SERVICE BULLETIN ASM-008

Product: Antenna System Monitor

Subject: Firmware 2.20 Release

Description

This Service Bulletin announces the release of baseline 2.20 firmware for the Antenna System Monitor (ASM) series products.

The version 2.20 firmware update file ("FFP") is available for download from the RFI website http://www.rfiwireless.com.au/multicoupling-monitoring/monitoring/antenna-system-monitor-380-520mhz.html#tab_downloads, and may be flashed into existing ASM models by following the *Maintenance – Firmware Update* process in the Graphical User Interface (GUI) or User Manual.

Product Enhancements

The version 2.20 firmware addresses the following product issues;

i) Corrects an issue where a 12.5KHz narrowband filter's selectivity may be incorrectly set internally in the ASM on some frequencies. This can result in incorrect Tx Power readings to be displayed either on a specific frequency – or from an adjacent channel's Tx Power. As part of this change, the default Threshold Power value on the *Configuration – Tx Ports* pages is now set to "35dBm". For specific applications requiring a different value for this setting, it should be manually changed after an upgrade to version 2.2 firmware has been completed.

ii) Corrects an issue where TDMA (DMR, MotoTrbo or TETRA) Tx Forward Power may display inaccurate values. This issue presented itself as low Tx Power readings to be displayed randomly.

iii) An improved algorithm is now implemented for measuring Tx Power and Rx Level. This new algorithm improves ASM measurement accuracy across all selections of modulation type and channel bandwidths – and combinations thereof. As a result, on some units' configuration, a value adjustment may be required for the Forward Coupling and Reverse Coupling values on the *Configuration – Tx Port* pages of the GUI.

This may be most easily adjusted in value if the Tx Output power on the output of the Tx combiner is known for any monitored frequency (this can also be calculated from the Tx combiner test results if they are available). Prior to upgrading the ASM to this version 2.2 firmware, record the Last Recorded Tx Forward power for all channels on the *Status – Tx Port* pages of the GUI.

After performing the version 2.2 firmware upgrade, adjust the Forward Coupling value until previously recorded Tx Fwd Power levels are again displayed for a channel on the *Status – Tx Port* pages.

Once this revised Forward Coupling value has been determined, adjust the corresponding Reverse Coupling value and then all other Forward Coupling and Reverse Coupling values on the other *Configuration – Tx Port* pages of the GUI by the same adjustment amount (i.e. 0.7dB).

At the next opportunity (i.e. the next PMI site visit), repeat the normal Calibration process to confirm these new coupling values are optimised.

iv) Adds firmware and hardware versions and SMTP/SNMP data to the Configuration File format. This assists in identifying configuration content between revision dates and across an ASM fleet.

v) Some text fields in the GUI presented discrepancies in their use of upper and lower case characters. Firmware version 2.2 addresses this issue.

vi) An issue that can make the Rx On Manager Status in Manager Messages repeat itself after the first Antenna Isolation test has also been addressed.

The version 2.20 firmware provides the following new features for the ASM;

vii) Antenna Isolation Maximum Alarm

This feature adds a maximum alarm threshold to the existing minimum threshold, allowing various fault conditions including the loss or failure of the system Rx antenna or TTA/RMC to be detected and reported.

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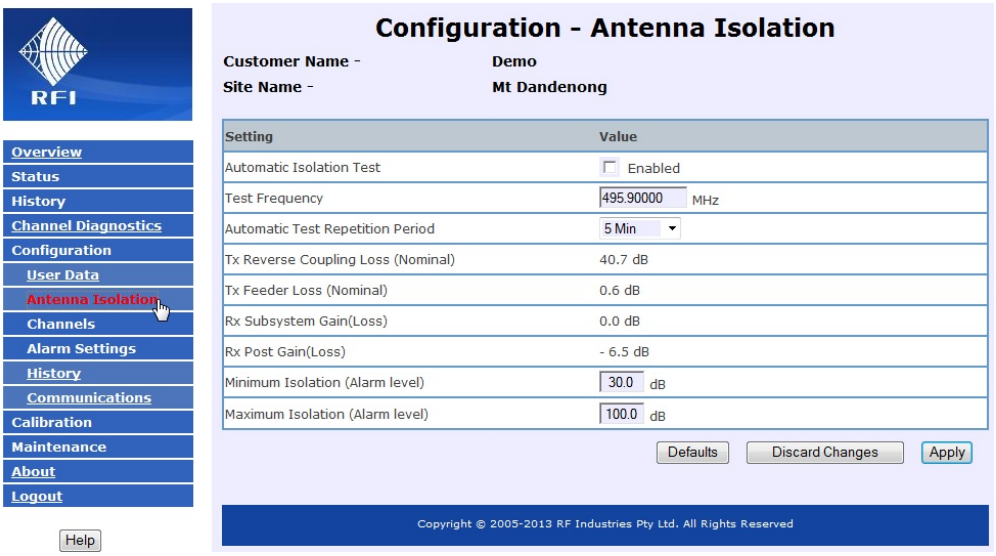
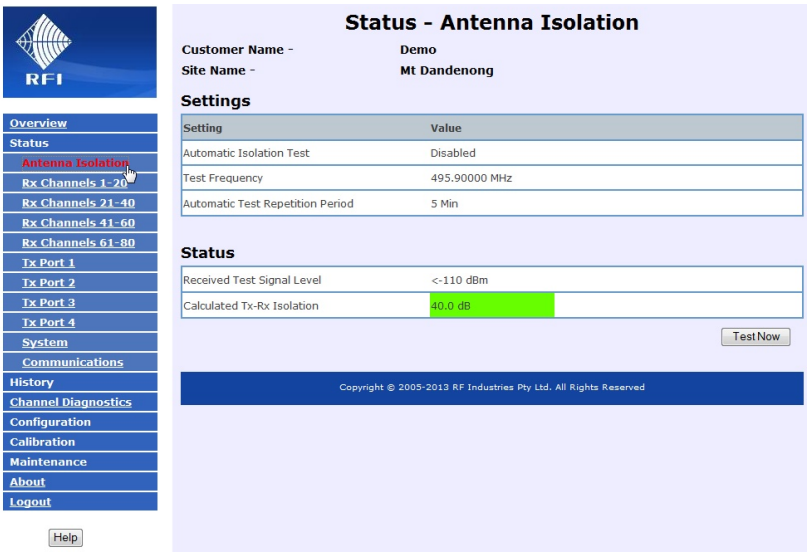
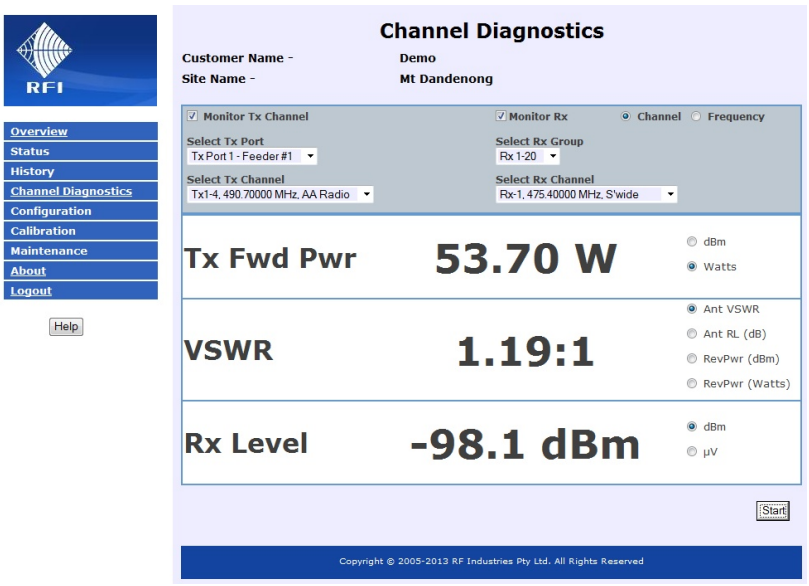


viii) Rx Level Display in Status - Antenna Isolation screen

Displaying the Received Test Signal Level shows the measured Rx Level value as measured in the Antenna Isolation test.



ix) Channel Diagnostics



This feature adds a new GUI screen called *Channel Diagnostics*.

When this screen is selected, normal scanning and measurement of all the channels programmed into the ASM pauses, and only the selected Tx and/or Rx channel is monitored, measured and displayed.

If *Monitor Tx Channel* is selected, this “digital wattmeter” style operation is useful for monitoring a desired channel continuously during alignment, tuning, fault-finding or channel activity monitoring.

If *Monitor Rx* is selected, two modes of operation are available;

a) Channel Mode – that allows an Rx frequency programmed into the ASM to be selected, or,

b) Frequency Mode – that allows a random Rx frequency to be entered and monitored.

This feature allows the network uplink level to be monitored during normal network operation, or a signal generator level to be displayed during testing or PMI activities.

In Frequency Mode, this feature may be used to monitor other services on the site to identify the co-incidence of those services’ Tx activity with IM or other performance impacting problems. Alternatively, monitor one of the network’s Rx frequencies (i.e. in-bound) may assist in the identification of the presence of illegal carriers, frequency re-use problems, or other “interferor” occurances.

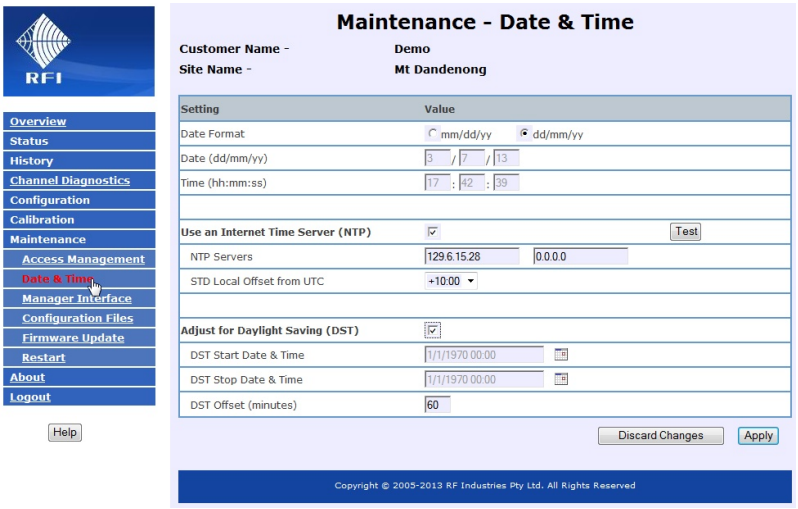
When a different GUI screen is selected, or if the web browser leaves the ASM IP address, the normal ASM scanning and measurement of all programmed channels will resume automatically.

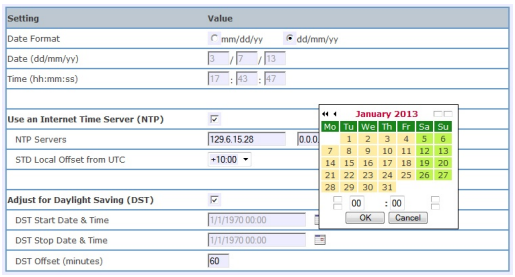
x) NTP Time Referencing

The ASM's internal real time clock may now be referenced to a network or internet NTP server.

Primary and secondary server addresses may be entered for backup or redundancy use.

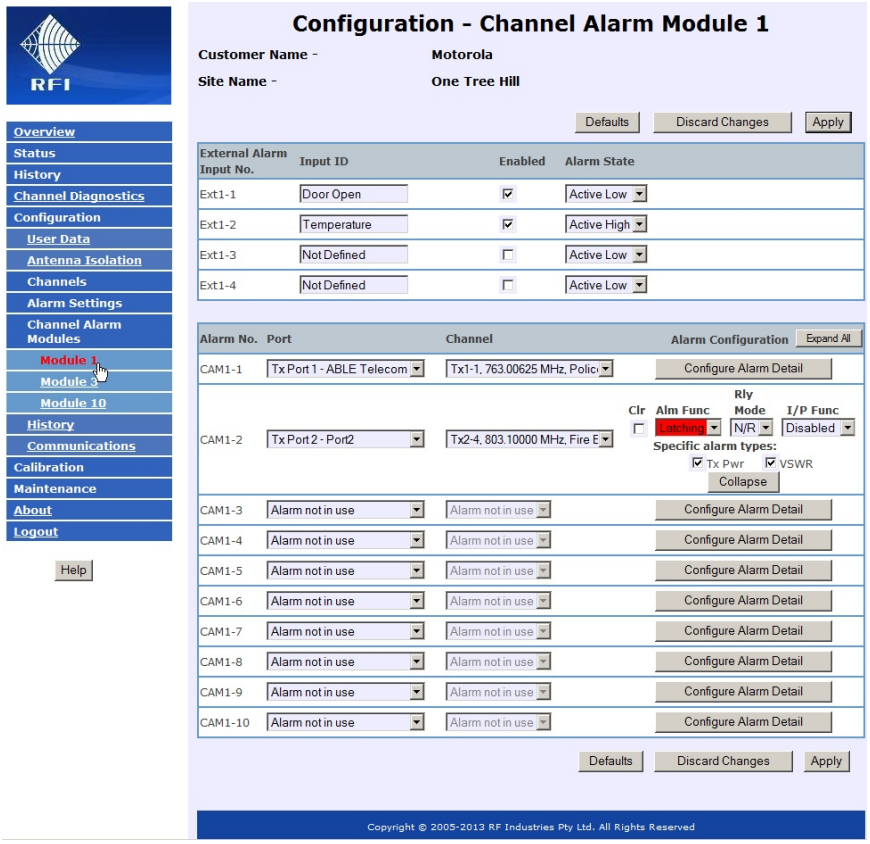
Local standard time (STD) offset is also provided, and Daylight Savings Time (DST) adjustment can also now be configured.





A convenient calendar feature is also provided adjacent to each of the date fields for easy date selection.

xi) Channel Alarm Module Latched Alarm Outputs



A "latching" capability is now provided for the (optional) Channel Alarm Module (CAM) alarm relay outputs.

When selected, this feature latches the assigned CAM alarm relay output on the presence of the ASM channel's alarm state. This latched alarm output must be manually unlatched (or "cleared")

This feature is ideally suited to controlling an Antenna Change-Over (ACO) unit or hot/standby base station configuration, and is particularly suited to remote sites where seasonal or random weather events may limit site maintenance access and standby antennas may be deployed to ensure continued network operation.

Upgrading to Firmware 2.20

Note: Please read all Service Bulletins published from the release of the firmware currently operating in your ASM prior to commencing an upgrade to this version 2.20 firmware. Upgrades may require a transition through an intermediate firmware version on the way to reaching this version - or may have other implications for your ASM.

Firmware 2.20 *cannot* be applied to units currently operating firmware earlier than 2.0. Units must be updated to firmware 2.0 or 2.05 prior to attempting an update to 2.20. Units currently running firmware earlier than 2.05 should rename the firmware FPP file to APMxxxxx.ffp" prior to its use. This renaming step is not required once a unit has been upgraded to 2.05 or later.

Applying this Firmware 2.20 upgrade to K1 models will delete all saved History data due to the memory file system being restructured to cater for some of the new features in this firmware 2.20 release. It is suggested to save all History data prior to implementing this firmware upgrade on K1 models.

After applying this upgrade to K2 models, there may be a considerable delay (several minutes) after the upgrade has been completed before the unit is available to log into again due to a re-arrangement of the SD-Card filing system after reboot.

Cost Impact

Firmware version 2.20 is available to RFI customers at no charge.

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