Compliance Department
Accredited by ENAC according to EN ISO/IEC 17025:2005

Nº 827/LE1882

EMC Test Report

Customer: **NEEC AUDIO BARCELONA, S.L.**

Product type: **Energy Star 100V Audio Power Amplifier**

EUT Model: **ECLER HSA 2-400ES**

Serial number: **Sample 1**

Test Report ID Number: **BE2015114**

Test Report version: **1.0**

Total Number of pages: **22**

Test standards:

FCC RULES AND REGULATIONS 47 CFR PART 15, SUBPART B (10-01-12 Edition) DEVICE CLASS A.

Edited by:	***Revised and approved by:***
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REVISION PAGE

Date	Issued by	Pages	Item	Description
15/12/2015	M.A. Garcia	22	1.0	Original Release

Report Index

1.0 Technical Details

1.1 Test standards and results

Overview about the different emission measurements

EMISSION					
Kind of Test	Test Carried Out	Used Standard	Results o.k.	not o.k.	Test Page No.
Radiated Emissions (30MHz-1GHz) ***Electromagnetic Field strength at 3m***					
- Enclosure	☒	FCC 47 CFR PART 15 subpart B	☒	☐	15
Conducted Emissions (150kHz–30MHz) ***Disturbance Voltage***					
- AC power supply port	☒	FCC 47 CFR PART 15 subpart B	☒	☐	16

Complete Test Results
The measurement was carried out according to the previous mentioned standards. Deviations from the standards are listed at the specified tests.

Exceeding of the limits was observed:

☐ **YES** ☒ **NO**

Comment :
The test result is only valid for the equipment tested.
In following cases the compliance with relevant standards for the system has to be ensured again:

I. Tested product will not be used with other components than those mentioned in this report.
II. Tested product will not be used in other modes than those described in the manufacturer descriptions.

Viladecavalls (Barcelona), December 15th, 2015

2.0 General Details

2.1 Test laboratory

Department/group:	**EMC Compliance Department**
Laboratory address:	**IDNEO Technologies S.L.** **Polígono Industrial, Can Mitjans s/nº, C.P. 08232 Viladecavalls (Barcelona), Spain**
Telephone:	**+34-93-706-8400**
Fax:	**+34-93-700-8168**
Contact person:	**Mr. David Ortiz**
Phone contact:	**+34-93-700-8471**
Email contact:	**david.ortiz@idneo.es**

2.2 Client details

Company name:	**NEEC AUDIO BARCELONA, S.L.**
Department/group:	**R+D**
Company address:	**C/ Motors, 166-168** **08038 Barcelona - Spain**
Contact person:	**Sr. Josep Mª. Mas**
Phone contact:	**+34 93 223 84 00**
Fax contact:	**+34 93 223 84 04**
Email contact:	**j.mas@ecler.es**

2.3 Dates of order

Incoming date of order : 04/11/2015

Incoming date of the test object : 04/12/2015

Date of test: From: 04/12/2015 Until: 04/12/2015

2.4 Test object

Product type:	Energy Star 100V Audio Power Amplifier
Tested model:	ECLER HSA 2-400ES
Serial number:	Sample 1
Brand:	ECLER
PCB version:	V 0.1
Input ratings:	90-264Vac / 47-63Hz
EUT status:	Engineering sample
Auxiliary Equipment :	Cable Euroblock 2 x1.5mm². Qty 2 Connecting the outputs to the loads. Dual XLR M to single XLR F. Qty 1 Connecting the noise generator to the inputs. Remote+cable. Qty 1 Connected to the REMOTE port. AC Power Cord. Qty 1 Providing power to the amplifier. Pink noise generator. Qty 1 Providing input signal. 25 ohm loads. Qty 2 Simulating the speakers connected to the output.

EUT operating mode description during the tests (Mode1):

The set up using during RE and CE testing is described below :

Both 100V speaker outputs of the amplifier were connected to 2 dummy loads of 25 ohm.

CHANNEL 1 & CHANNEL 2 input channels were connected to a pink noise generator adjusted for 1/8W of nominal power.

A WPmVOL remote control was connected to the REMOTE input

2.5 Details about uncertainty measurement.

In case of measurement results close to the limit, there is the possibility, that due to the measurement uncertainty Ux = k *σt (σt = $\sqrt{\sigma_1^2 + \sigma_2^2 + ...+ \sigma_n^2}$ standard deviation of the total accumulated error), at a confidence level of 95% (k =2), the limits are indeed exceeded!.

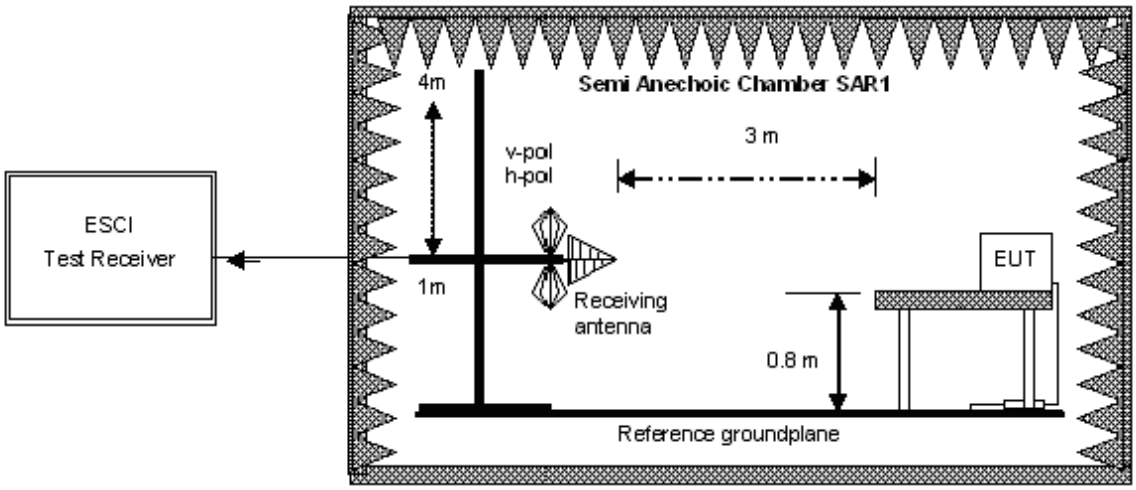
Test measurement	**Uncertainty** **(Expanded Uncertainty)**
Radiated Emissions at 3 m distance	**±3.9 dB**
Conducted Emissions at power port	**±2.6 dB**

Measurement protocols and test setups

3.1 Emissions

3.1.1 Radiated Emissions in semianechoic chamber (80MHz-1GHz) at 3m

Test setup



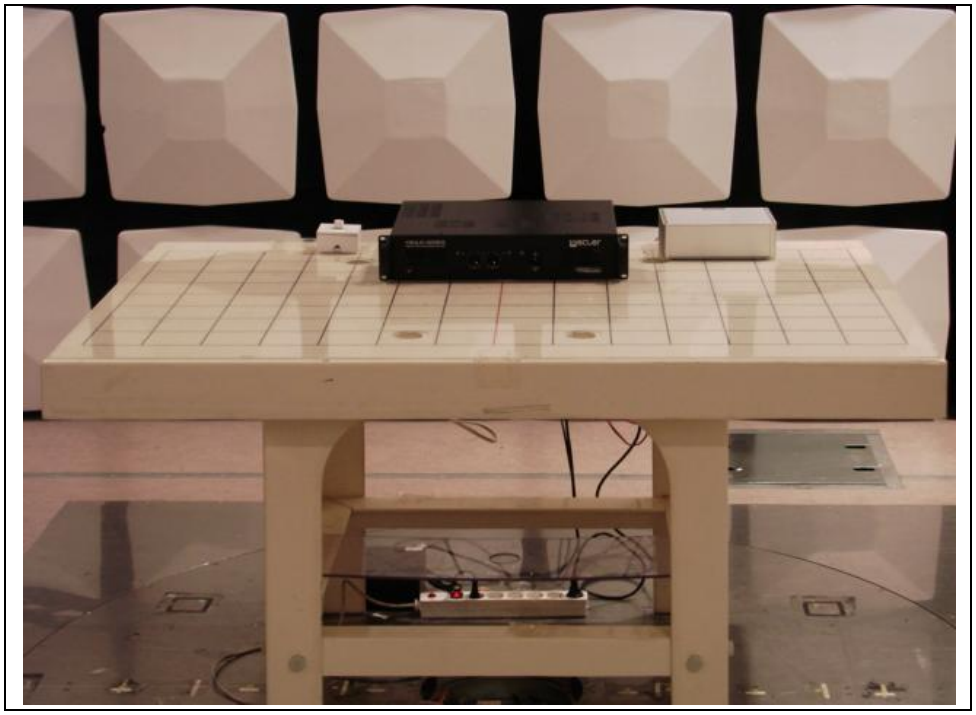
Operation Modes

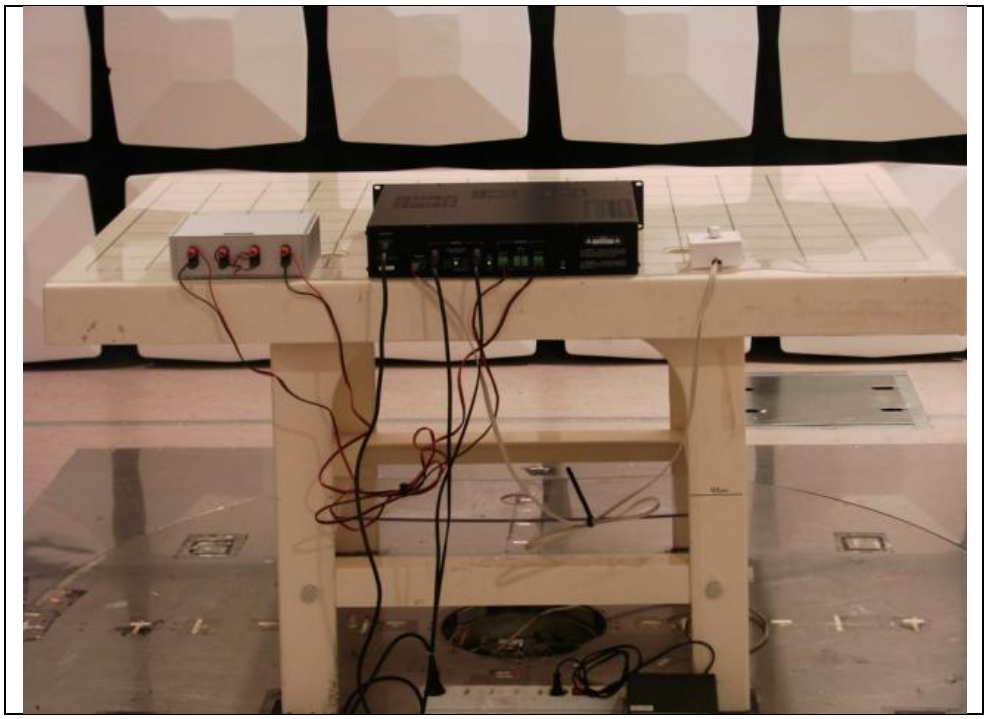
Following operation modes have been applied to the EUT:	EUT working as described in MODE 1

Accessories used for these measurements: ***described in clause 2.4.***

Test set up photo for EUT

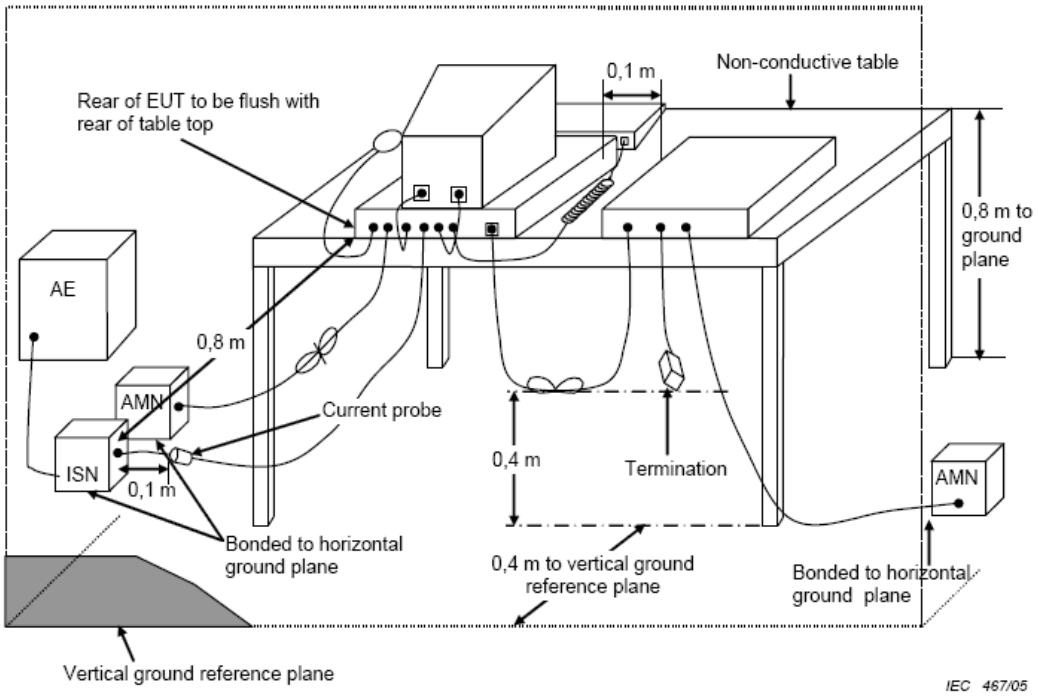
Enclosure





3.1.2 Conducted Emissions at AC power port

Test setup



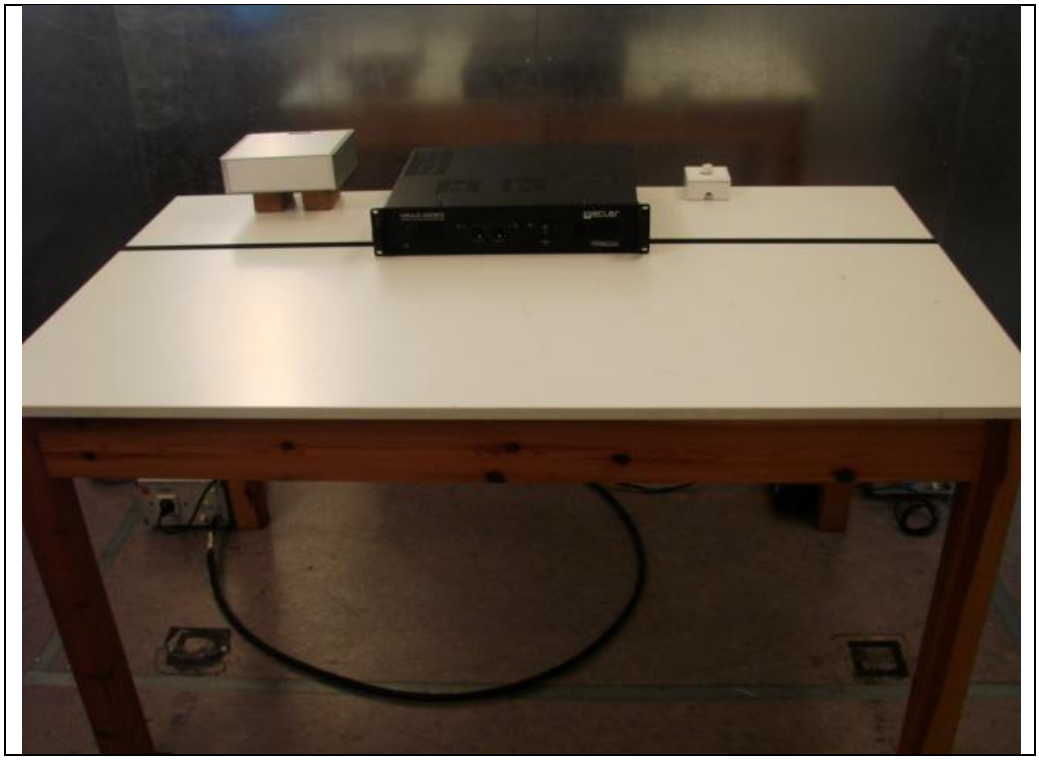
Operation Modes

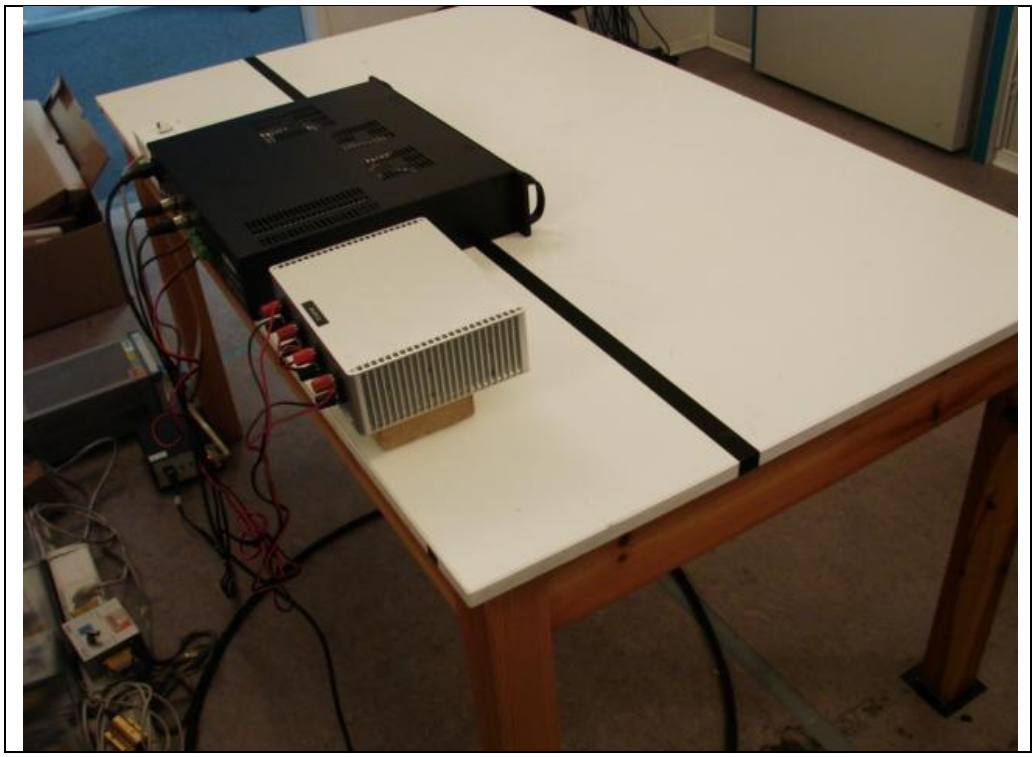
Following operation modes have been applied to the EUT:	EUT working as described in MODE 1

Accessories used for these measurements: ***described in clause 2.4.***

Test set up photo for EUT

AC power supply port

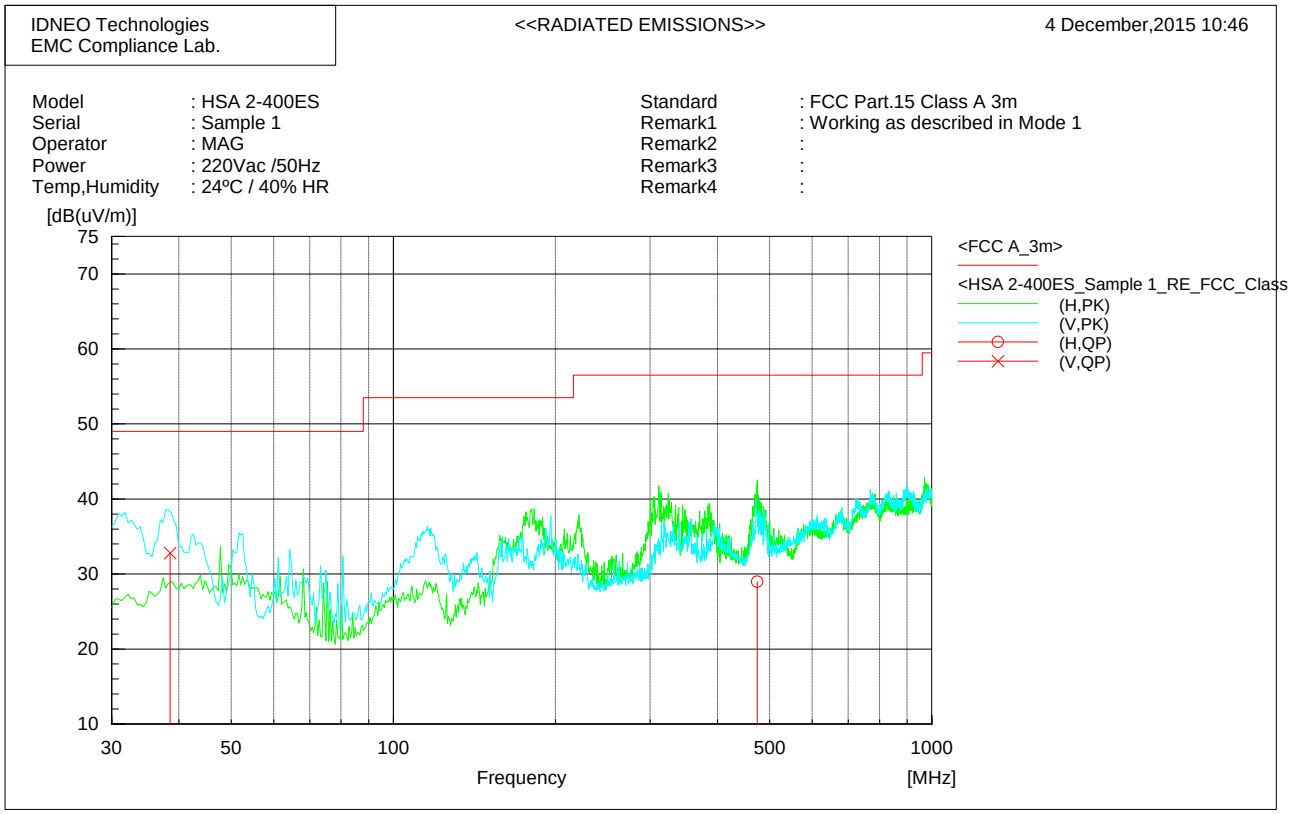




4. Measurements

4.1 Emission measurements

4.1.1 Radiated Emissions from 30MHz to 1GHz



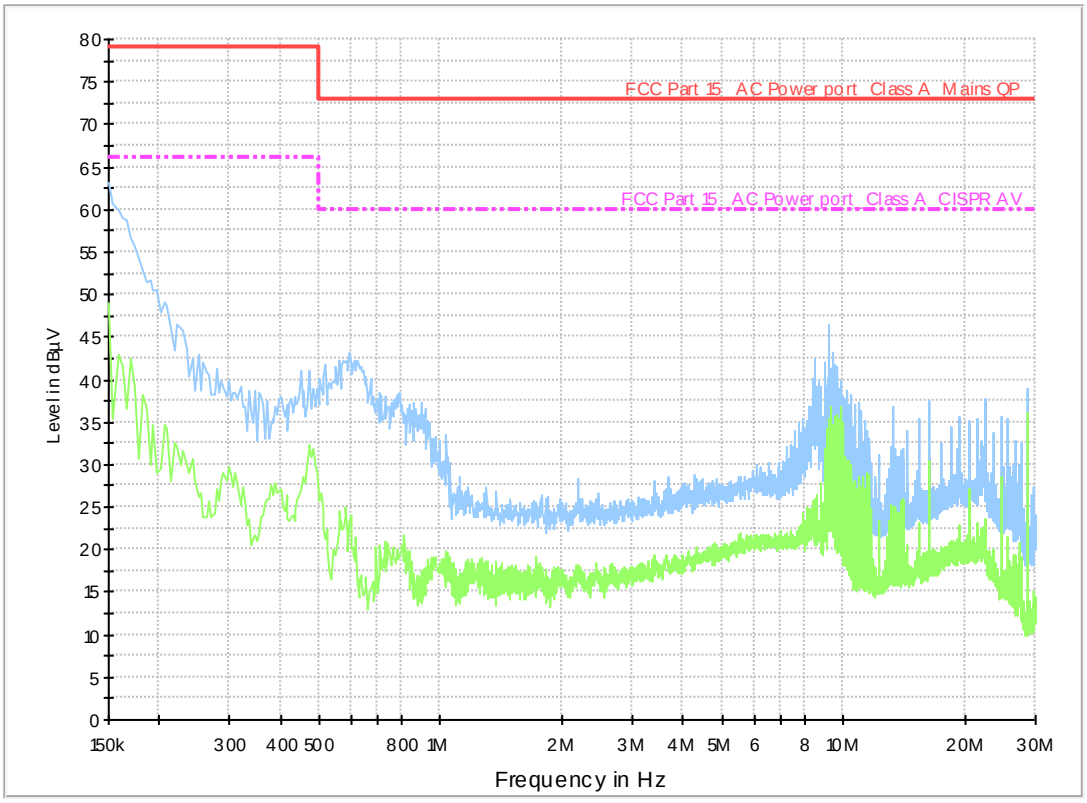
Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]
1	38.504	V	13.9	18.9	32.8	49.0	16.2	100.0	324.6
2	474.099	H	2.8	26.2	29.0	56.5	27.5	160.0	218.5

4.1.2 Conducted Emissions EUT

4.1.2.1 Conducted emissions at AC power port

EUT Name:	ECLER HSA 2-400ES
Serial Number:	Sample 1
Test Description:	Conducted Emissions test
Operating Conditions:	22ºC / 49% HR
Operator Name:	MAG
Comment:	Working as describe in Mode 1 / Input rating 110Vac/60Hz
Test Report ID.:	BE2015114
Date:	04/12/2015



5.0 Measurement Remarks

Deviations from the applied test specification

- no deviations -

Remarks:

The device has no oscillators inside. Therefore radiated emission testing has been performed up to 1GHz.

Used Components:

N/A

Other Participants:

Two NEEC members were present during the EMC tests.

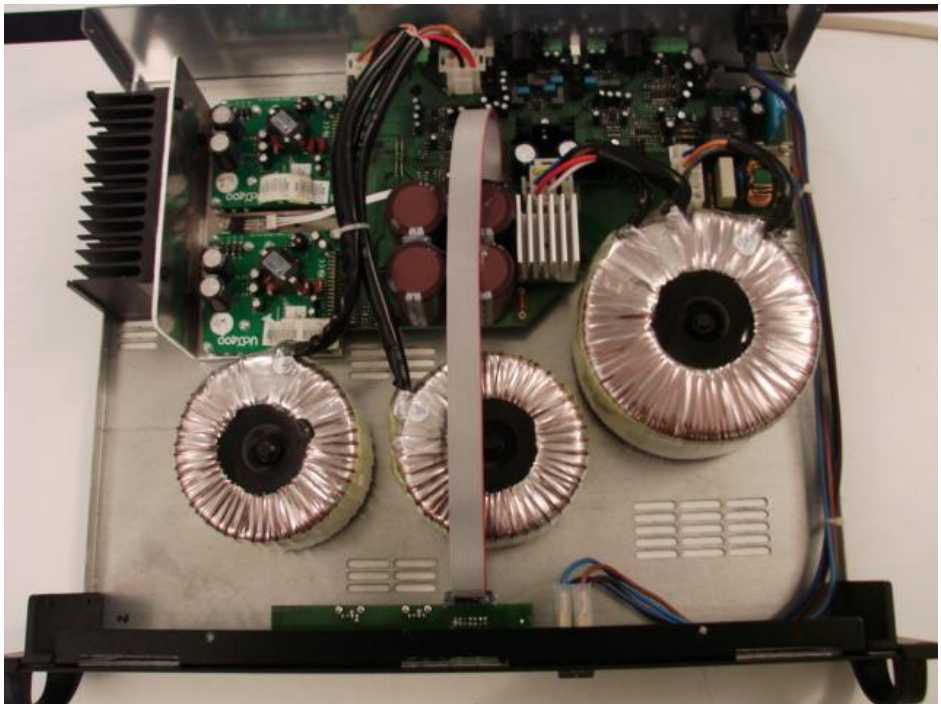
6.0 Photos of equipment under test

HSA 2-400ES

HSA 2-400ES – General View

HSA 2-400ES – Control Pannel

HSA 2-400ES – I/O ports



HSA 2-400ES – Opened

AUXILIARY EQUIPMENT

Wall volume control (0-10V) with cable supplied by customer

Pink Noise Generator with cable supplied by customer

4X25Ω dummy load with cable supplied by customer

AC power cord supplied by customer

7.0 List of measurement equipments

ID	MODEL	TYPE	MANUFACT	SERIAL_NR	LOCATION
421	ESCI	EMI receiver	Rohde & Schwarz	121994001829	CR1
425	ENV216	LISN	Rodhe&Schwarz	121994001801	CR1
433	VULB9163	Comb Broadband antena	Schwarzbeck	226	SAR1
435	DC-12.4Ghz	6dB Atenuator	Huber Suhner	6806.17.A	SAR1
512	645	Temperature/Humidity Meter	Testo	830003/04	CR1
540	ESCI	EMI Receiver	R&S	121994001882	CR1
550	W10.03	Cable Conducted EMI	R&S	1502.9687	CR1
562	K-219940018/002/003	Cable EMI radiated emissions SAR1-CR1	Sucoflex	#	SAR1
652	335 3609	Cable EMF low emissions	Huber Suhner	335 3609	SAR1
650	ENV216	LISN	Rodhe&Schwarz	100300	CR1
691	THERMO-HYGRO	RS 413-7617	RS	CR1	CR1
693	THERMO-HYGRO	RS 413-7617	RS	SAR1	SAR1
694	Enviroflex 393	EMI cable with ferrites	Huber Suhner	SAR1	SAR1
699	ESU26	EMI receiver	Rohde & Schwarz	100203	CR1