

Certification Exhibit

FCC ID: Y75WINTLAW

FCC Rule Part: 15.247

ACS Report Number: 10-0313.W03.11.A

Manufacturer: BAE Systems Model: R3T-S-700

Manual



Date: Jan 19, 2011 Revision: I CAGE Code: 0D0D0

R3T-S-700 Users Guide Jan 19, 2011

Prepared For: General Distribution

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DUNS 19-495-6751

Total number of pages: 87

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FCC General Statements and Warnings:

<u>Warning</u>: Changes or modifications to this device not expressly approved by **BAE Systems** could void the user's authority to operate the equipment.

<u>NOTE</u>: 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 in a residential installation. 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 radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

<u>NOTE</u>: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter."



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1.0 802.16 SYSTEM OVERVIEW AND INTERCONNECTS

The functional block diagram of the 802.16 System is shown in Figure 1. The R3T-S-700 radio system is comprised of the R3T-S-700 Indoor radio and the Outdoor RF Unit. Table 1 provides a definition of the system interfaces. The RF Outdoor unit can be located up to 100 feet from the indoor unit. The system is designed to operate with up to 10 db cable loss between the Indoor and Outdoor units.



Figure 1 : 802.16 System Block Diagram

No.	Interface	Connector	Direction	Description
E1	Ethernet	RJ-45	Input/Output	10/100BaseT Ethernet Network Connector
	Control/Data			
E2	RF -Radio	RX TNC	Input/Output	Input: RF Rx IF Input 5.8 or 4.6 GHz
		Female		Output: 15VDC prime power for RF Unit
E3	RF -Radio	Tx TNC	Output	RF Tx IF Output 5.8 or 4.6 GHz. TTL Signal For RF Unit T/R
		Female		Control: HIGH, 2.4V MIN TO 5V MAX; LOW, 0.7 VOLTS
				MAX TO 0 V MIN.
E4	Power	AC Plug	Input	110 VAC Power Source –Less than 1 Amp
E5	RF - RF Unit	J2 Type N	Input/Output	Output: RF Unit Rx out Port
		Female		Input: Primary 15VDC
E6	RF – RF Unit	J1 Type	Input	RF Module Tx in Port. TTL Signal : HIGH, 2.4V MIN TO 5V
		TNC		MAX; LOW, 0.7 VOLTS MAX TO 0 V MIN.
		Female		
E7	RF – RF Unit	J3 Type N	Input/Output	Antenna Port (Tx/Rx)
		Female		Omni or Directional Antenna
E8	Serial Control	DB9	Input/Output	RS-232 Serial Connection – User Port SW Maintenance
	Interface			
E9	Serial Control	DB25	Input/Output	RS-422/232 Serial Connection supporting GPS 1PPS, T/R
	Interface			Switch

Table 1 – R3T-S-700 Interfaces

Table 1 describes the interface of the R3T-S-700 System. Connections between the Indoor and Outdoor units should be made using low loss 50 ohm coaxial cable. The RF unit includes a solar shield and can be mounted to a mast as shown in Figure 2 below. Most omni-directional antenna designs can be mounted directly to the RF Unit Antenna Port N-Type connector (J3)



Figure 2 – Typical RF Outdoor Unit Mount to Mast





Figure 3 shows a typical radio setup using an omni antenna

2.0 1U RADIO

This unit is a COTS 1U Radio (1UR) that contains 802.16+ functionality. This unit mates with BAE supplied RF Unit and antenna system. With the appropriate external powerhead and antenna systems, it operates at both 5.8 GHz and 4.6 GHz ranges.

Figure 4. COTS 802.16 1U Radio (1UR)

2.1 1UR Features

- All the features and advantages of an IEEE 802.16 platform.
- Simple yet powerful GUI for radio configuration.
- Additional features from Aeronix 802.16+ MAC and PHY.
 - Designed for 2000 mph Doppler
 - Designed for 70 Mile Range, 72 Mbps Burst Rate (QAM64)
 - TRANSEC (v2.0 and above)
 - Designed for vibration tolerance
 - o Extra Modulation/Encoding options for rotor aircraft
 - Dual Frequency (supports 5.8 GHz and 4.6 GHz).
 - IPV6 Capable
 - Linux Based MAC
 - Software Defined Radio
 - Evolution Path to 802.16e

2.2 UR Installation and Startup Procedures

Cable Connection

With unit power OFF, connect the cables as described and shown below:

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1) Connect the RF Receive Cable to the 1U radio rear panel RX port, as shown in Figure 5.

WARNING!

Unit power must be OFF.

2) Connect the RF Transmit Cable to the 1U radio rear panel TX port, as shown in Figure 6.

WARNING!

Unit power must be OFF.

- 3) Plug in the RJ-45 Network Connector into the RJ-45 ETHERNET receptacle on the 1U chassis rear panel, as shown in Figure 7.
- 4) Plug supplied Power Cable female end into 1U chassis rear panel POWER receptacle as shown in Figure 8.
- 5) Plug supplied Power Cable male end into correct power source.
- 6) Power-on the unit by pressing the power switch on the 1U chassis front panel.

Figure 5. 1UR Receive Connection

Figure 6. 1UR Transmit Connection

Figure 7. 1UR AX100617-00x Network Connection

Figure 8. 1UR Power Connection

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7) Connect to the appropriate 9-pin Cable to the 1U chassis front panel USER 1 port, as shown in Figure 9.

Figure 9. 1UR User Port Connection

Startup – BS, SS, Bridging, Non-Bridging

Enter the following commands from a terminal connected to the user1 port. The terminal should be connected serially at Baud Rate = 115200, 8-N-1, and no flow control.

There are four base startups which are Base-station or Subscriber-station running in either bridging mode or non-bridging mode. To start in the modes perform the following:

- 1) >cd /mnt/jffs2
- 2) To run the system as a Base station in bridging mode: >cp startShimBridgeBS start
- 3) To run the system as a Base station in non-bridging mode: >cp startShimBS start
- 4) To run the system as a Subscriber station in bridging mode: >cp startShimBridgeSS start
- 5) To run the system as a Subscriber station in non-bridging mode: >cp startShimSS start

Once you have copied the appropriate script to the 'start' script perform one of the following modifications.

Startup Bridging Mode

Enter the following commands from any console connected to the 802.16 radio.

- 1) >cd /mnt/jffs2
- 2) Vi the start* file. The following (or similar) results will be displayed on the console.

```
-
.
./mnt/jffs2/brctl addbr mybridge
./mnt/jffs2/brctl addif mybridge eth0
./mnt/jffs2/brctl addif mybridge aend0
#This is where you need to set the network address so that you can run
the GUI
ifconfig mybridge 192.168.100.1 netmask 255.255.255.0
cd /mnt/jffs2
-
-
-
```

- 3) Modify the "ifconfig" line to have the desired IP address.
- 4) Reboot at the console prompt: >reboot

Startup IP Mode

Enter the following commands from any console connected to the 802.16 radio.

- 1) >cd /mnt/jffs2
- 2) Vi the start* file. The following (or similar) results will be displayed on the console.

insmod macss.ko subscriberNumber=1

```
-
ifconfig eth0 192.168.100.1
-
route add -net 192.168.1.0 netmask 255.255.255.0 gw 10.1.1.1 dev aend0
```

- 3) Modify the "ifconfig eth0" line to have the desired IP address.
- 4) If this is for a subscriber change this line 'insmod macss.ko subscriberNumber=1' to = the desired subscriber number.
- 5) Modify the "route add" line to have the appropriate -net address. If you're on the base add the subscribers, if you're on the subscriber add the base-stations.
- 6) Reboot at the console prompt: >reboot

3.0 1UR Physical I/O

The front panel of a COTS 1U 802.16+ radio is shown in Figure 10. The rear panel is shown in Figure 11. Indicated controls, connectors, ports, and indicators are described below.

- (1) **1UR LED Base Indicator -** The 'BASE' LED is illuminated continuously when the radio is configured as a Base-Station. The 'Base' LED flashes at 1 second intervals when the radio is configured as a Subscriber-Station. When the LED is not illuminated, the power is off.
- (2) **1UR LED Synchronization Indicator** The 'SYNC' LED flashes on a Subscriber-Station when it has received maps from the Base-Station (sync) and it is illuminated continuously when the Subscriber-Station has registered with the Base-Station. The 'SYNC' LED is off on the Base-Station when no Subscriber-Stations are registered and is illuminated continuously when Subscriber-Stations are registered.
- (3) **1UR LED Receive Indicator -** The 'RCV' LED is illuminated when a unit is receiving frames. It is sampled on a 1 second interval.
- (4) **1UR LED Transmit Indicator -** The 'XMT' LED is illuminated when a unit is transmitting frames. It is sampled on a 1 second interval.

5

1UR PORT – User 1 Port - The User 1 port is a standard 9 pin female connector that supports RS-232 signals (Baud = 115200, 8-N-1 no flow control) with the following pin assignments:

	Table 3.0-1. 1UR User 1 Port Pinout			
Pin	Signal Name	Signal Description		
01				
02	RS232_TX1A	RS232 Output		
03	RS232_RX1A	RS232 Input		
04				
05	RS232_RTN2	Sig_Gnd		
06				
07				
08				
09				

6

(7)

1UR SWITCH – Power On/Off Switch and Indicator - This power switch turns the radio On and Off. The switch is illuminated when the power is turned On and not illuminated when the power is turned Off.

1UR CONNECTOR – AC Power Connector - The unit requires 120V AC @ 60Hz power. It accepts the supplied standard IEC-430 AC power cord.

8

1UR PORT – User 2 Port - The User 2 port is a standard 25 pin female connector that supports RS-232/RS-422 maintenance debug, transmit receive switch, 1PPS, and reserved signals with the following pin assignments:

Table 3.0-2. 1UR User 2 Port Pinout				
Pin	Signal Name	Signal Description		
01	RS232/RS422TX2A	RS232 / RS485 / RS422- Output		
02	RS232/RS422RX2A	RS232 / RS485 / RS422- Input		
03	RS485 / RS422+_TX2B	RS485 / RS422+ Output		
04	RS485 / RS422+_RX2B	RS485 / RS422+ Input		
05				
06	RS232_RTN	Sig_Gnd		
07				
08				
09 [*]	TR_SW1+	RS422 Output		
10 [*]	TR_SW1-	RS422 Output		
11				
12	RSVD (TR_SW2+)	RS422 Output		
13	RSVD (TR_SW2-)	RS422 Output		
14				
15	RSVD (ZEROIZE+)	No Connect		
16	RSVD (ZEROIZE-)	No Connect		
17				
18				
19				
20	1PPS_TTL	50 Ohm TTL Input - Daisy Chain		
21	1PPS_TTL	50 Ohm TTL Input		
22	1PPS_RTN	Sig_Gnd		
23	1PPS_RTN	Sig_Gnd - Daisy Chain		
24	1PPS_TERM_IN	Termination Jumper		
25	1PPS_TERM_OUT	Termination Jumper		

Table 3.0-3. 1UR User 2 Port TX Enable Specifications						
	Parameter	Test Conditions	Min	Typ ¹	Max	Unit
Vo	Open-circuit output voltage	A or B, No load	0		+5V _{CC}	V
	Steady-state differential output	No load (open circuit)	3.3	4.2	$+5V_{CC}$	V
1 • 00(33) 1	voltage magnitude	$R_L = 54 \Omega$	1.8	2.5		
$\Delta \mid V_{OD(SS)} \mid$	Change in Steady- state differential output voltage between logic states		-0.1		0.1	V

¹ All typical values are at $V_{CC} = 5V$ and $25 ^{\circ}C$

Figure	12.	TR	SW	Timing
riguit	14.	T T V	_0 ''	1 mmg

Marker	Time (us)	Description
t1	1.5 us	Time from Tx Enable Active to start of Tx
t2	0.5 us	Time from Transmit Out Complete to Tx Enable Inactive
t3	1.5 us	Time from Tx Enable Inactive to start of Rx Window

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(10)

- **1UR CONNECTOR Tx RF / Tx Enable Connector** This female TNC connector is connected to the 802.16 RF Transmit system. +5 DC Power is present on center pin.
- **1UR CONNECTOR Rx RF Connector-** This female TNC connector is connected to the 802.16 RF Receive system. +15V, 4 Amps is present on center pin.
- (1) **1UR CONNECTOR Ethernet Connector -** The Ethernet connector is a standard 10/100/1000BaseT RJ45 receptacle. It has the following pin assignments which conform to the Ethernet specification:

	Table 3.0-4. 1UR Ethernet RJ45 Connector Pinout			
Pin	Signal Name	Signal Description		
01	ETH_CHA+	10/100/1000BaseT		
02	ETH_CHA-	10/100/1000BaseT		
03	ETH_CHB+	10/100/1000BaseT		
04	ETH_CHC+	10/100/1000BaseT		
05	ETH_CHC-	10/100/1000BaseT		
06	ETH_CHB-	10/100/1000BaseT		
07	ETH_CHD+	10/100/1000BaseT		
08	ETH_CHD-	10/100/1000BaseT		

4.0 SYSTEM CONFIGURATION

This simple yet powerful GUI uses uncomplicated intuitive screens to allow the average 802.16 user:

- Configure the system for their network
- Take the system operational
- Perform maintenance

The GUI screens and all their respective elements are described in the following subsections.

To get to the main page, types the following URL: http://<ip address of the radio>/

A step-by-step setup example for bridging mode and non-bridge mode are provided in section 5 of this document. The bridging is the preferred method due to enhanced capabilities such as multicast and it does not require manual route configuration.

The recommended browsers to use are Internet Explorer Version 7 and Mozilla Firefox.

Base-Station Login Page

The base station requires a login for access to configuration screens. The base station contains one crypto officer login and one user login. Access to certain configuration items is restricted for the user login.

AERONIX Aeronix 802.16 Tactical Radio		
Aeronix 802.16 Tactical Radio		

	Table 0-1. Base Station Login Page			
	Link	Description		
1	Login	Location to provide the username and password		

Base-Station Home Page

The base station home page contains hardware and software version information. It also contains network address information.

	Table 0-2. Base Station Home Page			
	Link	Description		
1	Home	HTML Link to the Home page that displays network access information as well as the hardware and software version information.		
2	SW Config	HTML Link to the software configuration page; the configuration page contains the needed tools to define and configure the external systems interaction with the 802.16 radio.		
3	Radio Control	HTML Link to the Radio Control Page; the radio control page contains channel, initial ranging and TRANSEC parameters. The user has limited capabilities for		

	Table 0-2. Base Station Home Page								
	Link	Description							
		TRANSEC and keying.							
4	Service Flow	HTML Link to the Service Flow page; the service flow page displays the current service flows within the node and the current state of each service flow; this page is used to enable or disable the ARQ.							
5	Registered SS	HTML Link to the Registered SS page; the registered SS page displays the current subscribers registered within the node; this is a display page only with no actions.							
6	ACM Params	HTML Link to the parameters to adjust the automatic changing of modulations. This screen is only accessible to the crypto officer.							
7	Status	HTML Link to the Status page; the status page contains operating status of the radio.							
(%)	Bit Status	HTML Link to the Bit Status results page. This page provides results of the test executed at startup.							
9	Maintenance	HTML Link to the Maintenance; the maintenance page contains information for debugging and antenna pointing.							
(10)	Network Status	HTML Link to the Network Status page; this page provides transmit and receive status for the Ethernet interface.							
(11)	Power Settings	HTML link to the Power Settings page; this page provides the capability to enter gain settings and cable loss settings for ranging purposes.							
(12)	Test	HTML Link to the Test page for running either a CW test or BER test.							
(13)	Admin	HTML Link to the administration page. This page provides TRANSEC key selection and password changing capabilities. The user login does not have access to the TRANSEC key selection functions.							
(14)	Software Update	HTML Link to the software update page. This page provides the capability to update the software to the crypto officer only.							
(15)	Version	HTML Link to Version page; the version page contains the hardware and software version information.							
(16)	Save Settings	Save Settings control key will save the current selected values in each GUI screen to the Base Station database. Additions, modifications or deletions are not permanently saved to the database unless this control key is selected.							
(17)	Contact	HTML Link to the Contact Page; the contact page contains Aeronix Inc. contact information.							
(18)	Logout	The logout control key logs the current user out of the system.							

Base-Station Software Configuration Page

Non-Bridging Example

🍠 🕑 🔻 🙋 http	p://10.80.4.4	5/80216d/Configurati	on.htm							¥ + X	Live Se	arch
🕸 🌈 0.0.0.0): Base Station	n Configuration								🙆 • (a - 🖶	• 🔂 <u>P</u> age 🕶 🌾
		Aeronix 8()2 16 Tacti	cal Radi	io							
	- Service			vai ivaui								
D	Index	Namo	Schodulo Typo	Max Pato	Min Pato	Latoney (meac)	Priority	littor (meac)				
Base	1	initial	Best Effort	5885 Khos	1 Khns	S0	1	20				
Station	2	little	Best Effort	100 Kbps	1 Kbps	80	1	20				
	3	middle	Best Effort	2500 Kbps	1 Kbps	80	1	20				
Home	4	BE MAX	Best Effort	50000 Kbps	1000 Kbps	80	1	80				
S/W Config	5 B	E MULTICAST	Best Effort	6096 Khns	3657 Kbps	80	1	80				
Radio Control	ADD F					CANCEL	1	00				
Service Flows	1000				VE ENTRY	. O/ MOLL	J)			
Registered SSs	- Provis	ioned SFs										
ACM Parame	SF Inde	x MAC	Service C	lass Directi	ion Sta	te						
ACOTTATALLS	4	00-61-65-6E-6	54-01 BE MA	X Downstr	eam Provisi	ioned						
Status	5	00-61-65-6E-6	54-01 BE MAX	X Upstrea	am Provisi	oned						
Bit Status	6	00-61-65-6E-6	54-02 BE MAX	X Downstr	eam Provisi	oned			(2)			
Maintenance	7	00-61-65-6E-6	54-02 BE MAX	X Upstrea	am Provisi	oned						
Network Status	ADD F		DIFY ENTRY	REMO	VE ENTRY	CANCEL	l I					
Power Settings							J)			
Tect	Class]	Rules							1			
1031		Addres	ss Mode: MAC			IPV4 MA	C					
Admin	Index S	F Fwd Src	MAC	Src Mask	Des	t MAC	 Dest MA	SK				
SW Update	4 4	1 N 00-61-65	-6E-64-00 FE-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-01 FF-1	F-FF-FF	-FF-FF				
Version	5 5	5 N 00-61-65	-6E-64-01 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-00 FF-1	F-FF-FF	-FF-FF				
	6 6	5 N 00-61-65	-6E-64-00 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-02 FF-1	F-FF-FF	-FF-FF				
Save Settings	7 7	7 N 00-61-65	-6E-64-02 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-00 FF-I	F-FF-FF	-FF-FF	(3)			
	8 4	4 Y 00-61-65	-6E-64-01 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-02 FF-I	F-FF-FF	-FF-FF				
Contact	9 5	5 N 00-61-65	-6E-64-01 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-02 FF-1	F-FF-FF	-FF-FF				
	10 6	5 Y 00-61-65	-6E-64-02 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-01 FF-1	F-FF-FF	-FF-FF				
Logout	11 7	7 N 00-61-65	-6E-64-02 FF-FI	F-FF-FF-FF-	FF 00-61-6	5-6E-64-01 FF-1	F-FF-FF	-FF-FF				
	ADD F		DIFY ENTRY	REMO	VE ENTRY	CANCEL]					
							J)			

Bridging Example

🖉 10.1.1.2: Base St	ation Con	figuration - Window	ws Internet Explo	rer								
🕘 🗸 🖉 http:	//10.1.1.2/8	80216d/Configuration.ht	m							~ 49	× Live S	Jearch
😭 🏟 🙋 10.1.1.2	Base Statio	n Configuration) · 6	- 🖶 • 🔂 🛛
	1IX.₂	Aeronix 8	802.16 Tac	tical Ra	dio							
	C Servi	ce Classes										
Base	Index	Name	Schedule Type	Max Rate	Min Rate	Latency (msec)	Priority	Jitter (msec)				
Station	1	initial	Best Effort	5885 Kbps	1 Kbps	80	1	20				
	2	little	Best Effort	100 Kbps	1 Kbps	80	1	20				
Home	3	middle	Best Effort	2500 Kbps	1 Kbps	80	1	20	(1)			
S/W Config	4	BE_MAX	Best Effort	50000 Kbps	1000 Kbps	80	1	80				
Radio Control	5	BE_MULTICAST	Best Effort	6096 Kbps	3657 Kbps	80	1	80				
Sarrica Flows	ADD	ENTRY MOD	DIFY ENTRY	REMO	/E ENTRY	CANCEL)			
Service Flows	_											
Registered SSs	SE Ind	isioned SFs	Somioo C	lace Directi	on Stat							
ACM Params		00.61.65.6E.	Service C	X Downstr	aam Drovisie	e pred						
Status	5	00-61-65-6E-6	54-01 BE_MA	X Unstre	am Provisio	oned						
Bit Status	6	00-61-65-6E-6	54-02 BE MA	X Downstr	eam Provisio	oned			>(2)			
Maintenana	7	00-61-65-6E-6	54-02 BE_MA	X Upstre	am Provisio	oned						
Maintenance	ADD	ENTRY MOD	DIFY ENTRY	REMO	/E ENTRY	CANCEL						
Network Status		(
Power Settings	Class	Rules										
Test		Addre	ess Mode: MAC			IPV4	MAC					
Admin	Index	SF Fwd Src	MAC	Src Mask	D	est MAC	Dest	MASK				
	8	4 N 00-19-B9	9-7F-7F-D2 FF-	FF-FF-FF-FI	F-FF 00-19	-B9-7E-F6-2F F	F-FF-FF	-FF-FF-FF	>(3)			
SW Update	9	5 N 00-19-B	9-7E-F6-2F FF-	FF-FF-FF-FI	F-FF 00-19	-B9-7F-7F-D2 F	F-FF-FF	-FF-FF-FF				
Version	ADD	ENTRY MOD	DIFY ENTRY	REMO	/E ENTRY	CANCEL			ļ			

Table 0-3. Base Station Software Configuration Page									
	Field/Control	Description							
1	Service Classes	 Displays the service classes currently entered which define the scheduling services for the network. Add Entry Button allows for adding a new service class entry. Click on the button and enter the fields. When the fields are complete click on the add button to the right of the entry fields. Modify Entry Button allows for modifying a service class entry in the table. Click on the button and then select the entry to modify by clicking on the modify button to the right of the entry line. When 							

	Table 0-3	3. Base St	ation Software Configuration Page
	Field/Control		Description
			 modifications are complete click the save button to the right of the entry line. Remove Entry Button allows for removing a service class entry from the table. Click on the button and then click on the remove button to the right of the entry line to remove. Cancel Button allows for canceling the current add or modify request.
			 Entry fields: Index – the index into the service class table for the entry. This field is not entered by the user. Name – the user defined name for the service class. Schedule Type – the scheduling type for the service class. The entries are defined in a drop down by the system. Max Rate – the maximum data rate for the service class in Kbps. Min Rate – the minimum data rate for the service class in Kbps. Latency – the latency of the service class. This is only used as a guideline for pertinent schedule types. Priority - the priority of the service class. This is only used for the real time and non-real time scheduling types. Seven is the highest priority. Jitter – the jitter of the service class. This is only used as a guideline for pertinent schedule types.
2	Provisioned Flows	Service	 Displays the provisioned service flows currently entered for the network. The service flows define the service class for the uplink and downlink of each subscriber station in the network. Add Entry Button allows for adding a new provisioned service flow entry. Click on the button and enter the fields. When the fields are complete click on the add button to the right of the entry fields. Modify Entry Button allows for modifying a provisioned service flow entry in the table. Click on the button and then select the entry to modify by clicking on the modify button to the right of the entry line. When modifications are complete click the save button to the right of the entry line. Remove Entry Button allows for removing a provisioned service flow entry from the

	Table 0-3. Base St	ation Software Configuration Page
	Field/Control	Description
		table. Click on the button and then click on the remove button to the right of the entry line to remove.Cancel Button allows for canceling the current add or modify request.
		 Entry fields: SF Index – unique index for the service flow. Valid entries are 3-255. The values of 1,2,3 are reserved. MAC – the IEEE 802.16 MAC address of the subscriber station. Service Class – a drop down selection for the service class for the service flow. Direction – the direction of the service flow. Downstream is BS to SS and upstream is SS to BS. State – the state of the service flow (display only).
3	Class Rules	 Displays the classifier rules currently entered for the network. The classifiers define the paths that traffic is allowed to flow in the network. Add Entry Button allows for adding a new class rule for the network. Click on the button and enter the fields. When the fields are complete click on the add button to the right of the entry fields. Modify Entry Button allows for modifying a class rule entry in the table. Click on the button and then select the entry to modify by clicking on the modify button to the right of the entry to modify by clicking on the entry line. When modifications are complete click the save button to the right of the entry line. Remove Entry Button allows for removing a class rule entry from the table. Click on the button and then click on the remove button to the right of the entry line. Remove Entry Button allows for removing a class rule of the entry line. Remove Entry Button allows for removing a class rule on the nois for canceling the current add or modify request. Entry Fields: Index - the index into the classifier table for the entry. This field is not entered by the user. SF – the SF index that the classifier is associated. Defines the route for data traffic. Fwd – forwarding flag used to specify a downstream forwarding classifier. Forwarding classifier.

Table 0-3. Base St	tation Software Configuration Page
Field/Control	Description
	 with non-forwarding classifiers. For example, if using IP masks with the non- forwarders, one must also use the same mask with the forwarders. Forwarders define data traffic from a subscriber that should be forwarded to another subscriber. Src MAC - The source external network nodes Ethernet MAC address. This is the source of data packets. Src Mask - Mask to be applied to Source MAC field, allows you to open up a range of MAC addresses. Dest MAC - The destination external network nodes Ethernet MAC address. This is the destination of packets. Dest Mask - Mask to be applied to Dest Mask - Mask to be applied to Dest Mask - Mask to be applied to Dest MAC addresses.

Multicast Note:

• A service class for multicast data is automatically configured that defines the possible bandwidth for multicast messages. The maximum and minimum rate can be modified according to the expected multicast traffic of your system. The multicast service class cannot be deleted as multicast support is always on in the bridging configuration. Multicast is not currently supported in the non-bridging configuration.

Base Station Radio Control Page

🚱 🗣 🖻 http	://10.80.4.45/80216d/BSSystemControl.htm	🖌 🗲 🗙 Live Search
😭 🏟 🌈 0.0.0.0	Base Station System Control	🗿 • 🔊 · 🖶 • 🗗 Page •
Aeron	Aeronix 802.16 Tactical Radio	
Base	$\begin{array}{c} T_{X}/R_{X} \\ T_{X}/R_{X} \text{ Status: ON } & \end{array} \begin{array}{c} 1 \\ \end{array} \end{array} $	
Station	Set Allocation Set	
Home S/W Config	Down %: 50 50 % % 50 % 50 % 50 % 50 % 50 % 50 % 50 % 50 % 50 %	
Radio Control Service Flows	Channel Current Chan: 13 (5.785 GHz) Current co a gu Current co a gu C	
Registered SSs ACM Params	Channelization: 20 MHz © 20 MHz © 10 MHz (USA) © 10 MHz (Europe) Set	
Status Bit Status Maintenance	Tx Pwr Ctrl: -2.0 dB Tx Pwr Ctrl: -2.0 dB Set	
Network Status Power Settings Test Admin	Cable Length and Loss External Rx: 40 ft. (9 dB) External Rx: 40 ft. (9 dB) Antenna: 3 ft. (1 dB) Antenna Cable Loss: 3 ft. 4.6GHz cable (1 dB loss) Set	
SW Update Version	Transec	
Save Settings	Status: OFF Transec Enable On Off Current Eff. Key: 2 Key Key 2 Zeroize	
Logout		

Loading ...

	Table 0-4.	Base Station Radio Control						
	Field/Control	Description						
1	Tx/Rx Status	The Tx/Rx Status indicates if the user has selected the Tx/Rx control on or off.						
2	Tx/Rx On and Off Buttons	Buttons to select the Tx/Rx function to be turned on or off. When turned off the unit will not transmit or receive.						
3	Link Bandwidth Allocation	 The current link bandwidth allocation is shown in percentage of upstream and downstream allocation. Up % and Down % on the left displays the current allocation of the network. Link Bandwidth Allocation Slide Bar – method to adjust the allocation. The Down and Up percentages on each side of the slide bar displays the adjusted 						

	Table 0-4.	Base Station Radio Control
	Field/Control	Description
		 value. Set Allocation Button – changes the current allocation to the new settings displayed in the Down and Up boxes adjacent to the slide bar.
4	Channel / Channelization	 Displays channel information for the base station. Current Channel – displays the current channel of the base station. Channel (Freq) – drop down to choose a different channel for the base station. Set Button – changes the current channel of the base station to the channel selected by the channel (freq) drop down. Current Channelization – displays the current channelization – displays the current channelization of the radio. The base station and subscriber stations need to be configured for the same channelization. Channelization Selection – Allows the selection of the channelization. The 10MHz Europe is not currently enabled in the product.
5	Power Values	 Allows the user to adjust the transmit power of the radio. Tx Pwr Ctrl – the value on the left of the screen shows the current setting. The drop down on the right side of the screen allows the user to choose a different setting. Any grey value in the drop down is not currently supported in the product. Set Button – changes the transmit power control parameter to the chosen value from the drop down. BS Estimated EIRP – the value is an estimated EIRP based upon configuration settings and received RSSI readings.
6	Cable Length	 Allows the user to define certain cable length values. The choices are defined on the Power Settings configuration page by a privileged user. External Rx – the current cable length and loss defined in the system for the external receive cable. External Rx Cable Loss – drop down to choose the receive cable length and loss in dB for the external receive cable. Set Button – changes the external receive cable loss parameter in the radio.

	Table 0-4.	Base Station Radio Control
	Field/Control	Description
		 Antenna – the current cable length and loss defined in the system for the antenna cable. Antenna Cable Loss – drop down to choose the antenna cable loss parameter. Set Button – changes the antenna cable loss parameter in the radio.
7	Transec	 Displays the settings for Transec capability. Status - Displays whether Transec is on or off on the base station. Transec On/Off – buttons to turn Transec on or off. The crypto user is the only user that can turn Transec off. Current Effective Key – displays the key slot of the current effective key. The current effective key is selected on the Admin page by the crypto officer. Key – drop down to select a key slot to zeroize. Zeroize – button to initiate the zeroization of the key slot selected in the key drop down.

Base Station Service Flows

🖉 0.0.0.0: Base 9	Station S	Service	Flows - Windo	ws Internet E	xplorer									
🚱 🗸 🖻 http	://10.80.4	1.45/8021	.6d/BSServiceFlow	rs.htm								× 47 🗙	Live Sear	ch
🛊 🏟 🌈 0.0.0.0	: Base Sta	tion Servi	ce Flows									🙆 • 🖻	- 🖶 -	Page
Base Station	ase CHANGES TO ARQ Enabled WILL NOT GO INTO EFFECT UNTIL THE "Save Settings" BUTTON IS CLICKED AND THE SYSTEM IS REBOOTED!!! See Maintenance page for Reboot control.													
	Index	CID	Direction	State	Servic	e Class	Max S	ustained Rate	ARQ Enabled	3				
Home	1	0	Downstream	Active	ini	tial	120	0.000 Kbps						
S/W Config	2	0	Upstream	Active	ini	tial	72	.000 Kbps						
Radio Control	3	65297	Downstream	Active	BE_MUI	TICAST	609	6.000 Kbps			$\mathbf{)}$			
Service Flows	6	65278	Downstream	Provisioned	BE_	MAX	5000	00.000 Kbps			-			
Remistered SSs	7	65278	Upstream	Provisioned	BE_	MAX	5000	0.000 Kbps						
ACM (Denors	4	67	Downstream	Active	BE_	MAX	5000	00.000 Kbps						
ACM Paranis	5	68	Upstream	Active	BE_	MAX	5000	0.000 Kbps						
Status														
Bit Status	Dow	nstream	n Burst Profile	es					_)				
Maintenance	Index	DIUC	DCD FEC C	ode CI Mandat	NR orv Exit	CIN Minimum	R Entry	FEC Mandatory Fy	FEC rit Minimum F	ntry				
Network Status	1	2	BPSK 1/2		6	9	Lucy	1	0	arry				
Power Settings	2	3	OPSK 1/2	2 1	0	12		8	0					
Test	3	4	QPSK 3/4	F 1	2	17		12	0					
Admin	4	5	QAM16 1/	2 1	7	19		16	0		$\left(2\right)$			
SWIIndate	5	6	QAM16 3/	4 1	9	21		24	0					
Thereine	6	7	QAM64 2/	/3 2	1	24		32	0					
Version	7	8	QAM64 3/	/4 2	4	26		36	0					
Save Settings	ADD) ENTR	(MODI	FY ENTRY	E F	Remove e	NTRY	. CANCEI	L)				
Contact	Upst Index 2 3 4 5 6	UIUC 5 6 7 8 9	FEC BPSK 1/2 QPSK 1/2 QPSK 3/4 QAM16 1/2 QAM16 3/4								}3			

	Table 0-5. Base Station Service Flow			
	Field	Description		
1	Service Flows	 Displays every service flow that is currently configured in the base station. Displays the following selected fields: Index - Actual index number assigned to the service flow. CID - Basic CID for this service flow, corresponds to basic CID in registered SS page. Direction - Direction is either upstream or downstream. To create 1 duplex connection you must configure an upstream and downstream service flow. State - States can be Provisioned, Admitted, or Active. Provisioned is a service flow that was configured but the subscriber has not yet established communication with the base station. Admitted is a state in which a subscriber is 		

	Table 0-5. Base Station Service Flow			
	Field	Description		
		 registered and allowed in the system but is not yet flowing traffic. Active is a flow that currently has traffic or the ability to pass traffic. Service Class - The textual name of a configured service class that the node is using for QOS parameters. Max Sustained Rate - QOS parameter that defines the maximum sustained rate that will be made available to the flow. ARQ Enabled – When the box is checked, ARQ is enabled for the service flow. A reboot is necessary after changing this value and saving the settings. 		
2	Downstream Burst Profiles	 Displays the downstream burst profiles which define the FEC types that the base station uses for transmissions. Add Entry Button allows for adding a new burst profile for the network. Click on the button and enter the fields. When the fields are complete click on the add button to the right of the entry fields. Modify Entry Button – The modify capability has is enabled on the ACM parameter screen. Remove Entry Button allows for removing a burst profile rule entry from the table. Click on the button and then click on the remove button to the right of the entry line to remove. Cancel Button allows for canceling the current add or modify request. Entry Fields: Index - the index into the burst profile table for the entry. This field is not entered by the user. DIUC – the DIUC for the entry. This field is not entered by the user. DCD FEC Code – drop down menu to choose the FEC to use for the burst profile. This defines the modulation type and forward error correction. CINR Mandatory Exit – Threshold value of CINR in dB that is used as a decision point to exit the use of this profile. Valid values are 1-65. FEC Mandatory Exit – Threshold value of FEC errors that is used as a decision point for exiting a current modulation. The unit of this value is bits per symbol. FEC Mandatory Entry – Threshold value of FEC errors that is used as a decision point for entering a modulation. The unit of this value is bits per symbol. 		

	Table 0-5. Base Station Service Flow			
	Field	Description		
		symbol.		
3	Upstream Burst Profiles	 Displays the upstream burst profiles which define the FEC types that the subscriber stations use for transmissions. The current implementation uses the same values for upstream as downstream for CINR and FEC entry and exit. Entry Fields (display only): Index - the index into the burst profile table for the entry. UIUC – the UIUC for the entry. FEC – type of modulation and forward error correction of the burst profile. 		

Base Station Registered SS Page

🖉 0.0.0.0: Base	Station Registered Subscribers - Windows Internet Explorer	
🗿 🖓 🕶 🙋 http	://10.80.4.45/80216d/RegisteredSSs.htm	💌 🐓 🗙 Live Search
🚖 🛠 🌈 0.0.0.0	: Base Station Registered Subscrib	🟠 - 🖾 - 🖶 - 🔂 Bage -
	Aeronix 802.16 Tactical Radio	
Base	Index MAC Address Basic Cid Primary Cid CRC On/Off	
Station	2 00-61-65-6E-64-01 2 34 ON	
Station		
Home		
S/W Config		
Radio Control		
Service Flows		
Registered SSs		
ACM Params		
Status		
Bit Status		
Maintenance		
Network Status		
Power Settings		
Test		
Admin		
SW Update		
Version		
Save Settings		
Contact		
Logout		
Loading		

	Table 0-6. Base Station Registered SS				
	Field		Description		
1	Registered Display	SSs	Displays all subscriber stations which are registered with the base station. Fields that are		

Table 0-6. Base Station Registered SS			
Field	Description		
	displayed include:		
	 Index - Actual index numbered assigned to the entry. 		
	 MAC Address - IEEE 802.16 MAC address of subscriber station. 		
	 Basic Cid - Basic Connection ID of the subscriber station, used to flow traffic data between the base station and subscriber station. 		
	 Primary Cid - Primary Connection ID of the subscriber station, used to flow management data between the base station and subscriber station. 		
	 CRC On/Off - Indicates if CRC mechanism is on or off for the subscriber station. CRC covers the entire contents of each PDU within the connections. 		

Base Station ACM Parameters Page

📀 💽 🕶 🔊 http	o://10.80.4	1.45/802	16d/AcmParams.htm						💌 🐓 🗙 Live Search
🚖 🏟 🏼 🏉 0.0.0.0): Base Sta	ition Acm	Parameters						🙆 - 🔊 - 🖶 - 📴 <u>P</u> age -
	NIX.	Ae	ronix 802.10	6 Tactical 1	Radio				
		V Para	meters	Jucticui	ruuro				
Raso	Cu	r Exit S	Steps: 1			FEC Exit	Steps 1 V Set	ן	
Station	Com	Em A			EEC Enter		ation 0 Cot		
Station	Cur	FIII A	ccum. 2		FEC Entr	y Frame Accumui		J	
Home	- Dow	nstream	Burst Profiles						
S/W Config		DILLO		CINR	CINR	FEC	FEC		
Radio Control	Index	DIUC	DCD FEC Code	Mandatory Exi	t Minimum Entry	Mandatory Exit	Minimum Entry	-	
Service Flows	1	2	BPSK 1/2	6	9	1	0		
Registered SSs	2	3	QPSK 1/2	10	12	8	0		
Registered 555	3	4	QPSK 3/4	12	17	12	0		
ACM Params	4	5	QAM16 1/2	17	19	16	0		
Status	5	6	QAM16 3/4	19	21	24	0		
Bit Status	6	7	QAM64 2/3	21	24	32	0		
Maintenance	7	8	QAM64 3/4	24	26	36	0		
Network Status	ADD) ENTR	MODIFY E	NTRY	REMOVE ENTRY	CANCEL	J		
Power Settings	- Unstr	aam Bi	urst Drofiles						
Test	Index		FFC						
	2	5	BPSK 1/2						
Admin	3	6	OPSK 1/2						
SW Update	4	7	OPSK 3/4						
Version	5	8	OAM16 1/2					$\left(3\right)$	
	6	9	QAM16 3/4						
Save Settings	7	10	QAM64 2/3						
	8	11	QAM64 3/4						
Contact									
Logout									
Logour									

	Table 0-7. Base Station ACM Page			
	Field	Description		
1	Field ACM Parameters	 Description Displays the adjustable ACM parameters which includes the following selected fields: Current Exit Steps – Displays the current number of modulation steps to take when exiting the current modulation. FEC Exit Steps – Drop down menu for selecting the number of steps to take in the modulation table when exiting the current modulation due to FEC errors occurring. Set Button – Sets the exit steps selected in the FEC Exit Steps drop down. Current Frame Accumulation – Displays the current number of frames to accumulate before deciding to adjust the modulation up or down. 		
		 FEC Entry Frame Accumulation – Drop down menu for selecting the number of frame to 		

	Table 0-7. Base Station ACM Page				
	Field Description				
		 accumulate before adjusting the modulation up or down. Set Button – Sets the FEC Entry Frame Accumulation selected in the drop down menu. 			
2	Downstream Burst Profiles	 Displays the downstream burst profiles which define the FEC types that the base station uses for transmissions as well as the entry and exit threshold for switching modulations. Add Entry Button – the button is enabled on the service flow screen. Modify Entry Button – The modify capability allows the user to modify the entry and exit thresholds for switching modulations. Remove Entry Button - the button is enabled on the service flow screen. Cancel Button allows for canceling the current modify request. Entry Fields: Index - the index into the burst profile table for the entry. This field is not entered by the user. DIUC – the DIUC for the entry. This field is not entered by the user. DCD FEC Code – drop down menu to choose the FEC to use for the burst profile. This defines the modulation type and forward error correction. CINR Mandatory Exit – Threshold value of CINR in dB that is used as a decision point to exit the use of this profile. Valid values are 1-65. FEC Mandatory Exit – Threshold value of FEC errors that is used as a decision point for exiting a current modulation. The unit of this value is bits per symbol. 			
3	Upstream Burst Profiles	 Displays the upstream burst profiles which define the FEC types that the subscriber stations use for transmissions. The current implementation uses the same values for upstream as downstream for CINR and FEC entry and exit. Entry Fields (display only): Index - the index into the burst profile table for the entry. 			

Table 0-7. Base Station ACM Page			
	Field Description		
		 FEC – type of modulation and forward error correction of the burst profile. 	

Base Station Status Page

🖉 0.0.0.0: Base Station Status - Windows Internet Explorer				
🚱 🕞 🛛 🛃 http	③ ● E http://10.80.4.45/80216d/Status.htm			
🚖 🛠 🏉 0.0.0.0	: Base Station Status	🚹 🔹 🗟 👘 🖶 🔛 Page 🕻		
AERON	Aeronix 802.16 Tactical Radio			
	Status			
Base	Current Channel: 13 (5.785 GHz)			
Station	BS Estimated EIRP: 31 dB			
	Tx/Rx: ON			
Home	Current Channelization: 20 MIIz			
S/W Config	Natural Connection Status			
Radio Control	Front Panel: Base Sync Recy Xmit (2)			
Service Flows				
Registered SSs ACM Params	Subscriber SFID Current Modulation Type Avg CINR Avg Lvl'd RSSI Level			
Status	5 BPSK 1/2 29 -56			
Bit Status				
Maintenance				
Network Status				
Power Settings				
Test				
Admin				
SW Update				
Version				
Save Settings				
Contact				
Logout				
Loading				

Table 0-8. Base Station Status				
	Field	Description		
1	Status	 Status displays a subset of current settings. Current Channel – the current 802.16 specified channel that the base station uses for transmit and receive. MAC Address – The IEEE 802.16 MAC address of the base station. BS Estimated EIRP – Displays the estimated EIRP of the base station based upon user configured gain a loss values. 		

	Table 0-8. Base Station Status			
	Field	Description		
		 Tx/Rx - Status indicating whether the base station Tx/Rx capability is currently on or off. Current Channelization – displays the channelization of the base station. Transec Status – displays the status of Transec (on or off). 		
2	Front Panel	Displays the PHY status lights on an interval basis. The lights should match those on the front of the unit but, could be delayed slightly due to sample rate.		
3	Status Table	 Displays the status of each subscriber connection. Subscriber SFID - Contains the service flow ID of the downstream service flow to the subscriber. Current Modulation Type – Contains the current modulation/FEC type for the subscriber connection. The display show the modulation of the receive frame at the time sampled. Avg CINR – Displays the average CINR value for the subscriber connection. Avg Leveled RSSI – Displays the average leveled RSSI value for the subscriber connection the receive from the receive loss and gain values entered by the user and the actual RSSI value received by the PHY. Level – Displays the level of the RSSI. 		

Base Station Bit Status

This page shows the results of the bit tests executed at startup. The names and number of tests may change due to FIPS requirement changes.

🔆 🔁 🗸 🖉 🕞 🕞	S S + E http://10.80.4.45/80216d/BitStatus.htm					
🚖 🏟 🌈 0.0.0.0: Base Sta	ation Bit Status	🟠 🔹 🗟 👘 🖶 Bage 🕇				
	Aeronix 802.16 Tactical Radio					
Base	Bit Status Komel Bit Status					
Station Home	RAM Test: OK Flash Test: OK Kernel Status: OK					
S/W Config Radio Control	Network Status: OK Phy Link: UP					
Service Flows Registered SSs ACM Params						
Status Bit Status						
Maintenance Network Status						
Power Settings Test Admin						
SW Update Version						
Save Settings						
Logout						

BAE SYSTEMS

Base Station Maintenance Page

0.0.0.0: Maint	tenance	- Window	rs Internet	Explorer									
🌀 🗸 🙋 http	o://10.80.4	4.45/Mainter	nance.htm								*	😽 🗙 Live S	earch
🚖 🏟 🌈 0.0.0.0): Mainten:	ance										• • •	• • <u>₽</u> age •
	NIX.	Aer	onix S	uppor	t								
	⊂ Nod	e Mainter	nance										
Base								_					
Station	Reboo	ot This No	ode Now	REBO	OT	Us	se Default E	Database	Use Default D	B			
Station	Char	116		4-4							J		
Home	Char	mer man	nenance s	latus		Current	Average	Avg Free	FFC	Average FE(, l		
S/W Config	SFID	Current	t Average CINR	Current RSSI	Average RSSI	Lvl'd	Lvl'd	Offset	Corrected	Corrected			
Radio Control						RSSI	RSSI	(Hz)	Bits	Bits			
Service Flows	2	34	29	-33	-34	-55	-36	2318	0	19			
Registered SSs		Rx Mainte	enance Sta	tus		-							
ACM Params	Rx Fram	es Frame	id CRCs es Rx	Reset Rx Fr	1x 1x ames Dro	p					(3)		
Status	9644	2 190	12	0 6	7233 1	<u> </u>							
Bit Status	C Rang	zing Envi	ronment -										
Maintenance		Antenna	a		Transı	nit (Tx)			Receive (Rx)				
Network Status	Anter	nna Ant	tenna P.	A Tx Ext	ernal Tx l	internal Tx	Tx Power	LNA Rx H	External Rx II	iternal Rx	(4)		
Power Settings	Gai	in Cabl	le Loss (Gain Ca	ble Loss	Cable Loss	Control	Gain	Cable Loss C	able Loss			
Test	6 d	B 1	dB 3	8 dB	9 dB	1 dB	-2.0 dB	32 dB	9 dB	1 dB	J		
Admin	Boar	rd Tempe	erature's -										
SW Update	Phy 3	Tempera	ture										
Version		49 °C									(5)		
		120.2 1									J		
Save Settings													
Contact	-												
Logout													

	Table 0-9. Base Station Maintenance				
	Field/Control	Description			
1	Nede Maintenance	Provides a method of rebooting the system without a power cycle.			
	Node Maintenance	Provides a method to revert back to the default database.			
		Provides some additional values on a connection basis for debugging and antenna pointing purposes.			
2	Status	 Current CINR – the instantaneous CINR for the connection. 			
		 Average CINR – the average CINR of the connection over a period of received 			

	Table 0-9. Base Station Maintenance			
	Field/Control	Description		
		 frames. Current RSSI – the instantaneous RSSI for the connection. Average RSSI – the average RSSI of the connection over a period of received frames. 		
		 Current Leveled RSSI – the current leveled RSSI value for the connection. The leveled RSSI reflects the loss and gain values from the output of the PHY (including the transmit power attenuation value) to the PA/LNA. 		
		 Average Leveled RSSI – the average leveled RSSI value of the connection over a period of received frames. 		
		 Average Frequency Offset – the average frequency offset of the connection over a period of received frames. 		
		 FEC Corrected Bits – the instantaneous forward error correction corrected bits 		
		 Average FEC Corrected Bits – the average forward error correction corrected bits for the connection 		
		Provides the Tx and Rx frame counts and well as error counts for debugging.		
		 Rx Frames – the number of frames received 		
	T (D M) .	 Invalid Frames – the number of frames received that were invalid 		
3	Tx/Rx Maintenance Status	CRCs Rx – the number of CRCs received		
		 Reset Rx – the number of times the receive path has been reset 		
		 Tx Frames – the number of frame transmitted 		
		 Tx Drop – the number of transmit frames that were dropped by the classifiers 		
4	Ranging Environment	Provides the gain and loss settings used for ranging purposes and EIRP calculations. These settings are configured on the Power Settings and Radio Control pages.		
5	PHY Temperature	Provides the temperature of the PHY card inside of the radio box.		

Base Station Network Status Page

0.0.0.0: Base).0.0: Base Station Network Status - Windows Internet Explorer 📃 📑 🔀				
🎒 🗸 🕑 htt	E http://10.80.4.45/80216d/NetworkStatus.htm E http://10.80.4.45/80216d/NetworkStatus.htm				
🍃 🎄 🌈 0.0.0.	0: Base Station Network Status	🙆 🔹 🗟 🔹 🖶 🔹 📴 Bage 🔻 🎯 Took 👻 🎽			
AEROI	NIX" Aeronix 802.16 Tactical Radio	^			
	Network Status				
Base	Packets Errors Dropped Overruns Frames Carrier				
Station	Rx 2148 0 0 0 0 N/A				
Station	Tx 1392 0 0 0 N/A 0				
Home					
S/W Config					
Radio Control					
Service Flows					
Registered SSs					
ACM Params					
Status					
Bit Status					
Maintenance					
Network Status					
Power Settings					
Test					
Admin					
SW Update					
Version					
Save Settings					
Contact					
Logout					
		~			

	Table 0-10. Base Station Network Status				
	Field/Control	Description			
1	Network Status	Displays the number of transmitted and received frames on the network side of the radio. This reflects the eth0 interface in a non-bridging configuration and the mybridge interface in a bridging configuration.			

Base Station Power Settings Page

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🗾 Aeron	× Aeronix 802.16 Tactic	al Radio	<u>^</u>			
	Static Gain and Loss					
Base	Gain:	Loss:				
Station	PA Tx Gain: 38 dB	Internal Rx Cable Loss: 1 dB				
Home	LNA Rx Gain: 32 dB	Internal Tx Cable Loss: 1 dB				
S/W Config Radio Control	Antenna Gain: 6 dB					
Service Flows		Set	a			
Registered SSs	External Rx Cable Menu					
ACM Params	External Rx Cable Loss:	Comments:				
Status	40 ft. 9	dB TCN cable at 4.6GHz				
Bit Status	40 ft. 10	dB TCN cable at 5.8GHz				
Maintenance	47 ft. 9	dB VWP cable at 4.6GHz				
Power Settings		Set				
Test	External Tx Cable Menu		_			
Admin	External Tx Cable Loss:	Comments:				
SW Update	40 ft. 9	dB TCN cable at 4.6GHz				
Version	40 ft. 10	dB TCN cable at 5.8GHz				
Concerning 1	47 ft. 9	dB VWP cable at 4.6GHz				
Save Settings		Set				

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Contact Logout	Antenna Cable Menu Antenna Cable Loss: 3 6 0	ft. 1 ft. 1 ft. 0	dB dB	Comments: 4.0GHz cable 5.8GHz cable	Set		< n
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	Table 0-11. Base Station Power Settings Page			
	Field/Control	Description		
		 PA Tx Gain – the transmit gain of the power amplifier located outside of the radio LNA Rx Gain – the receive gain of the low noise amplifier located outside of the radio 		
		 Antenna Gain – the gain of the antenna located outside of the radio 		
1	Static Gain and Loss	 Internal Rx Cable Loss - the loss of the cable and any other components in the receive path inside of the radio box but external to the PHY 		
		 Internal Tx Cable Loss – the loss of the cable and any other components in the transmit path inside of the radio box but external to the PHY 		
		 Attenuation – the change in transmit power of the PHY 		
2	External Rx Cable Menu	 Contains up to three entries for external receive cable loss values. This value represents the receive cable between the radio unit and the receive LNA. The user inputs the length of the cable in feet and the loss value in dB. The comment field is optional. The first value entered will be the default value that gets used initially for ranging, leveled RSSI and EIRP calculations. To change the values used go to the Radio Control page. 		
3	External Tx Cable Menu	• Contains up to three entries for the transmit cable loss values. This value represents the cable between the radio unit and the transmit power amplifier. The user inputs the length of the cable in feet and the loss value in dB. The comment field is optional.		
4	Antenna Cable Menu	• Contains up to three entries for the antenna cable loss values. This value represents the cable between the power head and the antenna. The user inputs the length of the cable in feet and the loss value in dB. The comment field is optional.		

The Set button in each section is used to place the current values entered into the database.

Base Station Test Page

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	NIX Aeronix 802 16 Tactical Radio					
	C CW and BER Testing					
Basa	System Information:					
Station	Current Channel: 13 (5.785 GHz)					
Station	CW Test:					
Home	Transmit Gain: 0 dBm 🗸 Start Transmit Start Receive					
S/W Config	BER Test:					
Radio Control	Mod Type: 5 - QAM64 2/3 🔽					
Service Flows	Bit Pattern: 7 - 2*23-1					
Registered SSs	Run as Master Run as Slave					
ACM Params						
Status	Reboot (4)					
Bit Status						
Maintenance						
Network Status						
Power Settings						
Test						
Admin						
SW Update						
Version						
Save Settings						
Contact						
Logout						

	Table 0-12. Base Station Test Page				
	Field/Control	Description			
1	System Information	Provides the current channel information of the radio			
		Provides the capability to execute a continuous waveform test.			
2	CW Test	 Transmit Gain – Selection of the transmit gain desired from the pull down menu. 			
		 Start Transmit – Starts the transmission of a CW 			
		 Start Receive – Starts the receive of a CW 			
3		Provides the capability to execute a bit error rate test.			
	BER Test	 Mod Type – Defines the modulation type used during the test. 			
		 Bit Pattern – Define the bit patter used during the test. 			