# WOLF 1MS
# WOLF 2MS
## FM Monitoring System
## and
## Streaming Device
(Rev. 1.8 ENG)


# SUMMARY

# 1 INTRODUCTION

## 1.1 AVAILABLE MODEL

| CODE# | MODEL | COMMERCIAL DESCRIPTION |
|---|---|---|
| **A110160001** | **WOLF 2MS** | Dual FM monitoring system for FM networks. Double internal tuner with configurable band scan. Real time measures on RF, MPX, Audio and RDS with decoder with group sequence. HTTP, SNMP, FTP and XML protocol. Web server, double audio streaming for monitor. 2x LAN, USB and GPIO. Headphone output. |
| **A110160020** | **WOLF 1MS** | Monitoring system for FM networks. Internal FM tuner with configurable band scan. Real time measures on RF, MPX, Audio and RDS decoder with group sequence. HTTP, SNMP, FTP and XML protocol. Web server and audio streaming for monitor. 2xLAN/USB and GPIO. Headphone output and universal power supply. |

## 1.2 USE OF THIS MANUAL

This manual can be used with the Wolf 1MS and Wolf 2MS products. Some features may be changed without notice.


## 1.3 REVISION HYSTORY AND NOTES

| Rev. | Note | Date | Sign | Change / Descritpion |
|---|---|---|---|---|
| 1.0.3 | | 23 May 2014 | Gabriele Rocchini | User Manual updating from 0.8.5 to 1.0.3 |
| | | | | |
| | | | | |

# 2 GENERAL DESCRIPTION

# WOLF 1MS & 2MS



**FM OFF AIR MONITOR SYSTEM** *Rev 4.8*

## HIGHLIGHTS

- Real Time measurement for FM networks
- Single/double high quality FM Tuner
- Signal analysis modules: RF, MPX, AUDIO and RDS
- High invulnerability to strong RF fields
- Configurable single/bandscan for each FM tuner
- Embedded web server for worldwide consultation
- Single/double AoIP streaming for monitoring with IceCast2 Server
- Single/double RDS decoder with group sequence decoding
- SNMP, HTTP web interface, FTP, NTP and email supported
- Double Ethernet/USB ports, LCD display and headphone out

# PRODUCT OVERVIEW

Wolf 2MS is a state-of-the-art monitoring system, designed to supervise FM air signals. The accuracy of the onboard twin tuners allows a very rigorous frequencies scan, high performances in FM reception, MPX audio encoding and RDS data streaming. This cutting-edge equipment features three main operating modes: continuously reception, bandscan and *smart bandscan*.

The FM static modality allows to focus on a single channel, selected and monitored exclusively. Scan mode implies that up to 32 channels for each tuner can be scanned and supervised in a single analysis. Receiving up to 64 memories in total, Wolf 2MS allows a complete and accurate scrutiny of RF, MPX, RDS, Audio and RDS data dynamic services. In smart mode the channel scan time is adjusted automatically according to instantaneous measurements requirements.

Outstanding quality of Wolf 2MS is the integration into a Network Management System. Supporting SNMP protocol, all data and information captured during FM monitoring are graphically displayed on any kind of web interface. For simplest configurations not requiring NMS software, Wolf 2MS can send via email a daily report of the 24 hours events. Wolf 2MS provides a database sheet to manage this information.

Two built-in audio streamers are an essential feature of Wolf 2MS; audio channels can be streamed to a remote logging system that records both audio and data coming from the transmitter site. The audio stream can also be sent to a remote player for audio-on-demand purposes. From any site users can listen to each single FM tuner and streamed audio, using any Internet browser.

Two onboard network interfaces provide maximum flexibility in streaming and connectivity processes. From PCs, tablets and smartphones broadcasters can control completely Wolf 2MS and access all data and alarms. When an alarm rises, it is the NMS system that sends notifications via SMS or email or takes an action to fix any possible issue.

External input sources are available: analog Left+Right and digital AES/EBU inputs. Users can connect audio to the external input sources that should be under control. These audio inputs are constantly monitored: silence detection, and audio presence. Thorough tests, performed also by end users, showed that Wolf 2MS circuits are extremely safe and completely unaffected by any kind of radiofrequency interferences

## TECHNICAL DESCRIPTION

Wolf 1MS and Wolf 2MS are FM monitoring systems designed for FM Off Air signal monitoring purpose. Wolf 1MS is provided with one high quality FM tuner, while Wolf 2MS allows the broadcaster to receive up to two frequencies thanks to internal double tuner. Tuners are each other independents and they can operate in three ways: *Continuous reception*, *bandscan* and *SmartScan*.

Internal tuner assures strong performances in FM reception, RF and MPX audio analysis and RDS data stream output. The monitoring made on FM channels can be a basic RF analysis or an advanced RF, MPX and AUDIO measurement.

- *Continuous reception:* a single carrier is selected and under monitoring.
- *Bandscan mode:* a total of 32 FM Channels can be scanned and monitored in Wolf 1MS and 64 FM Channels for Wolf 2MS. The *bandscan* time is also user definable, in a range from 1 second up to 10 seconds for each channel.
- *SmartScan* mode allows an intelligent and variable scan time that is adjusted automatically to fit the instantaneous measurement requirements. This is to avoid false-positive rising errors.

During *continuous reception* mode, each single tuner checks and completely decodes the multiplexed signal:
Mono level, Pilot level, Audio and RDS levels are measured and kept always under control. All captured datas during FM Channel monitoring can be sent to a Network Management System (such as Axel Technology's *Ranger*) or showed in a common password protected web page. Communication between *Wolf 2MS* and *Ranger NMS* is SNMP v2C protocol. For all single parameter under monitoring, a threshold can be set. If one or more values go out of range, alarms are delivered.

Tuners modules are with extended RF input range from 11dBuV to over 120dBuV through an internal programmable attenuator. FM monitor will be able to work nominally at its best with strong RF levels from 80dbuV to over 120dBuV coming from an RF combiner. RF sensitivity of 20-30dBuV will be still available for the use as audio and RDS-UECP re-broadcaster.

Once the RF signal is received, audio should be streamed from the transmitter site back to a remote logging system. The streamer input allows an internal selection between all inputs available: Tuners, External Analog In, External AES/EBU In.

Wolf 1MS and Wolf 2MS are completed with "*External Input*" source: analog Left+Right input and Digital Left+Right in AES/EBU format. This audio input is continuously monitored: silence detection (Threshold/time and level), left and right presence, peak left, peak right. Rear-panel audio output always presents the audio decoded from Tuner-1 or Tuner-2 and this setting is user definable while audio is available on Analog or AES/EBU format.

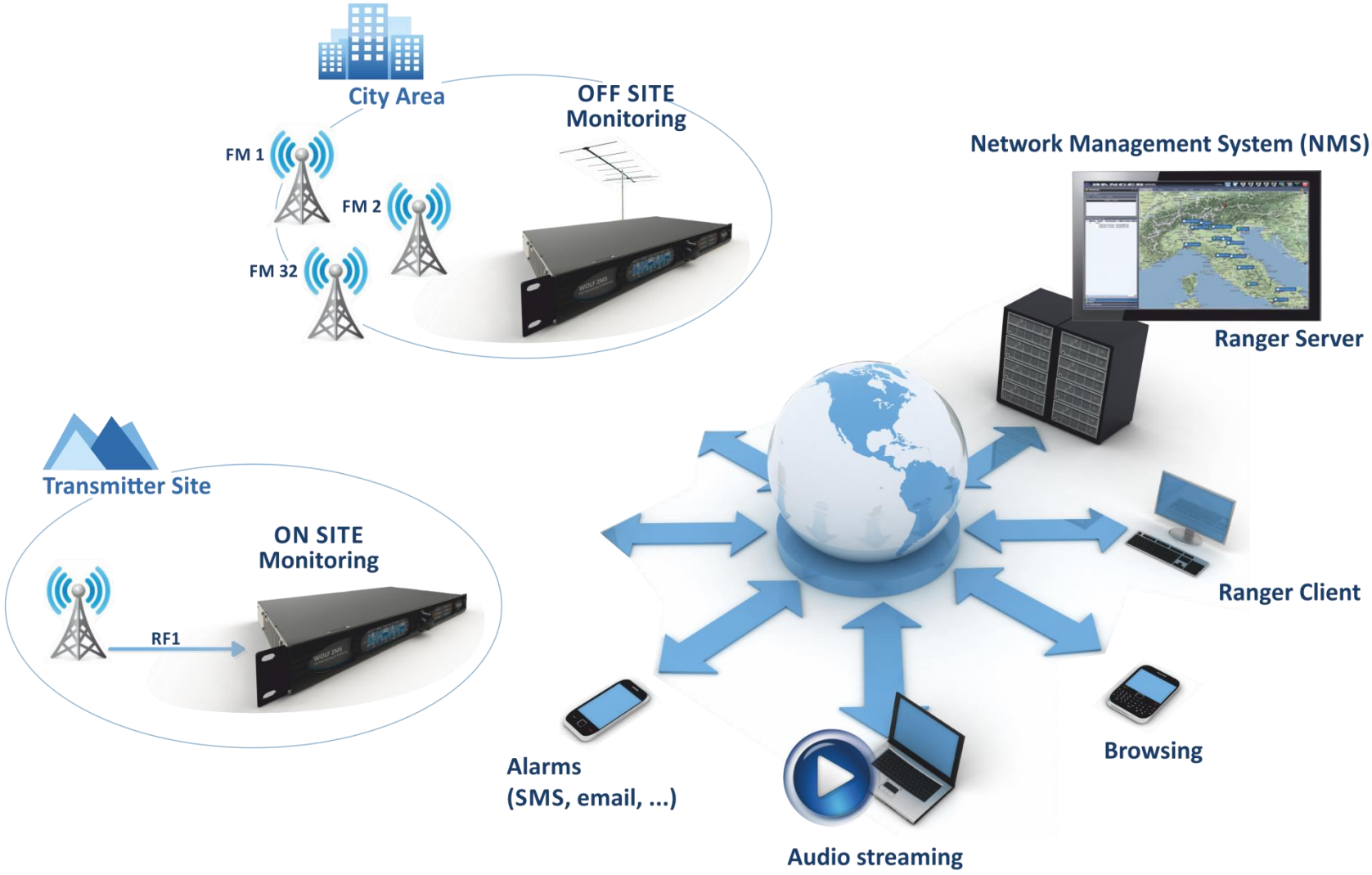
Wolf 1MS and Wolf 2MS provide a large variety of connection: double Ethernet port, USB and front panel headphone output, 4x GPIn opto coupled and 4x GPOut over relays. Rs232 serial port for RDS-UECP bridging and rebroadcasting purposes, and rear panel placed SD card to store or recall the complete equipment configuration.

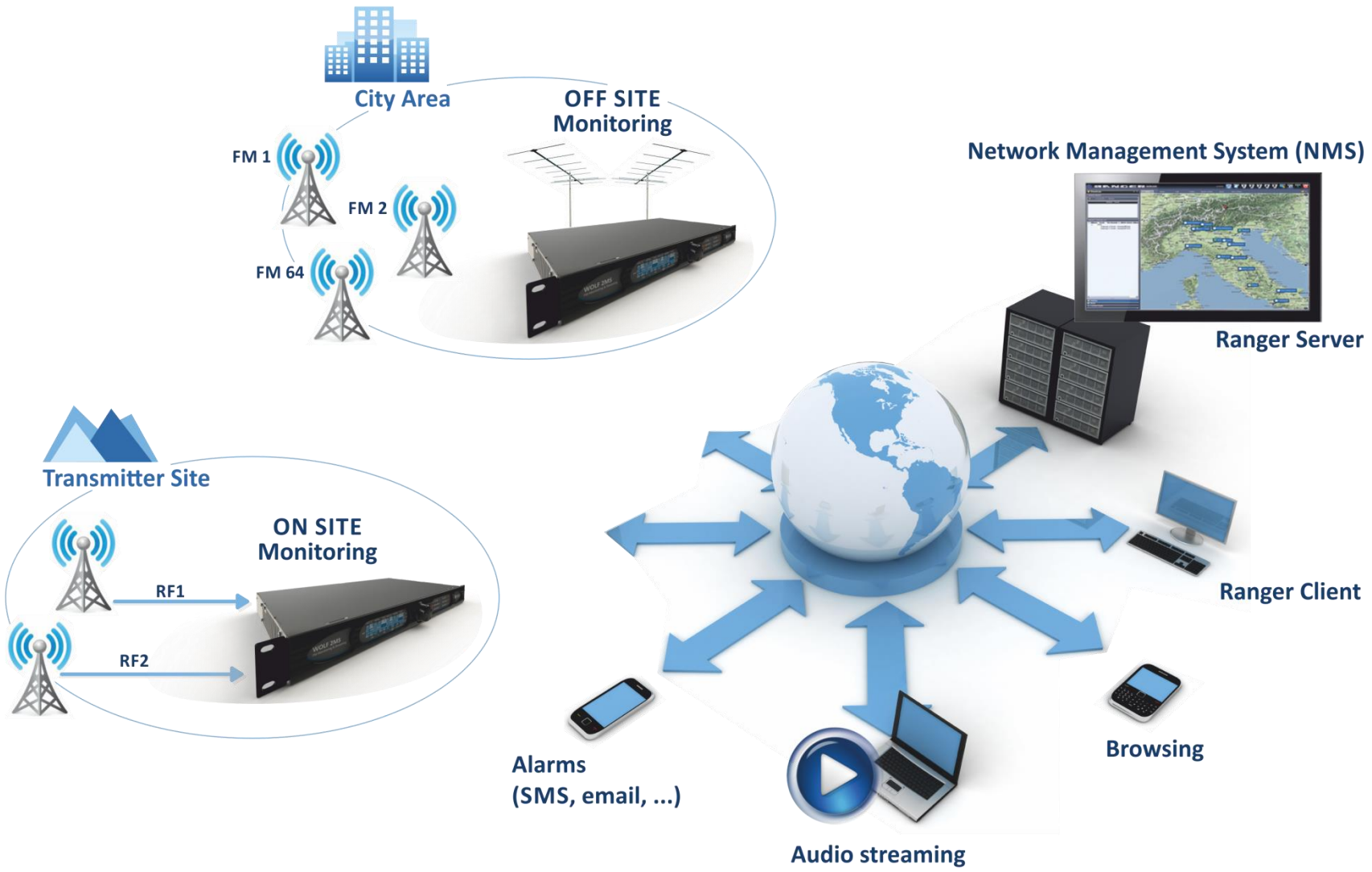
RF antenna inputs are over BNC connectors, a XLR balanced stereo analog input and output, AES/EBU input and output. OS and datas are loaded and stored over solid state memory as SD and flash RAM. Universal switching power supply to operate worldwide, 1 rack unit space in fan-less configuration.

# MEASURES AND COMPARISON TABLE

| General features | Wolf 1MS | Wolf 2MS | |
|---|---|---|---|
| Number of FM tuners on board | 1 | 2 | |
| FM channels under monitor | 32 Channels | 64 FM Channels (32 FM/Tuner) | |
| Scanning mode | Single, Bandscan and *SmartScan* | | |
| Streaming available | 1 | 2 | |

| Field | Type of measure | Measures made by Wolf 1MS –Wolf 2MS | U.M |
|---|---|---|---|
| ***RF*** | 4x RF Level Lower threshold | Measure, alarm via email/trap SNMP | dBµV |
| | 2x Adjacent Channel L1 threshold | | |
| | Alternative Channel - Worse | Measure | dBr |
| | Carrier precision | Measure | ppm |
| | Multi Path | Measure | % |
| ***MPX*** | Deviation Max | Measure, alarm via email/trap SNMP | kHz/dBr |
| | 2x Pilot Lower level - 2 threshold level | | |
| | MPX Power – ITU-R BS.412 | | |
| ***RDS Level*** | RDS Level Lower threshold | | |
| | RDS Level Higher threshold | | |
| ***AUDIO*** | Peak Left - Peak Right threshold | Measure, alarm via email/trap SNMP | dBr |
| | RMS Left - RMS Right threshold | | |
| | Audio Imbalance – L/R delta threshold | | |
| | Mono silence – L+R threshold | | |
| | Audio MPX deviation threshold | Measure, alarm via email/trap SNMP | kHz |
| | Audio MPX Silence detection threshold | Measure, alarm via email/trap SNMP | s |
| | Audio Left –Right Silence det. threshold | | |
| ***RDS Data*** | AF-Complete Decoding + Visualization<br>PS – 4 PS matching reference<br>PI – 3 PI Code matching reference<br>CT – Time offset<br>DI – Decoder Information<br>PTY – Program Type<br>TP/TA – timeout TA<br>M/S – Music Speech<br>BLER – Block Error Rate<br>TMC – AID – Group – Data<br>EON Enhance Other Channel<br>RT – RT+ data decoding<br>LA – EG – ILS – LSN-PIN<br>ODA TMC<br>ODA RT+<br>ODA-1 ODA-2<br>SLC0 – SLC1 - SLC2 - SLC3 - SLC4 - SLC5 - SLC6 - SLC7 | RDS Data decoding group, visualization and storage. Alarm generation in case of error, can be showed in a common web page or delivered via email.<br><br>Interfacing with up to 4 NMS allows equipment to deliver traps using SNMP protocol. | |


City Area
OFF SITE Monitoring
FM 1
FM 2
FM 32
Transmitter Site
ON SITE Monitoring
RF1
Network Management System (NMS)
Ranger Server
Ranger Client
Browsing
Alarms
(SMS, email, ...)
Audio streaming


City Area
OFF SITE Monitoring
FM 1
FM 2
FM 64
Transmitter Site
ON SITE Monitoring
RF1
RF2
Network Management System (NMS)
Ranger Server
Ranger Client
Browsing
Alarms
(SMS, email, ...)
Audio streaming

# FRONT- REAR PANEL DETAIL

In the left side display the first row is divided for *TUNER-1* and *TUNER-2* frequency and RDS-PI code. The STATUS field indicates the condition (status) of the frequency under control. The scan value indicates the scanned frequency and all the related value, frequency in MHz and PI code, this scan value (01-02-.. up to 32) rotate around each 5 seconds. Same behavior for the Tuner-2.


*Wolf 2MS – Front Panel*

INFO row shows some information about Wolf 2MS shown such as PS for Tuner-1 and PS for Tuner-2 about the frequency under control, or the set of *bandscan* frequency. Last row shows date & time and *ALARM PANEL*.
If TU1 is set in the *ALARM PANEL* field, the right side 6 leds panel shows if lighted on the alarms related to Tuner -1. Same for Tuner -2.


*Wolf 2MS – Rear Panel*

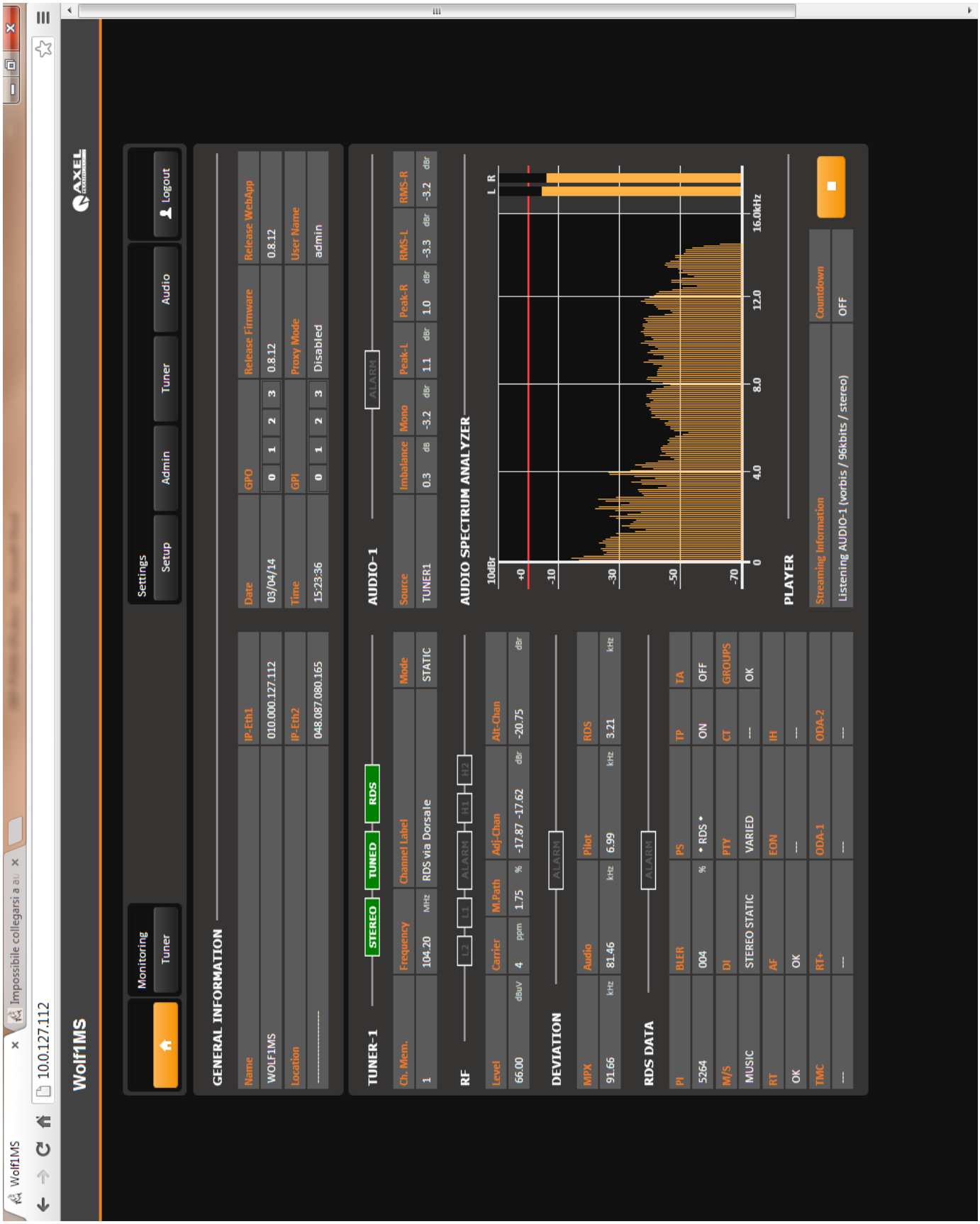
Wolf 1MS shows some differences between Wolf 2MS in particular about right 6 leds panel side. Accordingly to one RF tuner is it possible for Wolf 1MS to report about more alarms related to a single frequency under control. PS, PI Code and frequency are showed into 3 rows LCD display, moreover each single RF and MPX component such as deviation, RF level, Stereo Pilot and RDS deviation are clearly reported.


*Wolf 1MS – Front Panel*

Back side Wolf 1MS and Wolf 2MS allows a large variety of connection, AES/EBU and analog balanced input/output connections are provided over standard XLR connectors. Double Ethernet and USB –A type port make Wolf 1MS and Wolf 2MS equipment perfectly matching the most demanding broadcast market application. Furthermore GPIO opto coupler Input and relay output provides a seamless integration with 3rd party equipment. RDS decoded data in UECP format can be gived back over SubD 9p female connector, for rebroadcasting purposes.


*Wolf 1MS – Rear Panel*

# WOLF 1MS – WEB PAGE



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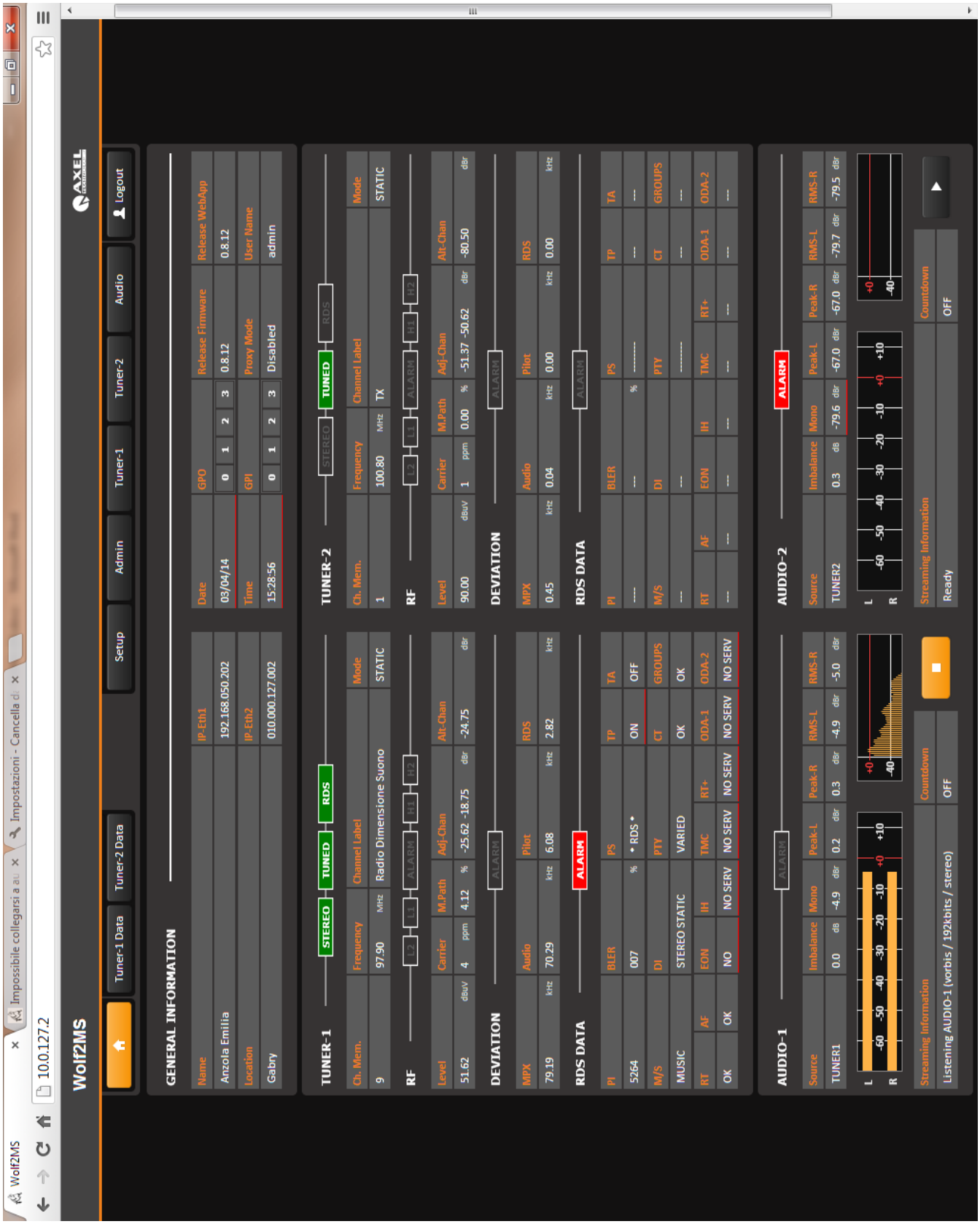
# WOLF 2MS – WEB PAGE



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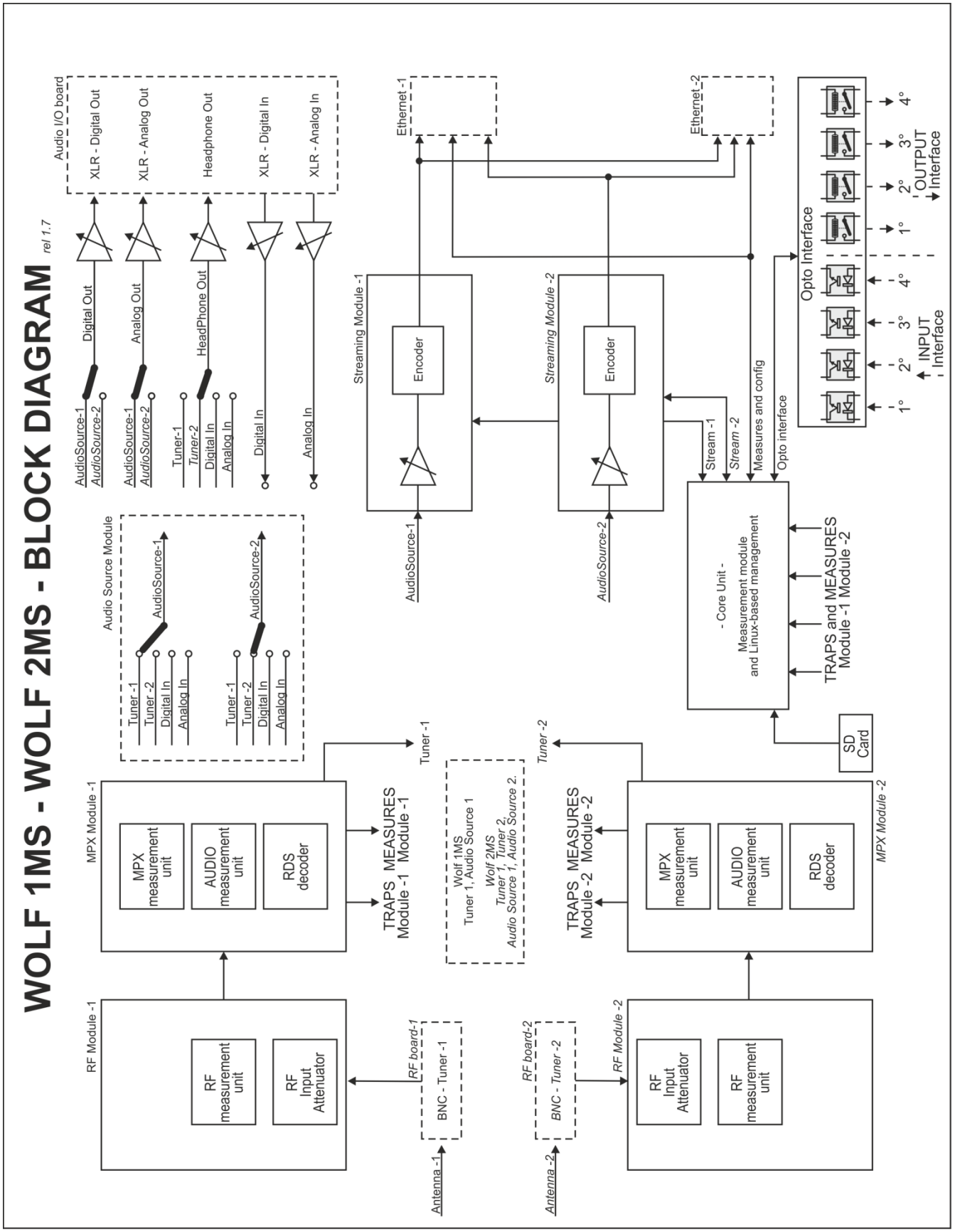
## WOLF 1MS – WOLF 2MS BLOCK DIAGRAM


WOLF 1MS - WOLF 2MS - BLOCK DIAGRAM rel 1.7
Audio I/O board
XLR - Digital Out
XLR - Analog Out
Headphone Out
XLR - Digital In
XLR - Analog In
AudioSource-1
AudioSource-2
Digital Out
Analog Out
HeadPhone Out
Tuner-1
Tuner-2
Digital In
Analog In
Ethernet -1
Ethernet -2
Streaming Module -1
Streaming Module -2
Encoder
Audio Source Module
Tuner -1
Tuner -2
Digital In
Analog In
Stream -1
Stream -2
Measures and config
Opto interface
Opto Interface
OUTPUT Interface
INPUT Interface
- Core Unit -
Measurement module
and Linux-based management
TRAPS and MEASURES
Module -1 Module -2
SD Card
MPX Module -1
MPX measurement unit
AUDIO measurement unit
RDS decoder
TRAPS MEASURES
Module -1 Module -2
Wolf 1MS
Tuner 1, Audio Source 1
Wolf 2MS
Tuner 1, Tuner 2,
Audio Source 1, Audio Source 2.
MPX Module -2
RF Module -1
RF measurement unit
RF Input Attenuator
RF board-1
BNC - Tuner -1
Antenna -1
RF board-2
BNC - Tuner -2
Antenna -2
RF Module -2

# TECHNICAL SPECS

| *PARAMETER* | **DESCRIPTION** |
|---|---|
| | |
| **Main Power** | 100 Vac – 240 Vac 50/60 Hz internal, universal power supply |
| **Power consumption** | 25 W |
| **Power connector** | IEC plug filter with internal fuse 2.0 AT |
| **Headphone** | Stereo Jack 6.3 mm |
| **Safety and EMC** | Compliant to CE laws |
| **Working temperature** | 0° to 50° C (storage -5 to + 50 °C) |
| **Housing Dimensions** | 19 inch x 1u x 240 mm (depth) |
| **Weight** | 3.5 kg |
| | |
| ***RF TUNERS*** | |
| **Tuner frequency** | 87.5 MHz - 108.0 MHz |
| **Tuner step** | 10 kHz |
| **RF tuning stability** | +/- 500 Hz |
| **RF input sensitivity** | 20 to 120 dBµV |
| **RF input nominal level** | 80 to 100 dBµV |
| **RF inputs main** | 2x BNC, with 50 Ohm unbalanced |
| **Max frequency deviation** | 125 kHz |
| **IF Filter bandwidth** | 34 kHz to 138 kHz – Manual or Automatic |
| **Input RF level** | 30 dBµV – 120 dBµV with Internal attenuator |
| **Bandscan carrier number** | 32 Channels |
| **Bandscan time** | Static Mode, Scan 2s to 20s and Smart Mode* |
| **Selectivity at ± 120 kHz** | > -3 dB |
| **Selectivity at ± 200 kHz** | > -40 dB |
| **Selectivity at ± 300 kHz** | >- 50 dB |
| **Selectivity at ± 400 kHz** | >-65 dB |
| **Image Rejection @ 22.5 kHz** | 70 dB |
| **Adjacent channel rejection** | 63 - 65 dB |
| **Alternate channel rejection** | 65 - 72 dB |
| **THD @ dev=75 kHz** | 0.05 – 0.1 % |
| **Mono (S+N)/N** | 75 dB typ – 68 dB min (No A-Weighting 30 Hz – 15 kHz) |
| | |
| ***STEREO DECODERS*** | |
| **Stereo (S+N)/N** | • 61 dB Stereo/61 dB Mono @ 40 dBµV<br>• 65 dB Stereo @ 50 dBµV<br>• 80 dB Stereo @ 70 dBµV |
| **Pilot 19kHz suppression** | 55 dB (Stereo modulation L = 1, R = 0,Deviation=67.5 kHz, pilot deviation=6.75 kHz) |
| | |
| **Stereo THD+N** | Measures @ 70 dBuV with 75 kHz deviation<br>• 100 Hz - 0.055 %<br>• 1 kHz - 0.061 %<br>• 5 kHz - 0.19 %<br>• 10 kHz - 0.46 % |

| | |
|---|---|
| **Stereo separation** | 45 dB (Stereo modulation L = 1, R = 0,Deviation=67.5 kHz, pilot deviation=6.75 kHz)<br>• 48 dB @ 400 Hz<br>• 48 dB @ 1 kHz<br>• 48 dB @ 5 kHz<br>• 38 dB @ 10 kHz<br>• 38 dB @ 14.7 kHz |
| ***RDS DECODER*** | |
| **RDS Sensitivity** | 20 dBµV (dev f = 2 kHz, RDS BLER < 5%) |
| **RDS Synchronization time** | 80 ms (dev f = 2 kHz RF input = 60 dBµV) |
| **RDS PI Lock time** | 100 ms (dev f = 2 kHz RF input = 60 dBµV) |
| **RDS data decoding and Streaming** | RDS Level indication and deviation (voltage, kHz and dBr) |
| **RDS Data decoding services** | PS, PI, M/S, DI, TP, TA, AF, AF List Presence A/B Method, Scrolling PS, AF EON, Radio Text, Radio Text Plus, CT, PTY, PIN, IH, TMC, EWS, TDC . ODA generic services. RDS error detection with three shold adjustable |
| | |
| ***RF MEASUREMENT MODULE*** | Ranges – Resolution - Precision |
| **RF Level** | 0 – 80 dBµV (Resolution 1 dBµV, precision 2 dBµV)<br>82 – 120 dBµV (Resolution 2 dBµV, precision 5 dBµV) |
| **Deviation** | 0-125 kHz (Resolution 1 kHz, precision 2 kHz) |
| **Tuned Carrier Frequency Offset** | 0-250 ppm (Resolution 2 ppm, precision 5 ppm) |
| **Multipath** | 0-100 % |
| **Adjacent Channel RF Level** | 0 – 80 dBµV (Resolution 1 dBµV, precision 2 dBµV) (+-200kHz) |
| | |
| ***MPX MEASUREMENT MODULE*** | Ranges – Resolution - Precision |
| **Pilot Level** | 0-20 kHz (Resolution 0.1 kHz, precision 0.2 kHz) |
| **Rds Level** | 0-20 kHz (Resolution 0.1 kHz, precision 0.2 kHz) |
| **Mpx Power ITU-R-BS412 (Estimated)** | -20 dBr to + 12dBr (Resolution 0.1 dBr, precision 0.5 dBr) |
| **Stereo** | Valid Stereo signal detector |
| | |
| ***AUDIO MEASUREMENT MODULE*** | Ranges – Resolution – Precision |
| **Left Quasi Peak** | Programmable Attack Time from 0 mS to 2mS (Resolution 0.1 dB) |
| **Right Quasi Peak** | Programmable Attack Time from 0 mS to 2mS (Resolution 0.1 dB) |
| **Audio Silence** | Threshold -80 dB to 0 dB, Time: 1-120 Sec |
| **Unbalanced Stereo Signal** | Threshold -80 dB to 0 dB, Time: 1-120 Sec |
| | |
| ***AUDIO OUTPUT*** | |
| **Available output on XLR** | Tuner-1 or Tuner-2, definable via web page. Same audio on Analog and AES/EBU |
| **Audio frequency response** | 30 Hz—15 kHz, ± 0,3 dB |
| **Phones (Front Panel)** | Stereo jack 6.3 mm, 150 Ohm, 0.8 W |
| | |
| ***ANALOG OUTPUT MODULE*** | |
| **D/A Conversion** | 24bit Sigma-Delta Conversion – 32 kHz Sample rate |
| **Connectors** | 2x XLR, male - Electronically balanced |
| **Output Level** | -12.0 dBu to +14.0 dBu (0.1 dBu Step) – Max (+20 dBu) |
| **Impedance Source** | 47 Ω |
| **Load Impendance** | 600 Ω or greater |
| **Distorsion** | Less than 0.02% TDH+Noise (0.0dBu @ 1Khz) |
| **Dynamic range** | 108 dB (110 dB A-weighted, 20Hz – 15kHz) |
| **Sources** | Streamer1_Source , Streamer2_Source |
| ***DIGITAL OUTPUT MODULE*** | |
| **Connectors:** | XLR, Male – Electronically balanced |

| | |
|---|---|
| **Format** | AES3/EBU |
| **Sample rates** | 32 kHz |
| **Resolution** | 24 bits |
| **Operative Nominal level:** | From 0.0 dBFs to -24dBFs (0.1 dBu step) |
| **Dynamic Range:** | 125 dB (Typ), 122 dB (Min) |
| **Distortion** | less than 0.01% TDH+NOISE (-20dBFs @ 1Khz) |
| **Freq response** | 20Hz-15kHz |
| **Dynamic range** | 108 dB |
| **Sources** | Streamer1_Source , Streamer2_Source |
| | |
| ***AUDIO INPUT*** | |
| **Encoder Streaming Input source** | User selectable between Tuner-1, Tuner-2, External Input Analog, External Input AES/EBU |
| | |
| ***DIGITAL INPUT MODULE*** | |
| **Connectors:** | XLR, female – Electronically balanced |
| **Format** | AES3/EBU |
| **Sample rates** | 32 kHz / 44.1 kHz / 48 kHz / 96 kHz with src and jitter correction |
| **Operative Nominal level:** | From 0.0 dBFs to -24dBFs (0.1 dBu step) |
| **Dynamic Range:** | 125 dB (Typ) |
| **Distortion** | less than 0.01% TDH+Noise (-20dBFs@ 1Khz) |
| **Input Modes:** | Stereo, Mono (Left), Mono (Right), Mono (Left+Right) |
| | |
| ***ANALOG INPUT MODULE*** | |
| **A/D Conversion** | 24bit Sigma-Delta Conversion – 32kHz sample rate |
| **Connectors:** | XLR, female - Electronically balanced |
| **AD Clipping Point** | +20.0dBu |
| **Operative Nominal Level:** | From –12.0dBu to +12.0dBu (0.1dBu Step) |
| **Line Impedance** | 10 kΩ (Electronically balanced selectable) EMI–suppressed |
| **Distortion:** | less than 0.02% TDH+NOISE (0.0dBu @ 1Khz) |
| **AD Dynamic Range:** | 108 dB RMS (110 dB A-weighted, 20Hz - 15kHz) |
| **Input Modes:** | Stereo, Mono (Left), Mono (Right), Mono (Left+Right) |
| | |
| ***AUDIO & RDS STREAMING MODULES*** | |
| **Protocols** | UDP/RTP, TCP/IP, IceCast2 |
| **Encoders** | OGG-VORBIS |
| **Interface** | Ethernet Port 10/100 Mb/s |
| **Bitrate** | User select 24 kbps to 192 kbps |
| **Sample Rates** | 32Ksamples/sec |
| **RDS Streaming** | Proprietary redundant protocol over UDP or RAW-TCP/IP |
| **Administration** | User right management |

## ORDERING INFORMATION

| CODE# | MODEL | COMMERCIAL DESCRIPTION |
|---|---|---|
| **A110160020** | **WOLF 1MS** | Monitoring system for FM networks. Internal FM tuner with configurable band scan. Real time measures on RF, MPX, Audio and RDS decoder with group sequence. HTTP, SNMP, FTP and XML protocol. Web server and audio streaming for monitor. 2x LAN/USB and GPIO. Headphone output and universal power supply. |
| **A110160001** | **WOLF 2MS** | Dual FM monitoring system for FM networks. Double internal tuner with configurable band scan. Real time measures on RF, MPX, Audio and RDS decoder with group sequence. HTTP, |

| | | |
|---|---|---|
| | | SNMP, FTP and XML protocol. Web server,double audio streaming for monitor. 2xLAN/USB and GPIO. Headphone output. Universal PSU |
| **A110160020** | **WOLF 1MS** | Système de surveillance pour les réseaux FM. Tuner interne pour band-scan configurable. Mesure en temps réel de RF, MPX, audio et RDS (séquence de décodage). HTTP, SNMP, FTP et XML. Serveur Web, double moniteur streaming audio. 2xLAN, USB et GPIO.Prise casque enface. Alimentation universelle |
| **A110160001** | **WOLF 2MS** | Double système de surveillance pour les réseaux FM. Double tuner interne pour band-scan configurable. Mesure en temps réel de RF,MPX, Audio et RDS (séquence de décodage). HTTP,SNMP,FTP-XML. Serveur Web, double moniteur streaming audio.2xLAN,USB et GPIO. Prise casque enface. Alimentation universelle |

# 3 SAFETY WARNINGS / ISTRUZIONI PER LA SICUREZZA

## SAFETY WARNINGS

## CONSIGNES DE SÉCURITÉ IMPORTANTES

## ISTRUZIONI IMPORTANTI PER LA SICUREZZA

## WICHTIGE SICHERHEITSHINWEISE

## INSTRUCCIONES IMPORTANTES DE SEGURIDAD

(Rel. 1.6)

### *3.1 FOREWORD*

**For your own safety and to avoid invalidation of the warranty all text marked with these Warning Symbols should be read carefully.**

Information in this manual is subject to change without notice and does not represent a commitment on the part of the vendor.

The manufacturer shall not be liable for any loss or damage whatsoever arising from the use of information or any error contained in this manual, or through any mis-operation or fault in hardware contained in the product.

It is recommended that all maintenance and service on the product should be carried out by the manufacturer or its authorised agents. The manufacturer cannot accept any liability whatsoever for any loss or damage caused by service, maintenance or repair by unauthorised personnel.

# 4 SAFETY WARNINGS

***The installation and servicing instructions in this manual are for use by qualified personnel only.***

- **Read All Instructions.** All safety and operating instructions must be read before operating the product. They also must be retained for future reference, as it contains a number of useful hints for determining the best combination of equipment settings for Yr particular application.
- **Heed All Warnings**. All warnings on the product and those listed in the operating instructions must be adhered to.
- **Heat**. This product must be situated away from any heat sources such as radiators or other products (including power amplifiers or transmitters) that produce heat.
- **Power Sources.** This product must be operated from the type of power source indicated on the marking label and in the installation instructions. If you are not sure of the type of power supplied to your facility, consult your local power company. Make sure the AC main voltage corresponds to that indicated in the technical specifications. If a different voltage (ex. 110/115 VAC) is available, open the equipment closure and set the voltage switch on the main supply circuit, located behind the AC socket
- **Power Cord Protection.** Power supply cords must be routed so that they are not likely to be walked on nor pinched by items placed upon or against them. Pay particular attention to the cords at AC wall plugs and convenience receptacles, and at the point where the cord plugs into the product
- **Use only with a cart,** stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- **Lightning**. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the AC wall outlet and the audio connections. This will prevent damage to the product due to lightning and power line surges
- **Installation**. Configuration and installation should only be carried out by a competent installation engineer
- **Cabling**. Using high quality wires, well protected. Make sure the cable integrity.

**This symbol alerts you to the presence of dangerous voltage inside the closure – voltage which may be sufficient to constitute a risk of shock. Do not perform any servicing other than that contained in the operating instructions. Refer all servicing to qualified personnel**

**The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance**.

**Do not change the voltage setting or replace the mains fuse without first turning the unit off and unplugging the mains cord**

**Make sure the AC main voltage corresponds to that indicated in the technical specifications. THIS APPARATUS MUST BE EARTHED !**

**To avoid risk of fire use the correct value fuse, as indicated on the label stuck on the right side of the unit.**

**This apparatus uses a single pole mains switch and does therefore not separate the unit completely from the mains power. To completely separate from mains power (f.i. in the event of danger) unplug mains power cord. As the MAINS plug is the disconnect device, the disconnect device shall remain readily operable.**

# 5 CONSIGNES DE SÉCURITÉ IMPORTANTES

- **Lire ces consignes**
- **Conserver ces consignes**
- **Observer tous les avertissements**
- **Suivre toutes les consignes**
- **Ne pas utiliser cet appareil à proximité de l'eau**
- **Ne pas obstruer les ouvertures de ventilatio**n. Installer en respectant les consignes du fabricant
- **Ne pas installer à proximité d'une source de chaleur** telle qu'un radiateur, une bouche de chaleur, un poêle ou d'autres appareils (dont les amplificateurs) produisant de la chaleur.
- **Ne pas annuler la sécurité de la fiche de terre**, la troisième branche est destinée à la sécurité. Si la fiche fournie ne s'adapte pas à la prise électrique, demander à un électricien de remplacer la prise hors normes.
- **Protéger le cordon d'alimentation** afin que personne ne marche dessus et que rien ne le pince, en particulier aux fiches, aux prises de courant et au point de sortie de l'appareil
- **Utiliser uniquement les accessoires spécifiés par le fabricant**
- **Utiliser uniquement avec un chariot**, un support ou une table spécifié par le fabricant ou vendu avec l'appareil. Si un chariot est utilisé, déplacer l'ensemble chariot–appareil avec précaution afin de ne pas le renverser, ce qui pourrait entraîner des blessures
- **Débrancher l'appareil** pendant les orages ou quand il ne sera pas utilisé pendant longtemps.
- **Confier toute réparation à du personnel qualifié.** Des réparations sont nécessaires si l'appareil est endommagé d'une façon quelconque, par exemple: cordon ou prise d'alimentation endommagé, liquide renversé ou objet tombé à l'intérieur de l'appareil, exposition de l'appareil à la pluie ou à l'humidité, appareil qui ne marche pas normalement ou que l'on a fait tomber.
- **NE PAS exposer cet appareil aux égouttures et aux éclaboussements**. Ne pas poser des objets contenant de l'eau, comme des vases, sur l'appareil

**Ce symbole indique la présence d'une tension dangereuse dans l'appareil constituant un risque de choc électrique.**

**Ce symbole indique que la documentation fournie avec l'appareil contient des instructions d'utilisation et d'entretien importantes.**

**Avant de modifier le commutateur de changement de tension ou replacer le fusible il faut débrancher l'appareil de la prise électrique. Pendant son usage, l'appareil doit etre branchee à la prise de terre**

**Utiliser le fusible principal AC avec le valeur qui est indiquée sur l'étiquette collée sur le coffret.**

**Assurez-vous que la tension principale AC correspond à celle indiquée dans les spécifications techniques.**

**L'interrupteur d'alimentation interrompt un pôle du réseau d'alimentation excepté le conducteur de terre de protection. En cas de danger, debrancher le cordon d'alimentation. Parce que la prise du réseau de alimentation est utilisée comme dispositif de déconnexion, ce dispositif doit demeuré aisément accessible**

# 6 ISTRUZIONI IMPORTANTI PER LA SICUREZZA

- **Leggere le presenti istruzioni**
- **Conservare queste istruzioni**
- **Osservare tutte le avvertenze**
- **Seguire scrupolosamente tutte le istruzioni**
- **Non usare questo apparecchio in prossimità di acqua**
- **Non ostruire alcuna apertura per il raffreddamento**. Installare l'apparecchio seguendo le istruzioni
- **Non installare l'apparecchio accanto a fonti di calore** quali radiatori, aperture per l'afflusso di aria calda, forni o altri apparecchi (amplificatori inclusi) che generino calore
- **Non rimuovere il terminale di connessione a terra sul cordone di alimentazione**: esso ha lo scopo di tutelare l'incolumità dell'utilizzatore. Se la spina in dotazione non si adatta alla presa di corrente, rivolgersi ad un elettricista per far eseguire le modifiche necessarie.
- **Evitare di calpestare il cavo di alimentazione o di comprimerlo**, specialmente in corrispondenza della spina e del punto di inserzione sull'apparato.
- **Utilizzare solo dispositivi di collegamento e gli accessori specificati dal produttore.**
- **Utilizzare l'apparecchio** solo con un carrello, un sostegno, una staffa o un tavolo di tipo specificato dal produttore o venduto insieme all'apparecchio. Se si utilizza un carrello, fare attenzione negli spostamenti per evitare infortuni causati da ribaltamenti del carrello stesso.
- **Scollegare l'apparecchio dalla presa di corrente** durante i temporali o quando inutilizzato a lungo
- **Per qualsiasi intervento**, rivolgersi a personale di assistenza qualificato. È' necessario intervenire sull'apparecchio ogniqualvolta si verificano danneggiamenti di qualsiasi natura. Ad esempio, la spina o il cavo di alimentazione sono danneggiati, è entrato liquido nell'apparecchio o sono caduti oggetti su di esso, l'apparecchio è stato esposto alla pioggia o all'umidità, non funziona normalmente o è caduto.
- **Non esporre a sgocciolamenti o spruzzi**. Non appoggiare sull'apparecchio oggetti pieni di liquidi, ad esempio vasi da fiori.

***Questo simbolo indica la presenza di alta tensione all'interno dell'apparecchio, che comporta rischi di scossa elettrica.***

***Questo simbolo indica la presenza di istruzioni importanti per l'uso e la manutenzione nella documentazione in dotazione all'apparecchio.***

**Non sostituire il fusibile o cambiare la tensione di alimentazione senza aver prima scollegato il cordone di alimentazione. L'APPARATO DEVE ESSERE CONNESSO A TERRA.**

**Sostituire il fusibile generale con uno di identico valore, come indicato sulla etichetta applicata sul mobile dell'apparato**

**Assicurarsi che la tensione di rete corrisponda a quella per la quale è configurato l'apparecchio**

**Questo apparato utilizza un interruttore di alimentazione di tipo unipolare e l'isolamento dalla rete elettrica non è pertanto completo. Per ottenere un isolamento totale (ad esempio in caso di pericolo), scollegare il cordone di alimentazione. Inoltre, poichè la spina di alimentazione è utilizzata come dispositivo di sezionamento, essa deve restare facilmente raggiungibile**

# 7 WICHTIGE SICHERHEITSHINWEISE

- **Diese Hinweise LESEN**
- **Diese Hinweise AUFHEBEN**
- **Alle Warnhinweise BEACHTEN**
- **Alle Anweisungen BEFOLGEN**
- **Dieses Gerät NICHT in der Nähe von Wasser verwenden**
- **KEINE Lüftungsöffnungen verdecken**. Gemäß den Anweisungen des Herstellers einbauen
- **Nicht in der Nähe von Wärmequellen**, wie Heizkörpern, Raumheizungen, Herden oder anderen Geräten (einschließlich Verstärkern) installieren, die Wärme erzeugen
- **Die Schutzfunktion des Schukosteckers NICHT umgehen**. Bei Steckern für die USA gibt es polarisierte Stecker, bei denen ein Leiter breiter als der andere ist; US-Stecker mit Erdung verfügen über einen dritten Schutzleiter. Bei diesen Steckerausführungen dient der breitere Leiter bzw. der Schutzleiter Ihrer Sicherheit. Wenn der mitgelieferte Stecker nicht in die Steckdose passt, einen Elektriker mit dem Austauschen der veralteten Steckdose beauftragen
- **VERHINDERN, dass das Netzkabel gequetscht oder darauf getreten wird**, insbesondere im Bereich der Stecker, Netzsteckdosen und an der Austrittsstelle vom Gerät
- N**UR das vom Hersteller angegebene Zubehör** und entsprechende Zusatzgeräte verwenden.
- **NUR in Verbindung** mit einem vom Hersteller angegebenen oder mit dem Gerät verkauften Transportwagen, Stand, Stativ, Träger oder Tisch verwenden. Wenn ein Transportwagen verwendet wird, beim Verschieben der Transportwagen-Geräte- Einheit vorsichtig vorgehen, um Verletzungen durch Umkippen
- **Das Netzkabel dieses Geräts** während Gewittern oder bei längeren Stillstandszeiten aus der Steckdose ABZIEHEN.
- **Alle Reparatur- und Wartungsarbeiten** von qualifiziertem Kundendienstpersonal DURCHFÜHREN LASSEN. Kundendienst ist erforderlich, wenn das Gerät auf irgendwelche Weise beschädigt wurde, z.B. wenn das Netzkabel oder der Netzstecker beschädigt wurden, wenn Flüssigkeiten in das Gerät verschüttet wurden oder Fremdkörper hineinfielen, wenn das Gerät Regen oder Feuchtigkeit ausgesetzt war, nicht normal funktioniert oder fallen gelassen wurde.
- **Dieses Gerät vor Tropf- und Spritzwasser SCHÜTZEN**. KEINE mit Wasser gefüllten Gegenstände wie zum Beispiel Vasen auf das Gerät STELLEN.

***Dieses Symbol zeigt an, dass gefährliche Spannungswerte, die ein Stromschlagrisiko darstellen, innerhalb dieses Geräts auftreten.***

***Dieses Symbol zeigt an, dass das diesem Gerät beiliegende Handbuch wichtige Betriebs- und Wartungsanweisungen enthält.***

**Vor Änderung der Netzspannung oder Sicherungswechsel Netzkabel trennen.**
**Das Gerät muss für den Betrieb geerdet werden.**

**Hauptsicherung nur mit einer gleichwertigen austauschen**
**(s. entsprechende Etikette).**

**Vor Einschalten Netzspannungseinstellung am Gerät überprüfen bzw. anpassen.**

**Inpoliger Netzschalter. In Notfälle oder für Wartungsarbeiten Netzkabel trennen. Der Netzstecker fungiert auch als Trennelement muss deshalb zugänglich bleiben**

# 8 INSTRUCCIONES IMPORTANTES DE SEGURIDAD

- **LEA estas instrucciones**
- **CONSERVE estas instrucciones**
- **PRESTE ATENCION a todas las advertencias.**
- **SIGA todas las instrucciones**
- **NO utilice este aparato cerca del agua**
- **NO obstruya ninguna de las aberturas de ventilación.** Instálese según lo indicado en las instrucciones del fabricante
- **No instale el aparato cerca de fuentes de calor** tales como radiadores, registros de calefacción, estufas u otros aparatos (incluyendo amplificadores) que produzcan calor
- **NO anule la función de seguridad del enchufe polarizado** o con clavija de puesta a tierra. Un enchufe polarizado tiene dos patas, una más ancha que la otra. Un enchufe con puesta a tierra tiene dos patas y una tercera clavija con puesta a tierra. La pata más ancha o la tercera clavija se proporciona para su seguridad. Si el toma corriente no es del tipo apropiado para el enchufe, consulte a un electricista para que sustituya el toma corriente de estilo anticuado
- **PROTEJA el cable eléctrico** para evitar que personas lo pisen o estrujen, particularmente en sus enchufes, en los toma corrientes y en el punto en el cual sale del aparato
- **UTILICE únicamente los accesorios especificados por el fabricante**
- **UTILICESE únicamente** con un carro, pedestal, escuadra o mesa del tipo especificado por el fabricante o vendido con el aparato. Si se usa un carro, el mismo debe moverse con sumo cuidado para evitar que se vuelque con el aparato
- **DESENCHUFE el aparato** durante las tormentas eléctricas, o si no va a ser utilizado por un lapso prolongado.
- **TODA reparación** debe ser llevada a cabo por técnicos calificados. El aparato requiere reparación si ha sufrido cualquier tipo de daño, incluyendo los daños al cordón o enchufe eléctrico, si se derrama líquido sobre el aparato o si caen objetos en su interior, si ha sido expuesto a la lluvia o la humedad, si no funciona de modo normal, o si se ha caído.
- **NO exponga** este aparato a chorros o salpicaduras de líquidos. NO coloque objetos llenos con líquido, tales como floreros, sobre el aparato .

***Este símbolo indica que la unidad contiene niveles de voltaje peligrosos que representan un riesgo de choques eléctricos.***

***Este símbolo indica que la literatura que acompaña a esta unidad contiene instrucciones importantes de funcionamiento y mantenimiento.***

**Antes de cambiar la alimentacion de voltaje o de cambiar el fusible, desconecte el cable de alimentacion. Para reducir el riesgo de descargas electricas, esta unidad debe ser conectada a tierra.**

**Remplaze el fusible con lo mismo, que corresponde a lo indicado en el panel del equipo.**

**Antes de encender, controlar que la linea de alimentacion de voltaje corresponda a la indicada**

**El interruptor de alimentación es unipolar. En el caso de peligro, desconecte el cable de alimentación. Porque la clavija de conexion a red sirve por la desconection de la unidad, la clavija debe ser ubicada en proximidad de la unidad**

# 9 UNPACKING AND INSPECTION

Your equipment was packed carefully at the factory in a container designed to protect the unit during shipment. Nevertheless, we recommend making a careful inspection of the shipping carton and the contents for any signs of physical damage.

**Damage & Claims**

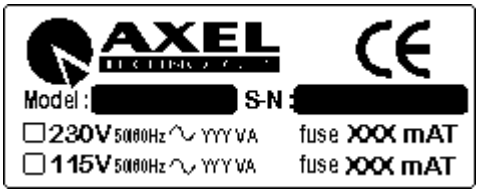
If damage is evident, do not discard the container or packing material. Contact your carrier immediately to file a claim for damages. Customarily, the carrier requires you, the consignee, to make all damage claims. It will be helpful to retain the shipping documents and the waybill number.

**Save all packing materials! If You should ever have to ship the unti (e.g. for servicing), it is best to ship it in the original carton with its packing materials because both the carton and packing material have been carefully designed to protect the unit.**

Under normal conditions no user maintenance or calibration are required. Internal links and preset controls may be set to configure the unit during installation. **Any service work required should be carried out by qualified service personnel only.**
We are able to offer further product support through our worldwide network of approved dealers and service agents.

**To help us provide the most efficient service please would you keep a record of the unit serial number, and date and place of purchase to be quoted in any communication regarding this product.**

The actual equipment Serial Number is indicated on the silver label stuck on the rear panel of the equipment closure.




**Tools And Equipment Needed**

Only standard technician's tools are required to install this equipment.

# 10 FIRST INSTALLATION RECOMMENDATIONS

## 10.1 POWER SUPPLY CABLE

A power supply cable of approx. 2 mt length is supplied with the device, which has a moulded IEC plug attached – this is a legal requirement.
The type of plug for the power supply depends on the country in which it is delivered.

If for any reason, you need to use this appliance with a different plug, you should use the following wiring guidelines in replacing the exsisting plug with the new one:

| | |
|---|---|
| **Earth** | Green, or green and yellow |
| **Neutral (N)** | Blue |
| **Live (L)** | Brown |

Supply cables should be laid in such a manner that one does not step or walk on them. They should not be squashed by any objects.

**THIS EQUIPMENT MUST BE EARTHED.**

The chassis is always connected to mains earth to ensure your safety: check your mains wiring and earthing before switching on.

## 10.1 PROTECTION AGAINST LIGHTNING - NUMERAZIONE

Should the device be put out of action due to being struck by lightning or excess voltage, disconnect it from the power supply without delay. Do not reconnect until the device has been checked. If in doubt contact the technical support service.

Make sure there is suitable lightning protection to protect the device.
Alternatively you should disconnect all connectors from the device during a storm or when the device is going to be unsupervised or not used for a longer period of time.
These measures will protect against damage by lightning or excess voltage.

## 10.2 VENTILATION

The equipment will operate as a free-standing unit without requiring any special cooling arrangement.
However, slots and openings in the product are provided for ventilation. They ensure reliable operation of the product, keeping it from overheating. These openings must not be blocked nor covered during operation.
**YOU MUST LEAVE AT A MINIMUM ONE RACK UNIT OF EMPTY SPACE ABOVE THE EQUIPMENT TO ENHANCE VENTILATION AND TO GET A LONGER EQUIPMENT LIFE.**

# 11 WOLF 2MS INSTALLATION NOTE AND FIRST STEP

**Best setup location**
The Wolf 2MS should be installed in a 19" rack. Avoid direct sunlight, close proximity to radiators and air conditioning, dust, water, and chemicals. Choose a rack location that permits a clear view to the indicators on the device and ensure a sufficient heat dissipation of the device.

**Power supply**
The device is designed for operation with 100 to 240 V AC, 50 Hz to 60 Hz. Check the corresponding device labelling for compatibility to the domestic line voltage and frequency before connecting the IEC power connector to the mains supply!

**WARNING**
Disconnect mains power plug before you open the housing. Repair of the equipment must only be carried out by authorized and qualified personnel.

| | | |
|---|---|---|
| *1* | *Power Supply* | Please make sure that the device and the contained fuse(s) (please see p. 20) are compatible to the domestic line voltage and frequency. If the device is compatible, connect the power supply cord fully to the IEC power connector at the rear side of the device and a mains power outlet. The "LCD Screed" will then turn on. |
| *2* | *Network configuration* | For delivery, the device is configured with default settings for the first connection via the IP interface.<br>Wolf 2MS have a display, so you can configure the IP settings right now: See step *"LAN-1 Page Functionality (How to set the TCP/IP ETH-1)"* |
| *3* | *Connect to network* | Connect a network patch cable to the "10/100-Base-T" connector on the rear side of the device and your existing IP network. |
| *4* | *Web interface* | The device can be fully operated with an internet browser via the integrated web interface. Use a computer that is connected to the same IP network that the Wolf 2MS device is connected to. Start an internet browser, Firefox/Mozilla >V2.0 Google Chrome both with Java Script activated and enter the configured IP address in the address bar of the browser. If the IP address has not been changed in step 2, please enter the default address in the address bar of the browser: 192.168.XXX.XXX. |
| *5* | *Connect FM antenna cable to each Tuner-1 and Tuner-2* | Now connect the antenna cable to Wolf 2MS. There are two separate BNC inputs, please provide a correct level of RF signal to the equipment. See in the technical specs the RF level range. |
| *6* | *Ready!* | These first steps are only intended for a quick first start and do not cover all device functions. Pease read carefully the entire manual to be able to use all functions of the device. |
| *7* | *Important note on the Username and password* | The equipment comes out from Axel Technology with a standard username: admin and password: admin<br>Each time a NEW user, with administration rights is created, the user *admin* disappear and it is replaced by the new one just created. If all users are deleted, the standard admin – admin comes out again |

## *11.1 IMPORTANT NOTE ON USER NAME AND PASSWORD*

The equipment comes out from Axel Technology with a standard username:

Username: **admin**
password: **admin**

(case sensitive)

Each time a NEW user, with administration rights is created, the user *admin* disappear and it is replaced by the new one just created. If all users are deleted, the standard admin – admin comes out again, in order to create and enter the Wolf 2MS

## *11.2 HOW TO SHUT DOWN WOLF 2MS*

Wolf 2MS is an Operative System-based equipment (as a PC) so a particular procedure to shut Wolf 2MS down is:

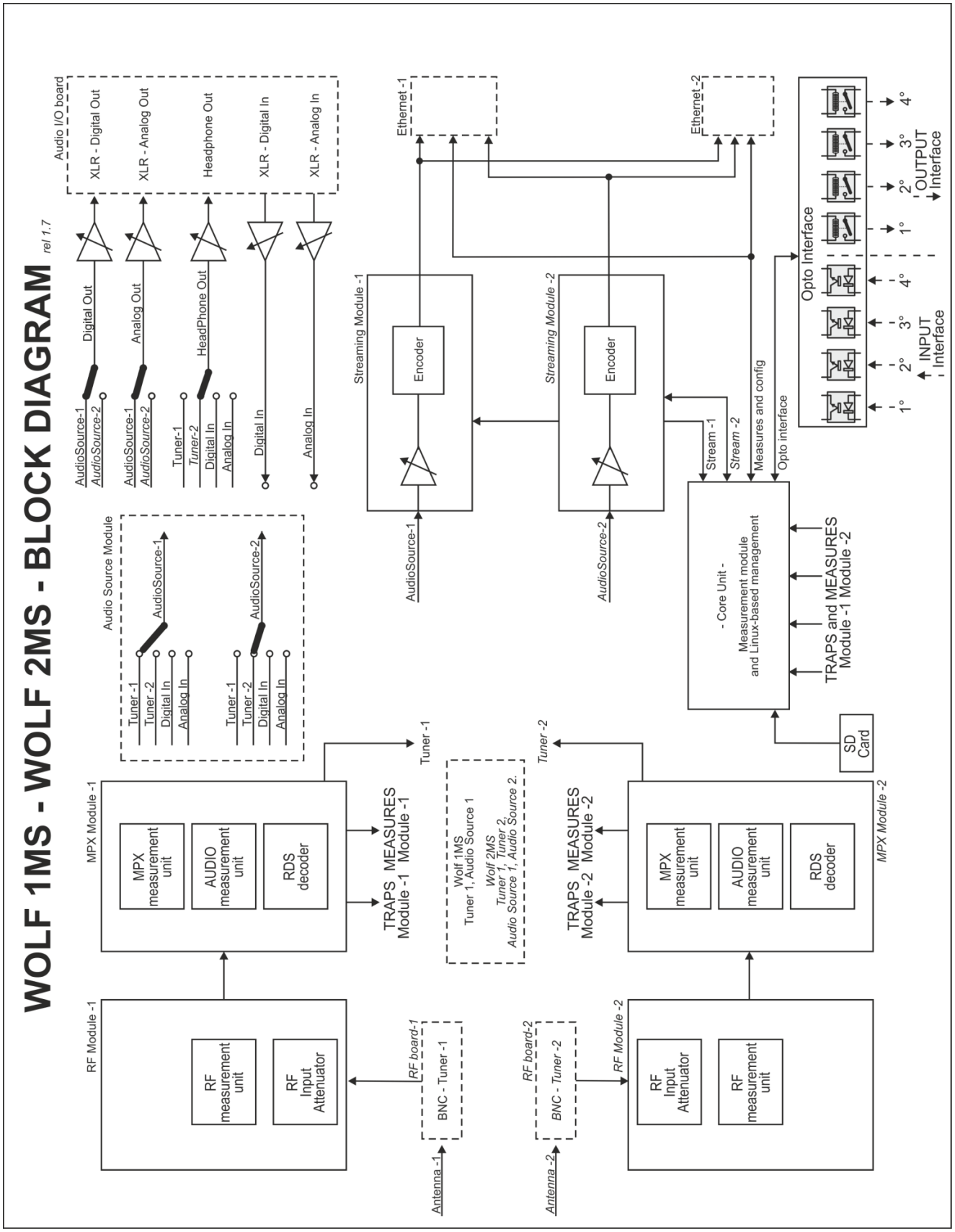
1.Holding for 3 seconds the encoder button. Press OK


2.Will be displayed a window to confirm the system shut down procedure.

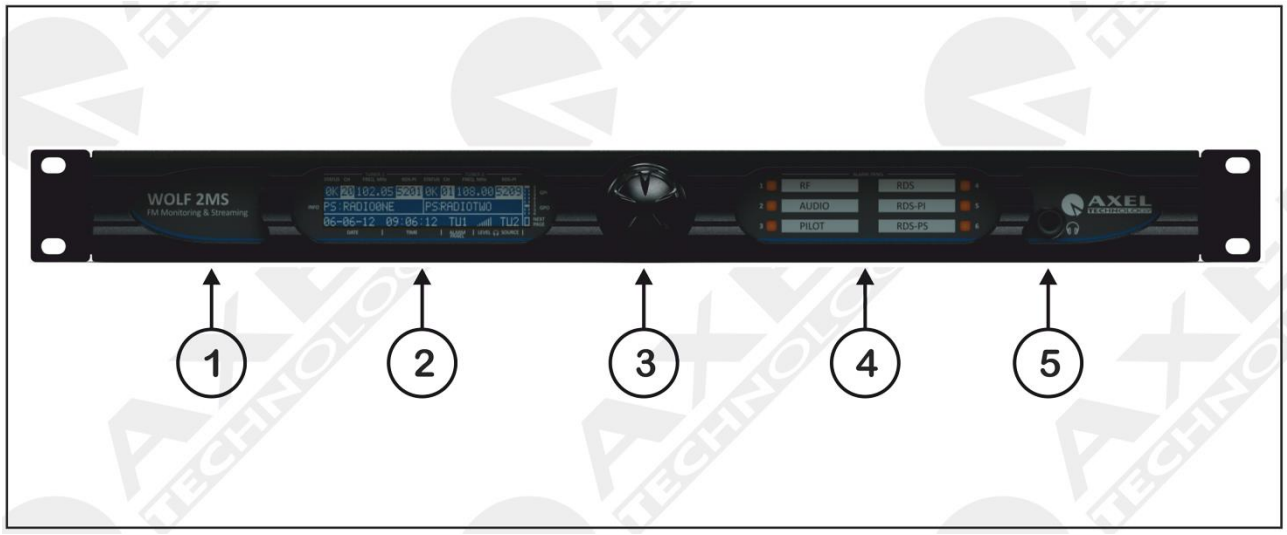

3.After this procedure a blank screen will be displayed. Now it is possible to shut down the device

# 12 WOLF 2MS GENERAL DESCRIPTION

## 12.1 WOLF 2MS BLOCK DIAGRAM

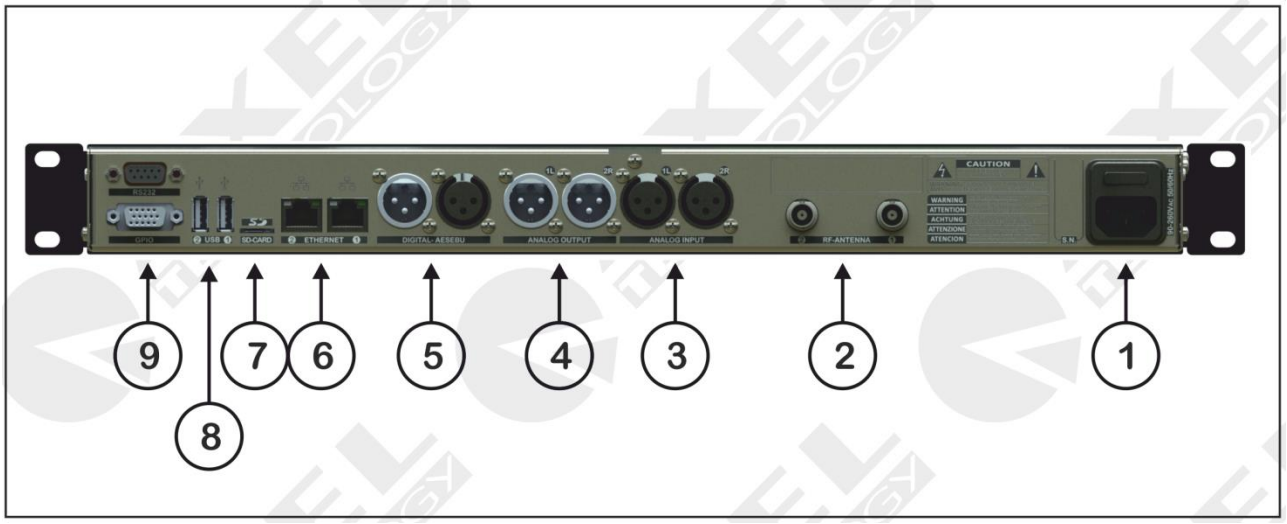


## 12.2 WOLF 2MS FRONT PANEL




| *N°* | CONTROL NAME | FUNCTION |
|---|---|---|
| 1 | **EQUIPMENT NAME** | Label designed for model name and optional features. |
| 2 | **LCD DISPLAY** | LCD display on two lines showing the status and operation of Wolf 2MS. All the technical parameters for each menu are displayed. |
| 3 | **JOG-SHUTTLE** | Jog Shuttle in order to be able to access the various navigation menus and to make changes. Pressing the Jog Shuttle will confirm the selection. Acessing the *Menu*, it is possible to fully configure the machine for the operation mode. |
| 4 | **LED ALARM PANEL** | This six-led panel shows some alarms during band scanning or frequency check. |
| 5 | **HEADPHONE OUT** | On this connector it's available the decoded audio out from Tuner -1 or from Tuner -2. Volume control selectable via front panel. |

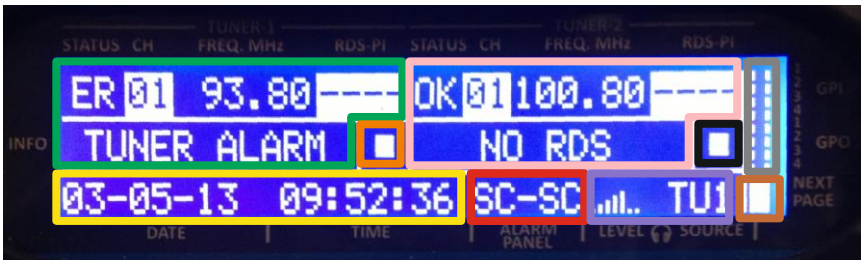
## 12.3 WOLF 2MS REAR PANEL




| N° | CONTROL NAME | FUNCTION |
|---|---|---|
| 1 | **POWER SUPPLY UNIT** | Power inlet with integrated switch on/off. The switch-power socket unit is protected via fuse placed directly over the switching power supply. The fuse is a retarded type 2000 mA for 230V mains voltage. Please refer to "Fuse Replacement" in order to replace the fuse. |
| 2 | **RF ANTENNA IN 1 - 2** | RF antenna input -1 for Tuner -1 and RF antenna input -2 for Tuner -2. The connection provided is over BNC unbalanced 50Ω |
| 3 | **ANALOG INPUT** | *External Input* source in analog Left + Right. The user can connect to this input, an audio source to be monitored and under control. This audio input is continuously monitored: silence detection (Threshold/time and level), left and right presence, peak left, peak right. |
| 4 | **ANALOG OUTPUT** | Wolf 2MS analog audio output, electronically balanced, on XLR balanced stereo connector. This audio output presents the capability to listen the Tuner -1 or the Tuner -2 output software selectable. |
| 5 | **DIGITAL AES/EBU** | *External Input* source in/out digital in AES/EBU format. The user can connect to this input, an audio source. This audio input is continuously monitored: silence detection (Threshold/time and level), left and right presence, peak left, peak right. The digital output presents the capability to listen the Tuner -1 or the Tuner -2 output software selectable. The audio output is over XLR electronically balanced connection. |
| 6 | **ETHERNET** | Double Ethernet port over Rj45 connectors. The port n°1 is used to connect the device to a LAN network and upload or download configurations and settings. The port n°2 is used an audio streaming port. |
| | | |
| | | |

| | | |
|---|---|---|
| **7** | **SD CARD HOST** | Rear panel SD Card host |
| **8** | **USB 1 – USB 2** | Wolf 2MS is also featured with a double USB port type A. The USB port is generally used to connect other devices. |
| **9** | **GPIO INTERFACE and SERIAL INTERFACE** | Wolf 2MS provide a GPIO interface composed by 4x photo coupler as GPIn, and 4x relays dry contact output. The connector is a 15 pole HD female on SubD connector.<br><br>Wolf 2MS provides 1 serial port for RDS-UECP bridging and re broadcasting data. Wolf 2MS use a SubD 9p male connector with serial Rs232 protocol.<br><br>For information on the pinout of the GPIO Interface port refer to the Appendix at the end of this manual. See the specific section for the operation of each GPI and GPO in the next few pages of this manual. |

## 12.4 WOLF 2MS DISPLAY AND LED PANEL

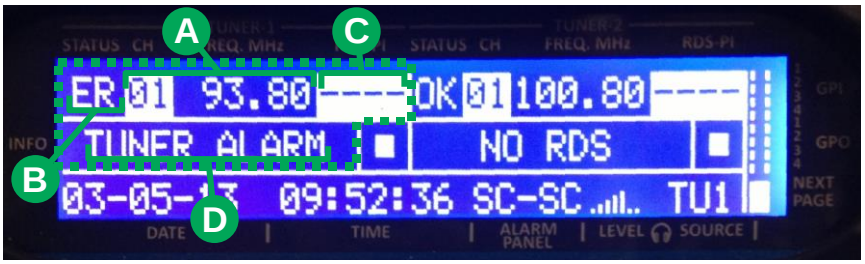



This section explain the front panel main display features. Divided by color are reported below:

- GREEN Zone : The display shows the Tuner 1's Status.
- ORANGE Zone : The display shows the Audio Streaming Module-1's Status.
- PINK Zone : The display shows the Tuner 2's Status.
- BLACK Zone : The display shows the Audio Streaming Module-2's Status.
- GREY Zone : The display shows the GPIO's Status.
- YELLOW Zone : The display shows the internal DATE and TIME.
- RED Zone : The display shows the Alarm Panel Settings (LED's Panel).
- VIOLET Zone : The display shows the headphone level and source.
- BROWN Zone : Next page button

### 12.4.1 Tuner Module-1 Zone Functionality

In order analyze each single frequency an antenna or a Transmitter RF test must be connected to the Tuner-1 BNC input connector. The single frequency or the multiple band scan frequencies must be set via web page.




**A)** Shows the number of the memory and the frequency connected
- In **STATIC** mode the memory and his frequency are fixed.
- In **SCAN** mode the memory does a loop, between all the frequencies stored via web page. Then the frequency set (in MHz) appear for the scanning time set.

**B)** This label shows the status of the memory:
- **OK**: there are no errors (RF, DEVIATION, RDS)
- **ER**: there are one more errors

How to check this functionality in case of **ER**:
By using the web page move the threshold of RF-H1 under the measured value.
- Verify that the status of B zone change from **OK** to **ER**.

**C)** This zone shows the **INFO** and change the functionality :

1) In case that no alarms are present:
- The D zone shows the PS-RDS

2) In case that alarms are present:
- The D zone shows the list of alarms

a. Test n°1
- Using an external RDS Encoder change the PI or using an antenna tune some radio station.
- Verify that the PS change and correspond to the PS set.
- In case that there isn't RDS signal the PS show NO RDS as the photo.

b. Test n°2

- Using web page move the RF-H1 threshold under the measured value.
- Verify that the status of D zone shows TUNER ERROR as the photo.
- Using the Jog Shuttle move the cursor on the display under the memory number
- Push the Jog Shuttle (To select the function)
- Now the display (Tuner-1 zone) show the memory and the frequency selected but in the background the scanning still working.
- Select the right memory moving the jog shuttle

The D zone shows the list of the all alarms that are present.

- After 30 seconds the display start again to shows the loop of all memories that are scanned.

**D)** This zone shows the **PS-RDS** if PS is present and valid, or NO RDS if it is not valid.

- Tuner in Static Mode: turning the encoder positioning the index of the channel and pressing it to select the channel, the list of possible errors is printed in zone D) as a carousel.
- Tuner Scanning Mode: After selecting the channel as above, turning the encoder you can 'browse through all channels, checking the status (which is printed in zone D). If there are errors, are printed in the same area of the display as a carousel.

3) In case that no alarms are present:

- The D zone shows the PS-RDS

4) In case that alarms are present:

- The D zone shows the list of alarms

c. Test n°1

- Using an external RDS Encoder change the PI or using an antenna tune some radio station.
- Verify that the PS change and correspond to the PS set.
- In case that there isn't RDS signal the PS show NO RDS as the photo.

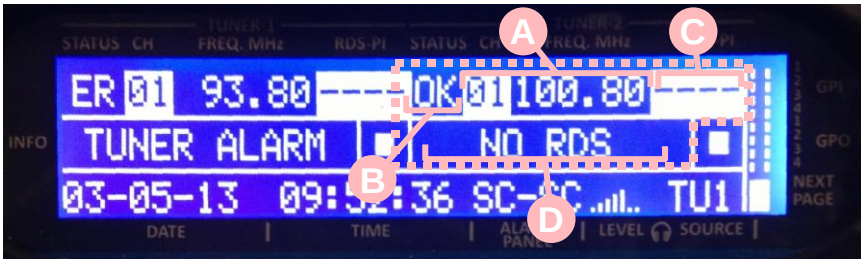
### *12.4.2* ***Audio Streaming Module-1 Zone Functionality***


**D)** This label show the status of Audio Streaming Module-1:

- **T1, T2, AN, DG:** Audio source in streaming

### *12.4.4* ***Tuner Module-2 Zone Functionality***

Repeats all tests using the Tuner-2 instead of Tuner-1 from the point A to D expressed below



### 12.4.5 *GPIO Zone Functionality*


**A)** Shows the status of the 4 GP-Inputs
- No Polarization: the small box in the right side of the display is empty
- With Polarization: the small box in the right side of the display is full

Verify that functionality using the GPIO port and an external source to polarized the opto-couplers, check the electric diagram.

**B)** Shows the status of the 4 GP-Outputs (Relay Contacts)
- Opened contact: the small box in the right side of the display is empty
- Closed contact: the small box in the right side of the display is full

Verify that functionality using the GPIO port and an external devices to enable using the 4 relay contacts, check the electric diagram.

### 12.4.6 *Time and Date Zone Functionality*


Shows the status internal clock. It is not possible to modify these parameters through the display interface.

### 12.4.7 *Alarms Panel Zone Functionality*

This Label shows the status of the Alarms panel
This Label shows the status of the Alarms panel

Right LCD Panel

Left LED Panel (Alarm Panel)

The Alarms Panel *(Left LED Panel)* shows:
- on the left side the alarms of Tuner module-1
- on the right side the alarms of Tuner module-2

In the Right LCD Panel it is possible to find the Alarm Panel label (red square in the picture above) The status of this label should be:

| | |
|---|---|
| **AC** | All Channels - Mode<br>In AC Mode the LEDs indicate the OR (sum) of the all same alarm type when the LEDs are on theirs status is blinking. |
| **SC** | Single Channel - Mode<br>In SC Mode the LEDs indicate only the alarm of the memory and frequency selected, when the LEDs are on theirs status is fixed. |

This label shows the status of the two areas of alarms panel :
- Label **AC-AC** (Tuner-1 and Tuner 2 are in All Channels - Mode)
- Label **SC-SC** (Tuner-1 and Tuner 2 are in Single Channel - Mode)
- Label **AC-SC** (Tuner-1 is in All Channels - Mode and Tuner 2 is in Single Channel - Mode)
- Label **SC-AC** (Tuner-1 is in Single Channel - Mode and Tuner 2 is in All Channels - Mode)

Check the display functionality and **RF ALARM** Status:
- Using web page set SCAN mode for the 1st and 2nd tuner.
- Verify the display status : **AC-AC**

- Using web server move the RF-H1 threshold of the first memory under the measured value for each tuner.
- Verify that the display shows TUNER ERROR, in memory 01 for each tuner.
- The first led **RF ALARM** is blinking for each tuner.
- Using the the Jog Shuttle move the cursor on the display under the tuner-1 memory number.
- Push the Jog Shuttle (To select the function)
- Rotate the Jog Shuttle till to set Memory 01
- Verify the display status : SC-AC
- The first led RF ALARM of Tuner-1 is fixed
- The first led RF ALARM of Tuner-2 is blinking
- Using the the Jog Shuttle move the cursor on the display under the tuner-2 memory number.
- Push the Jog Shuttle (To select the function)
- Rotate the Jog Shuttle till to set Memory 01
- Verify the display status : SC-SC
- The first led RF ALARM of Tuner-1 is fixed
- The first led RF ALARM of Tuner-2 is fixed

Check the functionality of **MPX ALARM Status**:

- Using web server adjust the RF-H1 threshold for each tuner.
- Move the threshold of deviation at 50kHz
- Check the alarm panel

Check the functionality of **RDS ALARM Status**:

- At the moment this functionality it is not available.

### *12.4.8* ***Headphone Panel Zone Functionality***


**A)** Shows the status of the headphones level

- Using the Jog Shuttle move the cursor on the display under the headphones level.
- Push the Jog Shuttle (To select the function)
- Rotate the Jog Shuttle till to find the right volume.
- Push the Jog Shuttle (To unselect the function)

**B)** Shows the headphones source and the sources selectable are:

| | |
|---|---|
| **TU1** | Audio coming from Tuner-1 |
| **TU2** | Audio coming from Tuner-2 |
| **ANL** | Audio coming from Analog input |
| **DGT** | Audio coming from Digital input |

- Push the Jog Shuttle (To select the function)
- Rotate the Jog Shuttle till to find the right source.
- Push the Jog Shuttle (To unselect the function)

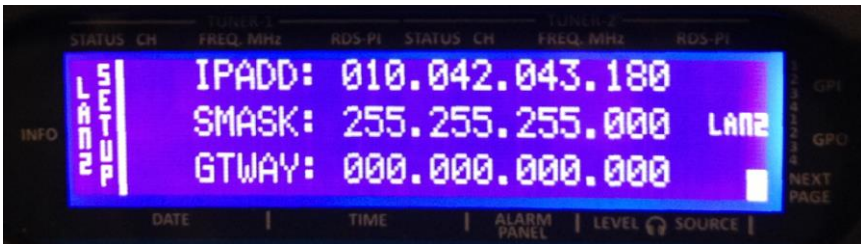
### *12.4.9* ***LAN-1 Page Functionality (How to set the TCP/IP ETH-1)***


Shows the status of the LAN-1 Setup

- Using the Jog Shuttle move the cursor on the display under the number that is necessary to change.
- Push the Jog Shuttle (To edit the number)
- Rotate the Jog Shuttle till to find the right number.
- Push the Jog Shuttle (To confirm the new number)
- Next page to confirm data changes

**To access LAN-1 and access LAN-2: by pressing NEXT PAGE it is possible to change the page/settings.**

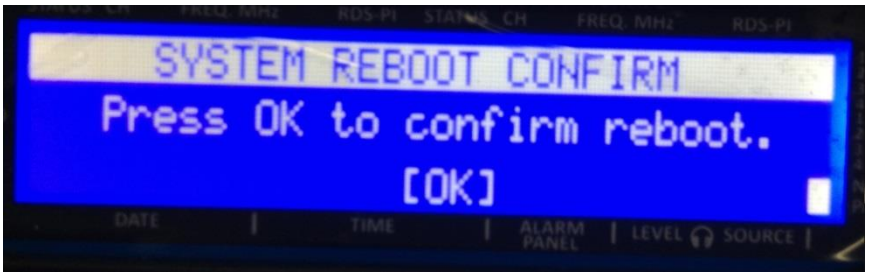
### 12.4.10 *LAN-2 Page Functionality (How to set the TCP/IP ETH-2)*




Shows the status of the LAN-2 Setup

- Using the Jog Shuttle move the cursor on the display under the number that is necessary to change.
- Push the Jog Shuttle (To edit the number)
- Rotate the Jog Shuttle till to find the right number.
- Push the Jog Shuttle (To confirm the new number)
- After pressing the Jog Shuttle a reboot is required.


- Press OK to reboot the WOLF 2MS.




- During reboot the screen appears this way


### 12.4.11 *IMPORTANT NOTE*

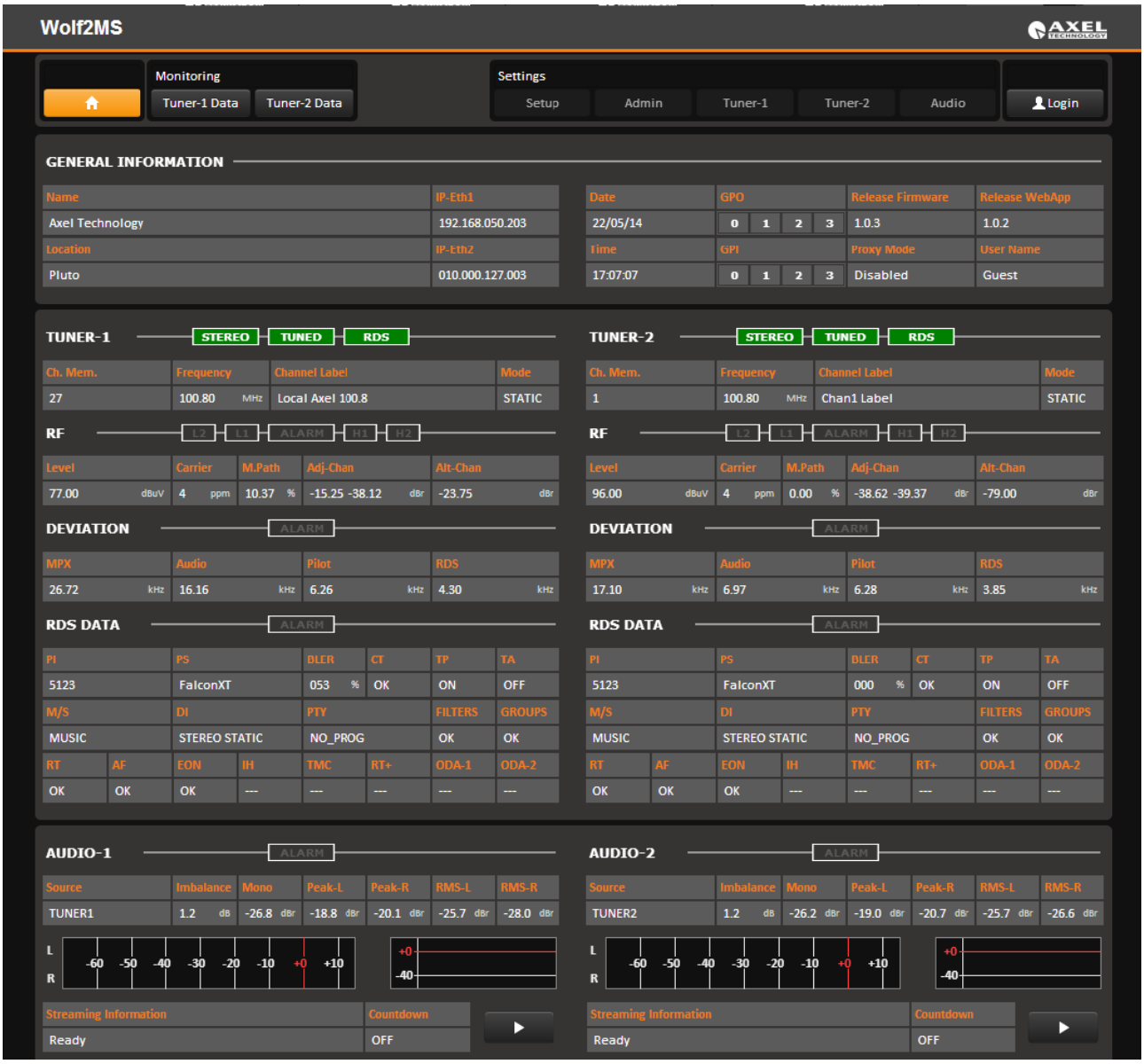
Wolf 2MS is an Operative System-based equipment (as a PC) so, in order to change correctly the IP is necessary to wait some minutes, the screen will come back to the main page and then shut down and restart Wolf 2MS.

Remember that before each shut down, it is necessary to wait some minutes before to store correctly all the information on Wolf 2MS.

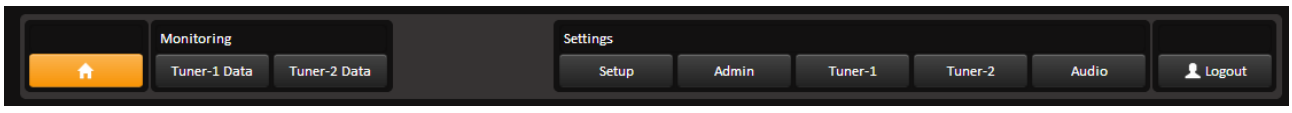
# 13 WOLF 2MS WEB PAGE

The Wolf 2MS can be managed via remote by using a simple web browser, ie Internet Explorer, Chrome, Mozilla etc etc. To reach a Wolf 2MS equipment, insert in the web browser navigation bar the Wolf 2MS IP. To get this information please see LAN-1 and LAN-2 Page Functionality. By inserting the Wolf 2MS IP in the navigation bar, this is the Wolf 2MS home page:

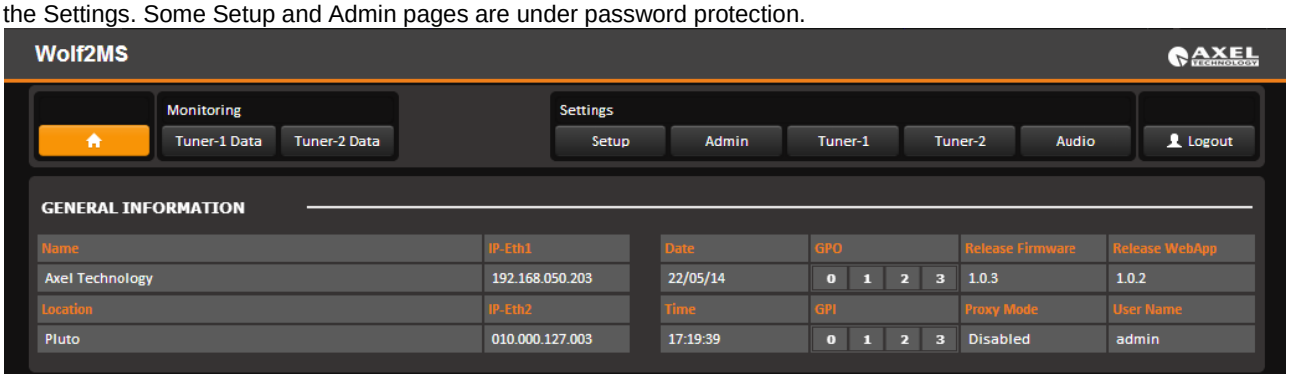
## *13.1.1 The **Home** web page*




The HOME page is mainly divided in two: in the Left side all the information retrieved from Tuner-1 and in the Right side all the information retrieved from Tuner-2.



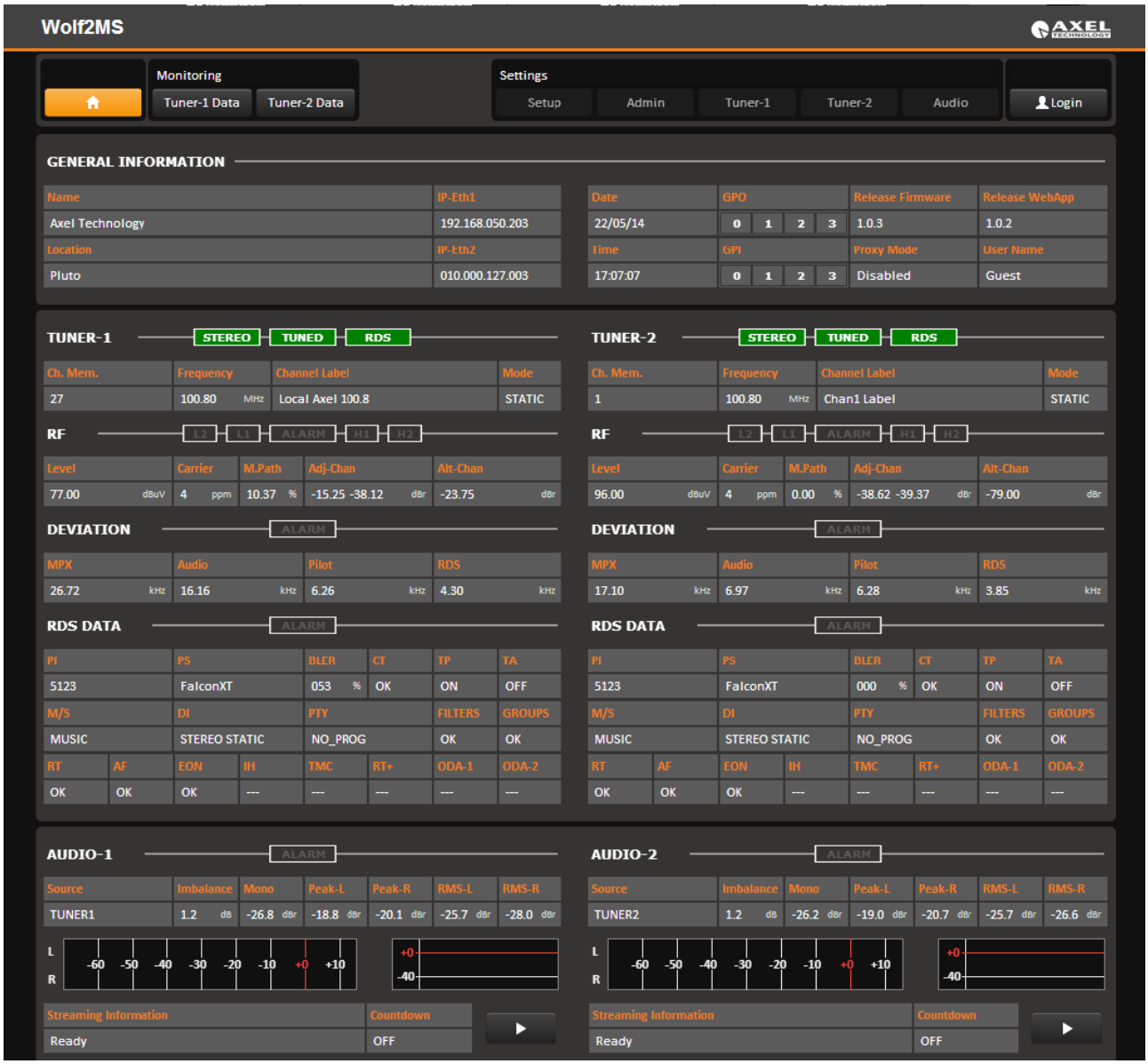
The central front bar allows to browse inside the Wolf 2MS. This bar is mainly divided in two sections, the Monitoring and the Settings. Some Setup and Admin pages are under password protection.




In the lower side some general information are reported, as Wolf 2MS name, the Location where it is installed, the IP Ethernet Address 1 and IP Ethernet Address 2. The internal clock time and date information are reported together with GPIn and GPOut, and the Release Firmware and web page.

### *13.1.2 NTP Time and Date Synch in Wolf 2MS*

If the Date and Time are with a red label below the box, this means that Wolf 2MS has not been able to synchronize via NTP the time and the clock. To set the NTP server in Wolf 2MS please refer to Settings 2 – MAIN PAGE 2.

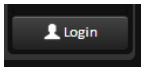


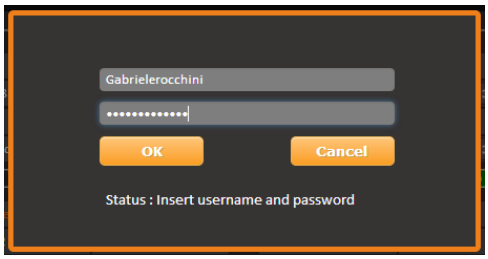
All the information proposed in this page are only to be visualized.

The lower parts is related to Audio-1 and Audio-2 Stream, and the button Countdown allows the user to stop the stream after a kick out time, to reduce the stream data flow. The audio delivered to the audio streaming module can be selected by different sources, that should be Tuner-1 or Tuner-2 or Analog Input or Digital Input. Please refer to “Audio-1 Setup” and “Audio-2 Setup” to configure the input source for the audio streaming encoder.

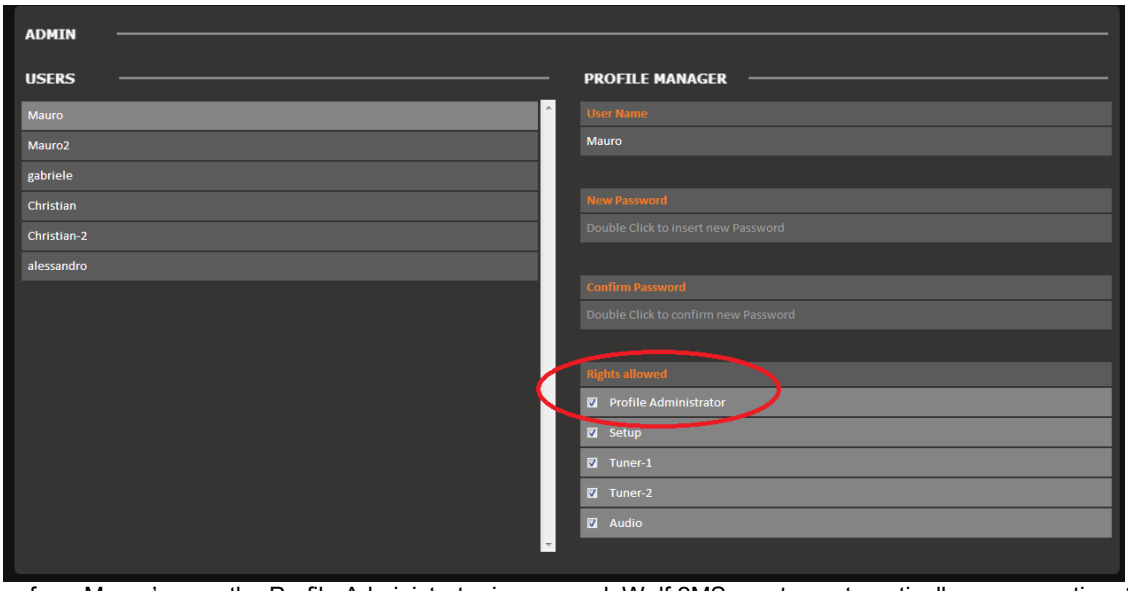
### *13.1.3 LOGIN into WOLF2MS*

Is it possible to LogIn into Wolf2MS and, as per right management, execute some changes. By pressing the Login button is it possible to set each own user name and password. Please refer to the ADMIN page in order to create or login with the standard credential

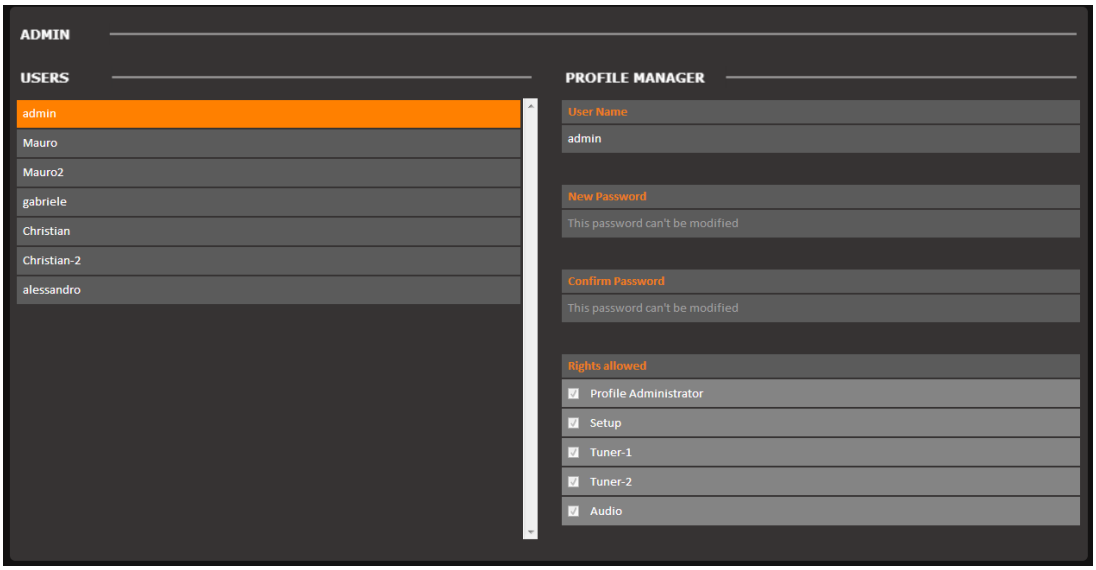



Starting from release 0.6.4 release a new function has been improved about users and login. Wolf 2MS comes out with a standard user called “admin” (and password “admin”). Once a new user is created with Profile Administrator rights allowed, the “admin” user disappear from the list of users. In the picture below it is possible to see that Mauro is the Profile Administrator.




But, once from Mauro’s user the Profile Administrator is removed, Wolf 2MS creates automatically one more time the “admin” user with all rights allowed. This admin user is highlighted in yellow, as per picture below:

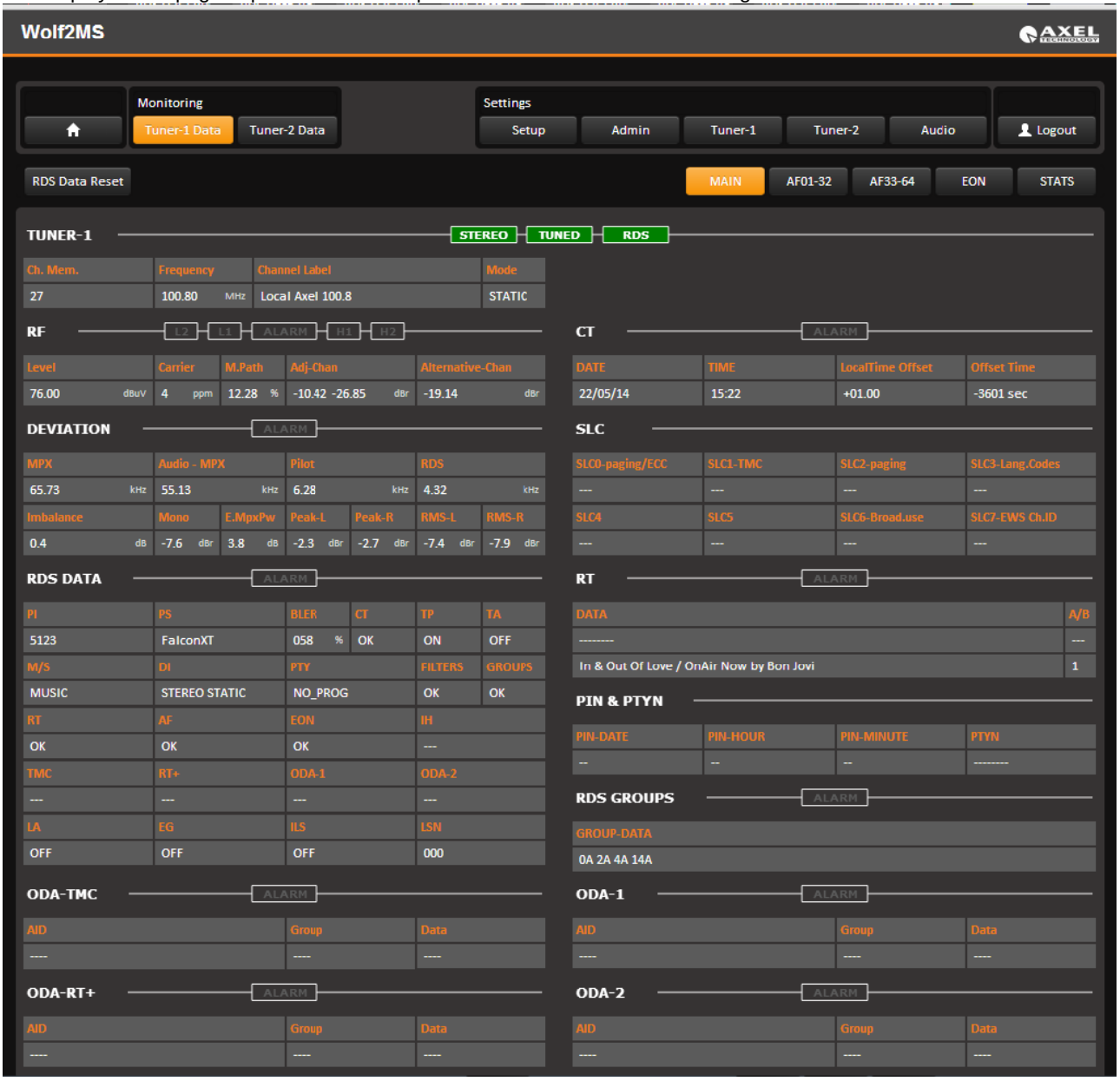


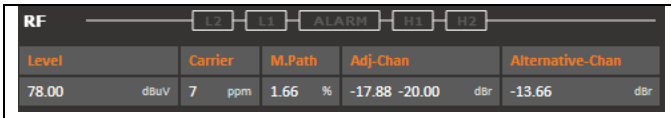
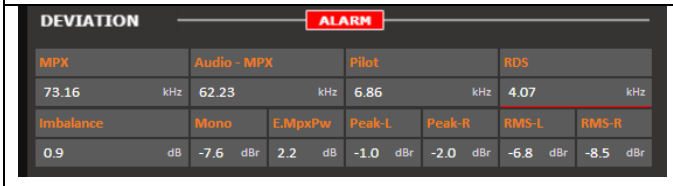

**NOTE**: It is not possible to change the password for admin user

### *13.1.4* ***Tuner-1 Data – Main Webpage***

This page presents all the information coming from the Tuner-1. Assuming that the Tuner-1 has been placed in "Static" page displays information related to the frequency set in the Setup approximately decoded by Tuner-1.

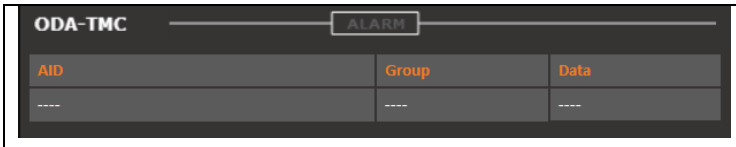
The display of this page depends on the setup of the machine available in Settings -> Tuner-1 -> Main.



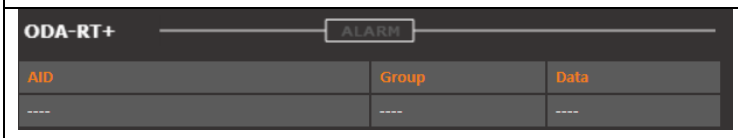

| | | |
|---|---|---|
|  | **Level:** the level of available RF Tuner<br>**Carrier:** this value is a Carrier Offset. It's the difference between the Internal tuner and the Frequency that is under measure.<br>**M.Path:** Value of Multi Path<br>**Adj-Chan**: see explanation below<br>**Alternative-Chan:** see explanation below | It is possible to set the level of the alarms in Settings-> Tuner-1 -> RF |
|  | **MPX**: level of the signal Multiplex<br>**Audio-MPX:** Audio signal level inside the product Multiplex<br>**Pilot**: Pilot Level stereo<br>**RDS**: RDS data carrier level<br>**Peak Left-Right:** Audio Peak Level<br>**RMS Left-Right:** Audio RMS Level | It is possible to set the level of the alarms in Settings-> Tuner-1 -> RF DEV / PILOT |


This box displays all the information regarding the decoding of the data carrier RDS. If a parameter set in the section came into error occurs, the ALARM box will become red.

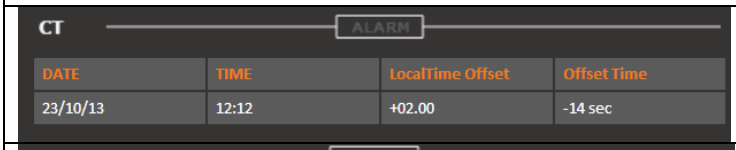

It is possible to set the level of the alarms in Settings-> Tuner-1 -> RDS



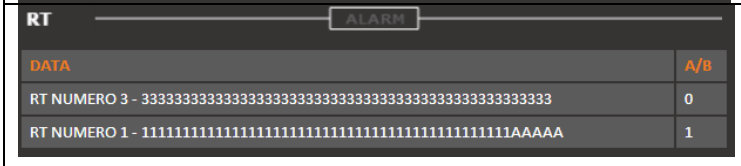

ODA TMC: If the service is indexed with the AID of the settings specified on this form is transmitted press OK. Otherwise, if there is no (or a bit lower timeout) recording on the 3A writes REG NO. If the data do not change (not arrive) set out in writing NO DATA. If the service is completely lacking writes NO SERV. This applies to TMC, ODA + RT 1 and 2.




ODA RT+: Check the presence or absence of the service. If the service is indexed with the AID of the settings specified on this form is transmitted press OK. Otherwise, if there is no (or a bit lower timeout) recording on the 3A writes REG NO. If the data do not change (not arrive) set out in writing NO DATA. If the service is completely lacking writes NO SERV. This applies to TMC, ODA + RT 1 and 2.




CT: Check the presence or absence of the service inside the group 4A. if the parameter match with one inserted in the check page no alarm will be generated, if not an alarm will be reported.



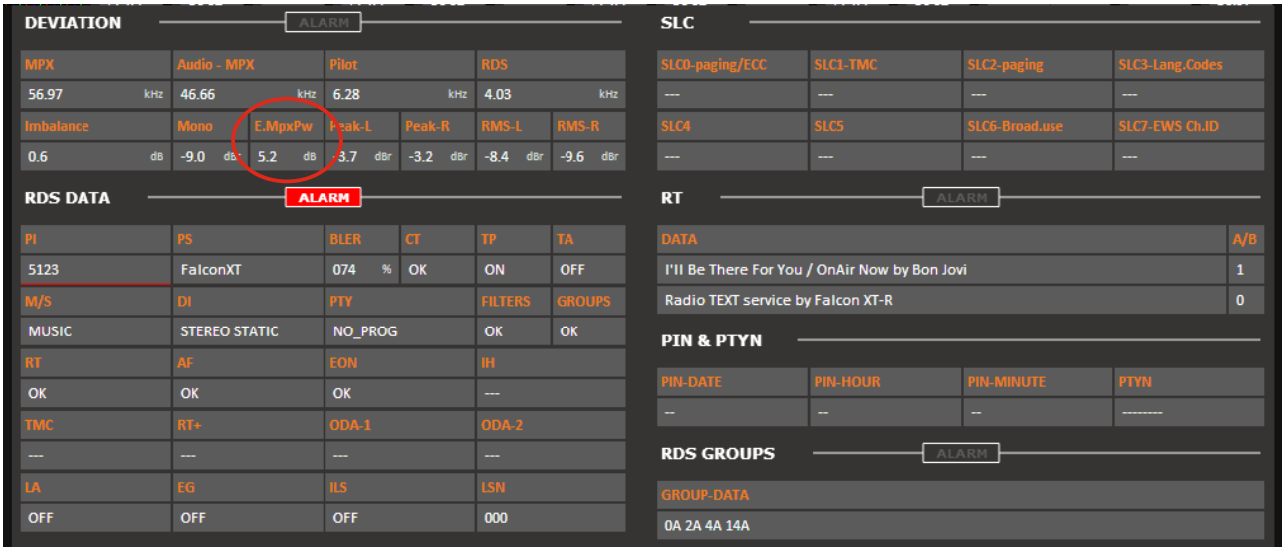

Wolf 2MS displays the double buffer. Displays the buffer is that of the flag A flag B. The bottom line shows the RT that you are receiving. With each change of flag A/B copied this comes in the line above and below that will shape the new RT arrives. In the case of single RT (or if there is no 'change of flag a / b) after 10 min. above the line is cleaned.


ODA and ODA-1-2: reports have been inserted equal to the TMC and RT + on the presence or absence of the service. If the service is indexed with the AID of the settings specified on this form is transmitted press OK. Otherwise, if there is no (or a bit lower timeout) recording on the 3A writes REG NO. If the data do not change (not arrive) set out in writing NO DATA. If the service is completely lacking writes NO SERV. This applies to TMC, ODA + RT 1 and 2.

Each single web page shows the status or the data coming from the Wolf 2MS for Tuner-1 and Tuner-2. In the main page it is possible to see the value, but it is not possible to operate because the information can only be viewed. The single page can shows MAIN - AF01-32 - AF33-64 – EON.

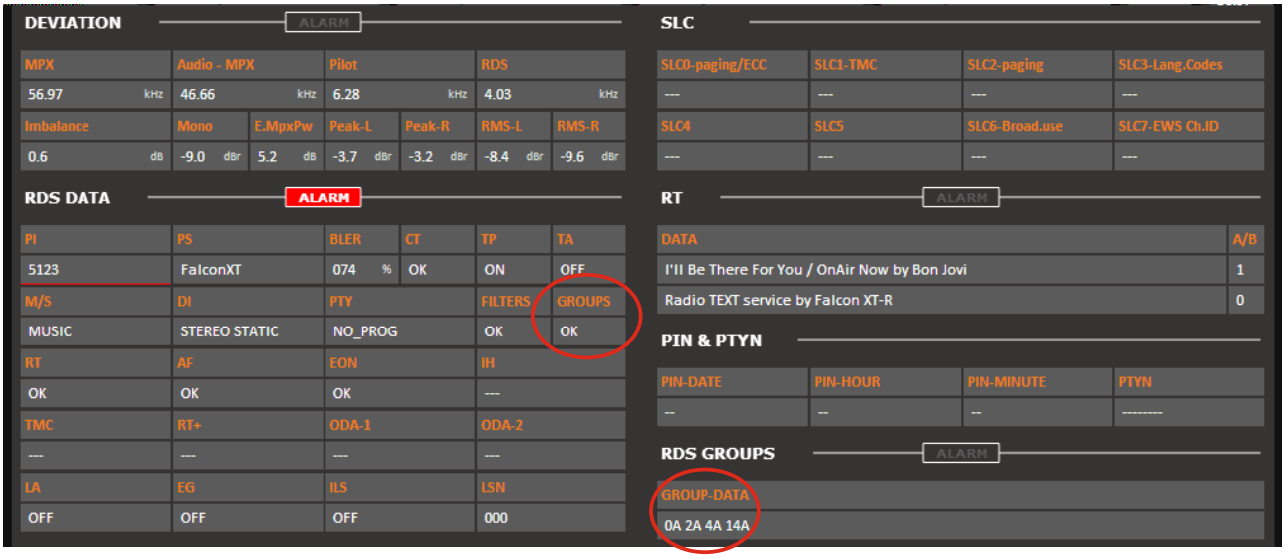
### 13.1.5 *Deviation, Imbalancement and MPX Power*

The MPX power is estimated using the available separate components infos present in the MPX signal. The Pilot power, Rds power and Audio power is integrated inside a 1 minute window and referenced to a 19 kHz single tone power. This measurement estimates with a good precision the MPX Power only under typical nominal operative conditions.

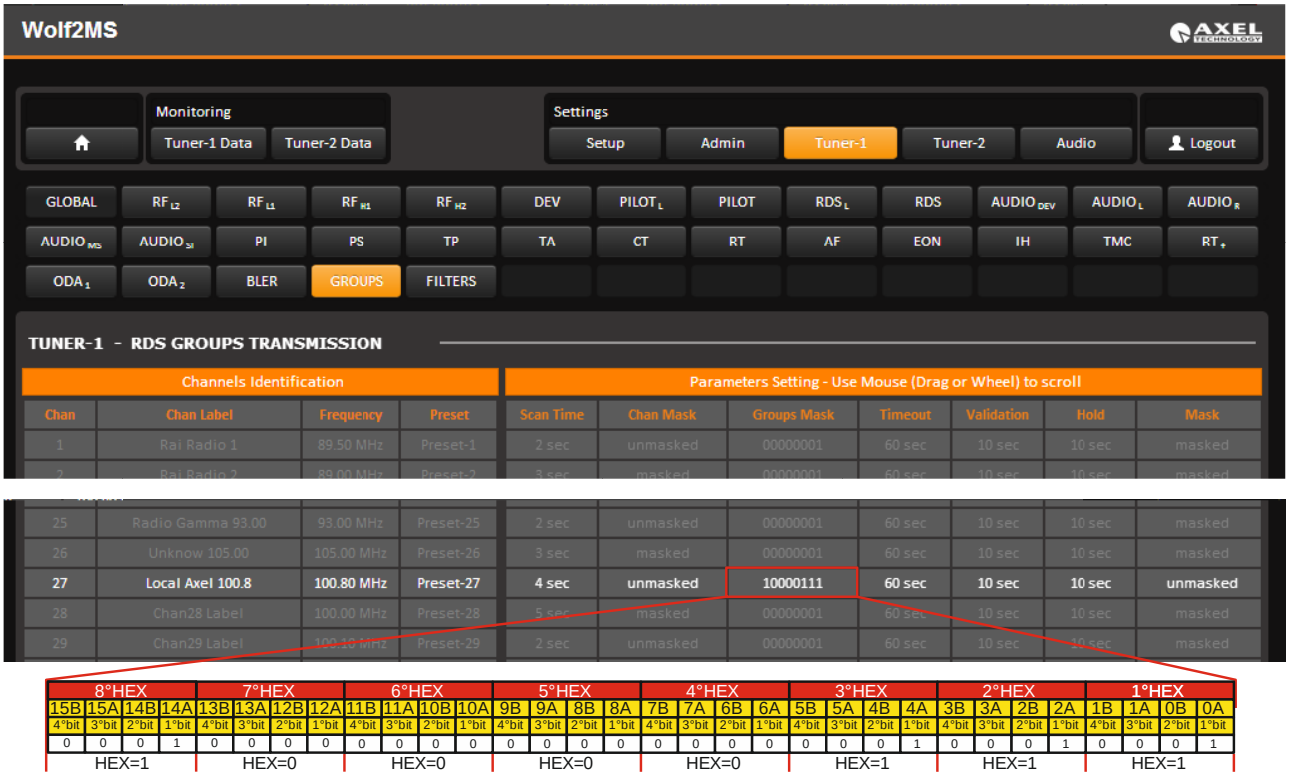



### 13.1.6 *RDS Group Transmission Alarm*

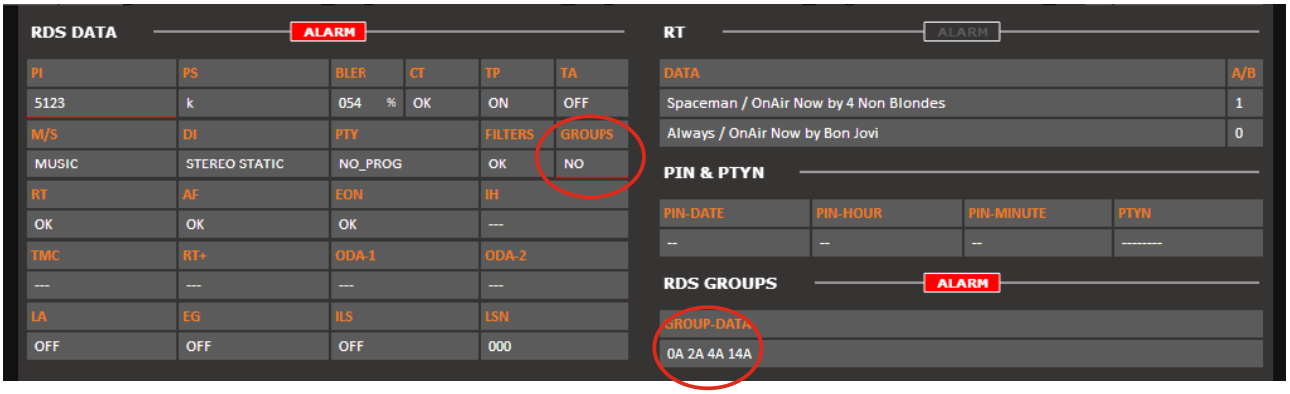
An alarm is now included to monitor the transmitted Rds groups. A mask allows to define all groups present in the transmission and an alarm is raised if after the timeout one or more groups hasn't been received. The Group Mask is an 32bits integer in HEX. Every bit in this mask is referred to a Rds group. The Group Mask bit0 is the 0A group, the bit1 is the 0B group, the bit2 is the 1A and so on … . Example: 11 (0A and 2A)

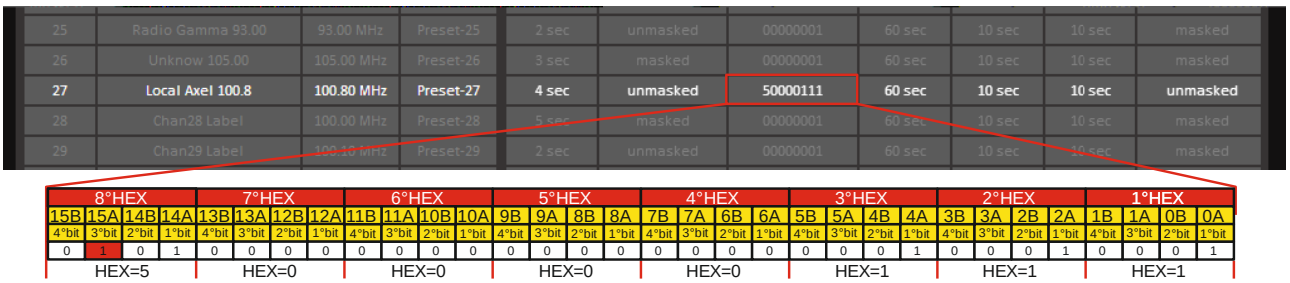



Available the status variable and the trap as well as all parameters to control the state (Timeout, Validation, Hold and Mask)



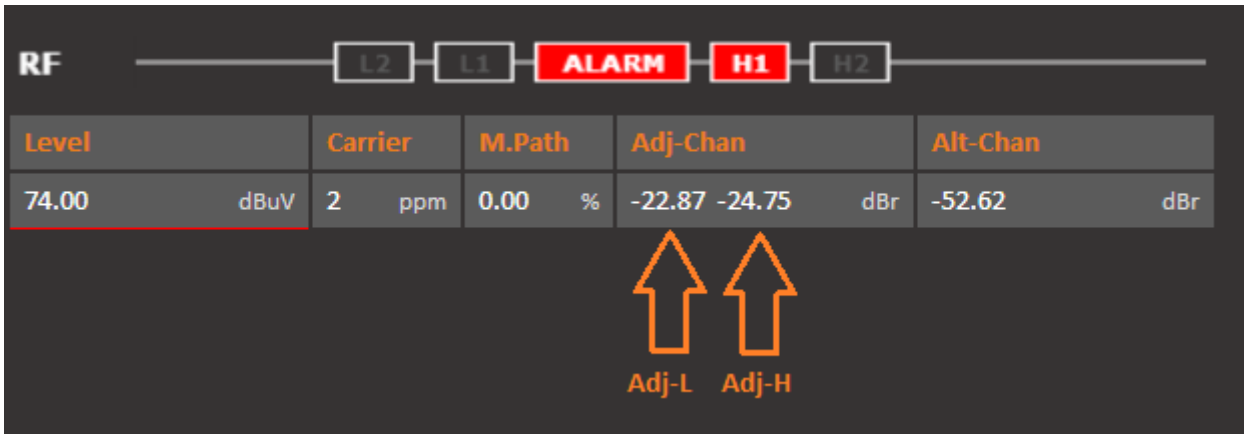

Example:
Check 11A,7A,5A,1B,1A,0A =0040440D
Check 15A,14A,4A,0A=50000101



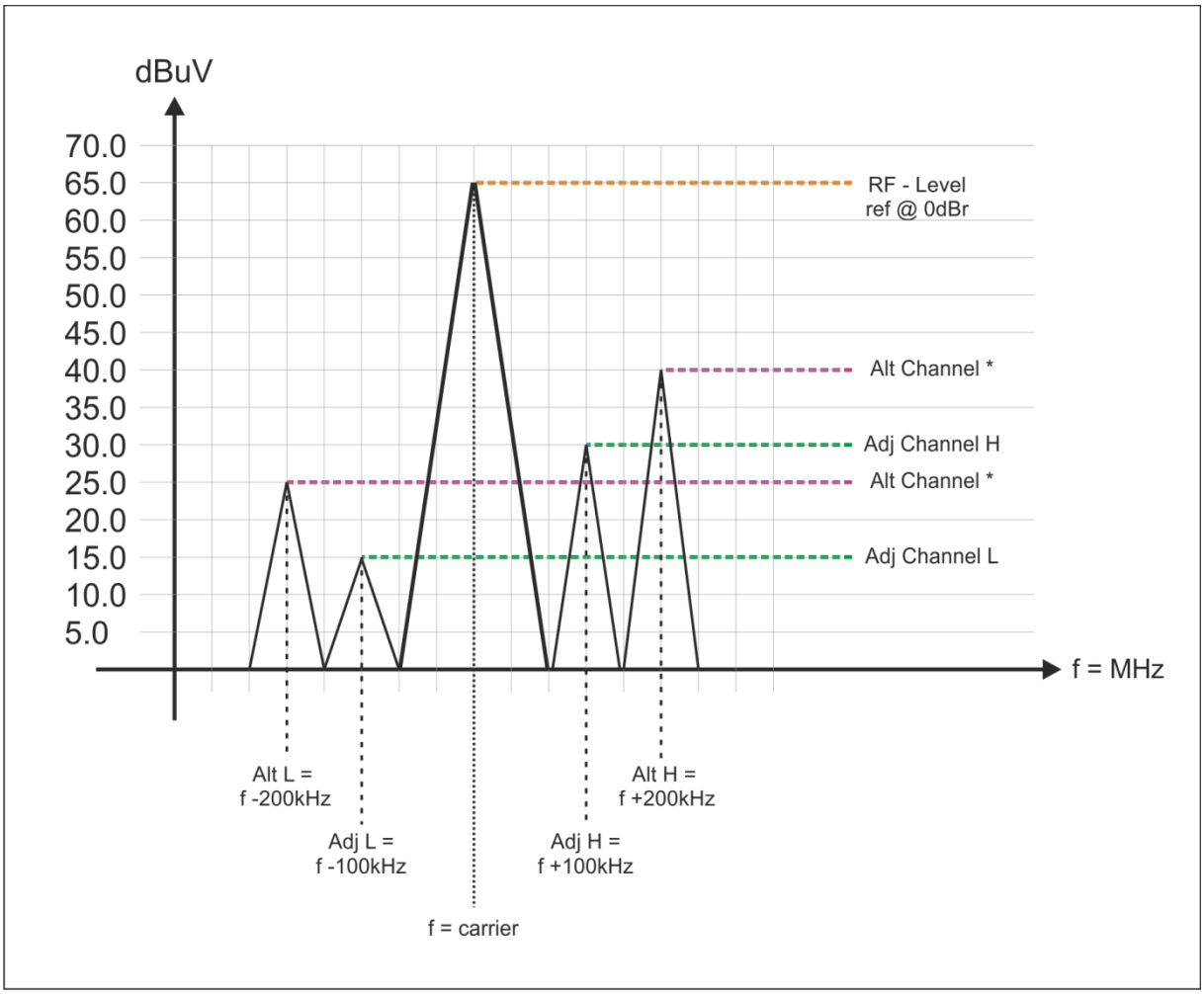



### *13.1.7* ***The Alternative Channel and the Adjacent Channel***

The Adjacent Channel is the measure of the level closer to -100kHz and +100 kHz respect the fundamental carrier frequency measured. This measure could indicate that at +100 kHz or -100kHz there is a carrier (or another kind of disturb) which could affect the measurement of the fundamental frequency.




The Alternative Channel instead is exactly the same extent as set out above, but measured and +200 kHz-200 kHz. It is shown, however, only the worst value, that is the most high and thus may cause more noise than our fundamental frequency.



### *13.1.8* ***Tuner-1 Data – AF01-32 AF33-64***

Before any explanation about how does Wolf 1MS/2MS decode and show AF frequency, some information on how does AF Lists are encoded by RDS Encoders.

---

There are two ways to transmit lists of alternative frequencies: **Method A** and **Method B**.
In both cases the lists should include only those frequencies for the nearest transmitters and repeaters (with overlapping coverage areas). Generally speaking, **Method A** is used when the list contains no more than 25 frequencies, and **Method B** when the list is longer (for a maximum of 24 lists). **Method B** is recommended when splitting areas or when different programs are broadcast.

**NOTE**: use of encoding method A or B is not explicitly assigned by a dedicated signal to the receiver, as the latter is capable of identifying which method is used by analyzing the transmitted data structure (whether or not they are organized in pairs).

**METHOD A**
Compile the AF1 list assigning the tuning frequency (i.e. the frequency carrying the list of alternative frequencies) in the first position, and then continue in strictly increasing order with the alternative frequencies transmitting exactly the same program.
We recommend recording the alternative frequencies (those of adjacent transmitters and repeaters with overlapping coverage areas) on each transmitter, being careful that the first position indicates the frequency carrying the list of alternative frequencies.

**METHOD B**
As mentioned earlier, Method B is used with high numbers of alternative frequencies and/or when the transmitter also has frequencies that broadcast different radio program at various times of day (splitting, local programming, etc.).

In the latter instance, the mobile receiver should check whether the AF is broadcasting the same content before selecting another frequency.

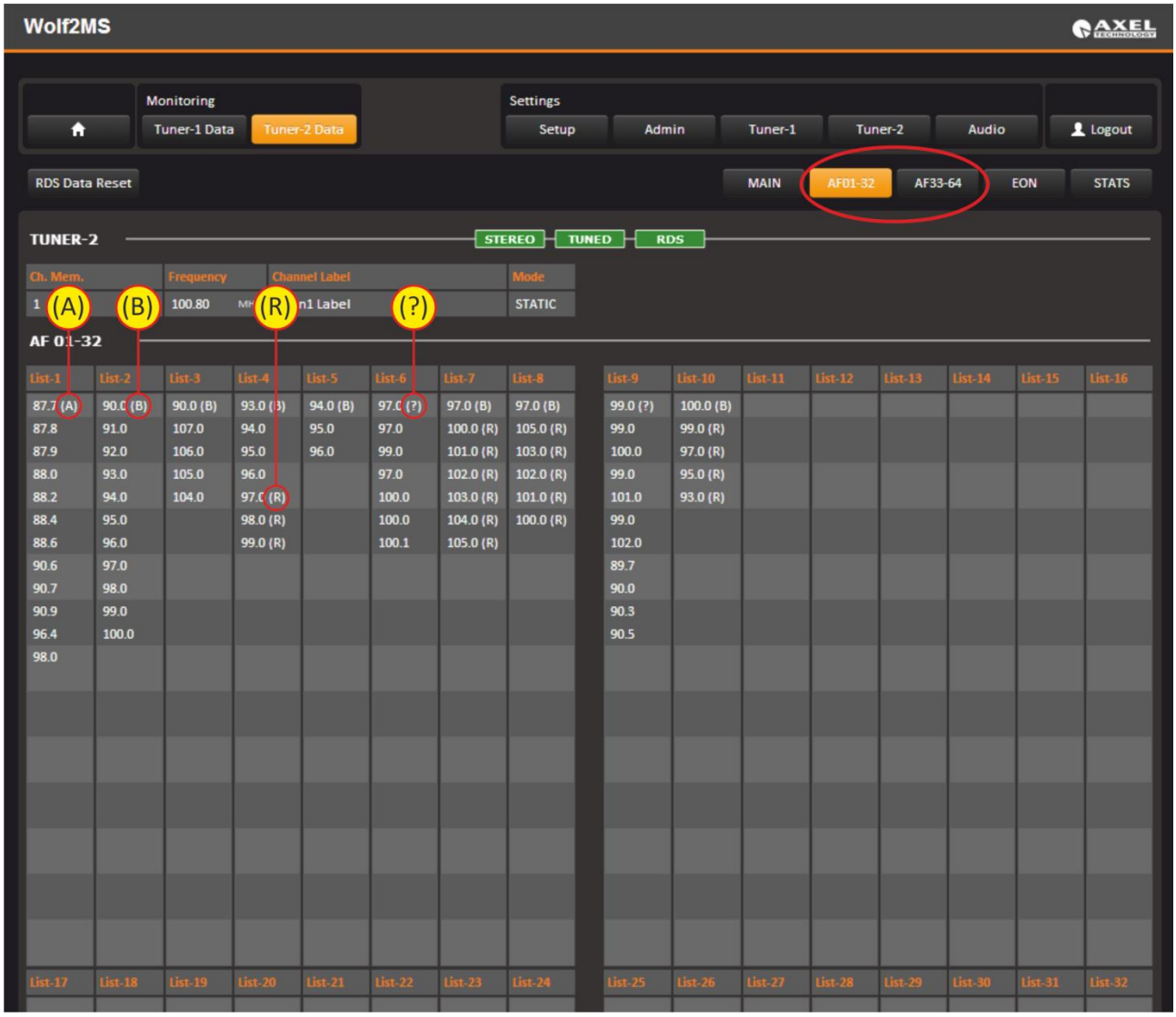
Each list begins with the *tuning* frequency (for which the list is valid) and then contains up to 12 **pairs of frequencies** in sequence, each containing the *tuning* frequency and an alternate. If there are more than 12 possible alternative frequencies, the list continues in other lists in the same manner.

The order of the frequencies in each pair follow the rules below:
- If the order is increasing, the alternative frequency broadcasts the same programming as the *tuning* frequency.

- If the order is decreasing, the two frequencies have different programming

---

By pressing AF01-32 it is possible to see all the decoded value by the RDS data Stream from Wolf 2MS. The maximum number of AF are up to 64 with EON service (reported next chapter).



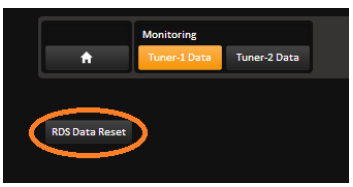

The AF lists can be ordered and see nearby each single AF some letters as reported in the picture. The letters between brackets represents different insertion method.

**(A)** The AF list has been inserted as Method A. Respect the main AF frequency the AF are in increasing order with alternative frequency transmitting exactly the same program.

**(B)** The AF list has been inserted as Method B. In particular List 2 has been inserted in Method B with increasing order, that means that the AF is broadcasting the same program.

**(R)** This indication means that the order of the AF is not increasing but decreasing. In this case it means that the AF is broadcasting for a part of the day a different program, and *sometimes* should have different program. The example is in List-4

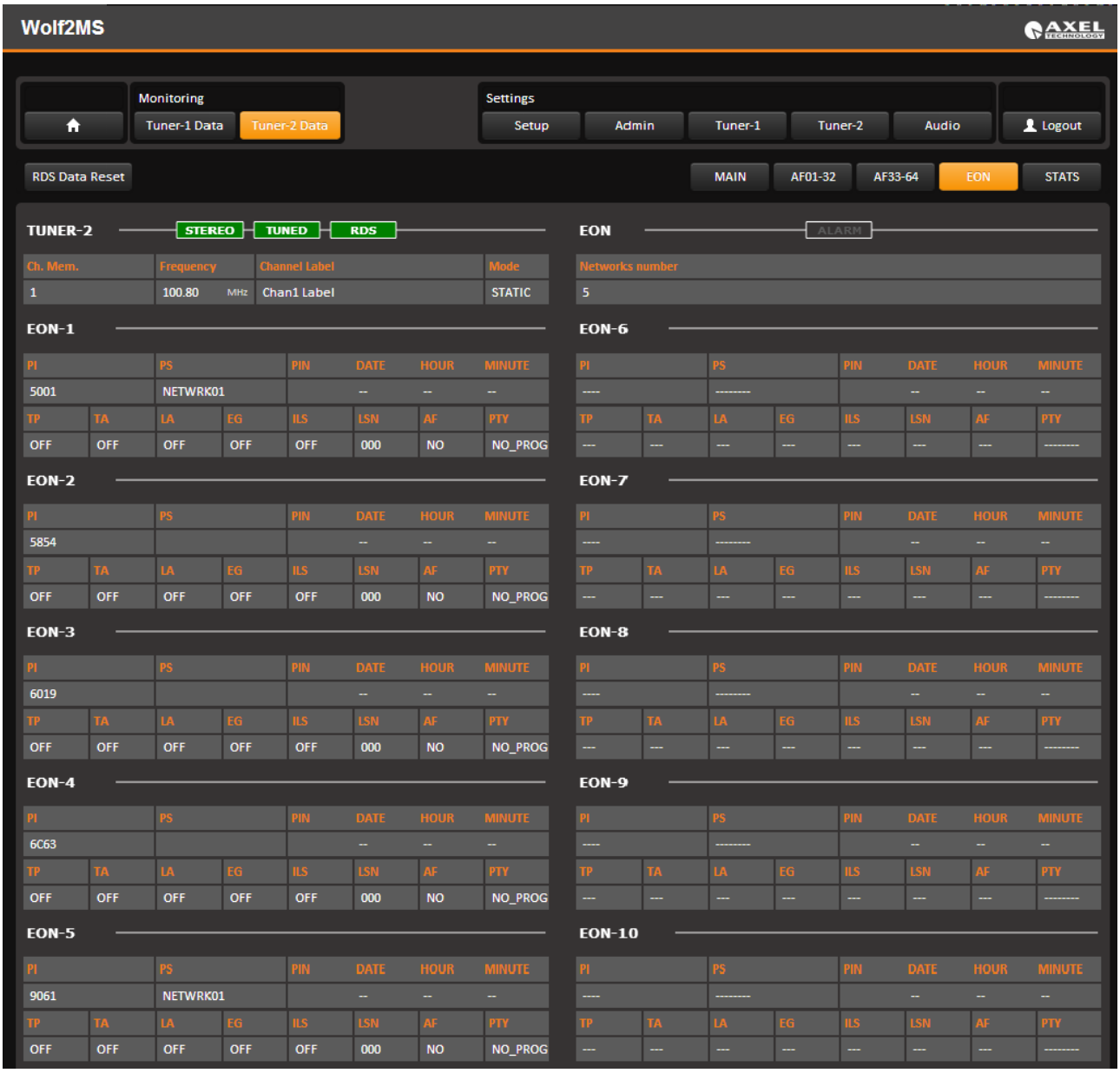
**(?)** This question mark means that the AF list has been inserted in a wrong way. It is not Method A increasing mode, it is not Method B increasing/decreasing mode. So it means that the AF list has been inserted in a wrong mode.




**NOTE**: The refresh of lists AF can be done manually by pressing the "Reset AF List" or whenever a change is detected by PI Code lists are placed in AF mode growing.

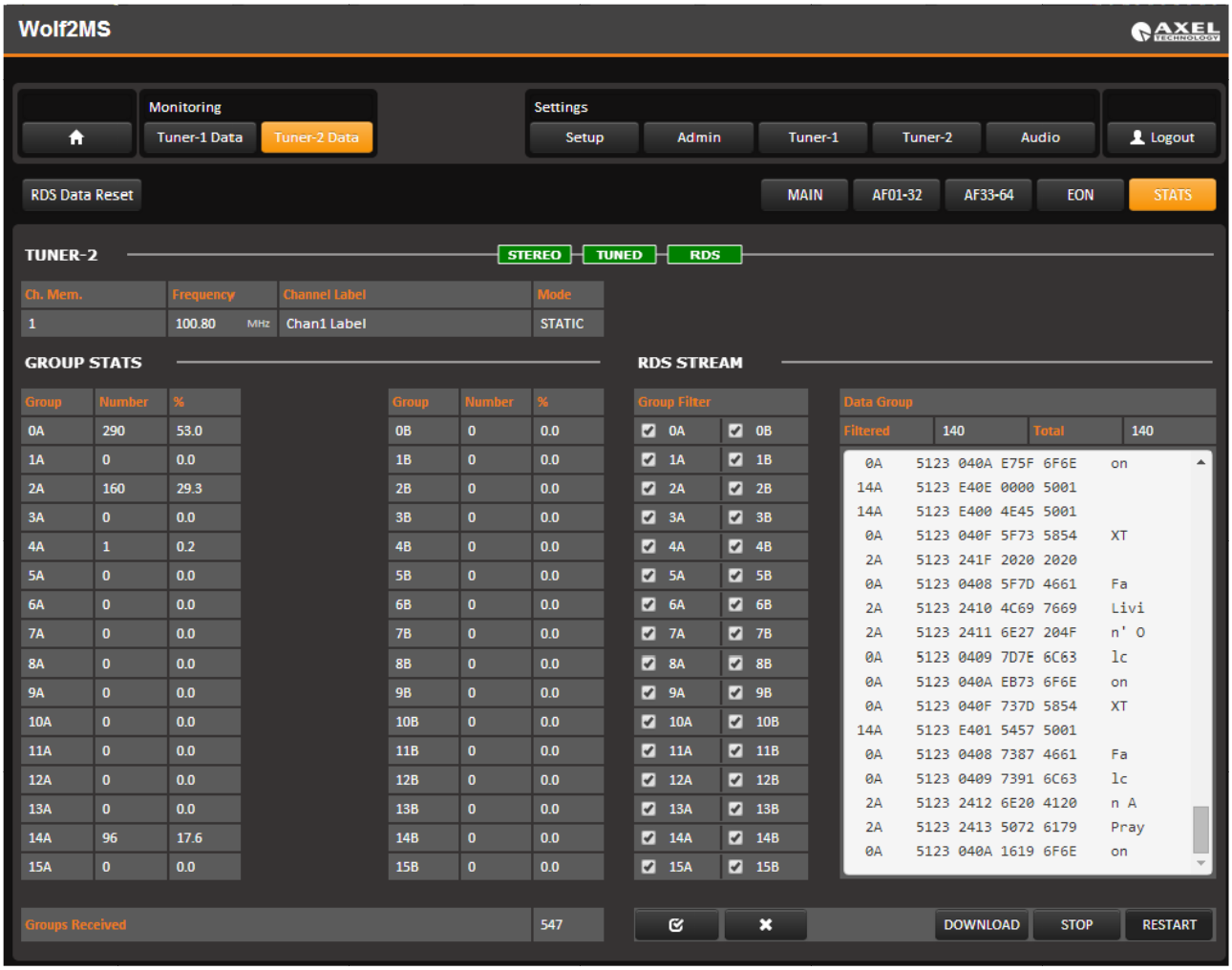
### *13.1.9 Tuner-1 Data – The EON page*

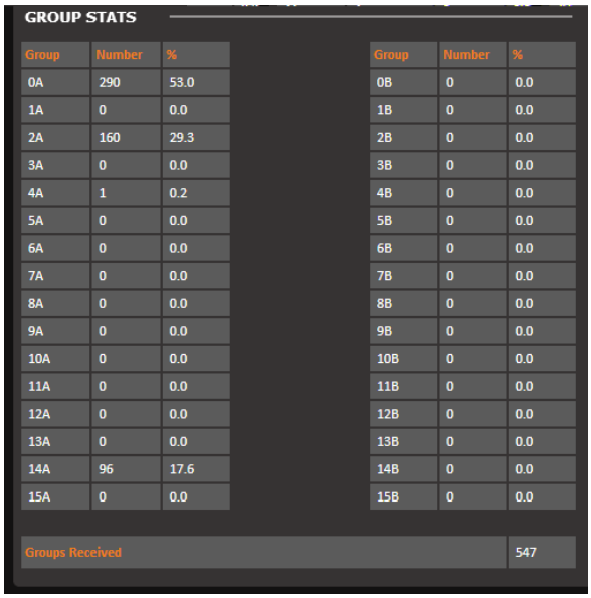
The EON are sorted by PI increasing. Also in this case the sorting and refreshing takes place dynamically.



### *13.1.10 The STATS page*

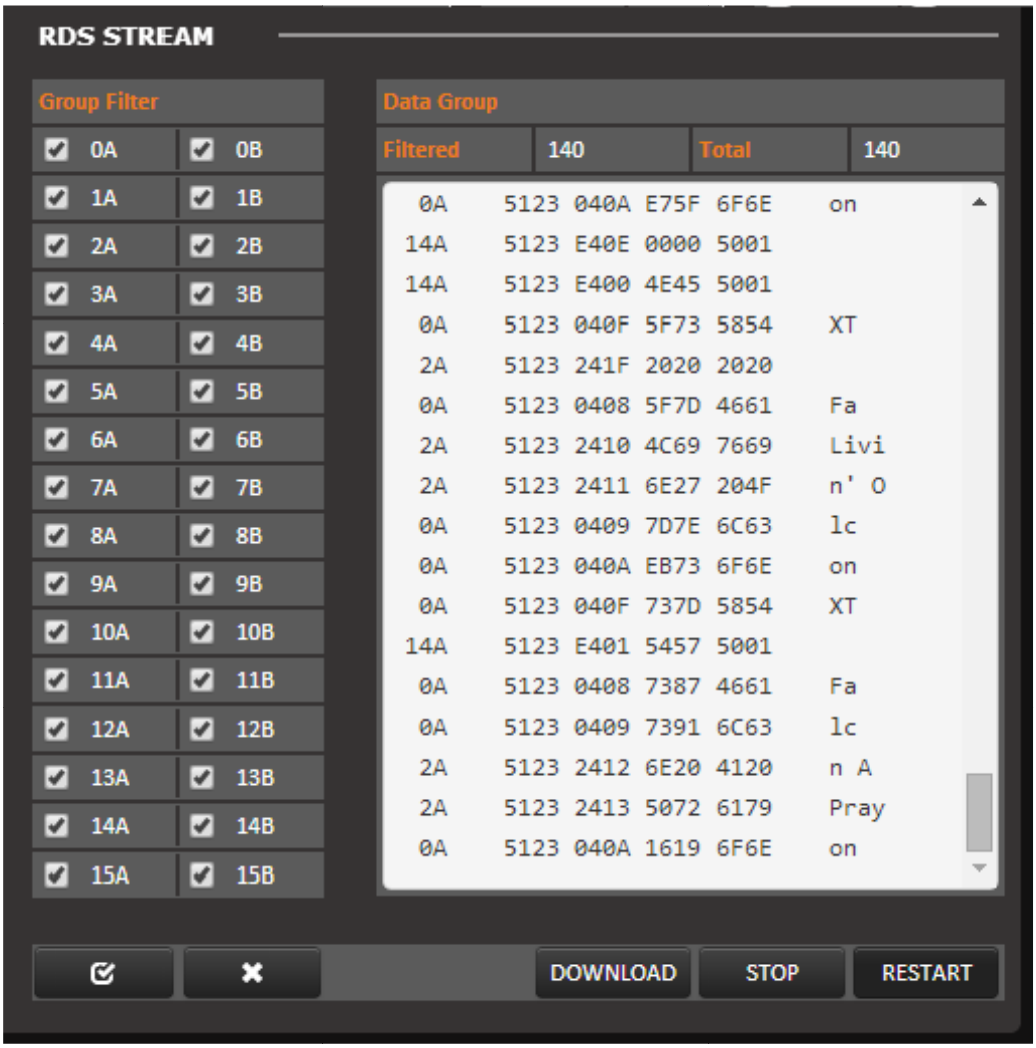
The Stats page shows the statistic of the RDS groups received and the total number of the RDS groups. Using Stats page it is also possible to records the groups and using the filtering function with stop, clear and download of all the Rds datas recorded.




This part of Stats page shows the number of packet that have passed into Rds stream, the number and the percentage. This part of Stats page is viewing only.

**RDS STREAM**




The Group Filter section allows the user by checkbox to select wich group should be filtered.

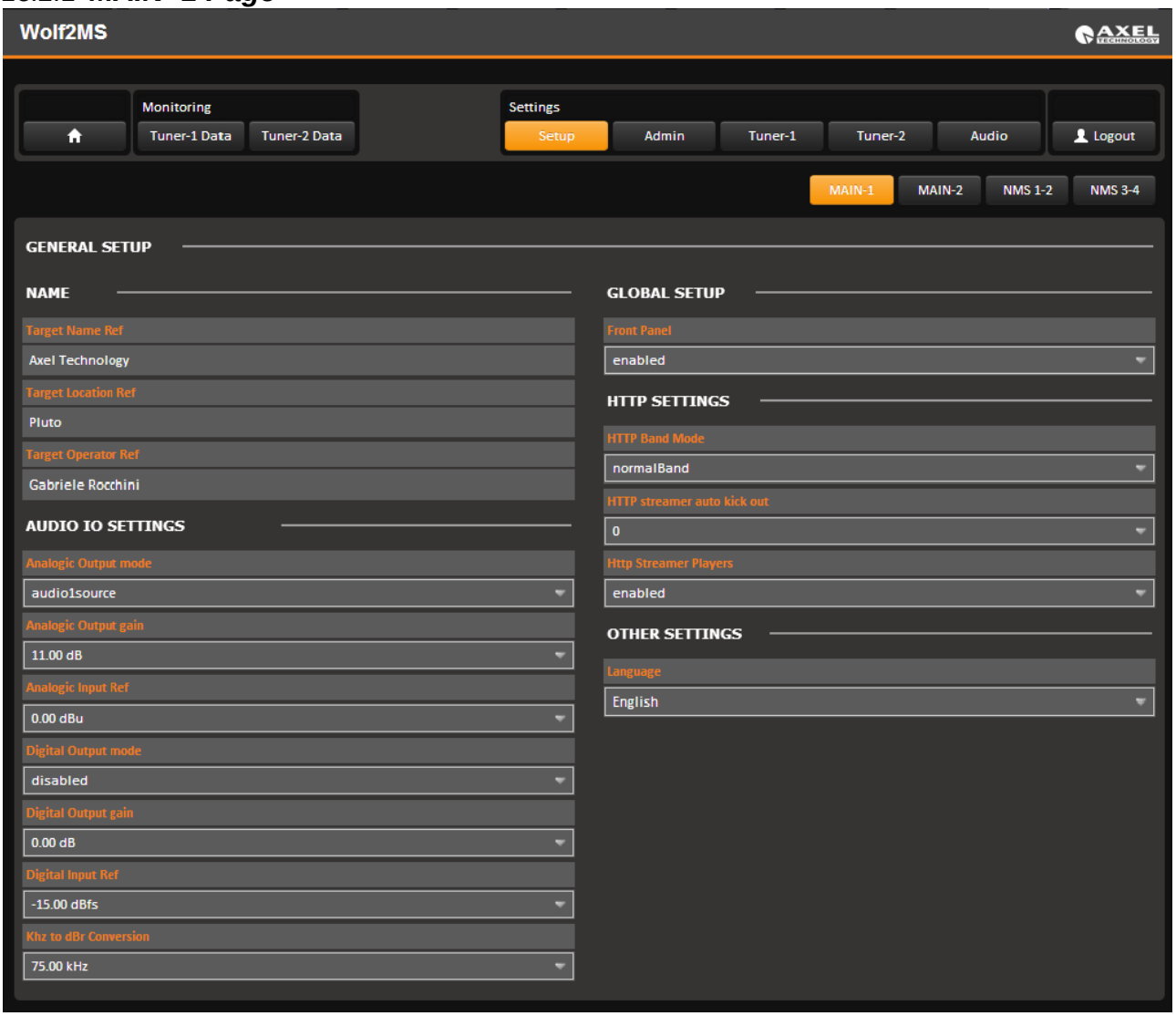
This two buttons permit to flag all the groups or unflag all groups at a glance

**DATA GROUP:**
In Data Group Section it's possible to see the Rds decoded stream filtered with each single packet and group, PI Code and HEX datas. By using Restart and Stop it's possible to stop and reload datas decoding. By pressing Download it is possible to save a TXT file with Data downloaded.

## 13.2 SETUP

In this page it's possible to set some working parameters about Wolf 2MS. This section is divided in four different sub-sections: MAIN -1, MAIN -2, NMS 1-2, NMS 3-4

### 13.2.1 MAIN -1 Page

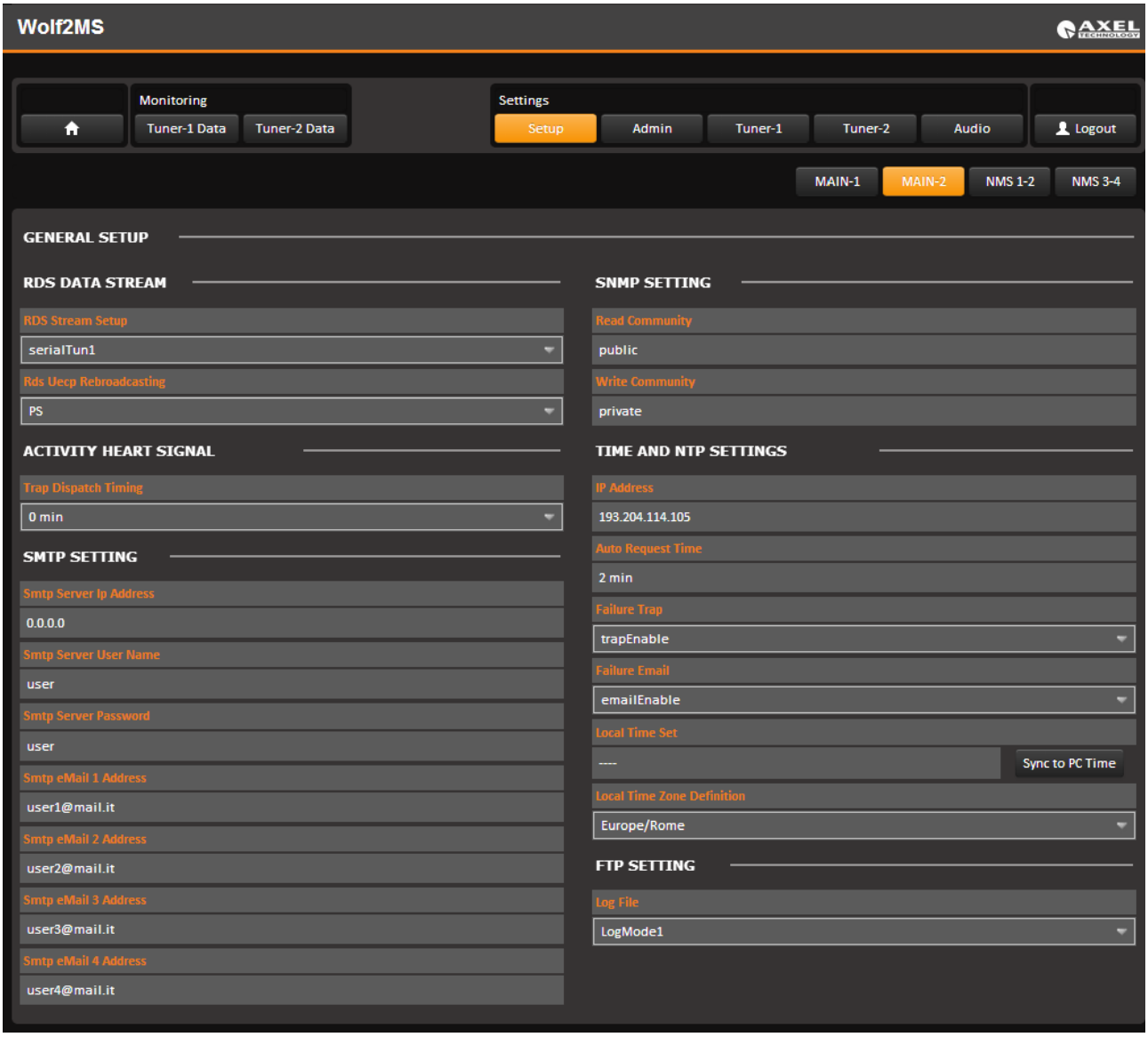



In the **NAME** box and Target Name Reference and Target Location reference are written all the information about the Wolf 2MS, where it is installed and some other extra information.

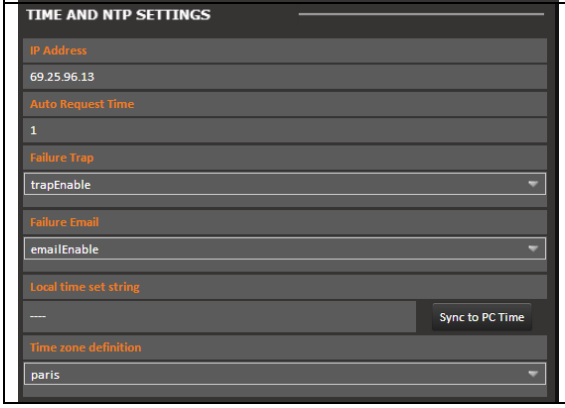
| | | |
|---|---|---|
| Analogic output mode<br>audio1source | **Analogic Output Mode:** Disable – Audio1Source – Audio2Source | |
| Analogic output gain<br>0.00 dB | **Analogic Output Gain**: between -20.0dB up to 20.0dB in 0.1step/dB | |
| Analogic Input Ref<br>0.00 dBu | **Analogic Input Ref:** This reference will be used to convert from external analogic level in dBu to the internal dBr reference. | |
| Digital output mode<br>audio1source | **Digital Output Mode:** Disable – Audio1Source – Audio2Source | |
| Digital Input Ref<br>-15.00 dBfs | **Digital Input Reference**: This reference will be used to convert from external digital level in dBFs to the internal dBr reference. | |
| Digital input gain<br>0.00 dB | **Digital Input Gain:** between -20.0dB up to 20.0dB in 0.1step/dB | |

| | | |
|---|---|---|
|  | **Front Panel:** should enable or not the front palenl operation. | |
|  | **HTTP Streamer auto kick out**: timeout in minutes about the audio streaming from Wolf 2MS to the webpage. | |
|  | **kHz to dBr Conversion:** converts the tuner audio level from the audio deviation in kHz to the internal reference dBr. | |
|  | **Digital Output Gain**: between -20.0dB up to 20.0dB in 0.1step/dB | |
|  | **Front Panel:** This control allows the user to manage Wolf 1MS/2MS to be managed by front panel. If it is set on disable front panel encoder is unable to set functions | |
|  | **HTTP Band Mode:** Settings for the network band audio available. Available set: Low/Normal/High band or GPRS Band | |
|  | **HTTP Streamer Player:** Enables or Disable the streaming function for each player. | |
|  | **Language:** language selection for Wolf 1MS/2MS | |

### 13.2.2 *MAIN -2 Page*




In the Tab MAIN-2 it is possible to set other parameter about Wolf 2MS. Some of these parameters are under development.

| | | |
|---|---|---|
|  | In this box it is possible to set the password for the SNMP protocol in read and write. | |
|  | **IP Address:** is the IP of the NTP server.<br>**Auto Request Time:** minutes between each single Time Synch.<br>0 = time synch disable<br>1440 = max day-time synch<br>**Failure Trap**: If Wolf 2MS is not able to set the time a trap is sent to NSM.<br>**Failure Email**: If Wolf 2MS is not able to set the time an email is sent to the Email recipient<br>**Local time Set String:** it's possible to send a time synch command via PC<br><br>**Time Zone definition:** it's possible to set the GMT Time zone from this control | |

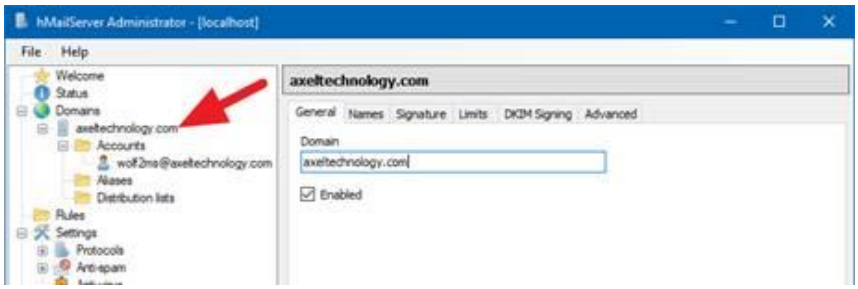
| | | |
|---|---|---|
|  | This version of log file will catch all alarms, regardless all trap's enable status.<br>*status.log* will be download in ftp mode:<br>id: user, pwd: user<br>To reset *status.log* file is necessary to disable and re-enable in LogMode1. | The log file is enabled under MAIN2 → FTP Settings → Log File →LogMode1 |

| | | |
|---|---|---|
|  | **RDS Stream Setup:** it is possible to decode the RDS Data Stream and deliver it to the Serial Port in UECP format. It is possible to select of the Tuner to decode<br><br>**RDS Uecp ReBroadcasting:**<br>It is possible to filter what service can be delivered to the serial output. In ie only the PS. But other options are available | |
|  | **Activity Heart Signal**: each “n” minutes as express in the box, the Wolf 2MS send a trap to the NMS System in order to understand that the Wolf 2MS is ”alive” and working correctly | |

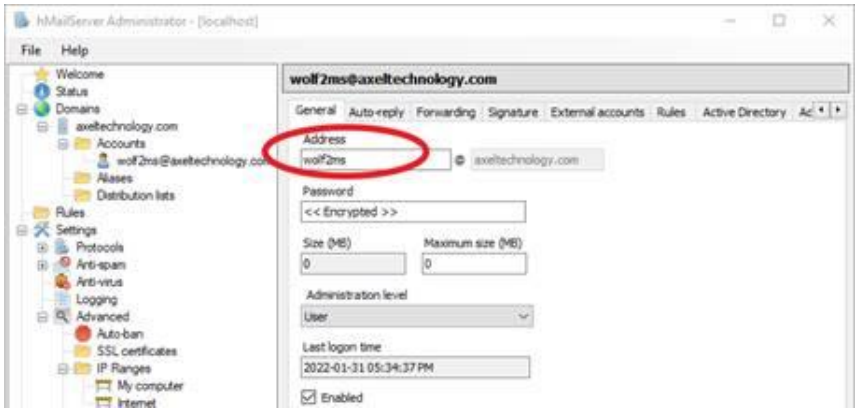
### 13.2.2.1 SMTP SETTINGS – EMAIL NOTIFICATIONS

It's possible to receive the Wolf 1MS 2MS alarms through an ALERT email.
You need to follow the next steps to activate the critical notification by mail.

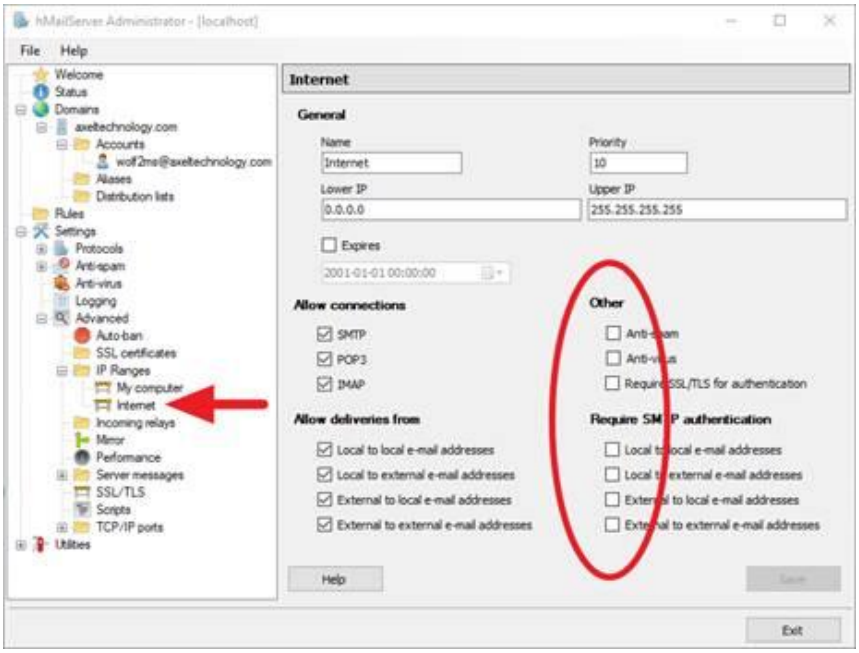
1. Install HmailServer from https://www.hmailserver.com/download
2. Following the steps in this video https://www.youtube.com/watch?v=1TN_FJ5hfJ0
3. Set the Domain as axeltechnology.com,



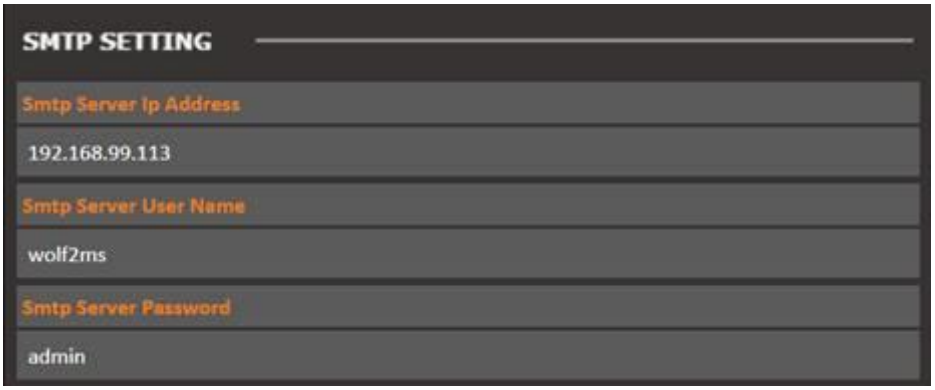

4. Then add this account **wolf2ms**



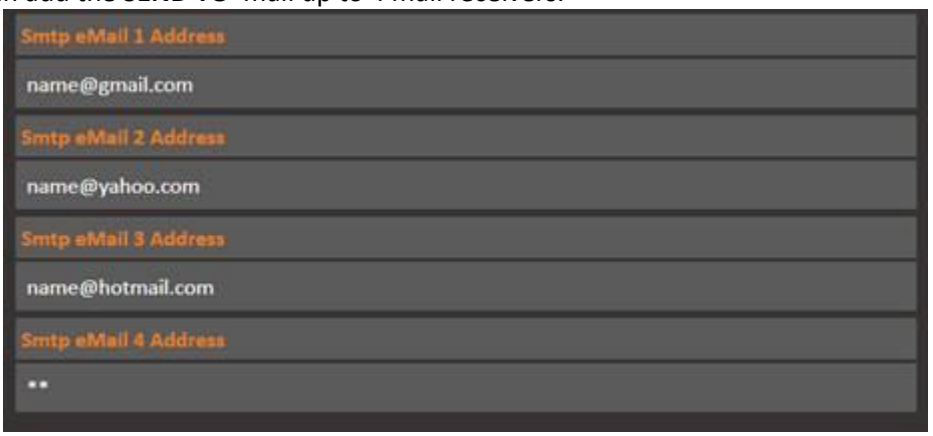

5. Go to **settings > advance > IP ranges > internet** and remove the **Require SMTP authentication**



6. Then go to your **WOLF 1MS 2MS** web interface
   LOGIN the go to
   **Setup > MAIN-2 > smtp server ip address** then add IP of your HmailServer (ip of your pc).
   **Setup > MAIN-2 > USER NAME**
   **Setup > MAIN-2 > Password**




7. Last you can add the **SEND TO** mail up to 4 mail receivers.

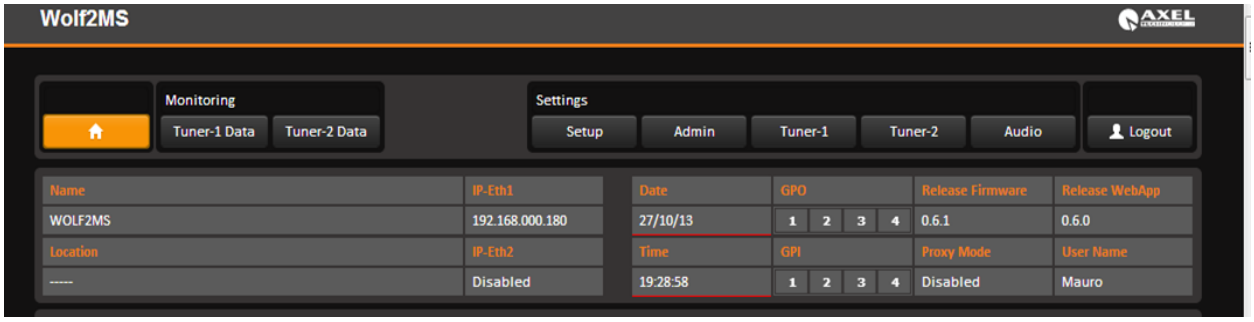


### *13.2.3* ***Note about NTP Settings and behavior***

To activate the NTP auto synchronization set a not zero value in AutoRequest Time. After a modification of this parameter or a modification of the NTP IP address, the Wolf2MS will try to synchronize the system clock. After the first synchronization, the server will be contacted automatically with the selected period in minutes.

After a system reboot or restart, if AutoRequestTime is activated, in the first operative minute the NTP-V3 server will be contacted, as well as after the selected period.

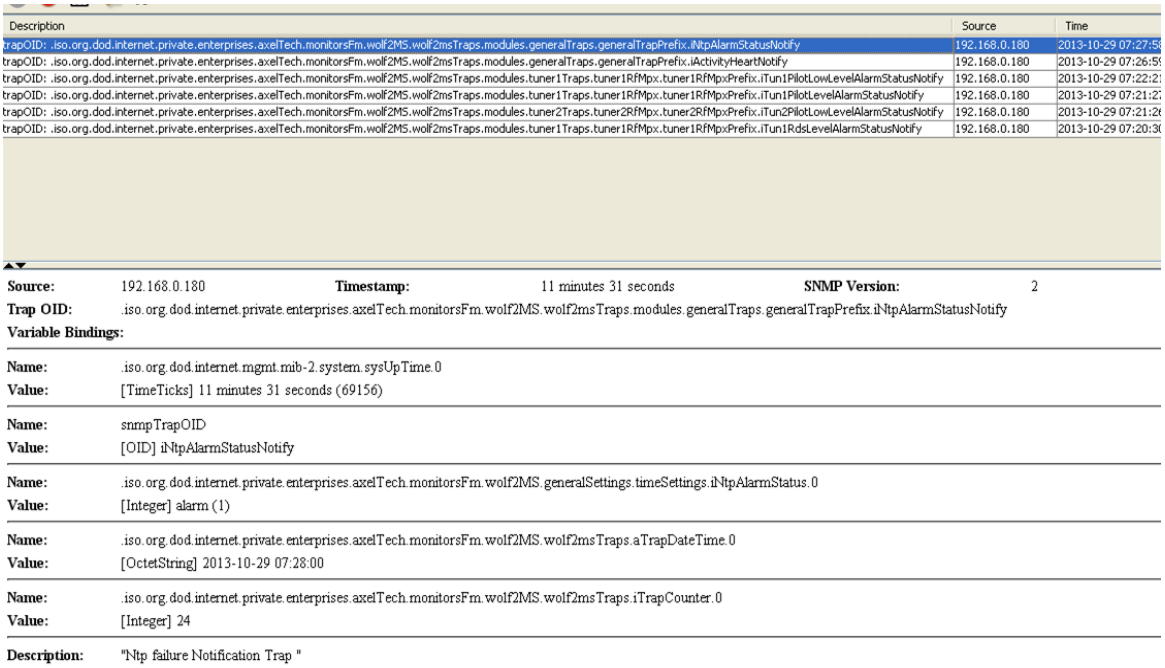
The NtpSynch status starts as OK (synchronized) at the system startup, but after the first synchronization attempt it will show the real status. Every NtpSync status variation is signaled (if enabled) with the NtpFailureNotificationTrap.




An NTP synchronization failure will be indicated with a red alarm line under the Date/Time field. Moreover, Date and time will blink in the display panel in case of synchronization failure.

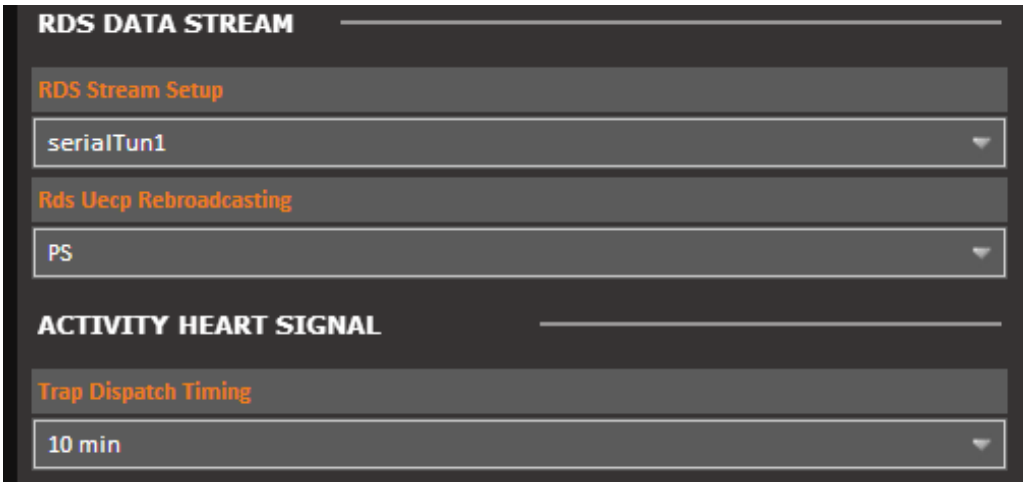
Starting from Fw release 1.0.4 the NTP behavior has been modified. Wolf 2MS tries for 3 minutes a replies from the NTP server before reporting an error. In previous release Wolf 2MS replies immediately about the NTP loss. In case of alarm, Wolf 2MS tries each single minute until Wolf 2MS gets a reply from NTP server.

With this new feature, random errors caused by NTP loss are no longer reported. No more parameters have been added to mask this kind of alarm.

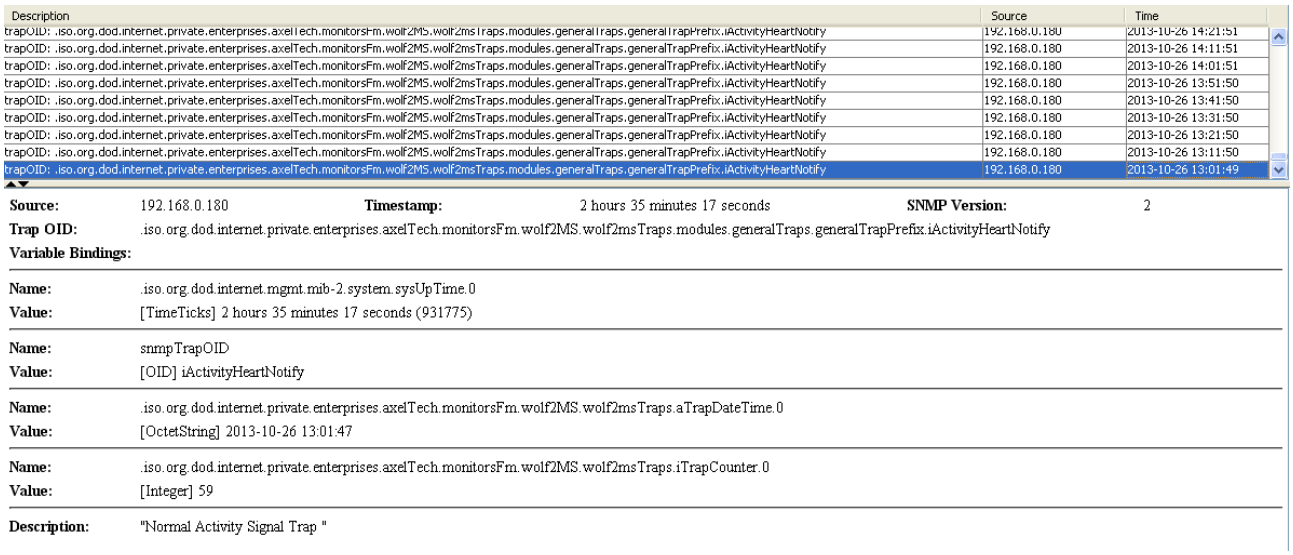


### *13.2.4* ***Note about Activity Heart Signal***

This trap will be sent periodically to indicate that the system is OK and the Wolf2MS host process is able to communicate with all its interfaces without apparent problems. One trap will be sent at every change of the time parameter or at the system start-up (few seconds after the cold start SNMP trap), as well as according to the period selected. This Trap will not be replayed.




The value “0” means function disabled. A different value indicates the period in minutes of the signal trap.
In the example tested the period is 10 minutes.



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:21:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:11:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:01:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:51:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:41:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:31:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:21:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:11:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:01:49 |

**Source:** 192.168.0.180 **Timestamp:** 2 hours 35 minutes 17 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 2 hours 35 minutes 17 seconds (931775)

**Name:** snmpTrapOID
**Value:** [OID] iActivityHeartNotify

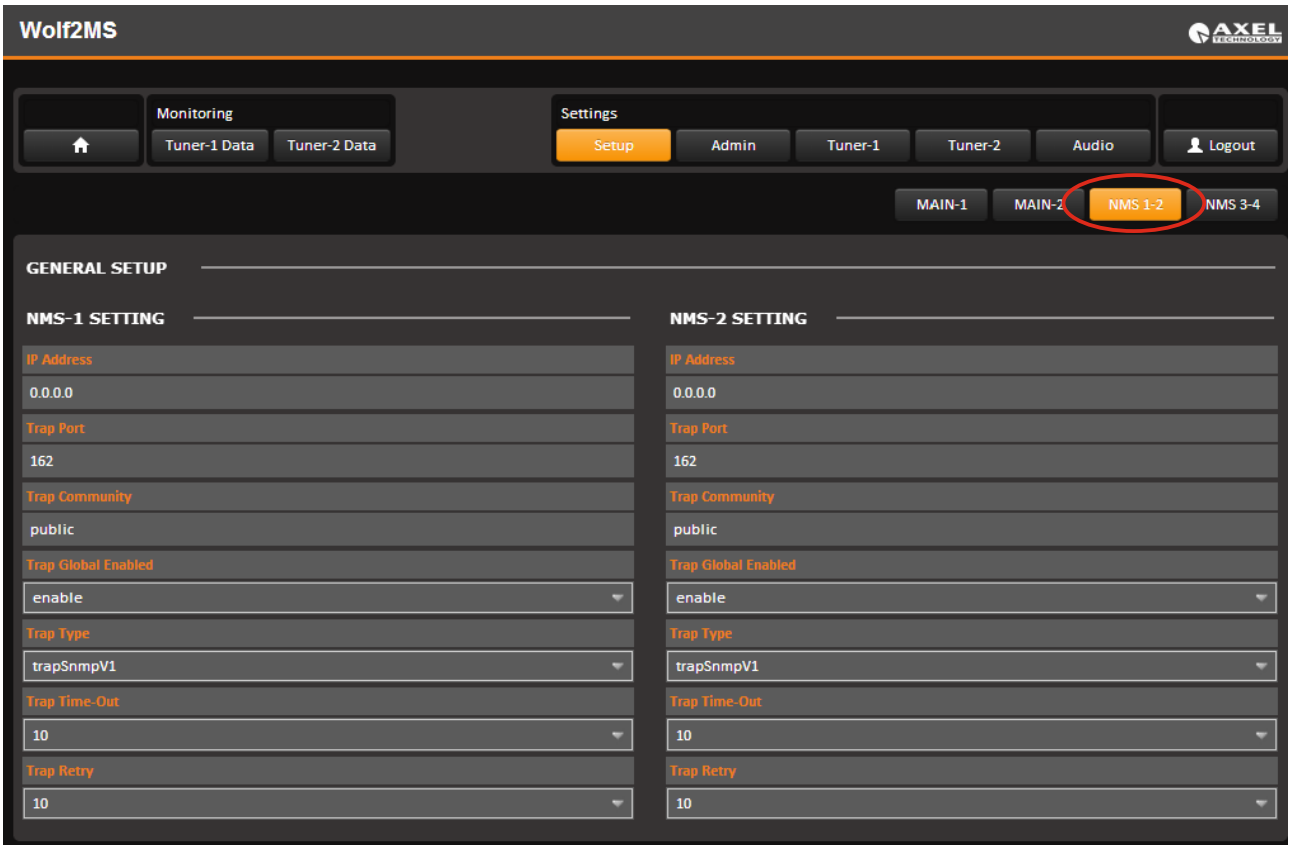
**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-10-26 13:01:47

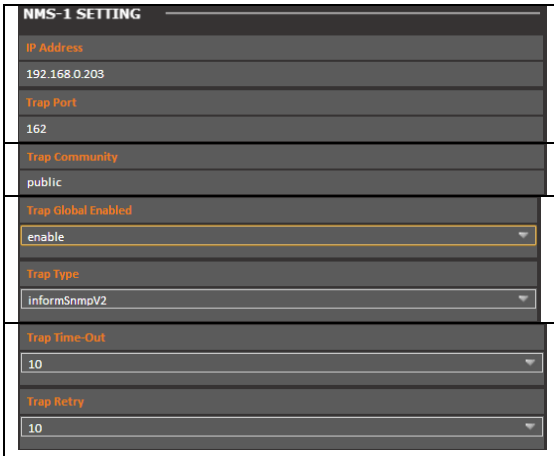
**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 59

**Description:** "Normal Activity Signal Trap "

### 13.2.5 *NMS 1-2 Page*

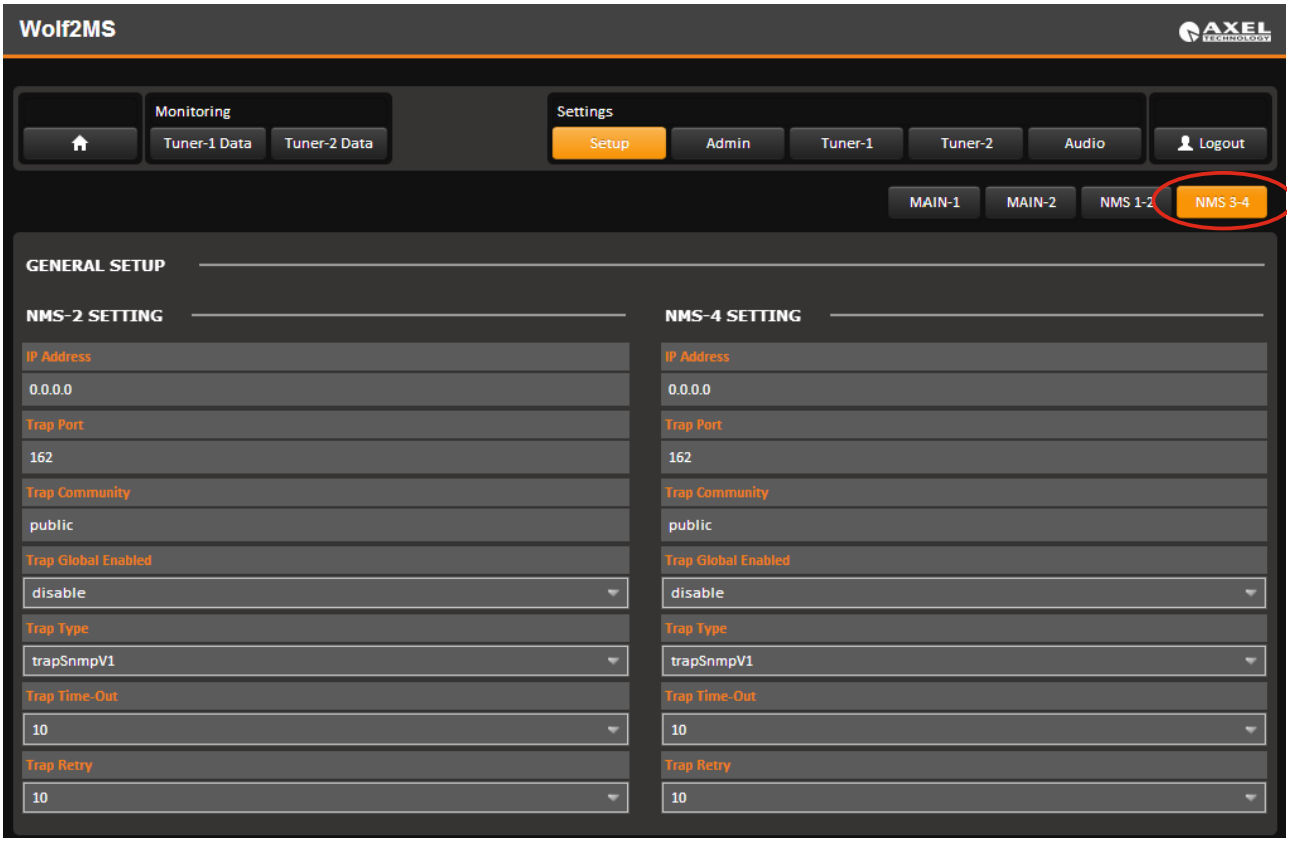
In this setup it is possible to set some parameter about the communication between the Wolf 2MS and the Network Management System. SNMP is the protocol to communicate between remote equipment and NMS.




| | | |
|---|---|---|
|  | In this box it is possible to set the IP Address and the Port to communicate with the Network Management System. | |
|  | This is the Trap Community string | |
|  | **Trap Global Enable**: Enable or Disable the trap notification to the NMS<br>**Trap Type:** configuration the Trap SNMP version | |
|  | **Trap Time-Out:** if the Trap Type is *InformSnmpV2*, this value set the time between each single retry, expressed in Seconds<br><br>**Trap Retry:** if the Trap Type is *InformSnmpV2*, this value set the maximum number of retry | |

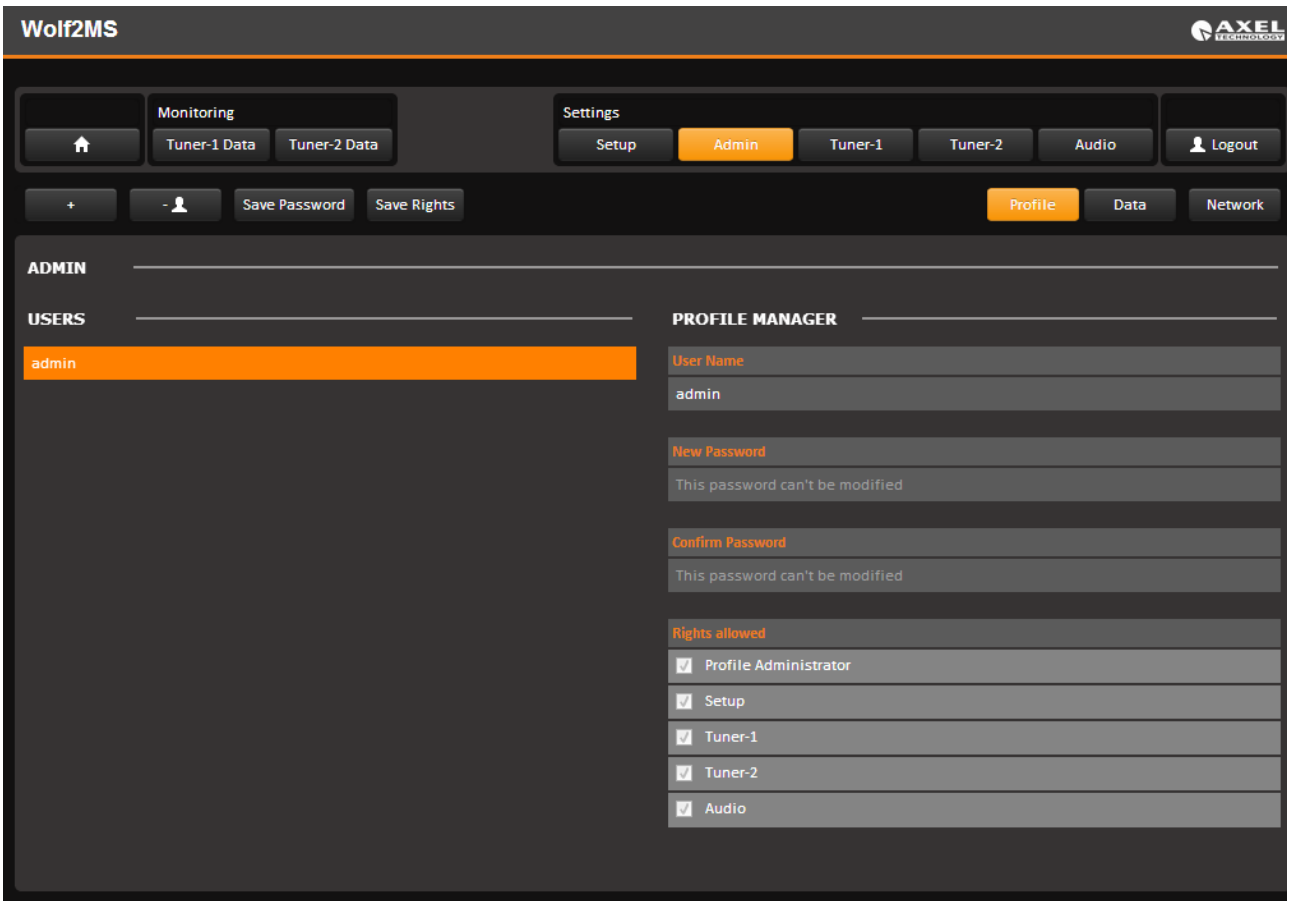
### 13.2.6 *NMS 3-4 Page*

In this setup it is possible to set some parameter about the communication between the Wolf 2MS and the Network Management System. SNMP is the protocol to communicate between remote equipment and NMS. The same configuration can be found in the NMS 1-2 Page.



# 14 THE ADMIN PAGE

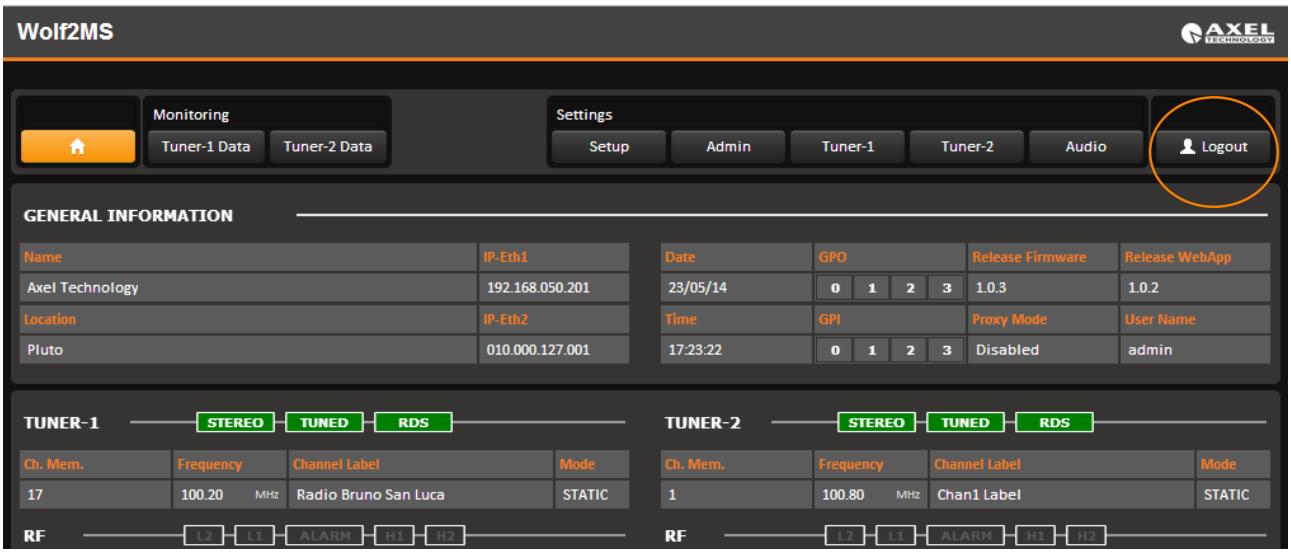
It is possible to manage Users, Profile and right for each single user by using the Admin page.




## *14.1 HOW TO LOGIN IN WOLF 2MS*

From the Home Wolf 2MS screen it is possible to Login in the system using the initial standard credential.
The standard login credential are

Username: **admin**
Password: **admin**

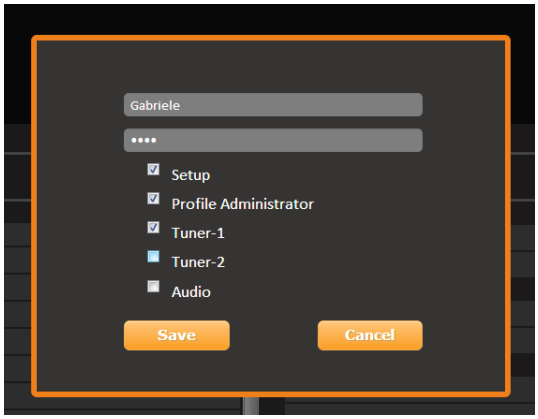


## 14.2 HOW TO ADD A NEW USER


Once the Administrator is logged in, it is possible to add or remove an User by using the button + and – as reported in the picture.
After pressing + a new page appear, asking the insertion of Username and Password, but the user must take in consideration the below condition.

### 14.2.1 Consideration on Username and Password

1. Be aware that the user and Admin are case sensitive
2. For the password field there are no minimal limitation
3. No complexion requirement must be reached
4. At least one character must be filled
5. No Empty password allowed
6. The total length is 50 characters
7. Backspace is a character, and considered as character

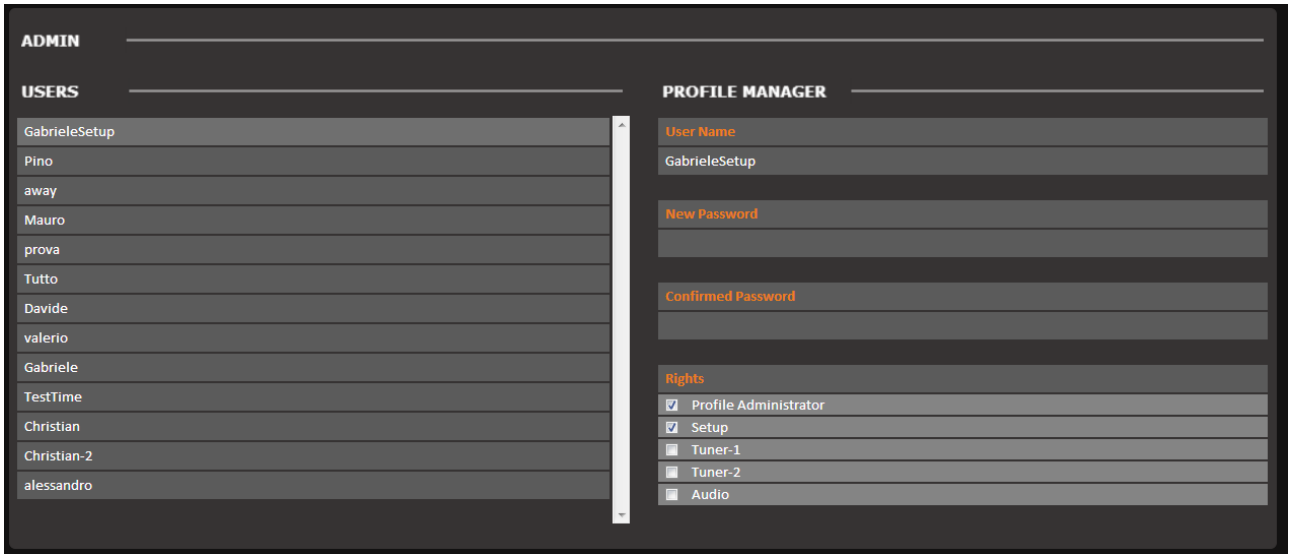



After pressing the + button this screen appear. Set the username and password and check the single function that the Administrator wants to make available for each single user. By using the already existing functionalities it is possible to flag and allow the user in order to use completely the function flagged. Ie: SETUP – Profile Administrator – Tuner-1 – Tuner-2 – AUDIO.

After pressing SAVE the user is created.

## 14.3 THE ADMINISTRATION TOOLS

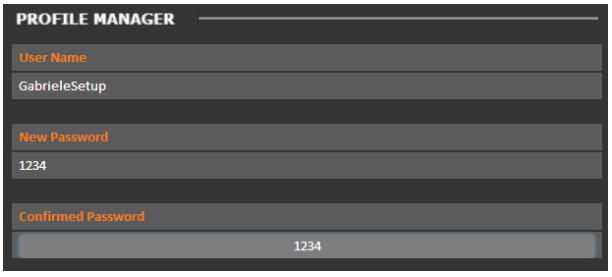
The Admin screen is divided in two parts: the Users and the Profile Manager. By using this control it is possible to manage all the rights for each single user.



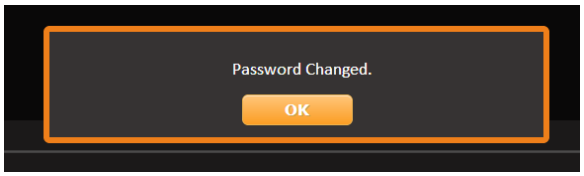

### 14.3.1 The User Right Management – How to change a Password

In the left side it is possible to see the complete list of user allowed on the Wolf 2MS taken in consideration. By pressing only one click on the User in the left, the profile manager on the right side shows all the allowed functionalities.

Once a user is selected it is possible to change the password, by inserting a new password in the field “NEW PASSWORD” and repeating “CONFIRM PASSWORD”. To change the field a double click is required. In order to insert a correct password, the *Consideration on User name and Password* must be respected.

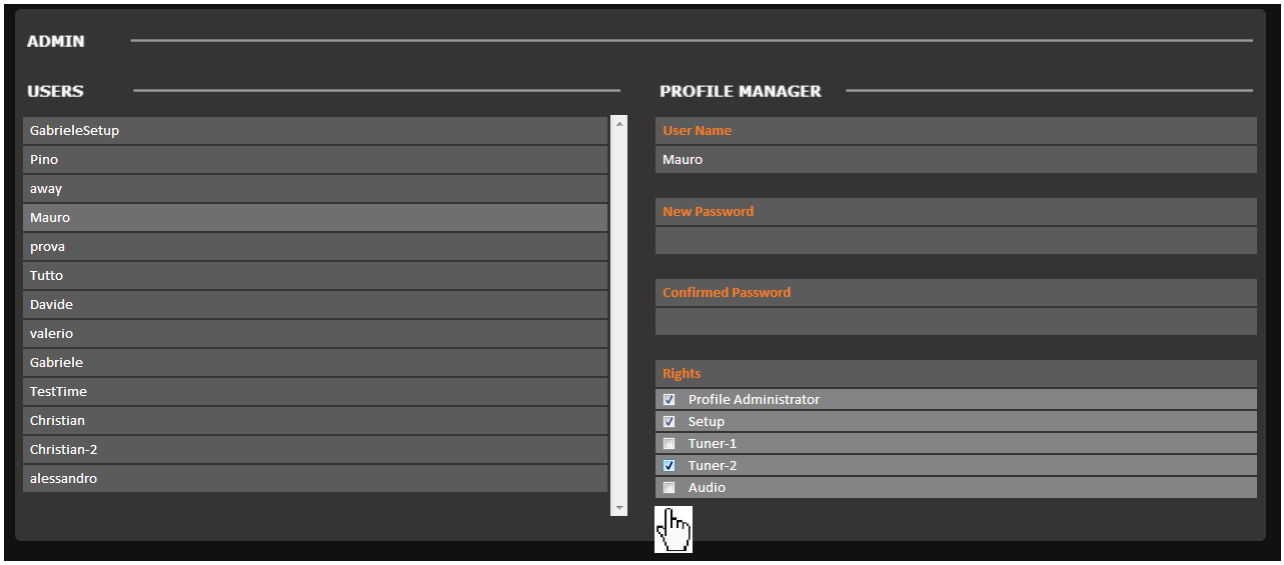



The password appears clearly in the fields, as in the picture. Once the password has been modified, the user must save all the changes by pressing the button “Save Password”. When the password has been correctly changed a message appears on the screen, Password Changed. By pressing OK it is possible to go on in other setup.

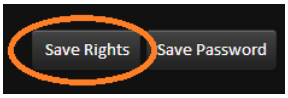



### *14.3.2 The User Right Management – How to enable/disable features*

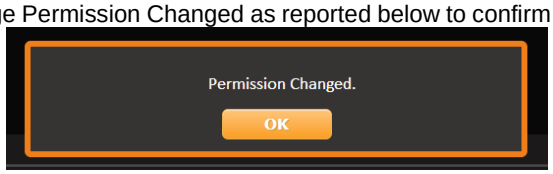
In the left side it is possible to see the complete list of user allowed on the Wolf 2MS taken in consideration. By pressing only one click on the User in the left, the profile manager on the right side shows all the allowed functionalities. In order to change to a single user a Rights, by simple flag (or unflag) the function on the corresponding box.




In the example above, the user Mauro is allowed to enter and manage the Profile Administrator, the Setup and the Tuner-2. The user Mauro is not allows to CHANGE or MODIFY Tuner-1 and Audio. To enable the single user also to CHANGE and MODIFY Tuner-1 and Audio, by simply flag the function and press Save Rights.



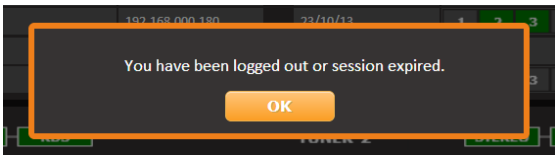

The webpage will shows a message Permission Changed as reported below to confirm that the Rights has been modified.




### *14.3.3 How to logout a user from Wolf 2MS*

Logout can be happen for 3 different reason, that are also reported in the table below.

| *N°* | *Condition* |
|---|---|
| *1* | User manually press Logout |
| *2* | The user take no action for at least 60 minutes |
| *3* | Two user with same username are logged in, from 2 different position, and one of this press logout |



## 14.4 GENERAL CONSIDERATION ABOUT USER LOGGED IN AND NON LOGGED

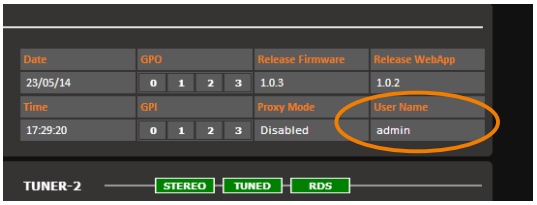
Once a Wolf 2MS is connected in a network, by using a simple web browser it is possible to “surf” in the Wolf 2MS and explore all the function. This general consideration must be taken in mind when a Wolf 2MS is used.

| N° | No User logged in Wolf 2MS | Note |
|---|---|---|
| 1 | It is possible to see and browse all the Home, Tuner-1 and Tuner-2 data information. | No timing limitation |
| 2 | In the **Home** web page it is possible to start playing the streaming for Audio-1 and Audio-2. If a countdown is allowed, after pressing PLAY, the countdown will start to count down and at the end the streaming will be set to OFF. If no countdown is set, the streaming will be never stop. | |
| 3 | In the **Tuner-1 Data** a non-logged user can enter, and browse inside the submenu MAIN – AF01-32 – AF33-64 – EON.<br>The button STATS is not available. The non-logged user can see and browse but in read-only mode. There is no way to make changes to the measures or wolf 2MS behaviour. | |
| 4 | In the **Tuner-2 Data** a non-logged user can enter, and browse inside the submenu MAIN – AF01-32 – AF33-64 – EON.<br>The button STATS is not available. The non-logged user can see and browse but in read-only mode. There is no way to make changes to the measures or wolf 2MS behaviour. | |

Once no user is logged in, the Wolf 2MS shows


| N° | User logged in Wolf 2MS | Note |
|---|---|---|
| 1 | It is possible to see and browse all the Home, Tuner-1 and Tuner-2 data information. | Timing limitation to 60 minutes. After this time, the user automatically logged out |
| 2 | In the **Home** web page it is possible to start playing the streaming for Audio-1 and Audio-2. If a countdown is allowed, after pressing PLAY, the countdown will start to count down and at the end the streaming will be set to OFF. If no countdown is set, the streaming will be never stop. | |
| 3 | In the **Tuner-1 Data** a logged user can enter, and browse inside the submenu MAIN – AF01-32 – AF33-64 – EON. A RDS Data Reset button appears, and allows the user to reset all the RDS information and restart the RDS data collection. | |
| 4 | In the **Tuner-2 Data** a logged user can enter, and browse inside the submenu MAIN – AF01-32 – AF33-64 – EON. A RDS Data Reset button appears, and allows the user to reset all the RDS information and restart the RDS data collection. | |
| 5 | The user can enter in the Settings as per the Rights allowed by the Administrator. | Timing limitation to 60 minutes. After this time, the user automatically logged out. |
| 6 | Two or more SAME Username can be logged in and works together, in different place and using different web browser | If one of the two (or more) user press Logout, ALL the other “same-user” connected are logged out. |

It is possible to see what user is actually logged in



## 14.5 DATA EXPORT AND IMPORT

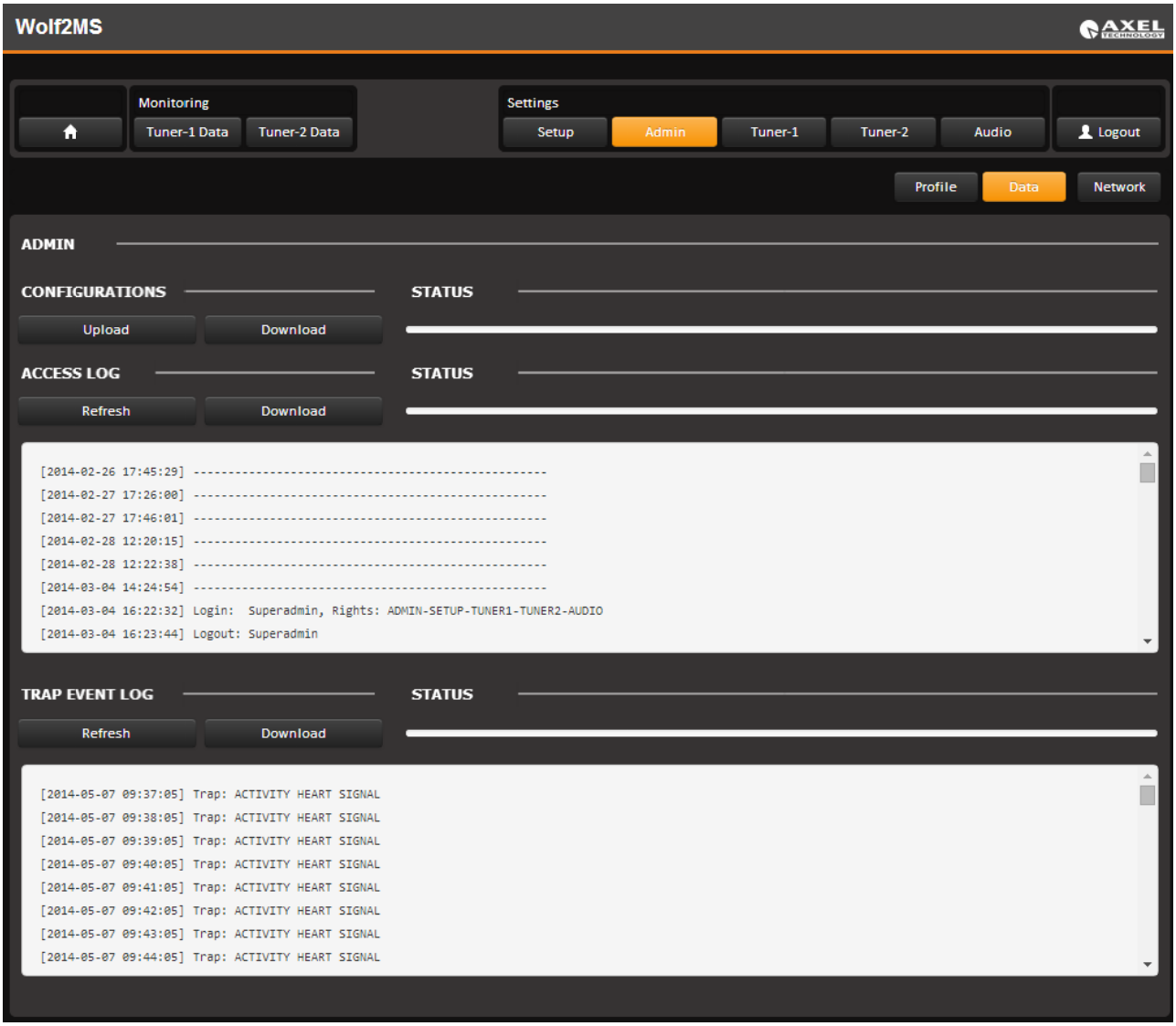
A new feature still under development, is related to data import and export on Wolf 2MS‘s SD Card and PC.

### 14.5.1 On SD Card

The Export allows the user to save the complete Wolf 2MS configuration in a SD Card. Moreover, also MAC Address is exported and saved, so this function allows the user to create a complete “clone” of the Wolf 2MS. This can be useful, once a Wolf 2MS is completely configured to store data on the SD Card, so in case of fault the SD Card can be removed and inserted in a new Wolf 2MS equipment and using the Import function all data can be retrieved and get a complete clone of the faulty equipment. To achieve this function the user must access via front panel, “SECURE DIGITAL CARD MANAGER” and select IMPORT – EXPORT – FORMAT

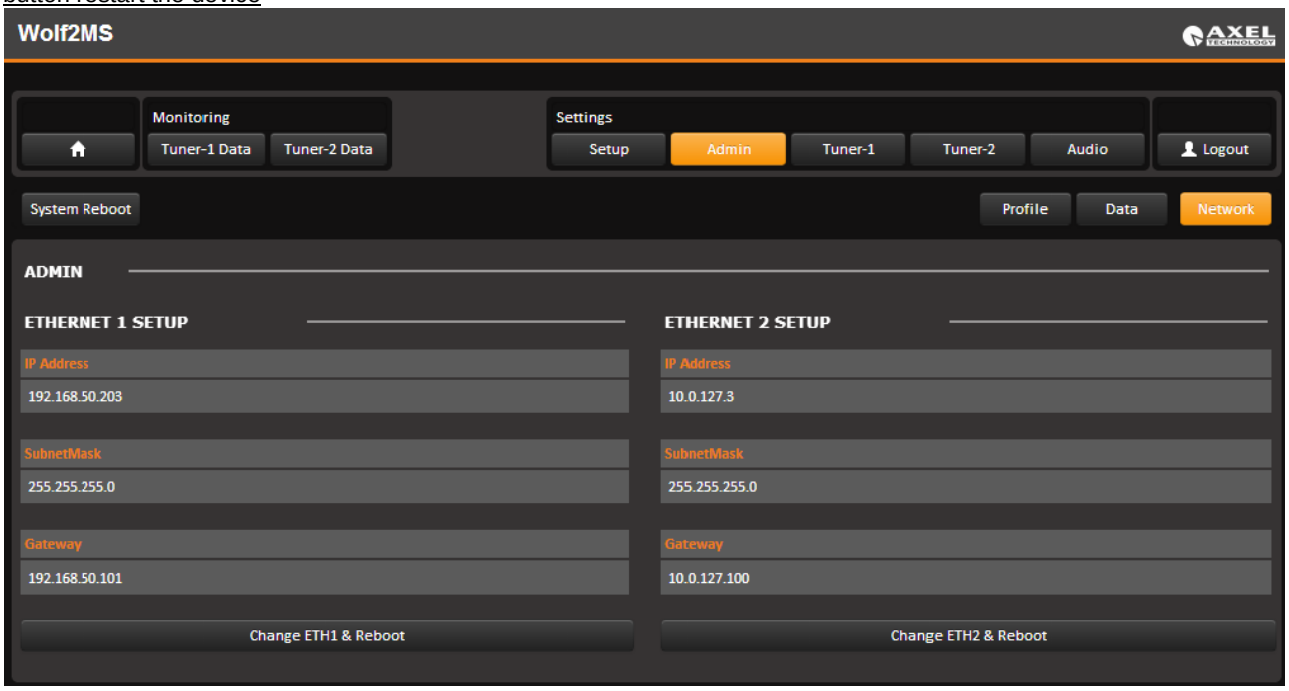
### 14.5.2 Using web browser

Via Web browser it is possible to download or upload a configuration, save and store in a PC as a common Json file . Same for Access Log in TXT and same for Trap Event Log as TXT log



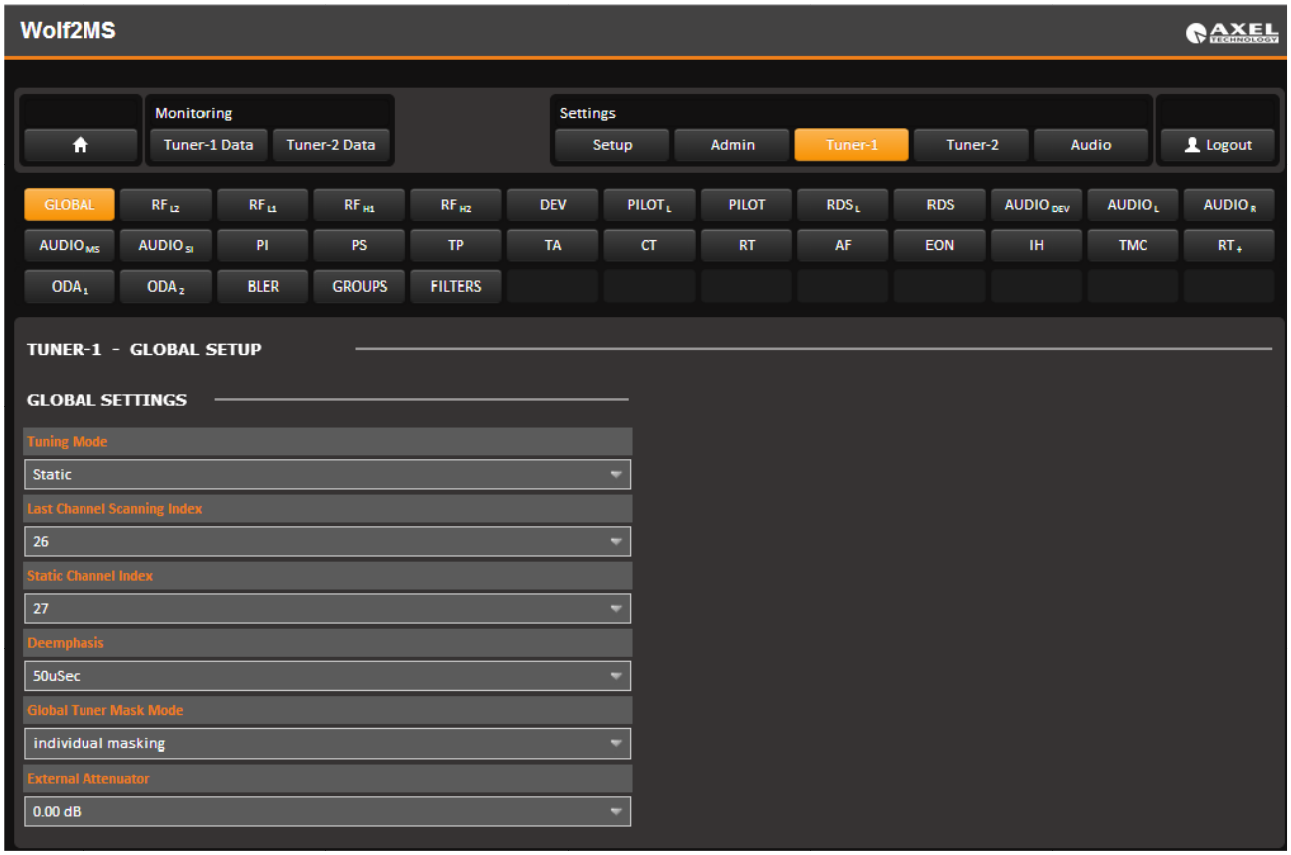
### *14.5.3* ***Network section***

By pressing this button it is possible to access and modify the value for Ethernet -1 and Ethernet -2. Can be set IP Address, Subnet mark, and Gateway for each network card. Once the modifying has been done, press “Change ETH1 & Reboot” or “Change ETH2 and Reboot”. The equipment will be rebooted and after restart modifying will be applied. System Reboot button restart the device



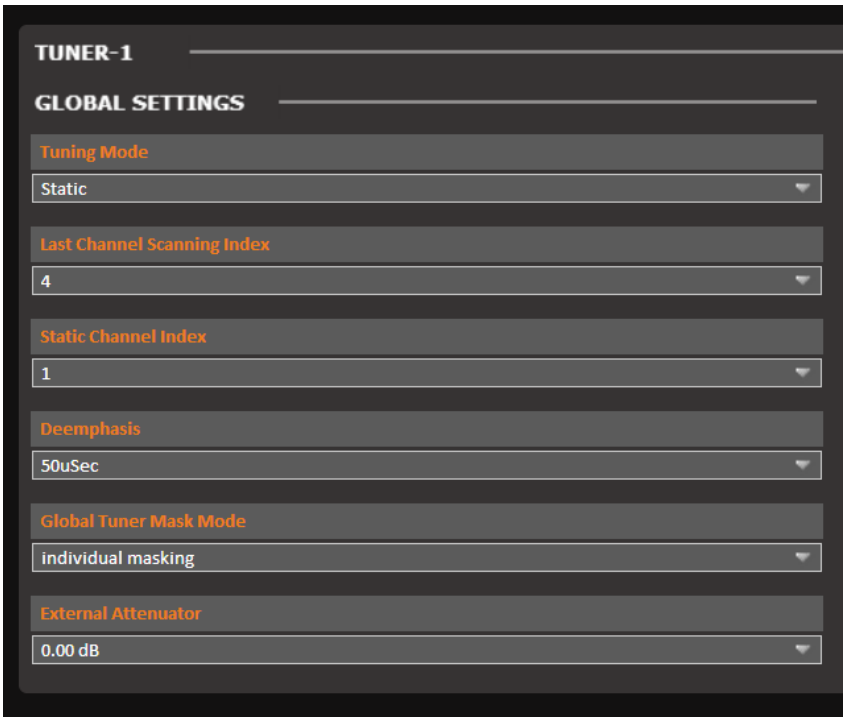

## *14.6 SETTINGS – TUNER 1*

This page allows the user to manage all the parameters and alarms managed by Wolf 2MS. The MAIN page shows and give the users the capability to set the general parameters as GLOBAL SETTINGS and RECEIVER DEMODULATION SETTINGS of the Wolf 2MS.




### 14.6.1 *Tuner-1 – Main*

In this page it is possible to set the behavior of the Tuner-1 and each single parameter it is reported below:



### 14.6.2 *Tuning Mode*

By using this parameter it is possible to change the tuning mode that should be **OFF** – **Static** – **Scan** – **Smart Scan.**

| | |
|---|---|
| **OFF** | In OFF the tuner is unavailable |
| **STATIC** | in Static the tuner remain fixed on a single frequency that is depending by the parameter Static Channel Index |
| **SCAN** | In Scan mode the tuner starts to scan the FM band, from channel 1 up to the <Last Channel Scanning Index> |
| **SMART SCAN** | In smart mode the channel scan time is adjusted automatically according to instantaneous measurements requirements. |

### 14.6.3 *Smart Scan*

The smart scan is an scan evolution method and “smart” mode to check each single parameter of the checked frequency: if during a scan, a single parameter of the scanned frequency is out-of-range the Wolf 2MS should decide to remain more time (in seconds) on the checked frequency, in order to get the correct value, or exclude a false-positive alarm.

Practical example: a typical case should be the decoding of the ODA service in RDS, or a PI Code, or any value checked. If the decoding gives an “error” the Wolf 2MS can stay more seconds on this frequency, and wait in order to get the correct value, and don’t generate an error (via snmp trap) that can overload the NMS system. In the real fact the checked valued is correct, but sometimes due to a lot of unpredictable situation, this value should be considered as an error.

### 14.6.4 *Deemphasys*

The internal tuner-1 Deemphasis value can be set between 50uS or 75uS accordingly to the country/region where the Wolf 2MS has been installed.

### 14.6.5 *External Attenuator*

In order to provide to Wolf 2MS a correct RF input level, in case an external RF attenuator is required, it is necessary to insert here the same attenuation level introduced by the external RF attenuator.

### 14.6.6 *Global Tuner Mask Mode*

By using this settings it is possible to set the behavior of the errors, if these should be masked or not.

| | |
|---|---|
| **Masked** | Mask all alarms with priority over any individual configuration. Mask an alarm means “*NO errors are reported and NO errors are visible on the webpage*” |
| **Unmasked** | Unmasks all alarms with priority over any individual configuration. Unmask an alarm means that “the alarms are *reported and visible on the webpage”* |
| **Severity-1** | Mask all alarms with severity equal to 1<br>(The others errors are not masked) |
| **Severity-2** | Mask all alarms with severity less than or equal to 2<br>(The others errors are not masked) |
| **Severity-3** | Mask all alarms with severity less than or equal to 3. |
| | |

| | |
|---|---|
| **Individual Masking** | This parameter allows the user to set for each single parameter under control if the parameter must be masked or not. |

It is possible to set for each single parameter under control the Masked or unmasked and the Severity Level on these value:

**RFL2** – **RFL1** / **RFH1** – **RFH2** – **DEV** – **PILOT Low – PILOT – RDS Low – RDS – AUDIO Dev - AUDIO Left – AUDIO Right –AUDIO Ms - AUDIO Si - PI** – **PS** – **TP** - **TA** – **CT** – **RT** – **AF** – **EON – IH - TMC** – **RT+** - **ODA1** – **ODA2** – **BLER** in the column **MASK**.


## *14.6.7 The meaning of "Mask" on each single parameter under control*

On each single parameter under control it is also possible to set the if the single parameter can be Masked, unmasked, Severity1 – Severity2 – Severity3 or RFL2. In this case each single parameter follow an Individual Masking.

The severity level is generally assigned in order to have a relation between the parameter under control and the priority. All the parameters involved in Severity1 – Severity2 – Severity3 can be masked or not.

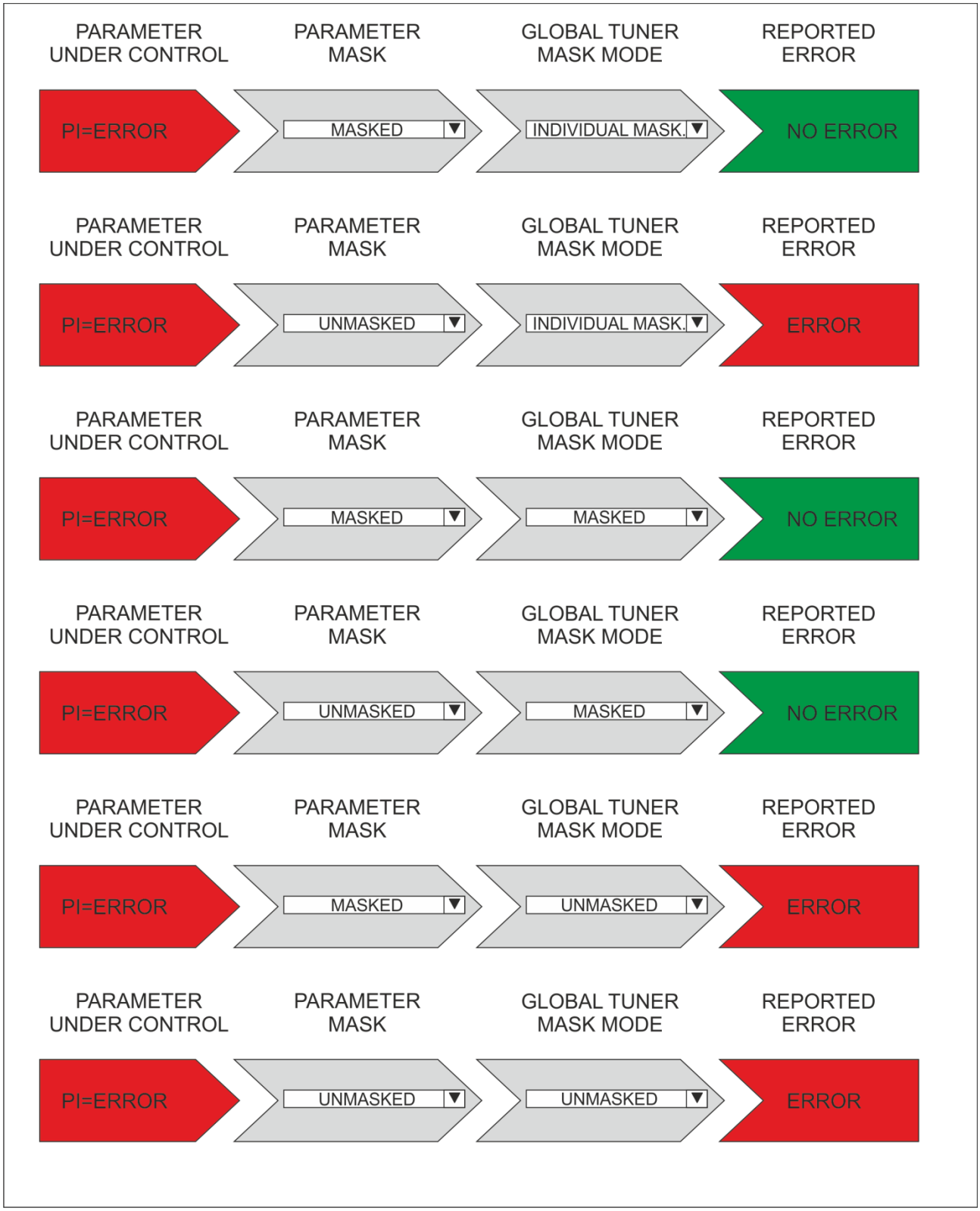
| | |
|---|---|
| ***Masked*** | Alarm **IS** masked (if *Global Tuner Mask Mode* is set in individual masking) |
| ***Unmasked*** | Alarm **IS NOT** masked (if *Global Tuner Mask Mode* is set in individual masking) |
| ***Severity-1*** | The Alarm is masked only if *Global Tuner Mask Mode* is set on a Severity **<** or **equal** to 1 (it means always not masked) |
| ***Severity-2*** | The Alarm is masked only if *Global Tuner Mask Mode* is set on a Severity **<** or **equal** to 2 |
| ***Severity-3*** | The Alarm is masked only if *Global Tuner Mask Mode* is set on a Severity **<** or **equal** to 3 (it means always masked) |
| ***RFL2 Mask*** | Masked if the Alarm RFL2 Mask is active. *(see Note2 below)* |

**Note1**: it is not possible to mix the (*Severity1-Severity2-Severity3*) with *Individual Masking*
**Note2**: in order to work properly the RFL2 Mask requires that validation is less of RFL2 and Hold time is greater than the individual alarms that use this type of mask.

***Example 1:*** Masked, Unmasked and Individual Masking.

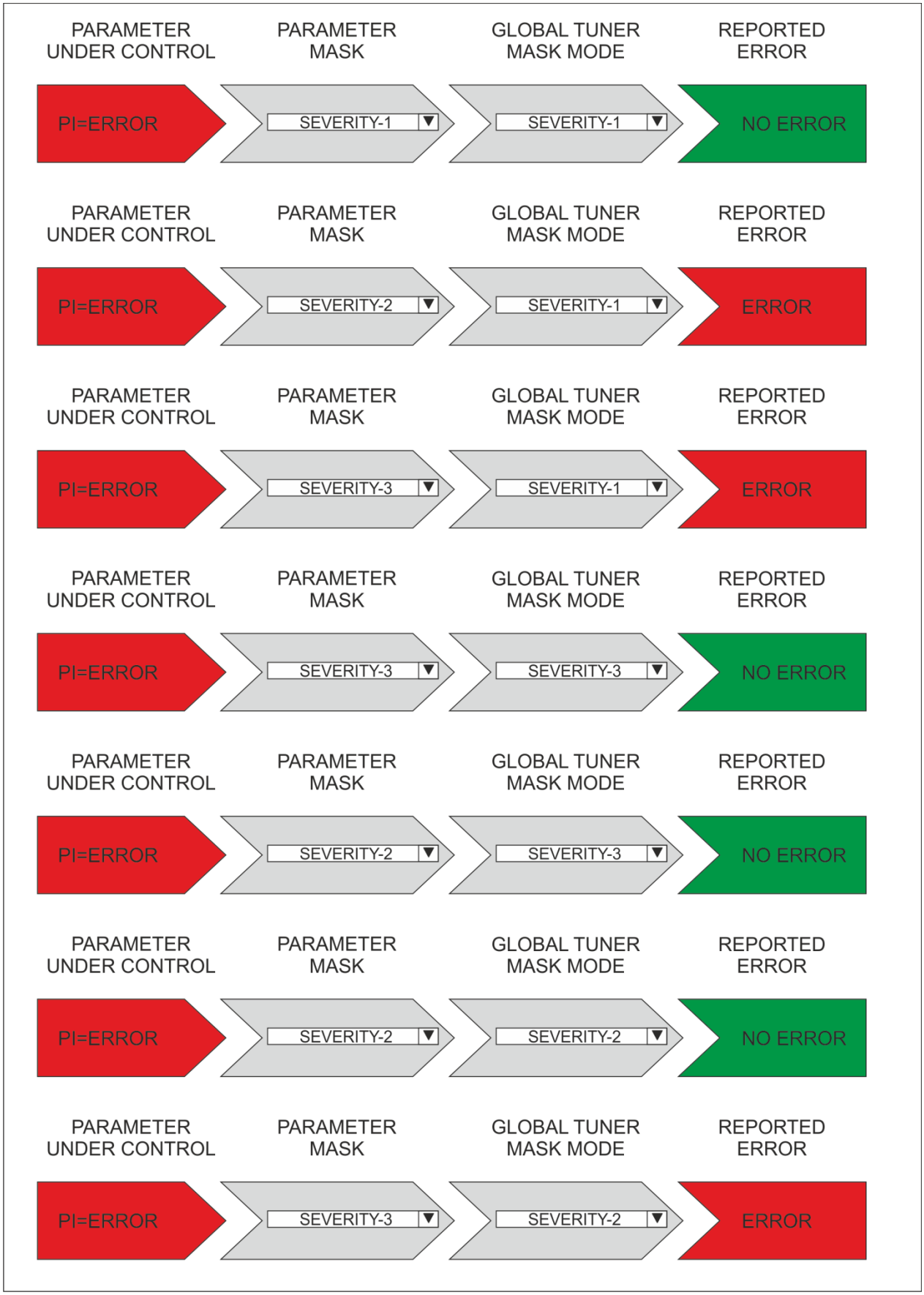
This schemes shows from left to right the flow of each single Alarm.

In the first row the example is the PI Code. Once it is reported an error (**PI**) if the Parameter Mask in the single Parameter under control is MASKED but the Global Tuner Mask Mode is INDIVIDUAL MASKING = **NO error report**



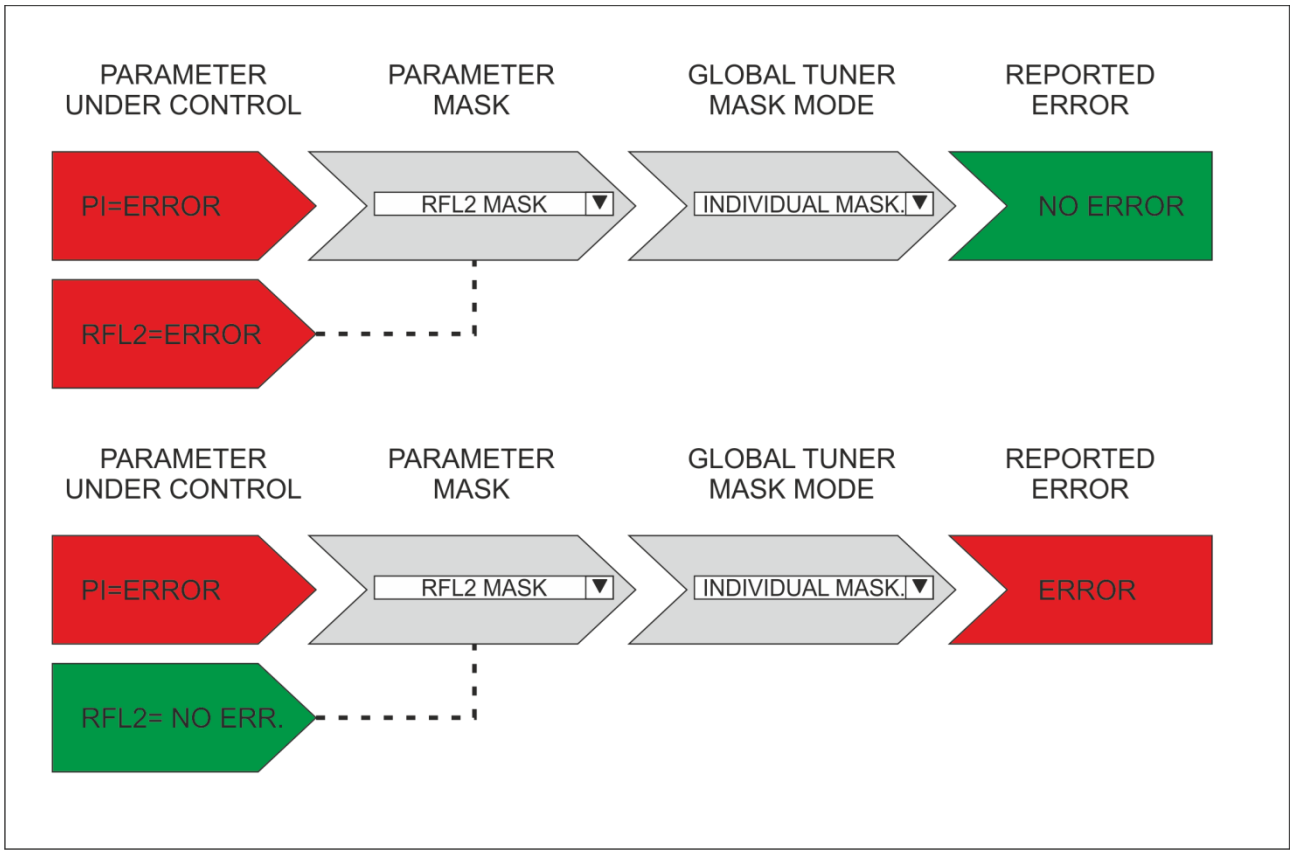
***Example 2:*** Severity-1, Severity-2, Severity3.

This schemes shows from left to right the flow of each single Alarm.



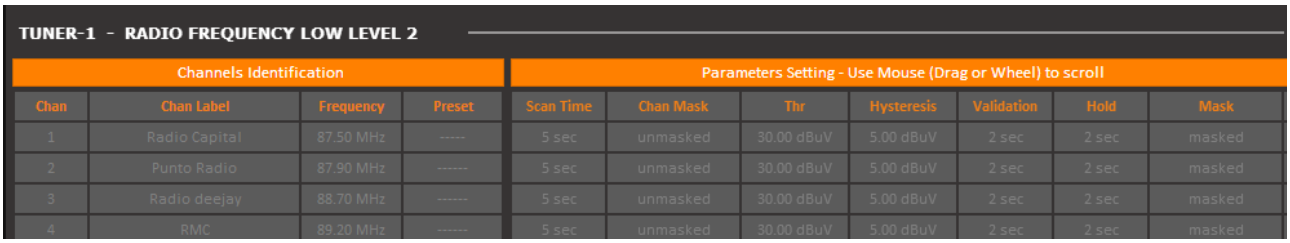

***Example 3:*** RFL2 MASK

This schemes shows from left to right the flow of each single Alarm.


PARAMETER UNDER CONTROL
PARAMETER MASK
GLOBAL TUNER MASK MODE
REPORTED ERROR
PI=ERROR
RFL2 MASK
INDIVIDUAL MASK.
NO ERROR
RFL2=ERROR
PARAMETER UNDER CONTROL
PARAMETER MASK
GLOBAL TUNER MASK MODE
REPORTED ERROR
PI=ERROR
RFL2 MASK
INDIVIDUAL MASK.
ERROR
RFL2= NO ERR.

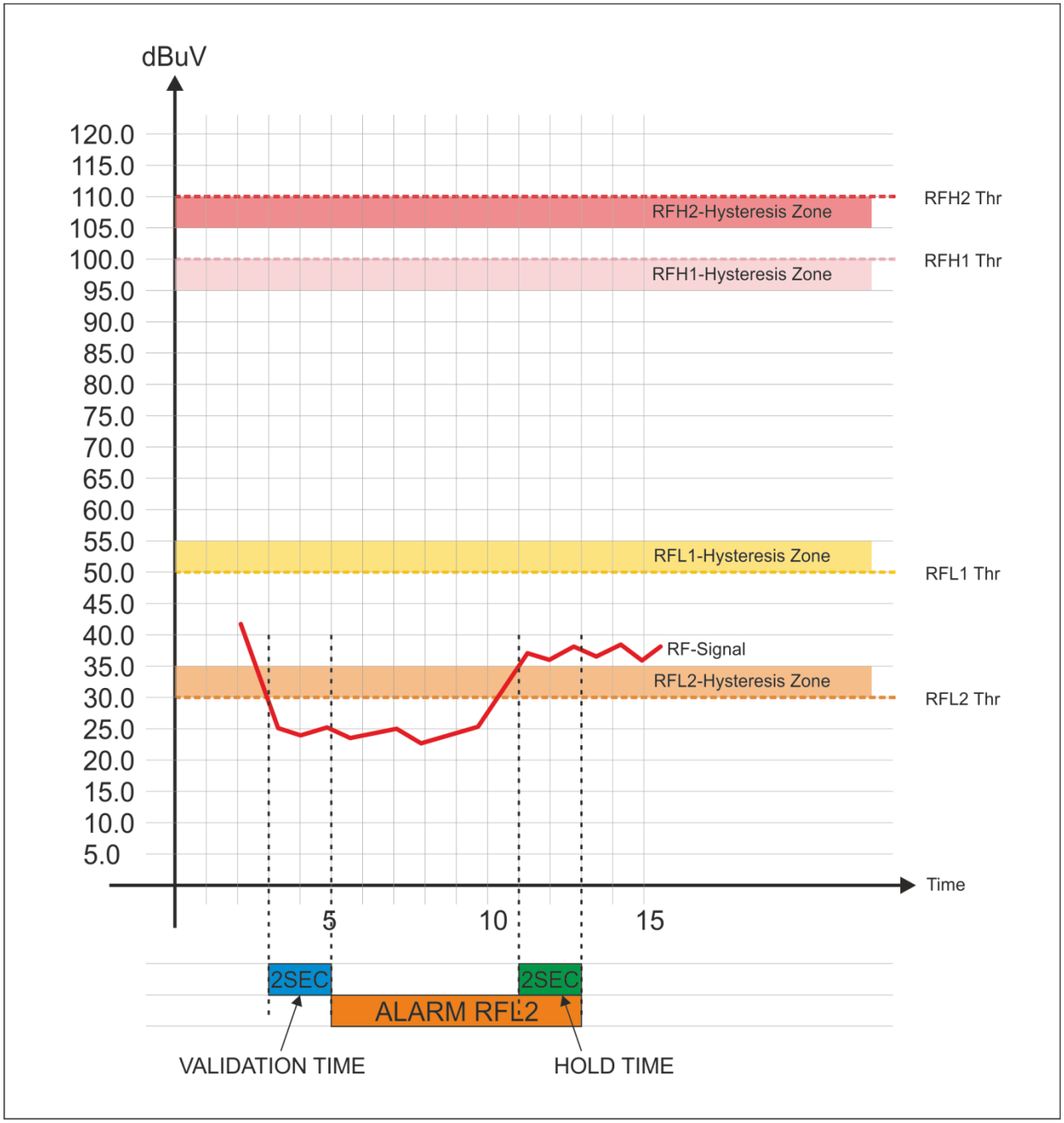
### *14.6.8* ***RFL2***

This section is about the **Radio Frequency LOWER LEVEL 2**.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan (*)*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used and managed by the Configuration Manager | |
| ***Scan Time*** | This value represents the time in seconds that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr or Threshold*** | Threshold level. **Below** this threshold level an alarm is generated. | *See Note1 reported below* |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | *Scroll Mouse* |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | *Scroll Mouse* |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | *Scroll Mouse* |

**Alarm generation RFL2:**



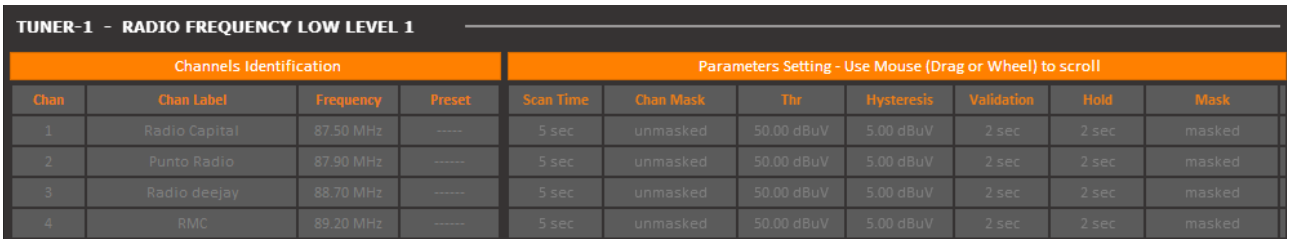

Note1:

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation*** | If the RF Signal under control is < *(RFL2 Thr)* for a duration > *Validation* = the error is generated. |
| ***Error Come out*** | If the RF Signal under control > *(RFL2 Thr + Hysteresis)* for a duration > *Hold* = the error come out. |

| | |
|---|---|

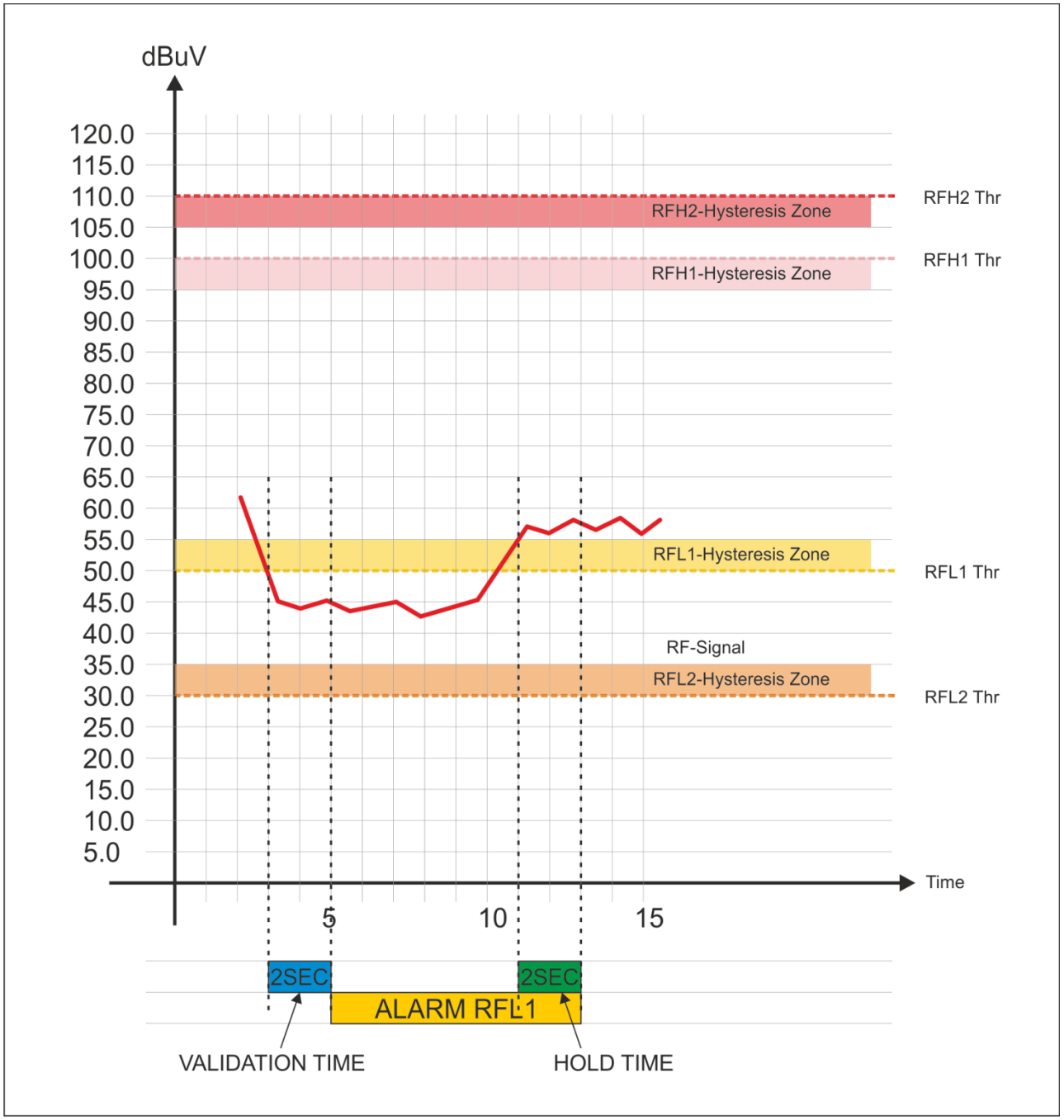
### 14.6.9 *RFL1*

This section is about the **Radio Frequency LOWER LEVEL 1.**




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan (*)*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used and managed by the Configuration Manager | |
| ***Scan Time*** | This value represents the time in seconds that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr or Threshold*** | Threshold level. **Below** this threshold level an alarm is generated. | *See Note1 reported below* |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | *Scroll Mouse* |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | *Scroll Mouse* |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | *Scroll Mouse* |

**Alarm generation RFL1:**



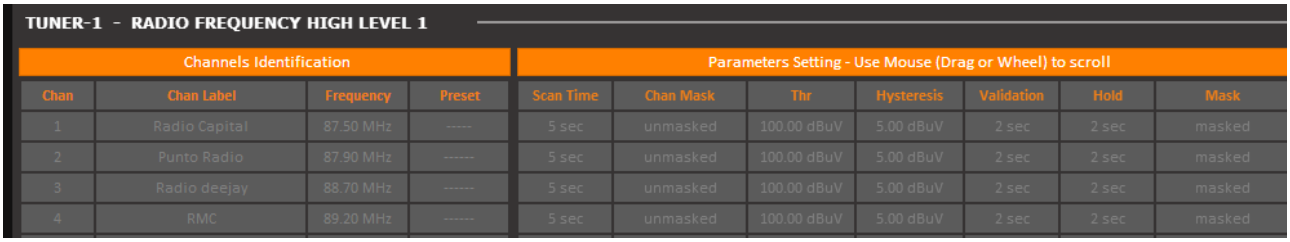

Note1

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation*** | If the RF Signal level under control < *(RFL1)* for a duration > *Validation* = the error is generated |
| ***Error Come out*** | If the RF Signal level under control > *(RFL1 Thr + Hysteresis)* for a duration > *Hold* = the error come out |

| | |
|---|---|

### *14.6.10* ***RFH1***

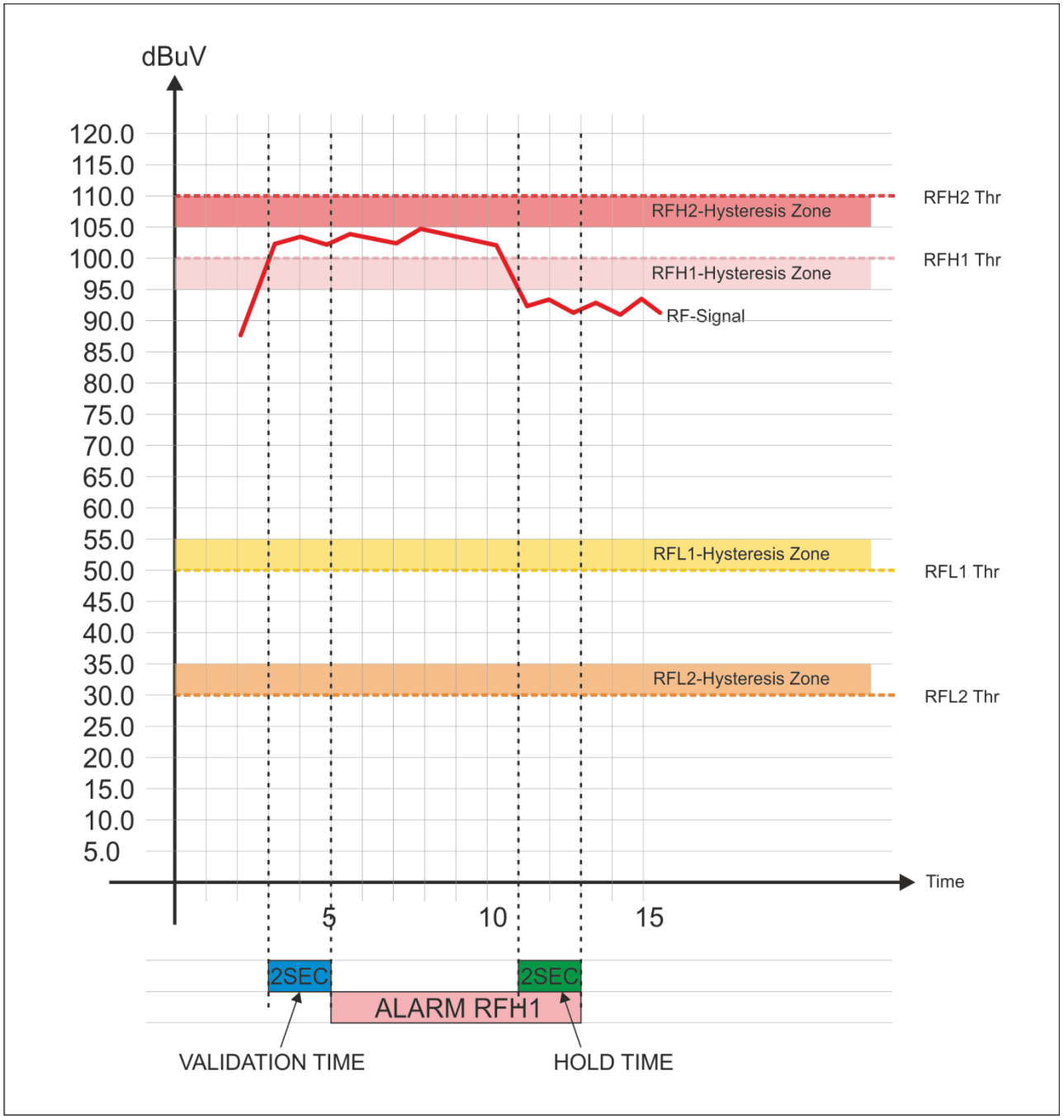
This section is about the **Radio Frequency HIGHER LEVEL 1.**




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan (*)*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used and managed by the Configuration Manager | |
| ***Scan Time*** | This value represents the time in seconds that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr or Threshold*** | Threshold level. **Beyond** this threshold level an alarm is generated. | *See Note1 reported below* |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| | | |

| | | |
|---|---|---|
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

**Alarm generation RFH1:**



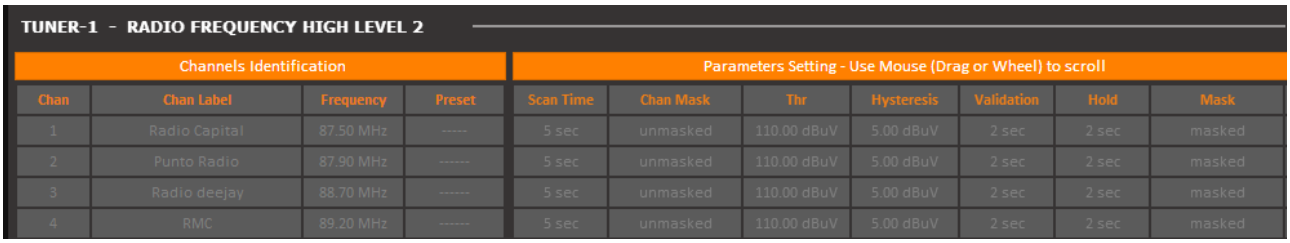

Note1

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation*** | If the RF Signal level under control > (*RFH1* + *Hysteresis*) for a duration > *Validation* = the error is generated |
| | |

| | |
|---|---|
| ***Error Come out*** | If the RF Signal level under control < (*RFH1 - Hysteresis*) for a duration > *Hold* = the error come out |

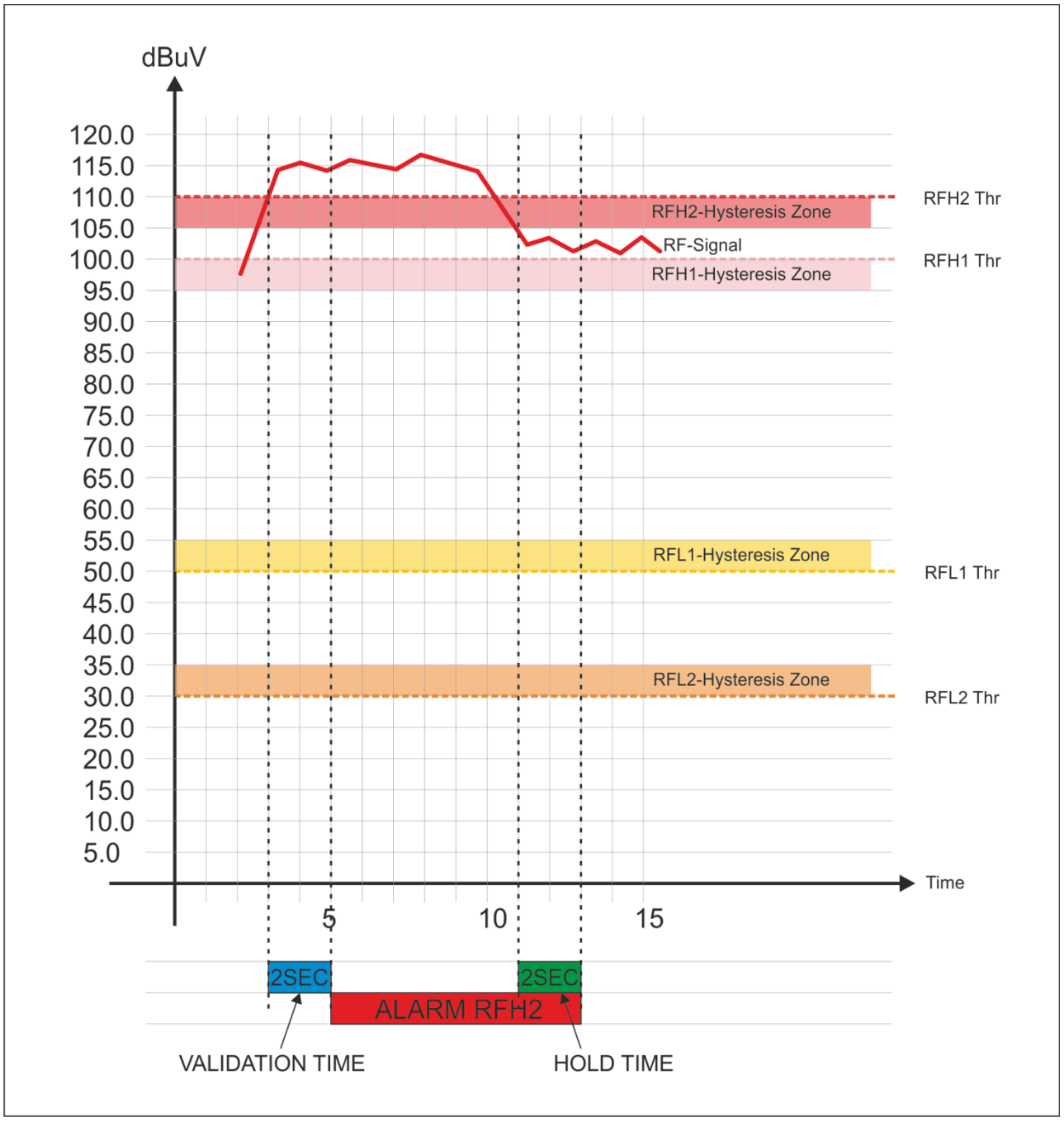
### 14.6.11 *RFH2*

This section is about the **Radio Frequency HIGHER LEVEL 2.**




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan (*)*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used and managed by the Configuration Manager | |
| ***Scan Time*** | This value represents the time in seconds that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr or Threshold*** | Threshold level. **Beyond** this threshold level an alarm is generated. | *See Note1 reported below* |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finishe | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

**Alarm generation RFH2**

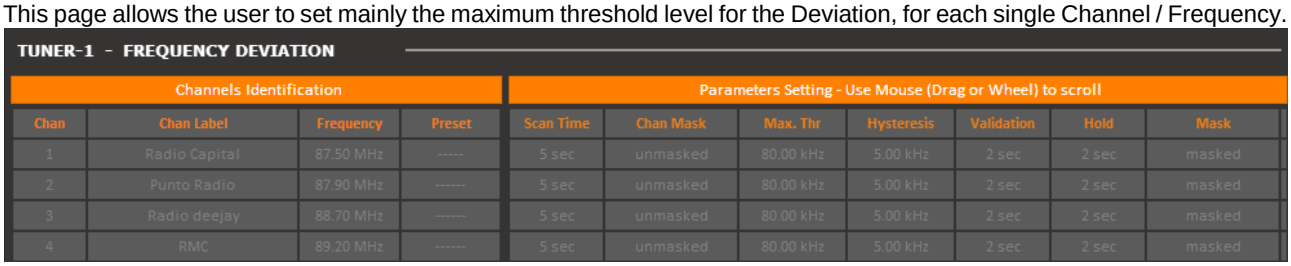



**Note1**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation*** | If the RF Signal level under control > (*RFH2* + *Hysteresis*) for a duration > *Validation* = the error is generated |
| ***Error Come out*** | If the RF Signal level under control < (*RFH2 Thr* – *Hysteresis*) for a duration > *Hold* = the error come out |

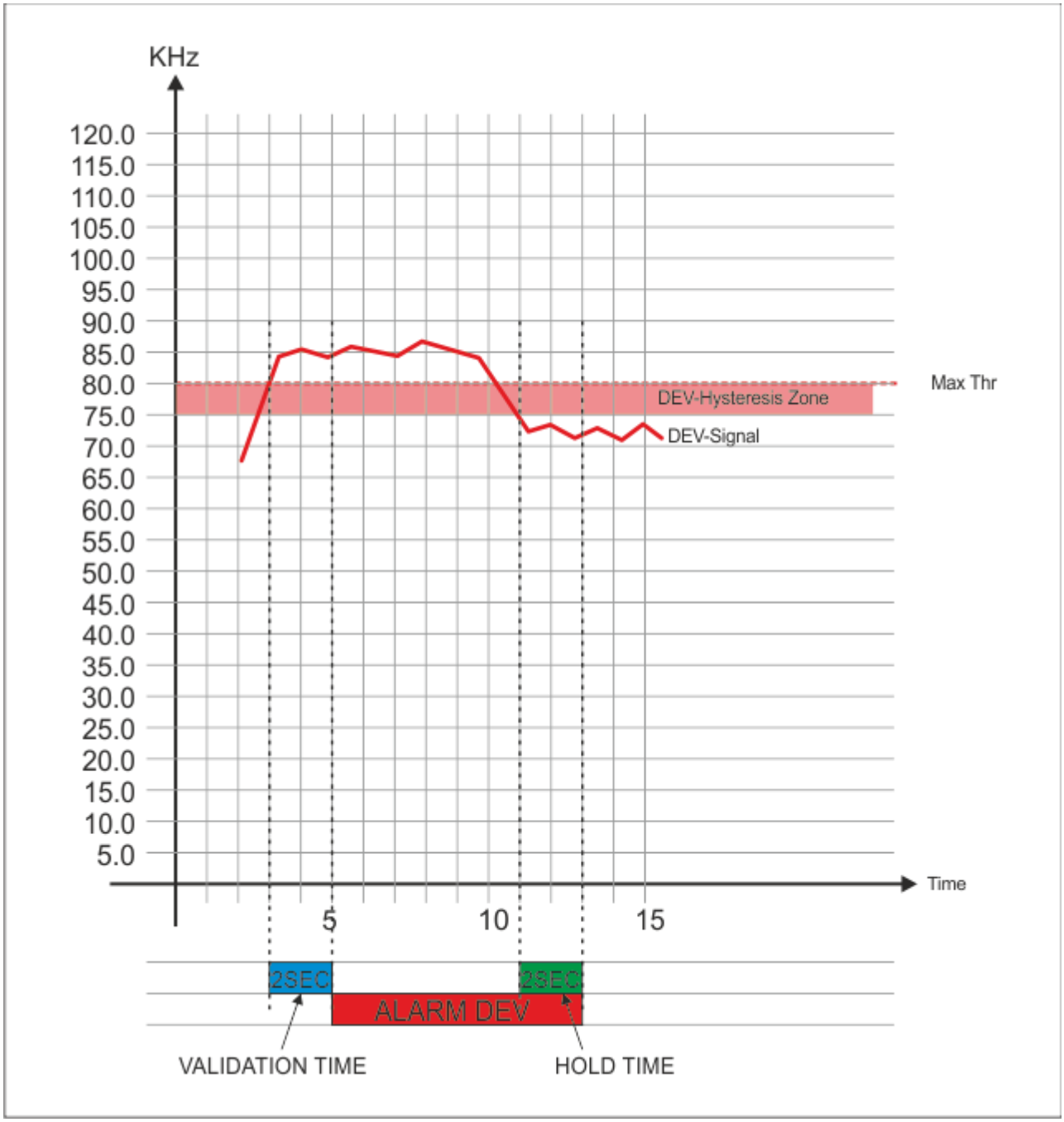
### 14.6.12 *DEV (Maximum Deviation allowed)*

This page allows the user to set mainly the maximum threshold level for the Deviation, for each single Channel / Frequency.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | this value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Max Thr*** | Maximum Threshold level. The value set here is the maximum deviation that the RF carrier can reach. By default the level il 80kHz. With a double click on the box can be changed by inserting the desired value. | *See Note1 reported below* |
| ***Hysteresis*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***HOLD*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

**Alarm generation DEV – Deviation**

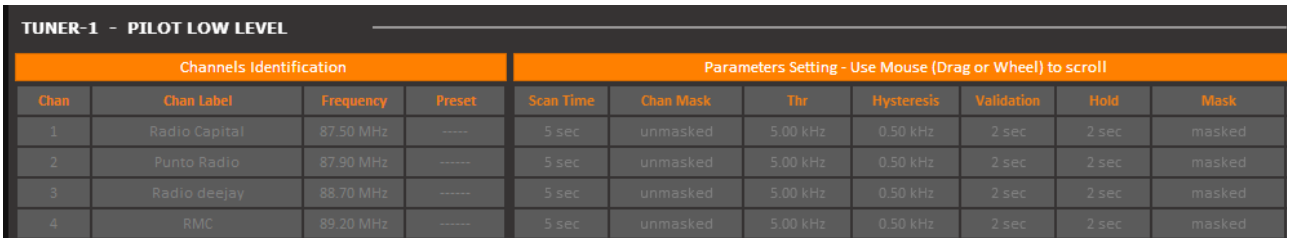



**Note1**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation*** | If the RF Signal level under control > (*DEV*) for a duration > *Validation* = the error is generated |
| ***Error Come out*** | If the RF Signal level under control < (*DEV – Hysteresis*) for a duration > *Hold* = the error come out |

### 14.6.13 *PILOT LOW (19kHz Pilot Stereo level)*

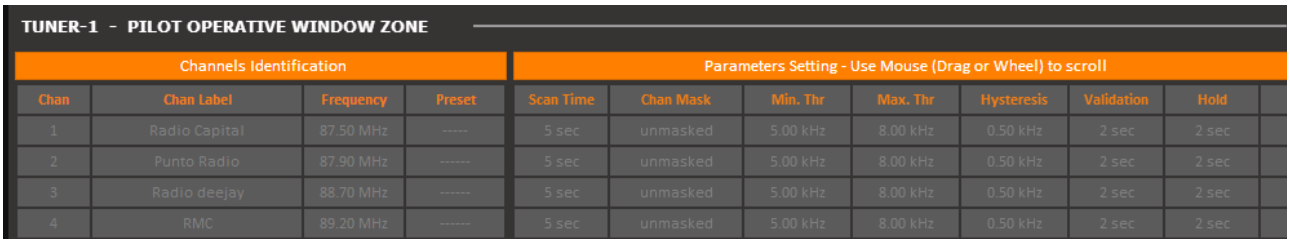
This page allows the user to set **ONLY** the **minimum threshold level** for the Stereo Pilot, for each single Channel / Frequency. This status variable allows to monitor if the pilot level goes down a given threshold level.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr*** | Minimum Threshold level for the Pilot Stereo 19kHz. The value set here is the minimum deviation level that the Pilot Stereo 19kHz carrier can reach. By default the level is 5kHz. With a double click on the box can be changed by inserting the desired value. | |
| ***Hysteresis level*** | this value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | It is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

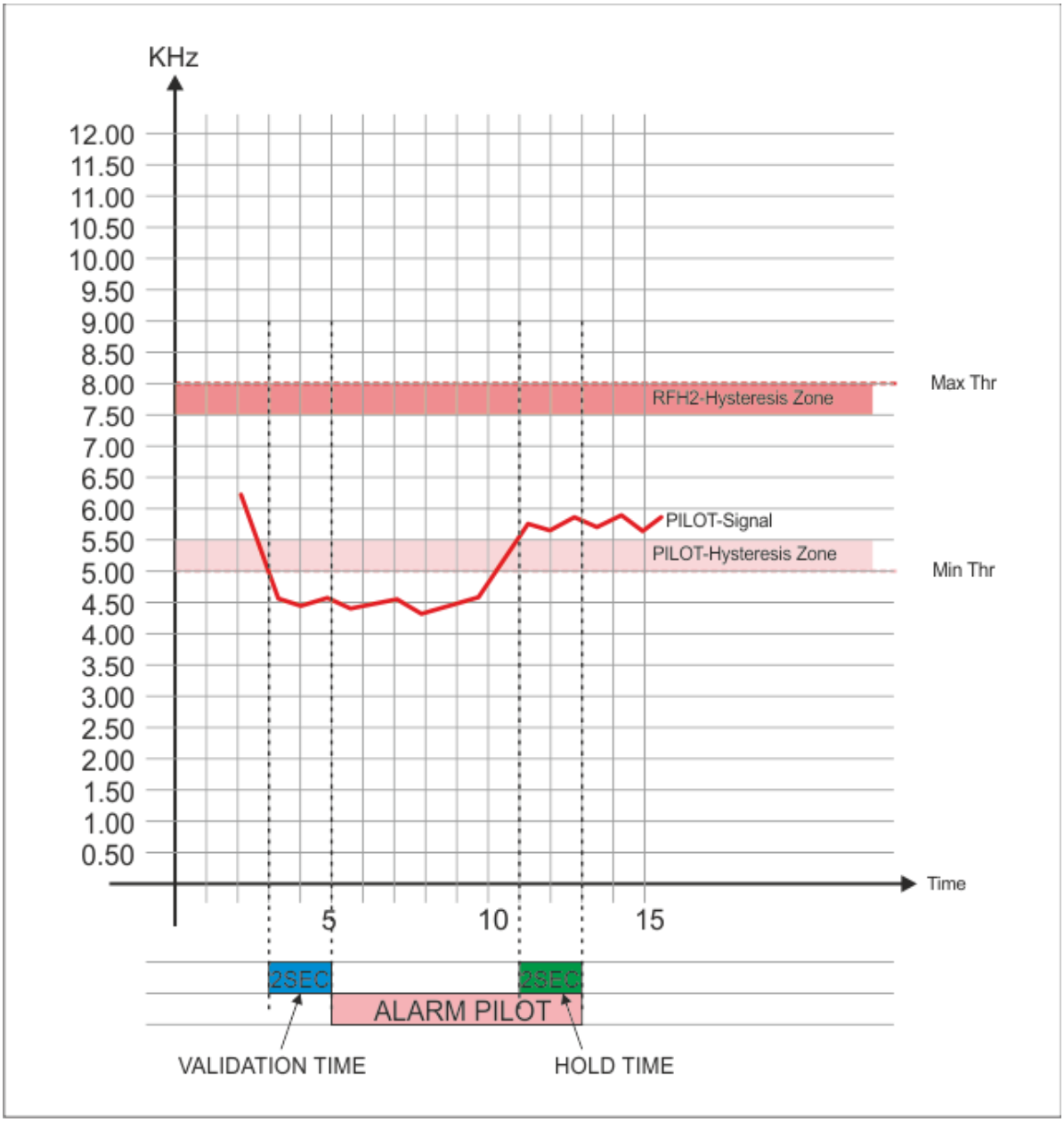
### 14.6.14 *PILOT (19kHz Pilot Stereo level)*

This page allows the user to set mainly **the minimum and the maximum threshold** level for the Stereo Pilot, for each single Channel / Frequency. With this alarm status variable (using a window zone) it is possible to monitor the pilot level inside a nominal window zone and if it falls under a minimum level or monitor two low levels zones like RF levels.



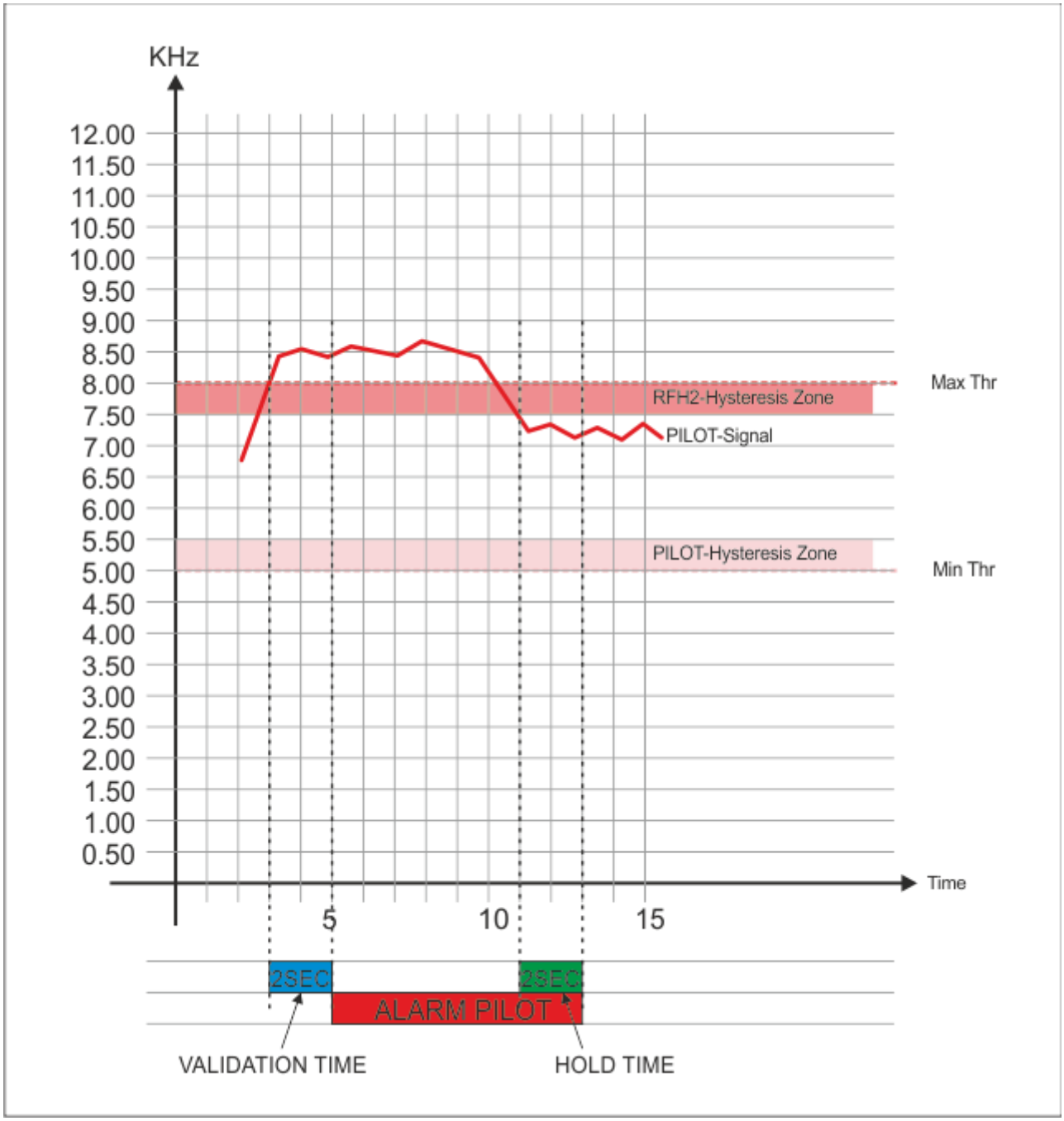

| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Min. Thr*** | Minimum Threshold level for the Pilot Stereo 19kHz. The value set here is the minimum deviation level that the Pilot Stereo 19kHz carrier can reach. By default the level is 5kHz. With a double click on the box can be changed by inserting the desired value. | *See Note1 reported below* |
| ***Max. Thr*** | Maximum Threshold level for the Pilot Stereo 19kHz. The value set here is the maximum deviation level that the Pilot Stereo 19kHz carrier can reach. By default the level is 8kHz. With a double click on the box can be changed by inserting the desired value. | *See Note2 reported below* |
| ***Hysteresis level*** | this value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | It is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| | | |

| | | |
|---|---|---|
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |




**Note1**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation Min. Threshold*** | If the RF Signal level under control < (*Min. Thr*) for a duration > *Validation* = the error is generated |
| ***Error Come out Min. Threshold*** | If the RF Signal level under control > (*Min. Thr* + *Hysteresis*) for a duration > *Hold* = the error come out |

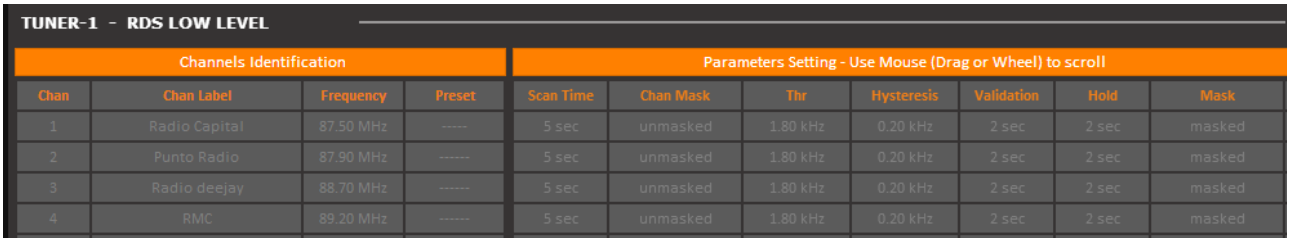



**Note2**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation Max. Threshold*** | If the RF Signal level under control > (*Max. Thr*) for a duration > *Validation* = the error is generated |
| ***Error Come out Max. Threshold*** | If the RF Signal level under control > (*Max. Thr - Hysteresis*) for a duration > *Hold* = the error come out |

### 14.6.15 *RDS Low (57kHz RDS Data Level)*

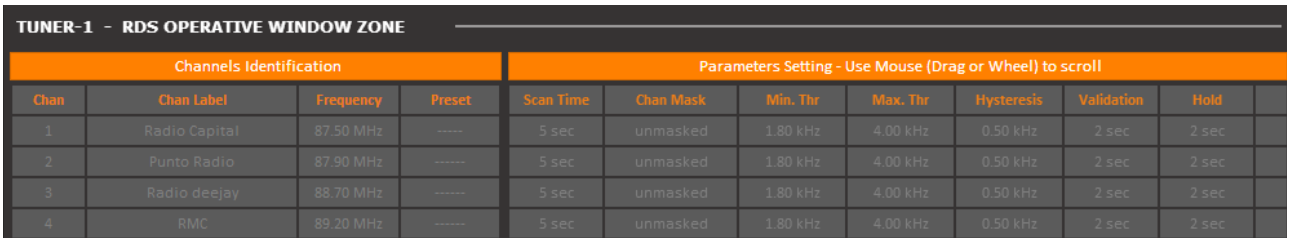
This page allows the user to set ONLY the minimum threshold level for the RDS Data Level, for each single Channel / Frequency. This settings mainly means that below this level an error is generated and some receivers may not correctly decode the RDS data stream




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Thr*** | Minimum Threshold level for the RDS Data 57kHz. The value set here is the minimum deviation level that the RDS Data 57kHz carrier can reach. By default the level is 1.80kHz. With a double click on the box can be changed by inserting the desired value. | |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

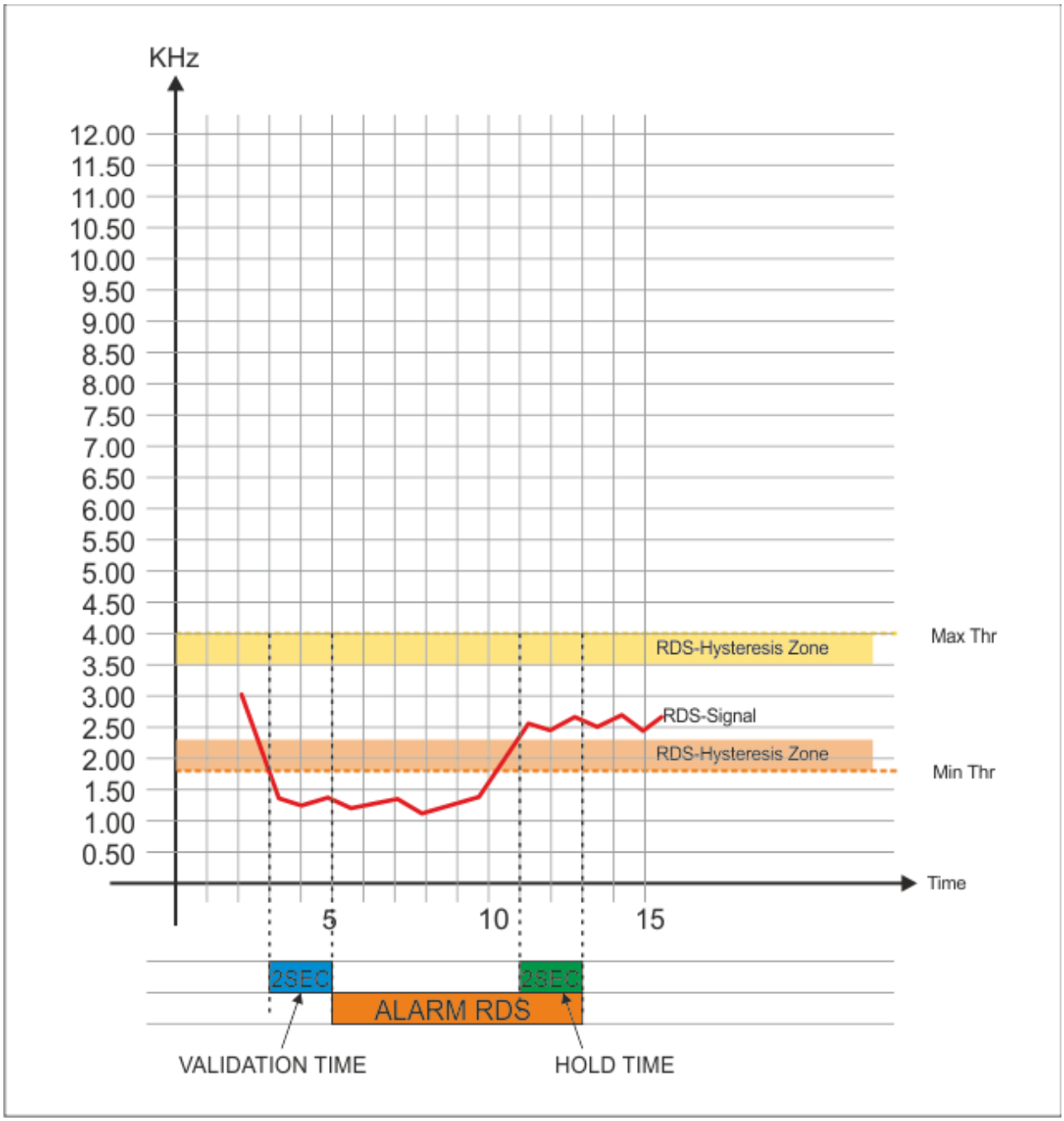
### 14.6.16 *RDS (57kHz RDS Data Level)*

This page allows the user to set mainly the minimum and the maximum threshold level for the RDS Data Level, for each single Channel / Frequency. In this settings it is possible to set normal window working level for the RDS data.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name Mnemonicthat can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Min. Thr*** | Minimum Threshold level for the RDS Data 57kHz. The value set here is the minimum deviation level that the RDS Data 57kHz carrier can reach. By default the level is 1.80kHz. With a double click on the box can be changed by inserting the desired value. | *See Note1 reported below* |
| ***Max. Thr*** | Maximum Threshold level for the RDS Data 57kHz. The value set here is the maximum deviation level that the RDS Data 57kHz carrier can reach. By default the level is 4.0kHz. With a double click on the box can be changed by inserting the desired value. | *See Note2 reported below* |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>. | |

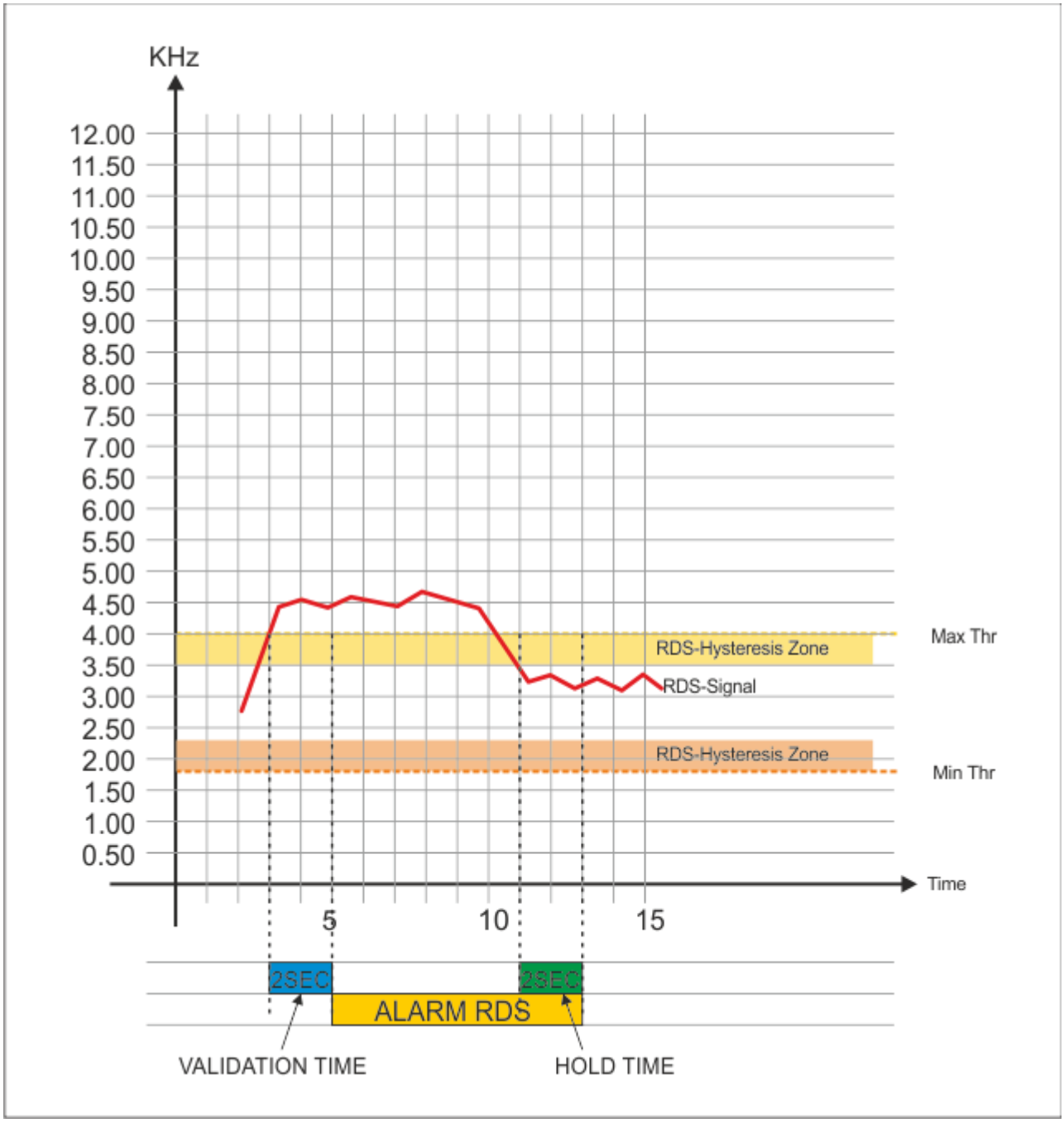
| | | |
|---|---|---|
| | If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |




**Note1**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation Min. Threshold*** | If the RF Signal level under control < (*Min. Thr*) for a duration > *Validation* = the error is generated |
| ***Error Come out Min. Threshold*** | If the RF Signal level under control > (*Min. Thr* + *Hysteresis*) for a duration > *Hold* = the error come out |

| | |
|---|---|

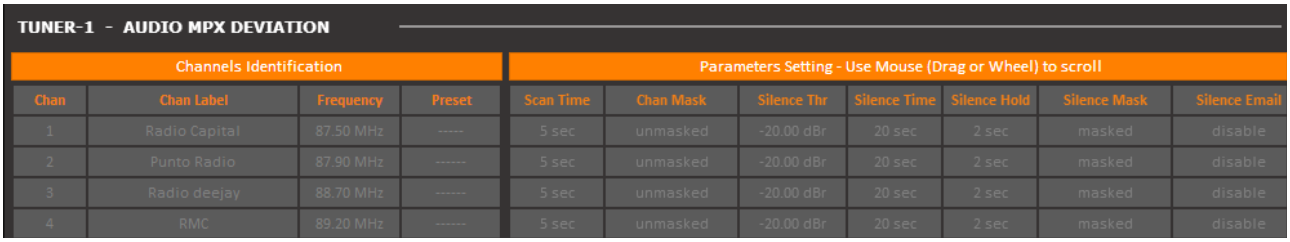



**Note2**

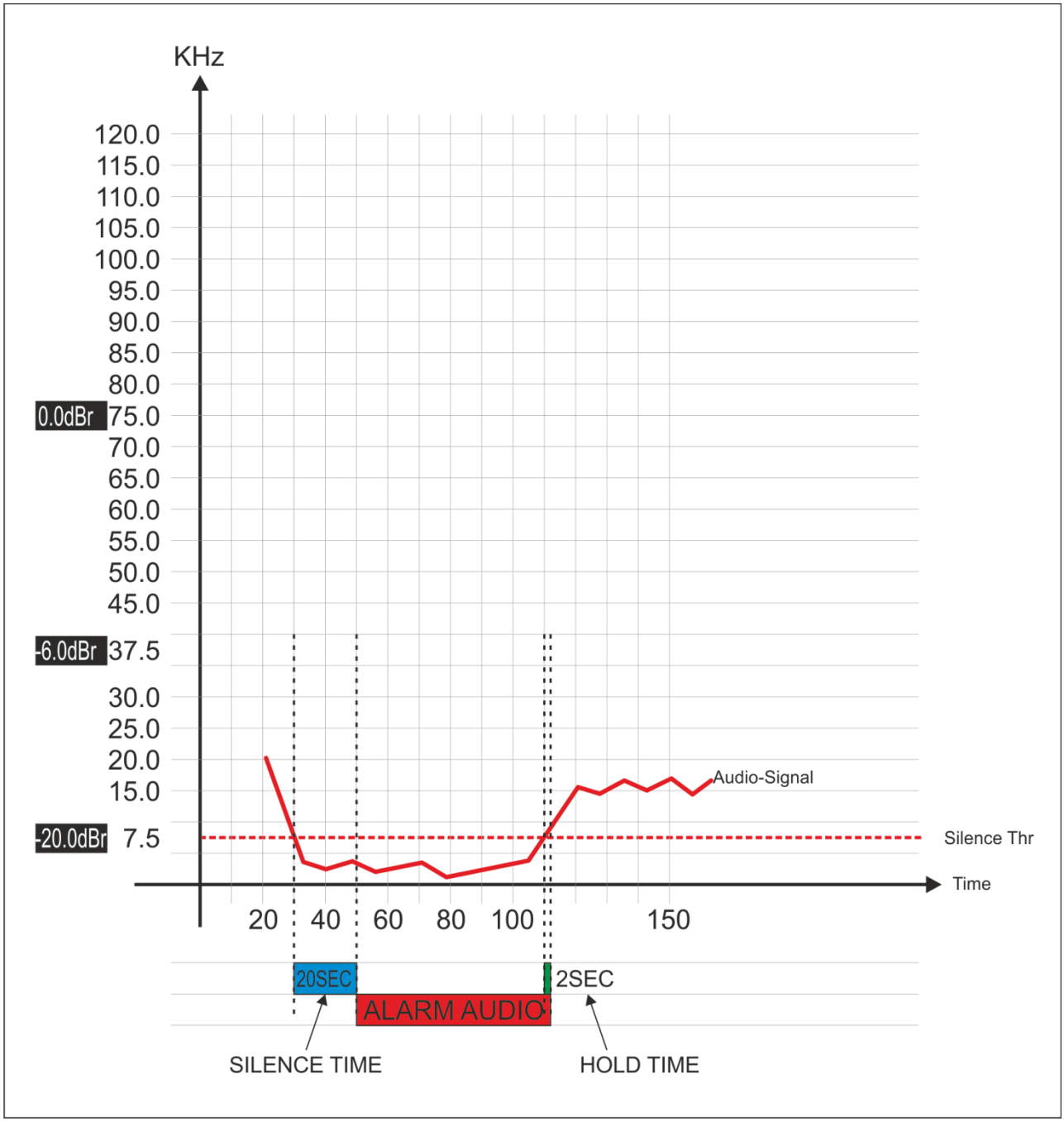
| *Condition* | *Description* |
|---|---|
| ***Error Generation Max. Threshold*** | If the RF Signal level under control > (*Max. Thr*) for a duration > *Validation* = the error is generated |
| ***Error Come out Max. Threshold*** | If the RF Signal level under control > (*Max. Thr - Hysteresis*) for a duration > *Hold* = the error come out |

### 14.6.17 *Audio DEV (Silence detector)*

This page allows the user to set mainly the silence threshold and timing, for each single Channel / Frequency.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Silence Thr*** | This is the minimum level to be considered *audio*. Under this threshold the audio is considered “silence”. | *See Note1 reported below* |
| ***Silence Time*** | This parameter is related to Silence Thr, after this <Silence Time> the incoming audio is considered “Silence” | |
| ***Silence Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Silence Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Silence Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

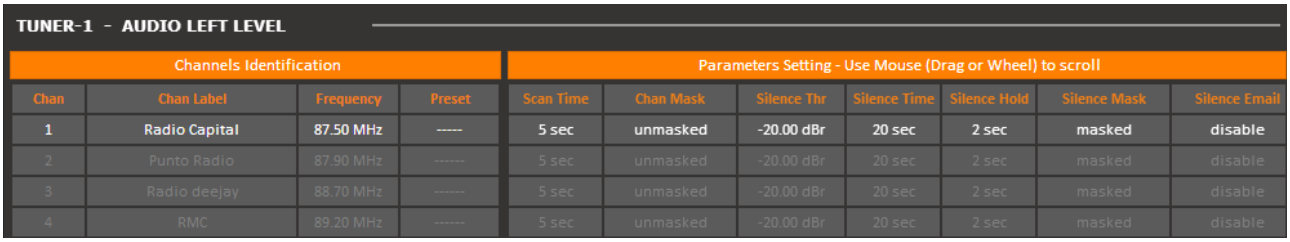



**Note1**

| ***Condition*** | ***Description*** |
|---|---|
| ***Error Generation Silence*** | If the RF Signal level under control < (*Silence Thr*) for a duration > *Silence Time* = the error is generated |
| ***Error Come out Silence*** | If the RF Signal level under control > (*Silence Thr*) for a duration > Silence *Hold* = the error come out |

### *14.6.18* ***Audio Left (Silence detector)***

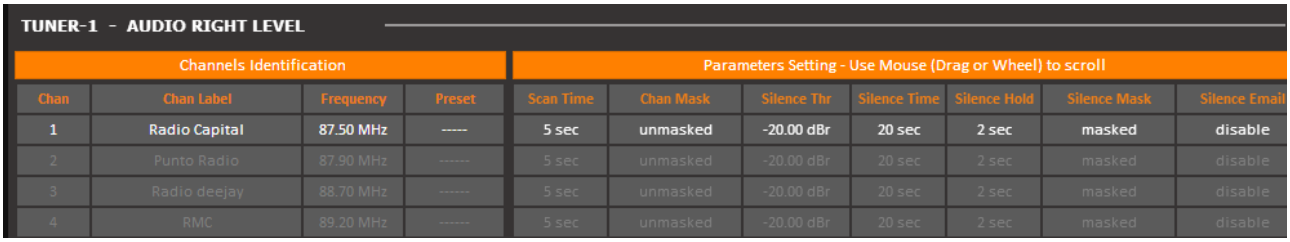
This page allows the user to set mainly the silence threshold and timing, for the single Left Channel




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Silence Thr*** | This is the minimum level on the **LEFT CHANNEL** to be considered *audio*. Under this threshold the audio is considered “silence”. | |
| ***Silence Time*** | This parameter is related to Silence Thr, after this <Silence Time> the incoming audio is considered “Silence” | |
| ***Silence Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Silence Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Silence Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.19 *Audio Right (Silence detector)*

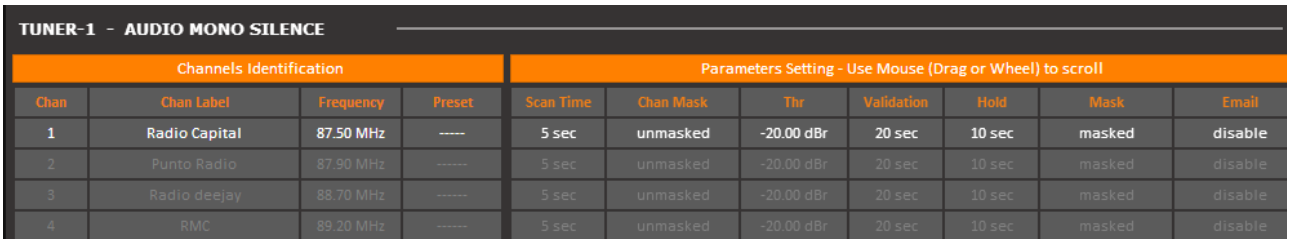
This page allows the user to set mainly the silence threshold and timing, for the single Right Channel




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Silence Thr*** | This is the minimum level on the **RIGHT CHANNEL** to be considered *audio*. Under this threshold the audio is considered “silence”. | |
| ***Silence Time*** | This parameter is related to Silence Thr, after this <Silence Time> the incoming audio is considered “Silence” | |
| ***Silence Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Silence Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Silence Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Silence Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### *14.6.20* ***Audio MS (Mono Silence)***

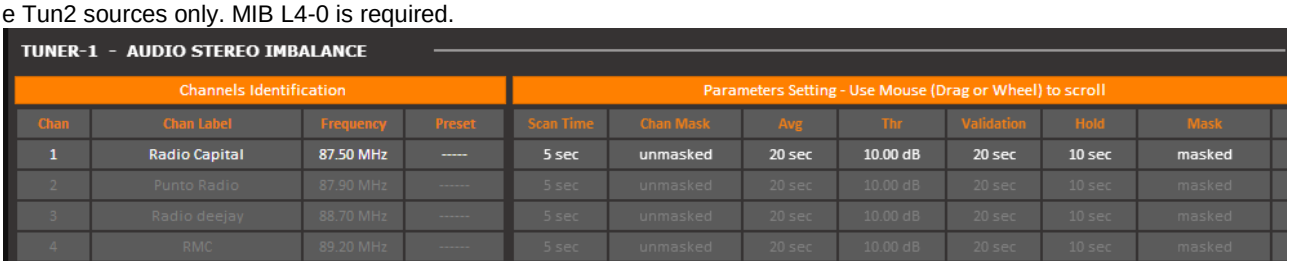
This page allows the user to set mainly the silence threshold and timing, for Audio Mono inside MPX Signal.
Mono Silence alarm and about 16 new Oids in the Audio Module branches and two new traps. This new alarm rises up when the audio levels "(LeftRms+RightRms)/2" is under the threshold for a time greater than the silence time. The threshold range is down to -60dBr. The measurement value is available with all input sources, but the alarms and traps are available for the Tun1 e Tun2 sources only. MIB L4-0 is required




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | |
| ***Thr*** | This is the minimum level to be considered *audio*. Under this threshold the audio is considered "silence". | |
| ***Time*** | This parameter is related to Silence Thr, after this <Validation> the incoming audio is considered "Silence" | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.21 *Audio SI (Stereo Imbalance)*

This page allows the user to set mainly the audio imbalancement between channel Left and Channel Right threshold and timing, for Stereo Signal. Stereo Imbalance alarm and about 18 new Oids in the Audio Module branches and two new traps. This new alarm rises up when the audio levels if the unbalance “abs(RmsLeft-RmsRight)” averaged in the “AVG” time is greater than the threshold value more than validation time. The AVG is calculated using a single pole IIR filter with the constant time equal to the AVG time. That means that the AVG time is the time required to reach about the 70% of the final value. The measurement value is available with all input sources, but the alarms and traps are available for the Tun1 e Tun2 sources only. MIB L4-0 is required.

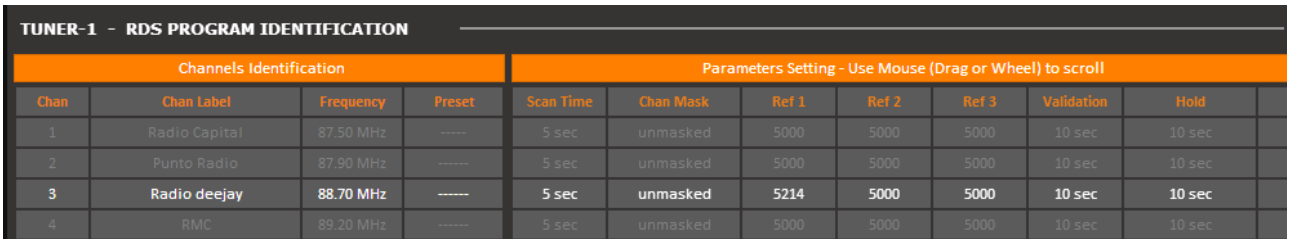



| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | |
| ***Avg*** | This is the Average time considered for the Threshold and generate an alarm in case of Stereo Audio Imbalancement | |
| ***Validation*** | This parameter is related to Avg, after this <Validation> the incoming audio is considered “Imbalanced” and an alarm will be delibered | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| | | |

| | | |
|---|---|---|
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### *14.6.22* ***RDS PI (Program Identifier)***

It is possible to specify up to 3 PI reference (as a 4 digit exadecimal value). If received PI doesn't match with anyone of this there is an alarm condition. It is possible to replace any of the four digits of PI fields with a wildcard (represented with an asterisk *).




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Ref 1*** | PI Code Reference Number -1 | *See Note reported below* |
| ***Ref 2*** | PI Code Reference Number -2 | *See Note reported below* |
| ***Ref 3*** | PI Code Reference Number -3 | *See Note reported below* |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |

| | | |
|---|---|---|
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

**Note1**
There is no control check on input field. Please pay attention to the correct typing.
So, for example, a PI Ref. 5*00 will match with 5000, 5100, 5200, etc.

It is possible to replace more than one field at a time (up to all!).
An example: PI Ref: 5*** matches with PI values from 5000 up to 5FFF.

*Example:*
The PI Code can be Ref1 or Ref2. If a PI Code is different from Ref1 and Ref2 and alarm is generated.
This setting is usefull to broadcaster that change the PI Code during regional broadcasting.

**Note2**
It is possible to replace any of the four digits of PI fields with a wildcard (represented with an asterisk).
So, for example, a PI Ref. 5*00 will match with 5000, 5100, 5200, etc.

It is possible to replace more than one field at a time (up to all!).
An example: PI Ref: 5*** matches with PI values from 5000 up to 5FFF.

Please focus on comparison mechanism: received PI will be compared first with RefMask1 and then with RefMask2, so this case:

Ref1=5*02  Ref2=54*2  PI=5712

raise an alarm, but

Ref1=5**2  Ref2=1234  PI=5712

matches.

**Note3**
The PI Code can be compared with  Ref1 or Ref2. If a PI Code is different from Ref1 and Ref2 and alarm is generated.
This setting is useful to broadcaster that change the PI Code during regional broadcasting.

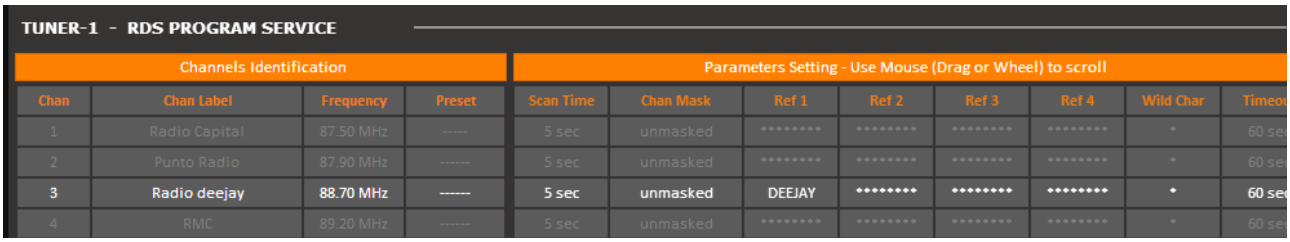
**Note4**
If a Reference is empty no comparison with received PI occurs but only other RefMask is taken into account for a match.
If each Reference Mask are empty no comparison with PI occurs at all.

### 14.6.23 *RDS PS (Program Service)*

If the Timeout field is =0, the system compares the received PS with 4 inserted Ref1, Ref2, ref3, Ref4. At least one of the 4 PS must match to don't generate an alarm. If no PS (Ref1, Ref2, ref3, Ref4) match an alarm is generated.

If the Timeout field is > 0 the system checks that there is a change of contents of the PS within the time limit specified by the Timeout field and the 4 PS (Ref1, Ref2, ref3, Ref4) otherwise an alarm is generated.

See next page for particular case and behaviour




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Ref 1*** | PS name 1 to be monitored | *See Note1 reported below* |
| ***Ref 2*** | PS name 2 to be monitored | *See Note1 reported below* |
| ***Ref 3*** | PS name 3 to be monitored | *See Note1 reported below* |
| ***Ref 4*** | PS name 4 to be monitored | *See Note1 reported below* |
| ***CharRef*** | It is possible to configure one "special" character that, in case is present in the Ref field it is not taken in consideration in the checking. | |
| ***Timeout*** | If the Timeout field is > 0 the system checks that there is a change of contents of the PS within the time limit specified by the Timeout field and the 4 PS (Ref1, Ref2, ref3, Ref4) otherwise an alarm is generated. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| | | |

| | | |
|---|---|---|
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. PsRef masks accept empty (NULL) strings | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

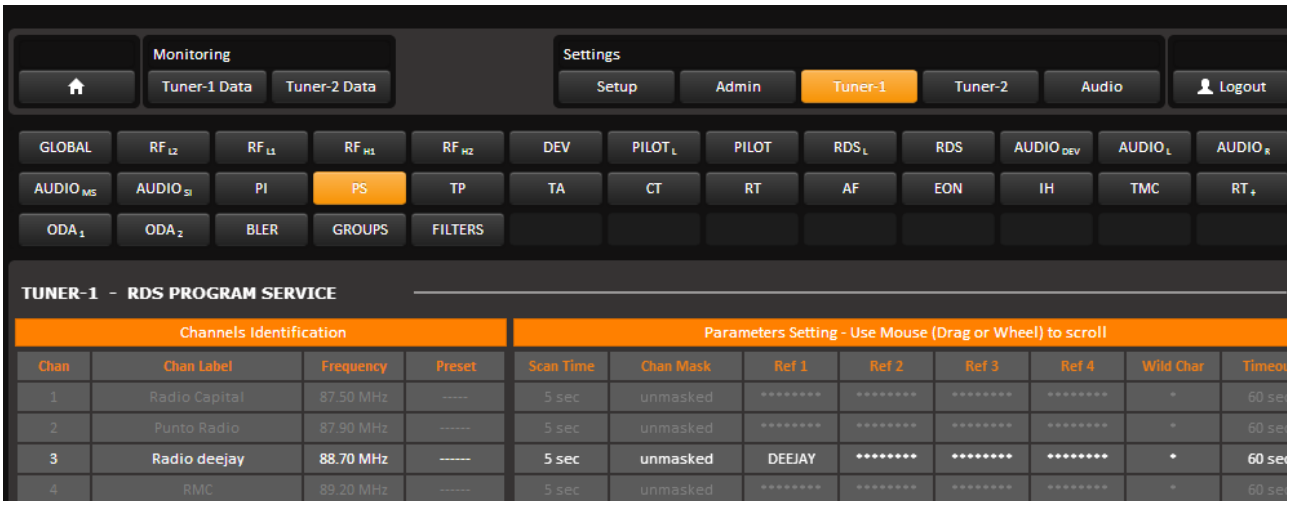
### *14.6.24* ***Note 1: Particular case for PS check***

| N° | DESCRIPTION | BEHAVIOUR |
|---|---|---|
| ***1*** | Timeout > 0 and<br>PsRef1 (NOT empty) and<br>PsRef2 = NULL (empty) | Wolf2MS search for PSRef1 into PS occurrence.<br>It will can be a sub-string. This solution is useful when PS contains leading or tail blanks.<br><br>After a **time = Timeout** if no match occurred, an alarm will be generated; |
| ***2*** | Timeout > 0 and<br>PsRef1 = NULL (empty) and<br>PsRef2 not empty | Wolf2Ms search for PsRef2 into PS.<br>It will can be a sub-string occurrence.<br><br>After a **time = Timeout** if no match occurred, an alarm will be generated; |
| ***3*** | Timeout > 0 and<br>PsRef1 not empty and<br>PsRef2 not empty | Wolf2Ms search for PsRef1 AND PsRef2 into PS occurrence.<br><br>If no match of **BOTH** PsRef occurred into Timeout, an alarm will be generated; |
| ***4*** | Timeout = 0 and<br>PsRef1 not empty and<br>PsRef2 = NULL (empty) | Wolf2Ms search for PsRef1 into PS (it will can be a sub-string) occurrence.<br><br>1 second validation and hold time is required |
| ***5*** | Timeout = 0 and<br>PsRef1 = NULL (empty)<br>PsRef2 not empty | Wolf2Ms search for PsRef2 into PS (it will can be a sub-string) occurrence.<br><br>1 second validation and hold time is required |
| ***6*** | Timeout **>** 0 and<br>PsRef1 = NULL (empty)<br>PsRef2 = NULL (empty) | Wolf2Ms search for PS content changes (useful for PS Scroll monitoring) into Timeout. |
| ***7*** | Timeout **=** 0<br>PsRef1=NULL (empty)<br>PsRef2 = NULL (empty) | No action taken into account. |
| ***8*** | Upper Apex. What does it mean? | The upper apex character ‾ appears when some words are inserted in the Ref field box. This is used ONLY to count the number of words (up to 8) inserted in the field. |

### 14.6.25 *Note 2: PS Settings*

As already specified for the alarms driven by an missing truth condition, the invalid condition is often not related to a precise timing. In this case if at the end of the timeout all conditions required aren't verified the alarm is raised and the start of the failure is placed the second after the last valid condition has been verified. The Ps in the varibind is sampled in this moment and so can be even a PS valid. Please consider this behavior definitive. About the alarm triggering rules, please read again the matching criteria for rising an alarm.

Wolf2MS can perform various type of checks on received PS. As can be seen in fig. below, there are four Reference Masks (set by default to '********'), a CharRef (an asterisk by default), a Timeout field and an Hold field.




System can compare received PS with UP TO four PS Reference Masks. If a Ref Mask is empty no check is performed for that field. CharRef field specify a character (that can be chosen and modified by user) that can be used into PS Ref Masks as a WILDCARD. So, for example, if CharRef='*' and PS Ref 1 = "RADIO***" both received PS = "RADIOABC" that "RADIO123" match with Ref 1. Please pay attention to PS Ref field length. It can be from 1 up to 8 chars long.

Further inserted chars will be ignored. If a 8-chars long PS Ref is specified, the system check for a precise match with received PS (of course taking into account any wildcard occurrence), otherwise PS Ref is considered as a sub-string to be searched for into received PS (wildcard rules are still true). There are four types of operative scenario:

1. At least one PS Ref not empty. Timeout > 0.

System compares received PS with all not empty PS and it search for at least a match with ALL not empty Ref mask in a time under Timeout value. Example: Ref1="RADIO1", Ref2="RADIO2", Ref3="RADIO3", Ref4="" (empty), Timeout=45 sec. Received PS must change in time and should contain "RADIO1", "RADIO2" and "RADIO3" (not necessarily in this 3/3 order). System should recognize at least an occurrence of all three values in 45 seconds or an alarm condition raises up.

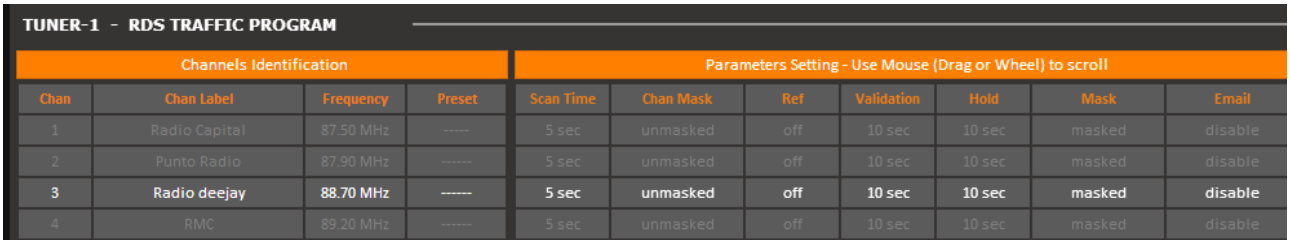
2. At least one PS Ref not empty. Timeout=0.
System compares received PS with all not empty PS Ref (sub)string. If a match with anyone of them is found, no alarm condition is set, otherwise alarm rises up instantaneously.

3. ALL Ps Ref empty. Timeout > 0.
System checks only for PS content variations (in a time not exceeding Timeout). This is useful for PS scrolling monitor.

4. ALL Ps Ref empty. Timeout=0.

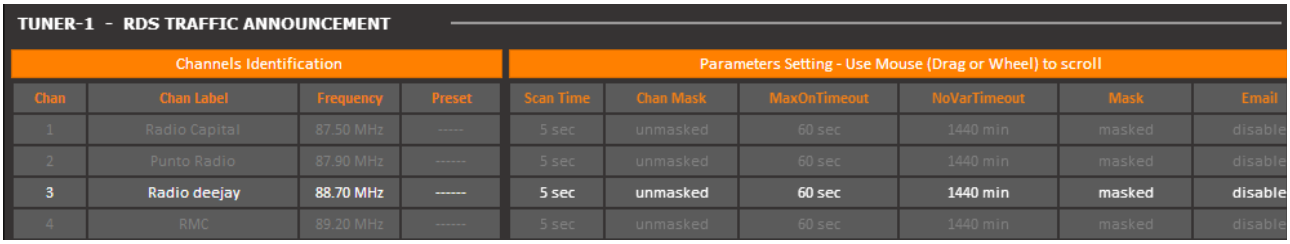
No check is performed by system. This is not a 'real' operative mode. NOTE: Ref Mask formed by 8 wildcards will match anyway.

### 14.6.26 *RDS TP (Traffic Program)*



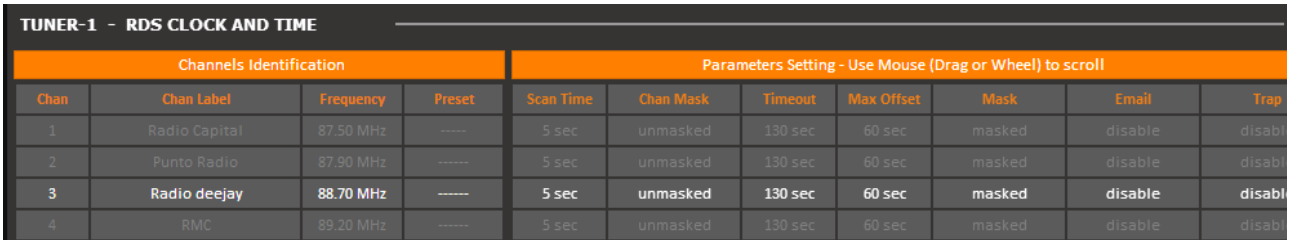

| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Ref (Reference)*** | TP indicates the current value of the Traffic Program. The alarm can be triggered by a value other than the one set in the mask Ref or to a non-variation of more than timer set | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

## 14.6.27 *RDS TA (Traffic Announcement)*




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***MaxOn Timeout*** | When TA is ON for a time greater than *MaxOnTimeout* value, an alarm is reported. timeout = 0 no alarms are reported | Value expressed in Seconds |
| ***NoVarTimeout*** | This parameter launches an alarm if there is not a change in the TA for a certain period. This NoVarTimeout is useful to monitor the radio stations that are using TA. | Value expressed in minutes |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.28 *RDS CT (Real Time Clock)*




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Timeout*** | Timeout value for CT | *See explanation above* |
| ***Max Offset*** | The parameter “Max Offset” defines the maximum allowed time difference between<br>CT and Wolf2MS time in seconds. | *See explanation above* |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### *14.6.29* ***Particular case for RDS CT - Real Time Clock***

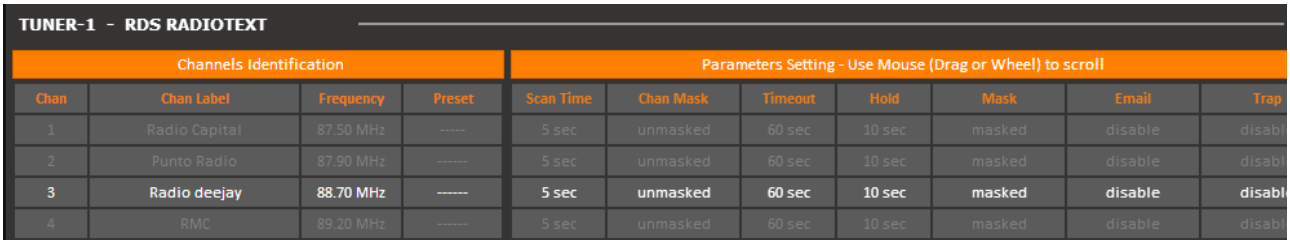
For the Real Time Clock there is a double check:

**Case1** – NO INFORMATION RECEIVED/Timeout: if no time information are received from 4A group (CT) for a period greater than *Timeout* value an error is reported.

**Case2** – Max Offset: if the received time (inside the 4A group CT) is different than the local Wolf 2MS time for a *MaxOffset* value, an error is reported.


**Note**
A Timeout value lower than 60 has no sense, due to the fact that the group 4A is automatically encoded by RDS Encoder.

### 14.6.30 *RDS RT (RadioText)*

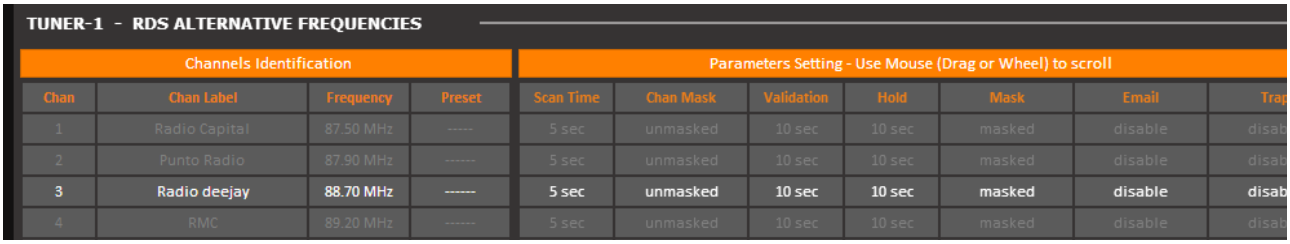



| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Timeout*** | The Timeout refers to A/B Flag toggle.<br>When the time between two toggle is greater than Timeout value an alarm is generated. | *See important note below* |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

**Important Note**: If the timeout = 0 is monitored the presence of groups 2A.

### 14.6.31 *RDS AF (Alternative Frequency)*

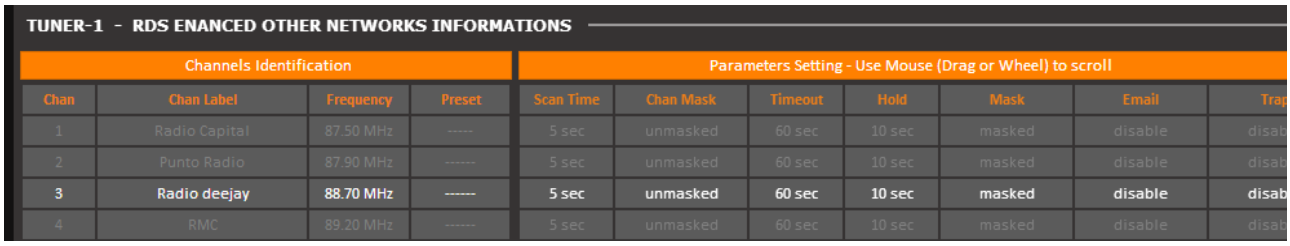
For Alternative Frequencies there is only a presence check. If in the RDS there are no AF's an error is reported.




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered "validated". For example, if the system launches an alarm, this alarm must remain "up" or "Active" for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.32 *RDS EON (Enhance Other Network)*

For EON there is only a presence check between group 14A and the Timeout.
If in the RDS there are no passage of group 14A in relation to the Timeout an error is reported.



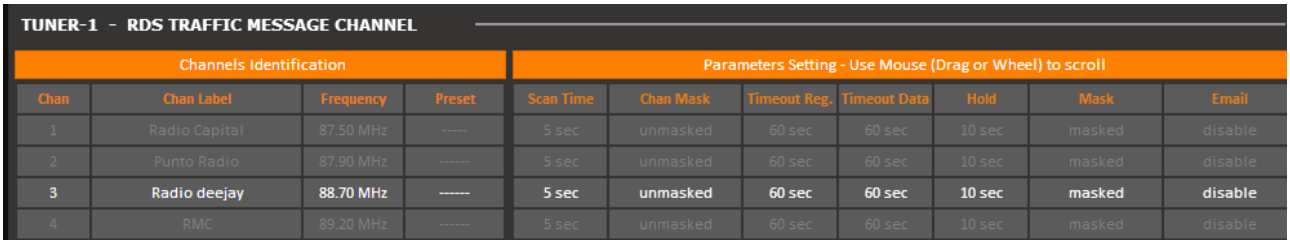

| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Timeout*** | The timeout refers to 14A group presence, if no data are passing for a timinig before timeout, and alarms is reported | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.33 *RDS IH (In-House)*

For IH there is only a presence check between group 6A and the Timeout.
If in the RDS there are no passage of group 6A in relation to the Timeout an error is reported.


| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Data Timeout*** | The timeout refers to 6A group presence. | |
| ***Group Timeout*** | The group timeout refers to 6A group presence, if no data are passing for a timinig before timeout, and alarms is reported | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.34 *RDS TMC (Traffic Message Channel)*

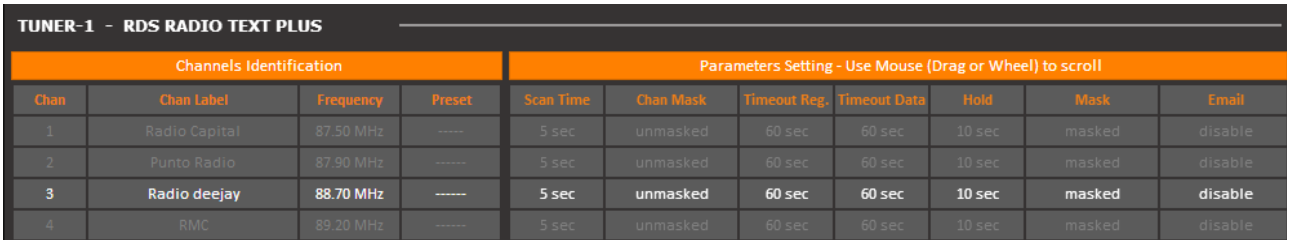


TUNER-1 - RDS TRAFFIC MESSAGE CHANNEL

| Channels Identification | | | | Parameters Setting - Use Mouse (Drag or Wheel) to scroll | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chan | Chan Label | Frequency | Preset | Scan Time | Chan Mask | Timeout Reg. | Timeout Data | Hold | Mask | Email |
| 1 | Radio Capital | 87.50 MHz | ----- | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable |
| 2 | Punto Radio | 87.90 MHz | ------ | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable |
| 3 | Radio deejay | 88.70 MHz | ------ | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable |
| 4 | RMC | 89.20 MHz | ------ | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable |

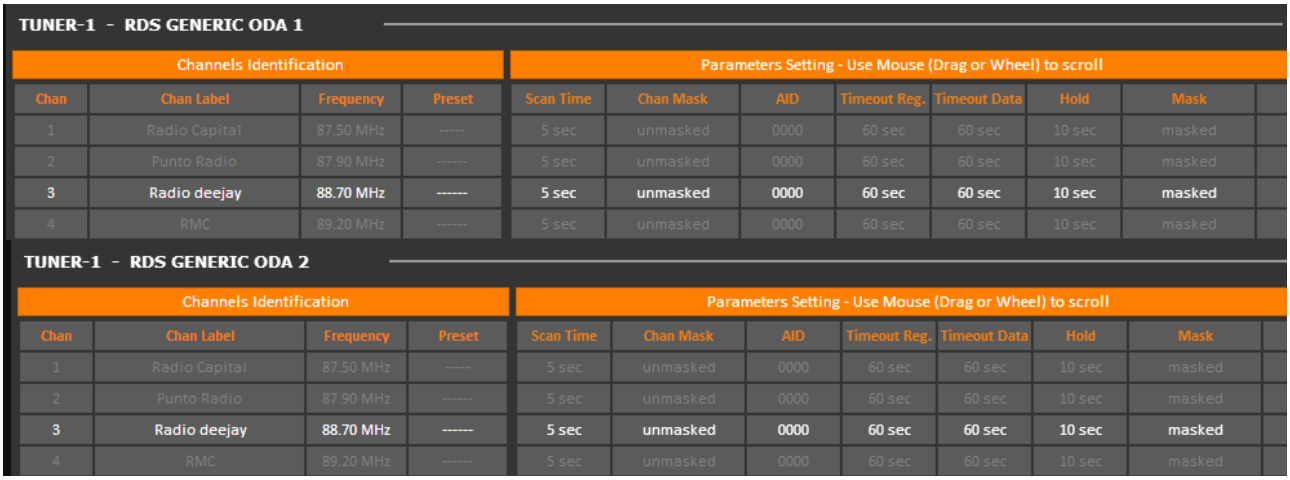
| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Timeout Reg and Timeout Data*** | Particular attention is placed on TMC and RT+ and in addition two other services that could also be generic ODA TDC and IH. The Wolf 2MS controls the recording of the service through the group 3A and monitored the transmission of data over the corresponding group ODA recorded.<br><br>For this purpose are provided two timeout, one on the arrival of logging messages of the service and one on the packets containing the data.<br><br>When you cross the threshold of either an alarm is triggered on the service. | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.35 *RDS RT+ (Radio Text Plus Service)*



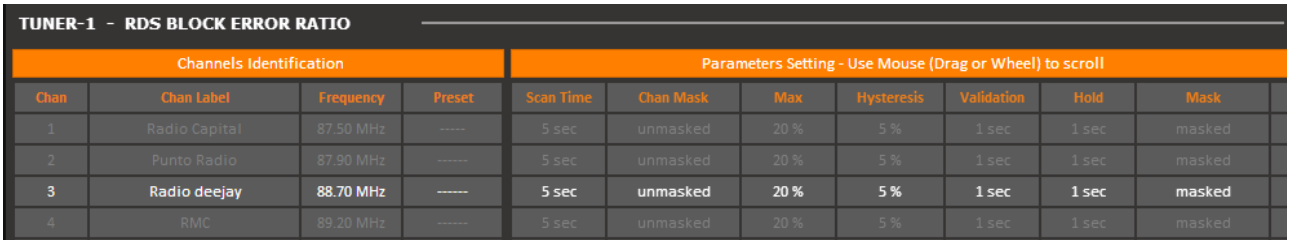

| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Timeout Reg and Timeout Data*** | Particular attention is placed on TMC and RT+ and in addition two other services that could also be generic ODA TDC and IH. The Wolf 2MS controls the recording of the service through the group 3A and monitored the transmission of data over the corresponding group ODA recorded.<br><br>For this purpose are provided two timeout, one on the arrival of logging messages of the service and one on the packets containing the data.<br><br>When you cross the threshold of either an alarm is triggered on the service. | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.36 *RDS ODA1 and ODA2*




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***Timeout Reg and Timeout Data*** | The system can check two registered ODA service in addition to TMC and RT+.<br>These services can be of any type.<br>The behavior is the same seen for TMC. | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### 14.6.37 *RDS BLER (Block Error Ratio)*

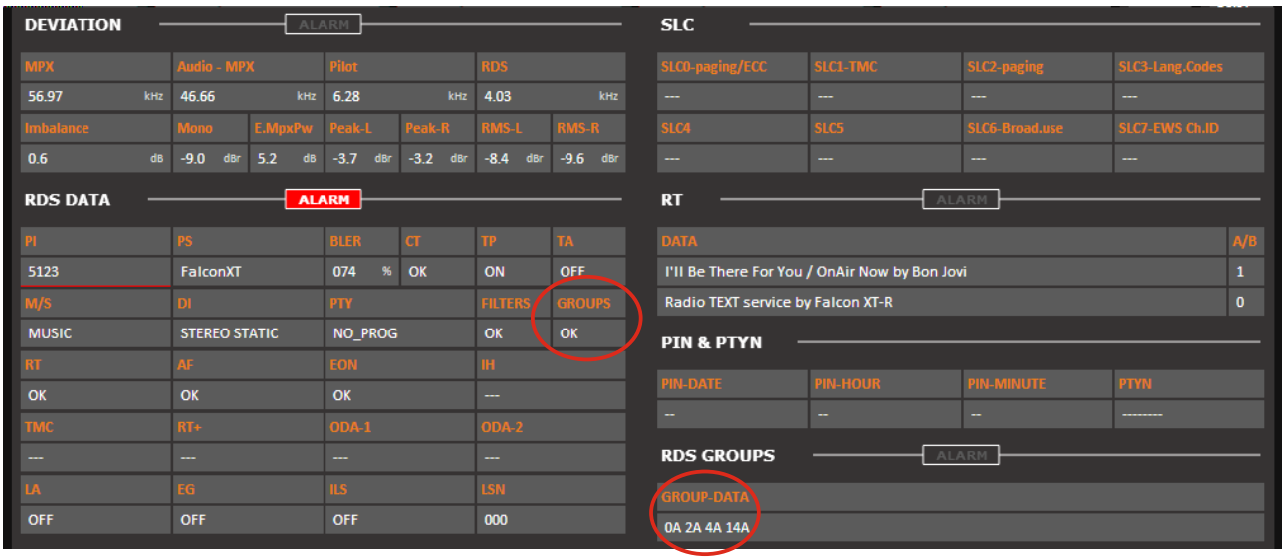



| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |
| ***Scan Time*** | This value represents the time in s that the tuner remain on this frequency. | |
| ***Chan Mask*** | This control allow (or not) the channel to be under control. | If it is masked, the channel is NOT under control |
| ***MAX*** | Particular attention is placed on TMC and RT+ and in addition two other services that could also be generic ODA TDC and IH. The Wolf 2MS controls the recording of the service through the group 3A and monitored the transmission of data over the corresponding group ODA recorded.<br><br>For this purpose are provided two timeout, one on the arrival of logging messages of the service and one on the packets containing the data.<br><br>When you cross the threshold of either an alarm is triggered on the service. | |
| ***Hysteresis level*** | This value can be set as range of Hysteresis for the measurement. Hysteresis is the dependence of a system not only on its current environment but also on its past environment. | |
| ***Validation*** | This field contains the time of persistence necessary to the alarm to be considered “validated”. For example, if the system launches an alarm, this alarm must remain “up” or “Active” for all the time of "Validation" to be considered a true alarm to avoid the detection of spikes. | |
| ***Hold*** | is the time between the cessation of the alarm condition and alarm signaling finished | |
| ***Mask*** | It is possible to set, for each single parameter: unmasked, masked, severity-1, severity-2, severity-3, RFL2 mask. | |
| ***Email*** | In case the alarm/error raise up, the Wolf 2MS sends an email if <enable>.<br>If is <disable> no action are taken. | |
| ***Trap*** | In case the alarm/error raise up, the Wolf 2MS sends a trap if <enable>.<br>If is <disable> no action are taken. | |

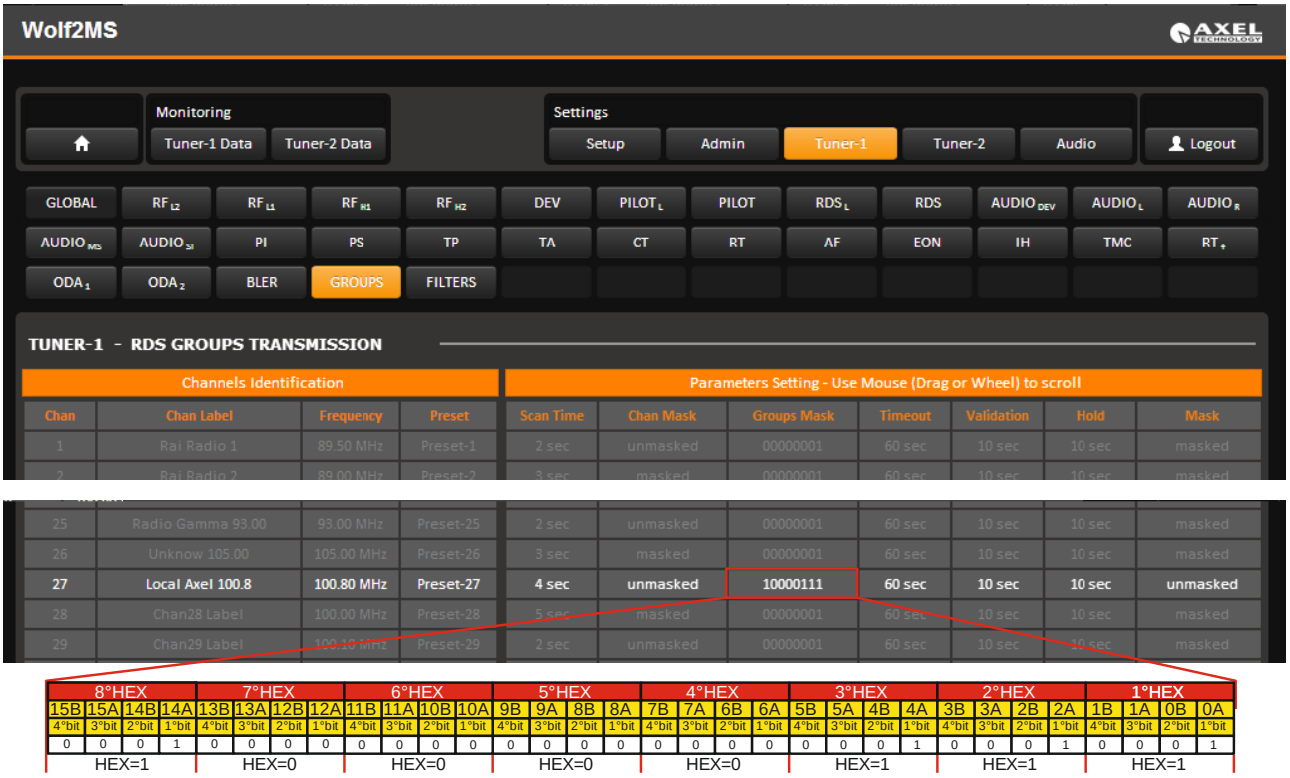
| | | |
|---|---|---|
| ***Label*** | This is the label/content that the user can choose to shows via email or in the trap in case of error. | |

### *14.6.38* ***RDS Group Transmission Alarm***

An alarm is now included to monitor the transmitted Rds groups. A mask allows to define all groups present in the transmission and an alarm is raised if after the timeout one or more groups hasn't been received. The Group Mask is an 32bits integer in HEX. Every bit in this mask is referred to a Rds group. The Group Mask bit0 is the 0A group, the bit1 is the 0B group, the bit2 is the 1A and so on … . Example: 11 (0A and 2A)



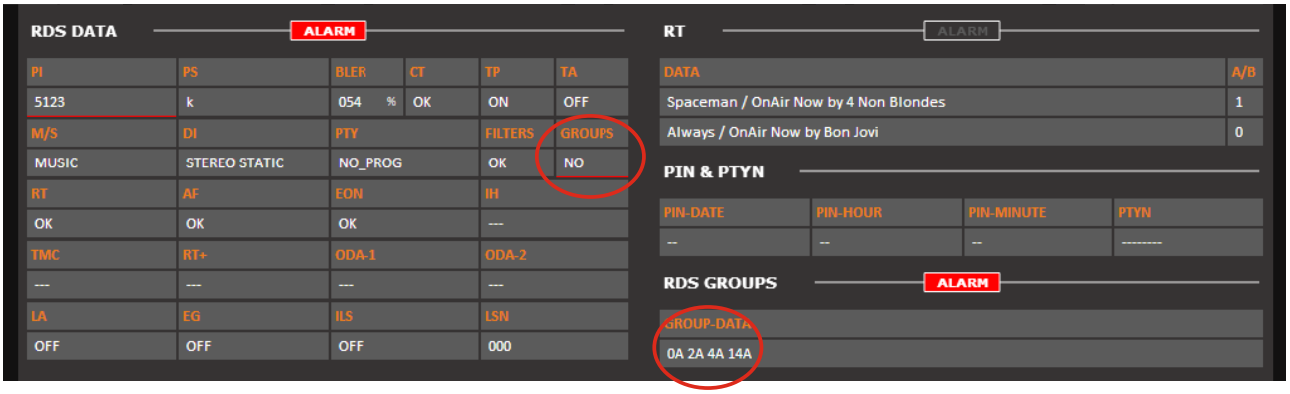

Available the status variable and the trap as well as all parameters to control the state (Timeout, Validation, Hold and Mask)

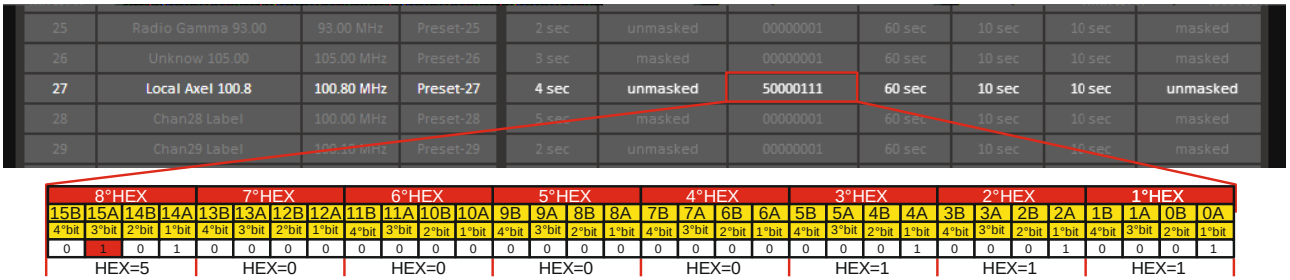



| 8°HEX | | | | 7°HEX | | | | 6°HEX | | | | 5°HEX | | | | 4°HEX | | | | 3°HEX | | | | 2°HEX | | | | 1°HEX | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15B | 15A | 14B | 14A | 13B | 13A | 12B | 12A | 11B | 11A | 10B | 10A | 9B | 9A | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A | 0B | 0A |
| 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit |
| 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| HEX=1 | | | | HEX=0 | | | | HEX=0 | | | | HEX=0 | | | | HEX=0 | | | | HEX=1 | | | | HEX=1 | | | | HEX=1 | | | |

Example:
Check 11A,7A,5A,1B,1A,0A =0040440D

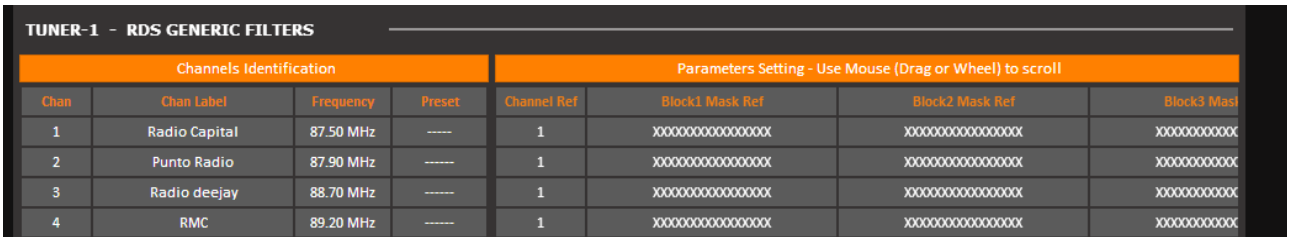
Check 15A,14A,4A,0A=50000101




| 8°HEX | | | | 7°HEX | | | | 6°HEX | | | | 5°HEX | | | | 4°HEX | | | | 3°HEX | | | | 2°HEX | | | | 1°HEX | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15B | 15A | 14B | 14A | 13B | 13A | 12B | 12A | 11B | 11A | 10B | 10A | 9B | 9A | 8B | 8A | 7B | 7A | 6B | 6A | 5B | 5A | 4B | 4A | 3B | 3A | 2B | 2A | 1B | 1A | 0B | 0A |
| 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit | 4°bit | 3°bit | 2°bit | 1°bit |
| 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| HEX=5 | | | | HEX=0 | | | | HEX=0 | | | | HEX=0 | | | | HEX=0 | | | | HEX=1 | | | | HEX=1 | | | | HEX=1 | | | |

### 14.6.39 *RDS FILTERS*




| NAME | DESCRIPTION | NOTE |
|---|---|---|
| ***Chan*** | Channel Number | |
| ***Chan Label*** | Mnemonic name that can be applied to the Channel / Frequency | |
| ***Frequency*** | Frequency corresponding to the Channel, expressed in MHz | |
| ***Preset*** | String used by the configurator | |

**Foreword**: How does generic RDS Data filter works.
Block Masks Mask Ref consist of 16 symbols, each referring to a bit of the data block of information

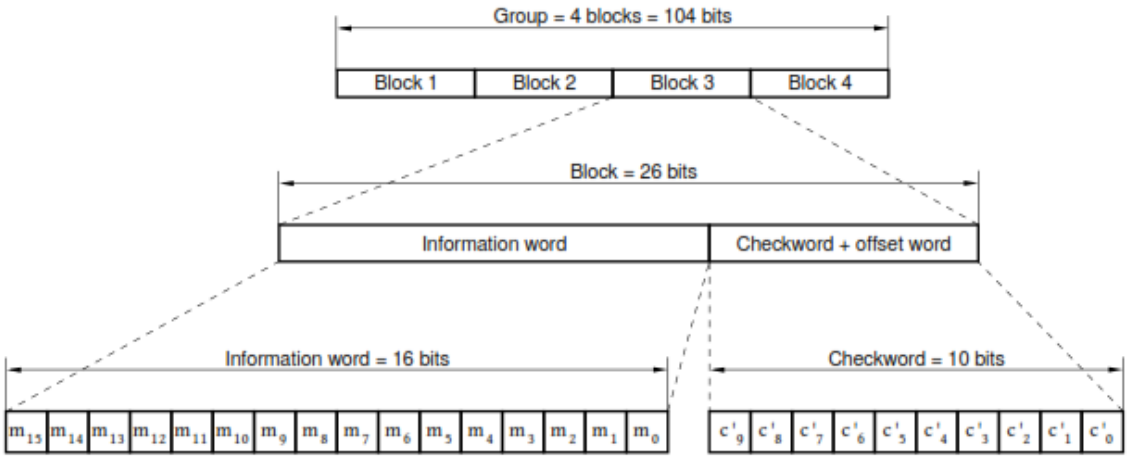
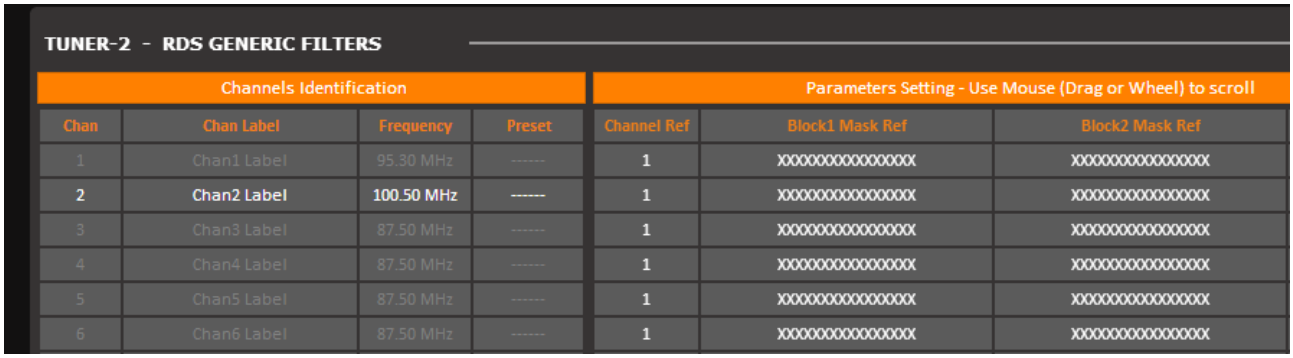



*Figure 8 - Structure of the baseband coding*

The symbols allowed are 0, 1, X, V.



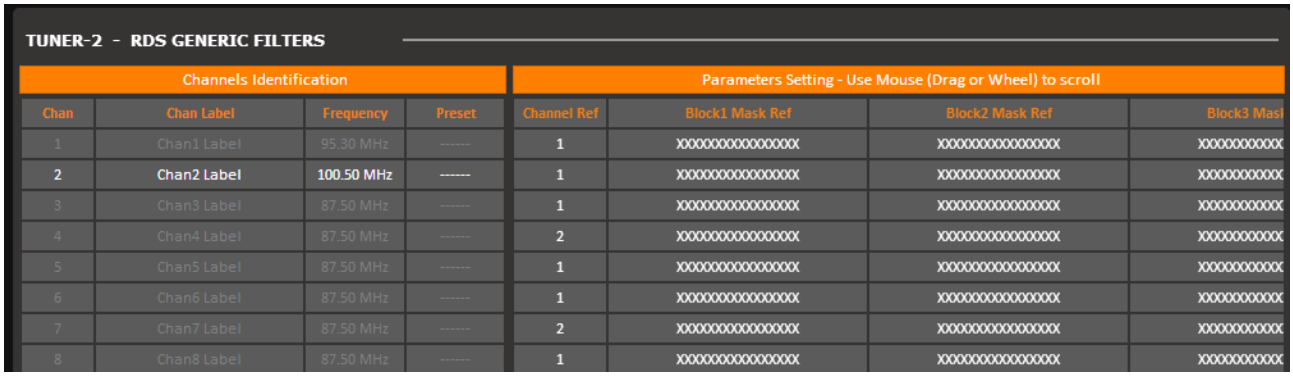

If we set the mask to a specific bit to 0 or 1, it means that we expect the fixed value in the block (see eg. PI in Block1). If even one or more of these masks do not match after Timeout + Validation Time, an alarm is generated.

If you specify an X for a bit generic, it means that this bit it's masked and its value is not considered.

Finally, if you specify a V for a bit, we expect that, in the time specified by the timeout, there has been a change of state. The length of the mask must be 16 characters. If the length is less will not be accepted if the items are cut higher than 16.

It's possible to associated with one or more filters to a specific channel, simply by associating the index of the channel to the Channel Ref required. For example, here the filters tuned to the channel (the no. 2) are the n. 4 and n. 7:

7




You can then bind up to 32 filters to a specific channel, or distribute it freely.

**IMPORTANT NOTE**
In the following examples the ChanRef = 4 because the tuned station is in this specific case on channel 4.
Where it is different, this has to be changed congruently.

In all the examples that follow for generality do not check a specific PI, clearly programming the block 1 for a specific PI, the filter also considers the IP than simply the service.

### 14.6.40 *Example 1 - PI with regional variations*

Let's see how to set a filter on the data received in order to check for the presence of regional variations.

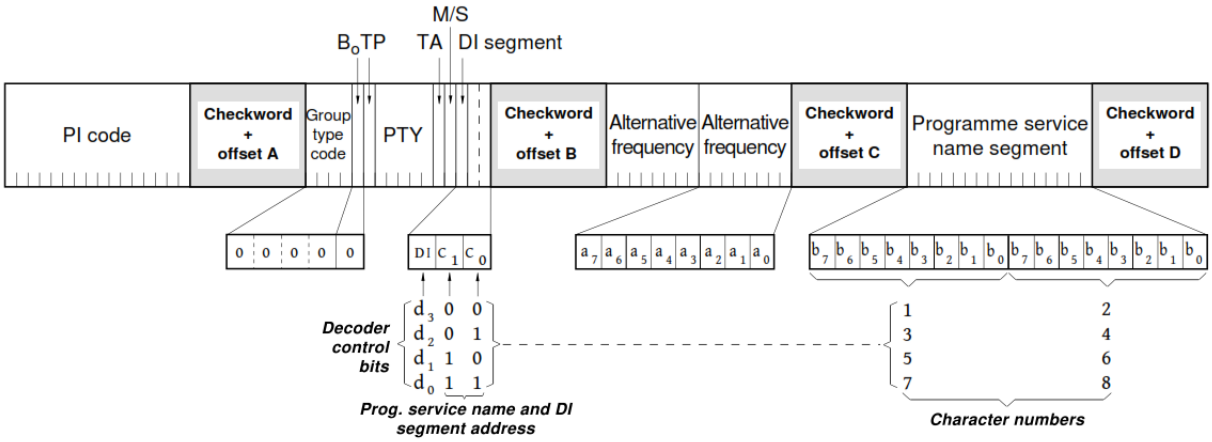



*Figure 12 - Basic tuning and switching information - Type 0A group*

Then it sets a filter (eg. number 1):
ChanRef = 4

Block1Ref = XXXXVVVVXXXXXXXX (we want to verify the change of the IP assigned to regional variations, ignoring the rest)

Block2Ref = xxxxxxxxxxxxxxx (do not take care of the group: the PI is always transmitted)

Block3Ref = xxxxxxxxxxxxxxx (we do not treat)

Block4Ref = xxxxxxxxxxxxxxx (we do not treat)

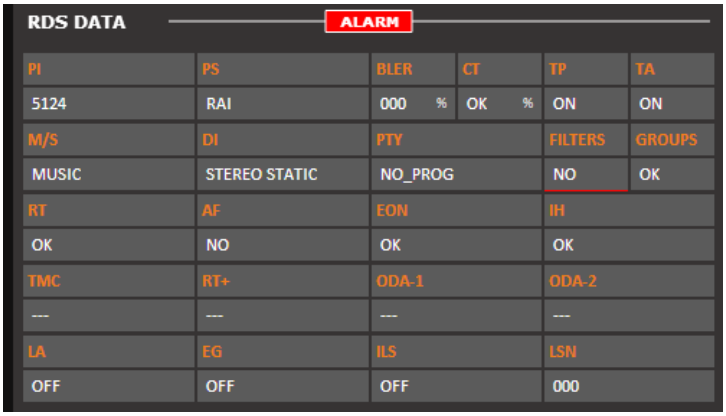
Timeout = 43200s (time window (1 day) in which I expect the change in the PI)

**Validation**= 10s **Hold** = 10s **Mask** = Unmasked **Trap** = Enabled

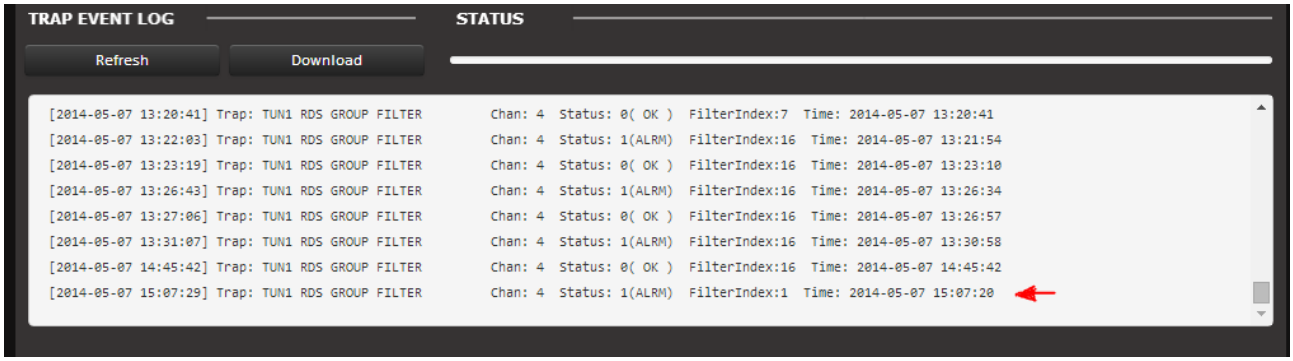
This test allows to verify <u>if at least once a day</u> the PI regional variable changes

With PI = 5124

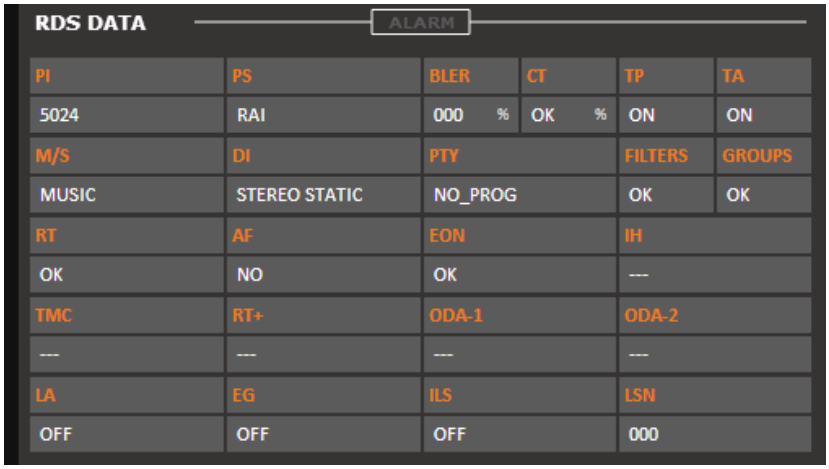

After the set time, if the IP does not vary (or varies incorrectly), you have an alarm on the filter:



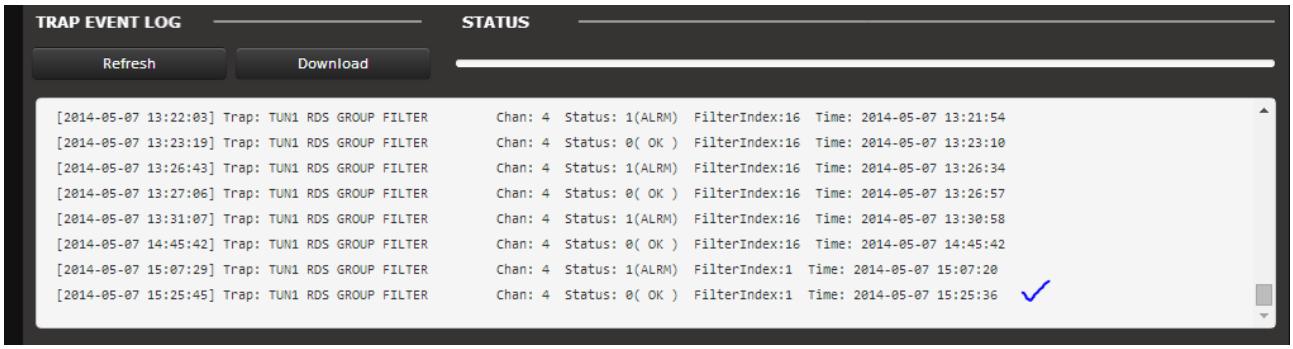
Logger can also be seen on the trap with the index of the filter that has tripped:




By changing the regional variant, the alarm will cease.




And the logger also show a status (OK)



### 14.6.41 Example 2 - Control TA / TP

Let's see how to set a filter on the data received in order to check the status of bits TA and TP.

For example if we want an alarm to the radio (which supports the service TA) has the TA = On for a period longer than 10 minutes.

We set the filter:

ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxxx (we do not care this time of the IP)

Block2Ref = 000001XXXXX0XXXX (group 0A - TP = 1 - TA = 0)

Block3Ref = xxxxxxxxxxxxxxxx (we do not treat)

Block4Ref = xxxxxxxxxxxxxxxx (we do not treat)

Timeout = 1200s

**Validation**=10s **Hold** =10s **Mask**=Unmasked **Trap**=Enabled

An alarm is generated if TA remains unchanged equal to 0 for 20 min

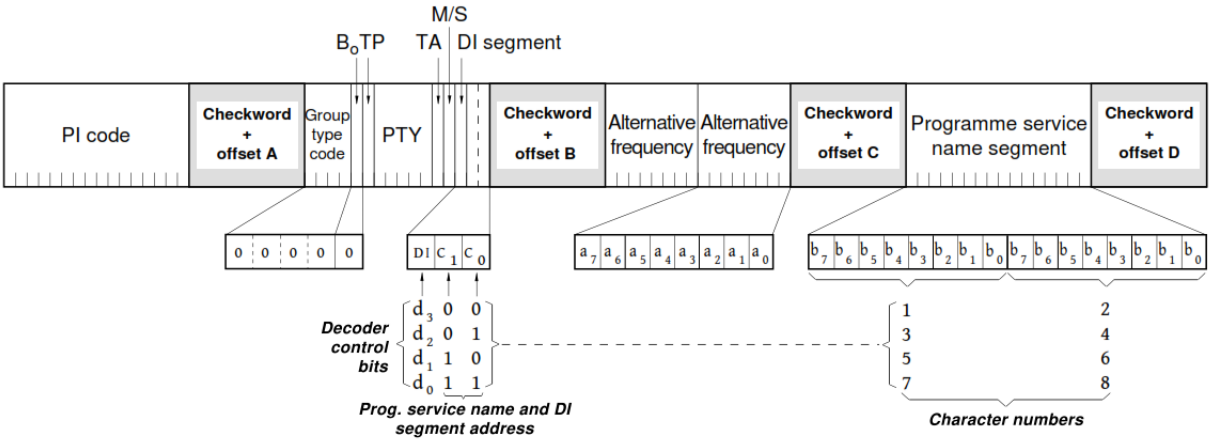
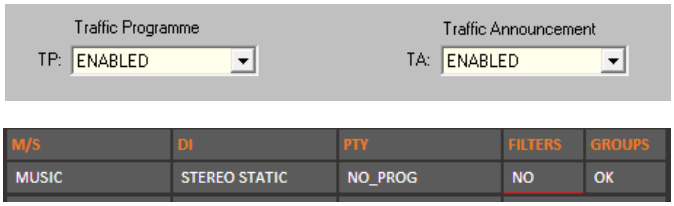



*Figure 12 - Basic tuning and switching information - Type 0A group*

Starting from TP=1 and TA=0


When TA = 1, after the set time, the filter goes into alarm:



### *14.6.42 Example 3 - Control EON AF presence of specific IP*

Let's see how to set a filter on the data received in order to check the presence of Mapped Frequencies of EON on a given IP.

Both EON PI = 5201 and there is a list of Eon AF as follows:
TF = 103.3 = 103.5 AF1 AF2 AF3 = 103.6 = 105.2 Method (B): Mapped FM Freq. 1

Let's make sure that the radio transmits the group 14A.

We set the filter:
ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxxx (we do not care this time of the IP)

Block2Ref = 11100XXXXXXX0101 (group 14A - Variant 5)

Block3Ref = VVVVVVVVVVVVVVV (they vary)

Block4Ref = 0101001000000001 (EON PI = 5201)

Timeout = 60s

**Validation**=10s **Hold**=10s **Mask**=Unmasked **Trap**=Enabled

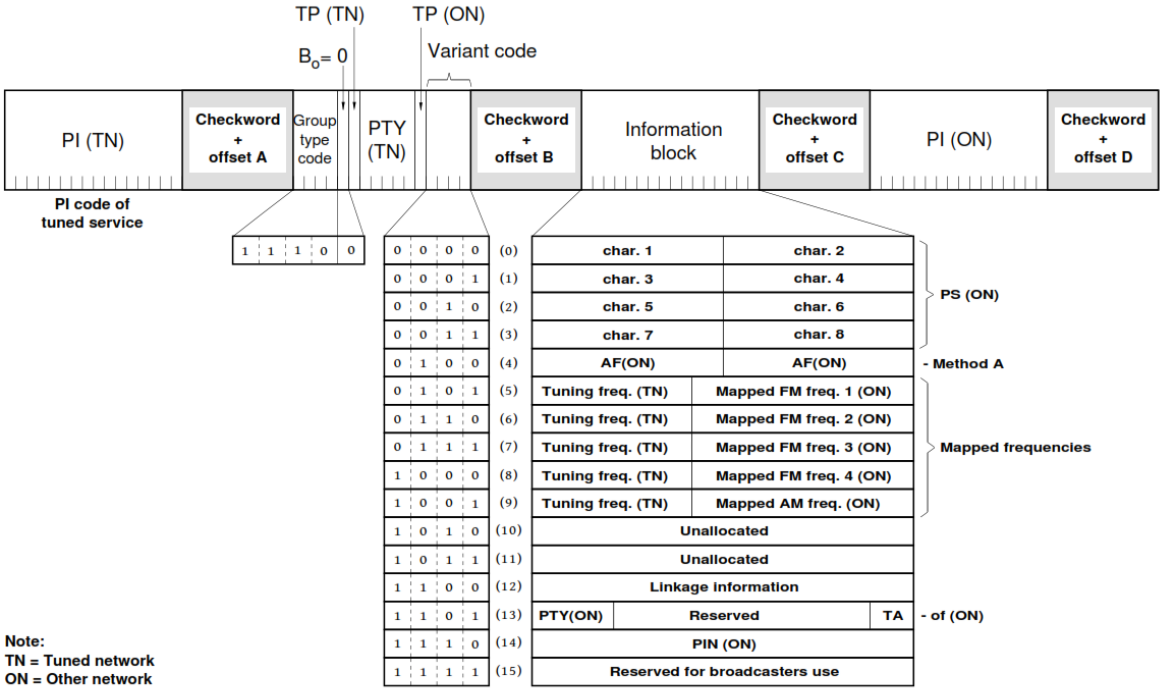



*Figure 37 - Enhanced Other Networks information - Type 14A groups*

If data are correct, the filter will not rise an alarm. For example, removing the EON AF (or changing the freq. Map), eliminating the EON from the list, removing or changing the group 14A or changing the EON PI filter an alarm is generated.

### 14.6.43 *Example 4 - Control of the toggle A / B flag*

Let's see how to set a filter on the data in order to check that it managed the A / B flag in the transmission of RadioText. Attune on a radio that transmits RT with the use of A / B flag (eg. Rai).

We set the filter:
ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxx (we do not care this time of the IP)

Block2Ref = 00100XXXXXXVXXXX (group 2A - Change in A / B flag)

Block3Ref = VVVVVVVVVVVVVVV (must vary: they are the characters of the text RT)

Block4Ref = VVVVVVVVVVVVVVV (must vary: they are the characters of the text RT)

Timeout = 80s

**Validation**=10s **Hold**=10s **Mask**=Unmasked **Trap**=Enabled

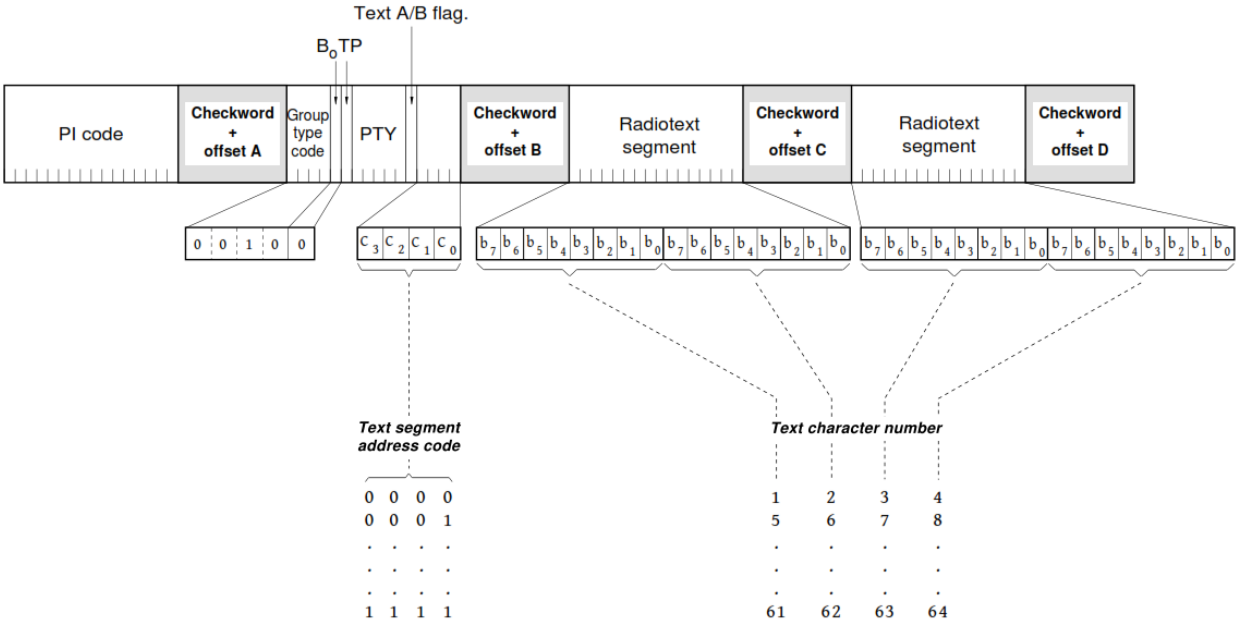



*Figure 16 - RadioText - Type 2A group*

In this way it 'possible to check the correct reception of the RadioText.

### 14.6.44 Example 5 - Transparent Data Channel

Let's see how to set a filter on the data in order to check that data is received on channel 1 TDC.

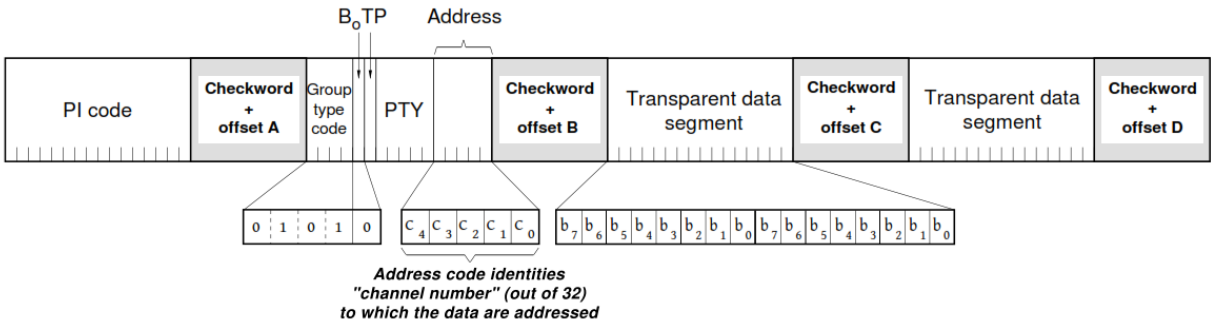



*Figure 22 - Transparent data channels - Type 5A group*

First, we check to be tuned to a radio that transmits data TDC:


After you set the filter for channel 1:

ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxx (do not take care of the IP)

Block2Ref = 01010XXXXXX00001 (Group 5A - channel 1)

Block3Ref = VVVVVVVVVVVVVVV (TDC data must vary)

Block4Ref = VVVVVVVVVVVVVVV (TDC data must vary)

Timeout = 120s (time window within which the data must vary)

**Validation**=10s **Hold**=10s **Mask**=Unmasked

If the channel over which data is sent is not the # 1 or if the data does not vary (eg.), The filter goes into alarm.

### 14.6.45 *Example 6 - Recording TMC*

Let's see how to set a filter on the data in order to check that data is received registration TMC

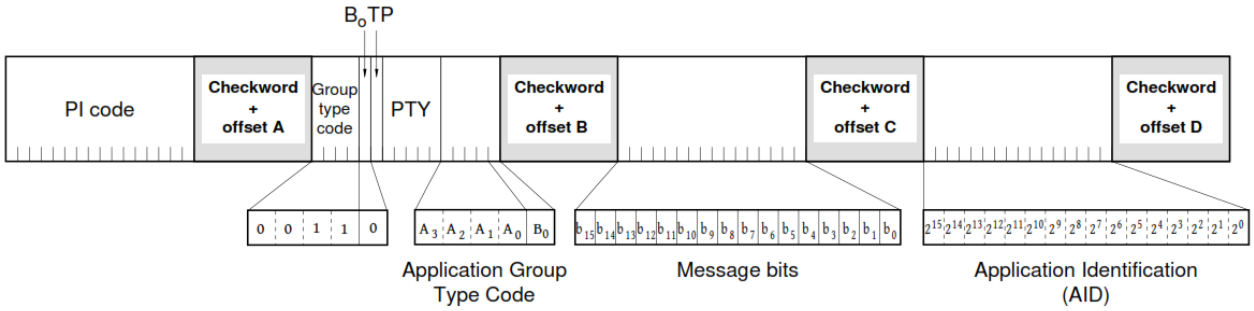



*Figure 18 - Application Identification for Open data - Type 3A group*

Let the typical case in which the TMC is transported on groups 8A and is recorded with two different messages (Msg1 = 0068, Msg2 = 6040) alternated. Recall that for the TMC AID = CD46.

We set up two filters:

**Filter 1:**

ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxx (do not take care of the IP)

Block2Ref = 00110XXXXXX10000 (Group 3A - AGT = 8A)

Block3Ref = 0000000001101000 (message bits = 0068)

Block4Ref = 1100110101000110 (AID TMC = CD46)

Timeout = 120s (time window within which the data must vary)

**Validation**=10s **Hold**=10s **Mask**= Unmasked

**Filter 2:**

ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxx (do not take care of the IP)

Block2Ref = 00110XXXXXX10000 (Group 3A - AGT = 8A)

Block3Ref = 0110000001000000 (message bits = 6040)

Block4Ref = 1100110101000110 (AID TMC = CD46)

Timeout = 120s (time window within which the data must vary)

**Validation**=10s **Hold**=10s **Mask**= Unmasked

If the service is transmitted correctly there is no alarm.

### *14.6.46 Example 7 - Alert C on TMC*

Let's see how to set a filter on the data in order to check that data is received TMC properly. Head if the bit X4 Alert-C is equal to 0 for more than the timeout and / or no data block 3-4 is varied in time out. If X4 = 0 (bit 5 Block2) data traffic are transmitted, X4 = 1 if the data are ancillary information not directly related to the service then X4 = 1 for a longer time than expected and 'alarm condition.

We set the filter:

Filter 1:

ChanRef = 4

Block1Ref = xxxxxxxxxxxxxxx (do not take care of the IP)

Block2Ref = 10000XXXXXX0XXXX (group 8A - bit X4)

Block3Ref = VVVVVVVVVVVVVVV (TMC data: they vary)

Block4Ref = VVVVVVVVVVVVVVV (TMC data: they vary)

Timeout = 3600s (the time window within which the data must vary)

**Validation**=10s **Hold**=10s **Mask**= Unmasked

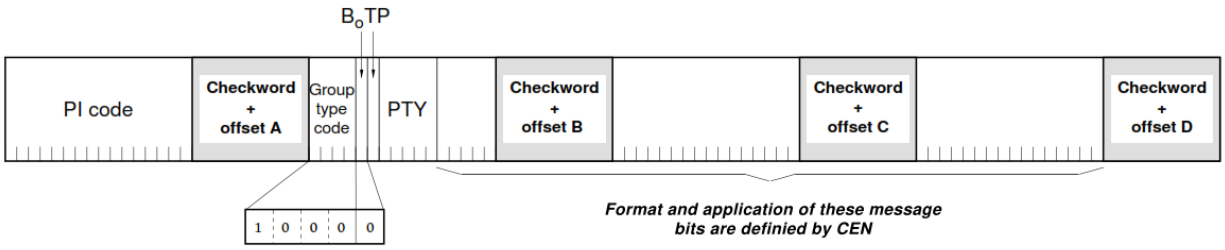
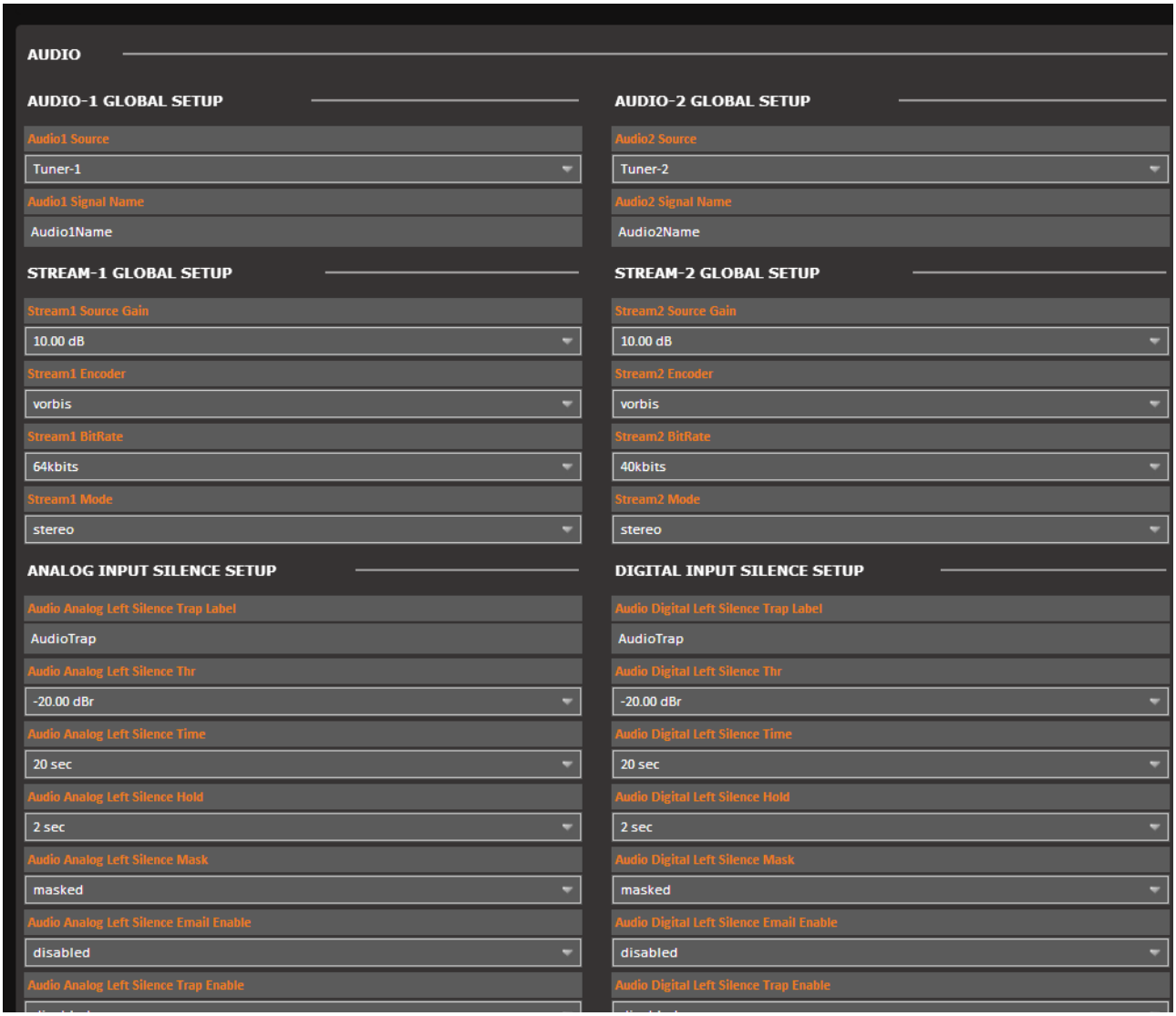


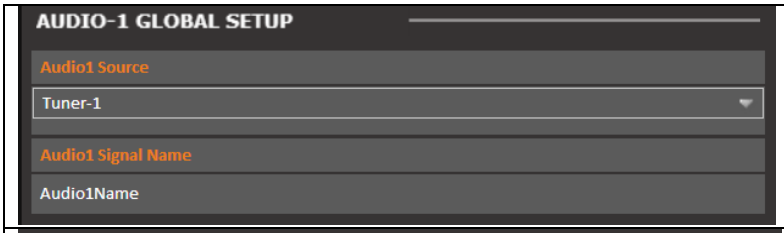
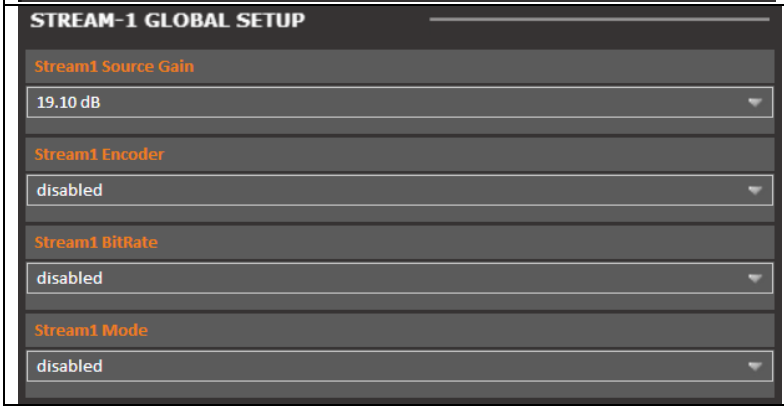

*Figure 27 - Traffic Message Channel - Type 8A group*

NOTE: Alarms Filter type not supported in SMART-SCAN mode. Then an alarm of this type does not block the scan. We recommend that you use this feature to scan just to test repetitive conditions.

## 14.1 AUDIO 1 - SETUP

This section allows the user to configure the audio source delivered to the Audio Streamer Module.

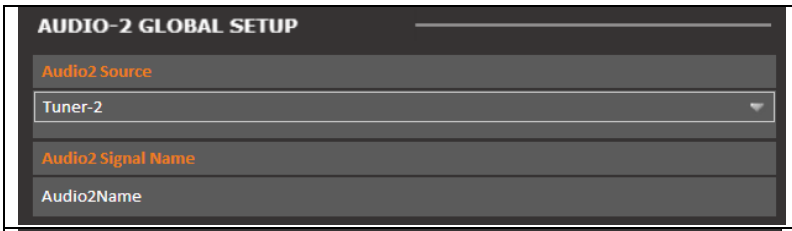
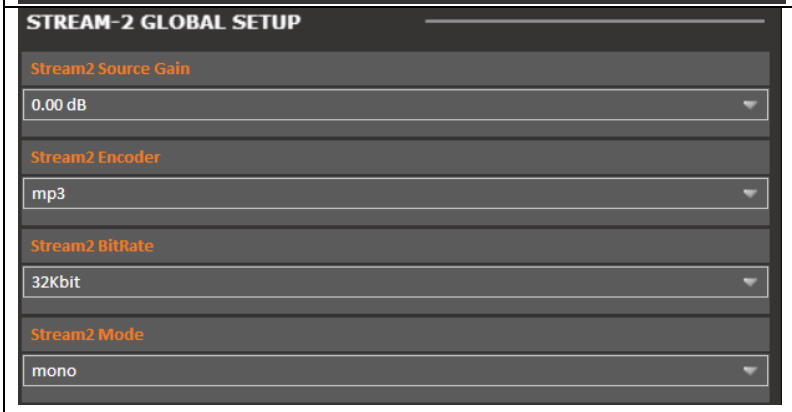



| | |
|---|---|
|  | **Audio1 Source:** This setting allows to deliver to the Audio-1 stream module, an audio source that can be selected between Tuner-1 or Tuner-2 or Analog or Digital. It is also possible to<br>**Audio1 Signal Name:** it is possible to apply a name to the signal delivered to the streamer. |
|  | **Stream Source Gain:** is the gain that is applied to the Audio Source. The admitted values are between -20.0 dB and +20.0 dB in 0.1dB steps.<br><br>**Stream1 Encoder**: it is possible to decide what type of audio encoder to use for the streaming.<br><br>**Stream1 BitRate:** in this setup it is possible to decide the audio encoding bitrate |

| | |
|---|---|
| | **Stream1 Mode**: it is possible to choose if the streaming is Mono or Stereo |

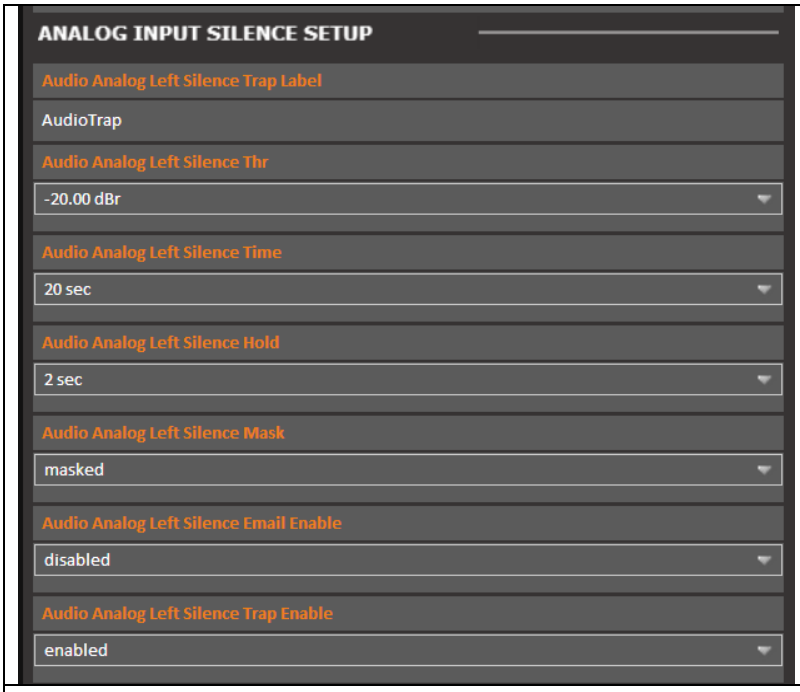
### *14.2 AUDIO 2 - SETUP*

This section allows the user to configure the audio source delivered to the Audio Streamer Module.

| | |
|---|---|
|  | **Audio2 Source:** This setting allows to deliver to the Audio-1 stream module, an audio source that can be selected between Tuner-1 or Tuner-2 or Analog or Digital.<br>It is also possible to<br>**Audio2 Signal Name:** it is possible to apply a name to the signal delivered to the streamer. |
|  | **Stream2 Source Gain:** is the gain that is applied to the Audio Source. The admitted values are between -20.0 dB and +20.0 dB in 0.1dB steps.<br><br>**Stream2 Encoder**: it is possible to decide what type of audio encoder to use for the streaming.<br><br>**Stream2 BitRate:** in this setup it is possible to decide the audio encoding bitrate<br><br>**Stream2 Mode**: it is possible to choose if the streaming is Mono or Stereo |

## 14.3 ANALOG AUDIO INPUT SETUP

The following setup is about the Analog Input Module, alarms generation and configurable settings. The A.A.L means Audio Analog Left while A.A.R means Audio Analog Right.




**Audio Analog Left Silence Trap Label:** define the Trap label over the NMS manager.

**A.A.L.Silence Threshold:** defines the threshold level to be considered audio or silence.

**A.A.L.Silence Time:** defines the maximum time under A.A.L.Silence Threshold to consider the input audio not valid (as silence)

**A.A.L.Silence Hold:** It's the time in which the audio signal must be stably present to be considered valid.

**A.A.L.Silence Mask:** if this parameter is Mask the silence error is not reported, while unmasked means the error is visible and reported.

**A.A.L.Silence Email Enabled**: this parameter enable the email sending in case of silence error.

**A.A.L.Silence Trap Enabled**: this parameter enable the Trap sending in case of silence error.


**Audio Analog Right Silence Trap Label:** define the Trap label over the NMS manager.

**A.A.R.Silence Threshold:** defines the threshold level to be considered audio or silence.

**A.A.R.Silence Time:** defines the maximum time under A.A.R.Silence Threshold to consider the input audio not valid (as silence)

**A.A.R.Silence Hold:** It's the time in which the audio signal must be stably present to be considered valid.

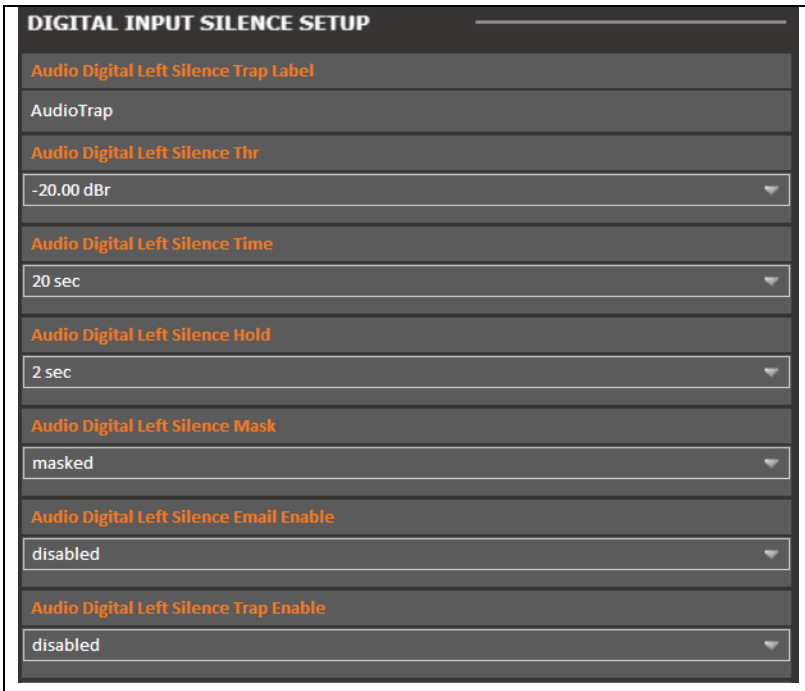
**A.A.R.Silence Mask:** if this parameter is Mask the silence error is not reported, while unmasked means the error is visible and reported.

**A.A.R.Silence Email Enabled**: this parameter enable the email sending in case of silence error.

**A.A.R.Silence Trap Enabled**: this parameter enable the Trap sending in case of silence error.

## 14.4 DIGITAL AUDIO INPUT SETUP

The following setup is about the Digital Input Module, alarms generation and configurable settings. The A.D.L means Audio Digital Left while A.D.R means Audio Digital Right.




**A.D.L Silence Trap Label:** define the Trap label over the NMS manager.

**A.D.L Silence Threshold:** defines the threshold level to be considered audio or silence.

**A.D.L Silence Time:** defines the maximum time under A.D.L.Silence Threshold to consider the input audio not valid (as silence)

**A.D.L Silence Hold:** It's the time in which the audio signal must be stably present to be considered valid.

**A.D.L Silence Mask:** if this parameter is Mask the silence error is not reported, while unmasked means the error is visible and reported.

**A.D.L Silence Email Enabled**: this parameter enable the email sending in case of silence error.

**A.D.L Silence Trap Enabled**: this parameter enable the Trap sending in case of silence error.


**Audio Digital Right Silence Trap Label:** define the Trap label over the NMS manager.

**A.D.R.Silence Threshold:** defines the threshold level to be considered audio or silence.

**A.D.R.Silence Time:** defines the maximum time under A.A.R.Silence Threshold to consider the input audio not valid (as silence)

**A.D.R.Silence Hold:** It's the time in which the audio signal must be stably present to be considered valid.

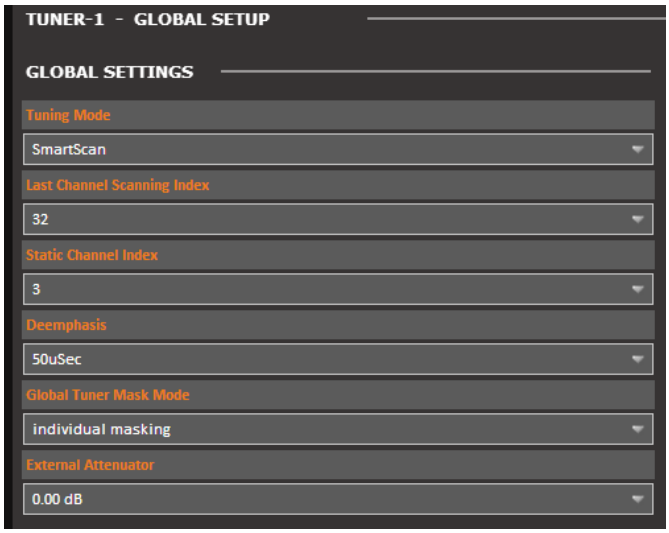
**A.D.R.Silence Mask:** if this parameter is Mask the silence error is not reported, while unmasked means the error is visible and reported.

**A.D.R.Silence Email Enabled**: this parameter enable the email sending in case of silence error.

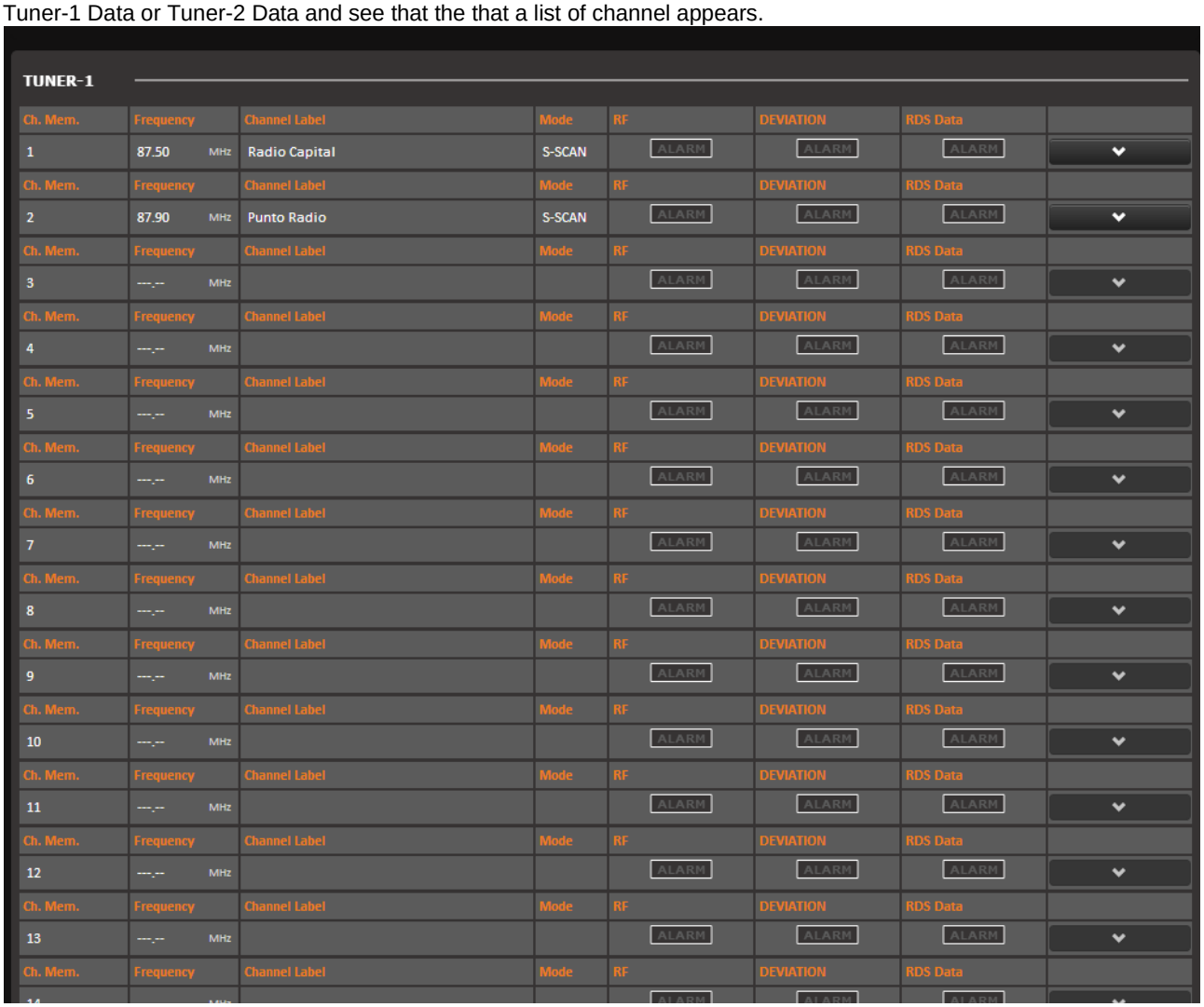
**A.D.R.Silence Trap Enabled**: this parameter enable the Trap sending in case of silence error.

# 15 WOLF 2MS SCAN AND SMART SCAN MODE

Once Scan or Smart Scan is selected in Settings -> Tuner-1 (or Tuner-2) -> Global as per picture shown below, the Wolf 2MS start scanning the channels selected.




In the menu Last Channel Scanning index it's possible to select the last channel that Wolf 2MS needs to scan starting from the channel n°1. To set the scan time go in RF or any tab available. To see the result of the scanning press the Tuner-1 Data or Tuner-2 Data and see that the that a list of channel appears.

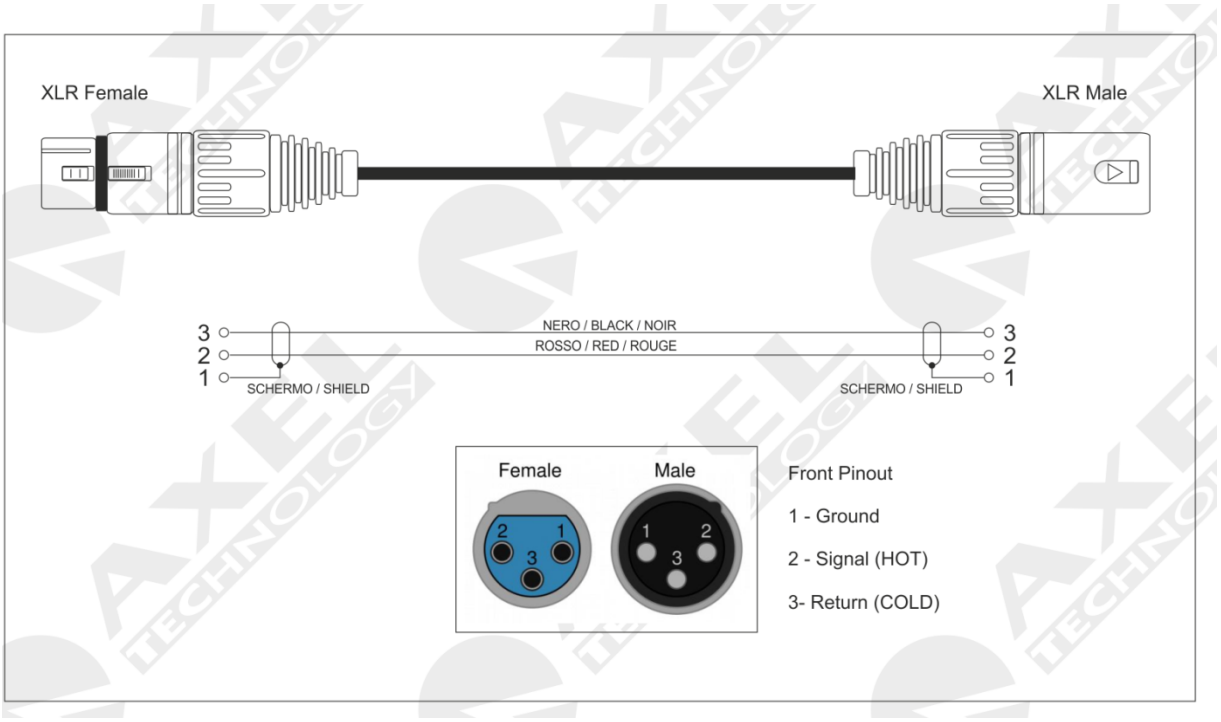


# 16 TECHNICAL APPENDIX

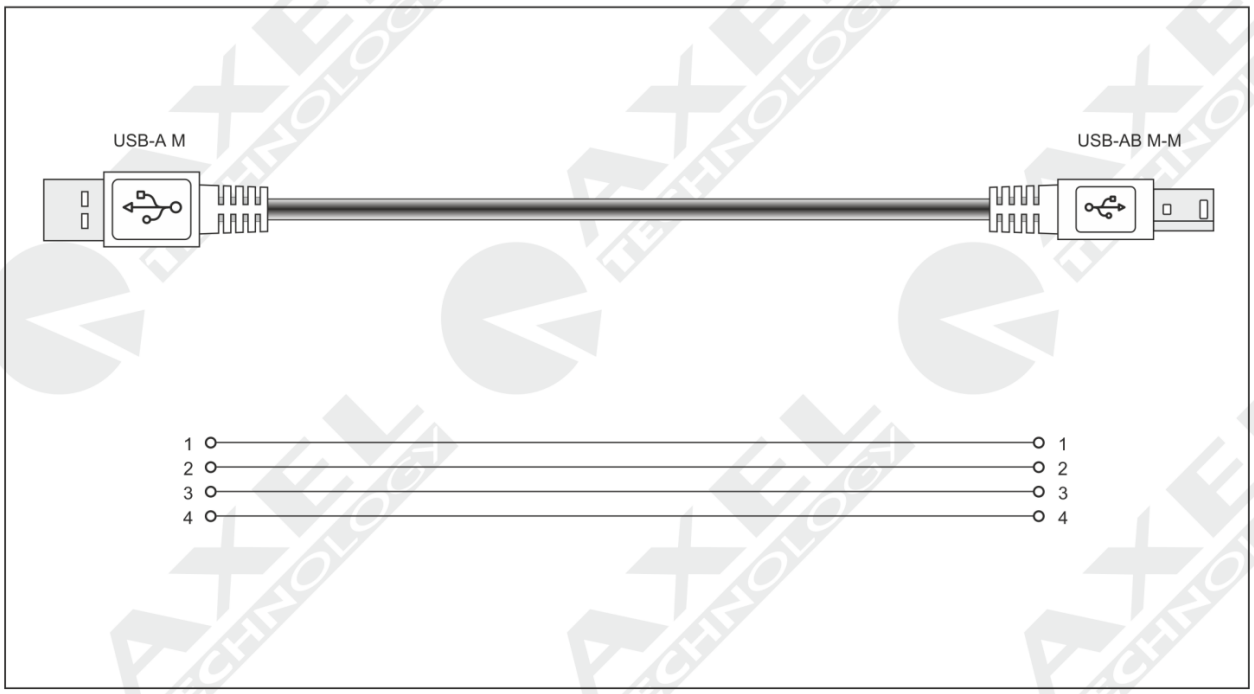
The following provides all the technical explanations, the connection pinouts to and from the Wolf 2MS device. Always refer to this technical appendix for the connections and the connection procedures. Should you discover inconsistencies between the documentation below and the hardware device, please contact Axel Technology at the numbers and emails provided at the end of this manual. Our technical and support department will be happy to help and assist you to the best of our ability!

## 16.1 APPENDIX A - BALANCED AUDIO AND PINOUT CONNECTION

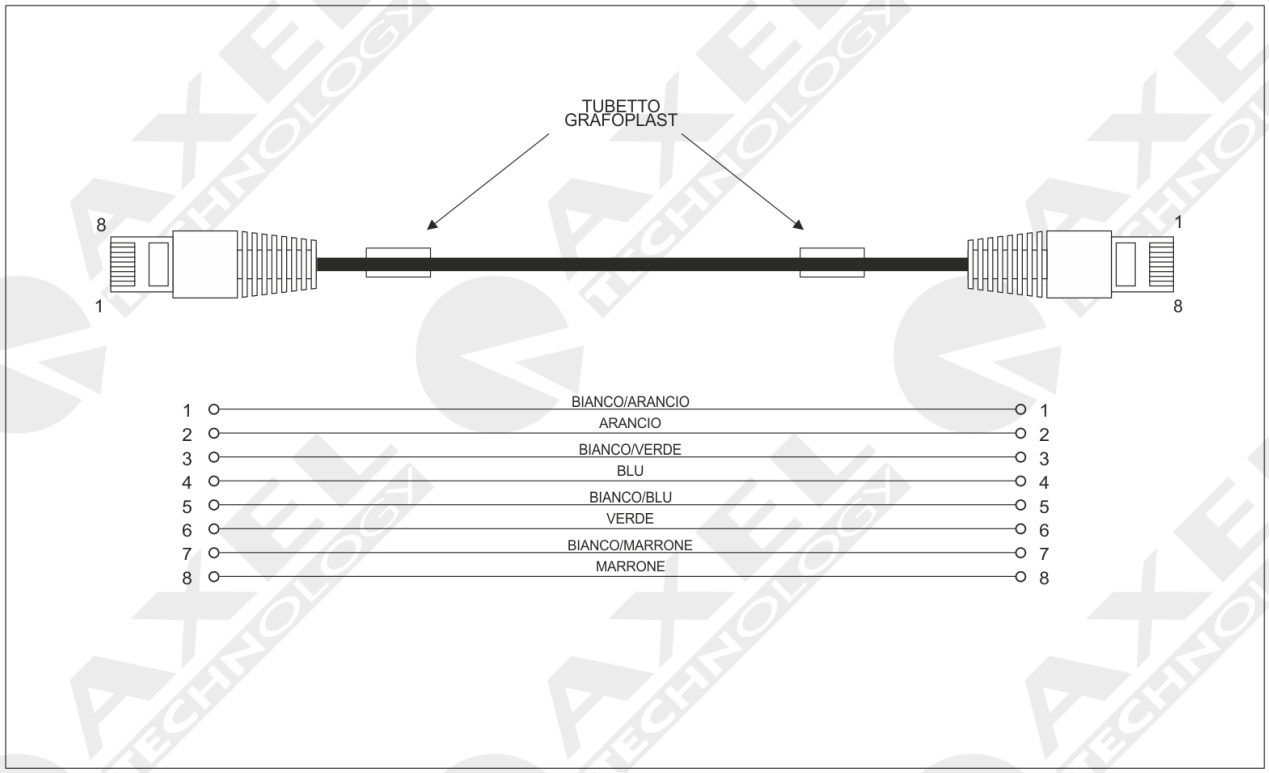
Connection diagram Balanced Audio on Balanced XLR for Analog audio **Input** and **Output** (Left+Right) and **Input** and **Output** AES/EBU Digital Audio.




## 16.2 APPENDIX B - USB A/B CONNECTION

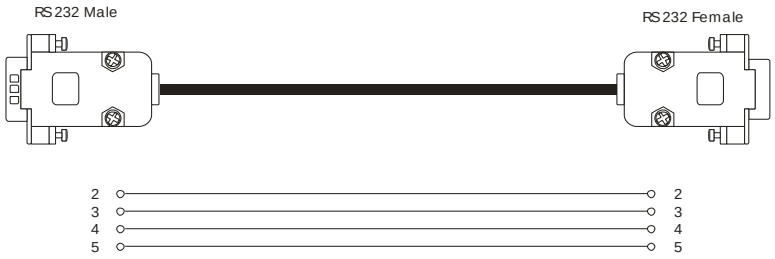


## 16.3 APPENDIX C – ETHERNET / LAN CONNECTION




## 16.4 APPENDIX D – SERIAL CONNECTION

| PORT 1 | | RDS ENCODER | |
|---|---|---|---|
| 2 | Tx | 2 | Tx |
| 3 | Rx | 3 | Rx |
| 4 | DTR | 4 | / |
| 5 | GND | 5 | GND |

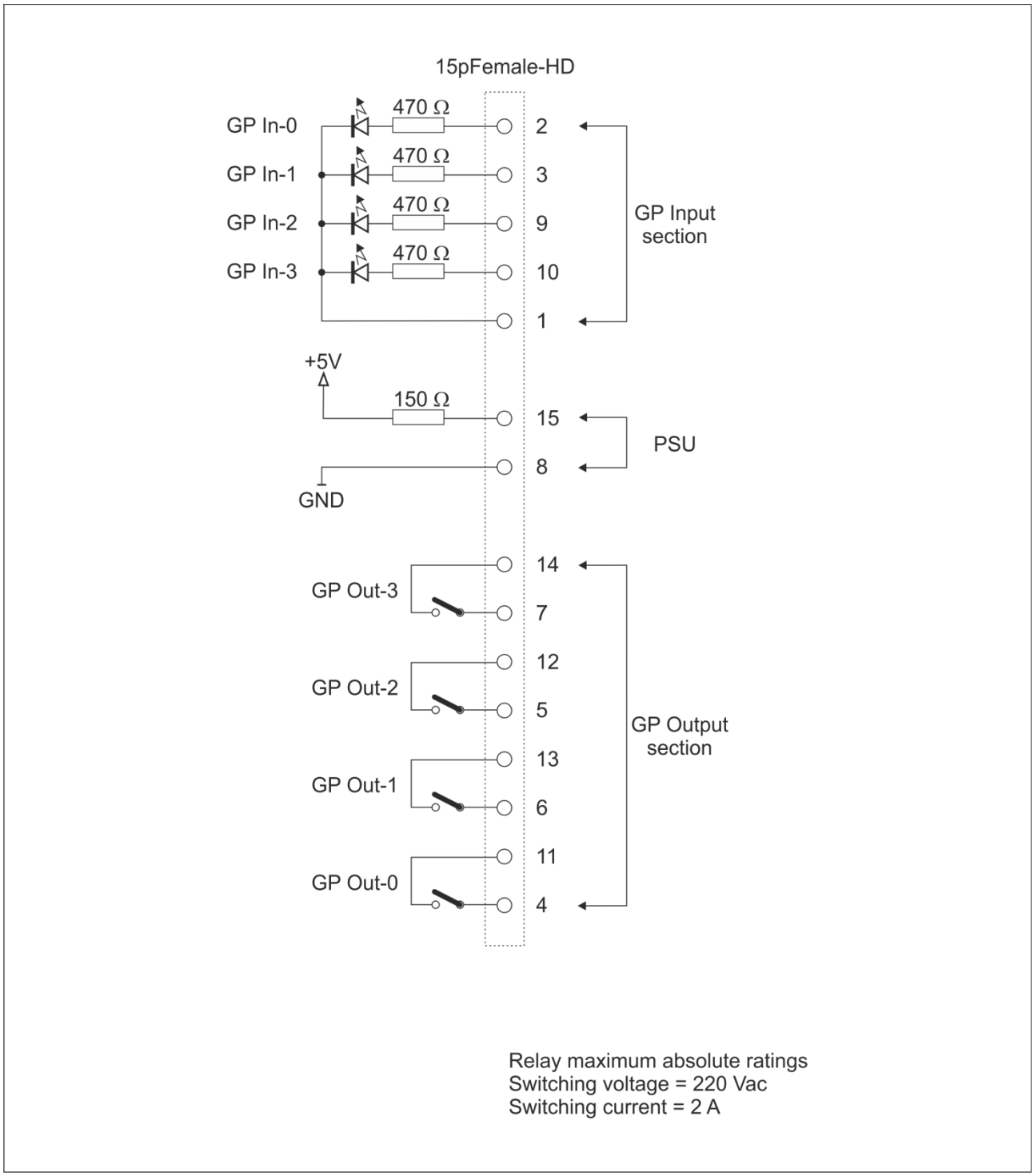



The cable that must be used to connect a RDS UECP encoder to Wolf 2MS must be a straight forward cable. A common Pin-to-Pin subD 9pole Female-Male. The maximum lengh must be 10mt. This cable can be used between WOLF 2MS and a RDS Encoder UECP compliant. The RDS data bridging can be achieved by connecting the Serial output from Wolf 2MS to the RDS Encoder data input. Please refer to this user manual and the RDS Encoder user manual to set the correct speed data and baud rate.

## 16.5 APPENDIX E - GPIO PORT

The SubD 15p HD **GPIO** connector on the back of the Wolf 2 MS device provides 4x General Purpose Inputs and 4x binary General Purpose outputs. The inputs are on polarised Opto coupler while the outputs are via relay dry contact.

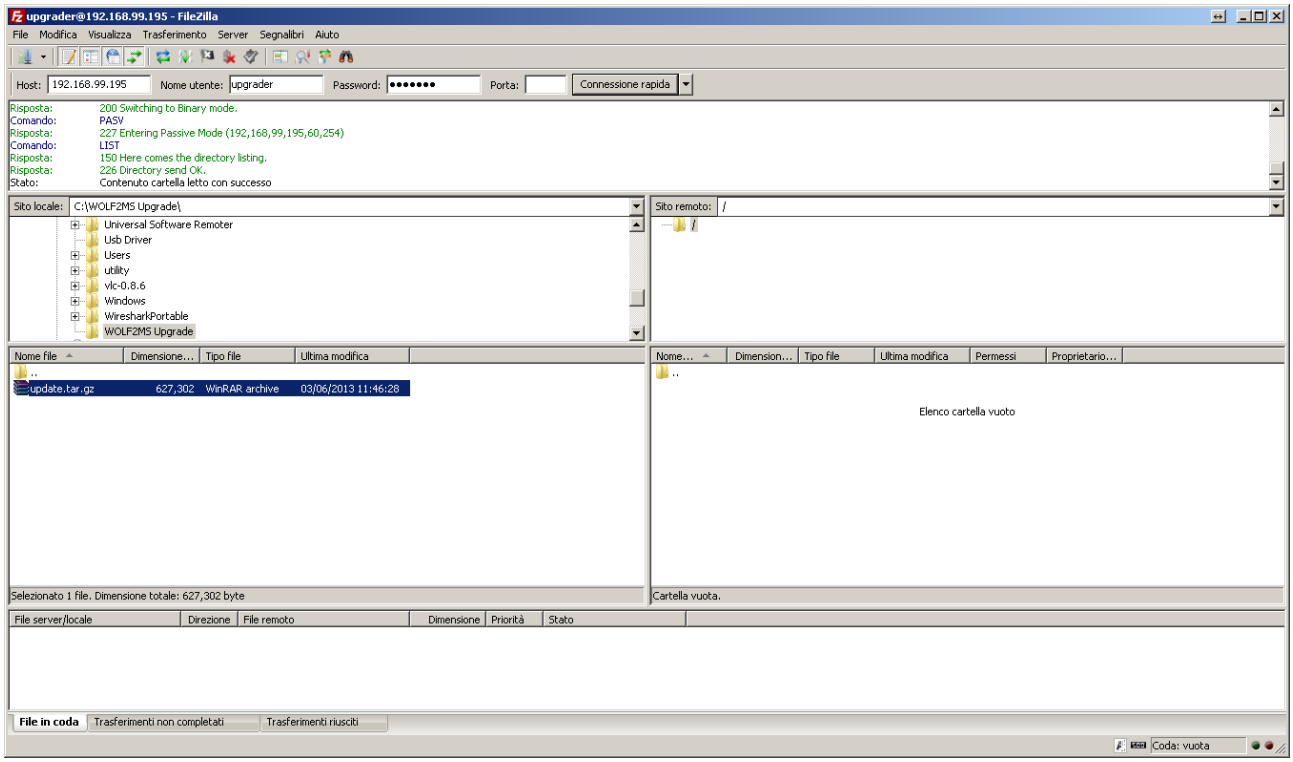
They can be used to send commands to the device and perform certain tasks. The inputs are constituted by polarised photo couplers on each input and a 150 Ohm protection resistance in series is always inserted within. The maximum current that can circulate on every photo coupler is 20 mA. The voltage supplied between pin 8 and pin 15 is +5 Vdc non stabilized.



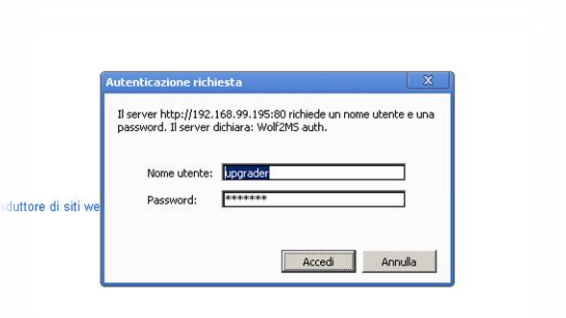
## *16.6 APPENDIX F – WOLF 2MS UPGRADE PROCEDURE*

In order to upgrade a Wolf 2MS equipment some software equipment are needed before the upgrade:

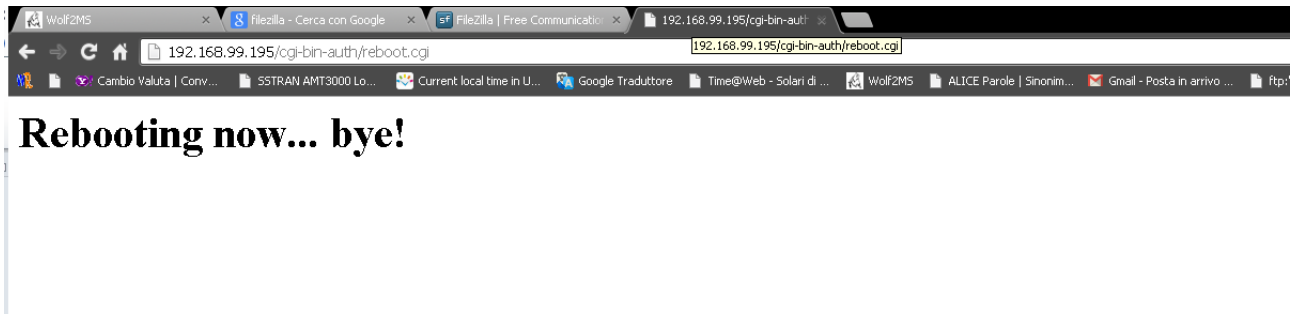
1. A FTP client installed in the pc workstation.
2. OS should be Windows XP or Windows 7.
3. Get the file “Update.taz.gz” from Axel Technology – please contact the support dept.
4. Connect the FTP client to Wolf 2MS with **username**: upgrader **password**: wolf2ms




5. When the FTP client is connect, the destination folder appears automatically.
6. Copy the file in this folder.
7. Now a reboot is necessary, and can be performed.
   a. Manually, by shutting down the unit and reboot Wolf 2MS via the rear panel switch
   b. Via web with the url: http://<ip_wolf2ms>/cgi-bin-auth/reboot.cgi




   c. At this page a login is required. (**username**: upgrader **password**: wolf2ms )



### *16.6.1 Note about upgrading from rel 0.4.1 – 0.4.7*

Starting from Wolf 2MS release 0.4.7 it is necessary to update and upgrade the complete equipment, starting from

**a. File System (then)**
**b. Kernel (then)**
***c. Firmware***

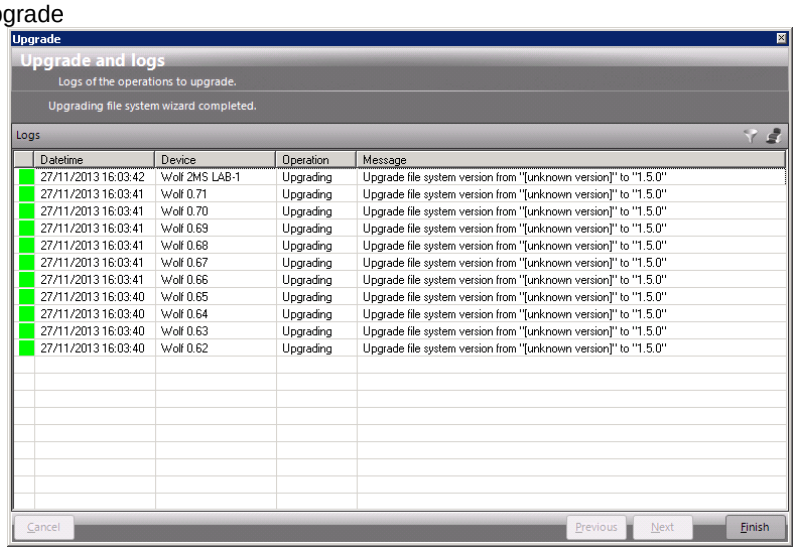
The correct upgrading procedure starting from firmware release 0.4.1 ore 0.4.7 is

1. File System
2. Kernel
3. Firmware rel 0.5.1
4. Firmware rel 0.6.1
5. Firmware rel 0.6.6
6. Firmware rel 0.6.x
7. Firmware and Kernel 0.8.5

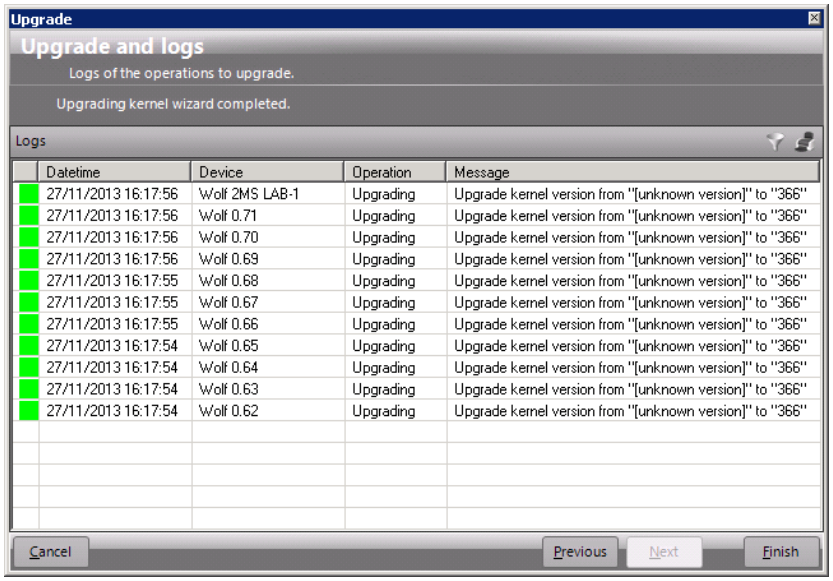
It is possible to retrieve the correct File System, Kernel and Firmware release asking Axel Technology support dept

support@axeltechnology.com

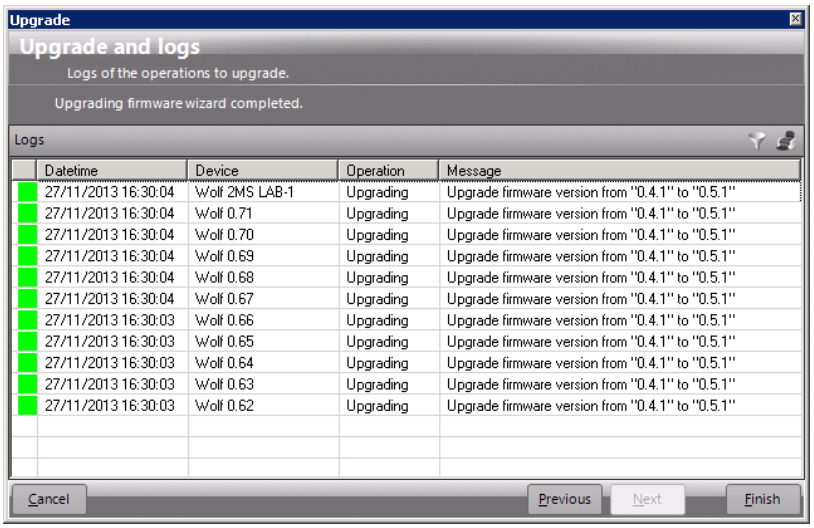
Step 1: File System Upgrade



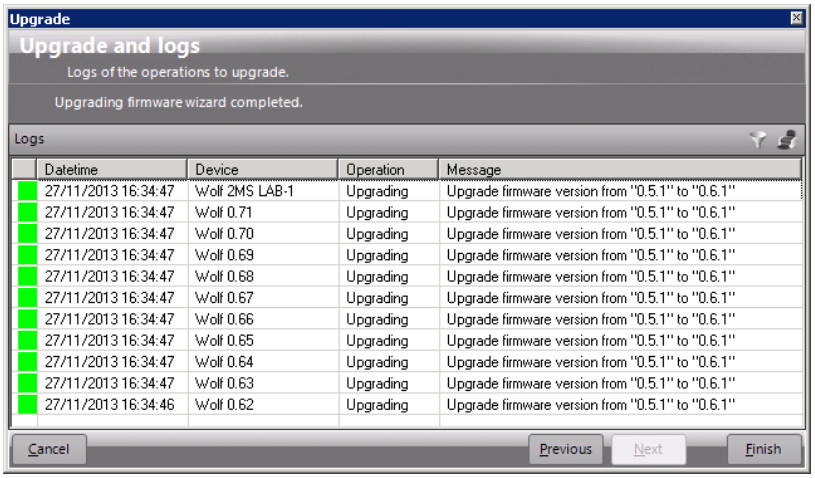

Step 2: Kernel Upgrade



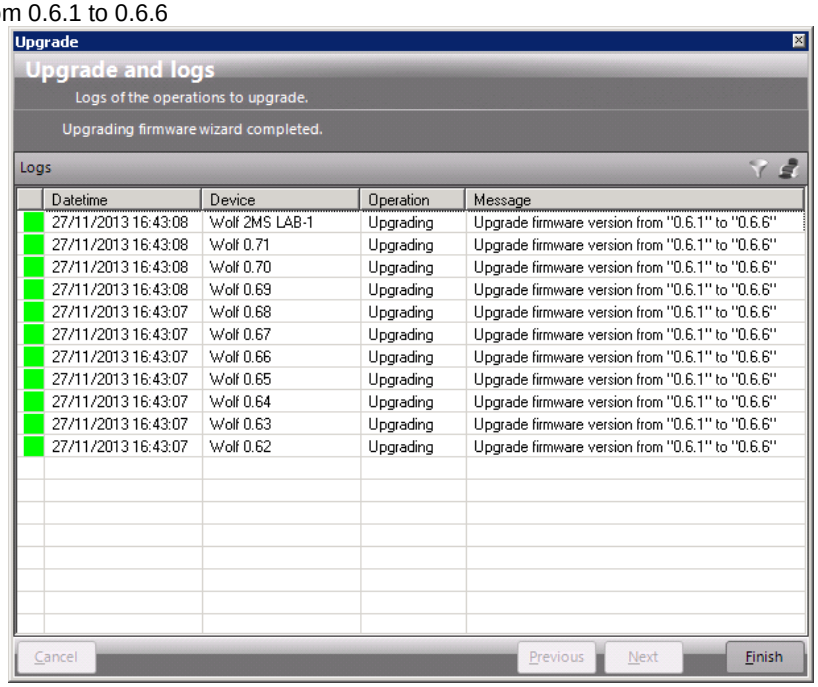

Step 3: Firmware Upgrade from 0.4.1 to 0.5.1




Step 4: Firmware Upgrade from 0.5.1 to 0.6.1




Firmware Upgrade from 0.6.1 to 0.6.6



## *16.7 APPENDIX G – WOLF 2MS CONSIDERATION ON FW REL 1.2.1*

In latest Wolf 2MS Firmware Release 1.2.1 has been improved and fixed the following features.

### 1. Highlights

- Bug fix about issue concerning reboot and related issues
- Bug fix about audio parameter saving
- During NMS parameter change operation a bug was blocking the SNMP
- Label correction of NMS-3
- Has been added the information that trap-timeout and trap-retry work only in informV2 mode
- Improved the trap retry from 100 to 1000
- Tested Trap behavior with no Ethernet connection

### 2. Information about new firmware rel.

a. Only if has been selected InformV2, traps are automatically managed and repeated until an acknowledgement has been received by NMS system.
b. Informv2 protocol provides as reported below: informV2 this protocol provides:
   - The agent, in this case wolf2ms should try again with a certain time period defined trap-timeout and return to N times (trap-Retry) the same trap if it does not receive an ACK (acknowledgement) from the NMS.

*Scenario -1 example:*

if we set (Trap-Type:informV2, Trap-Timeout:10, Trap-Retry:360) we are going to set Wolf 2MS to retry for about 1 hour to find an ACK from NMS server. All the traps are queued waiting for a response
with the above example by disconnecting the network cable for a time below 1 hour, and creating events, as soon as cable has been reconnected (or Server has been closed and the opened again) all the traps queued are delivered.
If the timing in sec is exceeded (Trap-timeout*Trap-Retry) all the traps will be lost.

c. Trap order is not granted as mentioned in the protocol, because it's a delivery retry. The traps arriving is determined by the Ethernet link come back, each trap contains all the timing information of the events so the information can pass with no problem.
d. We have done some test by disconnecting the network until 30 minutes and all the workflow is perfectly granted.
e. Using v1 or V2simple mode there is a simple trap delivery

### 3. Trap replay:

Wolf 2MS also supports trap-replay features replay (iTrapReplayEnabledTrapsReq). The server knows that the synchronization could be lost and can ask to the agent (Wolf 2MS) all the variation that has been happened about issue and alarms on the trap enabled. So a trap comes resend for each status variations that has been happened

*Scenario -2 example:*

The system works this way: the informV2 mode must plug gaps and short causal connection. Long connection interruptions should be managed by the NMS server with a trapReplay request. Now the maximum time is 60 * 1000 seconds. So it could be managed until almost a day's lack of linkage.

Note:
If you change the parameters of the NMS pages, these become active 20-30 seconds later.

## *16.8 APPENDIX H – WOLF 2MS TEST PROCEDURE AND CONSIDERATION*

Scope of the test proposal is to verify and test all Wolf2MS functionalities in order to check in detail the behavior of all equipment. We will split all Wolf2MS functions in three Groups and test every function, checking and comparing the results with the expected ones in all interfaces available (WEB PAGES, SNMP, Front Panel display and Leds).

For every function an example configuration will be described in a nominal situation, as well as what happens when an alarm rises up. The expected timing will be indicated with the related measurements and in brief the effects on all interfaces.

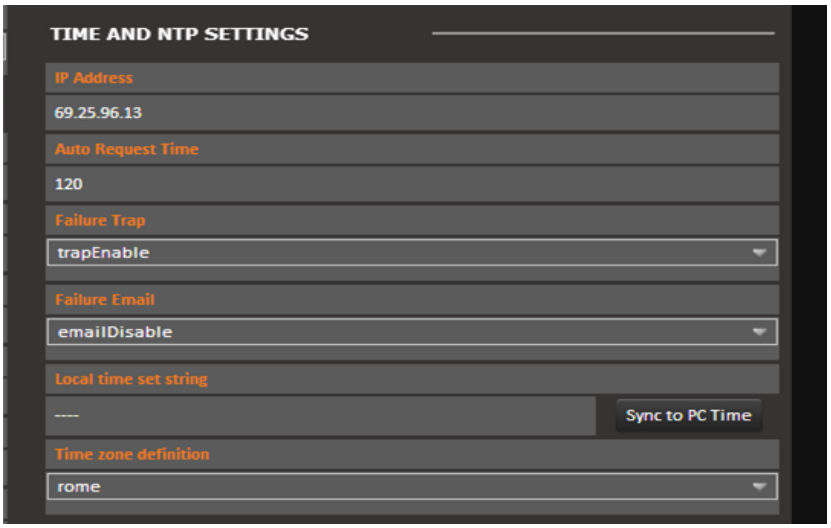
All the tests will be done and the variations explained on all the three possible situations (Static, Scan, SmartScan).
For every function will be indicated if an improvement is planned in the next releases or must considered definitive.

The scope of this test isn't a strict measure sequence, but scan all functionalities together for finding bugs, unexpected behaviors on one or more interfaces, for enhancing weak and strong point of the system .

So, the test configuration proposed is only an example to follow, the important thing will be for every functionality have a report about the test results. Every buggy behavior found will be fixed in the next release, every improvement suggested will be discussed and every limitation found will be defined.

## *16.9 SYNCH TO PC TIME*

By pressing the “Synch to PC Time” button, the WOLF2MS will be synchronized with the PC Clock

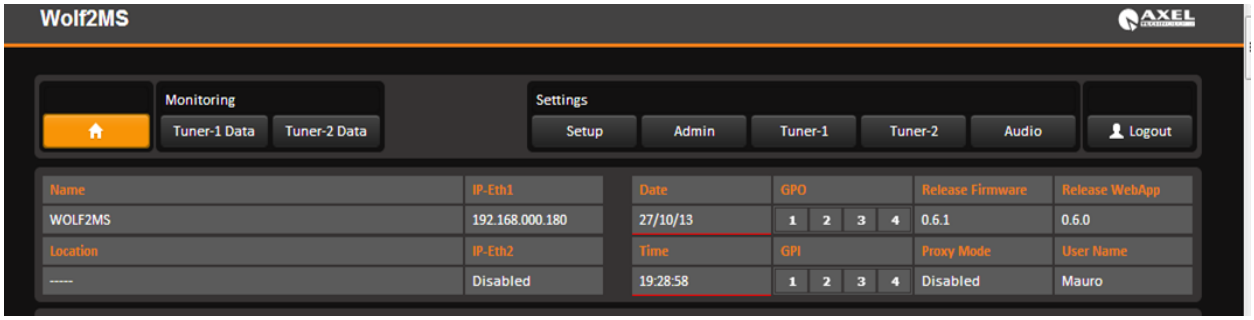


## *16.10 NTP*

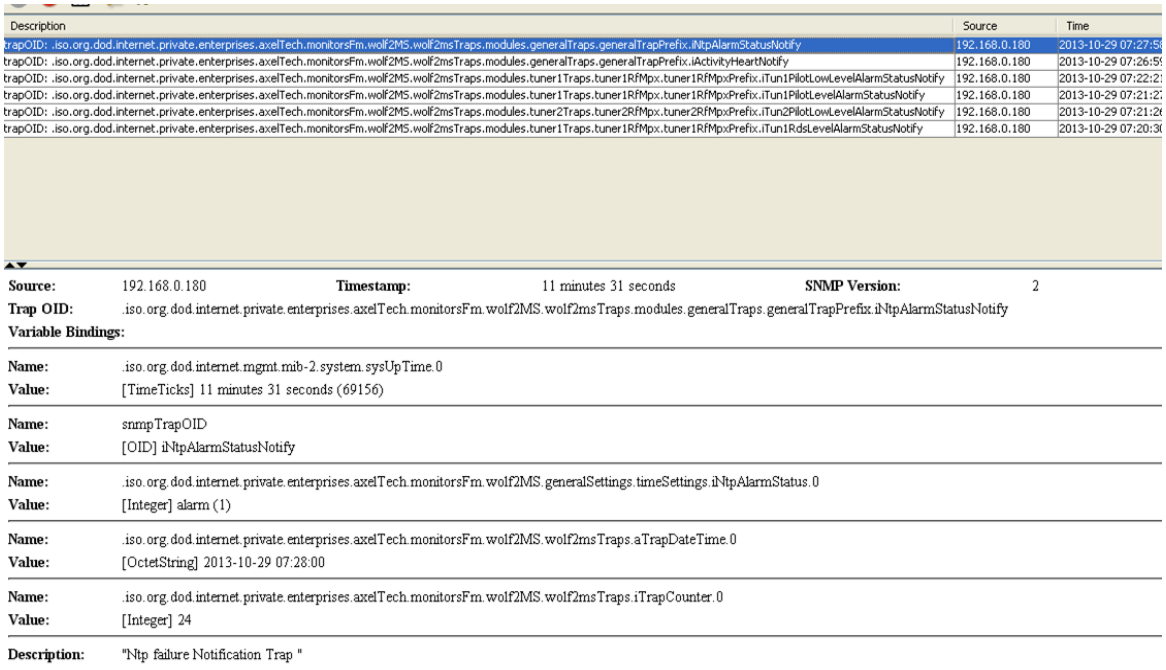
To activate the NTP auto synchronization set a not zero value in AutoRequest Time.
After a modification of this parameter or a modification of the NTP IP address, the Wolf2MS will try to synchronize the system clock. After the first synchronization, the server will be contacted automatically with the selected period in minutes.

After a system reboot or restart, if AutoRequestTime is activated, in the first operative minute the NTP-V3 server will be contacted, as well as after the selected period.

The NtpSynch status starts as OK(synchronized) at the system startup, but after the first synchronization attempt it will show the real status. Every NtpSync status variation is signaled (if enabled) with the NtpFailureNotificationTrap.




An NTP synchronization failure will be indicated with a red alarm line under the Date/Time field.

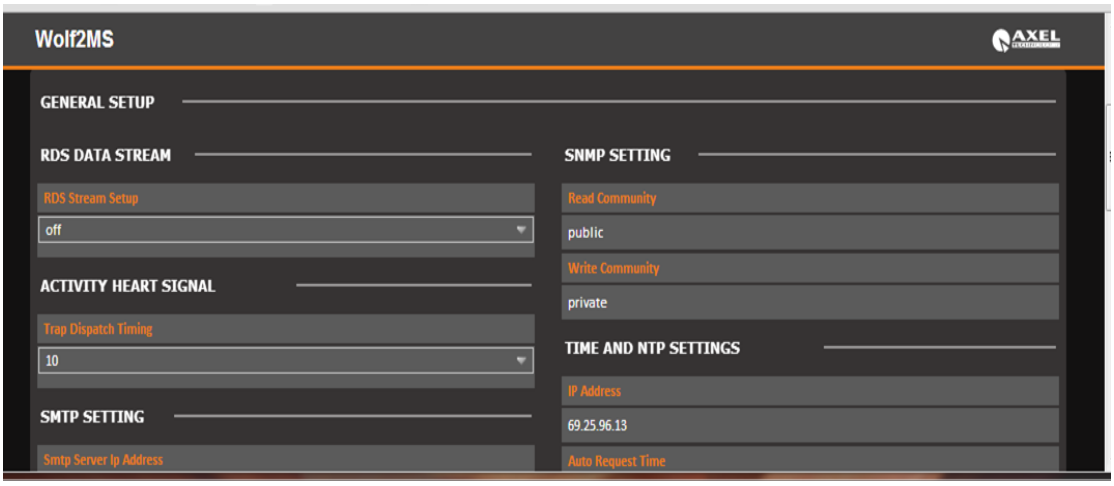



Modified the behavior of the NTP client in the release 0.6.5. Peer Polling interval is set now as 4 (16 sec) in place of 3 (8 sec). If the timing adjustment is less than 5 seconds the sysclock will be adjusted in a slow continuous way (about 2 sec/hour) avoiding sysclocks jumps (very important for the streaming, will be documented in the manual) and the recommended synch period should be at least one per day

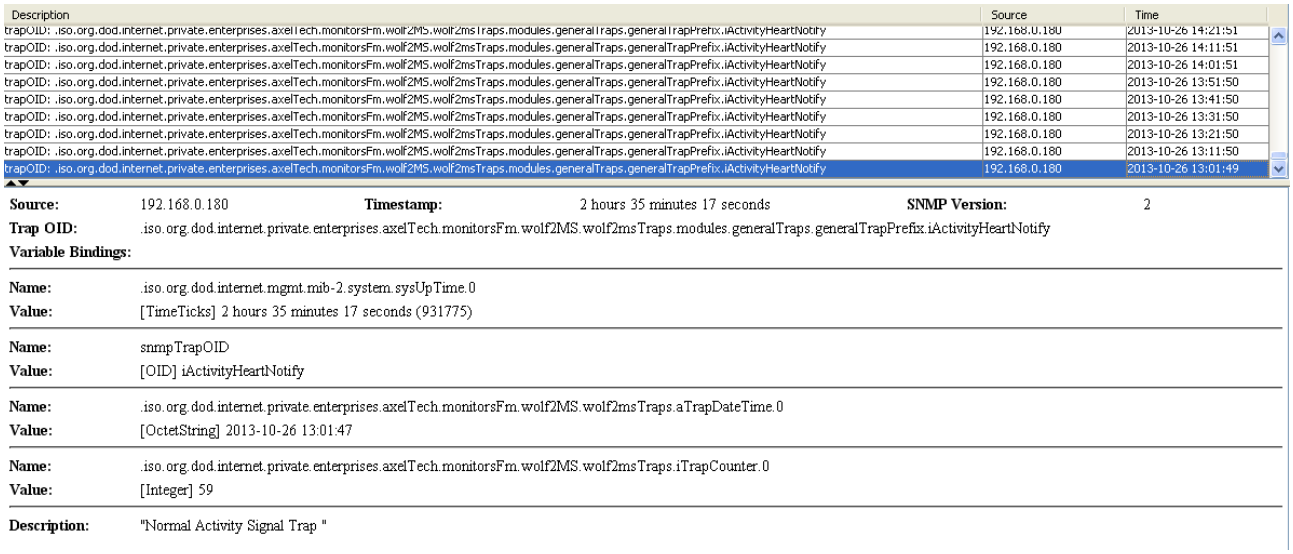
## 16.11 NORMAL ACTIVITY TRAP

This trap will be sent periodically to indicate that the system is OK and the Wolf2MS host process is able to communicate with all its interfaces without apparent problems.
One trap will be sent at every change of the time parameter or at the system start-up (few seconds after the cold start SNMP trap), as well as according to the period selected.

This Trap will not be replayed.




The value “0” means function disabled. A different value indicates the period in minutes of the signal trap.
In the example tested the period is 10 minutes.



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:21:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:11:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 14:01:51 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:51:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:41:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:31:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:21:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:11:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-26 13:01:49 |

**Source:** 192.168.0.180 **Timestamp:** 2 hours 35 minutes 17 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 2 hours 35 minutes 17 seconds (931775)

**Name:** snmpTrapOID
**Value:** [OID] iActivityHeartNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-10-26 13:01:47

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 59

**Description:** "Normal Activity Signal Trap "

### *16.11.1 RF-L2 Monitor test (Tuner-1 Tuner-2)*

An RF signal combined with one or more frequencies is applied to the tuner1 and/or tuner2 RF inputs. One carrier RF level will be varied to test the alarms the other ones will be used to fill the scanning list (for the scanning test only) . Frequencies of 100.80MHz (RF sweeping) and 100.50MHz (RF stable) will be used.

By slowly changing the RF levels (compatibly with the chosen Validation and Hold time) around the test zone, wait for the alarms and go back up to the starting point.

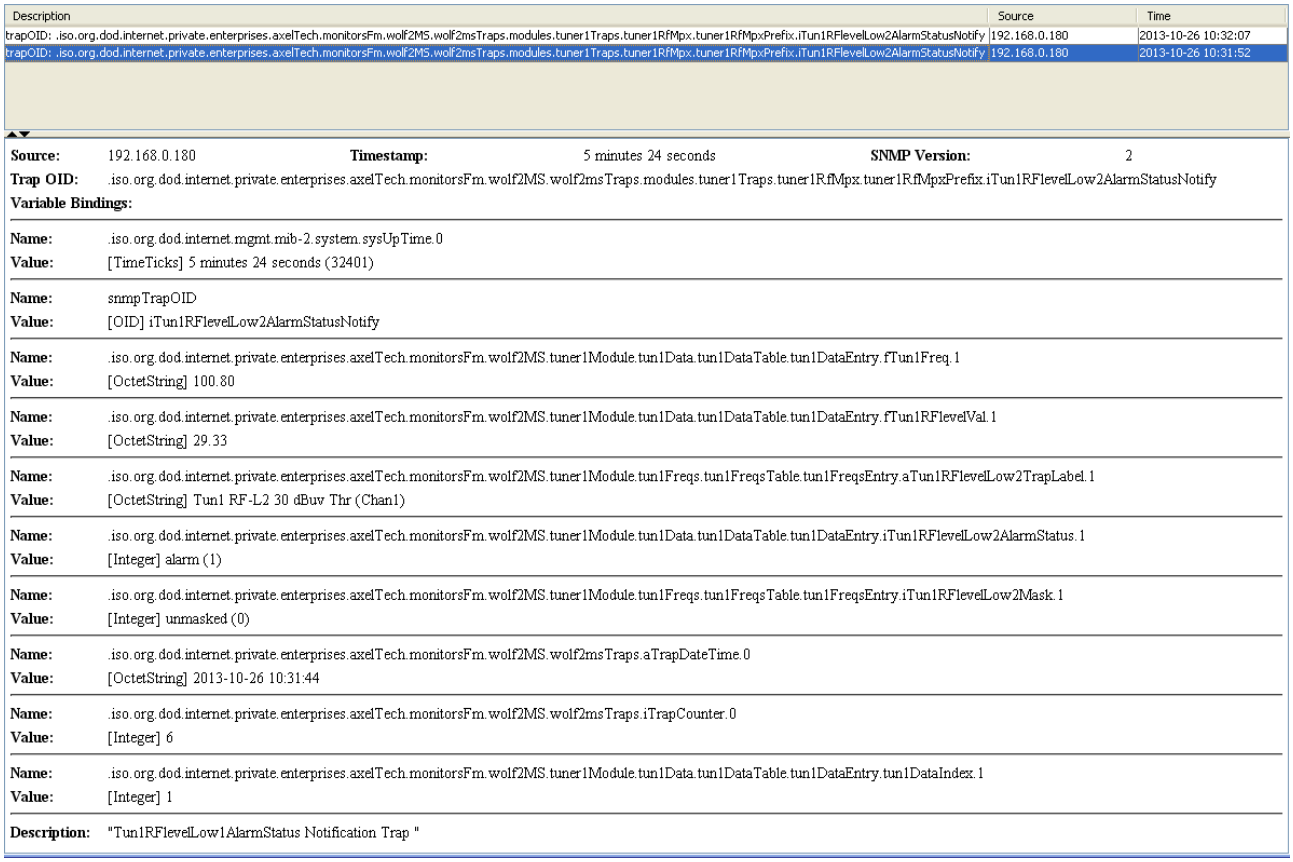
Tested is in Static mode first.

In static mode the alarm rises up after the validation time. When the status variable changes, a trap will be sent with time and RF values of the first sample out of the range. When the RF level is greater or equal to THR+ Hysteresis, the status alarm after the hold time comes back to the (ok) state and another trap will be sent with the RF value and time of the first valid sample.

The following values have been tested in static mode:
Thr: +30dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +30dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +30dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The observed behavior resulted to be compatible with the specifications with an accuracy error on the measure of about 1 dBuV and timing errors of about 1-2 seconds

Typical Accuracy and Precision expected in general:
Min RF value readable : -6 dBuV, Max RF value readable: +123 dBuV
Accuracy: +-3 dBuV, Precision +-2 dBuV (Range -6 dBuV to +19 dBuV)
Accuracy: +-2 dBuV, Precision +-1 dBuV (Range +20 dBuV to +79 dBuV)
Accuracy: +-3 dBuV, Precision +-3 dBuV (Range +80 dBuV to +123 dBuV)



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelLow2AlarmStatusNotify | 192.168.0.180 | 2013-10-26 10:32:07 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelLow2AlarmStatusNotify | 192.168.0.180 | 2013-10-26 10:31:52 |

**Source:** 192.168.0.180 **Timestamp:** 5 minutes 24 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelLow2AlarmStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 5 minutes 24 seconds (32401)

**Name:** snmpTrapOID
**Value:** [OID] iTun1RFlevelLow2AlarmStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.80

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1RFlevelVal.1
**Value:** [OctetString] 29.33

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.aTun1RFlevelLow2TrapLabel.1
**Value:** [OctetString] Tun1 RF-L2 30 dBuv Thr (Chan1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.iTun1RFlevelLow2AlarmStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.iTun1RFlevelLow2Mask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-10-26 10:31:44

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 6

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

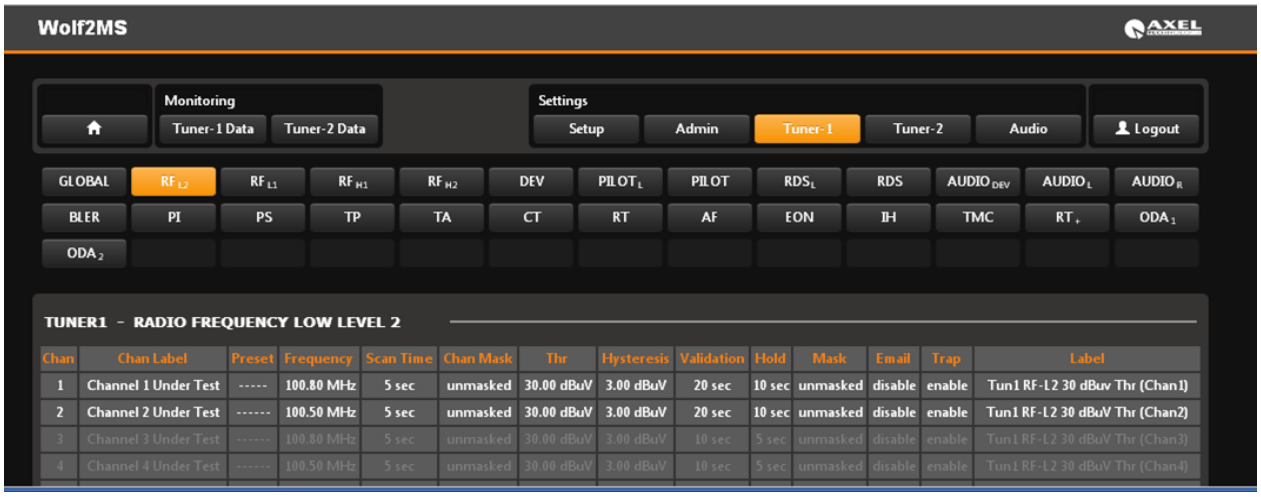
**Description:** "Tun1RFlevelLow1AlarmStatus Notification Trap "

Under the alarm condition the RF alarm led on the panel must be on (not flashing) and by clicking on the channel number of the correspondent tuner the RF error will be displayed. (“RF_LEV_L2”)

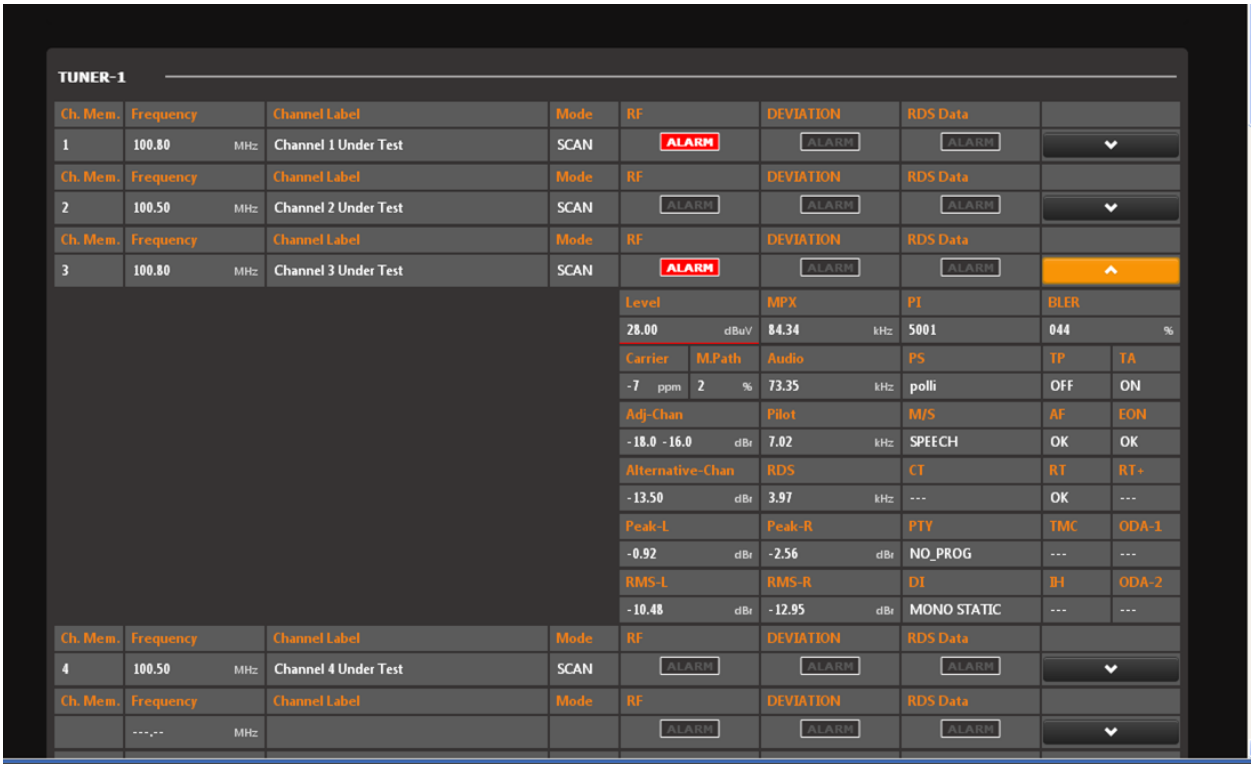
In order to alternate the conditions, the system has been tested in scanning mode with another constant RF carrier at 70dBuV.

F1=100.80MHZ ( 40dBuV sweeping from 40dBuV to 20dBuV)
F2=100.50 MHZ (70dBuV stable)
Thr: +30dBuV, Hyst: +3dBuV, Validation:2sec,  Hold:2Sec
Thr: +30dBuV, Hyst: +3dBuV, Validation:20sec,  Hold:10Sec
Thr: +30dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The observed behavior resulted compatible with the specifications with an accuracy error on the measure of about 1 dBuV and timing errors of about 1-2 seconds




In scanning mode all traps will be sent in the same way but the validation and hold time must be calculated on the time the scanner is observing the channel.



The traps will be sent in the instant the alarm rises up, but the RF value and the time in the var-binds will be related to the first sample out of the range.

Under the alarm condition the RF alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and by clicking on the channel number of the correspondent tuner the RF error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

REPLAY ENABLED TRAPS
The RF-L2 alarm trap is replayed with its original status, time and RF value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

### *16.11.2* ***RF-L1 Monitor test (Tuner-1 Tuner-2)***

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. One carrier RF level will be varied to test the alarms the other ones will be used to fill the scanning list. We have used 100.80MHz (RF sweeping) and 100.50MHz(RF stable).

By slowly changing the RF levels (compatibly with the chosen Validation and Hold time) around the test zone, wait for the alarms and go back up to the starting point.

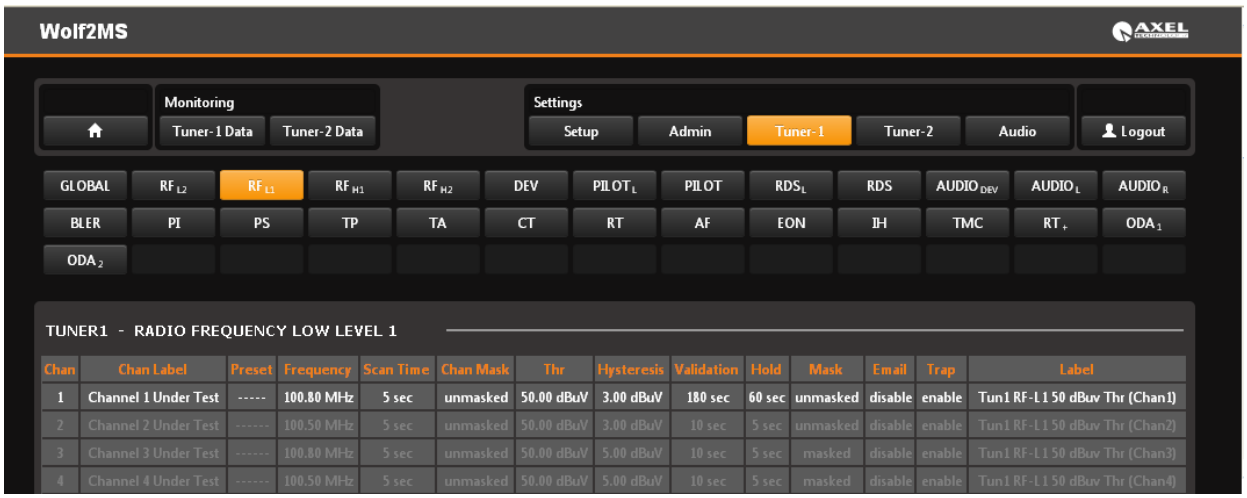
Test is in Static mode first.
In static mode the alarm rises up after the validation time. When the status variable changes a trap will be sent with time and RF values of the first sample out of the range. When the RF level is greater or equal to THR+ Hysteresis, the status alarm after the hold time comes back to the (ok) state and another trap will be sent with the RF value and time of the first valid sample.

The following values have been tested in static mode:
Thr: +50dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +50dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +50dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The observed behavior resulted to be compatible with the specifications with an accuracy error on the measure of about 1 dBuV and timing errors of about 1-2 seconds

Typical Accuracy and Precision expected in general:
Min RF value readable : -6 dBuV, Max RF value readable: +123 dBuV
Accuracy: +-3 dBuV, Precision +-2 dBuV (Range -6 dBuV to +19 dBuV)
Accuracy: +-2 dBuV, Precision +-1 dBuV (Range +20 dBuV to +79 dBuV)
Accuracy: +-3 dBuV, Precision +-3 dBuV (Range +80 dBuV to +123 dBuV)

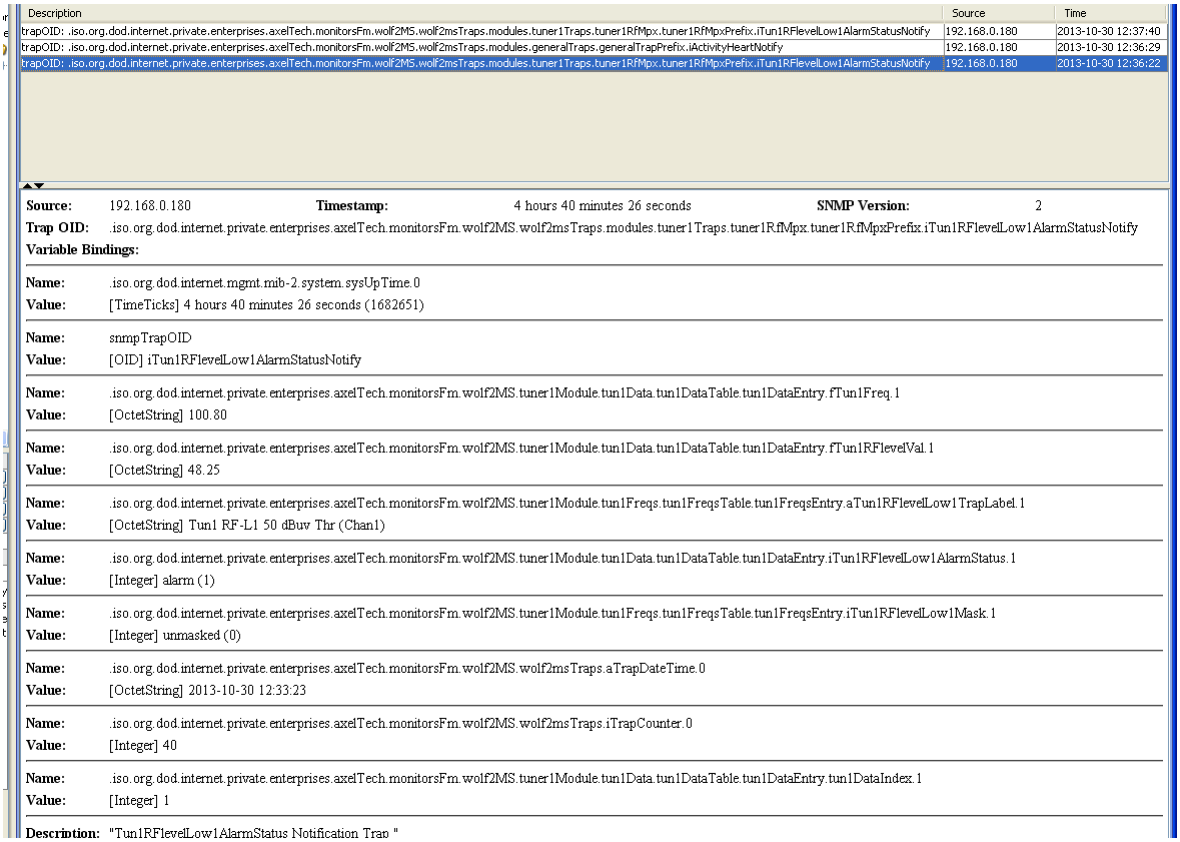
Under the alarm condition the RF alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RF error will be displayed. (“RF_LEV_L1”)



Tested in scanning mode with another carrier  with a constant RF at 70dBuV to alternate the conditions.

F1=100.80MHZ ( sweeping from 70dBuV to 40dBuV)
F2=100.50 MHZ (70dBuV stable)
Thr: +50dBuV, Hyst: +3dBuV, Validation:2sec,  Hold:2Sec
Thr: +50dBuV, Hyst: +3dBuV, Validation:20sec,  Hold:10Sec
Thr: +50dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure of about 1 dBuV and timing errors of about 1-2 seconds




The traps will be sent if the instant the alarm rises up, but the RF value and the time in the var-binds will be related to the first sample out of the range.

Under the alarm condition the RF alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RF error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

REPLAY ENABLED TRAPS
The RF-L1 alarm trap is replayed with its original status, time and  RF value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

### *16.11.3* ***RF-H1 Monitor test (Tuner-1 Tuner-2)***

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. One carrier RF level will be varied to test the alarms the other ones will be used to fill the scanning list.
We have used 100.80MHz (RF sweeping) and 100.50MHz( RF stable).

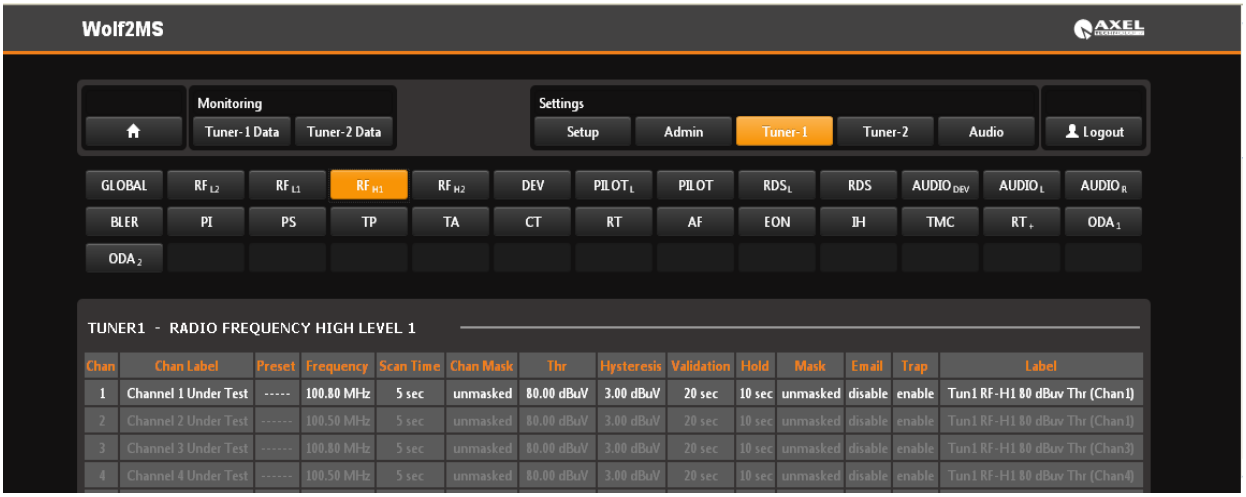
By slowly changing the the RF levels (in compatible way with the Validation and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point.

Tested in Static mode first.
In static mode the alarm rises up after the validation time, a trap will be sent when the status variable changes but with the time and the RF value of the first sample out of the range. When the RF level is lower or equal to THR- Hysteresis, the status alarm after the hold time comes back to the (ok) state and another trap will be sent with the RF value and the time of the first valid sample.

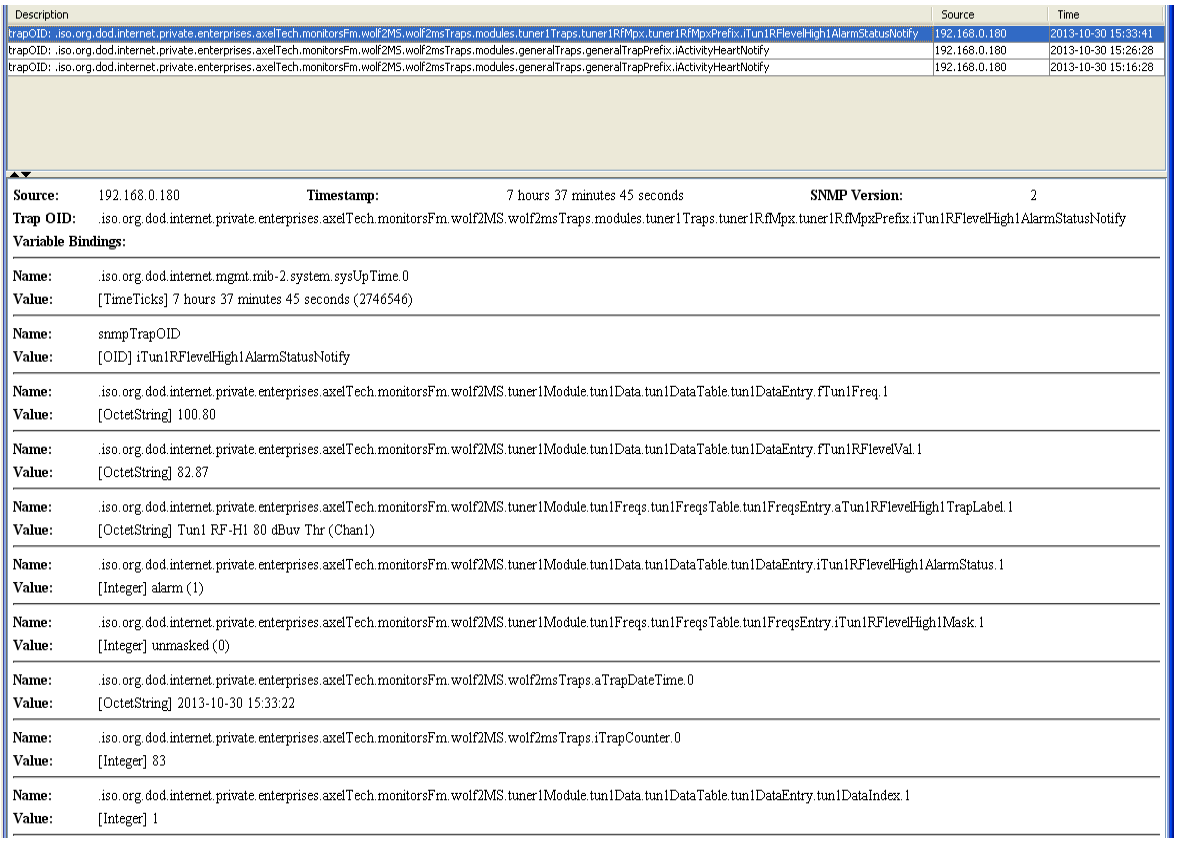
We have tested in static mode with the following values:
Thr: +80dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +80dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +80dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure of about 2 dBuV and timing errors of about 1-2 seconds

Typical Accuracy and Precision expected in general:
Min RF value readable : -6 dBuV, Max RF value readable: +123 dBuV
Accuracy: +-3 dBuV, Precision +-2 dBuV (Range -6 dBuV to +19 dBuV)
Accuracy: +-2 dBuV, Precision +-1 dBuV (Range +20 dBuV to +79 dBuV)
Accuracy: +-3 dBuV, Precision +-3 dBuV (Range +80 dBuV to +123 dBuV)




Under the alarm condition the RF alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RF error will be displayed. (“RF_LEV_H1”)




Tested in scanning mode with another carrier with a constant RF at 70dBuV to alternate the conditions.
F1=100.80MHZ ( sweeping from 90dBuV to 60dBuV)
F2=100.50 MHZ (70dBuV stable)
Thr: +80dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +80dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +80dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure of about 2 dBuV and timing errors of about 1-2 seconds

The traps will be sent if the instant the alarm rises up, but the RF value and the time in the var-binds will be related to the first sample out of the range.
Under the alarm condition the RF alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RF error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.
In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

The RF-H1 alarm trap is replayed with its original status, time and RF value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-4 to set and test this configuration.

## NOTES

Over 80dBuV the internal full band automatic attenuator starts to attenuate with a control hysteresis of 2 dBuV. This causes two effects : 1) less measurement accuracy (as specified) and less sensitivity for lower carrier on other frequencies

### *16.11.4 RF-H2 Monitor test (Tuner-1 Tuner-2)*

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. One carrier RF level will be varied to test the alarms the other ones will be used to fill the scanning list. We have used 100.80MHz (RF sweeping) and 100.50MHz(RF stable).

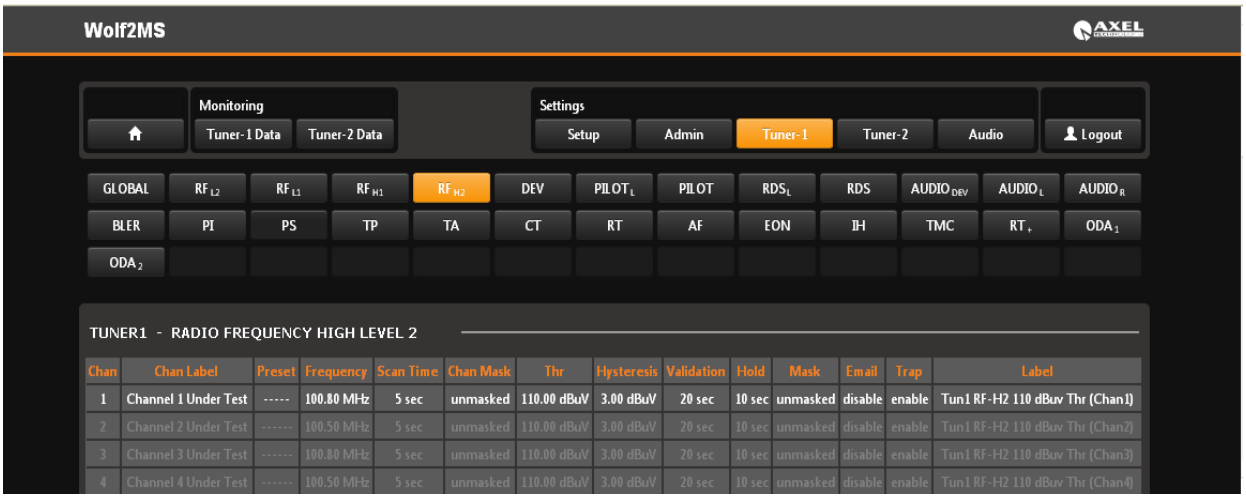
By slowly changing the the RF levels (in compatible way with the Validation and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point.

Tested in Static mode first.
In static mode the alarm rises up after the validation time, a trap will be sent when the status variable changes but with the time and the RF value of the first sample out of the range. When the RF level is lower or equal to THR- Hysteresis, the status alarm after the hold time comes back to the (ok) state and another trap will be sent with the RF value and the time of the first valid sample.

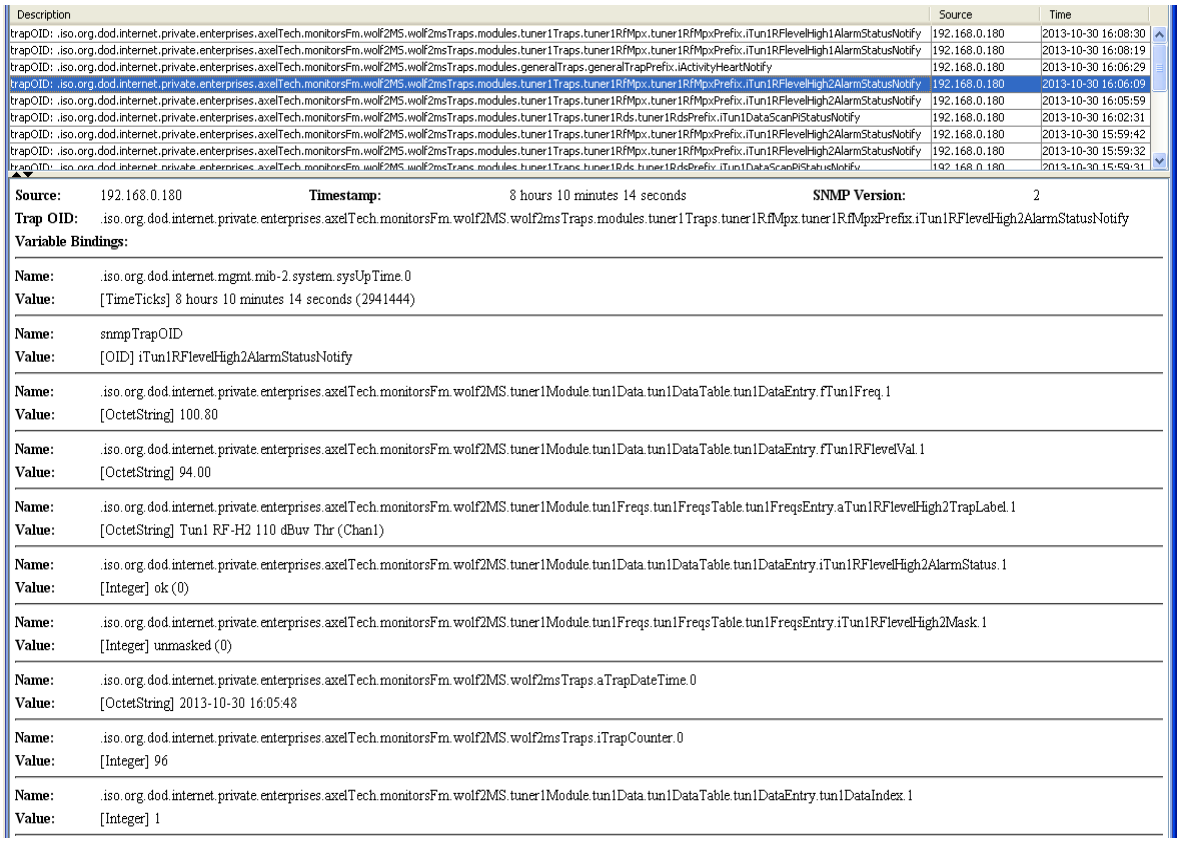
We have tested in static mode with the following values:
Thr: +110dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +110dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +110dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure of about 2 dBuV and timing errors of about 1-2 seconds

Typical Accuracy and Precision expected in general:
Min RF value readable : -6 dBuV, Max RF value readable: +123 dBuV
Accuracy: +-3 dBuV, Precision +-2 dBuV (Range -6 dBuV to +19 dBuV)
Accuracy: +-2 dBuV, Precision +-1 dBuV (Range +20 dBuV to +79 dBuV)
Accuracy: +-3 dBuV, Precision +-3 dBuV (Range +80 dBuV to +123 dBuV)




Under the alarm condition the RF alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RF error will be displayed. (“RF_LEV_H2”)



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh1AlarmStatusNotify | 192.168.0.180 | 2013-10-30 16:08:30 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh1AlarmStatusNotify | 192.168.0.180 | 2013-10-30 16:08:19 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-10-30 16:06:29 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh2AlarmStatusNotify | 192.168.0.180 | 2013-10-30 16:06:09 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh2AlarmStatusNotify | 192.168.0.180 | 2013-10-30 16:05:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStatusNotify | 192.168.0.180 | 2013-10-30 16:02:31 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh2AlarmStatusNotify | 192.168.0.180 | 2013-10-30 15:59:42 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh2AlarmStatusNotify | 192.168.0.180 | 2013-10-30 15:59:32 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStatusNotify | 192.168.0.180 | 2013-10-30 15:59:31 |

**Source:** 192.168.0.180 **Timestamp:** 8 hours 10 minutes 14 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1RFlevelHigh2AlarmStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 8 hours 10 minutes 14 seconds (2941444)

**Name:** snmpTrapOID
**Value:** [OID] iTun1RFlevelHigh2AlarmStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.80

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1RFlevelVal.1
**Value:** [OctetString] 94.00

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.aTun1RFlevelHigh2TrapLabel.1
**Value:** [OctetString] Tun1 RF-H2 110 dBuv Thr (Chan1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.iTun1RFlevelHigh2AlarmStatus.1
**Value:** [Integer] ok (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.iTun1RFlevelHigh2Mask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-10-30 16:05:48

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 96

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

Tested in scanning mode with another carrier with a constant RF at 70dBuV to alternate the conditions.

F1=100.80MHZ ( sweeping from 120dBuV to 100dBuV)
F2=100.50 MHZ (70dBuV stable)
Thr: +110dBuV, Hyst: +3dBuV, Validation:2sec, Hold:2Sec
Thr: +110dBuV, Hyst: +3dBuV, Validation:20sec, Hold:10Sec
Thr: +110dBuV, Hyst: +3dBuV, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the specification with an accuracy error on the measure of about 2 dBuV and timing errors of about 1-2 seconds

The traps will be sent if the instant the alarm rises up, but the RF value and the time in the var-binds will be related to the first sample out of the range.
Under the alarm condition the RF alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RF error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.
In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

The RF-H2 alarm trap is replayed with its original status, time and RF value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## PLANNED IMPROVEMENTS

Sample of the RF Carrier Offset after its stabilization in the channel change transient (already improved for the 0.6.3 release).
Add in the panel display even the out of range RF value in the list error sequence after the alarm label “RF_LEV_H2”

## NOTES

over 80dBuV the internal full band automatic attenuator starts to attenuate with a control hysteresis of 2 dBuV. This causes two effects : 1) less measurement accuracy (as specified) and less sensitivity for lower carrier on other frequencies

### *16.11.5 Frequency Deviation Test (Tuner-1 Tuner-2)*

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. One carrier the pilot level will be varied to test the alarms the other ones will be used to fill the scanning list with a stable pilot level. We have used for scanning test 100.80MHz (Pilot sweeping) and 100.50MHz(Pilot stable), RF level >70dBuV.

By slowly changing the Pilot (in compatible way with the Validation and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point.

Tested in Static mode first.
In static mode the alarm rises up after the validation time, a trap will be sent when the status variable changes but with the time and the Pilot value of the first sample out of the range. When the Pilot level comes back to the (ok) state another trap will be sent with the Pilot value and the time of the first sample valid.

We have tested in static mode with the following values:
Tested first as "multilevel alarm": PilotLow=Failure and PilotWindow=Out of Nominal Zone ;

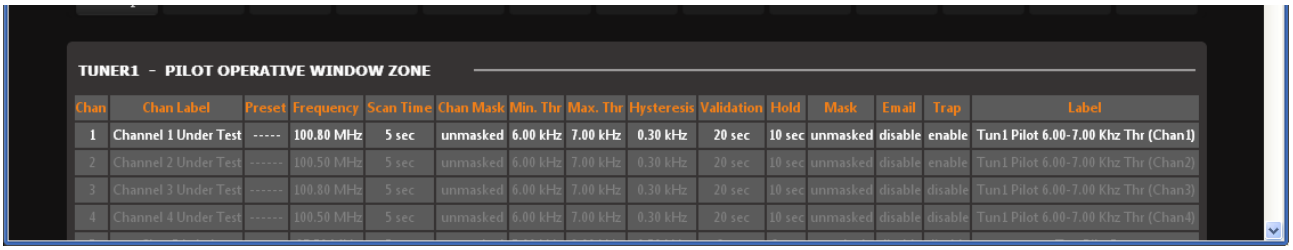
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

Tested then as: PilotLow=LowThr and PilotWindow=MaxThr;

PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

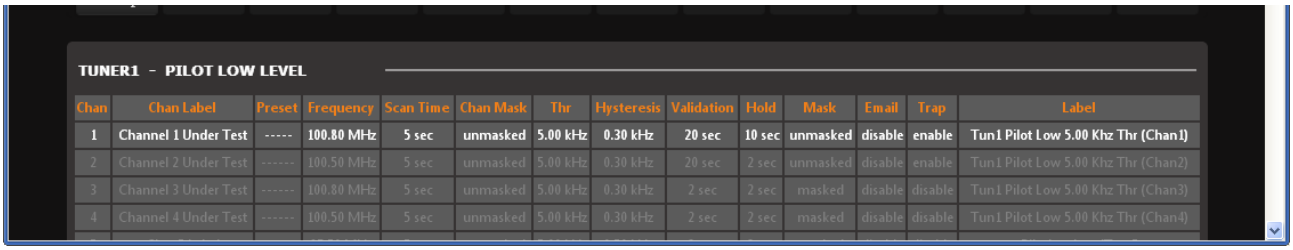
The behavior observed in dynamic nominal conditions (75kHz deviation, Mid audio compression/power, varied audio contents) has been compatible with the specifications with an accuracy error on the measure of about +- 0.1 kHz and timing errors of about 1-2 seconds.

Typical Accuracy expected in general (RF Level > 70dBuV):
Min Pilot Level value readable : +0.3 kHz, Max Pilot level value readable: +10.0 kHz
Accuracy: +-0.2 kHz (Mid mpx power, Dev<80Khz, TDF default, see Notes)
Accuracy: -0.1kHz +0.3kHz, (High mpx power, Dev>100Khz, see Notes)
Accuracy: +-0.2 kHz , (Low mpx power, Dev<80Khz, MB default, see Notes)



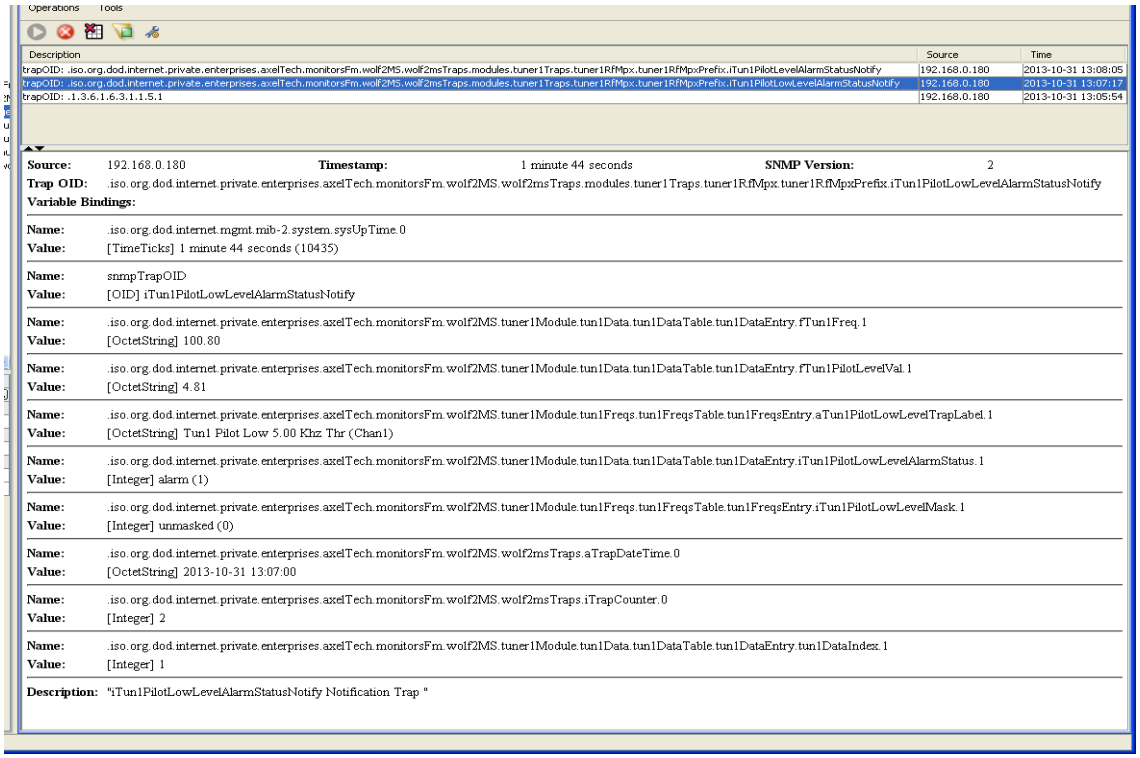
TUNER1 - PILOT OPERATIVE WINDOW ZONE

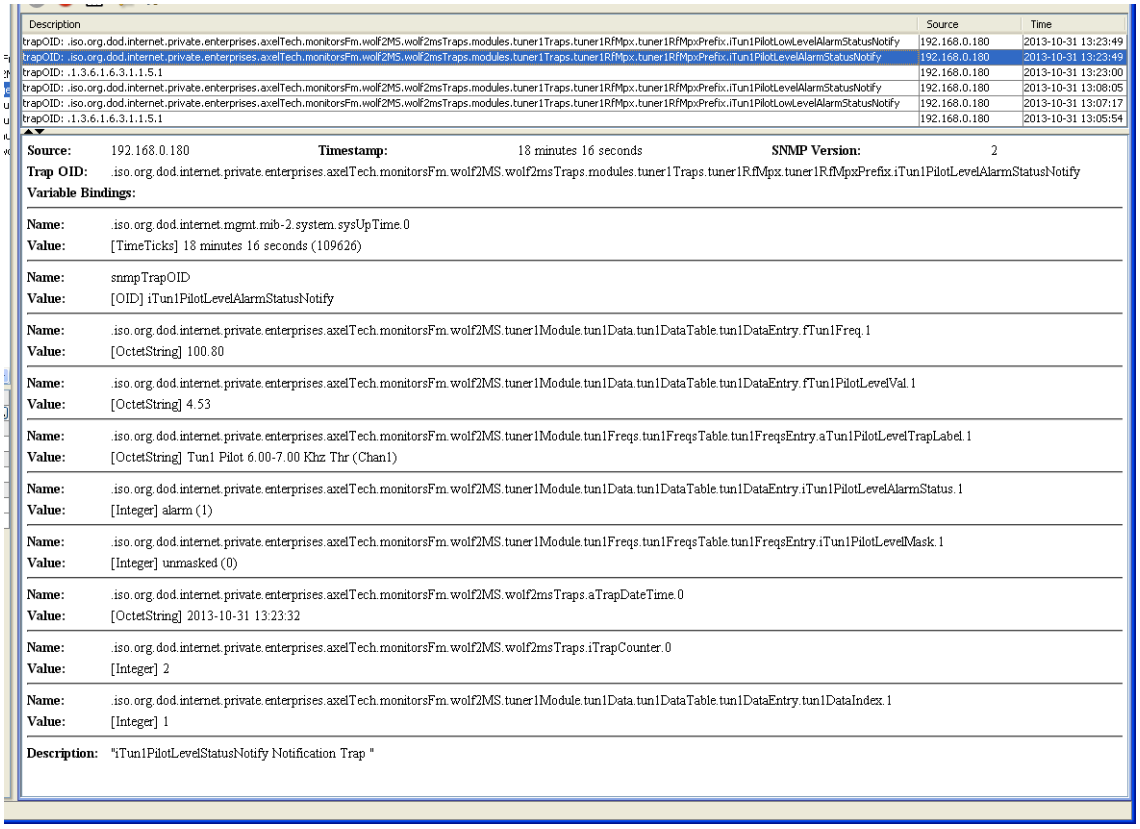
| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Min. Thr | Max. Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan1) |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan2) |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | disable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan3) |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | disable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan4) |



TUNER1 - PILOT LOW LEVEL

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot Low 5.00 Khz Thr (Chan1) |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 20 sec | 2 sec | unmasked | disable | enable | Tun1 Pilot Low 5.00 Khz Thr (Chan2) |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 2 sec | 2 sec | masked | disable | disable | Tun1 Pilot Low 5.00 Khz Thr (Chan3) |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 2 sec | 2 sec | masked | disable | disable | Tun1 Pilot Low 5.00 Khz Thr (Chan4) |




Under the alarm condition the MPX alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the MPX error will be displayed. (“PILOT_LEV”)

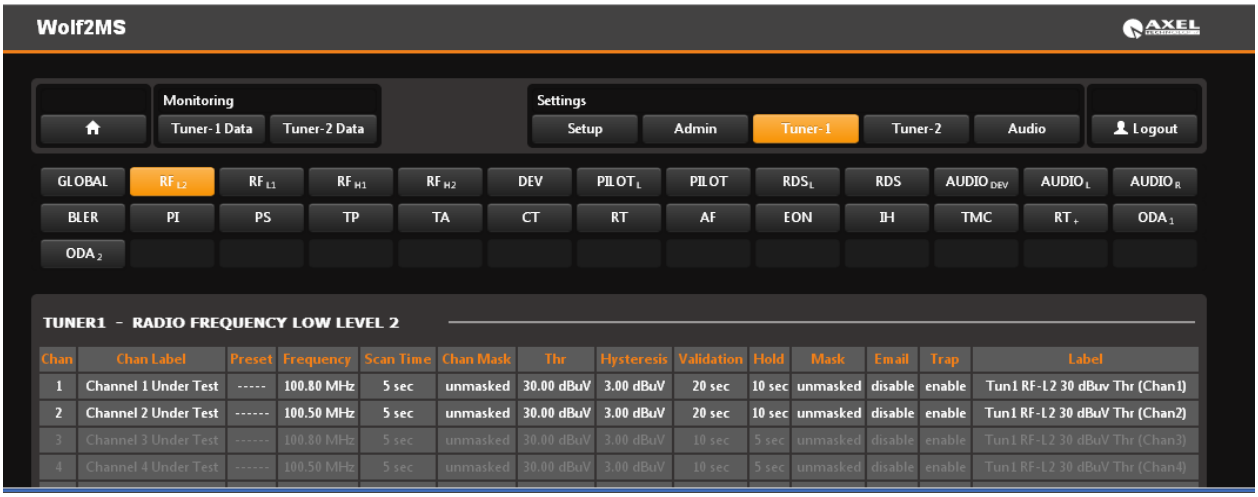
Tested in scanning mode with another carrier to alternate the conditions.
F1=100.80MHZ ( Pilot sweeping from 4 kHz to 8kHz)
F2=100.50 MHZ (6.5 kHz stable)

Tested first as "multilevel alarm": PilotLow=Failure and PilotWindow=Out of Nominal Zone ;
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

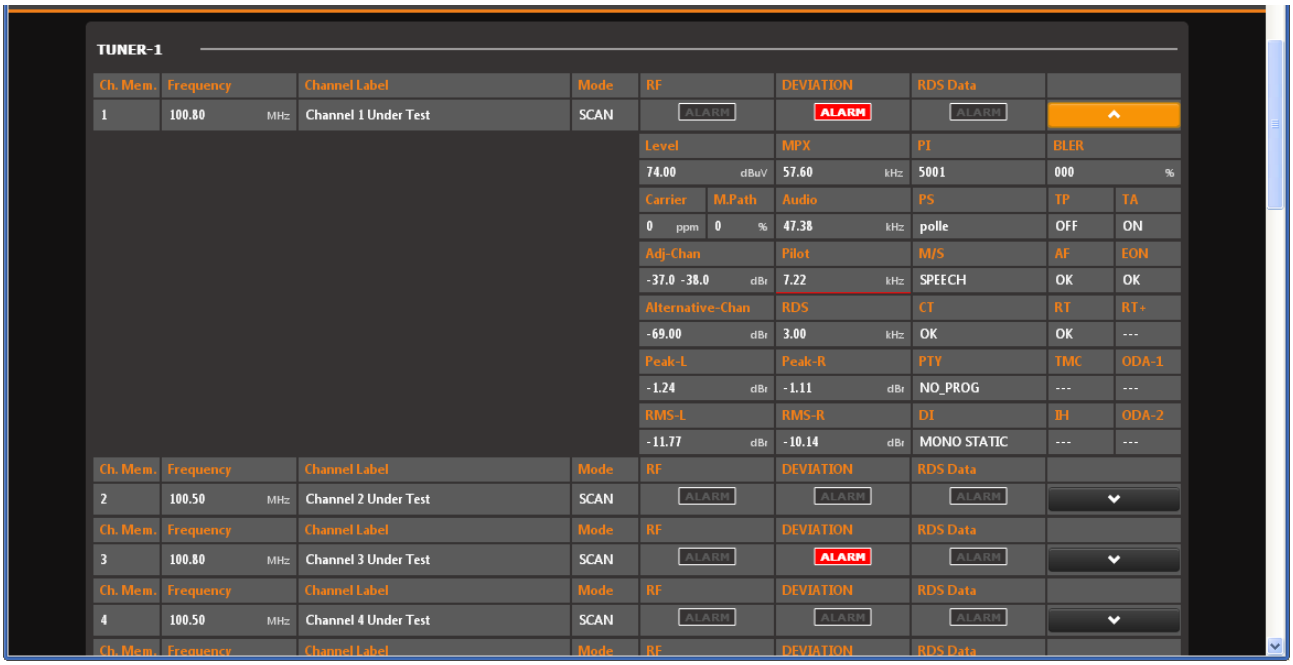
Tested then as: PilotLow=LowThr and PilotWindow=MaxThr;

PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the specifications with the same static case accuracy error




In scanning mode all traps will be sent in the same way but the validation and hold time must be calculated on the time the scanner is observing the channel.




The traps will be sent if the instant the alarm rises up, but the Pilot Level value and the time in the var-binds will be related to the first sample out of the range.

Under the alarm condition the MPX alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the MPX error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

### REPLAY ENABLED TRAPS

The PILOT LEVEL alarm trap is replayed with its original status, time and value. Trap Counter is normally incremented. All data and parameters are available in the MIB L3-5 to set and test this configuration.

### PLANNED IMPROVEMENTS

Add in the panel display even the out of range Pilot Level value in the list error sequence after the alarm label "PILOT_LEV"

### NOTES

Noticed (as already measured and documented by MB) a dependence of the measure from the deviation/power of the signal. With strong audio compression (over 6.0 dBitubs412) or very high deviation (over 100kHz) the error range can be : -0.1kHz to +0.3kHz
Testing under low mpx power conditions and normal deviation(power less than 1 dBitubs412, deviation less than 80kHz) , the loss of precision caused from the deviation/power dependence is typically less than 0.1kHz.

### *16.11.6 Pilot Level – Low and Windows combined Test (Tuner-1 Tuner-2)*

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. One carrier the pilot level will be varied to test the alarms the other ones will be used to fill the scanning list with a stable pilot level. We have used for scanning test 100.80MHz (Pilot sweeping) and 100.50MHz(Pilot stable), RF level >70dBuV.

By slowly changing the Pilot (in compatible way with the Validation and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point.

Tested in Static mode first.
In static mode the alarm rises up after the validation time, a trap will be sent when the status variable changes but with the time and the Pilot value of the first sample out of the range. When the Pilot level comes back to the (ok) state another trap will be sent with the Pilot value and the time of the first sample valid.

We have tested in static mode with the following values:
Tested first as "multilevel alarm": PilotLow=Failure and PilotWindow=Out of Nominal Zone ;

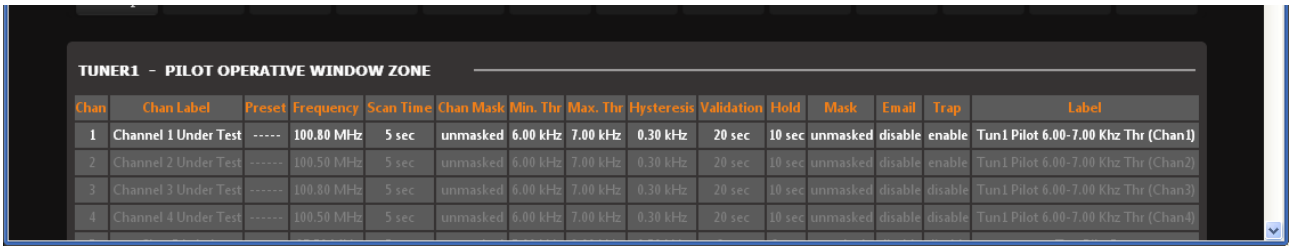
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

Tested then as: PilotLow=LowThr and PilotWindow=MaxThr;

PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

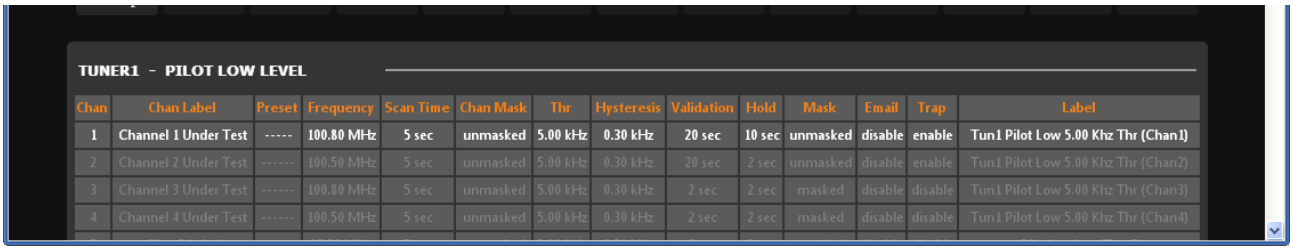
The behavior observed in dynamic nominal conditions (75kHz deviation, Mid audio compression/power, varied audio contents) has been compatible with the specifications with an accuracy error on the measure of about +- 0.1 kHz and timing errors of about 1-2 seconds.

Typical Accuracy expected in general (RF Level > 70dBuV):
Min Pilot Level value readable : +0.3 kHz, Max Pilot level value readable: +10.0 kHz
Accuracy: +-0.2 kHz (Mid mpx power, Dev<80Khz, TDF default, see Notes)
Accuracy: -0.1kHz +0.3kHz, (High mpx power, Dev>100Khz, see Notes)
Accuracy: +-0.2 kHz , (Low mpx power, Dev<80Khz, MB default, see Notes)



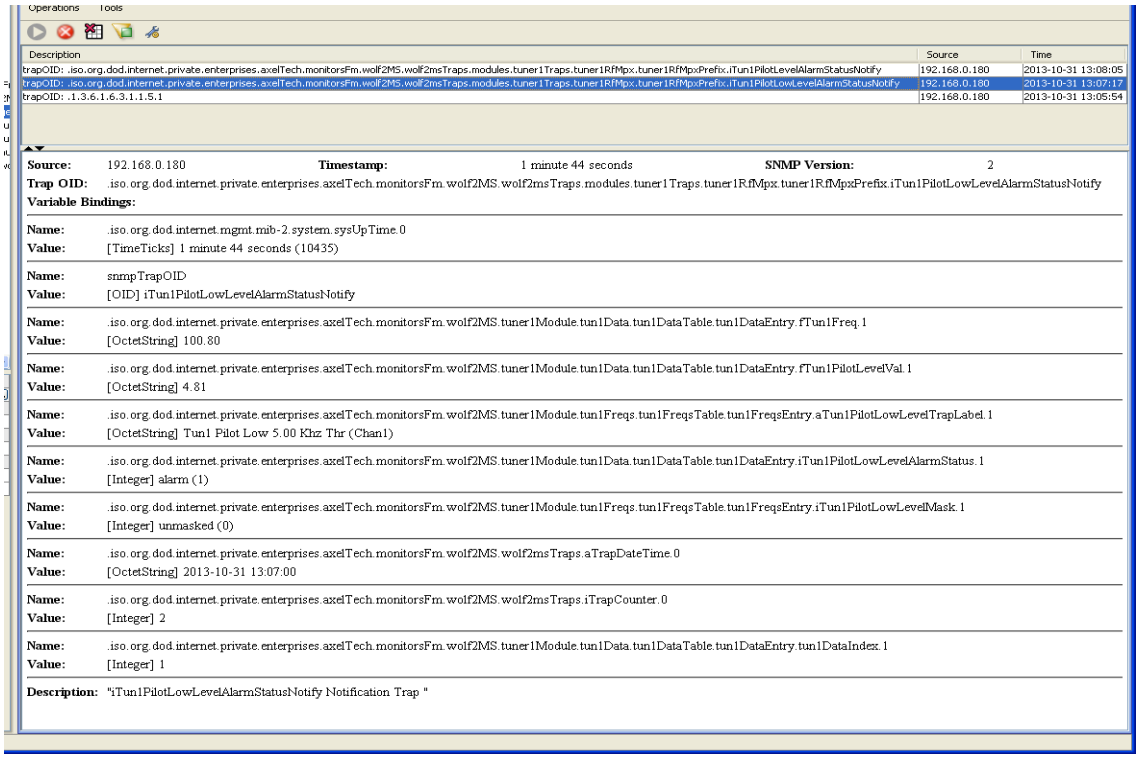
TUNER1 - PILOT OPERATIVE WINDOW ZONE

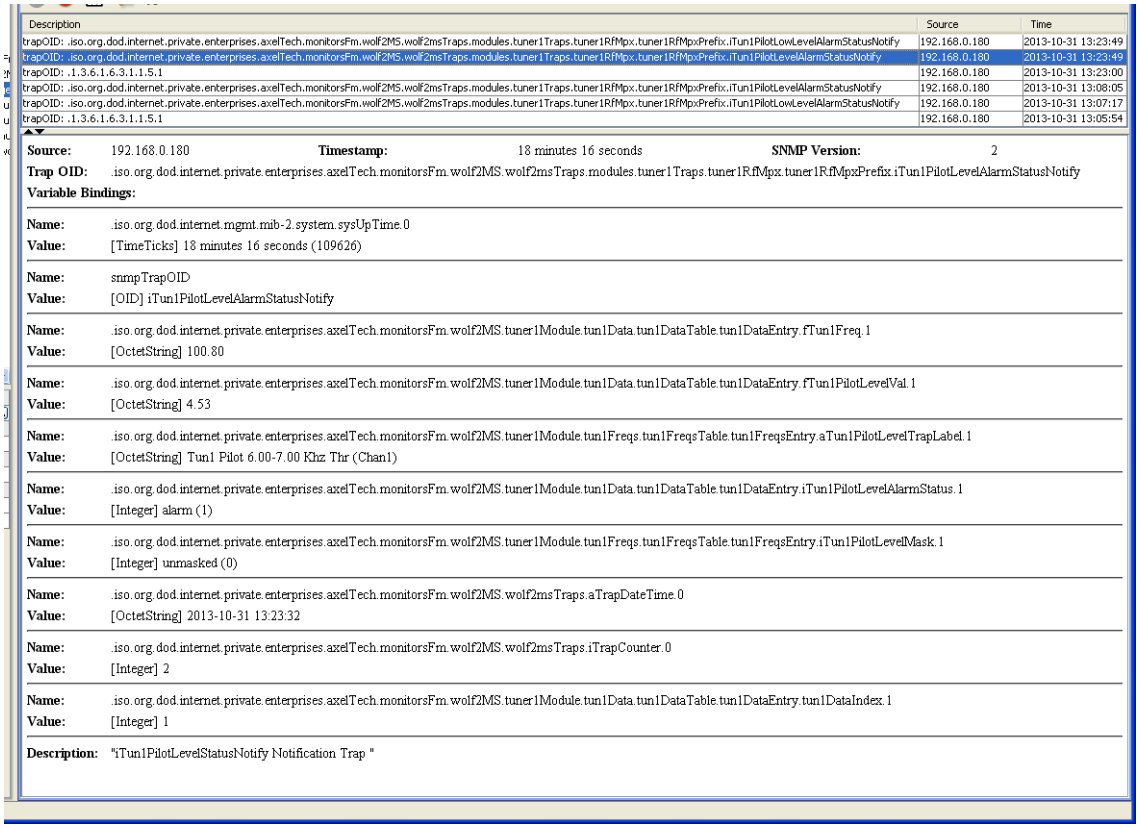
| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Min. Thr | Max. Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan1) |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan2) |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | disable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan3) |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 6.00 kHz | 7.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | disable | Tun1 Pilot 6.00-7.00 Khz Thr (Chan4) |



TUNER1 - PILOT LOW LEVEL

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | Tun1 Pilot Low 5.00 Khz Thr (Chan1) |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 20 sec | 2 sec | unmasked | disable | enable | Tun1 Pilot Low 5.00 Khz Thr (Chan2) |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 2 sec | 2 sec | masked | disable | disable | Tun1 Pilot Low 5.00 Khz Thr (Chan3) |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 5.00 kHz | 0.30 kHz | 2 sec | 2 sec | masked | disable | disable | Tun1 Pilot Low 5.00 Khz Thr (Chan4) |




Under the alarm condition the MPX alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the MPX error will be displayed. (“PILOT_LEV”)

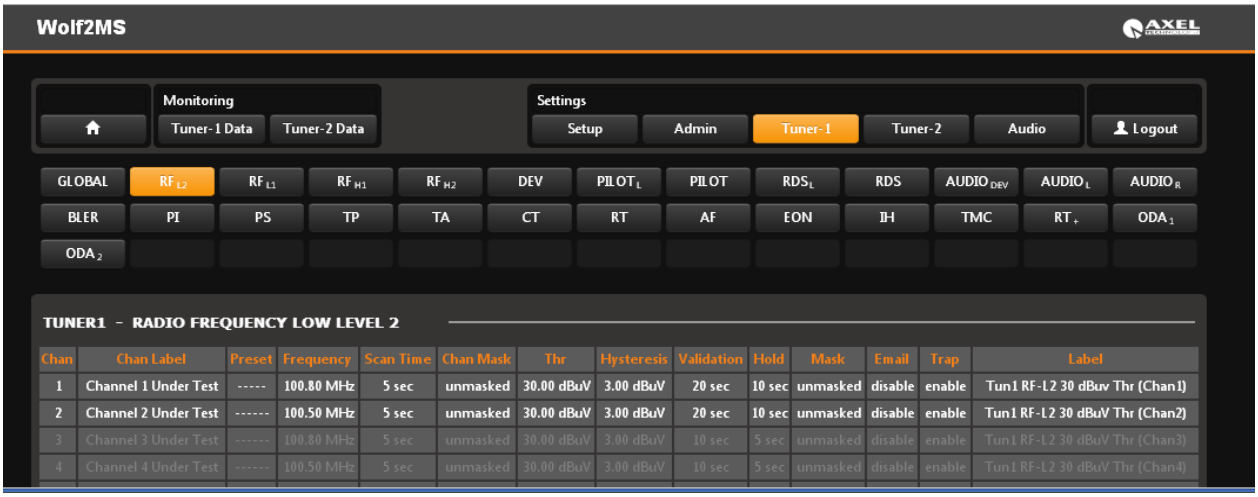
Tested in scanning mode with another carrier to alternate the conditions.
F1=100.80MHZ ( Pilot sweeping from 4 kHz to 8kHz)
F2=100.50 MHZ (6.5 kHz stable)

Tested first as "multilevel alarm": PilotLow=Failure and PilotWindow=Out of Nominal Zone ;
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:5.0kHz, PilotThrMin:6.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

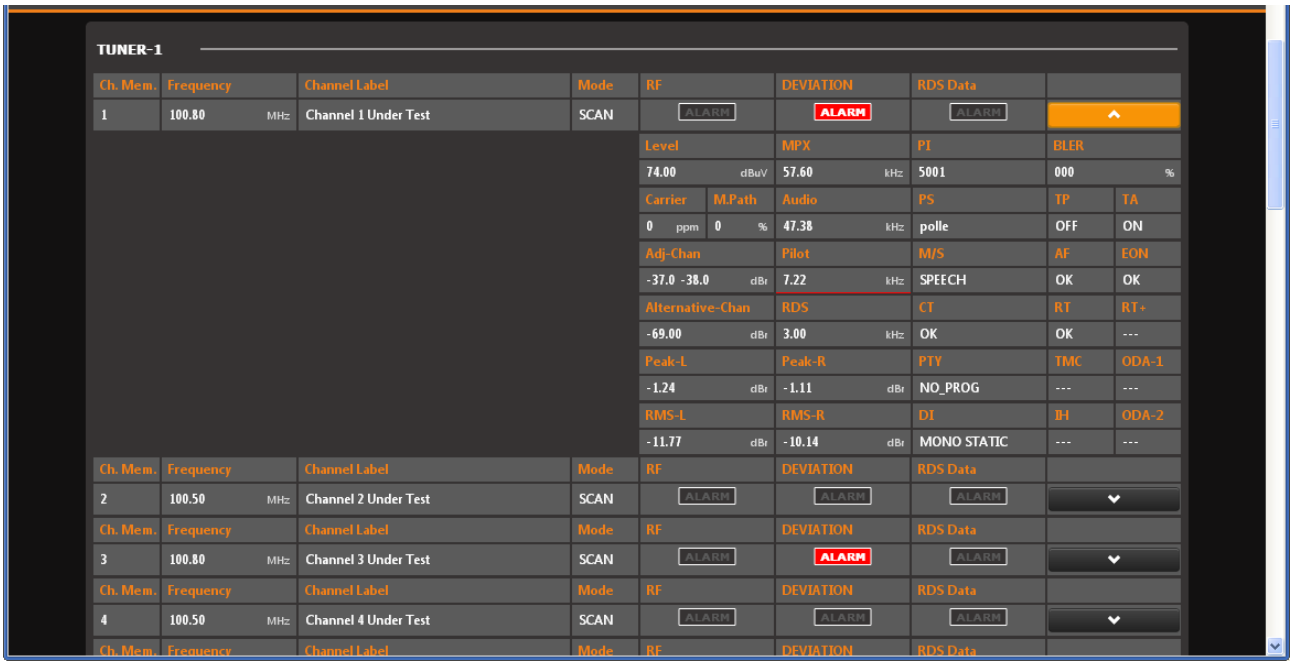
Tested then as: PilotLow=LowThr and PilotWindow=MaxThr;

PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
PilotLowThr:6.0kHz, PilotThrMin:0.0kHz, PilotThrMax:7.0kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the specifications with the same static case accuracy error




In scanning mode all traps will be sent in the same way but the validation and hold time must be calculated on the time the scanner is observing the channel.




The traps will be sent if the instant the alarm rises up, but the Pilot Level value and the time in the var-binds will be related to the first sample out of the range.

Under the alarm condition the MPX alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the MPX error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

REPLAY ENABLED TRAPS
The PILOT LEVEL alarm trap is replayed with its original status, time and RF value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-4 to set and test this configuration.

Add in the panel display even the out of range Pilot Level value in the list error sequence after the alarm label "PILOT_LEV"

NOTES
Noticed (as already measured and documented from MB) a dependence of the measure from the deviation/power of the signal. With strong audio compression (over 6.0 dBitubs412) or very high deviation (over 100kHz) the error range can be: -0.1kHz to +0.3kHz

Testing under low mpx power conditions and normal deviation(power less than 1 dBitubs412, deviation less than 80kHz) , the loss of precision caused from the deviation/power dependence is typically less than 0.1kHz.

### *16.11.7 RDS Level – Low and Windows combined Test (Tuner-1 Tuner-2)*

An RF combined signal with one or more frequencies are applied to the tuner1 and/or tuner2 RF inputs. On one frequency signal Rds Level will be varied to test the alarms the on other ones will be used to fill the scanning list. We have used for scanning test 100.80MHz (Rds level sweeping) and 100.50MHz(Rds Level stable), RF level >70dBuV.

By slowly changing the Rds Level (in compatible way with the Validation and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point.

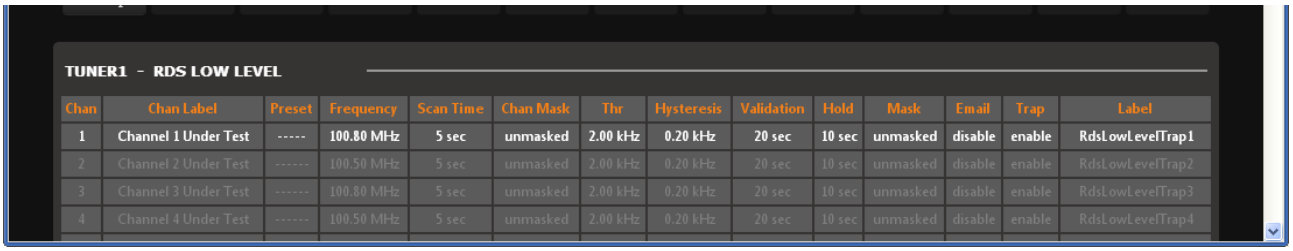
Tested in Static mode first.
In static mode the alarm rises up after the validation time, a trap will be sent when the status variable changes but with the time and the Rds value of the first sample out of the range. When the Rds level comes back to the (ok) state another trap will be sent with the Rds value and the time of the first sample valid.

We have tested in static mode with the following values:
Tested first as "multilevel alarm": RdsLow=Failure and RdsWindow= Out of Nominal Zone ;
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

Tested then as: RdsLow=LowThr and RdsWindow=MaxThr;
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:2sec, Hold:2Sec
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:20sec, Hold:10Sec
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

The behavior observed in dynamic nominal conditions (75kHz deviation, Mid audio compression/power, varied audio contents) has been compatible with the specifications with an accuracy error on the measure of about -0.1 kHz to +0.2kHz and timing errors of about 1-2 seconds

Typical Accuracy expected in general (RF Level > 70dBuV):
Min Rds Level value readable : +0.5 kHz, Max Rds Level value readable: +10.0 kHz
Accuracy: -0.1kHz +0.3kHz (Mid-High mpx power, Dev<80Khz, TDF default, see Notes)
Accuracy: -0.1kHz +0.2kHz (Low mpx power, Dev<80Khz, MB default, see Notes)
Accuracy: -0.1kHz +0.4kHz, (High mpx power,Dev>100Khz, see Notes)

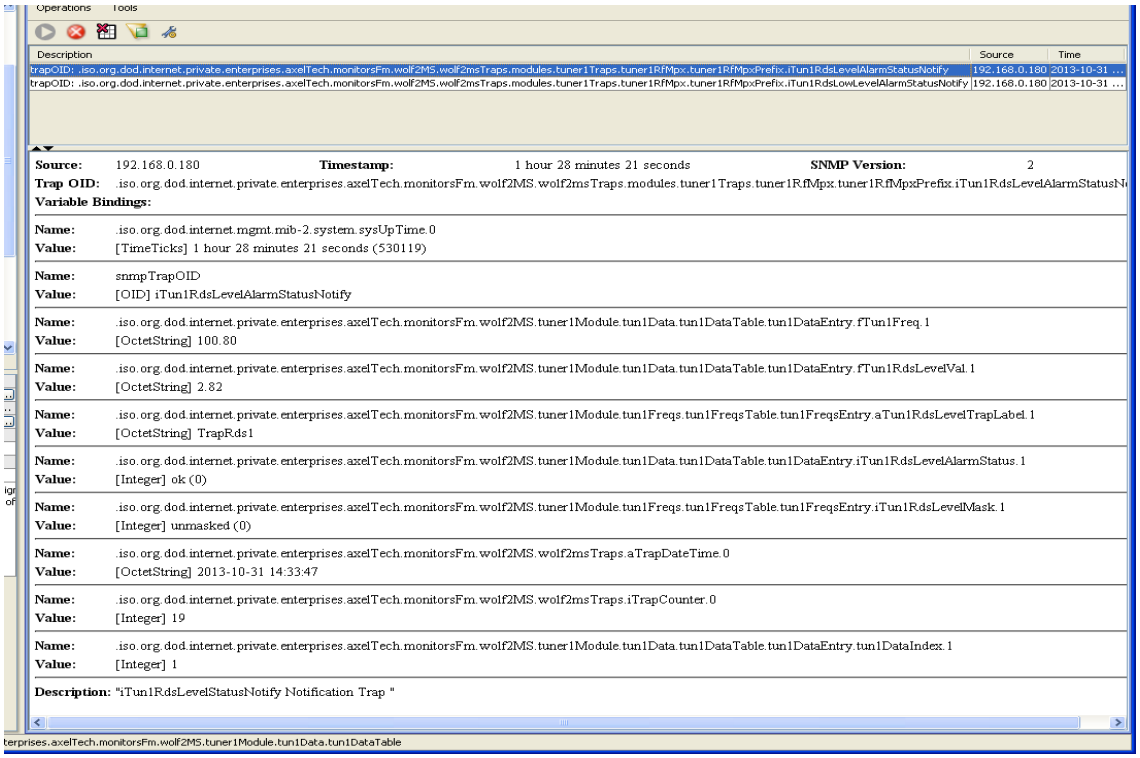


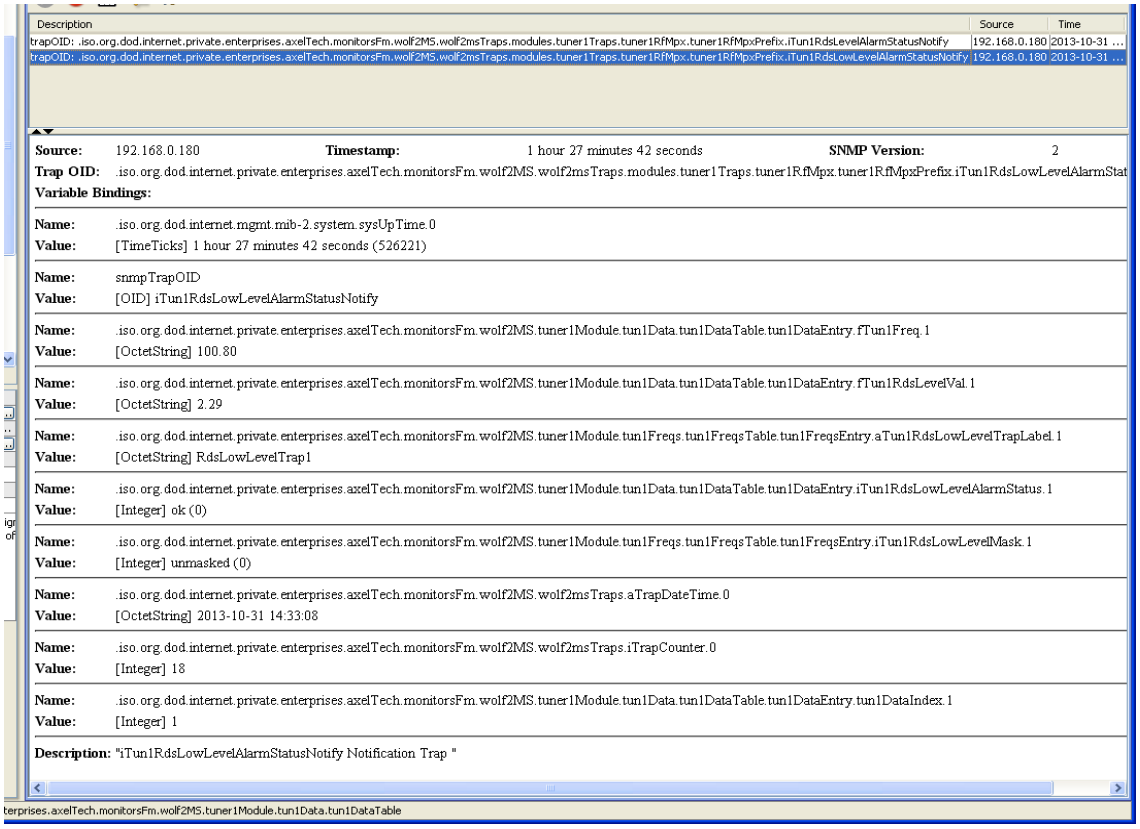
TUNER1 - RDS LOW LEVEL

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 2.00 kHz | 0.20 kHz | 20 sec | 10 sec | unmasked | disable | enable | RdsLowLevelTrap1 |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 2.00 kHz | 0.20 kHz | 20 sec | 10 sec | unmasked | disable | enable | RdsLowLevelTrap2 |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 2.00 kHz | 0.20 kHz | 20 sec | 10 sec | unmasked | disable | enable | RdsLowLevelTrap3 |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 2.00 kHz | 0.20 kHz | 20 sec | 10 sec | unmasked | disable | enable | RdsLowLevelTrap4 |

TUNER1 - RDS OPERATIVE WINDOW ZONE

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Min. Thr | Max. Thr | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 2.50 kHz | 3.50 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | TrapRds1 |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 2.50 kHz | 3.50 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | TrapRds2 |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 2.50 kHz | 3.50 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | TrapRds3 |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 2.50 kHz | 3.50 kHz | 0.30 kHz | 20 sec | 10 sec | unmasked | disable | enable | TrapRds4 |



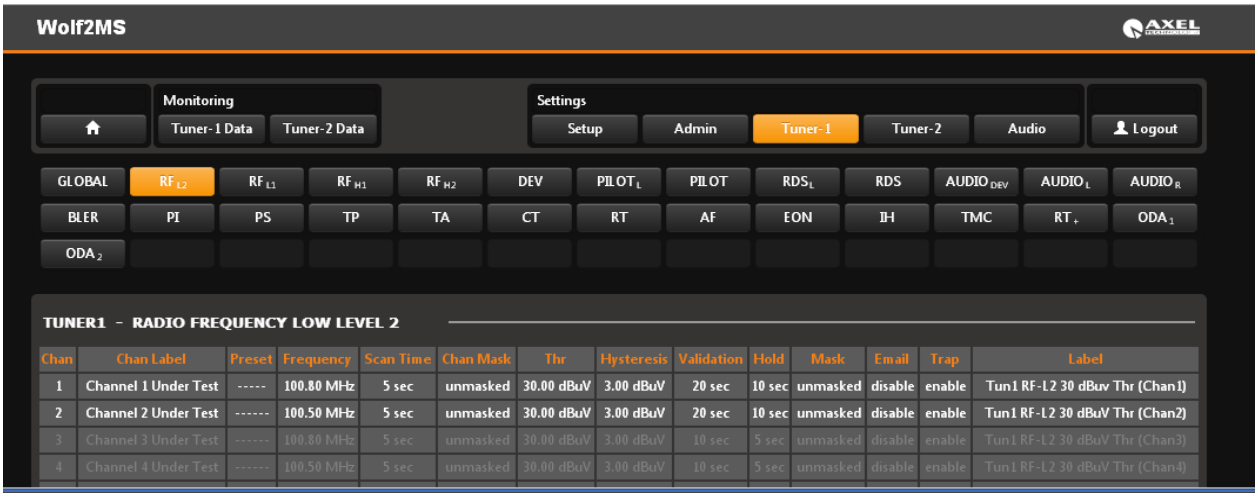

Under the alarm condition the MPX alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the MPX error will be displayed. (“RDS_LEV”)

Tested in scanning mode with another carrier  with stable Rds Level to alternate the conditions.
F1=100.80MHZ ( Rds sweeping from 1.5 kHz to 4 kHz)
F2=100.50 MHZ (2.5 kHz stable)

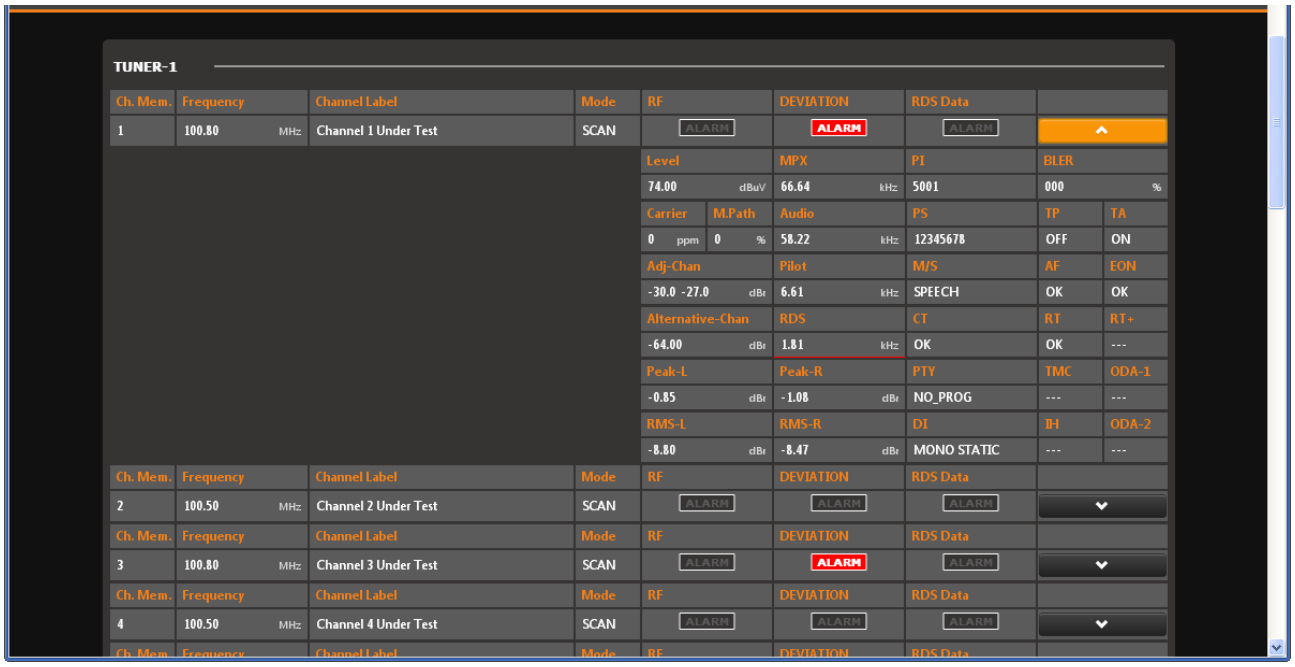
Tested first as "multilevel alarm":  RdsLow=Failure  and  RdsWindow= Out of Nominal Zone ;
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:2sec,  Hold:2Sec
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:20sec,  Hold:10Sec
RdsLowThr:2.0kHz, RdsThrMin:2.5kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

Tested then as: RdsLow=LowThr and RdsWindow=MaxThr;
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:2sec,  Hold:2Sec
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:20sec,  Hold:10Sec
RdsLowThr:2.0kHz, RdsThrMin:0.0kHz, RdsThrMax:3.5kHz Hyst: 0.3kHz, Validation:180sec, Hold:60Sec

The behavior observed has been compatible with the specifications  with the same static case accuracy error




In scanning mode all traps will be sent in the same way but the validation and hold time must be calculated on the time the scanner is observing the channel.




The traps will be sent in the instant the alarm rises up, but the Rds Level value and the time in the var-binds will be related to the first sample out of the range.
Under the alarm condition the MPX alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the MPX error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

### REPLAY ENABLED TRAPS

The RDS LEVEL alarm trap is replayed with its original status, time and value. Trap Counter is normally incremented. All data and parameters are available in the MIB L3-5 to set and test this configuration.

### PLANNED IMPROVEMENTS

Add in the panel display even the out of range Rds Level value in the list error sequence after the alarm label “RDS_LEV”

### NOTES

Noticed (as already measured and documented by MB) a dependence of the measure from the deviation/power of the signal. With strong audio compression (over 6.0 dBitubs412) or very high deviation (over 100kHz) the error range can be : -0.1kHz to +0.4kHz
Testing under low power mpx conditions and normal deviation(power less than 1 dBitubs412, deviation less than 80kHz) , the loss of precision caused from the deviation/power dependence is typically less than +- 0.2kHz.
On this release the measurement  attack time has been reduced to stabilize better the measure.
Acting with very slow attack times and fast releases measure times is possible to improve the long term precision measurement.
With an attack time of some minutes (only for the near 0.5kHz convergence) could be possible have a precision better +- 0.2kHz on all conditions filtering the positive error tendency.

### *16.11.8 MPX Audio Deviation Test (Tuner-1 Tuner-2)*

An RF combined signal with one or more frequencies is applied to the tuner1 and/or tuner2 RF inputs. The MPX Audio Deviation on one carrier RF level will be varied to test the alarms while the other ones will be used to fill the scanning list. We have used 100.80MHz (Audio MPX level sweeping) and 100.50MHz(Audio MPX stable).

By slowly changing the MPX Audio deviation (in compatible way with the Silence and Hold time chosen) around the test zone, wait for the alarms and go back up to the starting point. The deviation should be generated from a controlled compressed audio from and audio processor.

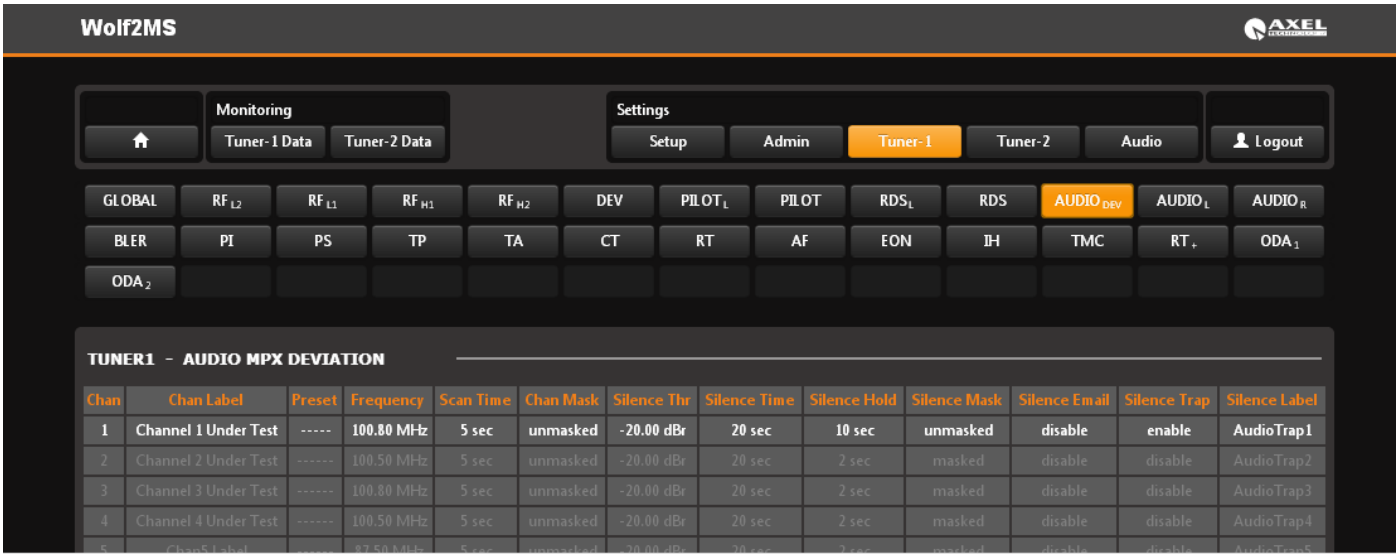
Tested in Static mode first.
In static mode the alarm rises up after the MPX audio deviation is under threshold for the silence time , a trap will be sent when the status variable changes but with the time and the Audio MPX value of the first sample out of the range. When the MPX Audio deviation is greater or equal to THR for the Silence Hold the status alarm comes back to the (ok) state and another trap will be sent with the Audio MPX value and the time of the first sample valid.

Set the kHz to dBr Conversion to the chosen reference. (75kHz for TDF, 20kHz for MB [40kHz=6.0dBr])

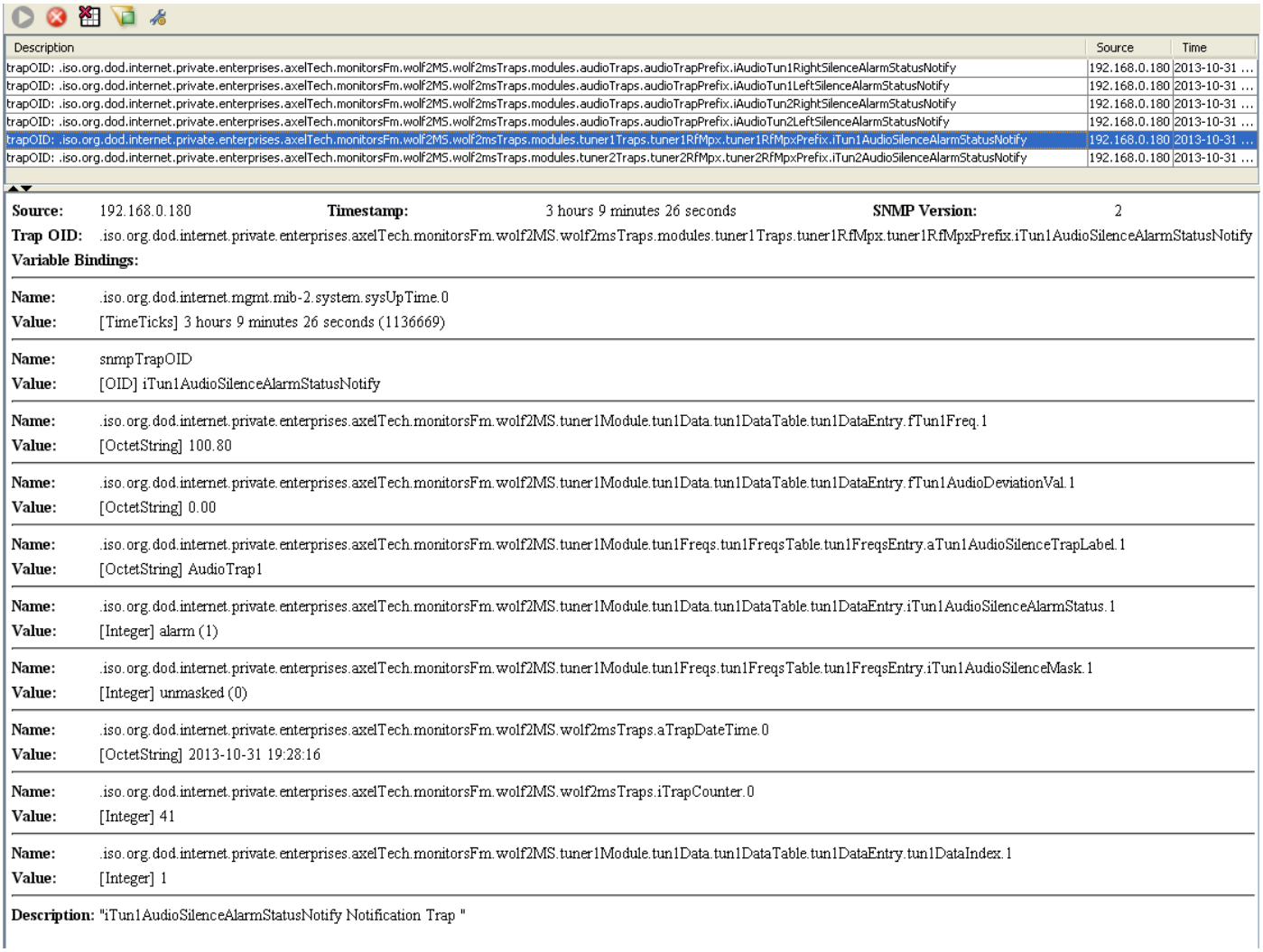
We have tested in static mode with the following values:
Thr: -20dBr, Silence:2sec, Hold:2Sec
Thr: -20dBr, Silence:20sec, Hold:10Sec
Thr: -20dBr, Silence:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure less than 2 kHz and timing errors of about 1-2 seconds

Typical Accuracy and Precision expected in general (RF Level > 70dBuV):
Min Dev value readable : 0 kHz, Max Dev value readable: +120 kHz
0.0 kHz is read (Range 0 kHz to +2.9 kHz)
Accuracy: +-2 kHz, Precision +-2 kHz (Range 3 kHz to +9 kHz)
Accuracy: +-2 kHz, Precision +-1 kHz (Range 10 kHz to +99 kHz)
Accuracy: +-3 kHz , Precision +-1 kHz (Range 100 kHz to +120 kHz)




Under the alarm condition the MPX alarm led on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the MPX error will be displayed. “AUDIO DEV”



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun1RightSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun1LeftSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2RightSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2LeftSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1AudioSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2RfMpx.tuner2RfMpxPrefix.iTun2AudioSilenceAlarmStatusNotify | 192.168.0.180 | 2013-10-31 ... |

**Source:** 192.168.0.180 **Timestamp:** 3 hours 9 minutes 26 seconds **SNMP Version:** 2

**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1RfMpx.tuner1RfMpxPrefix.iTun1AudioSilenceAlarmStatusNotify

**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 3 hours 9 minutes 26 seconds (1136669)

**Name:** snmpTrapOID
**Value:** [OID] iTun1AudioSilenceAlarmStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.80

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1AudioDeviationVal.1
**Value:** [OctetString] 0.00

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.aTun1AudioSilenceTrapLabel.1
**Value:** [OctetString] AudioTrap1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.iTun1AudioSilenceAlarmStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Freqs.tun1FreqsTable.tun1FreqsEntry.iTun1AudioSilenceMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-10-31 19:28:16

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 41

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1AudioSilenceAlarmStatusNotify Notification Trap "

Tested in scanning mode with another carrier to alternate the conditions.
F1=100.80MHZ (audio mpx sweeping from 5kHz to 50kHz and/or audio silences)
F2=100.50 MHZ (normal mpx audio deviation without silence)
Thr: -20dBr, Silence:2sec, Hold:2Sec
Thr: -20dBr, Silence:20sec, Hold:10Sec
Thr: -20dBr, Silence:180sec, Hold:60Sec

The behavior observed has been compatible with the definition with an accuracy error on the measure of less than 2 kHz and timing errors of about 1-2 seconds

In scanning mode all traps will be sent in the same way but the validation and hold time must be calculated on the time the scanner is observing the channel.

The traps will be sent in the instant the alarm rises up, but the Audio MPX value and the time in the var-binds will be related to the first sample out of the range.
Under the alarm condition the MPX alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the MPX error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

### REPLAY ENABLED TRAPS

The AUDIO DEV alarm trap is replayed with its original status, time and value. Trap Counter is normally incremented. All data and parameters are available in the MIB L3-4 to set and test this configuration.

### PLANNED IMPROVEMENTS

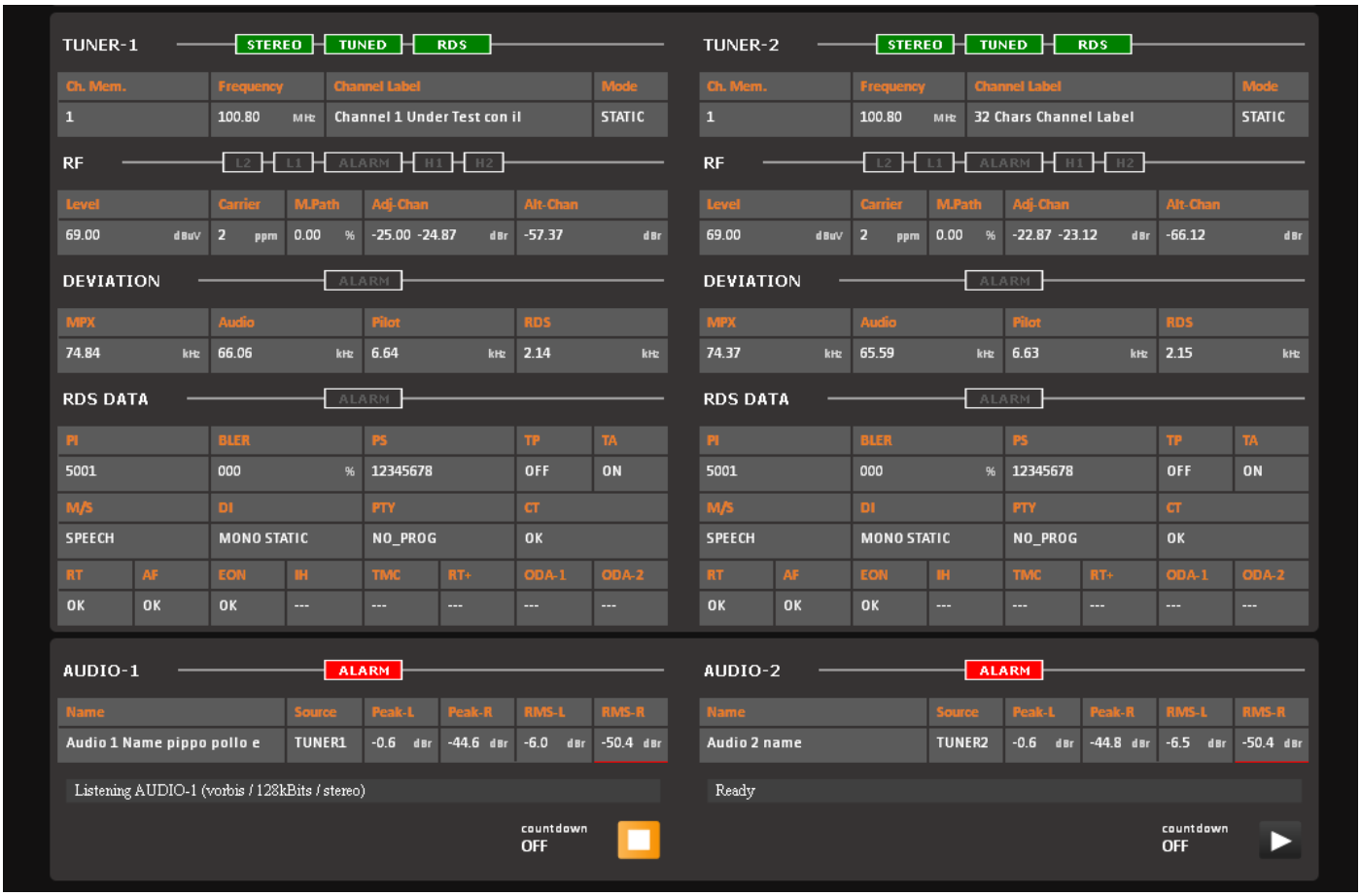
Add in the panel display even the out of range Audio Mpx Dev value in the list error sequence after the alarm label “AUDIO DEV”

### NOTES

The limitation about the measurement clears to zero under 3kHz must be considered definitive.

### *16.11.9* ***Audio Left/Right level Test (Tuner-1 Tuner-2)***

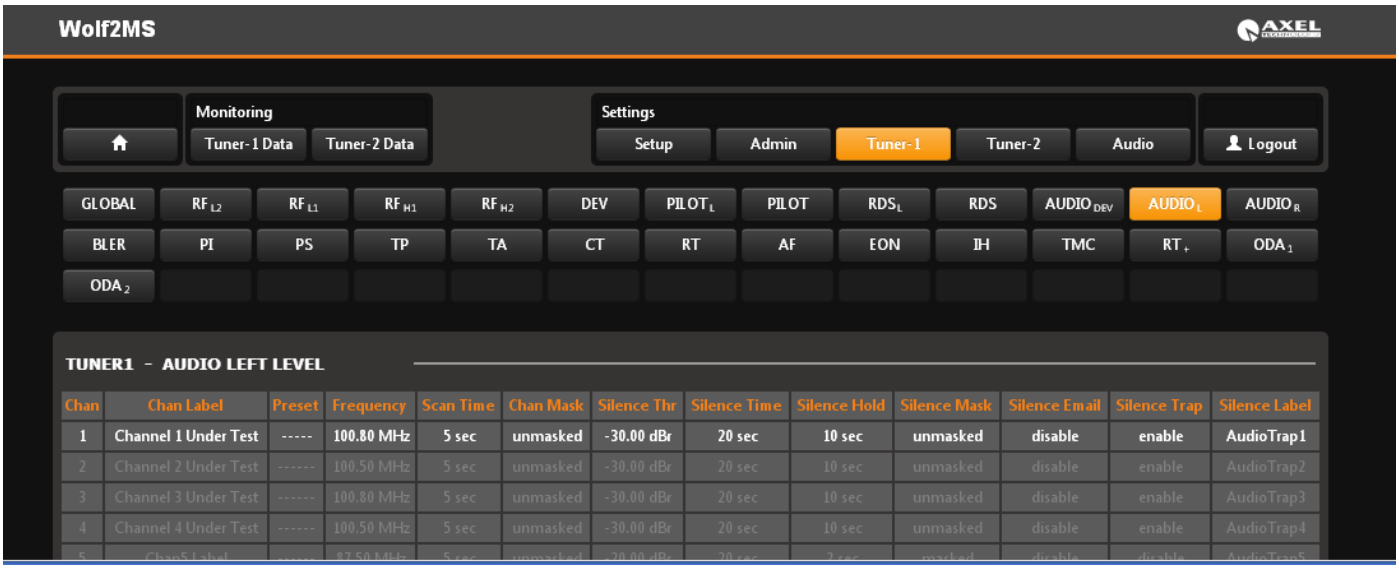
An RF combined signal with one or more frequencies is applied to the tuner1 and/or tuner2 RF inputs. The Audio the Left/Right level on one frequency will be varied to test the alarms while the other ones will be used to fill the scanning list. We have used 100.80MHz (with left/right audio silences) and 100.50MHz (audio without audio silences).




Test left/right level generating silences on both channel compatibly with the silence and hold times.
Settings 75kHz (TDF setup) as dBr references and testing with a typical Mpx stereo signal (6.5kHz pilot deviation, 2.5kHz rds deviation) means audio peaks at about (66kHz) so about -1.1dbr from the reference.
On the silenced audio channel is expected to see a level of about -43dBr (peak) and about -50dBr (rms) with medium compress audio.
Settings 20kHz (MB setup) as dBr reference and testing with a typical Mpx stereo signal (6.5kHz pilot deviation, 2.0kHz rds deviation) means audio peaks at about (66.5kHz) so about +11dBr from the reference.
On the silenced audio channel is expected to see a level of about -32dBr (peak) and about -38dBr (rms) with medium compress audio.

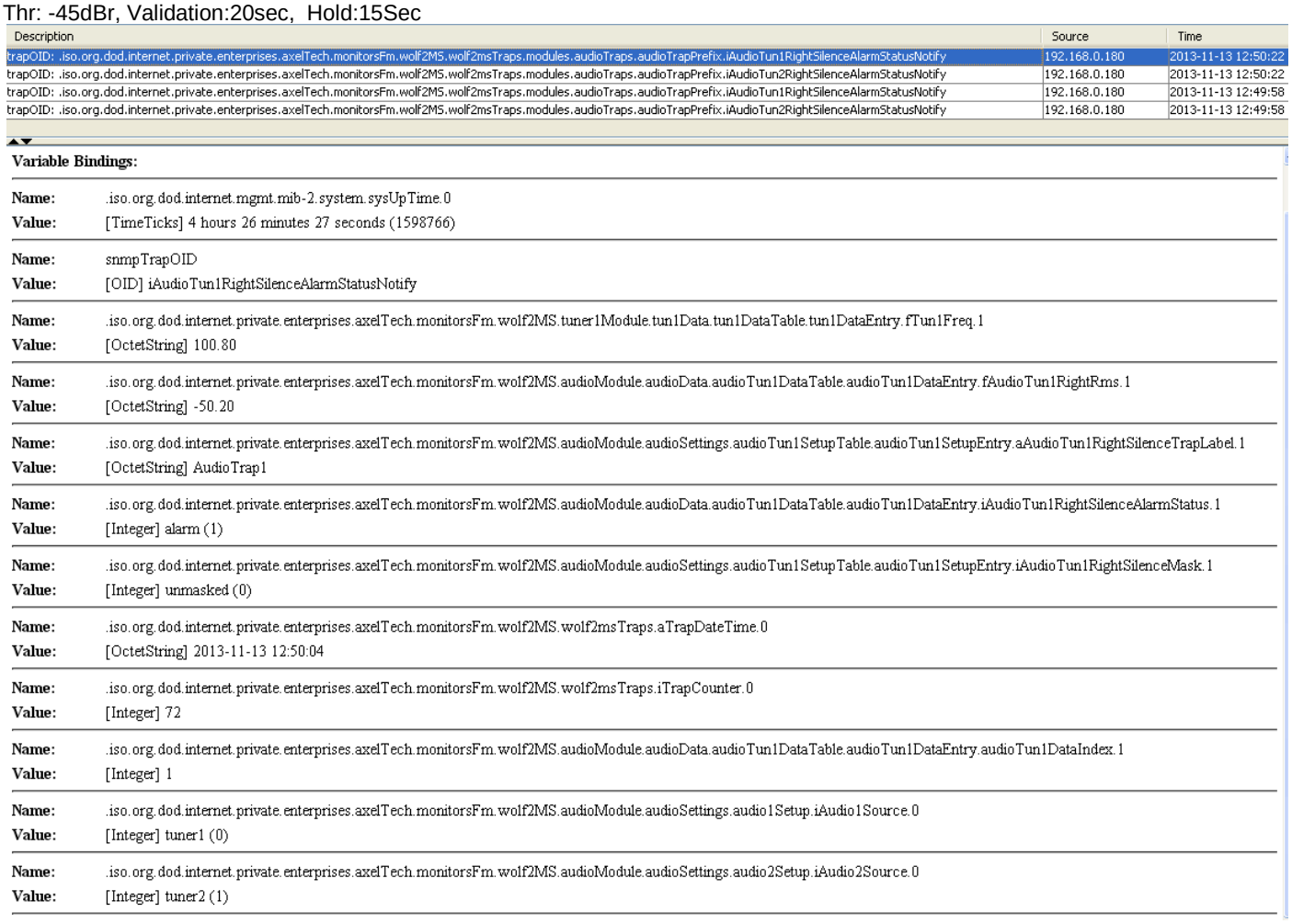
We have tested (using 75kHz as reference) in static mode with the following values:
Thr: -30dBr, Validation:20sec, Hold:10Sec
Thr: -35dBr, Validation:20sec, Hold:15Sec
Thr: -45dBr, Validation:20sec, Hold:15Sec

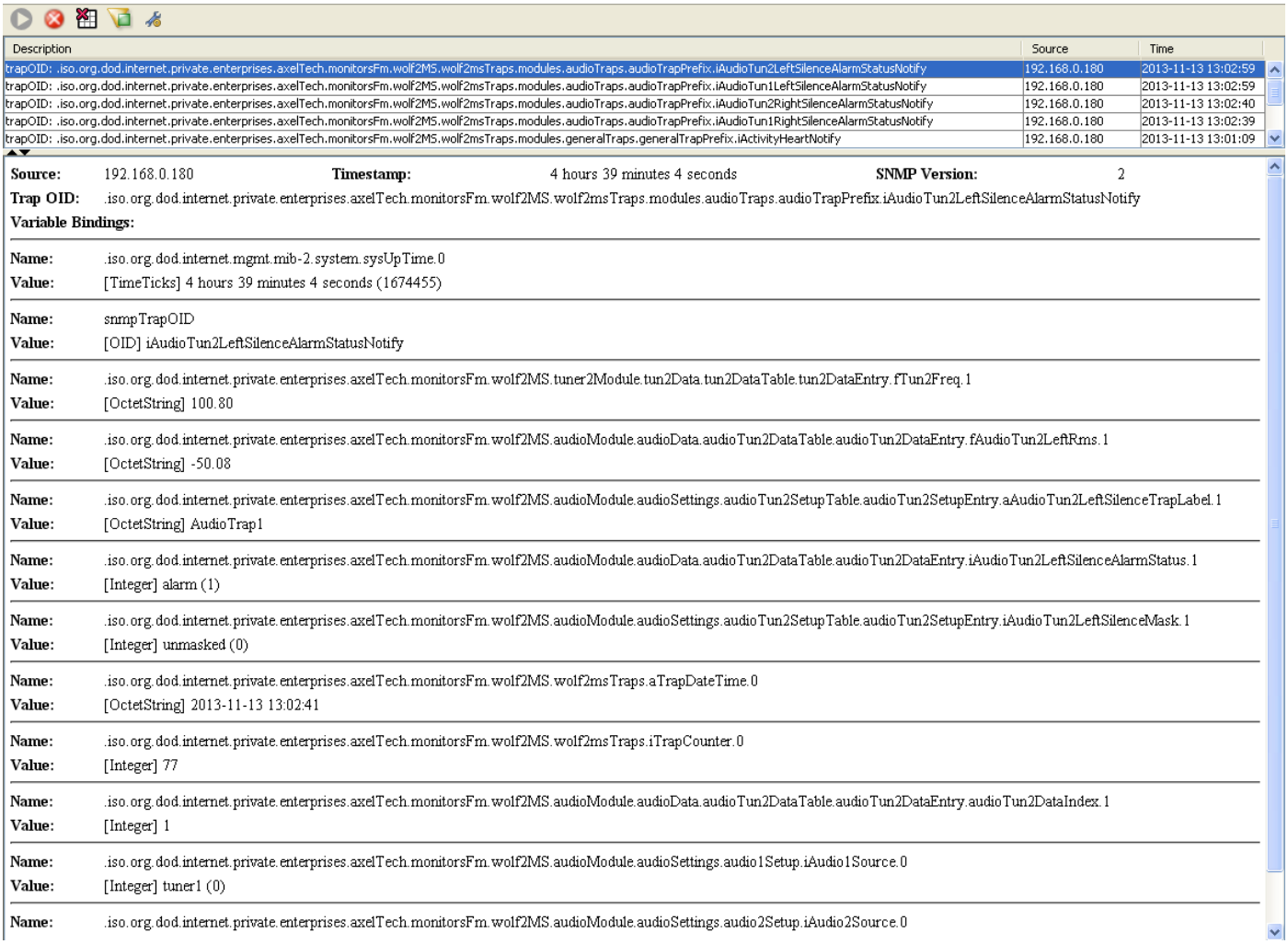
.




Under the alarm condition the MPX alarm led on (We have associated the audio silence alarm to the panel leds mpx error) the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the MPX error will be displayed. (“RIGHT/LEFT SIL”)

Tested in scanning mode with another carrier to alternate the conditions.
F1=100.80MHZ (Left/ Right audio silences)
F2=100.50 MHZ (audio deviation without audio silences)
Thr: -30dBr, Validation:20sec, Hold:10Sec
Thr: -35dBr, Validation:20sec, Hold:15Sec
Thr: -45dBr, Validation:20sec, Hold:15Sec





| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2LeftSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 13:02:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun1LeftSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 13:02:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2RightSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 13:02:40 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun1RightSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 13:02:39 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.180 | 2013-11-13 13:01:09 |

**Source:** 192.168.0.180 **Timestamp:** 4 hours 39 minutes 4 seconds **SNMP Version:** 2

**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2LeftSilenceAlarmStatusNotify

**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 4 hours 39 minutes 4 seconds (1674455)

**Name:** snmpTrapOID
**Value:** [OID] iAudioTun2LeftSilenceAlarmStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner2Module.tun2Data.tun2DataTable.tun2DataEntry.fTun2Freq.1
**Value:** [OctetString] 100.80

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioTun2DataTable.audioTun2DataEntry.fAudioTun2LeftRms.1
**Value:** [OctetString] -50.08

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audioTun2SetupTable.audioTun2SetupEntry.aAudioTun2LeftSilenceTrapLabel.1
**Value:** [OctetString] AudioTrap1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioTun2DataTable.audioTun2DataEntry.iAudioTun2LeftSilenceAlarmStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audioTun2SetupTable.audioTun2SetupEntry.iAudioTun2LeftSilenceMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-13 13:02:41

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 77

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioTun2DataTable.audioTun2DataEntry.audioTun2DataIndex.1
**Value:** [Integer] 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audio1Setup.iAudio1Source.0
**Value:** [Integer] tuner1 (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audio2Setup.iAudio2Source.0

The traps will be sent in the instant the alarm rises up, but Left/Right and the time in the var-binds will be related to the first sample out of the range.
Under the alarm condition the MPX alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the MPX error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.
In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

The LEFT/RIGHT audio silence alarm trap are replayed with their original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## NOTES

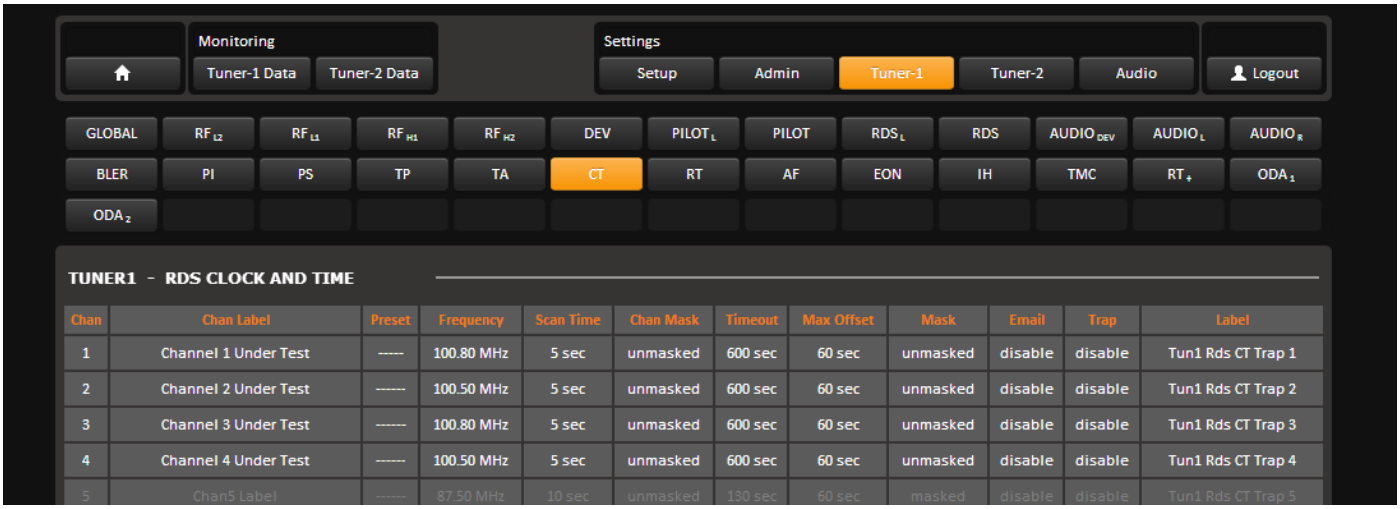
After some problems found in the release 0.62 (levels alignment , peaks in the separation, requests to set silence threshold as lower as possible) we have modified some things.
1) The source silence alarm signal is now the RMS value in place of the PEAK (this choice allows to gain 3-5 dB in the absolute level of the threshold). The average RMS signal in the muted channel is about -50 dBr (TDF reference) or -38dBr (MB reference)
2) Modified the attack time (now slower) of the audio measurement in the level zone from -50dBr to -30dBr to filter separation peaks in some situations. This modification allows even to stabilize the muted channel separation, slightly increasing the max measured separation. The behavior in the nominal level zone (-20dBr to +10dBr) is exactly the same. This solution filters an unexpected receiver behavior in the particular case of high channel level unbalance (one channel muted) and dynamic changes from very low to high levels. This seems to depend by a dynamic module (stereo blend engine) that continues to act on the separation even in disabled mode. We are asking to Silicon Labs to find a solution even on the receiver audio signal.

### *16.11.10* ***Smart Scan General Description***

The SMART-SCAN mode has been strongly modified and tested in the last release. Here a little general description for understanding and testing the definitive behavior .
In general the SMART-SCAN mode locks the scanning sequence before rising an alarm and it waits a defined time (actually fixed for every service). In general with all services having the "Timeout" parameter in place of the "Validation" in SMART-SCAN the behavior is different. The "Timeout" (as name and notation) is used because we intended that the service is complex or non always available on the channel and instead of a validated error condition, we are searching a valid condition before "Timeout" expires. This condition generates trouble in scanning situations, so doesn't exist a sampled out of range data, but a waited event missing in the defined timing.

SMART-SCAN is able to wait up to six services at the same time (concurrently) handling the scanning sequencer and masking the alarms under verification. At first it tries to sample the event in the scanning time, but at the end of the timeout, before rising the alarm, waits a time (about the double of the normal period expected for the kind of service) and decides to rise the alarm or not.

Example: CT service test inside a scanning list of 4 frequencies.



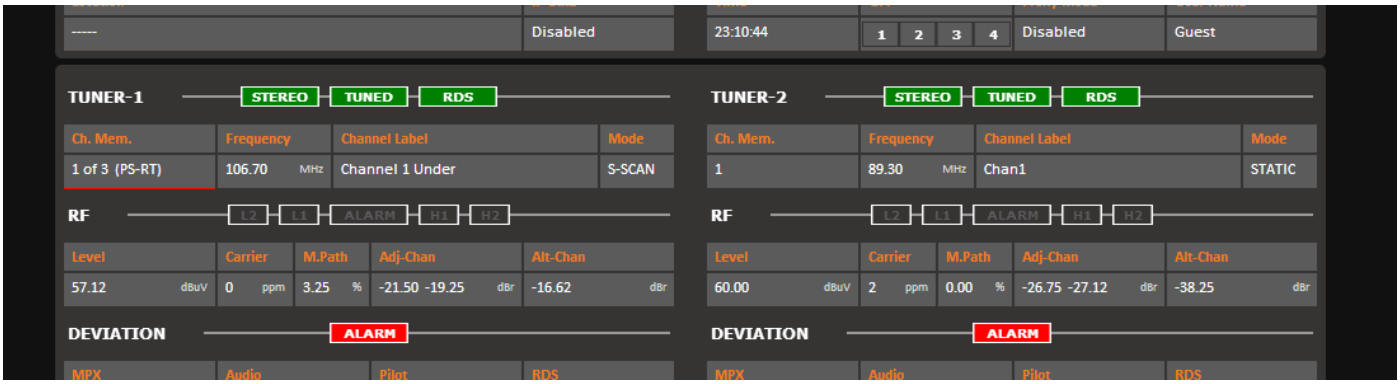

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Timeout | Max Offset | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Channel 1 Under Test | ----- | 100.80 MHz | 5 sec | unmasked | 600 sec | 60 sec | unmasked | disable | disable | Tun1 Rds CT Trap 1 |
| 2 | Channel 2 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 600 sec | 60 sec | unmasked | disable | disable | Tun1 Rds CT Trap 2 |
| 3 | Channel 3 Under Test | ------ | 100.80 MHz | 5 sec | unmasked | 600 sec | 60 sec | unmasked | disable | disable | Tun1 Rds CT Trap 3 |
| 4 | Channel 4 Under Test | ------ | 100.50 MHz | 5 sec | unmasked | 600 sec | 60 sec | unmasked | disable | disable | Tun1 Rds CT Trap 4 |
| 5 | Chan5 Label | ------ | 87.50 MHz | 10 sec | unmasked | 130 sec | 60 sec | masked | disable | disable | Tun1 Rds CT Trap 5 |

The 4A group will be searched for 600 seconds in every frequency. At the end of the 600seconds per stations (that's means 2400 seconds) we are lucky and on three frequencies and we have found the 4A group, but in one them we have not been able to sample a 4A group.
At the end of the "Timeout" in normal SCAN-MODE the CT alarm is raised for the unlucky station, the one in which the random scanning routine failed.
In SMART-SCAN mode instead, the scanner will lock on the unlucky frequency and it will wait up to 130 seconds (defined Smart Wait time for the CT service) to verify if really the service isn't available. If the waiting stage has success, the scanner restarts, and it will try again to catch another 4A in the next 600 seconds with a normal scanning sequence.
If the waiting stage fails the alarm is raised and the scanner restarts to loop.
In the previous releases in the next loop (failed SmartWait case), the SMART-SCAN locks again trying to solve the alarm, instead in the last release for the next 30 minutes (only for the frequency and the service with the alarm raised) the loop will continue like a normal scan mode avoiding to lock the normal scanning sequence and trying to sample a valid 4A .

So, in the last release the SMART-WAIT will try only one time every "RETRY SMART WAIT" time to lock the sequence and verify an alarm after the previous one failed. This behavior will allow to avoid locking situations for the other stations in the scanning list and with a one or more fails in a scanning list, the average looping will be guaranteed.

Please test it and give us suggestions to improve it (if necessary) or report buggy behaviors .

The SMART-WAIT state is visible on the web page as a red line under the Channel Number. The service/services with the problem will be displayed inside the brackets. In the current release max 2 services are displayed at the same time, in the final one will be 3.




SMART-WAIT timings:

CT: Max 130 seconds
(waits for a 4A, able to recognize an offset error or the failure of the service)

PS: Max 80 seconds
(waits a sequence of PS and able to recognize of up to 4 different PS or simply waits for PS variations)

RT: Max 80 seconds
(waits for A/B flag variations and/or groups 2A-2B presence)

TMC: Max 60 seconds
(waits for TMC service registration and/or TMC data variations)

RT+: Max 190 seconds
(waits for RT+ service registration and/or RT+ data variations)

IH: Max 190 seconds
(waits for IH data variations or service presence)

ODA1-2: Max 120 seconds
(waits for ODAx service registration and/or ODAx data variations)

RETRY SMART WAIT : 30 minutes (all services)

Actually these timings are fixed, but it planned in future to create a parameters group to adjust them.

### *16.11.11* ***RDS PI Data test (Tuner-1 Tuner-2)***

This test checks alarms and traps on a Radio with PI=5215 tuned on frequency 100.5MHz.
The test was carried out on both tuners.

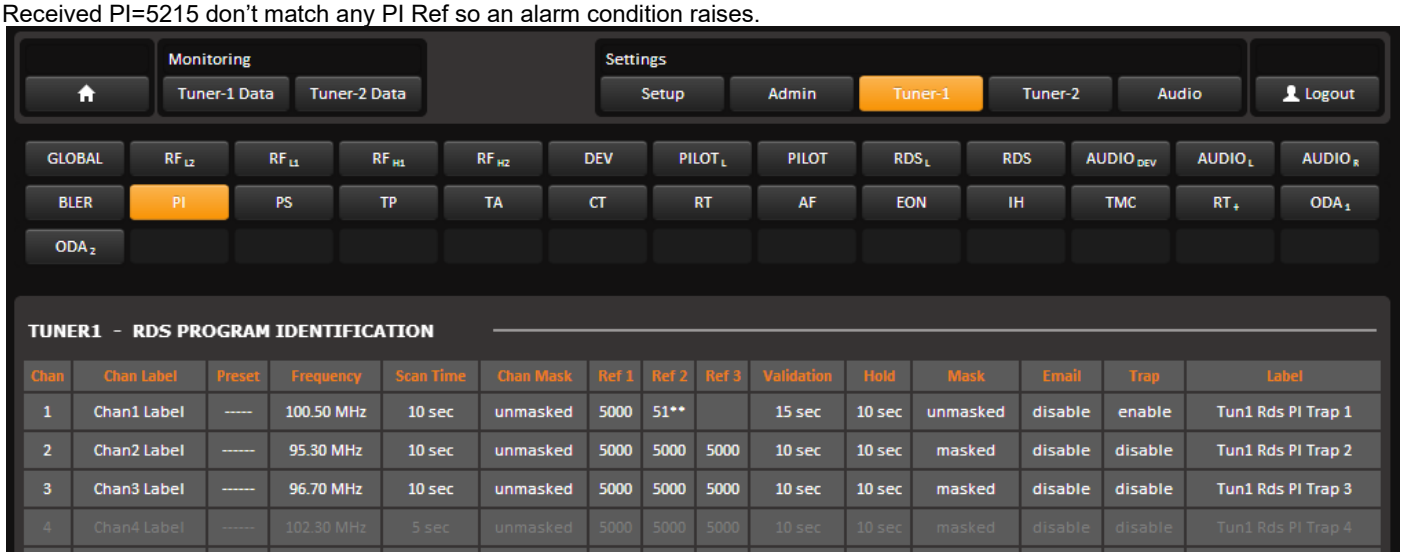
In Static mode we have set a PI Ref Mask to 5000 with Validation time and Hold time equal to 10 sec. (see fig. below)


| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Ref 1 | Ref 2 | Ref 3 | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 5 sec | unmasked | 5000 | | | 10 sec | 10 sec | unmasked | disable | enable | Tun1 Rds PI Trap 1 |
| 2 | Chan2 Label | ------ | 87.50 MHz | 5 sec | unmasked | 5000 | 5000 | 5000 | 10 sec | 10 sec | masked | disable | disable | Tun1 Rds PI Trap 2 |
| 3 | Chan3 Label | ------ | 87.50 MHz | 5 sec | unmasked | 5000 | 5000 | 5000 | 10 sec | 10 sec | masked | disable | disable | Tun1 Rds PI Trap 3 |

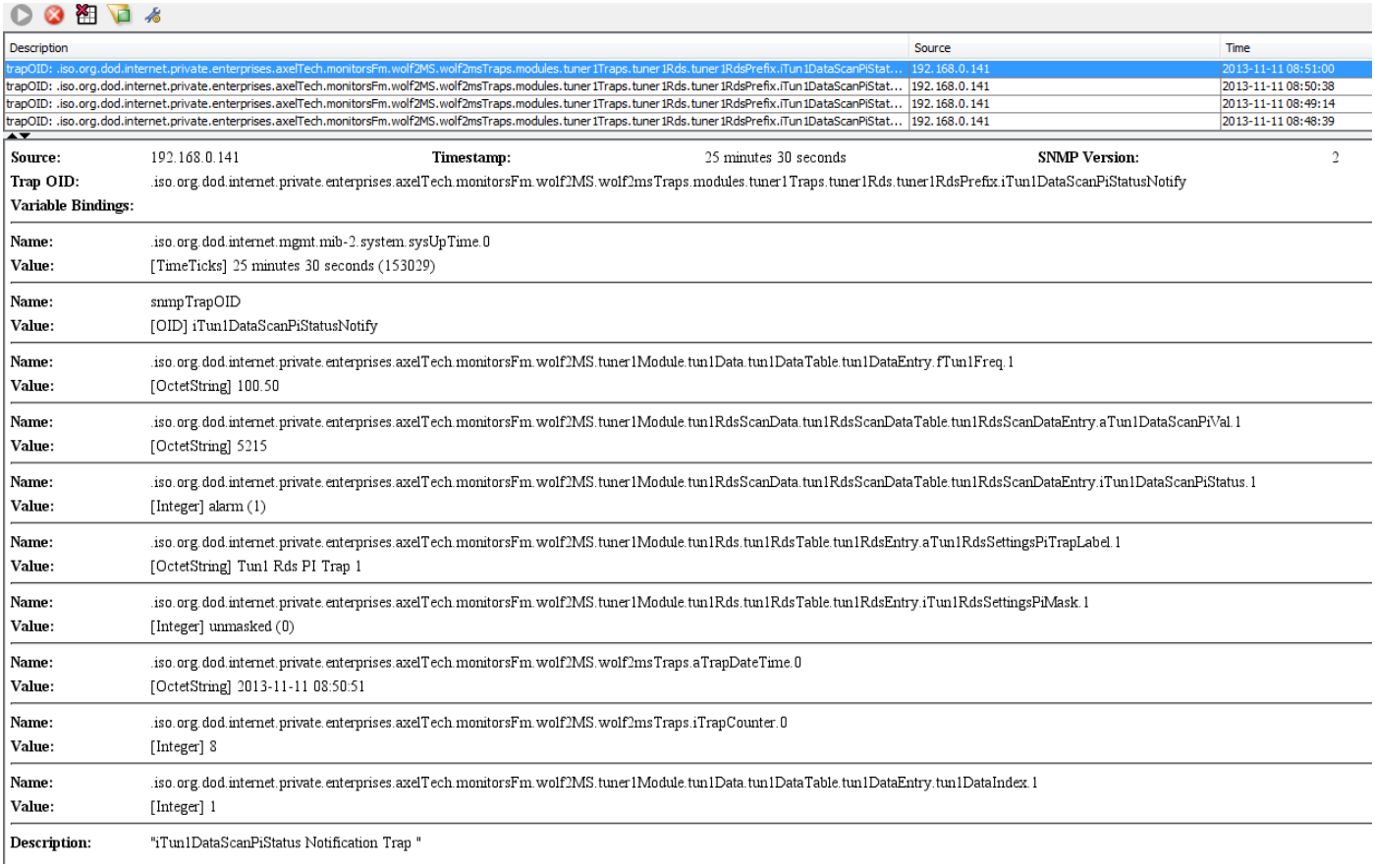
The system checks for a match between any not empty Ref Masks and received PI. If at least one of them matches OK condition is true, otherwise an alarm condition raises.
In this case there is an alarm condition (received PI=5215 won't match with PI Ref1=5000).

Under the alarm condition the RDS alarm led (we have associated the PI alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and two Pi Ref Mask: 5000 and 51** (we have used wildcards) as depicted below.
Validation Time = 15 sec. Hold Time = 10 sec.
For this test we've added PI Ref Mask2=51**. Now system search for a PI=5000 or a PI from 5100 up to 51FF.
Received PI=5215 don't match any PI Ref so an alarm condition raises.




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Ref 1 | Ref 2 | Ref 3 | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 5000 | 51** | | 15 sec | 10 sec | unmasked | disable | enable | Tun1 Rds PI Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 5000 | 5000 | 5000 | 10 sec | 10 sec | masked | disable | disable | Tun1 Rds PI Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | 5000 | 5000 | 5000 | 10 sec | 10 sec | masked | disable | disable | Tun1 Rds PI Trap 3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | 5000 | 5000 | 5000 | 10 sec | 10 sec | masked | disable | disable | Tun1 Rds PI Trap 4 |



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStat... | 192.168.0.141 | 2013-11-11 08:51:00 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStat... | 192.168.0.141 | 2013-11-11 08:50:38 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStat... | 192.168.0.141 | 2013-11-11 08:49:14 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStat... | 192.168.0.141 | 2013-11-11 08:48:39 |

**Source:** 192.168.0.141 **Timestamp:** 25 minutes 30 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanPiStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 25 minutes 30 seconds (153029)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanPiStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.aTun1DataScanPiVal.1
**Value:** [OctetString] 5215

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanPiStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsPiTrapLabel.1
**Value:** [OctetString] Tun1 Rds PI Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsPiMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-11 08:50:51

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 8

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanPiStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but PI and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.
In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

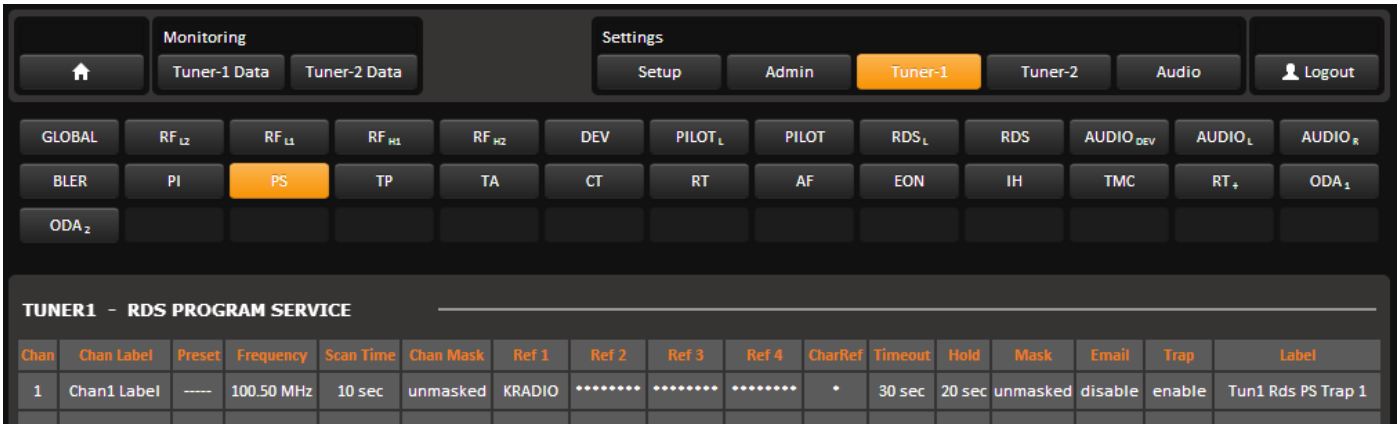
The Rds PI alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## NOTES

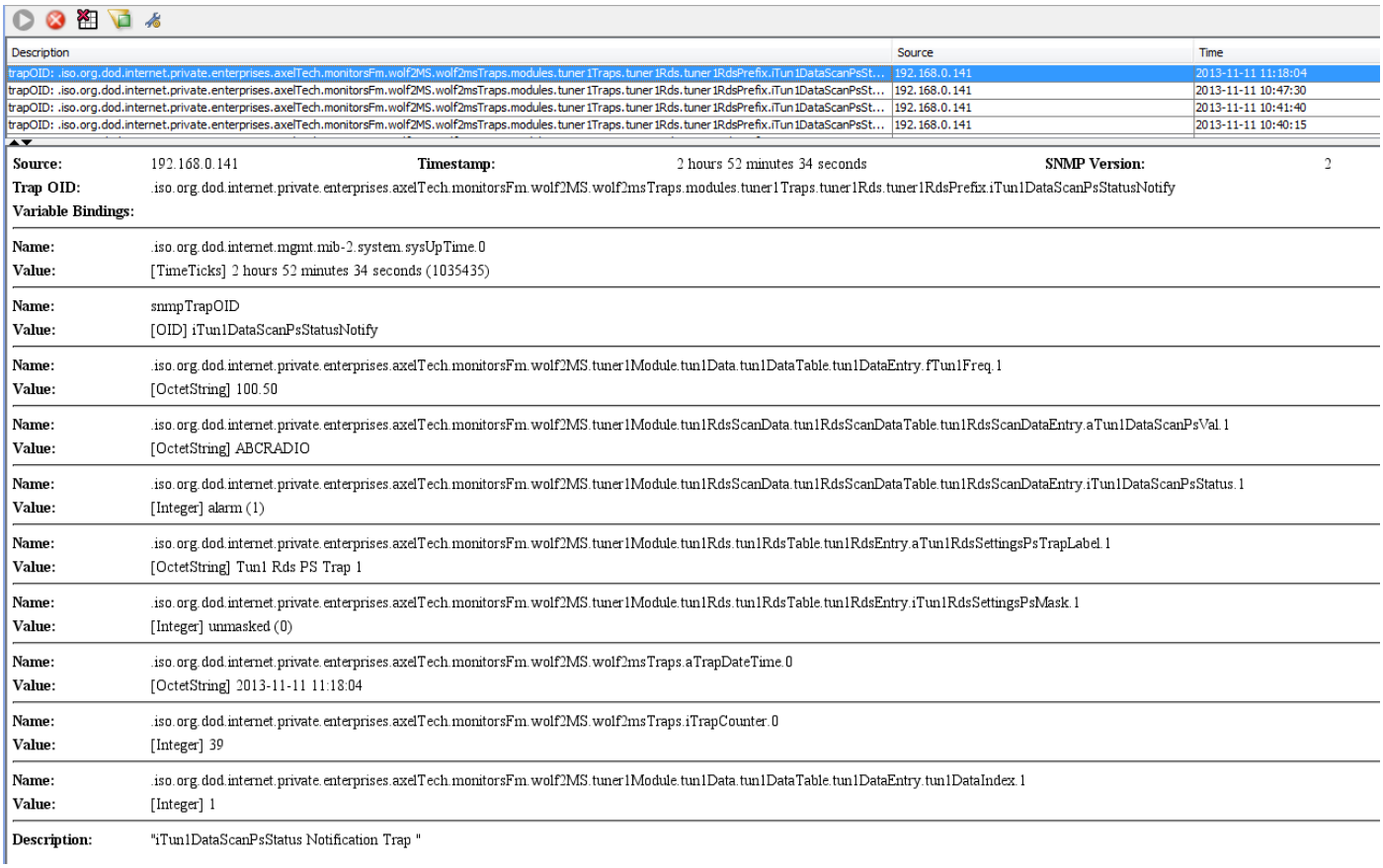
The PI Reference  Masks accepts (multiple) * wildcards in each position. Empty Ref Masks will be not taken into account.
SMARTMODE references inside the brackets when sequencer locks missing in the scan monitor tab pages (will be fixed).

### *16.11.12* ***RDS PS Data test (Tuner-1 Tuner-2)***

This test checks alarms and traps on a Radio with PS="ABCRADIO" tuned on frequency 100.5MHz.
The test was carried out on both tuners.




In static mode we have set PS Ref Mask1 to "KRADIO" and we leave default values on Ref Mask2 up to Ref Mask4 (********) and CharRef=*, a Timeout of 30 sec and an Hold Time of 20 sec as in fig. above.
The system need to find a match between received PS and ALL of not empty Ref Masks no later than Timeout, otherwise an alarm condition raises.
PS Ref Masks (like PI) accepts wildcards and wildcard character is shown by CharRef field. Of course this character can be modified by user. Note that Ref Masks can be 1 to 8 chars long. If a Ref Mask is shorter than 8 chars a sub-string search is performed on received PS. Also note that a Ref Mask formed by 8 wildcards will match anyway.
Instead if the Timeout is equal to zero only PS variations will be searched for having a valid condition
In this case an alarm condition raises up because system search a match for Ref1 substring (KRADIO) into PS.




Under the alarm condition the RDS alarm led (we have associated the PS alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and two PS Ref Mask: “KRADIO” and “ABC” as depicted below.
Timeout = 30 sec. Hold Time = 10 sec.

In Scan Mode system perform a time-division cyclical check on selected radios (see Settings->Tuner1->Last Channel Scanning Index or alter ego for Tuner 2). It starts from Chan 1 and rests for the setted Scan Time related to channel before pass away. If an alarm condition (or more of them) is found, it will be signaled (and – if enabled – a trap is launched).

Now system search a match on Chan1 PS (ABCRADIO) with two Refs (substring “KRADIO” and substring “ABC”).
PS Ref Mask2 content will match (“ABC” is a substring of “ABCRADIO”) but Ref Mask1 will not, so an error condition will raises up.


| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Ref 1 | Ref 2 | Ref 3 | Ref 4 | CharRef | Timeout | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | KRADIO | ABC | | | * | 30 sec | 20 sec | unmasked | disable | enable | Tun1 Rds PS Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | •••••••• | •••••••• | •••••••• | •••••••• | * | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds PS Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | •••••••• | •••••••• | •••••••• | •••••••• | * | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds PS Trap 3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | •••••••• | •••••••• | •••••••• | •••••••• | * | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds PS Trap 4 |

The traps will be sent in the instant the alarm rises up, but PS and the time in the var-binds will be related to the moment the Timeout is expired.

Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

Tested in SmartScan with the same setup depicted above for ‘normal’ Scan Mode.
Scan Mode is an evolution of normal Scan Mode that rigidly cycles between selected Channels.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: “1 of 3 (PS)”).


If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If a new alarm condition raises up, system stops again for another observation step.

If no valid condition is found (as in this test case), system unlocks, normal scan reprises and an alarm condition and/or a trap is reported:


Note that Channel Memory reports normal index display (“1 of 3”).
If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).

## REPLAY ENABLED TRAPS

The Rds PS alarm trap are replayed with its original status, time and value of the moment in which the Timeout is expired. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## NOTES

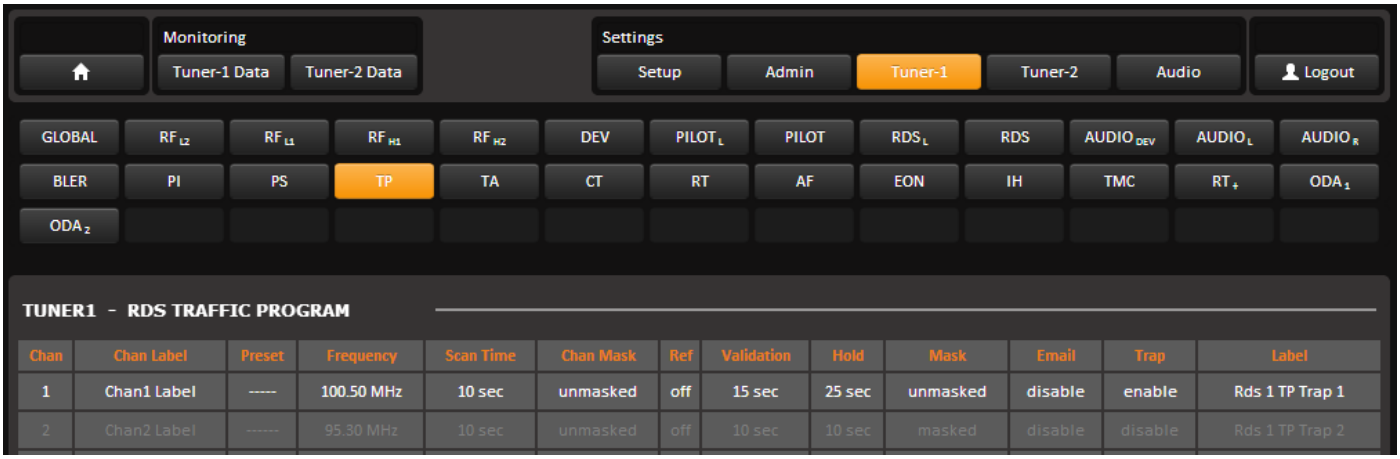
The PS Reference  Masks accepts (multiple) wildcards. Used wildcard for the masks of a channel is reported and selectable into Settings. Empty Ref Masks will be not taken into account.
SMARTMODE references inside the brackets when sequencer locks missing in the scan monitor tab pages (will be fixed).

### *16.11.13* ***RDS TP Data test (Tuner-1 Tuner-2)***

This test checks alarms and traps on a Radio with TP=ON tuned on frequency 100.5MHz.
The test was carried out on both tuners.

System checks received TP and compares it with TP Ref. If a match is found an alarm condition raises up.

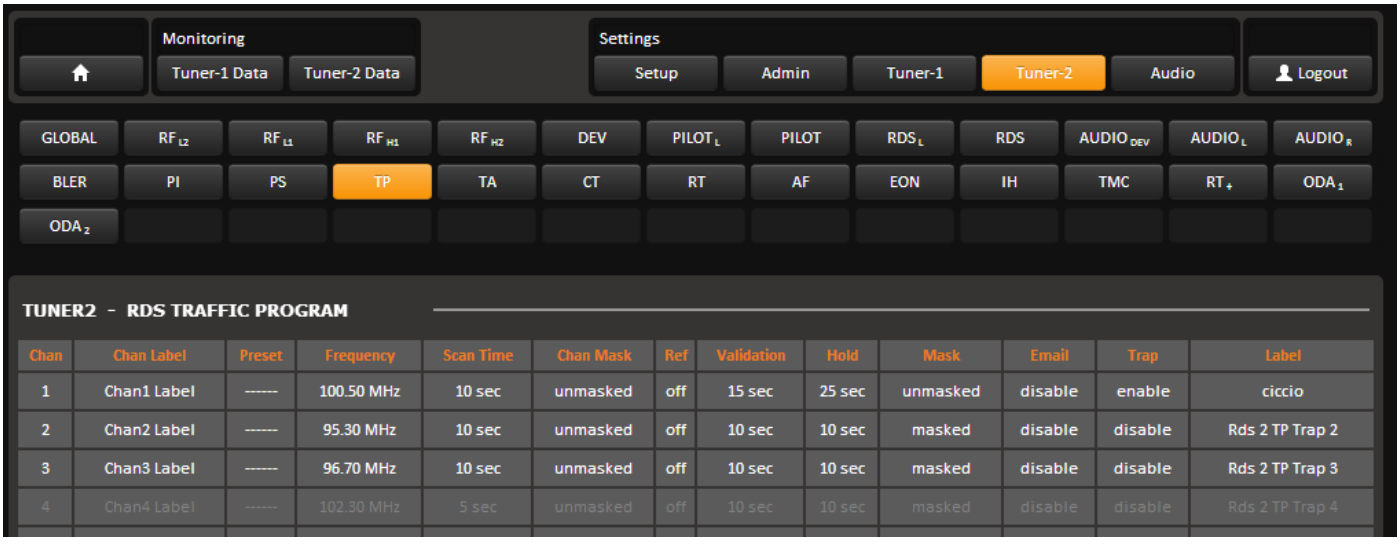
In Static mode we have set a TP Ref Mask to OFF with Validation time of 15 sec. and Hold time equal to 25 sec. (see fig. below)



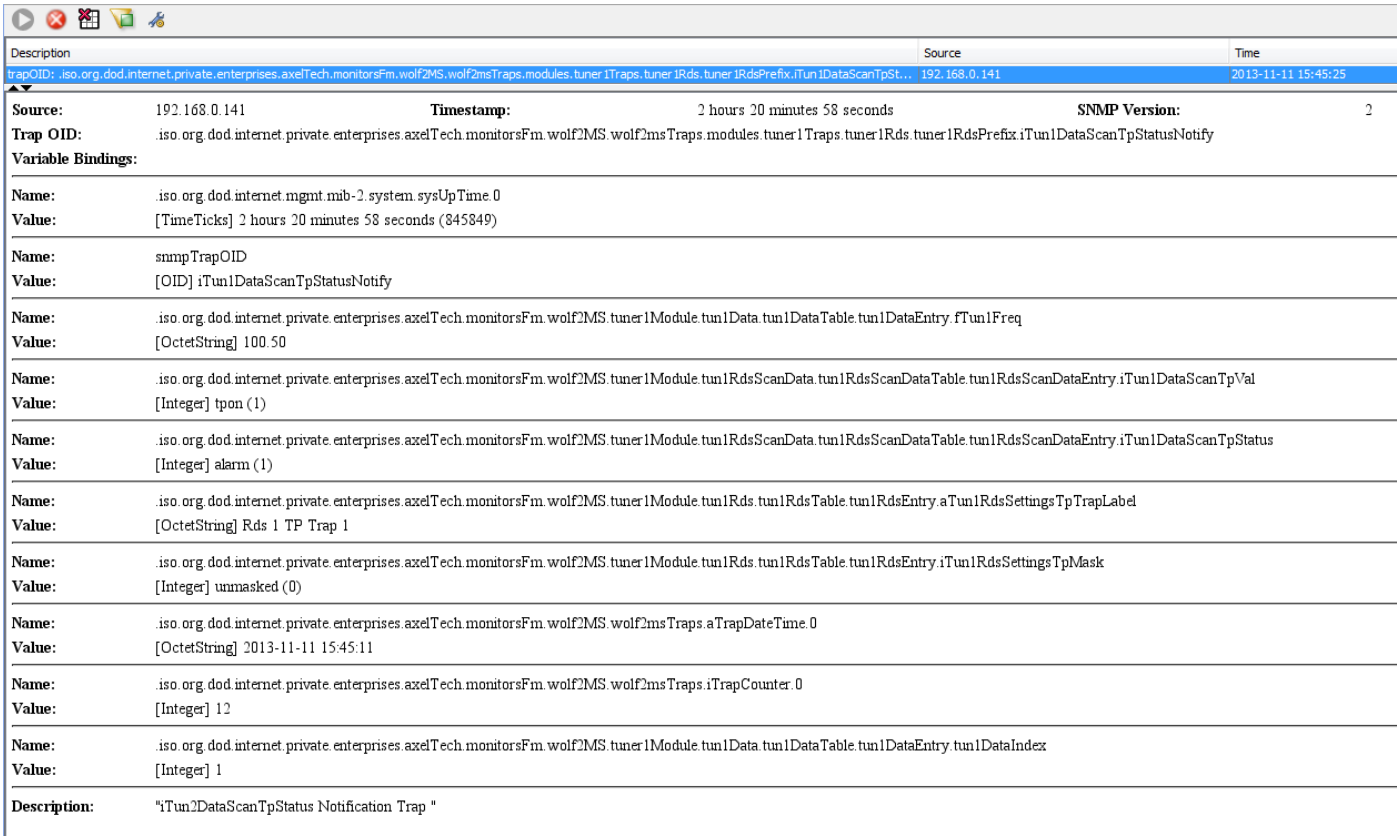

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Ref | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | off | 15 sec | 25 sec | unmasked | disable | enable | Rds 1 TP Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | off | 10 sec | 10 sec | masked | disable | disable | Rds 1 TP Trap 2 |

Under the alarm condition the RDS alarm led (we have associated the TP alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and TP Ref Mask: OFF as depicted below.
Validation Time = 15 sec. Hold Time = 25 sec.




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Ref | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ------ | 100.50 MHz | 10 sec | unmasked | off | 15 sec | 25 sec | unmasked | disable | enable | ciccio |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | off | 10 sec | 10 sec | masked | disable | disable | Rds 2 TP Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | off | 10 sec | 10 sec | masked | disable | disable | Rds 2 TP Trap 3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | off | 10 sec | 10 sec | masked | disable | disable | Rds 2 TP Trap 4 |



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTpSt... | 192.168.0.141 | 2013-11-11 15:45:25 |

**Source:** 192.168.0.141 **Timestamp:** 2 hours 20 minutes 58 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTpStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 2 hours 20 minutes 58 seconds (845849)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanTpStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanTpVal
**Value:** [Integer] tpon (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanTpStatus
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsTpTrapLabel
**Value:** [OctetString] Rds 1 TP Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsTpMask
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-11 15:45:11

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 12

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex
**Value:** [Integer] 1

**Description:** "iTun2DataScanTpStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but TP and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed.
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

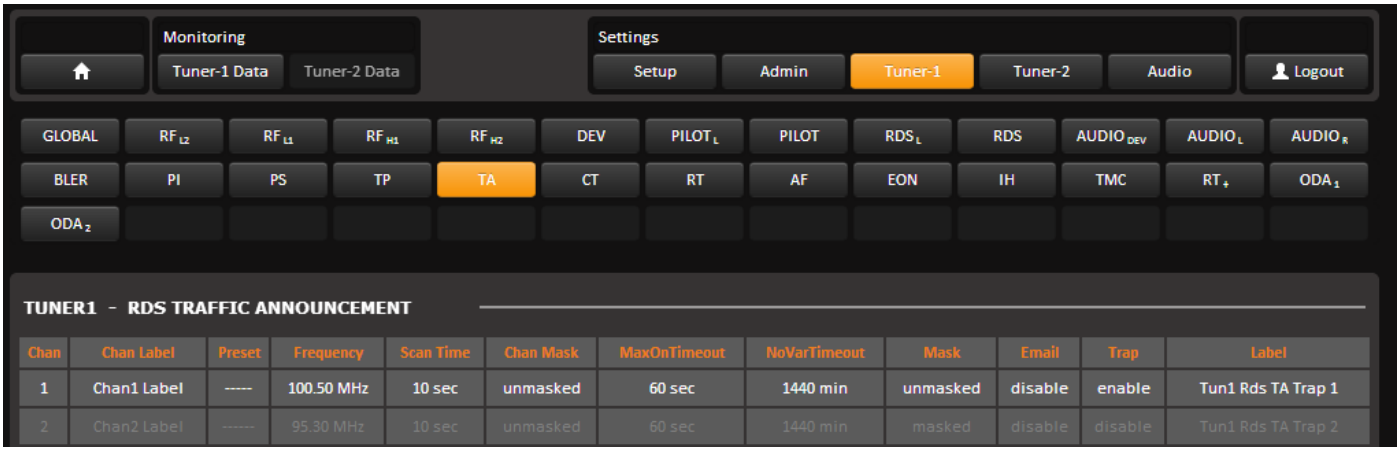
The Rds TP alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.
SMARTMODE references inside the brackets when sequencer locks missing in the scan monitor tab pages (will be fixed).

### *16.11.14 RDS TA Data test (Tuner-1 Tuner-2)*

This test checks alarms and traps on a Radio with TA=ON tuned on frequency 100.5MHz.
The test was carried out on both tuners.

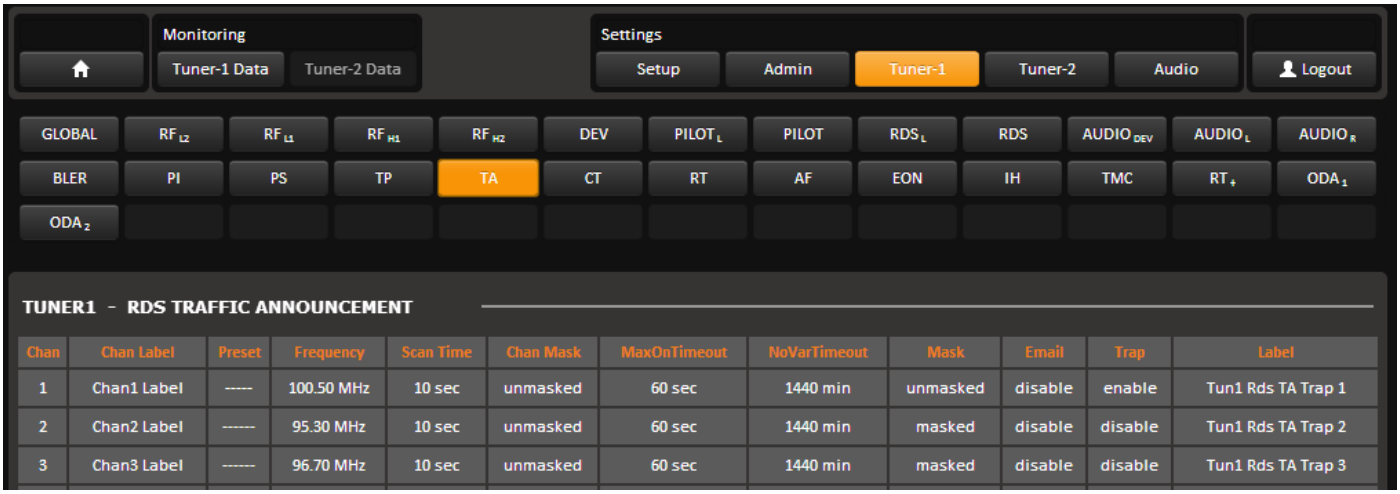
System can check TA status and raise an alarm after a period of TA=ON (MaxOnTimeout) as can monitor TA status invariance in time (alarm can be signaled after NoVarTimeout).

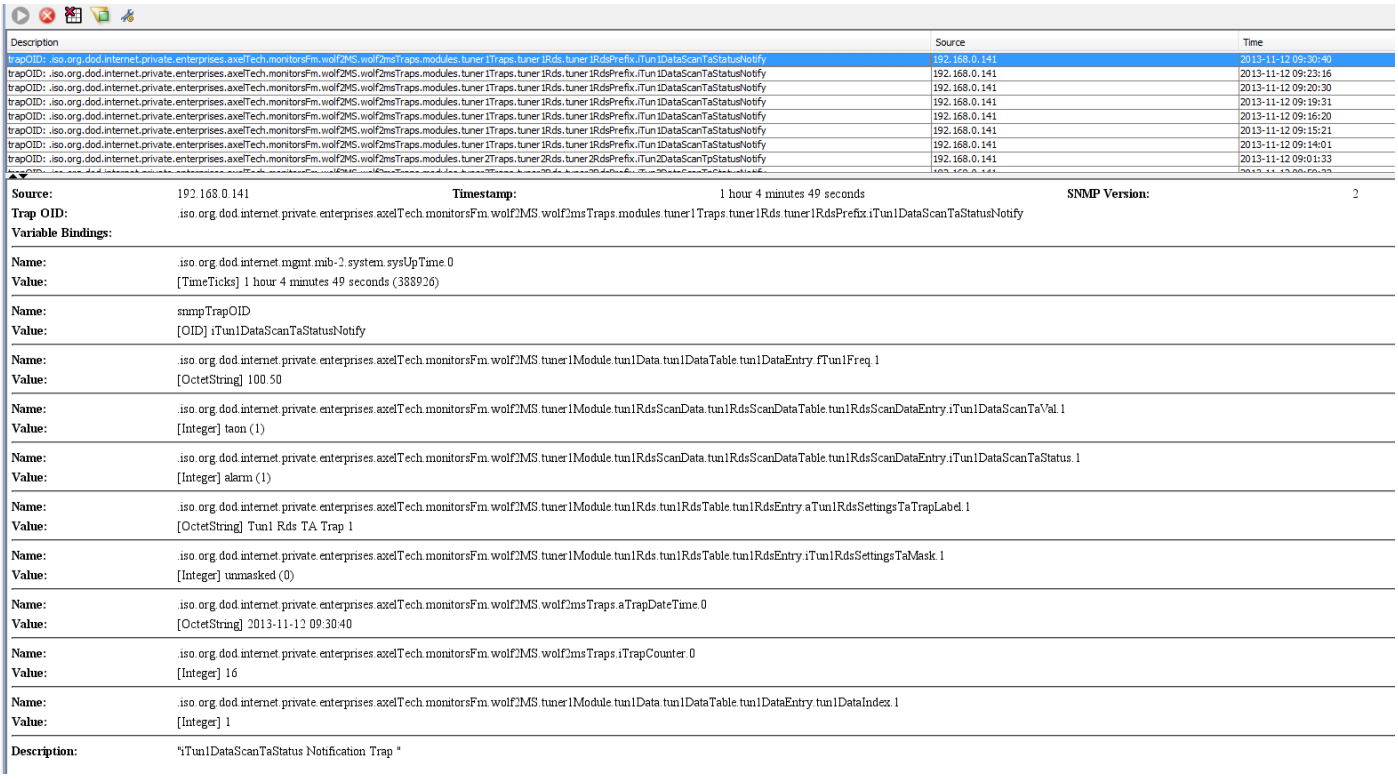
In Static mode we have set a TA MaxOnTimeout to 60 sec. and NoVarTimeout to 1440 min. (see fig. below)
Tuned radio TA=ON will raise up an alarm after MaxOnTimeout.




Under the alarm condition the RDS alarm led (we have associated the TA alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and MaxOnTimeout=60 sec. – NoVarTimeout=1440 min. as depicted below.
In Scan Mode an alarm condition raises up after MaxOnTimeout time passed on channel 1.





| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:30:40 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:23:16 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:20:30 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:19:31 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:16:20 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:15:21 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify | 192.168.0.141 | 2013-11-12 09:14:01 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanTpStatusNotify | 192.168.0.141 | 2013-11-12 09:01:33 |

**Source:** 192.168.0.141 **Timestamp:** 1 hour 4 minutes 49 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanTaStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 1 hour 4 minutes 49 seconds (388926)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanTaStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanTaVal.1
**Value:** [Integer] taon (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanTaStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsTaTrapLabel.1
**Value:** [OctetString] Tun1 Rds TA Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsTaMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-12 09:30:40

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 16

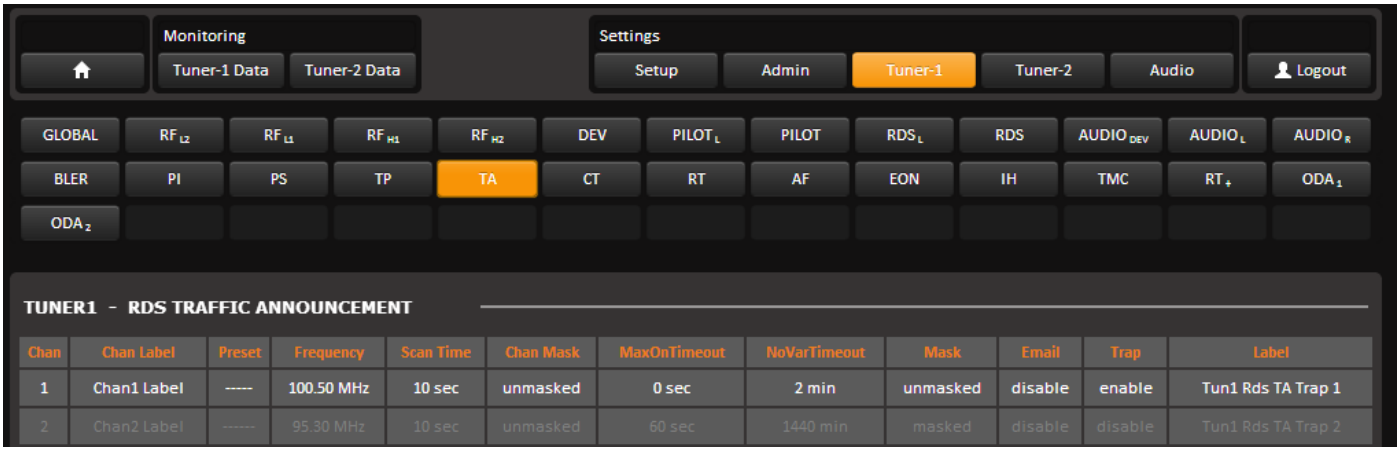
**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanTaStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but TA and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

A second branch of test is performed with MaxOnTimeout=0 and NoVarTimeout=2 min. on each tuner in Static mode as depicted below:




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | MaxOnTimeout | NoVarTimeout | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 0 sec | 2 min | unmasked | disable | enable | Tun1 Rds TA Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 60 sec | 1440 min | masked | disable | disable | Tun1 Rds TA Trap 2 |

In this case we don't care of TA=ON condition, but we look for TA status invariance in time.
After NoVarTimeout time (if TA status remains untouched) an alarm condition raises up.

And then in Scan Mode and SmartScan Mode with three frequencies
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and MaxOnTimeout=0 sec. – NoVarTimeout=2 min. as depicted below.


| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | MaxOnTimeout | NoVarTimeout | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 0 sec | 2 min | unmasked | disable | enable | Tun1 Rds TA Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 60 sec | 1440 min | masked | disable | disable | Tun1 Rds TA Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | 60 sec | 1440 min | masked | disable | disable | Tun1 Rds TA Trap 3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | 60 sec | 1440 min | masked | disable | disable | Tun1 Rds TA Trap 4 |

## REPLAY ENABLED TRAPS

The Rds TA alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## NOTES

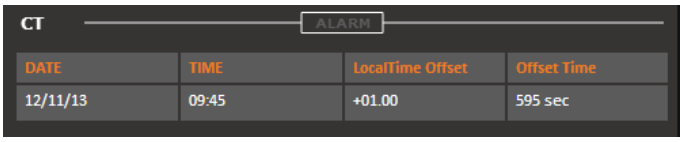
Unwanted checks on TA signal were performed by settings corresponding Timeout to 0.
SMARTMODE references inside the brackets when sequencer locks missing in the scan monitor tab pages (will be fixed).

### *16.11.15 RDS CT Data test (Tuner-1 Tuner-2)*

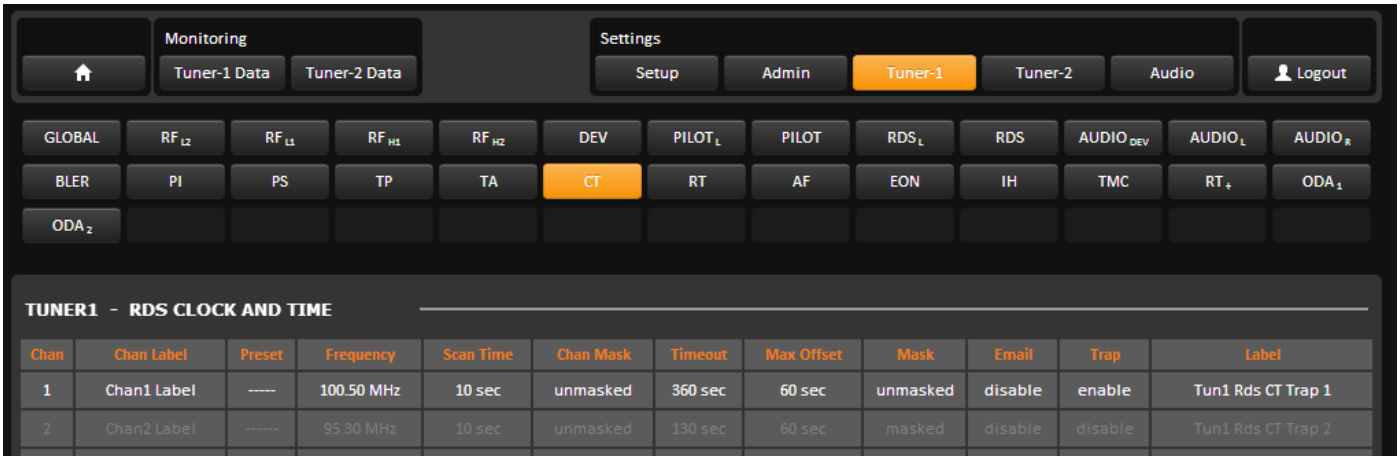
This test checks alarms and traps on a Radio tuned on frequency 100.5MHz that carries CT service.
The test was carried out on both tuners.

The system can check CT service signal presence and time offset between internal system clock and CT carried time.

First, we have set Radio CT=ON with an offset about 10 min.
When system receives first CT data, displays it and calculate time difference:

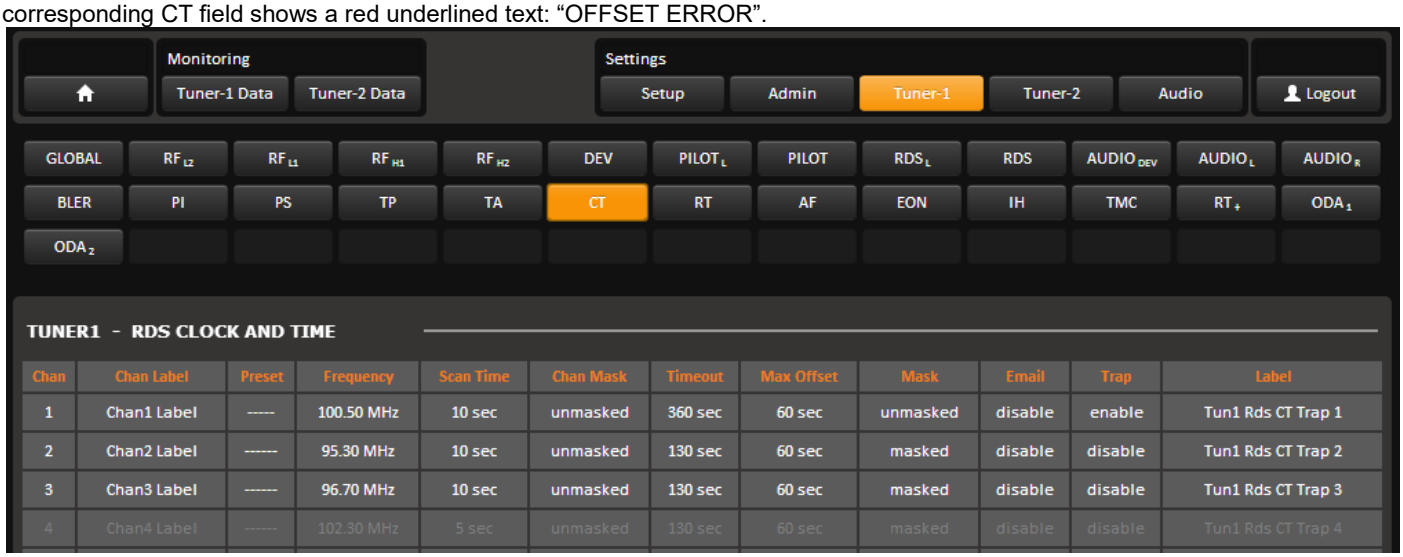



Then we have tested in Static Mode with Timeout=360 sec. and Offset Time = 60 sec.
Timeout field indicates max time the system wait for a new CT group before raise up an alarm.




Under the alarm condition the RDS alarm led (we have associated the CT alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and Timeout=360 sec. – Max Offset=60 sec. as depicted below.
Same conditions of Static mode test. The behavior is as illustrated for PS Scan Mode test.
System cycles thru selected frequencies. At first time CT signal arrives on Channel1 radio, alarm raises up and corresponding CT field shows a red underlined text: “OFFSET ERROR”.



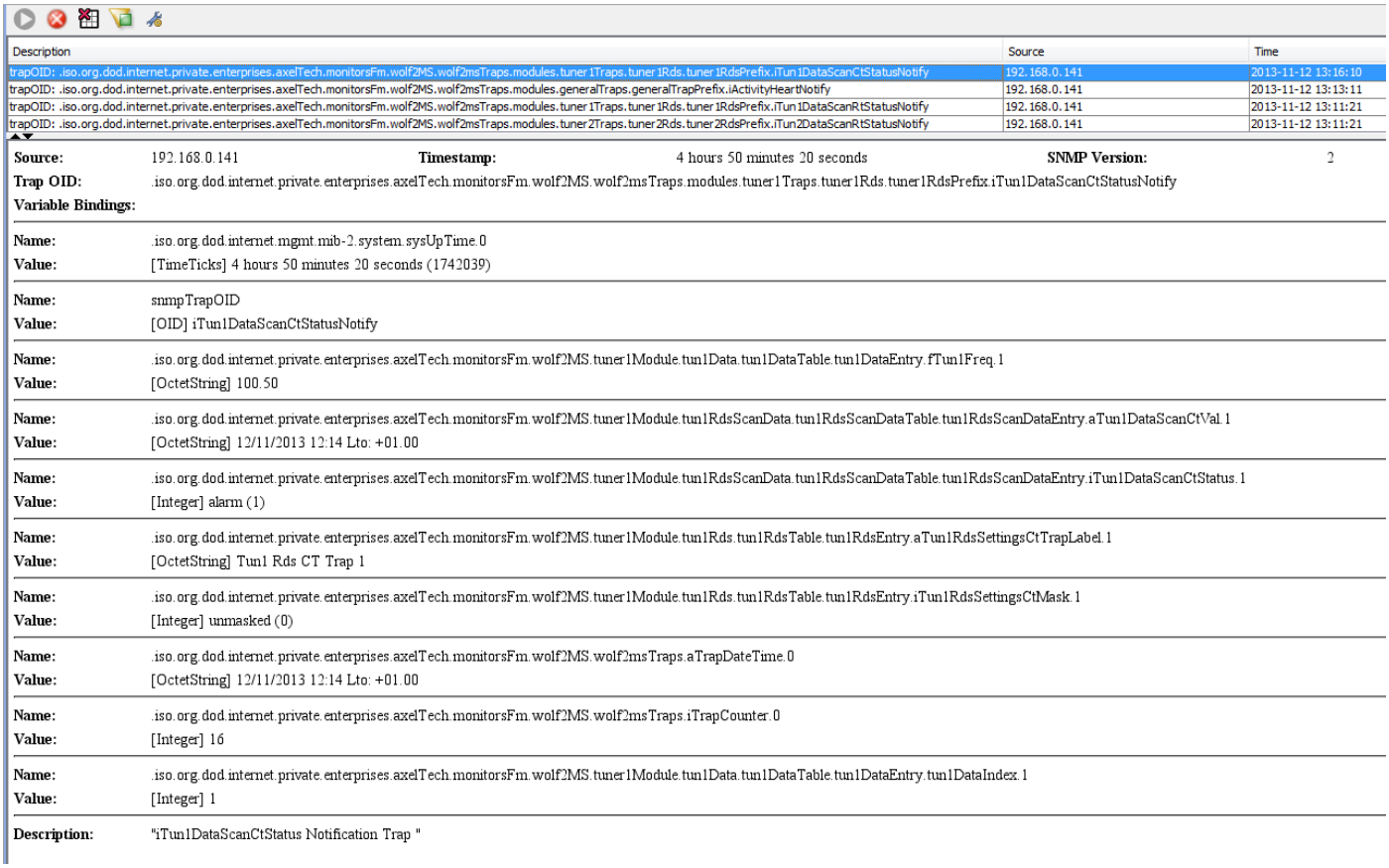
Tested in SmartScan with the same setup depicted above for ‘normal’ Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: “1 of 3 (CT)”).


If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If a new alarm condition raises up, system stops again for another observation step.

If no valid condition is found (as in this test case), system unlocks, normal scan reprises and an alarm condition and/or a trap is reported (corresponding CT field shows a red underlined text: “OFFSET ERROR”):


Note that Channel Memory reports normal index display (“1 of 3”).

If alarm condition persists (as in this test case), after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanCtStatusNotify | 192.168.0.141 | 2013-11-12 13:16:10 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.141 | 2013-11-12 13:13:11 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 13:11:21 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 13:11:21 |

**Source:** 192.168.0.141 **Timestamp:** 4 hours 50 minutes 20 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanCtStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 4 hours 50 minutes 20 seconds (1742039)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanCtStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.aTun1DataScanCtVal.1
**Value:** [OctetString] 12/11/2013 12:14 Lto: +01.00

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanCtStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsCtTrapLabel.1
**Value:** [OctetString] Tun1 Rds CT Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsCtMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 12/11/2013 12:14 Lto: +01.00

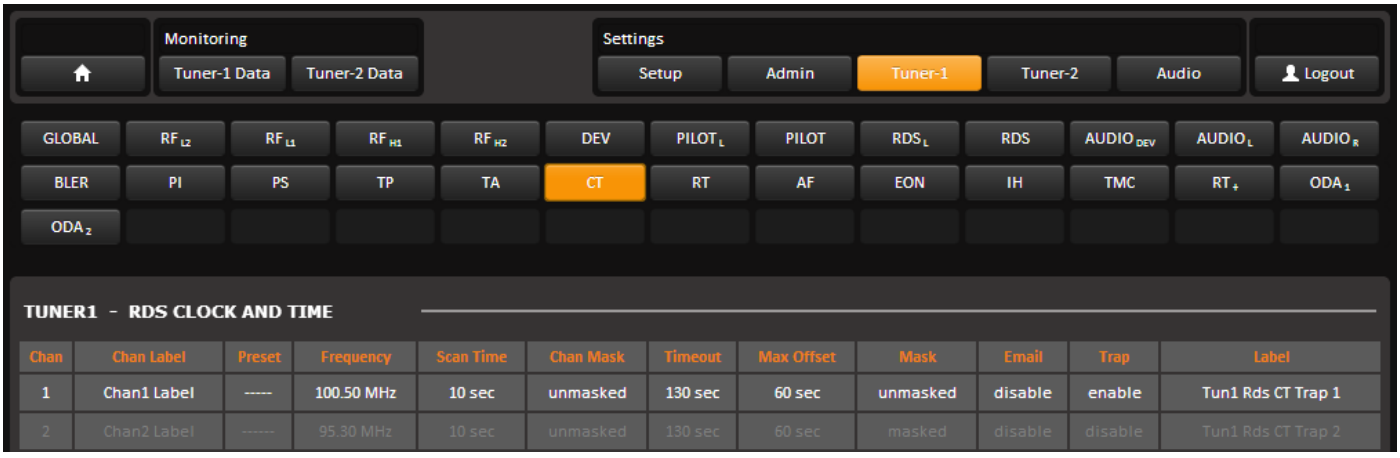
**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 16

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanCtStatus Notification Trap "

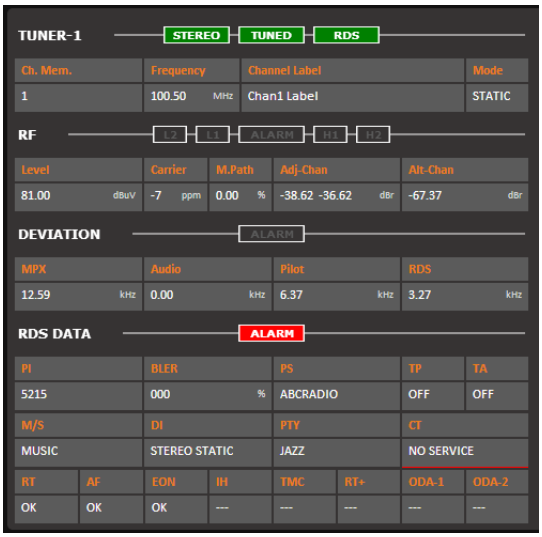
The traps will be sent in the instant the alarm rises up, but CT and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

For a second branch of tests we have set Timeout to 130 sec. and stopped Radio CT transmission (no 4A groups was broadcasted).




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Timeout | Max Offset | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 130 sec | 60 sec | unmasked | disable | enable | Tun1 Rds CT Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 130 sec | 60 sec | masked | disable | disable | Tun1 Rds CT Trap 2 |

We have performed the same tests in Static Mode, Scan Mode and Smart Scan Mode as above, checking front panel visualization and leds, alarms and traps.
We’ve obtained the same behaviors of Test 1 with the only difference on CT alarm description:




## REPLAY ENABLED TRAPS

The Rds CT alarm traps are replayed with its original status, time and value. Trap Counter is normally incremented. All data and parameters are available in the MIB L3-5 to set and test this configuration.

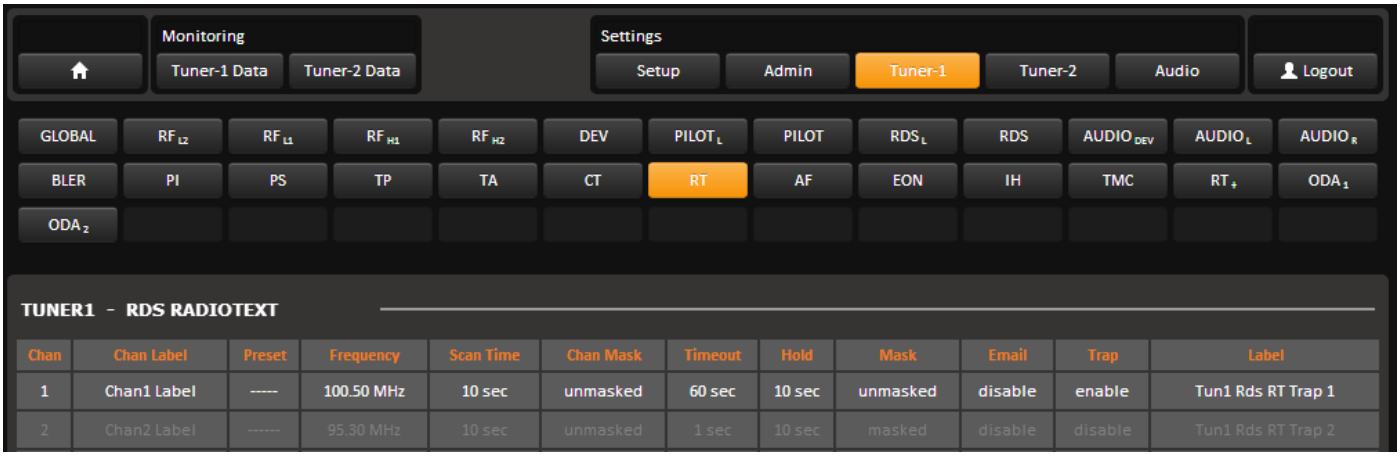
## NOTES

Timeout field can be set to 0. This avoid control check on CT signal frequency (but not CT clock precision).
SMARTMODE references inside the brackets when sequencer locks missing in the scan monitor tab pages (will be fixed).
TrapdateTime varbind content wrong (the CT value has been used). Will be fixed.

### *16.11.16* ***RDS RT Data test (Tuner-1 Tuner-2)***

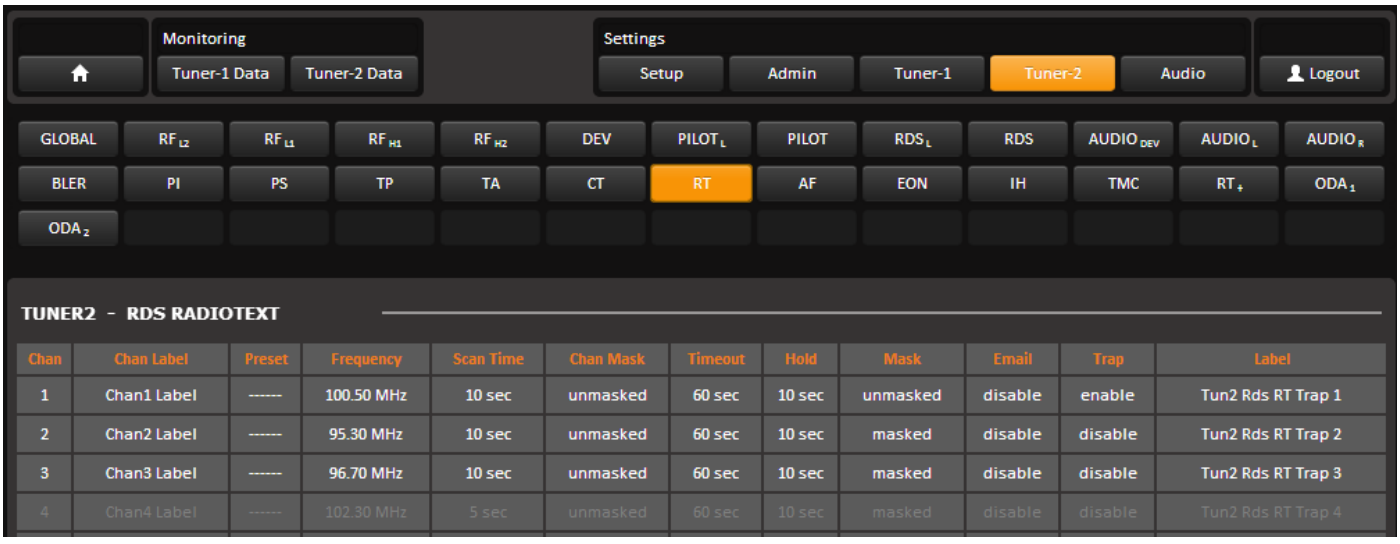
This test checks alarms and traps on a Radio tuned on frequency 100.5MHz that carries RadioText service.
The test was carried out on both tuners.

System can monitor RadioText service presence (modified in 0.6.5 release)
.
For the Static Mode test we set Timeout=60 sec. and Hold Time=10 sec.
If the RT service (2A-2B groups) will not be present for 60 sec the alarm will rise up.

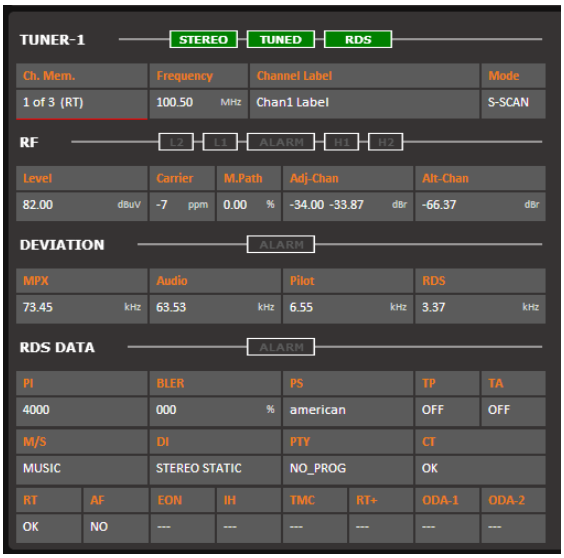



Under the alarm condition the RDS alarm led (We have associated the RT alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and Timeout=60 sec. Hold Time=10 sec. as depicted below.



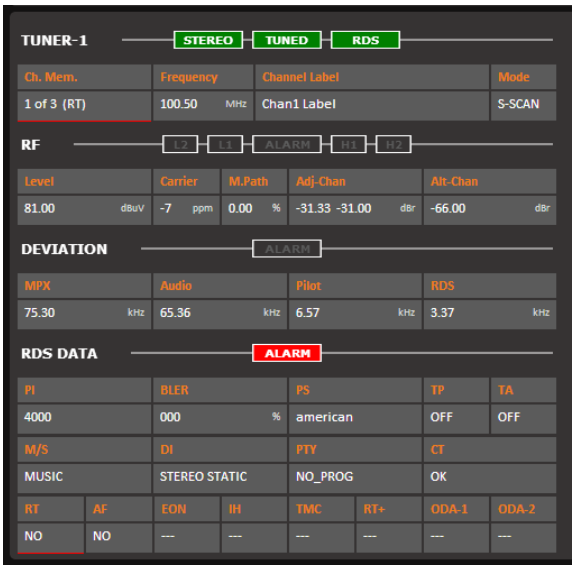

Tested in SmartScan with the same setup depicted above for 'normal' Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: "1 of 3 (RT)").

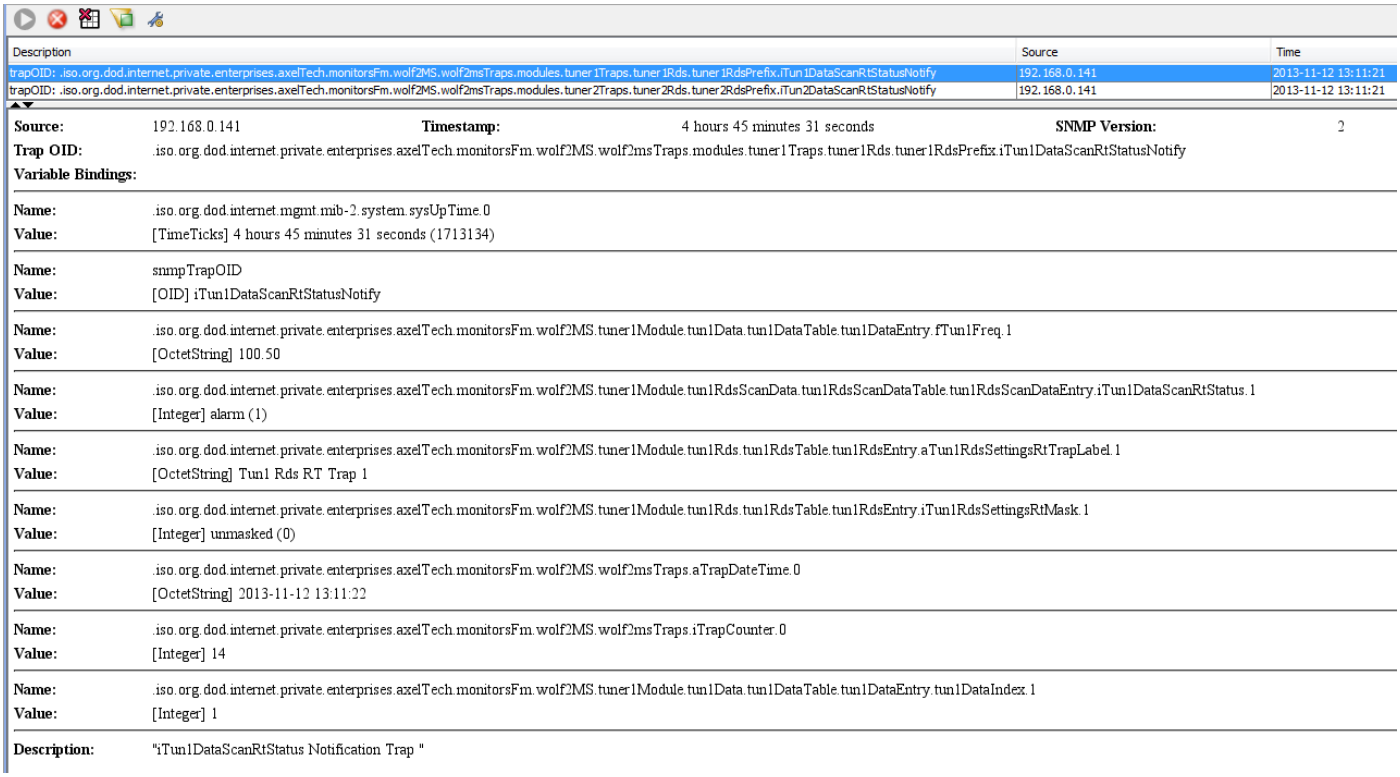



If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If no valid condition is found, system unlocks, normal scan reprises and an alarm condition and/or a trap is reported:


Note that Channel Memory reports normal index display (“1 of 3”).

If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).



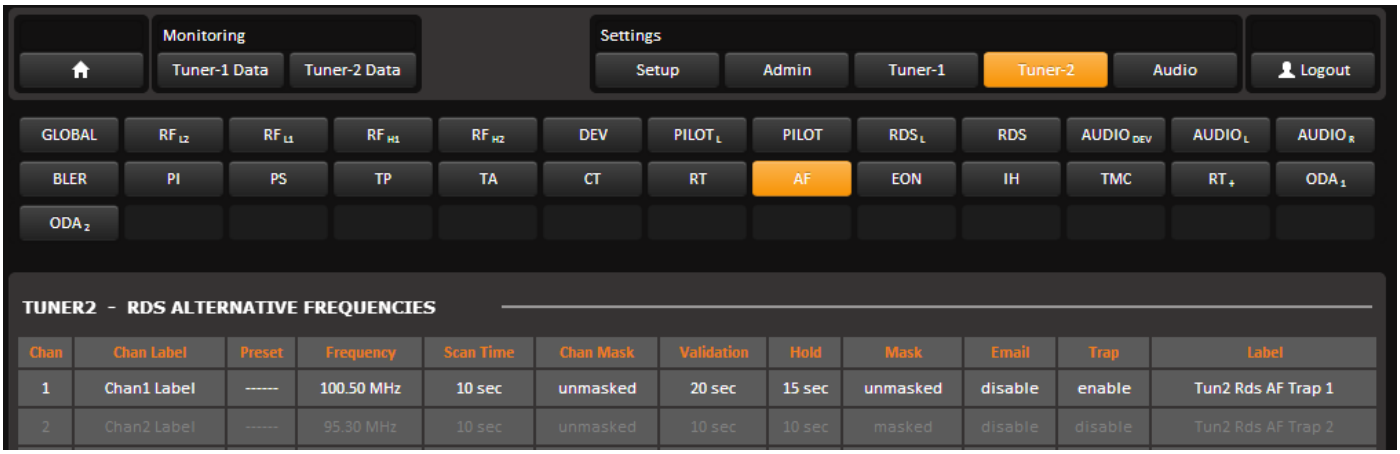

The traps will be sent in the instant the alarm rises up, but RT and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

## 21. Rds AF data test (Tuner1-Tuner2)

This test checks alarms and traps on AF lists of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

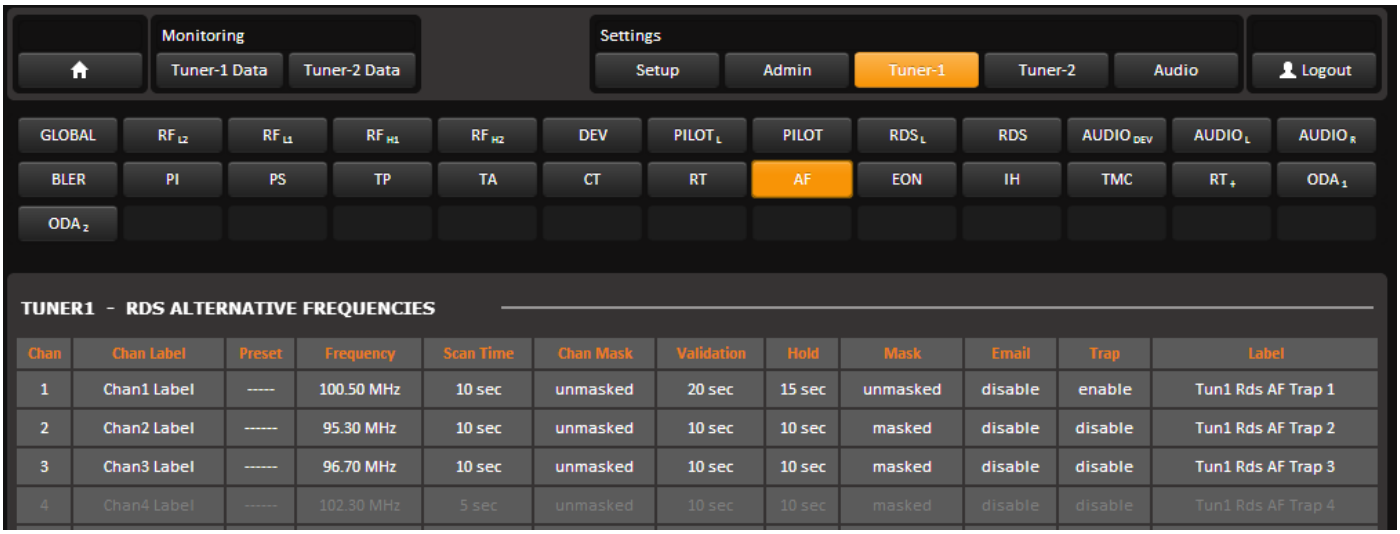
The system can monitor AF lists presence.
Tuned radio has empty AF lists so the test raises up an alarm.

For the Static Mode test we set Validation Time=20 sec. and Hold Time=15 sec.

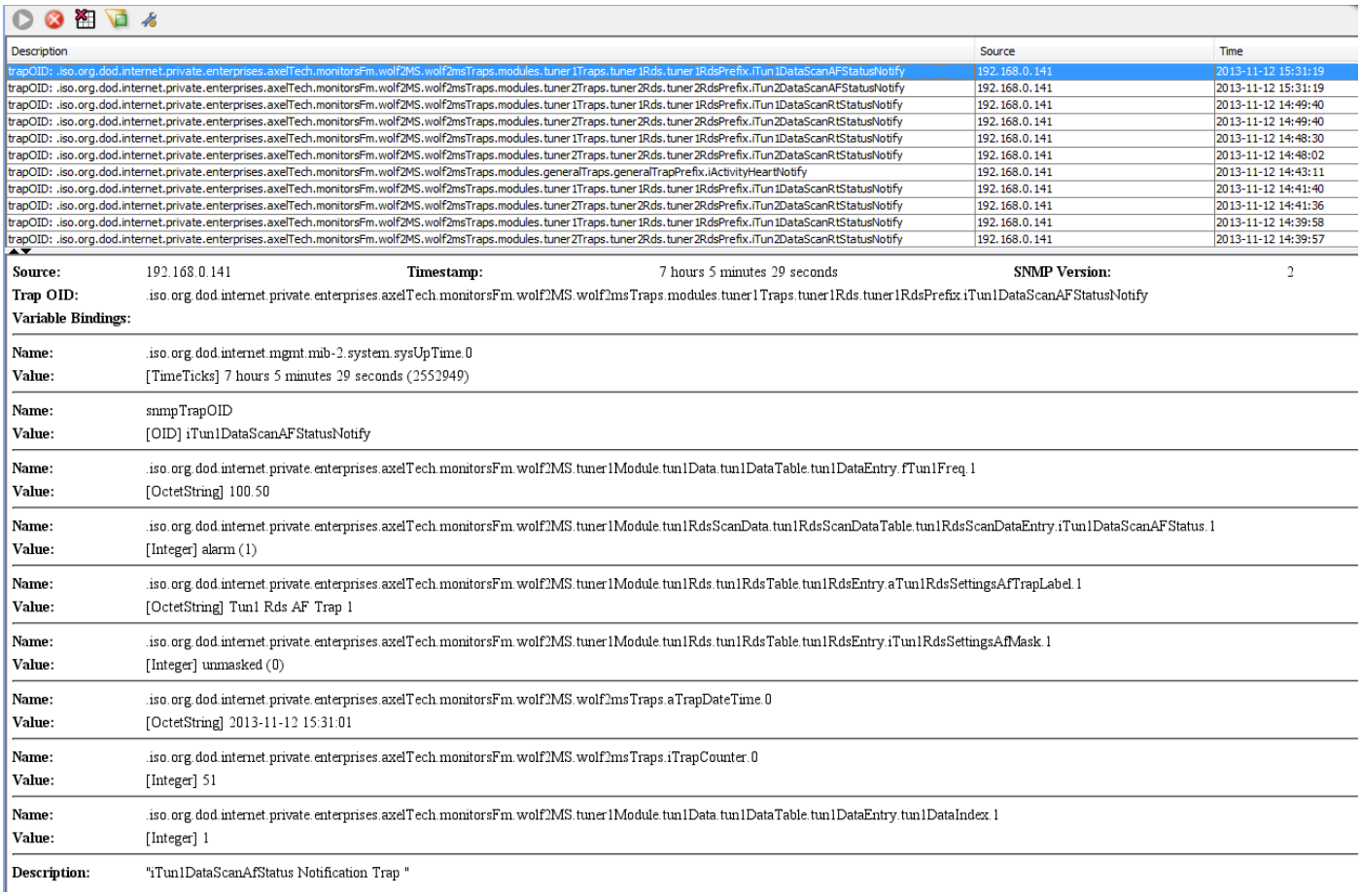



Under the alarm condition the RDS alarm led (we have associated the AF alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and Validation Time=20 sec. - Hold Time=15 sec. as depicted below.




The behavior is similar to other tests.



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanAFStatusNotify | 192.168.0.141 | 2013-11-12 15:31:19 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanAFStatusNotify | 192.168.0.141 | 2013-11-12 15:31:19 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:49:40 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:49:40 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:48:30 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:48:02 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.generalTraps.generalTrapPrefix.iActivityHeartNotify | 192.168.0.141 | 2013-11-12 14:43:11 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:41:40 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:41:36 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:39:58 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanRtStatusNotify | 192.168.0.141 | 2013-11-12 14:39:57 |

**Source:** 192.168.0.141 **Timestamp:** 7 hours 5 minutes 29 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanAFStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 7 hours 5 minutes 29 seconds (2552949)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanAFStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanAFStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsAfTrapLabel.1
**Value:** [OctetString] Tun1 Rds AF Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsAfMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-12 15:31:01

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 51

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanAfStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but AF and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

### REPLAY ENABLED TRAPS

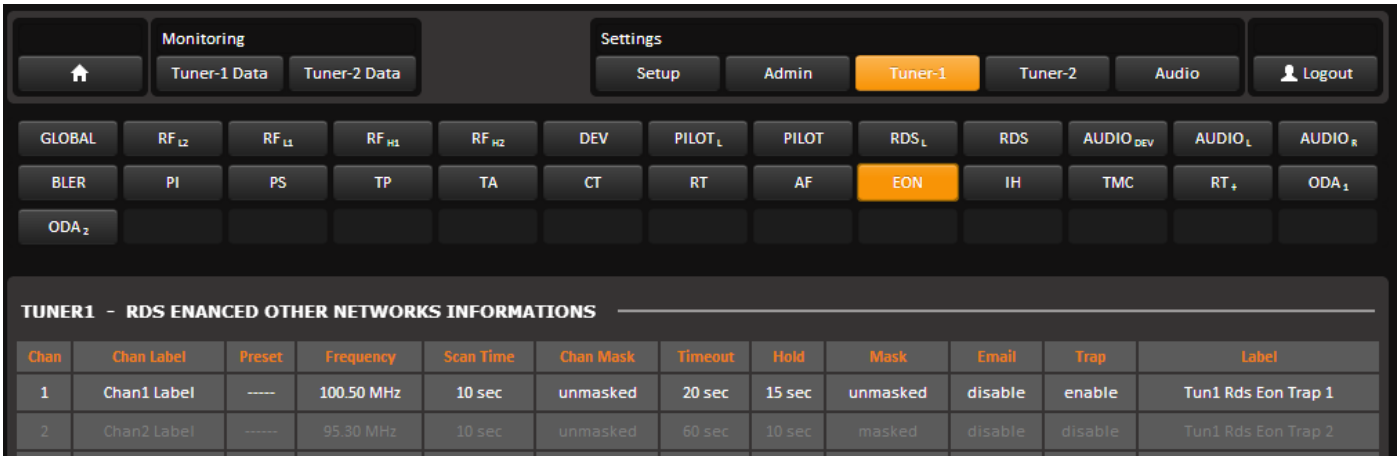
The Rds AF alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

### *16.11.17* ***RDS EON Data test (Tuner-1 Tuner-2)***

This test checks alarms and traps on EON of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

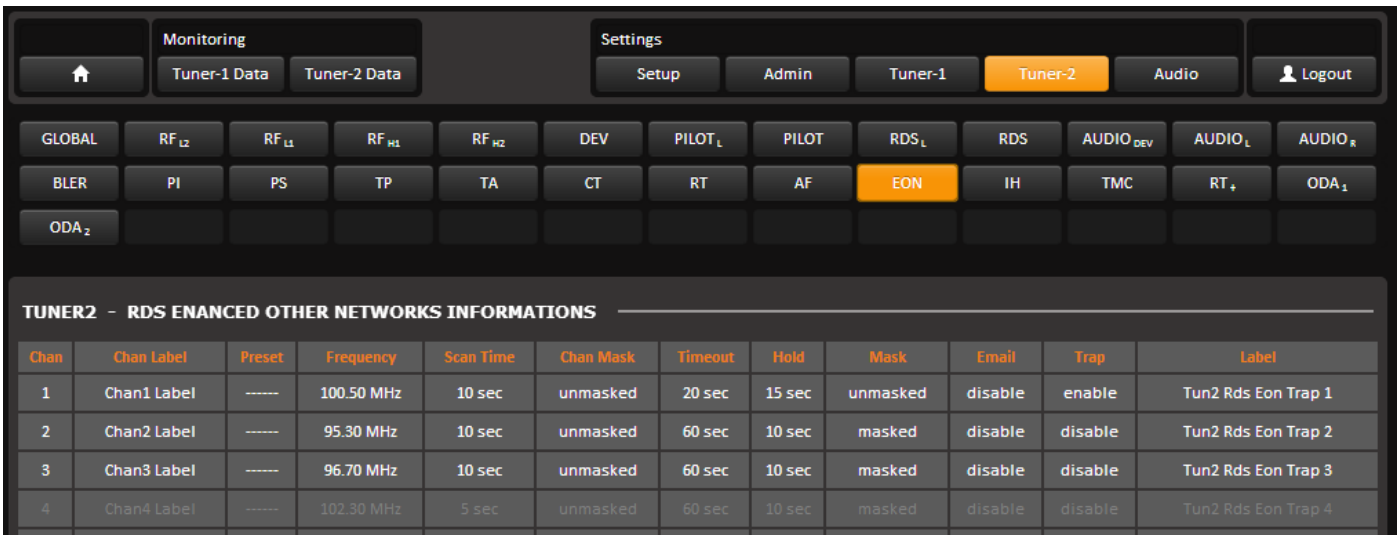
The system can monitor EON presence on tuned radio.
In this test branch Tuned radio has no EON.

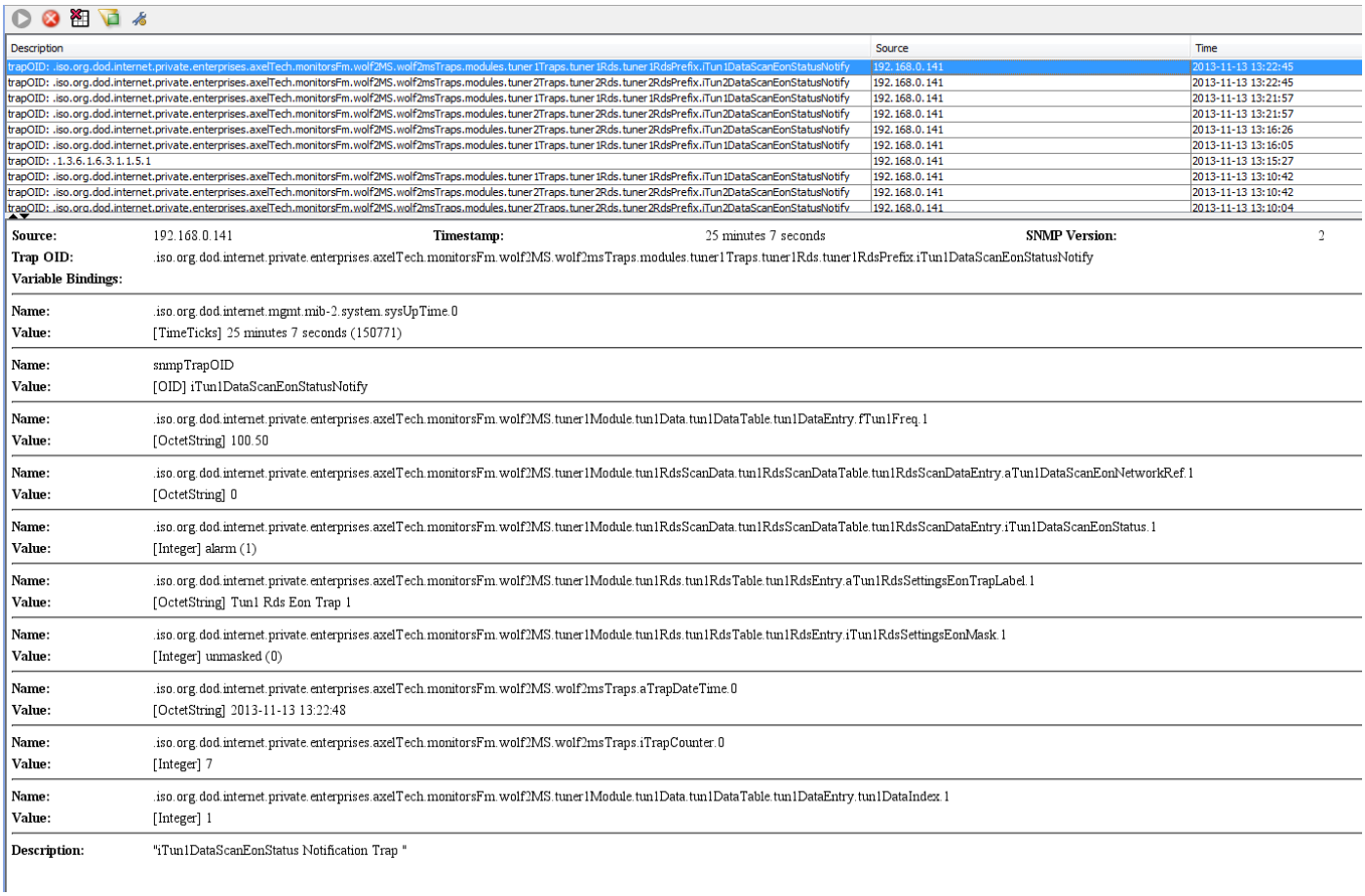
For the Static Mode test we set Timeout=20 sec. and Hold Time=15 sec.




Under the alarm condition the RDS alarm led on (we have associated the EON alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and Timeout=20 sec. - Hold Time=15 sec. as depicted below.





| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:22:45 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:22:45 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:21:57 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:21:57 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:16:26 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:16:05 |
| trapOID: .1.3.6.1.6.3.1.1.5.1 | 192.168.0.141 | 2013-11-13 13:15:27 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:10:42 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:10:42 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2Rds.tuner2RdsPrefix.iTun2DataScanEonStatusNotify | 192.168.0.141 | 2013-11-13 13:10:04 |

**Source:** 192.168.0.141 **Timestamp:** 25 minutes 7 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanEonStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 25 minutes 7 seconds (150771)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanEonStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.aTun1DataScanEonNetworkRef.1
**Value:** [OctetString] 0

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanEonStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsEonTrapLabel.1
**Value:** [OctetString] Tun1 Rds Eon Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsEonMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-13 13:22:48

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 7

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanEonStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but EON and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

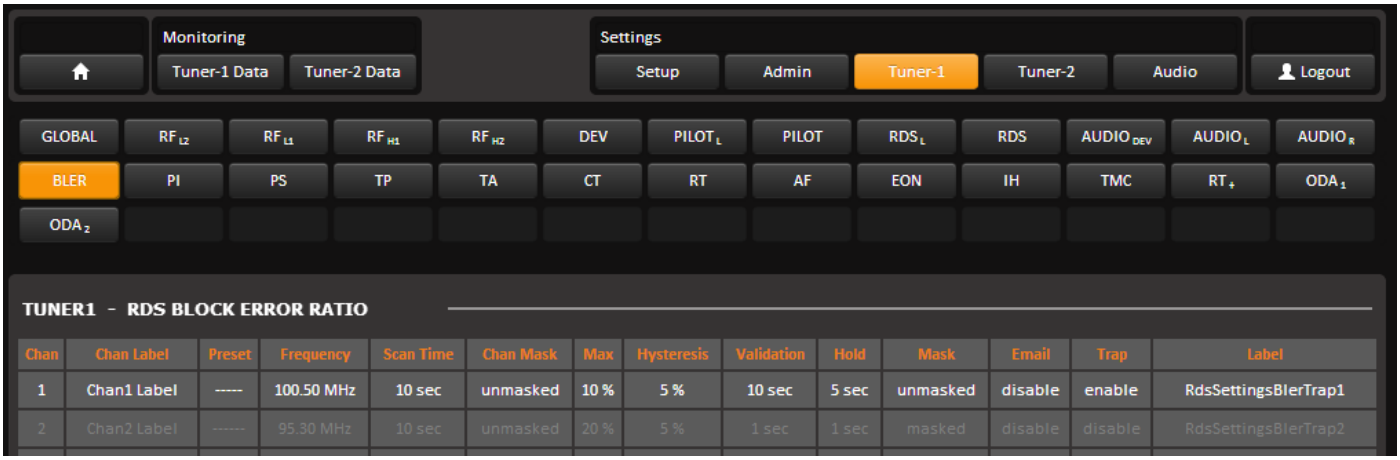
The Rds EON alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

### *16.11.18 RDS BLER Data test (Tuner-1 Tuner-2)*

This test checks alarms and traps on BLER of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

The system can monitor Rds data Block Error Rate (Bler) as signal quality expressed as percents.

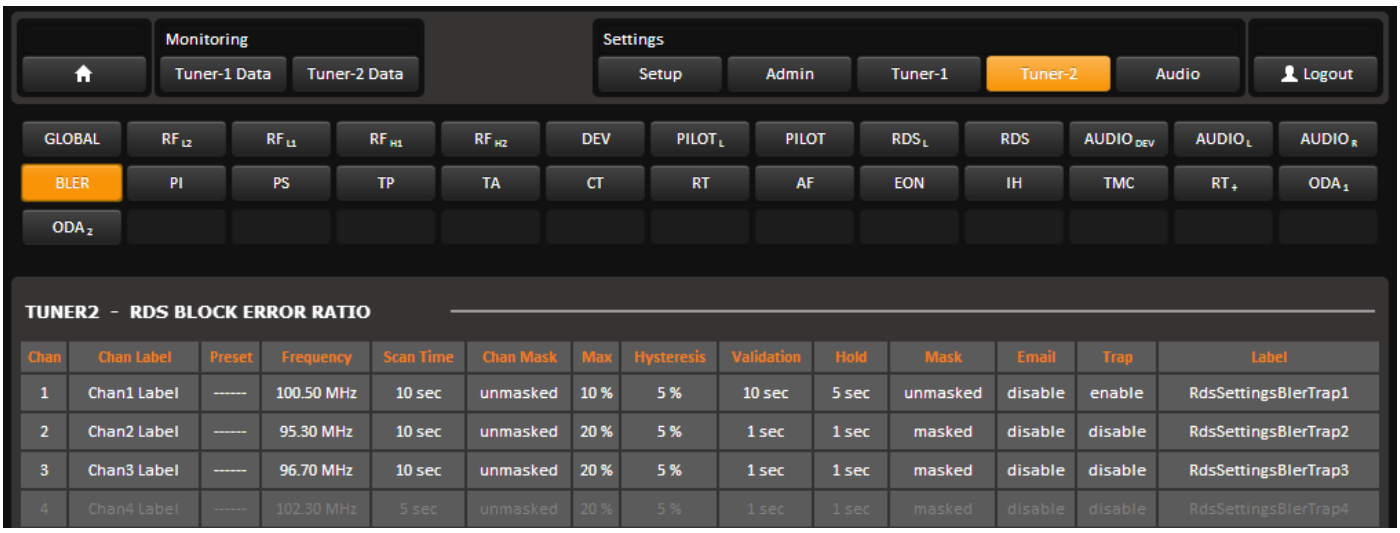
For the Static Mode test we set Max Bler=10% and an Hysteresis=5%, Validation Time=10 sec. and Hold Time=15 sec.



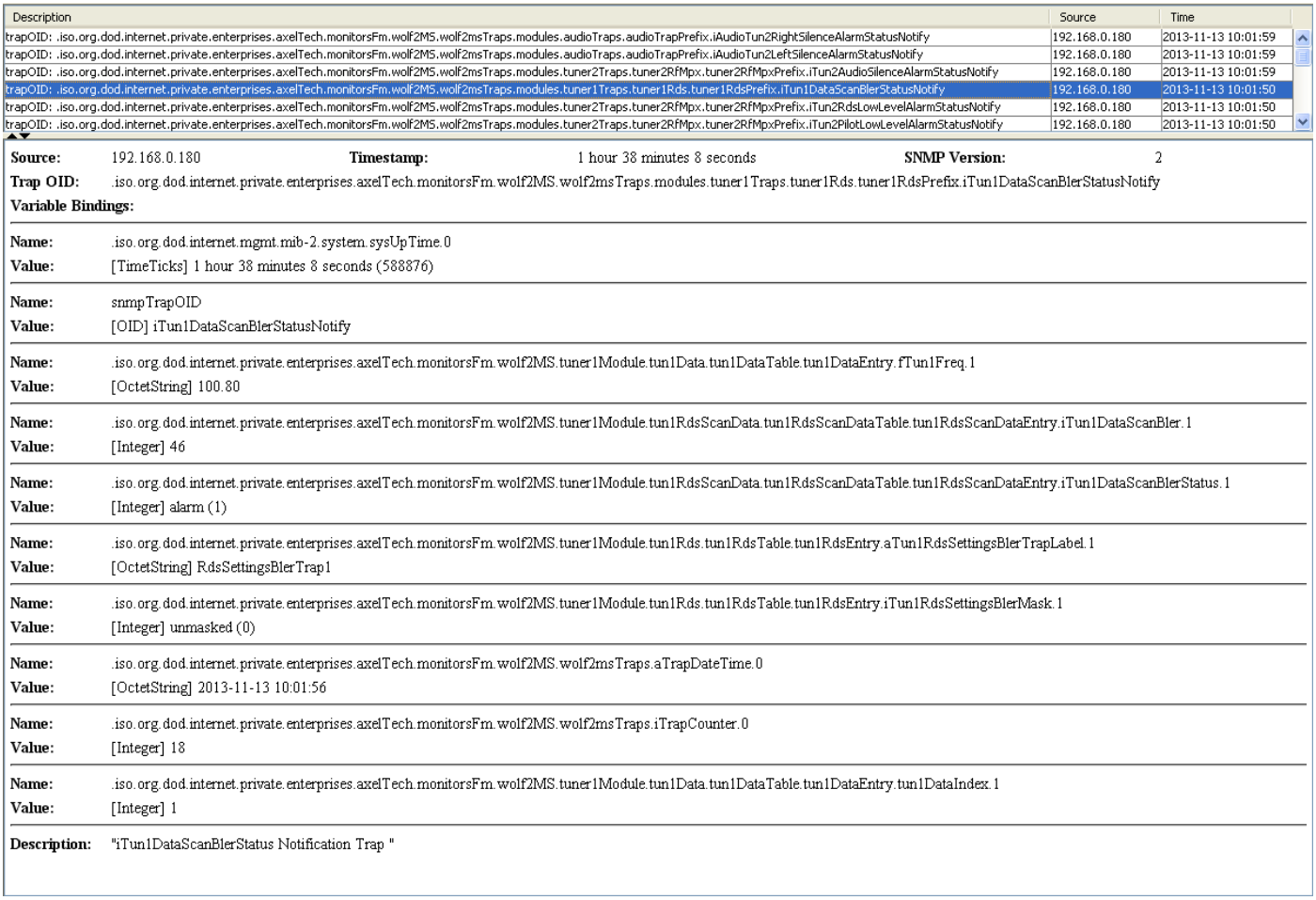

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Max | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 10 % | 5 % | 10 sec | 5 sec | unmasked | disable | enable | RdsSettingsBlerTrap1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 20 % | 5 % | 1 sec | 1 sec | masked | disable | disable | RdsSettingsBlerTrap2 |

Under the alarm condition the RDS alarm led on (we have associated the Bler alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
and Timeout=20 sec. - Hold Time=15 sec. as depicted below.




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Max | Hysteresis | Validation | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ------ | 100.50 MHz | 10 sec | unmasked | 10 % | 5 % | 10 sec | 5 sec | unmasked | disable | enable | RdsSettingsBlerTrap1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 20 % | 5 % | 1 sec | 1 sec | masked | disable | disable | RdsSettingsBlerTrap2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | 20 % | 5 % | 1 sec | 1 sec | masked | disable | disable | RdsSettingsBlerTrap3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | 20 % | 5 % | 1 sec | 1 sec | masked | disable | disable | RdsSettingsBlerTrap4 |



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2RightSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 10:01:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioTun2LeftSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 10:01:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2RfMpx.tuner2RfMpxPrefix.iTun2AudioSilenceAlarmStatusNotify | 192.168.0.180 | 2013-11-13 10:01:59 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanBlerStatusNotify | 192.168.0.180 | 2013-11-13 10:01:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2RfMpx.tuner2RfMpxPrefix.iTun2RdsLowLevelAlarmStatusNotify | 192.168.0.180 | 2013-11-13 10:01:50 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner2Traps.tuner2RfMpx.tuner2RfMpxPrefix.iTun2PilotLowLevelAlarmStatusNotify | 192.168.0.180 | 2013-11-13 10:01:50 |

**Source:** 192.168.0.180 **Timestamp:** 1 hour 38 minutes 8 seconds **SNMP Version:** 2

**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanBlerStatusNotify

**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 1 hour 38 minutes 8 seconds (588876)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanBlerStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.80

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanBler.1
**Value:** [Integer] 46

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanBlerStatus.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsBlerTrapLabel.1
**Value:** [OctetString] RdsSettingsBlerTrap1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsBlerMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-13 10:01:56

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 18

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanBlerStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but AF and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

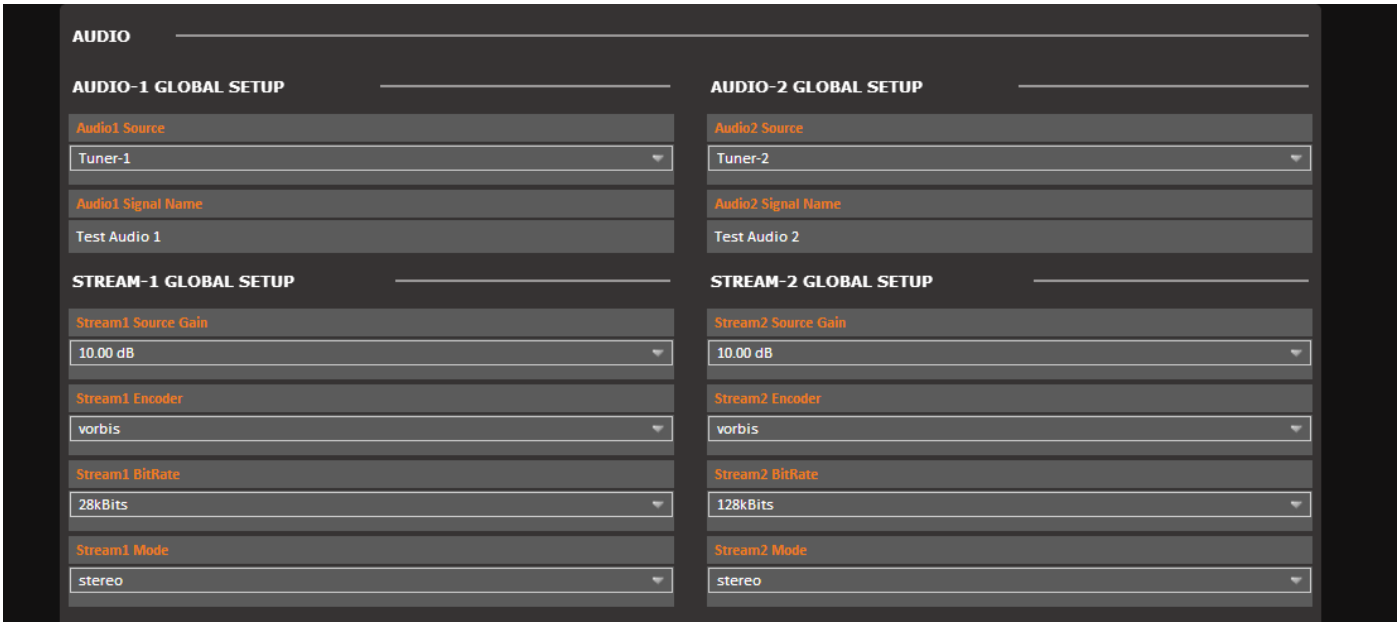
In SmartScan Mode the behavior expected is the same of the normal Scanning mode because this parameter is continuous and always available on the channel.

## REPLAY ENABLED TRAPS

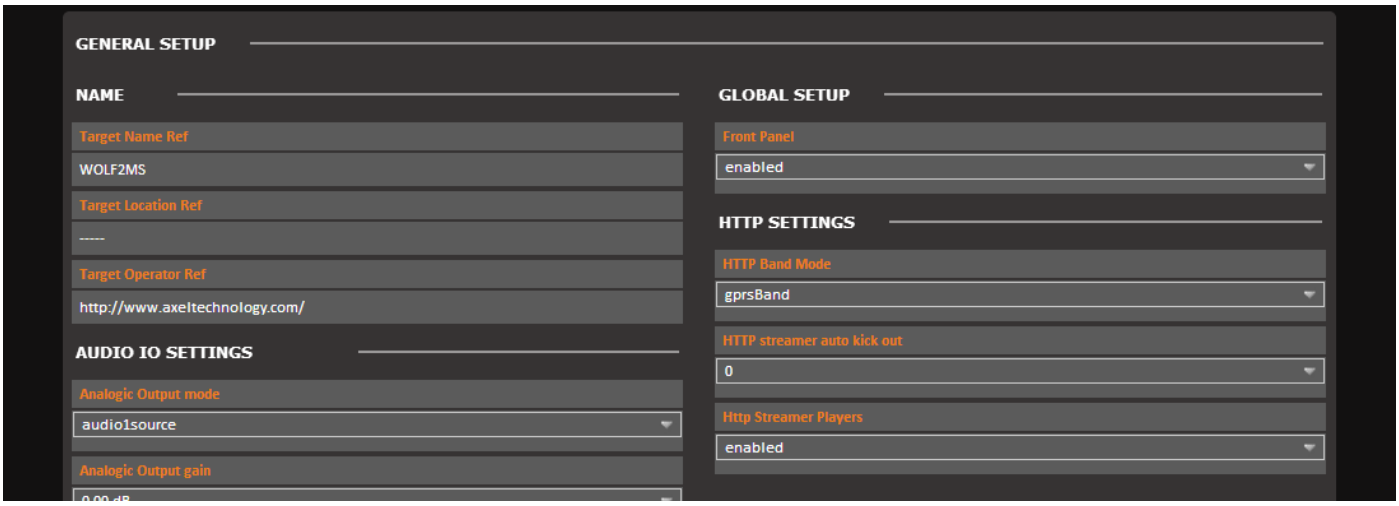
The Rds AF alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

### *16.11.19* ***Audio Streaming***

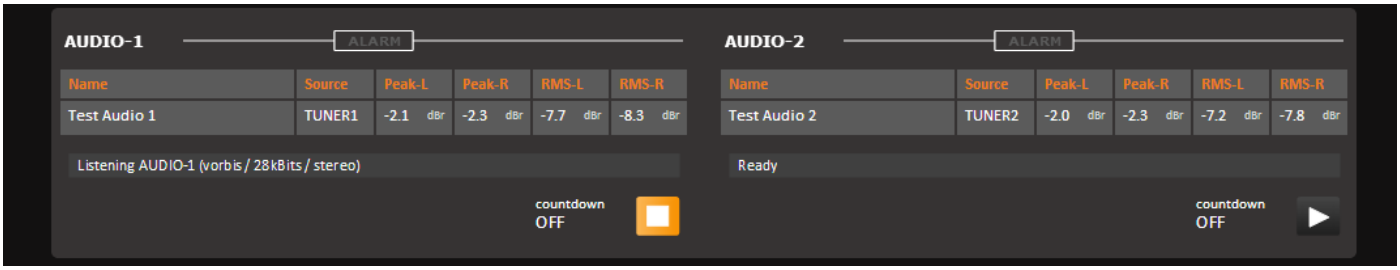
GPRS LINK test.
Select the streamer encoder sources. Set the Stream1 bit rate to 28Kbit/s and stereo.




Select gprsBand for the HTTP Band Mode and the streamers enabled.



Reload the web page (to be sure the gprsMode is activated) and push the play button.




In GPRS mode if one player is in listening mode the page refresh rate will be only one every six second.
In this condition the average bit rate (data + 1 stream) should be about 32 Kbit/sec.
We have focused on the point to give the best performances possible at very low bit rates (lower than 40 Kbits/sec). The encoder has a strong VBR characterization (for example at 28Kbit/sec the instant bit rate sweep from 8 to 40 Kbits/sec, with an average always less or equal 28kbytes. With a muted or simple audio (like a test tone or silence) the bit rate drops down to 8 Kbits/sec, instead with voice or music we have an average value of 28Kbit.
The IceCast server have a 48Kbytes buffer for every stream and instead every client player (VLC and so on) have a different and programmable buffer size (some time expressed in second, but often expressed in Kbytes).
In the instant of the connection, the delay line is expressed in Kbytes, so the same 48Kbytes of buffer can be 14 sec with normal music or 48 seconds in an extreme case of silenced signal.
With a 128 Kbit/sec (a more classic bit rate) we have a delay between 3 to 5 sec. The player creates another buffer locally (usually 64 Kbytes, so the final delay is a complex mixed situation about 20 seconds in the 28Kbit/s example and about 4 seconds in a 128kbits/s case).
So with a real time player is very difficult to estimate the buffer delay, but a recorder can (partially) compensate it.
The Home page players are quite simple and are intended only for occasional check tests . The behavior can be little different in Firefox or Chrome. The peak meters will be visible again in future.

In the next months will be available the OPUS codec and the VORBIS codec will be improved for the bit rates over 48 Kbits/s (full sample rate mode). The VORBIS quality at very low bit rates (under 48 Kbits/s) instead must be considered definitive. By the way the OPUS codec will give better performance only in the middle rate zone (40Kbits/s-96kbits/s) , over 96Kbits the audio quality will be comparable.

### *16.11.20 Note about event failure sampling*

We have a logical problem related to a group of alarms (in general all ones with the "Timeout" in place of the "Validation").
I saw in the TDF report (read too late to take an action on the release) that has been considered wrong the behavior of the timing reported in the PS trap varbinds.
TDF asked that the trap must report the time of the first event out of range and the value in that instant.
The problem is that, with some kind of alarms the failure instant (as well as the wrong sampled value) doesn't exist.
So we have only a moment in which a valid situation or condition isn't happened and that a timer is expired.
Missing this information we decided for this group of alarms to consider the old logic the only one applicable, the same one you are actually considered "KO".
So in the release 0.6.4. you'll find the same situation for "PS","CT","RT","EON" and in the next step "TMC", "RT+", "ODA1" ,"ODA2".
The question is:
If I'm rising an alarm because I waited 70 seconds for a 4A block, or a I waited 50 seconds for a PS sequence and my timer expired, I have only the timeout error as reference, no other values or timings. So the alarm trap time is the same of the failed timeout event .
So, or this logic is accepted or we have to define how a failure past condition (not sampled) happens. I only have the last valid event sampled and the timeout instant (nothing more between them).
For example in the CT case , I have the last valid 4A received, or for the PS the last valid completed sequence.
I can't locate future events easily because I have to consider a scanning complex situation.
---
In the release 0.6.5 We have modified the logic to sample the failure event in the “Timeout case”. The trap will be sent at the timeout expiration but the failure time will be considered some seconds after the last valid event seen with the meaning of “After this time the service stopped to work properly”. This new logic will affect the following alarms (PS,CT,RT,EON,TMC,RT+,ODA1,ODA2,IH)

### *16.11.21* ***RDS InHouse (Tuner-1 Tuner-2)***

This test checks alarms and traps on IH service of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

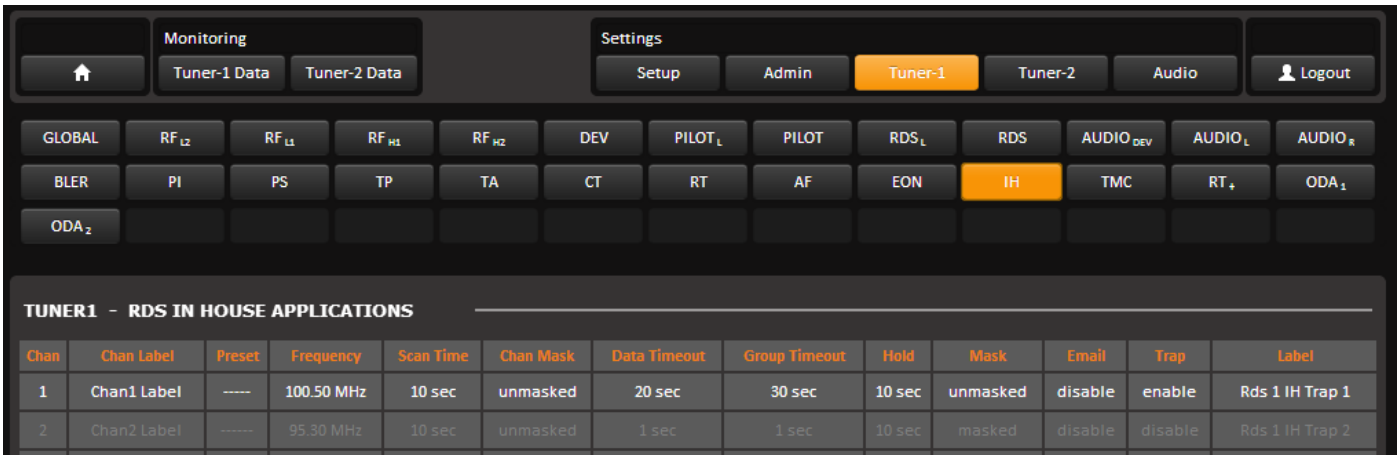
The system can monitor IH (6A) groups presence on tuned radio.
It can also monitor IH data flow (by monitoring content variations).

When 6A groups are not received for a certain time (selectable by Group Timeout) an error condition raises up.
If carried data don't change for a certain time (selectable by Data Timeout) an error condition raises up.

On web client IH field shows the service status:

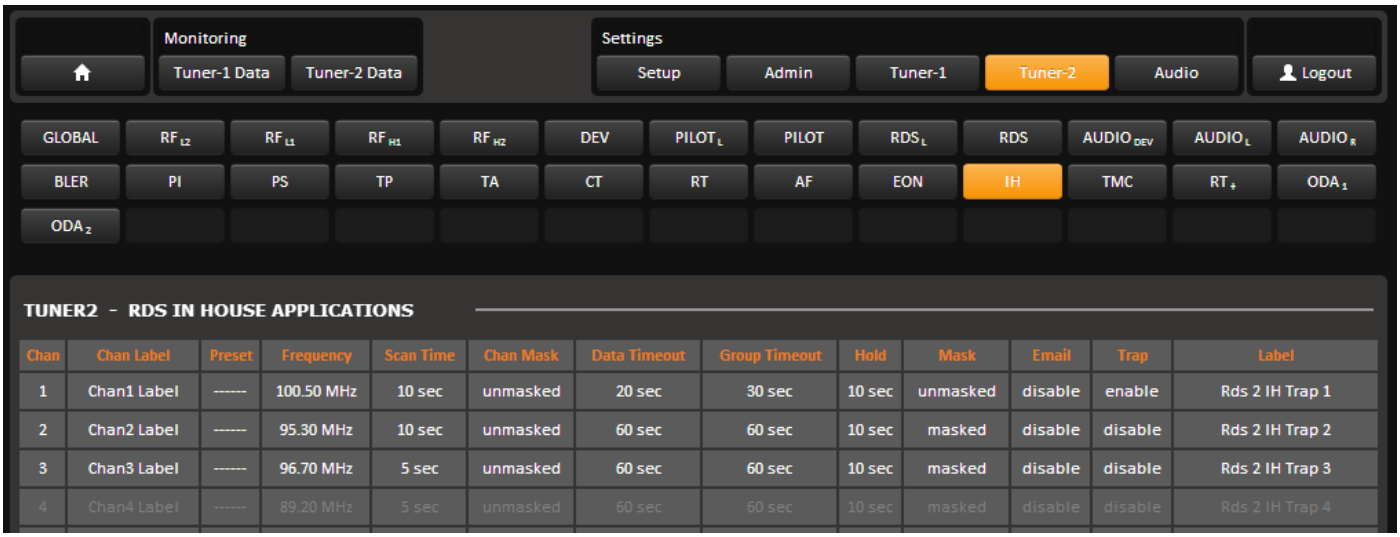

If 6A groups are correctly received and data content changes (in respect of timeouts) IH field print is "OK".
When no IH service is broadcasted or the time between 6A groups exceeds Timeout, IH field print is "NO SERV".
When IH data content don't change before Timeout, IH field print is "NO DATA".

For the Static Mode test we set Data Timeout=20 sec. Group Timeout=30 sec. and Hold Time=15 sec.



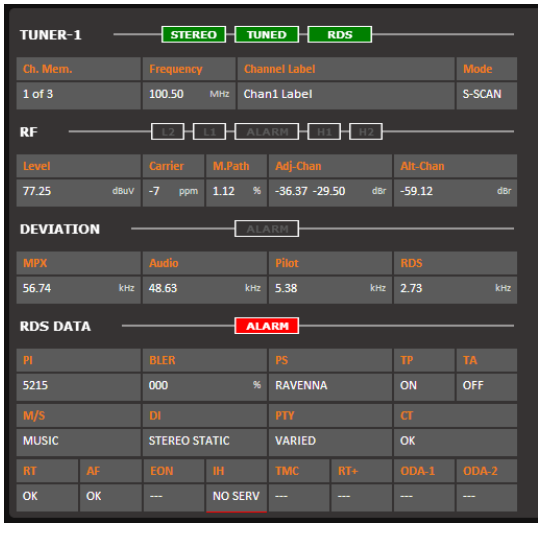

Under the alarm condition the RDS alarm led on (we have associated the IH alarm to the panel led Rds error) on the panel must be on (not flashing) and clicking on the channel number of the correspondent tuner the RDS error will be displayed ("RDS DATA").

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
Data Timeout=20 sec. - Group Timeout=30 sec. - Hold Time=15 sec. as depicted below.



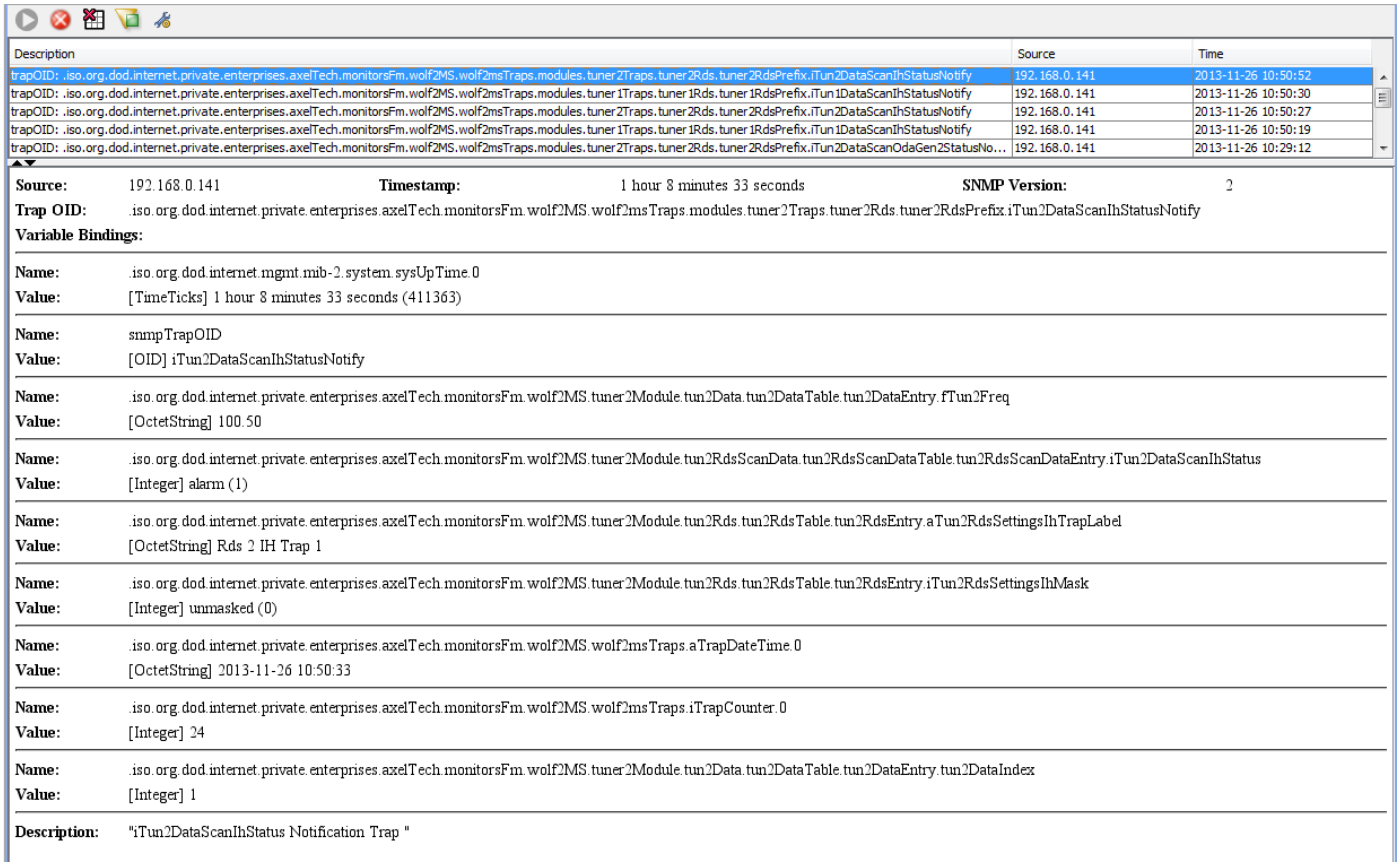

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Data Timeout | Group Timeout | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ------ | 100.50 MHz | 10 sec | unmasked | 20 sec | 30 sec | 10 sec | unmasked | disable | enable | Rds 2 IH Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Rds 2 IH Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Rds 2 IH Trap 3 |
| 4 | Chan4 Label | ------ | 89.20 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Rds 2 IH Trap 4 |

Tested in SmartScan with the same setup depicted above for 'normal' Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: "1 of 3 (IH)").

If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If no valid condition is found, system unlocks, normal scan reprises and an alarm condition and/or a trap is reported (see above).
Note that Channel Memory reports normal index display (“1 of 3”).

If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).




The traps will be sent in the instant the alarm rises up, but IH and the time in the var-binds will be related to the first failed check.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

### REPLAY ENABLED TRAPS

The Rds IH alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

## *16.11.22* ***RDS TMC (Tuner-1 Tuner-2)***

This test checks alarms and traps on Trafic Message Channel service of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

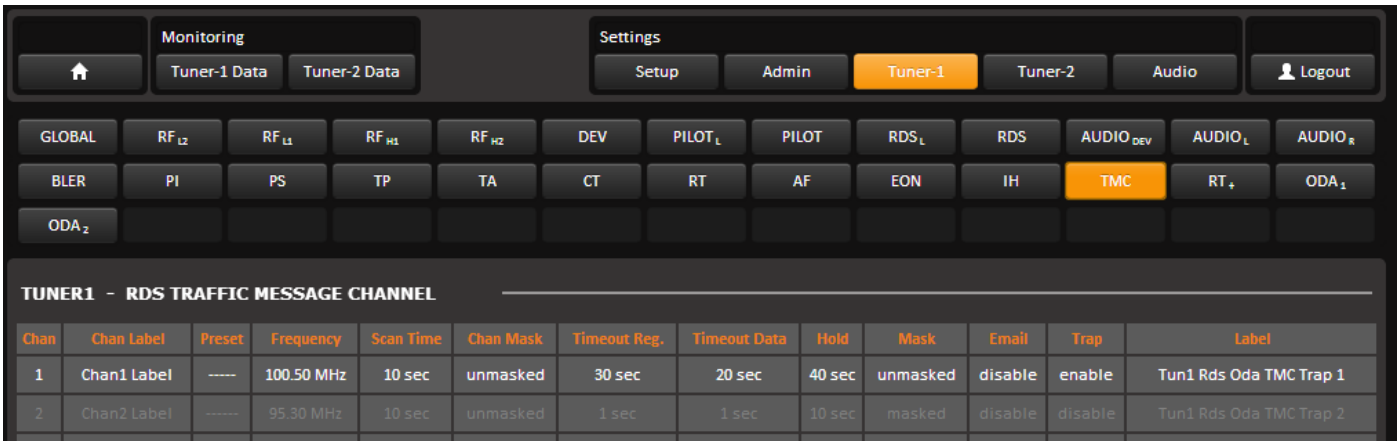
The system can monitor TMC registered groups presence on tuned radio.
It can also monitor TMC data flow (by monitoring associated data group presence) and TMC service registration (3A groups with specific TMC AID).

When TMC data groups (usually 8A) are not received for a certain time (selectable by Timeout Data) an error condition raises up.
Similarly when TMC registration groups (3A) are not received for a certain time (selectable by Timeout Reg.) an error condition raises up.

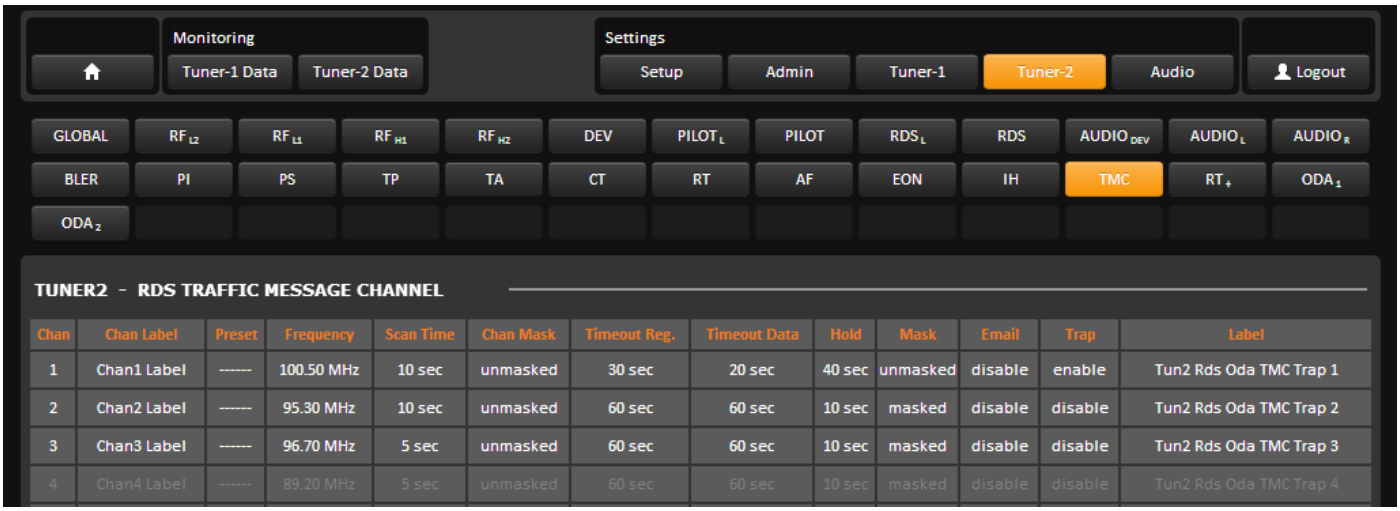
On web client TMC field shows the service status:


If TMC service data is correctly received (in respect of timeouts) TMC field print is “OK”.
When no TMC service is broadcasted, TMC field print is “NO SERV”.
When no TMC groups data are received but 3A TMC service registration groups are broadcasted, TMC field print is “NO DATA”.
Finally, when no 3A TMC service registration groups are received but TMC data groups are, TMC field print is “NO REG”.

For the test in Static Mode we have tuned on 100.5 MHz a radio that broadcast TMC service.
We set Data Timeout=20 sec. Group Timeout=30 sec. and Hold Time=40 sec.




Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
Data Timeout=20 sec. – Reg. Timeout=30 sec. - Hold Time=40 sec. as depicted below.

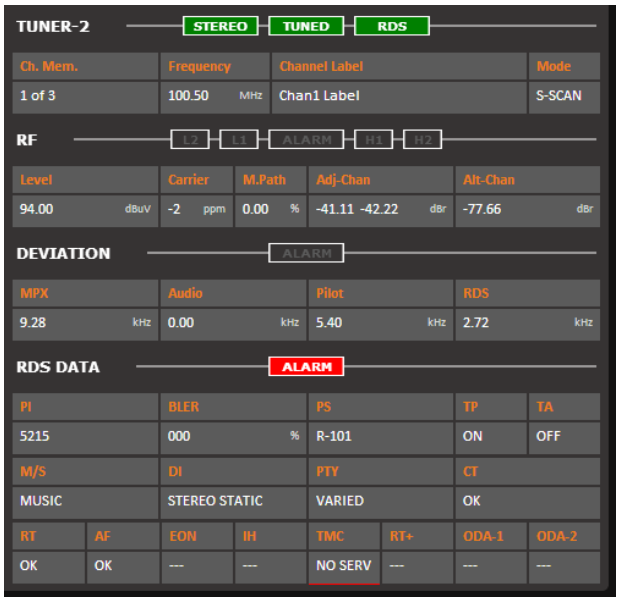


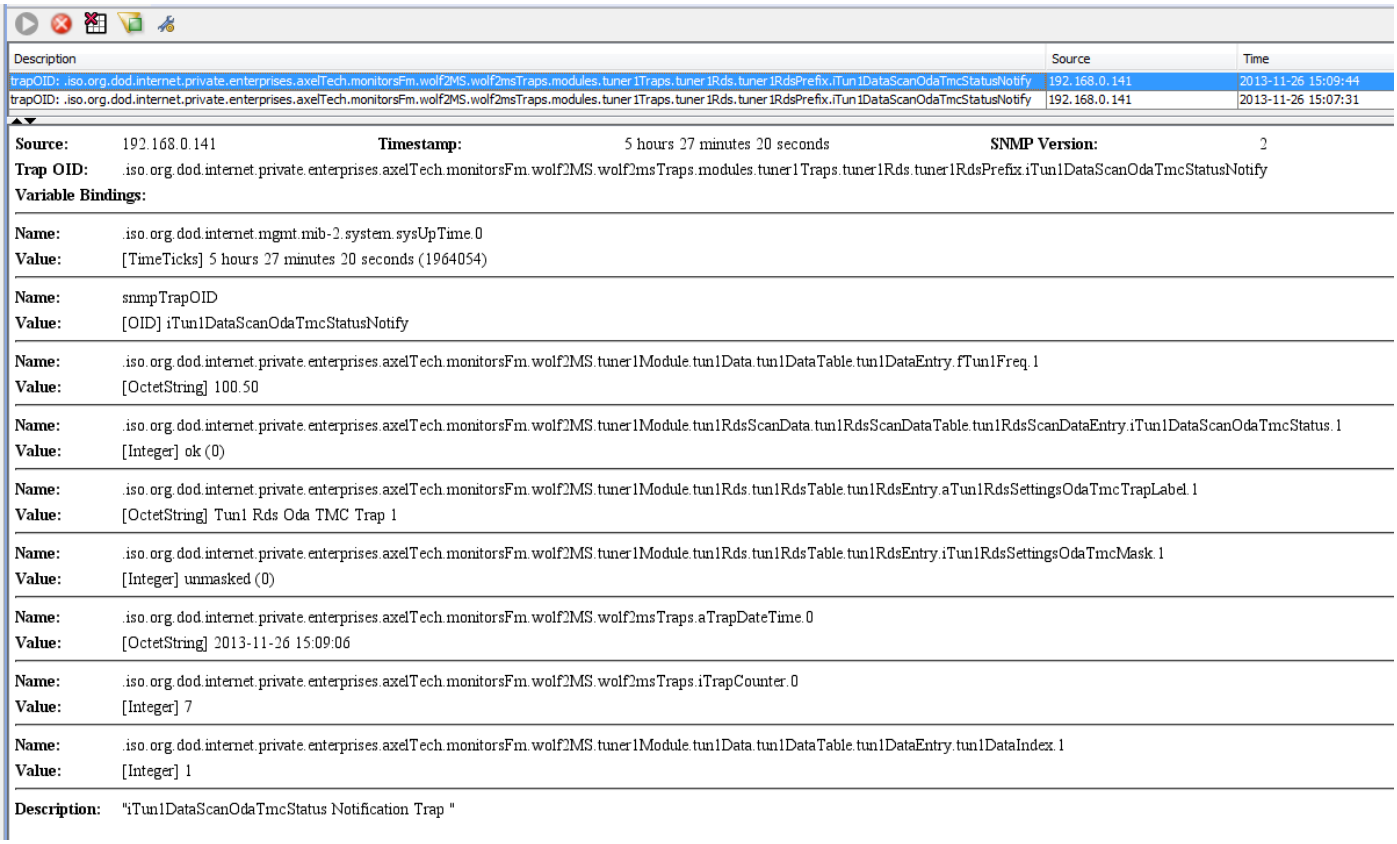

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Timeout Reg. | Timeout Data | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ------ | 100.50 MHz | 10 sec | unmasked | 30 sec | 20 sec | 40 sec | unmasked | disable | enable | Tun2 Rds Oda TMC Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda TMC Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda TMC Trap 3 |
| 4 | Chan4 Label | ------ | 89.20 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda TMC Trap 4 |

Tested in SmartScan with the same setup depicted above for 'normal' Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: "1 of 3 (TMC)").


If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If no valid condition is found, system unlocks, normal scan reprises and an alarm condition and/or a trap is reported (see above).
Note that Channel Memory reports normal index display ("1 of 3").

If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaTmcStatusNotify | 192.168.0.141 | 2013-11-26 15:09:44 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaTmcStatusNotify | 192.168.0.141 | 2013-11-26 15:07:31 |

**Source:** 192.168.0.141 **Timestamp:** 5 hours 27 minutes 20 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaTmcStatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 5 hours 27 minutes 20 seconds (1964054)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanOdaTmcStatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanOdaTmcStatus.1
**Value:** [Integer] ok (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsOdaTmcTrapLabel.1
**Value:** [OctetString] Tun1 Rds Oda TMC Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsOdaTmcMask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-26 15:09:06

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 7

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanOdaTmcStatus Notification Trap "

The traps will be sent in the instant the alarm rises up, but TMC and the time in the var-binds will be related to a time antecedent trap signal.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

### REPLAY ENABLED TRAPS

The Rds TMC alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

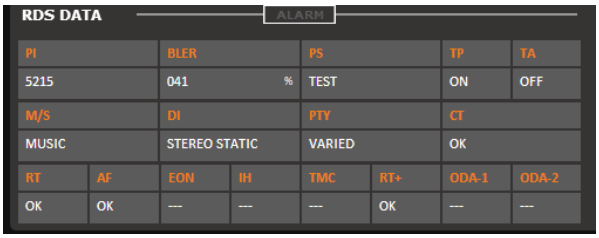
### *16.11.23* ***RDS RT+ (Tuner-1 Tuner-2)***

This test checks alarms and traps on RadioText Plus service of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners.

The system can monitor RT+ registered groups presence on tuned radio.
It can also monitor RT+ data flow (by monitoring associated data group presence) and RT+ service registration (3A groups with specific RT+ AID).

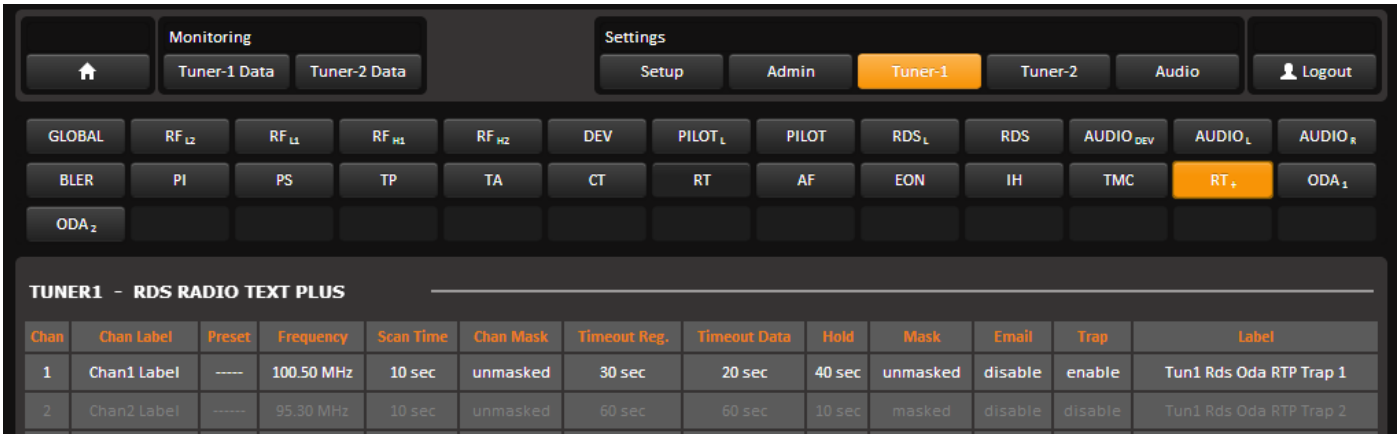
When RT+ data groups (usually 12A) are not received for a certain time (selectable by Timeout Data) an error condition raises up.
Similarly when RT+ registration groups (3A) are not received for a certain time (selectable by Timeout Reg.) an error condition raises up.

On web client RT+ field shows the service status:

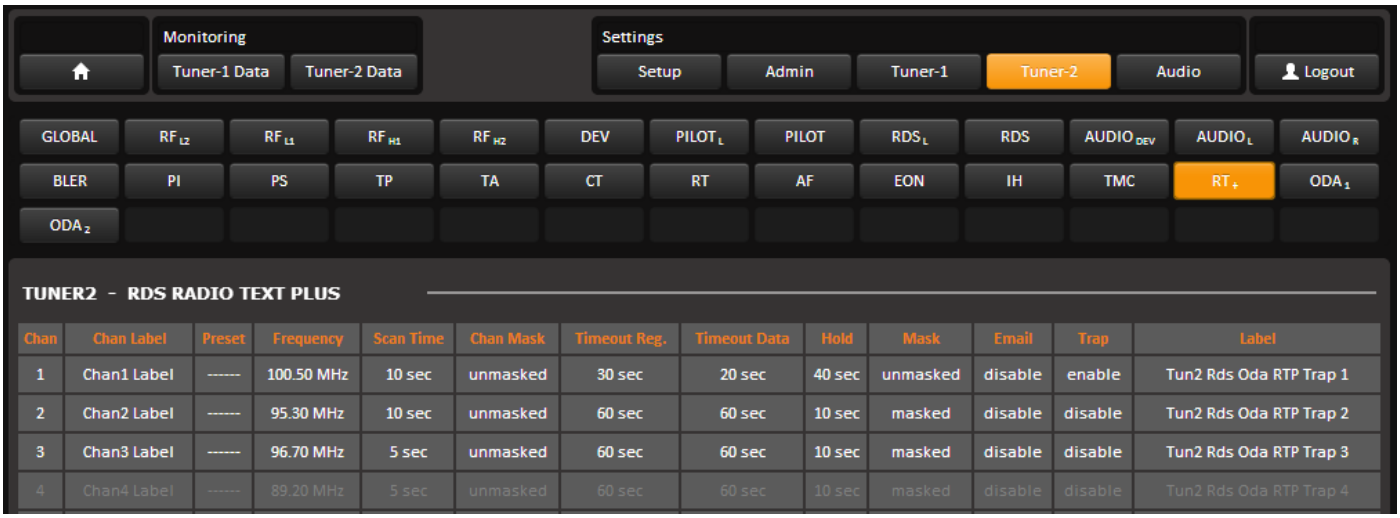



If RT+ service data is correctly received (in respect of timeouts) RT+ field print is “OK”.
When no RT+ service is broadcasted, RT+ field print is “NO SERV”.
When no RT+ groups data are received but 3A RT+ service registration groups are broadcasted, RT+ field print is “NO DATA”.
Finally, when no 3A RT+ service registration groups are received but RT+ data groups are, RT+ field print is “NO REG”.

For the test in Static Mode we have tuned on 100.5 MHz a radio that broadcast RT+ service.
We set Data Timeout=20 sec. Group Timeout=30 sec. and Hold Time=40 sec.




Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
Data Timeout=20 sec. – Reg. Timeout=30 sec. - Hold Time=40 sec. as depicted below.

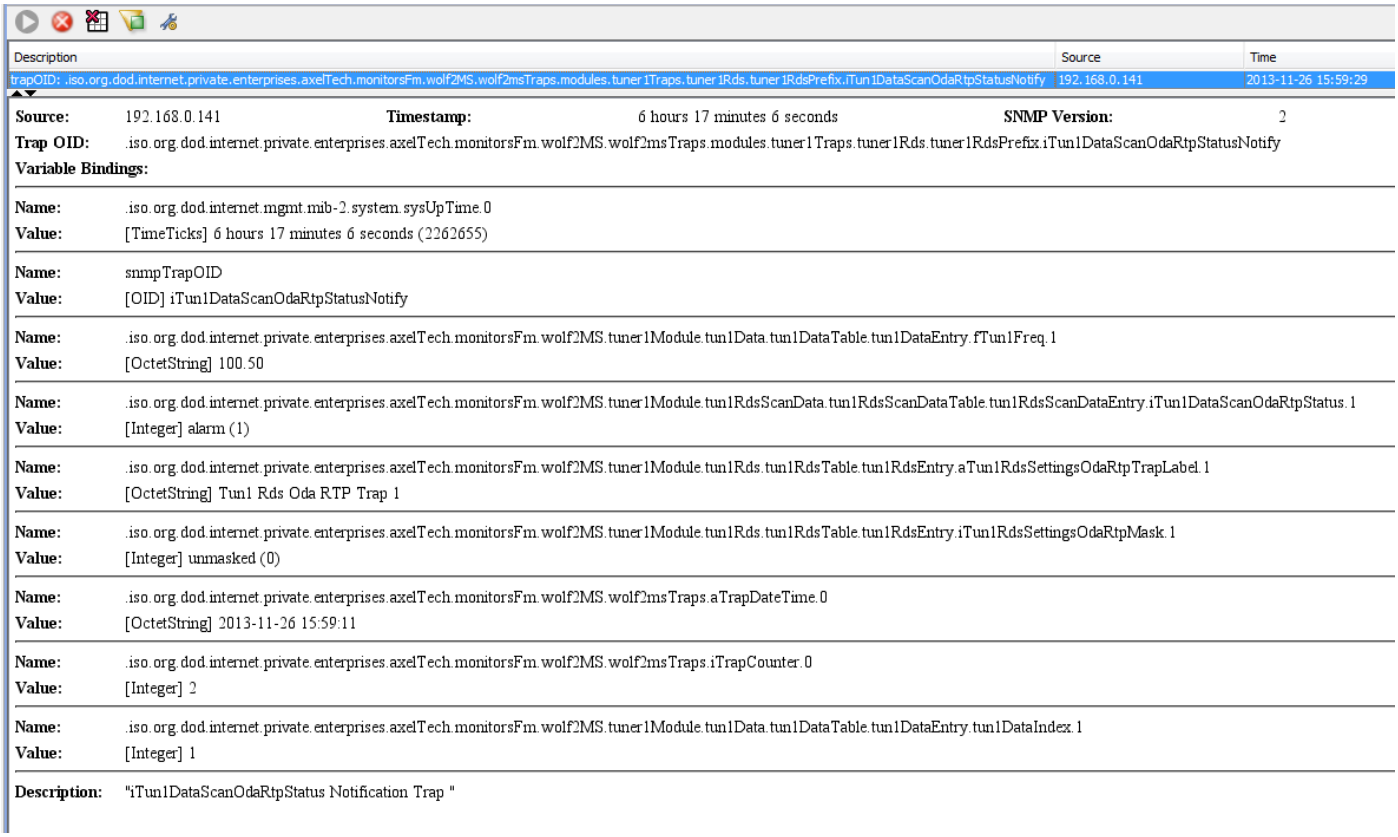



| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | Timeout Reg. | Timeout Data | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ------ | 100.50 MHz | 10 sec | unmasked | 30 sec | 20 sec | 40 sec | unmasked | disable | enable | Tun2 Rds Oda RTP Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda RTP Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda RTP Trap 3 |
| 4 | Chan4 Label | ------ | 89.20 MHz | 5 sec | unmasked | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun2 Rds Oda RTP Trap 4 |

Tested in SmartScan with the same setup depicted above for 'normal' Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: "1 of 3 (RTP)").


If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If no valid condition is found, system unlocks, normal scan reprises and an alarm condition and/or a trap is reported (see above).
Note that Channel Memory reports normal index display ("1 of 3").

If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).


The traps will be sent in the instant the alarm rises up, but RT+ and the time in the var-binds will be related to a time antecedent trap signal.
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

### REPLAY ENABLED TRAPS

The Rds RT+ alarm trap are replayed with its original status, time and value. Trap Counter is normally incremented.
All data and parameters are available in the MIB L3-5 to set and test this configuration.

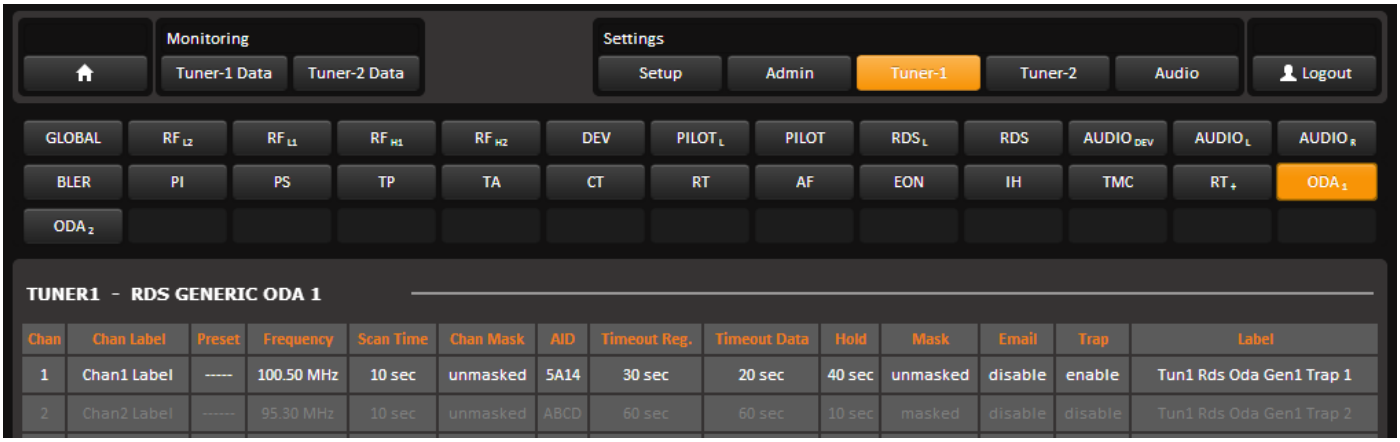
### *16.11.24* ***RDS ODA-1 ODA-2 (Tuner-1 Tuner-2)***

This test checks alarms and traps on ODA services of a Radio tuned on frequency 100.5MHz.
The test was carried out on both tuners and performed on each ODA service.

The system can monitor either two user specific registered ODA services on tuned radio.
Control parameters are similar to those one of TMC and RT+. In addition we found an input mask for the Application ID (AID) related to each ODA service (a four digit hexadecimal field).

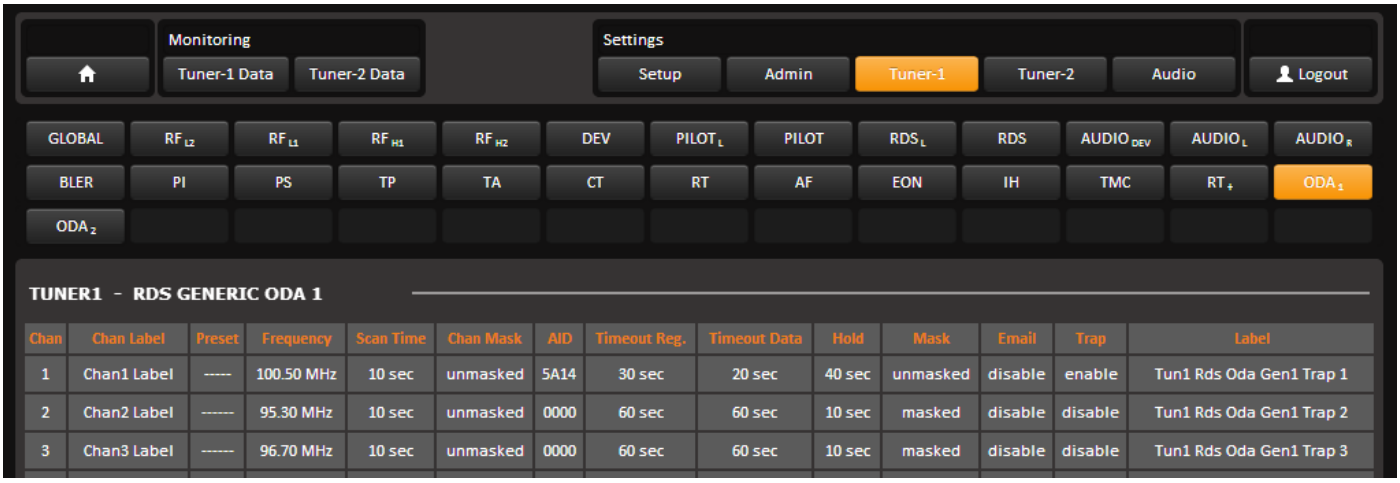
Alarm conditions raise up as we've seen in TMC and RT+ tests. Moreover, like as for TMC and RT+, data prints (e.g. "NO DATA", "NO REG", etc.) follow the same rules.

For the test in Static Mode we have tuned on 100.5 MHz a radio that broadcast an ODA1 service with AID=5A14.
We set Data Timeout=20 sec. Group Timeout=30 sec. and Hold Time=40 sec.




| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | AID | Timeout Reg. | Timeout Data | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 5A14 | 30 sec | 20 sec | 40 sec | unmasked | disable | enable | Tun1 Rds Oda Gen1 Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | ABCD | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen1 Trap 2 |

Tested in Scan mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
AID=5A14 - Data Timeout=20 sec. – Reg. Timeout=30 sec. - Hold Time=40 sec. as depicted below.

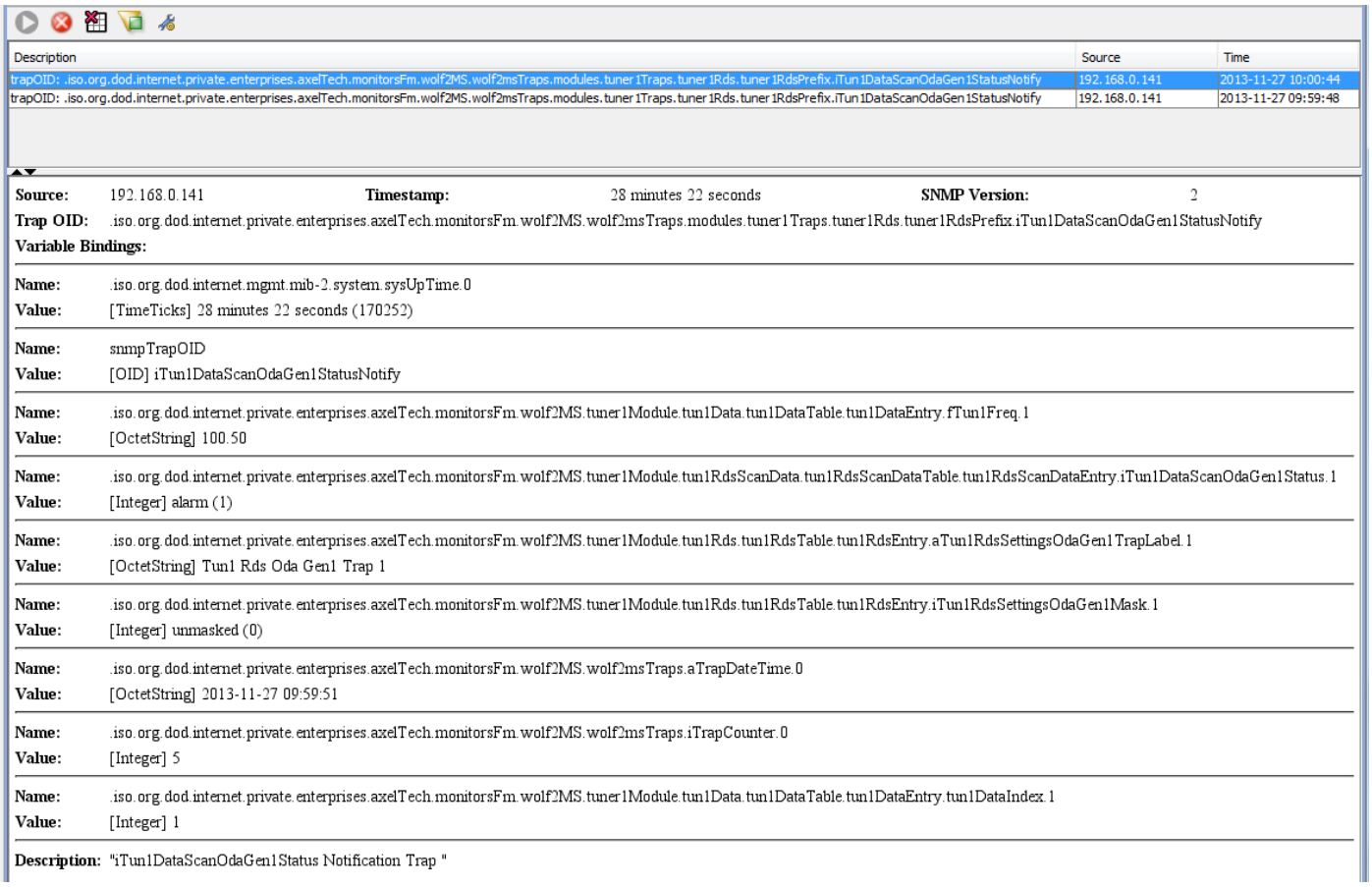



| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | AID | Timeout Reg. | Timeout Data | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 5A14 | 30 sec | 20 sec | 40 sec | unmasked | disable | enable | Tun1 Rds Oda Gen1 Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 0000 | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen1 Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | 0000 | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen1 Trap 3 |

Tested in SmartScan with the same setup depicted above for 'normal' Scan Mode.
If an alarm condition is found on a channel, instead of state an alarm condition, system stops on channel for a period (depending on tested service that cause alarm condition) collecting more data. In this state no alarm or Trap was reported. The Channel Memory index reports the cause(s) of the stop (see below: "1 of 3 (ODA1)").


If a valid (no alarm) condition is found in this time, system unlocks and normal scan reprises.
If no valid condition is found, system unlocks, normal scan reprises and an alarm condition and/or a trap is reported (see above).
Note that Channel Memory reports normal index display (“1 of 3”).

If alarm condition persists, after a while the system stops again on channel and the procedure restarts (note that now the alarm condition status ON persists).



| Description | Source | Time |
|---|---|---|
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaGen1StatusNotify | 192.168.0.141 | 2013-11-27 10:00:44 |
| trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaGen1StatusNotify | 192.168.0.141 | 2013-11-27 09:59:48 |

**Source:** 192.168.0.141 **Timestamp:** 28 minutes 22 seconds **SNMP Version:** 2
**Trap OID:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.tuner1Traps.tuner1Rds.tuner1RdsPrefix.iTun1DataScanOdaGen1StatusNotify
**Variable Bindings:**

**Name:** .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
**Value:** [TimeTicks] 28 minutes 22 seconds (170252)

**Name:** snmpTrapOID
**Value:** [OID] iTun1DataScanOdaGen1StatusNotify

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.fTun1Freq.1
**Value:** [OctetString] 100.50

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1RdsScanData.tun1RdsScanDataTable.tun1RdsScanDataEntry.iTun1DataScanOdaGen1Status.1
**Value:** [Integer] alarm (1)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.aTun1RdsSettingsOdaGen1TrapLabel.1
**Value:** [OctetString] Tun1 Rds Oda Gen1 Trap 1

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Rds.tun1RdsTable.tun1RdsEntry.iTun1RdsSettingsOdaGen1Mask.1
**Value:** [Integer] unmasked (0)

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
**Value:** [OctetString] 2013-11-27 09:59:51

**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
**Value:** [Integer] 5

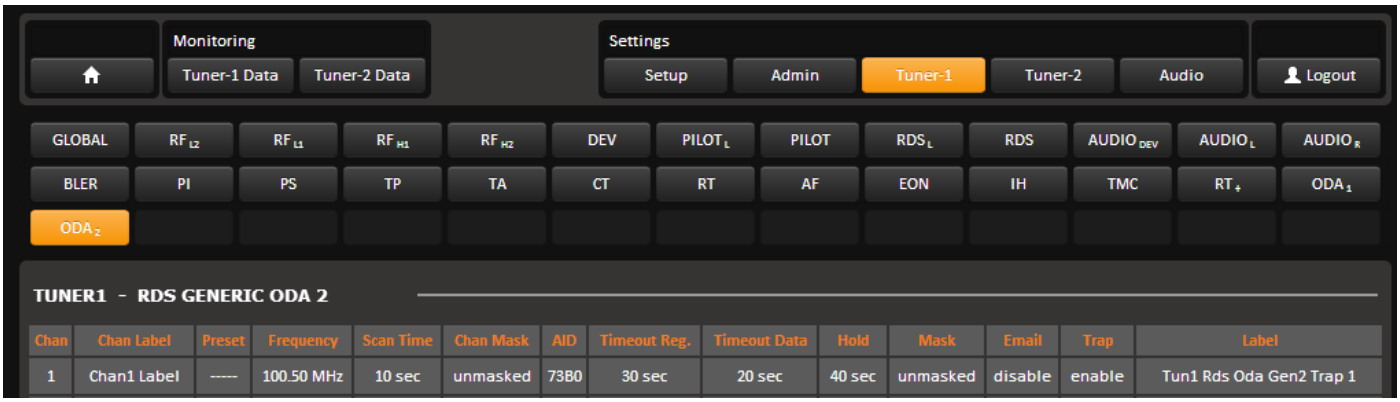
**Name:** .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.tuner1Module.tun1Data.tun1DataTable.tun1DataEntry.tun1DataIndex.1
**Value:** [Integer] 1

**Description:** "iTun1DataScanOdaGen1Status Notification Trap "

The traps will be sent in the instant the alarm rises up, and ODA and the time in the var-binds will be related to the time the alarm rises up (this is due to a problem of implementation that will be fixed as soon as possible).
Under the alarm condition the RDS alarm led on the panel must be on (flashing if the alarms are more than one on the channel list) and clicking on the channel number of the correspondent tuner the RDS error will be displayed (“RDS DATA”).
In case of more errors on the related channel, they will rotate for about 30 seconds in a sequence carousel.

The same tests are performed on ODA2 with this configuration:

For the test in Static Mode we have tuned on 100.5 MHz a radio that broadcast an ODA2 service with AID=73B0.
We set Data Timeout=20 sec. Group Timeout=30 sec. and Hold Time=40 sec.



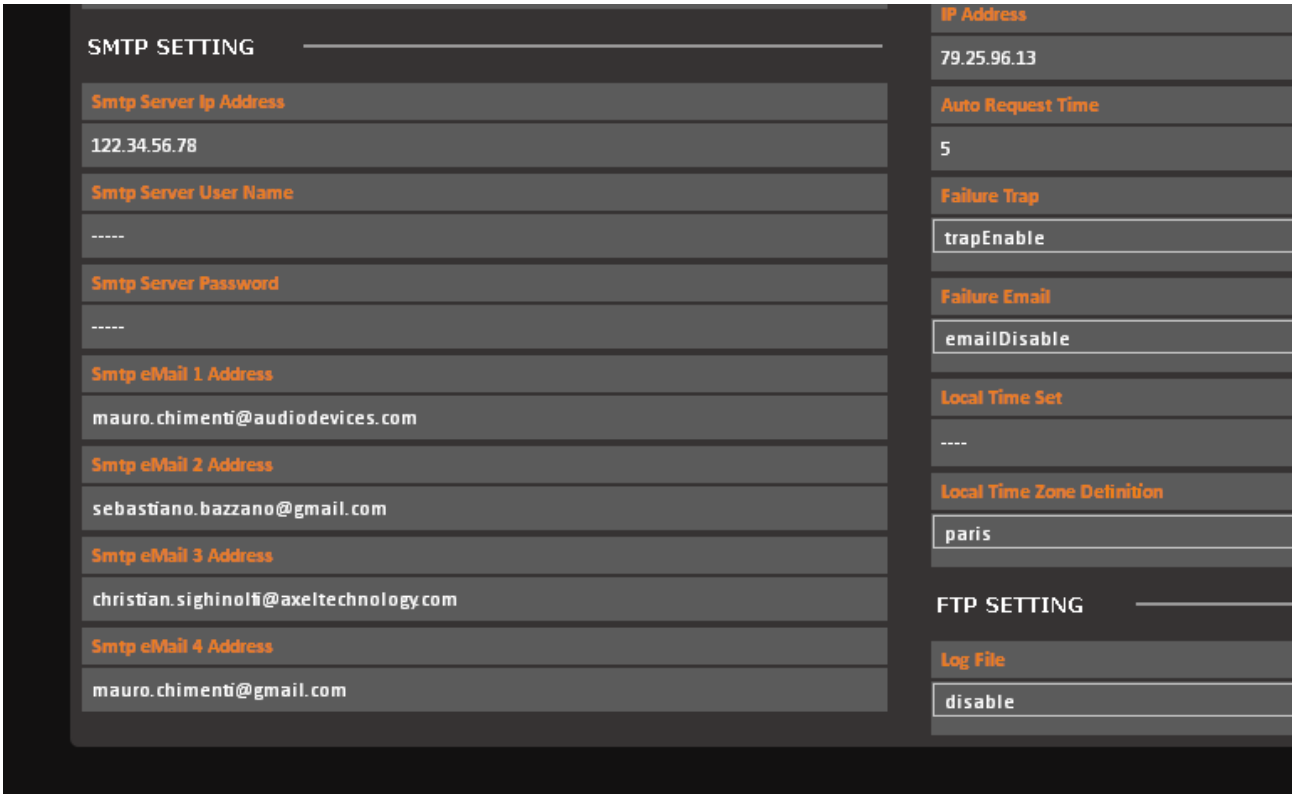

Tested in Scan mode and Smart Scan Mode with 3 frequencies:
F1: 100.5 MHz
F2: 95.3 MHz
F3: 96.7 MHz
AID=73B0 - Data Timeout=20 sec. – Reg. Timeout=30 sec. - Hold Time=40 sec. as depicted below.

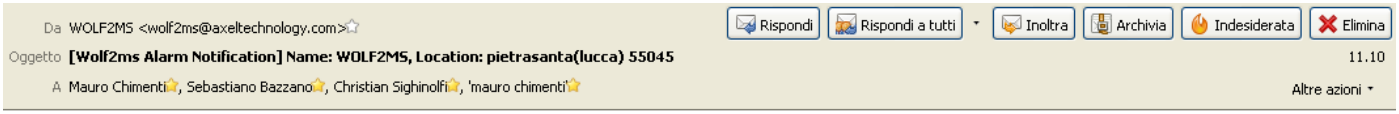

| Chan | Chan Label | Preset | Frequency | Scan Time | Chan Mask | AID | Timeout Reg. | Timeout Data | Hold | Mask | Email | Trap | Label |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan1 Label | ----- | 100.50 MHz | 10 sec | unmasked | 73B0 | 30 sec | 20 sec | 40 sec | unmasked | disable | enable | Tun1 Rds Oda Gen2 Trap 1 |
| 2 | Chan2 Label | ------ | 95.30 MHz | 10 sec | unmasked | 0000 | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen2 Trap 2 |
| 3 | Chan3 Label | ------ | 96.70 MHz | 10 sec | unmasked | 0000 | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen2 Trap 3 |
| 4 | Chan4 Label | ------ | 102.30 MHz | 5 sec | unmasked | 0000 | 60 sec | 60 sec | 10 sec | masked | disable | disable | Tun1 Rds Oda Gen2 Trap 4 |

### *16.11.25* ***SMTP***

If an SMTP server Is specified and at least one valid email is available, the wolf2ms SMTP client will try to send a group of notification to the addresses.
All alarms enabled and with the email parameter enabled will be collected with the following logic:
After the first notification, before compiling the email the client waits from 30 to 120 seconds to get more notification possible.
After 30 seconds without any other notification or a max of 120 second with sporadic notifications it tries to send the email.
Actually only SMPT connection without authentication are supported.

To disable the service write 000.000.000.000 in the SMTP server Ip address field. Only a server with the standard default port 25 are supported.

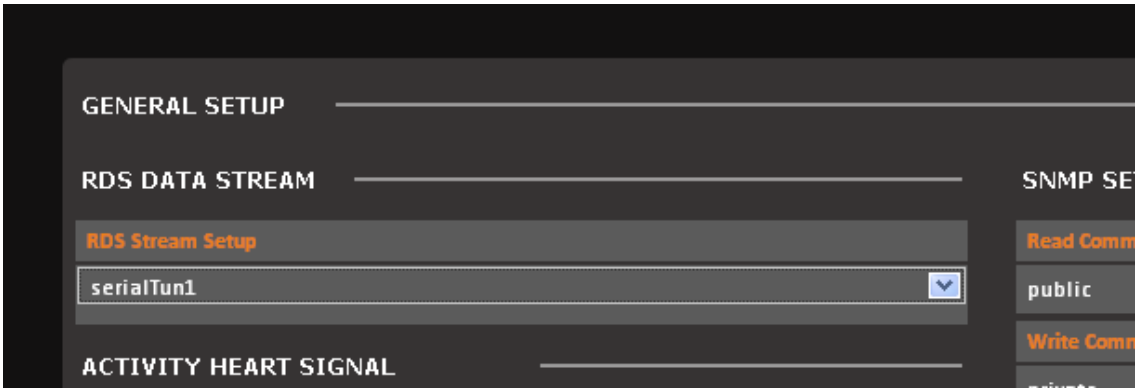


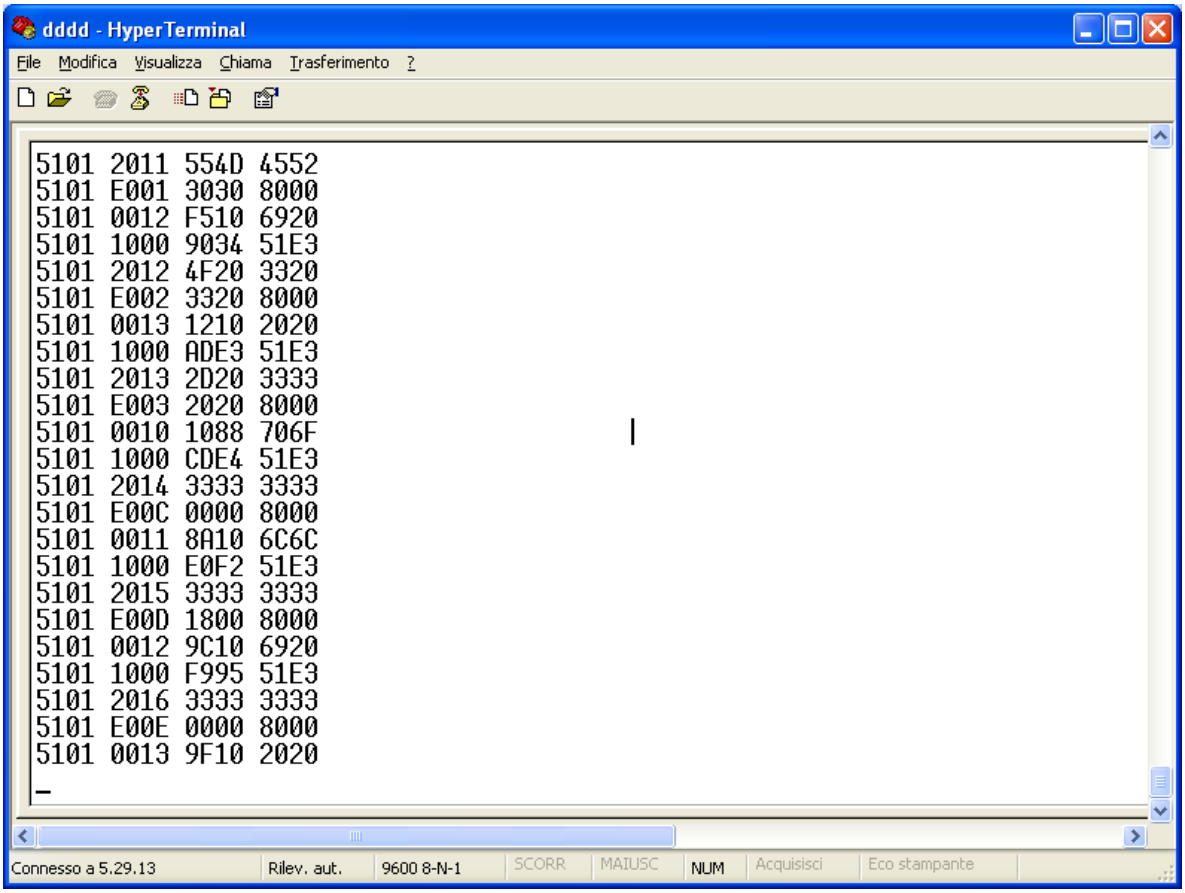



```
TUNER1: Notification List

TUNER1-RDS BLER --  Chan=0, Freq=100.80MHz, Bler=--.--, AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-AUDIODEV --  Chan=0, Freq=100.80MHz, AudioLev= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-RFL2   ----  Chan=0, Freq=100.80MHz, RFLevel=-5.00dBuv, AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-RFL1   ----  Chan=0, Freq=100.80MHz, RFLevel=-5.00dBuv, AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-DEV    ----  Chan=0, Freq=100.80MHz, Deviation= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-PILOT  ----  Chan=0, Freq=100.80MHz, PilotLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-LOWPILOT --  Chan=0, Freq=100.80MHz, PilotLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-RDSLEV ----  Chan=0, Freq=100.80MHz, RdsLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER1-LOWRDS ----  Chan=0, Freq=100.80MHz, RdsLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42

-------------------------------------------------------

TUNER2: Notification List

TUNER2-PILOT  ----  Chan=0, Freq=100.80MHz, PilotLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42
TUNER2-LOWRDS ----  Chan=0, Freq=100.80MHz, RdsLevel= --.-- kHz (Not Tuned), AlarmStatus=1, EventTime=2013-11-26 11:09:42

-------------------------------------------------------

AUDIO1: Notification List

AUDIO1-LEFT SIL --  Source=Tuner1, LeftLev=-90.00dBr, AlarmStatus=1, EventTime=2013-11-26 11:09:42
AUDIO1-RIGHT SIL--  Source=Tuner1, RightLev=-90.00dBr, AlarmStatus=1, EventTime=2013-11-26 11:09:42

-------------------------------------------------------

AUDIO2: Notification List

AUDIO2-LEFT SIL --  Source=Tuner2, LeftLev=-90.00dBr, AlarmStatus=1, EventTime=2013-11-26 11:09:42
AUDIO2-RIGHT SIL--  Source=Tuner2, RightLev=-90.00dBr, AlarmStatus=1, EventTime=2013-11-26 11:09:42

-------------------------------------------------------
```

### *16.11.26* ***RDS Streaming***

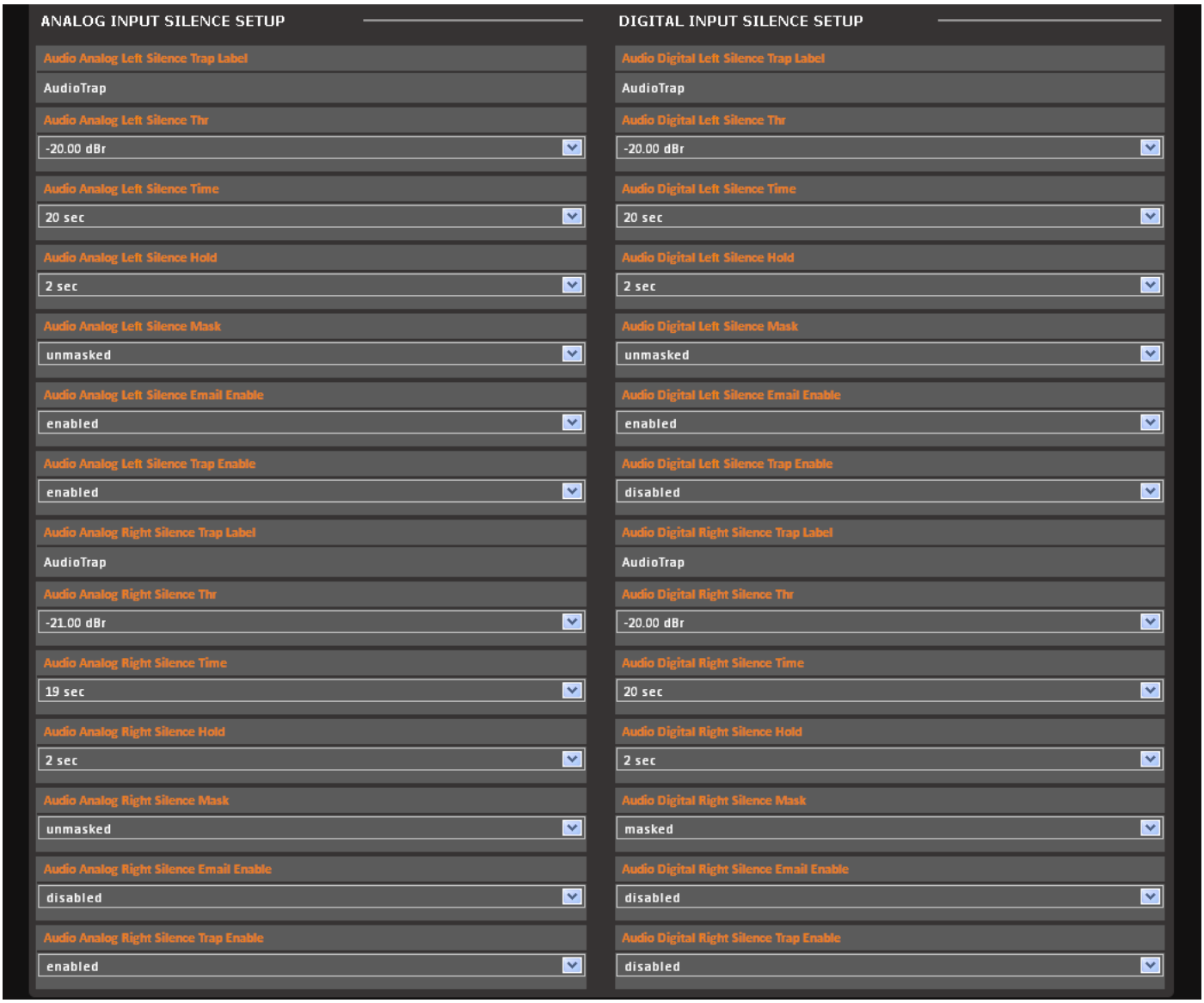
Selecting a source for the RDS data stream, the RS232 serial port will start to stream all groups decoded.
The RS232 serial port is configured as 9600 Baud, 8 data bit, 1 Stop Bit, no Parity.

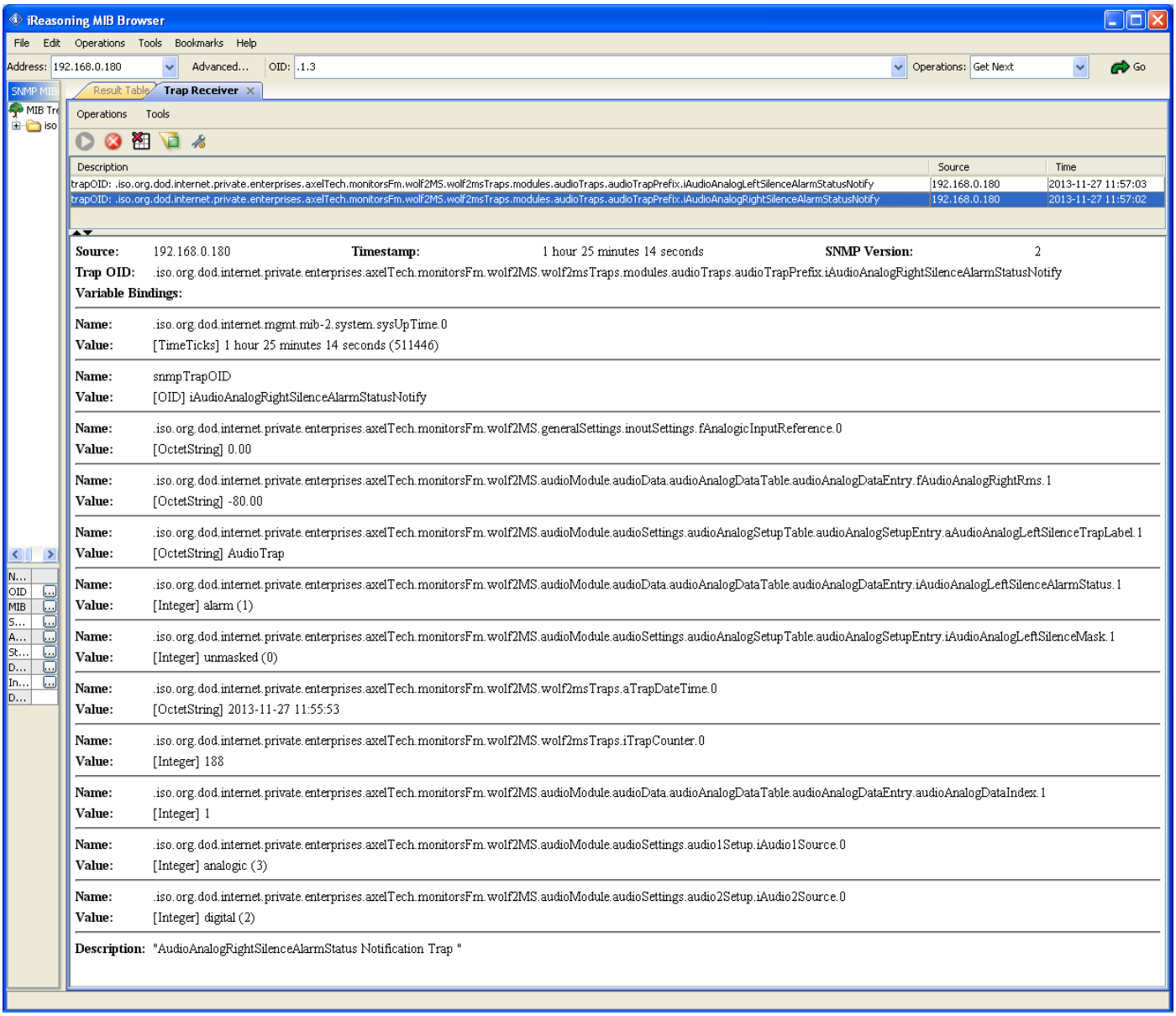


### *16.11.27 Traps and email notification with analogical or digital inputs*

Selecting as audio source one of the inputs and programming the audio configuration will be possible to monitor and measure level of the inputs signal as well as receive traps and email notifications with the general rules already seen.


iReasoning MIB Browser
File Edit Operations Tools Bookmarks Help
Address: 192.168.0.180 Advanced... OID: .1.3 Operations: Get Next Go
SNMP MIB
Result Table Trap Receiver
Operations Tools
Description Source Time
trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioAnalogLeftSilenceAlarmStatusNotify 192.168.0.180 2013-11-27 11:57:03
trapOID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioAnalogRightSilenceAlarmStatusNotify 192.168.0.180 2013-11-27 11:57:02
Source: 192.168.0.180 Timestamp: 1 hour 25 minutes 14 seconds SNMP Version: 2
Trap OID: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.modules.audioTraps.audioTrapPrefix.iAudioAnalogRightSilenceAlarmStatusNotify
Variable Bindings:
Name: .iso.org.dod.internet.mgmt.mib-2.system.sysUpTime.0
Value: [TimeTicks] 1 hour 25 minutes 14 seconds (511446)
Name: snmpTrapOID
Value: [OID] iAudioAnalogRightSilenceAlarmStatusNotify
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.generalSettings.inoutSettings.fAnalogicInputReference.0
Value: [OctetString] 0.00
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioAnalogDataTable.audioAnalogDataEntry.fAudioAnalogRightRms.1
Value: [OctetString] -80.00
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audioAnalogSetupTable.audioAnalogSetupEntry.aAudioAnalogLeftSilenceTrapLabel.1
Value: [OctetString] AudioTrap
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioAnalogDataTable.audioAnalogDataEntry.iAudioAnalogLeftSilenceAlarmStatus.1
Value: [Integer] alarm (1)
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audioAnalogSetupTable.audioAnalogSetupEntry.iAudioAnalogLeftSilenceMask.1
Value: [Integer] unmasked (0)
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.aTrapDateTime.0
Value: [OctetString] 2013-11-27 11:55:53
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.wolf2msTraps.iTrapCounter.0
Value: [Integer] 188
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioData.audioAnalogDataTable.audioAnalogDataEntry.audioAnalogDataIndex.1
Value: [Integer] 1
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audio1Setup.iAudio1Source.0
Value: [Integer] analogic (3)
Name: .iso.org.dod.internet.private.enterprises.axelTech.monitorsFm.wolf2MS.audioModule.audioSettings.audio2Setup.iAudio2Source.0
Value: [Integer] digital (2)
Description: "AudioAnalogRightSilenceAlarmStatus Notification Trap "

### *16.11.28* ***Format and Import/Export configuration***

Available in the front panel display a group of new functions to handle the SD card.


Please before starting any operation format again it. The SD card will be formatted with the EXT3 file system.
This file system is not Microsoft windows compatible (so the SD card will be read only inside linux systems), but more robust respect the old FAT32.

If Wolf2ms find a FAT32 file system (or another one different from EXT3) doesn't allow to operate.

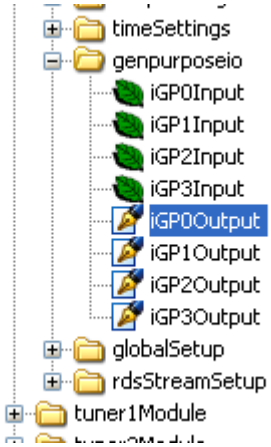
Selecting the "export" function the configuration will be exported in the SD card.
Selecting the "import" function the configuration will be imported from the SD card.

Automatically Wolf2ms "export" the configuration in the SD card after about 20 minutes every parameter changes and/or after 20 minutes the startup.
That means in the SD card should be always available the a configuration, manually or automatically saved.

Inserting a different SD in a wolf2ms , will be available 20 minutes to Import the SD card configuration (after this time Wolf2ms will rewrite on it its one).

The logical status of the input/output is visible in the Home page of the WebPage


Note: The numeration displayed in the Home Page is wrong will be fixed (the right one will be 0,1,2,3)




In the MIB will be possible to read the inputs status and read or write the GPO status.


The current status of the GPI/GPO is available even in the display panel

# 17 TECHNICAL SPECIFICATION WOLF 2MS

| *PARAMETER* | **DESCRIPTION** |
|---|---|
| | |
| **Main Power** | 100 Vac – 240 Vac 50/60 Hz internal, universal power supply |
| **Power consumption** | 25 W |
| **Power connector** | IEC plug filter with internal fuse 2.0 AT |
| **Headphone** | Stereo Jack 6.3 mm |
| **Safety and EMC** | Compliant to CE laws |
| **Working temperature** | 0° to 50° C (storage -5 to + 50 °C) |
| **Housing Dimensions** | 19 inch x 1u x 240 mm (depth) |
| **Weight** | 3.5 kg |
| | |
| ***RF TUNERS*** | |
| **Tuner frequency** | 87.5 MHz - 108.0 MHz |
| **Tuner step** | 10 kHz |
| **RF tuning stability** | +/- 500 Hz |
| **RF input sensitivity** | 20 to 120 dBµV |
| **RF input nominal level** | 80 to 100 dBµV |
| **RF inputs main** | 2x BNC, with 50 Ohm unbalanced |
| **Max frequency deviation** | 125 kHz |
| **IF Filter bandwidth** | 34 kHz to 138 kHz – Manual or Automatic |
| **Input RF level** | 30 dBµV – 120 dBµV with Internal attenuator |
| **Bandscan carrier number** | 32 Channels |
| **Bandscan time** | Static Mode, Scan 1s to 10s and Smart Mode* |
| **Selectivity at ± 120 kHz** | >-3 dB |
| **Selectivity at ± 200 kHz** | >-40 dB |
| **Selectivity at ± 300 kHz** | >-50 dB |
| **Selectivity at ± 400 kHz** | >-65 dB |
| **Image Rejection @ 22.5 kHz** | 70 dB |
| **Adjacent channel rejection** | 63 - 65 dB |
| **Alternate channel rejection** | 65 - 72 dB |
| **THD @ dev=75 kHz** | 0.05 – 0.1 % |
| **Mono (S+N)/N** | 75 dB typ – 68 dB min (No A-Weighting 30 Hz – 15 kHz) |
| | |
| ***STEREO DECODERS*** | |
| **Stereo (S+N)/N** | 70 dB typ – 64 dB min (No A-Weighting 30 Hz – 15 kHz)<br>• 40 dBµV – 61 dB Stereo/61 dB Mono<br>• 50 dBµV – 69 dB Stereo/72 dB Mono<br>• 60 dBµV – 78 dB Stereo/78 dB Mono<br>• 70 dBµV – 83 dB Stereo/85 dB Mono |
| **Pilot 19kHz suppression** | 55 dB (Stereo modulation L = 1, R = 0,Deviation=67.5 kHz, pilot deviation=6.75 kHz) |
| **Stereo THD+N** | 0.1 % - 0.2 % (Stereo modulation L = 1, R = 0,Deviation=67.5 kHz, pilot deviation=6.75 kHz)<br>Measures @ 70 dBuV with 75 kHz<br>• 100 Hz - 0.055 %<br>• 1 kHz - 0.061 %<br>• 5 kHz - 0.19 %<br>• 10 kHz - 0.46 % |
| **Stereo separation** | 45 dB (Stereo modulation L = 1, R = 0,Deviation=67.5 kHz, pilot deviation=6.75 kHz)<br>• 400 Hz – 48 dB<br>• 1 kHz – 48 dB<br>• 5 kHz – 48 dB<br>• 10 kHz – 38 dB<br>• 14.7 kHz – 38 dB |

| | |
|---|---|
| ***RDS DECODER*** | |
| **RDS Sensitivity** | 20 dBµV (dev f = 2 kHz, RDS BLER < 5%) |
| **RDS Synchronization time** | 80 ms (dev f = 2 kHz RF input = 60 dBµV) |
| **RDS PI Lock time** | 100 ms (dev f = 2 kHz RF input = 60 dBµV) |
| **RDS data decoding and Streaming** | RDS Level indication and deviation (voltage, kHz and dBr) |
| **RDS Data decoding services** | PS, PI, M/S, DI, TP, TA, AF, AF List Presence A/B Method, Scrolling PS, AF EON, RadioText, RadioText Plus, CT, PTY, PIN, IH, TMC, EWS, TDC . ODA generic services. RDS error detection with three shold adjustable |
| | |
| ***RF MEASUREMENT MODULE*** | Ranges – Resolution - Precision |
| **RF Level** | 0 – 80 dBµV (Resolution 1 dBµV, precision 2 dBµV)<br>82 – 120 dBµV (Resolution 2 dBµV, precision 5 dBµV) |
| **Deviation** | 0-125 kHz (Resolution 1 kHz, precision 2 kHz) |
| **Tuned Carrier Frequency Offset** | 0-250 ppm (Resolution 2 ppm, precision 5 ppm) |
| **Multipath** | 0-100 % |
| **Adjacent Channel RF Level** | 0 – 80 dBµV (Resolution 1 dBµV, precision 2 dBµV) (+-200kHz) |
| | |
| ***MPX MEASUREMENT MODULE*** | Ranges – Resolution - Precision |
| **Pilot Level** | 0-20 kHz (Resolution 0.1 kHz, precision 0.2 kHz) |
| **Rds Level** | 0-20 kHz (Resolution 0.1 kHz, precision 0.2 kHz) |
| **Mpx Power ITU-R-BS412** | -20 dBr to + 12dBr (Resolution 0.1 dBr, precision 0.2 dBr) |
| **Stereo** | Valid Stereo signal detector |
| | |
| ***AUDIO MEASUREMENT MODULE*** | Ranges – Resolution – Precision |
| **Left Quasi Peak** | Programmable Attack Time from 0 mS to 2mS (Resolution 0.1 dB) |
| **Right Quasi Peak** | Programmable Attack Time from 0 mS to 2mS (Resolution 0.1 dB) |
| **Audio Silence** | Threshold -80 dB to 0 dB, Time: 1-120 Sec |
| **Unbalanced Stereo Signal** | Threshold -80 dB to 0 dB, Time: 1-120 Sec |
| ***AUDIO OUTPUT*** | |
| **Available output on XLR** | Tuner-1 or Tuner-2, definable via web page. Same audio on Analog and AES/EBU |
| **Audio frequency response** | 30 Hz—15 kHz, ± 0,3 dB |
| **Phones (Front Panel)** | Stereo jack 6.3 mm, 150 Ohm, 0.8 W |
| | |
| ***ANALOG OUTPUT MODULE*** | |
| **D/A Conversion** | 24bit Sigma-Delta Conversion – 32 kHz Sample rate |
| **Connectors** | 2x XLR, male - Electronically balanced |
| **Output Level** | -12.0 dBu to +14.0 dBu (0.1 dBu Step) – Max (+20 dBu) |
| **Impedance Source** | 47 Ω |
| **Load Impendance** | 600 Ω or greater |
| **Distorsion** | Less than 0.02% TDH+Noise (0.0dBu @ 1Khz) |
| **Dynamic range** | 108 dB (110 dB A-weighted, 20Hz – 15kHz) |
| **Sources** | Streamer1_Source , Streamer2_Source |
| ***DIGITAL OUTPUT MODULE*** | |
| **Connectors:** | XLR, Male – Electronically balanced |
| **Format** | AES3/EBU |
| **Sample rates** | 32 kHz |
| **Resolution** | 24 bits |
| **Operative Nominal level:** | From 0.0 dBFs to -24dBFs (0.1 dBu step) |
| **Dynamic Range:** | 125 dB (Typ), 122 dB (Min) |
| **Distortion** | less than 0.01% TDH+NOISE (-20dBFs @ 1Khz) |
| **Freq response** | 20Hz-15kHz |
| **Dynamic range** | 108 dB |
| **Sources** | Streamer1_Source , Streamer2_Source |
| | |
| ***AUDIO INPUT*** | |
| **Encoder Streaming Input source** | User selectable between Tuner-1, Tuner-2, External Input Analog, External Input AES/EBU |
| | |
| ***DIGITAL INPUT MODULE*** | |
| **Connectors:** | XLR, female – Electronically balanced |
| **Format** | AES3/EBU |

| | |
|---|---|
| **Sample rates** | 32 kHz / 44.1 kHz / 48 kHz / 96 kHz with src and jitter correction |
| **Operative Nominal level:** | From 0.0 dBFs to -24dBFs (0.1 dBu step) |
| **Dynamic Range:** | 125 dB (Typ) |
| **Distortion** | less than 0.01% TDH+Noise (-20dBFs@ 1Khz) |
| **Input Modes:** | Stereo, Mono (Left), Mono (Right), Mono (Left+Right) |
| | |
| ***ANALOG INPUT MODULE*** | |
| **A/D Conversion** | 24bit Sigma-Delta Conversion – 32kHz sample rate |
| **Connectors:** | XLR, female - Electronically balanced |
| **AD Clipping Point** | +20.0dBu |
| **Operative Nominal Level:** | From –12.0dBu to +12.0dBu (0.1dBu Step) |
| **Line Impedance** | 10 kΩ (Electronically balanced selectable) EMI–suppressed |
| **Distortion:** | less than 0.02% TDH+NOISE (0.0dBu @ 1Khz) |
| **AD Dynamic Range:** | 108 dB RMS (110 dB A-weighted, 20Hz - 15kHz) |
| **Input Modes:** | Stereo, Mono (Left), Mono (Right), Mono (Left+Right) |
| | |
| ***AUDIO & RDS STREAMING MODULES*** | |
| **Protocols** | UDP/RTP, TCP/IP, Shoutcast and IceCast2 |
| **Encoders** | OGG-VORBIS |
| **Interface** | Ethernet Port 10/100 Mb/s |
| **Bitrate** | User select 24 kbps to 192 kbps |
| **Sample Rates** | 32Ksamples/sec |
| | |
| **RDS Streaming** | Proprietary redundant protocol over UDP or RAW-TCP/IP |
| **Administration** | User right management |
| | |

# 18 WEEE Directive – Informativa RAEE

In line with EU Directive 2012/19/UE for waste electrical and electronic equipment (WEEE), this electrical product must not be disposed of as unsorted municipal waste. Please dispose of this product by returning it to the point of sale or to your local municipal collection point for recycling.

In Übereinstimmung mit der Richtlinie 2012/19/UE des Europäischen Parlaments und des Rates über Elektro- und Elektronik-Altgeräte (WEEE) darf dieses Elektrogerät nicht im normalen Hausmüll oder dem Gelben Sack entsorgt werden. Wenn Sie dieses Produkt entsorgen möchten, bringen Sie es bitte zur Verkaufsstelle zurück oder zum Recycling-Sammelpunkt Ihrer Gemeinde.

Conformément à la Directive 2012/19/UE sur les déchets d'équipements électriques et électroniques (DEEE), ce produit électrique ne doit en aucun cas être mis au rebut sous forme de déchet municipal non trié. Veuillez vous débarrasser de ce produit en le renvoyant à son point de vente ou au point de ramassage local dans votre municipalité, à des fins de recyclage.

In navolging van richtlijn 2012/19/UE van het Europees Parlement en de Raad betreffende afgedankte elektrische en elektronische apparatuur (AEEA) mag dit elektrische product niet als ongescheiden huisvuil worden weggedaan. Breng dit product terug naar de plaats van aankoop of naar het gemeentelijke afvalinzamelingspunt voor recycling.

In ottemperanza alla Direttiva UE 2012/19/UE sui rifiuti di apparecchiature elettriche ed elettroniche (RAEE), questo prodotto elettrico non deve essere smaltito come rifiuto municipale misto. Si prega di smaltire il prodotto riportandolo al punto vendita o al punto di raccolta municipale locale per un opportuno riciclaggio.

De conformidad con la Directiva 2012/19/UE de la UE sobre residuos de aparatos eléctricos y electrónicos (RAEE), este producto eléctrico no puede desecharse con el resto de residuos no clasificados. Deshágase de este producto devolviéndolo al punto de venta o a un punto de recogida municipal para su reciclaje.

I henhold til EU-direktiv 2012/19/UE om affald af elektrisk og elektronisk udstyr (WEEE) må dette udstyr ikke bortskaffes som usorteret husholdningsaffald. Bortskaf dette produkt ved at returnere det til salgsstedet eller til det lokale indsamlingssted, så det kan genbruges.

I linje med EU-direktiv 2012/19/UE om avfall som utgörs av eller innehåller elektriska eller elektroniska produkter (WEEE) får denna elektriska produkt inte bortskaffas som osorterat kommunalt avfall. Bortskaffa den i stället genom att lämna in den på försäljningsstället eller din lokala återvinningsstation.

EU:n sähkö- ja elektroniikkalaiteromudirektiivin (2012/19/UE) mukaisesti tätä elektroniikkalaitetta ei saa laittaa lajittelemattoman yhdyskuntajätteen sekaan. Hävitä laite palauttamalla se ostopaikkaan tai viemällä se elektroniikkaromun keräyspisteeseen.

De acordo com a Directiva Europeia 2012/19/UE sobre resíduos sólidos de equipamento eléctrico e electrónico (WEEE), este produto eléctrico não pode ser deitado fora juntamente com o lixo municipal indiferenciado. Por favor, no final da vida útil deste produto, devolva-o ao estabelecimento de aquisição, ou entregueo no local de recolha apropriado para reciclagem designado pelo seu município.

V souladu se smrnicí EU . 2012/19/UE o odpadních elektrických a elektronických zaYízeních (OEEZ) se tento elektrický výrobek nesmí likvidovat jako netYídný komunální odpad. PYi likvidaci tento výrobek vrat'te prodejci nebo ho odevzdejte k recyklaci do komunálního sbrného zaYízení.

Vastavalt EL direktiivile 2012/19/UE, mis käsitleb elektri- ja elektroonikaseadmete jäätmeid (WEEE), ei või antud toodet visata majapidamisjäätmete hulka. Palun tagastage antud toode taaskasutamise eesmärgil müügipunkti või kohaliku piirkonna jäätmekogumise punkti.

V súlade so smernicou 2012/19/UE o odpade z elekrických a elektronických zariadení (OEEZ) sa toto elektrické zariadenie nesmie odstranovat' ako netriedený komunálny odpad. Výrobok odstránte jeho vrátením v mieste nákupu alebo odovzdaním v miestnom zbernom zariadení na recyklovanie.

# 19 WARRANTY

The manufacturer offers a one year warranty ex works. Do not open the equipment. Any breaking of the seals will result in forfeiture of the same. The manufacturer is not liable for damages of any kind arising from, or in connection with, the use of the wrong product.

# CE Dichiarazione di conformità

| |
|---|
| Il sottoscritto Giuseppe Vaccari |
| In qualità di legale rappresentante della ditta Axel Technology S.r.l. |
| con sede in: Via Caduti di Sabbiuno, 6/F – 40011 – Anzola Emilia (BO) |
| Partita IVA: IT01735031203 |
| *Dichiara* |
| che il prodotto: **Sistema di monitoring per reti FM. Tuner interno con bandscan configurabile. Misura realtime su RF, MPX, Audio e RDS con decodifica sequenza gruppi. Protocolli HTTP, SNMP, FTP e XML. Web server, audio streaming per monitor. Due LAN/USB e GPIO. Presa cuffia frontale ed alimentazione universale** |
| Modello e/o codice: **Wolf1MS** |

| | |
|---|---|
| Data Fabbricazione: vedi etichetta sul prodotto | Numero di serie: vedi etichetta sul prodotto |

È stato costruito rispettando le seguenti direttive e norme:

- Direttiva 2014/35/UE nota come “Direttiva bassa tensione”
- Direttiva 2014/30/UE nota come "Direttiva compatibilità elettromagnetica"
- Direttiva 2011/65/CE nota come “RoHS”
- Direttiva delegata (UE) 2015/863 della commissione del 31 marzo 2015 recante modifica dell'allegato II della direttiva 2011/65/UE
- Direttiva 2012/19/UE nota come “RAEE”
- Direttiva 2001/95/CE nota “Sicurezza generale dei prodotti”
- UNI EN ISO 7010:2021 Titolo: Segni grafici - Colori e segnali di sicurezza - Segnali di sicurezza registrati
- EN 62368-1:2018 - relativa alla sicurezza elettrica per le apparecchiature informatiche e i prodotti audio/video
- IEC 62311:2019 - Valutazione degli apparecchi elettronici ed elettrici in relazione alle restrizioni per l’esposizione umana ai campi elettromagnetici (0 Hz – 300 GHz)
- EN 55032:2015+A1:2020 - Compatibilità elettromagnetica delle apparecchiature multimediali. Requisiti di emissione
- EN 55103-2:2010 Norme di famiglie di prodotto per apparecchi audio, video, audiovisivi e di comando di luci da intrattenimento per uso professionale - Parte 2: Immunità.
- EN 60065:2019 Apparecchi audio, video e apparecchi elettronici similari Requisiti di sicurezza.
- EN 61000-6-1:2016 – EMC – Immunità per ambienti residenziali, commerciali e industria leggera.
- EN 61000-6-3:2020 – EMC – Emissione per ambienti residenziali, commerciali e industria leggera.
- EN 60950-1:2014 – Sicurezza degli apparati ITE (Information Technology Equipment)
- EN 55024:2017 Apparecchiature per la tecnologia dell'informazione - Caratteristiche di immunità Limiti e metodi di misura.
- EN IEC 63000:2018 Nuovo standard armonizzato per dimostrare la conformità RoHS
- EN 55032:2015+A11:2020 Compatibilità elettromagnetica delle apparecchiature multimediali - Requisiti di emissione
- EN 55035:2017 - Compatibilità elettromagnetica delle apparecchiature multimediali - Requisiti di immunità

Ed è quindi conforme alle direttive e normative vigenti.

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.

| | |
|---|---|
| Data: 15/6/2023<br><br>Luogo: **ANZOLA DELL’EMILIA (BO) - ITALIA** | Firma:  |

# CE Declaration of Conformity

| |
|---|
| The undersigned Giuseppe Vaccari |
| As legal representative of the company Axel Technology Srl |
| based in: Via Caduti di Sabbiuno, 6/F – 40011 – Anzola Emilia (BO) |
| VAT number: IT01735031203 |
| *declares* |
| that the product: **Monitoring system for FM networks. Internal tuner with configurable bandscan. Realtime measurement on RF, MPX, Audio and RDS with group sequence decoding. HTTP, SNMP, FTP and XML protocols. Web server, audio streaming for monitors. Two LAN/USB and GPIO. Front headphone socket and universal power supply** |
| Model and/or code: **Wolf1MS** |

| | |
|---|---|
| Date of manufacture: see label on the product | Serial number: see label on the product |

It was built in compliance with the following directives and standards:

- Directive 2014/35/EU known as the "Low Voltage Directive"
- Directive 2014/30/EU known as the "Electromagnetic Compatibility Directive"
- Directive 2011/65/EC known as “RoHS”
- Commission Delegated Directive (EU) 2015/863 of 31 March 2015 amending Annex II of Directive 2011/65/EU
- Directive 2012/19/EU known as “WEEE”
- Directive 2001/95/EC known as "General product safety"
- UNI EN ISO 7010:2021 Title: Graphic signs - Colors and safety signs - Registered safety signs
- EN 62368-1:2018 - relating to electrical safety for computer equipment and audio/video products
- IEC 62311:2019 - Evaluation of electronic and electrical equipment with regard to restrictions on human exposure to electromagnetic fields (0 Hz – 300 GHz)
- EN 55032:2015+A1:2020 - Electromagnetic compatibility of multimedia equipment. Issue requirements
- EN 55103-2:2010 Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 2: Immunity.
- EN 60065:2019 Audio, video and similar electronic equipment Safety requirements.
- EN 61000-6-1:2016 – EMC – Immunity for residential, commercial and light industry environments.
- EN 61000-6-3:2020 – EMC – Emission for residential, commercial and light industry environments.
- EN 60950-1:2014 – Safety of ITE (Information Technology Equipment)
- EN 55024:2017 Information technology equipment - Immunity characteristics Limits and methods of measurement.
- EN IEC 63000:2018 New harmonized standard to demonstrate RoHS compliance
- EN 55032:2015+A11:2020 Electromagnetic compatibility of multimedia equipment - Emission requirements
- EN 55035:2017 - Electromagnetic compatibility of multimedia equipment - Immunity requirements

And it is therefore compliant with current directives and regulations.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

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| Date: 15/6/2023<br><br>Place: **ANZOLA DELL’EMILIA (BO) - ITALY** | Signature:  |

# CE *Dichiarazione di conformità*

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| Il sottoscritto Giuseppe Vaccari |
| In qualità di legale rappresentante della ditta Axel Technology S.r.l. |
| con sede in: Via Caduti di Sabbiuno, 6/F – 40011 – Anzola Emilia (BO) |
| Partita IVA: IT01735031203 |
| *Dichiara* |
| che il prodotto: **Sistema di monitoring per reti FM duale. Doppio tuner interno con bandscan configurabile. Misura realtime su RF,MPX,Audio,RDS con decodifica sequenza gruppi. Supporta HTTP,SNMP,FTP,XML. Web server, doppio audio streaming per monitor. Due LAN/USB.GPIO. Presa cuffia frontale. Alimentazione universale** |
| Modello e/o codice: **Wolf2MS** |

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| Data Fabbricazione: vedi etichetta sul prodotto | Numero di serie: vedi etichetta sul prodotto |

È stato costruito rispettando le seguenti direttive e norme:

- Direttiva 2014/35/UE nota come “Direttiva bassa tensione”
- Direttiva 2014/30/UE nota come "Direttiva compatibilità elettromagnetica"
- Direttiva 2011/65/CE nota come “RoHS”
- Direttiva delegata (UE) 2015/863 della commissione del 31 marzo 2015 recante modifica dell'allegato II della direttiva 2011/65/UE
- Direttiva 2012/19/UE nota come “RAEE”
- Direttiva 2001/95/CE nota “Sicurezza generale dei prodotti”
- UNI EN ISO 7010:2021 Titolo: Segni grafici - Colori e segnali di sicurezza - Segnali di sicurezza registrati
- EN 62368-1:2018 - relativa alla sicurezza elettrica per le apparecchiature informatiche e i prodotti audio/video
- IEC 62311:2019 - Valutazione degli apparecchi elettronici ed elettrici in relazione alle restrizioni per l’esposizione umana ai campi elettromagnetici (0 Hz – 300 GHz)
- EN 55032:2015+A1:2020 - Compatibilità elettromagnetica delle apparecchiature multimediali. Requisiti di emissione
- EN 55103-2:2010 Norme di famiglie di prodotto per apparecchi audio, video, audiovisivi e di comando di luci da intrattenimento per uso professionale - Parte 2: Immunità.
- EN 60065:2019 Apparecchi audio, video e apparecchi elettronici similari Requisiti di sicurezza.
- EN 61000-6-1:2016 – EMC – Immunità per ambienti residenziali, commerciali e industria leggera.
- EN 61000-6-3:2020 – EMC – Emissione per ambienti residenziali, commerciali e industria leggera.
- EN 60950-1:2014 – Sicurezza degli apparati ITE (Information Technology Equipment)
- EN 55024:2017 Apparecchiature per la tecnologia dell'informazione - Caratteristiche di immunità Limiti e metodi di misura.
- EN IEC 63000:2018 Nuovo standard armonizzato per dimostrare la conformità RoHS
- EN 55032:2015+A11:2020 Compatibilità elettromagnetica delle apparecchiature multimediali - Requisiti di emissione
- EN 55035:2017 - Compatibilità elettromagnetica delle apparecchiature multimediali - Requisiti di immunità

Ed è quindi conforme alle direttive e normative vigenti.

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.

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| Data: 15/6/2023<br><br>Luogo: **ANZOLA DELL’EMILIA (BO) - ITALIA** | Firma: |

# CE Declaration of Conformity

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| The undersigned Giuseppe Vaccari |
| As legal representative of the company Axel Technology Srl |
| based in: Via Caduti di Sabbiuno, 6/F – 40011 – Anzola Emilia (BO) |
| VAT number: IT01735031203 |
| *declares* |
| that the product: **Monitoring system for dual FM networks. Internal double tuner with configurable bandscan. Realtime measurement on RF,MPX,Audio,RDS with group sequence decoding. It supports HTTP,SNMP,FTP,XML. Web server, dual audio streaming per monitor. Two LAN/USB.GPIO. Front headphone socket. Universal power supply** |
| Model and/or code: **Wolf2MS** |

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|---|---|
| Date of manufacture: see label on the product | Serial number: see label on the product |

It was built in compliance with the following directives and standards:

- Directive 2014/35/EU known as the "Low Voltage Directive"
- Directive 2014/30/EU known as the "Electromagnetic Compatibility Directive"
- Directive 2011/65/EC known as “RoHS”
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- Directive 2012/19/EU known as “WEEE”
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- UNI EN ISO 7010:2021 Title: Graphic signs - Colors and safety signs - Registered safety signs
- EN 62368-1:2018 - relating to electrical safety for computer equipment and audio/video products
- IEC 62311:2019 - Evaluation of electronic and electrical equipment with regard to restrictions on human exposure to electromagnetic fields (0 Hz – 300 GHz)
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- EN IEC 63000:2018 New harmonized standard to demonstrate RoHS compliance
- EN 55032:2015+A11:2020 Electromagnetic compatibility of multimedia equipment - Emission requirements
- EN 55035:2017 - Electromagnetic compatibility of multimedia equipment - Immunity requirements

And it is therefore compliant with current directives and regulations.

This declaration of conformity is issued under the sole responsibility of the manufacturer.

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|---|---|
| Date: 15/6/2023<br><br>Place: **ANZOLA DELL’EMILIA (BO) - ITALY** | Signature:  |