



TEMS™ Pocket R520 1.1 GSM

User's Manual

This manual is provided by Ericsson Erisoft AB without any kind of warranty. Improvements and changes in this description due to typographical errors, inaccuracies in current information, or improvements to programs and/or equipment may be made by Ericsson Erisoft AB at any time without notice. These changes will, however, be incorporated into new editions of this manual.

No part of this publication may be reproduced, transmitted, stored in a retrieval system, nor translated into any human or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of the copyrighted owner, Ericsson Erisoft AB.

TEMS is a trademark owned by Telefonaktiebolaget L M Ericsson.

All other trademarks are the property of their respective holders.

© 2001 Ericsson Erisoft AB. All rights reserved.

Publication number: LZT 108 4525, R3A

Contents

1. Introduction.....	1
1.1. What's New in TEMS Pocket R520m?	1
1.2. What's New in TEMS Pocket R520m 1.1?	2
2. Overview	3
2.1. Data Views	3
2.2. Menus	4
2.3. Note on TEMS Realtime Tools	4
3. Data Views.....	6
3.1. General	6
3.2. The Built-in Help Function.....	6
3.3. Serving Cell (1)	8
3.4. Serving + Neighbors: BSIC and RxLev (2)	10
3.5. Serving + Neighbors: C1 and C2 (3).....	11
3.6. Serving + Neighbors: LAC, CI, and RxLev (4)	11
3.7. Current Channel (5)	12
3.7.1. Idle Mode	12
3.7.2. Dedicated Mode	13
3.8. Paging and RACH (6)	14
3.8.1. PAGING Section.....	14
3.8.2. RACH Section.....	14
3.9. CA List (7)	15
3.10. BA List (8)	15
3.11. GPRS (9)	16
3.11.1. Network Mode and Timeslots	16
3.11.2. Performance and Statistics	16
3.12. The Quick Menu	17
3.12.1. PDP Address	17
3.12.2. Quick Menu in Serving + Neighbor Data Views	18
3.12.3. Quick Menu in Other Data Views	19

4. Menus	20
4.1. General	20
4.2. Pocket Menu Overview	20
4.3. Navigating in the Menus.	21
4.4. Settings Menu	21
4.4.1. Auto Answer.	22
4.4.2. Messages.	22
4.4.3. Ignore TMSI	22
4.4.4. Cell Id Format	23
4.4.5. Power Display	23
4.4.6. Error Display	24
4.4.7. Measure Mode	24
4.5. Info Menu	25
4.5.1. IMSI	25
4.5.2. IMEI	25
4.5.3. Time Log	25
4.6. Events Menu	26
4.6.1. View Log	26
4.6.2. Clear Log	26
4.6.3. Mode	27
4.6.4. Event Settings	27
4.6.5. Sound Adjust	28
4.6.6. List of Logged Events	29
4.6.6.1. GSM Events.	30
4.6.6.2. GPRS Events.	31
4.7. Cell Control Menu	33
4.7.1. Reset	33
4.7.2. Lock ARFCN	33
4.7.3. Force HO	34
4.7.4. Disable HO	34
4.7.5. Lock Band	35
4.7.6. Multiband	36
4.7.7. Cell Barred	37
4.7.8. DTX Uplink	37
5. Support Contact Information.	38

Appendix A. Parameter Values	40
A.1. Reject Cause	40
A.2. Radio Resource Cause	41
A.3. CCCH Configuration	41
A.4. Attach/Detach	41
A.5. Channel Type	42
A.6. Channel Mode	42
A.7. Frequency Hopping	42
A.8. Ciphering	42
A.9. Page Mode	42
A.10. GPRS Network Mode of Operation	43
A.11. GPRS Attach Fail Cause	43
A.12. GPRS Detach Type	43
A.13. GPRS Detach Cause	44
A.14. Activate PDP Context Fail Cause	44
A.15. PDP Context Deactivation Cause	45
A.16. RA Updating Fail Cause	45
 Index	 47

1. Introduction

Welcome to TEMS Pocket.

TEMS Pocket is a basic mobile network diagnostics tool built into an Ericsson R520m GPRS mobile station. TEMS Pocket is suitable for day-to-day verification, maintenance and troubleshooting of mobile networks but is also handy for many cell planning tasks.

1.1. What's New in TEMS Pocket R520m?

TEMS Pocket R520m is the first TEMS Pocket with GPRS capability.

- GPRS performance measurements:
 - Data transfer rate on uplink and downlink
 - Timeslots used on uplink and downlink
 - Percentage of data blocks resent/erroneously decoded
 - Total amount of data transferred
- Presentation of other GPRS parameters:
 - RAC, Routing Area Code
 - PTMSI, Packet TMSI
- Optional graphical presentation of RxLev and TxPower
- Grayscale display

1.2. What's New in TEMS Pocket R520m 1.1?

Release 1.1 of TEMS Pocket R520m has the following new features:


- GPRS events
- GPRS Network Mode of Operation (NMO)
- GPRS ciphering algorithm (GEA/1, GEA/2)
- GPRS IP number
- Optional graphical presentation of FER, RxQual, and LLC/RLC decode error/retransmission rate
- Possible to inspect TEMS Pocket data views and event log while TEMS Pocket is connected to TEMS Investigation


2. Overview


When you turn the mobile station on, the display shows the name of your operator, the signal strength, the current time, and the battery power level.



GPRS availability is indicated by means of a triangle above the signal strength bars.

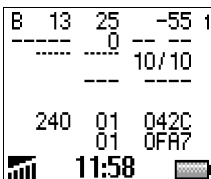
 If there is no triangle, the mobile has no GPRS coverage, or the subscription does not support GPRS (the mobile attempted GPRS attach but failed).

 A gray triangle indicates that there is GPRS coverage, but the mobile has not yet attempted to attach to GPRS.

 A black triangle indicates that the mobile has successfully attached to GPRS.

2.1. Data Views

Most of the data displayed by TEMS Pocket is to be found in the *data views*. These are accessed and browsed with the Up and Down arrow keys (when you are not in a menu). For example, pressing the Down key immediately on turning the phone on takes you to the Serving Cell data view:



The data views are described in chapter 3.

2.2. Menus

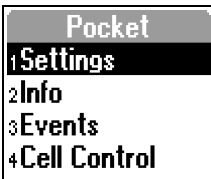
The TEMS Pocket R520m phone has a special Pocket menu from which you change settings in TEMS Pocket. The Pocket menu is also used (or may be used) to access certain categories of data.

To access the Pocket menu,

- Press the **Left** arrow key three times. The Extras menu appears:



- Press **YES, YES** to enter the Pocket main menu.



The submenus seen here are described in chapter 4.

2.3. Note on TEMS Realtime Tools

TEMS mobiles delivered with the realtime diagnostics tools TEMS Investigation and TEMS Light have full TEMS Pocket functionality. When such mobiles are connected to one of the realtime tools, you can still inspect their TEMS Pocket data views (chapter 3). You can also inspect the event log, by accessing it from a data view through the Quick menu (section 3.12).

However, while TEMS Pocket is connected to a realtime tool, you cannot use the TEMS Pocket network control functions or change network settings

(sections 4.4–4.7 in this manual). All such functions are disabled as long as the phone is connected.

3. Data Views

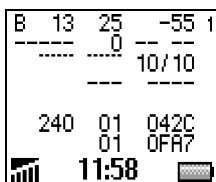
3.1. General

All views have the same general structure in idle and dedicated mode. When a parameter is currently not valid (such as C1 and C2 in dedicated mode), this is indicated in the data view by a string of dashes “--” of appropriate length. In a few places one parameter is replaced by another when the mode changes. These differences are of course noted in the subsequent sections.

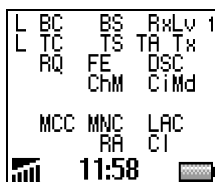
A number of parameters can be presented either numerically or graphically (as a variable number of bars). These parameters are tagged “numeric/graphic” in sections 3.3–3.11. How to set the presentation format is explained in sections 4.4.5 and 4.4.6.

3.2. The Built-in Help Function

For all data views a corresponding help view is available. Each help view has the same organization as the data view but displays mnemonics for the parameters where the data view displays the parameters themselves:



Data view



Help view

In this chapter, data views and help views are shown side by side, and the view contents are explained by referring to the mnemonics in the help view.

You can use two different methods to enter and exit the help view:



- Press and hold the Up key. After about 2 seconds, the help view appears.
- Release the Up key to revert to the data view.

or

- Hold the Clear key for about 1 second. A menu appears. In this menu, choose Monitor Help... (most easily done by pressing the “3” key).
- Press Clear briefly to revert to the data view.

3.3. Serving Cell (1)



```

B 13 25 -55 1
----- 0 ---
----- 10/10
-----
240 01 042C
01 0FA7
 11:58 

```

Idle mode



```

B 645 21 -85 1
t 645 ...2 0 30
... 20/20
EFR A5/1
240 01 042C
01 0755
 11:58 

```

Dedicated mode

```

L BC BS RxLv 1
L TC TS TA Tx
RQ FE DSC
ChM CiMd
MCC MNC LAC
RA CI
 11:58 

```

Help view
(idle mode)

The top part describes the broadcast and traffic channels used and the channel quality.

L: Logical Channel

Line 1: Always “B” for BCCH

Line 2: One of

- “P”: Packet channel
- “S”: SDCCH
- “s”: Hopping SDCCH
- “T”: TCH
- “t”: Hopping TCH

BC: Serving Cell BCCH ARFCN

BS: Base Station Identity Code (BSIC)

RxLv: Received Signal Strength (RxLev),
numeric/graphic

TC: Traffic Channel (TCH ARFCN) or Stand-alone
Dedicated Control Channel (SDCCH ARFCN)

TS: Timeslot Number

TA: Timing Advance

Tx: Transmit Power, numeric/graphic

RQ: Receive Bit Error Rate (RxQual),
numeric/graphic



FE: Frame Erasure Rate (FER),
numeric/graphic

DSC (idle mode): Downlink Signalling Counter
(Current/Max). In dedicated mode, DSC is replaced
by **RLT**, Radio Link Timeout (Current/Max).

ChM: Channel Mode; same as in section 3.7

CiMd: Ciphering Mode; same as in section 3.7

```

B 13 25 -55 1
----- 0 ---
----- 10/10
-----
240 01 042C
    01 0FA7
 11:58 

```

Idle mode

The bottom part describes the CGI (Cell Global Identity) and RAC (Routing Area Code) of the serving cell.

MCC: Mobile Country Code



MNC: Mobile Network Code

LAC: Location Area Code

RA: Routing Area Code

CI: Cell Identity



```

B 645 21 -85 1
t 645 .2 0 30
    20/20
    EFR A5/1
240 01 042C
    01 0755
 11:58 

```

Dedicated mode

```

L BC BS RxLv 1
L TC TS TA Tx
RQ FE DSC
    ChM CiMd
MCC MNC LAC
    RA CI
 11:58 

```

Help view
(idle mode)

3.4. Serving + Neighbors: BSIC and RxLev (2)

L	BC	BS	RxLv	Signal
B	13	25	. . . .	2

Presents the BSIC and signal strength (RxLev) of the serving cell and the six strongest cells in the neighbor list.

L: Logical Channel

Idle mode: "B" for BCCH

Dedicated mode: One of

- "P": Packet channel
- "S": SDCCH
- "s": Hopping SDCCH
- "T": TCH
- "t": Hopping TCH

BC: Serving Cell BCCH ARFCN

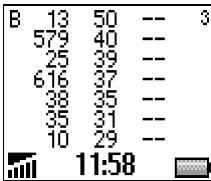
NC1 ... NC6: Neighbor Cell BCCH ARFCN

BS: Base Station Identity Code (BSIC)

RxLv: Received Signal Strength (RxLev), numeric/graphic

L	BC	BS	RxLv	Signal
L	BC	BS	RxLv	2

3.5. Serving + Neighbors: C1 and C2 (3)



B	C1	C2	
13	50	--	3
579	40	--	
25	39	--	
616	37	--	
38	35	--	
35	31	--	
10	29	--	

Presents the path loss (C1) and reselection (C2) parameters of the serving cell and the six strongest cells in the neighbor list.

L: Logical Channel

Idle mode: “B” for BCCH

Dedicated mode: One of

- “P”: Packet channel
- “S”: SDCCH
- “s”: Hopping SDCCH
- “T”: TCH
- “t”: Hopping TCH

L	BC	C1	C2	3
	NC1	C1	C2	
	NC2	C1	C2	
	NC3	C1	C2	
	NC4	C1	C2	
	NC5	C1	C2	
	NC6	C1	C2	

11:58

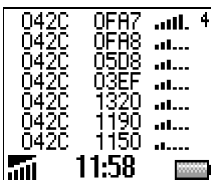
BC: Serving Cell BCCH ARFCN

NC1 ... NC6: Neighbor Cell BCCH ARFCN

C1: Path Loss Criterion

C2: Cell Reselection Criterion

3.6. Serving + Neighbors: LAC, CI, and RxLev (4)



LAC	CI	RxLev	
042C	0FA7	....	4
042C	0FA8	....
042C	05D8	....
042C	03EF	....
042C	1320	....
042C	1190	....
042C	1150	....

Presents the LAC, CI, and RxLev of the serving cell and the six strongest cells in the neighbor list.

LAC: Location Area Code

CI: Cell Identity

RxLv: Received Signal Strength (RxLev), numeric/graphic



LAC	CI	RxLv	
LAC	CI	RxLv	4
LAC	CI	RxLv	
LAC	CI	RxLv	
LAC	CI	RxLv	
LAC	CI	RxLv	
LAC	CI	RxLv	
LAC	CI	RxLv	

3.7. Current Channel (5)

```

 1 9 1 1 5
 5 0 208/240

BCCH --- --
Hop 0 --- --
Ciph 0 --- --

[Signal] 11:58 [Battery]

```

Idle mode

```

CN BP BA AD 5
MT RA T32/12

ChTyp ChM SU
Hop HO HS MI
Ciph CP Cimd

[Signal] 11:58 [Battery]

```

3.7.1. Idle Mode

The parameters in the top part are shown in idle mode.

CN: CCCH configuration, number of BCCH/CCCH timeslots {0–6}; see appendix A.3, page 41

BP: BS-PA-MFRMS, number of multiframes between paging subgroups {2–9}

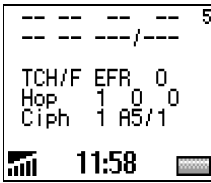
BA: BS-AG-BLKS-RES, number of CCCH blocks reserved for AGCH {0–7}

AD: Attach/Detach enabled {0: No, 1: Yes}; see appendix A.4, page 41

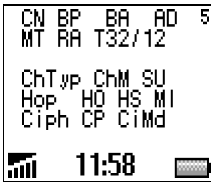
MT: MS-TXPWR-MAX-CCH, maximum RACH power in dBm {900: 5–39, 1800: 0–36}

RA: RXLEV-ACCESS-MIN, minimum RxLev required for accessing the cell {0–63}

T32/12: T3212, current time/max time between location updates {Off, 0–1530 minutes}



Dedicated mode



3.7.2. Dedicated Mode

The parameters in the bottom part are shown in dedicated mode. They relate to channel type, frequency hopping, and ciphering.

ChTyp: Channel type, one of {BCCCH, PDTCH, SDCCH, TCH/F, TCH/H}; see appendix A.5, page 42

ChM: Channel mode, one of {FR, EFR, HR, D24, D48, D96, D144}. FR = Speech, Full Rate, etc.; D24 = Data 2.4 kbit/s, etc.

SU: Subchannel Number {0–7}

HO: Frequency Hopping On/Off {0: Off, 1: On; see appendix A.7, page 42}

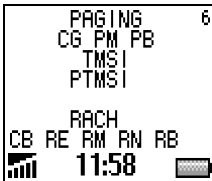
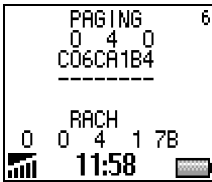
HS: Hopping Sequence Number {0–63}

MI: MAIO, Mobile Allocation Index Offset {0–63}

CP: Ciphering On/Off {0: Off, 1: On}; see appendix A.8, page 42

CiMd: Ciphering Mode, one of {A5/1, A5/2, GEA/1, GEA/2}

3.8. Paging and RACH (6)



3.8.1. PAGING Section

Shows information on the currently used Paging Channel and other paging parameters.

Mobile Paging Subgroup (CG, PM, RB):

CG: CCCH Group, used CCCH timeslot {0, 2, 4, 6}

PM: Paging Multiframe Group {0–8}

PB: Paging Block Index {0–8}

TMSI: Temporary Mobile Subscriber Identity (hex); not valid when Ignore TMSI is active (section 4.4.3, page 22)

PTMSI: Packet TMSI (hex); not valid when the mobile is not GPRS attached, or when Ignore TMSI is active (section 4.4.3, page 22)

3.8.2. RACH Section

Shows information on the Random Access Channel.

CB: Cell Barred {0: No, 1: Yes}

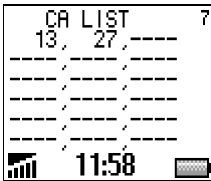
RE: Call Re-establishment {0: Allowed, 1: Not allowed}

RM: Max number of retransmissions {1, 2, 4, 7}

RN: Number of RACH bursts sent for the last connection {1–7}

RB: Establishment Cause/Random: Reference used in the latest RACH burst {00–FF}

3.9. CA List (7)

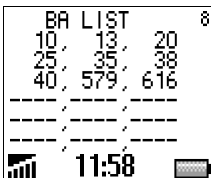


Shows the frequencies used by the current cell. The list holds a maximum of 64 entries.

- To scroll the list, press the Clear key (C) briefly to enter scroll mode (the top row is highlighted), then use the up/down keys for scrolling. Press Clear again to exit scroll mode.



3.10. BA List (8)







Shows all neighbors of the current cell. The list holds a maximum of 64 entries.

- To scroll the list, press the Clear key (C) briefly to enter scroll mode (the top row is highlighted), then use the up/down keys for scrolling. Press Clear again to exit scroll mode.



3.11. GPRS (9)

2	01234	↓↑↓	9
0	0	354	
246	77	898	
140	0	3055	
224	50	4064	
010.160.038.005			
	12:49		

N	GPRS	TS	9
DL	B/s	Er	TotLLC
DL	B/s	Er	TotRLC
UL	B/s	Re	TotLLC
UL	B/s	Re	TotRLC
PDP	Address		
	12:49		

Shows information on the GPRS connection.

3.11.1. Network Mode and Timeslots

N: Network Mode of Operation {1, 2, 3}; see appendix A.10, page 43

GPRS TS: Timeslots used on uplink and downlink. The timeslots are represented by the numbers 0–7, and those currently in use are replaced by arrows as follows:

- Upward arrow: Timeslot used on uplink
- Downward arrow: Timeslot used on downlink
- Double-headed arrow: Timeslot used on both uplink and downlink

Example: **01234↓↑↓** means TS 5, 6, 7 are being used on the downlink and TS 6 on the uplink.

3.11.2. Performance and Statistics

The four central rows show the current performance of and some statistics on the GPRS data transfer.

Row 1: LLC protocol level, downlink

Row 2: RLC protocol level, downlink

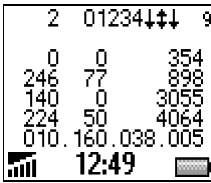
Row 3: LLC protocol level, uplink

Row 4: RLC protocol level, uplink

B/s: Instantaneous data transfer rate in bytes/s

Er: Percentage of data blocks erroneously decoded (on downlink), numeric/graphic

Re: Percentage of data blocks resent (on uplink), numeric/graphic

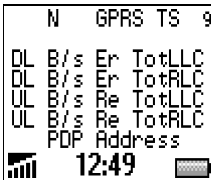


2	01234	↓↑	9
0	0	354	
246	77	898	
140	0	3055	
224	50	4064	
010	160	038	005
12:49			

TotLLC, TotRLC: Total number of bytes transferred (K = kilobytes, M = megabytes). These counters can be reset from the Quick menu: see section 3.12.

3.11.3. PDP Address

PDP Address: IPv4 PDP address (12-digit number).



N	GPRS	TS	9
DL	B/s	Er	TotLLC
DL	B/s	Er	TotRLC
UL	B/s	Re	TotLLC
UL	B/s	Re	TotRLC
PDP Address			
12:49			

3.12. The Quick Menu

This is a special menu that is accessed from the data views. It provides a shortcut to the following operations, which are also available from the ordinary menus (chapter 4):

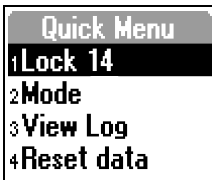
- Lock on channel (current serving cell, or neighbor cell: see below). This is equivalent to Lock ARFCN (section 4.7.2) in idle mode and Force HO (section 4.7.3) in dedicated mode.
- Toggle logging and sound on/off (see section 4.6.3, page 27).
- View the event log (see section 4.6.1, page 26).
- Reset GPRS data transfer counters (see section 3.11).

The method of accessing the Quick menu and the range of cells you can lock on are different in different data views:

3.12.1. Quick Menu in Serving + Neighbor Data Views

In the data views containing a neighbor list (sections 3.4–3.6), you can lock on one of the shown neighbors or on the serving cell.

- Press Clear briefly to enter scroll mode.
- Scroll to the cell you wish to lock on.
- Press YES.



- Choose Lock to lock on the selected cell.
- Choose Mode to modify sound and logging settings.
- Choose View Log to view the event log.
- Choose Reset data to reset the GPRS data transfer counters.

To release the mobile,

- In the data view, scroll to the top row (serving cell).
- Press YES.

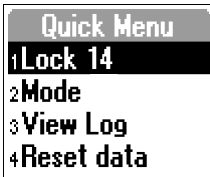


- Choose Unlock ARFCN.

3.12.2. Quick Menu in Other Data Views

In the remaining data views, you can only lock on the serving cell.

- Press Clear briefly. This immediately brings up the Quick menu.



- Choose Lock to lock on the serving cell.
- Choose Mode to modify sound and logging settings.
- Choose View Log to view the event log.
- Choose Reset data to reset the GPRS data transfer counters.

To release the mobile,

- Press Clear briefly. The Quick menu reappears:



- Choose Unlock ARFCN.

4. Menus

4.1. General

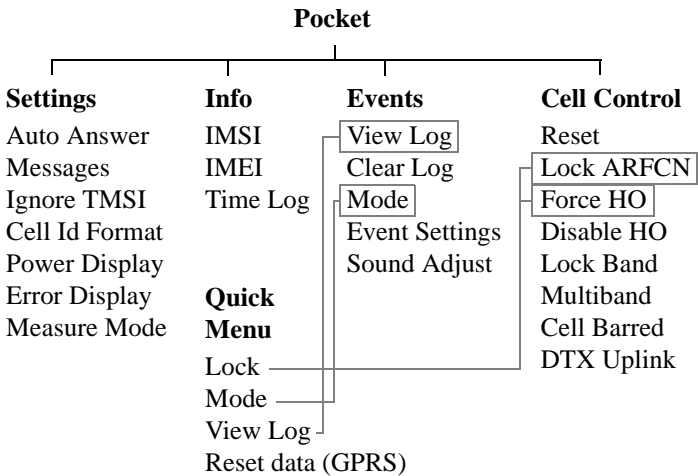
There are four menus with the following main uses:

- **Settings** menu: Adjustment of miscellaneous settings (e.g. measurement units)
- **Info** menu: Inspection of some parameters and phone usage statistics
- **Events** menu: Viewing of the event log
- **Cell Control** menu: Control of mobile behavior in the network (cell reselection, handover, band, etc.)

In addition, there is the **Quick** menu (section 3.12, page 17), which is accessible from the data views and mostly mirrors items in other menus.

4.2. Pocket Menu Overview

All details in sections 4.4–4.7 below.



4.3. Navigating in the Menus

The handset keys have the following functions in the menus:

<i>Left and Right arrows</i>	<ul style="list-style-type: none"> • Browse top-level menus in the R520m. • <i>In some dialogs:</i> Move cursor when entering a number.
<i>Up and Down arrows</i>	<ul style="list-style-type: none"> • <i>When in menu mode:</i> Scroll through a menu. • <i>When not in menu mode:</i> Browse data views.
<i>Yes</i>	<ul style="list-style-type: none"> • <i>In a menu:</i> Enter a submenu or dialog. • <i>In a dialog:</i> Accept the selected option or entered number and exit the dialog.
<i>No</i>	<ul style="list-style-type: none"> • <i>In a menu:</i> Exit the menu. • <i>In a dialog:</i> Exit the dialog without changing anything.
<i>Clear</i>	<ul style="list-style-type: none"> • <i>In some dialogs:</i> Delete a digit when entering a number.
<i>0–9</i>	<ul style="list-style-type: none"> • <i>In a menu:</i> Select the menu item labeled with the indicated number. • <i>In some dialogs:</i> Enter numerical values.

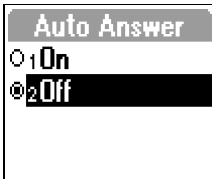
4.4. Settings Menu

In this menu you activate the auto answer function and specify various aspects of the data presentation:

- Displaying of messages
- Use of IMSI/TMSI
- LAC/Cell Identity: Decimal or hexadecimal format

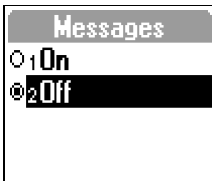
- Power unit: GSM units or dBm (RxLev, TxPower)
- Full/Sub values (RxLev, RxQual, FER)

4.4.1. Auto Answer



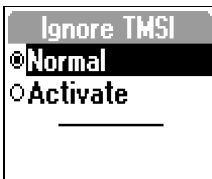
If **On** is chosen, the mobile will automatically answer an incoming call.

4.4.2. Messages



If **On** is chosen, messages such as those generated by divert or calling line identification will be displayed.

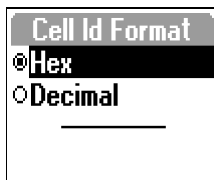
4.4.3. Ignore TMSI



Normal: The mobile station is allowed to use TMSI.

Activate: The mobile station is forced to use IMSI.

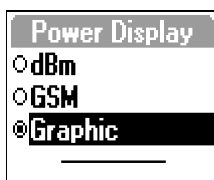
4.4.4. Cell Id Format



Hex: LAC and CI are displayed in hexadecimal digits.

Decimal: LAC and CI are displayed in decimal digits.

4.4.5. Power Display



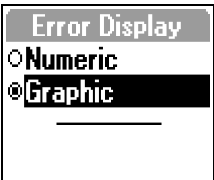
dBm: RxLev and TxPower are displayed in dBm.

GSM: RxLev and TxPower are displayed in GSM units.

Graphic: The RxLev and TxPower values are represented by a number of vertical or horizontal bars, as follows:

RxLev (dBm)		TxPower (dBm)
.....	≤ -101	⋮ 0 ... 10
.....	-100 ... -91	⋮ 11 ... 15
⋮.....	-90 ... -81	⋮ 16 ... 20
⋮⋮...	-80 ... -71	≡ 21 ... 25
⋮⋮⋮..	-70 ... -61	≡ 26 ... 33
⋮⋮⋮⋮.	-60 ... -51	
⋮⋮⋮⋮⋮	≥ -50	

4.4.6. Error Display

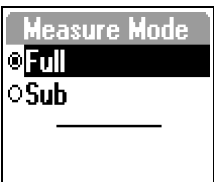


Numeric: FER, RxQual, and LLC/RLC decode errors and retransmissions are displayed numerically.

Graphic: FER, RxQual, and LLC/RLC decode errors and retransmissions are represented by a number of vertical bars as follows:

	FER (%)	RxQual	LLC, RLC (%)
-----	$x < 4.5$	0	$x < 2.5$
-----	$4.5 \leq x < 8.5$	1	$2.5 \leq x < 5.5$
-----	$8.5 \leq x < 12.5$	2	$5.5 \leq x < 10.5$
-----	$12.5 \leq x < 16.5$	3	$10.5 \leq x < 20.5$
-----	$16.5 \leq x < 20.5$	4	$20.5 \leq x < 35.5$
-----	$20.5 \leq x < 24.5$	5	$35.5 \leq x < 60.5$
-----	$24.5 \leq x$	6, 7	$60.5 \leq x$

4.4.7. Measure Mode



Full: RxLev, RxQual, and FER are presented in the form of Full values.

Sub: RxLev, RxQual, and FER are presented in the form of Sub values.

4.5. Info Menu

4.5.1. IMSI

<p>IMSI 240-01- 5014000764</p>

Shows the IMSI (International Mobile Station Identity). It is made up of

- Country Code (3 digits)
- Network Code (2 digits)
- Identification Number (at most 10 digits)

4.5.2. IMEI

<p>IMEI 004601-01- 206975-4</p>
--

Shows the IMEI (International Mobile Equipment Identity). It is made up of

- Type Approval Code (6 digits)
- Final Assembly Code (2 digits)
- Serial Number (6+1 digits)

4.5.3. Time Log

Dedic	00:01
Idle Full	00:33
Idle Ltd	00:00
No Service	00:00

Shows the time (in hours and minutes) that the mobile station has spent in each of the following modes:

- Dedicated mode
- Idle mode, Full Service
- Idle mode, Limited Service (SOS calls only)
- No Service

Press YES, YES to reset the time log.

4.6. Events Menu

A maximum of 20 events can be stored in the event log. Once the log is full, the oldest log entry is removed whenever a new event is entered.

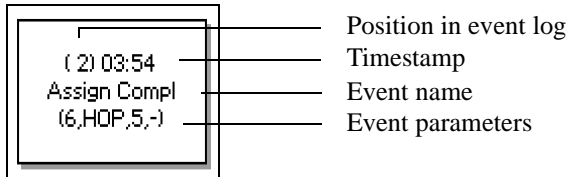
Events can also be indicated by audio signals. You can turn sound and logging on and off for each event type separately: see section 4.6.4. Different sounds can be assigned to different groups of events; see section 4.6.5.

Note: To have events logged at all, you must make sure that the event mode is set to “On”. See section 4.6.3.

4.6.1. View Log

To view the event log,

- In the Event menu, choose View Log. The most recent logged event is shown. Use the Up and Down keys to browse the log.



New events are added at the end of the list, so the latest event will always have the highest number.

4.6.2. Clear Log

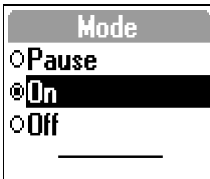
To clear the event log,

- In the Event menu, choose Clear Log. Press YES to confirm.

4.6.3. Mode

If you want TEMS Pocket to log events, you must make sure that the event mode is set to “On”:

- In the Events menu, choose Mode.
- Choose On.



The three modes have the following meanings:

Pause: No logging but sound indications for chosen events

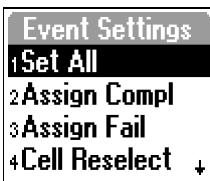
On: Logging and sound indications

Off: No logging and no sound indications

4.6.4. Event Settings

For each event type, you can turn audio indications and logging on and off.

- Choose Event Settings.



- Choose an event type to specify audio and logging properties for this event (the types are listed and described in section 4.6.6 below)

or

- Choose Set All to specify the same behavior for all events. The following options exist:



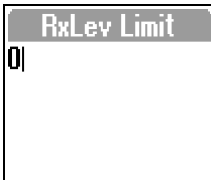
Off: No sound, no logging

Sound: Sound, but no logging

Log: Logging, but no sound

Sound + Log: Sound and logging

For the Limit events (RxLev Limit, RxQual Limit, TA Limit, TxPwr Limit), once you have chosen something other than Off, you will be asked to enter the event threshold:

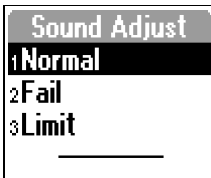


- Enter a threshold value. Note that the value must be in GSM units.

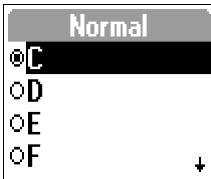
4.6.5. Sound Adjust

It is possible to set different sounds for each of the three main event groups. What groups an event belongs to appears from the list in section 4.6.6.

- In the Events menu, choose Sound Adjust. This brings up a new menu containing three event groups.



Choosing one of the groups Normal, Fail, and Limit produces a list of audio signals:



C, D, E, F, G, A, B: The notes of the C scale.

Up/Down: A sequence of two notes with either rising or falling pitch. Used for Service and the other Limit events:

- For Service, rising pitch indicates “Service On”, and falling pitch indicates “Service Off”.
- For the other Limit events, rising pitch indicates that the event parameter exceeded the limit (or dropped below it). Falling pitch indicates that the parameter reverted to a value that is within the limit.

4.6.6. List of Logged Events

This section lists all the events saved in the event log and their parameters. Some of the event parameters are described in more detail in the Appendix starting on page 40.

Event group designations are as follows: N = Normal, F = Fail, L = Limit.

4.6.6.1. GSM Events

Event name	Group	Parameters
Assign Compl (Assignment Complete)	N	Channel Mode (appendix A.6, page 42), ARFCN, TS, subchannel number (if SDCCH)
Assign Fail (Assignment Failure)	F	Radio Resource Cause (appendix A.2, page 41)
Cell Reselect (Cell Reselection)	N	New ARFCN, BSIC
HO Complete (Handover Complete)	N	BCCH ARFCN, TCH ARFCN, TS, subchannel number (if SDCCH)
HO Failure (Handover Failure)	F	Radio Resource Cause (appendix A.2, page 41)
IA Complete (Immediate Assignment, Immediate Assignment Extended)	N	Channel Mode (appendix A.6, page 42), ARFCN, TS, subchannel number (if SDCCH)
IA Reject (Immediate Assignment Reject)	F	Page Mode (appendix A.9, page 42), T3122 (timer value in seconds)
Loc Upd Acc (Location Update Accept)	N	New LAC, Old LAC
Loc Upd Rej (Location Update Reject)	F	Reject Cause (appendix A.1, page 40)
RL Timeout (Radio Link Timeout)	F	BCCH ARFCN, BSIC

Event name	Group	Parameters
RxLev Limit (Received Signal Strength Limit)	L	Measured RxLev, RxLev Limit
RxQual Limit (Received Signal Quality Limit)	L	Measured RxQual, RxQual Limit
Service	L	On, Selected BCCH ARFCN or Off, Latest BCCH ARFCN
TA Limit (Timing Advance Limit)	L	Measured TA, TA Limit
TxPwr Limit (Transmit Power Limit)	L	Measured TxPwr, TxPwr Limit
T3124 HO Fail Timeout	F	Target BCCH ARFCN, BSIC and number of HO Access
T3126 (Channel Request Timeout)	F	BCCH ARFCN, BSIC, number of channel requests

4.6.6.2. GPRS Events

Event name	Group	Parameters
GPRS Att Acc (GPRS Attach Accept)	N	GPRS(1)/Combined(2)/Reserved(other), RAC
GPRS Att Fail (GPRS Attach Fail)	F	GPRS Attach Fail Cause (appendix A.11, page 43)
GPRS Detach (GPRS Detach)	F	GPRS Detach Type (appendix A.12, page 43), GPRS Detach Cause (appendix A.13, page 44)

Event name	Group	Parameters
PDP CTX Acc (Activate PDP Context Accept)	N	NSAPI, PDP Address
PDP CTX Fail (Activate PDP Context Fail)	F	NSAPI, Activate PDP Context Fail Cause (appendix A.14, page 44)
Deact PDP CTX (PDP Context Deactivation)	F	NW/MS, NSAPI, PDP Context Deactivation Cause (appendix A.15, page 45)
RA Update Acc (RA Updating Accept)	N	New RAC, Old RAC
RA Update Fail (RA Updating Fail)	F	RA Updating Fail Cause (appendix A.16, page 45)

4.7. Cell Control Menu

In this menu are collected the functions that modify the behavior of the mobile station in the network.

4.7.1. Reset

Any changes made from the default in the Cell Control menu can be undone by using the Reset command. Reset does not affect the settings in the Settings and Events menus.

- In the Cell Control menu, choose Reset and press YES to confirm.

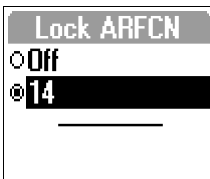
If you have not changed anything, the Reset choice is disabled and grayed.

4.7.2. Lock ARFCN

This function locks the mobile station on a cell which then becomes the serving cell, provided that the signal strength is sufficient. If the signal is too weak, the mobile will go into no service mode.



- Choose **Set ARFCN** to lock on a cell. You will be asked to enter an ARFCN number. This ARFCN will then appear in the menu instead of “Set ARFCN”.



Here the mobile has been locked on ARFCN 14.

- Choose **Off** to release the mobile.

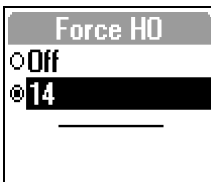
Note that you can also lock on a cell (only the current serving cell, or a neighbor) from a data view. This is done by entering the Quick menu: see section 3.12, page 17.

4.7.3. Force HO

The mobile can be forced to perform a handover to a selected channel, provided that the cell is close and strong enough. The Force HO option overrides normal handover as well as Disable HO (section 4.7.4). Note that the effect of Force HO persists until it is deselected: if Force HO is chosen during a call, the handover behavior will not revert to normal when the call is ended.



- Choose **Set ARFCN** to force handover to a channel. You will be asked to enter an ARFCN number. The chosen ARFCN will then appear in the menu instead of "Set ARFCN".

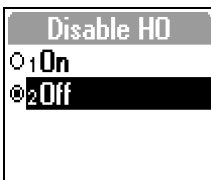


Here handover has been forced to ARFCN 14.

- Choose **Off** to release the mobile.

4.7.4. Disable HO

You can prevent the mobile station from performing handovers.



On: The mobile will perform no handovers.

Off: The mobile will perform handovers when ordered to do so by the network.

Note: If you use Force HO (section 4.7.3, below) to force handover to a selected channel, it will override Disable HO.

4.7.5. Lock Band

You can order the mobile station to use only one of its frequency bands. This will naturally result in failed calls if the band you have blocked is the only one available in the area.

Lock Band
<input checked="" type="radio"/> Normal
<input type="radio"/> 900 only
<input type="radio"/> 1800 only
<input type="radio"/> 1900 only

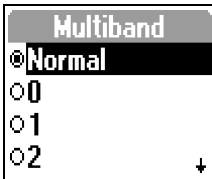
Normal: No restriction.

900 only, 1800 only, 1900 only: The mobile is locked to the indicated band.

Note: If locked to a band during a call, the mobile will not change to the selected band immediately. At the next handover, however, it will be redirected to a cell using a channel in the selected band.

4.7.6. Multiband

The Measurement Reports sent by the mobile station to the network include data on cells in the band which the mobile is currently not using. The Multiband function in TEMS Pocket controls the Multiband Reporting value, which determines how many cells from the other band (at most three) should be included in the Measurement Report.



(Below, “band A” denotes the mobile’s own band, and “band B” is the other band.)

Normal: The network controls the Multiband Reporting parameter.

0: The mobile reports the strongest cells, irrespective of band.

1: The mobile reports the strongest cell from band B, and the remaining positions are filled with cells from band A.

2: The mobile reports the two strongest cells from band B, and the remaining positions are filled with cells from band A.

3: The mobile reports the three strongest cells from band B, and the remaining positions are filled with cells from band A.

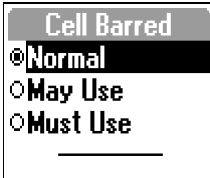
The remaining positions in the Measurement Report are then filled with cells from the same band as the serving cell (band A). Should there not be enough of these to complete the report, more cells are picked from band B in order of descending signal strength, if available.

Example

The Multiband parameter has been set to 3, the mobile is on the 900 band, and only two cells are currently identified on the 1800 band. These two cells are then put in the report, and four 900 band neighbors are added, provided of course that at least four neighbors are identified on the 900 band.

4.7.7. Cell Barred

This function governs whether the mobile station is allowed to access a barred cell.



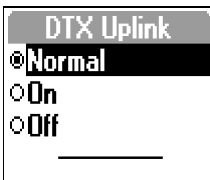
Normal: The mobile station will make no attempt to access barred cells.

May Use: The mobile station is allowed to camp on barred cells.

Must Use: The mobile station will use barred cells only.

4.7.8. DTX Uplink

You can control the mobile's use of DTX (Discontinuous Transmission).



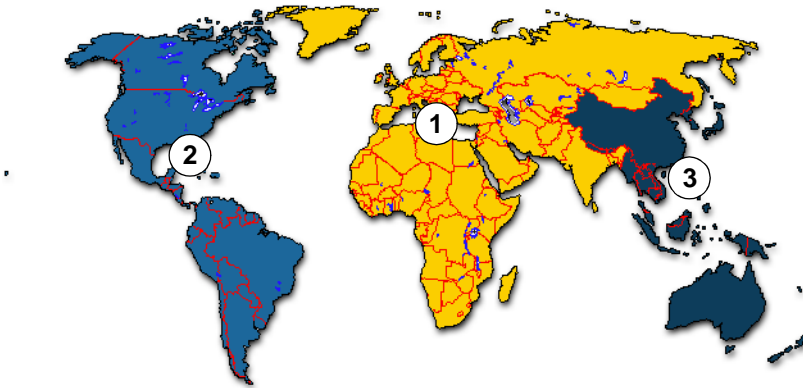
On: The mobile always uses DTX.

Off: The mobile never uses DTX.

Normal: The mobile station uses DTX only when allowed to by the network.

5. Support Contact Information

For support in using TEMS Pocket, please contact Ericsson through the office that serves your region (see map). All repairs will be handled in accordance with our standard warranty conditions and must be reported to one of the offices given below.



Region 1 (Europe, Middle East, Africa, India, Pakistan, Bangladesh, and a number of other countries):

Mail address

Ericsson Ltd.
Network Optimization Solutions
Midleton Gate
Guildford Business Park
Guildford
Surrey
GU2 8SG
U.K.

Fax

+44 1483 305 630

Phone

+44 1483 305 735

E-mail

tems.support@etl.ericsson.se

Region 2 (North and Latin America):

Mail address

Ericsson NetQual Inc.
Network Optimization Solutions
1943 Isaac Newton Square
Reston, VA, 20190-5006
U.S.

Fax

+1 (571) 203 4597

Phone

+1 (800) 522 9670, +1 (571) 203 4545

E-mail

tems@ericsson.com

Region 3 (Asia Pacific and Australia):

Mail address

Network Optimization Solutions
Block C, 2nd floor
Wisma Ericsson
Kelana Centre Point
Jalan SS7/19, Kelana Jaya
47301 Petaling Jaya
Selangor Darul Ehsan
MALAYSIA

Fax

+60 3 708 7089

Phone

+60 3 708 7095

E-mail

tems.support@esm.ericsson.se

For further information about the TEMS products, please visit Ericsson on the Web at

www.ericsson.com/tems

where you will find, among other things, an on-line support contact form and information about product updates.

Appendix A: Parameter Values

This appendix lists the possible values of some parameters appearing in the views and of some event parameters.

A.1. Reject Cause

- 2 IMSI unknown in HLR
- 3 Illegal MS
- 4 IMSI unknown in VLR
- 5 IMEI not accepted
- 6 Illegal ME
- 11 PLMN not allowed
- 12 Location area not allowed
- 13 Roaming not allowed in this location area
- 17 Network failure
- 22 Congestion
- 32 Service option not supported
- 33 Requested service option not subscribed
- 35 Service option temporarily out of order
- 38 Call cannot be identified
- 48–63 Retry upon entry into a new cell
- 95 Semantically incorrect message
- 96 Invalid mandatory information
- 97 Message type non-existent or not implemented
- 98 Message type not compatible with the protocol state
- 99 Information element non-existent or not implemented
- 100 Conditional IE error
- 101 Message not compatible with the protocol state
- 111 Protocol error, unspecified

A.2. Radio Resource Cause

- 0 Normal event
- 1 Abnormal release, unspecified
- 2 Abnormal release, channel unacceptable
- 3 Abnormal release, timer expired
- 4 Abnormal release, no activity on the radio path
- 5 Preemptive release
- 8 Handover impossible, timing advance out of range
- 9 Channel mode unacceptable
- 10 Frequency not implemented
- 65 Call already cleared
- 95 Semantically incorrect message
- 96 Invalid mandatory information
- 97 Message type non-existent or not implemented
- 98 Message type not compatible with protocol state
- 100 Conditional IE error
- 101 No cell allocation available
- 111 Protocol error unspecified

A.3. CCCH Configuration

- 0 1 basic physical channel used for CCCH, not combined with SDCCHs
- 1 1 basic physical channel used for CCCH, combined with SDCCHs
- 2 2 basic physical channels used for CCCH, not combined with SDCCHs
- 4 3 basic physical channels used for CCCH, not combined with SDCCHs
- 6 4 basic physical channels used for CCCH, not combined with SDCCHs

A.4. Attach/Detach

- 0 IMSI attach not allowed
- 1 Apply IMSI attach

A.5. Channel Type

BCCH Broadcast Control Channel, Signalling
PDTCH GPRS Packet Channel
SDCCH Stand-alone Dedicated Control Channel
TCH/F Traffic Channel, Full Rate
TCH/H Traffic Channel, Half Rate

A.6. Channel Mode

- 0 Signalling only
- 1 Speech full rate version 1 (Full Rate)
- 2 Data 14.4 kbit/s full rate
- 3 Data 9.6 kbit/s full rate
- 4 Data 4.8 kbit/s full rate
- 5 Data 2.4 kbit/s full rate
- 6 Speech full rate version 2 (Enhanced Full Rate)

A.7. Frequency Hopping

- 0 Single RF channel
- 1 RF hopping channel

A.8. Ciphering

- 0 No ciphering
- 1 Start ciphering

A.9. Page Mode

- 0 Normal paging
- 1 Extended paging
- 2 Paging reorganization

A.10. GPRS Network Mode of Operation

Handling of paging in the GPRS network.

- 1 Mode I: All paging on GPRS channels; Gs signalling interface present
- 2 Mode II: All paging on PCH; no Gs
- 3 Mode III: All circuit-switched paging on PCH, all packet-switched paging on PPCH; no Gs

A.11. GPRS Attach Fail Cause

- 3 Illegal MS
- 6 Illegal ME
- 7 GPRS services not allowed
- 8 GPRS services and non-GPRS services not allowed
- 11 PLMN not allowed
- 12 Location area not allowed
- 13 Roaming not allowed in this location area
- 96 Invalid mandatory information
- 99 IE non-existent or not implemented
- 100 Conditional IE error
- 111 Protocol error, unspecified
- T3310 Fifth expiry of T3310 timer (MS side)

A.12. GPRS Detach Type

If GPRS Detach Cause = 1 (MS initiated)

- 0 Normal
- 1 PowerOff

else

- 1 Reattach required
- 2 Reattach NOT required
- 3 IMSI detach after VLR failure

A.13. GPRS Detach Cause

- 1 MS initiated
- 2 IMSI unknown in HLR
- 3 Illegal MS
- 6 Illegal ME
- 7 GPRS services not allowed
- 8 GPRS services and non-GPRS services not allowed
- 10 Implicitly detached
- 11 PLMN not allowed
- 12 Location area not allowed
- 13 Roaming not allowed in this location area

A.14. Activate PDP Context Fail Cause

- 26 Insufficient resources
- 27 Missing or unknown APN
- 28 Unknown PDP address or PDP type
- 29 User authentication failed
- 30 Activation rejected, unspecified
- 31 Activation rejected by GGSN
- 32 Service option not supported
- 33 Requested service option not subscribed
- 34 Service option temporarily out of order
- 35 NSAPI already used
- 95 Semantically incorrect message
- 96 Invalid mandatory information
- 97 Message type non-existent or not implemented
- 98 Message type not compatible with the protocol state
- 99 Information element non-existent or not implemented
- 111 Protocol error, unspecified
- T3380 Fifth expiry of T3380 timer (MS side)

A.15. PDP Context Deactivation Cause

- 25 LLC or SMDCP failure
- 26 Insufficient resources
- 36 Regular PDP context deactivation
- 37 QoS not accepted
- 38 Network failure
- 39 Reactivation requested
- T3390 Fifth expiry of T3390 timer (MS side)

A.16. RA Updating Fail Cause

- 3 Illegal MS
- 6 Illegal ME
- 7 GPRS services not allowed
- 9 MS identity cannot be derived by the network
- 10 Implicitly detached
- 11 PLMN not allowed
- 12 Location area not allowed
- 13 Roaming not allowed in this location area
- 96 Invalid mandatory information
- 99 IE non-existent or not implemented
- 100 Conditional IE error
- 111 Protocol error, unspecified
- T3330 Fifth expiry of T3330 timer (MS side)

Index

A

Attach/Detach 12, 41

Auto Answer function 22

B

BA List data view (No. 8) 15

barred cells, accessing of 37

Base Station Identity Code 8, 10

BS-AG-BLKS-RES 12

BSIC 8, 10

BS-PA-MFRMS 12

C

C1 11

C2 11

CA List data view (No. 7) 15

Call Re-establishment 14

CB 14

CCCH Configuration 12, 41

CCCH Group 14

Cell Barred 14, 37

Cell Control menu 33

Cell Global Identity 9

Cell Id (Cell Identity) Format 23

Cell Identity 9, 11

Cell Reselection Criterion (C2) 11

CGI 9

Channel Mode 8, 13, 42

Channel Type 13, 42

CI 9, 11

 presentation format 23

Ciphering 42

Ciphering Mode 8, 13

Ciphering On/Off 13

Clear Log 26

Country Code 25

Current Channel 12
Current Channel data view (No. 5) 12

D

data rate 13
data views 6
default phone display 3
Disable HO 34
Downlink Signalling Counter 8
DSC 8
DTX Uplink 37

E

Error Display 24
Event Settings (sound and logging settings for individual events) 27
events 26

- event log 26
- list of event types 29
- sounds for 26
 - sound types 29
- structure of event log item 26

Events menu 26

F

FER 8

- presentation format 24

Final Assembly Code 25
Force HO 17, 34
Frame Erasure Rate 8
Frequency Hopping 13, 42
Full/Sub values (for RxLev, RxQual, and FER) 24

G

GPRS block decode error rate 16

- presentation of 24

GPRS block resend rate 16

- presentation of 24

GPRS data transfer rate 16
GPRS data view (No. 9) 16
GPRS Network Mode of Operation 16

GPRS timeslots 16
GPRS, total data volume transferred 17

H

help views 6
hopping channels 8, 10, 11
Hopping Sequence Number 13
HSN 13

I

Identification Number 25
Ignore TMSI 22
IMEI 25
IMSI 25
Info menu 25
invalid parameters 6

L

LAC 9, 11
 presentation format 23
LLC protocol 16
Location Area Code 9, 11
Lock ARFCN (idle mode) 17, 33
Lock Band 35
Logical Channel 8, 10, 11

M

MAIO 13
MCC 9
Measure Mode 24
menus 4, 20
 general 20
 navigating in 20, 21
 Quick menu 17
Messages (displaying of) 22
MNC 9
Mobile Allocation Index Offset 13
Mobile Country Code 9
Mobile Network Code 9
Mobile Paging Subgroup 14
Mode (event sound and logging on/off) 27

MS-TXPWR-MAX-CCH 12

Multiband (modification of Multiband Reporting parameter) 36

N

Neighbor Cell BCCH 10, 11

neighbor cells 10, 11

Network Code 25

Network Mode of Operation 16

NMO 16

P

Packet TMSI 14

Page Mode 42

paging 14

Paging and RACH data view (No. 6) 14

Paging Block Index 14

Paging Channel 14

Paging Multiframe Group 14

parameter values 40

Path Loss Criterion (C1) 11

Pocket menu 4

 overview 20

Power Display 23

PTMSI 14

Q

Quick menu 17

R

RACH 14

RACH bursts

 Establishment Cause/Random 14

 number of 14

Radio Link Timeout 8

Radio Resource Cause 41

Random Access Channel 14

Receive Bit Error Rate 8

Received Signal Strength 8, 10, 11

Reject Cause 40

Reset (cell control settings) 33

retransmissions, max number of 14

- RLC protocol 16
- RLT 8
- Routing Area Code 9
- RxLev 8, 10, 11
 - presentation format 23
- RXLEV-ACCESS-MIN 12
- RxQual 8
 - presentation format 24

S

- SDCCH 8
- Serial Number (of phone) 25
- Serving + Neighbors data views
 - BSIC and RxLev (No. 2) 10
 - C1 and C2 (No. 3) 11
 - LAC, CI, and RxLev (No. 4) 11
- Serving Cell BCCH 8, 10, 11
- Serving Cell data view (No. 1) 8
- Settings menu 21
- Sound Adjust (choice of event sound) 28
- sounds for events 26
- speech codec 13
- Stand-alone Dedicated Control Channel 8
- Subchannel Number 13
- support contact information 38

T

- T3212 12
- TCH 8
- Temporary Mobile Subscriber Identity 14
- throughput (GPRS) 16
- Time Log 25
- Timeslot Number 8
- timeslots used by GPRS 16
- Timing Advance 8
- TMSI 14
 - ignoring 22
- Traffic Channel 8
- Transmit Power 8

TxPower presentation format 23

Type Approval Code 25

V

View Log 26

W

warranty conditions 38

What's New in TEMS Pocket R520m 1.1? 2

What's New in TEMS Pocket R520m? 1

TEMS™ Optimization Solutions – the number one choice for operators worldwide. For every stage of a wireless network's life cycle and supporting all major technologies, the TEMS portfolio helps operators maximize their Quality of Service and get the most out of their network investment.

Ericsson's experience and technological leadership give network operators the strong partnership they need and a commitment to quality, accuracy, and success.

TEMS Optimization Solutions – *Making Wireless Better.*

Ericsson is the leading communications supplier, combining innovation in mobility and Internet in creating the new era of Mobile Internet. Ericsson provides total solutions covering everything from systems and applications to mobile phones and other communications tools. With more than 100,000 employees in 140 countries, Ericsson simplifies communications for customers all over the world.