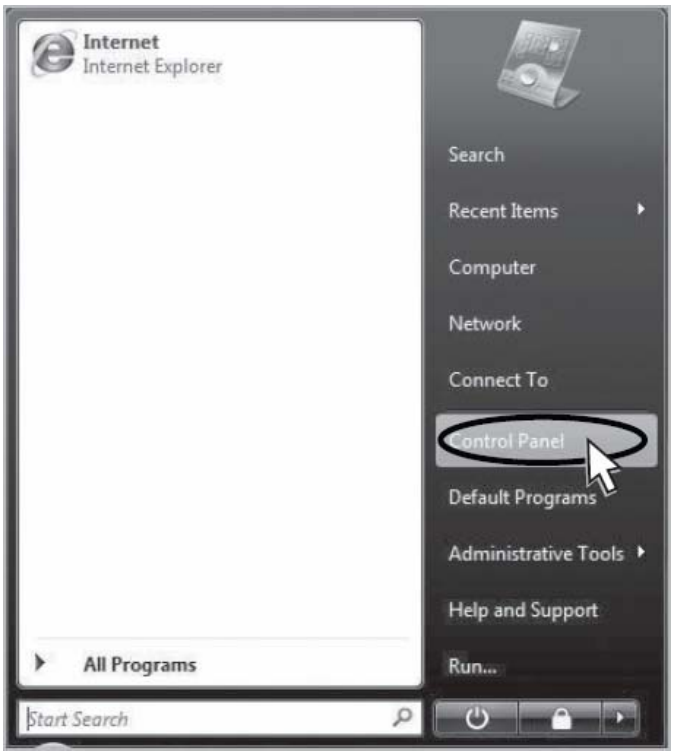
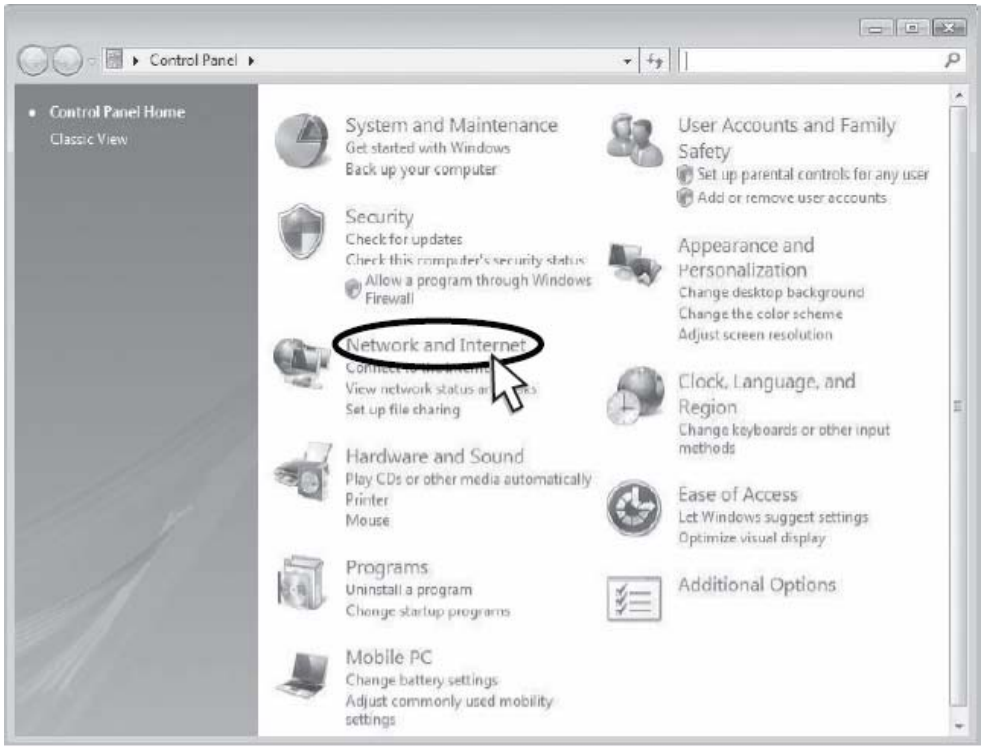
4.2.3 Windows Vista

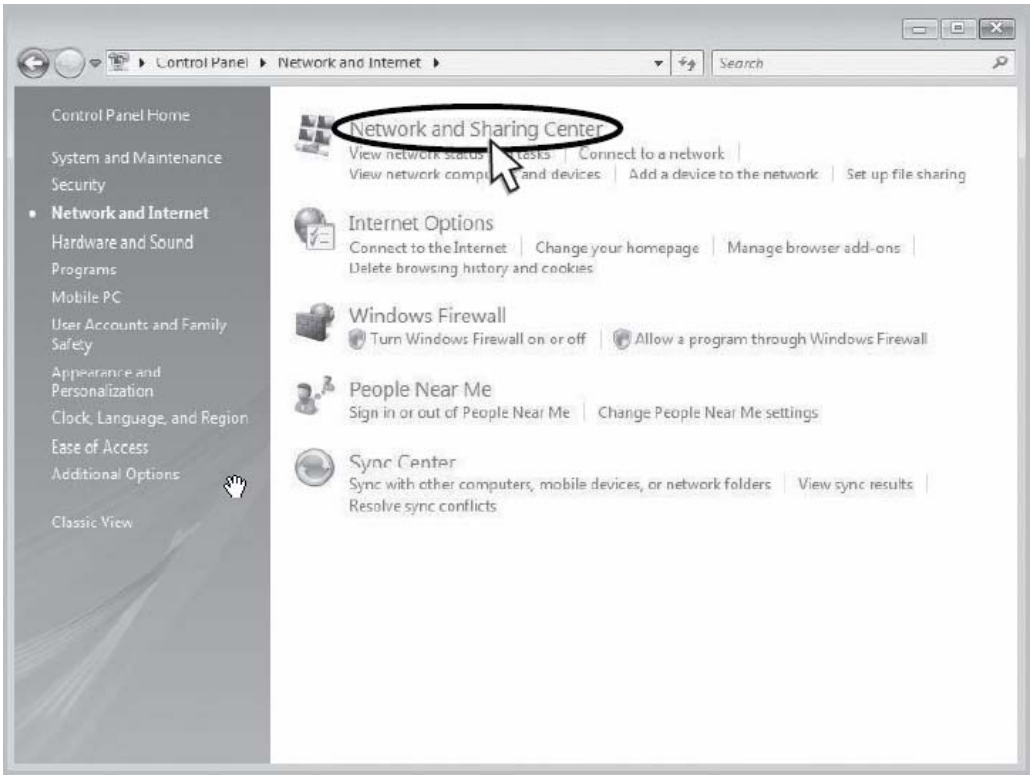
Step 1: Click the **Start** button and select **Control Panel**.



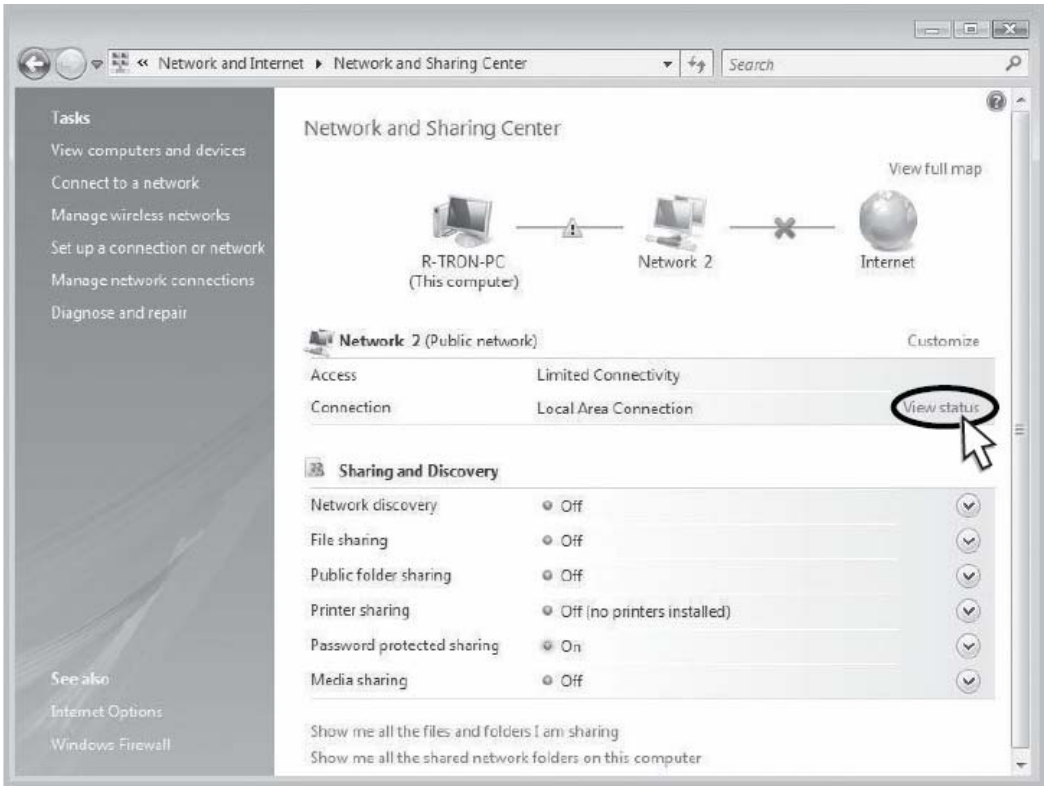
Step 2: Click **Network and Internet**.



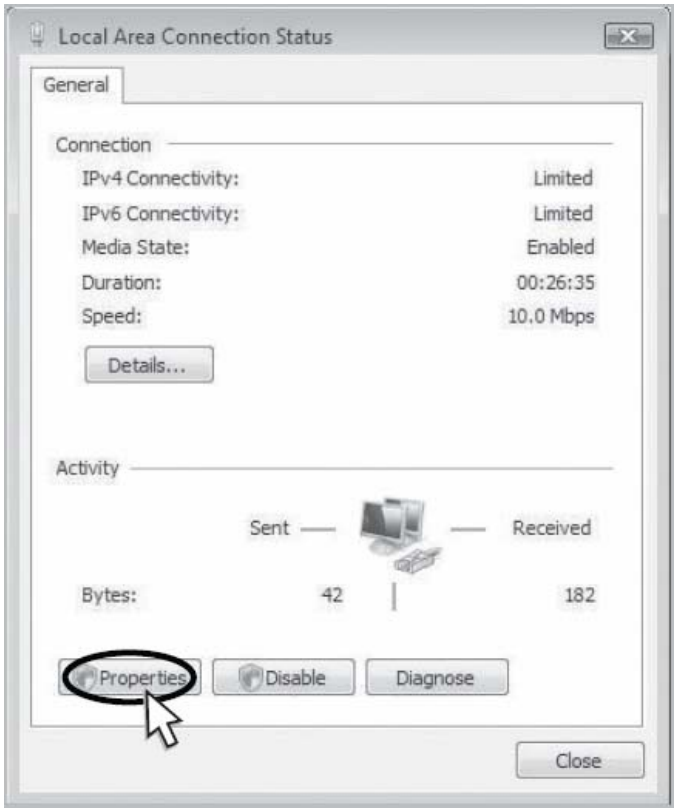
Step 3: Click **Network and Sharing Center**.



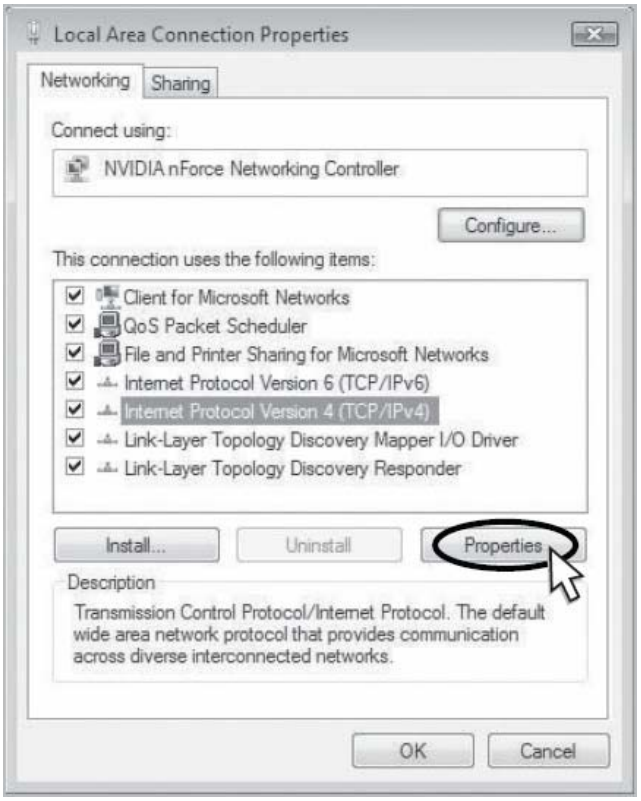
Step 4: Click **View status** of **Local Area Connection**.



Step 5: Click **Properties** and a caution pop-up window will appear. Click **OK**.



Step 6: Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.

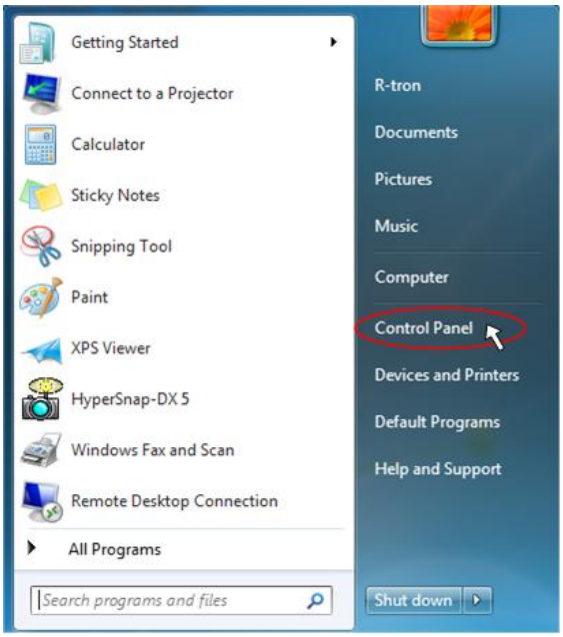


Step 7: Check **Obtain an IP address automatically** and click **OK**.

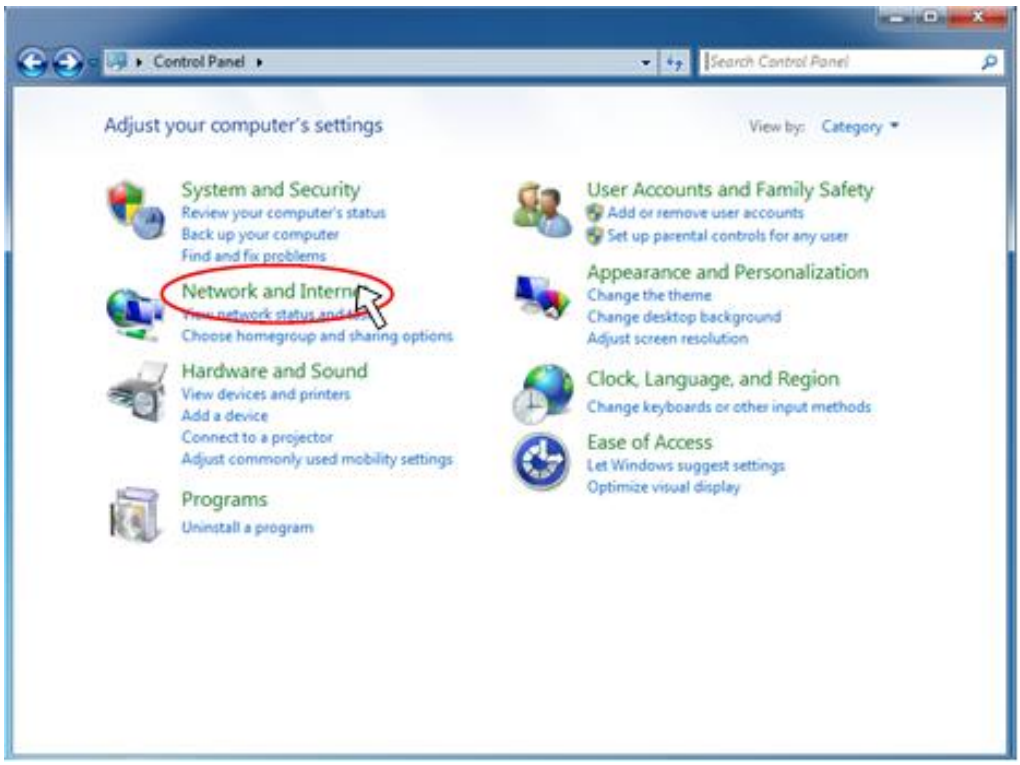
Step 8: Close all windows.

4.2.4 Windows 7

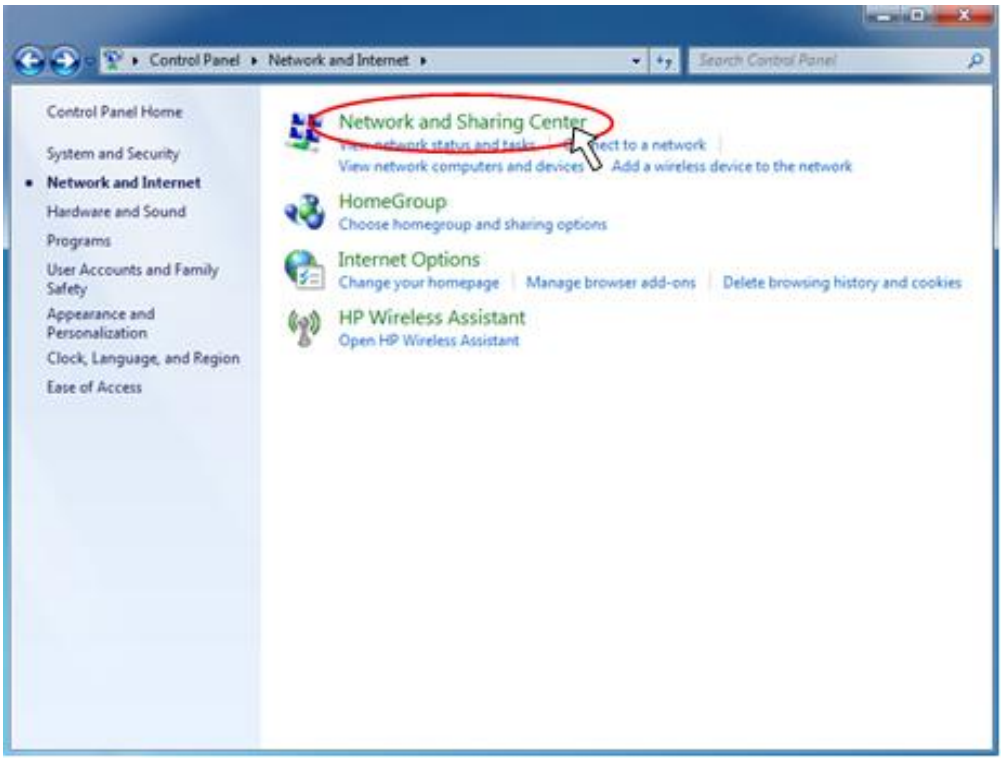
Step 1: Click the **Start** button and select **Control Panel**.



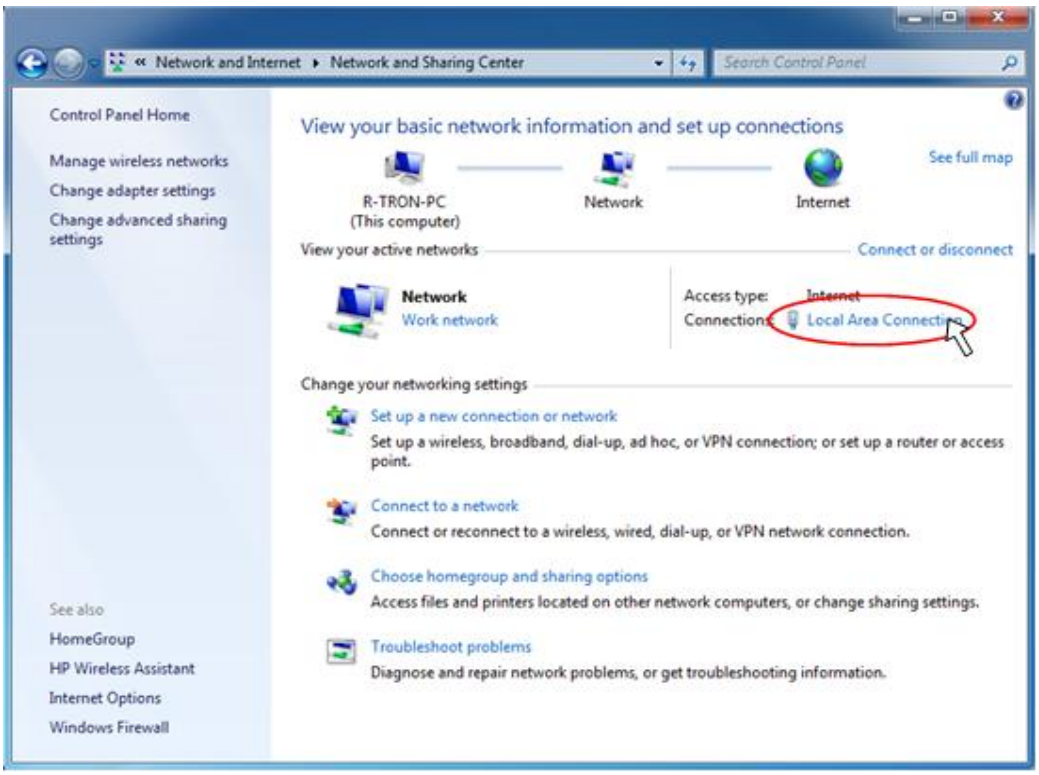
Step 2: Click **Network and Internet**.



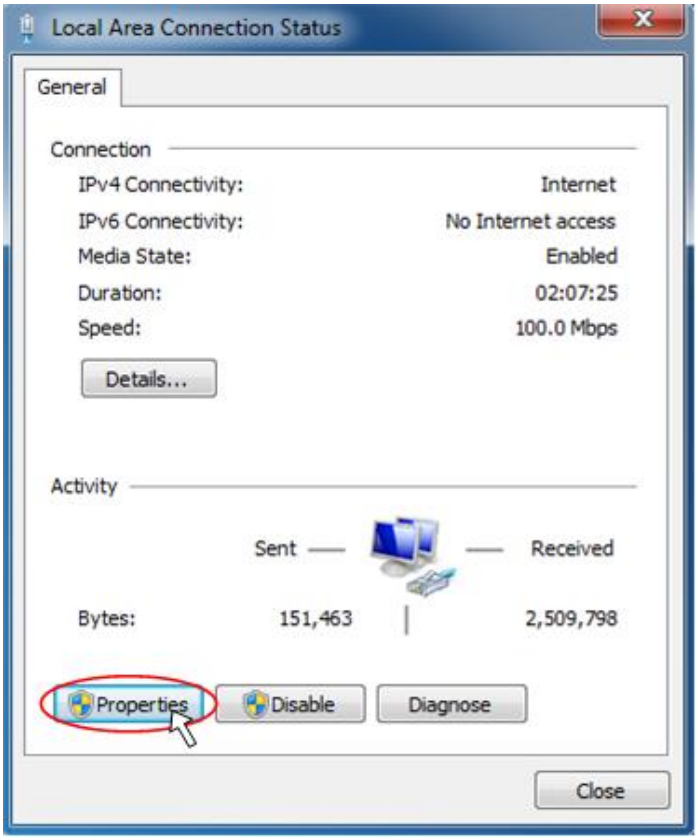
Step 3: Click **Network and Sharing Center**.



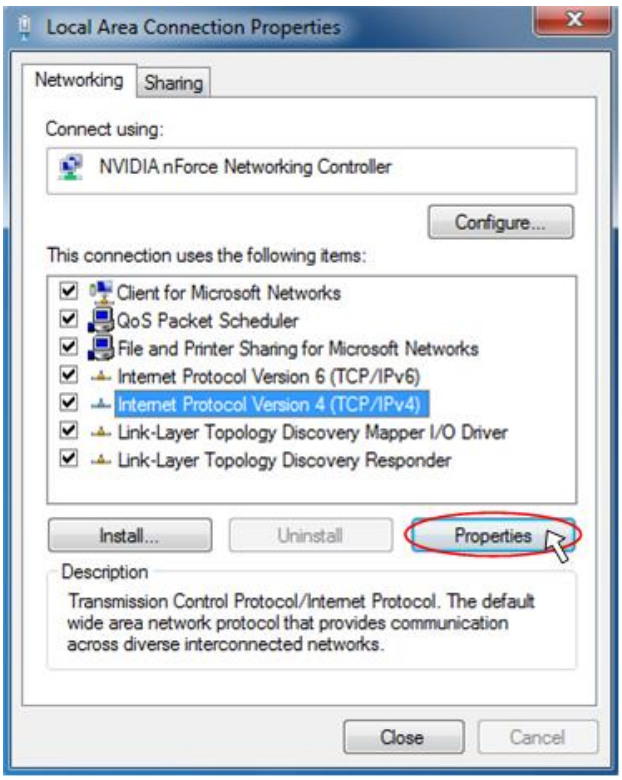
Step 4: Click **View status** of **Local Area Connection**.



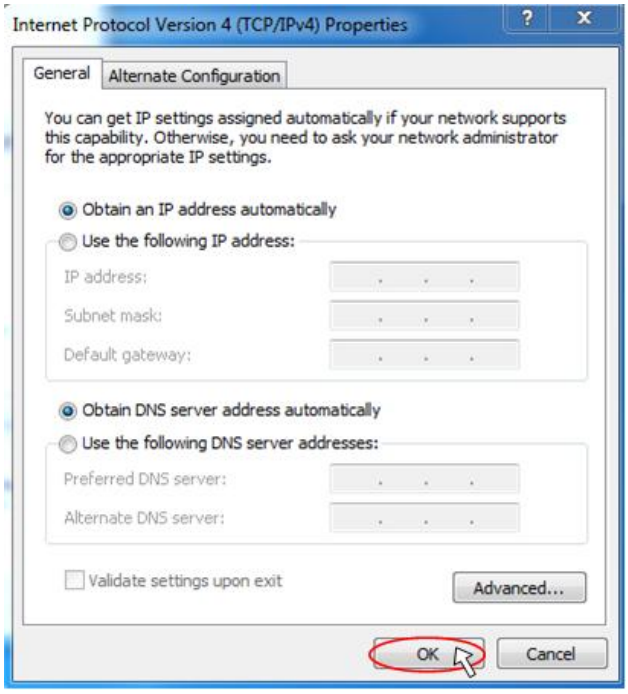
Step 5: Click **Properties** and a caution pop-up window will appear. Click **OK**.



Step 6: Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



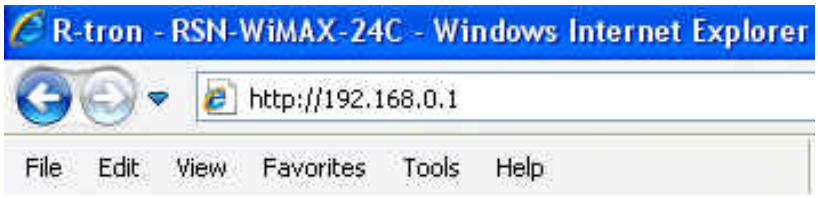
Step 7: Check **Obtain an IP address automatically** and click **OK**.



Step 8: Close all windows.

4.3 System Login

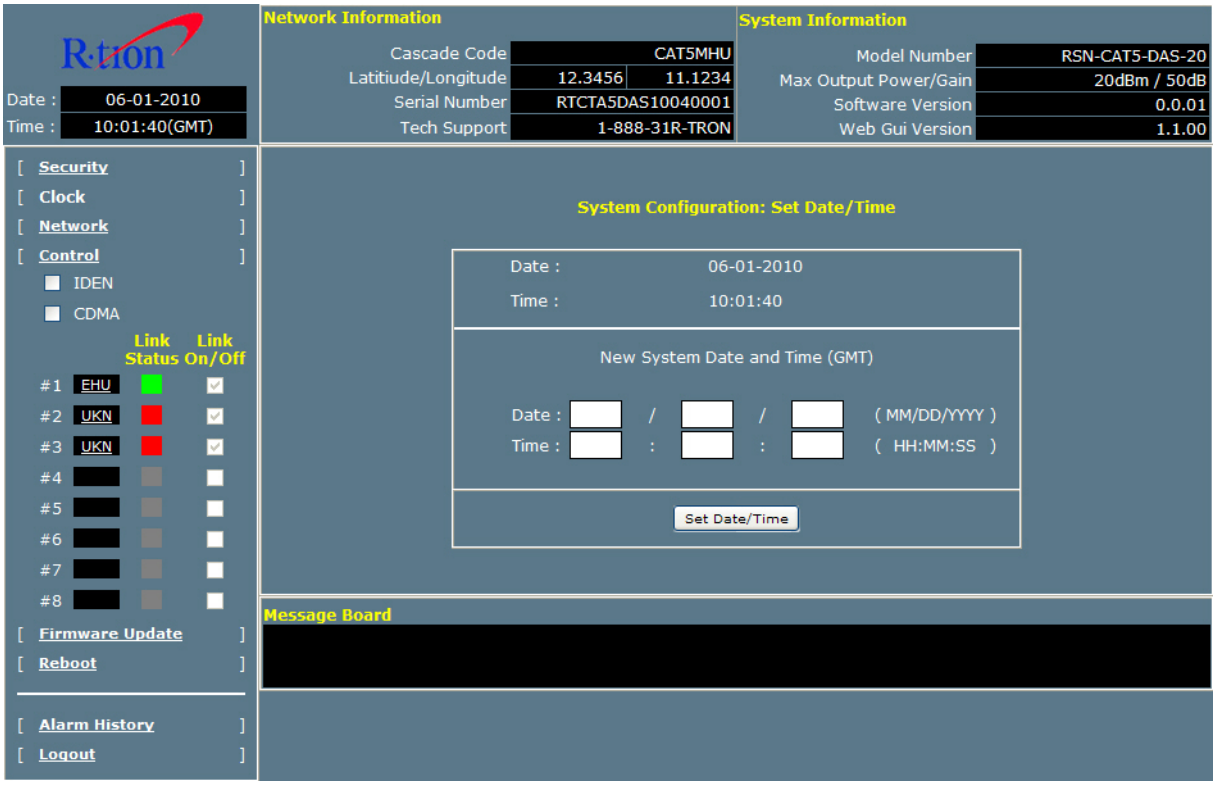
Step 1 Open your Web browser and type **http://192.168.0.1** into the URL address box. Then press the Enter key.



Step 2 The login screen will appear. Type **"operator"** for the ID and **"rtron"** for the password and then Click **OK.**

Step 3 The pop-up message for the login success will appear. Click **OK.**

Step 4 When the login process is complete, the initial screen will appear.



4.4 System Setup

4.4.1 Security

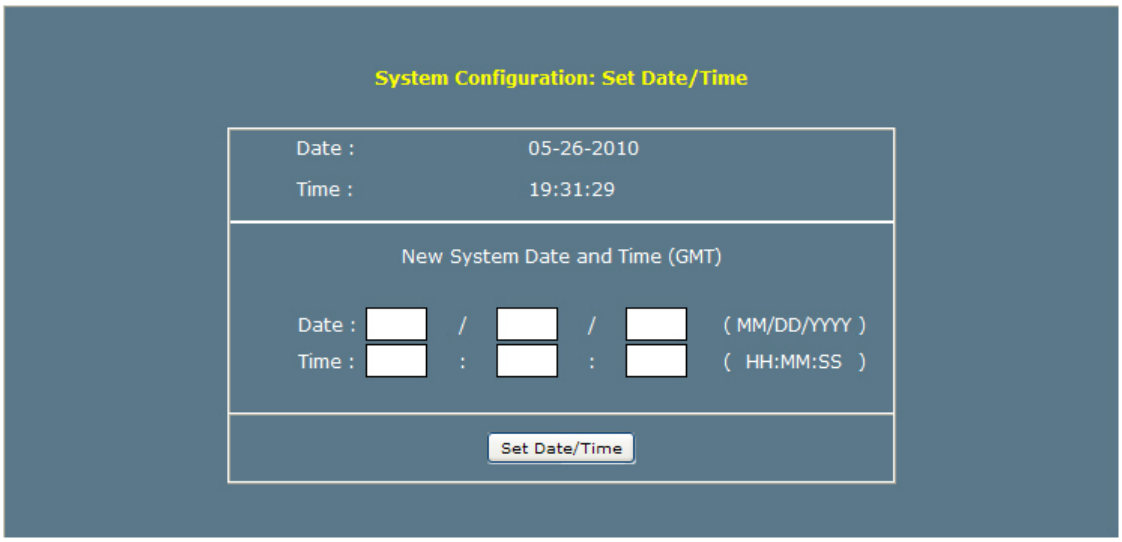
The operator does not have authorization to access this menu.

4.4.2 Clock

Click **Clock** on the left menu bar.

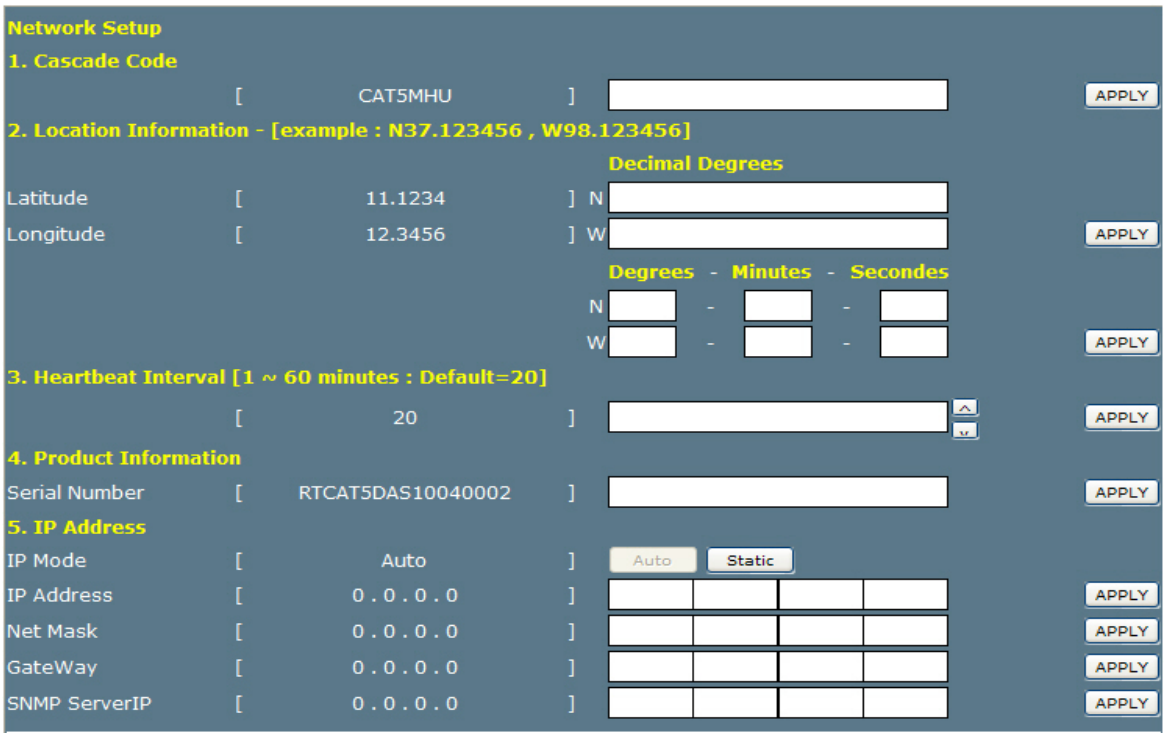
In this menu, you can set the date and time.

Click **Set Date/Time**



4.4.3 Network

Click **Network** on the left menu bar.



Network Setup

- **Cascade Code:** Type the pre-assigned cascade code. Otherwise, you cannot access the system setup.
- **Location Information:** Enter the latitude and longitude of information, otherwise you cannot access the system setup. You can input values either in Decimal Degrees or Degrees-Minutes-Seconds.

  [Example]

  ('N/S' | 'E/W') ddd.dddddd: (Latitude: N 39.006967 Longitude: W 94.532306)
- **Heartbeat Interval:** Sets the time to transmit the Heartbeat to the NMC Server.

  (Default value is 20 minutes. For this operation test, temporarily reduce the value to 1 minute. After conforming the heartbeat report, set the value back to 20 minutes.)
- **Product Information:** This is for manufacturer use only. Do not change this value.
- **IP Mode:** Has two modes, Auto and Static. The factory default is set to IP Mode Auto.

  It can be assigned IP automatically if the IP Mode is Auto. IP Mode has to be changed to Static if user wants to set up the IP directly.

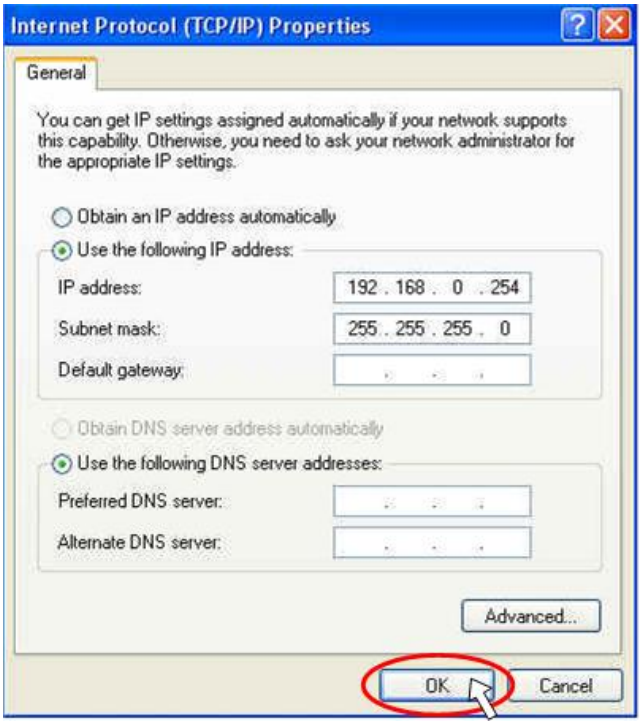
  IP Mode is able to use if Remote port accessed and IP Mode has to set up the static if Remote port accessed.

• **Access Web GUI on IP Mode Static (Remote Port connection)**

- Local IP Setting

Step 1 Repeat Step 1 through 4 on page

Step 2 Check **Use the following IP address** and enter the manual IP configuration. And then, click OK.



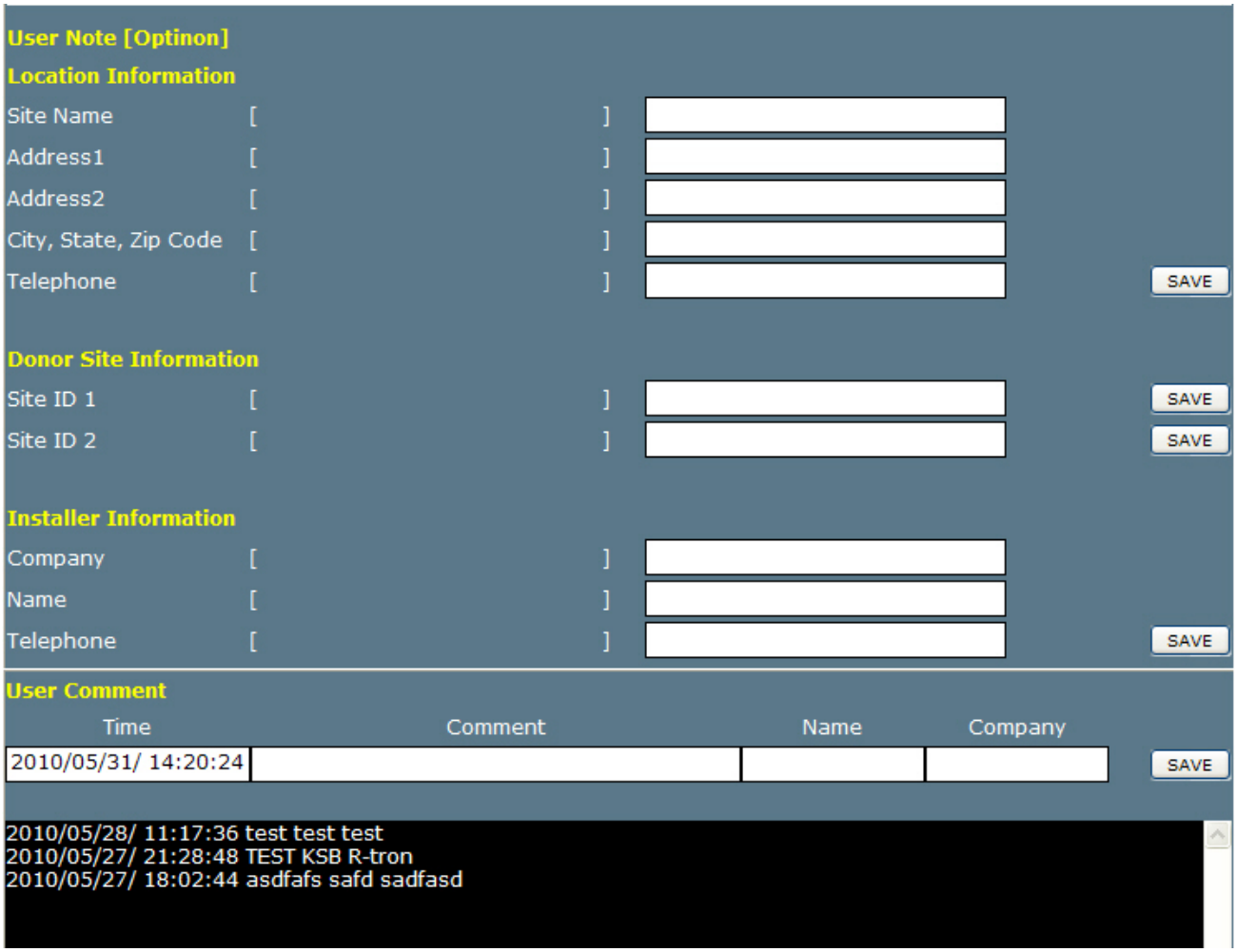
Step 3 Open your Web browser and type "http://192.168.0.1" into the URL address box. Then press the Enter key.

- URL address for the remote access

Open your Web browser and type the manual IP address into the URL address box. Then press the Enter key.

[Example]

Web GUI access URL is http://192.168.0.18

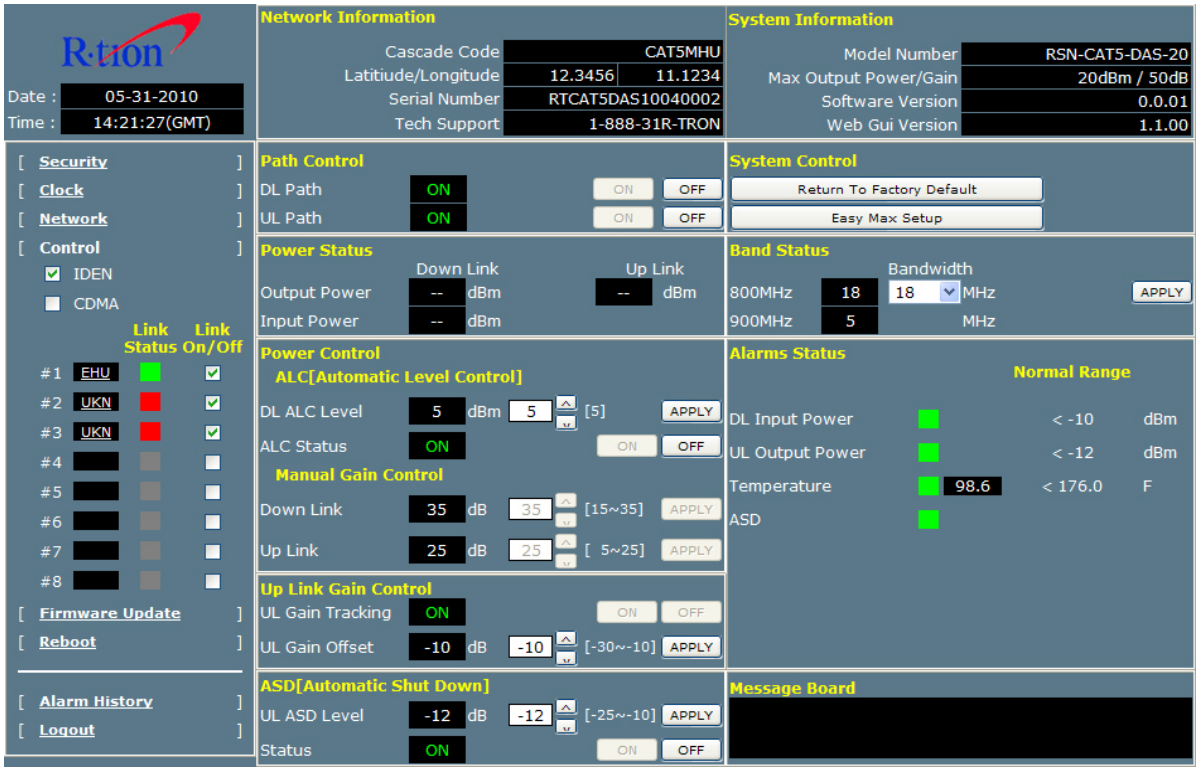


User Note

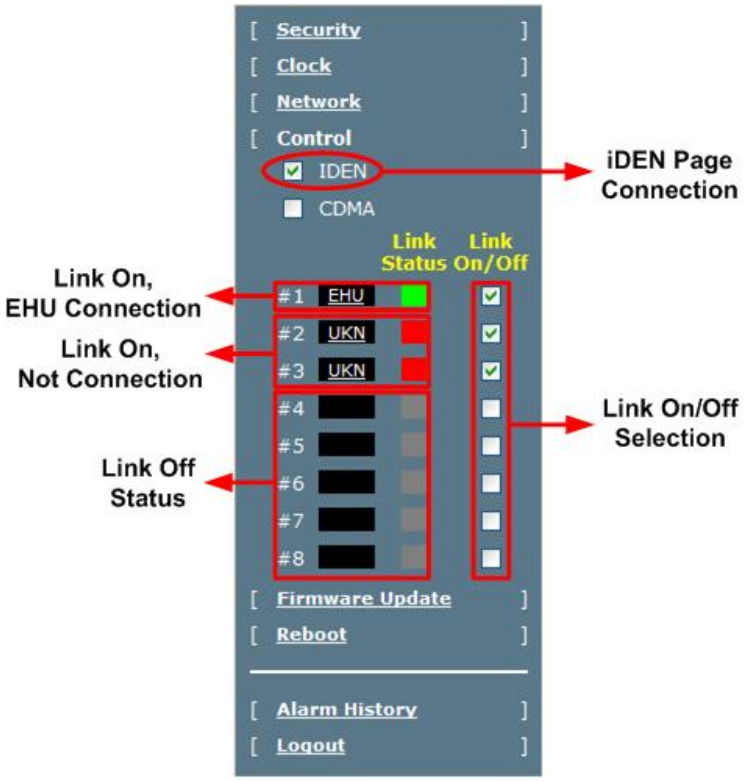
- **Location Information:** Type the location information such as the building name, address, city, state, zip code and telephone, and then click **SAVE**.
- **Donor Site Information:** Type the base station's ID, and then click **SAVE**.
- **Installer Information:** Type the installer information such as the company, name and telephone, and then click **SAVE**.
- **User Comment:** You can store up to 50 comments in the database memory, but the length of each comment is limited to 60 characters.

4.4.4 Control

A. MHU



MHU Link Status



iDEN Control window is appeared if iDEN checked and CDMA Control window is appeared if

CDMA checked.

Link On/Off : Port On if Link On/Off box checked, if not, Port Off

If EHU is displayed with Link On and turn green light on at the Link status, it means that EHU is connected to Port. (If RU is displayed, it means that RU is connected to MHU.)

If UKN is displayed with Link On and turn red light on at the Link status, it means that not connection. If communication is failed with Link on, turn red light on at the Link status.

If Link Off, turn gray light on at the Link Status.

iDEN Control Page

① Path Control : DL or UL Path On/Off

② Power Status : DL Input/ Output Power and UL Output Power display

③ Power Control

ALC(Automatic Level Control): DL ALC operates only and ALC Level is 5dBm.

Manual Gain Control: If ALC Off, DL and UL Gain is able to set up.

If ALC On, gain setting is impossible because gain controlling function is inactive.

④ Up Link Gain Control: If the UL Gain Tracking is ON, the DL and UL will link so that the UL

tries to match with the DL by the UL Gain Offset value. If the UL Gain Tracking is OFF, the DL and UL will work individually. (If ALC On, UL Gain Tracking is On automatically. UL Tracking On/Off function is inactive, Basic Gain deviation of DL and UL is -10dB at MHU)

⑤ ASD(Automatic Shut Down): MHU exists UL ASD only. If UL Output Power maintains for 3 seconds(ASD Time) at the ASD Level, it occurs Shutdown. If Shutdown is repeated 5 times(ASD Count), Easy Max Setup is needed.

⑥ Return To Factory default: Initialize function

⑦ Easy Max Setup: If Easy Max Setup executes, execute after all linked systems initializing.

Complete EHU and RU ID setting before executing Easy Max Setup.

Execute Easy Max setup after checking Link status of each unit is normal.

* MHU-EHU-RU Link

MHU: DL/UL Path On → DL ALC On (ALC Level 5dBm), UL Gain Tracking On (UL Gain Offset -10dB)

EHU: CLC On(Output 5dBm) → Operating CLC from the Min Gain
(UL Gain is linked to DL Gain)

RU: RU CLC On (iDEN -27dBm/CDMA -41dBm) → DL/UL Path On → DL ALC On(20dBm), UL Gain Tracking On(UL Gain Offset 10dB) → DL ASD On(ASD Level 23dBm)

* MHU-RU Link

MHU: DL/UL Path On → DL ALC On (ALC Level 5dBm), UL Gain Tracking On (UL Gain Offset -10dB) → UL ASD On

RU: RU CLC On (iDEN -31dBm/ CDMA -37dBm) → DL/UL Path On → DL ALC On (ALC Level 20dBm), UL Gain Tracking On (UL Gain Offset 10dB) → DL ASD On

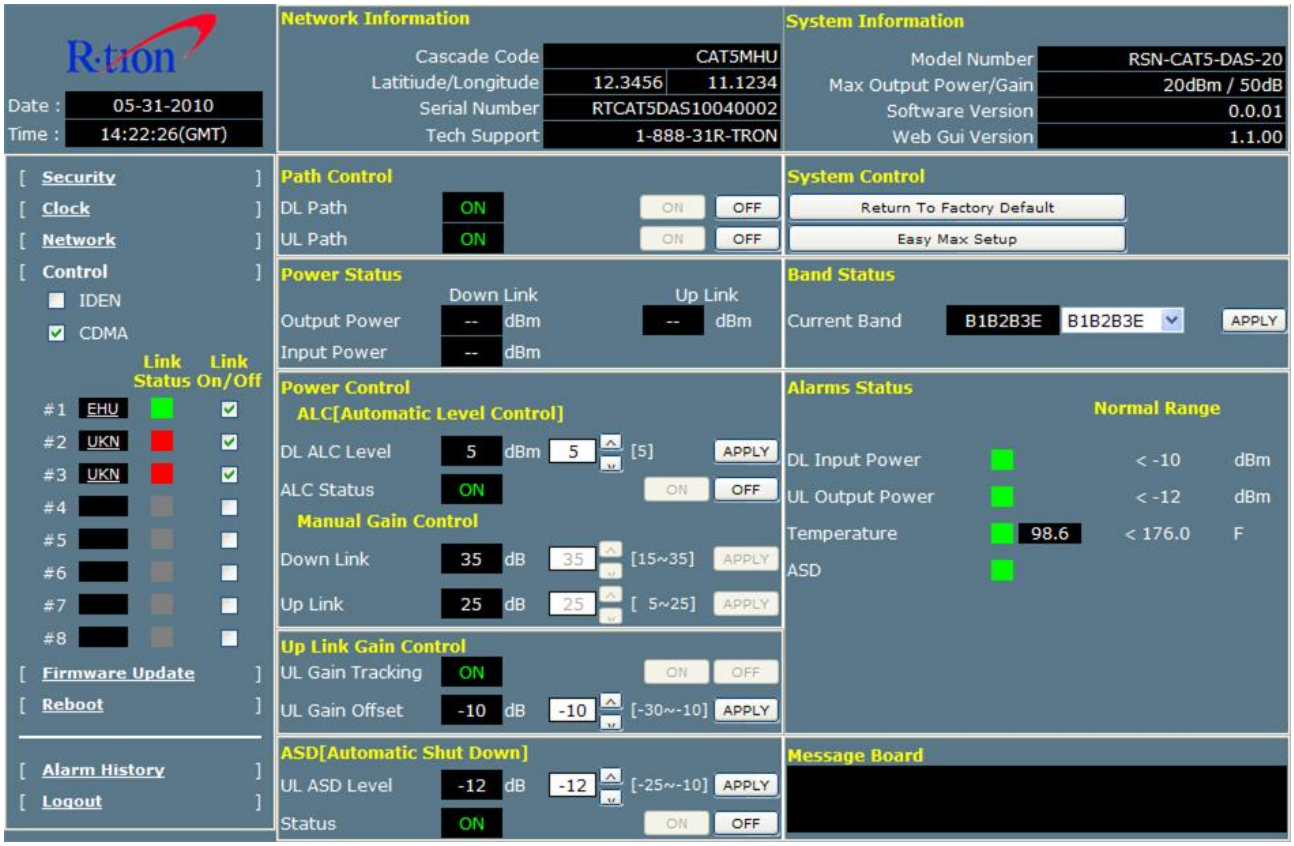
⑧ Band Status: iDEN 800MHz bandwidth can select band as 18MHz and 7MHz. 900MHz bandwidth is fixed to 5MHz.

iDEN 800MHz band can be select at 18MHz and 7MHz, 900MHz band fixed at 5MHz

⑨ Alarm Status: It shows alarm status of MHU. If it is out of Normal Range, Alarm is occurred. ASD is also occurred if it is shutdown.

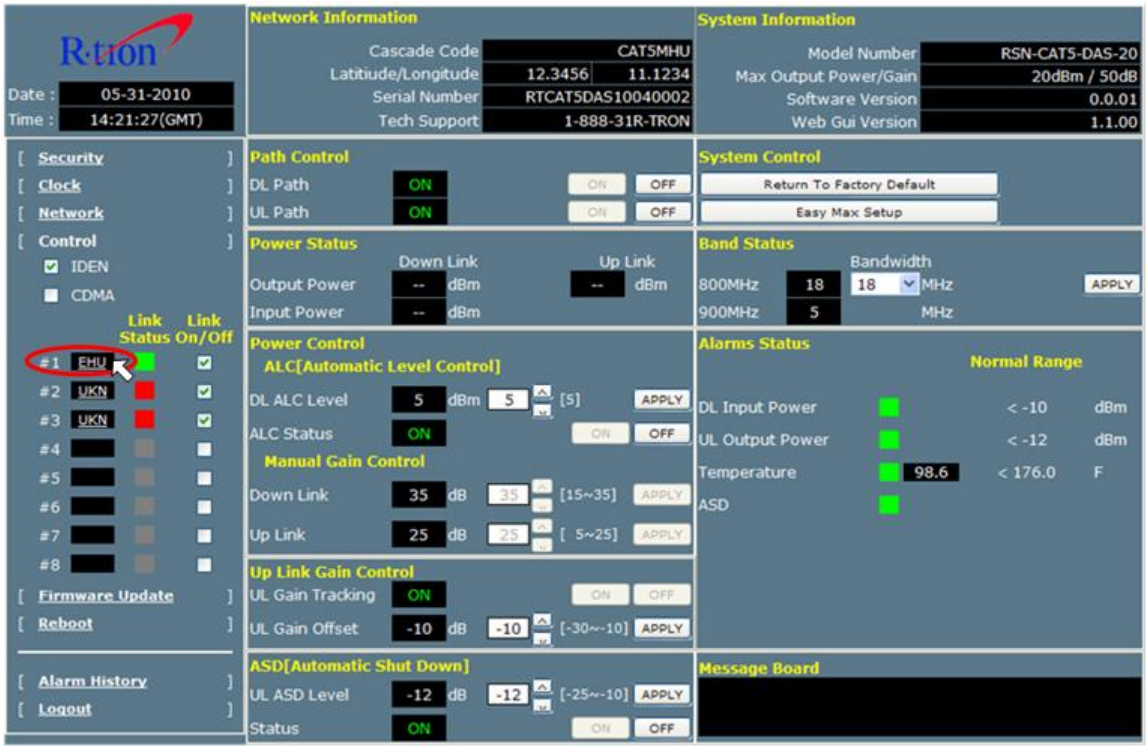
CDMA Page

iDEN Control and function is same. Set up the band only as 20MHz bandwidth.

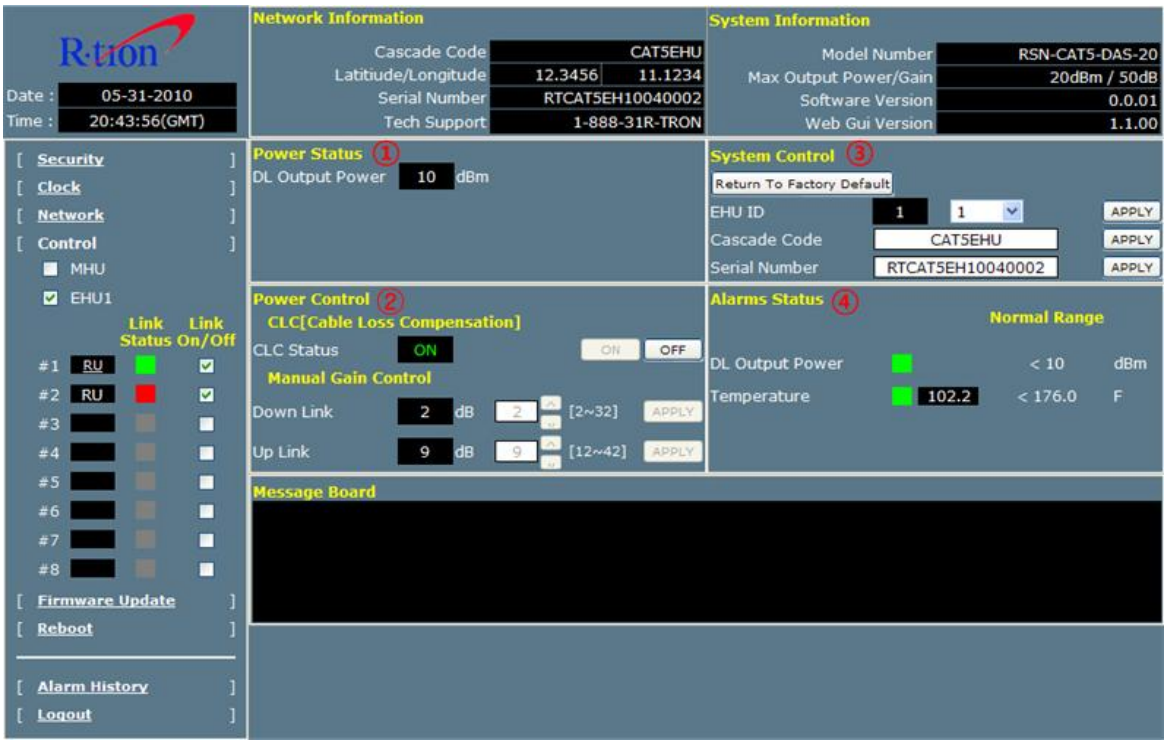


B. EHU

EHU Click at the link status.



EHU Page



① Power Status: It displays Output power of EHU.

② Power Control

CLC(Cable Loss Compensation): If CLC On, measure the UTP cable loss connecting MHU and EHU. Set up the Gain by compensating Cable Loss.

Manual Gain Control: Gain setting is impossible if CLC On.
If CLC Off, gain setting is available.

③ System Control

Return to Factory Default: EHU Unit Initialize

EHU ID: ID of EHU Unit is able to set up and input 1 to 8.(ID of EHU has to be same as accessing Port Number of MHU)

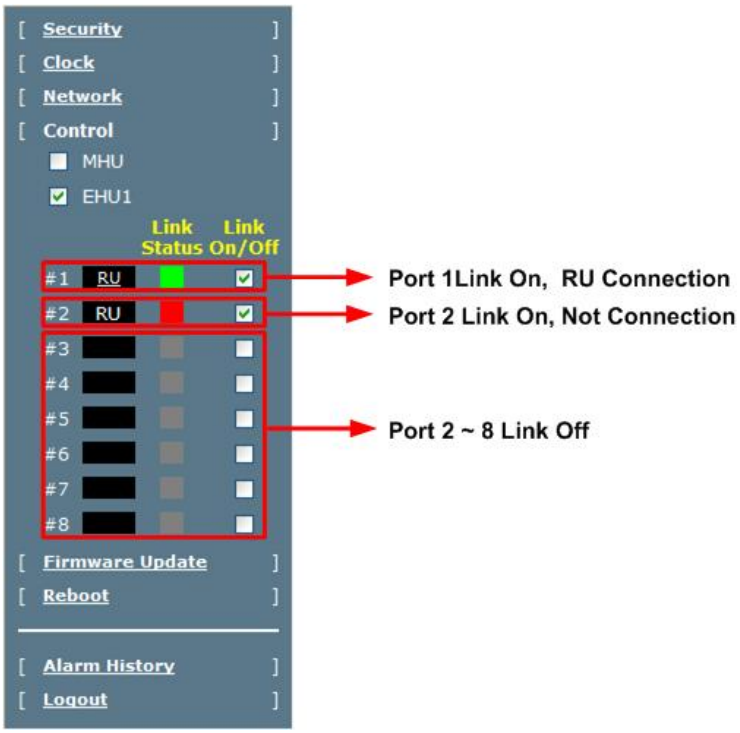
Cascade Code: Cascade Code of EHU Unit is able to set up.

Serial Number: Serial Number of EHU Unit is able to set up.

④ Alarm Status: Alarm occurred if it is out of normal range.

• If checking the MHU on EHU Page, connect to iDEN Page of MHU.

EHU Link Status



If checking Link On/Off Box, the status is Port Link On. If not, the status is Off.

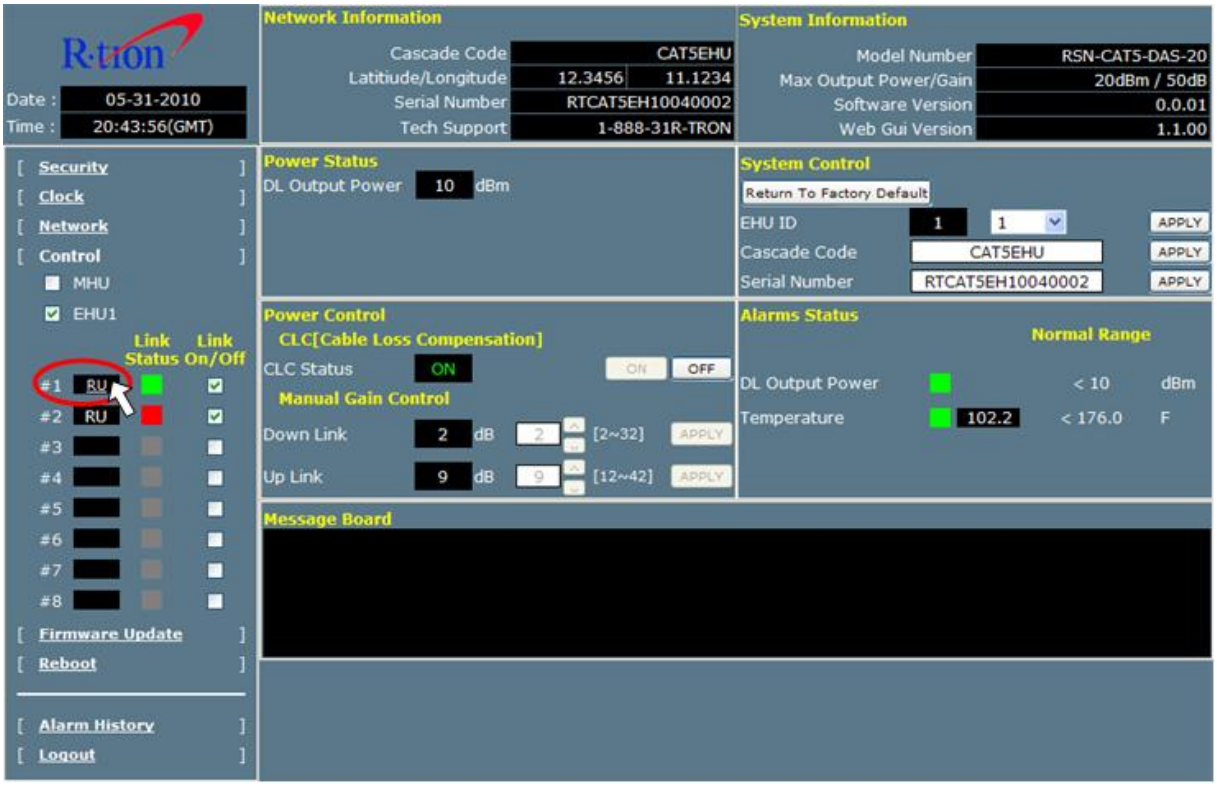
If RU is connected with Port Link On, it displays "RU" and turn green light on.

If Port Link On but connection is not available, it displays RU but turn red light on.

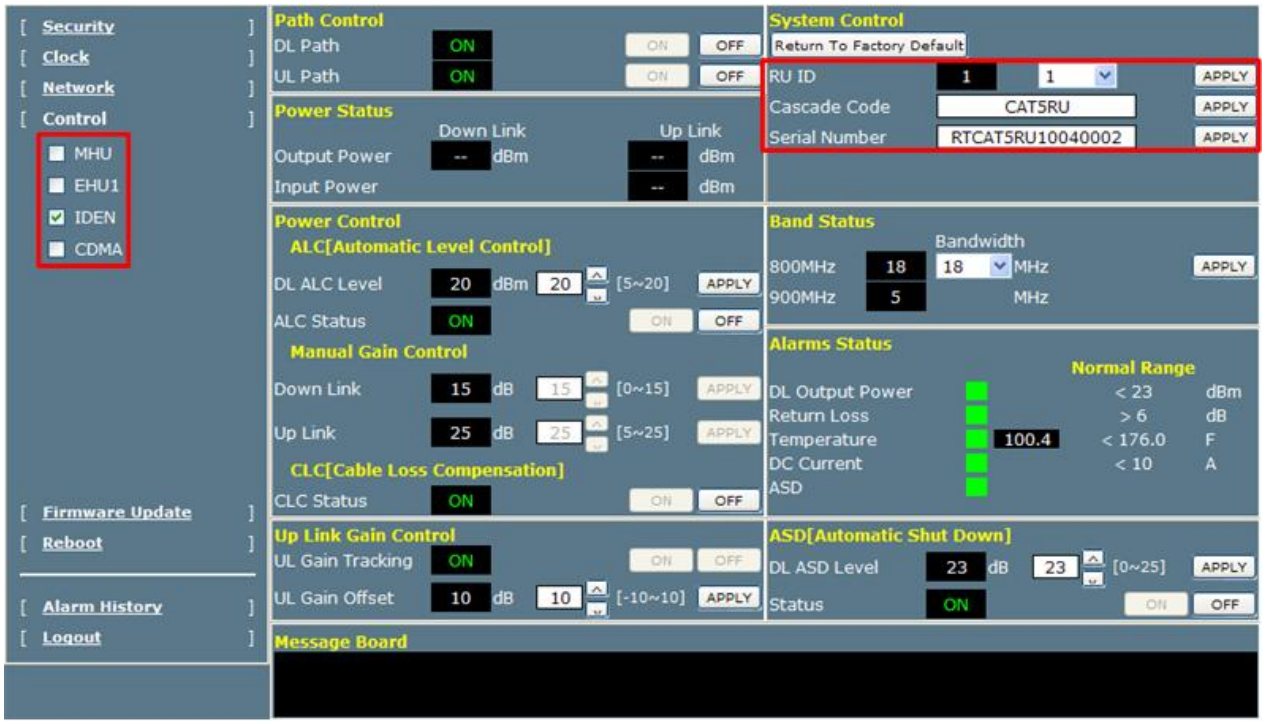
If Port Link Off, If doesn't display anything and turn light off at Link status.

C. RU

Click RU that is connected to Link Status.



If Click RU, connect to RU iDEN Page that is connected to Port 1.

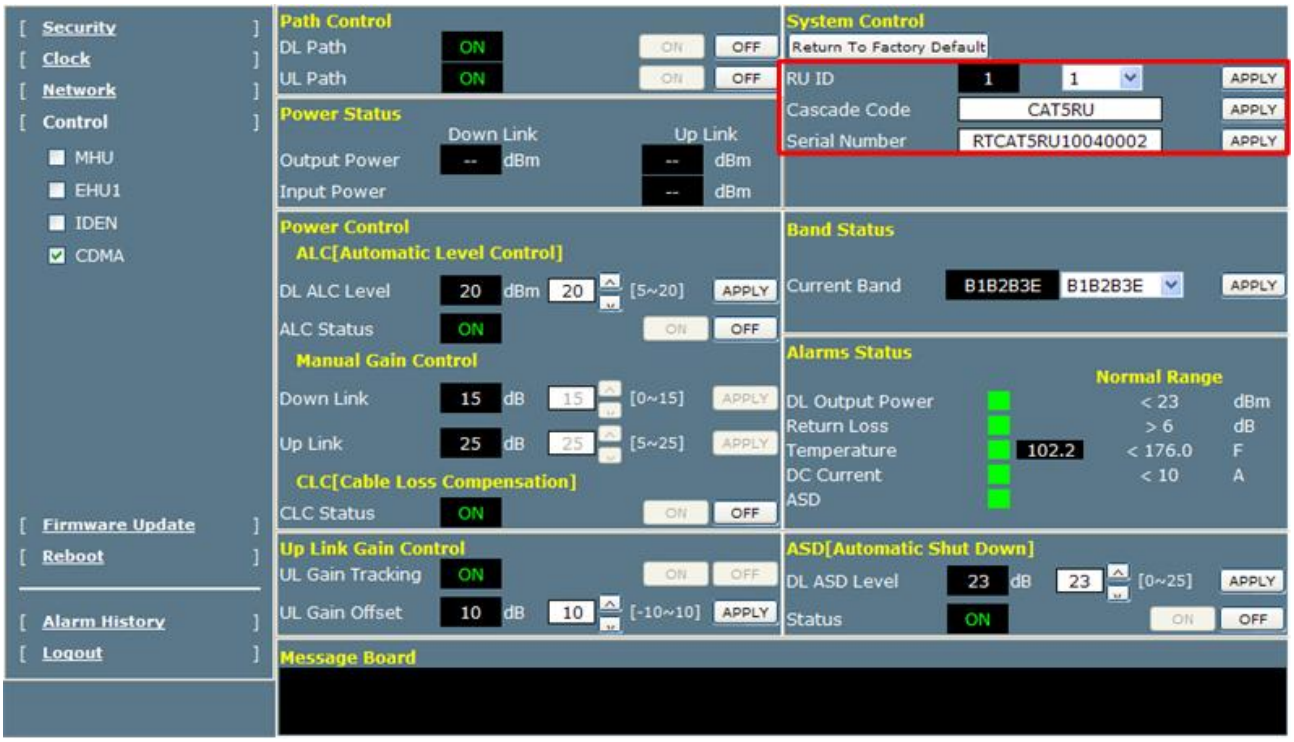


If you check the box of MHU, EHU, iDEN, CDMA at the left side menu bar, move to page that you checked.

If RU ID is able to set up same as port number connected EHU(or MHU), it is possible to set up no. 1 to 8. Cascade code and Serial Number is able to set up themselves on RU and iDEN sets up same as CDMA.

CDMA Page

Check the CDMA Box at the left side of Menu Bar.

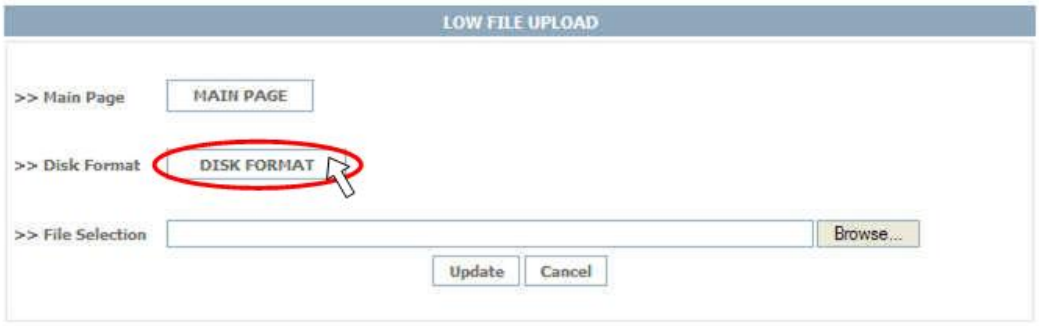


RU ID of CDMA Page and Cascade Code, Serial Number have to be same as IDEN.

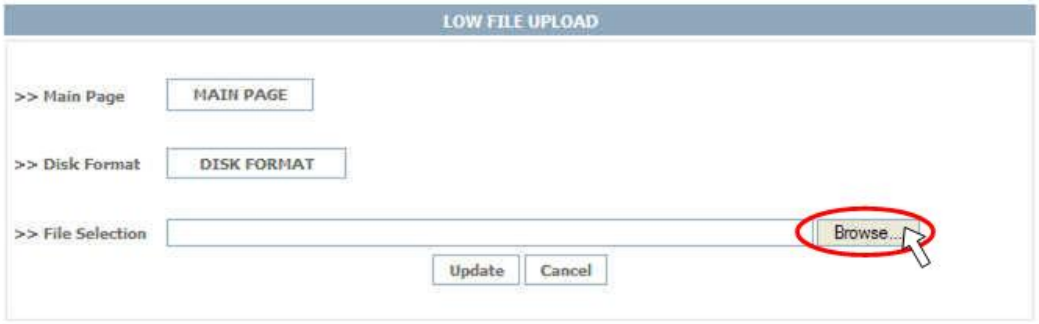
4.4.5 Firmware Update

Click **Upload** in the left menu.

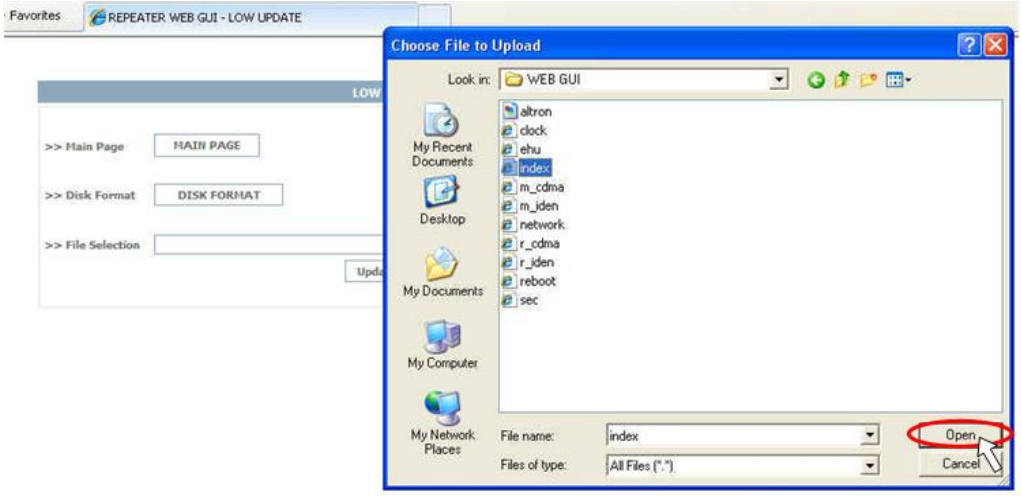
Step 1 If Upload window is appeared, Click Disk Format. (Delete Web GUI file)



Step 2 After the Login, Click upload on the left side of Web GUI screen to transfer the upload screen. Click **"Browse"** in the upload screen**.**

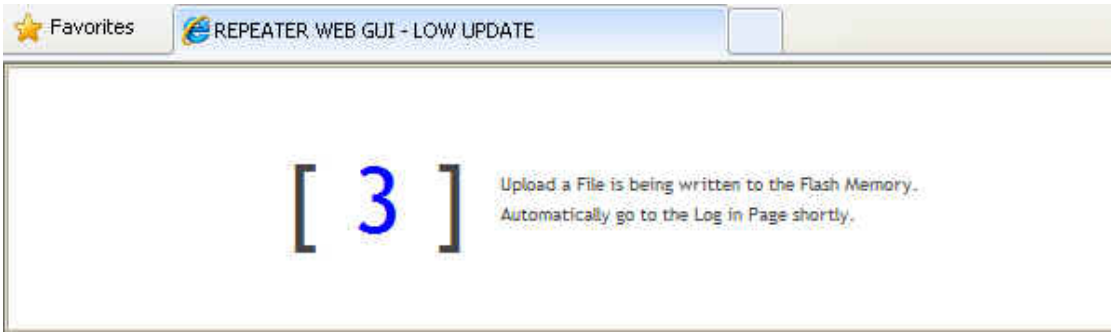


Step 3 A pop-up window will appear. Select the **firmware file** and click Open.



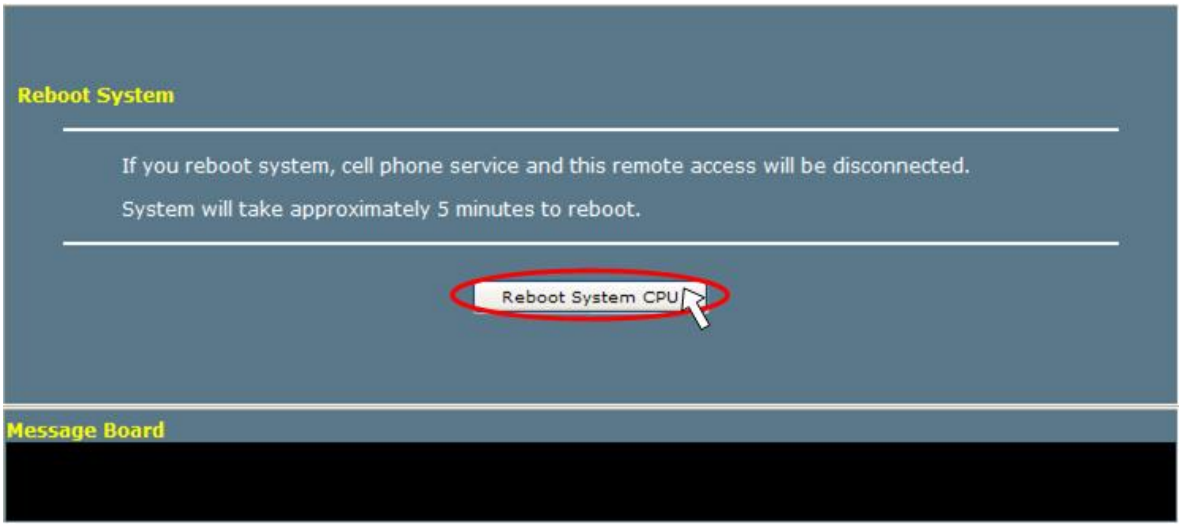
Step 4 Click "Upload". Click **Update.**

Step 5 If update is complete, move to Log-in page automatically after 3 seconds.



4.4.6 Reboot

Click **Reboot** on the left menu to reboot the system.



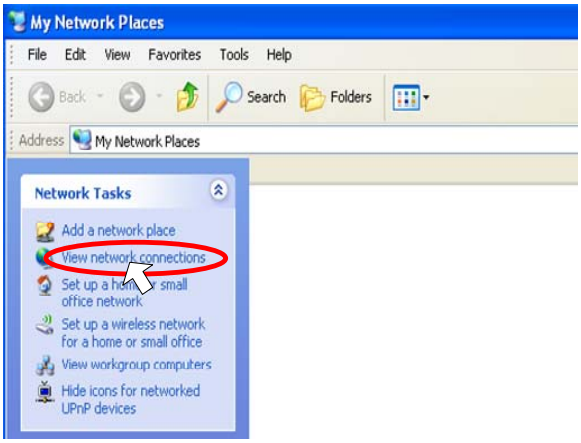
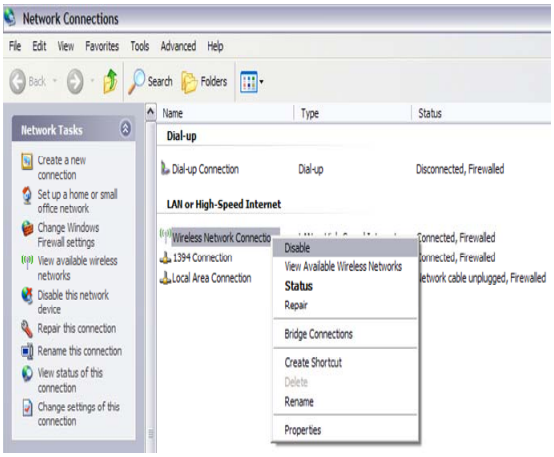
4.4.7 Logout

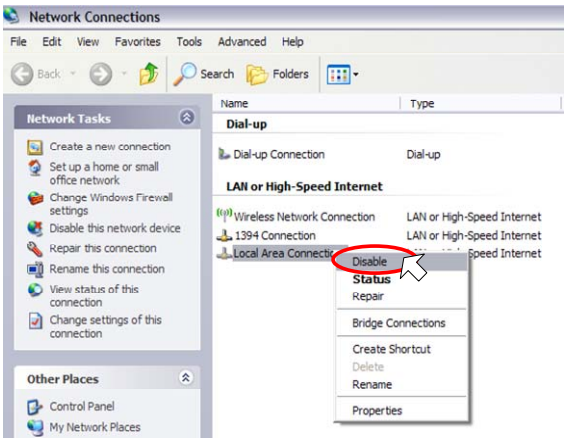
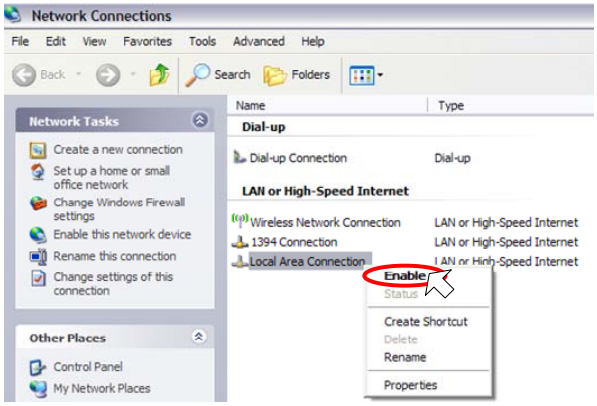
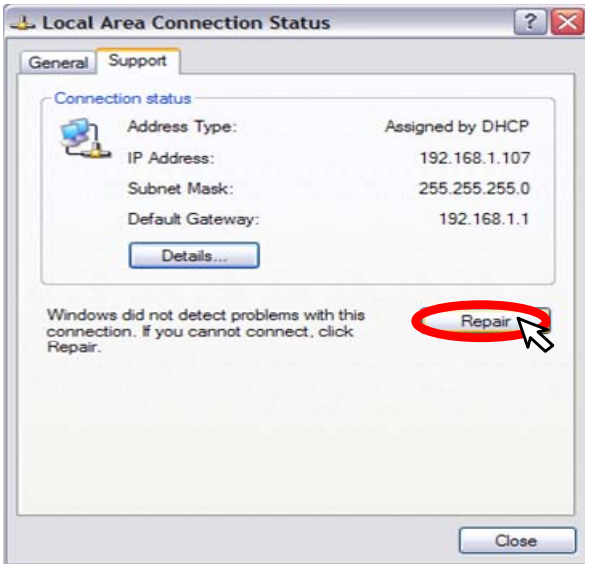
If you want to logout, click **Logout** on the left menu.

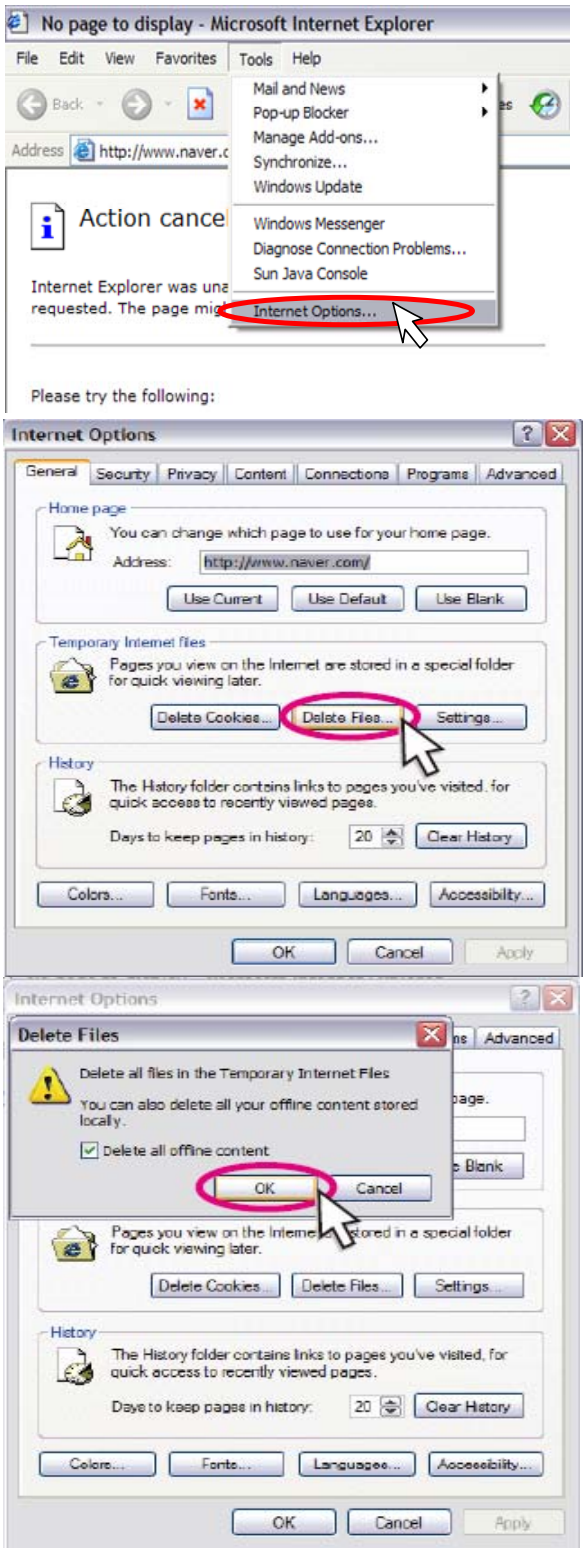
5. Troubleshooting

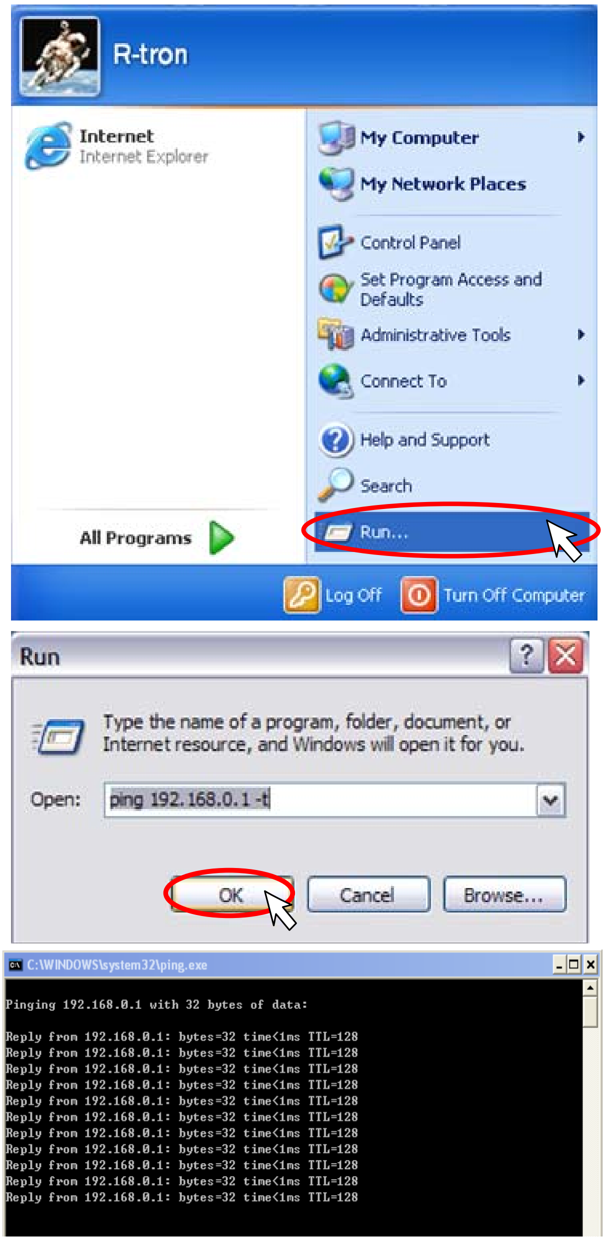
Before contacting your service dealer, please make sure you refer to the following guidelines. If the WiMAX repeater does not work normally after completing the following troubleshooting, please contact your local dealer or R-tron America's Tech support line (888-31R-TRON).
The alarm information is displayed by the LED lights on the repeater.

Problem	Cause	Solution
No LED on		Check the power cord for secure connection.
Alarm LED On	In/output power alarm occurs	DL Over input, DL/UL Over Output, out of sync, DC over current, Over temperature, Return loss. In these 7 cases, the alarm LED is on, If the alarm is by over input or over output, the ASD algorithm is applied. If the RF environment is normal, the LED is automatically turned OFF. For Out of sync, it searches the sync for up to 10 seconds when the sync is lost. After that, HPA is turned OFF. If it is still searching for the sync, at this moment, the status of TDD S/W maintains DL. If the sync is obtained again, HPA is back ON and the ALARM LED is turned OFF.
ASD LED ON	Operated ASD Algorithm and easy max setup restart	When the input/output value is over the upper limit and Missing sync and Isolation fail, operate ASD Algorithm. After operating ASD Algorithm, turn LED ON when operating the Easy max setup. → Check the level of input/output. → After turning the Missing sync alarm off, restart the easy max setup. → Through the antenna tilting, guarantee the isolation.

Problem	Cause	Solution
Cannot communicate with the CAT-5 DAS		1. Click **My Network places → View network connections.** Right-click on the **Wireless Network Connection** and then click **Disable.**   

Problem	Cause	Solution
		2. Right-click on the **Local Area Connection** and then click **Disable.** After clicking **Disable,** click **Enable** again.   3. Double click the **Local Area Connection** and then click the **Support** tab → **Repair.** 

Problem	Cause	solution
		4. Open the Internet Browser and then select **Tools → Internet Options.** Click **Delete Files** button in the Temporary Internet files section. 

<table>
<tr><th>Problem</th><th>Cause</th><th>Solution</th></tr>
<tr><td></td><td></td><td>5. Click Start and select Run.
Type “ping 192.168.0.1-t” and click OK.
 
</td></tr>
</table>

6. Specifications

6.1 iDEN 800/900 System Specification

Electrical Specifications-1(iDEN DL 20dBm/2PORT)				
Parameter		**Specifications**		**Remark**
		RX(Up-Link)	**TX(Down-Link)**	
Frequency Range	800(1)	806 ~ 824 MHz	851 ~ 869 MHz	18M B.W
	800(2)	817 ~ 824 MHz	862 ~ 869 MHz	7M B.W
	900	896 ~ 901 MHz	935 ~ 940 MHz	5M B.W
Output Power / total		-15 dBm	20dBm/port	DL ANTENNA 2PORT
Gain		50 dB		
Gain Control Range		20 dB / 1dB step		
ALC Range		> 10 dB		
Rho value		≥ 0.912		
Adjacent Channel Power	25 kHz	N/A	≥ 50 dBc	
	50/500 kHz, 1/2 MHz		≥ 55 dBc	
Noise Figure	Max. Gain	≤ 8 dB	N/A	
Gain Ripple		≤ 3 dB		Peak-to-Peak
Spurious Emission	9kHz ~ 150kHz	≤ -13 dBm		RBW = 1 kHz
	150kHz ~ 30MHz			RBW = 10 kHz
	30MHz ~ 1GHz			RBW = 100 kHz
	1GHz ~ 12.75GHz			RBW = 1 MHz
Propagation Delay		< 5 μs for analog systems		
Return Loss / VSWR		> 14dB / < 1.5		
Impedance		50Ω		
RF Connector		Type-N Female		
Operating Temperature		-10 ~ +50 ℃		
Relative Humidity		5 ~ 95 %		
Cooling		Convection		
Power Supply		100 ~ 240 Vac, 50~60 Hz		

6.2 CDMA 1900 System Specification

Electrical Specifications-2(CDMA DL 20dBm/2PORT)				
Parameter		**Specifications**		**Remark**
		RX(Up-Link)	**TX(Down-Link)**	
Frequency Range		1850 ~ 1915 MHz	1930 ~ 1995 MHz	65M B.W
Output Power / total		-15 dBm	20dBm/port	DL ANTENNA 2PORT
Gain		50 dB		
Gain Control Range		30 ~ 50 dB / 1dB step		
ALC Range		> 10 dB		
Rho value		≥ 0.912		
Noise Figure	Max. Gain	≤ 8 dB	N/A	
Gain Ripple		≤ 3 dB		Peak-to-Peak
Contiguous Capability		20 MHz (A1A2A3D,A2A3DB1,A3DB1B2,DB1B2B3,B1B2B3E,B2B3EF,B3EFC3,EFC3C4,FC3C4C5,C3C4C5G)		18.75 MHz B.W
Propagation Delay		< 5 μs		
Return Loss / VSWR		> 14dB / < 1.5		
Impedance		50Ω		
RF Connector		Type-N Female		
Operating Temperature		-10 ~ +50 ℃		
Relative Humidity		5 ~ 95 %		
Cooling		Convection		
Power Supply		100 ~ 240 Vac, 50~60 Hz		

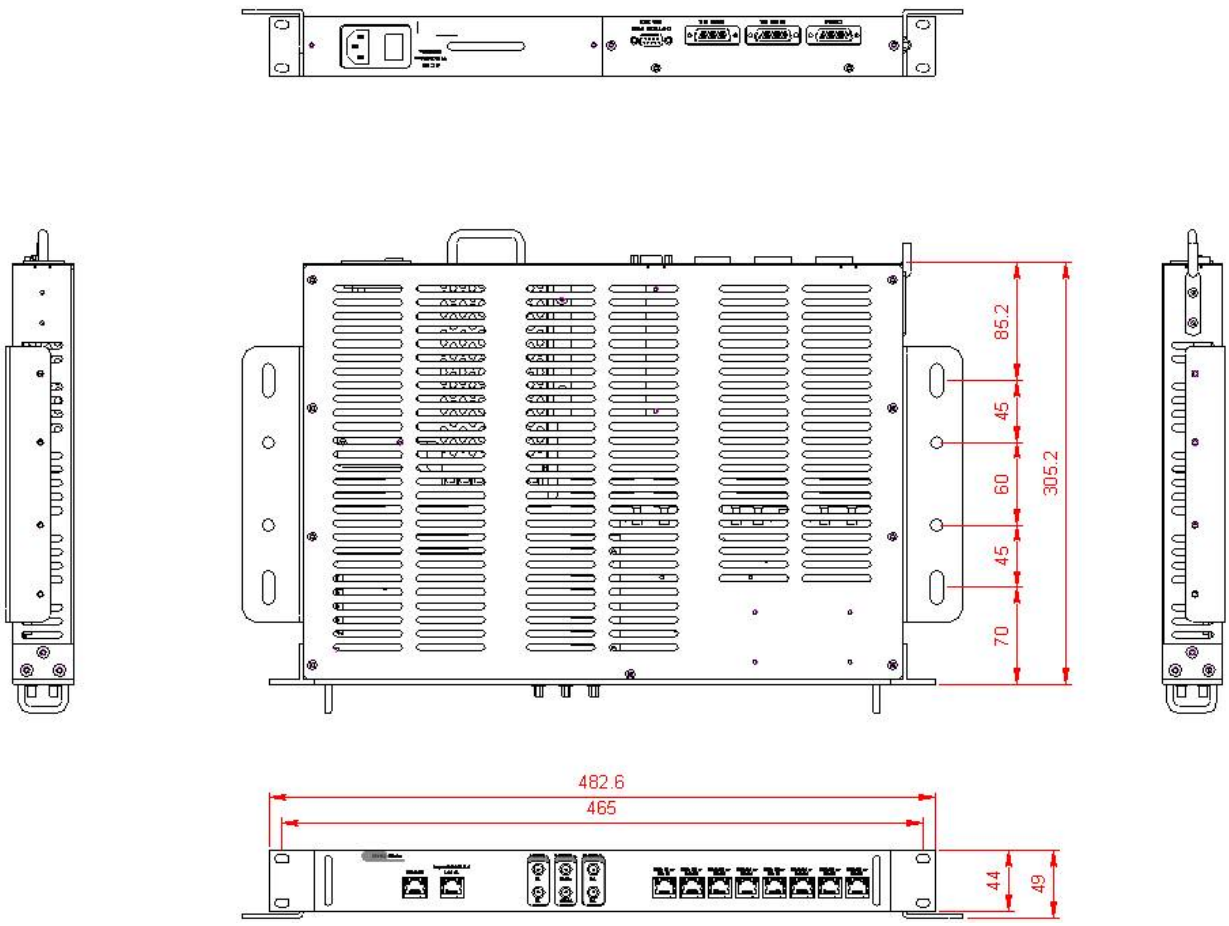
Electrical & Environmental Specification

Environment Specifications		
Parameter	**Specifications**	**Remark**
Cooling	Convection	
Operating Temperature	-10 ~ +50 ℃	
Relative Humidity	5 ~ 95%	

Mechanical Specification

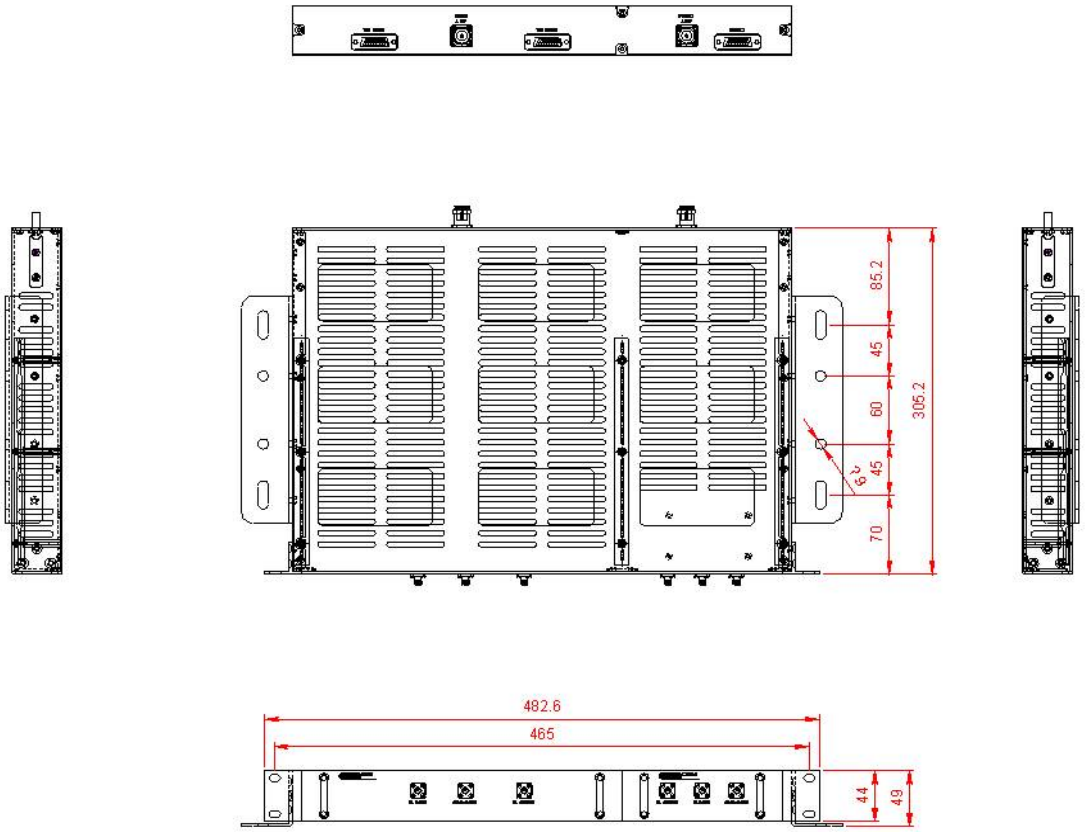
MHU MCU & PSU & Interface Unit

Mechanical Specifications		
Parameter	**Specifications**	**Remark**
Dimensions (WxHxD)	482.6 x 305.2 x 49 mm 19 x 12.02 x 1.93 inch	
Weight	3.08Kg(6.79lbs)	



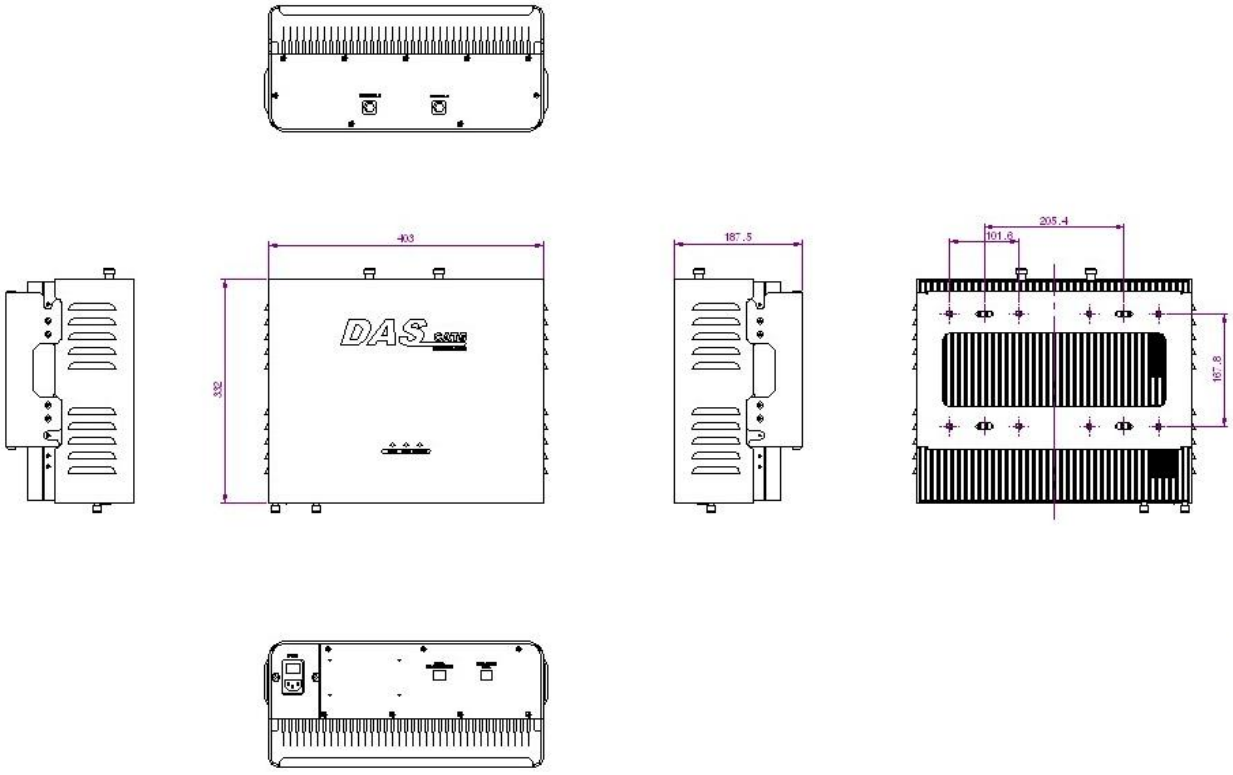
MHU RFU Unit

Mechanical Specifications		
Parameter	**Specifications**	**Remark**
Dimensions (WxHxD)	482.6 x 305.2 x 49 mm 19 x 12.02 x 1.93 inch	
Weight	6.68Kg(14.73lbs)	



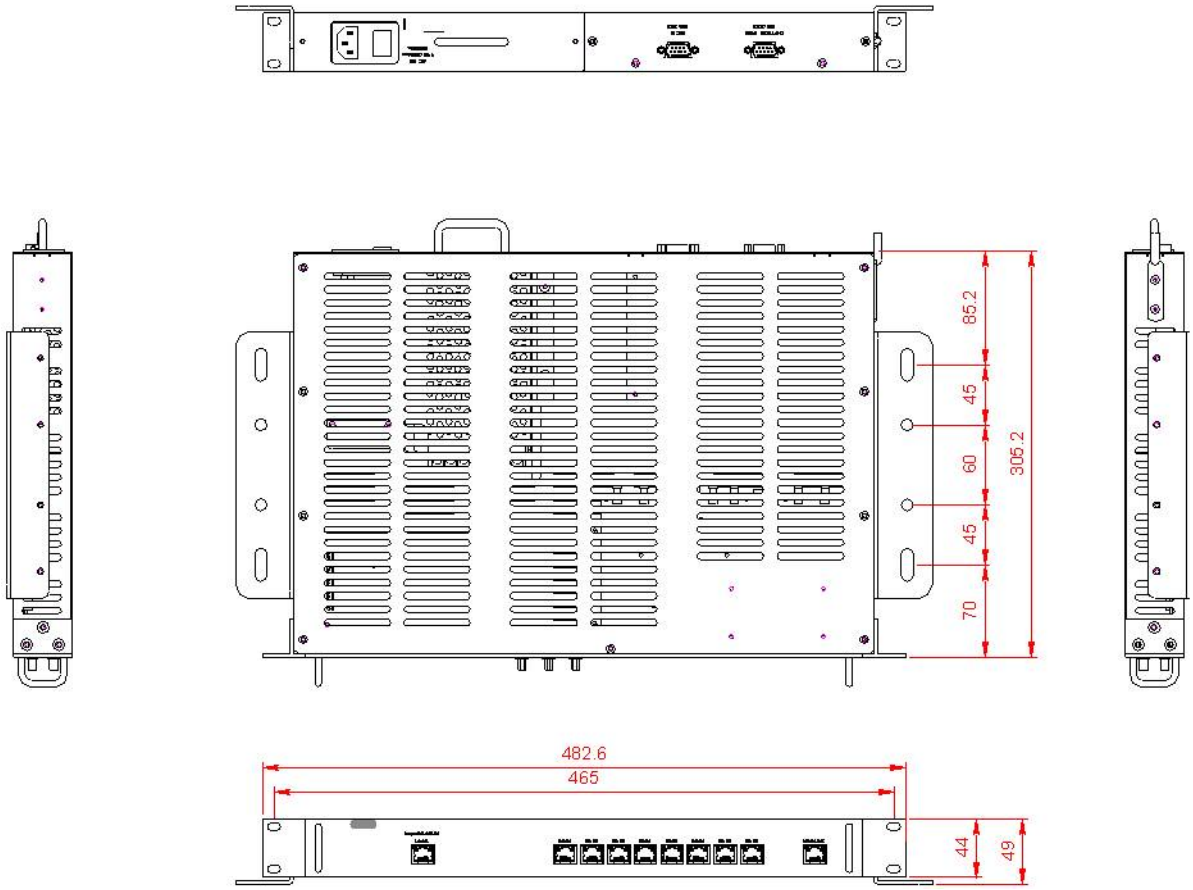
Remote

Mechanical Specifications		
Parameter	**Specifications**	**Remark**
Dimensions (WxHxD)	403 x 332 x 187.5 mm 15.87 x 13.07 x 7.38 inch	
Weight	18.58Kg(40.96lbs)	



EHU Unit

Mechanical Specifications		
Parameter	**Specifications**	**Remark**
Dimensions (WxHxD)	305.2 x 482.6 x 49 mm 19 x 12.02 x 1.93 inch	
Weight	3.92Kg(8.04lbs)	



7. Appendix

Warranty

LIMITED WARRANTY

This product, as supplied and distributed by R-tron, in the original carton, is warranted by R-tron against manufacturing defects in materials and workmanship for a limited warranty period of:

Five (5) Year Parts and Labor

This limited warranty begins on the original date of purchase, and is valid only on products purchased and used in the United States. R-tron will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of R-tron and must be returned to R-tron. Replacement parts and products assume the remaining original warranty.
This limited warranty covers manufacturing defects in materials and workmanship encountered in normal, and except to the extent otherwise expressly provided for in this statement, use of this product, and shall not apply to the following, including, but not limited to: damage which occurs in installation; applications and uses for which this product was not intended; altered product or serial numbers; cosmetic damage or exterior finish; accidents, abuse, neglect, fire, water, lightning or other acts of nature; use of products, equipment, systems, utilities, services, parts, supplies, accessories, applications, installations, repairs, external wiring or connectors not supplied or authorized by R-tron which damage this product or result in service problems; or incorrect electrical line voltage, fluctuations and surges; customer adjustments and failure to follow operating instruction. R-tron does not warrant uninterrupted or error-free operation of the product.

THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE LISTED AND DESCRIBED ABOVE, AND NO WARRANTIES WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY AFTER THE EXPRESS WARRANTY PERIODS STATED ABOVE, AND NO OTHER EXPRESS WARRANTY OR GUARANTY GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS PRODUCT SHALL BE BINDING ON R-tron.

Return Material Authorization(RMA) Procedure

The return and exchange of products are not allowed without prior approval from R-tron America, Inc. Please follow the exchange procedure below.

1. Call Tech Support for troubleshooting.
2. If the device has a hardware problem, R-tron will replace it if it is within warranty.
   A RMA number will be issued for the return.
3. R-tron will ship the replacement unit with a return shipping label.
4. The customer must return the product using the original packaging, including all accessories and/or parts.