



FCC ID : U88GRS-1923DC-SPR

ATTACHMENT I.

- TuneUp Procedure -

HCT CO., LTD.

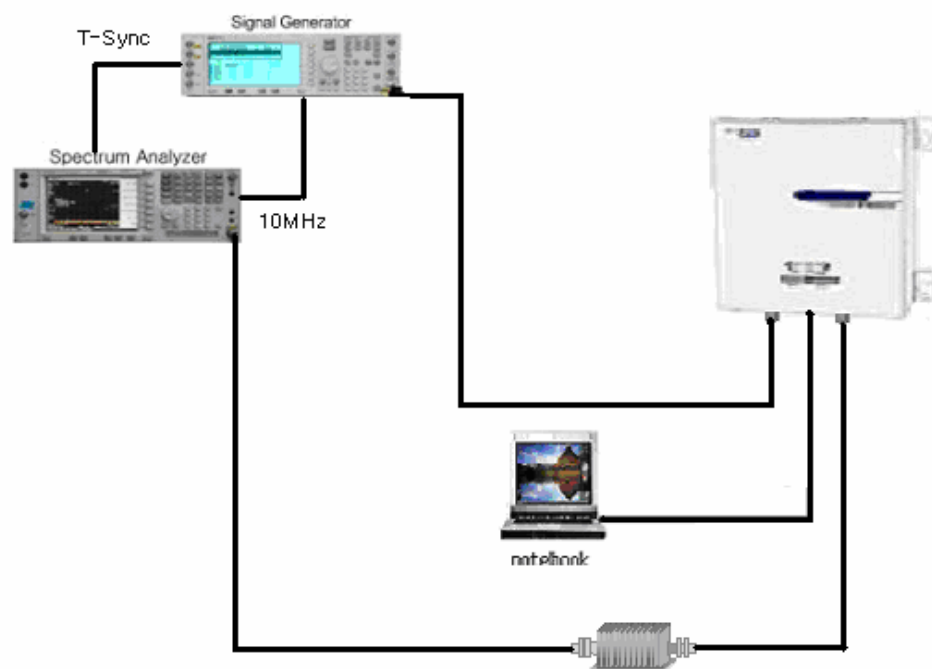
SAN 136-1, AMI-RI, BUBAL-EUP, ICHEON-SI, KYOUNGKI-DO, 467-701, KOREA
TEL:+82 31 639 8517 FAX:+82 31 639 8525 www.hct.co.kr

Report No. : HCT-RF09-0621

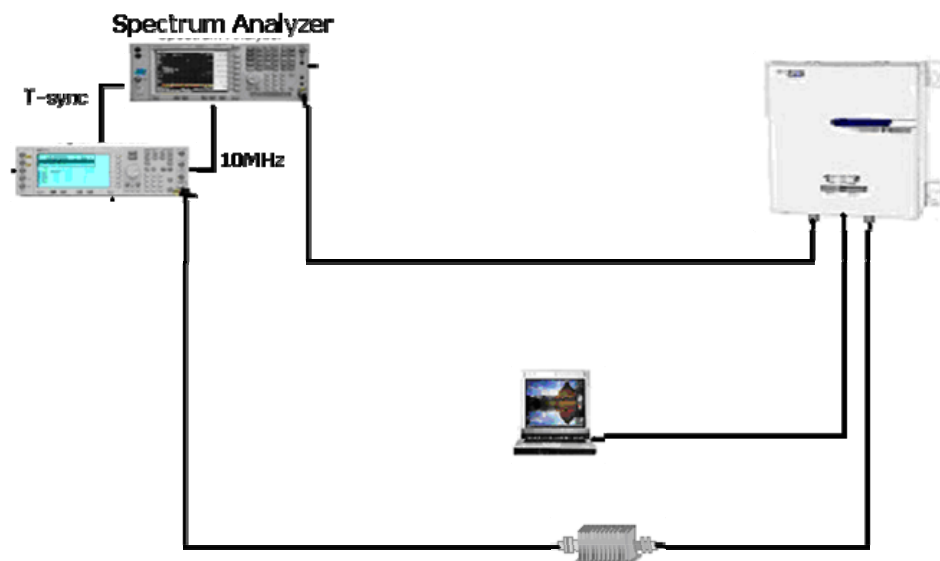
1/1

*** Test Configurations**

- RX Test

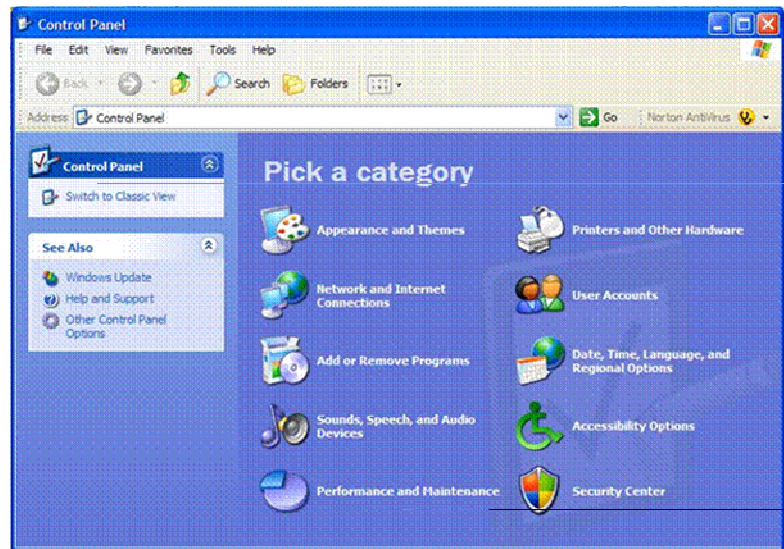
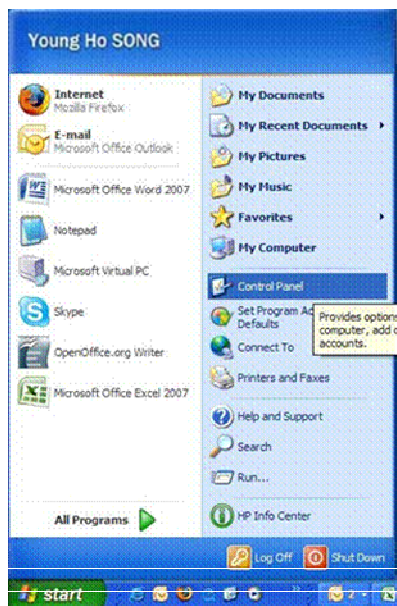


- Tx Test



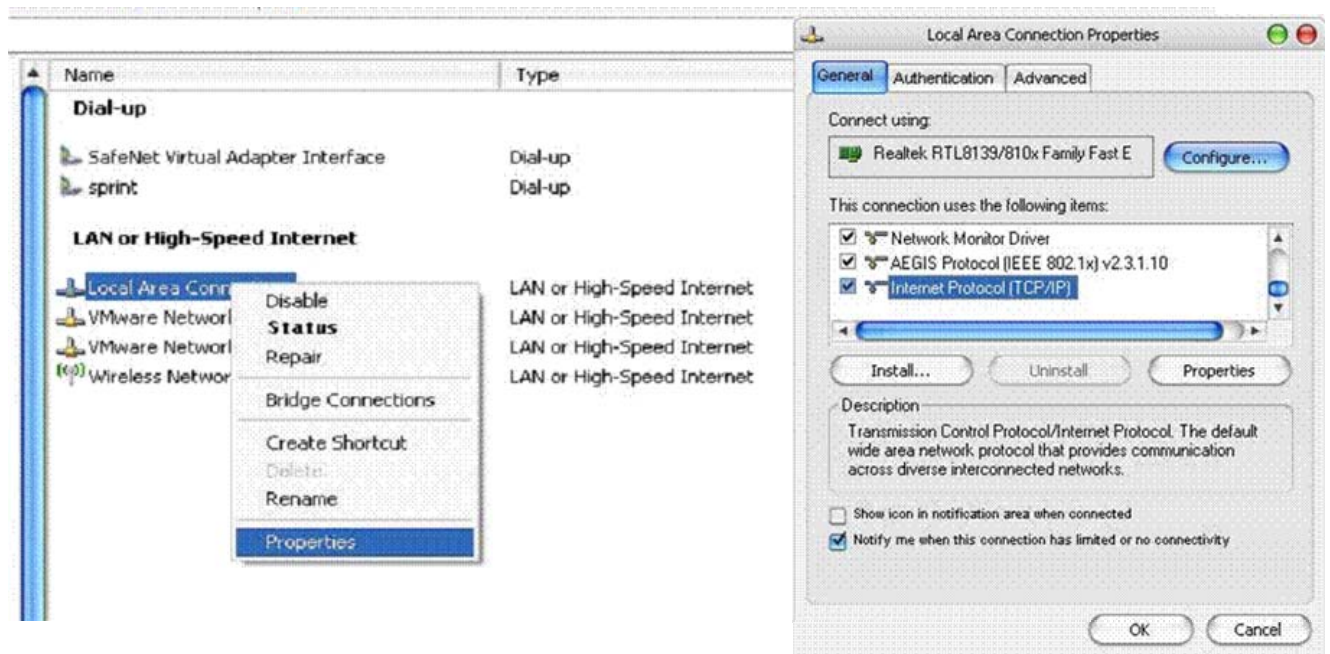
* Connecting to Web UI

1. Start->Control Panel->Network and Internet Connections

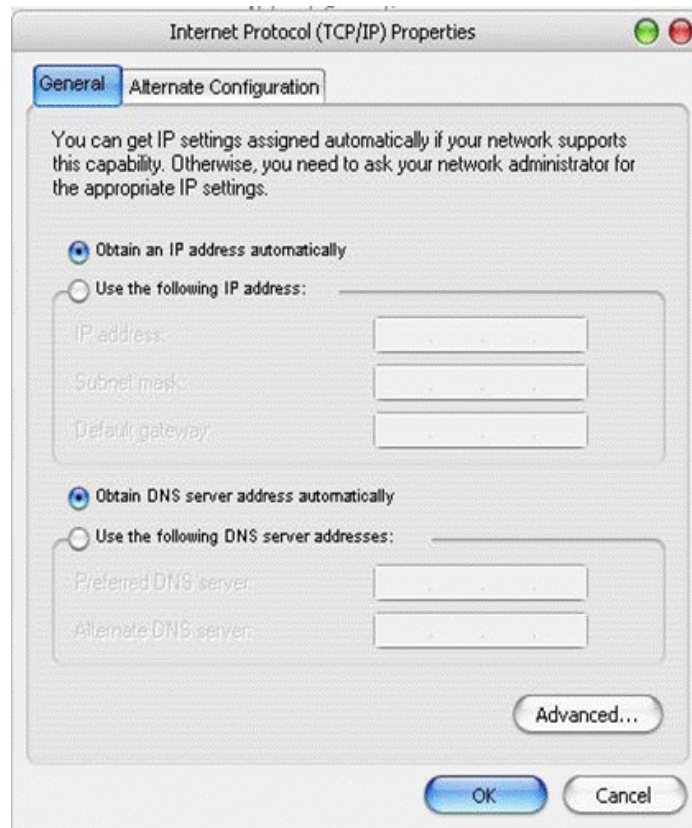


2. Right click Local Area Connections and choose Properties

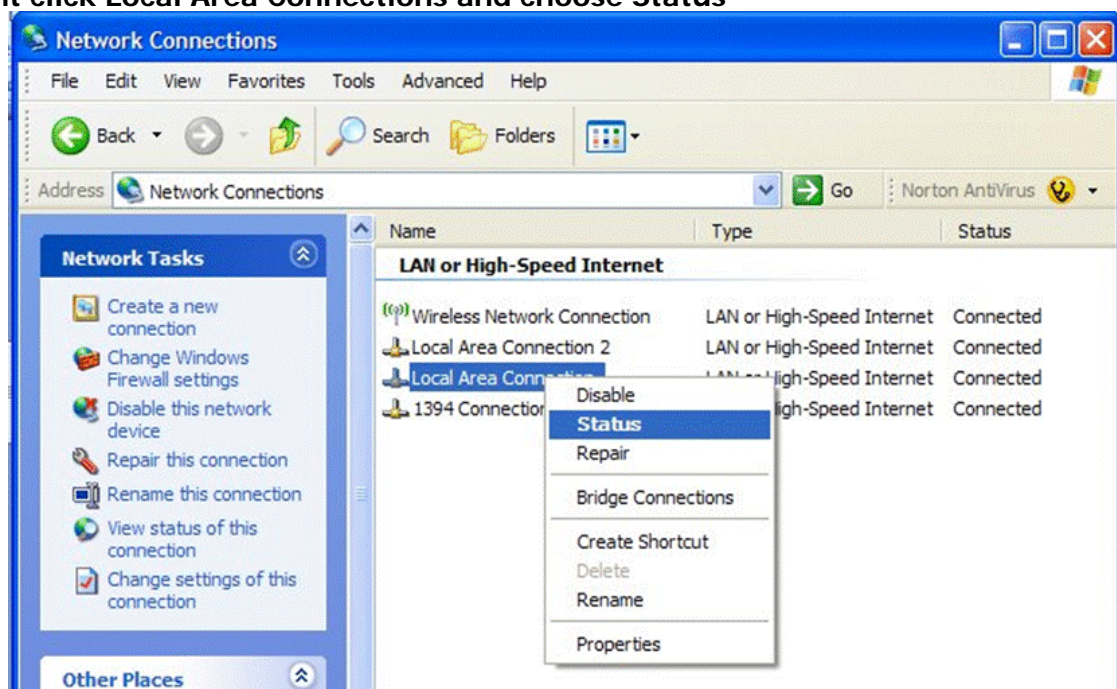
3. Click Internet Protocol (TCP/IP) on General tab and click Properties



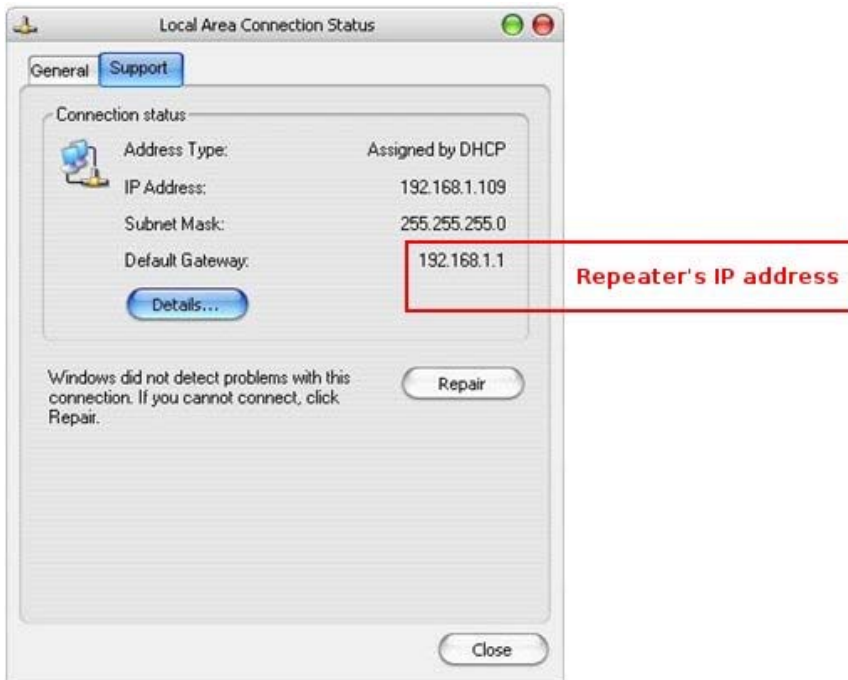
4. Choose "Obtain an IP address automatically"
5. Choose "Obtain DNS server address automatically"
6. Click "OK" to close Properties
7. Click "OK" to close Properties



8. Right click Local Area Connections and choose Status



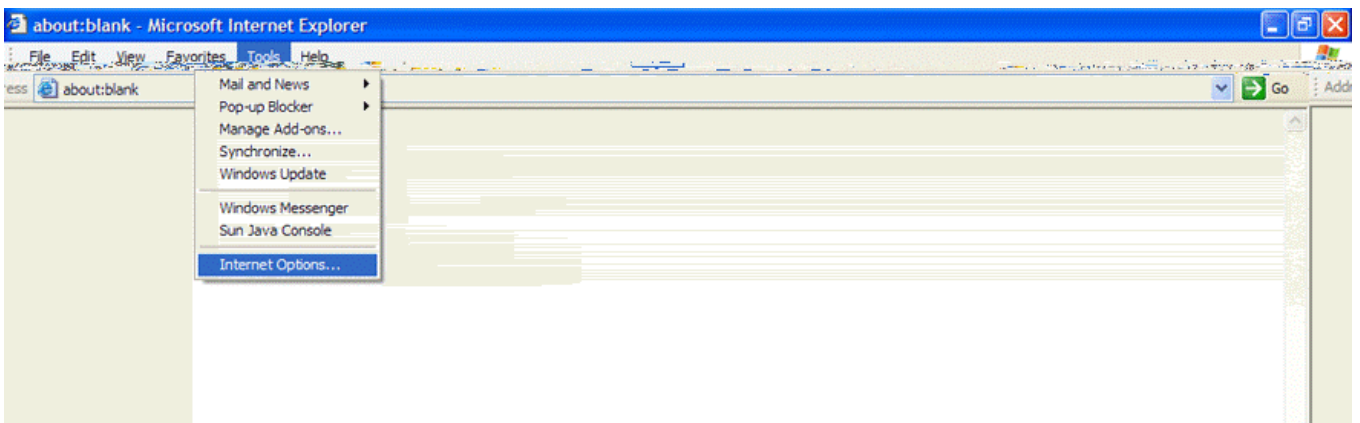
9. Click on “Support” tab.
10. Verify assigned Default Gateway at local connection.
(If IP address is not assigned, click repair)
11. Close all windows when finished.



* Internet Explorer Option Settings

Proceed step by step as indicated in the following slides to delete all temporary internet files and records.

1. Open Internet Explorer -> Tools -> Internet Options



*** Browser History Options**

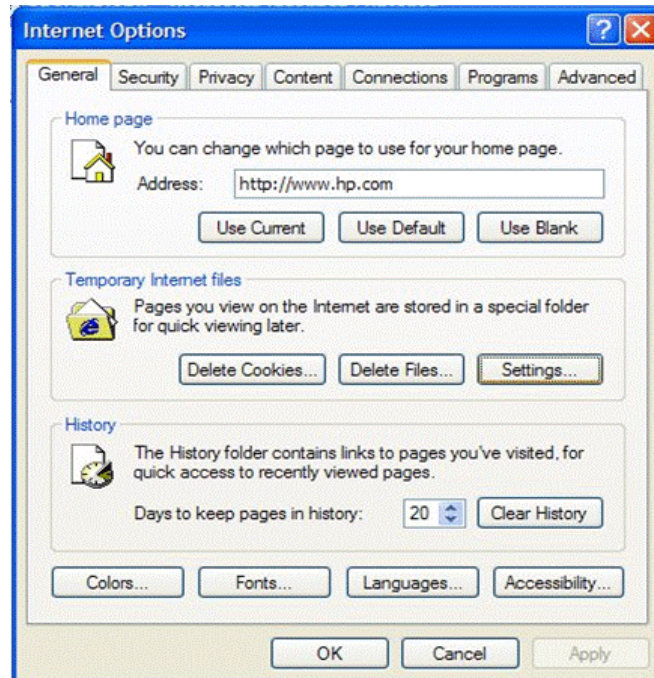
On the "General" tab,

In the "Temporary Internet Files" section:

2. Click "Delete Cookies" ♦ "OK"

3. Click "Delete Files" ♦ "OK"

4. Click "OK"



*** Login Screen**

| | | |
|--------------|---------------------|--|
| CDMA | Cascade code : | <input type="text"/> |
| | Serial No: | <input type="text" value="GST-PP-01"/> |
| | S/W Version: | <input type="text" value="1.0"/> |
| | Longitude/Latitude: | <input type="text"/> |
| Login | | |

| | | |
|--------------------------------|-------------------------------|-------|
| User Name <input type="text"/> | Password <input type="text"/> | Login |
|--------------------------------|-------------------------------|-------|

Enter Default Gateway's IP address into address bar as described in page 19, you will be redirected to Login. Default User Name is 'admin', and default Password is 'admin'. You may need to change password as described in the User Management section. Engineering Number and Site Name will initially be blank, you can input Engineering Number and Site Name as described in the Communications Configuration section.

* List Menu

| | | |
|--|------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | List | Serial No: <input type="text" value="GST-PP-01"/> |
| # Alarm Configuration | | |
| # Communications Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # User Management | | |
| # Alarm Logs | | Longitude/Latitude: <input type="text"/> |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

After you log in, you can see menu pages on the left and information about the repeater on the right.

* Status Page

- Default D/L and U/L are set at minimum Gain.
- The default values in various fields will differ with different models of WiMAX Repeaters.
- In order to view other pages, you can click the desired menu on the top-left corner of all pages.
- Changes can be made on the Status Page. This page is for checking the repeater's conditions and settings

| | | | |
|--------------------------------|---------------|---------------------|----------------------|
| # Logout | CDMA | Cascade code : | <input type="text"/> |
| # Status | | Serial No: | GST-PP-01 |
| # RF Configuration | Status | S/W Version: | 1.0 |
| # Alarm Configuration | | Longitude/Latitude: | <input type="text"/> |
| # Communications Configuration | | | |
| # User Management | | | |
| # Alarm Logs | | | |
| # Logs | | | |
| # Troubleshooting | | | |
| # Remote Software Upgrade | | | |
| # System Reset | | | |

| | | | | | | | | |
|---|---------------------------------------|---------------------------------|---|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| RF Status <input type="text" value="23dBm"/> | | | | | | | | |
| Downlink Output Power | <input type="text" value="-30"/> dBm | Uplink Output Power | <input type="text" value="-30"/> dBm | | | | | |
| Downlink Attenuation | <input type="text" value="8"/> dB | Uplink Attenuation | <input type="text" value="8"/> dB | | | | | |
| AGC Downlink Limit | <input type="text" value="15.0"/> dBm | ALC Uplink Limit | <input type="text" value="15.0"/> dBm | | | | | |
| ALC Downlink Limit | <input type="text" value="15.0"/> dBm | Shutdown ON/OFF | <input type="text" value="ON"/> | | | | | |
| AGC Control | <input type="text" value="OFF"/> | ALC Control | <input type="text" value="ON"/> | | | | | |
| Downlink HPA | <input type="text" value="DN"/> | Uplink HPA | <input type="text" value="DN"/> | | | | | |
| Gain Balance | <input type="text" value="ON"/> | | | | | | | |
| Temperature | <input type="text" value="83.9"/> °F | Temperature Limit | <input type="text" value="176.0"/> °F | | | | | |
| Delay Alarm Reporting Minutes | <input type="text" value="5"/> | RSSI Limit | <input type="text" value="-60.0"/> dBm | | | | | |
| Band Select Status | | | | | | | | |
| Band Width : <input type="text" value="5"/> MHz | | | | | | | | |
| Selected Bandwidth : | | <input type="text" value="ON"/> | RSSI : <input type="text" value="-87.5"/> dBm | | | | | |
| A1 | A2 | A3 | D | B1 | B2 | B3 | E | F |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Alarm Status | | | | | | | | |
| Status | Name | | | Status | Name | | | |
| <input checked="" type="checkbox"/> | RF Power alarm | | | <input checked="" type="checkbox"/> | RSSI alarm | | | |
| <input checked="" type="checkbox"/> | Undercurrent alarm | | | <input checked="" type="checkbox"/> | Overtemp alarm | | | |
| <input checked="" type="checkbox"/> | VSWR alarm | | | | | | | |

* Communications Configuration

- Click on the Communications Configuration link.
- On this page you can change various values related to IP network. Because Web UI is based on IP network, incorrect configuration may make it impossible to connect to Web UI

| | | |
|--|--|---|
| # Logout | <div style="text-align: center; font-size: 2em; font-weight: bold;">CDMA</div> <div style="text-align: center; font-size: 1.2em; font-weight: bold;">Communication Configuration</div> | Cascade code : <input type="text"/> |
| # Status | | Serial No: <input type="text" value="GST-PP-01"/> |
| # RF Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # Alarm Configuration | | Longitude/Latitude: <input type="text"/> |
| # Communications Configuration | | |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

| | |
|--|--|
| LAN port IP address (RJ45 port for local access) | <input type="text" value="192.168.1.1"/> |
| Obtain an IP address automatically | <input checked="" type="radio"/> DHCP <input type="radio"/> STATIC |
| IP address | <input type="text" value="192.168.1.1"/> |
| Netmask | <input type="text" value="255.255.255.0"/> |
| Gateway | <input type="text" value="192.168.1.2"/> |
| DNS Server | <input type="text" value="168.126.63.1"/> |
| DHCP Server | <input type="text" value="ON"/> |
| | |
| Cascade Code | <input type="text"/> |
| Longitude : Latitude <small>ex) N/S 000.000000:E/W 000.000000</small> | <input type="text"/> |
| Current Time | <input type="text" value="10"/> / <input type="text" value="23"/> _ <input type="text" value="21"/> : <input type="text" value="57"/> _ <input type="text" value="2010"/> <small>ex) month/day_hour:min_year</small> <small>05/31_16:59_2007</small> |
| <input type="button" value="Apply"/> | |

* RF Configuration

- Click the RF Configuration link.
- This menu is where installer will actually configure the Repeater.
- You can change various RF values of the equipment on this page.
- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all.
- Changes will not take effect until you click "Apply" button.
- The default values in various fields will differ with different models of Cellular RF Repeaters.

| | | |
|--|---|---|
| # Logout | <div>CDMA</div> <div>RF Configuration</div> | Cascade code : <input type="text"/> |
| # Status | | Serial No: <input type="text" value="GST-PP-01"/> |
| # RF Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # Alarm Configuration | | Longitude/Latitude: <input type="text"/> |
| # Communications Configuration | | |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

| Band Select Status | | | |
|---|---------------------------------|--------|--|
| Band Width : <input type="text" value="5"/> MHz | | | |
| Selected Bandwidth : | <input type="text" value="ON"/> | RSSI : | <input type="text" value="-87.0"/> dBm |

| RF Configuration | | | |
|-------------------------------|---------------------------------------|--------------------|--|
| Gain Balance Control | <input type="text" value="ON"/> | Temperature Limit | <input type="text" value="176.0"/> °F |
| AGC Downlink Limit | <input type="text" value="15.0"/> dBm | ALC Downlink Limit | <input type="text" value="15.0"/> dBm |
| | | ALC Uplink Limit | <input type="text" value="15.0"/> dBm |
| Downlink HPA | <input type="text" value="ON"/> | Uplink HPA | <input type="text" value="ON"/> |
| Downlink ATT | <input type="text" value="8.0"/> dB | Uplink ATT | <input type="text" value="8.0"/> dB |
| AGC Control | <input type="text" value="OFF"/> | ALC Control | <input type="text" value="ON"/> |
| Auto Gain Setting | <input type="text" value="OFF"/> | Shutdown ON/OFF | <input type="text" value="ON"/> |
| Delay Alarm Reporting Minutes | <input type="text" value="5"/> | RSSI Limit | <input type="text" value="-60.0"/> dBm |

| Band width Select Control | | | | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Band width : <input type="text" value="5"/> MHz | | | | | | | | |
| A1 | A2 | A3 | D | B1 | B2 | B3 | E | F |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="button" value="Apply"/> | | | | | | | | |

- After the desired bandwidth is selected, proceed with following steps:
 - > The high-frequency side of the bandwidth can be shifted in by either 200kHz or 400kHz to avoid unwanted signals for 800MHz, adjusting the high-side of that band.
 - > For normal setup, GST recommends using the Auto Gain Setting.
 - > Before AGS user must use the Band select function to choose proper band(s).
 - > User may configure Gain and secure Isolation by switching Auto Gain Setting to "ON". Click "Apply".

* Alarm Configuration

- Click Alarm Configuration link.
- In case that Report Alarms is OFF, all alarms will be disabled. In case that Report Alarm is ON, you can enable and disable individual alarms.

| | | |
|--|----------------------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | | Serial No: <input type="text" value="GST-PP-01"/> |
| # Alarm Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # Communications Configuration | | Longitude/Latitude: <input type="text"/> |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | Alarm Configuration | |

| Report Alarms | <input type="text" value="ON"/> | | | | |
|-----------------|---------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|----------------------|
| List of alarms: | | | | | |
| Number | Name | State | Active | SNMP Mapping | Sent Time |
| 0 | oscillation alarm | <input type="text" value="Normal"/> | <input type="text" value="Enable"/> | <input type="text" value="RF Power"/> | <input type="text"/> |
| 1 | Downlink over-output alarm | <input type="text" value="Normal"/> | <input type="text" value="Enable"/> | <input type="text" value="RF Power"/> | <input type="text"/> |
| 2 | Uplink over-output alarm | <input type="text" value="Normal"/> | <input type="text" value="Enable"/> | <input type="text" value="RF Power"/> | <input type="text"/> |
| 3 | Temperature alarm | <input type="text" value="Normal"/> | <input type="text" value="Enable"/> | <input type="text" value="Overtemp"/> | <input type="text"/> |
| Apply | | | | | |

* User Management

- Click on the User Management link.
- On this page you can create and delete users, change passwords, and assign authorities to individual users.
- Read/Write Authority means that the user can change various values.
- Super User is very similar to an Administrator account.
- Caution: DO NOT DELETE 'admin'.

| | | |
|--------------------------------|-------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | | Serial No: <input type="text" value="GST-PP-01"/> |
| # Alarm Configuration | | |
| # Communications Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # User Management | | Longitude/Latitude: <input type="text"/> |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

| | | |
|---|--------------------------------------|------------------------|
| User | <input type="text"/> | Must be 5-8 characters |
| Password | <input type="text"/> | Must be 5-8 characters |
| Password confirm | <input type="text"/> | |
| Authority | <input type="text" value="Read"/> | |
| <input type="button" value="Register"/> | <input type="button" value="Reset"/> | |

| | |
|-------|---------------------------------------|
| admin | <input type="button" value="Delete"/> |
|-------|---------------------------------------|

* Alarm Logs

- Click on the Alarm Logs link.
- You can see a history of reported and reset Alarms.

When an alarm is reported, the name and time of the alarm is displayed along with it's current status.

Red color means that the alarm is reported, and green color means that the alarm has returned to normal status.

- After an Alarm condition lasts for the "Delay Alarm Reporting Minutes" and/or the "Alarm Incidence" Percentage set in RF Configuration page, the Alarm will be reported.

| | | |
|--|-------------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | Alarm Logs | Serial No: <input type="text" value="GST-PP-01"/> |
| # Alarm Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # Communications Configuration | | Longitude/Latitude: <input type="text"/> |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

| <div>Alarm Clear</div> | | | |
|------------------------|------|--------|-----------|
| Number | Name | Status | Sent Time |

* Log

Click on the Logs link.

You can see Logs regarding Web UI operation. Logs will maintain a history of up to 30 operations.

| | | |
|--------------------------------|------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | | |
| # Alarm Configuration | | Serial No: <input type="text" value="GST-PP-01"/> |
| # Communications Configuration | | |
| # User Management | Logs | S/W Version: <input type="text" value="1.0"/> |
| # Alarm Logs | | |
| # Logs | | Longitude/Latitude: <input type="text"/> |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

| Date & Time | User | Operation | Description |
|-----------------------|-------|---------------------|-------------|
| 10/23/2010 - 22:01:49 | admin | Alarm Logs | Checked |
| 10/23/2010 - 22:00:10 | admin | User Management | Accessed |
| 10/23/2010 - 21:57:45 | admin | Communications | Checked |
| 10/23/2010 - 21:56:25 | admin | Alarm Configuration | Checked |
| 10/23/2010 - 21:53:04 | admin | RF Configuration | Checked |
| 10/23/2010 - 21:48:46 | admin | Login | Login |
| 10/23/2010 - 21:45:54 | admin | Login | Login |
| 10/23/2010 - 21:45:44 | admin | Logout | Logout |
| 10/23/2010 - 21:44:39 | admin | Login | Login |
| 10/23/2010 - 21:39:43 | admin | Communications | Checked |
| 10/23/2010 - 21:39:20 | admin | Login | Login |
| 10/19/2010 - 02:15:27 | admin | RF Configuration | Set |
| 10/19/2010 - 02:15:24 | admin | RF Configuration | Checked |
| 10/19/2010 - 02:14:08 | admin | RF Configuration | Set |
| 10/19/2010 - 02:14:03 | admin | RF Configuration | Checked |
| 10/19/2010 - 02:12:53 | admin | RF Configuration | Checked |
| 10/19/2010 - 02:12:28 | admin | Login | Login |
| 10/18/2010 - 21:01:55 | admin | system_download | Set |
| 10/18/2010 - 21:01:29 | admin | system_download | Checked |
| 10/18/2010 - 21:01:26 | admin | Login | Login |
| 10/18/2010 - 18:51:30 | admin | RF Configuration | Set |
| 10/18/2010 - 18:51:27 | admin | RF Configuration | Checked |
| 10/18/2010 - 18:50:28 | admin | RF Configuration | Checked |
| 10/18/2010 - 18:49:29 | admin | RF Configuration | Checked |
| 10/18/2010 - 18:49:18 | admin | Login | Login |
| 10/18/2010 - 17:43:22 | admin | system_download | Set |
| 10/18/2010 - 17:41:50 | admin | system_download | Checked |
| 10/18/2010 - 17:41:46 | admin | Login | Login |
| 09/12/2010 - 16:47:09 | admin | RF Configuration | Set |

* Troubleshooting Log

- Click on the Troubleshooting link.
- You can refer to this page for a general troubleshooting guide.
- In case that screen resolution is 1024 x 768, you may need to use scroll bars to view all.

| | | |
|--------------------------------|-----------------------------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | |
| # RF Configuration | Trouble - Shooting | Serial No: <input type="text" value="GST-PP-01"/> |
| # Alarm Configuration | | |
| # Communications Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # User Management | | |
| # Alarm Logs | | Longitude/Latitude: <input type="text"/> |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

Toll Free: 1-866-9-GST-USA {Technical Support}
support@gsteletechinc.com

Contact Information
GS Teletech Inc.
6900 College Blvd., Suite 850
Overland Park, KS 66211

Tel: 913-469-6699
Fax: 913-661-0163
www.gsteletechinc.com

*** Remote System Upgrade**

- Configuration Transfer function is for downloading and uploading set values of the repeater.

| | | |
|--|-------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | Serial No: <input type="text" value="GST-PP-01"/> |
| # RF Configuration | | S/W Version: <input type="text" value="1.0"/> |
| # Alarm Configuration | | Longitude/Latitude: <input type="text"/> |
| # Communications Configuration | | |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | Remote System Upgrade |
| # System Reset | | |

| | |
|---------------------------------------|--|
| <input type="text"/> | <input type="button" value="찾아보기..."/> |
| <input type="button" value="Upload"/> | |

| | |
|--|----------------------|
| File Name | <input type="text"/> |
| File Size | <input type="text"/> |
| <input type="button" value="Upgrade"/> | |

* Software Reset

- A software reset is a “soft reboot” of the repeater. To reset the software, click on ‘Software Reset’ and then click ‘Yes’ to reset the software.
- Resetting the software is a good way to clear current alarms.

| | | |
|--|--------------|---|
| # Logout | CDMA | Cascade code : <input type="text"/> |
| # Status | | Serial No: <input type="text" value="GST-PP-01"/> |
| # RF Configuration | Reset | S/W Version: <input type="text" value="1.0"/> |
| # Alarm Configuration | | Longitude/Latitude: <input type="text"/> |
| # Communications Configuration | | |
| # User Management | | |
| # Alarm Logs | | |
| # Logs | | |
| # Troubleshooting | | |
| # Remote Software Upgrade | | |
| # System Reset | | |

Are you sure you want to reset this repeater ?

[Yes](#) [No](#)