: 30 For DCS 1800: 650 For PCS 1900: 650
{L H<Power Control Parameters>}	H (Power Control Parameters present)
- ALPHA	0.5
- {0 1<GAMMA_TN0>}	0 (no GAMMA_TN0)
- {0 1<GAMMA_TN1>}	0 (no GAMMA_TN1)
- {0 1<GAMMA_TN2>}	0 (GAMMA_TN2 present)
- GAMMA_TN2	For GSM 700, T-GSM 810: +8 dBm For GSM 850, +8 dBm For GSM 900, +8 dBm For DCS 1800, +6 dBm For PCS 1900, +6 dBm
- {0 1<GAMMA_TN3>}	0 (no GAMMA_TN3)
- {0 1<GAMMA_TN4>}	0 (no GAMMA_TN4)
- {0 1<GAMMA_TN5>}	0 (no GAMMA_TN5)
- {0 1<GAMMA_TN6>}	0 (no GAMMA_TN6)
- {0 1<GAMMA_TN7>}	0 (no GAMMA_TN7)
{L H<DOWNLINK_TFI_ASSIGNMENT>}	H (assign downlink TFI)
- DOWNLINK_TFI_ASSIGNMENT	00011(Binary)
{L H<TBF_STARTING_TIME>}	H (TBF Starting Time present)
- TBF_STARTING_TIME	indicating (current frame + 13 frames)
{L H<Measurement Mapping>}	L (no measurement mapping)

41.3 MAC/RLC Release

To bring the MS into active state U10, macro 40.4.3.22 shall be used.

The maximum duration of each test is per default 5 minutes.

41.3.1 TBF Release / Uplink / Normal / MS initiated

41.3.1.1 TBF Release / Uplink / Normal / MS initiated / Acknowledged mode

41.3.1.1.1 Conformance requirements

1. The mobile station initiates release of the uplink TBF by beginning the countdown process. When the mobile station has sent the RLC data block with CV = 0 and there are no elements in the V(B) array set to the value Nacked, it shall start timer T3182 and stop timer T3180, if running. The mobile station shall continue to send RLC data blocks on each assigned uplink data block, according to the algorithm defined in 3GPP TS 04.60, subclause 9.1.3.2.

2. Upon reception of a PACKET UPLINK ACK/NACK message the mobile station shall stop timer T3182.

3. If the PACKET UPLINK ACK/NACK message has the Final Ack Indicator bit set to '1', the mobile station shall transmit the PACKET CONTROL ACKNOWLEDGEMENT message and release the TBF. If there is no ongoing downlink TBF the mobile station shall enter packet idle mode.
4. If the PACKET UPLINK ACK/NACK message requests retransmission of RLC data blocks, the mobile station shall if necessary wait for allocation of uplink resources and then retransmit the RLC data blocks requested, restarting timer T3180 after each block is transmitted. The mobile station shall then start timer T3182 and wait for a PACKET UPLINK ACK/NACK message as above.
5. Upon transition from the packet transfer mode to the packet idle mode, a mobile station shall enter the Transfer non-DRX mode period.
6. Upon a receipt of a commanding message or indication from the network requiring an action by the mobile station, if the reaction time for such action is not specified elsewhere, the mobile station shall begin to perform the required action no later than the next occurrence of block $B((x+6) \bmod 12)$, where block $B(x)$ is the radio block containing the commanding message or indication from the network.

References

3GPP TS 04.60, subclauses 9.3.2.3 and 5.5.1.5.

3GPP TS 05.10, subclause 6.11.4.

41.3.1.1.2 Test purpose

To verify that in RLC acknowledged mode:

1. the MS initiates release of an uplink TBF by beginning countdown process. After $CV = 0$ and no elements in the $V(B)$ array set to the value "Nacked" the MS continues to send RLC data blocks on each assigned uplink data block in the way defined in 3GPP TS 04.60, subclause 9.1.3 and waits for PACKET UPLINK ACK/NACK.
2. the MS retransmits the requested RLC data blocks if the PACKET UPLINK ACK/NACK message requests to do so. The MS then waits for another PACKET UPLINK ACK/NACK message.
3. the MS transmits the PACKET CONTROL ACKNOWLEDGEMENT message and release the TBF upon reception of a PACKET UPLINK ACK/NACK with the Final Ack Indicator bit set to '1'. If there is no ongoing downlink TBF the mobile station shall enter packet idle mode.

41.3.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, $BS_CV_MAX = 10$.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP test context2 activated.

Specific PICS Statements

- GPRS Multislotclass (TSPC_Type_GPRS_Multislot_ClassX where $X = 1..45$)

PIXIT Statements

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Test Procedure

The test has three parts.

1. The MS is triggered to transfer user data. A TBF of dynamic allocation in acknowledged mode with $USF_GRANULARITY = 1$ block is assigned. The countdown values are checked during the RLC data transferring. The SS acknowledges the all received RLC data blocks with the Final Ack Indicator bit set to '1'. The SS assigns a downlink TBF, transfers a number of downlink data blocks and polls the MS. The MS responses the polling.

2. The MS is assigned a TBF of dynamic allocation in acknowledged mode with USF_GRANULARITY = 4 blocks. The countdown values are checked during the RLC data transferring. The SS acknowledges the all received RLC data blocks with the Final Ack Indicator bit set to '1'.

3. The MS is triggered to transfer user data. A TBF of dynamic allocation on two timeslots in acknowledged mode with USF_GRANULARITY = 4 block is assigned. The countdown values are checked during the RLC data transferring. The SS acknowledges the all received RLC data blocks with the Final Ack Indicator bit set to '1'.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation one phase access with contention resolution} or {Uplink dynamic allocation two phase access}	n = 440 octets, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end CHANNEL_CODING_COMMAND: CS-1, TLLI_BLOCK_CHANNEL_CODING: '0'B, CS-1. RLC acknowledged mode (PDP context2), without starting time
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 until the countdown value CV=4.
5	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge all received data blocks, USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH. Check that CV=3.
7	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
8	MS -> SS	UPLINK RLC DATA BLOCK	Check that CV=2.
8a			Repeat steps 7 and 8 two more times and check that first CV=1 block is received and then CV = 0 is received.
9	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
10	MS -> SS	UPLINK RLC DATA BLOCK	Check that the data block is a retransmission of the data block transmitted in step 6, CV=3.
11	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
12	MS -> SS	UPLINK RLC DATA BLOCK	Check that the data block is a retransmission of the data block transmitted in step 8.
12a			Repeat steps 11 and 12 two more times and check that first CV=1 block is retransmitted and then CV = 0 is retransmitted.
12b	SS		SS waits BS_CV_MAX periods.
13	SS -> MS	PACKET UPLINK ACK/NACK	Negatively acknowledge the data block with CV = 0.
13a			Wait for 5 block periods.
13b	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Containing USF assigned to MS.
A14 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit block with CV=3 if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B14
B14 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
14	MS -> SS	UPLINK RLC DATA BLOCK	Check that the data block is a retransmission of the data block with CV = 0.
15	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing a valid RRBp=26. Acknowledge the last two data blocks.
16	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the radio block specified by RRBp
17	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, acknowledged mode.
18	SS -> MS	DOWNLINK RLC DATA BLOCKs	10 downlink data blocks, the data block with FBI = '1' and a valid RRBp
19	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBp in step 18. Check that the Final Ack indicator = '1'.

Step	Direction	Message	Comments
20		{Uplink dynamic allocation one phase access with contention resolution} or {Uplink dynamic allocation two phase access}	n = 440 octets, USF_GRANULARITY = 4 blocks, RLC_DATA_BLOCKS_GRANTED = open-end CHANNEL_CODING_COMMAND: CS-1, TLLI_BLOCK_CHANNEL_CODING: '0'B, CS-1. RLC acknowledged mode (PDP context2), without starting time
21	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
22	MS -> SS	UPLINK RLC DATA BLOCK	
23	MS -> SS	UPLINK RLC DATA BLOCK	
24	MS -> SS	UPLINK RLC DATA BLOCK	
25	MS -> SS	UPLINK RLC DATA BLOCK	
26			Regard the steps 21 - 25 as a step block. Repeat the step block until the countdown value CV = 0 in one of data blocks received.
26a	SS		SS waits BS_CV_MAX periods.
27	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge all received data blocks except for the data blocks which have CV=2, CV=1, or CV=0. Set SSN value in Ack/Nack description equal to the BSN' of the received data block with CV = 2.
27a	SS		Wait for 5 block periods
27b	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A28 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit block with CV=15 if it has already been scheduled before the end of the reaction time
28	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 2.
29	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 1.
30	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 0.
A31 Conditional	MS -> SS	UPLINK RLC DATA BLOCK	This step should be done if step A28 was not executed Check that the countdown value CV = 2.
31			Wait for BS_CV_MAX block period
32	SS -> MS	PACKET UPLINK ACK/NACK	Negatively acknowledge the data blocks of CV=2, and CV=0. Acknowledge the data block of CV=1
32a	SS		Wait for 5 block periods
32b	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A33 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit block with CV=2 if it has already been scheduled before the end of the reaction time, and if step A31 was NOT executed. MS may retransmit block with CV=1 if it has already been scheduled before the end of the reaction time, and if step A31 WAS executed.
33	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 2.
34	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 0.
35	MS -> SS	UPLINK RLC DATA BLOCK	Check that the countdown value CV = 2.
36 Conditional	MS -> SS	UPLINK RLC DATA BLOCK	This step should be done if step A33 was not executed Check that the countdown value CV = 0.
37	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing valid RRB. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
38	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRB on PACCH of the assigned PDCH.
39	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, acknowledged mode.
40	SS -> MS	DOWNLINK RLC DATA BLOCKS	10 downlink data blocks, the data block with FBI = '1' and a valid RRB
41	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRB in step 40. Check that the Final Ack indicator = '1'.
			The following steps are not applicable to the MS in GPRS multislot class 1, 2, 3, 4, 8, 30, 35 and 40.

Step	Direction	Message	Comments
42		{Uplink dynamic allocation two phase access}	n = 1200 octets, without starting time, USF_GRANULARITY = 4 blocks, RLC_DATA_BLOCKS_GRANTED = open-end, CHANNEL_CODING_COMMAND: cs4 RLC acknowledged mode (PDP context2), Two slots, USF ₀ on TN ₀ and USF ₁ on TN ₁ , are assigned.
43	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF ₀ on PDTCH ₀ addressing the MS.
44	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF ₁ on PDTCH ₁ addressing the MS, sent on the same TDMA frame as step 43.
45	MS -> SS	UPLINK RLC DATA BLOCKS	Received on the assigned PDTCH ₀ and PDTCH ₁ . Check that the coding as specified in CHANNEL_CODING_COMMAND, the TFI is correct and the block does not contain TLLI.
46	MS -> SS	UPLINK RLC DATA BLOCKS	Received on the assigned PDTCH ₀ and PDTCH ₁ .
47	MS -> SS	UPLINK RLC DATA BLOCKS	Received on the assigned PDTCH ₀ and PDTCH ₁ .
48	MS -> SS	UPLINK RLC DATA BLOCKS	Received on the assigned PDTCH ₀ and PDTCH ₁ .
49			Regard the steps 43 - 48 as a step block. Repeat the step block until the countdown value CV=0 in one of data blocks received. Check the CV decrement from BS_CV_MAX(10) to 0.
50	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing a valid RRBP. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
51	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

41.3.1.2 TBF Release / Uplink / Normal / MS initiated / Unacknowledged mode

41.3.1.2.1 Conformance requirements

The mobile station initiates release of the uplink TBF by beginning the countdown process. It indicates the end of the TBF by setting the CV value to 0 and starts timer T3182.

Upon reception of a PACKET UPLINK ACK/NACK message the mobile station shall stop timer T3182. If the PACKET UPLINK ACK/NACK message has the Final Ack Indicator bit set to '1', the mobile station shall transmit the PACKET CONTROL ACKNOWLEDGEMENT message and release the TBF. If there is no ongoing downlink TBF the mobile station shall enter packet idle mode.

If timer T3182 expires the mobile station shall release the TBF as if a PACKET UPLINK ACK/NACK message was received.

References

3GPP TS 04.60, subclause 9.3.3.3.

41.3.1.2.2 Test purpose

To verify that in RLC unacknowledged mode:

1. the MS initiates release of an uplink TBF by beginning the countdown process and indicates the end of the TBF by setting the CV value to 0.
2. the MS transmits the PACKET CONTROL ACKNOWLEDGEMENT message and release the TBF upon reception of a PACKET UPLINK ACK/NACK message with the Final Ack Indicator bit set to '1' after CV=0. If there is no ongoing downlink TBF the mobile station enters packet idle mode.
3. the MS releases the TBF as if a PACKET UPLINK ACK/NACK message was received when timer T3182 expires.

41.3.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 12.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP test context3 activated.

Specific PICS Statements

- GPRS Multislotclass (TSPC_Type_GPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

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Test Procedure

The test procedure has three parts:

1. The MS is triggered to transfer data. A TBF of dynamic allocation in unacknowledged mode is assigned. The countdown values are checked during the RLC data transferring. The SS acknowledges the all received RLC data blocks with the Final Ack Indicator bit set to '1 and polls the MS. The MS sends PACKET CONTROL ACKNOWLEDGEMENT in response of polling. After 6 blocks the SS assigns a downlink TBF in unacknowledged mode, sends a number downlink data blocks and polls the MS with a valid RRBP. The MS responses the polling.
2. The MS is triggered to transfer data. A TBF of dynamic allocation in unacknowledged mode is assigned. The countdown values are checked during the RLC data transferring. The SS does not acknowledge the received RLC data blocks. After CV = 0 the SS waits for 5.5 s (T3182 expires). Once CV=0 the SS checks that the MS does not transfer further RLC data blocks on the assigned TBF.
3. The MS is triggered to transfer data. A TBF of dynamic allocation on two timeslots in unacknowledged mode is assigned. The countdown values are checked during the RLC data transferring. The SS does not acknowledge the received RLC data blocks. Once CV=0 the SS checks that the MS does not transfer further RLC data blocks on the assigned TBF. The last block may be transmitted twice (once in each slot) or the MS may transmit a PACKET UPLINK DUMMY CONTROL message.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 440 octets in RLC unacknowledged mode. (PDP context3)
2	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	TLLI_BLOCK_CHANNEL_CODING = '0'B, cs-1, CHANNEL_CODING_COMMAND = cs-1. USF assigned to MS
3	MS -> SS	UPLINK RLC DATA BLOCK	Received on assigned PDCH
4			Repeat step 2 and 3 until the countdown value CV=0.
5	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing a valid RRBP=13, no retransmission needed.
6	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.
7	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS
8	SS		Check that no data block is transmitted by the MS in the next radio block.
9	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, unacknowledged mode. Steps 10 – 12 verify whether the MS has entered idle mode.
10	SS -> MS	DOWNLINK RLC DATA BLOCK	
11			Repeat step 10 ten times. In the last data block set FBI = '1' with a valid RRBP.
12	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP in step 11.
13		{Uplink dynamic allocation two phase access}	n = 600 octets in RLC unacknowledged mode. (PDP context3)
			TLLI_BLOCK_CHANNEL_CODING = '1'B, cs1, CHANNEL_CODING_COMMAND = cs1.
14	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS
15	MS -> SS	UPLINK RLC DATA BLOCK	Received on assigned PDCH.
16			Repeat steps 14 and 15 until the countdown value CV=0.
16a	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS to delay start of T3180 by 500ms (SS should ignore any received Rlc data block). This step is repeated until a PACKET UPLINK DUMMY CONTROL BLOCK is received from the MS, but not more than 4 times.
17	SS		Wait 5.5 seconds (starting after the last RLC data block) to allow T3182 expiring
18	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS
19	SS		Check that from no data block is transmitted by the MS. The following steps are not applicable to the MS in GPRS multislot class 1, 2, 3, 4, 8, 30, 35 and 40.

Step	Direction	Message	Comments
20	SS -> MS	{Uplink dynamic allocation two phase access}	n = 2000 octets in RLC unacknowledged mode. (PDP context3) Uplink dynamic allocation CHANNEL_CODING_COMMAND = cs4 Two timeslots are assigned
21	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCKS	Sent on PDTCH0 and PDTCH1
22	MS->SS	UPLINK RLC DATA BLOCKS	Received on the assigned PDTCH ₀ and PDTCH ₁ .
23	MS -> SS		Repeat steps 21 and 22 Check the CV decrement from BS_CV_MAX (=12) to 0 in the received data blocks. Last block (CV=0) may be transmitted twice, once in PDTCH ₀ and once in PDTCH ₁ or the MS may transmit a PACKET UPLINK DUMMY CONTROL BLOCK after the last RLC DATA BLOCK
23a	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS to delay start of T3180 by 500ms (SS should ignore any received RLC data block). This step is repeated until a PACKET UPLINK DUMMY CONTROL BLOCK is received from the MS, but not more than 4 times.
24	SS		Wait 5.5 seconds (starting after the last RLC data block) for T3182 expiry
25	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCKS	Sent on PDTCH0 and PDTCH1
26	SS		Verify that no data block is transmitted by the MS

41.3.1.3 TBF Release / Uplink / Normal / MS initiated / Channel coding change during countdown

41.3.1.3.1 Conformance requirements

If the mobile station receives a change in the Channel Coding Command in a PACKET UPLINK ACK/NACK message during the countdown procedure, the mobile station shall act upon the new Channel Coding Command. The mobile station shall then recalculate the CV values for any untransmitted RLC data blocks using the new RLC data block size.

References

3GPP TS 04.60, subclause 9.3.1.

41.3.1.3.2 Test purpose

It is verified that the MS acts upon the new Channel Coding Command and recalculates the CV values for any untransmitted RLC data blocks using the new RLC data block size when the MS receives a change of Channel Coding Command in a PACKET UPLINK ACK/NACK message during the countdown procedure.

41.3.1.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 7.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

1. The MS is triggered to transfer data. A TBF of dynamic allocation with channel coding CS-4 in unacknowledged mode is assigned. The countdown values are checked during the RLC data transferring.
2. Once CV=7 (BS_CV_MAX) the SS acknowledges the all received RLC data blocks and changes the channel coding to CS-1. In the next received RLC data block CV=15. The countdown values are checked during the RLC data transferring.
3. When CV=7 is reached the SS acknowledges the all received RLC data blocks and changes the channel coding to CS-2. The SS checks the next received RLC data block containing CV=5. The countdown values are checked during the RLC data transferring until CV=0. The SS acknowledges the all received RLC data blocks with the Final Ack Indicator bit set to '1'.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 1800 octets, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end, CHANNEL_CODING_COMMAND: CS-4, RLC unacknowledged mode (PDP context3), without starting time
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	SS -> MS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 until the countdown value CV=7 (BS_CV_MAX).
5	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge all the received data blocks. CHANNEL_CODING_COMMAND = CS-1. No USF assigned to the MS.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS on 3 blocks from the last radio block containing the Packet Uplink Ack/Nack in step 5.
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH, CV=6. Repeat step 6.
7	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH. Check that the countdown value CV = 15.
8	SS -> MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH assigned in step 2, containing USF assigned to the MS.
9	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH.
10			Repeat step 8 and 9 until the countdown value CV=7 (BS_CV_MAX).
11	SS -> MS	PACKET UPLINK ACK/NACK	CHANNEL_CODING_COMMAND = CS-2. No USF assigned to the MS.
12	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS on 3 blocks from the last radio block containing the uplink assignment.
A12 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH, CV=6. Repeat step 12.
13	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH. Check the countdown value CV. In case the MS has sent an UPLINK RLC DATA BLOCK in step A12, CV = 3, otherwise CV = 4
14	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
15	MS -> SS	UPLINK RLC DATA BLOCK	
16			Repeat step 14 and 15 until the countdown value CV=0.
17	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing valid RRBP, acknowledge all the received data blocks.
18	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

Specific Message Contents

PACKET UPLINK ACK/NACK message in step 5:

CHANNEL_CODING_COMMAND	CS-1
------------------------	------

PACKET UPLINK ACK/NACK message in step 11:

CHANNEL_CODING_COMMAND	CS-2
------------------------	------

41.3.1.4 TBF release / Uplink / Normal / MS initiated / Whilst in DTM

41.3.1.4.1 Conformance requirements

If the PACKET UPLINK ACK/NACK message has the Final Ack Indicator bit set to '1' and the mobile station does not initiate the establishment of a new uplink TBF according to one of the procedures described above, the mobile station shall transmit the PACKET CONTROL ACKNOWLEDGEMENT message and release the TBF. If the mobile station is operating in half duplex mode and received a downlink assignment during the countdown or while timer T3182 was running, it shall then act on the downlink assignment. If there is no ongoing downlink TBF, the mobile station in packet transfer mode shall return to packet idle mode; the mobile station in dual transfer mode shall return to dedicated mode.

References

3GPP TS 04.60/44.060, sub-clause 9.3.2.4

41.3.1.4.2 Test purpose

To verify that the MS, whilst in DTM, can successfully remove an uplink TBF and return to dedicated mode.

41.3.1.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is GPRS attached with a P-TMSI allocated and the PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC unacknowledged mode and sends a DTM REQUEST message. On receiving the DTM REQUEST message, requesting uplink resources, the SS assigns the MS PS resource. The SS accomplishes the resource assignment by passing a PACKET ASSIGNMENT message to the MS. On receiving the PACKET ASSIGNMENT message, the MS starts to send RLC DATA BLOCKS to the SS on the assigned PDTCH. At the completion of the 1000 octet transmission the MS releases the TBF. The MS releases the uplink TBF by starting the countdown process. When the MS has sent the RLC data block with CV=0, it continues to send RLC data blocks until the MS receives a PACKET UPLINK ACK/NACK message with the Final Ack Indicator bit set to '1'.

Upon completion of the uplink TBF release, the SS verifies that the MS has correctly returned to dedicated mode.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	Includes information on the Radio resources provided to the MS. See specific message contents.
5	MS<->SS	{ Uplink data transfer }	Macro
6	MS<->SS	{ Completion of uplink RLC data block transfer }	Macro
7	SS->MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH previously assigned, containing USF assigned to the MS.
8	SS		Check that no data block is transmitted by the MS in the radio block next to the radio block in step 7. The SS also verifies that the TCH is also unaffected.

Specific Message Contents

PACKET ASSIGNMENT (Step 4):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N ± 1) MOD 8 Not included
--	-------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N Not included
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41.3.2 TBF Release / Uplink / Normal / Network initiated

41.3.2.1 TBF Release / Uplink / Normal / Network initiated / Acknowledged mode

41.3.2.1.1 Conformance requirements

The network may initiate release of an uplink TBF by transmitting a PACKET TBF RELEASE message to the mobile station on the PACCH. A cause value indicates the reason for release.

If the cause value is "Normal release" the mobile station shall continue to the next LLC PDU boundary, starting the count down procedure at whatever value of CV is appropriate to count down to zero at the LLC PDU boundary, and then release the TBF according to the procedures in 3GPP TS 04.60, subclause 9.3.2.3.

References

3GPP TS 04.60, subclause 8.1.1.4.

41.3.2.1.2 Test purpose

To verify that when the MS, in an uplink TBF of the RLC acknowledged mode, receives a PACKET TBF RELEASE message with cause value "Normal release":

1. the MS continues the TBF to the next LLC PDU boundary;
2. the MS starts the count down procedure at whatever value of CV is appropriate to count down to zero at the LLC PDU boundary;
3. the MS then releases the TBF according to uplink acknowledged mode release procedure.

41.3.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 7.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

1. The MS is triggered to transfer 2000 octets user data. A TBF of dynamic allocation in acknowledged mode is assigned. After the MS transfers several RLC data blocks the SS sends PACKET TBF RELEASE with cause value "Normal release. The length indicator, M and E bit in data block headers are checked during the RLC data transferring until CV=0 to ensure that the MS has transmitted only the RLC data block of the first LLC PDU.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation one phase access with contention resolution} or {Uplink dynamic allocation two phase access}	n = 2000 octets (Note: more than one LLC PDU is needed for the test.) USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end, CHANNEL_CODING_COMMAND: CS-1, TLLI_BLOCK_CHANNEL_CODING: '1'B, CS-1. RLC acknowledged mode (PDP context2), without starting time
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 three times
5	SS -> MS	PACKET TBF RELEASE	Sent on the PACCH of the PDCH assigned, USF not assigned to the MS, Global TFI is same as the assigned one in step 1, Uplink_Release = yes, Cause value = "Normal release".
5a	SS		SS waits 3 blocks.
6	SS -> MS	PACKET UPLINK ACK/NACK	USF assigned to the MS, on PACCH of the assigned PDCH in step 1.
7	MS -> SS	UPLINK RLC DATA BLOCK	
8			Repeat step 6 and 7 until the countdown value CV=0 in step 7. Use of the Length indicator, M bit and E bit of the received data headers to determine that only the 1 st LLC PDU is transmitted.
9	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing valid RRBP. Acknowledge all data blocks.
10	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.
11	SS -> MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH assigned in step 1, containing USF assigned to the MS.
12	SS		Check that no data block is transmitted by the MS in the next radio block to step 11.

41.3.2.2 TBF Release / Uplink / Normal / Network initiated / Unacknowledged mode

41.3.2.2.1 Conformance requirements

The network may initiate release of an uplink TBF by transmitting a PACKET TBF RELEASE message to the mobile station on the PACCH. A cause value indicates the reason for release.

If the cause value is "Normal release" a mobile station shall continue to the next LLC PDU boundary, starting the count down procedure at whatever value of CV is appropriate to count down to zero at the LLC PDU boundary, and then release the TBF according to the procedures in 3GPP TS 04.60, subclause 9.3.3.3.

References

3GPP TS 04.60, subclauses 8.1.1.4 and 9.3.3.3.

41.3.2.2.2 Test purpose

To verify that when the MS receives a PACKET TBF RELEASE message with cause value "Normal release" during an unacknowledged mode uplink TBF:

1. the MS continues the TBF to the next LLC PDU boundary;
2. the MS starts the count down procedure at whatever value of CV is appropriate to count down to zero at the LLC PDU boundary;
3. the MS then releases the TBF according to uplink unacknowledged mode release procedure.

41.3.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 15.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

1. The MS is triggered to transfer 2000 octets user data. A TBF of dynamic allocation in unacknowledged mode is assigned. After the MS transfers several RLC data blocks the SS sends PACKET TBF RELEASE with cause value "Normal release. The length indicator, M and E bit in data block headers are checked during the RLC data transferring until CV=0 to ensure that the MS has transmitted only the RLC data block of the first LLC PDU.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 2000 octets in RLC unacknowledged mode. (PDP context3) (Note: more than one LLC PDU is needed)
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	TLI_BLOCK_CHANNEL_CODING = '0'B, cs-1, CHANNEL_CODING_COMMAND = cs1. USF Assigned to MS
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 five times.
5	SS -> MS	PACKET TBF RELEASE	Sent on the PACCH of the PDCH assigned, USF not assigned to the MS, Global TFI is same as the assigned one in step 1, Uplink_Release = yes, Cause value = "Normal release".
5a	SS		SS waits 3 blocks.
6	SS -> MS	PACKET UPLINK ACK/NACK	USF assigned to the MS, on PACCH of the assigned PDCH in step 1.
7	MS -> SS	UPLINK RLC DATA BLOCK	
8			Repeat step 6 and 7 until the countdown value CV=0 in step 7. Use of the Length indicator, M bit and E bit of the received data headers to determine that only the 1 st LLC PDU is transmitted.
9	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing valid RRBP, No retransmission needed. Sent on PACCH of the assigned PDCH.
10	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

41.3.2.3 TBF release / Uplink / Normal / Network initiated / Whilst in DTM

41.3.2.3.1 Conformance requirements

The network may initiate release of an uplink TBF by transmitting a PACKET TBF RELEASE message to the mobile station on the PACCH. A cause value indicates the reason for release.

References

3GPP TS 04.60/44.060, sub-clauses 8.1.1.4

41.3.2.3.2 Test purpose

To verify that the network can successfully remove an uplink TBF, in DTM, returning the MS to dedicated mode.

41.3.2.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is GPRS attached with a P-TMSI allocated and the PDP context 2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC acknowledged mode and sends a DTM REQUEST message. On receiving the DTM REQUEST message, requesting uplink resources, the SS assigns the MS PS resource. The SS accomplishes the resource assignment by passing a PACKET ASSIGNMENT message to the MS. On receiving the PACKET ASSIGNMENT message, the MS starts to send RLC DATA BLOCKS to the SS on the assigned PDTCH. After the MS has transferred several RLC blocks, the SS initiates release of the uplink TBF by sending a PACKET TBF RELEASE message, on the PACCH, to the MS. The MS releases the uplink TBF by starting the countdown process, which completes at the LLC PDU boundary. When the MS has sent the RLC data block with CV=0, it continues to send RLC data blocks until the MS receives a PACKET UPLINK ACK/NACK message with the Final Ack Indicator bit set to '1'.

Upon completion of the uplink TBF release, the SS verifies that only the first LLC PDU has been sent and the MS has correctly returned to dedicated mode.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of singleslot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 2000 octets. (Note: more than one LLC PDU is needed for the test. USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end, CHANNEL_CODING_COMMAND: CS-1, TLLI_BLOCK_CHANNEL_CODING: '1'B, CS-1. RLC acknowledged mode (PDP context2), without starting time
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	Includes information on the Radio resources provided to the MS. See specific message contents.
5	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK	
7			Repeat step 5 and 6 three times
8	SS->MS	PACKET TBF RELEASE	Sent on the PACCH of the PDCH assigned, USF not assigned to the MS, Global TFI is same as the assigned one in step 2, Uplink_Release = yes, Cause value = "Normal release".
9	SS->MS	PACKET UPLINK ACK/NACK	USF assigned to the MS, on PACCH of the assigned PDCH in step 2.
10	MS->SS	UPLINK RLC DATA BLOCK	
11			Repeat step 9 and 10 until the countdown value CV=0 in step 10. Use of the Length indicator, M bit and E bit of the received data headers to determine that only the 1 st LLC PDU is transmitted. Note: The final RLC data block of a TBF shall have a Length Indicator field corresponding to the final LLC PDU unless this PDU fills the RLC data block precisely without the LI field being added.
12	SS->MS	PACKET UPLINK ACK/NACK	Final Ack Indicator = '1' containing valid RRBP. Acknowledge all data blocks.
13	MS->SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.
14	SS->MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH previously assigned, containing USF assigned to the MS.
15	SS		Check that no data block is transmitted by the MS in the radio block next to the radio block in step 14.

Specific Message Contents

PACKET ASSIGNMENT (Step 4):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N ± 1) MOD 8 Not included
--	-------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N Not included
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41.3.3 TBF Release / Uplink / Network initiated / Abnormal release

41.3.3.1 Conformance requirements

The network may initiate release of an uplink TBF by transmitting a PACKET TBF RELEASE message to the mobile station on the PACCH. If the cause value is "Abnormal release" the mobile station shall immediately stop transmitting and follow the abnormal release with random access procedure.

References

3GPP TS 04.60, subclause 8.1.1.4.

41.3.3.2 Test purpose

To verify that the MS immediately stops transmitting and follows the abnormal release with random access procedure when it receives a PACKET TBF RELEASE message on the PACCH with cause value "Abnormal release".

41.3.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 9.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF of dynamic allocation in acknowledged mode is assigned. After the MS transfers several RLC data blocks the SS sends PACKET TBF RELEASE with cause value "Abnormal release". The MS reinitiates a random access for one or two phase access request.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation one phase access with contention resolution} or {Uplink dynamic allocation two phase access}	n = 1200 octets in RLC acknowledged mode. (PDP context2) TLLI_BLOCK_CHANNEL_CODING = '0'B, cs-1, CHANNEL_CODING_COMMAND = cs-1.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF Assigned to MS
3	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH.
4			Repeat step 2 and 3 five times.
5	SS -> MS	PACKET TBF RELEASE	Sent on the PACCH of the PDCH assigned, Global TFI is same as the assigned one in step 1, Uplink_Release = yes, Cause value = "Abnormal release".
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS, on PACCH of the assigned PDCH in step 1. Sent on the next block of that of message sent in step 5. This step is repeated for 5 times. Repetation should be on the consecutive blocks as that of the first.
7	MS -> SS	UPLINK RLC DATA BLOCK	MS is allowed to send max. 5 blocks. Received on the assigned PDTCH.
8	MS -> SS	CHANNEL REQUEST	Check that the MS does not send more than five blocks. Received on RACH.

41.3.4 TBF Release / Downlink / Normal / Network initiated

41.3.4.1 TBF Release / Downlink / Normal / Network initiated / Acknowledged mode

41.3.4.1.1 Conformance requirements

If the mobile station receives an RLC data block with the FBI bit set the value '1' and with a valid RRBp field, the mobile station shall transmit a PACKET DOWNLINK ACK/NACK message in the specified uplink block. The mobile station shall continue to monitor all assigned PDCHs.

Whenever the mobile station receives an RLC data block with a valid RRBp and the mobile station has received all RLC data blocks of the TBF, the mobile station shall send the PACKET DOWNLINK ACK/NACK message with the Final Ack Indicator bit set to '1', stop timer T3190 and start or restart timer T3192.

If the mobile station receives more than one RLC data block with the FBI set to '1', it shall accept the data from only the first one of these blocks.

If the mobile station, after sending the PACKET DOWNLINK ACK/NACK message with the Final Ack Indicator bit set to '1', receives a PACKET DOWNLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message with the Control Ack bit set to '1' while timer T3192 is running, the mobile station shall stop timer T3192, consider the previous downlink TBF released and act upon the new assignment.

When timer T3192 expires the mobile station shall stop monitoring its assigned downlink PDCHs. If the mobile station is operating in half duplex mode and received an uplink assignment during the TBF release procedure, the mobile station shall then immediately act upon the assignment. Otherwise, and if there is no ongoing uplink TBF, enter packet idle mode.

References

3GPP TS 04.60, subclause 9.3.2.5.

41.3.4.1.2 Test purpose

To verify that in a downlink TBF of acknowledged mode:

1. The MS sends PACKET DOWNLINK ACK/NACK in the specified uplink block and continues monitoring all assigned PDCHs when it receives an RLC data block with a valid RRBp field and the Final Block Indicator (FBI) = '1'.

2. Whenever the MS receives an RLC data block with a valid RRBP and has received all RLC data blocks of the TBF, it sends PACKET DOWNLINK ACK/NAK with the Final Ack Indicator bit set to '1'.
3. If the MS receives more than one RLC data block with the FBI set to '1', it accepts the data from only the first one of these blocks.
4. While timer T3192 is running, if the MS receives, after sending PACKET DOWNLINK ACK/NAK with the Final Ack Indicator bit set to '1', PACKET DOWNLINK ASSIGNMENT with the Control Ack bit set to '1', the MS acts upon the new downlink assignment.
5. The MS stops monitoring its assigned downlink PDCHs and enters packet idle mode when timer T3192 expires if there is no ongoing uplink TBF.

41.3.4.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 15, T3192 = 1,5 s.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

1. The MS receives an IMMEDIATE ASSIGNMENT message containing packet downlink assignment on its PCH. The SS transmits 10 downlink RLC data blocks with consecutive BSN. The SS then transmits a downlink RLC data block with the highest BSN which is ten higher than the BSN of the last RLC data block. The SS sets FBI bit and polls the MS with a valid RRBP in the header of the RLC data block. The MS acknowledges the received data blocks and request a retransmission for the missing 9 data blocks in SSN and RBB fields.
2. The SS sends another 5 RLC data blocks and polls the MS with a valid RRBP. The MS acknowledges the received data blocks and request the retransmission of the missing 4 RLC data blocks. The SS transmits the last 4 RLC data blocks and polls the MS with RRBP=N+26. While the MS is waiting for transmission of the final Acknowledgement the SS transmits a RLC data block which sets FBI bit and has the same BSN value as the highest one in the test procedure 1. The MS ignores the downlink data and acknowledges the entire TBF with FINAL_ACK_INDICATION set. The SS transmits another data block with FBI set and polls the MS. The MS acknowledges the entire TBF with FINAL_ACK_INDICATION set. The SS waits 3 s.
3. The MS receives an IMMEDIATE ASSIGNMENT message containing packet downlink assignment on its PCH. The SS transmits a number of downlink RLC data blocks, sets FBI bit and polls the MS with a valid RRBP. The MS acknowledges the entire TBF with FINAL_ACK_INDICATION set.
4. The SS sends another PACKET DOWNLINK ASSIGNMENT on the assigned PACCH with Control ACK bit set. The SS transmits a number of downlink RLC data blocks on the new assigned PDTCH, sets FBI bit and polls the MS with a valid RRBP. The MS acknowledges the entire TBF with FINAL_ACK_INDICATION set.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, acknowledged mode.
2	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on downlink PDTCH assigned.
3			Repeat step 2 nine times, each time BSN is incremented by 1
4	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with valid RRBP, FBI bit is set. BSN is incremented by 10. The MS has missed 9 consecutive RLC data blocks. BSN of this data block = (BSN of the last data block in step 3 + 10) mod 128
5	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBP in step 4. Check that the Final Ack indicator = '0' and the SSN and RBB values for the 9 missing data blocks .
6	SS -> MS	DOWNLINK RLC DATA BLOCK	BSN of the data block = (BSN of the last data block in step 3 + 1) mod 128
7			Repeat step 6 three times, each time BSN is incremented by 1 on the basis of the last BSN in step 6
8	SS -> MS	DOWNLINK RLC DATA BLOCK	A valid RRBP, BSN is incremented by 1.
9	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBP in step 8. Check that the Final Ack indicator = '0' and SSN and RBB values for the 4 missing data blocks.
10	SS -> MS	DOWNLINK RLC DATA BLOCK	BSN is incremented by 1
11			Repeat step 10 twice
12	SS -> MS	DOWNLINK RLC DATA BLOCK	RRBP.= N+26, BSN is incremented by 1
13	SS -> MS	DOWNLINK RLC DATA BLOCK	FBI bit is set, BSN is same as in step 4, RRBP.= N+26, sent on next radio block from step 12.
14	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBP in step 12. Check that the Final Ack indicator = '1'.
15	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBP in step 13. Check that the Final Ack indicator = '1'.
16	SS		Wait 2s for expiry of T3192.
17	SS -> MS	DOWNLINK RLC DATA BLOCK	FBI bit is set, a valid RRBP. Sent on downlink PDTCH assigned in step 1.
18	SS		Check that the MS does not respond on RRBP in step 17, the MS is now in packet idle mode.
19	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, acknowledged mode.
20	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat step 20 ten times
21			One data block with FBI = '1' and valid RRBP.
22	SS -> MS	DOWNLINK RLC DATA BLOCK	Received on the block specified by RRBP in step 22.
23	MS -> SS	PACKET DOWNLINK ACK/NACK	Check that the Final Ack indicator = '1'.
24	SS		Wait for 80% of expiry of T3192 (1.2s)
25	SS -> MS	PACKET DOWNLINK ASSIGNMENT	Downlink Assignment, acknowledged mode. A different slot assigned. Control Ack Bit = 1. Sent on PACCH.
26	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat step 26 ten times
27			One data block with FBI = '1' and valid RRBP.
28	SS -> MS	DOWNLINK RLC DATA BLOCK	Received on the block specified by RRBP in step 28.
29	MS -> SS	PACKET DOWNLINK ACK/NACK	Check that the Final Ack indicator = '1'.

Specific Message Contents

PACKET DOWNLINK ACK/NACK message in step 15:

Ack/Nack Description	
- FINAL_ACK_INDICATION	1 (final ack)
- STARTING_SEQUENCE_NUMBER	V(R)
- RECEIVED_BLOCK_BITMAP	Acknowledges all data blocks transmitted by the MS

PACKET DOWNLINK ASSIGNMET message in step 25:

CONTROL_ACK	1
TIMESLOT_ALLOCATION	Single slot arbitrarily chosen but different from the value in step 19
{L H<DOWNLINK_TFI_ASSIGNMENT>}	H (assign downlink TFI)
- DOWNLINK_TFI_ASSIGNMENT	Arbitrarily chosen but different from the value in step 19

41.3.4.2 TBF Release / Downlink / Normal / Network initiated / Unacknowledged mode

41.3.4.2.1 Conformance requirements

The network initiates release of a downlink TBF by sending an RLC data block with the Final Block Indicator (FBI) set to the value '1' and with a valid RRBp field. The RLC data block sent must have the highest BSN' (see 3GPP TS 04.60 subclause 9.3.1) of the downlink TBF. The network shall start timer T3191. The network may retransmit the last block with FBI set to the value '1' and with a valid RRBp field. For each retransmission the timer T3191 is restarted. For each RLC data block with the FBI bit set to '1' and with a valid RRBp field, the mobile station shall transmit the PACKET CONTROL ACKNOWLEDGEMENT message in the uplink block specified by the RRBp field. The mobile station shall continue to read the assigned downlink PDCHs until the block period pointed to by the RRBp. If the mobile station receives more than one RLC data block with the FBI bit set to '1' and with valid RRBp fields that point the same uplink block period, the mobile station shall transmit the PACKET CONTROL ACKNOWLEDGEMENT message only once. The mobile station shall then stop timer T3190, start timer T3192 and continue to monitor all assigned downlink PDCHs. If the mobile station then receives a subsequent RLC data block with a valid RRBp and the FBI bit set to '1', the mobile station shall retransmit the PACKET CONTROL ACKNOWLEDGEMENT message and restart timer T3192.

If the mobile station receives more than one RLC data block with the FBI set to '1', it shall accept the data from only the first one of these blocks.

If the mobile station, after sending the PACKET CONTROL ACKNOWLEDGEMENT message, receives a PACKET DOWNLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message with the Control Ack bit set to '1' while timer T3192 is running, the mobile station shall stop timer T3192, consider the previous downlink TBF released and act upon the new assignment.

When timer T3192 expires the mobile station shall stop monitoring its assigned downlink PDCHs.

References

3GPP TS 04.60, subclauses 9.3.3.5 and 9.3.1.

41.3.4.2.2 Test purpose

To verify that in a downlink TBF of unacknowledged mode:

1. The MS transmits PACKET CONTROL ACKNOWLEDGEMENT in the uplink block specified by the RRBp field whenever it receives an RLC data block with a valid RRBp field and the Final Block Indicator (FBI) set to the value '1'.
2. After sending PACKET CONTROL ACKNOWLEDGEMENT the MS continues to monitor all assigned downlink PDCHs.
3. While timer T3192 is running, if the MS receives, after sending PACKET CONTROL ACKNOWLEDGEMENT, a PACKET DOWNLINK ASSIGNMENT with the Control Ack bit set to '1', the MS acts upon the new downlink assignment.

4. The MS stops monitoring its assigned downlink PDCHs and enters packet idle mode when timer T3192 expires.

41.3.4.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 15, T3192 = 1,5 s.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

1. The MS receives an IMMEDIATE ASSIGNMENT message containing packet downlink assignment on its PCH. The SS transmits 11 downlink RLC data blocks with consecutive BSN. The SS then transmits a downlink RLC data block with the BSN which is ten higher than the BSN of the last RLC data block. The SS polls the MS with a valid RRBP in the header of the RLC data block. The MS acknowledges the received data blocks.
2. The SS sends another RLC data block and polls the MS with a valid RRBP and with the FBI bit set. The MS sends PACKET CONTROL ACKNOWLEDGEMENT.
3. The SS resends the last RLC data block and polls the MS with a valid RRBP and with the FBI bit set. The MS sends PACKET CONTROL ACKNOWLEDGEMENT. The SS waits 1.2s and resends the RLC data block and polls the MS with a valid RRBP and with the FBI bit set. The MS responds with PACKET CONTROL ACKNOWLEDGEMENT. The SS waits till T3192 expires. The SS sends a RLC data block with FBI set and a valid RRBP and checks that the MS does not transmit any data block on RRBP block.
4. The MS receives an IMMEDIATE ASSIGNMENT message containing packet downlink assignment on its PCH. The SS transmits a number of downlink RLC data blocks, sets FBI bit and polls the MS with a valid RRBP. The MS responds with PACKET CONTROL ACKNOWLEDGEMENT.
5. The SS sends another PACKET DOWNLINK ASSIGNMENT on the assigned PACCH with Control ACK bit set. The SS transmits a number of downlink RLC data blocks on the new assigned PDCH, sets FBI bit and polls the MS with a valid RRBP. The MS responds with PACKET CONTROL ACKNOWLEDGEMENT.

Expected Sequence

Step	Direction	Message	Comments
1	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, unacknowledged mode.
2	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on downlink PDTCH assigned.
3			Repeat step 2 ten times, each time BSN is incremented by 1
4	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with valid RRBP, BSN is incremented by 10. The MS has missed 9 consecutive RLC data blocks. BSN of this data block =
5	MS -> SS	PACKET DOWNLINK ACK/NACK	(BSN of the last data block in step 3 + 10) mod 128 Received on the block specified by RRBP in step 4. Check that the Final Ack indicator = '0'
6	SS -> MS	DOWNLINK RLC DATA BLOCK	A valid RRBP, BSN is incremented by 1, FBI bit is set.
7	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP in step 6.
8			Repeat step 6 and 7 once Keeping BSN same.
9	SS		Wait 1.2 seconds (T3192 not expired).
10	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with FBI = '1' and valid RRBP. BSN is same as the BSN of the data block sent in step 6.
11	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP in step 10.
12	SS		Wait for expiry of T3192
13	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with FBI = '1' and valid RRBP. Sent on downlink PDTCH assigned in step 1. BSN is same as the BSN of the data block sent in step 6
14	SS		Check that the MS does not transmit any control block on the RRBP block.
15	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment, unacknowledged mode.
16	SS -> MS	DOWNLINK RLC DATA BLOCK	
17			Repeat step 16 ten times
18	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with FBI = '1' and valid RRBP.
19	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	
20	SS -> MS	PACKET DOWNLINK ASSIGNMENT	Wait 1.2 seconds (T3192 not expired). Downlink Assignment, unacknowledged mode. A different timeslot assigned. Control Ack Bit = 1. Sent on PACCH.
21	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent 5 blocks from last block containing PACKET DOWNLINK ASSIGNMENT
22			Repeat step 21 ten times
23	SS -> MS	DOWNLINK RLC DATA BLOCK	One data block with FBI = '1' and valid RRBP.
24	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP in step 23.

PACKET DOWNLINK ASSIGNMENT message in step 20:

RLC_MODE	Unacknowledged mode
CONTROL_ACK	1
{L H<DOWNLINK_TFI_ASSIGNMENT>}	H (assign downlink TFI)
- DOWNLINK_TFI_ASSIGNMENT	Arbitrarily chosen but different from the value in step 15
TIMESLOT_ALLOCATION	Single slot arbitrarily chosen but different from the values already assigned.

41.3.4.3 TBF release / Downlink / Normal / Network initiated / Whilst in DTM

41.3.4.3.1 Conformance requirements

When timer T3192 expires the mobile station shall release the downlink TBF. If the mobile station is operating in half duplex mode and received an uplink assignment during the TBF release procedure, the mobile station shall then immediately act upon the uplink assignment. If there is no ongoing uplink TBF, the mobile station in packet transfer mode shall return to packet idle mode; the mobile station in dual transfer mode shall return to dedicated mode.

References

3GPP TS 04.60/44.060, sub-clauses 9.3.2.6

41.3.4.3.2 Test purpose

To verify that the network can successfully remove a downlink TBF, to a MS in DTM, returning the MS to dedicated mode.

41.3.4.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is GPRS attached with a P-TMSI allocated and the PDP context 2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

Whilst in an active call on timeslot N, the MS receives a PACKET ASSIGNMENT message on the main DCCH, instructing the MS to switch to the designated timeslot. The SS waits a specified time and then starts to transmit to the newly allocated resources. After approximately 500 octets of data has been sent, the SS waits for the time period of T3192, before testing that the MS has dropped out of dual transfer mode by sending a DOWNLINK RLC DATA block with S/P=1 and verify that the MS does not respond.

Upon completion of the downlink TBF release, the SS verifies that the MS has correctly returned to dedicated mode.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A. When: k=1, Channel Type = TCH/F; k=2, Channel Type = TCH/H.
2	SS->MS	PACKET ASSIGNMENT	See specific message contents.
3	SS<->MS	{ Downlink data transfer }	Macro – transmitting approximately 500 octets of data.
4	MS->SS	PACKET DL ACK/NACK	FAI = 1
5	SS		Wait for time period of T3192 + 10%.
6	SS->MS	RLC DOWNLINK DATA	S/P bit = 1
7	SS		Verifies that no PACKET DOWNLINK ACK/NACK message is received from MS and that the MS returns correctly to dedicated mode.

Specific Message Contents

PACKET ASSIGNMENT (Step 2):

k=1;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included (N ± 1) MOD 8
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k=2;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included N
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41.3.5 PDCH Release

41.3.5.1 Void

41.3.5.2 PDCH Release / With TIMESLOTS_AVAILABLE

41.3.5.2.1 Conformance requirements

When a mobile station receives a PACKET PDCH RELEASE message containing a TIMESLOTS_AVAILABLE field, it shall immediately stop transmitting and receiving on all assigned PDCHs, which are indicated as not present in the TIMESLOTS_AVAILABLE field, remove those PDCHs from its list of assigned PDCHs.

If all of the mobile station's assigned PDCHs are removed from its list of assigned PDCH, and, if an uplink TBF was in progress, the mobile station shall perform an abnormal release with random access. If no uplink TBF was in progress, the mobile station shall perform an abnormal release with return to CCCH or PCCCH.

References

3GPP TS 04.60, subclause 8.2.

41.3.5.2.2 Test purpose

To verify that when the MS receives a PACKET PDCH RELEASE message with a TIMESLOTS_AVAILABLE field indicating that one or more timeslots is no longer available for packet data service:

1. it immediately stops transmitting and receiving on all assigned PDCHs which are not presented in the TIMESLOTS_AVAILABLE field.
2. it performs an abnormal release with random access when all of the MS's assigned PDCHs are removed, and an uplink TBF was in progress.
3. it performs an abnormal release with return to CCCH when all of the MS's assigned PDCHs are removed, and no uplink TBF was in progress.

41.3.5.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, CCCH combined with SDCCH, BS_CV_MAX = 15.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated, SPLIT PG CYCLE negotiated and PDP context2 activated.

Specific PICS Statements

- Multislotclass (TSPC_Type_GPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

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Test Procedure

1. The MS is triggered to transfer user data. A TBF on one slot of dynamic allocation in acknowledged mode is assigned. After the MS transfers several RLC data blocks the SS sends PACKET PDCH RELEASE with TIMESLOTS_AVAILABLE indicating no timeslot available. It is checked that the MS initiates a random access request. A TBF is assigned to the MS to allow it to complete the uplink data transferring.
2. The MS is triggered to transfer user data. A TBF on two consecutive slots of dynamic allocation in acknowledged mode is assigned. After the MS transfers several RLC data blocks the SS sends PACKET PDCH RELEASE with TIMESLOTS_AVAILABLE indicating that only a timeslot is available. The MS uses the available timeslot to complete the uplink data transferring.
3. The MS receives an IMMEDIATE ASSIGNMENT message containing packet downlink assignment on its PCH. A downlink TBF with a timeslot is assigned. The SS transmits several downlink RLC data blocks. Then SS sends PACKET PDCH RELEASE with TIMESLOTS_AVAILABLE indicating no timeslot available and polls the MS with a valid RRBP for acknowledgement. It is checked that the MS does not react upon the polling.
4. A downlink TBF with two timeslots is assigned. The SS transmits several downlink RLC data blocks. Then SS sends PACKET PDCH RELEASE with TIMESLOTS_AVAILABLE indicating only a timeslot available and polls the MS with a valid RRBP for acknowledgement. It is checked that the MS does not react upon the polling and continues receiving the downlink data on the available timeslot. The SS sends another PACKET PDCH RELEASE with TIMESLOTS_AVAILABLE indicating no timeslot available and polls the MS with a valid RRBP for acknowledgement. It is checked that the MS does not react upon the polling.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation one phase access with contention resolution}	n = 1000 octets in RLC acknowledged mode. (Test PDP context2)
		or	CHANNEL_CODING_COMMAND = cs4.
2	SS->MS	{Uplink dynamic allocation two phase access}	
		PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS
3	MS -> SS	UPLINK RLC DATA BLOCK	Received data block on the assigned PDTCH.
4	SS		Repeat steps 2 and 3 six times
5	SS -> MS	PACKET PDCH RELEASE	Sent on the PACCH of the PDCH assigned in step 1. With TIMESLOTS_AVAILABLE indicating no timeslot available, RRBP = N + 26.
6	SS		SS checks that no PACKET CONTROL ACKNOWLEDGEMENT is received.
7	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to MS
8	SS		Verify that no data block is received.
9	MS -> SS	CHANNEL REQUEST	Received on RACH.
10	SS -> MS	IMMEDIATE ASSIGNMENT	Single block assignment, to order the MS making two phase access procedure. Sent on AGCH.
11	MS -> SS	PACKET RESOURCE REQUEST	Two phase access procedure. Received on the single block assigned in step 10.
12	SS -> MS	PACKET UPLINK ASSIGNMENT	Open-ended uplink dynamic allocation with one time slot, USF_GRANULARITY = single block, CHANNEL_CODING_COMMAND = cs4,
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PACCH of the same PDCH assigned in step 10. Sent on the PACCH of the PDCH assigned in step 12, containing USF assigned to the MS.
14	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH.
15		{Completion of uplink RLC data block transfer}	
16		{Uplink dynamic allocation one phase access with contention resolution}	The MS of the GPRS multislot class 1, 2, 3, 4, 8, 30, 35 and 40 skips the steps 16 to 38.
		or	n = 1100 octets in RLC acknowledged mode. (Test PDP context2),
		{Uplink dynamic allocation two phase access}	CHANNEL_CODING_COMMAND = cs2
17	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCKS	Two timeslots are assigned
18	MS -> SS	UPLINK RLC DATA BLOCKS	USFs assigned to MS. Sent on PDTCH ₆ and PDTCH ₇ .
19			Received on the assigned PDTCH ₆ and PDTCH ₇ .
20	SS -> MS	PACKET PDCH RELEASE	Repeat step 17 and 18 three times
21	SS		Sent on the PACCH of the PDCH ₆ assigned in step 16 RRBP=N+26. With TIMESLOTS_AVAILABLE indicating no timeslot available.
22	SS-MS	PACKET DOWNLINK DUMMY CONTROL BLOCKS	SS checks that no PACKET CONTROL ACKNOWLEDGEMENT is received.
23	SS		USFs assigned to MS. Sent on PDTCH ₆ and PDTCH ₇ .
24	MS -> SS	CHANNEL REQUEST	Verify that MS stop sending on both PDTCH ₆ and PDTCH ₇
25	SS -> MS	IMMEDIATE ASSIGNMENT	Received on RACH.
26	MS -> SS	PACKET RESOURCE REQUEST	Single block assignment, to order the MS making two phase access procedure. Sent on AGCH.
27	SS -> MS	PACKET UPLINK ASSIGNMENT	Two phase access procedure. Received on the single block assigned in step 25.
			Uplink dynamic allocation
			CHANNEL_CODING_COMMAND = cs4
			Two timeslots
28	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCKS	USFs assigned to MS. Sent on PDTCH ₀ and PDTCH ₁ .

Step	Direction	Message	Comments
29	MS -> SS	UPLINK RLC DATA BLOCKS	data blocks received on the assigned PDTCH ₁ and PDTCH ₀ .
30	SS		Repeat steps 28 and 29 three times
31	SS -> MS	PACKET PDCH RELEASE	Sent on the PACCH of the PDCH ₁ assigned in step 27. With TIMESLOTS_AVAILABLE indicating only the timeslot corresponding to PDCH ₀ available.
32	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent after 6 radio blocks from step 31 on PDCH ₁ , USFs assigned to MS
33	SS		Verify that no data block was received
34	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PDCH ₀ , USFs assigned to MS
35	MS -> SS	UPLINK RLC DATA BLOCK	data block received on PDCH ₀ .
36	SS		Repeat steps 34 and 35 until the countdown value CV=0,
37	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge all data blocks. The SS sets Final Ack Indicator = '1' containing a valid RRBP.
38	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PDCH ₀
39	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on a PCH block corresponding to the MS's paging group, including a packet downlink assignment with one timeslot assigned, acknowledged mode.
40	SS -> MS	DOWNLINK RLC DATA BLOCK	A valid RRBP
41	MS -> SS	PACKET DOWNLINK ACK/NACK	Received on the block specified by RRBP in step 40.
42	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat the step three times.
43	SS -> MS	PACKET PDCH RELEASE	Sent on the next radio block from step 42 with TIMESLOTS_AVAILABLE indicating no timeslot available.
44	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on the next radio block from step 43 on PDTCH released, a valid RRBP = N + 21 or 22.
45	SS		Check that no PACKET DOWNLINK ACK/NACK received on the block specified in step 44.
46A	SS -> MS	IMMEDIATE ASSIGNMENT	The steps from 46 onwards are applicable to all GPRS multislot classes except the GPRS multislot class1. Sent on a PCH block corresponding to the MS's paging group with TBF starting time.
46B	SS -> MS	PACKET DOWNLINK ASSIGNMENT	Timeslot1 and Timeslot0 assigned, acknowledged mode. Sent on the PACCH assigned in step 46A.
47	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat the step five times. The RLC data blocks are received on PDTCH ₁ and PDTCH ₀ .
48	MS -> SS	PACKET DOWNLINK ACK/NACK	The last data block on PDTCH ₁ containing a valid RRBP. Received on the block specified by RRBP on PDTCH ₁
49	SS -> MS	PACKET PDCH RELEASE	Check whether all data blocks in step 47 are acknowledged. With TIMESLOTS_AVAILABLE indicating only timeslot ₀ available. Sent on the PACCH of PDCH ₁ .
50	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat the step five times. The RLC data blocks are received on PDTCH ₀ .
51	MS -> SS	PACKET DOWNLINK ACK/NACK	The last data block on PDTCH ₀ containing a valid RRBP. On the block specified by RRBP on PDTCH ₀ .
52	SS -> MS	DOWNLINK RLC DATA BLOCK	Check whether all data blocks sent in step 50 are acknowledged. One data block with a valid RRBP = N + 26 on PDTCH ₁ .
53	SS		Check that no PACKET DOWNLINK ACK/NACK received on the block specified.
54	SS -> MS	DOWNLINK RLC DATA BLOCK	Repeat the step five times on PDTCH ₀ .
55	SS -> MS	PACKET PDCH RELEASE	With TIMESLOTS_AVAILABLE indicating no timeslot available sent on the next block from step 54.
56	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on the next radio block of step 55 on PDTCH ₀ , a valid RRBP = N + 21 or 22.
57	SS		Check that no PACKET DOWNLINK ACK/NACK is received on the block specified in step 56.

41.3.6 TBF Release / Extended Uplink

41.3.6.1 TBF Release / Extended Uplink / Recalculation of CV before CV = 0

41.3.6.1.1 Conformance requirements

In an uplink TBF operating in extended uplink TBF mode, the CV shall indicate the current number of RLC data blocks that has not been transmitted in the uplink TBF. The mobile station shall update the TBC value and recalculate the CV for any untransmitted RLC data block in the following cases:

- The RLC entity of the mobile station receives new data from upper layers for transmission in the uplink TBF.

References

3GPP TS 44.060, subclause 9.3.1.3

41.3.6.1.1.2 Test purpose

To verify that MS recalculates the CV when a new PDU is received from upper layers before MS has sent an RLC data block with CV=0.

41.3.6.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, NW_EXT_UTBF = 1, BS_CV_MAX = 14

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF using dynamic allocation in acknowledged mode is assigned. The SS assigns an USF to MS until MS has sent CV = 14. Then MS is triggered to send more data. SS acknowledges all received data. A new USF is assigned to MS every 4th second. The CV is checked in the data block. If the CV becomes '0' before having been recalculated, the test has failed. Otherwise the uplink TBF is continued and completed.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets, USF_GRANULARITY = 1 block, CHANNEL_CODING_COMMAND: CS-2, RLC acknowledged mode (PDP context2) USF assigned to the MS.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 until CV=14 (BS_CV_MAX).
5	MS		Trigger MS to send 400 octets of data.
6	SS -> MS	PACKET UPLINK ACK/NACK	Acknowledge all received data. USF assigned to the MS.
7	MS -> SS	RLC DATA BLOCK	Check CV
8	SS		Wait 4s
9			Repeat step 6 to 8 until CV (as received in step 7) > 14 (successful) or CV = 0 (failed)
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
11	MS -> SS	UPLINK RLC DATA BLOCK	
12			Repeat step 10 and 11 until CV=0.
13	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 1 containing valid RRB. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
14	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRB on PACCH of the assigned PDCH.

Specific Message Contents

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41.3.6.2 TBF Release / Extended Uplink / Recalculation of CV after CV = 0

41.3.6.2.1 Conformance requirements

[3GPP TS 44.060, 9.1.3.1]

In the extended uplink TBF mode, if $V(S) = V(A)$ and there is no RLC data block with $BSN = V(S)$ available, the mobile station shall stop sending RLC data blocks. The mobile station shall continue sending RLC data blocks when a RLC data block with $BSN = V(S)$ is available.

[3GPP TS 44.060, 9.3.1.3]

In an uplink TBF operating in extended uplink TBF mode, the CV shall indicate the current number of RLC data blocks that has not been transmitted in the uplink TBF. The mobile station shall update the TBC value and recalculate the CV for any untransmitted RLC data block in the following cases:

- The RLC entity of the mobile station receives new data from upper layers for transmission in the uplink TBF.

[3GPP TS 44.060, 9.3.1b.2]

In extended uplink TBF mode, the uplink TBF may be maintained during temporary inactive periods, where the mobile station has no RLC information to send.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 9.1.3.1, 9.3.1.3, 9.3.1b.2

41.3.6.2.2 Test purpose

- 1 To verify that MS sends an RLC/MAC control block after fully acknowledgement of transmitted RLC data.
- 2 To verify that MS continues to send RLC data blocks on the current TBF when MS receives new data from upper layers when all RLC data have been fully acknowledged.
- 3 To verify that MS recalculates the CV when a new LLC PDU is received from upper layers after MS has sent a RLC data block with CV=0.

41.3.6.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, NW_EXT_UTBF = 1, BS_CV_MAX = 15

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF of dynamic allocation in acknowledged mode is assigned. SS assigns an USF to MS until MS has sent CV = 0. SS acknowledges all received data with Final Ack Indicator bit set to '0'. SS continues to assign USF to MS. MS shall send a PACKET UPLINK DUMMY CONTROL BLOCK every time. Then MS is triggered to send more data. After one second a new USF is assigned to MS. MS shall send a data block with a recalculated CV. Then the uplink TBF is continued and completed.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets, USF_GRANULARITY = 1 block, CHANNEL_CODING_COMMAND: CS-2, RLC acknowledged mode (PDP context2) USF assigned to the MS.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 until CV=0
5	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6.
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
8			Repeat step 6 and 7 five times.
9	MS		Trigger the MS to send 400 octets of data. SS should take care of allocating USF's to the MS in order to prevent the MS from releasing the TBF. If SS receives PACKET UPLINK DUMMY CONTROL BLOCKs, these shall be discarded. If SS receives an UPLINK RLC DATA BLOCK, then verify that the MS has recalculated the CV.
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
11	MS -> SS	UPLINK RLC DATA BLOCK	
12			Repeat step 10 and 11 until CV=0
13	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 1 containing valid RRBP. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
14	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

Specific Message Contents

41.3.6.3 TBF Release / Extended Uplink / CS change order while CV=0

41.3.6.3.1 Conformance requirements

[3GPP TS 44.060, 9.1.3.1b2]

During a period when the network does not receive any RLC data blocks from the mobile station, the network may periodically send a PACKET UPLINK ACK/NACK message to the mobile station.

[3GPP TS 44.060, 9.1.12]

In the uplink direction the channel coding scheme shall be the commanded channel coding scheme.

[3GPP TS 44.060, 11.2.28]

The Channel Coding Indicator field indicates the channel coding scheme that the mobile station shall use when transmitting on the uplink.

References

3GPP TS 44.060, subclause 9.1.3.1b2,

3GPP TS 44.060, 9.1.12,

3GPP TS 44.060, 11.2.28

41.3.6.3.2 Test purpose

To verify that MS applies the new ordered CS whereas the CS change command has been received while $CV = 0$.

41.3.6.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, $NW_EXT_UTBF = 1$, $BS_CV_MAX = 15$

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF of dynamic allocation in acknowledged mode is assigned. SS assigns an USF to MS until MS has sent $CV = 0$. SS acknowledges all received data with Final Ack Indicator bit set to '0'. SS continues to assign USF to MS. MS sends a PACKET UPLINK DUMMY CONTROL BLOCK every time. Then MS received a new Coding Scheme command while it transmits PACKET UPLINK DUMMY CONTROL BLOCKS. Last, it is triggered to send more data. After one second a new USF is assigned to MS. MS shall send a data block with a recalculated CV. Then the uplink TBF shall be continued and completed with the new commanded CS.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets, USF_GRANULARITY = 1 block, CHANNEL_CODING_COMMAND: CS-2, RLC acknowledged mode (PDP context2) USF assigned to the MS.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			Repeat step 2 and 3 until CV=0
5	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6.
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
8			Repeat step 6 and 7 five times.
9	SS -> MS	PACKET UPLINK ACK/NACK	CHANNEL_CODING_COMMAND: CS-3
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
12	MS		Trigger the MS to send 400 octets of data. SS should take care of allocating USF's to the MS in order to prevent the MS from releasing the TBF. If SS receives PACKET UPLINK DUMMY CONTROL BLOCKs, these shall be discarded. If SS receives an UPLINK RLC DATA BLOCK, then verify that the MS has recalculated the CV.
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
14	MS -> SS	UPLINK RLC DATA BLOCK	Verify that the MS uses the new ordered CS.
15			Repeat step 13 and 14 until CV=0
16	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 1 containing valid RRBP. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
17	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

Specific Message Contents

PACKET UPLINK ACK NACK (Step 1):

As default message contents except: CHANNEL_CODING_COMMAND	CS-2
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PACKET UPLINK ACK NACK (Step 9):

As default message contents except: CHANNEL_CODING_COMMAND	CS-3
---	------

41.3.6.4 TBF Release / Extended Uplink / TBF reconfigure by PACKET TIMESLOT RECONFIGURE

41.3.6.4.1 Conformance requirements

The mobile station shall attempt to decode every downlink RLC/MAC block on all assigned PDCHs. Whenever the mobile station receives an RLC/MAC block containing an RLC/MAC control block, the mobile station shall attempt to

interpret the message contained therein. If the message addresses the mobile station, the mobile station shall act on the message.

The network may at any time during the uplink TBF initiate a change of resources by sending on the downlink PACCH monitored by the MS, an unsolicited PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message to the mobile station. During the reallocation TFI is allowed to be changed.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in sub-clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in sub-clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send for this TBF, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in sub-clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 9.3.1b.2

3GPP TS 44.060, subclause 8.1.1.1.1

41.3.6.4.2 Test purpose

To verify that if the MS receives a PACKET TIMESLOT RECONFIGURE while the Uplink TBF is extended, the MS switches to the new assigned channels and continues sending of PACKET DUMMY CONTROL BLOCKS in the uplink.

41.3.6.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, GPRS supported, NW_EXT_UTBF = 1.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF using dynamic allocation in acknowledged mode is assigned. The SS assigns an USF to MS. SS receives data blocks till CV=0 and acknowledges all the blocks with an UPLINK ACK/NACK setting FAI=0. Then SS checks that if a USF is matched to the MS it sends a UPLINK DUMMY CONTROL BLOCK. SS sends a PACKET TIMESLOT RECONFIGURE, reassigning the timeslot given for Uplink and initiating a downlink TBF. SS checks that the MS is sending a UPLINK DUMMY CONTROL BLOCK on the new channels whenever the USF is matched. SS releases the downlink TBF. SS initiates a data transfer of 200 octets. SS checks that the MS is using the newly assigned channels for doing the data transfer. SS allows the MS to complete the data transfer and releases the TBF.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets, USF_GRANULARITY = 1 block, CHANNEL_CODING_COMMAND: CS-2, RLC acknowledged mode (PDP context2) USF assigned to the MS.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Repeat step 2 and 3 until CV=0 Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received. USF assigned to the MS
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			
5	SS -> MS	PACKET UPLINK ACK/NACK	
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6. USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	Repeat step 6 and 7 five times. See Specific message content. Assigning different timeslot, starting a downlink TBF.
8			
9	SS -> MS	PACKET TIMESLOT RECONFIGURE	Containing RRBp= N+21 or +22 and USF assigned to the MS. FBI = '1'. Sent on the downlink PDTCH assigned on 3 blocks from the last radio block containing the TIMESLOT RECONFIGURE in step 9. Received on the uplink PDTCH assigned in step 9. Received on the block of frame number = N+21 or +22, N is the frame number of the first burst of the data block in step 10.
10	SS -> MS	DOWNLINK RLC DATA BLOCK	
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
12	MS -> SS	PACKET DOWNLINK ACK/NACK	

Step	Direction	Message	Comments
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
14	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
15	MS		Trigger the MS to send 200 octets of data. SS should take care of allocating USF's to the MS in order to prevent the MS from releasing the TBF. If SS receives PACKET UPLINK DUMMY CONTROL BLOCKs, these shall be discarded. If SS receives an UPLINK RLC DATA BLOCK, then verify that the MS has recalculated the CV. USF assigned to the MS
16	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Repeat step 16 and 17 until CV=0
17	MS -> SS	UPLINK RLC DATA BLOCK	
18			Final Ack Indication = 1 containing valid RRBp. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
19	SS -> MS	PACKET UPLINK ACK/NACK	
20	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBp on PACCH of the assigned PDCH.

Specific Message Contents

PACKET TIMESLOT RECONFIGURE message in step 9:

PAGE_MODE	Normal
- Global TFI	0, Global TFI as reference 0, uplink TFI same value as assigned in the uplink in step 1
CHANNEL_CODING_COMMAND	Arbitrarily chosen from valid values
Global packet Timing Advance	
- {0 1<TIMING_ADVANCE_VALUE>}	1 (timing advance value)
- TIMING_ADVANCE_VALUE	30 bit periods
- {0 1<UPLINK_TIMING_ADVANCE_INDEX>}	0 (no uplink timing advance index)
<UPLINK_TIMING_ADVANCE_TIMESLOT_NUMBER>	The MS stops the operation of the continuous timing advance procedure.
- {0 1<DOWNLINK_TIMING_ADVANCE_INDEX>}	0 (no downlink timing advance index)
<DOWNLINK_TIMING_ADVANCE_TIMESLOT_NUMBER>	The MS stops the operation of the continuous timing advance procedure.
DOWNLINK_RLC_MODE	Acknowledged mode
CONTROL_ACK	0
{0 1<DOWNLINK_TFI_ASSIGNMENT>}	1
- GLOBAL_TFI_ASSIGNMENT	Arbitrarily chosen but different from the value for uplink TBF
{0 1<UPLINK_TFI_ASSIGNMENT>}	0
DOWNLINK_TIMESLOT_ALLOCATION	Timeslot 5 assigned
{0 1<Frequency parameters>}	0
Dynamic allocation	0
- Extended Dynamic Allocation	0 (Dynamic allocation)
{0 1<P0>}	0
- USF GRANULARITY	0 (1 RLC block)
- {0 1<RLC_DATA_BLOCKS_GRANTED>}	0 (open-ended TBF)
- {0 1<TBF_STARTING_TIME>}	0 (no starting time)
-	1 (Timeslot Allocation with Power Control Parameters)
- ALPHA	0.5
- {0 1<USF_TN _x ><GAMMA_TN _x >}	000001 (timeslot 5 assigned)
- USF_TN ₅	Arbitrarily chosen but different from current value
- GAMMA_TN ₅	For GSM 700, T-GSM 810, GSM 850 and GSM 900, +8 dBm For DCS 1 800 and PCS 1 900, +6 dBm
	00

41.3.6.5 TBF Release / Extended Uplink / TBF reconfigure by PACKET UPLINK ASSIGNMENT

41.3.6.5.1 Conformance requirements

The mobile station shall attempt to decode every downlink RLC/MAC block on all assigned PDCHs. Whenever the mobile station receives an RLC/MAC block containing an RLC/MAC control block, the mobile station shall attempt to interpret the message contained therein. If the message addresses the mobile station, the mobile station shall act on the message.

The network may at any time during the uplink TBF initiate a change of resources by sending on the downlink PACCH monitored by the MS, an unsolicited PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message to the mobile station. During the reallocation TFI is allowed to be changed.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in sub-clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in sub-clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send for this TBF, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in sub-clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 9.3.1b.2

3GPP TS 44.060, subclause 8.1.1.1.1

41.3.6.5.2 Test purpose

To verify that if the MS receives a PACKET UPLINK ASSIGNMENT while the Uplink TBF is extended, the MS switches to the new assigned channels and continues sending of PACKET DUMMY CONTROL BLOCKS in the uplink.

41.3.6.5.3 Method of test

Initial Conditions

System Simulator:

1 cell, GPRS supported, NW_EXT_UTBF = 1.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to transfer user data. A TBF using dynamic allocation in acknowledged mode is assigned. The SS assigns an USF to MS. SS receives data blocks till CV=0 and acknowledges all the blocks with an UPLINK ACK/NACK setting FAI=0. Then SS checks that if a USF is matched to the MS it sends a UPLINK DUMMY CONTROL BLOCK. SS sends a PACKET UPLINK ASSIGNMENT, reassigning the timeslot given for Uplink. SS checks that the MS is sending a UPLINK DUMMY CONTROL BLOCK on the new channels whenever the USF is matched. SS initiates a data transfer of 200 octets. SS checks that the MS is using the newly assigned channels for doing the data transfer. SS allows the MS to complete the data transfer and releases the TBF.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets, USF_GRANULARITY = 1 block, CHANNEL_CODING_COMMAND: CS-2, RLC acknowledged mode (PDP context2) USF assigned to the MS.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Repeat step 2 and 3 until CV=0
3	MS -> SS	UPLINK RLC DATA BLOCK	
4			
5	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6.
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	Repeat step 6 and 7 five times.
8			
9	SS -> MS	PACKET UPLINK ASSIGNMENT	
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS. Sent after 3 blocks of sending the messages in step 9.
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
12	MS		Trigger the MS to send 200 octets of data. SS should take care of allocating USF's to the MS in order to prevent the MS from releasing the TBF. If SS receives PACKET UPLINK DUMMY CONTROL BLOCKs, these shall be discarded. If SS receives an UPLINK RLC DATA BLOCK, then verify that the MS has recalculated the CV.
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
14	MS -> SS	UPLINK RLC DATA BLOCK	Repeat step 13 and 14 until CV=0
15			
16	SS -> MS	PACKET UPLINK ACK/NACK	
17	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBp on PACCH of the assigned PDCH.

Specific Message Contents :

PACKET UPLINK ASSIGNMENT message in step 9:

Information Element	value/remark
Dynamic allocation	01
-	000000
-	1 (Timeslot Allocation with Power Control Parameters for 1 slot assigned)
- ALPHA	0.5
-	000001 (timeslot 5 assigned)
- USF_TN5	Arbitrarily chosen
- GAMMA_TN5	For GSM 900: +8 dBm
	For GSM 400: +8 dBm
	For GSM 850: +8 dBm
	For GSM 700 and T-GSM 810: +8 dBm
	For DCS 1 800: +6dBm
	For PCS 1 900: +6 dBm
-	00000

41.3.6.6 Extended Uplink TBF / Cell Change while in Extended Uplink/ No Packet Neighbouring Cell Data

41.3.6.6.1 Conformance requirements

If CCN is enabled (see sub-clause 5.5.1.1a), the mobile station shall behave as in network control mode NC0 or NC1 up to the point when a new cell has been chosen. It shall then check the CCN_SUPPORTED parameter, if available, that was last received for that cell. This parameter can be sent on BCCH or PBCCH or individually in PACKET MEASUREMENT ORDER or in PACKET CELL CHANGE ORDER messages. If it is available and if it indicates that CCN mode shall be entered towards that cell or if it is not available, then instead of performing the cell change, the mobile station shall start timer T3206 and enter the CCN mode. At the first possible opportunity, the MS shall then, when in CCN mode, inform the network about the proposed cell by sending a PACKET CELL CHANGE NOTIFICATION message, stop timer T3206, start timers T3208 and T3210. The PACKET CELL CHANGE NOTIFICATION message shall contain the ARFCN for the BCCH and the BSIC as identity of the proposed cell. The message shall also contain measurement reports for the proposed cell and for other neighbour cells if available. In CCN mode the mobile station shall continue the data transfer and store neighbour cell system information if received in instances of the PACKET NEIGHBOUR CELL DATA message, but not perform the cell change. At receipt of the first PACKET NEIGHBOUR CELL DATA message or PACKET CELL CHANGE CONTINUE message or PACKET CELL CHANGE ORDER message, the mobile station shall stop the timer T3210. If a mobile station as response to a PACKET CELL CHANGE NOTIFICATION message receives a PACKET CELL CHANGE CONTINUE message without receiving any neighbour cell system information, the mobile station shall stop timer T3208, stop timer T3210 if still running, leave CCN mode and continue cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE CONTINUE message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE CONTINUE message is received, the mobile station shall stop timer T3208, leave CCN mode and continue the cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE ORDER message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE ORDER message is received, the mobile station shall stop timer T3208, leave CCN mode and follow the procedures as specified for the Packet Cell Change Order (sub-clause 8.4) and in sub-clause 8.8.1.

In extended uplink TBF mode, the uplink TBF may be maintained during temporary inactive periods, where the mobile station has no RLC information to send.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 8.8.3

3GPP TS 44.060, subclause 9.3.1b.2

41.3.6.6.2 Test purpose

To verify that an MS which is in Extended Uplink TBF, NACC active, changes to the proposed cell while in extending (sending uplink dummy control blocks).

41.3.6.6.3 Method of test

Initial conditions

System Simulator:

2 cells, GPRS supported, CCN Active, RXLEV_ACCESS_MIN = -90dBm, NW_EXT_UTBF = 1.

Cell A: RLA_C = -50 dBm, is active.

Cell B: RLA_C = -60 dBm, is active.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to initiate packet uplink transfer. SS assigns resources to the MS and it starts to send uplink data that the SS acknowledge. When MS reaches CV=0, it starts sending PACKET UPLINK DUMMY CONTROL BLOCKS. During the uplink the signal strength of Cell A is lowered to -80 dBm. The MS enters CCN mode and sends PACKET CELL CHANGE NOTIFICATION. The MS then continues to send PACKET UPLINK DUMMY CONTROL BLOCKS. While MS is sending PACKET UPLINK DUMMY CONTROL BLOCKS, the SS then sends PACKET CELL CHANGE CONTINUE and the MS change to Cell B. The MS request resources for an uplink in the new cell and complete the uplink transfer in the new cell.

Maximum duration of the test

-

Expected sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets. USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: same as channel coding CHANNEL_CODING_COMMAND: cs-1 No starting time present.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS Repeat step 2 and 3 until CV=0
3	MS -> SS	RLC DATA BLOCK	
4			
5	SS -> MS	PACKET UPLINK ACK/NACK	
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received. USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6. USF assigned to the MS
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
8			
9	SS		Repeat steps 6 and 7 five times Lower signal strength of Cell A to -80 dBm. USF assigned to the MS
10	SS -> MS	PACKET UPLINK ACK/NACK	
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK Or PACKET CELL CHANGE NOTIFICATION	Step 10 and 11 are repeated until a PACKET CELL CHANGE NOTIFICATION is received in step 11, but no longer than 15 sec. The test has failed if no PACKET CELL CHANGE NOTIFICATION is received in Cell A within 15 sec from Step 9. See specific message content.
12			
13	SS -> MS	PACKET CELL CHANGE CONTINUE	The following messages are to be sent and received in Cell B.
14	MS ->SS	CHANNEL REQUEST	CHANNEL REQUEST with establishment cause = 'Single block packet access' or 'one phase packet access'. Sent on the AGCH Received on the single block assigned in step 15. Access type = 'Cell Update' or 'Two Phase Access'. Uplink dynamic allocation, no starting time Sent on PACCH of the same PDCH assigned in step 15. MS performs a Cell Update.
15	SS ->MS	IMMEDIATE ASSIGNMENT	
16	MS ->SS	PACKET RESOURCE REQUEST	
17	SS ->MS	PACKET UPLINK ASSIGNMENT	
18		{Completion of uplink RLC data block transfer}	

Specific message contents

PACKET CELL CHANGE CONTINUE in Step 13

Information element	Value/remark
< PAGE_MODE : bit (2) >	00 (Normal Paging)
0	0
< GLOBAL_TFI : Global TFI IE >	0 <5 bit Uplink TFI>
0 1	1
< ARFCN : bit (10) >	ARFCN of Cell B.
< BSIC : bit (6) >	BSIC of Cell B.
< CONTAINER_ID >	01

41.3.6.7 Extended Uplink TBF / Cell Change failure while in Extended Uplink/ No Packet Neighbouring Cell Data

41.3.6.7.1 Conformance requirements

If CCN is enabled (see sub-clause 5.5.1.1a), the mobile station shall behave as in network control mode NC0 or NC1 up to the point when a new cell has been chosen. It shall then check the CCN_SUPPORTED parameter, if available, that was last received for that cell. This parameter can be sent on BCCH or PBCCH or individually in PACKET MEASUREMENT ORDER or in PACKET CELL CHANGE ORDER messages. If it is available and if it indicates that CCN mode shall be entered towards that cell or if it is not available, then instead of performing the cell change, the mobile station shall start timer T3206 and enter the CCN mode. At the first possible opportunity, the MS shall then, when in CCN mode, inform the network about the proposed cell by sending a PACKET CELL CHANGE NOTIFICATION message, stop timer T3206, start timers T3208 and T3210. The PACKET CELL CHANGE NOTIFICATION message shall contain the ARFCN for the BCCH and the BSIC as identity of the proposed cell. The message shall also contain measurement reports for the proposed cell and for other neighbour cells if available. In CCN mode the mobile station shall continue the data transfer and store neighbour cell system information if received in instances of the PACKET NEIGHBOUR CELL DATA message, but not perform the cell change. At receipt of the first PACKET NEIGHBOUR CELL DATA message or PACKET CELL CHANGE CONTINUE message or PACKET CELL CHANGE ORDER message, the mobile station shall stop the timer T3210. If a mobile station as response to a PACKET CELL CHANGE NOTIFICATION message receives a PACKET CELL CHANGE CONTINUE message without receiving any neighbour cell system information, the mobile station shall stop timer T3208, stop timer T3210 if still running, leave CCN mode and continue cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE CONTINUE message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE CONTINUE message is received, the mobile station shall stop timer T3208, leave CCN mode and continue the cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE ORDER message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE ORDER message is received, the mobile station shall stop timer T3208, leave CCN mode and follow the procedures as specified for the Packet Cell Change Order (sub-clause 8.4) and in sub-clause 8.8.1.

In extended uplink TBF mode, the uplink TBF may be maintained during temporary inactive periods, where the mobile station has no RLC information to send.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 8.8.3

3GPP TS 44.060, subclause 9.3.1b.2

41.3.6.7.2 Test purpose

To verify that an MS, which is in Extended Uplink TBF, NA CC active, shall revert to the previous TBF, if selected cell disappears from the coverage and MS should still stay in Extended Uplink TBF

41.3.6.7.3 Method of test

Initial conditions

System Simulator:

2 cells, GPRS supported, CCN Active, RXLEV_ACCESS_MIN = -90 dBm, NW_EXT_UTBF = 1.

Cell A: RLA_C = -50 dBm, is active.

Cell B: RLA_C = -60 dBm, is active.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established. Ready timer is deactivated

Specific PICS Statements

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Test procedure

The MS is triggered to initiate packet uplink transfer. SS assigns resources to the MS and it starts to send uplink data that the SS acknowledge. When MS reaches CV=0, it starts sending PACKET UPLINK DUMMY CONTROL BLOCKS. During the uplink the signal strength of Cell A is lowered to -80 dBm. The MS enters CCN mode and sends PACKET CELL CHANGE NOTIFICATION. The MS then continues to send PACKET UPLINK DUMMY CONTROL BLOCKS. While MS is sending PACKET UPLINK DUMMY CONTROL BLOCKS, the SS then sends PACKET CELL CHANGE CONTINUE and the MS change to Cell B. MS tries to access Cell B. SS deactivates Cell B, The MS request resources for an uplink in the old cell.

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 500 octets. USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: same as channel coding CHANNEL_CODING_COMMAND: cs-1 No starting time present.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	MS -> SS	RLC DATA BLOCK	
4			Repeat step 2 and 3 until CV=0
5	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6.
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	USF assigned to the MS
8			Repeat steps 6 and 7 five times
9	SS		
10	SS -> MS	PACKET UPLINK ACK/NACK	Lower signal strength of Cell A to -80 dBm. USF assigned to the MS
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK Or PACKET CELL CHANGE NOTIFICATION	
12			Step 10 and 11 are repeated until a PACKET CELL CHANGE NOTIFICATION is received in step 11, but no longer than 15 sec. The test has failed if no PACKET CELL CHANGE NOTIFICATION is received in Cell A within 15 sec from Step 9.
13	SS -> MS	PACKET CELL CHANGE CONTINUE	See specific message content.
14	MS -> SS	CHANNEL REQUEST	Allow the MS to try to access Cell B
15			Cell B is deactivated
			The following messages are to be sent and received in Cell A.
16	MS -> SS	CHANNEL REQUEST	CHANNEL REQUEST with establishment cause = 'Single block packet access' or one phase packet access.
17	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on the AGCH.
18	MS -> SS	PACKET RESOURCE REQUEST	Received on the single block assigned in step 17.
19	SS -> MS	PACKET UPLINK ASSIGNMENT	uplink dynamic allocation, no starting time Sent on PACCH of the same PDCH assigned in step 17.
20		{Completion of uplink RLC data block transfer}	MS performs a Cell Update.

Specific message contents

PACKET CELL CHANGE CONTINUE in Step 13

Information element	Value/remark
< PAGE_MODE : bit (2) > 0	00 (Normal Paging) 0
< GLOBAL_TFI : Global TFI IE > 0 1	0 <5 bit Uplink TFI> 1
< ARFCN : bit (10) >	ARFCN of Cell B.
< BSIC : bit (6) >	BSIC of Cell B.
<CONTAINER_ID>	01

41.3.6.8 Extended Uplink TBF / Cell Change while in Extended Uplink/ With Packet Neighbouring Cell Data

41.3.6.8.1 Conformance requirements

If CCN is enabled (see sub-clause 5.5.1.1a), the mobile station shall behave as in network control mode NC0 or NC1 up to the point when a new cell has been chosen. It shall then check the CCN_SUPPORTED parameter, if available, that was last received for that cell. This parameter can be sent on BCCH or PBCCH or individually in PACKET MEASUREMENT ORDER or in PACKET CELL CHANGE ORDER messages. If it is available and if it indicates that CCN mode shall be entered towards that cell or if it is not available, then instead of performing the cell change, the mobile station shall start timer T3206 and enter the CCN mode. At the first possible opportunity, the MS shall then, when in CCN mode, inform the network about the proposed cell by sending a PACKET CELL CHANGE NOTIFICATION message, stop timer T3206, start timers T3208 and T3210. The PACKET CELL CHANGE NOTIFICATION message shall contain the ARFCN for the BCCH and the BSIC as identity of the proposed cell. The message shall also contain measurement reports for the proposed cell and for other neighbour cells if available. In CCN mode the mobile station shall continue the data transfer and store neighbour cell system information if received in instances of the PACKET NEIGHBOUR CELL DATA message, but not perform the cell change. At receipt of the first PACKET NEIGHBOUR CELL DATA message or PACKET CELL CHANGE CONTINUE message or PACKET CELL CHANGE ORDER message, the mobile station shall stop the timer T3210. If a mobile station as response to a PACKET CELL CHANGE NOTIFICATION message receives a PACKET CELL CHANGE CONTINUE message without receiving any neighbour cell system information, the mobile station shall stop timer T3208, stop timer T3210 if still running, leave CCN mode and continue cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE CONTINUE message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE CONTINUE message is received, the mobile station shall stop timer T3208, leave CCN mode and continue the cell reselection in NC0/NC1 mode. The network sends first necessary system information for the cell proposed in the PACKET CELL CHANGE NOTIFICATION message, or for any other cell, in one or more instances of the PACKET NEIGHBOUR CELL DATA message and sends then a PACKET CELL CHANGE ORDER message. The mobile station shall store the received system information as specified in sub-clause 8.8.1. When the first instance of the PACKET NEIGHBOUR CELL DATA message is received, the mobile station shall stop timer T3210 if still running. When the PACKET CELL CHANGE ORDER message is received, the mobile station shall stop timer T3208, leave CCN mode and follow the procedures as specified for the Packet Cell Change Order (sub-clause 8.4) and in sub-clause 8.8.1.

In extended uplink TBF mode, the uplink TBF may be maintained during temporary inactive periods, where the mobile station has no RLC information to send.

During the temporary inactive periods, the mobile station may stop sending RLC data block, as defined in clause 9.1.3. The network shall continue allocating the mobile station uplink radio blocks during the inactivity period, using the procedures defined in clause 8.1.1 for each medium access mode. Uplink radio blocks shall be allocated as required allowing the mobile station to continue the transfer of RLC data blocks, when a new RLC data block becomes available.

When the mobile station is allocated an uplink radio block and there is no RLC data block ready to send, the mobile station shall send an RLC/MAC control block in each uplink radio block allocated by the network. The priority defined in clause 8.1.1 for different kinds of RLC/MAC blocks apply.

References

3GPP TS 44.060, subclause 8.8.3

3GPP TS 44.060, subclause 9.3.1b.2

41.3.6.8.2 Test purpose

To verify that: MS takes into consideration the change of parameter NW_EXT_UTBF in SI13 (sent in PACKET NEIGHBOUR CELL DATA) and operate in Extended Uplink TBF in the new cell.

41.3.6.8.3 Method of test

Initial conditions

System Simulator:

2 cells, GPRS supported, CCN Active, RXLEV_ACCESS_MIN = -90dBm,.

Cell A: RLA_C = -50 dBm, is active and NW_EXT_UTBF = 0.

Cell B: Supports PACKET SI STATUS. No System Information is broadcast on the BCCH, except SI3. This is only made to make it possible to verify that the MS uses the information in Packet Neighbour Cell Data. RLA_C = -60 dBm, is active and NW_EXT_UTBF = 1.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 2 established.

Specific PICS Statements

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Test procedure

The MS is triggered to initiate packet uplink transfer. SS assigns resources to the MS and it starts to send uplink data that the SS acknowledge. During the uplink the signal strength of Cell A is lowered to - 80 dBm. The MS enters CCN mode and sends PACKET CELL CHANGE NOTIFICATION. SS sends one or more PACKET NEIGHBOUR CELL DATA to the MS (with NW_EXT_UTBF in SI13 set to 1). The SS then sends PACKET CELL CHANGE CONTINUE and the MS change to Cell B. The MS requests resources for an uplink and asks for the SI2 and SI2bis messages by sending PACKET_SI_STATUS. In the new cell the MS completes the uplink transfer while operating in extended uplink TBF.

Maximum duration of the test

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Expected sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	n = 1200 octets. USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: same as channel coding CHANNEL_CODING_COMMAND: cs-1 No starting time present.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	MS -> SS	RLC DATA BLOCK	
4			Repeat step 2 and 3 five times
5	SS		Lower signal strength of Cell A to -80 dBm.
6	SS -> MS	PACKET UPLINK ACK/NACK	USF assigned to the MS
7	MS -> SS	RLC DATA BLOCK Or PACKET CELL CHANGE NOTIFICATION	
8			Step 6 and 7 are repeated until a PACKET CELL CHANGE NOTIFICATION is received in step 7, but no longer than 15 sec.
			The test has failed if no PACKET CELL CHANGE NOTIFICATION is received in Cell A within 15 sec from Step 5.
9	SS -> MS	PACKET NEIGHBOUR CELL DATA	USF assigned to the MS
10	MS -> SS	RLC DATA BLOCK	
11			Step 9 and 10 are repeated until all instances of PACKET NEIGHBOUR CELL DATA are sent (SI13 with NW_EXT_UTBF = 1 and SI_STATUS_IND = 1).
12	SS -> MS	PACKET CELL CHANGE CONTINUE	
			The following messages are to be sent and received in Cell B.
13		{Uplink dynamic allocation two phase access}	USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: same as channel coding CHANNEL_CODING_COMMAND: cs-1 No starting time present.
14	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
15	MS -> SS	RLC DATA BLOCK or PACKET SI STATUS or PACKET RESOURCE REQUEST	
			Step 16 is performed only if a PACKET RESOURCE REQUEST is received in step 15.
16	SS -> MS	PACKET UPLINK ASSIGNMENT	Repeats the PDTCH assignment given in step 13.

17			<p>Step 14 and 15 are repeated until a PACKET SI STATUS is received in step 15. The PACKET SI STATUS shall be sent within 10 sec of accessing the cell. Verify that the MS does not request SI that was sent in step 9.</p> <p>If the RLC DATA BLOCK with BSN = 0 received in Step 15 contains an empty LLC PDU as the first LLC PDU, Steps 14 and 15 are further repeated until a PACKET RESOURCE REQUEST is received in Step 15.</p> <p>NOTE: The empty LLC PDU may be accompanied by another low priority RLC data block (with Packet Resource Request and Packet Uplink Assignment or Packet Timeslot Reconfigure as required), in order to ensure that the radio resources are used efficiently.</p>
18		PACKET SERVING CELL DATA	SI2,SI4 and SI2bis messages are sent .
19	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
20(optional step)	MS -> SS	RLC DATA BLOCK or PACKET RESOURCE REQUEST	
21(conditional step)	SS->MS	PACKET UPLINK ASSIGNMENT	Step 21 is performed only PRR is sent step 20. Contains the same frequency parameter as PUA in step 13.
22			Repeat step 19 and 20 until CV=0.
23	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 0. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
24	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS, sent after 6 blocks from step 23
A24(optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B24.
B24(optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
25	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	
26			Repeat step 24 and 25 five times.
27	MS		Trigger the MS to send 500 octets of data. SS should take care of allocating USF's to the MS in order to prevent the MS from releasing the TBF
28	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
29	MS -> SS	UPLINK RLC DATA BLOCK	
30			Repeat step 28 and 29 until CV=0
31	SS -> MS	PACKET UPLINK ACK/NACK	Final Ack Indication = 1 containing valid RRBP. Sent on PACCH of the assigned PDCH. Acknowledge all data blocks received.
32	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

Specific message contents

PACKET NEIGHBOUR CELL DATA in Step 9

The message contains the default SI13 with NW_EXT_UTBF = 1 and SI_STATUS_IND = 1, default SI1 and SI3 for Cell B.

Information element	Value/remark
< PAGE_MODE : bit (2) > 0	00 (Normal Paging) 0
< GLOBAL_TFI : Global TFI IE > < CONTAINER_ID : bit (2) >	0 <5 bit Uplink TFI> 01 for SI belonging to Cell B
< SPARE : bit(1)>	0
< CONTAINER_INDEX : bit (5)> 0 1	00000 to the index needed to send all SIs for each cell. 0 No ARFCN or BSIC
Container repetition struct < PD : bit(3)>	000, BCCH

PACKET CELL CHANGE CONTINUE in Step 12

Information element	Value/remark
< PAGE_MODE : bit (2) > 0	00 (Normal Paging) 0
< GLOBAL_TFI : Global TFI IE > 0 1	0 <5 bit Uplink TFI> 1
< ARFCN : bit (10) >	ARFCN of Cell B.
< BSIC : bit (6) >	BSIC of Cell B.
<CONTAINER_ID>	01

41.3.6.9 TBF Release / Extended Uplink / Change of RLC mode / Normal release

41.3.6.9.1 Conformance requirements

During an uplink packet transfer, upper layer may request to transfer another LLC PDU. If the new LLC PDU does not have the same RLC mode as the current uplink TBF but has a higher radio priority, the mobile station shall complete the transmission of the current LLC PDU using the countdown procedure including acknowledgement from the network, if in acknowledged mode.

If the TBF is operated in extended uplink TBF mode (see sub-clause 9.3.1b), the mobile station shall use the procedure in sub-clause 8.1.1.6 for changing RLC mode.

The mobile station shall send a PACKET RESOURCE REQUEST message on PACCH indicating the new RLC mode and start timer T3168.

If timer T3168 expires, the mobile station shall retransmit the PACKET RESOURCE REQUEST message and restart timer T3168.

On receipt of a PACKET RESOURCE REQUEST message, indicating a change of RLC mode, the network shall release the uplink TBF at a point determined by the network, using the procedure defined in sub-clause 9.5.

On receipt of PACKET UPLINK ACK/NACK with Final Ack Indicator set to '1' the mobile station shall stop timer T3168 and after sending the PACKET CONTROL ACK perform the change of RLC mode by establishing a new TBF.

References

3GPP TS 44.060, subclauses 8.1.1.6, 8.1.1.1.2, and 9.5.

41.3.6.9.1.2 Test purpose

To verify that during extended uplink TBF the MS re-establishes the TBF and changes the RLC mode.

41.3.6.9.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, NW_EXT_UTBF = 1, BS_CV_MAX = 14, T3168 timeout value=7 (4s), N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 1 and context 2 established.

Specific PICS Statements

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Test Procedure

An uplink TBF is established and in progress. SS assigns USFs allowing the MS to transmit data blocks. The MS is triggered to transfer 220 octets user data with a different RLC mode and higher radio priority.

The mobile station shall complete the transmission of the current LLC PDU; SS will verify the complete reception of the LLC PDU.

SS acknowledges the LLC PDU with a Packet Uplink Ack/Nack with TBF Est field is set to '1' and Final Ack Indicator bit set to '1'.

The mobile station shall use the same procedures as are used for TBF establishment using two phase starting from the point where the mobile station transmits the PACKET RESOURCE REQUEST message

In case the MS ignores the TBF Est field in the PACKET UPLINK ACK/NACK, the mobile station shall transmit a PACKET CONTROL ACKNOWLEDGEMENT message, release the TBF and shall establish a new TBF using two phase access.

SS assigns a PDCH to the MS. SS assigns USFs allowing the MS to transmit data blocks until the countdown value CV=0.

SS sends a Packet Uplink Ack/Nack with TBF Est field set to '0' and Final Ack Indicator bit set to '1' and the MS is polled. The MS answers with a Packet Control Acknowledgement and the TBF is released.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	MS	{Uplink dynamic allocation two phase access}	In PDP context2, n = 220 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end, TLLI_BLOCK_CHANNEL_CODING: cs 1, CHANNEL_CODING_COMMAND: cs 1, RADIO_PRIORITY = 4
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on the PACCH, the USF assigned to the MS, on 3 blocks from the last radio block containing the uplink assignment.
3	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH. Check that the coding as specified by CHANNEL_CODING_COMMAND, the TFI, and BSN is correct.
4			Repeat step 2 and 3 three times
5	MS		To trigger the MS to transfer 220 octets: in test PDP context1, unacknowledged RLC mode and Radio Priority = 1
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on the PACCH, the USF assigned to the MS.
7	MS -> SS	UPLINK RLC DATA BLOCK Or	Received on the assigned PDTCH. Check that the coding as specified by CHANNEL_CODING_COMMAND, the TFI, and BSN is correct. Send PACKET UPLINK ACK/NACK to acknowledge all received datablocks when CV=0 and PACKET RESOURCE REQUEST is not yet received. (Note: MS may retransmit the block with BSN=0 once if it has already been scheduled while PACKET UPLINK ACK/NACK is being processed and the new LLC PDU is not ready for the transmission)
		PACKET RESOURCE REQUEST Or	Received on PACCH of the assigned PDCH indicating the change of RLC mode. Check for radio priority level = 1 and RLC mode Unacknowledged RLC mode.
		PACKET UPLINK DUMMY CONTROL BLOCK	The MS is in extended TBF mode.
8			Repeat step 6 and 7 until CV = 0 and a PACKET RESOURCE REQUEST is received.
9	SS -> MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH assigned, acknowledging all blocks so far. FINAL_ACK_INDICATION = '1', TBF Est = 1, Valid RRBP.
10	SS		Verify that only one complete LLC PDU has been received.
11 (optional)	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH. If not received continue with step 14.
12 (conditional)	MS -> SS	CHANNEL REQUEST	CHANNEL REQUEST with establishment cause = 'Single block packet access' or one phase packet access.
13 (conditional)	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on the AGCH
14	MS -> SS	PACKET RESOURCE REQUEST	Received on PACCH of the assigned PDCH Check for radio priority level = 1 and RLC mode Unacknowledged RLC mode. Received on the block specified by the single block assignment of step 13 or by the RRBP of step 9.
15	SS -> MS	PACKET UPLINK ASSIGNMENT	Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block. Sent on PACCH of the assigned PDCH.
16	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	The USF assigned to the MS. Sent on PACCH of the assigned PDCH.
17	MS -> SS	UPLINK RLC DATA BLOCK	Received on the PDTCH assigned.

18			Repeat step 16 and 17 until countdown value CV=0.
19	SS -> MS	PACKET UPLINK ACK/NACK	FINAL_ACK_INDICATION = '1', TBF Est = 0, a valid RRBP, acknowledge all received data, sent on PACCH.
20	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

41.3.6.10 TBF Release / Extended Uplink / Change of RLC mode / Abnormal release

41.3.6.10.1 Conformance requirements

During an uplink packet transfer, upper layer may request to transfer another LLC PDU. If the new LLC PDU does not have the same RLC mode as the current uplink TBF but has a higher radio priority, the mobile station shall complete the transmission of the current LLC PDU using the countdown procedure including acknowledgement from the network, if in acknowledged mode. immediately request a resource reallocation for uplink according to the new Radio Priority of the new LLC PDU by sending a PACKET RESOURCE REQUEST message on the PACCH and starting timer T3168.

If the TBF is operated in extended uplink TBF mode (see sub-clause 9.3.1b), the mobile station shall use the procedure in sub-clause 8.1.1.6 for changing RLC mode.

Then the mobile station shall complete the transmission of the current LLC PDU. If the TBF is operated in extended uplink TBF mode, the mobile station shall release the uplink TBF and re-establish a new uplink TBF in order to change the RLC mode

The mobile station shall send a PACKET RESOURCE REQUEST message on PACCH indicating the new RLC mode and start timer T3168.

If timer T3168 expires, the mobile station shall retransmit the PACKET RESOURCE REQUEST message and restart timer T3168.

If timer T3168 expires and the PACKET RESOURCE REQUEST message has already been transmitted four times, the mobile station shall perform an abnormal release with access retry (see sub-clause 8.7.2).

On receipt of a PACKET RESOURCE REQUEST message, indicating a change of RLC mode, the network shall release the uplink TBF at a point determined by the network, using the procedure defined in sub-clause 9.5.

On receipt of PACKET UPLINK ACK/NACK with Final Ack Indicator set to '1' the mobile station shall stop timer T3168 and after sending the PACKET CONTROL ACK perform the change of RLC mode by establishing a new TBF.

References

3GPP TS 44.060, subclauses 8.1.1.6, subclauses 8.1.1.1.2, subclause 9.5.

41.3.6.10.1.2 Test purpose

To verify that during extended uplink TBF the MS perform an abnormal release with access retry after timer T3168 expired and PACKET RESOURCE REQUEST message has been transmitted four times.

41.3.6.10.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, NW_EXT_UTBF = 1, BS_CV_MAX = 14, T3168 timeout value=7 (4s), N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7.

Mobile Station:

MS is in Packet Idle mode, GPRS attached with support of GERAN Feature Package 1 indicated in MS Radio Access Capabilities, and PDP context 1 and context 2 established.

Specific PICS Statements

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Test Procedure

An uplink TBF is established and in progress. SS assigns USFs allowing the MS to transmit data blocks until the MS completes the countdown procedure. As soon as the MS is in extended UL TBF mode, the MS is triggered to transfer 220 octets user data with different RLC mode.

The mobile station shall immediately request a resource reallocation for uplink indicating the changed RLC mode applied to the new LLC PDU by sending a PACKET RESOURCE REQUEST message on the PACCH and start timer T3168.

SS keeps assigning USFs, the MS will send Packet Uplink Dummy Control Blocks till T3168 expire. The MS will send a PACKET RESOURCE REQUEST message again on the PACCH and restart timer T3168.

The SS keeps assigning USFs till the MS has transmitted the Packet Resource Request four times.

The MS shall perform an abnormal release with access retry.

The SS will assign new resources to the MS to complete the new TBF.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1	SS	{Uplink dynamic allocation two phase access}	In PDP context2, n = 220 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end, TLLI_BLOCK_CHANNEL_CODING: cs 1, CHANNEL_CODING_COMMAND: cs 1, RADIO_PRIORITY = 4
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on the PACCH, the USF assigned to the MS, on 3 blocks from the last radio block containing the uplink assignment.
3	MS -> SS	UPLINK RLC DATA BLOCK	Received on the assigned PDTCH. Check that the coding as specified by CHANNEL_CODING_COMMAND, the TFI is correct.
4			Repeat step 2 and 3 till CV = 0
5	SS -> MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH assigned, the USF not assigned to the MS, acknowledging all blocks. FINAL_ACK_INDICATION = '0', TBF Est = 1
6	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS, sent after 6 blocks from step 5
A6 (optional step)	MS -> SS	UPLINK RLC DATA BLOCK	MS may retransmit the block with BSN=0 once if it has already been scheduled while Packet Uplink Ack/Nack is being processed. In this case go to step B6.
B6 (optional step)	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
7	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	MS is in extended UL TBF mode.
8	MS		To trigger the MS to transfer 220 octets: in test PDP context1, unacknowledged RLC mode and Radio Priority = 1
9	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
A10 (optional step)	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK	MS may transmit while processing the uplink data trigger PACKET UPLINK DUMMY CONTROL BLOCK. In this case repeat step 9 until a PACKET RESOURCE REQUEST is received.
10	MS -> SS	PACKET RESOURCE REQUEST	MS starts T3168. Received on the PACCH of the assigned PDCH, Indicating the change of RLC mode: Check that radio priority level = 1 and Unacknowledged RLC mode.
11	SS -> MS	PACKET UPLINK ACK/NACK	To prevent T3184 from expiring, sent on the PACCH of the PDCH assigned, the USF not assigned to the MS, acknowledging all Blocks. FINAL_ACK_INDICATION = '0', TBF Est = 0
12	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
13	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK Or	MS is in extended UL TBF mode
		PACKET RESOURCE REQUEST	Received on the PACCH of the assigned PDCH, Indicating the change of RLC mode: Check that radio priority level = 1 and Unacknowledged RLC mode.
14			Repeat step 12 and 13 until a PACKET RESOURCE REQUEST has been received. Check that the PACKET RESOURCE REQUEST is received within T3168 +/- 10% from the previous PACKET RESOURCE REQUEST.
15			Repeat Step 11 to Step 14 until the PACKET RESOURCE REQUEST has been received a total of 4 times.
			MS shall perform an abnormal release with access retry
16	MS -> SS	CHANNEL REQUEST	CHANNEL REQUEST with establishment cause = 'Single block packet access' or one phase packet

			access.
17	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on the AGCH
18	MS -> SS	PACKET RESOURCE REQUEST	Received on the single block assigned in step 17. Check that radio priority level = 1, peak throughput class = 5, unacknowledged RLC mode.
19	SS -> MS	PACKET UPLINK ASSIGNMENT	Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block.
20	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 19.
21	MS -> SS	UPLINK RLC DATA BLOCK	Received on the PDTCH assigned.
22			Repeat step 20 and 21 until countdown value CV=0.
23	SS -> MS	PACKET UPLINK ACK/NACK	FINAL_ACK_INDICATION = '1', a valid RRBP, acknowledge all received data, sent on PACCH.
24	MS -> SS	PACKET CONTROL ACKNOWLEDGEMENT	Received on the block specified by RRBP on PACCH of the assigned PDCH.

41.3.7 Void

41.4 Void

41.5 Dual transfer mode

To bring the MS into active state U10, macro 40.4.3.22 shall be used.

41.5.1 PS establishment whilst in dedicated mode

41.5.1.1 Uplink TBF establishment

41.5.1.1.1 Uplink TBF establishment with no reallocation of CS resources

41.5.1.1.1.1 Uplink TBF establishment with no reallocation of CS resources / Successful case / Uplink resources assigned

41.5.1.1.1.1.1 Conformance requirements

While in dedicated mode, the establishment of an uplink packet resource may be initiated by the RR entity of the mobile station using the packet request procedure. The procedure is triggered by a request from upper layers to transfer an LLC PDU; see 3GPP TS 24.007.

On receipt of a DTM REQUEST message the network may allocate an uplink packet resource. The packet uplink resource is assigned to the mobile station in one of the DTM assignment messages:

- DTM ASSIGNMENT COMMAND or
- PACKET ASSIGNMENT.

The PACKET ASSIGNMENT message is only used when the packet resource is a PDCH and no reallocation of the RR connection is needed.

On receipt of:

- DTM ASSIGNMENT COMMAND message or
- PACKET ASSIGNMENT message,

the mobile station shall stop T3148.

- when the network sends a PACKET ASSIGNMENT message, the packet request procedure is completed for the network when assignment message is sent and for the mobile station when it is received.

When the packet request procedure is completed, the mobile station has entered the dual transfer mode.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1

41.5.1.1.1.1.2 Test purpose

To verify that the MS:

- decodes correctly the Cell's System information, understanding that DTM access is allowed;
- requests an uplink TBF when it has something to send;
- acts upon the PACKET ASSIGNMENT message and then transmitting on the PDCH allocated.

41.5.1.1.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS assigns the MS PS resource. The SS accomplishes the resource assignment by passing a PACKET ASSIGNMENT message to the MS. On receipt of the PACKET ASSIGNMENT message, the MS starts to send RLC DATA BLOCKS to the SS on the assigned PDCH.

The codec to be used in this test is chosen dependent on the capabilities of the MS.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	SS sends this message such that it is received before Timer T3148 expiry. Includes information on the Radio resources provided to the MS. See specific message contents.
5	MS<->SS	{ Uplink data transfer }	Macro - Completion of the 1000 Octets of Data.

Specific Message Contents

PACKET ASSIGNMENT (Step 4):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N ± 1) MOD 8 Not included
--	-------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N Not included
--	-------------------

41.5.1.1.1.2 Uplink TBF establishment with no reallocation of CS resources / Successful case / Downlink resources assigned

41.5.1.1.1.2.1 Conformance requirements

While in dedicated mode, the establishment of an uplink packet resource may be initiated by the RR entity of the mobile station using the packet request procedure. The procedure is triggered by a request from upper layers to transfer an LLC PDU; see 3GPP TS 24.007.

On receipt of a DTM REQUEST message the network may allocate an uplink packet resource. The packet uplink resource is assigned to the mobile station in one of the DTM assignment messages:

- DTM ASSIGNMENT COMMAND or
- PACKET ASSIGNMENT.

The PACKET ASSIGNMENT message is only used when the packet resource is a PDCH and no reallocation of the RR connection is needed.

On receipt of:

- DTM ASSIGNMENT COMMAND message or
- PACKET ASSIGNMENT message,

the mobile station shall stop T3148.

If the received DTM ASSIGNMENT COMMAND or PACKET ASSIGNMENT message includes uplink packet resources, the mobile station shall proceed with the packet access. If the received message includes downlink packet resources and no uplink packet resources, the mobile station shall abort the packet access procedure and proceed with the procedure specified in clause 3.4.22.3, and then attempt an establishment of uplink TBF, using the applicable procedure specified in 3GPP TS 04.60.

- when the network sends a PACKET ASSIGNMENT message, the packet request procedure is completed for the network when assignment message is sent and for the mobile station when it is received.

When the packet request procedure is completed, the mobile station has entered the dual transfer mode.

If the received PACKET ASSIGNMENT message includes downlink packet resources and no uplink packet resources, the mobile station shall abort the packet access procedure and proceed with the downlink TBF establishment, and then attempt an establishment of uplink TBF.

References

- 3GPP TS 04.18/44.018 sub-clauses 3.4.22.1.1, 3.4.22.3
- 3GPP TS 04.60/44.060 sub-clause 8.1.2.5

41.5.1.1.1.2.2 Test purpose

To verify that the MS:

- decodes correctly the Cell's System information, understanding that DTM access is allowed;
- requests an uplink TBF;
- acts upon the PACKET ASSIGNMENT message containing downlink resources.
- attempts uplink TBF establishment, once the downlink TBF establishment is complete.

41.5.1.1.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call on cell A.

The MS is in packet idle mode with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS assigns the MS downlink PS resources using the PACKET ASSIGNMENT message. The MS, upon receipt of the assignment message, aborts the packet access procedure and proceeds with the downlink assignment. When possible the MS requests the uplink TBF establishment. The SS upon receipt of the resource request allocates the MS uplink resources using the PACKET UPLINK ASSIGNMENT message. The MS then starts to send RLC DATA BLOCKS to the SS on the assigned PDTCH.

The codec to be used in this test is chosen dependent on the capabilities of the MS.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	SS sends this message such that it is received before Timer T3148 expiry. See specific message contents.
5	SS<->MS	{ Downlink data }	Macro
6	MS->SS	PACKET DOWNLINK ACK/NACK	Channel Request Description IE indicating that uplink resources are required.
7	SS->MS	PACKET UPLINK ASSIGNMENT	When: k=1, Timeslot = T; k=2, Timeslot = N.
8	MS<->SS	{ Uplink data transfer }	Macro - Completion of the 10kB of Data.

Specific Message Contents

PACKET ASSIGNMENT (Step 4):

k=1;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included T = (N ± 1) MOD 8
--	---------------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included N
--	-----------------------

41.5.1.1.1.3 Uplink TBF establishment with no reallocation of CS resources / Abnormal cases / DTM reject

41.5.1.1.1.3.1 Conformance requirements

On receipt of the DTM REJECT message, the mobile station stops T3148, notifies upper layers of a packet resource establishment failure and starts timer T3142 with the indicated value.

The mobile station is not allowed to make a new attempt for packet access in the same cell until T3142 expires

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.3.3

41.5.1.1.1.3.2 Test purpose

To verify that when the MS receives a DTM REJECT message, the MS does not attempt to re-acquire uplink packet resources for a period specified by a wait indication (T3142), contained in the DTM REJECT message.

41.5.1.1.1.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call on cell A.

The MS is in packet idle mode with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC acknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, the SS returns a DTM REJECT message, simulating the inability to allocate the requested packet resource. The DTM REJECT message includes a wait indication (T3142) specifying that the MS is to wait 5 seconds before being allowed to re-request resources. The MS is again prompted to initiate an uplink TBF before the wait indication has expired, it is then tested that the MS does not try to access the network until the Wait Indication has expired. After the Wait Indication has expired, the MS initiates the packet access procedure and sends a DTM REQUEST message.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

2 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in state U10, utilising Timeslot N for CS connection (Timeslot chosen arbitrarily). When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	DTM REJECT	SS sends this message such that it is received before Timer T3148 expiry. The message contains the "Wait Indication" which is set to 10 seconds.
5	SS		Waits 2 seconds
6	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets. If triggering of data involves manual operation, this is to be finished within 5 seconds.
7	SS		Monitors the MS, checking that the MS does not try and establish an uplink TBF until at least 10 seconds after the DTM REJECT message was passed to the MS.
8	MS->SS	DTM REQUEST	Check that this message is sent after the Wait Indication has expired.

41.5.1.1.1.4 Uplink TBF establishment with no reallocation of CS resources / Abnormal cases / Inter System to UTRAN Handover Command

41.5.1.1.1.4.1 Conformance requirements

Only valid for a UTRAN capable MS. In dedicated mode or dual transfer mode, a change to UTRAN channel(s) can be requested by the network RR sublayer. This change is performed through the handover to UTRAN procedure.

If the mobile station receives an INTER SYSTEM TO UTRAN HANDOVER COMMAND message during the packet access procedure, the mobile station shall abort the packet access procedure, stop timer T3148 and proceed with the handover to UTRAN procedure as specified in clause 3.4.4a.

References

3GPP TS 04.18/44.018 sub-clauses 3.4.4a & 3.4.22.1.1.3.2

41.5.1.1.1.4.2 Test purpose

Verifying that the MS aborts the Packet Access procedure and proceed with the handover to UTRAN, upon reception of an INTER SYSTEM TO UTRAN HANDOVER COMMAND message.

41.5.1.1.1.4.3 Method of test

Initial Conditions

System Simulator:

2 cells - Cell 1 is GSM with DTM supported, Cell 2 is UTRAN. The present document sub-clause 26.6.5.1 shall be referenced for the default parameters of cell 1. 3GPP TS 34.108, sub-clause 6.1 shall be referenced for default parameters of Cell 2.

Mobile Station:

The MS is in the active state (U10) of a call.
The MS is GPRS idle with a P-TMSI allocated and the PDP context 1 activated

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The SS starts the GSM cell and UTRAN cell with cell selection conditions in favour of GSM cell, the MS selects the GSM cell for camping on. The SS brings the MS into the call active state (CC state U10). The MS is then triggered to initiate packet uplink data transfer in RLC acknowledged mode and sends a DTM REQUEST message. On receiving the DTM REQUEST message, requesting uplink resources, the SS configures the dedicated channel corresponding to the pre-configuration in UTRAN cell, then sends INTERSYSTEM TO UTRAN HANDOVER COMMAND message indicating the dedicated channel of the target cell to the MS through the GSM serving cell. After the MS receives the command it shall configure itself accordingly and switch to the dedicated channel of the UTRAN cell. The SS checks whether the handover is performed by confirming the MS transmits a HANDOVER TO UTRAN COMPLETE message to the SS, on the DCCH of the UTRAN cell. To check that CS call is still active, SS Releases the CS call. To check that PDP context is active, SS sends MODIFY PDP CONTEXT REQUEST in UMTS cell. The MS may or may not accept the QoS and replies to the SS accordingly.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in state U10, utilising Timeslot N for CS connection (Timeslot chosen arbitrarily)
2	←	MEASUREMENT INFORMATION	
3	→	MEASUREMENT REPORT	Including Measurement Results on the UTRAN cell
4	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
5	MS->SS	DTM REQUEST	
6	SS->MS	INTER SYSTEM TO UTRAN HANDOVER COMMAND	The message is received before the timer T3148 expires. See specific message contents.
7	MS		The MS accepts the handover command and configures its lower layers using the parameters contained in the INTERSYSTEM TO UTRAN HANDOVER COMMAND
8	SS		The SS waits for uplink physical channel in synchronization
9	MS->SS	HANDOVER TO UTRAN COMPLETE	The SS receives this message on DCCH of cell 2 (UTRAN cell). It implies that the down link physical channel has synchronised with UTRAN.
10	SS		The SS starts integrity protection for CS domain
11	SS->MS	UTRAN MOBILITY INFORMATION	The SS conveys CN system information for the PS domain to the UE in connected mode. See specific message contents.
12	MS->SS	UTRAN MOBILITY_INFORMATION CONFIRM	
13	MS->SS	ROUTING AREA UPDATE REQUEST	
14	SS->MS	AUTHENTICATION AND CIPHERING REQUEST	
15	MS->SS	AUTHENTICATION AND CIPHERING RESPONSE	
16	SS		The SS starts integrity protection for PS domain
17	SS->MS	ROUTING AREA UPDATE ACCEPT	
18			SS Releases the CS call.
19	SS->MS	MODIFY PDP CONTEXT REQUEST	SS requests the modification of a PDP context.
A20	MS->SS	MODIFY PDP CONTEXT ACCEPT	MS behaviour type A: Accept the PDP context modification
B20	MS->SS	DEACTIVATE PDP CONTEXT REQUEST	MS behaviour type B: Initiate the PDP context deactivation. Cause set to 'QoS not accepted'
B20a	SS->MS	DEACTIVATE PDP CONTEXT ACCEPT	MS behaviour type B: Accept the PDP context deactivation
B20b	MS->SS	DETACH REQUEST	MS behaviour type B: A non-auto attach MS may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
B20c	SS->MS	DETACH ACCEPT	If the MS transmitted a Detach Request message in step B20b then the SS responds with a Detach Accept message.

Specific message contents

MEASUREMENT INFORMATION

Information Element	Value/remark
< RR short PD : bit >	0
< Message type : bit (5) >	'00101'B
< Short layer 2 header : bit (2) >	'00'B
< BA_IND : bit >	0
< 3G_BA_IND : bit >	0
< MP_CHANGE_MARK : bit >	0
< MI_INDEX : bit (4) >	'0000'B
< MI_COUNT : bit (4) >	'0000'B
< PWRC : bit >	0
< REPORT_TYPE : bit >	1 (Measurement Reporting shall be used)
< REPORTING_RATE : bit >	0 (SACCH rate reporting)
< INVALID_BSIC_REPORTING : bit >	0 (Report on cells with invalid BSIC not allowed)
0 1 < Real Time Difference Description >	0
0 1 < BSIC Description >	0
0 1 < REPORT PRIORITY Description >	0
0 1 < MEASUREMENT Parameters Description >	0
0 1 < extension length >	0
0 1 < 3G Neighbour Cell Description >	1
0 1 < 3G_Wait : bit (3) >	0
0 1 < Index_Start_3G : bit (7) >	0
0 1 < Absolute_Index_Start_EMR : bit (7) >	0
0 1 < UTRAN FDD Description >	1
0 1 < Bandwidth_FDD : bit (3) >	0
1 < Repeated UTRAN FDD Neighbour Cells > ** 0	1
0 < FDD-ARFCN : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< FDD_Indic0 : bit >	0
< NR_OF_FDD_CELLS : bit (5) >	'00001'B
< FDD_CELL_INFORMATION Field >	10 bits Scrambling code according to TS 34.108, clause 6.1.4, Default settings for cell No.1
1 < Repeated UTRAN FDD Neighbour Cells > ** 0	0
0 1 < UTRAN TDD Description >	0
0 1 < CDMA2000 Description >	0
0 1 < 3G MEASUREMENT Parameters Description >	
< Qsearch_C : bit (4) >	'0111'B (Always)
< 3G_SEARCH_PRIO : bit (1) >	1
< FDD_REP_QUANT : bit (1) >	1 (Ec/No)
0 1 < FDD_MULTIRAT_REPORTING : bit (2) >	'1 01'B (Report on 1 UTRAN cell)
0 1 < FDD_REPORTING_OFFSET : bit (3) >	0
0 1 < TDD_MULTIRAT_REPORTING : bit (2) >	0
0 1 < TDD_REPORTING_OFFSET : bit (3) >	0
0 1 < CDMA2000_MULTIRAT_REPORTING : bit (2) >	0
0 1 < CDMA2000_REPORTING_OFFSET : bit (3) >	0

INTERSYSTEM TO UTRAN HANDOVER COMMAND

Information Element	Value/remark
RR management Protocol Discriminator	'0110'B
Skip Indicator	'0000'B
Inter System to UTRAN Handover Command	'01100011'B
Message Type	
Length of Handover to UTRAN Command contents	Octet length of the "Handover to UTRAN Command value part"
Handover to UTRAN Command value part	PER encoded ASN.1 value of type "HandoverToUTRANCommand-v1-IEs", the content is presented in the next table.

Content of "HandoverToUTRANCommand-v1-IEs"

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'000000000001'B
- S-RNTI-2	Set to arbitrary value corresponding to DPCH Offset value currently stored in SS
Activation time	now
Ciphering algorithm	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If ciphering is indicated to be active, use UEA1. Else, this IE is omitted
CHOICE specificationMode	Preconfiguration
CHOICE preconfiguration mode	Default configuration
- Default configuration mode	FDD
- Default configuration identity	3 (12.2 kbps speech + 3.4 kbps signalling)
- RAB Info	
- RAB identity	
- GSM-MAP RAB identity	'00000001'B
- CN domain identity	CS domain
- CHOICE Mode specific info	FDD
- UL DPCH info	
- UL DPCH power control info	
- DPCCH power offset	-78dB (i.e. ASN.1 IE value of $-20 (2 + (\text{IE Value} * 4))$)
- PC Preamble	1 frame
- SRB delay	7 frames
- Scrambling code type	Long
- Reduced scrambling code number	0
- Spreading factor	64
- DL common information post	
- DL DPCH info common	
- DL DPCH power control info	
- CHOICE Mode specific info	FDD
- DPC mode	Single TPC
- DL information perRL list	
- Primary CPICH info	
- Primary scrambling code	100
- DL DPCH info perRL	
- pCPICH usage for channelEst	Maybe used
- DL channelisation code	
- Secondary scrambling code	1
- SF and code number	SF = 128, code number = 0
- Scrambling code change	No code change
- TPC combination index	0
- Frequency info	
- UARFCN uplink(Nu)	Not Present
- UARFCN downlink(Nd)	Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to TS 25.101
Maximum allowed UL TX power	See TS 34.108, clause 6.1.5, table 6.1.1

Contents of UTRAN MOBILITY INFORMATION message:

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
Message Type	
Integrity check info	As default
RRC transaction identifier	As default
Integrity protection mode info	As default
Ciphering mode info	As default
New U-RNTI	As default
New C-RNTI	As default
UE Timers and constants in connected mode	As default
CN information info	
- PLMN identity	Not present
- CN common GSM-MAP NAS system information	Not present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	30 (periodic updating every 3 hours)
- ATT	1 (MS shall apply IMSI attach and detach procedures)
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	6 (GERAN and UTRAN cells use different RAC)
- NMO	0 (Network Mode of Operation I)
- CN domain specific DRX cycle length coefficient	7
URA identity	Not present
Downlink counter synchronization info	Not Present

41.5.1.1.1.5 Uplink TBF establishment with no reallocation of CS resources / Abnormal cases / Assignment Command

41.5.1.1.1.5.1 Conformance requirements

If the mobile station receives an ASSIGNMENT COMMAND or HANDOVER COMMAND message during the packet access procedure, the mobile station shall abort the packet access procedure, stop timer T3148 and proceed with the channel assignment procedure as specified in clause 3.4.3 or the handover procedure as specified in clause 3.4.4. The mobile station shall then attempt an establishment of uplink TBF, using the procedure specified in clause 3.4.22.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.3.2

41.5.1.1.1.5.2 Test purpose

To verify that the MS aborts the packet access procedure when the MS receives an ASSIGNMENT COMMAND message before the expiry of T3148, completing the channel assignment procedure before re-attempting the establishment of the uplink TBF.

41.5.1.1.1.5.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS reallocates the MS's CS resources using the ASSIGNMENT COMMAND. Once the MS changes to the newly allocated timeslot the MS re-requests PS resources with a DTM REQUEST message. Once the PS resources are allocated, the MS enters DTM.

The codec to be used in this test is chosen dependent on the capabilities of the MS.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	MS		MS in state U10, utilising Timeslot N for CS connection (Timeslot chosen arbitrarily)
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	ASSIGNMENT COMMAND	This message is sent such that it is received before timer T3148 expires. CS resources changed to (N + 4) MOD 8. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
5	MS->SS	ASSIGNMENT COMPLETE	Sent on the correct channel after establishment of the main signalling link.
6	MS->SS	DTM REQUEST	
7	SS->MS	PACKET ASSIGNMENT	Includes information on the Radio resources provided to the MS. See specific message contents.
8	MS<->SS	{ Uplink data transfer }	Macro - Completion of the 1000 octets of Data.

Specific Message Contents

PACKET ASSIGNMENT (Step 7):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	((N + 4) ± 1) MOD 8 Not included
--	-------------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N + 4) MOD 8 Not included
--	-------------------------------

41.5.1.1.1.6 Uplink TBF establishment with no reallocation of CS resources / Abnormal cases / Handover Command

41.5.1.1.1.6.1 Conformance requirements

If the mobile station receives an ASSIGNMENT COMMAND or HANDOVER COMMAND message during the packet access procedure, the mobile station shall abort the packet access procedure, stop timer T3148 and proceed with the channel assignment procedure as specified in clause 3.4.3 or the handover procedure as specified in clause 3.4.4. The mobile station shall then attempt an establishment of uplink TBF, using the procedure specified in clause 3.4.22.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.3.2

41.5.1.1.1.6.2 Test purpose

To verify that the MS aborts the packet access procedure when the MS receives a HANDOVER COMMAND message before the expiry of T3148, completing the handover procedure before re-attempting the establishment of the uplink TBF.

41.5.1.1.1.6.3 Method of test

Initial Conditions

System Simulator:

2 Cells, A and B, with same LAI/RAI and both supporting DTM.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode with a P-TMSI allocated and PDP context 2 activated

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer in RLC acknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS returns a HANDOVER COMMAND to the MS. The HANDOVER COMMAND instructs the switching of the MS to the newly assigned channel and the establishment of lower layer connections. Once the CS connection is established, the MS returns an HANDOVER COMPLETE message on the new main signalling link. The MS may perform Cell Update by sending the GPRS INFORMATION message containing an empty LLC PDU followed by DTM REQUEST to initiate packet uplink data transfer. If the Cell Update is not performed using GPRS INFORMATION, the MS again sends a DTM REQUEST message to initiate packet uplink data transfer, the SS allocates the MS PS resources and the MS enters DTM.

The codec to be used in this test is chosen dependent on the capabilities of the MS.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in state U10, utilising Timeslot N for CS connection (Timeslot chosen arbitrarily) When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H. Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS		
3	MS->SS	DTM REQUEST	The message is sent such that it is received before the timer T3148 expires. See specific message contents. Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND.
4	SS->MS	HANDOVER COMMAND	
5	MS->SS	HANDOVER ACCESS	
6	SS->MS MS->SS	PHYSICAL INFORMATION HANDOVER COMPLETE	Sent on the correct channel after establishment of the main signalling link.
7	SS->MS	DTM INFORMATION	
A8 (optional step)	MS->SS	GPRS INFORMATION	The MS follows either branch A or B . The MS sends an empty LLC PDU to indicate Cell Update.
A9	MS->SS	DTM REQUEST	SS sends this message such that it is received before Timer T3148 expiry. See specific message contents. Macro - Completion of the 1000 octets of Data. Sent on main DCCH. See specific message contents. Macro - Completion of the 1000 octets of Data. MS may commence sending of user data immediately after Step B9, or start by sending an empty LLC PDU.
A10	SS->MS	PACKET ASSIGNMENT	
A11	MS<->SS	{ Uplink data transfer }	
B8	MS->SS	DTM REQUEST	
B9	SS->MS	PACKET ASSIGNMENT	
B10	SS<->MS	{ Uplink data transfer }	

Specific Message Contents

HANDOVER COMMAND (Step 4):

k=1;

As default message contents except: Channel Description - Channel Type and TDMA offset - Timeslot Number Handover reference	TCH/F N' Chosen arbitrarily
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k=2;

As default message contents except: Channel Description - Channel Type and TDMA offset - Timeslot Number Handover reference	TCH/H N' Chosen arbitrarily
---	-----------------------------------

PACKET ASSIGNMENT (Step A10 and B9):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N' ± 1) MOD 8 Not included
--	--------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' Not included
--	--------------------

41.5.1.1.1.7 Uplink TBF establishment with no reallocation of CS resources / Abnormal cases / Channel Release

41.5.1.1.1.7.1 Conformance requirements

If the MS receives a CHANNEL RELEASE message during the packet access procedure, the MS shall abort the packet access procedure, stop timer T3148 and proceed with the RR connection release procedure. The MS shall then attempt an establishment of the uplink TBF.

References

3GPP TS 04.18/44.018 sub-clauses 3.4.13 & 3.4.22.1.1.3.2

41.5.1.1.1.7.2 Test purpose

To verify that the MS aborts the packet access procedure when the MS receives a CHANNEL RELEASE message before the expiry of T3148, completing the release before re-attempting the establishment of the uplink TBF.

41.5.1.1.1.7.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer in RLC acknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS orders the MS to release the CS connection. The MS releases lower layer resources and then requests uplink packet transfer using normal dynamic allocation two phase access.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		MS in state U10, utilising Timeslot N for CS connection (Timeslot chosen arbitrarily by test house)
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	CHANNEL RELEASE	This message is sent such that it is received before expiry of timer T3148.
5		{Uplink dynamic allocation two phase access}	Macro
6	MS<->SS	{ Uplink data transfer }	Macro - Completion of the 1000 octets of Data.

41.5.1.1.2 Uplink TBF establishment with reallocation of CS resources

41.5.1.1.2.1 Uplink TBF establishment with reallocation of CS resources / Successful case

41.5.1.1.2.1.1 Conformance requirements

Upon receipt of the DTM ASSIGNMENT COMMAND message, the mobile station initiates a local end release of link layer connections, disconnects the physical channels, commands the switching to the assigned channel and initiates the establishment of lower layer connection (this includes the activation of the channel, their connection and the establishment of the main signalling link).

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.3.1

41.5.1.1.2.1.2 Test purpose

To verify that the MS allows reallocation of its CS resources during the request for PS resources. The resources can either be reallocated to a new timeslot within the same frequency or a new frequency.

41.5.1.1.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS reallocates the MS's CS resources and assigns PS resources to the MS. The SS accomplishes the resource assignment by passing a DTM ASSIGNMENT COMMAND message to the MS. Once the MS has received the assignment message, it moves to the new allocation, reconnects the CS resources, passes the ASSIGNMENT COMPLETE message to the SS on the main DCCH and starts to send RLC DATA BLOCKS to the SS on the assigned TBF.

The codec to be used in this test is chosen dependent on the capabilities of the MS.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	Sent on main DCCH
4	SS->MS	DTM ASSIGNMENT COMMAND	This message is sent such that it is received before expiry of timer T3148. See specific message contents.
5	MS->SS	ASSIGNMENT COMPLETE	Sent on new main DCCH.
6	MS->SS	{ Uplink Data Transfer }	Macro - Completion of the 1000 octets of Data.

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 4):

k=1;

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N', chosen arbitrarily. TCH/F (N' ± 1) MOD 8 Not included
---	--

k=2;

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N', chosen arbitrarily. TCH/H N' Not included
---	--

41.5.1.1.2.2 Uplink TBF establishment with reallocation of CS resources / Abnormal case / Assignment Failure

41.5.1.1.2.2.1 Conformance requirements

If the network commands the mobile station to reallocate the RR connection and the establishment of the main DCCH fails, all the allocated packet resources are released; the mobile station shall revert to the old channel, trigger the establishment of the main DCCH and send a DTM ASSIGNMENT FAILURE message on the main DCCH with cause value "lower layer failure".

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.5

41.5.1.1.2.2.2 Test purpose

To verify that, if the MS cannot complete the reallocation, then the MS shall revert back to the old resources and re-establish a connection.

41.5.1.1.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS reallocates the MS's CS resources to a different frequency band and assigns the new PS resources. The SS accomplishes the resource assignment by passing a DTM ASSIGNMENT COMMAND message to the MS. Once the MS has received the assignment message, it moves to the new allocation, attempts to reconnect the CS resources, but the SS is not receptive to the establishment of the main signalling bearer in the new cell. The MS reverts back to the old CS resources and sends a DTM ASSIGNMENT FAILURE message on the old main DCCH, with cause value set to "lower layer failure". The MS re-initiates the packet access procedure and sends a DTM REQUEST message.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	Sent on main DCCH
4	SS->MS	DTM ASSIGNMENT COMMAND	SS sends this message such that it is received before Timer T3148 expiry. See specific message contents
5	MS->SS	DTM ASSIGNMENT FAILURE	Sent on old main DCCH. With message cause value set to "lower layer failure"
6	MS->SS	DTM REQUEST	Sent on main DCCH

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 4):

k=1;

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' (chosen arbitrarily) TCH/F (N' ± 1) MOD 8 Not included
---	--

k=2;

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' (chosen arbitrarily) TCH/H N' Not included
---	--

41.5.1.1.2.3 Uplink TBF establishment with reallocation of CS resources / Abnormal case / Multislot class violation

41.5.1.1.2.3.1 Void

41.5.1.1.2.3.2 Void

41.5.1.1.2.3.3 Void

41.5.1.1.2.3.4 Uplink TBF establishment with reallocation of CS resources / Abnormal case / Multislot class violation / Singleslot allocation

41.5.1.1.2.3.4.1 Conformance requirements

If a failure occurs on the mobile station side before the packet request procedure is completed, all the allocated packet resources are released, the mobile station remains on the current channel and upper layers are notified (packet resource establishment failure). d) If a DTM ASSIGNMENT COMMAND or PACKET ASSIGNMENT message assigns resources not compliant with the multislot capabilities of the mobile station.

If the mobile station received a DTM ASSIGNMENT COMMAND message before the packet resource establishment failure was detected, the mobile station shall return a DTM ASSIGNMENT FAILURE message with one of the following corresponding cause values:

For Release 6 and later:

d) In case of abnormal case d) above, "protocol error unspecified";

otherwise:

d) In case of abnormal case d) above, "channel mode unacceptable";

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.5

41.5.1.1.2.3.4.2 Test purpose

If the MS is allocated resources that do not fulfil the MS multislot class indicated in the Classmark (Classmark 3 and MS Radio Access Capabilities), then the MS shall send an ASSIGNMENT FAILURE message to the network indicating this discrepancy. If the MS is allocated resources outside those indicated in the Classmark with an PACKET ASSIGNMENT message the MS shall ignore the message and continue in dedicated mode.

41.5.1.1.2.3.4.3 Method of test

Initial Conditions

System Simulator:

1 cell with DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call, packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS commands the MS to reallocate its CS resources and also assigns PS resources to the MS. The resources provided to the MS by the SS fall outside of the MS multislot classmark. The MS transmits the DTM ASSIGNMENT FAILURE message, with cause value set to "protocol error unspecified" in case of release 6 and later or "channel mode unacceptable" / "protocol error unspecified" otherwise, indicating the discrepancy. The SS then reassigns the CS resources of the MS into a full rate channel and then waits for the MS to again request an uplink TBF. Upon reception of the DTM REQUEST message the SS allocates the MS resources using a PACKET ASSIGNMENT message. The SS verifies that the MS ignores this incorrect allocation and maintains the CS connection.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	Sent on main DCCH
4	SS->MS	DTM ASSIGNMENT COMMAND	See specific message contents
5	MS->SS	DTM ASSIGNMENT FAILURE	Sent on old main DCCH. With message cause value set to: - in case of release 6: "protocol error unspecified" - otherwise: "channel mode unacceptable" or "protocol error unspecified".
6	SS->MS	ASSIGNMENT COMMAND	Allocates the MS a TCH/F channel on Timeslot N'.
7	MS->SS	ASSIGNMENT COMPLETE	
8	MS->SS	DTM REQUEST	Sent on main DCCH
9	SS->MS	PACKET ASSIGNMENT	See specific message contents
10	SS		The SS verifies that the MS has maintained the CS connection.

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 4):

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' (chosen arbitrarily). TCH/H N' Not included
---	---

PACKET ASSIGNMENT (Step 9):

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' + 1 Not included
--	------------------------

41.5.1.1.2.3.5 Uplink TBF establishment with reallocation of CS resources / Abnormal case / Multislot class violation / Incorrect Allocation

41.5.1.1.2.3.5.1 Conformance requirements

If a failure occurs on the mobile station side before the packet request procedure is completed, all the allocated packet resources are released, the mobile station remains on the current channel and upper layers are notified (packet resource establishment failure).

d) If a DTM ASSIGNMENT COMMAND or PACKET ASSIGNMENT message assigns resources not compliant with the multislot capabilities of the mobile station.

If the mobile station received a DTM ASSIGNMENT COMMAND message before the packet resource establishment failure was detected, the mobile station shall return a DTM ASSIGNMENT FAILURE message with one of the following corresponding cause values:

For Release 6 and later:

d) In case of abnormal case d) above, "protocol error unspecified ";

otherwise:

d) In case of abnormal case d) above, "channel mode unacceptable";

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1.5

41.5.1.1.2.3.5.2 Test purpose

If the MS is allocated resources that do not fulfil the MS multislot class indicated in the Classmark (Classmark 3 and MS Radio Access Capabilities), then the MS shall send an ASSIGNMENT FAILURE message to the network indicating this discrepancy.

41.5.1.1.2.3.5.3 Method of test

Initial Conditions

System Simulator:

1 cell with DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call, packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS commands the MS to reallocate its CS resources and also assigns PS resources to the MS. The resources provided to the MS by the SS fall

outside of the MS multislot classmark. The MS transmits the DTM ASSIGNMENT FAILURE message, with cause value set to "protocol error unspecified " in case of release 6 and newer or "channel mode unacceptable" otherwise, indicating the discrepancy.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	Sent on main DCCH
4	SS->MS	DTM ASSIGNMENT COMMAND	This message is sent such that it is received before expiry of timer T3148. See specific message contents
5	MS->SS	DTM ASSIGNMENT FAILURE	Sent on old main DCCH. With message cause value set to "protocol error unspecified " in case of release 6 or "channel mode unacceptable" otherwise.

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 4):

As default message contents except: Channel Description IE - Timeslot Number - Channel Type RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N' (chosen arbitrarily). TCH/F (N' + 1) MOD 8, (N' + 2) MOD 8 & (N' + 3) MOD 8 Not included
---	--

41.5.1.1.3 Uplink TBF establishment required whilst DTM is not supported in cell

41.5.1.1.3.1 Conformance requirements

While in dedicated mode, the establishment of an uplink packet resource may be initiated by the RR entity of the mobile station using the packet request procedure. The procedure is triggered by a request from upper layers to transfer an LLC PDU; see 3GPP TS 24.007.

Access to the network is allowed:

- if dual transfer mode is supported in the cell.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.1.1

41.5.1.1.3.2 Test purpose

To verify that the MS:

- understands the SI6 Rest Octets information element, containing the DTM support field, which indicates network support of DTM;
- does not attempt to establish an uplink TBF whilst in DM and in a cell that indicates that DTM is unsupported.

41.5.1.1.3.3 Method of test

Initial Conditions

System Simulator:

- 1 cell with DTM not supported

Mobile Station:

- The MS is in the active state (U10) of a call.
- The MS is in packet idle mode, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate uplink packet transfer, whilst the MS has an active call and DTM is not supported in the cell. The MS does not request packet resources from the network until the CS call is complete.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	SS		Check that the MS is not sending a DTM REQUEST.
4	SS		The SS verifies that the MS has maintained the CS connection

41.5.1.2 Downlink TBF establishment

41.5.1.2.1 Whilst in Ready State

41.5.1.2.1.1 Downlink TBF establishment in Ready State / Successful case

41.5.1.2.1.1.1 Conformance requirements

This procedure is only applicable to a mobile station in dedicated mode and with no TBF allocated. If the mobile station already has an ongoing TBF, the establishment of the downlink packet resource is performed on the PACCH; see 3GPP TS 04.60.

The establishment of a downlink packet resource is initiated by the RR entity on the network side using the packet downlink assignment procedure in dedicated mode. The procedure is triggered by a request from upper layers to transfer an LLC PDU; see 3GPP TS 24.007. The request from upper layers specifies a QoS profile, an *RLC mode*, *DRX parameters* and an *MS classmark* associated with the packet transfer.

The network initiates the packet downlink assignment procedure in dedicated mode by sending a DTM assignment message (i.e. DTM ASSIGNMENT COMMAND or a PACKET ASSIGNMENT) in acknowledged mode on the main DCCH.

The completion of the packet downlink assignment procedure while in dedicated mode depends on the actual assignment message used by the network:

- when the network sends a PACKET ASSIGNMENT message, the packet downlink assignment procedure is completed for the network when assignment message is sent and for the mobile station when it is received.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.3

41.5.1.2.1.1.2 Test purpose

To test that while in dedicated mode and in ready state, the MS can decode and act upon the allocation of downlink packet resources and enter dual transfer mode.

41.5.1.2.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is in the GMM READY state, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

Whilst in an active call on timeslot N, the MS receives a PACKET ASSIGNMENT message on the main DCCH, instructing the MS to switch to the designated timeslot. The SS waits a specified time and then starts to transmit to the newly allocated resources. The test procedure is complete when the MS successfully acknowledges the downlink RLC data blocks.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A. When: K=1, Channel Type = TCH/F K=2, Channel Type = TCH/H
2	SS->MS	PACKET ASSIGNMENT	See specific message contents.
3	SS		SS Waits T3190 – 50% (2.5s)
4	SS<->MS	{ Downlink data transfer }	Macro – Transmitting 10kB of Data

Specific Message Contents

PACKET ASSIGNMENT (Step 2):

k=1;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included (N ± 1) MOD 8
--	-----------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included N
--	-----------------------

41.5.1.2.1.2 Downlink TBF establishment in Ready State / Abnormal cases / No cell allocation available

41.5.1.2.1.2.1 Conformance requirements

If a failure occurs on the mobile station side before the packet downlink assignment procedure is completed (packet establishment failure), all the allocated packet resources are released and the mobile station remains on the current channel.

In the following cases a packet resource establishment failure has occurred:

e) If the mobile station has no current CA and if it needs a CA to analyse the DTM ASSIGNMENT COMMAND message.

If the mobile station received a DTM ASSIGNMENT COMMAND message before the packet resource establishment failure was detected, the mobile station shall return a DTM ASSIGNMENT FAILURE message with one of the following corresponding cause values:

e) In case of abnormal case e) above, "no cell allocation available";

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.3.3

41.5.1.2.1.2.2 Test purpose

To verify that when the MS is unable analyse a DTM ASSIGNMENT COMMAND message, it returns a DTM ASSIGNMENT FAILURE message with the cause value set to "no cell allocation available".

41.5.1.2.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell no SYSTEM INFORMATION TYPE 1 message (some other SI message is sent with TC=0),, with GPRS and DTM support.

Mobile Station:

The MS is in the active state (U10) of a call and is also in GMM-READY state.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The SS attempts to assign a PDCH for down link transfer, with reallocating the MS's current TCH, but the MS has no current cell allocation (taken from BCCH) and is therefore unable to decode the allocation received in the DTM ASSIGNMENT COMMAND message.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A.
2	SS->MS	DTM ASSIGNMENT COMMAND	Sent on main DCCH in acknowledged mode.
3	MS->SS	DTM ASSIGNMENT FAILURE	Cause = "no cell allocation available"

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 2):

As default message contents except: Channel Description IE	
- Channel Type and TDMA offset	TCH/F + ACCH's
- Timeslot Number	N (chosen arbitrarily by test house)
- Training Sequence Code	Same as the BCCH
- Hopping channel	1 RF hopping channel
- MAIO	000000
- HSN	000000 Sequence 0
Mobile Allocation IE	Chosen arbitrarily
RR Packet Uplink Assignment IE	Not included
RR Packet Downlink Assignment IE	
- TIMESLOT_ALLOCATION	N

41.5.1.2.2 Whilst in Standby State / Packet Notification

41.5.1.2.2.1 Conformance requirements

3GPP TS 04.18/44.018 sub-clause 3.4.22.2:

Upon receipt of the PACKET NOTIFICATION message, the RR sublayer of the MS indicates the receipt of a packet paging request to the GMM sublayer.

3GPP TS 23.060 sub-clause 8.1.4:

4) Upon receipt of a GPRS Paging Request message, the MS shall respond with either any single valid LLC frame (e.g., a Receive Ready or Information frame) that implicitly is interpreted as a page response message by the SGSN. The MS shall not use the LLC NULL frame as a page response. When responding, the MS changes MM state to READY. The Packet Channel Request precedes the response and Packet Immediate Assignment procedures as described in GSM 03.64.

References

3GPP TS 04.18/44.018 sub-clause 3.4.22.2

3GPP TS 23.060 sub-clause 8.1.4

3GPP TS 04.64/44.064 sub-clause 6.4.1.7

41.5.1.2.2.2 Test purpose

To test that an MS in an active call and also in GMM Standby state, can respond to a PACKET NOTIFICATION message sent on the main DCCH, with a Cell Update.

41.5.1.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the active state (U10) of a call.

The DTM MS in GMM Standby state, with a P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, in an active call using timeslot N, upon receipt of a PACKET NOTIFICATION message on the main DCCH returns a bank LLC frame to the SS as Cell Update, drawing the MS into Ready state.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A.
2	SS->MS	PACKET NOTIFICATION	Sent on main DCCH in acknowledged mode.
3	MS->SS	GPRS INFORMATION	The MS responds with an empty LLC PDU to indicate Cell Update.

41.5.2 CS establishment whilst in packet transfer mode

41.5.2.1 MT CS establishment whilst in packet transfer mode with a downlink TBF established

41.5.2.1.1 Conformance requirements

Paging initiation using PACCH applies when sending a paging request message to a mobile station that is GPRS attached, when the mobile station is in packet transfer mode and the network is able to co-ordinate the paging request with the radio resources allocated for the mobile station on a PDCH. This kind of paging co-ordination shall be provided in network mode of operation I (see 3G TS 23.060). This kind of paging co-ordination may be provided also in network mode of operation II or III. This kind of paging co-ordination shall be provided if the network supports DTM.

When the mobile station responds to a paging request for RR connection establishment, it shall follow the paging response procedures as specified in 3GPP TS 04.18. For that purpose, a mobile station in packet transfer mode or a mobile station that has initiated a packet access procedure may abort any ongoing TBF or the packet access procedure in the following two cases:

- The mobile station requires that the BSS co-ordinates the allocation of radio resources for an RR connection and a simultaneous TBF (GPRS class A mode of operation by means of DTM).

References

3GPP TS 04.60/44.060, sub-clauses 6.1.3, 6.1.4.

41.5.2.1.2 Test purpose

To verify that the MS reacts to CS paging on the PACCH, whilst in packet transfer mode, by releasing the downlink TBF and then establishing an RR connection. It is then tested that once the RR connection is established the MS accepts the re-establishment of the downlink TBF.

41.5.2.1.3 Method of test

Initial Conditions

System Simulator:

- 1 cell, DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

- GPRS Release (TSPC_MS_GPRS_RELEASE)
- Support of Immediate Connect (TSPC_AddInfo_ImmConn)

PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode before being paged on the PACCH. Upon receipt of the PACKET PAGING REQUEST message, the MS returns to packet idle mode and initiate the establishment of CS connection. Once the MS has established the CS connection, the SS requests the re-establishment of the PS resources with a PACKET ASSIGNMENT message.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1		{ Downlink TBF establishment }	Macro
2	SS<->MS	{ Downlink data }	Macro
3	SS->MS	PACKET PAGING REQUEST	1 st Repeated Page info contains IMSI of the MS, PAGE_MODE = "same as before", sent on downlink PACCH. When: k=1, Channel Needed = "TCH/F"; k=2, Channel Needed = "TCH/H".
4	MS->SS	CHANNEL REQUEST	
5	SS->MS	IMMEDIATE ASSIGNMENT	
6	MS->SS	PAGING RESPONSE	
7	MS->SS	CLASSMARK CHANGE	
8	MS->SS	GPRS INFORMATION	The MS send this message to indicate Cell Update This step is optional for MS with release up to Rel5 and it is mandatory for MS with release from Rel6 onwards.
9	SS->MS	AUTHENTICATION REQUEST	
10	MS->SS	AUTHENTICATION RESPONSE	
11	SS->MS	CIPHERING MODE COMMAND	
12	MS->SS	CIPHERING MODE COMPLETE	
13	SS->MS	SETUP	
	MS->SS	CALL CONFIRMED	
A14			If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A15	MS->SS	CONNECT	Sent on the old channel
A16	SS->MS	ASSIGNMENT COMMAND	Timeslot N (chosen arbitrarily). When: K=1, Channel Type = TCH/F; K=2, Channel Type = TCH/H.
A17	MS->SS	ASSIGNMENT COMPLETE	Continues at step 21
B15	SS->MS	ASSIGNMENT COMMAND	Timeslot N (chosen arbitrarily). When: K=1, Channel Type = TCH/F; K=2, Channel Type = TCH/H.
B16	MS->SS	ASSIGNMENT COMPLETE	Sent on the new channel.
B17	MS->SS	ALERTING	
B18	MS		An alerting indication is given by the MS
B19	MS		The MS is made to accept the call .
B20	MS->SS	CONNECT	
21	MS		If the call is a speech call, the TCH shall be through connected in both directions.
22	SS->MS	CONNECT ACKNOWLEDGE	
23	SS->MS	PACKET ASSIGNMENT	See specific message contents
24	SS<->MS	{ Downlink data transfer }	Macro – Transmitting 10kB of Data

Specific Message Contents

PACKET ASSIGNMENT (Step 23):

k=1;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included (N ± 1) MOD 8
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k=2;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included N
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41.5.2.2 MT CS establishment whilst in packet transfer mode with a uplink TBF established

41.5.2.2.1 Conformance requirements

3GPP TS 04.60/44.060

Paging initiation using PACCH applies when sending a paging request message to a mobile station that is GPRS attached, when the mobile station is in packet transfer mode and the network is able to co-ordinate the paging request with the radio resources allocated for the mobile station on a PDCH. This kind of paging co-ordination shall be provided in network mode of operation I (see 3G TS 23.060). This kind of paging co-ordination may be provided also in network mode of operation II or III. This kind of paging co-ordination shall be provided if the network supports DTM.

When the mobile station responds to a paging request for RR connection establishment, it shall follow the paging response procedures as specified in 3GPP TS 04.18. For that purpose, a mobile station in packet transfer mode or a mobile station that has initiated a packet access procedure may abort any ongoing TBF or the packet access procedure in the following two cases:

- The mobile station requires that the BSS co-ordinates the allocation of radio resources for an RR connection and a simultaneous TBF (GPRS class A mode of operation by means of DTM).

3GPP TS 03.55

Once on the DCCH, the mobile station may request the re-establishment of the packet resources by sending a DTM Request message. The procedure to re-establish an aborted uplink TBF shall be identical to the MO session request. The procedure to re-establish an aborted downlink TBF shall be identical to the MT session request.

References

3GPP TS 04.60/44.060, sub-clauses 6.1.3, 6.1.4

3GPP TS 03.55, sub-clause 6.1.3

41.5.2.2.2 Test purpose

To verify that the MS reacts to CS paging on the PACCH, whilst in packet transfer mode, by releasing the uplink TBF and then establishing the RR connection. The MS may request the re-establishment of the packet resources by sending a DTM Request message on the DCCH.

41.5.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

The MS is in the GMM READY state.

Specific PICS Statements

- Support of Immediate Connect (TSPC_AddInfo_ImmConn)

PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode before being paged on the PACCH. Upon receipt of the PACKET PAGING REQUEST message, the MS returns to packet idle mode and initiates the establishment of a CS connection.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2		{ Uplink dynamic allocation two phase access }	Macro
3	MS<->SS	{ Uplink data }	Macro
4	SS->MS	PACKET PAGING REQUEST	This message to be sent before the termination of the macro.
			1 st Repeated Page info contains IMSI of the MS PAGE_MODE = " same as before ", sent on downlink PACCH When: k=1, Channel Needed = TCH/F; k=2, Channel Needed = TCH/H.
5	MS->SS	CHANNEL REQUEST	
6	SS->MS	IMMEDIATE ASSIGNMENT	
7	MS->SS	PAGING RESPONSE	
8	MS->SS	CLASSMARK CHANGE	
9	MS->SS	GPRS INFORMATION	The MS sends an empty LLC PDU to indicate Cell Update.
Option al step			The MS may send a DTM REQUEST message at any time after the CLASSMARK CHANGE message was sent. The SS shall discard the message.
10	SS ->MS	AUTHENTICATION REQUEST	
11	MS ->SS	AUTHENTICATION RESPONSE	
12	SS ->MS	CIPHERING MODE COMMAND	
13	MS ->SS	CIPHERING MODE COMPLETE	
14	SS->MS	ASSIGNMENT COMMAND	Timeslot N (chosen arbitrarily) When: k=1, Channel Type = TCH/F; k=2, Channel Type = TCH/H;
15	MS->SS	ASSIGNMENT COMPLETE	
16	SS->MS	SETUP	
17	MS->SS	CALL CONFIRMED	
			If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A18	MS->SS	CONNECT	Sent on the old channel
B18	MS->SS	ALERTING	
B19	MS->SS	CONNECT	
20	SS->MS	CONNECT ACKNOWLEDGE	

41.5.2.3 MO CS establishment whilst in packet transfer mode with uplink and downlink TBFs established

41.5.2.3.1 Conformance requirements

3GPP TS 04.60/44.060

Paging initiation using PACCH applies when sending a paging request message to a mobile station that is GPRS attached, when the mobile station is in packet transfer mode and the network is able to co-ordinate the paging request with the radio resources allocated for the mobile station on a PDCH. This kind of paging co-ordination shall be provided in network mode of operation I (see 3G TS 23.060). This kind of paging co-ordination may be provided also in network mode of operation II or III. This kind of paging co-ordination shall be provided if the network supports DTM.

When the mobile station responds to a paging request for RR connection establishment, it shall follow the paging response procedures as specified in 3GPP TS 04.18. For that purpose, a mobile station in packet transfer mode or a mobile station that has initiated a packet access procedure may abort any ongoing TBF or the packet access procedure in the following two cases:

- The mobile station requires that the BSS co-ordinates the allocation of radio resources for an RR connection and a simultaneous TBF (GPRS class A mode of operation by means of DTM).

3GPP TS 03.55

Once on the DCCH, the mobile station may request the re-establishment of the packet resources by sending a DTM Request message. The procedure to re-establish an aborted uplink TBF shall be identical to the MO session request. The procedure to re-establish an aborted downlink TBF shall be identical to the MT session request.

References

3GPP TS 04.60/44.060, sub-clauses 6.1.3, 6.1.4

3GPP TS 03.55, sub-clause 6.1.3

41.5.2.3.2 Test purpose

To verify that the MS reacts to MO call whilst in packet transfer mode by releasing both uplink and downlink TBFs and then establishing an RR connection. The MS may request the re-establishment of the packet resources by sending a DTM Request message on the DCCH.

41.5.2.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

The MS is in the GMM READY state.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode with the establishment of the uplink TBF and then the SS orders the establishment of a downlink TBF. Once both TBFs are active, the MS is triggered to initiate the establishment of voice

call. The MS returns to packet idle mode and initiates the establishment of a CS connection. MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2		{ Uplink dynamic allocation two phase access }	Macro
3	MS<->SS	{ Uplink data }	Macro
4	SS->MS	PACKET DOWNLINK ASSIGNMENT	This message to be sent before the termination of the macro.
5	SS<->MS	{ Acknowledged downlink data }	Macro – Transmitting 10.000 octets of Data
6	MS->SS	CHANNEL REQUEST	The MS is made to initiate the establishment of an RR connection as soon as the first downlink packet is acknowledged.
7	SS->MS	IMMEDIATE ASSIGNMENT	
8	MS->SS	CM SERVICE REQUEST	
9	MS->SS	CLASSMARK CHANGE	
10	MS -> SS	GPRS INFORMATION	The MS sends an empty LLC PDU to indicate Cell Update.
Option al step			The MS may send a DTM REQUEST message at any time after the CLASSMARK CHANGE message was sent. The SS shall discard the message.
11	SS -> MS	AUTHENTICATION REQUEST	
12	MS -> SS	AUTHENTICATION RESPONSE	
13	SS -> MS	CIPHERING MODE COMMAND	
14	MS -> SS	CIPHERING MODE COMPLETE	
15	MS->SS	SETUP	
16	SS->MS	ASSIGNMENT COMMAND	Timeslot N (chosen arbitrarily) When: k=1, Channel Type = TCH/F; k=2, Channel Type = TCH/H;
17	MS->SS	ASSIGNMENT COMPLETE	
18	SS->MS	CALL PROCEEDING	
19	SS->MS	ALERTING	
20	MS		An alerting indication is given.
21	SS->MS	CONNECT	
22	MS->SS	CONNECT ACKNOWLEDGE	

41.5.2.4 MO CS establishment whilst in packet transfer mode and DTM is not supported in current cell

41.5.2.4.1 Conformance requirements

The GPRS suspension procedure shall be used to suspend GPRS services:

- a) when the mobile station in a class A mode of operation is handed over to a cell where the support of Class A mode of operation is not possible (e.g. a DTM mobile station entering a cell not supporting DTM)

In case a), when the mobile station concludes that DTM is not supported in the new cell after the handover procedure is completed, it shall initiate the GPRS suspension procedure by sending a GPRS SUSPENSION REQUEST message with the suspension cause set to “DTM not supported in the cell”.

References

3GPP TS 04.18/44.018, sub-clause 3.4.25.3

41.5.2.4.2 Test purpose

When an MS supporting DTM is operating in packet transfer mode in a cell that does not support DTM, the MS may be required to establish a CS connection. Upon receipt of the CS establishment request the MS completes the GPRS suspension procedure, establishes an RR connection and does not re-establish PS resources i.e. it does not enter DTM.

41.5.2.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM not supported, GPRS supported

Mobile Station:

The MS is in packet idle mode with a TMSI, P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode. A CS call is established. The MS returns to packet idle mode and initiates the establishment of CS connection. Once the MS has acquired the CS connection, the MS shall not request the re-establishment of the PS resources with a DTM REQUEST message until the CS connection has terminated.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS<->SS	{ Uplink dynamic allocation two phase access }	Macro
3	MS<->SS	{ Uplink data }	Macro
4	MS->SS	CHANNEL REQUEST	The MS is made to initiate the establishment of an RR connection as soon as some uplink packets were received. This message to be received before the termination of the macro.
5	SS->MS	IMMEDIATE ASSIGNMENT	
6	MS->SS	CM SERVICE REQUEST	Message is contained in SABM
7	MS->SS	CLASSMARK CHANGE	
8	MS->SS	GPRS SUSPENSION REQUEST	Sent on the mainDCCH with suspension cause set to "DTM not supported in the cell"
9	SS -> MS	AUTHENTICATION REQUEST	
10	MS -> SS	AUTHENTICATION RESPONSE	
11	SS -> MS	CIPHERING MODE COMMAND	
12	MS -> SS	CIPHERING MODE COMPLETE	
13	MS->SS	SETUP	
14	SS->MS	CALL PROCEEDING	
15	SS->MS	ASSIGNMENT COMMAND	
16	MS->SS	ASSIGNMENT COMPLETE	Sent on the correct channel after establishment of the main signalling link
17	SS->MS	ALERTING	
18	SS->MS	CONNECT	
19	MS->SS	CONNECT ACKNOWLEDGE	
20	MS		The appropriate bearer channel is through connected in both directions.
21	SS		Maintain CS connection call for 30 seconds and check that no DTM Request is received
22	SS->MS	CHANNEL RELEASE	With a valid RR cause value and including the GPRS Resumption IE
23	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
24		{Uplink dynamic allocation one phase access or two phase access }	
25	MS<->SS	{ Uplink data transfer }	Macro

41.5.3 PS establishment whilst in dual transfer mode

41.5.3.1 Uplink TBF establishment with a downlink TBF established

41.5.3.1.1 Uplink TBF establishment with a downlink TBF established and no PS downlink reallocation

41.5.3.1.1.1 Conformance requirements

The mobile station may request establishment of one or more uplink TBFs when there are one or more ongoing downlink TBFs by including a Channel Request Description or the Extended Channel Request Description information element in the (EGPRS) PACKET DOWNLINK ACK/NACK message. Initiation is triggered by a request from upper layers to transfer an upper layer PDU.

When multiple TBF procedures are not supported, the mobile station initiates the packet access procedure by sending the Channel Request Description information element in the (EGPRS) PACKET DOWNLINK ACK/NACK message on the PACCH and starting timer T3168.

On receipt of an (Extended) Channel Request Description information element in the (EGPRS)PACKET DOWNLINK ACK/NACK message, the network may assign radio resources to the mobile station on one or more PDCHs by transmitting an uplink assignment message (e.g. PACKET UPLINK ASSIGNMENT, MULTIPLE TBF UPLINK ASSIGNMENT, PACKET TIMESLOT RECONFIGURE or MULTIPLE TBF TIMESLOT RECONFIGURE message) on the PACCH, or may reject one or more of the requests by sending a PACKET ACCESS

REJECT message on the PACCH. If the PACKET TIMESLOT RECONFIGURE message is sent, then the message shall contain the UPLINK_TFI_ASSIGNMENT field.

On receipt of a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message the mobile station shall stop timer T3168 and switch to the assigned PDCHs.

References

3GPP TS 04.60/44.060 sub-clause 8.1.2.5

On receipt of the PACKET RESOURCE REQUEST the network shall respond by sending a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE or a PACKET ACCESS REJECT message to the mobile station on the downlink PACCH.

On receipt of a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message the mobile station shall stop timer T3168 and switch to the assigned PDCHs.

References

3GPP TS 04.60/44.060 sub-clause 8.1.1.1.2

41.5.3.1.1.2 Test purpose

To verify that the MS can be assigned uplink PS resources, when no reallocation of the existing CS and downlink PS resources is required.

41.5.3.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the state "idle, updated, GMM-registered, GPRS attached" with a TMSI, P-TMSI allocated and PDP context 1 has been established. The MS is also in the active state (U10) of a call on the cell.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

Whilst in an active call on timeslot N, the MS receives a PACKET ASSIGNMENT message on the main DCCH, instructing the MS to switch to a designated timeslot and receive data. The SS then starts to transmit to the newly allocated resources. Before the SS completes transmission of the 1000 octets of data, the MS is triggered to initiate an uplink packet transfer. The SS then sends another RLC Downlink Data block to the MS with the S/P bit set to 1. The MS responds by sending a PACKET DOWNLINK ACK/NACK message to the SS including the Channel Request Description IE. The SS allocates uplink resources to the MS with the PACKET UPLINK ASSIGNMENT message. The test procedure is complete when the SS successfully verifies both uplink and downlink transmission are working in parallel.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A. When: k=1, Channel Type = TCH/F; k=2, Channel Type = TCH/H.
2	SS->MS	PACKET ASSIGNMENT	See specific message contents.
3	SS<->MS	{ Downlink data transfer }	Macro – Transmission of 10k octets of data
4	MS		Before the completion of the downlink transmission, the MS is triggered to initiate an uplink packet transfer containing 1000 octets.
5	SS<->MS	{ Downlink data transfer }	RLC Downlink Data - S/P Bit = 1 Continue the { Downlink data transfer } until the MS include the Channel Request Description IE in the PACKET DOWNLINK ACK/NACK.
6	SS->MS	PACKET UPLINK ASSIGNMENT	When: k=1, Timeslot=T; and k=2, Timeslot=N.
7	SS		Verify both uplink and downlink data transmission is functioning correctly.

Specific Message Contents

PACKET ASSIGNMENT (Step 2):

k=1;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included T = (N ± 1) MOD 8
--	---------------------------------------

k=2;

As default message contents except: RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	Not included N
--	-----------------------

41.5.3.1.2 Uplink TBF establishment with a downlink TBF established and PS downlink reallocation

41.5.3.1.2.1 Conformance requirements

The mobile station may request establishment of an uplink transfer during a downlink TBF by including a Channel Request Description information element in the PACKET DOWNLINK ACK/NACK message. Initiation is triggered by a request from upper layers to transfer a LLC PDU.

The mobile station initiates the packet access procedure by sending the Channel Request Description information element in the PACKET DOWNLINK ACK/NACK message on the PACCH and starting timer T3168.

On receipt of a Channel Request Description information element in the PACKET DOWNLINK ACK/NACK message, the network may assign radio resources to the mobile station on one or more PDCHs by transmitting a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message on the PACCH, or may reject the request by sending a PACKET ACCESS REJECT message on the PACCH.

On receipt of a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message the mobile station shall stop timer T3168 and switch to the assigned PDCHs.

References

3GPP TS 04.60/44.060 sub-clause 8.1.1.1.2 – 8.1.2.5

41.5.3.1.2.2 Test purpose

To verify that the MS can be assigned uplink PS resources, when reallocation of the already downlink PS resources is required.

41.5.3.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported.

Mobile Station:

The MS is in the state "idle, updated, GMM-registered, GPRS attached" with a TMSI, P-TMSI allocated and PDP context 1 has been established. The MS is also in the active state (U10) of a call on the cell.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

Whilst in an active call on timeslot N, the MS receives a PACKET ASSIGNMENT message on the main DCCH, instructing the MS to switch to a designated timeslot and receive data. The SS then starts to transmit to the newly allocated resources. Before the SS completes transmission of the 1000 octets of data, the MS is triggered to initiate uplink packet transfer. The SS then sends another RLC Downlink Data block to the MS with the S/P bit set to 1. The MS responds by sending a PACKET DOWNLINK ACK/NACK message to the SS including the Channel Request Description IE. The SS allocates uplink resources and reallocates the downlink resources of the MS with the PACKET TIMESLOT RECONFIGURE message. The test procedure is complete when the SS successfully verifies both uplink and downlink transmission are working in parallel.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N of cell A, utilising a Channel Type set to TCH/F.
2	SS->MS	PACKET ASSIGNMENT	Allocates a Downlink TBF on Timeslot (N - 1) MOD 8.
3	SS<->MS	{ Downlink data transfer }	Macro – Transmission of 10k octets of Data
4	MS		Before the completion of the downlink transmission, the MS is triggered to initiate an uplink packet transfer containing 1000 octets.
5	SS->MS	RLC DOWNLINK DATA	S/P Bit =1
6	MS->SS	PACKET DOWNLINK ACK/NACK	Includes the Channel Request Description IE.
7	SS->MS	PACKET TIMESLOT RECONFIGURE	Where the timeslot is set to Timeslot (N + 1) MOD 8.
8	SS		Verify both uplink and downlink data transmission is functioning correctly.

41.5.3.2 Downlink TBF establishment with a uplink established

41.5.3.2.1 Downlink TBF establishment with a uplink TBF established and no PS uplink reallocation

41.5.3.2.1.1 Conformance requirements

During uplink transfer, the network may initiate a downlink TBF by sending a PACKET DOWNLINK ASSIGNMENT message, or a PACKET TIMESLOT RECONFIGURE, to the mobile station on the PACCH. If a PACKET TIMESLOT RECONFIGURE message is sent, then the message shall contain the DOWNLINK_TFI_ASSIGNMENT field. The multislot restrictions of the mobile station shall be observed.

References

3GPP TS 04.60/44.060 sub-clause 8.1.1.1.3

41.5.3.2.1.2 Test purpose

To verify that a downlink TBF can be established without reallocation of uplink PS resources, whilst maintaining DTM.

41.5.3.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call.

The MS is GPRS idle with a P-TMSI allocated and the PDP context 1 activated.

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer of 1000 octets of data in RLC unacknowledged mode and sends a DTM REQUEST message. On receiving the DTM REQUEST message, requesting uplink resources, the SS assigns the MS an uplink TBF. The SS accomplishes the resource assignment by passing a PACKET ASSIGNMENT message to the MS. On receiving the PACKET ASSIGNMENT message, the MS starts to send RLC DATA BLOCKS to the SS on the assigned PDTCH. Once the MS has sent correctly approximately 500 octets, the SS transmits a PACKET DOWNLINK ASSIGNMENT message allocating the MS downlink packet resources. The test procedure is complete when the SS successfully verifies both uplink and downlink transmission are working in parallel.

MS supporting DTM shall complete testing for k=1 and MSs indicating support of single slot DTM shall additionally complete testing for k=2.

Maximum Duration of Test

5 minutes

Expected Sequence

The test sequence is repeated for k = 1,2.

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N. When: k=1, Channel Type=TCH/F; k=2, Channel Type=TCH/H.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	Includes information on the Radio resources provided to the MS. See specific message contents.
5	MS<->SS	{ Uplink data }	Macro – Approximately 500 Octets
6	SS->MS	PACKET DOWNLINK ASSIGNMENT	When: k=1, Timeslot = $(N \pm 1) \text{ MOD } 8$; k=2, Timeslot = N.
7	SS		Verify both uplink and downlink data transmission is functioning correctly.

Specific Message Contents

PACKET ASSIGNMENT (Step 4):

k=1;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	$(N \pm 1) \text{ MOD } 8$ Not included
--	--

k=2;

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	N Not included
--	-------------------

41.5.3.2.2 Downlink TBF establishment with a uplink TBF established and PS uplink reallocation

41.5.3.2.2.1 Conformance requirements

During uplink transfer, the network may initiate a downlink TBF by sending a PACKET TIMESLOT RECONFIGURE message to the MS on the PACCH. If uplink and downlink TBFs are already established, then the network may send a PACKET TIMESLOT RECONFIGURE message without DOWNLINK_TFI_ASSIGNMENT. The MS shall interpret this as a reassignment of the timeslot allocations of the concurrent uplink and downlink TBFs and the downlink TFI is not changed.

References

3GPP TS 04.60/44.060 sub-clause 8.1.1.1.3

41.5.3.2.2.2 Test purpose

To verify that a downlink TBF can be established with reallocation of the uplink PS resources, whilst maintaining DTM.

41.5.3.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, DTM supported

Mobile Station:

The MS is in the active state (U10) of a call

The MS is GPRS idle with a P-TMSI allocated and the PDP context 1 activated.

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer of 1000 octets of data and sends a DTM REQUEST message. On receiving the DTM REQUEST message, requesting uplink resources, the SS assigns the MS an uplink TBF. The SS accomplishes the resource assignment by passing a PACKET ASSIGNMENT message to the MS. On receiving the PACKET ASSIGNMENT message, the MS starts to send RLC DATA BLOCKS to the SS on the assigned PDTCH. Once the MS has sent correctly approximately 500 octets, the SS transmits a PACKET TIMESLOT RECONFIGURE message assigning the MS downlink packet resources and reallocating the MS uplink packet resources. The test procedure is complete when the SS successfully verifies both uplink and downlink transmission are working in parallel.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	SS		MS in the active state (U10) of a call on Timeslot N using TCH/F as a Channel Type.
2	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
3	MS->SS	DTM REQUEST	
4	SS->MS	PACKET ASSIGNMENT	Allocates a Uplink TBF on Timeslot (N - 1) MOD 8.
5	MS->SS	{ Uplink data }	Macro – Approximately 500 Octets
6	SS->MS	PACKET TIMESLOT RECONFIGURE	Where the timeslot is set to Timeslot (N + 1) MOD 8.
7	SS		Verify both uplink and downlink data transmission is functioning correctly.

Specific Message Contents

Packet Timeslot Reconfigure (Step 6)

As default message contents except: Global Packet Timing Advance - {0 1<TIMING_ADVANCE_VALUE>} {0 1<DOWNLINK_TFI_ASSIGNMENT> - Downlink TFI Assignment - - {0 1<USF_TN0>} - {0 1<USF_TN1>} - {0 1<USF_TN2>} - {0 1<USF_TN3>} - {0 1<USF_TN4>} - USF_TN4 - {0 1<USF_TN5>} - {0 1<USF_TN6>} - {0 1<USF_TN7>}	0 (timing advance value not present) 1 arbitrarily chosen 0 (Timeslot Allocation without Power Control Parameters) one slot arbitrarily chosen (N+1) and different from current slot (N-1) 0 (timeslot 0 not assigned) 0 (timeslot 1 not assigned) 0 (timeslot 2 not assigned) 0 (timeslot 3 not assigned) 1 (timeslot 4 assigned) arbitrarily chosen (default 000) 0 (timeslot 5 not assigned) 0 (timeslot 6 not assigned) 0(timeslot 7 not assigned)
--	--

41.5.4 Enhanced DTM CS Establishment

41.5.4.1 MT Call Establishment - No Reallocation of PS Resources

41.5.4.1.1 Conformance Requirements

The network initiates the RR connection establishment procedure by sending a PACKET CS COMMAND message to the mobile station on PACCH, encapsulating one of the following RR messages:

- DTM ASSIGNMENT COMMAND message (see sub-clause 8.9.2.1);

The network may allocate both a dedicated channel and radio resources on one or more PDCHs to be used by the mobile station and shall in this case send a DTM ASSIGNMENT COMMAND encapsulated in a PACKET CS COMMAND message. Having sent the DTM ASSIGNMENT COMMAND message, the network starts timer T3107, specified in 3GPP TS 44.018. The allocated dedicated channel shall be of TCH type. The network may also reallocate radio resources (PDCH(s)) in the DTM ASSIGNMENT COMMAND message. If both the RR Packet Uplink Assignment and the RR Packet Downlink Assignment information elements are omitted in the DTM ASSIGNMENT COMMAND the network implicitly indicates that the current radio resources shall be maintained. The mobile station shall act on the DTM ASSIGNMENT COMMAND message as specified in GPP TS 44.018. On receiving an encapsulated DTM ASSIGNMENT COMMAND message, the mobile station shall establish the main signalling link using the procedure described in 3GPP TS 44.018.

References

3GPP TS 44.060, sub-clauses 8.9.1.2, 8.9.2.1

41.5.4.1.2 Test Purpose

To verify that the MS reacts to CS establishment initiated by the NW whilst in packet transfer mode, by establishing an RR connection on the allocated circuit switched resources.

To verify that the MS continues to maintain an ongoing downlink TBF throughout the enhanced DTM CS establishment procedure.

41.5.4.1.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

- Support of Immediate Connect (TSPC_AddInfo_ImmConn)

PIXIT Statements

-

Test Procedure

The MS is brought into packet transfer mode for downlink TBF. The SS initiates the establishment of a mobile terminated circuit switched call by sending an encapsulated DTM ASSIGNMENT COMMAND on the PACCH. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS maintains the downlink TBF throughout the enhanced DTM CS establishment procedure.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Downlink TBF establishment }	Macro. A downlink TBF is established on timeslot N.
2	SS<->MS	{ Acknowledged Downlink data }	Macro.
3			It is checked that the MS continues to receive and acknowledge downlink data during Steps 4 to 18 below.
4	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
5	MS->SS	PAGING RESPONSE	
6	MS->SS	CLASSMARK CHANGE	
7	SS->MS	AUTHENTICATION REQUEST	
8	MS->SS	AUTHENTICATION RESPONSE	
9	SS->MS	CIPHERING MODE COMMAND	
10	MS->SS	CIPHERING MODE COMPLETE	
11	SS->MS	SETUP	
12	MS->SS	CALL CONFIRMED	
			If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
A13	MS->SS	CONNECT	Continues at Step 17.
B13	MS->SS	ALERTING	
B14	MS		An alerting indication is given by the MS.
B15	MS		The MS is made to accept the call.
B16	MS->SS	CONNECT	
17	MS		The TCH shall be through connected in both directions.
18	SS->MS	CONNECT ACKNOWLEDGE	
19	SS<->MS	{ Downlink data transfer }	Macro.

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 4):

As default message contents except:	
Channel Description IE	
- TN	N+1 mod 8
- Channel Type	TCH/F
Channel Mode IE	Full Rate Version 1
RR Packet Uplink Assignment IE	Not included
RR Packet Downlink Assignment IE	Not included

41.5.4.2 MT Call Establishment - Reallocation of PS Resources - Allocation of New Downlink TBF

41.5.4.2.1 Conformance Requirements

The network initiates the RR connection establishment procedure by sending a PACKET CS COMMAND message to the mobile station on PACCH, encapsulating one of the following RR messages:

- DTM ASSIGNMENT COMMAND message (see sub-clause 8.9.2.1);

The network may allocate both a dedicated channel and radio resources on one or more PDCHs to be used by the mobile station and shall in this case send a DTM ASSIGNMENT COMMAND encapsulated in a PACKET CS COMMAND message. Having sent the DTM ASSIGNMENT COMMAND message, the network starts timer T3107, specified in 3GPP TS 44.018. The allocated dedicated channel shall be of TCH type. The network may also reallocate radio resources (PDCH(s)) in the DTM ASSIGNMENT COMMAND message. If both the RR Packet Uplink Assignment and the RR Packet Downlink Assignment information elements are omitted in the DTM ASSIGNMENT COMMAND the network implicitly indicates that the current radio resources shall be maintained. The mobile station shall act on the DTM ASSIGNMENT COMMAND message as specified in GPP TS 44.018. On receiving an encapsulated DTM ASSIGNMENT COMMAND message, the mobile station shall establish the main signalling link using the procedure described in 3GPP TS 44.018.

References

3GPP TS 44.060, sub-clauses 8.9.1.2, 8.9.2.1

41.5.4.2.2 Test Purpose

To verify that the MS reacts to CS establishment initiated by the NW whilst in packet transfer mode, by establishing an RR connection on the allocated circuit switched resources.

To verify that the MS continues to maintain an ongoing uplink TBF throughout the enhanced DTM CS establishment procedure.

To verify that the MS reacts to the establishment of a new downlink TBF during the enhanced DTM CS establishment procedure.

41.5.4.2.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

- Support of Immediate Connect (TSPC_AddInfo_ImmConn)

PIXIT Statements

-

Test Procedure

The MS is brought into packet transfer mode for uplink TBF. The SS initiates the establishment of a mobile terminated circuit switched call by sending an encapsulated DTM ASSIGNMENT COMMAND on the PACCH. The encapsulated DTM ASSIGNMENT COMMAND also contains parameters for a new downlink TBF. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS responds to polling for downlink ack/nack on the new downlink TBF. It is checked that the MS maintains the uplink TBF throughout the enhanced DTM CS establishment procedure.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Uplink dynamic allocation two phase access }	Macro. An uplink TBF is established on timeslot N. n = 1000 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: arbitrarily chosen CHANNEL_CODING_COMMAND: cs-1
2	SS<->MS	{ Uplink data }	Macro.
3	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
4	SS ->MS	DOWNLINK RLC DATA BLOCK	Sent 3 blocks after the PACKET CS COMMAND at Step 3. S/P = 1 USF assigned to the MS.
5	MS->SS	UPLINK RLC DATA BLOCK	Received one block after the USF grant in Step 4.
6	MS->SS	PACKET DOWNLINK ACK/NACK	Received on the assigned RRBp.
7			It is checked that the MS continues to acknowledge downlink and send uplink data during Steps 8 to 20 below.
8	MS->SS	PAGING RESPONSE	
9	MS ->SS	CLASSMARK CHANGE	
10	SS ->MS	AUTHENTICATION REQUEST	
11	MS ->SS	AUTHENTICATION RESPONSE	
12	SS ->MS	CIPHERING MODE COMMAND	
13	MS ->SS	CIPHERING MODE COMPLETE	
14	SS->MS	SETUP	
15	MS->SS	CALL CONFIRMED	
A16	MS->SS	CONNECT	If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
B16	MS->SS	ALERTING	Continues at Step 20.
B17	MS		An alerting indication is given by the MS.
B18	MS		The MS is made to accept the call.
B19	MS->SS	CONNECT	
20	MS		The TCH shall be through connected in both directions.
21	SS->MS	CONNECT ACKNOWLEDGE	
22	SS<->MS	{ Downlink data transfer }	Macro.
23	SS<->MS	{ Uplink data transfer }	Macro.

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 3):

As default message contents except: Channel Description IE - TN - Channel Type Channel Mode IE RR Packet Uplink Assignment IE - UPLINK_TFI_ASSIGNMENT - USF_TNn RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION - DOWNLINK_TFI_ASSIGNMENT	N+1 mod 8 TCH/F Full Rate Version 1 The value assigned in Step 1. n = N N Any valid value.
--	--

41.5.4.3 MT Call Establishment - Allocation of CS Resources Only - Downlink TBF

41.5.4.3.1 Conformance Requirements

The network initiates the RR connection establishment procedure by sending a PACKET CS COMMAND message to the mobile station on PACCH, encapsulating one of the following RR messages:

- IMMEDIATE ASSIGNMENT message (see sub-clause 8.9.2.2).

The network may allocate only a dedicated channel to the mobile station and shall in this case send an IMMEDIATE ASSIGNMENT encapsulated in a PACKET CS COMMAND message. Having sent the IMMEDIATE ASSIGNMENT message, the network starts timer T3101, specified in 3GPP TS 44.018.

If a mobile station receives an encapsulated IMMEDIATE ASSIGNMENT message which either does not specify a starting time or specifies a starting time which has already elapsed, the mobile station shall immediately:

- perform an abnormal release without retry (see sub-clause 8.7.1), if no uplink TBF is in progress

The mobile station shall abort all TBFs on PDCH(s) in progress and report an RLC/MAC failure to upper layers.

Upon mobile originated or mobile terminated RR connection establishment, on receipt of IMMEDIATE ASSIGNMENT message while in packet transfer mode, the mobile station shall enter dedicated mode.

References

3GPP TS 44.060, sub-clauses 8.9.1.2, 8.9.2.2, 8.7.1

41.5.4.3.2 Test Purpose

To verify that the MS reacts to CS establishment initiated by the NW whilst in packet transfer mode, by establishing an RR connection on the allocated circuit switched resources.

To verify that the MS aborts an ongoing downlink TBF when during the enhanced DTM CS establishment procedure only circuit switched resources are allocated.

41.5.4.3.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

- Support of Immediate Connect (TSPC_AddInfo_ImmConn)

PIXIT Statements

-

Test Procedure

The MS is brought into packet transfer mode for downlink TBF. The SS initiates the establishment of a mobile terminated circuit switched call by sending an encapsulated IMMEDIATE ASSIGNMENT message on the PACCH. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS no longer responds to polling on the old packet switched resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Downlink TBF establishment }	Macro. A downlink TBF is established.
2	SS<->MS	{ Acknowledged Downlink data }	Macro.
3	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates an IMMEDIATE ASSIGNMENT message. See specific message contents.
4			It is checked that the MS does not respond to polling on the old PS resources during Steps 5 to 20 below.
5	MS->SS	PAGING RESPONSE	
6	MS->SS	CLASSMARK CHANGE	
7	SS->MS	AUTHENTICATION REQUEST	
8	MS->SS	AUTHENTICATION RESPONSE	
9	SS->MS	CIPHERING MODE COMMAND	
10	MS->SS	CIPHERING MODE COMPLETE	
11	SS->MS	SETUP	See specific message contents.
12	MS->SS	CALL CONFIRMED	
A13	MS->SS	CONNECT	If the MS supports immediate connect then branch A applies. If the MS does not support immediate connect then branch B applies
B13	MS->SS	ALERTING	Continues at Step 17.
B14	MS		An alerting indication is given by the MS.
B15	MS		The MS is made to accept the call.
B16	MS->SS	CONNECT	
17	SS->MS	ASSIGNMENT COMMAND	See specific message contents.
18	MS->SS	ASSIGNMENT COMPLETE	
19	MS		The TCH shall be through connected in both directions.
20	SS->MS	CONNECT ACKNOWLEDGE	

Specific Message Contents

IMMEDIATE ASSIGNMENT (Step 3):

As default message contents except: Channel Description IE - Channel Type	SDCCH/4
---	---------

ASSIGNMENT COMMAND (Step 17):

As default message contents except: Channel Description IE - Channel Type Channel Mode IE	TCH/F Full Rate Version 1
--	------------------------------

SETUP (Step 11):

As default message contents except: Signal IE	Dial tone on
--	--------------

41.5.4.4 MO Call Establishment - No Reallocation of PS Resources

41.5.4.4.1 Conformance Requirements

The mobile station shall initiate the RR connection establishment by sending PACKET CS REQUEST messages on the PACCH.

Upon receipt of a PACKET CS REQUEST message, the network shall answer to the mobile station by encapsulating one of the following RR messages in the PACKET CS COMMAND message, and sending the PACKET CS COMMAND message on PACCH:

- DTM ASSIGNMENT COMMAND message (see sub-clause 8.9.2.1);

The network may allocate both a dedicated channel and radio resources on one or more PDCHs to be used by the mobile station and shall in this case send a DTM ASSIGNMENT COMMAND encapsulated in a PACKET CS COMMAND message. The allocated dedicated channel shall be of TCH type. If both the RR Packet Uplink Assignment and the RR Packet Downlink Assignment information elements are omitted in the DTM ASSIGNMENT COMMAND the network implicitly indicates that the current radio resources shall be maintained.

References

3GPP TS 44.060, sub-clauses 8.9.1.1.1, 8.9.1.1.2, 8.9.2.1

41.5.4.4.2 Test Purpose

To verify that following the sending of the PACKET CS REQUEST on PACCH whilst in packet transfer mode, the MS establishes an RR connection on the allocated circuit switched resources.

To verify that the MS continues to maintain an ongoing uplink TBF throughout the enhanced DTM CS establishment procedure.

41.5.4.4.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

The MS is brought into packet transfer mode for uplink TBF. The user is made to initiate the establishment of a mobile originated circuit switched call. The MS sends the PACKET CS REQUEST message on PACCH. The NW responds by sending an encapsulated DTM ASSIGNMENT COMMAND on the PACCH. The encapsulated DTM ASSIGNMENT COMMAND contains neither the RR Packet Uplink Assignment IE nor the RR Packet Downlink Assignment IE. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS maintains the uplink TBF throughout the enhanced DTM CS establishment procedure.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Uplink dynamic allocation two phase access }	Macro. An uplink TBF is established on timeslot N. n = 1000 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: arbitrarily chosen CHANNEL_CODING_COMMAND: cs-1
2	SS<->MS	{ Uplink data }	Macro.
3			The user is made to trigger the establishment of a mobile originated speech call.
4	MS->SS	PACKET CS REQUEST	Sent on uplink PACCH. Establishment Cause = Mobile Originated Speech Call
5	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
6			It is checked that the MS continues to transmit uplink data during Steps 7 to 18 below.
7	MS->SS	CM SERVICE REQUEST	
8	MS->SS	CLASSMARK CHANGE	
9	SS->MS	AUTHENTICATION REQUEST	
10	MS->SS	AUTHENTICATION RESPONSE	
11	SS->MS	CIPHERING MODE COMMAND	
12	MS->SS	CIPHERING MODE COMPLETE	
13	MS->SS	SETUP	
14	SS->MS	CALL PROCEEDING	
15	SS->MS	ALERTING	
16	SS->MS	CONNECT	
17	MS		The TCH shall be through connected in both directions.
18	MS->SS	CONNECT ACKNOWLEDGE	

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 5):

As default message contents except: Channel Description IE - TN - Channel Type Channel Mode IE RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE	N+1 mod 8 TCH/F Full Rate Version 1 Not included. Not included.
--	---

41.5.4.5 MO Call Establishment - Reallocation of PS Resources

41.5.4.5.1 Conformance Requirements

The mobile station shall initiate the RR connection establishment by sending PACKET CS REQUEST messages on the PACCH.

Upon receipt of a PACKET CS REQUEST message, the network shall answer to the mobile station by encapsulating one of the following RR messages in the PACKET CS COMMAND message, and sending the PACKET CS COMMAND message on PACCH:

- DTM ASSIGNMENT COMMAND message (see sub-clause 8.9.2.1);

The network may allocate both a dedicated channel and radio resources on one or more PDCHs to be used by the mobile station and shall in this case send a DTM ASSIGNMENT COMMAND encapsulated in a PACKET CS COMMAND message. The allocated dedicated channel shall be of TCH type. The network may also reallocate radio resources (PDCH(s)) in the DTM ASSIGNMENT COMMAND message.

References

3GPP TS 44.060, sub-clauses 8.9.1.1.1, 8.9.1.1.2, 8.9.2.1

41.5.4.5.2 Test Purpose

To verify that following the sending of the PACKET CS REQUEST on PACCH whilst in packet transfer mode, the MS establishes an RR connection on the allocated circuit switched resources.

To verify that the MS continues to maintain an ongoing downlink TBF following the re-allocation of the packet switched resources during the enhanced DTM CS establishment procedure.

41.5.4.5.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

The MS is brought into packet transfer mode for downlink TBF. The user is made to initiate the establishment of a mobile originated circuit switched call. The MS sends the PACKET CS REQUEST message on PACCH. The NW responds by sending an encapsulated DTM ASSIGNMENT COMMAND on the PACCH. The encapsulated DTM ASSIGNMENT COMMAND reallocates the packet switched resources for the ongoing downlink TBF. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS responds to polling on the new packet switched resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Downlink TBF establishment }	Macro. A downlink TBF is established on timeslot N.
2	SS<->MS	{ Acknowledged Downlink data }	Macro.
3			The user is made to trigger the establishment of a mobile originated speech call.
4	MS->SS	PACKET CS REQUEST	Sent on uplink PACCH. Establishment Cause = Mobile Originated Speech Call
5	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
6			It is checked that the MS responds to polling on the new packet switched resources during Steps 7 to 18 below.
7	MS->SS	CM SERVICE REQUEST	
8	MS->SS	CLASSMARK CHANGE	
9	SS->MS	AUTHENTICATION REQUEST	
10	MS->SS	AUTHENTICATION RESPONSE	
11	SS->MS	CIPHERING MODE COMMAND	
12	MS->SS	CIPHERING MODE COMPLETE	
13	MS->SS	SETUP	
14	SS->MS	CALL PROCEEDING	
15	SS->MS	ALERTING	
16	SS->MS	CONNECT	
17	MS		The TCH shall be through connected in both directions.
18	MS->SS	CONNECT ACKNOWLEDGE	

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 5):

As default message contents except: Channel Description IE - TN - Channel Type Channel Mode IE RR Packet Uplink Assignment IE RR Packet Downlink Assignment IE - TIMESLOT ALLOCATION - DOWNLINK_TFI_ASSIGNMENT	N+1 mod 8 TCH/F Full Rate Version 1 Not included. N+2 mod 8 The value assigned in Step 1.
--	--

41.5.4.6 MO Call Establishment - Allocation of CS Resources Only - Downlink TBF

41.5.4.6.1 Conformance Requirements

The mobile station shall initiate the RR connection establishment by sending PACKET CS REQUEST messages on the PACCH.

Upon receipt of a PACKET CS REQUEST message, the network shall answer to the mobile station by encapsulating one of the following RR messages in the PACKET CS COMMAND message, and sending the PACKET CS COMMAND message on PACCH:

- IMMEDIATE ASSIGNMENT message (see sub-clause 8.9.2.2);

The network may allocate only a dedicated channel to the mobile station and shall in this case send an IMMEDIATE ASSIGNMENT encapsulated in a PACKET CS COMMAND message.

If a mobile station receives an encapsulated IMMEDIATE ASSIGNMENT message which either does not specify a starting time or specifies a starting time which has already elapsed, the mobile station shall immediately:

- perform an abnormal release without retry (see sub-clause 8.7.1), if no uplink TBF is in progress,

The mobile station shall abort all TBFs on PDCH(s) in progress and report an RLC/MAC failure to upper layers.

Upon mobile originated or mobile terminated RR connection establishment, on receipt of IMMEDIATE ASSIGNMENT message while in packet transfer mode, the mobile station shall enter dedicated mode.

References

3GPP TS 44.060, sub-clauses 8.9.1.1.1, 8.9.1.1.2, 8.9.2.2, 8.7.1

41.5.4.6.2 Test Purpose

To verify that following the sending of the PACKET CS REQUEST on PACCH whilst in packet transfer mode, the MS establishes an RR connection on the allocated circuit switched resources.

To verify that the MS aborts an ongoing downlink TBF when during the enhanced DTM CS establishment procedure only packet switched resources are allocated.

41.5.4.6.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode for downlink TBF. The user is made to initiate the establishment of a mobile originated circuit switched call. The MS sends the PACKET CS REQUEST message on PACCH. The NW responds by sending an encapsulated IMMEDIATE ASSIGNMENT message on the PACCH. Upon receipt of the PACKET CS COMMAND, the MS initiates the establishment of the CS connection. It is checked that the MS no longer responds to polling on the old packet switched resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Downlink TBF establishment }	Macro. A downlink TBF is established.
2	SS<->MS	{ Acknowledged Downlink data }	Macro.
3			The user is made to trigger the establishment of a mobile originated speech call.
4	MS->SS	PACKET CS REQUEST	Sent on uplink PACCH. Establishment Cause = Mobile Originated Speech Call
5	SS->MS	PACKET CS COMMAND	Sent on downlink PACCH. Encapsulates an IMMEDIATE ASSIGNMENT message. See specific message contents.
6			It is checked that the MS does not respond to polling on the old PS resources during Steps 7 to 20 below.
7	MS->SS	CM SERVICE REQUEST	
8	MS->SS	CLASSMARK CHANGE	
9	SS->MS	AUTHENTICATION REQUEST	
10	MS->SS	AUTHENTICATION RESPONSE	
11	SS->MS	CIPHERING MODE COMMAND	
12	MS->SS	CIPHERING MODE COMPLETE	
13	MS->SS	SETUP	
14	SS->MS	CALL PROCEEDING	
15	SS->MS	ALERTING	
16	SS->MS	ASSIGNMENT COMMAND	See specific message contents.
17	MS->SS	ASSIGNMENT COMPLETE	
18	SS->MS	CONNECT	
19	MS		The TCH shall be through connected in both directions
20	MS->SS	CONNECT ACKNOWLEDGE	

Specific Message Contents

IMMEDIATE ASSIGNMENT (Step 5):

As default message contents except: Channel Description IE - Channel Type	SDCCH/4
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ASSIGNMENT COMMAND (Step 16):

As default message contents except: Channel Description IE - Channel Type Channel Mode IE	TCH/F Full Rate Version 1
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41.5.4.7 MO Call Establishment – IMMEDIATE ASSIGNMENT REJECT

41.5.4.7.1 Conformance Requirements

The mobile station shall initiate the RR connection establishment by sending PACKET CS REQUEST messages on the PACCH.

Upon receipt of a PACKET CS REQUEST message, the network shall answer to the mobile station by encapsulating one of the following RR messages in the PACKET CS COMMAND message, and sending the PACKET CS COMMAND message on PACCH:

- IMMEDIATE ASSIGNMENT REJECT message (see sub-clause 8.9.2.3).

If no dedicated channel is available for assignment, the network may send to the mobile station an IMMEDIATE ASSIGNMENT REJECT message encapsulated in a PACKET CS COMMAND message.

On receipt of the encapsulated IMMEDIATE ASSIGNMENT REJECT message the mobile station shall stop sending PACKET CS REQUEST messages, starts timer T3122 with the indicated value ("wait indication" information element, specified in 3GPP TS 44.018) and continue in packet transfer mode.

The behaviour of the mobile station while timer T3122 is running is specified in 3GPP TS 44.018.

The mobile station is not allowed to make a new attempt to establish a non emergency RR connection in the same cell until T3122 expires. Provided that an IMMEDIATE ASSIGNMENT REJECT message has not been received for an emergency RR connection attempt, the mobile station may attempt to enter the dedicated mode for an emergency call in the same cell before T3122 has expired.

References

3GPP TS 44.060, sub-clauses 8.9.1.1.1, 8.9.1.1.2, 8.9.2.3

3GPP TS 44.018, sub clauses 3.3.1.1.3.2

41.5.4.7.2 Test Purpose

To verify that when the MS receives an IMMEDIATE ASSIGNMENT REJECT encapsulated in a PACKET CS COMMAND following an attempt to originate a non-emergency call, it does not attempt to originate a further non-emergency call whilst T3122 is running.

To verify that the MS does attempt to originate an emergency call whilst T3122 is running following the receipt of an encapsulated IMMEDIATE ASSIGNMENT REJECT message in response to non-emergency call establishment.

To verify that MS continues with any ongoing TBFs after receiving an IMMEDIATE ASSIGNMENT REJECT with Wait Indication.

41.5.4.7.3 Method of Test

Initial Condition

System simulator

- 1 cell, Enhanced DTM supported

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

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PIXIT Statements

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Procedure 1

Test Procedure

The MS is brought into packet transfer mode with one uplink and one downlink TBF. The user is made to trigger the establishment of a non-emergency speech call. The MS sends a PACKET CS REQUEST message on PACCH. The network responds by sending an encapsulated IMMEDIATE ASSIGNMENT REJECT message which includes a Wait Indication on PACCH. It is checked that the MS continues to send uplink data and to respond to polling for PACKET DOWNLINK ACK/NACK. The user is made to trigger the establishment of a second non-emergency speech call whilst T3122 is still running. It is checked that the MS does not send a PACKET CS REQUEST on PACCH. It is checked that the MS continues to send uplink data and to respond to polling for PACKET DOWNLINK ACK/NACK. The user is made to trigger the establishment of an emergency call whilst T3122 is still running. It is checked that the MS sends a PACKET CS REQUEST on PACCH.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Uplink dynamic allocation two phase access }	n = 2000 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: arbitrarily chosen CHANNEL_CODING_COMMAND: cs-1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
3	MS->SS	UPLINK RLC DATA BLOCK	
4	SS->MS	PACKET DOWNLINK ASSIGNMENT	Sent on the PACCH, assigning a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged, single timeslot, no starting time.
5	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on the downlink PDTCH, 3 blocks from the last radio block containing the downlink assignment. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK	Received on the uplink PDTCH assigned in step 1.
7			The user is made to trigger the establishment of a non-emergency speech call.
8	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
9	MS -> SS	UPLINK RLC DATA BLOCK OR PACKET CS REQUEST	Uplink data sent on the uplink PDTCH. Or Packet CS Request sent on uplink PACCH
10	SS->MS	DOWNLINK RLC DATA BLOCK	Establishment Cause = Mobile Originated Call SS transmits RLC data block with valid RRBp field (polling).
11	MS->SS	PACKET DOWNLINK ACK/NACK OR PACKET CS REQUEST	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field. Or Packet CS Request sent on uplink PACCH
12			Establishment Cause = Mobile Originated Call Steps 8 to 11 are repeated until a PACKET CS REQUEST is sent by MS in either Step 9 or Step 11
13	SS->MS	PACKET CS COMMAND	Sent on Downlink PACCH Encapsulates IMMEDIATE ASSIGNMENT REJECT
14	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Wait Indication T3122 = 50s Assigned USF addressing the MS
15	MS -> SS	UPLINK RLC DATA BLOCK	Sent on PDTCH.
16	SS->MS	DOWNLINK RLC DATA BLOCK	SS transmits RLC data block with valid RRBp field (polling).
17	MS->SS	PACKET DOWNLINK ACK/NACK	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field.
18			The user is made to trigger the establishment of a non-emergency speech call.
19	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
20	MS -> SS	UPLINK RLC DATA BLOCK	Sent on PDTCH.
21	SS->MS	DOWNLINK RLC DATA BLOCK	SS transmits RLC data block with valid RRBp field (polling).
22	MS->SS	PACKET DOWNLINK ACK/NACK	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field.
23			The user is made to trigger the establishment of an emergency call.
24	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
25	MS -> SS	UPLINK RLC DATA BLOCK OR PACKET CS REQUEST	Uplink data sent on the uplink PDTCH. Or Packet CS Request sent on uplink PACCH
26	SS->MS	DOWNLINK RLC DATA BLOCK	Establishment Cause = Emergency Call Received within T3122 (50s) of Step 13. SS transmits RLC data block with valid RRBp field (polling).

27	MS->SS	PACKET DOWNLINK ACK/NACK OR PACKET CS REQUEST	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBP field. Or Packet CS Request sent on uplink PACCH Establishment Cause = Emergency Call Received within T3122 (50s) of Step 13.
28			Steps 24 to 27 are repeated until a PACKET CS REQUEST is sent by MS in either Step 25 or Step 27.

Specific Message Content

None.

Procedure 2

Test Procedure

The MS is brought into packet transfer mode with one uplink and one downlink TBF. The user is made to trigger the establishment of a non-emergency speech call. The MS sends a PACKET CS REQUEST message on PACCH. The network responds by sending an encapsulated IMMEDIATE ASSIGNMENT REJECT message which includes a Wait Indication on PACCH. It is checked that the MS continues to send uplink data and to respond to polling for PACKET DOWNLINK ACK/NACK. The user is made to trigger the establishment of a second non-emergency speech call whilst T3122 is still running. It is checked that the MS does not send a PACKET CS REQUEST on PACCH. It is checked that the MS continues to send uplink data and to respond to polling for PACKET DOWNLINK ACK/NACK. Following expiry of T3122, the user is made to trigger the establishment of a third non-emergency speech call. The MS sends a PACKET CS REQUEST message on PACCH.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Uplink dynamic allocation two phase access }	n = 2000 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: arbitrarily chosen CHANNEL_CODING_COMMAND: cs-1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
3	MS->SS	UPLINK RLC DATA BLOCK	
4	SS->MS	PACKET DOWNLINK ASSIGNMENT	Sent on the PACCH, assigning a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged, single timeslot, no starting time.
5	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on the downlink PDTCH, 3 blocks from the last radio block containing the downlink assignment. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK	Received on the uplink PDTCH assigned in step 1.
7			The user is made to trigger the establishment of a non-emergency speech call.
8	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
9	MS -> SS	UPLINK RLC DATA BLOCK OR PACKET CS REQUEST	Uplink data sent on the uplink PDTCH. Or Packet CS Request sent on uplink PACCH
10	SS->MS	DOWNLINK RLC DATA BLOCK	Establishment Cause = Mobile Originated Call SS transmits RLC data block with valid RRBp field (polling).
11	MS->SS	PACKET DOWNLINK ACK/NACK OR PACKET CS REQUEST	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field. Or Packet CS Request sent on uplink PACCH
12			Establishment Cause = Mobile Originated Call Steps 8 to 11 are repeated until a PACKET CS REQUEST is sent by MS in either Step 9 or Step 11
13	SS->MS	PACKET CS COMMAND	Sent on Downlink PACCH Encapsulates IMMEDIATE ASSIGNMENT REJECT
14	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Wait Indication T3122 = 50s Assigned USF addressing the MS
15	MS -> SS	UPLINK RLC DATA BLOCK	Sent on PDTCH.
16	SS->MS	DOWNLINK RLC DATA BLOCK	SS transmits RLC data block with valid RRBp field (polling).
17	MS->SS	PACKET DOWNLINK ACK/NACK	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field.
18			The user is made to trigger the establishment of a non-emergency speech call.
19	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
20	MS -> SS	UPLINK RLC DATA BLOCK	Sent on PDTCH.
21	SS->MS	DOWNLINK RLC DATA BLOCK	SS transmits RLC data block with valid RRBp field (polling).
22	MS->SS	PACKET DOWNLINK ACK/NACK	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field.
23	SS		Steps 19 to 22 are repeated until T3122 has expired.
24			The user is made to trigger the establishment of a non-emergency speech call.
25	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
26	MS -> SS	UPLINK RLC DATA BLOCK OR PACKET CS REQUEST	Uplink data sent on the uplink PDTCH. Or Packet CS Request sent on uplink PACCH
27	SS->MS	DOWNLINK RLC DATA BLOCK	Establishment Cause = Mobile Originated Call SS transmits RLC data block with valid RRBp field (polling).

28	MS->SS	PACKET DOWNLINK ACK/NACK OR PACKET CS REQUEST	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRB field. Or Packet CS Request sent on uplink PACCH Establishment Cause = Mobile Originated Call
29			Steps 25 to 28 are repeated until a PACKET CS REQUEST is sent by MS in either Step 26 or Step 28.

Specific Message Content

None.

41.5.4.8 MO Call Establishment - Dedicated Channel Establishment Failure

41.5.4.8.1 Conformance Requirements

The network may allocate both a dedicated channel and radio resources on one or more PDCHs to be used by the mobile station and shall in this case send a DTM ASSIGNMENT COMMAND encapsulated in a PACKET CS COMMAND message. Having sent the DTM ASSIGNMENT COMMAND message, the network starts timer T3107, specified in 3GPP TS 44.018. The allocated dedicated channel shall be of TCH type

- If the mobile fails to establish the main signalling link, it shall perform an abnormal release with RR connection establishment retry (see sub-clause 8.7.4).

mobile station shall abort all TBFs in progress and report an RLC/MAC failure to upper layers. The mobile station in packet transfer mode shall return to the CCCH configuration, enter packet idle mode and initiate the establishment of the RR connection as specified in 3GPP TS 44.018.

References

3GPP TS 44.060, sub-clauses 8.7.4,8.9.2.1,8.9.4.1

41.5.4.8.2 Test Purpose

To verify that MS aborts all TBF in progress when it fails to establish the main signalling link after receiving the PACKET CS COMMAND.

To verify that during procedure of establishment of the main DCCH link MS is using the new PS resources re-allocated in PACKET CS COMMAND.

To verify MS initiate establishment of circuit switch connection in CCCH configuration.

41.5.4.8.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.
- The MS is in the GMM READY state.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is brought into packet transfer mode for uplink and downlink .The user is made to initiate the establishment of mobile originated call.The MS sends PACKET CS REQUEST message on PACCH.The network responds by sending an encapsulated DTM ASIGNMENT COMMAND which reallocates the PS resources.Upon receipt of PACKET CS COMMAND,the MS initiates establishment of CS connection,meanwhile the uplink and downlink data transfer continues on the new allocated PS resources.There is no response on the main DCCH from the newtork.The MS establish CS call using CCCH procedure.It is checked that MS neither uses the old PS resources nor the new PS resources.

Maximum Duration of Test

10 minutes

Expected Sequence

Step	Direction	Message	Comments
1		{ Uplink dynamic allocation two phase access }	n = 440 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: arbitrarily chosen CHANNEL_CODING_COMMAND: cs-1 An uplink TBF is established on timeslot N.
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS, sent on 3 blocks from the last radio block containing the uplink assignment in step 1.
3	MS->SS	UPLINK RLC DATA BLOCK	
4	SS->MS	PACKET DOWNLINK ASSIGNMENT	Sent on the PACCH, assigning a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged, single timeslot, no starting time.
5	SS -> MS	DOWNLINK RLC DATA BLOCK	Sent on the downlink PDTCH on 3 blocks from the last radio block containing the downlink assignment. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK	Received on the uplink PDTCH assigned in step 1.
7			The user is made to trigger the establishment of Mobile originated Speech call.
8	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Assigned USF addressing the MS
9	MS -> SS	UPLINK RLC DATA BLOCK OR PACKET CS REQUEST	Uplink data sent on the uplink PDTCH. Or Packet CS Request sent on uplink PACCH Establishment Cause = Mobile Originated Call
10	SS->MS	DOWNLINK RLC DATA BLOCK	SS transmits RLC data block with valid RRBp field (polling).
11	MS->SS	PACKET DOWNLINK ACK/NACK OR PACKET CS REQUEST	MS acknowledges the previously received RLC data blocks. Sent in block specified by RRBp field. Or Packet CS Request sent on uplink PACCH Establishment Cause = Mobile Originated Call
12			Steps 8 to 11 are repeated until a PACKET CS REQUEST is sent by MS.
13	SS->MS	PACKET CS COMMAND	Send on Downlink PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
14			There is no response to MS attempting to establish main DCCH. Verify both uplink and downlink data transmission is functioning correctly on the new PS resources.
15	SS		It is checked that the MS neither responds to polling for PACKET DOWNLINK ACK/NACK nor sends uplink data blocks. This is verified on the old and the new PS resources during steps 16 to 32.
16	MS->SS	CHANNEL REQUEST	
17	SS->SS	IMMEDIATE ASSIGNMENT	
18	MS->SS	CM SERVICE REQUEST	
19	MS->SS	CLASSMARK CHANGE	
20 (Optional step)	MS->SS	GPRS INFORMATION	The MS may send an empty LLC PDU to indicate Cell Update.
			The MS shall send a DTM REQUEST message .The sending of this message can take place at any time after the CLASSMARK CHANGE message was sent. The SS shall discard the message.
21	SS ->MS	AUTHENTICATION REQUEST	
22	MS ->SS	AUTHENTICATION RESPONSE	
23	SS ->MS	CIPHERING MODE COMMAND	

24	MS ->SS	CIPHERING MODE COMPLETE	
25	MS ->SS	SETUP	
26	SS -> MS	CALL PROCEEDING	
27	SS -> MS	ASSIGNMENT COMMAND	Timeslot N (chosen arbitrarily) When: Channel Type = TCH/F;
28	MS->SS	ASSIGNMENT COMPLETE	
29	SS ->MS	ALERTING	
30	SS ->MS	CONNECT	
31	MS		The TCH shall be through connected in both directions.
32	MS ->SS	CONNECT ACKNOWLEDGE	

Specific Message Contents

DTM ASSIGNMENT COMMAND (Step 13):

As default message contents except: Channel Description IE - TN - Channel Type Channel Mode IE RR Packet Uplink Assignment IE - TIMESLOT ALLOCATION - UPLINK_TFI_ASSIGNMENT RR Packet Downlink Assignment IE - TIMESLOT ALLOCATION - DOWNLINK_TFI_ASSIGNMENT	N+1 mod 8 TCH/F Full Rate Version 1 N+2 mod 8 The value assigned in Step 1. N+2 mod 8 Any valid value.
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41.5.5 Enhanced DTM CS Release

41.5.5.1 SI Acquisition - No Reallocation of PS Resources

41.5.5.1.1 Conformance Requirements

If the mobile station and the network support enhanced DTM CS release procedure, the network may delay the release of the RR connection until the mobile station has received the needed system information, in order to maintain the radio resources on the PDCH(s) after the release of the RR connection.

The network initiates enhanced DTM CS release procedure by sending the PACKET CS RELEASE INDICATION message as specified in 3GPP TS 44.060.

On receipt of PACKET CS RELEASE INDICATION message with the ENHANCED_DTM_CS_RELEASE_INDICATION parameter set to indicate that the RR connection is released, the mobile station shall send the PACKET SI STATUS (respectively PACKET PSI STATUS if the PBCCH is present) message on PACCH to indicate which system information messages were stored while in the dual transfer mode by the mobile station. The following system information (respectively packet system information) messages are required to maintain radio resources and enter packet transfer mode after the release of the RR connection:

- PSI1, PSI2 and PSI14 in the *Received PSI Message List*; or respectively
- SI13, SI3 and SI1, if present, in the *Received SI Message List*.

The PSI (respectively SI) messages listed above shall be indicated as the first PSI (respectively SI) messages indicated in the PACKET PSI STATUS (respectively PACKET SI STATUS) messages. If other PSI (respectively SI) messages are indicated in the PACKET PSI STATUS (respectively PACKET SI STATUS) message, the priority order defined in Table 5.5.1.4.3.1 shall apply.

The mobile station is allowed to send the PACKET SI STATUS (respectively PACKET PSI STATUS) message twice and the second sending occurrence of this message shall take place at the first suitable opportunity at least one second after the first transmission of that message. Whenever the mobile station has received all required system information (respectively packet system information) messages, it shall send the PACKET SI STATUS (respectively PACKET PSI STATUS) message at the first suitable opportunity, even if it has already sent the PACKET SI STATUS (respectively PACKET PSI STATUS) twice.

When the network receives the PACKET SI STATUS (respectively PACKET PSI STATUS) message indicating that all required system information (respectively packet system information) messages have been received by the mobile station it shall stop timer T3197, start timer T3109 (see 3GPP TS 44.018) and send the CHANNEL RELEASE message on the main DCCH indicating that the mobile station is allowed to continue in packet transfer mode after the release of the RR connection (see 3GPP TS 44.018).

References

3GPP TS 44.018 sub-clauses 3.4.13.1.1a

3GPP TS 44.060, sub-clauses 5.5.1.1b.5

41.5.5.1.2 Test Purpose

To verify that the MS performs the acquisition of system information in response to the PACKET CS RELEASE INDICATION message from the NW with the ENHANCED_DTM_CS_RELEASE_INDICATION indicating that the RR connection is released.

To verify that during the acquisition of system information procedure performed as part of the Enhanced DTM CS Release procedure, the MS sends the PACKET SI STATUS message no more than twice when acquiring the system information and then once more only when all the required system information has been acquired.

To verify that the MS continues to maintain an ongoing uplink TBF throughout the Enhanced DTM CS Release procedure and once the Enhanced DTM CS Release procedure has been completed.

41.5.5.1.3 Method of Test

Initial Conditions

System Simulator:

- 2 cells A and B with the same MCC/MNC/LAC/RAC, Enhanced DTM supported.

Mobile Station:

- The MS is in the active state (U10) of a call on Cell A on timeslot N.
- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS assigns the MS PS resource using a PACKET ASSIGNMENT message. Following handover to Cell B, the active speech call is disconnected. The SS sends the PACKET CS RELEASE INDICATION message on PACCH to the MS indicating that the RR connection is going to end. The PACKET CS RELEASE INDICATION indicates that when the RR connection is released the MS maintains its downlink and/or uplink TBF(s). The MS responds with the PACKET SI STATUS message on PACCH which indicates the non receipt of the SI1 and SI3 messages. In response the SS sends the PACKET SERVING CELL SI message on PACCH encapsulating the SI1 message. The MS again sends the PACKET SI STATUS message on PACCH which indicates reception of the SI1 message but not the SI3 message. In response the SS sends the PACKET SERVING CELL SI message on PACCH encapsulating the SI13 message. It is checked that the two PACKET SI STATUS messages from the MS are sent at least 1s apart. Finally the SS sends the PACKET SERVING CELL SI message on PACCH encapsulating the SI3 message. The MS responds with the PACKET SI STATUS message indicating receipt of the SI1 and SI3 messages. The SS sends the CHANNEL RELEASE message on the main DCCH indicating in the Enhanced DTM Release Indication IE that the MS may continue in packet transfer mode. It is checked that the MS continues operating the uplink TBF by sending RLC data blocks on the PS resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS->SS	DTM REQUEST	Sent on main DCCH.
3	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
4	SS<->MS	{ Uplink data }	Macro.
5	SS->MS	HANDOVER COMMAND	Sent on main DCCH. See specific message contents. The following messages are sent and received on Cell B.
6	MS->SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND.
7	SS->MS	PHYSICAL INFORMATION	Sent on main DCCH.
8	MS->SS	HANDOVER COMPLETE	Sent on main DCCH.
9	SS->MS	DTM INFORMATION	Sent on main DCCH.
10	MS->SS	GPRS INFORMATION	Sent on main DCCH. Contains an empty LLC PDU for Cell Update.
(optional step)			
11	MS->SS	DTM REQUEST	Sent on main DCCH.
12	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
13	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PACCH. USF assigned to the MS.
14	MS->SS	UPLINK RLC DATA BLOCK	Sent on PDTCH. May contain an empty LLC PDU for cell update provided Step 10 was not performed. Note : The empty LLC PDU may be followed by one or more lower priority LLC PDUs in the same RLC Data Block. Steps 15 and 16 are performed if an empty LLC PDU was received in Step 14.
15	MS->SS	PACKET RESOURCE REQUEST	Sent on PACCH.
(conditional step)			
16	SS->MS	PACKET UPLINK ASSIGNMENT	Sent on PACCH. See specific message contents.
(conditional step)			
17			It is checked that the MS continues to transmit uplink data during Steps 18 to 29 below.
18	SS->MS	DISCONNECT	Sent on main DCCH. The active speech call is disconnected.
19	MS->SS	RELEASE	Sent on main DCCH.
20	SS->MS	RELEASE COMPLETE	Sent on main DCCH.
21	SS->MS	PACKET CS RELEASE INDICATION	Sent on PACCH. See specific message contents.
22	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates non receipt of SI13, SI3 and SI1.
23	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains the SI1 message from Cell B.
24	MS->SS	PACKET SI STATUS	Sent on PACCH. Received at least 1s after Step 22. Indicates reception of SI1. Indicates non receipt of SI13 and SI3.
25	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains the SI13 message from Cell B.
26	SS		The SS checks for 2s after Step 24 that the MS does not repeat the PACKET SI STATUS message.
27	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains the SI3 message from Cell B.

28	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates reception of SI13, SI3 and SI1.
29	SS->MS	CHANNEL RELEASE	Sent on main DCCH. See specific message contents.
30	SS<->MS	{ Uplink data transfer }	Macro.

Specific Message Contents

PACKET ASSIGNMENT (Step 3 and Step 12):

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N + 1) MOD 8 Not included
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HANDOVER COMMAND (Step 5):

Information Element	Value/remark
As default message contents, except: Channel Description - Timeslot Number - Channel Type Cell Description Synchronization Indication - Report Observed Time Difference - Synchronization Indication - Normal Cell Indication	N (chosen arbitrarily) TCH/F Default values from Cell B Shall not be included. "Non synchronized". Ignore out of range timing advance.

PACKET UPLINK ASSIGNMENT (Step 15):

As default message contents except: Dynamic Allocation struct - USF_TN'N+1'	Value assigned at Step 12.
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PACKET CS RELEASE INDICATION (Step 21):

Information Element	Value/remark
As default message contents, except: - GLOBAL TFI - ENHANCED PACKET CS RELEASE INDICATION	The TFI of the current uplink TBF. 1 (RR connection released) The subsequent message encoding indicates that when the RR connection is released the MS maintains it's downlink and/or uplink TBF(s).

CHANNEL RELEASE (Step 29):

Information Element	Value/remark
As default message contents, except: Enhanced DTM CS Release Indication IE	1 (MS allowed to continue in packet transfer mode)

41.5.5.2 Reallocation of PS Resources for Uplink and Downlink TBFs

41.5.5.2.1 Conformance Requirements

The network may at any time during uplink packet transfer initiate a change of resources by sending on the downlink PACCH monitored by the MS, an unsolicited uplink assignment message (e.g. PACKET UPLINK ASSIGNMENT, MULTIPLE TBF UPLINK ASSIGNMENT, PACKET TIMESLOT RECONFIGURE, MULTIPLE TBF TIMESLOT RECONFIGURE or PACKET CS RELEASE INDICATION message) to the mobile station. During the reallocation, TFI is allowed to be changed.

References

3GPP TS 44.060, sub-clauses 8.1.1.1.2

41.5.5.2.2 Test Purpose

To verify that the MS continues to maintain an ongoing uplink TBF and downlink TBF throughout the Enhanced DTM CS Release procedure.

To verify that the MS correctly implements the reallocation of the PS resources, including a change of TFI, for an ongoing uplink TBF upon completion of the Enhanced DTM CS Release procedure.

To verify that the MS correctly implements the reallocation of the PS resources, including a change of TFI, for an ongoing downlink TBF upon completion of the Enhanced DTM CS Release procedure.

41.5.5.2.3 Method of Test

Initial Conditions

System Simulator:

- 1 cell, Enhanced DTM supported.

Mobile Station:

- The MS is in the active state (U10) of a call on timeslot N.
- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink transfer data in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, requesting uplink resources, the SS assigns the MS PS resource using a PACKET ASSIGNMENT message which also assigns a new downlink TBF. The active speech call is disconnected. The SS sends the PACKET CS RELEASE INDICATION message on PACCH to the MS indicating that the RR connection is going to end. The PACKET CS RELEASE INDICATION indicates that when the RR connection is released the downlink and/or uplink TBFs are reconfigured and reassigns the uplink and downlink TFIs as well as the allocated timeslots. Once any requested SI messages have been sent to the MS, the SS sends the CHANNEL RELEASE message on the main DCCH indicating in the Enhanced DTM Release Indication IE that the MS may continue in packet transfer mode. It is checked that the MS continues operating the uplink and downlink TBFs by sending RLC data blocks on the new PS resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS->SS	DTM REQUEST	Sent on main DCCH.
3	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
4	SS<->MS	{ Uplink data }	Macro.
5	SS<->MS	{ Acknowledged Downlink Data }	Macro.
6			It is checked that the MS continues to transmit uplink and acknowledge downlink data during Steps 7 to 14 below.
7	SS->MS	DISCONNECT	Sent on main DCCH. The active speech call is disconnected.
8	MS->SS	RELEASE	Sent on main DCCH.
9	SS->MS	RELEASE COMPLETE	Sent on main DCCH.
10	SS->MS	PACKET CS RELEASE INDICATION	Sent on PACCH. See specific message contents.
11	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates possible non receipt of SI messages. Steps 12 and 13 are performed if the MS indicates non-receipt of required SI messages (SI1, SI3 and SI13) in Step 11.
12	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains an SI message requested in Step 11.
13			Step 12 is repeated until all requested required SI messages (SI1, SI3 and SI13) have been sent to the MS.
14	SS->MS	CHANNEL RELEASE	Sent on main DCCH. See specific message contents. Steps 15 and 16 are performed concurrently.
15	SS<->MS	{ Uplink data transfer }	Macro.
16	SS<->MS	{ Downlink data transfer }	Macro.

Specific Message Contents

PACKET ASSIGNMENT (Step 3):

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION	(N + 1) MOD 8
RR Packet Downlink Assignment IE - TIMESLOT_ALLOCATION	(N + 1) MOD 8

PACKET CS RELEASE INDICATION (Step 10):

Information Element	Value/remark
As default message contents, except: - ENHANCED PACKET CS RELEASE INDICATION	1 (RR connection released) The subsequent message encoding indicates that when the RR connection is released the downlink and/or uplink TBF(s) are reconfigured.
- Multiple Downlink Assignment	TFI is changed. Timeslot allocation = (N - 2) MOD 8
- Multiple Uplink Assignment	TFI is changed. Timeslot allocation = (N - 2) MOD 8

CHANNEL RELEASE (Step 14):

Information Element	Value/remark
As default message contents, except: Enhanced DTM CS Release Indication IE	1 (MS allowed to continue in packet transfer mode)

41.5.5.3 Change of LA in NW Mode II

41.5.5.3.1 Conformance Requirements

If the MS and the network in mode II or III support enhanced DTM CS release procedure and the location area of the MS has changed while in dual transfer mode, the MS may perform the enhanced DTM CS release procedure and, after the release of the RR connection, request CS resources via the enhanced DTM CS Establishment procedure for performing the Location Area Update procedure.

References

3GPP TS 43.055, sub-clauses 6.4.4.1

41.5.5.3.2 Test Purpose

To verify that the MS performs the enhanced DTM CS Release procedure when circuit switched resources are released by the NW following a change of location area whilst the MS was in dedicated mode in a network using network mode II.

To verify that following successful completion of the enhanced DTM CS Release procedure the MS performs the enhanced DTM CS Establishment procedure in order to perform the Location Update procedure following a change of location area whilst the MS was in dedicated mode in a network using network mode II.

41.5.5.3.3 Method of Test

Initial Conditions

System Simulator:

- 2 cells, A and B operating in NW Mode II with different LAC, without PBCCHs, both supporting Enhanced DTM.

Mobile Station:

- The MS is in the active state (U10) of a call on Cell A on timeslot N.
- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, the SS assigns the MS packet switched resources using a PACKET ASSIGNMENT message. Before the MS has completed transmission of the uplink data, the SS orders a handover to Cell B. Following handover to Cell B the non-combined routing area update procedure is performed on the main DCCH. The MS resumes transmission of the uplink data. The active speech call is disconnected. The SS sends the PACKET CS RELEASE INDICATION message on PACCH to the MS indicating that the RR connection is going to end. The PACKET CS RELEASE INDICATION indicates that when the RR connection is released the MS may maintain its uplink TBF. The packet switched resources are not re-allocated. The MS responds with the PACKET SI STATUS message on PACCH. The SS sends the MS any requested SI messages encapsulated within PACKET SERVING CELL SI messages on PACCH. The MS responds with the PACKET SI STATUS message indicating receipt of the required SI messages. The SS sends the CHANNEL RELEASE message on the main DCCH indicating in the Enhanced DTM Release Indication IE that the MS may continue in packet transfer mode. It is checked

that the MS continues operating the uplink TBF by sending RLC data blocks on the PS resources. The MS requests circuit switched resources by sending the PACKET CS REQUEST on PACCH. The SS responds with the PACKET CS COMMAND on PACCH which encapsulates a DTM ASSIGNMENT COMMAND. The location update procedure is completed on the assigned circuit switched resources. Prior to sending the CHANNEL RELEASE message on the main DCCH, the SS sends the PACKET CS RELEASE INDICATION message on PACCH to the MS indicating that the RR connection is going to end. The PACKET CS RELEASE INDICATION indicates that when the RR connection is released the MS may maintain its uplink TBF. The packet switched resources are not re-allocated. The MS responds with the PACKET SI STATUS message on PACCH. The SS sends the MS any requested SI messages encapsulated within PACKET SERVING CELL SI messages on PACCH. The MS responds with the PACKET SI STATUS message indicating receipt of the required SI messages. The SS then sends the CHANNEL RELEASE message on the main DCCH indicating in the Enhanced DTM Release Indication IE that the MS may continue in packet transfer mode. It is checked that the MS continues operating the uplink TBF by sending RLC data blocks on the PS resources.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS->SS	DTM REQUEST	Sent on main DCCH.
3	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
4	SS<->MS	{ Uplink data }	Macro.
5	SS->MS	HANDOVER COMMAND	Sent on main DCCH. See specific message contents. The following messages are sent and received on Cell B.
6	MS->SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND.
7	SS->MS	PHYSICAL INFORMATION	Sent on main DCCH.
8	MS->SS	HANDOVER COMPLETE	Sent on main DCCH.
9	SS->MS	DTM INFORMATION	Sent on main DCCH.
10	MS->SS	GPRS INFORMATION	Sent on main DCCH. Contains a ROUTING AREA UPDATE REQUEST message.
11	SS->MS	GPRS INFORMATION	Sent on main DCCH. Contains a ROUTING AREA UPDATE ACCEPT message. Does not allocate MS a new P-TMSI.
12	MS->SS	DTM REQUEST	Sent on main DCCH.
13	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
14	SS<->MS	{ Uplink data }	Macro.
15			It is checked that the MS continues to transmit uplink data during Steps 16 to 39 below.
16	SS->MS	DISCONNECT	Sent on main DCCH. The active speech call is disconnected.
17	MS->SS	RELEASE	Sent on main DCCH.
18	SS->MS	RELEASE COMPLETE	Sent on main DCCH.
19	SS->MS	PACKET CS RELEASE INDICATION	Sent on PACCH. See specific message contents.
20	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates possible non receipt of required SI messages. Steps 21 to 23 are performed if the MS indicates non-receipt of required SI messages in Step 20.
21	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains an SI message requested in Step 20. Step 21 is repeated until all requested required SI messages have been sent to the MS.
22			
23	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates reception of SI13, SI3 and SI1.
24	SS->MS	CHANNEL RELEASE	Sent on main DCCH. See specific message contents.
25	MS->SS	PACKET CS REQUEST	Sent on PACCH. Establishment Cause = Location Updating
26	SS->MS	PACKET CS COMMAND	Sent on PACCH. Encapsulates a DTM ASSIGNMENT COMMAND. See specific message contents.
27	MS->SS	LOCATION UPDATE REQUEST	Sent on main DCCH. Location Updating Type = normal
28	MS->SS	CLASSMARK CHANGE	Sent on main DCCH.
29	SS->MS	AUTHENTICATION REQUEST	Sent on main DCCH.
30	MS->SS	AUTHENTICATION RESPONSE	Sent on main DCCH.
31	SS->MS	CIPHERING MODE COMMAND	Sent on main DCCH. Ciphering = on
32	MS->SS	CIPHERING MODE COMPLETE	Sent on main DCCH.
33	SS->MS	LOCATION UPDATE ACCEPT	Sent on main DCCH. Does not allocate a new TMSI.

34	SS->MS	PACKET CS RELEASE INDICATION	Sent on PACCH. See specific message contents.
35	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates possible non receipt of required SI messages. Steps 36 to 38 are performed if the MS indicates non-receipt of required SI messages in Step 35.
36	SS->MS	PACKET SERVING CELL SI	Sent on PACCH. Contains an SI message requested in Step 35.
37			Step 36 is repeated until all requested required SI messages have been sent to the MS.
38	MS->SS	PACKET SI STATUS	Sent on PACCH. Indicates reception of SI13, SI3 and SI1.
39	SS->MS	CHANNEL RELEASE	Sent on main DCCH.
40	SS<->MS	{ Uplink data transfer }	See specific message contents. Macro - Completion of the 1kB of Data.

Specific Message Contents

PACKET ASSIGNMENT (Step 3 and Step 13):

Information Element	Value/remark
As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N + 1) MOD 8 Not included

HANDOVER COMMAND (Step 5):

Information Element	Value/remark
As default message contents, except: Channel Description - Timeslot Number - Channel Type Cell Description Synchronization Indication - Report Observed Time Difference - Synchronization Indication - Normal Cell Indication	N (chosen arbitrarily) TCH/F Default values from Cell B Shall not be included. "Non synchronized". Ignore out of range timing advance.

PACKET CS RELEASE INDICATION (Step 19 and Step 34):

Information Element	Value/remark
As default message contents, except: - GLOBAL TFI - ENHANCED PACKET CS RELEASE INDICATION	The TFI of the current uplink TBF. 1 (RR connection released) The subsequent message encoding indicates that when the RR connection is released the MS maintains it's uplink TBF.

CHANNEL RELEASE (Step 24 and Step 39):

Information Element	Value/remark
As default message contents, except: Enhanced DTM CS Release Indication IE	1 (MS allowed to continue in packet transfer mode)

DTM ASSIGNMENT COMMAND (Step 26):

Information Element	Value/remark
As default message contents except:	
Channel Description IE	
- TN	N
- Channel Type	TCH/F
Channel Mode IE	Full Rate Version 1
RR Packet Uplink Assignment IE	Not included.
RR Packet Downlink Assignment IE	Not included.

41.5.5.4 Change of LA in NW Mode I

41.5.5.4.1 Conformance Requirements

If the MS and the network in mode I support enhanced DTM CS release procedure and the location area of the MS has changed while in dual transfer mode, the MS shall send an indication to the network that in this case the enhanced DTM CS release procedure shall not be used. This indication is sent in the PACKET SI STATUS or PACKET PSI STATUS message. After the receipt of the indication the network shall release the RR connection and PS resources. Upon receipt of a CHANNEL RELEASE message the MS shall initiate the Combined RA/LA Update procedure.

References

3GPP TS 43.055, sub-clauses 6.4.4.1

41.5.5.4.2 Test Purpose

To verify that in response to the NW initiating the Enhanced CS Release procedure the MS requests that the procedure shall not be used following a change of location area whilst the MS was in dedicated mode in a network using network mode I.

To verify that following the release of packet and circuit switched resources the MS performs the Combined Routing Area Update procedure following a change of location area whilst the MS was in dedicated mode in a network using network mode I.

41.5.5.4.3 Method of Test

Initial Conditions

System Simulator:

- 2 cells, A and B operating in NW Mode I with different LAC, both supporting Enhanced DTM.

Mobile Station:

- The MS is in the active state (U10) of a call on Cell A on timeslot N.
- The MS is in packet idle mode, with a TMSI, P-TMSI allocated and PDP context 1 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS, whilst in dedicated mode, is triggered to initiate packet uplink data transfer in RLC unacknowledged mode and sends a DTM REQUEST message. On receipt of the DTM REQUEST message, the SS assigns the MS packet switched resources using a PACKET ASSIGNMENT message. Before the MS has completed transmission of the uplink data, the SS orders a handover to Cell B. Following handover to Cell B the non-combined routing area update procedure is performed on the main DCCH. The MS resumes transmission of the uplink data. The active speech call is disconnected. The SS sends the PACKET CS RELEASE INDICATION message on PACCH to the MS indicating that the RR connection is going to end. The PACKET CS RELEASE INDICATION indicates that when the RR connection is

released, the MS may maintain the uplink TBF. The packet switched resources are not re-allocated. The MS responds with the PACKET SI STATUS message on PACCH in which it requests the release of both packet and circuit switched resources. The SS responds with the CHANNEL RELEASE message which indicates that the MS may not continue in packet transfer mode. It is checked that the MS no longer transmits data on the previously assigned packet switched resources. The MS requests packet switched resources in order to perform the Combined Routing Area update procedure. Following completion of the Combined Routing Area Update procedure the MS requests packet switched resources in order to continue with the transfer of user data.

Maximum Duration of Test

5 minutes

Expected Sequence

Step	Direction	Message	Comments
1	MS		Trigger the MS to initiate an uplink packet transfer containing 1000 octets.
2	MS->SS	DTM REQUEST	Sent on main DCCH.
3	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH.
4	SS<->MS	{ Uplink data }	See specific message contents. Macro.
5	SS->MS	HANDOVER COMMAND	Sent on main DCCH. See specific message contents. The following messages are sent and received on Cell B.
6	MS->SS	HANDOVER ACCESS	Repeated on every burst of the uplink main DCCH (and optionally on the SACCH) until reception of PHYSICAL INFORMATION. Handover Reference as included in the HANDOVER COMMAND.
7	SS->MS	PHYSICAL INFORMATION	Sent on main DCCH.
8	MS->SS	HANDOVER COMPLETE	Sent on main DCCH.
9	SS->MS	DTM INFORMATION	Sent on main DCCH.
10	MS->SS	GPRS INFORMATION	Sent on main DCCH. Contains a ROUTING AREA UPDATE REQUEST message.
11	SS->MS	GPRS INFORMATION	Sent on main DCCH. Contains a ROUTING AREA UPDATE ACCEPT message. Does not allocate MS a new P-TMSI.
12	MS->SS	DTM REQUEST	Sent on main DCCH.
13	SS->MS	PACKET ASSIGNMENT	Sent on main DCCH. See specific message contents.
14	SS<->MS	{ Uplink data }	Macro.
15			It is checked that the MS continues to transmit uplink data during Steps 16 to 20 below.
16	SS->MS	DISCONNECT	Sent on main DCCH. The active speech call is disconnected.
17	MS->SS	RELEASE	Sent on main DCCH.
18	SS->MS	RELEASE COMPLETE	Sent on main DCCH.
19	SS->MS	PACKET CS RELEASE INDICATION	Sent on PACCH. See specific message contents.
20	MS->SS	PACKET SI STATUS	Sent on PACCH. PS_REL_REQ = 1 The MS requests release of both packet and circuit switched resources.
21	SS->MS	CHANNEL RELEASE	Sent on main DCCH. See specific message contents.
22	SS		It is checked that the MS no longer transmits data on the packet switched resources assigned at Step 13.
23	MS -> SS	CHANNEL REQUEST	Sent on RACH. Access Type = MM Procedure
24	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on AGCH. Allocates uplink TBF on single timeslot.
25	SS<->MS	{ Uplink data block transfer }	Macro. The received RLC data blocks contain :- ROUTING AREA UPDATE REQUEST Update type = 'Combined RA/LA updating'
26	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on PCH. Allocates downlink TBF on single timeslot.
27	SS<->MS	{ Downlink data transfer }	Macro. The transmitted RLC data blocks contain :- ROUTING AREA UPDATE ACCEPT Update result = 'Combined RA/LA updated'
28	MS -> SS	CHANNEL REQUEST	Does not assign a new P-TMSI. Sent on RACH Access Type = Two Phase Access Request
29	SS -> MS	IMMEDIATE ASSIGNMENT	Sent on AGCH. Single block assignment, to order the MS to follow the two phase access procedure.

30	MS -> SS	PACKET RESOURCE REQUEST	Sent on PACCH.
31	SS -> MS	PACKET UPLINK ASSIGNMENT	Sent on PACCH. uplink dynamic allocation, no starting time
32	SS<->MS	{ Uplink data transfer }	Macro - Completion of the 1kB of Data.

Specific Message Contents

PACKET ASSIGNMENT (Step 3 and Step 13):

As default message contents except: RR Packet Uplink Assignment IE - TIMESLOT_ALLOCATION RR Packet Downlink Assignment IE	(N + 1) MOD 8 Not included
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HANDOVER COMMAND (Step 5):

Information Element	Value/remark
As default message contents, except: Channel Description - Timeslot Number - Channel Type Cell Description Synchronization Indication - Report Observed Time Difference - Synchronization Indication - Normal Cell Indication	N (chosen arbitrarily) TCH/F Default values from Cell B Shall not be included. "Non synchronized". Ignore out of range timing advance.

PACKET CS RELEASE INDICATION (Step 19):

Information Element	Value/remark
As default message contents, except: - GLOBAL TFI - ENHANCED PACKET CS RELEASE INDICATION	The TFI of the current uplink TBF. 1 (RR connection released) The subsequent message encoding indicates that when the RR connection is released the MS maintains it's uplink TBF.

CHANNEL RELEASE (Step 21):

Information Element	Value/remark
As default message contents, except: Enhanced DTM CS Release Indication IE	0 (MS not allowed to continue in packet transfer mode)

41.6 Intra SGSN PS Handover

41.6.1 Intra SGSN PS Handover / Synchronized cell case

41.6.1.1 Intra SGSN PS Handover / Synchronized cell case / successful

41.6.1.1.1 Conformance requirements

The following synchronisation mechanisms are used for PS handover:

- Non-synchronised.
- Synchronised.
- Pre-Synchronised.

The synchronised and pre-synchronised cases are shown in figures 23 and 25 and have different mechanisms for the provision of the timing advance that are described in 3GPP TS 45.010 [26].

NOTE: The pseudo-synchronised case is not supported by the PS handover feature.

If the timing advance with the new cell calculated by the mobile station is not out of range, i.e. smaller than or equal to the maximum timing advance that can be coded as specified in 3GPP TS 44.004, or if the new cell does accept out of range timing advance as indicated in the PS HANDOVER COMMAND message, the mobile station acts on the message.

After having switched to the assigned channels, if the Handover Reference information is included within the PS HANDOVER COMMAND message the mobile station shall send four times the PS HANDOVER ACCESS message.

The mobile station activates the channels in sending and receiving mode. The MS may activate the channels in downlink while sending access bursts.

References

3GPP TS 43.129, subclasses 6.2.2

3GPP TS 44.060, subclasses 8.10.4.1 and 8.10.4.4.2.

41.6.1.1.2 Test purposes

To verify that while in uplink acknowledged mode operation the MS performs successfully synchronized PS Handover from A/Gb to A/Gb.

41.6.1.1.3 Method of test

Initial Conditions

System Simulator:

2 cells A and B, GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the assigned USF assigned to the MS. The MS sends a RLC radio block. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B. The MS moves to cell B and resumes the uplink data transfer. The MS completes the uplink data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. In case of Uplink data block check that the coding and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	Sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	USF assigned to the MS. Received on the assigned PDTCH.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH . USF not assigned to the MS.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	The following messages are received on cell B. 120 ms (T_GSM_delay) after step 7. USF assigned to the MS.
9	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Repeat steps 8 and 9 for maximum of 100 ms or until UPLINK RLC DATA BLOCK is received. (Data block may contain empty LLC PDU for Cell Update. In that case the SS shall accept Packet Resource Request from MS and respond with Packet Uplink Assignment.)
10		{Completion of uplink RLC data block transfer}	NOTE: The empty LLC PDU may be accompanied by another low priority RLC data block (with Packet Resource Request and Packet Uplink Assignment as required), in order to ensure that the radio resources are used efficiently.

41.6.1.2 Intra SGSN PS Handover / Synchronized cell case / Abnormal Case / T3218 expiry

41.6.1.2.1 Conformance requirements

In case of initial access failure in the target cell, including the case where the MS fails to acquire time alignment information (for the unsynchronised network case), the MS is allowed to revert to the old cell. As is defined currently in 3GPP TS 44.060 [7], the MS shall return to the old cell and send a **Packet Cell Change Failure** message with the appropriate cause.

If the MS was in packet transfer mode (or MAC-shared state) before the attempted handover it will, when going back to the old cell, send a **Packet Cell Change Failure** message and resume TBFs which were ongoing in the old cell.

A mobile station operating in *A/Gb mode* shall consider the PS handover to *A/Gb mode* to have failed for the following reasons:

- Timer T3218 expires while in the new cell.

A mobile station operating in *A/Gb mode* when a PS handover to *A/Gb mode* fails shall proceed as follows:

- If timer T3218 expired it shall return to the cell on which the PS HANDOVER COMMAND message was received.

- Send a PACKET CELL CHANGE FAILURE message with the cause code set to "No response on target cell" if timer T3218 or T3216 expired, otherwise "PS Handover failure-others". The message shall be sent on PACCH.
- The transmission of a PACKET CELL CHANGE FAILURE message terminates the PS handover procedure in the mobile station and after the transmission of this message the mobile station is therefore allowed to request the establishment of additional uplink TBFs.
- After terminating the PS handover procedure the mobile station shall resume all uplink and downlink TBFs that were ongoing in the old cell prior to receiving the PS HANDOVER COMMAND message. Timers T3180 (uplink TBFs) and T3190 (downlink TBFs) corresponding to these TBFs shall be re-started.
- For each TBF that is resumed the corresponding RLC state machine shall reflect its state when the last RLC data block was transmitted for that TBF in the old cell (uplink TBFs) and the last RLC data block was received for that TBF in the old cell (downlink TBFs).

References

3GPP TS 43.129, subclasses 5.7.2.1

3GPP TS 44.060, subclasses 8.10.5.1

41.6.1.2.2 Test purposes

To verify that the MS, when PS handover failed due to T3218 expiry, returns to the cell on which PS HANDOVER COMMAND message was received, sends a PACKET CELL CHANGE FAILURE message with cause "No response on target cell" and resumes the TBFs that were ongoing in the old cell.

41.6.1.2.3 Method of test

Initial Conditions

System Simulator:

2 cells A and B, GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the USF assigned to the MS. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B. No USF is assigned to the MS on cell B for 1s (T3218). The SS assigns USF to the MS on the old cell A. MS send PACKET CELL CHANGE FAILURE with cause value "No response on target cell" and resumes the uplink data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 400 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13 of cell B. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	The following messages are sent on cell B. Sent on PACCH assigned in step 7. USF not addressing the MS.
9	SS		Check that no data block is transmitted by the MS in the next radio block. Steps 8 and 9 are repeated for 1s (T3218). The following messages are sent 200 ms after step 9 on cell A.
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF allocated in PACKET UPLINK ASSIGNMENT from step 1 assigned to the MS.
11	MS -> SS	PACKET CELL CHANGE FAILURE	Cause:"No response on target cell"
12		{Completion of uplink RLC data block transfer}	

41.6.1.3 Intra SGSN PS Handover / Synchronized cell case / Abnormal Case / Minimum set of SI not available

41.6.1.3.1 Conformance requirements

In case of initial access failure in the target cell, including the case where the MS fails to acquire time alignment information (for the unsynchronised network case), the MS is allowed to revert to the old cell. As is defined currently in 3GPP TS 44.060 [7], the MS shall return to the old cell and send a **Packet Cell Change Failure** message with the appropriate cause.

If the MS was in packet transfer mode (or MAC-shared state) before the attempted handover it will, when going back to the old cell, send a **Packet Cell Change Failure** message and resume TBFs which were ongoing in the old cell.

A mobile station operating in *A/Gb mode* shall consider the PS handover to *A/Gb mode* to have failed for the following reasons:

- If it has not stored a valid minimum set of the following of PSI or SI messages (provided via PACKET NEIGHBOUR CELL DATA messages, see sub-clause 8.8.1) required for mobile station to operate in the new cell: PSI1, a consistent set of PSI2 messages and PSI14 (if PBCCH allocated in the new cell) or SI3, SI1 (if present in the new cell) and SI13 messages (if PBCCH not allocated in the new cell).

A mobile station operating in *A/Gb mode* when a PS handover to *A/Gb mode* fails shall proceed as follows:

- Send a PACKET CELL CHANGE FAILURE message with the cause code set to "No response on target cell" if timer T3218 or T3216 expired, otherwise "PS Handover failure-others". The message shall be sent on PACCH .PACCH.
- The transmission of a PACKET CELL CHANGE FAILURE message terminates the PS handover procedure in the mobile station and after the transmission of this message the mobile station is therefore allowed to request the establishment of additional uplink TBFs.

References

3GPP TS 43.129, subclasses 5.7.2.1

3GPP TS 44.060, subclasses 8.10.5.1

41.6.1.3.2 Test purposes

To verify that the MS, when PS handover failed due to a valid minimum set of SI messages for the new cell not stored, returns to the cell on which PS HANDOVER COMMAND message was received, sends a PACKET CELL CHANGE FAILURE message with cause "PS Handover failure-others" and resumes the TBFs that were ongoing in the old cell.

41.6.1.3.3 Method of test

Initial Conditions

System Simulator:

2 cells A and B, GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the USF assigned to the MS. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a set of System Info Type 1 and 3 messages in PACKET NEIGHBOUR CELL DATA message but not System Info Type 13 for the new cell B.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B. USF is assigned to the MS on cell B on the assigned PDCH and it is checked that the MS does not send RLC blocks on the new cell B.

The SS assigns USF to the MS on the old cell A. MS send PACKET CELL CHANGE FAILURE with cause value "PS Handover failure-others" and resumes the uplink data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 400 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs 1, CHANNEL_CODING_COMMAND: cs 1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are sent on the PACCH of the assigned PDCH. Containing :Containing: System Info Type 1and System Info Type 3 of cell B. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
			The following messages are sent on cell B.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PACCH assigned in step 7. USF assigned to the MS.
9	SS		Check that no data block is transmitted by the MS in the next radionext radio block.
			The following messages are sent 200 ms after step 9 on cell A.
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF allocated in PACKET UPLINK ASSIGNMENT from step 1 assigned to the MS.
11	MS -> SS	PACKET CELL CHANGE FAILURE	Cause:" PS Handover failure-others"
12		{Completion of uplink RLC data block transfer}	

41.6.2 Intra SGSN PS Handover / Pre-synchronized cell case

41.6.2.1 Intra SGSN PS Handover / Pre-synchronized cell case / successful / RLC reset

41.6.2.1.1 Conformance requirements

The following synchronisation mechanisms are used for PS handover:

- Non-synchronised.
- Synchronised.
- Pre-Synchronised.

The synchronised and pre-synchronised cases are shown in figures 23 and 25 and have different mechanisms for the provision of the timing advance that are described in 3GPP TS 45.010 [26].

NOTE: The pseudo-synchronised case is not supported by the PS handover feature.

In the case of pre-synchronised handover the MS may receive the timing advance information to use in uplink in the target cell in the **PS Handover Command** message (if no timing advance information is included, the mobile station uses a default timing advance in the target cell). In a pre-synchronised or synchronised handover, the **Packet Physical information** message is not sent in the target cell.

If the timing advance with the new cell calculated by the mobile station is not out of range, i.e. smaller than or equal to the maximum timing advance that can be coded as specified in 3GPP TS 44.004, or if the new cell does accept out of range timing advance as indicated in the PS HANDOVER COMMAND message, the mobile station acts on the message.

After having switched to the assigned channels, if the Handover Reference information is included within the PS HANDOVER COMMAND message the mobile station shall send four times the PS HANDOVER ACCESS message.

The mobile station activates the channels in sending and receiving mode. The MS may activate the channels in downlink while sending access bursts.

If the PS HANDOVER COMMAND indicates RLC reset for a TBF allocated in the new cell corresponding to a PFC receiving a PS handover, the target BSS shall initialize a new RLC entity to support that TBF. Otherwise, the TBF allocated in the new cell shall be supported using the same RLC entity used to support the TBF in the old cell corresponding to the same PFC (i.e. the RLC state machine is maintained across PS handover).

References

3GPP TS 43.129, subclasses 5.1.2 and 6.2.2

3GPP TS 44.060, subclasses 8.10.3.2; 8.10.4.1 and 8.10.4.4.2.

41.6.2.1.2 Test purposes

To verify that while in uplink acknowledged mode operation the MS performs successfully pre-Synchronised PS Handover from A/Gb to A/Gb and that the RLC is not maintained over PS handover.

41.6.2.1.3 Method of test

Initial Conditions

System Simulator:

2 cells A (RAI 1) and B (RAI 1), GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the assigned USF assigned to the MS. The MS sends a RLC radio block. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb pre-synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B, indicating RLC reset and containing a handover reference. The MS moves to cell B sends PS HANDOVER ACCESS resets the RLC entity and resends the unacknowledged RLC data blocks. The MS completes the uplink data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs 1, CHANNEL_CODING_COMMAND: cs 1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	Sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH . USF not assigned to the MS.
			The following messages are received on cell B.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	120 ms (T_GSM_delay) after step 7. USF assigned to the MS.
9	MS -> SS	PS HANDOVER ACCESS	As 4 access bursts. Check that handover reference is correct.
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
11	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Repeat steps 10 and 11 for maximum of 100 ms or until UPLINK RLC DATA BLOCK is received. Received on the assigned PDTCH. (Data block may contain empty LLC PDU for Cell Update. In that case the SS shall accept Packet Resource Request from MS and respond with Packet Uplink Assignment.) NOTE: The empty LLC PDU may be accompanied by another low priority RLC data block (with Packet Resource Request and Packet Uplink Assignment as required), in order to ensure that the radio resources are used efficiently. Check that BSN = 0.
12		{Completion of uplink RLC data block transfer}	

Specific Message Contents

PS HANDOVER COMMAND message in step 7:

As default message contents except PS Handover Radio Resources IE SI RLC_RESET	present 10 Pre-synchronized 1
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41.6.2.2 Intra SGSN PS Handover / Pre-synchronized cell case / Frequency parameters / successful

41.6.2.2.1 Conformance requirements

The following synchronisation mechanisms are used for PS handover:

- Non-synchronised.
- Synchronised.
- Pre-Synchronised.

The synchronised and pre-synchronised cases are shown in figures 23 and 25 and have different mechanisms for the provision of the timing advance that are described in 3GPP TS 45.010 [26].

NOTE: The pseudo-synchronised case is not supported by the PS handover feature.

In the case of pre-synchronised handover the MS may receive the timing advance information to use in uplink in the target cell in the **PS Handover Command** message (if no timing advance information is included, the mobile station uses a default timing advance in the target cell). In a pre-synchronised or synchronised handover, the **Packet Physical information** message is not sent in the target cell.

If the timing advance with the new cell calculated by the mobile station is not out of range, i.e. smaller than or equal to the maximum timing advance that can be coded as specified in 3GPP TS 44.004, or if the new cell does accept out of range timing advance as indicated in the PS HANDOVER COMMAND message, the mobile station acts on the message.

After having switched to the assigned channels, if the Handover Reference information is included within the PS HANDOVER COMMAND message the mobile station shall send four times the PS HANDOVER ACCESS message.

The mobile station activates the channels in sending and receiving mode. The MS may activate the channels in downlink while sending access bursts.

References

3GPP TS 43.129, subclasses 5.1.2 and 6.2.2

3GPP TS 44.060, subclasses 8.10.3.2; 8.10.4.1 and 8.10.4.4.2.

41.6.2.2.2 Test purposes

To verify that while in uplink acknowledged mode operation the MS performs successfully pre-Synchronised PS Handover from A/Gb to A/Gb and applies frequency hopping settings on cell B correctly which are assigned by 'Indirect Encoding' and 'Direct encoding 1' method.

41.6.2.2.3 Method of test

Initial Conditions

System Simulator:

2 cells A (RAI 1) and B (RAI 1), GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the assigned USF assigned to the MS. The MS sends a RLC radio block. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a set of System Info messages in order to perform a A/Gb to A/Gb pre-synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a hopping PDCH on cell B. The MS moves to cell B sends PS HANDOVER ACCESS and resends the unacknowledged RLC data blocks. The MS completes the uplink data transfer.

The procedure is performed for execution counter M=1 and 2 using different methods for assigning the hopping frequencies.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13 of cell B (see Specific Message Contents). USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH . USF not assigned to the MS.
			The following messages are received on cell B.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	120 ms (T_GSM_delay) after step 7. USF assigned to the MS.
9	MS -> SS	PS HANDOVER ACCESS	As 4 access bursts. Check that handover reference is correct.
10	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Repeat steps 10 and 11 for maximum of 100 ms or until UPLINK RLC DATA BLOCK is received. Received on the assigned PDTCH. (Data block may contain empty LLC PDU for Cell Update. In that case the SS shall accept Packet Resource Request from MS and respond with Packet Uplink Assignment.) NOTE: The empty LLC PDU may be accompanied by another low priority RLC data block (with Packet Resource Request and Packet Uplink Assignment as required), in order to ensure that the radio resources are used efficiently.
11		{Completion of uplink RLC data block transfer}	

Specific Message Contents

SYSTEM INFORMATION TYPE 13 of cell B and included in PACKET NEIGHBOUR CELL DATA in step 5:

For M = 1:

As default message contents except - GPRS Mobile Allocation - HSN - 0 <RFL number list> - 0 - <MA_LENGTH> - <MA_BITMAP>	1 Hopping sequence 1 not present using MA BITMAP 000101 (for GSM 900) 000011 (for other bands) 000111 3 belonging (for GSM 900) 0111 3 belonging (for other bands)
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PACKET SYSTEM INFORMATION TYPE 13 on PACCH of cell B:

{GPRS Mobile Allocation} - HSN - 0 <RFL number list> - 0 - <MA_LENGTH> - <MA_BITMAP>	1 Hopping sequence 1 not present using MA BITMAP 000101 (for GSM 900) 000011 (for other bands) 000111 3 belonging (for GSM 900) 0111 3 belonging (for other bands)
---	---

For M = 2 default SI13 and PSI13 of cell B are used.

PS HANDOVER COMMAND message in step 7:

For M = 1:

As default message contents except PS Handover Radio Resources IE SI 1<Frequency Parameters>} - TSC - 01 (Indirect encoding) - MAIO - MA_NUMBER - 0 <CHANGE_MARK_1> - 0 <CHANGE_MARK_2>	Present 10 Pre-synchronized present '101', same as BCCH of cell B Indirect encoding struct 5 14...GPRS mobile allocation received in SI13 message not present not present
--	---

For M = 2:

As default message contents except PS Handover Radio Resources IE SI 1<Frequency Parameters>} - TSC - 10 (Direct encoding 1) - MAIO - GPRS Mobile Allocation - HSN - 0 <RFL number list> - 0 - <MA_LENGTH> - <MA_BITMAP>	Present 10 Pre-synchronized present '101', same as BCCH of cell B Direct encoding 1 struct 5 1 Hopping sequence 1 not present using MA BITMAP 000101 (for GSM 900) 000011 (for other bands) 000111 3 belonging (for GSM 900) 0111 3 belonging (for other bands)
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41.6.3 Intra SGSN PS Handover / Non synchronized cell case

41.6.3.1 Intra SGSN PS Handover / Non synchronized cell case / PS Handover Access (8-bit / 11-bit format) / successful

41.6.3.1.1 Conformance requirements

The following synchronisation mechanisms are used for PS handover:

- Non-synchronised.
- Synchronised.
- Pre-Synchronised.

The non-synchronised cases are shown in figures 22 and 24 and are characterised by the requirement for the MS to obtain a valid uplink timing advance before it can transmit normal bursts. The MS shall notify its presence in the target cell through the transmission of access bursts to the BSS, and the BSS shall respond with a valid timing advance which in turn enables the MS to send normal bursts in uplink.

After having switched to the assigned channels, the mobile station shall send four times the PS HANDOVER ACCESS message. The mobile station shall start timer T3216 at the start point of the timeslot in which the PS HANDOVER ACCESS message is sent the first time on the PACCH.

If the network requests the transmission of the PS HANDOVER ACCESS message it shall be sent with highest transmission priority using either the 8-bit or 11-bit access burst format on the PACCH associated with any uplink TBF allocated in the PS HANDOVER COMMAND message for which the mobile station detects an assigned USF value. Its content consists of the handover reference field. The burst format used shall be that specified by the ACCESS_BURST_TYPE in the system information for the target cell.

The mobile station then activates the channels in receiving mode.

Upon reception of the PS HANDOVER ACCESS message containing the expected Handover Reference value, once the network has the RF characteristics that are necessary, it sends a PACKET PHYSICAL INFORMATION message to the mobile station on the PACCH.

When the mobile station receives a PACKET PHYSICAL INFORMATION message, it stops timer T3216, stops sending access bursts and activates the channels in sending and receiving mode.

The MS sends uplink LLC PDUs, e.g. a **Routing Area Update Request** message or uplink user data packets to the SGSN immediately after receiving the **Packet Physical Information** message or, in a synchronised or pre-synchronised handover, immediately if the **PS Handover Access** message is not required to be sent (see Section 6.2).

References

3GPP TS 43.129, subclasses 6.2.2, 5.1.2.3

3GPP TS 44.060, subclasses 8.10.4.4.4.

41.6.3.1.2 Test purpose

To verify that while in uplink Acknowledged mode MS performs successfully Non-Synchronised PS Handover from A/Gb to A/Gb.

To verify that MS uses correct access burst format for the PS HANDOVER ACCESS message.

41.6.3.1.3 Method of test

Initial Conditions

System Simulator:

Two cells A (RAI1, SI13 indicates 8-bit access burst format) and Cell B (RAI 1, SI13 indicates 11-bit access burst format), NC2 mode, GPRS supported, PCCCH not present.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the assigned USF to the MS. The MS sends a RLC radio block. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb Non-synchronized PS Handover to cell B by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B and containing a handover reference. The MS moves to cell B and sends PS HANDOVER ACCESS in 11-bit access burst format in Cell B. The SS sends PACKET PHYSICAL INFORMATION to the MS.

Following handover to Cell B MS continues with the data uplink data transfer in Cell B. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb Non-synchronized PS Handover to cell A by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell A and containing a handover reference. The MS moves to cell A and sends PS HANDOVER ACCESS in 8-bit access burst format in Cell A. The SS sends PACKET PHYSICAL INFORMATION to the MS.

Following handover to cell A MS continues with the data uplink data transfer in Cell A.

Maximum Duration of Test

10 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are Sent on the PACCH of the assigned PDCH. Containing: System Info Type 1, System Info Type 3 and System Info Type 13 of cell B.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	USF assigned to the MS.
7	SS -> MS	PS HANDOVER COMMAND	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
9	MS -> SS	PS HANDOVER ACCESS	The following messages are received on cell B. Send 120 ms (T_GSM_delay) after step 7. USF assigned to the MS.
10	SS->MS	PACKET PHYSICAL INFORMATION	As 4 access bursts. Check that handover reference and access burst format (11-bit) is correct.
11	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
12	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Repeat steps 11 and 12 for maximum of 100 ms or until UPLINK RLC DATA BLOCK is received. (Data block may contain empty LLC PDU for Cell Update. In that case the SS shall accept Packet Resource Request from MS and respond with Packet Uplink Assignment.)
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
14	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
15			Repeat step 13 and 14 in total of 30 times.
16	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are Sent on the PACCH of the assigned PDCH. Containing: System Info Type 1, System Info Type 3 and System Info Type 13 of cell A.
17	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	USF assigned to the MS.
18	SS -> MS	PS HANDOVER COMMAND	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
19	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
20	MS -> SS	PS HANDOVER ACCESS	The following messages are received on cell A. Send 120 ms (T_GSM_delay) after step 18. USF assigned to the MS.
21	SS->MS	PACKET PHYSICAL INFORMATION	As 4 access bursts. Check that handover reference and access burst format (8-bit) is correct.
22	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
23	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Repeat steps 11 and 12 for maximum of 100 ms or until UPLINK RLC DATA BLOCK is received. (Data block may contain empty LLC PDU for Cell Update. In that case the SS shall accept Packet Resource Request from MS and respond with Packet Uplink Assignment.)
24		{Completion of uplink RLC data block transfer}	

Specific Message Contents

PS HANDOVER COMMAND message in step 7:

As default message contents except PS Handover Radio Resources IE SI RLC_RESET	default present 00 Non-synchronized 1
---	--

PACKET PHYSICAL INFORMATION message in step 10:

PAGE_MODE Global TFI TIMING ADVANCE VALUE	default TFI of mobile station uplink TBF 30 bit periods
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41.6.3.2 Intra SGSN PS Handover / Non synchronized cell case / Different RA / successful

41.6.3.2.1 Conformance requirements

The following synchronisation mechanisms are used for PS handover:

- Non-synchronised.
- Synchronised.
- Pre-Synchronised.

The non-synchronised cases are shown in figures 22 and 24 and are characterised by the requirement for the MS to obtain a valid uplink timing advance before it can transmit normal bursts. The MS shall notify its presence in the target cell through the transmission of access bursts to the BSS, and the BSS shall respond with a valid timing advance which in turn enables the MS to send normal bursts in uplink.

After having switched to the assigned channels, the mobile station shall send four times the PS HANDOVER ACCESS message. The mobile station shall start timer T3216 at the start point of the timeslot in which the PS HANDOVER ACCESS message is sent the first time on the PACCH.

The mobile station then activates the channels in receiving mode.

Upon reception of the PS HANDOVER ACCESS message containing the expected Handover Reference value, once the network has the RF characteristics that are necessary, it sends a PACKET PHYSICAL INFORMATION message to the mobile station on the PACCH.

When the mobile station receives a PACKET PHYSICAL INFORMATION message, it stops timer T3216, stops sending access bursts and activates the channels in sending and receiving mode.

The MS sends uplink LLC PDUs, e.g. a **Routing Area Update Request** message or uplink user data packets to the SGSN immediately after receiving the **Packet Physical Information** message or, in a synchronised or pre-synchronised handover, immediately if the **PS Handover Access** message is not required to be sent (see Section 6.2).

References

3GPP TS 43.129, subclasses 6.2.2, 5.1.2.3

3GPP TS 44.060, subclasses 8.10.4.4.4.

41.6.3.2.2 Test purpose

To verify that while in uplink Acknowledged mode MS performs successfully Non-Synchronised PS Handover from A/Gb to A/Gb.

To verify that MS triggers Routing Area update procedure after receiving the Packet Physical Information and during this procedure data transfer continues.

41.6.3.2.3 Method of test

Initial Conditions

System Simulator:

Two cells A (RAI 1) and Cell B (RAI 2), NC2 mode, GPRS supported, PCCCH not present.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the assigned USF to the MS. The MS sends a RLC radio block. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb Non-synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B and containing a handover reference. The MS moves to cell B sends PS HANDOVER ACCESS. The SS sends PACKET PHYSICAL INFORMATION to the MS.

Following handover to Cell B MS may send PACKET RESOURCE REQUEST to trigger the ROUTING AREA UPDATE procedure. The Routing area procedure is completed and the MS continues with the data uplink data transfer in Cell B.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	All instances are Sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13 of cell B. USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding BSN and the TFI are correct.
7	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
			The following messages are received on cell B.
8	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Send 120 ms (T_GSM_delay) after step 7. USF assigned to the MS.
9	MS -> SS	PS HANDOVER ACCESS	As 4 access bursts. Check that handover reference is correct.
10	SS->MS	PACKET PHYSICAL INFORMATION	
11	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
12	MS -> SS	PACKET UPLINK DUMMY CONTROL BLOCK or UPLINK RLC DATA BLOCK or PACKET RESOURCE REQUEST or ROUTING AREA UPDATE REQUEST or PACKET MEASUREMENT REPORT	Repeat steps 11 and 12 for maximum of 100 ms or PACKET RESOURCE REQUEST is received on PACCH then the optional steps 13 to 16 are performed or ROUTING AREA UPDATE REQUEST Note: MS may complete the ongoing LLC PDU started before PS handover in step 11 and step 12 or Ensure that the MS completes the transfer of the ROUTING AREA UPDATE REQUEST message
13 Optional step	SS->MS	PACKET UPLINK ASSIGNMENT	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
14 Optional step	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
15 Optional step	MS->SS	UPLINK RLC DATA BLOCK (ROUTING AREA UPDATE REQUEST) or PACKET MEASUREMENT REPORT	Ensure that the MS completes the transfer of the ROUTING AREA UPDATE REQUEST message
16 Optional step			Repeat step 14 and 15 until the last block of the ROUTING AREA UPDATE REQUEST is received.
17	SS -> MS	PACKET UPLINK ACK/NACK	Sent on the PACCH of the PDCH assigned, acknowledge all received data, without setting FINAL_ACK_INDICATION.
18	SS -> MS	PACKET DOWNLINK ASSIGNMENT	Sent on PACCH of the PDCH assigned.
19	SS -> MS	DOWNLINK RLC DATA BLOCK (ROUTING AREA UPDATE ACCEPT)	Transporting the ROUTING AREA UPDATE ACCEPT Last RLC data block with valid RRBp field (polling).
20A	MS -> SS	PACKET DOWNLINK ACK/NACK	Including Channel Request Description.
21A	SS -> MS	PACKET UPLINK ASSIGNMENT	Sent on PACCH of the PDCH assigned. Continue with step 24.
20B	MS -> SS	PACKET DOWNLINK ACK/NACK	Not including Channel Request Description.

21B	SS->MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
22B	MS -> SS	UPLINK RLC DATA BLOCK or PACKET RESOURCE REQUEST	
23 B Optional step	SS -> MS	PACKET UPLINK ASSIGNMENT	Step is performed if MS send PACKET RESOURCE REQUEST in step 22B. Sent on PACCH of the PDCH assigned.
24		{Completion of uplink RLC data block transfer}	

Specific Message Contents

PS HANDOVER COMMAND message in step 7:

As default message contents except PS Handover Radio Resources IE SI RLC_RESET	default present 00 Non-synchronized 1
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PACKET PHYSICAL INFORMATION message in step 10:

PAGE_MODE Global TFI TIMING ADVANCE VALUE	default TFI of mobile station uplink TBF 30 bit periods
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41.6.3.3 Intra SGSN PS Handover / Non synchronized cell case / Abnormal Case / T3216 expiry

41.6.3.3.1 Conformance requirements

In case of initial access failure in the target cell, including the case where the MS fails to acquire time alignment information (for the unsynchronised network case), the MS is allowed to revert to the old cell. As is defined currently in 3GPP TS 44.060 [7], the MS shall return to the old cell and send a **Packet Cell Change Failure** message with the appropriate cause.

If the MS was in packet transfer mode (or MAC-shared state) before the attempted handover it will, when going back to the old cell, send a **Packet Cell Change Failure** message and resume TBFs which were ongoing in the old cell.

A mobile station operating in *A/Gb mode* shall consider the PS handover to *A/Gb mode* to have failed for the following reasons:

- Timer T3216 expires while in the new cell.

A mobile station operating in *A/Gb mode* when a PS handover to *A/Gb mode* fails shall proceed as follows:

- If timer T3216 expired it shall return to the cell on which the PS HANDOVER COMMAND message was received.
- Send a PACKET CELL CHANGE FAILURE message with the cause code set to "No response on target cell" if timer T3218 or T3216 expired, otherwise "PS Handover failure-others". The message shall be sent on PACCH.
- The transmission of a PACKET CELL CHANGE FAILURE message terminates the PS handover procedure in the mobile station and after the transmission of this message the mobile station is therefore allowed to request the establishment of additional uplink TBFs.
- After terminating the PS handover procedure the mobile station shall resume all uplink and downlink TBFs that were ongoing in the old cell prior to receiving the PS HANDOVER COMMAND message. Timers T3180 (uplink TBFs) and T3190 (downlink TBFs) corresponding to these TBFs shall be re-started.
- For each TBF that is resumed the corresponding RLC state machine shall reflect its state when the last RLC data block was transmitted for that TBF in the old cell (uplink TBFs) and the last RLC data block was received for that TBF in the old cell (downlink TBFs).

References

3GPP TS 43.129, subclasses 5.7.2.1

3GPP TS 44.060, subclasses 8.10.5.1

41.6.3.3.2 Test purposes

To verify that the MS upon PS handover failure due to T3216 expiry, returns to the old cell and sends a PACKET CELL CHANGE FAILURE message with cause “No response on target cell” and resumes the TBFs that were ongoing in the old cell.

41.6.3.3.3 Method of test

Initial Conditions

System Simulator:

2 cells A and B, GPRS supported, NC 2 mode, PCCCH not present.

The RF level of cell A is -50 dBm and cell B - 60 dBm.

Mobile Station:

The MS is GPRS attached on cell A, a P-TMSI allocated and test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer 2000 octets in the RLC acknowledged mode on cell A. After a successful uplink PDCH assignment the SS sends PACKET DOWNLINK DUMMY indicating the USF assigned to the MS. The SS allows the MS to transfer about 30 RLC blocks.

The SS provides the MS a minimum set of System Info Types in order to perform a A/Gb to A/Gb non-synchronized PS Handover by sending them in PACKET NEIGHBOUR CELL DATA message.

The SS sends PS HANDOVER COMMAND to assign a PDCH on cell B.

MS will send 4 PS Handover Access messages. SS does not send Packet Physical information and waits for timer T3216(1 s) expiry.

SS then assigns USF to the MS on the old cell A. MS send PACKET CELL CHANGE FAILURE with cause value “No response on target cell” and resumes the uplink data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

Step	Direction	Message	Comments
1		{Uplink dynamic allocation two phase access}	The following messages received on cell A. n = 2000 octets in RLC acknowledged mode (Test PDP context2), without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: cs1, CHANNEL_CODING_COMMAND: cs1
2	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF assigned to the MS.
3	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH. Check that the coding and the TFI are correct.
4			Repeat step 2 and 3 in total of 30 times.
5	SS -> MS	PACKET NEIGHBOUR CELL DATA	USF assigned to the MS.
6	MS -> SS	UPLINK RLC DATA BLOCK or PACKET MEASUREMENT REPORT	Received on the assigned PDTCH.
7			Repeat step 5 and 6 until all instances are sent on the PACCH of the assigned PDCH. Containing : System Info Type 1, System Info Type 3 and System Info Type 13 of cell B.
8	SS -> MS	PS HANDOVER COMMAND	Sent on the PACCH of the assigned PDCH. USF not assigned to the MS.
9			The following messages are sent on cell B.
10	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	Sent on PACCH assigned in step 8. USF addressing the MS.
11	MS -> SS	PS HANDOVER ACCESS	As 4 access bursts. Check that handover reference is correct.
12	SS		SS does not send PACKET PHYSICAL INFORMATION. SS waits until Timer T3216 expires (1 sec) + 0.1*T3216
13	SS -> MS	PACKET DOWNLINK DUMMY CONTROL BLOCK	USF allocated in PACKET UPLINK ASSIGNMENT from step 1 assigned to the MS.
14	MS -> SS	PACKET CELL CHANGE FAILURE	Cause:"No response on target cell"
15	SS<->MS	{ Uplink data transfer }	Macro - Completion of the 2kB of Data.

Specific Message Contents

PS HANDOVER COMMAND message in step 8:

As default message contents except PS Handover Radio Resources IE SI	default present 00 Non-synchronized
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