SOFTWARE DEVELOPMENT

MMI for OT1xx Test tool

Ref. :   SCT TMO LOG SPEC 163   Rev :   B   2002-02-26

Sec.Ref. :

HISTORICAL OF REVISION

Revision	Date	Author	Object of revision
A	2002-02-26	SAGEM S.A.	Creation
B	2003-01-22	SAGEM S.A	

For body worn operation, this phone has been tested and meets FCC RF exposure guidelines
when used with an accessory that contains no metal and that positions the handset
a minimum of 1.5 cm from the body.
Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

SUMMARY

Ref. :   SCT TMO LOG SPEC 163
Revision :   B
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Date :   2003-01-22

1. OBJECT

1.1 INTRODUCTION.

The purpose of this document is to define the MMI (Machine-Man Interface) Trace specification for the OT product line, some feature depends on the mobile .

For each category of the trace menu, this document describes, with graphical examples, the possible choices that are offered to the user, along with the keypad controls used to browse through the successive screens, to enter parameters and to modify the settings. The available categories are as follow:

- MS Info: gives information related to the Mobile Station,

- Network Info: displays various parameters concerning the serving and neighbouring cells,

- GPRS Info *(only available with OT supporting GPRS)*: displays parameters related to packet data service,

- SIM Info: allows to monitor or modify information stored in the SIM,

- Forcing Functions: these functions allow to manually modify the behavior of the mobile and of the network,

- BCCH Scanning: performs RF power measurements on the whole band and searches for BCCH channels,

- QoS Info: displays parameters related to the provided Quality of Service,

- Serial Link Setup: sets up the serial link parameters.

Please note that the screens presented in this document are not contractual.

1.2 REFERENCE ELEMENTS

[03.64] : Serial link trace interface specification for trace mobile M42 (OT M42 STB 004E)

[03.64] : Digital cellular telecommunications system (Phase 2+) ; General Packet Radio Service (GPRS) ; Overall Description of the GPRS radio interface ; Stage 2 (Release 1997)

[04.04] : Digital cellular telecommunications system (Phase 2+) ; Layer 1 ; General requirements (Release 1997)

[04.07] : Digital cellular telecommunications system (Phase 2+) ; Mobile radio interface signalling layer 3 ; General aspects (Release 1997)

[04.08] : Digital cellular telecommunications system (Phase 2+) ; Mobile radio interface layer 3 specification (Release 1997)

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[04.60] : Digital cellular telecommunications system (Phase 2+) ; General Packet Radio Service (GPRS) ; Mobile Station (MS) - Base Station System (BSS) interface ; Radio Link Control/ Medium Access Control (RLC\MAC) protocol (Release 1997)

[04.64] : Digital cellular telecommunications system (Phase 2+) ; General Packet Radio Service (GPRS) ; Mobile Station (MS) - Serving GPRS Support Node (SGSN) - Logical Link Control (LLC) layer specification (Release 1997)

[04.65] : Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Subnetwork Dependent Convergence Protocol (SNDCP).

[04.65] : Digital cellular telecommunications system (Phase 2+); Multiplexing and multiple access on the radio path

[04.65] : Digital cellular telecommunications system (Phase 2+); Radio transmission and reception (Release 1997)

[04.65] : Digital cellular telecommunications system (Phase 2+); Radio subsystem link control (Release 1997)

[04.64] : Digital cellular telecommunications system (Phase 2+); General Packet Radio Service (GPRS); Mobile Station (MS) supporting GPRS (Release 1997)

[04.64] : Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface

2. TRACE FUNCTIONS

2.1 TRACE MENU

The trace menu MINFO is accessible with Menu # (scroll push-buttons: ∧ or ∨ and #)

Up to 8 choices are available in this menu :

- **1** MS Info

- **2** Network

- **3** GPRS Info*)*

- **4** SIM Info

- **5** Forcing Functions

- **6** BCCH Scanning

- **7** QoS Info

- **8** Serial Link Setup

To browse through the successive menus, press the scroll push-buttons: **^** Next menu and **v** Previous menu.
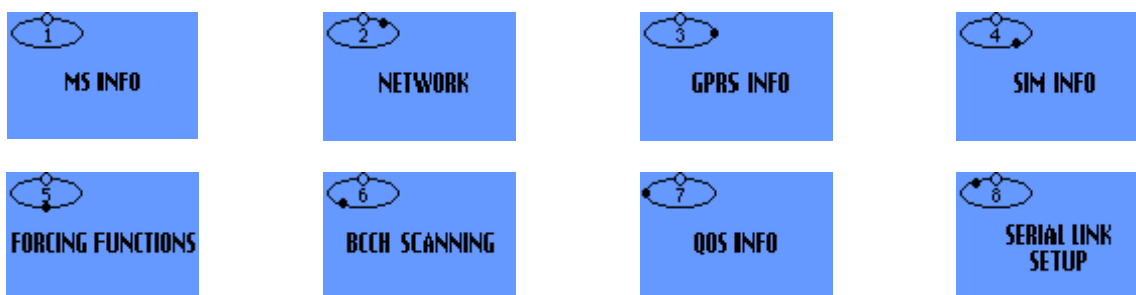
2.2 UPDATE OF THE TRACED INFORMATION

The traced information are updated in real time at each event by the RHM, for example at the incoming of PSI or SI. There is also no need of polling from the RHM to the MS.

2.3 MS INFO

This menu contains 3 entries:

- IMEI

- TMSI/Ciphering

- GPRS Class The scroll push-buttons **^** and **v** are used to browse through the menu.
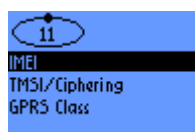
2.3.1 IMEI

This sub-menu gives the IMEI of the mobile and the software version.

2.3.2 TMSI/GSM Ciphering

This sub-menu gives the following information:

- TMSI: 4 bytes displayed in hexadecimal

- GSM Ciphering activated: Yes or No

- GSM Ciphering algorithm: A5/1, A5/2, A5/3, A5/4, A5/5, A5/6 or A5/7, as defined in [04.08].
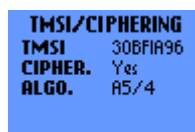
2.3.3 GPRS Class

This sub-menu gives the following information:

- MS Class: gives the Mobile Station GPRS Class (B or C)

- Multislot: MS class for multislot capability, as defined in [05.02]. Between parenthesis is indicated the number of timeslots in the Downlink and in the Uplink.
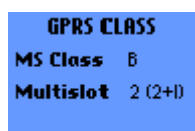
2.4 NETWORK

This function is used to display the values of the main parameters received from the serving cell and six neighbouring cells, in standby mode (IDLE) as well as in dedicated mode .

You can dial while in the trace screens by keying the digits of the remote number followed by the ℓ key. After starting the call, the mobile display will automatically return to trace screen. You can also call the last number dialed by pressing the ℓ key.

Data are displayed in 2 screens for each cell, i.e. up to 14 successives screens.

To browse through the successives screens, press the scroll push-buttons: **^** Next screen and **v** Previous screen.

From these screens, you can display additional screens by pressing the **Ok** key.

When the reception conditions prevent decoding of some information received from the network, the values of the corresponding parameters are replaced by "-".

2.4.1 SERVING CELL Main screen in IDLE mode

This screen displays synthetically the values of the main parameters received from the network, concerning the serving cell:
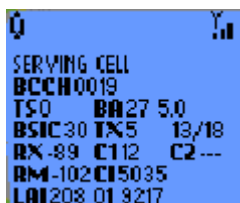
   - BCCH :
       Current ARFCN of the BCCH (channel number).

   - TS : 0 to 7
       Current TIME SLOT number (TS is 0 in idle mode).

   - BA : nm   x.y
       Number of elements in the BA list.
       nm 1 to **32**
              CCCH configuration on BCCH and PCH:
       x   **2** to **9**
              Current value of BS_PA_MFRMS
       y   **0, 1, 2, 4** or **6**
              Current value of CCH_CONF

   - BSIC : ab
       Current value of the BSIC (Base Station Identity Code) for the serving cell:
       a   **0** to **7**
               Digit corresponding to the operator code (NCC).
       b   **0** to **7**
               Digit corresponding to the cell colour code (BCC).

   - TX :
       Current value of MS_TXPWR_MAX_CCH for the serving cell.
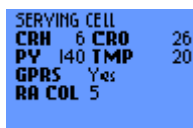
- **cd/md**
  Downlink signalling counter indicator with :
  cd : current downlink signalling counter
  md : maximum downlink signalling counter

- RX : -110 to -11 dBm
  Current value of RX_LEV_SERVING_CELL for the BCCH of the serving cell.

- C1 : -92 to 127
  Current value of the criterion C1 for the serving cell.

- C2 : -92 to 127
  Current value of the cell reselection criterion C2 for the serving cell if the
  network allows to calculate it.

- RM : -110 to -46 dBm
  Current value of RX_LEV_ACCES_MIN for the serving cell in dBm.

- CI : abcde
  Current value of the CI (Cell Identity) on 4 hexadecimal digits.

- LAI : abc de fghij
  Current value of the Location Area Identity:
  abc   Country code on 3 digits (MCC).
  de   Operator code on 2 digits (MNC).
  fghij Location area code on 5 decimal digits (LAC).

2.4.2 SERVING CELL Second screen in IDLE mode

This screen gives additional GSM Cell Reselection information along with information about the GPRS capability of the Serving Cell:

- CRH: 0 to 14 dB, 2 dB steps
  Current value of CELL RESELECT HYSTERESIS for the Serving cell

- CRO: 0 to 126 dB, 2 dB steps
  Current value of CELL RESELECT OFFSET for the Serving cell

- PY: 20 to 620 s, 20 s steps. None if no Temporary Offset is used
  Current value of PENALTY TIME for the Serving Cell.

- TMP: 0 to 60 dB, 10 dB steps. Inf for Infinite Temporary Offset
  Current value of TEMPORARY OFFSET for the Serving Cell

- GPRS: Yes or No
  Indicates whether the Serving Cell supports GPRS or not

- RA COL: 0 to 7
  Current value of RA Colour for the Serving Cell (only valid if the Serving Cell supports GPRS)

2.4.3 NEIGHBOURING CELL Main screen in IDLE mode

The six following screens of the NETWORK function give the values of the main parameters received from the BCCH of the six neighbouring cells.

The information concerning a neighbouring cell is displayed on one screen :
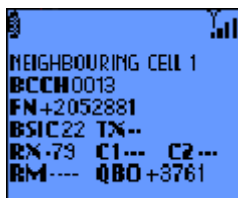
- **NEIGHBOURING CELL 1 to 6**
> Current order number of the cell in the list of neighbours.

- **BCCH :**
> BCCH ARFCN (channel number) of the neighbouring cell.

- **FN : +abcdefg**
> Frame offset between the neighbouring cell and the serving cell.

- **BSIC : ab**
> Current value of the BSIC (Base Station Identity Code) for the neighbouring cell:
> **a**   **0** to **7**
> > Digit corresponding to the Network Colour Code (NCC).
> **b**   **0** to **7**
> > Digit corresponding to the Base Colour Code (BCC).

- **TX** :
> Current value of MS_TXPWR_MAX_CCH for the neighbouring cell.

- **RX : -110 to -11 dBm**
> Current value of RX_LEV_NCELL for the BCCH of the neighbouring cell in dBm.

- **RM : -110 to -46 dBm**
> Current value of RX_LEV_ACCESS_MIN for the neighbouring cell in dBm.

- **C1 : -92 to 127**
> Current value of the criterion C1 for the neighbouring cell.

- **C2 : -92 to 127**
> Current value of the cell reselection criterion C2 for the neighbouring cell if the network allows to
calculate it.

- **RM : -110 to -46 dBm**
> Current value of RX_LEV_ACCESS_MIN for the neighbouring cell in dBm.
- **QBO: +hijk**
> Quarter Bit Offset: finer complementary offset expressed in number of quarter bit between the neighbouring cell and the serving cell.

2.4.4 NEIGHBOURING CELL Second screen in IDLE mode

This screen gives additional GSM Cell Reselection information along with information about the GPRS capability of the Neighbouring Cell:

- CRH: 0 to 14 dB, 2 dB steps
> Current value of CELL RESELECT HYSTERESIS for the Neighbouring cell

- CRO: 0 to 126 dB, 2 dB steps
> Current value of CELL RESELECT OFFSET for the Neighbouring cell

- PY: 20 to 620 s, 20 s steps. None if no Temporary Offset is used
> Current value of PENALTY TIME for the Neighbouring Cell

- TMP: 0 to 60 dB, 10 dB steps. Inf for Infinite Temporary Offset
> Current value of TEMPORARY OFFSET for the Neighbouring Cell

- GPRS: Yes or No
> Indicates whether the Neighbouring Cell supports GPRS or not

- RA COL: 0 to 7
> Current value of RA Colour for the Neighbouring Cell. Only valid if the Neighbouring Cell supports GPRS

2.4.5 SERVING CELL screen in DEDICATED mode

This screen supplies synthetically the values of the main parameters received from the network, concerning the serving cell. The 📞 icon indicates that the mobile is in dedicated mode.

- TCH : cha or **HP**
> Current TCH ARFCN (Traffic channel number). When the network uses FREQUENCY HOPPING, the channel number is replaced by the indication HP.

- TS : 0 to **7**
> Current TIME SLOT number.

- TA : 0 to 63
> Current value of the TIMING ADVANCE expressed in number of bit times.
> To convert the displayed value into μs, simply multiply it by 3.69.

- DTX : Y or **N**
> The DTX (Discontinuous Transmission) mode is used for uplink Yes (**Y**) or no (N).

- **BSIC : ab**

Current value of the BSIC (Base Station Identity Code) for the serving cell:

a   **0** to **7**
Digit corresponding to the Network Colour Code (NCC).

b   **0** to **7**
Digit corresponding to the Base Colour Code (BCC).

- PL :
Current value of the POWER_LEVEL.

- cr/mr
Radio link timeout indicator :
cr : current radio link timeout
mr : maximum radio link timeout.

- RX : -110 to **-11 dBm**
Current value of RX_LEV_SERVING_CELL for the TCH of the serving cell in dBm.

- RQ : 0 to **7**
Current value of the RX_QUAL.

- SD/TC
Type of current channel.
When establishing the call, SDCCH/8 or 4 is displayed for a short time to indicate that the current channel is the SDCCH/8 or 4. Then is displayed e TCHF or TCHH depending on the coding rate (FR or HR).

- **RXBCCH** : **-110** to **-11**
Current value of RX_LEV_SERVING_CELL for the BCCH of the serving cell during a call in dBm.

- CI : abcde
Current value of the CI (Cell Identity) on 5 decimal digits.

- **RFBCCH** :
BCCH ARFCN (channel number) used for the current cell.

2.4.6 NEIGHBOURING CELL screen in DEDICATED mode

The six following screens of the NETWORK function give the values of the main parameters on measurement reports.

The information concerning a neighbouring cell is displayed on the following screen. The 📞 icon indicates that the mobile is in dedicated mode.

- NEIGHBOURING CELL 1 to **6**
Current order number of the cell in the list of neighbours.

- CH : 1 to **124**
RF BCCH channel number (CHANNEL) of the neighbouring cell.

- FN : +abcdefg
> Frame offset between the neighbouring cell and the serving cell.

- BSIC : ab
> Current value of the BSIC (Base Station Identity Code) for the neighbouring cell:
> **a**   **0** to **7**
>> Digit corresponding to the operator code.
> **b**   **0** to **7**
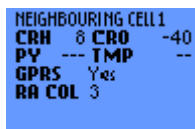>> Digit corresponding to the cell colour code.

- QBO: +hijk
> Quarter Bit Offset : finer complementary offset expressed in number of quarter bit between the neighbouring cell and the serving cell.

- RX : -110 to **-11 dBm**
> Current value of RX_LEV_NCELL for the BCCH of the neighbouring cell in dBm.

2.4.7 SERVING CELL Main screen in PBCCH mode

This screen displays synthetically the values of the main parameters received from the network, concerning the serving cell:
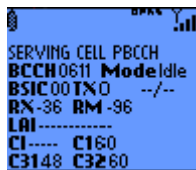
- BCCH :
> BCCH channel number..

- MODE : Trans or Idle
> 'Trans' if the MS **trans**fers data through the GPRS. Else Idle mode

- BSIC : ab
> Current value of the BSIC (Base Station Identity Code) for the serving cell:
> **a**   **0** to **7**
>> Digit corresponding to the Network Color Code.
> **b**   **0** to **7**
>> Digit corresponding to the Base Color code.

- TX :
> Current value of GPRS_MS_TXPWR_MAX_CCH for the serving cell.

- **cd/md**
> Downlink signalling counter indicator with :
> cd : current downlink signalling counter
> md : maximum downlink signalling counter

- RX : -110 to -11 dBm
> Current value of RX_LEV_SERVING_CELL for the PBCCH of the serving cell.

- RM : -110 to -46 dBm
> Current value of GPRS_RX_LEV_ACCES_MIN for the serving cell in dBm.

- LAI : abc de fghij
> Current value of the Location Area Identity:

abc   Mobile Country Code on 3 digits (MCC).
de   Mobile Network Code on 2 digits (NCC).
fghij   Location Area Code on 5 decimal digits (LAC).

- CI : abcde
> Current value of the CI (Cell Identity) on 4 hexadecimal digits.

- C1 : -92 to 127
> Current value of the criterion C1 for the serving cell.

- C31 : -
> Current value of the criterion C31 for the serving cell.

- C32 : -
> Current value of the criterion C32 for the serving cell.

2.4.8 SERVING CELL Second screen in PBCCH mode

This screen gives additional GSM Cell Reselection information along with information about the GPRS capability of the Serving Cell:
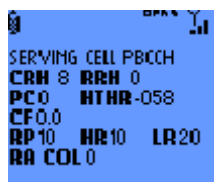
- CRH: 0 to 14 dB, 2 dB steps
> Current value of GPRS CELL RESELECT HYSTERESIS for the Serving cell

- RRH: 0 to 14 dB, 2 dB steps.
> Current value of GPRS RA RESELECT HYSTERESIS for the Serving Cell

- PC: 0 to 7
> Current value of Priority Class for the Serving Cell

- HTHR: -110dB to -48dB, 2dB steps
> Current value of HCS THR (signal level threshold) for the Serving Cell

- CF: x.y
> x: 0 or 1.
> Current value of the C31_HYST flag of the Serving Cell.
> y: 0 or 1.
> Current value of C32_QUAL flag of the Serving Cell.

- RP: 1 to 16
> Current value of PSI1 Repeat period for the Serving Cell

- HR: 1 to 16
> Current value of PSI High Rate for the Serving Cell

- LR: 0 to 63
> Current value of PSI Low Rate for the Serving Cell

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- RA COL: 0 to 7
> Current value of RA Color for the serving Cell. Only valid if the Cell supports GPRS.

2.4.9 NEIGHBOURING CELL first screen in PBCCH mode

The following screens of the NETWORK function give the values of parameters received from the PBCCH of the six neighbours cells.
The information concerning a neighbour cell is displayed on two screens :
•

First screen description:
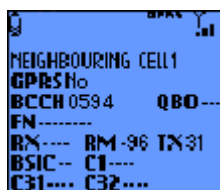
- NEIGHBOURING CELL 1 to 6
> Current order number of the cell in the list of neighbours.

- GPRS:
> **"n=No"**: No GPRS Information **"BCCH":** GPRS but no PBCCH detected
> **"GPRS PBCCH":** GPRS with a PBCCH.

**- PBCCH :**
> BCCH (channel number) of the cell.

- QBO: +hijk
> Quarter Bit Offset: finer complementary offset expressed in number of quarter bit between the neighbouring cell and the serving cell.

- FN : +abcdefg
> Frame offset between the neighbouring cell and the serving cell.

- RX : -110 to -11 dBm
> Current value of RX_LEV_NCELL for the BCCH or PBCCH of the cell in dBm.

- RM : -110 to -46 dBm
> Current value of GPRS_RX_LEV_ACCESS_MIN for the cell in dBm, if the cell has a PBCCH. Else current value of RX_LEV_ACCESS_MIN.

- TX :
> Current value of GPRS_MS_TXPWR_MAX_CCH for the neighbouring cell, if the cell has a PBCCH. Else current value of MS_TXPWR_MAX_CCH.

- BSIC : ab
> Current value of the BSIC (Base Station Identity Code) for the neighbouring cell:
> **a**   **0** to **7**
> > Digit corresponding to the Mobile Coutry Code (MCC).
> **b**   **0** to **7**
> > Digit corresponding to the Mobile Network Code (MNC).

- C1 : -92 to 127
> Current value of the criterion C1 for the cell.

- C31 : -
Current value of the criterion C31 for the cell.

- C32 : -
Current value of the criterion C32 for the cell.

2.4.10 NEIGHBOURING CELL Second screen in PBCCH mode

This screen gives additional GSM Cell Reselection information along with information about the GPRS capability of the Neighbouring Cell:
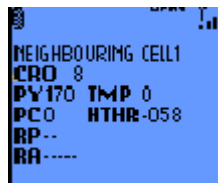
- CRO: 52 to +48 dB, 2 dB steps between -12 to +12 dB, and 4 dB step between -52 and -12dB and between +12 and +48 dB.0.
Current value of GPRS RESELECT OFFSET for the Neighbouring cell

- PY: 20 to 620 s, 20 s steps. None if no Temporary Offset is used
Current value of PENALTY TIME for the Neighbouring Cell

- TMP: 0 to 60 dB, 10 dB steps. Inf for Infinite Temporary Offset
Current value of TEMPORARY OFFSET for the Neighbouring Cell

- PC: 0 to 7
Current value of Priority Class for the Serving Cell.

- HTHR: -110dB to -48dB, 2dB steps
Current value of HCS THR (signal level threshold) for the cell.

- RP: 1 to 16
Current value of PSI1 Repeat period for the cell

- RA: "serving" or "other"
serving: if the Routing Area of the neighbouring cell is the same as the Serving Cell.

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2.4.11 TCH Hopping features in Dedicated mode

It is the 8th screen in dedicated mode. I There may be up to 3 additional screens for the hopping frequencies.

These screens give the values of certain additional parameters concerning frequency hopping in the cell and the list of the hopping frequencies if any. When there are more than 24 hopping frequencies, pressing the **Ok** key allows to display the next 24 hopping frequencies. If there are more than 48 frequencies, pressing a second time the **Ok** key allows to display the last hopping frequencies.

- MAIO: 0 to 63

     Mobile allocation index offset.

- HSN: 0 to 63

     Hopping sequence number of the dedicated channel.

- FREQ_NB: 0 to 1023

     number of hopping frequencies for dedicated channel.

- MODE: Random or Cyclic

     Type of the frequency hopping of the dedicated channel.

2.4.12 PBCCH frequency screens in PBCCH mode with hopping

The first screen is the 15th screen and the other(s) are just after. There may be up to 3 additional screens for the hopping frequencies.

These screens give the values of parameters concerning frequency and the list of the hopping frequencies. When there are more than 24 hopping frequencies, pressing the **Ok** key allows to display the next 24 hopping frequencies. If there are more than 48 frequencies, pressing a second time the **Ok** key allows to display the last hopping frequencies.

- TS : 0 to 7

     TS of the PBCCH.

- TSC: 0 to 7

     Training sequence code.

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- PCC: 0 to 7
> Current value of the BS_PCC_CHANS, the number of PCCCH description blocks occurrences.

- BS BLKS: x.y.z
> x: 1 to 4
> Current value of BS PBCCH BLKS for the Serving Cell
> y: 0 to 12
> Current value of BS PAG BLKS RES for the Serving Cell
> z: 0 to 12
> Current value of BS PRACH BLKS for the Serving Cell

- HOPP: "direct enc 1", "direct enc 2" or "indirect enc".
> Type of the frequency hopping.

- MAIO: 0 to 63
> Mobile allocation index offset.

- HSN: 0 to 63
> Hopping sequence number.

- FREQ_NB: 0 to 1023
> Number of hopping frequencies for the PBCCH channel.

2.4.13 PBCCH frequency screens without hopping

It is the 15th in the PBCCH mode, when the PBCCH has no hopping frequencies. This screen gives the values of certain additional parameters concerning the PBCCH.

- ARFCN: 0 to 1023
> Absolute Radio Frequency channel number of the PBCCH .

- TS : 0 to 7
> TS of the PBCCH.

- PCC: 0 to 7
> Current value of the BS_PCC_CHANS, the number of PCCCH description block occurrence.

- TSC: 0 to 7
> Training sequence code.

- BS BLKS: x.y.z
> x: 1 to 4
> Current value of BS PBCCH BLKS for the Serving Cell
> y: 0 to 12
> Current value of BS PAG BLKS RES for the Serving Cell
> z: 0 to 12
> Current value of BS PRACH BLKS for the Serving Cell

2.4.14 Network summary screen

Pressing the **Ok** key from one of the previous screens displays a network summary screen pressing the **C** key returns to the previous screen.

The first line contains information about the serving cell. The next six lines give information about the six neighbouring cells.

If the mobile is in Idle mode. The information provided is BCCH, Rx level, BSIC, C1 and C2 :

If the mobile is in Dedicated mode. The information provided are BCCH, Rx level and BSIC :

If the mobile is in packet idle mode. The information provided is BCCH, Rx level, BSIC, C1, C32 and GPRS information:

The GPRS information on the cell are coded on 1 character:
*   **P**: GPRS with **P**BCCH.
*   **G**: **G**PRS without PBCCH.
*   **' '** : GSM (No GPRS).

2.5 GPRS INFO

This menu gives access to GPRS-related parameters. It contains 7 entries:

*   Mobility Info

*   PDP Context

*   Data Transfer Info

*   Ciphering Info

*   Measurement Info

*   Paging Info

*   Packet Bursts Info

The scroll push-buttons **^** and **v** are used to browse through the menu.

2.5.1 Mobility Info

This screen gives information related to mobility:

- **Atch**: Attach State

    - **N**: not GPRS-attached

    - **I**: GPRS-attached while IMSI attached

    - **C**: combined-attached

    - **G**: GPRS only attached

    -

- **GMM**: GMM Service State

    - **SB**: Stand-By

    - **I**: Idle

    - **R**: Ready

- **PTMSI**: Packet Temporary Mobile Station Identifier. Coded on 4 bytes, displayed in hexadecimal

- **TLLI**: Temporary Link Level Identifier. Coded on 4 bytes, displayed in hexadecimal

- **RAC**: Routing Area Code. Coded on 1 byte, displayed in hexadecimal

- **NC**: Network Control Order

    - **NC0**: MS controlled cell re-selection, no measurement reporting

    - **NC1**: MS controlled cell re-selection, MS sends measurement reports

    - **NC2**: Network controlled cell re-selection, MS sends measurement reports

- **T3314**: value of the GMM READY timer. **0 to 11160 s**

E

2.5.2 PDP Context

These screen give information about the parameters that are negotiated between the network and the mobile station at PDP Context activation. The scroll push-buttons **^** and **v** are used to browse through the successive screens. The total number of screens depends on the maximum allowed number of concurrent PDP Context. There are 2 screens for each PDP context.

2.5.2.1 PDP Context 1st screen

- **SM**: SM Service State for the PDP Context. If SM = INA or ACP, all the other parameters of both screen are invalid for this PDP Context (except for the NSAPI parameter which is also valid when in Active Pending SM state)

  - **INA**: Inactive

  - **ACP**: Active Pending

  - **INP**: Inactive Pending

  - **ACT**: Active

- **NSAPI**: Network Service Access Point Identifier for the PDP Context. **5** to **15**

- **LLC SAPI**: LLC Service Access Point Identifier for the PDP Context. **3**, **5**, **9** or **11**

- **RAD PR**: Radio Priority for the PDP Context. Ranges from **1** (highest priority) to **4** (lowest priority)

- **IP**: IP address associated to the PDP Context. **4** bytes displayed in decimal

2.5.2.2 PDP Context 2nd screen

- **DLY**: Delay Class. Ranges from **1** to **4** (best effort)

- **RLY g-l-r-p**: Reliability Class

  - **g**: GTP mode (**A**: Acknowledged, **U**: Unacknowledged)

  - **l**: LLC mode (**A**: Acknowledged, **U**: Unacknowledged)

  - **r**: RLC mode (**A**: Acknowledged, **U**: Unacknowledged)

  - **p**: data protection (**P**: Protected Data, **U**: Unprotected Data)

- **PRE**: Precedence Class
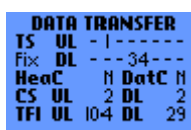
- ▪ **High**: High priority

- ▪ **Normal**: Normal priority

- ▪ **Low**: Low priority

- **MEAN**: granted mean throughput. **100 to 50 000 000 bytes/hour**

- **PEAK**: peak throughput. **1000 to 256 000 bytes/s**

2.5.3 Data Transfer Info

These screen give information about the current data transfer.

2.5.3.1 Data Transfer 1st Screen

- **TS**: below the TS label is displayed the Timeslot Allocation Type:

- ▪ **Dyn**: Dynamic allocation

- ▪ **Fix**: Fixed allocation

- ▪ **No**: No allocation

- on the right side of the TS label are displayed the Uplink and Downlink timeslot allocation

- ▪ **UL**: Uplink Timeslot allocation. A dash ("**-**") indicates an unallocated timeslot, a digit indicates an allocated timeslot (and also indicates its timeslot number)

- ▪ **DL**: Downlink Timeslot allocation. A dash ("**-**") indicates an unallocated timeslot, a digit indicates an allocated timeslot (and also indicates its timeslot number)

- **HeaC**: SNDCP Header Compression

- ▪ **Y**: SNDCP Header Compression used

- ▪ **N**: SNDCP Header Compression not used

- **DatC**: SNDCP Data Compression

- ▪ **Y**: SNDCP Data Compression used

- ▪ **N**: SNDCP Data Compression not used

- **CS**: Coding Scheme. **1** to **4**

- ▪ **UL**: Uplink Coding Scheme

- ▪ **DL**: Downlink Coding Scheme

- **TFI**: Temporary Flow Identifier. Coded on 7 bits, displayed in decimal

- ▪ **UL**: Uplink Temporary Flow Identifier

- ▪ **DL**: Downlink Temporary Flow Identifier

2.5.3.2 Data Transfer 2nd Screen (LLC)

This screen displays informationabout data transfer at the LLC layer:

```
LLC DATA TRANSFER
Mode     Unack
TP  UL 284 DL 1547
Ret UL  0% DL  0%
Tot UL       325
    DL       802
```

- • **Mode**: LLC transfer mode

  - ▪ **Ack**: Acknowledged

  - ▪ **Unack**: Unacknowledged

- • **TP**: LLC throughput, in **byte/s** (see 4.1.2 for more details)

  - ▪ **UL**: Uplink LLC throughput

  - ▪ **DL**: Downlink LLC throughput

- • **Ret**: LLC retransmitted frame rate, in **percentage** (only in Acknowledged LLC mode, see 4.1.1 for more details)

  - ▪ **UL**: Uplink LLC retransmitted frame rate

  - ▪ **DL**: Downlink LLC retransmitted frame rate

- • **Tot**: total LLC frames transmitted (see 4.1.3 for more details)

  - ▪ **UL**: total Uplink LLC frames transmitted

  - ▪ **DL**: total Downlink LLC frames transmitted

2.5.3.3 Data Transfer 3rd Screen (RLC)

This screen displays informationabout data transfer at the RLC layer:

```
RLC DATA TRANSFER
Mode     Ack
TP  UL 593 DL 2073
Ret UL 17% DL 19%
Tot UL      2520
    DL      8412
```

- • **Mode**: RLC transfer mode

  - ▪ **Ack**: Acknowledged

  - ▪ **Unack**: Unacknowledged

- • **TP**: RLC throughput, in **byte/s** (see 4.2.2 for more details)

  - ▪ **UL**: Uplink RLC throughput

- **DL**: Downlink RLC throughput

- **Ret**: RLC retransmitted block rate, in **percentage** (only in Acknowledged RLC mode, see 4.2.1 for more details)

    - **UL**: Uplink RLC retransmitted block rate

    - **DL**: Downlink RLC retransmitted block rate

- **Tot**: total RLC blocks transmitted (see 4.2.3 for more details)

    - **UL**: total Uplink RLC blocks transmitted

    - **DL**: total Downlink RLC blocks transmitted

2.5.4 Ciphering Info

This screen displays parameters related to GPRS ciphering:
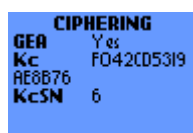
- **GEA**: indicates whether the GPRS Encryption Algorithm 1 is used or not

    - **1**: GPRS Encryption Algorithm 1 used

    - **No**: no GPRS Encryption Algorithm used

- **Kc**: Ciphering Key. Coded on **8 bytes**, displayed in hexadecimal

- **KcSN**: Ciphering Key Sequence Number. Coded on **3 bits**, displayed in decimal

2.5.5 Measurement Info

This screen gives information about parameters measured by the MS:
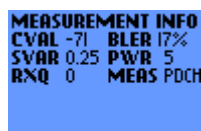
- **CVAL**: C_VALUE parameter. **in dBm**

- **SVAR**: SIGN_VAR parameter. **0 to 15.75 dB², by steps of 0.25 dB²**

- **RXQ**: RXQUAL. Coded from **0 to 7**, as specified in [05.08]

- **BLER**: Block Error Rate. This parameter indicates the Block Error Rate of the radio connection. **in percentage** (see 4.3 for more details)

- **PWR**: MS Output Power. This parameter is encoded as specified in [05.05]

- **MEAS**: PC_MEAS_CHAN. Indicates the type of channel that shall be used for downlink measurements for power control. This parameter can take 2 values:

  - **BCCH**: the measurements shall be performed on the BCCH

  - **PDCH**: the measurements shall be performed on the PDCH

2.5.6 Paging Info without PBCCH

This screen gives information about how paging shall be performed:
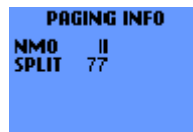
- **NMO**: Network Mode of Operation (**I, II or III**)

- **SPLIT**: SPLIT_PG_CYCLE. Ranges from **0** to **352**

2.5.7 Paging Info with PBCCH

This screen gives information about how paging shall be performed:

- **NMO**: Network Mode of Operation (**I, II or III**)

- **SPLIT**: SPLIT_PG_CYCLE. Ranges from **0** to **352**

- **MODE:** "Normal", "Extended", "reorganisation", "same".

- **PG: 0 to 1023**

    Current value of the Paging group for the MS.

- **D MAX: 0, 1, 2, 4, 8, 16 ,32 and 64s**

    Current value of the DRX_TIMER_MAX of the cell.

- **NON D: 0, 1, 2, 4, 8, 16 ,32 and 64s**

    Current value of the NON_DRX_TIMER negotiated by the MS.

2.5.8 Packet Bursts Info

This screen displays parameters about the format of packet bursts :
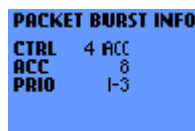
- **CTRL**: CONTROL_ACK_TYPE parameter. It can take the following values:

    - **4 ACC**: the default format for PACKET CONTROL ACKNOWLEDGMENT messages is 4 access bursts

    - **RLC/MAC**: the default format for PACKET CONTROL ACKNOWLEDGMENT messages is an RLC/MAC Control Block

- **ACC**: ACCESS_BURST_TYPE parameter. **11** or **8** bits

- **PRIO**: PRIORITY_ACCESS_THR parameter. It can take the following values:

    - **N**: packet access not allowed in the cell

    - **1**: packet access allowed for priority level 1

    - **1-2**: packet access allowed for priority levels 1 and 2

    - **1-3**: packet access allowed for priority levels 1 to 3

    - **1-4**: packet access allowed for priority levels 1 to 4

2.6 SIM INFO

This menu gives access to information that is stored on the SIM. It contains the following entries:

- KC information

- IMSI

- Loc. information

- BA List

- Preferred Networks

- Prohibited Networks

- Group ID 1

- Group ID 2

- Administration

Use the scroll push-buttons **^** and **v** to browse through this menu.
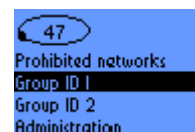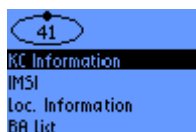
2.6.1 KC Information

This screen allows to modify the KC key and the KC key sequence number. This parameters are displayed in hexadecimal form and in the same format as they are stored in the SIM (see [11.11] for more details):

- The 2 rightmost digits represent the 8-bit long KC key sequence number. The actual KC key sequence number is encoded using the 3 Least Significant Bits.

- The 16 other digits represent the 64-bit long KC key

The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

The **OK** (or the right one-touch button) validates the changes, while the left one-touch button (or the **C** button if the cursor has reached the left side of the screen) cancels the changes.

2.6.2 IMSI

This screen allows to see the IMSI. This parameter is displayed in decimal form and in the same format as it is stored in the SIM (see [11.11] for more details):

- The 2 leftmost digits indicate the length (in bytes) of the IMSI.

- The third digit from the left is the 1st digit of the IMSI

- The fourth digit from the left is related to the parity bit (see [11.11]). It should normally be equal to 1 or 9.

- The remaining digit are the other digit of the IMSI, but they must be inverted two by two (fifth digit from the left on the screen = 3nd digit of the IMSI, sixth digit from the left on the screen = 2nd digit of the IMSI, last digit on the screen = 14th digit of the IMSI)

The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

2.6.3 Loc. Information

This screen allows to modify the Location Information. This 11-byte long parameter is displayed in hexadecimal form.

The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

The **OK** (or the right one-touch button) validates the changes, while the left one-touch button (or the **C** button if the cursor has reached the left side of the screen) cancels the changes.

```
        LOC. INFO
FFF08AC5I27A9EF3DDB6
4B

  cancel      validate
```

2.6.4 BA List

This screen allows to modify the BA List. This parameter is 11-byte long and is displayed in hexadecimal form. Each bit corresponds to a frequency.

The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

The **OK** (or the right one-touch button) validates the changes, while the left one-touch button (or the **C** button if the cursor has reached the left side of the screen) cancels the changes.

```
         BA LIST
4B80AC000000000000
00000000000000

  cancel      validate
```

2.6.5 Preferred Networks

2.6.5.1 Display screens

These screens display the preferred networks (up to 32 entries). Each entry is 3-bytes long and is displayed in hexadecimal form.

To browse through the different preferred networks, use the scroll push-buttons **^** and **v**.

The **C** button (or the left one-touch button) returns to the SIM menu. The **OK** button (or the right one-touch button) allows to enter the modification screen.

```
    PREF. NETWORKS
      NUMBER 3
       4BF0AC

  Back      Modify
```
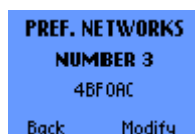
2.6.5.2   Modification screen

This screen allows to modify a network from the preferred network list. The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

The left one-touch button cancels the modification and returns to the previous screen. The **OK** button and the right one-touch button validates the modification.

```
PREF. NETWORKS
   NUMBER 3
    4BF0█C
cancel     validate
```
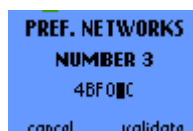
2.6.6   Prohibited Networks

This screen allows to modify the Prohibited Network list. This parameter is 12-byte long and is displayed in hexadecimal form. Each byte corresponds to a network.

The **C** button and the **^** button move the cursor to the left, the **v** button moves the cursor to the right.

The **OK** (or the right one-touch button) validates the changes, while the left one-touch button (or the **C** button if the cursor has reached the left side of the screen) cancels the changes.

```
PROHIB. NETWORKS
08AC5I27A9EF3█DB6FFF
FFFF
cancel     validate
```
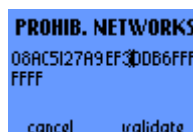
2.6.7   Group ID 1

This screen displays the Group ID Level 1, that can be used to identify a group of SIMs for a particular application. This parameter has a length of 16 bytes and is displayed in hexadecimal form.

The **C** button (or the left one-touch button) returns to the SIM scroll menu.

```
GROUP ID 1
FFFFFFFFFFFFFFFFFFFFFF
FFFFFFFFFF
Back
```
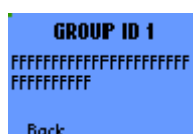
2.6.8   Group ID 2

This screen displays the Group ID Level 2, that can be used to identify a group of SIMs for a particular application. This parameter has a length of 8 bytes and is displayed in hexadecimal form.

The **C** button (or the left one-touch button) returns to the SIM scroll menu.

```
GROUP ID 2
FFFFFFFF FFFFFFFF
Back
```
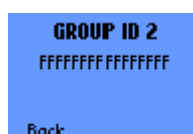
2.6.9 Administration

This screen indicates whether the SIM card is a test SIM or not. It displays a 3-byte parameter in hexadecimal form.

2.7 FORCING FUNCTIONS

This menu contains up to 14 entries:

- Set BCCH

- Set Handover

- Cell Bar Access

- Negative C1

- Set Power Class

- RF Measurement

- Set Full Rate

- Set Band

- Set Cell Reselection

- Set GPRS Coding Scheme

- Set GPRS Auto Attach*)*

- Set GPRS Multislot Class

- Set GPRS Class

- Summary

The scroll push-buttons **^** and **v** are used to browse through the menu.

Ref. :	SCT TMO LOG SPEC 163
Revision :	B
Sec. Ref. :	
Date :	2003-01-22

2.7.1 Set BCCH

NOTE: the BCCH forcing function and the RF MEASUREMENT, RF SCANNING and BCCH SCANNING functions are mutually exclusive. If this forcing function is active when switching to RF MEASUREMENT, RF SCANNING or BCCH SCANNING mode, it will be automatically deactivated.

2.7.1.1 Activation/Deactivation screen

This screen is used to activate or deactivate the Set BCCH forcing function. To choose between "Active" and "Inactive" use the scroll push-buttons **^** and **v**.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

NOTE: this forcing function can only be activated or deactivated in GSM IDLE mode.

2.7.1.2 BCCH channel prompt

If the "Active" choice is validated, a second screen prompts for the BCCH frequency number on which the mobile shall attempt to camp. The **C** button deletes the previously entered digit, or cancel the operation if no digit is present, while the left one-touch button cancels the operation at any time. Validating with **OK** (or with the right one-touch button) will bring you back in the Forcing Functions general scrolling menu.

2.7.2 Set Handover

2.7.2.1 Activation/Deactivation screen

This screen is used to activate or deactivate the Set Handover forcing function. The possible choices are:

- Active: the mobile will attempt to force a handover the next time it enters Dedicated mode

- Inactive: the Set Handover is deactivated

- None: the mobile is not allowed to perform a handover

The scroll push-buttons **^** and **v** are used to browse through these choices.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

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2.7.2.2 Handover forcing mode

If the chosen Set Handover mode is « Active », this screen allows to specify whether the mobile shall perform a single handover or cyclical handovers between the 2 cells.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

NOTE: before changing the Handover forcing mode from Single to Cyclical or vice-versa the forcing function must be deactivated.

2.7.2.3 BCCH channel prompt

If the "Active" choice is validated, after the choice of the Handover forcing mode, a second screen prompts for the BCCH frequency number on which the mobile shall force a handover. The **C** button deletes the previously entered digit, or cancel the operation if no digit is present. Validating with **OK** will bring you back in the Forcing Functions general scrolling menu.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

2.7.3 Cell Bar Access

This function is used to modify the interpretation of the cell_bar_access_s. Three modes are offered. Use the scroll push-buttons **^** and **v** to browse through those 3 modes.

- Inactive: the mobile complies with the GSM recommendation concerning barred cells

- Active: the mobile can camp on any cell, including barred cells

- Inverse: the mobile shall camp on barred cells ONLY

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

NOTE: the setting of this forcing function can only be changed in GSM IDLE mode.

2.7.4 Negative C1

This function allows the mobile to camp on a cell with C1<0. You can browse through the following choices with the scroll push-buttons **^** and **v**:

- Active: the mobile shall ignore the C1 criterion

- Inactive: the mobile shall comply with the GSM recommendations concerning the C1 criterion
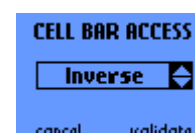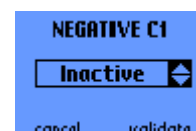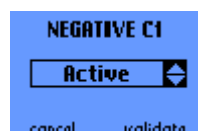

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

2.7.5 Set Power Class

This function allows to force the Power Class of the mobile. The possible choices are:

For GSM:

- 4 (2W or 33dBm, PL5)

- 5 (0.8W or 29 dBm, PL7)

- N: the mobile shall use its default power class

For DCS:

- 1 (1W or 30dBm, PL0)

- 2 (0.25W or 24dBm, PL3)

- N: the mobile shall use its default power class

Use the scroll buttons **^** and **v** to set the power class for the GSM frequency band then press the right one-touch button to go to the next field and set the DCS power class. The **OK** button validates the choices, whereas the **C** button (or left one-touch button) cancels them.

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2.7.6 RF Measurement

NOTE: the BCCH forcing function and the RF MEASUREMENT function are mutually exclusive. If this forcing function is active when activating RF MEASUREMENT, it will be automatically deactivated.

2.7.6.1 Activation/Deactivation screen

This function forces the mobile to perform RF power measurements on a given frequency. You can browse through the following choices with the scroll push-buttons **^** and **v**:

*   Active

*   Inactive

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

2.7.6.2 Frequency prompt and Field measurement screen

If the "Active" choice is validated this screen prompts for the frequency number on which the mobile shall perform measurements and displays the measurement results when the channel number has been validated with the **OK** button (or the right one-touch button). During the measurements, the **OK** button (or the right one-touch button) also allows you to stop the forcing in order to enter another channel number.
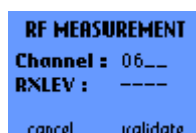
2.7.6.3 Serial Link RF Measurement in progress

If the RF measurement mode was activated through the serial link of the trace mobile (see [1] for more details about the serial link features and protocol), this screen is displayed to notify the user that a serial link RF Measurement is in progress. Note that this screen is displayed regardless of the current menu or the activated functions in the MMI: it depends only on the activation of the RF Measurement function through the serial link.

Pressing the **C** button (or the left one-touch button) aborts the serial link RF Measurement function.

2.7.7 Set Full Rate

This function is used to force the mobile in Full Rate mode. The choices are:
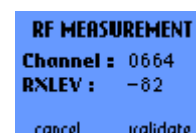
- Active

- Inactive

The **OK** button (or right one-touch button) validates the choice, the **C** button (or left one-touch button) cancels.

2.7.8 Set Band

This function is used to force the mobile on the 900 MHz or 1800 MHz band. The available choices are:

- 900

- 1800

- Inactive

The **OK** button (or right one-touch button) validates the choice, the **C** button (or left one-touch button) cancels.

After the validation, the mobile must be powered off and on so that the new setting of the forcing can be taken into account.

2.7.9 Set Cell Reselection

2.7.9.1 Activation/Deactivation screen

This screen is used to activate or deactivate the Set Cell Reselection function. The possible choices are:

- **Active**: the mobile will attempt to camp on a given frequency, using the Cell Re-selection procedure

- **Inactive**: the Cell Reselection forcing is deactivated

- **None**: this choice suppresses Cell Re-selection, i.e. the mobile will not use the Cell Re-selection procedure, whatever happens.

The scroll push-buttons **^** and **v** are used to browse through these choices.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.
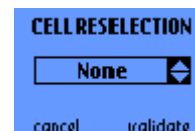
NOTE: the Active and Inactive settings of this function can only be chosen in GSM IDLE mode.

2.7.9.2 BCCH channel prompt

If the "Active" choice is validated, a second screen prompts for the BCCH frequency number on which the mobile shall attempt to camp using the cell re-selection procedure.

The **OK** button (or the right one-touch button) validates the choice and returns back in the Forcing Functions general scrolling menu, while the **C** button (or the left one-touch button) deletes the previously entered digit, or cancel the operation if no digit is present and returns to the Forcing Functions general scrolling menu.

2.7.10 GPRS Downlink Coding Scheme forcing*)*

This function allows to force the Coding Scheme for Downlink data transfer. The possible choices are:

- **1**

- **2**

- **3** (to be tested: no BTS supports already this feature)

- **4** (to be tested: no BTS supports already this feature)

- **N**: No Coding Scheme forcing

Use the scroll buttons **^** and **v** to set the Downlink Coding Scheme. The **OK** button validates the choice, whereas the **C** button (or left one-touch button) cancels it.

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2.7.11 Set GPRS Auto Attach

This function allows to specify whether the Mobile Station shall automatically attach to the GPRS network at power-up or not. When this forcing function is set to OFF, the Mobile Station only attaches upon PDP Context Activation. The following choices are available:

- **Auto-Attach ON**: the mobile shall attach at power-up

- **Auto-Attach OFF**: the mobile shall not attach at power-up

- **Inactive**: default behaviour

The scroll push-buttons **^** and **v** are used to browse through these choices.

The **OK** button (or the right one-touch button) validates the choice, while the **C** button (or the left one-touch button) cancels and returns to the Forcing Functions general scrolling menu.

After the validation, the mobile must be powered off and on so that the new setting of the forcing can be taken into account.

2.7.12 GPRS Multislot Class forcing

This function allows to force the Multislot Capability Class of the Mobile Station. The possible choices are:

- **1**: Class 1 (1+1)

- **2**: Class 2 (2+1)

- **4**: Class 4 (3+1)

- **Inactive**: No Multislot Class forcing (default class)
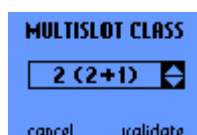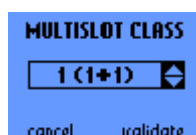
Use the scroll buttons **^** and **v** to set the GPRS Multislot Class. The **OK** button (or right one-touch button) validates the choices, whereas the **C** button (or left one-touch button) cancels them.

After the validation, the mobile must be powered off and on so that the new setting of the forcing can be taken into account.
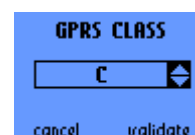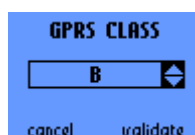
2.7.13 GPRS Class forcing

This function allows to force the GPRS Class of the Mobile Station. The possible choices are currently:

- **B**: MS GPRS Class B

- **C**: MS GPRS Class C

- **Inactive**: No GPRS Class forcing (default class)

GPRS CLASS	GPRS CLASS	GPRS CLASS
Inactive	B	C
cancel validate	cancel validate	cancel validate

After the validation, the mobile must be powered off and on so that the new setting of the forcing can be taken into account.

2.7.14 Summary

This choice allows to display the forcing summary screens :

BCCH A 23	Band * 1800
Handover A S 67	Cell Resel. A 567
Cell Bar Ac. Inv	Gprs cd.sch. CS4
Neg. Cl. I	Gprs aut-at. Off
Power Cl. Gsm.4 Dcs.2	Gprs x-slot 3+1
Full Rate A	Gprs Class * C

The scroll push-buttons **^** and **v** are used to browse through the successive screens. The **C** button returns to the forcing functions menu.

The first column indicates the forcing function and the second one indicates the forcing current state. We can also find right next to the current state, some additional information depending on the forcing function. The different possibilities are described below:

- **BCCH**: Set BCCH

    - ► **A**: Active   **I**: Inactive

    - ► BCCH Channel (only if the Set BCCH forcing is Active)

- **Handover**: Set Handover

    - ► **A**: Active   **I**: Inactive   **N**: None

    - ► **C**: Cyclical   **S**: Single

    - ► BCCH Channel (only if the Set Handover forcing is Active)

- **Cell Bar Ac.**: Cell Bar Access

    - ► **A**: Active   **I**: Inactive   **Inv**: Inverse

- **Neg. C1**: Negative C1

    - ► **A**: Active   **I**: Inactive

E

- **Power Cl.**: Set Power Class

    ► **GSM.** : Power Class for GSM : 4, 5 or N

    ► **DCS.** : Power Class for DCS : 1, 2 or N

- **Full Rate**: Set Full Rate

    ► **A**: Active   **I**: Inactive

- **Band**: Set Band

    ► ✳: We have to restart the Mobile Station in order to activate the forcing selection.

    ► **900**: GSM Band   **1800**: DCS Band   **I**: Inactive

- **Cell Resel.**: Set Cell Reselection

    ► **A**: Active   **I**: Inactive   **Inv**: Inverse

    ► BCCH Channel (only if the Set Cell Reselection forcing is Active)

- **Gprs cd.sch.**: Set GPRS Coding Scheme   *()*

    ► **CS***: Coding Scheme 1, 2, 3, 4 or N

- **Gprs aut-at.**: Set GPRS Auto Attach   *()*

    ► ✳: We have to restart the Mobile Station in order to activate the forcing selection.

    ► **I**: Inactive   **OFF**: Auto Attach OFF   **ON**: Auto Attach ON

- **Gprs x-slot**: Set GPRS Multislot Class   *)*

    ► ✳: We have to restart the Mobile Station in order to activate the forcing selection.

    ► **I**: Inactive   **1+1**: Class 1(1+1)   **2+1**: Class 2(2+1)   **3+1**: Class 4(3+1)

- **Gprs Class**: Set GPRS Class   *)*

    ► ✳: We have to restart the Mobile Station in order to activate the forcing selection.

    ► **I**: Inactive   **B**: MS GPRS Class B   **C** MS GPRS Class C
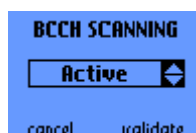
2.8 BCCH SCANNING

NOTE: the BCCH forcing function and the BCCH SCANNING function are mutually exclusive. If this forcing function is active when activating BCCH SCANNING, it will be automatically deactivated.

2.8.1 Activation/Deactivation screen

This function is used to scan the RF channels. The available choices are:

- Active

- Inactive

The **OK** button (or right one-touch button) validates the choice, the **C** button (or left one-touch button) cancels.

2.8.2 Beginning channel input screen

If "Active" choice if validated, this screen prompts for the beginning channel. The BCCH SCANNING will start on this channel and continue on the following RF frequencies.

The **OK** button (or right one-touch button) validates the choice, the **C** button cancels the previous digit entered, or goes back to the previous screen if there is no digit to delete. The left one-touch button goes back to the previous screen.

2.8.3 BCCH Scanning in progress screens

2.8.3.1 BCCH Scanning initiated via the MMI

After validation of the RF channel to begin with, this screen displays for the previously scanned channel the following parameters:

- RF channel number, with an indication of the nature of the channel : OK means that the channel is a BCCH, NOK means that the channel is not a BCCH

- RX LEV: RF power measurement (in dBm)

- BSIC: color code of the Base Station. If the channel is not a BCCH, the value of this parameter is replaced by "**--**".

- Number of BCCH found / total number of channels

	Ref. :	SCT TMO LOG SPEC 163
	Revision :	B
	Sec. Ref. :	
	Date :	2003-01-22

```
BCCH SCANNING
RF :     751      OK
RXLEV : -82
BSIC :   07
OK :     2/498
   cancel     validate
```

Pressing the **C** button (or the left one-touch button) returns to the beginning channel input screen (see 2.8.2). The **OK** button (or the right one-touch button) stops the scanning and displays the results of the scanning.

### 2.8.3.2 BCCH Scanning initiated via the Serial Link

Furthermore, during a scanning that was activated through the serial link of the trace mobile (see [1] for more details about the serial link features and protocol), this screen is displayed to notify the user that a serial link BCCH scanning is in progress. Note that this screen is displayed regardless of the current menu or the activated functions in the MMI: it depends only on the activation of the Scanning function through the serial link.

```
BCCH SCANNING
 IN PROGRESS

cancel
```

Pressing the **C** button (or the left one-touch button) aborts the serial link scanning.

2.8.4 Beginning channel for results display

Before actually displaying the results of the scanning, the mobile asks for the beginning channel number.

```
SHOW RESULTS
Channel : 06__


  cancel     validate
```
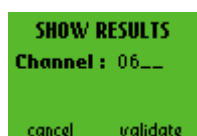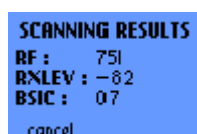
The **C** button (or the left one-touch button) cancels the digit entered previously. The **OK** button (or right one-touch button) validates the beginning frequency.

2.8.5 BCCH Scanning results screen

This screen shows the measured parameters for every channel beginning with the channel number previously entered:

- RF: channel number

- RXLEV: RF power measurement (in dBm). If the corresponding channel was not scanned during the previous scan, this value is replaced by "----".

- BSIC: color code of the Base Station. If the corresponding channel is not a BCCH or was not scanned during the previous scan, this value is replaced by "----".

```
SCANNING RESULTS
RF :     751
RXLEV : -82
BSIC :   07

cancel
```

To browse through the successive results screen, use the scroll push-buttons **^** and **v**.

The **C** button (or the left one-touch button) cancels the digit entered previously brings back to the beginning channel screen for results display (see 2.8.4).

2.9 QOS INFO

This menu contains 4 entries:

- FER full

- T3212

- Handover Counter

- EFR

The scroll push-buttons **^** and **v** are used to browse through the menu.

2.9.1 FER full

This function gives the FER (Frame Erasure Rate) in percentage of the speech frames erased over the last four measurement periods.

When this value is not applicable (for instance in Idle mode), the FER value is replaced by "----".

The **C** button (or the left one-touch button) brings back to the QoS Info scrolling menu.
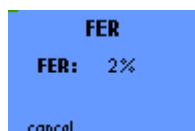
2.9.2 T3212

This screen displays the following parameters:

- max_retrans: the maximum allowed number of retransmissions of a burst over the RACH (Random Access Channel) is equal to max_retrans. The displayed values are: RACH retransmission counter value / max_retrans value. See [04.08] for more details.

- T3212: the T3212 counter indicates the timeout (in decihour) value for the periodic updating. It ranges from 1 to 255. **Inf** means infinite timeout, i.e. the mobile shall not perform any periodic updating. See [04.08] for more details.

The **C** button (or the left one-touch button) returns to the QoS Info scroll menu.
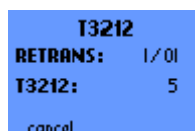
2.9.3 Handover Counter

This screen displays the number of succeeded and attempted handovers. The **C** button (or the left one-touch button) leads back to the QoS Info scrolling menu.

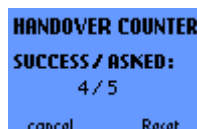The scroll push-button **^** may be used to go straight to the Handover forcing mode screen (see 2.7.2.2).

The right one-touch button resets the Handover Counter.

```
HANDOVER COUNTER
SUCCESS / ASKED:
      4 / 5
cancel       Reset
```
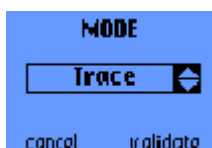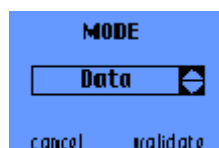
2.9.4 EFR

This screen indicates whether the EFR (Enhanced Full Rate) speech codec is active or not (Y or N).

The **C** button (or the left one-touch button) returns to the QoS Info scroll menu.

```
        EFR
ACTIVE:   Y

cancel
```

2.10 SERIAL LINK SETUP

```
MODE            MODE            MODE
Data            Trace           Data/Trace
cancel validate cancel validate cancel validate
```

In this menu, 3 modes are available :

- **DATA** : The serial link of the mobile is dedicated to standard DATA messages.

- **TRACE** : The serial link is dedicated to trace messages.

- **DATA/TRACE** : The main serial link is in DATA mode. Traces are provided on the second serial link. *(only available with OT 96xx)*

According to the mobile serial link setup, the serial links operate as follow :

Mode	DATA	TRACE	DATA/TRACE
SL 1	DATA	TRACE	DATA
SL 2	inactive	inactive	TRACE

E

2.11 RF SCANNING IN PROGRESS SCREEN

This screen indicates that the mobile is in RF Scanning mode. This mode is only available through the serial link interface of the mobile (see [1] for more details). Note that this screen is displayed regardless of the current menu or the activated functions in the MMI: it depends only on the activation of the RF Scanning function through the serial link.

Pressing the **C** button (or the left one-touch button) aborts the serial link RF Scanning function.

# 3. SWITCHING BETWEEN WAP BROWSER AND TRACE SCREENS

3.1 ESCAPING FROM THE WAP BROWSER

3.1.1 Escaping the WAP browser – general procedure

The WAP Browser can be escaped in order to go in the Trace Menu screens by pressing for a few secondes the '#' key. This will start the Trace Menu, or if the user had previously escaped from a Trace Menu screen, this will go back to that screen.

3.1.2 Escaping the WAP browser during a voice call

During a voice call, the WAP Browser can be escaped using the following procedure : press the middle soft-key, then press the left soft-key (« Options ») then select **Trace Menu** and press **OK**
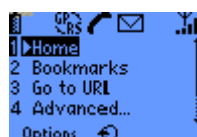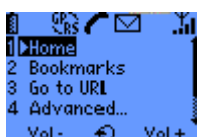
3.2 STARTING WAP TRANSFER FROM THE TRACE MENU SCREENS

In some Trace Menu screens you may switch to the WAP browser or start WAP transfers in the background (i.e. without leaving the Trace Screen).

The actions described below are only possible when in the trace screens of the following menus:

- GPRS Info

- Network

- QoS Info

3.2.1 Switching to the WAP browser

A normal press on the '@' middle soft-key switches to the WAP browser. If necessary the browser is started.

3.2.2 Starting the homepage connection

A long press on the '@' middle soft-key starts the connection to the homepage configured for the current WAP provider, without leaving the current trace screen.

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3.2.3 Starting a bookmark connection

A press on any non-zero digit brings up the dialing screen. Then, pressing the '**@**' middle soft-key starts the connection to the bookmark entry corresponding to the entered digit, without leaving the current trace screen.

4. ANNEX: GPRS QOS PARAMETERS DEFINITION

This Annex defines and explains how some GPRS variables displayed in screens of the GPRS Info menu of calculated and refreshed.

4.1 DATA TRANSFER 2ND SCREEN (LLC) PARAMETERS

This screen is described in 2.5.3.2.

4.1.1 Retransmitted LLC Frame Rate

The Retransmitted LLC Frame Rate is computed over a period of **1 second**. It is defined as follows:

Direction	Definition
UPLINK	Retrans. Frame Rate = $N_{RETRANS}$ / N_{TOTAL} where: • $N_{RETRANS}$ = number of frames that are not sent for the 1st time • N_{TOTAL} = total number of transmitted frames
DOWNLINK	Retrans. Block Rate = N_{LOST} / N_{TOTAL} where: • N_{LOST} = number of frames detected as lost. A frame or a group of frames is considered as lost when the OT detects a gap in the frame sequence • N_{TOTAL} = number of frames that have been supposedly sent. It is estimated based on the Sequence Number of the latest received frame. As a consequence it does not include retransmitted frames.

The Retransmitted LLC Frame Rate is filtered according to the following criteria:

• it is reported only if at least one LLC SAPI is in Acknowledged mode

• it is reported only if N_{TOTAL} has changed over the reporting period.

4.1.2 LLC Data throughput

The LLC Data throughput traces are focused on the capacity that is offered by the LLC layer to upper layer in the User plane. As a consequence the LLC Data throughputs are defined as follows:

• only I and UI frames are considered

• only SAPI 3, 5, 9, and 11 are considered (i.e. User SAPIs)

• in LLC Acknowlegded mode retransmissions are not take into account

• LLC header parts are not taken into account

The LLC throughputs are computed over a period of **1 second** and reported according to the following criteria:

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- when the mobile is in READY mode, LLC Data Throughputs are reported at the end of every reporting period

- when the mobile is not in READY mode, LLC Data Throughputs are reported only if the number of transmitted bytes has changed over the reporting period

4.1.3 Total LLC frames transmitted

The Total number of LLC frames transmitted is defined as follows:

- only I and UI frames are considered

- only SAPI 3, 5, 9, and 11 are considered (i.e. User SAPIs)

- in LLC Acknowlegded mode retransmissions are not take into account

It is reported every second, unless it has not changed over the reporting period.

4.2 DATA TRANSFER 3RD SCREEN (RLC) PARAMETERS

This screen is described in 2.5.3.3.

4.2.1 Retransmitted RLC Block Rate

The Retransmitted RLC Block Rate is computed over a period of **1 second**. It is defined as follows:

Direction	Definition
UPLINK	Retrans. Block Rate = N_{NACKED} / ($N_{FIRST\ TRANS}$ + N_{NACKED}) where: • N_{NACKED} = number of blocks sent in the NACKED state • $N_{FIRST\ TRANS}$ = number of blocks that have been transmitted for the 1st time
DOWNLINK	Retrans. Block Rate = N_{LOST} / N_{TOTAL} where: • N_{LOST} = number of blocks detected as lost. A block or a group of blocks is considered as lost when the OT detects a gap in the block sequence • N_{TOTAL} = number of blocks that have been supposedly sent. It is estimated based on the Sequence Number of the latest received block. As a consequence it does not include retransmitted blocks.

The Retransmitted RLC Block Rate is filtered according to the following criteria:

- in the Uplink: it is reported only if ($N_{FIRST\ TRANS}$ + N_{NACKED}) has changed over the reporting period.

- in the Downlink: it is reported only if N_{TOTAL} has changed over the reporting period.

4.2.2 RLC/MAC Data throughput traces

The RLC/MAC Data throughput takes into account RLC/MAC Data blocks only, including retransmissions and header parts. It is computed over a period of **1 second** and reported according to the following criteria:

- when the mobile is in READY mode, RLC/MAC Data Throughputs are reported at the end of every reporting period

- when the mobile is not in READY mode, RLC/MAC Data Throughputs are reported only if the number of transmitted bytes has changed over the reporting period

4.2.3 Total RLC blocks transmitted

The Total number of RLC blocks transmitted is defined as follows:

- only DATA blocks are take into account

- all received or sent blocks are considered, including those blocks that are retransmitted in NACKED or PENDING ACK state

It is reported every second, unless it has not changed over the reporting period.

4.3 MEASUREMENT INFO PARAMETER

This screen is defined in 2.5.5.

The Downlink RLC BLER is computed over a period of **1 second**. It is defined as follows :

$$BLER = N_{ERRORED} / N_{TOTAL}$$

where:

- $N_{ERRORED}$ = number of data blocks received with a bad CRC and a TFI corresponding to the current downlink TFI allocated to the mobile

- N_{TOTAL} = total number of data blocks received with a TFI corresponding to the current downlink TFI allocated to the mobile

NOTE: the received RLC/MAC blocks are filtered according to the PAYLOAD TYPE and TFI fields of their RLC/MAC headers. Those fields can be affected by transmission errors, so the two parameters above ($N_{ERRORED}$ and N_{TOTAL}) can only be *estimated*. As a consequence the reported value must be considered as an *estimation* of the Block Error Rate of the radio link between the network and that particular mobile.