Ayecka SR1 DVB Receiver EUMETCast Setup Guide
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# Document Change Record

<table>
<thead>
<tr>
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<th>Date</th>
<th>DCN. No</th>
<th>Changed Pages / Paragraphs</th>
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<tr>
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</tr>
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<td>v2C</td>
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<td>General updates for DVB-S2</td>
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<td>v2D</td>
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<td></td>
<td>Notes how to disable HVS in DVB-S2</td>
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<td>Added Ayecka SR1 Web Interface Installation</td>
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<td>Added RX Link Margin Thresholds Conf, Windows Routing Conf, note of current firmware RX2 non support</td>
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<td></td>
<td>Links Updated, Added C-Band Configuration, Removed DVB-S Ku Band Configuration</td>
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<td>v3B</td>
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<td></td>
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<td>Revised Software update procedure &amp; Exact downlink frequency</td>
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<td>v3D</td>
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<td>Updated Ayecka SR1 Console Utility installation procedure</td>
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<tr>
<td>v3E</td>
<td>15 February 2016</td>
<td></td>
<td>Updated PID table (§4.5.2.1) &amp; Linux System Configuration setup (§8.4)</td>
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<td>15 April 2016</td>
<td></td>
<td>C-Band Africa Configuration Corrections (§4.5.3)</td>
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<td></td>
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<td>22 June 2017</td>
<td></td>
<td>Upgrade of EUMETCast Europe 2nd Transponder to the full capacity (§4.5.4)</td>
</tr>
</tbody>
</table>
Table of Contents

1 INTRODUCTION .................................................................................................................. 5

2 PREREQUISITES AND DEVICE VERSIONS ...................................................................... 5

3 PHYSICAL CONNECTIONS ................................................................................................. 5
  3.1 Cable Connections to the Ayecka ..................................................................................... 5
  3.2 Satellite Antenna Connections ....................................................................................... 6

4 CONFIGURATION AND MANAGEMENT OF THE SR1 RECEIVER ................................... 7
  4.1 Install and Configure the USB to UART Bridge driver ..................................................... 7
  4.2 Automatic Configuration of SR1 ..................................................................................... 8
  4.3 Management via Telnet .................................................................................................... 9
  4.4 Configure a PUTTY session to connect to the receiver ................................................... 10
  4.5 Manual Receiver Configuration ..................................................................................... 11
    4.5.1 Network Configuration ............................................................................................... 11
    4.5.2 Radio frequency and reception parameters for DVB-S2 Ku Band Reception
        T1 Transponder ............................................................................................................. 12
    4.5.2.1 Configuration ........................................................................................................ 12
    4.5.2.2 Disable High Volume Service ................................................................................ 13
    4.5.2.3 RX Link Margin Thresholds ................................................................................... 14
    4.5.2.4 Verify Lock and quality for DVB-S2 Ku Band ....................................................... 16
    4.5.3 Radio frequency and reception parameters for DVB-S C-Band Africa Reception ...... 17
    4.5.4 Radio frequency and reception parameters for DVB-S2 Ku Band Reception
        T2 Transponder ............................................................................................................. 18

5 SR1 SOFTWARE AND FIRMWARE UPGRADE ................................................................. 20
  5.1 SR1 Software upgrade steps ........................................................................................... 20
  5.2 SR1 FPGA upgrade steps ............................................................................................... 25

6 AYECKA WEB INTERFACE ............................................................................................... 30

7 AYECKA SR1 CONSOLE UTILITY ...................................................................................... 32

8 TELICAST AND SYSTEM CONFIGURATION SETUP ....................................................... 35
  8.1 Telicast Setup ............................................................................................................... 35
  8.2 Firewall ........................................................................................................................ 35
  8.3 Windows Routing Table ................................................................................................. 35
  8.4 System Configuration Setup under Linux ..................................................................... 36

9 NETWORK CONFIGURATION AND SCENARIOS ............................................................ 37
  9.1 Network configuration parameters ............................................................................... 37
  9.2 Scenarios ....................................................................................................................... 38
    9.2.1 Direct connection and static IP .................................................................................. 39
    9.2.1.1 Connecting to the Traffic Port .............................................................................. 39
    9.2.1.2 Connecting to the Management Port ................................................................... 39
    9.2.2 DHCP Server .......................................................................................................... 40
    9.2.3 SR1 as Switch .......................................................................................................... 42

APPENDIX A TROUBLESHOOTING ....................................................................................... 43
1 INTRODUCTION

The purpose of this manual is to guide a user through the minimum necessary steps to allow the reception of EUMETCast data (DVB-S or DVB-S2) on the Ayecka SR1 DVB receiver. The base operating system used for this procedure is Windows 7.

Please refer also to the Ayecka “SR1 User Manual” for more details:

http://www.ayecka.com/download-center.php

2 PREREQUISITES AND DEVICE VERSIONS

Before performing the configuration please ensure the following steps have been addressed:

- A Windows PC (Windows 7 or higher) with USB-2 interface is available for configuring the SR1;
- The Windows PC has internet connection, or a copy of the USB to com emulator application is available;
- Administrator or Root access to the reception host system is available;
- The EUMETCast antenna pointing has been performed correctly to EUTELSAT 10A for DVB-S2 KU Band reception in Europe; (For DVB-S2 reception the antenna pointing and LNB quality is crucial) and EUTELSAT 5 West A for DVB-S C-band reception in Africa;
- An EKU has been obtained from the EUMETSAT user help desk;
- The reception host has the latest EUMETCast reception software installed;
- The Ayecka SR1 has software version 1.05b264 installed; If the SR1 has an older version is strongly suggested to upgrade it to v1.05b264 (see paragraph 5);

This version includes the following:

a) Fixing the Auto negotiation bug in the management interface – works with 100BaseT and 1000BaseT switches
b) When GUI waiting for "YES" or "No" answer, typing the '0' (zero) or ESCape key will recognize as "NO" answer.
c) Support manual setting of the tuner filter bandwidth by GUI and via SNMP
d) Added indication that shows how many images are loaded and valid in the Flash memory
e) 'X' - there is no version in flash
f) 'O' - there is one version in flash
g) 'V' - there is two versions in flash.
h) Changes in the PID filters does not cause unlock
i) Support Promiscuous mode by setting MAC address to 00-00-00-00-00-00
j) Show input power level in the status menu – even when unlock. This allow the user to know if there is energy in the configured frequency
k) Updated SNMP MIB to support the changes

- The Ayecka SR1 firmware version 2.02b022 is installed.

Important Note: Firmware Version 2.02b022 supports RX2.

3 PHYSICAL CONNECTIONS

3.1 Cable Connections to the Ayecka

- Connect the Ayecka power adapter plug into the socket labelled 12V 2A;
- Connect the mini USB type cable from the port labelled “CONTROL” to your Windows PC using the supplied USB cable;
- Connect the RJ45 network cable from the EUMETCast reception station network interface to the interface labelled “TRAFFIC”.
N-B: In this procedure we will use the USB port to make the initial configuration. If a DHCP server is available in your network infrastructure the LAN MANAGEMENT port can be connected to this network and also Telnet used to configure the device.

**LED Status Indicators**

<table>
<thead>
<tr>
<th>POWER STATUS</th>
<th>LED INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red</strong></td>
<td>The LED will stay red until the SR1 starts loading the Firmware, or in case of a fault in Firmware loading.</td>
</tr>
<tr>
<td><strong>Red/Green Blinking</strong></td>
<td>During Firmware programming process, (5-8 seconds)</td>
</tr>
<tr>
<td><strong>N.B.</strong></td>
<td>If the Firmware programming fails, the led will turn red again.</td>
</tr>
<tr>
<td><strong>Green</strong></td>
<td>The led turns green constantly after two conditions are met:</td>
</tr>
<tr>
<td></td>
<td>- The SR1 application software has been successfully launched AND</td>
</tr>
<tr>
<td></td>
<td>- The Firmware has been successfully programmed</td>
</tr>
</tbody>
</table>

3.2 Satellite Antenna Connections

Connect the antenna cable to the connector labelled “RF1”

The Ayecka has some special signal handling techniques on the RF inputs which can be used e.g. redundancy on the two RF inputs. For the EUMETCast stream we will use the “Single Mode” – i.e. one RF input will be used with 9 PIDS assigned to one demodulator. (Please refer to the user manual for more information concerning the special modes, if this is required).

N-B: Even when working in single demodulator mode you can have two RF inputs in redundancy mode - you can have two antennas and if one LNB fail the SRI will automatically switch to the other one.
RF1 Input | F type Female Connector  
| L-Band (-35 to -75 dBm )

Lock 1 LED | RED : Receiver #1 is not locked  
| Blinking RED : Receiver #1 is in lock process  
| Green: Receiver #1 is locked

4 CONFIGURATION AND MANAGEMENT OF THE SR1 RECEIVER

4.1 Install and Configure the USB to UART Bridge driver

The purpose of this section is to set up the communication from a Windows PC to the SR1 using the USB interface.

The SR1 provides local configuration and management interface using Serial over USB, to use the Serial over USB you must install the Virtual COM drivers, on the Client PC.

Before proceeding with the installation of the receiver, install the appropriate Serial over USB driver. You can download the VCP Driver Kit at:

https://www.silabs.com/Support%20Documents/Software/CP210x_VCP_Windows.zip

To install the drivers:
- Download the drivers and follow the installation instructions.

Connect the cables to the SR1 in the following order:
- RF (use RF 1 from the Back Panel)
- TRAFFIC Management (USB port)
- Power

Verify that the Power LED blinks between the Red and Green for ~15 seconds and then remains Green.

Go to “Device Manager” and verify that you can see “Silicon Labs CP210x USB Bridge (COM<n>)” then configure it as follow:
Select Properties then configure as shown below (under Tab “Port Settings”):

N-B: From our example in the figures above can be seen that the device is connected to COM3

### 4.2 Automatic Configuration of SR1

A utility **SR1CFG** can be used to automatically perform the initial setup of the Ayecka SR1 receiver to allow it to receive the “EUMETCast Ku-Band DVB-S2” & “EUMETCast C-Band DVB-S” services.

The zipped configuration files can be downloaded here:


All files have **RX Channel 1** as active and configuration sets depending the user needs.
The zip files contain the binary **SRCFG.exe** and an ASCII file containing the default configuration **sr1cfg.cfg** *Do not change the configuration file!*
The SR1 local configuration and management interface uses Serial over USB; to use the Serial over USB you must install the Virtual Com driver, on the Client PC; *after installing and configuring the Com driver and connecting SR1 to your Client PC as indicated in the paragraph 3.1, wait until the Power LED is Green (~15 seconds) then launch SR1CFG.exe!* SR1CFG will generate a log file “sr1cfg.log”; it can be used to check the applied configuration!

Notes:

- It is required that the .NET framework is installed on the machine used to perform the configuration, the .NET framework 3.5+ is part of the Win7 and later standard distributions;
- If more than one receiver are connected to the Client PC, SR1CFG will configure only the first one it finds, so make sure only the receiver to be configured is connected via USB;
- It is recommended to unplug the receiver from power then plug it back before launching SR1CFG.exe;
- If the automatic configuration is taking too long (more than 5 minutes), stop SR1CFG unplug the receiver from power, plug it back and run SR1CFG.exe again;
- The applied configuration using SR1CFG.exe may sometimes differ from the expected configuration due to communication issues;
- To verify the results of that operation (or manually configure the receiver) you may also use putty (or any other “Windows® HyperTerminal”) to connect to the receiver via the USB cable. For more details regarding the expected configuration parameters and how to use putty see the sections configure a putty session to connect to the receiver and Manual receiver configuration.

After this configuration, the applied configuration can also be checked by connecting to the management IP via telnet (the configured management IP is **192.168.10.99**).

### 4.3 Management via Telnet

After connecting the LAN cable to management port (you can also connect it to the traffic port if the management and traffic networks are “Connected” and the management multicast is ON, see the network configuration parameters table for more details):

```
telnet 192.168.10.99 (user=telnet, password=telnet)
```

*Enter 0 (Zero) to initiate the communication with SR1:*

```bash
Username: telnet
Password: telnet
```

---

**SR1c Serial No. 111700 30AAC**
**Run Time:** 46:11:04
**Software Version 1.05b264**
**Hardware Version 2.00**
**Firmware Version 2.02b022**

**RX1:** Active, Locked
**EUMETCast DVB-S2 1512.500 MHz, DVB-S2 16APSK 2/3, 32.996 Mfps, ACM, 13.4 dB**

**RX2:** Not Active, Not Locked
**Fre 2 1100.00 MHz, Auto**
---

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client
4.4 Configure a PUTTY session to connect to the receiver

To configure the receiver you can use putty (or any other “Windows® HyperTerminal”), in our example below putty is used (it can be downloaded from www.putty.org)

Configure a Serial connection as follow:

After configuring the connection, select the session you saved (in our example it is SR1) open it then enter 0 (Zero) to initiate the communication with SR1:
1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

N-B: To move to the previous menu enter “0” (Zero)

4.5 Manual Receiver Configuration

4.5.1 Network Configuration

To configure the network Select option 3 from the main menu

To set a fixed IP for management the management DHCP Client must be set to off:

**Toggle with option 8**

The network configuration parameters are shown as follow (see table below):

<table>
<thead>
<tr>
<th>Network</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Management IP Address</td>
<td>192.168.10.99</td>
</tr>
<tr>
<td>2. Management IP Mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>3. Management Ethernet Address</td>
<td>CC-F6-7A-04-CA-BA</td>
</tr>
<tr>
<td>4. Management IP Multicast</td>
<td>off</td>
</tr>
<tr>
<td>5. Management DSCP</td>
<td>0</td>
</tr>
<tr>
<td>6. Management VLAN ID</td>
<td>0</td>
</tr>
<tr>
<td>7. Management Default Gateway</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>8. Management DHCP Client</td>
<td>Off (set to off to configure a fixed IP, options 1, 2)</td>
</tr>
<tr>
<td>9. Management Port State</td>
<td>Enabled</td>
</tr>
<tr>
<td>A. LAN IP Address</td>
<td>192.168.10.102 (The data IP, Tellicast is running on a server on the same network, 192.168.10.103)</td>
</tr>
<tr>
<td>B. LAN IP Mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>C. LAN Ethernet Address</td>
<td>CC-F6-7A-04-CA-B9</td>
</tr>
<tr>
<td>D. LAN IP Multicast</td>
<td>On</td>
</tr>
<tr>
<td>E. Router IP Address</td>
<td>192.168.10.101</td>
</tr>
<tr>
<td>F. LAN DHCP Client</td>
<td>Off</td>
</tr>
<tr>
<td>G. ARP Management</td>
<td></td>
</tr>
<tr>
<td>H. Air IP Address</td>
<td>192.168.1.161</td>
</tr>
<tr>
<td>I. Air Ethernet Address</td>
<td>CC-F6-7A-04-CA-B8</td>
</tr>
<tr>
<td>J. Isolate Networks</td>
<td>Isolated</td>
</tr>
</tbody>
</table>

N-B: at this point you can configure the management network which allows you to access the device via telnet or SNMP
For more details regarding the network configuration and the network scenario to adopt refer to the section “NETWORK CONFIGURATION AND SCENARIOS” below.

4.5.2 Radio frequency and reception parameters for DVB-S2 Ku Band Reception T1 Transponder

4.5.2.1 Configuration

To configure the radio frequency and reception parameters, from the main menu choose, 1. Configuration → 1. Config RX Channel 1 → 2. Configuration Set 2

The parameters must be set as follow:

Configuration Set 2

1. Tuner Frequency 1512.500 MHz
2. Tuner Acquisition Bandwidth 10.000 MHz
3. Standard DVB-S2
4. Coding Mode VCM
5. Symbol Rate Auto
6. MODCOD Auto
7. RollOff Auto
8. Pilot Auto
9. Spectral Inversion Auto
A. Gold Code 0
B. Frame Type Auto
C. Encapsulation MPEG-TS
D. ISI 1
E. Filters Table
F. LNB power 18V
G. LNB compensation Off
H. 22 KHz off
I. Status Active
J. Profile Name EUMETCast DVB-S2
K. DiSEqC Switch Control SAT A
L. DiSEqC General Command 0x0
M. Tuner Filter Bandwidth 72.000 MHz

Then to set the Filters Table, choose “E. Filters Table”:

For each PID required select slot number and enter the PID number, select options 3 and 4 to enable the PID and to set IP Multicast to Pass.

E.g. below is shown one PID entry (for Record #1).

RX Transport Filter Record #1

1. PID 100
2. Ethernet Address CC-F6-7A-04-CA-B8
3. Status Enabled
4. IP Multicast Pass

E.g. select 1 to set the first PID then set it to 100, set status to enabled and IP Multicast to pass
The PID table when complete should be as shown below:

RX Transport Filter Table
========================================
<table>
<thead>
<tr>
<th>Slot.</th>
<th>PID</th>
<th>Ethernet Address</th>
<th>Status</th>
<th>IP Multicast</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>100</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>2.</td>
<td>300</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>3.</td>
<td>301</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>4.</td>
<td>500</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>5.</td>
<td>509</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>6.</td>
<td>511</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>7.</td>
<td>600</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>8.</td>
<td>601</td>
<td>CC-F6-7A-04-CA-B8</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
</tbody>
</table>

Notes:
1. The SR1 has 8 configurable PID filters the 8 PIDs can be distributed among two RFs channels. When the SR1 is in single Demodulator mode, from Main menu Configuration Menu, Number of Transport Filters, set to 8 for Rx1 and 0 for Rx2 - this will bring 8 PIDs to the list. In this mode, when changing Rx in due to loss of RF lock on one, the 8 PIDS configuration follows the other Rx:
2. For the new second transponder PIDs 610 & 611 should be configured

<table>
<thead>
<tr>
<th>Number of Transport Filters per Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX1 8 filters</td>
</tr>
<tr>
<td>RX2 0 filters</td>
</tr>
</tbody>
</table>

4.5.2.2 Disable High Volume Service

The High Volume Service requires larger antenna sizes with ~4dB higher gain compared to the Basic Service. It is recommended to disable the High Volume Service if it is not used.

If you want to disable the HVS check your SR1 software version. If your version is lower than 1.05b264, please do a software upgrade (see paragraph 5).

If your SR1 has the latest Version Software:

Select “4. System”

SR1c Serial No. 111700 30AAC  Run Time: 2:38:47
Software Version 1.05b264 Hardware Version 2.00 Firmware Version 2.02b022

RX1: Active, Locked
EUMETCast DVB-S2 1512.500 MHz, Auto

RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

System
======
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address 0.0.0.0
6. SNMP Trap Server IP Address 0.0.0.0
7. SNMP Read Community public
8. SNMP Write Community private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout 30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds
H. MODCODS Filter 0x1FFFFFFF

Type “h1000” < ENTER>. You will now have the following:

System =====
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address 0.0.0.0
6. SNMP Trap Server IP Address 0.0.0.0
7. SNMP Read Community public
8. SNMP Write Community private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout 30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds
H. MODCODS Filter 0x00001000

Note: This is a bit-mask, and the settings for the EUMETCast services are:

<table>
<thead>
<tr>
<th>Service required</th>
<th>MODCOD</th>
<th>MODCOD mask</th>
<th>Displays as</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Service alone</td>
<td>8PSK3/5</td>
<td>1000</td>
<td>0x00001000</td>
</tr>
<tr>
<td>High Volume Service-1 alone</td>
<td>16APSK2/3</td>
<td>40000</td>
<td>0x00040000</td>
</tr>
<tr>
<td>Both services together</td>
<td>8PSK3/5 16APSK2/3</td>
<td>41000</td>
<td>0x00041000</td>
</tr>
<tr>
<td>All (Default Setting)</td>
<td>All</td>
<td></td>
<td>0x1FFFFFFF</td>
</tr>
</tbody>
</table>

### 4.5.2.3 RX Link Margin Thresholds

The factory default values of the thresholds are 0.0 db / 2.5 db. These values define when the stream is disabled (lower value) or enabled again (higher value). These values must be changed in order to achieve the optimal link margin under different conditions.

For larger antennas with the High Volume Service enabled, EUMETSAT suggests to reconfigure the RX Link Margin Thresholds to the following values:

1. Lower threshold 0.6 dB
2. Upper threshold 0.7 dB

For Basic Service only systems, where HVS is switched off, lowest values should be the best, to avoid early cut off. After EUMETSAT tests it is recommended to use of the following settings in order to achieve the maximum from the receiver:
1. Lower threshold - 0.6 dB
2. Upper threshold - 0.3 dB

To reconfigure the Link Margin Thresholds manually please do the following:

The following example is to reconfigure the RX Link Margin Thresholds from 0.0 db / 2.5 db (default Value) to 0.6 db / 0.7 db.

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

(Select) > 4

System
======
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address 0.0.0.0
6. SNMP Trap Server IP Address 0.0.0.0
7. SNMP Read Community public
8. SNMP Write Community private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout 30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds
H. MODCODS Filter 0xFFFFFFFF

(Select) > G

RX Link Margin Thresholds
=========================
1. Lower threshold 0.0 dB
2. Upper threshold 2.5 dB

(Select) > 1
Enter Link Margin Threshold in dB [-2.5 - 5.0]: (Write) 0.6
RX Link Margin Thresholds
=========================
1. Lower threshold 0.6 dB
2. Upper threshold 2.5 dB
(Select) > 2
Enter Link Margin Threshold in dB [-2.5 - 5.0]: (Write) 0.7
RX Link Margin Thresholds

1. Lower threshold      0.6 dB
2. Upper threshold      0.7 dB

4.5.2.4 Verify Lock and quality for DVB-S2 Ku Band

Return to the main menu and verify the RX channel has Locked as shown below:

To verify the signal quality, from the main menu choose, 2. Status → 1. RX Channel 1:

<table>
<thead>
<tr>
<th>No.</th>
<th>MPEG</th>
<th>MPE</th>
<th>MAC Mismatch</th>
<th>MPE CRC Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>152385</td>
<td>26512</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.</td>
<td>714464</td>
<td>104377</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>96155</td>
<td>15066</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>181683</td>
<td>27564</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5.</td>
<td>1170819</td>
<td>171078</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6.</td>
<td>4821020</td>
<td>699353</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7.</td>
<td>1580</td>
<td>1580</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note * : The link margin (A) and MODCOD (B) alternate between the different modes present on the stream.
4.5.3 Radio frequency and reception parameters for DVB-S C-Band Africa Reception

To configure the radio frequency and reception parameters, from the main menu choose, 1. Configuration → 1. Config RX Channel 1 → 1. Configuration Set 1

The parameters must be set as follow:

Configuration Set 1
===================
1. Tuner Frequency 1,418.000 MHz
2. Tuner Acquisition Bandwidth 10.000 MHz
3. Standard DVB-S
4. Coding Mode CCM
5. Symbol Rate Auto
6. MODCOD Auto
7. RollOff Auto
8. Pilot Auto
9. Spectral Inversion Auto
   A. Gold Code 0
   B. Frame Type Auto
   C. Encapsulation MPEG-TS
   D. ISI 0
   E. Filters Table
   F. LNB power 18V
   G. LNB compensation Off
   H. 22 KHz Off
   I. Status Active
   J. Profile Name EUMETCast C-Band Africa
   K. DiSEqC Switch Control SAT A
   L. DiSEqC General Command 0x0
   M. Tuner Filter Bandwidth 72.000 MHz

Then to set the Filters Table, choose “E. Filters Table”:

For each PID required select slot number and enter the PID number, select options 3 and 4 to enable the PID and to set IP Multicast to Pass.

E.g. below is shown one PID entry (for Record #1).

RX Transport Filter Record #1
====================================
1. PID 100
2. Ethernet Address CC-F6-7A-04-CA-B8
3. Status Enabled
4. IP Multicast Pass

E.g. select 1 to set the first PID then set it to 100, set status to enabled and IP Multicast to pass

The PID table when complete should be as shown below:

RX Transport Filter Table
====================================

<table>
<thead>
<tr>
<th>Slot.</th>
<th>PID</th>
<th>Ethernet Address</th>
<th>Status</th>
<th>IP Multicast</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>100</td>
<td>2A-00-00-00-00-00</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>2.</td>
<td>300</td>
<td>CC-F6-7A-05-1D-9B</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>3.</td>
<td>301</td>
<td>CC-F6-7A-05-1D-98</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>4.</td>
<td>511</td>
<td>CC-F6-7A-05-1D-98</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>4.</td>
<td>600</td>
<td>CC-F6-7A-05-1D-98</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
</tbody>
</table>
N-Bs:
1) PIDs 100, 300, 301, 511 for C-Band Africa BS;
2) PID 600 for C-Band Africa HVS-1;
3) The SR1 has 8 configurable PID filters that can be distributed among two RFs channels. When the SR1 is in single Demodulator mode, from Main menu Configuration Menu, Number of Transport Filters, set to 8 for Rx1 and 0 for Rx2 - this will bring 8 PIDs to the list. In this mode, when changing Rx in due to loss of RF lock on one, the 8 PIDS configuration follows the other Rx:

<table>
<thead>
<tr>
<th>Number of Transport Filters per Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>RX1  8 filters</td>
</tr>
<tr>
<td>RX2  0 filters</td>
</tr>
</tbody>
</table>

4.5.4 Radio frequency and reception parameters for DVB-S2 Ku Band Reception T2 Transponder

To configure the radio frequency and reception parameters, from the main menu choose, 1. Configuration → 1. Config RX Channel 1 → 1. Configuration Set 2

The parameters must be set as follow:

**Configuration Set 2**

| 1. Tuner Frequency               | 1637.500 MHz |
| 2. Tuner Acquisition Bandwidth   | 10.000 MHz   |
| 3. Standard                      | DVB-S2       |
| 4. Coding Mode                   | CCM          |
| 5. Symbol Rate                   | Auto         |
| 6. MODCOD                        | Auto         |
| 7. RollOff                       | Auto         |
| 8. Pilot                         | Auto         |
| 9. Spectral Inversion            | Auto         |
| A. Gold Code                     | 0            |
| B. Frame Type                    | Auto         |
| C. Encapsulation                 | MPEG-TS      |
| D. ISI                           | 1            |
| E. Filters Table                 |              |
| F. LNB power                     | 18V          |
| G. LNB compensation              | Off          |
| H. 22 KHz                        | Off          |
| I. Status                        | Not Active   |
| J. Profile Name                  | EUMETCast DVB-S2 T2 |
| K. DiSEqC Switch Control         | SAT A        |
| L. DiSEqC General Command        | 0x0          |
| M. Tuner Filter Bandwidth        | 72.000 MHz   |

Then to set the Filters Table, choose “E. Filters Table”:

For each PID required select slot number and enter the PID number, select options 3 and 4 to enable the PID and set IP Multicast to Pass.

E.g. below is shown one PID entry (for Record #1).

**RX Transport Filter Record #1**

| 1. PID             | 610             |
| 2. Ethernet Address| CC-F6-7A-05-1D-AD |
3. Status  Enabled
4. IP Multicast  Pass

E.g. select 1 to set the first PID then set it to 100, set status to enabled and IP Multicast to pass

The PID table when complete should be as shown below:

<table>
<thead>
<tr>
<th>Slot.</th>
<th>PID</th>
<th>Ethernet Address</th>
<th>Status</th>
<th>IP Multicast</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>610</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>2.</td>
<td>611</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Enabled</td>
<td>Pass</td>
</tr>
<tr>
<td>3.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
<tr>
<td>4.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
<tr>
<td>5.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
<tr>
<td>6.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
<tr>
<td>7.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
<tr>
<td>8.</td>
<td>0</td>
<td>CC-F6-7A-05-1D-AD</td>
<td>Disabled</td>
<td>Block</td>
</tr>
</tbody>
</table>

N-Bs:
The SR1 has 8 configurable PID filters that can be distributed among two RFs channels. When the SR1 is in single Demodulator mode, from Main menu Configuration Menu, Number of Transport Filters, set to 8 for Rx1 and 0 for Rx2 - this will bring 8 PIDs to the list. In this mode, when changing Rx in due to loss of RF lock on one, the 8 PIDS configuration follows the other Rx:

Number of Transport Filters per Channel
=========================================
| RX1  | 8 filters  |
| RX2  | 0 filters  |
5 SRI SOFTWARE AND FIRMWARE UPGRADE

The SR1 DVB-S2 internal Flash memory can store 2 images of software.
For each Software and FPGA image there is an active image and non active. The active image is the one to be used in next cold reboot or power cycle.
Image is uploaded using TFTP protocol. When loading a new image it is replacing the non active image.

Notes:

1. The SW release upgrade may delete the current configuration. Please make sure you have the original EUMETSAT configuration of the SR1 prior to upgrade
2. Telnet and TFTP share same resources; it is recommended that during the TFTP session, Telnet will be disconnected.

SR1 software can be downloaded from EUMETSAT ftp site:

The TFTP software that EUMETSAT is currently using is tftpd32 under windows (by Ph. Jounin - http://tftpd32.jounin.net/).

5.1 SRI Software upgrade steps

Upgrade Example from 1.05b255 to 1.05b264:

1) Connect the SR1 to a Windows PC using a USB cable and configure the putty connection
2) Connect the SR1 Management Port to the Windows PC Ethernet Port
3) Configure the windows Ethernet port (IP 192.168.10.105/ Subnet 255.255.255.0)
4) Download tftpd32.zip from EUMETSAT ftp site and Extract
5) Download SR1 Software Upgrade *.asw (in this case 1.05b264.asw) from EUMETSAT ftp site
6) Double click on tftpd32.exe icon

7) Check that the IP Server Interfaces is 192.168.10.105
8) Click on “Browse” to select the directory that you have downloaded the new software and click “OK”

9) Click on “Show Dir” to check that the upgrade software is in the above mentioned directory and click on “Close”

10) Connect to the SR1 device using putty and select “4. System”
RX1: Active, Not Locked
EUMETCast DVB-S2 1512.500 MHz, Auto

RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

> 4

4

System
======
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address          0.0.0.0
6. SNMP Trap Server IP Address    0.0.0.0
7. SNMP Read Community            public
8. SNMP Write Community            private
9. Events Configuration
   A. Software Upgrade
   B. FPGA Image Upgrade
   C. Hardware Information
   D. Menu Timeout     30 seconds
   E. Factory Settings
   F. Bootloader Upgrade
   G. RX Link Margin Thresholds

11) Select “A. Software Upgrade”

> a

A

Software Upgrade
===========

1. TFTP Server IP Address          0.0.0.0
2. Filename
3. Show installed versions
4. Start the download procedure

12) Select “1. TFTP Server IP Address” and type 192.168.10.105

> 1

1
Enter New TFTP Server IP Address: 192.168.10.105

13) Select “2. Filename” and type 1.05b264.asw

> 2

2
Enter Software Image Filename (max. 19 characters): 1.05b264.asw

14) Select “4. Start the download procedure” and at the prompt Select y (yes)
Software Upgrade
================

1. TFTP Server IP Address       192.168.10.105
2. Filename       1.05b264.asw
3. Show installed versions
4. Start the download procedure

> 4
4

Software Upgrade - Are you sure (Y/N)? y

15) You will see the following message:

Formatting Permanent Storage...
The Process May Take About 40 Seconds.

And on the Tftpd32 screen the IP address of the SR1 management port (in this example 192.168.10.99) and the upgrade file.

16) Upon finished restart the SR1 DVB device

17) After reboot connect again to the SR1 device, using putty, and check the initial screen. If everything is OK you should have that new Software Version (in this case 1.05b264).

================================================================================
SR1c Serial No. 111700  FFB396651F4BB77          Run Time:              0:00:11
Software Version  1.05b264  Hardware Version  2.00  Firmware Version  2.02b922
RX1: Active, Not Locked
TCast DVB-S2 1121.500 MHz, Auto
RX2: Not Active, Not Locked
ile 1 1100.000 MHz, Auto
================================================================================

Important Note: If you do not see “Software Version 1.05b264, check if you have more than one installed software versions and activate the latest Software Version :

1) Select “4. System”
Ayecka SR1 DVB Receiver EUMETCast Setup Guide

SR1c Serial No. 111700 38AAC Run Time: 2:38:47
Software Version 1.05b255 Hardware Version 2.00 Firmware Version 2.02b922

RX1: Active, Not Locked
EUMETCast DVB-S2 1512.500 MHz, Auto

RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

4

System
======
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address 0.0.0.0
6. SNMP Trap Server IP Address 0.0.0.0
7. SNMP Read Community public
8. SNMP Write Community private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout 30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds

2) Select “A. Software Upgrade”

> a
A

Software Upgrade
================
1. TFTP Server IP Address 0.0.0.0
2. Filename
3. Show installed versions
4. Start the download procedure

3) Select “3. Show installed versions”

> 3

Software Versions
================
Index Version Image Size Valid Active
1 1.05b255 336832 Yes Yes
2 1.05b264 344716 Yes No

4) Select the latest Software Version, in this case (2)

> 2

Version: 1.5b264, Size: 344716, Valid: Yes Active: Yes

==================================================================
2. Not Active

5) Select (1) to activate the latest software version

> 1

Software Versions

<table>
<thead>
<tr>
<th>Index</th>
<th>Version</th>
<th>Image Size</th>
<th>Valid</th>
<th>Active</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.05b255</td>
<td>336832</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>1.05b264</td>
<td>344716</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

6) Upon finished restart the SR1 DVB device

5.2 SR1 FPGA upgrade steps

Upgrade Example from 2.02b922 to 2.02b022:

1) Connect the SR1 to a Windows PC using a USB cable and configure the putty connection
2) Connect the SR1 Management Port to the Windows PC Ethernet Port
3) Configure the windows Ethernet port (IP 192.168.10.105/ Subnet 255.255.255.0)
4) Download tftp32.zip from EUMETSAT ftp site and Extract
5) Download SR1 Software Upgrade *.asw (in this case 2.2b22.afp) from EUMETSAT ftp site
6) Double click on tftp32.exe icon
7) Check that the IP Server Interfaces is 192.168.10.105
8) Click on “Browse” to select the directory that you have download the new software and click “OK”
9) Click on “Show Dir” to check that the upgrade software is in the above mentioned directory and click on “Close”

10) Connect to the SR1 device using putty and select “4. System”

==================================================================
SR1c Serial No. 111700  38AAC                              Run Time:    2:38:47
Software Version  1.05b                              Hardware Version  2.00  Firmware Version  2.02b922
RX1: Active, Not Locked
EUMETCast DVB-S2 1512.500 MHz, Auto
RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto
==================================================================

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client
System =====
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address          0.0.0.0
6. SNMP Trap Server IP Address    0.0.0.0
7. SNMP Read Community           public
8. SNMP Write Community           private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout                   30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds
H. MODC0DS Filter                 0xFFFFF

11) Select “B. FPGA Image Upgrade”

> b
B

FPGA Upgrade ===========
1. TFTP Server IP Address       0.0.0.0
2. Filename
3. Show installed versions
4. Start the download procedure

12) Select “1. TFTP Server IP Address” and type 192.168.10.105

> 1
1
Enter New TFTP Server IP Address: **192.168.10.105**

13) Select “2. Filename” and type **2.2b22.afp**

> 2
2
Enter New FPGA Image Filename (max. 19 characters): **2.2b22.afp**

14) Select “4. Start the download procedure” and at the prompt Select y (yes)

FPGA Upgrade ===========
1. TFTP Server IP Address       192.168.10.105
2. Filename                    2.2b22.afp
3. Show installed versions
4. Start the download procedure

> 4
4
FPGA Upgrade - Are you sure (Y/N)? y

15) You will see the following message:

Formatting Permanent Storage...
The Process May Take About 40 Seconds.

And on the Tftpd32 screen the IP adress of the SR1 management port (in this example 192.168.10.99) and the upgrade file.

16) Upon finished restart the SR1 DVB device

17) After reboot connect again to the SR1 device, using putty, and check the initial screen. If everything is OK you should have that new Software Version (in this case 2.2b22).

---

SR1c Serial No. 111700 FFB396651F4BB77 Run Time: 0:00:11
Software Version 1.05b2 64 Hardware Version 2.00 Firmware Version 2.02b022
RX1: Active, Not Locked
tc cast DVB-s2 1512.500 MHz, Auto
RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto

---

Important Note: If you do not see “Software Version 1.02b022, check if you have more than one installed software versions and activate the latest Software Version :

7) Select “4. System”

---

SR1c Serial No. 111700 30AAC Run Time: 2:38:47
Software Version 1.05b255 Hardware Version 2.00 Firmware Version 2.02b922
RX1: Active, Not Locked
EUMETCast DVB-s2 1512.500 MHz, Auto
RX2: Not Active, Not Locked
Profile 1 1100.000 MHz, Auto

---

1. Configuration
2. Status
3. Network
4. System
5. Statistics
6. ACM Client

> 4

System =====
1. Warm Reset
2. Cold Reset
3. Restore Factory Defaults and Reset
4. Telnet
5. NTP Server IP Address    0.0.0.0
6. SNMP Trap Server IP Address 0.0.0.0
7. SNMP Read Community    public
8. SNMP Write Community    private
9. Events Configuration
A. Software Upgrade
B. FPGA Image Upgrade
C. Hardware Information
D. Menu Timeout            30 seconds
E. Factory Settings
F. Bootloader Upgrade
G. RX Link Margin Thresholds

8) Select “B. FPGA Upgrade”

> b

FPGA Upgrade ===========
1. TFTP Server IP Address    0.0.0.0
2. Filename
3. Show installed versions
4. Start the download procedure

9) Select “3. Show installed versions”

> 3

FPGA Versions ============
Index  Version   Image Size    Valid   Active
1  2.02b922  386214    Yes     Yes
2  2.02b22   718569    Yes     No

10) Select the latest FPGA Version, in this case (2)

> 2

Version: 2.02b22, Size: 718569, Valid: Yes Active: Yes

1. Active
2. Not Active

11) Select (1) to activate the latest FPGA version

> 1

FPGA Versions ============
Index  Version   Image Size    Valid   Active
1  2.02b922  386214    Yes     No
2  2.02b22   718569    Yes     Yes
12) Upon finished restart the SR1 DVB device

6 AYECKA WEB INTERFACE

With the Ayecka Web Interface you can monitor and configure the SR1 receiver. To install the Ayecka Web Interface system on your Windows machine, please follow the instructions bellow.

a. Download the Ayecka Web Interface from AYECKAs GitHub site at :
   https://github.com/ayecka

b. To run Ayecka Web Interface on your Windows machine, you need to run server software on your computer. To download and install the recommended server software, follow the following instructions step by step.

   (1) Download the WAMP at (32 bit or 64 bit):
   Install the WAMP server.

   (2) Run the WAMP server.
   (3) Enter to "localhost" on your browser.
   If you can see a page with the details of the server, your installation was successful. If not, please check again the instructions in this guide.
   (4) Exit the WAMP server by right clicking on WAMP icon (on the taskbar) and choosing "Exit".

c. To install Ayecka Web Interface Files, follow the following instructions step by step:

   (1) Unzip the downloaded file (paragraph 5a) and choose the directory of your OS (in this case, Windows). The directory contains 3 sub-directories:
   ➢ Mysql
   ➢ Configuration
   ➢ www

   (2) Copy the sub-directory Content from the source directory to the destination directory on your machine according to the table:

<table>
<thead>
<tr>
<th>Source</th>
<th>Destination</th>
</tr>
</thead>
</table>
d. In order to add Mysql Data and finish the installation, you need to update the mysql data in your machine and follow the following instructions step by step.

(1) Run the WAMP server

(2) Enter to "localhost/phpmyadmin" in your browser.

(3) Login as "root". The mysql server installed without password by default.

(4) Select "Import" in the top menu. Select "Create_DB.sql" file from Mysql directory and click "Go". This action will create new data base for Ayecka system.

(5) Click "Ayecka" from the left databases list.

(6) Select "Import" in the top menu. Select "Insert_tables.sql" file from Mysql directory and click "Go". This action will add all Ayecka data to the database.

e. You now have to start SNMP. To use Ayecka Web Interface system, you must make sure that the SNMP extension is enabled. To check this follow the following instructions step by step:

(1) Click on WAMP icon (on the taskbar).

(2) Select PHP.

(3) Select PHP Extension.

(4) Find the "SNMP" extension and make sure his selected.

f. You have now the Ayecka Web Interface system on your machine. To use this system, enter to "localhost" and select your device.
7 AYECKA SR1 CONSOLE UTILITY

You can download the utility from AYECKAs GitHub site at:

https://github.com/ayecka

To use this utility you need Java installed (http://www.java.com).

You can either run Sr1Control.jar directly or use the sample command script, suitable edited, although that should not be necessary.

SR1 Console Utility Interface

In order to configure the SR1 Controller left click on the upper-right icon.

You can then define the IP address of the management port for the SR 1 you are monitoring, the SNMP community & mib file.

Notes:
1. The mib file is already in the downloaded zip file.
2. You may then need to close and re-open the program to see your device status.
From the SR1 Controller Settings you can also:

- Telnet to the device

![Telnet to the device](image)

- Software Update

![Software Update](image)

- Support Dump

![Support Dump](image)

That creates a SupportDump.txt file with the following info:

Software Version = 1.05b264
Hardware Version = 2.00
FPGA Version = 2.02b022
permanentStorageDevice = Macronix MX25L6406E
RX1 Standard = 1
rxChipsetModel = STV0900 30 AAC
RX1 Transport status = 0
RX1 Freq = 1512.500
RX1 Acq Bw = 10000000
RX1 DemodStatus = 1
RX1 NumFilters = 8
RX1 22K = 0
SN = 111700
RX1 FreqOffset = -1237
RX1 BER = 0
Active RX = 1
RX1 SR = 32995947
RX1 Power Level = -220
RX1 Esno = 120
Rx1 Tuner status = 0
production code = 1813

- Cold Reset
8 TELLICAST AND SYSTEM CONFIGURATION SETUP

8.1 Tellicast Setup

After the steps above have been completed, the Tellicast application must be given the fixed IP from which the data can be taken:

Into the configuration file recv.ini the “interface_address” must be set to the reception host local IP Address:

```
interface_address=192.168.10.<nnn>
```

e.g.

```
interface_address=192.168.10.103
```

N-B: The interface_address parameter can be commented or deleted from recv.ini and the Tellicast application will search the multicast data on all the interfaces available on the host; that is not recommended when the reception host is used to receive another data flow, the Tellicast client application is not able to distinguish between the flows a priori!

8.2 Firewall

Make sure the firewall allows traffic from the interface address in 6.1!

8.3 Windows Routing Table

If the TelliCast fails to work, being either stuck in the yellow T-icon state or, if the network cable is connected after the system was working, the icon alternates between the "pink" and "red" states.

This may be related to the default multicast entries in the TCP/IP routing table.

To solve this problem, you need to tell Windows that the addresses handled by Tellicast must always be reached through the interface_address which you set up in recv.ini file (192.168.10.nnn).

In the Start menu, All Programs, Accessories menu, you will find an item named Command Prompt.

Right-click on this item, and select Run as administrator. Enter the following command (replace IP_address with the local IP address of 6.1):

```
route delete 224.0.0.0
route -p ADD 224.0.0.0 mask 240.0.0.0 IP_address metric 1
```

e.g., if IP_address = 192.168.10.103

```
route delete 224.0.0.0
route -p ADD 224.0.0.0 mask 240.0.0.0 192.168.10.103 metric 1
```

Then restart the computer
8.4 System Configuration Setup under Linux

In order to allow unrestricted multicast from network interfaces under Linux reception host, login as root and update (if needed) the sysctl parameters as follow:

```bash
# vi /etc/sysctl.conf

net.ipv4.conf.default.rp_filter = 0
net.ipv4.conf.all.rp_filter = 0
net.ipv4.ip_forward = 1
net.core.rmem_max = 5500000
net.core.wmem_max = 5500000
```

Then run:

```bash
# sysctl -p /etc/sysctl.conf
```

to refresh with the new configuration.
# NETWORK CONFIGURATION AND SCENARIOS

## 9.1 Network configuration parameters

<table>
<thead>
<tr>
<th>Id</th>
<th>Parameter</th>
<th>Description</th>
<th>Recommended Setting</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Management IP Address</td>
<td>The IP of the Management Interface (100baseT Ethernet interface at the front of the SR1)</td>
<td>192.168.10.99</td>
<td>the LAN cable can be connected to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• The management port;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• The traffic port if the networks are “Connected” and the traffic multicast is enabled.</td>
</tr>
<tr>
<td>2</td>
<td>Management IP Mask</td>
<td></td>
<td>255.255.255.0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Management Ethernet Address</td>
<td></td>
<td>CC-F6-7A-04-CA-BA</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Management IP Multicast</td>
<td>Enabled/Disable multicast</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Management DSCP</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Management VLAN ID</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Management Default Gateway</td>
<td></td>
<td>0.0.0.0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Management DHCP Client</td>
<td>Determine if Management interface IP address is static or DHCP</td>
<td>ON if exists else OFF</td>
<td>It must be set to OFF if a fixed mgmt IP has to be set.</td>
</tr>
<tr>
<td>9</td>
<td>Management Port State</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>LAN IP Address</td>
<td>IP address of device to which SR1 forward all traffic (LAN (GigE) interface: 1000BaseT Ethernet interface at the front of the SR1)</td>
<td>192.168.10.102</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>LAN IP Mask</td>
<td></td>
<td>255.255.255.0</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>LAN Ethernet Address</td>
<td></td>
<td>CC-F6-7A-04-CA-B9</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>LAN IP Multicast</td>
<td>Enabled/Disable multicast</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>Router IP Address</td>
<td>Enables the SR1 to forward the IP packets</td>
<td>192.168.10.101 or &lt;your router IP&gt;</td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>LAN DHCP Client</td>
<td>Determine if Traffic interface IP address is static or DHCP</td>
<td>ON if exists else OFF</td>
<td>If set to ON the LAN IP address is not used</td>
</tr>
<tr>
<td>G</td>
<td>ARP Management</td>
<td>Determines if the SR1 will learn the MAC address of the default router by sending ARP or by manual configuration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H</td>
<td>Air IP Address</td>
<td>IP address of the SR1 CPU for IP packets received from the</td>
<td>192.168.1.161</td>
<td></td>
</tr>
</tbody>
</table>
Satellite link. Packets distained to the CPU air IP address will be delivered ONLY to the CPU and not forwarded to the LAN.

<table>
<thead>
<tr>
<th>I</th>
<th>Air Ethernet Address</th>
<th>CC-F6-7A-04-CA-B8</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>Isolate Networks</td>
<td>Isolated</td>
</tr>
</tbody>
</table>

- Setting that parameter to “Isolated” multicast packets will come out only to Traffic port
- Setting that parameter to “Connected” mode, both TRAFFIC and Management ports can be used for data reception and MGMT

9.2 Scenarios

In order to allow the Tellicast client application to receive the data packets from SR1 the traffic LAN port of the SR1 must be connected to the reception host –default setting- (J → Isolate Networks → Isolated) or the management port of the SR1 (J → Isolate Networks → Connected). This connection can be direct (by connecting the reception host to the receiver using a LAN cable) or indirect (using a switch, router, joining a multicasting network...), this leads to different network scenarios that can be adopted and consequently different SR1 configurations, the reception host network interface and Tellicast’s recv.ini must be correctly configured, in the section below the most common network scenarios with the related needed configurations are described.

Please be informed that we cannot describe all the possible scenarios and that some scenarios may be very complex which require that you contact a networking expert to assist you to operate the receiver.
9.2.1  Direct connection and static IP

In order to allow the Tellicast client application to receive multicast data packets, the static IP Address of the reception host network interface used to receive the multicast data packets from SR1 must be set into recv.ini (interface_address= <local IP>). The EUMETCast reception host can receive the data from SR1 connecting it directly using the LAN cable to the traffic port or management port.

9.2.1.1  Connecting to the Traffic Port

In that scenario the reception host is connected to SR1’s TRAFFIC port with a 1Gb LAN cable:
- The reception host must have a LAN GigE interface;
- The LAN Multicast is enabled;
- One of the reception host NICs is set to a static IP: 192.168.10.103;
- Into recv.ini: interface_address=192.168.10.103.

9.2.1.2  Connecting to the Management Port

In that scenario the reception host is connected to SR1’s MANAGEMENT port with a 100Mb LAN cable:
- The Mgmt Multicast is enabled;
- Traffic and mgmt Networks are “Connected”;
- One of the reception host NICs is set to a static IP: 192.168.10.103;
- Into recv.ini: interface_address=192.168.10.103.
**Networks:** Connected  
Multicast: ON

**Management Interface:**  
100baseT  
IP: 192.168.10.99

**Traffic (LAN (GigE))**  
interface: 1000BaseT, IP: 192.168.10.102

**NIC1**  
IP: <ip>  
Tellicast, recv.ini:  
interface_address=NIC1

**NIC2:**  
Tellicast reception host

---

**N-Bs:**

- If the Management IP is set to an IP reachable by the local IP the management of the receiver can be done via Telnet:  
  E.g. if the local IP is set to 192.168.10.103 and the management IP is 192.168.10.99, then the management can be done connecting to that IP via telnet (see Management via Telnet);
- In case the host is used for other purposes and a connection to internet or public IPs is needed, another network interface can be installed on the host and the first NIC remain dedicated to EUMETCast packets reception!

If the host network interface is configured to automatically obtain the IP and the “interface_address” into recv.ini is not specified (dropped or commented), the Tellicast will look for all the available network interfaces on the host and catch the multicast data, but that is not recommended in case the host is receiving another data stream since the Tellicast application is not able to determine the EUMETCast flow a priori.

### 9.2.2 DHCP Server

When a DHCP server is used, the traffic and management DHCP clients can be enabled (see the table above), so they can be dynamically assigned an IP by the DHCP server, the interface_address into recv.ini must be dropped/commented.

- The Traffic and Mgmt Multicast are enabled;
- Traffic and Mgmt Networks are “Connected”;
- Traffic and Mgmt DHCP clients are enabled;
- One of the reception host NICs is set to a static IP: Dynamic;
- Into recv.ini: interface_address is commented or dropped.

**N-B:** Both Traffic and management ports of the SR1 are connected to the internal switch. Connecting both to an external switch may cause issues with functionality of both switches.

One of the following scenarios can be adopted:
Management Interface: 
100baseT
NIC IP: Dynamic
Tellicast, recv.ini: 
interface_address not specified
Traffic (LAN (GigE))
interface: 1000baseT, IP: Dynamic
EUMETCast reception host

Or

Management Interface: 
100baseT
Traffic (LAN (GigE))
interface: 1000baseT, IP: Dynamic
EUMETCast reception host
DHCP Server
Switch
NIC IP: Dynamic
Tellicast, recv.ini: 
interface_address not specified
Traffic and Mgmt DHCP ON
LAN and Mgmt Multicast ON
Networks Connected
LAN and Mgmt Multicast ON
Networks Connected
Traffic and Mgmt DHCP ON
9.2.3 SR1 as Switch

SR1 can be used as switch to connect the reception host to other hosts (DHCP server, LAN...):
- The Traffic and Mgmt Multicast are enabled;
- Traffic and Mgmt Networks are “Connected”.

![Diagram showing SR1 as Switch](image-url)
APPENDIX A  TROUBLESHOOTING

(1) No signal (green LED not showing lock)
   a) Antenna pointing/cable/connector problem
   b) Ayecka SR1 mis-configured, e.g the incorrect profile has been selected
   c) The wrong RF input has been used and or selected as the active device

(2) Errors showing on Statistics page
   (a) Check the antenna, LNB and dish pointing accuracy.
   (b) Faulty device (try pointing to alternative satellite to verify)

(3) Tellicast lost connection to announcement channel/losses
   (a) Misconfigured recv.ini file – check IP address is correct
   (b) Problem with gigabit interface – Try using 100Mbit on host NIC
   (c) Mis-configured PIDs on DVB receiver
   (d) Check network cables are functioning correctly
   (e) If the Ayecka interface traffic is going through existing network infrastructure equipment
      make sure multicast traffic is (1) allowed and (2) or firewall is not blocking traffic.
      Check also that the network has sufficient capacity to transport the required traffic.

(4) Cannot access box from host system via USB port
   (a) Mis-configured hyper terminal – check com port settings
   (b) USB cable fault
   (c) Power cycle the DVB receiver to attempt recovery
   (d) Faulty DVB receiver