



Specification

TCS Basic MMI Specification

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1 References, Abbreviations, Terms

BMI	Basic Man Machine Interface
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
GSM	Global System for Mobile Communications
GPRS	General Packet Radio Services
IMEI	International Mobile Equipment Identity
MMI	Man Machine Interface
MO	Mobile Originated
MT	Mobile Terminated.
SMS	Short Message Sequence
SS	Supplementary Services
USSD	Unstructured Supplementary Services Data

2 Introduction

This document describes the features and behavioural characteristics of the TI Basic MMI (BMI).

The document is divided into four main sections:

- Phone Basics
Describes the general layout of the phone and the software-hardware constraints
- General Operation
Describes the basic use of the BMI, in idle and dedicated modes, the menu system and behavioural characteristics
- BMI Features
Details the operation of each feature of the BMI
- Menu Tree
Diagrammatic details of the menu-tree structure

3 Limitations & Constraints

This document has the following limitations –

- a. BMI features such as voice memo, audio, WAP and MMS etc are dependent on underlying hardware and TCP/IP which are not under the perview of BMI-MFW software. The proper working of these BMI features is dependent on underlying functional hardware/external entities.

4 **Comparitive features implemented in various Programs:**

It is available in the program sheet of MMI feature document.

http://www.india.ti.com/~ucmcm/mmi_dev_utils/docs/Spec/BMI_Feature_list.xls

← **Formatted:** Bullets and Numbering

5 Basic Phone Functionality

The TI BMI uses a text based menu system based around soft-keys:



5.1 Display Layout

The BMI supports the Texas Instruments “D-Sample” colour display which is 176 x 220 pixels. The display size is configurable thus providing flexibility to support a variety of displays. The BMI includes support for a smaller, monochrome, display (see Appendix 8.3 for details).

5.2 Screen Layout

The top row is used for icons when in idle or in-call screens, or a line of text when in menu or list screens. The bottom row is used to indicate soft-key operations, with the remaining rows used to display text.

Icon Line (16 pixels)
- 16 pixels blank -
Operator Name (40 pixels)
- 12 pixels blank -
Time/Date (12 pixels)
- 12 pixels blank -
CB Message, H.Zone or ALS Line (24 pixels; 2 rows x12)
- 16 pixels blank -
Soft Key Line (12 pixels)

5.3 Keypad General

The handset's keypad consists of 21 keys:

- Send
- End/Power
- Up
- Down
- Left
- Right
- Select
- Left Soft-key (LSK)
- Right Soft-key (RSK)
- "0" to "9", "*" and "#"

The functionality of each key is described in the following subsections.

5.3.1 Send

- Sends strings entered in idle/dedicated mode to the network – be they call set-up, SS or USSD strings
- Answers incoming calls.
- From the idle screen, without any digit entry, jumps directly to the redial list.
- Send from an active call puts the current call on Hold.

5.3.2 End

Functionality depends on the length of the key press.

Short key presses:

- End all active calls
- Quit an edit screen
- From any menu/sub-menu returns back one menu or screen.
- Rejects an incoming call.

Long key presses:

- Switches the phone on or off from the idle screens
- From any menu/sub-menu returns to the idle screen.

5.3.3 Up/Down

- Moves the cursor up and down through menu items or lists
- Raises or lowers the volume when in volume control screens
- In numeric or alphanumeric editor screens, moves the cursor left/right through the digits or text.
- In SMS text editor when reading a message the cursor scrolls up/down line by line.

5.3.4 Left/Right

- Used in the SMS editor
- Used in numeric editor

5.3.5 Select

- Has the same functionality as the left soft key in most cases. But in some cases like message editor, 'Select' key does not work as LSK.

5.3.6 Soft-keys Left/Right

The Soft-keys are context sensitive where text labels on the bottom row of the display indicate the functionality of each key.

5.3.7 Alphanumeric key “1”

- Long press from the idle screen calls the voicemail.
- In numeric entry screens (e.g. the idle screen – short press), enters digit 1
- In alphanumeric edit screens (e.g. the SMS entry screen) enters letters or symbols. Multiple presses are used to select the appropriate character.

5.3.8 Alphanumeric keys “2” to “9”

- In numeric entry screens (e.g. the idle screen), enters the appropriate digit, 2 to 9
- In alphanumeric edit screens (e.g. the SMS entry screen) enters letters or symbols. Multiple presses are used to select the appropriate.

5.3.9 Numeric key “0”

- In numeric entry screens (e.g. the idle screen), enters digit 0
- A long press from number entry screens will enter the international access code “+”
- In alphanumeric edit screens (e.g. the SMS entry screen) enters mathematical symbols (e.g. “-”, “/” etc). Multiple presses are used to select the appropriate character.

5.3.10 Alphanumeric key “*”

- In idle/in-call screens enters character “*”
- In numeric edit screens, enters a decimal point, “.”
- In alphanumeric entry inserts symbols (e.g. “\$”, “%”)
- In SMS edit screen symbols tables should displayed (e.g. .?!:;+##() etc)

5.3.11 Alphanumeric key “#”

- In numeric entry screens enters character “#”.
- In numeric entry screens a long press inserts the DTMF pause, “p”.
- In alphanumeric screens enters a space.
- In SMS edit screen to switch between upper and lower case

5.3.12 General Key Functions

Details of key-character mappings are contained in a following sub-section.

Pressing a digit in any menu or screen other than editing screens will return the phone to the idle screen. It will also enter the appropriate number in the screen, as if it were entered directly from idle.

5.4 Screen Layout

5.4.1 Icons

The icons on the top row are only visible in the idle and active call screens. In menu, list or editing screens the icons on the top row are not displayed and the top line is used for an additional line of text.

Some of the icons can have variants – e.g. for differing levels of remaining battery power. Each icon variant is stored individually as separate bit maps.

The following icons can be displayed on the top line:

- Battery level
Displays the approximate power remaining in the battery. The level displayed varies in four steps.
- SMS received
An unread SMS has been received. The SMS full icon is displayed when the SMS store on the SIM card is full.
- Voicemail waiting
- Divert active

Displayed when unconditional divert is active.

- Keyboard locked
- Received signal strength

Displays approximate signal strength in five steps.

- HomeZone

A house icon is displayed when the phone is in a home zone area (requires a SIM/network supporting Home Zone)

- GPRS Attached

Displays a “G” to indicate the phone is attached to the GPRS network

5.4.2 Operator Logos

An operator name bit-map defined for a list of preferred operators. This list can contain ten entries for the standard product, which can easily be changed and extended:

5.4.3 Colour

A set of default colours are defined for various text, background, highlight bars etc. These defaults can be changed by the user.

6 General Operation

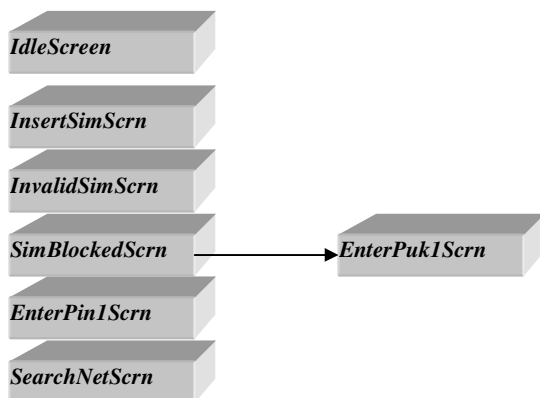
6.1 Power-Up

The mobile is switched 'On' by pressing and holding the power (end) key down for two seconds. A short tone is emitted on power up.

If the battery level is sufficient, memory checks are performed and the mobile is initialised e.g. the SIM data is loaded, the display is initialised etc. If the battery level is insufficient the mobile will power down.

6.1.1 Power Up Screens

The following diagram shows the possible screens that may be displayed after initialisation.

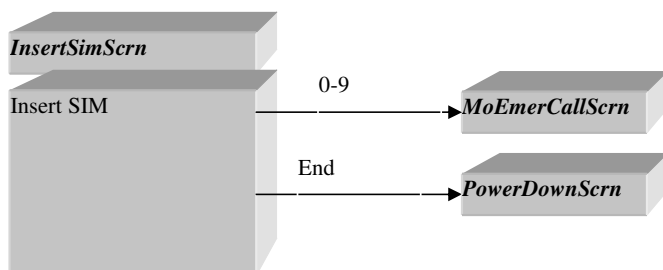


During initialisation the ME will check for various attributes of the SIM card so that the appropriate screen can be displayed.

- *Idle* screen if no PIN is required.
- *Insert SIM* screen if no SIM card is present.
- *Invalid SIM* screen if the SIM card is invalid.
- *Enter PUK1* screen if PIN1 is blocked.
- *Enter PIN1* screen if PIN1 is required.
- *Search Network* screen if no PIN1 entry is required.

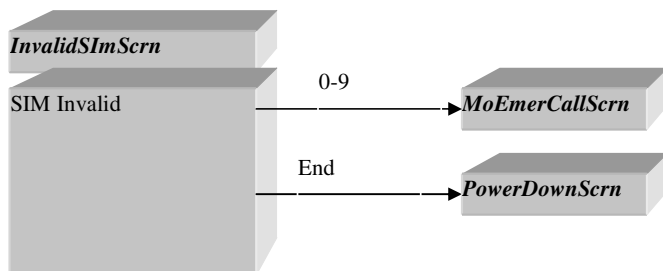
6.1.2 No SIM present

On power up if no SIM is present the *Insert SIM* screen is displayed. The mobile enters the emergency mode where the ME will camp on any allowable network where only emergency calls may be attempted. If a digit is entered the *MO Emergency Call Dial Screen* is displayed.



6.1.3 SIM Invalid

On power up if the SIM is invalid the *Invalid SIM screen* is displayed. The mobile enters the emergency mode where the ME will camp on any allowable network where only emergency calls may be attempted. If a digit is entered the *MO Emergency Call Dial Screen* is displayed.

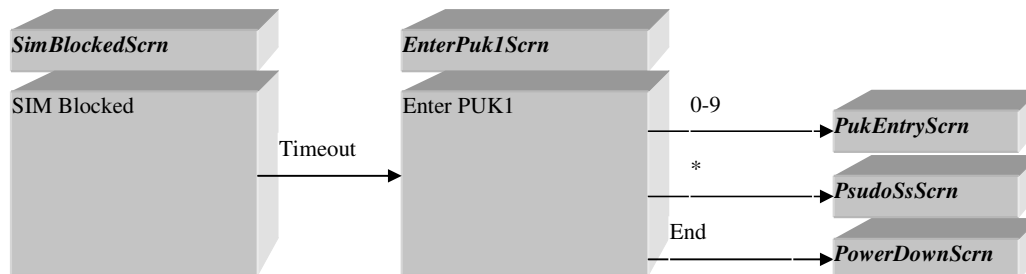


6.1.4 Enter PUK1

On power up if PIN1 has been invalidated the informational *SIM Blocked screen* is displayed momentarily before the *Enter PUK1 screen* is displayed. The PUK1, which is an eight digit code, must be entered correctly followed by a new PIN1 entered correctly twice. The user has ten attempts to enter PUK1 correctly.

The following actions can be performed from the *Enter Puk1 screen*:

- Attempt an emergency call.
- Power down.



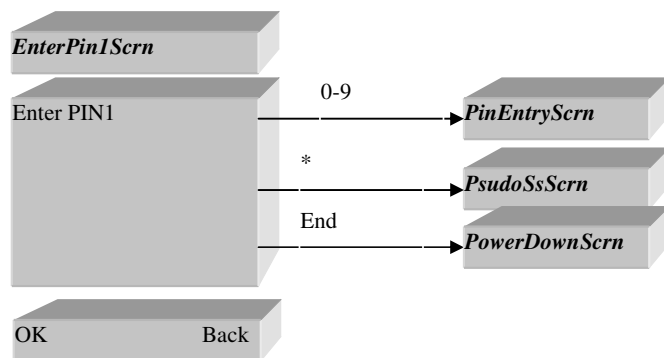
6.1.5 Enter PIN1

On power up, after the welcome screen, if PIN1 must be entered the *Enter PIN1 screen* is displayed.

The user will be given three attempts to enter PIN1 correctly, which is a security code between four and eight digits in length. On successful entry of PIN1 the ME will search for a network on which to provide full service. If the user fails to enter PIN1 correctly on all three attempts the user is requested to enter PUK1.

The following actions can be performed from the *Enter Pin1 screen*:

- Enter PIN1.
- Attempt an emergency call.
- Power down.



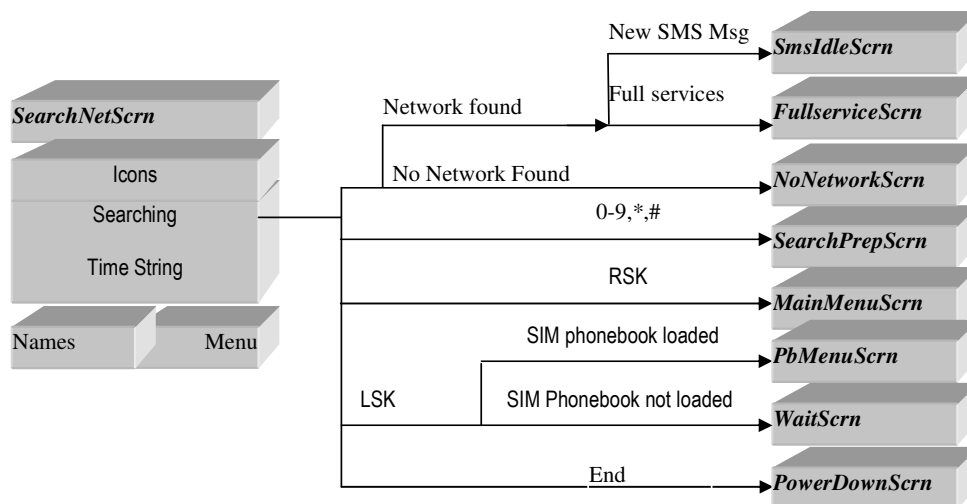
6.1.6 Searching for a Network.

On power up, if all necessary SIM checks succeed or if the entry of PIN1 is not required the ME will display the *Search Network Screen* while the ME is searching for a network so as to offer full service. The following actions can be performed from this screen:

- Access the main menu.
- Access the relevant SIM phonebooks once the SIM data has been loaded.
- Power down.
- Enter digits for a Pseudo SS, SS, USSD or dial string.

The result of searching will cause one of the following screens to be displayed:

- If no network can be found the *No Network Screen* is displayed.
- If a network is found where full service is allowed and there exists unread SMS messages the *SMS Idle Screen* is displayed.
- If a network is found where full service is allowed the *Full Service Idle Screen* is displayed.



6.1.7 Power Down

To switch off the phone a long press of the 'End' key is required from any of the idle screens. A power down animation screen is displayed and an Audio power down indication is played. This will also occur if the phone powers down due to low battery level.

6.2 Idle Mode

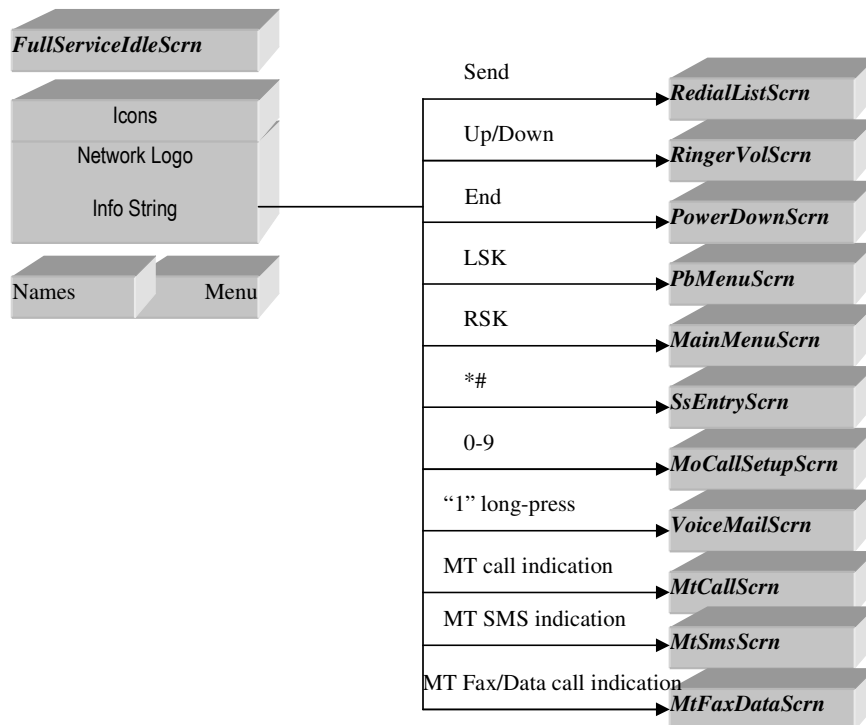
The mobile can be in “Full service Idle” or “No Network” depending on the result of camping on a network.

6.2.1 Full Service Idle.

The *Full Service Idle* screen displays the network operator logo and name and relevant information text. The following actions can be performed from this screen:

- Access the phone book
- Access the main menu
 1. SIM Toolkit (if the SIM contains SIM Toolkit applications)
 2. Messages
 3. Phonebook
 4. Recent Calls/Charges
 5. Network Services
 6. Security
 7. Application
 8. Phone Settings
 9. WAP (optional feature)
- Access the ringer volume screen
- Dial a number
- Enter USSD, SS and Pseudo SS strings
- Access the voice mail screen
- Access the redial list.

In full service idle mode, mobile terminated call or fax/data calls or SMS may also be received.



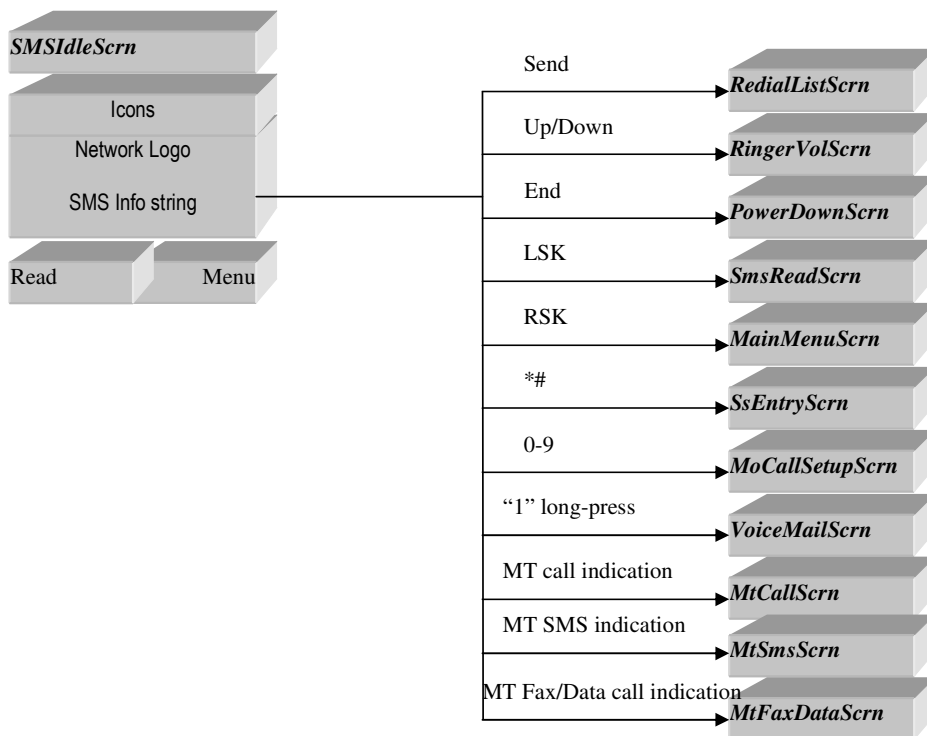
6.2.1.1 Information Strings display priorities

Information strings of the *Full Service Idle Screen* are used to display relevant information. As more than one information string can be relevant but only a limited number of strings can be displayed at any time; not all may be visible concurrently. The strings include:

1. Battery Low
2. n Missed call(s)
3. n New Messages
4. New broadcast message
5. Immediate display broadcast message
6. Silent Mode
7. Clock

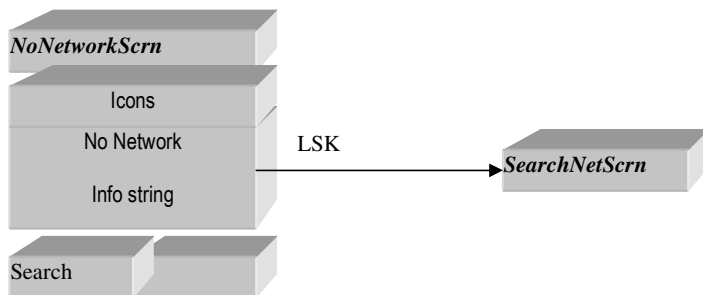
6.2.2 SMS Reception

The SMS info string displayed in the SMS Idle Screen indicates the number of new SMS messages that have been received, however if the SMS file on the SIM is full then the SMS info string displays the text “SMS list full”. On reception of a concatenated SMS when concatenation is disabled, any attempts to edit or forward the message is disallowed and a message indicating “Not allowed” is displayed.



6.2.3 No Network

The mobile displays the *No Network Screen* when it has failed to find a network. A search can be initiated.



6.3 Dedicated Mode

Dedicated mode is entered when the mobile establishes a call with the network. The mobile supports the following types of calls:

- Incoming voice call (MT call)
- Outgoing voice call (MO call)
- Incoming Fax/Data call (MT Fax/Data call)
- Outgoing Fax/Data call (MO Fax/Data call)

6.3.1 Incoming Voice Call

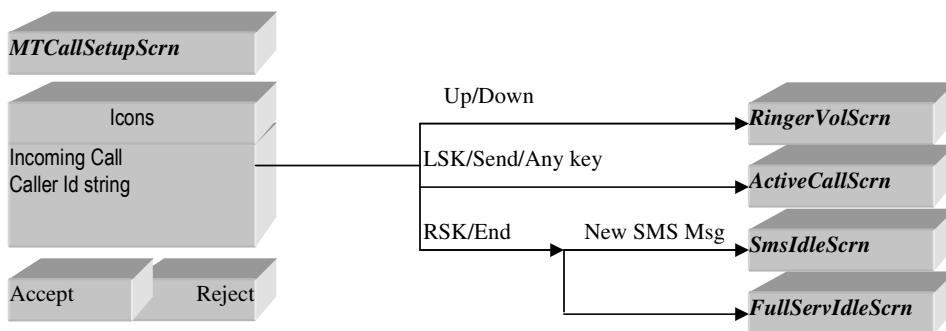
Upon the notification of an incoming call the *MT Call Setup Screen* is displayed and the ringer is activated with the pre-selected melody and volume.

The text “Incoming Call” is displayed along with the Caller Id String.

- If the Caller Id is not given by the network then the string “Number Withheld” is displayed.
- If the Caller Id is given by the network and a corresponding name is found in the phonebook then the Name is displayed.
- If the Caller Id is given by the network but no corresponding name is found in the phonebook then the number is displayed.

The following actions can occur in this screen:

- Access the Ringer Volume Screen.
- Accept the MT call and enter the Active Call Screen, the ringer is deactivated.
- Reject the call and enter the appropriate Idle screen, the ringer is deactivated and the missed call list is updated with the calling party identifier.
- The calling party or the network may disconnect the call. This will result in the mobile returning to the relevant Idle screen and updating the missed calls information if the Calling Party Identifier is available.



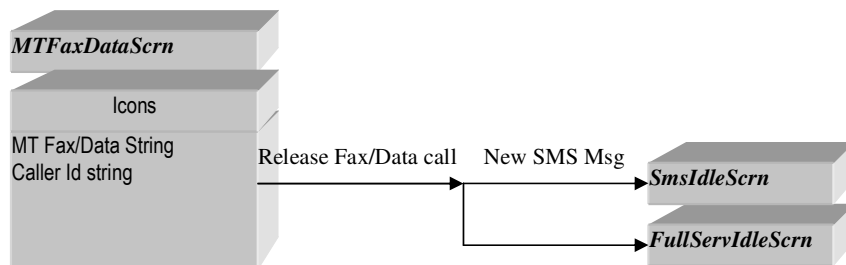
6.3.2 Incoming Fax/Data Call

On notification of a Fax or Data call the *MT Fax Data Screen* is displayed. The Fax/Data call is controlled over the AT interface and requires that the mobile is connected to a computer than can support Fax and Data input via a RS232 cable. The protocol cannot maintain a Voice call and Fax/Data call simultaneously.

- If a Data call is received the string “Incoming Data Call” is displayed.
- If a Fax call is received the string “Incoming Fax Call” is displayed.

The possible contents of the Caller Id string are as follows:

- If the Caller Id is not given by the network then the string “Number Withheld” is displayed.
- If the Caller Id is given and a corresponding name found in the phonebook then the Name is displayed.
- If the Caller Id is given but no corresponding name found in the phonebook then number is displayed.

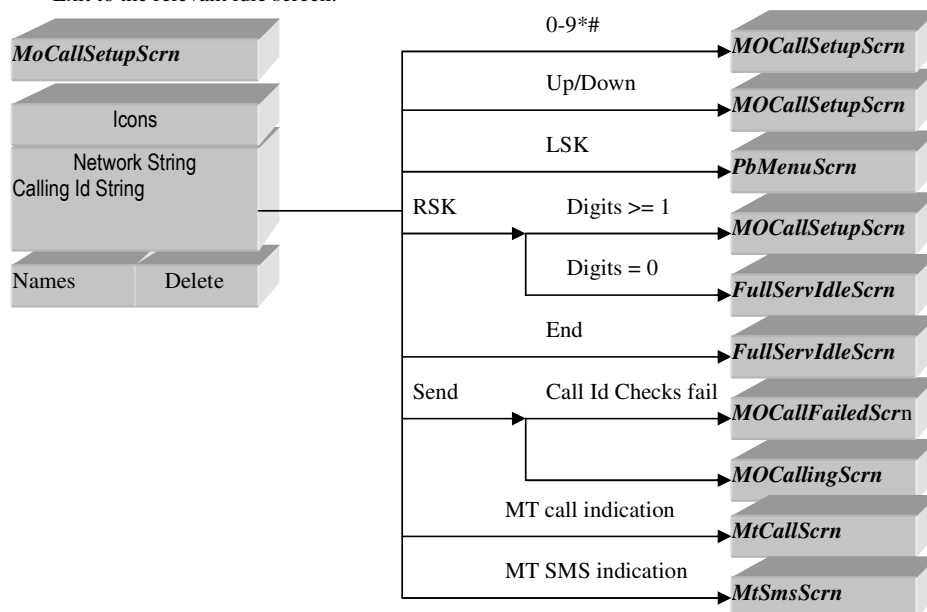


6.3.3 Outgoing call

A mobile originated call can be initiated from the *Mo Call Setup Screens* by entering a valid telephone number. The phone number can be entered directly using the keypad or selected from the phonebook. After entering the number and requesting a call with the network the number is checked if necessary against the FDN phone book.

The actions that can be performed in this screen are as follows.

- Enter and edit a telephone number
- Initiate the call setup with the network.
- Access the phone book.
- Exit to the relevant idle screen.



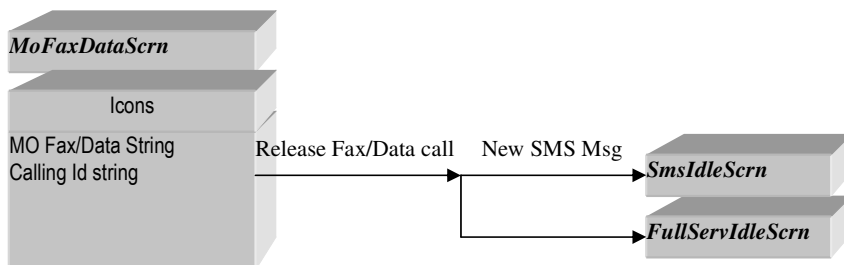
6.3.4 Outgoing Data/Fax

On notification of an outgoing Fax or Data call the *MO Fax Data Screen* is displayed. The Fax/Data call is controlled over the AT interface and requires that the mobile is connected to a computer than can support Fax and Data input via a RS232 cable. The BMI plays only an informational role in Fax and Data calls. The protocol cannot maintain a Voice call and Fax/Data call simultaneously.

- If a Data call is being established the string “Outgoing Data Call” is displayed.
- If a Fax call is being established the string “Outgoing Fax Call” is displayed.

The possible contents of the Calling Id string are as follows:

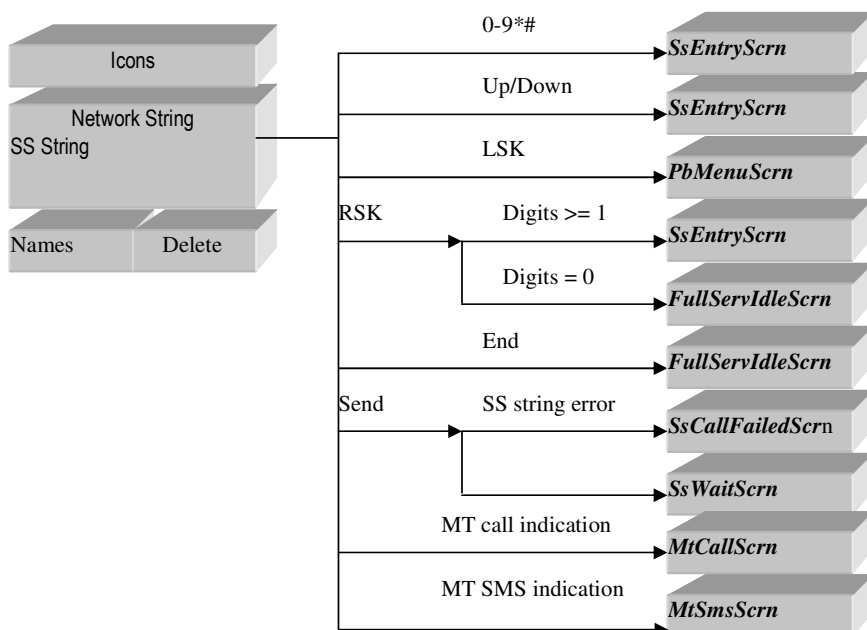
- If the Calling Id matches a number found in the phonebook then the Name is displayed.
- If the Calling Id doesn't match a phonebook entry the number is displayed.



6.3.5 Public-MMI SS, Pseudo-SS and USSD Strings

“Public-MMI” allows SS, Pseudo SS and USSD strings to be entered in the idle screen. The Public-MMI SS and USSD strings are sent by the mobile to the network for processing while the Pseudo SS strings are processed by the mobile. The strings are not stored in the redial list.

If FDN is active, and the user enter a string not stored as a FDN number, the phone will not send the request, but display an information screen “Number not allowed”

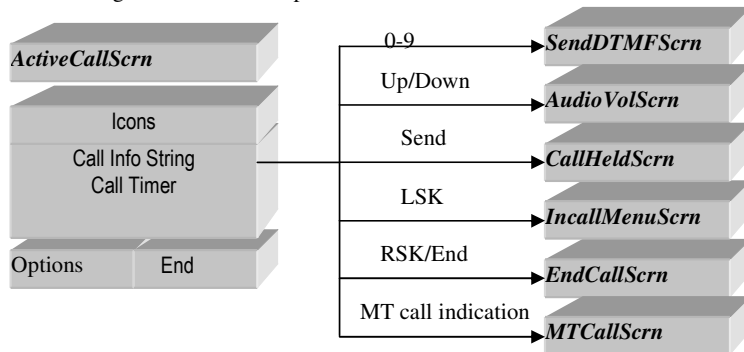


6.3.6 In-Call

When a call is connected for either a MT or MO call the *Active Call Screen* is displayed.

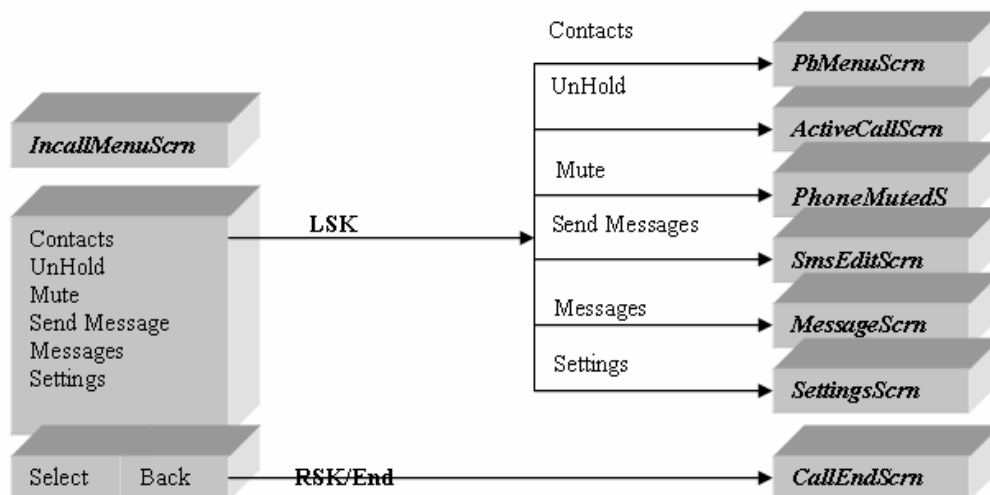
The call info string is used to display the calls id, its status (Active/Held) and the name or number. The Call Timer displays the duration of the call in minutes and seconds. The actions that can be performed include.

- Generating DTMF tones
- Adjusting the in call volume
- Putting the call on hold
- Ending the call
- Accessing the in call menu options



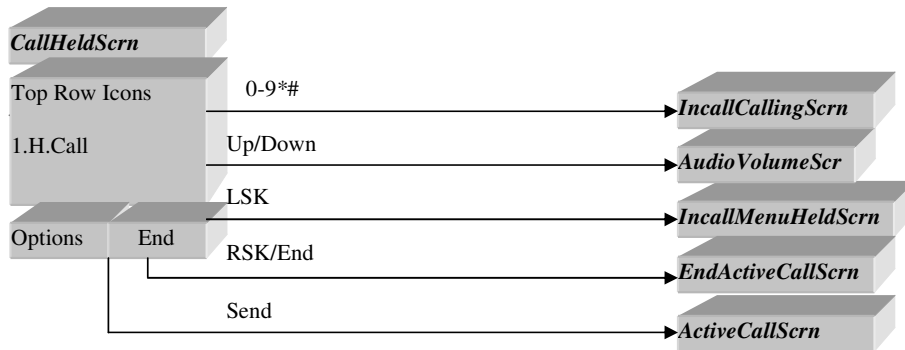
6.3.6.1 In call options

While a call is active it is possible from the *In Call Menu Screen* to access the phone book, hold or mute a call.

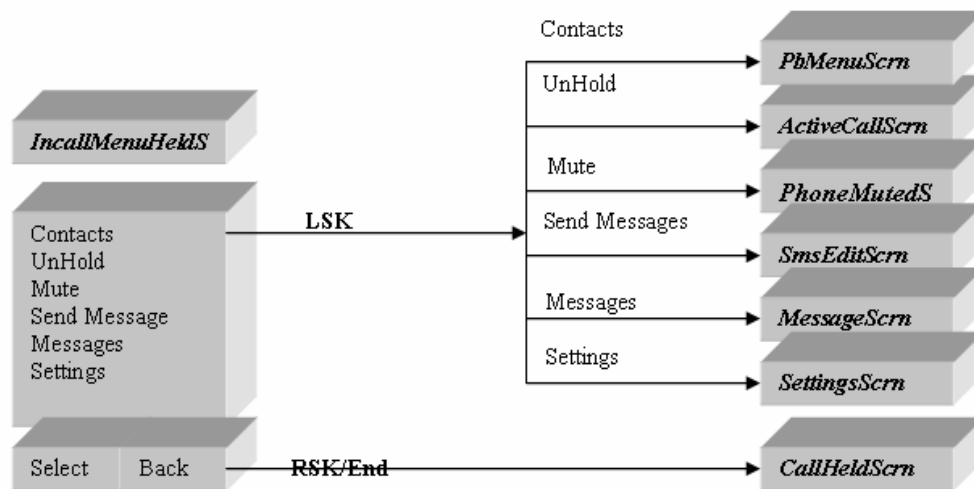


6.3.6.2 Call on Hold

The active call has been put on hold.



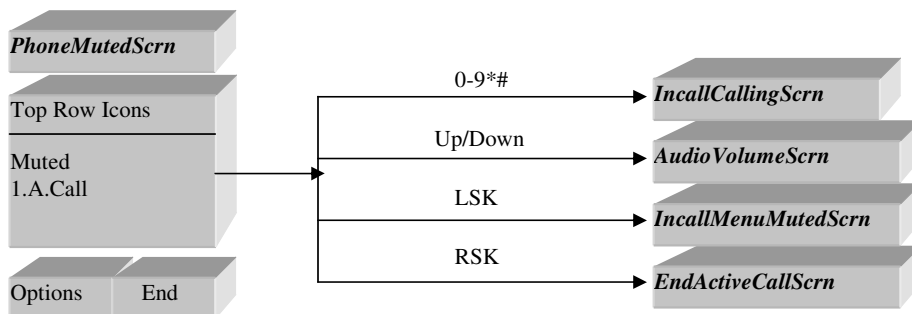
The in-call menu from the 'CallHeldScrn' provides options: Contacts/UnHold/Mute.



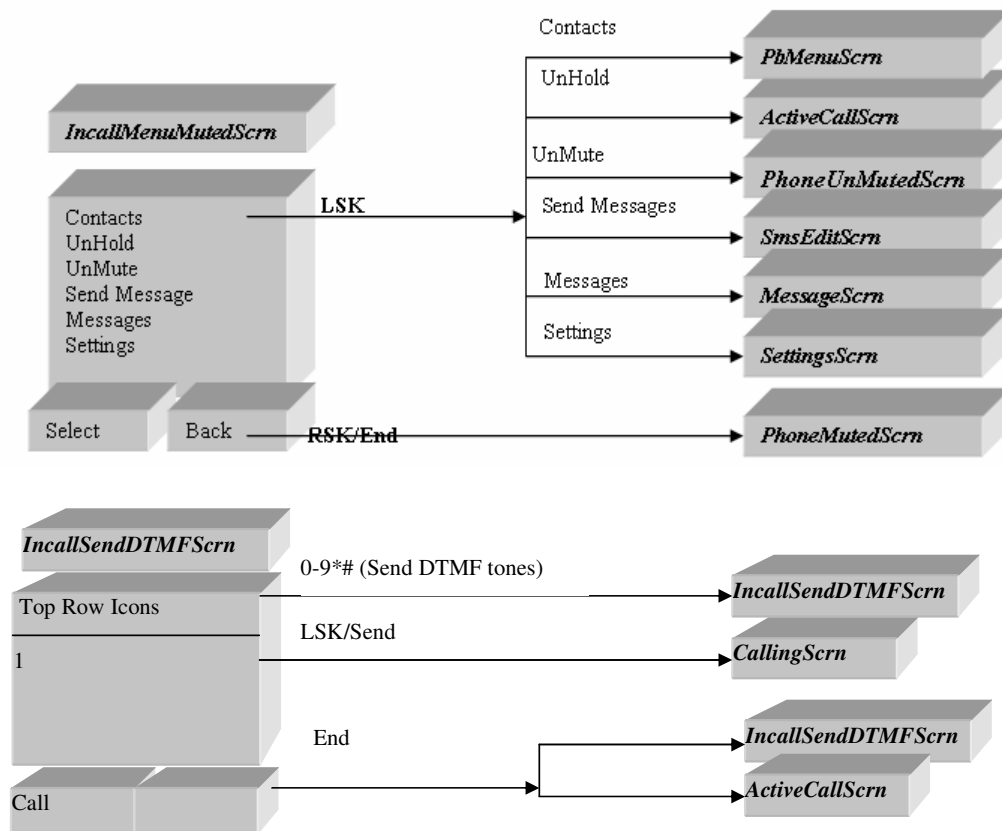
Selecting the in-call menu option “Un-hold” returns the user to the ‘ActiveCallScrn’ screen.

6.3.6.3 Mute an active call

From the active call screen selecting “Mute” option mutes the mobile and the ‘PhoneMutedScrn’ is displayed.



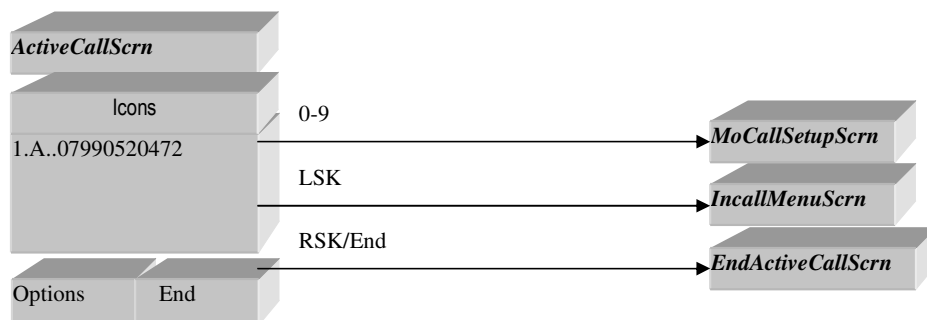
From the ‘PhoneMutedScrn’ the in-call menu option provides the menu options: Contacts/Hold/UnMute.



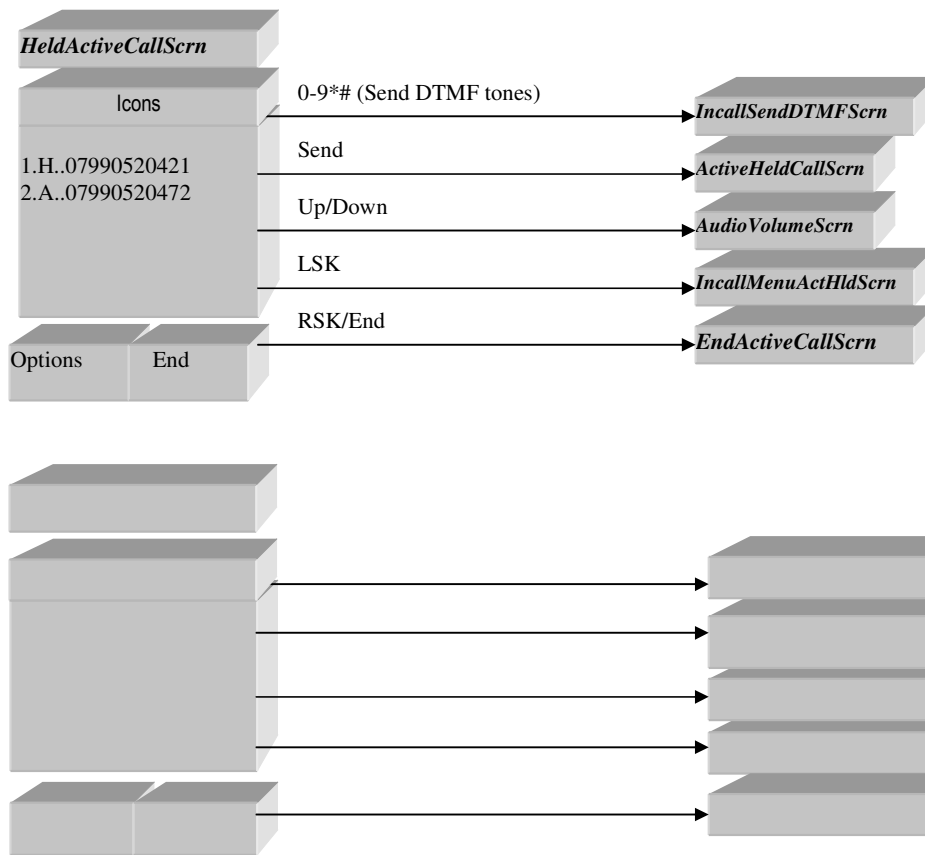
6.3.7 Outgoing calls

Whilst in-call, pressing any of “0” to “9”, “*” or “#” opens an alphanumeric editor on the third line. Each time a key is pressed a DTMF signal is sent to the network. If the call is terminated, the numbers entered are copied to the idle screen, as if they had been entered from idle. If the “send” key is pressed, the active call is placed on hold and a second call started in the same way as an outgoing call is started from the idle screen. Whenever a call is active and another on hold, the second line of the in-call display the Held call abbreviated “1.H.” followed by the number, the third line displays the Active call abbreviated “2.A” followed by the number.

Terminating the active call (by pressing End/Right soft key) returns to the other call.



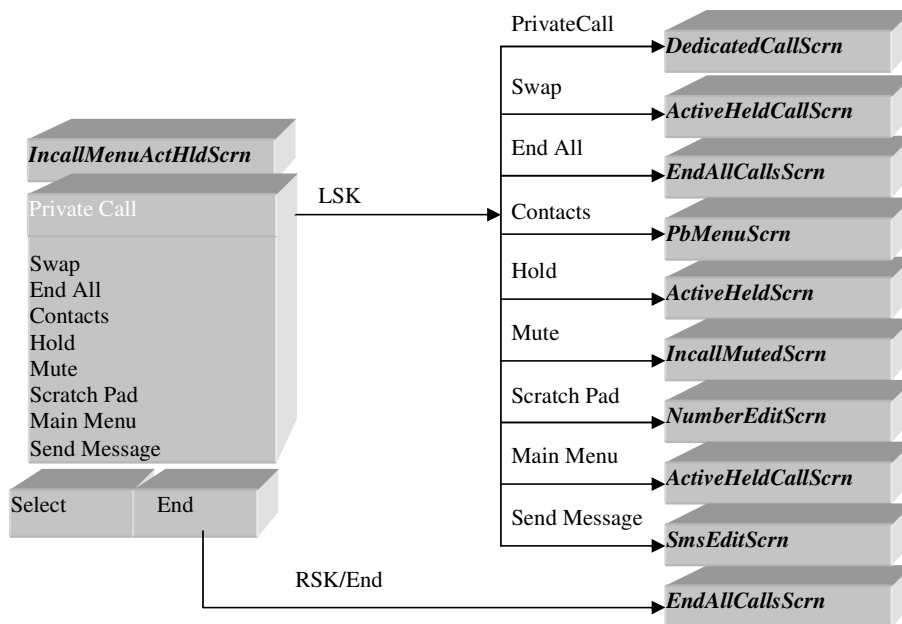
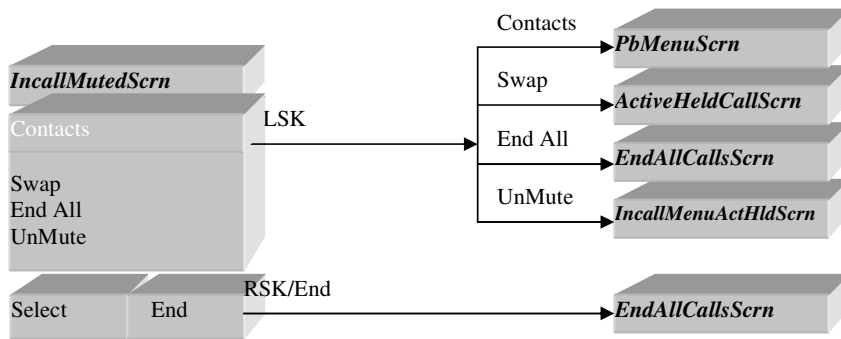
The Send key swaps the active and held call.



Throughout a call, pressing the left soft-key, "Options" opens the in-call options menu, which contains the following items, dependant on state

- Private Call mutes one call
- Swap (only if one call active and another on hold)
- End All (if one or more calls present)
- Contacts (although if one call is active and another on hold, no further calls can be established)
- Hold (not if one call active and another already on hold)
- Mute (available in all cases)
- Main Menu
- Send Message

In this menu the left soft-key is "Select", the right soft-key "End".

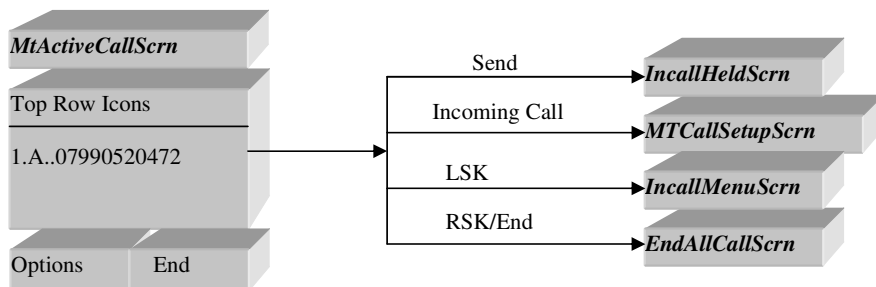


The up/down keys are used to highlight the required item as for all other list menus.

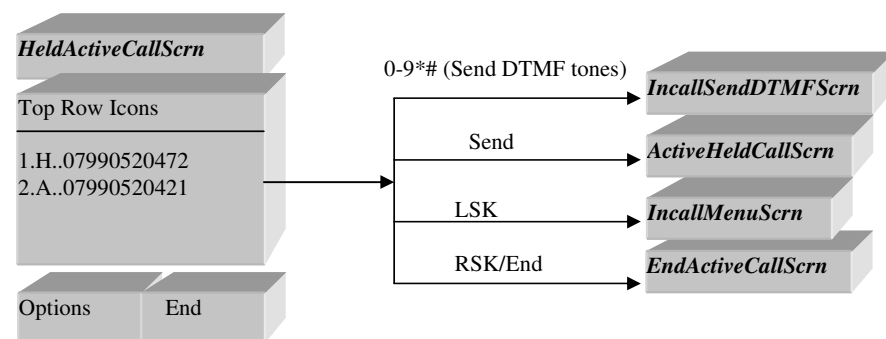
If one of the calls is dropped whilst in the menu, the “Call Ended” is displayed for two seconds before returning to the in-call or idle screen as appropriate.

6.3.8 Incoming Calls

With call waiting enabled and one call is active a second call is received, a tone is emitted in the ear-piece, the display shows “Incoming Call”.



The send key, or left soft-key, “Accept” will place the original call on-hold and answer the waiting call. The phone’s operation is then exactly the same as for an outgoing call with another on-hold. The right soft-key “Reject” will reject the incoming call and the phone returns to the normal in-call screen. The call is added to the incoming calls list.



The Send key swaps the active and held call states. The in-call menu option Swap also performs active and held state change.

6.3.9 Call End

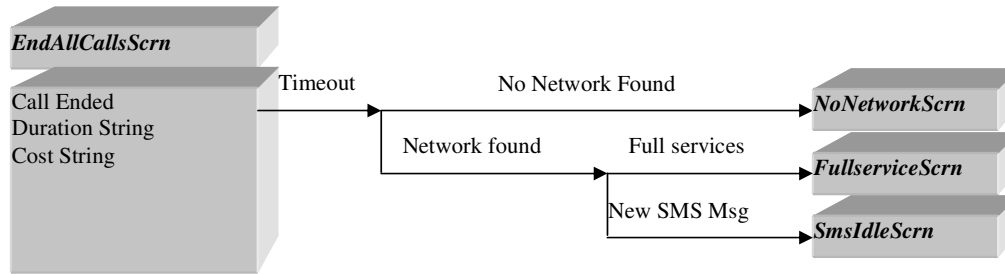
When a call is terminated an information screen is displayed for two seconds displaying the following information.

- The information string “Call ended”.
- The Duration string which is used to display the duration of the call in minutes and seconds.
- The Cost String displays the cost of the call (if advice of charge is available on the network).

The result of terminating the call will cause one of the following screens to be displayed:

- If no network can be found the *No Network Screen* is displayed.
- If a network is found where full service is allowed and there exists unread SMS messages the *SMS Idle Screen* is displayed.

- If a network is found where full service is allowed the *Full Service Idle Screen* is displayed.

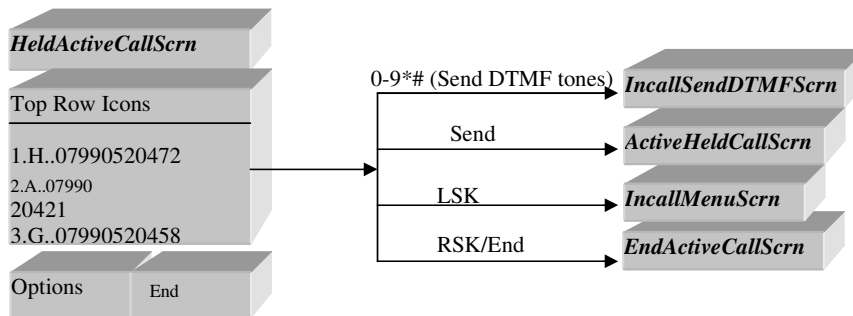


6.3.10 Volume Control

Whilst in-call the up and down keys increase or decrease the earpiece volume respectively, the user is presented with the audio volume dialog, the user can select a new setting. After selecting a new setting the mobile returns to the active call state.

6.3.11 Conference call

If more than two calls are connected they enter a multiparty mode.



Throughout a call, pressing the left soft-key, “Options” opens the in-call options menu, which contains the following items, dependant on state as explained below:

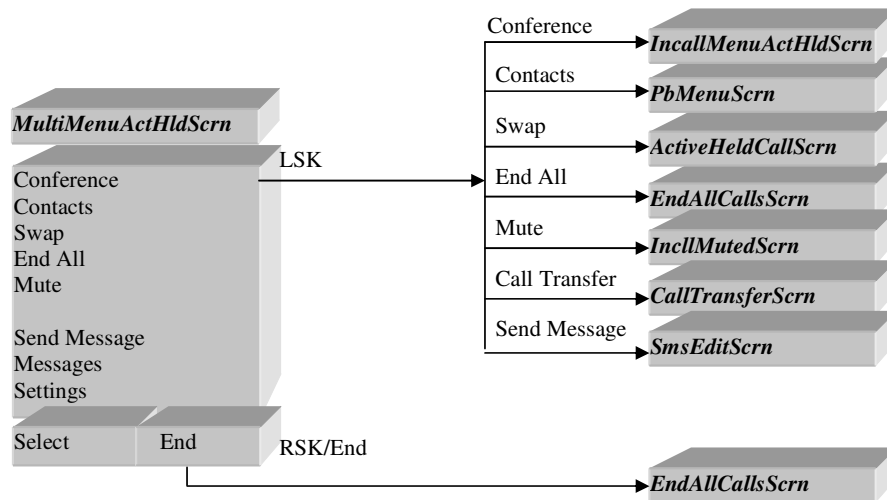
6.3.11.1 Two Call Scenario:

Following in-call options are invoked on pressing LSK:

- Conference
- Contacts
- Swap
- End All
- Mute
-
- Send Message
- Messages
- Settings

In this menu the left soft-key is “Select”, the right soft-key “End”.

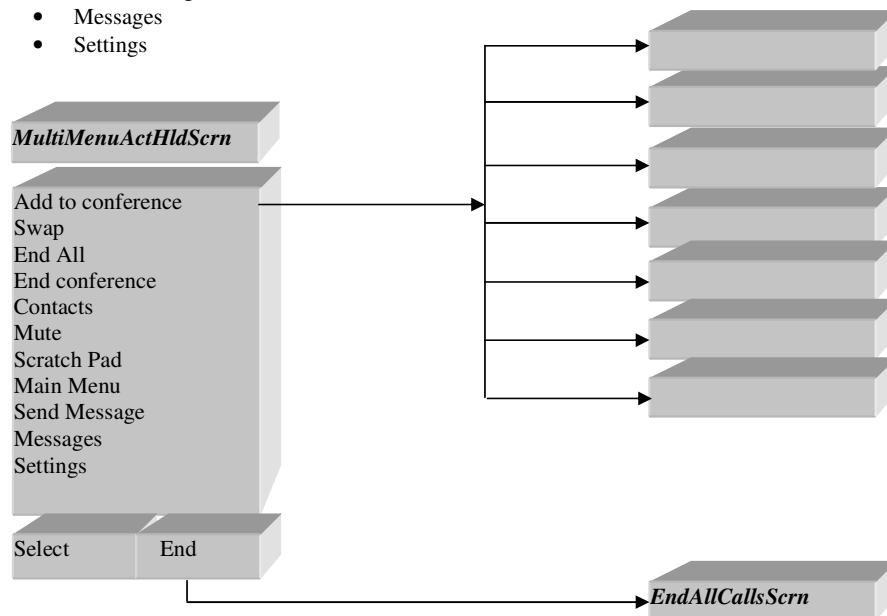
Formatted: Bullets and Numbering



6.3.11.2 Multi call scenario: One Active Call

Following in-call options are invoked on pressing LSK when 1 call is conference and another Active call:

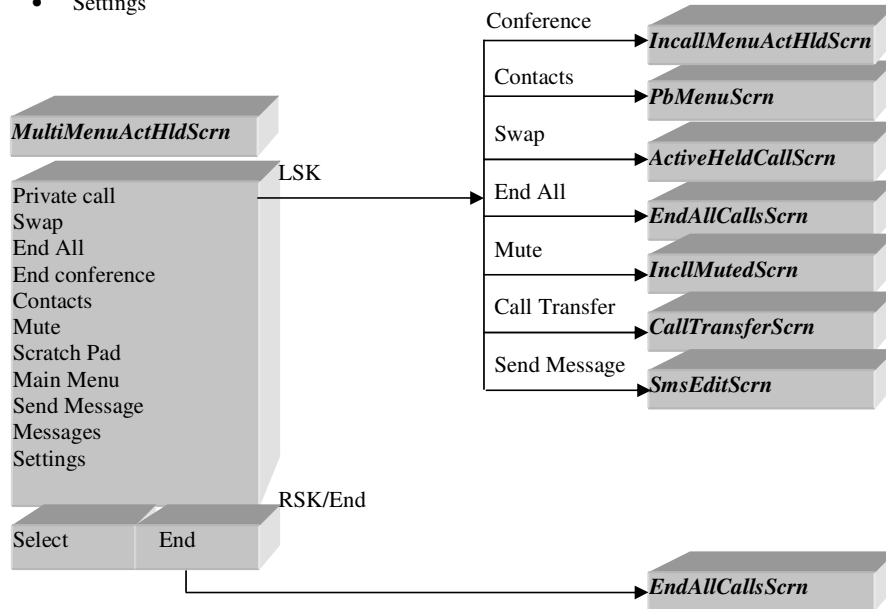
- Add to conference
- Swap
- End All
- End conference
- Contacts
- Mute
- Scratch Pad
- Main Menu
- Send Message
- Messages
- Settings



6.3.11.3 Multi call scenario: All Calls Active

Following in-call options are invoked on pressing LSK when all calls are in conference:

- Private call
- Swap
- End all
- End conference
- Contacts
- Hold
- Mute
- Scratch pad
- Main menu
- Send message
- Messages
- Settings



6.4 Menu Navigation

The top-level menu uses icons displayed full screen per item. All sub-menus are text-based. Menus can be dynamically configured e.g. SIM toolkit menu is not displayed if the SIM does not support SIM Toolkit.

6.4.1 Top level menu

The top-level menu items are presented by full screen graphic icons. The top line of the display provides a textual explanation (e.g. “Messages”) of the menu and the bottom line displays the soft key labels. The Up/Down keys are used to cycle through the menus.

For the colour display the main menu items are displayed using a bit-mapped graphic (96x96 pixels) in the centre of the screen with title and soft-keys (12 pixels) displayed in the defined colour and background.

6.4.2 Sub-menus

The second-level menus are displayed as text lists.

A highlight bar is used to select a menu item, inverting the text of the current menu item. The up/down keys move the list of available options up or down, therefore highlighting the previous/next menu item. After the last



item of the list is shown, the menu wraps-around, showing the first item, and visa-versa.

On entering the sub menu list the top item is highlighted. Pressing up moves the list down, each time bringing the previous item of the list to the top of the screen (which will be the menu’s last item if up is pressed when the menu’s first item is highlighted).

Pressing the down key moves the highlight bar down one line. Down key presses continue to move the highlighted bar down the screen until the last line of the display is highlighted, further down key presses keep the bar positioned over the bottom display line and move the list up. Up key presses move the highlighted bar up until the top most display line is highlighted, subsequent up key presses keep the bar positioned over the top display line and move the list down.

On all lists and menus, the soft-keys represent:

- Left soft key – “Select” – enters the menu option or further sub-menu
- Right soft key – “Back” – returns to the previous menu or idle screen

6.4.3 Lists

Lists, such as phonebook entries are displayed in exactly the same way as textual sub-menu items, using the up/down keys to scroll through, and soft-keys, and where appropriate, send and end keys call phonebook entries.

6.4.4 Information and Confirmation Screens

Information pop-ups briefly display a textual message after selection of a menu item or other operation. Pop-ups are displayed for two seconds unless stated otherwise. After the information display closes, the user is returned to the previous menu or screen. An ‘End’ key press closes the information screen and returns the user to the previous screen.

Confirmation screens display a textual message that the user has to confirm, e.g. “Delete all entries?” In this case the soft-keys are used to select what action to take - usually “OK” and “Cancel”. The “End” key can also be used to cancel the confirmation screen and the impending operation. Confirmation screens do not timeout.

6.4.5 Number matching

In all screens, rather than displaying a phone number, the phone will display a number’s text alpha-tag (name associated with a number) if can find the number in the phonebooks.

6.4.6 Truncations

If a menu text or name in a list is too long to be displayed on a single line, it is truncated; If a number in a list is too long, its initial characters are suppressed. A leading or trailing “..” (single character) indicates there are further characters that could not be displayed.

Example, for 10 characters per item, then “TI (UK) Limited”, with number “+441317186012” displays as:

Text form: TI (U..

Numeric form: ..317186012

If more than one line is available to display an item the text is cut at the closest space. If the item does not contain a space (a long number or a single long word) it is cut at the end of the first line.

6.4.7 Text Entry

A multi-tap method is used for entry of Latin characters. Pressing the key once enters/displays the first character associated with the key – pressing the key again (within two seconds) replaces the character with the second associated character – and again with the third character etc.

If the same key is not pressed again within two seconds, or another key is pressed, the displayed character is selected and the cursor moves on one character and the process is repeated for the next character in the string.

In the text editor a long key press of “#” key toggles the character between Lowercase and Uppercase.

The keys “0” to “9”, “*” and “#” have the following characters associated with them:

Key	Lowercase mode	Uppercase mode
1	“ “ ? ! I ;	“ “ ? ! I ;
2	a b c 2)	A B C 2)
3	d e f 3 (D E F 3 (
4	g h i 4 \$	G H I 4 \$
5	j k l 5 “ “	J K L 5 “ “
6	m n o 6 ,	M N O 6 ,
7	p q r s 7	P Q R S 7
8	t u v 8 ;	T U V 8 ;
9	w x y z 9	W X Y Z 9
0	. , + - = 0	. , + - = 0
*	* # % & “ “	* # % & “ “
#	“ “ \ , “ @ /	“ “ \ , “ @ /

After reaching the last character associated with a key, pressing it again returns to the first character associated with the key.

Alphanumeric entry screens use a line cursor to indicate the next edit position. The user navigates backwards and forwards in the string of characters using the down and up keys. If the text goes off the end of the line the

complete word is wrapped to the next line. If there are more lines of text than will fit on the screen the screen scrolls up automatically.

Text entered by the user is stored as it is entered: if there is an incoming call the user can accept it and upon call termination, the editor with its unfinished content is redisplayed. If a text entry session is completed (i.e. SMS sent or phonebook entry stored) the next entry into the screen will give a blank buffer.

For Number and PIN Entry Left/right moves through the digits. Up/down have no action. The central select button moves to the start of the number. If the cursor is already at the start of a number it moves to the end of the number.

6.4.8 Predictive Text Entry

The predictive text entry system, eZiText, is included as an option for GSM and GPRS for both Latin and Chinese languages.

7 BMI Features

Selecting “Menu” from the idle screen enables scrolling of the top level menu items:

- ‘Sim Toolkit Support’
- Messages
- Phone book
- Recent Calls
- Network Services
- Security
- Applications
- Phone Settings

The following sub-sections describe the individual phone functions provided by the BMI.

7.1 SIM Toolkit

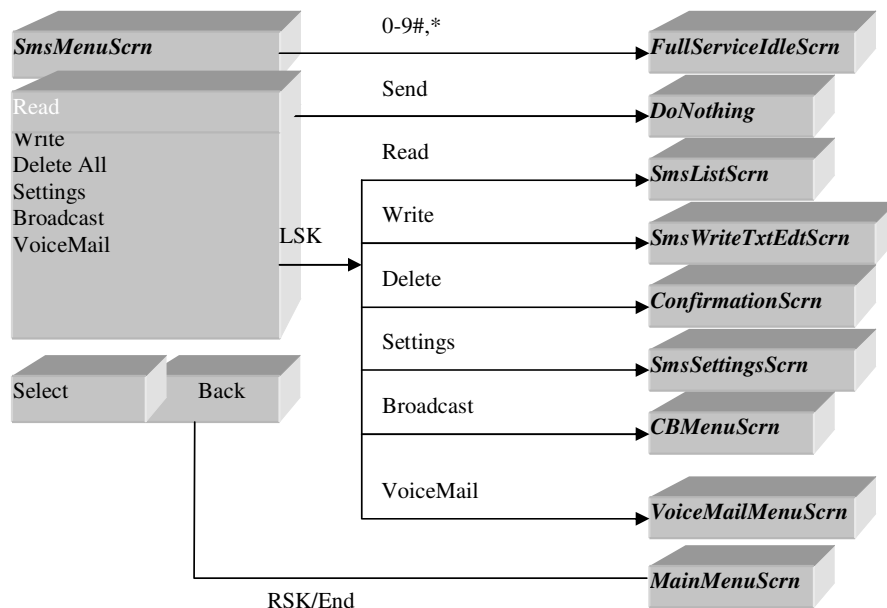
If the SIM includes a SIM Toolkit menu, this menu item is the first to be listed when the phone’s main menu is entered. If the SIM does not provide a menu name, “SIM Toolkit” will be used as default.

SAT Class 3 is supported.

7.2 Messages

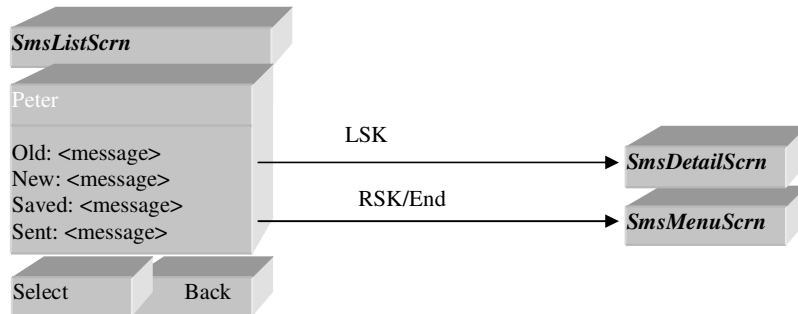
The handset supports MO and MT SMS PP using Latin characters (and Chinese is Chinese variants).

Selecting the “Messages” menu displays a sub-menu with the following options:



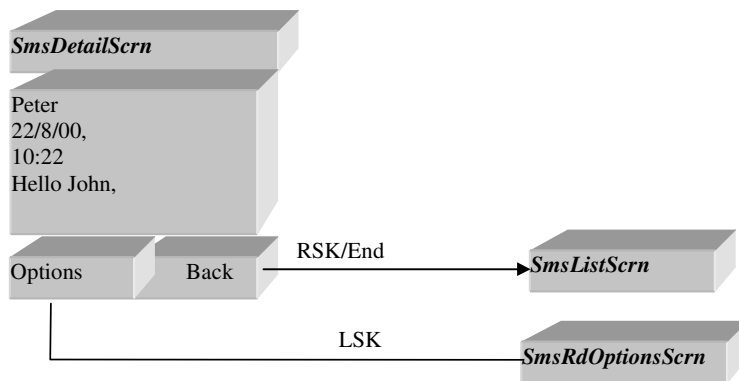
7.2.1 Read

A list menu is opened listing all received messages on the SIM, in chronological order.

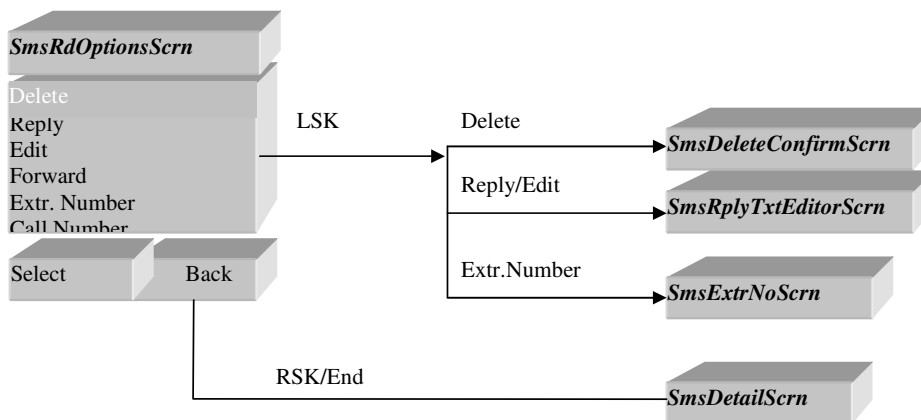


If no messages are available, "List Empty" is displayed for two seconds and the phone returns to the messages sub-menu.

Pressing the left soft-key, "Select" opens a window containing the date, sender and message body. If the message is longer than three lines, the up/down keys are used to scroll through the text.



The left soft-key "Option" opens a further sub-menu containing the following options:



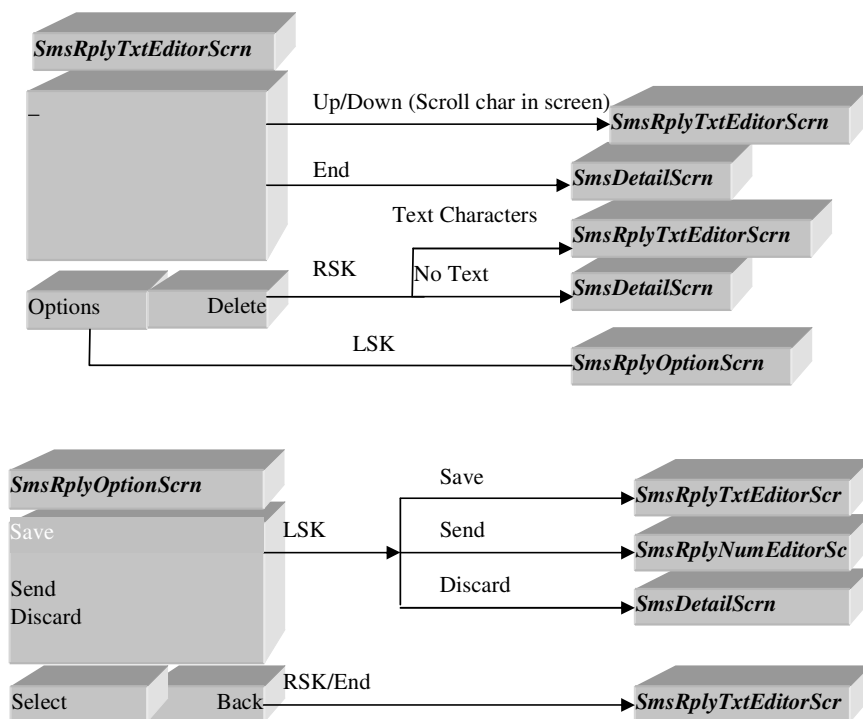
7.2.1.1 Delete

Selecting “Delete” displays the information screen “Message Deleted” for two seconds, and deletes the message from the SIM. If there are more messages the user is returned to the SMS read list. If there are no further messages, the information screen “List Empty” is displayed and the phone returns to the messages sub-menu.

7.2.1.2 Reply

The phone enters the message editor screen. The left soft key in this case is “Options” and provides menu options Save/Send/Discard - When the message is completed, the user is not asked for a number to send the message to – this is automatically copied from the sender of the message to which you are replying.

Once the message is sent (or sending is abandoned), the phone returns to the next message or message sub-menu as for all other message options.



Selecting “Save” allows the user to save the SMS message. A confirmation screen “Saved” is displayed before the user is returned to the SMS text editor screen.

Selecting “Send opens up the number editor screen preset with the received calls number.

Selecting “Discard” discards the compiled SMS message and clears the SMS text edit buffer. The user is returned to the messages sub-menu.

7.2.1.3 Edit

The phone also enters the SMS text editor screen but the message received is copied to the input buffer and the message can be edited in the normal way.

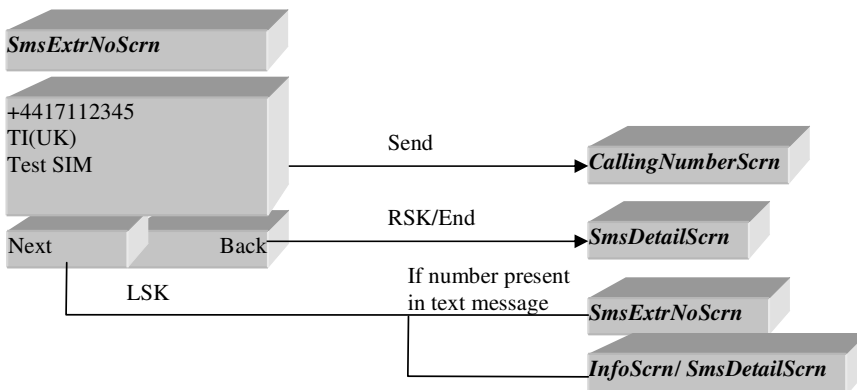
7.2.1.4 Forward

The phone received the message stored in editor screen. The left soft key in this case is “Options” and provides menu options Save/Send/Discard - When the message is completed, the user is asked for a number to send the message

Once the message is sent (or sending is abandoned), the phone returns to the next message or message sub-menu as for all other message options.

7.2.1.5 Extract Number

The phone displays the sender's number and name, if known in the phonebook. The soft-keys "Next" and "Back" are displayed.



Pressing the Send key will call the sender. At the end of the call, the phone returns to the idle screen. The called number is added to the redial list.

Pressing next will search through the message for a string of numbers, which are then displayed, again with the "Next" and "Back" soft-keys. If no more numbers are found, the message "No more numbers found" is displayed, and the phone re-displays the message sender's number.

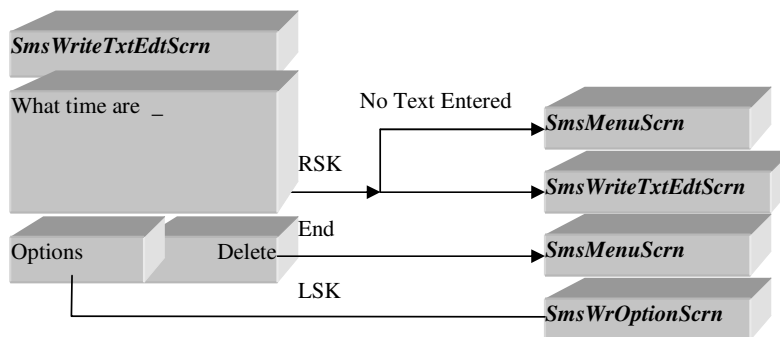
7.2.1.6 Call Number

The phone calls the selected number with the "End" soft-key displayed.

7.2.2 Write Message

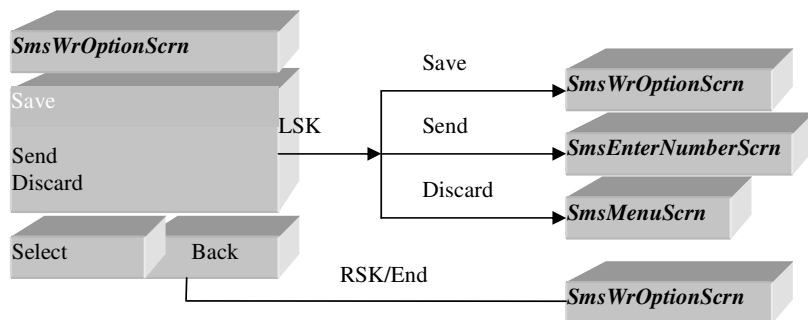
If this option is selected, but no message centre has been defined, the information screen "Set-up Message Centre Number" is displayed and the phone returns to the sub-menu.

If a message centre is defined, an alphanumeric editor is opened.



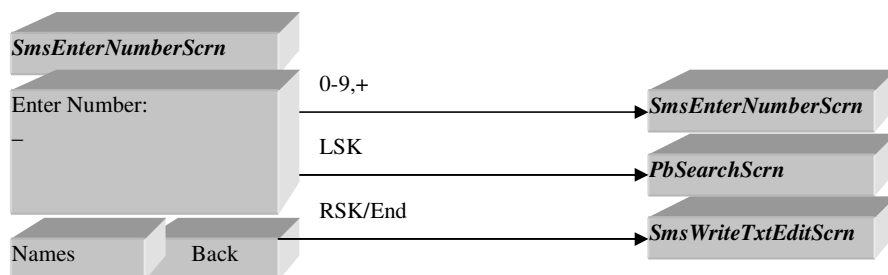
The user can enter up to 160 characters of text in the editor's buffer. If the user attempts to enter more characters, the phone will display the information screen "Maximum message length exceeded" for two seconds.

If no characters are entered in the screen the right soft-key “Back” returns to the previous screen. As soon as one or more characters are entered the soft key becomes “Delete”, and is used to delete the character directly before the cursor. Up/Down moves the cursor through the entered characters.

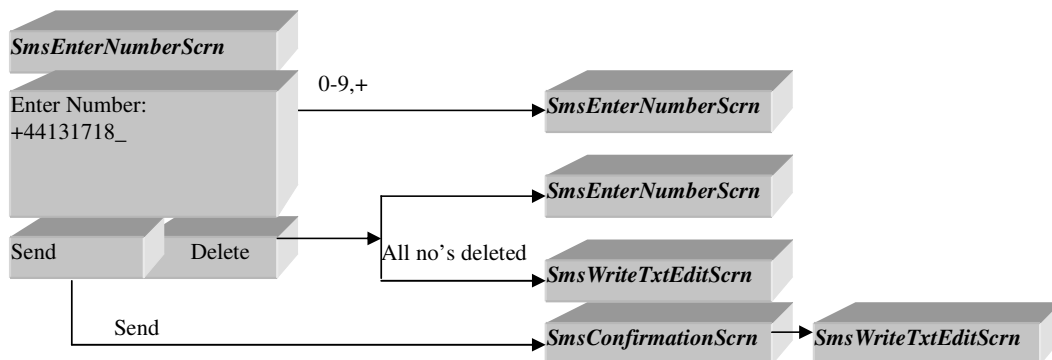


7.2.2.1 Send

Selecting “Send” opens a numeric editor where the number of the subscriber to whom the message is to be sent can be entered.



The left soft-key “Names” opens the phonebook in alphabetic search mode and allows an entry to be selected. The right soft-key “Back” returns user to the previous sub-menu. As soon as a number is copied from the phonebook or digits are entered the soft key becomes “Delete” and will delete the digit immediately before the cursor. In this context the left soft key is “Send”.



On pressing soft key “Send” the message is sent. An information screen “Sending message” is displayed whilst the phone transmits the message to the network. If transmission fails a confirmation screen “Message transmission failed” is displayed.

If FDN is active, the phone will check if a manually entered number is in the FDN list. If it is not, the information screen “Number not allowed” is displayed and the phone returns to the numeric entry screen.

7.2.2.2 Save

The message is saved in the SIM, if space is available. If no space is available, the information screen “SIM full” is displayed and the phone returns to the sub-menu.

7.2.2.3 Discard

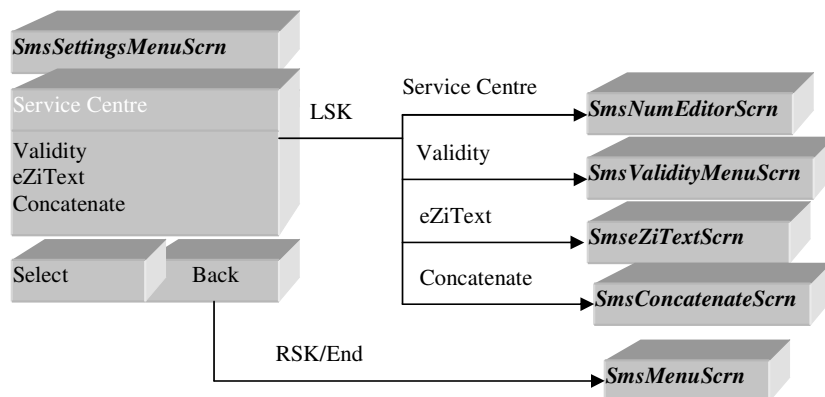
The information screen “Text discarded” is displayed for two seconds and the phone returns to the messages sub-menu.

7.2.3 Delete All

A confirmation screen “Delete ALL messages?” is displayed. The right soft-key “Back” returns the phone to the messages sub-menu. The left soft-key “Ok” displays the information screen “All messages deleted” and deletes all messages from the SIM. The phone then returns to the messages sub-menu.

7.2.4 Message Settings

Selecting “Message Settings” opens a sub-menu with the following options:



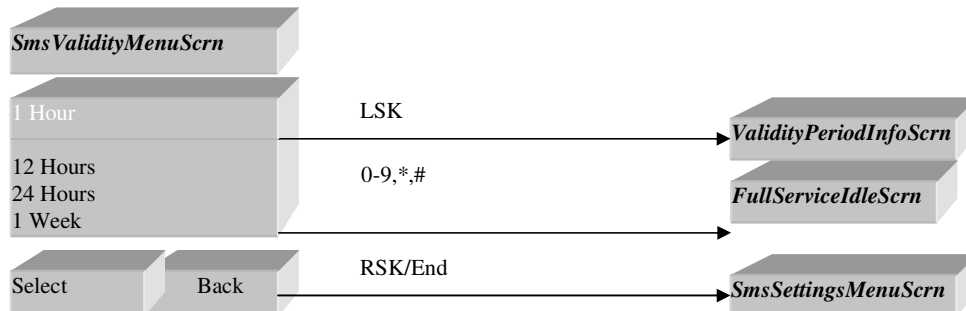
7.2.4.1 Service Centre

A numeric editor is opened. If a SMS service centre number is already stored on the SIM, this is copied to the editing buffer.

The left soft-key “OK” copies the number entered to the SIM card and displays the information screen “Service Centre Number Stored” and then returns to the previous sub-menu. The right soft-key is “Back”, which returns the phone to the sub-menu.

7.2.4.2 Validity Period

A sub-menu is opened with the following validity period options:



The up/down keys are used to select one of the options and the left soft-key, "Select", will select the desired option. The information screen "Message Validity Period Set" is displayed and the phone returns to the previous sub-menu. The right soft-key "Back" returns to the previous sub-menu without setting the validity.

After setting any of the options listed in the above sub-sections, all future messages will be sent to the network, via the specified service-centre and with the specified attributes set.

7.2.4.3 eZiText

A sub-menu is opened with the following easy text options:

- Activate
- Deactivate

The right soft-key "Select" sets the chosen option and displays a confirmation information screen.

7.2.4.4 Concatenate

A sub-menu is opened with the following easy text options:

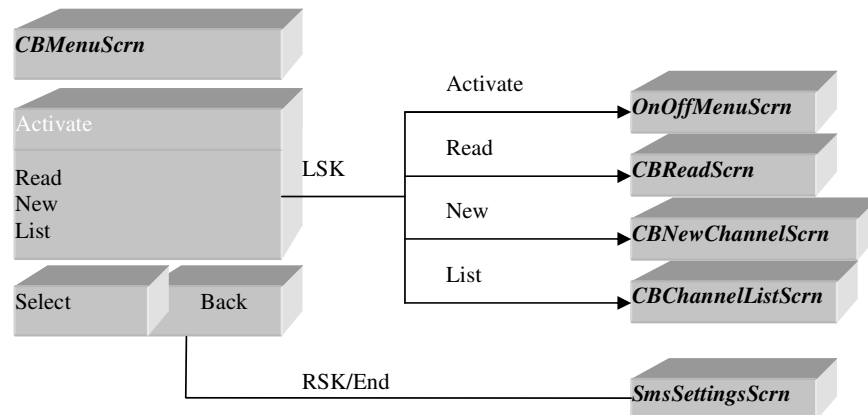
- Activate
- Deactivate
- Status

For the "Activate" and "Deactivate" options the right soft-key "Select" sets the chosen option and displays a confirmation information screen.

For "Status" the information screen shows the current status of the concatenate option.

7.2.5 Broadcast Messages (SMS-CB)

Selection of the Broadcast Messages option displays a sub-menu with the following options:



7.2.5.1 Activate (Reception on)

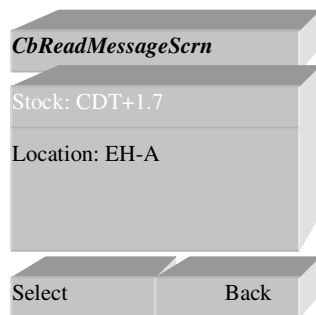
Selecting “Activate” opens a sub-menu with the following options:

- Off
- On

Selecting “on” switches reception of cell-broadcast messages on. Off, switches reception off. Switching reception off will increase standby battery life and is the default mode of operation.

7.2.5.2 Read

Selecting “Read” displays a list of the initial text fragments of the most recently received broadcast messages. If the message cannot be displayed on one line it is truncated.



The right soft-key “Back” returns the phone to the previous sub-menu.

The left soft-key “Select” displays the complete message. This is displayed in the same manner as a normal SMS message, except the name or identifier of the message precedes it. (e.g. “Location: EH-A” or “50: EH-A”). The up/down keys scroll through the message if it is too large to fit on the screen. The right soft-key, “Back” returns the phone to the list of messages.

7.2.5.3 New

If the user selects “New” a numeric editor is opened with the prompt “Enter Name”. The user can enter up to three digits.

Up to twenty identifiers can be stored on the phone. The Message Identifiers (MIDs) are copied to the SIM if it supports this.

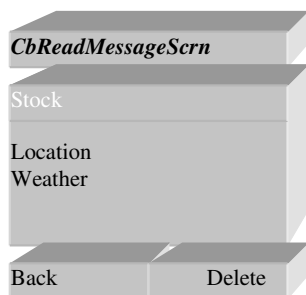
The left soft-key “OK” opens an alphanumeric editor with the prompt “Enter MID”. The user can now enter a textual description of the broadcast message channel.

The left soft-key “OK” then stores the message identifier on the SIM, if SMS-CB fields are present - or in the phone’s memory if not - and displays the information screen “Broadcast message identifier stored”. The text identifier is stored on the phone. If the SIM is changed these identifiers are deleted. The right soft-key, “Back” takes the phone back to the Broadcast message sub-menu.

7.2.5.4 List

A list of all the topics selected is displayed in identifier order. If the user has associated a name with the identifier, the name is displayed in the list.

The up/down keys scroll through the list. The left soft-key “Back” takes the phone back to the broadcast message sub-menu. The right soft-key “Delete” deletes the topic from the SIM or phone memory and displays the information screen “Broadcast topic deleted”. The phone returns to the list of topics, or to the broadcast message menu if there are no more topics.



7.2.5.5 Display of Broadcast Messages

The two types of cell broadcast messages are displayed differently:

- Immediate
- Normal

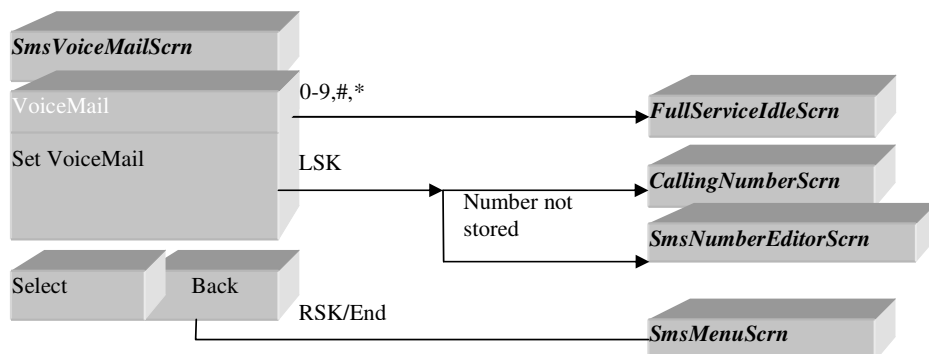
Immediate display messages relate to a specific cell or cells, typically location information, and are re-transmitted frequently. These messages are displayed on the idle screen, overwriting the clock. If the message is greater than one line, the up/down keys can be used to scroll through it.

These messages are discarded if the phone moves into another cell or out of network coverage.

Normal display messages are similar to a normal SMS, however the SMS icon is not switched on – an idle screen message “New broadcast message” is displayed in the idle screen. The left soft key becomes “Read”. These messages can also be read via the messages menu. These messages are stored in a FIFO in RAM with a capacity of up to twenty message pages: multi-page broadcast messages of up to 15 pages are supported.

7.2.6 VoiceMail

Selecting VoiceMail will immediately start to call the voicemail number stored on the SIM card (or phone memory - the SIM card having priority). If both phone and SIM voicemail fields are empty a numeric editor is opened and the user is prompted to enter the voice mail number. If selected using factory personalisation, the VoiceMail can also be directly accessed by a long press of the “1” key from the idle screen.



Note: The voicemail number can be edited via the messages menu.

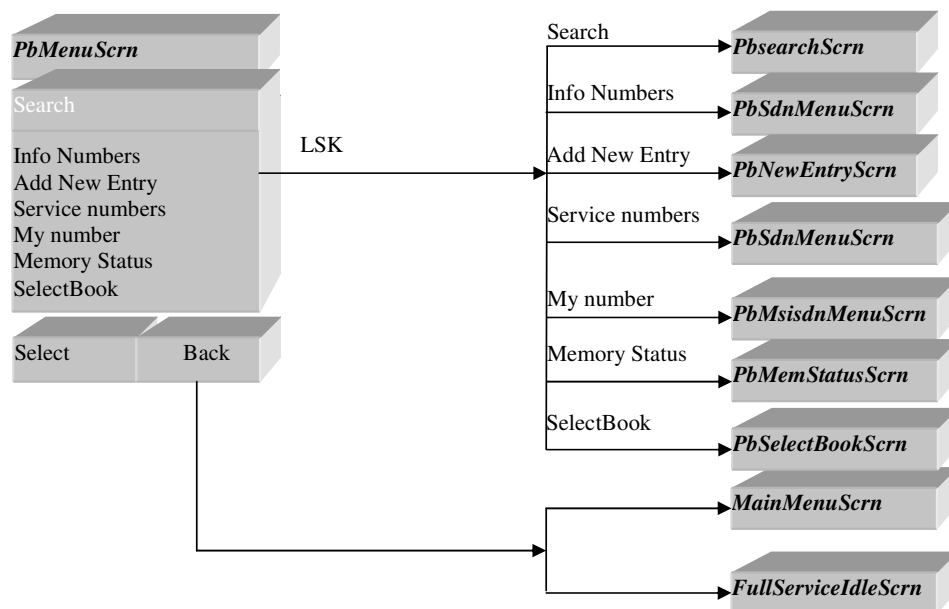
7.3 Phonebook

The BMI provides all necessary SIM phonebook support and an internal phonebook.

If a SIM is inserted into the phone that contains non GSM-string format names these entries will not be displayed. However the BMI will display Unicode data if Chinese is enabled.

The phonebook can be invoked from the full service idle screen using the left soft key 'Names' or via the Main Menu by selecting the phonebook icon.

Selecting "Phonebook" displays the following menu:



The mobile supports both Abbreviated Dialling Number (ADN – i.e. the normal phonebook) and Fixed Dialling Number (FDN – i.e. restricted dialling) phonebooks. The Service Number menu item will only be displayed if the SDN field is supported by the SIM card and SDN entries have been set up.

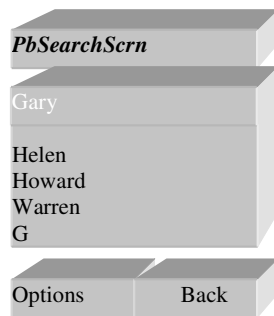
When FDN is active, the user can only access FDN numbers. When FDN is off, the user can access ADN numbers. Operation is otherwise the same regardless of FDN mode. However adding, editing and deleting an FDN entry requires the user to enter the PIN2 code if required before proceeding.

7.3.1 Search

The phonebook entries are displayed in alphabetical order. Four entries at once can be displayed on the top four lines. Entries without names associated with them are inserted at the beginning of the list. The fifth line presents the user with a 'text search' edit field which displays the current string search pattern entered by the user.

If the phonebook is empty then an information screen "Empty List" is displayed.

The phonebook can perform a single character search using the multi-tap mechanism. A single press of "4", which represents characters "G", "H" and "I", will take the user to the first entry of the phonebook beginning with "G". The search edit field displays the current text search pattern "G".



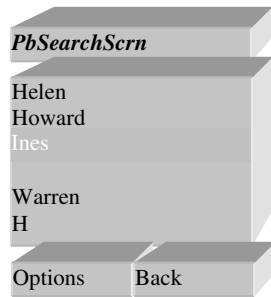
A further press moves to the entries beginning with “H”. Pressing “4” again moves to entries starting with “I”. If the key is pressed again, the phonebook returns to entries starting with “G”.

If any other key is pressed, the phonebook moves to entries beginning with the first character associated with that key.

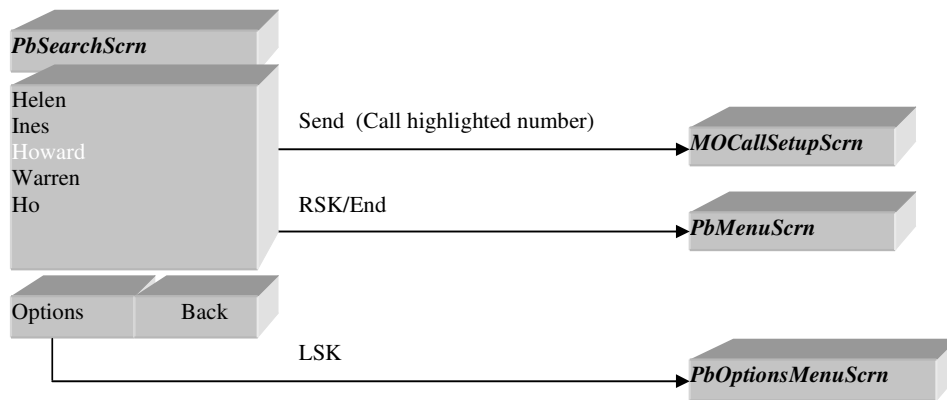
If there are no entries beginning with a particular character, say “G”, the phonebook moves to the next alphabetically ordered entry, say, “Helen”.



If there were no “H” entries, pressing the key again then moves to the next item starting or after “I” – in this case, “Ines”.

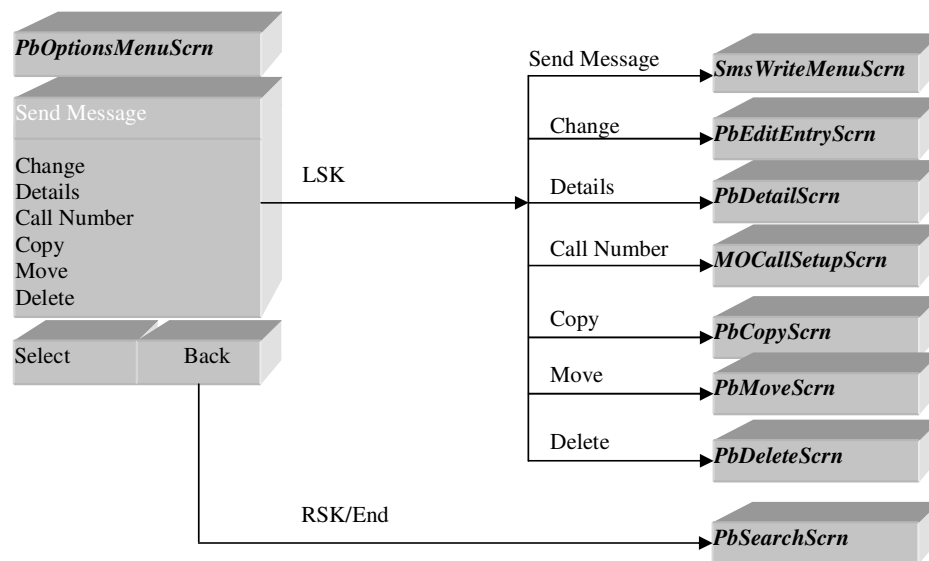


The phonebook can perform a multi-character search pattern by entering two or more characters into the text search field. ‘H’ and ‘o’ have been entered as the text search pattern and the ‘Howard’ entry has been selected.



To refine the text search further, up to 7 search characters can be entered.

The up/down keys are used to select an entry within the range starting with one particular character.



Pressing Send immediately calls the highlighted number. The left soft-key “Options” opens a phonebook sub-menu containing the following items:

7.3.1.1 Send Message

The SMS text editor is opened with left soft key ‘Options’ and right soft key ‘Delete’, the user can enter the SMS text message. The “Options” menu offers Save/Send/Discard options. If the user selects the ‘Send’ option then the number editor is opened and initialised with the selected telephone number with LHS soft key ‘Send’ and right soft key ‘Delete’. The user may edit the number or select the ‘Send’ option to transmit the SMS.

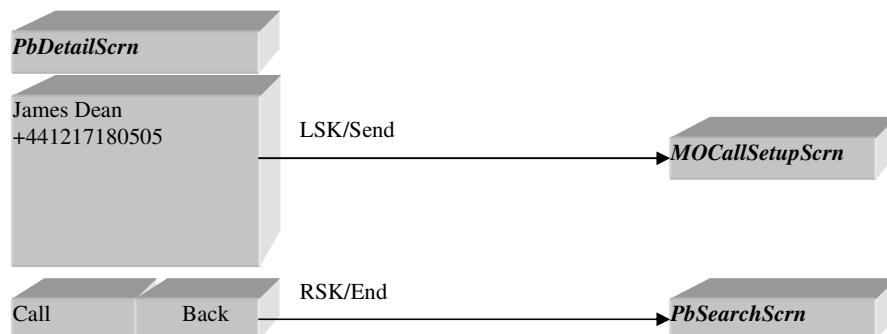
When concatenated SMS is disabled, the SMS editor only allows messages of 160 characters to be entered; When concatenated SMS is enabled, the SMS editor allows messages of up to 1600 characters to be entered (i.e. up to 10 messages in length). In either case messages of 160 characters or less will be sent as a single standard SMS. No message will be displayed when the limit is exceeded.

7.3.1.2 Change

A numeric editor is opened containing the number of the highlighted entry with a cursor positioned at the end of the number. When the user selects “OK”, an alphanumeric editor is opened which contains the name taken from the phonebook. When the user presses “OK” an information screen with the text “Saved” is displayed. The screens are identical to those used for entering new phonebook entries.

7.3.1.3 Details

Selecting “Details” opens a screen displaying the name and number of the selected entry.



7.3.1.4 Call Number

Selecting the 'Call Number' option activates a mobile originated call to the selected number

7.3.1.5 Copy and Move

Selecting the 'Copy' or 'Move' option opens a phonebook sub-menu containing the following items:

- This Entry
- All

Selecting either option copies or moves the entry/entries from the internal phonebook to the ADN SIM phonebook. A pop up menu appears when the entry/entries have been stored or moved.

7.3.1.6 Delete

Selecting "delete" opens a conformation screen with the text "Press OK to delete". The label of the left soft key is "OK" and the right soft key displays 'Cancel'. The confirmation screens times out after 10 seconds. The 'Cancel' and 'End' key press return the phone to the previous sub-menu. Pressing the 'OK' key deletes the entry and displays an information screen confirming the action and the phone returns to the phonebook list.

7.3.2 Info Numbers

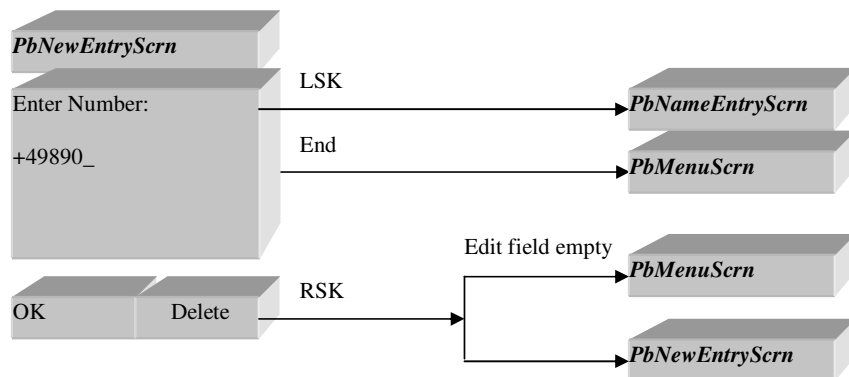
Selecting 'Info Numbers' displays the CPHS information numbers if supported by the SIM.

7.3.3 Add New Entry

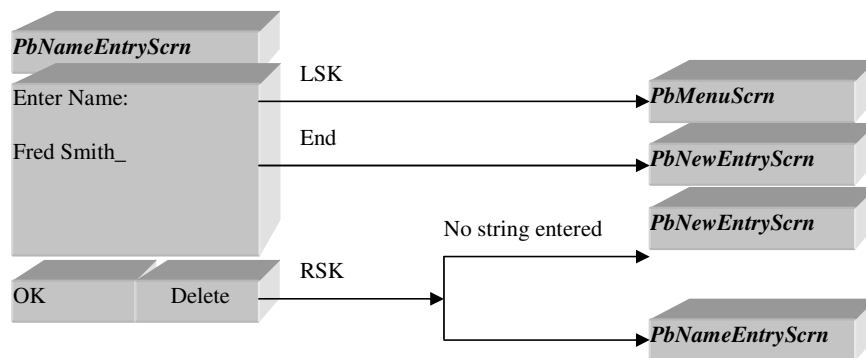
If FDN is active, PIN2 entry is required before an entry can be added to the phonebook. If PIN2 is not entered correctly the phone returns to the previous menu.

If the phonebook is already full, an information screen with the message "Phonebook Full" is displayed for two seconds and the phone then returns to the previous menu.

If space is available, a numeric editor is opened.



Pressing "OK" opens a text editor screen with a prompt to enter the alphanumeric tag (i.e. name).



Empty values can be entered for both the number and alphanumeric tag.

Once "OK" is used to confirm the completion of the tag, an information screen is displayed with the text "Saved" for two seconds. A new entry is always stored in the next available location in the SIM.

There is no facility to move items in the phonebook.

7.3.4 Service no.

The SDN entry is a dynamic menu item and is only displayed in the Phonebook Menu if there is an SDN field on the SIM and the SDN list is not empty. Selecting this item opens a list of names of the service numbers (e.g. Stock Line, Airport Information, Travel Booking, Traffic...).

The layout is the same as that for the normal phonebook when searching for an entry by name, however the right soft-key is "Exit" – there is no option for viewing or editing the details of service numbers.

7.3.5 My Number

Selecting the "My Number" option allows the list of own-numbers stored on the SIM to be viewed and edited. This opens a sub-menu with the following options.

- Consult
- Add New Entry

Selecting "Consult" displays the first entry in the list of own numbers from the SIM card. This list is handled and presented exactly as that of the phonebook. If there is more than one entry the up and down arrows scroll through the list. If the list is empty the information screen "Empty List" is displayed for two seconds.

Adding a new entry is exactly the same as adding an entry into the phonebook, except no location number is reported after the entry has been completed. If the SIM does not support a list of own numbers, then one entry is provided and stored in the phone.

7.3.6 Memory Stat

This menu reports the phonebook location usage in an information screen. The figures indicate the number of used entries out of the total available on the SIM card (the size of the SIM phonebook varies).

7.3.7 Select Book

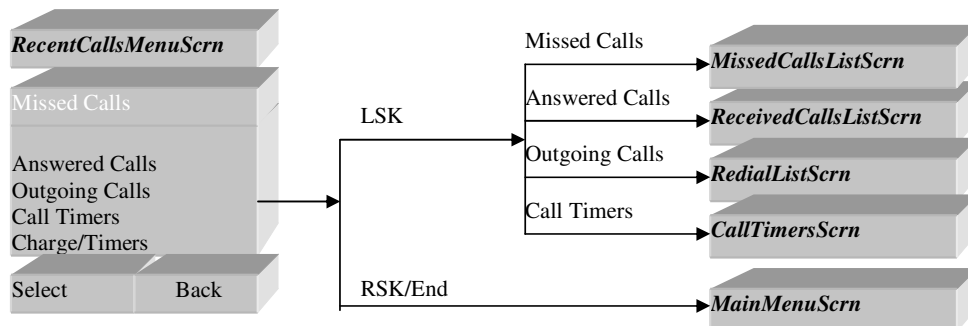
This menu allows the user to select either the internal FlashFile System phonebook(FFS) or the SIM phonebook.

If the phonebook selected is changed, an information screen with "Changing phonebook...." is displayed and the phone returned directly to the idle screen. If, before the new phonebook has been loaded, the user selects "names" or "phonebook" the "please wait" message is displayed.

Note: Upon power-up the phone checks in FFS to see if the internal or SIM phonebook has been previously selected as "in use" the appropriate phonebook is then be loaded. All phonebook operations are only performed on the phonebook selected; entries in the non-selected phonebook are not visible when searching for names.

7.4 Recent Calls

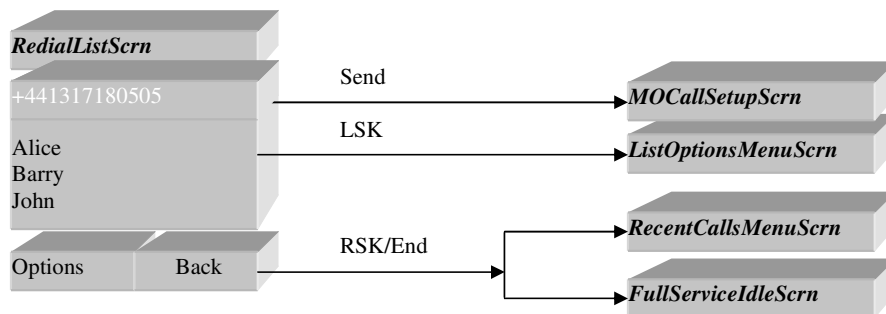
The recent calls list contains information about the dialled calls, missed calls and received calls and call timers.



Each list except Outgoing Calls (This list contains a maximum of five entries) contains a maximum of ten entries and when a list is full, and a new entry is added (by making/receiving a call) the oldest entry in the list is deleted. The list is displayed in chronological order with the last number dialled/received at the top. In the case where a calling party number was withheld or unavailable this information is not stored. The time and date of the call are stored with the calling party number.

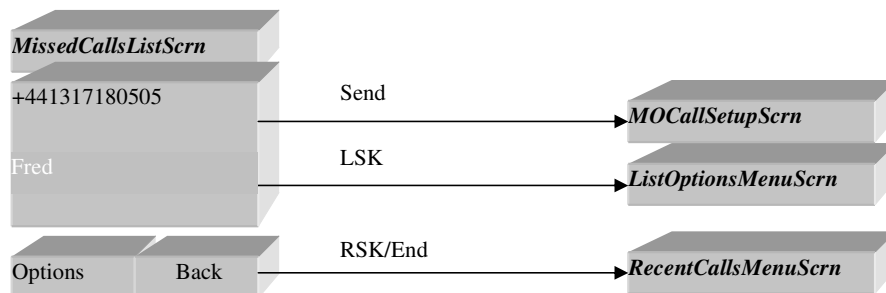
Each of the three lists is accessed via the “recent calls” menu. In addition the redial (Outgoing calls) list can also be accessed directly from the idle screen by pressing the Send key.

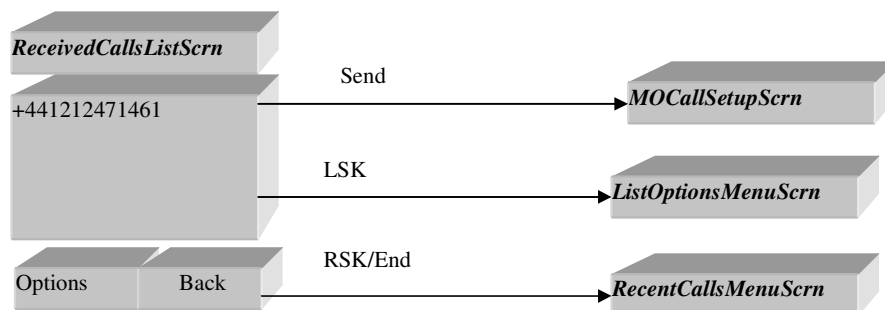
Selecting an entry from the calls list and pressing the Send key starts a MO call, this approach allows a fast redial of the last number dialled by pressing the send key twice from the idle screen. If the ‘Unknown’ list entry is selected pressing the Send key displays the “Unavailable” information screen.



If the user tries to access the list and its empty a screen with “Empty List” is displayed for two seconds

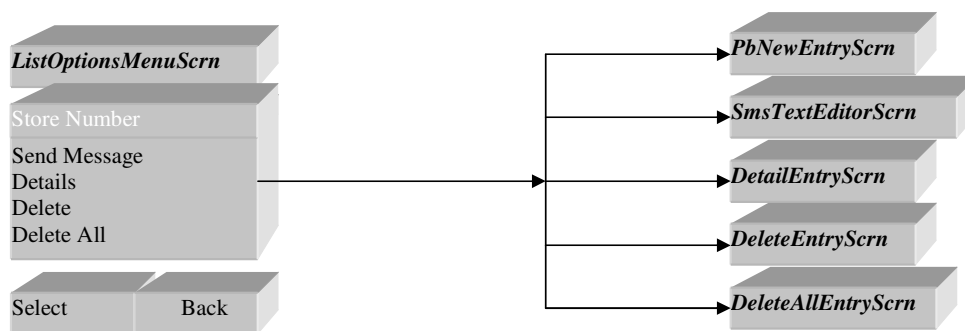
If a number in the list matches an entry in the phonebook the alpha-tag associated with the number is displayed – if the number does not match, the number itself is displayed.





When entering the lists the top item is highlighted. Up/Down keys move through the list to highlight other entries.

The right soft key takes the user back to the idle screen or menu. The left soft key “Options” opens a sub-menu with the following menu options.



- **Store Number**

Copies the number to the phonebook using the same procedure as storing a name in the phonebook, except that the information is copied first from the redial list to the number editing screens.

- **Send Message**

Copies the selected number into the SMS number editor and presents the user with the SMS text editor screen. The SMS message can be compiled and passed onto the message service centre.

- **Details**

Displays the time/date of the call. using the following information/format left justified:

Name (if number matched in phonebook)

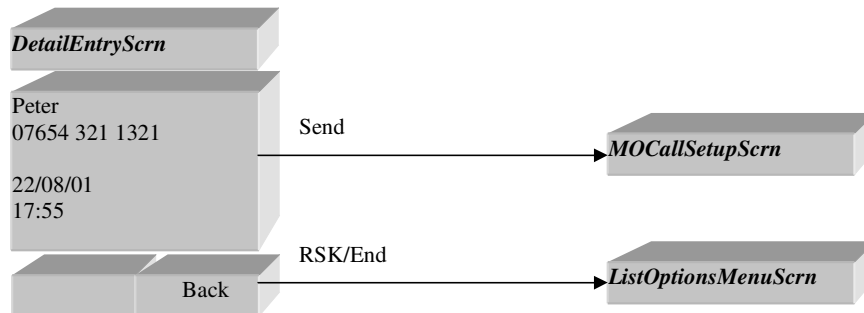
07654 321321

Time: hh:mm

Date: dd/mm/yy

If the number is too large for one line, the least significant digits preceded by “..” is displayed.

If the time or date fields are not available/invalid “unknown” is displayed instead of the date and/or time.

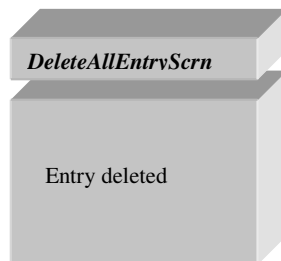


- **Delete**

Removes the entry from the list. The user then returns to the calls list with the subsequent entry highlighted if available, or previous entry if not. If there are no more entries, the “Empty List” message is displayed.

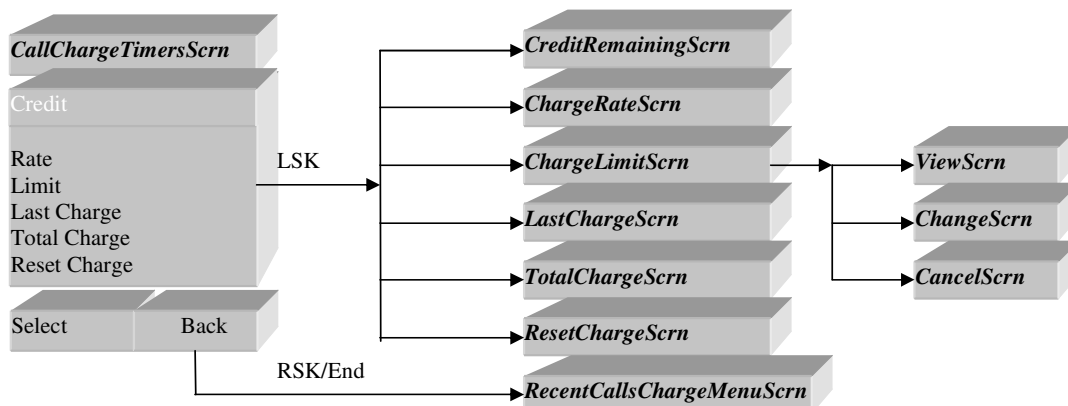
- **Delete all – clears the complete list**

Deletes all the entries and displays the message “Entry deleted”, the user then returns to the recent list menu screen.



7.4.1 Advice of Charge

The advice of charge “Charge/Timer” menu option is only presented when the SIM card supports the advice of charge facility. The “Charge/Timers” menu option is selectable from the recent calls menu. The user can view the duration of calls, add/change credit limits etc.



7.4.1.1 Credit Remaining

Displays an information screen showing the amount of credit remaining. The text “Balance” is displayed in the middle of the screen with the amount of credit remaining below. The credit remaining is displayed in units of currency if the currency per unit has been set, otherwise its displayed in units.

7.4.1.2 Charge Rate

The Charge Rate facility is PIN2 protected. If PIN2 is entered successfully, an alphanumeric editor is opened with the title “Enter currency”. The user must enter the currency that he wishes his charge information to be displayed. Only three characters can be entered. Once entered, a numeric editor is opened with the title “Enter unit price:” - the user should enter the price of a unit in the currency that they previously entered. When the user has finished entry the information screen “Rate changed” is displayed for two seconds and the phone returns to the previous sub-menu.

7.4.1.3 Charge Limit

Selecting the charge limit menu opens a sub-menu containing the following options,:

- View
- Change
- Cancel

Selecting “View” displays the current limit set, which is stored on the SIM card. This is automatically converted into currency if previously set-up, otherwise it is displayed in units.

Selecting “Change” requests PIN2 be entered. The limit is then entered on the prompt “Enter Limit”. The number of digits that can be entered is SIM dependent. Selecting “OK” displays the information screen “Charge Limit Changed” for two seconds.

Selecting “Cancel” requests PIN2 be entered. An information screen is the displayed with “Limit Changed”.

Soft-keys are defined in all the screens above as: Left soft-key “OK”; Right soft-key: “Exit”.

7.4.1.4 Last Charge

Displays the charge for the last call – in the currency previously set-up, or in units if no currency information has been entered.

7.4.1.5 Total Charge

Displays the charge for all calls since the charge counter was last reset.

7.4.1.6 Reset Charge

The Reset Charge facility is PIN2 protected. If PIN2 is entered successfully, then displays the message “Reset Charge”. Resets the charge counter for all calls.

7.4.2 Call Timers

Calls timers record the duration of outgoing and incoming calls.

7.4.2.1 Last call

Displays the duration of the last call made or received.

7.4.2.2 Incoming calls

The incoming option displays the total duration of incoming calls.

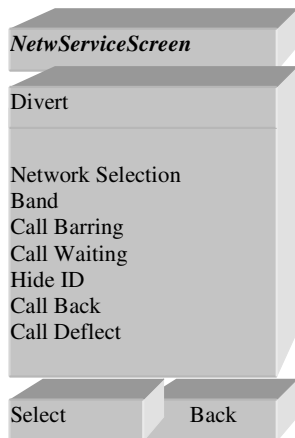
7.4.2.3 Outgoing

The outgoing option displays the total duration of outgoing calls.

All call timer screens have soft-keys defined: Left is “OK” which takes the user to the previous screen; Right is “Reset” which opens a confirmation screen with the prompt “Press OK to delete”. Pressing the left soft-key, “OK”, displays an information screen “Timer Reset” for two seconds. The relevant timer is reset to zero.

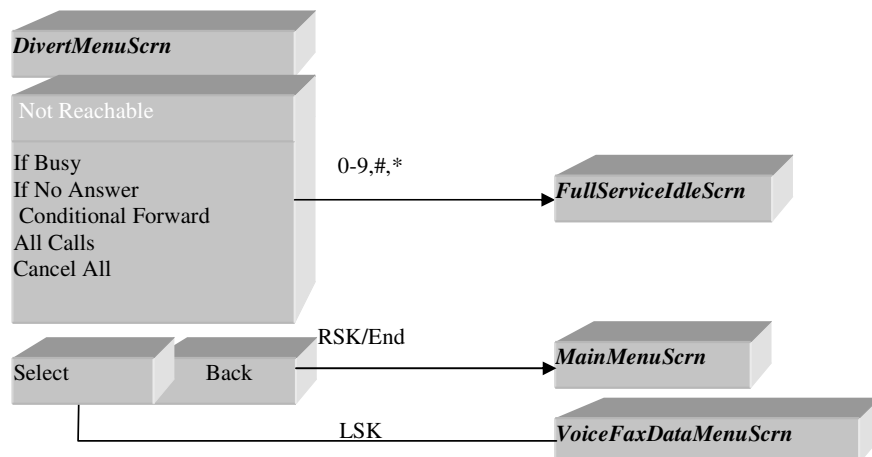
7.5 Network Service

Selecting “Netw Services” displays the following screen.



7.5.1 Divert

Selection of “Divert” (call forwarding) menu opens a sub-menu:



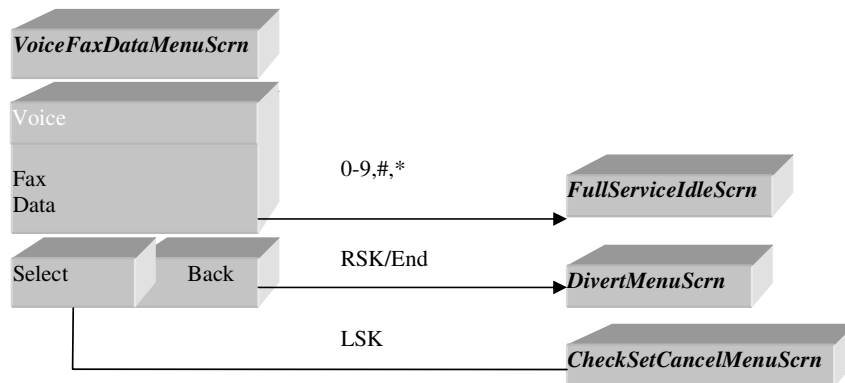
Selection of the “Divert Calls” menu opens a sub-menu containing the following list of the divert types:

7.5.1.1 Cancel All Diverts

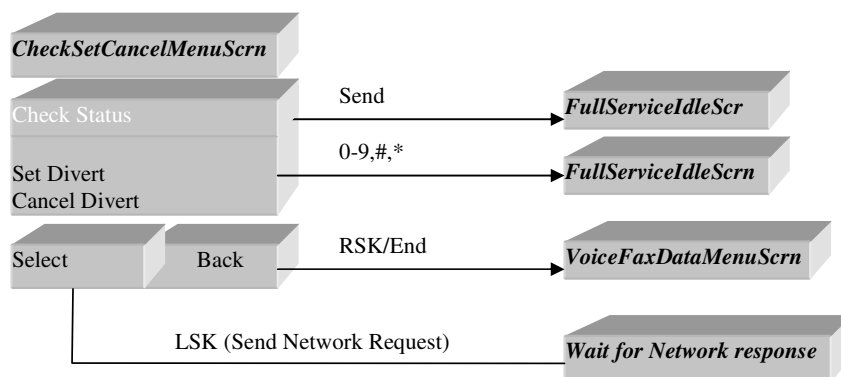
Selecting “Cancel All” sends a cancel all diverts SS string to the network and displays “Requesting”. Once the network confirms/rejects the request and appropriate information screen is displayed: “Deactivated” or “Failed”. These screens are also used for SS-functions initiated using GSM strings.

7.5.1.2 Divert Options

Selecting one of the five divert options (If no service, If busy, If not answered, If not available and Unconditional (All Calls)) opens a further sub-menu containing the following interrogation/setting options:



Selecting any of these options opens a further sub-menu containing the service types:



7.5.1.2.1 Check Status

An information screen “Please wait” is displayed whilst the phone interrogates the status of the selected divert on the network. If no response is received, “Failed” is displayed for two seconds and the phone returns to the Divert sub-menu.

When the phone receives the divert status it opens a confirmation screen displaying the divert state in the following order:

- Divert type (i.e. If busy, If not answered or If no service)
- “Not Diverted” or “Diverted to:”
- The number to which the service is diverted – if any. (The name, if stored in the phonebook)

If the number does not fit on the last line, the up/down keys scroll through the information; If all unavailable diverts were checked the up down keys scroll through the divert types.

The left soft-key is “OK” and returns the phone to the previous sub-menu.

7.5.1.2.2 Set Divert

A numeric editor with the prompt “Enter number:” is opened. The left soft-key “OK” sends the request to the network. The right soft-key “Contacts” opens the phonebook and allows an entry to be selected.

An information screen “Please wait” is displayed until the network accepts or rejects the request.

7.5.1.2.3 Cancel Divert

An information screen “Deactivated” is displayed whilst the phone sends the cancel request for the selected service to the network. When the phone receives the response the appropriate public MMI information screen is displayed and the phone returns to the divert menu.

7.5.1.3 Divert All Calls Icon

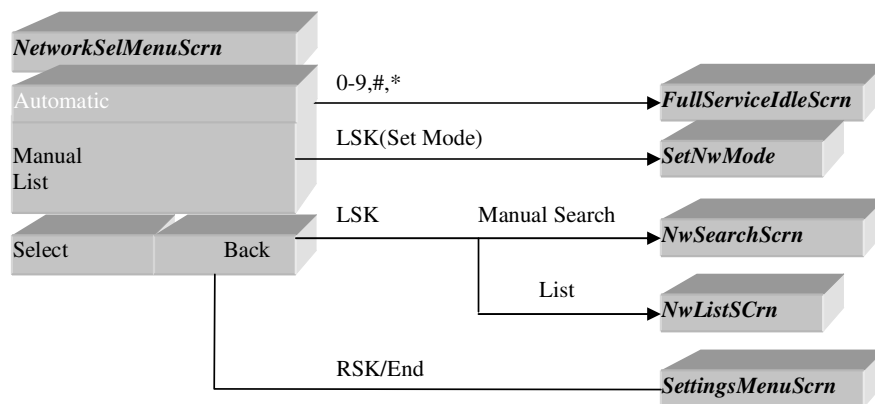
The status of unconditional diverting is stored in the SIM card (if the field is available) whenever the mobile interrogates, activates or deactivates unconditional diverting.

The divert icon is displayed in the idle screen indicating “divert all calls” is active.

7.5.2 Network Selection

On power-up, the phone starts a automatic network search. If a network is found, the phone will enter an emergency call only mode until the mobile has performed a location update.

Selection of “Network Sel” menu opens a sub-menu:



7.5.2.1 Select Network - Automatic

The phone will attempt to camp-on to the home network, a network listed in the preferred list of the SIM, or any other available network in that order. During this period the phone displays the message “Search For Networks”.

On location-update failure to the last available/attempted network, one of the following messages will be displayed, according to the reason for location-update failure:

- Card is not valid – IMSI rejected by network (reject codes 2 or 3)
- Phone rejected – IMEI rejected by network (reject code 6)

The phone will then display “No network” in place of the operator name in the idle screen.

7.5.2.2 Select Network - Manual

If manual selection is chosen the phone will only attempt to register on the network that the user had previously selected (in last session). If this fails the mobile will display “[network name] Not Available” in the idle screen.

Selection of manual network selection displays the information screen “Search for Networks” whilst the phone builds a list of available networks.

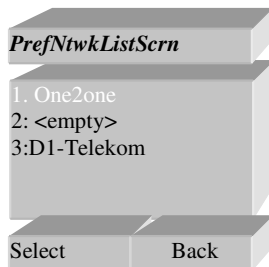
The list is then displayed and the user can select one of the available networks.



When a network is selected “Search for Networks” is displayed while the mobile attempts to register on the network. If the registration procedure fails, the failure response is displayed in the same way as for automatic network selection. The list of available networks is then re-displayed and the user may re-select.

7.5.2.3 List

The SIM’s preferred network list is displayed in entry order.



Up/down moves through the list.

If a SIM entry is empty, “<Empty>” is displayed. If the network code is not known to the phone it will be displayed in the form “n: xxx-yy”, where “xxx” is the three-digit MCC and “yy” the two-digit MNC.

The left soft-key, “Select” allows the network in this entry to be edited. The following sub-menu is displayed:

- Select F. list
- Network code
- Delete

If “Select F. list” is chosen, a list of all known networks is displayed, one at a time in alphabetical order – the network code and name are displayed. Up/down keys are used to scroll through the list of networks. The left soft-key “Select” enters the network code into the SIM and returns to the list of entries. The right soft-key “Back” returns to the previous sub-menu. The list can also be searched by entry of the network name’s first character – in the same way phonebook entries are searched.

Selecting “Enter network code” opens a numeric editor with the prompt “Enter network code”. Five digits can be entered with the third and fourth digits being automatically separated by a “-“ after the third digit is entered. If the left soft-key “OK” is pressed, the phone copies the network code to the SIM and returns to the network list. The right soft-key “Back” returns to the previous sub-menu.

Selecting the “Delete” option deletes the selected entry from the list and the position is marked ‘empty’.

7.5.3 Band

On Selection of band, a sub-menu is displayed

- Status
- Automatic
- Manual

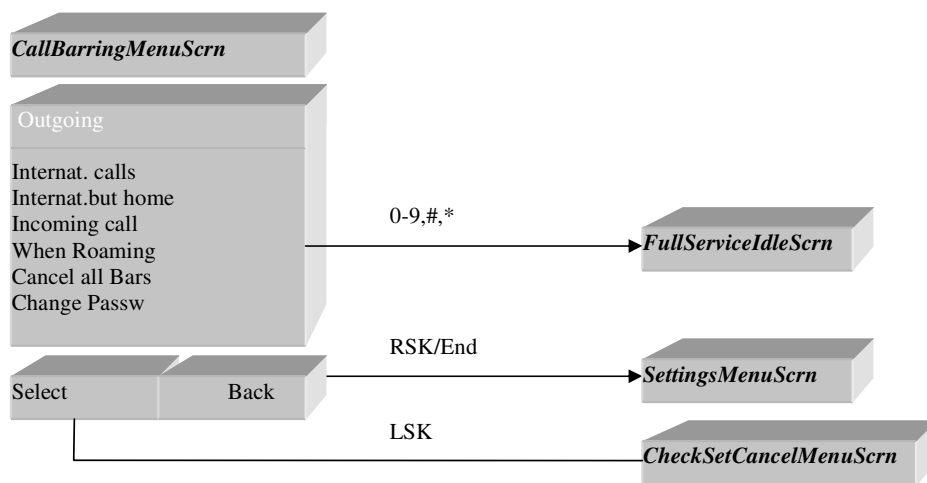
If “Status” is selected an information screen is displayed showing either automatic or manual selected.

If “Automatic” is selected a confirmation screen “Done” is displayed.

If “Manual” is selected a list is shown of possible frequency bands with a tick box for each showing status (highlighted if selected) Selecting one band toggles the tick box and either selects or deselects the band.

7.5.4 Call Barring

On selection of call barring, the phone requests the user enter the Call barring network password. The password

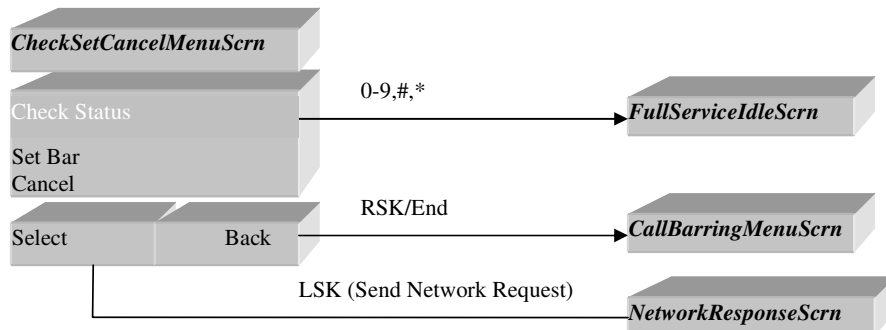


is validated by the network and not by the mobile.

The following barring options are listed in a barring sub-menu:

7.5.4.1 Barring Options

Selecting one of the five barring options (All outgoing calls, International calls, International but home, All incoming calls, Incoming calls when roaming) opens a further sub-menu containing the following interrogation/setting options:



If “Check Status” is selected an information screen “Please wait” is displayed whilst the phone interrogates the status of the bar on the network. If no response is received, “Failed Not Available” is displayed for two seconds and the phone returns to the Barring sub-menu.

When the phone receives the divert status it momentarily displays an information screen displaying the bar state, which is either:

- Bar Active
- Bar Inactive

If “Set Bar” is selected an information screen “Please wait” is displayed until the network accepts or rejects the request. The phone returns to the bar menu.

If “Cancel Bar” is selected an information screen “Please wait” is displayed whilst the phone sends the cancel request to the network. When the phone receives the response the appropriate public MMI information screen is displayed and the phone returns to the bar menu.

7.5.4.2 Cancel all bars

On selection of “Cancel All Call Bars” the mobile sends the request to the network and “Please wait” is displayed while the mobile waits for the network response. Depending on the network responds, the standard “Completed” or “Failed Not Available” information screens are displayed and the phone returns to the barring menu. The ‘End’ key returns the mobile to the call barring menu.

7.5.4.3 Change Password

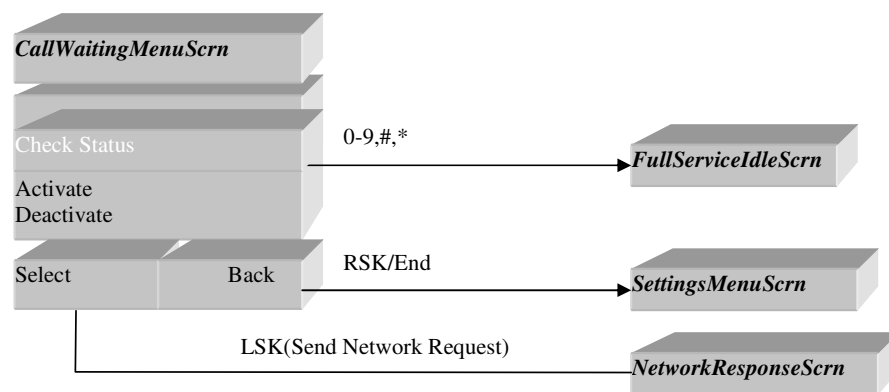
Selecting “Change Password” opens a window with “Enter Current Password”.

A second screen with “Enter New Password” is opened. The user can enter a new password up to 8 digits in length. Pressing the left soft-key “OK” opens a further window with “Confirm New Password”. The new Password must be entered again.

The phone then sends the password change request to the network, displaying “Requesting”. Depending on the network’s response the confirmation screen “Password Changed” or “Change Failed” will be displayed. The phone then returns to the call bar menu.

7.5.5 Call waiting

A sub-menu with the following options is displayed:



7.5.6 Hide ID.

A sub-menu is opened with the following Hide ID options:

- Check Status
- Activate
- Deactivate

If “Activate” is selected a requesting information screen is displayed followed by a confirmation information screen. If this is successful CLIR is activated and the SIM’s identity is not sent on all subsequent outgoing calls. If this is unsuccessful the phone prepends all dialled calls with the supplementary service string “#31#”.

From the Idle screen the SS-String “*#31#” can be used to interrogate the networks CLIR state, the mobile displays the network response with the CLIR status information.

If “Deactivate” is selected a requesting information screen is displayed followed by a confirmation information screen. If this is successful CLIR is deactivated

If “Check Status” is selected the information screen shows the current status of the Hide ID option.

7.5.7 Call Back

A sub-menu is opened with the following Call Back options:

- Check Status
- Activate
- Deactivate

If “Check Status” is selected the information screen shows the current status of the Call Back option.

If “Activate” is selected a requesting information screen is displayed. The user can select “OK” to activate call back or “List” to display the most recent busy calls and select from this list. This is followed by a confirmation information screen.

If “Deactivate” is selected a confirmation information screen is displayed and call back is inactive.

7.5.8 Call Deflect

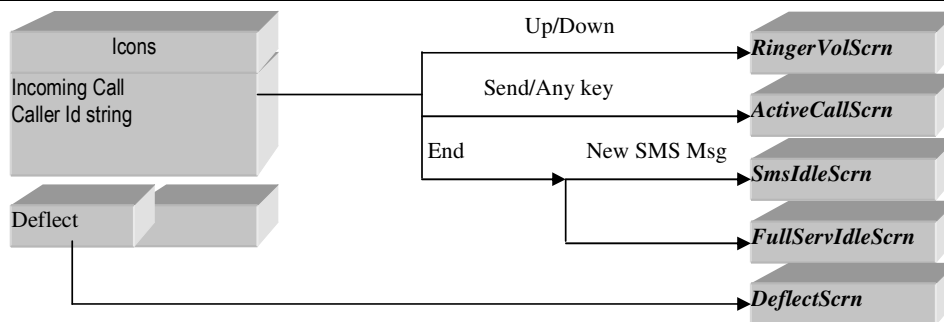
A sub-menu is opened with the following Call Deflect options:

- On
- Off

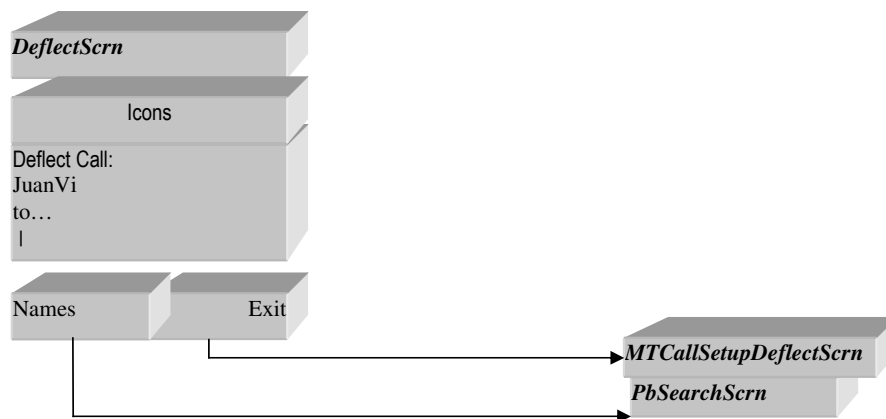
Call deflection allows incoming voice calls to be individually “deflected” to another number though at this time no UK networks support this feature.

Selected either option displays a confirmation information screen and sets the option accordingly.

With call deflection active the incoming call screen is as follows:

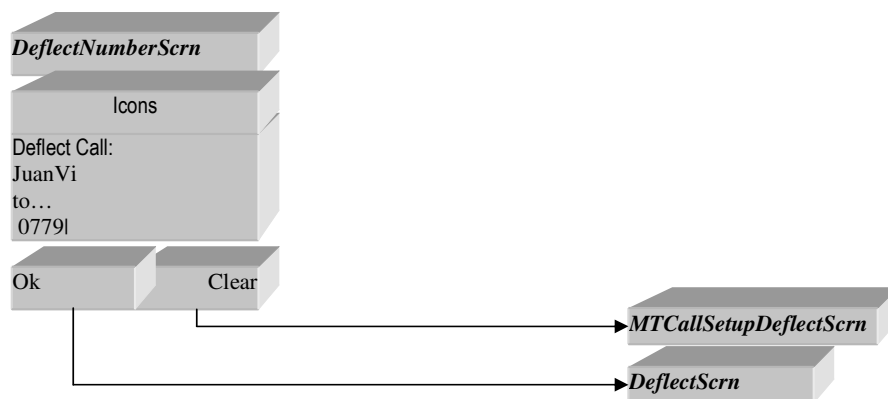


Pressing “Deflect” soft key opens a screen to allow a number to be entered to which the call can be deflected.



Pressing the “Names” key opens the phonebook search screen and once a subscriber is selected the number is copied into the deflection screen. Pressing the “Exit” returns to the incoming call screen, from where the call can be answered or rejected.

If a digit is entered, the soft-keys change to allow a number to be entered for the deflection.



Pressing “Clear” key deletes the last digit. If the first (only) digit is deleted the DeflectNumberScrn is shown

Pressing the “Ok” key sets the deflection

A status window is displayed until the result of the deflection is returned either “Deflection completed” or “Deflection unavailable”. If successful the phone returns to the idle screen. If unsuccessful, the incoming call screen.

7.6 Security

The phone uses PIN and PUK numbers to protect it from unauthorised use. It also supports FDN to restrict the numbers to which calls can be made. All key tones and clicks are suppressed during entry of PINs and passwords.

Upon entering Security the following sub-menu is displayed:

- Fixed Names
- PIN
- PIN2

7.6.1 Keypad lock

Pressing “Menu” from the idle screen followed within two seconds by “*” will lock the keypad and return to the idle screen.

In the keypad locked state any key press displays “Keys locked”, “Press: Menu, *” for 2 seconds.

While the keypad lock is active pressing “Send” or left-soft key “Accept” will accept an incoming call and pressing “End” or right-soft key “Reject” will reject the incoming call. All other keys are inactive. The lock is removed until the call is cleared, and the lock then re-applied automatically.

7.6.2 FDN Names

Selection of FDN activation opens a sub-menu with the following options:

- Yes
- No
- Fixed Numbers

Selection of either of these opens a window requesting PIN2 be entered. If the PIN2 is entered incorrectly an information screen with “PIN failed 2 tries left ” is displayed and the phone returns to the previous sub-menu. For the third try it will display “SIM blocked”.

If the user enters the correct PIN2, “Activated” or “Deactivated” is displayed for two seconds, as appropriate, and the phone returns to the idle screen.

When FDN is activated:

- Operations on the phonebook are made to the FDN list rather than the ADN list.
- Any number dialled is compared to the FDN list – and rejected if not present.
- The destination number of an SMS is compared to the FDN list – and rejected if not present.

Calling or sending messages to numbers not in the list is prohibited - an information screen with “Not allowed” is displayed and the phone then returns to the previous screen.

Adding or removing FDN entries from the phonebook are performed as for the normal phonebook, but require PIN2 be entered first.

7.6.3 PIN Code

This menu allows PIN1 to be switched on or off, or changed. Selecting this menu opens a sub-menu with the following options:

- Status
- Activate
- Deactivate
- Change

The public-MMI pseudo-SS strings defined in GSM 02.30 can also be used to access SIM PIN control.

7.6.3.1 Status

Selecting “Status” returns an information screen ‘PIN Disabled’ or ‘PIN Enabled’. After 2 seconds the information screen expires and returns to Security sub-menu.

7.6.3.2 Activate

Selecting “Activate” opens a window requesting “Enter PIN1”.

If PIN1 is entered correctly an information screen with “PIN Activated” is displayed and the phone returns to the PIN code sub-menu. The PIN request field is set in the SIM – from this point on each time a phone with this SIM in is switched on, the PIN code will be requested.

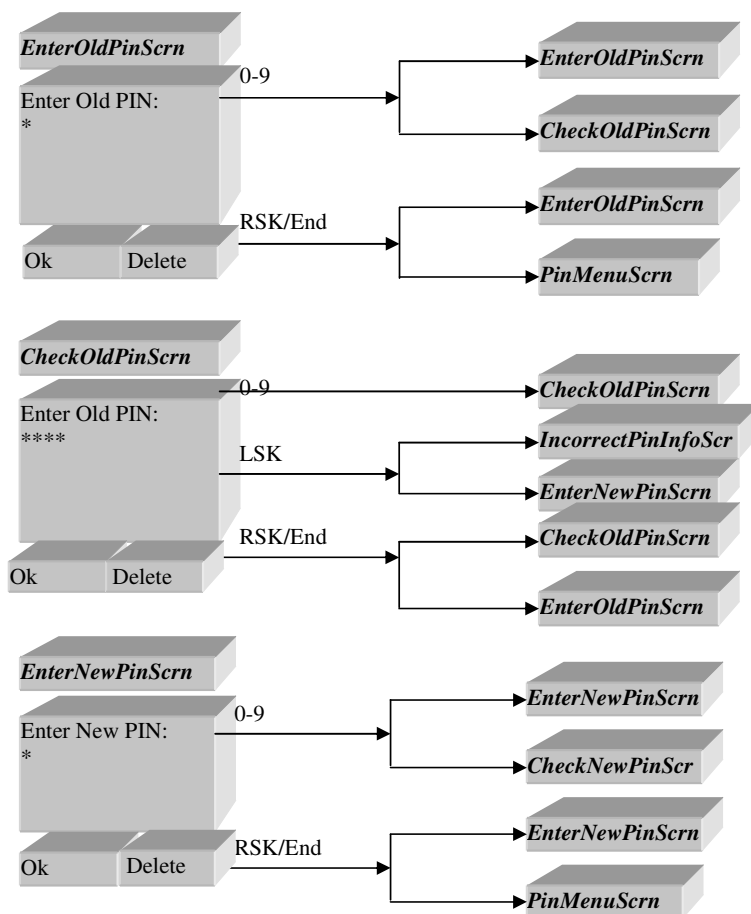
If the PIN is entered incorrectly, “PIN Incorrect” is displayed before returning to the sub-menu.

7.6.3.3 Deactivate

Selecting “Deactivate” also opens a window requesting “Enter PIN1”.

If the PIN is entered correctly an information screen with “PIN Deactivated” is displayed and the phone returns to the PIN code sub-menu. The PIN request field is cleared in the SIM – from this point on the PIN code will not be requested when powering on a phone with this SIM.

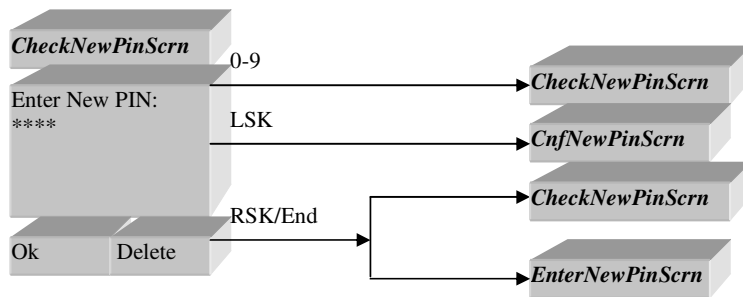
If the PIN is entered incorrectly, “PIN Incorrect” is displayed before returning to the sub-menu.



7.6.3.4 Change

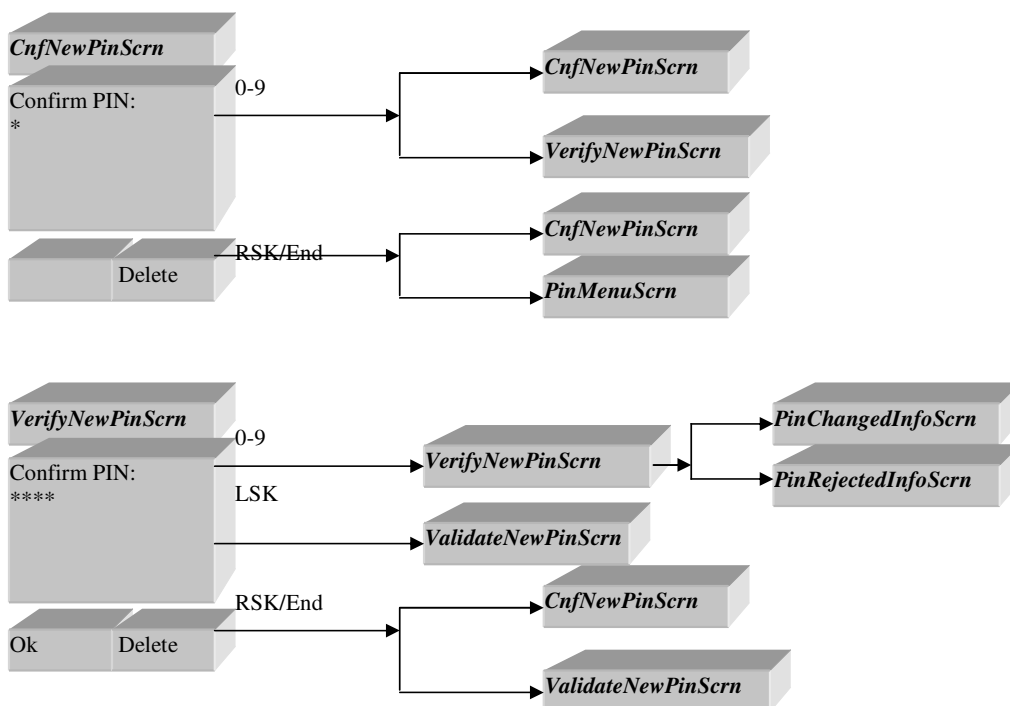
A prerequisite for changing PIN is that PIN request is on, otherwise the “Change PIN” request is rejected with an information screen ‘Activate PIN’ and the user is returned to the security sub-menu.

Selecting “Change” opens a window with “Enter Old PIN”.



If the PIN code is incorrectly entered an information screen is displayed with “PIN Incorrect” before the phone returns to the “Enter Old PIN” screen.

If the PIN is entered correctly a screen with “Enter New PIN” is opened. The user can enter a new PIN up to 8 digits in length. Pressing the left soft-key “OK” opens a further window with “Confirm New PIN”. The new PIN must be entered again. If the second entry of the new PIN does not match the first “PIN inconsistent – Not changed” is displayed for two seconds and the phone returns to the “Enter New PIN” screen. If the new PIN and confirm PIN entries match, the PIN is changed on the SIM and the information screen “PIN Changed” is displayed before returning to the PIN code sub-menu.



From all PIN screens, the right soft key “Delete” will delete a digit entered or if the entry field is empty “Back” will return to the previous screen.

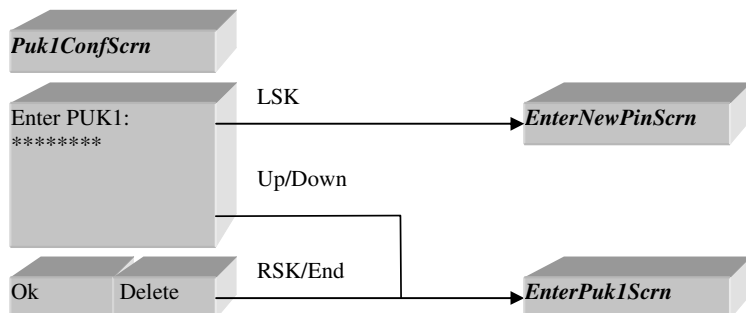
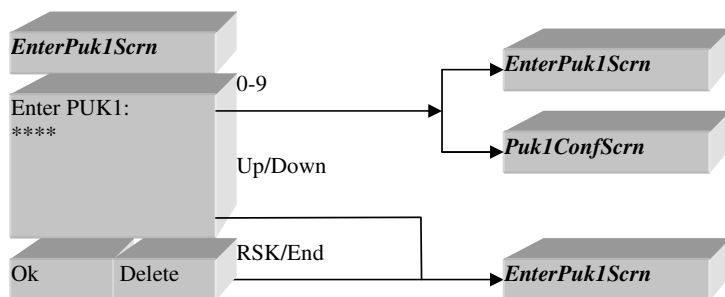
7.6.4 Change PIN2 Code

If PIN2 is supported then PIN2 operations can be performed. The PIN2 code cannot be deactivated using the BMI, only changed – Selecting the Change PIN2 Code menu option directly enters a screen with “Enter Old PIN2”. Its operation is exactly the same as for normal PIN change (except “PIN2” is substituted for “PIN”).

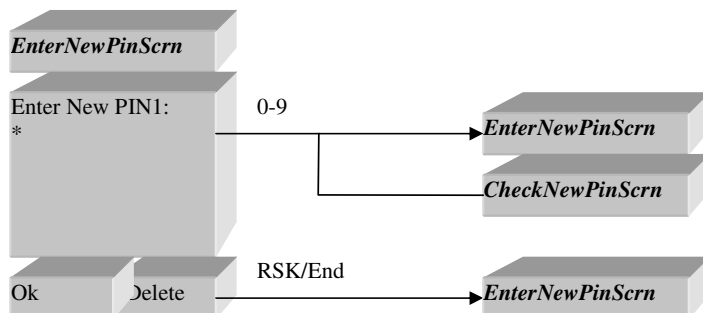
The public-MMI pseudo-SS strings defined in GSM 02.30, section 4.6.2 can also be used to access SIM PIN2 control (including changing PIN2).

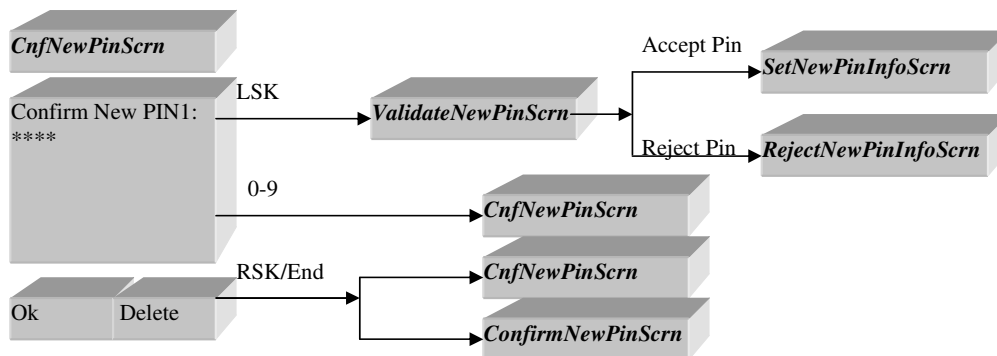
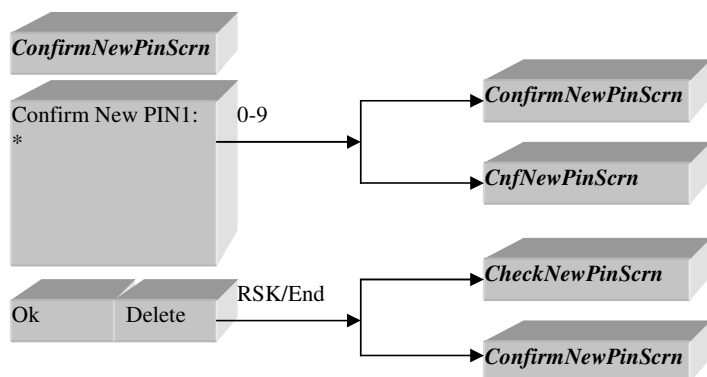
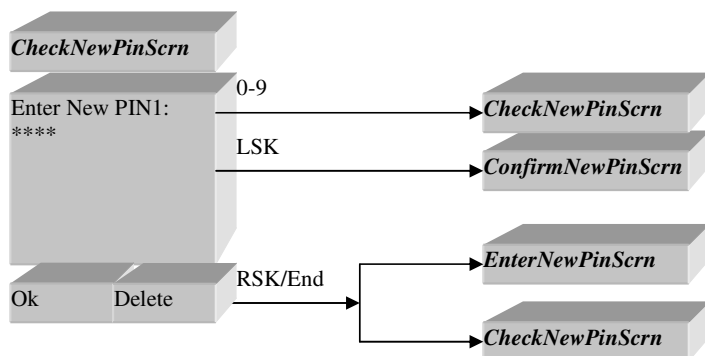
7.6.5 PUK1 code

If the SIM is blocked (due to incorrect entry of PIN) a PUK entry screen is displayed instead of PIN entry. In this case the “OK” soft key does not appear until the eighth digit has been entered.



Following correct entry of the PUK code, the phone prompts the user to enter a new PIN in the same manner as a user initiated PIN-change (except it is not possible to cancel the operation).





7.6.6 PUK2 code

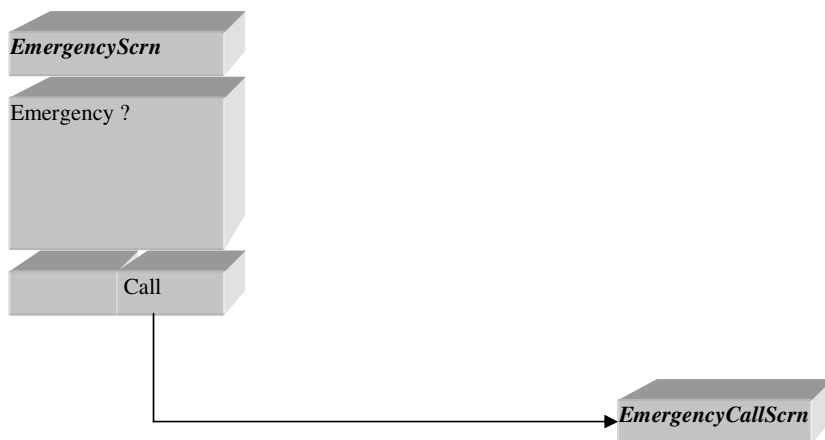
PUK2 is required when PIN2 has been blocked. The PUK2 entry and validation sequence is identical to the PUK1 entry sequence but with the prompt changed to "Enter PUK2".

7.6.7 Emergency calls

The user can make an emergency call from all numeric entry screens, by entering the international emergency number "112 or an alternative number (e.g. "999"). Two-digit emergency numbers are supported.

When the key-lock is on, key presses are normally ignored but emergency call combinations are always recognised.

If an emergency number has been entered the following screen is displayed.



Pressing the “Call” key or “Send” key initiates the emergency call with a call set-up screen indicating “Calling SOS”.

Pressing “Delete” removes the last digit entered.

Pressing any other digit should return to the normal number entry screen. All other key-presses are ignored.

If “Send” is pressed following entry of any number of digits and the number is not an emergency number, a screen indicating “Emergency calls only” is displayed.

7.6.7.1 From PIN/Security Code Entry Screens

The user can attempt to make an Emergency call from any of the security code entry screens by entering “112” (or an alternative emergency number).

When the user enters numbers in these screens asterisks are displayed in place of the numbers. Once the mobile recognises that the number is an emergency number the left soft-key becomes “Call”. If the user enters another digit, this would then represent a true PIN code so the soft-key becomes “OK”.

7.6.7.2 From the Idle Screen

The user can make an emergency call from any of the idle screens, when:

- Registered on a network (Full Service).
- Limited service (Emergency service)
- SIM invalid

Dialling 112 (or the alternative emergency number) and Send initiates the call.

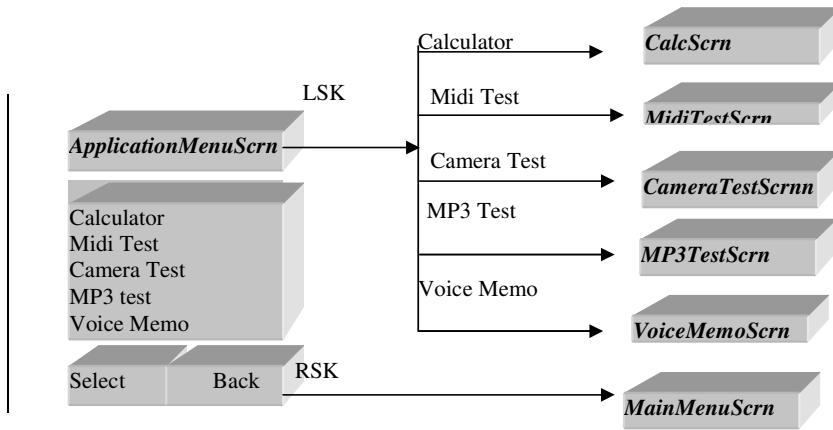
7.6.7.3 When the keypad is locked

From the keypad lock screen the user can enter “112” or the alternative emergency number. If the mobile detects the emergency number sequence 112, the screen displays “1” “1” “2”. If any key out of sequence is pressed, the numbers are deleted.

Deleted: <sp>

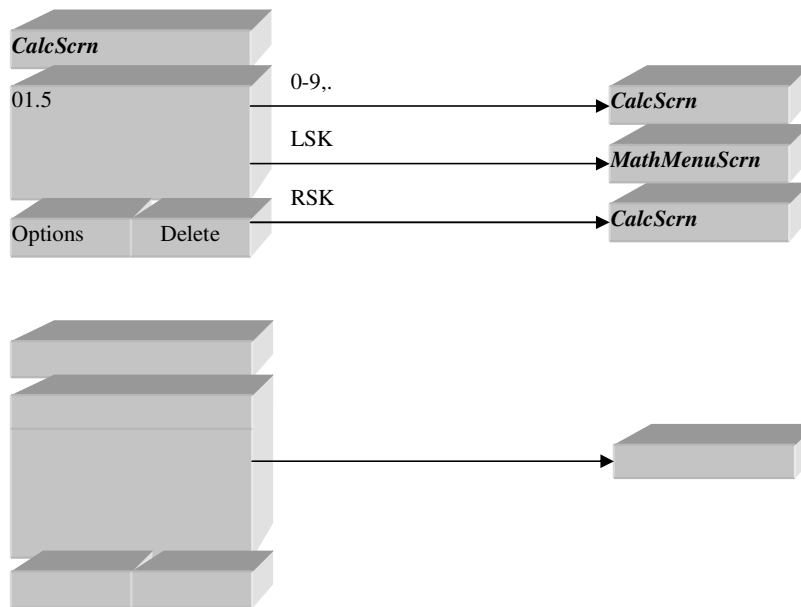
7.7 Applications

From the Applications Menu, the user can access the following applications: Calculator, MidiTestApplication, Camera Test Application, MP3 Test Application, and Voice Memo Application.



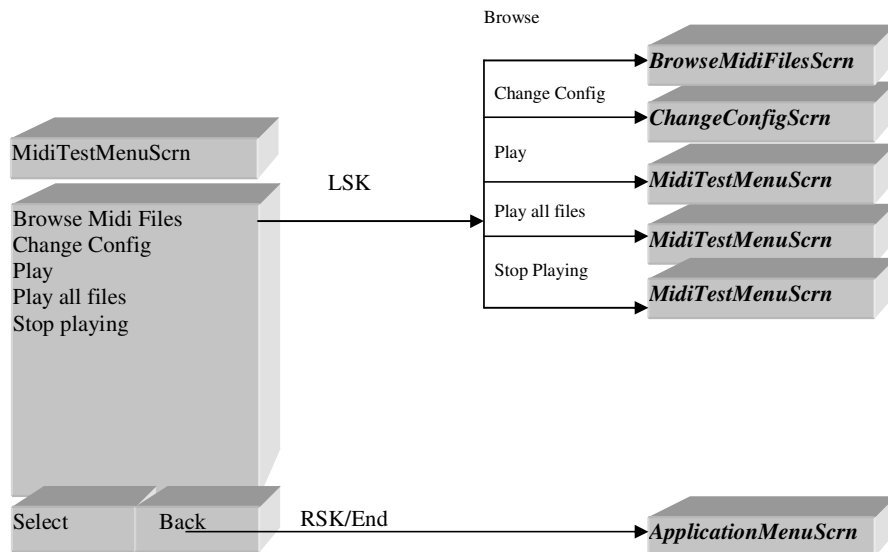
7.7.1 Calculator Feature

The calculator feature offers the user a simple calculator supporting basic mathematical operations Addition, Subtraction, Division and Multiplication.



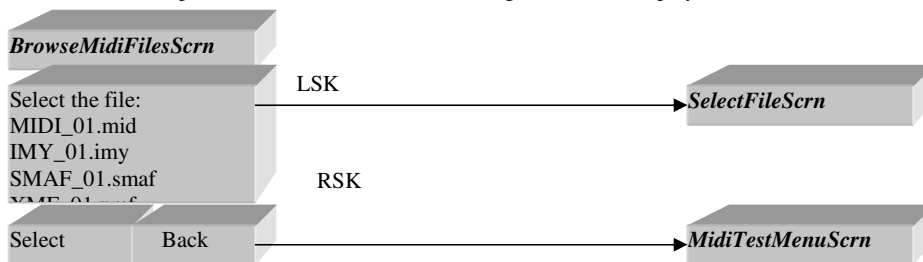
7.7.2 Midi Test Application

Midi Test Application provides the user an option to play and stop a midi file. The user can configure the Midi parameters before playing a midi file. The user has an option to play all the midi files in the FFS one after the other.



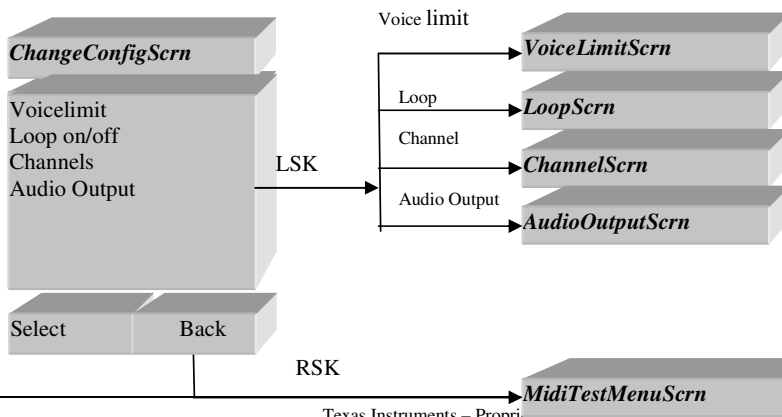
Browse Midi Files:

When the user selects a Browse Midi Files, if there are no midi files stored in FFS, an error dialog "No Files Loaded" dialog box will be displayed. If the midi files are existing in the FFS, the list of the files will be displayed. The user can scroll up and down and select a particular midi file to be played in the test application. When the user presses select "File Selected" dialog box will be displayed.

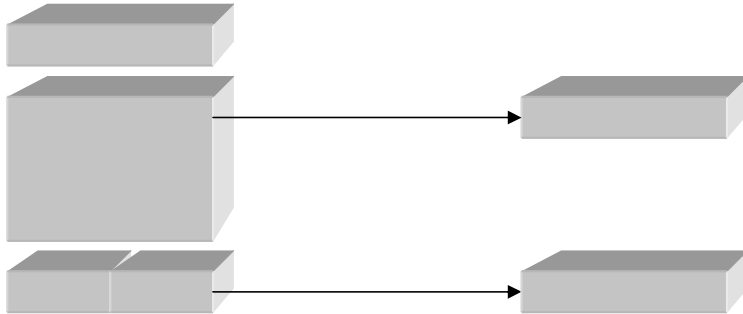


Configure Midi Parameters:

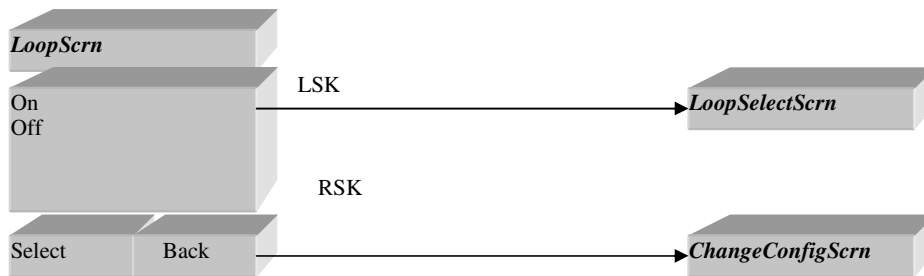
The user can configure the midi parameters in this configuration screen.



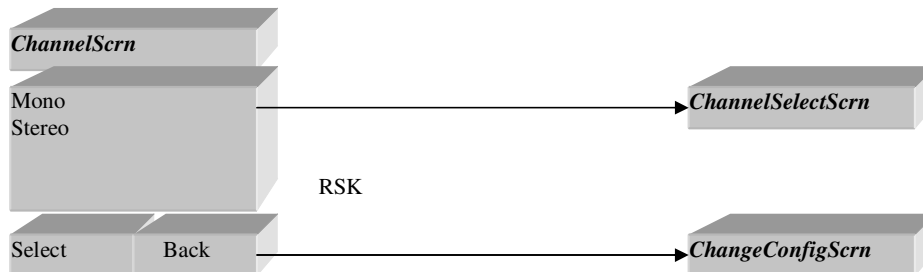
VoiceLimit: The user can input the voicelimit , with which the midi file has to be played, in the voice limit editor.



Loop: The Loop parameter can be set on /off. When it is on, the file will be played in a loop, until the user interrupts/stops the playing. Loop On/Off has no effect when Play All is selected.

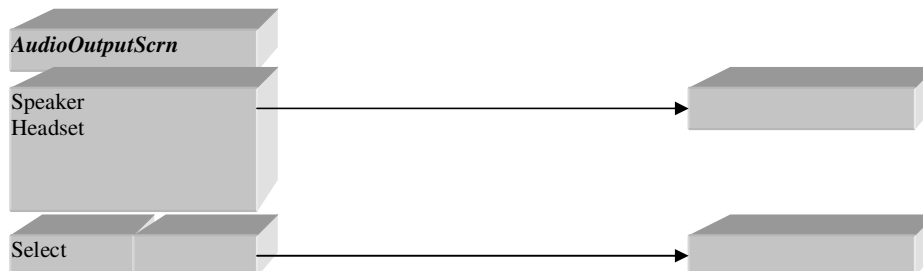


Channel Settings: . The channel parameter can be set to mono/stereo.



AudioOutput:

The user can select the Audio Output to be Speaker/Headset. With Speaker option, the midi files will be played in the Speaker and with Headset, the file will be played in the Headset.



Play/PlayAll/Stop:

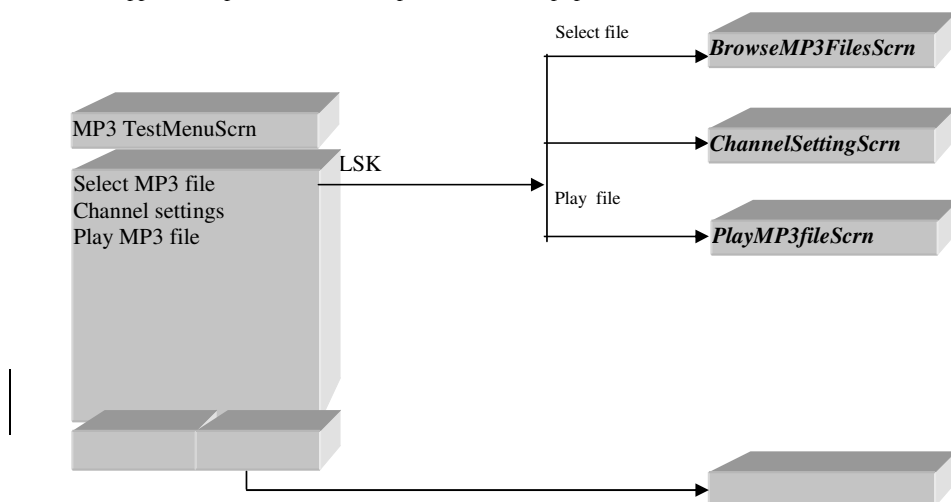
With the Play option, the user can play the selected midi file. With the Stop option, user can stop the midi file being played. With Play all option, user can play all the midi files one after the other.

7.7.3 Camera Test Application

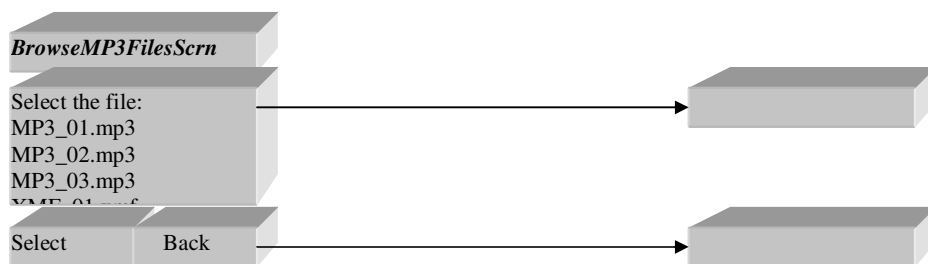
Camera Test Application provides the user option of previewing the image, taking the snapshot and saving the snapshot image into the FFS.

7.7.4 MP3 Test Application

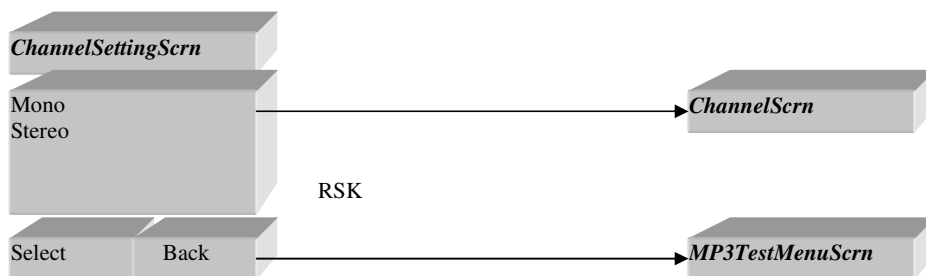
MP3 test application provides user the option to start, stop, pause and resume a MP3 file.



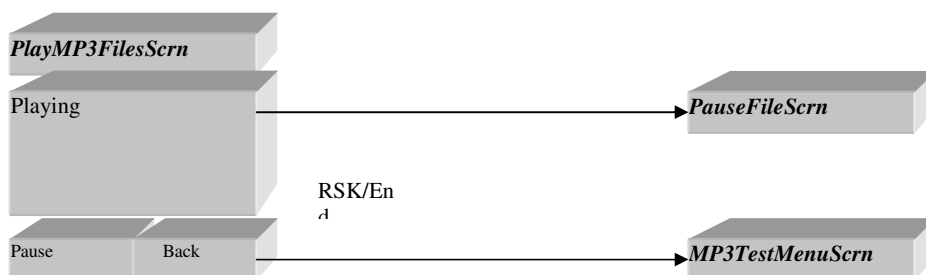
Browse MP3 Files: When the user selects the Select MP3 files, if there are no MP3 files loaded in FFS "No files to be loaded" dialog will be displayed. If the Mp3 files are existing in the FFS, the list of the MP3 files will be displayed. The user can scroll up and down and select a MP3 file to be played in the test application. When the file is selected, "File Selected" Dialogbox will be displayed.



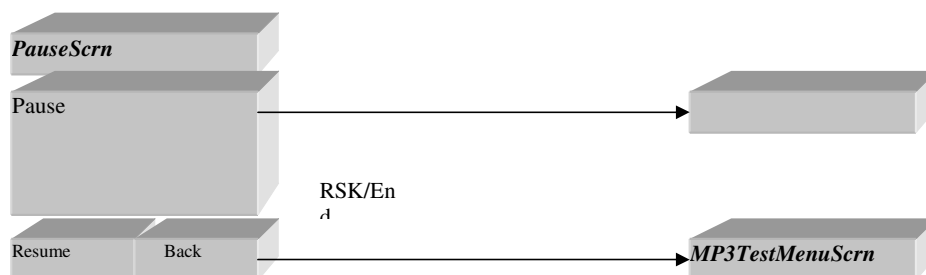
Channel Setting: The user can configure the MP3 channel parameters by selecting mono /Stereo.



Play: The user can play the MP3 file. When the file is being played; the user can Pause /Resume playing the file. The user can stop playing the file, by pressing Back RSK.

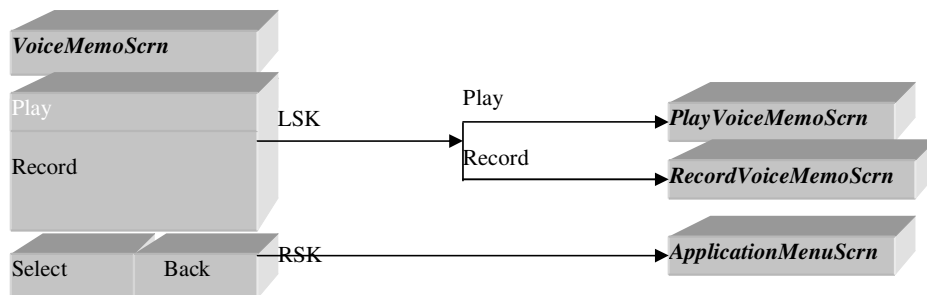


Pause/Resume: When a Mp3 file being played is paused, the user has an option to resume the playing or stop the file .

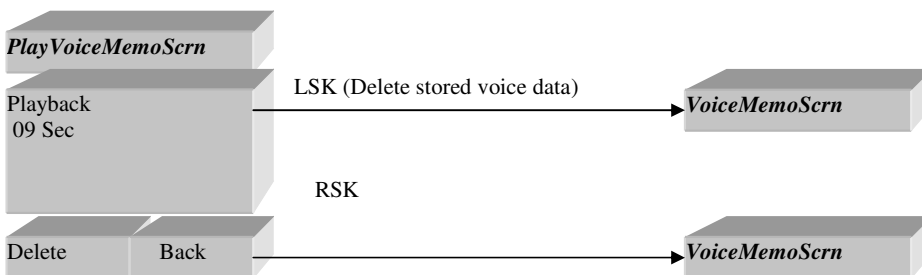


7.7.5 Voice Memo Feature

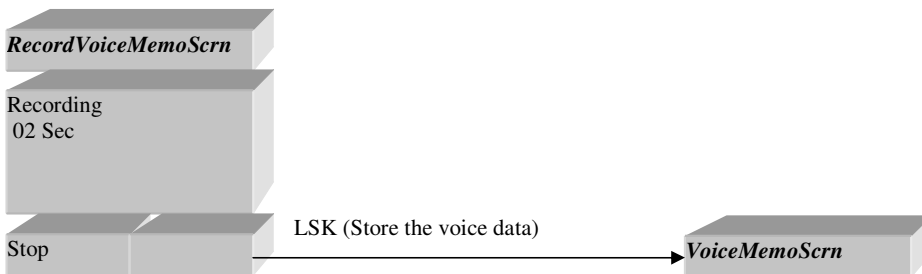
The Voice Memo feature allows the user to record / replay up to 10 second of speech into a memory buffer.



The playback screen displays an incrementing timer indicating the amount of voice memo played. The RSK is “Delete” and RSK is “Stop”. Once the recording has been played back, RSK changes to “Back”.



The recording screen displays a 10 second decrementing timer indicating the amount of recording time left.



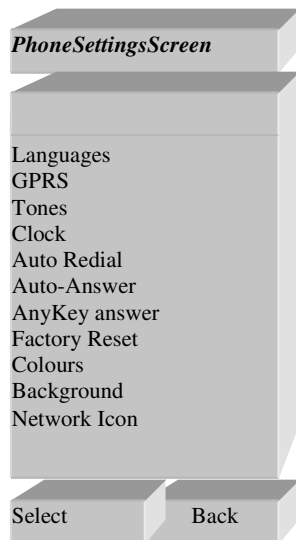
7.7.6 Game

The Game feature allows the user to play the game

Note: The Midi Test Application, Camera Test Application and MP3 Test Application will be present in the E-Sample/3.x boards only.

7.8 Phone Settings

Selecting “Phone Settings” displays the following screen:



7.8.1 Languages

Selecting “Languages” a sub-menu is opened with the following Language options:

- English
- Chinese

Selecting the language results in a confirmation “Done” screen.

Note: The language used by the phone can be changed using a standard psuedo-USSD string, representing the country code of the language required. For example:

*#0044# for English

*#0049# for German

The psuedo-USSD string has to be entered from the idle screen only and does not require the “send” key to be pressed. If a non-matching code is entered, a message indicating “Code Unknown” is displayed in the current language and English.

7.8.2 GPRS

Selecting GPRS a sub-menu is displayed with the following options:

- Attach
- Detach
- Data Count
- SMS

If “Attach” is selected an information screen “GPRS Connecting” is displayed followed by a “GPRS Attached” screen.

If “Detach” is selected an information screen “GPRS Connecting” is displayed followed by a “GPRS Not Attached” screen

If “Data Count” is selected a sub-menu is displayed:

- Incoming Data

- Outgoing Data

Selecting either option results in the relevant bytes being displayed.

If “SMS” is selected a sub-menu is displayed:

- GPRS
- CSD
- GPRS Preferred
- CSD Preferred

Selecting any option results in a “GPRS Changed” information screen.

7.8.3 Tones

The Tones menu allows the sounds to be selected for ringer and keypad. A sub-menu is displayed with the following options:

- Ringer
- SMS Tone
- Alarm Tone
- Keypad Tones

7.8.3.1 Ringer

A sub-menu is displayed with the following options:

- Melody
- Volume

7.8.3.2 Melody

A list of available ringer tones is displayed and the first melody played at the currently selected volume. The up/down key moves through the list – as the user moves to a new melody, that melody is played.

Pressing the left soft key, “Select” displays the information screen “Melody Selected” and the phone returns to the Ringer sub-menu. If the right soft-key “Back” is selected, the present melody setting is retained and the phone returns to the Ringer sub-menu.

Note that the standard software contains no actual melodies – these are left to the handset manufacturer to choose.

Midi Ringer:

A list of the midi files stored in the FFS will be displayed. The user can select a file to be played as an alert for Call/SMS/Alarm, through the respective Melody screens for them. He can select a particular volume for Call/SMS/Alarm through the respective volume screen for them.

Melody List Navigation:

The user can preview the melody (midi file) before actually selecting it as an alert. The melody will be played at the currently selected volume. The up/down key moves through the list – as the user moves to a new melody, that melody is played, if the user pauses over the melody for half a second.

Pressing the left soft key, “Select” displays the information screen “Melody Selected” and the phone returns to the Ringer sub-menu. The selected midi file will be stored in the FFS as an alert file for Call/SMS/Alarm. If the right soft-key “Back” is selected, the present melody setting is retained and the phone returns to the Ringer sub-menu.

Note that the standard software contains no actual melodies – these are left to the handset manufacturer to choose.

7.8.3.3 Volume

A sub-menu with the following options is displayed:

- Silent
- Low
- Medium
- High
- Increasing

As the user moves through the options with the up/down key, the presently selected melody is played at the appropriate volume. The soft-keys are the same as for melody selection. “Increasing” starts off quiet, changing to “Loud”.

The Ringer Volume menu is also displayed if the user presses the Up/Down side keys during an incoming call or idle screen.

Midi Ringer Volume:

A sub-menu with the following options is displayed:

- Silent
- Low
- Medium
- High

As the user moves through the options with the up/down key, the presently selected midi file is played at the appropriate volume. The Midi file will be played, if the user pauses over a particular volume for half a second. The soft-keys are the same as for melody selection.

When a particular volume is selected, it will be stored in the FFS.

The Ringer Volume menu is also displayed if the user presses the Up/down side keys during an incoming call or idle screen.

7.8.4 SMS and Alarm Tones

The “SMS Tone” and “Alarm Tone” options are same as the Ringer tone control menus. The melody file and the volume for SMS and Alarm will be selected by these menus.

7.8.5 Keypad tones

A keypad tone menu is displayed with the following options:

- Silent
- Click
- DTMF

The presently selected tone is emitted when the user moves through the list.

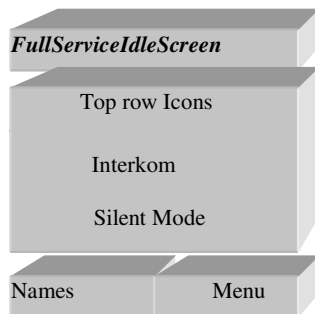
When DTMF is selected the keys “0” to “9”, “*” and “#” will emit DTMF tones: All other keys will emit a short click tone.

When “Click” is selected all keys will emit short clicks.

When the user has selected one of the options an information screen with the text “Keypad tone selected” is displayed.

Note: Sending of DTMF tones to the network when in dedicated mode is not related to this setting.

7.8.6 Silent Mode



Pressing “Menu” from the idle screen followed within two seconds by “#” will switch off the ringer (or switch it on again from Silent) and return to the idle screen. In this mode the prompt “Silent Mode” replaces the clock.

7.8.7 Clock

The clock provides a time-of-day clock, alarm and time-stamp for calls etc. Selecting the main menu item “Clock” displays a sub-menu with the following options:

- Time/Date
- Alarm
- Clear Alarm
- Time Format
- In-call Timer

7.8.7.1 Time/Date

This option allows setting date and time. A screen is opened with a prompt to enter the date. The current set date is displayed as a default when opening the screen. The date can be modified within the allowed range for the day, month, and year. On entering a value out of the range will display information and display the date entry screen again. On entering the valid date, the time entry screen is displayed. Depending on the time format selected the values within the range can be entered.

Pressing the left soft-key, “Ok”, which appears once a valid time is entered will program the clock. Pressing the right soft-key, “Back”, will return the phone to the clock sub-menu.

Note: when entering the date or the time the mobile will only offer the “Set” soft-key option once it recognises a valid entry. Eg. it is impossible to enter 25:96 as a time.

The “:” and “/” are automatically inserted in times/date respectively.

7.8.7.2 Set Alarm

The alarm time entry is exactly the same as for time/date entry, except the prompts indicate “enter alarm time/date” and a check is made to ensure the alarm time being set is not in the past. The default time/date will be all zeros if an alarm time is not presently set.

When the alarm “rings” an “alarm clock” melody is emitted by the phone’s buzzer and information screen is displayed with the text “Alarm Clock!!”. The sound is played for 30 seconds. The alarm is interrupted by pressing any key. The alarm will sound regardless of whether the phone is switched on or off.

This alarm screen has priority over all others except incoming call.

Note: In case of Midi Ringer, the alarm notification will be played with the selected midi file.

7.8.7.3 Clear Alarm

Selecting this option will delete any alarm setting – an information screen “Alarm Cancelled” is displayed before returning to the clock menu.

7.8.7.4 Set Time Format

This option allows the 12 or 24 hour time format to be used for the idle-screen display. Selecting this item opens a sub-menu with the following options:

- 12 hour Clock
- 24 hour Clock

The phone immediately returns to the clock menu after a selection is made.

7.8.7.5 In-Call Timer

This option allows the in-call timer to be switched on or off. If on, the elapsed call time will be shown instead of the called party in the in-call screen. If off, the call time (and charge if applicable) will not be displayed at the end of a call.

Selecting this option simply opens a sub-menu with “On” and “Off” options. After selection an information screen with “In-call Timer On” or “In-call Timer Off” is displayed as appropriate.

7.8.8 AutoRedial

This option allows the auto redial function to be switched on or off. A sub-menu with the following options are displayed:

- On
- Off

The interval between re-dial attempts are the minimum’s specified in the GSM recommendations.

When auto-redial is activated, if an MO call fails an information screen is opened with the text “Redialling... Please Wait”. Pressing the right soft-key, “Cancel”, will cancel the re-dial and return the phone to the idle screen. Pressing Send will override the redial timer and re-attempt the call immediately. If the GSM specified limit for auto redials is reached, the phone returns to the idle screen.

If the redial is successful, the phone will emit a short beep when the called party’s phone is ringing/alerting. The mobile will emit a second short beep if the other party answers the call.

7.8.8.1 Auto Answer

The Auto Answer menu contains two options:

- On
- Off

Even though “on” may be selected, Auto Answer is only activated when the phone is connected to a hands-free kit. In this case the phone will ring once then automatically answer the call.

7.8.8.2 Any Key Answer

Any Key Answer is also selected using a simple on/off menu.

- On
- Off

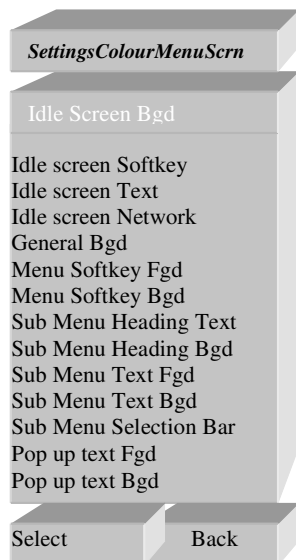
If Any Key Answer is on, an incoming call can be accepted by pressing any key except “End”. This facility will be inactive if the keypad lock is enabled.

7.8.9 Factory Reset

Selecting factory reset opens a confirmation screen “Press OK to confirm ” with ‘OK’ and ‘Back’ soft-key options. If the user presses the right soft-key ‘Back’ or ‘End’ key the user returns to the previous screen with no change to the settings. If the user confirms by pressing the left-soft key, all of the user configurable parameters in the mobile are reset to their default values.

7.8.10 Colours

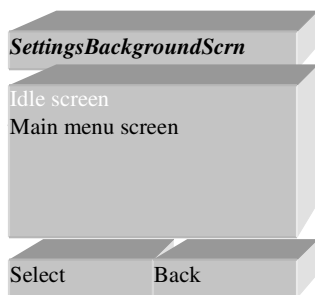
Selecting “Colours” displays the following sub-menu:



Selecting one of the items displays a list of colours and if one is selected the colour change is made and an information screen “Colour Selected” is shown.

7.8.11 Background

Selecting “Background” displays the following sub-menu:



Selecting one of the items displays a list of backgrounds and if one is selected the change is made and an information screen “Background Selected” is shown.

7.8.12 Network Icon

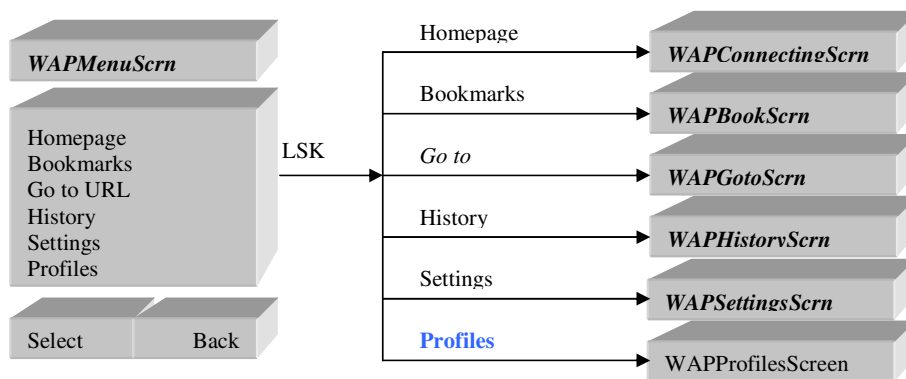
Selecting “Network Icon” displays the sub-menu with the option to select “Yes” or “No”

Selecting one of the items causes the change to be made and an information screen “Network Icon on\off” is shown.

7.9 Wireless Application Protocol

The WAP main menu allows access to, and configuration of, the WAP browser.

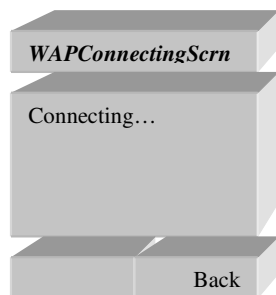
On selecting the WAP menu item, a sub-menu with the following options is displayed:



The right soft key takes the user back to the idle screen or menu. Selecting one of the menu options displays the following screens:

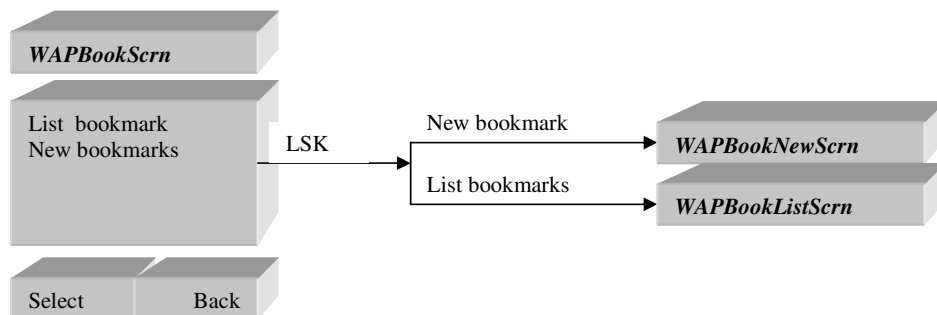
7.9.1 Homepage

While connecting with the page requested, the message “Connecting” is displayed. Once connected, the WAP browser will be opened.



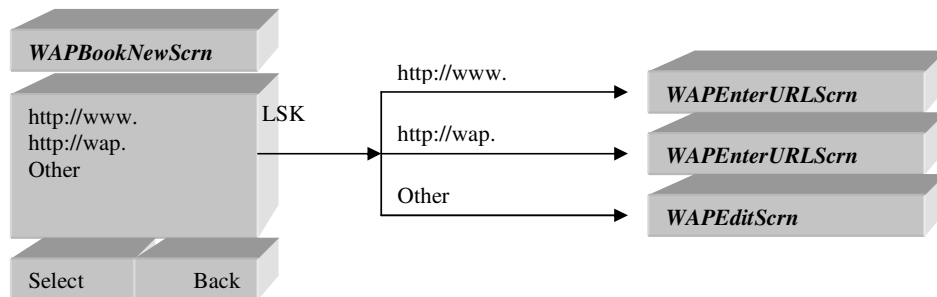
7.9.2 Bookmarks

Bookmarks are stored links to WAP pages (URLs). They allow quick and easy access to the user’s favourite pages. Each profile has a separate bookmarks list. Bookmark entries can be added, deleted or edited by the user.



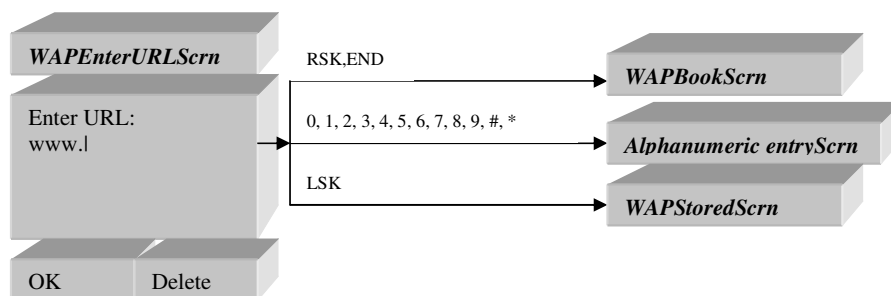
7.9.2.1 New Bookmark

This creates a new bookmark, which will be added to the bookmarks list.



Selecting “Other” opens a blank edit screen.

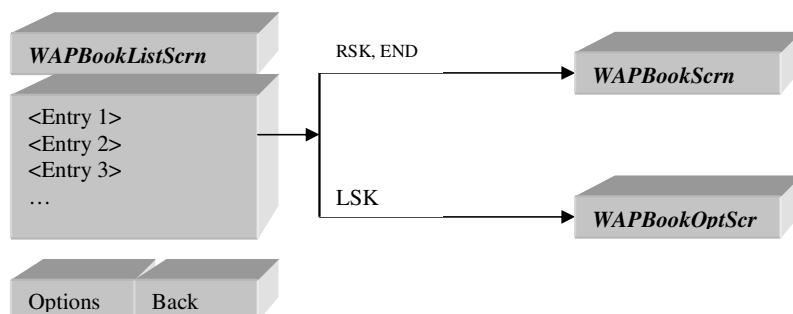
Selecting “http://www.” and “http://wap.” opens the following screen where the address of the page to be bookmarked may be entered



- Pressing the left soft-key “OK” brings up the information screen “Enter Name” for the profile
- On this screen, pressing the left-soft key “OK” brings up the information screen “Stored”.
- Then returns to the Bookmarks sub-menu.
- Pressing the right soft-key “Delete” removes the last entered character.

7.9.2.2 List bookmarks

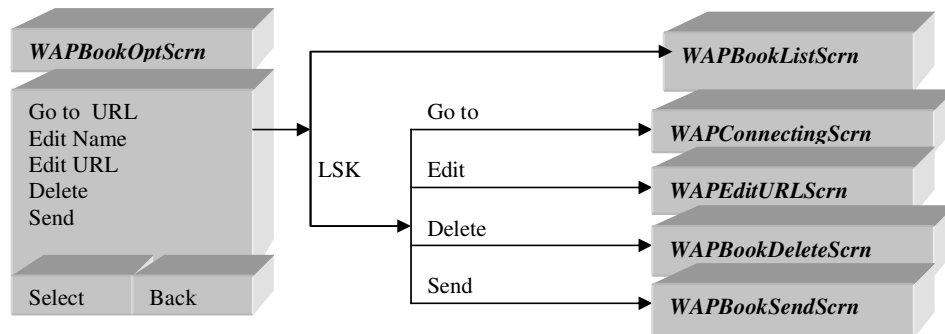
A list of all saved bookmarks for the current profile is displayed. If there are no bookmarks stored, “List Empty” is displayed for two seconds, then the user is returned to the Bookmarks menu.



When entering the list the top item is highlighted. Up/Down keys move through the list to highlight entries.

The right soft-key takes the user back to the WAP menu.

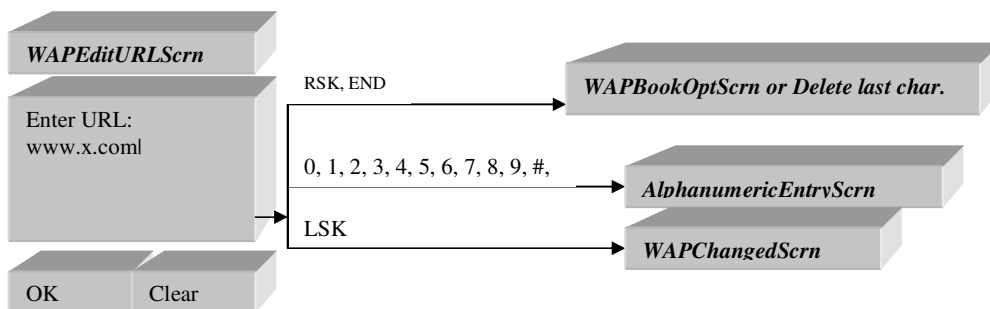
The left soft-key “Options” takes the user to the Bookmark options menu as follows:



Selecting “Go to” option opens the browser and connects to the page.

Selecting “Edit Name” option opens an alphanumeric editor containing the selected name, with the cursor positioned at the end of the address.

Selecting “Edit URL” option displays the screen as under.

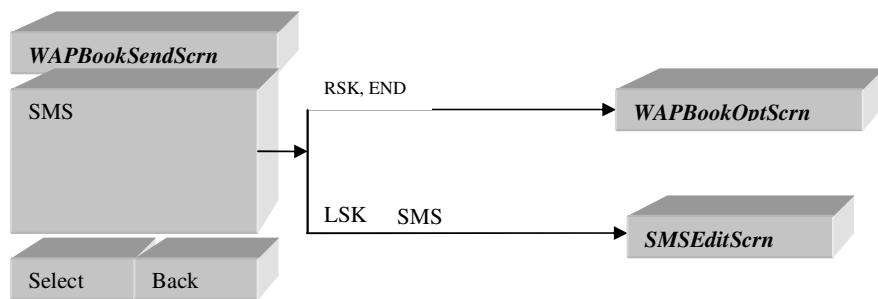


When the left soft-key “OK” is pressed, an information screen with the text “Changed” is displayed. After a 2s delay, the user is returned to the options menu.

If text is entered, the right soft key is “Clear” and it deletes the last entered character. If no text is entered, the right soft key becomes “Back” and it returns the user to the options menu.

Selecting “Delete” option opens a confirmation screen with the message “Press OK to confirm”. The label of the left soft-key is “OK”. Any key other than the left soft-key takes the user back to the options menu.

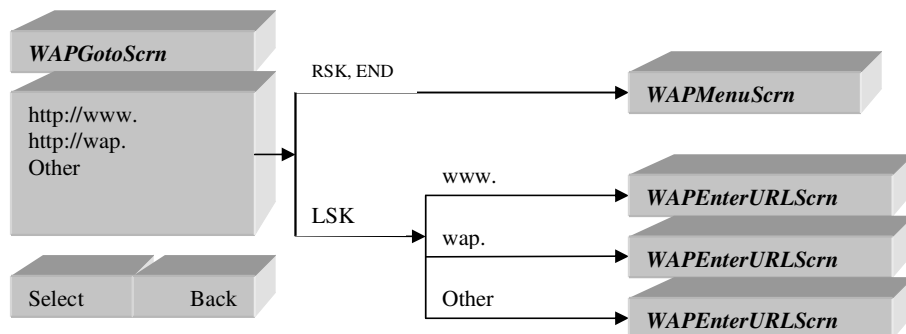
Selecting “Send” option enables the user to enter an SMS.



Choosing SMS opens an SMS editor with the selected address as the text.

7.9.3 Go To URL

The user can connect to a WAP page. The first two options are shortcuts to the prefixes “www.” and “wap”.



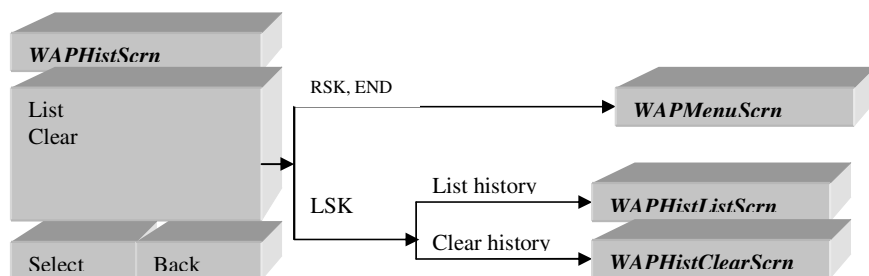
Each option brings up a text editor where the address may be entered. For the first two options, the appropriate prefix is in the buffer.

Pressing the left soft-key “OK” opens the browser and connects to the page. Pressing the right soft-key returns to the Go to menu.

7.9.4 History

The history is a list of recently visited pages. This list is of a fixed length. As new pages are visited, the older URLs are erased. Any page in the history can be directly accessed by the user, or the whole list can be erased.

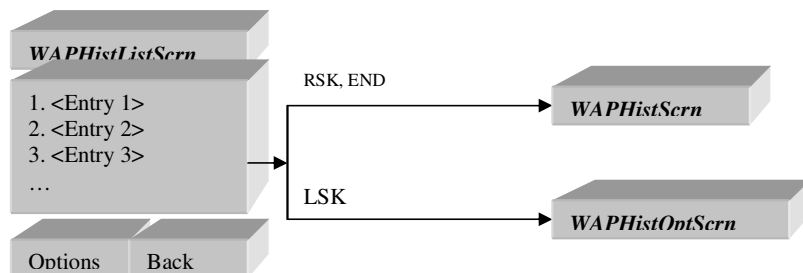
This option displays the following sub-menu:



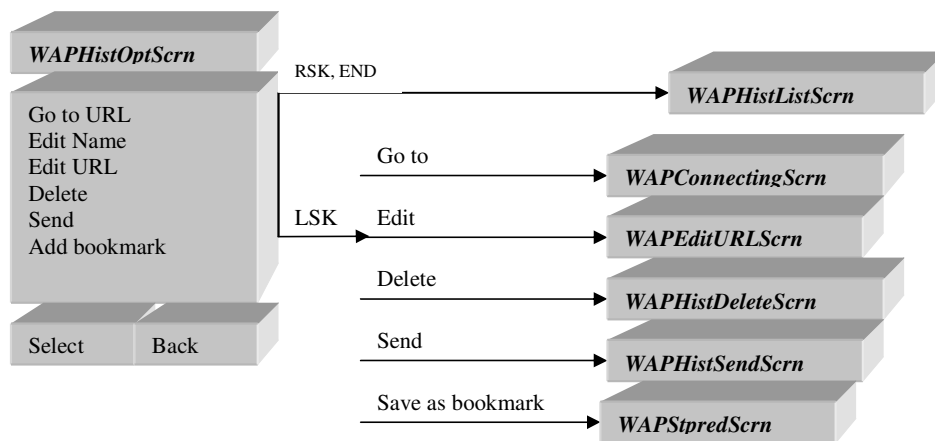
7.9.4.1 List History

Selecting “List history” brings up a list of recently visited pages, prefixed by number. The list is in chronological order, with the most recently visited page at the top.

If the user tries to access the list and the list is empty an information screen with “List Empty” is displayed for two seconds.



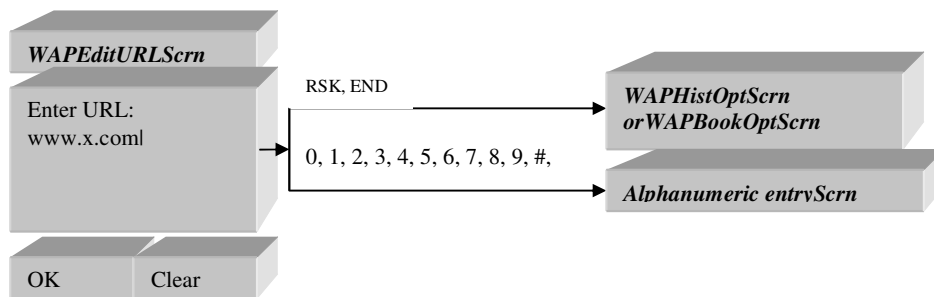
The left soft-key, “Options”, opens the history options sub-menu.



Selecting “Go to URL” Opens the browser and connects to the selected page.

Selecting “Edit Name” enables the name of a particular entry in the history (or bookmarks) list to be edited by opening an alphanumeric editor containing the selected address, with the cursor positioned at the end of the name.

Selecting “Edit URL” enables the URL of a particular entry in the history (or bookmarks) list to be edited by opening an alphanumeric editor containing the selected address, with the cursor positioned at the end of the address.



When the left soft-key “OK” is pressed, an information screen with the text “Changed” is displayed and the user is returned to the options menu. The right soft-key “Back” takes the user directly back to the options menu.

Selecting “Delete” enables a particular entry in the history list to be deleted.

A confirmation screen is opened with the message “Press OK to confirm”. The label of the left soft-key is “OK”. Any key other than the left soft-key takes the user back to the options menu.

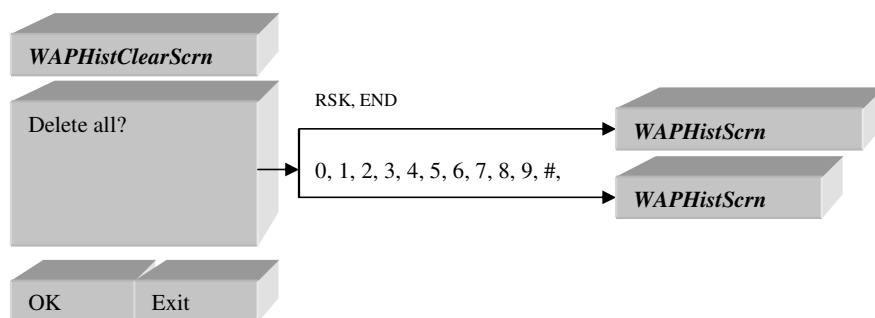
Pressing “OK” deletes the bookmark and the phone returns to the options menu.

Selecting “Send” option enables the user to enter an SMS.

Selecting “Add Bookmark” saves the history entry in the bookmark list. Brings up an information screen “Stored”, then returns to the options menu.

7.9.4.2 Clear History

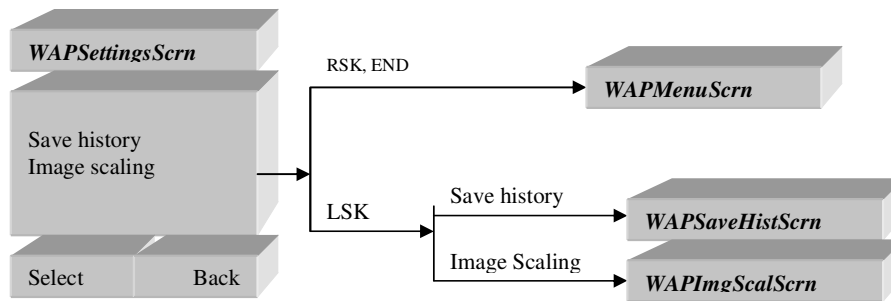
Opens a confirmation screen to enables a user to delete all entries.



If “OK” is pressed an information screen is brought up, “Empty”; the user then returns to the history menu. Any other key also returns to the history menu.

7.9.5 Settings

The Settings menu allows the configuration of various user preferences.



7.9.5.1 Save history

Save history enables to store the URLs visited.

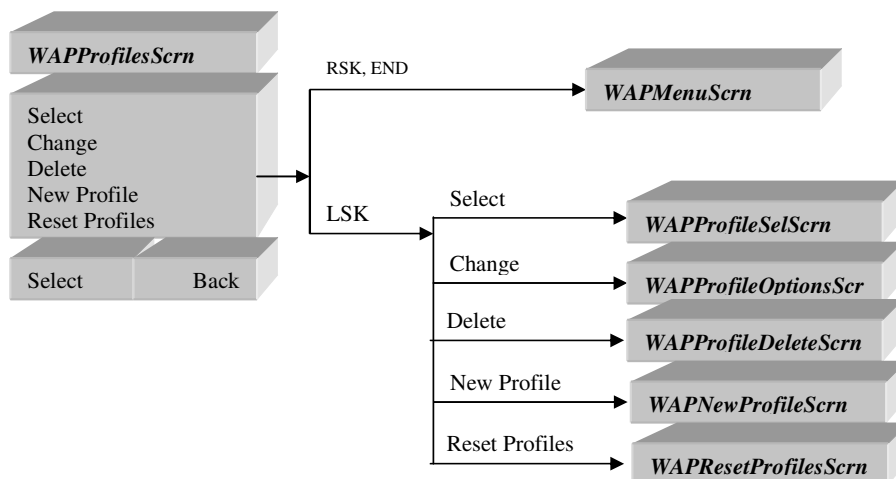
In the Save history screen two options Off and On will be present. Selecting On/Off and pressing on LSK will enable/disable this feature.

7.9.5.2 Image scaling

Image scaling enables the bigger images to scale to fit into the display screen.

In the Image scaling screen two options Off and On will be present. Selecting On/Off and pressing on LSK will enable/disable this feature. When this feature is enabled any image larger in display area than the current display area, then the image is scaled down to fit into the available display area.

7.9.6 Profiles



Choosing 'Select' will select the current profile and display a screen indicating the current profile selection. This would be the profile used for WAP connections.

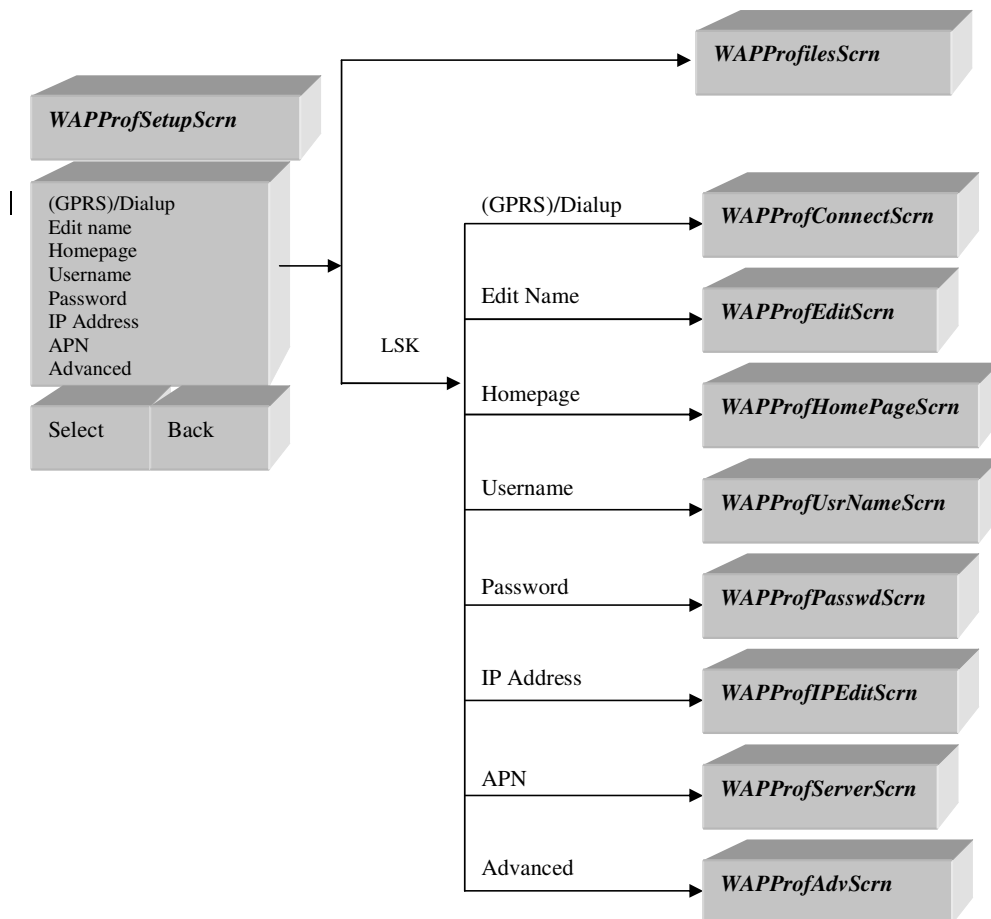
Choosing 'Change' will display the WAP Profile Screen, which is explained in the next section.

Choosing 'Delete' will display a confirmation dialog to the user, if the user clicks LSK, the selected profile is deleted.

Choosing 'New Profile' will create a new empty profile, which can be edited at a later point of time, displays a screen indicating the new profile is created.

Choosing 'Reset Profiles' will reset all the profiles and displays a screen indicating the all the profiles are reset.

7.9.7 Profile Options



7.9.7.1 (GPRS)/Dialup

This option enables to select the GPRS or the dialup.

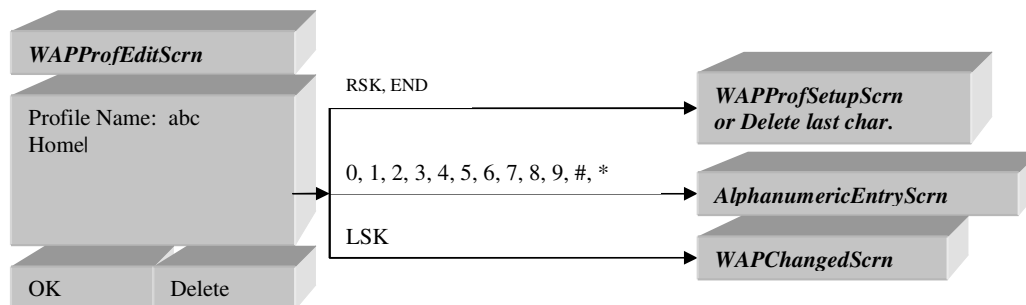
Highlight this option and pressing LSK on the Profiles screen will display two options

- GPRS
- Dialup

Highlight any of the option required and pressing LSK will select that option.

7.9.7.2 Edit Name

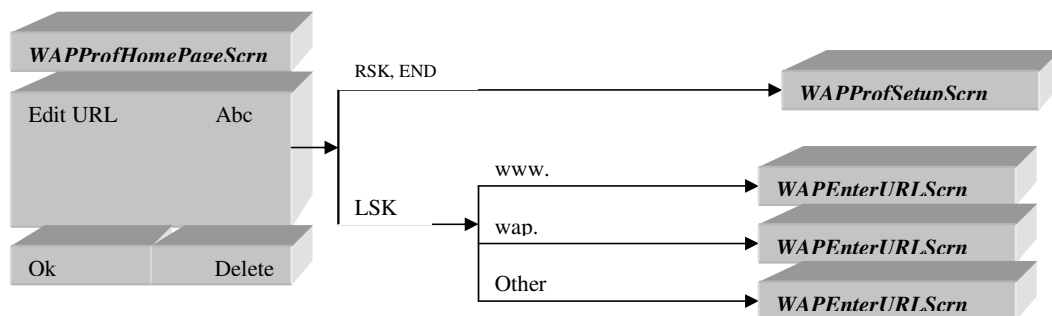
This enables the profile name to be edited.



An alphanumeric editor is opened with the name of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.

7.9.7.3 Homepage

The homepage is a special bookmark that can be accessed through a menu option in the main WAP menu.



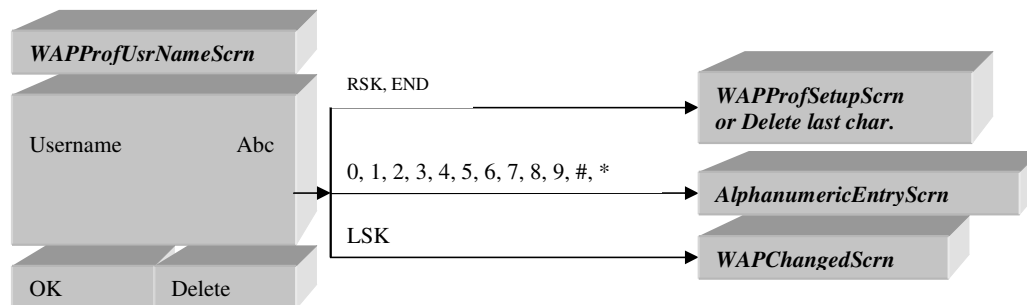
Each option brings up an alphanumeric editor where the address may be entered. For the first two options, the appropriate prefix is in the buffer. If a homepage has been defined previously, the phone goes straight to the editor and the previous homepage address is in the buffer.

Pressing the left soft-key “OK” brings up the information screen “Changed”, and the phone returns to the Set-up menu. Pressing the right soft-key “Back” returns to the Homepage sub-menu.

If a homepage has been previously defined, the name can be edited (WAPEnterURLScrn).

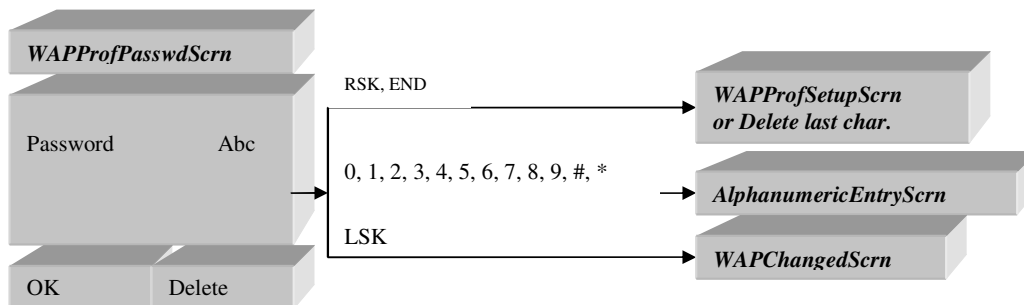
7.9.7.4 Username

This enables the Username to be edited. An alphanumeric editor is opened with the name of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.



7.9.7.5 Password

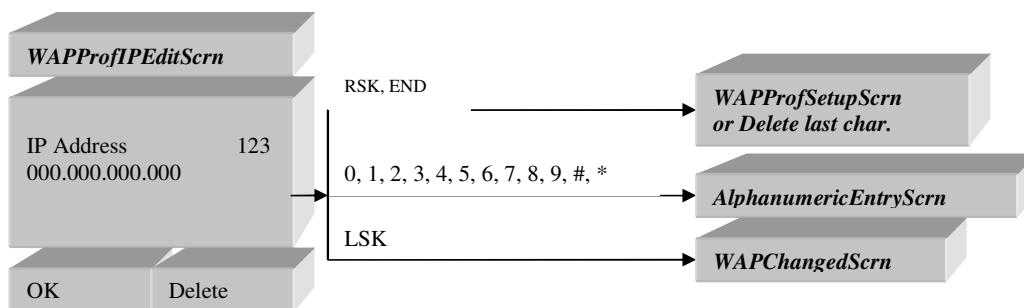
This enables the password to be edited. An alphanumeric editor is opened with the name of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been



entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.

7.9.7.6 IP Address

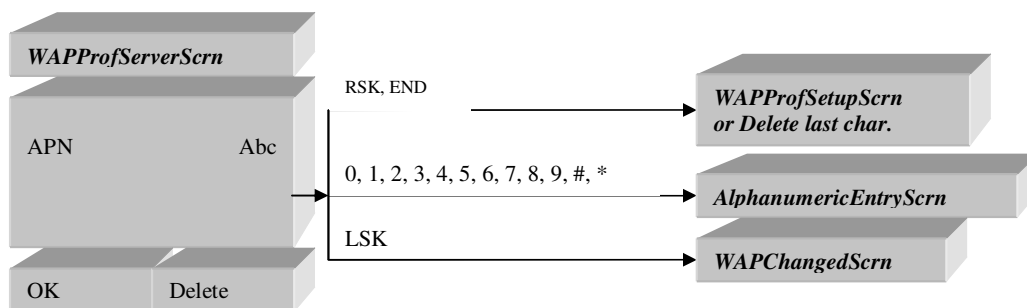
This enables the IP address to be edited. An editor is opened with the IP address of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.



7.9.7.7 APN

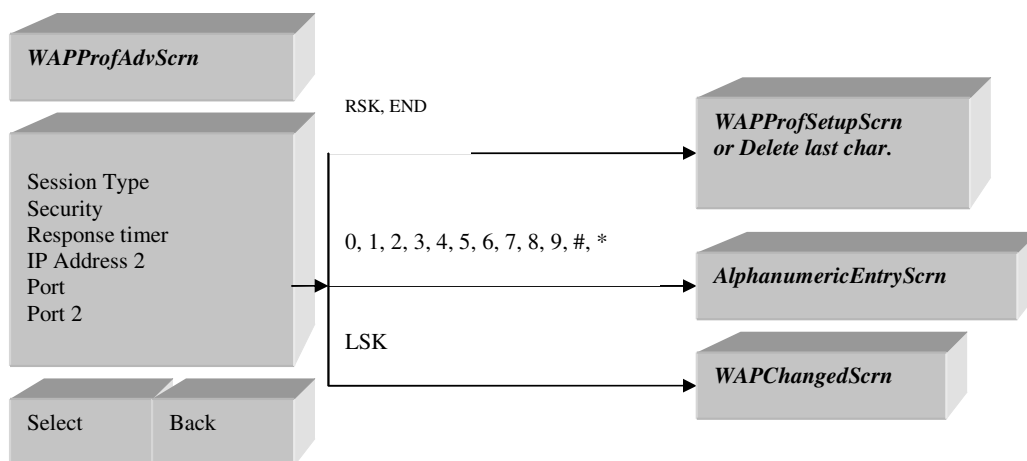
This enables the Access point name to be edited. An alphanumeric editor is opened with the access point name of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu.

Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.



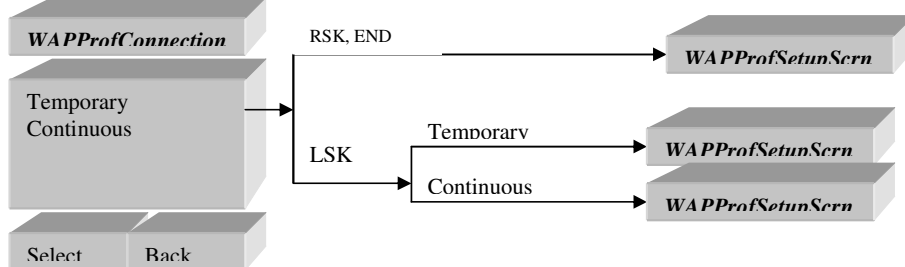
7.9.7.8 Advanced

On selecting this option display the sub-options with the following options



7.9.7.9 Session Type

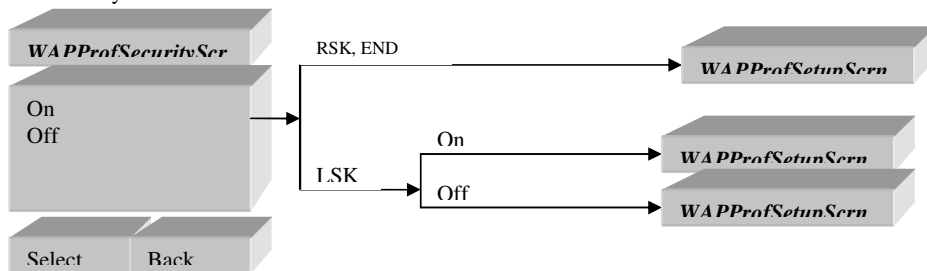
The Session type can be set as follows with the default as Temporary.



The left soft-key “OK” changes the selection, then returns to the sub-menu. Right soft-key “Back” returns to the sub-menu.

7.9.7.10 Security

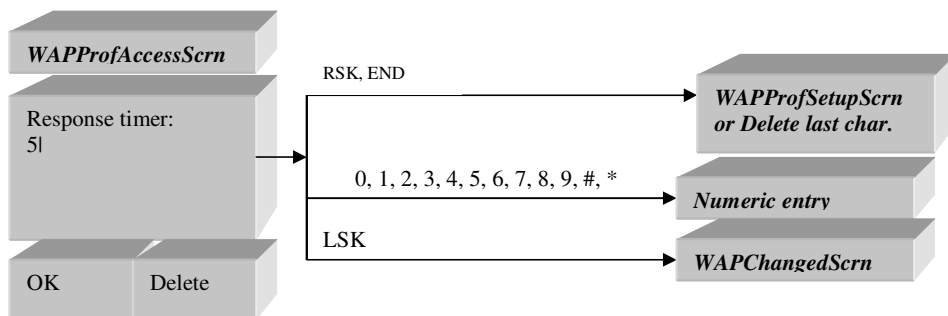
The security can be set as follows with the default as Off.



The left soft-key “OK” changes the selection, then returns to the sub-menu. The right soft-key “Back” returns to the sub-menu.

7.9.7.11 Response timer

The response timer can be set as follow.



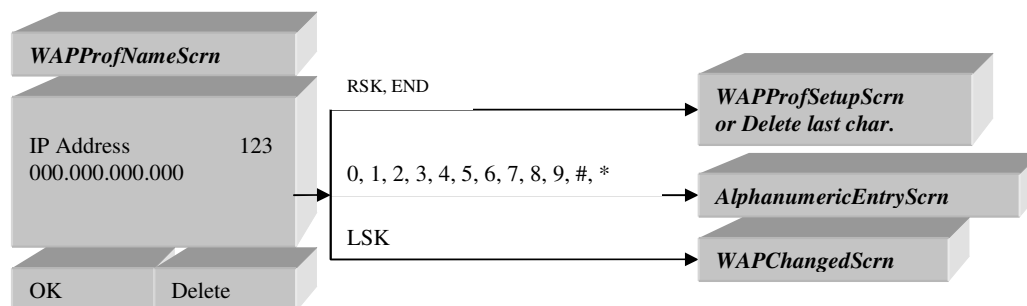
A numeric editor is opened with “Enter time” and the response timer in seconds.

The left soft-key “OK” brings up the information screen “Changed”, then returns to the sub-menu. The right soft-key “Back” returns to the sub-menu. When characters have been entered, the right soft key changes to “Clear” and deletes the last character entered.

7.9.7.12 IP Address 2

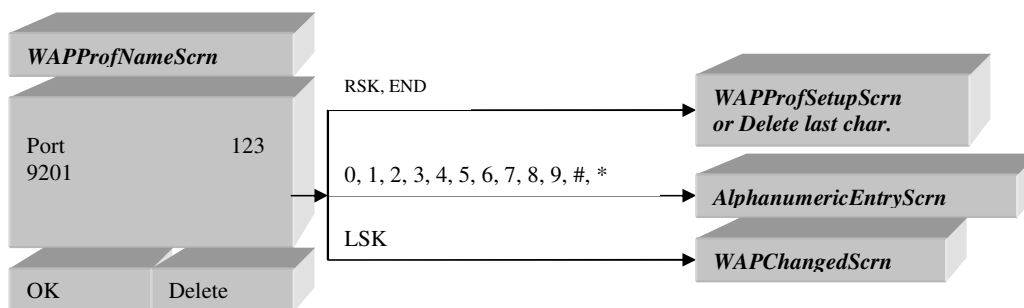
This enables the IP address to be edited. An editor is opened with the IP address of the profile in the buffer.

Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.



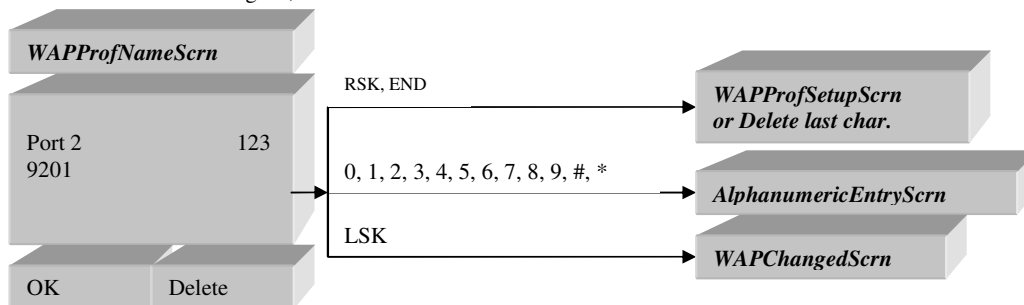
7.9.7.13 Port

This enables the Port to be edited. An editor is opened with the Port number of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.



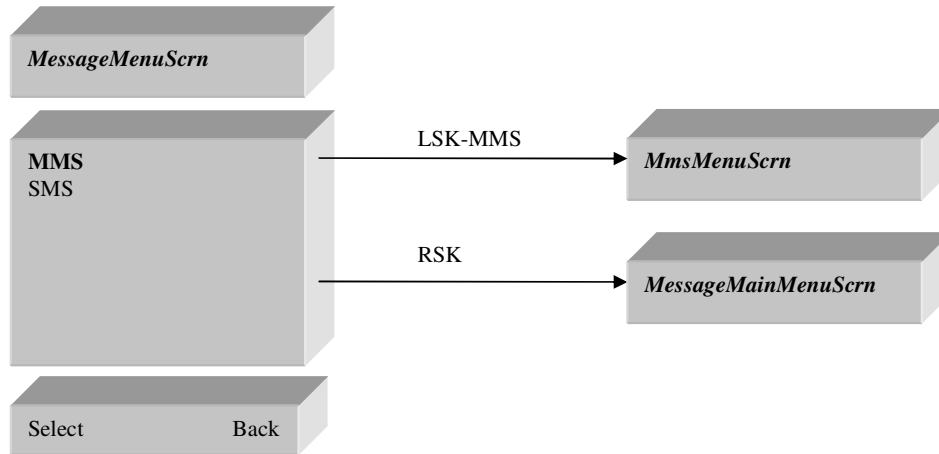
7.9.7.14 Port 2

This enables the Port to be edited. An editor is opened with the Port number of the profile in the buffer. Pressing the right soft-key, “Back”, returns the user to the Set-up profiles sub-menu. Once text has been entered, the right soft-key becomes “Delete” and deletes the last entered character. The left soft-key, “OK”, brings up the information screen “Changed”, then returns to the sub-menu.

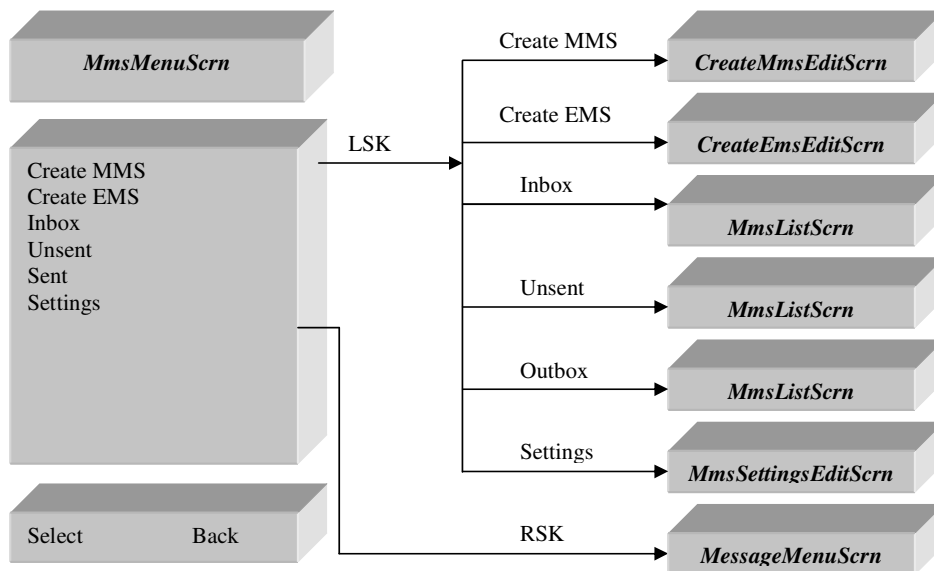


5.10 MMS Application

The MMS menu allows access to create MMS and view the received MMS and to set the MMS settings.

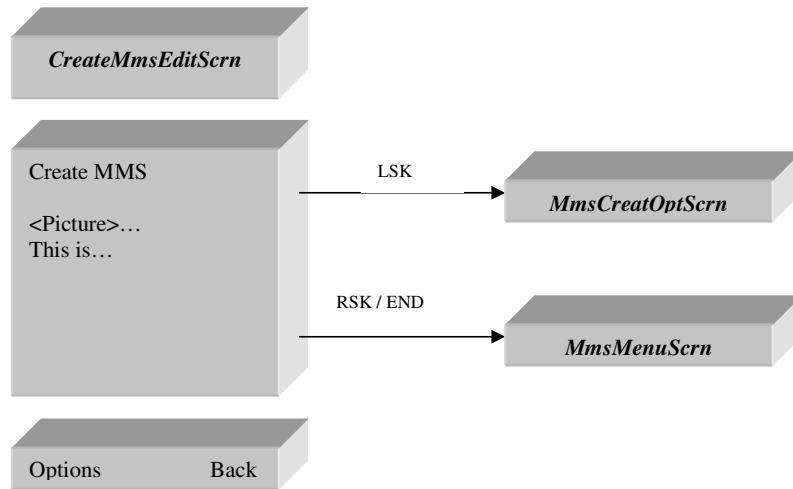


On selecting the MMS menu item, a sub-menu with the following options is displayed:



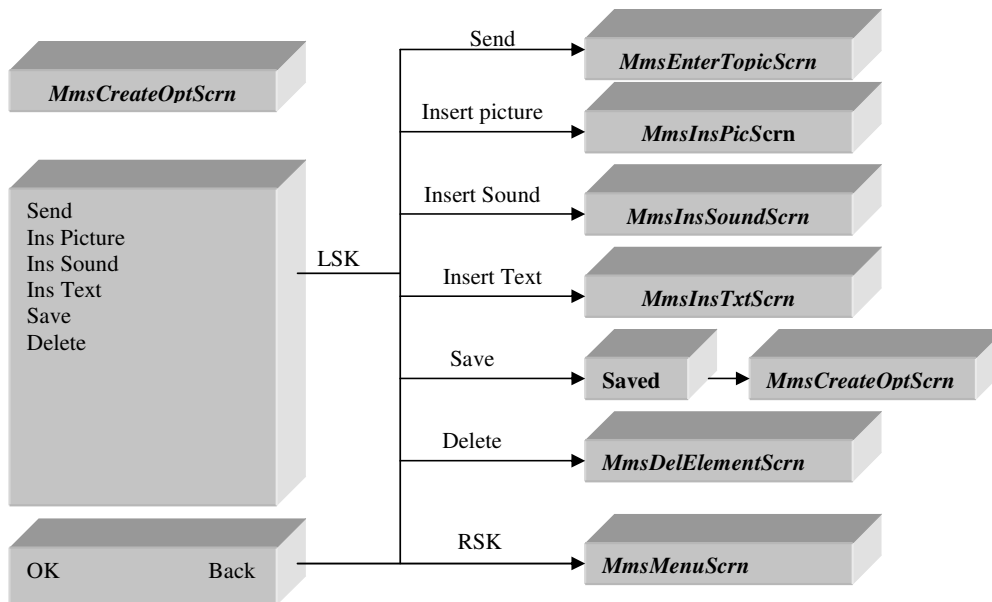
5.10.1 Create MMS

MMS Editor is opened to create the MMS.



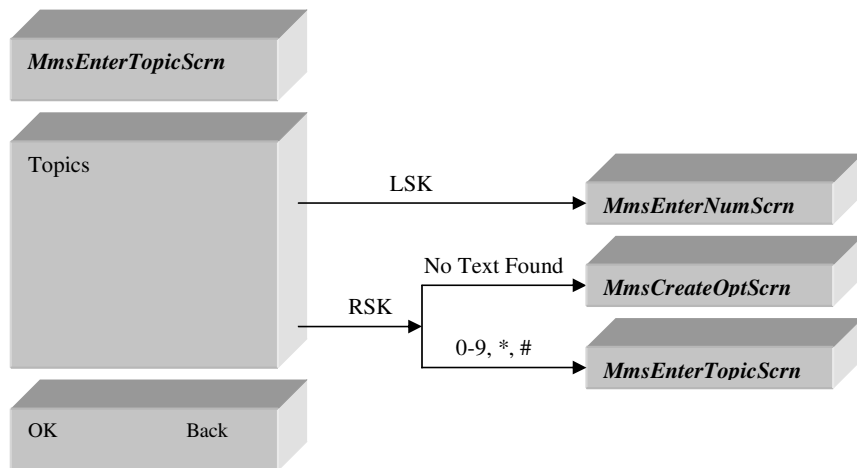
The user can insert picture, sound and text to the MMS on the press of LSK. In each slide we can insert only one picture, one sound and text (presently the limitation of MMS editor is single slide).

When user inserts a picture it will be scaled to the screen width, if required. When the user adds text, if it goes below the screen, a scroll bar is displayed which can be scrolled up or down on press of down and up arrow keys to see the entire MMS contents.



5.10.1.1 Send

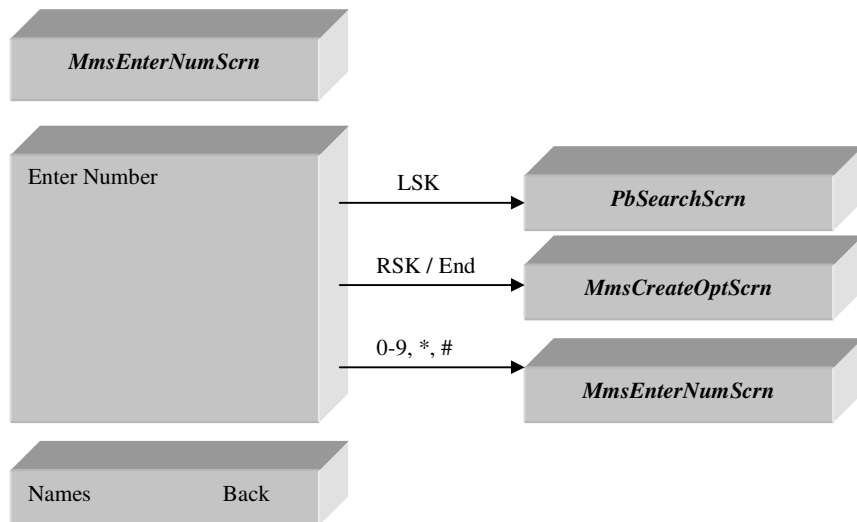
Selecting “send” option opens an alphanumeric editor to enter the topic for the MMS.



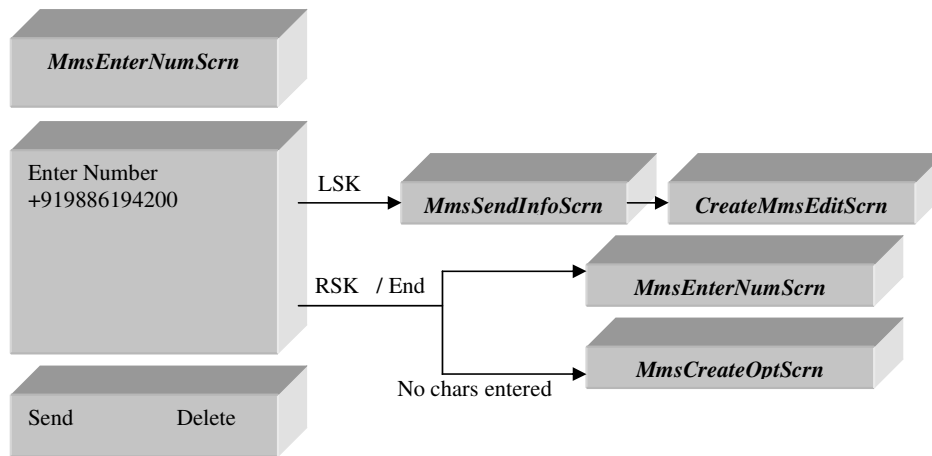
As soon as text is entered the right soft-key “Back” converts to “Delete”, the press of which will delete the character immediately before the cursor.

The next step is entering the destination to send the MMS.

A numeric editor is opened where the number of the subscriber to whom the MMS is to be sent can be entered.



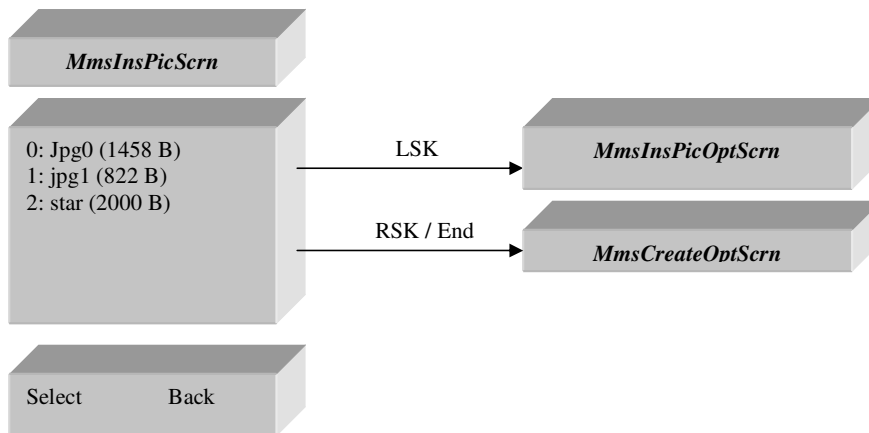
The left soft-key “Names” opens the phonebook in alphabetic search mode and allows an entry to be selected. The right soft-key “Back” returns user to the previous sub-menu. As soon as a number is copied from the phonebook or digits are entered the right soft-key converts to “Delete” and will delete the digit immediately before the cursor. In this context the left soft-key is converted to “Send”.



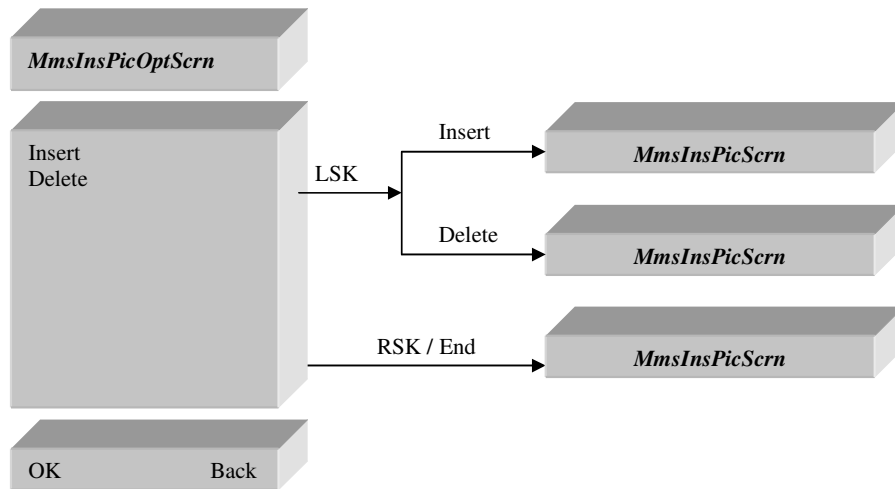
On pressing soft key “Send”, an information screen “Sending MMS” is displayed. After some time, confirmation screen displaying “MMS sent” or “MMS Failed”, depending on the result of the sending operation is displayed.

5.10.1.2 Ins Picture

Selection of “Ins Picture” will bring up the list of images available to insert or delete. If there are none, “No Media” information screen is displayed.



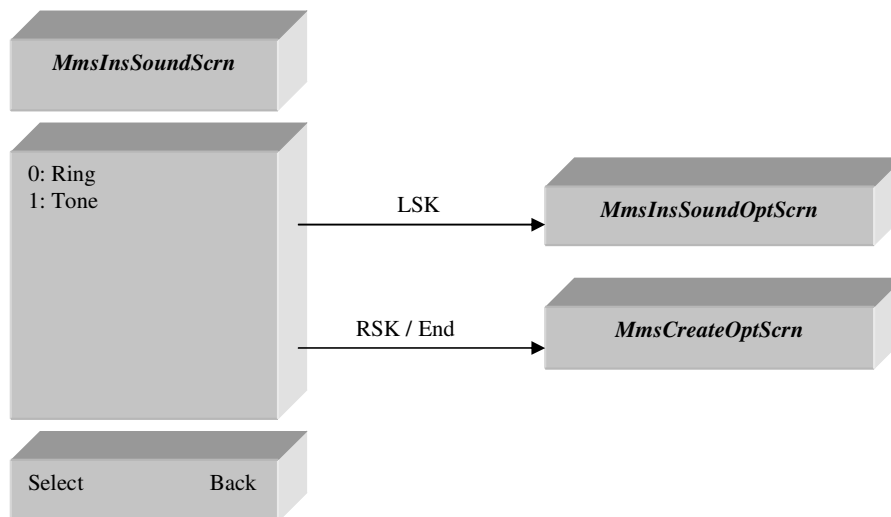
Scroll up/down to select the picture.



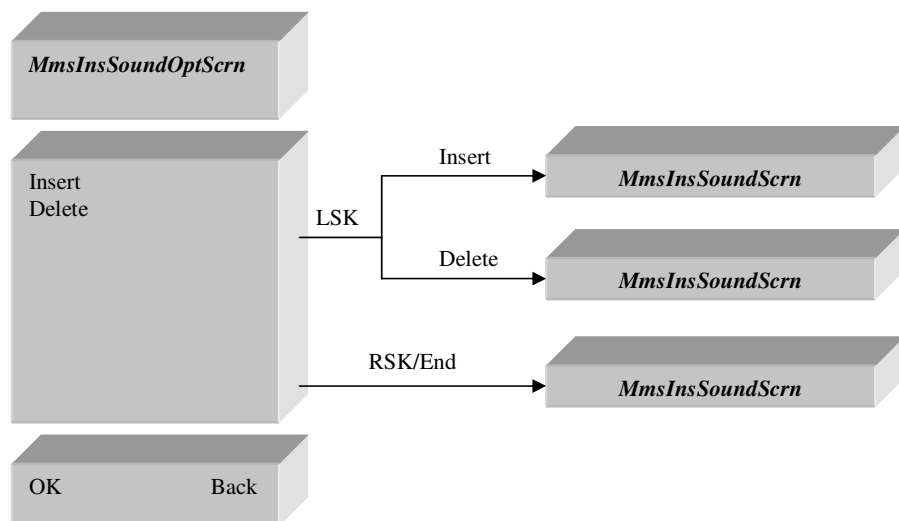
Clicking “Insert” will insert the picture into MMS, and selecting “Delete” will remove the picture from the object manager.

5.10.1.3 Ins Sound

Selection on “Ins Sound” will show the list of audio available to insert or delete, If there are none ,“No Media” information screen is displayed.



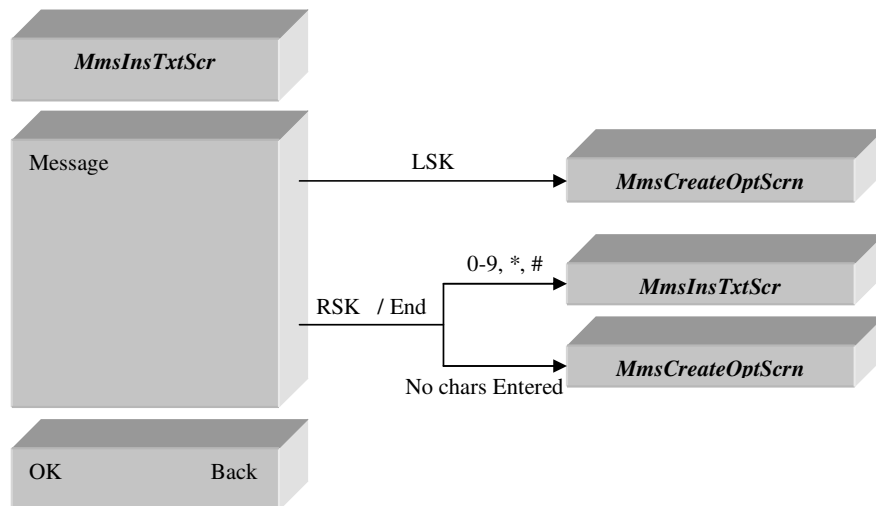
Scroll up/down to select the item.



Clicking “Insert” will insert the sound into MMS, and selecting “Delete” will remove the sound from the object manager.

5.10.1.4 Ins Text

Selection on “Insert Text” will allow the user to enter text into MMS.



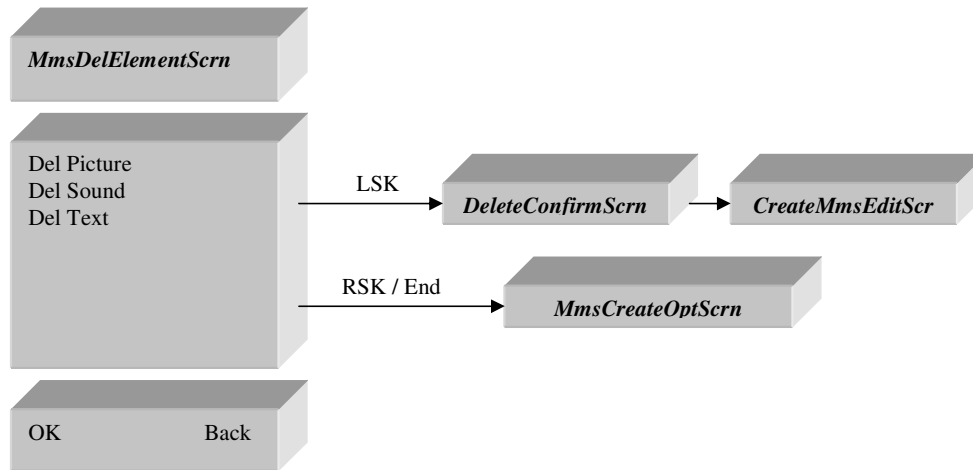
5.10.1.5 Save

Selection on “save” will allow the user to save the MMS into unsent folder.

5.10.1.6 Delete

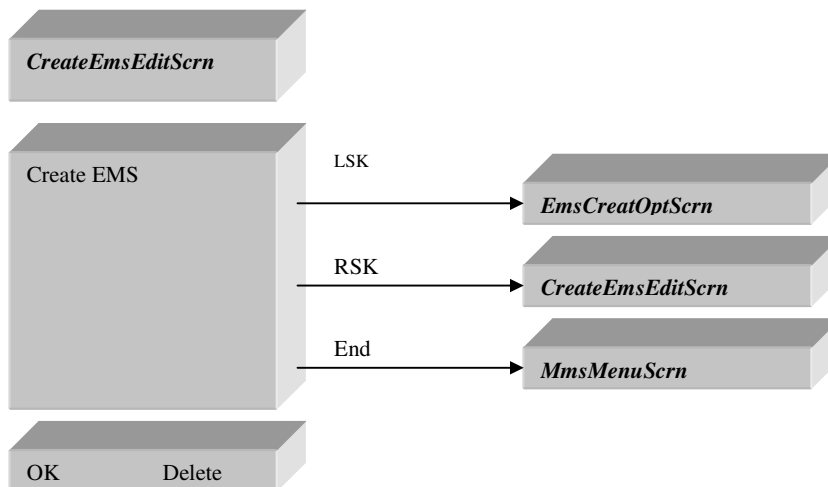
Selection on “Delete” will allow the user to delete picture, sound or Text from MMS, which were inserted into MMS earlier.

Scroll up and down to select the item and clicking on ok will display the confirmation screen to delete the item. Selecting “OK” on this information screen will delete the item , and selecting “Back” will cancel the delete operation chosen.

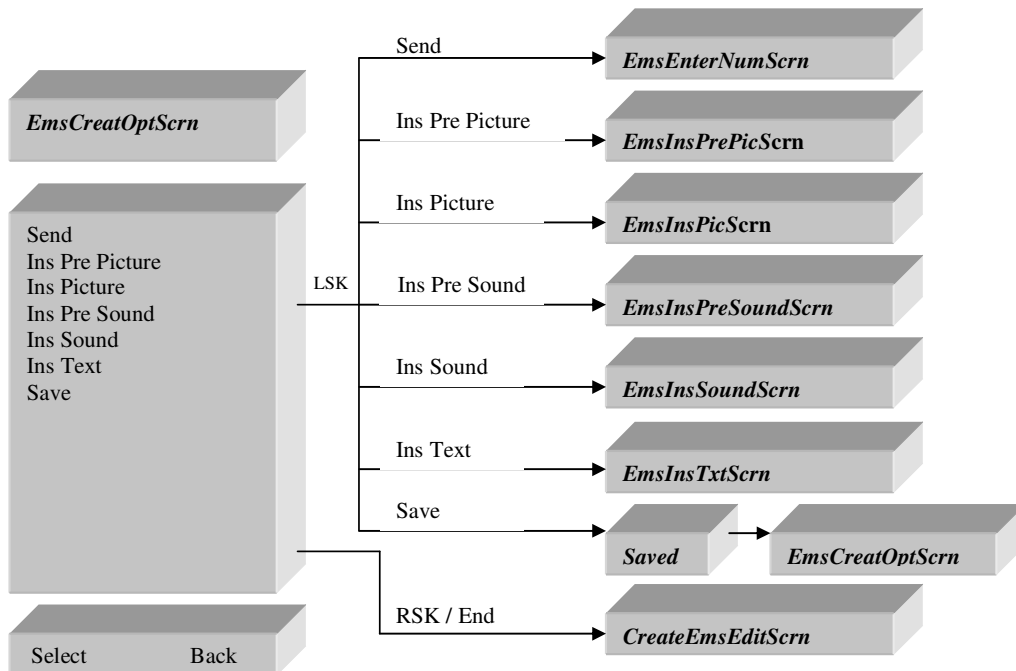


5.10.2 Create EMS

Selecting “Create EMS” on MMS menu screen opens up the EMS Editor.

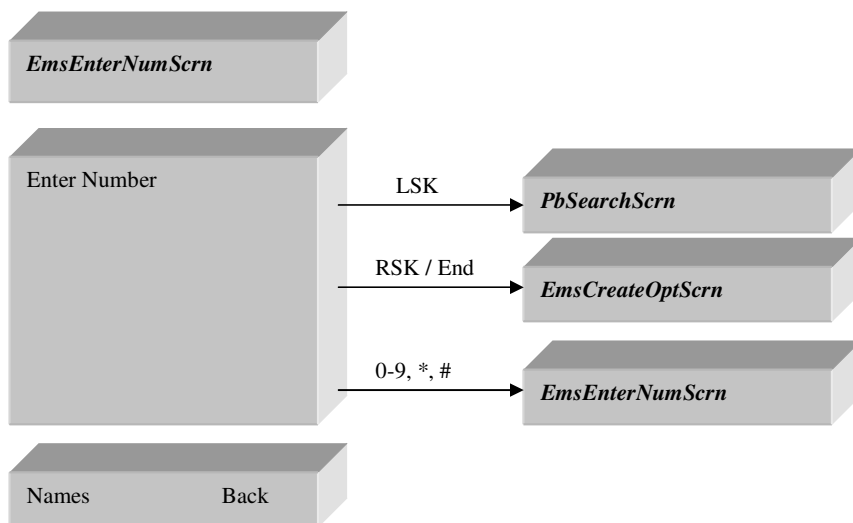


The user can insert pictures and sounds that are user defined or predefined, or text to the EMS on the press of LSK.

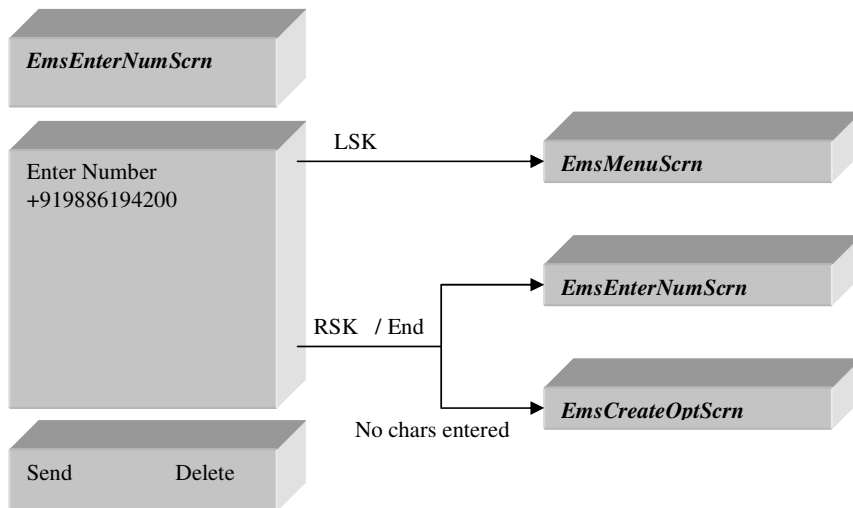


5.10.2.1 Send

Selecting “Send” options opens a numeric editor where the number of the subscriber to whom the EMS is to be sent can be entered.

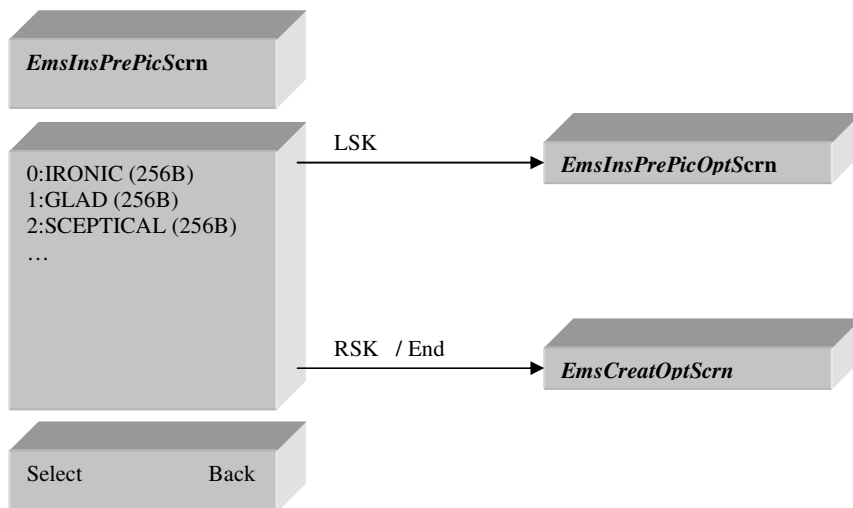


The left soft-key “Names” opens the phonebook in alphabetic search mode and allows an entry to be selected. The right soft-key “Back” returns user to the previous sub-menu. As soon as a number is copied from the phonebook or digits are entered the soft key converts to “Delete” and will delete the digit immediately before the cursor. In this context the left soft key is “Send”.

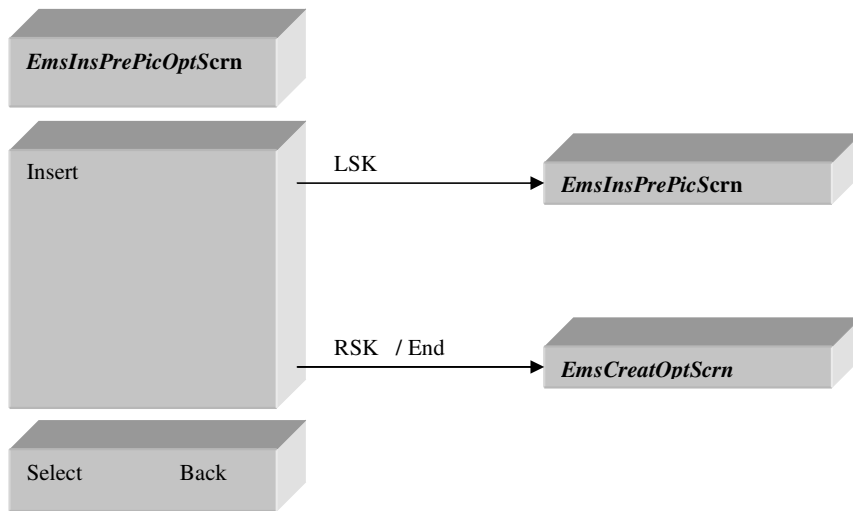


On pressing soft key “Send”, the MMS menu screen is showed immediately. After few seconds the information screen saying “EMS sent” or “EMS sent Failed” will appear.
If EMS is successfully sent then the EMS will be stored at sent other wise it will be there in Unsent.

5.10.2.2 Ins Pre Picture



Selecting “Ins Pre Picture” options displays the list of predefined pictures in the phone.



To insert the picture into EMS user should select the “insert” option. Once the EMS predefined picture is inserted the screen showing the list of pictures is displayed.

5.10.2.3 Ins Picture

Same as Ins Pre Picture, but here the list of user defined pictures are showed if any, otherwise “No Media “ information screen will be showed to the user.

One more difference is for user defined picture both Insert and Delete options are there. Insert will insert the object to the EMS, and Delete will delete the predefined picture from the phone. But incase of predefined picture only insert option will be there.

5.10.2.4 Ins Pre Sound

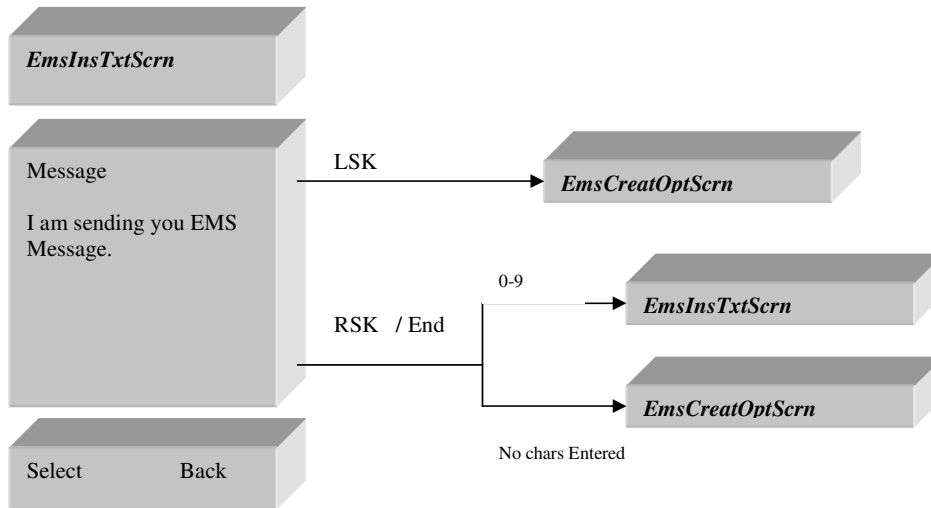
All the opts remain same, as in Ins Pre Picture, the only change is that the list displayed here will contains the list of predefined sounds.

5.10.2.5 Ins Sound

Same as “Ins Picture” only difference being that the list displayed contains the user-defined sounds.

5.10.2.6 Ins Text

This option allows text to be inserted in the EMS.

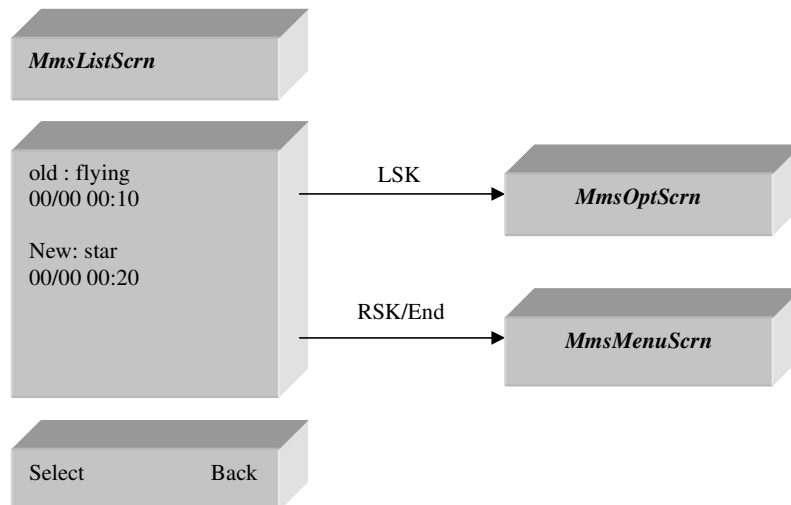


5.10.2.6 Save

Selection of "Save" will allow the user to save the EMS into unsent folder.

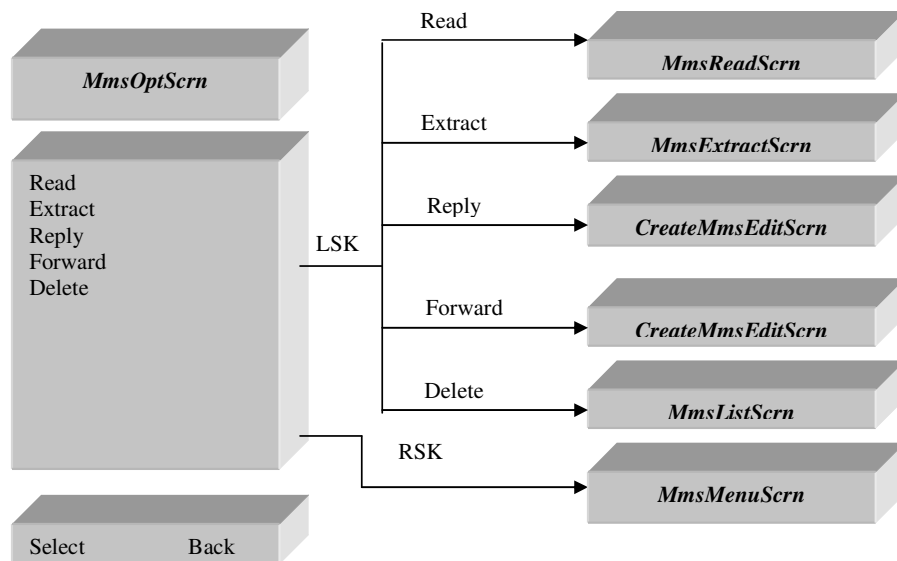
5.10.3 Inbox

Selection on "Inbox" will display the list all the received MMS and EMS.



If there are no MMS or EMS in the Inbox, "List Empty" is displayed for two seconds and the phone returns to the menu.

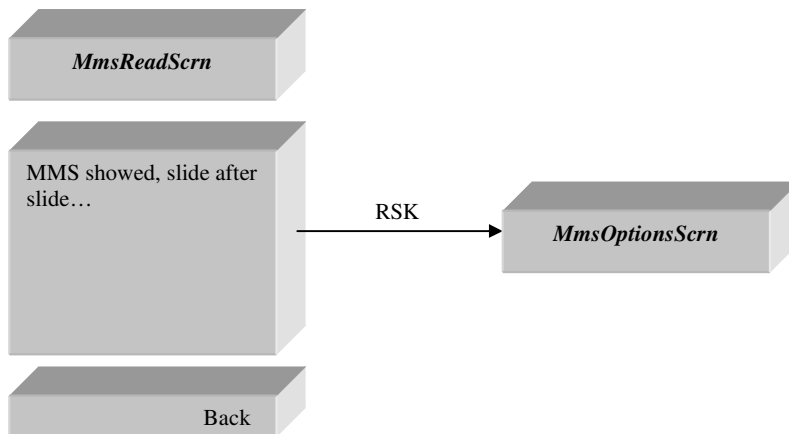
Pressing the left soft-key "Select" opens a Options menu screen for the MMS.



Note: If the selected item is an EMS, the “Extract” options will not be there.

5.10.3.1 Read

“Read” menu option allows playing of MMS as a slide show.

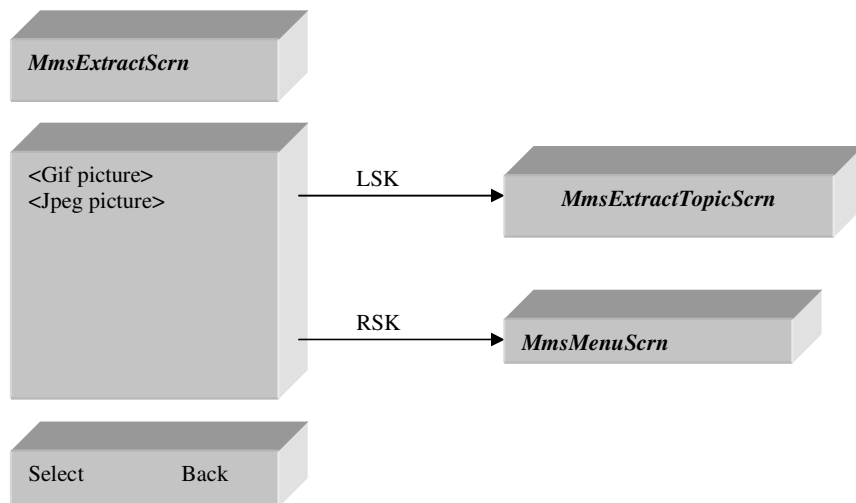


Selecting this menu option will play an MMS slide by slide. If the slide contents are longer than screen, up/down keys can be used to scroll through the MMS contents. Finally, the last slide will be shown indefinitely.

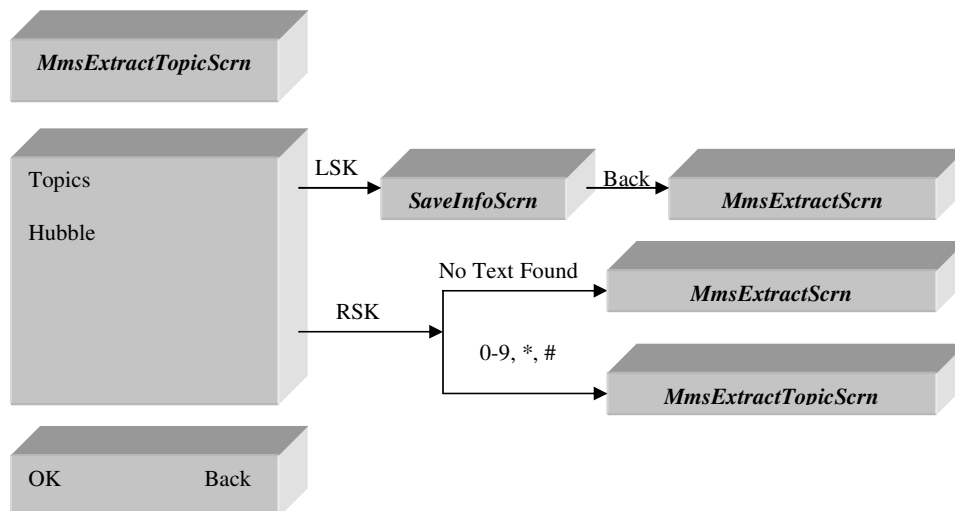
Note: If the selected item is EMS the LSK will be Extract.

5.10.3.2 Extract

“Extract” menu option allows extracting a particular element from the selected MMS.



Selection of this menu option will display the list of extractable items like pictures and sounds. User can save them on to the phone by pressing left soft key "select".



Enter the appropriate name to save the extractable object onto the phone.

5.10.3.3 Reply

Selecting the "Reply" menu item opens the MMS editor with no contents to create the MMS. User can insert the contents to the MMS by pressing the left soft-key.

5.10.3.4 Forward

Selecting "Forward" menu option opens the MMS editor with the selected MMS as its content, title of the editor being "Forwarding MMS". User can alter the contents of MMS by clicking on left soft key "Options" which opens up the Create MMS Options screen, and send it to the destination user. Once the MMS is sent (or sending is abandoned), the phone returns to the menu where the list of MMS is being displayed.

5.10.3.5 Delete

Selecting “Delete” displays the information screen “MMS Deleted”, and deletes the message from the phone. If there are more MMS the user is returned to the MMS read list. If there are no further messages, the information screen “List Empty” is displayed and the phone returns to the MMS sub-menu.

5.10.4 Unsent

Selecting “Unsent” will show the list of MMS, which are mobile originated and not sent to destination due to some failures, if any else List Empty window will be showed.

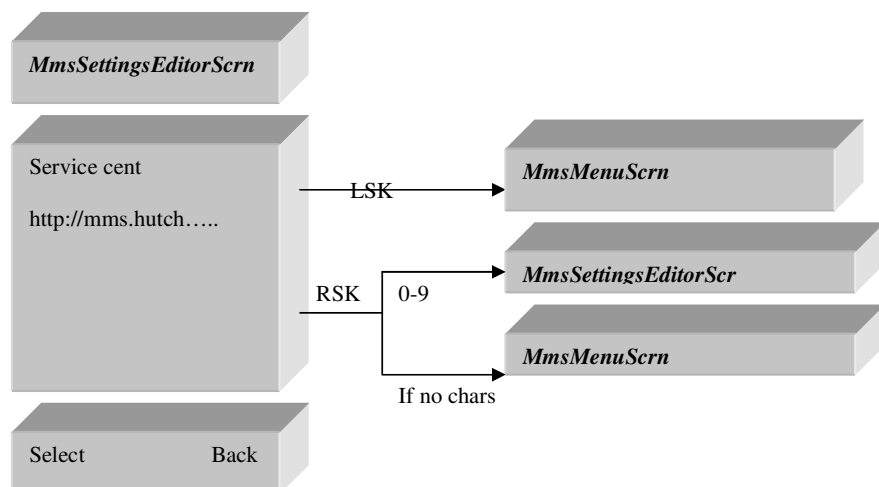
The only difference between the MMS which is there in Inbox and Unsent is, clicking on left soft key “select” on MMS which is there in Unsent wont show the reply option which is showed for the MMS in Inbox.

5.10.5 Sent

Selecting “sent” will show the list of MMS, which are mobile originated and sent to the destination number successfully, other than this there is no difference between the Inbox and Sent Items.

All the operation on MMS will remain same

5.10.6 Settings



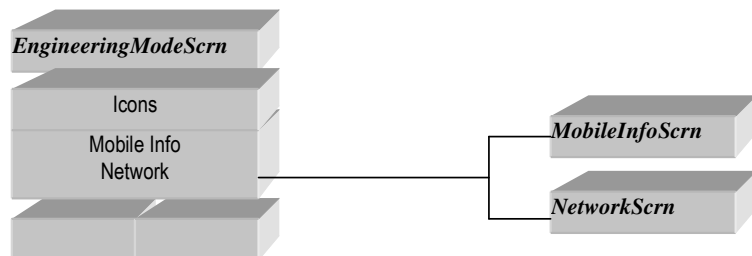
User can select “settings” menu option to enter the MMS service centere address.

5.11 Engineering Mode

An engineering mode is provided to obtain network and air-interface information.

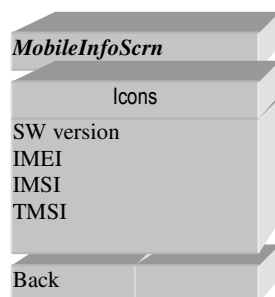
If the psuedo-USSD string *36446337464#<send> (equivalent to *engineering#) is entered from the idle screen, the main menu is extended to include an “Engineering” option.

Upon selection of this menu, the following two sub-menus are available:



5.11.1 Mobile Info

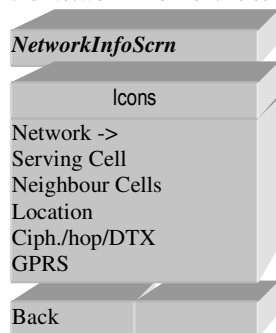
If the Mobile Info menu is selected the following sub-menu items are displayed:



- Software Version codes (SW VERSION)
- International Mobile Equipment Identity (IMEI)
- International Mobile Subscriber Identity (IMSI)
- Temporary Mobile Subscriber Identity (TMSI)

5.11.2 Network Information

If the Network Info menu is selected the following sub-menu items is displayed:



Selection of any of the sub-menu options below “Network” results in the relevant parameters for that sub-menu being displayed together on one screen. This information is updated once per second until a “back” soft key is pressed.

Abbreviations are used to identify each the parameter displayed.

The following sub-sections detail the information/abbreviations to be used for each option/screen.

Serving Cell Parameters

When “Serving Cell” is selected the following information is displayed:

- Current channel number (ARFCN)
- Received field strength (RSSI)
- Received quality (RXQ)
- Radio link timeout counter (RLT)

Neighbour Cell Parameters

When “Neighbour Cells” is selected the following information is displayed:

1. Number of neighbour cells (NUM)
2. Channel numbers (ARFCN) and Received Signal Strength Indication (RSSI)

The neighbour cell ARFCNs and field strengths is displayed on the line below NUM, in the following format:

ARFCN:RSSI [channel number 1]:[strength] [channel number 2]:[strength] etc for all available neighbour cells unless the list exceeds the remaining lines of the display.

Location Parameters

When “Location” is selected the following information is displayed:

- Periodic location update period (LUP)
- Mobile County Code (MCC)
- Mobile Network Code (MNC)
- Location Area Code (LAC)
- Cell Identity (CI)

Ciphering, Frequency Hopping and Discontinuous Transmission Parameters

When “Ciph./hop/DTX” is selected the following information is displayed:

- Ciphering status (STATUS)
- Hopping channels (ARFCNs – followed by the list of channels)
- Hopping sequence number (HSN)
- DTX status (DTX – either on or off)

GPRS Parameters

When “GPRS” is selected the following information is displayed:

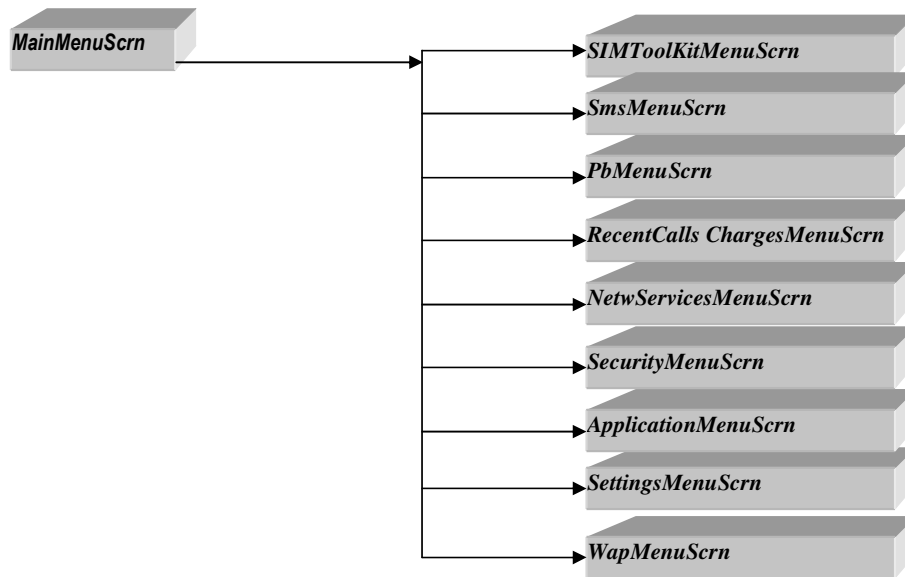
- No. of TX time slots (ULS)
- No. of RX time slots (DLS)
- Coding Scheme (CS)

8 Appendix

8.1 Menu Structure Overview

8.2 Main Menu

On entering the main menu (pressing the right soft-key from Idle) the following scroll options are available:

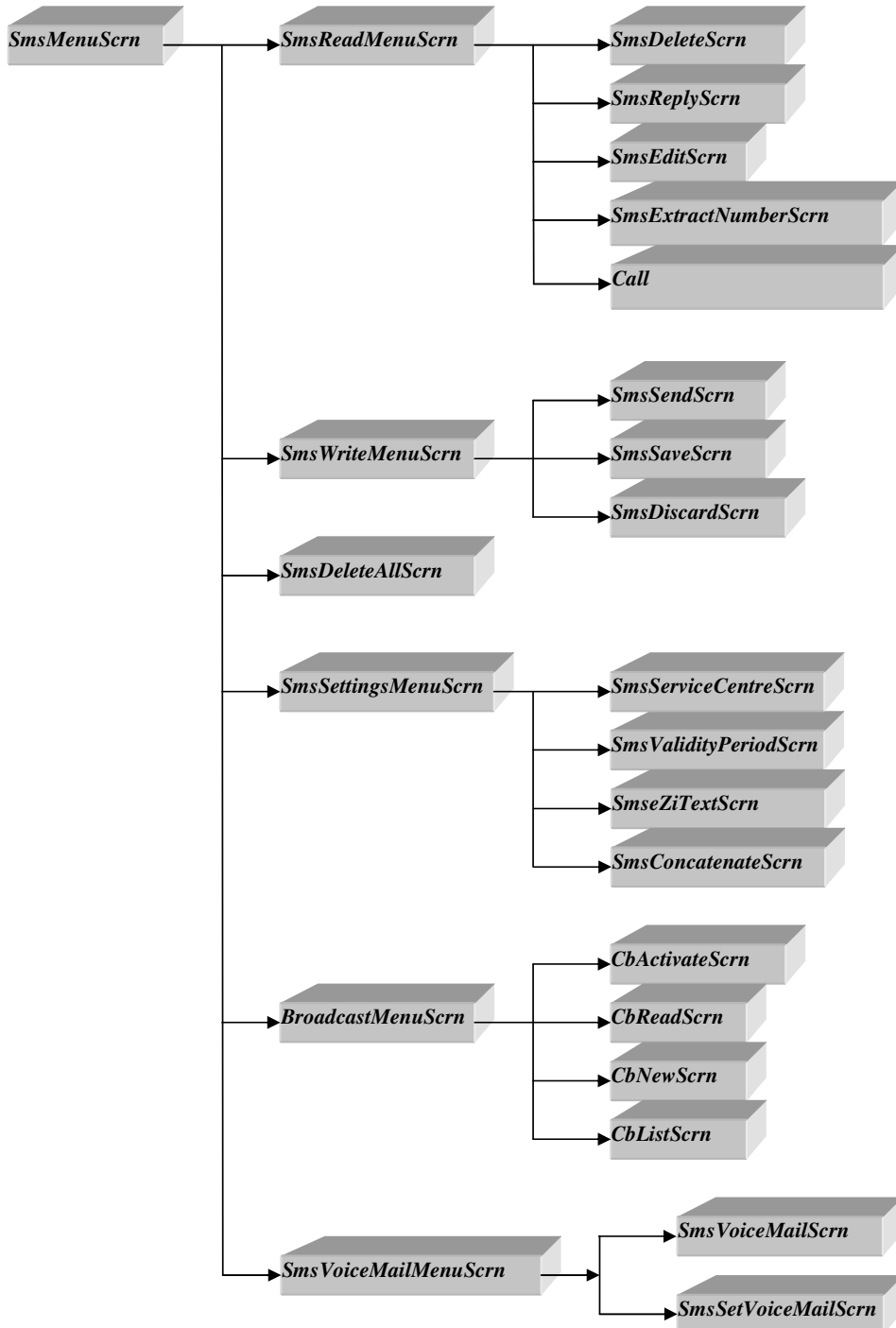


8.2.1 Sim Toolkit

The Sim Toolkit menu depends upon the Service Provider.

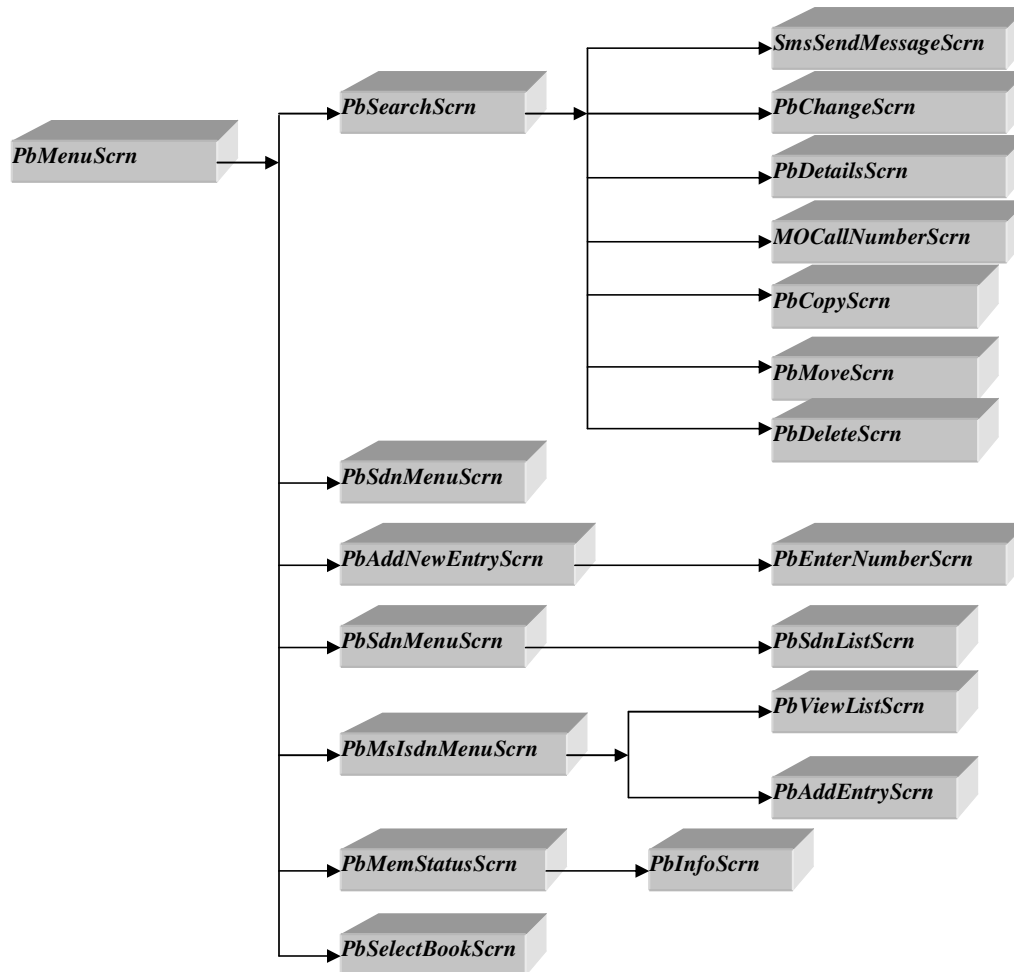
8.2.2 Messages

The Messages menu provides access to all SMS, SMS-CB and VoiceMail facilities.



8.2.3 Phonebook

The phonebook menu allows the phonebook to be searched and edited.



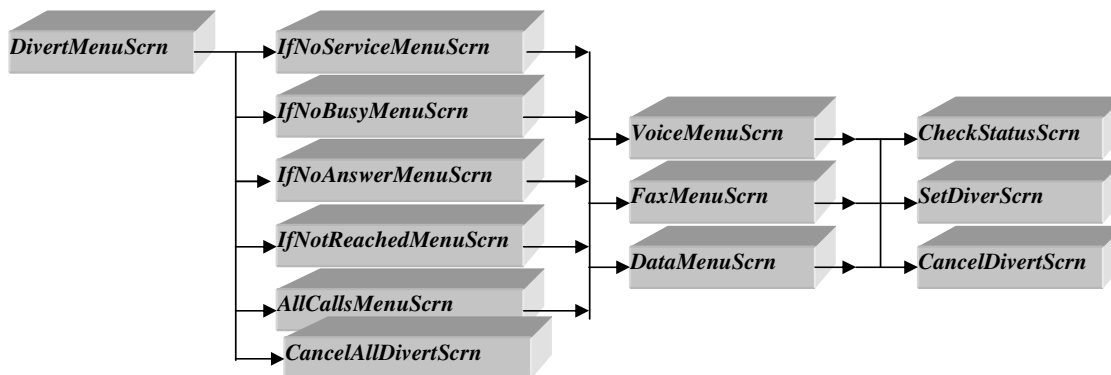
8.2.4 Recent Calls

The recent calls menu allows viewing and deletion of entries in the redial-list, missed calls and answered calls lists.



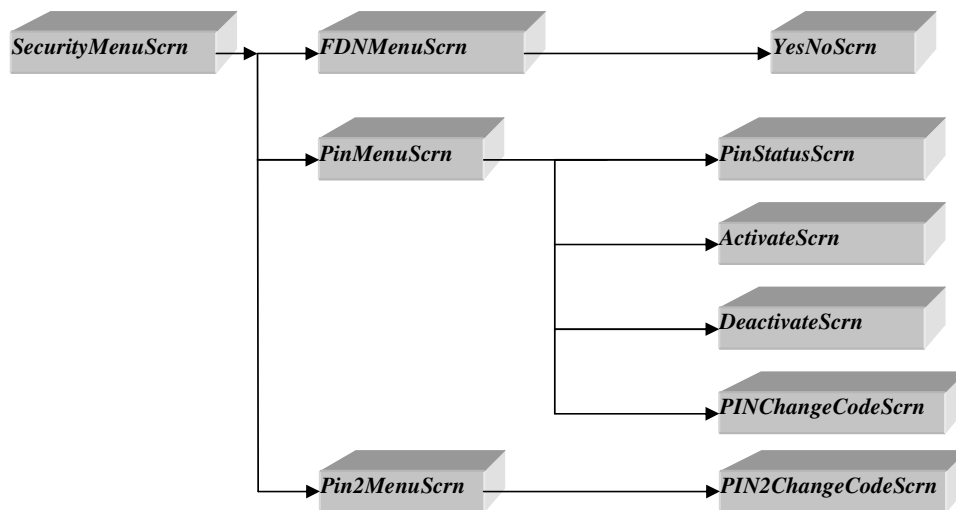
8.2.5 Divert

Allows control of conditional and unconditional diverts.



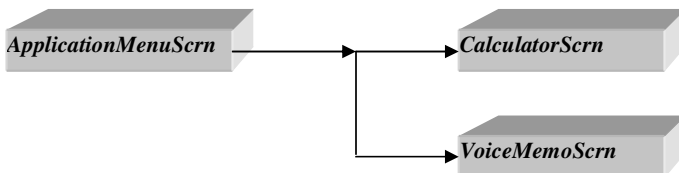
8.2.6 Security

The security menu allows the user to configure the mobile security codes PIN1 and PIN2 and enable the FDN facility.



8.2.7 Application

The application sub-menu allows access to the Calculator and Voice Memo facility.



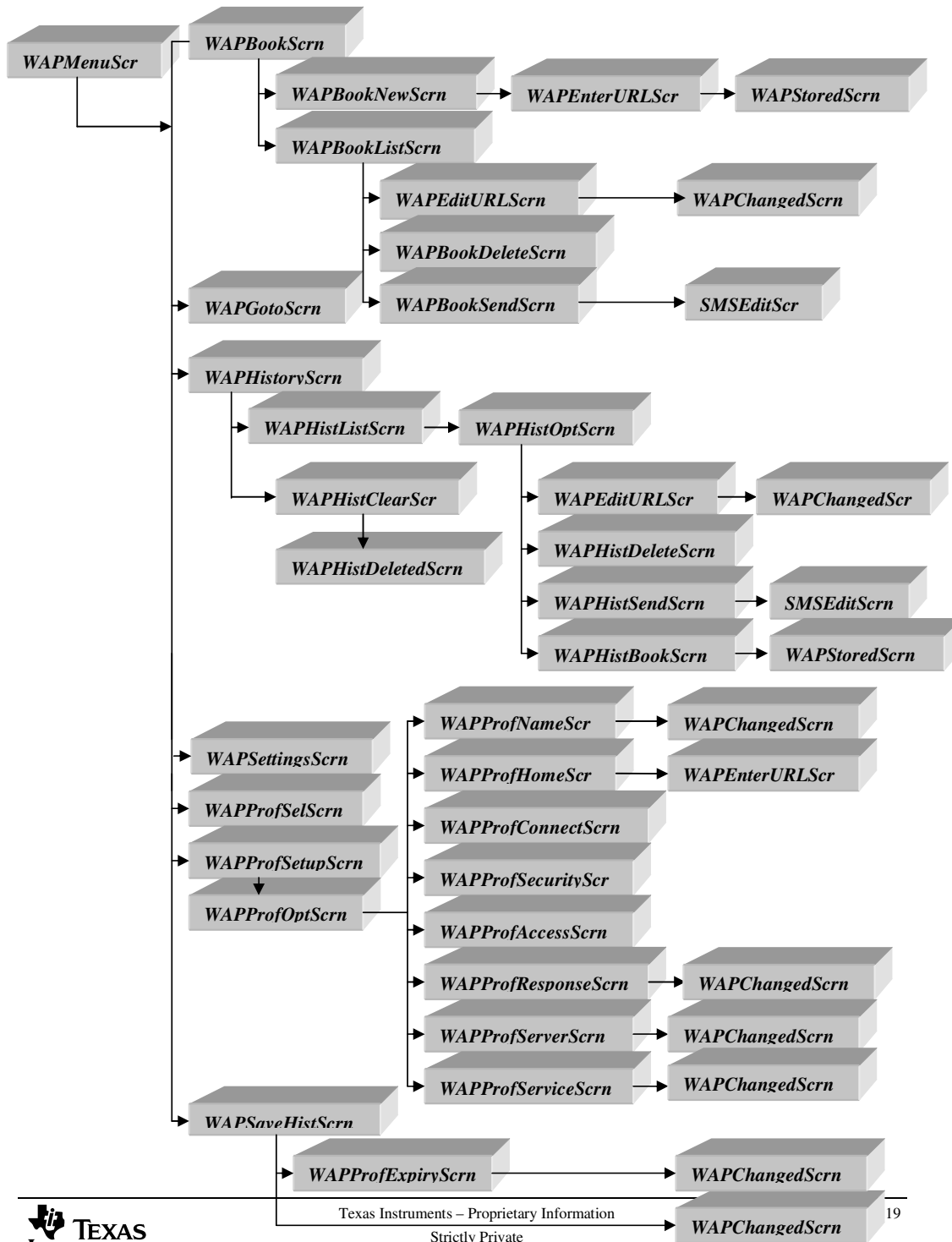
8.2.8 Settings

The Settings menu allows control of all other phone options – these options are those less likely to be frequently accessed by the user.



8.2.9 WAP

The Wap menu



8.3 Display Variants

The BMI includes support for a 84*48 pixel monochromatic display for both Latin and Chinese characters. This display is equivalent of the older B-sample display.

8.3.1 Latin Screen Layout

The Latin screen consists of six rows of fourteen characters each represented by an 8x6 pixel matrix.

Top Row Icons / Text Row 1: 14 Latin Characters	
Text Row 2: 14 Latin Characters	
Text Row 3: 14 Latin Characters	
Text Row 4: 14 Latin Characters	
Text Row 5: 14 Latin Characters	
Left Soft-key Function	Right Soft-key Function

8.3.2 Chinese Screen Layout

The Chinese screen consists of four rows of seven characters where each character is represented by a 12x12 pixel matrix.

Top Row Icons or Text Row 1 7 Chinese Characters	
Text Row 2 7 Chinese Characters	
Text Row 3 7 Chinese Characters	
Left soft-key	Right soft-key

The Chinese screen is used to display both Chinese and Latin characters. The Latin characters are represented by a 12x6 pixel matrix but the font height will remain the same as that of the Latin Screen layout.