AEQ NETBOX 8 AD AND GENELEC 8430A

AES67 AOIP COMPATIBILITY TEST WITH GENELEC 8430A AUDIO MONITORS AND AEQ AOIP MULTICHANNEL NETWORKED PRODUCTS

AEQ

CONTENS

INTRODUCTION

A series of tests have been accomplished to confirm the AES67 compatibility between AoIP ready AEQ equipment and GENELEC Audio Monitors with AoIP network connectivity.

This memorandum and quick guide shows how to connect and configure the GENELEC 8430A (IP SMART ACTIVE MONITOR) Audio Monitors with AEQ's AoIP ready equipment using the Audinate Dante Brooklyn II modules (NETBOX8 / 32, CROSSNET, ARENA, B2000D MATRIX, CONEXIA, FORUM, CAPITOL, etc...) using AES-67 AoIP Standard.

For the test was used NETBOX8 as AEQ test equipment, but all the steps can be extended to any other AEQ AoIP Network connectivity ready equipment using the DANTETM Brooklyn II Modules.

TEST REQUIRED ELEMENTS

REQUIRED/USE HARDWARE ELEMENTS:

- CONTROL PC WINDOWS 7 SP1.
- AEQ NETBOX8.
- 2 x GENELEC 8430A AUDIO MONITOR.
- 8 Port SWITCH ETHERNET 100/1000.
- GENELEC GLM CONTROL NETWORK ADAPTER.

FIRMWARE & SOFTWARE ELEMENTS USED:

AEQ NETBOX 8

1) CPU   08-06-2016. Version 1.20 NETBOX_CPU_V1.20_08_06_16.AFU

2) FPGA   05-11-2015. Version 1.04 NETBOX_FPGA_V1.04_05_11_15.AFU

3) AOIP DANTE 07-12-16. Version 3.10.1.2 NETBOX32.dnt
   AOIP DANTE 07-12-16. Version 3.10.1.2 NETBOX8.dnt

AEQ SOFTWARE

- SW NETBOX TOOL   25-11-2016. Versión 2.0.0.5

AUDINATE SOFTWARE

- DANTE CONTROLLER 3.10.0.19
- DANTE FIRMWARE UPDATE 3.10.0.9

RAVENNA SOFTWARE

- RAV2SAP CONVERTER TOOL FREEWARE ALCNETWORX
  Version 1.0.0.27

GENELEC SOFTWARE

- GLM_2.0_Windows_version_2_1_0__28_11_2016.

HOW TO CONFIGURE THE SYSTEM, STEP BY STEP

Obviously all equipment or hardware elements need to be powered.

1.- AEQ NETBOX8 AD CONFIGURATION

We configure the NETBOX8 as follows; we assume that we have one local network card (NIC) and we configure two address ranges 192.168.x.x for the AoIP network and 192.169.x.x for the NETBOX8 control network. For example, we provided the address 192.168.0.1 255.255.255.0 and 192.169.0.1 255.255.255.0 and following the corresponding user manual for the equipment (AEQ Audio Over IP Routing System), we set the following IP addresses for the NETBOX8:

CONTROL:
192.169.0.38 255.255.255.0
AOIP:
192.168.0.43 255.255.255.0

We execute the DANTE CONTROLLER SW application to register the NETBOX8 and under the "AES67 Config" tab we select AES67-ENABLED and 239.70.xxx.xxx as a prefix for the TX addresses AES67multicast flows.

1 Once accomplished, we press the reboot key to enable these configurations.:

2 Then we configure the NETBOX8 as Master PTPV2 under the "Clock Status" tab:

3 We create a Multicast flow using the first 4 Channels of the NETBOX8:
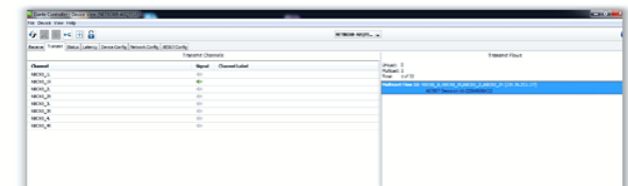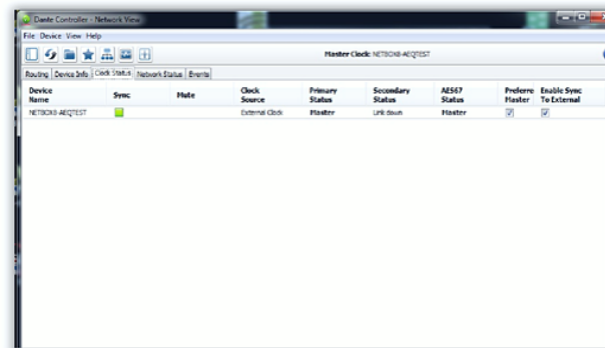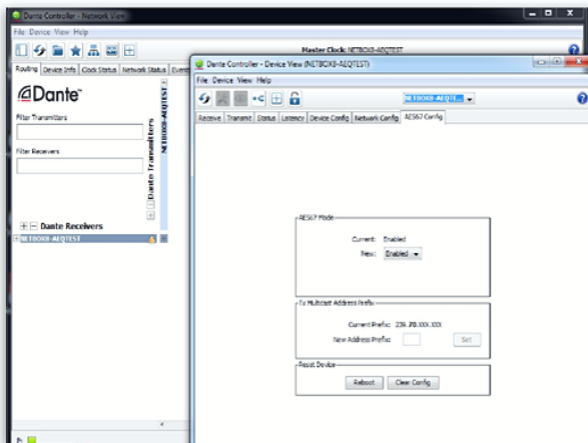
2.-USING RAV2SAP TOOL BY RAVENNA

We run the Ravenna RAV2SAP tool and wait for the AES67 stream we generated on the NETBOX8 to appear. Then, when we click on the RAV column and a window with the SDP (Sesion Description Protocol), items information opens. We "select all" and copy the information to the clipboard.

# 3.-CONFIGURATION FOR THE AES67 STREAMS FOR THE GENELEC 8430A AUDIO MONITORS

Now we can configure the AES-67 receiver of the GENELEC 8430A monitors. We establish the Ethernet connections for both Audio Monitors to the Ethernet switch to be used in this test. This connector is NOT the GLM NETWORK connector. The connector to be used is the one that is integrated in an XLR right next to the power connector.

Let's assume for a moment that the equipment is in DHCP mode. In this case we will have to re-configure the network adapter of the control PC and place it in Automatic DHCP mode. Open a web browser such as Google Chrome for example, and connect to 8430a-00-52-02.local / # / home. This address appears on a label on the back of the GENELEC Audio Monitor.

1 The two audio monitors will appear. Select one of the audio monitors and click on the "manual SDP" button in the "Stream consumer" window and we copy form the clipboard the SDP information to both channel1 and channel2.
We select for example Channel 1 of the AES67 stream for "INPUT A" and Channel 3 for "INPUT B". Finally, press the "Apply all" button to apply the changes:

2 We click on the "Advanced" tab and set the PTP clock to SLAVE mode according to the following screenshot. Finally, press the "Apply all" key to apply the changes:

3 We click on the tab "general settings" and set the AoIP IP manual 192.168.0.15 255.255.255.0 and the other options according to the screenshot below, and finally, press the "Apply all" key to apply the changes:
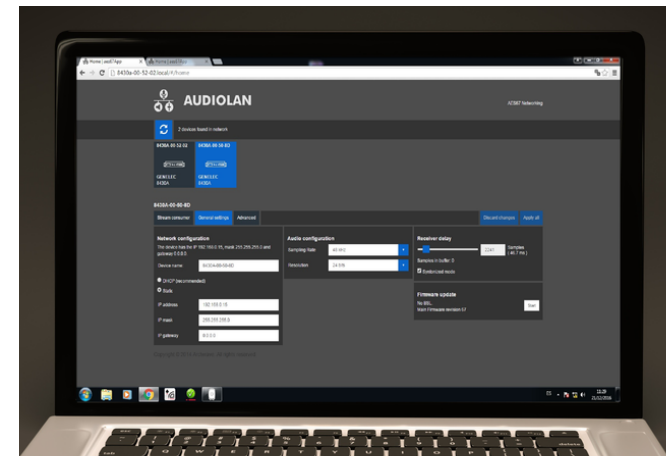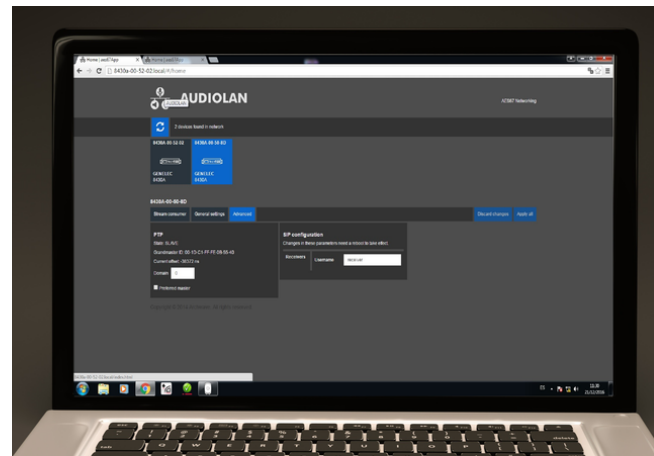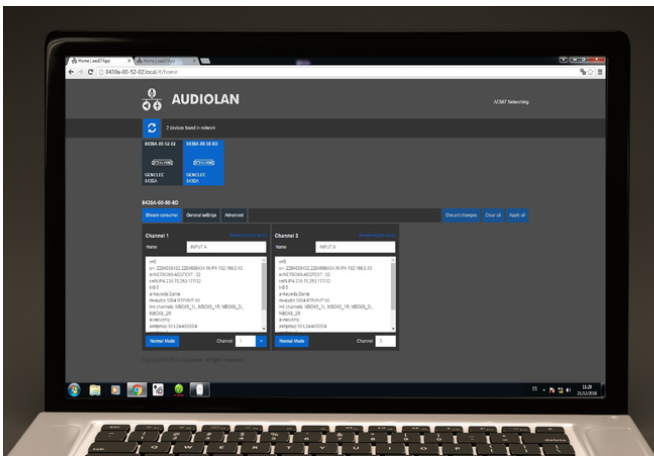

We select the second Audio Monitor and repeat the configuration process changing the IP data (192.168.0.16; 255.255.255.0) Channels 2 INPUT A and 4 INPUTB, etc...

Finally, we change the configuration of the network adapter of the control PC (as described in step 1) and reconnect with the browser to both monitors and check that all settings/configurations are correct.

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4.- SELECTION OF THE DIGITAL AES67 INPUT ON THE GENELEC 8430A AUDIO MONITORS USING THE GENELEC GLM SOFTWARE APPLICATION

To be able select the AES67 digital input on the audio monitors through the control network we connect the USB port of the control PC to the GLM NETWORK ADAPTER and connect the RJ45 connector of this adapter to the GLM NETWORK RJ45 connector on each audio monitor. There is also a daisy chain connection option from one monitor to another.
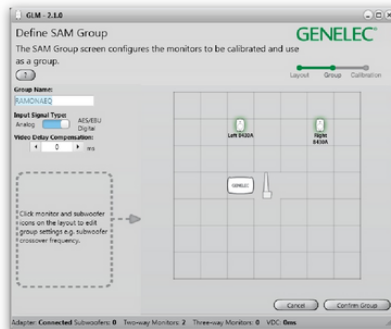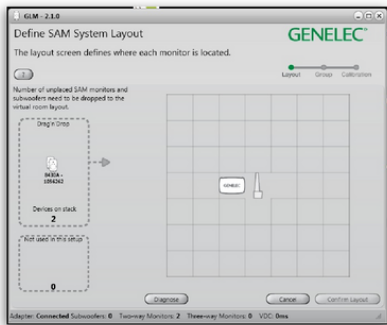
① Then run the GLM control application:

② We define a Group with the two Audio Monitors and we select the Input Signal Type to "AES/EBU Digital" and then we click on "confirm group".
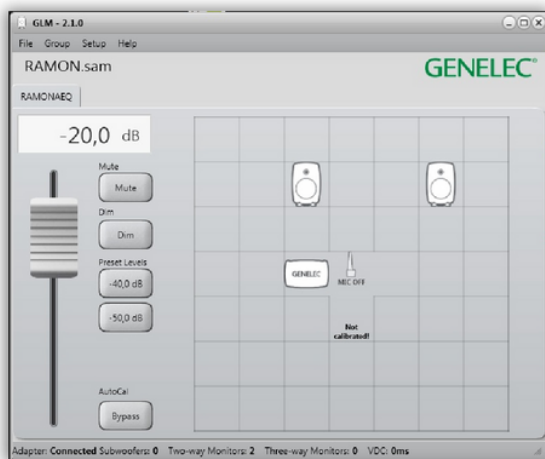
③ From now on, the analogue inputs 1 and 2 of the NETBOX8 are AES67 outputs and present at the GENELEC Audio Monitors Inputs and we can use the GLM control SW for the complete management of the active monitoring (gain control, dim, solo, etc ...) that can be required for the installation.

NOTE: Do not forget to press the power-on key on the back of each audio monitor to enable the audio output of the monitors.

CONCLUSION

This exercise demonstrates the viability of the AES67 AoIP link and its perfection. On the other hand, it is clear that the procedure for configuration is not elementary. To avoid spending a lot of time on this, it is necessary to have access to a configuration guide like this one or to be trained in the configuration processes for all the equipment from different manufacturers to be used. The tools that RAVENNA and DANTE are providing to enable and simplify connectivity and compatibility are effective, but must be used separately and in a coordinated way.

It is expected that over time, these procedures can be simplified and as certainly required by regular users, becoming a more user-friendly configuration.

ANNEX:
- AEQ Audio Over IP Routing System, users manual (http://www.aeq.eu/products/aeq-aoip-networking)
- 8430a_opman_ip, operating manual
- Genelec_GLM_2.0_System_Operating_Manual

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