Test Report

INTENTIONAL RADIATOR TESTS ACCORDING TO FCC PART 15 C and INDUSTRY CANADA REQUIREMENTS

Equipment Under Test:	Training computer
Model:	RC3 GPS
Type:	-
Manufacturer:	Polar Electro Oy Professorintie 5 FI-90440 KEMPELE FINLAND
Customer:	Polar Electro Oy Professorintie 5 FI-90440 KEMPELE FINLAND
FCC Rule Part: IC Rule Part	15.249:2011 RSS-210, Issue 8, 2010 RSS-GEN, Issue 3, 2010

FINAS
Finnish Accreditation Service
T004 (EN ISO/IEC 17025)

Date:	28.6.2012	Date:	28.6.2012
Issued by:	Jari Merikari Technical Manager	Checked by:	Ari Honkala Product Line Manager

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Equipment Under Test (EUT)

Training computer	
Brand:	POLAR
Model:	RC3 GPS
FCC ID number:	INWX4
Industry Canada number:	6248A-X4

Description of the EUT

RC3 GPS receiver is a wrist type sport computer with integrated GPS. Internal GPS is used to provide speed, distance and location data. RC3 GPS can receive a data from four different 2,4GHz Polar W.I.N.D sensor radio links simultaneously. The device is operated by fixed rechargeable LiPo -battery. User can't change the battery by himself. Battery can be charged either by host computer USB port or by separate wall plug or charger. Data is downloaded to host PC via USB interface. USB connection can be used both for charging and data transmission simultaneously. The product is not commercialized with AC/DC adaptor. Only micro-USB cable is attached.

Classification of the device

Fixed device	☐
Mobile Device (Human body distance > 20cm)	☐
Portable Device (Human body distance < 20cm)	☒

Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing

Ratings and declarations

Operating Frequency Range (OFR) TX mode:	2403 - 2482 MHz
TX Channels:	1 (S3 sensor) 8 (DataLink)
TX Channel Frequencies:	S3 sensor: 2473 MHz DataLink: 2403, 2404, 2419, 2434, 2450, 2452, 2467 and 2482 MHz
Operating Frequency Range (OFR) RX mode:	2403 - 2482 MHz
RX Channels:	5
RX Channel Frequencies:	2409, 2441, 2471, 2473 and 2475 MHz
Channel bandwidth:	1,032 MHz
Effective radiated power:	-6 dBm
Communication technique:	Shock burst
Data rate:	1 Mbit/s
Modulation:	GFSK
Antenna type and gain:	Planar Inverted-L antenna, max 0.4 dBi

Power Supply

Battery type	Narada: NCL502030H Howel: HW5+2+3+
Capacity	250mAh
Technology	Lithium polymer
Operating voltage:	Min. 3.45VDC, Max. 4,2VDC, Nominal 3,7VDC

Mechanical Size of the EUT

Length: 66 mm	Width: 46 mm	Height: 14 mm

Peripherals

No peripherals were used during the tests.

Samples

Sample No. 1: EUT uses its own internal antenna.
Sample No. 2: EUT is fitted with temporary 50 ohm SMA connector.

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SUMMARY OF TESTING

Test Specification	Description of Test	Result
§15.249 (a) / RSS-210, A2.9 (1)	Field Strength of Fundamental	PASS
§15.249 (a)(c)(d)(e) / RSS-210, 2.6, A2.9 (1)(2)	Spurious Radiated Emissions	PASS
§15.249 (a)(c)(d)(e) / RSS-210, 2.6, A2.9 (1)(2)	Band Edge Radiated Emissions	PASS
§15.215 (c)	20 dB Bandwidth	PASS
RSS-GEN 4.4.1	99% Bandwidth	PASS
-	Duty Cycle	PASS
§15.109 / RSS-GEN 7.2.3 / ICES-003	Receiver Radiated Emissions	PASS

Test methods

References:	ANSI C63.10 (2009) American National Standard for Testing Unlicensed Wireless Devices

EUT Test Conditions During Testing

The device is provided with a maximum duty cycle of 1.46% as shown in page 35 of this report. The duty cycle is calculated for on-time duration of burst of 1.468 ms (4 * 0.367 ms). However, to enable accurate peak measurements the device was modified to transmit with a duty cycle of 98% during the testing.

The EUT uses two different transmission modes, advertising mode and connect mode. In advertising mode EUT uses three channels and connect mode 5 channels for data transmission. For both modes transmission technique and the modulation are the same.

In the radiated emission test the EUT was tested in three different orthogonal axes (X, Y and Z) in order to find out the worst direction. The worst direction result was reported.

Channels tested	Channel ID	Channel Frequency MHz
	LOW	2403
	MID	2441
	HIGH	2482

Test Facility

☐ Testing Location / address: FCC registration number: **90598**	SGS Fimko Ltd Särkiniementie 3 FI-00210, HELSINKI FINLAND
☒ Testing Location / address: FCC registration number: **178986** Industry Canada registration number: **8708A-2**	SGS Fimko Ltd Karakaarenkuja 4 FI-02610, ESPOO FINLAND

Field Strength of Fundamental

Standard:	ANSI C63.10 (2009)	
Tested by:	SOT	
Date:	30.5.2012	
Humidity:	33 %	
Temperature:	19.8 °C	
Barometric pressure	1004 hPa	
Measurement uncertainty	± 4.51 dB	Level of confidence 95 % (k = 2)

FCC Rule: 15.249 (a)
IC Rule: RSS-210 A2.9 (1)

Measured peak levels include transducer factors (antenna, amplifier, filters) and cable attenuations. The peak level was measured in continuous transmit mode with 98 % maximum duty cycle.

Average levels were calculated by subtracting the correction factor from the maximum measured peak level as stated in Part 15.35 (c).

The correction was calculated by using the formula: 20 * LOG (4 * 0.367ms / 100ms) = -36.7 dB.

CHANNEL LOW

Table 1. Peak level of fundamental

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2402.800000	88.9	1000.0	1000.000	265.0	H	354.0	25.1	114.0	
2403.000000	97.5	1000.0	1000.000	165.0	V	225.0	16.5	114.0	

Table 2. Average level of fundamental

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2402.800000	52.2	1000.0	1000.000	265.0	H	354.0	41.8	94.0	
2403.000000	60.8	1000.0	1000.000	165.0	V	225.0	33.2	94.0	

CHANNEL MID

Table 3. Peak level of fundamental

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2440.750000	95.7	1000.0	1000.000	174.0	V	231.0	18.3	114.0	
2441.550000	90.6	1000.0	1000.000	203.0	H	267.0	23.4	114.0	

Table 4. Average level of fundamental

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2440.750000	59.0	1000.0	1000.000	174.0	V	231.0	35.0	94.0	
2441.550000	53,9	1000.0	1000.000	203.0	H	267.0	40.5	94.0	

CHANNEL HIGH

Table 5. Peak level of fundamental

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2481.550000	95.0	1000.0	1000.000	195.0	V	218.0	19.0	114.0	
2483.500000	80.8	1000.0	1000.000	204.0	H	264.0	33.2	114.0	

Table 6. Average level of fundamental

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2481.550000	58.3	1000.0	1000.000	195.0	V	218.0	35.7	94.0	
2483.500000	44.1	1000.0	1000.000	204.0	H	264.0	49.9	94.0	

Conducted Emissions In The Frequency Range 150 kHz - 30 MHz.

Standard:	ANSI C63.4	(2009)
Tested by:	SOT	
Date:	4.6.2012	
Humidity:	38 %	
Temperature:	22°C	
Barometric pressure	1000 hPa	
Measurement uncertainty	± 2.3 dB	Level of confidence 95 % (k = 2)

Test Plan

Conducted disturbance voltage will be measured with an artificial main network from 150 kHz to 30 MHz with 4 kHz steps and a resolution bandwidth of 9 kHz. Measurements will be carried out with Peak- and Average-detectors from Phase-line(s) and Neutral-line.

If the Peak-values are more than 10 dB below the QuasiPeak-limit no final QuasiPeak-measurement will be made otherwise QuasiPeak-values and Average-values will be recorded from the worst points. Rest of the sub ranges will be measured by using the same procedure.

This measurement will be made from the AC-main lines.

The EUT is working as described in the section “EUT Test Conditions”.

Test results

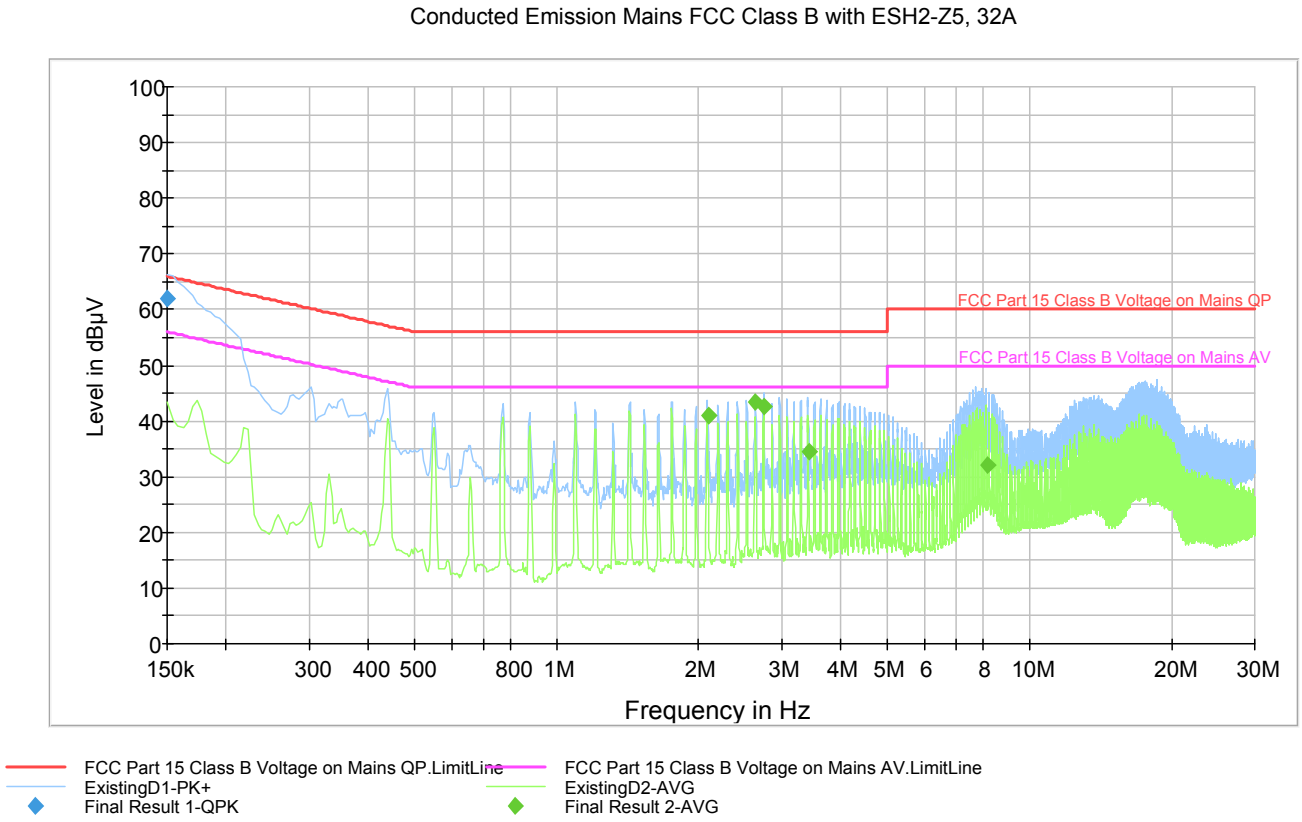


Figure 1. The measured curves with peak-detector

Table 7. Final QuasiPeak measurements

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.150000	62.1	1000.0	9.000	GN	N	10.7	3.9	66.0	

Table 8. Final Average measurements

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.093000	40.9	1000.0	9.000	GN	L1	10.4	5.1	46.0	
2.641000	43.4	1000.0	9.000	GN	L1	10.4	2.6	46.0	
2.753000	42.7	1000.0	9.000	GN	N	10.4	3.3	46.0	
3.413000	34.5	1000.0	9.000	GN	N	10.5	11.5	46.0	
8.145000	32.1	1000.0	9.000	GN	L1	10.8	17.9	50.0	

Transmitter Radiated Emissions 30 – 26 500 MHz and Band Edge

Standard	ANSI C63.10 (2009)	
Tested by:	SOT	
Date:	29.5. - 30.5.2012	
Humidity:	33 – 38 %	
Temperature:	19.8 – 20.2 °C	
Barometric pressure	1004 – 1007 hPa	
Measurement uncertainty	± 4.51 dB	Level of confidence 95 % (k = 2)

FCC Rule: 15.249 (a)(c)(d)(e), 15.209(a)
IC Rule: RSS-210 2.6, A2.9(1)(2)

Measured peak levels include transducer factors (antenna, amplifier, filters) and cable attenuations. The peak level was measured in continuous transmit mode with 98 % duty cycle.

Average levels were calculated by subtracting the correction factor from the maximum measured peak level as stated in Part 15.35 (c) above 1000 MHz.

The correction was calculated by using the formula: 20 * LOG (4 * 0.367ms / 100ms) = -36.7 dB.

Measured Values In The Frequency Range 30 MHz - 1000 MHz.

CHANNEL LOW

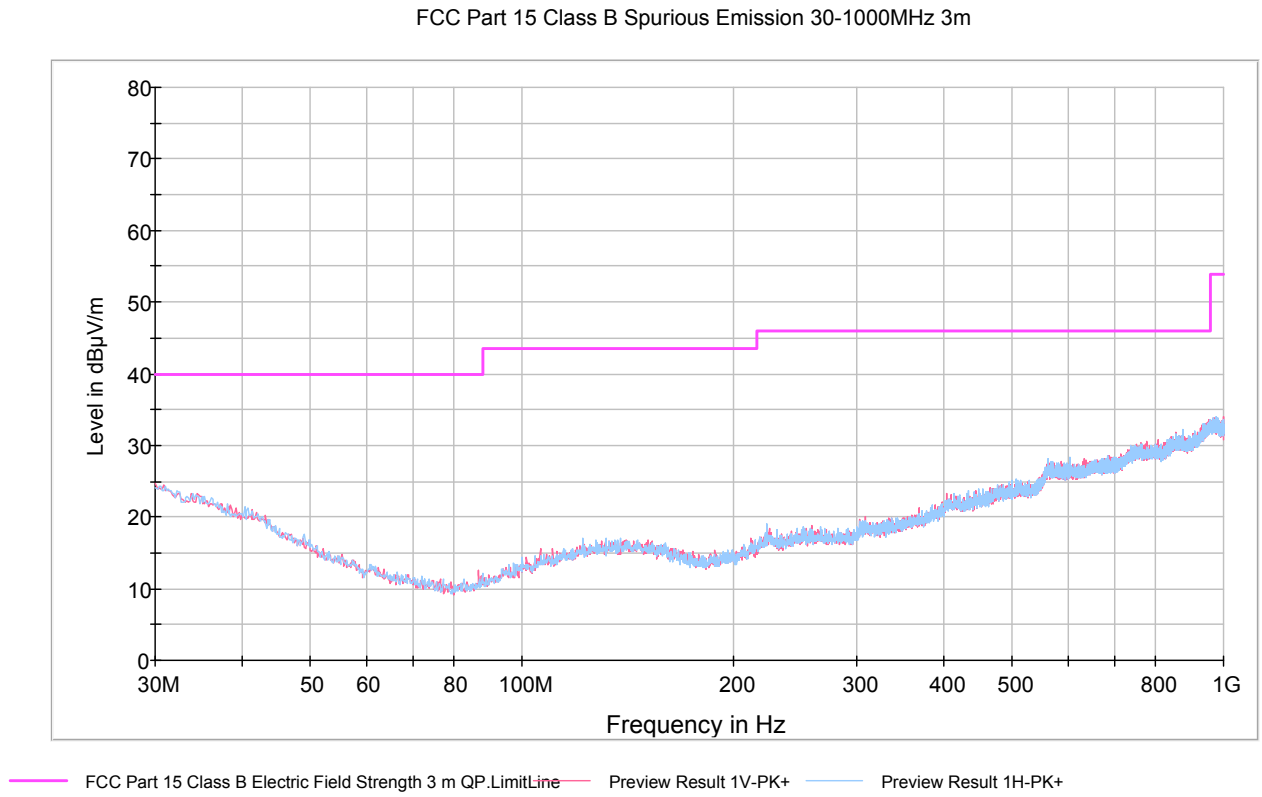


Figure 2. Measured curve with Peak detector.

No final measurements were made since the emission level was more than 10dB below the limit line.

CHANNEL MID

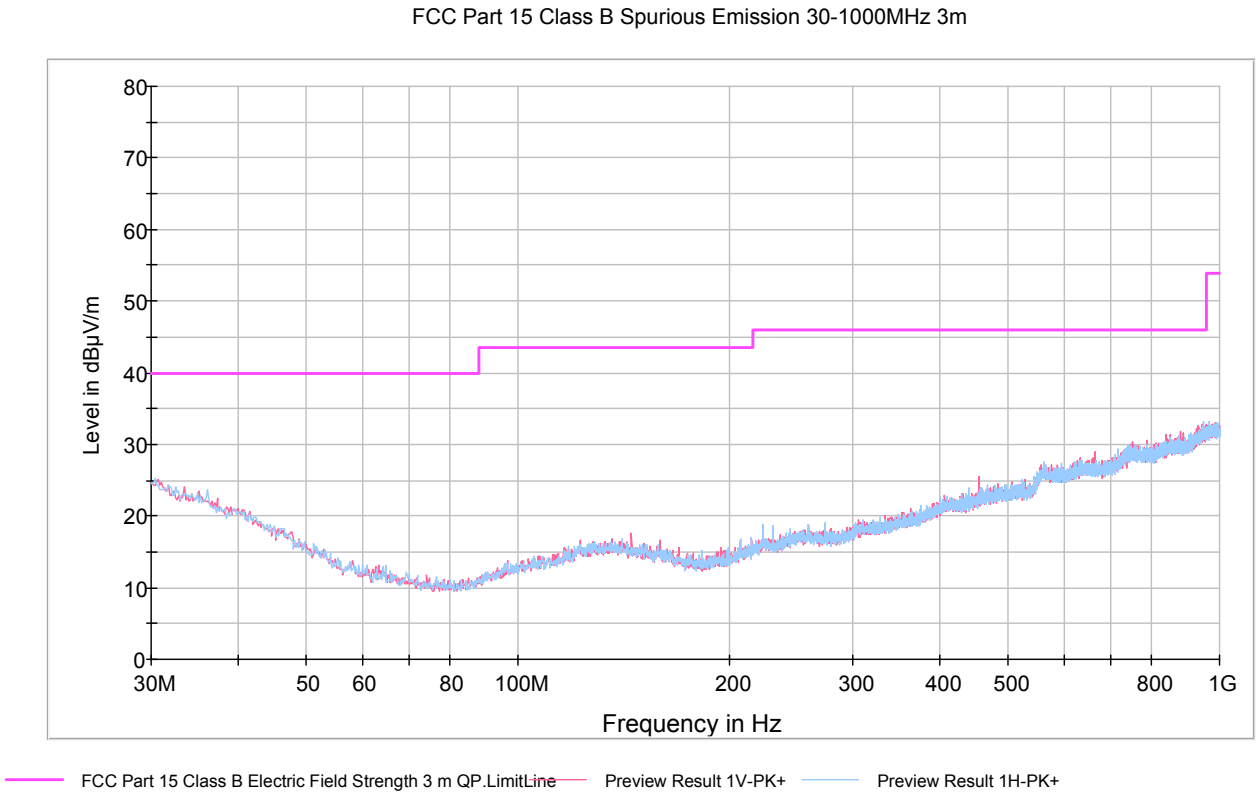


Figure 3. Measured curve with Peak detector.

No final measurements were made since the emission level was more than 10dB below the limit line.

CHANNEL HIGH

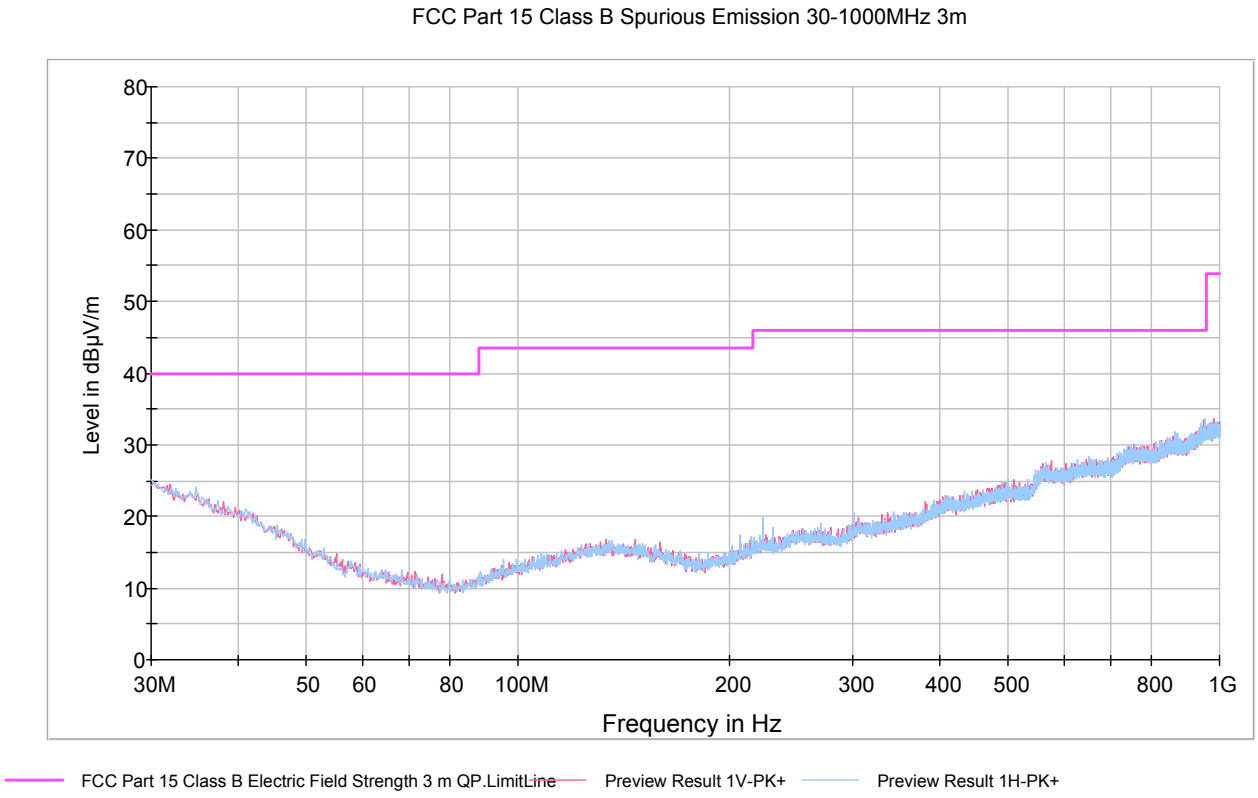


Figure 4. Measured curve with Peak detector.

No final measurements were made since the emission level was more than 10dB below the limit line.

Measured Values In The Frequency Range 1 000 MHz – 4 000 MHz

CHANNEL LOW

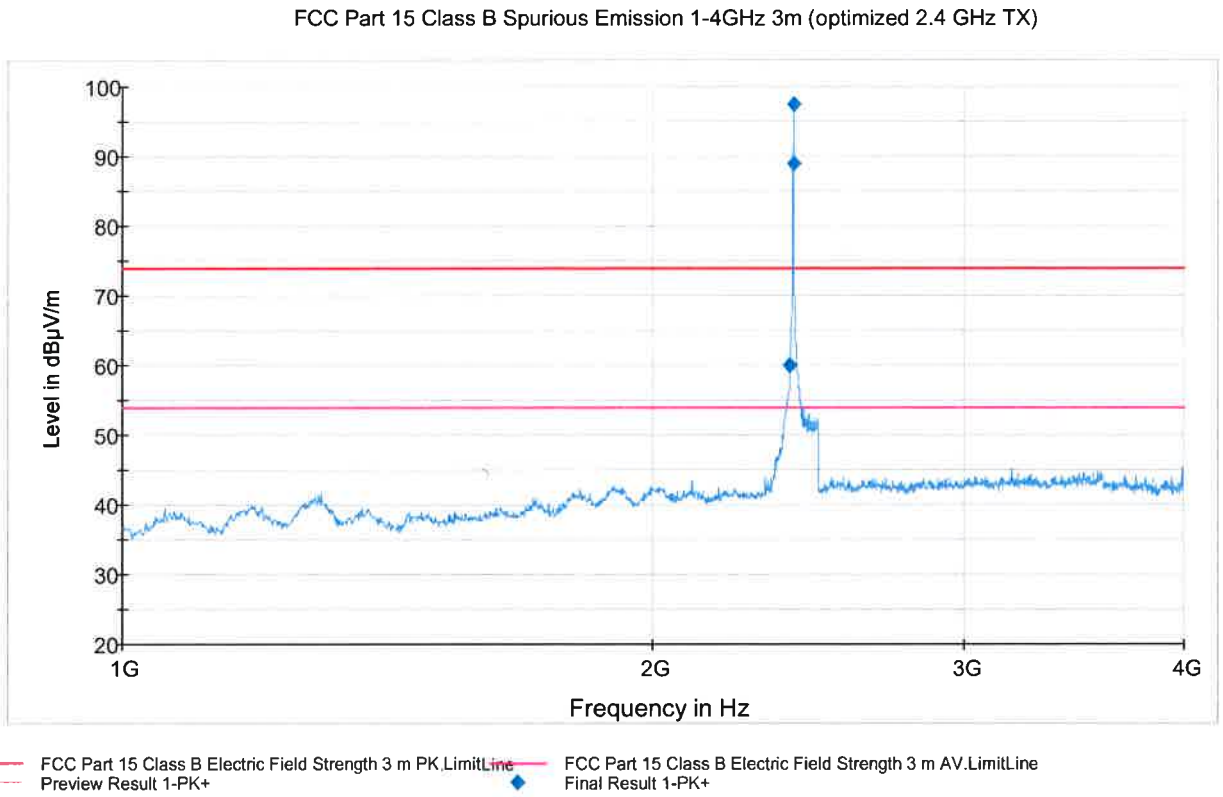


Figure 5. Measured curve with Peak detector.

Table 9. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2390.000000	59.9	1000.0	1000.000	100.0	V	224.0	14.0	73.9	
2402.800000	88.9	1000.0	1000.000	265.0	H	354.0	-	-	*
2403.000000	97.5	1000.0	1000.000	165.0	V	225.0	-	-	*

* The fundamental frequency of transmitter

Table 10. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2390.000000	23.2	1000.0	1000.000	100.0	V	224.0	36.7	53.9	

CHANNEL MID

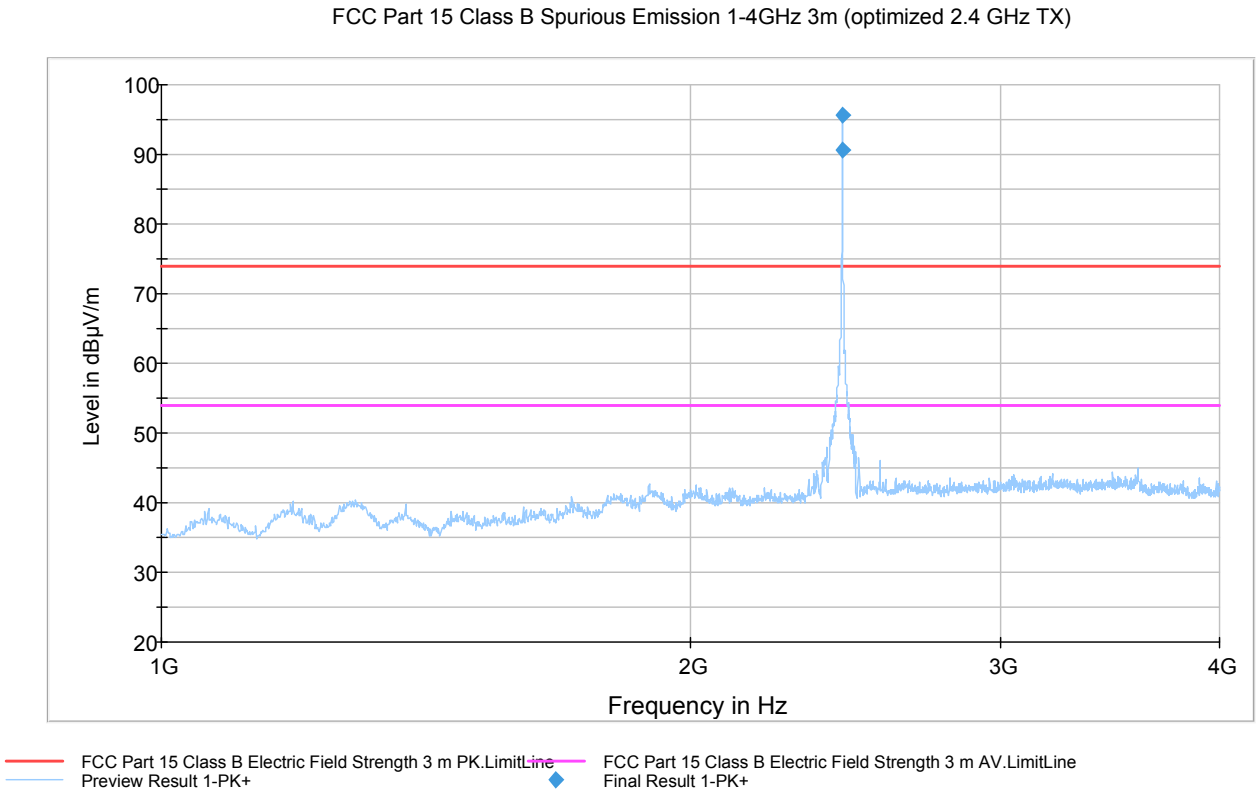


Figure 6. Measured curve with Peak detector.

Table 11. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2440.750000	**95.7**	**1000.0**	**1000.000**	**174.0**	**V**	**231.0**	**-**	**-**	*
2441.550000	**90.6**	**1000.0**	**1000.000**	**203.0**	**H**	**267.0**	**-**	**-**	*

* The fundamental frequency of transmitter

Table 12. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2440.750000	**59.0**	**1000.0**	**1000.000**	**174.0**	**V**	**231.0**	**-**	**-**	*
2441.550000	**53.9**	**1000.0**	**1000.000**	**203.0**	**H**	**267.0**	**-**	**-**	*

* The fundamental frequency of transmitter

CHANNEL HIGH

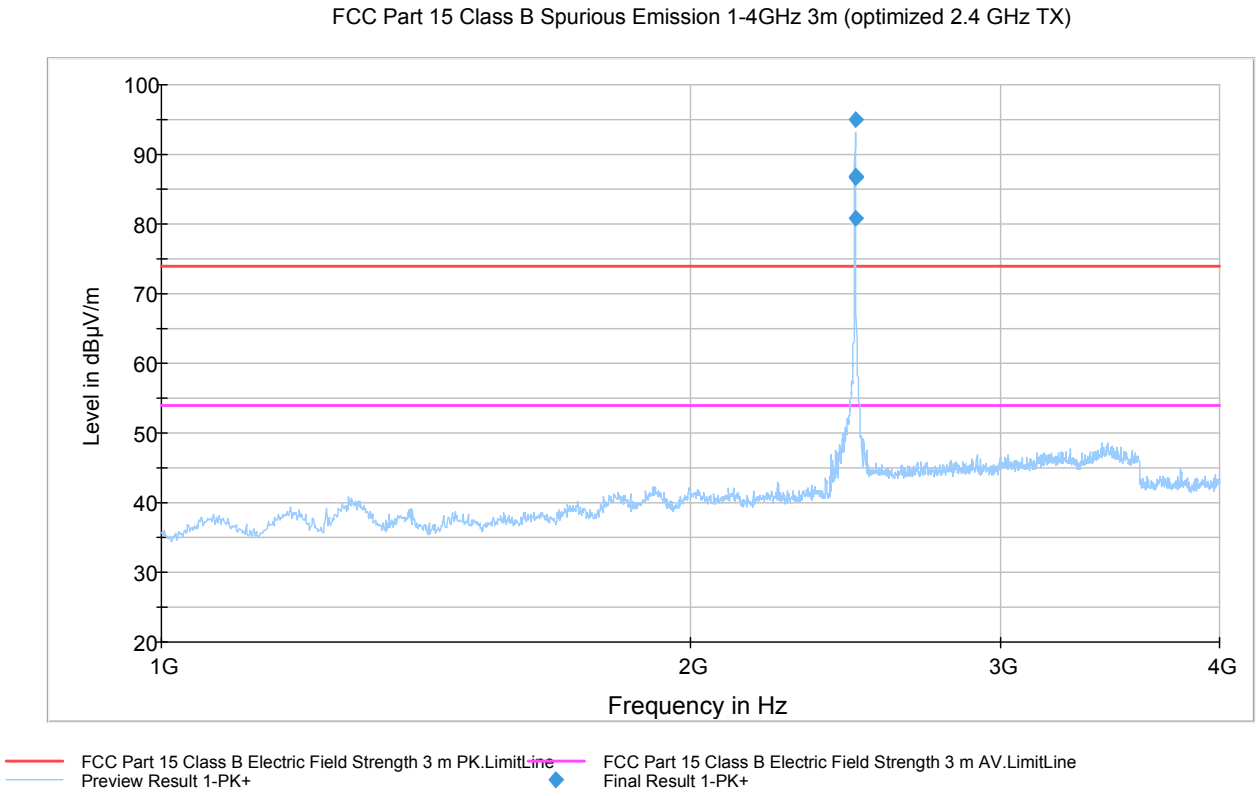


Figure 7. Measured curve with Peak detector.

Table 13. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2481.550000	95.0	1000.0	1000.000	195.0	V	218.0	-	-	*
2483.500000	80.8	1000.0	1000.000	204.0	H	264.0	-6.9	73.9	**
2483.500000	86.9	1000.0	1000.000	195.0	V	224.0	-13.0	73.9	**

* The fundamental frequency of transmitter

** Higher band-edge is measured with the alternative delta-marker method on next page

Table 14. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
2481.550000	95.0	1000.0	1000.000	195.0	V	218.0	-	-	*
2483.500000	44.1	1000.0	1000.000	204.0	H	264.0	9.8	53.9	
2483.500000	50.2	1000.0	1000.000	195.0	V	224.0	3.7	53.9	

* The fundamental frequency of transmitter

** Higher band-edge is measured with the alternative delta-marker method on next page

Band-Edge Radiated Emission with Delta-Marker method

CHANNEL HIGH

Table 15. Measured in-band field strength of the fundamental

Frequency (MHz)	MaxPeak (dBµV/m)	Bandwidth (kHz)
2.481919872	95.22	1000.000

Table 16. Measured relative band-edge emissions

Absolute Frequency (MHz)	Delta Frequency (MHz)	Absolute MaxPeak (dBµV/m)	Delta MaxPeak (dB)	Bandwidth (kHz)
2482.044872	Reference	95.08	Reference	100.000
2483.500000	1.455128	---	36.07	100.000
2483.705128	1.660256	---	27.17	100.000
2484.211539	2.166667	---	33.01	100.000

Table 17. Calculated final peak results of the band-edge

Absolute Frequency (MHz)	Fundamental MaxPeak (dBµV/m)	Delta (dB)	Calc. Final Band-edge (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
2483.500000	95.22	36.07	59.15	14.74	73.9	*
2483.705128	95.22	27.17	68.05	5.85	73.9	*
2484.211539	95.22	33.01	62.21	11.69	73.9	*

* Equation: *Calc. Final Band-edge = Fundamental - Delta*

Table 18. Calculated final average results of the band-edge

Frequency (MHz)	Average (dBµV/m)	Margin (dB)	Limit (dBµV/m)	Comment
2483.500000	22.45	31.45	53.9	
2483.705128	31.35	22.55	53.9	
2484.211539	25.51	28.38	53.9	

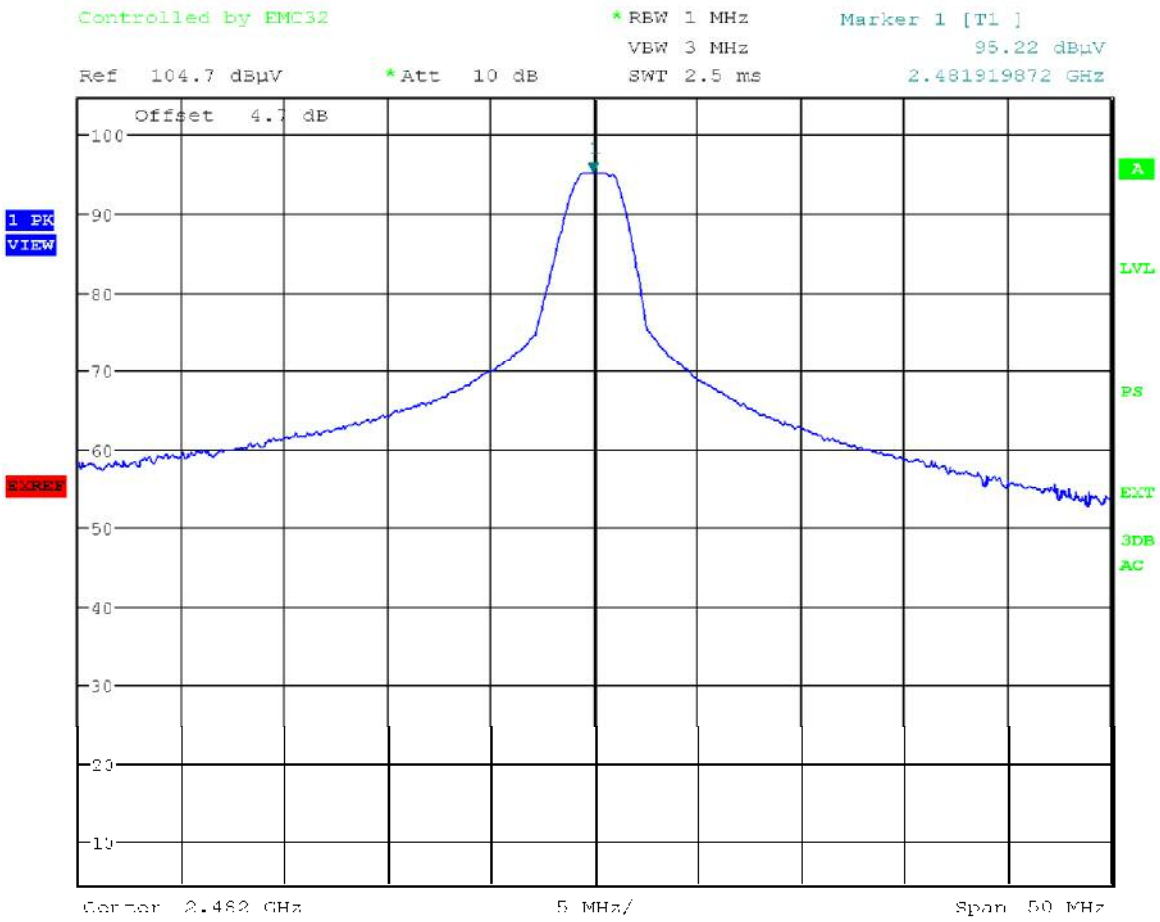


Figure 8. Measured field strength of fundamental with peak detector.

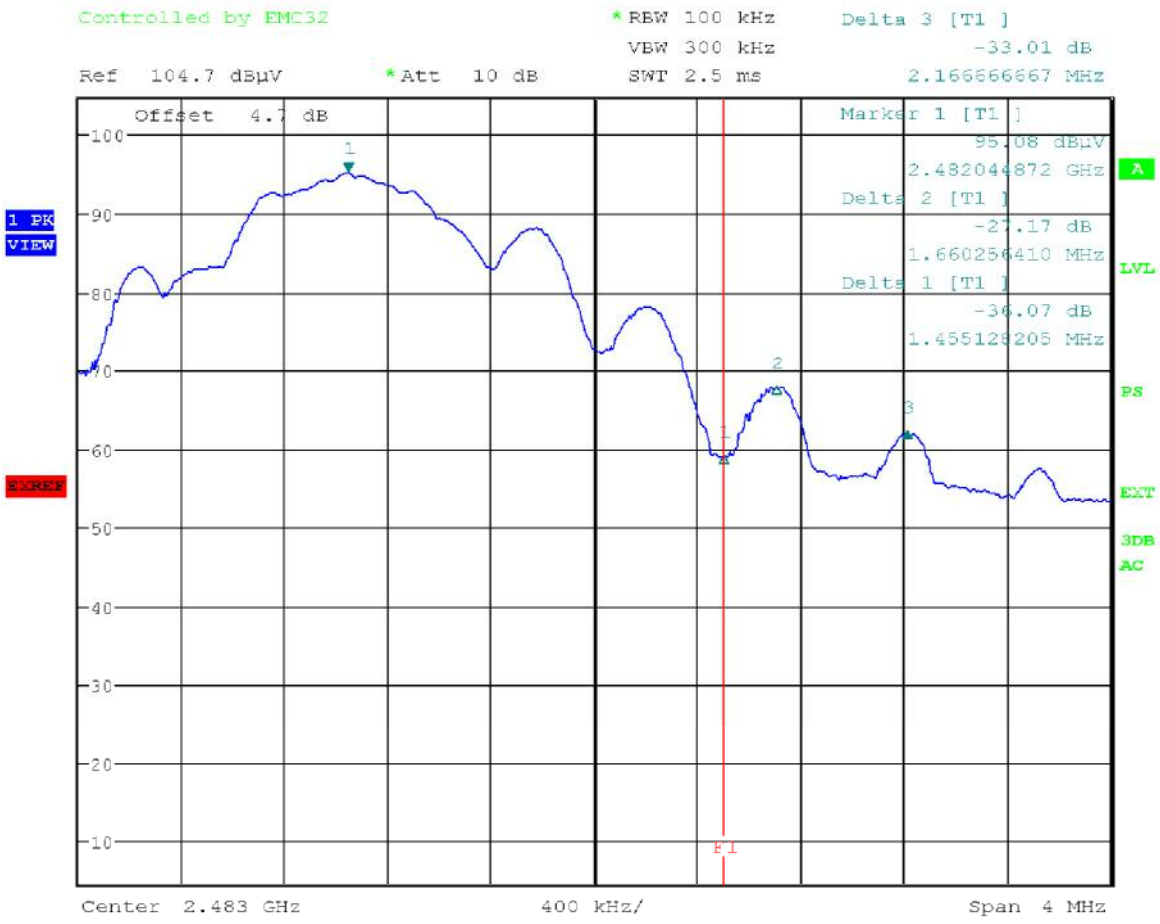


Figure 9. Measured relative field strengths of band-edge emissions with peak detector.

Measured Values In The Frequency Range 4 000 MHz – 18 000 MHz

CHANNEL LOW

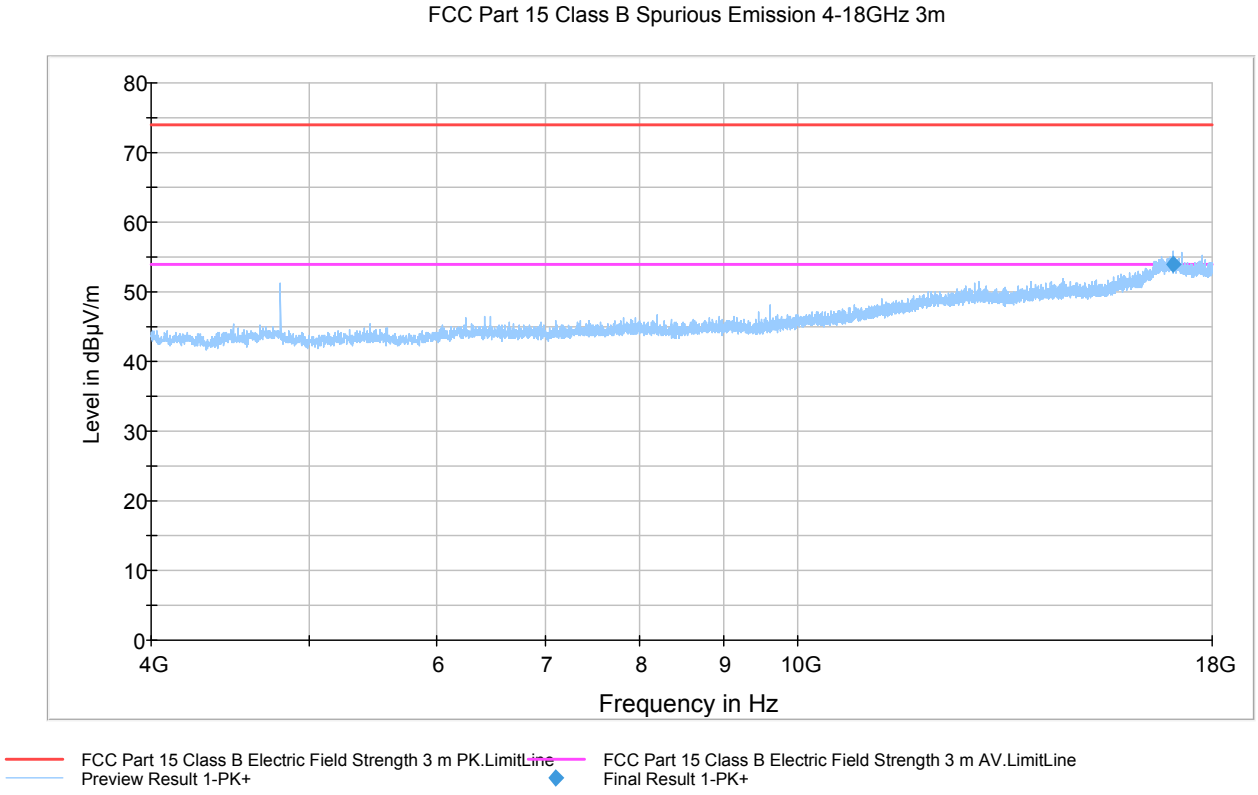


Figure 10. Measured curve with peak detector.

Table 19. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
17037.675000	54.0	1000.0	1000.000	216.0	V	200.0	20.0	73.9	

Table 20. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
17037.675000	17.3	1000.0	1000.000	216.0	V	200.0	36.3	53.9	

CHANNEL MID

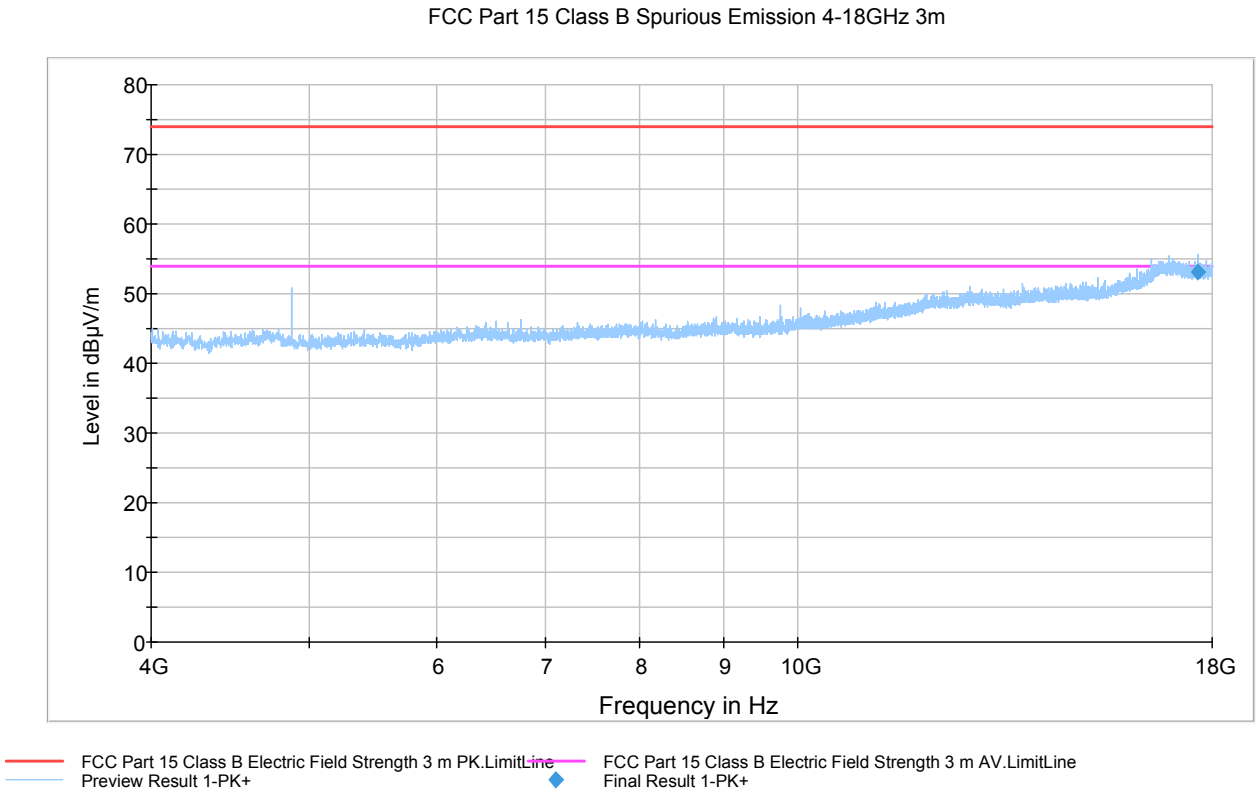


Figure 11. Measured curve with peak detector.

Table 21. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
17627.425000	53.1	1000.0	1000.000	203.0	V	311.0	20.8	73.9	

Table 22. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
17627.425000	16.4	1000.0	1000.000	203.0	V	311.0	37.5	53.9	

CHANNEL HIGH

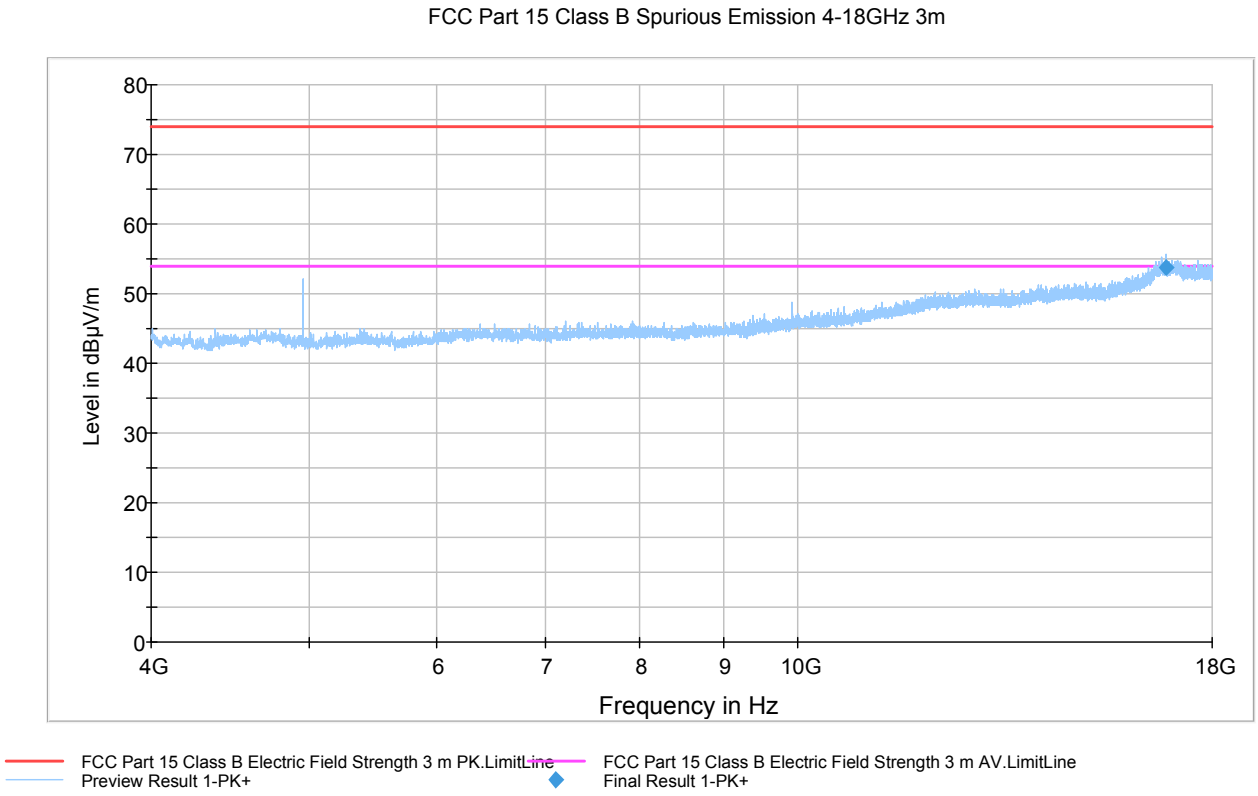


Figure 12. Measured curve with peak detector.

Table 23. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
16861.075000	53.8	1000.0	1000.000	211.0	V	31.0	20.1	73.9	

Table 24. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
16861.075000	17.1	1000.0	1000.000	211.0	V	31.0	36.8	53.9	

Measured Values In The Frequency Range 18 000 MHz – 26 500 MHz

CHANNEL LOW

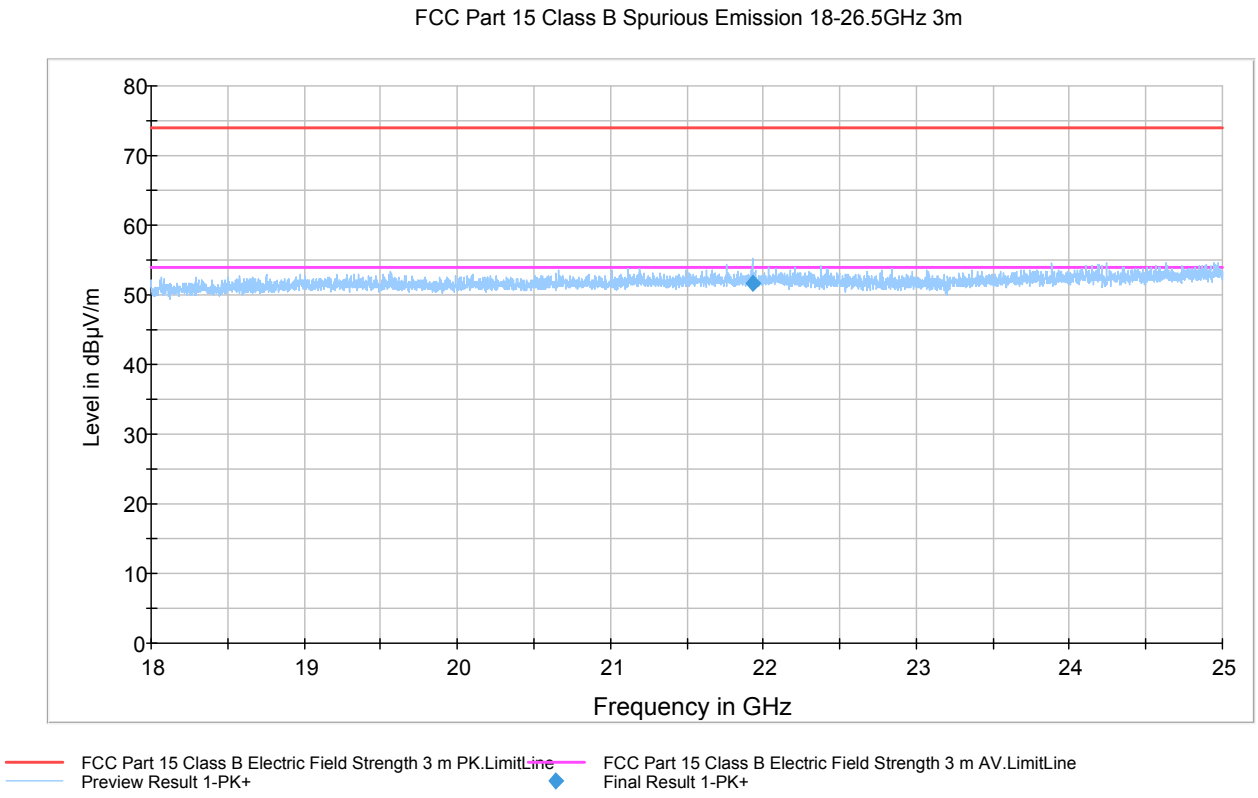


Figure 13. Measured curve with peak detector.

Table 25. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
21928.525000	51.6	1000.0	1000.000	100.0	V	24.0	22.3	73.9	

Table 26. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
21928.525000	14.9	1000.0	1000.000	100.0	V	24.0	39.0	53.9	

CHANNEL MID

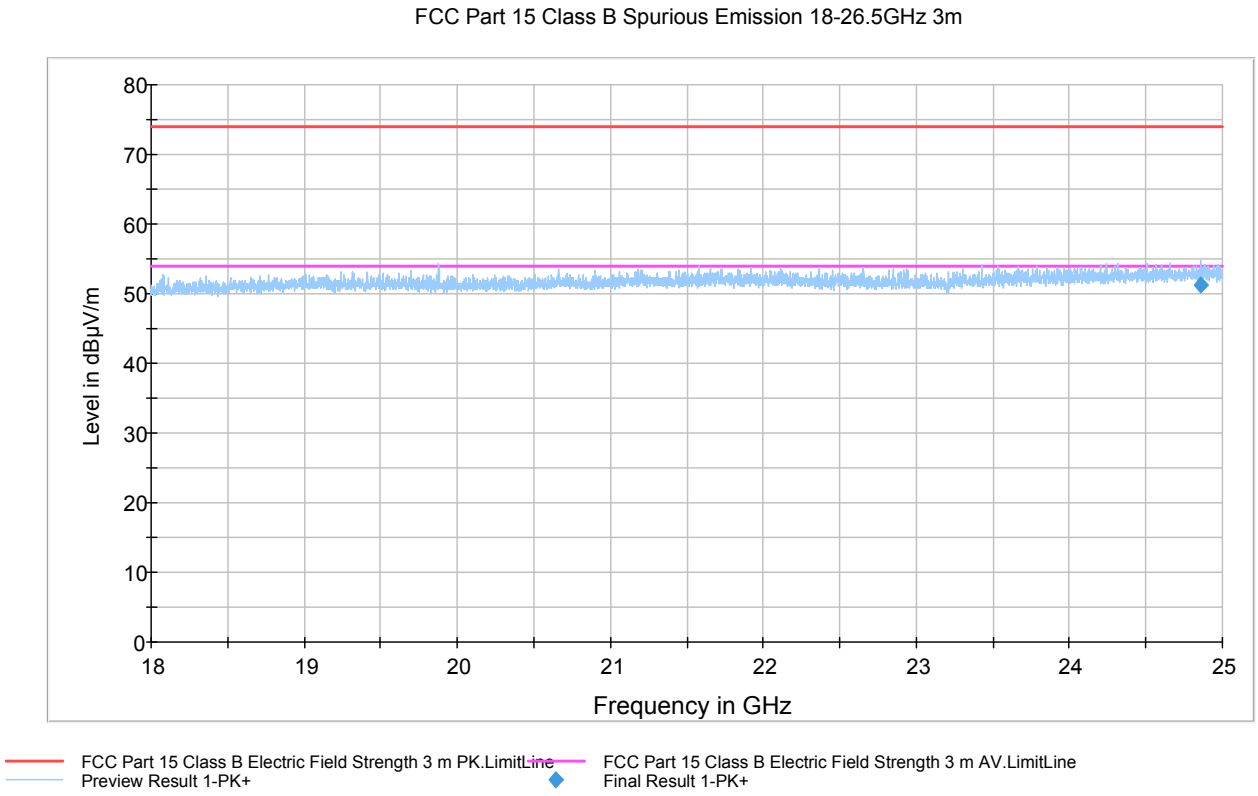


Figure 14. Measured curve with peak detector.

Table 27. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
24861.675000	51.2	1000.0	1000.000	233.0	V	70.0	27.7	22.7	73.9	

Table 28. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
24861.675000	14.5	1000.0	1000.000	233.0	V	70.0	27.7	39.4	53.9	

CHANNEL HIGH

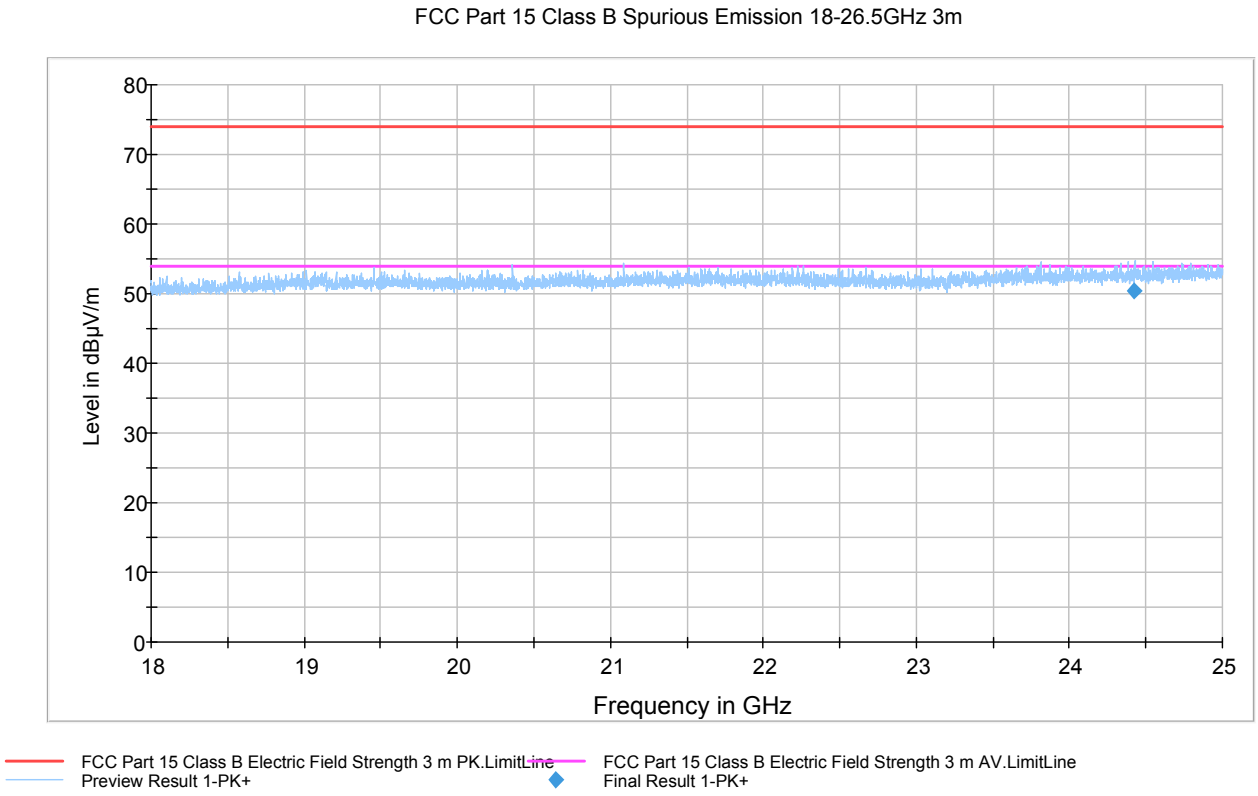


Figure 15. Measured curve with peak detector.

Table 29. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
24423.125000	50.5	1000.0	1000.000	226.0	V	354.0	23.4	73.9	

Table 30. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
24423.125000	13.8	1000.0	1000.000	226.0	V	354.0	40.1	53.9	

20 dB Bandwidth

Standard:	ANSI C63.10	(2009)
Tested by:	JJM	
Date:	12.6.2012	
Humidity:	37 %	
Temperature:	23 °C	
Barometric pressure	1001.0 hPa	

FCC Rule: 15.215 (c)

CHANNEL LOW

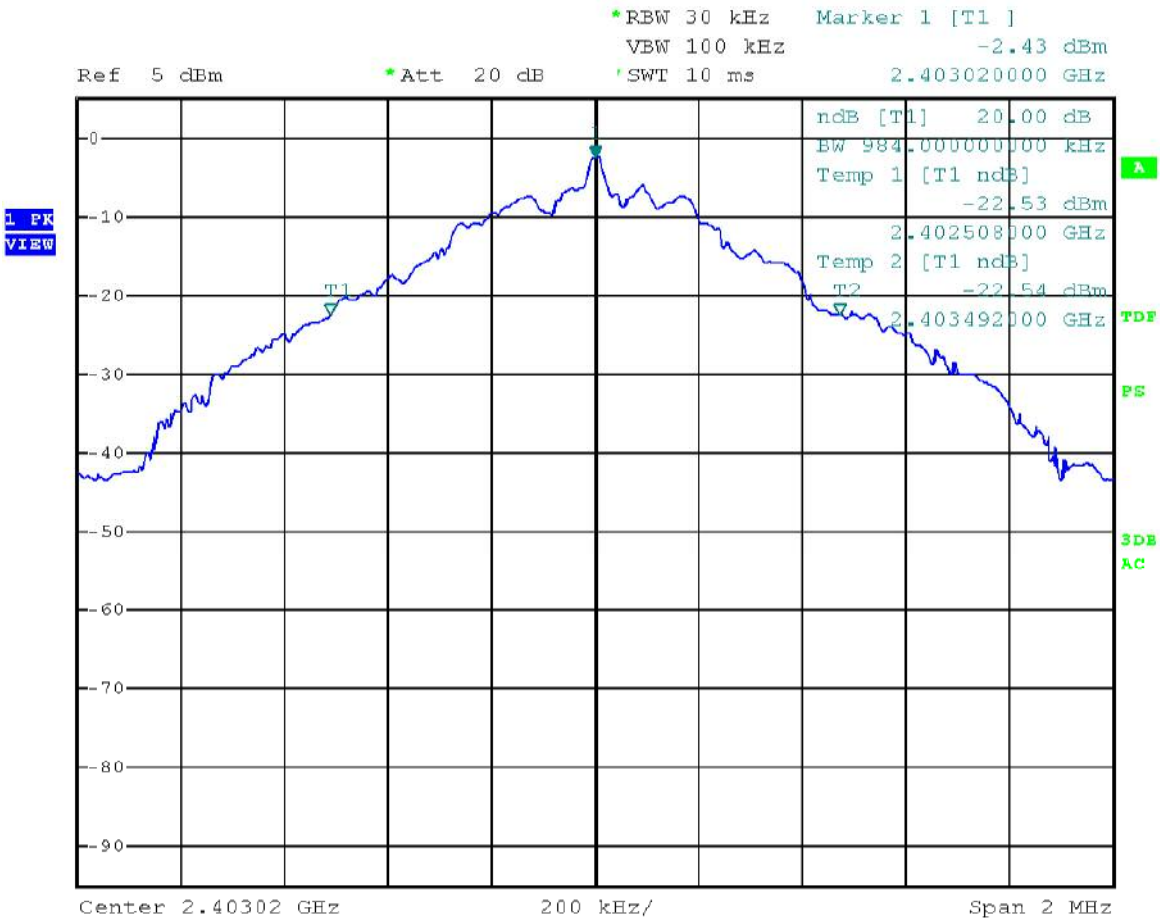
EUT frequency [MHz]	Limit [kHz]	20 dB BW [MHz]	Result
2403	---	0.984	PASS

CHANNEL MID

EUT frequency [MHz]	Limit [kHz]	20 dB BW [MHz]	Result
2441	---	1.040	PASS

CHANNEL HIGH

EUT frequency [MHz]	Limit [kHz]	20 dB BW [MHz]	Result
2482	---	1.032	PASS



Date: 12.JUN.2012 12:33:55

Figure 16. 20dB bandwidth of channel LOW.

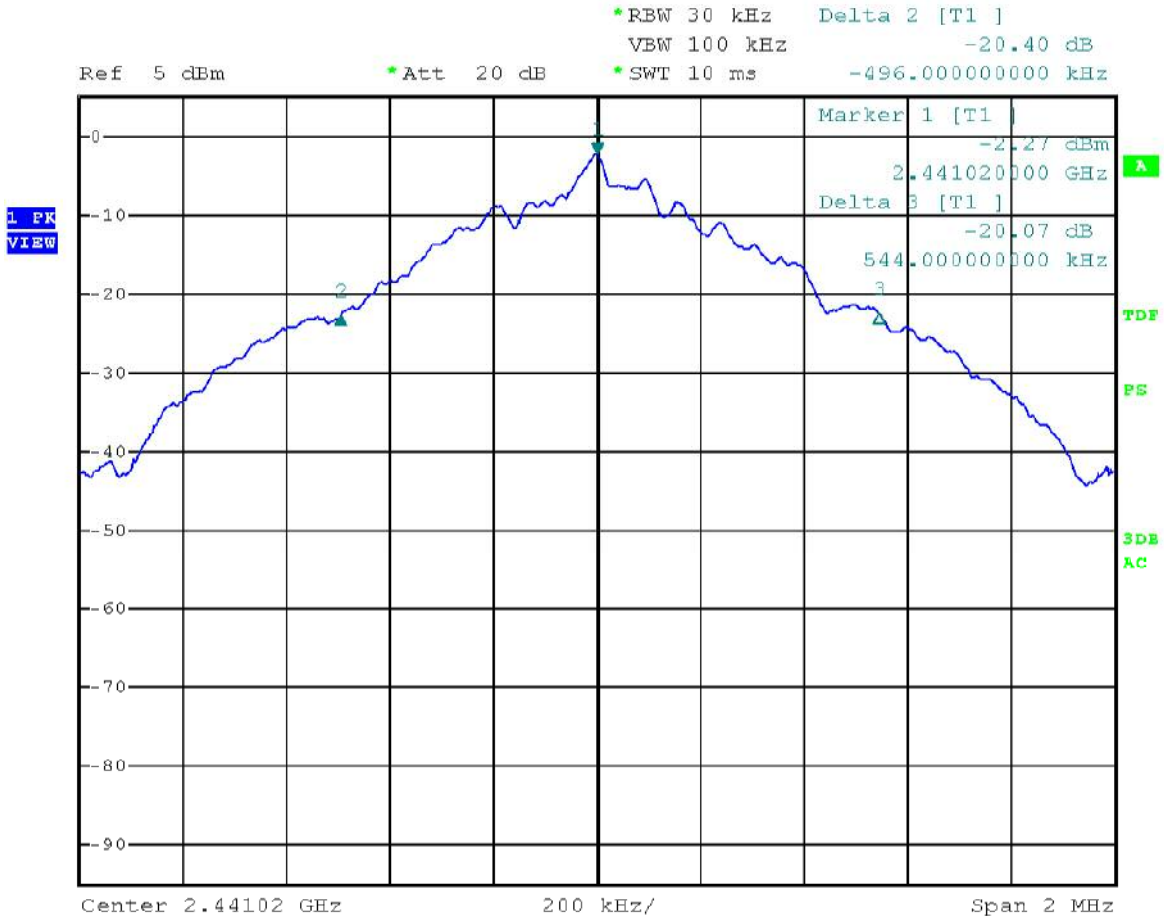


Figure 17. 20dB bandwidth of channel MID.

Result was calculated using delta markers referred to peak amplitude frequency.

Delta 2 + Delta 3 = 20dB BW

0.496 MHz) + 0.544 MHz = 1.04 MHz

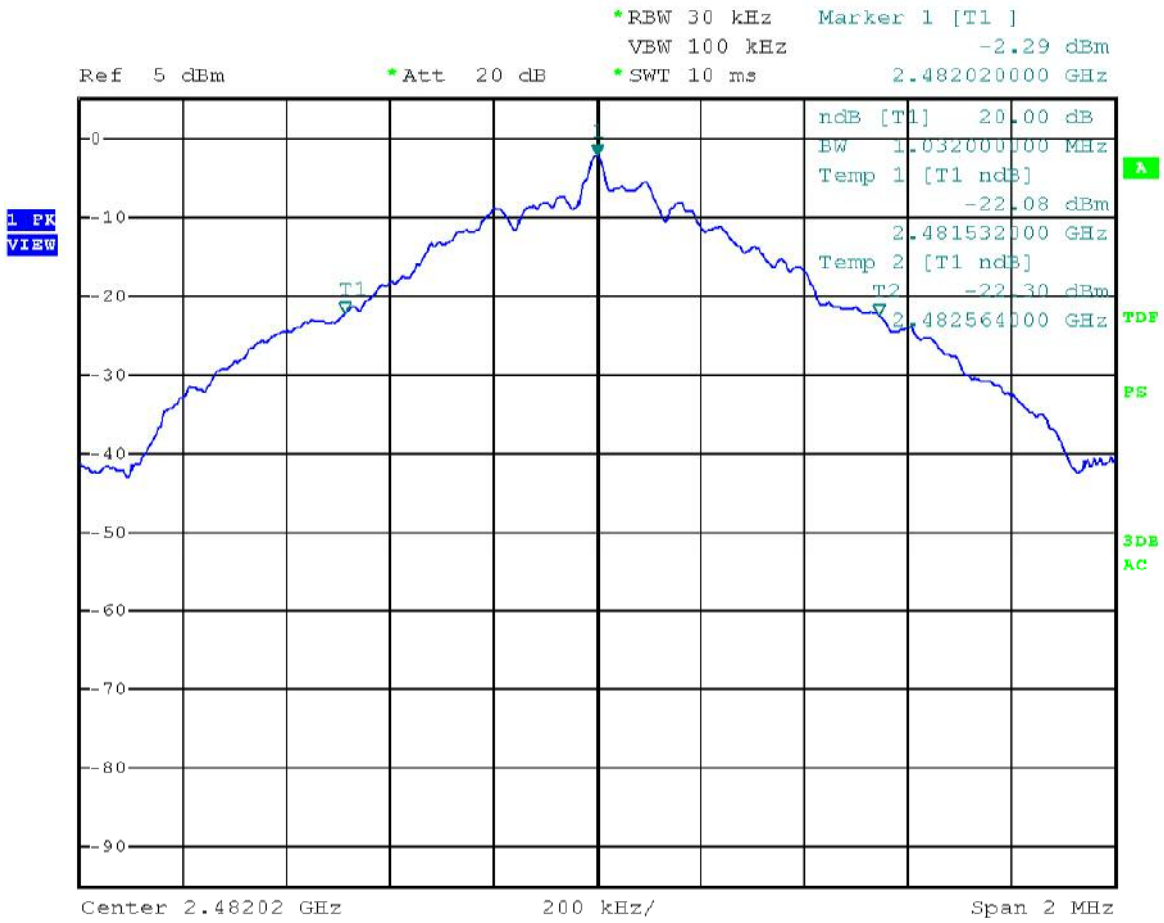


Figure 18. 20dB bandwidth of channel HIGH.

99% Occupied Bandwidth

Standard:	ANSI C63.10	(2009)
Tested by:	JJM	
Date:	12.6.2012	
Humidity:	37 %	
Temperature:	23 °C	
Barometric pressure	1001.0 hPa	

RSS-GEN Rule: 4.4.1

CHANNEL LOW

EUT frequency [MHz]	Limit [kHz]	99% BW [MHz]	Result
2403	---	1.132	PASS

CHANNEL MID

EUT frequency [MHz]	Limit [kHz]	99% BW [MHz]	Result
2441	---	1.124	PASS

CHANNEL HIGH

EUT frequency [MHz]	Limit [kHz]	99% BW [MHz]	Result
2482	---	1.140	PASS

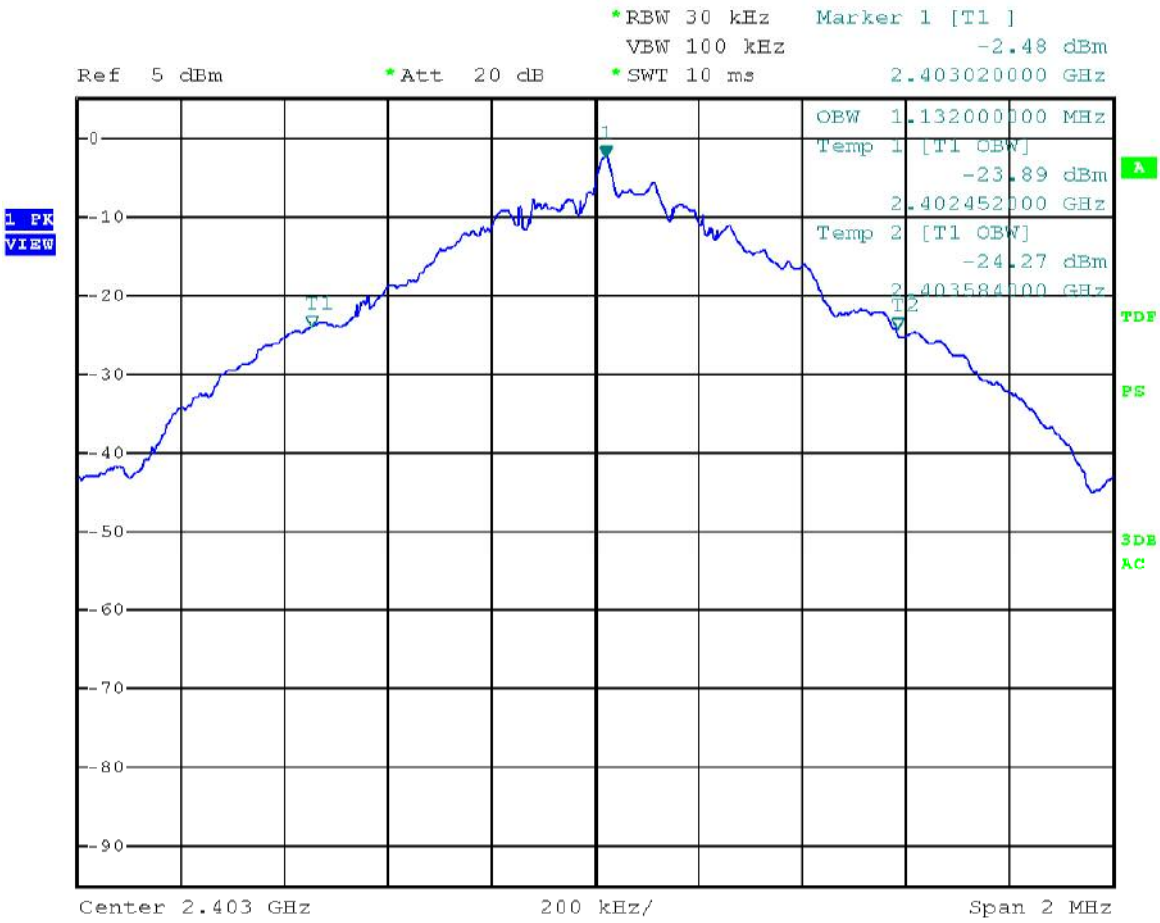


Figure 19. 99% bandwidth of channel LOW.

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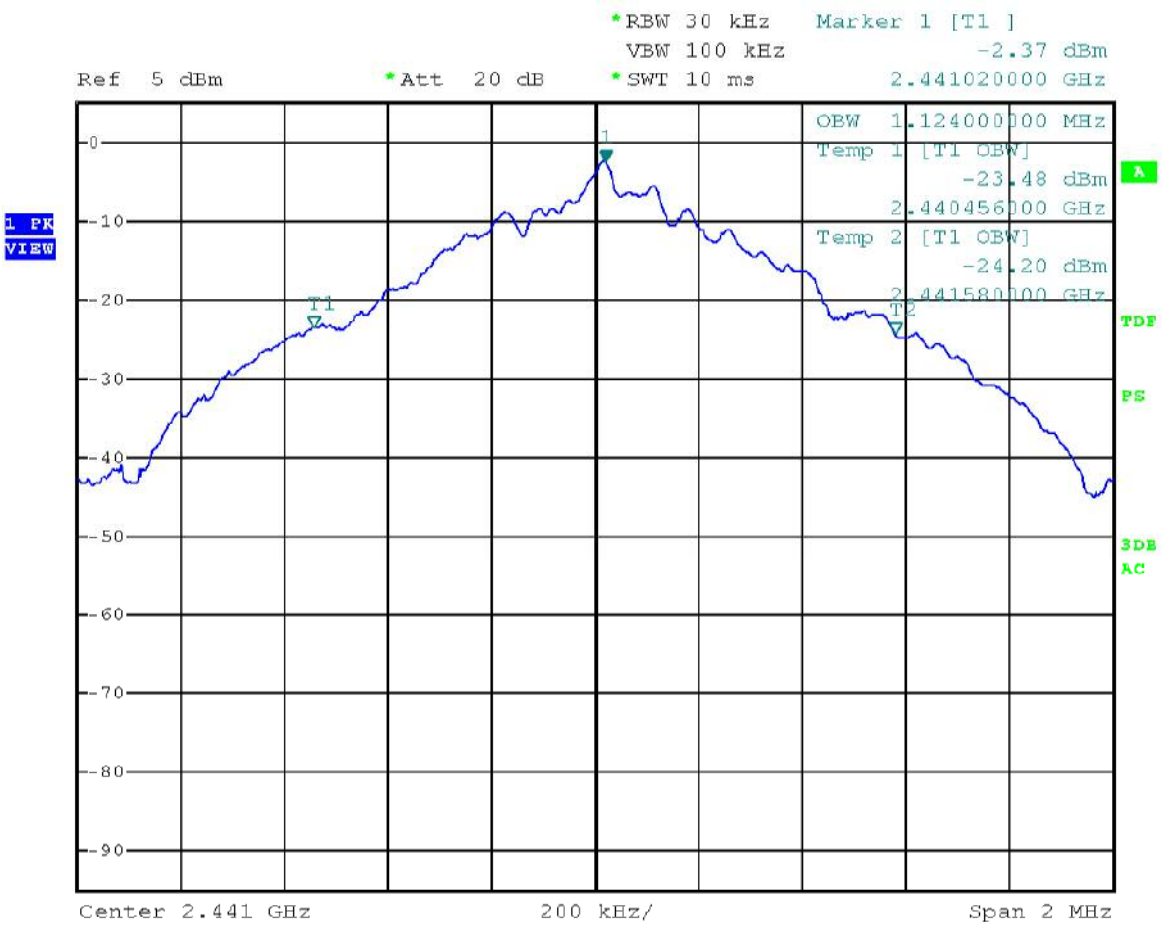

Figure 20. 99% bandwidth of channel MID.

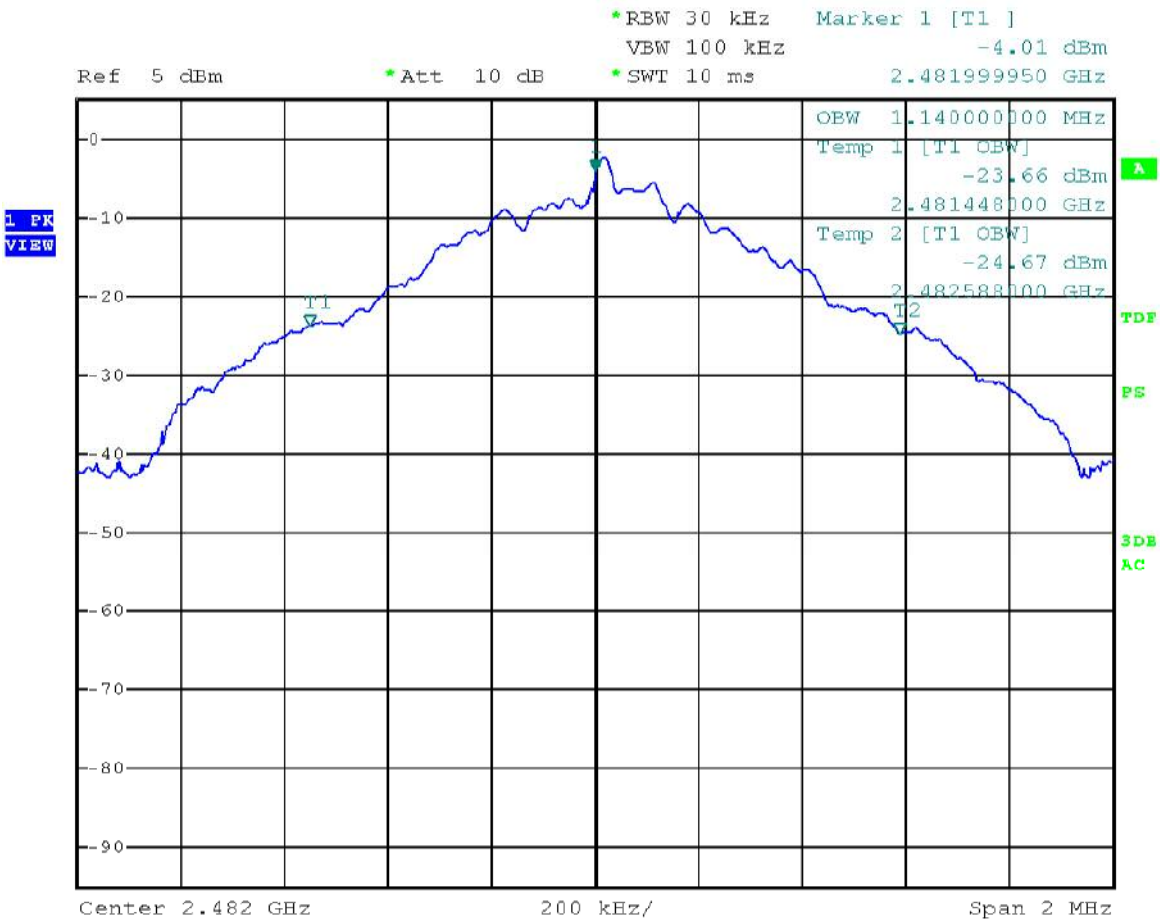

Figure 21. 99% bandwidth of channel HIGH.

Duty Cycle

Standard:	ANSI C63.10	(2009)
Tested by:	JJM	
Date:	12.6.2012	
Humidity:	-	
Temperature:	-	
Barometric pressure	-	

FCC Rule: -

RSS-GEN Rule: -

Duty cycle is measured the EUT in connected mode where the EUT transmit data to computer via Datalink. Used data channel in measurements was 2404 MHz. Measurement results and plots used in duty cycle calculations can be found from Polar RC3 GPS Technical Description v4.0 document.

CHANNEL 2404 MHz

Duty cycle = Duration/Period = (4 * 0.367ms)/100ms = 1.46 %

Receiver Radiated Emissions 30 – 26 500 MHz

Standard	ANSI C63.4 (2009)	
Tested by:	SOT	
Date:	29.5.2012	
Humidity:	33 %	
Temperature:	19.8 °C	
Barometric pressure	1004 hPa	
Measurement uncertainty	± 4.51 dB	Level of confidence 95 % (k = 2)

FCC Rule: 15.109
IC Rule: RSS-GEN 7.2.3, ICES-003

Measured peak and average levels include transducer factors (antenna, amplifier, filters) and cable attenuations.

Measured Values In The Frequency Range 30 MHz - 1000 MHz

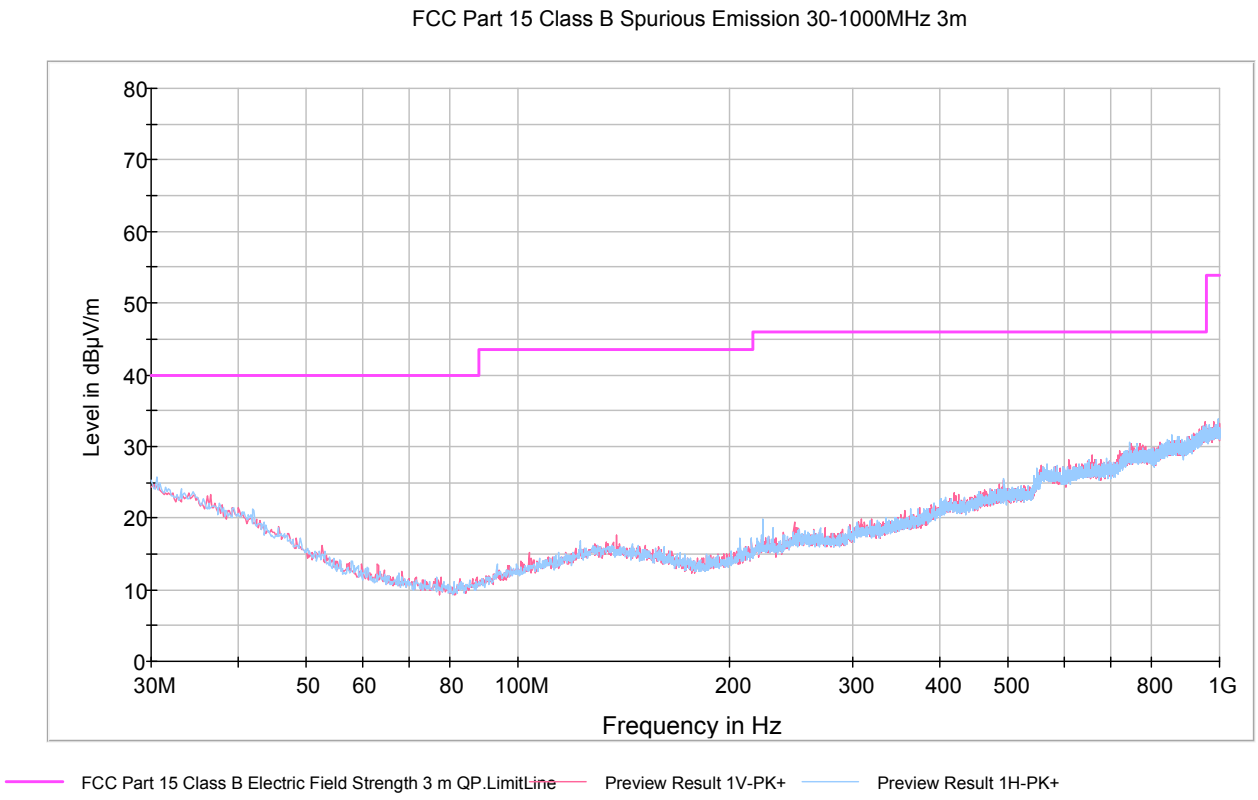

Figure 22. Measured curves with peak detector.

No final measurements were made since the emission level was more than 10dB below the limit line.

Measured Values In The Frequency Range 1 – 18 000 MHz

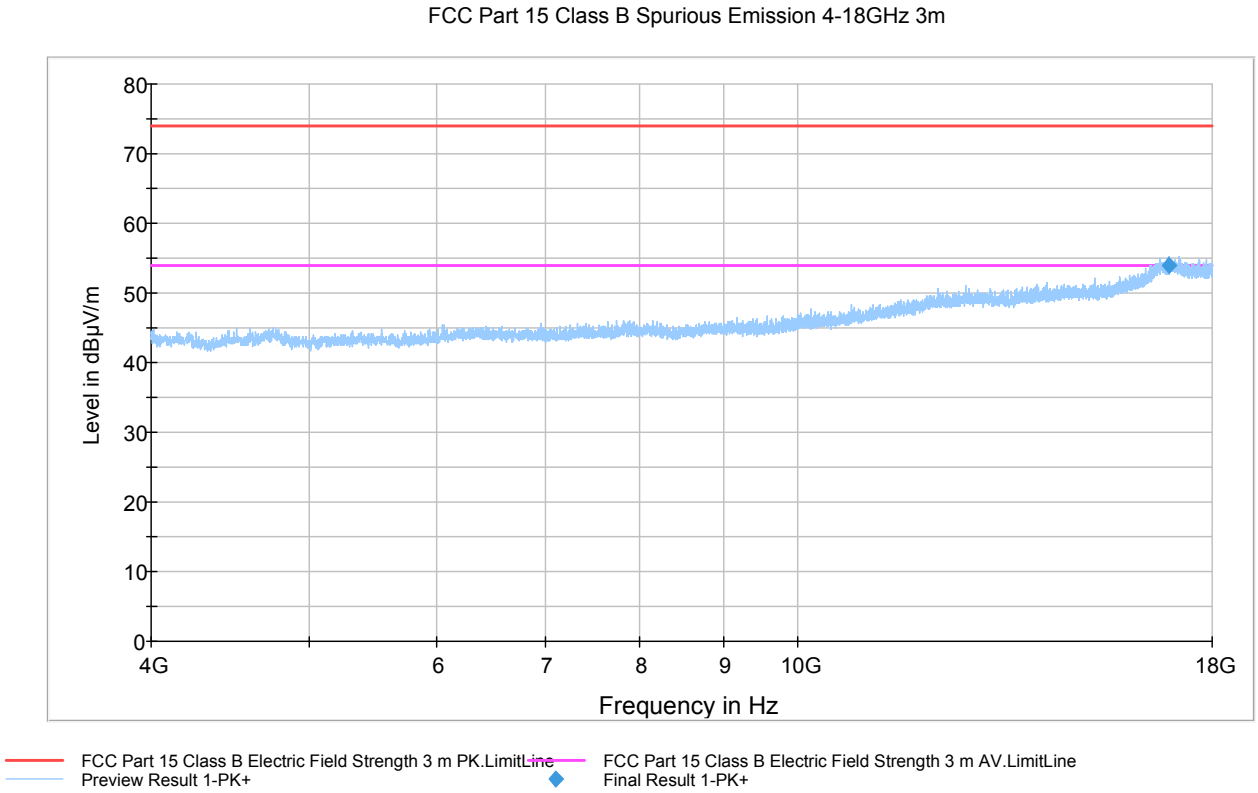

Figure 23. Measured curves with peak and average detectors.

Table 31. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
16930.625000	53.9	1000.0	1000.000	100.0	V	-4.0	20.0	73.9	

Table 32. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
16930.625000	17.2	1000.0	1000.000	100.0	V	-4.0	36.9	53.9	

Measured Values In The Frequency Range 18 000 – 26 500 MHz

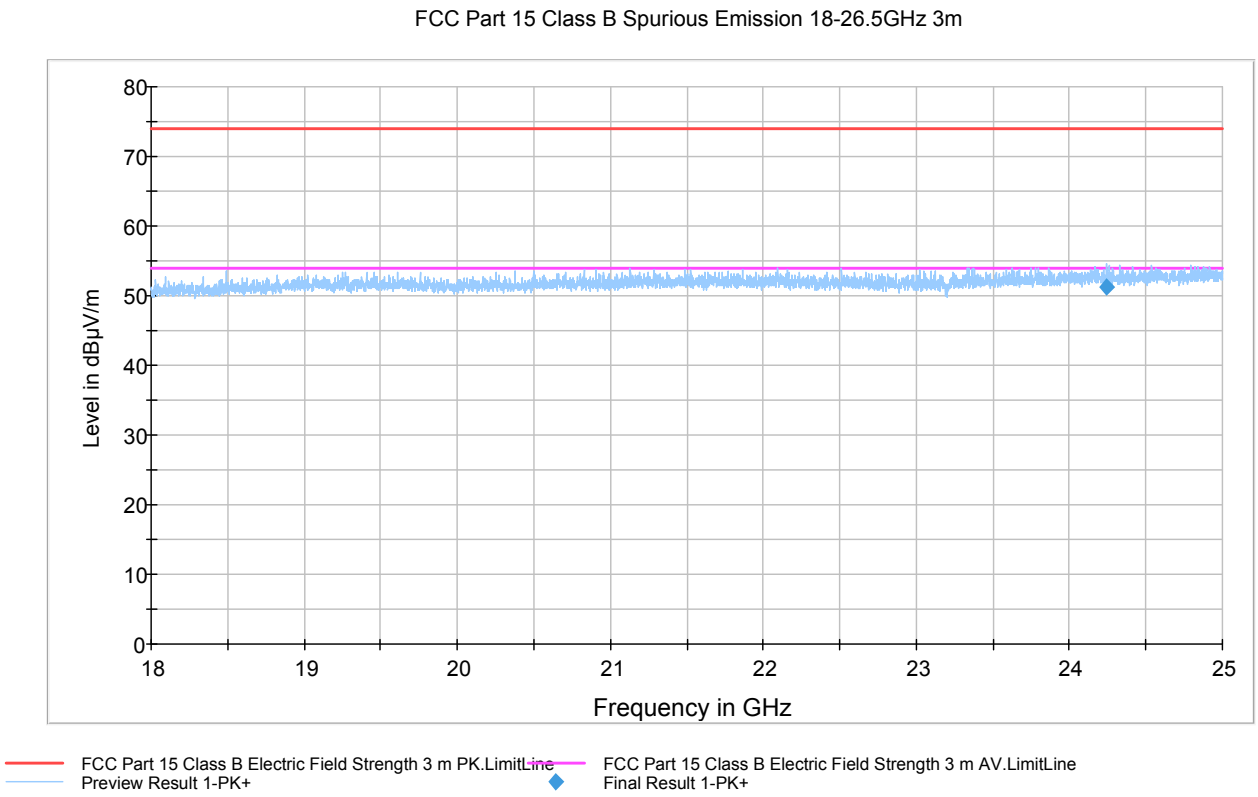

Figure 24. Measured curves with peak and average detectors.

Table 33. Final Peak measurement results

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
24239.075000	51.3	1000.0	1000.000	178.0	V	343.0	22.6	73.9	

Table 34. Final Average measurement results

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Margin (dB)	Limit (dBµV/m)	Comment
24239.075000	14.6	1000.0	1000.000	178.0	V	343.0	39.9	53.9	

List of Test Equipment

Manufacturer	Type	Serial no	Inv. no
ROHDE & SCHWARZ			
EMI Test receiver	ESU 26	100185	8453
EMI Test receiver	ESCI 3	100885	8264
Artificial mains network	ESH2-Z5	100102	7944
Test software	EMC32	-	-
CHASE			
Antenna (30 MHz - 1 GHz)	6141A	4102	7895
EMCO			
Antenna (1 - 18 GHz)	3117	29617	7293
Antenna (18 - 26 GHz)	3160-9	28535	7294
HEWLETT- PACKARD			
Microwave amplifier	83017A	-	5226
HUBER+SUHNER			
Attenuator 10dB	6810.17B	-	-
DEISEL			
Antenna mast	MA 240 T	240/394/96	5017
Tilt option	KE 220	220/307/96	-
Controller	HD 100	100/413/96	5018
Turntable	DS 420	420/420/96	5015
WAINWRIGHT			
High Pass Filter	WHKX	10	8267

NOTE! All testing equipment were calibrated.