# ATTACHMENT H.

## - Tune-Up Procedure -

# 3.2 Installation Procedure for network

## 3.2.1 Total network configuration

### 3.2.1.1 Network configuration

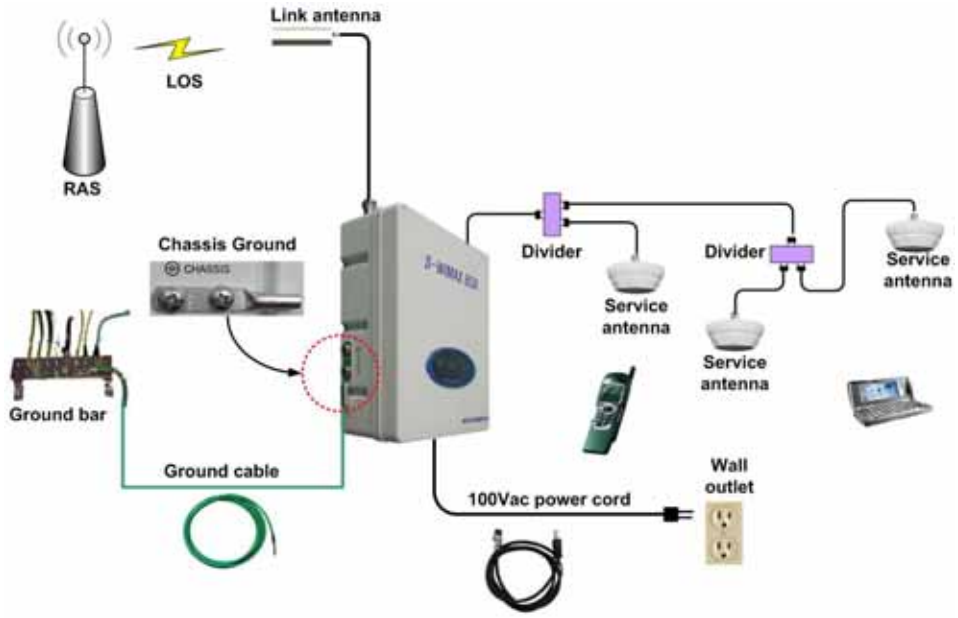
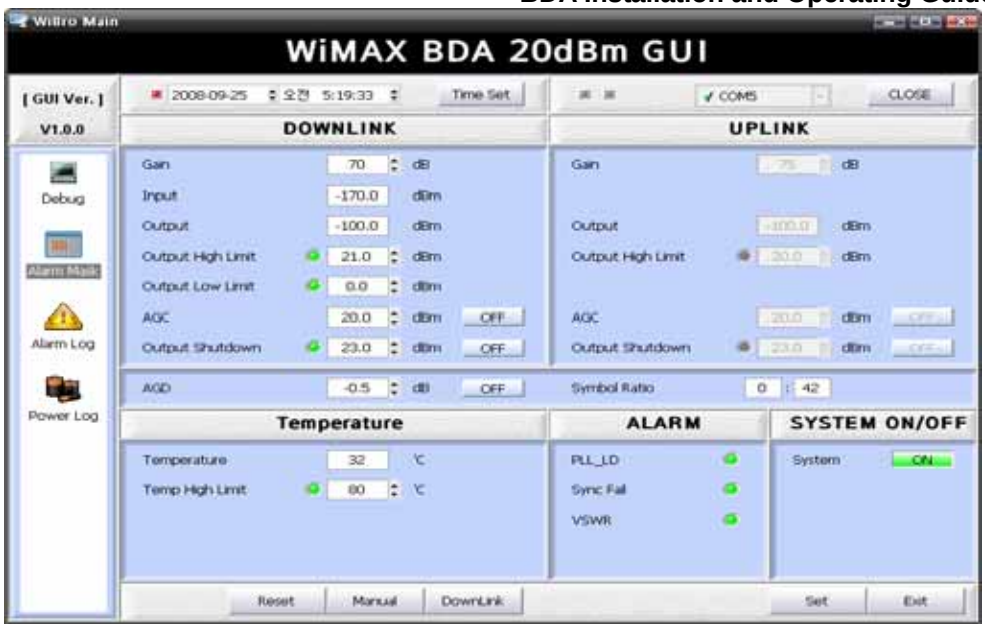



**Figure 19 Total network configuration for indoor**

- Ensure that modules, cables and connectors inside the unit are properly equipped before starting installation.
- Unscrew the ground lug from the “CHASSIS” port of BDA, and insert ground wire into the lug. Screw up the ground lug to the place as it was and connect the other end of the ground wire to a ground bar prepared in the site.
- Ensure that AC input power is in the range of the specification (typical AC 110V: range AC 90V ~ AC120V).
- Connect the power plug of the power cable to the power input port on the bottom of the BDA, and check if ‘POWER’ LED on the front of the BDA is green and ‘RUN’ LED is blinking.
- Connect coaxial cable to 50Ω antenna or attenuator for testing.
- Connect Laptop PC to BDA controller as figure 13. connection of Laptop PC in BDA.
- Connect the AC power cord of the power cable to the input port on the bottom of the BDA.

## 3.2.2 Network adjustment procedure

The BDA should be connected to a laptop PC with the USB cable to control BDA locally. Plug the USB cable from the laptop PC into theUSB port of the BDA controller. Execute GUI program at laptop PC. Refer to operating software guide for monitoring and controlling the unit.




- Feed -55dBm/total of WiMAX signal (using a signal generator) to 'LINK ANT' port of BDA and adjust gain(75dB max) in the DOWNLINK (UPLINK) path, so that the output power of the BDA becomes +20dBm. Access the BDA and check if output power of the BDA is +20dBm. If not, adjust gain in the DOWNLINK (UPLINK) path.
- If you don't want maximum output power(+20dBm), decrease DOWNLINK gain or UPLINK gain.
- Set difference between gain of down link and gain of up link (AGD). If don't need difference between down link and up link, set "0".
- Temperature alarm threshold.
- If the parameters have proper value, enable HPA and UDC module.
- Check if the alarm generated or not.

# 3.3 Operation Software Guide

## 3.3.1 Installation of Operating Software

### 3.3.1.1 System Requiremets

- PC Installed Microsoft Internet Explorer 5.01 or later version
- WINDOWS 98/2000/XP or equivalent operating system
- Personal computer with a 500MHz microprocessor or better (INTEL PENTIUM Processor recommended)
- 128 MB or more of RAM
- 100MB of hard disk space available
- Available serial port
- USB driver or CD driver

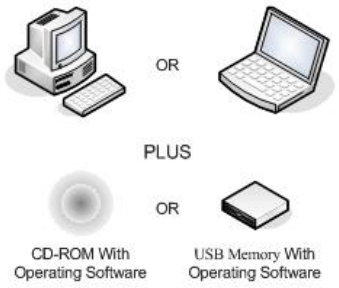



**Figure 20 Required Items for Installation**

### 3.3.1.2 Starting Installation of the Operating Software

■ **Installation of Operating Software**

- Double click ‘Setup.exe’ in the folder of ‘D:\SDMCenter-Eng-Setup’ operating software.

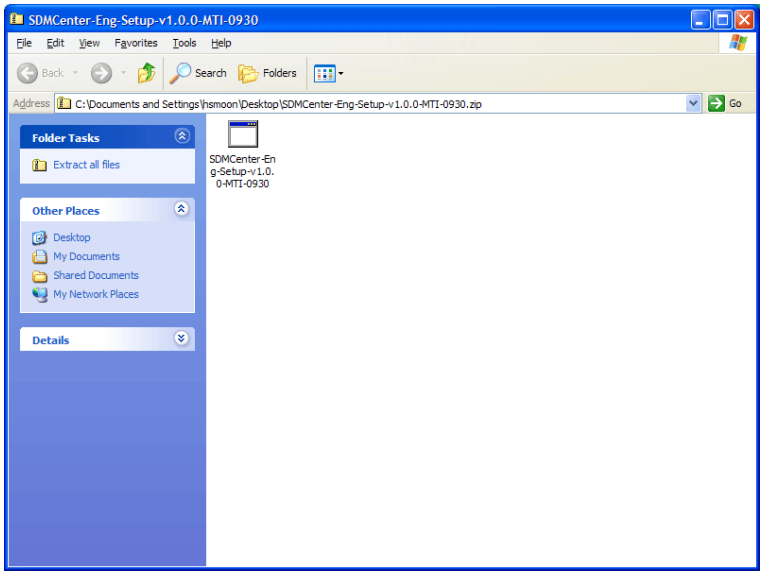



**Figure 21 Installation of Operating Software (GUI)**

- The below windows shows installation starting of the operating software.

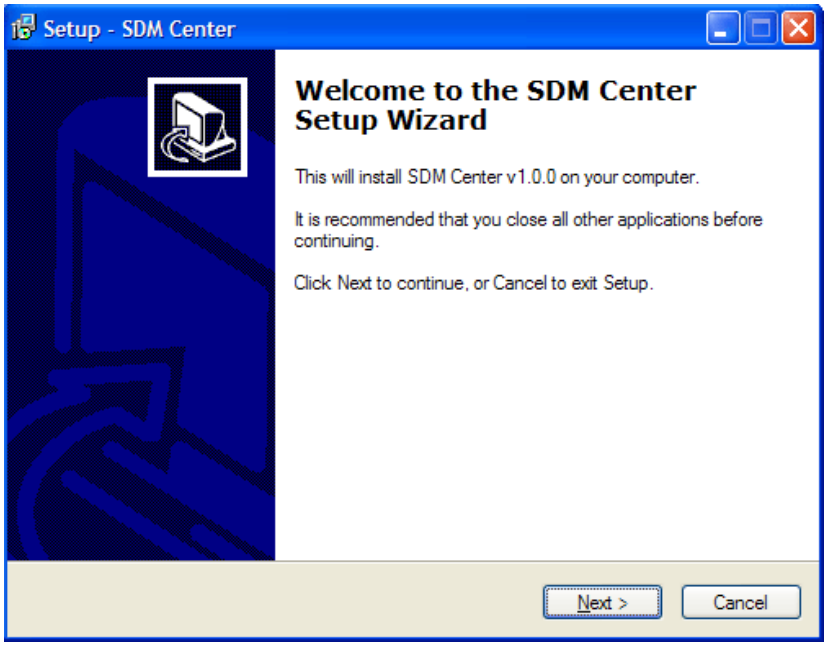



**Figure 22 Installation starting of Operating Software**

- The setup program generates a folder automatically and installs the program in the folder of 'C:\Program Files\SDM Center'. If you prefer another folder, you can choose it where the program is installed by clicking the 'Browse…' button. Click 'Next' button when the folder is chosen.

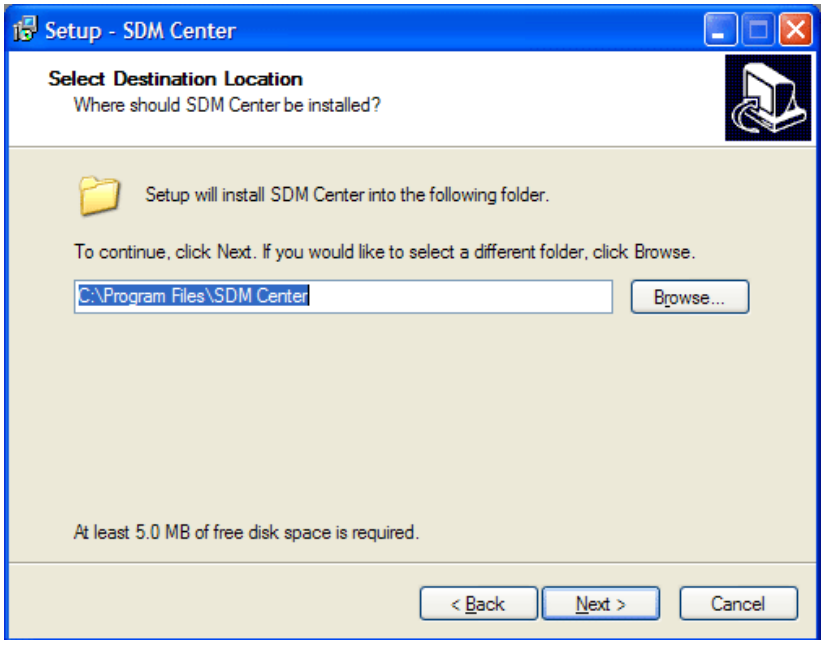



**Figure 23 Selection Folder of Operating Software Installation**

- The following window is displayed for creation of a shortcut in a Start Menu folder.

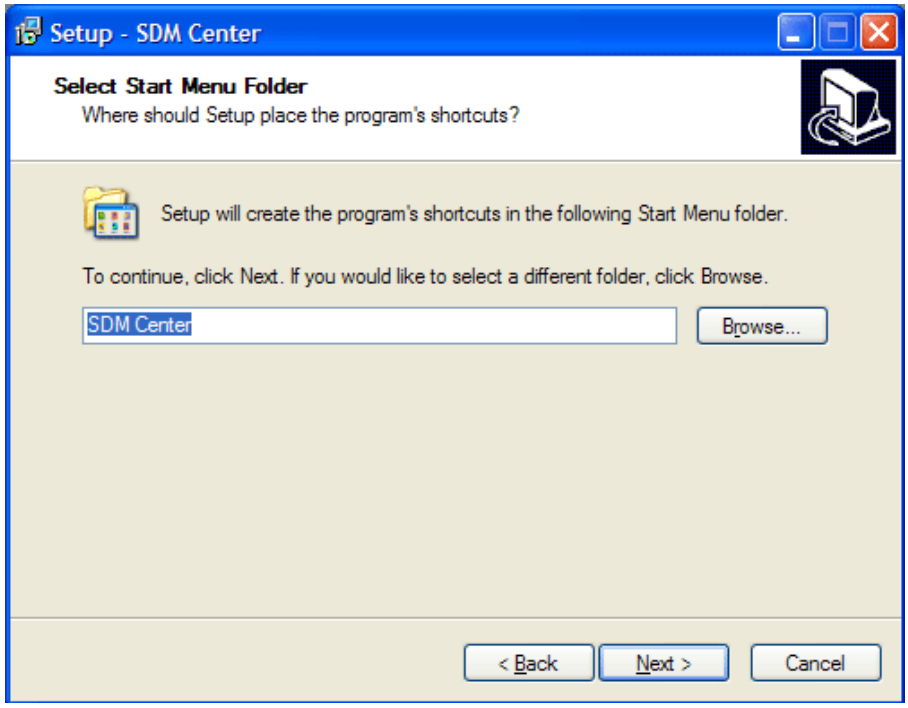



**Figure 24 Creation of a shortcut in a start menu folder**

- The Setup review window is displayed as follow.

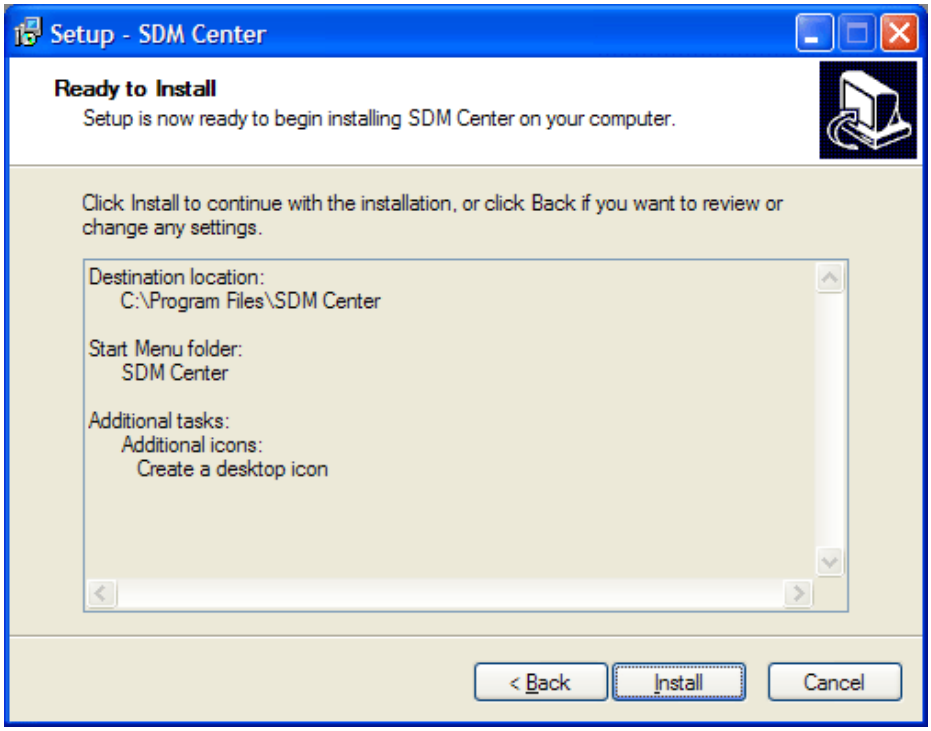



**Figure 25 Setup review window**

- The following window shows progress of Installation.

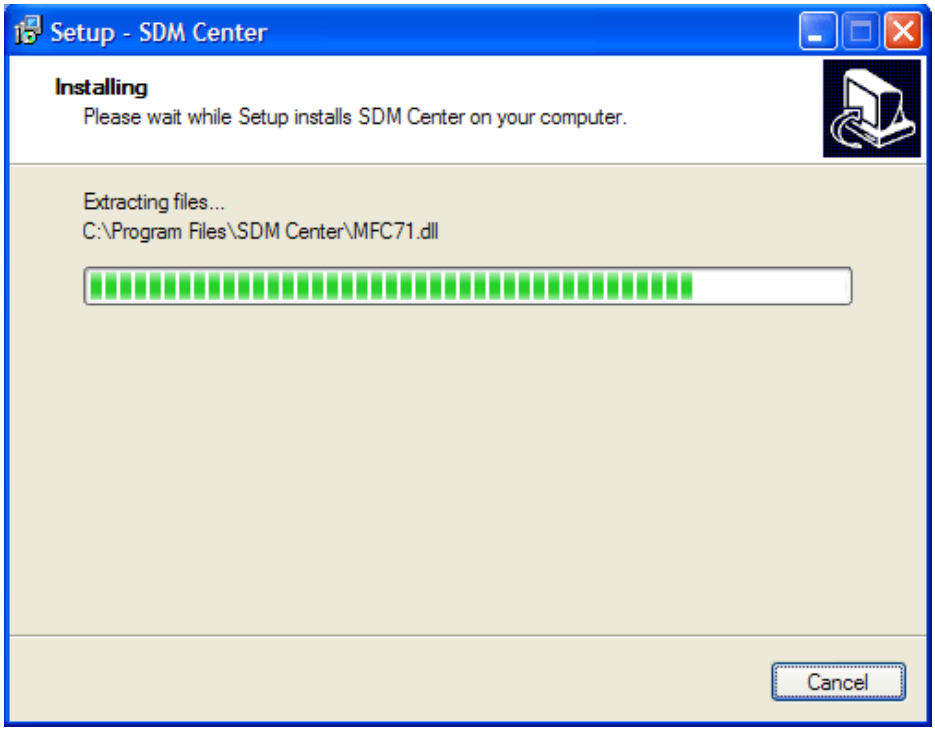



**Figure 26 Progress view of installation**

- The following window is displayed when installation is completed.

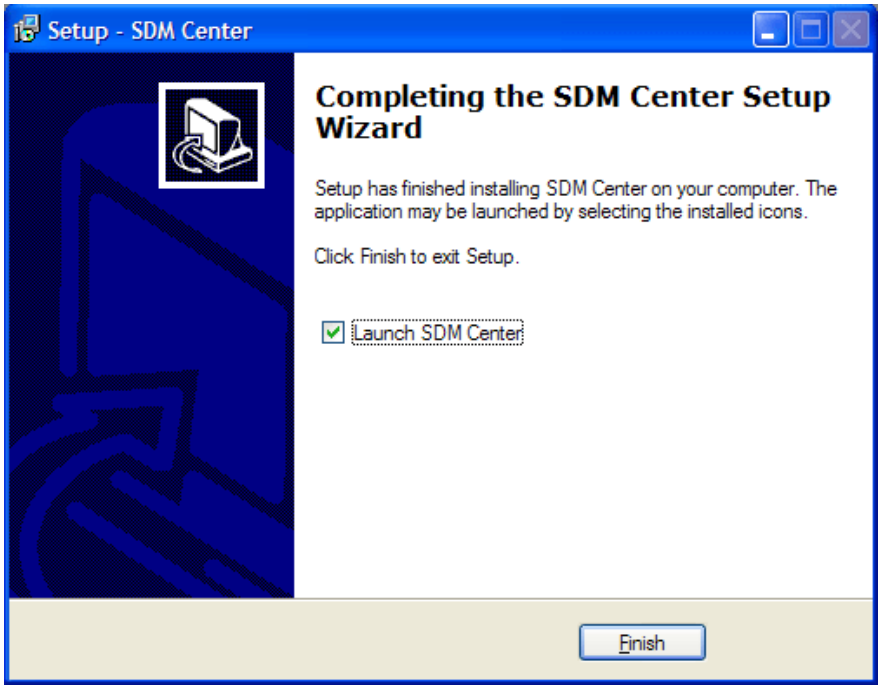



**Figure 27 Installed completed**

- The following two initial operating window is displayed when 'finish' button is clicked.


**Figure 28 Display launcher Window**

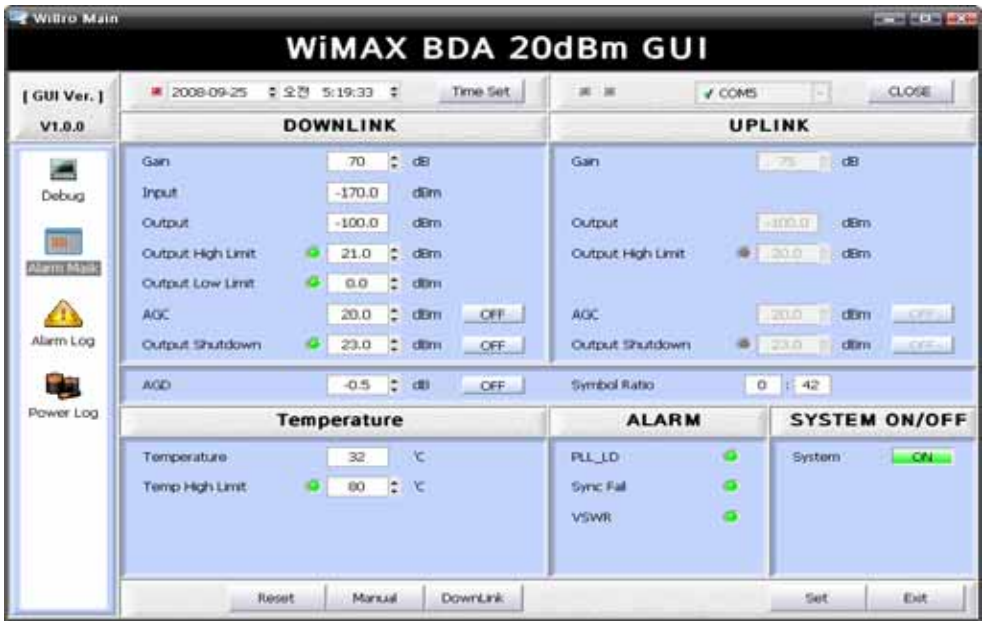



**Figure 29 Initial window**

### 3.3.2 Starting of Operating Software

- The Software will be started by double clinking ‘SDM Center’ icon of your Desktop or laptop.

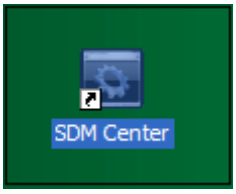



**Figure 30 Starting of Operating Software**

### 3.3.3 COM Port Set-up

- Prior to control the SDM Center program, vacant communication port, which is not occupied with other device, should be secured. This can be checked via control panel of Window OS. Conventionally, every communication devices have to occupy the unique resource "COM port" of PC even though such a COM port number are changed according to each PCs. Therefore, if you choose such an occupied COM port by other devices as the COM port of SDM Center program, you will encounter a port collision and not be able to run the SDM Center program properly. In order to run the SDM Center program normally, you should select an available COM port except COM port occupied by other programs.

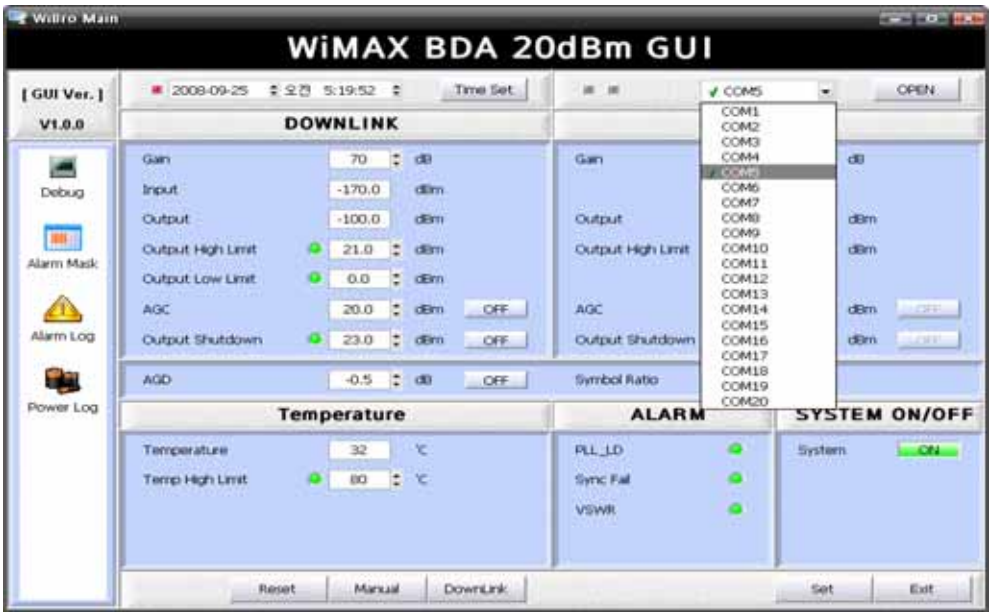
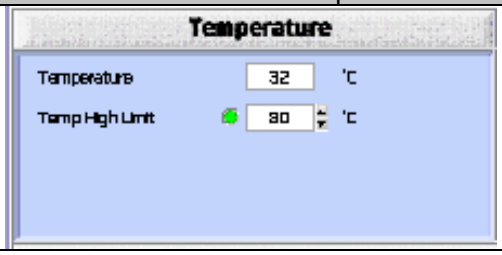



**Figure 31 COM port set-up**

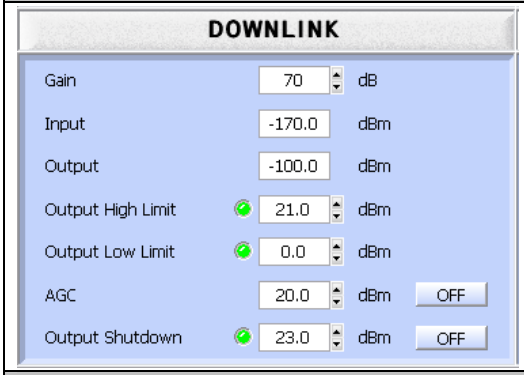
## 3.3.4 Operational Description

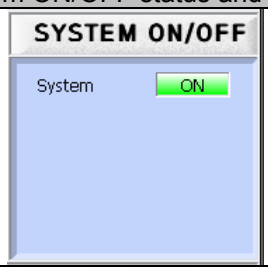
### 3.3.4.1 Parameter Setting and Status Monitoring

■ Temperature limit setting and monitoring

| Status and setup | |
|---|---|
|  | ■ It is to change parameters.<br>☞ Display current temperature of BDA<br>☞ High temperature limit of the BDA for threshold of high temperature alarm. |

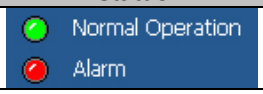
■ Monitoring and Control

| Status and setup | |
|---|---|
|  | ■ It displays parameters and control parameters of down link.<br>☞ Display Gain, Input Level, Output High Limit, Output Low Limit, AGC and Shutdown level and ON/OFF for Down Link.<br>☞ Control Gain, Output high limit, Output Low Limit, AGC Level and Output Shutdown Level. |
| AGD status and Setup | |
|  | |
| ■ It is to display and control AGD(Auto Gain Difference) status between DL and UL path. | |
| Down/Up Link status and change | |
|  | ■ It is to change down or up link control.<br>☞ Reset CPU operation.<br>☞ Parameters setup by manual.<br>☞ If click 'DownLink' button, It will change to UpLink button. |
| Status and setup | |
|  | |
| ■ It is to control parameter setup or exit GUI program. | |

| Status and setup | |
|---|---|
|  | ■ It displays parameters and control parameters of up link.<br>☞ Display Gain, Input Level, Output High Limit, Output Low Limit, AGC and Shutdown level and ON/OFF for Down Link.<br>☞ Control Gain, Output high limit, Output Low Limit, AGC Level and Output Shutdown Level. |
| System ON/OFF status and setup | |
|  | ■ It is to change parameters.<br>☞ Display current temperature of BDA<br>☞ High temperature limit of the BDA for threshold of high temperature alarm. |

| Up/Down Link status and change | |
|---|---|
|  | ■ It is to change down or up link control.<br>☞ Reset CPU operation.<br>☞ Parameters setup by manual.<br>☞ If click 'UpLink' button, It will change to DownLink button. |

### 3.3.4.2 Alarm Description

| Status | |
|---|---|
|  | |
| ■ It is to display alarm status in the BDA. Red color means "Alarm." | |
| DOWN link and UP link alarms | |
|  | ☞ PLL lock or unlock alarm status of the BDA.<br>☞ Synchronization detectin fail alarm status of the BDA.<br>☞ VSWR alarm status of the BDA. |

### 3.3.4.3 Sub-function Menu

| | |
|---|---|
|  | Debug windows shows Tx/Rx communication data between CPU and operating software. |
| | Administrator can mask an alarm. Masked alarms can be monitored. |
| | User can log the alarm history into CPU and can monitor all alarms occurred in the unit. |
| | User can periodically check the logged input/ output power status stored in the memory of BDA CPU. |

- Debug

  Debug windows shows Tx/Rx communication data between CPU and operating software.

  - Click 'Debug' button in sub-functions menu.

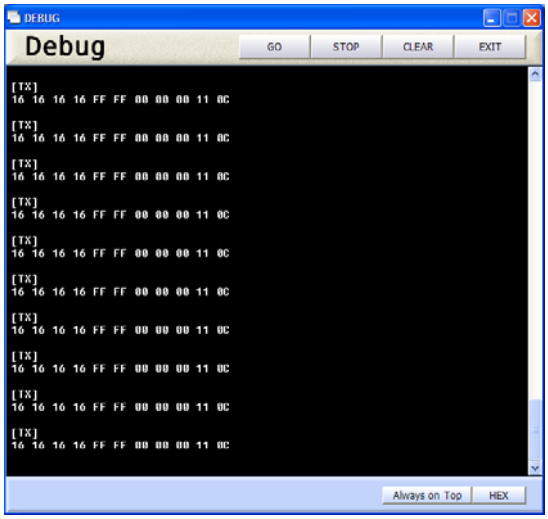



**Figure 32 Debug Window**

- sub-functions of debug

| | |
|---|---|
| Go | Start the display of Tx/Rx communication data. |
| Stop | Stop the display of Tx/Rx communication data. |
| Clear | Clear the display of Tx/Rx communication data. |
| Exit | Exit the debug windows. |

■ Alarm Log

✓ User can log the alarm history into CPU.
✓ User can monitor all alarms occurred in the unit.
✓ Alarm log will be updated whenever it is changed comparing with the existing one.

- Click 'Alarm Log' button in Sub-Function Menu.

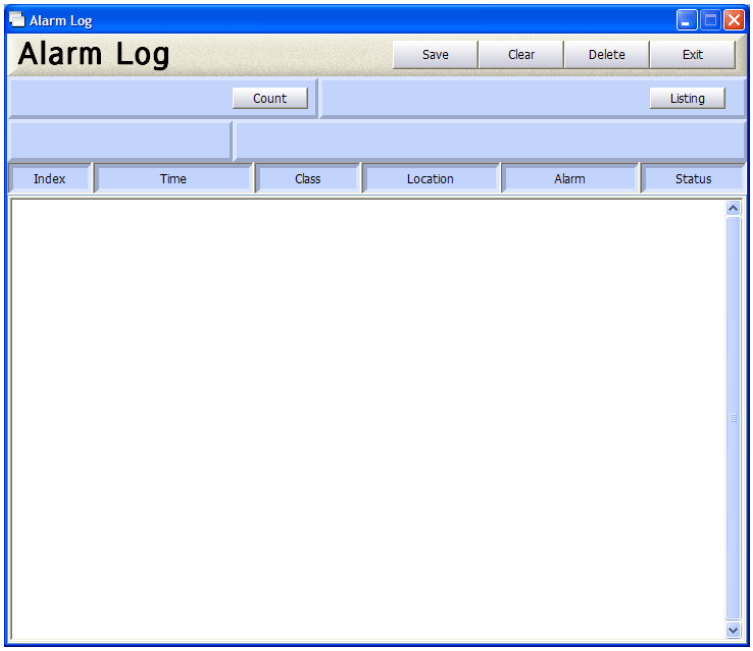



**Figure 33 Alarm Log Window**

- Sub-function of Alarm Log

| | |
|---|---|
| Save | Save overall alarms logged as Excel file format. |
| Clear | Clear overall alarms displayed in the windows. |
| Delete | delete overall alarms logged. |
| Exit | Exit the Alarm Log windows |

- Power Log
  - ✓ User can periodically check the logged input/ output power status stored in the memory of BDA CPU.

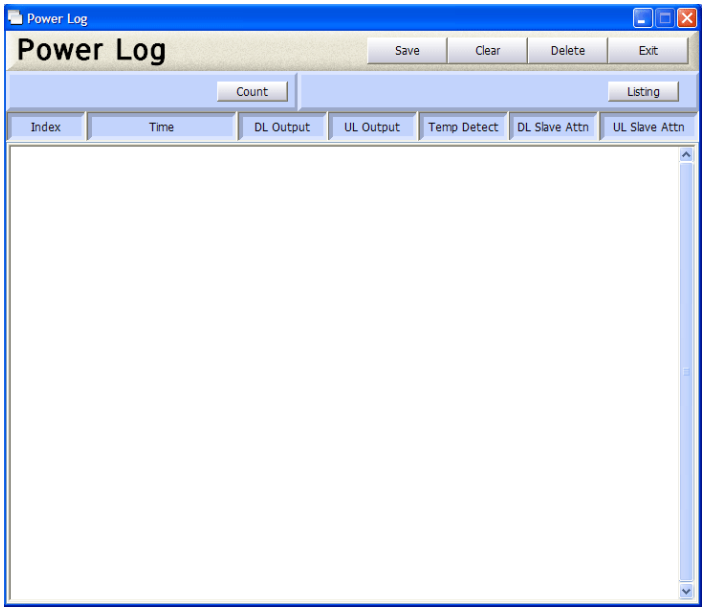



**Figure 34 Power Log Window**

- Sub-function of Power Log

| | |
|---|---|
| Save | Save overall Power logged as Excel file format. |
| Clear | Clear overall Power displayed in the windows. |
| Delete | delete overall Power logged. |
| Exit | Exit the power Log windows. |

- Alarm Mask
  - ✓ Click 'Alarm Mask' button in the Sub-Function Menu.
  - ✓ Select alarm items can be inactivated.

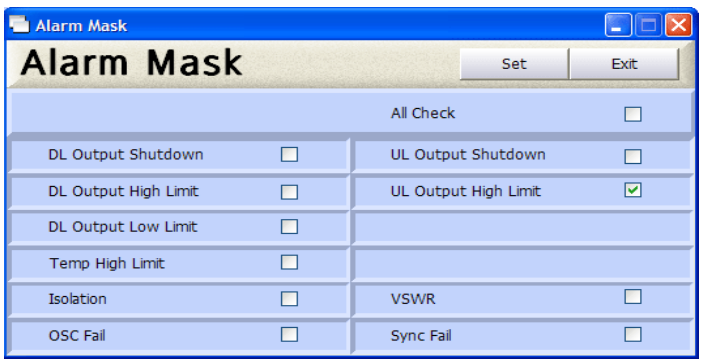



**Figure 35 Alarm Mask Window**