

CHAPTER 2 - DESCRIPTION - OPERATION

2.1 REMINDERS ABOUT THE GENERAL NETWORKS CHARACTERISTICS

Table 1 below gives the characteristics of the radio interface for the GSM 850 / 900, GSM 1800 and GSM 1900 systems :

| | GSM 850 | GSM 900 | GSM 1800 | PCS 1900 |
|---|---|------------------------|----------------------------|----------------------------|
| Frequency Band (MHz) | 824 - 849 869 - 894 | 890 - 915 925 - 960 | 1710 - 1785 1805 - 1880 | 1850 - 1910 1930 - 1990 |
| Number of time intervals per TDMA frame | 8 | | | |
| Width 2 x W simplex (MHz) | 2 x 25 | 2 x 25 | 2 x 75 | 2 x 60 |
| Duplex spacing (MHz) | 45 | 45 | 95 | 80 |
| Modulation speed (kbit/s) | 271 | | | |
| Speech throughput (kbit/s) | 13 (5,6) | | | |
| Maximum data throughput (kbit/s) | 12 | | | |
| Multiple access | Frequency and temporal multiplexing / frequency duplexing | | | |
| Cell radius (km) | | 0,3 to 30 | 0,1 to 4 | 0,1 to 4 |
| SAGEM terminal power (W) | 2 | 2 | 1 | 1 |

Table 1 : Radio Interface

Table 2 shows powers as a function of the network :

| | GSM 850 / 900 | | GSM 1800 | | PCS 1900 | |
|--------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| Class number | Maximum nominal power (W) | Allowable interval (W) | Maximum nominal power (W) | Allowable interval (W) | Maximum nominal power (W) | Allowable interval (W) |
| 1 | - | - | 1 | [0,63 ; 1,6] | 1 | |
| 2 | 8 | [5,0 ; 12,7] | 0,25 | [0,16 ; 0,4] | 0,25 | |
| 3 | 5 | [3,2 ; 7,9] | 4 | [2,5 ; 6,3] | 2 | |
| 4 | 2 | [1,3 ; 3,2] | | | | |
| 5 | 0,8 | [0,5 ; 1,3] | | | | |


Table 2: Terminals power class

Table 3 shows power classes :

| | Class 1 | Class 2 | Class 3 | Class 4 | Class 5 |
|----------------------------------|---------|---------|---------|---------|---------|
| GSM 850 / 900 | 43 dBm | 39 dBm | 37 dBm | 33 dBm | 29 dBm |
| GSM 1800 | 30 dBm | 24 dBm | 36 dBm | - | - |
| GSM 1900 | 30 dBm | 24 dBm | 33 dBm | - | - |
| Table 3: RF power classes | | | | | |

2.2 REMINDERS ABOUT THE CHARACTERISTICS AND OPTIONS OF myX 2-2

Remark: This information is given for guidance, and is in no way contractual characteristics vary according to customers and countries.

| | | | |
|---|---|---|---------------------------------------|
| PRODUCT NAME: myX2-2 & myX2-2m | |  | |
| DETAILED SPECIFICATIONS: | | myX2-2 | myX2-2m |
| GENERAL CHARACTERISTICS | | | |
| Size | | | |
| Dimension (LxWxH, mm) | 106 x 47 x 21 | | Idem |
| Weight (g) | 93 | | Idem |
| Volume (cm3) | 78 | | Idem |
| Power Management | | | |
| Battery type | Li-Ion 680mAh | | Idem |
| Charging time | 3hrs typical | | Idem |
| Talk time | 3hrs (TW9) targeted | | Idem |
| Standby time | 240h (TW9) targeted | | Idem |
| Display and User Interface | | | |
| Screen type | CSTN | | Idem |
| Colours | 4K | | Idem |
| Number of lines (text, icon) | up to 8 lines | | Idem |
| Screen size (mm) | 28.7 x 22.85 mm2 | | Idem |
| Screen resolution (pixels) | 101 x 80 | | Idem |
| Keypad Backlight | yes | | Idem |
| LCD Backlight | yes, white | | Idem |
| Soft keys / navigation | yes, 3 | | Idem |
| Sub LCD (clam design) | N/A | | Idem |
| Customisation | | | |
| Handset colours | up to 2 colours (clear beige, dark beige colours) TBC | | Idem |
| Interchangeable covers | yes, front and back | | Idem |
| Radio | | | |
| GSM Band | 900 / 1800 MHz, E-GSM, (850/1900 MHz with AMR for Sth Am version) | | Idem |
| Automatic switching between bands | yes | | Idem |
| Voice codecs | HR, EFR, FR | | Idem |
| Operating System | Proprietary | | Idem |
| CONNECTIVITY | | | |
| Radio | | | |
| GPRS | no | | yes, class 8 (4+1) |
| UMTS | no | | no |
| Internet | | | |
| Browser | WAP 1.2 | | WAP 1.2 |
| Push | yes | | yes |
| Built-in data / fax Modem | no | | yes |
| OTA Provisioning | | | |
| parameters (Java, WAP, MMS, IM, bookmarks) | no | | no |
| software updates | no | | no |
| Data Transfer | | | |
| Serial RS232 | external accessory cable | | external accessory cable |
| IrDA (Obex or other standard) | no | | no |
| Bluetooth | no | | no |
| USB | external accessory cable | | external accessory cable |
| WiFi (802.11b,a) | no | | no |
| PC synchronisation | via cable & Wellphone software for PC | | via cable & Wellphone software for PC |

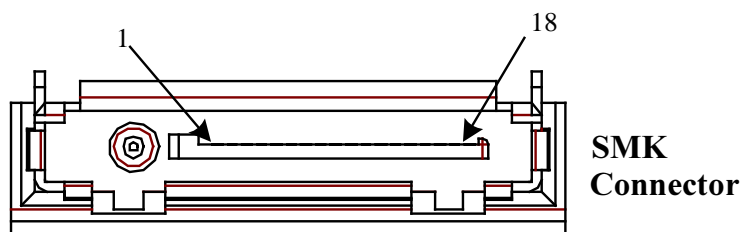
| MULTIMEDIA | | |
|---|--|--|
| Messaging | | |
| SMS | MO/MT/CB | Idem |
| EMS | yes, R5 | yes, R5 |
| MMS | no | yes, R4, 50KB rx, 30KB tx |
| Instant messaging (IMPS) | no | no |
| e-mail client | no | no |
| Notification | notification via audio and text alert | Idem |
| Predictive text input | T9 | Idem |
| Messaging memory SMS/EMS/MMS/Email (positions) | up to 100 | Idem |
| Video & Images | | |
| Camera | no | no |
| Image features | N/A | Idem |
| Video Player | no | no |
| Image Format | bmp, jpeg, png, gif, animated gif, wbmp | Idem |
| Audio | | |
| Audio Recorder | no | no |
| Audio player | only for ringtones | Idem |
| FM radio | no | no |
| Polyphonic ringtones | yes, 8 tones | Idem |
| Audio formats | PCM, ADPCM (Wav), iMelody 1.2, Midi (8 tones), AMR | Idem |
| Entertainment | | |
| Clock display | yes | Idem |
| Menu icons | up to 40 | Idem |
| Ringtones | up to 20 (8 midi, 10 hifi (Wav), 1 hit hifi, silent) | up to 30 (1 hifi) |
| Wallpapers | up to 18 | up to 15 |
| Screensavers | animated, up to 3 | Idem |
| Boot up & shut down sequences | yes | Idem |
| Embedded Games | yes, 1 | Idem |
| Downloadable Games / Applications | no | no |
| Java | no | no |
| OTA Downloads | | |
| Protocol supported | EMS, WAP save as, M-Sevices, WSP Get, Download Fun | EMS, WAP save as, M-Sevices, WSP Get, Download Fun |
| Animation (fixed & animated) nb / size allowed to store | up to 240KB of shared memory | up to 470KB of shared memory |
| Menu icon (fixed & animated) nb / size allowed to store | up to 240KB of shared memory | up to 470KB of shared memory |
| Skins | N/A | Idem |
| Games nb / size allowed to store | N/A | Idem |
| Ringtone nb / size allowed to store | iMelody1.2, Midi, Wave, up to 240KB | iMelody1.2, Midi, Wave, up to 470KB |
| Java application nb / size allowed to store | N/A | Idem |
| File reproduction | Forward Lock | Forward Lock |
| Real time Downloads | | |
| Audio streaming | Not supported | Idem |
| Video streaming | Not supported | Idem |
| Advanced download | Not supported | Idem |
| CALL MANAGEMENT | | |
| Voice features | | |
| Mute Mode | yes | yes |
| Integrated handsfree mode | yes | yes |
| Address book features | | |
| Call group | yes | yes |
| Personal information management | no | yes, Vcard |
| Ringtone / Icon customisation | yes | yes |
| Internal phone book (positions) | up to 250 | up to 500 |
| Advanced Features | | |
| Conference call | yes | yes |
| Call list (dialed, received and missed) | yes, up to 20 positions | Idem |
| Caller ID | yes | yes |
| Anonymous mode | yes | yes |
| Call wait / call hold / call transfer | yes | yes |
| Call forwarding | yes | yes |
| Sim toolkit | yes | yes |
| Vibrate mode | yes | yes |
| Speed dialing | voice mail | Idem |
| Automatic redial | yes | yes |
| Any key answer | yes | yes |
| Automatic hang up | yes | yes |

| SPECIAL FEATURES | | |
|--|--|---|
| Keyboard Features | | |
| Scroll key | 4-way navigator | Idem |
| Direct access key | 2 programmable keys + 1 WAP dedicated key | 2 programmable keys + 1 WAP dedicated key |
| Keypad lock | yes | yes |
| Silent key | yes | yes |
| International access key | no | no |
| Personal Management Features | | |
| Calculator | yes | yes |
| Alarm Clock | yes | yes |
| Timer | yes | yes |
| Agenda | Month and week display (no Vcal) | Idem |
| To Do | no | no |
| Voice Recorder | no | no |
| Currency converter | yes | yes |
| Languages | yes, set of 2 (english + 1 non latin) or 8 (latin) languages | Idem |
| Compatible Accessories | | |
| Data cord | serial and USB tbc | serial and USB tbc |
| Battery charger | yes | yes |
| Hands free kit | yes | yes |
| Car kit | yes | yes |
| CD-ROM | Wellphone, myPictureAndSounds | Wellphone, myPictureAndSounds |
| MEMORY | | |
| Internal phone book positions | up to 250 | up to 500 |
| Messaging memory SMS/EMS/MMS/Email (positions) | up to 100 | up to 100 |
| Redial list (positions) | 20 | 20 |
| Embedded memory | up to 240KB | up to 470KB |
| External multimedia memory | no | no |

SMK CONNECTOR

2.2.1 Connector description

This connector is located at the bottom of the transmission module and enable the connection to various accessories. It comprises power supply pins and signals.



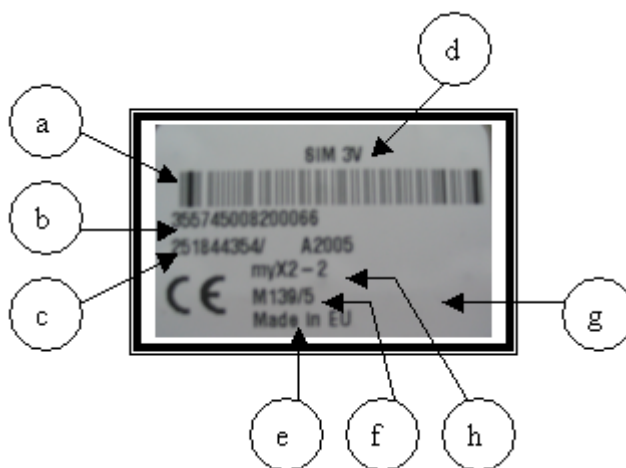
2.2.2 Signal description

| SYMBOL | PIN No. | SIGNAL FUNCTION | NATURE E/S, AI, Ana |
|-----------------|---------|---|----------------------------|
| CHARGER | 1 | Phone set power ON and power supply signal. | POWER SUPPLY |
| VBAT | 2 | POWER SUPPLY IMAGE VOLTAGE, connect this signal to «CHARGER» (pin n°1) to switch the module on. | POWER SUPPLY OUTPUT |
| ON* | 3 | SIGNAL RESERVED FOR USE BY SAGEM (car handsfree kit). | OPEN DRAIN OUTPUT |
| VPP | 4 | Flash programming voltage | POWER SUPPLY |
| SDAI2C | 5 | DATA SIGNAL RESERVED FOR SAGEM SPECIFIC ACCESSORIES. | LOGICAL INPUT/OUTPUT |
| GND | 6 | ZERO VOLT | SIGNAL GROUND |
| SCL2C | 7 | CLOCK SIGNAL RESERVED FOR SAGEM SPECIFIC ACCESSORIES. | OPEN DRAIN INPUT/OUTPUT |
| INTI2C | 8 | INTERRUPT SIGNAL RESERVED FOR SAGEM SPECIFIC ACCESSORIES. | LOGICAL INPUT |
| POLANT32 (RXD2) | 9 | APPLICATION INPUT SERIAL N°2 | LOGICAL INPUT |
| RXDG | 10 | SERIAL DATA TO BE TRANSMITTED. | LOGICAL INPUT |
| TXDG | 11 | SERIAL DATA RECEIVED. | LOGICAL OUTPUT |
| DIN32 | 12 | RESET | LOGICAL INPUT |
| ITDATA | 13 | Interruption signal keep for SAGEM accessories. | LOGICAL INPUT |
| GND | 14 | ZERO VOLT. | SIGNAL GROUND |
| BFRXP | 15 | Audio frequency signal received (ϕ 0). | ANALOG OUTPUT |
| BFRXN | 16 | Complementary output to BFRXP (ϕ 180). | ANALOG OUTPUT |
| BFTXN | 17 | AUDIO FREQUENCY SIGNAL TO BE TRANSMITTED ϕ 180. Complementary input to BFTXP. | ANALOG INPUT |
| BFTXP | 18 | AUDIO FREQUENCY SIGNAL TO BE TRANSMITTED ϕ 0. Acoustic L.F. signal to be transmitted. | ANALOG INPUT |

2.3 IDENTIFICATION

All phones are identified with an identification label stuck on the antenna.

2.3.1 Illustration



2.3.2 Description

- a : IMEI (bar code),
- b : IMEI (15 characters)
- c : Reference of product / aesthetic used .
- d : Sim card Indication (Sim 3V...),
- e : Production area Indication,
- f : Date code + Manufacturing level,
Ex. F203/03 = (F) fabrication area (F : Fougères), (203) day of year, (03) last digit of year (03→2003).
- g : Logo and agreement.
- h : Product designation

2.3.3 Description after repair

A new sticker is positioning by Repairing Centre on the antenna:

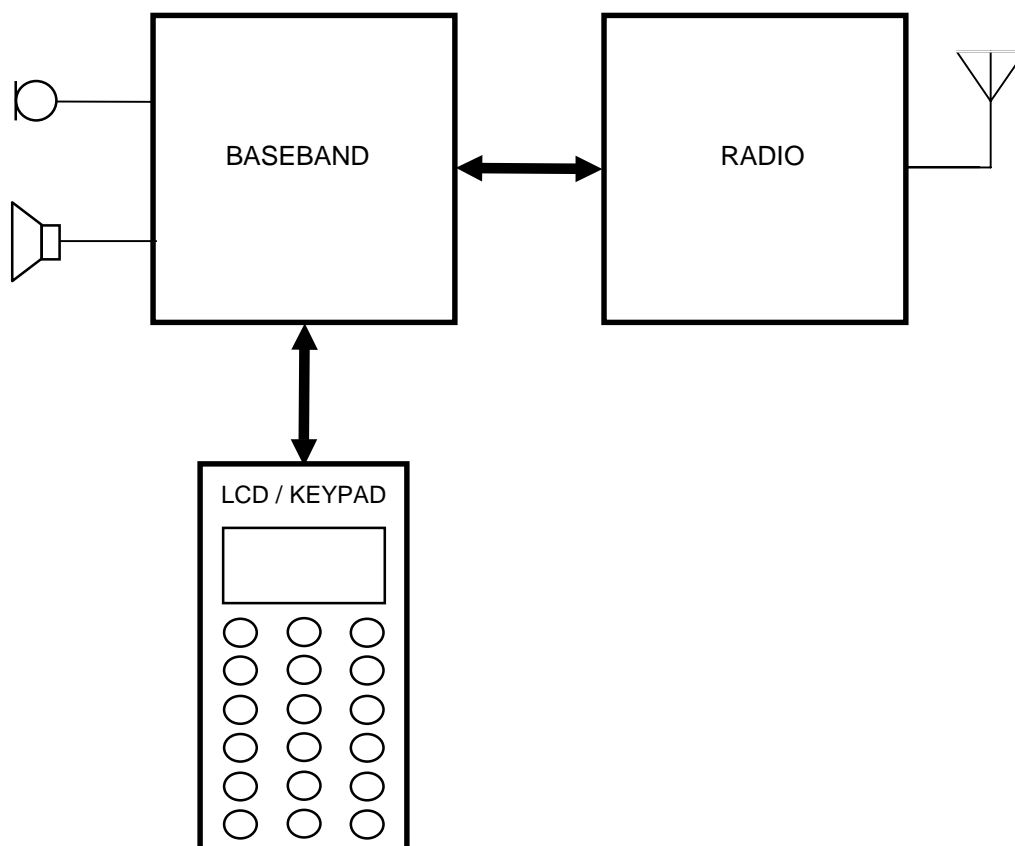


This extra line will appear if the mobile has already been repaired.

- **CRA XXX** ⇒ N° of CRA,
- **203/N03** ⇒ Date of repair: (203) repairing day, (03) last digit of year (03→2003).

2.4 PHONE BLOCK DIAGRAM

2.4.1 myX 2-2 block diagram



2.4.2 Standards and environment

Conformance Document

SAGEM SA declare under its sole responsibility that the product Dual Band GSM/DCS Type B2003 conforms to the

requirements of the following EEC directives:

| | |
|------------------------------|--|
| EEC Directive | 1999/5/CE |
| Safety | EN 60950 |
| EMC | EN 301 489-1 / EN 301 489-7 |
| Low voltage directive | 73/23/CEE |
| Network | 3GPP TS 51.010-1 v 5.2.0 selected with GCF-CC v 3.10.0 included |
| Requirements | GT01 v 4.7.0 / TBR 19 Edition 5 / TBR 20 Edition 3 / TBR 31 Edition 2 TBR 32 Edition 2 / EN 301 419-1 / EN 301511 |
| Health | EN 50360 / EN 50361 |

2.5 EQUIPEMENTS

The description and operation of SAGEM myX 2-2 are given in the "User's handbook" supplied with the phone. This chapter only describes equipment that operates with the myX 2-2 phones .

2.5.1 Battery packs



Over view

2.5.1.1 Characteristics

| Type | Technology | Weight | Voltage capacity |
|------|------------|--------|------------------|
| L860 | Li-Ion | 24 g | 3,6 V / 860 mA/H |

2.5.1.2 Description

Li-ion type batteries are used. They are rechargeable using:

- mains power supply modules,
- 12 V / 24 V, cigar lighter chargers,
- car handsfree kits (compact and comfort),
- Power supply data.

Batteries caution use:

- A2005 Battery is not compatible for the A2003.
- Store the batteries in a dry and cool place (excessive cold and heat damage the batteries reliability).
- They must never be stored in bulk, even the rejects, to avoid any short circuits.
- Do not dismantle the battery packs. (Li-Ion regulations).
- Only use original mains power supply module.
- **All the out of order batteries must be returned to SAGEM.**

2.5.1.3 Charging time

The following table shows typical charging times for different batteries.

| Battery | 500 mA travel chargers | AC* and K** chargers | "Simple" unregulated chargers 230 V Nom. (110 V Nom.) | |
|---------|------------------------|----------------------|---|------------------|
| | 94 V à 254 V | | 230 V (110 V) | 254 V (121 V) |
| L860 | 2h45 | 3 h | 3h45 | 3h20 |

* : cigar lighter chargers (12 V et 24 V)

** : car handsfree kits (Values screen off).

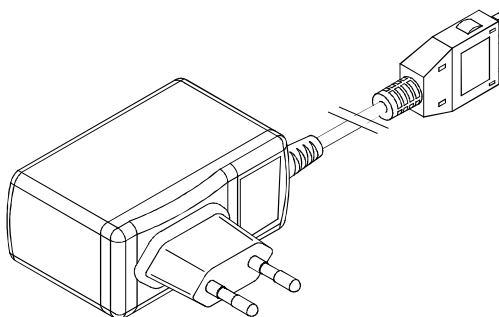
2.5.2 Mains modules

2.5.2.1 Description

These mains power supply modules accept large dynamic variations in the power supply network. They are available for a number of connector types:

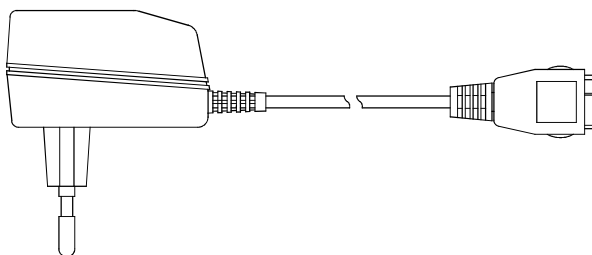
- E.U,
- United Kingdom
- United States,
- Australia.

2.5.2.2 Travel mains modules



| Designation | Weight (g) | Vol (cm ³) | Primary voltage |
|---|------------|------------------------|-----------------|
| <i>UNREGULATED TRAVEL MAINS POWER SUPPLY MODULES 6.5 V. 500 mA.</i> | | | |
| TRAVEL 500 mA. EC | 100 | 75 | 110/230 V |
| TRAVEL 500 mA. UK | 110 | 90 | 110/230 V |
| TRAVEL 500 mA. US | 125 | 65 | 110/230 V |
| TRAVEL 500 mA. AUS | 100 | 75 | 110/230 V |

2.5.2.3 Mains modules



| Reference | Weight (g) | Vol (cm ³) | Primary voltage |
|---|------------|------------------------|-----------------|
| <i>SIMPLE UNREGULATED MAINS POWER SUPPLY MODULES 1.5 V. 300 mA.</i> | | | |
| EC MAINS MODULE | 180 | 85 | 230 V |
| UK MAINS MODULE | 180 | 120 | 230 V |
| US MAINS MODULE | 210 | 105 | 110 V |
| AUS MAINS MODULE | 190 | 105 | 230 V |