

User's Manual

Antenna System Monitor

ASM1317 ASM3852 ASM7487 ASM8796

Base Line 2.85

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Company Overview

RFI has been serving the needs of the wireless communications market for over 35 years. First founded as a manufacturer of antenna systems, RFI has grown to be a key player in the development, manufacturing and distribution of wireless technology and energy products. Through our extensive network of resellers, systems integrators and retail outlets, RFI is a key supplier to both industry and Government.

Our research and manufacturing facilities have talented people, sophisticated test equipment, state of the art software with class leading manufacturing systems and techniques. Additionally, we have in place a quality management program which is certified to ISO9001, environmental management system certification to ISO14001 and occupational health and safety standard AS4801 giving you complete confidence in everything we do.

RFI's products are truly innovative and as a result we are active around the globe taking our Australian designed and manufactured products to key markets in Asia Pacific, the Americas and EMEA regions via offices 'In-region' in addition to exporting directly to in excess of 50 countries.

One of RFI's key principals is to remain totally customer focused as we recognise our future depends on the success of our customers. We know that to be chosen as your supplier we must add value to your business and to achieve this we will work hard to deliver the best product when and where you need it and back this up with the very best technical support available.



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Disclaimer

Product part numbering in photographs and drawings is accurate at the time of printing. Part number labels on RFI products supersede part numbers given within this manual. Information is subject to change without notice.



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Note:

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.

The user is cautioned that changes and/or modifications not approved by the responsible party could void the user's authority to operate the equipment.

Note:

This equipment has been tested and found to comply with the limits for a Class B 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 may cause harmful interference in which case the user will be required to correct the interference at their own expense.



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Antenna System Monitors

ASMxxxx Series

Front View



ASMxxxxK1 Series

Rear View



ASMxxxxK2 Series

Rear View





Antenna Line Couplers

SP1318-2440-DFF1RU (132-174MHz)







SP7496-4440-DFF1RU (746-960MHz)





Optional Modules

CAM0000 Series

RFI	1 2 3 4 EXT I/P ● ● ● ●	1 2 3 4 5 6 7 8 9 10 PTT 4 8 6 7 8 9 10 ALARM 5 5 6 7 8 9 0 6 6 6	POWER	•
CHANNEL ALARM MODULE				\frown

Channel Alarm Module (CAM) Front Panel Layout



Channel Alarm Module (CAM) Rear Panel Layout

SAM0000 Series



Site Alarm Module (SAM) Front Panel Layout



Site Alarm Module (SAM) Rear Panel Layout

RSM0000 Series



Receive Systems Module (RSM) Rear Panel Layout



1. General Description

The Antenna System Monitor (ASM) is used to measure and monitor channel-specific Tx Forward and Reflected power between transmitter combiners their associated antenna(s) for up to 80 channels. Rx Channel and or other frequency monitoring is also available for up to 80 channels. The capability to perform a series of Tx-to-Rx system isolation (loop back), Rx sub-system passband gain response, and Transmitter isolation (Tx carrier rejection) tests is also provided.

Four pairs of Tx Forward (FWD) and Tx Reverse (RFL) coaxial connector inputs fed from non-intrusive in-line directional couplers give the ASM the capability of monitoring the output of up to four (or more) separate transmitter combiner/antenna systems.

A Receive coaxial connector input port fed from either the receiver multicoupler system and/or an external "off-air" antenna gives the ASM the capability of monitoring receiver system signal levels, or the propagation of transmitter channels located on other sites.

For each combiner/antenna system being monitored, a 4-port Antenna Line Coupler (ALC) is inserted after the transmitter combiner on the antenna feeder cable. These couplers have a low insertion loss (<0.2dB) and each is capable of handling up to 750Watts of RF power. The excellent PIM (<-150dBc) and PIP ratings of the coupler are maintained using 7/16 DIN (F) connectors on the input "From Combiner" and output "To Antenna" ports, with N (F) termination connectors used on the "FWD" and "RFL" coupling ports.

The ASM and the ALC unit(s) are intended for mounting into 19" rack mount equipment cabinets or open frames, but they can be mounted in alternate configurations if required. As standard, the ASM is supplied with one ALC for connection to the first combiner/antenna system - with additional ALCs available separately for applications requiring more than one combiner/antenna system to be monitored.

RFI can also supply PIM-rated 7/16 DIN right-angle adapters if required to assist in rack cabinet layout and installation of the coupler(s) if required.

The ASM communicates via an Ethernet port mounted on the rear of the unit. This facilitates configuration and monitoring using a Graphical User Interface (GUI) via an integral web server. Access to the GUI is protected by a User Name and Password that is progressively checked for security strength.

The (up to) 80 individual Tx and Rx frequencies configured in the ASM are divided across four GUI pages, each able to display up to 20 channels each. This allows the user to view a large number of channels on a standard monitor screen size without the excessive use of scrolling. It should be noted that each group of 20 Tx channels is not 'physically' assigned to a specific pair of FWD and RFL ports, despite the GUI presenting them as four sets of 20 channels each (although it may be considered this way if this assists in conveniently thinking of the channels and how they may be affiliated to the combiner/antenna that they are connected to). As Tx channels are not physically assigned to a specific pair of FWD and RFL ports, one frequency cannot be measured separately on multiple couplers (i.e. as may be desired if the multiple legs of a Distributed Antenna System were to be monitored using multiple couplers connected to one ASM), and therefore each individual frequency can only be measured "once" across all ports of the ASM.

All transmitter frequencies, channel bandwidths (12.5KHz and 25KHz), alarm level thresholds, and other relevant parameters are user-programmable via the GUI.

A DB15 rear-mounted connector provides four (4) separate dry relay contact alarm reporting outputs which may be individually user-assigned on an ad-hoc basis, to specific monitored channels, alarm groups (Network IDs), or to the system alarms in the ASM, CAM(s), SAM(s) or RSM. This capability allows specific channels' alarm conditions to be accessible via discrete alarm outputs – allowing faulty equipment to be individually identified, reported, and action to be initiated as required, or used to control basic alarm event actions such as antenna change-over (ACO) or main/standby base station switching, etc. SNMP Traps, SNMP GET requests, SMTP (Email) and Manager Message UDP/TCPIP data packets are also available for alarm and status reporting. LED's on the front panel of the ASM provide visual indication of system alarms.

ASM monitoring is also supported by the Genesis Software GenWatch™ ASM Applet, or by the C² Systems SitePortal® monitoring software.

The ASM is available in models that cover two DC input voltage ranges, 9-36V and 36-60V, and AC mains voltage models are available using either a 90-264VAC plugpack-style 12VDC, or a 90-264VAC plugpack-style 48VDC PSU.



Channel Alarm Modules (CAMs) and Site Alarm Modules (SAMs)

If desired, optional Channel Alarm Modules (CAMs) or Site Alarm Modules (SAMs) may be added to the ASM at any time. CAMs/SAMs are connected using a daisy chained cabling approach using two cables - "DC power" and "Comms".

The CAM is no longer manufactured and the SAM is a direct (and enhanced) replacement. Any mixture of up to ten (10) Channel Alarm Modules (CAMs) or Site Alarm Modules (SAMs) may be added to a single ASM unit.

When connected, CAMs and SAMs are automatically recognised by an ASM, and menu selections for them will then automatically appear in the ASM GUI. Each CAM/SAM has an "ID address" which is easily set via the rotary switch on the rear of each CAM/SAM unit. Each CAM/SAM connected to an ASM should have a different ID address selected to prevent address contention in the ASM GUI.

Each CAM/SAM provides ten (10) separate alarm output relays which may be individually user-assigned, on an ad-hoc basis, to specific monitored channels alarms in the ASM. This capability allows specific channels' alarm conditions to be accessible via discrete alarm outputs – allowing faulty equipment to be individually identified, reported, and action to be initiated as required. SNMP, SMTP (Email) and Manager Message UDP data packets are also available for alarm and status reporting.

A logic input on each of the CAM's/SAM's channels allows additional monitoring functionality – such as monitoring base station Tx PTT or RX UNSQ lines – to enable the determination of "conditional" repeater RF output failure states. Various equipment operational configurations can be monitored using these logic inputs – such as hot/standby conditions (and the change-over actioned), using this functionality.

In addition to the ten (10) separate alarm channels, each CAM also has four (4) user-programmable and configurable generalpurpose logic inputs that may be used for monitoring external equipment – such as site or cabinet door opening, generator fuel level low, UPS, solar, or other alarm conditions. This functionality has been further enhanced in the SAM, with Input #1 being able to be configured to measure temperature, an analogue voltage range, or a digital logic input level – and inputs #2, #3, and #4 being able to be configured to measure an analogue voltage range, or a digital logic input level respectively.

The CAM and the SAM modules provide enhanced monitoring functionality for the ASM, allowing a range of PTT, temperature, voltages and digital inputs to be monitored as part of Antenna Change-Over (ACO), base station hot/standby, equipment and site monitoring, and auxiliary control capabilities.

Receive Systems Module (RSM)

An optional Receive Systems Module (RSM) may be fitted to an ASM to support networks using two receive antennas, such as systems using dual diversity or redundant Rx antennas.

The RSM may be added to an ASM at any time – providing a network technology upgrade path if required.

The RSM also improves the ASM's receive sensitivity capability and provides an enhanced ability to monitor frequencies in other applications – such as off-air monitoring of adjacent network sites' coverage propagation or the monitoring of a Distributed Antenna System (DAS).

The RSM adds two receiver paths (RA, RB) and a third 'External' antenna (RE) that are configurable in the ASM GUI, on a perchannel basis. Rx level measurements for all three receive paths are available in the Status, System Isolation Tests and Channel Diagnostics pages of the ASM GUI. The RSM also features a unique "RF Peak Level Detector" capability that can measure high levels of RF, even of very short burst duration, that may be overloading the network's base station receivers and degrading network performance. Alarm thresholds can be configured for these received signal level peaks so that alarms can be actioned when they occur, and these events are measured, logged and may be viewed in the ASM GUI to assist fault-finding activities.

Hardware Versions

There are several hardware variants of the ASM. These can be identified by the communications ports on the rear of the unit. The earlier "K1" variant has one USB and one TCPIP port. The limited memory capacity of the K1 may restrict its compatibility with future firmware features. Where this occurs, the webserver GUI and/or CLI interface may not display incompatible features to prevent uncertainty in unit capabilities. The K1 unit's memory capacity may also limit the available storage space for data such as alarm history and log files.

The later variant of ASM is identified as the "K2". The K2 has deleted the USB port and substituted a second TCPIP port in its place. The memory capacity of K2 units is significantly increased to support more extensive alarm history and log file storage capability. Communications with the ASM via a USB interface is still possible utilising a (user-supplied) USB-to-TCPIP adapter.



2. Application Diagram



Diagram1

3. ASM - Electrical and Mechanical Specifications

ASM Model Number	ASMxxxx Series	
Frequency range	ASM1317 132-174MHz	
(Tx power and Rx level monitoring)	ASM3852 380-520MHz	
	ASM7487 746-870MHz	
	ASM8796 870-960MHz	
Maximum number of monitored channels	Tx = 80	
	Rx = 80	
	System Isolation Tests = 20	
Maximum number of Tx networks (Tx ant's)	4 (can be externally expanded)	
Maximum number of Rx networks (Rx ant's)	1 (can be externally expanded)	
Frequency channel step size	1.25kHz	
Channel measurement bandwidths	12.5, and 25kHz	
Max spurious or IM products level	-30dBm	
Measurable Rx input power level	-50dBm to -110dBm	
	(the RSM module can enhance ASM readings to better than -125dBm)	
Measurable Tx input power level	-30dBm to +20dBm (minimum range)	
	(i.e. +10dBm to +60dBm into 40dB coupler)	
Conducted emissions	Complies with CISPR22 Part B & FCC Part 15 (15.207)	
Radiated emissions	Complies with CISPR22 Part B & FCC Part 15 (15.209)	
RF Termination connectors	All N (F) on rear	
Communication interface ports		
"K1" hardware variant	1 x USB Type B, 1 x TCPIP RJ45 Ethernet port on rear	
"K2" hardware variant	2 x TCP/IP RJ45 Ethernet ports on rear	
Internal alarm relay contacts output connector	1 x DB15 (M) on rear	
Visual alarm notification	Front panel LED's	
Configurable alarms	Summary Fault / Tx FWD min. power	
	Tx FWD max. power / Tx Combiner I.L. max.	
	VSWR max. / Rx RSSI min. level / RSSI max. level	
	Tx-to-Rx Antenna Isolation min. & max.	
	Rx System Gain Loss min. & max.	
	Tx Carrier Rejection min. & max.	
	(optional CAM/SAM module alarms)	
Alarm Outputs	Summary Alarms – ASM Relay Outputs	
	Detailed or Group Alarms – ASM or CAM/SAM Module Relay Outputs	
	SMITP Email (up to 4 Addresses)	
	or via Conocis Software ConV/atchTM ASM Applet	
	or via C2 Systems SitePortal® monitoring software	
Alarm Contact Type		
Alarm Relay Contact Patings		
Power supply options		
Power consumption	10W (typical)	
DC power connector	1 x Polarized 2-nin Phoenix-style connector on rear	
Mounting	2RII 10" rack mounting	
Dimensions	10 Id K mounting	
Operational temporature range	22°E to 110°E / 20°C to 160°C	



4. Coupler - Electrical and Mechanical Specifications

Coupler Model Number	SPxxxx-2440-DFF1RU / SPxxxx-4440-DFF1RU	
Frequency range	SP1318-2440-DFF1RU 130-180MHz	
	SP3855-4440-DFF1RU 380-550MHz	
	SP7496-4440-DFF1RU 746-960MHz	
Insertion Loss	< 0.2dB	
Input and Output Port Return Loss	> 20dB	
Coupling Loss	40dB (+/- 0.7)	
Maximum input power	750W	
Maximum PIP	16kW (+72dBm)	
PIM 3rd OIP (2 x 43dBm carriers)	Better than -150dBc	
Connectors – "To ANT" & "From COMBINER" ports	2 x 7/16 DIN (F)	
Connectors – "FWD" and "RFL" coupling ports	2 x N (F)	
Mounting	1RU 19" rack mounting	
Dimensions	W 19 x H 1.75 x D 3" / W 483 x H 45 x D 77mm (inc connectors)	
Weight	SP1318-2440-DFF1RU < 4.4lbs / 2kgs	
	SP3855-4440-DFF1RU < 2.2lbs / 1kg	
	SP7496-4440-DFF1RU < 2.2lbs / 1kg	
Operational temperature range	-22°F to 140°F / -30°C to +60°C	

Table 2

5. CAM/SAM/RSM - Electrical and Mechanical Specifications

CAM Model Number	CAM0000
Alarm Outputs	10
Alarm Contact Type	Dry Relay N.O. / Common / N.C.
Alarm Relay Contact Ratings	50VDC @ 1A
Alarm Inputs	10 (configurable - one per alarm output)
	4 (configurable – general purpose)
Alarm Input Logic	"0" = <2.5V DC "1" = >2.5V DC
Visual alarm notification	Front and Rear panel mounted LEDs
Power Supply options	9-36VDC or 36-60VDC
Power Consumption	10W (max)
Connectors	(Note: All connectors on rear)
External Alarm Inputs	1 x Polarized 8-pin Phoenix connector
Channel Alarms Outputs	10 x Polarized 3-pin Phoenix connectors
Channel Alarms Inputs	10 x Polarized 2-pin Phoenix connectors
Power Supply	1 x Polarized 2-pin Phoenix connector
Comms Interface to/from ASM	1 x DB15 (M)
Mounting	1RU 19" rack mounting
Dimensions	W 19 x H 1.75 x D 3" / W 483 x H 45 x D 77mm
Weight	< 2.2lbs / 1kg
Operational temperature range	-22°F to 140°F / -30°C to +60°C

SAM Model Number	SAM0000 / SAM0000-48	
Alarm Outputs	10	
Alarm Contact Type	Dry Relay N.O. / Common / N.C.	
Alarm Relay Contact Ratings	50VDC @ 1A	
Alarm Inputs	10 (configurable) digital (general purpose/one per alarm output)	
	4 (configurable) temperature/analogue/digital (general purpose)	
Alarm Input Logic	temperature RFI temperature sensor	
	analogue -60V DC to +60V DC	
	analogue -60V DC to +5V DC	
	digital	
Temperature Sensor (optional)	SAM0000-TS (ordered separately)	
Connector Kit (optional)	SAM0000-CK (ordered separately)	
Visual alarm notification	Front and Rear panel mounted LEDs	
Power Supply options	9-36VDC (SAM0000)	
	or	
	36-60VDC (SAM0000-48)	
Power Consumption	10W (max)	
Connectors	(Note: All connectors on rear)	
External Alarm Inputs	1 x Polarized 8-pin Phoenix connector	
Channel Alarms Outputs	10 x Polarized 3-pin Phoenix connectors	
Channel Alarms Inputs	10 x Polarized 2-pin Phoenix connectors	
Power Supply	1 x Polarized 2-pin Phoenix connector	
Comms Interface to/from ASM	1 x DB15 (M)	
Mounting	1RU 19" rack mounting	
Dimensions	W 19 x H 1.75 x D 3" / W 483 x H 45 x D 77mm	
Weight	< 2.2lbs / 1kg	
Operational temperature range	-22°F to 140°F / -30°C to +60°C	

Table 4

RSM Model Number	RSM0000 / RSM0000-48
Frequency Range	132-960MHz
Maximum RF Input Level (no damage)	0dBm
Isolation between RF Inputs	>55dB
Peak Detector Response Time	≥ 3mS
Peak Detector Alarm Threshold (GUI selectable per port)	-35 to -55dBm
Peak Detector Warning Threshold (GUI selectable per port)	-40 to -65dBm
Visual alarm notification	Rear panel mounted LEDs
Power Supply options	9-36VDC (RSM0000)
	or
	36-60VDC (RSM0000-48)
Power Consumption	10W (max)
Connectors	
Connection to ASM	N (Male)
RF In and RF Out	BNC (Female)
Power Supply	1 x Polarized 2-pin Phoenix connector
Comms Interface to/from ASM	1 x DB15 (M)
Mounting	On rear of ASM (mounting bracket supplied)
Dimensions	Mounts on rear of ASM
Weight	< 2.64lbs / 1.2kg
Operational temperature range	-22°F to 140°F / -30°C to +60°C



6. Ordering Information

Ordering Information	
Model Number	Description
ASM1317	Antenna System Monitor 132-174MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC
ASM1317-48	Antenna System Monitor 132-174MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC
ASM1317-AC	Antenna System Monitor 132-174MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC to 90-264V AC (external)
ASM1317-48AC	Antenna System Monitor 132-174MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC to 90-264V AC (external)
ASM3852	Antenna System Monitor 380-520MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC
ASM3852-48	Antenna System Monitor 380-520MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC
ASM3852-AC	Antenna System Monitor 380-520MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC to 90-264V AC (external)
ASM3852-48AC	Antenna System Monitor 380-520MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC to 90-264V AC (external)
ASM7487	Antenna System Monitor 746-870MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC
ASM7487-48	Antenna System Monitor 746-870MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC
ASM7487-AC	Antenna System Monitor 746-870MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC to 90-264V AC (external)
ASM7487-48AC	Antenna System Monitor 746-870MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC to 90-264V AC (external)
ASM8796	Antenna System Monitor 870-960MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC
ASM8796-48	Antenna System Monitor 870-960MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC
ASM8796-AC	Antenna System Monitor 870-960MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 9-36VDC to 90-264V AC (external)
ASM8796-48AC	Antenna System Monitor 870-960MHz 80 Ch / 4 Tx Fwd / 4 Tx Rfl / 1 Rx Port / 36-60VDC to 90-264V AC (external)
Additional Couplers	Description
SP1318-2440-DFF1RU	Directional Coupler 130-180MHz 40dB 4-Port 19in Rack Mount 1RU Input /Output Ports DIN (F) Coupling Ports N (F)
SP3855-4440-DFF1RU	Dual Directional Coupler 380-550MHz 40dB 4-Port 19in Rack Mount 1RU Input /Output Ports DIN (F) Coupling Ports N (F)
SP7496-4440-DFF1RU	Dual Directional Coupler 746-960MHz 40dB 4-Port 19in Rack Mount 1RU Input /Output Ports DIN (F) Coupling Ports N (F)



Ordering Information	
Channel Alarm Module	Description
CAM0000	Channel Alarm Module 9-36V DC (Obsolete – use SAM0000)
CAM0000-48	Channel Alarm Module 36-60V DC (Obsolete – use SAM0000-48)
Site Alarm Module	Description
SAM0000	Site Alarm Module 9-36V DC
SAM0000-48	Site Alarm Module 36-60V DC
SAM0000-TS	Site Alarm Module Temperature Sensor
SAM0000-CK	Site Alarm Module Connector Kit (matching connectors for all CAM/SAM I/O connectors)
Receive Systems Module	Description
RSM0000	Receive Systems Module 9-36VDC
RSM0000-48	Receive Systems Module 36-60VDC
Accessories	
ASM0000AU-AC	Plugpack 90-264VAC 12VDC c/w 6ft/1.8m Australian IEC Power Cable
ASM0000AU-AC ASM0000UK-AC	Plugpack 90-264VAC 12VDC c/w 6ft/1.8m Australian IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m UK IEC Power Cable
ASM0000AU-AC ASM0000UK-AC ASM0000US-AC	Plugpack 90-264VAC 12VDC c/w 6ft/1.8m Australian IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m UK IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m USA IEC Power Cable
ASM0000AU-AC ASM0000UK-AC ASM0000US-AC ASM0048AU-AC	Plugpack 90-264VAC 12VDC c/w 6ft/1.8m Australian IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m UK IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m USA IEC Power Cable Plugpack 90-264VAC 48VDC c/w 6ft/1.8m Australian IEC Power Cable
ASM0000AU-AC ASM0000UK-AC ASM0000US-AC ASM0048AU-AC ASM0048UK-AC	Plugpack 90-264VAC 12VDC c/w 6ft/1.8m Australian IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m UK IEC Power Cable Plugpack 90-264VAC 12VDC c/w 6ft/1.8m USA IEC Power Cable Plugpack 90-264VAC 48VDC c/w 6ft/1.8m Australian IEC Power Cable Plugpack 90-264VAC 48VDC c/w 6ft/1.8m UK IEC Power Cable



7. Unpacking

The ASM is packed into a custom designed cardboard insert, box container and sleeve together with a single Coupler and AC to DC power pack if the AC option has been ordered. Optional CAM, SAM, and RSM modules are similarly packaged.

Packed with the ASM and Coupler will be the Factory Test Sheet (FTS) and Quick Start Guide (QSG). Packed with the RSM is a Quick Start Guide (QSG) which overviews its mounting onto an ASM. The User's Manual will have been loaded onto either a CD or USB memory stick packed together with the QSG. It is recommended to retain the Factory Test Sheet for future reference.

An Ethernet jumper cable is included in the packaging, provided for your convenience to connect and configure the ASM via an onboard Graphical User Interface (GUI) from the browser located on your laptop/notebook.

Although the packing box has been designed to provide a significant amount of protection, it is important to report any visible damage to the carrier immediately. It is the customers' responsibility in the event of product damage, to lodge a damage claim with the carrier within a short period of time after receipt of the package. The time window for lodging the claim should be ascertained from the specific carrier as this may vary between carriers (typically 1 to 5 days).

Please dispose of the packing material responsibly.



8. Firmware License Agreement

This statement must be read in its entirety prior to the loading or use of the Firmware provided by RFI.

Introduction.

By loading any product related Firmware you agree without reserve with all the conditions as detailed in this RFI Firmware License Agreement.

The term "Firmware" for the sake of this statement includes all software or firmware upgrades, either as a new installation, revision, patches or upgrades. Any reference to software, for the purposes of this license agreement, will therefore be included in the term Firmware.

RFI refers to the Australian registered company RF Industries Pty Ltd.

The copyright of all Firmware relating to this product remains the property in whole of RFI and is therefore protected by the respective international copyright or trademark laws.

You agree that by using and or downloading any of the ASM product specific Firmware, that you have fully understood and agree to comply and be bound by the all of the conditional requirements as detailed in this Firmware License Agreement and accept the disclaimer thereof.

RFI reserves the right to update and change, from time to time, any attribute, function, feature and in the main any content of the Firmware and any documentation attributed and referenced to the Firmware underwritten by this Firmware License Agreement without notice to existing users.

The use of this Firmware is non-exclusive and non-sub licensable, nor does it give the user the right to re-sell, lease, loan, distribute, or transfer the Firmware nor the rights thereof.

This Firmware License Agreement grants or implies no right, title, or interest in any intellectual property owned or licensed by RFI.

Support and Firmware Updates.

RFI may elect to provide you with customer support and/or Firmware upgrades, enhancements, or modifications for the RFI Firmware at its sole discretion, and may terminate such support at any time without notice to the user. RFI may change, suspend, or discontinue any aspect of the Firmware at any time, including the availability of any Firmware feature, database, or content.

From time to time RFI may provide notice through the RFI web site of any available updates or Firmware revision downloads.

Fees.

RFI reserves the right to charge fees for upgrades or revisions of the applicable Firmware download.

Disclaimer.

Use of any Firmware enabling operation of the ASM or providing support for the ASM is at the user's discretion and risk. RFI will not be held responsible or liable for any damage or loss that results from the downloading and or use of the Firmware or incompatibilities or other problems experienced as a result of any combination of operating system(s), firmware, or software the user may use.

RFI will not be held responsible or liable for any inaccuracies, completeness or inadequacy regarding the Firmware as the basis of the provision of the Firmware is on a "fit-for-purpose, best effort" approach.

RFI will not be liable to the user for claims and liabilities of any kind arising out of or in any way related to the use of the Firmware by the user or any third party.

The failure of RFI to exercise or enforce any right or provision of this Firmware License Agreement shall not constitute a waiver of such right or provision.



9. Installation

WARNING: Power should not be applied to electrical equipment during Installation, and cabling connection/disconnection activities.

Apply power only when all installation and cabling activities have been completed.

The ASM, (optional) CAM/SAMs, and Coupler(s) are designed to be mounted into a standard EIA 19" rack frame using industry standard 19" rack fasteners. The (optional) RSM module is mounted onto the rear of the ASM using the supplied mounting bracket. The Application Diagram (Diagram 1) illustrates the ASM/CAM/SAM/RSM/Coupler connectivity.

The system should be installed into a dry, vibration and corrosive free environment avoiding areas of high heat or humidity and direct sunlight.

The Coupler 1RU panel/s may be mounted either above or below the ASM. However consideration should be given to the requirement for the low loss cables from the Tx combiners to be routed via the Coupler panel to the antenna. This may influence the mounting position of the Coupler panel in the respective 19" rack frame.

No RF coaxial interconnect cables are provided with the ASM. This is because the optimal length for these cables may vary for each installation. These cables should be made up on site once the ASM and respective coupler units have been mounted into the 19" rack frame.

Typically 50 Ohm double-shielded or solid jacket coaxial cables terminated with N (M) connectors terminated on each end are used to connect the "FWD" and "RFL" ports of the Coupler to the nominated input ports of the ASM. Although there is no specific restriction on the length of these cables between the Coupler and the ASM, it is recommended to keep the cable losses below 3dB, which in effect adds to the coupling loss. This loss can be calibrated out, however the end result of high cabling losses in these cables will be to marginally reduce the effective lower level measurement dynamic range of the ASM. Lower loss coaxial cables should be used to reduce this effect when using longer cable runs exceeding a calculated coaxial line loss of 3dB.

The input "From Combiner" and output "To Antenna" ports of the Coupler are 7/16DIN (F) and will require low Inter-Modulation (IM) 7/16DIN (M) cable connectors to terminate onto the Coupler. The use of correct cable cutting and connector preparation tools to terminate the 7/16DIN (M) connectors is strongly recommended to reduce the possibility of Passive Inter-Modulation (PIM) products. The 7/16DIN connectors should always be correctly torqued to the manufacturers recommended values.

Note: Final torqueing of the termination connectors onto the Coupler should be done after the calibration procedure as described under the *Calibration – Tx Port 1* section of this document is completed.

To protect the transmitter combiner and transmitters from any possible damage, ensure that each transmitter coupled to the respective transmitter combiner is powered down prior to disconnection and reconnection onto the respective coupler units.

Although it is not necessary to terminate the unused Tx FWD, Tx RFL and Rx ports on the ASM with a 50 Ohm low power resistive termination load, it is often considered good RF engineering practice to terminate any spare or unused port.

For DC power supply, a cable from the DC source should be terminated into the supplied 2-pin plug, observing the correct polarity, and then plugged into the polarized 2-pin Phoenix (F) socket on the rear of the ASM. For AC Mains versions, an AC-to-DC plug pack is provided with a terminated 2-Pin plug already terminated onto the end of the plug pack's DC cable. This should be fitted into the power socket on the rear of the ASM.

M5 and M6 earth studs are located on the rear of the ASM, (optional) CAM/SAM(s) and RSM, and Coupler(s) for earthing the units to a suitable earthing point within the 19" rack cabinet or rack frame.



10. Operation

When the power source to the ASM has been switched on, check that the green "Power" LED light on the front panel is illuminated. Any other illuminated LEDs will be reflecting the current state of the various alarms - based on the current programmed configuration.

If one or more optional Channel Alarm Modules (CAMs) and/or Site Alarm Modules (SAMs) and Receive Systems Module (RSM) are fitted, the green "Power" LED light on their panel is illuminated. This LED will "pulse" at regular intervals to indicate comms activity between them and the host ASM. Any other illuminated LEDs will be reflecting the current state of the various inputs/outputs and alarm states - based on the current programmed configuration.

A CD or USB memory stick is provided with the ASM and contains copies of the QSG (Quick Start Guide) and ASM User's Manual and other supporting information and files.

In addition to using the integral Web Browser GUI, the ASM (and any connected CAM/SAM/RSMs) can also be communicated with via a CLI (Command Line Interface) using plain text format via a Telnet IP session. For information on the CLI format please contact the RFI Technical Support team.



10.1 Ethernet Connection, Set-up, and Reset

Web Browser GUI (Graphical User Interface)

The ASM utilizes an on board web server to provide web browser access to the GUI. This can be accessed connecting to the ASM via a short Ethernet cable jumper from a laptop/notebook directly to the ASM or remotely via a TCP/IP network.

A standard Ethernet CAT5e jumper cable terminated with RJ45 connectors at either end is provided for convenience in the packing box with the ASM. Plug one end of this Ethernet jumper cable into the ASM and the other end into your computer Ethernet socket.

The following web browsers are compatible with the ASM GUI;

- Internet Explorer 8
- Firefox V3.6
- Chrome V9
- Safari V5.



IP Address

Initiate your web browser and type in the address field the following default address;

http://192.168.1.200 (ASM factory default address).

Connectivity to the ASM is successful when the following "Log In" page appears.

Username	admin
Password	••••
	Login

Should the web browser be unable to open this session, it may be necessary to set the IP address of your computer to an address in the same IP range (i.e. 192.168.1.180).

This is done for example in Windows XP[™] in the following manner;

- 1. Select "Start" from status menu
- 2. Single click "Control Panel"
- Double click "Network Connections"
 Double click "Local Area Connection"
- 5. In Local Area Connections Status box, single click the "Properties" button.
- 6. When the Local Area Connection Properties box opens, select only the "Internet Protocol (TCP/IP)" choice.
- 7. Click "Properties" button.
- 8. Click "Use the following IP address.
- 9. Enter next to IP address 192.168.1.180
- 10. Enter next to Subnet mask 255.255.255.0
- 11. Enter next to Default gateway 192.168.1.254
- 12. Click "OK" to initiate changes.



This is done for example in Windows 7[™] in the following manner;

- 1. Select "Start" from status menu
- 2. Single click "Control Panel"
- 3. Single click " Network and Sharing Center"
- 4. Single click "Change Adapter Settings" on the left hand side menu
- 5. Single Click "Local Area Connection" box6. Single Click "Change Settings of this Connection"
- 6. When the Local Area Connection Properties box opens, select only the "Internet Protocol 4 (TCP/IPv4)" choice.
- 7. Click "Properties" button.
- 8. Click "Use the following IP address".
- 9. Enter next to IP address 192.168.1.180
- 10. Enter next to Subnet mask 255.255.255.0
- 11. Enter next to Default gateway 192.168.1.254
- 12. Click "OK" to initiate changes.

Should you still be unable to successfully connect to the ASM via the default IP address then the IP address may have already been changed. If there is no possibility of recovering the changed IP address, then it will be necessary to reset the ASM to the factory default settings.

Reset Factory Default Ethernet Addresses and Access.

To reset the ASM back to the Factory Default settings will mean a complete reset of all RF configuration settings and alarm threshold parameters as well as the IP address parameters. To do this, simply switch the ASM off by removing the DC power cable connector. Press the factory reset button on the rear of the ASM, reconnect the DC power while continuing to hold the reset button down until the green power LED light flashes, the Factory reset has started and the reset button may be released. Wait for the ASM to complete its default re-configuration and to restart.

NOTE: This will cause the IP address, subnet and gateway addresses and all other configuration data to be reset back to factory default address.

Factory Default settings

DHCP - Disabled IP Address - 192.168.1.200 Subnet Mask - 255.255.255.0 Gateway - 192.168.1.254 Level 1 User Name: user Level 1 Password: user Level 2 User Name: admin Level 2 Password: admin Level 3 User Name: master Level 3 Password: master

Reset RF Default settings.

To reset the ASM back to the RF Default settings will mean a complete reset of all RF configuration settings and alarm threshold parameters. The above Factory Default Ethernet and Access settings will remain unchanged.

Should you wish to only reset the RF configuration settings, simply press the factory reset button (without disrupting power) until the green power LED light flashes, the RF reset has started and the reset button may be released.

10.2 Log In Page

Username	admin
Password	•••••
	Login

The default User Name is "master" and Password is "master". This default user name and password provides complete and unrestricted access to the ASM (Level 3).

Once logged in, this can be changed via the User Management screen under the Maintenance menu tab.

User Name and Password Levels

- Level 1: User name and password access via the web browser GUI interface displays only status screens.
- Level 2: User name and password access via the web browser GUI interface facilitates status, configure and maintenance screens. The 'unit-specific' sensitive fields (such as Communications Settings, SMTP Alarm email account passwords, etc.) are hidden to prevent accidental modification or disclosure to unauthorised persons.
- Level 3: User name and password access via the web browser GUI interface facilitates status, configure and maintenance screens. The 'unit-specific' sensitive fields (such as Communications Settings, SMTP Alarm email account passwords, etc) are all displayed and available for editing.

Once the correct User Name and Password is entered the GUI will open to the first page of the GUI.

GUI Page Headers

The first page that appears in the GUI is the "System Overview" page.

This page is headed with the name of the product and the model reference. The "Customer Name" and "Site Name" will display either the factory default fields (as "Not Defined") or the names allocated to each under the "Configuration – User Data" menu item which allows the user to define the customer name, respective site name, and the names allocated to the respective Tx Ports (Groups) 1 to 4.



10.3 System Overview

	Ante	Model - DSAPM3852K2	onitor	
RFI		System Overview		
	Customer Name -	APM3852		
<u>Overview</u>	Site Name -	Bayswater		
History	Group	Tx Antenna Reference	Channel Count	Alarm Status
<u>Channel Diagnostics</u>	Isolation Tests		11	ок
Configuration	Ry Channels 1-20		9	ок
Calibration	RX Channels 1-20			OK
Maintenance	RX Channels 21-40		8	ОК
About	Rx Channels 41-60		0	ок
<u>Logout</u>	Rx Channels 61-80		0	ок
Help				
	Tx Port 1	Tx 420	8	FAIL
	Tx Port 2	Tx 500	8	FAIL
	Tx Port 3		0	ок
	Tx Port 4		0	ок
	<u>System</u>			FAIL
				Refresh
	Соругі	ght © 2005-2016 RF Industries Pty Ltd. All Rights	Reserved	

This page displays an overview of the current unit status.

The overall summary alarm status is displayed, for each Port and for the System, with each line representing the current alarm status on its respective Status page in the GUI menu. Clicking on any Group item will navigate you to that item's Status page so that the detail of the alarms can be viewed. The following items are displayed:

Group:

The group of parameters relevant to each title.

Tx Antenna Reference:

The user-defined description for the Port.

Channel Count:

The number of channels that have been configured for the Port.

Alarm Status:

The "Fail" or "OK" summary status for the Group.

Clicking the title of a "Group" will navigate to the nominated port's details page.

Refresh:

Click this button to manually trigger a page refresh.



10.4 Status Menu

The "Status" menu allows all of the ASMs measurement parameters to be viewed.

Selecting each indented topic under "Status" will display that item as a separate display page.

RFI
<u>Overview</u>
Status
Isolation Tests
<u>Receive Module</u>
<u>Rx Channels 1-20</u>
Rx Channels 21-40
Rx Channels 41-60
Rx Channels 61-80
<u>Tx Port 1</u>
<u>Tx Port 2</u>
<u>Tx Port 3</u>
<u>Tx Port 4</u>
<u>System</u>
Alarm Modules
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
<u>About</u>
Logout

Help

Note: The "Receive Systems Module" and "Alarm Modules" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.

10.5 Status – System Isolation Tests



<u>Overview</u>
Status
Isolation Tests
Rx Channels 1-20
Rx Channels 21-40
Rx Channels 41-60
<u>Rx Channels 61-80</u>
<u>Tx Port 1</u>
<u>Tx Port 2</u>
<u>Tx Port 3</u>
<u>Tx Port 4</u>
<u>System</u>
Alarm Modules
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
About
Logout

Help

	Mt Walker			
Settings				
Setting	Value			
Automatic System Isolation Tests	Disabled			
Automatic Test Schedule	At 02:00 ev Wednesday, Sunday, star	ery week on Mond: Thursday, Friday, rting 26/2/2014	ay, Tuesday, Saturday,	
Next Scheduled Test	n/a			
Parameters Used				
Item	Value			
Internal Test Signal Level	- 15.0 dBm			
Tx Reverse Coupling Loss (Nominal)	40.7 dB			
Tx Feeder Loss (Nominal)	3.0 dB			
Rx Subsystem Gain(Loss)	- 0.7 dB			
	0.0.10			
Rx Post Gain(Loss)	0.0 dB			
Rx Post Gain(Loss) Test Results Frequency	Ant Iso	Rx System	Tx Rejection	Measured
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz	0.0 dB Ant Iso 20.1 dB	Rx System	Tx Rejection	Measured - 79.5 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz	Ant Iso	Rx System - 13.9 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz	Ant Iso	Rx System - 13.9 dB - 2.3 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz	0.0 dB Ant Iso 20.1 dB	Rx System - 13.9 dB - 2.3 dB - 1.3 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz	Ant Iso	Rx System - 13.9 dB - 2.3 dB - 1.3 dB - 1.3 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz Rx 405.00000 MHz	Ant Iso	Rx System - 13.9 dB - 2.3 dB - 1.3 dB - 0.7 dB - 0.9 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.75000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 405.00000 MHz Rx 405.00000 MHz	Ant Iso	Rx System - 13.9 dB - 2.3 dB - 1.3 dB - 1.3 dB - 0.7 dB - 0.9 dB - 5.0 dB	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz Rx 405.00000 MHz Rx 406.00000 MHz Rx 406.00000 MHz	Ant Iso 20.1 dB	Rx System - - -	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz Rx 405.00000 MHz Rx 406.00000 MHz Rx 406.25000 MHz Tx 408.21250 MHz - Port 1	0.0 dB	Rx System -	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm n/a
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz Rx 405.00000 MHz Rx 406.25000 MHz Tx 408.21250 MHz - Port 1 Tx 423.10000 MHz - Port 1	0.0 dB Ant Iso 20.1 dB 51.4 dB 51.4 dB	Rx System - 13.9 dB - 2.3 dB - 1.3 dB - 0.7 dB - 0.9 dB - 5.0 dB - 12.8 dB n/a	Tx Rejection	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm n/a
Rx Post Gain(Loss) Test Results Frequency Rx 402.50000 MHz Rx 398.00000 MHz Rx 398.75000 MHz Rx 400.00000 MHz Rx 402.50000 MHz Rx 405.00000 MHz Rx 406.00000 MHz Rx 406.25000 MHz Tx 408.21250 MHz - Port 1 Tx 423.10000 MHz - Port 1 Tx 467.78750 MHz - Port 1	51.4 dB 51.4 dB	Rx System - - - <t< td=""><td>Tx Rejection I <tr< td=""><td>Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm n/a n/a</td></tr<></td></t<>	Tx Rejection I <tr< td=""><td>Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm n/a n/a</td></tr<>	Measured - 79.5 dBm - 92.7 dBm - 81.1 dBm - 80.1 dBm - 79.5 dBm - 79.7 dBm - 83.8 dBm - 91.6 dBm n/a n/a

The "Status - Isolation Tests" page reports the current status of the System Isolation Tests settings.

Settings:

Automatic System Isolation Tests:

Indicates if the Automatic System Isolation Tests function is currently enabled/disabled in the ASM. If 'enabled', the System Isolation Tests are performed automatically, based on the Automatic Test Schedule. If 'disabled', the System Isolation Tests can still be performed manually, by clicking the 'Test Now' button.

Automatic Test Schedule:

The configured schedule when the System Isolation Tests will be performed if enabled. The schedule may be configured based on a range of time/interval/repetition parameters.



Next Scheduled Test:

The next scheduled date/time that the Automatic Test Schedule will be performed.

Parameters Used:

The known RF site parameters that are used in performing the System Isolation Tests. These parameters are collated from data fields on the various ASM GUI configuration screens,

Test Results:

The displayed results of the System Isolation Tests. These are as follows;

Tx-Rx Antenna Isolation Iso (Ant Iso):

The first line of the Test Results table displays the calculated Tx-Rx Antenna Isolation value, and is measured using the ASM's internal signal generator operating on the displayed Rx Frequency. The value measured and displayed represents the minimum isolation value between any of the monitored Tx and Rx antennas. In multiple Tx antenna systems, this value represents the sum of all Tx-Rx isolations seen in parallel, and in multiple Tx antenna installations this value usually represents the worse-case Tx-Rx antenna isolation path at the site. This test's measured Rx Level is provided in the right hand column for information.

Note: The isolation that can exist between antennas, particularly in dual/triple/quad stacked models, can vary significantly by frequency, and may be higher than the 'typical' or 'minimum' value stated in the antennas' published specifications. Therefore, it is recommended to measure the achieved antenna isolation on a site during the commissioning of the site (or the initial installation of the ASM), and to apply alarm values in the ASM configuration screen that are appropriately set either side of the emasured antenna isolation at the proposed test frequency. The *Test Now* function may be useable to perform this initial measurement if the achieved isolation value is within the measurement range of the ASM.

Rx System Performance (Rx System):

The next lines of the Test Results table display the calculated Rx System performance values, and is measured using the ASM's internal signal generator operating on the programmed Rx Frequencies. Typically, nominated Rx frequencies at the bottom, middle and top of the Receiver System preselector (or TTA) passband will suffice in providing an overall Rx System Performance indication. Additional frequencies may be configured for this test if more thorough results are desired.

The Antenna Isolation value used for all Rx frequencies in this test is the above Tx-Rx Antenna Isolation value. The values calculated represent the Rx Subsystem Gain/Loss value, and the displayed values should align similarly with the Rx Subsystem Gain/Loss value displayed in the Parameters Used table. In the example shown, the preselector passband is 400-405MHz. The preselector passband response roll-off can be seen in the frequency measurements either side of this passband. This test's measured Rx Levels (Measured) are provided for information.



These Rx System Performance measurements show the Rx system's gain and selectivity response. Additional frequencies could be configured into this test to show the selectivity response values further outside the passband if desired.

Tx Rejection (Tx Rejection):

The next lines of the Test Results table display the calculated receiver subsystem's Tx Rejection performance values, and is measured using the monitored Transmitter's outputs on the displayed Tx Frequencies.

Typically, nominated Tx frequencies at the bottom and top of the Transmitter frequencies monitored on the site (or multiple bottom and top frequencies if multiple Tx sub-bands are ASM-monitored Tx combiners) will suffice in providing an overall Tx Rejection performance indication. Additional frequencies may be configured for this test if more thorough results are desired.

The Antenna Isolation value used for all Tx frequencies in this test is a calibrated value measured for each Tx Antenna and recorded in the *Configuration – Isolation Tests* GUI page. The values calculated represent the overall rejection of the Tx carriers, as seen at the Rx Subsystem, and include all Tx combiner, Tx Feeder, Tx-Rx Antenna Isolation, Receiver (or TTA) Preselector selectivity, and Rx Subsystem Gain/Loss components. This test's calculated Receiver (or TTA) Preselector Tx carrier frequency rejection (Rx System) and the measured level of the Tx frequencies at the ASM Rx port (Measured) are provided for information.

Measured:

The Rx RSSI value measured by the ASM during this test.



Test Now:

The "Test Now" button can be selected at any time to manually initiate a System Isolation Tests measurement.

All of the measurement fields may take time to populate subject to when the Tx frequencies configured in the test next transmit. The 'Test Now" button will display

- **Note:** During a System Isolation Test, results that have not yet been measured (i.e. because the nominated Tx frequency has not yet keyed) will be highlighted by a shaded background colour. As each test is able to be completed, and a result recorded, that measurement's value will change to having a solid background colour. It may take some time for all tests to be completed and a measurement result recorded depending on channel activity at the time of the test. The background behind a measurement value is highlighted in colour to indicate its current status, as follows; Green denotes 'no alarm', a Pale Green background denotes a measurement of a previous 'no alarm' value is yet to be completed, Red denotes 'alarm', a Pale Red background denotes a measurement of a previous 'alarm' value is yet to be completed, a Pale Yellow background denotes the Ant Iso value is a calculated average (i.e. the value for the specific port has not been calibrated, and White denotes a measurement result is not available.
- Note: The Rx System performance values that can be measured in the System Isolation Tests are a function of the overall test configuration. If the resulting measurement is beyond the ASM's measurement sensitivity, '???' will be displayed in lieu of a value.

4		Statu	s - S	Syste	m I	solat	tion 1	Fest s	5				
Sille.	Customer Name -	,	APM385	52									
Aller	Site Name -	E	Bayswa	ter									
RFI	Settings												
verview	Setting	Value											
tatus	Automatic System Isolation Tests	Enabled	ł										
Isolation Tests	Automatic Test Schedule	Every H	lour, sta	rting at 1	9:30								
Receive Module	Next Scheduled Test	Thu Ap	r 14 16:	30:00 20	016								
Rx Channels 1-20													
Rx Channels 21-40	Parameters lised												
Rx Channels 41-00													
Tx Port 1	Item	Value											
Tx Port 2	Internal Test Signal Level	- 15.0 c	lBm										
Tx Port 3	Tx Reverse Coupling Loss (Nominal)	39.2 dB	۱										
Tx Port 4	T× Feeder Loss (Nominal)	3.0 dB											
<u>System</u>		RA		RB	RE								
Alarm Modules	R× Subsystem Gain(Loss)	0.0 dB		0.0 dB	0.0	0 dB							
Communications	Rx Post Gain(Loss)	0.0 dB		0.0 dB	0.0	0 dB							
hannel Diagnostics													
onfiguration	Test Results												
alibration			()=>							- 1		1.4.1-	
laintenance	Frequency	Ant Is	o (dB)		Rx Sys	stem (dB)	Tx Rej	ection (d	в)	Measur	ed (dBm)
.bout		RA	RB	RE	RA	RB	RE	RA	RB	RE	RA	RB	RE
ogout	Rx 421.00000 MHz	62.8	62.8	65.2							-120.0	-120.0	-122.4
Help	Rx 415.00000 MHz				+ 1.1	+ 2.8	+ 2.0				-118.9	-117.2	-120.4
(TOP)	R× 419.00000 MHz				0.0	+ 1.3	+ 0.5				-120.0	-118.7	-121.9
	R× 420.00000 MHz				+ 0.1	- 1.5	- 0.8				-119.9	-121.5	-123.2
	Rx 420.50000 MHz				0.0	+ 0.2	+ 0.4				-120.0	-119.8	-122.0
	Rx 421.00000 MHz				+ 0.2	+ 0.2	+ 0.1				-119.8	-119.8	-122.3
	Rx 421.50000 MHz				+ 0.5	+ 0.1	+ 0.1				-119.5	-119.9	-122.3
	Rx 422.00000 MHz				+ 0.7	- 0.3					-119.3	-120.3	
	Rx 427.00000 MHz				+ 2.6	+ 1.0					-117.4	-119.0	
	Tx 420.06250 MHz - Port 1	61.7	61.7	61.7	65.5	71.6	73.3	130.2	136.3	138.0	- 83.2	- 89.3	- 91.0
	Tx 500.06250 MHz - Port 2	61.7	61.7	61.7	67.4	68.4	90.6	132.1	133.1	155.3	- 84.8	- 85.8	-108.0
											•	Te	st Now
		G	opyright 🕲 :	2005-2016 R.F	Industries P	ty Ltd. All Ri	ghts Reserved						

When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RxE) are visible in the *Status – System Isolation Tests* page.



10.6 Status – Receive Systems Module

RE1	

Isolation Tests

Receive Module

Rx Channels 1-20

Rx Channels 21-40

Rx Channels 41-60 Rx Channels 61-80

Tx Port 1

Tx Port 2 Tx Port 3

Tx Port 4

<u>System</u>

History

Alarm Modules

Channel Diagnostics Configuration Calibration Maintenance <u>About</u> Logout

Help

Overview

Status

Status - Receive Systems Module APM3852 Customer Name -Site Name -Bayswater Settings Setting Value Model DSM0000 1.0 Firmware Version Hardware Model No. 0 Hardware Revision 0 Module Serial Number 0001 RxA to Rx-Output Gain 0 dB RxB to Rx-Output Gain 0 dB Antenna (R×E) to R×-Output Gain 0 dB RxA-IN to RxA-OUT On/Off ON RxB-IN to RxB-OUT On/Off ON

|--|

Item	Status
Alarm Status	ок
RxA Peak Level	< - 65.0 dBm
RxA Current Level	< - 65.0 dBm
RxB Peak Level	< - 65.0 dBm
RxB Current Level	< - 65.0 dBm
Antenna (R×E) Peak Level	- 60.5 dBm
Antenna (R×E) Current Level	- 61.1 dBm
Power Supply	ок
Reset Peak Levels	Refresh
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Note: The "Receive Systems Module" menu item appears only if an (optional) Receive Systems Module (RSM) is installed.

The Receive Systems Module "Status" page reports the current status of the RSM

Settings:

Model:

Displays the type of Receive Systems Module.

Firmware Version:

Displays the Alarm Module's Firmware Version.

Hardware Model No.:

Displays the Receive Systems Module's Hardware Revision Number.



Hardware Revision:

Displays the Receive Systems Module's Hardware Revision.

Module Serial Number:

Displays the Receive Systems Module's Module Serial Number.

RxA to Rx-Output Gain:

Displays the configured gain in the signal path from the RxA Input to the Rx Output to the ASM.

RxB to Rx-Output Gain:

Displays the configured gain in the signal path from the RxB Input to the Rx Output to the ASM.

Antenna RxE to Rx-Output Gain:

Displays the configured gain in the signal path from the RxE Input to the Rx Output to the ASM.

RxA IN to RxA OUT On/Off:

Displays the configured state of this RF path. "ON" is a nett gain of 0dB, "OFF" is a maximum attenuation in this path (>25dB).

RxB IN to RxB OUT On/Off:

Displays the configured state of this RF path. "ON" is a nett gain of 0dB, "OFF" is a maximum attenuation in this path (>25dB).

Status:

Alarm Status:

Indicates the current status of the RSM's alarms.

RxA Peak Level:

Displays the highest level signal measured on the RxA input. See Reset Peak Levels (below)

RxA Current Level:

Displays the last signal measured on the RxA input.

RxB Peak Level:

Displays the highest level signal measured on the RxB input. See Reset Peak Levels (below)

RxB Current Level:

Displays the last signal measured on the RxB input.

Antenna (RxE) Peak Level:

Displays the highest level signal measured on the RxE input. See Reset Peak Levels (below)

Antenna (RxE) Current Level:

Displays the last signal measured on the RxE input.

Power Supply:

Displays the current alarm state of the RSM's power supply.



Reset Peak Levels:

Click this button to reset the stored Peak Level value

Refresh:

Click this button to manually trigger a page refresh.

<u>Note:</u> The background behind a measurement value is highlighted in colour to indicate its current status. Green denotes 'no alarm', Yellow denotes 'warning', and Red denotes 'alarm'.



10.7 Status - Rx Channels 1-20

<u>A</u>	Status - Rx Channels 1-20								
	Custome	r Name -	Polic	e					
Allin	Site Nam	e -	Mt W	/alker					
RFI					Auto R	efresh 🔳	Refresh		
<u>Overview</u>	Chan No.	Channel ID	NW ID	ON	Freq	Act	Last recorded Power above threshold		
Status	Rx-1	O&M Ch 1	0	Yes	418.21250 MHz	0	-108.9 dBm		
Isolation Tests	Rx-2	O&M Ch 2	0	Yes	418.75000 MHz	•	-110.0 dBm		
<u>Rx Channels 1-20</u>	Rx-3	GRN 1	1	Yes	428.10000 MHz	0	<-110 dBm		
<u>Rx Channels 21-40</u>	Dec 4	CDN 2		Vee	420.20750 MUE				
Rx Channels 41-60	KX-4	GRN 2	1	res	428.38750 MHZ		- 93.2 dBm		
<u>Rx Channels 61-80</u>	Rx-5	GRN 3	1	Yes	428.67500 MHz		<-110 dBm		
<u>Tx Port 1</u>	Rx-6	GRN 4	1	Yes	428.82500 MHz	٥	- 90.2 dBm		
<u>Ix Port 2</u> Tx Port 2	Rx-7	GRN 5	1	Yes	429.21250 MHz	•	<-110 dBm		
<u>Tx Port 4</u>	Rx-8	GRN 6	1	Yes	429.58750 MHz		<-110 dBm		
<u>System</u>	Rx-9	PRN Ch 1	2	Yes	458.78750 MHz	•	-102.8 dBm		
Alarm Modules	Rx-10	PRN Ch 2	2	Yes	458.91250 MHz		-109.2 dBm		
Communications	Rx-11	PRN Ch 3	2	Yes	459.30000 MHz	•	<-110 dBm		
History									
Configuration							Refresh		
Collibration									
Maintenance			Copyright © 2005-2	2015 RF I	Industries Pty Ltd. All Rights	Reserved			
About									
Logout									

The "*Status - Rx Channels*" pages report the current status of Rx channels. To prevent display clutter, Rx channels are displayed with up to 20 channels shown per page.

Chan No:

Indicates the configured sequential channel number.

Channel ID:

The user configured description for the channel.

NW ID:

Allows channels to be affiliated with a network (i.e. "1" is Police Network, "2" is Fire Network), to an antenna system ("1" is Tx Antenna #1, "2" is Tx Antenna #2), or to another label (i.e. "1" is 24x7 Maintenance, "2" is Normal Hours Maintenance) and this label will appear in Alarm Messages to allow faster determination of response priority and or actions.

Note: The NW ID column is only displayed if this feature is enabled in the "Configuration – User Data" screen.

ON:

The configured channel scanning On/Off status. If this is "OFF", the measurements for this channel will not be performed. This field may be used if channels have been disabled or temporarily removed from the site.

Freq:

The configured frequency of the channel.



Act:

An "active" indicator that shows the status of the Last recorded power above threshold value being display.

The three states that may appear are;

- 1. The indicator symbol is displayed but is dull the value shown was not measured in the last measurement cycle.
- 2. The indicator symbol is displayed and is lit the value shown was measured in the last measurement cycle.
- 3. The indicator symbol is not displayed the channel is currently disabled and is not being measured.

Power:

The result of the last valid received signal power level measurement in dBm. This will only be updated if the Rx power is above the programmed minimum threshold level.

Auto Refresh:

Check this box to enable continuously repeated measurement and status updates. Updates will refresh every 5 seconds. Uncheck this box to cease continuously repeated updates.

Refresh:

Click this button to manually trigger one measurement and status update cycle.

Note: The background behind a measurement value is highlighted in colour to indicate its current status. Green denotes 'no alarm', and Red denotes 'alarm'.

	Status - Rx Channe Customer Name - APM3852 Site Name - Bayswater							1-20					
RFI							Auto Refresh 📃					esh	
<u>Overview</u>	Char No.	Channel TD				Free		Last reco	orded Pow	er above	ve threshold		
Status	Chân No.	Channel ID	KA	KB	RE	Freq		RA	RB		RE		
Isolation Tests	Rx-1	FC CH1 420	Yes	Yes	Yes	420.06250 MHz	0	- 82.7 dBm	0 - 88.	6 dBm	• <-12	5 dBm	
Receive Module	Rx-2	FC CH2 420	Yes	Yes	No	420.26250 MHz	•	<-125 dBm	<-12	5 dBm			
Rx Channels 1-20	Rx-3	FC CH3 420	Yes	Yes	No	420.36250 MHz	•	<-125 dBm	<-12	5 dBm			
Rx Channels 41-60	Rx-4	FC CH4 420	Yes	Yes	No	420.56250 MHz		<-125 dBm	 ● <-12	5 dBm			
Rx Channels 61-80	Ry_5	EC CH5 420	Ves	Vac	No	420 66250 MHz	-	- 81.0 dBm	0 - 87	1 dBm			
<u>Tx Port 1</u>	Du C	FC CH5 420	165	Ne	No	420.00250 MHz	-	- 01.0 dbm	0 - 07.	1 dbiii			
<u>Tx Port 2</u>	KX-0	FC CH6 420	res	NO	NO	421.28750 MHZ		<-125 dBm					
<u>Tx Port 3</u>	Rx-7	FC CH7 420	Yes	No	No	421.36250 MHz	0	- 84.0 dBm					
<u>Tx Port 4</u>	Rx-8	FC CH8 420	Yes	No	No	421.58750 MHz	0	- 78.8 dBm					
<u>System</u>	Rx-9	Building DAS	No	No	Yes	468.10000 MHz					<-12	5 dBm	
Alarm Modules											Defr	- ah	
Communications											Rein	esn	
Channel Diagnostics													
			Сору	right ©	2005-20	016 RF Industries Pty Ltd. A	All Rig	hts Reserved					
Calibration													
Maintenance													
<u>About</u>													
Logout													
Help													

When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RE) are visible in the *Status – Rx Channels* pages.



<u> 10.8 Status – Tx Port 1</u>

	Status - Tx Port 1							
	Custome	r Name -	Α	APM3852				
Allin	Site Name -		B	Bayswater				
RFI	Tx Antenna Reference -		D	Tx 420				
					Au	to Refresh		Refresh
<u>Overview</u>								
Status	Chan No.	Channel ID	ON	Freq	Last recorded activity abov			ve threshold
Isolation Tests					Act	P	ower	VSWR
<u>Receive Module</u>	Tx1-1	FC CH1 420	Yes	420.06250 MHz	0	39.81 W	+46.0 dBm	1.71:1
<u>Rx Channels 1-20</u>	Tx1-2	FC CH2 420	Yes	420.26250 MHz		67.61 W	+48.3 dBm	1.54:1
Rx Channels 21-40	Tv1 2	EC CH2 420	Voc	420 26250 MH 7		0.00.W/	1 5 7 dPm	1.00:1
Rx Channels 41-60	1X1-3	FC CH3 420	res	420.30230 MHZ	-	0.00 W	+ 5.7 dBill	1.00:1
<u>Rx Channels 61-80</u>	Tx1-4	FC CH4 420	Yes	420.56250 MHz	•	47.86 W	+46.8 dBm	1.58:1
IX Port 1	Tx1-5	FC CH5 420	Yes	420.66250 MHz		61.66 W	+47.9 dBm	1.67:1
Tx Dort 2	Tx1-6	FC CH6 420	Yes	421.28750 MHz		77.62 W	+48.9 dBm	1.49:1
Tx Port 4	Tx1-7	FC CH7 420	Yes	421.36250 MHz	•	104.71 W	+50.2 dBm	1.51:1
Svstem	Tx1-8	EC CH8 420	Yes	421 58750 MHz		72 44 W	+48 6 dBm	1.58.1
Alarm Modules	IXI O	10 010 420	105	421.50750 Mill2	-	/2.44 11	140.0 0011	1.50.1
Communications								Refresh
History								
Channel Diagnostics		Co	pyright © 20	05-2016 RF Industries Pty Lt	d. All R	iahts Reserve	d	
Configuration				· ·		-		
Calibration								
Maintenance								
About								
<u>Logout</u>								
Help								

The Tx Port "Status" page reports the current status of all Tx channels allocated to the selected Tx Port.

Note: The Status - Tx Port screens have been optimised for accuracy. The Channel Diagnostics page has been optimised for fast screen refresh rate to assist tuning and other maintenance activities. As such, for some modulation types, the Power values displayed on the Status – Tx Port pages may vary slightly from those displayed on the Channel Diagnostics screen. For highest accuracy, use the Status - Tx Ports screens for determining actual Power values.

Chan No:

Indicates the Tx Group followed by the configured sequential channel number within the Group i.e. Tx1-3 is the 3rd monitored channel within Tx Group 1.

Channel ID:

The user configured description for the channel.

NW ID:

Allows channels to be affiliated with a network (i.e. "1" is Police Network, "2" is Fire Network), to an antenna system ("1" is Tx Antenna #1, "2" is Tx Antenna #2), or to another label (i.e. "1" is 24x7 Maintenance, "2" is Normal Hours Maintenance) and this label will appear in Alarm Messages to allow faster determination of response priority and or actions.

Note: The NW ID column is only displayed if this feature is enabled in the Configuration – User Data screen.



ON:

The configured channel scanning On/Off status. If this is "OFF", the measurements for this channel will not be performed. This field may be used if channels have been disabled or temporarily removed from the site.

Freq:

The configured frequency of the channel.

Act:

An "active" indicator that shows the status of the Last recorded power above threshold value being display.

The three states that may appear are;

- 1. The indicator symbol is displayed but is dull the value shown was not measured in the last measurement cycle.
- 2. The indicator symbol is displayed and is lit the value shown was measured in the last measurement cycle.
- 3. The indicator symbol is not displayed the channel is currently disabled and is not being measured.

Power:

The result of the last valid signal power level measurement in Watts and dBm. This will only be updated if the Tx power is above the programmed minimum threshold level.

Ins Loss:

The last measured Combiner Insertion Loss value. This value is the difference between the current Power level (as above) and the stored BTx Power level.

VSWR:

This is the VSWR recorded when the last valid power level measurement occurred.

Auto Refresh:

Check this box to enable continuously repeated measurement and status updates. Updates will refresh every 5 seconds. Uncheck this box to cease continuously repeated updates.

Refresh:

Click this button to manually trigger one measurement and status update cycle.

<u>Note:</u> The field behind an alarm is highlighted in colour to indicate its current status. White denotes 'no alarm', and Red denotes 'alarm'.
<u> 10.9 Status – System</u>



<u>Overview</u>
Status
Isolation Tests
Receive Module
Rx Channels 1-20
Rx Channels 21-40
Rx Channels 41-60
Rx Channels 61-80
<u>Tx Port 1</u>
Tx Port 2
Tx Port 3
<u>Tx Port 4</u>
<u>System</u>
Alarm Modules
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
About
Logout

Help

M3852K2
C5
C6a
0159
"TM", Serial 0×14bbc170

Status - System

Alarm Summary

Alarm									Status	
Fault Summary									FAIL	
Isolation Tests									ок	
Rx Power									ок	
Tx Power									FAIL	
Tx VSWR									FAIL	
vco									ок	
SD-Card									ок	
Internal Supply Rails									ок	
Receive Module									ок	
Alarm Modules	1	2	3	4	5	6	7	8	9	10
Ext & DI Summary	ок	ок	-	-	-	-	-	-	-	-

Alarm Relays

Relay	Alarm Source	Status
Relay 1	Summary Alarm	Active
Relay 2	Rx Power	Inactive
Relay 3	Tx Power	Active
Relay 4	T×VSWR	Active
		Refresh

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This System Status" page reports the current system settings and alarm summary.

Note: The "*Receive Systems Module*" and "*Alarm Modules*" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.



Model:

The model designator of this unit.

Unit ID:

This field reports the unique ID number that has been assigned by the Remote Manager application (If being used). If the unit is not managed through the Manager application, this will normally be 0.

Firmware version:

The version of the firmware.

GUI version:

The version of the Graphical User Interface.

Hardware Revision:

The hardware revision status of the unit. Future hardware revision levels may add additional capabilities.

Unit Serial Number:

The serial number of this unit.

SD-Card IDs and Serial Number:

The internal SD storage card's brand/type identification and serial numbers.

Date, Time:

The date and time as maintained by the on-board real time clock. Refreshing the page will update this information.

Alarm Summary:

Fault Summary:

This is the overall system alarm summary status. It will be active if any of the alarms below it are active.

Isolation Tests:

This alarm will activate if any of the System Isolation Tests values are outside the min. or max. threshold levels.

Rx Power:

This alarm will activate if any of the Rx channels are detecting a received signal level outside the programmed min/max threshold levels.

Tx Power:

This alarm will activate if any of the Tx channels are detecting a forward power level outside the programmed min/max threshold levels.

Tx VSWR:

This alarm will activate if any of the Tx channels is detecting a VSWR level above its configured max VSWR level.

VCO:

If any of the unit's VCOs is experiencing lock failures, this alarm will activate.

SD-Card:

A regular write/read test is performed on the SD-Card. If this test fails to complete successfully, this alarm will activate.

Internal Supply Rails:

If any of the unit's internal supply rail voltages goes out of limits, this alarm will activate.

Receive Systems Module:

If a RSM is connected to the ASM and any of it has an alarm state present, this alarm will activate.

Alarm Modules:

If any CAM or SAM units are connected to the ASM and any of their External Inputs has an alarm state present, this alarm will activate.

Note: This Receive Systems Module and Alarm Modules lines appear only if one or more (optional) Channel Alarm Module (CAM),

Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM unit may be fitted to each ASM as required.

Network IDs:

If any Network ID has a channel with an alarm state active assigned to it, this alarm will activate.

Alarm Relays:

Relay 1:

Displays the Alarm Source currently allocated to this relay output, and its status.

Relay 2:

Displays the Alarm Source currently allocated to this relay output, and its status.

Relay 3:

Displays the Alarm Source currently allocated to this relay output, and its status.

Relay 4:

Displays the Alarm Source currently allocated to this relay output, and its status.

Refresh:

Reloads the page, updating the status information.

<u>Note:</u> The field behind an alarm is highlighted in colour to indicate its current status. Green denotes 'no alarm', and Red denotes 'alarm'.



<u> 10.10 Status – Alarm Modules - Menu</u>

Mir
RFI
Overview
Status
Tsolation Tests
Receive Module
Ry Channels 1-20
Rx Channels 21-40
Ry Channels 41-60
Ry Channels 61-80
Tx Port 1
Tx Port 2
Tx Port 3
Tx Port 4
System
Alarm Modules
SAM 1
CAM 2
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
About
Loqout
Help

Note: The "*Receive Systems Module*" and "*Alarm Modules*" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.



10.11 Status – Alarm Modules - SAM

Customer Name -

RFI	
Overview	

Overview
Status
Isolation Tests
Rx Channels 1-20
Rx Channels 21-40
Rx Channels 41-60
Rx Channels 61-80
<u>Tx Port 1</u>
<u>Tx Port 2</u>
<u>Tx Port 3</u>
<u>Tx Port 4</u>
<u>System</u>
Alarm Modules
<u>SAM 1</u>
<u>CAM 4</u>
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
About
Loqout

Help

Site Name -	Mt Walke	r		
Model	Serial Number	Firmware Versio	n Hardw	are Revision
SAM	13058071	2.0	1	
External Alarm Input	Input ID		Input Value	Status
Ext1-1	Equipment Room		14.9 °C	ок
Ext1-2	Battery Bank		12.10 V	ок
Ext1-3	Door Alarm		High	ок
Ext1-4	Not defined		n/a	Not in use
Digital Input	Input ID		Function	Status
DI1-1	Base Station Ch1		РТТ	Inactive
DI1-2	Not defined		Not in use	
DI1-3	Not defined		Not in use	
DI1-4	Not defined		Not in use	
DI1-5	Not defined		Not in use	
DI1-6	Not defined		Not in use	
DI1-7	Not defined		Not in use	
DI1-8	Not defined		Not in use	
DI1-9	Not defined		Not in use	
DI1-10	Not defined		Not in use	

Status - Site Alarm Monitor, Module 1

Police

Alarm Output	Alarm Source	Status
SAM1-1	T×1-1, 408.21250 MHz, O&M Ch 1	Inactive
SAM1-2	Ext1-2, Battery Bank	Inactive
SAM1-3	Alarm not in use	Inactive
SAM1-4	Alarm not in use	Inactive
SAM1-5	Alarm not in use	Inactive
SAM1-6	Alarm not in use	Inactive
SAM1-7	Alarm not in use	Inactive
SAM1-8	Alarm not in use	Inactive
SAM1-9	Alarm not in use	Inactive
SAM1-10	Alarm not in use	Inactive

Refresh

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This page reports the status of the selected Site Alarm Module (SAM) if fitted.



Model:

Displays the type of Alarm Module.

Serial Number:

Displays the Alarm Module's Serial Number.

Firmware Version:

Displays the Alarm Module's Firmware Version.

Hardware Revision:

Displays the Alarm Module's Hardware Revision.

External Alarm Input:

Displays the four (4) configurable external temperature/analogue/digital inputs.

Input ID:

The name assigned for the respective External Input.

Status:

Indicates the current status of the four (4) External Alarm Inputs.

Digital Input:

Displays the ten (10) configurable digital inputs.

Input ID:

A label for the respective Digital Input.

Function:

Indicates the selected input mode for each of the ten (10) Digital Inputs.

Status:

Indicates the current status of the four (4) External Alarm Inputs.



Alarm Output:

Displays the ten (10) configurable relay outputs.

Port:

Displays the Tx Port that the Alarm Output is currently associated to.

Channel:

Displays the Tx Channel that the Alarm Output is currently associated to.

Status:

Indicates the current status of the ten (10) Alarm Outputs.

Refresh:

Reloads the page, updating the status information.

- <u>Note:</u> The field behind an alarm is highlighted in colour to indicate its current status. Green denotes 'no alarm', and Red denotes 'alarm'.
- Note: The "Status Alarm Modules" menu item under the Status menu appears only if one or more (optional) Channel Alarm Modules (CAM) or Site Alarm Modules (SAM) are installed. Up to ten (10) CAM/SAM units may be fitted to each ASM as required.

10.12 Status – Alarm Modules - CAM



<u>Overview</u>
Status
Antenna Isolation
<u>Rx Channels 1-20</u>
Rx Channels 21-40
<u>Rx Channels 41-60</u>
<u>Rx Channels 61-80</u>
<u>Tx Port 1</u>
<u>Tx Port 2</u>
Tx Port 3
<u>Tx Port 4</u>
<u>System</u>
Alarm Modules
<u>SAM 1</u>
CAM 4
Communications
History
Channel Diagnostics
Configuration
Calibration
Maintenance
About
Logout

Help

	Status - Char	nnel Alarm Mod	ule 4
Customer Nan Site Name -	ne - Comm Si Mt Smith	te	
Model	Serial Number	Firmware Version	Hardware Revision
CAM	Serial not set!	1.0	0
External Alarm Input	Input ID		Status
Ext4-1	Site Door		ок
Ext4-2	Fuel Tank Low		FAIL
Ext4-3	Not defined		ок
Ext4-4	Not defined		ОК
-			
Digital Input	Input ID	Funct	ion Status
DI4-1	Police Base PTT	РТТ	Inactive

DI4-1	Police Base PTT	РТТ	Inactive
DI4-2	Not defined	Not in use	
DI4-3	Not defined	Not in use	
DI4-4	Not defined	Not in use	
DI4-5	Microwave Alarm	General Purpose	ок
DI4-6	Solar Low Volts	General Purpose	ок
DI4-7	Mains Fail	General Purpose	ок
DI4-8	Batt. Low Volts	General Purpose	ок
DI4-9	Not defined	Not in use	
DI4-10	Not defined	Not in use	

Alarm Output	Port	Channel	Status
CAM4-1	Tx Port 1 - Tx Antenna #1	T×1-1, Police West	Inactive
CAM4-2	Alarm not in use		Inactive
CAM4-3	Alarm not in use		Inactive
CAM4-4	Alarm not in use		Inactive
CAM4-5	Alarm not in use		Inactive
CAM4-6	Alarm not in use		Inactive
CAM4-7	Alarm not in use		Inactive
CAM4-8	Alarm not in use		Inactive
CAM4-9	Alarm not in use		Inactive
CAM4-10	Alarm not in use		Inactive
			Refresh

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This page reports the status of the selected Channel Alarm Module (CAM) if fitted.



Model:

Displays the type of Alarm Module.

Serial Number:

Displays the Alarm Module's Serial Number.

Firmware Version:

Displays the Alarm Module's Firmware Version.

Hardware Revision:

Displays the Alarm Module's Hardware Revision.

External Alarm Input:

Displays the four (4) configurable external digital inputs.

Input ID:

The name assigned for the respective External Input.

Status:

Indicates the current status of the four (4) External Alarm Inputs.

Digital Input:

Displays the ten (10) configurable digital inputs.

Input ID:

A label for the respective Digital Input.

Function:

Indicates the selected input mode for each of the ten (10) Digital Inputs.

Status:

Indicates the current status of the four (4) External Alarm Inputs.



Alarm Output:

Displays the ten (10) configurable relay outputs.

Port:

Displays the Tx Port that the Alarm Output is currently associated to.

Channel:

Displays the Tx Channel that the Alarm Output is currently associated to.

Status:

Indicates the current status of the ten (10) Alarm Outputs.

Refresh:

Reloads the page, updating the status information.

- <u>Note:</u> The field behind an alarm is highlighted in colour to indicate its current status. Green denotes 'no alarm', and Red denotes 'alarm'.
- Note: The "Status Alarm Modules" menu item under the Status menu appears only if one or more (optional) Channel Alarm Modules (CAM) or Site Alarm Modules (SAM) are installed. Up to ten (10) CAM/SAM units may be fitted to each ASM as required.

10.13 Status – Communications

Alta	Sta	ions	
	Customer Name -	NWRL	
Aller	Site Name -	CSH	
KF1	Ethernet		
Overview	Sotting	Stored Value	Currently In Use
Statuc	Setting	Stored Value	
Isolation Tests	MAC Address	00:50:C2:97:E2:D1	
Rx Channels 1-20	DHCP	Disabled	Disabled
Rx Channels 21-40	IP Address	192.168.1.202	192.168.1.202
Rx Channels 41-60	Subnet Mask	255.255.255.0	255.255.255.0
<u>Rx Channels 61-80</u>	Gateway	192.168.1.1	192.168.1.1
<u>Tx Port 1</u>	Port 23 Command Line Interface	Enabled	
<u>Tx Port 2</u>			
<u>Tx Port 3</u>	Email		
<u>Tx Port 4</u>	Setting	Stored Value	
<u>System</u>	Summary system status messages	Enabled	
Alarm Modules	Detailed channel status messages	Enabled	
<u>Communications</u>	SMTP Server IP Address	209.173.141.248	
Channel Diagnostics	SMTP Server Listening Port	25	
Configuration	From Email Address	noreniv@localhost	
Calibration		scott alford@rfi.com.au	
Maintenance	Destination Email Address(es)	bart.voskulen@rfi.com.au	
About	SNMP		
<u>Logout</u>	Setting	Stored Value	
Help	Send Alarm Notifications (Traps)	Enabled	
	SNMP GET Requests (Port 161)	Enabled	
		Primary	Secondary
	SNMP Manager IP Address	123.243.234.21	220.245.149.200
	SNMP Manager Listening Port	9125	162

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This page reports the current Communications settings.

Ethernet

MAC Address:

The physical MAC address of the unit.

DHCP:

If the stored value is enabled, the unit will attempt to get its IP Address, Subnet Mask and Gateway settings from a DHCP server. If a DHCP server cannot be found, the stored settings will be used and the Currently In Use status will show as disabled.

If disabled, the stored values will be used unconditionally.

IP Address:

The Stored and Currently In Use IP address values.



Subnet Mask:

The Stored and Currently In Use network Subnet Mask addresses.

Gateway:

The Stored and Currently In Use network Gateway addresses.

Port 23 Command Line Interface:

Indicates if Port 23 is enabled or disabled for Command Line Interface use.

<u>Email</u>

Summary system status messages:

Indicates if System summary status messages will be sent via email.

Detailed channel status messages:

Indicates if Detailed channel status messages will be sent by email.

SMTP Server IP Address:

The IP address that email messages will be sent to.

SMTP Server Listening Port:

The port number used by the SMTP server.

From Email Address:

The email address that this unit will appear as in email messages.

Destination Email Address(es):

The email address(es) that this unit will send email messages to. (up to 4 addresses may be used)

<u>SNMP</u>

Send Alarm Notifications (Traps):

Indicates if sending SNMP Traps are enabled or disabled.

SNMP GET Requests (Port 161):

Indicates if Port 161 is enabled or disabled for SNMP GET requests.

SNMP Manager IP Address:

The IP address that SNMP northbound Alarm Traps will be sent to. Both a Primary and Secondary address may be used if required for redundant SNMP server configurations.

SNMP Manager Listening Port:

The port number used by the SNMP Manager. Both a Primary and Secondary address may be used if required for redundant SNMP server configurations.

Note: SNMP MIB files for the ASM are available from RFI.



10.14 History Menu

The "History" menu allows the ASMs logged data to be viewed.

Selecting each indented topic under "History" will display that item as a separate display page.



Note: The "*Receive Systems Module*" and "*Alarm Modules*" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.



10.15 History – Isolation Tests

		Isolat	ion Tests	History Chai	rt
	Customer Nam	ie -	NW RADIO		
Allur	Site Name -		Chase Tower		
RFI	Solact Tast	hund	459 00000 MHz		Salact Dariod
	Antenna Isolation	Legend	438.00000 MHZ		1 Day -
<u>Overview</u>					Select Date
Status					6/28/2015
History					
Isolation Tests Chart					
Isolation Tests File			Antenna Is	olation	
<u>Rx Power Chart</u>	70.0				
<u>Rx Power File</u>	68.0				
<u>Tx Power Chart</u>	64.0				
<u>Tx Power File</u>	62.0				
<u>Alarm Event Log</u>	60.0				
Access Event Log	58.0 d 56.0				
Service Mode	B 54.0				
Configuration	52.0				
Calibration	50.0				
Maintenance	48.0				
About	46.0				
Logout	42.0				
Help	40.0			2	
	24	10	Ho	urs	0
					Display
		Copyright ©	2005-2015 RF Industrie	s Pty Ltd. All Rights Reserve	ed

Example of Antenna Isolation Chart

This page displays the logged Isolation Tests values.

Select Test:

Select the Isolation Tests which you desire to display. Available selections are Antenna Isolation, Rx Gain and Tx Rejection.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Display:

Clicking the Display button starts the collation of data that meets the selected criteria. Once the data is processed and the updated chart created, the screen will refresh. This may take a period of time depending on the number of data values that have been stored that meet the selected criteria.

Note: The red lines on the displayed graph represent the alarm max/min threshold values currently configured for this test.

NOTE: There are documented issues with Internet Explorer[™] Version 10. This may impact the presentation of some GUI features. The use of an alternate web browser is recommended.





When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RE) are visible in the *Isolation Tests History Chart – Antenna Isolation* page.





Example of Rx Gain Chart

This page displays the logged Rx Gain values.

Select Test:

Select the Isolation Tests which you desire to display. Available selections are Antenna Isolation, Rx Gain and Tx Rejection.

Select Channels:

Select the test frequencies that you wish to display. Up to five (5) frequencies can be displayed at one time and each selected frequency will be displayed using a different coloured line. To selected the frequencies to be displayed, click on a frequency from the drop down list and, holding down the "Ctrl" key on your computer keyboard, click additional frequencies in the list as desired. Selected frequencies will be highlighted when selected.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Display:

Clicking the Display button starts the collation of data that meets the selected criteria. Once the data is processed and the updated chart created, the screen will refresh. This may take a period of time depending on the number of data values that have been stored that meet the selected criteria.

Note: The red lines on the displayed graph represent the alarm max/min values currently configured for this test.



NOTE: There are documented issues with Internet Explorer[™] Version 10. This may impact the presentation of some GUI features. The use of an alternate web browser is recommended.



When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RE) may be selected in the *Isolation Tests History Chart – Rx Gain* page.





Example of Tx Rejection Chart

This page displays the logged Tx Rejection values.

Select Test:

Select the Isolation Tests which you desire to display. Available selections are Antenna Isolation, Rx Gain and Tx Rejection.

Select Channels:

Select the test frequencies that you wish to display. Up to five (5) frequencies can be displayed at one time and each selected frequency will be displayed using a different coloured line. To selected the frequencies to be displayed, click on a frequency from the drop down list and, holding down the "Ctrl" key on your computer keyboard, click additional frequencies in the list as desired. Selected frequencies will be highlighted when selected.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Display:

Clicking the Display button starts the collation of data that meets the selected criteria. Once the data is processed and the updated chart created, the screen will refresh. This may take a period of time depending on the number of data values that have been stored that meet the selected criteria.



- Note: The red lines on the displayed graph represent the alarm max/min values currently configured for this test
- <u>Note:</u> The displayed lines may commence in from the left hand side of the graph. This indicates when the associated transmitter first keyed in the selected Period.

NOTE: There are documented issues with Internet Explorer[™] Version 10. This may impact the presentation of some GUI features. The use of an alternate web browser is recommended.



<u>Note:</u> When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RE) may be selected in the *Isolation Tests History Chart – Tx Rejection* page.



10.16 History – Isolation Tests File

Alta		Isolation Tests His	tory File		
	Customer Name -	NW RADIO			
Aller	Site Name -	Chase Tower			
RFI					
			Select Period	Select Date 7/1/2015	
<u>Overview</u>			,	14,420.0	
Status				Developed	N.C. and
History				Download	View
Isolation Tests Chart					
Isolation Tests File		Copyright © 2005-2015 RF Industries Pty Ltd	. All Rights Reserve	d	
<u>Rx Power Chart</u>					
<u>Rx Power File</u>					
<u>Tx Power Chart</u>					
<u>Tx Power File</u>					
<u>Alarm Event Log</u>					
Access Event Log					
Service Mode					
Configuration					
Calibration					
Maintenance					
<u>About</u>					
Logout					
Help					

This page allows logged test data to be downloaded, saved or displayed. Data is provided in a CSV file format for ease of import and manipulation.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Use this button to open the CSV data file for viewing. .

Date, Time, Type, Reference, Value, Status 7/01/15, 21:03:43, Tx Rejection, 454.250000, 151.3, REJECT=OK 7/01/15, 21:03:08, Tx Rejection, 454.112500, 153.7, REJECT=OK 7/01/15, 21:00:25, Tx Rejection, 454.537500, > 156.2, REJECT=OK 7/01/15, 21:00:25, Tx Rejection, 451.887500, 154.6, REJECT=OK 7/01/15, 21:00:25, Tx Rejection, 463.225000, > 157.8, REJECT=OK 7/01/15, 21:00:25, Rx System, 458.000000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 459.000000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 459.000000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 459.000000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 467.100000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 467.100000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Rx System, 467.100000, Inderminate, GAIN=OK 7/01/15, 21:00:25, Ant Isolation, 458.00000, > 53.0, ISOL=OK 7/01/15, 20:11:56, Tx Rejection, 454.537500, > 154.6, REJECT=OK 7/01/15, 20:12:34, Tx Rejection, 454.312500, > 154.6, REJECT=OK 7/01/15, 20:10:20, Tx Rejection, 454.050000, 150.1, REJECT=OK



10.17 History – Rx Power Chart



This page displays the logged Rx Power values for all channels.

Select Rx Group:

Select the Port which you desire to display.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

NOTE: This History Chart screen may not display correctly due to documented issues with Internet Explorer[™] Version 10. The use of an alternate web browser is recommended.





Select Data Mode:

Select the data set that you wish to display for the selected Rx Group's channels.

Four display modes are available:

- Max/Min Pwr
- Utilisation
- Max Pwr (1 chan)
- Min Pwr (1 chan)

Since the graph is only able to display approximately 200 data points, each point will normally represent multiple captured level samples. The selection of the Data Mode controls how the multiple samples are combined to present the plotted data value.

In Max/Min mode, only the maximum and minimum sampled values are used, irrespective of when or how often they occurred in the selected period. If no value reading (above programmed threshold) has been recorded during the period represented by a data point then no data will be displayed on the graph.

In Utilisation mode, the displayed data is created from all measurements recorded above the threshold value. If this threshold value is set too low, all measurements (including site noise) may register a recorded value. As a result, a 100% Utilisation can be displayed on this graph.

All captured level samples are included in the associated data file, in CSV format, which may be downloaded and processed independently (i.e. using other software) if desired.

Note: During calculations, the processing of all of the recorded data to create the graph may result in delays to the display of the data. If a significant amount of data has been logged, displaying periods back in time may also result in delays while this data is retrieved from memory, processed, and then sent to the viewer's computer.

Display:

Clicking the Display button starts the collation of data that meets the selected criteria. Once the data is processed and the updated chart created, the screen will refresh. This may take a period of time depending on the number of data values that have been stored that meet the selected criteria.

Note: Only channels that have a frequency configured, and which have been enabled will be displayed.



Examples of Data Mode displays:



"Max/Min Pwr" Data Mode selected

Note: When a Receive Systems Module (RSM) is fitted to the ASM, the measured values represent the highest and lowest of any of the three receive signal paths (RxA, RxB and RE) for each channel.

"Usage" Data Mode selected

<u>Note:</u> When a Receive Systems Module (RSM) is fitted to the ASM, the measured values represent any presence of the three receive signal paths (RxA, RxB and RxE) for each channel.



<u>Note:</u> Hovering the mouse cursor over the upper portion of a displayed bar in the above two charts will return the actual displayed value (refer example above).

NOTE: This History Chart screen may not display correctly due to documented issues with Internet Explorer[™] Version 10. The use of an alternate web browser is recommended.

10.18 History – Rx Power File

	Rx Power History File					
	Customer Name -	APM3852				
	Site Name -	Bayswater				
REI						
	Select Rx Group Rx 1-20		Select Deriod	Select Date		
<u>Overview</u>	Select Rx Channel		1 Day -	14/4/2016		
Status	Rx-1, 420.06250 MHz, FC CH1 420 -					
History						
Isolation Tests Chart				Download	View	
Isolation Tests File						
<u>Rx Power Chart</u>						
<u>Rx Power File</u>	Copyrigh	nt © 2005-2016 RF Industries Pty Lt	d. All Rights Reserve	d		
<u>Tx Power Chart</u>						
<u>Tx Power File</u>						
<u>Alm Mod I/P Chart</u>						
<u>Alm Mod I/P File</u>						
<u>Alarm Event Log</u>						
Access Event Log						
Channel Diagnostics						
Configuration						
Calibration						
Maintenance						
About						
Logout						
Help						

This page allows logged data to be downloaded, saved or displayed for a nominated channel. Data is provided in a CSV file format for ease of import and manipulation.

Select Rx Group:

Select the Group on which the desired Rx Channel is located.

Select Rx Channel:

Select the Rx Channel that is desired to be viewed. Note that only channels that have a frequency configured, <u>and</u> which have been enabled will be selectable.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Use this button to open the CSV data file for viewing.

Date, Time, Port, Channel, Type, dBm, VSWR, On/Off								
3/07/15,	12:24:45,	Rx,	1,	PWR	,	<-110		OFF
3/07/15,	6:24:47,	Rx,	1,	PWR	,	<-110		OFF
3/07/15,	0:24:32,	Rx,	1,	PWR	,	<-110		OFF
2/07/15,	18:24:40,	Rx,	1,	PWR	,	<-110		OFF
2/07/15,	17:28:33,	Rx,	1,	PWR	,	<-110		OFF
2/07/15,	15:33:21,	Rx,	1,	PWR	,	<-110		OFF

Example of CSV data

<u> 10.19 History – Tx Power Chart</u>



This page displays the logged Tx Power values for a nominated channel.

Select Tx Port:

Select the Port which you desire to display.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Select Data Mode:

Select the data set that you wish to display for the selected Tx Port's channels. Note that only channels that have a frequency configured <u>and</u> which have been enabled will be selectable.

> NOTE: There are documented issues with Internet Explorer[™] Version 10. This may impact the presentation of some GUI features. The use of an alternate web browser is recommended.



Select Data Mode:

Select the display parameter against which logged data will be displayed.

Seven display modes are available:

- Max/Min Pwr
- Max/Min VSWR
- Usage

Since the graph is only able to display approximately 200 data points, each of those points may represent multiple captured level samples. The selection of the Data Mode controls how the multiple samples are combined to present the plotted data value.

In *Max/Min* mode, only the maximum and minimum sampled values are used, irrespective of when or how often they occurred in the selected period. If no value reading (above programmed threshold) has been recorded during the period represented by a data point then a "minimum value" will be displayed on the graph.

In *Usage* mode, the measured occurrence of channel activity (above programmed threshold) during the selected period is displayed as a percentage. Depending on the number of channels being monitored in each measurement cycle, and the random sporadic nature of channel activity, this display may some inaccuracy. Practically, it may be used to conveniently indicate "general" channel (and network) loading, and allows activity to be correlated against specific time/day by viewing the logged data that has been recorded. This capability is useful for identifying co-incidental channel(s) activity during periods of interference – a likely indicator of intermodulation (IM) occurrence.

In Maximum (1 channel) mode, only the stored sample with the maximum value during the selected period is used, and;

In *Minimum (1 channel)* mode only the sample with the minimum value is used. If no value reading (above programmed threshold) has been recorded during the period represented by a data point then a "minimum value" will be displayed on the graph.

All captured level samples are included in the History File, in CSV format, which may be processed independently (i.e. using other software) if desired.

Note: During averaging calculations, the processing of all of the data to create the graph may result in delays to the display of the data. If a significant amount of data has been logged, displaying periods back in time may also result in delays while this data is retrieve and then processed.

Display:

This will refresh the display using the selected settings. Some delay may be experienced while data collates.



Examples of Data Mode displays:



"Max/Min VSWR" Data Mode selected



"Usage" Data Mode Selected

- Note: Hovering the mouse cursor over the upper portion of a displayed bar in the above two charts will return the actual displayed value (refer example above).
- Note: In a K1 hardware model, approx. 2.5Mb of data storage is available for all log files' data. Depending on the number of Alarm Events recorded, the period of history that can be stored can vary significantly. The available data storage area operates as a FIFO (first-in-first-out) buffer. That is, once full, the oldest stored alarm event is removed to make room for the newest measurement.

In a K2 hardware model, approx. 4Gb of data storage is available for all log files' data. This data area also operates as a FIFO buffer.

10.20 History – Tx Power File

	Tx Power History File						
<u>Allin.</u>	Customer Name -	APM3852					
Allin	Site Name -	Bayswater					
RFI							
	Select Tx Port Tx Port 1 - Tx 420		Select Period	Select Date			
<u>Overview</u>	Select Tx Channel		1 Day -	14/4/2016			
Status	Tx1-1, 420.06250 MHz, FC CH1 420 -						
History							
Isolation Tests Chart				Download	View		
Isolation Tests File							
<u>Rx Power Chart</u>							
<u>Rx Power File</u>	Copyrig	ht © 2005-2016 RF Industries Pty Lt	d. All Rights Reserve	d			
<u>Tx Power Chart</u>							
<u>Tx Power File</u>							
<u>Alm Mod I/P Chart</u>							
<u>Alm Mod I/P File</u>							
Alarm Event Log							
Access Event Log							
Channel Diagnostics							
Configuration							
Calibration							
Maintenance							
About							
Logout							
Help							

This page allows logged data to be downloaded, saved or displayed for a nominated channel. Data is provided in a CSV file format for ease of import and manipulation.

Select Tx Port:

Select the Port on which the desired Tx Channel is located.

Select Tx Channel:

Select the Rx Channel that is desired to be viewed. Note that only channels that have a frequency configured <u>and</u> which have been enabled will be selectable.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Use this button to open the CSV data file for viewing.

Date, Time, Port, Channel, Type, dBm, VSWR, On/Off									
7/02/15,	20:06:05,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	19:48:31,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	19:47:57,	Tx1,	1,	PWR	,	+4	6.5,,	ON	
7/02/15,	19:04:14,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	19:03:38,	Tx1,	1,	PWR	,	+4	6.0,,	ON	
7/02/15,	17:54:30,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	17:53:57,	Tx1,	1,	PWR	,	+4	5.5,,	ON	
7/02/15,	17:29:11,	Tx1,	1,	PWR	,	<-	8,,	OFF	
7/02/15,	17:28:38,	Tx1,	1,	PWR	,	+4	6.9,,	ON	
7/02/15,	17:27:29,	Tx1,	1,	PWR	,	+4	6.4,,	ON	
7/02/15,	16:59:07,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	16:58:34,	Tx1,	1,	PWR	,	+4	6.4,,	ON	
7/02/15,	16:32:57,	Tx1,	1,	PWR	,	<-	8 ,,	OFF	
7/02/15,	16:32:22,	Tx1,	1,	PWR	,	+4	6.3,,	ON	

Example of CSV data

10.21 History – Alm Mod I/P Chart



This page displays the logged Alarm Module Input values for a nominated Alarm Module and Input.

Select Alarm Module:

Select the Alarm Module from which you desire to display.

Select Input:

Select the Alarm Input that you desire to display.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Display:

This will refresh the display using the selected settings. Some delay may be experienced while data collates.

NOTE: This History Chart screen may not display correctly due to documented issues with Internet Explorer[™] Version 10. The use of an alternate web browser is recommended.



10.22 History – Alm Mod I/P File

<u>III.</u>	A	larm Module Input	History F	ile	
	Customer Name -	APM3852			
Allin	Site Name -	Bayswater			
RFI					
	Select Alarm Module				
Overview	SAWT •		Select Period	Select Date	
Status	Select Input Ext1-1 Equipment Room		1 Day	14/4/2010	
History					
Isolation Tests Chart				Download	View
Isolation Tests File				Download	view
<u>Rx Power Chart</u>					
<u>Rx Power File</u>		Copyright © 2005-2016 RF Industries Pty Ltd	I. All Rights Reserve	d	
<u>Tx Power Chart</u>					
<u>Tx Power File</u>					
Alm Mod I/P Chart					
Alm Mod I/P File					
<u>Alarm Event Log</u>					
Access Event Log					
Channel Diagnostics					
Configuration					
Calibration					
Maintenance					
<u>About</u>					
Logout					
Help					

This page allows logged data to be downloaded, saved or displayed for a nominated channel. Data is provided in a CSV file format for ease of import and manipulation.

Select Alarm Module:

Select the Alarm Module from which you desire to display.

Select Input:

Select the Alarm Input that you desire to display.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Use this button to open the CSV data file for viewing.

Date,Time,Type,Reference,Value,Units 3/07/15, 14:30:16, SAM IP VALUE, Ext1-1, 12.9, C 3/07/15, 14:30:06, SAM IP VALUE, Ext1-1, 13.4, C 3/07/15, 14:29:48, SAM IP VALUE, Ext1-1, 13.4, C 3/07/15, 14:29:38, SAM IP VALUE, Ext1-1, 12.9, C 3/07/15, 14:25:48, SAM IP VALUE, Ext1-1, 12.9, C 3/07/15, 14:25:38, SAM IP VALUE, Ext1-1, 13.4, C

Example Alarm Module Input History log opened in "View"



10.23 History – Alarm Event Log

Al.			Alarm Even	t Log		
	Customer Na	me -	APM3852			
	Site Name -		Bayswater			
RFI						
	Select Period	Select Date				
<u>Overview</u>	1 Buy	111112010				
Status						
History					Download	View
Isolation Tests Chart						
Isolation Tests File		Copyrigh	nt © 2005-2016 RF Industries Pl	ty Ltd. All Rights Rese	erved	
<u>Rx Power Chart</u>						
<u>Rx Power File</u>						
<u>Tx Power Chart</u>						
<u>Tx Power File</u>						
Alm Mod I/P Chart						
<u>Alm Mod I/P File</u>						
<u>Alarm Event Log</u>						
Access Event Log						
Channel Diagnostics						
Configuration						
Calibration						
Maintenance						
<u>About</u>						
Logout						
Help						

This page allows logged data to be downloaded, saved or displayed for a alarms in the current Alarm Event Log. Data is provided in a CSV file format for ease of import and manipulation.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Opens a new window in which the data records will be displayed.

Due to the potential size of some data logs, using View is not recommended for displaying a large amount of data.



RFI Sector	omer Name - APM3852 Name - Bayswater	
0verview	iy ▼ 14/4/2016	
Status		
History	Download	Viev
Isolation Tests Chart		
Isolation Tests File		
Rx Power Chart		
Rx Power File	👷 Peventes 🛛 🍋 O Digital Audio Processor, Bxd 🚺 Suggestied Sites • 😢 Tiniti Sice Gallery •	- 30
Tx Power Chart	Phttp://10.3.3.100/~~eventlog.bxt	-
Tx Power File	Date, Time, Type, Reference, Values, Description	-
Alm Mod I/P Chart	6/09/12, 11:13:40, RX STAT, RX-12, <-110 , FWR=OK: VCO=OK; RX=OFF 6/09/12, 11:13:40, RX STAT, RX-11, <-110 , FWR=OK; VCO=OK; RX=OFF	
Alm Mod I/P File	6/09/12, 11:13:40, RX STAT, Rx-10, <-110, PWR=OK; VCO=OK; RX=OFF 6/09/13, 11:13:40, RX STAT, Rx-10, <-110, PWR=OK; VCO=OK; RX=OFF	
Alarm Event Log	6/09/12, 11:13:40, RX STAT, Rx-6, <-110 , FWR-08; VCO-0K; RX-0FF	
Access Event Log	6/09/12, 11:13:40, RX STAT, Rx-4, <-110 , FWR=OK; VCO=OK; RX=OFF 6/09/12, 11:13:40, RX STAT, Rx-3, <-110 , FWR=OK; VCO=OK; RX=OFF	
	6/09/12, 11:13:40, RX STAT, Rx-2, <-110, PWR=OK; VCO=OK; RX=OFF	
	6/09/12, 11:13:40, KK STAL, KK-1, C-110, PKK-0K, VCO-OK, KK-0FF 6/09/12, 11:13:37, SYS STAL, , SYS=OK, KX=OK, TXPWR=OK, TXVSWR=OK	
	6/09/12, 11:12:31, RX STAT, Rx-12, -106.5, FWR=OK; VCO=OK; RX=ON 6/09/12, 11:12:15, RX STAT, Rx-12, <=110, FWR=FAIL: VCO=OK; RX=ON	
Calibration	6/09/12, 11:11:54, RX STAT, Rx-10, <-110 , FWR=FAIL: VCO=OK: RX=ON	
Maintenance	6/09/12, 11:11:52, SYS STAT, , , SYS=FAIL, KX=FAIL, TXPWR=OK, TXVSWR=OK 6/09/12, 11:11:41, RX STAT, Rx=10, =109.0, PWR=OK: VCO=OK: RX=ON	
About	6/09/12, 11:11:39, SYS STAT, , , SYS=OK, RX=OK, TXPWR=OK, TXVSNR=OK	
Logout	6/09/12, 11:11:27, RX STAT, Rx-10, <-110 , FWR=FAIL: VCO=OK: RX=ON	
	6/09/12, 11:11:11, RX STAT, Rx-10, -106.8, PWR=OK: VCO=OK: RX=ON 6/09/12, 11:10:55, RX STAT, Rx-11, - 64.9, PWR=FAIL: VCO=OK: RX=ON	
Нер	6/09/12, 11:10:48, RX STAT, Rx-10, - 58.5, FWR-FAIL: VCO-OK: RX-ON	
	6/09/12, 11:10:45, 515 5141, , , 515-FALL, KA-FALL, IXEMEOR, IXESHEOR 6/09/12, 11:10:27, TX STAT, Tx1-2, <- 2 ; 1.00, FWR=OK; VSWR=OK; VCO=OK; TX=OF	7
	6/09/12, 11:10:27, TX STAT, Tx1-1, <- 2 ; 1.00, FWR=OK; VSNR=OK; VCO=OK; TX=OF 6/09/12, 11:10:27, EX STAT, Ex-12, <-110, FWR=OK; VCO=OK; EX=OFF	F
	6/09/12, 11:10:27, RX STAT, Rx-11, <-110 , PWR=OK: VCO=OK: RX=OFF	
	6/09/12, 11:10:27, RX STAT, Rx-10, <-110 , FWR=OK; VCO=OK; RX=OFF 6/09/12, 11:10:27, RX STAT, Rx-7, <-110 , FWR=OK; VCO=OK; RX=OFF	

View:

Opens a new window in which the data records will be displayed.

Due to the potential size of some data logs, using View is not recommended for displaying data for a lengthy selected Period.

Example Alarm Event log opened in "View"

Note: In a K1 hardware model, approx. 2.5Mb of data storage is available for all log files' data. Depending on the number of Alarm Events recorded, the period of history that can be stored can vary significantly. The available data storage area operates as a FIFO (first-in-first-out) buffer. That is, once full, the oldest stored alarm event is removed to make room for the newest measurement.

In a K2 hardware model, approx. 4Gb of data storage is available for all log files' data. This data area also operates as a FIFO buffer.



10.24 History – Access Event Log

Atu			Access Event Log		
	Customer Nan	ne -	APM3852		
Aller	Site Name -		Bayswater		
RFI	Calact Davied	Coloct Data			
	1 Day -	14/4/2016			
<u>Overview</u>					
Status				Download	View
History				Download	VIEW
Isolation Tests Chart					
Isolation Tests File		Copyrigh	t © 2005-2016 RF Industries Pty Ltd. All Rights Re	eserved	
<u>Rx Power Chart</u>					
<u>Rx Power File</u>					
<u>Tx Power Chart</u>					
<u>Tx Power File</u>					
Alm Mod I/P Chart					
<u>Alm Mod I/P File</u>					
<u>Alarm Event Log</u>					
Access Event Log					
Channel Diagnostics					
Configuration					
Calibration					
Maintenance					
<u>About</u>					
Logout					
Help					

This page allows logged data to be downloaded, saved or displayed for a alarms in the current Access Event Log. Data is provided in a CSV file format for ease of import and manipulation.

Select Period / Select Date:

Select the past period (working back from the Select Date) for which logged data will be displayed. When the Select Date field is selected, a calendar will appear allowing a past date to be nominated as the starting day for the Period to apply up until.

Download:

Use this button to open a "File Download" or "Save As" dialog for saving the CSV data file.

View:

Opens a new window in which the data records will be displayed.

Due to the potential size of some data logs, using View is not recommended for displaying a large amount of data.

Date, Time, Type, SourceIP, Event, Value 3/07/15, 13:45:56, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3 3/07/15, 10:39:06, ACCESS EVENT, 125.254.22.196, TIMEOUT, Level=3 2/07/15, 9:23:29, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3 2/07/15, 18:25:39, ACCESS EVENT, 125.254.22.196, TIMEOUT, Level=3 2/07/15, 18:18:44, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3 2/07/15, 18:18:44, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3 2/07/15, 14:15:15, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3 2/07/15, 14:06:05, ACCESS EVENT, 125.254.22.196, TIMEOUT, Level=3 2/07/15, 12:40:36, ACCESS EVENT, 125.254.22.196, LOGIN, Level=3

Example Access Event log opened in "View"

10.25 Channel Diagnostics

Alter	Channel Diagnostics				
Viiii	Customer Name -	Demo			
RFI	Site Name -	Mt Dandenong			
<u>Overview</u> Status History Channel Diagnostics Configuration	 ✓ Monitor Tx Channel Select Tx Port Tx Port 1 - Feeder #1 ▼ Select Tx Channel Tx1-4, 490.70000 MHz, AA Radio ▼ 		✓ Monitor Rx Select Rx Group Rx 1-20 ▼ Select Rx Channel Rx-1, 475.40000 MHz, S	♥ Channel	C Frequency
Calibration Maintenance <u>About</u>	Tx Fwd Pwr	47	.86 W		© dBm ⊛ Watts
Help.	VSWR	1.	16:1		 Ant VSWR Ant RL (dB) RevPwr (dBm)
	Rx Level	-80,	.8 dBı	n	e RevPwr(watts) e dBm © μ∨
		opyright © 2005-2013 RF Indust	ries Pty Ltd. All Rights Reserve	d	Stop

The Channel Diagnostics page presents a real time Tx Power and Rx Level Meter. The current Tx Power, Tx VSWR and Rx Level for the selected Tx and Rx channels are continuously updated once the Start/Stop button has been activated.

The increased font size of the values displayed on this page assist viewing them from a distance.

Note: The Channel Diagnostics screen is only visible from the Administrator login level, it is not visible from the User login level.

Note: The Channel Diagnostics screen has been optimised for a fast screen refresh rate to assist tuning and other maintenance activities. As such, for some modulation types, the Tx Fwd Pwr, BTx Pwr and Rx Level values displayed on this page may vary slightly from those displayed on the Status screens. For highest accuracy, use the Status screens for determining actual Tx Fwd Power, BTx Pwr, and Rx Level values.



Monitor Tx Channel:

Selects if a Tx frequency will be measured and displayed during each measurement cycle.

Select Tx Port:

Select the Port on which the desired Tx Channel is located.

Select Tx Channel:

Select the Tx Channel that is desired to be monitored.

Note: Only channels that have a frequency configured, and which have been "enabled", will be selectable.

Monitor Rx Channel:

Selects if a Rx frequency will be measured and displayed during each measurement cycle.

Channel:

Select the Rx Channel that is desired to be monitored.

Note: Only channels that have a frequency configured, and which have been "enabled", will be selectable.

Frequency:

Select or Enter the Rx Frequency that is desired to be monitored.

Note: The frequency may be entered by selecting the field and typing in a value, which may be changed by using the up/down keys on your keyboard, or by selecting the drop down arrow next to the field and scrolling through and selecting the desired frequency values.

Select Rx Group:

Select the Group in which the desired Rx Channel is located.

Select Rx Channel:

Select the Rx Channel that is desired to be monitored.

Note: Only channels that have a frequency configured and which have been "enabled", will be selectable.

Displayed Values:

The units of measurement and display for the various values may be changed by clicking on the desired selections.

Start/Stop:

This starts or stops the continuously updating measurements.

The Power and Insertion Loss measurements assume that the Port Coupling losses and the Channel BTx Power have been previously calibrated (refer elsewhere in this manual).

- Note: When Channel Diagnostics is running, the unit will not be monitoring or measuring any other programmed channels. Clicking the Stop button, navigating to another page within the site, or closing the browser window/tab will restore the unit's normal operation.
- <u>Note:</u> The Channel Diagnostics screen is only visible from the Master and Administrator login levels, it is not visible from the User login level.





When a Receive Systems Module (RSM) is fitted to the ASM, the measured values for the three receive signal paths (RxA, RxB and RxE) are selectable and may be viewed in the *Channel Diagnostics* page.
10.26 Configuration Menu

The "Configuration" menu allows all of the ASMs configurable parameters to be programmed.

Selecting each indented topic under "Configuration" will display that item as a separate display page.



Help

- Note: The viewing and functionality of Configuration menu items may be limited by the Login level used to access the ASM.
- Note: The "Receive Systems Module" and "Alarm Modules" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.



10.27 Configuration – User Data

di.	Co	nfiguration -	User Data
	Customer Name -	ASM3852	
Allin	Site Name -	Bayswater	
REI			
	Setting	Value	
<u>Overview</u>	Customer Name	ASM3852	
Status	Site Name	Bayswater	
History		· ·	
Channel Diagnostics			
Configuration	Tx Port 1 Antenna Reference	Tx 420	
<u>User Data</u>	Tx Port 2 Antenna Reference	Tx 500	
Isolation Tests	Tx Port 3 Antenna Reference		
<u>Receive Module</u>	Tx Port 4 Antenna Reference		_
Channels		I	
Alarm Settings			
Alarm Modules	Enable Network IDs		
<u>History</u>			Defaulta Discord Changes Apply
Communications			Delaulis Discard Changes Apply
Calibration			
Maintenance	Convict	© 2005-2016 RE Industries D	
<u>About</u>	Copyright	. © 2003-2016 KF Industries P	ty Ltd. An Rights Reserved
Logout			
Help			

On this page you can enter descriptive texts for Customer Name, Site Name and each of the Ports

Customer Name:

The name of the network or the customer equipment being monitored by the ASM.

Site Name:

The name of the site on which the network or the customer equipment is located.

Tx Port Antenna References:

The names or other unique identifier for each of the Tx Antennas being monitored by the ASM.

Enable Network IDs:

Select if Network IDs are to be used in the ASM Status and Configuration screens.

Defaults:

Clicking this sets all of the descriptions to "Not Defined".

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the Configure/User Data menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Enable Network IDs

Customer Name

Tx Antenna Reference -

Site Name

If Network IDs are desired to be used, then this item should be selected. When selected, an additional field will appear;

The eight Network IDs allow monitored channels to be nominated as being affiliated together in the Channels - Status screens.

The inclusion of the Network IDs 'label' allows channels to be conveniently 'bundled' into their respective groupings.

For example, if channels from one network are randomly distributed on shared combiners, the Network ID text label may use the network's name i.e. ID #1 = "Police", ID #2 = "Fire Dept", etc.

Alternatively, the Network ID could be used to identify different maintenance service levels i.e. ID #1 = B.H. Maintenance, ID #2 = 24x7 Maintenance, etc.

The Networks ID could also be used to identify which antenna is used for the network channels. i.e. ID #1 = TxAnt1, ID #2 = TxAnt2, etc.

Customer Name -	NW Radio						
Site Name -	Chase Tower						
Setting	Value						
Customer Name	NW Radio						
Site Name	Chase Tower						
Tx Port 1 Antenna Reference	LTR-TRB0 TX1						
Tx Port 2 Antenna Reference	LTR-TRB0 TX2						
Tx Port 3 Antenna Reference	CONV TX3 -NA						
Tx Port 4 Antenna Reference	RFI Test						
Enable Network IDs	v						
Network IDs							
Network Number	Description						
Network - 0	Trbo						
Network - 1	LTR						
Network - 2							
Network - 3	BH Maint Only						
Network - 4	24x7 Maint						
Network - 5							
Network - 6	Tx Ant#1						

Tx Ant #2

Configuration - User Data

The eight Network IDs allow monitored Channels to be nominated as being affiliated together in the Configuration - Tx Port screens.

			D	efaults	Discard C	hanges	•	Apply
Chan No.	Channel ID	NW ID ON F	requency		Modulation		Thresh	old Pwr
Tx1-1	LTR 18		462.15000	MHz	MOTOTRBO	•	- 5.0	dBm
Tx1-2	LTR 7	0 - Trbo 1 - LTR	54.11250	MHz	FM12.5	•	- 5.0	dBm
Tx1-3	TRB0 3	2 - 3 - BH Maint Only	54.31250	MHz	MOTOTRBO	•	- 5.0	dBm
Tx1-4	LTR 10	4 - 24x7 Maint 5 -	54.62500	MHz	FM12.5	•	- 5.0	dBm
Tx1-5	LTR 20	6 - Tx Ant #1 7 - Tx Ant #2	63.22500	MHz	FM12.5	•	- 5.0	dBm

Configuration - Tx Port 1 Channels

NW Radio

Chase Tower

LTR-TRBO TX1

Status - Tx Port 1 Demo Mt Dandenong

Main Tx

The Network ID offiliations are then displayed	
In the Status Ty Porte scroops	
III IIIe Status – TX POILS Screens.	

The Network ID text is included in SMTP (email) and SNMP messages, and the Network ID number (only) is included in Manager Messages status Messages.

					Auto Refresh		Refresh
Chan No.	Channel ID	NW	ON	Free	Last reco	rded activity abo	ove threshold
Chan NO.	Channel 1D	ID	UN	rreq	Act	Power	VSWR
Tx1-1	Radio	1	Yes	473.50000 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-2	S'wide	1	Yes	470.20000 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-3	Radio	2	Yes	493.32500 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-4	AA Radio	3	Yes	490.70000 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-5	Satcomm 1	2	Yes	470.92500 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-6	Apt A	1	Yes	487.57500 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-10	TNT	2	Yes	492.25000 MHz	🔵 0.00 W	<- 9 dBm	1.00:1
Tx1-15	Radio	1	Yes	488.15000 MHz	🔵 0.00 W	<- 9 dBm	1.00:1

3/13/14, 3:52:49, Customer=Mobile Comms Site=Mt Morgan Tx Port 2 - LTR-TRBO TX2, Chan 2 - TRBO 1 (Network 4 - DMR Rentals), PWR=FAIL(+48.6), VSWR=OK(1.00)

Example SMTP (Email) Alarm showing Network ID label ('Network 4 - DMR Rentals')

The Networks ID label allows additional descriptive information about a channel to be communicated in an alarm message, allowing appropriate response activities to be actioned.

Network - 7

Refresh





Apply

10.28 Configuration – Isolation Tests

RFI	

<u>Overview</u>
Status
History
Channel Diagnostics
Configuration
<u>User Data</u>
Isolation Tests
Channels
Alarm Settings
<u>History</u>
Communications
Calibration
Maintenance
About
Logout

Help

Configuration - System Isolation Tests

Enabled

Edit

Every Hour, starting at 02:00

Defaults Discard Changes

Customer Name -Site Name -

Demo Chase Tower

Common Settings

Automatic System Isolation Tests

.

Automatic Test Schedule

Antenna Isolation

Setting	Value
Test Frequency	458.00000 MHz

Rx System Gain(Loss)

Setting	ON	Value	
Test Frequency 1	•	467.10000	MHz
Test Frequency 2	•	468.80000	MHz
Test Frequency 3	•	459.00000	MHz
Test Frequency 4	•	459.60000	MHz
Test Frequency 5	•	458.00000	MHz
Test Frequency 6		OFF	MHz

Tx Rejection

Setting	ON	Value	
Test Channel 1		Select	Tx1-1, 462.15000 MHz, NXDN 18
Test Channel 2		Select	Tx1-2, 454.11250 MHz, LTR 7
Test Channel 3		Select	Tx1-3, 454.31250 MHz, TRBO 3
Test Channel 4		Select	T×1-4, 454.62500 MHz, LTR 10
Test Channel 5		Select	Tx1-5, 463.22500 MHz, NXDN 20
Test Channel 6		Select	Tx2-1, 461.17500 MHz, NXDN 1
Test Channel 7		Select	Tx2-2, 454.05000 MHz, TRBO 1
Test Channel 8		Select	Tx2-3, 451.88750 MHz, NXDN 19
Test Channel 9		Select	Tx2-4, 454.25000 MHz, TRBO 2
Test Channel 10		Select	Tx2-5, 454.53750 MHz, NXDN 9
Test Channel 11		Select	
			Defaults Discard Changes Apply

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The System Isolation Tests "Configuration" page allows this test's parameters to be entered.



Automatic System Isolation Tests:

This determines whether the System Isolation Tests will be performed automatically.

Automatic Test Schedule:

This determines when the *System Isolation Tests* will be performed when *Automatic System Isolation Tests* is selected. Clicking *Edit* selects a calendar menu that allows a wide range of minute/hour/day/week/month selections to be chosen, enabling specific times to be allocated for the System Isolation Tests.

Configure Automa	tic Test Schedule
Repetition period: Monthly	Start time: 02:00 ▼
Every last • first second third fourth isst	Sunday • of the month
	Cancel OK

Antenna Isolation Test:

Test Frequency:

The frequency upon which the Antenna Isolation Test will be performed.

<u>Note:</u> Depending on local licensing and regulatory requirements this frequency will normally be one of the sites existing Base Station receive frequencies.

Rx Subsystem Gain(Loss):

Test Frequency(s):

The frequency(s) upon which the Rx Subsystem Gain/Loss Test will be performed.

<u>Note:</u> Depending on local licensing and regulatory requirements this frequency will normally be one of the sites existing Base Station receive frequencies.

Tx Rejection:

Test Frequency(s):

The frequency(s) upon which the Tx Rejection Test will be performed.

Note: The frequencies selected for this test must be Tx frequencies that are selected in the Configuration – Tx Ports screens.

Defaults:

Clicking this resets all data fields to the factory defaults.

Discard Changes:

Click this button to restore the values to those current saved. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the *Configure - Isolation Tests* menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out-of-range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

NOTE: Antenna Isolation values outside the measurement range of this test may also be measured as a Rx Channels measurement. The Rx Frequency can be measured as one of the systems own Tx frequencies, and the Max/Min Alarm Levels set to measure a change in received level (which includes the antenna isolation value). A reduction in Tx Output Power or Antenna Isolation can generate an alarm if the measure Rx level is outside the alarm Max/Min values. As Tx Power is also alarmed, in can be deduced whether an alarm is being generated by a reduction in Tx Output Power or Antenna Isolation value, and fault rectification actioned accordingly.





Overview
Status
History
Channel Diagnostics
Configuration
<u>User Data</u>
Isolation Tests
Receive Module
Channels
Alarm Settings
Alarm Modules
<u>History</u>
Communications
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About
Logout

Help

Configuration - System Isolation Tests

ASM3852

Bayswater

Common Settings	Defaults Discard Changes	Apply
Automatic System Isolation Tests	🖻 Enabled	
Automatic Test Schedule	Every Hour, starting at 19:30	
	Edit	

Antenna Isolation

Customer Name -Site Name -

Setting	RA	RB	RE	Frequency	
Test Frequency	•	•	•	421.00000	MHz

Rx System Gain(Loss)

Setting	RA	RB	RE	Frequency
Test Frequency 1				415.00000 MHz
Test Frequency 2	•			419.00000 MHz
Test Frequency 3				420.00000 MHz
Test Frequency 4				420.50000 MHz
Test Frequency 5				421.00000 MHz
Test Frequency 6	•	•	•	421.50000 MHz
Test Frequency 7				422.00000 MHz
Test Frequency 8	•	•		427.00000 MHz
Test Frequency 9				OFF MHz

Tx Rejection

		_					
Setting	RA	RB	RE	Channel			
Test Channel 1			•	Select	Tx1-1, 420.06250 MHz, FC CH1 420		
Test Channel 2		•		Select	Tx2-1, 500.06250 MHz, FC CH1 500		
Test Channel 3				Select			
					Defaults Discard Changes Apply		
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When a Receive Systems Module (RSM) is fitted to the ASM, the three receive signal paths (RxA, RxB and RxE) are selectable in the *Configuration – System Isolation Tests Chart* page.



10.29 Configuration – Receive Systems Module

AL.	Configurat	ion - Receive Systems Module
	Customer Name -	ASM3852
Allen.	Site Name -	Bayswater
RFI		
	Setting	Value
<u>Overview</u>	RxA-IN to Rx-OUT Gain	0 dB
Status	RxB-IN to Rx-OUT Gain	0 dB
History	Antenna (RxE) to Rx-OUT Gain	0 dB
Channel Diagnostics		
Configuration		
<u>User Data</u>	RxB-IN to RxB-OUT	Enabled
Isolation Tests		
Receive Module		Defaults Discard Changes Apply
Channels		
Alarm Settings		
Alarm Modules	Copyright	© 2005-2016 RF Industries Pty Ltd. All Rights Reserved
<u>History</u>		
Communications		
Calibration		
Maintenance		
<u>About</u>		
<u>Logout</u>		
Help		

The Receive Systems Module "Configuration" page allows this module's parameters to be entered.

RxA-IN to Rx-OUT Gain:

Sets the configured gain in the signal path from the RxA Input to the Rx Output to the ASM.

RxB-IN to Rx-OUT Gain:

Sets the configured gain in the signal path from the RxB Input to the Rx Output to the ASM.

Antenna RxE to Rx-OUT Gain:

Sets the configured gain in the signal path from the RxE Input to the Rx Output to the ASM.

RxA-IN to RxA OUT On/Off:

Sets the configured state of this RF path. Checked is a nett gain of 0dB, unchecked is a maximum attenuation in this path (>25dB).

RxB IN to RxB OUT On/Off:

Sets the configured state of this RF path. Checked is a nett gain of 0dB, unchecked is a maximum attenuation in this path (>25dB).



Defaults:

Clicking this resets all data fields to the factory defaults. The default settings are;

RxA-IN to Rx-Out Gain	15dB
RxB-IN to Rx-Out Gain	15dB
External Antenna RxE-IN to Rx-Out Gain	15dB
RxA-IN to RxA-OUT	Checked
RxB-IN to RxB-OUT	Checked

Discard Changes:

Click this button to restore the values to those current saved. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the *Configure - Receive Systems Module* menu item again to re-display the current configuration.

Save:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



10.30 Configuration – Channels - Menu

The "Configuration - Channels" menu allows all of the ASMs channel specific parameters to be programmed. Selecting each indented topic under "Configure - Channels" will display that item as a separate display page.



Note: The viewing and functionality of Configuration menu items may be limited by the Login level used to access the ASM.

Note: The "Receive Systems Module" and "Alarm Modules" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.

10.31 Configuration – Rx Channels 1-20

			Conf	igu	rat	ion	- Rx 1	-20, C	hannel	s		
Sillin.	Cu	stomer	Name -		Poli	ice						
Allin	Site	e Name	-		Mt	Walker	r					
REI												
								Defaults	Discard	Change		Apply
<u>Overview</u>								Delddio	Distara	onunge		, the state of the
Status		Chan No.	Channel ID	N	W ID	ON	Frequency	/	Modulation		Thresh	old Pwr
History		Rx-1	O&M Ch 1	0	-	~	418.21250	MHz	TETRA	•	-110.0	dBm
Channel Diagnostics		Rx-2	O&M Ch 2	0	-	~	418.75000	MHz	TETRA	•	-110.0	dBm
Configuration		Ry-3	GRN 1	1	-		428 10000	MH7	P25P1	•	-110.0	dPm
<u>User Data</u>	_				_	-	120.10000		12011	_	110.0	
Isolation Tests		Rx-4	JGRN 2	1	•		428.38750	MHz	LSM	•	-110.0	dBm
Channels		Rx-5	GRN 3	1	•	\checkmark	428.67500	MHz	LSM	•	-110.0	dBm
<u>Rx Channels 1-20</u>		Rx-6	GRN 4	1	•		428.82500	MHz	P25P1	•	-110.0	dBm
Rx Channels 21-40		Rx-7	GRN 5	1	•	~	429.21250	MHz	P25P1	•	-110.0	dBm
RX Channels 41-60		Ry-8	GRN 6	1	•	L.	429 58750	MUT	DMR	•	-110.0	dDm
KX Channels 61-80	-	Du 0					450.30750		DMD		110.0	ubiii
Tx Port 2		Rx-9	PRN Ch I	2	•		458.78750	MHz	DMR	•	-110.0	dBm -
Tx Dort 2		Rx-10	PRN Ch 2	2	•	\checkmark	458.91250	MHz	FM25	•	-110.0	dBm
Tx Port 4		Rx-11	PRN Ch 3	2	-	$\overline{\checkmark}$	459.30000	MHz	FM12.5	•	-110.0	dBm
Alarm Settings	_	_				_				~		• • • •
Alarm Modules		Remo	ve Selected Rows	Ac	ld Rov	V		Defaults	Discard	Change	es	Apply
<u>History</u>												
<u>Communications</u>			0		2005	-2015 0			D			
Calibration				pyright (9 2003	-2013 Kr	- Industries Pty	/ Ltd. All Kights	Keserved			
Maintenance												
About												
Logout												
Help												

Each of the Rx channels (Groups), displayed 20 per page, is configurable as illustrated in this Rx Channel page.

Chan No:

The system channel designator.

Channel ID:

A description for the channel. Up to 16 characters may be entered.

NW ID:

Allows channels to be affiliated with a network (i.e. "1" is Police Network, "2" is Fire Network), to an antenna system ("1" is Tx Antenna #1, "2" is Tx Antenna #2), or to another label (i.e. "1" is 24x7 Maintenance, "2" is Normal Hours Maintenance) and this label will appear in Alarm Messages to allow faster determination of response priority and or actions.

Note: The NW ID column is only displayed if this feature is enabled in the Configuration – User Data screen.

ON:

This controls the scanning of the channel. If checked, the channel is included in the measurement cycle, otherwise it is not included. This allows the channel to remain configured, but to be removed from the measurement cycle if desired (i.e. if the channel has been disabled or temporarily removed).



Frequency:

The center frequency for the channel. The frequency must be a multiple of 0.00125 MHz. Channel frequency steps of 5KHz, 6.25KHz, 7.5KHz, 10KHz, 12.5KHz, 15KHz, 20KHz, 25KHz and 30KHz are supported.

Modulation:

Selects the modulation type to be measured.

Note: The channel measurement bandwidth is also selected in this field. Some modulation selections default the channel measurement bandwidth (i.e. "TETRA" defaults to a 25KHz setting), but if multiple selections are available, then this is easily identified by the modulation label (i.e. "FM12.5" is 12.5KHz, and "FM25" is 25KHz).

Threshold Pwr:

The minimum forward power level for which channel measurements and alarm status will be updated. If the detected power level is below this value the signal will be considered as not present.

Add Row:

When the configuration page is loaded, only configured channels are displayed. To configure a new channel, click the Add Row button to display the next available un-configured channel. Up to 20 channels may be configured for each Tx port.

Remove Selected Rows:

Clicking this button will return the selected rows to their default settings and remove them from the display. Rows are selected by clicking the checkbox at the left of the row. Clicking the checkbox in the title bar will select all the rows. Note that the first row is always displayed.

Note: For any text field, the allowable limits for that field (Model dependent) are displayed when the cursor is hovered over it.

Defaults:

Clicking this button reduces the display to only the first channel and enters the factory default values for the Channel configuration settings. To only restore specific channels to defaults, select them, and then use the Remove Selected Rows button followed by the Add Row button. The default settings are;

Channel ID	"Not Defined"
ON	Not selected
Frequency	OFF
BW	25 kHz
Threshold Pwr	-120 dBm

Discard Changes:

Click this button to restore the values to those current saved. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the Configure/User Data menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Note: Whenever programming changes are applied, the alarm status for affected channels is re-initialized.



A.			Con	figura	ati	on	- Rx 1-	20, Cł	nanne	s		
Alllin.	Cus	stomer	Name -	A	SM3	852						
	Site	e Name	-	B	aysv	vater	•					
REI					•							
and freed and a late								Defaulte	Disc	ard Char	1005	Apply
Overview								Delaulis	Disc	aru cilai	iyes	лрріу
Status		Chan No.	Channel ID	RA	RB	RE	Frequency		Modulation		Thresh	old Pwr
History		Rx-1	FC CH1 420		$\boxed{\checkmark}$	$\overline{\checkmark}$	420.06250	MHz	P25P1	•	- 90.0	dBm
Channel Diagnostics		Rx-2	FC CH2 420		$\overline{\mathbf{v}}$		420.26250	MHz	P25P1	•	- 90.0	dBm
Configuration		Rx-3	FC CH3 420				420 36250	MHZ	P25P1	•	- 90 0	dRm
<u>User Data</u>	-	Dec 4			-	=	400 50050		DOCD1		00.0	doni
Isolation Tests		KX-4	FC CH4 420	⊻	M		420.56250	MHz	P25P1	•	- 90.0	dBm
Receive Module		Rx-5	FC CH5 420				420.66250	MHz	P25P1	•	- 90.0	dBm
Channels		Rx-6	FC CH6 420				421.28750	MHz	DMR	•	- 90.0	dBm
Rx Channels 1-20		Rx-7	FC CH7 420				421.36250	MHz	DMR	•	- 90.0	dBm
Rx Channels 41-60		Rx-8	FC CH8 420				421.58750	MHz	DMR	•	- 90.0	dBm
Rx Channels 61-80		Rx-9	Building DAS			\checkmark	468.10000	MHz	P25P1	•	-120.0	dBm
<u>Tx Port 1</u>			, -		_	_	,				,	
<u>Tx Port 2</u>		Remov	e Selected Rows	Add Ro	N			Defaults	Disc	ard Cha	nges	Apply
<u>Tx Port 3</u>												
<u>Tx Port 4</u>												
Alarm Settings				Copyright © 2	005-2	016 R	F Industries Pty	Ltd. All Rights	Reserved			
Alarm Modules												
History												
Communications												
Calibration												
Maintenance												
About												
Logout												
Help												

When a Receive Systems Module (RSM) is fitted to the ASM, the three receive signal paths (RxA, RxB and RxE) are selectable in the *Configuration – Rx Channels* pages.

10.32 Configuration – Tx Port 1 Channels

	Configuration - Tx Port 1 Channels								
Alltin.	Customer	Name -	ASM3	852					
	Site Name	-	Baysv	Bayswater					
RFI	Tx Antenn	a Reference -	Tx 42	0					
<u>Overview</u>					Defaults	Discar	d Changes		Apply
Status	Chan								
History	No.	Channel ID	ON	Frequency	1	Iodulation	Т	hresho	ld Pwr
Channel Diagnostics	Tx1-1	FC CH1 420		420.06250	MHz	P25P1	-	0.0	dBm
Configuration	Tx1-2	FC CH2 420		420.26250	MHz	P25P1	•	0.0	dBm
<u>User Data</u>	T Tv1 2	FC CH3 420		420 36250		D25D1		0.0	dD-m
Isolation Tests	X1-3	1 0 0113 420		420.30230	MHZ	FZJET		0.0	asm
<u>Receive Module</u>	Tx1-4	FC CH4 420	V	420.56250	MHz	P25P1	•	0.0	dBm
Channels	🗖 Tx1-5	FC CH5 420		420.66250	MHz	P25P1	-	0.0	dBm
<u>Rx Channels 1-20</u>	Tx1-6	FC CH6 420		421.28750	MHz	P25P1	-	0.0	dBm
Rx Channels 21-40	Tx1-7	FC CH7 420		421,36250	MHz	P25P1	-	0.0	dBm
Rx Channels 41-60	E Tyl 0			401 59750		D2ED1		0.0	lo
Rx Channels 61-80	L 1X1-8	JLC CH0 420	V	421.50750	MHZ	F20F1	<u> </u>	0.0	dBm
<u>Tx Port 1</u>	Remov	ve Selected Rows	Add Row		Defaults	Discar	d Changes		Apply
Tx Port 2									
<u>IX Port 3</u>									
<u>IX Port 4</u>		Cop	oyright © 2005-20	16 RF Industries	Pty Ltd. All Right	s Reserved			
Alarm Settings									
Alarm Modules									
Communications									
Calibration									
Maintenance									
About									
Logout									
Help									

Each of the Tx port channels (Groups), 1 through to 4 is configurable as illustrated in this Tx Port 1 Channel page.

Chan No:

The system channel designator.

Channel ID:

A description for the channel. Up to 16 characters may be entered.

NW ID:

Allows channels to be affiliated with a network (i.e. "1" is Police Network, "2" is Fire Network), to an antenna system ("1" is Tx Antenna #1, "2" is Tx Antenna #2), or to another label (i.e. "1" is 24x7 Maintenance, "2" is Normal Hours Maintenance) and this label will appear in Alarm Messages to allow faster determination of response priority and or actions.

Note: The NW ID column is only displayed if this feature is enabled in the Configuration – User Data screen.

ON:

This controls the scanning of the channel. If checked, scanning is enabled, otherwise it is not included in the scanning cycle. This allows the channel to remain configured, but to be temporarily removed from the scanning cycle.

Frequency:

The center frequency for the channel. The frequency must be a multiple of 0.00125 MHz. Channel frequency steps of 5KHz, 6.25KHz, 7.5KHz, 10KHz, 12.5KHz, 15KHz, 20KHz, 25KHz and 30KHz are supported.

Modulation:

Selects the modulation type to be measured.

Note: The channel measurement bandwidth is also selected in this field. Some modulation selections default the channel measurement bandwidth (i.e. "TETRA" defaults to a 25KHz setting), but if multiple selections are available, then this is easily identified by the modulation label (i.e. "FM12.5" is 12.5KHz, and "FM25" is 25KHz).

Threshold Pwr:

The minimum forward power level for which channel measurements and alarm status will be updated. If the detected power level is below this value the signal will be considered as not present and a new measurement not performed.

Note: The default value for this field is "35dBm" which caters for most applications. Alternate values to suit special applications should be entered against specific channels as required, but a value of +10dBm (or higher) is recommended.

Add Row:

When the configuration page is loaded, only configured channels are displayed. To configure a new channel, click the Add Row button to display the next available un-configured channel. Up to 20 channels may be configured for each Tx port.

Note: If more than 20 channels are required to be configured as sampled by one Antenna Line Coupler (ALC), enter the additional channels into Tx Port 2 (and/or Tx Port 3 and/or Tx Port 4) channel list(s). In the *Calibration – Tx Ports* pages, enter the same Forward and Reverse Coupling values into the respective ports' calibration pages as has been calibrated on the *Calibration – Tx Port 1* page. For example, 37 channels could be monitored in one Tx combiner, via one ALC, by entering the first 20 frequencies against Tx Port 1, and the remaining 17 frequencies against Tx Port 2. The Forward and Reverse Coupling values determined in the *Calibration - Tx Port 1* page should be copied and applied to the *Calibration - Tx Port 2* page.

Remove Selected Rows:

Clicking this button will return the selected rows to their default settings and remove them from the display. Rows are selected by clicking the checkbox at the left of the row. Clicking the checkbox in the title bar will select all the rows. Note that the first row is always displayed.

Note: For any text field, the allowable limits for that field (Model dependent) are displayed when the cursor is hovered over it.

Defaults:

Clicking this button reduces the display to only the first channel and enters the factory default values for the Channel configuration settings. To only restore specific channels to defaults, select them, and then use the Remove Selected Rows button followed by the Add Row button. The default settings are;

"Not Defined"
Not selected
OFF
25 kHz
35 dBm

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the relevant Configuration/Channels/Tx Port menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out-of-range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

<u>Note:</u> Whenever programming changes are applied, the alarm status for affected channels is re-initialized.







10.33 Configuration – Alarms Settings Menu

The "Configuration - Alarms" menu allows all of the ASMs alarm parameters to be programmed.

Selecting each indented topic under "Alarm Settings" will display that item as a separate display page.



<u>Note:</u> The viewing and functionality of *Configuration* menu items may be limited by the Login level used to access the ASM.

Note: The "Receive Systems Module" and "Alarm Modules" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.



10.34 Configuration – Alarm Settings – Isolation Tests

REI	Configuration - S Customer Name - ASI Site Name - Bay	System Isolation Test Alarms M3852 Vyswater
	System Information	Value
<u>erview</u>	Tx Reverse Coupling Loss (Nominal)	38.4 dB
itus	Tx Feeder Loss (Nominal)	3.0 dB
	Ry Subsystem Gain(Loss)	0.0 dB
<u>ode</u>	Pre Dest Coin(Loss)	
on	RX Post Gain(Loss)	0.0 dB
	Alarm Output	
<u>ists</u>		
	Setting	Min Max
gs	Antenna Isolation	60.0 dB 70.0 dB
<u>its</u>	System Rx Gain(Loss)	- 5.0 dB + 5.0 dB
21-40	Tx Rejection	60.0 dB 170.0 dB
1-60	······ ···········	
1-80		Defaults Discard Changes Apply
	Copyright © 2005	-2016 RF Industries Pty Ltd. All Rights Reserved
ons		

The "Configuration – System Isolation Test Alarms" page allows this test's parameters to be entered.

Tx Reverse Coupling Loss:

The value of coupling loss that has been entered in the Tx Port Calibration page. This value is used in the calculation of the System Isolation Tests values.

Tx Feeder Loss:

The value of Tx Antenna Feeder loss that has been entered in the Tx Port Calibration page. This value is used in the calculation of the System Isolation Tests values.



Rx Subsystem Gain(Loss):

The value of Rx Subsystem Gain/Loss that has been entered in the Rx Port Calibration page. This value is used in the calculation of the System Isolation Tests values.

Rx Post Gain(Loss):

The value of Rx Subsystem Post Gain/Loss that has been entered in the Rx Port Calibration page. This value is used in the calculation of the System Isolation Tests values.

Alarm Output:

If the Antenna Isolation alarm status is assigned as the source for an Alarm Module Alarm Output, or for one of the System Alarm relays, this displays the associated alarm output. For example;

"1-4" indicates Alarm Module 1, Alarm Output 4

"S-2" indicates System Alarm relay 2

Antenna Isolation (Alarm Level):

The Antenna Isolation values below or above which an alarm will be generated when the System Isolation Tests are performed.

System Rx Gain/Loss (Alarm Level):

The Rx System Rx Gain/Loss values below or above which an alarm will be generated when the System Isolation tests are performed.

Tx Rejection (Alarm Level):

The Tx Rejection values below or above which an alarm will be generated when the System Isolation tests are performed.

Defaults:

Clicking this resets all data fields to the factory defaults.

Discard Changes:

Click this button to restore the values to those current saved. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the Configure/User Data menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



10.35 Configuration – Alarm Settings – Receive Systems Module

RFI	Configuration Customer Name - Site Name -	1 - Receive Syst APM3852 Bayswater	ems Module Alarms
	Setting	Warning	Alarm
<u>Overview</u>	RxA Peak Level	- 50.0 d	Bm - 35.0 dBm
Status	RxB Peak Level	- 50.0 d	Bm - 35.0 dBm
History			
Service Mode	Antenna (RXE) Peak Level	- 55.0 d	Bm - 35.0 dBm
Configuration		[Defaults Discard Changes Apply
<u>User Data</u>			
Isolation Tests			
Receive Module	Соругі	ght © 2005-2016 RF Industries Pty Lto	I. All Rights Reserved
Channels			
Alarm Settings			
Isolation Tests			
<u>Receive Module</u>			
<u>Rx Channels 1-20</u>			
<u>Rx Channels 21-40</u>			
<u>Rx Channels 41-60</u>			
<u>Rx Channels 61-80</u>			
<u>Tx Port 1</u>			
<u>Tx Port 2</u>			
<u>Tx Port 3</u>			
<u>Tx Port 4</u>			
<u>System</u>			
Alarm Modules			
<u>History</u>			
Communications			
Calibration			
Maintenance			
About			
<u>Logout</u>			
Help			

Each of the Rx input alarms is configurable as illustrated in this Configuration – Alarm Settings - Receive Systems Module Alarms page.

Setting:

Each of the three Rx inputs are listed for configuration.

Warning:

The alarm threshold level that will indicated a Yellow 'Warning' colour behind the displayed measured value for this Rx input.

Alarm:

The alarm threshold level that will indicated a Red 'Alarm" colour behind the displayed measured value for this Rx input.



Defaults:

Clicking this resets all data fields to the factory defaults. The default settings are;

Setting	Warning	Alarm
RxA Peak Level	-50dBm	-35dBm
RxB Peak Level	-50dBm	-35dBm
Antenna RxE Peak Level	-50dBm	-35dBm

Discard Changes:

Click this button to restore the values to those current saved. Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the Configure/User Data menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



10.36 Configuration – Alarm Settings – Rx Channels

RFI	Customer Site Name	Conf Name - -	iguration - Rx 1 Smith County Mt Black	-20, A	larr	ns	
				Defaults	Dis	card Changes	Apply
tus	Chan No.	Channel ID	Frequency	Min Pw	r	Max Pwr	Alm
ory	Rx-1	LTR 1	467.15000 MHz	-120.0	dBm	- 55.0 dBm	0/P
ode	By D	TRPO 1	450 11250 MH 7	120.0	dDar	- 55 0 dpm	
	KX-2	IKBO I	439.11230 MHZ	-120.0	aBm	- 55.0 dBm)
	Rx-3	TRBO 2	459.31250 MHz	-120.0	dBm	- 55.0 dBm	
<u>sts</u>	Rx-4	TRBO 3	459.62500 MHz	-120.0	dBm	- 55.0 dBm	
	Rx-5	LTR 7	468.22500 MHz	-120.0	dBm	- 55.0 dBm	
gs	Rx-6	LTR 9	459.53750 MHz	-120.0	dBm	- 55.0 dBm	
<u>ests</u>	Rx-7	LTR 10	459.62500 MHz	-120.0	dBm	- 55 0 dBm	
<u>-20</u>	Dec 0	170.10	467.45000 MUL	100.0	ubiii		
<u>21-40</u>	KX-8	LIK 18	467.15000 MHZ	-120.0	dBm	- 55.0 dBm	
<u>41-60</u>	Rx-9	LTR 19	459.88750 MHz	-120.0	dBm	- 55.0 dBm	
<u>; 61-80</u>	Rx-10	LTR 20	468.22500 MHz	-120.0	dBm	- 75.0 dBm	
			ſ	Defaulta	Die	aard Changes	Apply
				Delauits	Dis	card changes	Арріу
		Соруг	ight © 2005-2014 RF Industries Pty L	.td. All Righ <u>ts R</u>	eserv <u>e</u> d		
ions							

Each of the Rx channel alarms is configurable as illustrated in this Configuration – Alarm Settings – Rx Channels page.

Min Pwr and Max Pwr:

Sets the power level limits for alarming of the monitored Rx channels. A signal detected outside these limits will result in an alarm.

- Note: Setting the Min Pwr to -120dBm will disable low level alarms. However, setting Min Pwr between -120dBm and the ASMs minimum sensitivity measurement level (-110dBm) may result in unpredictable alarm behavior for Rx levels within this range. These values are different if an (optional) RSM module is fitted.
- Note: For any text field, the allowable limits for that field (field dependent) are displayed when the cursor is hovered over it. Alarms will only be raised for signals where the Received Power level exceeds the Threshold Power set on the Channel Configuration pages.



ALM O/P:

The Alarm Output that this channel's Min. Pwr or Max. Pwr alarm has been assigned to.

<u>Note:</u> This is configured in the Configuration – Alarm Settings – System or Configuration – Alarm Modules screens as required.

Defaults:

Clicking this button enters the factory default values for the Channel alarm settings, which are;

Min Power-110dBmMax Pwr-75dBm

Discard Changes:

Click this button to restore the values to those present when the page was last displayed.

Note: If invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the relevant *Configuration/Alarms/Rx Channels* menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Note: Whenever any configuration changes are applied, the alarm status for affected channels is re-initialised.



10.37 Configuration – Alarm Settings - Tx Port 1

	Configuration - Tx Port 1 Alarms			1			
	Customer	Name -	Police				
Allin	Site Name	-	Mt Walker				
RFI	Tx Antenn	a Reference -	Tx #1				
						0	
<u>Overview</u>				Defaults	Discard	unanges	Арріу
Status	Chan No.	Channel ID	Frequency	Min Pwr	Max Pwr	Max VSWR	Alm O/P
History	Tx1-1	O&M Ch 1	408.21250 MHz	+42.0 dBm	+49.0 dBm	1.50 • 1	1-1
Channel Diagnostics	Tot D	on the o	400 75000 MU-	12.0 dbiii	40.0	1.50	
Configuration	1X1-2	O&M Ch 2	408.75000 MHZ	+42.0 dBm	+49.0 dBm	1.50 ;1	
<u>User Data</u>	Tx1-3	GRN 1	423.10000 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
Isolation Tests	Tx1-4	GRN 2	423.38750 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
Channels	Tx1-5	GRN 3	423.67500 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
Alarm Settings	Tx1-6	GRN 4	423.82500 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
Rx Channels 1-20	Tx1-7	GRN 5	424.21250 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
<u>Rx Channels 21-40</u>	Tx1-8	GRN 6	424.58750 MHz	+42.0 dBm	+49.0 dBm	1.50 • 1	
Rx Channels 41-60	Tv1.0	DDN Ch 1	467 70750 MU	120 ID	, 40.0 Jp	1.50	
Rx Channels 61-80	1X1-9	PRN Ch I	407.78730 MHZ	+42.0 dBm	1+49.0 dBm	1:00 :1	
<u>Tx Port 1</u>	Tx1-10	PRN Ch 2	467.91250 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
<u>Tx Port 2</u>	Tx1-11	PRN Ch 3	468.30000 MHz	+42.0 dBm	+49.0 dBm	1.50 :1	
<u>Tx Port 3</u>				Defaulta	Discord	Changes	Apply
<u>Tx Port 4</u>				Delauits	Discalu	changes	Арріу
<u>System</u>							
Alarm Modules		Cor	nvright © 2005-2015 RE Industrie	s Ptv Itd. All Right	s Reserved		
History				etti yetti yar kugu			
<u>Communications</u>							
Calibration							
Maintenance							
About							
Logout							
Help							

Each of the Tx port (Groups) channel alarms, 1 through to 4 is configurable as illustrated in this Tx Port 1 Alarms page.

Min & Max Power:

Sets the power level limits for alarming of the monitored Tx channels. A signal detected outside these limits will result in an alarm.

Max VSWR:

Sets the VSWR alarm limit.

ALM O/P:

The Alarm Output that this channel's Min. Pwr or Max. Pwr alarm has been assigned to.

Note: This is configured in the Configuration – Alarm Settings – System or Configuration – Alarm Modules screens as required.

Note: For any text field, the allowable limits for that field (Model dependent) are displayed when the cursor is hovered over it.

<u>Note:</u> Alarms will only be raised for signals where the Forward Power level exceeds the Threshold Power set on the Channel Configuration pages.



Defaults:

Clicking this button enters the factory default values for the Channel alarm settings, which are:

Min Power	+42 dBm
Max Power	+49 dBm
Max Ins Loss	1.0 dB
Max VSWR	1.50:1

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the relevant Configuration/Alarms/Tx Port menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Note: Whenever programming changes are applied, the alarm status for affected channels is re-initialized.



10.38 Configuration – Alarm Settings – System

	Custome	Config er Name -	uration APM3852	- Sy	ystem Alarms		
Aller	Site Nam	ie -	Bayswater				
RFI							
	Setting			Value	e		
<u>Overview</u>	VCO alarm	IS		E E	Enabled		
Status	Tx Power	alarms		Enabled			
History		alarms			Enabled		
Service Mode				-			
Configuration	Rx Power	alarms		E	Enabled		
<u>User Data</u>	Alarm Mod	lule Input alarms		EI EI	Enabled		
Isolation Tests	Tx alarm d	lelay		15	Seconds		
Receive Module	Rx alarm (lelav		15	Seconds		
Channels				10			
Alarm Settings	Alarm Mod	lule Input alarm delay		15	Seconds		
Isolation Tests							
Receive Module	Alarm Ou	tput Mapping					
Rx Channels 1-20	Relay	Alarm Source					
Rx Channels 21-40	Relay 1	Summary Alarm, Normal, N/O	C		Edit		
Rx Channels 41-60	Relay 2	Rx Power, Normal, N/O			Edit		
KX Channels 61-80	Relay 3	Tx Power, Normal, N/O			Edit		
Tx Port 2							
Tx Port 3	Relay 4	TX VSWR, Normal, N/O			Edit		
Tx Port 4					Defaults Discard Changes Apply		
<u>System</u>							
Alarm Modules							
History		Copyright @	© 2005-2016 RF Ind	dustries I	Pty Ltd. All Rights Reserved		
<u>Communications</u>							
Calibration							
Maintenance							
<u>About</u>							
Logout							
Help							

These settings allow various alarm categories to be disabled. Note that disabling an alarm category only suppresses activation of the relevant alarm relays. For example if Tx Power alarms are disabled, the Tx Power alarm relay, and the Summary alarm relay will not activate when the Tx Forward power level is outside the configured limits. However, the alarm status LEDS will continue to operate normally, and the user interface will still display the relevant alarms.

VCO alarms:

When selected, a VCO alarm is raised when either of the ASM unit's VCOs fail to frequency lock.

Tx Power alarms:

When selected, this alarm occurs when the Forward Power level for a Tx channel is outside the configured Min & Max power alarm limits or when the Combiner Insertion Loss exceeds the configured alarm limit.

Tx VSWR alarms:

When selected, this alarm occurs when the VSWR for a Tx channel is greater than the configured limit.



Rx Power alarms:

When selected, this alarm occurs when the level for a Rx channel is outside the configured Min & Max level alarm limits.

Alarm Module Input alarms:

When selected, this alarm occurs when any Alarm Module Input is outside the configured Min & Max alarm limits.

Tx alarm delay:

This setting defines the length of time (in seconds) for which the alarm must be continuously present or restored before the change in alarm status is recognized.

Rx alarm delay:

This setting defines the length of time (in seconds) for which the alarm must be continuously present or restored before the change in alarm status is recognized.

Alarm Module Input alarm delay:

This setting defines the length of time (in seconds) for which the alarm must be continuously present or restored before the change in alarm status is recognized.

Alarm Output Mapping

These selections allow the four relays available on the ASM's rear panel DB15 connect to be mapped to a choice selectable from the System's Summary, Antenna Isolation, Rx Channel or Tx Channel alarms.

For each alarm selected and assigned, the relay can be configured for Normal, Inactive, Active or Latching actions, with either a Normally Operated or Normally Released state selectable.

Configure Alarm Re	elay 1
Alarm Source Summary Alarm Summary Alarm Rx Power Tx Power Tx VSWR	Alm Func Normal V/O V
Antenna Isolation Rx Chans 1-20 Rx Chans 21-40 Rx Chans 41-60 Rx Chans 61-80	Defaults Cancel OK
Tx Port 1 - Main Tx	
Tx Port 2 - Standby Tx Tx Port 3 - Monitor Antenna Tx Port 4 - Not defined	

Configure Alarm Relay 1	L	
Alarm Source Summary Alarm •	Alm Func Normal ▼ Normal Inactive Active Latching Defaults Ca	Rly Mode N/O •

Configure Alarm Relay 1	L
Alarm Source Summary Alarm 🔻	Alm Func Normal V/O
	Defaults Cancel OK

Defaults:

This will enable all alarm categories. The Tx alarm, Rx alarm and Alarm Module Inputs alarms delays will be set to 15 Seconds, and the four relay outputs will be set to the respective System Summary selections.



10.39 Configuration – Alarm Modules - Menu



<u>Note:</u> The "*Receive Systems Module*" and "*Alarm Modules*" menu items appear only if one or more (optional) Channel Alarm Module (CAM), Site Alarm Module (SAM) or Receive Systems Module (RSM) is installed. Up to ten (10) CAM/SAM units and one (1) RSM may be fitted to each ASM as required.

10.40 Configuration – Alarm Modules – Channel Alarm Module

REI	

<u>Overview</u>
Status
History
Service Mode
Configuration
<u>User Data</u>
Antenna Isolation
Channels
Alarm Settings
Alarm Modules
<u>SAM 1</u>
<u>CAM 7</u>
<u>History</u>
Communications
Calibration
Maintenance
About
Logout

Help

	Configurat	ion - Cha	nnel Al	arm	Module 7
Customer Nan	ne -	Mebourne			
Site Name -		RFI Demo			
				Defaults	Discard Changes Apply
External Alarm Input	Input ID	Enabled	Mode		Criteria
Ext7-1	Not defined		5V Digital 💌		Active Low 🔻
Ext7-2	Not defined		5V Digital 💌		Active Low 🔻
Ext7-3	Not defined		5V Digital 💌		Active Low 🔻
Ext7-4	Not defined		5V Digital 💌		Active Low 🔻
Digital Input	Input ID	Enabled	Function		Criteria
DI7-1	Police Rptr PTT		Not in use	•	Active Low 🔻
DI7-2	Vot Shelf Alarm		Not in use	•	Active Low 🔻
DI7-3	Not defined		Not in use	•	Active Low 🔻
DI7-4	Not defined		Not in use	•	Active Low 🔻
DI7-5	Not defined		Not in use	•	Active Low 🔻
DI7-6	Not defined		Not in use	•	Active Low 🔻
DI7-7	Not defined		Not in use	•	Active Low 🔻
DI7-8	Not defined		Not in use	•	Active Low 🔻
DI7-9	Not defined		Not in use	•	Active Low 🔻
DI7-10	Not defined	E	Not in use	•	Active Low 🔻
Alarm Output	:	Channel			Alarm Configuration Excend All
CAM7-1 Alar	m not in use 🔹 💌	Alarm not in us	ie 🔻		Configure Alarm Detail
CAM7-2	m natio una	Alarmantia			Configure Alarm Detail

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Alarm Output	Port	Channel	Alarm Configuration Expend All		
CAM7-1	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail		
CAM7-2	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail		
CAM7-3	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail		
CAM7-4	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail		
CAM7-5	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail		
CAM7-6	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail		
CAM7-7	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail		
CAM7-8	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail		
CAM7-9	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail		
CAM7-10	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail		
		Defau	Its Discard Changes Apply		
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Each of the (optional) Channel Alarm Module (CAM) units fitted to the ASM is configurable as illustrated in this Channel Alarm Module page.



External Alarm Input	Input ID	Enabled	Mode	Criteria
Ext4-1	Site Door		5V Digital 🔻	Active Low 🔻
Ext4-2	Fuel Tank Low		5V Digital 🔻	Active High 💌
Ext4-3	Not defined		Not in use 🔻	Active Low 🔻
Ext4-4	Not defined		Not in use 🔻	Active Low 🔻

External Alarm Input:

Displays the four (4) configurable external digital inputs.

Input ID:

Enter a description for the External Alarm input signals. Up to 16 characters may be entered.

Enabled:

If the input is Enabled, an alarm condition will result in a System Fault summary alarm, together with an indication on the System Status page. Its status will also be displayed on the associated CAM Status page.

Mode:

Select the input mode for the external input.

5V Digital	•
Not in use	
5V Digital	

Criteria:

Select the input state (LOW or HIGH) that signals an alarm condition for each External Input.

Digital Input	Input ID	Enabled	Function	Criteria
DI4-1	Police Base PTT		CAM4-1 PTT 🔹	Active Low 🔻
DI4-2	Not defined		Not in use 🔹	Active Low 🔻
DI4-3	Not defined		Not in use 🔹	Active Low 💌
DI4-4	Not defined		Not in use 🔹	Active Low 🔻
DI4-5	Microwave Alarm		General Purpose 🔻	Active Low 💌
DI4-6	Solar Low Volts		General Purpose 🔻	Active Low 💌
DI4-7	Mains Fail		General Purpose 🔻	Active Low 🔻
DI4-8	Batt. Low Volts		General Purpose 🔻	Active Low 💌
DI4-9	Not defined		Not in use 🔹	Active Low 🔻
DI4-10	Not defined		Not in use 🔹	Active Low 🔻



Digital Input:

Displays the ten (10) configurable digital inputs.

Input ID:

Enter a description for the digital alarm signal. Up to 16 characters may be entered.

Enabled:

Selects if this input is enabled.

Function:

Select the input mode for each of the Digital Inputs.

A "CAMX-X PTT" selection affiliates the digital input as a base station Tx PTT or RX UNSQ or other control line function as a monitoring line for the base station assigned to that CAM Alarm Relay Output (see below). A "General Purpose" selection identifies the Digital Input as an independent digital input for monitoring external equipment, etc

When the Function input is enabled, it is used instead of the Threshold Power Level (configured on the Tx Port Channel Configuration page) to determine if the alarmed parameter should be measured. If used with the transmitter's PTT line, even if the transmitter produces no RF output, but the PTT line activation is present, an alarm condition can be determined. If the Threshold Power Level value was used instead, no RF level would be detected above the threshold level, so no measurements (or resulting alarm states) would occur.

Other conditional alarming functionality for Receiver, Voting Shelf or other system equipment can be created using this Function input selection.

Criteria:

Select the input state (LOW or HIGH) that signals an alarm condition.

Alarm Output	Alarm Source	Input/Channel	Alarm Configuration Expand All
CAM4-1	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-2	Alarm not in use Ext Alm Inputs 1-4	Alarm not in use 💌	Configure Alarm Detail
CAM4-3	Digital Inputs 1-10 Antenna Isolation	Alarm not in use 🔻	Configure Alarm Detail
CAM4-4	Rx Chans 1-20 Rx Chans 21-40	Alarm not in use 🔻	Configure Alarm Detail
CAM4-5	Rx Chans 41-60 Bx Chans 61-80	Alarm not in use 🔻	Configure Alarm Detail
CAM4-6	Tx Port 1 - Main Tx 1	Alarm not in use 🔻	Configure Alarm Detail
CAM4-7	Tx Port 3 - Not defined	Alarm not in use 🔻	Configure Alarm Detail
CAM4-8	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
CAM4-9	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
CAM4-10	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail

Alarm Output:

These 10 rows configure the individual channel alarm outputs and PTT input settings. Selecting the *Configure Alarm Detail* button on each row expands its display (refer above example). Selecting the *Collapse* button minimises the row display.

Alarm Source:

Either select the source of the alarm for each channel, or select "Alarm not in use" to disable the alarm.

Input/Channel:

Having selected the source, select the desired input/channel to be assigned to the SAM alarm.



Alarm Configuration:

Alarm Func:

The following options are available:

Normal - The alarm relay is controlled by the channel alarm status.

Inactive – The alarm relay is forced to the "no alarm" state for testing.

Active – The alarm relay is forced to its "alarm" state for testing.

- Latching The alarm relay is "latched" by an instance of the alarm state, and remains in this position until unlatched by manually selecting the adjacent *Clr* box.
- <u>Note:</u> When an alarm is current, the border of the *Configure Alarm Detail* button will be red, and when the Channel is expanded, the *Alm Func* box will also be red (refer above example).

Rly Mode:

The Relay Mode may be either Normally Released (N/R), i.e. it "operates" when an alarm is present, or Normally Operated (N/O), i.e. it "releases" when an alarm is present.

Specific Alarm Types:

If a Tx Channel is selected as the alarm source, either Tx Power or VSWR (or both) alarm conditions on the affiliated ASM Tx channel will initiate an alarm output condition on this CAM channel. Other selections will appear for other alarm source selections.

Alarm Output	Port	Channel	Alarm Configuration Expand All
CAM4-1	Alarm not in use 🔹	Alarm not in use 🔻	Rly Alm Func Mode Normal N/R ▼ Specific alarm types: ✓ Tx Pwr ✓ VSWR Collapse
CAM4-2	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-3	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-4	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-5	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail
CAM4-6	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-7	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-8	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
CAM4-9	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail
CAM4-10	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail
		Defaults	Discard Changes Apply



Defaults:

Clicking this button restores the factory default values which are:

External Alarm Input	Input ID	Enabled	Mode	Criteria
Ext7-1	Not Defined		Not in use 🔻	Active Low 💌
Ext7-2	Not Defined		Not in use 🔻	Active Low 💌
Ext7-3	Not Defined		Not in use 🔻	Active Low 💌
Ext7-4	Not Defined		Not in use 🔻	Active Low -
Digital Input	Input ID	Enabled	Function	Criteria
DI7-1	Not Defined		Not in use 🔻	Active Low 💌
DI7-2	Not Defined		Not in use 🔻	Active Low 💌
DI7-3	Not Defined		Not in use 🔻	Active Low -
DI7-4	Not Defined		Not in use 🔻	Active Low 💌
DI7-5	Not Defined		Not in use 🔻	Active Low -
DI7-6	Not Defined		Not in use 🔻	Active Low -
DI7-7	Not Defined		Not in use 🔻	Active Low -
DI7-8	Not Defined		Not in use 🔻	Active Low -
DI7-9	Not Defined		Not in use 🔹	Active Low -
DI7-10	Not Defined		Not in use 🔹	Active Low -
Alarm Alar Output Alar	m Source	Input/Channe	1	Alarm Configuration Expand Al

Output	Alarm Source	Input/Channel	Alarm Configuration Expand All
CAM7-1	Alarm not in use	✓ Alarm not in use ▼	Alm Func Mode Normal V N/R V Collapse
CAM7-2	Alarm not in use	✓ Alarm not in use	Configure Alarm Detail
CAM7-3	Alarm not in use	✓ Alarm not in use	Configure Alarm Detail
CAM7-4	Alarm not in use	✓ Alarm not in use	Configure Alarm Detail
CAM7-5	Alarm not in use	✓ Alarm not in use ▼	Configure Alarm Detail
CAM7-6	Alarm not in use	✓ Alarm not in use	Configure Alarm Detail
CAM7-7	Alarm not in use	✓ Alarm not in use	Configure Alarm Detail
CAM7-8	Alarm not in use	✓ Alarm not in use ▼	Configure Alarm Detail
CAM7-9	Alarm not in use	✓ Alarm not in use ▼	Configure Alarm Detail
CAM7-10	Alarm not in use	✓ Alarm not in use ▼	Configure Alarm Detail

Clicking Apply then saves these values into the ASM, or Discard Changes restores these values to their previous settings.

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the relevant Configuration/Alarms/Tx Port menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Note: Whenever programming changes are applied, the alarm status for affected channels is re-initialized.



10.41 Configuration – Alarm Modules – Site Alarm Module

RFI	C Customer N Site Name -	onfiguratior	- Site A Comm Site Mt Smith	larm Monit	or, Module 1
Overview Status	External Alar	m Input ID	Fnabled	Mode	Criteria
History	Input	Input ID		Houe	
Channel Diagnostics	Ext1-1	Room Temperature		Temperature 💌	Min -10.1 Max 50.0 °F
Configuration	Ext1-2	Battery Bank		+5V to -60V 🔻	Min -50.0 Max -45.0 Volts
<u>User Data</u>	Ext1-3	Solar Array	1	+60V to -60V 💌	Min 2.0 Max 20.0 Volts
Antenna Isolation	Ext1-4	Door Alarm	1	5V Digital 💌	Active High 🔻
Channels					
Alarm Settings	Digital Input	Input ID	Enabled	Function	Criteria
Alarm Modules			=		
SAM 1	DI1-1	Police Rptr PTT		SAM1-1 PTT V	Active Low 🔻
<u>CAM 4</u>	DI1-2	Generator Alarm	•	General Purpose 💌	Active High 🔻
<u>History</u>	DI1-3	Fuel Low Alarm	.	General Purpose 🔻	Active Low 🔻
Communications	DI1-4	Not defined		Not in use 💌	Active Low 💌
Calibration	DI1-5	Not defined	Ξ.	Not in use 💌	Active Low 🔻
Maintenance	DI1-6	Not defined	=	Not in use 🔻	Active Low 🔻
Logout	DI1-7	Not defined		Not in use	Active low 💌
	DI1-8	Not defined	-	Not in use	Active Low
Help	DI1-9	Not defined		Not in use 🔻	Active Low 🔻
	DI1-10	Not defined		Not in use 🔻	Active Low 🔻
	Alarm Po Output	ort	Channel	FO MULE Delice	Alarm Configuration Excend All
	SAMI-1	x Port 1 - 1x Antenna #1 👻	1x1-1, 103.212	SU MHZ, POIICE Y	
	SAM1-2 A	larm not in use 💌	Alarm not in us	•	Configure Alarm Detail
	SAM1-3 A	Jarm not in use 💌	Alarm not in us		Configure Alarm Detail
	SAM1-4 A	larm not in use 🔻	Alarm not in us	e 🔻	Configure Alarm Detail
	SAM1-5 A	Jarm not in use 💌	Alarm not in us	e 🔻	Configure Alarm Detail
	SAM1-6 A	Jarm not in use 💌	Alarm not in us	e 🔻	Configure Alarm Detail
	SAM1-7 A	Jarm not in use 🔻	Alarm not in us		Configure Alarm Detail
	SAM1-8 A	Jarm not in use	Alarm not in us		Configure Alarm Detail
	SAM1-9 A	Jarm not in use	Alarm not in us	e T	Configure Alarm Detail

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Defaults

Each of the (optional) Site Alarm Module (SAM) units fitted to the ASM is configurable as illustrated in this "Configuration - Site Alarm Module" page.

Apply

Discard Changes



External Alarm Input	Input ID	Enabled	Mode	Criteria
Ext1-1	Room Temperature		Temperature -	Min -10.1 Max 50.0 °F
Ext1-2	Battery Bank		+5V to -60V 🔻	Min -50.0 Max -45.0 Volts
Ext1-3	Solar Array		+60V to -60V 🔻	Min 2.0 Max 20.0 Volts
Ext1-4	Door Alarm	V	5V Digital 🔻	Active High 🔻

External Alarm Input:

Displays the four (4) configurable external temperature/analogue/digital inputs.

Input ID:

Enter a description for the External Alarm input signals. Up to 16 characters may be entered.

Enabled:

If the input is Enabled, an alarm condition will result in a System Fault summary alarm, together with an indication on the System Status page. Its status will also be displayed on the associated SAM Status page.

Mode:

Select the input mode for the external input. Ext1 may select from temperature/analogue/digital, and Ext2, Ext3 and Ext 4 may be selected from analogue/digital

Temperature 💌
Not in use
5V Digital
Temperature
0V to +5V



Criteria:

Set the alarm threshold limits or input state (LOW or HIGH) that signals an alarm condition for each External Input.

Digital Input	Input ID	Enabled	Function	Criteria
DI1-1	Police #1 PTT		SAM1-1 PTT 🔹	Active Low 🔻
DI1-2	Door Entry		General Purpose 🔻	Active Low 🔻
DI1-3	Not defined		Not in use 🔻	Active Low 🔻
DI1-4	Not defined		Not in use 🔹	Active Low 🔻
DI1-5	Not defined		Not in use 🔻	Active Low 🔻
DI1-6	Not defined		Not in use 🔹	Active Low 🔻
DI1-7	Not defined		Not in use 🔻	Active Low 🔻
DI1-8	Not defined		Not in use 🔹	Active Low 🔻
DI1-9	Not defined		Not in use 🔻	Active Low 💌
DI1-10	Not defined		Not in use 🔹	Active Low 🔻

Digital Input:

Displays the ten (10) configurable digital inputs.

Input ID:

Enter a description for the digital alarm signal. Up to 16 characters may be entered.



Enabled:

Selects if this input is enabled.

Function:

Select the input mode for each of the Digital Inputs.

A "SAMX-X PTT" selection affiliates the digital input as a base station Tx PTT or RX UNSQ or other control line function as a monitoring line for the base station assigned to that SAM Alarm Relay Output (see below). A "General Purpose" selection identifies the Digital Input as an independent digital input for monitoring external equipment, etc

When the Function input is enabled, it is used instead of the Threshold Power Level (configured on the Tx Port Channel Configuration page) to determine if the alarmed parameter should be measured. If used with the transmitter's PTT line, even if the transmitter produces no RF output, but the PTT line activation is present, an alarm condition can be determined. If the Threshold Power Level value was used instead, no RF level would be detected above the threshold level, so no measurements (or resulting alarm states) would occur.

Other conditional alarming functionality for Receiver, Voting Shelf or other system equipment can be created using this Function input selection.

Criteria:

Select the input state (LOW or HIGH) that signals an alarm condition.

Alarm Output	Alarm Source	Input/Channel	Alarm Configuration Expand All
			Rly Alm Func Mode Normal ▼ N/R ▼
SAM1-1	Tx Port 1 - Main Tx 🔹	Tx1-1, 473.50000 MHz, Radie 🔻	Specific alarm types:
	Alarm not in use Ext Alm Inputs 1-4 Digital Inputs 1-10		Tx Pwr Ins Loss VSWR
SAM1-2	Antenna Isolation Bx Chans 1-20	Alarm not in use 💌	Configure Alarm Detail
SAM1-3	Rx Chans 21-40 Bx Chans 41-60	Alarm not in use 🔻	Configure Alarm Detail
SAM1-4	Rx Chans 61-80	Alarm not in use 🔻	Configure Alarm Detail
SAM1-5	Tx Port 2 - Standby Tx	Alarm not in use 🔻	Configure Alarm Detail
SAM1-6	Tx Port 3 - Monitor Antenna Tx Port 4 - Not defined	Alarm not in use 🔻	Configure Alarm Detail
SAM1-7	Alarm not in use 🔹	Alarm not in use 💌	Configure Alarm Detail
SAM1-8	Alarm not in use 🔹	Alarm not in use 🔻	Configure Alarm Detail
SAM1-9	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-10	Alarm not in use	Alarm not in use 💌	Configure Alarm Detail

Alarm Output:

These 10 rows configure the individual channel alarm outputs and PTT input settings. Selecting the *Configure Alarm Detail* button on each row expands its display (refer above example). Selecting the *Collapse* button minimises the row display.

Alarm Source:

Either select the source of the alarm for each channel, or select "Alarm not in use" to disable the alarm.

Input/Channel:

Having selected the source, select the desired input/channel to be assigned to the SAM alarm.



Alarm Configuration:

Alarm Func:

The following options are available:

Normal - The alarm relay is controlled by the channel alarm status.

Inactive - The alarm relay is forced to the "no alarm" state for testing.

Active - The alarm relay is forced to its "alarm" state for testing.

Latching – The alarm relay is "latched" by an instance of the alarm state, and remains in this position until unlatched by manually selecting the adjacent *Clr* box.

<u>Note:</u> When an alarm is current, the border of the *Configure Alarm Detail* button will be red, and when the Channel is expanded, the *Alm Func* box will also be red (refer above example).

Rly Mode:

The Relay Mode may be either Normally Released (N/R), i.e. it "operates" when an alarm is present, or Normally Operated (N/O), i.e. it "releases" when an alarm is present.

I/P Func:

This selects the channel specific input function. An application for this feature is to use it with a PTT signal from the transmitter. The following options are available;

Disabled - The input is not used.

PTT Low - An active LOW or "0" input signal is required. (A LOW is defined as <2.5vdc)

PTT High - An active HIGH or "1" input signal is required. (A HIGH is defined as >2.5vdc)

When the I/P Func input is enabled, it is used instead of the Threshold Power Level (configured on the Tx Port Channel Configuration page) to determine if the alarmed parameter should be measured. If used with the transmitter's PTT line, even if the transmitter produces no RF output, but the PTT line activation is present, an alarm condition can be determined. If the Threshold Power Level value was used instead, no RF level would be detected above the threshold level, so no measurements (or resulting alarm states) would occur.

Specific Alarm Types:

When selected, either Tx Power, Tx I.L. or VSWR (or any combination thereof) alarm conditions on the affiliated ASM Tx channel will initiate an alarm output condition on this CAM channel.

Defaults:

Clicking this button restores the factory default values which are:



External Alarn Input	ⁿ Input ID	Enabled	Mode		Criteria
Ext1-1	Not Defined		Not in use	•	Active Low 🔻
Ext1-2	Not Defined		Not in use	•	Active Low 🔻
Ext1-3	Not Defined		Not in use	•	Active Low 🔻
Ext1-4	Not Defined		Not in use	•	Active Low 🔻
Digital Input	Input ID	Enabled	Function		Criteria
DI1-1	Not Defined		Not in use	•	Active Low 🔻
DI1-2	Not Defined		Not in use	•	Active Low 🔻
DI1-3	Not Defined		Not in use	•	Active Low 🔻
DI1-4	Not Defined		Not in use	•	Active Low 🔻
DI1-5	Not Defined		Not in use	•	Active Low 🔻
DI1-6	Not Defined		Not in use	•	Active Low 🔻
DI1-7	Not Defined		Not in use	•	Active Low 🔻
DI1-8	Not Defined		Not in use	•	Active Low 🔻
DI1-9	Not Defined		Not in use	•	Active Low 🔻
DI1-10	Not Defined		Not in use	•	Active Low 🔻
Alarm Ala Output Ala	arm Source	Input/Channe	el de la companya de		Alarm Configuration Expand All
SAM1-1 AI	arm not in use	✓ Alarm not in us	e 🔻		Rly Alm Func Mode

SAM1-1	Alarm not in use	Alarm not in use 🔻	Alm Func Mode Normal N/R Collapse
SAM1-2	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-3	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-4	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-5	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-6	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-7	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-8	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-9	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail
SAM1-10	Alarm not in use	Alarm not in use 🔻	Configure Alarm Detail

Clicking Apply then saves these values into the ASM, or Discard Changes restores these values to their previous settings.

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current system configuration. In this case, just select the relevant Configuration/Alarms/Tx Port menu item again to re-display the current configuration.

Apply:

This will attempt to save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

Note: Whenever programming changes are applied, the alarm status for affected channels is re-initialized.


10.42 Configuration – History

REI	Col Customer Name - Site Name -	Police Mt Walker	- History
	Setting		Value
<u>Overview</u>	Recover 'Last Recorded' Status values	after power loss	🖻 Enabled
Status	Rx Power Logging		🗵 Enabled 🔽 Use Interval
History	Tx Power Logging		Enabled 💌 Use Interval
Channel Diagnostics	VSWR Level Logging		Enabled 🔽 Use Interval
User Data	Alarm Module Input Level Logging		Enabled Vse Interval
Isolation Tests	Logging Interval		10 Sec 🔻
Channels	R× Power Logging Resolution		0.5 dB 🔻
Alarm Settings	Tx Power Logging Resolution		0.5 dB 🔻
History	VSWR Level Logging Resolution		10 % 🔻
<u>Communications</u>	Alarm Module Analogue Input Voltage Logging Resolution		5% ▼ (Of full range)
Calibration			
Maintenance			Defaults Discard Changes Apply
About Logout			
Help	Copyrig	ht © 2005-2015 R.F Industries Pt	y Ltd. All Rights Reserved

This page determines if measurements are logged into the ASM's data memory and the period at which these values are logged.

Recover "Last Recorded" Status values after power loss:

This Enables or Disables whether "last recorded values" are restored after a power outage, or whether values remain at their power on defaults until a valid measurement is made for each field.

Rx Power Logging:

This setting Enables or Disables the Rx power level logging. Disabling the logging at any time will not affect any data already captured.

Tx Power Logging:

This setting Enables or Disables the Tx power level logging. Disabling the logging at any time will not affect any data already captured.

VSWR Level Logging:

This setting Enables or Disables the VSWR power level logging. Disabling the logging at any time will not affect any data already captured.

Alarm Module Input Level Logging:

This setting Enables or Disables the Alarm Module input level logging. Disabling the logging at any time will not affect any data already captured.

Logging Interval:

This sets the interval between the logging snapshots. For example, if set to "10 sec", a snapshot of all the current levels is taken and saved every 10 seconds.



Use Interval:

After each of the *RX Power Logging, Tx Power Logging* and *VSWR Level Logging* fields there is a *Use Interval* selection box. If selected, each of the Logging activities will use the displayed *Logging Interval* value between log entries. If not selected, logging of the respective data will occur for every measurement cycle.

Rx Power Logging Resolution:

If the difference between the current Rx level and the last level logged is less than this value, a new record will not be written to the history data files. Higher values will make it less likely that a new data record will be required. This may greatly increase the total period of time for which data can be stored in the available data memory space.

Tx Power Logging Resolution:

If the difference between the current Tx power level and the last level logged is less than this value, a new record will not be written to the history data files. Higher values will make it less likely that a new data record will be required. This may greatly increase the total period of time for which data can be stored in the available data memory space.

VSWR Logging Resolution:

If the difference between the current VSWR value and the last level logged is less than this value, a new record will not be written to the history data files. Higher values will make it less likely that a new data record will be required. This may greatly increase the total period of time for which data can be stored in the available data memory space.

Alarm Module Analogue Input Voltage Resolution:

If the difference between the current analogue input voltage level and the last level logged is less than this value, a new record will not be written to the history data files. Higher values will make it less likely that a new data record will be required. This may greatly increase the total period of time for which data can be stored in the available data memory space.

Defaults:

Clicking this button selects the factory default values which are:

Setting	Value
Recover 'Last Recorded' Status values after power loss	Enabled
Rx Power Logging	Enabled 🔽 Use Interval
Tx Power Logging	Enabled 🔽 Use Interval
VSWR Level Logging	Enabled 🔽 Use Interval
CAM Input Level Logging	Enabled 🔽 Use Interval
Logging Interval	10 Sec 🔻
Rx Power Logging Resolution	0.5 dB 💌
Tx Power Logging Resolution	0.5 dB 🔻
VSWR Level Logging Resolution	10 % -
CAM Analogue Input Voltage Logging Resolution	2% 🔻 (Of full range)

Clicking Apply then saves these values into the ASM, or Discard Changes restores these values to their previous settings.

Discard Channels:

Click this button to restore the values to those present when the page was last re-displayed.

Apply:

This will apply the values entered.

10.43 Configuration – Communications

Customer Name -Site Name -

Ethernet

Alltin
Alllin
RFI
Overview
Status
History
Channel Diagnostics
Configuration
User Data
Isolation Tests
Channels
Alarm Settings
Alarm Modules
History
Communications
Calibration
Maintenance
About
Logout
Logott
Help

Setting Value DHCP Enabled 192.168.1.202 IP Address 255.255.255.0 Subnet Mask 192.168.1.1 Gateway After saving new values for any of the **above** settings, the system must be restarted to activate them. The Restart option is under the Maintenance menu. NOTE: Port 23 Command Line Interface Enabled Email Setting Value Test Email Messages to send Summary system status Detailed status 209.173.141.091 SMTP Server Address SMTP Server Listening Port 25 rfiASMalarms SMTP Server Login Username Reveal SMTP Server Login Password From Email Address noreply@localhost Destination Email Addresses SNMP Setting Value Test SNMP SNMP Version ⊖ver1 ver2 Send Alarm Notifications (Traps) Enabled Specific Trap Enabled SNMP GET Requests (Port 161) Enabled public SNMP Community String Secondary Primary 120.157.61.22 120.157.118.85 SNMP Manager IP Address 162 SNMP Manager Listening Port 9125 Defaults Discard Changes Apply

Configuration - Communications

NWRL

CSH

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Each of the Communications parameters configurable in the ASM is configurable as illustrated in this Configuration page.



Ethernet

DHCP:

If enabled, the unit will attempt to get its IP Address, Subnet Mask and Gateway settings from a DHCP server. If no DHCP server is found, the configured settings will be used. If not enabled, the configured settings will always be used.

IP Address:

The IP address for this unit.

Subnet Mask:

The network address mask to be used.

Gateway:

The address of the network gateway to be used.

Port 23 Command Line Interface:

Selects if Port 23 is enabled or disabled for Command Line Interface use. The default setting is 'disabled' for optimum security.

<u>Email</u>

Summary system status messages:

Selects if System summary status messages are to be sent via email.

Detailed channel status messages:

Selects if Detailed channel status messages are to be sent by email.

SMTP Server IP Address:

Sets the IP address that email messages will be sent to. This must be the IP address of the email server that will send the email. DNS look-up is not supported, so the email server name (i.e. "smtp.live.com") is not a valid entry.

SMTP Server Listening Port:

Sets the port number used by the SMTP server. Commonly this will be Port 25, 2525 or 587. The IP connection to the ASM must support access to the required IP Port. Email service providers can provide their email server Listening Port address if it is not already known.

SMTP Server Login Username:

When the email service being used to handle emails required login authentication, enter the account Username in this field. The entry should be the same as would otherwise be used if logging into that email service directly (i.e. "scott@gmail.com" for GmailTM or "rfiASMalarms" for JangoTM).

SMTP Server Login Password:

When the email service being used to handle emails required login authentication, enter the account Password in this field. The entry should be the same as would otherwise be used if logging into that email service directly (i.e. "scott123!" for Gmail[™] or "rfiASMalarms" for Jango[™]). Ticking the *Reveal* box will display the password entered.

From Email Address:

Sets the email address that this unit will appear as in email messages. This must be a name in a valid email address format (i.e. xxxx@yyyyy.com etc).

Destination Email Address(es):

Sets the email address(es) that this unit will send email messages to. (up to 4 addresses may be used)



Note: Access to certain email addresses may be restricted by the SMTP Server being used. Emails to outside email addresses are generally not allowed by organisations' own email servers. At this time, this SMTP Email Alarms feature does not support the SSH authentication or encryption requirements that some email servers may require.

<u>SNMP</u>

SNMP Version

Selects if SNMP v1 or v2c format will be used.

Send Alarm Notifications (Traps):

Selects if sending SNMP Traps are enabled or disabled.

Specific Trap

Selects if the table OIDs will be used

SNMP GET Requests (Port 161):

Selects if Port 161 is enabled or disabled for SNMP GET requests. The default setting is 'disabled' for optimum security.

SNMP Community String:

Sets the SNMP Community String value used for both Alarm Notifications (Traps) and GET Requests. The default value is 'public'.

SNMP Manager IP Address:

Selects the IP address that SNMP notifications (Traps) will be sent to. Both a Primary and Secondary address may be used if required for redundant SNMP server configurations.

SNMP Manager Listening Port:

Selects the port number used by the SNMP Manager. Both a Primary and Secondary address may be used if required for redundant SNMP server configurations.

Note: SNMP MIB files for the ASM are available from RFI.

Defaults:

Clicking this button enters the factory default values for the Communications settings, which are:

DHCP	Disabled
IP Address	192.168.1.200
Subnet Mask	255.255.255.0
Gateway	192.168.1.254

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after a Save attempt, these values may not match the current repeater configuration. In this case, just select the Configure/Communications menu item again to re-display the current configuration.

Save:

This will attempt to save the values entered. If any out-of-range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

<u>Note:</u> Unlike the other configuration pages, this will not Activate (or "apply") the Ethernet settings if they have been changed. Ethernet changes can only be activated by restarting the ASM unit, either by cycling the power, or through the Maintenance/Restart menu item.



10.44 Calibration Menu

The "Calibration" menu allows the ASMs associated system components' (couplers, feeders) values to be programmed.

Selecting each indented topic under "Calibration" will display that item as a separate display page.



Help



10.45 Calibration – System Isolation Tests

<u>A</u>	Calibration - System Isolation Tests		
	Customer Name -	Police	
Allen.	Site Name -	Mt Walker	
RFI			
	Antenna Isolation for Each Tx	Port (Used for Tx Rejection measurements only)	
<u>Overview</u>			
Status	Port	Isolation	
History	Tx Port 1 - Tx #1	51.4 dB Test & Capture	
Channel Diagnostics	Tx Port 2 -	51.4 dB Test & Capture	
Configuration	Try Port 2		
Calibration	TX POIL 3 -		
Isolation Tests	Tx Port 4 -	51.4 dB Test & Capture	
<u>Rx Port</u>		Defaults Discard Changes Apply	
<u>Tx Port 1</u>		Distant onunges	
<u>Tx Port 2</u>			
<u>Tx Port 3</u>	Сору	right © 2005-2015 RF Industries Ptv Ltd. All Rights Reserved	
<u>Tx Port 4</u>			
Maintenance			
About			
<u>Logout</u>			
Help			

This page is used for (optionally) calibrating the individual Tx Port to Rx Port Antenna Isolation values.

As each Tx Port is normally connected to a different antenna system, the antenna isolation between that Tx antenna and the Rx antenna is likely to be different than that between the other Tx antennas and that same Rx port, and different to the average value measured in the Antenna Isolation Test.

If desired, this page allows the different values for each Tx Antenna to Rx Antenna isolation to be set up for each port. This calibrated value will then be used in determining the Tx Rejection value for configured channels on each specific port in the System Isolation Tests' Tx Rejection Tests.

If the calibration isolation value is left blank, the system measured Antenna Isolation Test value will be used for the Tx Rejection Tests measurements for the Tx port.

Calibration Process:

Disconnect all of the connected Tx Reverse ports' coaxial cables. Re-connect the cables, with only one connected at a time, and click the associated Test & Capture button. Clicking this button immediately initiates a new Antenna Isolation Test measurement, and loads the result into the Isolation field associated with that port.

Complete this process, having only one Tx Reverse ports' coaxial cable connected each time, until all used Tx Ports have been calibrated.

Re-connect all Tx Reverse ports' coaxial cables.



Alte.	Calib	oration - System	Isolat	ion Tes	ts
	Customer Name -	ASM3852			
Aller	Site Name -	Bayswater			
RFI					
	Antenna Isolation for Each	Tx Port (Used for Tx Rejection	measureme	ents only)	
<u>Overview</u>		. ,			
Status			Isolation		
History	Port	RA	RB	RE	-
<u>Channel Diagnostics</u>	Ty Port 1 - Ty 420	617 dp	61.7 dp	61.7 dp	Test & Capture
Configuration	1x Port 1 - 1x 420	01.7 dB	UI.7 dB	01.7 dB	Test & Capture
Calibration	Tx Port 2 - Tx 500	61.7 dB	61.7 dB	61.7 dB	Test & Capture
Isolation Tests	Tx Port 3 -	61.7 dB	61.7 dB	61.7 dB	Test & Capture
<u>Rx Port</u>	Tx Port 4 -	61.7 dB	61.7 dB	61.7 dB	Test & Capture
<u>Tx Port 1</u>					
<u>Tx Port 2</u>			Defaults	Discard (Changes App
<u>Tx Port 3</u>					
<u>Tx Port 4</u>					
Maintenance		Copyright © 2005-2016 RF Industries F	ty Ltd. All Right	s Reserved	
About					
Logout					

When a Receive Systems Module (RSM) is fitted to the ASM, the three receive signal paths (RxA, RxB and RxE) are configurable in the *Calibration – System Isolation Tests* page.

The Calibration process outlined on the previous page may also be used for these settings, with the separate Tx-Rx isolations to the multiple RSM inputs able to be measured and recorded.



10.46 Calibration – Rx Port

<u>Al</u>		Calibration -	Rx Port		
	Customer Name -	Police			
Allur	Site Name -	Mt Walker			
RFI					
	Setting	Value			
<u>Overview</u>	Rx Subsystem Gain(Loss)	- 0.7 dB			
Status	Rx Post Gain(Loss)	0.0 dB			
History					
Channel Diagnostics			Defaults	Discard Changes	Apply
Configuration					
Calibration					
Isolation Tests		Copyright © 2005-2015 RF Industries	Pty Ltd. All Rights R	leserved	
<u>Rx Port</u>					
<u>Tx Port 1</u>					
<u>Tx Port 2</u>					
<u>Tx Port 3</u>					
<u>Tx Port 4</u>					
Maintenance					
<u>About</u> Logout					
Help					

Rx Subsystem Gain (Loss):

or;

This field previously appeared under Configuration - Antenna Isolation in earlier firmware versions.

The combined value of the receive antenna coaxial cable feeder insertion loss, TTA or Receiver Multicoupler gain (or loss) and an separate preselector or post-filter.

The value of the nett gain (or loss) of the Receiver subsystem should be entered here. This value represents the sum of the insertion losses of the various elements of the receiver subsystem and the gain of its amplifier elements (if any).

Examples of this may be;

Receiver Feeder loss Receiver Preselector loss Receiver Multicoupler gain	-3.0 dB -1.0 dB +7.0 dB
Rx Subsystem Nett Gain	+3.0 dB
TTA Preselector loss TTA Amplifier gain Receiver Feeder loss Receiver Multicoupler Divider loss	-1.0 dB +20.0 dB -3.0 dB -10.0 dB
Rx Subsystem Nett Gain	+6.0 dB

The Rx Subsystem loss considers all of the Rx subsystem components that determine the Rx signal level as seen by the base station receivers on the site.



Rx Post Gain (Loss):

The value of any splitter/coupler loss that may be added into the system when multiple receiver paths are being combined for monitoring by an ASM.

Example: a two port receiver combiner may add 3.5dB of additional loss into the ASM receiver monitoring configuration (shown above as "-3.5").



Example Installation – Rx Post Gain (Loss) shown

The Rx Post Gain(Loss) value considers the additional loss/gain in the Rx subsystem that is seen by the ASM – compared to that seen by the base station receivers on the site.

Defaults:

Clicking this button enters the factory default values for the Rx Port page, which are:

Rx System Gain(Loss)0dBRx Post Gain (Loss)0dB

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current repeater configuration. In this case, just select the Configure/Rx Port menu item again to re-display the current configuration.

Apply:

This will attempt to apply the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



RX PORT CALIBRATION

The following will calibrate the ASM Rx levels read from an output port of the receive multicoupler.

<u>A</u>	Calibration - Rx Port		
	Customer Name -	Police	
Aller	Site Name -	Mt Walker	
RFI			
	Setting	Value	
<u>Overview</u>	Rx Subsystem Gain(Loss)	- 0.7 dB	
Status	Rx Post Gain(Loss)	0.0 dB	
History			
Channel Diagnostics			Defaults Discard Changes Apply
Configuration			
Calibration			
Isolation Tests		Copyright © 2005-2015 RF Industries	Pty Ltd. All Rights Reserved
<u>Rx Port</u>			
<u>Tx Port 1</u>			
<u>Tx Port 2</u>			
<u>Tx Port 3</u>			
<u>Tx Port 4</u>			
Maintenance			
About			
Logout			
Help			

For TTA / RX multicoupler systems, enter the system Reserve Gain in the "RX Subsystem Gain (Loss)" field. For non-TTA systems, enter the net of the RX feedline loss and any multicoupler gain. Gain is entered as a positive number, loss as a negative number.

The "RX Post Gain (Loss)" field is for any gain or loss in line with the ASM RX input which is not present in the path to the base receiver(s). Click on the "Help" button shown for further explanations. The objective here is to ensure that the ASM is displaying the receive level present at the input of any site receivers.

When a Receive Systems Module (RSM) is fitted to the ASM, the three receive signal paths (RxA, RxB and RxE) are configurable in the *Calibration – Rx Port* page.

RFI	Customer Name - Site Name -	Calibration - ASM3852 Bayswater	Rx Port	
	Setting	RA	RB	RE
<u>Overview</u>	Rx Subsystem Gain(Loss)	0.0 dB	0.0 dB	+10.0 dB
Status	Rx Post Gain(Loss)	0.0 dB	0.0 dB	0.0 dB
History <u>Channel Diagnostics</u>			Defaults	Discard Changes Apply
Configuration				
Calibration	Con	right @ 2005-2016 RE Industries (Dhuitd All Rights Ro	aconvod
Isolation Tests	Сору	ngit © 2003-2016 KF Industries F	ry eta. Ali kights ke	served
<u>Tx Port 1</u>				
<u>Tx Port 2</u>				
<u>Tx Port 3</u>				
<u>Tx Port 4</u>				
Maintenance				
<u>About</u> Logout				
Help				



10.47 Calibration – Tx Port 1

<u>III</u>		Calibration -	۲x Port 1
	Customer Name -	ASM3852	
Allin	Site Name -	Bayswater	
RFI	Tx Antenna Reference -	Tx 420	
<u>Overview</u>	Tx Port 1 Losses		
Status	Forward Coupling	40.0 dB	
History	Reverse Coupling	40.0 dB	
Channel Diagnostics	Antenna Feeder	3.0 dB	
Configuration	VSWR Calibration	Enabled	Calibrate
Calibration		Endbicd	
Rx Port			Defaults Discard Changes Apply
<u>Tx Port 1</u>			
Tx Port 2	Copyr	right © 2005-2016 RF Industries I	Ptv Ltd. All Rights Reserved
<u>Tx Port 3</u>		· · · · · · · · · · · · · · · · · · ·	·,
<u>Tx Port 4</u>			
Maintenance			
<u>About</u>			
Logout			
Help			

This page is used for calibrating the Coupler coupling loss settings and the Channel BTx Power levels.

Note: Only channels that have a frequency programmed, and which have been enabled will be displayed.

Tx Port Losses:

Forward Coupling:

The combined value of the Coupler forward coupling loss and the connecting cable insertion loss for this Tx Port. This value is used to calculate the reported power level for channels on this Port.

Reverse Coupling:

The combined value of the Coupler forward coupling loss and the connecting cable insertion loss for this Tx Port. This value is used to calculate the reflected power level for channels on this port and contributes to the reported VSWR figure.

Antenna Feeder:

The loss of the Antenna Feeder cable for this Port. This value is used to compensate the calculated Fwd and Rev Power levels so that the reported VSWR figure represents the VSWR value as seen at the Antenna. The value entered in this field should represent the insertion loss in one direction of the feeder only (i.e. from the Coupler "to" the antenna).

VSWR Calibration:

<u>Note:</u> The "VSWR Calibration" does not need to be carried out when using SP3855-4440-DFF1RU and SP7496-4440-DFF1RU Dual Directional Couplers. The *Enabled* checkbox should be left un-ticked when using these model couplers and the process outlined in the *Tx Port VSWR CALIBRATION* section of this manual should be ignored.

An enhanced VSWR calculation algorithm may be used to improve the accuracy of the reported Antenna VSWR figures when significant Antenna feeder losses are present. The enhanced algorithm is only applicable to "legacy" model couplers and used in VSWR calculations if the Enabled checkbox is ticked.

For reference, the following photos show the physical difference between the two types of couplers:



"Legacy" model Bi-Directional Coupler (VHF model shown)



"Current" model Dual-Directional Coupler (700/800/900MHz model shown)

The "legacy" model couplers are readily identifiable as they have the "FWD" and "REV" sampling ports (Type N connectors) on a separate housing face to the 7/16 DIN connectors.

The "current" model dual-directional couplers have those ports on the ends of the coupler alongside and on the same housing faces as the 7/16 DIN connectors.

Refresh:

Click this button to update the Reported Pwr status information with the most recent measurements.

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current saved settings. In this case, just click on the relevant "Calibration/Tx Port" menu item to re-display the current settings.

Apply:

This will attempt save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background. If successfully saved, the Reported Pwr values are adjusted to current values.

Note: Whenever programming changes are applied, the alarm status for affected channels is re-initialized.



RECOMMENDED CALIBRATION PROCEDURE

Calibration of the ASM allows system parameters such as coupling values, interconnecting cable losses and system feeder losses to be programmed into the ASM for optimum measurement accuracy.

Selecting each indented topic under the "Calibration" screen in the GUI will display that item as a separate page.

The following calibration procedure is for "Tx Port 1" and its associated coupler. The procedure for Tx Ports 2, 3 and 4 and their associated couplers is identical.

Calibration - Tx Port 1				
Customer Name - Site Name - Tx Antenna Reference -	Demo Mt Dandenong Feeder #1			
Tx Port 1 Losses				
Forward Coupling	41.0 dB			
Reverse Coupling	41.0 dB			
Antenna Feeder	0.0 dB			
VSWR Calibration	🔽 Enabled	Calibrate		
		Discard Changes Apply		



<u>Overview</u>
Status
History
Configuration
Calibration
<u>Rx Port</u>
<u>Tx Port 1</u>
<u>Tx Port 2</u>
<u>Tx Port 3</u>
<u>Tx Port 4</u>
Maintenance
<u>About</u>
<u>Logout</u>

The screen at left contains all the necessary fields for the calibration process.

To complete the calibration process the required Test Equipment includes;

- Service Monitor capable of providing a 0dBm signal output using the same modulation type used by the system, and as selected in the *Configuration Channels* GUI screens.
- An accurate 50ohm load capable of handling the base station transmitter power.
- A 50ohm cable, of known insertion loss, to connect between the Service Monitor and the ASM coupler.
- <u>Note:</u> For the purpose of this calibration procedure description, the insertion loss of this 50ohm cable is assumed at "0.6dB". Adjust this value to accurately represent the cable actually being used.
- <u>Note:</u> For the purpose of this calibration procedure description, the insertion loss of the Antenna Feeder cable is assumed at "0.0dB". Adjust this value to accurately represent the actual loss of the antenna feeder installed on site.



FORWARD COUPLING

- 1. Connect the Service Monitor to the "*From Combiner*" port of the ASM coupler using the 50ohm cable, and the 50Ω termination to the "*To Antenna*" port of the coupler.
- 2. Set the Service Monitor signal generator to the correct frequency and modulation type for the channel being measured and adjust its output level for 0dBm.
- 3. Enter 40.0 dB into both the Forward Coupling and Reverse Coupling fields on the GUI.
- 4. Enter 0 dB into the Antenna Feeder field.
- 5. Click the "Apply" button toward the upper right of the screen.
- 6. Go to the Status Tx Port 1 GUI screen and confirm that the displayed value for the channel is correct (i.e. 0dBm).
- 7. If it is not displaying correctly, return to the *Calibration Tx Port 1* GUI screen and adjust the *Forward Coupling* value to correct the reading.
- 8. Click the "Apply" button toward the upper right of the screen.
- 9. Repeat steps 6 to 8 until the Status Tx Port 1 displayed value is correct for the test frequency.

REVERSE COUPLING

- 1. Do not change the Service Monitor signal generator settings and test cable used.
- 2. Move the Service Monitor signal generator cable to the "*To Antenna*" port of the coupler and the 50Ω termination to the "*From Combiner*" port of the coupler.
- 3. Go to the Status Tx Port 1 GUI screen and confirm that the displayed value for the channel is correct (i.e. 0dBm).
- 4. If it is not displaying correctly, return to the *Calibration Tx Port 1* GUI screen and adjust the *Reverse Coupling* value to correct the reading.
- 5. Click the "*Apply*" button toward the upper right of the screen.
- 6. Repeat steps 3 to 5 until the Status Tx Port 1 displayed value is correct for the test frequency.

NOTE: Restore the connection of the cabling to/from the coupler for normal operation.



TX PORT VSWR CALIBRATION

Alta		VSWR Calibration - Tx Port 1				
Viiii	This page sets the VSWR Calibration value. The procedure is as follows:					
RFI	 Disable transmissions from all transmitters connected to this Tx Port. Connect a high power termination to the Coupler output. Enable transmissions from the transmitter to be used to perform the VSWR Calibration. Senable transmissions from the dransmitter to be used to perform the VSWR Calibration. 					
<u>Overview</u>	transmitter.	a nom the drop down list to match the nequency of the above				
Status	5. Click the "Refresh'	' button several times to ensure you have stable forward and reverse				
History	6. Press the "Apply"	6. Press the "Apply" button to store the new VSWR Calibration value.				
Configuration						
Calibration						
<u>Tx Port 1</u>	Select Tx Channel for Meas	urement				
<u>Tx Port 2</u>	Tx1-1, 421.50000 MHz, West	OPS -				
<u>Tx Port 3</u>	Reported Fwd Pwr	Reported Rev Pwr				
<u>Tx Port 4</u>						
Maintenance	+46.7 dBm	+26.6 dBm				
<u>About</u>		Refresh Cancel Apply				
Logout						
Help		Copyright © 2005-2012 RF Industries Pty Ltd. All Rights Reserved				

This page is used to set up the VSWR Calibration algorithm for VHF, UHF and 700/800/900MHz systems utilising "legacy" model bi-directional couplers.

The ASM is equipped with an algorithm to improve the "at the antenna" VSWR measurement for installations utilising these "legacy" model couplers.

This algorithm compensates for some of the feeder system frequency and phase variables present during VSWR measurement and is not required, and should not be used, for site installations using "current" model dual-directional couplers.

For site installations using "current" model couplers, the VSWR Calibration *Enabled* box should remain unchecked, and this *Tx Port VSWR Calibration* process need not be performed.

Cancel:

Exits the VSWR Calibration page without saving any changes and returns to the Tx Port Calibration page.

Apply:

This applies the VSWR Calibration algorithm. Use the Enable setting on the Tx Port Calibration page to control usage of the algorithm in VSWR calculations.

TX PORT VSWR CALIBRATION

To perform the VSWR Calibration, complete the *Calibration – Tx Port* process first, then select a channel in the middle of the frequency range and then check the "Enabled" box on the *Calibration – Tx Port* screen.

Calibration - Tx Port 1				
Customer Name - Site Name - Tx Antenna Reference -	Demo Mt Dandenong Feeder #1			
Tx Port 1 Losses				
Forward Coupling	41.0 dB			
Reverse Coupling	41.0 dB			
Antenna Feeder	0.0 dB			
VSWR Calibration	🔽 Enabled	Calibrate		
-		Discard Changes App		

Then select the "Calibrate" button and the screen in the following section of this manual will appear after a prompt.



10.48 VSWR Calibration



This page is used to set up the VSWR Calibration algorithm for VHF, UHF and 700/800/900MHz systems utilising "legacy" model bi-directional couplers.

The ASM is equipped with an algorithm to improve the "at the antenna" VSWR measurement for installations utilising these "legacy" model couplers. This algorithm compensates for some of the feeder system frequency and phase variables present during VSWR measurement and is not required, and should not be used, for site installations using "current" model dualdirectional couplers. For site installations using "current" model couplers, the VSWR Calibration *Enabled* box should remain unchecked, and the *Tx Port VSWR Calibration* process need not be performed.

Reported Fwd Pwr & Reported Rev Pwr:

The result of the last signal power level measurements in dBm.

To update to the latest measurements, click the Refresh button.

Cancel:

Exits the VSWR Calibration page without saving any changes and returns to the Tx Port Calibration page.

Apply:

This applies the VSWR Calibration algorithm. Use the Enable setting on the Tx Port Calibration page to control usage of the algorithm in VSWR calculations.

TX PORT VSWR CALIBRATION:

To perform the VSWR Calibration, complete the RECOMMENDED CALIBRATION PROCEDURE in the previous section of this manual.



10.49 Maintenance Menu

The "Maintenance" menu allows all of the ASMs interface and system-wide formatting parameters to be viewed.

Selecting each indented topic under "Maintenance" will display that item as a separate display page.



Help



10.50 Maintenance – Access Management

<u>Al</u>	Maintenance - Access Management				
	Customer Name -	Police			
Allin	Site Name -	Mt Walker			
RFI				- -	
	Access level	UserName	Password	Confirm Password	Password Strength
<u>Overview</u>	View Status only	user	••••	••••	
Status	View Status and Modify Settings	admin	••••	••••	
History	View Status and Modify all Settings	master	•••••	•••••	
Channel Diagnostics					
Configuration				Discard Cha	Apply
Maintenance					
Access Management	Copyright	© 2005-2015 RF Indus	tries Ptv Ltd. All Ria	hts Reserved	
Temp, Date & Time					
Manager Interface					
Configuration Files					
<u>Test Alarms</u>					
<u>Firmware Update</u>					
<u>Restart</u>					
About					
Logout					
Help					

This page is used for managing access to the ASM. There are two levels of access available to users of the system:

View Status only:

These are the User Name and Password to be used by users that may only view Status pages. Users logged in with these credentials will not be able to view or change any Configuration settings.

View Status and Modify Settings:

The User Name and Password to be used by users that are to have access to the Configuration, Calibration and Maintenance settings as well as the Status pages. The modification of some fields have been restricted under this access level to prevent inadvertent changing of critical values that can render the ASM inaccessible, and the prevent exposure of sensitive Communications passwords, etc.

Configuration screens not accessible under this access level include;

- Communications Configuration
- Manager Interface Maintenance
- Configuration Files Maintenance View and Download options

View Status and all Modify Settings:

The User Name and Password to be used by users that are to have access to the Configuration, Calibration and Maintenance settings as well as the Status pages.

Note: User Names and Passwords may contain up to 16 characters each. Passwords are case sensitive, but User Names are not. Passwords are strength tested, as they are entered, to assist appropriate security integrity is maintained. Passwords should meet a Password Strength value of at least 50 to be acceptable.

Access level	UserName	Password	Confirm Password	Password Strength
View Status only	user	••••	••••	
View Status and Modify Settings	admin	••••	••••	
View Status and Modify all Settings	master	•••••	•••••	(14) very weak

Tips for strong passwords:

Make your password 8 characters or more in length. Use mixed case letters (upper and lower case). Make more than one digit a number. Use special characters $(!,@,#,\$,\%,^{*},?,_,\sim)$.

Discard Changes:

Click this button to restore the values to those present when the page was last redisplayed.

Note that if invalid values are being displayed after an Apply attempt, these values may not match the current unit configuration. In this case, just click on the Maintenance/User Management menu item to re-display the current configuration.

Apply:

This will save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



10.51 Maintenance – Date & Time

Alta	Maintenance - Date & Time					
	Customer Name -	Demo				
RFI	Site Name -	Mt Dandenong				
	Setting	Value				
<u>Overview</u>	Date Format	C mm/dd/yy C dd/mm/yy				
Status	Date (dd/mm/yy)	10 / 11 / 13				
Channel Diagnostics	Time (hh:mm:ss)	13 : 18 : 32				
Configuration						
Calibration	Use an Internet Time Server (NTP)		Test			
Maintenance	NTP Servers	12961528 0000				
<u>Access Management</u>		10.00				
<u>Date & Time</u>	STD Local Offset from UTC	+10:00				
Manager Interface						
Configuration Files	Adjust for Daylight Saving (DST)					
<u>Firmware Update</u>	DST Start Date & Time	1/1/1970 00:00				
About	DST Stop Date & Time	1/1/1970 00:00				
Logout	DST Offset (minutes)	60				
Help	L		Discard Changes Apply			
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The internally maintained real time clock Date and Time values may be adjusted using these fields.

Date Format:

Two styles of date format can be selected to cater for international format preferences.

Date:

Enter the current date in the displayed mm/dd/yy or dd/mm/yy format.

Time:

Enter the current time in the displayed hh:mm:ss format.

Use an Internet Time Server (NTP)

If selected this feature allows a primary and secondary NTP server address to be nominated for automatic updating of the ASM date and time. NTP time is displayed as UTC time.

Pressing the Test button confirms connectivity to the nominated primary server. To confirm connectivity to the secondary server, place its address in the primary address field.

A STD Local Offset should be selected to offset local time from the UTC time obtained from the nominated NTP server(s).



Adjust for Daylight Saving (DST)

If selected this feature allows a nominated Daylight Saving Time correction to be applied to the NTP server(s) time.

Select the relevant date and times for the start and finish of daylight saving time at the ASM location, and the associated DST offset (in minutes) to be applied during the nominated DST period.

Atta.	Maintenance - Date & Time				
	Customer Name -	Demo			
RFI	Site Name -	Mt Dandenong			
	Setting	Value			
<u>Overview</u>	Date Format	C mm/dd/yy G dd/mm/yy			
Status	Date (dd/mm/yy)	10 / 11 / 13			
<u>Channel Diagnostics</u>	Time (hh:mm:ss)	13 : 19 : 37			
Configuration					
Calibration	Use an Internet Time Server (NTP)	✓ 44 4 January 1970 → →			
Maintenance	NTP Servers	Mo Tu We Th Fr Sa Su 12961528 000 1 2 3 4			
Access Management					
Date & Time	STD Local offset from ore	12 13 14 15 16 17 18 19 20 21 22 23 24 25			
<u>Configuration Files</u>	Adjuct for Davlight Saving (DST)	26 27 28 29 30 31 ↓ 00 :00 ↓			
<u>Firmware Update</u>		OK Cancel			
<u>Restart</u>	DST Start Date & Time	1/1/1970 00:00			
<u>About</u>	DST Stop Date & Time	1/1/1970 00:00			
Logout	DST Offset (minutes)	60			
Help		Discard Changes Apply			
	Copyright (© 2005-2013 RF Industries Pty Ltd. All Rights Reserved			

Note: A convenient calendar is available next to the DST Start and Stop fields to allow dates to be selected directly.

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed.

Apply:

This will save and activate the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.

10.52 Maintenance – Manager Interface

RFI	Mainter Customer Name - Site Name -	ance - Manager Interf Demo Mt Dandenong	ace
0	Setting	Value	
<u>Overview</u> Status	Auto Status Packets	Enabled	
History	Auto Traffic Packets	Enabled	
Channel Diagnostics	Max Traffic Period	60	
Configuration	Manager	Primary Secondary	
Calibration	Manager Address	0.0.0.0	_
Access Management	Manager TCP Port	9123 9123	
Date & Time	Manager UDP Port	9124 9124	
Manager Interface	Manager Use TCP for Status Packets		
Configuration Files			
<u>Firmware Update</u>		Defaults	scard Changes Apply
About			
Logout	Copyright (2005-2013 RF Industries Pty Ltd. All Rights Reserve	4
Help			

The configuration and status of multiple Antenna System Monitor units may be remotely managed by a PC based Manager application. Normally the Manager application will control the settings on this page, but, using this page it is possible to manually configure (or override) these settings.

Auto Status Packets:

This controls the automatic sending of Status Change packets to the Manager application. If enabled, any change in alarm status results in a Status Change packet. This setting will be ignored if the Manager Address is set to "0.0.0.0".

Auto Traffic Packets:

This controls the automatic sending of Tx Traffic data packets to the Manager application. If enabled, any change in detected Tx carrier presence results in a Traffic packet. In addition, if any Tx carrier remains ON or OFF for "Max Traffic Period" seconds, a STILL-ON or STILL-OFF Traffic packet is sent. This setting will be ignored if the Manager Address is set to "0.0.0.0".

Max Traffic Period:

This controls the automatic sending of the STILL-ON and STILL-OFF traffic data packets as detailed above.

Manager Address:

The IP address for the Manager application. If a Manager application is not being used this should be 0.0.0.0.



Manager TCP Port:

The port number for TCP communications to the Manager application. Both a primary and a secondary address is provided if Manager Messages are desired to be sent to two applications/destinations.

Manager UDP Port:

The port number for UDP communications to the Manager application. Both a primary and a secondary address is provided if Manager Messages are desired to be sent to two applications/destinations.

Manager Use TCP for Status Packets:

The default communications protocol for Status change and Traffic data packets is UDP. If TCP is required for Status packets, this setting should be enabled.

<u>Note:</u> This option should only be activated if essential for networking reasons. The UDP protocol is strongly preferred, as the protocol and processing overheads are significantly lower and packets can be sent at a higher rate. Note also that Traffic data packets will always use UDP protocol.

Defaults:

Clicking this button enters the factory default values for the Communications settings, which are:

Auto Status Packets	Disabled
Auto Traffic Packets	Disabled
Max Traffic Period	60
Manager Address	0.0.0.0
Manager TCP Port	9123
Manager UDP Port	9124
Manager Use TCP for Status Packets	Disabled

Discard Changes:

Click this button to restore the values to those present when the page was last re-displayed. Note that if invalid values are being displayed after a Save attempt, these values may not match the current unit configuration. In this case, just select the Maintenance/Manager Interface menu item again to re-display the current configuration.

Apply:

This will save the values entered. If any out of range values are present, nothing will be saved and the problem settings will be highlighted with a red background.



10.53 Maintenance – Configuration Files

Alto.	Maintenance - Configuration Files				
Viiii	Customer Name -	Demo			
RFI	Site Name -	Mt Dandenong			
	Upload a new Configuratio	on file			
<u>Overview</u>	Notes that the Planner				
Status	Note that the filename m	lust have a .CFG extension.			
History		Browse			
Channel Diagnostics					
Configuration					
Calibration					
Maintenance	Manage existing Configura	ation files			
Access Management					
Date & Time	DISPLAN.CFG	View			
Manager Interface	on _nord				
Configuration Files		Download			
<u>Test Alarms</u>		Apply			
Firmware Update					
<u>Restart</u>		Delete			
About					
Logout					
Help	Save current Configuration	n to file			
	Enter a name for the new C	Configuration file, then click Save:			
	Note that the filename wi	ill have a .CEG extension.			
	Note that the menalite w				
		.CFG Save			
		Copyright @ 2005-2014 RF Industries Pty Ltd. All Rights Reserved			

Configurations for the ASM may be stored in a list within the ASM and loaded or saved to a nominated computer drive if desired.

- <u>Note:</u> Due to memory architecture limitations, this feature is not available in "K1" models of the ASM, but configuration files can be saved from a "K1" model using the Telnet Command Line Interface (CLI). Refer the end of this section for details.
- Note: Access to this screen, and the field accessible on it, may vary based on the Login level used for accessing the ASM.



Upload a new Configuration file:

Click "Browse" to locate the desired ASM Configuration file from a chosen drive/directory location. Once the desired drive/directory/name has been selected from the popup box, click "Send" to upload the nominated Configuration file to the list of existing Configuration files.

Note: This Configuration file must be highlighted in the Configuration list and the "Apply" button clicked to activate this uploaded Configuration in the ASM.

Manage existing Configuration files:

- VIEW: To view the text contents of highlighted Configuration in the web browser.
- DOWNLOAD: To save the highlighted Configuration file to a nominated computer drive/directory.
- APPLY: Activates the highlighted Configuration in the ASM.

ite Name	- Mt Dandenong					
Jpload a net	w Configuration file					
Note that	the filename must have a .CFG extension.					
			Browse Send			
	Choose File to Upload					×
anage e	Computer + HP_TOOLS (F:) +		✓ Search HP_T	OOLS (F.	;)	J
DISPLA UHF_1.0	Organize 👻 New folder					0
	Documents	*	Name			
	🖻 🎝 Music					
	Pictures		Hewlett-Packard			
	Videos	_	HP_100IS			
	Scott Alford					
	4 🜉 Computer	E				
ave curr	Local Disk (C:)					
nter a n	HP_TOOLS (F:)					
Note th	General (G:)					
	🖻 🙀 Drafting Data (J:)					
	🛛 🙀 ADE Data (\\rfi-ade-fp02) (N:)					
	Personal (P:)	-	< III			
	File name:		✓ All Files (*.*)		_	•
					Connel	5

Manage existing Configuration files		
MT+SMITH.CFG MT_SMITH.CFG RFICFG Download Apply Delete	Result of Apply: Verifying config file RFI.CFG Processing config file SUCCESS - Config settings applied.	×

A progress and completion message will appear in a "Results of Apply" text box (refer above example).



When the *Apply* button is clicked, the screen at left will appear. Select any of the site-specific fields from the configuration file that you do want to have applied to the ASM, and then click *Apply*.

Follow the prompts and the selected configuration file, with the selected sitespecific data fields' contents, will be applied into the ASM. In this manner, one common configuration file can be applied to multiple ASMs, with the site-specific data fields not used from the configuration file contents, but then edited individually.

This new feature can save significant programming configuration time across an ASM fleet.



DELETE: To delete the highlighted Configuration file from the list.

Save current configuration to file:

Enter a file name and click "Save" to save the current ASM configuration to the list of stored ASM configurations.

<u>Note:</u> The stored ASM configurations list is capable of holding many different Configurations. For practical management, it is recommended to limit the number of Configurations kept in this list to less than 10.

Configuration files and "K1" hardware variants of the ASM:

Due to memory architecture limitations, this feature is not available in "K1" models of the ASM, but configuration files can be saved into a "K1" model using the Telnet Command Line Interface (CLI).

Saving a Configuration File

The process for this is as follows;

Use a terminal emulation program (such as TeraTerm[™], etc) that supports Telnet and Xmodem. The ASM uses its IP address and the standard Telnet port number of 23 for its CLI.

Connect the Telnet session to the ASM unit, activate the terminal emulator's *logging* function, then use the following sequence of commands;

LOGIN ADMIN ADMIN <Enter> CONFIG SAVE TERMINAL <Enter>

When the transfer has completed, de-activate the terminal emulator's *logging* function, and edit the captured data file to remove any unwanted lines at the start and end of the file.

<u>Note:</u> The commands may be entered in upper or lower case, but the parameter "TERMINAL" in the above listed commands must be in upper case.

The file that has been created should be saved with a "*.cfg" file extension, and is in the standard ASM configuration file format.

<u> 10.54 Maintenance – Test Alarms</u>

da.		Maintenance	- Test	: Alarms	
	Customer Name -	Police			
	Site Name -	Mt Walker			
RFI					
	Alarm		Status		
<u>Overview</u>	System Alarm Relay 1 (Sum	mary Alarm)	Active	Test	
Status	System Alarm Relay 2 (Rx P	'ower)	Active	Test	
History	System Alarm Relay 3 (Tx P	ower)	Inactive	Test	
Channel Diagnostics	System Alarm Relay 4 (Ty V	SW/R)	Inactive	Test	
Configuration	System Alamintelay + (1x +	54479	THUCHVC	Toot	
Calibration	Email status message		Idle	Test	
Maintenance	SNMP status trap		Idle	Test	
Access Management					
<u>Temp, Date & Time</u>					Refresh
Manager Interface					
Configuration Files					
<u>Test Alarms</u>		Copyright © 2005-2015 KF Indu	istries Pty Ltd.	All Rights Reserved	
<u>Firmware Update</u>					
<u>Restart</u>					
<u>About</u>					
<u>Logout</u>					
Help					

The internally generated alarms can be simulated and tested using these fields.

Alarm:

The available alarms that can be simulated and tested.

Status:

If there is no alarm state present on an Alarm Relay, then its Status will display 'Inactive', and its background colour will be green. If there is an alarm state present on an Alarm Relay, then its Status will display 'active', and its background colour will be red.

Email and SNMP Alarms will display 'Idle' if no corresponding communications message is in progress and its background colour will be green. If a communications message is in progress, its Status will display 'Sending' and its background colour will be yellow.

Test:

Clicking the Test button forces the corresponding Relay and Alarm LED status to change for a period of several seconds.

The *Test* will also generate a History Alarm Event Log entry and, if configured and enabled, relevant Email, SNMP and Manager Message Status messages. These will be identified as being *Test* messages. The *Test* message or Log entry will indicate status changes for the default Alarm Relay mapping, regardless of the actual alarm source mapping.

When the Email and SNMP *Test* button is clicked, the ASM will attempt to send the relevant Test message. Unlike on the Communications Configuration page, these two tests are not checked to see if the feature is configured and enabled. That is, if the Email and SNMP function has not been configured and enabled on the Communications Configuration page, no *Test* alarm message will be sent, despite what the *Test Status* indicates.

Refresh:

Reloads the page, updating the status information.



10.55 Maintenance – Firmware Update

Aller.	Maintenance - Firmware Update
RFI	ASM Firmware
	Select the .FFP file to upload to the system.
<u>Overview</u>	Browse
Status	kở Send
History	
Channel Diagnostics	
Configuration	
Calibration	
Maintenance	Receive Systems Module Firmware
Access Management	
<u>Temp, Date & Time</u>	Firmware updating of the Receive Systems Module can only be done on site, via the module's USB port.
<u>Manager Interface</u>	Clicking the Upload Mode button activates the Receive Module's USB Upload mode for at least 1 minute. The
Configuration Files	RSM USB port must be connected to a PC and the firmware must be uploaded using XModem protocol.
<u>Test Alarms</u>	Refer to the Help page and User Manual for full details of the upgrade procedure.
Firmware Update	Upload Mode
<u>Restart</u>	
<u>About</u>	
Logout	Copyright © 2005-2016 RF Industries Pty Ltd. All Rights Reserved
Help	

Note: Please read all Service Bulletins published from the release of the firmware currently operating in your ASM prior to commencing an upgrade to its firmware. Upgrades may require a transition through an intermediate firmware version on the way to reaching the desired upgrade version - or may have other implications for your ASM.

The required intermediate firmware version transitions for the ASM are;

- Firmware below version 2.0 must transition through version 2.0 or 2.05 prior to attempting an update to 2.1 or above.
- Firmware below 2.60 must transition through version 2.60 prior to attempting an update to 2.7 or above.

ASM firmware upgrades are normally supplied using a "FFP" file extension (Firmware & File system Package).

Enter or Browse the file path of the system firmware update file, then click the Send button.

A message box will appear to remind the user to ensure they are uploading a later revision of firmware into the unit.





Click OK to proceed.



A message box will appear to remind the user that, depending on the speed of the connection, it can take several minutes for the file upload to complete and be confirmed.

Click OK to start the update file download process.

At the completion of a successful file upload the following screen will appear.

RFI	Firmware Update Status Firmware package successfully uploaded. The system will now upgrade itself and then restart. Please wait a couple of minutes before re-connecting.
Overview Status History Channel Diagnostics	You should refresh the page (F5) and clear your browser's cache to ensure changed pages display correctly.
Configuration Calibration	Copyright © 2005-2016 RF Industries Pty Ltd. All Rights Reserved
Maintenance Access Management Temp, Date & Time	
<u>Manager Interface</u> <u>Configuration Files</u> <u>Test Alarms</u>	
Firmware Update Restart	
Logout Help	

After waiting for about a minute, re-display the System Status page to confirm that the update completed successfully. If the update process is interrupted or unsuccessful for any reason, the unit will restart with the previous firmware.

- <u>Note:</u> You may need to clear your browser's cache to view changed pages. If you happen to get a connection timeout message, do not click the retry button. Instead, wait for a minute or so and then re-display the System Status page to confirm that the update actually completed satisfactorily.
- <u>Note:</u> Firmware upgrades can impact existing ASM configurations. Please read Service Bulletins prior to initiating a firmware upgrade so that impacts are understood prior to any upgrade activity.

WARNING: Do not attempt to revert to an older version of firmware as this could corrupt the ASM and render it inoperable and the unit's return to the factory may be necessary.



RSM firmware upgrades can only be completed locally via the RSM's micro USB port. The process for upgrading the RSM firmware is as follows;

- 1. Connect a laptop USB port to the RSM micro USB socket.
- 2. The laptop must have the CP2104 USB to UART driver installed. The correct Windows driver is included on the RFI provided USB memory stick. Also, Windows 7 or later can automatically install the correct driver from the Internet. The driver software can also be downloaded from the Silicon Labs website look for the CP210x VCP drivers.
- 3. Start a Serial communications program and connect it to the virtual COM port installed by the USB driver. Examples of suitable programs that implement the required XModem file transfer protocol are HyperTerminal and ShamCom.
- 4. Make sure the Communications parameters are set to 115200 baud, 8 data bits, no parity, 1 stop bit and no flow control.
- 5. Tapping the <Enter> key should result in a "login>" prompt being returned.
- 6. You are now ready to activate RSM Upload Mode from the ASM GUI Firmware Update page.

	Maintenance - Firmware Update
RFI	ASM Firmware
Overview	Browse
Status	Send
History	
Channel Diagnostics	
Configuration	
Calibration	
Maintenance	Receive Systems Module Firmware
Access Management	
<u>Temp, Date & Time</u>	Firmware updating of the Receive Systems Module can only be done on site, via the module's USB port.
<u>Manager Interface</u>	Clicking the Upload Mode button activates the Receive Module's USB Upload mode for at least 1 minute. The
Configuration Files	RSM USB port must be connected to a PC and the firmware must be uploaded using XModem protocol.
<u>Test Alarms</u>	Refer to the Help page and User Manual for full details of the upgrade procedure.
<u>Firmware Update</u>	Upload Mode
<u>Restart</u>	
<u>About</u>	
Logout	Copyright © 2005-2016 RF Industries Pty Ltd. All Rights Reserved
Help	

- 7. When Upload Mode has been activated, the Terminal will display the uploading instructions. You have around 3 minutes within which to initiate the upload.
- 8. When the upload completes, the RSM unit will restart and return to the "login>" prompt.
- 9. Verify that the RSM now has the updated firmware version by displaying the APSM GUI Status page for the Receive Systems Module.



10.56 Maintenance - Restart

RFI	Maintenance - Restart This will restart the unit with the currently saved settings. After restarting, close this browser tab or window, wait for about 1 minute, then re-enter the unit's IP address to return to the login page.
<u>Overview</u> Status History <u>Channel Diagnostics</u>	Restart
Configuration Calibration Maintenance	Copyright © 2005-2013 RF Industries Pty Ltd. All Rights Reserved
Access Management Date & Time Manager Interface	
<u>Configuration Files</u> <u>Firmware Update</u>	
About	
Help	

Clicking on this selection will initiate an ASM system "Restart".

Note: The unit will normally only need to be restarted to activate new Communications settings. If restarted, an ASM may take several minutes to reboot and re-initialise itself before it becomes available for a "Log in" and a new session.



10.57 About – Antenna System Monitor



<u>Overview</u>
Status
History
Service Mode
Configuration
Calibration
Maintenance
<u>About</u>
1 a march

Help

Antenna System Monitor

The Antenna System Monitor (ASM) monitors channel-specific forward and reflected transmitted power for up to 80 Tx channels through four separate transmitter combining systems. Using the high coupling port directivity of an external four port coupler, a wide dynamic range of forward to reflected power (VSWR) can be measured. Up to 80 Rx channels can also be monitored. All frequencies and alarm level thresholds are user definable on a per-channel basis.

Status, History, Channel Diagnostics, Configuration, Calibration, Alarms, Communication Setup and Maintenance interfaces are managed via the Web GUI interface which is accessed through one of the Ethernet ports. A command line based interface (CLI) is also available via a TCP/IP Telnet session.

Alarms are communicated using N/O or N/C contact relays interfaced via the DB15 male connector at the rear of the unit, via SMTP (Email), SNMP, or Manager Message data packets. LEDs on the front panel of the unit display DC power presence, an aggregated Summary fault, Rx level, Forward Tx power and VSWR threshold failures.

Optional Channel Alarm Module (CAM) and Site Alarm Monitor (SAM) modules are also available. These modules provide ten (10) digital logic inputs that can be used to monitor and correlate the base station's current Tx status, or any of these inputs may be configured as general purpose digital alarm inputs for monitoring of other equipment alarms at the site. Four (4) additional digital logic inputs are also provided for use on the CAM, and on the SAM these additional inputs may be configured for a combination of digital input, temperature and analogue voltage level monitoring. Ten (10) dry relay outputs are also provided that may be userassigned to any of the RF alarms configured in the ASM - or any of the digital input, temperature or voltage alarms configured in the CAM/SAM modules may be connected to a single ASM.

An optional Receive Systems Module (RSM) may also be fitted to the ASM to support networks using two receive antennas in applications including dual diversity, redundant or hot/standby Rx antennas. A third antenna port is also provided to allow the monitoring of frequencies outside the restrictions of the Rx systems' preselector passbands (off-air monitoring of other sites' transmitters, the coverage of a DAS, etc). The RSM features a unique "RF Peak Level Detector" capability that can measure high levels of RF across a wide range of frequencies, even of very short burst duration, that may overload the network's base station receivers, degrading network performance. The specific Rx paths monitored per-channel, their measured levels, the peak level detectors and the alarm thresholds associated with these parameters are all managed via the ASM Web GUI.

Any combination of up to ten (10) CAM and SAM modules and one (1) RSM may be connected to a single ASM. The Antenna System Monitor is designed and built in Australia by RFI. Please refer to the User Manual for detailed installation and operational Instructions.

The block diagram below provides an overview of the system interfaces.



For further information or help with this product contact your nearest RFI sales Office or through the following:

egion	USA	EMEA	ASIA PACIFIC
ales email	webmaster@rfi.com.au	sales@rfi.com.au	webmaster@rfi.com.au
ech Support	support@rfi.com.au	support@rfi.com.au	support@rfi.com.au
elephone International	+1 (330) 486 0706	+44 1869 255 772	+61736219400
elephone Local	330 486 0706	01869 255 772	1300 000 RF
ax International	+1 (330) 486 0705	-	+61 2 9630 0844
/eb	rfiamericas.com	rfiemea.com	rfi.com.au

This site is best viewed with Internet Explorer 8, Firefox Version 3.6, Chrome Version 9 or Safari Version 5.

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10.58 Logout

Clicking on this selection will present the "Log out" message box.



If "OK" is selected, the user will be logged out of the current webserver session and the original "Log in" screen will be presented, ready for a new session.....

Username	admin
Password	••••
	Login



10.59 HELP Screens

	Status - Communications		
Sillin.	Customer	Name - Police	
Allin	Site Name	e - Mt Walker	
RFI	Ethernet	🖉 http://203.46.35.186/ - Antenna System Monitor - Windows Internet Explorer	
Duomiou	Setting	Communications Status Help	
Status	MAC Addres		
Isolation Tests	DHCP	This page reports the current Communications settings.	
Rx Channels 1-20	IP Address	Ethernet	
Rx Channels 21-40	Subpot Mac	MAC Address:	
Rx Channels 41-60	Subher Mas	The physical MAC address of the unit.	
Rx Channels 61-80	Gateway	DHCP:	
<u>Tx Port 1</u>	Email	If the stored value is enabled , the unit will attempt to get its IP Address, Subnet Mask and	
<u>Tx Port 2</u>	Setting	Gateway settings from a DHCP server. If a DHCP server cannot be found, the stored settings will be used and the Currently In Use status will show as disabled .	
<u>Tx Port 3</u>	Summary et	Note however that if a DHCP server subsequently becomes active, the settings provided by it will then become active	
<u>Tx Port 4</u>		If disabled, the stored values will be used unconditionally.	
System	Detailed ch	IP Address:	
Alarm Modules	SMTP Serve	The Stored and Currently In Use IP address values.	
Communications	SMTP Serve	Subnet Mask:	
Tistory	From Email	The Stored and Currently In Use network address mask values.	
Configuration	Destination	Gateway:	
Calibration		The Stored and Currently In Use gateway address values.	
Maintenance	SNMP	Stored Value:	
<u>About</u>	Setting	These are the values stored in the system's non-volatile memory. When the unit is started or	
Logout	Send Alarm	re-started, these settings (where applicable) will be used if DHCP is disabled, or a DHCP server is not accessible.	
		Currently In Use:	
Help	SNMP Mana	Where applicable, these are the values that are actually in use at present.	
	SNMP Mana	Email	
	Shine Pidila	Summary system status messages:	
		Detailed channel status messages:	

A comprehensive set of Help screens are available throughout the ASM GUI. On any page, click the Help button to display the available information.



11. SNMP

This section overviews the SNMP V1 and V2c scalar and table OID-based northbound Trap and southbound GET request functionality supported by the ASM products using baseline 2.85 (and above) firmware. SNMP Community String value configuration and supporting SNMP Managers that require non 'null' returned values is available in baseline 2.8.3 (and above) firmware.

Scalar OID traps described in the Scalar OID Trap Objects section of this document are sent when the 'Specific Trap' checkbox is unticked in the Configuration-Communications GUI page.

Table OID traps described in the Table OID GET Requests and Trap Objects section of this document are enabled when the 'Specific Trap' checkbox is ticked in the Configuration-Communications GUI page.

The Antenna System Monitor (ASM) SNMP Interface is defined by the following MIB files:

RF-INDUSTRIES-MIB.txt RFI-AXM-ALARM-MIB.txt

The RFI-AXM-ALARM-MIB file provides details of the various objects (OIDs) within every trap that is sent whenever an alarm status change occurs. Updated MIB files are available for download.

Scalar OID Trap Objects

The axmAlarmEntry object (1.3.6.1.4.1.32327.2.2.2.1.2) defines a trap and each trap includes the following 11 different objects;

axmAlarmCustName

OID 1.3.6.1.4.1.32327.2.2.2.1.2.1

Syntax Text String

Description Provides the Customer Name string as configured on the User Data Configuration page.

axmAlarmSiteName

OID 1.3.6.1.4.1.32327.2.2.2.1.2.2

Syntax Text String

Description Provides the Site Name string as configured on the User Data Configuration page.

axmAlarmType

OID 1.3.6.1.4.1.32327.2.2.2.1.2.3

Syntax Integer 0..5

Description Identifies the type of alarm that this trap relates to. The data for some of the other objects will depend on the alarm type.

The possible Types (and integer values) are:

Restart (0)	The unit has just been restarted.
SystemStatus (1)	The summary alarm status has changed.
ChannelStatus (2)	An individual channel alarm status has changed.
CamStatus (3)	An Alarm Module input alarm status has changed.
AccessEvent (4)	Three or more consecutive login attempts have failed, resulting in a lockout state.
IsolTestStatus (5)	A change in Isolation test alarm status.


axmAlarmStatusBits

OID 1.3.6.1.4.1.32327.2.2.2.1.2.4

Syntax

Integer 0/1 (1 bit) or 0..255 (8 bits) or 0..65535 (i.e. 16 bits)

System Status – 16 bits Channel Rx Status – 16 bits Channel Tx Status – 8 bits CAM/SAM Status – 1 bit Isolation Test Status – 16 bits

Description This is an integer value representing the status bits relevant to the alarm type. The various sets of status bits are detailed as follows;

ReStart

These bits will generally be the same as the System Status Bits, but because the system has only just restarted they will likely not be fully be up to date representing the true system status. They should therefore be ignored.

SystemStatus

The system summary status bits are:

0x0001 Lock detect fail for Receive synthesisers. 0x0002 Lock detect fail for Transmit synthesisers. 0x0004 One or more Tx Power level fails are present. 0x0008 One or more Tx VSWR fails are present. 0x0010 Rx Power level fail is present. 0x0020 System hardware alarms summary. See Hardware Alarm Bits below. 0x0040 Antenna Isolation test fail is present. 0x0080 One or more CAM/SAM External or General Purpose DI alarms are present. 0x0100 Rx Summary alarm. 0x0200 Tx Power summary alarm. 0x0400 Tx VSWR summary alarm. 0x0800 Not in use. 0x1000 Not in use. 0x2000 Receive Systems Module alarm. 0x4000 Alarm relay is active. As masked by Alarm Config. 0x8000 Summary alarm LED is active.

Hardware Alarm Bits

Internal 5V rail is out of limit. Internal hardware failure – SD-Card.

<u>Note:</u> These are no presented separately, but any Hardware Alarm Bit(s) set will set the 0x0020 bit of the (above) System Status Bits



ChannelStatus

<u>Note:</u> Decoded from the following tables is based on determining a Rx or Tx message from the contents of the rest of the SNMP trap message.

Rx Status Bits

0x0001 Rx power level fail summary. 0x0002 Rx Antenna isolation loss fail summary. 0x0004 RxA level out of range (Rx-0 only). 0x0008 VCO lock fail. 0x0010 RxB level out of range (Rx-0 only). 0x0020 Any Rx signal still ON/OFF. 0x0040 RxE level out of range (Rx-0 only). 0x0080 RxA signal present. 0x0100 RxB signal present. 0x0200 RxE signal present. 0x0400 RxA enabled. 0x0800 RxB enabled. 0x1000 RxE enabled. 0x2000 RSM Present.

Tx Status Bits

0x01 Tx power level fail. 0x02 Internal use 0x04 VSWR fail. 0x08 VCO lock fail. 0x10 Tx signal present. 0x20 Tx signal still ON/OFF. 0x40 Internal use. 0x80 Rx signal present.

CamStatus

Alarm Module Status Bits

0x0 Alarm not active. 0x1 Alarm active.

<u>Note:</u> Each trap refers to only one alarm input, as detailed by the axmAlarmSourceNumber and axmAlarmItemNumber objects.

AccessEvent

Access Event Bits 0x0000 (Always)

<u>Note:</u> This trap is only sent when the number of sequential login attempts is \geq 3.



IsolationTestStatus

Isolation Test Status Bits

0x0001 Not used. 0x0002 (Antenna Isolation), Rx Gain or Tx Rejection fail. See Note below 0x0004 RxA Level out of range (Not used by SNMP). 0x0008 VCO Lock Fail (Not used by SNMP). 0x0010 RxB Level out of range (Not used by SNMP). 0x0020 Not used. 0x0040 RxE Level out of range (Not used by SNMP). 0x0080 Not used. 0x0100 Not used. 0x0200 Not used. 0x0400 RxA Enabled (Not used by SNMP). 0x0800 RxB Enabled (Not used by SNMP). 0x1000 RxE Enabled (Not used by SNMP). 0x2000 RSM Present (Not used by SNMP).

- <u>Note:</u> The axmAlarmSourceNumber is one of 21, 22 or 23 (as detailed in the Syntax Integer declaration for the axmAlarmSourceNumber object).
- <u>Note:</u> The use of the IsolationTestStatus bits varies between SNMP and Manager Messages. Only bit 0x0002 is used for SNMP. In SNMP, bit 0x0002 will be set whenever there is either an Antenna Isolation, Rx Gain, or Tx Rejection alarm. The text of the next OID describes the fault, and the values measured.

axmAlarmDescription

OID 1.3.6.1.4.1.32327.2.2.2.1.2.5

Syntax Text String

Description This is a brief textual description of the alarm status. The included detail depends on the alarm type.

The following are examples:

```
Restart: System Restart
SystemStatus: SYS=FAIL, RX=OK, TXPWR=OK, TXVSWR=FAIL
        If a CAM or SAM is present an "ALMMOD=" status is added.
        If a Receive Systems Module is present a "RSM=" status is also added.
ChannelStatus: For a Rx channel: - PWR=OK(-97.5), VCO=OK, RX=ON
        For a Rx Channel with Receive Systems Module:
                - PWR=OK(A=-97.5,B=-95.3,E=-101.2), VCO=OK, RX=ON
        For a Tx channel:
                - PWR=OK(39.5), ILOSS=OK(1.5), VSWR=OK(1.52), VCO=OK, TX=ON
                SAM Input, DI1-6 - Test IP-6, STATUS=FAIL
CamStatus:
AccessEvent:
                System Access Lockout Alert, Source=10.3.5.119, Count=3
IsolTestStatus:
        For Antenna Isolation:
                – Ant Isolation, STATUS=OK(A=82.0,B=83.1,E=78.7 dB,900.000000 MHz)
        For Rx System:
                - Rx System, STATUS=OK(A=-0.1,B=-0.4,E=-1.3 dB,870.000000 MHz)
        For Tx Rejection:
                - Tx Rejection, STATUS=OK(A=95.1,B=97.8,E=91.4 dB,915.000000 MHz)
```

Note that 'A', 'B' and 'E' values are only included if a Receive Systems Module is in use.



axmAlarmState

OID 1.3.6.1.4.1.32327.2.2.2.1.2.6

Syntax Integer

Description The alarm status for this trap. A value of 1 represents OK, a value of 2 is FAIL.

axmAlarmDateTime

OID 1.3.6.1.4.1.32327.2.2.2.1.2.7

Syntax Date and Time

Description The time stamp for when this trap was sent.

axmAlarmSourceNumber

OID 1.3.6.1.4.1.32327.2.2.2.1.2.8

Syntax Integer

Description

This identifies the source of the alarm event. This object, although included with every trap, is only relevant for the following alarm types:

ChannelStatus: 0 – RxPort 1 – TxPort-1 2 – TxPort-2 3 – TxPort-3 4 - TxPort-4 **CamStatus:** Possible values are:: 11 – Alarm Module 1 12 – Alarm Module 2 13 – Alarm Module 3 14 - Alarm Module 4 15 – Alarm Module 5 16 – Alarm Module 6 17 – Alarm Module 7 18 – Alarm Module 8 19 – Alarm Module 9 20 – Alarm Module 10 IsolTestStatus: 21 – Antenna Isolation 22 - Rx System 23 - Tx Rejection

axmAlarmSourceText

OID 1.3.6.1.4.1.32327.2.2.2.1.2.9

Syntax Text String

Description

The textual description for the axmAlarmSourceNumber.. This object, although included with every trap, is only relevant for the following alarm types:

ChannelStatus:

The port reference string as configured on the User Data Configuration page. Examples are: Rx Port Tx Antenna 1 CamStatus: The Alarm Module description. Examples are: SAM-1 CAM-3 IsolTestStatus: The Isolation Test description. Examples are: Ant Isolation

Rx System Tx Rejection



axmAlarmItemNumber

OID 1.3.6.1.4.1.32327.2.2.2.1.2.10

Syntax Integer

Description This identifies the specific item number within the above alarm source. This object, although included with every trap, is only relevant for the following alarm types:

ChannelStatus: Possible values are 1 to 80 for the Rx Port, or 1 to 20 for Tx Ports. CamStatus: The Alarm Module input number. Possible values are 1 to 4 for External Inputs, or 11 to 20 for Digital Inputs 1 to 10

axmAlarmItemText

OID 1.3.6.1.4.1.32327.2.2.2.1.2.11

Syntax Text String

Description

The textual description for the specific item. This object, although included with every trap, is only relevant for the following alarm types:

ChannelStatus:

The channel ID string as configured on the Channel Configuration page.

Examples are: Ambulance 1 Fire Service 3 **CamStatus:** The Alarm Module Input ID string as configured on the Alarm Module Configuration page. Examples are: Temperature Door Open **IsoITestStatus:** The frequency that the specific Isolation Test was performed on. For example: 960.000000 MHz

Scalar OID GET Requests

SNMP GET Requests

Any SNMP GET requests on the objects defined in the MIB and described above will return the current parameter value of the associated object (OID) sent with the GET.

An example of the response to GET commands sent to the ASM is as follows;

axmAlarmCustName.0	Not defined
axmAlarmSiteName.0	Not defined
axmAlarmType.0	SystemStatus(1)
axmAlarmStatusBits.0	49488
axmAlarmDescription.0	SYS=FAIL, RX=FAIL, TXPWR=OK, TXVSWR=OK, ALMMOD=OK
axmAlarmState.0	fail(2)
axmAlarmDateTime.0	2016-3-3,15:18:26.0
axmAlarmSourceNumber.0	RxPort(0)
axmAlarmSourceText.0	
axmAlarmItemNumber.0	0
axmAlarmItemText.0	



Table OID GET Requests and Trap Objects

The MIB file defines a group of OIDs which belong to a particular table OID. Any SNMP GET request to a table OID will be a multi OID request and the ASM will return the current parameter values for all the associated OIDs in that table.

The Alarm Status node (1.3.6.1.4.1.32327.2.2.2.1.3) has the following five table OID's. The first four OIDs have nine different objects, and the last OID has four different objects.

- Tx channel status (1.3.6.1.4.1.32327.2.2.2.1.3.1.1)
- Rx channel status (1.3.6.1.4.1.32327.2.2.2.1.3.2.1)
- Isolation test status (1.3.6.1.4.1.32327.2.2.2.1.3.3.1)
- CAM and SAM alarm status (1.3.6.1.4.1.32327.2.2.2.1.3.4.1)
- System status (1.3.6.1.4.1.32327.2.2.2.1.3.5.1)

Object name	OID	Syntax	Description
statusTxChannelIndex	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.1	Integer(180)	A unique value for each Tx channel (instance/row)
channelPort	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.2	Integer(14)	Information about the port number
channelNumber	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.3	Integer(120)	Information about the channel number in a specific port
channelForwardPwr	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.4	Integer(-20482047)	Information about Tx forward power level. This is in 1/10th of dBm
channelInsertionLoss	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.5	Integer (04095)	Information about Tx combiner insertion loss. This is in 1/10ths of a dB
channelVswr	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.6	Integer (1009999)	Information about Antenna VSWR. This is in 1/100ths units.
channelStatus	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.7	Integer (0255)	Value representing the Tx channel status bits
channelState	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.8	Integer (14)	State of the channel
channelDescription	1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1.9	Text String	Textual description of Tx channel status bits

Tx channel status table entry OID objects (1.3.6.1.4.1.32327.2.2.2.1.3.1.1.1)



Channel states

1 OK

- 2 Fail
- 3 Disabled / Not configured
- 4 Invalid Tx channel index

Tx Channel Status Bits

0x01 Tx power level failed. 0x02 Internal Use only. 0x04 VSWR failed. 0x08 VCO lock failed. 0x10 Tx signal present. 0x20 Tx signal still ON/OFF. 0x40 Internal use. 0x80 Rx signal present.

An example of the Tx channel status table is;

L	SNMP Tableiso.org.dod.internet.private.enterprises.rfIndustries.rfIPublic.rfIProducts.rfIAxMProduct.axmAlarmMIB.statusAlarmEntry.statusTxChannelNode.statusTxChannelTable -								
1	s	channelPort	channelNumber	channelForwardPwr	channelInsertionLoss	channelVswr	channelStatus	channelState	channelDescription
	1	TxPort1(1)	1	-334	563	1	33	fail(2)	PWR=FAIL(<- 10); ILOSS=OK(56.3); VSWR=OK(1.00); VCO=OK; TX=OFF
	2	TxPort1(1)	2	-118	0	1	32	okay(1)	PWR=OK(<- 10); ILOSS=OK(0.0); VSWR=OK(1.00); VCO=OK; TX=OFF
	3	TxPort1(1)	3	2047	2047	2047	0	disabled(3)	
	4	TxPort1(1)	4	2047	2047	2047	0	disabled(3)	
-1	5	TxPort1(1)	5	2047	2047	2047	0	disabled(3)	
- 8	6	TxPort1(1)	6	2047	2047	2047	0	disabled(3)	

Note: The levels will be reported as +2047 if the respective input is not enabled

Rx channel status table entry OID objects (1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1)

Object name	OID	Syntax	Description
statusRxChannelIndex	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.1	Integer (180)	A unique value for each Rx channel (instance/row)
rxChannelPort	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.2	Integer(0)	Information about the port number
rxChannelNumber	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.3	Integer(180)	Information about the Rx channel number in a specific port
channelRxALevel	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.4	Integer(-20482047)	Information about Rx (or RSM-RxA) power level. This is in 1/10ths of a dBm
channelRxBLevel	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.5	Integer(-20482047)	Information about RSM-RxE power level. This is in 1/10ths of a dBm
channelRxELevel	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.6	Integer(-20482047)	Information about RSM-RxE power level. This is in 1/10ths of a dBm
rxChannelStatus	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.7	Integer(065535)	Information about Rx channel status bits
rxChannelState	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.8	Integer(14)	An integer representing state of the Rx channel
rxChannelDescription	1.3.6.1.4.1.32327.2.2.2.1.3.2.1.1.9	Text String	Description of Rx channel status bits



Channel states

1 OK

- 2 Fail
- 3 Disable/Not configured
- 4 Invalid Rx channel index

Rx Channel Status Bits

0x0001 Rx power level failure summary. 0x0002 Rx Antenna isolation loss fail summary. 0x0004 RxA level out of range (Rx-0 only). 0x0008 VCO lock failed. 0x0010 RxB level out of range (Rx-0 only). 0x0020 Any Rx signal still ON/OFF. 0x0040 RxE level out of range (Rx-0 only). 0x0080 RxA signal present. 0x0100 RxB signal present. 0x0200 RxE signal present. 0x0400 RxA enabled. 0x0800 RxB enabled. 0x1000 RxE enabled. 0x2000 RSM Present.

An example of Rx channel status table is;

	SNMP Tablelso.org.dod.internet.private.enterprises.rfIndustries.rfIPublic.rfIProducts.rfIAxMProduct.axmAlarmMIB.statusAlarmEntry.statusRxChannelNode.statusRxChannelTable - 📀 🖉								
Γ	statusRxChannell	rxChannelPort	rxChannelNum	channelRxALe	channelRxBLe	channelRxELevel	rxChanne	rxChanne	rxChannelDescription
E	L	RxPort(0)	1	-710	-1251	-1251	160	okay(1)	PWR=OK(A=-71.0,B=<-125 ,E=<-125); VCO=OK; RX=ON
1	2	RxPort(0)	2	-1251	-1251	2047	32	okay(1)	PWR=OK(A=<-125 ,B=<-125); VCO=OK; RX=OFF
	1	RxPort(0)	3	-1251	2047	2047	32	okay(1)	PWR=OK(A=<-125); VCO=OK; RX=OFF
1	1	RxPort(0)	4	2047	2047	2047	0	disabled(3)	
5	5	RxPort(0)	5	2047	2047	2047	0	disabled(3)	
16	5	RxPort(0)	6	2047	2047	2047	0	disabled(3)	

Note: The levels will be reported as +2047 if the respective input is not enabled

Isolation test status table entry objects (1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1)

Object name	OID	Syntax	Description
isolChannelIndex	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.1	Integer(040)	A unique value for each isolation test channel (instance/row)
isolTestSource	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.2	Text string	Textual representation of test source
isolTestFreq	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.3	Text string	Textual representation of test frequency
isolTestResultA	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.4	Integer(-20482047)	Measurement results of antenna Isolation A/ RxA Gain/ TxA rejection levels. This is in 1/10ths of a dB
isolTestResultB	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.5	Integer(-20482047)	Measurement results of antenna Isolation B/ RxB Gain/ TxB rejection levels. This is in 1/10ths of a dB
isolTestResultE	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.6	Integer(-20482047)	Measurement results of antenna Isolation E/ RxE Gain/ TxE rejection levels. This is in 1/10ths of a dB
isolTestStatus	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.7	Integer(065535)	Information about isolation test status bits
isolTestState	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.8	Integer(14)	State of isolation test channel
isolTestDescription	1.3.6.1.4.1.32327.2.2.2.1.3.3.1.1.9	Text string	Textual description of isolation test status bits



Isolation Channel Index

- 0 Antenna Isolation,
- 1 20 Rx System Gain channels (1 20)
- 21 40 Tx Rejection channels (1 20)

Isolation test channel states

- 1 OK
- 2 Fail
- 3 Disable/Not configured
- 4 Invalid index

Isolation Test Status Bits

0x0001 Not used. 0x0002 Rx Gain or Tx Rejection fail. 0x0004 RxA level out of range. (Not used by SNMP) 0x0008 VCO lock fail (Rx Gain only). (Not used by SNMP) 0x0010 RxB level out of range. (Not used by SNMP) 0x0020 Not used. 0x0040 RxE level out of range. (Not used by SNMP) 0x0080 Not used. 0x0100 Not used. 0x0200 Not used. 0x0400 RxA enabled. (Not used by SNMP) 0x0800 RxB enabled. (Not used by SNMP) 0x1000 RxE enabled. (Not used by SNMP) 0x2000 RSM Present. (Not used by SNMP)

Note: The use of the IsolationTestStatus bits varies between SNMP and Manager Messages. Only bit 0x0002 is used for SNMP. In SNMP, bit 0x0002 will be set whenever there is either an Antenna Isolation, Rx Gain, or Tx Rejection alarm.

SNMP	SNMP Table iso.org.dod.internet.private.enterprises.rfIndustries.rfIPublic.rfIProducts.rfIAxMProduct.axmAlarmMIB.statusAlarmEntry.statusIsolationChannelNode.statusIsolationChannelTable = 🗧 🔗							
isolChannelIndex	isolTestSource	isolTestFreq	isolTestResultA	isolTestResultB	isolTestResultE	isolTestStatus	isolTestState	isolTestDescription
0	Antisolation	480.000000 MHz	591	591	593	32	okay(1)	Ant Isolation,STATUS=OK(A=59.1,B=59.1,E=59.3 dB,480.000000 MHz)
1	RxSystem-1	480.000000 MHz	4	2	3	0	okay(1)	Rx System,STATUS=OK(A=0.4,B=0.2,E=0.3 dB,480.000000 MHz)
2	RxSystem-2	481.000000 MHz	1	2	2047	0	okay(1)	Rx System, STATUS = OK(A=0.1, B=0.2 dB, 481.000000 MHz)
3	RxSystem-3	482.000000 MHz	3	2047	2047	0	okay(1)	Rx System,STATUS=OK(A=0.3 dB,482.000000 MHz)
4	RxSystem-4	483.000000 MHz	0	6	4	0	okay(1)	Rx System, STATUS = OK(A=0.0, B=0.6, E=0.4 dB, 483.000000 MHz)
5	RxSystem-5	484.000000 MHz	-4	4	2047	0	okay(1)	Rx System, STATUS = OK(A=-0.4, B=0.4 dB, 484.000000 MHz)
6	RxSystem-6	485.000000 MHz	-6	2047	2047	0	okay(1)	Rx System, STATUS = OK(A=-0.6 dB, 485.000000 MHz)
7	RxSystem-7	486.000000 MHz	-11	4	-1	0	okay(1)	Rx System, STATUS = OK(A=-1.1,B=0.4,E=-0.1 dB, 486.000000 MHz)
8	RxSystem-8	487.000000 MHz	-17	1	2047	0	okay(1)	Rx System,STATUS=OK(A=-1.7,B=0.1 dB,487.000000 MHz)
9	RxSystem-9	488.000000 MHz	-21	2047	2047	0	okay(1)	Rx System, STATUS = OK(A=-2.1 dB, 488.000000 MHz)
10	RxSystem-10	480.500000 MHz	0	1	2	0	okay(1)	Rx System,STATUS=OK(A=0.0,B=0.1,E=0.2 dB,480.500000 MHz)
11	RxSystem-11		2047	2047	2047	0	disabled(3)	
12	RxSystem-12		2047	2047	2047	0	disabled(3)	
13	RxSystem-13		2047	2047	2047	0	disabled(3)	
14	RxSystem-14		2047	2047	2047	0	disabled(3)	
15	RxSystem-15		2047	2047	2047	0	disabled(3)	
16	RxSvstem-16		2047	2047	2047	0	disabled(3)	
17	RxSystem-17		2047	2047	2047	0	disabled(3)	
18	RxSvstem-18		2047	2047	2047	0	disabled(3)	
19	RxSystem-19		2047	2047	2047	0	disabled(3)	
20	RxSystem-20	494.000000 MHz	-17	-9	-15	0	okav(1)	Rx System, STATUS = OK(A=-1.7,B=-0.9,E=-1.5 dB, 494,000000 MHz)
21	TxRejection-1	410.000000 MHz	-1	-1	-1	0	okay(1)	Tx Rejection, STATUS = OK(A=-0.1,B=-0.1,E=-0.1 dB,410.000000 MHz)
22	TxRejection-2	411.000000 MHz	893	1466	2047	2	fail(2)	Tx Rejection, STATUS=FAIL(A=89.3, B=> 146.6 dB, 411.000000 MHz)
23	TxRejection-3	410.000000 MHz	-1	2047	2047	0	okay(1)	Tx Rejection, STATUS = OK(A=-0.1 dB, 410.000000 MHz)
24	TxRejection-4		2047	2047	2047	0	disabled(3)	
25	TxRejection-5		2047	2047	2047	0	disabled(3)	
26	TxRejection-6		2047	2047	2047	0	disabled(3)	
27	TxRejection-7		2047	2047	2047	0	disabled(3)	
28	TxRejection-8		2047	2047	2047	0	disabled(3)	
29	TxRejection-9		2047	2047	2047	0	disabled(3)	
30	TxRejection-10	440.000000 MHz	-1	2047	2047	0	okay(1)	Tx Rejection,STATUS=OK(A=-0.1 dB,440.000000 MHz)
31	TxRejection-11		2047	2047	2047	0	disabled(3)	
32	TxRejection-12		2047	2047	2047	0	disabled(3)	
33	TxRejection-13		2047	2047	2047	0	disabled(3)	
34	TxRejection-14		2047	2047	2047	0	disabled(3)	
35	TxRejection-15		2047	2047	2047	0	disabled(3)	
36	TxRejection-16		2047	2047	2047	0	disabled(3)	
37	TxRejection-17		2047	2047	2047	0	disabled(3)	
38	TxRejection-18		2047	2047	2047	0	disabled(3)	
39	TxRejection-19		2047	2047	2047	0	disabled(3)	
40	TxRejection-20	440.000000 MHz	-1	-1	-1	0	okav(1)	Tx Rejection, STATUS = OK(A=-0.1,B=-0.1,E=-0.1 dB, 440.000000 MHz)

An example of isolation test status table is;

Note: The levels will be reported as +2047 if the respective input is not enabled

CAM and SAM status table entry objects (1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1)

Object name	OID	Syntax	Description
moduleIndex	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.1	Integer(110)	A unique value representing CAM/SAM module ID
moduleInfo	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.2	Integer(04)	Module information bits
EXT-1	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.3	Integer(-3276832767)	External analog input voltage measurement in mV or Module Temperature in 1/10ths of a degree Fahrenheit
EXT-2	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.4	Integer(-3276832767)	External analog voltage measurement in 10 mV units
EXT-3	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.5	Integer(-3276832767)	External analog voltage measurement in 10 mV units
EXT-4	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.6	Integer(-3276832767)	External analog input voltage measurement in 10 mV units
moduleStatus	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.7	Integer(065535)	Represents external and digital input alarm status bits. See below
moduleState	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.8	Integer(14)	Represents state of alarm module. See below
moduleDescription	1.3.6.1.4.1.32327.2.2.2.1.3.4.1.1.9	Text string	Textual description of the module status and module Information

CAM/SAM module states

- 1 OK
- 2 Fail
- 3 Disabled / Not configured
- 4 Invalid module Id

Module Information Bits

- 0x1 Alarm module is present.
- 0x2 Alarm module is SAM.
- 0x4 Ext-1 value is degrees Celsius.
- 0x8 Spare.

Module Status Bits

0x0001	Ext-1 input alarm active.
0x0002	Ext-2 input alarm active
0x0004	Ext-3 input alarm active
0x0008	Ext-4 input alarm active
0x0010	DI-1 input alarm active.
0x0020	DI-2 input alarm active.
0x0040	DI-3 input alarm active.
0x0080	DI-4 input alarm active.
0x0100	DI-5 input alarm active.
0x0200	DI-6 input alarm active.
0x0400	DI-7 input alarm active.
0x0800	DI-8 input alarm active.
0x1000	DI-9 input alarm active.
0x2000	DI-10 input alarm active



An example of CAM/SAM status table is;

SNMP Table iso.org.dod.internet.private.enterprises.rfindustries.rfiPublic.rfiProducts.rfiAxMProduct.axmAlarmMIB.statusAlarmEntry.statusCamSamNode.statusCamSamTable								
moduleIndex	moduleInfo	eXT-1	eXT-2	eXT-3	eXT-4	moduleStatus	moduleState	moduleDescription
almMod1(1)	1	0	0	0	0	8117	fail(2)	CAM Input; DI(1,2,4,5,6,7,8,9)-FAIL; EXT(1,3)-FAIL
almMod2(2)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod3(3)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod4(4)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod5(5)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod6(6)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod7(7)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod8(8)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT
almMod9(9)	3	4974	491	491	491	16123	fail(2)	SAM Input; DI(1,2,3,4,6,7,8,9,10)-FAIL; EXT(1,2,4)-FAIL
almMod10(10)	0	32767	32767	32767	32767	0	disabled(3)	MODULE: NOT PRESENT

<u>Note</u>: The levels will be reported as +32767 if the respective input is not enabled. Analog values are applicable only for SAM module.

System status table entry objects (1.3.6.1.4.1.32327.2.2.2.1.3.5.1.1)

Object name	OID	Syntax	Description
systemIndex	1.3.6.1.4.1.32327.2.2.2.1.3.5.1.1.1	Integer(01)	0 - System summary alarm status 1 - System login/access failure attempt status
systemStatus	1.3.6.1.4.1.32327.2.2.2.1.3.5.1.1.2	Integer(065535)	System summary status bits
systemState	1.3.6.1.4.1.32327.2.2.2.1.3.5.1.1.3	Integer(1,2,4)	State corresponding to "System summary alarm status" or "System login/access status"
systemDescription	1.3.6.1.4.1.32327.2.2.2.1.3.5.1.1.4	Text string	Textual description of the status

System states:

1 OK

2 Fail

4 Invalid index

System summary alarm status System Status Bits

0x0001 Lock detect fail for Receive synthesisers. 0x0002 Lock detect failed for Transmit synthesisers. 0x0004 One or more Tx Power level failures are present. 0x0008 One or more Tx VSWR fails are present. 0x0010 Rx Power level failure is present. 0x0020 System hardware alarms summary. (See Hardware Alarm Bits) 0x0040 Antenna Isolation test failure present. 0x0080 One or more CAM/SAM External or General Purpose Digital Input alarms are present. 0x0100 Rx Summary alarm. 0x0200 Tx Power summary alarm. 0x0400 Tx VSWR summary alarm. 0x0800 Not in use. 0x1000 Not in use. 0x2000 Receive Systems Module alarm. 0x4000 Alarm relay is active. As masked by Alarm Config. 0x8000 Summary alarm LED is active.

Hardware Alarms

Internal 5V rail is out of limit. Internal hardware failure – SD-Card.

<u>Note:</u> These are not presented separately, but any Hardware Alarm Bit(s) will set the 0x0020 bit of the (above) System Status Bits.



System login/access status

Note: System status not applicable

An example of system status table is;

SNMP Tableiso.org.dod.internet.private.enterprises.rfIndustries.rfIPublic.rfIProducts.rfIAxMProduct.axmAlarmMIB.statusAlarmEntry.statusSystemNode.statusSystemTable						
	systemIndex	systemStatus	systemState	systemDescription		
	SystemStatus(0)	58712	fail(2)	SYS=FAIL, RX=FAIL, TXPWR=OK, TXVSWR=FAIL, RSM=FAIL		
	SystemAccess(1)	0	fail(2)	System Access Lockout Alert, Source=192.168.1.110; 192.168.1.10		



12. Connectors

ASM Front and Rear Panel Layouts:



Antenna System Monitor (ASM) Front Panel Layout



Antenna System Monitor (ASM) Rear Panel Layout



CAM Front and Rear Panel Layouts:



Channel Alarm Module (CAM) Front Panel Layout



Channel Alarm Module (CAM) Rear Panel Layout

SAM Front and Rear Panel Layouts:

0



Site Alarm Module (SAM) Rear Panel Layout

RSM Rear Panel Layout:



Receive Systems Module (RSM) Rear Panel Layout

(1)



RSM – Example Receiver System Interconnection:



Recommended Receiver Multicoupler / Tower Top Amplifier Interconnection



Recommended T1 / R2 Interconnection





Alternate Receiver Multicoupler / Tower Top Amplifier Interconnection



ASM/CAM/SAM/RSM DC Power connector (Phoenix 2-pin) pin-out:

The pin numbers on the polarized Phoenix 2-pin connector on the rear of the ASM (and optional CAM) are illustrated below.



Pinout of DC Connector

Pin Function Table:

Pin	Function
1	DC Power Input +ve
2	DC Power Input -ve

ASM Alarm/Comms connector (Sub D DB-15) pin-out:

The pin numbers on the DB15 (M) at the rear of the ASM are illustrated below.

An electrical schematic of the alarm pin-outs to the D-Sub DB15 (M) connector located at the rear of the ASM is illustrated on the next page.



Pinout of DB15 Connector

Pin Function Table:

Pin	Function
1	Communications Buss - GND
2	Communications Buss – Tx
3	ASM Alarm Relay #3 – Closed when an alarm is present
4	ASM Alarm Relay #2 – Open when an alarm is present
5	ASM Alarm Relay #2 – Common
6	ASM Alarm Relay #4 – Closed when alarm is present
7	ASM Alarm Relay #1 – Open when an alarm is present
8	ASM Alarm Relay #1 – Common
9	Communications Buss – Rx
10	ASM Alarm Relay #3 – Open when an alarm is present
11	ASM Alarm Relay #3 – Common
12	ASM Alarm Relay #2 – Closed when an alarm is present
13	ASM Alarm Relay #4 – Open when an alarm is present
14	ASM Alarm Relay #4 – Common
15	ASM Alarm Relay #1 – Closed when an alarm is present

ASM Alarm/Comms connector (Sub D DB-15) pin-out Electrical Schematic:



<u>Note:</u> The ASM alarm relay outputs may be assigned to individual channel, Network ID group, or summary alarms (summary alarm names shown in above diagram)



CAM/SAM Comms connectors (Sub D DB-15) pin-out:

The pin numbers on the DB15 (M) connector at the rear of the (optional) CAM/SAM/RSM are illustrated below.



Pinout of DB15 Connectors

Pin Function Table:

Pin	Function
1	Communications Buss - GND
2	Communications Buss – Rx
3	Connected through to same pin number on other connector
4	Connected through to same pin number on other connector
5	Connected through to same pin number on other connector
6	Connected through to same pin number on other connector
7	Connected through to same pin number on other connector
8	Connected through to same pin number on other connector
9	Communications Buss – Tx
10	Connected through to same pin number on other connector
11	Connected through to same pin number on other connector
12	Connected through to same pin number on other connector
13	Connected through to same pin number on other connector
14	Connected through to same pin number on other connector
15	Connected through to same pin number on other connector

RSM Comms connector (IDC-16) pin-out:



Pin Function Table:

Pin	Function
1	Communications Buss - GND
2	Communications Buss – Rx
3	Connected through to same pin number on DB15
4	Connected through to same pin number on DB15
5	Connected through to same pin number on DB15
6	Connected through to same pin number on DB15
7	Connected through to same pin number on DB15
8	Connected through to same pin number on DB15
9	Communications Buss – Tx
10	Connected through to same pin number on DB15
11	Connected through to same pin number on DB15
12	Connected through to same pin number on DB15
13	Connected through to same pin number on DB15
14	Connected through to same pin number on DB15
15	Connected through to same pin number on DB15
16	Not connected



CAM/SAM External Inputs connector (Phoenix 8-pin) pin-out:

The pin numbers on the Phoenix 8-pin connector on the rear of the (optional) CAM/SAM are illustrated below.

To assist in logic level interfacing, an electrical schematic of the External Alarm Inputs pin-outs 8-pin polarized Phoenix connector located on the rear of the CAM/SAM is illustrated on the next page.



Pinout of External I/Ps Connector

Pin Function Table:

Pin	CAM Function	SAM Function
1	External Alarm Input #1	Temperature / Digital / 0 to +5VDC
2	Ground	Ground
3	External Alarm Input #2	Digital / +5VDC to -60VDC / +60VDC to -60VDC
4	Ground	Ground
5	External Alarm Input #3	Digital / +5VDC to -60VDC / +60VDC to -60VDC
6	Ground	Ground
7	External Alarm Input #4	Digital / +5VDC to -60VDC / +60VDC to -60VDC
8	Ground	Ground

Note: When used as Digital Inputs, the External Inputs of the CAM/SAM are logic "0" = <+2.5VDC, "1" = >+2.5VDC, with a maximum DC input voltage of +60VDC

CAM/SAM Alarm Output and Digital Input connectors (Phoenix 2-pin & 3-pin) pin-outs:

The pin numbers on the Phoenix 3-pin and 2-pin connectors on the rear of the (optional) CAM/SAM are illustrated below.

To assist in logic level interfacing, electrical schematics of the Alarm Output and the PTT Input polarized Phoenix connectors located on the rear of the CAM/SAM are illustrated on the next page.



Note: Only one (1) channel of ten (10) is shown

Pin Function Table:

Pin	Function
1	Alarm Output Relay Common
2	Normally Open
3	Normally Closed
1	Digital Input
2	Ground

Note: The ten (10) PTT/Digital Inputs of the CAM/SAM are logic "0" = <+2.5VDC "1" = >+2.5VDC, with a maximum DC input voltage of +5VDC.



CAM/SAM Inputs and Outputs polarised Phoenix connectors' electrical schematics:





CAM/SAM Alarm Outputs

CAM External and CAM/SAM PTT Inputs





13. Maintenance, Inspection and Repair Advice

No special maintenance program is required for the ASM, (optional) CAM/SAM/RSMs, or frequency banded Couplers.

Firmware upgrades may periodically be made available and may be uploaded into the ASM if desired using the *Firmware Upgrade* feature within the GUI. Automated firmware upgrades (and communications connectivity checks) to a fleet of ASMs can be managed using the RFI Uploader software package.

٠	RFI Firmware Uploader												
Fi	e Options	Help											
	Comms Control	uled Start eduled Start J 3:31:15 F	Upl M	oad Now	Check All	Summary S Number o Number o No Comm Progress	Status f sites - f sites enabled - s -	6 1 1	Upload comple Upload failed - Upload uncerta	ted - 0 0 sin - 0	H	elp xit	
Γ	West Region						E	diting Disa	abled				
	Customer /	Site	Model	Serial	IP Address	User Name	Password	Current Version	Last Upload	File to Upload	Enable Upload	Comms Check	Comms/Upload Status
	Demo	Mt Dandenong	ASM1317	12029035	202.87.8.201	admin	admin	2.5b/2.5b		ASM_V2_50	~	Check	Login OK, Status Updated
	Western Tier	Chase Tower	DSAPM3852K2	11109078	38.114.209.200	admin	admin	2.5b/2.5b		-		Check	Login OK, Status Updated
					203.46.35.187	admin	admin			-		Check	Unable to connect
	Demo	Mt Dandenong	DSAPM3852K2	11060153	202.87.8.202	admin	admin	2.5b/2.5b		-		Check	Login OK, Status Updated
	APM3852	Bayswater	DSAPM3852K2	11060159	203.46.35.185	admin	admin	2.5b/2.5b		-		Check	Login OK, Status Updated
	UHF ASM D	RFI Melbourne	ASM3852	12029059	203.46.35.186	admin	admin	2.5b/2.5b		-		Check	Login OK, Status Updated
	Clear Status Edit Append Entry Insert Entry Delete Entry Save												

Example RFI Uploader software screen

Checking that the 7/16DIN (M) RF connectors on the feeder cables from the combiner and to the antenna are correctly torqued (as per manufacturers recommendations) onto the corresponding Coupler termination connectors is considered good practice. Checking all N Male termination connectors on the RF coaxial connectors on both the ASM and Coupler/s is also recommended.

All other DB15 and/or Phoenix connectors must be firmly located and pushed into their corresponding mating sockets, with fastening screws tightened securely.

Neither the ASM, optional CAM/SAM/RSMs, or the Coupler(s), are considered field repairable. Should it be considered that any unit may be faulty through diagnosis, it should be replaced or returned to RFI for repair.



14. Frequently Asked Questions (FAQ)

Q – Does the ASM really evaluate each frequency individually?

A – Yes. Each frequency is broken down individually and the Tx Forward Power, Tx VSWR and Rx Level is displayed per-channel.

Q – Does the VSWR monitor function ignore nearby (12.5 KHz) off-frequency RF energy entering backwards from other transmitting antennas (i.e. horizontally mounted antennas)

A – Yes. The VSWR, like the Tx Forward Power, is measured in a channelised bandwidth. The high directivity of the ASM directional coupler prevents Tx Forward Power from creating a Tx VSWR measurement error also.

Q - What is the minimum channel spacing to maintain true channelisation?

A – The ASM can discern and measure 12.5KHz channel separation between Tx channels.

Q – Channel bandwidth is established per channel during setup, and these could be mixed bandwidths (i.e. 25KHz Analogue, APCOP25 Phase1, TETRA, DMR, etc.) in a single combiner. Can these each be measured individually?

A – Yes. Modulations and selected channel bandwidths can be mixed within a combiner with no issue as modulation type is programmed by channel in the GUI. Channel bandwidth is automatically selected by the modulation type chosen – except FM where several channel bandwidths are available.

Q – Are alarms logged for future reporting and analysis?

A – Yes. In firmware revision 1.92 and above, alarm events are stored in an Alarm Event Log which can be viewed and downloaded as desired.

Q - Can alarms be sent to remote devices?

A – Yes. Alarm events can be sent via SMTP (Email), SNMP (Northbound) traps, ASM relay outputs, or (optional) SAM/CAM relay outputs to remote devices for monitoring. SNMP GET Summary Alarms can also be polled if desired.

Q - How is the VSWR calibrated to the antenna?

A – The ASM accepts the cable loss of the tx feeder network and uses this to calculate the measured VSWR to the top of the Tx antenna.

Q – Will calibration take into account different lengths, types, and losses of the cable?

A - Yes. The coupling loss, cable loss, and any variable losses will be compensated out during calibration.

Q – What is the minimum Tx forward power levels that can the monitored?

A – The ASM will measure down to -10 dBm and up to +60 dBm without any changes.

Q – Can a PC file be created and/or saved of the ASMs configuration?

A – Yes. A configuration file containing all of the ASM's parameters relevant to a site may be prepared beforehand and easily uploaded to an ASM (locally or remotely via Ethernet port), simplifying the deployment activities carried at a network site. This file is in easily editable text format for ease of use. In addition, multiple configuration files can be stored within the ASM and activated when desired to cater for network re-frequencying transitions, different network operating configurations, or to back up ASM configurations for site records, later use, or convenient programming in the event of an ASM unit being exchanged.

Q - Can the ASM monitor the site's Base Rx frequencies?

A - Yes. Rx Monitoring and Tx-Rx Antenna Isolation testing can be performed and results displayed.



- **Q** Can the ASM measure VHF 5KHz, 7.5KHz, 15KHz, 20KHz and 30KHz offset frequencies?
- A Yes. The ASM can measure, monitor and alarm any channel frequency step multiple of 1.25KHz.

Q – Can the ASM measure Tx-Rx Antenna Isolation, Rx Subsystem Gain/Ripple and Tx Carrier Rejection? **A** – Yes. The ASM can measure, monitor and alarm these three System Tests for up to 20 frequencies.

Q - Can the ASM support SNMP alarm reporting and monitoring?

A – Yes. The ASM can report alarms via SNMP v1 and v2c northbound alarm traps, and can be polled by southbound GET commands. The GET command will respond with the associated OID's current parameter value.

Q – Can the ASM support the Motorola UEM?

A – Yes. The ASM can report alarms to the Motorola UEM via SNMP v1 northbound alarm traps, and can be polled by southbound GET commands.

Q - Can the ASM support Diversity Rx, Dual Rx Antennas, and Redundant Rx Antenna systems?

A – Yes. The Receive Systems Module (RSM) may be added to the ASM at any time to provide Rx signal path monitoring for two receiver systems (i.e. dual diversity or redundant Rx antennas). The RSM also provides a third Rx signal path that may be used for off-air monitoring of adjacent network sites' coverage, a co-sited Distributed Antenna System (DAS), or other signals that may be outside the Rx system(s) passbands. The RSM also improves the ASM's receiver sensitivity capability, facilitating the monitoring of lower-level Rx signals.



15. Supporting Information

For additional support information on the ASM series products including;

ASM Product Brief ASM Antenna & Systems Monitoring Application Note ASM User Manual ASM Service Bulletins ASM Firmware File (*.FFP) ASM SNMP MIB Files CAM Product Brief SAM Product Brief RSM Product Brief SAM Temperature Sensor Product Brief

please visit the RFI website at:

http://www.rfiwireless.com.au/multicoupling-monitoring/monitoring.html

Test Drive the ASM GUI by visiting:	http://203.46.35.186				
Level 1: Username:	user				
Password:	user				
Level 2: Username:	admin				
Password:	admin				
Level 3: Username:	master				
Password:	master				

Please note that this unit is not connected to a "live" network and may be test driven and programmed without impact. This unit may be off-line periodically for maintenance purposes or Internet connectivity outage. If you cannot connect to this unit please contact your nearest RFI Sales office so we can ensure it is available for your test drive.

Contact Information

If you would like more information on the ASM product and its applications, please contact your nearest RFI Sales Office.

For more information on RFI products, please visit us at http://www.rfiwireless.com.au/



16. User Notes:



Australian Support

Phone: 1300 000 RFI (734) Email: enquiry@rfi.com.au

International Support

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