Motorola V290

Disassembly & Download Introduction

Version 1.0

Disassembly

Introduction

Responsible care should be taken during the disassembly and reassembly of the units in order to avoid damaging or stressing the housing and internal components. Ensure that a properly grounded high impedance conductive wrist strap is used while performing these procedures on electronic units.

NOTE **Many of the integrated circuit devices used in this equipment are vulnerable to damage from static charges. Ensure that adequate static protection is in place when handling, shipping, and servicing the internal components of this equipment.**

Recommended Tools

The following tools (or similar tools with the same functions) are recommended for use during the disassembly and reassembly of the phone.

- Anti-Static Mat (Ground Cord included)
- Anti-Static Wrist Strap
- Torque Screw Driver (T5 type, torque is set to 1.2kg-cm)
- Tweezers

Disassembly Procedure

The following information describes the procedure for removing and accessing various parts of the phone.

Case 4 Removal

1. Turn off the telephone.
2. Slide down the battery cover.

3. Remove the battery pack from Case 4.

4. Remove the SEAL label.

5. Release the four screws and remove them.

6. Unclip the 2 snap fits from the left and right hand sides of the unit and separate Case 4 from Case 3.

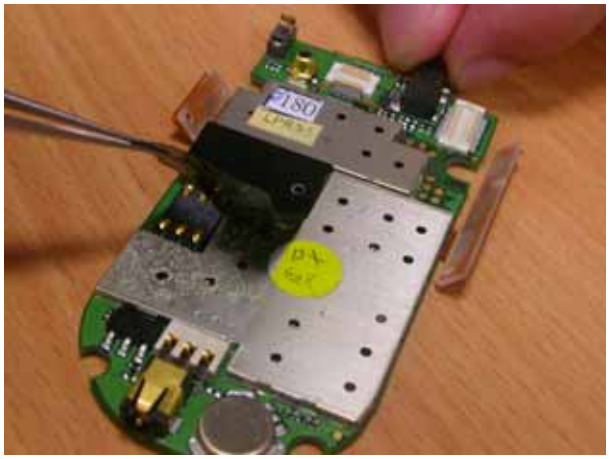
7. Remove speaker from Case 4 by tweezers.

7. Unlock FPC board to board connector from Main board carefully.

Main Board Removal

1. Carefully separate the main board from the Case 4.

2. Remove SIM Card Mylar from shielding case.



3.Remove the Shielding case (RF) by tweezers.

4.Remove Shielding case (BB) by tweezers.

5.Place the main board facing downwards on an anti-static mat.

6.Remove right and left side-key.

7.Remove keypad from Case 3.

LCD Module Removal

1.Remove screw label by tweezers.

2.Remove Logo by tweezers.

3.Release the three screws and remove them.

4.Remove LCD Lens.

5.Remove Capacity Rubber
by tweezers.

6.Unlock LCD Module connector
by screw driver carefully.

7. Carefully separate LCD Module
from Case 1 by bending the
locking Tab.

8.Place a protection tape over the LCD Module.

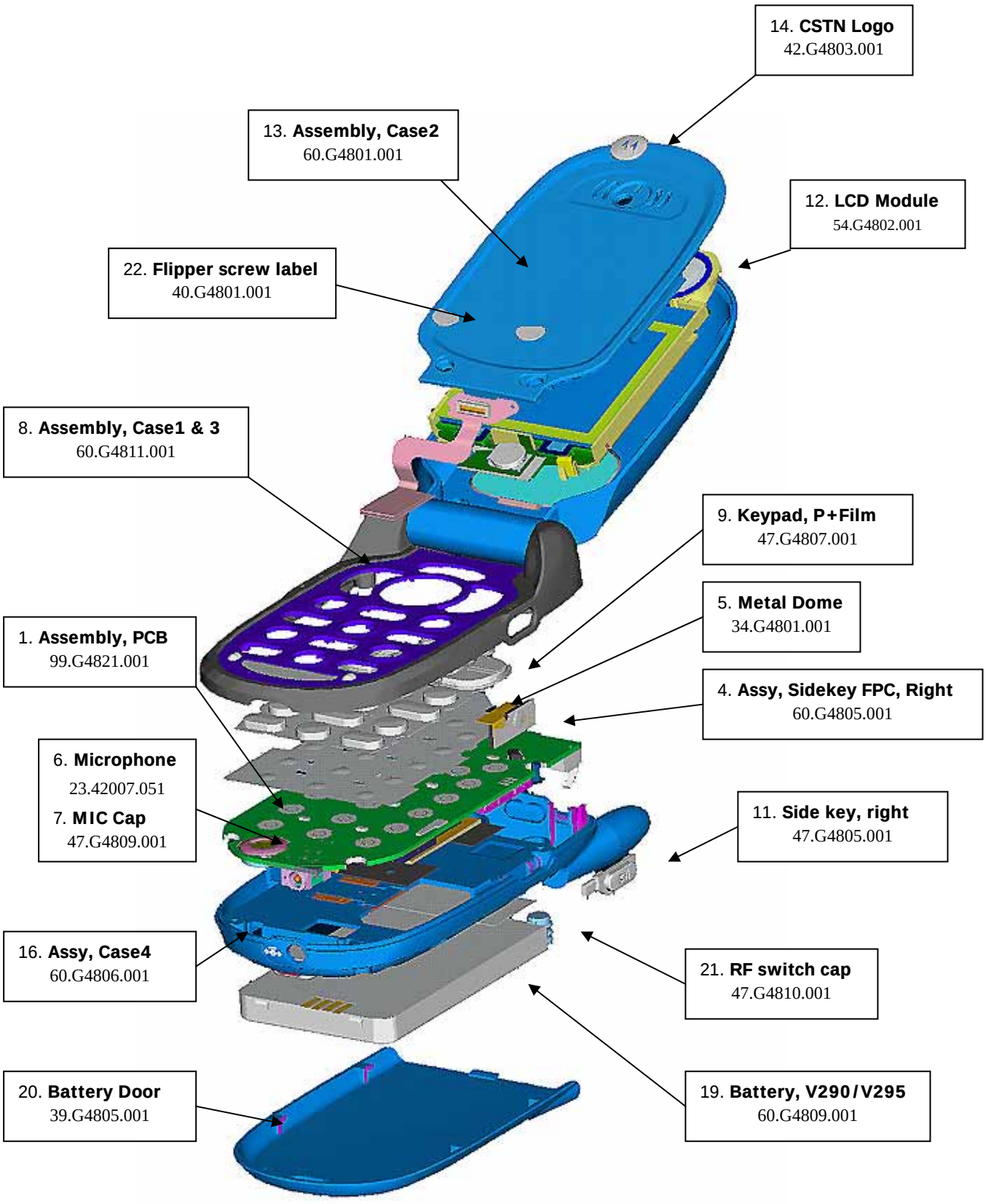
NOTE **Do not touch the LCD module with your hands!**

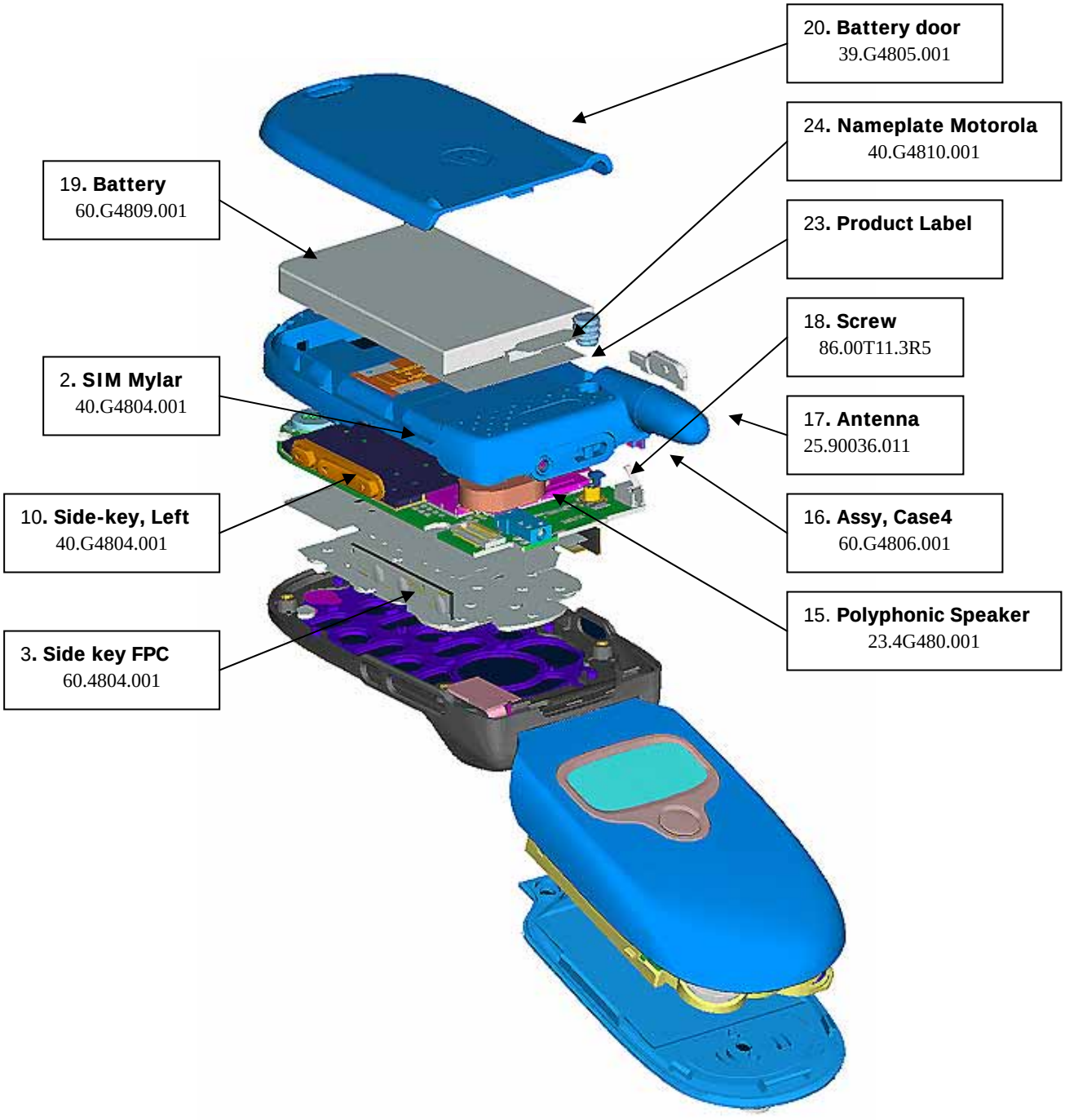
9.Separate Case 1 and Case 3 by pressing hinge and remove Case 1 Carefully.

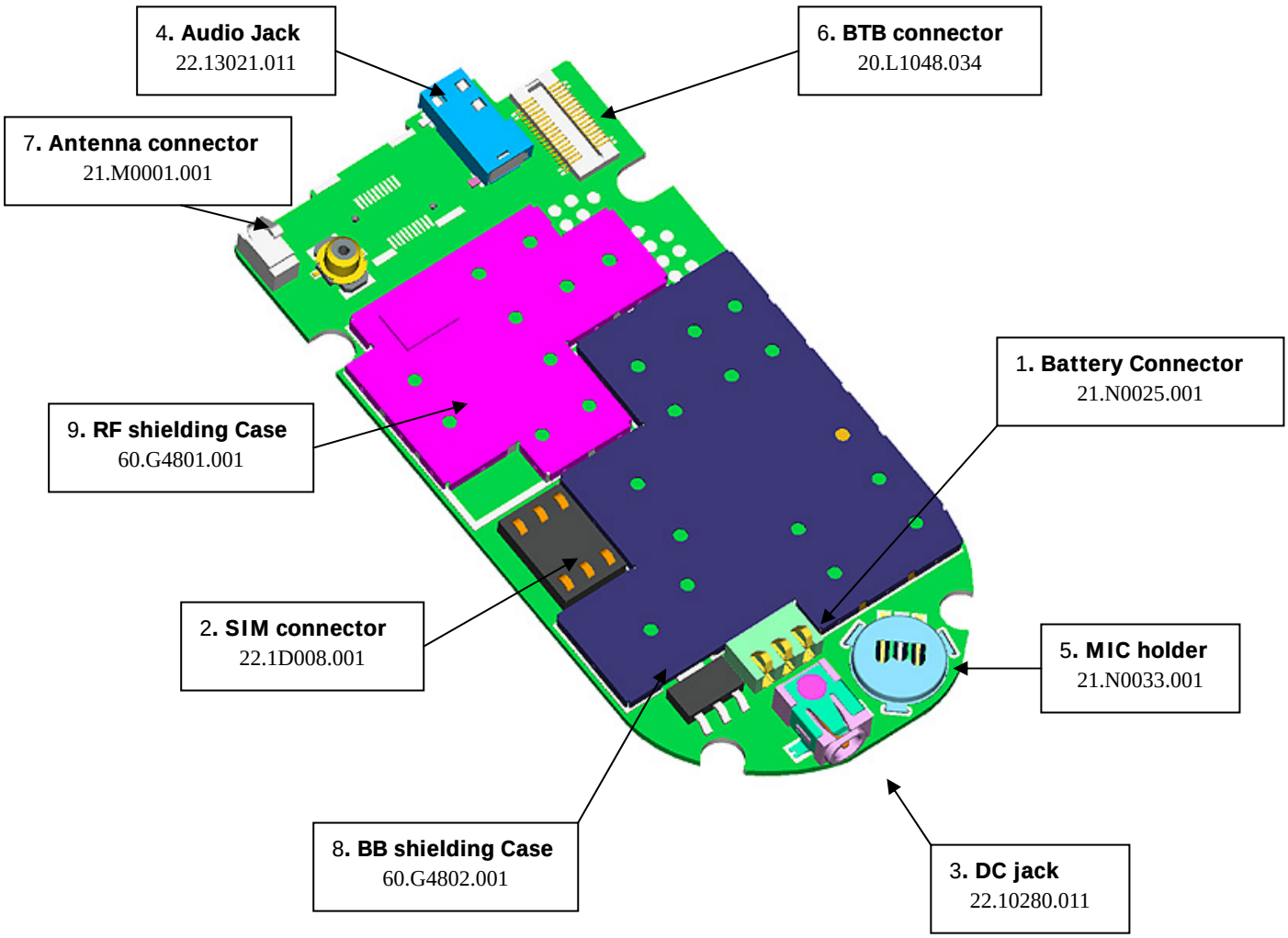
10.Reomve FPC from Case 1 carefully.

Assembly Procedure

Once the unit is disassembled and the repair is carried out, it then becomes obvious that to assemble the unit, the procedure is the reverse of that previously completed for disassembly.


14. CSTN Logo
42.G4803.001
13. Assembly, Case2
60.G4801.001
12. LCD Module
54.G4802.001
22. Flipper screw label
40.G4801.001
8. Assembly, Case1 & 3
60.G4811.001
9. Keypad, P+Film
47.G4807.001
5. Metal Dome
34.G4801.001
1. Assembly, PCB
99.G4821.001
4. Assy, Sidekey FPC, Right
60.G4805.001
6. Microphone
23.42007.051
7. MIC Cap
47.G4809.001
11. Side key, right
47.G4805.001
16. Assy, Case4
60.G4806.001
21. RF switch cap
47.G4810.001
20. Battery Door
39.G4805.001
19. Battery, V290/V295
60.G4809.001


20. Battery door
39.G4805.001
24. Nameplate Motorola
40.G4810.001
19. Battery
60.G4809.001
23. Product Label
18. Screw
86.00T11.3R5
2. SIM Mylar
40.G4804.001
17. Antenna
25.90036.011
10. Side-key, Left
40.G4804.001
16. Assy, Case4
60.G4806.001
15. Polyphonic Speaker
23.4G480.001
3. Side key FPC
60.4804.001


4. Audio Jack
22.13021.011
6. BTB connector
20.L1048.034
7. Antenna connector
21.M0001.001
1. Battery Connector
21.N0025.001
9. RF shielding Case
60.G4801.001
2. SIM connector
22.1D008.001
5. MIC holder
21.N0033.001
8. BB shielding Case
60.G4802.001
3. DC jack
22.10280.011

Spare part list

NO	P/N	DESCRIPTION	Q'TY
1	20.L1048.034	BTB CONNECTOR	1
2	21.M0001.002	CONN ANTENNA ACT/216-800 56F05	1
3	21.N0025.021	CONN SMD BATT 3P BLACK 56F05	1
4	21.N0033.001	CONN MIC 10D KK25302-GC 56D91	1
5	22.10280.011	SKT JACK PWR 4P ACON/PJK15	1
6	22.13021.031	SKT JACK AUDIO RT5P ACON/AJR4T	1
7	22.1D008.011	SKT SMD SIM 2R6P H1.9 ACT/217	1
8	23.42007.051	MICROPHONE2.2K58DB WM-64MNY102	1
9	23.4G480.004	SPEAKER 1W7.40H MSP1218A-01 V4	1
10	25.90036.011	ANTENNA D/B ANADIZD BLUE 56F05	1
11	34.G4801.006	VITA METAL DOME 56F05	1
12	39.G4805.002	COVER BATTERY VITA 56F05	1
13	40.G4801.001	LABEL SCREW V290	2
14	40.G4810.011	NAME PLATEMOTOROLA SILVER TEAL	2
15	40.G4804.002	MYLAR SIM-BLACK 56F05	1
16	40.G4810.001	NAME PLATE MOTOROLA BLUE 56F05	1
17	47.G4804.005	VITA SIDEKEY LEFT 56F05	1
18	47.G4805.005	VITA SIDEKEY RIGHT 56F05	1
19	47.G4807.006	KEYPAD V290 P+F ENG. 56F05	1
20	47.G4809.001	MIC CAP 56F05	1
21	47.G4810.006	RF SWITCH CAP	1
22	56.07G48.009	LCD MODULE LP8670-B PHILIPS	1
23	60.G4801.001	RF SHIELDING CASE	1
24	60.G4802.001	ASSY BB SHIELDING CASE	1
25	60.G4804.005	ASSY FPC SIDEKEY LEFT 56F05	1
26	60.G4805.005	ASSY FPC SIDEKEY RIGHT 56F05	1
27	60.G4806.003	ASSY CASE4 VITA 56F05	1
28	60.G4808.002	ASSY BATT VITA LIION 700MA W/O	1
29	60.G4810.005	ASSY CASE2 METAL BROWN	1
30	60.G4811.004	ASSY CASE1+CASE3 BLUE	1
31	60.G4820.001	ASSY CSTN LOGO 56F05	1
32	86.00T11.3R5	SCRW FLAT TORX M1.6*3.5L NI	8
33	99.G4821.002	ASSY PCB	1

Download

Introduction

This document describes all functions in service XDMTool.

◎ **System requirement and setup:**

Minimum requirement:

Operation system: Win95/ Win98 / WinNT / Win2000.
CPU: Pentium 233 MHZ or higher.
Hard Disk: Free 10MB space.
Memory: 64MB RAM.
Input Device: Keyboard and mouse

Calibration requirement:

1.Instrument for calibration Hp8922M GSM/DCS/PCS MS Test Set
Hp8960 GSM/DCS/PCS RF Interface

2.GPIB interface card and cable For RF calibration

3.Power Supplies:
HpE3631, Hp66332A , Hp66311 , Hp66111 , Hp66309

4.Communication cables Rs232 and Acer Downloader

5.RF Cable 50 ohm cable for RF calibration.

6.Dummy battery For RF and battery calibration.

Setup in window:

In Windows 95/98/NT/2000, extract the XDMTool compress files to any temporary directory. It will create DISK1and DISK2 this subdirectory. Please go into the DISK1 and double click the setup.exe. The Install shield will auto setup the XDMtool in your operating

◎ Function Description:

A. New Download:

- Download interface and download code type

  The download interfaces : RS232 – Normal, RS232 – Middle, RS232 – Fast . The download code type consists of boot code, program code and language pack. Up to now, the language pack is not supported

- Baud rate and data cable

  When you select RS232—Normal to download, the baud rate is 115200, it uses the normal Rs232 data cable. But when you choose RS232 – Middle or RS232 – Fast to download, you must have a

  “USBToRs232” data cable, or it will not work.

  In general, the user uses the common RS232 data cable to start the download procedure. However, USB-to-RS232 data cable should be used to the fast download procedure with 403200 baud rate.

- Com port

  New download support multi-download functionality, you must press the button  to open the com port that you want to download, After opening, it will be changed : 

- Boot code and Program code:

  After choosing the interface and com port, you must select the boot code and program code.

  Boot code: r_BRom_BrVL_001.mot

  Tool version: **>=1.4.1**

- Download interface: **RS232 interface**
- Current load version in handset: **>=0.39**
- New download load version : **any version**

Solution:

- Boot code: new boot code (r_BRom_BrVL_004.mot).

Program code:

The extension name of program code is “mot”, you can choose it by pressing “File→LoadMot” to select the correct program code.

Finally, before starting press “Download” button on tool bar, you must power off the handset first. When the string “Wait for target ready” appears, press the end key, then the download process starts.

Remark:

It must be emphasized that never stop or remove the power supply (battery) when your handset is downloading the block 0 and block 1 program codes. It is writing critical boot codes at this time. If you terminate the download process at this moment, this handset not only can not power on but also can not be re-download again. In this case, the only solution is using a special “JTAG interface and cable “ to do a low-level download.

2.2 General View

1. Click “View”->”New Download” menu item and the main view would be showed such as Fig.2.1.

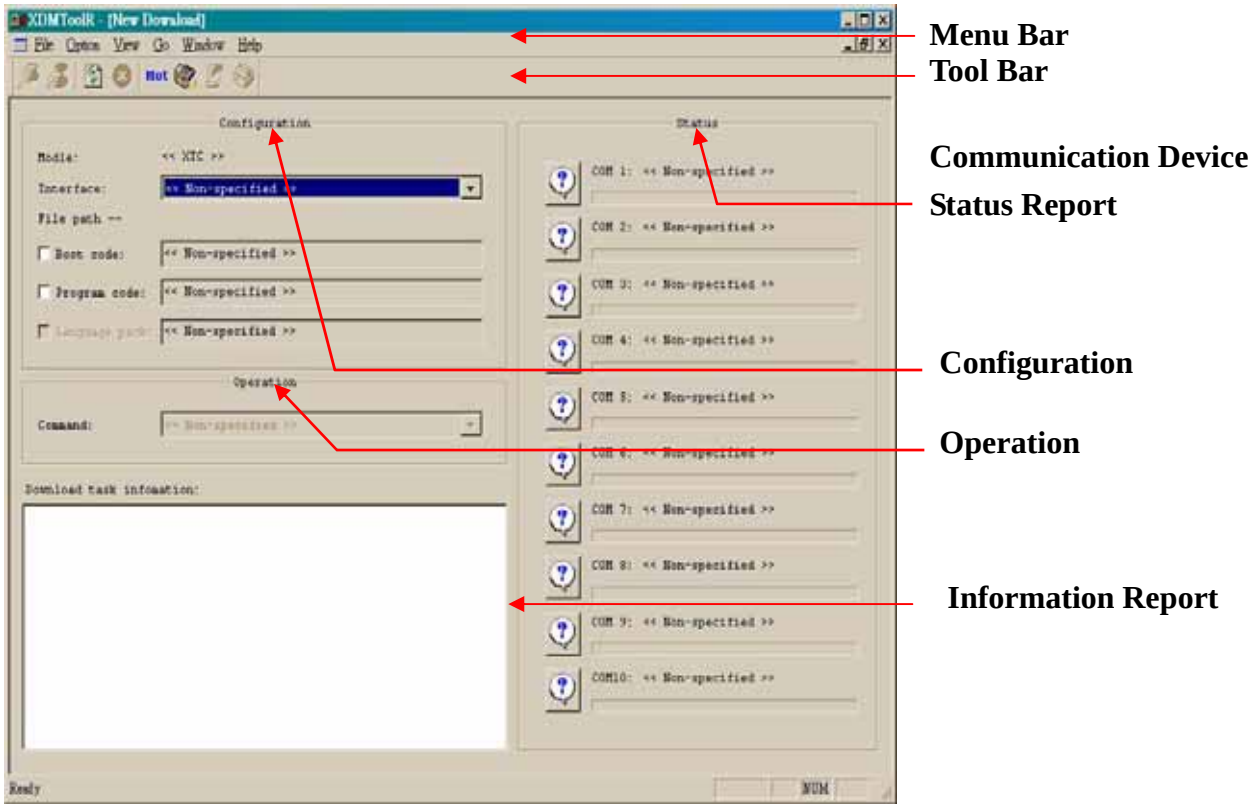


Fig.2.1. The user-defined file system manager view.

3 Multi-Fast-Download Functions

We separate the functions of the multi-fast-download into three parts include download code assignation, download procedure and independent command operation.

First, before starting download procedure, the user should specify the essential code file paths and then the program would convert it to binary blocks in memory. Second, these block blocks would be downloaded to the handset through the communication data cable when starting download procedure. Final, after finishing the download procedure, the user could then control the handset via the commands.

3.1 Download code assignation

1. Click “File”->”Load Mot” or “File”->”BootCode” menu items or tool bar

icons to specify the download code file paths. The operation is shown as Fig.3.1.

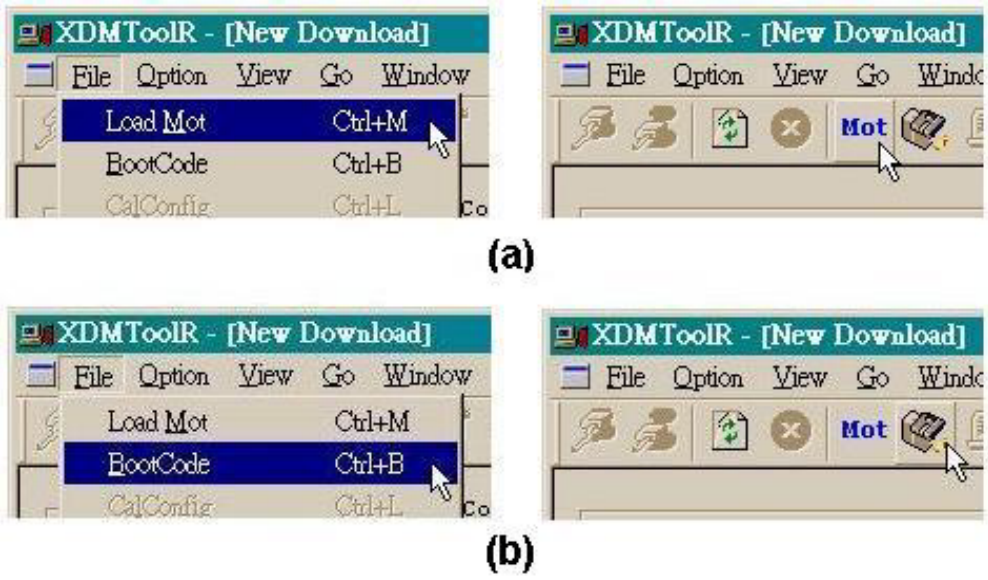


Fig.3.1. Assign (a) program code or (b) boot code.

2. The specified file path and its converted binary block size would be showed as Fig.3.2.

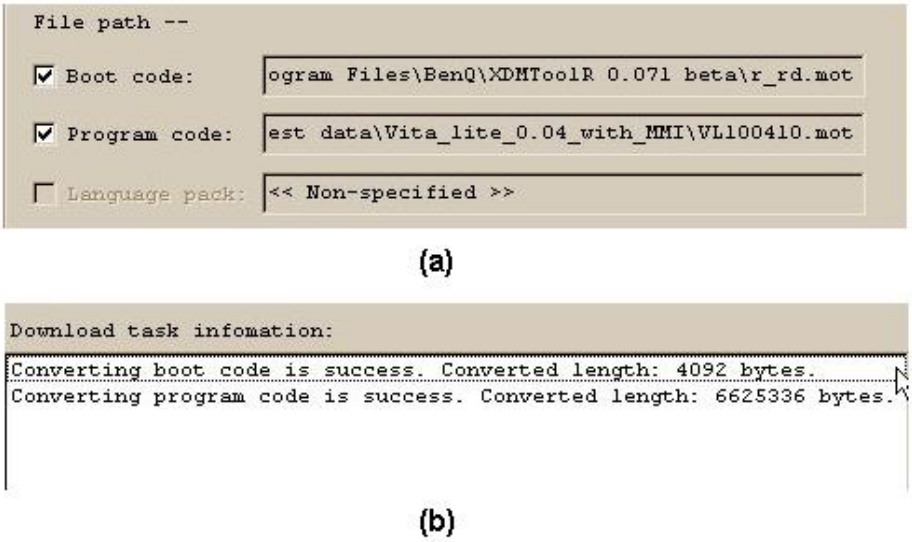


Fig.3.2. (a) Specified file path and (b) its converted binary block size.

3.2 Download procedure

3.2.1 Download interface

1. Click the list box and specify a download interface. The operation is shown as Fig.3.3.

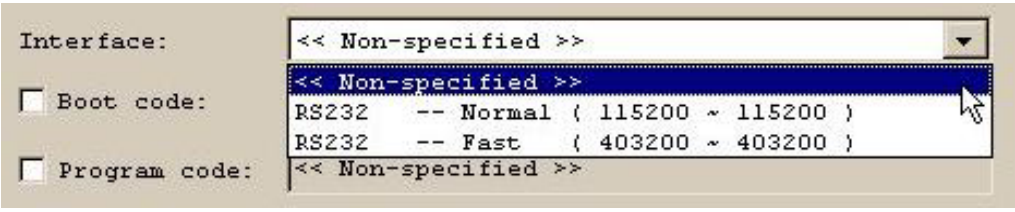


Fig.3.3. Specify a download interface.

3.2.2 Communication device

1. Click download status button to indicate whether its associated communication device would be used in download procedure. The operation is shown as Fig.3.4.

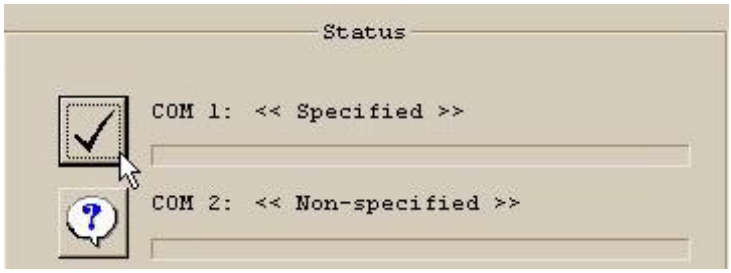


Fig.3.4. Indicate essential associated communication device.

3.2.3 Start the download procedures

1. Fig.3.5 illustrates to start a download procedure. The specified communication device would be running and download procedure information would be showed.

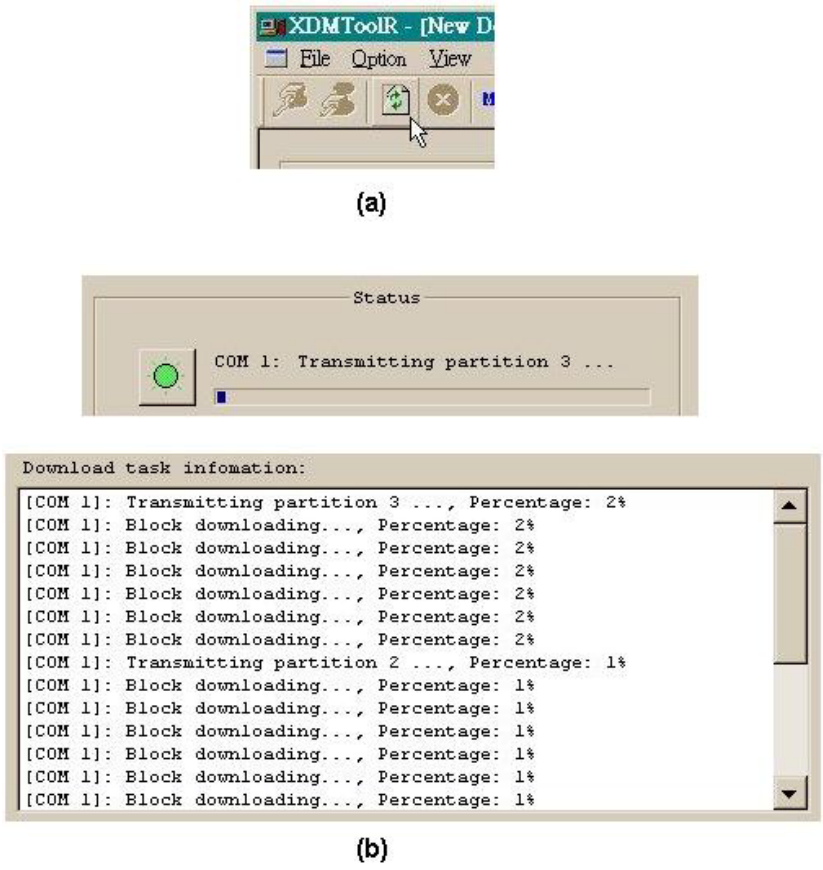


Fig.3.5. (a) Start a download procedure and (b) its download infomation.

3.2.4 Stop the download procedures

1. The use could stop all current procedures or the independent one. The operation is shown such as Fig.3.6.

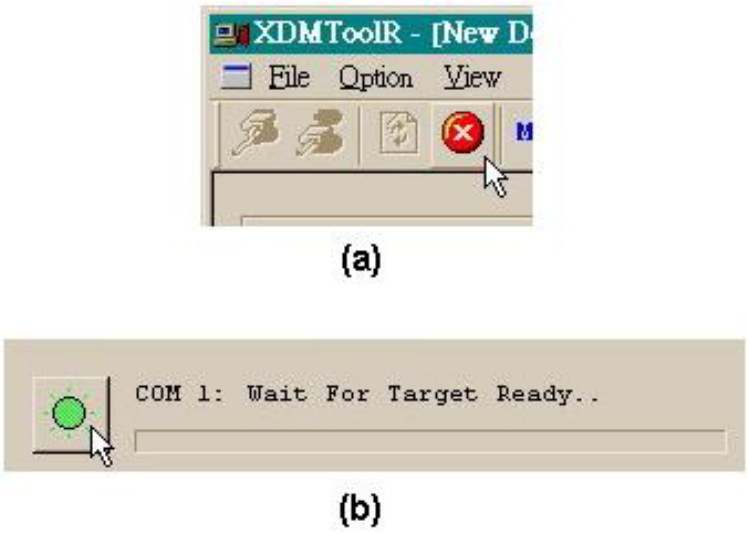
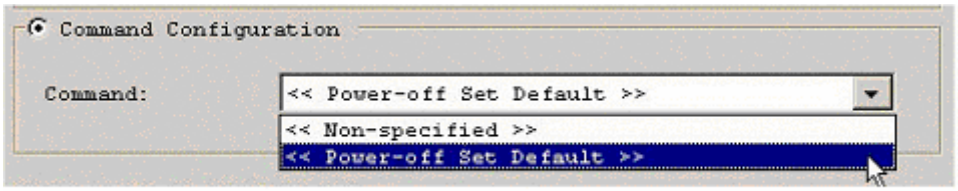


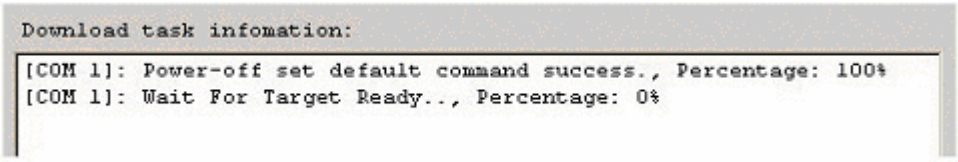
Fig.3.6. Stop (a) all procedures or (b) independent one procedure.

B. Power off set default:

Fig.1 illustrates to start a command procedure. The specified communication device would be running and command procedure information would be showed.



(a)

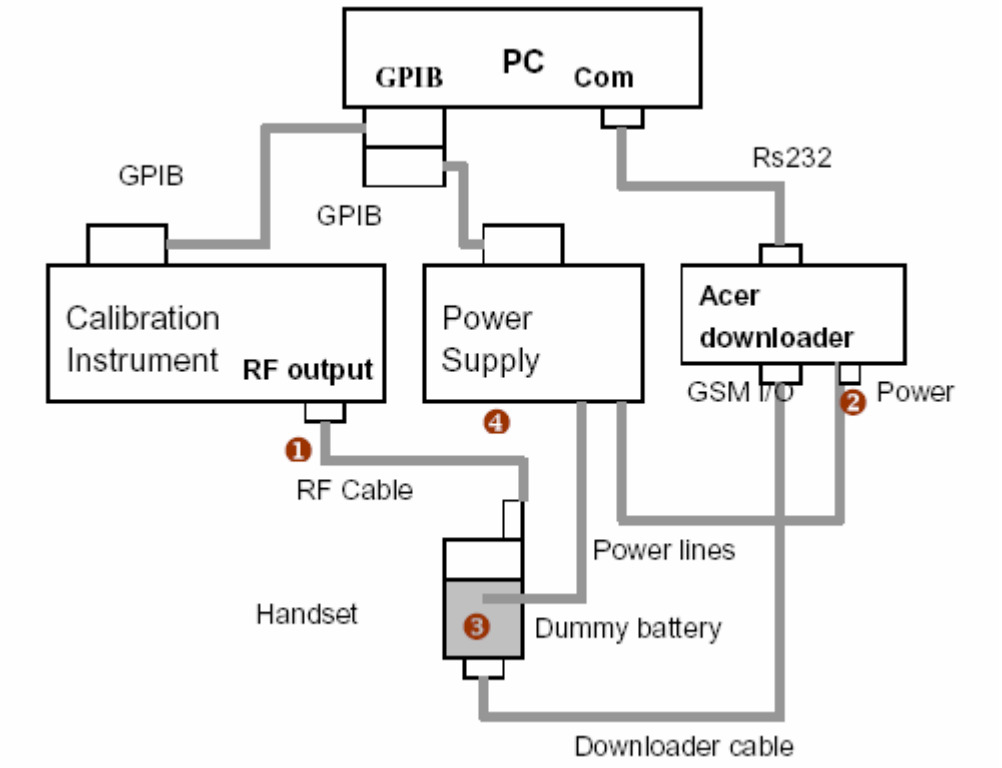


(b)

Fig.1. (a) Specify and (b) its command information.

C. Auto Calibration

(1) Calibration connects cable:



PS:

1. In some calibration instrument, the RF output of GSM and DCS are different, so you must calibrate GSM and DCS each other.

2. If you have no connector with power supply and Acer downloader, you can get a travel charger and cut it, then divide the positive and negative electrode to connect into power supply.

(2) Calibration Item:

2-1.Configuration file :

The auto-calibration configure file contents some optimal value for some object in handset and some parameters dependent on calibration device and handset.

2-2.Calibration Type :

The calibration type was divided into two parts: Auto Calibration and Manual Calibration.

2-3.Auto Calibration :

Choose the items that you want to calibrate when running auto-calibration

function.

AFC: Frequency.

AGC: RxGain.

APC: TxPower.

ADC: Battery is for battery A/D converter calibration.

ARC: Ramping table calibration.

(3) Before running Calibration:

Before start calibration you must check the following things:

3-1 Change your battery to dummy battery.

3-2 Check connect cable is OK?

3-3 Check GPIB interface is OK?

3-4 Power on power supply and set it to 3.8V

(4).Run Calibration:

4-1.Click “View”->”Auto Calibration” menu item and the main view would be showed such as Fig.2.

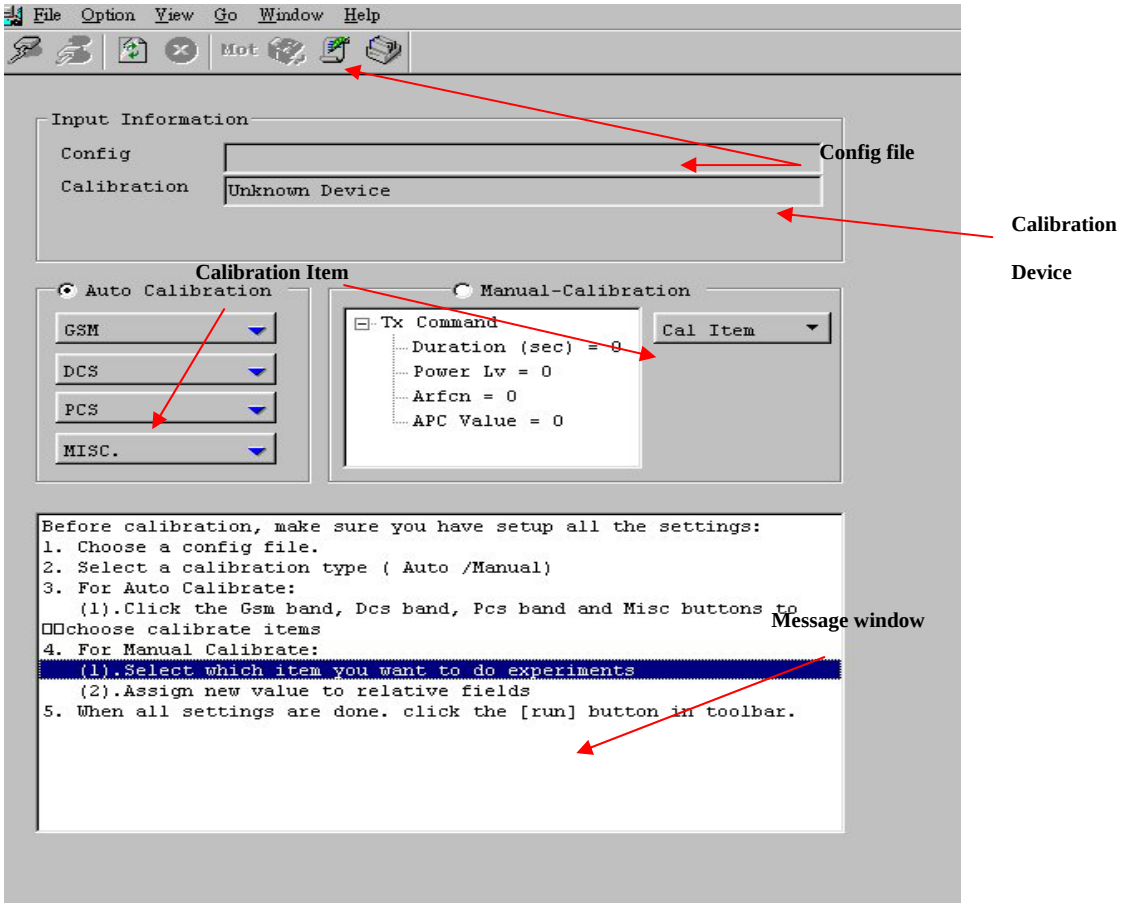


Fig.2. The Auto Calibration main view.

Terminology:

Message Window: Display all related information during calibration.

Calibration Item: To select calibration items.

Calibration Device: Shows the calibration device is used during the calibration process.

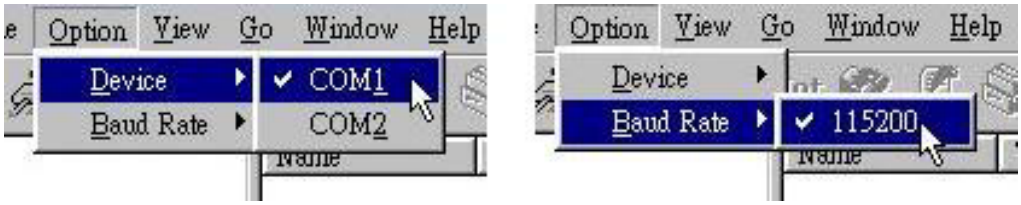
DataBase File: The corresponding database file of the handset software load

4-2.Performing a Calibration

This Section is to demonstrate how a user can operate a calibration process step-by-step.

(1). Setting up Com Port and Baud Rate

1. Click “Option”->”Device” menu item to assign serial communication port and “Option”->”Baud Rate” menu item to specify the baud rate. Fig.3 shows these operations.



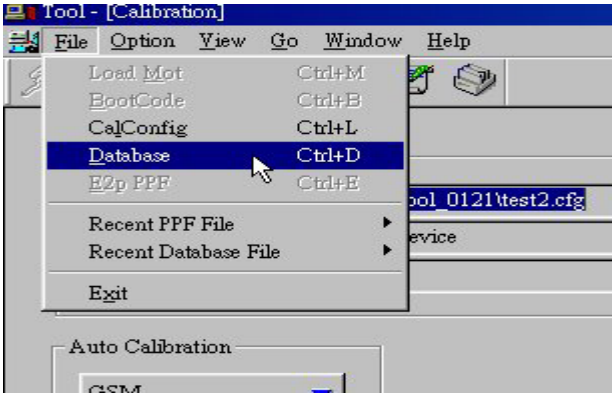
(1) (2)

Fig.3 Specify the (1) serial communication port and (2) baud rate.

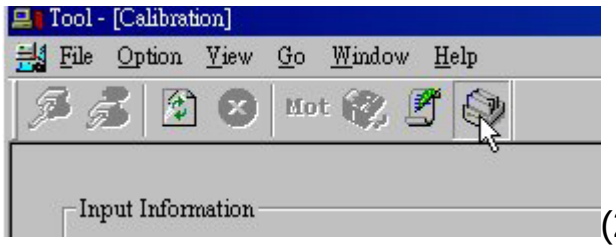
(2). Assign a corresponding database file

1. Click “File”->”Database” menu item to assign a database file. User can also click on the Database button to perform the same task.

   Fig.3.1 shows these operations.



(1)



(2)

Fig.3.1. Select a database file (1) from menu (2) from button.

(3). Selecting the desired calibration items

1. Select the desired calibration item as figure 4.

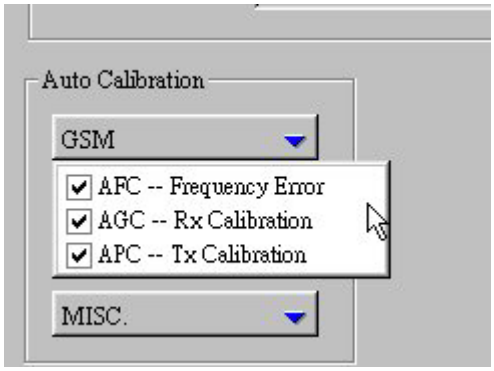
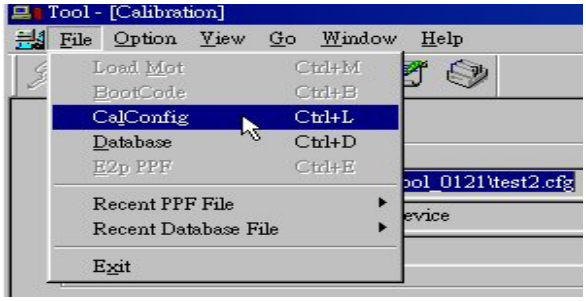


Fig.4 Select the desire item for calibration

(4). Assign a Configuration file

1. Due to different model of handset, the setting of the configuration file may be different. To select a configuration file, click “File”->”CalConfig” menu item from menu bar, or simply click on the configuration file button.



(1)

(2)

Fig.5. Select the configuration file from (1) menu bar (2) configuration file button.

(5). Run

There are 2 kinds of calibration. Auto Calibration and Manual Calibration.

5-1.Auto Calibration

To run an Auto calibration, proceed to the following steps.

1. First go through steps that was described in the first.
2. Click on the radio button “Auto Calibration” as figure 6.1.

3. Click on the run button as figure 6.2.

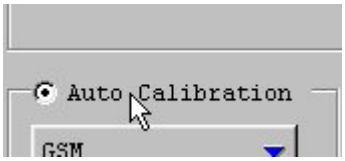


Fig.6.1 To select auto calibration radio button

Fig.6.2 To execute a auto calibration

5-2.Manual Calibration

To run a Manual Calibration, proceed to the following steps.

2. First go through steps from was described in the first.

3. Click on the radio button “Manual Calibration” as figure 6.3.

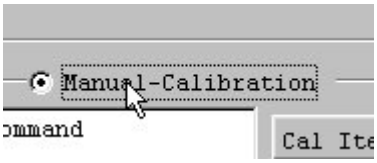


Fig.6.3 To select Manual calibration radio button

4. Select TX command or RX command on desire band by clicking on the Cal_Item button as figure6.4.

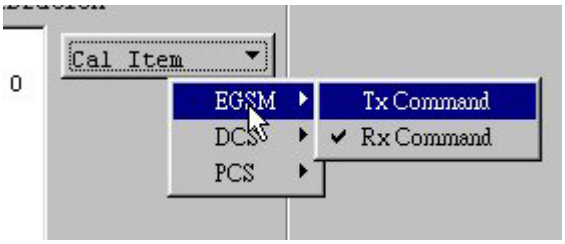


Fig.6.4 To select desired command

3.1 .Fill in the input parameters

TX command parameters:

Duration: the duration in seconds for running a TX command.

Power Lv: Power level to be tested.

Arfcn: Arfcn to be tested.

APC Value: APC Value to be tested. Refer to Appendix A.4 for the recommend APC value on each power level.

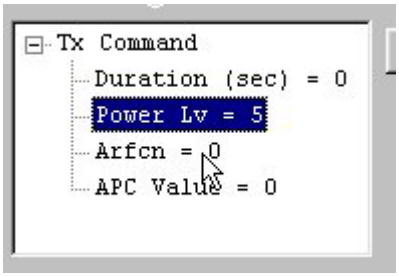


Fig.6.5 Input-parameter for TX command.

RX command parameters:

Duration: the duration in seconds for running a RX command.

Arfcn: Arfcn to be tested.

Gain: Gain value to be tested.

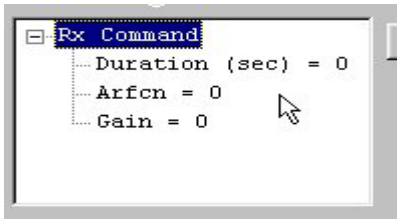


Fig.6.6 Input-parameter for TX command.

4. After input the appropriate parameters, simply click on the run button.

Fig.6.7 To execute a manual calibration