
52 EGPRS Test of Medium Access Control (MAC) protocol

52.1 Test of Medium Access Control (MAC) Procedures

Default conditions

The SS default conditions simulate one cell with default settings as defined in the EGPRS general default section.

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

The default message contents and signalling macro not specified in the end of this subclause shall be set as in "EGPRS default conditions" clause 50. Specific message contents for a test case is specified in each test case.

Conditions or message contents specified in a test case have the highest precedence. In addition, the default message contents described in the end of this subclause override those specified in "EGPRS default conditions".

In case the test case not expected "short access" as access type for Packet Channel Request the amount of RLC data specified in the comments in expected sequence is not necessary to be exactly the specified amount of data. It only has to be more than the limit for short access. If the test case need a specific amount of data this is specified in the test case.

52.1.1 Void

52.1.2 Packet Uplink/Downlink Assignment

52.1.2.1 Packet uplink assignment procedure

52.1.2.1.1 Void

52.1.2.1.2 Void

52.1.2.1.3 Void

52.1.2.1.4 Void

52.1.2.1.5 Void

52.1.2.1.6 Void

52.1.2.1.7 Void

52.1.2.1.8 Void

52.1.2.1.9 Packet Uplink Assignment / Two phase access

52.1.2.1.9.1 Void

52.1.2.1.9.2 Packet Uplink Assignment / Two phase access / Contention resolution

52.1.2.1.9.2.1 Packet Uplink Assignment / Two phase access / Contention resolution / Expiry of timer T3168

52.1.2.1.9.2.1.1 Conformance requirements

The contention resolution has failed on the mobile station side when the mobile station does not receive a PACKET UPLINK ASSIGNMENT message with its TLLI before expiry of timer T3168. The mobile station shall then reinitiate the packet access procedure unless it has already been repeated 4 times. In that case, TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.3.3.

52.1.2.1.9.2.1.2 Test purpose

To verify that the mobile station reinitiates the packet access procedure after a time equal to timer T3168 and the procedure shall be repeated 4 times.

52.1.2.1.9.2.1.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH, SI13 GPRS Cell Options, T3168 = 7.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 1 has been established.

Specific PICS Statements

- Release of EGPRS Supported (TSPC_MS_EGPRS_RELEASE)

PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS sends IMMEDIATE ASSIGNMENT message including Multi Block Allocation struct information to order the MS to send PACKET RESOURCE REQUEST message. The MS shall perform a two-phase access i.e. the MS shall transmit a PACKET RESOURCE REQUEST message on the allocated uplink resource. The SS wait for a time greater than timer T3168 so the MS shall reinitiate packet access procedure. This procedure shall be repeated 4 times.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|--|-----------|------------------------------|--|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 200 octets data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | ACCESS_TYPE = "Two Phase Access Request". Received on the single block assigned in step 3. |
| 5 | SS | | The SS waits T3168 expiry. |
| 6 | | | The SS verifies that the MS reinitiate packet access procedure (steps 2-5 are repeated) in total: Four or five times if PICS 'Release of EGPRS supported' is Release 97, 98, 99 or 4. Four times if PICS 'Release of EGPRS supported' is Release 5 or later. |
| NOTE: After step 6 the MS may reinitiate a packet access procedure, since higher layers may request to restart the access procedure. | | | |

Specific message contents

None.

52.1.2.1.9.2.2 Packet Uplink Assignment / Two phase access / Contention resolution / TLLI in Packet Resource Request message

52.1.2.1.9.2.2.1 Conformance requirements

The mobile station shall provide the network with its radio access capabilities for the frequency bands it supports, in the same priority order as the one specified by the network, by sending a PACKET RESOURCE

REQUEST message, and an ADDITIONAL MS RADIO ACCESS CAPABILITIES if all the requested information do not fit in the PACKET RESOURCE REQUEST.

The mobile station shall include the TLLI in these two messages until contention resolution. After that, the mobile station may use the uplink TFI or the TLLI whenever these messages are repeated.

The network may request a retransmission of the PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES messages. A request for retransmission of one or both of these messages shall be indicated in the PACKET UPLINK ACK/NACK message. The mobile station has to indicate within the PACKET RESOURCE REQUEST if the message is a retransmitted one.

If the mobile station has been allocated two radio blocks and all the requested information fit in the PACKET RESOURCE REQUEST message, no ADDITIONAL MS RADIO ACCESS CAPABILITIES message shall be sent. Instead, some uplink control block (e.g. packet measurement report, packet uplink dummy control block) may be sent by the mobile station.

The network may indicate in the next PACKET UPLINK ASSIGNMENT message a request for retransmission of the ADDITIONAL MS RADIO ACCESS CAPABILITIES message.

Reference

3GPP TS 04.60 subclauses 7.1.2.2.1a and 7.1.3.2.

52.1.2.1.9.2.2.2 Test purpose

To verify that the MS includes TLLI in both PACKET RESOURCE REQUEST message, and ADDITIONAL MS RADIO ACCESS CAPABILITIES, if it is present.

To verify that the mobile responds correctly for a request for retransmission of one or both of these messages indicated in the PACKET UPLINK ASSIGNMENT message.

52.1.2.1.9.2.2.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 1 has been established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS responds with IMMEDIATE ASSIGNMENT message that request two phase access and requesting Radio Access Capabilities of frequency bands supported by the mobile. The MS shall then send PACKET RESOURCE REQUEST message and optionally an ADDITIONAL MS RADIO ACCESS CAPABILITIES message with Radio Access Capabilities included.

Note: The SS shall request only one band, either GSM 1800 or GSM 1900.

The SS responds with PACKET UPLINK ASSIGNMENT message, with a valid TLLI and requesting retransmission of ADDITIONAL MS RADIO ACCESS CAPABILITIES message, if it was sent by the mobile.

The SS verifies that the mobile retransmit the ADDITIONAL MS RADIO ACCESS CAPABILITIES message, if applicable, addressed by TFI or TLLI.

Maximum duration of the test

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 200 octets data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Requesting the mobile to send Radio Access Capability of all frequency bands. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | ACCESS_TYPE = "Two Phase Access Request". Include TLLI. Received on one of the block assigned in step 3. See specific message contents. |
| 4a | MS -> SS | ADDITIONAL MS RADIO ACCESS CAPABILITIES | If <ADDITIONAL MS RAC INFORMATION AVAILABLE> field in the received PACKET RESOURCE REQUEST message indicates 1, then received on the second block assigned in Step 3. If no ADD ADDITIONAL MS RADIO ACCESS CAPABILITIES message is there, the MS may send a control block in the block assigned. Verify TLLI is included. |
| 5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Include the correct TLLI according to step 4. Sent on the PACCH of the assigned PDCH. Request retransmission of ADDITIONAL MS RADIO ACCESS CAPABILITIES if it was received in Step 4a. |
| 6 | MS -> SS | ADDITIONAL MS RADIO ACCESS CAPABILITIES | If applicable as per Step 4a and Step 6. Verify that the mobile is addressed by TFI or TLLI in the message. |
| 7 | | { Completion of uplink RLC data block transfer } | |

Specific message contents

IMMEDIATE ASSIGNMENT message in Step 3.

BCCH band is GSM 1900:

| | |
|--|-------------|
| { 0 1 < Access Technologies Request} | 1 (Present) |
| Access Technology Type | 0000 |
| Access Technology Type | 0001 |
| Access Technology Type | 0010 |
| Access Technology Type | 0100 |
| Access Technology Type | 0101 |
| Access Technology Type | 0110 |
| Access Technology Type | 0111 |

All other BCCH bands:

| | |
|--|-------------|
| { 0 1 < Access Technologies Request} | 1 (Present) |
| Access Technology Type | 0000 |
| Access Technology Type | 0001 |
| Access Technology Type | 0010 |
| Access Technology Type | 0011 |
| Access Technology Type | 0101 |
| Access Technology Type | 0110 |
| Access Technology Type | 0111 |

PACKET UPLINK ASSIGNMENT message in Step 5.

| | |
|-----------------------------|--|
| ARAC RETRANSMISSION REQUEST | 1 (If message was received in Step 4a) 0 (If message was not received on Step 4a) |
|-----------------------------|--|

52.1.2.1.9.2.3 Packet Uplink Assignment / Two phase access / Contention resolution / TLLI mismatch

The contention resolution is completed on the mobile station side when the mobile station receives a PACKET UPLINK ASSIGNMENT message with the same TLLI as the mobile station has included in the PACKET RESOURCE REQUEST message.

52.1.2.1.9.2.3.1 Conformance requirements

If the failure is due to a TLLI mismatch, or to the expiry of timers T3166 or T3168, or to the fact that the counter N3104 reaches its maximum value in the contention resolution procedure, and repetition as described in subclauses 7.1.2.3, 7.1.3.2.1 or 7.1.3.3 has been performed, the mobile station shall remain in packet idle mode, notify higher layer (TBF establishment failure), transactions in progress shall be aborted and cell reselection continued, unless the failure takes place during a RR-cell change order procedure, in which case the mobile behaviour shall be as described in the Abnormal cases of the RR-Network Commanded Cell Change Order Procedure in 3GPP TS 04.08.

Reference

3GPP TS 04.60 subclauses 7.1.4 and 7.1.3.3.

52.1.2.1.9.2.3.2 Test purpose

To verify that the MS reinitiates packet access procedure with failure due to a TLLI mismatch in the contention resolution procedure, unless it has already been repeated 4 times. In that case, TBF failure has occurred.

52.1.2.1.9.2.3.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 1 has been established.

Specific PICS Statements

- Release of EGPRS Supported (TSPC_MS_EGPRS_RELEASE)

PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS responds with IMMEDIATE ASSIGNMENT message that request two phase access. The MS shall then send PACKET RESOURCE REQUEST message. The SS responds with PACKET UPLINK ASSIGNMENT message with a TLLI different to that the MS has sent in PACKET RESOURCE REQUEST message. The MS shall reinitiate the packet access procedure.

This procedure shall be repeated 4 times.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---|-----------|------------------------------|--|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 200 octets data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | ACCESS_TYPE = "Two Phase Access Request". Include TLLI. Received on the single block assigned in step 3. |
| 5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Include incorrect TLLI according to step 4. Sent on the PACCH of the assigned PDCH. |
| 6 | | | The SS verifies that the MS attempts packet access procedure (steps 2-5 are repeated) in total: Four or five times if PICS 'Release of EGPRS supported' is Release 99 or 4. Four times if PICS 'Release of EGPRS supported' is Release 5 or later. |
| NOTE: After step 6 the MS may reinitiate a packet access procedure, since higher layers may request to re start the access procedure. | | | |

Specific message contents

None.

52.1.2.1.9.3 Packet Uplink Assignment / Two phase access / Radio Access Capabilities

52.1.2.1.9.3.1 Conformance requirements

When assigning an EGPRS TBF, the network may request information about radio access capabilities of the mobile station on one or several frequency bands within the PACKET UPLINK ASSIGNMENT message ; the list of frequency bands is ordered by the network starting with the most important and ending with the least important one . The mobile station shall provide the network with its radio access capabilities for the frequency bands it supports, in the same priority order as the one specified by the network, by sending a PACKET RESOURCE REQUEST message, and an ADDITIONAL MS RADIO ACCESS CAPABILITIES if all the requested information do not fit in the PACKET RESOURCE REQUEST. If the mobile station does not support any frequency band requested by the network, it shall report its radio access capabilities for the BCCH frequency band. The mobile station shall indicate in the PACKET RESOURCE REQUEST if it will send more information about its radio access capabilities in the ADDITIONAL MS RADIO ACCESS CAPABILITIES message. The PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES shall be sent within the one or two first radio blocks allocated for the mobile station on the assigned PDCH. For release 5 and earlier , If the alternative coding by using the Additional access technologies struct is chosen by the mobile station, the mobile station shall indicate its radio access capability for the serving BCCH frequency band in the first included Access capabilities struct.

When assigning an EGPRS TBF, the network may request information about radio access capabilities of the mobile station on one or several frequency bands within the IMMEDIATE ASSIGNMENT message ; the list of frequency bands is ordered by the network starting with the most important and ending with the least important one. The mobile station shall provide the network with its radio access capabilities for the frequency bands it supports, in the same priority order as the one specified by the network, by sending a PACKET RESOURCE REQUEST message, and an ADDITIONAL MS RADIO ACCESS CAPABILITIES if all the requested information do not fit in the PACKET RESOURCE REQUEST. If the mobile station does not support any frequency band requested by the network, it shall report its radio access capabilities for the BCCH frequency band. The mobile station shall indicate in the PACKET RESOURCE REQUEST if it will send more information about its radio access capabilities in the ADDITIONAL MS RADIO ACCESS CAPABILITIES message. The PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES shall be sent within the one or two first radio blocks allocated for the mobile station on the assigned PDCH.

Reference

3GPP TS 44.060 subclauses 7.1.2.2.1a, 7.1.3.2 and 12.30, and TS 24.008 subclause 10.5.5.12a.

3GPP TS 44.018 subclause 3.5.2.1.3.

52.1.2.1.9.3.2 Test purpose

To verify that the mobile station provides the network with the radio access capabilities of the frequency bands it supports.

To verify that the mobile station provides the radio access capabilities in the same priority order as the one specified by network (in case of Rel-5 and earlier and if the alternative coding by using the Additional access technologies struct is chosen, the MS may indicate its radio access capability for the serving BCCH frequency band in the first included Radio Access Capabilities struct.).

To verify that among the three Access Technology Types GSM 900-P, GSM 900-E and GSM 900-R only one shall be present.

To verify that the PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES are sent within the one or two first radio blocks allocated for the mobile station on the assigned PDCH.

52.1.2.1.9.3.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 1 has been established.

Specific PICS Statements

- Support of Standard GSM Band (P-GSM) (TSPC_Type_GSM_P_Band)
- Support of Extended GSM Band (E-GSM), (including standard Band) (TSPC_Type_GSM_E_Band)
- Support of R-GSM Band (including standard and E-GSM Band) (TSPC_Type_GSM_R_Band)
- Support of DCS 1800 band (TSPC_Type_DCS_Band)
- Support of GSM 450 band (TSPC_Type_GSM_450_Band)
- Support of GSM 480 band (TSPC_Type_GSM_480_Band)
- Support of PCS 1900 band (TSPC_Type_PCS_Band)
- Support of GSM 700 band (TSPC_Type_GSM_700_Band)
- Support of GSM 750 band (TSPC_Type_GSM_750_Band)
- Support of GSM 850 band (TSPC_Type_GSM_850_Band)
- Support of GSM 710 band (TSPC_Type_GSM_710_Band)
- Support of T GSM 810 band (TSPC_Type_T_GSM_810_Band)
- Support of T-GSM 380 band (TSPC_Type_T_GSM_380_Band)
- Support of T-GSM 410 band (TSPC_Type_T_GSM_410_Band)
- Support of GSM850 and GSM1800 Band Interworking (TSPC_GSM850_GSM1800_Interworking)
- Support of GSM900 and GSM1900 Band Interworking (TSPC_GSM900_GSM1900_Interworking)
- Support of GSM850 and GSM900 Band Interworking (TSPC_GSM850_GSM900_Interworking)
- Release of EGPRS Supported (TSPC_MS_EGPRS_RELEASE)

PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS shall send IMMEDIATE ASSIGNMENT message with Access Technology request for all the bands. The MS shall respond back with a PACKET RESOURCE REQUEST and an ADDITIONAL MS RADIO ACCESS CAPABILITIES message, if the information do not fit in the PACKET RESOURCE REQUEST message.

SS verifies that the Radio Access Capabilities of all the frequency bands supported are available, with respect to the band interworking PICS, and are in the same priority as requested by the SS (in case of Rel-5 and earlier and if the alternative coding by using the Additional access technologies struct is chosen, the MS may indicate its radio access capability for the serving BCCH frequency band in the first included Radio Access Capabilities struct.).

SS verifies that among GSM 900-P, GSM 900-E and GSM 900-R, only 1 is reported.

The SS shall request only one band, either GSM 1800 or GSM 1900. See Specific message contents.

Maximum duration of the test

10 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|---|---|
| 1 | MS | | The MS is triggered to initiate the transfer of 100 user data octets. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. SS request Access Technologies Request from the mobile. See specific message contents. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | Received on one of the blocks assigned in Step 3. |
| 4a | MS -> SS | ADDITIONAL MS RADIO ACCESS CAPABILITIES | If <ADDITIONAL MS RAC INFORMATION AVAILABLE> field in the received PACKET RESOURCE REQUEST message indicates 1, then received on the second block assigned in Step 3. If no ADD ADDITIONAL MS RADIO ACCESS CAPABILITIES message is there, the MS may send a control block in the block assigned. |
| 5 | SS | Verification | With the message(s) received in 4/4a: SS verifies that the Radio Access Capabilities of the supported access technologies are in the same order of priority as requested. Note :In case of Rel-5 and earlier, the MS may indicate its radio access capability for the serving BCCH frequency band in the first included Radio Access Capabilities struct. SS verifies that among GSM 900-P, GSM 900-E and GSM 900-R, only 1 is reported. SS verifies that all supported access technologies that can fit into the message are reported, with respect to the band interworking PICS. |
| 6 | SS -> MS | PACKET UPLINK ASSIGNMENT | Dynamic allocation struct. Sent on the PACCH of the assigned PDCH. |
| 7 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigning USF to the MS. Sent at least 3 block periods from the assignment in step 6. |
| 8 | | {Uplink data transfer} | Macro. Completion of the TBF procedure. |

Specific message contents

IMMEDIATE ASSIGNMENT message step 3:

BCCH band is GSM 1900:

| | |
|--|-------------|
| { 0 1 < Access Technologies Request} | 1 (Present) |
| Access Technology Type | 0000 |
| Access Technology Type | 0001 |
| Access Technology Type | 0010 |
| Access Technology Type | 0100 |
| Access Technology Type | 0101 |
| Access Technology Type | 0110 |
| Access Technology Type | 0111 |

All other BCCH bands:

| | |
|--|-------------|
| { 0 1 < Access Technologies Request} | 1 (Present) |
| Access Technology Type | 0000 |
| Access Technology Type | 0001 |
| Access Technology Type | 0010 |
| Access Technology Type | 0011 |
| Access Technology Type | 0101 |
| Access Technology Type | 0110 |
| Access Technology Type | 0111 |

52.1.2.1.9.4 Packet Uplink Assignment / Two phase access / Radio Access Capabilities/ Frequency band not supported

52.1.2.1.9.4.1 Conformance requirements

When assigning an EGPRS TBF, the network may request information about radio access capabilities of the mobile station on one or several frequency bands within the PACKET UPLINK ASSIGNMENT message ; the list of frequency bands is ordered by the network starting with the most important and ending with the least important one . The mobile station shall provide the network with its radio access capabilities for the frequency bands it supports, in the same priority order as the one specified by the network, by sending a PACKET RESOURCE REQUEST message, and an ADDITIONAL MS RADIO ACCESS CAPABILITIES if all the requested information do not fit in the PACKET RESOURCE REQUEST. . If the mobile station does not support any frequency band requested by the network, it shall report its radio access capabilities for the BCCH frequency band. The mobile station shall indicate in the PACKET RESOURCE REQUEST if it will send more information about its radio access capabilities in the ADDITIONAL MS RADIO ACCESS CAPABILITIES message. The PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES shall be sent within the one or two first radio blocks allocated for the mobile station on the assigned PDCH.

When assigning an EGPRS TBF, the network may request information about radio access capabilities of the mobile station on one or several frequency bands within the IMMEDIATE ASSIGNMENT message ; the list of frequency bands is ordered by the network starting with the most important and ending with the least important one. The mobile station shall provide the network with its radio access capabilities for the frequency bands it supports, in the same priority order as the one specified by the network, by sending a PACKET RESOURCE REQUEST message, and an ADDITIONAL MS RADIO ACCESS CAPABILITIES if all the requested information do not fit in the PACKET RESOURCE REQUEST. If the mobile station does not support any frequency band requested by the network, it shall report its radio access capabilities for the BCCH frequency band. The mobile station shall indicate in the PACKET RESOURCE REQUEST if it will send more information about its radio access capabilities in the ADDITIONAL MS RADIO ACCESS CAPABILITIES message. The PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES shall be sent within the one or two first radio blocks allocated for the mobile station on the assigned PDCH.

Reference

3GPP TS 44.060 subclauses 7.1.2.2.1a and 7.1.3.2.

3GPP TS 44.018 subclause 3.5.2.1.3.

52.1.2.1.9.4.2 Test purpose

To verify that if the mobile station does not support any of the frequency band requested by the network, it shall report its radio access capability for the BCCH frequency band.

52.1.2.1.9.4.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 1 has been established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS shall send IMMEDIATE ASSIGNMENT message with Access Technology request for the bands not supported by the MS. SS verifies that MS reports its radio access capability for the BCCH frequency band in the PACKET RESOURCE REQUEST message.

Maximum duration of the test

10 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---------------------|-----------|--|--|
| 1 | MS | | The MS is triggered to initiate the transfer of 100 user data octets. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. Allocates two uplink blocks. SS request Access Technologies Request from the mobile. See specific message contents. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | Received on first block assigned in Step 3. SS verifies that the MS sends Radio Access Capabilities for the BCCH frequency band. |
| 4a (conditional) | MS -> SS | ADDITIONAL MS RADIO ACCESS CAPABILITIES | If <ADDITIONAL MS RAC INFORMATION AVAILABLE> field in the received PACKET RESOURCE REQUEST message (step 4) indicates 1, then step 4a is performed. |
| 4b (optional) | MS -> SS | PACKET UPLINK DUMMY CONTROL BLOCK | If <ADDITIONAL MS RAC INFORMATION AVAILABLE> field in the received PACKET RESOURCE REQUEST message (step 4) indicates 0, then step 4b is optionally performed. |
| 5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Dynamic allocation struct. Sent on the PACCH of the assigned PDCH. |
| 6 | | {Uplink data transfer, dynamic allocation} | Macro. Completion from step 4 in the TBF procedure. |

Specific message contents

IMMEDIATE ASSIGNMENT message

| | |
|---|--|
| { 0 1 < Access Technologies Request } Access Technology Type | 1 (Present) Include some frequency bands that are not supported by the mobile |
|---|--|

52.1.2.1.9.5 Packet Uplink Assignment / Two phase access / Packet Resource Request / No respond to Packet Downlink Assignment

52.1.2.1.9.5.1 Conformance requirements

At sending of the PACKET RESOURCE REQUEST message, the mobile station shall start timer T3168. Further more, the mobile station shall not respond to PACKET DOWNLINK ASSIGNMENT messages while timer T3168 is running.

Reference

3GPP TS 04.60 subclause 7.1.3.1.

52.1.2.1.9.5.2 Test purpose

To verify that the mobile station does not respond to PACKET DOWNLINK ASSIGNMENT messages while timer T3168 is running after sending of the PACKET RESOURCE REQUEST message.

52.1.2.1.9.5.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS , CCCH combined with SDCCH.

T3168 indicates value 7 in GPRS Cell Options.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to initiate unacknowledged uplink data transfer. The SS shall send IMMEDIATE ASSIGNMENT message including EGPRS Packet UL Assignment struct information to instruct the MS to send PACKET RESOURCE REQUEST. The MS should perform a two-phase access i.e. the MS shall transmit a PACKET RESOURCE REQUEST message on the allocated uplink resource.

While timer T3186 is running the SS send PACKET DOWNLINK ASSIGNMENT message and starts to send data on the allocated downlink before the timer expire. The MS shall not respond to the Downlink data transfer.

The SS should then send PACKET UPLINK ASSIGNMENT message before the timer T3168 expire and the MS should then begin transmitting RLC data blocks on the allocated uplink resources . The SS allows the MS to complete the sending of the data.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU containing 400 octets of data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | One or Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | Received on the single block assigned in step 3. |
| 5 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH. |
| 6 | SS -> MS | DOWNLINK RLC DATA BLOCK | Sent on the assigned PDTCH with poll bit set to 1. Verify no response from the MS. |
| 7 | SS -> MS | PACKET UPLINK ASSIGNMENT | Dynamic allocation struct. Sent on the PACCH of the assigned PDCH 0,9* T3168. |
| 8 | | {Uplink data transfer, dynamic allocation} | Macro. Completion from step 4 in the TBF procedure. |

Specific message contents

None.

52.1.2.1.10 Packet Uplink Assignment / Abnormal cases

52.1.2.1.10.1 Packet Uplink Assignment / Abnormal cases / Incorrect PDCH assignment

52.1.2.1.10.1.1 Conformance requirements

If the mobile station has been assigned more PDCHs than it supports according to its MS multislot class, the mobile station shall reinitiate the packet access procedure unless it has already been repeated 4 times. In that case, TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.4.

52.1.2.1.10.1.2 Test purpose

To verify that the mobile station reinitiates the packet access procedure when the mobile station has been assigned more PDCHs than it supports and after 4 repetitions of the packet access procedure the mobile station shall initiate TBF failure.

52.1.2.1.10.1.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS , CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

- Release of EGPRS Supported (TSPC_MS_EGPRS_RELEASE)
- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X= 1..45)

PIXIT Statements

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Test procedure

Convert the MS EGPRS Multislot Class to number of uplink timeslot supported.

The MS is triggered to send 200 octets of data. The SS sends PACKET UPLINK ASSIGNMENT message containing more assigned PDCHs than the MS supports according to its EGPRS multislot class. The MS shall reinitiate packet access procedure; this procedure shall be repeated 4 times.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|--|-----------|-------------------------------------|--|
| 1 | MS | | The MS is triggered to send 200 octets data |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | One or Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | Received on one of the blocks assigned in Step 3. |
| 5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assign one more Tx than the MS supported, MCS1. Sent on PACCH. |
| 6 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the third block from the message sent in step 5. Assigning USF to the MS. |
| 7 | | | The SS verifies that the MS does not send UPLINK RLC DATA BLOCKS and instead attempts packet access procedure (steps 2-6 are repeated) in total: Four or five times if PICS 'Release of EGPRS supported' is Release 99 or 4. Four times if PICS 'Release of EGPRS supported' is Release 5 or later |
| NOTE: After step 7 the MS may reinitiate a packet access procedure, since higher layers may request to restart the access procedure. | | | |

Specific message contents

None.

52.1.2.1.10.2 Packet Uplink Assignment / Abnormal cases / Expiry of timer T3164

52.1.2.1.10.2.1 Conformance requirements

On expiry of timer T3164, the mobile station shall reinitiate the packet access procedure unless it has already been reinitiated 3 times, in which case the mobile station shall return to packet idle mode and notify higher layers.

Reference

3GPP TS 04.60 subclause 7.1.4.

52.1.2.1.10.2.2 Test purpose

To verify that the mobile station reinitiate the packet access procedure when the network have sent a PACKET UPLINK ASSIGNMENT message but the MS has not sent the first block within the time equal to the timer T3164. This packet access procedure shall at most be reinitiated 3 times.

52.1.2.1.10.2.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

GPRS cell options, ACCESS_BURST_TYPE indicates 8 bit access.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

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 sends IMMEDIATE ASSIGNMENT message with a USF assigned to the MS. The SS shall send PACKET DOWNLINK DUMMY CONTROL BLOCK messages with USF not assigned to the MS. T3164 expires. The SS send a PACKET DOWNLINK DUMMY CONTROL BLOCK containing the assigned USF. The SS verifies that the MS does not send a RLC data block. The SS verifies that the MS reinitiate the packet access procedure within 5 seconds of T3164 expiry; this shall be repeated 3 times.

Maximum duration of the test

1 minute.

Expected sequence

| Step | Direction | Message | Comments |
|--|-----------|--------------------------------------|---|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting 200 octets of data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | One or Two Phase Access Request. Received on RACH. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH. |
| 4 | MS -> SS | PACKET RESOURCE REQUEST | Received on one of the blocks assigned in Step 3. |
| 5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Allocate a USF for the MS |
| 6 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCKs | Don't contain the assigned USF in step 5. Repeat step 6 for a maximum of 5.5 seconds (1.1*T3164). The MS may send an EGPRS PACKET CHANNEL REQUEST at any time after 0.9*T3164, in this case go to step 9 . |
| 7 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCKs | Containing the assigned USF in step 5. |
| 8 | SS | | Verify the MS does not transmit an RLC data block |
| 9 | SS | | The SS verifies that the packet access procedure (steps 2-6) is reinitiated three times. The EGPRS PACKET CHANNEL REQUEST for reinitiation (in step 2) shall be sent within 5 sec of T3164 expiry (to cater for T3168 - the maximum duration of a packet access procedure). |
| NOTE: After step 9 the MS may reinitiate a packet access procedure, since higher layers may request to restart the access procedure. | | | |

Specific message contents

None.

52.1.2.2 Packet Downlink Assignment

52.1.2.2.1 Packet Downlink Assignment / Response to poll bit

52.1.2.2.1.1 Conformance requirements

In case valid timing advance for the mobile station is not available, the network may use one of the following two methods to trigger the mobile station to transmit a PACKET CONTROL ACKNOWLEDGEMENT:

- if the PACKET DOWNLINK ASSIGNMENT message is not segmented and the CONTROL_ACK_TYPE parameter in the System Information indicates acknowledgement is access bursts, the network may set the poll bit in the PACKET DOWNLINK ASSIGNMENT message;
- if the PACKET DOWNLINK ASSIGNMENT message is segmented or the CONTROL_ACK_TYPE parameter in the System Information does not indicate acknowledgement is access bursts, the

network may send PACKET POLLING REQUEST with TYPE_OF_ACK parameter set to access bursts (see subclause 11.2.12).

The mobile station shall always transmit the uplink radio block on the same timeslot as the block where the RRBP was received. After receiving an RLC/MAC block containing a valid RRBP field the mobile station need not monitor the USF in the associated downlink RLC/MAC block appearing just before the uplink block it shall transmit.

Reference

3GPP TS 04.60 subclause 7.2.1.1 and 10.4.5.

52.1.2.2.1.2 Test purpose

To verify that the mobile station sends PACKET CONTROL ACKNOWLEDGEMENT as four access bursts if the network sets the poll bit in the PACKET DOWNLINK ASSIGNMENT message when CONTROL_ACK_TYPE is set to four access bursts.

52.1.2.2.1.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH. CONTROL_ACK_TYPE is set to indicate PACKET CONTROL ACKNOWLEDGEMENT format as four access bursts and the ACCESS_BURST_TYPE indicates 11 bit access.

Mobile Station:

The MS is GPRS attached and in packet idle mode and Ready state.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS initiate a downlink data transfer by sending IMMEDIATE ASSIGNMENT on PCH. The SS sends PACKET DOWNLINK ASSIGNMENT message. The poll bit in the MAC header of the PACKET DOWNLINK ASSIGNMENT message will be set to indicate RRBP field is valid. The MS may delay the establishment of the downlink channels in order to answer the poll request on the common control channel. The SS verifies that the MS sends PACKET CONTROL ACKNOWLEDGEMENT as four access bursts on the timeslot on which it received the polling command.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--------------------------------|--|
| 1 | SS | | The SS initiate a downlink transfer of 200 octets data. |
| 2a | SS -> MS | IMMEDIATE ASSIGNMENT | For downlink TBF. Sent on PCH |
| 2b | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Poll bit in the MAC header is set to indicate a valid RRBP = 1. Sent on PACCH. |
| 3 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | As four access bursts. Received on PACCH. |
| 4 | SS | | The SS verifies that the MS sends the PACKET CONTROL ACKNOWLEDGEMENT as four access bursts, one per TDMA frame of the uplink radio block and the RRBP = 1. |

Specific message contents

None.

52.1.2.2.2 Void

52.1.2.2.3 Void

52.1.2.2.4 Packet Downlink Assignment / Response to Packet Polling

52.1.2.2.4.1 Conformance requirements

In case valid timing advance for the mobile station is not available, the network may use one of the following two methods to trigger the mobile station to transmit a PACKET CONTROL ACKNOWLEDGEMENT:

- if the PACKET DOWNLINK ASSIGNMENT message is not segmented and the CONTROL_ACK_TYPE parameter in the System Information indicates acknowledgement is access bursts, the network may set the poll bit in the PACKET DOWNLINK ASSIGNMENT message;
- if the PACKET DOWNLINK ASSIGNMENT message is segmented or the CONTROL_ACK_TYPE parameter in the System Information does not indicate acknowledgement is access bursts, the network may send PACKET POLLING REQUEST with TYPE_OF_ACK parameter set to access bursts (see subclause 11.2.12).

On receipt of a PACKET POLLING REQUEST message, the mobile station shall respond to the network with the PACKET CONTROL ACKNOWLEDGEMENT message in the block period specified by the RRBP field. If the MS has received a PACKET DOWNLINK ASSIGNMENT message with no starting time or with a starting time that has already elapsed, the PACKET POLLING REQUEST message shall be sent on PACCH. Otherwise the PACKET POLLING REQUEST message shall be sent on PAGCH.

Reference

3GPP TS 04.60 subclauses 7.2.1.3 and 7.2.1.1.

52.1.2.2.4.2 Test purpose

To verify that on receipt of a PACKET POLLING REQUEST message, the mobile station responds with PACKET CONTROL ACKNOWLEDGEMENT message in the block period specified by the RRBP field.

52.1.2.2.4.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH. CONTROL_ACK_TYPE is set to not indicate acknowledgement as four access bursts and ACCESS_BURST_TYPE indicate 8 bit access.

Mobile Station:

The MS is GPRS attached and in packet idle mode and Ready state.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS initiate a downlink data transfer by sending IMMEDIATE ASSIGNMENT on PCH. The SS sends PACKET DOWNLINK ASSIGNMENT message to the MS with a TBF starting time. The SS sends a PACKET POLLING REQUEST message containing a valid RRBP field. The SS verifies that the MS sends a PACKET CONTROL ACKNOWLEDGEMENT message in the block period specified by the RRBP field. The SS sends PACKET PDCH RELEASE message to the MS. The SS initiate a downlink data transfer by sending IMMEDIATE ASSIGNMENT on

PCH. The SS sends PACKET DOWNLINK ASSIGNMENT message to the MS without TBF starting time. The SS sends a PACKET POLLING REQUEST message containing a valid RRBP field. The SS verifies that the MS sends a PACKET CONTROL ACKNOWLEDGEMENT message in the block period specified by the RRBP field.

Maximum duration of the test

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--------------------------------|---|
| 1 | SS | | The SS initiate a downlink transfer of 200 octets data. |
| 2a | SS -> MS | IMMEDIATE ASSIGNMENT | For downlink TBF. Sent on PCH |
| 2b | SS -> MS | PACKET DOWNLINK ASSIGNMENT | See specific message contents. Sent on PACCH. |
| 3 | SS -> MS | PACKET POLLING REQUEST | Sent on PACCH after TBF starting time in step 2 has elapsed. See specific message contents. |
| 4 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | The SS verifies that the MS send this message in the block period specified by the RRBP field as four access bursts. Received on PACCH. |
| 5 | SS -> MS | PACKET PDCH RELEASE | Sent on PACCH. |
| 6 | SS | | Wait 20 seconds. |
| 7 | SS | | The SS initiate a downlink transfer of 200 octets data. |
| 8a | SS -> MS | IMMEDIATE ASSIGNMENT | For downlink TBF. Sent on PCH |
| 8b | SS -> MS | PACKET DOWNLINK ASSIGNMENT | See specific message contents. Sent on PACCH. |
| 9 | SS -> MS | PACKET POLLING REQUEST | Sent on PACCH. See specific message contents. |
| 10 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | The SS verifies that the MS send this message in the block period specified by the RRBP field as four access bursts. Received on PACCH. |

Specific message contents

As default messages contents, except:

PACKET DOWNLINK ASSIGNMENT in step 2b

| Information element | Value/remark |
|--|--------------------------------|
| < TIMESLOT_ALLOCATION > | 00000100, allocate timeslot 5. |
| {0 1< TBF Starting Time > -TBF_STARTING_TIME} | 1 arbitrarily chosen |

PACKET DOWNLINK ASSIGNMENT in step 8b

| Information element | Value/remark |
|----------------------------|--------------------------------|
| < TIMESLOT_ALLOCATION > | 00000001, allocate timeslot 7. |
| {0 1< TBF Starting Time >} | 0 (No TBF starting time) |

PACKET POLLING REQUEST in step 3 and 9

| Information element | Value/remark |
|---------------------|--|
| RRBP in MAC header | Set to 1 |
| ES/P in MAC header | Set to 01 : RRBP field is valid |
| < MESSAGE_TYPE > | 000100 |
| < PAGE_MODE | Normal Paging |
| { 0 < Global TFI > | |
| 10 < TLLI > | 0 (Global TFI) |
| 110 < TQI >} | DOWNLINK TFI Present |
| 1 | As allocated in the PACKET DOWNLINK ASSIGNMENT message in Step 2 and Step 8 respectively |
| DOWNLINK TFI | |
| < TYPE_OF_ACK > | 0 as four access bursts |

52.1.2.2.5 Void

52.1.2.2.6 Packet Downlink Assignment Timing Advance / TA value field not provided

52.1.2.2.6.1 Conformance requirements

For the case where a TIMING_ADVANCE_VALUE field is not provided in the assignment message, the mobile station is not allowed to send normal bursts on the uplink until it receives a valid timing advance either through the continuous timing advance procedure or in a PACKET TIMING ADVANCE/POWER CONTROL message.

Reference

3GPP TS 04.60 subclause 7.1.2.5.

52.1.2.2.6.2 Test purpose

To verify that the mobile station does not send normal bursts on the uplink until it receives a valid timing advance in a PACKET POWER CONTROL/TIMING ADVANCE message if Timing Advance Value field is not provided in the PACKET DOWNLINK ASSIGNMENT message.

52.1.2.2.6.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS, CCCH combined with SDCCH.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The SS initiates downlink data transfer by sending IMMEDIATE ASSIGNMENT on PCH. The SS sends PACKET DOWNLINK ASSIGNMENT message. The SS does not include Timing Advance in the PACKET DOWNLINK ASSIGNMENT. The SS poll MS by sending an EGPRS RLC DATA BLOCK. SS verifies for 2 seconds that MS did not answer to poll and then send a PACKET POWER CONTROL/TIMING ADVANCE message with a valid timing advance information. The SS verifies that the MS does not send any normal burst on the uplink until the SS sends a valid timing advance.

Maximum duration of the test

2 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-------------------|-------------------------------------|---|
| 1 | MS | | |
| 2a | SS -> MS | IMMEDIATE ASSIGNMENT | The SS initiate a downlink transfer of 200 octets data. For downlink TBF. Sent on PCH |
| 2 | | PACKET DOWNLINK ASSIGNMENT | Send on PACCH. No Timing Advance Value |
| 3 | SS->MS SS-> MS | | |
| | | EGPRS DOWNLINK RLC DATA BLOCK | Sent on assigned PDTCHs with a valid RRBp field. Final Blok Indicator is set to 0. |
| 4 | SS | | SS verifies that the MS not send any normal burst on the uplink. |
| 5 | SS -> MS | PACKET POWER CONTROL/TIMING ADVANCE | Include a valid Timing Advance information. Sent on PACCH. |
| 6 | SS->MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on assigned PDTCHs with a valid RRBp field. Final Blok Indicator is set to 0. |
| 7 | MS->SS | EGPRS PACKET DOWNLINK ACK/NACK | The SS verifies that the MS indicates a correct reception of downlink data blocks. Received on PACCH. |

Specific message contents

None.

52.2 Void

52.3 EGPRS Testcases for Dynamic Allocation in Packet Transfer Mode

52.3.1 Dynamic Allocation / Uplink Transfer

52.3.1.1 Dynamic Allocation / Uplink Transfer / Normal

52.3.1.1.1 Dynamic Allocation / Uplink Transfer / Normal / Successful

52.3.1.1.1.1 Conformance requirements

1. The mobile station shall set the TFI field of each uplink RLC data block to the TFI value assigned to the mobile station in the PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message.
2. Whenever the mobile station detects an assigned USF value on an assigned PDCH, the mobile station shall transmit either a single RLC/MAC block or a sequence of four RLC/MAC blocks on the same PDCH in the next block period(s). The time relation between an uplink block, which the mobile station shall use for transmission, and the occurrence of the USF value is defined in 3GPP TS 05.02. The number of RLC/MAC blocks to transmit is controlled by the USF_GRANULARITY parameter characterising the uplink TBF.
3. At two-phase access the mobile station does not include its TLLI in any RLC data block.

References

3GPP TS 04.60, subclauses 8.1.1, 8.1.1.1 and 7.1.3.3.

3GPP TS 05.02, subclause 6.3.2.2.1.

52.3.1.1.1.2 Test purposes

To verify that the MS:

1. depending on the parameter USF_GRANULARITY, transmits one or a sequence of four RLC/MAC data block(s) in the next block period(s) on the PDCH on which it has detected its corresponding assigned USF.
2. includes the assigned TFI in each uplink RLC data blocks.
3. does not include its TLLI in any RLC data block at two phase access.

52.3.1.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 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 data in RLC unacknowledged mode. The SS orders the MS to have two-phase access, in PACKET UPLINK ASSIGNMENT message the USF_GRANULARITY is set to 4 blocks. The SS sends the assigned USF assigned to the MS and checks that a sequence of four RLC/MAC data blocks in the next radio block period is received, and that each data block contains the correct TFI, but without TLLI. The SS assigns the USF assigned to the MS again. The check is repeated. The procedure is going on until the MS completes the packet data transfer.

The above test procedure is repeated once for USF_GRANULARITY set to one block.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | n =800 octets, without starting time, Message Escape bit = 1 (EGPRS) USF_GRANULARITY = 4 blocks, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING = arbitrarily chosen between MCS 1 and MCS 4 EGPRS Channel coding command arbitrarily chosen between MCS 1 and MCS 4 EGPRS Window Size: 00000 (value 64) |
| 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 | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 4 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 3. Check that the coding as specified by EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 4. Check that the coding is the scheme specified by EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 5. Check that the coding as specified by EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 7 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH, the USF not addressing the MS. |
| 8 | SS | | Check that no RLC data blocks are transmitted from the MS in the next radio block to step 7. |
| 9 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. |
| 10 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 11 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 10. Check that the TFI is correct. |
| 12 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 11. Check that the TFI is correct. |
| 13 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH in the next radio block to step 12. Check that the TFI is correct. |
| 14 | | {Completion of uplink RLC data block transfer} | USF_GRANULARITY = 4 blocks |
| 15 | | {Uplink dynamic allocation two phase access} | Similar parameter values to step 1 Except USF_GRANULARITY = 1 blocks |
| 16 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH, the USF assigned to the MS on 3 blocks from the last radio block containing the uplink assignment. |
| 17 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified in EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 18 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH, the USF not addressing the MS. |
| 19 | SS | | Check that no RLC data blocks are transmitted from the MS in the next radio block to step 18. |
| 20 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on a PDCH with any different time slot as the assigned PDCH, the USF assigned to the MS. |

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 21 | SS | | Check that no RLC data block is transmitted from the MS on the next radio block to step 20. |
| 22 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH, the USF assigned to the MS. |
| 23 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified in EGPRS Channel coding command, the TFI is correct and the block does not contain TLLI. |
| 24 | | {Completion of uplink RLC data block transfer} | USF_GRANULARITY = 1 block |

52.3.1.1.2 Void

52.3.1.1.3 Dynamic Allocation / Uplink Transfer / Normal / Starting frame number encoding

52.3.1.1.3.1 Conformance requirements

1. In case of dynamic allocation, if no uplink TBF is in progress, the MS needs not monitor the USF field until the TDMA frame number occurs. When the indicated TDMA frame number occurs, the mobile station shall immediately begin to monitor the USF field and use the new assigned uplink TBF parameters when its USF occurs.
2. If an uplink TBF is already in progress, the MS shall continue to use the parameters of the existing TBF until the TDMA frame number occurs. When the indicated TDMA frame number occurs, the mobile station shall immediately begin to monitor the USF field and use the new assigned uplink TBF parameters when its USF occurs.
3. In case of single block allocation, the mobile station shall use the assigned timeslot during the RLC/MAC block whose first TDMA burst occurs in the indicated TDMA frame number.
4. If the mobile station is in packet transfer mode during the block immediately before the starting time and the lowest numbered PDCH assigned to the MS is different immediately before and after the starting time then the mobile station shall be ready to receive or transmit no later than one radio block from the starting time.
5. If the Starting FN (in absolute frame number encoding) is not aligned to the start of a block period and the mobile station is in packet transfer mode during the TDMA immediately before the Starting FN, then the mobile station shall align the starting time to the next block boundary and continue to use the currently assigned allocation up to the next block boundary.

References

3GPP TS 04.60, subclauses 11.2.29, 12.21 and 12.21.1.

52.3.1.1.3.2 Test purposes

To verify that the MS, in transfer mode:

1. correctly uses the starting frame number description in PACKET UPLINK ASSIGNMENT, and in all subsequent RLC/MAC control messages which are sent on the uplink TBF;
2. is ready to receive or transmit no later than one radio block from the starting time;
3. is able to align the starting time to the next block boundary and continue to use the currently assigned allocation up to the next block boundary.

52.3.1.1.3.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting,.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 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 440 octets in the RLC unacknowledged mode. The IMMEDIATE ASSIGNMENT message contains a starting time for the single block allocation. It is checked that the MS uses the time slot at the assigned frame number. In the two-phase access a starting time is included in PACKET UPLINK ASSIGNMENT. The assigned USF is on a radio block before the starting time. The MS does not react upon that. The assigned USF is on one block after the starting time. The MS sends a RLC data block.

The test procedure is repeated once. The starting time is encoded in relative frame number format.

Maximum Duration of Test

5 minutes.

Expected Sequence

The expected sequence is repeated once. In the 2nd execution the starting frame numbers in the specific message contents are encoded in the relative format.

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Uplink dynamic allocation two phase access} | n = 440 octets, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: same as channel coding EGPRS Channel coding command MCS-3 The IMMEDIATE ASSIGNMENT contains starting time current frame + 1001. It is checked that PACKET RESOURCE REQUEST in the macro is sent at the starting time. The PACKET UPLINK ASSIGNMENT contains starting time specified in absolute frame number encoding, current frame + 91, The timeslot TN ₇ assigned. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS, Sent on one radio block before the starting time. |
| 3 | SS | | Check that there is no RLC data block sent by the MS on the assigned PDTCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on one block after the starting time. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding is the scheme specified by EGPRS Channel coding command in step 1, and TFI is correct. |
| 6 | | {Completion of uplink RLC data block transfer} | |

52.3.1.1.4 Dynamic Allocation / Uplink Transfer / Normal / Starting time

52.3.1.1.4.1 Conformance requirements

- 1 If a TBF starting time information element is present and no uplink TBF is in progress, but a downlink TBF is in progress, the mobile station shall wait until the starting time before beginning to monitor the USFs. While waiting for the starting time, the mobile station shall monitor the assigned PDCHs.

- 2 If an uplink TBF is already in progress, the mobile station shall continue to use the assigned parameters of the uplink TBF until the TDMA frame number indicated by the TBF starting time occurs. At that time the mobile station shall immediately begin to use the newly assigned uplink TBF parameters.
- 3 While waiting for the frame number indicated by the TBF starting time if the mobile station receives another uplink assignment, the mobile station shall act upon the most recently received uplink assignment and shall ignore the previous uplink assignment.
- 4 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 assignment message. This applies also for the reception of the first USF for dynamic uplink assignment.

References

3GPP TS 04.60, subclause 8.1.1.1, 3GPP TS 45.010 subclause 6.11.1.

52.3.1.1.4.2 Test purposes

To verify that after the MS receives an uplink assignment with starting time:

1. if a downlink TBF is in progress and no uplink TBF is in progress it monitors the assigned PDCHs while waiting for the starting time. If another uplink assignment received while waiting, the mobile station acts upon that and ignores the previous uplink assignment.
2. if an uplink TBF is already in progress, it continues to use the assigned parameters of the uplink TBF until the TDMA frame number indicated by the TBF starting time occurs. While waiting for the frame number indicated by the TBF starting time the mobile station receives another uplink assignment, the mobile station acts upon that and ignores the previous uplink assignment. As soon as the starting time occurs the MS immediately begins to use the newly assigned uplink TBF parameters.

52.3.1.1.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context2 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

A downlink TBF is established and in progress. An uplink TBF is established with a starting time which does not yet elapse. The SS sends two downlink data blocks before the starting time to the MS and signals the assigned TBF addressing the MS for uplink transfer. It is checked that no uplink RLC data blocks are sent by the MS. The SS sends PACKET TIMESLOT RECONFIGURE on three radio blocks before the starting time, assigning a new starting time. Two downlink data blocks are then sent to the MS before the new starting time occurs. Each data block contains one of the assigned USFs addressing the MS. It is checked that no uplink data blocks are sent from the MS. After the new starting time elapses the SS sends a downlink data block containing the USF assigned to the MS. The MS sends an uplink data block. The MS is brought to Idle mode.

An uplink TBF is established and in progress. The SS sends PACKET UPLINK ASSIGNMENT assigning a reconfigured PDCH with a starting time and a new USF associated. Before the starting time the SS signals the USF of the ongoing TBF addressing the MS. The SS receives an uplink data block from the MS. The SS sends UPLINK

ASSIGNMENT on three radio blocks before the starting time, assigning a new reconfigured PDCH with a starting time and a different USF associated. The later assignment overwrites the earlier one. While waiting for the frame number of the newly assigned starting time the SS signals the USF of the previous assignment on both the ongoing PDCH and on the previous assigned PDCH. The MS ignores it. The SS signals the USF of the ongoing TBF addressing the MS. An uplink data block can be received. On one radio block before the starting time the SS signals the later assigned USF assigned to the MS on the later assigned PDCH. No uplink data block is received. On one radio block after the starting time the SS signals the just expired USF. No uplink data block is received. Then the SS signals the valid USF assigned to the MS. An uplink data block is received.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|---------|----------|
|------|-----------|---------|----------|

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Downlink TBF establishment} | RLC mode: acknowledged, without starting time |
| 2 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | The data block contains FBI=0, ES/P field set to 01 and a valid RRBP, sent on the third block after the last radio block containing the downlink assignment. |
| 3 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the specified RRBP of downlink PACCH. |
| 4 | MS | | The MS is triggered to send 440 octets of user data. |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | The data block contains FBI=0 and a valid RRBP. |
| 6 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the specified RRBP of downlink PACCH. Contains Channel Request Description IE. Note : If the triggering of the uplink access involves a manual operation taking more than 5s to complete, steps 5 and 6 are repeated (until the MS does include the Channel Request Description IE) at least once every 5s in order to keep the downlink transfer active. |
| 7 | SS -> MS | PACKET UPLINK ASSIGNMENT | USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end CHANNEL_CODING_COMMAND: arbitrarily chosen. TBF Starting Time : starting time ₁ , the current frame + 104 frames, encoded in absolute frame number. The uplink TBF is assigned on the same timeslot as the downlink TBF. |
| 8 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | FBI=0, the assigned USF ₁ to the MS. Sent on downlink PDTCH, 12 data blocks (52 TDMA frames) before the starting time ₁ . |
| 9 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | FBI=0, the assigned USF ₁ to the MS. Sent on downlink PDTCH, 5 blocks before the starting time ₁ , a valid RRBP = N+13 and ES/P set to 01. |
| 10 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the specified RRBP on downlink PACCH. |
| 11 | SS -> MS | PACKET TIMESLOT RECONFIGURE | Assigned USF ₁ addressing the MS, sent on three blocks before the starting time ₁ . Assigned a new USF ₂ on the same timeslot, with starting time ₂ , current frame + 104 frames in relative frame number encoding. |
| 12 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | On 4 blocks from the last radio block containing the uplink assignment in step 11, with FBI=0, the assigned previous USF ₁ addressing the MS. Sent on downlink PDTCH. |
| 13 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | One data block with FBI=0, the assigned USF ₂ addressing the MS. Sent on downlink PDTCH, one radio block before the starting time ₂ . |
| 14 | SS | | Check that from the step 4 onwards till the starting time ₂ , there is no RLC data block sent by the MS on the assigned uplink PDTCH. |
| 15 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | One data block with FBI=0, a valid RRBP, ES/P set to 01, the assigned USF ₂ addressing the MS. Sent on downlink PDTCH, on the frame number specified in the starting time ₂ . |
| 16 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned uplink PDTCH. |
| 17 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the specified RRBP of downlink PACCH. |
| 18 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | One data block with FBI=1, ES/P set to 01 and a valid RRBP. Sent on downlink PDTCH. |
| 19 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the specified RRBP of the downlink PACCH. |
| 20 | | {Completion of uplink RLC data block transfer} | |
| 21 | | {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. EGPRS channel coding command: MCS 1 The timeslot TN ₃ assigned |

| Step | Direction | Message | Comments |
|-----------------------|-----------|--|---|
| 22 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF ₁ addressing the MS, sent on 3 blocks from the last radio block containing the uplink assignment in step 21. |
| 23 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Check that the coding is MCS 1, the TFI is correct. |
| 24 | SS -> MS | EGPRS PACKET UPLINK ACK/NACK | Assigned USF ₁ addressing the MS. |
| 25 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 26 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assign an uplink TBF on the timeslot TN ₂ , containing new TFI ₂ , USF ₂ , starting time ₃ , current frame + 117 in relative encoding. Sent on PACCH assigned. |
| 27 | SS -> MS | EGPRS PACKET UPLINK ACK/NACK | USF ₁ addressing the MS, sent on 5 radio blocks before the starting time ₃ , on PACCH assigned in step 21. |
| 28 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Check that the coding is MCS 1, the TFI is correct. |
| 29 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assign a TBF on the timeslot TN ₁ , containing new TFI ₃ , USF ₃ , MCS 3 coding, starting time ₄ , current frame + 325 in relative encoding. Sent on three radio blocks before the starting time ₃ , on PACCH assigned in step 21. |
| 30 | SS -> MS | PACKET UPLINK ACK/NACK | USF ₂ addressing the MS, sent one block after Starting Time ₃ on the PACCH assigned in step 26. |
| 31 | SS | | Check that no data block is sent from the MS on the assigned radio block on the PDTCH assigned in step 26. |
| 32 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF ₁ addressing the MS, sent on 5 radio blocks before the starting time ₄ , on PACCH assigned in step 21. |
| 33 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Check that the coding is MCS1, the TFI is correct. |
| 34 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF ₃ addressing the MS, sent on one radio block before the starting time ₄ , on PACCH assigned in step 29. |
| 35 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF ₁ addressing the MS, sent on one radio block after the starting time ₄ , on PACCH assigned in step 21. |
| 36 | SS | | Check that no data blocks are sent from the MS on the radio blocks assigned in steps 34 and 35, or any intermediate radio blocks, on any of the three PDTCHs assigned |
| 37 | SS -> MS | PACKET UPLINK ACK/NACK | Containing USF ₃ . Sent on PACCH of assigned in step 29. |
| 38 (optional step) | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned in step 29. Use coding MCS 1. If step 38 is performed, then step 39 must be performed. |
| 39 (optional step) | SS -> MS | PACKET UPLINK ACK/NACK | Only performed if step 38 is performed. Containing USF ₃ . Sent on PACCH of PDCH assigned in step 29. |
| 40 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned in step 29. Check that the coding MCS 3 and TFI ₃ are correct. |
| 41 | | {Completion of uplink RLC data block transfer} | |

52.3.1.1.5 Void

52.3.1.1.6 Dynamic Allocation / Uplink Transfer / Normal / T3180 expiry

52.3.1.1.6.1 Conformance requirements

When the mobile station transmits an RLC/MAC block to the network, it shall start timer T3180. When the mobile station detects an assigned USF value on an assigned PDCH, the mobile station shall reset timer T3180. If timer T3180 expires, the mobile station shall perform the abnormal release with random access procedure.

References

3GPP TS 04.60, subclause 8.1.1.1.

52.3.1.1.6.2 Test purposes

To verify that:

1. Timer T3180 will not expire as long as an USF for the MS under test is detected in the downlink blocks within the defined time period of the timer. (It is implicitly verified).
2. Timer T3180 expires if no USF for the MS under test is detected during a time period longer than T3180.
3. The MS performs an abnormal release with random access procedure after T3180 expires.

52.3.1.1.6.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

An uplink TBF is established and in progress. After the MS sends an uplink data block the SS repeatedly sends PACKET UPLINK ACK/NACK containing any USF and any TFI which do not address the MS for 4.5s. Before T3180 times out the SS signals the USF assigned to the MS. The MS sends a data block. Then the SS repeatedly sends PACKET UPLINK ACK/NACK containing any USF and any TFI which do not address the MS until receiving EGPRS PACKET CHANNEL REQUEST from the MS for establishment of a new TBF.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | n = 1200 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | EGPRS channel coding command : arbitrarily chosen. The USF assigned to the MS sent on 3 blocks from the last radio block containing the uplink assignment. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the TFI is correct. |
| 4 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH assigned in step 2, the USF assigned to the MS. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the TFI is correct. |
| 6 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH, containing a different TFI and USF from the assigned ones to the MS. |
| 7 | SS | | Repeat step 6 every 5 radio blocks for 4.5 s. (T3180 * 90%) the SS signals different USFs on the assigned PDCH, but none of them addressing the MS. |
| 8 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH assigned in step 2, the USF assigned to the MS. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the TFI is correct. |
| 10 | SS | | Repeat step 6 every 5 radio blocks until step 11 occurs. The maximum period for the repetition is of 8s (5s timer + two PS1 periods). None of the signalled USFs addresses the MS on the assigned PDCH. |
| 11 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH within 7.5 seconds (T3180 * 110% + PS1 repeat period) from step 9. |
| 12 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment, to order the MS making two-phase access procedure. Sent on AGCH. |
| 13 | MS -> SS | PACKET RESOURCE REQUEST | Two phase access procedure. Received on the single block assigned in step 12. |
| 14 | SS -> MS | PACKET UPLINK ASSIGNMENT | Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block, Sent on PACCH of the same PDCH assigned in step 12. |
| 15 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 14. |
| 16 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding scheme is that specified in step 14 by EGPRS channel coding command and the TFI is correct. |
| 17 | | {Completion of uplink RLC data block transfer} | |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 14:

| Information Element | value/ remark |
|----------------------------------|--|
| Message Escape bit | 1 (EGPRS) |
| EGPRS channel coding command | Arbitrarily chosen |
| Dynamic allocation | 01 |
| - Extended Dynamic Allocation | 0 (Dynamic allocation) |
| - | 0 |
| - USF granularity | 0 (1 block) |
| - {0 1<UPLINK_TFI_ASSIGNMENT>} | 1 (uplink TFI assignment) |
| - UPLINK_TFI | 00000 |
| - {0 1<RLC_DATA_BLOCKS_GRANTED>} | 0 (no RLC_DATA_BLOCKS_GRANTED, open-ended TBF) |
| - {0 1<TBF_STARTING_TIME>} | 0 (no starting time) |
| - | 0 (Timeslot Allocation Parameters) |
| | one slot arbitrarily chosen but different from the value in step 2 |

52.3.1.1.7 Dynamic Allocation / Uplink Transfer / Normal / PACCH operation

52.3.1.1.7.1 Conformance requirements

1. 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 mobile station shall not transmit an RLC data block in any uplink radio block allocated via the polling mechanism.
2. PACKET POLLING REQUEST is sent on the PCCCH or PACCH by the network to the mobile station to solicit a PACKET CONTROL ACKNOWLEDGEMENT message from the mobile station.
3. In downlink RLC/MAC control blocks, the TFI identifies the Temporary Block Flow (TBF) to which the RLC/MAC control message contained in the downlink RLC/MAC control block relates. If present, this field indicates the mobile station to which the control message is addressed, and all other mobile stations shall ignore the control message. If this field is present and the contents of the control message also contain a TFI addressing the mobile station, the mobile station shall ignore the TFI in the control message contents.

References

3GPP TS 04.60, subclauses 8.1.1.1.1, 11.2.12 and 10.4.10.

52.3.1.1.7.2 Test purposes

To verify that:

1. The MS attempts to decode every downlink RLC/MAC block on all assigned PDCHs whenever the MS receives an RLC/MAC block containing an RLC/MAC control block, the MS attempts to interpret the message contained therein, such as Payload type and TFI in the optional fields. If the message addresses the MS, it acts upon the message.
2. When receiving PACKET POLLING REQUEST on PACCH the MS responds with four PACKET CONTROL ACKNOWLEDGEMENT messages of access burst format and does not transmit an RLC data block in any uplink radio block allocated via the polling mechanism.

52.3.1.1.7.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

A TBF is established. It is polled with PACKET POLLING REQUEST containing a global TFI not addressing the MS. The assigned USF addresses the MS. The MS transmits a data block. The SS polls the MS with PACKET POLLING REQUEST containing any global TFI not addressing the MS. The message has optional octets where TFI does address the MS. The MS responds with PACKET CONTROL ACKNOWLEDGEMENT four times in access burst formats. The SS polls again the MS with PACKET POLLING REQUEST containing the global TFI addressing the MS. The MS responds with PACKET CONTROL ACKNOWLEDGEMENT four times in access burst formats.

Maximum Duration of Test

5 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: MCS 1 EGPRS channel coding command : MCS 1 |
| 2 | SS -> MS | PACKET POLLING REQUEST | the USF assigned to the MS, the TFI in the message not addressing the MS, no optional octets in RLC/MAC header, a valid RRBP |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Check the TFI is correct as assigned in step 1. |
| 4 | SS -> MS | PACKET POLLING REQUEST | NOT the USF assigned to the MS, the global TFI in the message contents NOT addressing the MS, Payload type='10' indicates the RLC/MAC header containing optional octets where TFI DOES address the MS, RBSN='0'. TYPE_OF_ACK = '0', a valid RRBP=N+13 |
| 5 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | 4 access bursts. Received on PACCH, CTRL_ACK = '10'. |
| 6 | SS -> MS | PACKET POLLING REQUEST | Not the USF assigned to the MS. The global TFI in the message contents addressing the MS. Payload type indicates the RLC/MAC header containing optional octets where TFI not addressing the MS. a valid RRBP |
| 7 | SS | | Check the MS ignores the polling . |
| 8 | SS -> MS | PACKET POLLING REQUEST | Not the USF assigned to the MS. the Global TFI addresses the MS, RLC/MAC header containing no optional octets. TYPE_OF_ACK = '0', a valid RRBP |
| 9 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | 4 access bursts, received on PACCH. |
| 10 | | {Completion of uplink RLC data block transfer} | |

52.3.1.1.8 Dynamic Allocation / Uplink Transfer / Normal / Two uplink timeslots

52.3.1.1.8.1 Conformance requirements

Mobile station belonging to multislot class 3, 5, 6, 7 and 9 – 29 shall support at least two transmit timeslots per TDMA frame (refer to 3GPP TS 05.02, clause B.1).

References

3GPP TS 05.02, clause B.1.

52.3.1.1.8.2 Test purposes

To verify that an MS belonging to EGPRS multislot class 5, 6, 7 and 9 – 29 supports an uplink TBF using two timeslots per TDMA frame.

52.3.1.1.8.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the 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 data in RLC acknowledged mode. The SS orders the MS to use two-phase access procedure, in PACKET UPLINK ASSIGNMENT two timeslots are assigned. On the same TDMA frame the SS signals to the MS the assigned USFs addressing the MS on the two assigned PDTCHs. It is checked that the two RLC/MAC data blocks in the next radio block period are received on the respective PDTCH channels and that each data block contains the correct TFI without TLLI.

The SS acknowledges the received data and assigns the USFs addressing the MS. The check is repeated. The same procedure is going on until the MS completes the packet data transfer.

Maximum Duration of Test

5 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: MCS 1 EGPRS CHANNEL CODING COMMAND: MCS 1 Two timeslots, USF ₀ on TN ₀ and USF ₁ on TN ₁ , are assigned. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF ₀ on PDTCH ₀ addressing the MS on 3 blocks from the last radio block containing the uplink assignment. |
| 3 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF ₁ on PDTCH ₁ addressing the MS, sent on the same TDMA frame as step 2. |
| 4 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₀ . Check that the coding as specified in EGPRS CHANNEL CODING COMMAND, the TFI is correct and the block does not contain TLLI. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₁ on the same TDMA frame as step 4. Check that the coding as specified in EGPRS CHANNEL CODING COMMAND, the TFI is correct and the block does not contain TLLI. |
| 6 | SS -> MS | PACKET UPLINK ACK/NACK | Assigned USF ₀ on PDTCH ₀ addressing the MS. |
| 7 | SS -> MS | PACKET UPLINK ACK/NACK | Assigned USF ₁ on PDTCH ₁ addressing the MS, sent on the same TDMA frame as step 6. |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₀ . Check that the coding as specified in EGPRS CHANNEL CODING COMMAND, the TFI is correct and the block does not contain TLLI. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₁ , on the same TDMA frame as step 8. Check that the coding as specified in EGPRS CHANNEL CODING COMMAND, the TFI is correct and the block does not contain TLLI. |
| 10 | | {Completion of uplink RLC data block transfer} | |

Specific Message Contents

None

- 52.3.1.1.9 Void
- 52.3.1.2 Dynamic Allocation / Uplink Transfer / Abnormal
 - 52.3.1.2.1 Void
 - 52.3.1.2.2 Void
 - 52.3.1.2.3 Void
- 52.3.2 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment (concurrent)
 - 52.3.2.1 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal
 - 52.3.2.1.1 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal / Successful
 - 52.3.2.1.1.1 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. On receipt of an assignment message, and after the TBF starting time, if present, the mobile station shall switch to the assigned PDCHs. The operation of the downlink TBF follows the procedures in 3GPP TS 04.60, subclause 8.1.2 with the following additions:

1. If a timer or counter expiry causes the uplink TBF to be aborted in the mobile station, the mobile station shall also abort the downlink TBF and perform an abnormal release with random access.
2. If uplink and downlink TBFs are already established, then the network may send a PACKET TIMESLOT RECONFIGURE message without DOWNLINK_TFI_ASSIGNMENT. The mobile station 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, subclauses 8.1.1.1.3 and 8.1.2.

52.3.2.1.1.2 Test purposes

To verify that during uplink transfer:

1. The MS switches to the assigned PDCHs when the network initiates a downlink TBF by sending PACKET DOWNLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE to the MS on PACCH.
2. When the MS receives PACKET TIMESLOT RECONFIGURE without DOWNLINK_TFI_ASSIGNMENT in the case of uplink and downlink TBFs established already, the MS interprets this message as a reassignment of the timeslot allocations of the concurrent uplink and downlink TBFs.
3. The MS also aborts the downlink TBF and performs an abnormal release with random access if a timer or a counter expiry causes the uplink TBF to be aborted in the MS.

52.3.2.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

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PIXIT Statements

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Test Procedure

An uplink TBF is established and in progress. After the MS sends an uplink data block the SS assigns a downlink TBF on the same timeslot as the uplink TBF. The SS sends a downlink data block with polling for acknowledgement and the assigned USF assigned to the MS for the MS, and indicates FBI=1 for the final data block. The MS sends an uplink data block and acknowledges the received downlink data block on the correct frame. The SS waits 2 s for the MS releasing the downlink PDCH. The SS sends PACKET TIMESLOT RECONFIGURE assigning a new downlink PDCH. A downlink data block is sent, the assigned USF assigned to the MS and the MS is polled for acknowledgement. The MS sends an uplink data block and acknowledges the last received downlink data block on the correct frame.

The SS sends PACKET TIMESLOT RECONFIGURE without DOWNLINK_TFI_ASSIGNMENT replacing the existing uplink and downlink PDCH with another pair of concurrent PDCH. A downlink data block is sent on the replaced PDCH and the MS is polled for acknowledgement. The MS shall not react upon it. Another downlink data block is sent on the assigned PDCH, the assigned USF assigned to the MS and the MS is polled for acknowledgement. The MS sends an uplink data block and acknowledges the received downlink data block on the correct frame.

The SS sends downlink data blocks with USF not addressing the MS until receives EGPRS PACKET CHANNEL REQUEST.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Uplink dynamic allocation two phase access} | n = 1200 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end EGPRS CHANNEL CODING COMMAND: arbitrarily chosen. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The assigned USF assigned to the MS on 3 blocks from the last radio block containing the uplink assignment. |
| 3 | MS -> SS | EGPRS 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, TFI ₂ , no starting time. |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Containing RRBp= N+13 and USF assigned to the MS. FBI='1' and ES/P set to 01. Sent on the downlink PDCH on 3 blocks from the last radio block containing the downlink assignment. |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDCH assigned in step 1. |
| 7 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the frame number = N+13, N is the frame number of the first burst of the data block in step 5. |
| 8 | SS -> MS | PACKET UPLINK ACK/NACK | Containing USF assigned to the MS |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDCH assigned in step 1. |
| 10 | SS | | Wait 2 s for T3192 timeout. |
| 11 | SS -> MS | PACKET TIMESLOT RECONFIGURE | Sent on the PACCH of the PDCH assigned in step 1. Assign a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged, single slot, TFI ₂ , no starting time. |

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 12 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Containing RRB _P = N+21 or +22 and USF assigned to the MS. FBI = '0' and ES/P field set to '01'. Sent on the downlink PDTCH assigned on 3 blocks from the last radio block containing the downlink assignment in step 11. Received on the uplink PDTCH assigned in step 1. |
| 13 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | |
| 14 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | |
| 15 | SS -> MS | PACKET TIMESLOT RECONFIGURE | Without DOWNLINK_TFI_ASSIGNMENT, Assign new uplink and downlink time slots, no starting time, sent on the PACCH of the PDCH assigned in step 11. |
| 16 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Containing USF assigned to the MS. Sent on the downlink PDTCH assigned in step 11 on 3 blocks from the last radio block containing the assignment in step 15. Check that neither data blocks, nor control blocks are sent by the MS within the next seven radio blocks. |
| 17 | SS | | |
| 18 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Containing a valid RRB _P = N+26, ES/P field set to '01' and USF assigned to the MS. Sent on the downlink PDTCH assigned in step 15. |
| 19 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDTCH assigned in step 15. |
| 20 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the block of frame number = N+26, N is the frame number of the first burst of the data block in step 18, on the PACCH of the downlink PDCH. |
| 21 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | USF not addressing the MS. |
| 22 | SS -> MS | | Repeat step 21 until receives EGPRS PACKET CHANNEL REQUEST in step 23. Received on RACH within 7.5 seconds |
| 23 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | |
| 24 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment. Sent on AGCH Two phase access procedure. Received on the single block assigned in step 24. |
| 25 | MS -> SS | PACKET RESOURCE REQUEST | |
| 26 | SS -> MS | PACKET UPLINK ASSIGNMENT | Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = 4 blocks, Sent on PACCH of the same PDCH assigned in step 24. |
| 27 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned on 3 blocks from the last radio block containing the uplink assignment in step 26. |
| 28 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received 4 consecutive data blocks |
| 29 | | {Completion of uplink RLC data block transfer} | |

Specific Message Contents

PACKET DOWNLINK ASSIGNMENT message in step 4:

| Information Element | value/ remark |
|------------------------------------|--|
| PAGE_MODE | Normal |
| {0 1<PERSISTENCE_LEVEL>} | 0 |
| - Global TFI | 0, Global TFI as reference |
| MAC_MODE | 0, uplink TFI |
| RLC_MODE | same value as assigned in the uplink in step 1 |
| CONTROL_ACK | Dynamic allocation |
| TIMESLOT_ALLOCATION | Unacknowledged |
| Packet Timing Advance | 0 |
| - {0 1<TIMING_ADVANCE_VALUE>} | 0 |
| - TIMING_ADVANCE_VALUE | Same slot number as assigned in the uplink TBF |
| - {0 1<TIMING_ADVANCE_INDEX>} | 1 |
| <TIMING_ADVANCE_TIMESLOT_NUMBER >} | 30 bit periods |
| {0 1<P0><BTS_PWR_CTR_MODE >} | 0 (no timing advance index) |
| {0 1<Frequency Parameters>} | 0 |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | 0 (no Frequency Parameters present) |
| - DOWNLINK_TFI_ASSIGNMENT | 1 (assign downlink TFI) |
| {0 1<Power Control Parameters>} | Arbitrarily chosen from valid values but different from the value for uplink TBF |
| {0 1<TBF_STARTING_TIME>} | 0 (no Power Control Parameters present) |
| {0 1<Measurement Mapping>} | 0 (no starting time) |
| {0 1 <EGPRS window size> | 0 (no starting time) |
| - < LINK QUALITY MEASUREMENT MODE> | 1 [value 00000 corresponding to 64 blocks] |
| {0 1 <BEP_PERIOD2> | 00 |
| | 0 (not considered) |

PACKET TIMESLOT RECONFIGURE message in step 11:

| Information Element | value/ remark |
|---|--|
| PAGE_MODE | Normal |
| - Global TFI | 0, Global TFI as reference |
| Message escape | 0, uplink TFI |
| EGPRS CHANNEL CODING COMMAND | same value as assigned in the uplink in step 1 |
| Resegment | 1 (EGPRS) |
| {0 1<Downlink EGPRS window size> | Arbitrarily chosen from valid values |
| {0 1<Uplink EGPRS window size> | 1 |
| <Link quality measurement mode> | 0 |
| Global packet Timing Advance | 0 |
| - {0 1<TIMING_ADVANCE_VALUE>} | 00 |
| - TIMING_ADVANCE_VALUE | 1 (timing advance value) |
| - {0 1<UPLINK_TIMING_ADVANCE_INDEX> | 30 bit periods |
| <UPLINK_TIMING_ADVANCE_TIMESLOT_NUMBER>} | 0 (no uplink timing advance index) |
| - {0 1<DOWNLINK_TIMING_ADVANCE_INDEX> | The MS stops the operation of the continuous timing advance procedure. |
| <DOWNLINK_TIMING_ADVANCE_TIMESLOT_NUMBE R>} | 0 (no downlink timing advance index) |
| DOWNLINK_RLC_MODE | The MS stops the operation of the continuous timing advance procedure. |
| CONTROL_ACK | Unacknowledged mode |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | 0 |
| - GLOBAL_TFI_ASSIGNMENT | 1 (assign a new TFI for downlink TBF) |
| {0 1<UPLINK_TFI_ASSIGNMENT>} | Arbitrarily chosen but different from the value for uplink TBF |
| DOWNLINK_TIMESLOT_ALLOCATION | TBF |
| {0 1<Frequency parameters>} | 0 |
| Dynamic allocation | 0 |
| | Same as the slot of the uplink TBF |
| | 0 |
| | 0 |

PACKET TIMESLOT RECONFIGURE message in step 15:

| Information Element | value/ remark |
|---|--|
| PAGE_MODE | Normal |
| - Global TFI | 0, Global TFI as reference 0, uplink TFI same value as assigned in the uplink in step 1 |
| EGPRS CHANNEL CODING COMMAND | Arbitrarily chosen from valid values |
| Resegment | 1 |
| {0 1}<Downlink EGPRS window size> | 0 |
| {0 1}<Uplink EGPRS window size> | 0 |
| <Link quality measurement mode> | 00 |
| 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 | Unacknowledged mode |
| CONTROL_ACK | 0 |
| {0 1}<DOWNLINK_TFI_ASSIGNMENT> | 0 |
| {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_TNx><GAMMA_TNx> | 000001 (timeslot 5 assigned) |
| - USF_TN ₅ | Arbitrarily chosen but different from current value |
| - GAMMA_TN ₅ | 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: +6 dBm For PCS 1 900: +6 dBm |
| | 00 |

52.3.2.1.2 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Normal / Multislot capabilities

52.3.2.1.2.1 Conformance requirements

1. Mobile station belonging to multislot class 2, 3, 4, 5, 6, 8, 9, 10, 19 and 24 shall support as many uplink and downlink timeslots as indicated in 3GPP TS 05.02 clause B.1.
2. If transmission of the PACKET CONTROL ACKNOWLEDGEMENT would result in more than the maximum Tx timeslots per TDMA frame allowed by the multislot class, transmission of the highest numbered PDCH(s) shall be omitted.

References

3GPP TS 05.02, clause B.1.

3GPP TS 04.60, subclause 8.6.

52.3.2.1.2.2 Test purposes

To verify that the EGPRS multislot MS supports as many uplink and downlink TBFs per TDMA frame as indicated. Especially, it is verified that the Type 1 MS in a EGPRS multislot class declared has the capability of supporting:

1. T_{tb} , the minimum number of slots allowed between the end of the previous transmit or receive TS and the next transmit TS when measurement is to be performed for type 1 MS;
2. T_{ra} , the minimum number of slots allowed between the previous transmit or receive TS and the next receive TS when measurement is to be performed for type 1 MS;
3. the maximum number of Rx and Tx supported;
4. the sum of slots supported.

It is also verified that the MS of a EGPRS multislot class transmits PACKET CONTROL ACKNOWLEDGEMENT when polled, and omits the transmission of the highest numbered PDCH(s) if the transmission would result in more than the maximum Tx timeslots per TDMA frame allowed by the EGPRS multislot class.

52.3.2.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

-

Test Procedure

The following EGPRS multislot configurations are tested in the test case:

- Class 2 and 3 support two downlink timeslots and one uplink timeslot, $T_{tb}=2$, $T_{ra}=3$;
- Class 4 and 6 support three downlink timeslots and one uplink timeslot, $T_{tb}=1$, $T_{ra}=3$;
- Class 5 and 9 supports two downlink timeslots and two uplink timeslots, $T_{tb}=1$, $T_{ra}=3$;
- Class 8 and 10 support four downlink timeslots and one uplink timeslot, $T_{tb}=1$, $T_{ra}=2$;
- Class 19 and 24 support five downlink timeslots and one uplink timeslot, $T_{tb}=1$, $T_{ra}=2$.

In the multislot configurations all assigned channels are frequency hopped except for the class 19 and 24 test where non-hopping channels are assigned for PDCHs. The class 3, 6, 9 and 10 are tested in a reduced uplink configuration.

According to the multislot configurations an uplink TBF with one or two timeslots assigned is established and in progress. The SS establishes a concurrent downlink TBF with multiple timeslots assigned.

On the 1st radio block the SS sends downlink data in the maximum capability allowed under the configuration, signals to the MS the assigned USFs addressing the MS and polls the MS. On the 2nd radio block the MS sends RLC data in response of the addressing the MS USFs. On the 6th radio block the SS sends downlink data in the maximum capability allowed under the configuration and signals to the MS the assigned USFs addressing the MS. On the 7th radio block the MS responses EGPRS PACKET DOWNLINK ACK/NACK and sends RLC data in response of one of the USFs addressing the MS if the configuration is allowed.

The basic test procedure is repeated until CV=1. The SS sends the last RLC data block with FBI=1 and polls the MS for acknowledgement. The SS sends PACKET UPLINK ACK/NACK setting FINAL_ACK_INDICATION=1. The MS sends two separate PACKET CONTROL ACKNOWLEDGEMENT messages to release the uplink and downlink TBFs.

Maximum Duration of Test

5 minutes.

Expected Sequence for EGPRS multislot class 2 and class 3 (2 downlink timeslots + 1 uplink time slot)

| 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: MCS1 EGPRS CHANNEL CODING COMMAND: MCS1 An uplink timeslot is assigned (see specific message contents). |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 1. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDTCH. |
| 4 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH of the uplink PDCH. Assigning a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged mode, TFI _d (different from the uplink one), no starting time, assigning TN ₁ and TN ₂ . Sent on TN ₁ of the downlink PDTCH, RRBP invalid. |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | |
| 6 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH, a valid RRBP = N + 26, the assigned USF assigned to the MS, and ES/P field set to '01' on the same radio block as step 5. |
| 7 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDTCH, on the next radio block from step 6. |
| 8 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the downlink PDTCH, RRBP invalid, on five radio blocks after step 6. |
| 9 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH, the assigned USF assigned to the MS and RRBP invalid, on the same radio block as in step 8. Note: The next uplink radio will not be used for the uplink data. It is reserved for a control block answering the polling in step 6. |
| 10 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the RRBP block on TN ₂ specified in step 6. |
| 11 | | | Repeat step 5 to 10, until CV=0 in step 7. |
| 12 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ with FBI = 1 and a valid RRBP=N+26 and ES/P field set to '01'. |
| 13 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = 1. Sent on TN ₂ PACCH of the uplink PDCH. With a valid RRBP=N+13 |
| 14 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | CTRL_ACK = 11. The MS releases the uplink TBF. |
| 15 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBP in step 12. CTRL_ACK = 11. The MS releases the downlink TBF. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 1 (in macro):

| Information Element | value/remark |
|-------------------------|--|
| Timeslot Allocation | 0 Timeslot Allocation without Power Control Parameters |
| - { 0 1 < USF_TN2 > } | 1 USF not assigned |
| - USF_TN2 | Arbitrarily chosen (default 000) |

PACKET DOWNLINK ASSIGNMENT message in step 4:

| Information Element | value/ remark |
|------------------------------------|---|
| PAGE_MODE | Normal |
| {0 1<PERSISTENCE_LEVEL>} | 0 |
| - Global TFI | 0, Global TFI as reference 0, uplink TFI same value as assigned in the uplink in step 1 |
| MAC_MODE | Dynamic allocation |
| RLC_MODE | Unacknowledged |
| CONTROL_ACK | 0 |
| TIMESLOT_ALLOCATION | Timeslot 1 and 2 assigned |
| Packet Timing Advance | |
| - {0 1<TIMING_ADVANCE_VALUE>} | 1 |
| - TIMING_ADVANCE_VALUE | 30 bit periods |
| - {0 1<TIMING_ADVANCE_INDEX> | 0 (no timing advance index) |
| <TIMING_ADVANCE_TIMESLOT_NUMBER >} | |
| {0 1<P0><BTS_PWR_CTR_MODE >} | 0 |
| {0 1<Frequency Parameters>} | 0 (no Frequency Parameters present) |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | 1 (assign downlink TFI) |
| - DOWNLINK_TFI_ASSIGNMENT | Arbitrarily chosen from valid values but different from the value for uplink TBF |
| {0 1<Power Control Parameters>} | 0 (no Power Control Parameters present) |
| {0 1<TBF_STARTING_TIME>} | 0 (no starting time) |
| {0 1<Measurement Mapping>} | 0 (no starting time) |
| {0 1 <EGPRS window size> | 1 [value 00000 corresponding to 64 blocks] |
| - < LINK QUALITY MEASUREMENT MODE> | 00 |
| {0 1 <BEP_PERIOD2> | 0 (not considered) |

Expected Sequence for EGPRS multislot class 4 and 6 (3 downlink timeslots + 1 uplink timeslot)

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | n = 330 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1 EGPRS CHANNEL CODING COMMAND: MCS1 An uplink timeslot is assigned (see specific message contents). |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 1. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDTCH. |
| 4 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH of the uplink PDCH. Assigning a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged mode, TFI _d (different from the uplink one), no starting time, assigning the timeslots TN ₁ , TN ₂ and TN ₃ . |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the downlink PDTCH, RRBP invalid. |
| 6 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH, the assigned USF assigned to the MS and a valid RRBP = N + 26, and ES/P field set to '01' on the same radio block as step 5. |
| 7 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the downlink PDTCH, RRBP invalid, on the same radio block as step 5. |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the uplink PDTCH, on the next radio block from step 5. |
| 9 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the downlink PDTCH, RRBP invalid, on five radio blocks after step 6. |
| 10 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH, the assigned USF assigned to the MS and an invalid RRBP, on the same radio block as step 9. Note: The next uplink radio block will not be used for the uplink data. It is reserved for a control block answering the polling in step 6. |
| 11 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the downlink PDTCH, RRBP invalid, on the same radio block as step 9. |
| 12 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the RRBP block on TN ₂ specified in step 6. |
| 13 | | | Repeat step 5 to 12, until CV=0 in step 8. |
| 14 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ with FBI = 1 and a valid RRBP=N+26 and ES/P field set to '01'. |
| 15 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = 1. Sent on PACCH of the uplink PDCH. With a valid RRBP=N+13 |
| 16 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | CTRL_ACK = 11. The MS releases the uplink TBF. |
| 17 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBP in step 14. CTRL_ACK = 11. The MS releases the downlink TBF. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 1 (in macro):

Same as in the test for the multiclass 2 and 3.

PACKET DOWNLINK ASSIGNMENT message in step 4:

Same as in the test for the multiclass 2 and 3 except.

| Information Element | value/ remark |
|---------------------|------------------------------|
| TIMESLOT_ALLOCATION | Timeslot 1, 2 and 3 assigned |

Expected Sequence for EGPRS multislot class 5, 9 (2 downlink timeslots + 2 uplink timeslots)

| 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: MCS1 EGPRS CHANNEL CODING COMMAND: MCS1 Two uplink timeslots are assigned (see specific message contents). |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF ₁ assigned to the MS. Sent in TN ₁ on PACCH of PDCH assigned in step 1. |
| 3 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF ₂ assigned to the MS. Sent in TN ₂ on the same radio block as step 2, on PACCH of PDCH assigned in step 1. |
| 4 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₁ on the PDTCH assigned in step 1. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₂ on the same radio block as step 4, on PDTCH assigned in step 1. |
| 6 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH of PDCH assigned in step 1. Assign a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged mode, TFI _d , no starting time, assigning the timeslots TN ₁ and TN ₂ . |
| 7 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the downlink PDTCH, RRB _P invalid, the assigned USF ₁ addressing the MS. |
| 8 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH, a valid RRB _P = N + 26, the assigned USF ₂ addressing the MS, and ES/P field set to '01' on the same radio block as step 7. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₁ on the next radio block from step 7. |
| 10 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₂ on the next radio block from step 7. |
| 11 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the downlink PDTCH on five radio block after step 7, an invalid RRB _P , the assigned USF ₁ addressing the MS. |
| 12 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the downlink PDTCH on the same radio block as step 11, an invalid RRB _P , the assigned USF ₂ addressing the MS. |
| 13 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₁ on the PDTCH assigned in step 1. |
| 14 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the RRB _P block on TN ₂ specified in step 8. |
| 15 | | | Repeat step 7 to 14, until CV=0 in step 9, 10 or 13. |
| 16 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ with FBI = 1 and a valid RRB _P =N+26 and ES/P field set to '01'. |
| 17 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = 1. Sent on PACCH of the uplink PDCH. With a valid RRB _P =N+13 |
| 18 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | CTRL_ACK = 11. The MS releases the uplink TBF. |
| 19 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRB _P in step 16. CTRL_ACK = 11. The MS releases the downlink TBF. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 1 (in macro):

Same as in the test for the multiclass 2 and 3 except.

| Information Element | value/ remark |
|-------------------------|--|
| Timeslot Allocation | 0 Timeslot Allocation without Power Control Parameters |
| - { 0 1 < USF_TN1 > } | 1 (timeslot 1 assigned) Arbitrarily chosen |
| - { 0 1 < USF_TN2 > } | 1 (timeslot 2 assigned) Arbitrarily chosen but different from USF_TN1 |

PACKET DOWNLINK ASSIGNMENT message in step 10:

Same as in the test for the multiclass 2 and 3.

Expected Sequence for EGPRS multislot class 8, 10 (4 downlink timeslots + 1 uplink timeslot)

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Uplink dynamic allocation two phase access} | n = 220 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1 EGPRS CHANNEL CODING COMMAND: MCS1 1 uplink timeslot is assigned (see specific message contents). |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent in TN ₃ on PACCH of PDCH assigned in step 1. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₃ on the PDTCH. |
| 4 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH of PDCH assigned in step 1. Assign a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged mode, four slots TN ₁ – TN ₄ , TFI _d , no starting time. |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the PDTCH assigned in step 4, with an invalid RRBp |
| 6 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the PDTCH assigned in step 4, an invalid RRBp on the same radio block as step 5. |
| 7 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the PDTCH assigned in step 4, the assigned USF assigned to the MS, a valid RRBp = N + 26, and ES/P field set to '01' on the same radio block as step 5. |
| 8 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₄ of the PDTCH assigned in step 4, an invalid RRBp, on the same radio block as step 5. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₃ on the PDTCH assigned in step 1, on the next radio block from step 5. |
| 10 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the PDTCH assigned in step 4, with an invalid RRBp, on five radio blocks after step 5. |
| 11 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the PDTCH assigned in step 4, an invalid RRBp, on the same radio block as step 10. |
| 12 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the PDTCH assigned in step 4, the assigned USF assigned to the MS, on the same radio block as step 10. Note: The next uplink radio block will not be used for the uplink data. It is reserved for a control block answering the polling in step 7. |
| 13 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₄ of the PDTCH assigned in step 4, an invalid RRBp, on the next radio block as step 10. |
| 14 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the RRBp block of TN ₃ specified in step 7, on the next radio block from step 10. |
| 15 | | | Repeat step 5 to 14, until CV=0 in step 9. |
| 16 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ with FBI = 1 and a valid RRBp=N+26. |
| 17 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = 1. Sent on PACCH of the uplink PDCH. With a valid RRBp=N+13 |
| 18 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | CTRL_ACK = 11. The MS releases the uplink TBF. |
| 19 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBp in step 16. CTRL_ACK = 11. The MS releases the downlink TBF. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 1:

Same as in the test for the multiclass 2 and 3 except that instead of timeslot 2, the timeslot 3 is assigned.

PACKET DOWNLINK ASSIGNMENT message in step 4:

Same as in the test for the EGPRS multiclass 2 and 3 except 4 timeslots assigned.

| Information Element | value/ remark |
|---------------------|--|
| TIMESLOT_ALLOCATION | TN ₁ – TN ₄ assigned |

Expected Sequence for multislot class 19, 24 (5 downlink + 2 uplink timeslots)

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | n = 160 octets, without starting time, without frequency hopping, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1 EGPRS CHANNEL CODING COMMAND: MCS1 1 uplink timeslot is assigned (see specific message contents). |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The assigned USF assigned to the MS, sent in TN ₃ on PACCH of PDCH assigned in step 1. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₃ on the PDTCH assigned in step 1. |
| 4 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH of PDCH assigned in step 1. Assign a downlink TBF, MAC mode = dynamic allocation, RLC mode = unacknowledged mode, TN ₁ – TN ₅ assigned, TFI _d , no starting time. |
| 5 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the PDTCH assigned in step 4, with an invalid RRBp. |
| 6 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the PDTCH assigned in step 4, with an invalid RRBp, on the same radio block as step 5. |
| 7 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the PDTCH assigned in step 4, the assigned USF assigned to the MS, a valid RRBp = N + 26, and ES/P field set to '01' on the same radio block as step 5. |
| 8 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₄ of the PDTCH assigned in step 4, with an invalid RRBp, on the same radio block as step 5. |
| 9 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₅ of the PDTCH assigned in step 4, with an invalid RRBp, on the same radio block as step 5. |
| 10 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on TN ₃ on the PDTCH assigned in step 5, on the next radio block from step 5. |
| 11 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₁ of the PDTCH assigned in step 4, with an invalid RRBp on five radio blocks from step 5. |
| 12 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₂ of the PDTCH assigned in step 4, with an invalid RRBp on the same radio block as step 11. |
| 13 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ of the PDTCH assigned in step 4, the assigned USF assigned to the MS, with an invalid RRBp on the same radio block as step 11. Note: The next uplink radio block will not be used for the uplink data. It is reserved for a control block answering the polling in step 7. |
| 14 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₄ of the PDTCH assigned in step 4, with an invalid RRBp on the same radio block as step 11. |
| 15 | SS - MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₅ of the PDTCH assigned in step 4, with an invalid RRBp on the same radio block as step 11. |
| 16 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the RRBp block of TN ₃ specified in step 7. |
| 17 | | | Repeat step 5 to 16, until CV=0 in step 10. |
| 18 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Sent on TN ₃ with FBI = 1 and a valid RRBp=N+26 and ES/P field set to '01'. |
| 19 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = 1. Sent on PACCH of the uplink PDCH. With a valid RRBp=N+13 |
| 20 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | CTRL_ACK = 11. The MS releases the uplink TBF. |
| 21 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBp in step 16. CTRL_ACK = 11. The MS releases the downlink TBF. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 1:

Same as in the test for the multiclass 2 and 3 except

| Information Element | value/ remark |
|---|---|
| {0 1<Frequency Parameters> - TSC - - ARFCN | 1 (frequency parameters presents) 6 00, non hopping For GSM 900: 30 For GSM 400: 270 For GSM 700 and T-GSM 810: 467 For GSM 850: 190 For DCS 1800 and PCS 1 900: 650 |
| Dynamic allocation - {0 1<USF_TN0>} ... {0 1<USF_TN3>} - USF_TN3 - | 01 0001 arbitrarily chosen 0000, none of the other timeslots assigned. |

PACKET DOWNLINK ASSIGNMENT message in step 4:

Same as in the test for the multiclass 2 and 3 except 5 timeslots assigned.

| Information Element | value/ remark |
|---------------------|--|
| TIMESLOT_ALLOCATION | TN ₁ – TN ₅ assigned |

52.3.2.2 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal

52.3.2.2.1 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal / with random access

52.3.2.2.1.1 Conformance requirements

1. If a failure occurs on the mobile station side before the new TBF has been successfully established, the newly reserved resources are released.
2. If the information in the PACKET TIMESLOT RECONFIGURE does not properly specify an uplink and downlink PDCH or violates the mobile station's multislot capabilities, the mobile station shall perform an abnormal release with random access.
3. If uplink and downlink TBFs are not already established and the PACKET TIMESLOT RECONFIGURE message does not include a DOWNLINK_TFI_ASSIGNMENT field, then the mobile station shall perform an abnormal release with random access.
4. If a failure in the PACKET TIMESLOT RECONFIGURE is due to any other reason, the mobile station shall abort the procedure and perform an abnormal release with random access.
5. If the mobile station receives a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message specifying frequencies that are not all in one frequency band then the mobile station shall perform an abnormal release with random access.
6. To perform an abnormal release with random access, the mobile station shall abort all TBFs in progress and its associated resources, return to the CCCH or PCCCH and initiate establishment of a new uplink TBF.

References

3GPP TS 04.60, subclauses 8.1.1.1.3.1, 8.1.1.1.2.1 and 8.7.2.

52.3.2.2.1.2 Test purposes

To verify that the MS, in downlink TBF establishment during uplink transfer, performs an abnormal release with random access, when the information in the PACKET TIMESLOT RECONFIGURE:

1. does not properly specify an uplink and downlink PDCH;
2. violates the mobile station's EGPRS multislot capabilities;
3. does not include a DOWNLINK_TFI_ASSIGNMENT field;
4. has a failure due to any other reason other than the reasons listed above.

52.3.2.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The SS sends PACKET TIMESLOT RECONFIGURE for establishment a downlink TBF. A failure occurs at the mobile station side before the new downlink TBF has been successfully established. The MS starts a random access for uplink establishment. The SS assigns a new uplink PDCH to the MS. The SS signals the USF of the preceding uplink TBF addressing the MS on the preceding PDCH which shall have been released by the MS. It is checked that no RLC data block is received on the next three radio blocks. The SS signals the assigned USF assigned to the MS on the uplink PDCH assigned. The MS sends a RLC data block.

The test procedure is repeated 4 times. The message contents of PACKET TIMESLOT RECONFIGURE are varied as defined below.

1st execution, improper PDCH: hopping frequencies not all in one band.

2nd execution, violating the EGPRS multislot capabilities.

3rd execution, no DOWNLINK_TFI_ASSIGNMENT.

4th execution, CONTROL_ACK = '1' (shall be set to '0' as the SS has not yet sent the final EGPRS DOWNLINK RLC DATA BLOCK).

Maximum Duration of Test

10 minutes.

Expected Sequence

The sequence is repeated 4 times. The 2nd execution is not applicable for the MS EGPRS multislot class 18, 29.

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Uplink dynamic allocation two phase access} | n = 300 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end EGPRS CHANNEL CODING COMMAND: arbitrarily chosen. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The assigned USF assigned to the MS |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding and the TFI are correct. |
| 4 | SS -> MS | PACKET TIMESLOT RECONFIGURE | See specific message contents. |
| 5 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. |
| 6 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment, to force the MS making the two-phase access procedure. Sent on PAGCH. |
| 7 | MS -> SS | PACKET RESOURCE REQUEST | Two phase access procedure. Received on the single block assigned in step 6. |
| 8 | SS -> MS | PACKET UPLINK ASSIGNMENT | Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block, the assigned slot and USF different from TN ₂ (as in the default) |
| 9 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS in step 1, sent on TN ₂ , on PACCH in step 1. |
| 10 | SS | | Check that no RLC data block is received on the next three radio blocks from step 9. |
| 11 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS sent on the PACCH assigned in step 8. |
| 12 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the correct radio block of the assigned PDTCH. |
| 13 | | {Completion of uplink RLC data block transfer} | |

Specific Message Contents

PACKET TIMESLOT RECONFIGURE message in step 4 (1st execution)

| Information Element | value/ remark |
|--|--|
| PAGE_MODE | Normal |
| GLOBAL_TFI | 0, the TFI value of the uplink TBF assigned 0 |
| EGPRS CHANNEL CODING COMMAND | arbitrarily chosen from valid values |
| Resegment | 1 |
| {0 1<Downlink EGPRS window size> | 0 |
| {0 1<Uplink EGPRS window size> | 0 |
| <Link quality measurement mode> | 00 |
| DOWNLINK_RLC_MODE | unacknowledged mode |
| CONTROL_ACK | 0 |
| {0 1<DOWNLINK_TFI_ASSIGNMENT> | 1 (assign TFI to the downlink TBF) |
| - DOWNLINK_TFI_ASSIGNMENT | arbitrarily chosen but different from the value for the uplink TBF |
| {0 1<UPLINK_TFI_ASSIGNMENT> | 0 |
| DOWNLINK_TIMESLOT_ALLOCATION | The same timeslot as the uplink |
| {0 1<Frequency Parameters>} | 1 (frequency parameters) |
| - TSC | Any valid value |
| - | 11 (Direct encoding 2) |
| - MAIO | arbitrarily chosen from (0, 1, 2,...,9) |
| - HSN | arbitrarily chosen |
| - Length of MA Frequency List contents | 10 |
| - MA Frequency List contents | containing ARFCNs 10, 20, 40, 80, 90, 137, 447, 520, 590, 600, 700, 780 by range 1024 format |
| 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) |
| - | 0 (Timeslot Allocation) |
| - {0 1<USF_TN>} | 001 (timeslot 2 assigned) |
| - USF_TN ₂ | Arbitrarily chosen but different from the current value 00000 |

PACKET TIMESLOT RECONFIGURE message in step 4 (2nd execution)

| Information Element | value/remark |
|----------------------------------|--|
| PAGE_MODE | Normal |
| GLOBAL_TFI | 0, the TFI value of the uplink TBF assigned 0 |
| EGPRS CHANNEL CODING COMMAND | arbitrarily chosen from valid values |
| Resegment | 1 |
| {0}1<Downlink EGPRS window size> | 0 |
| {0}1<Uplink EGPRS window size> | 0 |
| <Link quality measurement mode> | 00 |
| DOWNLINK_RLC_MODE | unacknowledged mode |
| CONTROL_ACK | 0 |
| {0}1<DOWNLINK_TFI_ASSIGNMENT> | 1 (assign TFI to the downlink TBF) |
| - DOWNLINK_TFI_ASSIGNMENT | arbitrarily chosen but different from the value for the uplink TBF |
| {0}1<UPLINK_TFI_ASSIGNMENT> | 0 |
| DOWNLINK_TIMESLOT_ALLOCATION | Timeslots 0-7 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) |
| - | 0 (Timeslot Allocation) |
| - {0}1<USF_TN0> | 1, a valid value |
| - {0}1<USF_TN1> | 1, a valid value |
| - {0}1<USF_TN2> | 1, a valid value |
| - {0}1<USF_TN3> | 1, a valid value |
| - {0}1<USF_TN4> | 1, a valid value |
| - {0}1<USF_TN5> | 1, a valid value |
| - {0}1<USF_TN6> | 1, a valid value |
| - {0}1<USF_TN7> | 1, a valid value |

PACKET TIMESLOT RECONFIGURE message in step 4 (3rd execution)

| Information Element | value/remark |
|---------------------------------|--|
| PAGE_MODE | Normal |
| GLOBAL_TFI | 0, the TFI value of the uplink TBF assigned 0 |
| EGPRS CHANNEL CODING COMMAND | arbitrarily chosen from valid values |
| DOWNLINK_RLC_MODE | unacknowledged mode |
| CONTROL_ACK | 0 |
| {0}1<DOWNLINK_TFI_ASSIGNMENT> | 0, no DOWNLINK_TFI_ASSIGNMENT |
| {0}1<UPLINK_TFI_ASSIGNMENT> | 0 |
| DOWNLINK_TIMESLOT_ALLOCATION | The same timeslot as the uplink |
| {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) |
| - | 0 (Timeslot Allocation) |
| - {0}1<USF_TN> | 001 (timeslot 2 assigned) |
| - USF_TN ₂ | Arbitrarily chosen but different from the current value 00000 |

PACKET TIMESLOT RECONFIGURE message in step 4 (4th execution):

Same as in 3rd execution except

| Information Element | value/remark |
|---------------------|--------------|
| CONTROL_ACK | 1 |

52.3.2.2.2 Dynamic Allocation / Uplink Transfer with Downlink TBF establishment / Abnormal / Continuation of normal operation

52.3.2.2.2.1 Conformance requirements

1. If a failure occurs on the mobile station side before the new TBF has been successfully established, the newly reserved resources are released.
2. If a failure in the PACKET DOWNLINK ASSIGNMENT is due to any reason, the mobile station shall abort the procedure and continue the normal operation of the uplink TBF.

References

3GPP TS 04.60, subclauses 8.1.1.1.3.1 and 8.7.

52.3.2.2.2.2 Test purposes

To verify that the MS aborts the downlink TBF establishment and continues the normal operation of the uplink TBF when the PACKET DOWNLINK ASSIGNMENT fails due to any reason in downlink TBF establishment during uplink transfer.

52.3.2.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context3 activated.

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The SS sends PACKET DOWNLINK ASSIGNMENT assigning a downlink TBF while a fault occurs in the downlink assignment message.

The SS sends a EGPRS DOWNLINK RLC DATA BLOCK on the downlink PDCH assigned and polls the MS for acknowledgement. It is checked that no EGPRS PACKET DOWNLINK ACK/NACK is received. The SS signals the assigned USF assigned to the MS on the uplink PDCH assigned. The MS sends a RLC data block.

Maximum Duration of Test

5 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 EGPRS CHANNEL CODING COMMAND: arbitrarily chosen. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The assigned USF assigned to the MS |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 4 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | See specific message contents |
| 5 | SS -> MS | EGPRS DOWNLINK RLC DATA BLOCK | Containing RRBP= N+13, and ES/P field set to '01'. Sent on the downlink PDTCH assigned in step 4. TFI is set to the uplink one; |
| 6 | SS | | Check that no EGPRS PACKET DOWNLINK ACK/NACK received on the block of frame number = N+13, N is the frame number of the first burst of the data block in step 5. |
| 7 | SS -> MS | PACKET UPLINK ACK/NACK | The USF assigned to the MS. Sent on PACCH of the uplink PDCH assigned. |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 9 | | {Completion of uplink RLC data block transfer} | |

Specific Message Contents

PACKET DOWNLINK ASSIGNMENT message in step 4

| Information Element | value/ remark |
|--------------------------------|----------------------------------|
| Referenced Address | |
| - | 0 (address is Global TFI) |
| - TFI | same as the value for uplink TBF |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | L (no downlink TFI assignment) |

52.3.3 Dynamic Allocation / Resource reallocation

52.3.3.1 Dynamic Allocation / Resource reallocation / Successful

During an uplink packet transfer, upper layer may request to transfer another LLC PDU with a different Radio Priority, a different peak throughput class or a different RLC mode than the current one, the MS may require the allocation of new uplink resources.

52.3.3.1.1 Dynamic Allocation / Resource reallocation / Successful / Higher throughput class or higher radio priority

52.3.3.1.1.1 Conformance requirements

1. During an uplink packet transfer, upper layer may request to transfer another LLC PDU. If the mobile station has not started the countdown procedure and the new LLC PDU has the same RLC mode as the current uplink TBF and either a higher radio priority or the same radio priority but a higher peak throughput class, the mobile station shall immediately request a resource reallocation for uplink according to the new Radio Priority and peak throughput class of the new LLC PDU by sending a PACKET RESOURCE REQUEST message on the PACCH and starting timer T3168.
2. Then the mobile station shall complete the transmission of the current LLC PDU.
3. After the transmission of the PACKET RESOURCE REQUEST message with the reason for changing the priority or peak throughput class of an assigned uplink TBF the mobile station shall continue to use the currently assigned uplink TBF assuming that the requested priority or peak throughput class is already assigned to that TBF.

References

3GPP TS04.60 subclause 8.1.1.1.2.

52.3.3.1.1.2 Test purposes

It is verified that:

1. Having an uplink TBF in progress without starting the countdown procedure, the MS will immediately send PACKET RESOURCE REQUEST if upper layer requests to transfer another LLC PDU which has the same RLC mode as the current uplink TBF and either a higher radio priority or the same radio priority but a higher peak throughput class.
2. After the request of the resource reallocation for uplink the MS completes the transmission of the current LLC PDU independent of whether or not a new resource is allocated.
3. After the transmission of the PACKET RESOURCE REQUEST the MS continues to use the currently assigned uplink TBF.

52.3.3.1.1.3 Method of test

Initial Conditions

System Simulator:

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

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context3 and context6 activated;

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer data with a higher throughput in the same RLC mode and the same radio priority.

The MS sends PACKET RESOURCE REQUEST. The current TBF is maintained and SS assigns the USFs allowing the MS transmit more data blocks. It is verified that the MS completes the transmission of the current LLC PDU and then starts transmitting a new LLC PDU with the higher throughput. A new PDCH is assigned to MS to complete the RLC data block transferring.

The test procedure is executed twice. In the 2nd execution, after the MS requests a resource reallocation for transferring the data block with a higher throughput a new PDCH is assigned. It is verified that the MS switches on the new PDCH, completes the transmission of the current LLC PDU and then starts transmitting a new LLC PDU with the higher throughput.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is executed twice for k = 1 and 2.

When k=1 testing that the MS continues to use the currently assigned uplink TBF, while k=2 testing that the MS to use newly assigned the resource to complete transmission of the current PDU before starting transmission the PDU with a higher radio priority or a higher throughput.

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | | {Uplink dynamic allocation two phase access} | n = 440 octets in test PDP context3, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1, EGPRS CHANNEL CODING COMMAND: MCS1, PEAK_THROUGHPUT_CLASS = 5 (16k octets/s), RADIO_PRIORITY = 4, RLC_MODE = unacknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 4 | MS | | To trigger the MS to transfer 440 octets with the peak throughput class 6 (32k octets/s) in the same RLC mode and the same radio priority as the current uplink TBF (test PDP context6). |
| 5 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 6 | MS -> SS | PACKET RESOURCE REQUEST OR EGPRS UPLINK RLC DATA BLOCK | PACKET RESOURCE REQUEST received on the PACCH of the assigned PDCH, radio priority level = 4, peak throughput class = 6, unacknowledged mode. OR EGPRS UPLINK RLC DATA BLOCK received on the assigned PDTCH. Check that the coding and the TFI is correct. |
| 6-1 | | | Repeat Steps 5,6 until PACKET RESOURCE REQUEST is received at Step 6. |
| 7 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned, the USF assigned to the MS. |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK OR PACKET RESOURCE REQUEST | EGPRS UPLINK RLC DATA BLOCK received on the assigned PDTCH. Check that the coding and the TFI are correct. OR Retransmitted PACKET RESOURCE REQUEST received on the PACCH |
| 9 | SS | | For k=1 Repeat step 7 and 8 until the 2 nd LLC PDU in PDP context6 is started. Observe the Length indicator, Mbit and E bit of the received data headers. |
| 10 | SS -> MS | PACKET UPLINK ACK/NACK | For k=2 Continue to step 10. Sent on the PACCH of the PDCH assigned, acknowledge all received data, without setting FINAL_ACK_INDICATION. |
| 11 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on PACCH of the PDCH assigned in step 1, assigning a new PDCH. |
| 12 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 11, the USF assigned to the MS. |
| 13 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned in step 11. |
| 14 | | {Completion of uplink RLC data block transfer} | For k=1, as defined in the macro. For k=2, Observe the Length indicators, and E bit of the received data headers. Check that the MS completes firstly the transmission of the 1 st LLC PDU in PDP context3 and then transmits the 2 nd LLC PDU in PDP context6. |

Specific Message Contents

PACKET RESOURCE REQUEST message in step 6:

| Information Element | value/ remark |
|-----------------------------|----------------------|
| Channel Request Description | |
| - PEAK_THROUGHPUT_CLASS | 6 |
| - RADIO_PRIORITY | 4 |
| - RLC_MODE | Unacknowledged mode |
| - LLC_PDU_TYPE | 1 (not SACK or ACK) |
| - RLC_OCTET_COUNT | Any value |

PACKET UPLINK ASSIGNMENT message in step 11:

| Information Element | value/ remark |
|--|--|
| PAGE_MODE | Normal |
| {0 1 <PERSISTENCE_LEVEL> | 0 |
| - Uplink TFI | 0, Global TFI Same as the current value |
| EGPRS CHANNEL CODING COMMAND | MCS-1 |
| - Resegment | 0 |
| <EGPRS window size> | 00000 (64 blocks) |
| TLLI_BLOCK_CHANNEL_CODING | MCS-1 |
| {0 1 <BEP_PERIOD2>} | 0 |
| <Packet Timing Advance> | As default |
| {0 1 <Packet extended Timing advance>} | 0 |
| {0 1 <Frequency Parameters> | 0 |
| Dynamic allocation | 01 |
| - | 000000 |
| - | 0 (Timeslot Allocation) |
| - | 00000001 (timeslot 7 assigned) |
| - USF_TN7 | Arbitrarily chosen |

52.3.3.1.2 Dynamic Allocation / Resource reallocation / Successful / Lower throughput class

52.3.3.1.2.1 Conformance requirements

1. During an uplink packet transfer, upper layer may request to transfer another LLC PDU. If the new LLC PDU has the same RLC mode as the current uplink TBF and either a lower Radio Priority or the same radio priority but a lower peak throughput class, the mobile station shall first complete the sending of the LLC PDU in transfer.
2. When the sending of LLC PDUs at the higher Radio Priority or the same radio priority but higher peak throughput class stops, without waiting for the acknowledgement from the network if in RLC acknowledged mode, the mobile station shall then perform the request of a resource reallocation for uplink for any remaining LLC PDU(s) by sending a PACKET RESOURCE REQUEST message on the PACCH and start timer T3168.

References

3GPP TS 04.60, subclause 8.1.1.1.2.

52.3.3.1.2.2 Test purposes

To verify that during an uplink packet transfer, upper layer requests to transfer another LLC PDU and the new LLC PDU has the same RLC mode as the current uplink TBF and either a lower Radio Priority or the same radio priority but a lower peak throughput class.

1. The MS first complete the sending of the LLC PDU in transfer, including acknowledgement from the network if in RLC acknowledged mode.

2. After the sending of LLC PDUs at the higher Radio Priority or the same radio priority but higher peak throughput class stops, the MS performs the request of a resource reallocation for uplink for any remaining LLC PDU(s).

52.3.3.1.2.3 Method of test

Initial Conditions

System Simulator:

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

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context2 and context4 activated;

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer data with a lower through put or a lower radio priority in the same RLC mode.

The current TBF is maintained and SS assigns the USFs allowing the MS to transmit more data blocks. It is verified that the MS completes the transmission of the current LLC PDU and then sends PACKET RESOURCE REQUEST.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | In PDP context4, n = 880 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1, EGPRS CHANNEL CODING COMMAND: MCS1, PEAK_THROUGHPUT_CLASS = 6, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 4 | MS | | To trigger the MS to transfer 220 octets with the test PDP context2 in the same RLC mode as the current uplink TBF. |
| 5 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned, the USF assigned to the MS. |
| 6-1 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding and the TFI are correct. |
| 6-2 | MS -> SS | PACKET RESOURCE REQUEST | Received on the PACCH of the assigned PDCH, acknowledged mode. |
| 7 | SS | | Repeat step 5 and 6-1 until PACKET RESOURCE REQUEST in 6-2, instead of a RLC data block in 6-1, is received. Observe the Length indicators, and E bit of the received data headers. Check that the transmission of the LLC PDU(s) with higher peak throughput class is completed. |
| 8 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH assigned, acknowledge all received data |
| 9 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on PACCH of the PDCH assigned in step 1, assigning a new PDCH. |
| 10 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 10, the USF assigned to the MS. |
| 11 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned in step 10. |
| 12 | | {Completion of uplink RLC data block transfer} | |
| 13 | MS | | Switch off |

Specific Message Contents

PACKET RESOURCE REQUEST message in step 6-2:

| Information Element | value/ remark |
|-----------------------------|---|
| Channel Request Description | |
| - PEAK_THROUGHPUT_CLASS | For branch A: 5 For branch B: any allowed value |
| - RADIO_PRIORITY | For branch A: 4 For branch B: any allowed value different from 1 |
| - RLC_MODE | acknowledged mode |
| - LLC_PDU_TYPE | 1 (not SACK or ACK) |
| - RLC_OCTET_COUNT | Any allowed value |

PACKET UPLINK ASSIGNMENT message in step 9:

Same as in subclause 52.3.3.1.1.3, step 11.

52.3.3.1.3 Dynamic Allocation / Resource reallocation / Successful / Different RLC mode and higher radio priority

52.3.3.1.3.1 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 RLC acknowledged mode. The mobile station shall then release the TBF and establish a new uplink TBF for transmission of the new LLC PDU. When the sending of LLC PDUs with a higher radio priority is completed using the countdown procedure, including acknowledgement from the network if in RLC acknowledged mode, the mobile station shall try to establish an uplink TBF for the transmission of any remaining LLC PDU(s).

References

3GPP TS 04.60, subclause 8.1.1.1.2.

52.3.3.1.3.2 Test purposes

To verify that during an uplink packet transfer, upper layer requests to transfer another LLC PDU and the new LLC PDU has a different RLC mode from the current uplink TBF but has a higher radio priority:

1. The mobile station completes the transmission of the current LLC PDU using the countdown procedure including acknowledgement from the network, if in RLC acknowledged mode.
2. Then the MS releases the TBF and establishes a new uplink TBF for transmission of the new LLC PDU.
3. When the sending of the new LLC PDUs with a higher radio priority is completed using the countdown procedure, including acknowledgement from the network if in RLC acknowledged mode, the mobile station tries to establish an uplink TBF for the transmission of any remaining LLC PDU(s).

52.3.3.1.3.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting, T3168 timeout value=7 (4s), N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context1 and context2 activated;

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer 220 octets user data with a higher throughput or a higher radio priority, but in a different RLC mode.

SS assigns the USFs allowing the MS transmit more data blocks until the MS complete the countdown procedure. It is verified that the MS has transmitted only one LLC PDU.

Random accesses are received from the MS for EGPRS PACKET CHANNEL REQUEST. SS assigns a PDCH to it. SS assigns USFs addressing to the MS allowing more data blocks are transmitted by the MS until the countdown value CV=0.

The MS requests more resources through random accesses of channel requests for the remaining LLC PDU in the initial test PDP context. SS starts a two-phase dynamic allocation. It is checked that the values of PEAK_THROUGHPUT_CLASS, RADIO_PRIORITY and RLC_MODE requested by the MS in the PACKET RESOURCE REQUEST are in consistence with the initial test PDP context2.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | MS | {Uplink dynamic allocation two phase access} | In PDP context2, n = 880 octets, without starting time, USF_GRANULARITY = 1 block, RLC_DATA_BLOCKS_GRANTED = open-end TLLI_BLOCK_CHANNEL_CODING: MCS1, EGPRS channel coding command: MCS1, PEAK_THROUGHPUT_CLASS = 5, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 4 | MS | | Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. To trigger the MS to transfer 220 octets in test PDP context1, unacknowledged RLC mode and a higher radio priority. |
| 5 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned, the USF assigned to the MS. |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding and the TFI are correct. |
| 7 | SS | | Repeat step 5 and 6 until countdown value CV=0. Observe the Length indicator, Mbit and E bit of the received data headers. Check that transmitted is only the 1 st LLC PDU, Note: the 1 st LLC PDU is in PDP context2, the 2 nd LLC PDU is waiting for transferring. |
| 8 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = '1'. Acknowledge all received data, containing valid RRBP, sent on PACCH. |
| 9 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBP on PACCH of the assigned PDCH. |
| 10 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH for TBF establishment for transferring of the LLC PDU in PDP context1. |
| 11 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment, to force the MS making two-phase access procedure. Sent on AGCH. |
| 12 | MS -> SS | PACKET RESOURCE REQUEST | Received on the single block assigned in step 11. Check that radio priority level = 1, peak throughput class = 5, unacknowledged RLC mode. |
| 13 | SS -> MS | PACKET UPLINK ASSIGNMENT | Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block. Sent on PACCH of the same PDCH assigned in step 11. |
| 14 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 13. |
| 15 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned. |
| 16 | | | Repeat step 14 and 15 until countdown value CV=0. Check the amount of data is consistent with what was indicated by the MS in step 4. |
| 17 | SS -> MS | PACKET UPLINK ACK/NACK | FINAL_ACK_INDICATION = '1', a valid RRBP, acknowledge all received data, sent on PACCH. |
| 18 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the block specified by RRBP on PACCH of the assigned PDCH. |

| Step | Direction | Message | Comments |
|------|-----------|-------------------------------------|---|
| 19 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH, TBF establishment for transmission of a remaining LLC PDU in PDP context2. |
| 20 | SS -> MS | IMMEDIATE ASSIGNMENT | EGPRS Packet UL Assignment, to force the MS making two-phase access procedure. Sent on AGCH. |
| 21 | MS -> SS | PACKET RESOURCE REQUEST | Received on the single block assigned in step 20. Check that PEAK_THROUGHPUT_CLASS = 5, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 22 | SS -> MS | PACKET UPLINK ASSIGNMENT | Open-ended uplink dynamic allocation, no starting time, USF_GRANULARITY = single block. Sent on PACCH of the same PDCH assigned in step 20. |
| 23 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | The USF assigned to the MS. Sent on PACCH of PDCH assigned in step 20. |
| 24 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the PDTCH assigned in step 20. |
| 25 | SS | | Repeat step 23 and 24 until countdown value CV=0. Observe the Length indicators and E bit of the received data headers. Check that only one LLC PDU is transmitted. |
| 26 | SS -> MS | PACKET UPLINK ACK/NACK | Note: the 2nd ^t LLC PDU in PDP context2. FINAL_ACK_INDICATION = '1'. Acknowledge all received data, containing valid RRBp, sent on PACCH. |
| 27 | 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 13:

Same as in subclause 52.3.3.1.1.3, step 11.

52.3.3.2 Dynamic Allocation / Resource reallocation / Abnormal

52.3.3.2.1 Dynamic Allocation / Resource reallocation / Abnormal / T3168 expiry

52.3.3.2.1.1 Conformance requirements

On expiry of timer T3168 the mobile station shall retransmit the PACKET RESOURCE REQUEST message unless the PACKET RESOURCE REQUEST has already been transmitted four times in which case the mobile station shall return to packet idle mode and indicate a packet access failure to upper layer.

References

3GPP TS 04.60, subclause 8.1.1.1.2.

52.3.3.2.1.2 Test purposes

To verify that during uplink resource reallocation on expiry of timer T3168:

1. The MS retransmits the PACKET RESOURCE REQUEST message unless the PACKET RESOURCE REQUEST has already been transmitted four times.
2. The MS returns to idle mode after PACKET RESOURCE REQUEST has been transmitted four times.

52.3.3.2.1.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting, T3168 timeout value=0 (0.5s), BS_CV_MAX = 1, N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7, Max Retrans = 11 (Max 7 retransmissions).

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context2 and context5 activated;

Specific PICS Statements

-

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer data with a higher radio priority in the same RLC mode.

The MS sends PACKET RESOURCE REQUEST. The current TBF is maintained and SS assigns the USFs allowing the MS transmit more data blocks, but does not answers to the requested resources. The MS repeatedly sends PACKET RESOURCE REQUEST three times after T3168 expires each time.

SS waits 0,55 s after receiving the 4th PACKET RESOURCE REQUEST and then sends PAGING REQUEST TYPE 1 in the next paging block for the MS. The MS answers with CHANNEL REQUEST.

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: MCS1, EGPRS channel coding command: MCS1, PEAK_THROUGHPUT_CLASS = 5, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 4 | MS | | To trigger the MS to transfer 440 octets with the peak throughput class 5 (16k octets/s) and the radio priority 1 in acknowledge RLC mode of the PDP context5. |
| 5 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK or PACKET RESOURCE REQUEST | Received on the PDCH assigned |
| 7 | | | Repeat steps 5 and 6 until reception of PACKET RESOURCE REQUEST (ensure that countdown procedure did not start before that MS requests additional resources) |
| 8 | | | Repeat steps 5 – 7 twice, Note: the 1 st LLC PDU may be sent out and the sending 2 nd PDU in the PDP context5 is started Check that the coding as specified by CHANNEL_CODING_COMMAND, the TFI is correct for all received UPLINK RLC DATA BLOCK. |
| 9 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH assigned, acknowledge all received data. USF assigned to MS |
| 10 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK or PACKET RESOURCE REQUEST | Received on the PDCH assigned, the 4 th time to send PACKET RESOURCE REQUEST. |
| 11 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 12 | | | Repeat steps 10 and 11 until reception of PACKET RESOURCE REQUEST (ensure that countdown procedure did not start before that MS requests additional resources) |
| 13 | SS -> MS | PAGING REQUEST TYPE 1 | Sent in the next paging block for the MS and at least 0,55s after receiving Packet Resource Request in step 10. Channel requests to initiate TBF to proceed the data transfer shall be ignored by the SS. |
| 14 | MS -> SS | CHANNEL REQUEST | Establishment cause = "Answer to paging" |

Specific Message Contents

PACKET RESOURCE REQUEST message in step 6 and 10:

| Information Element | value/remark |
|-----------------------------|----------------------|
| Channel Request Description | |
| - PEAK_THROUGHPUT_CLASS | 5 |
| - RADIO_PRIORITY | 1 |
| - RLC_MODE | Acknowledged mode |
| - LLC_PDU_TYPE | 1 (not SACK or ACK) |
| - RLC_OCTET_COUNT | Any allowed value |

52.3.3.2.2 Dynamic Allocation / Resource reallocation / Abnormal / Invalid assignment

52.3.3.2.2.1 Conformance requirements

1. If the mobile station receives a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message and detects an invalid Frequency Parameters information element in the message, the mobile station shall perform an abnormal release with system information (see sub-clause 8.7.3), performing a partial acquisition of system information messages containing frequency information.
2. If the mobile station receives a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message specifying frequencies that are not all in one frequency band then the mobile station shall perform an abnormal release with random access.
3. If the mobile station receives a PACKET UPLINK ASSIGNMENT message containing a Frequency Parameters information element specifying a frequency that is in a frequency band not supported by the mobile station then the mobile station shall perform an abnormal release with random access.

References

3GPP TS 04.60, subclause 8.1.1.1.2.1.

52.3.3.2.2.2 Test purposes

To verify that during uplink resource reallocation:

1. The MS performs an abnormal release with random access if it receives a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message specifying frequencies that are not all in one frequency band.
2. The MS performs an abnormal release with random access if it receives a PACKET UPLINK ASSIGNMENT message containing a Frequency Parameters information element specifying a frequency in the frequency band not supported.
3. The MS performs an abnormal release with system information if it receives a PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message containing an Invalid Frequency Parameters information element.

52.3.3.2.2.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting, BS_CV_MAX = 1, N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context2 and context5 activated;

Specific PICS Statements

- Support of Standard GSM Band (P-GSM) (TSPC_Type_GSM_P_Band)
- Support of DCS 1800 band (TSPC_Type_DCS_Band)
- Support of GSM 700 band (TSPC_Type_GSM_700_Band)
- Support of GSM 850 band (TSPC_Type_GSM_850_Band)
- Support of T GSM 810 band (TSPC_Type_T_GSM_810_Band)

PIXIT Statements

-

Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer data with a higher radio priority in the same RLC mode. The MS sends PACKET RESOURCE REQUEST. SS sends PACKET UPLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE containing an invalid assignment ($k=1 \dots 5$, see step 6 in expected sequences).

It is checked that the MS starts random accesses.

Maximum Duration of Test

10 minutes.

Expected Sequence

The test sequence is executed in total five times, $k = 1 \dots 5$. The 5th execution is applicable to the single band MS, but not to the multi-band one.

| 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: MCS1, EGPRS channel coding command: MCS1, PEAK_THROUGHPUT_CLASS = 5, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 4 | MS | | Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 5-1 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | To trigger the MS to transfer 440 octets with the peak throughput class 5 (16k octets/s) and the radio priority 1 in acknowledge RLC mode of the PDP context5. Sent on the PACCH, the USF assigned to the MS. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK or | Received on the PACCH of the PDCH assigned |
| 6-1 | | PACKET RESOURCE REQUEST | Repeat steps 5-1 and 5 until reception of PACKET RESOURCE REQUEST (ensure that countdown procedure did not start before that MS requests additional resources) |
| 6 k=1 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assign a frequency hopping PDCH, but not all frequencies are in one frequency band. |
| 6 k=2 | SS -> MS | PACKET TIMESLOT RECONFIGURE | Assign a frequency hopping PDCH, but not all frequencies are in one frequency band. |
| 6 k=3 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assign a frequency hopping PDCH, the MA_NUMBER and MA_CHANGE_MARK_1 mismatch the values of MA_NUMBER and MA_CHANGE_MARK stored in the MS. |
| 6 k=4 | SS -> MS | PACKET TIMESLOT RECONFIGURE | Assign a frequency hopping PDCH, the MA_NUMBER and MA_CHANGE_MARK_1 mismatch the values of MA_NUMBER and MA_CHANGE_MARK stored in the MS. |
| 6 k=5 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assigned ARFCN on PDCH is not in the frequency band supported by the MS. |
| 7 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. |

Specific Message Contents

PACKET UPLINK ASSIGNMENT message in step 6 for k=1:

| Information Element | value/remark |
|---|--|
| {0}1<Frequency Parameters> - Frequency Parameters - TSC - - MAIO - HSN - Length of MA Frequency List contents - MA Frequency List contents Dynamic allocation | 1 (Frequency Parameters present) Arbitrarily chosen 11 (Direct encoding 2) Arbitrarily chosen Arbitrarily chosen 12 octets Contain following ARFCNs in 1024 range format: 20, 40, 80, 90, 520, 590, 600, 700 01 As default |

PACKET TIMESLOT RECONFIGURE message in step 6 for k=2:

| Information Element | value/remark |
|---|--|
| PAGE_MODE - Global TFI Message escape {0}1 <COMPACT reduced MA> EGPRS_CHANNEL_CODING_COMMAND Resegment IE {0}1 <DOWNLINK EGPRS Window Size> {0}1 <UPLINK EGPRS Window Size> LINK QUALITY MEASUREMENT MODE Global Packet Timing Advance {0}1< TIMING_ADVANCE_VALUE > - TIMING_ADVANCE_VALUE } - {0}1<UPLINK_TIMING_ADVANCE_INDEX> <UPLINK_TIMING_ADVANCE_TIMESLOT_NUMBER> - {0}1<DOWNLINK_TIMING_ADVANCE_INDEX> <DOWNLINK_TIMING_ADVANCE_TIMESLOT_NUMBER> DOWNLINK_RLC_MODE CONTROL_ACK {0}1<DOWNLINK_TFI_ASSIGNMENT> - DOWNLINK_TFI_ASSIGNMENT {0}1< UPLINK_TFI_ASSIGNMENT > DOWNLINK_TIMESLOT_ALLOCATION {0}1<Frequency Parameters> - Frequency Parameters - TSC - - MAIO - HSN - Length of MA Frequency List contents - MA Frequency List contents Dynamic allocation | Normal 0, Global TFI as reference 0, uplink TFI same value as assigned in the uplink in step 1 1 (EGPRS) 0 Not present 00 (MCS-1) 1 Retransmitted RLC data blocks shall be resegmented according to commanded MCS Default 64 Default 64 00 1 (timing advance value) 30 bit periods 0 (no uplink timing advance index) 0 (no downlink timing advance index) Acknowledged mode 0 1 (assign downlink TFI) 00001(Binary) 0 Same timeslot as the uplink TBF H (hopping channel) Arbitrarily chosen 11 (Direct encoding 2) arbitrarily chosen arbitrarily chosen 12 octets Contain following ARFCNs in 1024 range format: 20, 40, 80, 90, 520, 590, 600, 700 0 As default |

PACKET UPLINK ASSIGNMENT message in step 6 for k=3:

| Information Element | value/ remark |
|-----------------------------|--|
| {0 1<Frequency Parameters>} | 1 (Frequency Parameters present) |
| - Frequency Parameters | |
| - TSC | Arbitrarily chosen |
| - | 01 (Indirect encoding) |
| - MAIO | Arbitrarily chosen |
| - MA_NUMBER | Arbitrarily select a value different from 14 and 15 |
| - {0 1<CHANGE_MARK_1>} | 1 (present) |
| - CHANGE_MARK_1 | Arbitrarily select a value that mismatches PSI13_CHANGE_MARK |
| - {0 1<CHANGE_MARK_2>} | 1 (CHANGE_MARK_2 present) |
| - CHANGE_MARK_2 | Arbitrarily select a value that is different from CHANGE_MARK_1 and mismatches PSI13_CHANGE_MARK |
| Dynamic allocation | 01 As default |

PACKET TIMESLOT RECONFIGURE message in step 6 for k=4:

| Information Element | value/ remark |
|---|--|
| PAGE_MODE | Normal |
| | 0, Global TFI as reference |
| - Global TFI | 0, uplink TFI same value as assigned in the uplink in step 1 |
| Message escape | 1 (EGPRS) |
| {0 1 <COMPACT reduced MA>} | 0 Not present |
| EGPRS_CHANNEL_CODING_COMMAND | 00 (MCS-1) |
| Resegment IE | 1 Retransmitted RLC data blocks shall be resegmented according to commanded MCS |
| {0 1 <DOWNLINK EGPRS Window Size>} | Default 64 |
| {0 1 <UPLINK EGPRS Window Size>} | Default 64 |
| LINK_QUALITY_MEASUREMENT_MODE | 00 |
| 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> <UPLINK_TIMING_ADVANCE_TIMESLOT_NUMBER>} | 0 (no uplink timing advance index) |
| - {0 1<DOWNLINK_TIMING_ADVANCE_INDEX> <DOWNLINK_TIMING_ADVANCE_TIMESLOT_NUMBER>} | 0 (no downlink timing advance index) |
| DOWNLINK_RLC_MODE | Acknowledged mode |
| CONTROL_ACK | 0 |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | 1 (assign downlink TFI) |
| - DOWNLINK_TFI_ASSIGNMENT | 00001(Binary) |
| {0 1< UPLINK_TFI_ASSIGNMENT > | 0 |
| DOWNLINK_TIMESLOT_ALLOCATION | Same timeslot as the uplink TBF |
| {0 1<Frequency Parameters>} | 1 (hopping channel) |
| - Frequency Parameters | |
| - TSC | Arbitrarily chosen |
| - | 01 (Indirect encoding) |
| - MAIO | Arbitrarily chosen |
| - MA_NUMBER | Arbitrarily select a value different from 14 and 15 |
| - {0 1<CHANGE_MARK_1>} | 1 (CHANGE_MARK_1 present) |
| - CHANGE_MARK_1 | Arbitrarily choose a value which mismatches SI13_CHANGE_MARK |
| - {0 1<CHANGE_MARK_2>} | 0 (no CHANGE_MARK_2) |
| Dynamic allocation | 0 As default |

PACKET UPLINK ASSIGNMENT message in step 6 for k=5:

| Information Element | value/ remark |
|-----------------------------|----------------------------------|
| {0 1<Frequency Parameters>} | 1 (Frequency Parameters present) |
| - Frequency Parameters | |
| - TSC | Arbitrarily chosen |
| - | 00 (ARFCN no hopping) |
| - ARFCN | For GSM 900: 650 |
| | For GSM 700, T-GSM 810: 650 |
| | For GSM 850: 190 |
| | For DCS 1 800: 30 |
| | For PCS 1 900: 650 |
| Dynamic allocation | 01 (Dynamic allocation) |
| | As default |

52.3.3.3 Dynamic Allocation / Resource reallocation / Reject

52.3.3.3.1 Conformance requirements

1. On receipt of a PACKET ACCESS REJECT message, the mobile station shall stop timer T3168 if running and indicate a packet access failure to upper layers. If no downlink TBF exists, the mobile station shall return to packet idle mode.
2. If the PACKET ACCESS REJECT message contains a WAIT_INDICATION field in a Reject structure addressed to the mobile station, the mobile station shall start timer T3172 and if the mobile station has additional RLC data blocks to transmit, it shall initiate a new TBF establishment procedure on the RACH or PRACH, but the mobile station is not allowed to make a new attempt for packet access in the same cell until timer T3172 expires, it may, however, attempt packet access in an other cell after successful cell reselection. A mobile station in EGPRS MS class A or B mode of operation may attempt to enter the dedicated mode in the same cell before timer T3172 has expired. During the time T3172 is running, the mobile station shall ignore all received PACKET PAGING REQUEST messages except paging request to trigger RR connection establishment.

References

3GPP TS 04.60, subclause 8.1.1.1.2.

52.3.3.3.2 Test purposes

To verify that during the uplink resource reallocation:

1. The MS returns to packet idle mode when it receives PACKET ACCESS REJECT without WAIT_INDICATION.
2. On receipt of a PACKET ACCESS REJECT with a WAIT_INDICATION the MS waits until T3172 expires. The MS, if having another RLC data blocks to transmit, initiates a new TBF establishment procedure on the PRACH.

52.3.3.3.3 Method of test

Initial Conditions

System Simulator:

1 cell EGPRS supported, default setting, BS_CV_MAX = 1, N201-U=500 for SAPI 3, 5, 9, 11, N201-U=270 for SAPI 7.

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated:

- Test PDP context2 and context5 activated;

Specific PICS Statements

-

PIXIT Statements

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Test Procedure

An uplink TBF is established and in progress. The MS is triggered to transfer data with a higher radio priority in the same RLC mode.

The MS sends PACKET RESOURCE REQUEST. SS sends PACKET ACCESS REJECT without containing WAIT_INDICATION. The MS may attempt a new random access because of the user data from the upper layer.

The test procedure is repeated once. The difference between the two executions is that in the 2nd execution, PACKET ACCESS REJECT contains WAIT_INDICATION. The MS may start the random access after T3172 expires.

Maximum Duration of Test

5 minutes.

Expected Sequence

The test sequence is executed twice for k = 1 ... 2.

| 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: MCS1, EGPRS channel coding command: MCS1, PEAK_THROUGHPUT_CLASS = 5, RADIO_PRIORITY = 4, RLC_MODE = acknowledged mode. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 3 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 4 | MS | | To trigger the MS to transfer 440 octets with the peak throughput class 5 (16k octets/s) and the radio priority 1 in acknowledge RLC mode of the PDP context5. |
| 5-1 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 5 | MS -> SS | UPLINK RLC DATA BLOCK or PACKET RESOURCE REQUEST | Received on the PACCH of the PDCH assigned |
| 6-1 | | | Repeat steps 5-1 and 5 until reception of PACKET RESOURCE REQUEST (ensure that countdown procedure did not start before that MS requests additional resources) |
| 6 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH, the USF assigned to the MS. |
| 7 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding as specified by EGPRS CHANNEL CODING COMMAND, the TFI is correct. |
| 8 | SS -> MS | PACKET ACCESS REJECT | Sent on the PACCH of the PDCH, including the same address reference received from step 5 addressing the MS, For k = 1 without WAIT_INDICATION For k = 2 with WAIT_INDICATION. |
| 9(option al step) | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Optionally received on RACH, depending on the MS implementation. For k=2, check that the random access is received not before 4,5s from step 8 |

Specific Message Contents

PACKET ACCESS REJECT message in step 8 for k=1:

| Information Element | value/ remark |
|---------------------|-------------------------------------|
| MESSAGE_TYPE | 1 00001 |
| PAGE_MODE | Normal Paging |
| Reject | |
| - | 0 (TLLI) |
| - TLLI | the same value as the TLLI received |
| - | 0 (no WAIT_INDICATION) |
| - | 0 |

PACKET ACCESS REJECT message in step 8 for k=2:

| Information Element | value/ remark |
|------------------------|-------------------------------------|
| MESSAGE_TYPE | 1 00001 |
| PAGE_MODE | Normal Paging |
| Reject | |
| - | 0 (TLLI) |
| - TLLI | The same value as the TLLI received |
| - | 1 (WAIT_INDICATION present) |
| - WAIT_INDICATION | 5 seconds |
| - WAIT_INDICATION_SIZE | 0 (units of seconds) |
| - | 0 (end of reject IE) |

PACKET RESOURCE REQUEST message in step 5:

| Information Element | value/ remark |
|-----------------------------|----------------------|
| Channel Request Description | |
| - PEAK_THROUGHPUT_CLASS | 5 |
| - RADIO_PRIORITY | 1 |
| - RLC_MODE | Acknowledged mode |
| - LLC_PDU_TYPE | 1 (not SACK or ACK) |
| - RLC_OCTET_COUNT | Any allowed value |

52.3.4 Default message contents

Default message contents and macros as defined in the EGPRS defaults section 50 are used for subclause 52.3.

52.4 Void

52.5 EGPRS Downlink Transfer

52.5.1 Void

52.5.2 Void

52.5.3 Void

52.5.4 Void

52.5.5 Downlink Transfer / Reestablishment

52.5.5.1 Downlink Transfer/ Reestablishment/ T3192 Expiry

52.5.5.1.1 Void

52.5.5.1.2 Conformance Requirement

After the network has initiated the release of a downlink TBF and the mobile station has received all the RLC blocks, the mobile station shall send the EGPRS PACKET DOWNLINK ACK/NA CK message with the Final Ack Indicator bit set to '1', start timer T3192 and continue to monitor all assigned PDCHs.

If the network receives a EGPRS PACKET DOWNLINK ACK/NA CK message with the Final Ack Indicator bit set to '1' and has new data to transmit for the mobile station, the network may establish a new downlink TBF for the mobile station by sending the PACKET DOWNLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message with the Control Ack bit set to '1' on PACCH.

If the mobile station, after sending the EGPRS PACKET DOWNLINK ACK/NA CK 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 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. The DRX mode procedures shall be applied, as specified in subclause 5.5.1.5.

References

3GPP TS 04.60, subclauses 8.1.2.4, 9.3.2.6 and 11.2.6a.

52.5.5.1.3 Test purpose

Verify that after a downlink TBF is released, MS returns to packet idle mode when T3192 expires.

52.5.5.1.4 Method of test

Initial Conditions

System Simulator:

1 cell, EGPRS supported.

Mobile Station:

The MS is in the state "idle, GMM-registered" 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

1. MS receives a IMMEDIATE ASSIGNMENT message to establish downlink TBF containing no starting time.
2. SS transmits EGPRS downlink RLC data blocks for the downlink allocation.
3. SS transmits an EGPRS downlink RLC data block, with valid RRBP field (polling), with Final Block indicator set to 1.
4. MS responds by sending a EGPRS PACKET DOWNLINK ACK/NACK with Final Ack indicator set to 1 and starting T3192.
5. When T3192 expires, MS returns to packet idle mode.
6. SS transmits an EGPRS downlink RLC data block (using previous resources).
7. MS ignores this block, because it has returned to packet idle mode.
8. SS transmits a IMMEDIATE ASSIGNMENT, followed by RLC data blocks for the downlink allocation.
9. MS responds with an EGPRS PACKET DOWNLINK ACK/NACK.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | SS -> MS | IMMEDIATE ASSIGNMENT | Triggers the MS to switch to assigned PDCH. (no starting time) |
| 2 | SS -> MS | EGPRS RLC DATA BLOCKS | Starting 3 blocks after the previous message, on assigned PDCH, addressed to MS. |
| 3 | SS -> MS | EGPRS RLC DATA BLOCK | With valid RRBP field, addressed to MS, with Final Block indication set to 1. |
| 4 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | MS acknowledges the previously received RLC data blocks, with final ack set to 1. MS starts T3192 |
| 5 | SS | | Wait T3192 * 0.7 seconds |
| 6 | | | Repeat steps 3 and 4. |
| 7 | SS | | Wait T3192 * 1.2 seconds. |
| 8 | SS -> MS | EGPRS RLC DATA BLOCK | On previously assigned PDCH. With valid RRBP field, addressed to MS. |
| 9 | SS | | Verify no response from MS on previously assigned PDCH. |
| 10 | SS -> MS | IMMEDIATE ASSIGNMENT | Triggers the MS to switch to assigned PDCH (no starting time) |
| 11 | SS -> MS | EGPRS RLC DATA BLOCK | Sent 3 blocks after the previous message, with valid RRBP field, addressed to MS, on new resources assigned in step 10. |
| 12 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | MS acknowledges the previously received RLC data block. |
| 13 | SS | {Completion of downlink RLC data block transfer} | Macro |

Specific Message Contents

IMMEDIATE ASSIGNMENT message in step 1:

| Information Element | value/ remark |
|------------------------------------|--------------------------|
| Packet Channel Description - TN | <One timeslot assigned > |
| TBF STARTING TIME | <IE not present> |
| EGPRS Window Size IE | 1 <IE present> |
| | 00100 |
| Link_Quality_Measurement_Mode | 00 |

IMMEDIATE ASSIGNMENT message in step 10:

| Information Element | value/ remark |
|-------------------------------|--|
| Packet Channel Description | |
| - TN | <one timeslot assigned – different than previous > |
| TBF STARTING TIME | <IE not present> |
| EGPRS Window Size IE | 1 <IE present> |
| | 00100 |
| Link_Quality_Measurement_Mode | 00 |

GPRS Cell Options IE (throughout, on sys-infos):

| Information Element | value/ remark |
|---------------------|----------------------------------|
| T3192 | 010 – = 1,5 second timeout value |

EGPRS DOWNLINK RLC DATA BLOCK in step 3:

| Information Element | value/ remark |
|---------------------|---|
| RRBP | 00 – Response shall be sent by MS in N+13 frames. |
| ES/P | 01 – RRBP field is valid |
| CPS | 1011 for MCS-1/P1 |

EGPRS PACKET DOWNLINK ACK/NACK in step 4:

| Information Element | value/ remark |
|---|---------------|
| Ack/Nack Description IE - FINAL_ACK_INDICATION | 1 |

52.5.5.2 Downlink Transfer/ Reestablishment/ Packet Downlink Assignment

52.5.5.2.1 Void

52.5.5.2.2 Conformance Requirement

After the network has initiated the release of a downlink TBF and the mobile station has received all the RLC blocks, the mobile station shall send the EGPRS PACKET DOWNLINK ACK/NACK message with the Final Ack Indicator bit set to '1', start timer T3192 and continue to monitor all assigned PDCHs.

If the network receives a EGPRS PACKET DOWNLINK ACK/NACK message with the Final Ack Indicator bit set to '1' and has new data to transmit for the mobile station, the network may establish a new downlink TBF for the mobile station by sending the PACKET DOWNLINK ASSIGNMENT or PACKET TIMESLOT RECONFIGURE message with the Control Ack bit set to '1' on PACCH.

If the mobile station, after sending the EGPRS 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.

References

3GPP TS 04.60, subclause 8.1.2.4.

52.5.5.2.3 Test purpose

Verify that after a downlink TBF is released, MS acts on a PACKET DOWNLINK ASSIGNMENT message.

52.5.5.2.4 Method of test

Initial Conditions

System Simulator:

1 cell, EGPRS supported.

Mobile Station:

The MS is in the state "idle, GMM-registered" with a P-TMSI allocated, and PDP context 2 activated.

Specific PICS Statements

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PIXIT Statements

-

Test Procedure

1. MS receives a IMMEDIATE ASSIGNMENT message to establish downlink TBF containing no starting time.
2. SS transmits downlink RLC data blocks for the downlink allocation.
3. SS transmits a downlink RLC data block, with valid RRBP field (polling), with Final Block indicator set to 1.
4. MS responds by sending a EGPRS PACKET DOWNLINK ACK/NACK with Final Ack indicator set to 1.
5. SS transmits a PACKET DOWNLINK ASSIGNMENT, assigning a new PDCH. CONTROL_ACK is set to 1.
6. SS transmits a downlink RLC data block on newly assigned PDCH, with valid RRBP field.
7. MS responds by sending a EGPRS PACKET DOWNLINK ACK/NACK.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | SS -> MS | IMMEDIATE ASSIGNMENT | Triggers the MS to switch to assigned PDCH. (no starting time) |
| 2 | SS -> MS | EGPRS RLC DATA BLOCKS | Starting at a minimum of 3 blocks after the previous message, on assigned PDCH, addressed to MS. |
| 3 | SS -> MS | EGPRS RLC DATA BLOCK | With valid RRBP field, addressed to MS, with Final Block indication set to 1. |
| 4 | MS -> SS | EGPRS PACKET DOWNLINKACK/NACK | MS acknowledges the previously received RLC data blocks, with final ACK set to 1. |
| 5 | SS | | Wait (T3192 * 0.8) seconds |
| 6 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Sent on PACCH. Triggers the MS to switch to a new PDCH. (no starting time) CONTROL_ACK is set to '1'. |
| 7 | SS -> MS | EGPRS RLC DATA BLOCK | 6 blocks after step 6, on PDCH assigned in step 6. With valid RRBP field, addressed to MS. |
| 8 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | MS acknowledges the previously received RLC data blocks. |
| 9 | SS | {Completion of downlink RLC data block transfer} | Macro |

Specific Message Contents

IMMEDIATE ASSIGNMENT message in step 1:

| Information Element | value/ remark |
|------------------------------------|--------------------------|
| Packet Channel Description - TN | <One timeslot assigned > |
| TBF STARTING TIME | <IE not present> |
| EGPRS Window Size IE | 1 <IE present> |
| Link_Quality_Measurement_Mode | 00100 00 |

PACKET DOWNLINK ASSIGNMENT message in step 6:

| Information Element | value/ remark |
|-------------------------------|--|
| CONTROL_ACK | 1 |
| TIMESLOT_ALLOCATION | <one timeslot assigned – different than previous assignment> |
| TBF STARTING TIME | <IE not present> |
| EGPRS Window Size IE | 1 <IE present> |
| Link_Quality_Measurement_Mode | 00100 00 |

GPRS Cell Options IE (throughout, on sys-Infos):

| Information Element | value/ remark |
|---------------------|----------------------------------|
| T3192 | 010 – = 1,5 second timeout value |

EGPRS DOWNLINK RLC DATA BLOCK in step 3:

| Information Element | value/ remark |
|---------------------|---|
| RRBP | 00 – Response shall be sent by MS in N+13 frames. |
| ES/P | 01 – RRBP field is valid |
| CPS | 1011 for MCS-1/P1 |

EGPRS PACKET DOWNLINK ACK/NACK in step 4:

| Information Element | value/ remark |
|--|-----------------------|
| Ack/Nack Description IE - FINAL_ACK_INDICATION | <IE not present> 1 |

52.5.5.3 Void

52.6 EGPRS Packet Access for signalling

52.6.1 EGPRS Packet Access for signalling / EGPRS Packet Channel Request not supported / CCCH case

52.6.1.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. The following table specifies which message and which establishment cause shall be used by an EGPRS mobile station when accessing an EGPRS capable cell depending on the purpose of the packet access procedure; this table covers the case where PBCCH is not present in the cell (see 3GPP TS 44.060 for the case where PBCCH is not present in the cell):

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. The following table specifies which message and which establishment cause shall be used by an EGPRS mobile station when accessing an EGPRS capable cell depending on the purpose of the packet access procedure; this table covers the case where PBCCH is not present in the cell (see 3GPP TS 44.060 for the case where PBCCH is present in the cell):

| Purpose of the packet access procedure | EGPRS PACKET CHANNEL REQUEST supported in the cell | EGPRS PACKET CHANNEL REQUEST not supported in the cell |
|--|--|--|
| User data transfer – requested RLC mode = unacknowledged | EGPRS PACKET CHANNEL REQUEST with access type = 'Two-phase access' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| User data transfer – requested RLC mode = acknowledged | EGPRS PACKET CHANNEL REQUEST with access type = 'One-phase access' or 'Two-phase access' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| Upper layer signalling transfer (e.g. page response, cell update, MM signalling, etc) | EGPRS PACKET CHANNEL REQUEST with access type = 'signalling' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| Sending of a measurement report or of a PACKET CELL CHANGE FAILURE | CHANNEL REQUEST with establishment cause = 'Single block packet access' | |
| Sending of a PACKET PAUSE message | CHANNEL REQUEST with establishment cause = 'Single block packet access' (NOTE 1) | |
| Sending of an MBMS Service Request message | CHANNEL REQUEST with establishment cause = 'Single block MBMS access' | |
| NOTE 1: Upon sending the first CHANNEL REQUEST message the mobile station shall start timer T3204. If timer T3204 expires before an IMMEDIATE ASSIGNMENT message granting a single block period on an assigned packet uplink resource is received, the packet access procedure is aborted. If the mobile station receives an IMMEDIATE ASSIGNMENT message during the packet access procedure indicating a packet downlink assignment procedure, the mobile station shall ignore the message. | | |

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from a uniform probability distribution for every new transmission.

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.6.1.2 Test purpose

To verify that the MS uses the correct establishment cause in the CHANNEL REQUEST for upper layer signalling transfer when EGPRS PACKET CHANNEL REQUEST is not supported in GPRS cell options and PBCCH is not present.

52.6.1.3 Method of test

Initial conditions

System Simulator:

2 cells in different Routing Areas, but in same Location areas. EGPRS supported. EGPRS PACKET CHANNEL REQUEST not supported in GPRS cell options. PBCCH not present.

Mobile Station:

The MS is switched off. The SIM is updated to the test cell.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is switched on or powered up and triggered to perform a GPRS attach. The establishment cause in the CHANNEL REQUEST is checked. The SS pages the MS. The MS answers and the establishment cause in the CHANNEL REQUEST is checked. The SS then activates Cell B and lowers the RF level of Cell A until Cell A is no more suitable. Cell B is preferred by the MS. The MS initiates a Routing Area Update. The establishment cause in the CHANNEL REQUEST is checked.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--------------------------------------|---|
| 1 | SS | | The SS is set in network operation mode II and activates cell A. The following messages are sent and shall be received on cell A. |
| 2 | MS | | The MS is powered up or switched on and initiates an attach. |
| 3 | MS -> SS | CHANNEL REQUEST | Establishment cause = "Single block packet access". Received on RACH. |
| 4 | MS<->SS | {Completion of the attach procedure} | Macro |
| 5 | SS | | SS verifies that the correct establishment cause has been used in step 3. |
| 6 | SS -> MS | PAGING REQUEST TYPE 1 | Sent on PCH. Mobility Identity contains P-TMSI of the MS, Packet Page Indication indicates a packet paging procedure. |
| 7 | MS -> SS | CHANNEL REQUEST | Establishment cause = "Single block packet access". Received on RACH. |
| 8 | SS -> MS | IMMEDIATE ASSIGNMENT REJECT | Request Reference = pertaining to the message received in step 7, Sent on AGCH. |
| 9 | SS | | SS verifies that the correct establishment cause has been used in step 7. |
| 10 | SS | | Waits 50 seconds in order for the READY timer to expire. |
| 11 | | | The following messages are sent and shall be received on cell B. |
| 12 | SS | | Activate cell B with lower signal strength than cell A. The RF level of cell A is lowered until cell A is no more suitable. |
| 13 | MS | | Cell B is preferred by the MS. |
| 14 | MS -> SS | CHANNEL REQUEST | Establishment cause = "Single block packet access". Received on RACH. |
| 15 | SS -> MS | IMMEDIATE ASSIGNMENT | Request Reference = pertaining to the message received in step 14. Sent on AGCH. |
| 16 | MS -> SS | PACKET RESOURCE REQUEST | MS Radio Access Capability indicates that the MS supports EGPRS. |
| 17 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assigns an EGPRS TBF |
| 18 | MS -> SS | ROUTING AREA UPDATING REQUEST | Update type = 'RA updating' |
| 19 | SS -> MS | ROUTING AREA UPDATING ACCEPT | Update result = 'RA updated' |
| 20 | MS -> SS | ROUTING AREA UPDATING COMPLETE | |
| 21 | SS | | SS verifies that the correct establishment cause has been used in step 14. |

Specific message contents

None.

52.6.2 EGPRS Packet Access for signalling / EGPRS Packet Channel Request supported / CCCH case

52.6.2.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. The following table specifies which message and which establishment cause shall be used by an EGPRS mobile station when accessing an EGPRS capable cell depending on the purpose of the packet access procedure; this table covers the case where PBCCH is not present in the cell (see 3GPP TS 44.060 for the case where PBCCH is not present in the cell):

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. The following table specifies which message and which establishment cause shall be used by an EGPRS mobile station when accessing an EGPRS capable cell depending on the purpose of the packet access

procedure; this table covers the case where PBCCH is not present in the cell (see 3GPP TS 44.060 for the case where PBCCH is present in the cell):

| Purpose of the packet access procedure | EGPRS PACKET CHANNEL REQUEST supported in the cell | EGPRS PACKET CHANNEL REQUEST not supported in the cell |
|--|--|--|
| User data transfer – requested RLC mode = unacknowledged | EGPRS PACKET CHANNEL REQUEST with access type = 'Two-phase access' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| User data transfer – requested RLC mode = acknowledged | EGPRS PACKET CHANNEL REQUEST with access type = 'One-phase access' or 'Two-phase access' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| Upper layer signalling transfer (e.g. page response, cell update, MM signalling, etc) | EGPRS PACKET CHANNEL REQUEST with access type = 'signalling' | CHANNEL REQUEST with establishment cause = 'Single block packet access' for initiation of a two-phase access |
| Sending of a measurement report or of a PACKET CELL CHANGE FAILURE | CHANNEL REQUEST with establishment cause = 'Single block packet access' | |
| Sending of a PACKET PAUSE message | CHANNEL REQUEST with establishment cause = 'Single block packet access' (NOTE 1) | |
| Sending of an MBMS Service Request message | CHANNEL REQUEST with establishment cause = 'Single block MBMS access' | |
| NOTE 1: Upon sending the first CHANNEL REQUEST message the mobile station shall start timer T3204. If timer T3204 expires before an IMMEDIATE ASSIGNMENT message granting a single block period on an assigned packet uplink resource is received, the packet access procedure is aborted. If the mobile station receives an IMMEDIATE ASSIGNMENT message during the packet access procedure indicating a packet downlink assignment procedure, the mobile station shall ignore the message. | | |

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from an uniform probability distribution for every new transmission.

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.6.2.2 Test purpose

To verify that the MS uses the correct Access Type in the EGPRS PACKET CHANNEL REQUEST for upper layer signalling transfer when EGPRS PACKET CHANNEL REQUEST is supported in GPRS cell options and PBCCH is not present.

52.6.2.3 Method of test

Initial conditions

System Simulator:

2 cells in different Routing Areas, but in same Location areas. EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options. PBCCH not present.

Mobile Station:

The MS is switched off. The SIM is updated to the test cell.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is switched on or powered up and triggered to perform a GPRS attach. The access type in the EGPRS PACKET CHANNEL REQUEST is checked. The SS pages the MS. The MS answers and the access type in the EGPRS PACKET CHANNEL REQUEST is checked. The SS then activates Cell B and lowers the RF level of Cell A until Cell A is no more suitable. Cell B is preferred by the MS. The MS initiates a Routing Area Update. The access type in the EGPRS PACKET CHANNEL REQUEST is checked.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--------------------------------------|---|
| 1 | SS | | The SS is set in network operation mode II and activates cell A. The following messages are sent and shall be received on cell A. |
| 2 | MS | | The MS is powered up or switched on and initiates an attach. |
| 3 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Access Type = "signalling". Received on RACH. |
| 4 | MS<->SS | {Completion of the attach procedure} | Macro |
| 5 | SS | | SS verifies that the correct Access Type has been used in step 3. |
| 6 | SS -> MS | PAGING REQUEST TYPE 1 | Sent on PCH. Mobility Identity contains P-TMSI of the MS, Packet Page Indication indicates a packet paging procedure. |
| 7 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Access Type = "signalling". Received on RACH. |
| 8 | SS -> MS | IMMEDIATE ASSIGNMENT REJECT | Request Reference = pertaining to the message received in step 7, Sent on AGCH. |
| 9 | SS | | SS verifies that the correct Access Type has been used in step 7. |
| 10 | SS | | Waits 50 seconds in order for the READY timer to expire. |
| 11 | | | The following messages are sent and shall be received on cell B. |
| 12 | SS | | Activate cell B with lower signal strength than cell A. The RF level of cell A is lowered until cell A is no more suitable. |
| 13 | MS | | Cell B is preferred by the MS. |
| 14 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Access Type = "signalling". Received on RACH. |
| 15 | SS -> MS | IMMEDIATE ASSIGNMENT | Request Reference = pertaining to the message received in step 14. Sent on AGCH. |
| 16 | MS -> SS | PACKET RESOURCE REQUEST | MS Radio Access Capability indicates that the MS supports EGPRS. |
| 17 | SS -> MS | PACKET UPLINK ASSIGNMENT | Assigns an EGPRS TBF |
| 18 | MS -> SS | ROUTING AREA UPDATING REQUEST | Update type = 'RA updating' |
| 19 | SS -> MS | ROUTING AREA UPDATING ACCEPT | Update result = 'RA updated' |
| 20 | MS -> SS | ROUTING AREA UPDATING COMPLETE | |
| 21 | SS | | SS verifies that the correct Access Type has been used in step 14. |

Specific message contents

None.

52.6.3 Void

52.6.4 Void

52.6.5 EGPRS Packet Access for signalling / EGPRS Packet Channel Request supported / low access priority

52.6.5.1 Conformance requirements

A mobile station configured for “low access priority” (see 3GPP TS 23.060), when attempting to establish a PS connection other than when it is a member of an authorized special access class or in case of a paging response shall, while ignoring MS identities included within PAGING REQUEST messages, start listening to the downlink CCCH until successfully decoding one of the RR messages listed in sub-clause 3.3.1.1.1a. If the RR message indicates an implicit reject for the PS domain (see sub-clause 3.3.1.1.1a) the mobile station shall abort the packet access procedure and initiate the implicit reject procedure (see sub-clause 3.3.1.1.3.2a).

A mobile station configured for "low access priority" attempting a packet access for the purpose of signalling shall set the Low Access Priority Signalling field to "1" in the PACKET RESOURCE REQUEST message (see sub-clause 11.2.16). The *Low Access Priority Signalling* field shall be set to "0" if the PACKET RESOURCE REQUEST message is sent for any other reason **and** includes the *Low Access Priority Signalling* field.

Reference

3GPP TS 44.060 subclause 7.1.3.1 and 3GPP TS 44.018 subclause 3.5.2.1.2.

52.6.5.2 Test purpose

To verify that the low access priority indicator is sent in the PS domain PACKET RESOURCE REQUEST message

52.6.5.3 Method of test

Initial conditions

System Simulator:

1 cell EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options.

Mobile Station:

The MS is switched off. The SIM is updated to the test cell.

The MS is configured for “low access priority”

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is switched on or powered up and triggered to perform a GPRS attach. The SS checks that the Low Access Priority Signalling field is set to "1" in the PACKET RESOURCE REQUEST message.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|---|---|
| 1 | SS | | The SS is set in network operation mode II and activates cell. The following messages are sent and shall be received on cell. |
| 2 | MS | | The MS is powered up or switched on and initiates an attach. |
| 3 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Access Type = "signalling". Received on RACH. |
| 4 | SS -> MS | IMMEDIATE ASSIGNMENT | Request Reference = pertaining to the message received in step 3. Sent on AGCH. |
| 5 | MS -> SS | PACKET RESOURCE REQUEST | MS Radio Access Capability indicates that the MS supports EGPRS. SS verifies that the Low Access Priority Signalling field is set to "1" |
| 6 | MS<->SS | Completion of macro {GPRS attach procedure} | SS allows MS to complete GPRS attach. |

Specific message contents

None.

52.7 Void

52.8 One phase access/ CONTENTION_RESOLUTION_TLLI

52.8.1 One phase access/ CONTENTION_RESOLUTION_TLLI /
Contention Resolution

The contention resolution is successfully completed on the mobile station side when the mobile station receives a PACKET UPLINK ACK/NACK message addressing the mobile station with the TFI value associated with the uplink TBF and including the same TLLI value that the mobile station has included in the RLC header of the first RLC data blocks, or, in EGPRS TBF mode, a PACKET UPLINK ASSIGNMENT message addressing the mobile station with the same TLLI value that the mobile station included in the RLC header of the first RLC data blocks. The mobile shall then stop timer T3166 and counter N3104.

At sending of the first RLC data block, the mobile station shall stop timer T3164, set counter N3104 to 1, and start timer T3166. Counter N3104 shall be stepped each time the mobile station sends an RLC data block.

52.8.1.1 Void

52.8.1.2 Void

52.8.1.3 Void

52.8.1.4 Void

52.8.1.5 Void

52.8.1.6 One phase access/ PBCCH not present/
CONTENTION_RESOLUTION_TLLI / Contention resolution / Inclusion of
TLLI in RLC data blocks

52.8.1.6.1 Conformance requirements

In order to uniquely identify the mobile station when sending on uplink, the RLC Header is extended to include the TLLI of the mobile station until contention resolution is completed on the mobile station side.

All the RLC data blocks of an uplink TBF initiated by one phase access shall each contain a TLLI field in the RLC data block header until the contention resolution is completed on the mobile station side. After the reaction time specified in 3GPP TS 05.10 no other RLC data blocks shall contain a TLLI field.

The TLLI_BLOCK_CHANNEL_CODING parameter in the PACKET UPLINK ASSIGNMENT message indicates whether a RLC data block containing a TLLI field in the RLC data block header shall be encoded using CS-1 or correspondingly MCS-1 in EGPRS TBF mode, or using the channel coding scheme commanded. In standard GPRS TBF mode, the mobile station shall send all other RLC data blocks using the channel coding scheme commanded.

In EGPRS TBF mode, RLC data blocks that are transmitted for the first time shall be transmitted with the MCS commanded, except if the commanded mode is MCS-5-7, in which case the data block shall be transmitted with MCS-5, or if the commanded mode is MCS-6-9, in which case the data block shall be transmitted with MCS-6.

Upon contention resolution during one phase access, the mobile station shall start transmitting RLC data blocks without the TLLI field no later than the next occurrence of block $B((x+3) \bmod 12)$ where block $B(x)$ is the radio block containing the contention resolution message.

Reference

3GPP TS 04.60 subclauses 7.1.2.3 and 8.1.1.

3GPP TS 05.10 subclause 6.1.1.3.

52.8.1.6.2 Test purpose

1. To verify that in one phase access the first RLC data blocks of an uplink TBF contain a TLLI field in the RLC data block header and that these blocks are encoded according to the TLLI_BLOCK_CHANNEL_CODING parameter specified in the PACKET UPLINK ASSIGNMENT message.
2. To verify that upon contention resolution during one phase access the RLC data blocks not contain a TLLI field and are encoded using the EGPRS_Channel Coding Command IE included in the PACKET_UPLINK_ASSIGNMENT after the contention resolution reaction time.

52.8.1.6.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The MS is triggered to transfer an LLC PDU. The SS sends IMMEDIATE ASSIGNMENT message containing Dynamic Allocation struct. The MS shall start to send RLC data and RLC/MAC control blocks on the allocated uplink. The SS allows the MS to send the uplink data transfer. The SS verifies the coding is the scheme specified by TLLI_BLOCK_CHANNEL_CODING, the TFI is correct and the block contains TLLI in the first RLC data blocks. After contention resolution reaction time shall the remaining RLC data blocks contain coding scheme specified by EGPRS Channel Coding Command, the TFI shall be correct and the blocks do not contain TLLI.

Maximum duration of the test

3 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|-------------------------|-----------|-------------------------------------|--|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 500 octets data. |
| 2 2A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, MCS2 is used and TLLI_BLOCK_CHANNEL_CODING indicating MCS1 Sent on AGCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 3, containing USF assigned to the MS. |
| 5 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding is the scheme specified by TLLI_BLOCK_CHANNEL_CODING, the TFI is correct and the block contains TLLI. |
| 6 | SS | | Check that there is no RLC data block transmitted by the MS in the next radio block on PDTCH. |
| 7 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH of the PDCH. Containing correct CONTENTION_RESOLUTION_TLLI |
| 8 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF assigned to MS. sent on the assigned PDTCH in step 7 (sent 6 block period from step 7) |
| A8.1 (optional step) | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding is the scheme specified by TLLI_BLOCK_CHANNEL_CODING, the block contains TLLI and the TFI is either the old TFI value or the newly assigned TFI. |
| A8.2 (optional step) | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 7, containing USF assigned to the MS. |
| 9 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check the coding is the scheme specified by CHANNEL_CODING_COMMAND, the TFI is correct and the block does not contain TLLI. |
| 10 | SS -> MS | PACKET UPLINK ACK/NACK | Sent on the PACCH of the PDCH assigned in step 7, containing USF assigned to the MS. |
| 11 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding is the scheme specified by EGPRS Channel Coding Command, the TFI is correct and the block does not contain TLLI. |
| 12 | | | Repeat step 10 and 11 until the countdown value CV=0 in step 11. |
| 13 | SS -> MS | PACKET UPLINK ACK/NACK | Final Ack Indicator = '1' containing valid RRBP. Sent on PACCH of the assigned PDCH. |
| 14 | 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 7:

| Information Element | value/ remark |
|--------------------------------|--|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing the same value as the received one |
| {0 1 <UPLINK_TFI_ASSIGNMENT> | 1 |
| UPLINK_TFI_ASSIGNMENT} | Different from the TFI value assigned in step 3 |

52.8.1.7 One phase access/ PBCCH not present / CONTENTION_RESOLUTION_TLLI / Contention resolution / Counter N3104

52.8.1.7.1 Conformance requirements

The contention resolution has failed on the mobile station side when the counter N3104 reaches its maximum value, or timer T3166 expires. The contention resolution also fails, if the mobile station receives a PACKET UPLINK ACK/NACK message or in EGPRS TBF mode a PACKET UPLINK ASSIGNMENT message addressing the TFI associated with the TBF and including a TLLI value other than that the mobile station included in the RLC header of the first RLC data blocks; in such a case, the mobile station shall not transmit a PACKET CONTROL ACKNOWLEDGEMENT in the uplink radio block specified if a valid RRBP field is received as part of the PACKET UPLINK ACK/NACK message.

In case of a contention resolution failure on the mobile station side, the mobile station shall reset the counter N3104 and stop timer T3166, if not expired. The mobile station shall stop transmitting on the TBF and reinitiate the packet access procedure, unless it has already been repeated 4 times. In that case, a TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

52.8.1.7.2 Test purpose

To verify that the mobile station 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 $N3104_MAX = 3 * (BS_CV_MAX + 3) * \text{no-of-timeslots-assigned}$, where BS_CV_MAX is broadcast in PSI1.

52.8.1.7.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS. The packet system information BS_CV_MAX value = 1.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been 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 of an LLC PDU. 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 verifies that the MS stops transmitting and re-initiates the packet access procedure.

At the second attempt, the SS sends PACKET UPLINK ASSIGNMENT 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

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---------|-----------|--|---|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 500 octets data. |
| 2 2A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, MCS1 is used Sent on AGCH. |
| 4 | MS -> SS | n RLC data blocks | SS receives n = N3104_MAX data blocks. Received on the assigned PDTCH. |
| 5 | SS | | SS verifies that MS does not send further RLC data blocks. |
| 6 6A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | MS re-initiates packet access procedure. Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 7 | SS -> MS | IMMEDIATE ASSIGNMENT | Indicating one phase packet access granted. Sent on AGCH. |
| 8 | MS -> SS | n-1 RLC data blocks | SS receives N3104_MAX – 1 data blocks. Received on the assigned PDTCH. |
| 9 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH. Containing correct value of CONTENTION_RESOLUTION_TLLI |
| 10 | | {Uplink data transfer, dynamic allocation} | Macro. Completion of the macro procedure. |

Specific message contents

PACKET UPLINK ASSIGNMENT message in step 9:

| Information Element | value/remark |
|--------------------------------|--|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing the same value as the received one |

52.8.1.8 One phase access/ PBCCH not present / CONTENTION_RESOLUTION_TLLI / Contention resolution / Timer T3166

52.8.1.8.1 Conformance requirements

The contention resolution has failed on the mobile station side when the counter N3104 reaches its maximum value, or timer T3166 expires. The contention resolution also fails, if the mobile station receives a PACKET UPLINK ACK/NACK message or in EGPRS TBF mode a PACKET UPLINK ASSIGNMENT message addressing the TFI associated with the TBF and including a TLLI value other than that the mobile station included in the RLC header of the first RLC data blocks ; in such a case, the mobile station shall not transmit a PACKET CONTROL ACKNOWLEDGEMENT in the uplink radio block specified if a valid RRBP field is received as part of the PACKET UPLINK ACK/NACK message.

In case of a contention resolution failure on the mobile station side, the mobile station shall reset the counter N3104 and stop timer T3166, if not expired. The mobile station shall stop transmitting on the TBF and reinitiate the packet access procedure, unless it has already been repeated 4 times. In that case, a TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

52.8.1.8.2 Test purpose

To verify that the mobile station correctly considers timer T3166.

52.8.1.8.3 Method of test

Initial conditions

System Simulator:

1 cell, supporting EGPRS.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

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PIXIT Statements

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Foreseen final state of the MS

Packet idle mode.

Test procedure

The MS is triggered to initiate packet uplink transfer of an LLC PDU. 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 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 45 blocks for current settings). The SS verifies that the MS stops transmitting and re-initiates the packet access procedure.

At the second attempt, the SS sends PACKET UPLINK ASSIGNMENT before T3166 expire. 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 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 1000 octets data. |
| 2 2A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, MCS1 is used Sent on AGCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF addressing the MS. Sent on PACCH of PDCH assigned in step 3. |
| 5 | MS -> SS | RLC data block | Received on the assigned PDTCH. |
| 6 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 7 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 8 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 9 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 10 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 11 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 12 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 13 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 14 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 15 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 16 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF not addressing the MS. Sent on PACCH. |
| 17 | MS<->SS | | Steps 4 to 16 are repeated at most 22 times or until MS does not send further RLC data blocks at step 5. Note: steps 4 to 16 transfer one block every 52 frames, or 240 ms. 22 repetitions require about 5.5 s. (Timer T3166 shall expire). |
| 19 19A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | MS re-initiates packet access procedure. Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 20 | SS -> MS | IMMEDIATE ASSIGNMENT | Indicating one phase packet access granted, MCS-1 shall be used and USF_GRANULARITY = one block. Sent on AGCH. |
| 21 | MS<->SS | | Steps 4 to 16 are repeated 17 times. Note: 17 repetitions require about 4.3 s. (Timer T3166 should not expire). |
| 22 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH. Containing correct value of CONTENTION_RESOLUTION_TLLI |
| 23 | | {Uplink data transfer, dynamic allocation} | Macro. Completion of the TBF procedure. |

Specific message contents

PACKET UPLINK ASSIGNMENT message in step 22:

| Information Element | value/remark |
|--------------------------------|--|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing the same value as the received one |

52.8.1.9 One phase access/ PBCCH not present / CONTENTION_RESOLUTION_TLLI / Contention resolution / TLLI mismatch

52.8.1.9.1 Conformance requirements

The contention resolution has failed on the mobile station side when the counter N3104 reaches its maximum value, or timer T3166 expires. The contention resolution also fails, if the mobile station receives a PACKET UPLINK ACK/NACK message or in EGPRS TBF mode a PACKET UPLINK ASSIGNMENT message addressing the TFI associated with the TBF and including a TLLI value other than that the mobile station included in the RLC header of the first RLC data blocks ; in such a case, the mobile station shall not transmit a PACKET CONTROL ACKNOWLEDGEMENT in the uplink radio block specified if a valid RRBP field is received as part of the PACKET UPLINK ACK/NACK message.

In case of a contention resolution failure on the mobile station side, the mobile station shall reset the counter N3104 and stop timer T3166, if not expired. The mobile station shall stop transmitting on the TBF and reinitiate the packet access procedure, unless it has already been repeated 4 times. In that case, a TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

52.8.1.9.2 Test purpose

To verify that the mobile station reinitiates packet access when it receives a PACKET UPLINK ASSIGNMENT message with the correct TFI but with a CONTENTION_RESOLUTION_TLLI other than the mobile station has included in the RLC header.

52.8.1.9.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been 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 of an LLC PDU. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data block after SS has assigned USF to the MS. The SS acknowledges the RLC block transfer with a PACKET UPLINK ACK/NACK including correct TFI and incorrect TLLI. The SS continues to assign USF to the MS. The SS shall verify that the MS immediately stops transmitting (see note below) and retries packet access procedure.

At the second attempt, the SS sends PACKET UPLINK ASSIGNMENT including a correct TLLI. The SS verifies that this time the MS does not abort the access procedure and successfully completes the data transfer.

NOTE: A mobile station, receiving a commanding message in block number N, shall take an "immediate" action as a result of the command, starting in any block from block number N+1 to N+6 (inclusive).

Maximum duration of the test

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---------|-----------|--|--|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 200 octets data. |
| 2 2A | MS -> SS | EPCAP CHANNEL REQUEST | Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, MCS1 is used Sent on AGCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Contained USF assigned to the MS. |
| 5 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 6 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH. Containing wrong value of CONTENTION_RESOLUTION_TLLI |
| 7 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Execute step 7 six times with USF assigned to the MS or until the MS sends Packet Channel request in step 8. The SS verifies that the MS does not transmit more than 6 uplink RLC data block after step 6 and before step 8. |
| 8 8A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | MS re-initiates packet access procedure. Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 9 | SS -> MS | IMMEDIATE ASSIGNMENT | Indicating one phase packet access granted, dynamic allocation struct and USF_GRANULARITY = one block. Sent on AGCH. |
| 10 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Contained USF assigned to the MS. |
| 11 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 12 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH. Containing correct value of CONTENTION_RESOLUTION_TLLI |
| 13 | | {Uplink data transfer, dynamic allocation} | Macro. Completion of the TBF procedure. |

Specific message contents

PACKET UPLINK ASSIGNMENT message in step 6:

| Information Element | value/ remark |
|--------------------------------|---|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing different value than the received one |

PACKET UPLINK ASSIGNMENT message in step 12:

| Information Element | value/ remark |
|--------------------------------|--|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing the same value as the received one |

52.8.1.10 One phase access/ PBCCH not present / CONTENTION_RESOLUTION_TLLI / Contention resolution / 4 access repetition attempts

52.8.1.10.1 Conformance requirement

The contention resolution has failed on the mobile station side when the counter N3104 reaches its maximum value, or timer T3166 expires. The contention resolution also fails, if the mobile station receives a PACKET UPLINK

ACK/NACK message or in EGPRS TBF mode a PACKET UPLINK ASSIGNMENT message addressing the TFI associated with the TBF and including a TLLI value other than that the mobile station included in the RLC header of the first RLC data blocks ; in such a case, the mobile station shall not transmit a PACKET CONTROL ACKNOWLEDGEMENT in the uplink radio block specified if a valid RRBP field is received as part of the PACKET UPLINK ACK/NACK message.

In case of a contention resolution failure on the mobile station side, the mobile station shall reset the counter N3104 and stop timer T3166, if not expired. The mobile station shall stop transmitting on the TBF and reinitiate the packet access procedure, unless it has already been repeated 3 or 4 times. In that case, a TBF failure has occurred.

Reference

3GPP TS 04.60 subclause 7.1.2.3.

52.8.1.10.2 Test purpose

To verify that the mobile station repeats the packet access initiation 4 times.

52.8.1.10.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to initiate packet uplink transfer of an LLC PDU. The SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access. The MS shall start transferring RLC data blocks after SS has assigned USF to the MS. The SS acknowledges the RLC block transfer with a PACKET UPLINK ASSIGNMENT including a TLLI not corresponding to the MS. The SS shall verify that the MS stops transmitting blocks and reinitiates packet access. This test sequence shall be repeated three or four times.

Maximum duration of the test

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---------|-----------|-------------------------------------|---|
| 1 | MS | | The MS is triggered to initiate packet uplink transfer of an LLC PDU consisting of 200 octets data. |
| 2 2A | MS -> SS | EPCAP CHANNEL REQUEST | Received on RACH. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, MCS1 is used Sent on AGCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Contained USF assigned to the MS. |
| 5 | MS -> SS | UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. |
| 6 | SS -> MS | PACKET UPLINK ASSIGNMENT | Sent on the PACCH. Containing wrong value of CONTENTION_RESOLUTION_TLLI |
| 7 | SS | | The SS verifies that the MS reinitiates the packet access procedure from step 2 three or four times (a total of 4 or 5 access). |

Specific message contents

PACKET UPLINK ASSIGNMENT message in step 6:

| Information Element | value/remark |
|--------------------------------|---|
| - | 0 (Global TFI) |
| - Global TFI | The TFI value assigned in step 3 |
| Message Escape bit | 1 (EGPRS) |
| 1 <CONTENTION_RESOLUTION_TLLI> | 1 CONTENTION_RESOLUTION_TLLI containing different value than the received one |

52.8.1.11 Void

52.8.1.12 One phase access/PBCCH absent/CONTENTION_RESOLUTION_TLLI/
Contention resolution / Successful Resource Reallocation

52.8.1.12.1 Conformance requirements

The TLLI is used to uniquely identify the mobile station when sending on uplink. Every RLC data block that is sent on the TBF shall include the TLLI of the mobile station, until the contention resolution is completed on the mobile station side. If MCS-7, MCS-8 or MCS-9 is used for the transmission of the TLLI in EGPRS TBF mode (i.e., the RLC/MAC block is carrying two RLC data blocks), the TLLI shall be inserted in both RLC data blocks. The TLLI shall also be included in the PACKET RESOURCE REQUEST and the ADDITIONAL MS RADIO ACCESS CAPABILITIES messages, if those are sent during the contention resolution.

The retransmission of an RLC data block shall include the TLLI (or the TLLI and the PFI field), if the RLC data block was originally transmitted including these fields, also if the retransmission occurs after the completion of the contention resolution.

The network shall respond by including the TLLI in the PACKET UPLINK ACK/NACK message after the first correctly received RLC data block that comprises the TLLI. In EGPRS TBF mode, the network may instead respond by addressing the mobile station with the TFI of the assigned TBF and including the TLLI (in the CONTENTION_RESOLUTION_TLLI field) in a PACKET UPLINK ASSIGNMENT message, if the resources allocated for the TBF need to be reallocated (see clauses 8.1.1.1.2, 8.1.1.3.1 and 8.1.1.3.2).

The contention resolution is successfully completed on the mobile station side when the mobile station receives a PACKET UPLINK ACK/NACK message addressing the mobile station with the TFI value associated with the uplink TBF and including the same TLLI value that the mobile station has included in the RLC header of the first RLC data blocks, or alternatively, in EGPRS TBF mode, a PACKET UPLINK ASSIGNMENT message addressing the mobile station with the TFI value associated with the uplink TBF and including the same TLLI value that the mobile station included in the RLC header of the first RLC data blocks. The mobile shall then stop timer T3166 and counter N3104.

Reference

3GPP TS 04.60 subclauses 7.1.2.3

3GPP TS 05.10 subclause 6.1.1.3

3GPP TS 04.18 subclause 3.5.2.1.3.2

52.8.1.12.2 Test purpose

To verify that in EGPRS TBF mode, during one phase access if SS sends a PACKET UPLINK ASSIGNMENT message for successful contention resolution and if the uplink resources are reallocated by the PACKET UPLINK ASSIGNMENT message, the mobile station successfully take into consideration the new resources allocated in the PACKET UPLINK ASSIGNMENT message.

52.8.1.12.3 Method of test

Initial conditions

System Simulator:

1 cell supporting EGPRS. PBCCH not present.

Mobile Station:

The MS is GPRS attached and in packet idle mode. PDP context 2 has been established.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The MS is triggered to transfer 500 octets of data. In response to EGPRS PACKET CHANNEL REQUEST sent by the MS, the SS assigns packet uplink resources in an IMMEDIATE ASSIGNMENT message indicating one phase packet access.

SS allocate resources to the MS to transfer RLC data blocks. SS verifies that all the data blocks contain TLLI field. SS sends a PACKET UPLINK ASSIGNMENT message addressing the MS with the TFI value associated with the Uplink TBF and including the correct TLLI in the CONTENTION_RESOLUTION_TLLI field. SS reallocate the resources of the uplink TBF in the PACKET UPLINK ASSIGNMENT message by changing the associated TFI and Coding scheme of the uplink TBF.

SS verifies that MS takes into consideration the resource reallocation in the PACKET UPLINK ASSIGNMENT message by checking that the MS uses the new TFI and coding scheme for transmission of new RLC data blocks and that the MS does not include TLLI in the RLC Data Block header.

Maximum duration of the test

5 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------------------|-----------|--|--|
| 1 | MS | | The MS is triggered transfer 500 octets data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Received on RACH. |
| 2A | | | If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT | Dynamic allocation struct, USF_GRANULARITY = one block, Sent on AGCH. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 3, containing USF assigned to the MS. |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Check that the coding is the scheme specified by TLLI_BLOCK_CHANNEL_CODING, the TFI is correct and the block contains TLLI. |
| 6 | - | | Repeat Step 4 & 5 five times. |
| 7 | SS -> MS | PACKET UPLINK ASSIGNMENT | Addressing the MS with the TFI allocated in Step 3. Dynamic allocation struct, USF_GRANULARITY = one block. Assign different TFI and Modulation and Coding scheme. Sent on PACCH. |
| 8 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Sent on the PACCH of the PDCH assigned in step 7, containing USF assigned to the MS. |
| 9A (optional) | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | The MS may send an EGPRS RLC Data Block with TLLI field already in the transmit buffer. |
| 9B (optional) | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | If optional step 9A is received. Sent on the PACCH of the PDCH assigned in step 7, USF assigned to the MS. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH. Verify that the RLC Data block contains the correct TFI As assigned in Step 7. Verify that the Modulation and Coding Scheme is as commanded in Step 7 |
| 10 | | {Completion of uplink RLC data block transfer} | Verify that the data block does not contain TLLI. |

Specific message contents

IMMEDIATE ASSIGNMENT message in step 3:

| | |
|----------------------------------|-------|
| < EGPRS Channel Coding Command > | MCS-2 |
| < TLLI_BLOCK_CHANNEL_CODING > | 1 |

PACKET UPLINK ASSIGNMENT message in step 7:

| | |
|---------------------------------------|---|
| {0 < Global TFI > | Same as UL TFI assigned in Step 3 |
| { 0 1 <CONTENTION_RESOLUTION_TLLI > | 1 |
| CONTENTION_RESOLUTION_TLLI} | Same as TLLI received in the RLC Data Block in Step 5 |
| < EGPRS Channel Coding Command > | MCS-4 |
| {0 1 <UPLINK_TFI_ASSIGNMENT> | 1 |
| UPLINK_TFI_ASSIGNMENT | Different from the TFI value assigned in Step 3. |

52.9 Extended Dynamic Allocation in Packet Transfer Mode

52.9.1 Default message contents

All default conditions, message contents and macros are defined in section 50, except for the messages as described in this subclause. These messages are applicable to the whole section 52.9, they shall be transmitted by the system simulator and are required to be received by the MS under test.

In this clause, decimal values are normally used. However, sometimes a hexadecimal value, indicated by an "Hex", or a binary value, indicated by a "Binary" is used.

PACKET DOWNLINK ASSIGNMENT message:

| | |
|--|---|
| MESSAGE_TYPE | 000010 |
| PAGE_MODE | Normal Paging |
| {0 1<PERSISTENCE_LEVEL>} | 0 |
| - | 10 (address is TLLI) |
| - TLLI | same value as received from MS since GPRS attached |
| MAC_MODE | 0, message escape |
| RLC_MODE | Extended Dynamic Allocation |
| CONTROL_ACK | acknowledged mode |
| TIMESLOT_ALLOCATION | 0 |
| Packet Timing Advance | single slot arbitrarily chosen from valid values, default slot 2 |
| - {0 1<TIMING_ADVANCE_VALUE>} | 1 (presence of the timing advance value) |
| - TIMING_ADVANCE_VALUE | 30 bit periods |
| - {0 1<TIMING_ADVANCE_INDEX> | 0 (no timing advance index) |
| <TIMING_ADVANCE_TIMESLOT_NUMBER >} | |
| - {0 1<P0><BTS_PWR_CTRL_MODE>} | 0 |
| {0 1<Frequency Parameters>} | 0 (Frequency Parameters not present) |
| {0 1<DOWNLINK_TFI_ASSIGNMENT>} | 1 (assign downlink TFI) |
| - DOWNLINK_TFI_ASSIGNMENT | Arbitrarily chosen from valid values (default 3) |
| {0 1<Power Control Parameters>} | 1 (Power Control Parameters present) |
| - ALPHA | 0.5 |
| - {0 1<GAMMA_TN0>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN0) |
| - {0 1<GAMMA_TN1>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN1) |
| - {0 1<GAMMA_TN2>} | Depending on the value in TIMESLOT_ALLOCATION (default 1 GAMMA_TN2) |
| - GAMMA_TN2 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<GAMMA_TN3>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN0) |
| - {0 1<GAMMA_TN4>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN4) |
| - {0 1<GAMMA_TN5>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN5) |
| - {0 1<GAMMA_TN6>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN6) |
| - {0 1<GAMMA_TN7>} | Depending on the value in TIMESLOT_ALLOCATION (default 0 no GAMMA_TN7) |
| {0 1<TBF_STARTING_TIME>} | 1 (starting time present) |
| - TBF_STARTING_TIME | 0, absolute frame number encoding, indicating (current frame + 13 frames) |
| {0 1<Measurement Mapping>} | 0 (no measurement mapping) |
| {1 0} | 1 (Additional contents for EGPRS present) |
| {0 1 <EGPRS window size> | 1 |
| - EGPRS window size | 00000 (64 blocks) |
| <Link quality measurement mode> | 00 (MS shall not report) |
| {0 1 <BEP_PERIOD2> } | 0 |
| {0 1 <Packet extended timing advance>} | 0 |
| {0 1 <COMPACT reduced MA>} | 0 |
| spare padding | Spare Padding |

PACKET TIMESLOT RECONFIGURE message (dynamic allocation without assigning a new TBF):

| | |
|---|--|
| MESSAGE_TYPE | 000111 |
| PAGE_MODE | Normal Paging |
| 0<GLOBAL_TFI> | 0 The TFI value of the uplink TBF or downlink TBF which this message applies to (default 00101) 0, message escape |
| {0 1 <COMPACT reduced MA>} | 0 |
| EGPRS CHANNEL CODING COMMAND | Arbitrarily chosen from valid values (default MCS-1) |
| Resegment | 1, Retransmitted RLC blocks Resegmented according to commanded MCS |
| {0 1 <Downlink EGPRS window size> | 1 |
| - Downlink EGPRS window size | 00000 (64 blocks) |
| {0 1 <Uplink EGPRS window size> | 1 |
| - Uplink EGPRS window size | 00000 (64 blocks) |
| <LINK_QUALITY_MEASUREMENT_MODE> | 00, No measurements |
| Global Packet Timing Advance | |
| - {0 1<TIMING_ADVANCE_VALUE> | 1 (timing advance value present) |
| - 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. |
| R>} | |
| {0 1 <Packet Extended Timing Advance> | 0 |
| DOWNLINK_RLC_MODE | Same as in the Test PDP context used |
| CONTROL_ACK | 0 |
| {0 1<DOWNLINK_TFI_ASSIGNMENT> | 0 |
| {0 1<UPLINK_TFI_ASSIGNMENT> | 0 |
| DOWNLINK_TIMESLOT_ALLOCATION | arbitrarily chosen from valid values (default 00010000) |
| {0 1<Frequency Parameters> | 0 (use current parameters) |
| Dynamic allocation | 0 |
| - Extended Dynamic Allocation | 1 (Extended Dynamic Allocation) |
| - {0 1<P0><PR_MODE> | 0 |
| - USF_GRANULARITY | 0, one block |
| - {0 1<RLC_DATA_BLOCKS_GRANTED> | 0 (no RLC_DATA_BLOCKS_GRANTED, open-ended TBF) |
| - {0 1<TBF_STARTING_TIME> | 1 (starting time) |
| - TBF_STARTING_TIME | 1, relative frame number encoding indicating current frame + 104 by absolute encoding |
| - | 1 (Timeslot Allocation with Power Control Parameters) |
| - ALPHA | one slot arbitrarily chosen and different from current slot, the following USF_TNx and GAMMA_TNx shall be corresponding to the chosen value, default timeslot 3. |
| - {0 1<USF_TN0><GAMMA_TN0> | 0.5 |
| - {0 1<USF_TN1><GAMMA_TN1> | 0 (timeslot 0 not assigned) |
| - {0 1<USF_TN2><GAMMA_TN2> | 0 (timeslot 1 not assigned) |
| - {0 1<USF_TN3><GAMMA_TN3> | 0 (timeslot 2 not assigned) |
| - {0 1<USF_TN3><GAMMA_TN3> | 1 (timeslot 3 assigned) |
| - USF_TN3 | arbitrarily chosen and different from current value, default 4 |
| - GAMMA_TN3 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN4><GAMMA_TN4> | 1 (timeslot 4 assigned) |
| - USF_TN4 | Arbitrarily chosen (default 3) but it must be different than USF_TN3 |
| - GAMMA_TN4 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |

| | |
|-----------------------------|---|
| - {0 1<USF_TN5><GAMMA_TN5>} | 1 (timeslot 5 assigned), if the MS supports at least 3 timeslots uplink 0 (timeslot 5 not assigned), if the MS supports only 2 timeslots uplink |
| - USF_TN5 | Only if timeslot 5 is assigned. Arbitrarily chosen (default 2) but it must be different to USF_TN3 and USF_TN4 |
| - GAMMA_TN5 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN6><GAMMA_TN6>} | 1 (timeslot 6 assigned), if the MS supports at least 4 timeslots uplink 0 (timeslot 6 not assigned), if the MS supports less than 4 timeslots uplink |
| - USF_TN6 | Only if timeslot 6 is assigned. Arbitrarily chosen (default 1) but it must be different to USF_TN3, USF_TN4 and USF_TN5 |
| - GAMMA_TN6 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN7><GAMMA_TN7>} | 0(timeslot 7 not assigned) |
| spare padding | Spare Padding |

For assignment of an uplink TBF while a downlink TBF has been established, the address information should be changed to DOWNLINK_TFI of Global_TFI. UPLINK_TFI_ASSIGNMENT is present.

PACKET UPLINK ASSIGNMENT message (two-phase dynamic allocation assigning a TBF):

| | |
|---------------------------------------|--|
| MESSAGE_TYPE | 001010 |
| PAGE_MODE | Normal Paging |
| {0 1<PERSISTENCE_LEVEL>} | 0 (no persistence level present) |
| - Address information | 10 (TLLI) |
| - TLLI | The value received from the MS |
| {0 1 <COMPACT Reduced MA> | 0, |
| EGPRS CHANNEL_CODING_COMMAND | Arbitrarily chosen from the valid values (default MCS-1) |
| Resegment | 1, Retransmitted blocks can be re-segmented using the selected MCS |
| EGPRS Window size | 00000, 64 blocks |
| {0 1 <Access Technologies Request> } | 0 Access technology Request Info not present |
| ARAC RETRANSMISSION REQUEST | 0, No retransmission |
| TLLI_BLOCK_CHANNEL_CODING | '0'B, cs-1 |
| {0 1 <BEP_PERIOD2> } | 0 |
| Packet Timing Advance | |
| - {0 1<TIMING_ADVANCE_VALUE>} | 1 (timing advance value) |
| - TIMING_ADVANCE_VALUE | 30 bit periods |
| - {0 1<TIMING_ADVANCE_INDEX> | 0 (no timing advance index) |
| <TIMING_ADVANCE_TIMESLOT_NUMBER >} | |
| {0 1 <Packet Extended Timing Advance> | 0, No extended timing advance value |
| {0 1<Frequency Parameters>} | 0 (Frequency Parameters not present) |
| Dynamic allocation | 01 |
| - Extended Dynamic Allocation | 1 (Extended Dynamic allocation) |
| - {0 1<P0><PR_MODE>} | 0 |
| - USF_GRANULARITY | 0, one block |
| - {0 1<UPLINK_TFI_ASSIGNMENT>} | 1 (uplink TFI assignment) |
| - UPLINK_TFI_ASSIGNMENT | Arbitrarily chosen (default 00101) |
| - {0 1<RLC_DATA_BLOCKS_GRANTED>} | 0 (no RLC_DATA_BLOCKS_GRANTED, open-ended TBF) |
| - {0 1<TBF_STARTING_TIME>} | 0 (no starting time) |
| - | 1 (Timeslot Allocation with Power Control Parameters) one slot arbitrarily chosen and the following USF_TNx and GAMMA_TNx shall be corresponding to the chosen value, default timeslot 2 assigned) |
| - ALPHA | 0.5 |
| - {0 1<USF_TN0><GAMMA_TN0>} | 0 (timeslot 0 not assigned) |
| - {0 1<USF_TN1><GAMMA_TN1>} | 0 (timeslot 1 not assigned) |
| - {0 1<USF_TN2><GAMMA_TN2>} | 1 (timeslot 2 assigned) |
| - USF_TN2 | Arbitrarily chosen (default 5) |
| - GAMMA_TN2 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN3><GAMMA_TN3>} | 1 (timeslot 3 assigned) |
| - USF_TN3 | Arbitrarily chosen (default 6) but it must be different than USF_TN2 |
| - GAMMA_TN3 | For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN4><GAMMA_TN4>} | 1 (timeslot 4 assigned), if the MS supports at least 3 timeslots uplink 0 (timeslot 4 not assigned), if the MS supports only 2 timeslots uplink |
| - USF_TN4 | Only if timeslot 4 is assigned Arbitrarily chosen (default 4) but it must be different to USF_TN2 and USF_TN3 |
| - GAMMA_TN4 | Only if timeslot 4 is assigned For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN5><GAMMA_TN5>} | 1 (timeslot 5 assigned), if the MS supports at least 4 timeslots uplink 0 (timeslot 5 not assigned), if the MS supports less than 4 timeslots uplink |

| | |
|-----------------------------|---|
| - USF_TN5 | Only if timeslot 5 is assigned Arbitrarily chosen (default 3) but it must be different to USF_TN2, USF_TN3 and USF_TN4 |
| - GAMMA_TN5 | Only if timeslot 5 is assigned For GSM 700, T-GSM 810, GSM 850 and GSM 900: +8 dBm For DCS 1 800: +6 dBm For PCS 1 900: +6 dBm |
| - {0 1<USF_TN6><GAMMA_TN6>} | 0 (timeslot 6 not assigned) |
| - {0 1<USF_TN7><GAMMA_TN7>} | 0 (timeslot 7 not assigned) |
| spare padding | Spare Padding |

1. For re-assignment of an uplink TBF, the address information should be changed to UPLINK_TFI of Global_TFI. UPLINK_TFI_ASSIGNMENT is absent.
2. For assignment of an uplink TBF while a downlink TBF has been established, the address information should be changed to DOWNLINK_TFI of Global_TFI. UPLINK_TFI_ASSIGNMENT is present.

52.9.2 Extended Dynamic Allocation / Uplink Transfer

52.9.2.1 Extended Dynamic Allocation / Uplink Transfer / Normal

52.9.2.1.1 Extended Dynamic Allocation / Uplink Transfer / Normal / Successful

52.9.2.1.1.1 Conformance requirements

The mobile station shall monitor the downlink PDCHs corresponding to (i.e. with the same timeslot number as) its assigned uplink PDCHs starting with the lowest numbered PDCH, then the next lowest numbered PDCH, etc., up to the one corresponding to the highest numbered assigned uplink PDCH.

Whenever the mobile station detects an assigned USF value on an assigned PDCH, the mobile station shall transmit either a single RLC/MAC block or a sequence of four RLC/MAC blocks on the same PDCH and all higher numbered assigned PDCHs. The time relation between an uplink block, which the mobile station shall use for transmission, and the occurrence of the USF value is defined in 3GPP TS 45.002. The number of RLC/MAC blocks to transmit on each PDCH is controlled by the USF_GRANULARITY parameter characterising the uplink TBF. The mobile station shall ignore the USF on those higher numbered PDCHs during the block period where the assigned USF value is detected and during the block period(s) in which the mobile station has been granted permission to transmit.

References

3GPP TS 44.060, subclauses 8.1.1.2.1

52.9.2.1.1.2 Test purposes

To verify that the MS:

When the MS receives the assigned USF of the lowest assigned PDCH, it transmits RLC/MAC data blocks on the same and all higher allocated PDCHs in the next TDMA frame.

52.9.2.1.1.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting,

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context2 activated.

Specific PICS Statements

- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

-

Test Procedure

The MS is triggered to initiate packet uplink transfer data in RLC acknowledged mode. The SS orders the MS to use two-phase access procedure. Up to 4 timeslots are assigned according to the mobile multislot class (TS 5.02 Annex B.1).

1) The SS signals to the MS the assigned USF addressing the MS on the lowest assigned PDTCH. It is checked that the MS sends RLC/MAC data blocks in the next radio block period on all assigned PDTCH and that each data block contains the correct TFI without TLLI.

The SS acknowledges the received data and assigns the USF addressing the MS. The check is repeated.

The same procedure is going on until the MS completes the packet data transfer.

2) The SS signals to the MS the assigned USF addressing the MS on the highest assigned PDTCH. It is checked that the MS sends RLC/MAC data blocks in the next radio block period only on the highest assigned PDTCH and that each data block contains the correct TFI without TLLI.

The SS acknowledges the received data and assigns the USF addressing the MS. The check is repeated.

The same procedure is going on until the MS completes the packet data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|---|---|
| 1 | | {Uplink dynamic allocation two phase access} | n = 1500 octets, without starting time, Message Escape bit = 1 (EGPRS) Up to 4 timeslots are assigned according to MS multislot class (TS 5.02 Annex B.1): <ul style="list-style-type: none"> - USF₁ on TN₁, - USF₂ on TN₂, - USF₃ on TN₃, - USF₄ on TN₄, Default PACKET UPLINK ASSIGNMENT message content for EDA defined in sub-clause 52.9.1 shall be used. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF ₁ on PACCH ₁ addressing the MS on 3 blocks from the last radio block containing the uplink assignment. |
| 3 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF on PACCH ₂ is not addressing the MS, sent on the same TDMA frame as step 2. |
| 4 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional, it is performed only if 3 timeslots at least have been assigned in step 1.USF on PACCH ₃ is not addressing the MS, sent on the same TDMA frame as step 2. |
| 5 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 1.USF on PACCH ₄ is not addressing the MS, sent on the same TDMA frame as step 2. |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₁ . |
| 7 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₂ on the same TDMA frame as step 6. |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | This step is optional; it is performed only if 3 timeslots at least have been assigned in step 1.Received on the assigned PDTCH ₃ on the same TDMA frame as step 6. |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 1.Received on the assigned PDTCH ₄ on the same TDMA frame as step 6. |
| 10 | SS -> MS | PACKET UPLINK ACK/NACK | Assigned USF ₁ on PACCH ₁ addressing the MS. |
| 11 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF on PACCH ₂ is not addressing the MS, sent on the same TDMA frame as step 10 |
| 12 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 3 timeslots at least have been assigned in step 1.USF on PACCH ₃ is not addressing the MS, sent on the same TDMA frame as step 10 |
| 13 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 1. USF on PACCH ₄ is not addressing the MS, sent on the same TDMA frame as step 10 |
| 14 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₁ . |
| 15 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on the assigned PDTCH ₂ on the same TDMA frame as step 14. |
| 16 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | This step is optional; it is performed only if 3 timeslots at least have been assigned in step 1.Received on the assigned PDTCH ₃ on the same TDMA frame as step 14. |
| 17 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 1.Received on the assigned PDTCH ₄ on the same TDMA frame as step 14. |
| 18 | | {Completion of uplink RLC data block transfer in extended dynamic mode} | |

| | | | |
|----|----------|---|---|
| 19 | | {Uplink dynamic allocation two phase access} | n = 1500 octets, without starting time, Message Escape bit = 1 (EGPRS) Up to 4 timeslots are assigned according to MS multislot class (TS 5.02 Annex B.1): - USF ₁ on TN ₁ , - USF ₂ on TN ₂ , - USF ₃ on TN ₃ , - USF ₄ on TN ₄ , |
| 20 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF on PACCH ₁ is not addressing the MS |
| 21 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 3 timeslots at least have been assigned in step 19. USF on PACCH ₂ is not addressing the MS, sent on the same TDMA frame as step 20. |
| 22 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 19. USF on PACCH ₃ is not addressing the MS, sent on the same TDMA frame as step 20. |
| 23 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF _N on PACCH _N addressing the MS, where N is the number of assigned timeslots in step 19, sent on the same TDMA frame as step 20. |
| 24 | MS->SS | | It is checked that no EGPRS UPLINK RLC DATA BLOCK messages are received on the assigned PDTCH ₁ to PDTCH _{N-1} . |
| 25 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received only on the assigned PDTCH _N . |
| 26 | SS -> MS | PACKET UPLINK ACK/NACK | USF on PACCH ₁ is not addressing the MS |
| 27 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 3 timeslots at least have been assigned in step 19. USF on PACCH ₂ is not addressing the MS, sent on the same TDMA frame as step 26. |
| 28 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | This step is optional; it is performed only if 4 timeslots have been assigned in step 19. USF on PACCH ₃ is not addressing the MS, sent on the same TDMA frame as step 26. |
| 29 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | Assigned USF _N on PACCH _N addressing the MS, where N is the number of assigned timeslots in step 19, sent on the same TDMA frame as step 26. |
| 30 | MS->SS | | It is checked that no UPLINK RLC DATA BLOCK messages are received on the assigned PDTCH ₁ to PDTCH _{N-1} . |
| 31 | MS -> SS | UPLINK RLC DATA BLOCK | Received only on the assigned PDTCH _N |
| 32 | | {Completion of uplink RLC data block transfer in extended dynamic mode} | |

Specific Message Contents

None.

52.9.2.1.2 Extended Dynamic Allocation / Uplink Transfer / Normal / USF_GRANULARITY = 4 blocks

52.9.2.1.2.1 Conformance requirements

The number of RLC/MAC blocks to transmit on each PDCH is controlled by the USF_GRANULARITY parameter characterising the uplink TBF. The mobile station shall ignore the USF on those higher numbered PDCHs during the block period where the assigned USF value is detected and during the block period(s) in which the mobile station has been granted permission to transmit. In addition, if USF_GRANULARITY is set to four blocks allocation, it may ignore the USF on all other PDCHs during the first three block periods in which the mobile station has been granted permission to transmit. As specified in 3GPP TS 45.002, the USF corresponding to the last three blocks of a four blocks allocation shall be set to an unused value for each PDCH on which the mobile station has been granted permission to transmit.

References

3GPP TS 44.060, subclauses 8.1.1.2.1

52.9.2.1.2.2 Test purposes

To verify that the MS:

Manages the USF_GRANULARITY when an uplink TBF is established in Extended Dynamic allocation mode.

52.9.2.1.2.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting,

Mobile Station:

The MS is GPRS attached with a P-TMSI allocated and the test PDP context2 activated.

Specific PICS Statements

-

PIXIT Statements

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Test Procedure

The MS is triggered to initiate packet uplink transfer data in RLC acknowledged mode. The SS orders the MS to use two-phase access procedure. 2 uplink timeslots are assigned.

- 1) The SS signals the assigned USF addressing the MS on the lowest assigned PDCH. It is checked that the MS sends RLC/MAC data blocks in the next 4 radio block periods on all assigned PDCHs and that each data block contains the correct TFI without TLLI.
- 2) The SS acknowledges the received data and assigns the USF addressing the MS. It is checked that the MS sends RLC/MAC data blocks in the next 4 radio block periods on all assigned PDCHs, except for the block allocated via the polling mechanism it is checked that the MS sends PACKET CONTROL ACKNOWLEDGEMENT.
- 3) In the last block period of the above procedure, the SS signals the assigned USF addressing the MS on the lowest assigned PDCH. It is checked that the MS sends RLC/MAC data blocks in the next 4 radio block periods on all assigned PDCHs and that each data block contains the correct TFI without TLLI.
- 4) The same procedure is going on until the MS completes the packet data transfer.

Maximum Duration of Test

5 minutes.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | n = 1500 octets, without starting time, Message Escape bit = 1 (E-GPRS) 2 timeslots are assigned - USF ₁ on PDCH ₁ , - USF ₂ on PDCH ₂ , - USF_GRANULARITY = 1 (4 blocks) Default PACKET UPLINK ASSIGNMENT message content for EDA defined in sub-clause 52.9.1 shall be used. |
| 2 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF ₁ on block N ₁ of PACCH ₁ is addressing the MS (must be at least 3 blocks after the block containing the uplink assignment.) |
| 3 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF on block N ₁ of PACCH ₂ is NOT addressing the MS. |
| 4 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +1 of PDTCH ₁ |
| 5 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +1 of PDTCH ₂ |
| 6 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +2 of PDTCH ₁ |
| 7 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +2 of PDTCH ₂ |
| 8 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +3 of PDTCH ₁ |
| 9 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +3 of PDTCH ₂ |
| 10 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +4 of PDTCH ₁ |
| 11 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₁ +4 of PDTCH ₂ |
| 12 | SS -> MS | PACKET UPLINK ACK/NACK | Acknowledge all received data blocks, on block N ₂ of PACCH ₁ With: S/P=1, RRBP = 0, and USF ₁ |
| 13 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +1 of PDTCH ₁ |
| 14 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +1 of PDTCH ₂ |
| 15 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +2 of PDTCH ₁ |
| 16 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +2 of PDTCH ₂ |
| 17 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on block N ₂ +3 of PACCH ₁ |
| 18 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +3 of PDTCH ₂ |
| 19 | SS -> MS | PACKET DOWNLINK DUMMY CONTROL BLOCK | USF ₁ on block N ₂ +4 of PACCH ₁ is addressing the MS. |
| 20 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +4 of PDTCH ₁ |
| 21 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +4 of PDTCH ₂ |
| 22 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +5 of PDTCH ₁ |
| 23 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +5 of PDTCH ₂ |
| 24 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +6 of PDTCH ₁ |
| 25 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +6 of PDTCH ₂ |
| 26 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +7 of PDTCH ₁ |
| 27 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N ₂ +7 of PDTCH ₂ |

| | | | |
|----|----------|---|---|
| 28 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N_2+8 of PDTCH ₁ |
| 29 | MS -> SS | EGPRS UPLINK RLC DATA BLOCK | Received on block N_2+8 of PDTCH ₂ |
| 30 | | {Completion of uplink RLC data block transfer in extended dynamic mode} | |

Specific Message Contents

None.

52.9.2.1.4 Extended Dynamic Allocation / Uplink Transfer / Normal / PACCH operation in downlink

52.9.2.1.4.1 Conformance requirements

The mobile station shall attempt to decode every downlink RLC/MAC block on the lowest numbered timeslot in the PDCH allocation. 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 shall transmit all PACCH messages on the PDCH carried on the lowest numbered timeslot in the allocation. Additionally for the concurrent TBF case, the network may transmit PACCH messages on any of the common timeslots assigned to the downlink and uplink PDCH allocation.

Whenever the mobile station detects an assigned USF value on any assigned PDCH, the mobile station may transmit a PACCH block on the same PDCH in the next block period. The mobile station shall not transmit an RLC data block in any uplink radio block allocated via the polling mechanism.

References

3GPP TS 44.060, subclause 8.1.1.2.2.

52.9.2.1.4.2 Test purposes

To verify that a MS having an uplink EGPRS TBF with Extended Dynamic Allocation MAC mode:

1. Decodes and interprets correctly all RLC/MAC blocks containing RLC/MAC control blocks sent by the network on the lowest numbered timeslot in the PDCH allocation when there is no concurrent downlink TBF.
2. Decodes and interprets correctly all RLC/MAC blocks containing RLC/MAC control blocks sent by the network on the lowest numbered timeslot in the PDCH allocation or on any of the common timeslots assigned to the downlink and uplink PDCH allocation when there is a concurrent downlink EGPRS TBF.
3. Does not transmit an RLC data block in any uplink radio block allocated via the polling mechanism.

52.9.2.1.4.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

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

Specific PICS Statements

- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

-

Test Procedure

The MS is triggered to initiate a packet uplink data transfer in RLC acknowledged mode and with Extended Dynamic Allocation MAC mode. The SS orders the MS to use two-phase access procedure.

- 1) At this point in time the MS has an uplink EGPRS TBF established with Extended Dynamic Allocation MAC mode. It may receive RLC/MAC blocks containing RLC/MAC control blocks for the uplink EGPRS TBF on the PDCH carried on the lowest numbered timeslot in the allocation.

To test that the MS decodes and interprets correctly all RLC/MAC blocks containing RLC/MAC control blocks sent by the network on the lowest numbered timeslot in the PDCH allocation when there is no concurrent downlink TBF the SS process as follow:

- The SS sends on the lowest numbered timeslot in the PDCH allocation a PACKET DOWNLINK ASSIGNMENT message to establish a concurrent downlink TBF with the Extended Dynamic Allocation MAC mode. The SS checks that the MS sends in response a PACKET CONTROL ACKNOWLEDGEMENT message on the lowest numbered timeslot in the PDCH allocation.
- 2) At this point in time the MS has an uplink EGPRS TBF and a downlink EGPRS TBF established with Extended Dynamic Allocation MAC mode. It may receive RLC/MAC blocks containing RLC/MAC control blocks for the uplink EGPRS TBF on the PDCH carried on the lowest numbered timeslot in the uplink PDCH allocation or on any of the common timeslots assigned to the downlink and uplink PDCH allocation.

To test, in case there is a concurrent downlink EGPRS TBF, that the MS decodes and interprets correctly all RLC/MAC blocks containing RLC/MAC control blocks sent by the network on the PDCH carried on the lowest numbered timeslot in the uplink PDCH allocation or on any of the common timeslots assigned to the downlink and uplink PDCH allocation, the SS process as follow:

- The MS is triggered to transfer 64+1 (window size +1) EGPRS RLC data blocks without acknowledgement from SS in such a way that the window is stalled.
 - The SS sends on the PDCH carried on the lowest numbered timeslot in the uplink PDCH allocation a PACKET UPLINK ACK/NACK message acknowledging only the oldest EGPRS RLC data block. Then the MS is triggered to transfer one EGPRS RLC data block. If the MS has correctly decoded the PACKET UPLINK ACK/NACK message, the BSN of the EGPRS RLC data block shall be the next in sequence expected BSN.
 - The SS sends on one of the common timeslots assigned to the downlink and uplink PDCH allocation a PACKET UPLINK ACK/NACK message acknowledging only the oldest RLC data block. Then the MS is triggered to transfer one EGPRS RLC data block. If the MS has correctly decoded the PACKET UPLINK ACK/NACK message, the BSN of the EGPRS RLC data block shall be the next in sequence expected BSN. The test is repeated with all PDCHs common for both reception and transmission.
- 3) To test that the MS does not transmit an RLC data block in any uplink radio block allocated via the polling mechanism the SS process as follow:
 - The SS sends on one of the common timeslots assigned to the downlink and uplink PDCH allocation a PACKET UPLINK ACK/NACK message containing the TFI value assigned to the uplink TBF and a valid RRBP. On the block period preceding the block period where the polling response to the PACKET UPLINK ACK/NACK message should be received, the SS assigns an USF to the MS on the lowest numbered timeslot of the uplink PDCH allocation. The SS checks that during the block period where the polling response should be received, the MS responds to the polling with a PACKET CONTROL ACKNOWLEDGEMENT message sent on the PDCH where the polling request was sent and sends RLC data blocks on the other PDCHs of the uplink PDCH allocation. The test is repeated with all PDCHs common for both reception and transmission.

Then the data transfer is completed.

The following table gives the number of timeslots allocated for the uplink and downlink TBFs during the test according to the multislot class (see 45.002 annex B.1):

| Multislot class | Number of PDCHs for the downlink TBF | Number of PDCHs for the uplink TBF |
|-----------------|--------------------------------------|------------------------------------|
| 3 | 1 | 2 |
| 5 | 2 | 2 |
| 6 | 2 | 2 |
| 7 | 2 | 2 |
| 9 | 3 | 2 |
| 10 | 3 | 2 |
| 11 | 3 | 2 |
| 12 | 3 | 2 |
| 13 | 3 | 3 |
| 14 | 4 | 4 |
| 15 | 5 | 5 |
| 16 | 6 | 6 |
| 17 | 7 | 7 |
| 18 | 8 | 8 |
| 19 | 6 | 2 |
| 20 | 6 | 3 |
| 21 | 6 | 4 |
| 22 | 6 | 4 |
| 23 | 6 | 6 |
| 24 | 8 | 2 |
| 25 | 8 | 3 |
| 26 | 8 | 4 |
| 27 | 8 | 4 |
| 28 | 8 | 6 |
| 29 | 8 | 8 |
| 31 | 4 | 2 |
| 32 | 3 | 3 |
| 33 | 3 | 3 |
| 34 | 3 | 3 |
| 36 | 4 | 2 |
| 37 | 3 | 3 |
| 38 | 3 | 3 |
| 39 | 3 | 3 |
| 41 | 5 | 2 |
| 42 | 4 | 3 |
| 43 | 4 | 3 |
| 44 | 4 | 3 |
| 45 | 4 | 3 |

NOTE: The multislot class of the MS under test may impose that the highest PDCH of the uplink allocation is not a member of the downlink allocation. In this case the SS shall transmit a downlink RLC data block on a PDCH common to the downlink and uplink PDCH allocation at least every 5 seconds to avoid expiry of timer T3190.

Maximum Duration of Test

1 minute.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|--|---|
| 1 | | {Uplink dynamic allocation two phase access} | Default PACKET UPLINK ASSIGNMENT message content for EDA defined in sub-clause 52.9.1 shall be used. n = 1500 octets, without starting time, Message Escape bit = 1 (EGPRS) |
| 2 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Default PACKET DOWNLINK ASSIGNMENT message content for EDA defined in sub-clause 42.9.1 shall be used. Sent on the PACCH of the lowest PDCH of the uplink PDCH allocation. Including the Polling bit set and a valid RRBp field. Including the TFI assigned to the uplink TBF. |
| 3 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the PACCH of the lowest PDCH of the uplink PDCH allocation. |
| 4 | SS | | The SS verifies that the MS sends the PACKET CONTROL ACKNOWLEDGEMENT message, on the uplink radio block specified by the RRBp of the lowest PDCH of the uplink PDCH allocation. |
| 5 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on the highest PDCH of the uplink PDCH allocation. Including an invalid RRBp. |
| 6 | MS -> SS | UPLINK EGPRS RLC DATA BLOCK | Received on the highest PDCH of the uplink PDCH allocation. SI=0 |
| 7 | | | Repeat steps 5 and 6 for BSN=1 to 63. SS doesn't acknowledge any of the RLC data blocks with BSN from 0 to 63 (see note below). |
| 8 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on the highest PDCH of the uplink PDCH allocation. Including an invalid RRBp. |
| 9 | MS -> SS | UPLINK EGPRS RLC DATA BLOCK | Received on the highest PDCH of the uplink PDCH allocation. SI=1 |
| 10 | SS->MS | PACKET UPLINK ACK/NACK | SS acknowledges the oldest RLC data block. Sent on the PACCH of the lowest PDCH of the uplink PDCH allocation. Including the TFI assigned to the uplink TBF. Including an USF not assigned to the MS on this PDCH. Pre-emptive Bit: '1'B EOW=0 Wait for 6 blocks with no assigned USF |
| 11 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on the highest PDCH of the uplink PDCH allocation. Including an invalid RRBp. |
| 12 | MS -> SS | UPLINK EGPRS RLC DATA BLOCK | Received on the highest PDCH. |
| 13 | SS | | The steps 11 and 12 are repeated k times <= 8 until V(R) has been incremented by one (i.e. the MS has correctly understood the PACKET UPLINK ACK/NACK). |
| 14 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on the highest PDCH of the uplink PDCH allocation. Including an invalid RRBp. |
| 15 | MS -> SS | UPLINK GPRS RLC DATA BLOCK | Received on the highest PDCH of the uplink PDCH allocation. |
| 16 | | | The steps 14 and 15 are repeated until a RLC DATA BLOCK with SI=1 is received (see note below). |

| | | | |
|----|----------|---|--|
| 17 | SS->MS | PACKET UPLINK ACK/NACK | SS acknowledges the oldest RLC data block. Sent on a PDCH common to the downlink and uplink PDCH allocation. Including the TFI of the uplink TBF. Including an USF not assigned to the MS on this PDCH. Pre-emptive Bit: '1'B EOW=0 Wait for 6 blocks with no assigned USF |
| 18 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on this PDCH. Including an invalid RRBP. |
| 19 | MS -> SS | UPLINK EGPRS RLC DATA BLOCK | Received on the highest PDCH of the uplink PDCH allocation. |
| 20 | SS | | The steps 18 and 19 are repeated k times ≤ 8 until V(R) has been incremented by one (i.e. the MS has correctly understood the PACKET UPLINK ACK/NACK). |
| 21 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the highest PDCH of the uplink PDCH allocation. Including the USF assigned to the MS on the highest PDCH of the uplink PDCH allocation. Including an invalid RRBP. |
| 22 | MS -> SS | UPLINK GPRS RLC DATA BLOCK | Received on the highest PDCH of the uplink PDCH allocation. |
| 23 | | | The steps 21 and 22 are repeated until a RLC DATA BLOCK with SI=1 is received (see note below). |
| 24 | | | The steps 17, 18, 19, 20, 21, 22 and 23 are repeated for each PDCH common to the downlink and uplink PDCH allocation. |
| 25 | SS->MS | PACKET UPLINK ACK/NACK | SS acknowledges all RLC data block. Sent on a PDCH common to the downlink and uplink PDCH allocation. Including the Polling bit set and a valid RRBP field Including the TFI assigned to the uplink TBF. Pre-emptive Bit: '1'B |
| 26 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on the lowest PDCH of the uplink PDCH allocation on the block period preceding the response to the polling requested in step 25. Including the USF assigned to the MS on this PDCH. |
| 27 | MS -> SS | UPLINK EGPRS RLC/MAC BLOCK | Received during the block period where the polling response should be sent. An UPLINK RLC CONTROL BLOCK should be received on the PDCH where the MS is polled or an UPLINK RLC DATA BLOCK should be received on the other PDCHs. |
| 28 | | | The step 27 is repeated a number of times equal to the number of PDCHs of the uplink PDCH allocation to get all RLC/MAC BLOCK sent by the MS. |
| 29 | SS | | Verify that the MS did not transmit a RLC data block on the reserved uplink radio block specified by the RRBP on the PDCH where it has been polled. A PACKET CONTROL ACKNOWLEDGEMENT shall be transmitted instead. Verify that the MS has transmitted RLC data blocks on the other PDCHs. |
| 30 | | | The steps 25, 26, 27, 28 and 29 are repeated for each PDCH common to the downlink and uplink PDCH allocation. |
| 31 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on a PDCH common to the downlink and uplink PDCH allocation. Including a valid RRBP and FBI = 1. Including an USF not assigned to the MS on this PDCH. |
| 32 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | |
| 33 | | {Completion of uplink RLC data block transfer in extended dynamic mode} | |

NOTE: If the multislot class of the MS under test imposes that the highest PDCH of the uplink allocation is not a member of the downlink allocation, the SS shall transmit a downlink RLC data block on a PDCH common to the downlink and uplink PDCH allocation at least every 5 seconds to avoid expiry of timer T3190. The RLC data block shall be transmitted including an invalid RRBP and an USF not assigned to the MS on this PDCH.

52.9.2.1.5 Extended Dynamic Allocation / Uplink Transfer / Normal / Polling for EPDAN

52.9.2.1.5.1 Conformance requirements

In case of simultaneous uplink and downlink TBFs and extended dynamic allocation, the network may apply polling in downlink RLC data blocks only when sent on a PDCH common for both reception and transmission. A mobile station operating with extended dynamic allocation need to respond to polling in downlink RLC data blocks only when received on a PDCH common for both reception and transmission.

References

3GPP TS 44.060, subclause 8.1.2.2.

52.9.2.1.5.2 Test purposes

To verify, in case the MS has a simultaneous uplink and downlink EGPRS TBF with Extended Dynamic Allocation MAC mode, that the MS responds to polling when it is polled on blocks belonging to PDCHs common for both reception and transmission.

52.9.2.1.5.3 Method of test

Initial Conditions

System Simulator:

1 cell, default setting.

Mobile Station:

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

Specific PICS Statements

- EGPRS Multislotclass (TSPC_Type_EGPRS_Multislot_ClassX where X = 1..45)

PIXIT Statements

-

Test Procedure

The MS is triggered to initiate a packet uplink data transfer in RLC acknowledged mode and with Extended Dynamic Allocation MAC mode. The SS orders the MS to use two-phase access procedure. Then a concurrent downlink TBF is established. The PDCH allocation for the downlink and uplink TBFs is chosen to maximise the number of PDCHs common for both reception and transmission.

The SS sends on a PDCH common for both reception and transmission an EGPRS RLC data block with polling and checks that the MS responds with an EGPRS PACKET DOWNLINK ACK/NA CK acknowledging the EGPRS RLC data block in the uplink radio block specified by RRBP. The test is repeated on all PDCHs common for both reception and transmission.

The following table gives the number of timeslots allocated for the uplink and downlink TBFs during the test according to the multislot class (see 45.002 annex B.1):

| Multislot class | Number of PDCHs for the downlink TBF | Number of PDCHs for the uplink TBF |
|-----------------|--------------------------------------|------------------------------------|
| 3 | 1 | 2 |
| 5 | 2 | 2 |
| 6 | 2 | 2 |
| 7 | 2 | 2 |
| 9 | 3 | 2 |
| 10 | 3 | 2 |
| 11 | 3 | 2 |
| 12 | 3 | 2 |
| 13 | 3 | 3 |
| 14 | 4 | 4 |
| 15 | 5 | 5 |
| 16 | 6 | 6 |
| 17 | 7 | 7 |
| 18 | 8 | 8 |
| 19 | 6 | 2 |
| 20 | 6 | 3 |
| 21 | 6 | 4 |
| 22 | 6 | 4 |
| 23 | 6 | 6 |
| 24 | 8 | 2 |
| 25 | 8 | 3 |
| 26 | 8 | 4 |
| 27 | 8 | 4 |
| 28 | 8 | 6 |
| 29 | 8 | 8 |
| 31 | 4 | 2 |
| 32 | 3 | 3 |
| 33 | 3 | 3 |
| 34 | 3 | 3 |
| 36 | 4 | 2 |
| 37 | 3 | 3 |
| 38 | 3 | 3 |
| 39 | 3 | 3 |
| 41 | 5 | 2 |
| 42 | 4 | 3 |
| 43 | 4 | 3 |
| 44 | 4 | 3 |
| 45 | 4 | 3 |

Maximum Duration of Test

1 minute.

Expected Sequence

| Step | Direction | Message | Comments |
|------|-----------|---|---|
| 1 | | {Uplink dynamic allocation two phase access} | Default PACKET UPLINK ASSIGNMENT message content for EDA defined in sub-clause 52.9.1 shall be used. n = 20 octets, without starting time Message Escape bit = 1 (EGPRS) |
| 2 | SS -> MS | PACKET DOWNLINK ASSIGNMENT | Default PACKET DOWNLINK ASSIGNMENT message content for EDA defined in sub-clause 42.9.1 shall be used. Sent on the PACCH of the lowest PDCH of the uplink PDCH allocation. Including the polling bit set and a valid RRBp field. Including the TFI assigned to the uplink TBF. |
| 3 | MS -> SS | PACKET CONTROL ACKNOWLEDGEMENT | Received on the PACCH of the lowest PDCH of the uplink PDCH allocation. |
| 4 | SS -> MS | DOWNLINK EGPRS RLC DATA BLOCK | Sent on a PDCH common to the downlink and uplink PDCH allocation. Including the Polling bit set and a valid RRBp field. Including the TFI assigned to the uplink TBF. |
| 5 | MS -> SS | EGPRS PACKET DOWNLINK ACK/NACK | Received on the same PDCH and on the uplink radio block specified by the RRBp. |
| 6 | SS | | The SS verifies that the MS sends an EGPRS PACKET DOWNLINK ACK/NACK acknowledging the EGPRS RLC data block. |
| 7 | | | The steps 4, 5 and 6 are repeated with each PDCH common to the downlink and uplink PDCH allocation. |
| 8 | | {Completion of uplink RLC data block transfer in extended dynamic mode} | |

52.10

52.10.1 Verification of support of the IPA capability / EGPRS Packet Channel Request supported

52.10.1.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. If the mobile station supports the IMMEDIATE PACKET ASSIGNMENT message, the mobile station shall monitor cell's capability for IMMEDIATE PACKET ASSIGNMENT message within paging messages received on its own paging sub-channel. The network shall not indicate IMMEDIATE PACKET ASSIGNMENT message is supported if the EGPRS PACKET CHANNEL REQUEST message is not indicated as supported.

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from a uniform probability distribution for every new transmission.
- a capability indication, which indicates the support of IMMEDIATE PACKET ASSIGNMENT (IPA) for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060).

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.10.1.2 Test purpose

To verify that the IPA capable MS uses the correct IPA Capability setting in the EGPRS PACKET CHANNEL REQUEST to indicate IMMEDIATE PACKET ASSIGNMENT message is supported for when EGPRS PACKET CHANNEL REQUEST is also supported in GPRS cell options. As MS shall monitor cell's capability for IMMEDIATE PACKET ASSIGNMENT message within the paging messages received on its own paging sub-channel, the paging message is configured to indicate support of IMMEDIATE PACKET ASSIGNMENT message from the network side.

52.10.1.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH. EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options. Paging messages configured to indicate support for IMMEDIATE PACKET ASSIGNMENT message (IPA support bit set to '1').

Mobile Station:

The MS is switched off. The SIM is updated to the test cell.

Specific PICS Statements

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PIXIT Statements

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Test procedure

The IPA capable MS is switched on or powered up and triggered to perform a GPRS attach. The SS verifies that the MS IPA capability bit is set to '1', which indicates the support for the IMMEDIATE PACKET ASSIGNMENT message by the MS.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--------------------------------------|--|
| 1 | MS | | The MS is powered up or switched on and initiates an attach. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | Establishment cause = "Signalling Request by IPA capable MS" IPA Capability = "1". Received on RACH. SS verifies that the correct IPA Capability indication has been used. |
| 3 | MS<->SS | {Completion of the attach procedure} | Macro |

Specific message contents

None.

52.10.2 EGPRS Packet Access for one phase access by IPA capable MS / EGPRS Packet Channel Request supported / CCCH case

52.10.2.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. If the mobile station supports the IMMEDIATE PACKET ASSIGNMENT message, the mobile station shall monitor cell's capability for IMMEDIATE PACKET ASSIGNMENT message within paging messages

received on its own paging sub-channel. The network shall not indicate IMMEDIATE PACKET ASSIGNMENT message is supported if the EGPRS PACKET CHANNEL REQUEST message is not indicated as supported.

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from an uniform probability distribution for every new transmission.
- a capability indication, which indicates the support of IMMEDIATE PACKET ASSIGNMENT (IPA) for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060).

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.10.2.2 Test purpose

To verify that the IPA capable MS uses the correct Access Type in the EGPRS PACKET CHANNEL REQUEST for user data transfer with requested RLC mode as acknowledged when EGPRS PACKET CHANNEL REQUEST is supported in GPRS cell options. Check that Access Type = 'One Phase Access Request'.

52.10.2.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH. EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options. Paging messages configured to indicate support for IMMEDIATE PACKET ASSIGNMENT message (IPA support bit set to '1').

Mobile Station:

MS is GPRS attached, PDP Context 2 is activated and the MS is in packet idle mode.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The IPA capable MS is triggered to initiate an uplink data transfer of RLC data blocks with acknowledged mode. After reception of EGPRS PACKET CHANNEL REQUEST, the SS verifies that the MS correctly sets the Access Type to 'One Phase Access Request' in the EGPRS PACKET CHANNEL REQUEST message.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|---------|-----------|------------------------------|--|
| 1 | MS | | The MS is triggered to transfer 200 octets of data. |
| 2 2A | MS -> SS | EGPRS PACKET CHANNEL REQUEST | SS verifies that Access Type is 'One Phase Access Request'. If the MS requests two phase access the Test Case is terminated |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT REJECT | An IMMEDIATE ASSIGNMENT REJECT message is sent to the MS to indicate packet access rejection. |

Specific message contents

None.

52.10.3 EGPRS Packet Access for two phase access by IPA capable MS / EGPRS Packet Channel Request supported / CCCH case

52.10.3.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. If the mobile station supports the IMMEDIATE PACKET ASSIGNMENT message, the mobile station shall monitor cell's capability for IMMEDIATE PACKET ASSIGNMENT message within paging messages received on its own paging sub-channel. The network shall not indicate IMMEDIATE PACKET ASSIGNMENT message is supported if the EGPRS PACKET CHANNEL REQUEST message is not indicated as supported.

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from an uniform probability distribution for every new transmission.
- a capability indication, which indicates the support of IMMEDIATE PACKET ASSIGNMENT (IPA) for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060).

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.10.3.2 Test purpose

To verify that the IPA capable MS uses the correct Access Type in the EGPRS PACKET CHANNEL REQUEST for user data transfer with requested RLC mode as acknowledged when EGPRS PACKET CHANNEL REQUEST is supported in GPRS cell options. Check that Access Type = 'Two Phase Access Request by IPA capable MS'.

52.10.3.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH. EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options. . Paging messages configured to indicate support for IMMEDIATE PACKET ASSIGNMENT message (IPA support bit set to '1').

Mobile Station:

MS is GPRS attached, PDP Context 2 is activated and the MS is in packet idle mode.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The IPA capable MS is triggered to initiate an uplink data transfer of RLC data blocks with acknowledged mode. After reception of EGPRS PACKET CHANNEL REQUEST, the SS verifies that the MS correctly sets the Access Type to 'Two Phase Access Request by IPA capable MS' in the EGPRS PACKET CHANNEL REQUEST message.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|------------------------------|---|
| 1 | MS | | The MS is triggered to transfer data. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | SS verifies that Access Type is 'Two Phase Access Request by IPA capable MS'. |
| 3 | SS -> MS | IMMEDIATE ASSIGNMENT REJECT | An IMMEDIATE ASSIGNMENT REJECT message is sent to the MS to indicate packet access rejection. |

Specific message contents

None.

52.10.4 EGPRS Packet Access for signalling by IPA capable MS / EGPRS Packet Channel Request supported / CCCH case

52.10.4.1 Conformance requirements

EGPRS TBF mode capable MSs shall monitor the GPRS Cell Options IE on the BCCH (SI13) for the cell's EGPRS capability. In the GPRS Cell Options IE it is also indicated if the EGPRS PACKET CHANNEL REQUEST is supported in the cell. If the mobile station supports the IMMEDIATE PACKET ASSIGNMENT message, the mobile station shall monitor cell's capability for IMMEDIATE PACKET ASSIGNMENT message within paging messages received on its own paging sub-channel. The network shall not indicate IMMEDIATE PACKET ASSIGNMENT message is supported if the EGPRS PACKET CHANNEL REQUEST message is not indicated as supported.

The CHANNEL REQUEST or EGPRS PACKET 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 for a CHANNEL REQUEST (clause 9.1.8), or a request for one phase access or two phase access or short access or sending of signalling data for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060);
- a random reference which is drawn randomly from an uniform probability distribution for every new transmission.
- a capability indication, which indicates the support of IMMEDIATE PACKET ASSIGNMENT (IPA) for an EGPRS PACKET CHANNEL REQUEST (see 3GPP TS 44.060).

Reference

3GPP TS 04.18/44.018 subclause 3.5.2.1.2.

52.10.4.2 Test purpose

To verify that the IPA capable MS uses the correct Access Type in the EGPRS PACKET CHANNEL REQUEST for upper layer signalling transfer when EGPRS PACKET CHANNEL REQUEST is supported in GPRS cell options and PBCCH is not present. Check that Access Type = 'Signalling by IPA capable MS'.

52.10.4.3 Method of test

Initial conditions

System Simulator:

1 cell, CCCH combined with SDCCH. EGPRS supported. EGPRS PACKET CHANNEL REQUEST supported in GPRS cell options. Paging messages configured to indicate support for IMMEDIATE PACKET ASSIGNMENT message (IPA support bit set to '1').

Mobile Station:

MS is GPRS attached.

Specific PICS Statements

-

PIXIT Statements

-

Test procedure

The IPA capable MS is triggered to initiate a PDP Context 2 Activation procedure for RLC acknowledged mode. The SS verifies that the MS attempts by sending an EGPRS PACKET CHANNEL REQUEST with Access Type 'Signalling Request by IPA capable MS'.

Maximum duration of the test

4 minutes.

Expected sequence

| Step | Direction | Message | Comments |
|------|-----------|--|--|
| 1 | MS | | MS is triggered to initiate a PDP Context Activation 2. |
| 2 | MS -> SS | EGPRS PACKET CHANNEL REQUEST | SS verifies that Access Type is 'Signalling Request by IPA capable MS' if the MS has sent an EGPRS PACKET CHANNEL REQUEST. |
| 3 | SS <->MS | {Completion of PDP Context Activation Procedure} | Macro completion from step 2. |

Specific message contents

None.