



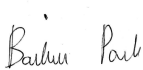
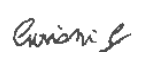
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Report Reference ID:	320636-3TRFFCC
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Test specification:	Title 47 - Telecommunication Chapter I - Federal Communications Commission Subchapter A - General Part 15 - Radio Frequency Devices Subpart C - Intentional Radiators §15.247 - Operation within the bands 2400–2483.5 MHz RSS-247 Issue 1 May 2015 Spectrum Management and Telecommunications Radio Standards Specification Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
Applicant:	Univet Srl – Via Giovanni Prati, 87 – 25086 Rezzato (BS) – Italy
Apparatus:	Multi-lens optical system
Model:	EOS HP – Control unit
FCC ID:	2AKOL-EOSHPC
IC Registration Number:	22293-EOSHPC

Testing laboratory:	Nemko Spa Via del Carroccio, 4 – 20853 Biassono (MB) – Italy Telephone: +039 039 2201201 Facsimile: +39 039 220 1221
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	Name and title	Date
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Product: EOS HP

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Section 1: Report summary**Product:** EOS HP

Section 1: Report summary

1.1 Test specification

Specifications**FCC Part 15 Subpart C, 15.247**

Operation within the bands 902–928 MHz, 2400–2483.5 MHz and 5725–5850 MHz.

RSS-247 Issue 1 May 2015

Spectrum Management and Telecommunications

Radio Standards Specification

Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

1.2 Statement of compliance

Compliance

In the configuration tested the EUT was found compliant

Yes ☒

No ☐

This report contains an assessment of apparatus against specifications based upon tests carried out on samples submitted at Nemko Canada Inc. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15; Subpart C. and RSS-247 Issue 1 May 2015. Radiated tests were conducted in accordance with ANSI C63.10-2013

1.3 Exclusions

Exclusions

None

1.4 Registration number

Test site

FCC ID number: 481407 / IC number: 9109A

1.5 Test report revision history

Revision #

Details of changes made to test report

TRF

Original report issued

1.6 Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Italy's ISO/IEC 17025 accreditation.

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Section 2: Summary of test results**Product: EOS HP****Section 2: Summary of test results****2.1 FCC Part 15 Subpart C – Intentional Radiators, RSS-247 test results****General requirements for FCC Part 15, RSS-Gen Issue 4 November 2014**

FCC Part	Test description	Verdict
§15.31(e)	Variation of power source	Pass
§15.31(m)	Number of operating frequencies	Pass
§15.203	Antenna requirement	Pass
§15.207(a)	Conducted limits	N/A

Specific requirements for FCC Part 15 Subpart C (clause 15.247), RSS-247 Issue 1 May 2015 (clause 5.2)

FCC Part	Test description	Verdict
§15.247(a)(1)(i)	Frequency hopping systems operating in the 902–928 MHz band	N/A
§15.247(a)(1)(ii)	Frequency hopping systems operating in the 5725–5850 MHz band	N/A
§15.247(a)(1)(iii)	Frequency hopping systems operating in the 2400–2483.5 MHz band	N/A
§15.247(a)(2)	Minimum 6 dB bandwidth for systems using digital modulation techniques	Pass
§15.247(b)(1) §5.4(2)	Maximum peak output power of frequency hopping systems operating in the 2400–2483.5 MHz band and 5725–5850 MHz band	N/A
§15.247(b)(2)	Maximum peak output power of Frequency hopping systems operating in the 902–928 MHz band	N/A
§15.247(b)(3)	Maximum peak output power of systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands	Pass
§15.247(b)(4)	Maximum peak output power	N/A
§15.247(c)(1)	Fixed point-to-point operation with directional antenna gains greater than 6 dBi	N/A
§15.247(c)(2)	Transmitters operating in the 2400–2483.5 MHz band that emit multiple directional beams	N/A
§15.247(d) §5.5	Spurious emissions	Pass
§15.247(e)	Power spectral density for digitally modulated devices	Pass
§15.247(f)	Time of occupancy for hybrid systems	N/A

Notes: None



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Section 3: EUT and application details**Product:** EOS HP**Section 3: Equipment under test (EUT) and application details****3.1 Applicant details**

Applicant complete business name	Name:	Univet Srl
	Federal Registration Number (FRN):	0026120311
	Grantee code:	2AKOL
	IC company number:	22293
Mailing address	Address:	Via Giovanni Prati, 87
	City:	Rezzato
	Province/State:	BS
	Post code:	25086
	Country:	Italy

3.2 Modular equipment

a) Single modular approval	Single modular approval Yes ☐ No ☒
b) Limited single modular approval	Limited single modular approval Yes ☐ No ☒

3.3 Product details

FCC ID / IC ID	FCC	2AKOL-EOSHPC
	IC	22293-EOSHPC
Equipment class	Digital Transmission Systems (BLE)	
Description of product as it is marketed	Multi-lens optical system	
	Model name/number:	EOS HP
	Variant name/number	--

3.4 Application purpose

Type of application	☒	Original certification
	☐	Change in identification of presently authorized equipment
	☐	Original FCC ID: Grant date:
	☐	Class II permissive change or modification of presently authorized equipment



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Section 3: EUT and application details**Product:** EOS HP**3.5 Composite/related equipment**

a) Composite equipment	The EUT is a composite device subject to an additional equipment authorization Yes ☐ No ☒
b) Related equipment	The EUT is part of a system that operates with, or is marketed with, another device that requires an equipment authorization Yes ☒ No ☐
c) Related FCC ID	If either of the above is "yes": ☐ has been granted under the FCC ID(s) listed below: ☒ is in the process of being filled under the FCC ID(s) listed below: ☐ is pending with the FCC ID(s) listed below: ☐ has a mix of pending and granted statues under the FCC ID(s) listed below: ID 2AKOL-EOSHPT

3.6 Sample information

Receipt date:	2017-01-16
Nemko sample ID number:	320636

3.7 EUT technical specifications

Operating band:	2.400 GHz ~ 2483.5 GHz
Operating frequency:	2402 MHz (CH0) to 2480 MHz (CH39)
Modulation type:	GFSK
Occupied bandwidth:	729 kHz
Channel spacing:	2 MHz
Emission designator:	729KF7D
Antenna type:	Johanson Technology antenna model 2450AT18D0100 with a gain of 1.5 dBi
Power source:	3.7 V DC from internal LI-IO rechargeable battery



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Section 3: EUT and application details

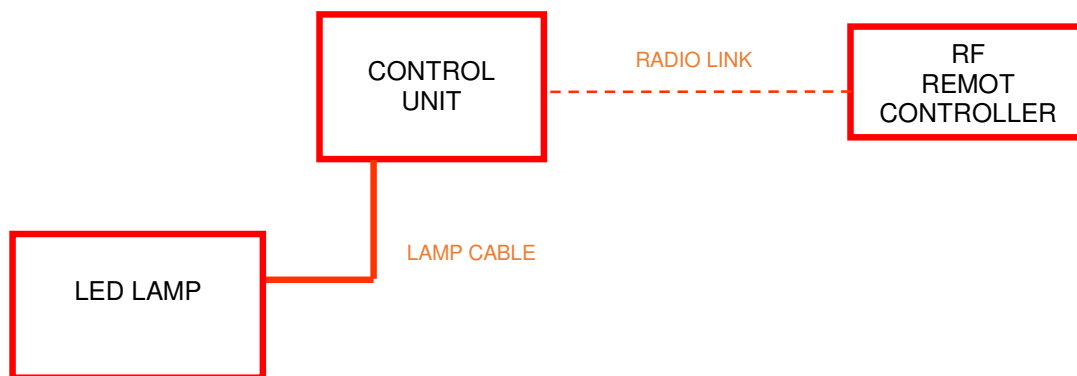
Product: EOS HP

3.8 Operation of the EUT during testing

Details:

Constant transmitting at maximum power and at lower, middle and higher frequency with GSKF modulation. During the test the light was switched on at maximum intensity (worst emission case). The AC/DC adapter is used only for battery charger (when plugged into the EUT the radio module stop to transmit).

3.9 EUT setup diagram





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Section 4: Engineering considerations**Product:** EOS HP**Section 4: Engineering considerations****4.1 Modifications incorporated in the EUT****Modifications**

Modifications performed to the EUT during this assessment

None ☒ Yes ☐, performed by Client ☐ or Nemko ☐
Details:**4.2 Deviations from laboratory tests procedures****Deviations**

Deviations from laboratory test procedures

None ☒ Yes ☐ - details are listed below:**4.3 Technical judgment****Judgment**

None



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Section 5: Test conditions

Product: EOS HP

Section 5: Test conditions

5.1 Power source and ambient temperatures

Normal temperature, humidity and air pressure test conditions

Temperature: 15–30 °C
Relative humidity: 20–75 %
Air pressure: 86–106 kPa

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

Power supply range:

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ± 5 %, for which the equipment was designed.



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Section 6: Measurement uncertainty

Product: EOS HP

Section 6: Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according Nemko Spa Technical Procedure WML0078. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device. Hereafter the best measurement capability for Nemko Spa laboratory is reported:

EUT	Type	Test	Range and Setup features	Measurement Uncertainty	Notes
Transmitter	Conducted	Frequency error	0.001MHz ÷ 18 GHz	0.08 ppm	(1)
		Carrier power RF Output Power	1MHz ÷ 18 GHz With power meter	1.6 dB	(1)
			1MHz ÷ 18 GHz With spectrum/receiver	3.0 dB	(1)
		Adjacent channel power	1MHz ÷ 18 GHz	1.6 dB	(1)
		Conducted spurious emissions	1MHz ÷ 18 GHz	4.2 dB	(1)
		Intermodulation attenuation	1MHz ÷ 18 GHz	2.2 dB	(1)
		Attack time – frequency behaviour	1MHz ÷ 18 GHz	2.0 ms	(1)
		Attack time – power behaviour	1MHz ÷ 18 GHz	2.5 ms	(1)
		Release time – frequency behaviour	1MHz ÷ 18 GHz	2.0 ms	(1)
		Release time – power behaviour	1MHz ÷ 18 GHz	2.5 ms	(1)
		Transient behaviour of the transmitter– Transient frequency behaviour	1MHz ÷ 18 GHz	0.2 kHz	(1)
		Transient behaviour of the transmitter – Power level slope	1MHz ÷ 18 GHz	9%	(1)
		Frequency deviation - Maximum permissible frequency deviation	0.001MHz ÷ 18 GHz	1.3%	(1)
		Frequency deviation - Response of the transmitter to modulation frequencies above 3 kHz	0.001MHz ÷ 18 GHz	0.5 dB	(1)
		Dwell time	-	3%	(1)
		Hopping Frequency Separation	0.01MHz ÷ 18 GHz	1%	(1)
		Occupied Channel Bandwidth	0.01MHz ÷ 18 GHz	2%	(1)
		Modulation Bandwidth	0.01MHz ÷ 18 GHz	2%	(1)
Receiver	Radiated	Radiated spurious emissions	30MHz ÷ 18 GHz	6.0 dB	(1)
		Effective radiated power transmitter	30MHz ÷ 18 GHz	6.0 dB	(1)
	Radiated	Radiated spurious emissions	30MHz ÷ 18 GHz	6.0 dB	(1)
		Sensitivity measurement	1MHz ÷ 18 GHz	6.0 dB	(1)
	Conducted	Conducted spurious emissions	1MHz ÷ 18 GHz	4.2 dB	(1)

NOTES:

(1) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$ which has been derived from the assumed normal probability distribution with infinite degrees of freedom and for a coverage probability of 95 %.



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Section 7: Test equipment**Product: EOS HP****Section 7: Test equipment****7.1 Test equipment list**

Equipment	Manufacturer	Model No.	Asset/Serial No.	Next cal.
Spectrum Analyzer (9 KHz ÷ 40 GHz)	R&S	FSEK	848255/005	2018/01
EMI receiver (20 Hz ÷ 8 GHz)	R&S	ESU8	100202	2017/09
Broadband preamplifier (1 GHz ÷ 18 GHz)	Schwarzbeck	BBV 9718	9718-137	2017/12
Bilog antenna (1 GHz ÷ 18 GHz)	Schwarzbeck	STLP 9148	9148-123	2018/06
Trilog Broadband Antenna	Schwarzbeck	VULB 9162	9162-025	2018/07
Double Ridged Horn (4 GHz ÷ 40 GHz)	RF SPIN	DRH40	061106A40	2017/08
Wide band Amplifier (18 GHz ÷ 40 GHz)	MITEQ	JS44-18004000-35-8P-R	1.627	2017/12
Semi-anechoic chamber	Nemko	10m semi-anechoic chamber	530	2018/10
Antenna mast	R&S	HCM	836 529/05	NCR
Controller	R&S	HCC	836 620/7	NCR
Turning-table	R&S	HCT	835 803/03	NCR

Note: N/A = Not applicable, NCR = No calibration required, COU = Cal on use



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15 Subpart A

Section 8: Testing data

8.1 Clause 15.31(e) Variation of power source

§ 15.31 Measurement standards.

- (e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85 % and 115 % of the nominal rated supply voltage. For battery-operated equipment, the equipment tests shall be performed using a new battery.

Special notes

None

Test data

Full charged battery was used during the tests



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15 Subpart A

8.2 Clause 15.31(m) Number of operating frequencies

§ 15.31 Measurement standards.

- (m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

Frequency range over which device operates	Number of frequencies	Location in the range of operation
1 MHz and less	1	Middle
1 to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

Special notes

None

Test data

The frequency band is 2400 ÷ 2483.5 MHz therefore number of operating frequencies is 3.

Low frequency / channel	2402 MHz
Mid frequency / channel	2440 MHz
High frequency / channel	2480 MHz



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15 Subpart C

8.3 Clause 15.203 Antenna requirement

§ 15.203 Antenna requirement.

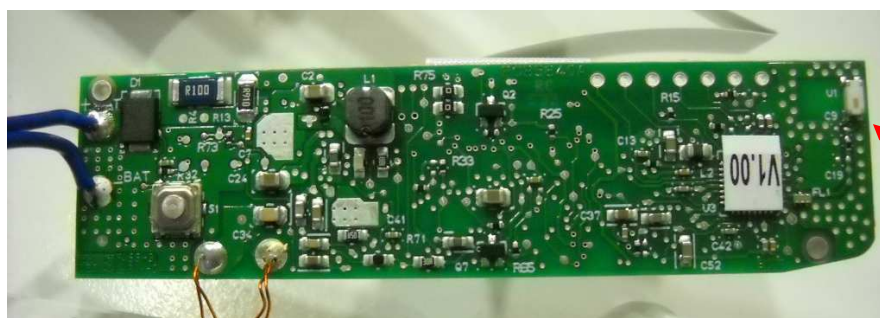
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Special notes

None

Test data

The EUT uses a Johanson Technology antenna model 2450AT18D0100 mounted on the printed circuit board.



ANTENNA



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

8.4 Clause 15.247(b) Maximum peak conducted output power

FCC § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:

- (1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.
- (2) For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.
- (3) For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
- (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
 - (i) Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.
 - (ii) Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.
 - (iii) Fixed, point-to-point operation, as used in paragraphs (b)(3)(i) and (b)(3)(ii) of this section, excludes the use of point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

RSS-247 Clause 5.4 (4)

For DTSSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

Special notes

None



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data

Radiated measurements

Radiated measurements were performed a distance of 3 m and according to ANSI C63.10-2013

Frequency (MHz)	Antenna polarization	EUT position	Field strength (dBμV/m)
2402	Horizontal	Horizontal	86.4
2440	Horizontal	Horizontal	82.4
2480	Horizontal	Horizontal	85.3
2402	Vertical	Horizontal	89.0
2440	Vertical	Horizontal	88.9
2480	Vertical	Horizontal	84.5
2402	Horizontal	Vertical	87.8
2440	Horizontal	Vertical	86.6
2480	Horizontal	Vertical	87.8
2402	Vertical	Vertical	81.3
2440	Vertical	Vertical	90.9
2480	Vertical	Vertical	93.6

Theoretical conversion from Field Strength measured at 3 m to power conducted from the intentional radiator to the antenna:

$$P(W) = \frac{E^2 R^2}{30G}$$

E = Measured field strength value (V/m)

R = Measurement distance (m)

G = Antenna Gain (numeric)

Therefore dBW = dBV/m + 20Log(3) – 10Log(30) – 10Log(G)

From which we obtain

dBmW = dBμV/m – 120 + 20Log(3) – 10Log(30) – 10Log(G) + 30 = dBμV/m – 95.23 – 10Log(G)

Output power [dBm] = Field Strength [dBμV/m] – 95.23 [dB] – Antenna gain [dBi]

Frequency (MHz)	Field strength (dBμV/m)	Output power (dBm)	Limit (dBm)	EIRP (dBm)	EIRP limit (dBm)
2402	89.0	-6.2	30.0	-4.7	36.0
2440	90.9	-4.3	30.0	-2.8	36.0
2480	93.6	-1.6	30.0	-0.1	36.0



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

8.5 Clause 15.247(d) Spurious emissions

§ 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

- (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

RSS-247 Clause 5.5 (Unwanted Emissions)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Special notes

§15.209 – Radiated emission limits

Frequency (MHz)	Field strength		Measurement distance (m)
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	
0.009–0.490	2400/F	67.6–20log(F)	300
0.490–1.705	24000/F	87.6–20log(F)	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

Notes:

- F = fundamental frequency in kHz
- In the emission table above, the tighter limit applies at the band edges.
- For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Special notes

§15.205 – Restricted bands of operation

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2690–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	Above 38.6
13.36–13.41			

- The spectrum was searched from 30 MHz to the 10th harmonic.
- The EUT was measured on three orthogonal axis.
- All measurements were performed at a distance of 3 m.
- All measurements were performed:
 - within 30–1000 MHz range: using a quasi-peak detector with 120 kHz RBW
 - within 30–1000 MHz range: using a peak detector with 100 kHz/300 kHz RBW/VBW,
 - above 1 GHz: using peak detector with 1 MHz/3 MHz RBW/VBW for peak results
 - above 1 GHz: using average detector with 1 MHz/3 MHz RBW/VBW for average results



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Section 8: Testing data

Product: EOS HP

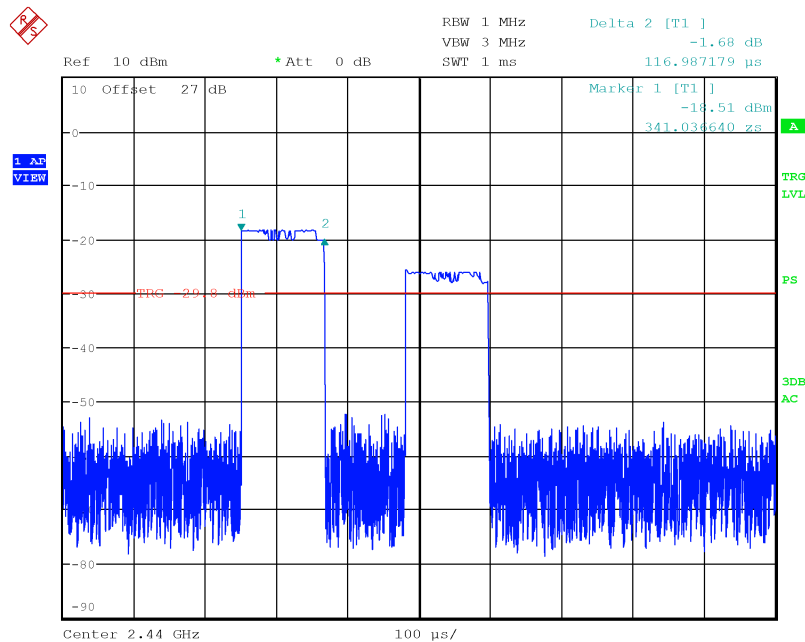
Specification: FCC Part 15.247, RSS-247

Test data

Duty cycle/average factor calculations

§15.35(c) When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Duty cycle/average factor calculations:



The first burst is generated by the remote controller and the second by the control unit.
The single burst have a duration of 117 μs and it's repeated every 468 μs.

$$\text{Duty cycle / average factor} = 20 \times \log_{10} \left(\frac{T_{x100ms}}{100ms} \right)$$

Transmission time = 117 μs every 468 μs = 25 ms

Duty cycle correction = -12.0 dB



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

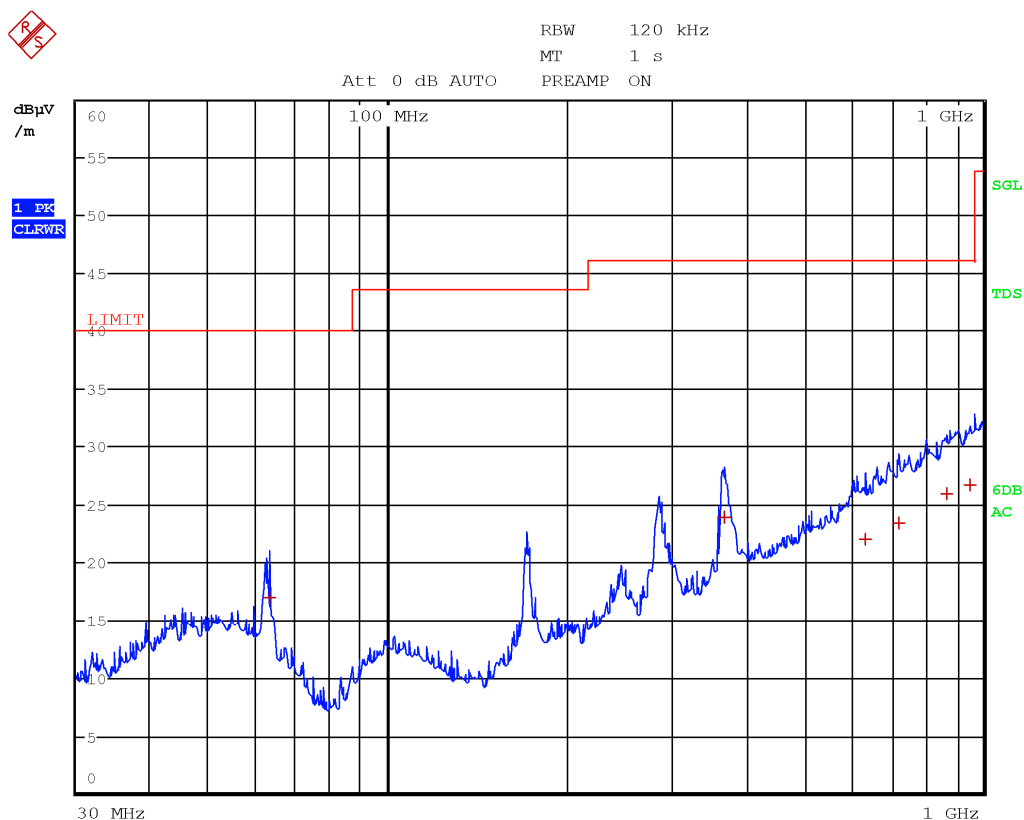
Horizontal

3 m

Horizontal

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
63.2250	H	16.9	40.0	-23.1
367.3250	H	23.9	46.0	-22.1
635.9000	H	22.0	46.0	-24.0
722.0750	H	23.3	46.0	-22.7
866.5000	H	26.0	46.0	-20.1
948.4250	H	26.6	46.0	-19.4



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

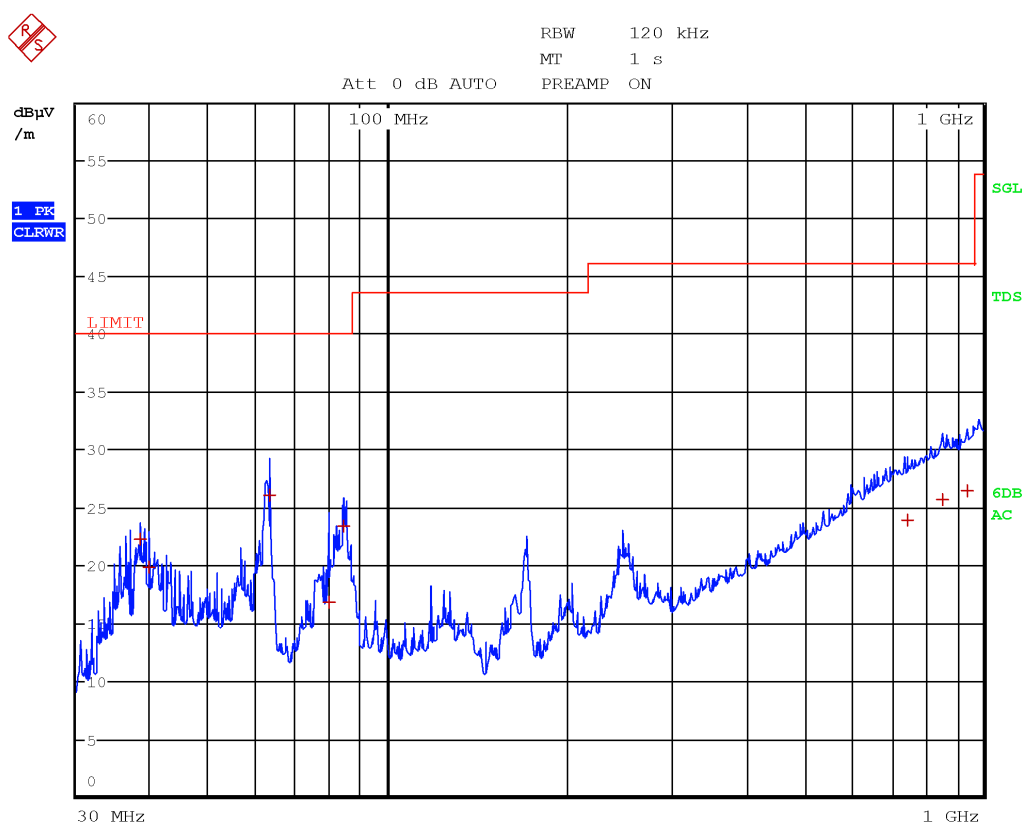
Vertical

3 m

Horizontal

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3500	V	22.2	40.0	-17.8
39.7750	V	19.9	40.0	-20.1
63.1500	V	26.0	40.0	-14.0
79.8750	V	16.8	40.0	-23.2
84.4750	V	23.4	40.0	-16.6
746.8500	V	23.9	46.0	-22.1
855.8750	V	25.7	46.0	-20.4
940.0750	V	26.4	46.0	-19.6



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

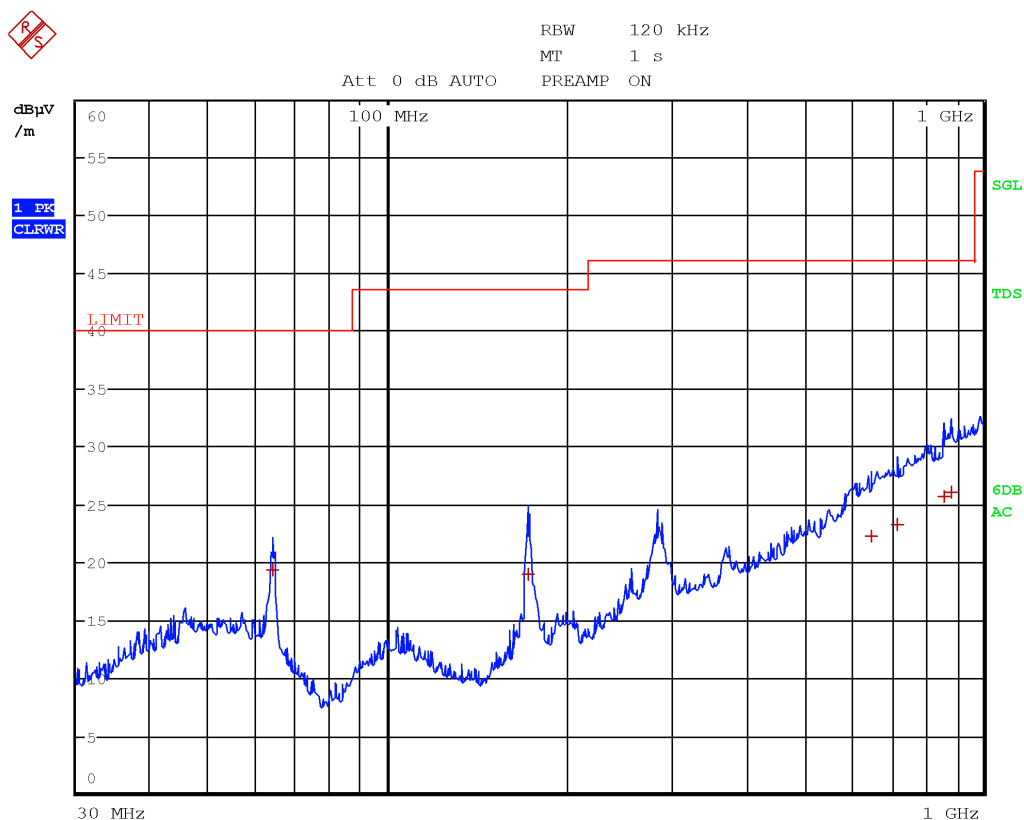
Horizontal

3 m

Vertical

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
63.9000	H	19.4	40.0	-20.6
171.7750	H	19.0	43.5	-24.5
649.0750	H	22.3	46.0	-23.7
716.1750	H	23.3	46.0	-22.7
857.1500	H	25.7	46.0	-20.3
881.4750	H	26.0	46.0	-20.0



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Section 8: Testing data

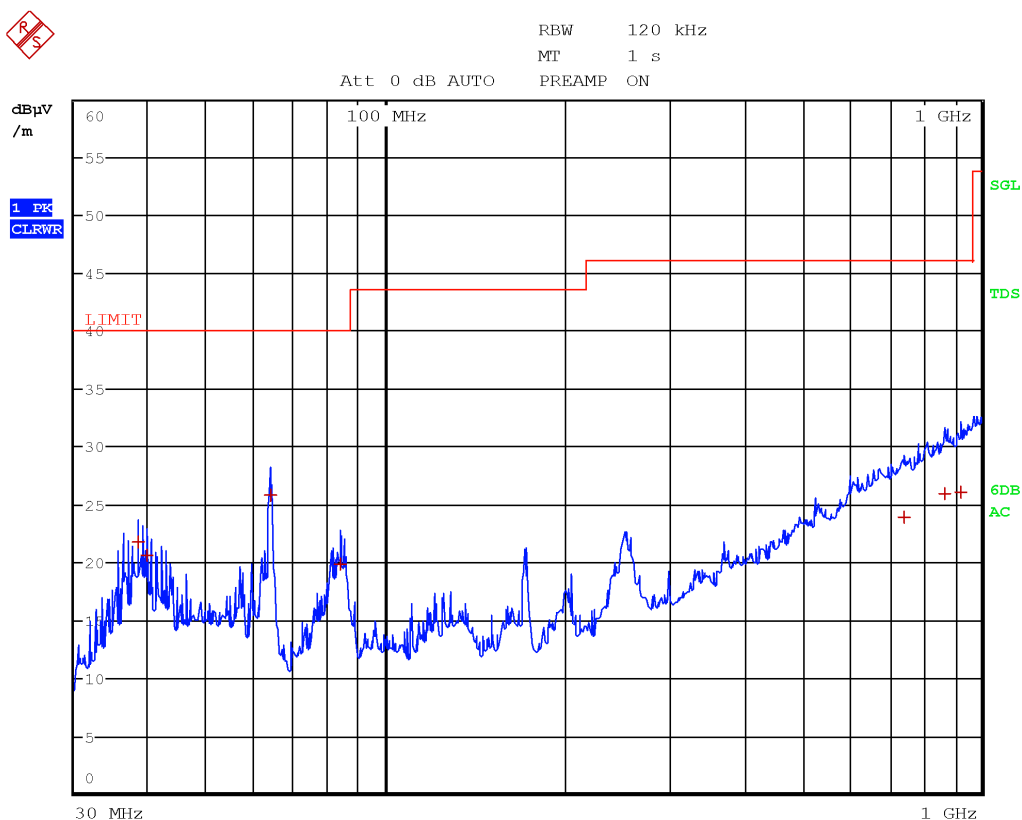
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3250	H	21.8	40.0	-18.2
39.7500	H	20.6	40.0	-19.4
63.9250	H	25.8	40.0	-14.2
83.7250	H	19.9	40.0	-20.1
743.2750	H	23.9	46.0	-22.1
866.8500	H	25.9	46.0	-20.1
923.0500	H	26.0	46.0	-20.0



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

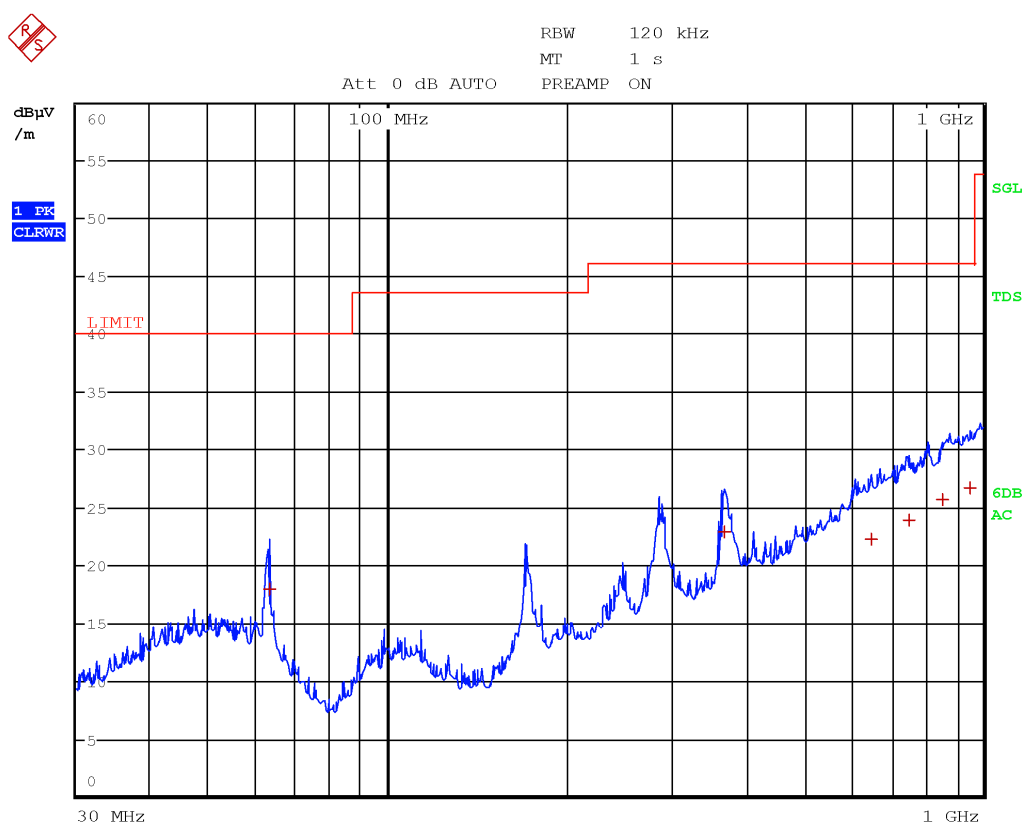
Horizontal

3 m

Horizontal

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
63.2000	H	18.0	40.0	-22.0
367.9250	H	22.9	46.0	-23.1
647.2250	H	22.2	46.0	-23.8
752.7250	H	23.9	46.0	-22.2
855.8750	H	25.6	46.0	-20.4
952.3250	H	26.7	46.0	-19.3



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

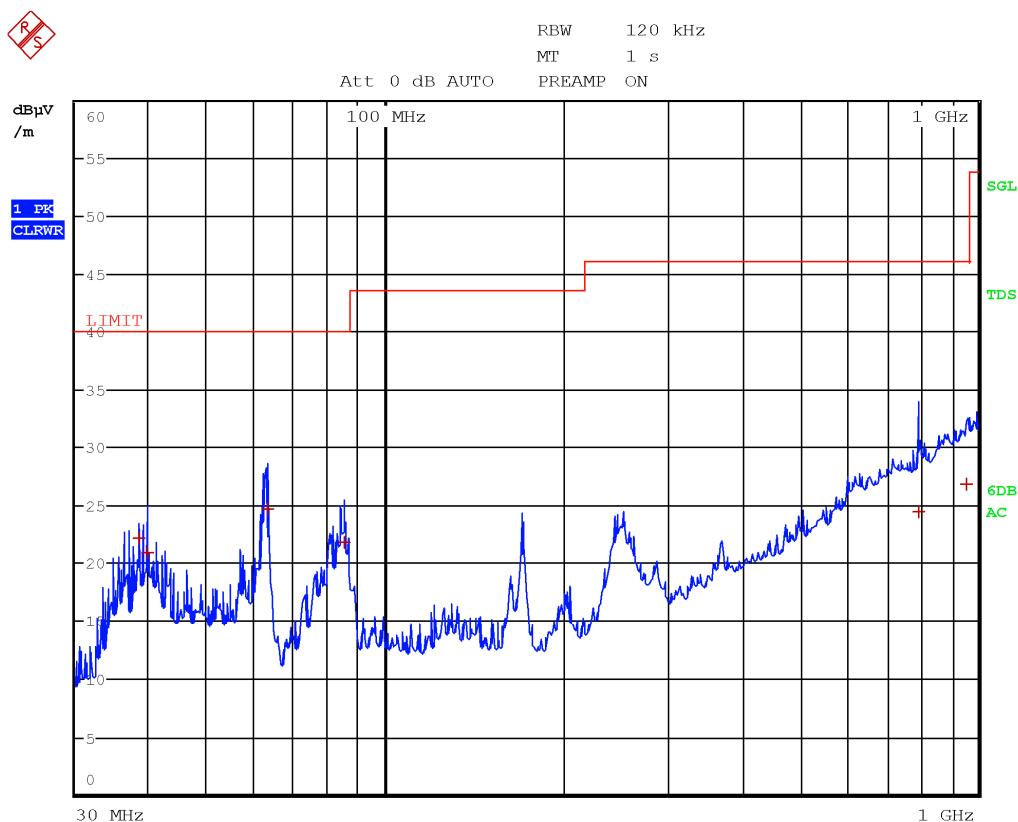
Vertical

3 m

Horizontal

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3250	V	22.1	40.0	-17.9
39.7500	V	20.8	40.0	-19.2
63.2000	V	24.7	40.0	-15.3
85.1500	V	21.8	40.0	-18.2
792.7000	V	24.4	46.0	-21.6
956.7250	V	26.8	46.0	-19.2



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

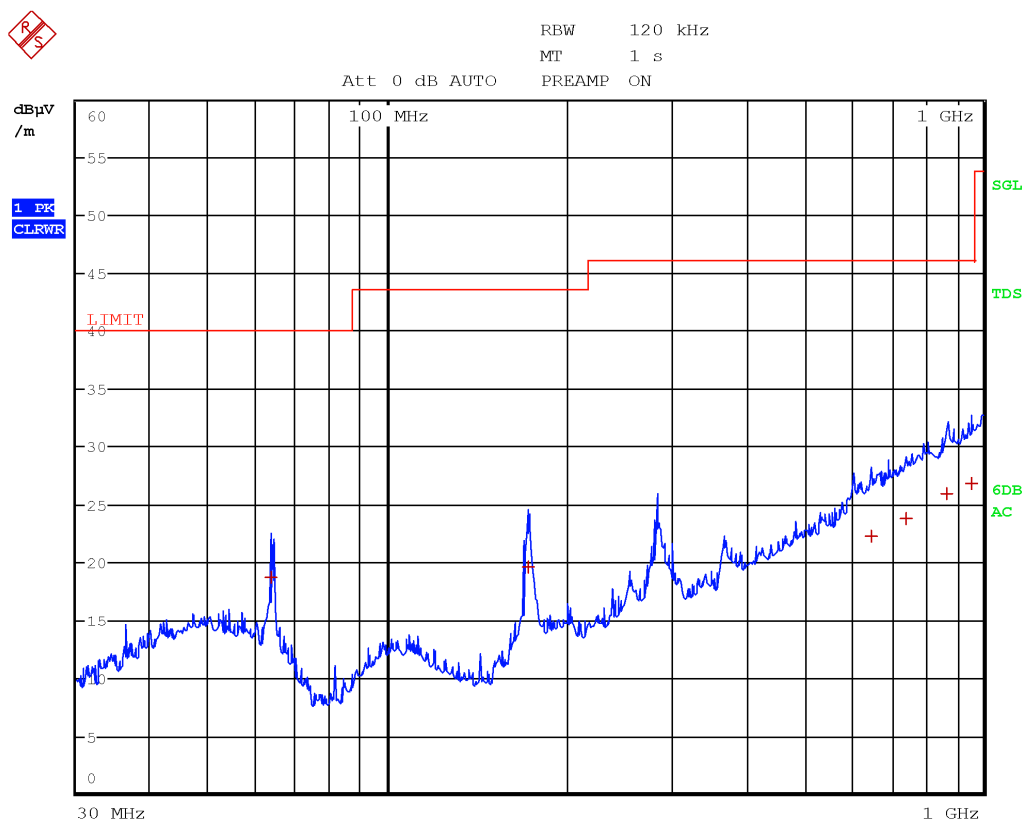
Horizontal

3 m

Vertical

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
63.8500	H	18.8	40.0	-21.2
172.4250	H	19.6	43.5	-23.9
648.3000	H	22.3	46.0	-23.7
740.9250	H	23.8	46.0	-22.2
867.3000	H	25.9	46.0	-20.1
957.4500	H	26.8	46.0	-19.2



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

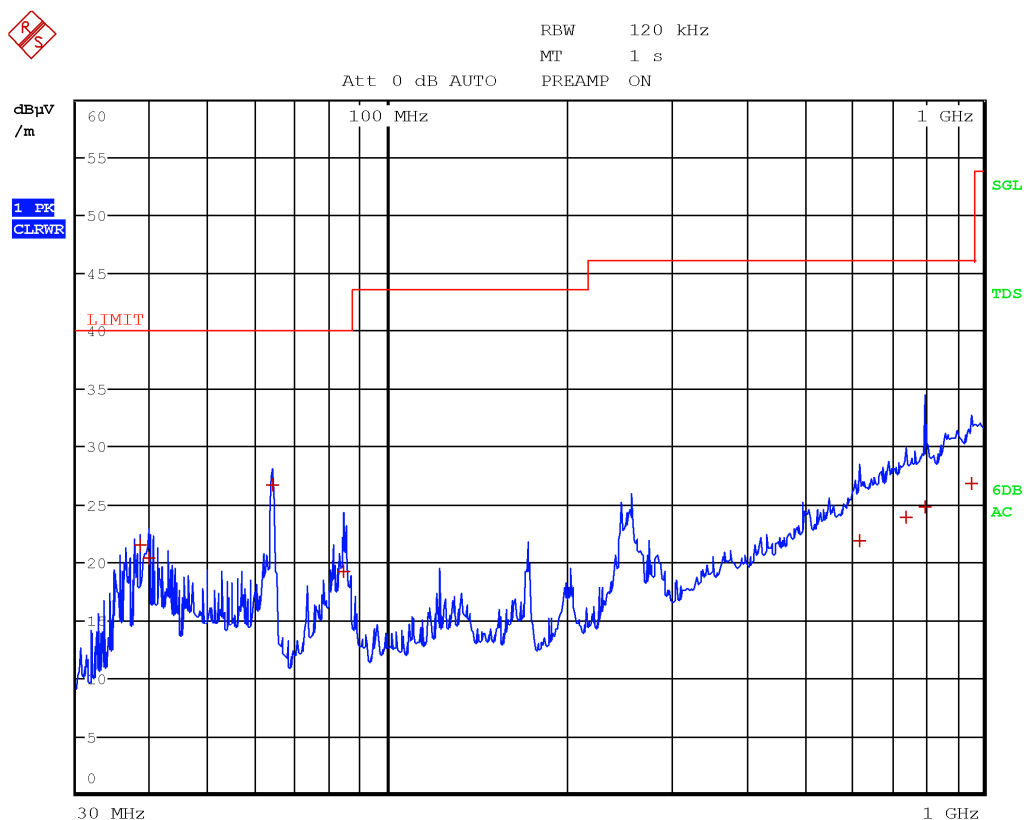
Vertical

3 m

Vertical

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3250	V	21.5	40.0	-18.5
39.7500	V	20.3	40.0	-19.7
63.9000	V	26.6	40.0	-13.4
84.5000	V	19.2	40.0	-20.8
621.0750	V	21.9	46.0	-24.1
744.0000	V	23.9	46.0	-22.1
800.2750	V	24.8	46.0	-21.2
958.0750	V	26.8	46.0	-19.2



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

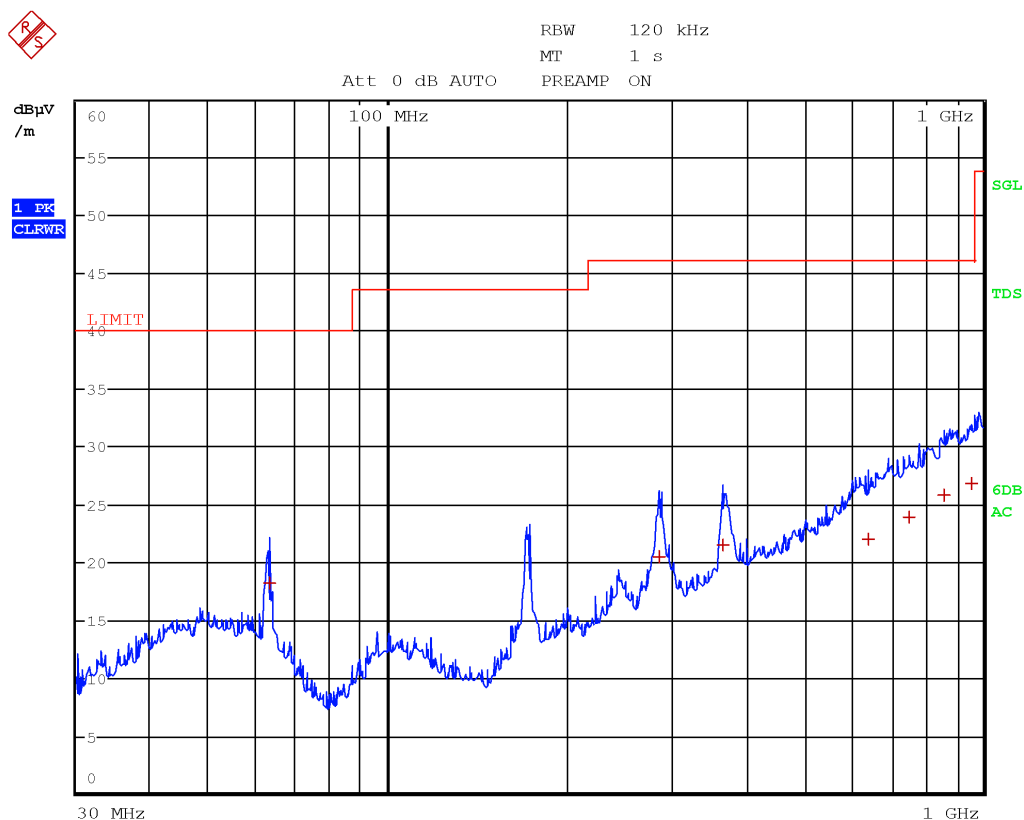
Horizontal

3 m

Horizontal

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
63.2000	H	18.2	40.0	-21.8
285.3500	H	20.5	46.0	-25.5
366.6500	H	21.5	46.0	-24.5
640.3250	H	22.0	46.0	-24.0
751.3750	H	23.9	46.0	-22.1
858.1250	H	25.8	46.0	-20.2
954.6750	H	26.8	46.0	-19.3



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

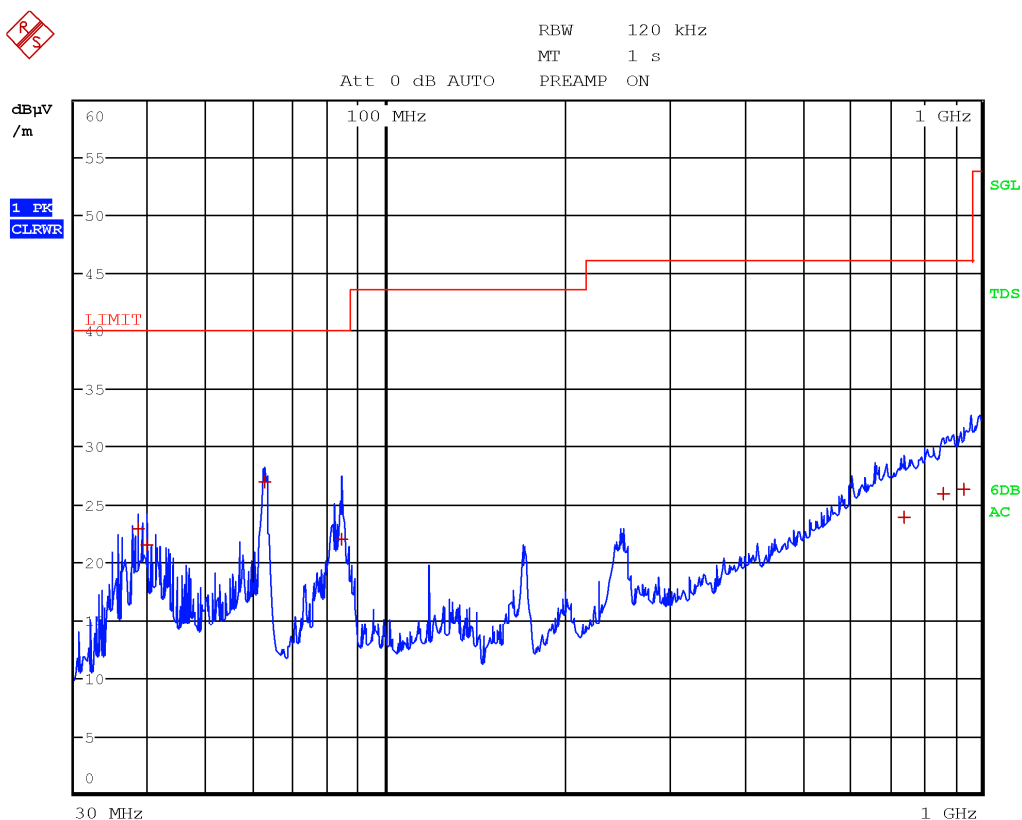
Vertical

3 m

Horizontal

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3250	V	22.8	40.0	-17.2
39.7500	V	21.5	40.0	-18.5
62.4750	V	26.9	40.0	-13.1
84.4000	V	22.0	40.0	-18.0
740.3500	V	23.9	46.0	-22.1
862.7250	V	25.9	46.0	-20.1
936.6750	V	26.3	46.0	-19.7



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

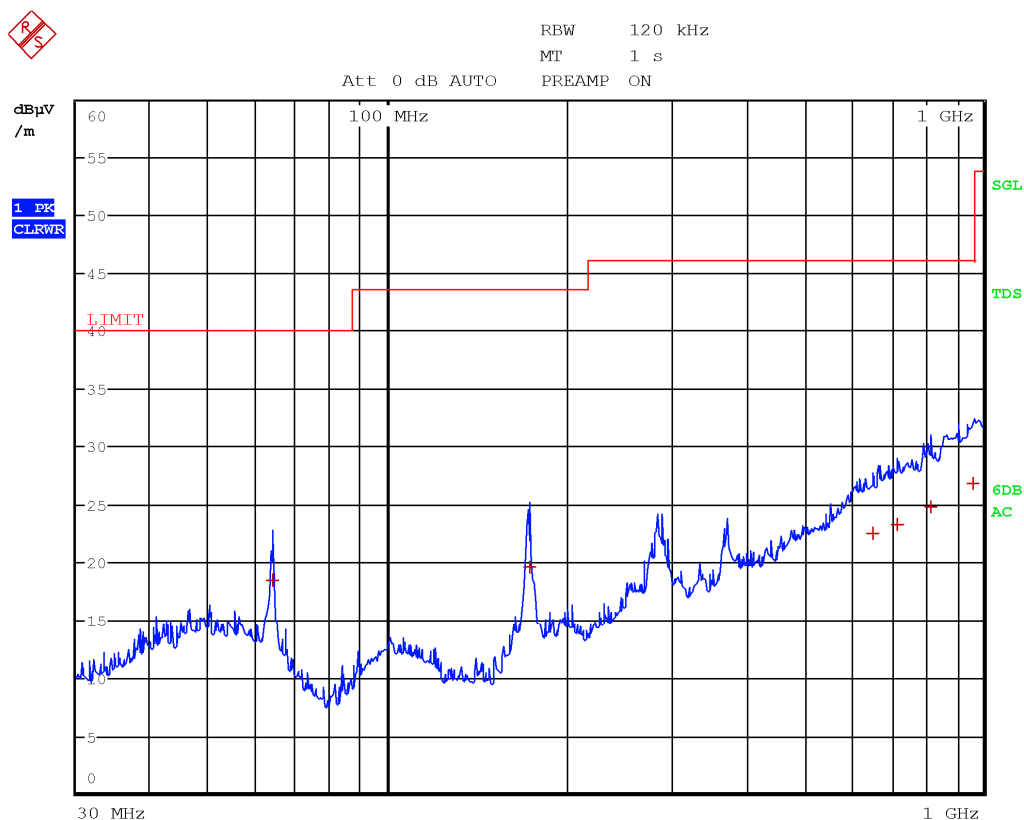
Horizontal

3 m

Vertical

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
63.9250	H	18.5	40.0	-21.5
173.2000	H	19.5	43.5	-24.0
653.2750	H	22.5	46.0	-23.5
718.2750	H	23.3	46.0	-22.7
817.4750	H	24.8	46.0	-21.2
959.2000	H	26.8	46.0	-19.2



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

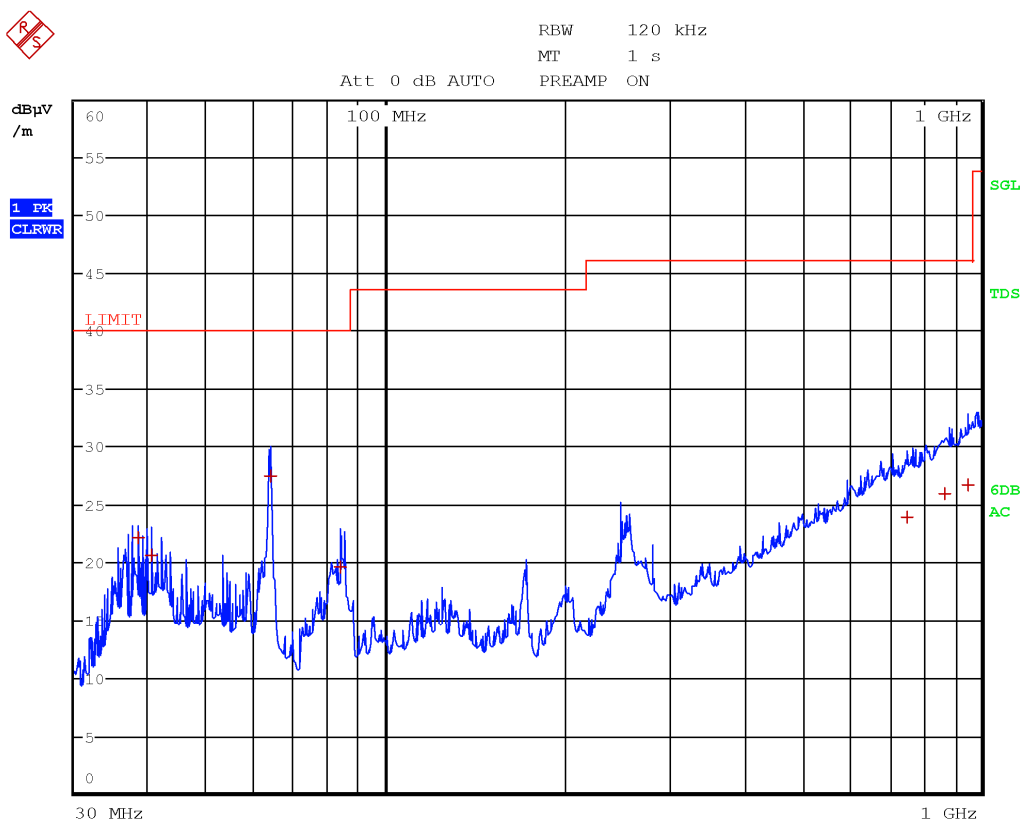
Vertical

3 m

Vertical

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	QP field strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
38.3250	V	22.1	40.0	-17.9
40.4750	V	20.7	40.0	-19.3
63.9250	V	27.4	40.0	-12.6
83.8250	V	19.7	40.0	-20.3
748.8000	V	23.9	46.0	-22.2
866.4750	V	25.9	46.0	-20.1
950.4000	V	26.6	46.0	-19.4



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

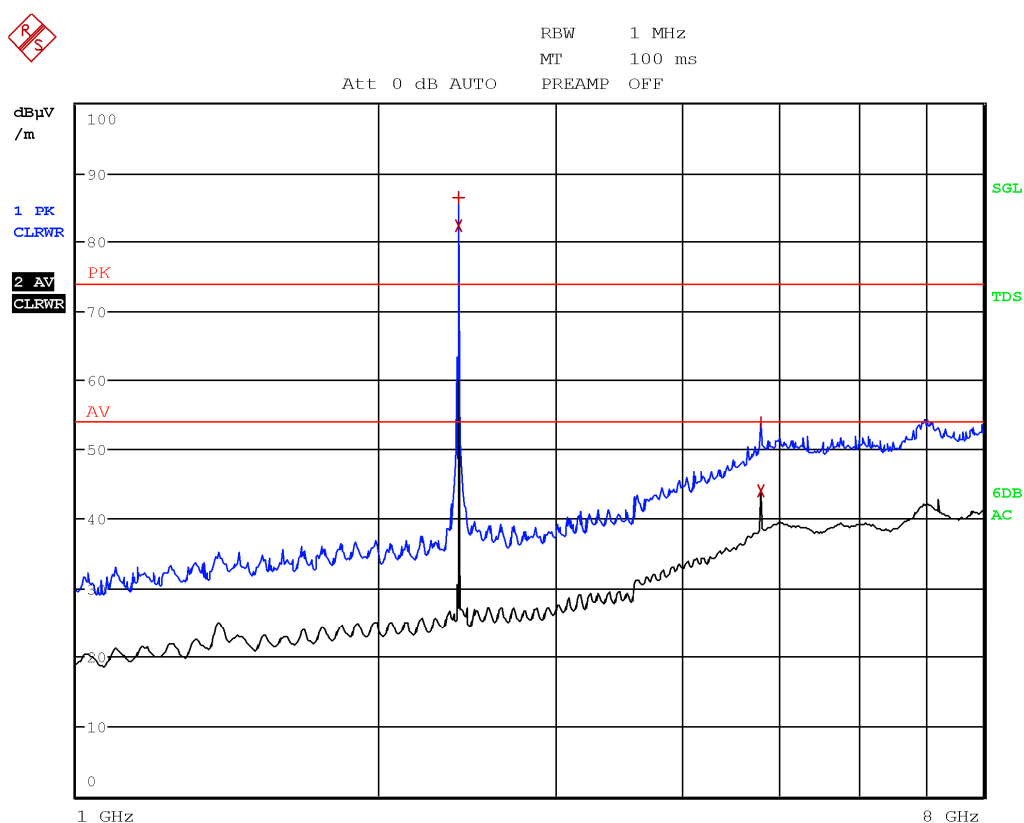
Horizontal

3 m

Horizontal

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2402	H	86.4	--	--	--	--
4804	H	53.9	12.0	41.9	54.0	-12.1



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

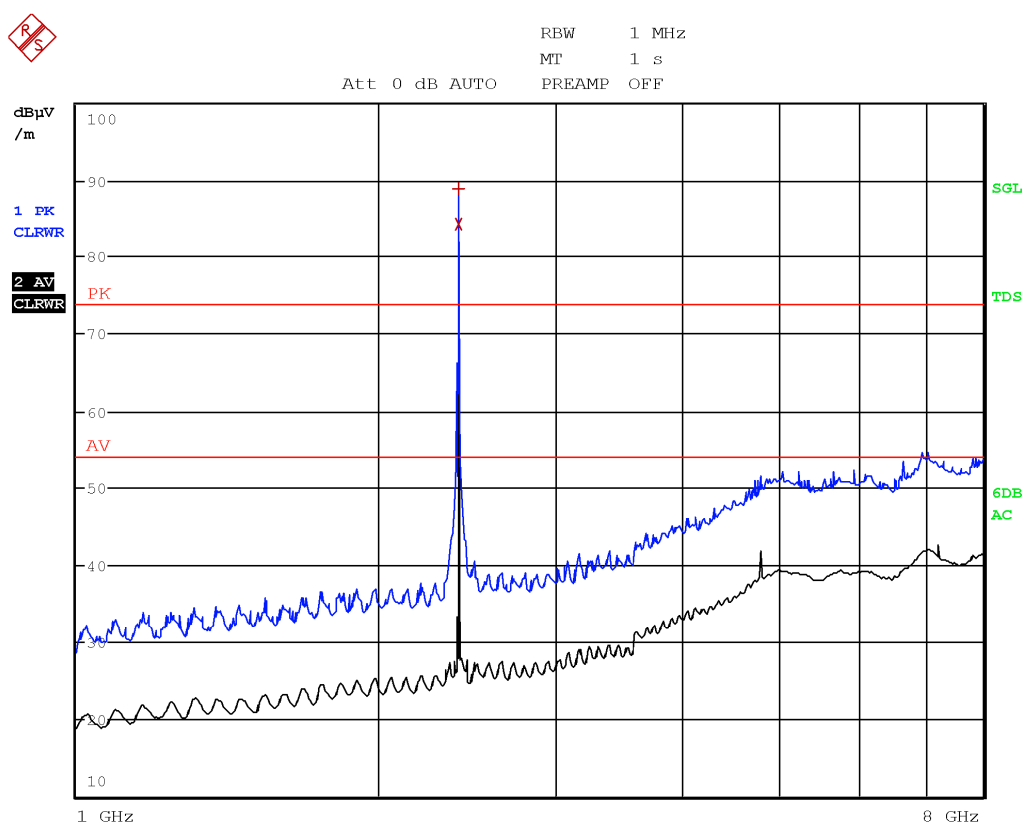
Vertical

3 m

Horizontal

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2402	V	89.0	--	--	--	--



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

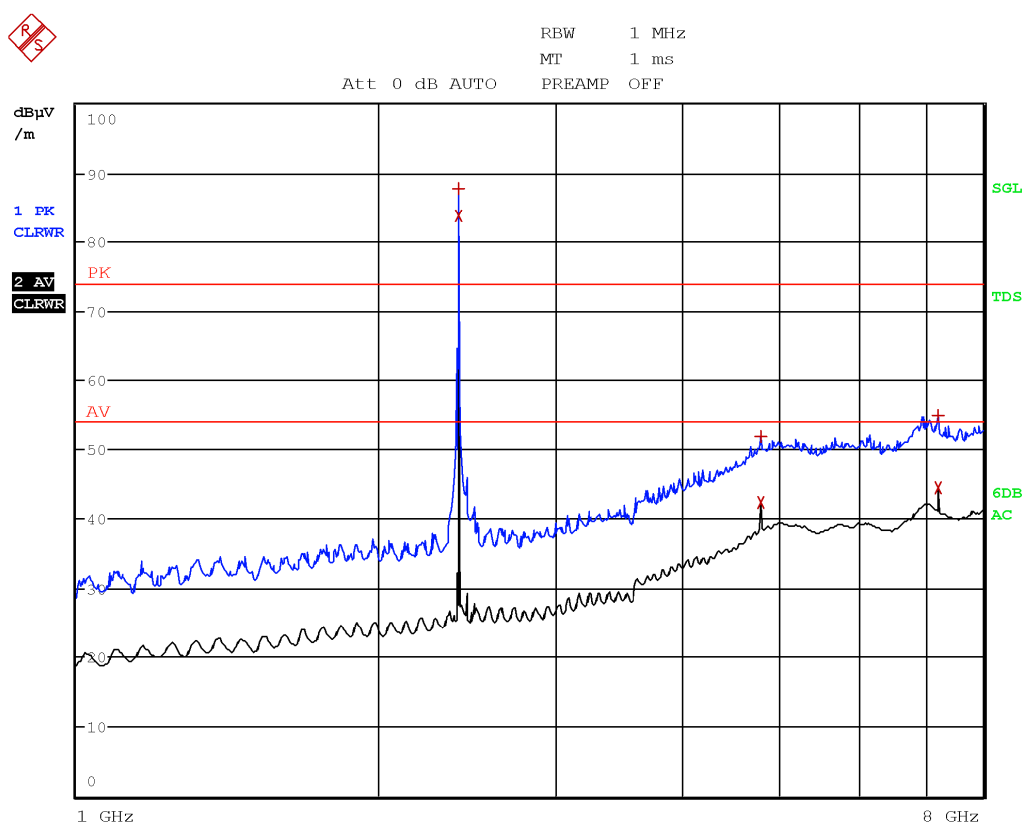
Horizontal

3 m

Vertical

Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2402	H	87.8	--	--	--	--
4804	H	51.8	12.0	39.8	54.0	-14.2
7206	H	54.9	12.0	42.9	54.0	-11.1



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Section 8: Testing data

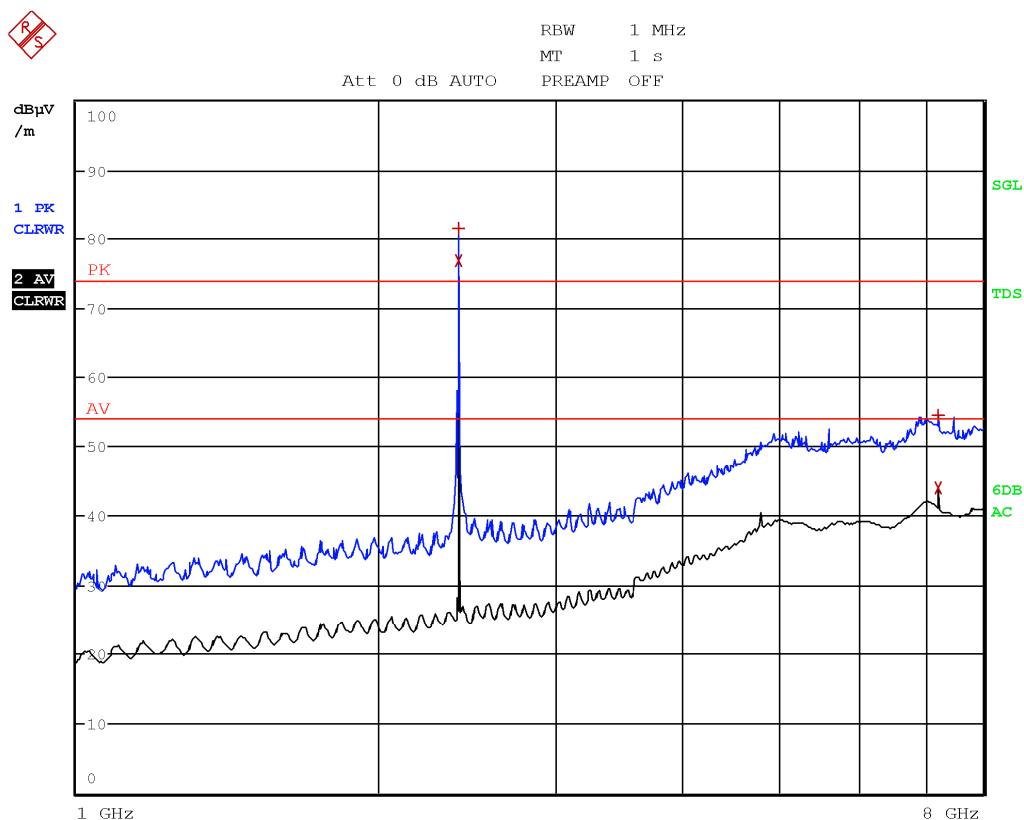
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2402	V	81.3	--	--	--	--
4804	V	54.6	12.0	42.6	54.0	-11.4



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

Horizontal

3 m

Horizontal

Mid

Spectral plots



RBW 1 MHz

MT 1 s

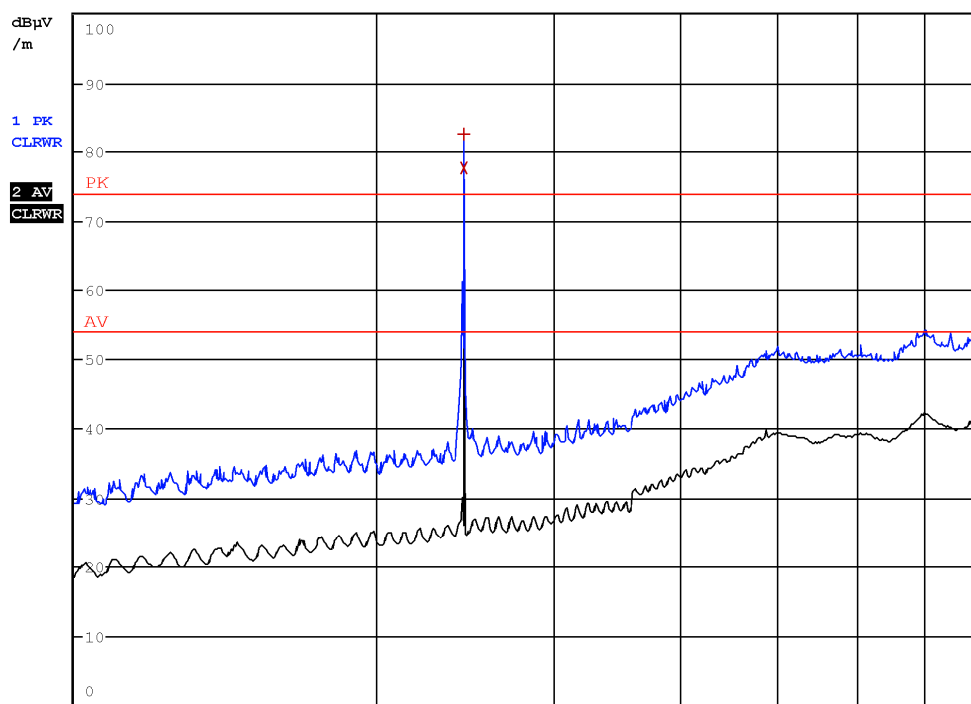
Att 0 dB AUTO

PREAMP OFF

dB μ V
/m

1 PK
CLRWR

2 AV
CLRWR



1 GHz

8 GHz

Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dB μ V/m)	Duty cycle corr. (dB)	Avg field strength (dB μ V/m)	Avg limit (dB μ V/m)	Avg margin (dB)
2440	H	82.4	--	--	--	--



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

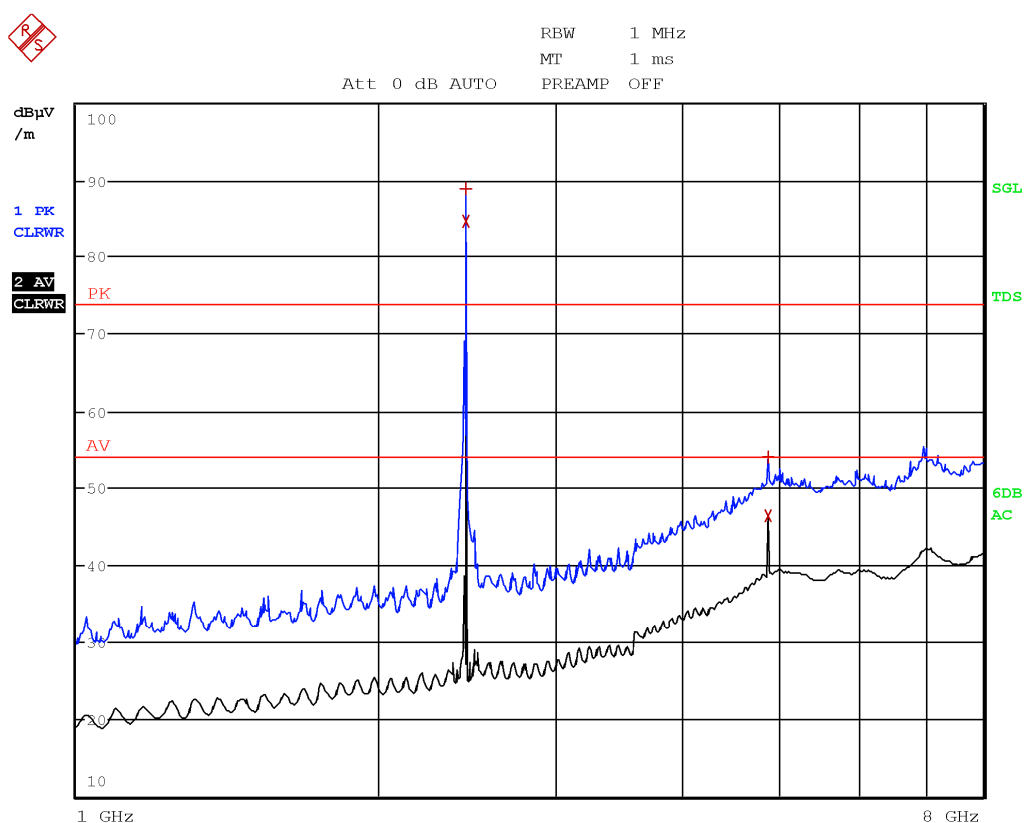
Vertical

3 m

Horizontal

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2440	V	88.9	--	--	--	--
4880	V	54.0	12.0	42.0	54.0	-12.0



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

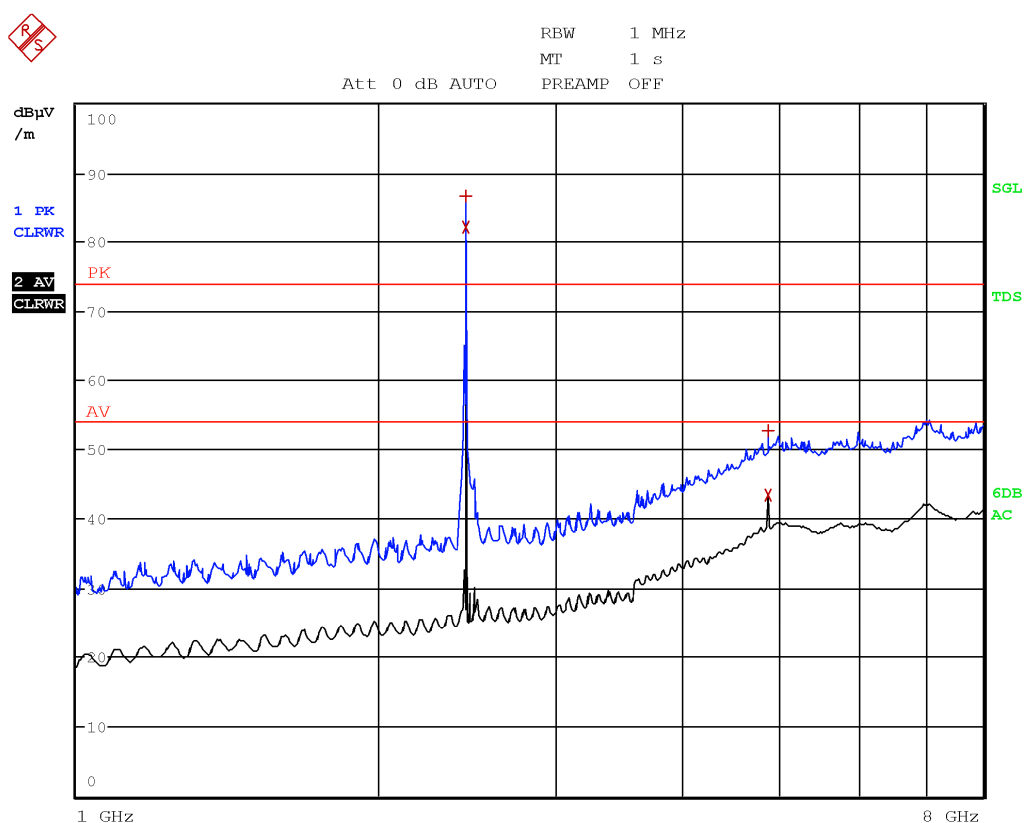
Horizontal

3 m

Vertical

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2440	H	86.6	--	--	--	--
4880	H	52.6	12.0	40.6	54.0	-13.4



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

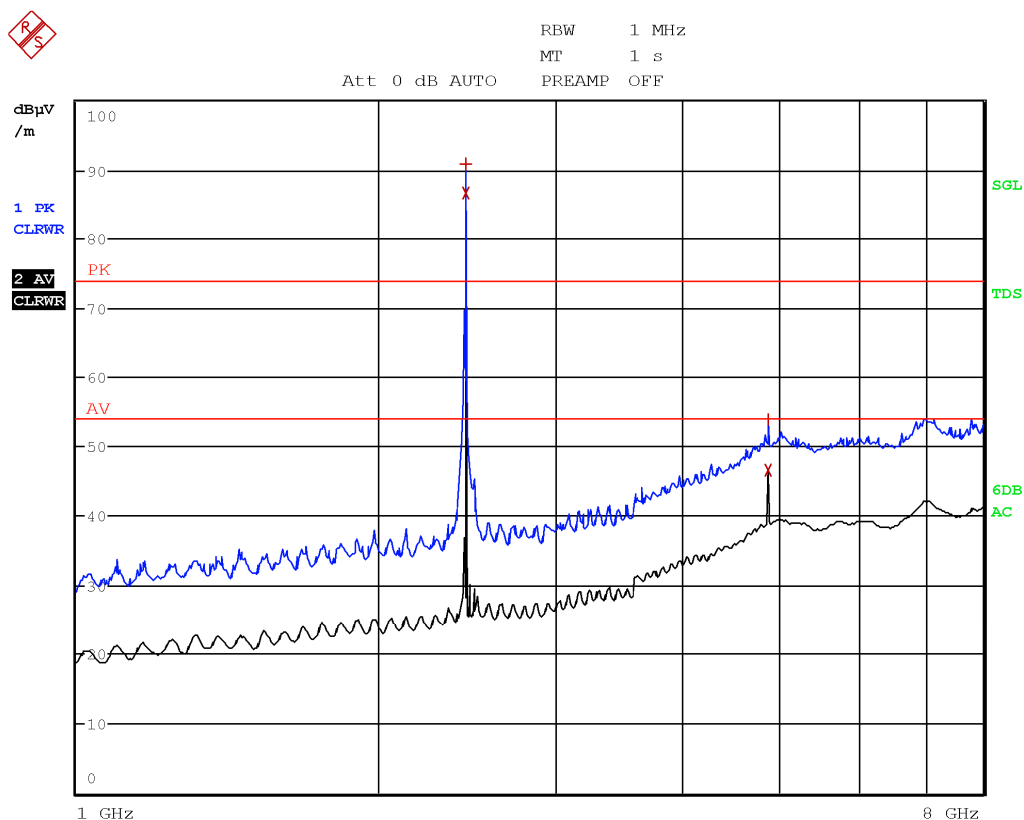
Vertical

3 m

Vertical

Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2440	V	90.9	--	--	--	--
4880	V	54.0	12.0	42.0	54.0	-12.0



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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

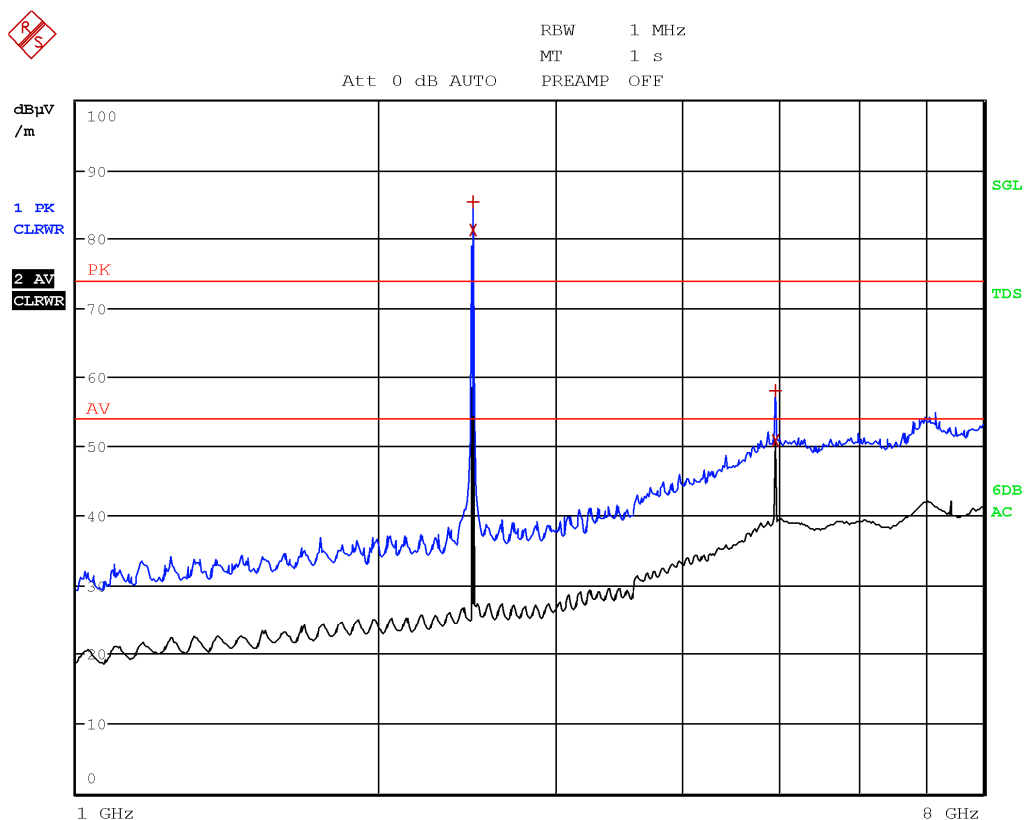
Horizontal

3 m

Horizontal

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2480	H	85.3	--	--	--	--
4960	H	57.1	12.0	45.1	54.0	-8.9



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Section 8: Testing data

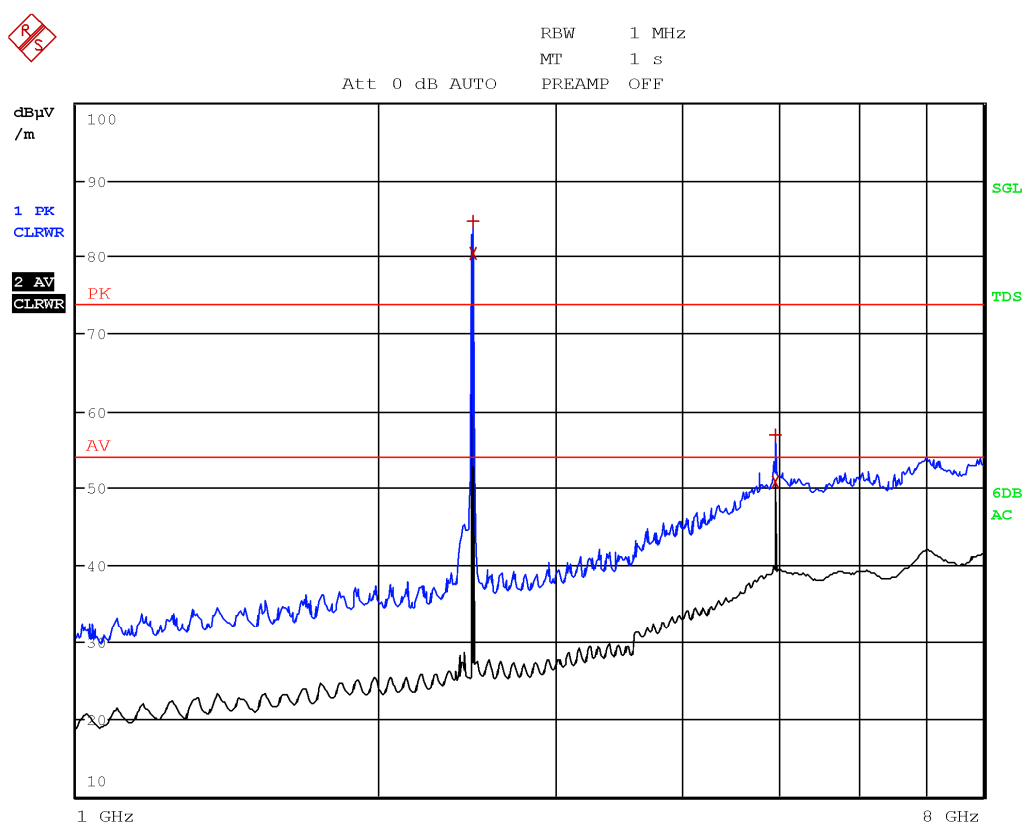
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2480	V	84.5	--	--	--	--
4960	V	56.8	12.0	44.8	54.0	-9.2



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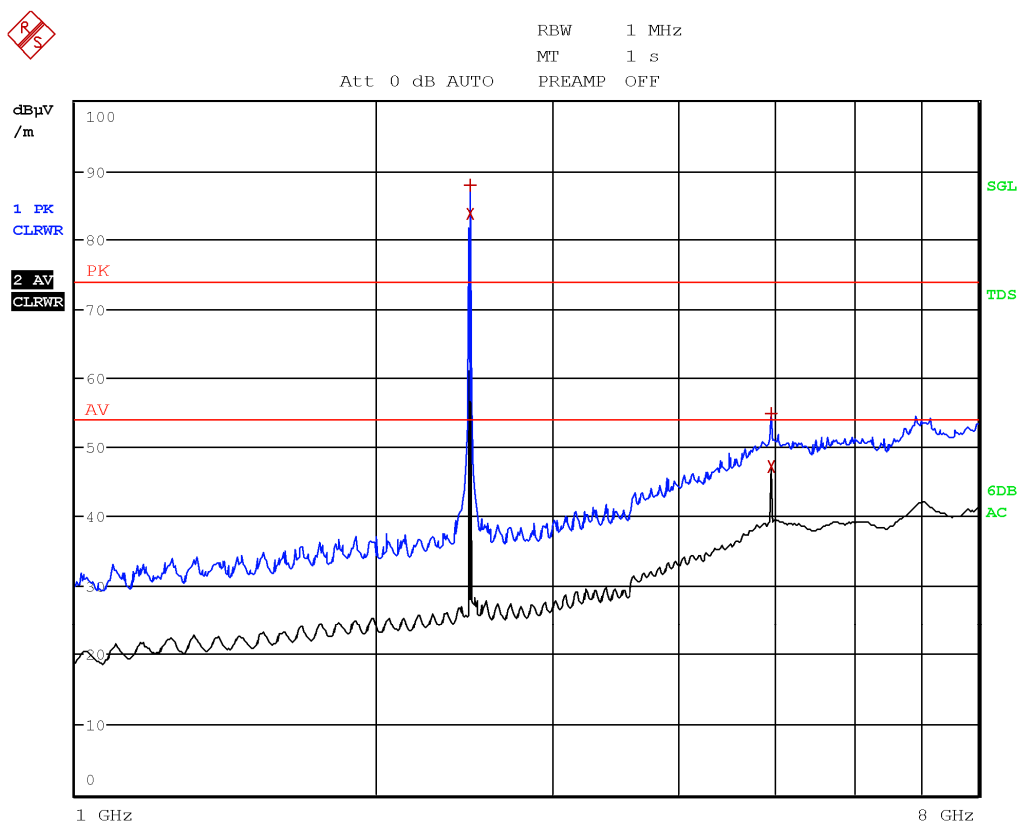
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2480	H	87.8	--	--	--	--
4960	H	54.9	12.0	42.9	54.0	-11.1



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Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

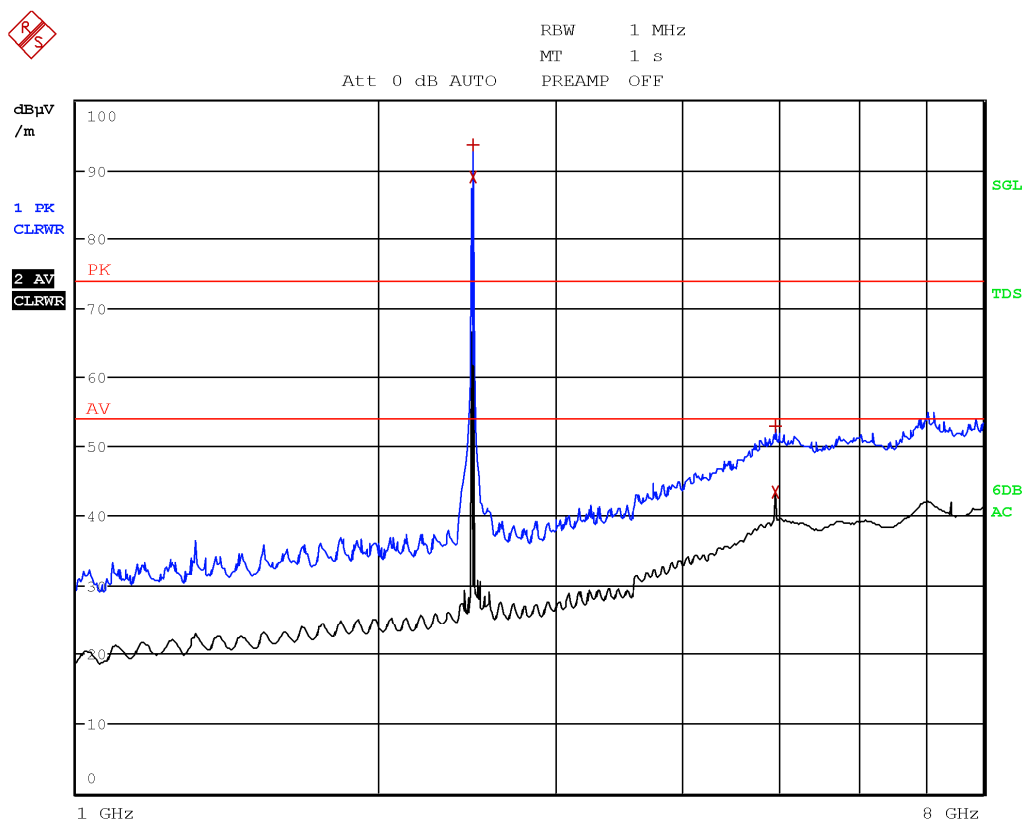
Vertical

3 m

Vertical

High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
2480	V	93.6	--	--	--	--
4960	V	52.7	12.0	40.7	54.0	-13.3



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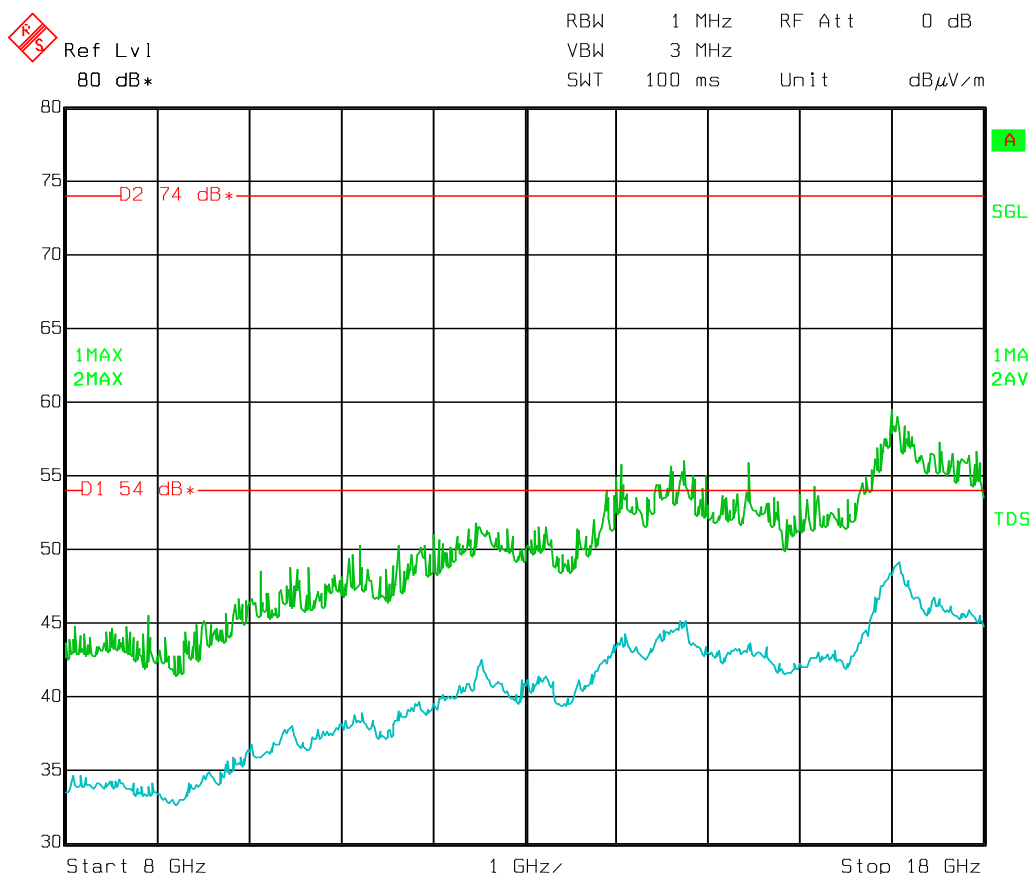
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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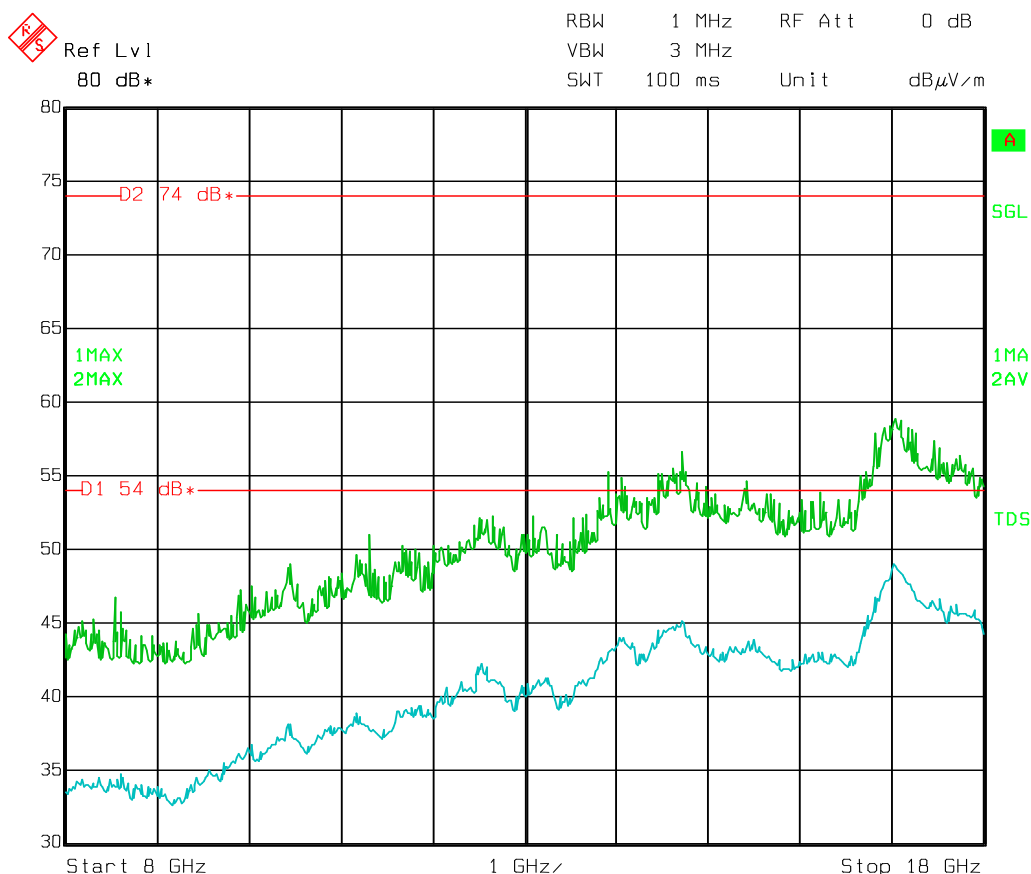
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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Test data, continued

Antenna polarization

Measuring distance

EUT position

Channel

Horizontal

3 m

Vertical

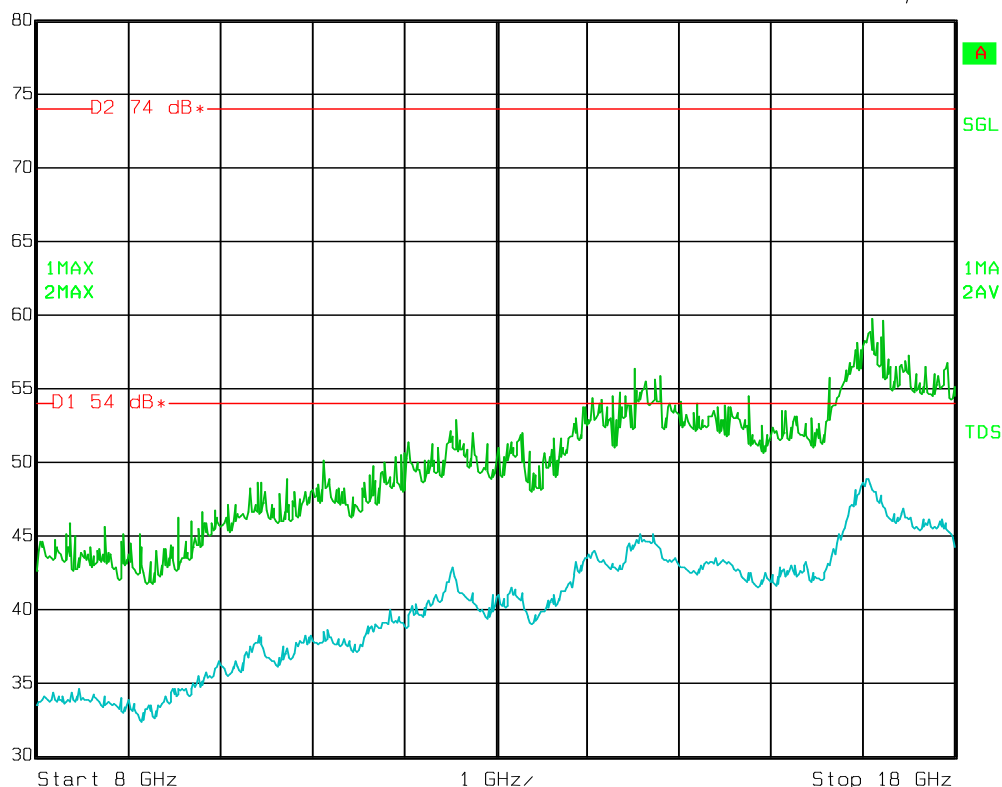
Low

Spectral plots



Ref Lvl
80 dB*

RBW 1 MHz RF Att 0 dB
VBW 3 MHz
SWT 100 ms Unit dBμV/m



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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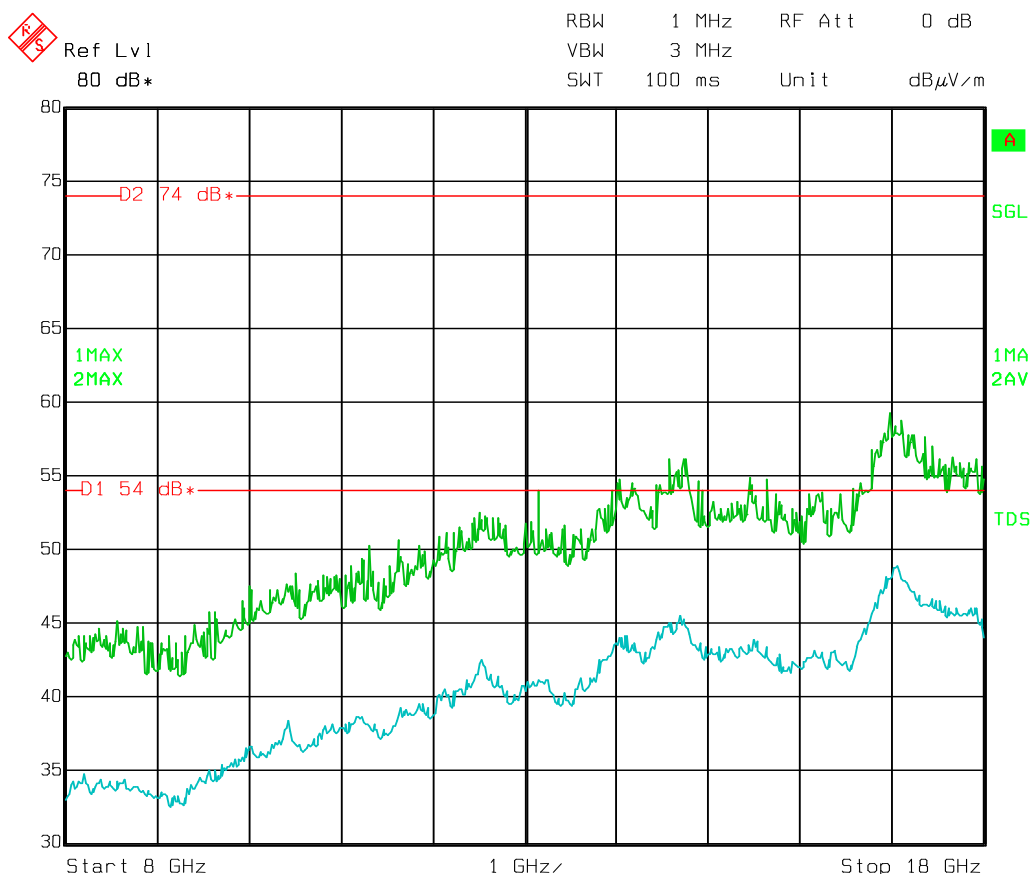
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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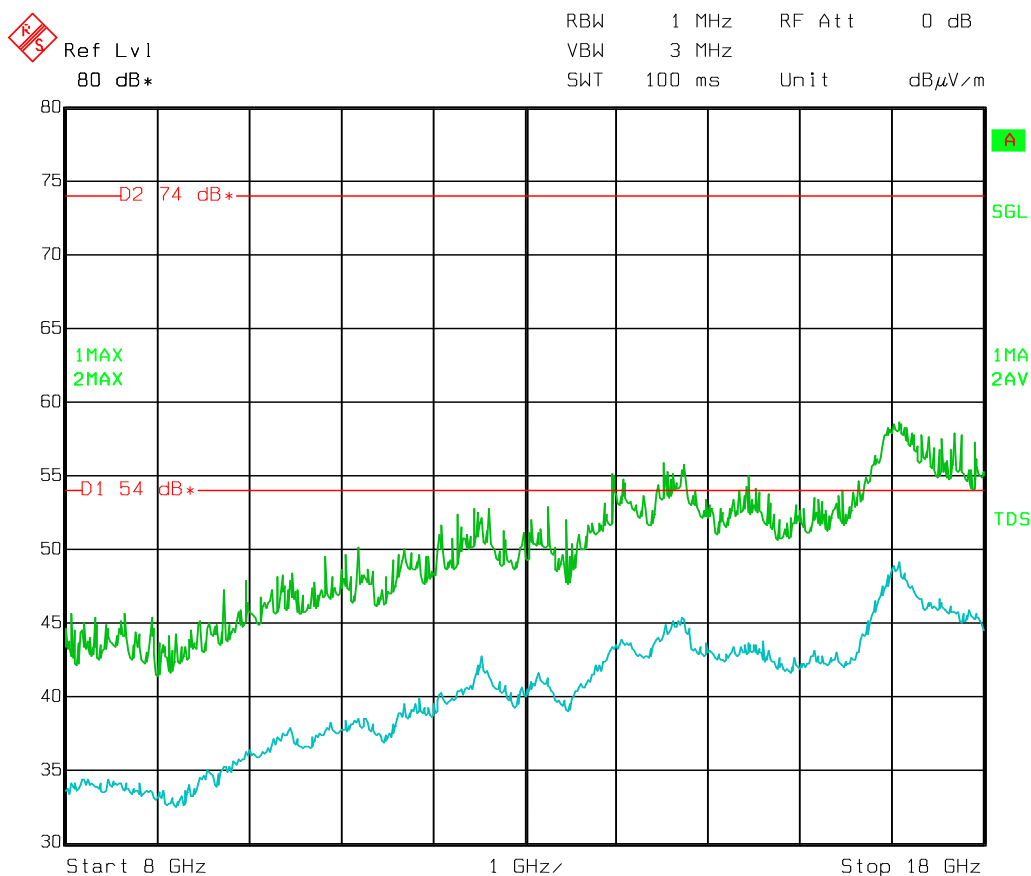
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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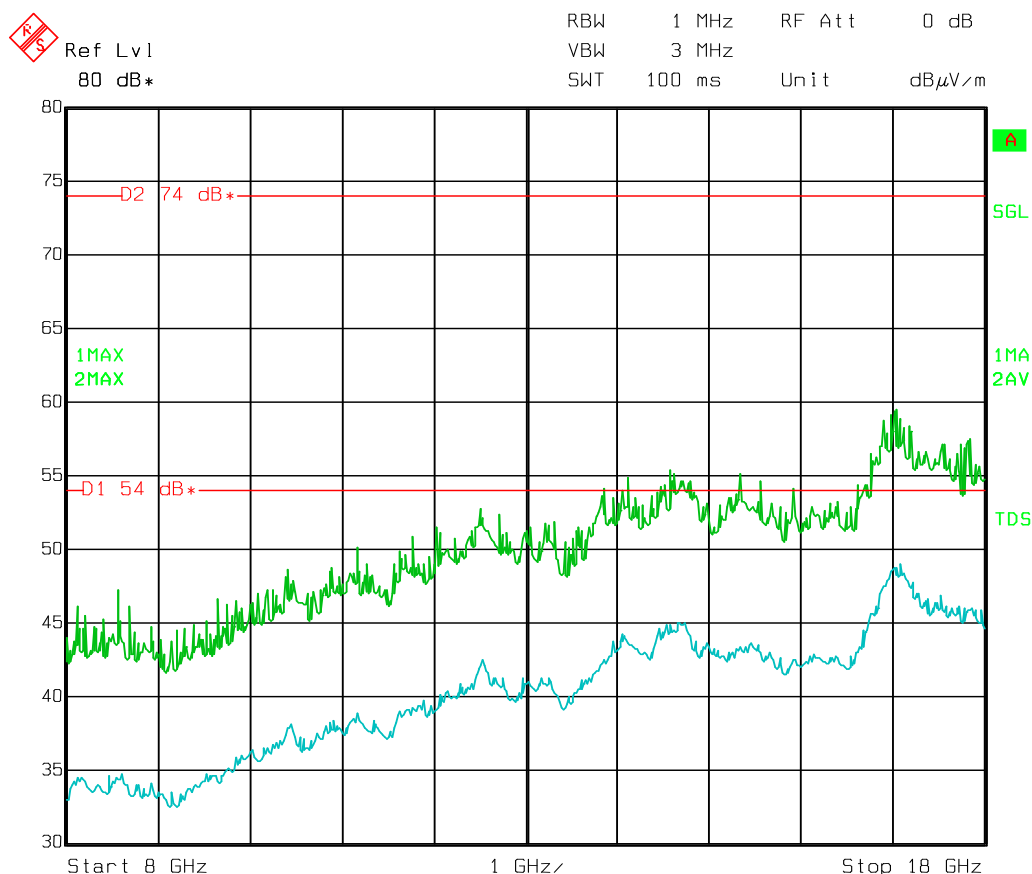
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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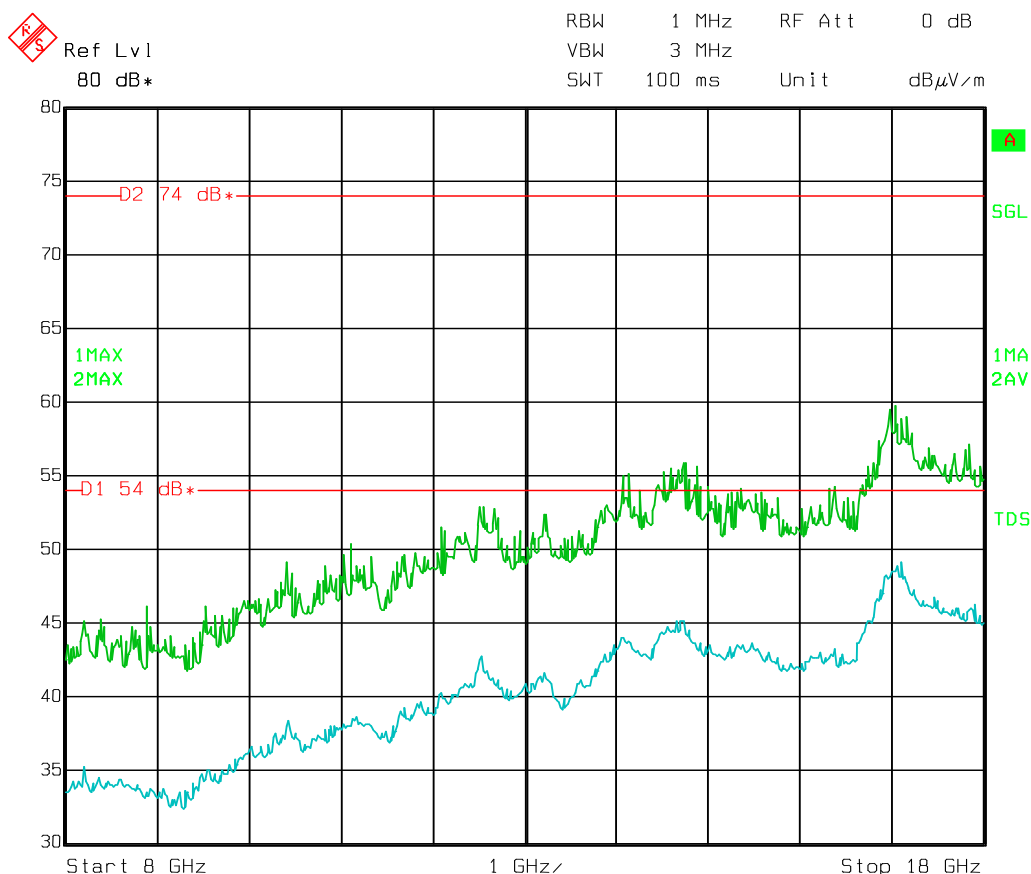
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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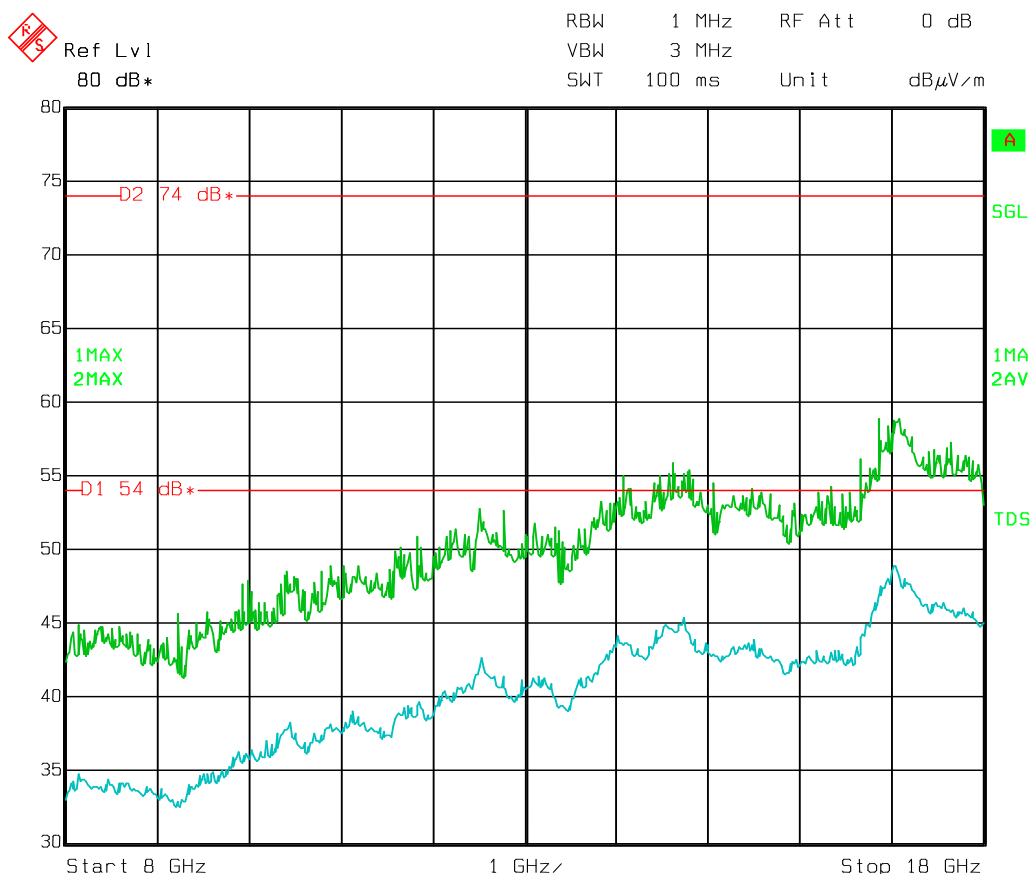
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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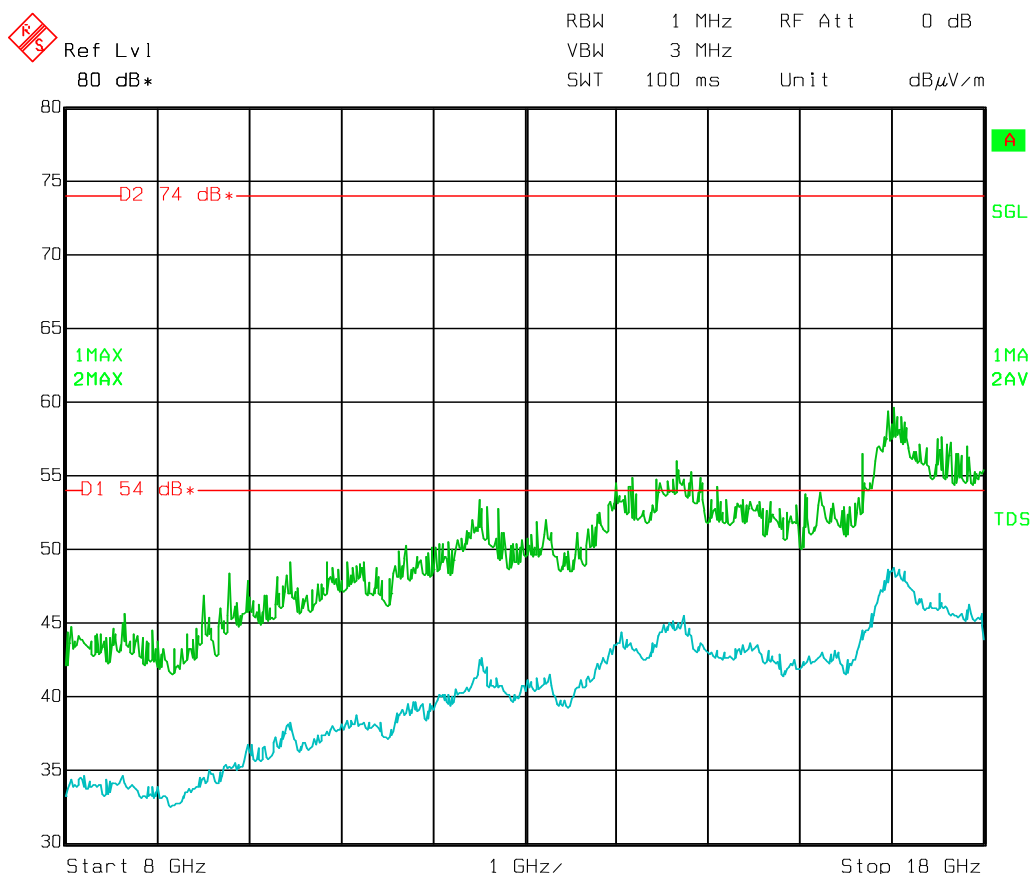
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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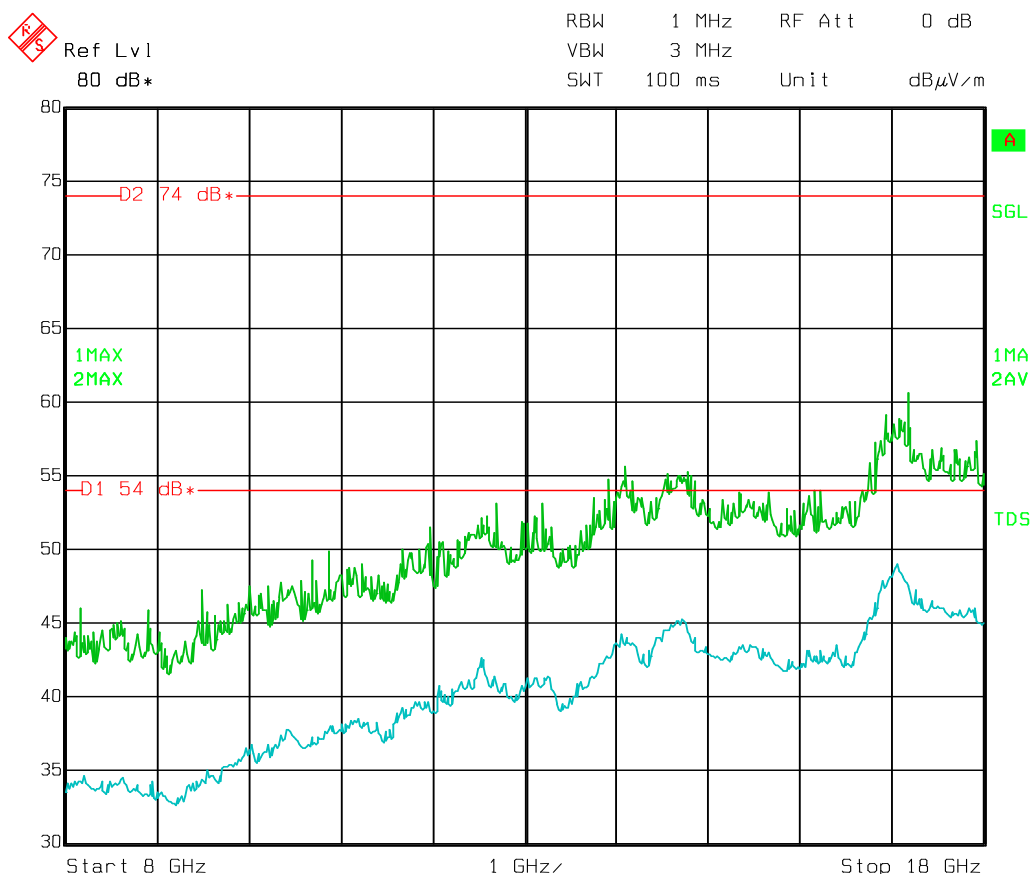
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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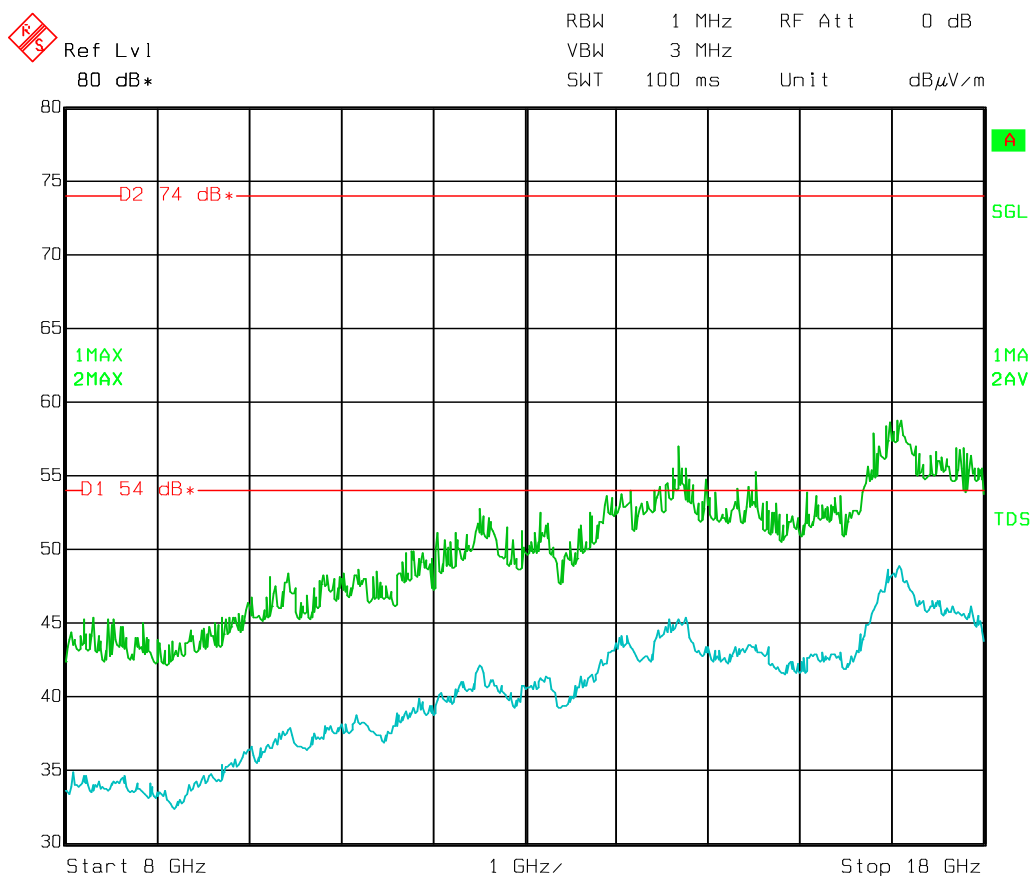
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dB μ V/m)	Duty cycle corr. (dB)	Avg field strength (dB μ V/m)	Avg limit (dB μ V/m)	Avg margin (dB)
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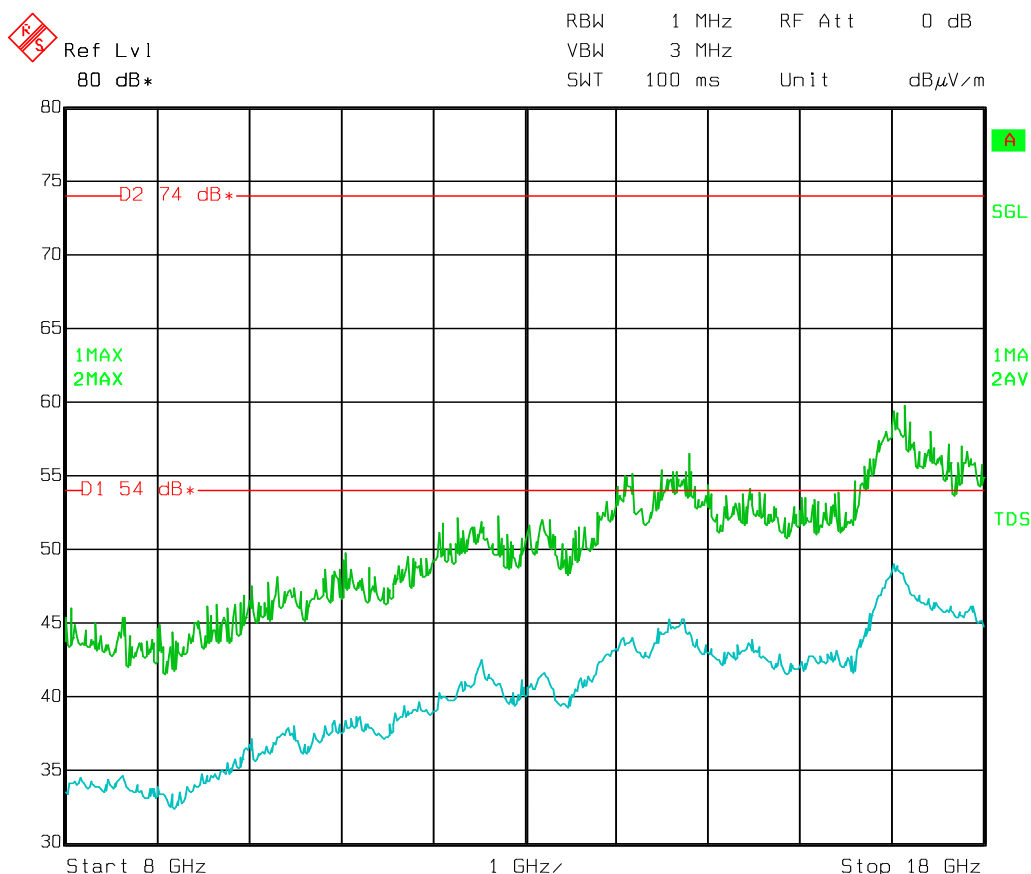
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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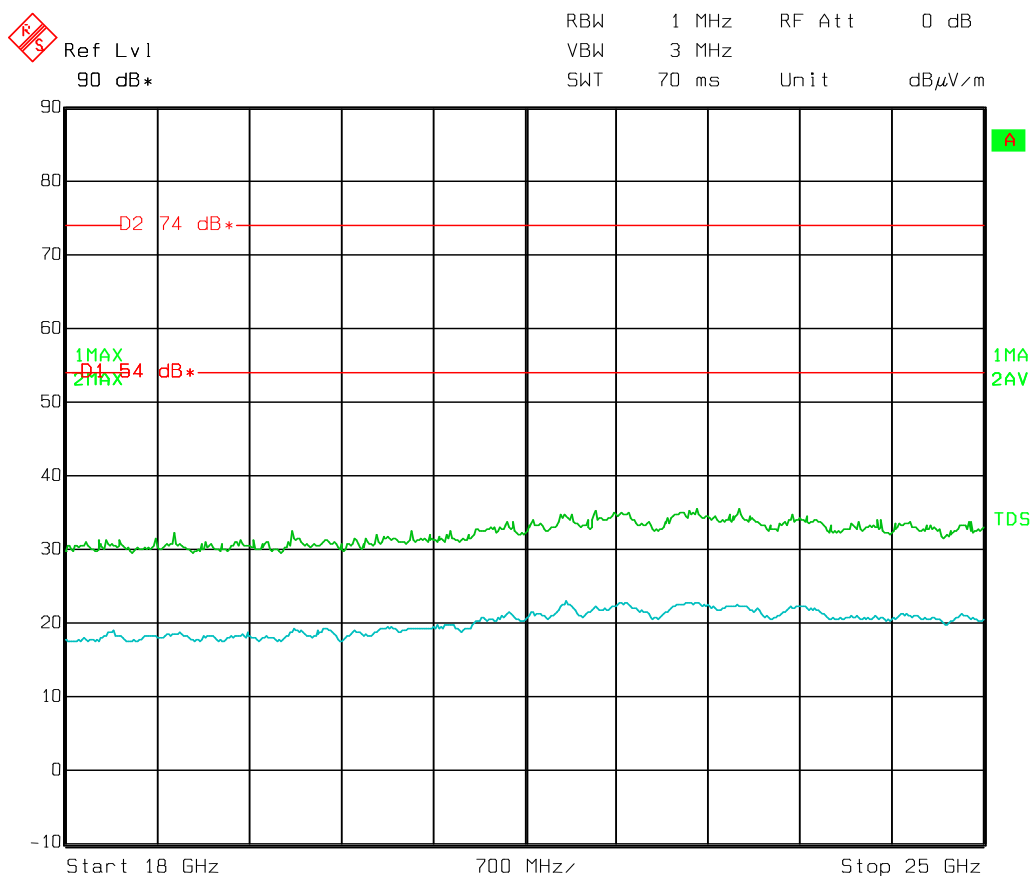
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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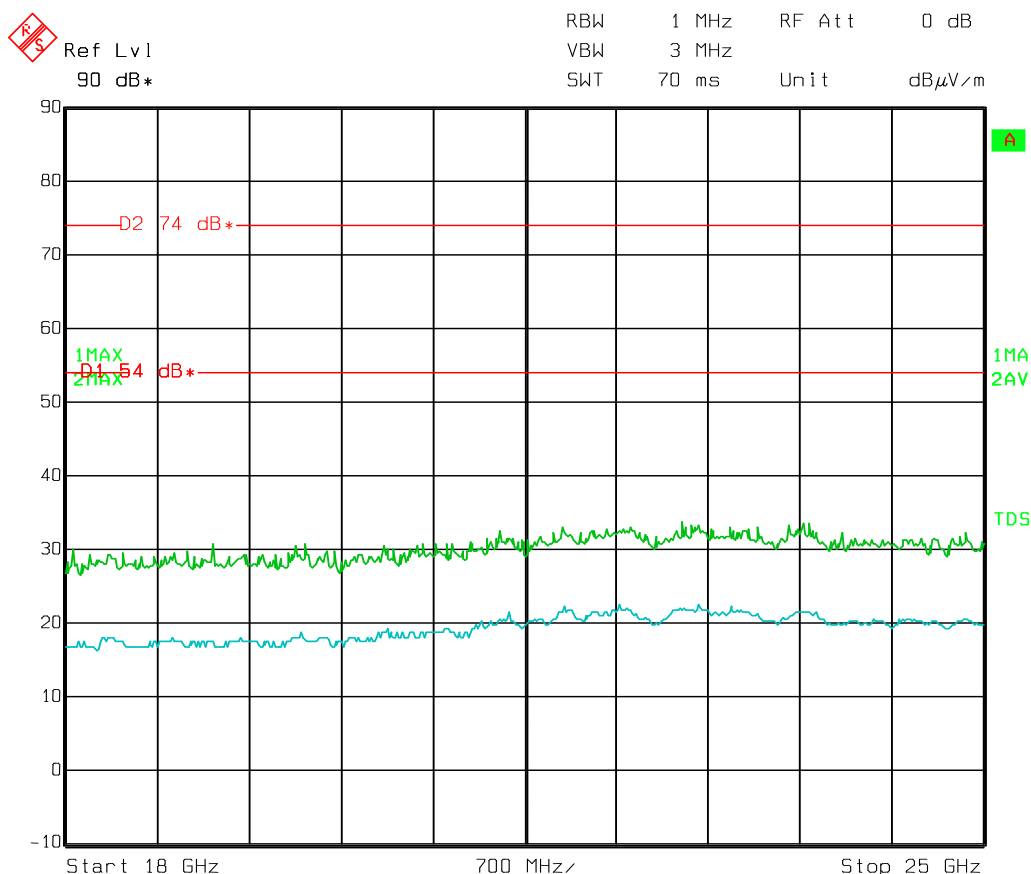
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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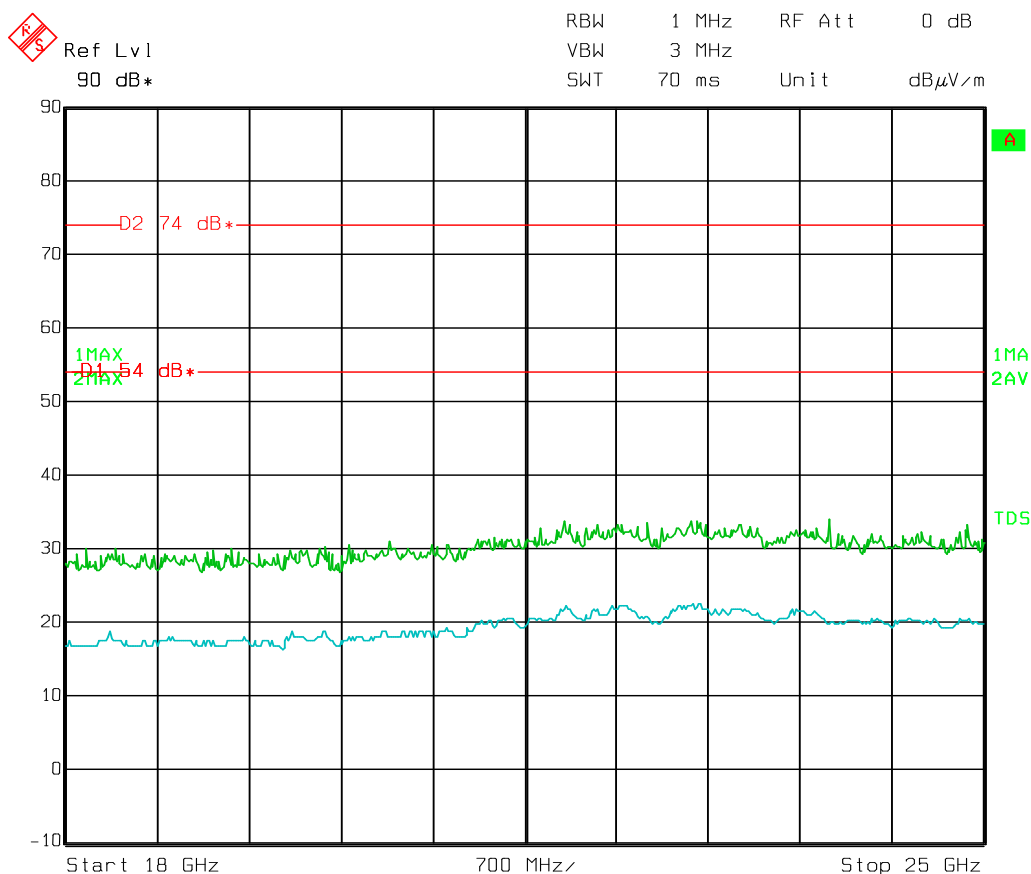
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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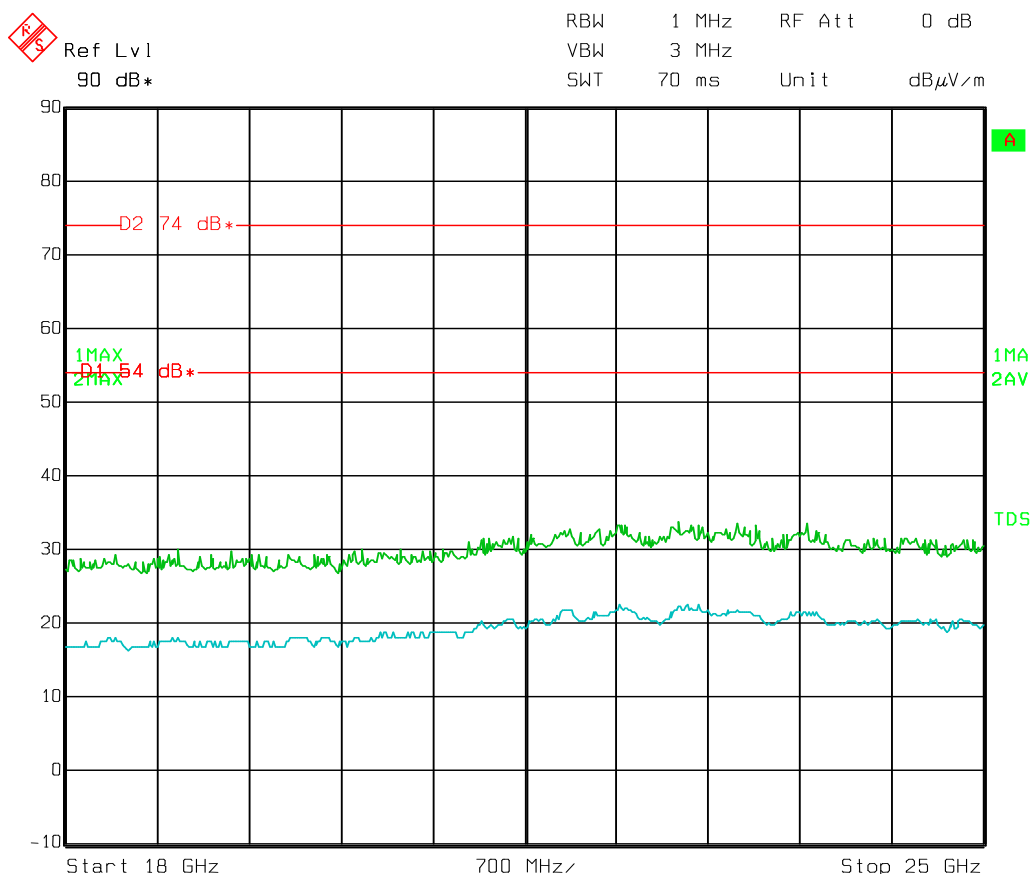
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Low

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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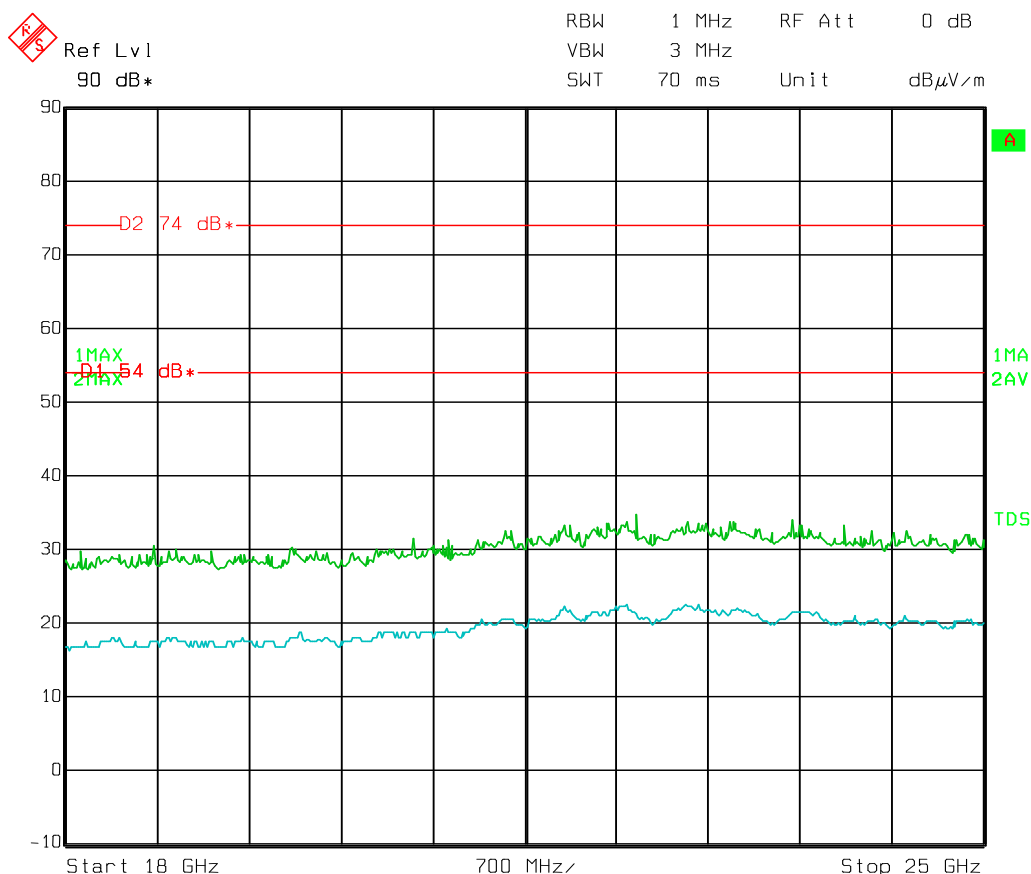
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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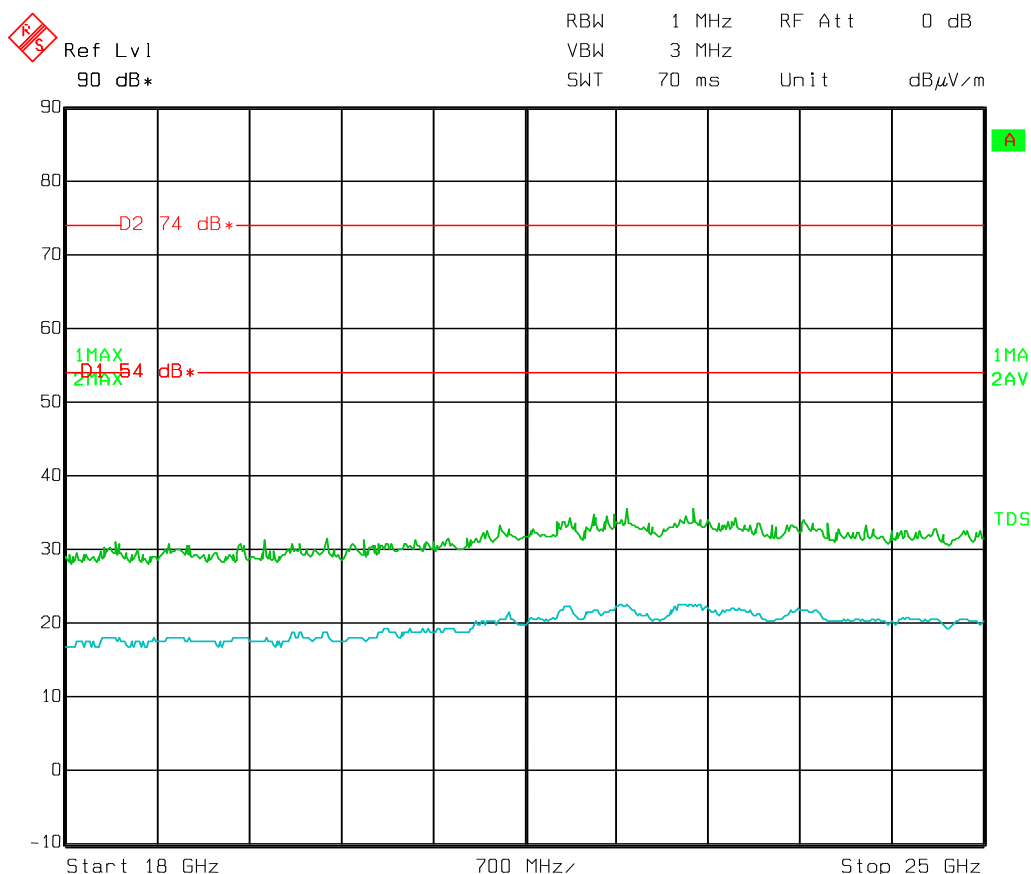
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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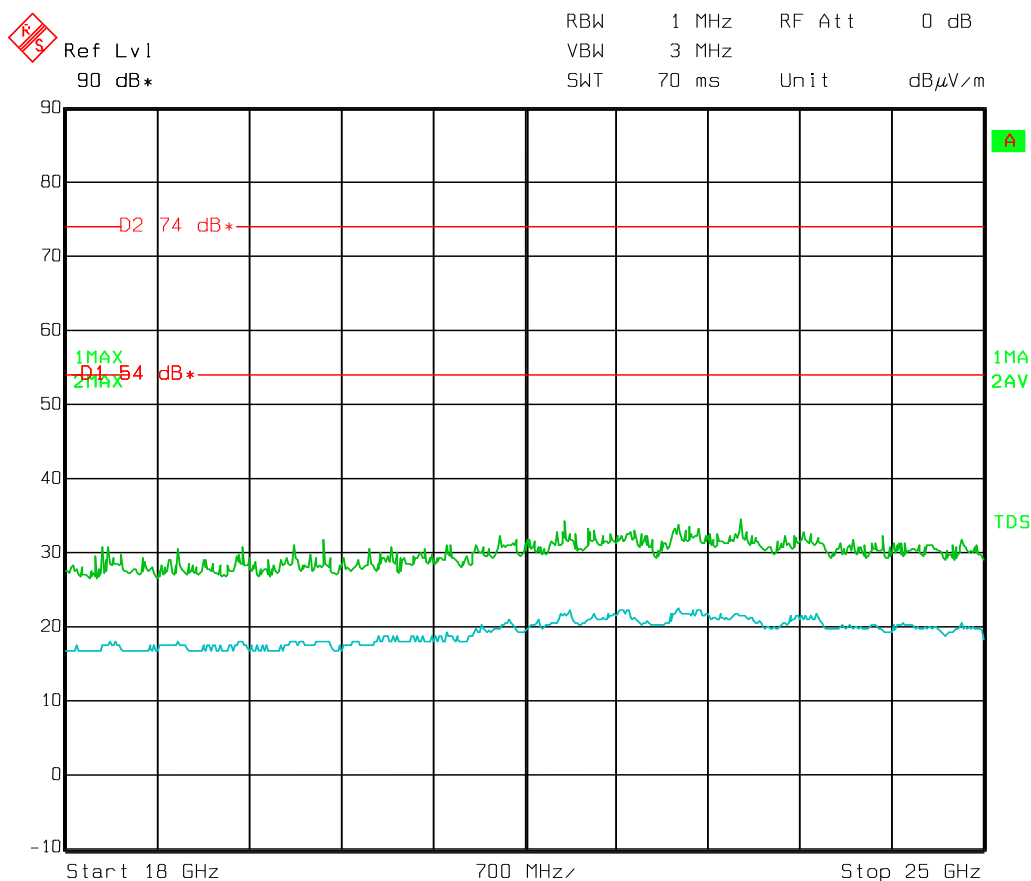
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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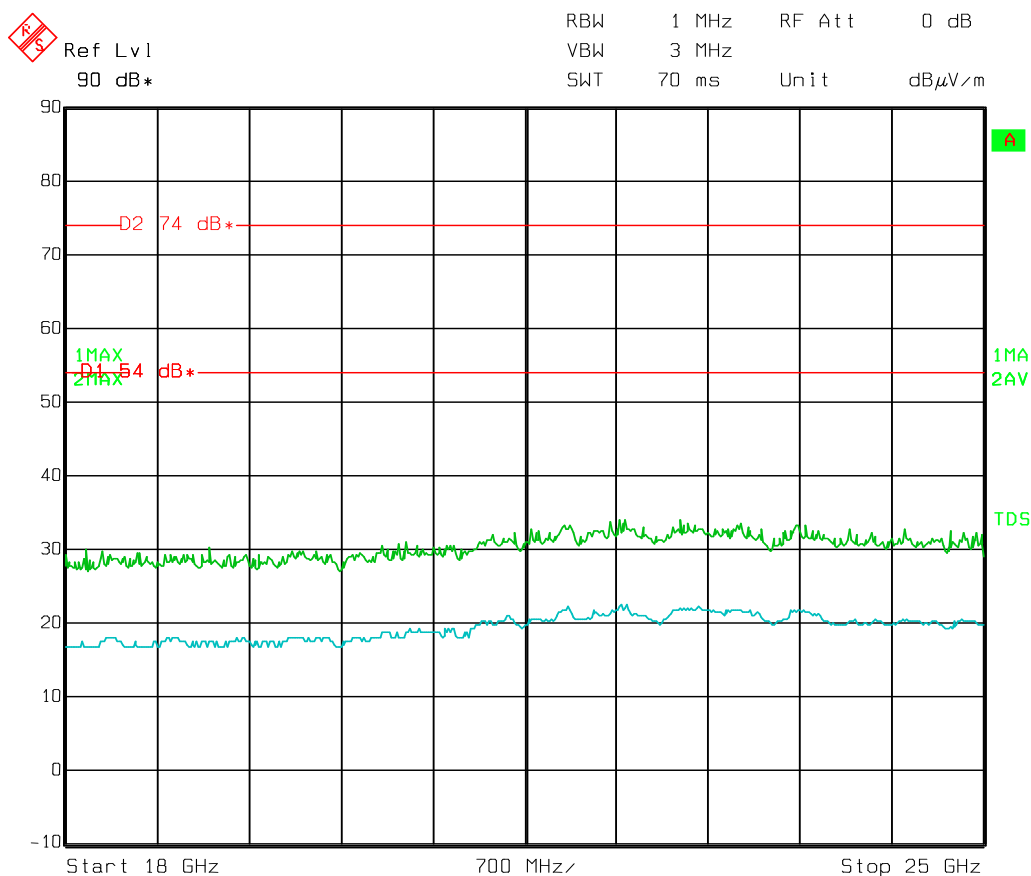
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	Mid

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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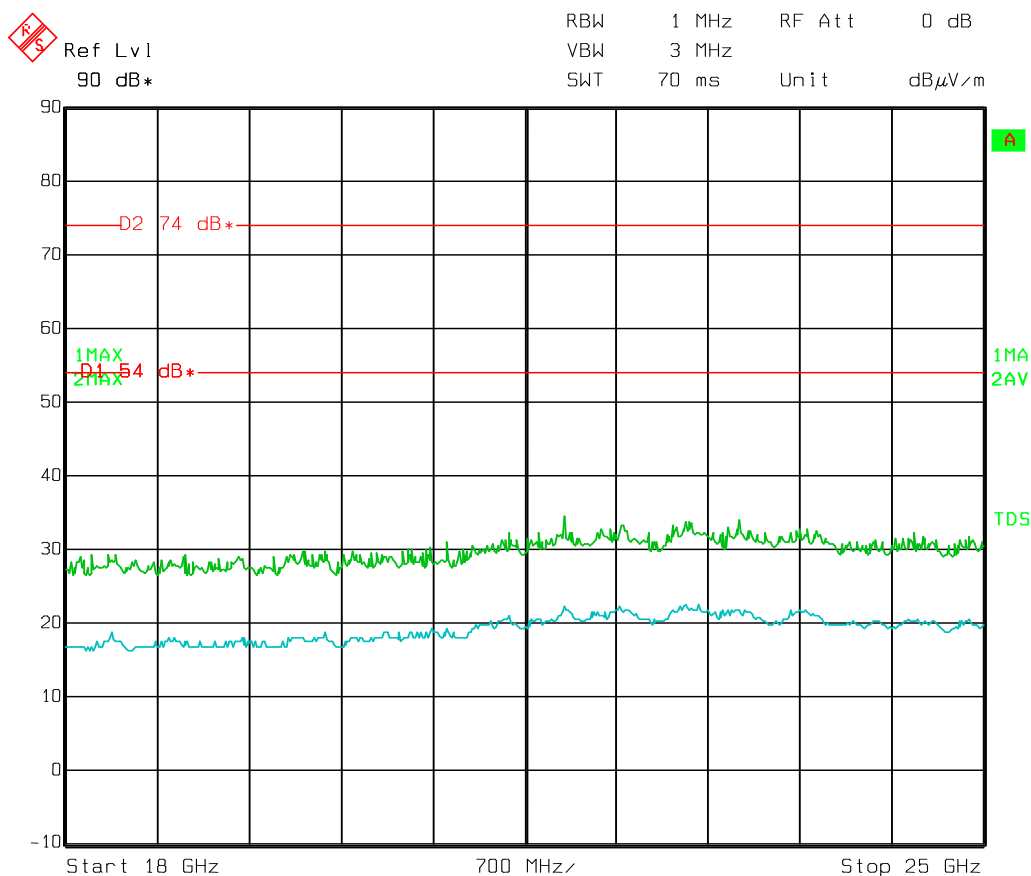
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Horizontal	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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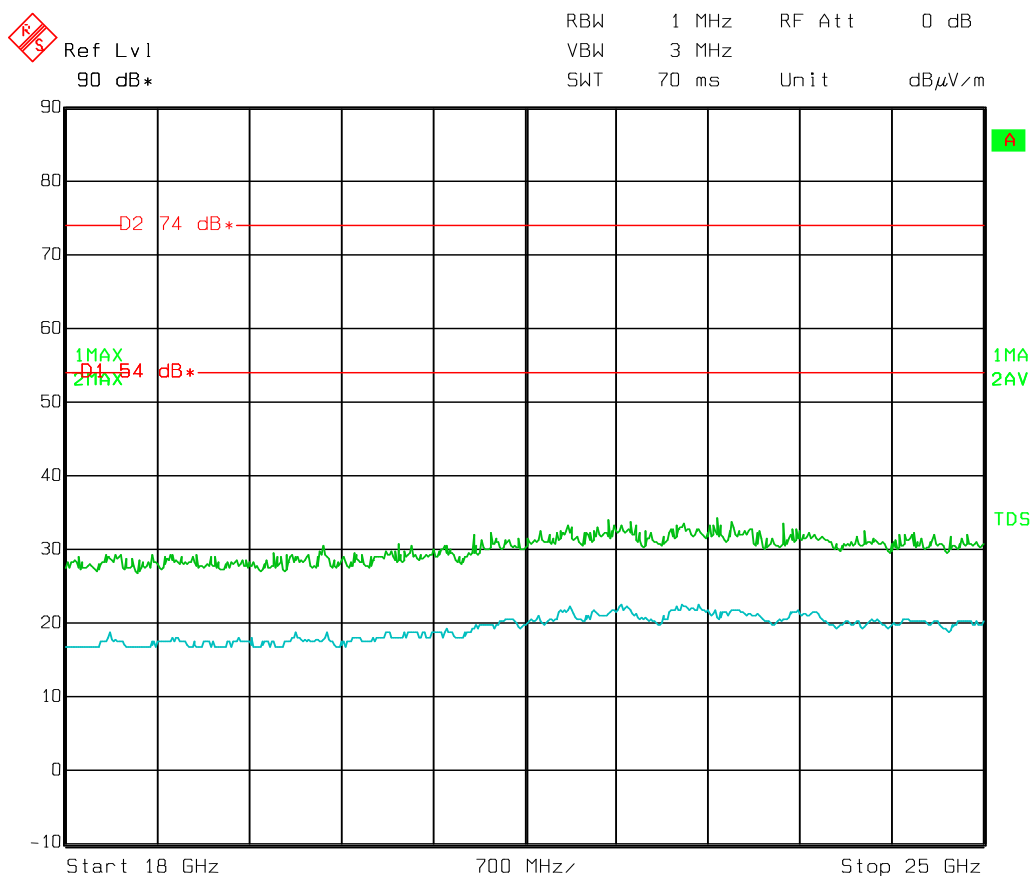
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Horizontal	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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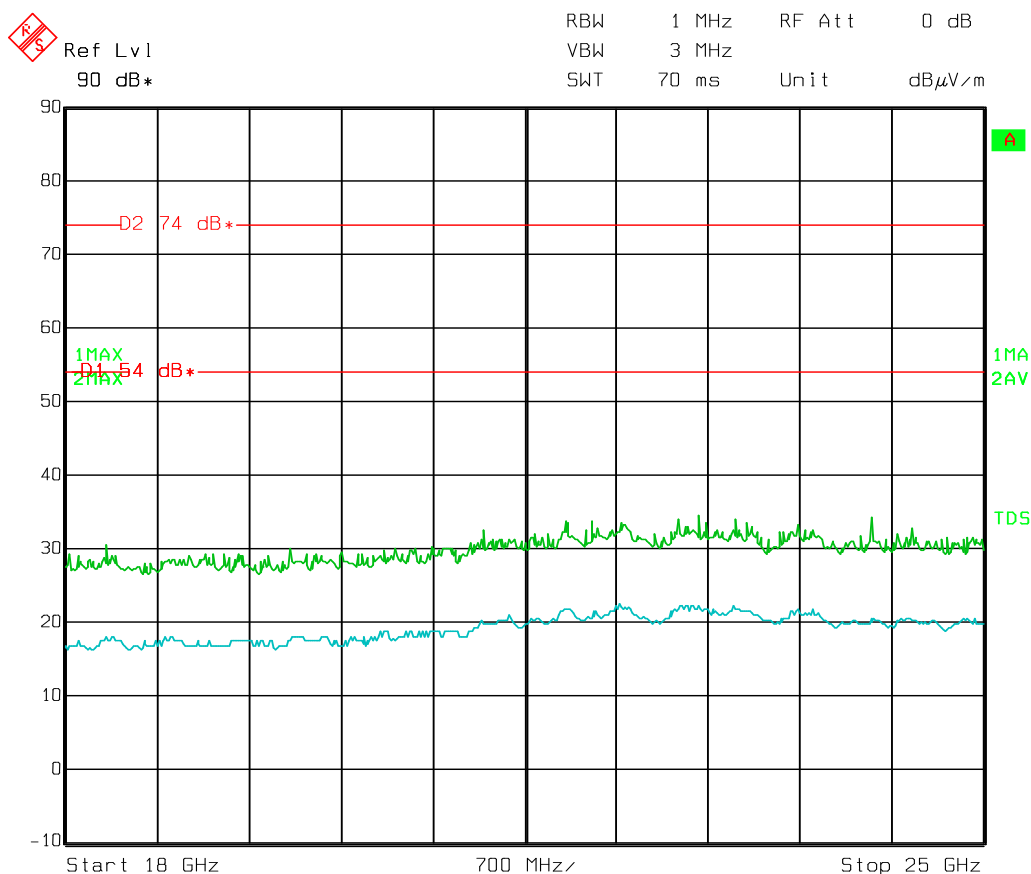
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Horizontal	3 m	Vertical	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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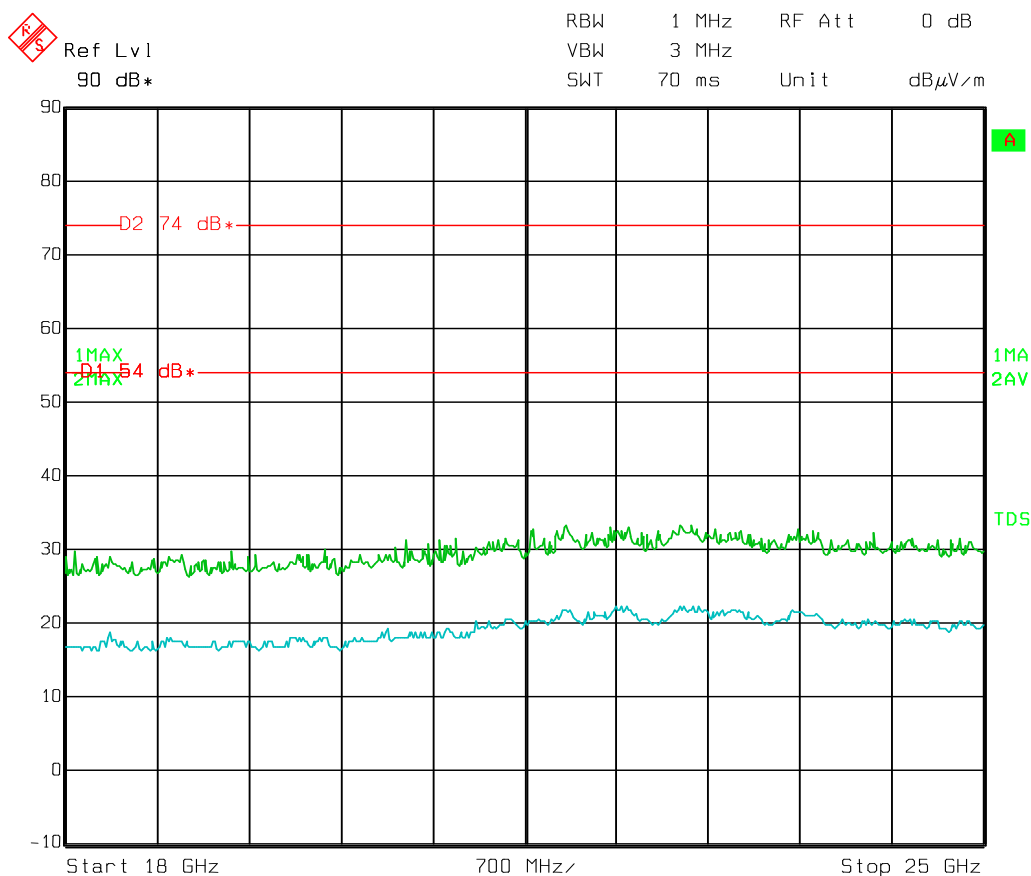
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Test data, continued

Antenna polarization	Measuring distance	EUT position	Channel
Vertical	3 m	Vertical	High

Spectral plots



Final measurement table

Frequency (MHz)	Polarization V/H	Peak field strength (dBμV/m)	Duty cycle corr. (dB)	Avg field strength (dBμV/m)	Avg limit (dBμV/m)	Avg margin (dB)
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Section 8: Testing data

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

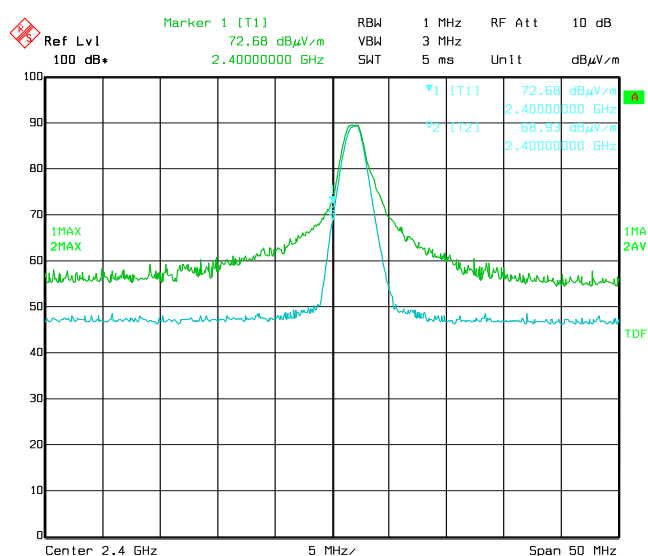
Test data, continued

Band-edge evaluation.

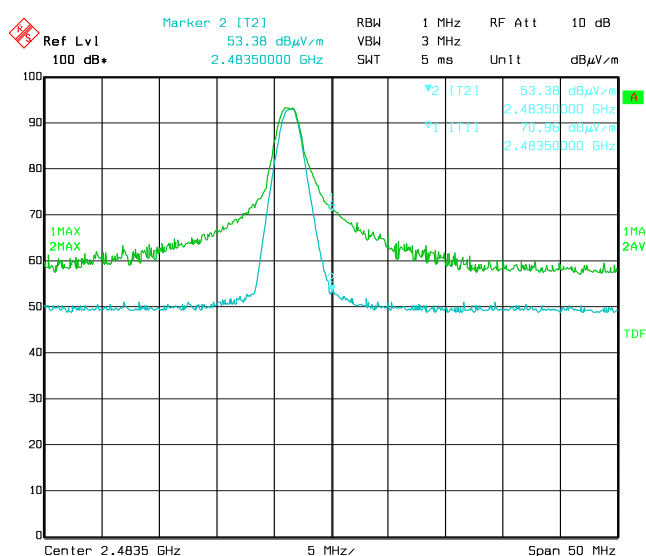
In making radiated band-edge measurements, there can be a problem obtaining meaningful data because a measurement instrument that is tuned to a band-edge frequency might also capture some in-band signals when using the specified RBW. In an effort to compensate for this problem, the Marker-delta procedure has been used for determining band-edge compliance.

Spectral plots

Step a). Perform an in-band field strength measurement of the fundamental emission using the RBW and detector function required for the frequency being measured. For transmitters operating above 1 GHz, use a 1 MHz RBW, a 3 MHz VBW, and a peak detector, as required. Repeat the measurement with an average detector.



LOWER EDGE



UPPER EDGE

These plots refer to the worst EUT position and to the worst ANTENNA position (maximum EIRP)



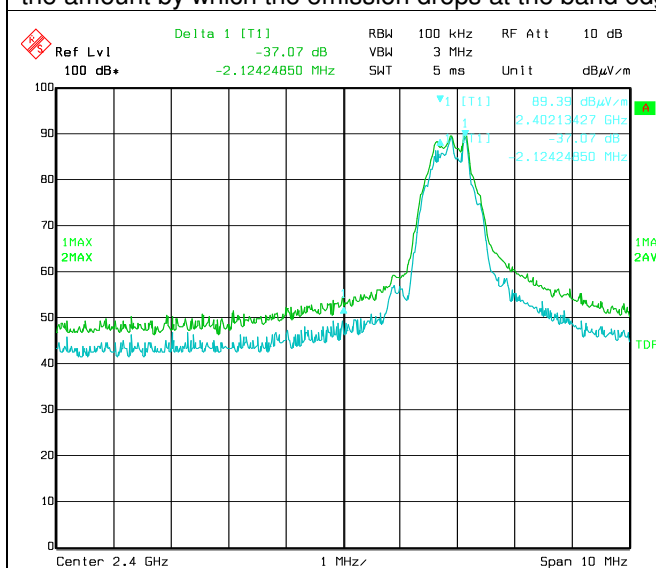
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Section 8: Testing data

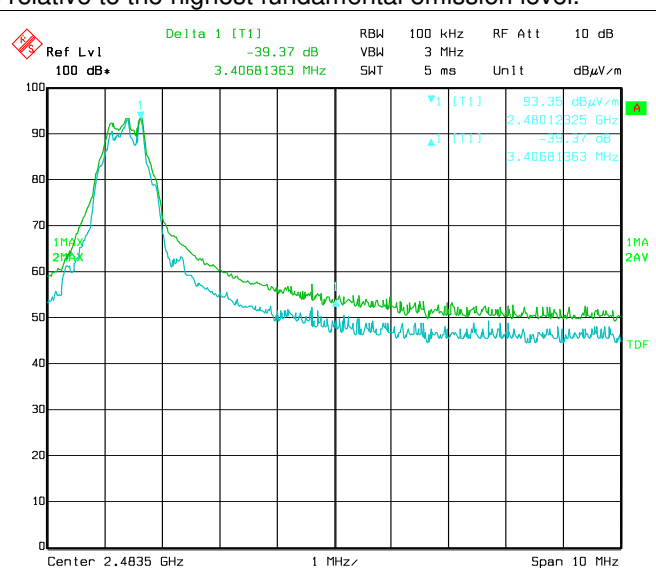
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Step b). Choose an EMI receiver or spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the instrument RBW to 1% of the total span (but never less than 30 kHz), with a VBW equal to or greater than three times the RBW. Record the peak levels of the fundamental emission and the relevant band-edge emission (i.e., run several sweeps in peak hold mode). Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not an absolute field strength measurement; it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.



LOWER EDGE



UPPER EDGE

Step c). Subtract the delta measured in step b) from the field strengths measured in step a). The resulting field strengths (CISPR QP, average, or peak, as appropriate) are then used to determine band-edge emissions compliance, where required.

Lower Edge Level (PK)	-37.0 dBc
Lower Edge Level (AV)	-42.5 dBc
Upper Edge Level (PK)	-39.3 dBc
Upper Edge Level (AV)	-43.8 dBc



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8.6 Clause 15.247(a)(2) Minimum 6 dB bandwidth

FCC § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

- (2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

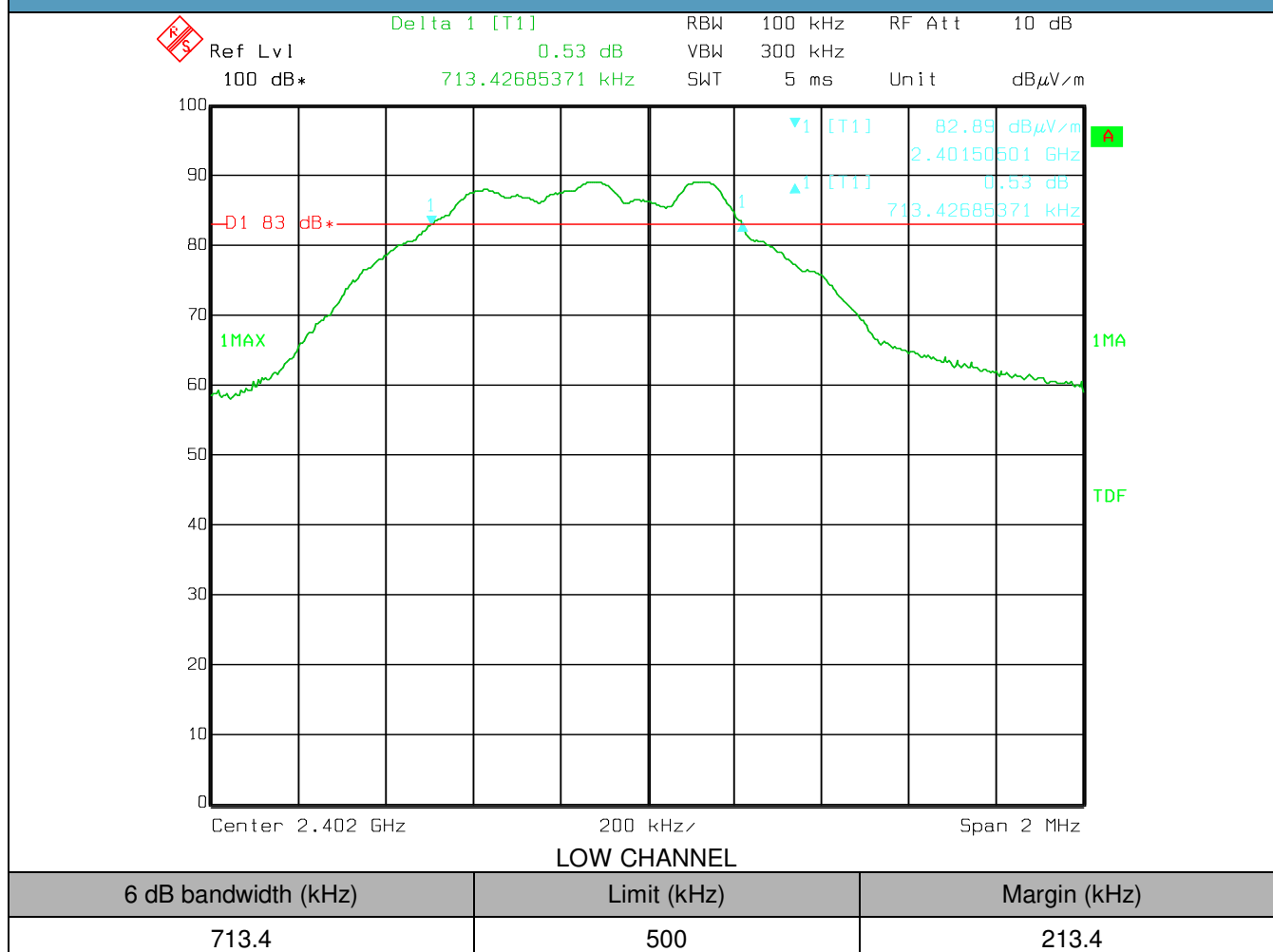
RSS-247 Clause 5.2

- (1) The minimum 6 dB bandwidth shall be 500 kHz.

Special notes

The test was performed using peak detector of the spectrum analyzer with RBW = 100 kHz and VBW > 3 x RBW.

Test data





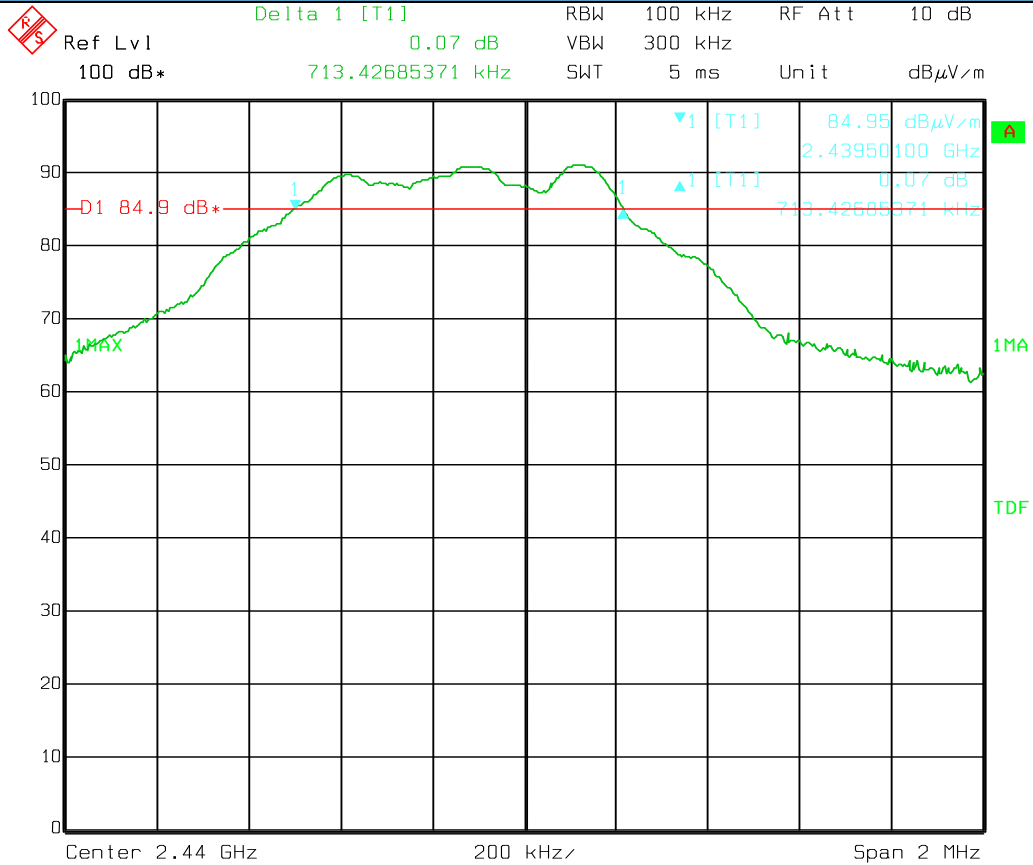
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Test data



MID CHANNEL

6 dB bandwidth (kHz)	Limit (kHz)	Margin (kHz)
713.4	500	213.4



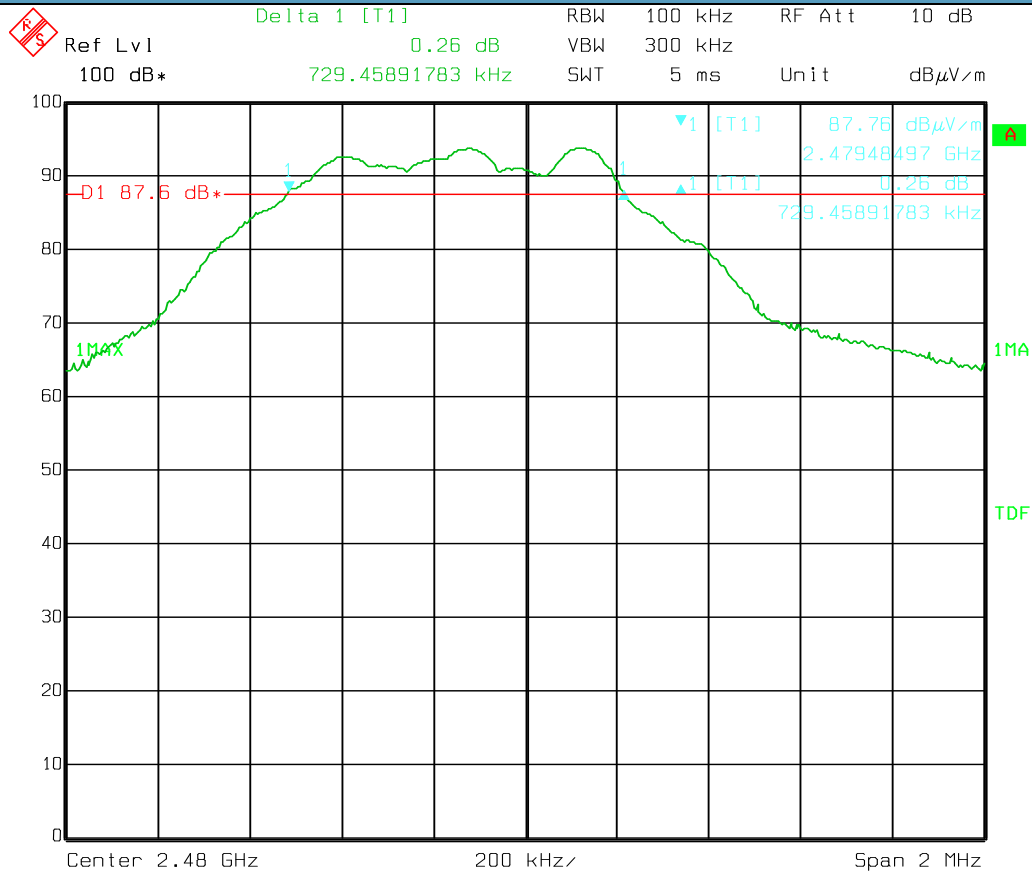
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Test data



HIGH CHANNEL

6 dB bandwidth (kHz)	Limit (kHz)	Margin (kHz)
729.4	500	229.4



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Product: EOS HP

Specification: FCC Part 15.247, RSS-247

8.7 Clause 15.247(e) Power spectral density for digitally modulated devices

FCC § 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

- (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

RSS-247 Clause 5.2

- (2) The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of Section 5.4(4), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

Special notes

Method PKPSD (peak PSD) used as following:

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.



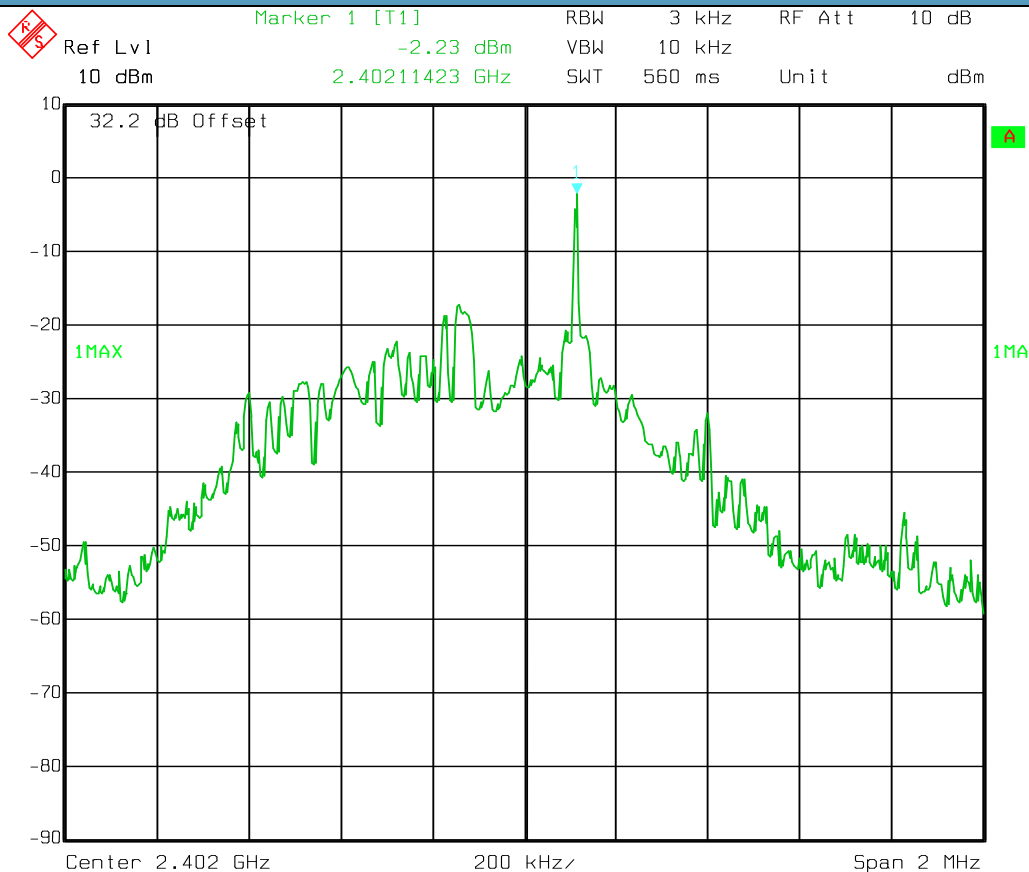
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Test data



LOW CHANNEL

PSD level	Limit	Margin
-2.2 dBm	8 dBm / 3 kHz	10.2 dB



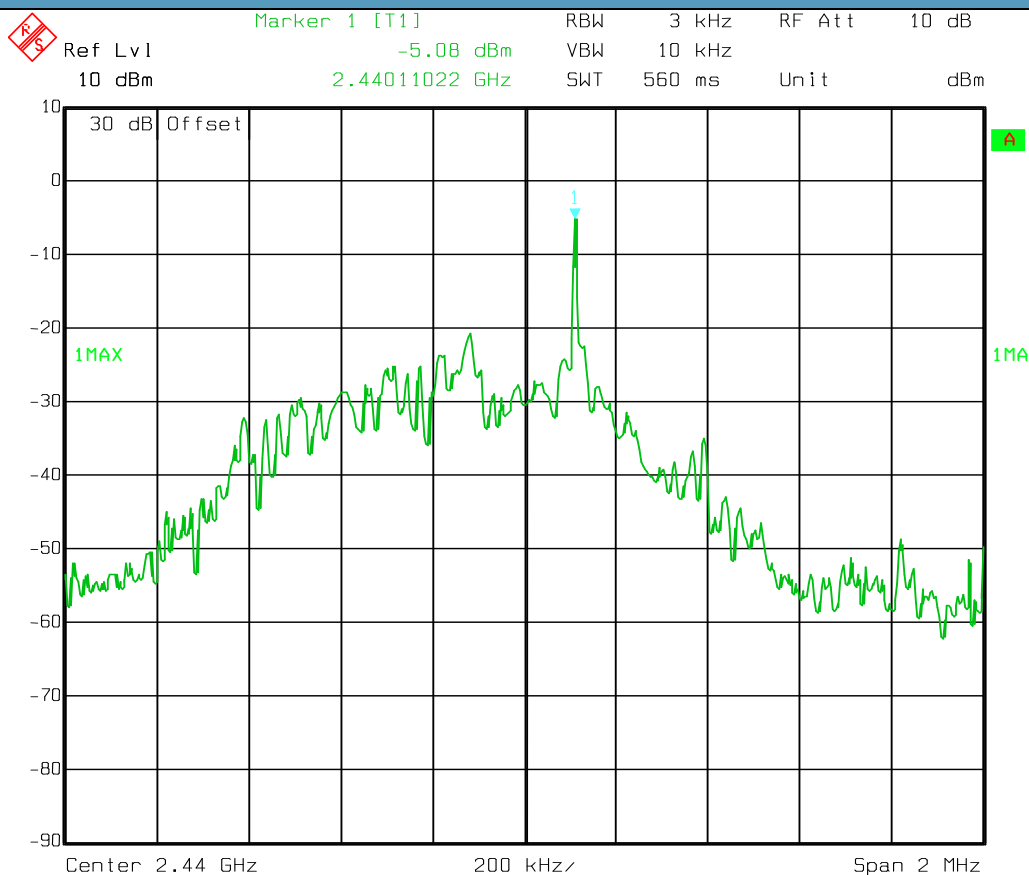
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MID CHANNEL

PSD level	Limit	Margin
-5.1 dBm	8 dBm / 3 kHz	13.1 dB



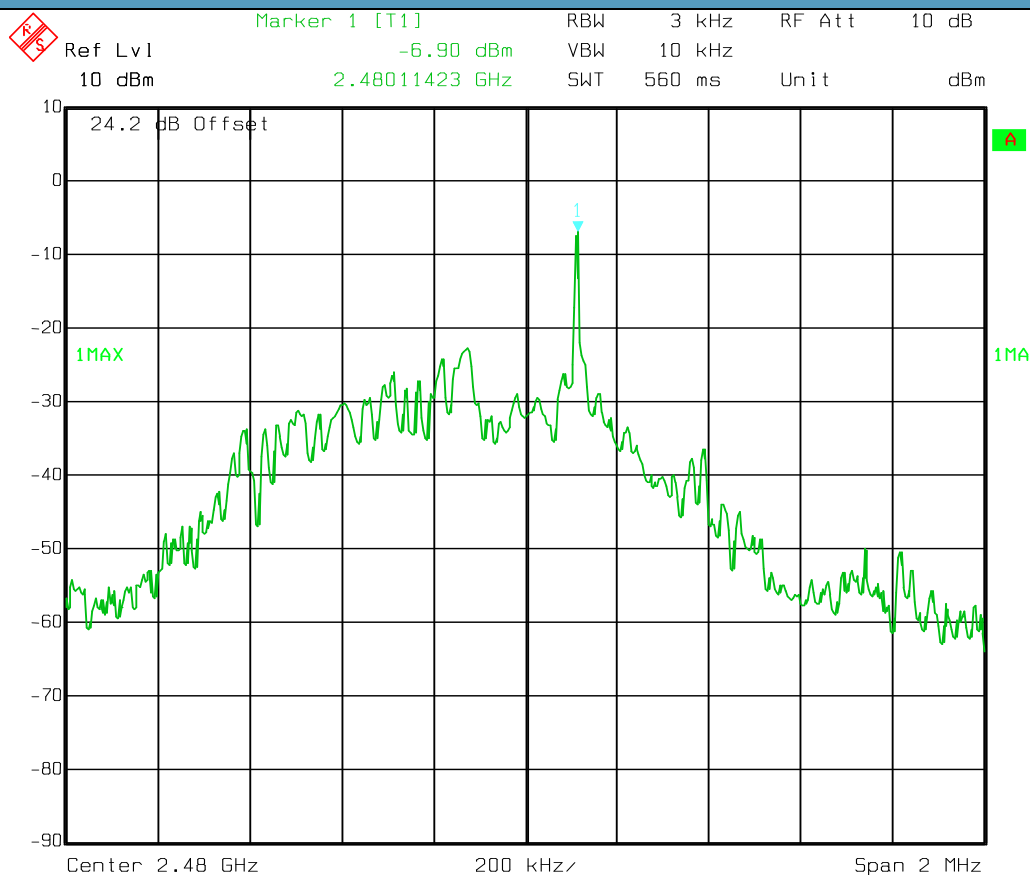
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HIIGH CHANNEL

PSD level	Limit	Margin
-6.9 dBm	8 dBm / 3 kHz	14.9 dB



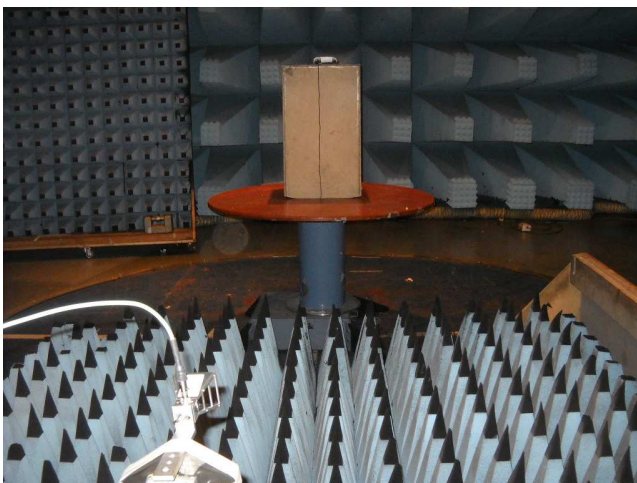
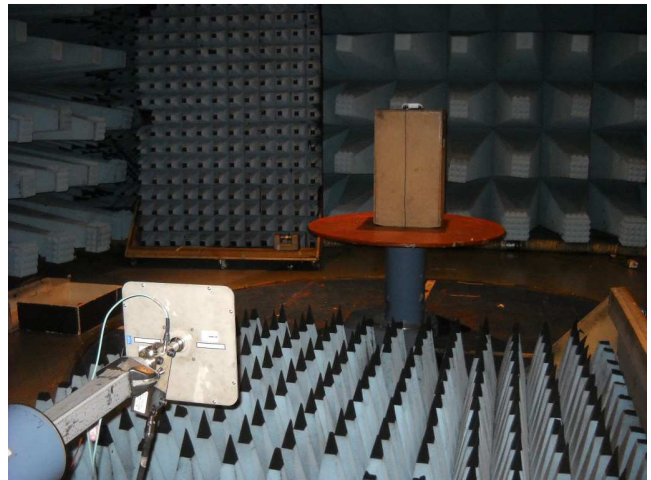
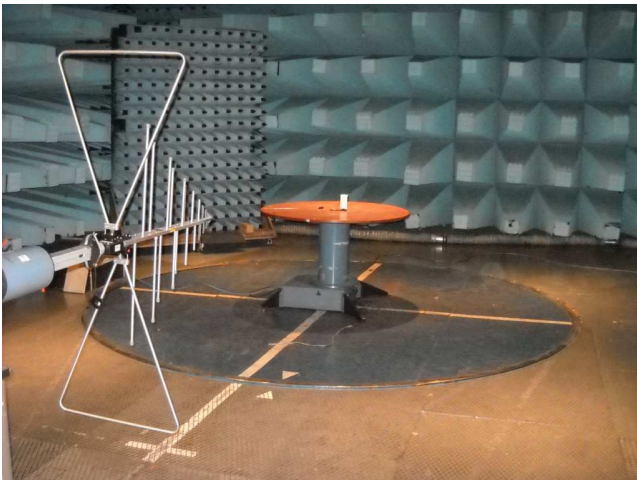
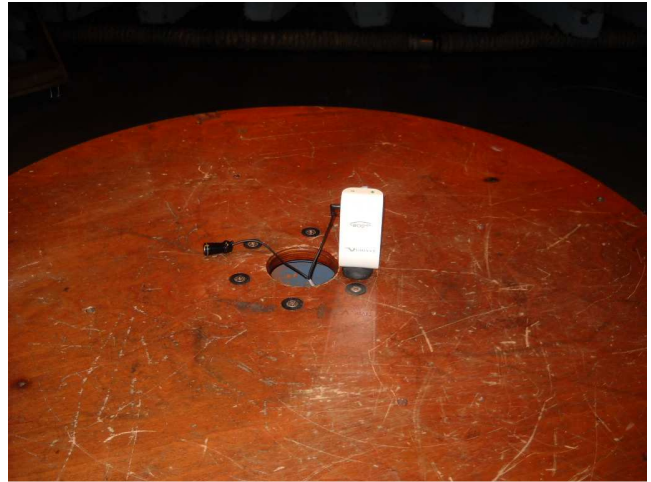
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8.8 Setup photos





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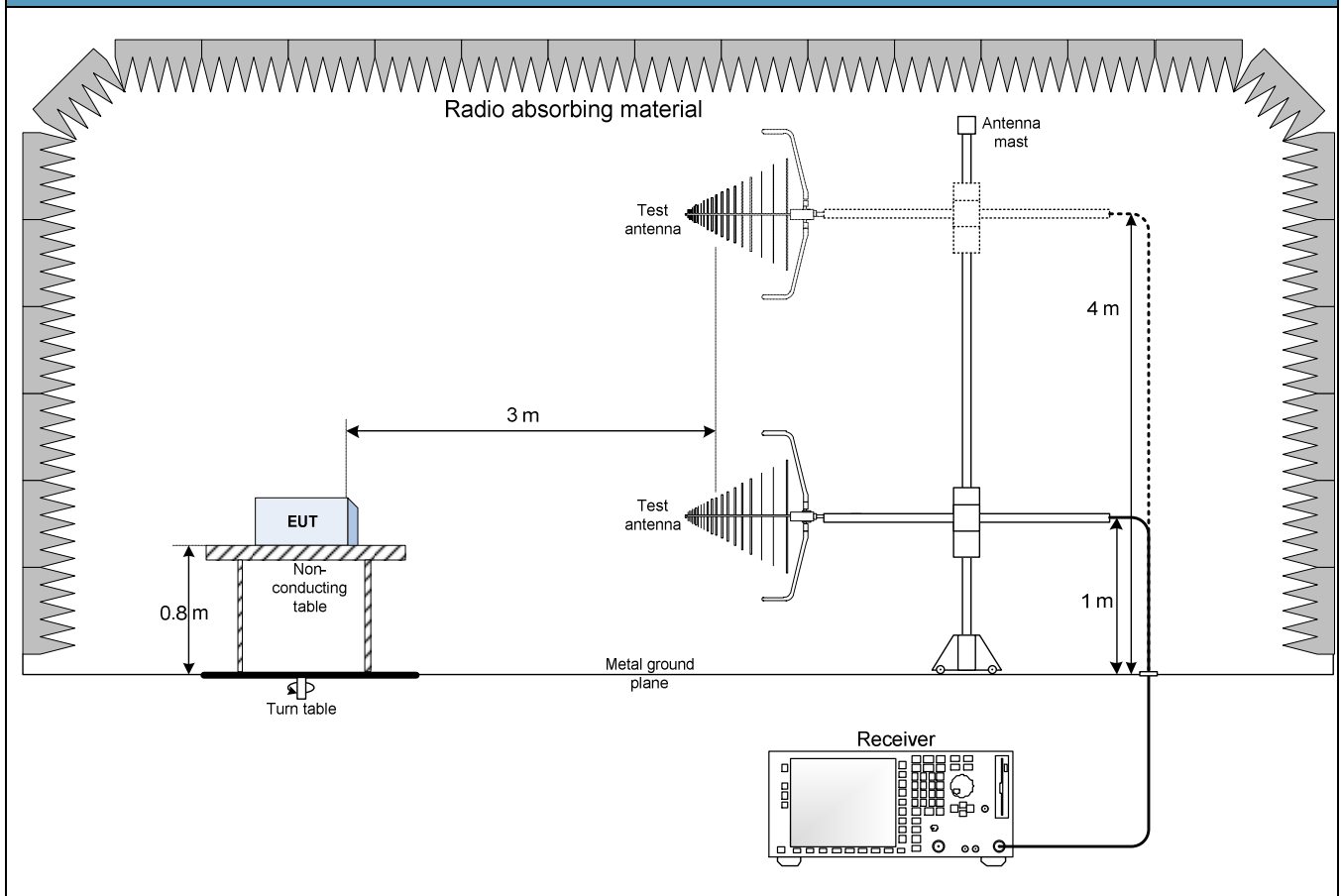
Section 9: Block diagrams of test set-ups

Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Section 9: Block diagrams of test set-ups

Radiated emissions set-up below 1 GHz





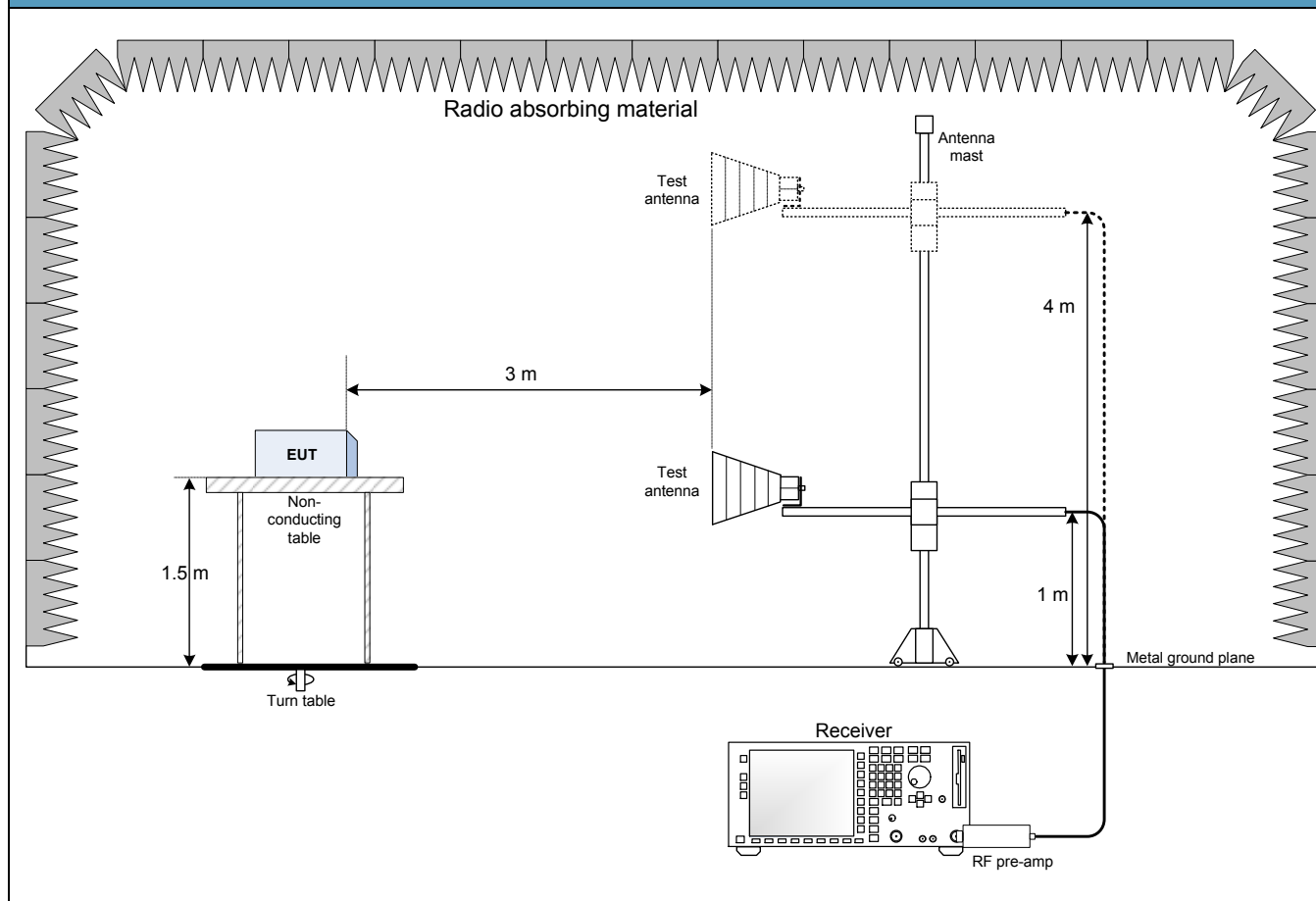
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Section 9: Block diagrams of test set-ups

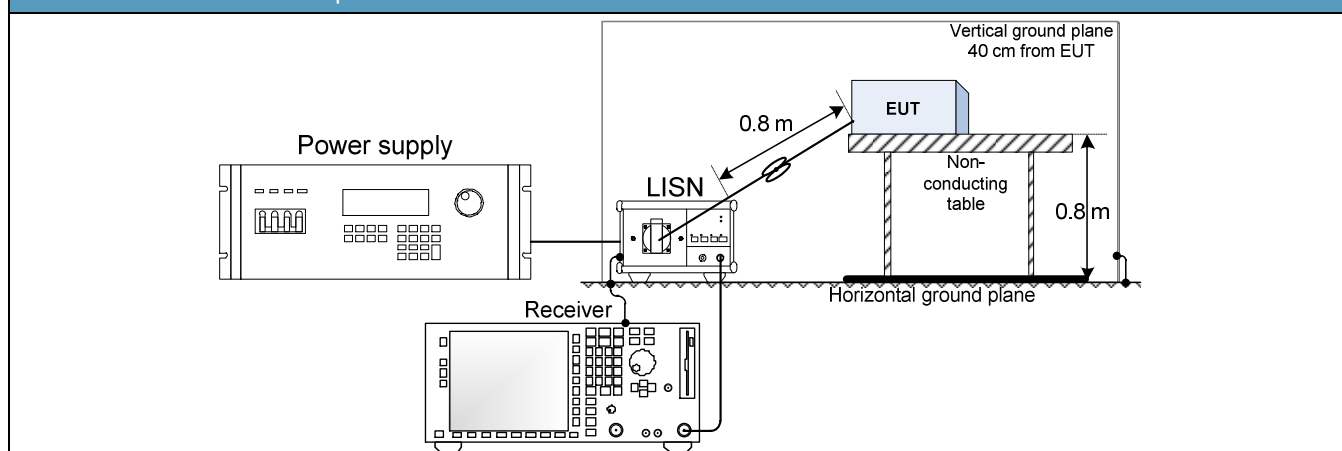
Product: EOS HP

Specification: FCC Part 15.247, RSS-247

Radiated emissions set-up above 1 GHz



Conducted emissions set-up





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Section 10: EUT photos

Product: EOS HP

Section 10: EUT photos

