

AXM700

USER MANUAL

Version 0.2



Glossary

The following is a list of abbreviations and terms used throughout this document.

Abbreviation/Term	Definition
AGC	Automatic Gain Control
ALC	Automatic Level Control
AROMS	ADRF' Repeater Operation and Management System
BTS	Base Transceiver Station
CDMA	Code Division Multiple Access
CFE	Compact Front End
CW	Continuous Wave (un-modulated signal)
DAS	Distributed Antenna System
DL	Downlink
Downlink	The path covered from the Base Transceiver Station (BTS) to the subscribers service area via the repeater
HPA	High Power Amplifier
HW	Hardware
IF	Intermediate Frequency
LNA	Low Noise Amplifier
LTE	Long Term Evolution
MS	Mobile Station
PLL	Phased Locked Loop
PS	Power Supply
RF	Radio Frequency
SQE	Signal Quality Estimate
SW	Software
UL	Uplink
Uplink	The path covered from the subscribers service area to the Base Transceiver Station(BTS) via the repeater
VSWR	Voltage Standing Wave Ratio

Released version: 0.1

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Revision History

Version	Author	Description	Date
0.1	Sun Kim	Initial Release	April 19, 2010
0.2	Louis Lee	Updated manual for UL and FCC requirements	May 17, 2010

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1. AXM700 Repeater

1.1 Introduction

The AXM700 is ideal for upgrading existing 3G (PCS/Cellular) systems with 4G LTE services, and can also serve as feeder source to active DAS.

1.1.1 Highlights

- Support Lower A, Lower B, Lower A + B, and Upper C sub-band filtering
- Digital filtering with sharp roll-off (>50 dBc @ + 1 MHz from sub-band edge)
- Remote monitoring and control capability using our Web-based GUI
- 90 dB of max gain and 25 dBm max output power
- Front panel LEDs provide signal strength and alarm status
- Optional integrated modem for remote access and alarming
- Configurable network setting in order to interface with ADRF's OmniBox or 3rd party external modem boxes
- Detachable wall mount brackets allow for a more efficient installation

1.1.2 Parts List

Label	Quantity	Description
A	1	AXM700 Repeater
B	1	Ground Cable
C	1 Set	Wall Mounting Anchor Bolts/Screws
D	1	Ethernet Cable (Crossover)
E	1	Documentation CD**
F	1	AC Power Cable

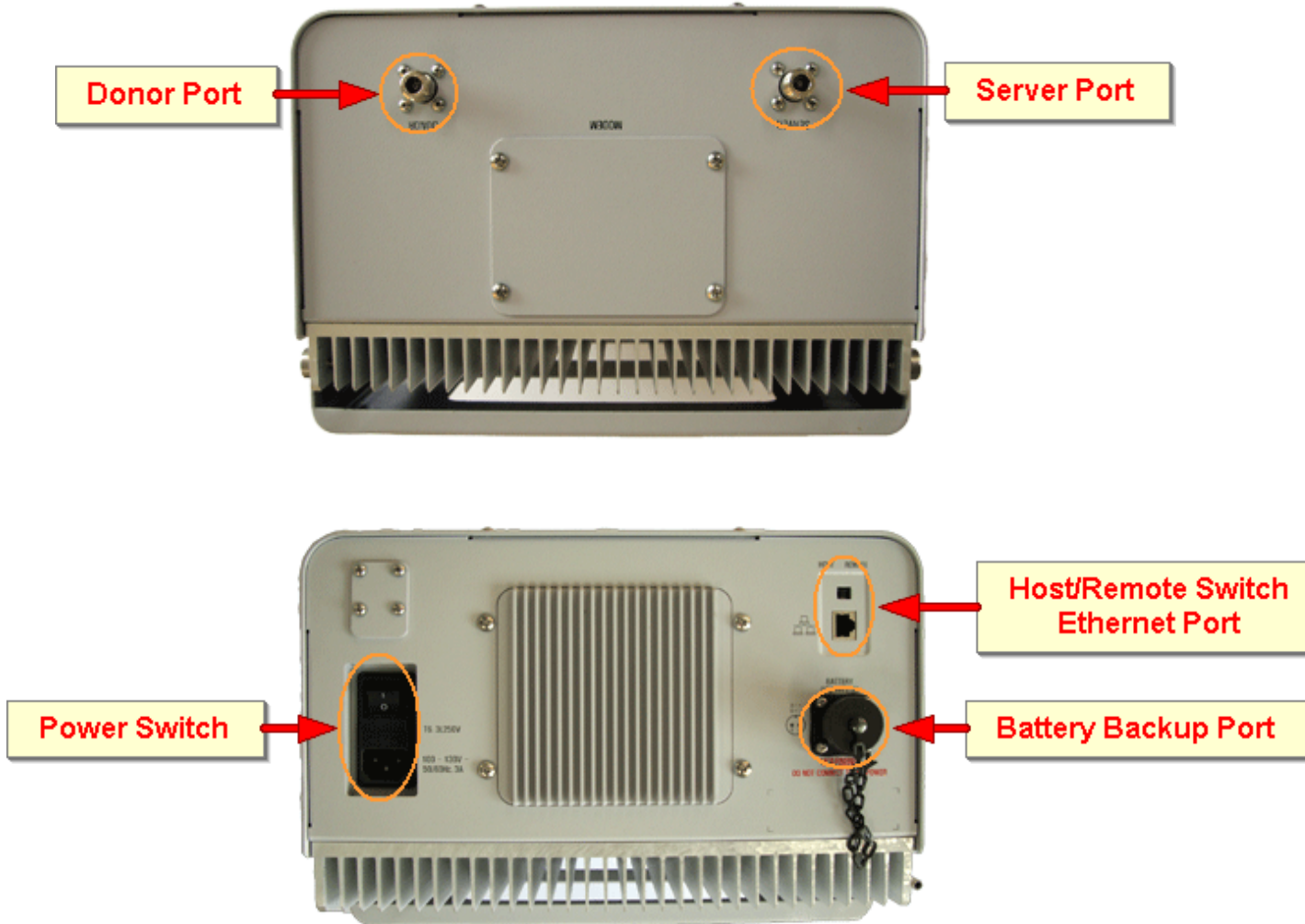
Table 1 – Parts List



** CD Includes: User Manual, Quick-Start Guide, and Troubleshooting Guide

Figure A – AXM700 Repeater Parts List

1.1.3 Repeater Quick View



2. Warnings and Hazards



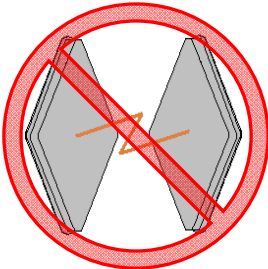
WARNING! ELECTRIC SHOCK

Opening the **AXM700** could result in electric shock and may cause severe injury.



WARNING! EXPOSURE TO RF

Working with the repeater while in operation, may expose the technician to RF electromagnetic fields that exceed FCC rules for human exposure. Visit the FCC website at www.fcc.gov/oet/rfsafety to learn more about the effects of exposure to RF electromagnetic fields.



WARNING! DAMAGE TO REPEATER

Operating the AXM700 with antennas in very close proximity facing each other could lead to severe damage to the repeater.

RF EXPOSURE & ANTENNA PLACEMENT Guidelines

Actual separation distance is determined upon gain of antenna used.
Please maintain a minimum safe distance of at least 60 cm while operating near the donor and the server antennas. Also, the donor antenna needs to be mounted outdoors on a permanent structure.

WARRANTY

Opening or tampering the AXM700 will void all warranties.

Lithium Battery: CAUTION. RISK OF EXPLOSION IF BATTERY IS REPLACED BY INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO INSTRUCTIONS.

Ethernet Instructions: This equipment is for indoor use only. All cabling should be limited to inside the building.

FCC Part 15 Class A

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 their own expense.

Caution: For continued protection against risk of fire, replace only with same type and rating of fuse.

3. AXM700 Overview

3.1 Operation Modes

3.1.1 Local Web-GUI

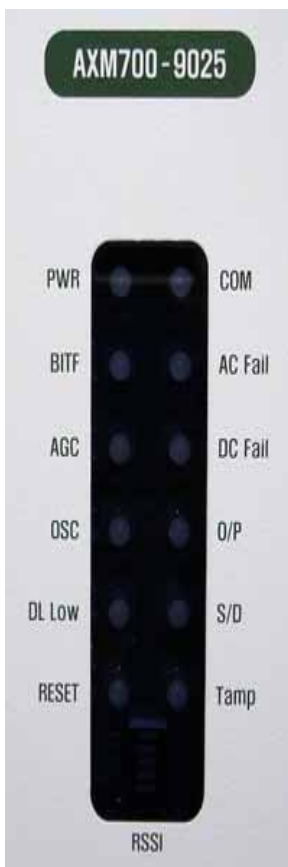
The AXM700 can be accessed locally by connecting a RJ-45 crossover cable from your laptop to the Ethernet port of the repeater. Once a connection is established, launch your web browser and type <http://192.168.63.1> in the address bar. A popup window prompting for a user name and password will appear. Input your login credentials to gain access to the repeater.

3.1.2 Remote NMS (Modem Option)

The AXM700 can support an optionally CDMA wireless modem in order to monitor and adjust the settings of the repeater from a remote location. A computer with internet connection can be used to gain access to the repeater from a remote location. To gain access to the repeater from a remote location, launch you web browser and type the static IP address that has been assigned to the wireless modem and a popup window prompting for a user name and password will appear. Input your login credentials to gain access to the repeater.

3.2 Front Panel LED

A general overview of the status of the repeater can be seen by looking at the LED indicators on the front of the repeater.



Indicator	Description
PWR	Indicates whether or not repeater is being powered
BITF	Test to see that the modules is functioning
AGC	Indicates whether or not AGC is being utilized
OSC	Detects if oscillation is occurring
DL Low	Detects is DL RSSI signal is below the specified threshold
RESET	Indicates whether or not an unauthorized reset has occurred
COM	Indicates that the repeater is communicating with the laptop
AC Fail	Indicates that the repeater is not receiving enough AC Power
DC Fail	Indicates that the repeater is not receiving enough DC Power
O/P	Indicates that the repeater is in the state of RF Overpower
S/D	Indicates that the repeater is performing the built-in shutdown routine to protect itself from further damage
Tamper	Detects if the settings of the repeaters have been changed

3.3 Switches and Ports

3.3.1 Power Switch

The AC Power on/off switch is located at the back panel of repeater. The switch should be powered on after the repeater has been physically installed properly.



Figure 1: AXM700 Repeater Power Switch View

3.3.2 Battery Port

The Battery Port is to be used in conjunction with the ADRF-BBU (Optional Battery Backup Unit). The ADRF-BBU offers up to 8 hours of battery backup power to avoid any possible downtime due to power failure. If a backup battery is utilized, please connect the battery to the unit via the external battery port as shown in Figure 4.



Figure 2: Battery Port

Note: Please contact ADRF Technical Support for assistance if you are unfamiliar with the installation procedure of our battery box.

3.3.3 Ethernet Port and Host/Remote Switch

- The Ethernet port as shown in Figure 5 is used to interface with the repeater locally. A RJ-45 crossover cable is required in order to establish a connection with the unit.
- Host/Remote switch is to be used when an external modem box is being used
 - **Host Mode:** DHCP is enabled. Any computer set to “Obtain an IP address automatically” will be assigned an IP address by the repeater. When the repeater is set to Host Mode the IP address of the unit is **192.168.63.1**
 - **Remote Mode:** DHCP is disabled. This mode should only be used when an external modem box is present. By default, then IP address of the unit is set to **192.168.63.5** and can be changed by setting the repeater to Host Mode and specifying an IP address in the Modem Box Setting under the Install Tab of our Web-GUI.

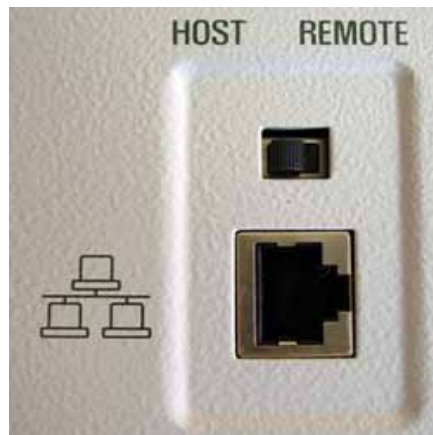


Figure 3: Ethernet Port and Host/Remote Switch

3.4 Installation

3.4.1 Tools

The following tools are required to mount the AXM700 to the wall:

- Phillips screwdriver
- Power drill

3.4.2 Procedure

Four mounting holes are located on the wall-mounting bracket to attach it to the wall. The wall bracket must be securely attached to sufficiently carry the weight of the AXM700, which is bolted to the wall bracket through the four aligned mounting holes.

Installation Procedure

- ① Verify that the Repeater and Mounting Bracket are in good condition.
- ② Drill holes in the installation surface and insert the anchor bolts.
- ③ Set the mounting bracket against the wall.
- ④ Using the Hooks on top, set the Repeater against the mounting bracket.
- ⑤ Using the anchor bolts attach the Repeater to the Bracket.
- ⑥ Make sure the Repeater is securely attached.
- ⑦ Connect the GND cable.
- ⑧ Connect the Antenna cable.
- ⑨ Connect the Power.
- ⑩ Using a laptop, setup the Repeater.

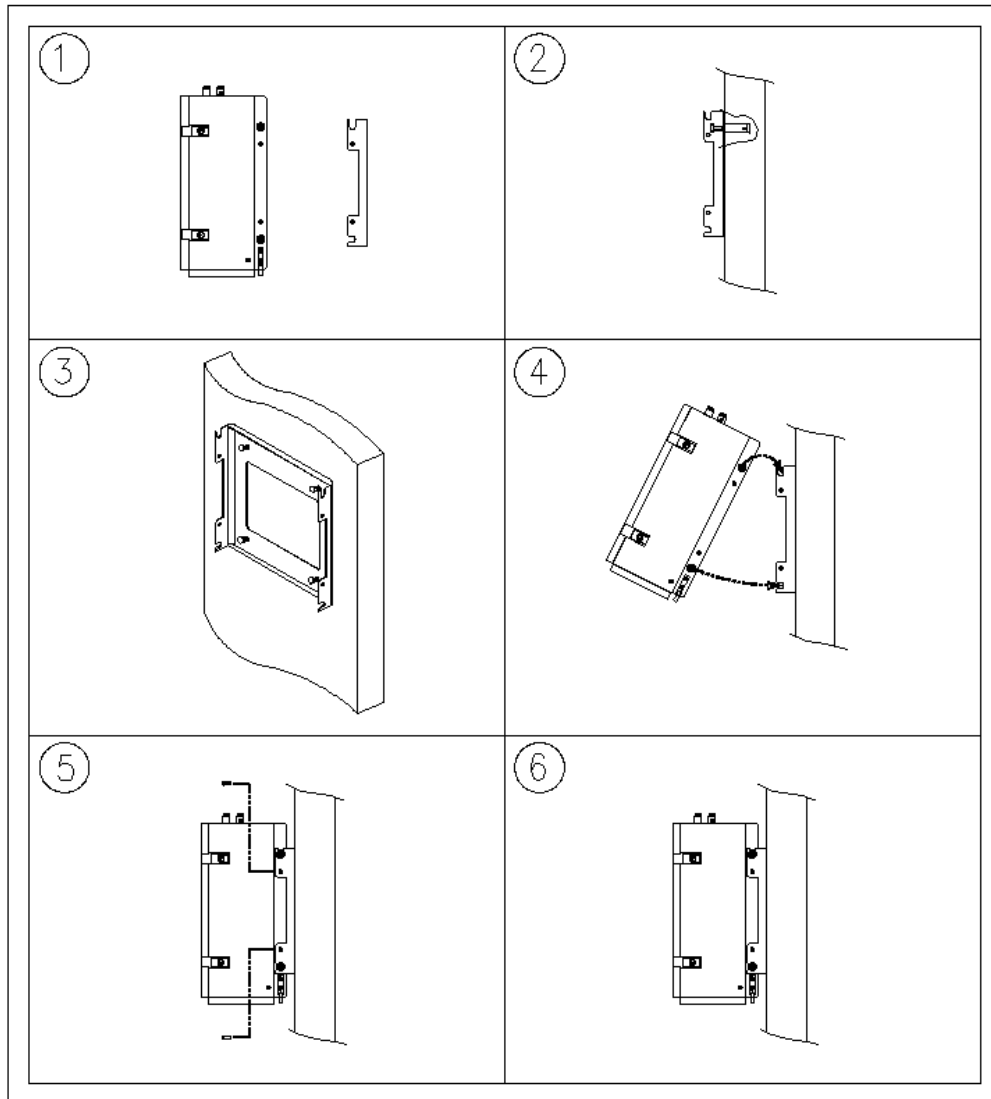


Figure 4: AXM700 Mounting Instructions

1. Unpack the repeater and the mounting bracket from the box
2. Install the anchor bolts to the wall
3. Screw the mounting bracket to the wall using the anchor bolts
4. Tilt the repeater as shown in Figure 4 above and place top mounting loop over the upper hook of the mounting bracket
 - a. Gently lower the repeater into place so that it is hanging vertically
5. Fasten the bracket to the repeater as shown in Figure 5
6. Once completed, the repeater should look like Figure 6

3.4.3 Grounding

A ground cable is included in the box. The ground cable should be connected to the Right side of AXM700 before the repeater is turned on.



Figure 5: Ground Cable Connection

3.4.4 Antenna Separation/Isolation

Separation between the antennas is necessary to prevent oscillation. Oscillation occurs when the signal entering the system continually reenters, due to the lack of separation between the donor and server antennas. In other words, the signal is being fed back into the system. This creates a constant amplification of the same signal. As a result, the noise level rises above the signal level.

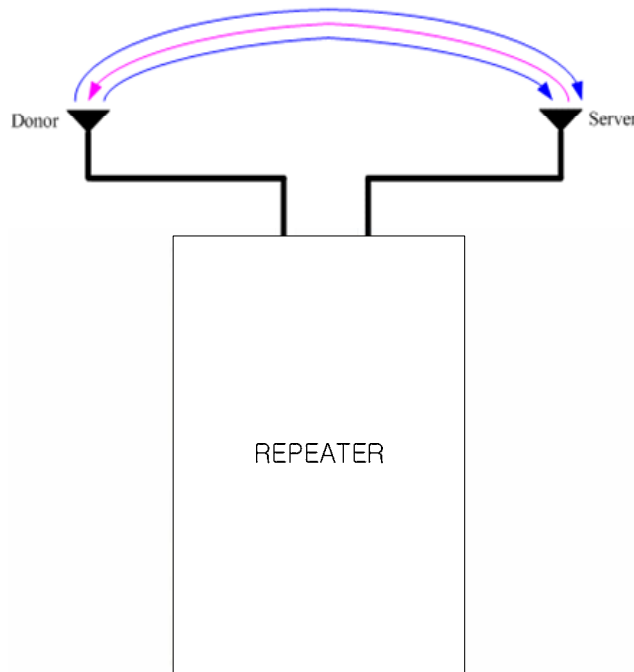


Figure 6: RF Repeater Oscillation

To prevent feedback, the donor and server antennas must be separated by an appropriate distance to provide sufficient isolation. Isolation is attained by separating antennas a sufficient distance so that the output of one antenna does not reach the input of the other. This distance is dependent on the gain of the repeater.

A sufficient isolation value is 13 ~ 15 dB greater than the maximum gain of the repeater. For example, if the gain of the repeater is 50 dB, then an isolation of 63 ~ 65 dB or greater is required. In the same manner, because the [AXM700](#) has a maximum gain of 90 dB in case of AXM700, it requires an isolation of at least 103 ~ 105 dB.

3.4.5 Line of Sight

The donor antenna which points towards the base station typically has a narrow beam antenna pattern. As a result, a slight deviation away from the direction of the BTS can lead to less than optimum results. In addition, obstacles between the repeater and the BTS may impair the repeater from obtaining any BTS signal. As a result, the repeater cannot transmit signal to the coverage area. Therefore, a direct line of sight to the BTS for the donor antenna is vital to the function of a repeater. For the same reason, placing the server antenna in direct line of sight of the coverage area is also necessary.

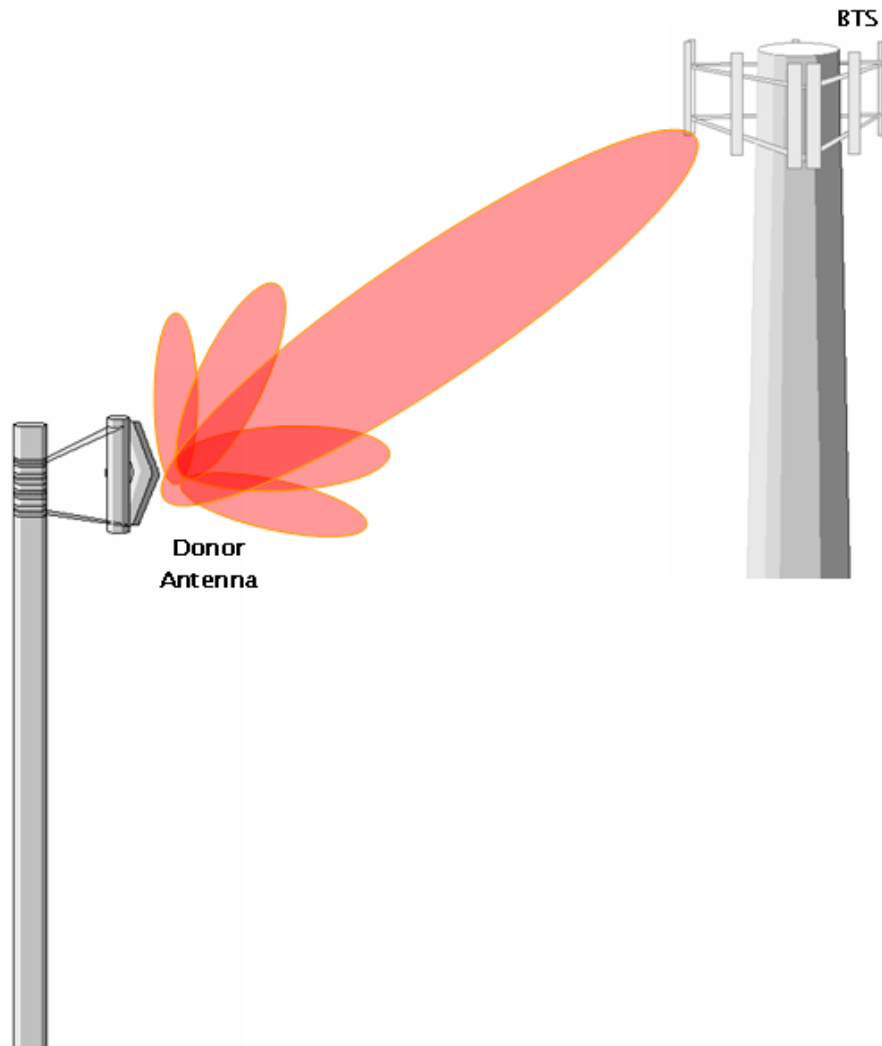


Figure 17 - Direct Line of Sight to the BTS

4. AXM700 Web-GUI Setup

The Web-GUI allows the user to communicate with the repeater either locally or remotely. To connect to the repeater locally, you will need a laptop with an Ethernet port and a RJ-45 crossover cable. To connect to the repeater remotely, you will need to have an active internet connection and the repeater must have either an internal modem or an Omnibox (ADRF Modem Box) connected to the repeater.

4.1 Repeater/PC Connection Using Web-GUI

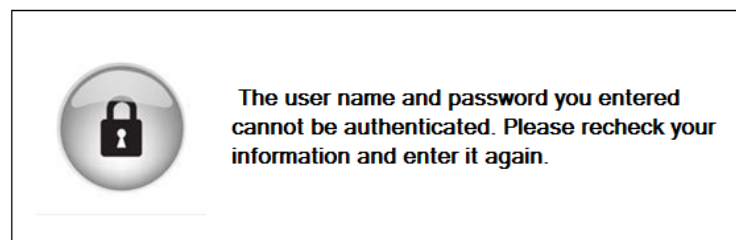
- A. Verify that your Local Area Connection is set to **Obtain an IP address automatically** under the Internet Protocol (TCP/IP) properties
 - If you are connecting to the unit remotely, then skip steps A and B.
- B. Connect the RJ-45 crossover cable between the laptop's Ethernet port and the repeater's Ethernet port
- C. Launch Microsoft Internet Explorer (Version 7.0 or below)
- D. Type the following IP address into the address bar of Microsoft Internet Explorer: <http://192.168.63.1>
 - If you are connecting to the unit remotely, then type the IP address of the modem to connect to the unit
- E. The following login screen will appear:



If you are not the Administrator, please type in your assigned username & password which you should have received from the Administrator.

The default username and password for the General User is [adrf](#) & [adrf](#), respectively.

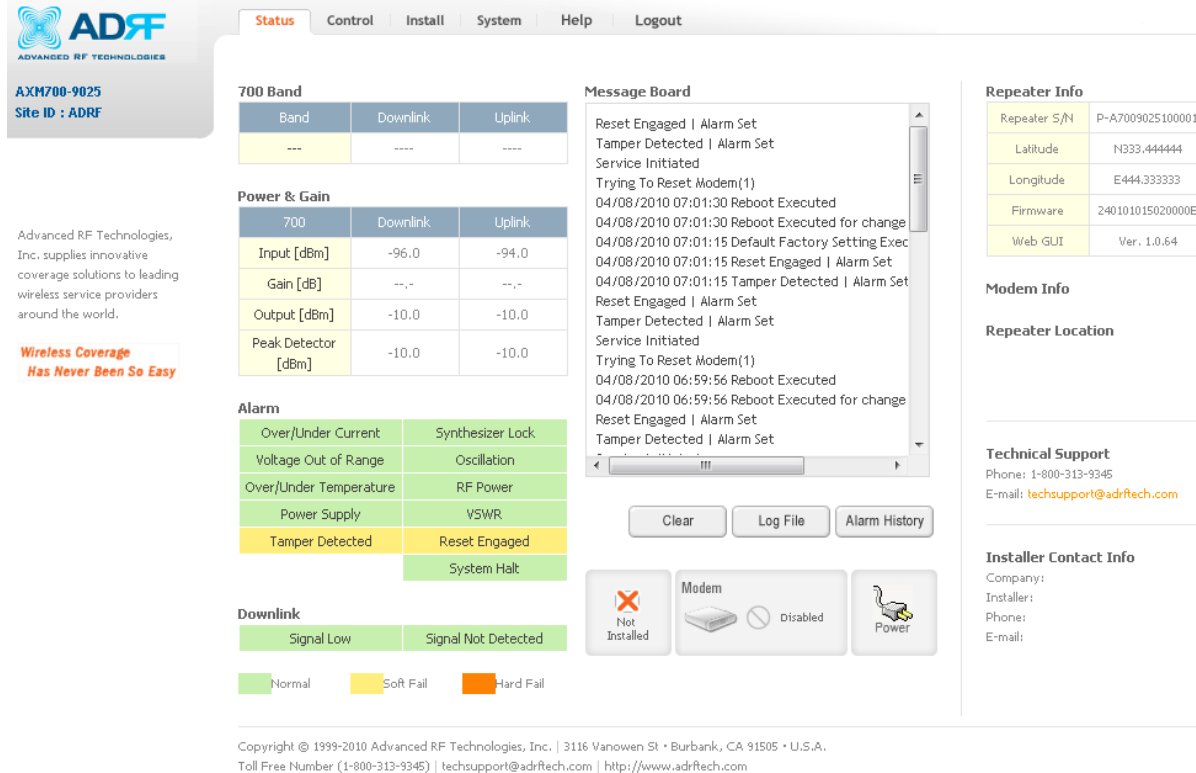
If the username & password is typed in incorrectly, the following screen will appear:



[Login](#)

4.2 Status Tab

The Status Tab allows the user to see a snapshot of the system to see if any issues need to be addressed.



The screenshot shows the ADRF Status Tab interface. At the top, there is a navigation bar with tabs for Status, Control, Install, System, Help, and Logout. The Status tab is active. On the left, there is a sidebar with the ADRF logo, the site ID 'AXM700-9025', and a slogan 'Wireless Coverage Has Never Been So Easy'. The main content area is divided into several sections:

- 700 Band:** A table showing the current band utilization.

Band	Downlink	Uplink
---	----	----
- Power & Gain:** A table showing power and gain levels for the 700 MHz band.

700	Downlink	Uplink
Input [dBm]	-96.0	-94.0
Gain [dB]	--,-	--,-
Output [dBm]	-10.0	-10.0
Peak Detector [dBm]	-10.0	-10.0
- Alarm:** A table listing various alarm conditions.

Over/Under Current	Synthesizer Lock
Voltage Out of Range	Oscillation
Over/Under Temperature	RF Power
Power Supply	VSWR
Tamper Detected	Reset Engaged
	System Halt
- Downlink:** A table showing downlink signal status.

Signal Low	Signal Not Detected
------------	---------------------
- Message Board:** A scrollable log of system events, including messages like 'Reset Engaged | Alarm Set', 'Tamper Detected | Alarm Set', and 'Service Initiated'. It includes buttons for 'Clear', 'Log File', and 'Alarm History'.
- Modem Info:** A section showing modem status with icons for 'Not Installed', 'Disabled', and 'Power'.
- Repeater Info:** A table with key information:

Repeater S/N	P-A7009025100001
Latitude	N333.444444
Longitude	E444.333333
Firmware	240101015020000E
Web GUI	Ver. 1.0.64
- Modem Info:** A section with the heading 'Modem Info'.
- Repeater Location:** A section with the heading 'Repeater Location'.
- Technical Support:** Contact information including phone number (1-800-313-9345) and email (techsupport@adrftech.com).
- Installer Contact Info:** Fields for Company, Installer, Phone, and E-mail.

At the bottom of the interface, there is a copyright notice: Copyright © 1999-2010 Advanced RF Technologies, Inc. | 3116 Vanowen St • Burbank, CA 91505 • U.S.A. Toll Free Number (1-800-313-9345) | techsupport@adrftech.com | http://www.adrftech.com

- **Band:** Displays the bands that are currently being utilized

700 Band

Band	Downlink	Uplink
---	----	----

- **Power & Gain:** Displays the Input, Gain, and Output for both Downlink and Uplink

Power & Gain

700	Downlink	Uplink
Input [dBm]	-96.0	-94.0
Gain [dB]	--,-	--,-
Output [dBm]	-10.0	-10.0
Peak Detector [dBm]	-10.0	-10.0

- **Alarm:** Displays 13 alarms with three different status conditions (Normal, Soft Fail or Hard Fail).

Alarm

Over/Under Current	Synthesizer Lock
Voltage Out of Range	Oscillation
Over/Under Temperature	RF Power
Power Supply	VSWR
Tamper Detected	Reset Engaged
	System Halt

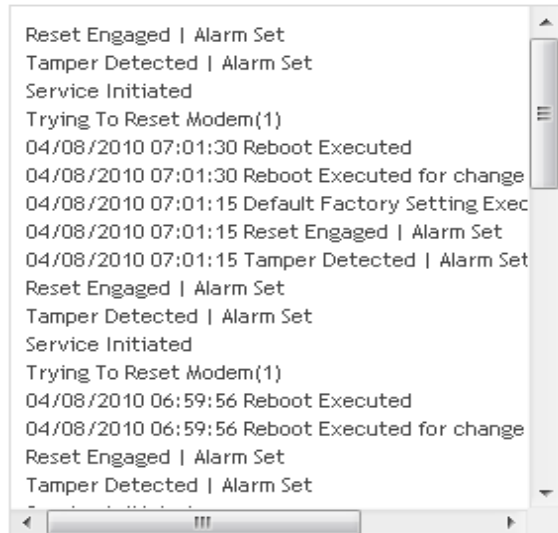
Downlink

Signal Low	Signal Not Detected
------------	---------------------

Normal
 Soft Fail
 Hard Fail

- **Message Board:** Displays the 20 most recent events.

Message Board

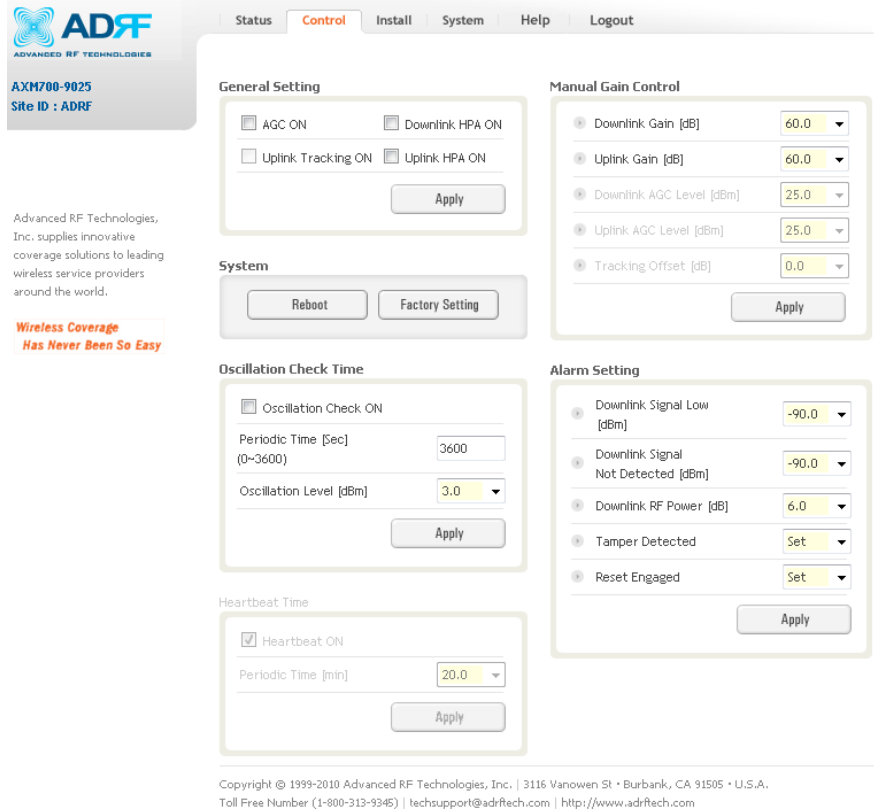


- **Clear:** Clears the content that is currently being displayed on the Message Board
- **Log File:** Downloads the system Log File (events and alarms) to your computer
- **Alarm History:** Downloads the Alarm History log (alarms only) to your computer
- **Installation:** Displays whether or not the installation routine has been run (Not Installed or Installed)
- **Modem:** Displays the status of the modem
 - Disabled- No internal modem is present
 - Not Connected- Internal modem is detected, but no connection to the network has been established
 - Connected- Internal modem is detected and a connection to the network has been established
- **Repeater Info:** Displays the serial number, latitude, longitude, firmware version, Web-GUI version
- **Modem Info:** Displays the ESN (DEC), MDN, and IP Address of the internal modem
- **Repeater Location:** Displays the address where the repeater is installed
- **Technical Support:** Displays ADRF's Technical Support contact information
- **Installer Contact Info:** Displays the installer's name, phone and e-mail address

Note: Once successfully logged in, the repeater model name and the site/cascade ID will be displayed on the top of all the windows (except for the Main Window).

4.3 Control Tab

The Control Tab allows the user to adjust the settings of the repeater.



The screenshot shows the ADRF Control Tab interface. At the top, there are navigation tabs: Status, Control (selected), Install, System, Help, and Logout. On the left, there is a sidebar with the ADRF logo, the device model 'AXM700-9025', and the site ID 'ADRF'. Below the sidebar, there is a small text block: 'Advanced RF Technologies, Inc. supplies innovative coverage solutions to leading wireless service providers around the world.' and a slogan: 'Wireless Coverage Has Never Been So Easy'. The main content area is divided into several sections:

- General Setting:** Contains four checkboxes: AGC ON, Downlink HPA ON, Uplink Tracking ON, and Uplink HPA ON. An 'Apply' button is at the bottom.
- Manual Gain Control:** Contains five dropdown menus: Downlink Gain [dB] (60.0), Uplink Gain [dB] (60.0), Downlink AGC Level [dBm] (25.0), Uplink AGC Level [dBm] (25.0), and Tracking Offset [dB] (0.0). An 'Apply' button is at the bottom.
- System:** Contains two buttons: Reboot and Factory Setting.
- Oscillation Check Time:** Contains a checkbox for Oscillation Check ON, a text input for Periodic Time [Sec] (0~3600) with the value 3600, a dropdown for Oscillation Level [dBm] (3.0), and an 'Apply' button.
- Alarm Setting:** Contains five dropdown menus: Downlink Signal Low [dBm] (-90.0), Downlink Signal Not Detected [dBm] (-90.0), Downlink RF Power [dB] (6.0), Tamper Detected (Set), and Reset Engaged (Set). An 'Apply' button is at the bottom.
- Heartbeat Time:** Contains a checked checkbox for Heartbeat ON, a dropdown for Periodic Time [min] (20.0), and an 'Apply' button.

At the bottom of the interface, there is a copyright notice: 'Copyright © 1999-2010 Advanced RF Technologies, Inc. | 3116 Vanowen St • Burbank, CA 91505 • U.S.A. Toll Free Number (1-800-313-9345) | techsupport@adrftch.com | http://www.adrftch.com'

• General Setting

General Setting

AGC ON Downlink HPA ON

Uplink Tracking ON Uplink HPA ON

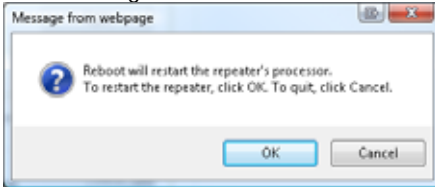
- **AGC ON:** Enables or disables AGC (Automatic Gain Control)
- **Uplink Tracking ON:** Enables or disables the Uplink Tracking Feature
 - Uplink Tracking adjusts the Uplink Gain to meet the Uplink Tracking Offset value
- **Downlink HPA ON:** Enables or disables the DL HPA
- **Uplink HPA ON:** Enables or disabled the UL HPA

- System

System

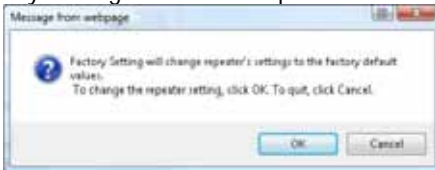


- Reboot: Clicking the reboot button will have the following popup show up:



Click OK to reboot the repeater or click Cancel to exit out

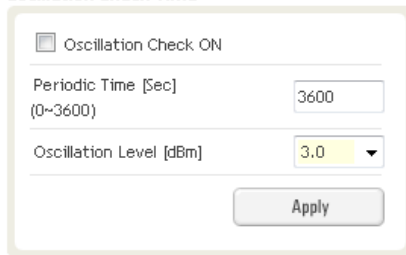
- Factory Setting: Resets the repeater to the original factory settings



Click OK to reset the settings to the Factory Default settings or Cancel to exit out

- Oscillation Check Setting

Oscillation Check Time



Oscillation Check ON
 Periodic Time [Sec]
(0~3600)
 Oscillation Level [dBm] ▼

- Oscillation Check ON:** Enables or disables oscillation check
- Periodic Time:** Allows the use to specify how often the repeater runs the oscillation check
- Oscillation Level:** Allows the user to adjust the sensitivity level of the oscillation detection level

- Manual Gain Control

Manual Gain Control



<input type="radio"/>	Downlink Gain [dB]	60.0	▼
<input type="radio"/>	Uplink Gain [dB]	60.0	▼
<input type="radio"/>	Downlink AGC Level [dBm]	25.0	▼
<input type="radio"/>	Uplink AGC Level [dBm]	25.0	▼
<input type="radio"/>	Tracking Offset [dB]	0.0	▼

Apply

- Downlink Gain:** Allows the DL gain to be adjusted manually when AGC is OFF
- Uplink Gain:** Allows the UL gain to be adjusted manually when AGC is OFF
- Downlink AGC Level:** Allows the user to set the DL gain when AGC is enabled
- Uplink AGC Level:** Allows the user to set the UL gain when AGC is enabled
- Uplink Tracking Offset:** This offset value determines how many dB lower the uplink gain value will be relative to the downlink gain value

- Alarm Setting

Alarm Setting



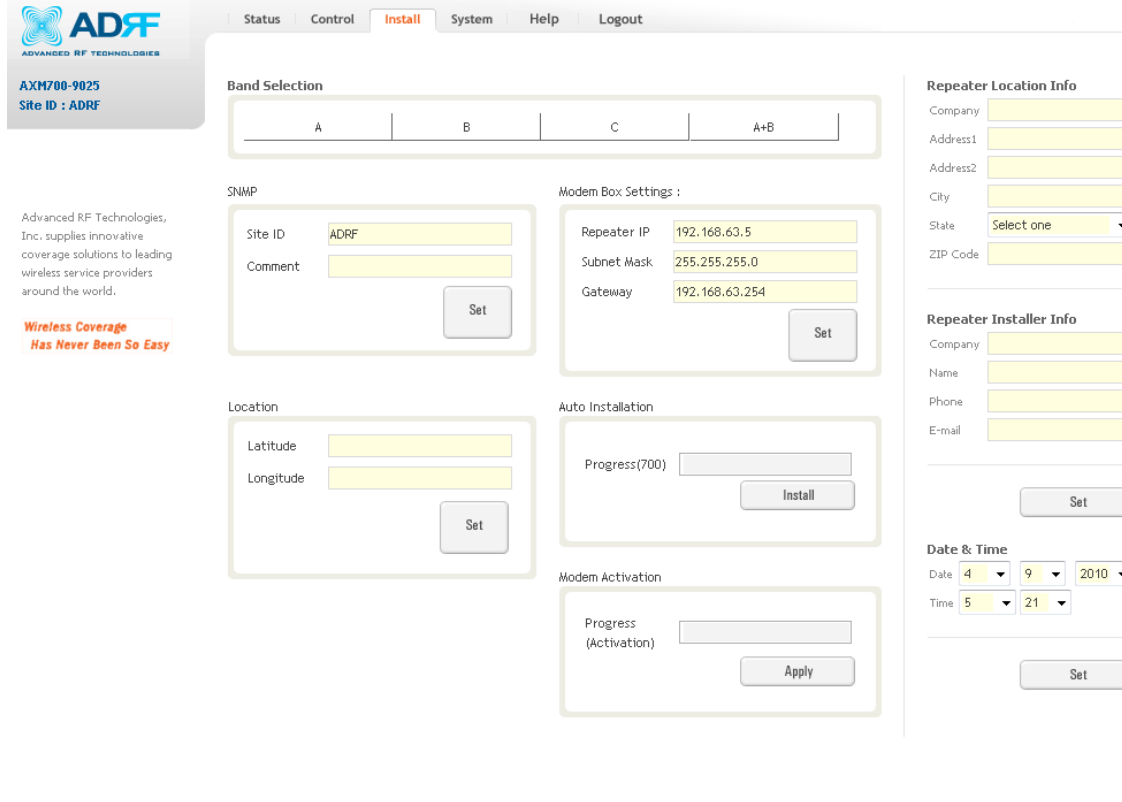
<input type="radio"/>	Downlink Signal Low [dBm]	-90.0	▼
<input type="radio"/>	Downlink Signal Not Detected [dBm]	-90.0	▼
<input type="radio"/>	Downlink RF Power [dB]	6.0	▼
<input type="radio"/>	Tamper Detected	Set	▼
<input type="radio"/>	Reset Engaged	Set	▼

Apply

- Downlink Signal Low:** Allows the user to specify how weak the signal can be before triggering a “Downlink Signal Low” soft-fail alarm
- Downlink Signal Not Detected:** Allows the user to specify the how weak the signal can be before triggering a “Signal Not Detected” soft-fail alarm
- Downlink RF Power:** Allows the user to set a maximum deviation value for the downlink RF power
 - For example, if the input signal is -50 dBm and the gain is set to 60 dB, the expected output power should be 10 dBm. If the Downlink RF Power alarm value is set to 6dB, then if the output power is below 4 dBm, then this will trigger a soft-fail alarm
- Tamper Detected:** Allows the tamper detection feature to be enabled or disabled
- Reset Engaged:** Allows the Reset Engaged functioned to be enabled or disabled

4.4 Install Tab

Allows the user change the settings required to run the installation routine properly.



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- **Band Selection:** Allows the user to select the band(s) they would like to utilize

Band Selection



- **SNMP:** Type in the assigned site/cascade ID and manager IP address

SNMP



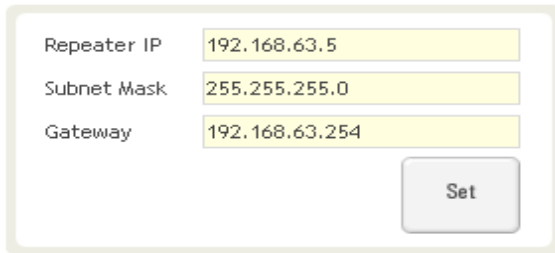
- **Location:** Displays the physical address where the repeater is installed

Location



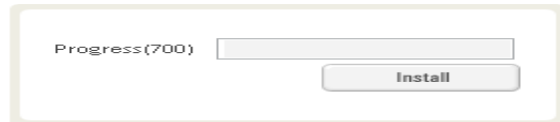
- **Modem Box Settings:** Allows the user to specify the IP address, subnet mask, and gateway for the repeater when the Host/Remote switch is set to Remote.

Modem Box Settings :



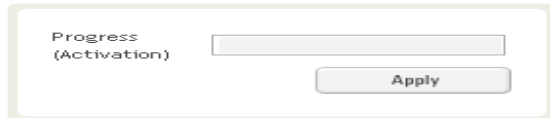
- **Auto Installation:** Runs the automated installation routine that will run basic checks to ensure that the repeater can function in the environment

Auto Installation



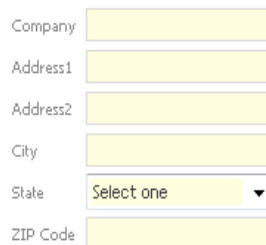
- **Modem Activation:** Run the automated modem activation procedure which will attempt to activate a modem that has already been provisioned. Once the modem activation procedure is complete, the repeater will automatically try to establish a connection.

Modem Activation



- **Repeater Location Info:** Information about the location physical location of the repeater can be stored here

Repeater Location Info



- **Repeater Installer Info:** Information about the Installer can be stored here

Repeater Installer Info



- **Date & Time:** The Date and Time settings can be adjusted here

Date & Time



4.5 System

The System tab allows the user to perform firmware updates, add/remove user accounts, and change the login credentials of the Administrator.

4.5.1 System: Account:

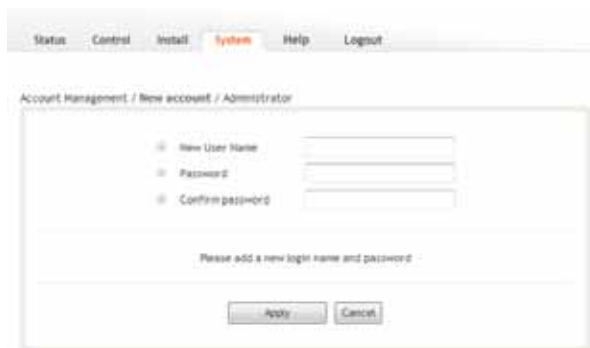
4.5.1.1 System: Account Management

The Account Management section will allow the Administrator to delete any user account. Please note that the Account Management section is only available if you are logged into the system as the Administrator. To delete a user account click on the Account Management link and under the Delete column, click on the delete button.



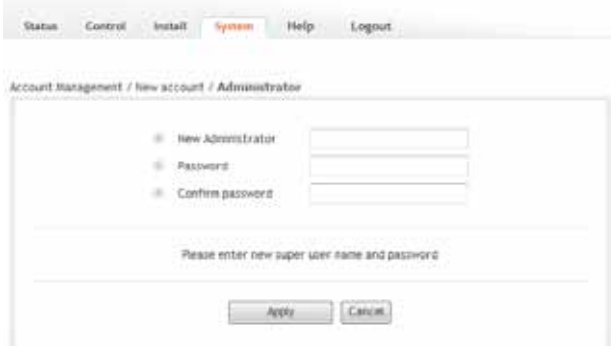
4.5.1.2 System: New Account

The New account section allows the Administrator to create a new user account. Please note that the New account section is only available if you are logged into the system as the Administrator. To create a new user account click on the New account link and fill in the fields highlighted in yellow as shown below.



4.5.1.3 System: Administrator

The Administrator section allows the Administrator to change their login credentials. Please note that the Administrator section is only available if you are logged into the system as the Administrator. To change the login/password of the administrator, click on the Administrator link and fill in the sections highlighted in yellow as shown below.



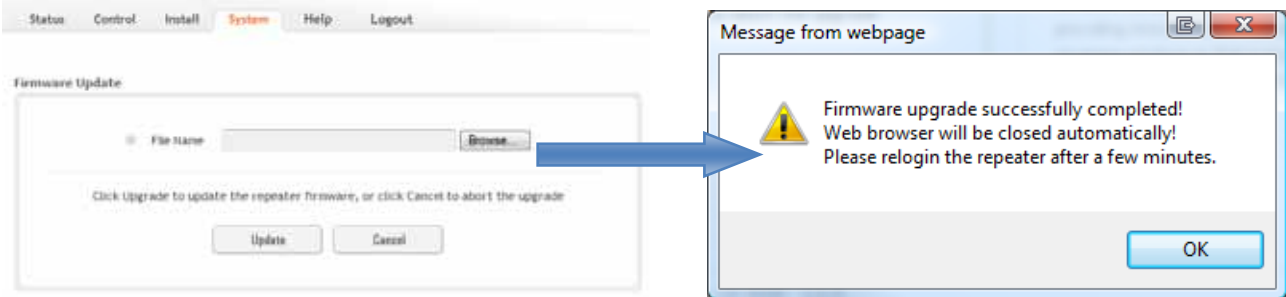
4.5.2 System: User Log

The User Log displays all the system activities in chronological order.

Number	Date	Username	Log Message
1	04/02/2010 18:18:50	admin	[Cellular]Change Site ID to ADRF
2	04/02/2010 18:18:50	admin	Comment Set 111
3	04/02/2010 18:18:46	admin	[Cellular]Set 1st Band to Band : A"+A + A'
4	04/02/2010 18:18:44	admin	[Cellular]Set 1st Band to Band : B
5	04/02/2010 18:18:41	admin	[Cellular]RF Power Level Set 2.0
6	04/02/2010 18:18:41	admin	[Cellular]DL Signal Not Detect Level Set -91.5
7	04/02/2010 18:18:41	admin	[Cellular]DL Signal Low Level Set -86.0
8	04/02/2010 18:18:38	admin	[Cellular]RF Power Level Set 6.0
9	04/02/2010 18:18:38	admin	[Cellular]DL Signal Not Detect Level Set -91.5
10	04/02/2010 18:18:38	admin	[Cellular]DL Signal Low Level Set -86.0

4.5.3 System: F/W Update

To perform a firmware update, click on the System tab then click on F/W Update and screen on the left will appear:



- Click on the Browse... button and locate the firmware file
- Click on the Upload button to perform the firmware update
- Once the firmware update is complete, the following popup message on the right will appear:

4.6 Help

If an internet connection is available, clicking on the Help Tab will redirect the user to our Technical Support page.



4.7 Logout

Clicking the Logout button will log the current user off the system.

5. Maintenance Guide for AXM700 Repeater

5.1 Periodic Inspection Checklist

1. Check for loose connections between the repeater and antennas.
 - a. If connections are loose, make sure that all connections are tightly fastened properly.
2. Cables and connectors are in good condition.
3. Ensure that the repeater brackets are in good condition and that the repeater is securely fastened

5.2 Preventive Measures for Optimal Operation

5.2.1 Recommendations

- Perform the *Periodic Inspection Checklist* quarterly or semi-annually.

5.2.2 Precautions

- Do not operate the repeater with the antennas in extremely close proximity to one another as this may cause damage to the repeater.
- Do not change the parameters unless instructed to do so by an authorized supervisor.
- Do not move the repeater unless instructed to do so by an authorized supervisor.
- Do not detach any cables to the repeater unless repair of respective components is necessary.

6. Warranty and Repair Policy

6.1 General Warranty

The AXM700 carries a Standard Warranty period of two (2) years unless indicated otherwise on the package or in the acknowledgment of the purchase order.

6.2 Limitations of Warranty

Your exclusive remedy for any defective product is limited to the repair or replacement of the defective product. Advanced RF Technologies, Inc. may elect which remedy or combination of remedies to provide in its sole discretion. Advanced RF Technologies, Inc. shall have a reasonable time after determining that a defective product exists to repair or replace the problem unit. Advanced RF Technologies, Inc. warranty applies to repaired or replaced products for the balance of the applicable period of the original warranty or ninety days from the date of shipment of a repaired or replaced product, whichever is longer.

6.3 Limitation of Damages

The liability for any defective product shall in no event exceed the purchase price for the defective product.

6.4 No Consequential Damages

Advanced RF Technologies, Inc. has no liability for general, consequential, incidental or special damages.

6.5 Additional Limitation on Warranty

Advanced RF Technologies, Inc. standard warranty does not cover products which have been received improperly packaged, altered, or physically damaged. For example, broken warranty seal, labels exhibiting tampering, physically abused enclosure, broken pins on connectors, any modifications made without Advanced RF Technologies, Inc. authorization, will void all warranty.

6.6 Return Material Authorization (RMA)

No product may be returned directly to Advanced RF Technologies, Inc. without first getting an approval from Advanced RF Technologies, Inc. If it is determined that the product may be defective, you will be given an RMA number and instructions in how to return the product. An unauthorized return, i.e., one for which an RMA number has not been issued, will be returned to you at your expense. Authorized returns are to be shipped to the address on the RMA in an approved shipping container. You will be given our courier information. It is suggested that the original box and packaging materials should be kept if an occasion arises where a defective product needs to be shipped back to Advanced RF Technologies, Inc. To request an RMA, please call (800) 313-9345 or send an email to techsupport@adrfttech.com.

Appendix A: Electrical Specifications

Parameters		Specifications		Comments
Frequency	Lower A	DL	728~734MHz	6MHz
		UL	698~704MHz	
	Lower B	DL	734~740MHz	6MHz
		UL	704~710MHz	
	Upper C	DL	746~747MHz	11MHz
		UL	776~787MHz	
Frequency Error		≤ ±0.05ppm		
Band Selection		A, B, A+B, C		Select 1_Band
Gain Flatness	Full Band	≤ ±2dB		
	Each Band	≤ ±1.5dB		
Gain	Maximum	90		
	Step	0.5dB		
	Range	30		
	Tolerance	≤ ±1dB		
Spurious Emissions		Meet FCC Rule		
Out Band Spurious Emissions		≤ -13dBm/30KHz; 15KHz<f<550KHz		30kHz RBW
		≤ -13dBm/100KHz; 650KHz<f<2MHz		100kHz RBW
		≤ -13dBm/1MHz; 1GHz<f<5GHz		1MHz RBW
		≤ -13dBm/1MHz; 5GHz<f<8.5GHz		1MHz RBW
Composite Output Power (UL/DL)		+25dBm		
EVM		12.5% Under		
OIP3		+35dBm		
Roll Offs		> 50dBc@ 1MHz Outside passband		
Noise Figure(Uplink)		≤ 6dB@ maximum Gain		
Delay		≤ 6us		
VSWR		≤ 1:1.5		

Mechanical Specifications

Parameters	Specifications	Comments
Dimension	410x344x203 mm	Bracket excluded
Weight	20Kg	Bracket excluded
RF Ports	N-Type Female	Donor & Server Antenna Ports
Local Interface	Ethernet	
Cooling	Air Convection	
IP Class	IP 40 Minimum	Indoor Type
Mounting Type	Wall Mounting	

Environmental Specifications

Parameters	Specifications	Comments
Operating Temperature	-5~+40°C	Ambient
Relative Humidity	5~95%, (Non-Condensing)	
Dust	Industrial Dust Per Telcordia GR63 Core	

Power Specifications

Parameters	Specifications	Comments
AC Power	100~130V / 200~240V	Select Switch Type
AC Frequency	45~65Hz	
AC Supply Protection	Fuse	T6.3L250V
DC Power Option	24V(+20~+30V)	Change Power Supply Mode
Power Consumption	125 Watt	
Ground	External Threaded Stud	

Other Specifications

Parameters	Specifications	Comments
MTBF	> 100,000 Hours	Ambient
Certificates	UL60950	
	FCC CFR47 part 15	
	FCC CFR47 part 27	
Warranty	2 Years	