TEST REPORT

APPLICANT	:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
PRODUCT NAME	:	Wireless Earphone
MODEL NAME	:	RMA2410
BRAND NAME	:	realme
FCC ID	:	2AUYFRMA2410
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2025-03-10
TEST DATE	:	2025-03-11 to 2025-04-07
ISSUE DATE	:	2025-04-27

Edited by: Su Xiaoxian

Su Xiaoxian (Rapporteur)

Approved by: Shen Junsheng

Shen Junsheng (Supervisor)

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MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

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Change History		
Version	**Date**	**Reason for change**
1.0	2025-04-27	First edition

1. Summary of Test Result

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	N/A	Duty Cycle of Test Signal	Mar. 26, 2025	Li Zikai	PASS	No deviation
3	15.247(b)	Maximum Peak Conducted Output Power	Apr. 01, 2025	Li Zikai	PASS	No deviation
4	15.247(b)	Maximum Average Conducted Output Power	Apr. 01, 2025	Li Zikai	PASS	No deviation
5	15.247(a)	Bandwidth	Mar. 24, 2025 Apr. 07, 2025	Li Zikai	PASS	No deviation
6	15.247(d)	Conducted Spurious Emission and Band Edge	Mar. 24, 2025	Li Zikai	PASS	No deviation
7	15.247(e)	Power Spectral Density	Mar. 24, 2025	Li Zikai	PASS	No deviation
8	15.207	Conducted Emission	Mar. 11, 2025	Fan Shengquan	PASS	No deviation
9	15.247(d)	Restricted Frequency Bands	Mar. 19, 2025	Zhong Xiangyun	PASS	No deviation
10	15.209, 15.247(d)	Radiated Emission	Mar. 18, 2025	Zhong Xiangyun	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in ANSI C63.10-2013 and KDB 558074 D01 v05r02.

Note 2: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 3: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.1. Testing Applied Standards

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

• 47 CFR Part 15 Subpart C Radio Frequency Devices

1.2. Test Equipment List

1.2.1 Conducted Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2025.01.15	2026.01.14
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial Cable	CB02	RF02	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A

1.2.2 Conducted Emission Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2025.01.06	2026.01.05
LISN	8127449	NSLK 8127	Schwarzbeck	2025.01.09	2026.01.18
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2024.05.30	2025.05.29
RF Coaxial Cable (DC-100MHz)	BNC	MRE04	Qualwave	N/A	N/A

1.2.3 List of Software Used

Description	Manufacturer	Software Version
Test System	MaiWei	2.0.0.0
JS32-RE	Tonscend	5.0.0
TS+ -[JS32-CE]	Tonscend	2.5.0.0

1.2.4 Radiated Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Signal Analyzer	MY56060145	N9020A	Agilent	2024.05.30	2025.05.29
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2024.06.22	2025.06.21
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2024.06.03	2025.06.02
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2024.06.22	2025.06.21
Test Antenna – Horn	BBHA9170 #773	BBHA9170	Schwarzbeck	2024.06.22	2025.06.21
Preamplifier (10MHz-6GHz)	46732	S10M100L3802	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier (2GHz-18GHz)	61171/61172	S020180L3203	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	N/A	N/A
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	N/A	N/A
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	N/A	N/A
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	N/A	N/A
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

1.3. Measurement Uncertainty

Test Items	Uncertainty	Remark
Peak Output Power	±2.22dB	Confidence levels of 95%
Power Spectral Density	±2.22dB	Confidence levels of 95%
Bandwidth	±5%	Confidence levels of 95%
Conducted Spurious Emission	±2.77dB	Confidence levels of 95%
Restricted Frequency Bands	±5%	Confidence levels of 95%
Radiated Emission	±2.95dB	Confidence levels of 95%
Conducted Emission	±2.44dB	Confidence levels of 95%

1.4. Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525
FCC Designation Number:	CN1192
FCC Test Firm Registration Number:	226174

2. General Description

2.1. Information of Applicant and Manufacturer

Applicant:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Applicant Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China
Manufacturer:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Manufacturer Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

2.2. Information of EUT

Product Name:	Wireless Earphone	
Sample No.:	2#, 3#, 5#, 13#	
Hardware Version:	V0.4	
Software Version:	V1.1.0.32	
Equipment Type:	Bluetooth LE	
Bluetooth Version:	5.4	
Modulation Type:	GFSK	
Data Rate:	1Mbps, 2Mbps	
Operating Frequency Range:	2402MHz-2480MHz	
Antenna Type:	FPC Antenna	
Antenna Gain:	Left: -2.05dBi; Right: -2.01dBi	
Accessory Information:	Battery (Earphone)	
	Brand Name:	VDL
	Model No.:	122570A
	Serial No.:	N/A
	Capacity:	58mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.40V
	Manufacturer:	Chongqing VDL Electronics Co., Ltd.
	Battery (Charging case)	
	Brand Name:	VDL
	Model No.:	921538PN2C
	Serial No.:	N/A

	Capacity:	530mAh
	Rated Voltage:	3.70V
	Charge Limit:	4.25V
	Manufacturer:	Chongqing VDL Electronics Co., Ltd.

Note 1: We use the dedicated software to control the EUT continuous transmission.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.3. Channel List of EUT

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	**2402**	10	2422	20	2442	30	2462
1	**2404**	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	**38**	**2478**
9	2420	**19**	**2440**	29	2460	**39**	**2480**

Note 1: The black bold channels were selected for test.

2.4. Test Configuration of EUT

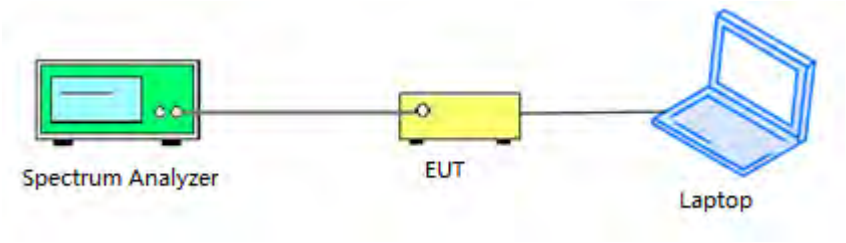
Test mode is used to control the EUT under the maximum power level during test.

2.5. Test Conditions

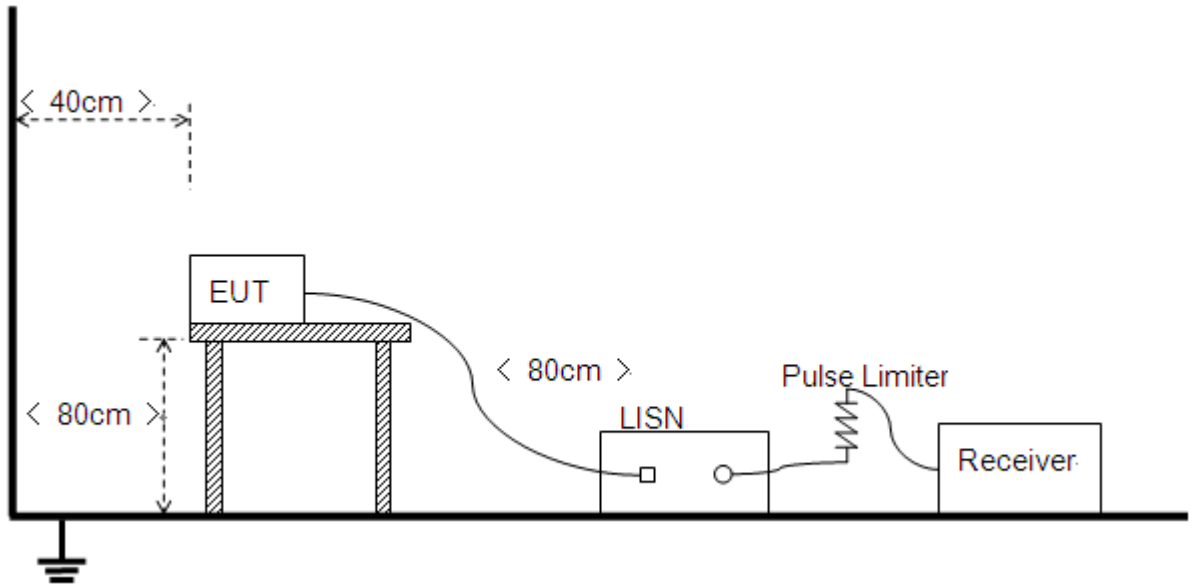
Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

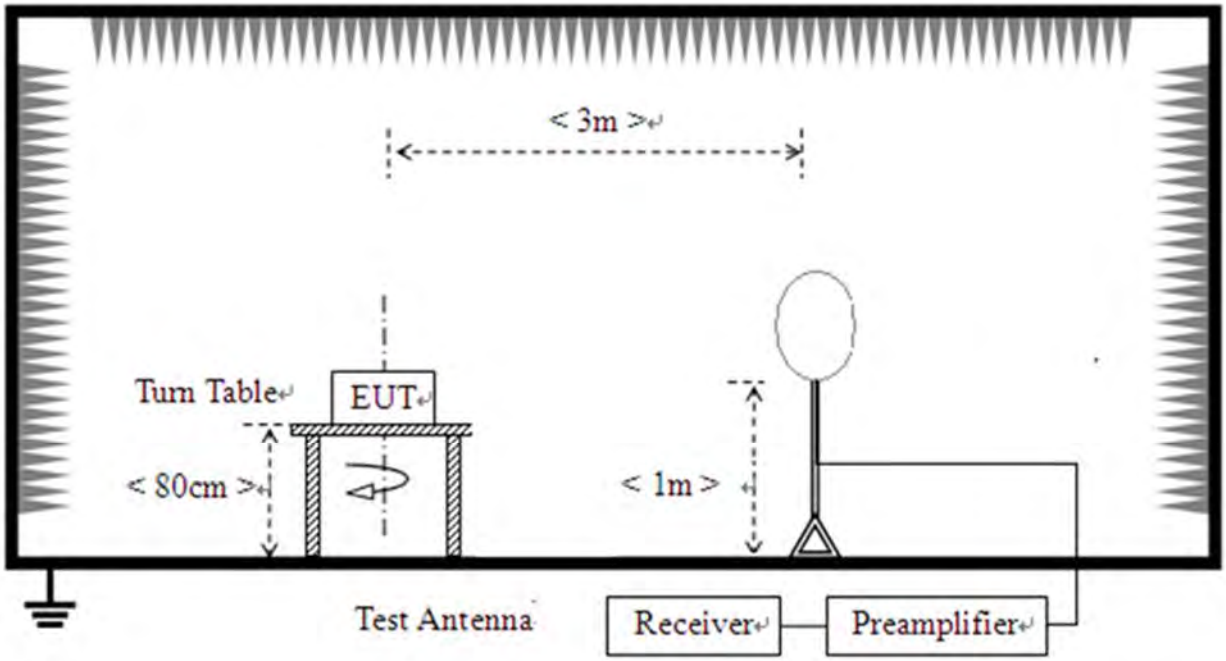


2.6.2.Conducted Emission Measurement

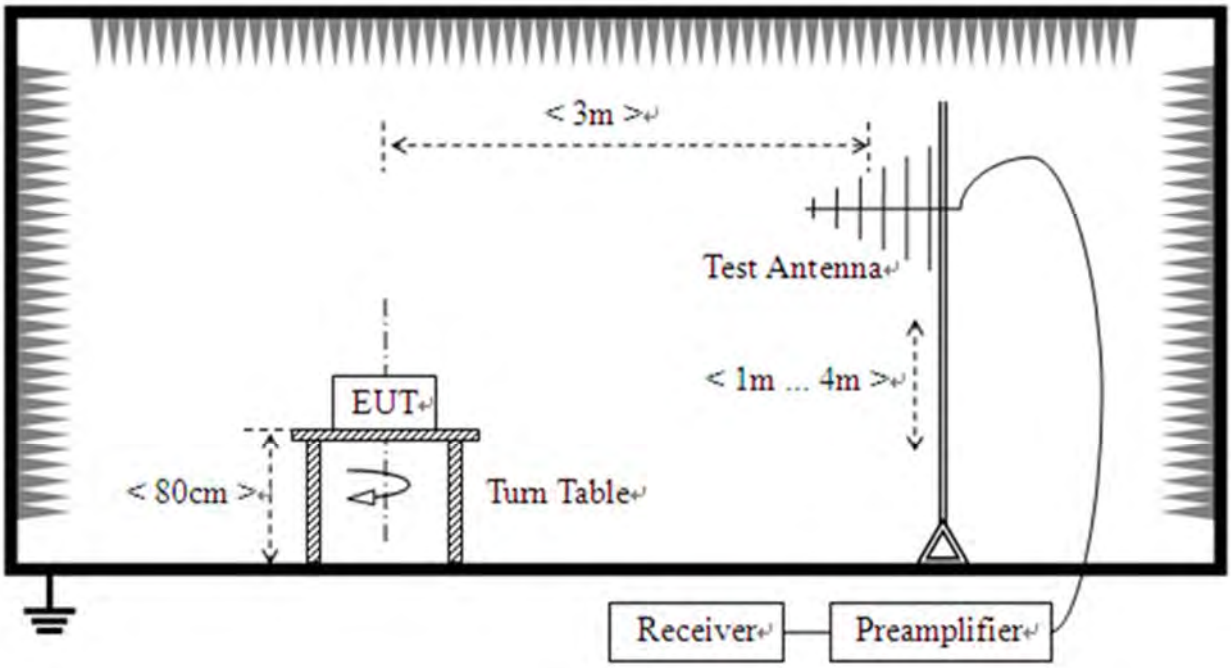


2.6.3.Radiation Measurement

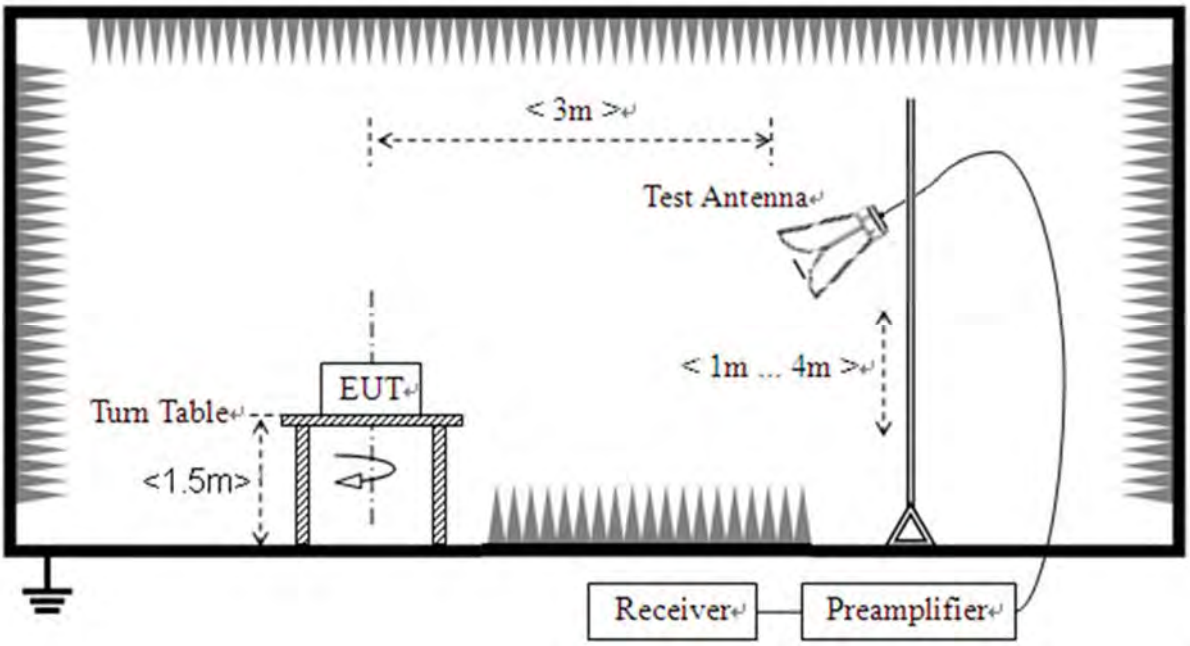
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



3. Test Results

3.1. Antenna Requirement

3.1.1.Requirement

According to FCC 15.203, 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.

3.1.2.Test Result

Antenna location	Antenna Type	Coupling Method
☒Internal ☐External	☒FPC Antenna ☐Spring Antenna ☐Ceramic Antenna ☐Integrated Antenna ☐Dipole Antenna ☐PCB Antenna ☐PIFA Antenna ☐On-board Antenna	☐I-PEX Connector ☐SMA Connector ☐RP-SMA Connector ☒Metal Shrapnel ☐Layout

3.2. Duty Cycle of Test Signal

3.2.1.Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%).When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration(T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e.,no transmitter OFF-time is to be considered).
When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this sub clause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than ±2%; otherwise, the duty cycle is considered to be non constant.

3.2.2.Test Result

Refer to Annex A.1 in this report.

3.3. Maximum Peak Conducted Output Power

3.3.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum peak conducted output power of the intentional radiator shall not exceed 1 Watt.

3.3.2. Test Procedures

KDB 558074 Section 8.3.1 was used in order to prove compliance.

3.3.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.3.4. Test Result

Refer to Annex A.2 in this report.

3.4. Maximum Average Conducted Output Power

3.4.1. Requirement

According to FCC section 15.247(b)(3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum average conducted output power of the intentional radiator shall not exceed 1 Watt.

3.4.2. Test Procedures

KDB 558074 Section 8.3.2 was used in order to prove compliance.

3.4.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.4.4. Test Result

Refer to Annex A.3 in this report.

3.5.6 dB Bandwidth

3.5.1.Requirement

According to FCC section 15.247(a) (2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

3.5.1.Test Procedures

The steps for the first option are as follows:
a) Set analyzer center frequency to channel center frequency
b) Set RBW to100kHz
c) Set VBW to 300kHz
d) Detector = peak.
e) Trace mode = max hold
f) Sweep time = auto couple
g) Allow the trace to fully stabilize
h) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by6 dB relative to the maximum level measured in the fundamental emission
The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 ×RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥6 dB.

3.5.2.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.5.3.Test Result

Refer to Annex A.4 in this report.

3.6. Conducted Spurious Emissions and Band Edge

3.6.1.Requirement

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

3.6.2.Test Procedures

KDB 558074 Section 8.5 and 8.7 was used in order to prove compliance.

3.6.3.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.6.4.Test Result

Refer to Annex A.5 and A.6 in this report.

3.7. Power Spectral Density

3.7.1.Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm 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.

3.7.2.Test Procedures

The measured power spectral density was calculated by the reading of the spectrum analyzer and calibration. Following is the test procedure for PSD test:
a) Set analyzer center frequency to channel center frequency
b) Set span to1.5 times DTS
c) Set RBW to 3kHz
d) Set VBW to 10kHz
e) Detector = peak
f) Sweep time = auto couple
g) Trace mode = max hold
h) Allow trace to fully stabilize
i) Use the peak marker function to determine the maximum amplitude level within the RBW

3.7.3.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.7.4.Test Result

Refer to Annex A.7 in this report.

3.8. Conducted Emission

3.8.1.Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.8.2.Test Procedures

The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

3.8.3.Test Setup Layout

Refer to chapter 2.6.2 in this report.

3.8.4.Test Result

Refer to Annex A.8 in this report.

3.9. Restricted Frequency Bands

3.9.1.Requirement

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, 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).

3.9.2.Test Procedures

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.
For the Test Antenna:
Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1GHz
VBW = 3 MHz
Sweep = auto
Detector function = peak/average
Trace = max hold
Allow the trace to stabilize

3.9.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.9.4.Test Result

Refer to Annex A.8 in this report.

3.10. Radiated Emission

3.10.1.Requirement

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note1: For above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
Note2: For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

3.10.2.Test Procedures

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz.The antenna to EUT distance is 3meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 30MHz, the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90 kHz, 110kHz-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions. For measurements above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

3.10.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.10.4.Test Result

Refer to Annex A.9 in this report.

Annex A Test Data and Result

A.1. Duty Cycle of Test Signal

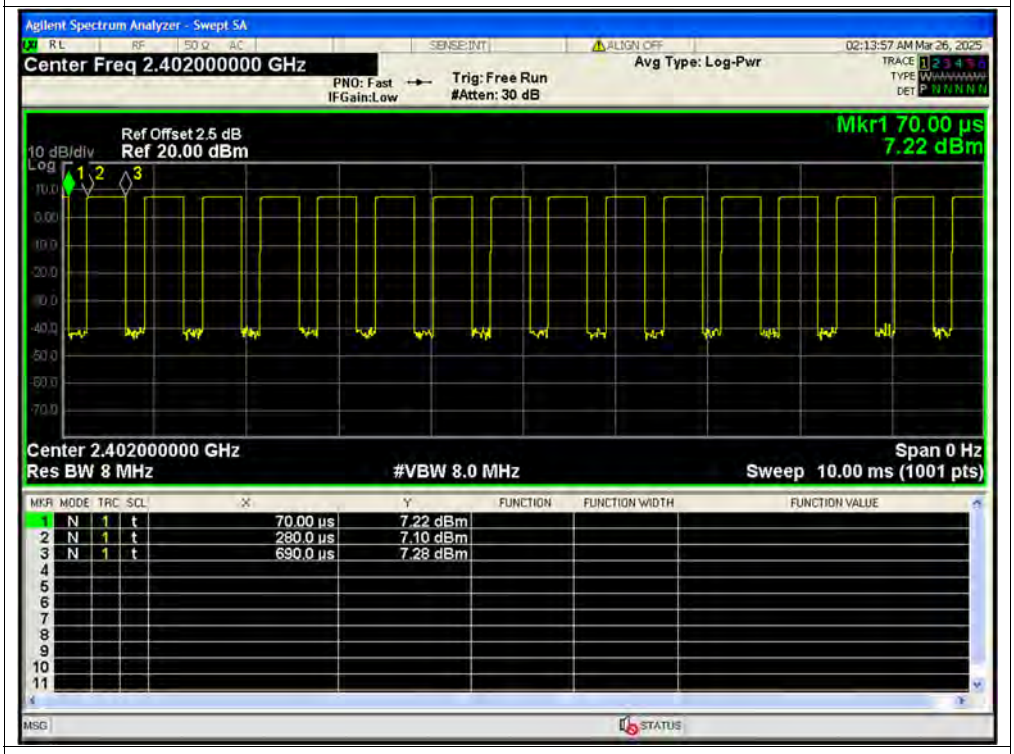
Left:

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	66.13	1.8	2.44
NVNT	BLE 1M	2440	Ant1	66.67	1.76	2.38
NVNT	BLE 1M	2480	Ant1	66.13	1.8	2.44
NVNT	BLE 2M	2404	Ant1	37.1	4.31	4.35
NVNT	BLE 2M	2440	Ant1	37.1	4.31	4.35
NVNT	BLE 2M	2478	Ant1	36.51	4.38	4.35

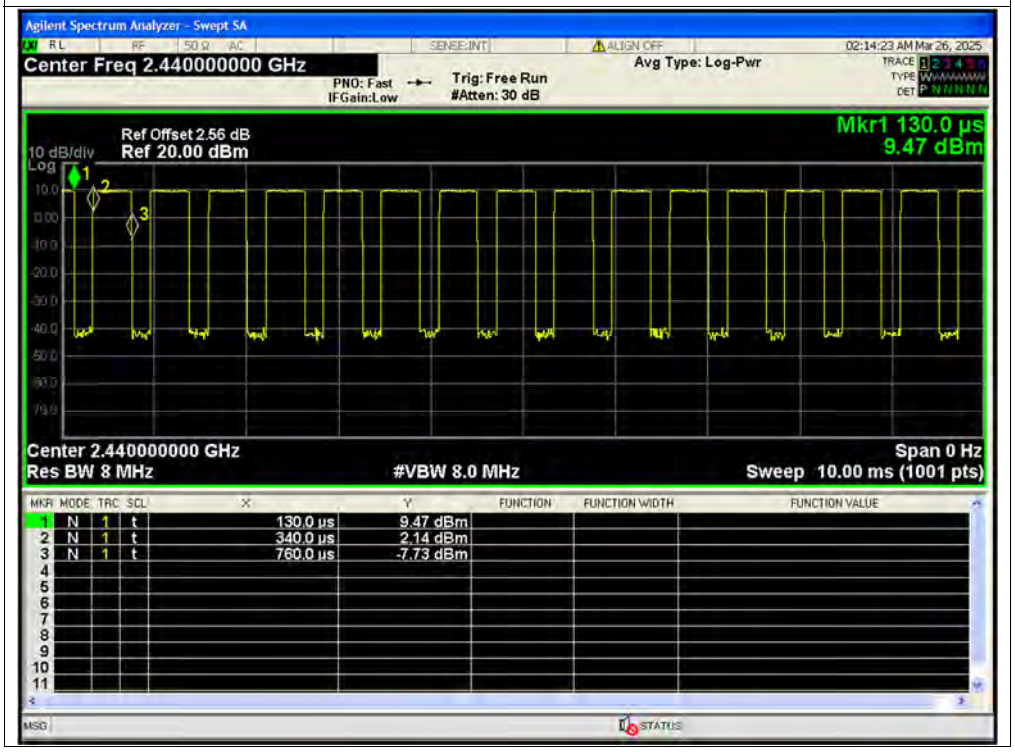
Right:

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	66.13	1.8	2.44
NVNT	BLE 1M	2440	Ant1	66.67	1.76	2.38
NVNT	BLE 1M	2480	Ant1	67.74	1.69	2.38
NVNT	BLE 2M	2404	Ant1	37.1	4.31	4.35
NVNT	BLE 2M	2440	Ant1	38.1	4.19	4.17
NVNT	BLE 2M	2478	Ant1	36.51	4.38	4.35

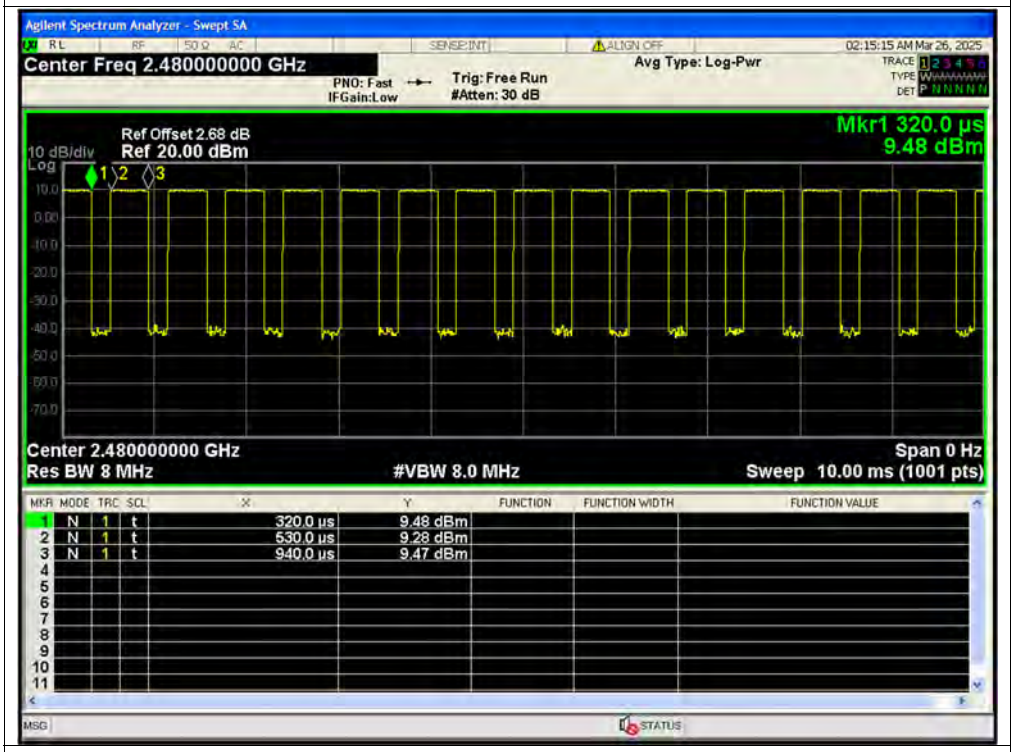
Left
Test Graphs
Duty Cycle NVNT BLE 1M 2402MHz Ant1



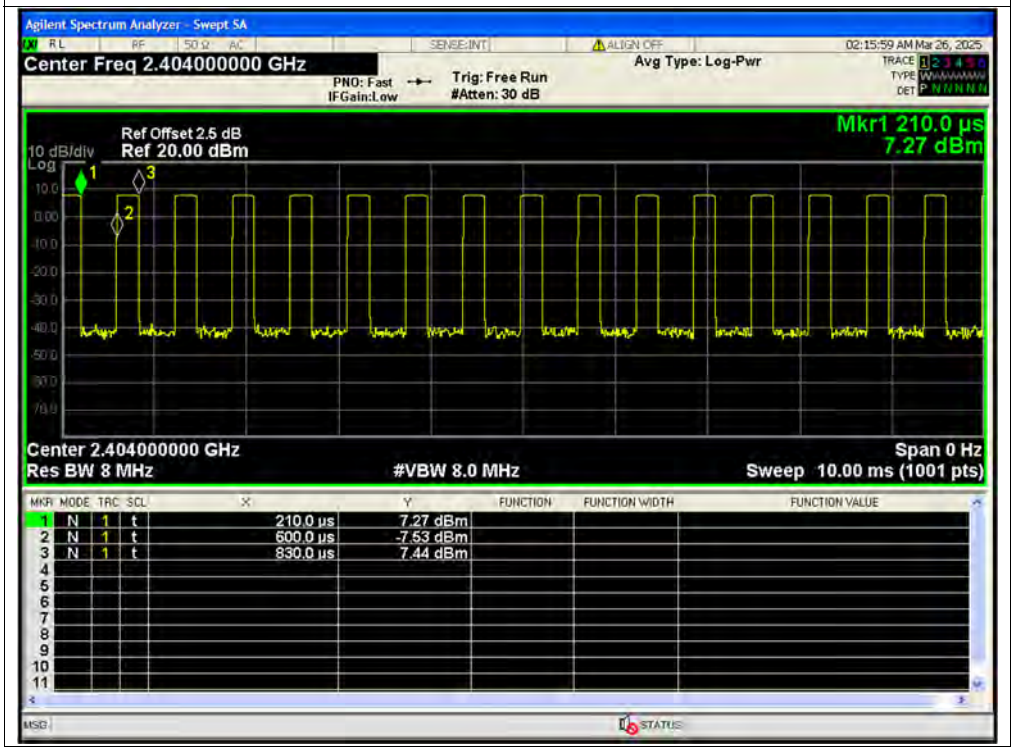
Duty Cycle NVNT BLE 1M 2440MHz Ant1



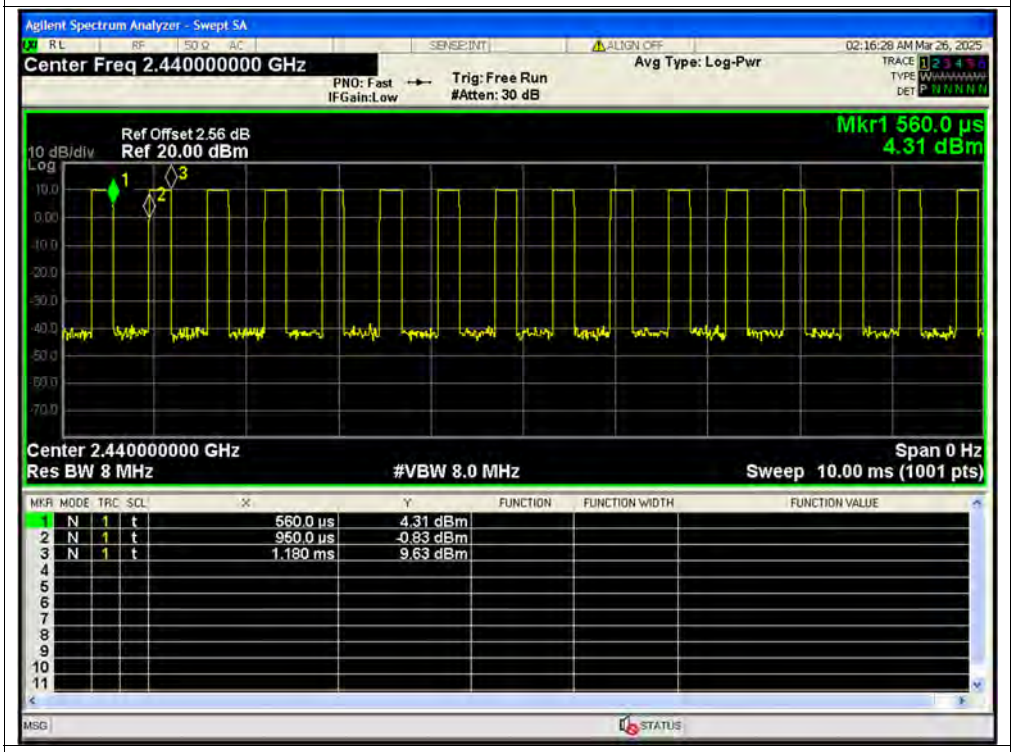
Duty Cycle NVNT BLE 1M 2480MHz Ant1



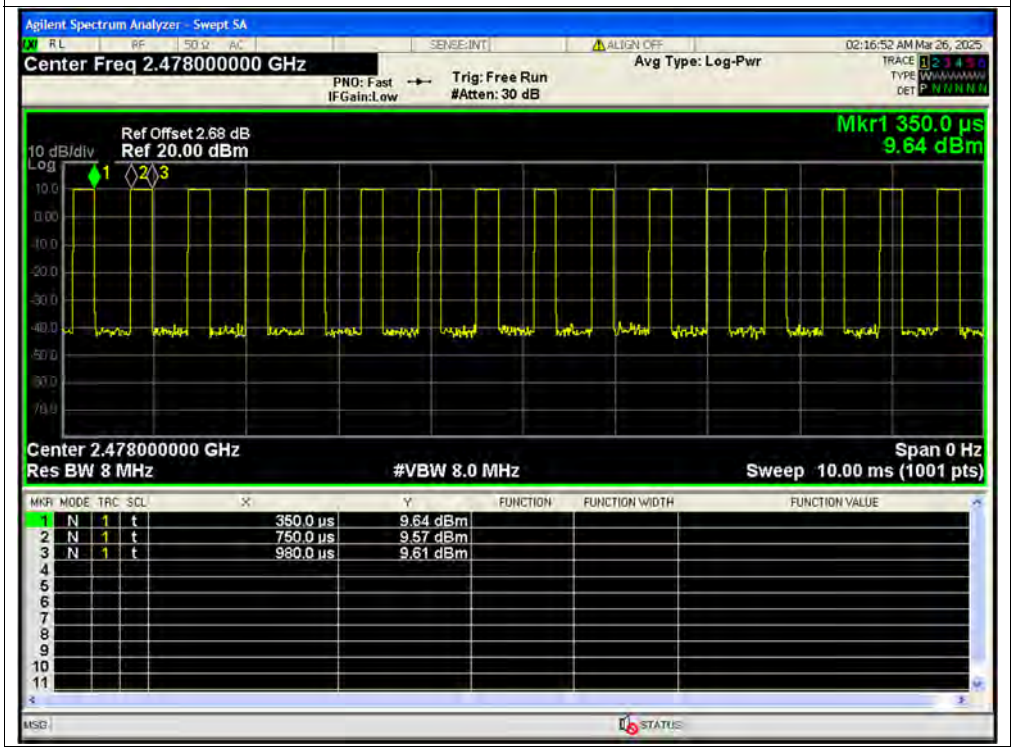
Duty Cycle NVNT BLE 2M 2404MHz Ant1



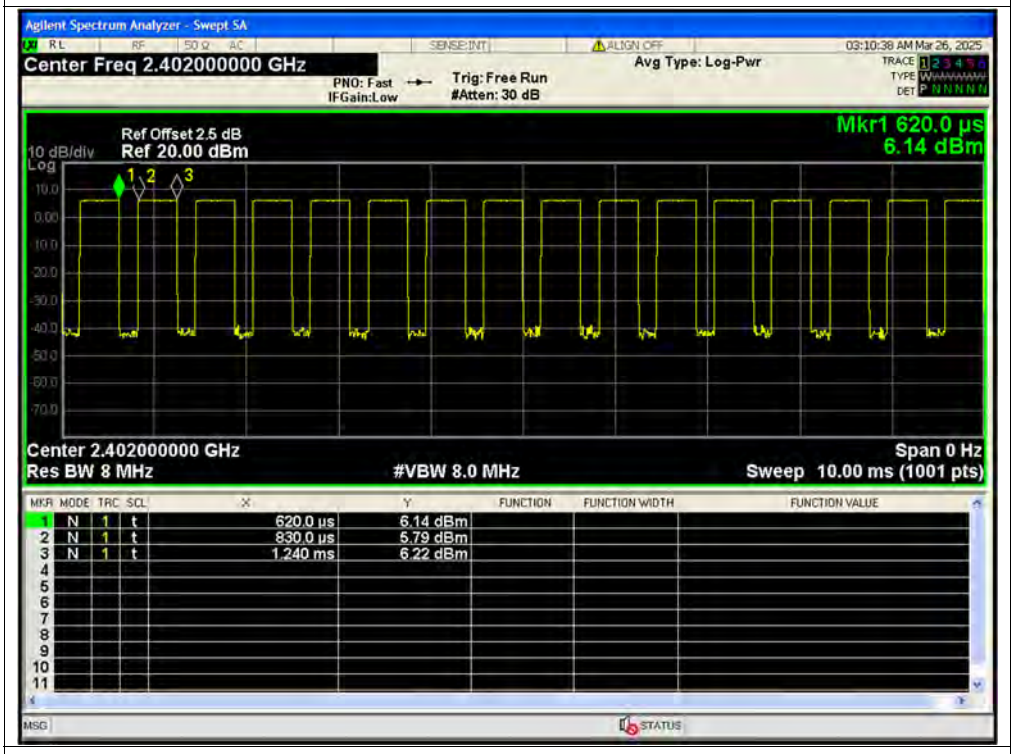
Duty Cycle NVNT BLE 2M 2440MHz Ant1



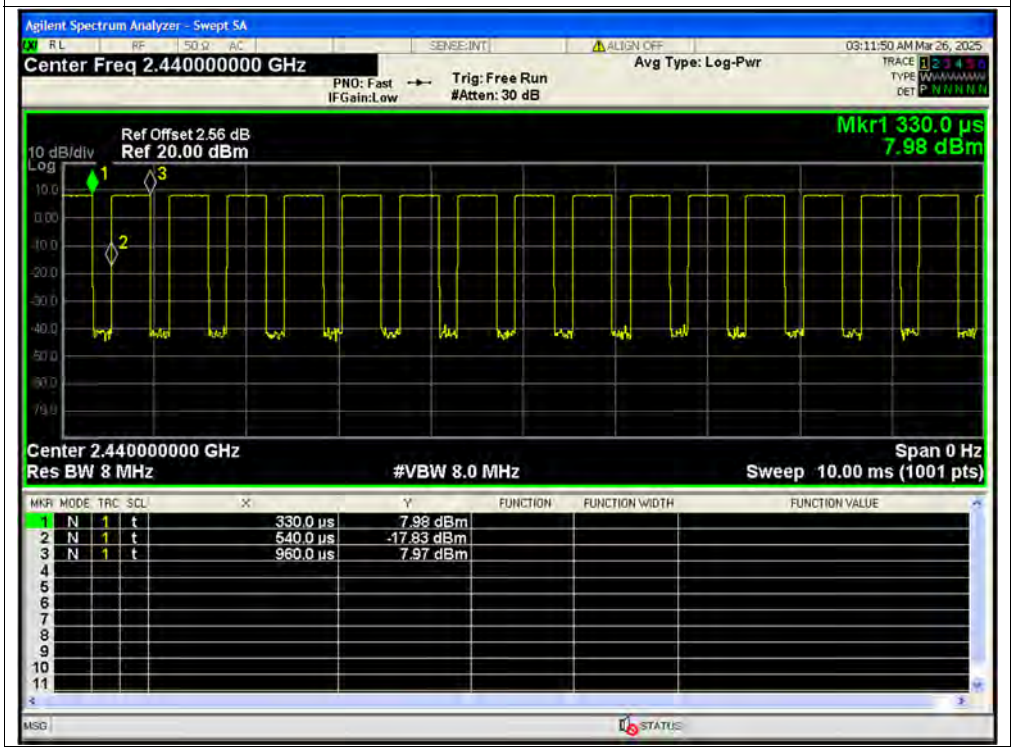
Duty Cycle NVNT BLE 2M 2478MHz Ant1



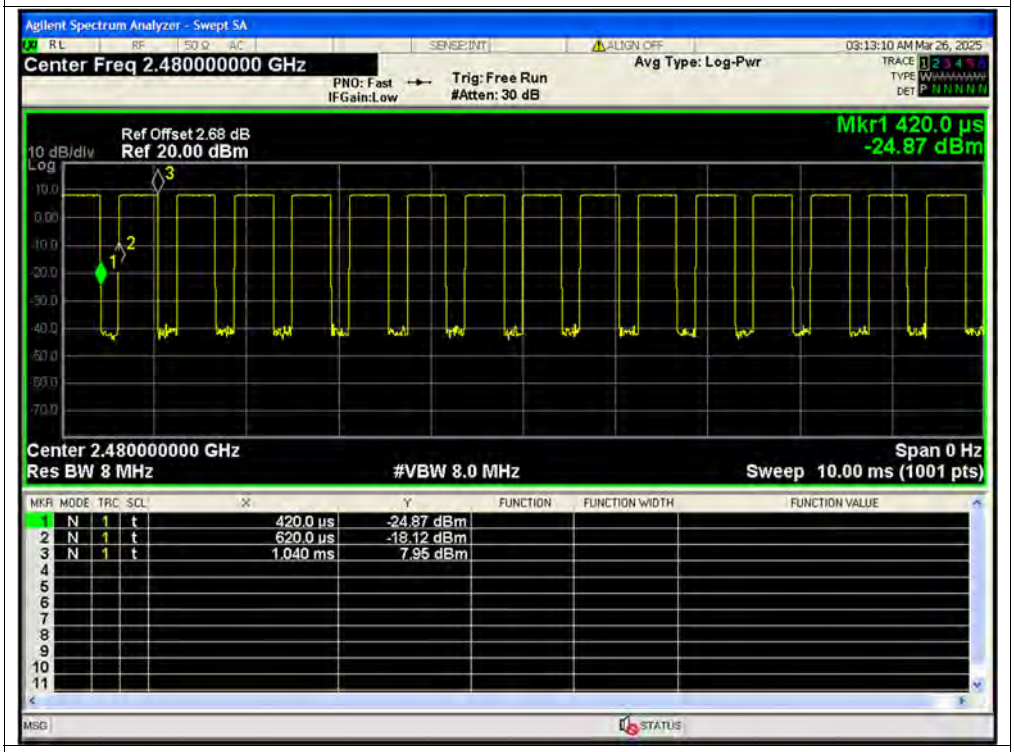
Right
Test Graphs
Duty Cycle NVNT BLE 1M 2402MHz Ant1



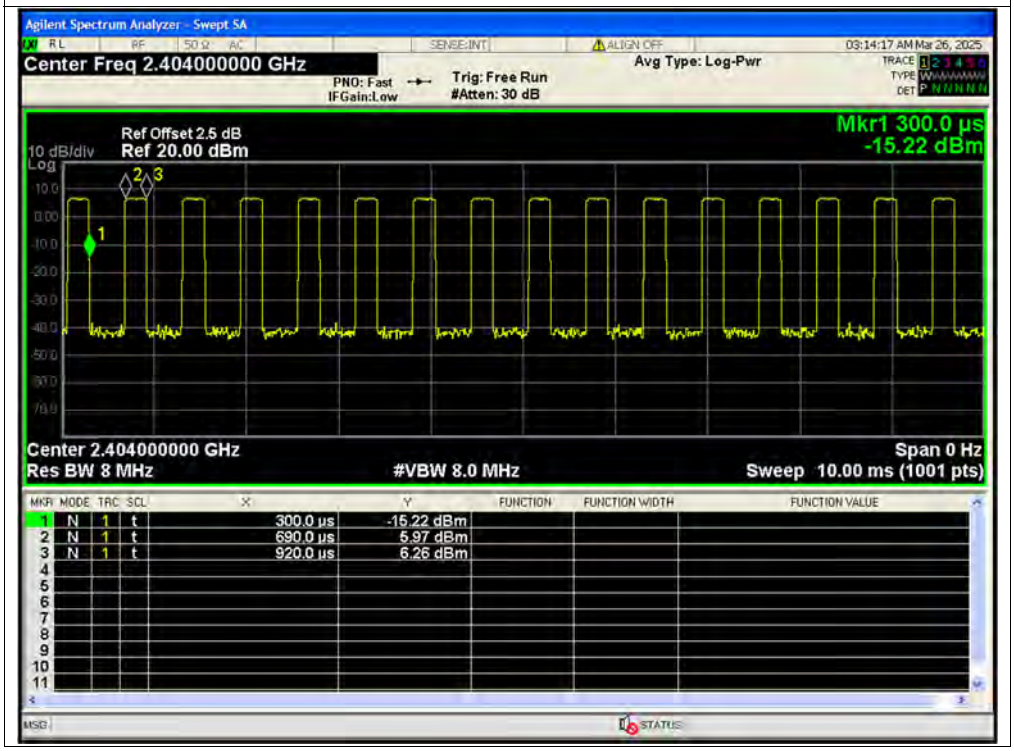
Duty Cycle NVNT BLE 1M 2440MHz Ant1



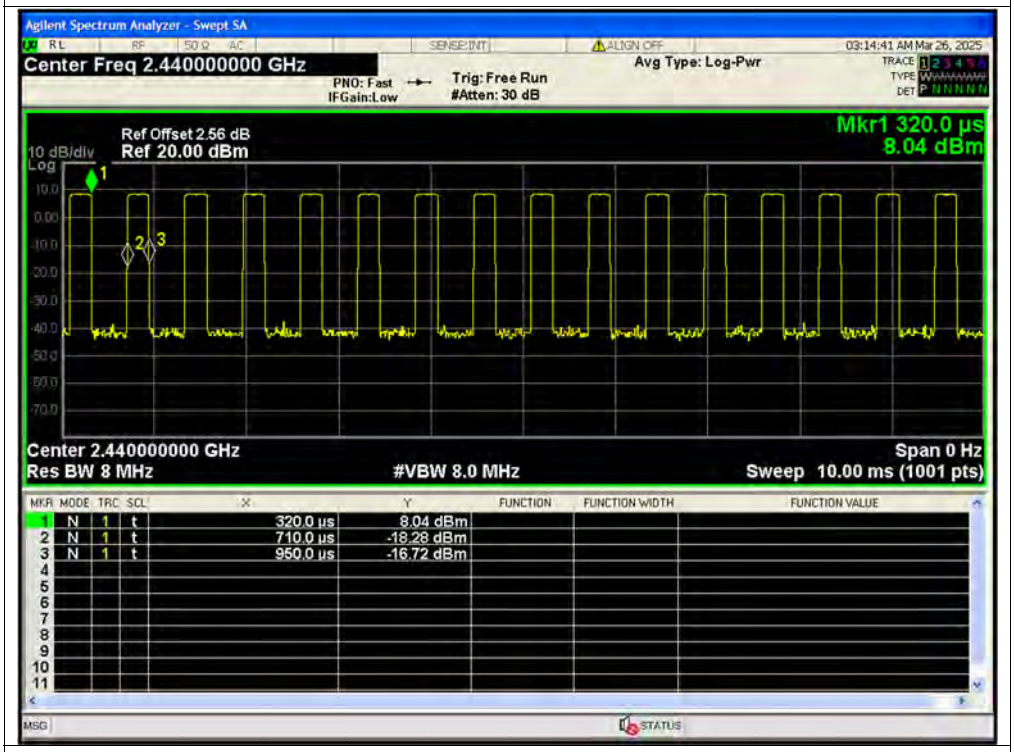
Duty Cycle NVNT BLE 1M 2480MHz Ant1



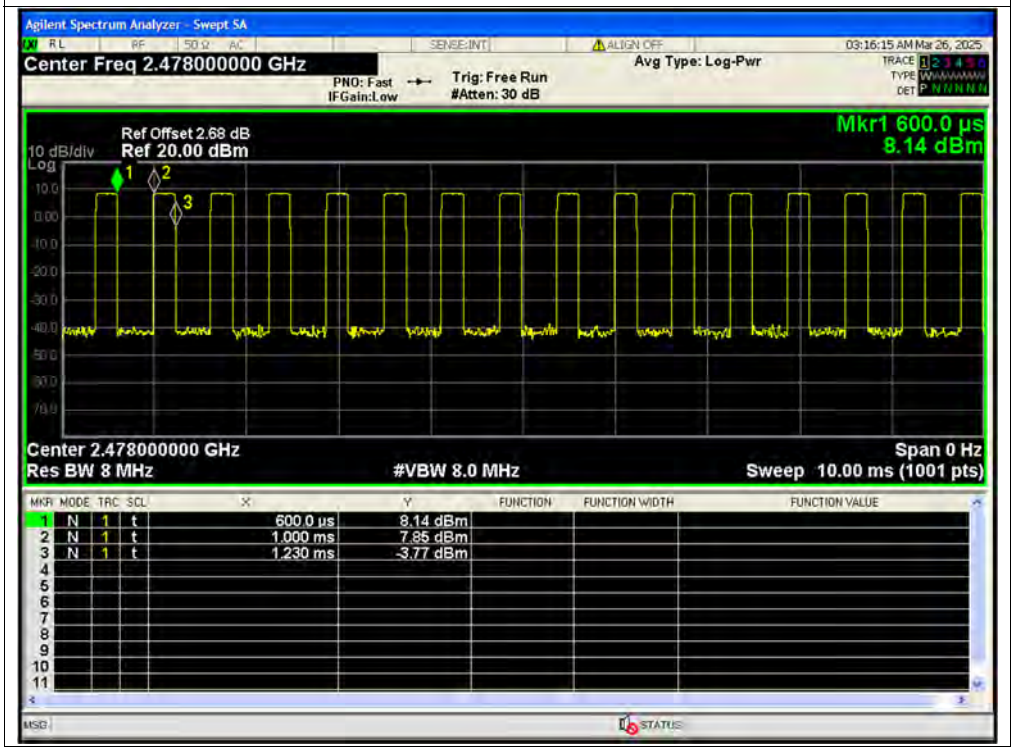
Duty Cycle NVNT BLE 2M 2404MHz Ant1



Duty Cycle NVNT BLE 2M 2440MHz Ant1



Duty Cycle NVNT BLE 2M 2478MHz Ant1



A.2. Maximum Peak Conducted Output Power

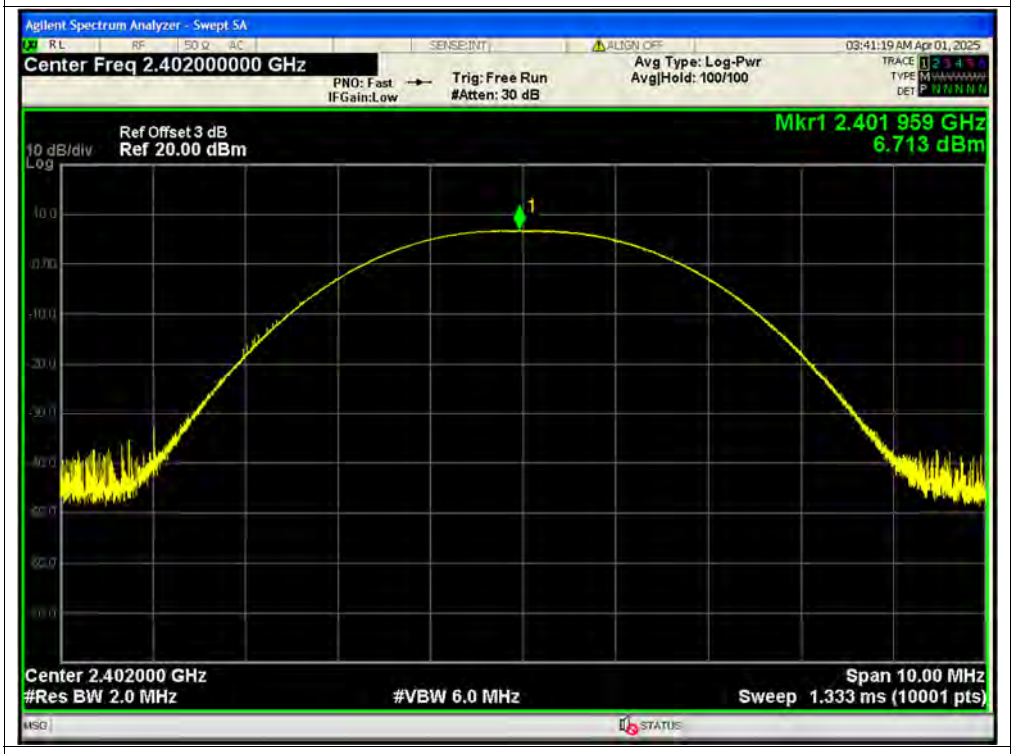
Left:

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	6.71	0	6.71	0.00469	30	Pass
NVNT	BLE 1M	2440	Ant1	6.85	0	6.85	0.00484	30	Pass
NVNT	BLE 1M	2480	Ant1	6.9	0	6.9	0.0049	30	Pass
NVNT	BLE 2M	2404	Ant1	6.64	0	6.64	0.00461	30	Pass
NVNT	BLE 2M	2440	Ant1	6.99	0	6.99	0.005	30	Pass
NVNT	BLE 2M	2478	Ant1	7.19	0	7.19	0.00524	30	Pass

Right:

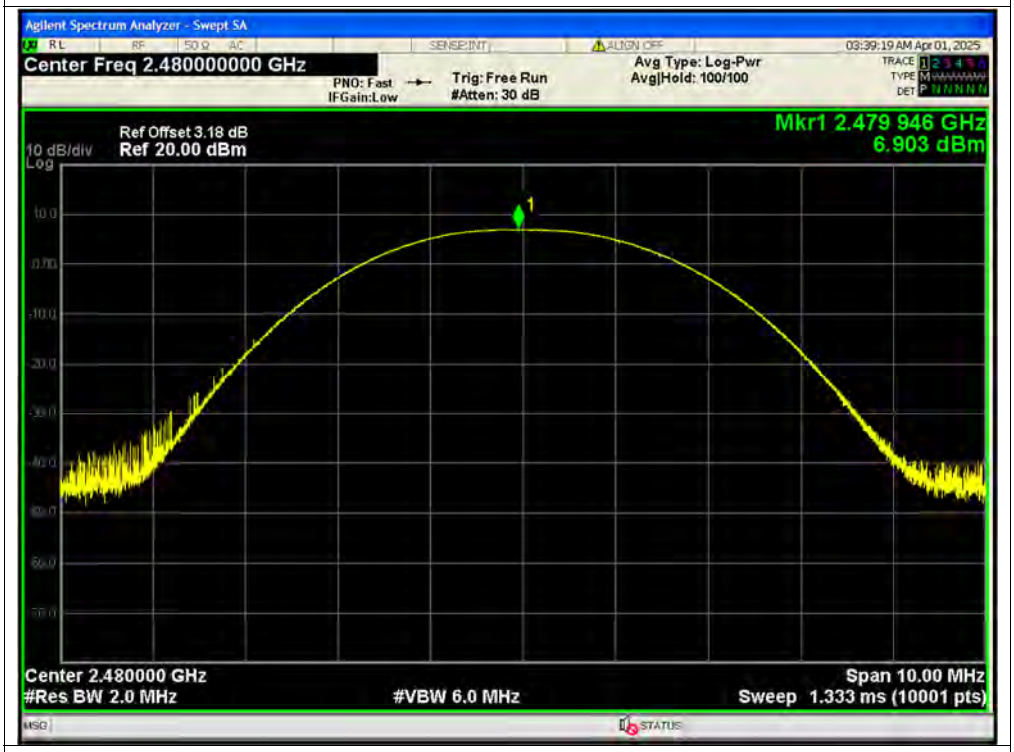
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	6.69	0	6.69	0.00467	30	Pass
NVNT	BLE 1M	2440	Ant1	6.78	0	6.78	0.00476	30	Pass
NVNT	BLE 1M	2480	Ant1	6.78	0	6.78	0.00476	30	Pass
NVNT	BLE 2M	2404	Ant1	6.49	0	6.49	0.00446	30	Pass
NVNT	BLE 2M	2440	Ant1	7.07	0	7.07	0.00509	30	Pass
NVNT	BLE 2M	2478	Ant1	7.13	0	7.13	0.00516	30	Pass

Left
Test Graphs
Peak Power NVNT BLE 1M 2402MHz Ant1



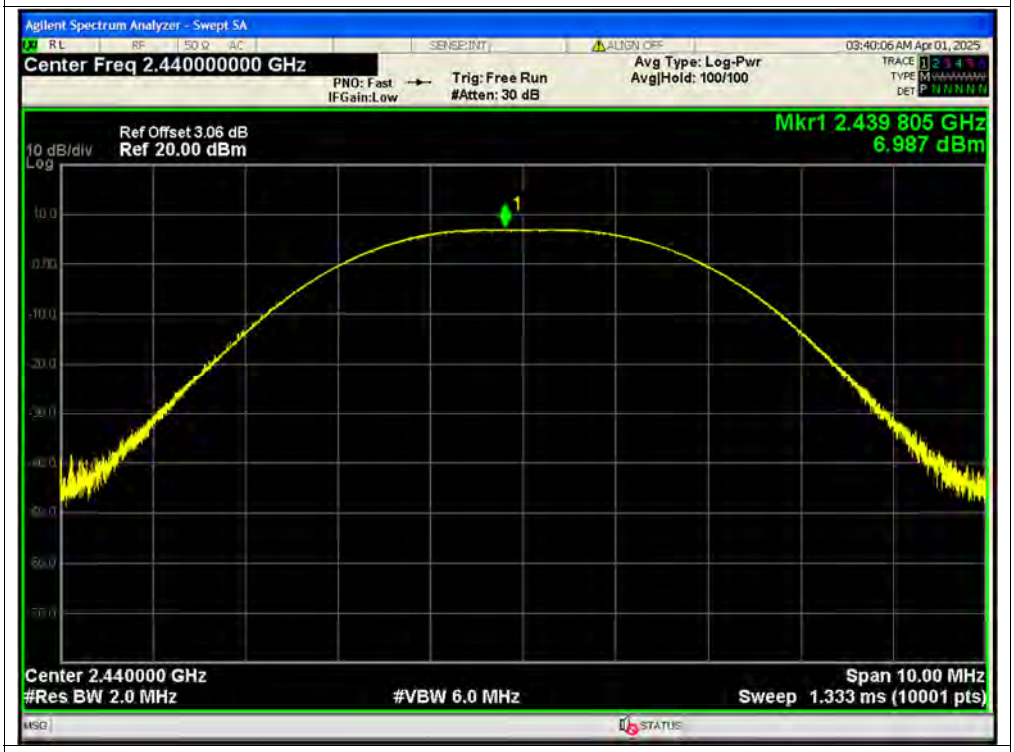
Peak Power NVNT BLE 1M 2440MHz Ant1

Peak Power NVNT BLE 1M 2480MHz Ant1

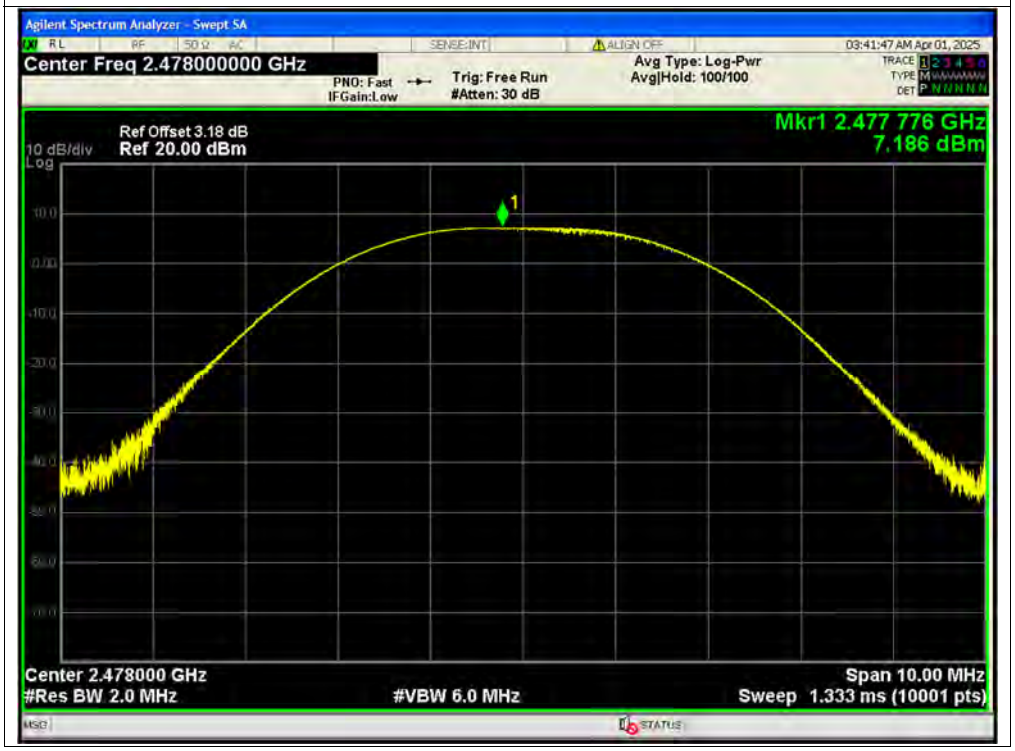


Peak Power NVNT BLE 2M 2404MHz Ant1

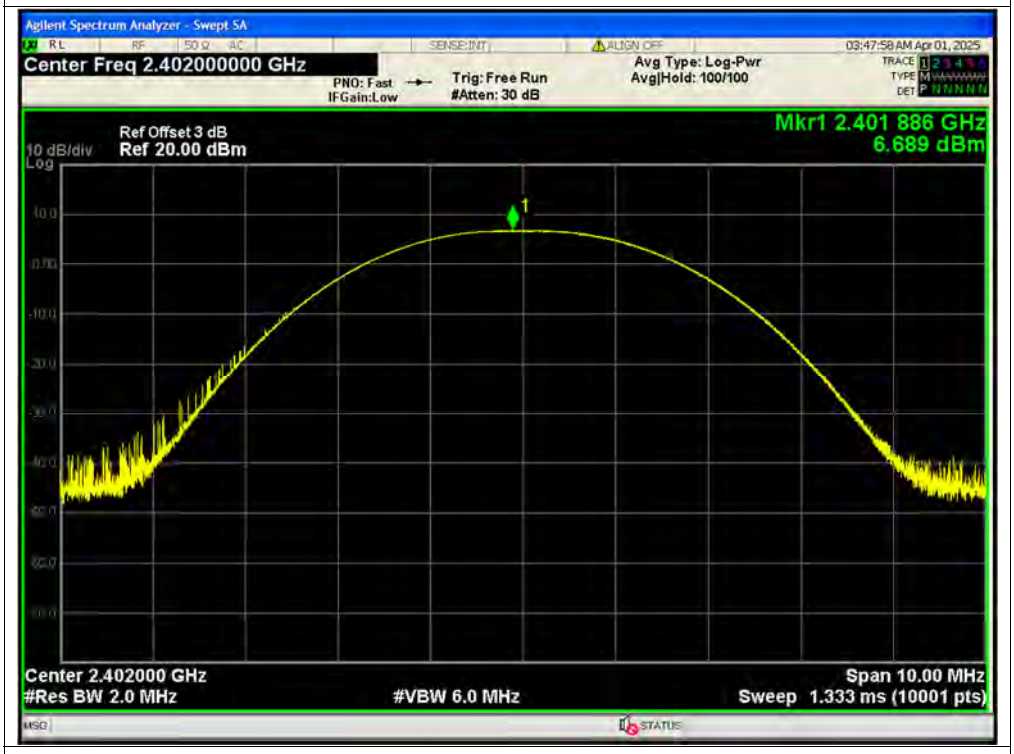
Peak Power NVNT BLE 2M 2440MHz Ant1



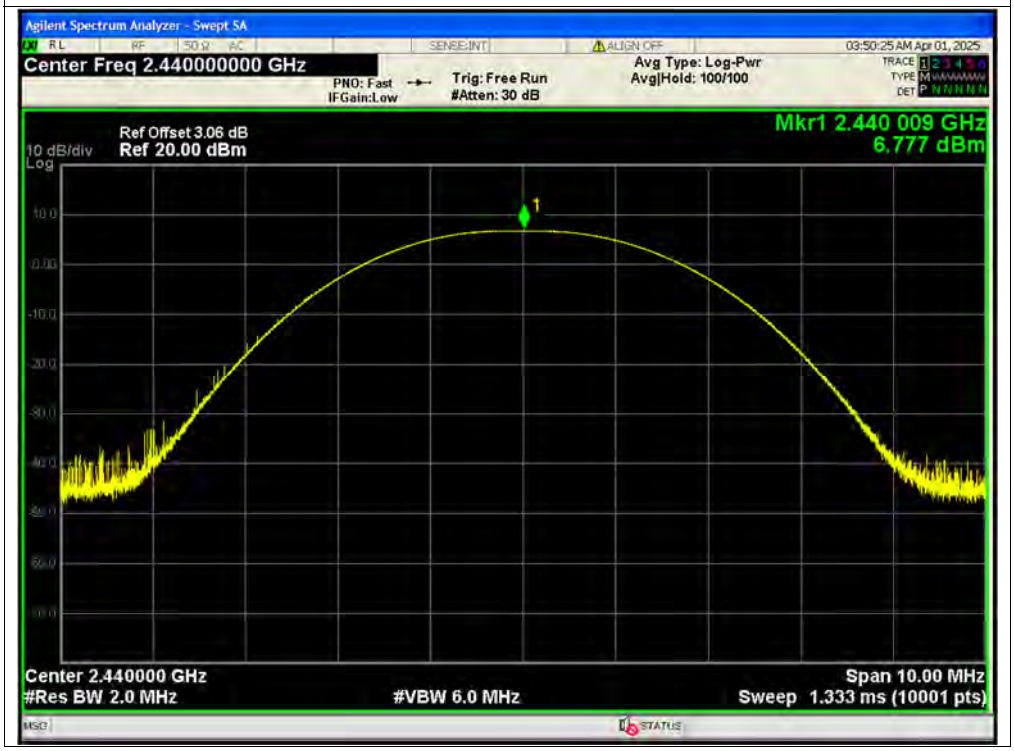
Peak Power NVNT BLE 2M 2478MHz Ant1



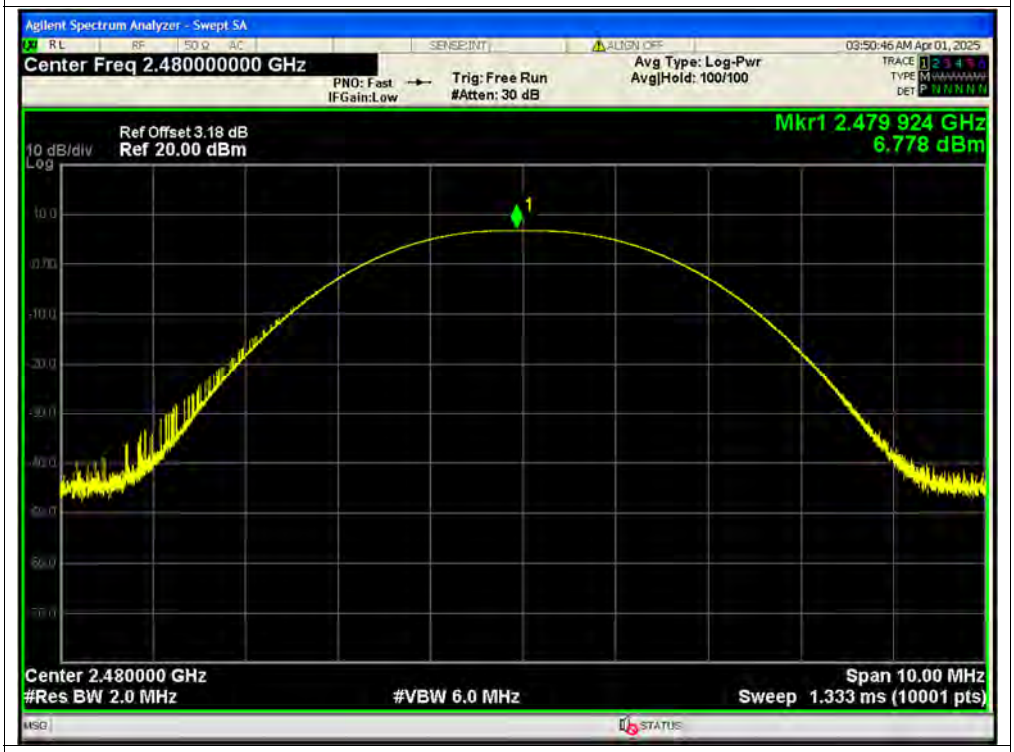
Right
Test Graphs
Peak Power NVNT BLE 1M 2402MHz Ant1



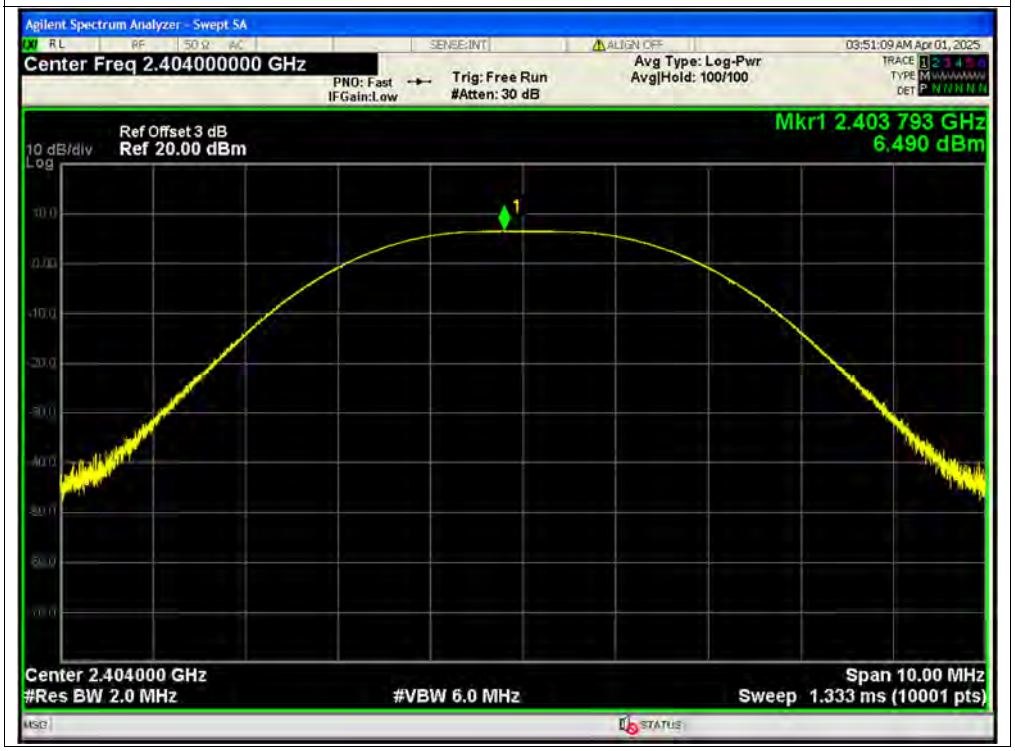
Peak Power NVNT BLE 1M 2440MHz Ant1



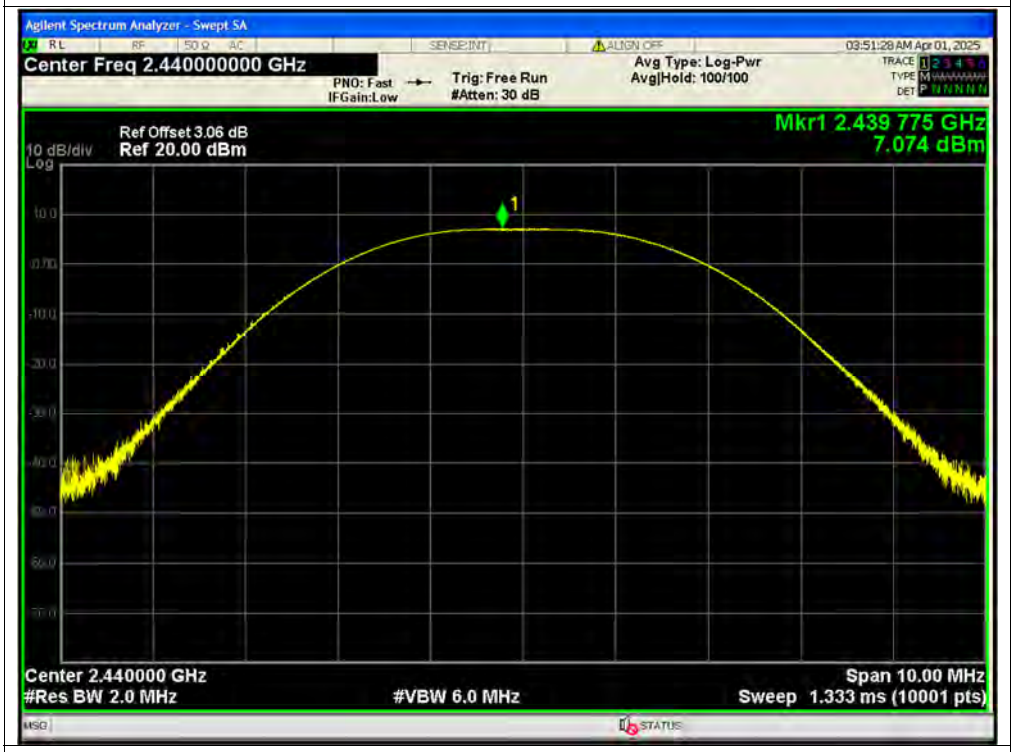
Peak Power NVNT BLE 1M 2480MHz Ant1



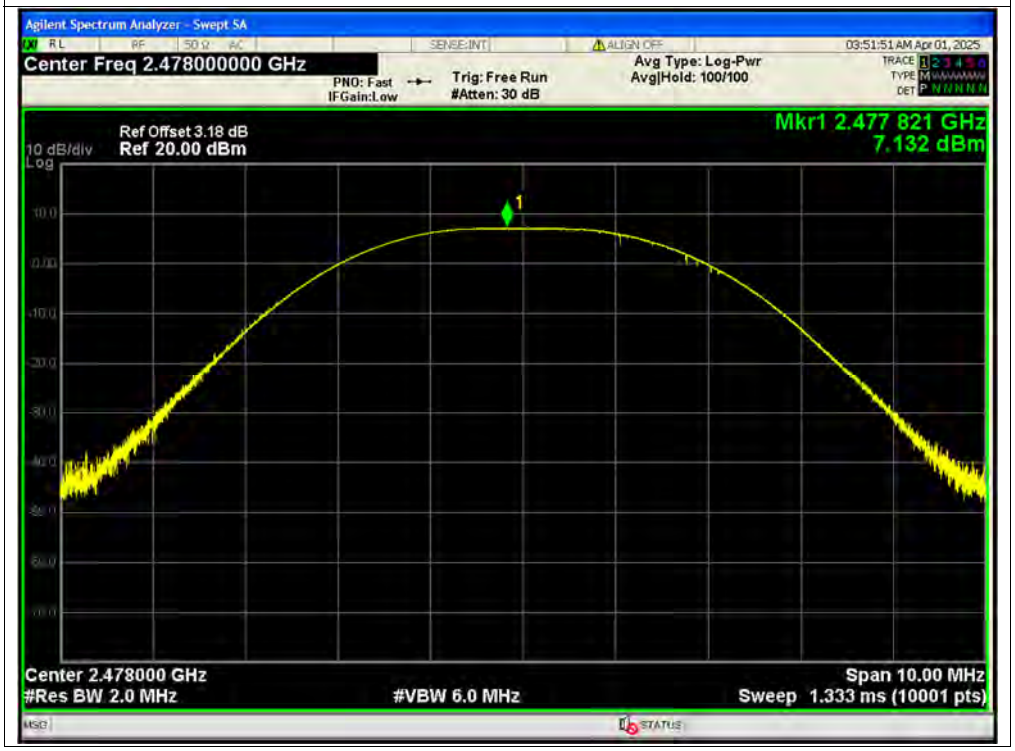
Peak Power NVNT BLE 2M 2404MHz Ant1



Peak Power NVNT BLE 2M 2440MHz Ant1



Peak Power NVNT BLE 2M 2478MHz Ant1



A.3. Maximum Average Conducted Output Power

Left:

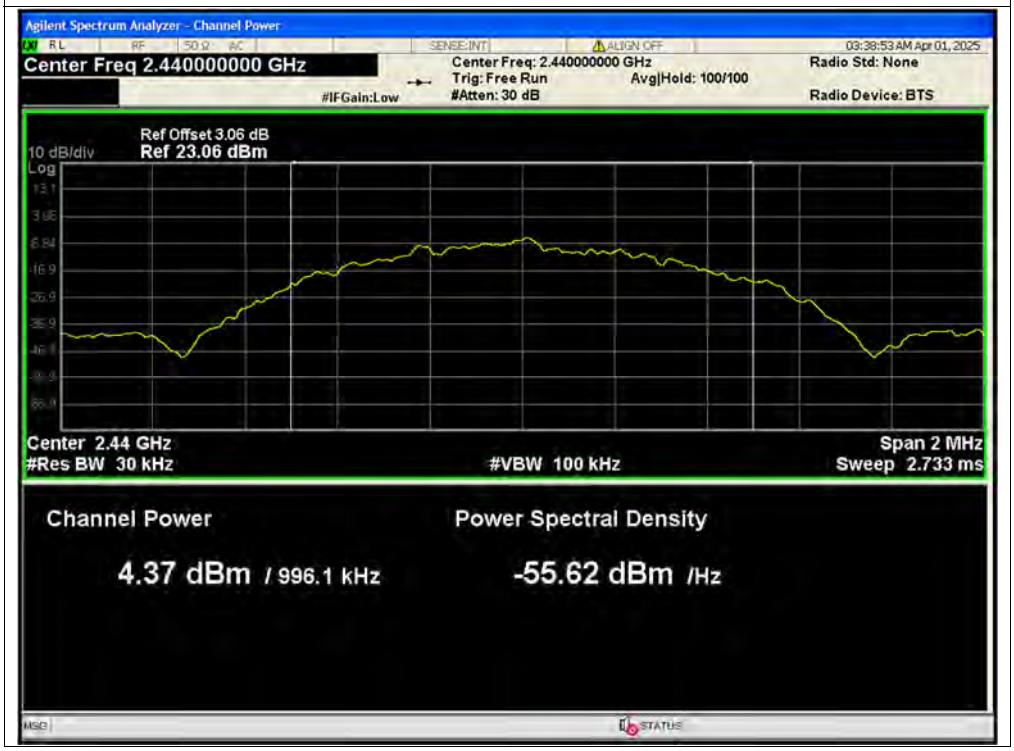
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	3.99	1.8	5.79	0.00379	30	Pass
NVNT	BLE 1M	2440	Ant1	4.37	1.76	6.13	0.0041	30	Pass
NVNT	BLE 1M	2480	Ant1	4.45	1.8	6.25	0.00422	30	Pass
NVNT	BLE 2M	2404	Ant1	1.69	4.31	6	0.00398	30	Pass
NVNT	BLE 2M	2440	Ant1	1.65	4.31	5.96	0.00394	30	Pass
NVNT	BLE 2M	2478	Ant1	2.1	4.38	6.48	0.00445	30	Pass

Right:

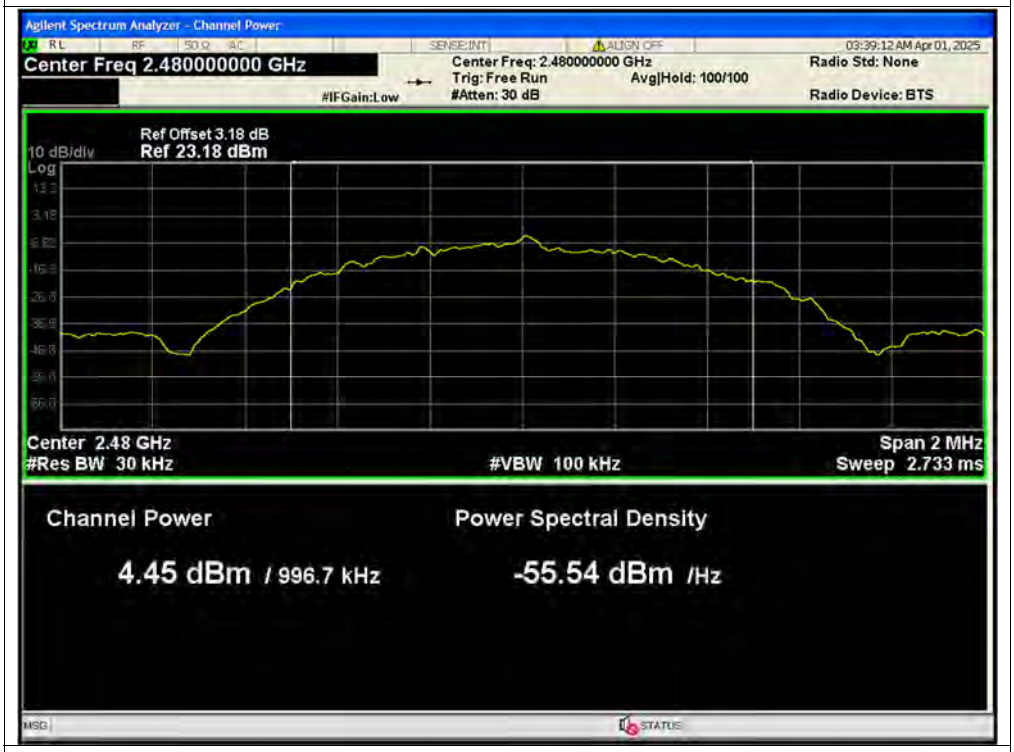
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	4.32	1.8	6.12	0.00409	30	Pass
NVNT	BLE 1M	2440	Ant1	4.47	1.76	6.23	0.0042	30	Pass
NVNT	BLE 1M	2480	Ant1	4.54	1.69	6.23	0.0042	30	Pass
NVNT	BLE 2M	2404	Ant1	1.82	4.31	6.13	0.0041	30	Pass
NVNT	BLE 2M	2440	Ant1	2.13	4.19	6.32	0.00429	30	Pass
NVNT	BLE 2M	2478	Ant1	2.33	4.38	6.71	0.00469	30	Pass

Left
Test Graphs
Average Power NVNT BLE 1M 2402MHz Ant1

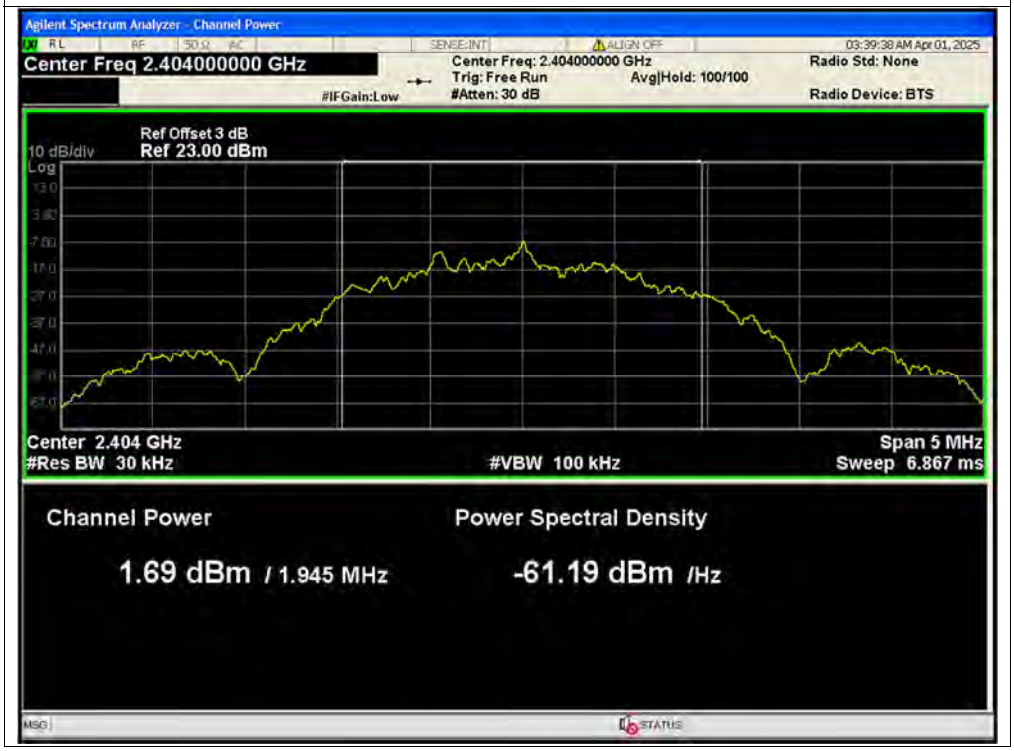
Average Power NVNT BLE 1M 2440MHz Ant1



Average Power NVNT BLE 1M 2480MHz Ant1

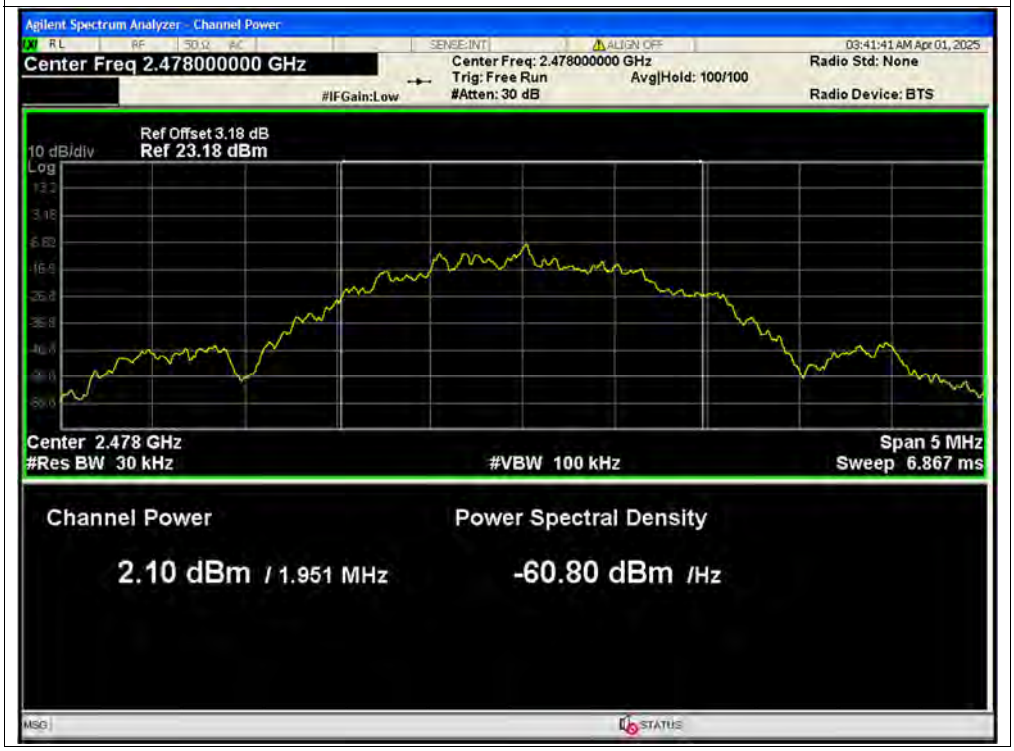


Average Power NVNT BLE 2M 2404MHz Ant1

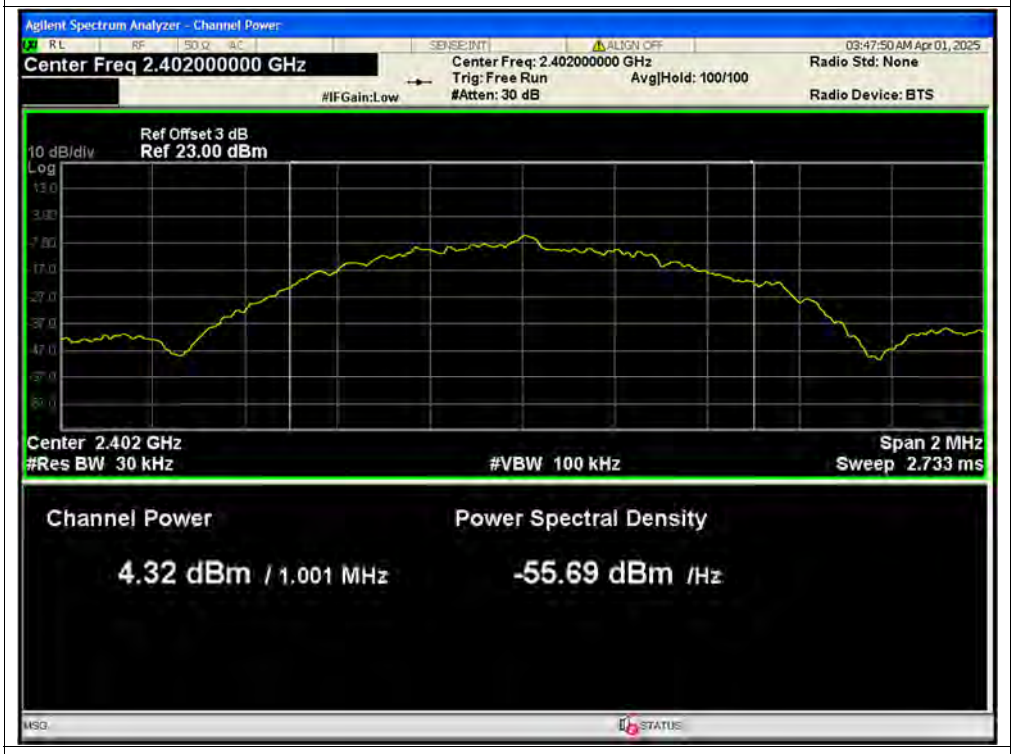


Average Power NVNT BLE 2M 2440MHz Ant1

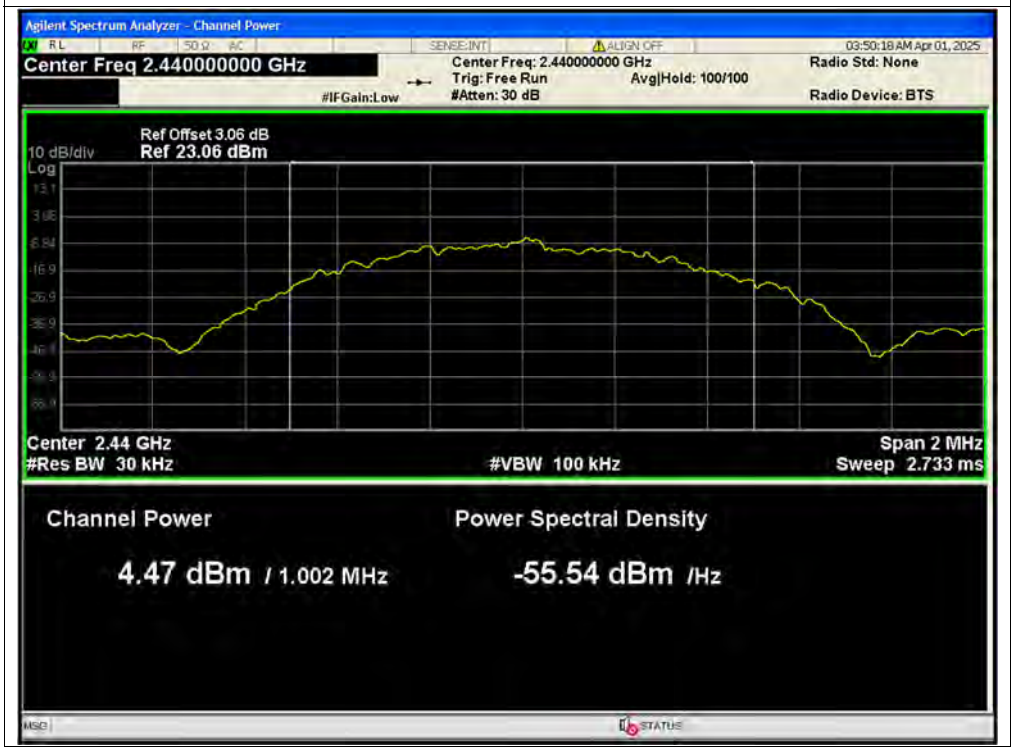
Average Power NVNT BLE 2M 2478MHz Ant1



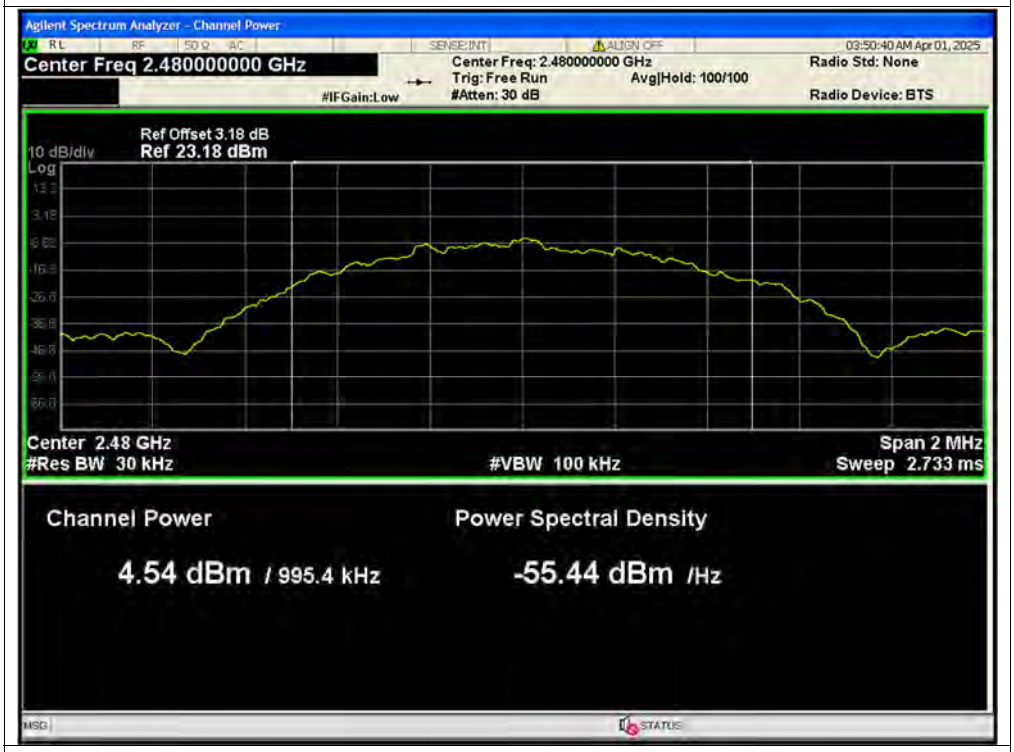
Right
Test Graphs
Average Power NVNT BLE 1M 2402MHz Ant1



Average Power NVNT BLE 1M 2440MHz Ant1

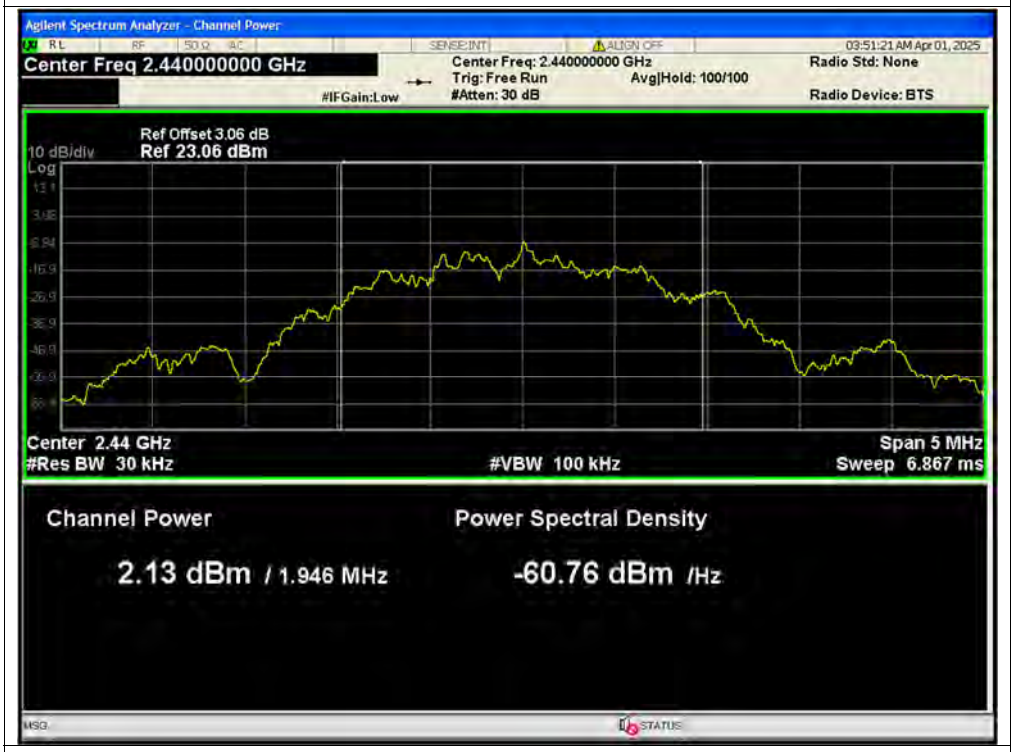


Average Power NVNT BLE 1M 2480MHz Ant1



Average Power NVNT BLE 2M 2404MHz Ant1

Average Power NVNT BLE 2M 2440MHz Ant1



Average Power NVNT BLE 2M 2478MHz Ant1

A.4. 6 dB Bandwidth

Left:

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.6179	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6232	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.6165	0.5	Pass
NVNT	BLE 2M	2404	Ant1	1.058	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.027	0.5	Pass
NVNT	BLE 2M	2478	Ant1	1.063	0.5	Pass

Right:

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.6218	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6277	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.6233	0.5	Pass
NVNT	BLE 2M	2404	Ant1	1.077	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.07	0.5	Pass
NVNT	BLE 2M	2478	Ant1	1.064	0.5	Pass

Left
Test Graphs
-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2404MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2478MHz Ant1

Right
Test Graphs
-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1

-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2404MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

-6dB Bandwidth NVNT BLE 2M 2478MHz Ant1

A.5. Conducted Spurious Emissions

Left:

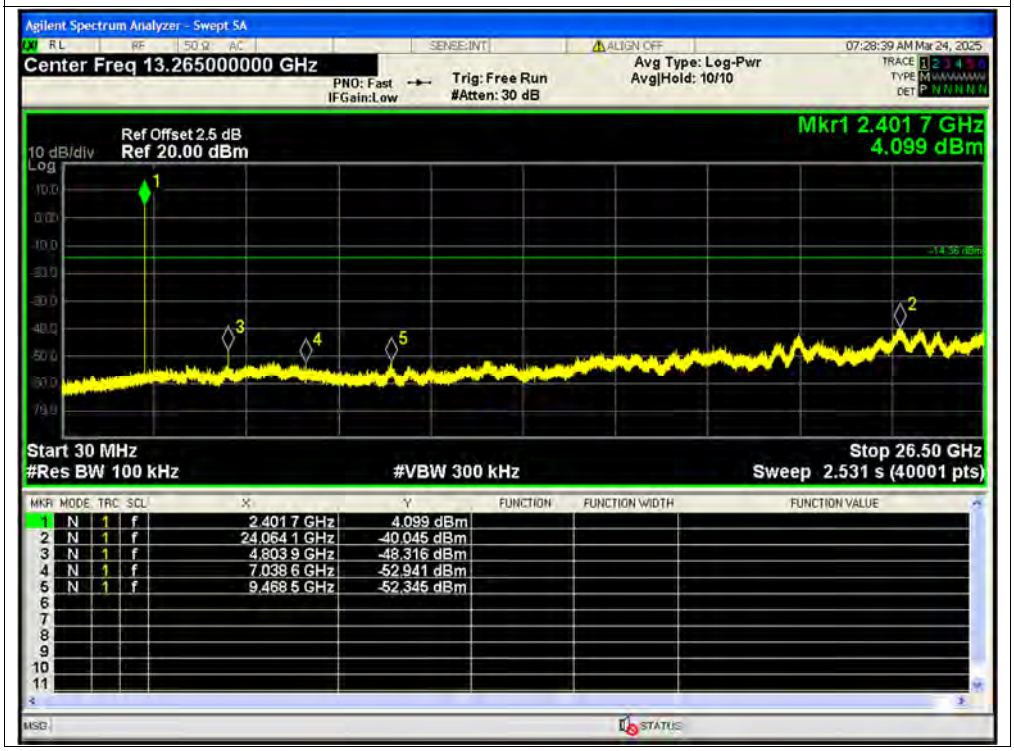
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-45.68	-20	Pass
NVNT	BLE 1M	2440	Ant1	-44.49	-20	Pass
NVNT	BLE 1M	2480	Ant1	-45.71	-20	Pass
NVNT	BLE 2M	2404	Ant1	-43.83	-20	Pass
NVNT	BLE 2M	2440	Ant1	-45.99	-20	Pass
NVNT	BLE 2M	2478	Ant1	-45.74	-20	Pass

Right:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-44.78	-20	Pass
NVNT	BLE 1M	2440	Ant1	-45.58	-20	Pass
NVNT	BLE 1M	2480	Ant1	-44.93	-20	Pass
NVNT	BLE 2M	2404	Ant1	-43.99	-20	Pass
NVNT	BLE 2M	2440	Ant1	-45.39	-20	Pass
NVNT	BLE 2M	2478	Ant1	-43.69	-20	Pass

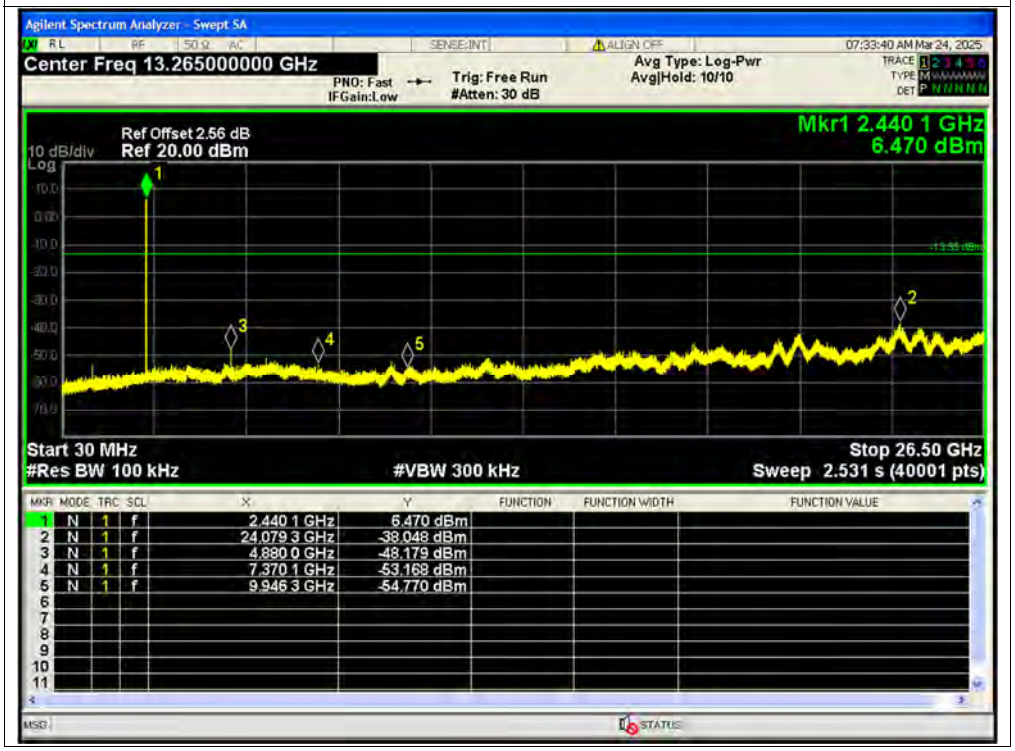
Left
Test Graphs
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



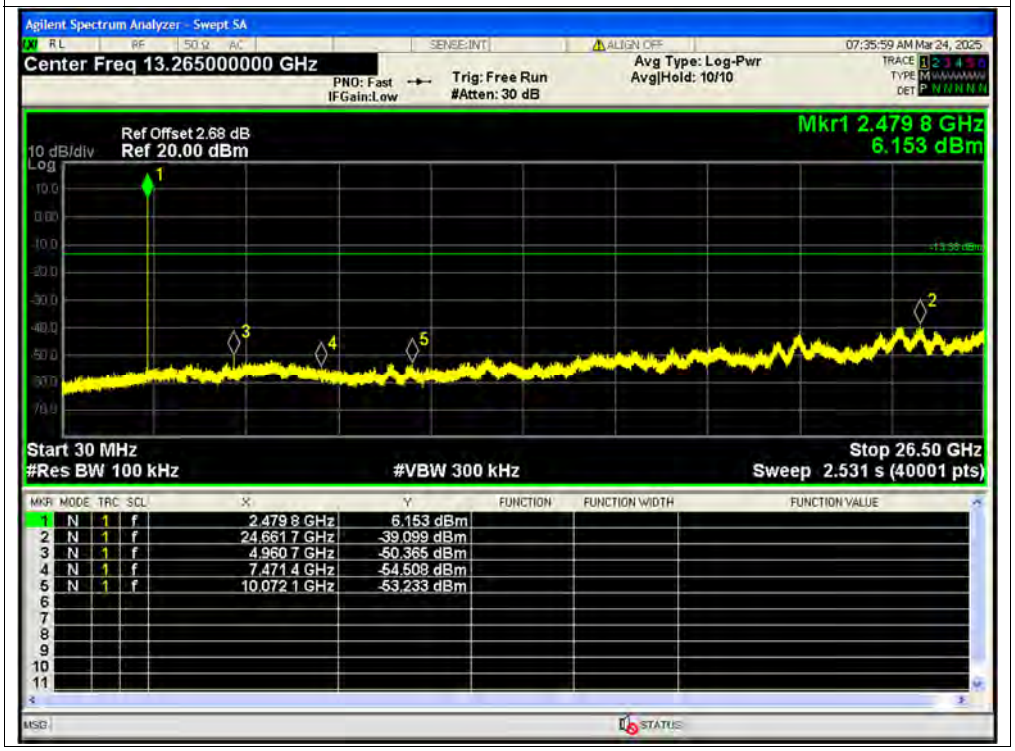
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



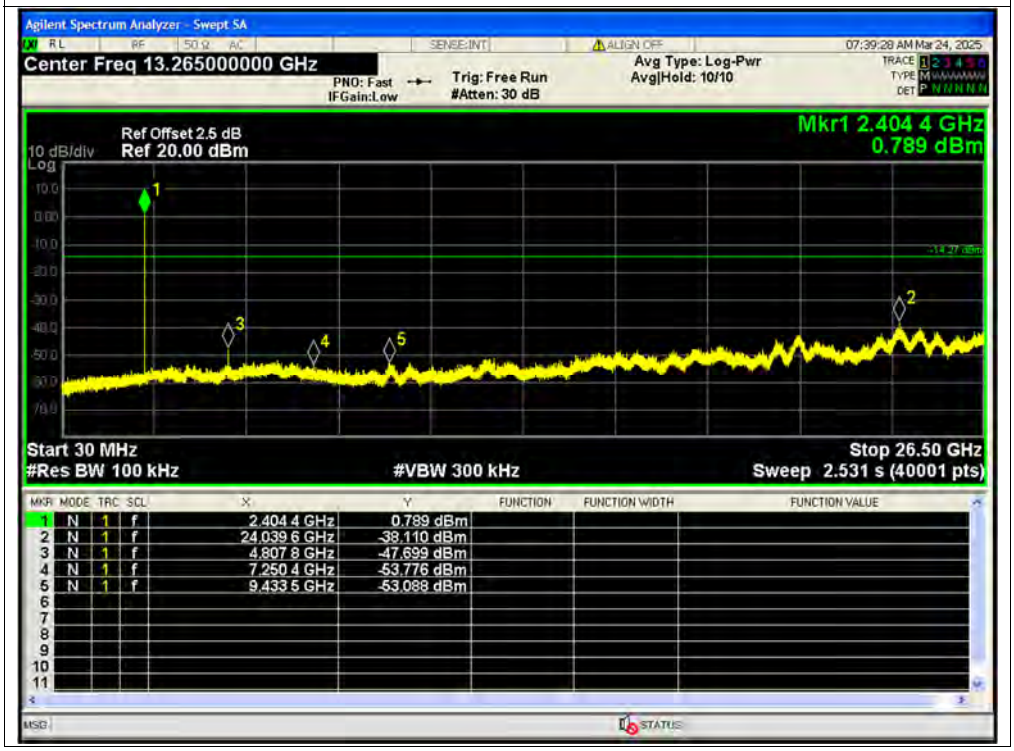
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



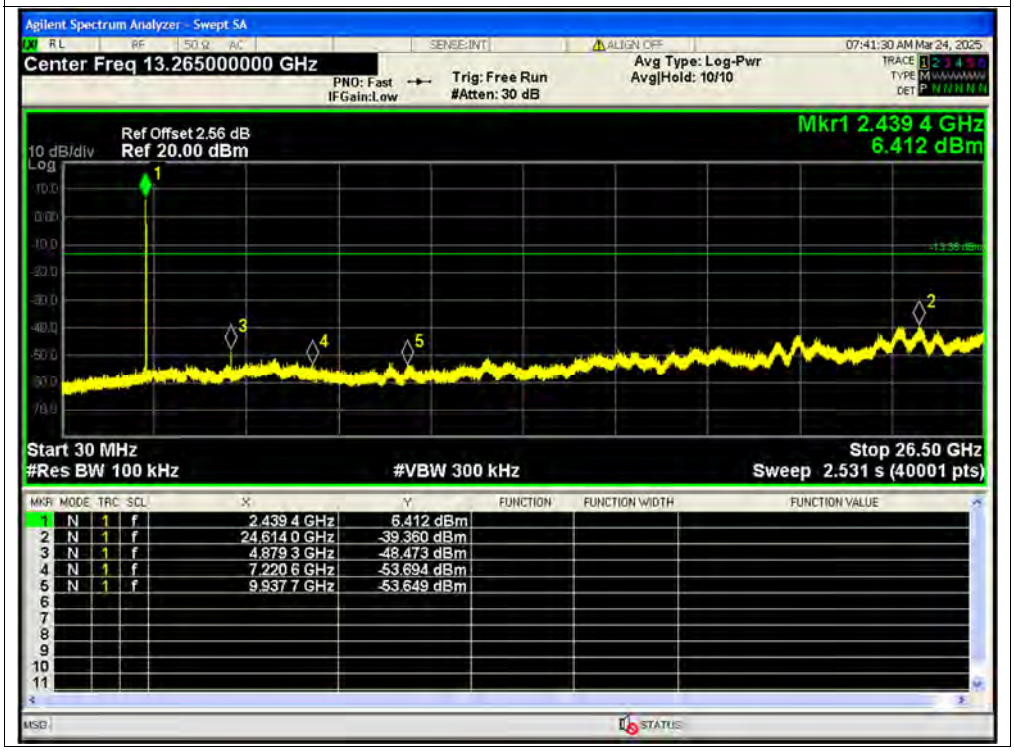
Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Emission



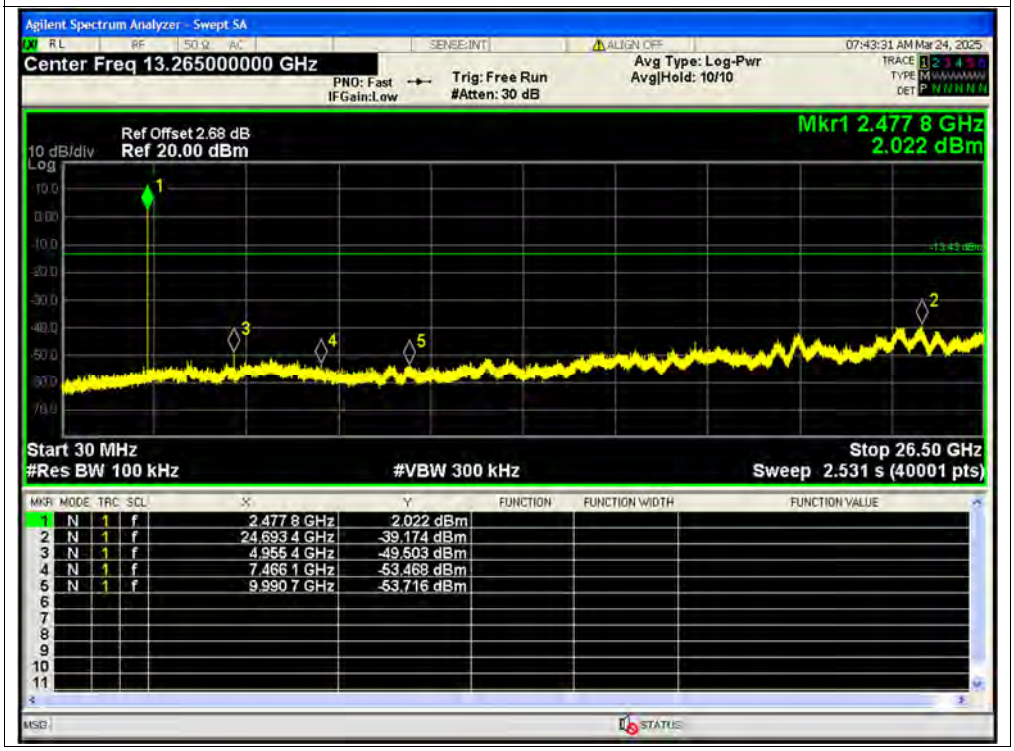
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



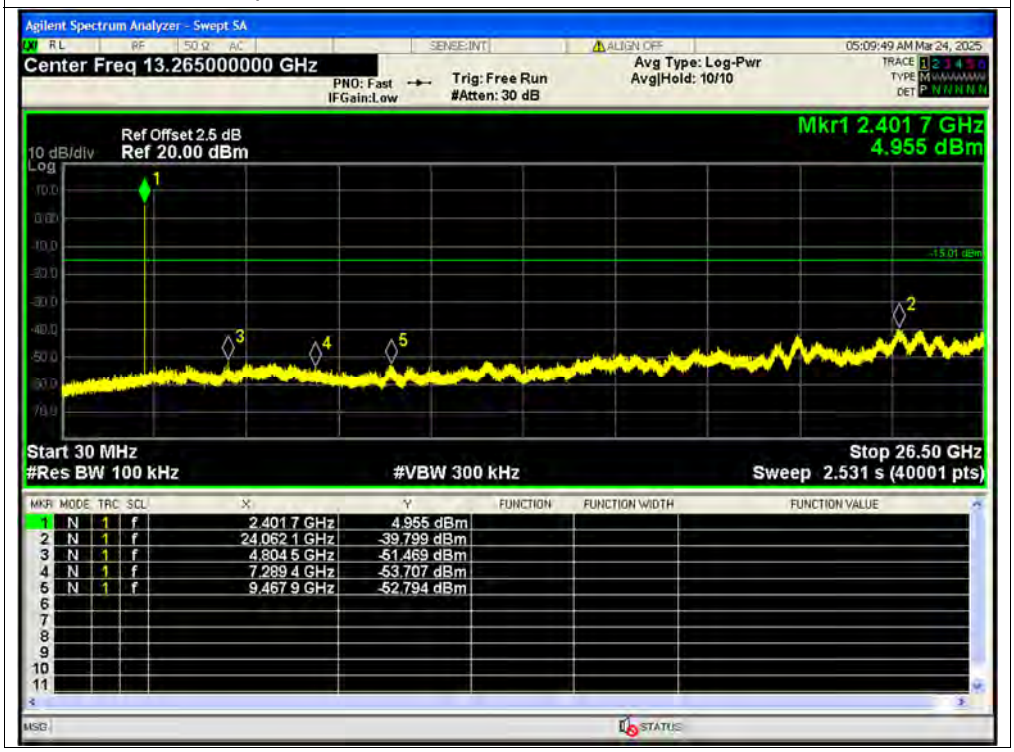
Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Emission



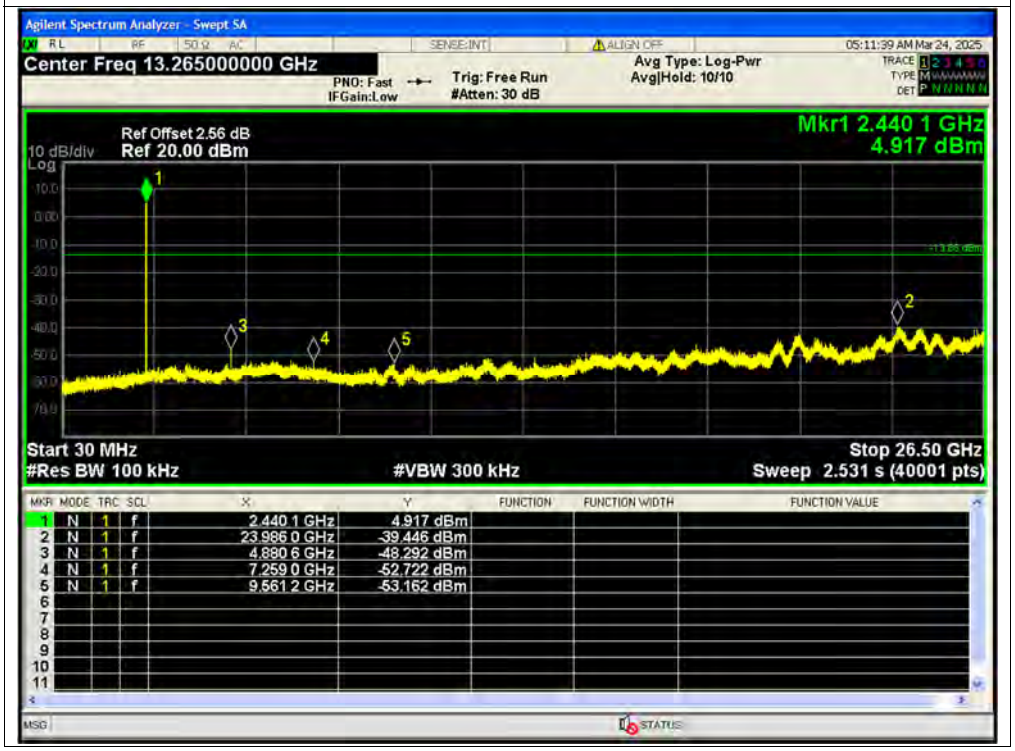
Test Graphs
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



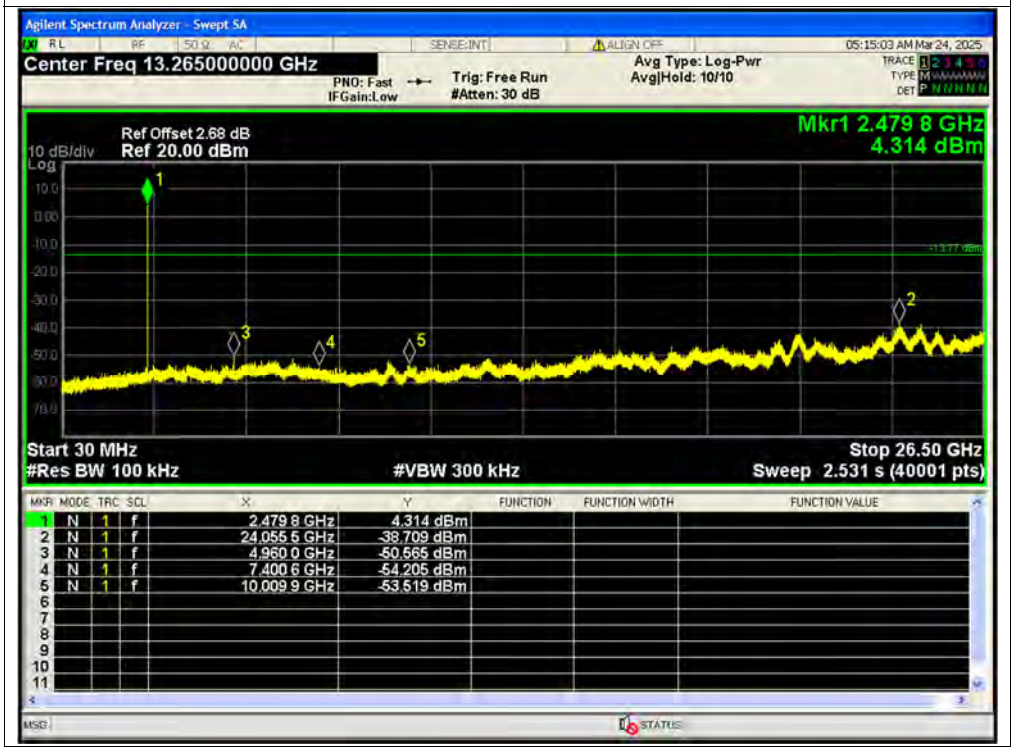
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



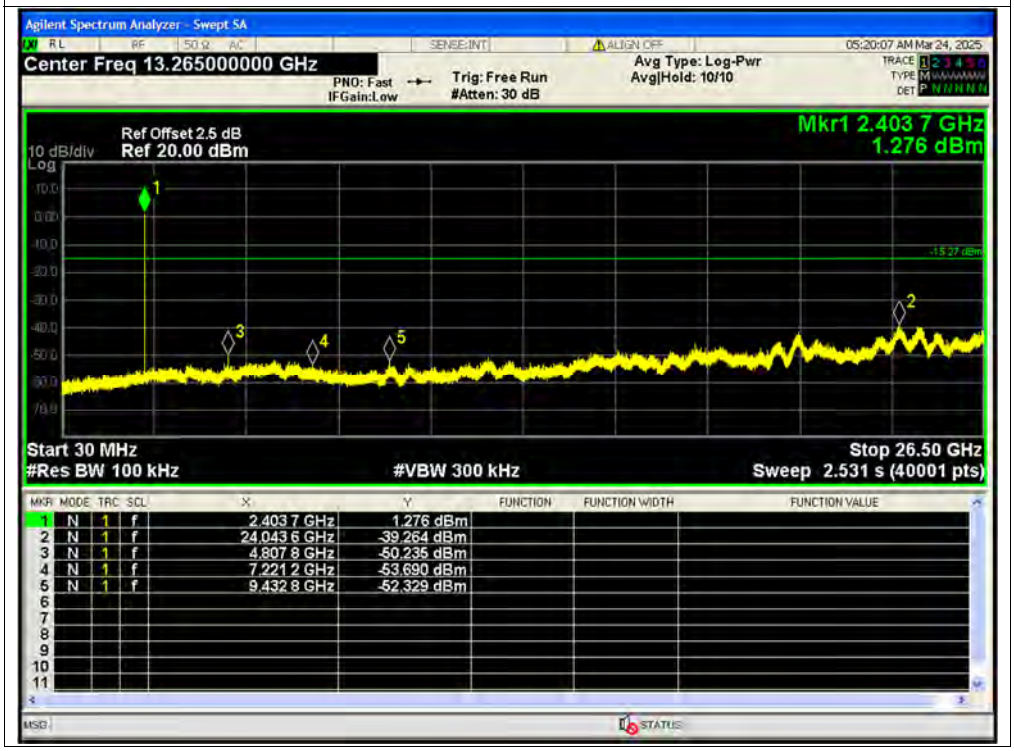
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



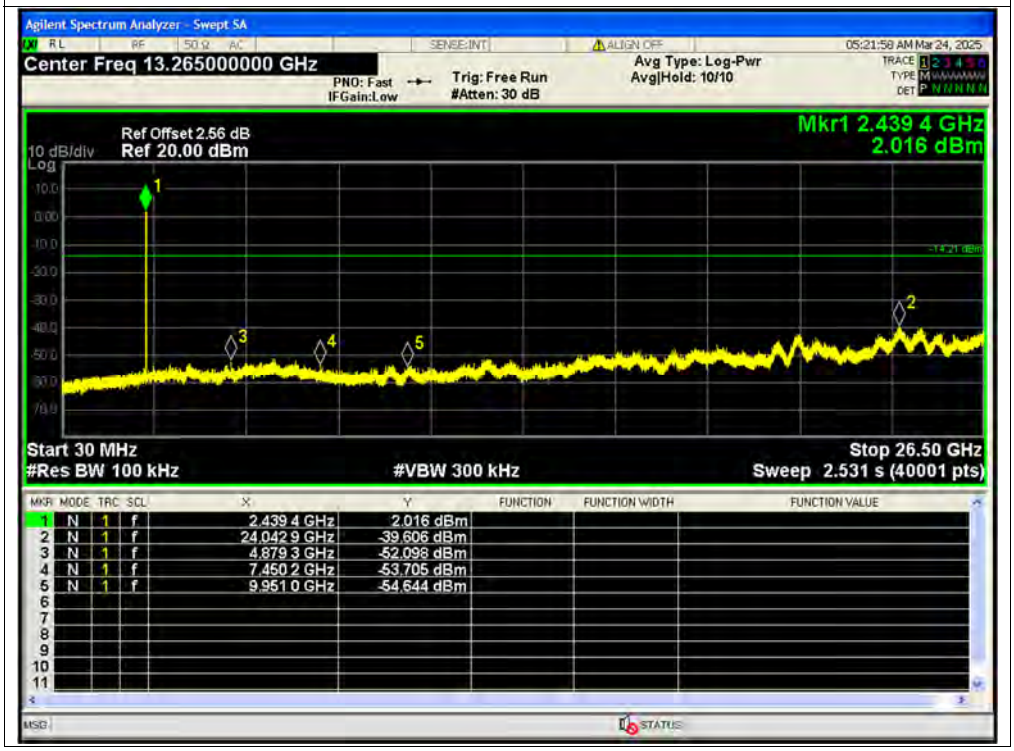
Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2404MHz Ant1 Emission



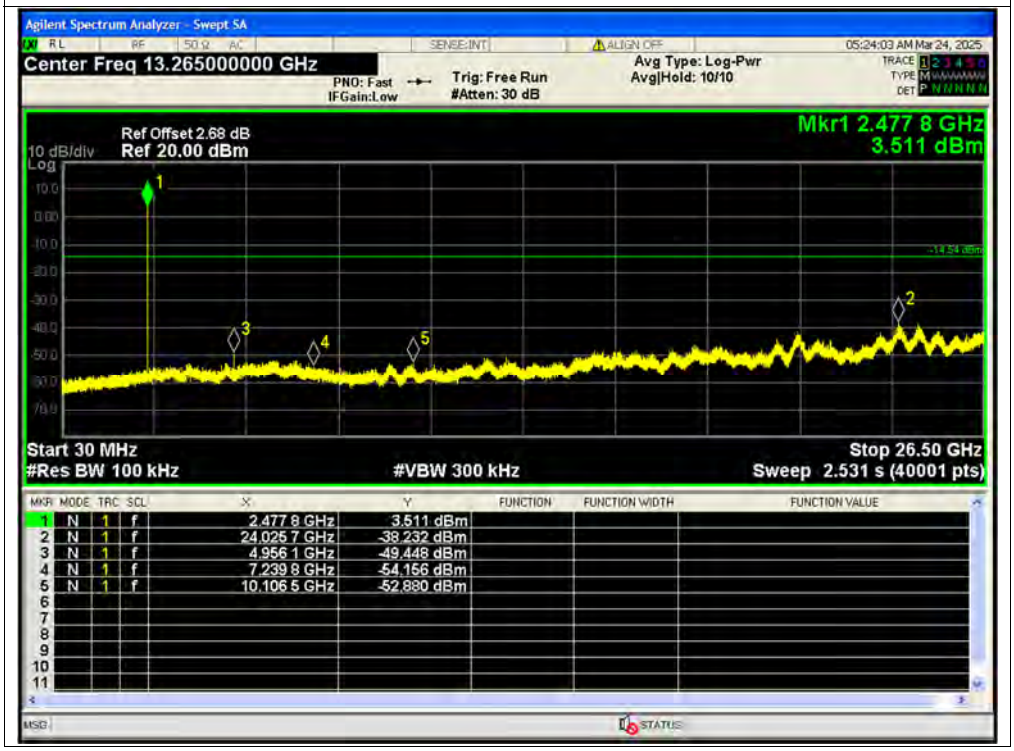
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2478MHz Ant1 Emission



A.6. Band Edge

Left:

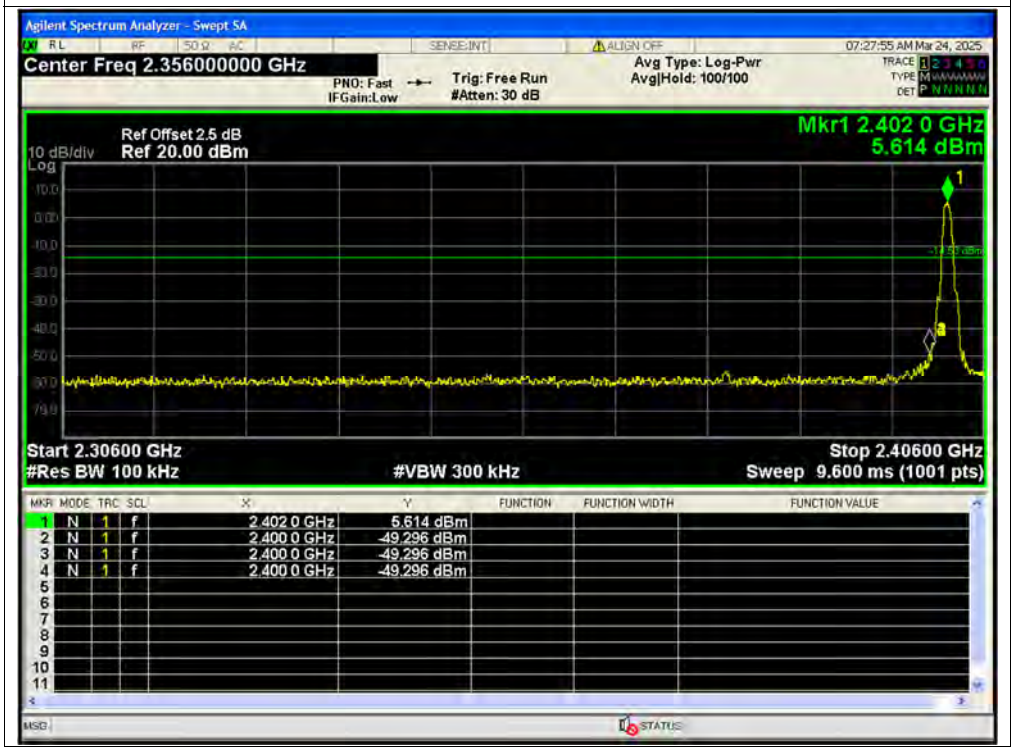
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-54.76	-20	Pass
NVNT	BLE 1M	2480	Ant1	-59.33	-20	Pass
NVNT	BLE 2M	2404	Ant1	-59.45	-20	Pass
NVNT	BLE 2M	2478	Ant1	-62.89	-20	Pass

Right:

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-58.39	-20	Pass
NVNT	BLE 1M	2480	Ant1	-60.27	-20	Pass
NVNT	BLE 2M	2404	Ant1	-59.44	-20	Pass
NVNT	BLE 2M	2478	Ant1	-62.11	-20	Pass

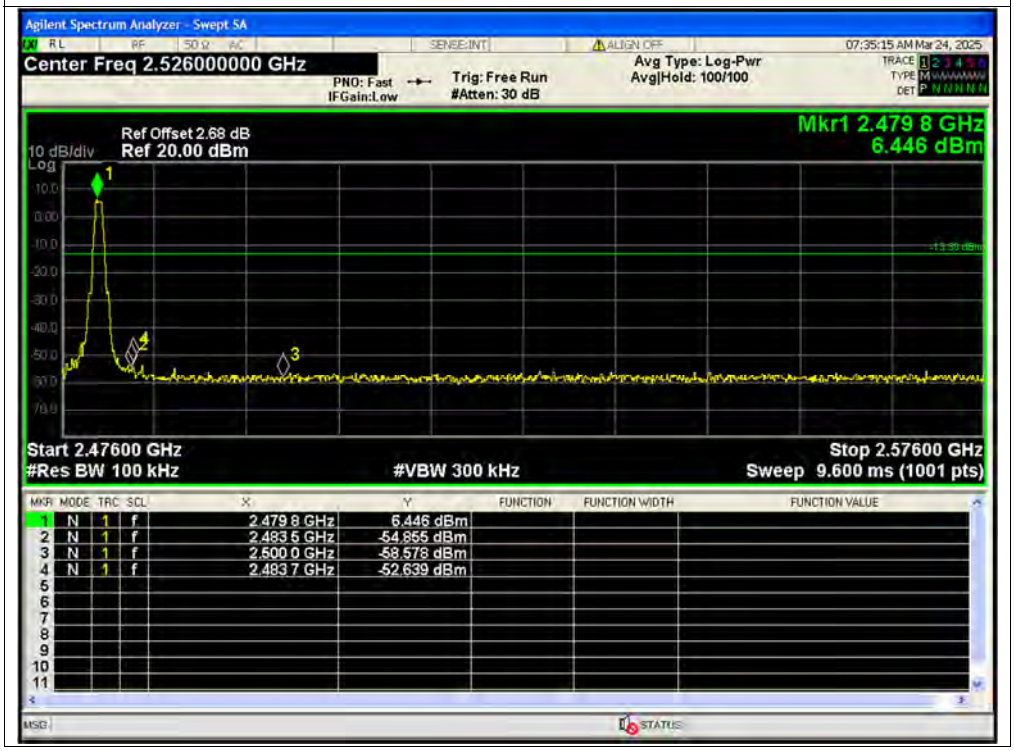
Left
Test Graphs
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



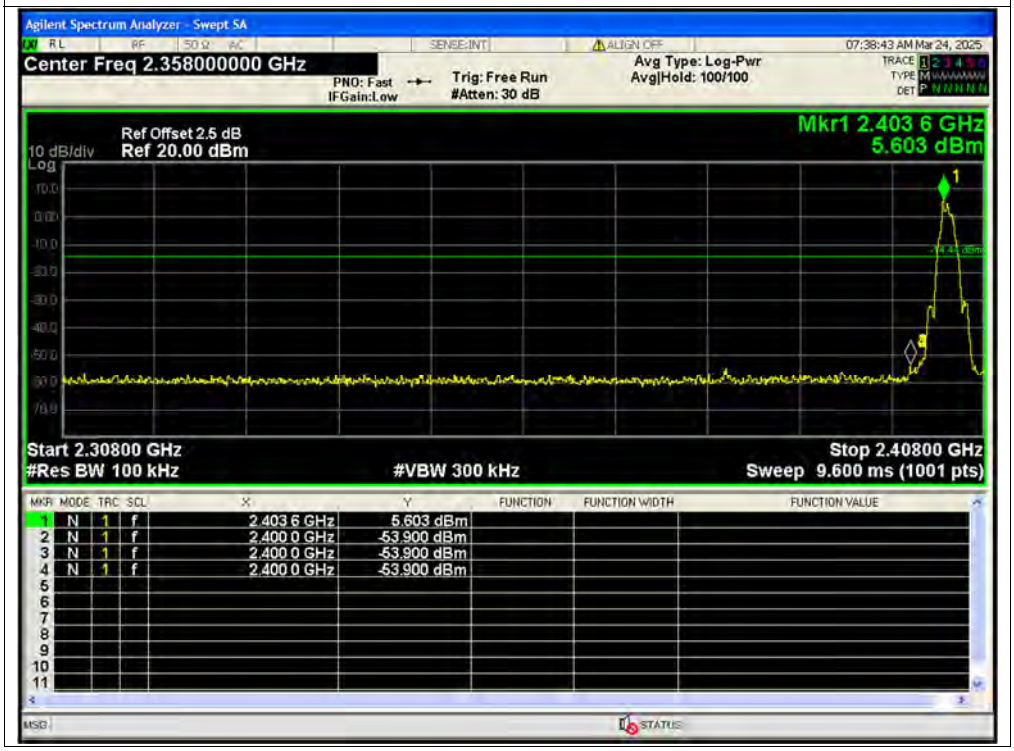
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



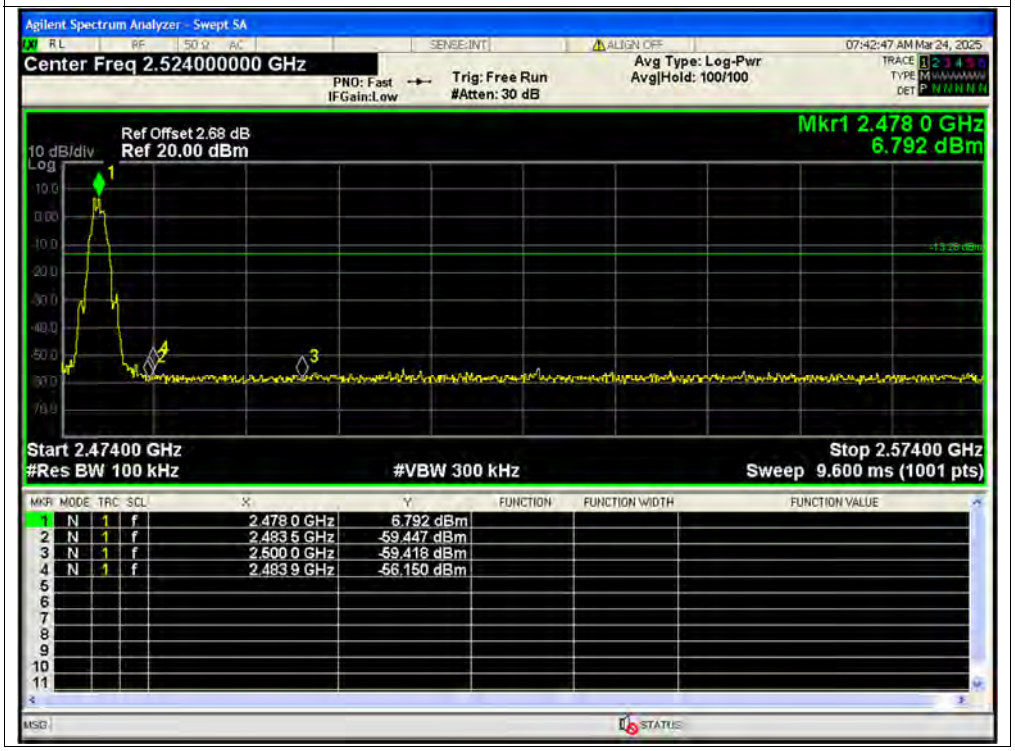
Band Edge NVNT BLE 2M 2404MHz Ant1 Ref

Band Edge NVNT BLE 2M 2404MHz Ant1 Emission



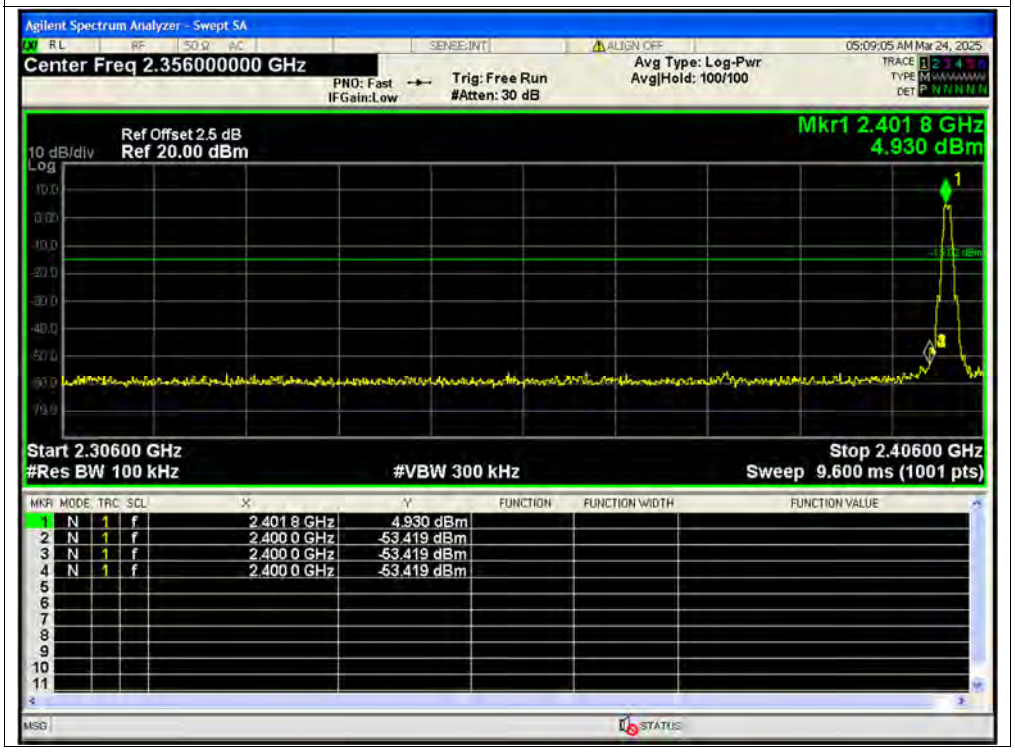
Band Edge NVNT BLE 2M 2478MHz Ant1 Ref

Band Edge NVNT BLE 2M 2478MHz Ant1 Emission



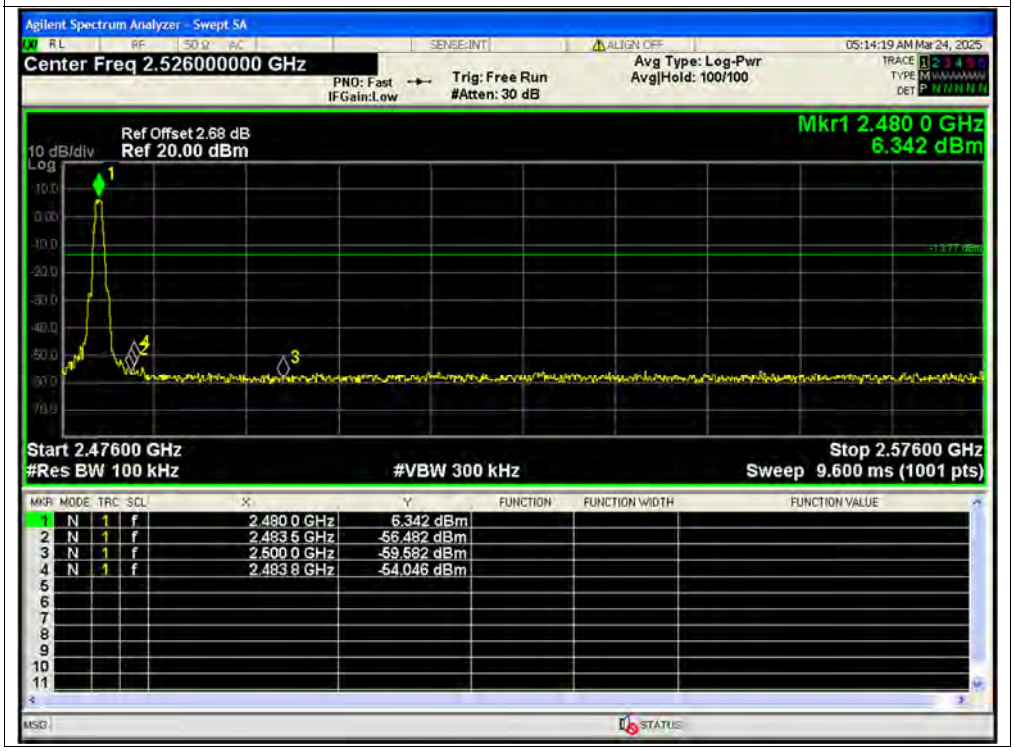
Right
Test Graphs
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



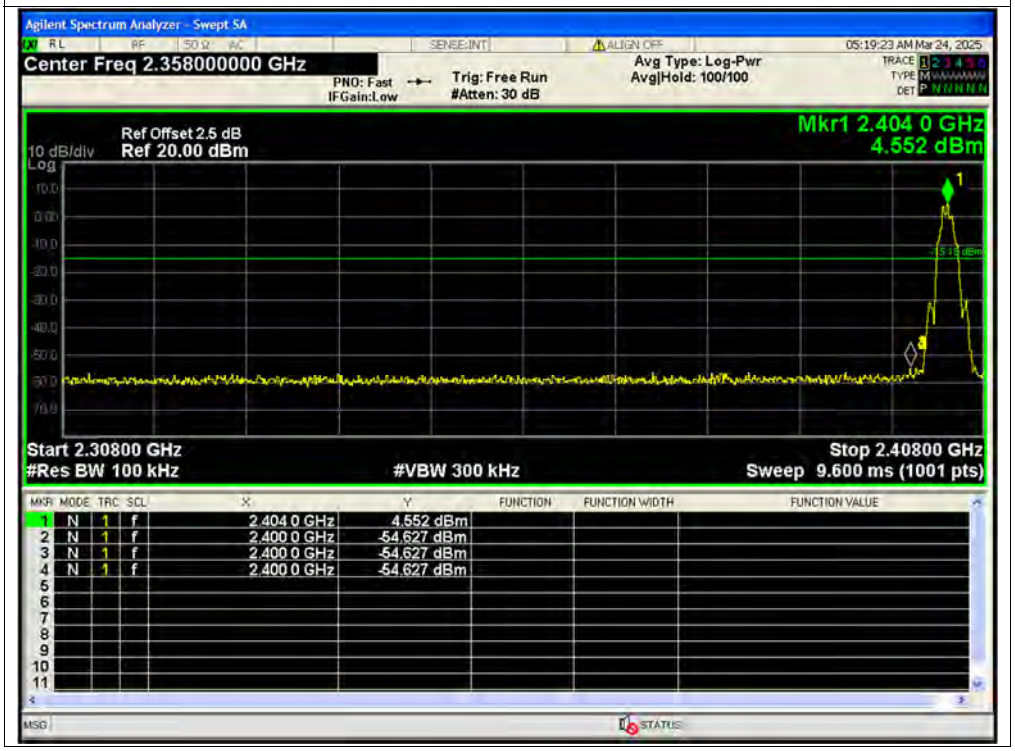
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



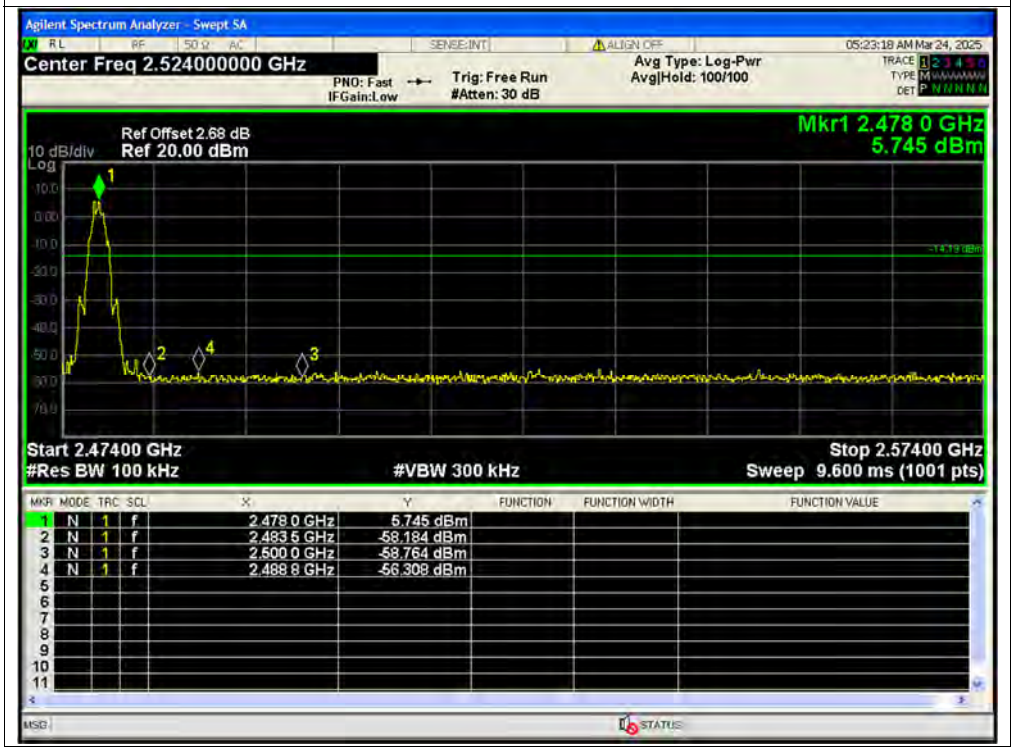
Band Edge NVNT BLE 2M 2404MHz Ant1 Ref

Band Edge NVNT BLE 2M 2404MHz Ant1 Emission



Band Edge NVNT BLE 2M 2478MHz Ant1 Ref

Band Edge NVNT BLE 2M 2478MHz Ant1 Emission



A.7. Power Spectral Density

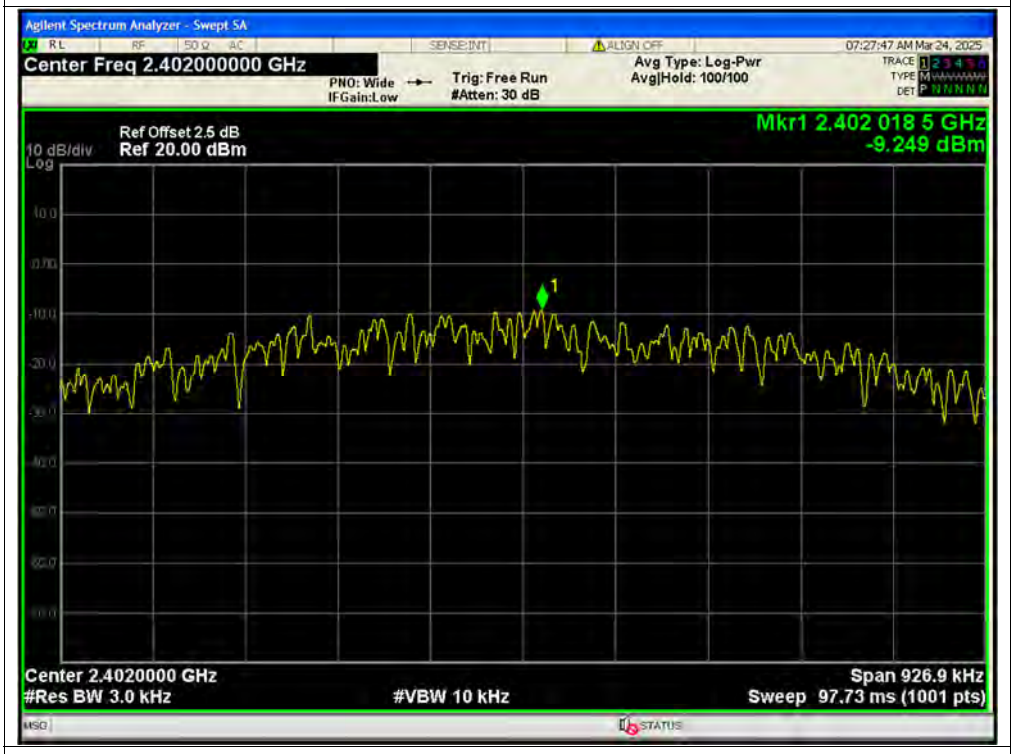
Left:

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-9.25	0	-9.25	8	Pass
NVNT	BLE 1M	2440	Ant1	-8.46	0	-8.46	8	Pass
NVNT	BLE 1M	2480	Ant1	-8.4	0	-8.4	8	Pass
NVNT	BLE 2M	2404	Ant1	-10.39	0	-10.39	8	Pass
NVNT	BLE 2M	2440	Ant1	-9.6	0	-9.6	8	Pass
NVNT	BLE 2M	2478	Ant1	-9.72	0	-9.72	8	Pass

Right:

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-9.81	0	-9.81	8	Pass
NVNT	BLE 1M	2440	Ant1	-8.23	0	-8.23	8	Pass
NVNT	BLE 1M	2480	Ant1	-8.07	0	-8.07	8	Pass
NVNT	BLE 2M	2404	Ant1	-11.5	0	-11.5	8	Pass
NVNT	BLE 2M	2440	Ant1	-10.14	0	-10.14	8	Pass
NVNT	BLE 2M	2478	Ant1	-9.84	0	-9.84	8	Pass

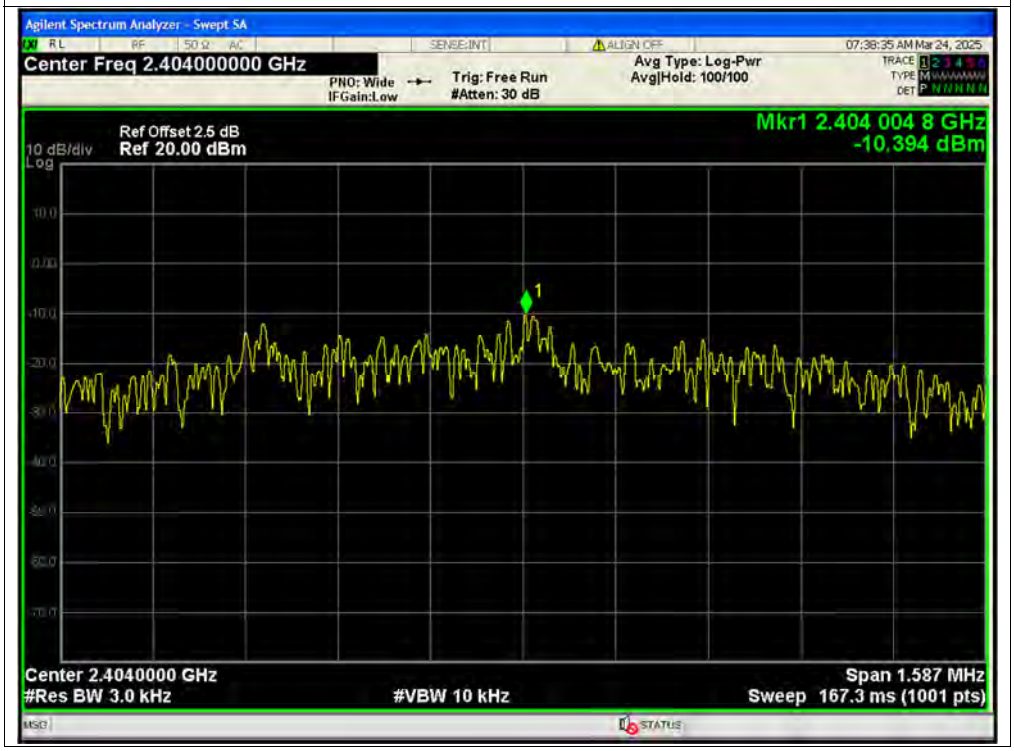
Left
Test Graphs
PSD NVNT BLE 1M 2402MHz Ant1



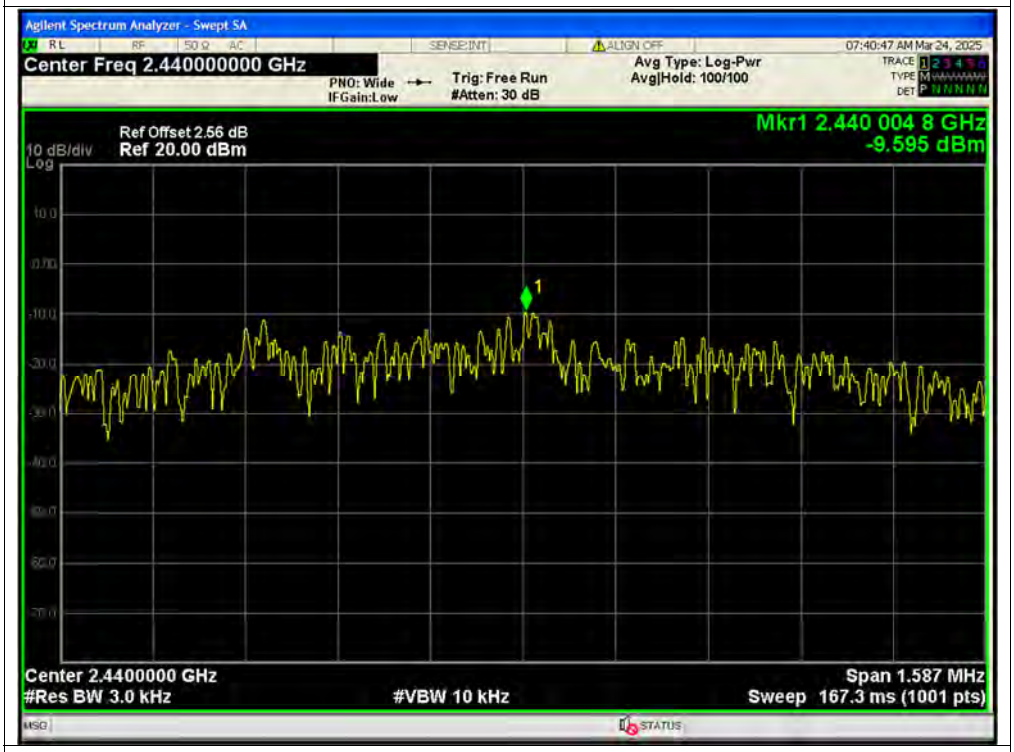
PSD NVNT BLE 1M 2440MHz Ant1

PSD NVNT BLE 1M 2480MHz Ant1

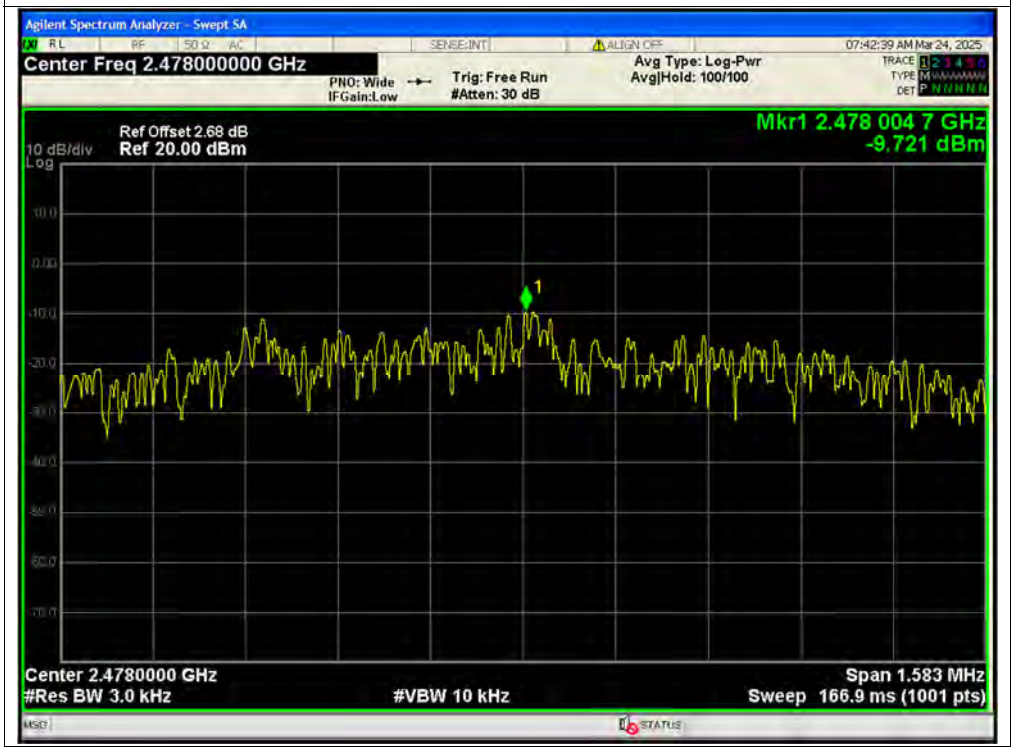
PSD NVNT BLE 2M 2404MHz Ant1



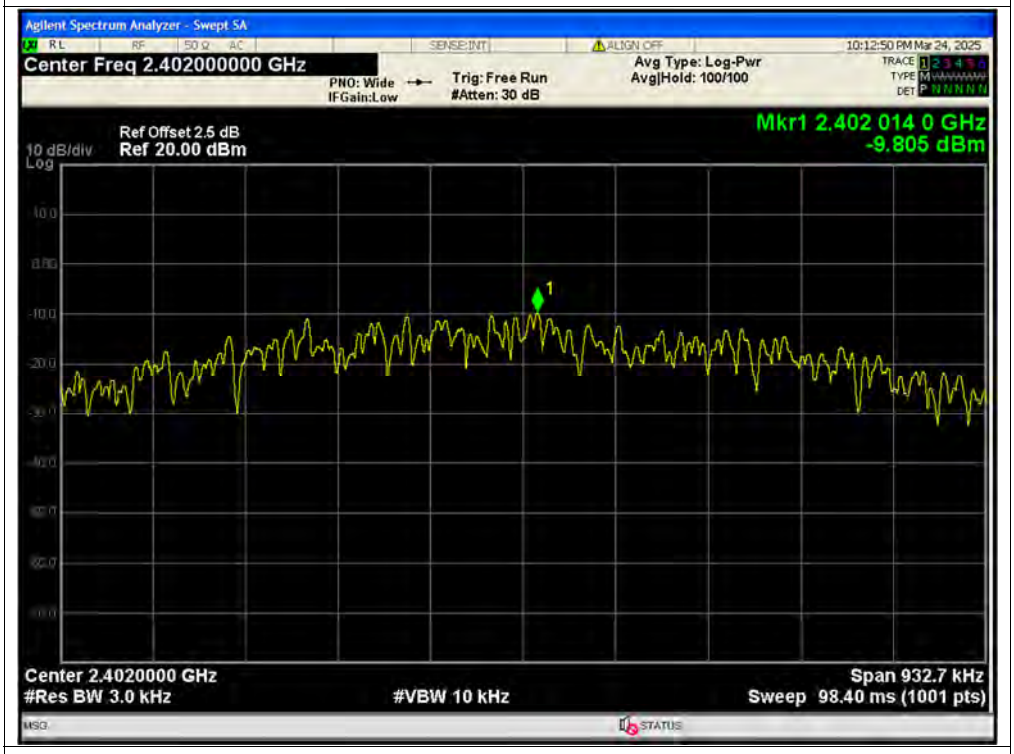
PSD NVNT BLE 2M 2440MHz Ant1



PSD NVNT BLE 2M 2478MHz Ant1



Right
Test Graphs
PSD NVNT BLE 1M 2402MHz Ant1



PSD NVNT BLE 1M 2440MHz Ant1

PSD NVNT BLE 1M 2480MHz Ant1

PSD NVNT BLE 2M 2404MHz Ant1

PSD NVNT BLE 2M 2440MHz Ant1

PSD NVNT BLE 2M 2478MHz Ant1

A.8. Conducted Emission

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT (Earphone)+Serial port board+Fixed frequency box+PC+PC Adapter+BT TX

Test voltage: AC 120V/60Hz

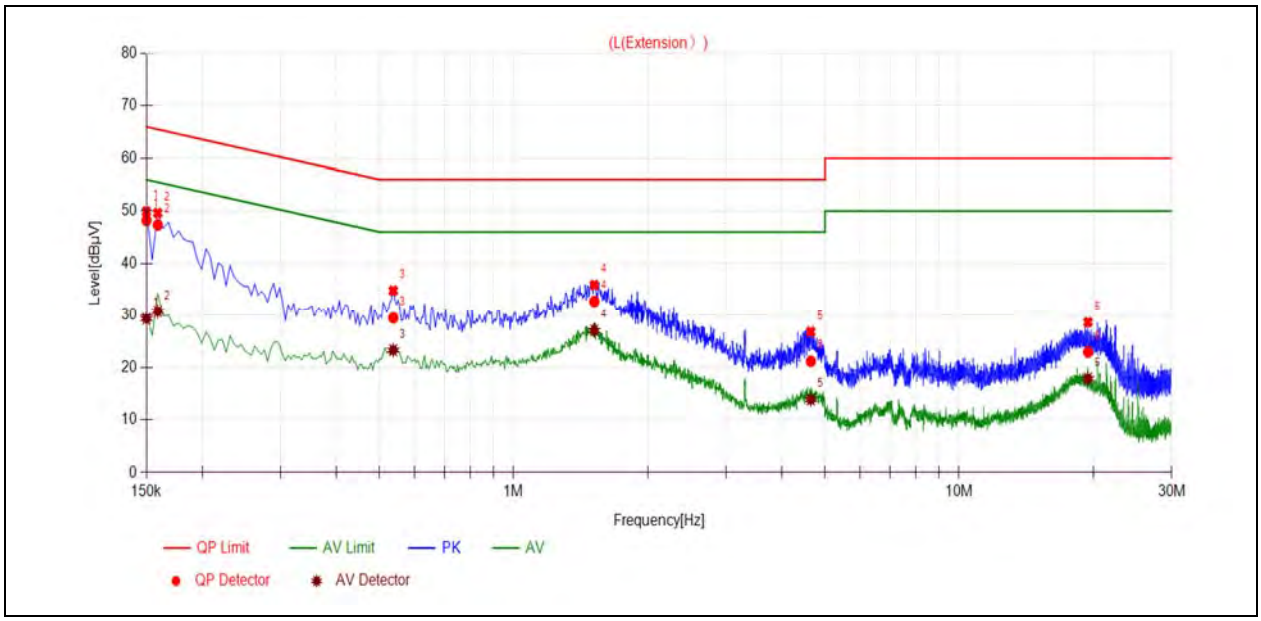
The measurement results are obtained as below:

$E\ [dB\mu V] = U_R + L_{Cable\ loss}\ [dB] + A_{Factor}$

U_R: Receiver Reading

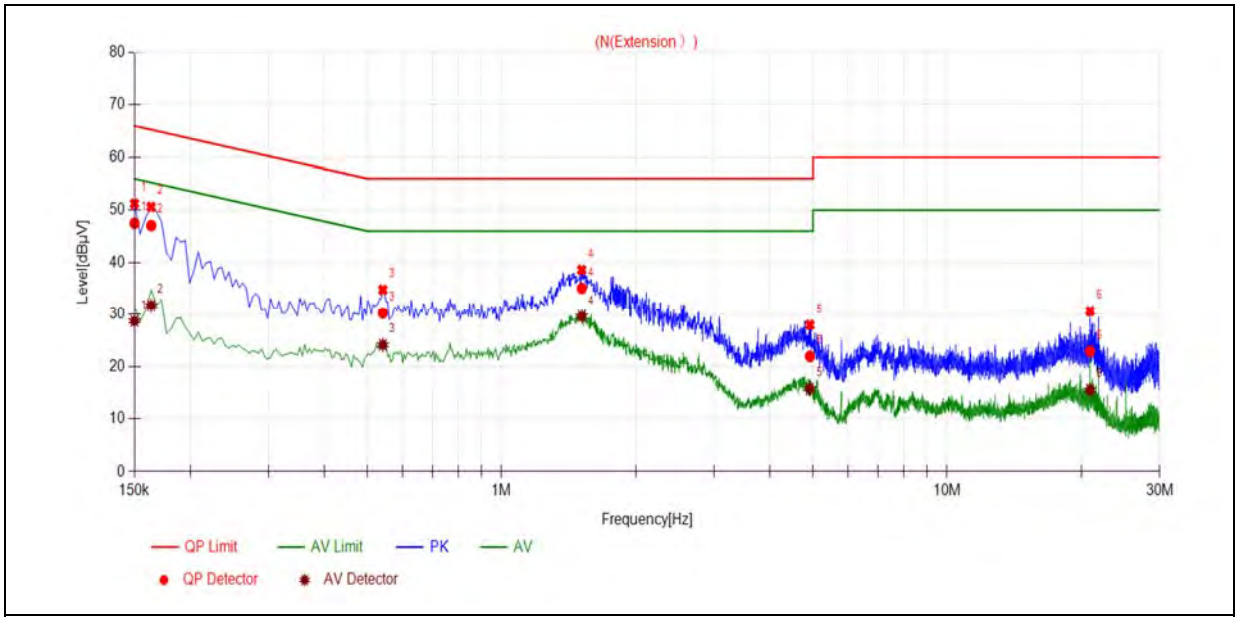
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1500	48.26	29.33	66.00	56.00	Line	PASS
2	0.1590	47.37	30.76	65.52	55.52		PASS
3	0.5370	29.49	23.27	56.00	46.00		PASS
4	1.5179	32.72	27.05	56.00	46.00		PASS
5	4.6456	21.15	13.84	56.00	46.00		PASS
6	19.4544	22.91	17.85	60.00	50.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1500	47.52	28.69	66.00	56.00	Neutral	PASS
2	0.1635	47.08	31.73	65.29	55.29		PASS
3	0.5415	30.25	24.11	56.00	46.00		PASS
4	1.5136	35.05	29.60	56.00	46.00		PASS
5	4.9198	21.92	15.73	56.00	46.00		PASS
6	20.9299	22.91	15.49	60.00	50.00		PASS

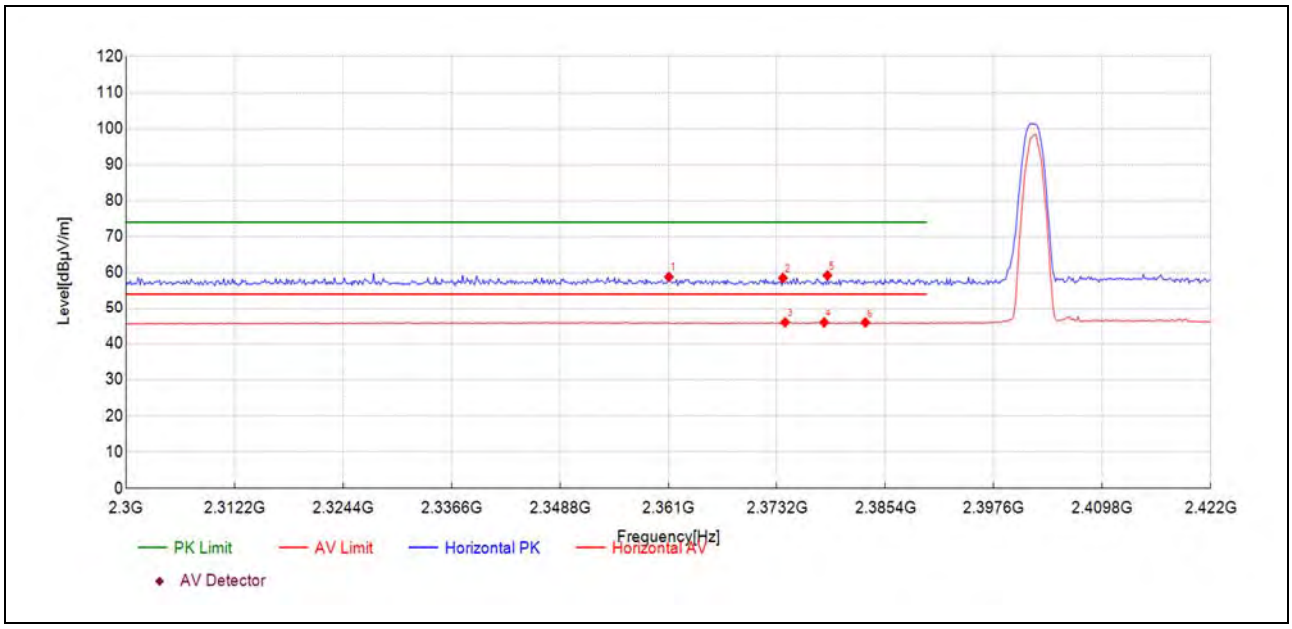
A.9. Restricted Frequency Bands

Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (Horizontal) was recorded in this test report.

Left:

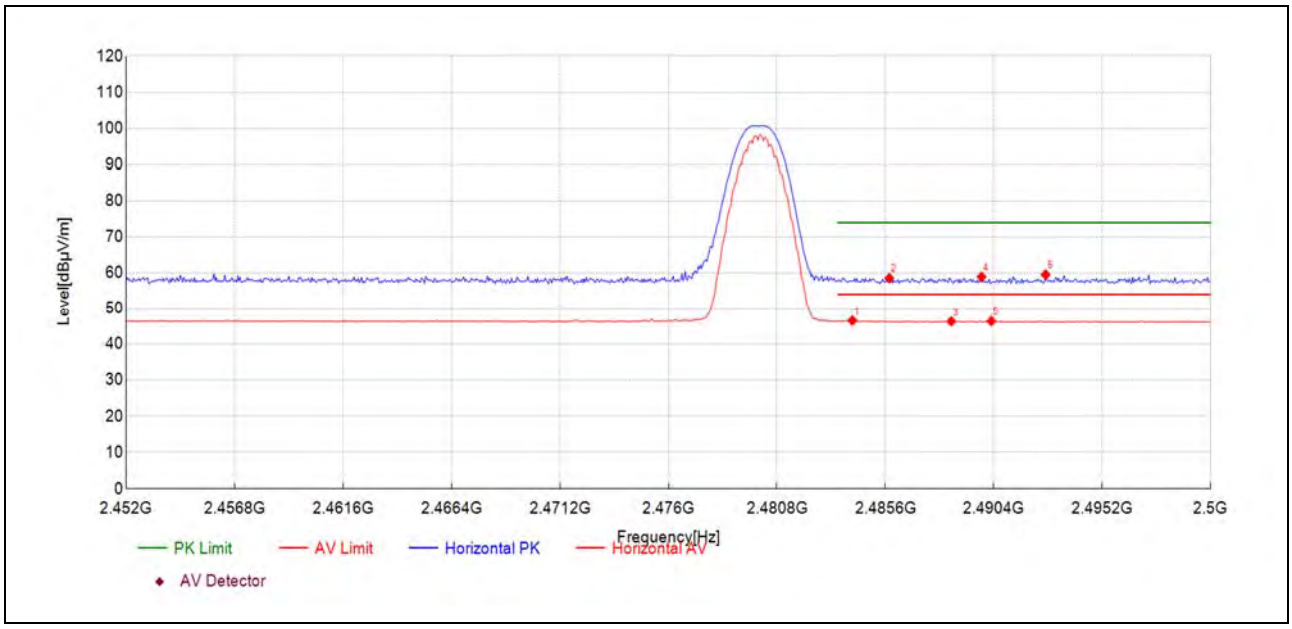
1Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2361.06	21.4	58.82	37.460	74.00	15.18	150	349	PK	PASS
2373.88	21.0	58.52	37.480	74.00	15.48	150	111	PK	PASS
2374.13	8.5	45.95	37.480	54.00	8.05	150	293	AV	PASS
2378.52	8.4	45.91	37.480	54.00	8.09	150	245	AV	PASS
2378.89	21.8	59.24	37.480	74.00	14.76	150	341	PK	PASS
2383.17	8.4	45.89	37.480	54.00	8.11	150	293	AV	PASS

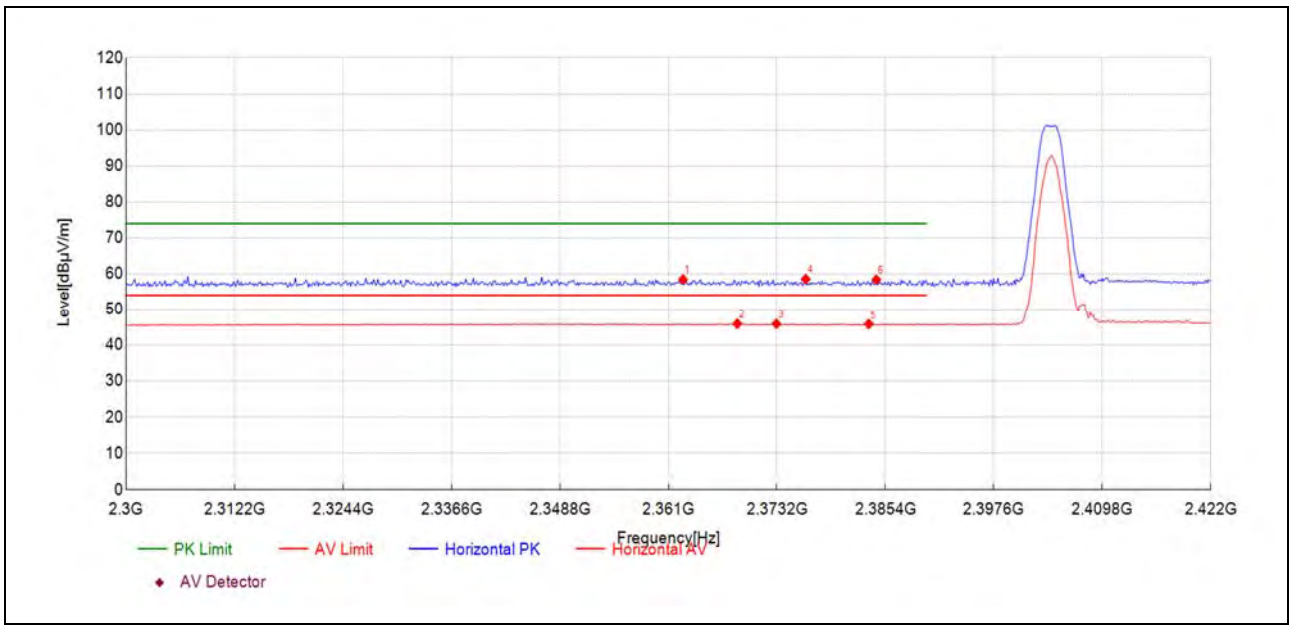
Plot for Channel 39



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2484.14	8.3	46.57	38.270	54.00	7.43	150	166	AV	PASS
2485.78	20.3	58.56	38.270	74.00	15.44	150	148	PK	PASS
2488.52	8.1	46.33	38.270	54.00	7.67	150	166	AV	PASS
2489.86	20.7	58.95	38.260	74.00	15.05	150	157	PK	PASS
2490.29	8.1	46.40	38.270	54.00	7.60	150	334	AV	PASS
2492.70	21.3	59.54	38.260	74.00	14.46	150	237	PK	PASS

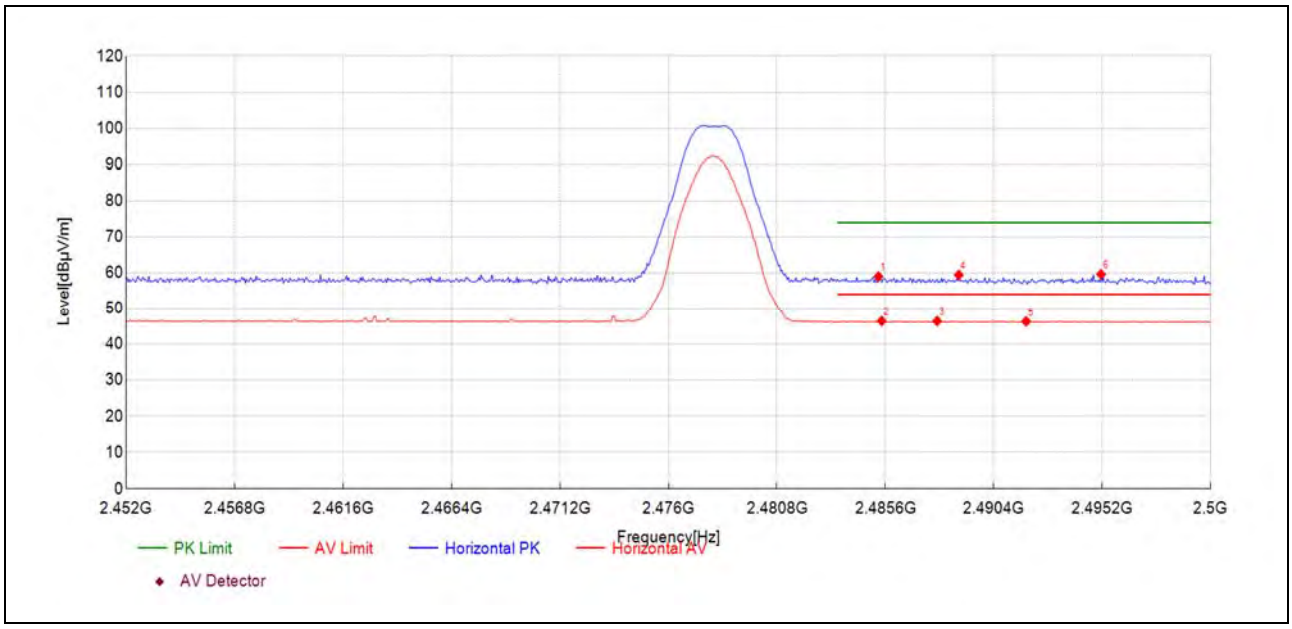
2Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2362.65	21.0	58.45	37.470	74.00	15.55	150	128	PK	PASS
2368.75	8.5	45.96	37.470	54.00	8.04	150	357	AV	PASS
2373.15	8.5	45.94	37.480	54.00	8.06	150	283	AV	PASS
2376.45	21.1	58.58	37.480	74.00	15.42	150	252	PK	PASS
2383.53	8.4	45.89	37.490	54.00	8.11	150	176	AV	PASS
2384.39	20.9	58.40	37.490	74.00	15.60	150	9	PK	PASS

Plot for Channel 39

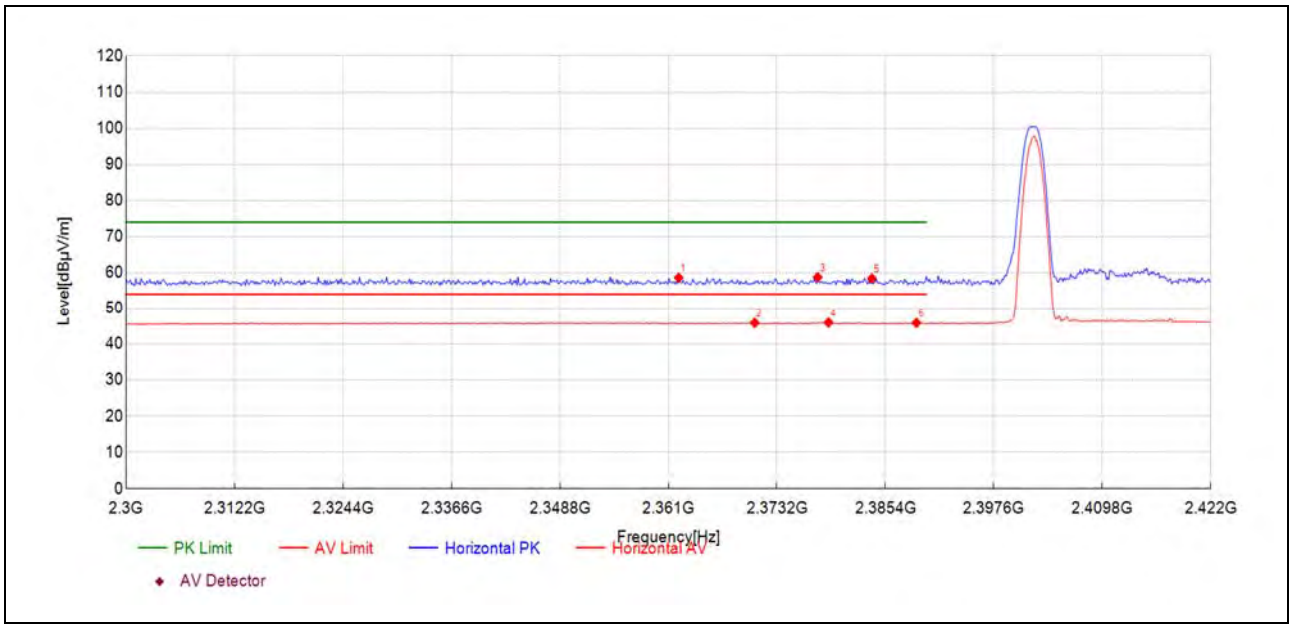


Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2485.30	20.8	59.03	38.270	74.00	14.97	150	118	PK	PASS
2485.44	8.2	46.47	38.270	54.00	7.53	150	179	AV	PASS
2487.89	8.2	46.43	38.270	54.00	7.57	150	214	AV	PASS
2488.85	21.2	59.49	38.260	74.00	14.51	150	148	PK	PASS
2491.83	8.1	46.33	38.260	54.00	7.67	150	69	AV	PASS
2495.15	21.4	59.66	38.260	74.00	14.34	150	139	PK	PASS

Right:

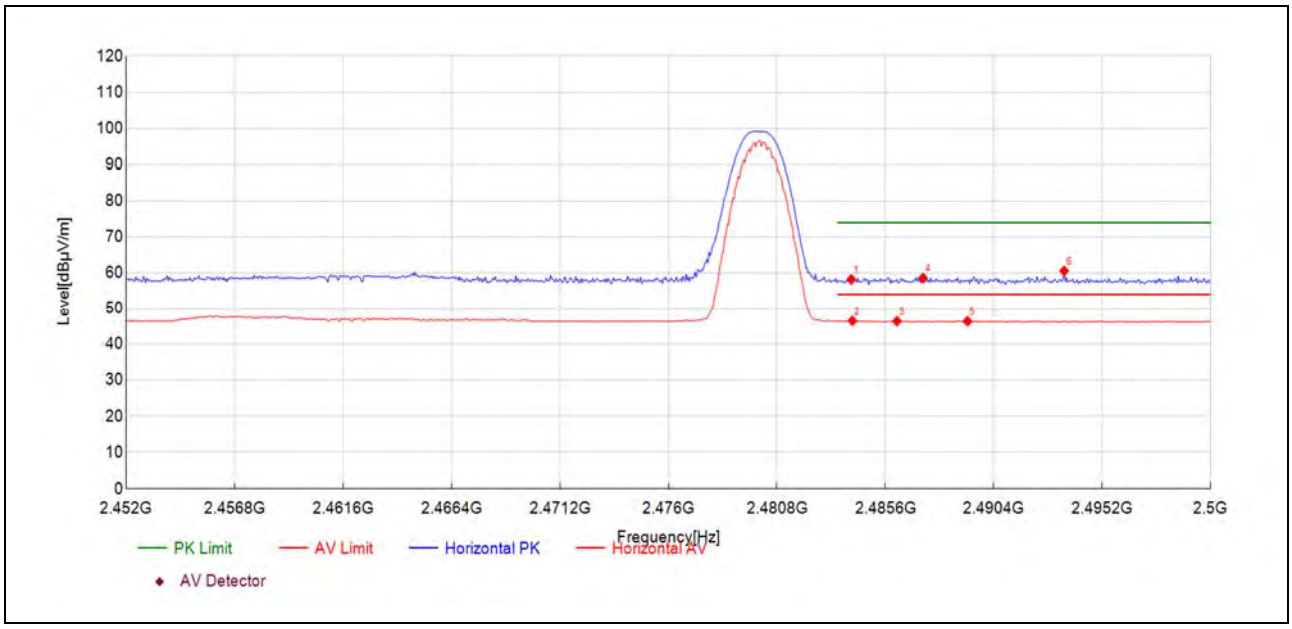
1Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2362.16	21.2	58.63	37.470	74.00	15.37	150	257	PK	PASS
2370.71	8.4	45.90	37.470	54.00	8.10	150	222	AV	PASS
2377.79	21.3	58.77	37.480	74.00	15.23	150	98	PK	PASS
2379.01	8.5	46.01	37.480	54.00	7.99	150	150	AV	PASS
2383.90	20.9	58.42	37.490	74.00	15.58	150	306	PK	PASS
2388.90	8.4	45.90	37.490	54.00	8.10	150	164	AV	PASS

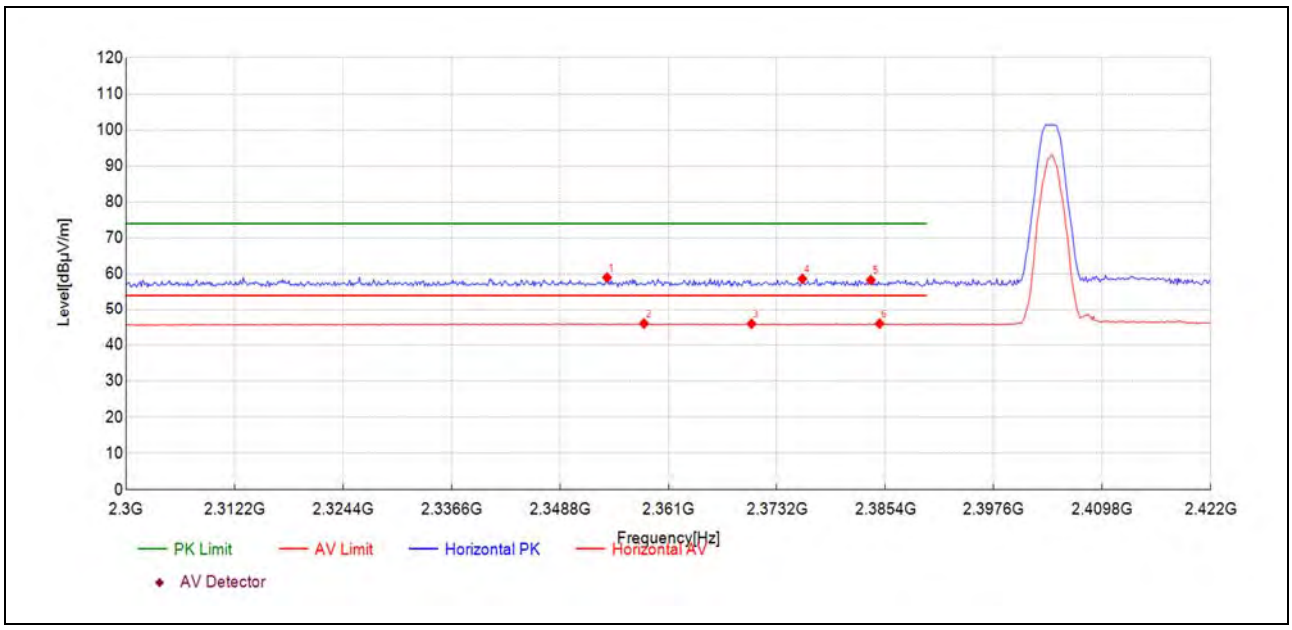
Plot for Channel 39



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2484.10	20.0	58.22	38.270	74.00	15.78	150	140	PK	PASS
2484.14	8.2	46.48	38.270	54.00	7.52	150	311	AV	PASS
2486.11	8.1	46.39	38.280	54.00	7.61	150	316	AV	PASS
2487.27	20.3	58.61	38.270	74.00	15.39	150	294	PK	PASS
2489.24	8.1	46.38	38.260	54.00	7.62	150	9	AV	PASS
2493.51	22.4	60.61	38.260	74.00	13.39	150	203	PK	PASS

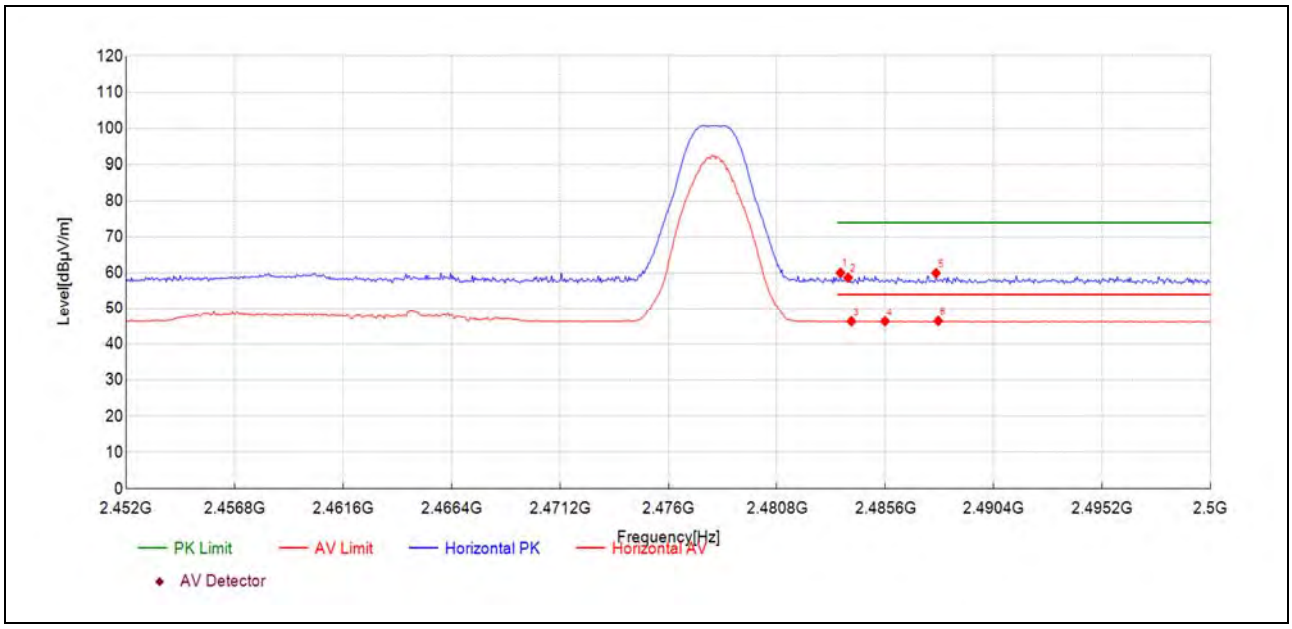
2Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2354.10	21.6	59.03	37.460	74.00	14.97	150	350	PK	PASS
2358.25	8.5	45.99	37.460	54.00	8.01	150	115	AV	PASS
2370.34	8.5	45.92	37.470	54.00	8.08	150	314	AV	PASS
2376.08	21.2	58.66	37.480	74.00	15.34	150	137	PK	PASS
2383.78	20.9	58.34	37.490	74.00	15.66	150	115	PK	PASS
2384.75	8.5	45.95	37.490	54.00	8.05	150	13	AV	PASS

Plot for Channel 39



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2483.62	21.8	60.08	38.280	74.00	13.92	150	72	PK	PASS
2483.95	20.5	58.74	38.270	74.00	15.26	150	223	PK	PASS
2484.10	8.1	46.35	38.270	54.00	7.65	150	116	AV	PASS
2485.59	8.1	46.36	38.270	54.00	7.64	150	99	AV	PASS
2487.84	21.7	60.00	38.270	74.00	14.00	150	317	PK	PASS
2487.94	8.2	46.47	38.270	54.00	7.53	150	281	AV	PASS

A.10. Radiated Emission

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak (or average) limit, it is unnecessary to perform an quasi-peak measurement (or average).

The measurement results are obtained as below:

E [dBμV/m] $=U_R + A_T + A_{Factor}$ [dB]; $A_T = L_{Cable\ loss}$ [dB]$-G_{preamp}$ [dB]

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

During the test, the total correction Factor A_T and A_{Factor} were built in test software.

Note 1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Note 2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

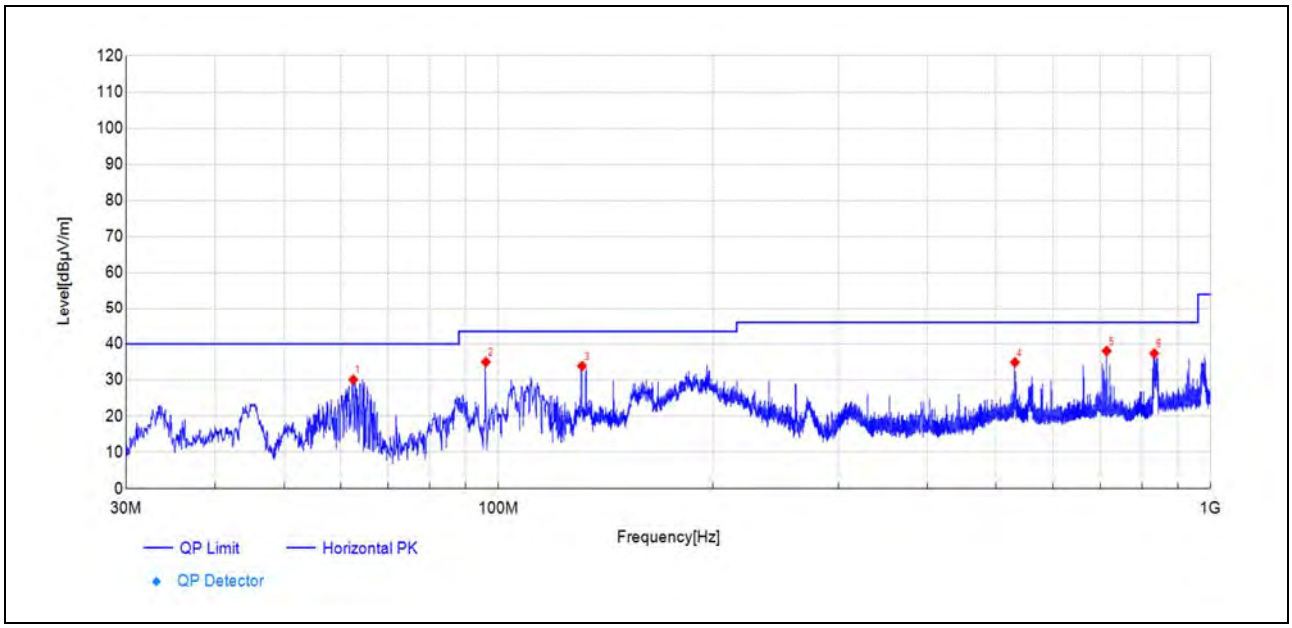
Note 3: For the frequency, which started from 18GHz to 10th harmonic of the highest frequency, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note 4: All test modes were considered and evaluated respectively by performing full test, only the worst data were recorded.

Left

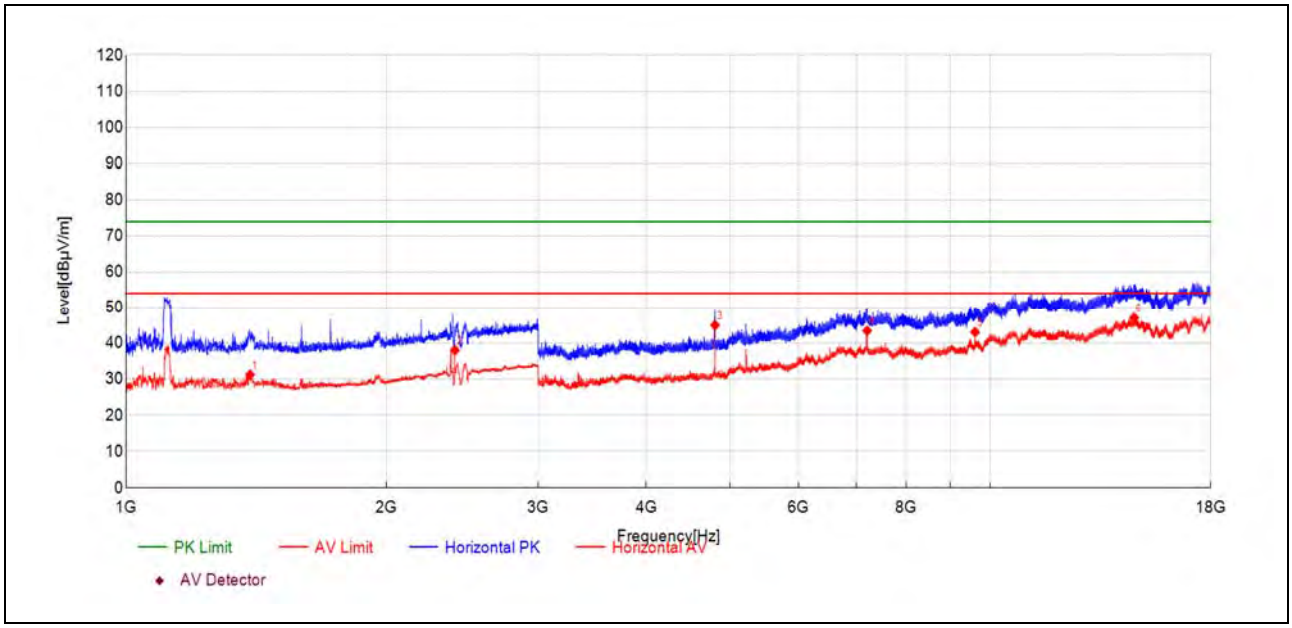
1Mbps

Plot for Channel 0



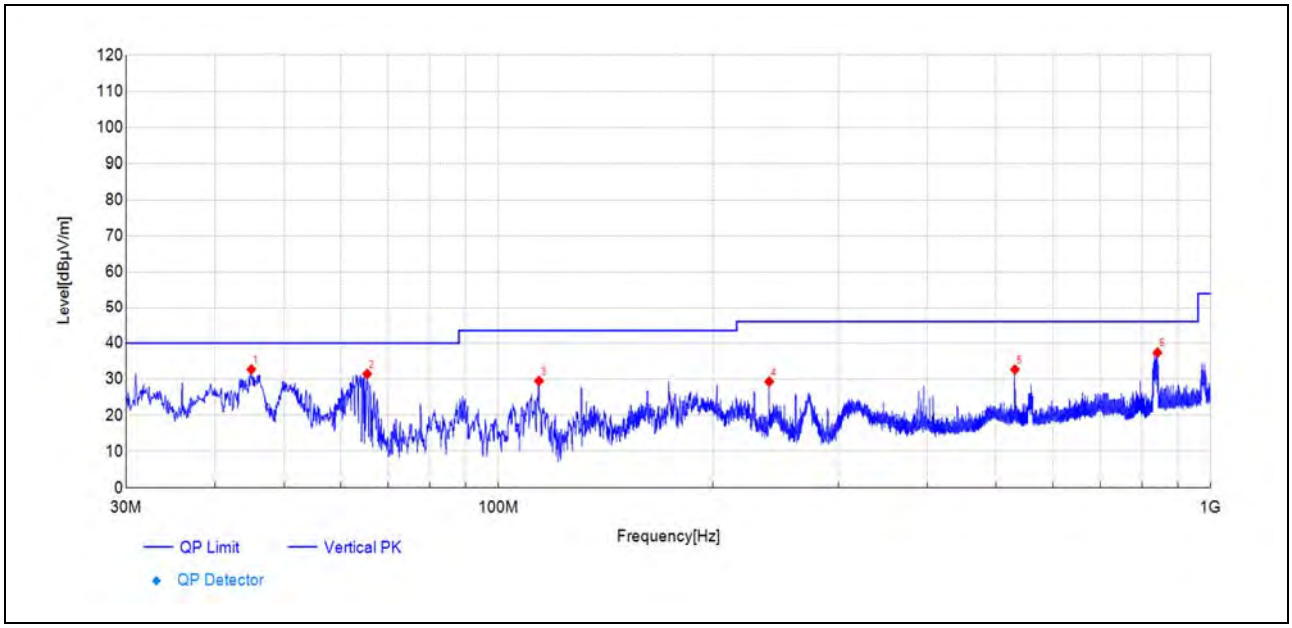
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
62.55	58.9	30.09	-28.790	40.00	9.91	150	62	PK	PASS
96.01	65.3	35.01	-30.280	43.50	8.49	150	25	PK	PASS
131.03	65.7	33.89	-31.800	43.50	9.61	150	85	PK	PASS
531.08	53.9	34.92	-18.930	46.00	11.08	150	132	PK	PASS
714.18	53.7	38.08	-15.640	46.00	7.92	150	111	PK	PASS
833.20	51.4	37.38	-14.030	46.00	8.62	150	138	PK	PASS



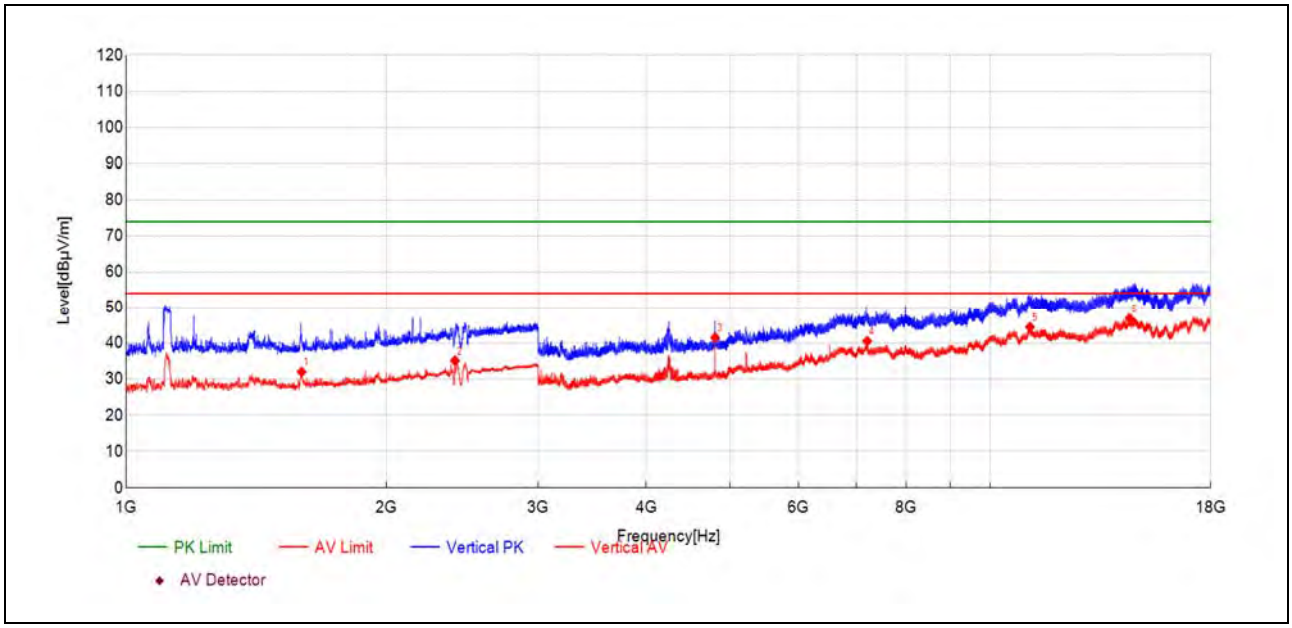
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1392.09	31.6	31.25	-0.300	54.00	22.75	150	77	AV	PASS
2402.53	32.8	38.09	5.260	-	-	150	207	AV	N/A
4804.56	50.2	45.01	-5.140	54.00	8.99	150	9	AV	PASS
7206.14	38.5	43.48	5.030	54.00	10.52	150	313	AV	PASS
9608.72	34.4	43.11	8.700	54.00	10.89	150	348	AV	PASS
14677.89	26.6	47.13	20.540	54.00	6.87	150	95	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

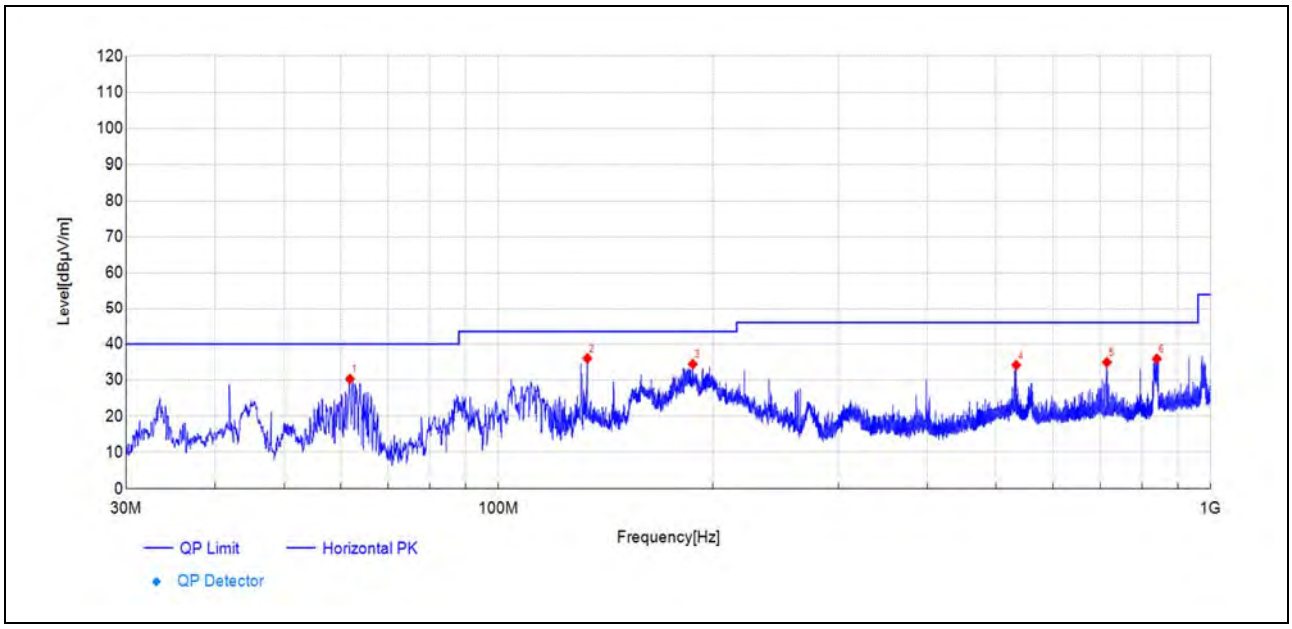
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.99	60.8	32.71	-28.090	40.00	7.29	150	305	PK	PASS
65.41	61.2	31.48	-29.740	40.00	8.52	150	119	PK	PASS
114.01	59.1	29.53	-29.530	43.50	13.97	150	256	PK	PASS
239.97	57.2	29.29	-27.870	46.00	16.71	150	48	PK	PASS
530.98	51.6	32.68	-18.930	46.00	13.32	150	186	PK	PASS
841.74	51.2	37.39	-13.850	46.00	8.61	150	101	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

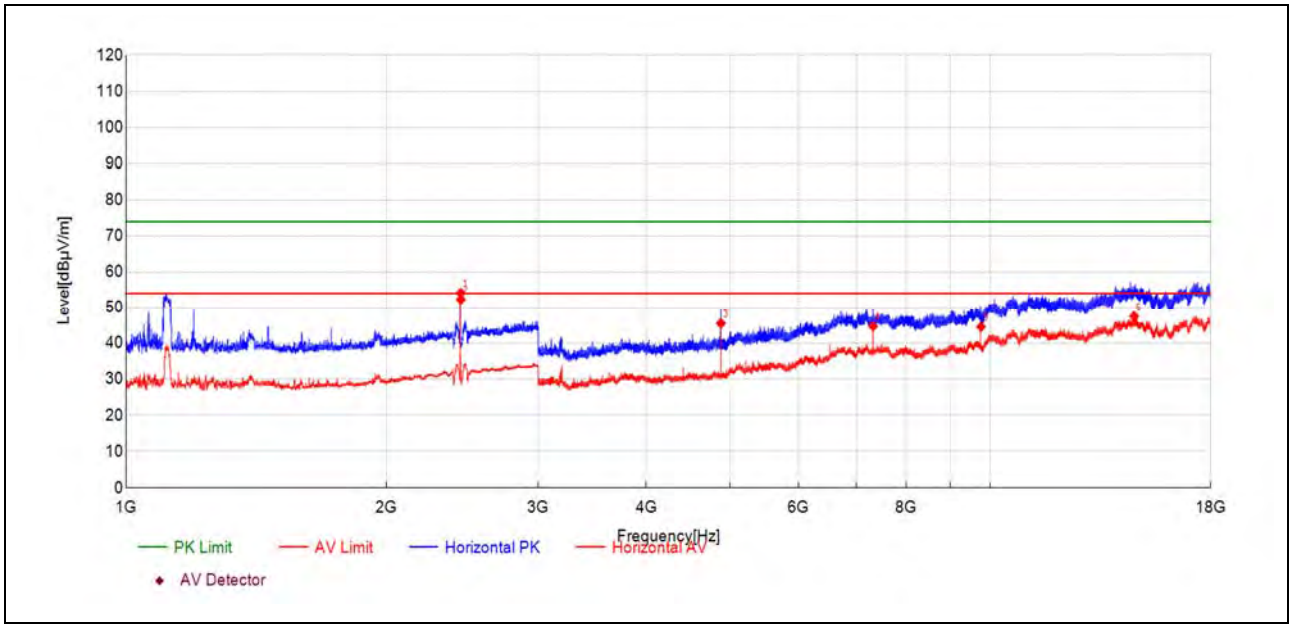
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1597.02	32.5	32.06	-0.420	54.00	21.94	150	130	AV	PASS
2402.53	29.9	35.17	5.260	-	-	150	222	AV	N/A
4804.56	46.7	41.59	-5.140	54.00	12.41	150	9	AV	PASS
7206.14	35.5	40.56	5.030	54.00	13.44	150	360	AV	PASS
11120.27	30.6	44.51	13.960	54.00	9.49	150	226	AV	PASS
14500.88	27.2	46.96	19.810	54.00	7.04	150	105	AV	PASS

Plot for Channel 19



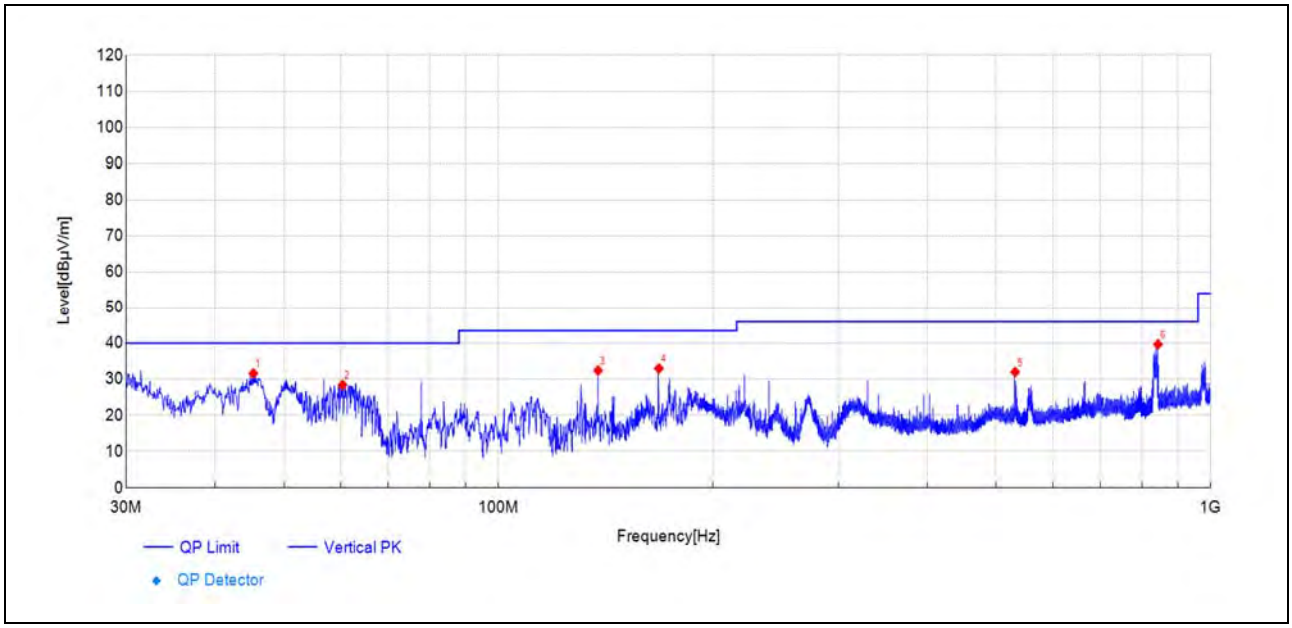
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
61.87	58.9	30.33	-28.570	40.00	9.67	150	50	PK	PASS
133.31	68.0	36.05	-31.900	43.50	7.45	150	72	PK	PASS
187.44	64.7	34.45	-30.230	43.50	9.05	150	123	PK	PASS
533.21	53.2	34.18	-19.020	46.00	11.82	150	113	PK	PASS
714.95	50.6	34.95	-15.610	46.00	11.05	150	103	PK	PASS
840.14	50.0	35.94	-14.080	46.00	10.06	150	150	PK	PASS



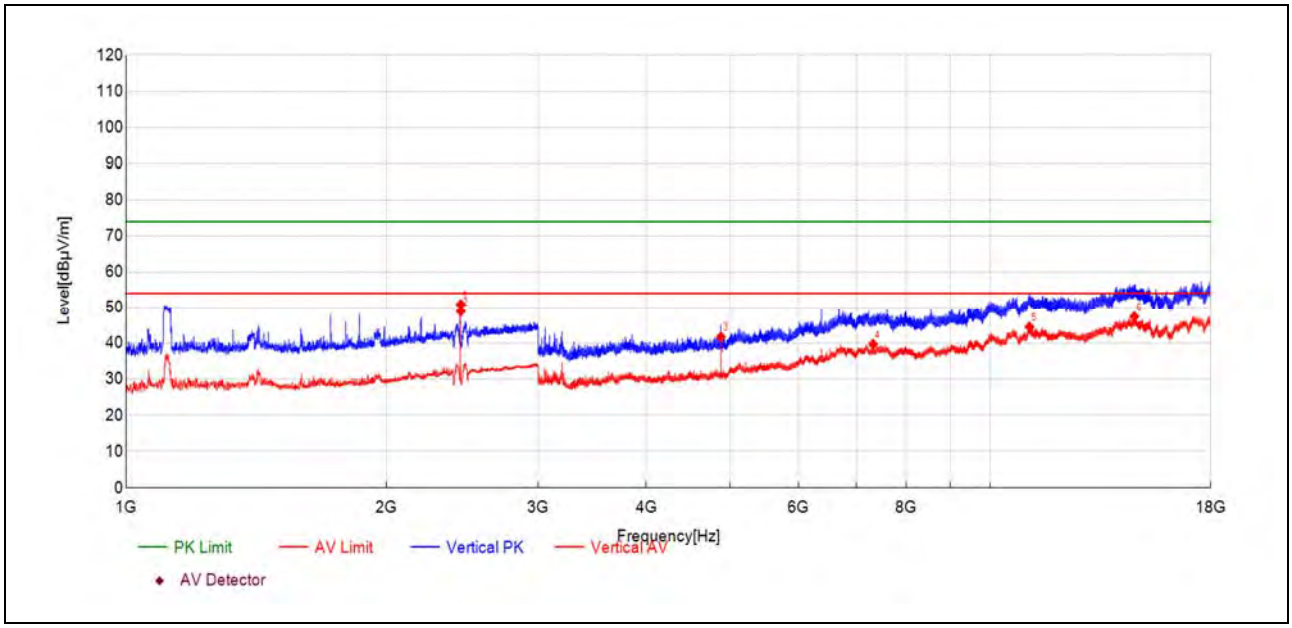
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2439.88	48.3	54.16	5.820	-	-	150	210	PK	N/A
2440.32	46.5	52.35	5.820	-	-	150	205	AV	N/A
4880.56	50.5	45.53	-5.000	54.00	8.47	150	275	AV	PASS
7320.64	40.5	44.74	4.270	54.00	9.26	150	298	AV	PASS
9760.73	35.5	44.55	9.030	54.00	9.45	150	311	AV	PASS
14678.89	27.0	47.50	20.540	54.00	6.50	150	360	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

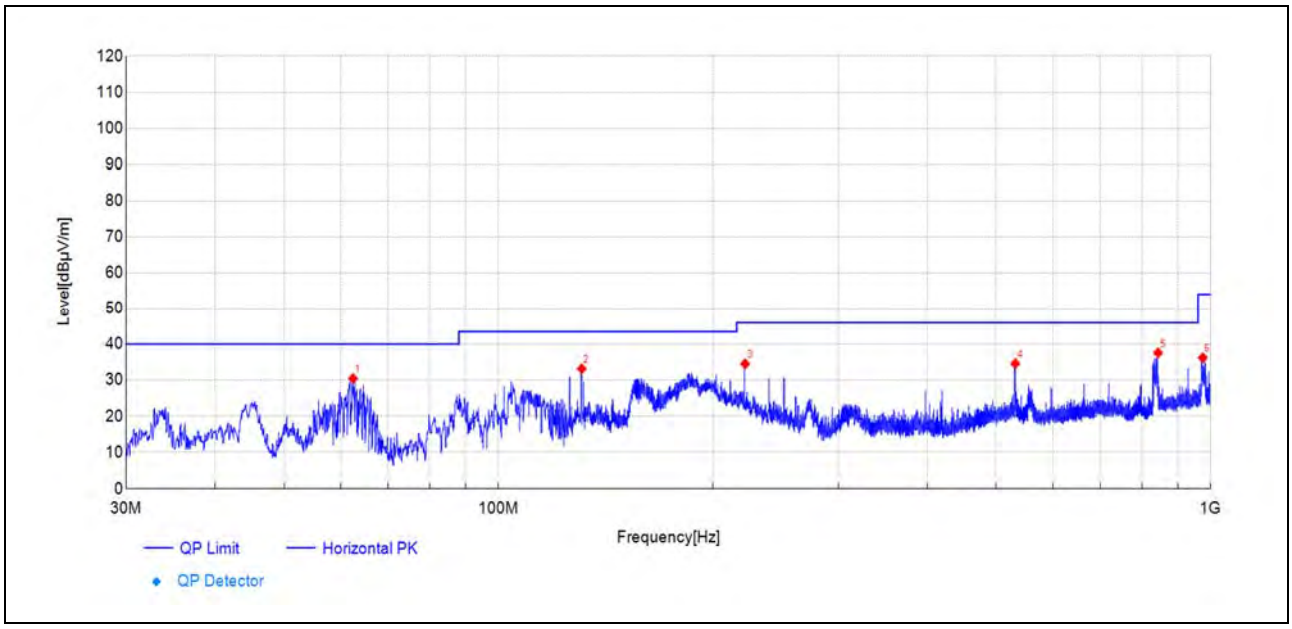
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
45.28	59.8	31.62	-28.200	40.00	8.38	150	294	PK	PASS
60.41	57.1	28.40	-28.650	40.00	11.60	150	168	PK	PASS
138.01	64.6	32.43	-32.160	43.50	11.07	150	152	PK	PASS
167.99	63.9	32.99	-30.900	43.50	10.51	150	20	PK	PASS
531.37	50.9	32.00	-18.940	46.00	14.00	150	242	PK	PASS
843.43	53.3	39.70	-13.600	46.00	6.30	150	121	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

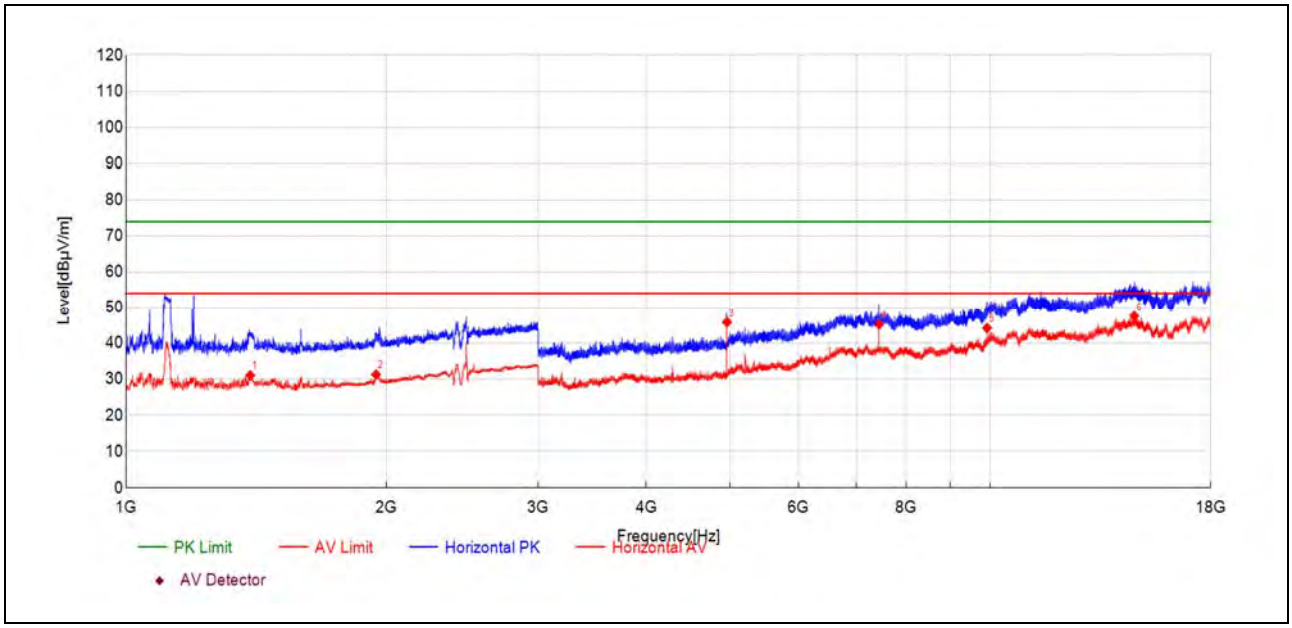
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2439.88	45.1	50.94	5.820	-	-	150	226	PK	N/A
2440.32	43.1	48.94	5.820	-	-	150	226	AV	N/A
4880.56	46.8	41.76	-5.000	54.00	12.24	150	360	AV	PASS
7320.64	35.5	39.75	4.270	54.00	14.25	150	118	AV	PASS
11105.27	30.5	44.54	14.040	54.00	9.46	150	167	AV	PASS
14687.89	26.9	47.45	20.570	54.00	6.55	150	81	AV	PASS

Plot for Channel 39



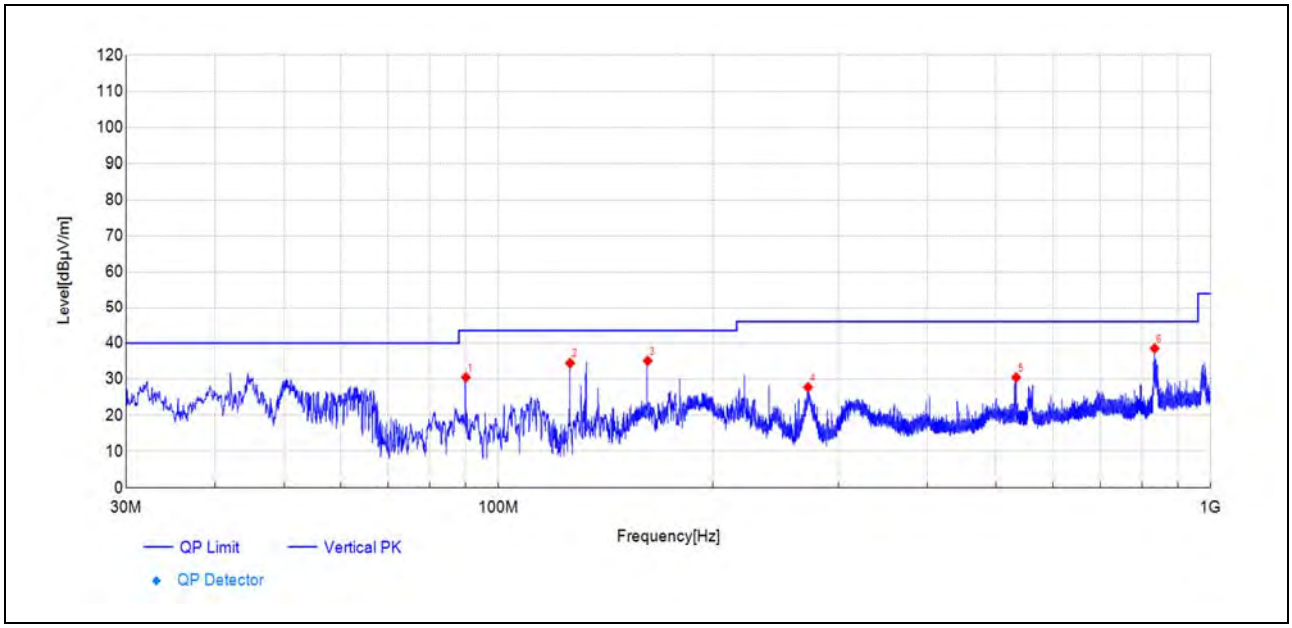
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
62.50	59.2	30.46	-28.780	40.00	9.54	150	58	PK	PASS
130.89	65.0	33.18	-31.790	43.50	10.32	150	74	PK	PASS
221.97	63.5	34.55	-28.990	46.00	11.45	150	240	PK	PASS
531.76	53.6	34.61	-18.960	46.00	11.39	150	138	PK	PASS
843.53	51.2	37.58	-13.590	46.00	8.42	150	149	PK	PASS
974.49	47.1	36.22	-10.880	54.00	17.78	150	100	PK	PASS



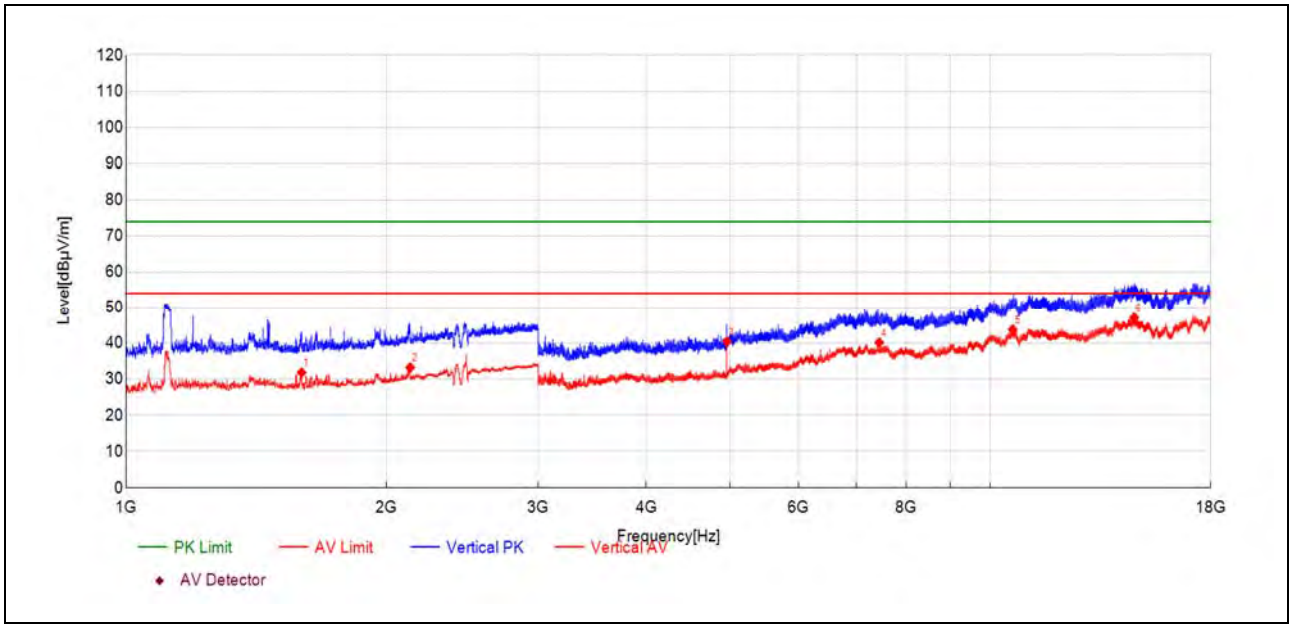
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1392.53	31.4	31.06	-0.300	54.00	22.94	150	64	AV	PASS
1946.88	29.1	31.29	2.160	54.00	22.71	150	158	AV	PASS
4960.57	50.5	45.88	-4.600	54.00	8.12	150	284	AV	PASS
7440.65	40.6	45.27	4.630	54.00	8.73	150	310	AV	PASS
9920.73	34.9	44.22	9.370	54.00	9.78	150	356	AV	PASS
14681.89	27.0	47.59	20.550	54.00	6.41	150	213	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
90.00	62.1	30.51	-31.620	43.50	12.99	150	156	PK	PASS
126.03	65.4	34.46	-30.970	43.50	9.04	150	140	PK	PASS
162.02	66.2	35.08	-31.140	43.50	8.42	150	304	PK	PASS
272.03	54.4	27.78	-26.650	46.00	18.22	150	41	PK	PASS
533.16	49.5	30.50	-19.020	46.00	15.50	150	182	PK	PASS
834.22	52.4	38.55	-13.860	46.00	7.45	150	104	PK	PASS



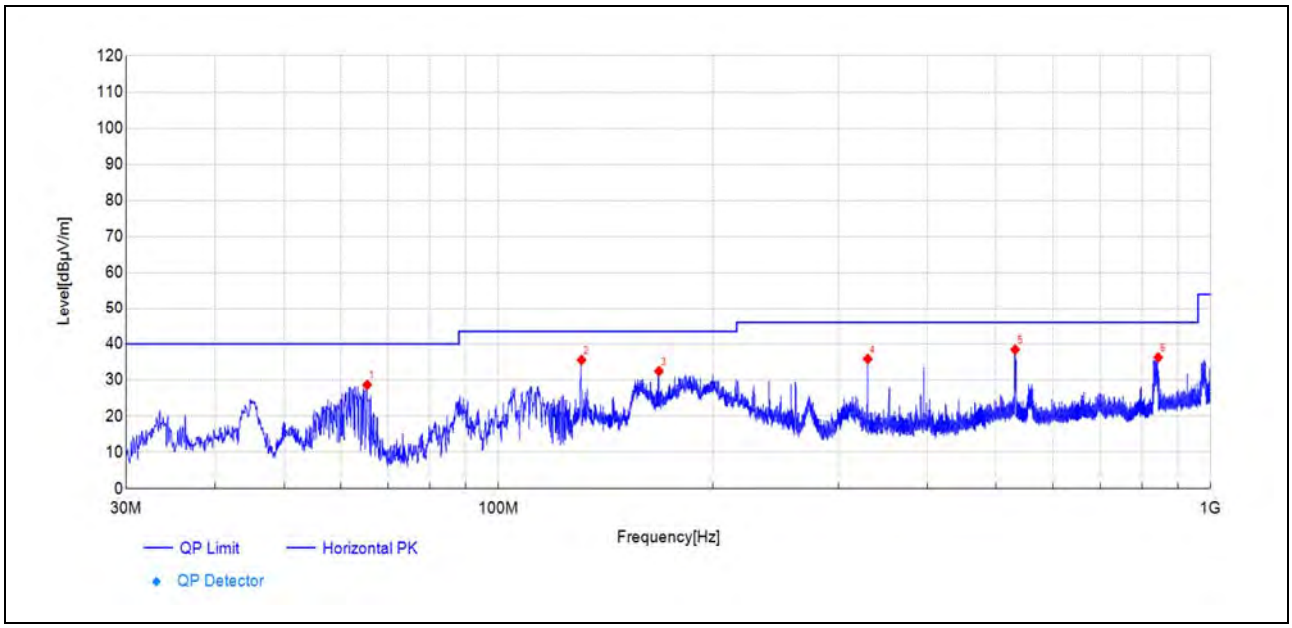
(Antenna Vertical, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1596.58	32.3	31.83	-0.420	54.00	22.17	150	123	AV	PASS
2132.70	29.7	33.27	3.550	54.00	20.73	150	113	AV	PASS
4960.57	45.0	40.44	-4.600	54.00	13.56	150	358	AV	PASS
7440.15	35.5	40.17	4.630	54.00	13.83	150	9	AV	PASS
10622.25	31.7	43.83	12.180	54.00	10.17	150	166	AV	PASS
14680.39	26.6	47.17	20.550	54.00	6.83	150	298	AV	PASS

Right

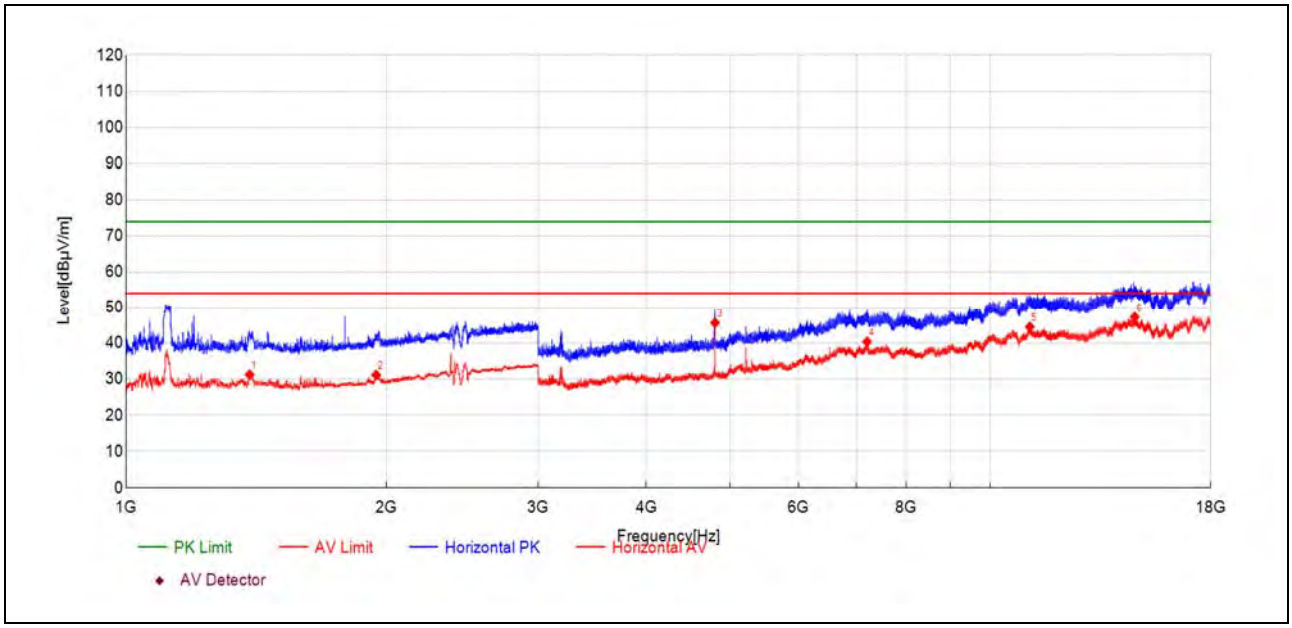
1Mbps

Plot for Channel 0



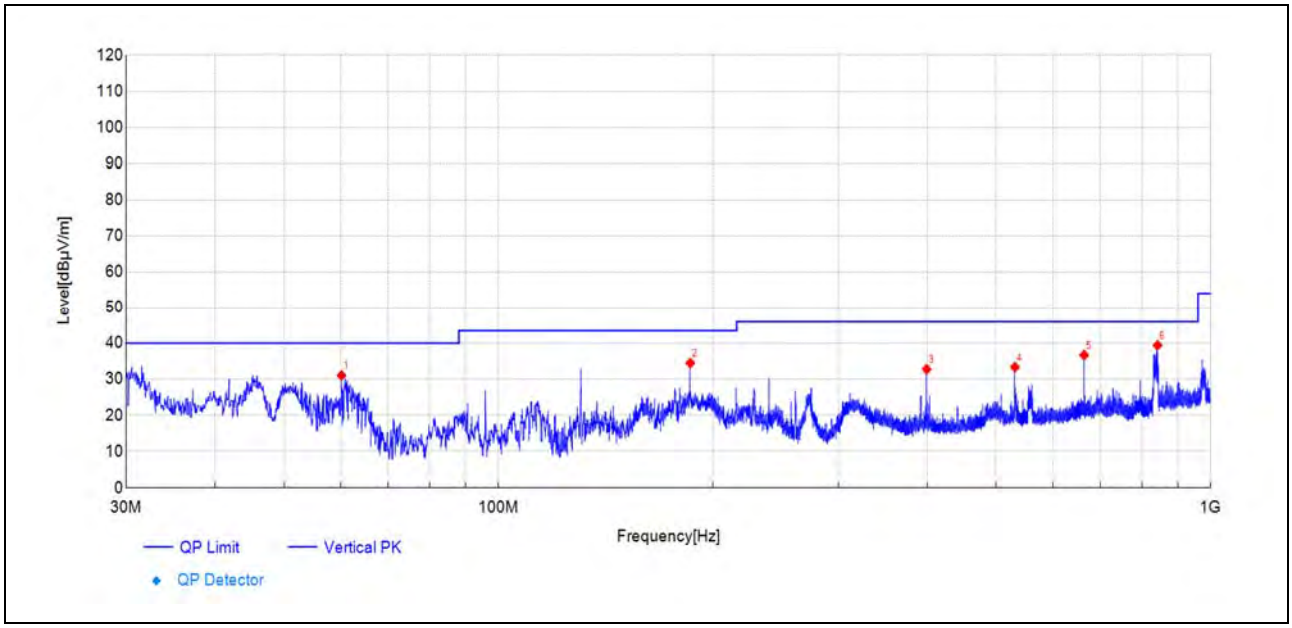
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
65.41	58.4	28.65	-29.740	40.00	11.35	150	48	PK	PASS
130.79	67.4	35.58	-31.800	43.50	7.92	150	63	PK	PASS
167.99	63.4	32.46	-30.900	43.50	11.04	150	293	PK	PASS
329.94	60.1	35.87	-24.220	46.00	10.13	150	95	PK	PASS
531.42	57.4	38.45	-18.950	46.00	7.55	150	143	PK	PASS
843.87	49.8	36.27	-13.540	46.00	9.73	150	42	PK	PASS



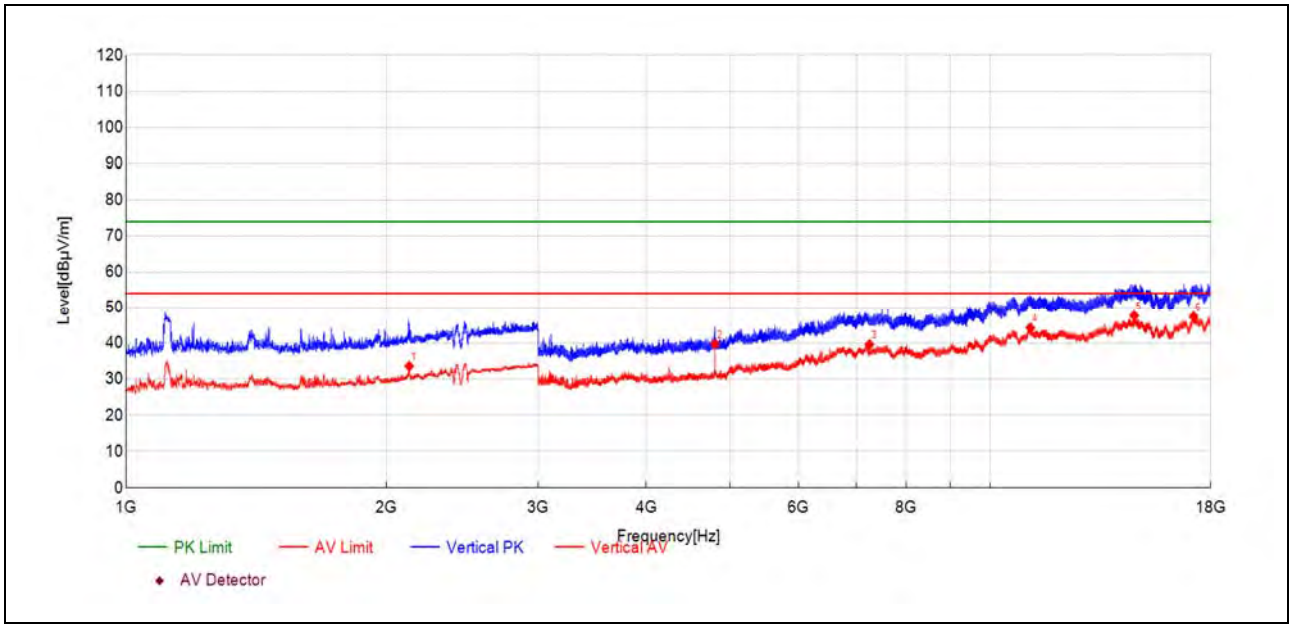
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1390.31	31.6	31.27	-0.330	54.00	22.73	150	156	AV	PASS
1946.88	29.0	31.19	2.160	54.00	22.81	150	161	AV	PASS
4804.56	50.8	45.68	-5.140	54.00	8.32	150	109	AV	PASS
7206.14	35.4	40.40	5.030	54.00	13.60	150	120	AV	PASS
11114.27	30.6	44.55	14.000	54.00	9.45	150	171	AV	PASS
14702.89	26.8	47.34	20.580	54.00	6.66	150	0	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

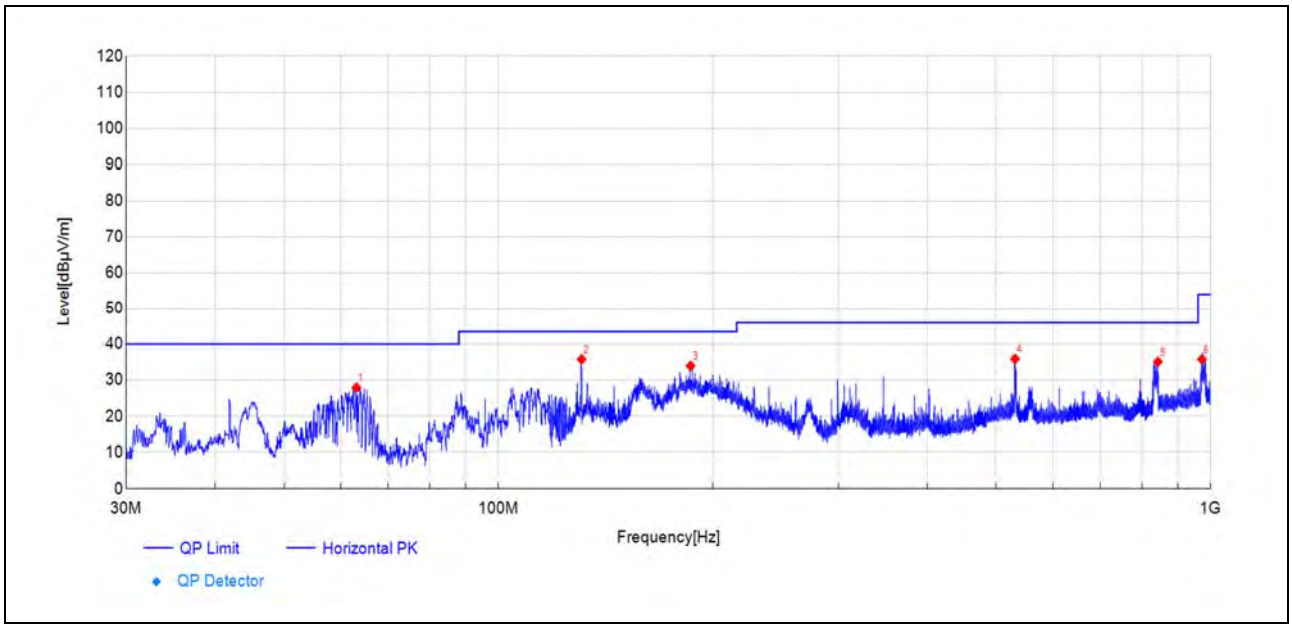
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
60.22	59.7	31.04	-28.610	40.00	8.96	150	204	PK	PASS
185.94	64.8	34.48	-30.270	43.50	9.02	150	20	PK	PASS
399.25	55.2	32.78	-22.370	46.00	13.22	150	89	PK	PASS
531.13	52.3	33.36	-18.930	46.00	12.64	150	332	PK	PASS
664.17	52.9	36.70	-16.150	46.00	9.30	150	342	PK	PASS
842.17	53.2	39.41	-13.790	46.00	6.59	150	115	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

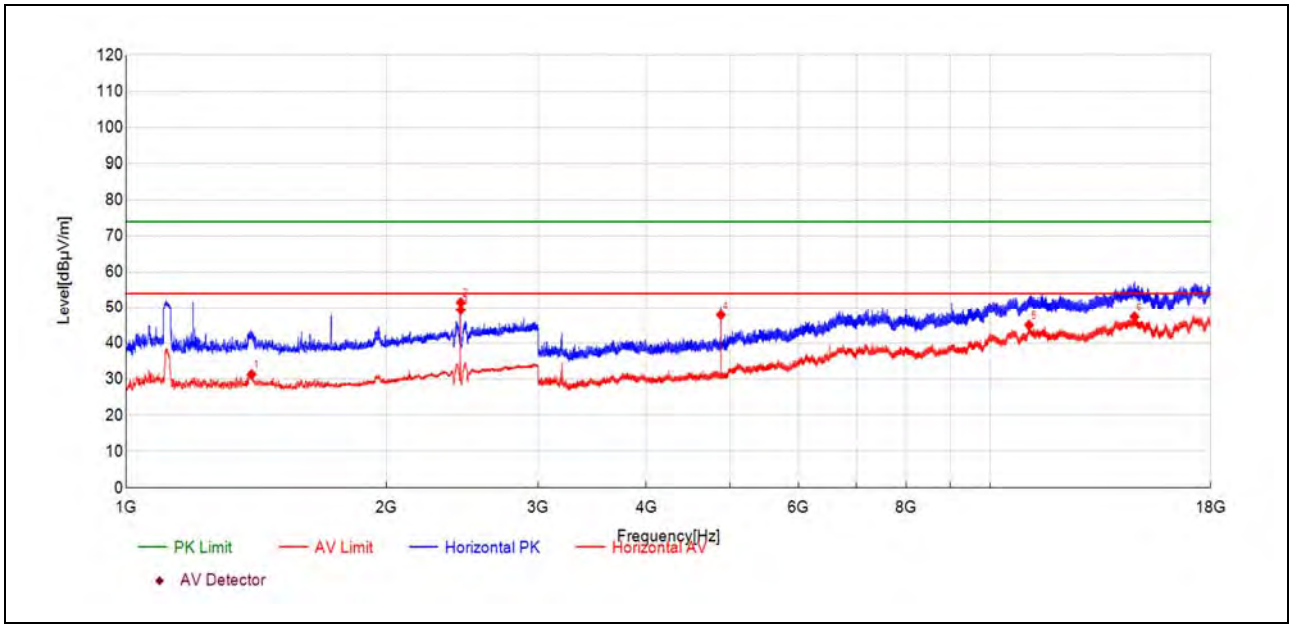
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2126.92	30.1	33.63	3.510	54.00	20.37	150	111	AV	PASS
4804.06	44.9	39.79	-5.150	54.00	14.21	150	37	AV	PASS
7250.14	35.3	39.67	4.360	54.00	14.33	150	25	AV	PASS
11128.27	30.4	44.29	13.910	54.00	9.71	150	256	AV	PASS
14680.89	27.2	47.72	20.550	54.00	6.28	150	196	AV	PASS
17196.47	27.6	47.47	19.900	54.00	6.53	150	111	AV	PASS

Plot for Channel 19



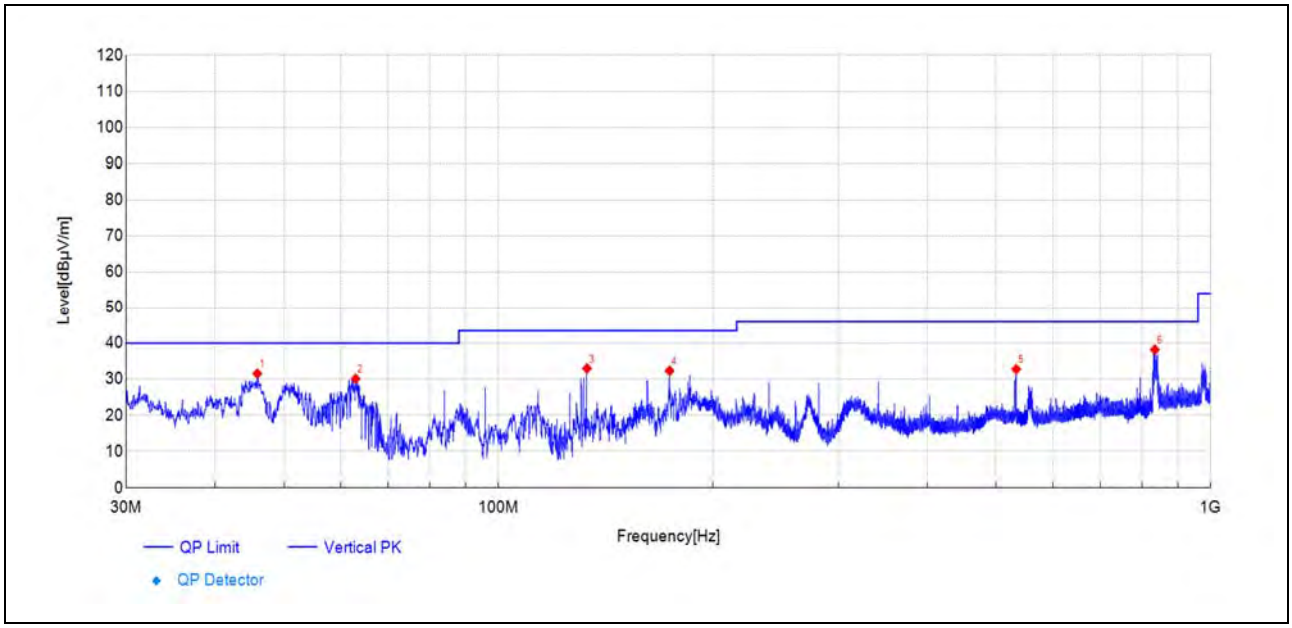
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
63.18	57.0	27.94	-29.060	40.00	12.06	150	73	PK	PASS
130.84	67.6	35.79	-31.800	43.50	7.71	150	68	PK	PASS
186.08	64.3	33.98	-30.290	43.50	9.52	150	306	PK	PASS
531.13	54.8	35.91	-18.930	46.00	10.09	150	162	PK	PASS
843.24	48.7	35.08	-13.630	46.00	10.92	150	141	PK	PASS
972.11	47.1	35.81	-11.280	54.00	18.19	150	109	PK	PASS



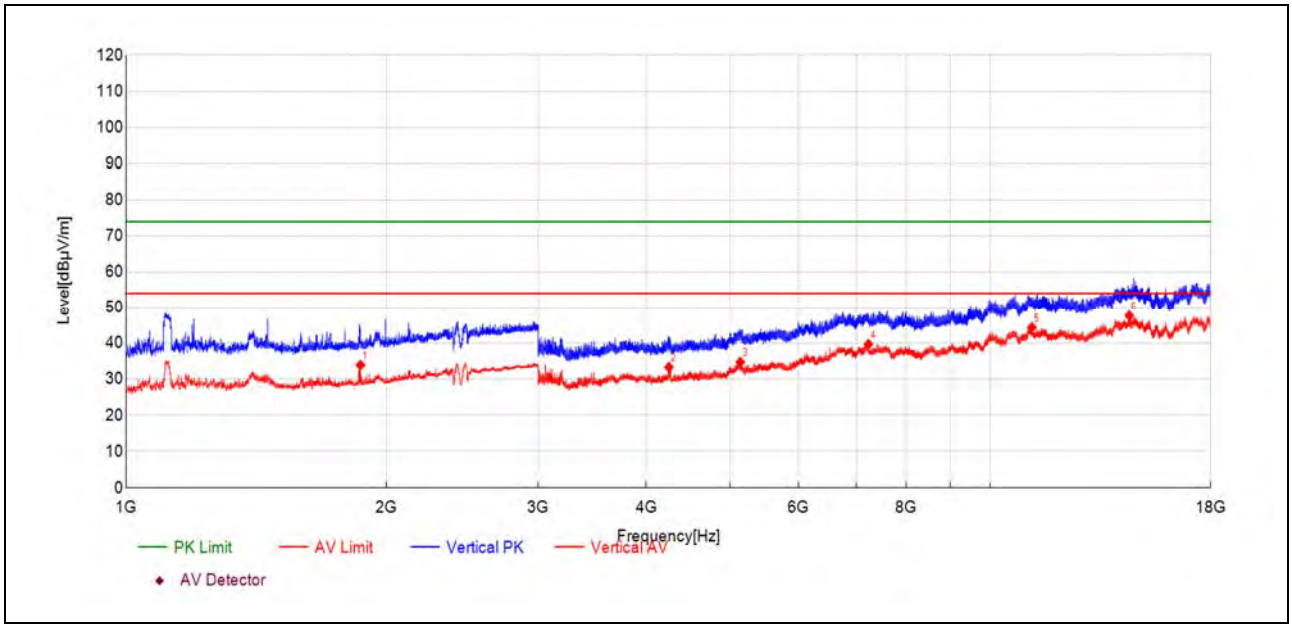
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1397.42	31.6	31.35	-0.240	54.00	22.65	150	71	AV	PASS
2439.88	45.7	51.53	5.820	-	-	150	168	PK	N/A
2440.32	43.6	49.37	5.820	-	-	150	173	AV	N/A
4880.56	52.9	47.90	-5.000	54.00	6.10	150	59	AV	PASS
11096.27	31.0	45.04	14.030	54.00	8.96	150	106	AV	PASS
14693.89	26.8	47.37	20.580	54.00	6.63	150	311	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

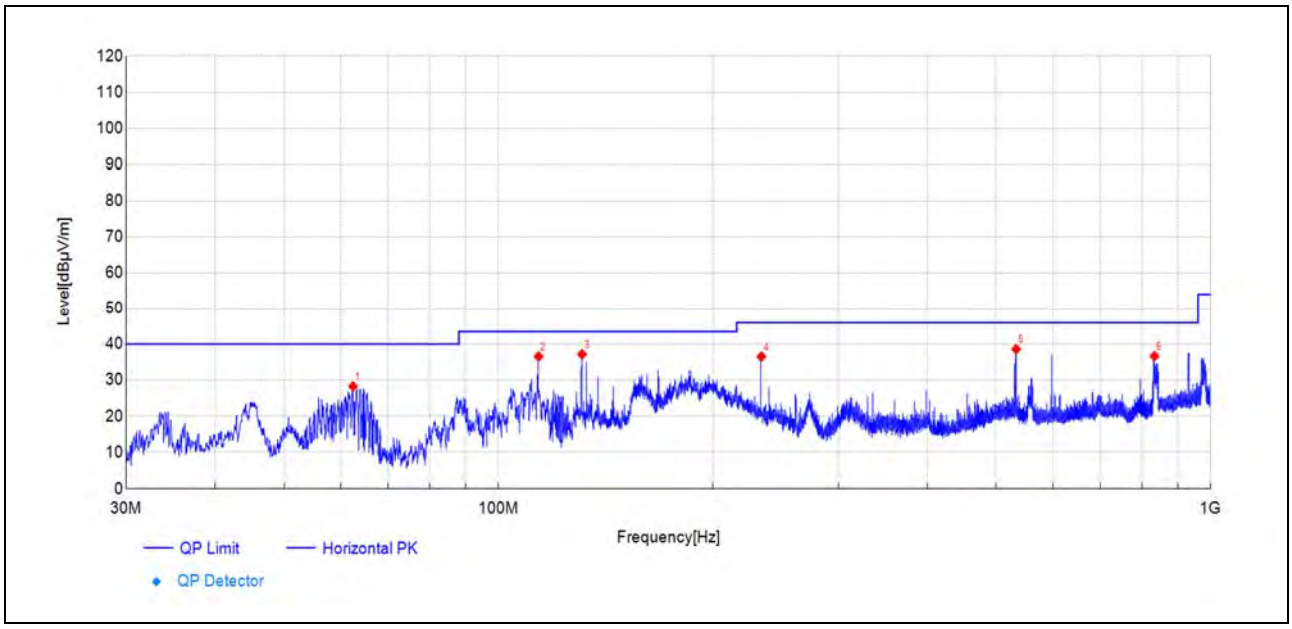
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
45.86	60.0	31.54	-28.410	40.00	8.46	150	275	PK	PASS
63.03	59.1	30.11	-29.030	40.00	9.89	150	190	PK	PASS
133.12	64.8	32.98	-31.860	43.50	10.52	150	227	PK	PASS
173.91	62.9	32.35	-30.570	43.50	11.15	150	296	PK	PASS
533.16	51.8	32.78	-19.020	46.00	13.22	150	184	PK	PASS
834.85	52.0	38.21	-13.750	46.00	7.79	150	95	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

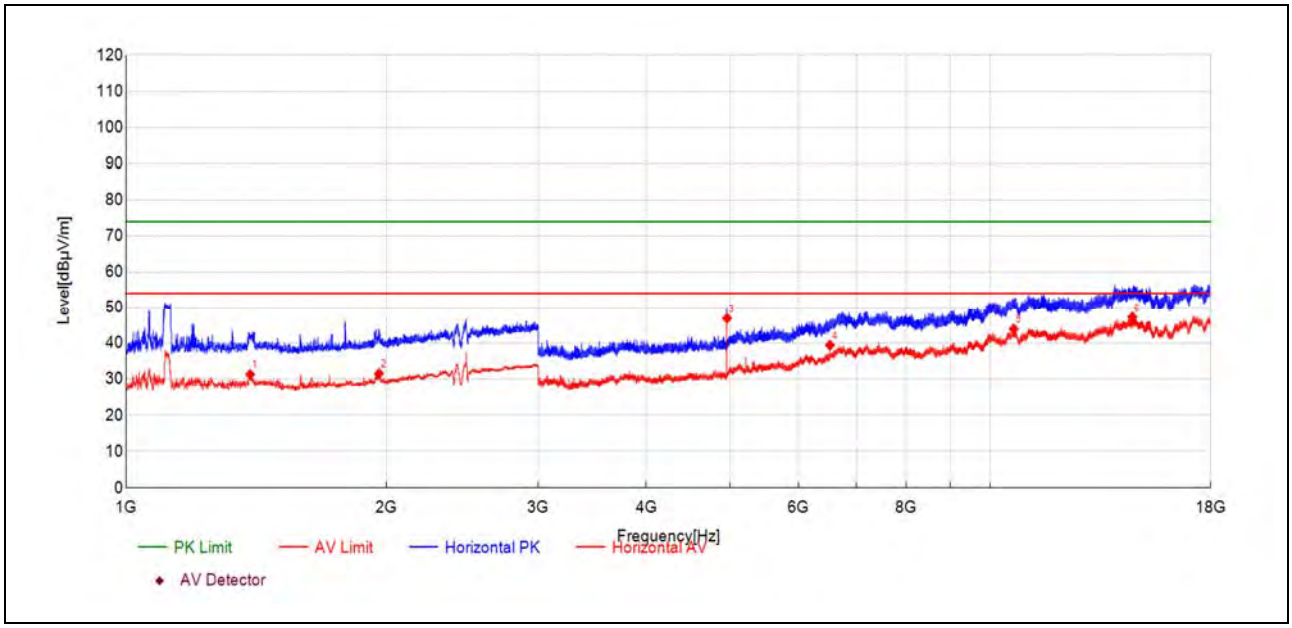
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1867.75	32.4	33.92	1.520	54.00	20.08	150	88	AV	PASS
4248.54	40.6	33.36	-7.190	54.00	20.64	150	105	AV	PASS
5139.07	37.5	34.74	-2.720	54.00	19.26	150	105	AV	PASS
7230.64	35.1	39.71	4.650	54.00	14.29	150	285	AV	PASS
11178.27	30.8	44.41	13.610	54.00	9.59	150	33	AV	PASS
14488.88	28.0	47.69	19.680	54.00	6.31	150	58	AV	PASS

Plot for Channel 39



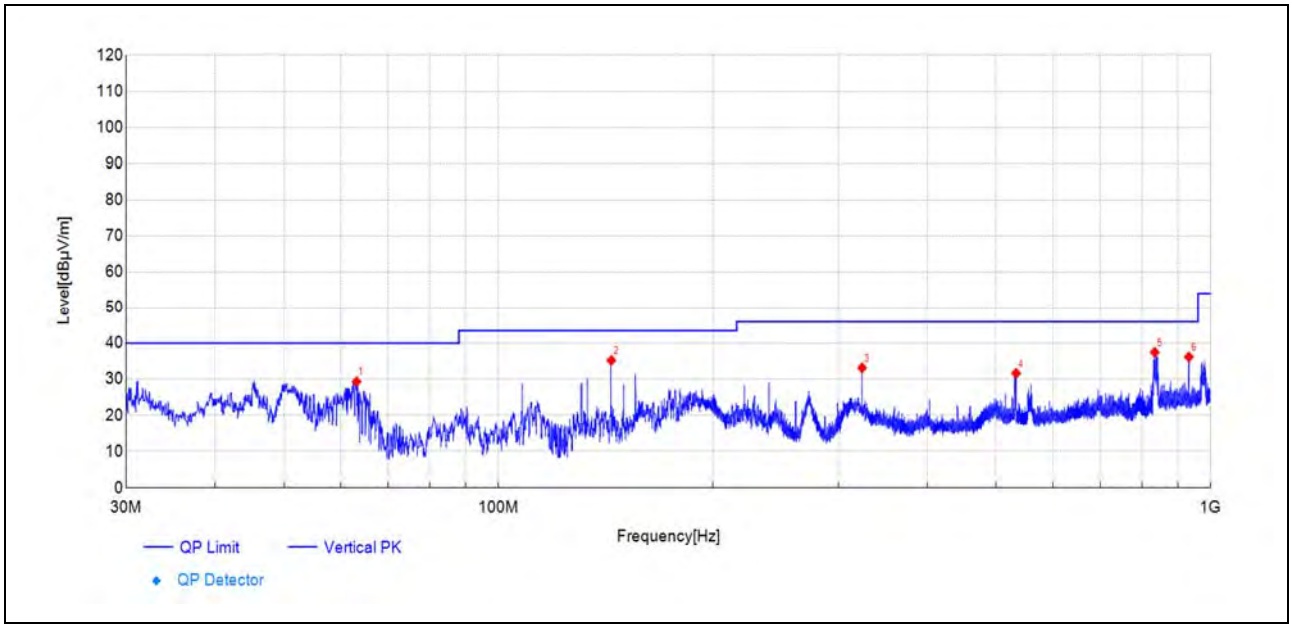
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
62.50	57.1	28.28	-28.780	40.00	11.72	150	94	PK	PASS
113.86	66.1	36.58	-29.500	43.50	6.92	150	20	PK	PASS
131.03	69.0	37.21	-31.800	43.50	6.29	150	83	PK	PASS
233.95	64.5	36.56	-27.920	46.00	9.44	150	329	PK	PASS
533.12	57.6	38.62	-19.020	46.00	7.38	150	168	PK	PASS
833.73	50.6	36.68	-13.940	46.00	9.32	150	131	PK	PASS



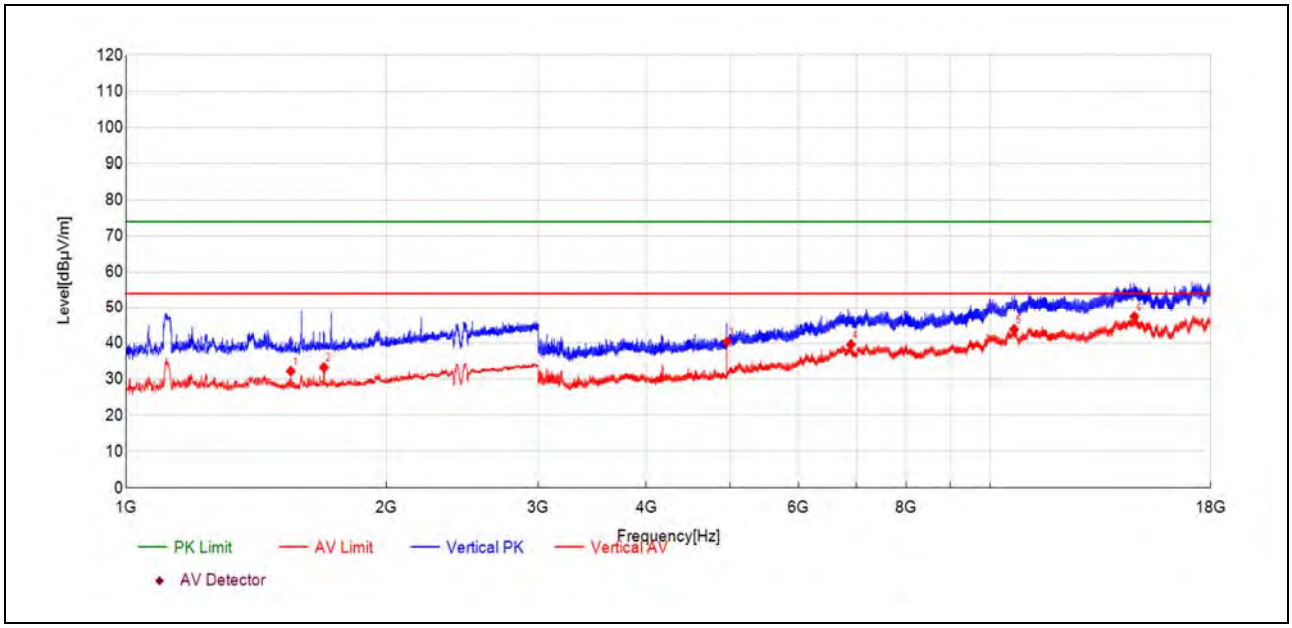
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1392.09	31.6	31.34	-0.300	54.00	22.66	150	154	AV	PASS
1961.99	29.3	31.57	2.290	54.00	22.43	150	160	AV	PASS
4960.57	51.5	46.93	-4.600	54.00	7.07	150	38	AV	PASS
6525.62	37.4	39.47	2.100	54.00	14.53	150	220	AV	PASS
10649.25	31.7	43.98	12.270	54.00	10.02	150	220	AV	PASS
14610.89	27.0	47.32	20.360	54.00	6.68	150	351	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
63.22	58.4	29.34	-29.060	40.00	10.66	150	171	PK	PASS
144.03	66.5	35.24	-31.270	43.50	8.26	150	208	PK	PASS
323.97	57.9	33.15	-24.720	46.00	12.85	150	90	PK	PASS
533.12	50.7	31.66	-19.020	46.00	14.34	150	12	PK	PASS
834.41	51.3	37.47	-13.820	46.00	8.53	150	107	PK	PASS
932.10	47.9	36.18	-11.710	46.00	9.82	150	128	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1551.23	33.1	32.25	-0.860	54.00	21.75	150	145	AV	PASS
1694.38	33.0	33.25	0.210	54.00	20.75	150	145	AV	PASS
4960.07	45.1	40.44	-4.610	54.00	13.56	150	156	AV	PASS
6901.13	36.0	39.62	3.610	54.00	14.38	150	97	AV	PASS
10660.26	31.6	43.87	12.310	54.00	10.13	150	280	AV	PASS
14687.89	26.8	47.41	20.570	54.00	6.59	150	220	AV	PASS

END OF REPORT