To: AirWalk communications, Co., Ltd.

User's Manual

Model no.	All Slim RU series

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Revision history

Rev.	Date	Chap.	Changes	Note
1.0	Apr.25, 2008		First draft	Design Document for Slim RU Version 1.2
1.2	Jul.2, 2008	1	1. sector configuration added in 1 2. port setting added in 3.2.1	

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1. Introduction

It is monitor and controls all the functions of Slim-RU series based on graphic user interface (GUI) or Man Machine Interface (MMI).

Slim-RU GUI program offers straight forward user interface under Windows 2000 or Windows XP operating system. Therefore it needs only short training course for maintenance technicians.

Also MMI program performs all functions of GUI. But it has extra commands for detail such as test purpose command set.

This manual covers all type of Slim-RU series, e.g. totally independent for the series. All functions described in this document are same. Only operating frequency is different from each model like bellows.

Models	Tx Frequency
STS800-43HM-D	869~ 894MHz
STS1900-43HM-AAD	1930~1950MHz
STS1900-43HM-ABDE	1945~1970MHz
STS1900-43HM-DEFC	1965~1990MHz

* NOTE 1: *Before run GUI or MMI program, PC or laptop computer should connect to Slim-RU with RJ-45 cable.*
* NOTE 2: *When the cable connects Master Slim-RU, you can handle all Slim-RUs such as master, slave1, and slave2. But if you connect it to slave 1 or slave 2, you can handle only it.*

2. Installation

To install Slim-RU GUI program, double click “Setup_SLIM_RU_2008.06.20_V1.4.exe”. Then InstallSheild Wizard shows like figure 1. Click “Next” button.

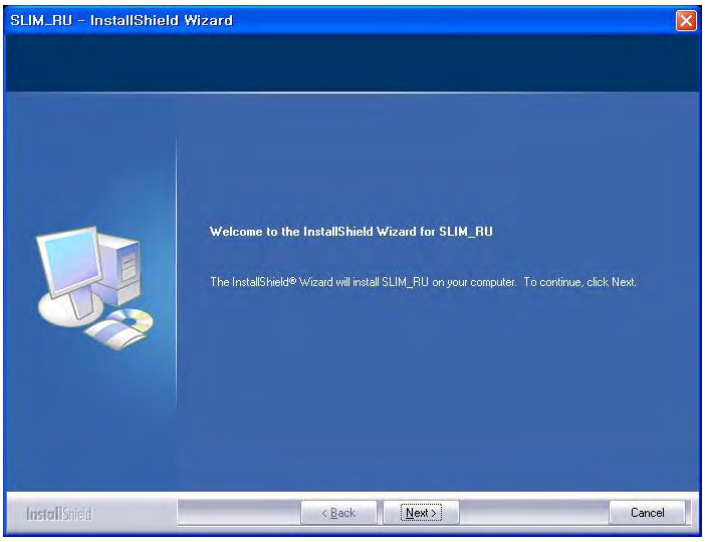


Figure1. Initial page

Click “Install” button like figure 2.

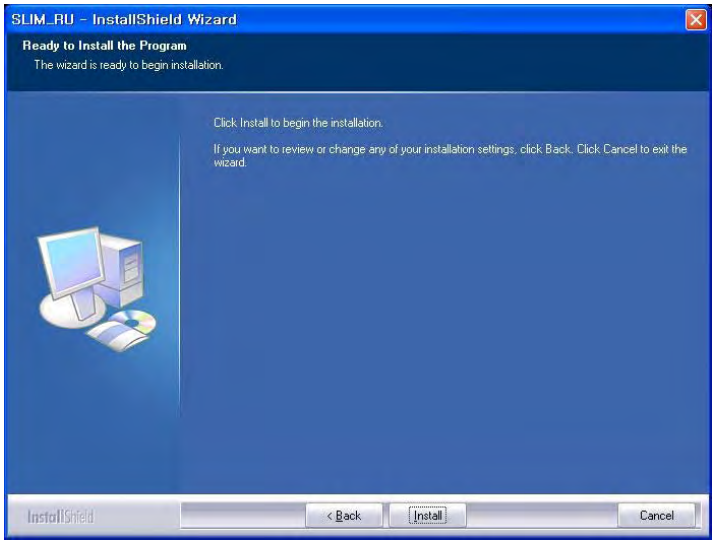


Figure2. Installation

InstallShield Wizard shows the last page when it is done like figure 3. Click “finish” button. Finally, installation is done. Please confirm file on “start-program-AirWalk-Slim-RU”

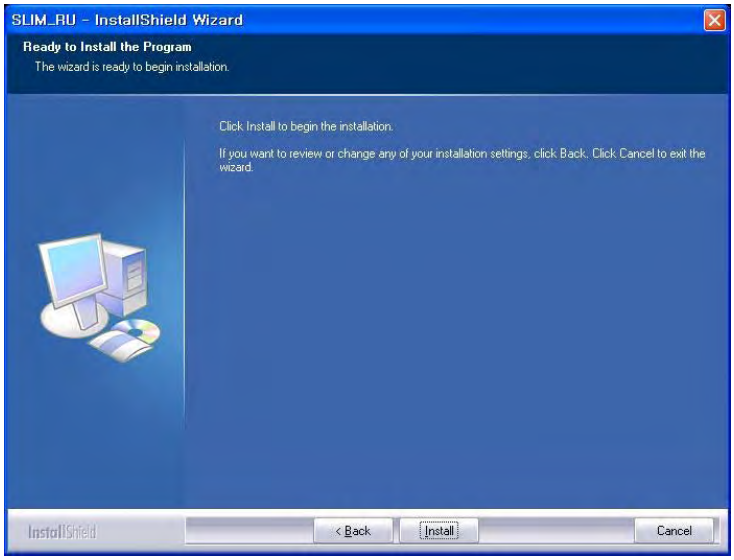


Figure3. Finish

3. Program configuration

3.1. GUI

3.1.1. Main window

It offers monitoring, setting, and downloading firmware to Slim-RU. You can select whatever you want to handle.

** NOTE :* *When the cable connects Master Slim-RU, you can handle all Slim-RUs such as master, slave1, and slave2. But if you connect it to slave 1 or slave 2, you can handle only it*

Figure4. Main window

* Configuration for serial port

Click "CONFIG" button and set proper communication port and 57600-8-N-1 in the dialog box

3.1.2. System window

It offers monitoring and setting in details

Figure5. System window

For details, it offers “hidden window” with pressing “ctrl + p”

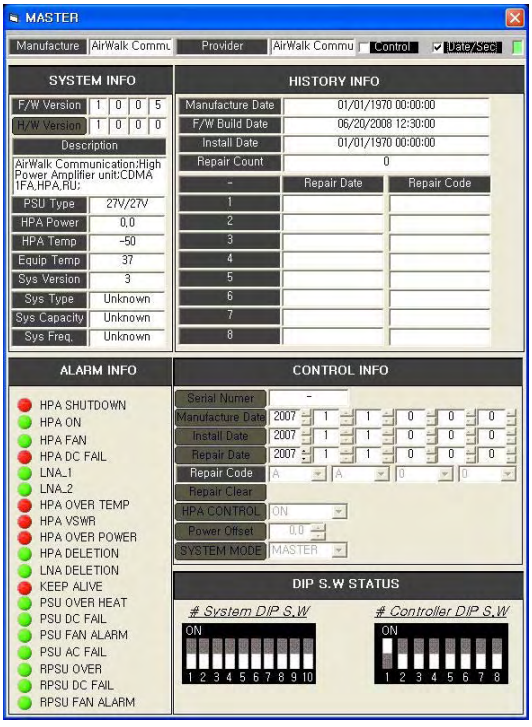


Figure6. Hidden window

3.1.2.1. System info

Items	Descriptions
F/W Version	Shows Frimware Version
H/W Version	Shows H/W Version
Description	Shows brief system information
PSU TYPE	Shows PSU type and information
HPA Power	Shows HPA power in dBm
HPA Temp	Shows HPA temperature
Equip Temp	Shows Slim-RU temperature
Sys Version	Shows system version
Sys Capacity	Shows Slim-RU capacity
Sys Freq.	Shows sys Frequency

3.1.2.2. Alarm info

Items	Descriptions
HPA SHUTDOWN	Shows HPA shutdown status
HPA ON	Shows HPA enable or disable status
HPA FAN	Shows fan operation is normal or not
HPA DC FAIL	Shows the status of DC power to HPA
LNA_1.	Shows LNA_1 status is normal or not
LNA_2	Shows LNA_2 status is normal or not
HPA OVER TEMP	Shows HPA over temperature is normal or not
HPA VSWR	Shows HPA VSWR is normal or not
HPA OVER POWER	Shows HPA output power is over or not
HPA DELETION.	Shows HPA deletion or not
LNA DELETION	Shows LNA deletion or not
KEEP ALIVE	Shows Slim-RU communicates to AW96 normally or not
PSU OVER HEAT	Shows power supply is over heat or not
PSU DC FAIL	Shows power supply's DC is normal or not
PSU FAN FAIL	Shows power supply's fan is normal or not
PSU AC FAIL	Shows power supply's AC is normal or not
RPSU OVER HEAT	Shows RPSU is over heat or not
RPSU DC FAIL.	Shows RPSU DC is normal or not
RPSU FAN FAIL	Shows RPSU's fan is normal or not

3.1.2.3. History info

Items	Descriptions
Manufacture Date	Shows the date of RRCU manufacturing
F/W Build Date	Shows the date of firmware building
Install Date	Shows the date of Slim-RU installation
Repair Count	Shows the number of Slim-RU repair
Repair Date	Shows the date of repair date
Repair Code	Shows the date of repair history

3.1.2.4. Control info

Items	Descriptions
Serial Number	Sets RRCU serial number
Manufacture Date	Sets RRCU manufacturing date
Install Date	Sets Slim-RU installation date
Repair Date	Sets repair date
Repair Code	Sets repair history
Repair Clear	Clears repair all data
HPA CONTROL	Turns on or off HPA
Power Offset	Adjusts HPA power offset
SYSTEM MODE	Set system mode such as master, slave1, or slave2

3.1.2.5. DIP switch status

* System DIP switch

It sets each type and details for Slim-RU. Each bit explains the status like follows

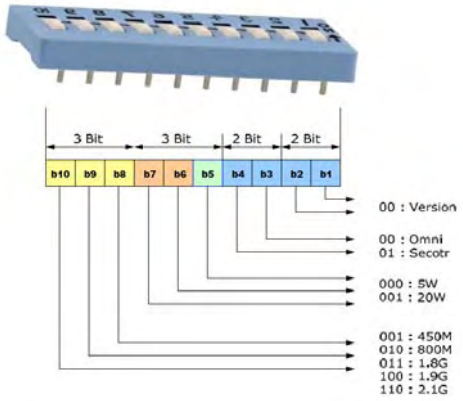


Figure7. Dip switch status

* Controller DIP switch

It sets details of PSU like table.

	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
ON	DC/DC	48V/27V	-	-	-	-	-	-
OFF	AC/DC	27V/27V	-	-	-	-	-	-

3.1.2.6. Down load

File open: To select file to be downloaded click it.

Download: It starts download to Slim-RU. The figure shows in the processing with file progress bar

Cancel: It cancel download

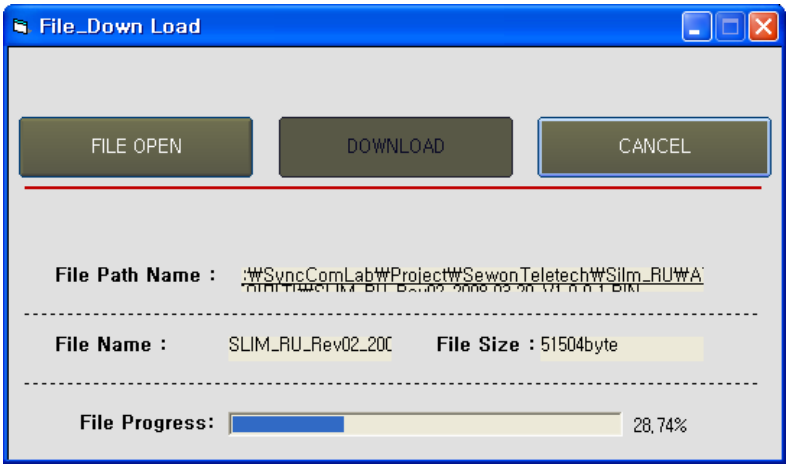


Figure8. Download proceding

3.2. MMI

3.2.1. MMI connection

In order to connect to MMI on Slim-RU, Hiper terminal on Windows or any types of serial communication program like Tera Term. (Hereafter Tera Term)

Set proper communication port and 57600-8-N-1 like figure XX on “Serial port setup” dialog box.

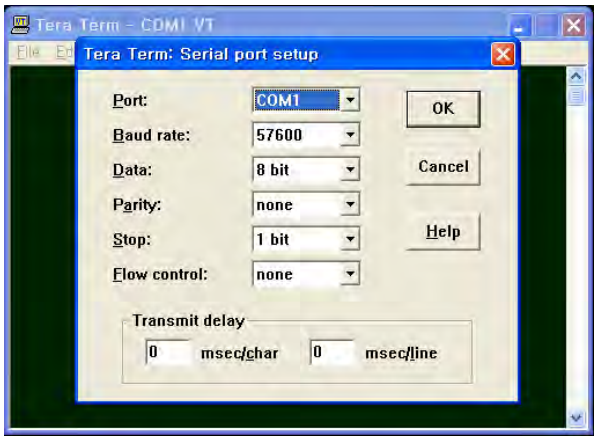
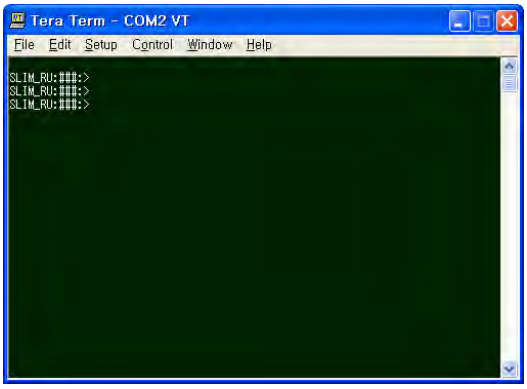


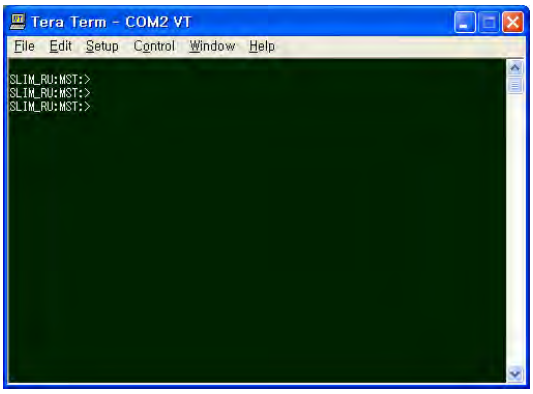
Figure9. Main screen of Tera Term

Then you can see below terminal screen with prompt “SLIM_RU:MST:> like figure 10 (b) when you hit “Enter” key several times.

If prompt is “SLIM_RU:###” like figure XXX (a), it means no communication with upper system, e.g. AW96 if you connect master of Slim-RU or master if you connect slave 1 or 2 of Slim-RU. Please confirm it.



(a) No connections with upper system



(b) Connected properly

Figure10. Connecting status

3.2.2. General commands

* ver: shows firmware version like below figure

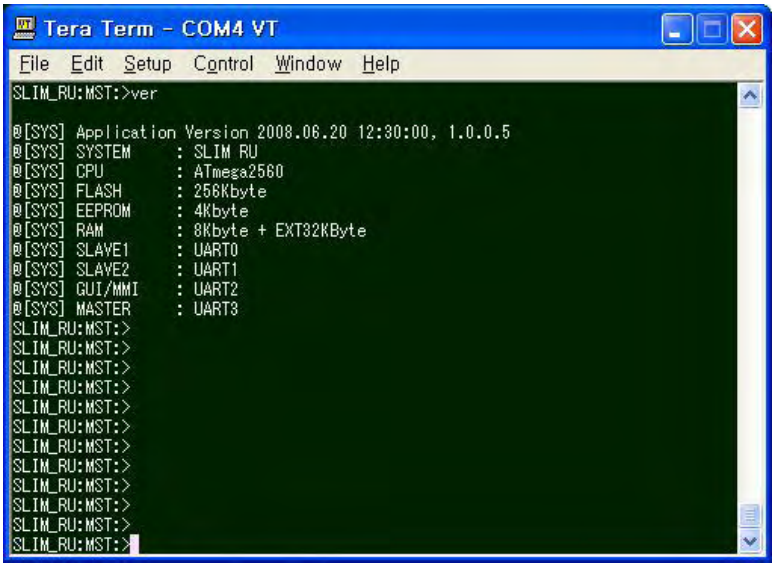


Figure11. command example “ver”

* reset: reboots Slim-RU without manual cycling. Reboot process is shown below

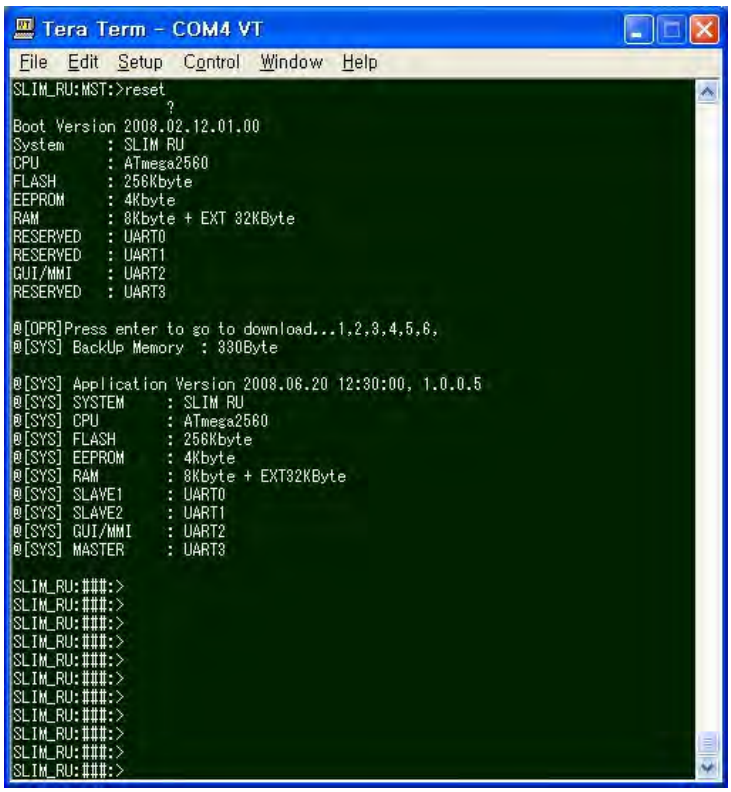
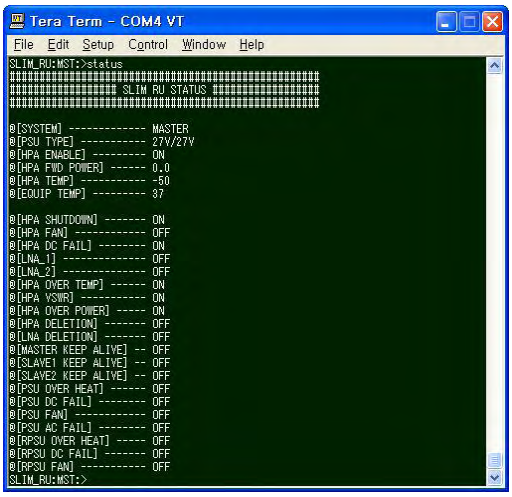
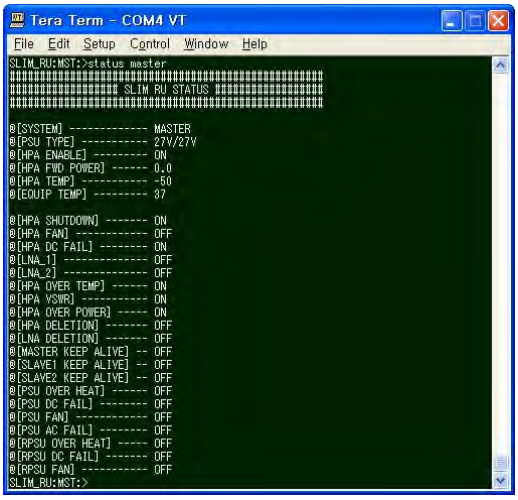


Figure12. command example “reset”

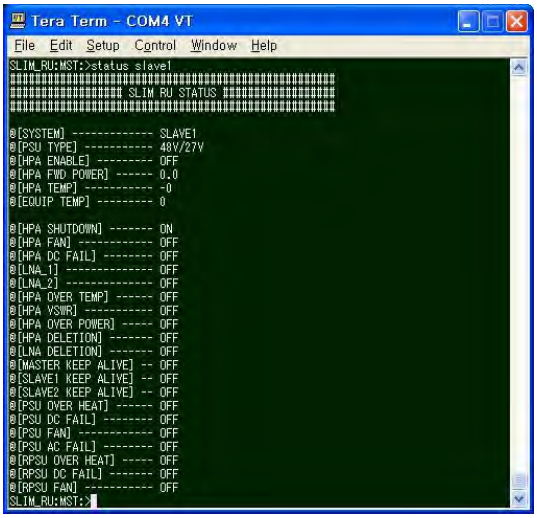
* status [master/slave1/slave2] : shows the status that you connected briefly without any option like figure 13 (a) or with options [master/slave1/slave2] like (b) to (d). But you cannot see your upper system.



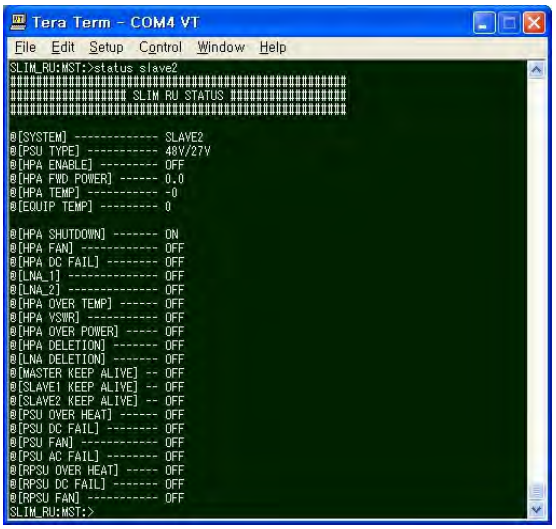
(a) status without option



(b) status with option “master”



(c) Status with option “slave1”



(d) Status with option “slave2”

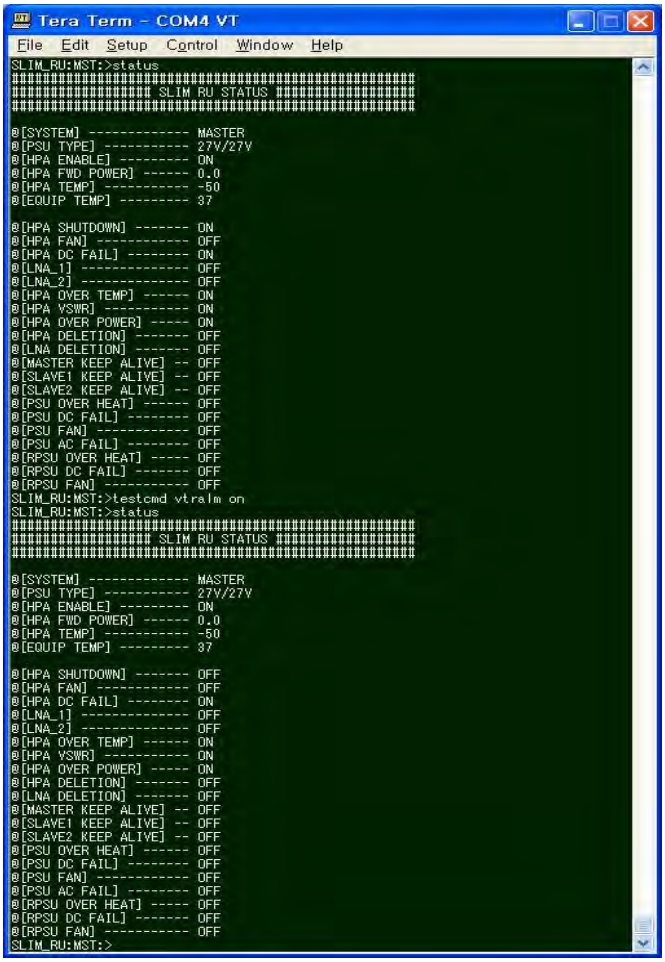
Figure13. command example “status”

Commands	Descriptions
system	shows Slim-RU system ID
hpa enable	shows status of HPA enable or disable
hpa fwd power	shows HPA power in dBm
hpa temp	shows HPA temperature
equip temp	shows Slim-RU temperature
hpa shutdown	shows HPA shutdown status as an “ON or OFF”
hpa fan	shows fan operation is normal or not as an “ON or OFF”
hpa dc fail	shows the status of DC power to HPA as an “ON or OFF”
lna_1	shows LNA_1 status is normal or not as an “ON or OFF”
lna_2	shows LNA_2 status is normal or not as an “ON or OFF”
hpa over_temp	shows HPA over temperature is normal or not as an “ON or OFF”
hpa vswr	shows HPA VSWR is normal or not as an “ON or OFF”
hpa over_power	shows HPA output power is over or not as an “ON or OFF”
hpa_deletion	shows HPA deletion or not as an “ON or OFF”
lna_deletion	shows LNA deletion or not
master keep alive	shows master communicates to AW96 normally or not as an “ON or OFF”
slave1 keep alive	shows master communicates to slave1 normally or not as an “ON or OFF”
slave2 keep alive	shows master communicates to slave2 normally or not as an “ON or OFF”

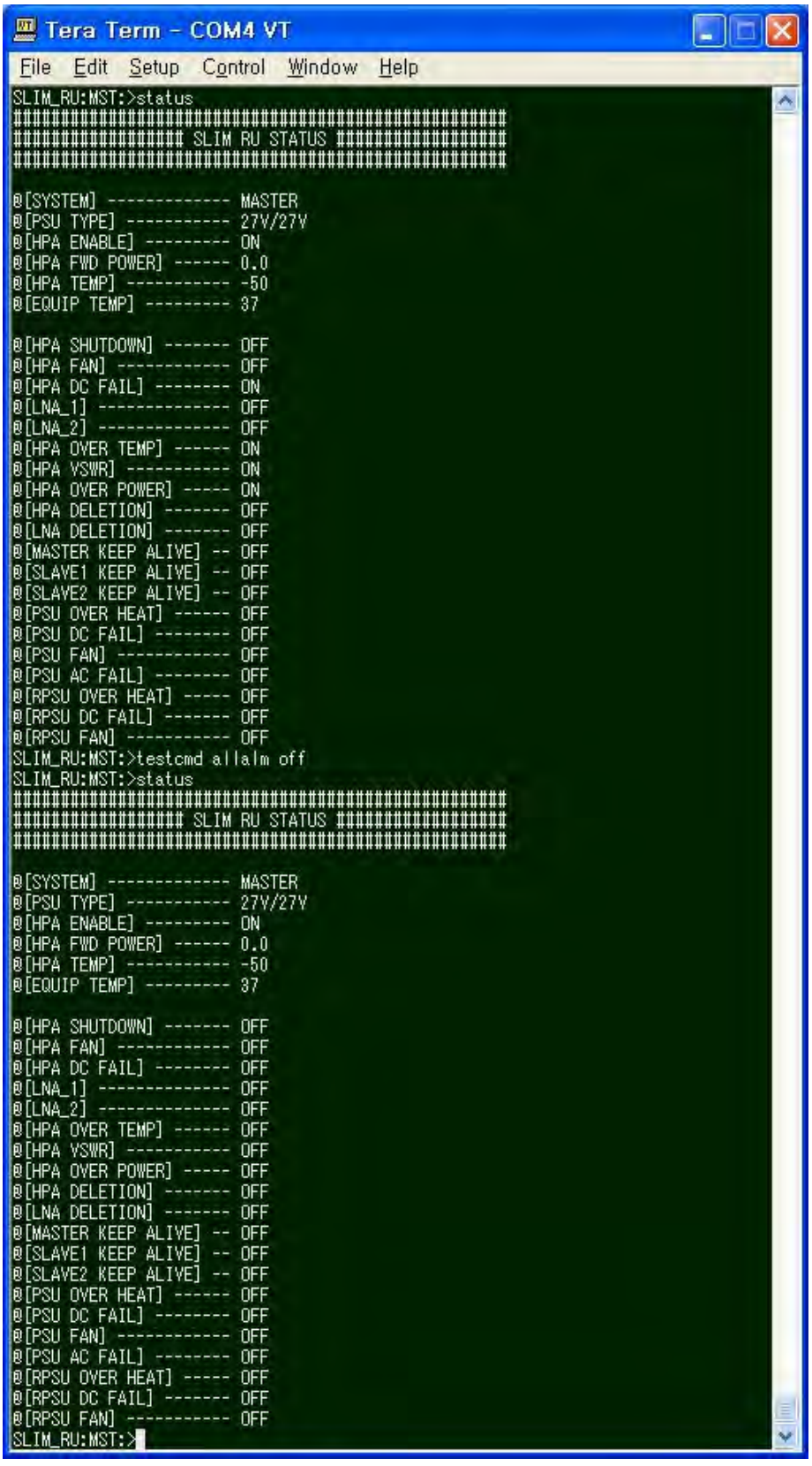
psu over heat	shows power supply is over heat or not as an “ON or OFF”
psu dc fail	shows power supply’s DC is normal or not as an “ON or OFF”
psu fan fail	shows power supply’s fan is normal or not as an “ON or OFF”
psu ac fail	shows power supply’s AC is normal or not as an “ON or OFF”
rpsu over heat	shows RPSU is over heat or not as an “ON or OFF”
rpsu dc fail	shows RPSU DC is normal or not as an “ON or OFF”
psu fan fail	shows RPSU’s fan is normal or not as an “ON or OFF”

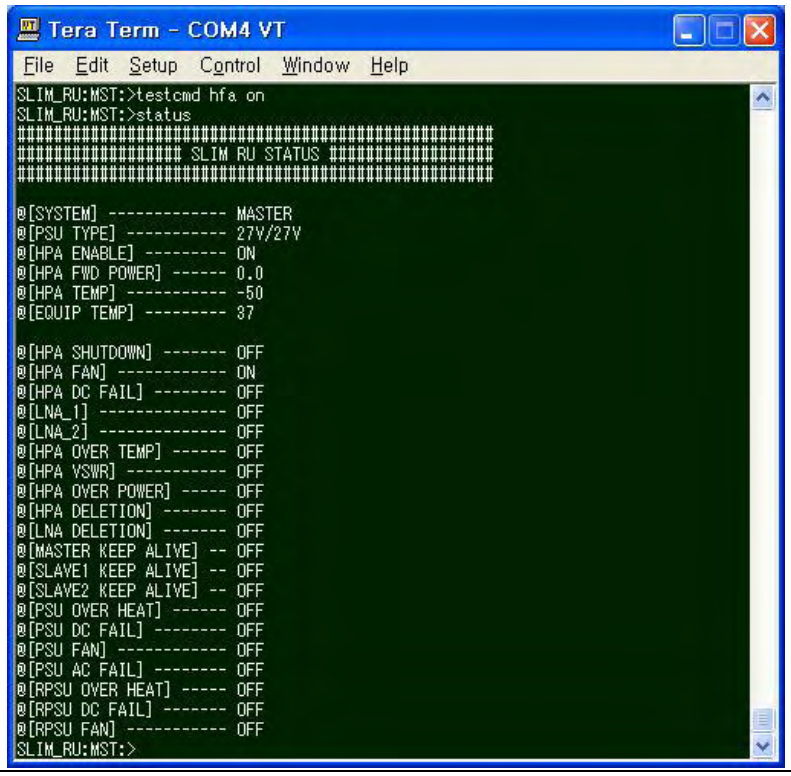
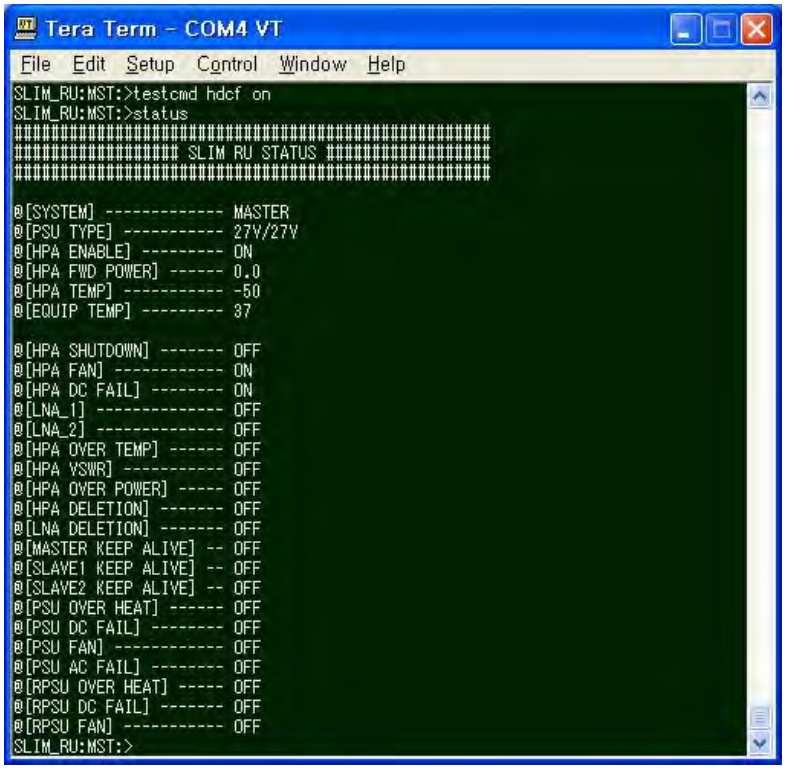
3.2.3. Test commands

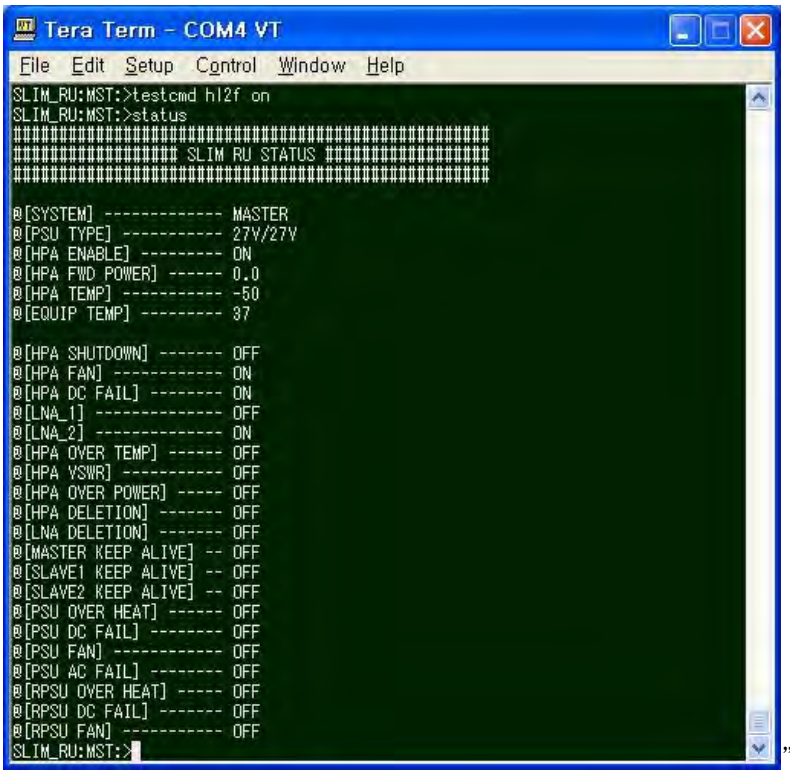
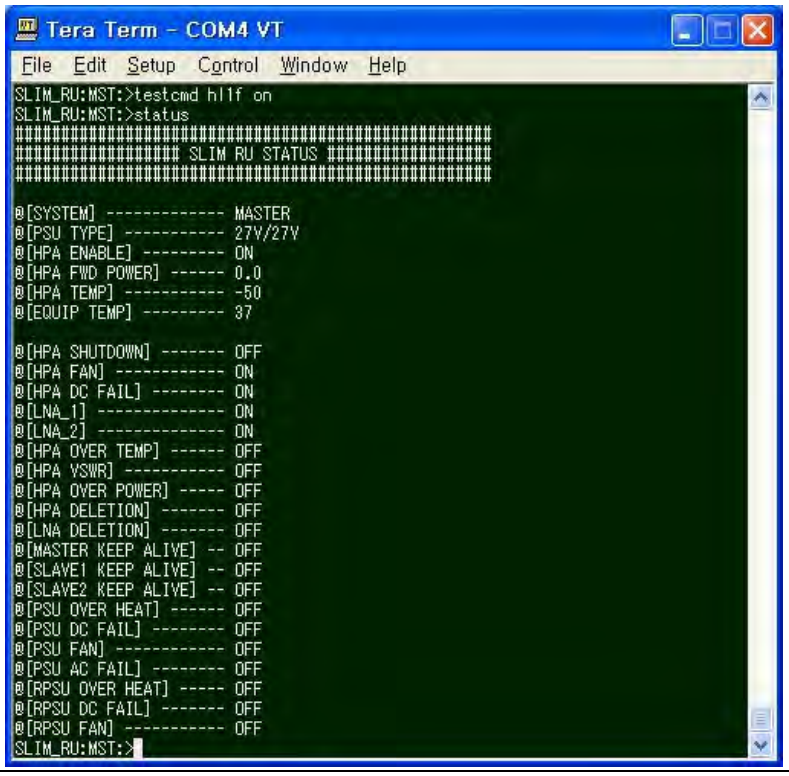
It offers several fake alarms command for test purpose

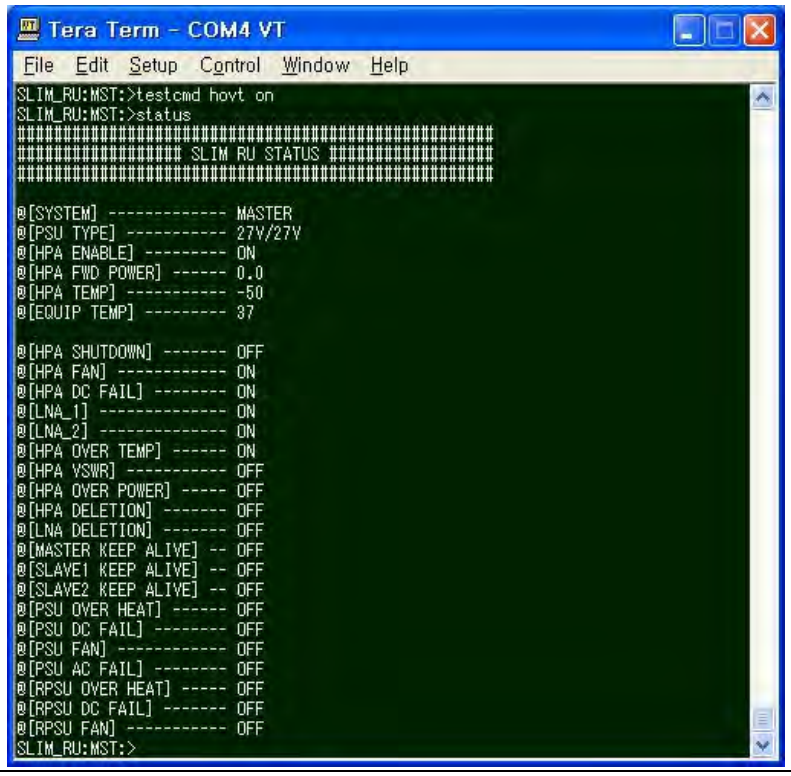
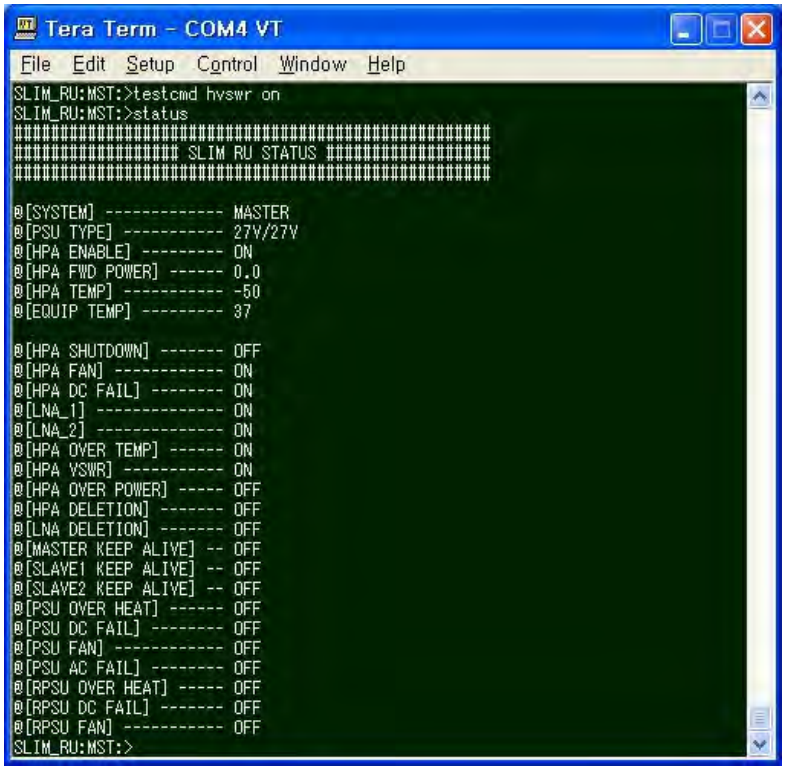
Commands	Descriptions
testcmd vtralm [on/off]	Report fake alarm to upper system with ignoring present status ex.) compare “HPA shutdown” after “testcmd vtralm on” 

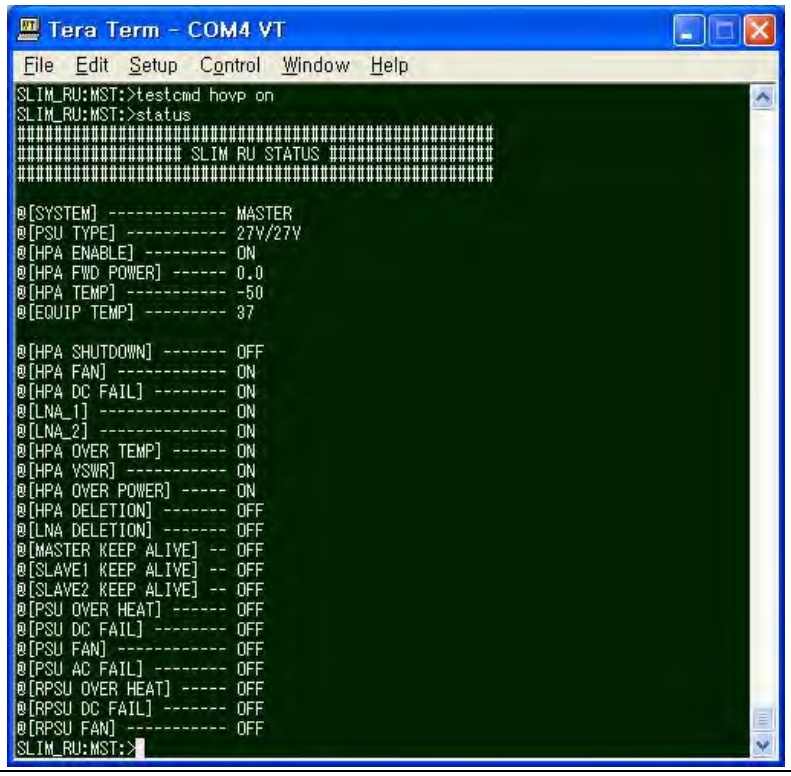
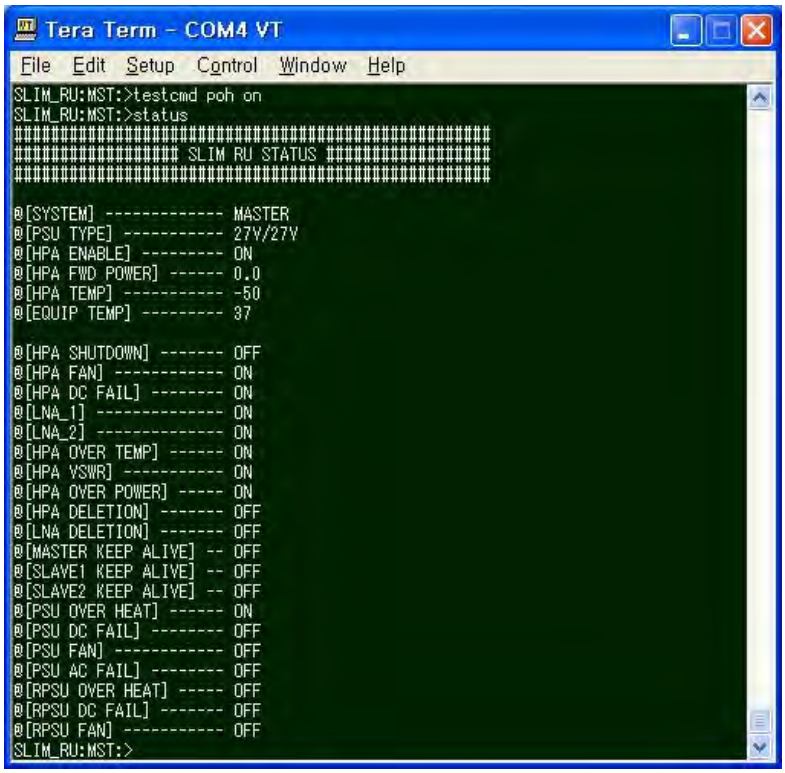
testcmd allalm	Report all fake alarm to upper system (ex.) compare all alarm items on the screen after “testcmd allalm”

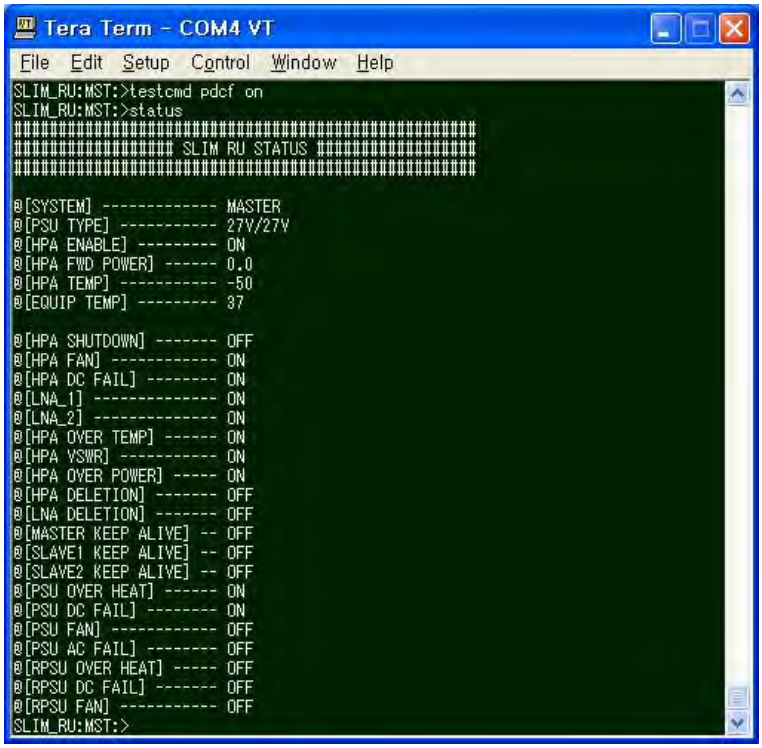
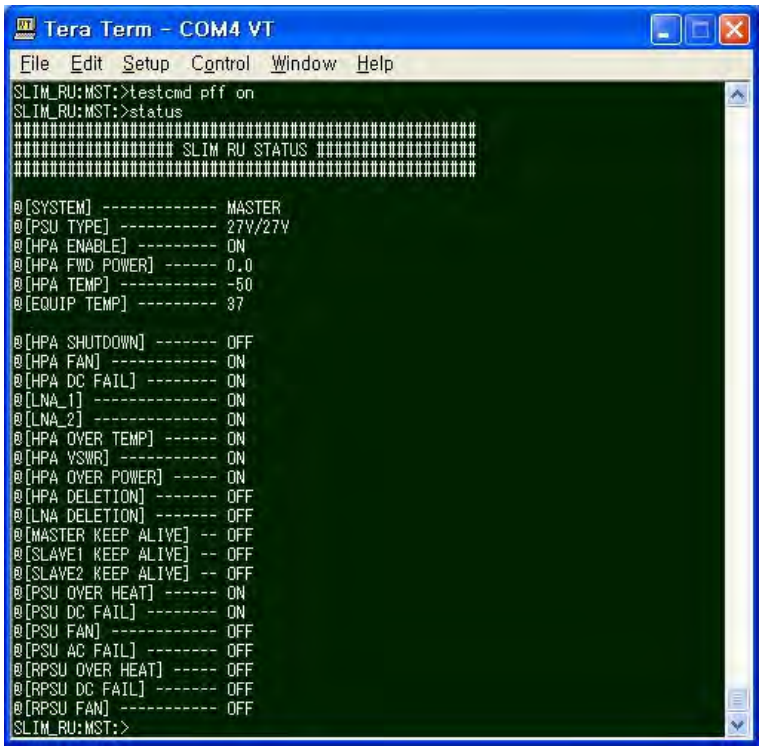


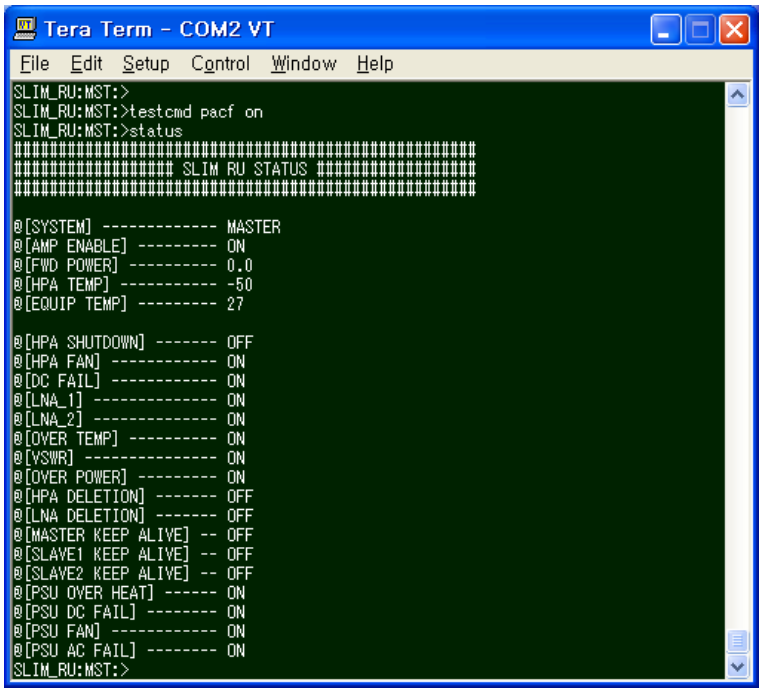
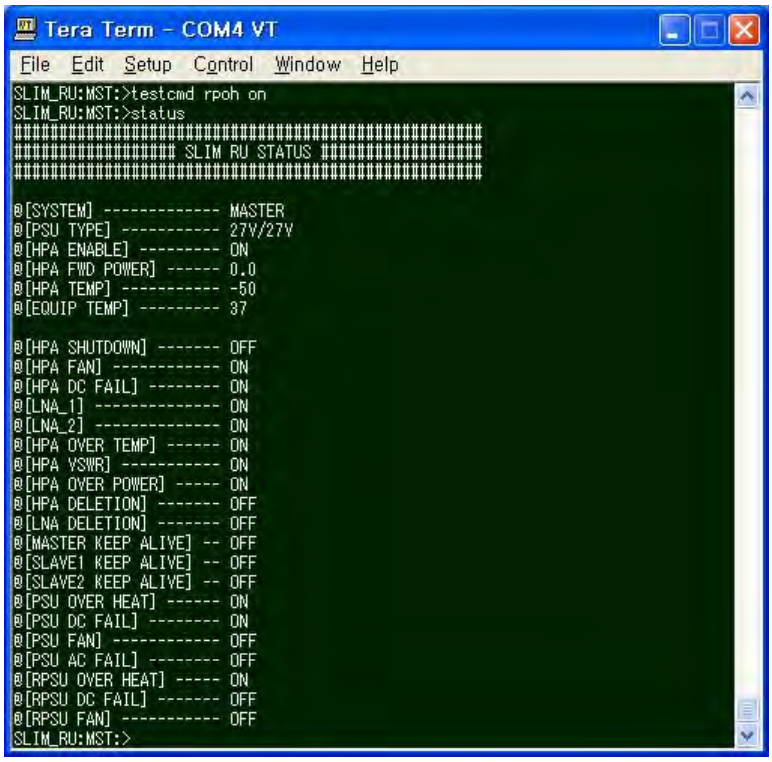
<table>
<tr><td>testcmd hfa [on/off]</td><td>Report fake HPA fan alarm to upper system
(ex.) confirm “HPA FAN” after “testcmd hfa on”
 
</td></tr>
<tr><td>testcmd hdcf</td><td>Report HPA DC fail alarm to upper system
(ex.) confirm “DC FAIL” after “testcmd hdcf on”
 
</td></tr>
</table>

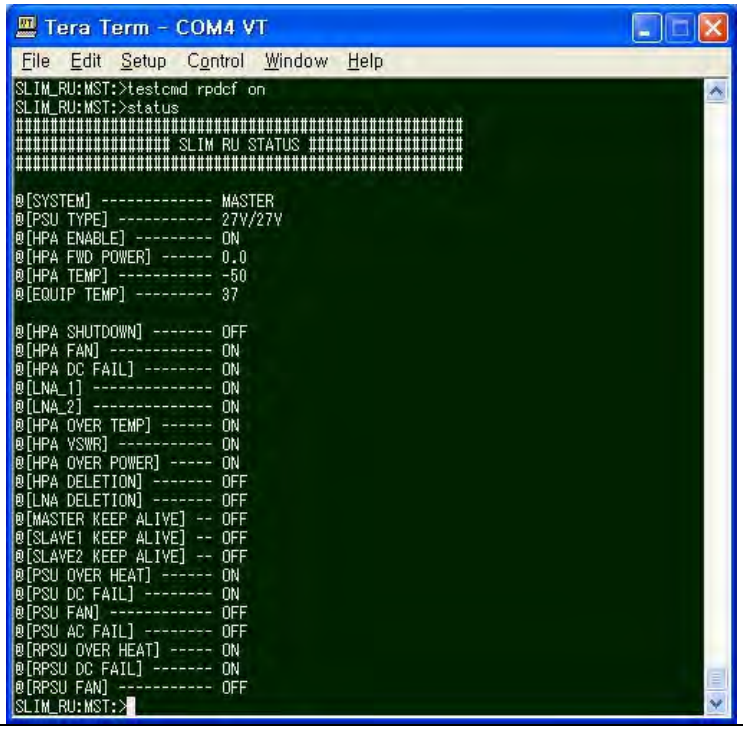
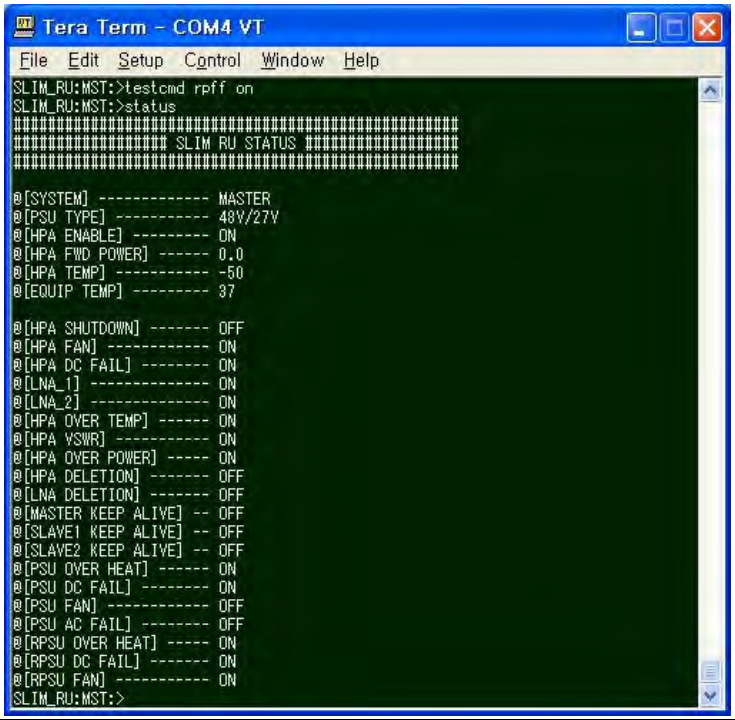
testcmd HL2F [on/off]	Report fake LNA_2 alarm to upper system (ex.) confirm “LNA_2” after “HL2F  ”
testcmd HL1F [on/off]	Report fake LNA_1 alarm to upper system (ex.) confirm “LNA_1” after “testcmd HL1F on” 

testcmd HOVT [on/off]	Report fake over temperature alarm to upper system (ex.) confirm “Over temp” after “testcmd hovt on” 
testcmd HVSWR [on/off]	Report fake HPA VSWR alarm to upper system (ex.) confirm “VSWR” after “testcmd hvswr on” 

<table>
<tr>
<td>Testcmd HOVP [on/off]</td>
<td>Report fake HPA over power alarm to upper system
(ex.) confirm “Over power” after “testcmd hovp on”
 
</td>
</tr>
<tr>
<td>testcmd poh [on/off]</td>
<td>Report fake over heat alarm to upper system
(ex.) confirm “PSU over heat” after “testcmd poh on”
 
</td>
</tr>
</table>

testcmd PDCF [on/off]	Report fake PSU DC fail alarm to upper system (ex.) confirm “PSU DC Fail” after “testcmd pdcf on” 
testcmd PFF [on/off]	Report fake PSU fan fail alarm to upper system (ex.) confirm “PSU fan” after “testcmd pff on” 

testcmd PACF [on/off]	Report fake HPA fan alarm to upper system (ex.) confirm “PSU AC failAN” after “testcmd pacf on” 
testcmd RPOH [on/off]	Report fake RPSU over heat alarm to upper system (ex.) confirm “RPSU over heat” after “testcmd RPOH on” 

<table>
<tr>
<td>testcmd RPDCF [on/off]</td>
<td>Report fake RPSU DC fail alarm to upper system
(ex.) confirm “RPSU DC fail” after “testcmd rpdcf on”
 
</td>
</tr>
<tr>
<td>testcmd RPFF [on/off]</td>
<td>Report fake RPSU fan alarm to upper system
(ex.) confirm “RPSU fan fail” after “testcmd rpff on”
 
</td>
</tr>
</table>

3.2.4. Emergency recovery mode

3.2.4.1. Entering

You can download firmware when Slim-RU does not operate properly.

Press “enter” within 7 sec. when it boots up. Fig.14 shows the screen when it enters on emergency recovery mode

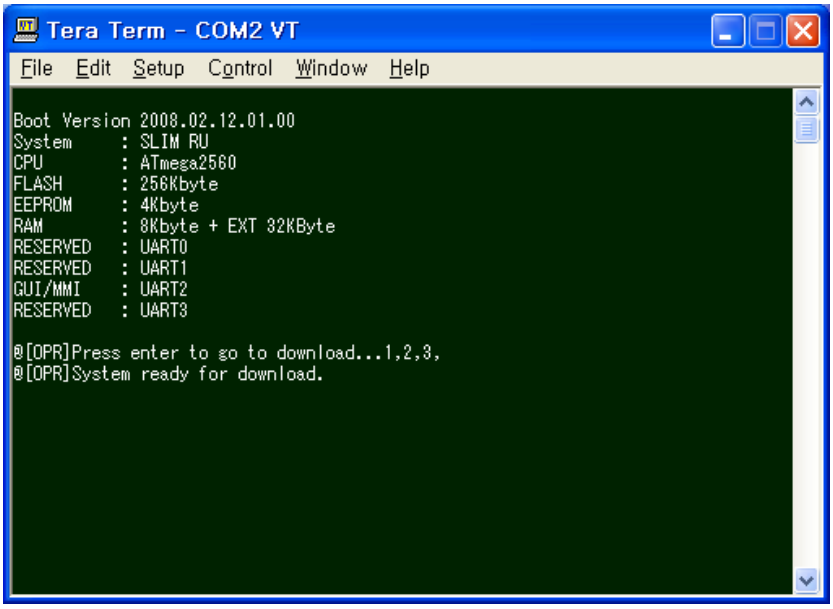


Figure14. Entering emergency recovery mode

* You can close window or disconnect com port when you want finish. Please confirm emergency recovery mode prompt”@[OPR]System ready for download” before that.

3.2.4.2. GUI connection

Run GUI after disconnecting terminal program, e.g. Tera Term here. It will work although it looks like no communication or improper communication with Slim-RU

Figure15. Downloading process

3.2.4.3. Download

Start download procedure with click “download”. You can download firmware when Slim-RU does not operate. It will automatically reboot when it is done.

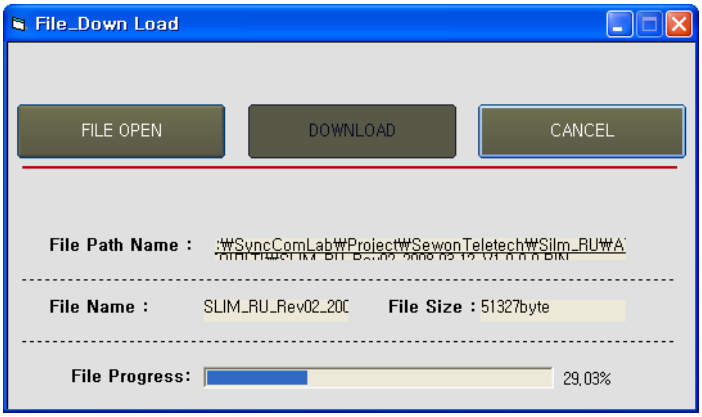


Figure16. Downloading in processing

Caution: The user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RF Power Requirements

The antenna(s) used for this transmitter must be fixed-mounted on outdoor permanent structures