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The Netherlands
Chamber of Commerce
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FCC Test report for parts 15.107, 15.109

Product name : VF 7-100-H

Applicant : Grass Valley Nederland B.V.

Test report No. : 200301029 003 v1.00

Laboratory information

Accreditation

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2017. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Designation number is: NL0001.

Telefication is a Wireless Device Testing laboratory recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.
The Industry Canada registration number for the 3 meter test chamber of Telefication is: 4173A-1.

Telefication is a registered Conformity Assessment body (CAB) under the Japan-EC MRA (Agreement on Mutual Recognition between Japan and the European Community). The registration number is: 201.

Documentation

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at Telefication Netherlands.

Testing Location

Test Site	Telefication BV
Test Site location	Edisonstraat 12a 6902 PK Zevenaar The Netherlands Tel. +31316583180 Fax. +31316583189
Test Site FCC	NL0001

Revision History

Version	Date	Remarks	By
v0.50	09-06-2020	First draft	GG
v1.00	19-08-2020	First version	GG

Table of Contents

Summary of Test results

FCC	Description	Section in report	Verdict
15.109 (b)	Radiated spurious emissions	3.1	Pass
15.107 (b)	Conducted spurious emissions on AC mains	3.2	Pass

1 General Description

1.1 Applicant

Client name:	Grass Valley Nederland B.V.
Address	Bergschot 69
Zip code:	4817 PA Breda
Telephone:	+31 763032129
E-mail:	leon.derks@grassvalley.com
Contact name:	L. Derks

1.2 Manufacturer

Manufacturer name:	Grass Valley Nederland B.V.
Address:	Bergschot 69
Zip code:	4817 PA Breda
Telephone:	+31 763032129
E-mail:	leon.derks@grassvalley.com
Contact name:	L. Derks

1.3 Tested Equipment Under Test (EUT)

Product name:	VF 7-100-H
Brand name:	Grass Valley
Product type:	7" Flat pannel viewfinder for Grass Valley LDX 100 broadcast camera system.
Model(s):	--
Batch and/or serial No.	3YEFW
Software version:	Package V00.02
Hardware version:	Validation build
Date of receipt	18-05-2020
Tests started:	20-05-2020
Testing ended:	25-05-2020

VF7-100-X is an viewfinder which needs to be attached to the camera LDX-100.

1.4 Product specifications of Equipment under test

None.

1.5 Environmental conditions

Test date	20-05-2020	25-05-2020
Ambient temperature	23.2 °C	22.7°C
Humidity	39.3 %	41.0 %

1.6 Measurement standards

- ANSI C63.4:2014

1.7 Applicable standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart B §15.107
- FCC Part 15 Subpart B §15.109

1.8 Observation and remarks

The EUT is considered Class B equipment.

1.9 Conclusions

The sample of the product showed NO NON-COMPLIANCES to the specifications stated in paragraph 1.7 of this report.

The results of the test as stated in this report, are exclusively applicable to the product items as identified in this report. Telefication accepts no responsibility for any properties of product items in this test report, which are not supported by the tests as specified in paragraph 1.7 *"Applicable standards".*

All conducted tests are performed by:

Name : P. van Wanrooij, BASc

Review of test methods and report by:

Name : ing P.A. Suringa

The above conclusions have been verified by the following signatory:

Date : 02-10-2020

Name : ing. R. van Barneveld

Function : Test Engineer

Signature :

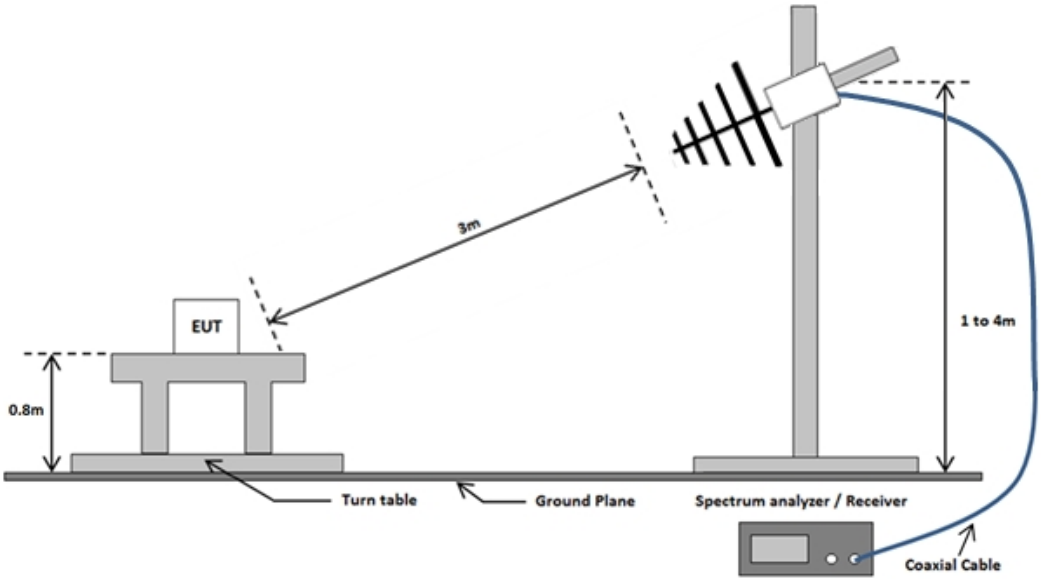
2 Test configuration of the Equipment Under Test

2.1 Test mode

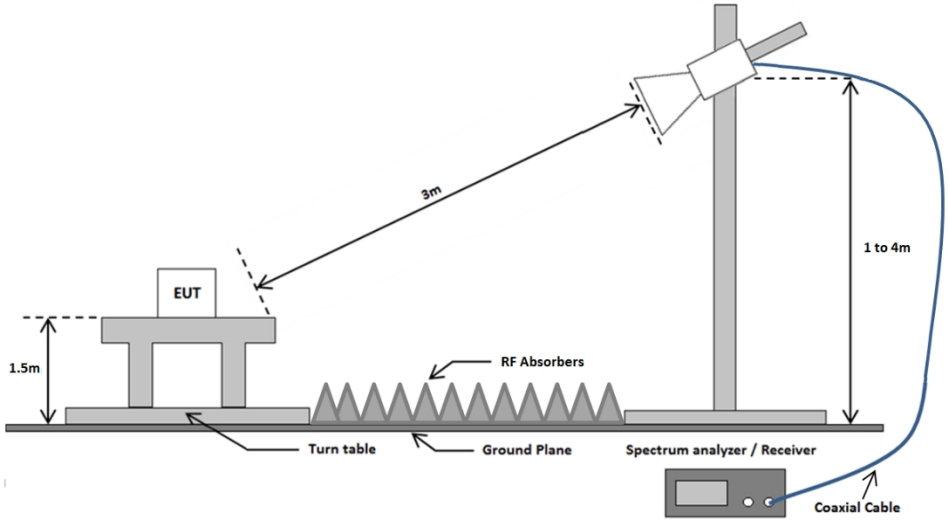
The EUT is tested in normal operating mode, with all ports connected.

2.2 Test setups

Radiated emissions test setup 30 MHz - 1 GHz

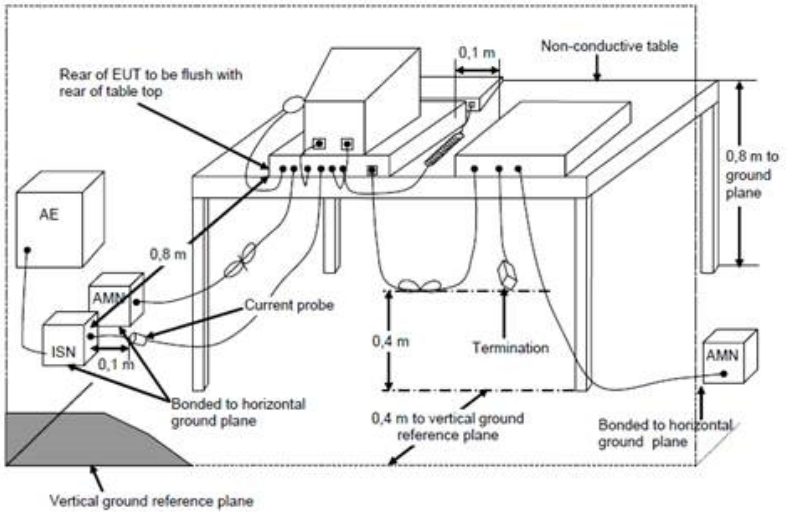


Radiated emissions test setup above 1 GHz



Conducted emissions test setup

Emissions test at AC mains



2.3 Equipment used in the test configuration

Description	Manufacturer	Model	ID	Used at Par.
Semi Anechoic Chamber	COMTEST	--	TE 00861	3.1
Antenna mast 4 m	inn-co	MA 4000	--	3.1
Controller mast &rotating table	inn-co	CO 3000	--	3.1
Turntable SAC	inn-co	DS 1200S	--	3.1
Bilog antenna 30 MHz-2000 MHz	Chase	CBL6112A	TE 00967	3.1
Horn antenna 1-18 GHz	EMCO	3115	TE 00532	3.1
High pass filter > 2.7 GHz	Waintwright Instruments	WHK3.0/18G-10EF	TE 01140	3.1
Pre-amplifier 1-18 GHz	MITEQ	AFS42-041001800-28-10P-42	TE 11132	3.1
Power supply for pre-amplifiers	Delta Elektronika	MST 030-10	TE 00518	3.1
Green 7 m cable for antenna	Micro Coax	FB142A1070002020	TE 01315	3.1
Comb generator 1-18 GHz for test setup validation	COM-POWER	CGO-5100B	TE 01313	3.1
Radimation EMC test software	Dare Instruments	RMS1001A	TE 02008	3.1
EMI test receiver 10 Hz -7 GHz	Rohde & Schwarz	ESR7	TE 01220	3.1
FSP Analyzer 9 kHz – 40 GHz	Rohde & Schwarz	FSP	TE 11125	3.1
Netsimulator	Rohde & Schwarz	ESH2-Z5	TE 00130	3.2
Two line V-network (Line Impedance Stabilisation Network)	Rohde & Schwarz	ESH3-Z5	TE 00208	3.2
Impulsbegrenzer	Rohde & Schwarz	ESH3-Z2	TE 00756	3.2
Coupling and decoupling network	Schaffner	ISN T400	TE 00796	3.2
CDN-T2	Rohde & Schwarz	ESH3-Z4	TE 01142	3.2
EMI Test Receiver 9 kHz to 3 GHz	Rohde & Schwarz	ESCI	TE 11128	3.2
Transformer	Neuberger	--	TE 00819	3.2
Radimation EMC test software	Dare Instruments	RMS1001A	TE 02008	3.2

3 Test results

3.1 Radiated spurious emissions

3.1.1 Limit

15.109 (b)
The field strength of radiated emissions from a Class B digital device shall not exceed the following:

Frequency of emission (MHz)	Field strength at 3m
30 - 88	40.0
88 – 216	43.5
216 – 960	46.0
960 and above	54.0

3.1.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.1.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.1.4 Test procedure

30 MHz to 26.5 GHz: According to ANSI C63.4-2014, section 8.3

30 MHz to 1 GHz: IRN 026 – Method 1
1 GHz to 18 GHz: IRN 026 – Method 2
18 to 26.5 GHz: IRN 026 – Method 3

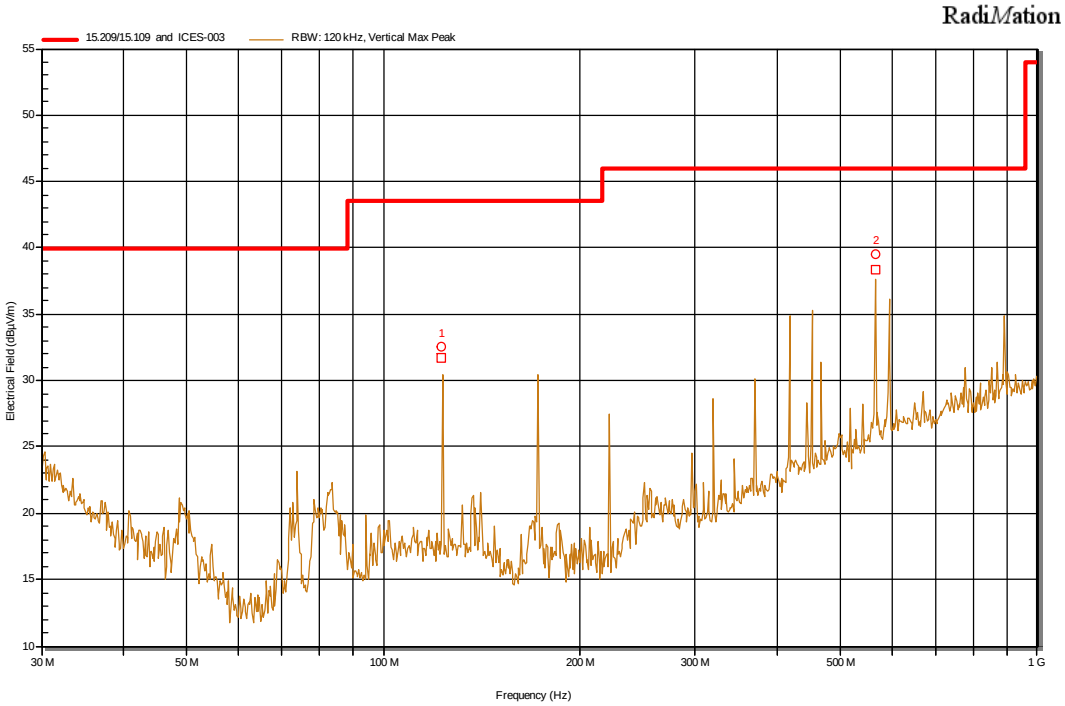
3.1.5 Measurement Uncertainty

Frequency range	Polarization	Uncertainty
30 – 200 MHz	Horizontal	±4.5 dB
	Vertical	±5.4 dB
200 -1000 MHz	Horizontal	±3.6 dB
	Vertical	±4.6 dB
1 – 18 GHz	Horizontal	±5.7 dB
	Vertical	±5.7 dB
18 – 26.5 GHz	Horizontal	±4.9 dB
	Vertical	±4.9 dB

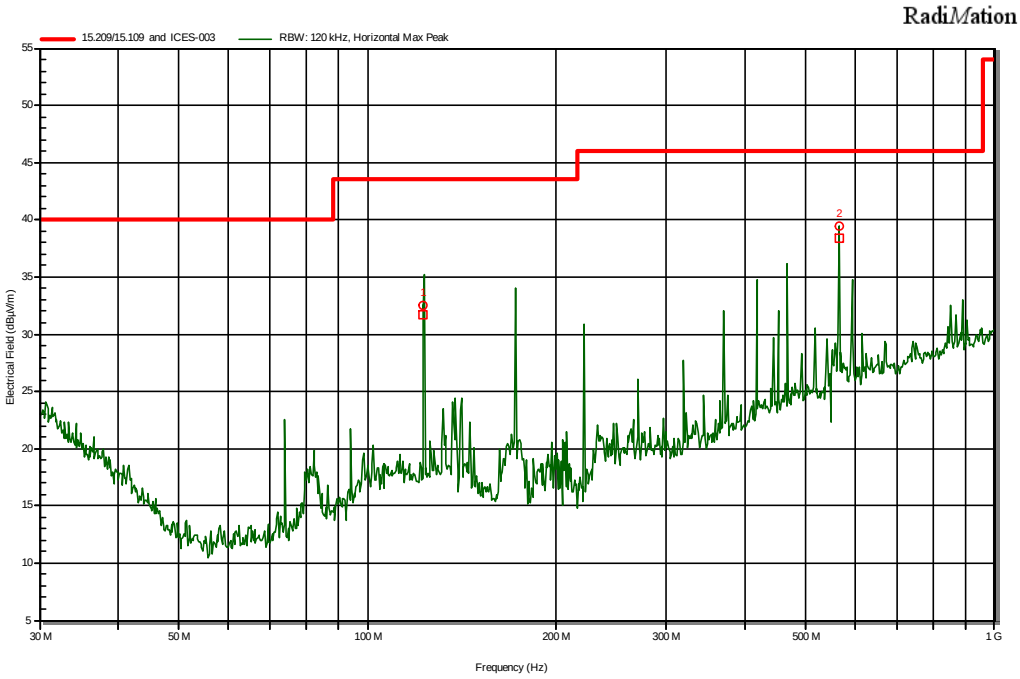
3.1.6 Plots of the Radiated Spurious Emissions Measurement

30 -1000 MHz LDX100 & VF7-100

Vertical polarization

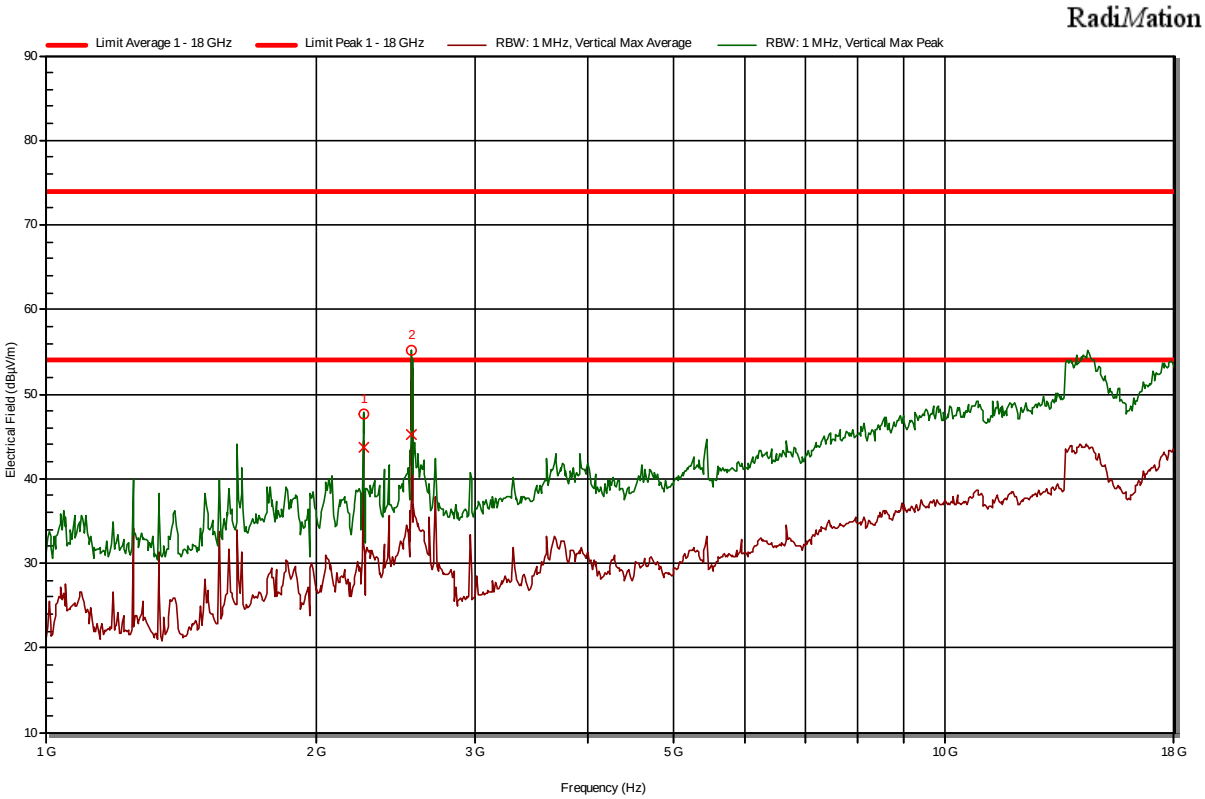


Horizontal polarization

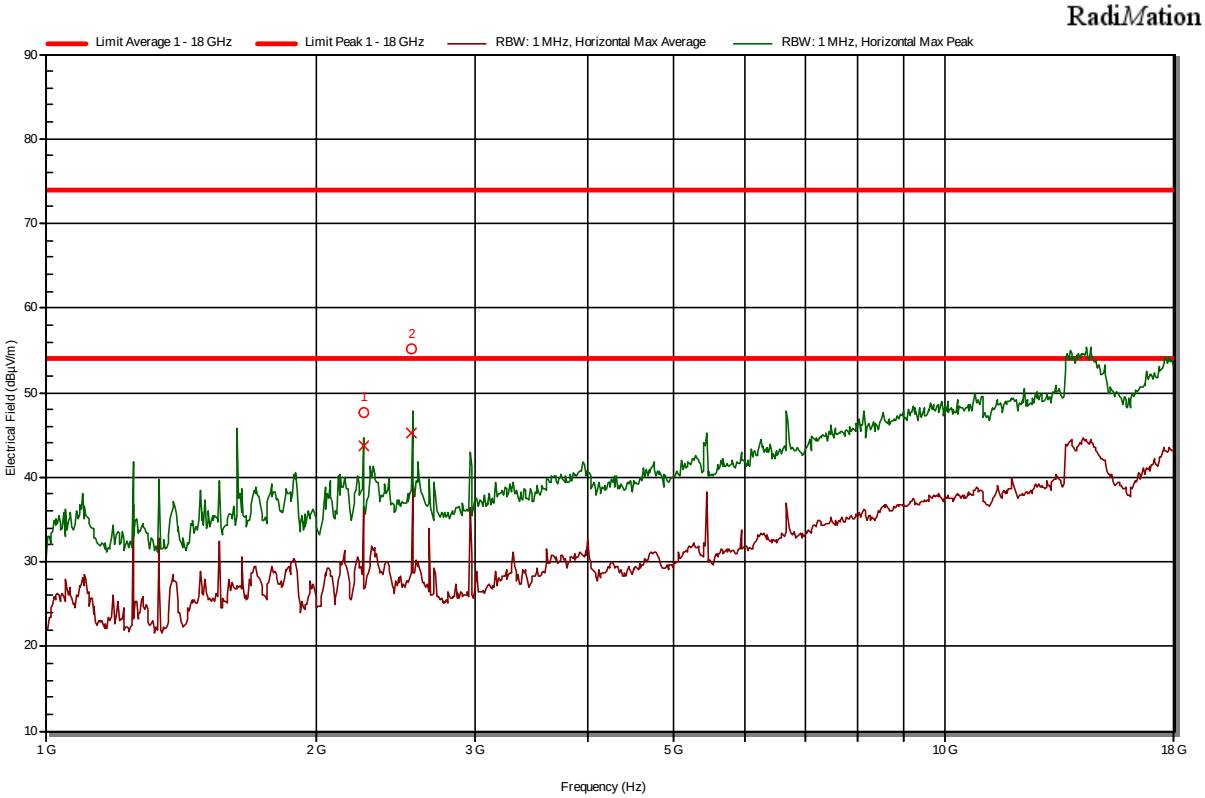


1 -18 GHz

Vertical polarization



Horizontal polarization



3.2 Conducted emissions

3.2.1 Limit

According to 15.017(b), Class B

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-Peak	Average
0.15 – 0.50	66 to 56*	56 to 46*
0.50 – 5.0	56	46
5.0 - 30	60	50

*decreases with the logarithm of the frequency

3.2.2 Measurement instruments

The measurement instruments are listed in chapter 2.3 of this report.

3.2.3 Test setup

The test setup is as shown in chapter 2.2 of this report.

3.2.4 Test procedure

According to ANSI C63.4: 2014, section 13.3
IRN 029 Conducted disturbance – Method 1: AC mains conducted disturbance.
IRN 029 Conducted disturbance – Method 2: Wired network port conducted disturbance.
IRN 029 Conducted disturbance – Method 3: Current probe test method.

3.2.5 Test results and plots of the AC mains conducted measurement

See next page.

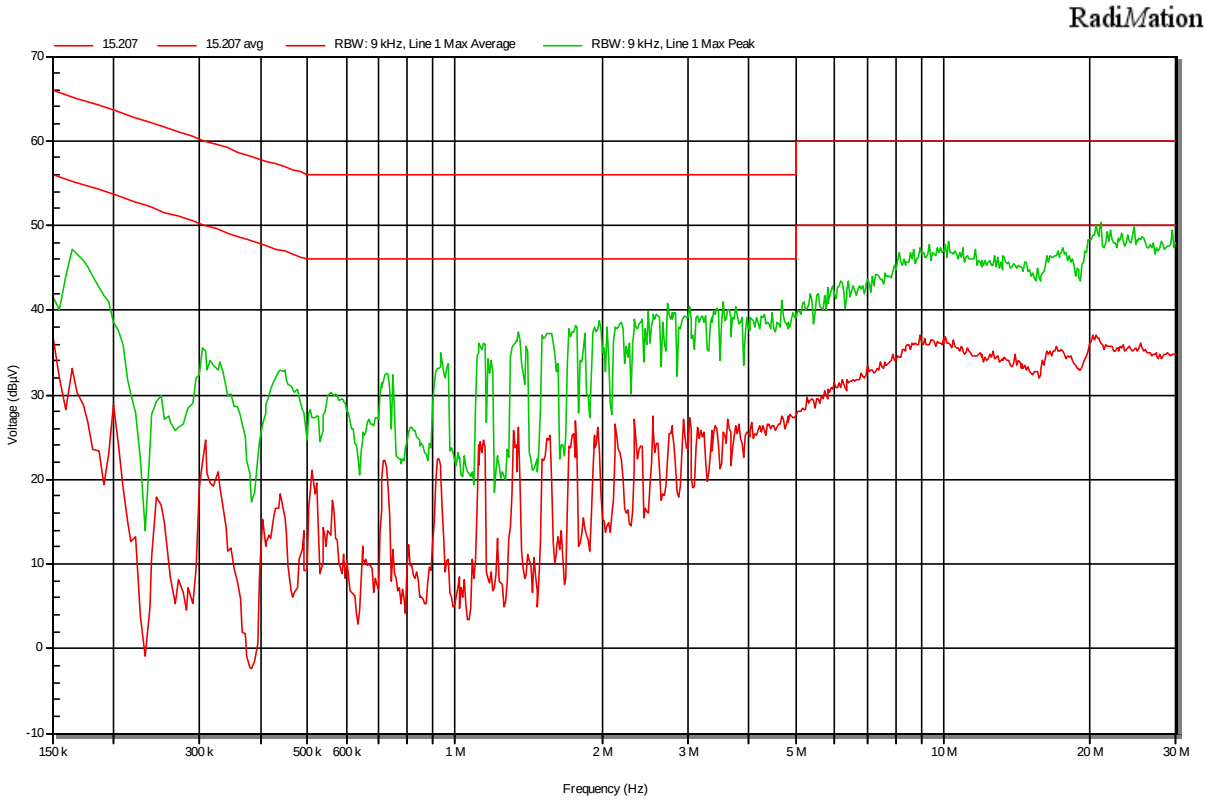
3.2.6 Measurement uncertainty

Method 1: +/- 2.5 dB.
Method 2: +/- 2.2 dB.
Method 3: +/- 2.6 dB.

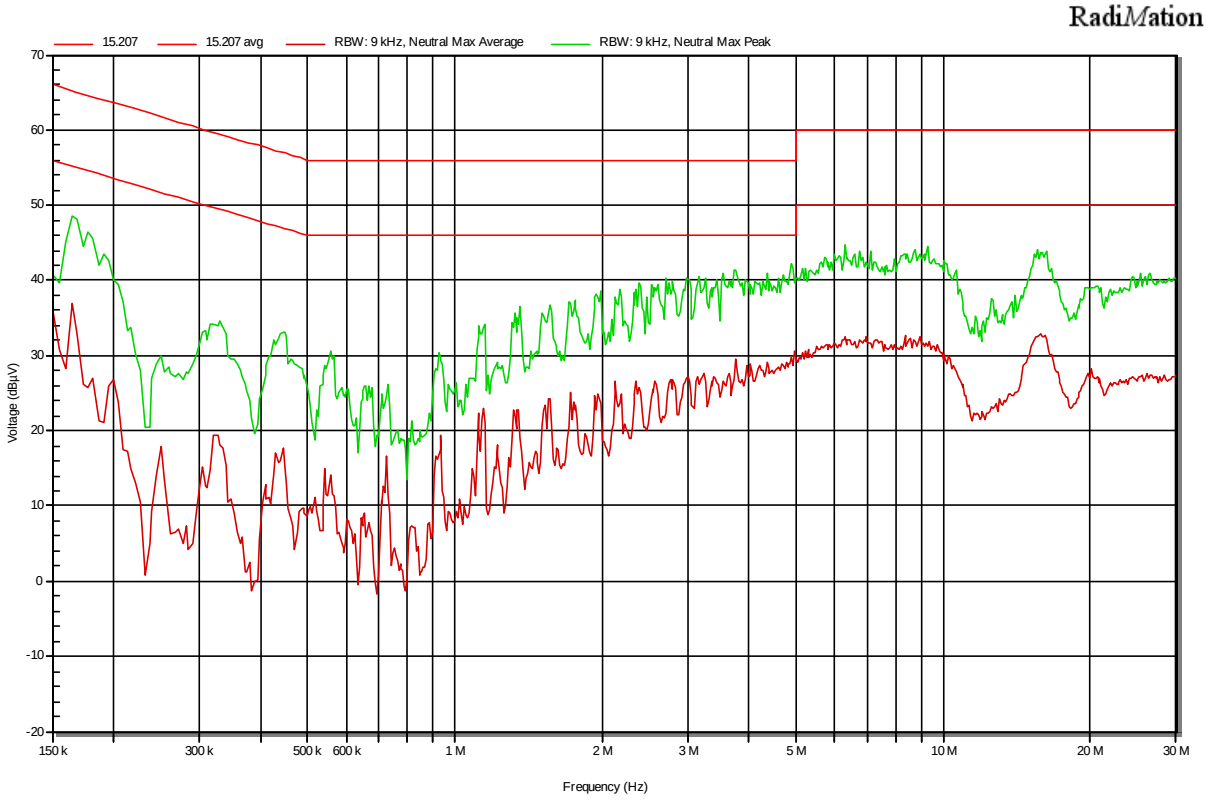
3.2.7 Plots of the AC mains conducted spurious measurement

15 V AC/AC adapter

Phase

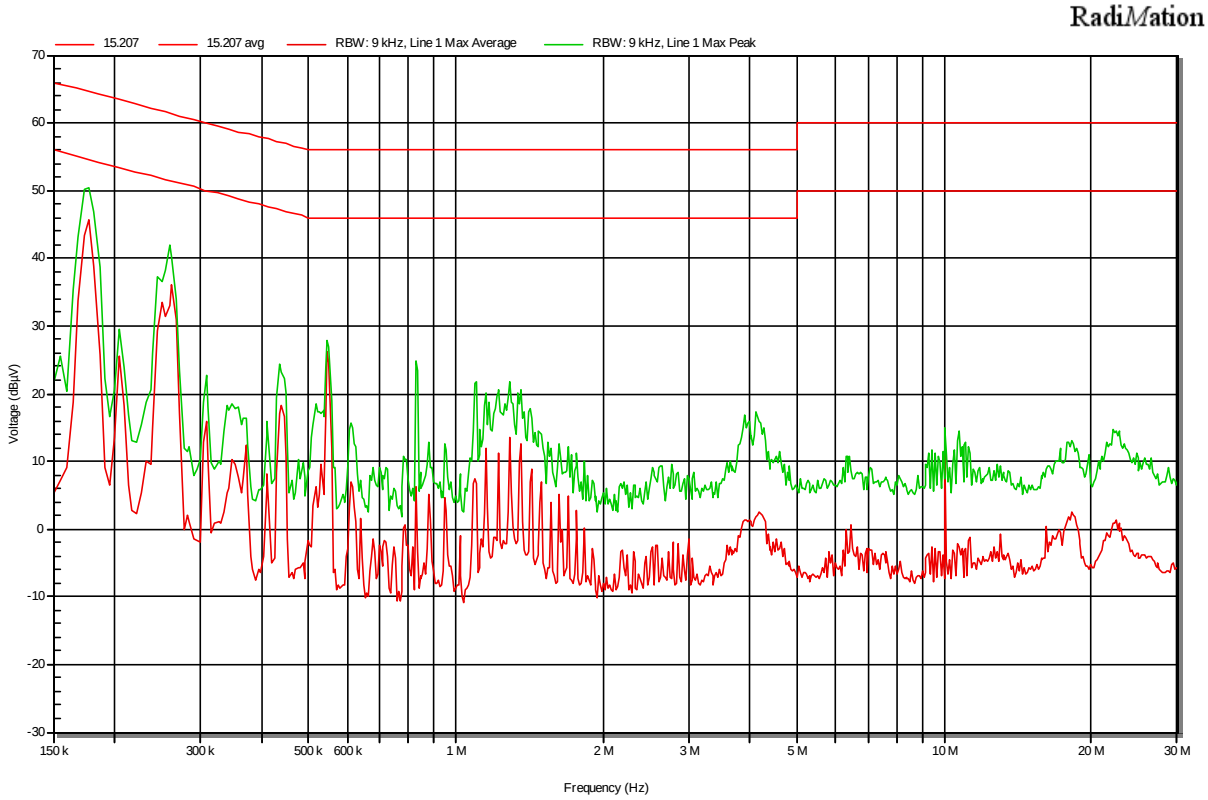


Neutral



300 V dedicated power supply

Phase



Neutral