Airstream 4001 F49-MRT User Guide

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Safety Notices

Safety Information

1. Read this user manual and follow all operating and safety instructions.
2. Keep all product information for future reference.
3. The power requirements are indicated on the product-marking label. Do not exceed the described limits.
4. Use only a damp cloth for cleaning. Do not use liquid or aerosol cleaners. Disconnect the power before cleaning.
5. Disconnect power when unit is stored for long periods.

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Warnings and Cautions

Human Exposure to Radio Frequencies

The WiMAX MRTe Antennas should be installed a minimum distance of 20 cm (8 in) from your body.

Radio Interference

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to internal vehicle radio communications.

Please ensure a maximum separation between the MRTe's antenna and other antennas on the roof of the vehicle.

Modifications

Any changes and modifications to this device that are not expressly approved by Airspan Networks are not permitted and if done will result in voidance of warranty.

General

- Installation, replacement and service should be performed by qualified personnel who are familiar with local safety codes.
- Do not mount external antennas in inclement weather (such as rain or lightning) that may increase risk of electrocution.
- MRTe does not provide protection from hazard energy in case of single fault condition.
- Power supply shall be limited up to 3A in normal and single fault condition.

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DECLARATION OF CONFORMITY

European Community, Switzerland, Norway, Iceland, and Liechtenstein
Declaration of Conformity with Regard to the R&TTE Directive 1999/5/EC

English:

This equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Deutsch:

Dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprecheneden Vorgaben der Richtlinie 1999/5/EU.

Dansk:

Dette udstyr er i overensstemmelse med de væsentlige krav og andre relevante bestemmelser i Directiv 1999/5/EF.

Español:

Este equipo cumple con los requisitos esenciales asi como con otras disposiciones de la Directive 1999/5/EC.

Greek:

ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Airspan ΔΗΛΩΝΕΙ ΟΤΙ Ο ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.

Français:

Cet appareil est conforme aux exigencies essentialles et aux autres dispositions pertinantes de la Directive 1999/5/EC.

Íslenska:

Þessi búnaður samrýmist lögboðnum kröfum og öðrum ákvæðum tilskipunar 1999/5/ESB.

Italiano:

Questo apparato é conforme ai requisiti essenziali ed agli altri principi sanciti dalla Direttiva 1999/5/EC.

Nederlands:

Deze apparatuur voldoet aan de belangrijkste eisen en andere voorzieningen van richtlijn 1999/5/EC.

Norsk:

Dette utstyret er i samsvar med de grunnleggende krav og andre relevante bestemmelser i EU-directiv 1999/5/EC.

Português:

Este equipamento satisfaz os requisitos essenciais e outras provisões da Directiva 1999/5/EC.

Suomalainen:

Tämä laite täyttää direktiivin 1999/5/EY oleelliset vaatimukset ja on siinä asetettujen muidenkin ehtojen mukainen.

Svenska:

Denna utrustning är i överensstämmelse med de väsentliga kraven och andra relevanta bestämmelser i Direktiv 1999/5/EC.

Román:

Acest echipament este în conformitate cu cerinţele esenţiale şi alte prevederi relevante ale Directivei 1999/5/CE.

The Declaration of Conformity related to this product can be obtained from product_management@Airspan.com

FCC Notice

Federal Communication Commission Notice

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

Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

1 About this Guide

This section discusses the purpose, intended audience, conventions, referenced documentation and organization for this guide.

1.1 Purpose

The purpose of this User Guide is to provide step-by-step instructions for setting up and installing the Airstream 4001 F49-MRT. These procedures include:

- System Overview
- Installation Prerequisites
- Physical description
- Mounting
- Cabling
- Connecting
- Initial Procedure for Web-based Management

1.2 Conventions

Icon	Description
	***Checkpoint:*** Marks a point in the workflow where there may be an exit or branch to some other procedure. At each ***Checkpoint*** the reason for an exit or branch is given along with specific directions to locate the entry point in the other procedure.
	***Reference:*** Gives a resource in the workflow that may be needed to complete a procedure along with specific directions to use the resource.
	***Caution:*** Describes a possible risk and how to lessen or avoid the risk.
	***Advice:*** Provides a recommendation based on best practice.
	***Note:*** Provides useful information.

2 System Overview

MRTe (Mobile Ruggedized Terminal - 16e) is a ruggedized hybrid device integrating 16e WiMAX CPE and WiFi Access Point functionalities in a single package. The MRTe was designed for nomadic and vehicular operation, providing high-speed data access through its WiMAX and WiFi interfaces.

MRTe is deployed with external vehicle mounted antennas for WiMAX and either directly connected or external antennas for WiFi.

The WiMAX segment provides a wireless interface with the Airspan Mobile WiMAX base stations. For WiFi interface with the customer's network, the MRTe is deployed with 2 RF connectors to allow quick and easy attachment of the WiFi antennas. The MRTe provides 360-degree coverage through its omni-directional antennas which are weatherproof, maintaining excellent antenna performance in any weather.

MRTe's interfaces can be managed by the Web-based management system using a standard Web browser.

2.1 MRTe Frequency Ranges

The table below lists the frequency range of MRTe models currently available. This table will grow as more models become available.

Table 1 - MRTe Frequency Ranges

Frequency Band	Channel Bandwidth
4950 - 4980 MHz TDD	➢ 10MHz

2.1.1 Main Features

The Airspan WiMAX MRTe provides the following main features:

- ➢ Ruggedized vehicular terminal based on the WiMAX IEEE 802.16e wireless technology.
- ➢ Vehicular configuration for in-car, truck or bus installation.
- ➢ Designed to meet severe environmental conditions:
  - IP66 waterproof seal
  - Shock - 30G (Per SAE-J1455, MIL-STD-202G, 213-1, Condition J)
  - Vibration - 0.02PSD (Per SAE-J1455, MIL-STD-202G, Table 214-I, Condition A)
- ➢ IEEE 802.11n WiFi AP capabilities.
- ➢ Fed from vehicle 12V power supply.

2.2 WiMAX Management

- ➢ Supports *Self Provisioning*
- ➢ Hosts a web server for basic monitoring via a local browser
- ➢ Software is upgraded locally and remotely via FTP
- ➢ Local and remote management via NMS
- ➢ TR-069 - roadmap

2.3 WiFi Management

- ➢ Hosts a web server for basic monitoring via a WEB browser
- ➢ Software is upgraded locally and remotely via FTP

2.4 Architecture

The MRTe consists of the following components:

- Rugged hybrid device integrating WiMAX CPE and WiFi AP
- Weatherproof WIMAX antenna connectors (N type RF connector)
- Weatherproof WiFi antenna connectors (TNC connector)

See Package Contents for additional information.

2.5 Theory of Operation

For basic operation, the MRTe requires no initial configuration--simply plug and play. Configuration is automatically performed over the air by the BS. The MRTe is preconfigured with service flow parameters such as the maximum information rate, the committed information rate and the maximum latency.

3 Installation Prerequisites

Before installing your MRTe, read the following to ensure that:

- No items are missing from the package

3.1 Package Contents

Examine the Airspan WiMAX MRTe shipping container. If you notice any damage, or missing items as listed in the Packing List, immediately notify the carrier that delivered the unit and contact an Airspan representative.

The MRTe kit should contain the following items:

- MRTe device
- Power cable
- Glands wrench
- Spare Fuse

Note: Antennas ordered separately. Contact supplier.

Note: Airspan does not provide screws, washer or nuts for mounting the MRTe. The screw size depends on the structure of the cabinetry to which the MRTe is to be attached. When selecting screw sizes, consideration must be given to the weight and size of the MRTe and typical vibration conditions.

Table 2 - Package Contents

Name	Quantity	Comments	Image
MRTe	1		
External Power Cable (PN: 687-00-050)	1	Terminated on MRTe power connection with 2-pin screw-down connector and Power source side with 2 x #10 closed end ring connectors. White = (+) Black = (-)	
Glands Wrench	1	Tool for tightening the Glands.	
Spare Fuse	1	Extra 6.3 A fuse.	

Note: Additional parts are required e.g. antennas, RF cable all available from Airspan. Please contact your supplier for additional information.

4 Physical Description

This section provides a description of the components of the MRTe installation:

- Dimensions
- Ports
- LEDs

4.1 MRTe

The MRTe is an encased outdoor radio providing access to communication ports on its side panel. The MRTe provides holes for mounting.

4.1.1 Physical Dimensions

The table below lists the physical dimensions of the MRTe.

Table 3 - MRTe physical dimensions

Parameter	Value
Dimensions (H x W x D)	59.5 x 172 x 204 mm (2.34 x 6.8 x 8.0 inches)
Weight	1.6 Kg (3.5 lbs.)

4.1.2 Ports

The MRTe provides the following ports on front panel.

Note: All ports come with protective covers for soil and damage protection. Leave covers on for ports not in use. Store the covers for future use.

Table 4 - MRTe port panel description

Port	Description
RF connection x 2 TNC	RF external (WiFi) antenna connections
RJ-45 x 1	10/100/1000BaseT Ethernet LAN
Fuse	6.3A
DC power input	12V DC power connection (female) Pin 1: "-" Pin 2: "+"
RF connection x 2 - RS type	RF external (WiMAX) antenna connections
LEDs	LEDs display (see description in the following section)

4.1.3 LED Display

The LEDs are a visual display to indicate basic CPE status.:

5 Connections

5.1 Power Supply Connector Pinout

The power supply connector provides 2-pin male contacts for cable connection. The connector is attached to the power adapter cable.

Figure 1 - Power pins - power supply cable connector

The connector's pinout is described in the following table:

Table 5 -Power connector

Power	Description
1	"-" power in
2	"+" power in

5.2 Ethernet Connection

The Ethernet cable is connected to the unit using a standard RJ45 connector protected by a harsh environment protective casing.

Figure 2 - Gland assembly

5.2.1 Assemble Ethernet Connector

1. Remove the connector by unscrewing the body from the unit, using the Gland wrench.
2. Pass the Cat 5e Ethernet cable through the tail nut, gland seal, body and rubber seal of the connector casing as shown above. Do not tighten the tail nut.
3. Terminate the Ethernet cable with an RJ45 connector plug using an RJ45 crimping tool unless it is pre-assembled.
4. Connect the terminated RJ45 cable to the female RJ45 outlet inside the unit.
5. Screw the RJ45 gland connector plug securely into the body cavity of the unit using the provided Gland wrench.

Figure 3 - Gland assembled

6 Connecting WiMAX and WiFi Antennas

Note: Antennas are ordered separately. Contact supplier.

Caution: Before connecting the WiMAX or WiFi antennas, ensure that the MRTe is not connected to the power source.

Caution: It is the responsibility of the person installing the MRTe to ensure that only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden.

Caution: The WiMAX and/or WiFi antennas must be installed only by experienced installation professionals who are familiar with the local safety codes and are licensed by the appropriate government authorities.

Caution: Before powering on the MRTe, ensure that some type of equipment such as the WiMAX and/or WiFi antennas is connected to the RF-type jack. This eliminates the risk of irreversibly damaging the MRTe device.

To connect the WiMAX antennas (cables) to the MRTe:

1. Hold the WiMAX antenna cable, and gently insert the N type RF plug into the RF jack labeled **ANT1** or **ANT2**, located on the MRTe's panel.
2. Secure the antenna to the N type RF jack by hand-tightening (turning clockwise) the WiMAX antenna onto the threads of the N type RF jack.
3. Before powering on the device, ensure that both WiMAX antennas are attached firmly to the MRTe.

To connect the WiFi antennas (cables) to the MRTe:

1. Hold the WiFi antenna cable, and gently insert the RF plug into the RF jack labeled **WiFi**, located on the MRTe's panel.
2. Secure the antenna to the RF jack by hand-tightening (turning clockwise) the WiFi antenna onto the threads of the RF jack.
3. Before powering on the device, ensure that both WiFi antennas are attached firmly to the MRTe.

7 Mounting

This section describes the mounting procedures for the MRTe.

7.1 Mounting the MRTe

Caution: Mount the MRTe in an orientation such that its port panel is accessible after mounting. This facilitates easy cable connection and disconnection.

The MRTe provides mounting holes for attachment, as displayed in the figure below.

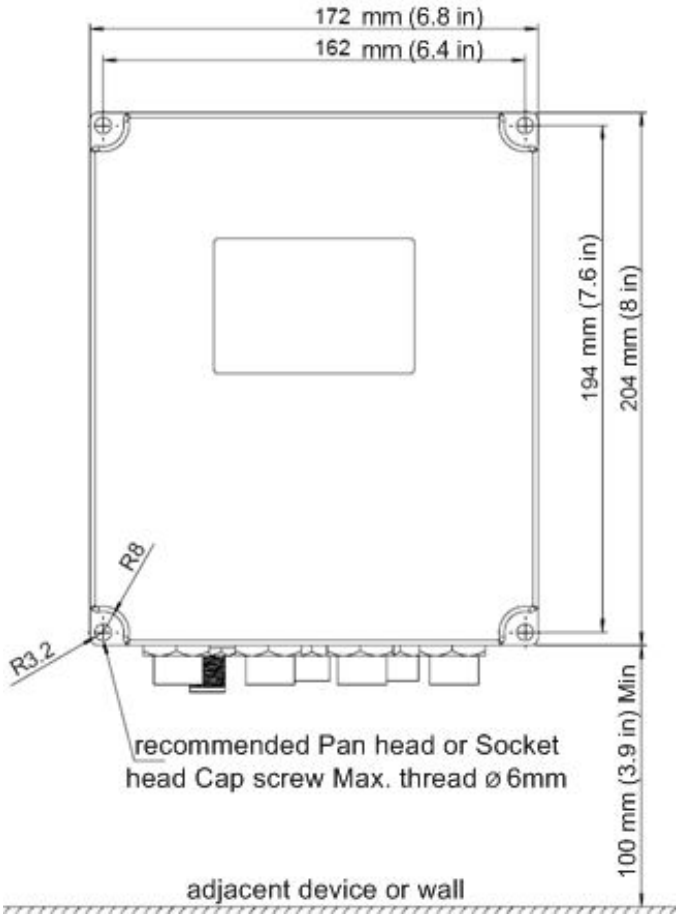

Figure 4 - Mounting template

Align the MRTe's four holes with the cabinet bracket holes, and then insert a screw (not supplied) through the holes, slide on a washer spring washer and nut and then tighten.

Note: Airspan does not provide screws for attaching the MRTe. The screw size depends on the cabinet structure or surface to which the MRTe is to be attached.

Recommend screw type required:

- Size: M6
- Length: 65mm minimum, (Depending on assembly conditions)
- Head: Pan Phillips head.
- Recommended material: SST

8 Network Cabling

The MRTe interfaces with the subscriber's network through the RJ-45 cable.

Note: Use CAT-5e shielded cable only.

8.1 Connecting to Network

The MRTe provides two RJ-45 (10/100/1000BaseT) ports for interfacing with the subscriber's network.

The ports of the MRTe support Auto Negotiation, allowing automatic configuration for the highest possible speed link, and Full Duplex or Half Duplex mode. Therefore, the speed of the connected device (e.g. PC) determines the speed at which packets are transmitted through the specific port.

In addition, the MRTe ports support MDI/MDI-X automatic crossover, allowing connection to straight-through or crossover CAT-5e cables. Therefore, these ports can be connected to either a hub (i.e. using crossover cables) or a PC (i.e. using straight-through cables).

The cable setup for MRTe connectivity is as follows:

- **Cable:** Straight-through (e.g. when connecting to PC) or crossover (i.e. when connecting to a hub) CAT 5e Ethernet cable
- **Connectors:** 8-pin RJ-45 at both ends

9 Connecting to Power

The MRTe is powered from the 12/24 VDC power cable that is connected to the vehicle's power source.

The input power for the MRTe is 10-30 VDC.

Caution: Before powering on the MRTe, ensure that some type of equipment such as anantenna or an RF attenuator is connected to the RF jacks. This eliminates the risk of irreversibly damaging the MRTe.

Caution: Connect the 12/24VDC power cable to the power source only after the all connections are fully assembled.

10 Initial Procedure for Web-Based Management

This chapter contains information on the Web-based Graphical User Interface (GUI). The GUI enables quick and simple setup, and discusses the following topics:

- Browser Requirements
- Configure and Connect
- Accessing the MRTe via the Web

10.1 Browser Requirements

Ensure that your Web browser with which you want to access the Airstream 4001 F49-MRT is running Microsoft Internet Explorer 8, Firefox 3.0 and above.

This section describes the initial procedure for Airstream 4001 F49-MRT operation and how to initially connect the MRTe to the base station.

10.2 System Configuration and Login

This chapter describes how to configure the CPE and to connect it to the base station.

User computer can get IP address automatically from CPE. The CPE's default login values are listed below:

- HTTP CPE address:
  - 10.1.1.1 (subnet 255.255.255.0)
- User name: "root"
- Password: "admin"

Note: The following screens shots are for illustration purposes only.

10.2.1 Accessing the Airstream 4001 F49-MRT

Proceed with login and connect to the Airstream 4001 F49-MRT.

To access the Airstream 4001 F49-MRT Web server:

1. Start your web browser (e.g. Microsoft Internet Explorer).
2. In the Address Bar field, enter the IP address of the Airstream 4001 F49-MRT (i.e. 10.1.1.1) subnet (255.255.255.0).

Note: To quickly enter the Airstream 4001 F49-MRT server address, you can simply type the IP address without typing "http://". When you press <Enter> (see Step 3), the full address (i.e. "http://...") is automatically entered.

3. Press <Enter> on your keyboard.

The Login page of the Airstream 4001 F49-MRT web-based management opens, as displayed below:

Figure 5 - Login

4. In the **User Name** field, enter your user name, default = root.
5. In the **Password** field, enter your password, default = admin.
6. Click **Login** to enter

Note: It is highly recommended to change your Password after initial login.

The Airstream 4001 F49-MRT server home page opens, ***Status***, displaying current information of the Airstream 4001 F49-MRT System version and Network information, as displayed below.

Figure 6 - MRTe - Status

10.3 Navigating Your Airstream 4001 F49-MRT Management

The Airstream 4001 F49-MRT provides a user-friendly graphical user interface (GUI) that allows you to easily access commands for configuring Airstream 4001 F49-MRT. The table below describes basic Airstream 4001 F49-MRT navigation procedures.

10.3.1 Menus

The menu buttons at the top of the page provides links to various configuration categories. These menu buttons are displayed throughout the Airstream 4001 F49-MRT management pages to allow easy navigation between categories.

The Airstream 4001 F49-MRT menus are described in the table below:

Table 6 - Airstream 4001 F49-MRT Menus

Menu	Description
Status	Opens the Status page where the following system status information (read-only) is displayed: WiMAX Status: ➢ System Status ➢ Physical Status ➢ Uplink ➢ Downlink ➢ Service Flow Network Status: ➢ LAN ➢ WAN ➢ WiFi Device Info: ➢ Device Information
System	Opens the System page where: ➢ SW Download ➢ Set Default ➢ Reboot
WiMAX	Opens the WiMAX page where the following information is displayed and defined: ➢ Scanner ➢ Authentication Selection
Networking	Opens the Networking page where mode configurations are performed: ➢ Mode ➢ DMZ ➢ Extended DMZ
Logout	Logs out of the system

10.3.2 Navigating

The table below describes basic Airstream 4001 F49-MRT management navigation procedures:

Table 7 - Navigation

To ...	Do this ...
Navigate to a specific category	Click the relevant menu.
Quit the web-based tool	Close the web tool window.

Note: The following displayed screens are for illustration purposes only.

11 Status

The ***Status*** page is used for viewing system status information (read-only) related to the CPE and its related parameters and connections.

To return to the Status page at any time click the **Status** button.

To access the Status page:

1. Click **Status** to navigate to the Status page.
2. Click the desired sub-option on the drop down list.

11.1 WiMAX Status

To view WiMAX status related parameters on the Status page:

1. Click on **Status** to open the drop down list and choose the ***WiMAX Status*** sub-option.

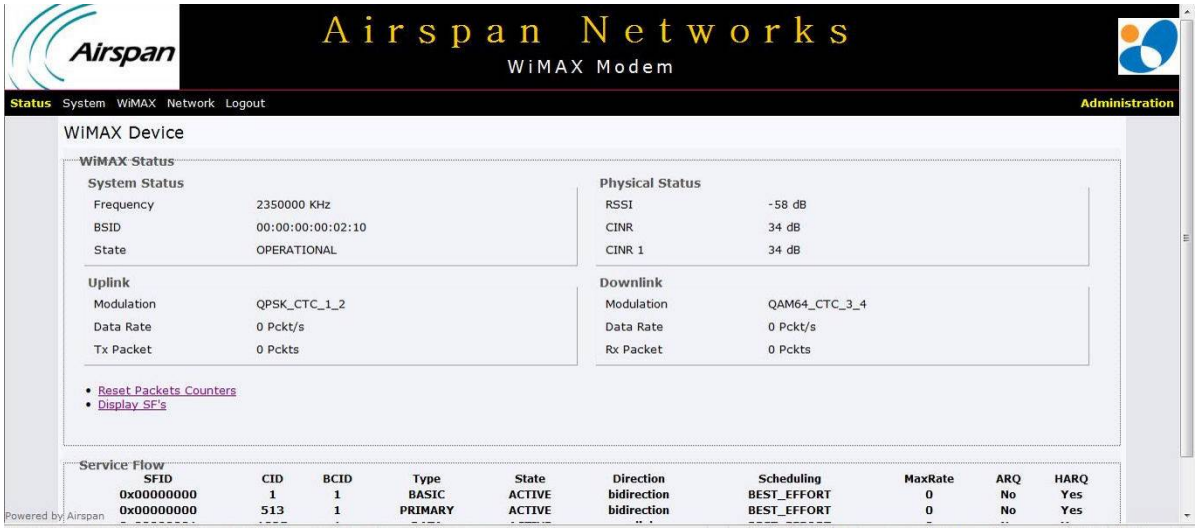

Figure 7 - WiMAX Status

The parameters displayed (read-only) on the WiMAX Status page are described in the table below:

Table 8 - WiMAX Status with SF displayed

Parameter	Description
WiMAX Status	
System Status	Displays System status information
Frequency	Displays the current frequency being used. While scanning the frequency display will fluctuate until frequency is located
Bandwidth	Displays the bandwidth used
BSID	Displays the Base Station ID
State	Displays the current state of the CPE
Physical Status	Displays Physical status information
RSSI	Displays the RSSI (Received Signal Strength Indicator) value
CINR	Displays the CINR (Carrier to Interference Noise Ratio) value
CINR 1	Displays the CINR (Carrier to Interference Noise Ratio) value for reuse1 zone

Parameter	Description
CINR3	Displays the CINR (Carrier to Interference Noise Ratio) value for reuse3 zone
Uplink	Displays Uplink information
Modulation	Displays the current uplink modulation
Data rate	Displays the current uplink data rate
TX Packet	Displays number of transmitted packets
Downlink	Displays Downlink information
Modulation	Displays the current downlink modulation
Data Rate	Displays the current downlink data rate
RX Packet	Displays number of received packets
Refresh Packets Counters	Click to manually refresh the packet counters
Display SFs	Click to display service flows
Service Flow	Displays the service flow information

11.2 Network Status

To view Network Status related parameters on the Status page:

1. Click on **Status** to open the drop down list and choose the ***Network Status*** sub-option.

Figure 8 - Network Status

The parameters displayed (read-only) on the Network Status page are described in the table below:

Table 9 - Network status

Parameter	Description
Interface Overview	Displays current data for LAN, WAN and WiFi interfaces.
ARP	Displays the current status of the ARP table.
	• Ipv4-Address - displays address
	• MAC-Address - displays address
	• Interface - displays
Active IPv4 Routes	Displays the current status of the Routing table.
	• Network - displays type (WAN, LAN)
	• Target - displays target IP
	• Ipv4-Gateway - displays GW
	• Metric -
Interface Overview	Displays an overview of the Interface
	• Interface - displays type - WAN, LAN, WiFi
	• IP address and Netmask of the interface.
	• MAC - displays the MAC address of the port's physical interface.
	• Transfer - displays the RX (received) & TX (transmission) bytes, including number of packets.
DHCP leases	• DHCP leases - for Router Mode only

11.3 Device Information

To view Device Information related parameters on the Status page:

1. Click on **Status** to open the drop down list and choose the ***Device Information*** sub-option.

Figure 9 - Device Information

The parameters displayed (read-only) on the Device Information page are described in the table below:

Table 10 - Device Information

Parameter	Description
Device Information	Displays information on the device being used.
Hardware Model	Displays the hardware model.
Product Type	MRT
Firmware Version	Displays the firmware version in use.
Firmware creation date	Displays the date the firmware was created.
Bootrom version	Displays the bootrom version number.
Bootrom creation date	Displays the bootrom creation date.
CRM firmware version	Displays the firmware version of the radio module
WiFi version	Displays the SW version of WiFi mode.
Version Type	Displays always operational.
Duplex	Displays the radio duplex mode.
Frequency range	Displays the frequency range for the device.
Serial number	Displays serial number of the device.
Uptime	Displays the amount of time the system has been up and running.

12 System

To access the System page:

1. Click **System** to navigate to the System page.
2. Click the desired sub-option on the drop down list.

12.1 Reboot

Some configuration settings require a restart of the unit to apply new parameter settings to the device, such as upgrading the software version. In order for upgrades and/or other changes to take effect the CPE must be rebooted, as shown below:

To perform a Reboot

1. Click on **System** to open the drop down list and choose the ***Reboot*** sub-option.

Figure 10 - System Reboot

2. Click **Perform reboot**. Progress is displayed (shown below).

Figure 11 - System Reboot progress

Note: After system reboots, logging-in is required.

12.2 Reset to Default

To set the product parameters to factory default settings:

1. Click on **System** to open the drop down list and choose the ***Reset to Default*** sub-option.

Figure 12 - System - Reset to Default

2. Click on **Click to Reset to Default** to reset to factory defaults. **Reset** to cancel.

Note: The **Reset** and **Submit** buttons are unavailable on this page.

Note: After system reboots, logging-in is required.

12.3 Software Download

The **Software** page allows you to upgrade the software by downloading a new version. New software releases can be downloaded periodically when available. Software upgrade is performed by downloading a software version file to the device using File Transfer Protocol (FTP) or Trivial File Transfer Protocol (TFTP). To upgrade the device, it is necessary to define the FTP parameters and the name of the software version file to be downloaded. The downloaded file is initially downloaded to the device's Shadow SW bank.

To Download Software:

1. Click on **System** to open the drop down list and choose the ***Software Download*** sub-option.

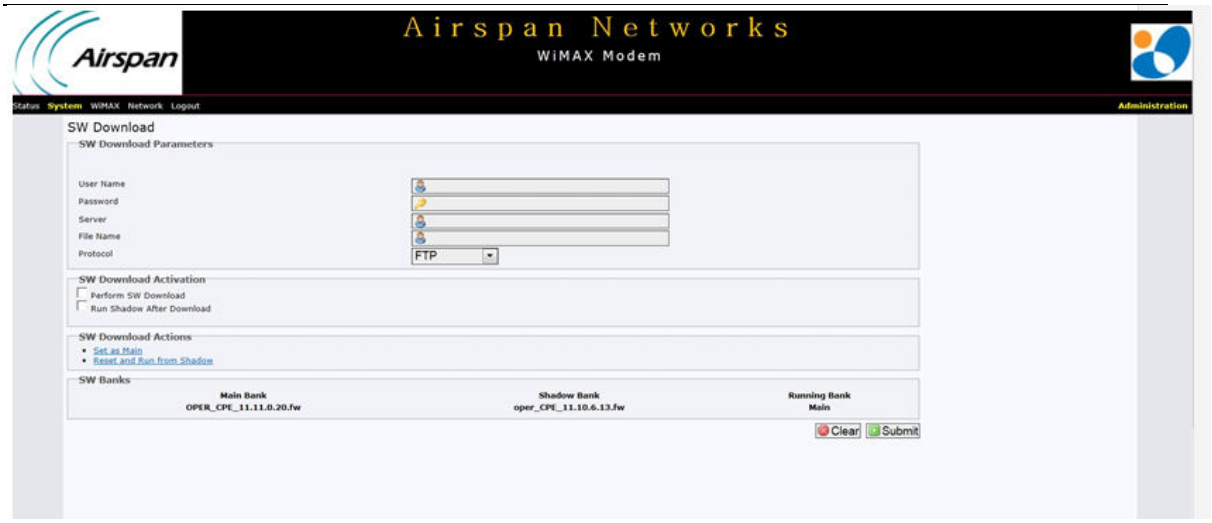

Figure 13 - System Software Download

2. Configure the software upgrade parameters.
3. Check **Perform SW Download** and **Run Shadow after Download**.
4. Click **Submit**.

After the download is completed the downloaded SW file will replace the existing file in the Shadow bank and the unit will reboot from the Shadow version.

5. Click on **Click to Set as Main** - to set the file as the main active SW version immediately.

When the unit runs for 5 minutes and the WiMAX link remains stable for the past 1 minute running the new SW version it will be set as the Main version automatically. If not, the unit will reboot from the Main version (previously used).

The parameters displayed on the Software Download page are described in the table below:

Table 11 - Software Download & Software Banks

Parameter	Description
SW Download	
Username	Enter - Username for access to the FTP server
Password	Enter - Password for access to the FTP server
Protocol	FTP/TFTP - protocol for file transfer
Server	Enter - IP address of the FTP server
File name	Enter - Name of the file to be loaded
SW Download Activation	
Perform SW Download	Check to perform software download
Run Shadow after Download	Check to cause CPE to reboot shadow file
 ***Note:*** Changes will only take affect after clicking on **Submit**.	
SW Bank Selection	

Parameter	Description
Click to Set as Main	The downloaded SW file is immediately set as the Main bank  ***Note:*** this operation is allowed only if running from Shadow version.
Click to Reset and Run from Shadow	To reset and run the SW from the Shadow bank  ***Note:*** this operation is allowed only when running from main version.
SW Banks Info	
Main Bank	Displays the software stored in the Main bank
Shadow Bank	Displays the software stored in the Shadow bank
Running Bank	Displays the location of the currently running SW file

13 WiMAX

The WiMAX page is used to configure WiMAX scanning for a connection with a base station and enables you to add, delete and edit channels that the device will use during initial scanning.

To access the WiMAX page:

1. Click **WiMAX** to navigate to the WiMAX page.
2. Click the desired sub-option on the drop down list.

13.1 Scanning Setup

The Scanning Setup page allows users to stop or start WiMAX connection with a BS, as displayed below:

To access the Scanning Setup page:

1. Click on **WiMAX** to open the drop down list and choose the ***Scanner*** sub-option.

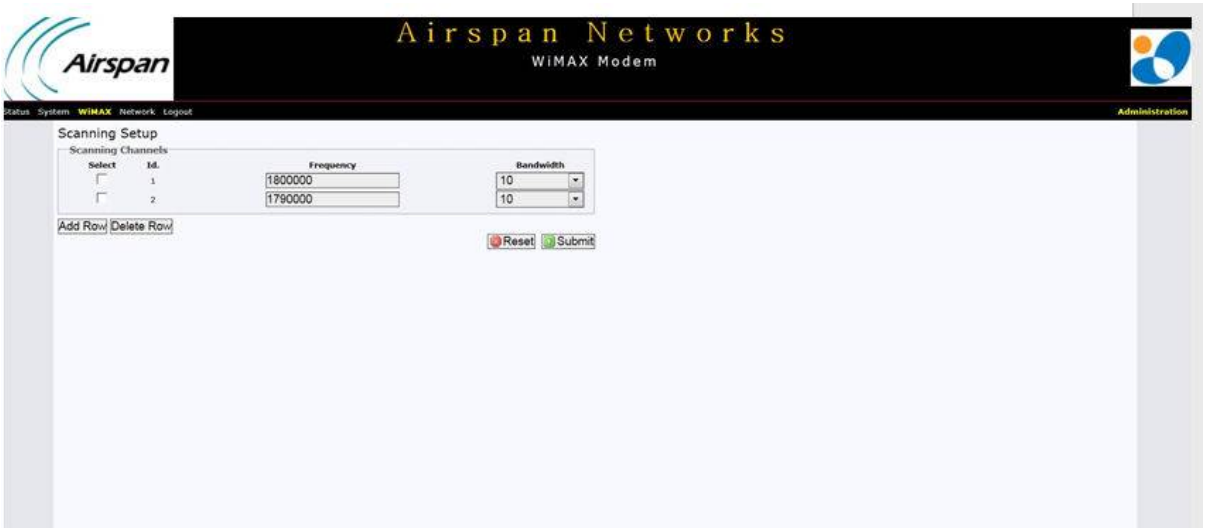

Figure 14 - WiMAX - Scanner - Channels

13.1.1 Channels

The Channels page lists all the scanning channels that are stored in the channel table along with channel status associated to the channel currently used to connect the CPE to a BS. Here one can add, remove, and edit channels in the channel table.

- **ID** - will display the active channel. This channel is used for the current wireless connection.
- **Frequency** - the channel frequency in KHz.
- **Bandwidth** - the channel bandwidth from the available list. Channel bandwidth - values are: 3.5MHz, 5MHz, 7MHz and 10MHz.

13.1.2 Scanning Setup

The ***Scanning Setup*** page enables you to add, delete and edit channels, as shown below:

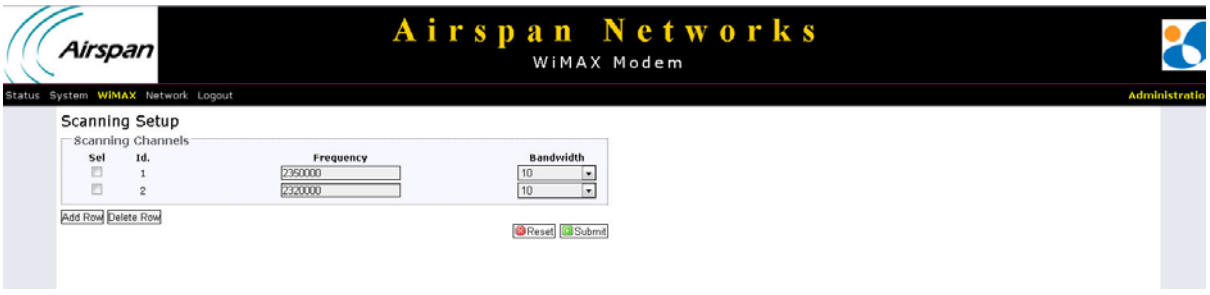

Figure 15 - Scanning Setup

To add a new channel:

1. Click **Add Row** - to add new Channel row. Id. Number will be added automatically in ascending order.
2. Enter **Frequency**
3. Enter **Bandwidth**
4. Click **Reset** to discard any changes
   Or
   Click **Submit** to save the changes.
5. Click **Save and Apply** to apply changes immediately

To delete a channel:

1. Check **Sel** - to select the Channel row to delete
2. Click **Delete Row** to remove a channel from the list

After Bandwidth range changes, reboot the system in order for the new configurations to take effect.

13.2 Authentication

The Authentication settings page of the Airstream 4001 F49-MRT management allows you to enable and define a method of authentication, mechanism and manage the certificates of the unit.

Additionally you can select one of five key encoding methods listed in “Phase 2”. Identity, username, and password should be entered with respect to the BS, if authentication is required.

Note: PEM (Privacy Enhanced Mail, Base64 encoded DER certificate) is the only certificate format supported.

To set Authentication:

1. Click on **WiMAX** to open the drop down list and choose the ***Authentication*** sub-option.

Figure 16 - WiMAX - Authentication

13.2.1 Authentication Status

Enable and define Authentication type.

Note: TTLS = EAP-TTLS and TLS = EAP-TLS

To select type of Authentication:

2. Click on the **Authentication Type** drop down list and choose either:
   - TTLS - to enable EAP-TTLS Authentication
   - TLS- - to enable EAP-TLS Authentication
   - None - to disable Authentication

For EAP-TTLS Authenication:

a. Check **Use Configured Outer ID** - Identity can be either:
   - o Generated randomly (unchecked)
     or
   - o Manually defined, check **Use Configured Outer ID**

b. Define the Password

c. Define the Username

d. Outer ID - displayed automatically when Use Configured Outer ID is checked

e. Define the Realm

f. After changes, reboot the system in order for the new configurations to take effect

For EAP-TLS upload the certificate to the device:

a. Configure the FTP server information in the Software download screen, including: Username, Password and Server.

b. Return to the Authentication screen, fill in the certificate file name in the “Cert File name” field, and click **Upload Cert**.

c. Next fill in the private key file name in “Cert File name” field, and click **UploadKey**

d. Finally fill in the root certificate file name in “Cert File name” field and click **UploadRoot**

14 Network

The ***Network*** page of the Airstream 4001 F49-MRT management enables you to configure Bridge mode or Router mode.

To access the Network page:

1. Click **Network** to navigate to the Networking page.
2. Choose the desired sub-option from the drop-down list.

14.1 Mode (Router/Bridge) Configuration

To access the Mode (Router/Bridge) page:

1. Click on **Network** to open the drop down list and choose the ***Mode*** sub-option.

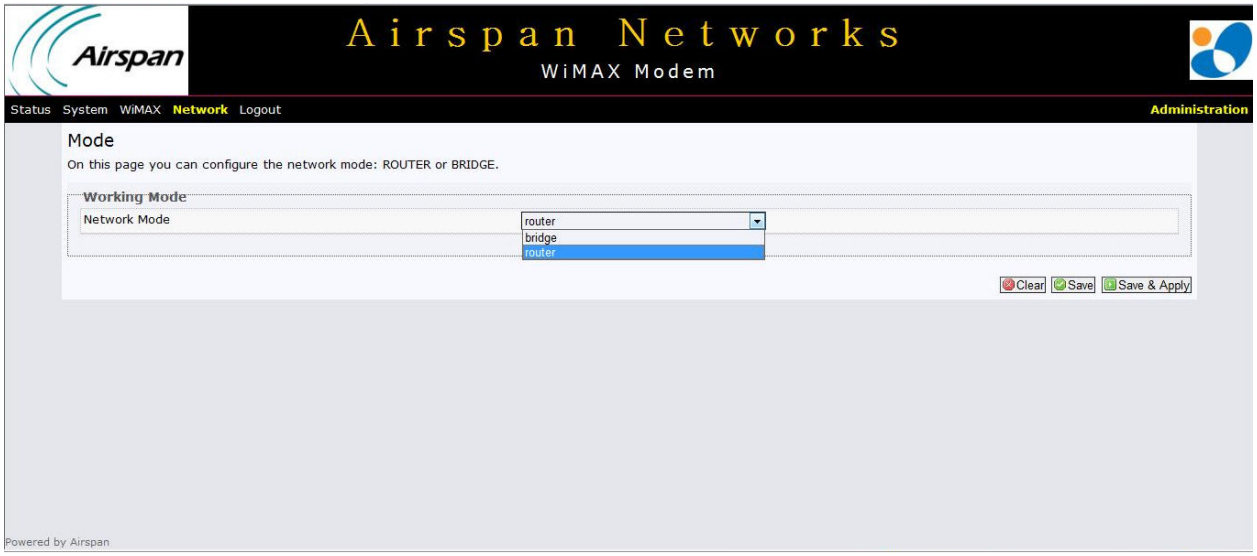

Figure 17 - Networking - Bridge mode

14.1.1 Router Mode - WAN IP Address

To configure the Router Mode page:

2. Select **Router Mode** - to enable Router Mode.

If the network requires CPE WAN address to be allocated dynamically (by the network), then choose DHCP option. Else - choose static IP configuration. The “Protocol” parameter controls the mode:

3. Select **Protocol.**

If Static IP is chosen, then configure the following parameters:

4. Enter **IPv4 address**.
5. Select **IPv4 Netmask**.
6. Enter **IPv4 Gateway**.

Once finished:

7. Click **Clear** to discard any changes.
   Or
   Click **Save** to save the changes.
8. Click **Save & Apply** to save changes. To apply immediately a Reset is required.

14.1.2 Bridge Mode - WAN IP Address

To configure the Bridge Mode page:

1. Select ***Bridge Mode*** - to enable Bridge mode.

If the network requires CPE WAN address to be allocated dynamically (by the network), then choose DHCP option. Else - choose static IP configuration. The “Protocol” parameter controls the mode:

2. Select **Protocol.**

If Static IP is chosen, then configure the following parameters:

3. Enter **IPv4 address**.
4. Select **IPv4 Netmask**.
5. Enter **IPv4 Gateway**.

Once finished:

6. Click **Clear** to discard any changes.
   Or
   Click **Save** to save the changes.
7. Click **Save & Apply** to save changes. To apply immediately a Reset is required.

Examples:

WAN IP addressing using DHCP:

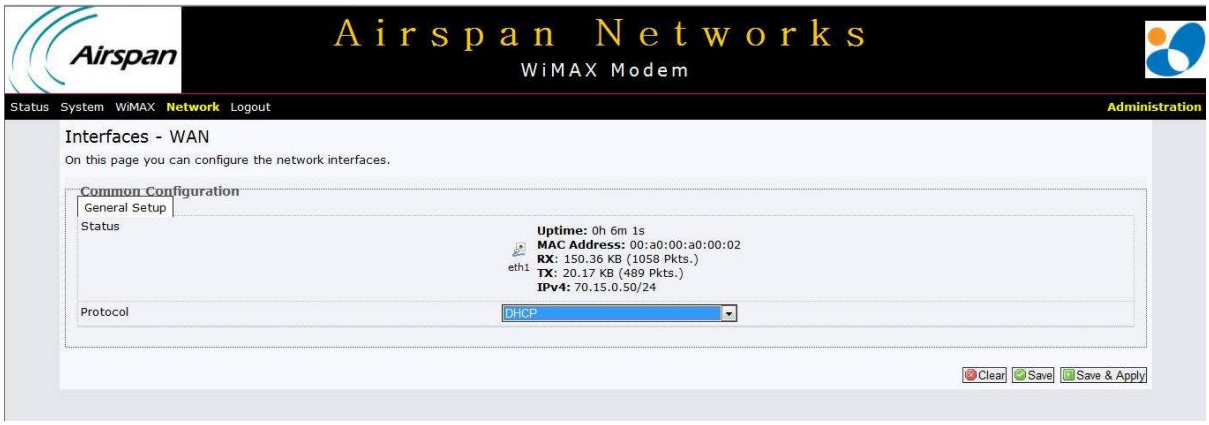

Figure 18 - WAN DHCP

WAN IP addressing using Static IP:

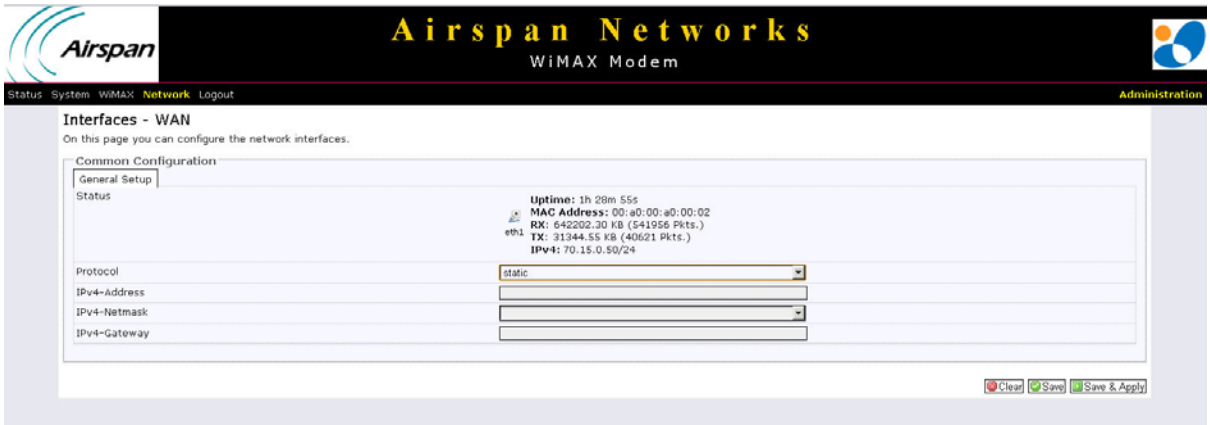

Figure 19 - WAN Static IP Configurations

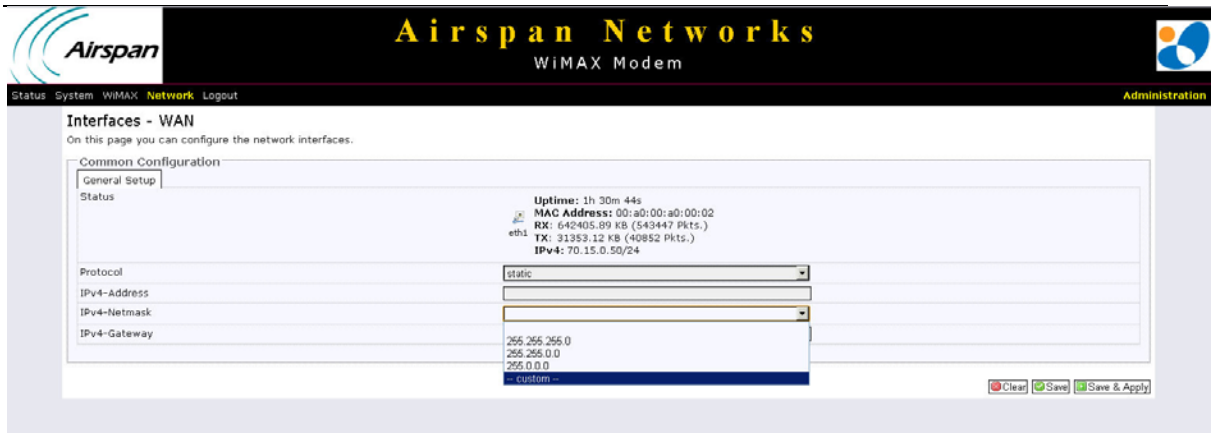

Figure 20 - WAN Static IP Mask Options

14.1.3 LAN IP Configuration

Only Static IP configuration should be used for LAN connection.

LAN Static IP addressing

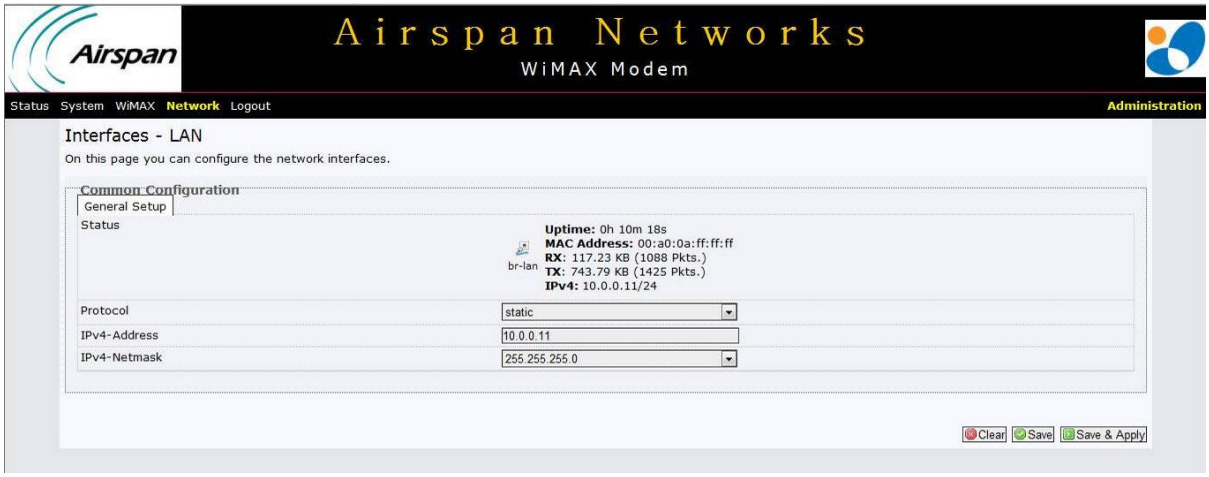

Figure 21 - LAN Static

14.2 DMZ

The ***DMZ*** (Demilitarized Zone) page is used to allow a single computer on the LAN to be accessed from the Internet

Note: Configuration of DMZ is only applicable in Router Mode.

Note: Confirm the PC that is configured as the DMZ has CPE IP as its default gateway.

To access the DMZ page:

1. Click on **Network** to open the drop down list and choose the ***DMZ*** sub-option.

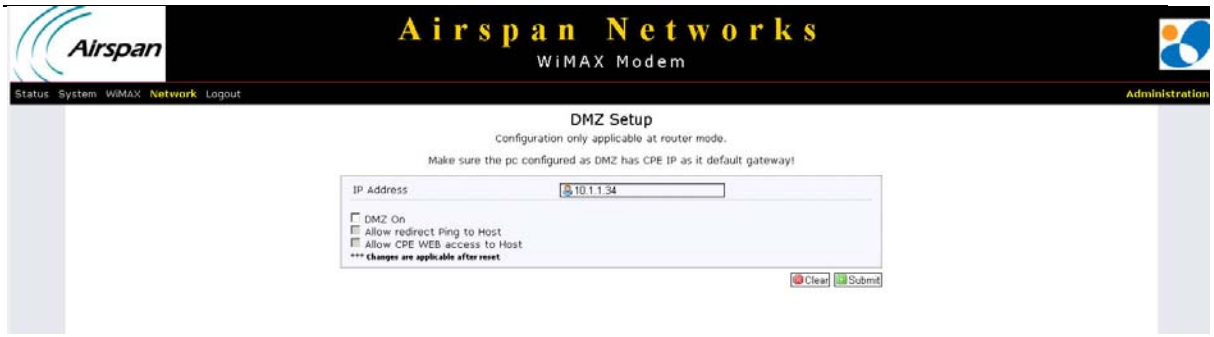

Figure 22 - DMZ

2. Enter the IP address of the computer connected to the CPE's LAN. The IP address should be on the same subnet as CPE's LAN subnet
3. Check **DMZ on** - to enable DMZ
4. Check **Allow redirect Ping to Host** - to enable pinging to the PC behind the CPE
5. Check **Allow CPE WEB access to Host** - to enable web access to the PC behind the CPE

14.3 WiFi

Note: Full WiFi support is currently under development and is planned for the near future.

Note: In the current version, the default WiFi parameters are not configurable and are displayed on the Network Status page as read-only

The default WiFi parameters displayed on the Network Status page (read-only) are:

- WiFi enabled
- SSID: AS_MRT
- Security disabled
- Interface IP:10.2.2.1, subnet mask 255.255.255.0
- DHCP server

To access the WiFi page:

1. Click on **Network** to open the drop down list and choose the ***Interfaces - WiFi*** sub-option.

Figure 23 - WiFi

15 Logout

To quit the Airstream 4001 F49-MRT at the end of a session or for maintenance.

- Click **Logout**. You will be re-directed to the Login page.

16 Reboot

Some configuration settings require that you restart the unit to apply new parameter settings to the device, such as upgrading the software version. In order for upgrades and/or other changes to take effect the CPE must be rebooted, as shown below:

Figure 24 - Airstream 4001 F49-MRT - Reboot

To perform a Reboot

1. Click **Reboot**. A confirmation warning is displayed.
2. Click **Perform reboot**. A warning is displayed, “Please wait: Device rebooting…”.

Note: After system reboots, logging-in is required.

17 Appendix

17.1 Glossary of Terms

BPSK	Binary Phase Shift Keying
BS	Base Station
BWA	Broadband Wireless Access
CID	Connection Identifier Number
CPE	Customer Premises Equipment (interchangeable with ST)
dB	Decibel
dBm	Power ratio in dB (decibel) of the measured power referenced to one milliwatt
DC	Direct Current
DL	Downlink
DVR	Digital Voice Recorder
FDD	Frequency Division Duplex
FEC	Forward Error Correction
FTP	File Transfer Protocol
GHz	Gigahertz. One GHz represents 1 billion cycles per second
HFDD	Half-Duplex FDD
Hz	Hertz
IAD	Integrated Access Device
IDU	Indoor Unit (i.e. SDA-1 Type II, SDA-4S Type II, or SDA-4S/VL Type II)
IP	Internet Protocol
ISP	Internet Service Provider
LAN	Local-Area Network
MAC	Media Access Controller. The next layer up from the PHY.
Mbit/s	Megabits per second
MHz	Megahertz (one million cycles per second)
MIB	Management Information Base
MRT	Mobile Radio Terminal
NLOS	Non Line-of-Sight radio propagation path
ODU	Outdoor Unit (i.e. ProST)
OFDM	Orthogonal Frequency Division Multiplexing
QAM	Quadrature Amplitude Modulation
QoS	Quality of Service, which is used to specify level of data throughput
QPSK	Quadrature Phase Shift Keying

RF	Radio Frequency
Rx	Receive
SDA-4S	Convenient term for either the SDA-4S Type II or SDA-4S/VL adapters
SF	Service Flow
SME	Small and Medium-sized Enterprise
SNMP	Simple Network Management Protocol
SNR	Signal-to-Noise Ratio
ST	Subscriber Terminal (interchangeable with CPE or SS)
TDMA:	Time Division Multiple Access. Technology for delivering digital wireless service using time-division multiplexing (TDM)
Tx:	Transmit
UGS	Unsolicited Grant Service. Used to provide fixed bandwidth slots on the uplink for an ST to transmit data at regular intervals. The bandwidth should be used by the UGS SF, however the final decision of which SF (if any) uses the bandwidth slot is made by the ST.
WiMAX	WiMAX is a wireless industry coalition whose members are organized to advance IEEE 802.16 standards for broadband wireless access (BWA) networks.

17.2 Revision History

Revision	Originator	Date	Description
Rev A	M. Falik	07-2012	Initial document
Rev B	M. Falik	04-2013	Additions and updates

17.3 Contact Information

Customer Service Help-Desk for customer service emergency

Airspan Networks have introduced the Airspan Tracker application to enable prompt and efficient Customer Support services.

If you do not have an Airspan Tracker account, please obtain login credentials by filling-in the form in the main page "Register New Account".

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