

FCC and IC Test report for parts
15.107, 15.109 15.207, 15.209, 15.247,
RSS-247, RSS-Gen

Product name : Skinly3
Applicant : PNE Benelux BV
FCC ID : 2A32B-SKINLY
IC ID : 28056-SKINLY

Test report No. : 210600357 001 Ver 2.00

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).

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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	Kiwa Telefication BV
Test Site location	Wilmersdorf 50 7327 AC Apeldoorn The Netherlands Tel. +31 88998 3393
Test Site FCC	NL0001
CABID	NL0001

Revision History

Version	Date	Remarks	By
v0.50	19-11-2021	First draft	KK
v1.00	27-01-2022	Final Version	KK
V2.00	31-01-2022	Manufacturer information updated	KK

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Summary of Test results

FCC	ISED	Description	Section in report	Verdict
15.247(d) 15.209 (a)	RSS-Gen 8.9	Radiated spurious emissions	3.1	Pass
15.205 (a)	RSS Gen 8.10	Spurious emissions in the restricted bands	3.1	Pass
15.247 (a)	RSS-247 5.2(a)	6 dB bandwidth	3.2	Pass
--	RSS-Gen 6.7	99% bandwidth	3.3	Pass
15.247 (b)	RSS-247 5.4 (d)	RF output power	3.4	Pass
15.247 (e)	RSS-247 5.2 (b)	Power spectral density	3.5	Pass
15.247 (d)	RSS-247 5.5	Band edge	3.6	Pass

1 General Description

1.1 Applicant

Client name: PNE Benelux BV
Address: Industrieweg Oost 21, ELST, Netherlands
Zip code: 6662 NE
Telephone: 0623938173
E-mail: a.aalmers@pne-benelux.nl
Contact name: Alex Aalmers

1.2 Manufacturer

Manufacturer name: Beiersdorf AG
Address: Unnastrasse 48, Hamburg, Germany
Zip code: 20245
Telephone: +49 40 4909 4438
E-mail: michael.kuhn@beiersdorf.com
Contact name: Michael Kuhn

1.3 Tested Equipment Under Test (EUT)

Product name: Skinly3
Brand name: PNE Benelux BV
FCC ID: 2A32B-SKINLY
IC ID: 28056-SKINLY
Product type: Skin quality measurement system
Model(s): -
Batch and/or serial No. -
Software version: -
Hardware version: -
Date of receipt: 27-07-2021
Tests started: 12-08-2021
Testing ended: 19-11-2021

1.4 Product specifications of Equipment under test

Tx Frequency:	802.11b/n: 2412 – 2472 MHz
Rx frequency:	802.11b/n: 2412 – 2472 MHz
Occupied channel width:	802.11b: 14.109 MHz 802.11n: 17.751 MHz 802.11g: 16.690 MHz
Antenna type:	PCB Antenna
Antenna gain:	2 dBi
Type of modulation:	DSSS, OFDM
Emission designator	802.11b: 14M1G1D 802.11n: 17M7G1D 802.11g: 16M7G1D

Disclaimer: The antenna gain and operating frequency bands are declared by the applicant

1.5 Environmental conditions

Test date	04-11-2021	05-11-2021
Ambient temperature	20.1 C°	19.8 C°
Humidity	42.4 H	41.3 H

1.6 Measurement standards

- ANSI C63.4:2014
- ANSI C63.10:2013

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 C §15.107
- FCC Part 15 Subpart C §15.109
- FCC Part 15 Subpart C §15.207
- FCC Part 15 Subpart C §15.209
- FCC Part 15 Subpart C §15.247
- RSS-Gen Issue 5
- RSS-247 Issue 2

1.8 Observation and remarks

None.

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 : Koray Korcum, MSc

Review of test methods and report by:

Name : ing P.A. Suringa

The above conclusions have been verified by the following signatory:

Date : 31-01-2022

Name : ing P.A. Suringa

Function : Senior test engineer

Signature :

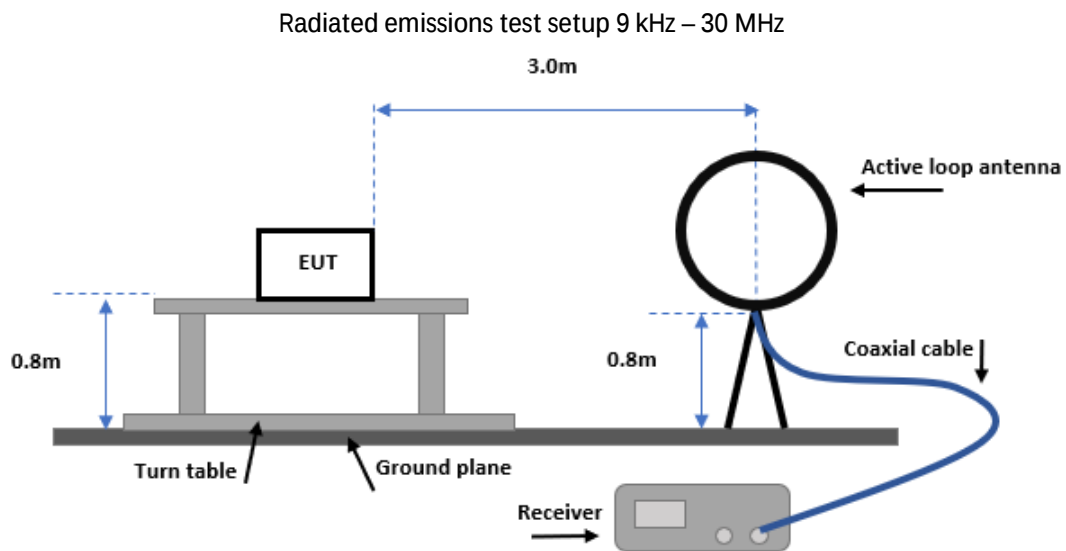


2 Test configuration of the Equipment Under Test

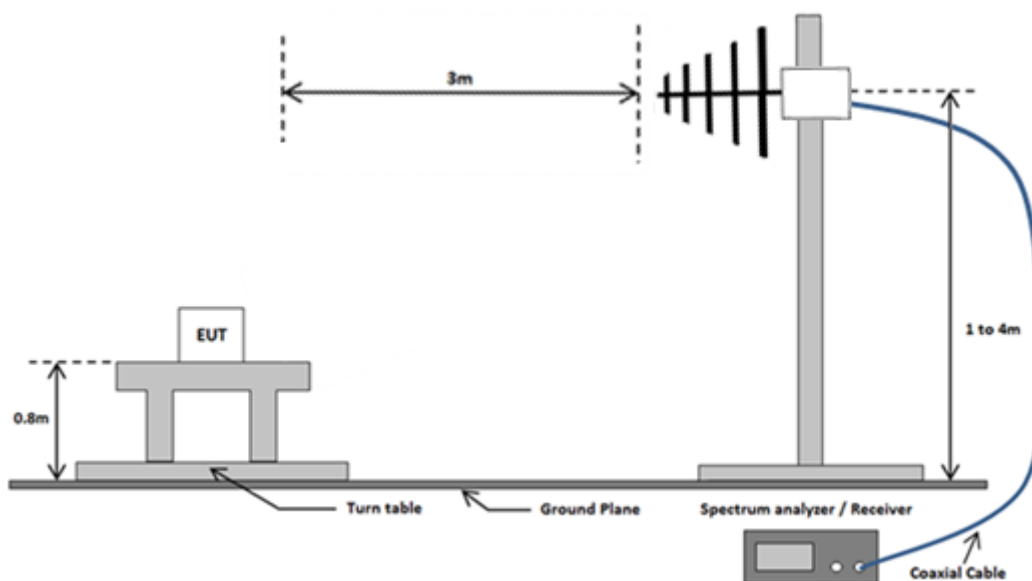
2.1 Test mode

Technology	Channels	Data rate	Frequency (MHz)
802.11b	1	1 Mbps	2412
	6	1 Mbps	2437
	11	1 Mbps	2462
802.11g	1	6 Mbps	2412
	6	6 Mbps	2437
	11	6 Mbps	2462
802.11n	1	6.5 Mbps	2412
	6	6.5 Mbps	2437
	11	6.5 Mbps	2462

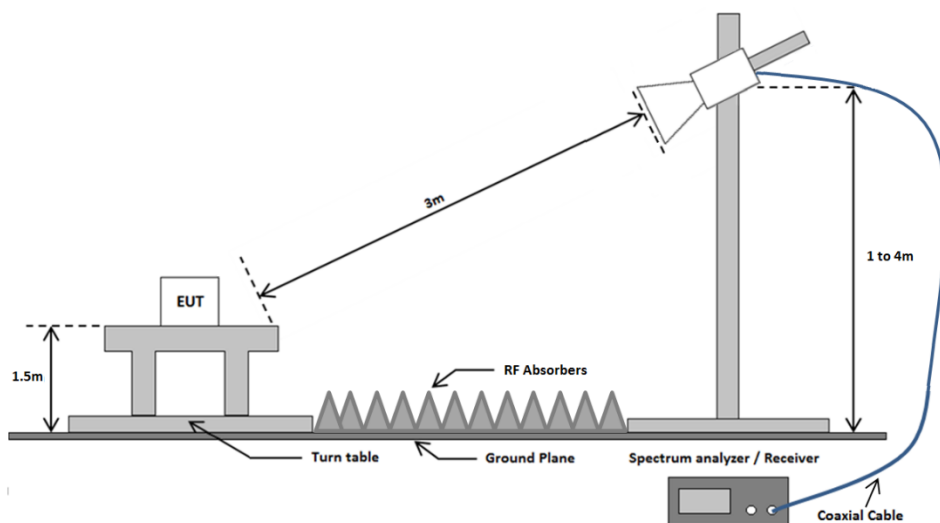
2.2 Test setups



Radiated emissions test setup 30 MHz - 1 GHz



Radiated emissions test setup above 1 GHz



2.3 Equipment used in the test configuration

Description	Manufacturer	Model	ID	Used at Par.
EMI Receiver	Rohde & Schwarz	ESCI	TE11128	3.1
EMI Receiver	Rohde & Schwarz	ESR7	TE01220	3.1
Spectrum analyzer	Rohde & Schwarz	FSP40	TE11125	3.1-3.6
Spectrum Analyzer	Rohde & Schwarz	FSV40	TE01269	3.1
3.0 GHz HPF	Wainwright	WHK3.0/18G-10EF	TE01140	3.1
Active loop antenna	EMCO	6502	TE11171	3.1
Biconilog antenna	Chase	CBL6112A	TE00967	3.1
Horn antenna	EMCO	3115	TE00531	3.1
Preamplifier 1-18 GHz	µComp Nordic	MCNA-40-0010800- 25-10P	TE11175	3.1
Horn antenna	FLANN-MICROWAVE	20240-25	TE 00818	3.1
Preamplifier 18-26 GHz	Miteq	JS4-18004000-33- 8P	TE 11131	3.1
Test software	DARE	Radimation Version 2021.1.9	--	3.1

2.4 Sample calculations

All formulas for data conversions and conversion factors are reported in chapter 4 of this test report.

3 Test results

3.1 Radiated spurious emissions

3.1.1 Limit

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance(m)
0.009 – 0.490	2400/F(kHz)	$20 \cdot \{\log[2400] - \log[F(\text{kHz})]\}$	300*
0.490 – 1.705	24000/F(kHz)	$20 \cdot \{\log[24000] - \log[F(\text{kHz})]\}$	30*
1.705 – 13.11 14.01 – 30.0	30	29.5	30*
30 -88	100	40	3
88 - 216	150	43,5	3
216-960	200	46	3
Above 960	500	54	3

*Note: Limit lines in the plots corrected to 3m measurement distance according to the method described in ANSI C63.10-2013, clause 6.4

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

9 kHz – 30 MHz: According to ANSI C63.4-2014, section 5.4.2 and 8.2.3

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

9 kHz to 30 MHz: IRN 026 – Method 10

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

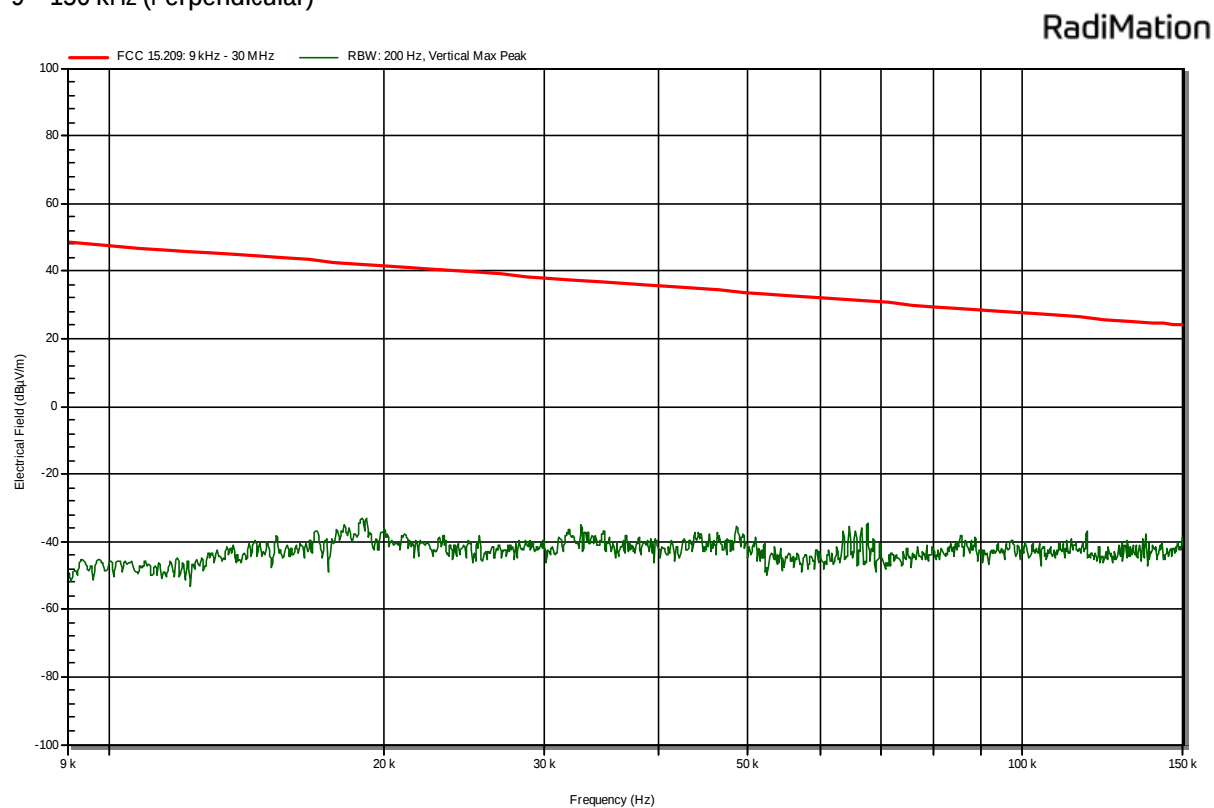
Frequency range	Polarization	Uncertainty
9 kHz – 30 MHz	--	±1.6 dB
30 – 200 MHz	Horizontal	±4.5 dB
	Vertical	±5.4 dB
200 -1000 MHz	Horizontal	±3.6 dB
	Vertical	±4.6 dB
1 – 18 GHz	Horizontal	±5.7 dB
	Vertical	±5.7 dB
18 – 26.5 GHz	Horizontal	±4.9 dB
	Vertical	±4.9 dB

Pick Table

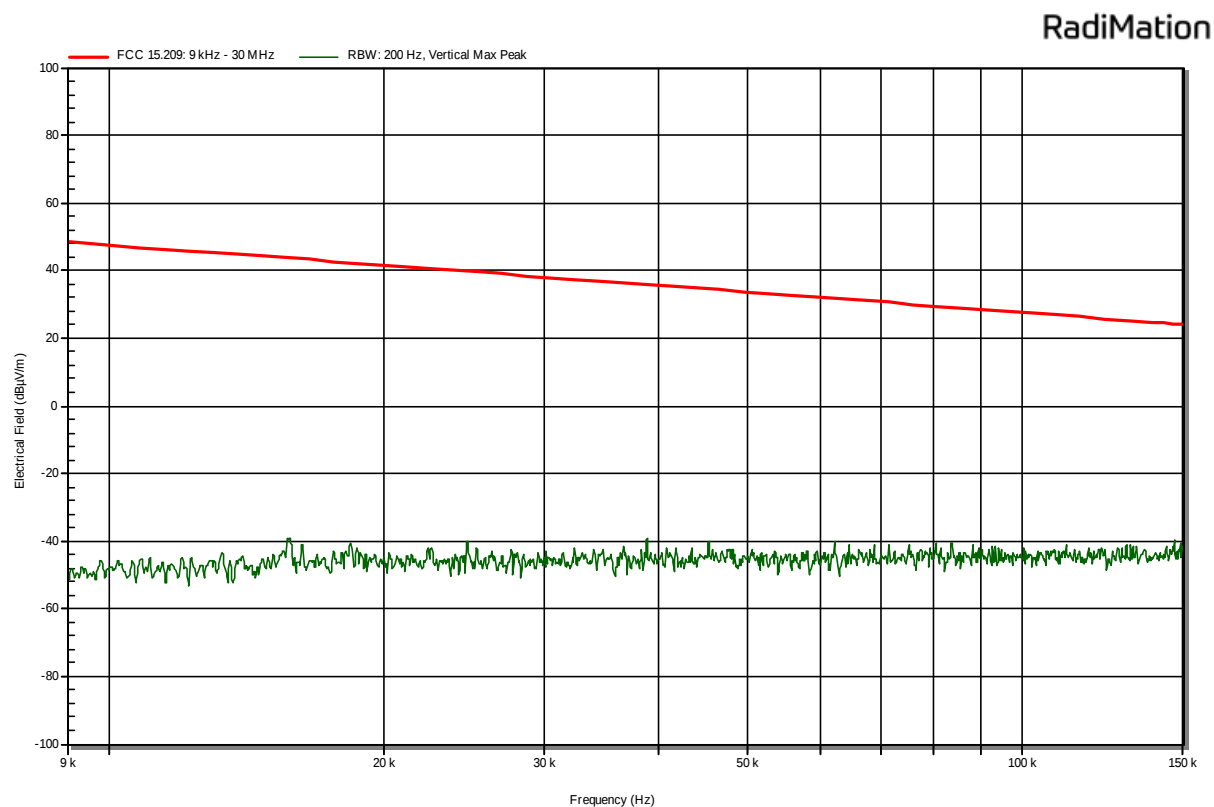
Frequency	Polarization	Technology
69 MHz	Horizontal	802.11b
51 MHz	Vertical	802.11b
48 MHz	Vertical	802.11n
12.21 GHz	Horizontal	802.11b

3.1.6 Plots of the Radiated Spurious Emissions Measurement

9 – 150 kHz (Perpendicular)

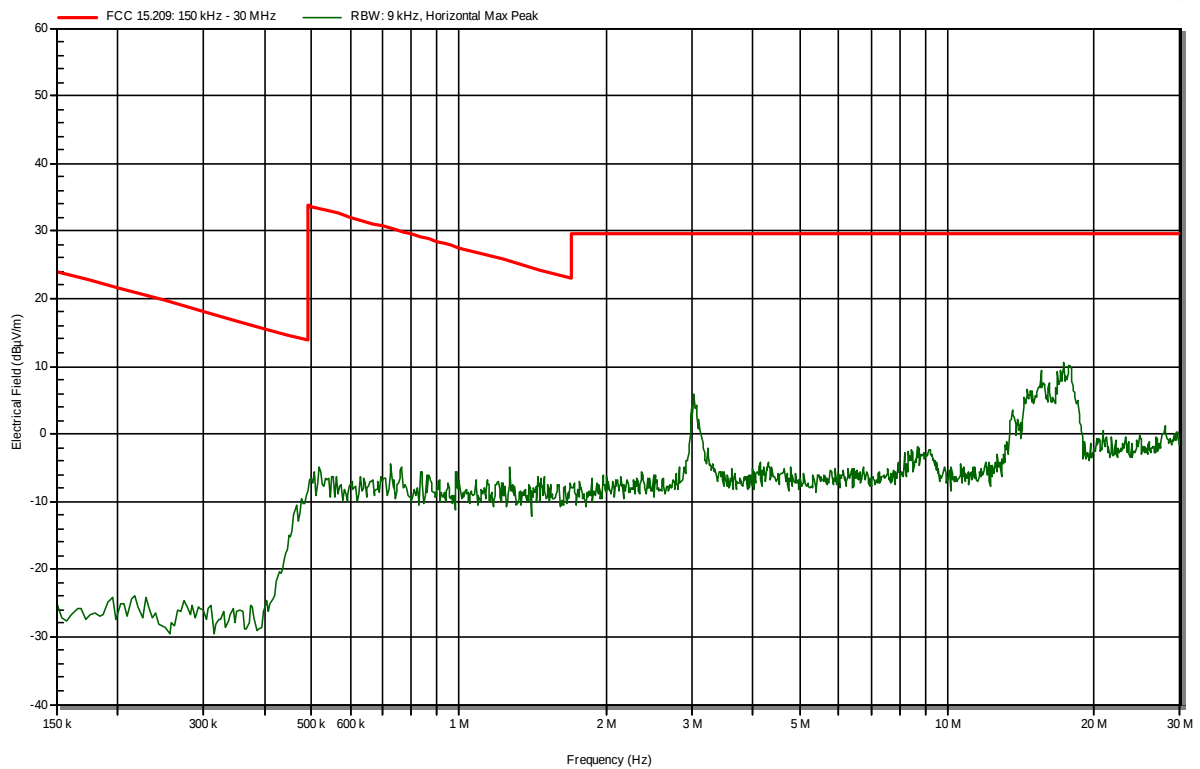


9 – 150 kHz (Parallel)



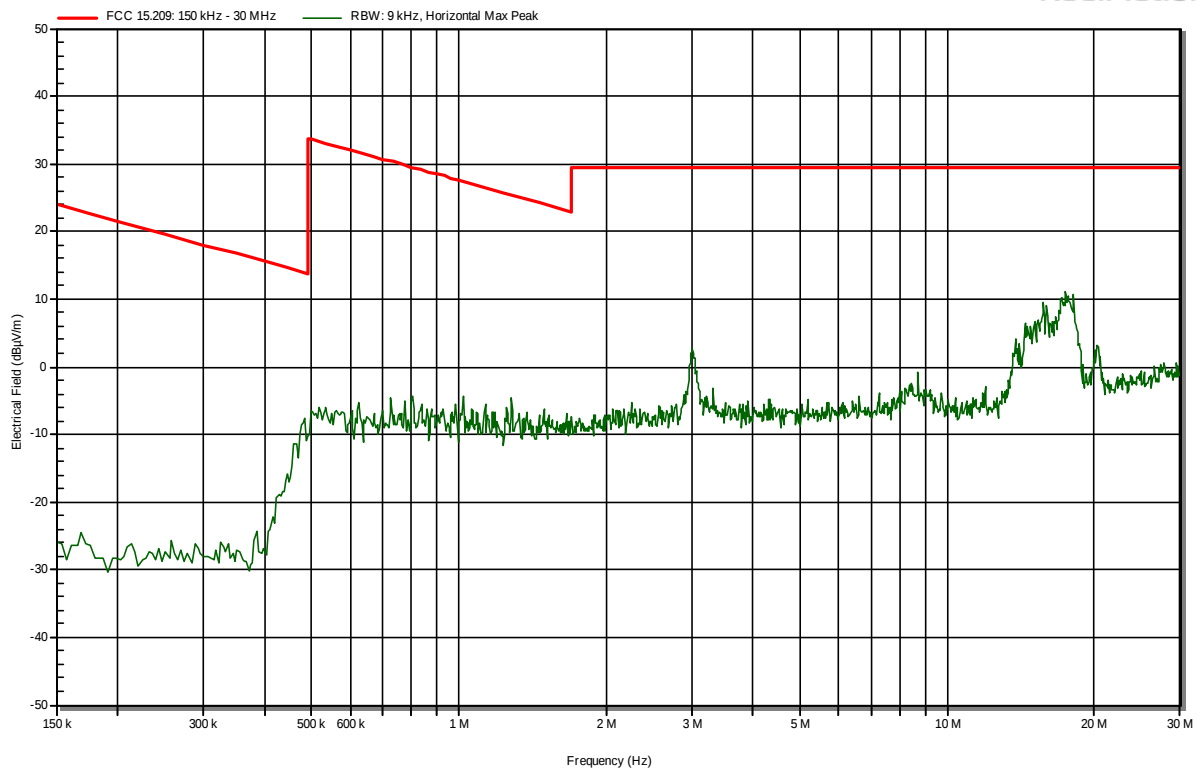
150 kHz – 30 MHz (Perpendicular)

RadiMation



150 kHz – 30 MHz (Parallel)

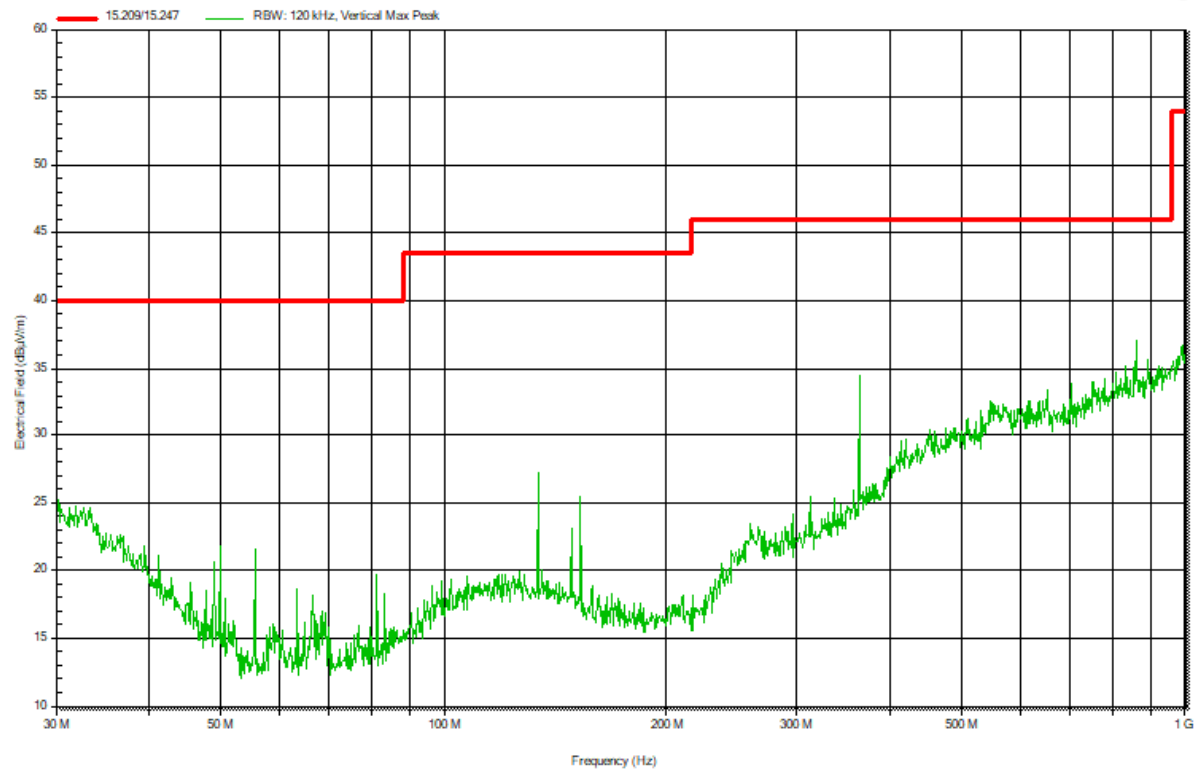
RadiMation



30 – 1000 MHz
802.11b

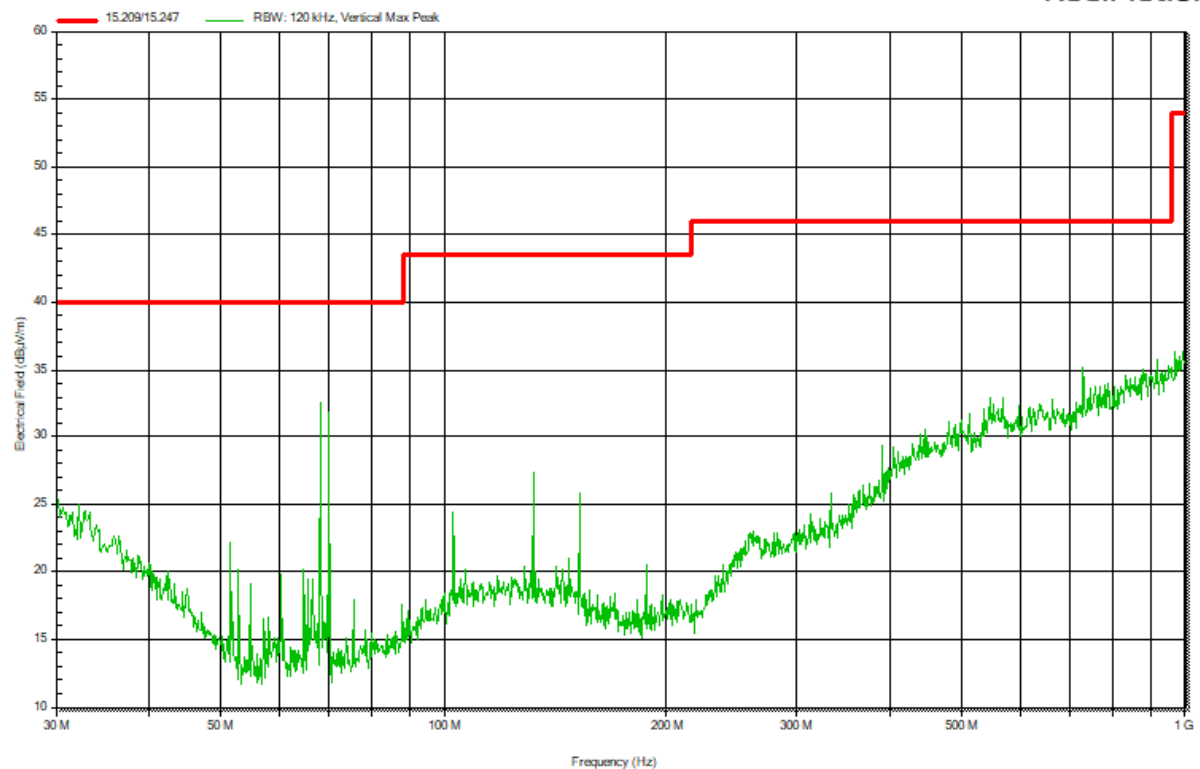
Vertical polarization
Low

RadiMation



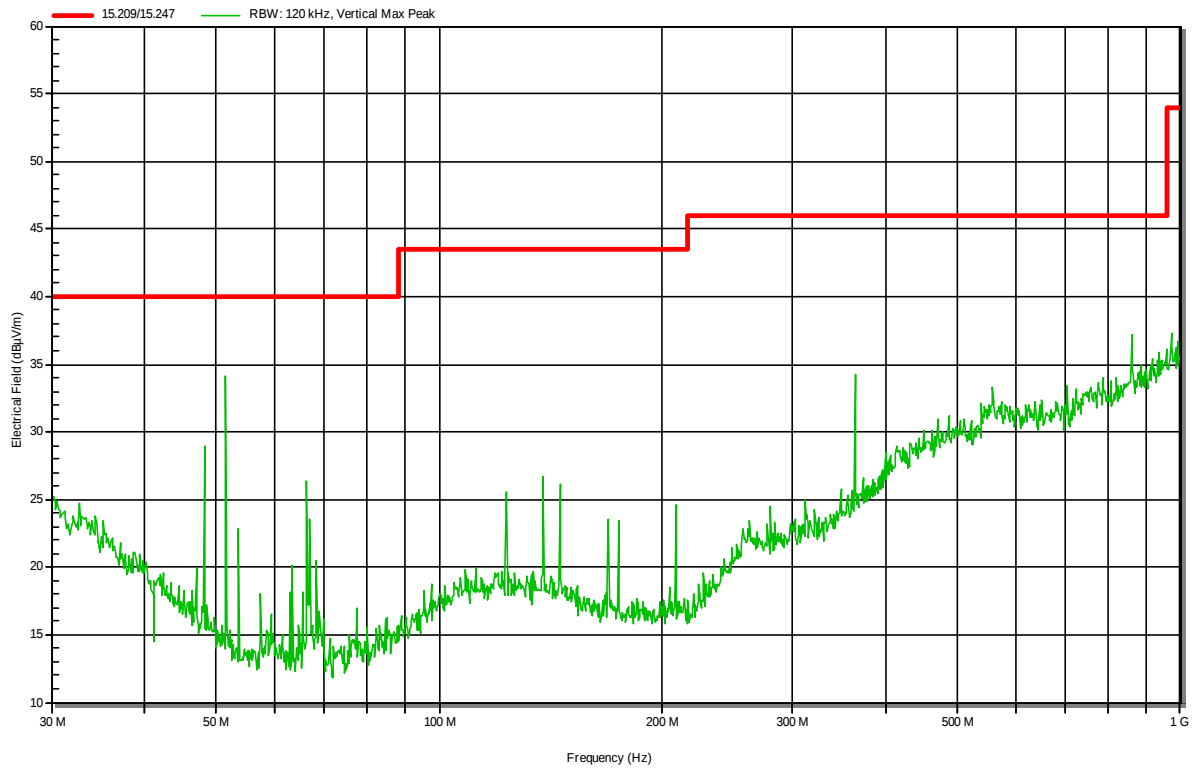
Mid

RadiMation



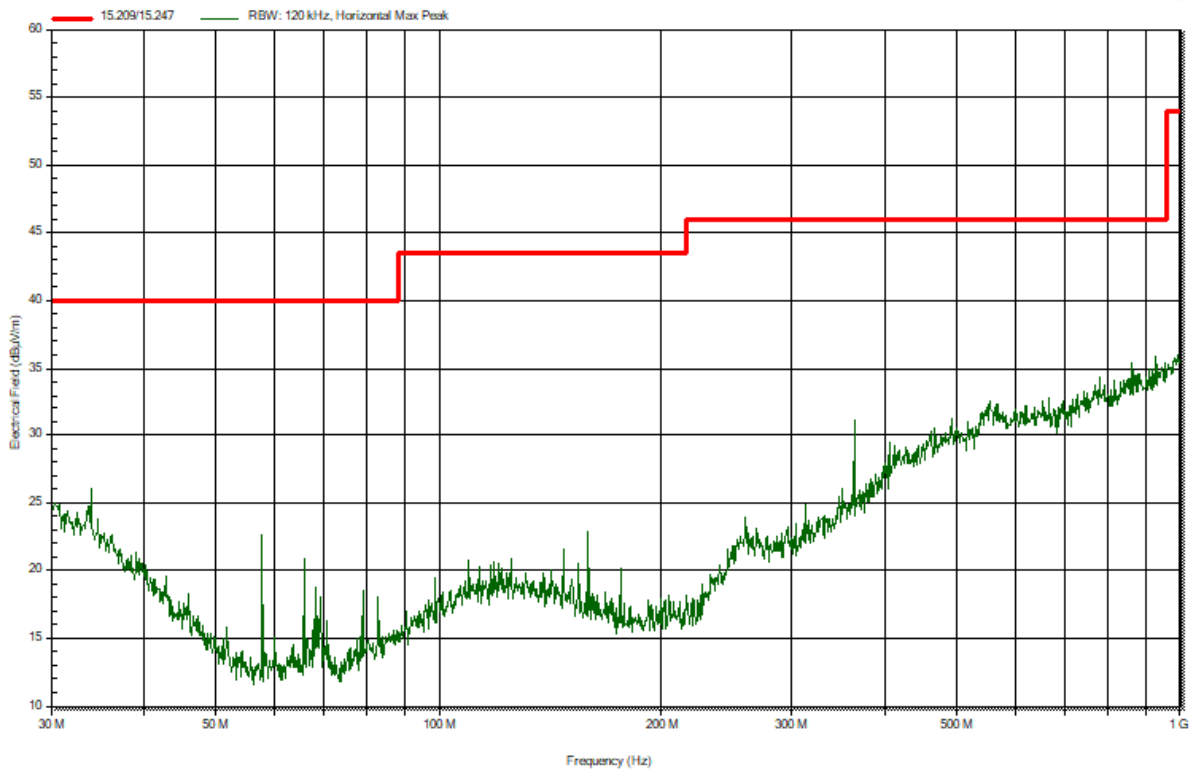
High

RadiMation



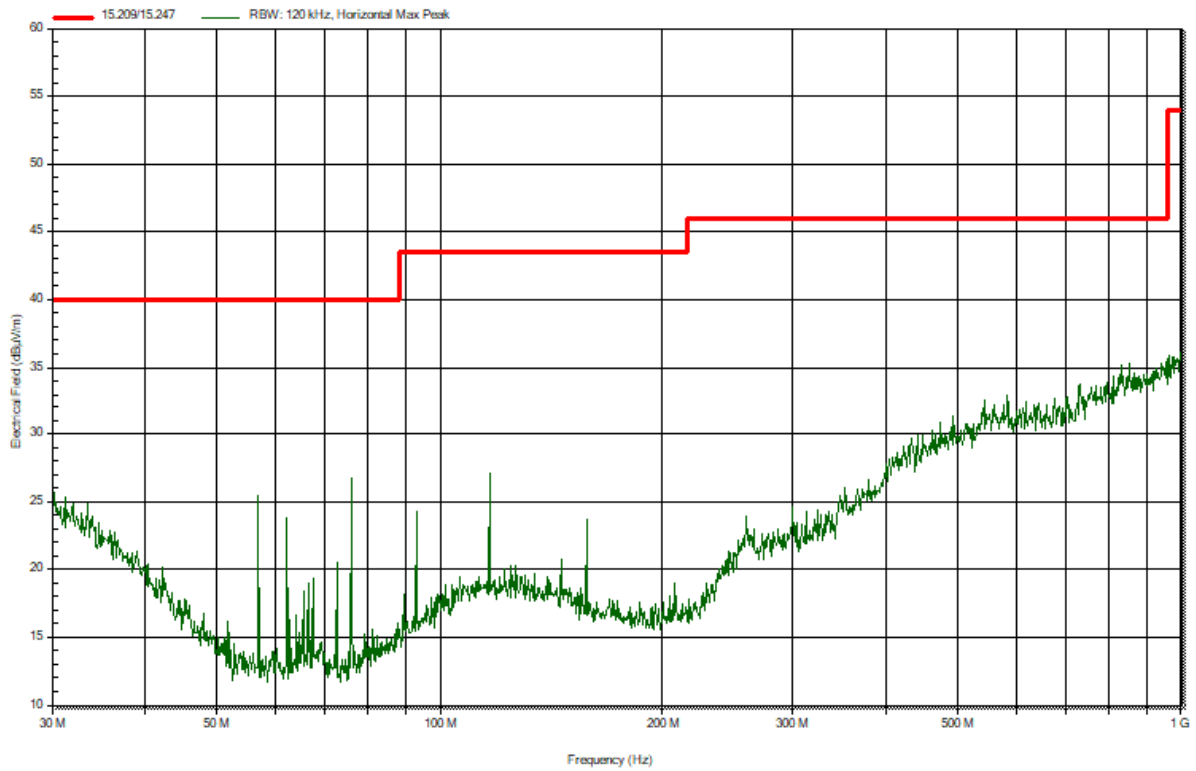
Horizontal polarization
Low

RadiMation



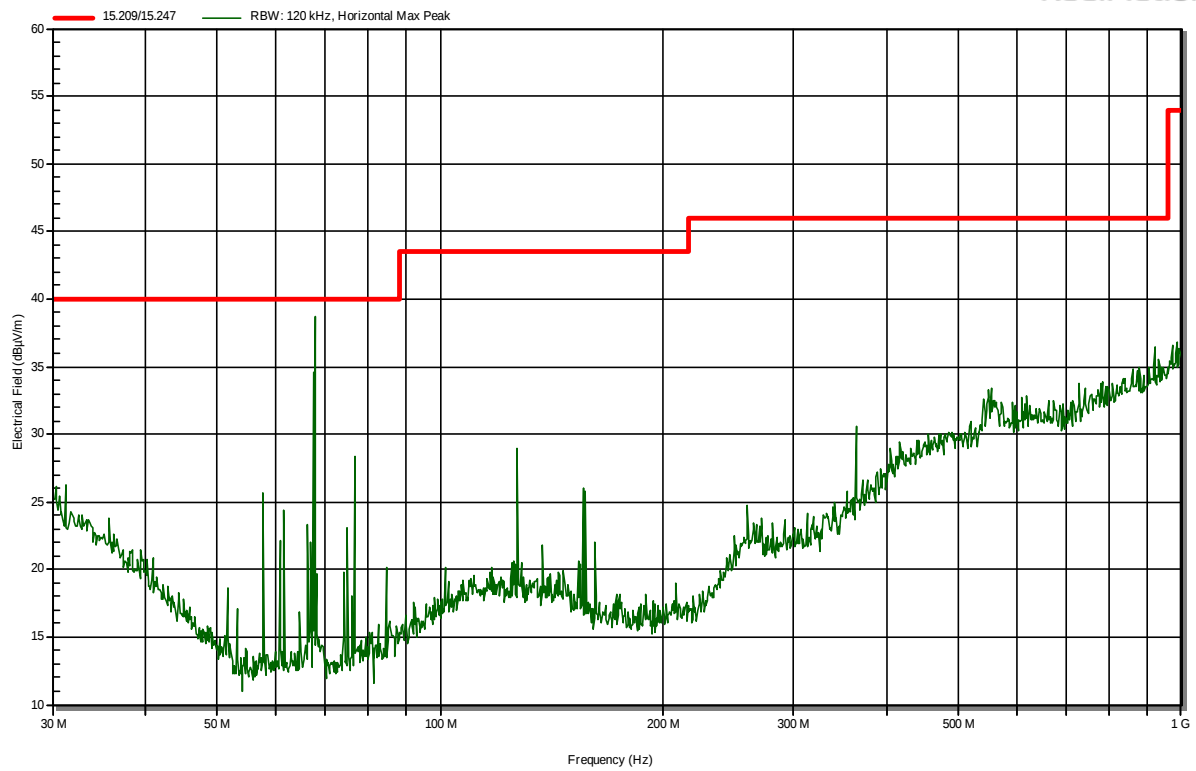
Mid

RadiMation



High

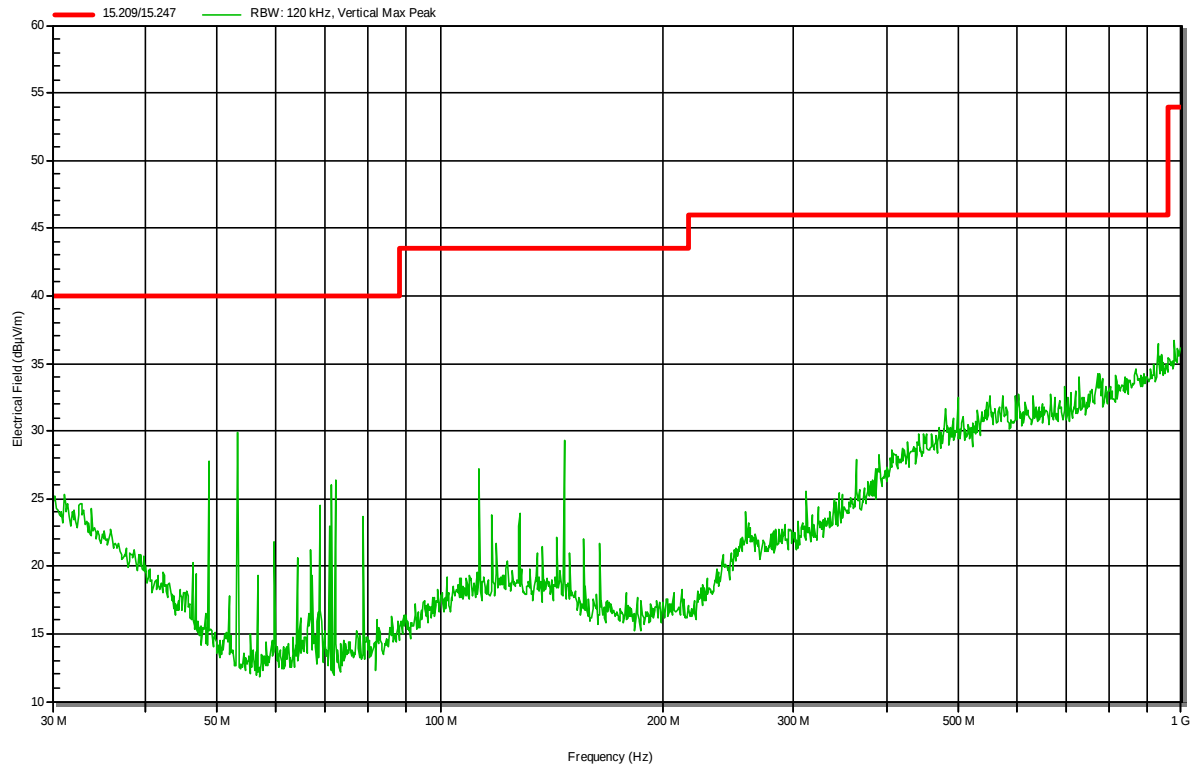
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802.11n

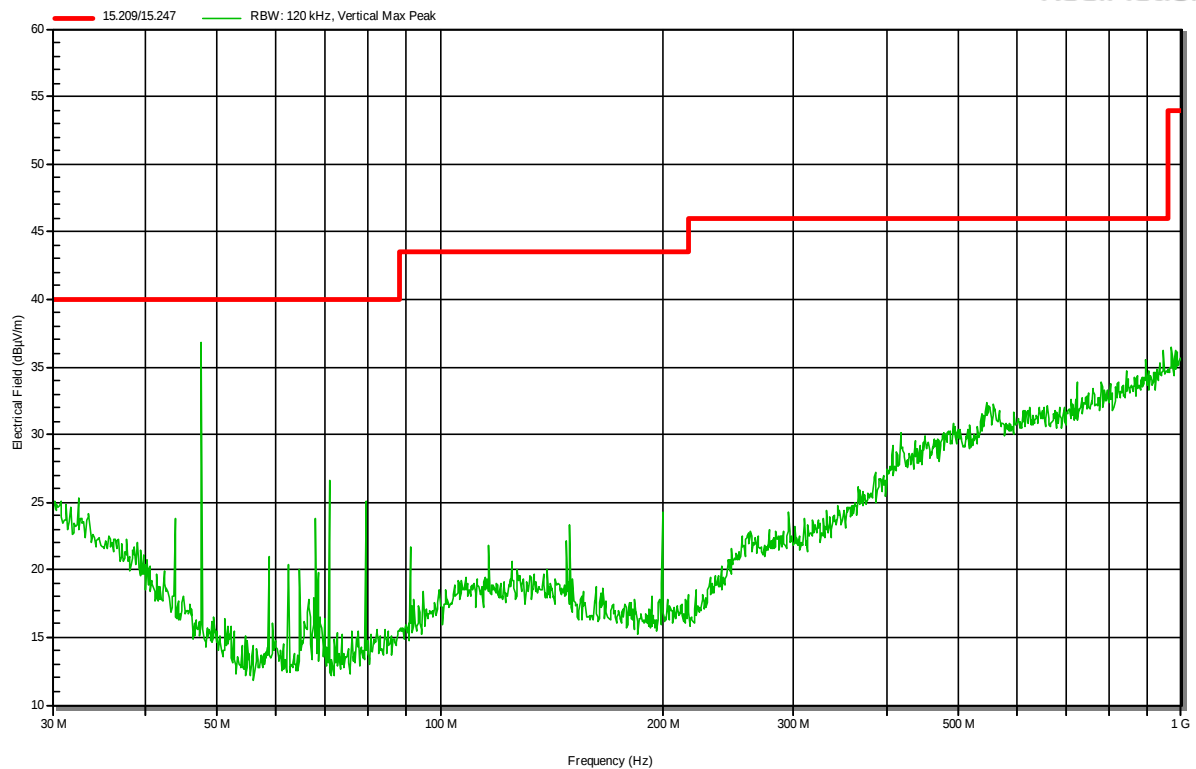
Vertical polarization
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RadiMation



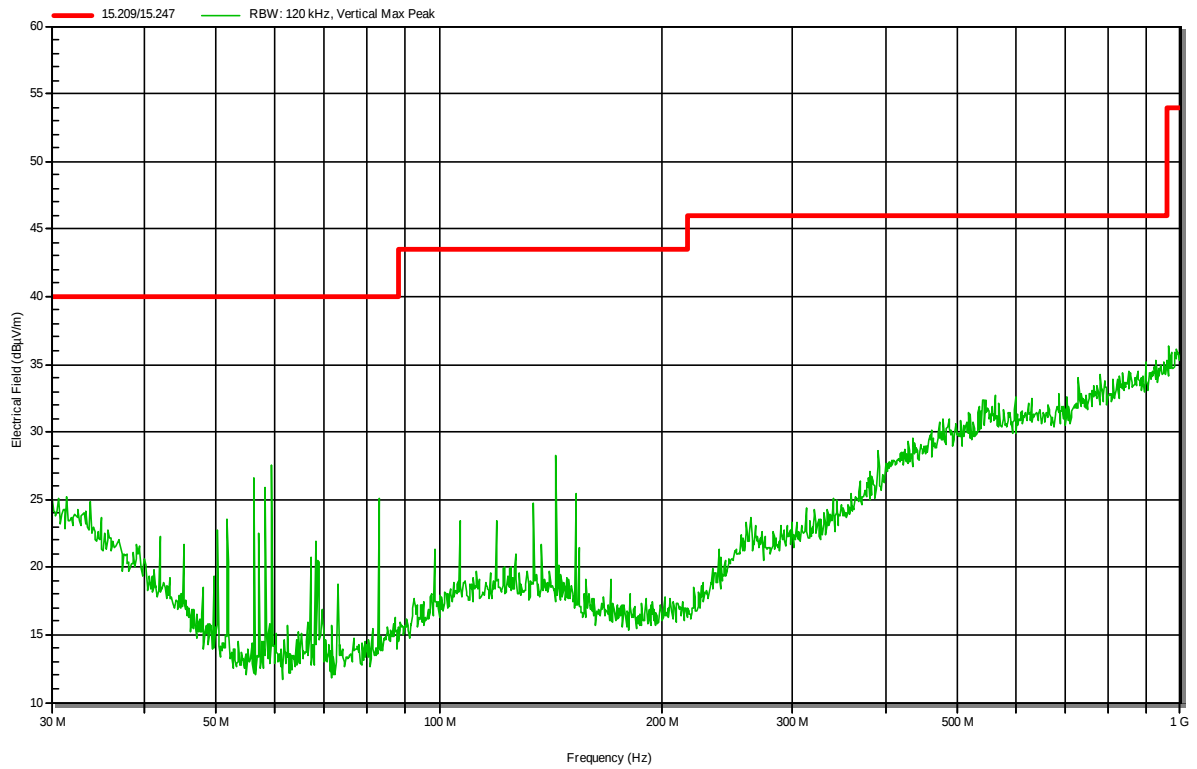
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RadiMation



High

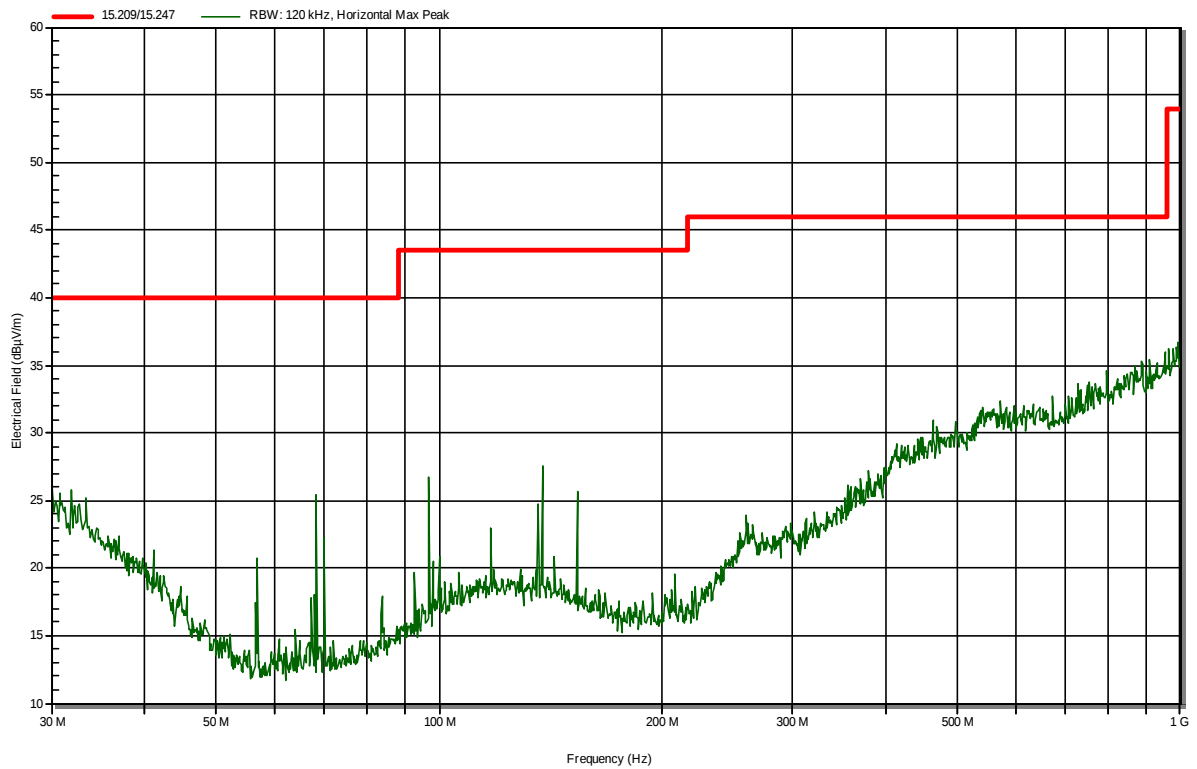
RadiMation



Horizontal polarization

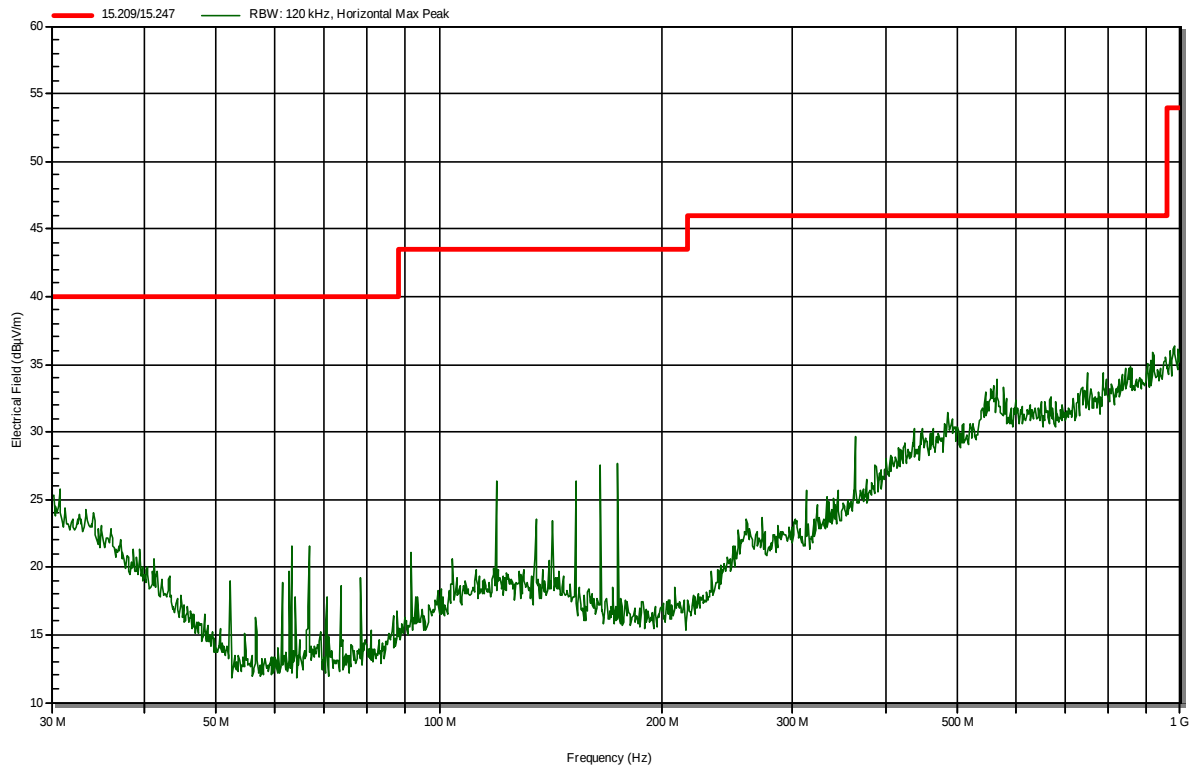
Low

RadiMation



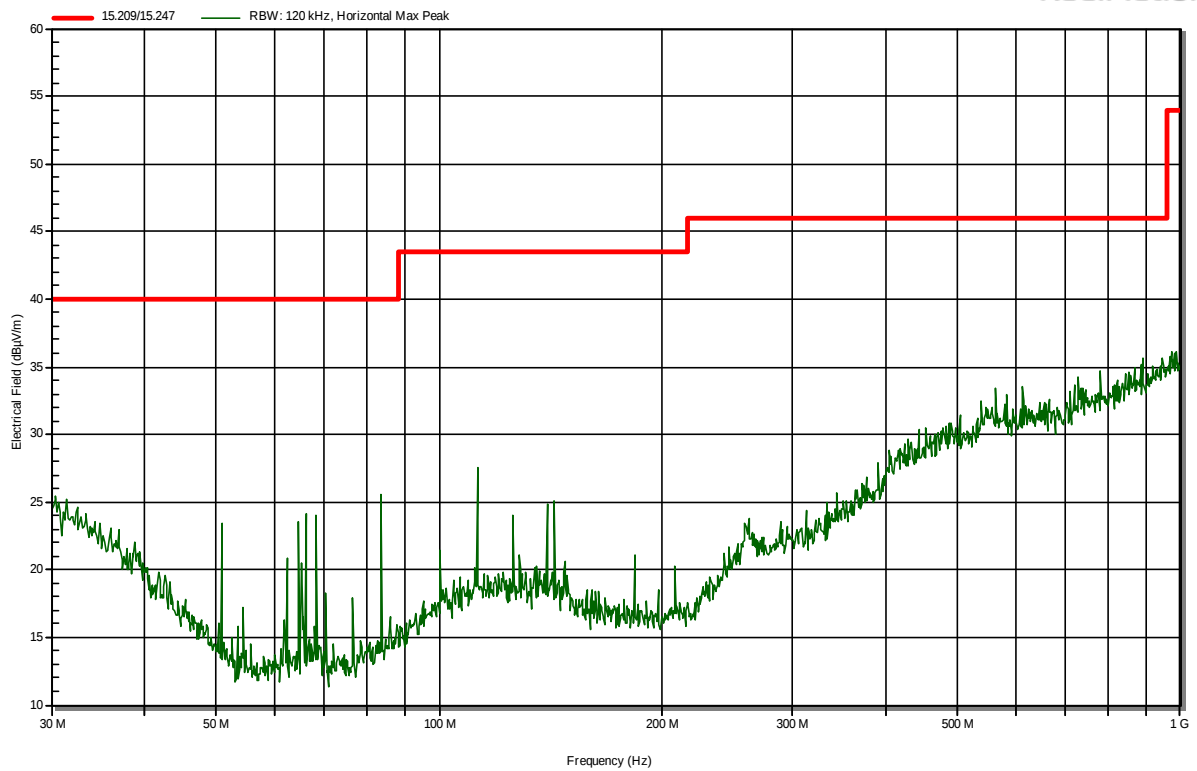
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RadiMation



High

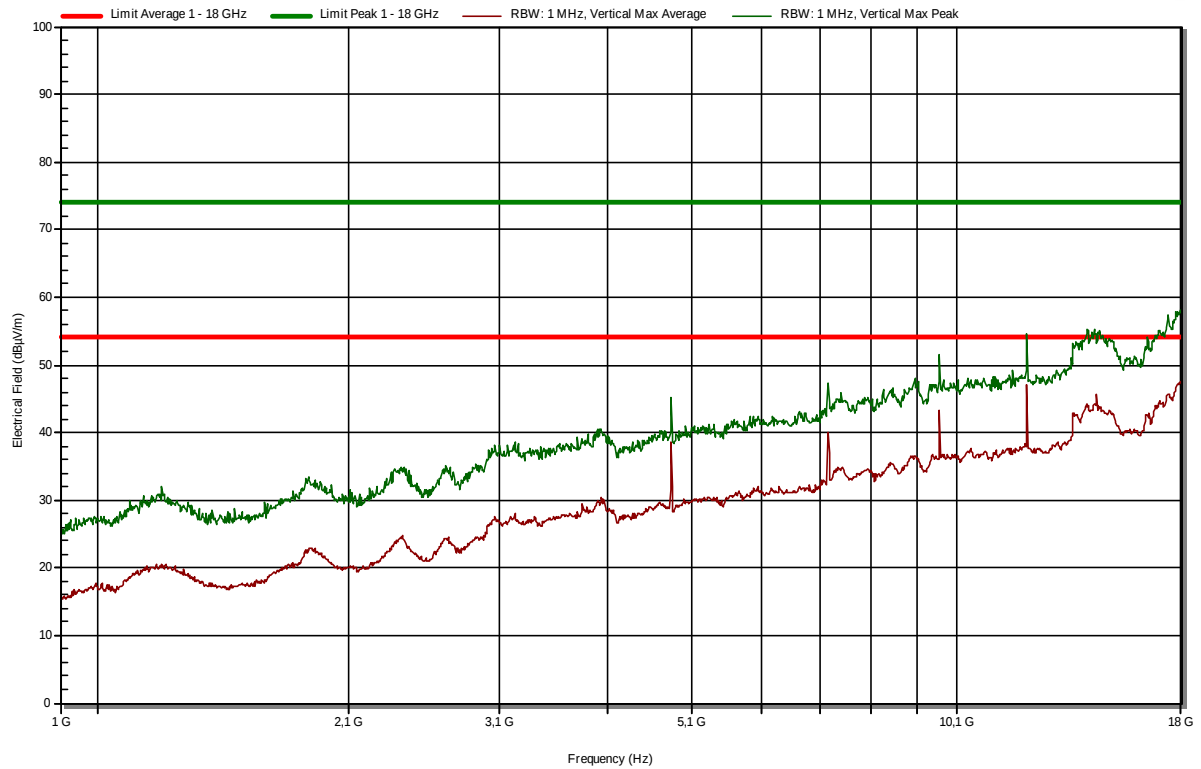
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1 – 18 GHz
802.11b

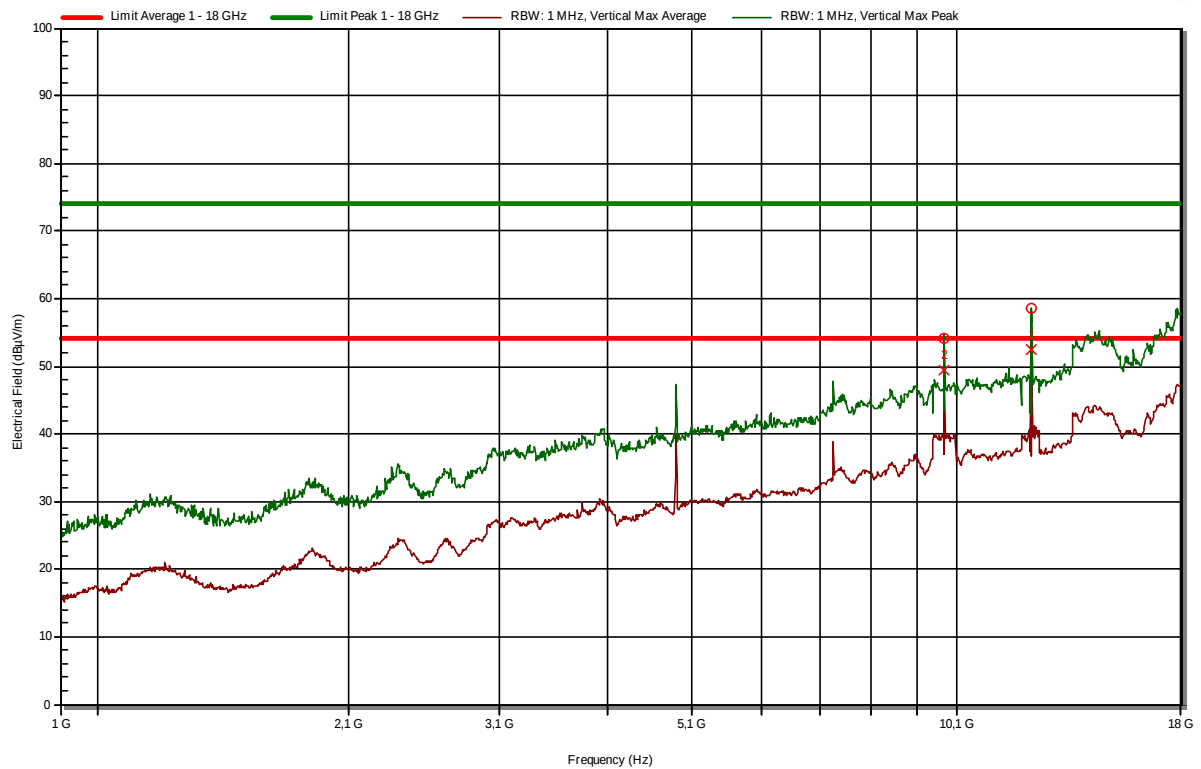
Vertical polarization
Low

RadiMation

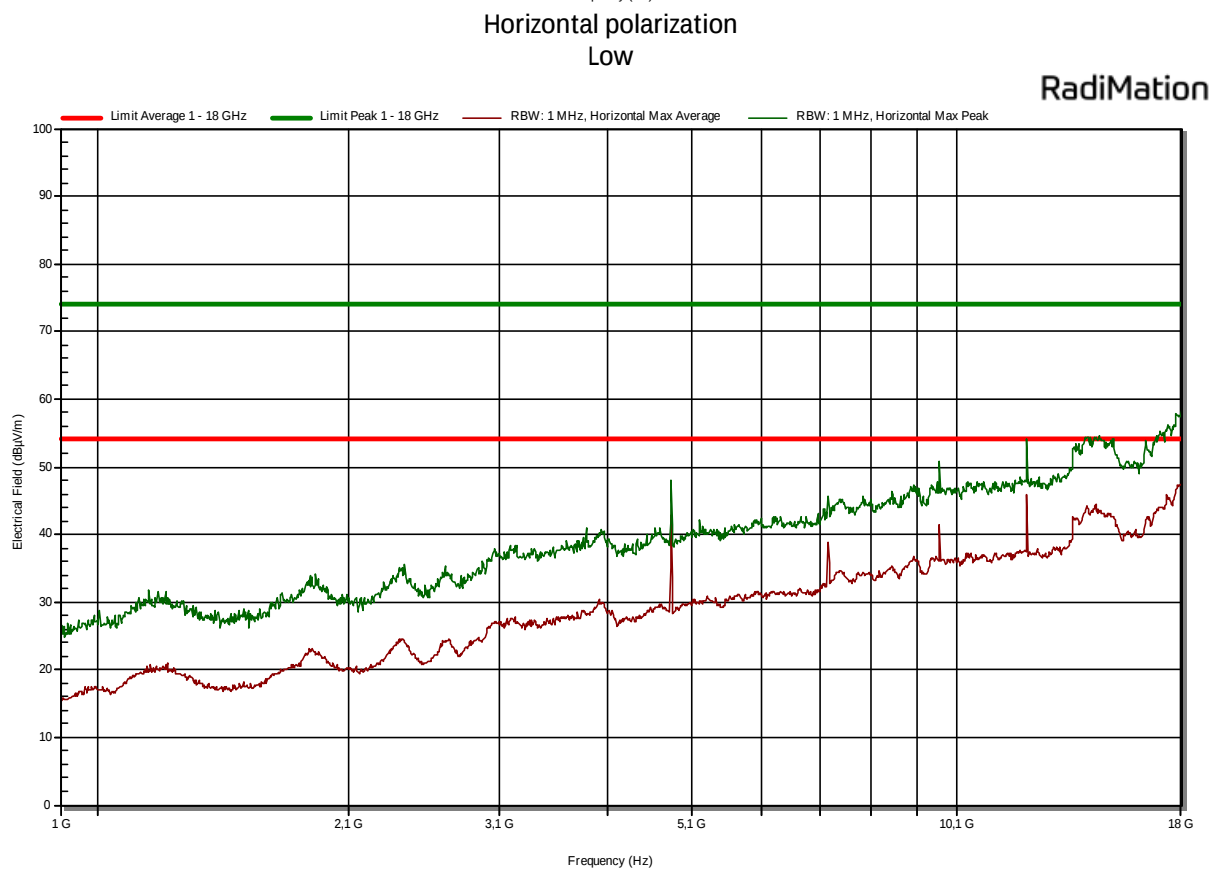
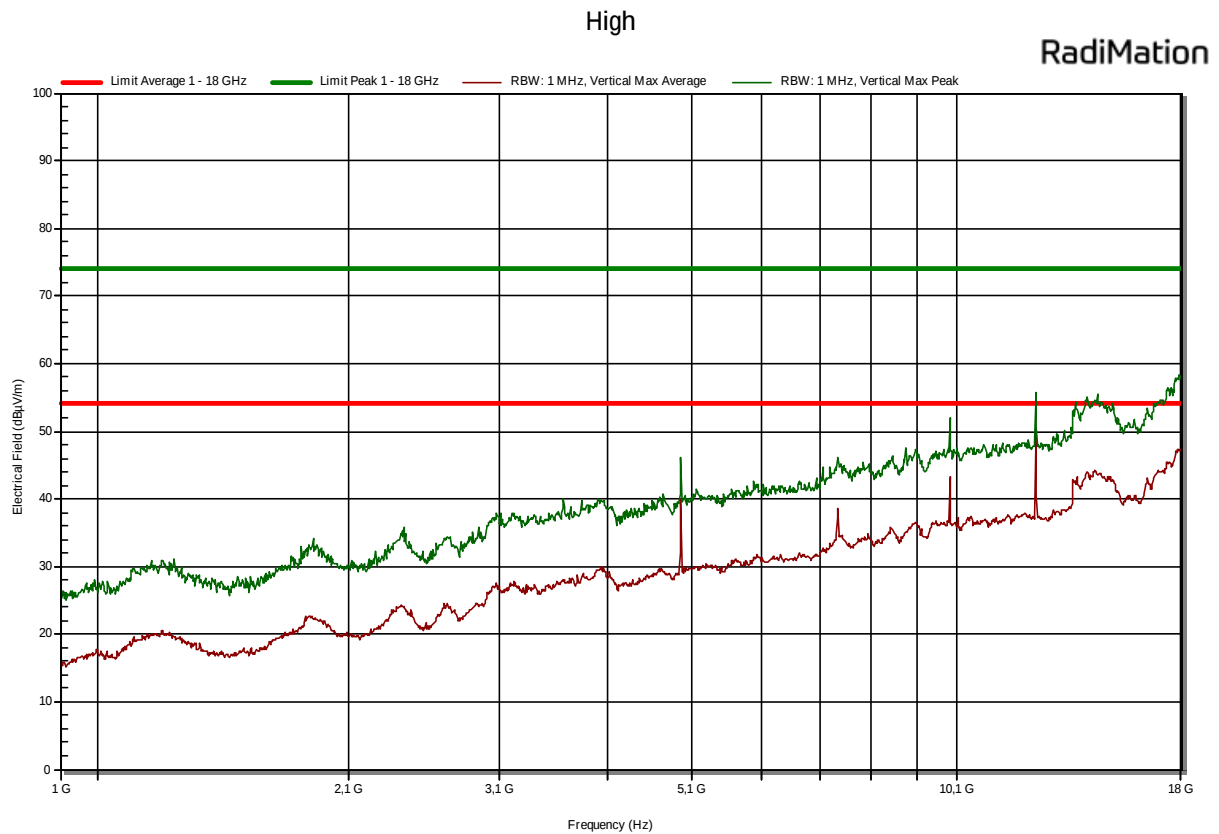


Mid

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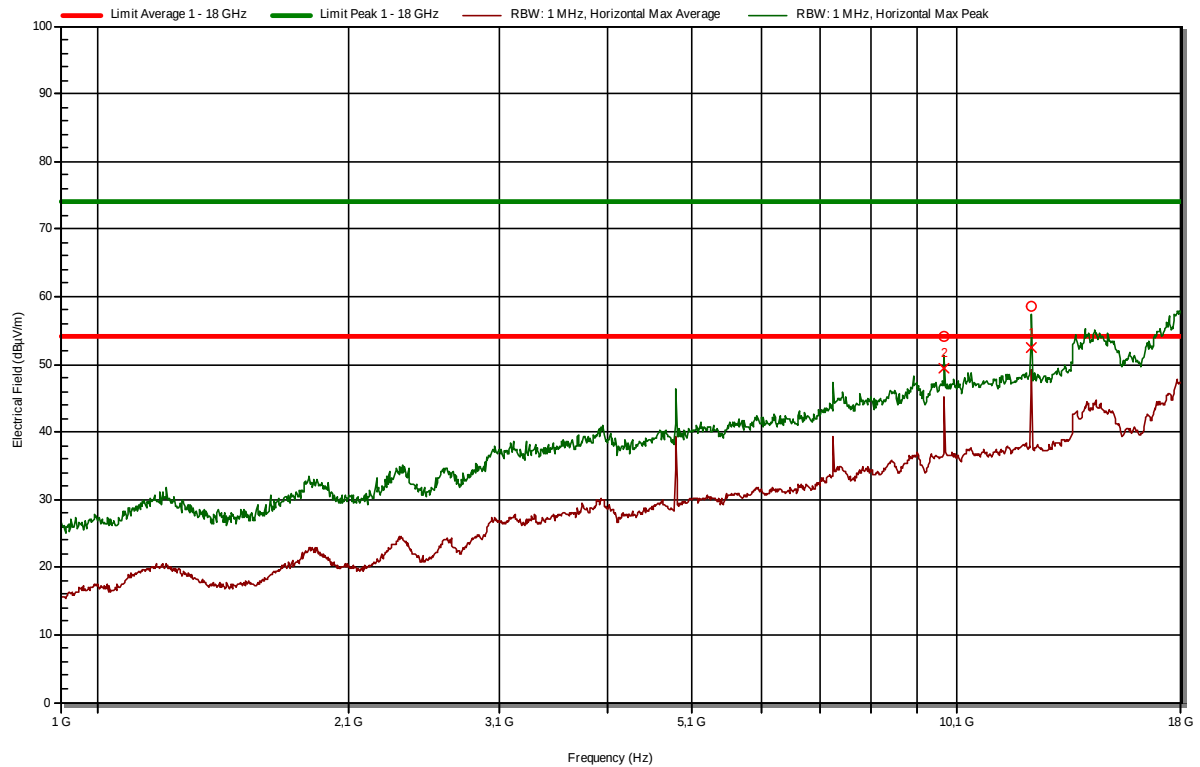


Frequency	Peak	Peak Limit	Average	Average Limit	Status	Angle	Height	Distance	Polarization
12,21 GHz	58,7 dBμV/m	74 dBμV/m	52,5 dBμV/m	54 dBμV/m	Pass	346 degrees	1 m	3 m	Vertical
9,768 GHz	54,2 dBμV/m	74 dBμV/m	49,4 dBμV/m	54 dBμV/m	Pass	239 degrees	1 m	3 m	Vertical



Mid

RadiMation



High

RadiMation

