

12. DOWNLOAD AND CALIBRATION

12.1 Download

Fig. 12-1 and 12-2 illustrate a download set-up.

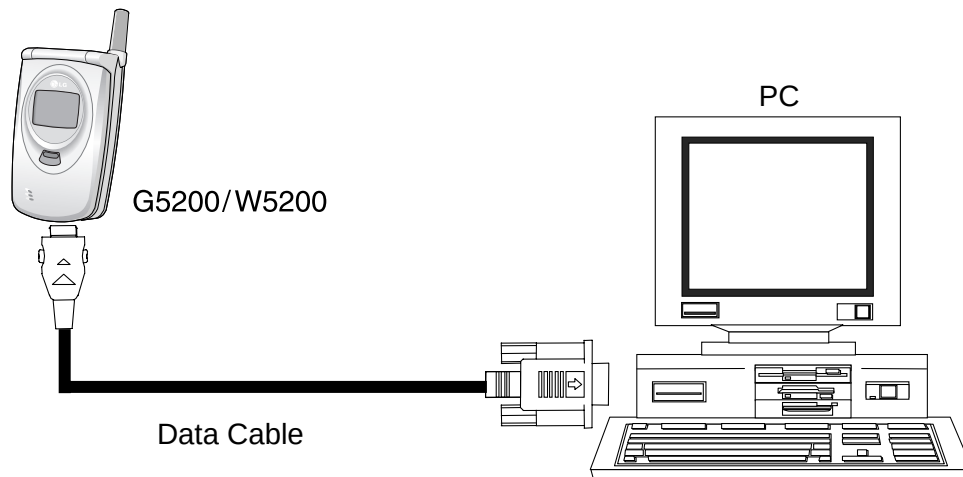


Figure 12-1. Download Setup 1.

Download procedure

- Access flash loader program in PC.
- Select source code you want to download.
- Don't check OWCD AND VERIFY in flash loader window.
- Push start button in flash loader window.

Condition

1. Disconnect TA to the Datakit and phone have a battery
 - a. $V_{BAT} < 3.2V$
Don't download to the phone.
 - b. $3.2V \leq V_{BAT} \leq 3.4 V$
First : Connect Datakit to the phone.
Second : Push the power on button until finish download.0
 - c. $V_{BAT} > 3.4V$
First : Connect Datakit to the phone.
Second : Push the power on button during 1~2second.

2. Connect TA to the Datakit and phone have a battery
 - a. $V_{BAT} < 3.2V$
Don't download to the phone.
 - b. $V_{BAT} \approx 3.2V$
Connect Datakit to the phone.
3. Download method when battery under 3.2 voltage
 - First : Remove battery in the phone
 - Second : Connect TA to the Datakit
 - Third : Connect phone to the Datakit.

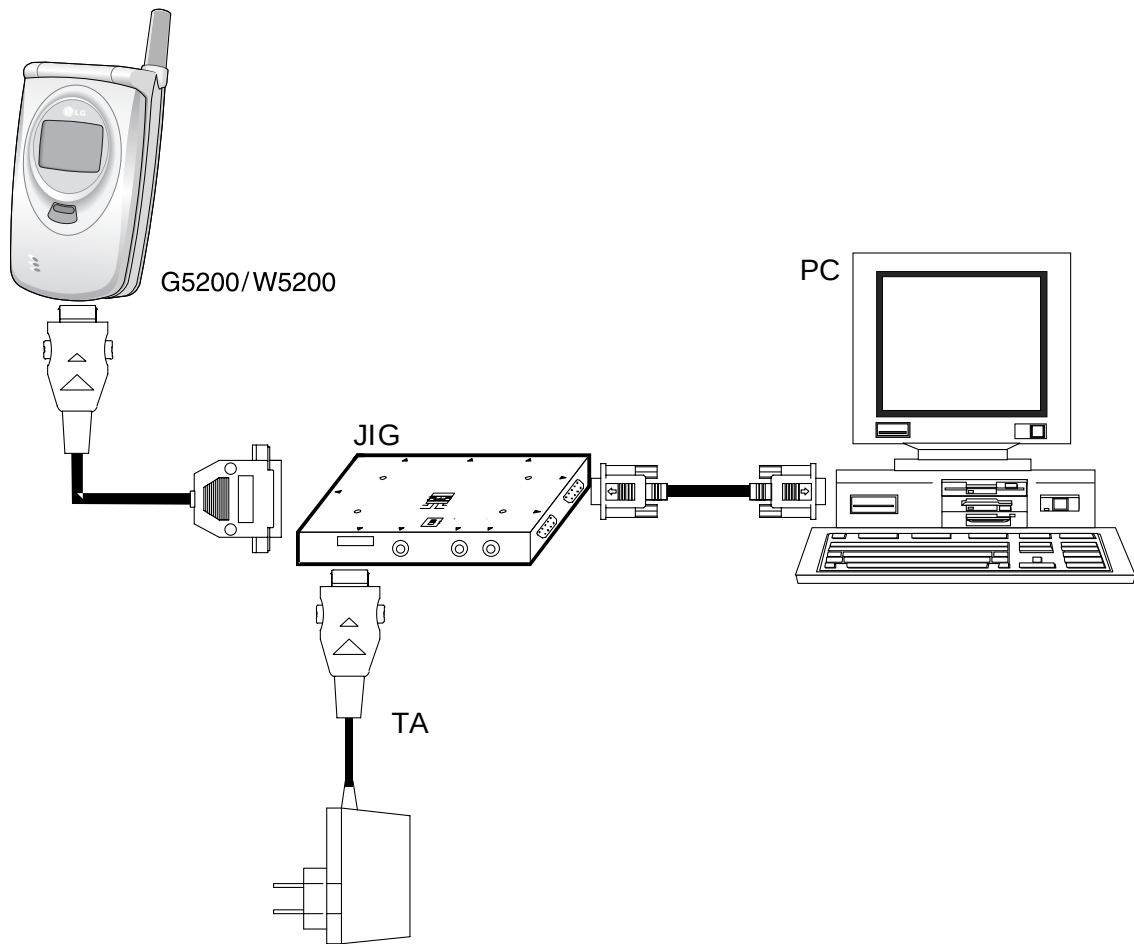


Figure 12-2. Download Setup 2.

12.2 Calibration

A. Equipment List

Table 12-1. Calibration Equipment List.

Equipment for Calibration	Type / Model	Brand
Wireless Communication Test Set	HP-8960	Agilent
RS-232 Cable and Test JIG		LG
RF Cable		LG
Power Supply	HP-66311B	Agilent
GPIO interface card	HP-GPIO	Agilent
Calibration & Final test software		LG
Test SIM Card		
PC (for Software Installation)	Pentium II class above 300MHz	

B. Equipment Setup

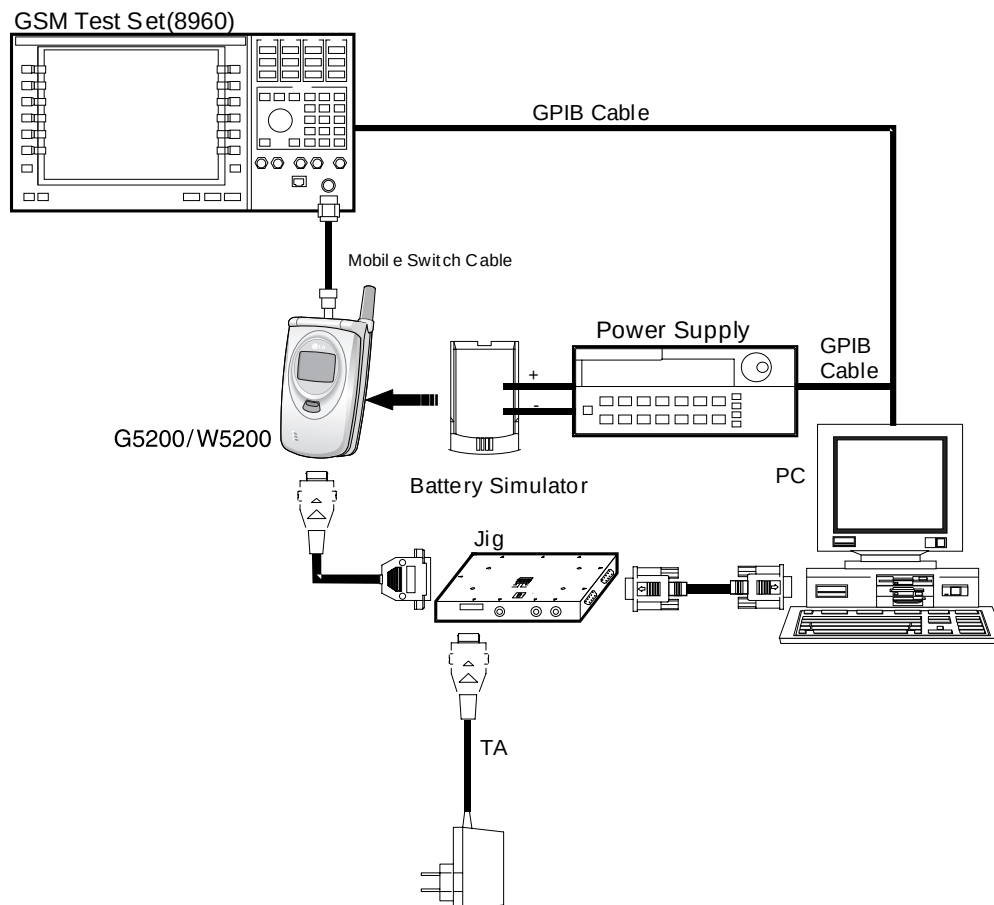


Figure 12-3. Equipment Setup.

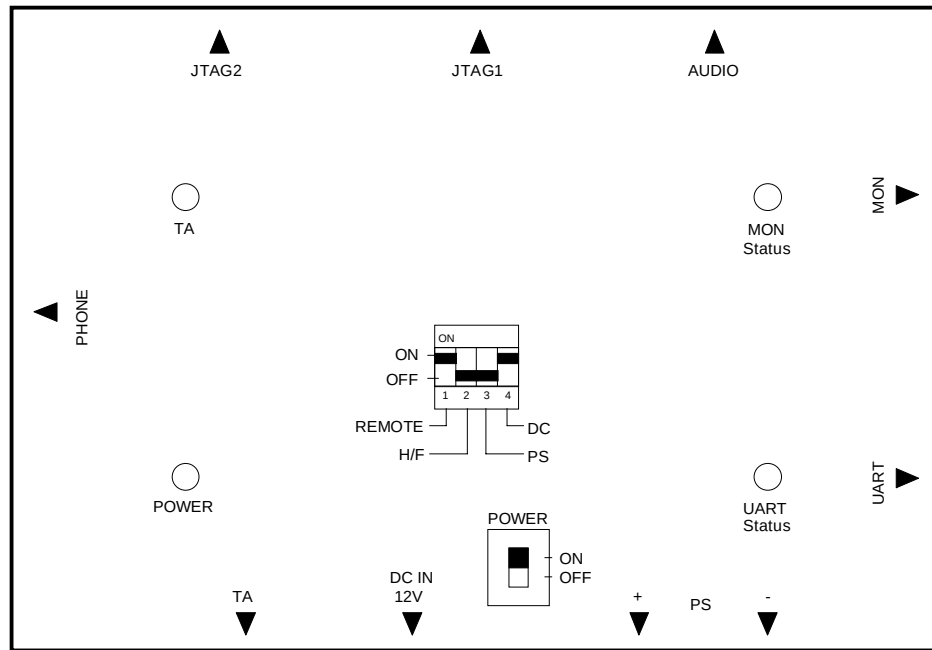


Figure 12-4. The top view of Test Jig.

C. Test Jig Operation

Table 12-2. Jig Power.

Power Supply	usually 4.0V
DC Adaptor	9.5V, 500mA

Table 12-3. Jig DIP Switch.

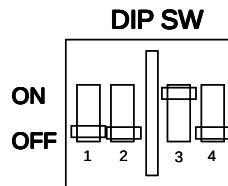
Switch Number	Name	Description
Switch 1	RPWRON	In ON state, phone is awaked.
Switch 2	HF_DETECT	Turn on for AUDIO TEST
Switch 3	Power Supply	Power is provided for phone from Power Supply
Switch 4	D.C power	Power is provided for phone from DC adaptor.

Table 12-4. LED Description.

LED Number	Name	Description
LED 1	POWER	Power is provided for Test Jig
LED 2	TA	Indicate charging state of the phone battery
LED 3	UART	Indicate data transfer state through the UART port
LED 4	MON	Indicate data transfer state through the MON port

12. DOWNLOAD AND CALIBRATION

1. Connect as Figure 12-3.(RS232 Serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0 V, also DC adaptor may be used



3. Set the 3rd of DIP SW ON state, In case of DC adapter, set 4th ON state
4. Press the Phone power key, If the Remote ON is used, 1st ON state

D. Procedure

1. Connect as Figure 12-3.(RS232 Serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. POWER ON PC then enter into Windows 98.(Remark: Windows 2000 system could be feasible)
3. Run AUTOCAL.exe, then AUTOCAL application window will be appeared.

13. ENGINEERING MODE

A. About Engineering Mode

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset.

B. Access Codes

The key sequence for switching the engineering mode on is 2945##*. Pressing END will switch back to non-engineering mode operation.

C. Key Operation

Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back' key will switch back to the original test menu.

13.1 BB Test [MENU 1]

Baseband Test

A. LED [1-1]

This menu is to test the indicator LED on the folder of a handset.

- **Red [1-1-1]** : Red light turns on
- **Blue [1-1-2]** : Blue light turns on
- **Yellow [1-1-3]** : Yellow light turns on
- **Orange [1-1-4]** : Orange light turns on
- **Pink [1-1-5]** : Pink light turns on
- **Green [1-1-6]** : Green turns on
- **Violet [1-1-7]** : Violet light turns on

B. LCD [1-2]

This menu is to test the LCD contrast.

- **Contrast Value [1-2-1]** : Change this value by up and down key.

C. Backlight [1-3]

This menu is to test the LCD Backlight and Keypad Backlight.

- **Backlight On [1-3-1]** : LCD Backlight and Keypad Backlight light on at the same time.
- **Backlight Off [1-3-2]** : LCD Backlight and Keypad Backlight light off at the same time.
- **Backlight value [1-3-3]** : This controls brightness of Backlight. When entering into the

menu, the present backlight-value in the phone is displayed. Use Left/Right key to adjust the level of brightness. The value of the brightness set at last will be saved in the NVRAM.

D. Buzzer [1-4]

This menu is to test the melody sound.

- **Melody on [1-4-1]** : Melody sound is played through the speaker.
- **Melody off [1-4-1]** : Melody sound is off.

E. Vibrator [1-5]

This menu is to test the vibration mode.

- **Vibrator On [1-5-1]** : Vibration mode is on.
- **Vibrator Off [1-5-2]** : Vibration mode is off.

F. ADC (Analog to Digital Converter) [1-6]

This displays the value of each ADC.

- **MVBAT ADC (Main Voltage Battery ADC) [1-6-1]**
- **AUX ADC (Auxiliary ADC) [1-6-2]**
- **TEMPER ADC(Temperature ADC) [1-6-3]**

G. BATTERY [1-7]

- **Bat Cal [1-7-1] :**

This displays the value of Battery Calibration.

The following menus are displayed in order;

BAT_LEV_4V,BAT_LEV_3_LIMIT,BAT_LEV_2_LIMIT,BAT_LEV_1_LIMIT,BAT_IDLE_LIMIT,
BAT_INCALL_LIMIT,SHUT_DOWN_VOLTAGE, BAT_RECHARGE_LMT

- **TEMP Cal [1-7-2] :**

This displays the value of Temperature Calibration.

The following menus are displayed in order; TEMP_HIGH_LIMIT,
TEMP_HIGH_RECHARGE_LMT, TEMP_LOW_RECHARGE_LMT, TEMP_LOW_LIMIT

H. Audio [1-8]

This is a menu for setting the control register of Voiceband Baseband Codec chip. Although the actual value can be written over, it returns to default value after switching off and on the phone.

- **VbControl1 [1-8-1]** : VbControl1 bit Register Value Setting
- **VbControl2 [1-8-2]** : VbControl2 bit Register Value Setting
- **VbControl3 [1-8-3]** : VbControl3 bit Register Value Setting
- **VbControl4 [1-8-4]** : VbControl4 bit Register Value Setting
- **VbControl5 [1-8-5]** : VbControl5 bit Register Value Setting
- **VbControl6 [1-8-6]** : VbControl6 bit Register Value Setting

I. DAI (Digital Audio Interface) [1-9]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

- **DAI AUDIO [1-9-1]** : DAI audio mode
- **DAI UPLINK [1-9-2]** : Speech encoder test
- **DAI DOWNLINK [1-9-3]** : Speech decoder test
- **DAI OFF [1-9-4]** : DAI mode off

13.2 RF Test [MENU 2]

Radio Frequency Test

A. SAR Test [2-1]

This menu is to test the Specific Absorption Rate.

- **SAR Test On [2-1-1]** : Phone continuously process TX only. Call-setup equipment is not required.
- **SAR Test Off [2-1-2]** : TX process off

13.3 MF Mode [MENU 3]

This manufacturing mode is designed to do the baseband test automatically. Selecting this menu will process the test automatically, and phone displays the previous menu after completing the test.

A. All auto test [3-1]

LCD, LED, Backlight, Vibrator, Buzzer, and Key Pad are tested in order for a certain time.

B. LED [3-2]

From red LED to Violet LED are turned on one by one for about 1 second, then off.

C. Backlight [3-3]

LCD Backlight and LED Backlight are on for about 1.5 seconds at the same time, then off.

D. Buzzer [3-4]

This menu is to test the volume of Melody. It rings in the following sequence.
Volume1 . Volume2 . Volume3 . Volume0 (mute) . Volume4 . Volume5

E. Vibrator [3-5]

Vibrator is on for about 1.5 seconds.

F. LCD [3-6]

Main LCD screen resolution tests horizontally and vertically one by one and fills the screen.

G. Key pad [3-7]

When a pop-up message shows 'Press Any Key', you may press any keys including side keys, but not [Soft2 Key]. If the key is working properly, name of the key is displayed on the screen. Test will be completed in 15 minutes automatically and the screen displays the previous one.

H. Sub LCD [3-8]

Sub LCD screen resolution tests horizontally and vertically one by one and fills the screen.

13.4 Trace option [MENU 4]

This is NOT a necessary menu to be used by neither engineers nor users.

13.5 Call Timer [MENU 5]

A. All calls [5-1]

This displays total conversation time. User cannot reset this value.

B. Reset settings [5-2]

This resets total conversation time to this, [00:00:00].

13.6 Fact. Reset [MENU 6]

This Factory Reset menu is to format data block in the flash memory and this procedure set up the default value in data block.

13.7 S/W version [MENU 7]

This displays software version stored in the phone.

Attention

- Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.
- Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.