



REPORT No.: SZ25020082W01

TEST REPORT

APPLICANT : Savant Technologies Llc, dba Ge lighting,
a Savant Company

PRODUCT NAME : LED LAMP

MODEL NAME : CLEDA199CDGSMS

BRAND NAME : GE

FCC ID : PUU-A19C-DMFC

STANDARD(S) : 47 CFR Part 15 Subpart C

RECEIPT DATE : 2025-02-12

TEST DATE : 2025-02-14 to 2025-03-10

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REPORT No.: SZ25020082W01

Change History		
Version	Date	Reason for change
1.0	2025-03-19	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. 05, 2025	Lin Haoyang	PASS	No deviation
3	15.247(b)	Maximum Peak Conducted Output Power	Mar. 05, 2025	Lin Haoyang	PASS	No deviation
4	15.247(b)	Maximum Average Conducted Output Power	Mar. 05, 2025	Lin Haoyang	PASS	No deviation
5	15.247(a)	Bandwidth	Mar. 05, 2025	Lin Haoyang	PASS	No deviation
6	15.247(d)	Conducted Spurious Emission and Band Edge	Mar. 05, 2025	Lin Haoyang	PASS	No deviation
7	15.247(e)	Power Spectral Density	Mar. 05, 2025	Lin Haoyang	PASS	No deviation
8	15.207	Conducted Emission	Feb. 17, 2025	Fan Shengquan	PASS	No deviation
9	15.247(d)	Restricted Frequency Bands	Feb. 21, 2025	Zhong Xiangyun	PASS	No deviation
10	15.209, 15.247(d)	Radiated Emission	Feb. 27, 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 Analyzer	MY53470836	N9010A	Agilent	2025.01.15	2026.01.14
RF Cable (30MHz-26GHz)	CB01	RF01	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	2024.07.02	2025.07.01

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	S10M100L38 02	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier (2GHz-18GHz)	61171/61172	S020180L32 03	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	2024.07.03	2025.07.02
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2024.07.03	2025.07.02
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	2024.07.03	2025.07.02
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	$\pm 2.22\text{dB}$	Confidence levels of 95%
Power Spectral Density	$\pm 2.22\text{dB}$	Confidence levels of 95%
Bandwidth	$\pm 5\%$	Confidence levels of 95%
Conducted Spurious Emission	$\pm 2.77\text{dB}$	Confidence levels of 95%
Restricted Frequency Bands	$\pm 5\%$	Confidence levels of 95%
Radiated Emission	$\pm 2.95\text{dB}$	Confidence levels of 95%
Conducted Emission	$\pm 2.44\text{dB}$	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:	Savant Technologies Llc, dba Ge lighting, a Savant Company
Applicant Address:	1975 Noble Road Cleveland Ohio United States 44112
Manufacturer:	Xiamen Topstar lighting Co.,Ltd.
Manufacturer Address:	676 Meixi Avenue,Tong'an District,Xiamen,China

2.2. Information of EUT

Product Name:	LED LAMP
Sample No.:	2#, 3#, 5#
Hardware Version:	1
Software Version:	1.1.114
Equipment Type:	Bluetooth LE
Bluetooth Version:	5.0
Modulation Type:	GFSK
Data Rate:	1Mbps, 2Mbps, 512kbps
Operating Frequency Range:	2402MHz-2480MHz
Antenna Type:	Wire Antenna
Antenna Gain:	0.97dBi

Note 1: 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

The EUT is controlled by dedicated software to transmit at the default maximum power level.

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

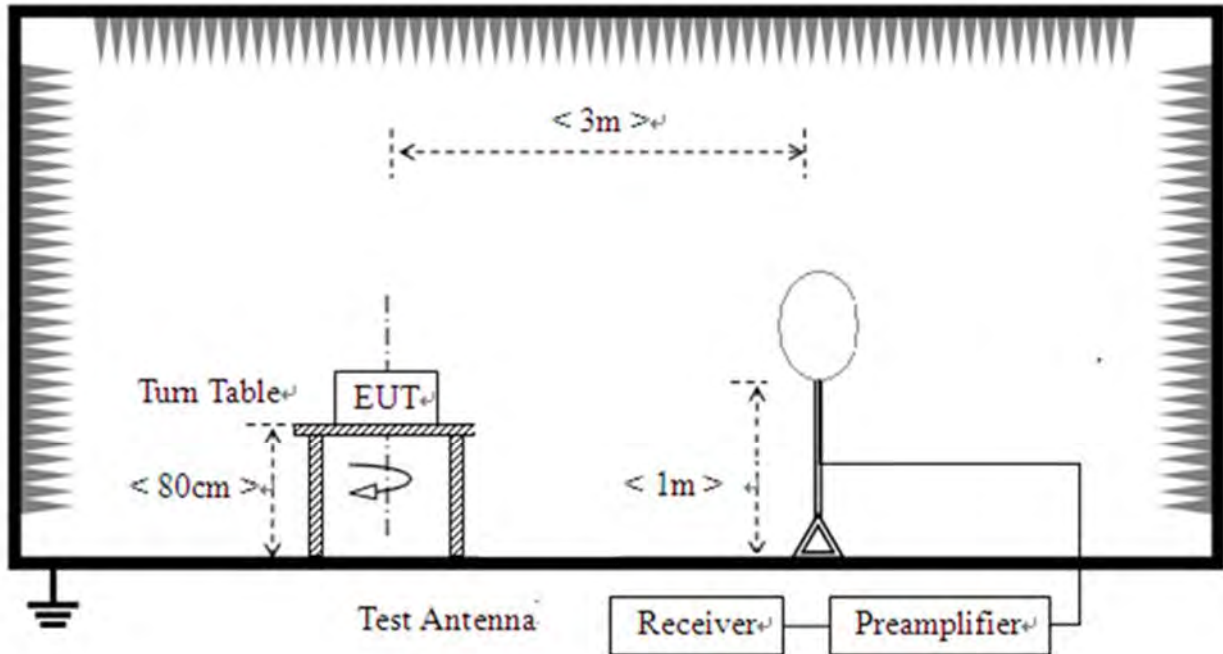


2.6.2. Conducted Emission Measurement

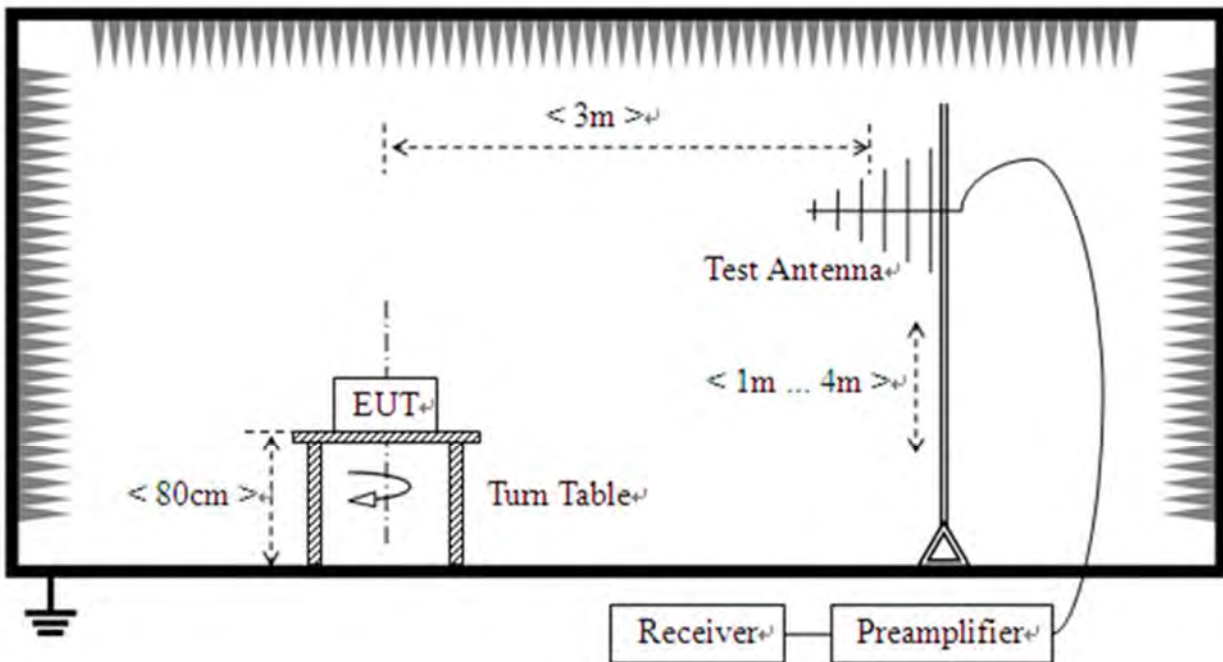


2.6.3.Radiation Measurement

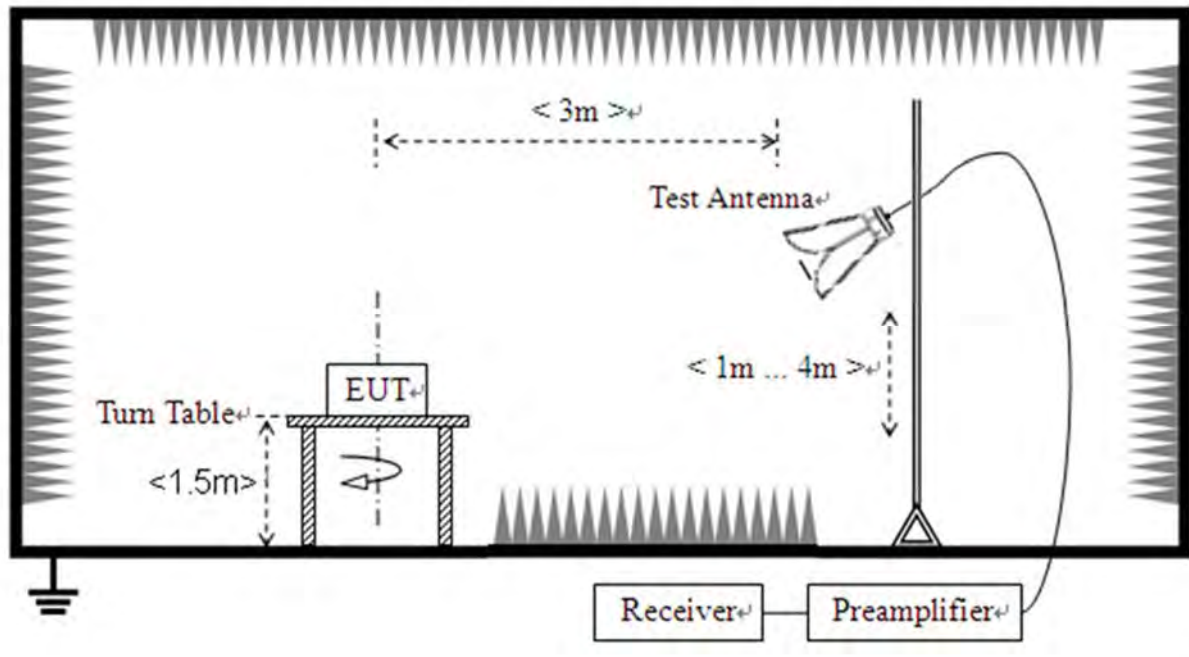
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to 1GHz



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 ☒ Wire Antenna	☐ I-PEX Connector ☐ SMA Connector ☐ RP-SMA Connector ☐ Metal Shrapnel ☐ Layout ☒ Soldered

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 $\pm 2\%$; 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 to 100kHz
- 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 by 6 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., $RBW = 100\text{ kHz}$, $VBW \geq 3 \times RBW$, 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 $\geq 6\text{ dB}$.

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 to 1.5 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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dB μ V)	
	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 $f \geq 1\text{GHz}$, 100 kHz for $f < 1\text{GHz}$

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.9 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 ($\mu\text{V}/\text{m}$)	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.10 in this report.



Annex A Test Data and Result

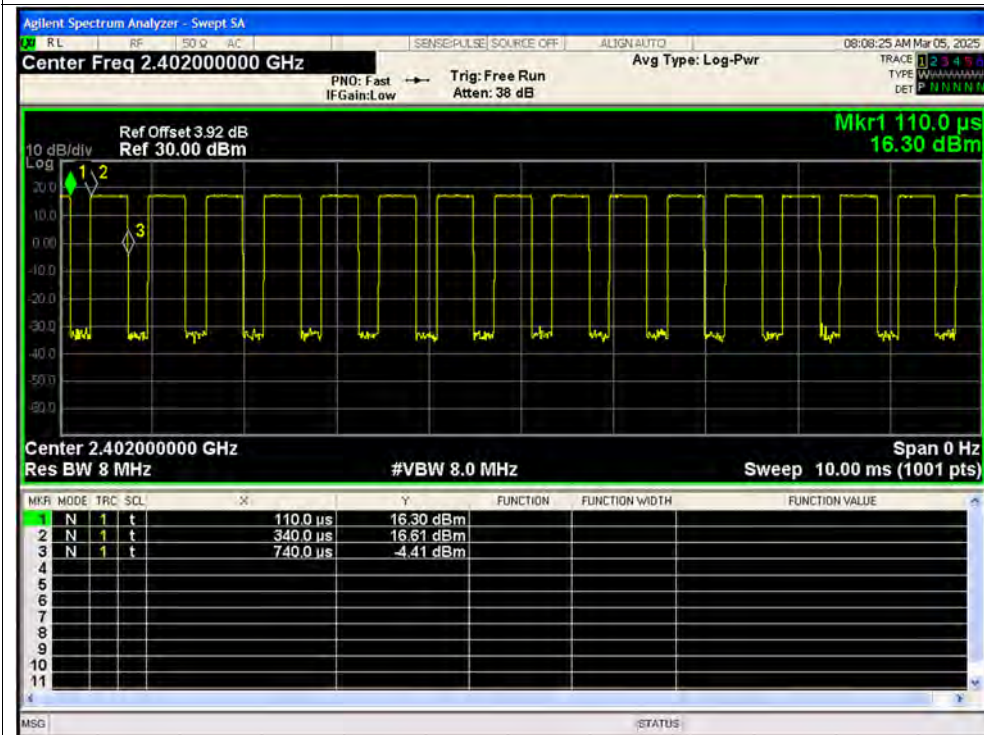
A.1. Duty Cycle of Test Signal

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	63.49	1.97	2.5
NVNT	BLE 1M	2440	Ant1	62.9	2.01	2.56
NVNT	BLE 1M	2480	Ant1	63.49	1.97	2.5
NVNT	BLE 2M	2402	Ant1	33.87	4.7	4.76
NVNT	BLE 2M	2440	Ant1	33.33	4.77	4.76
NVNT	BLE 2M	2480	Ant1	33.33	4.77	4.76
NVNT	BLE_512K	2402	Ant1	57.45	2.41	0.93
NVNT	BLE_512K	2440	Ant1	57.45	2.41	0.93
NVNT	BLE_512K	2480	Ant1	57.22	2.42	0.93

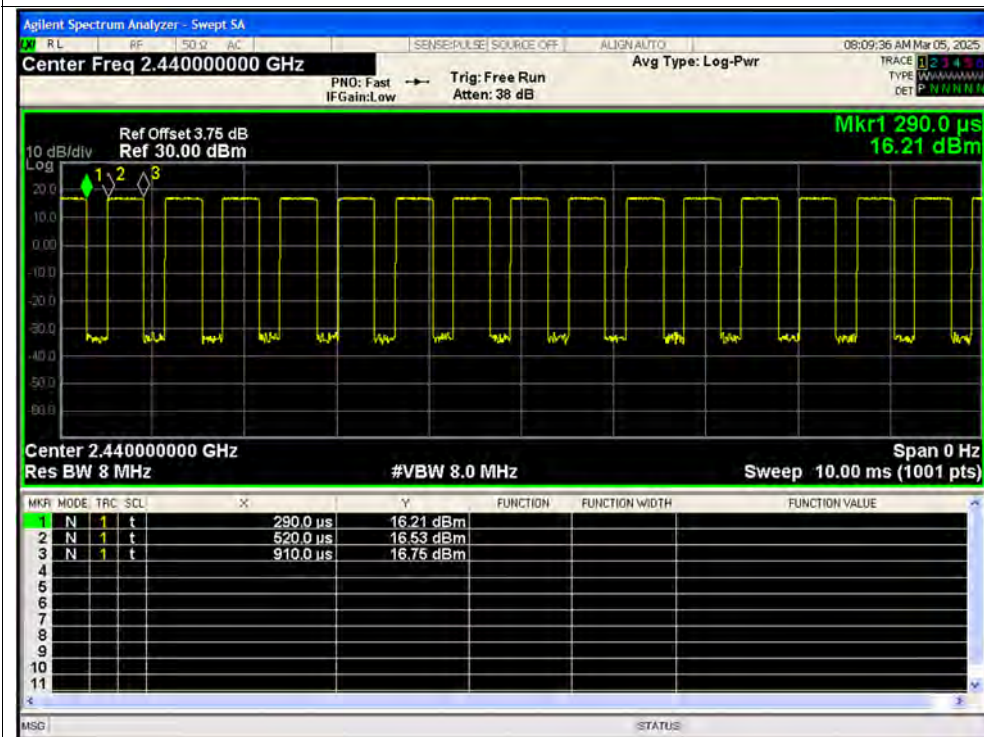


Test Graphs

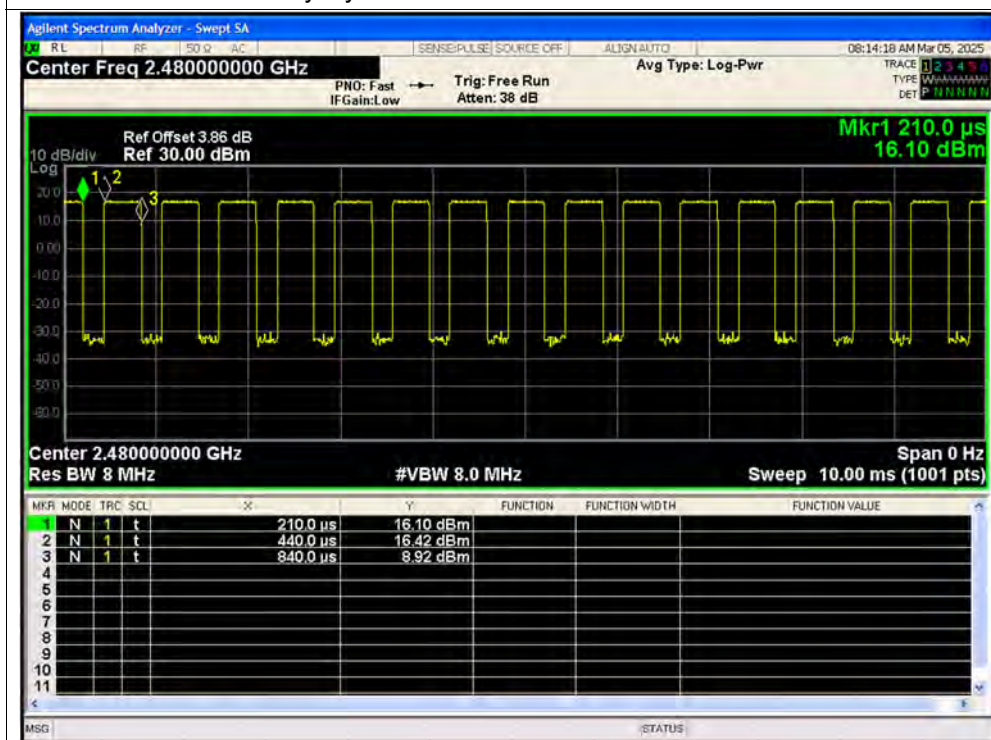
Duty Cycle NVNT BLE 1M 2402MHz Ant1



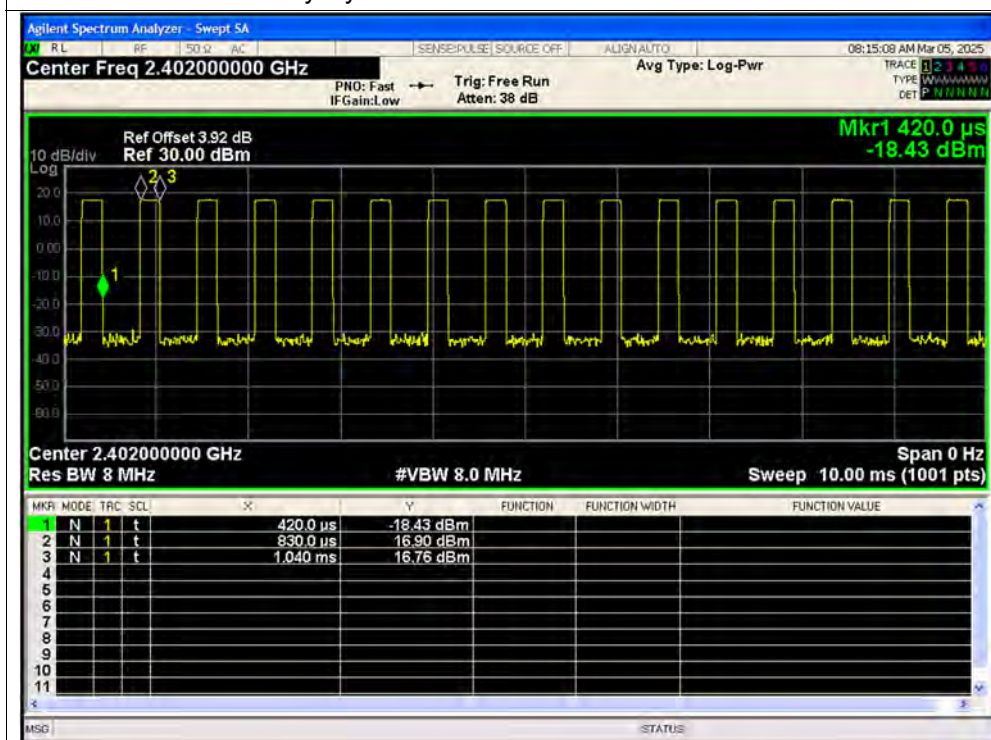
Duty Cycle NVNT BLE 1M 2440MHz Ant1



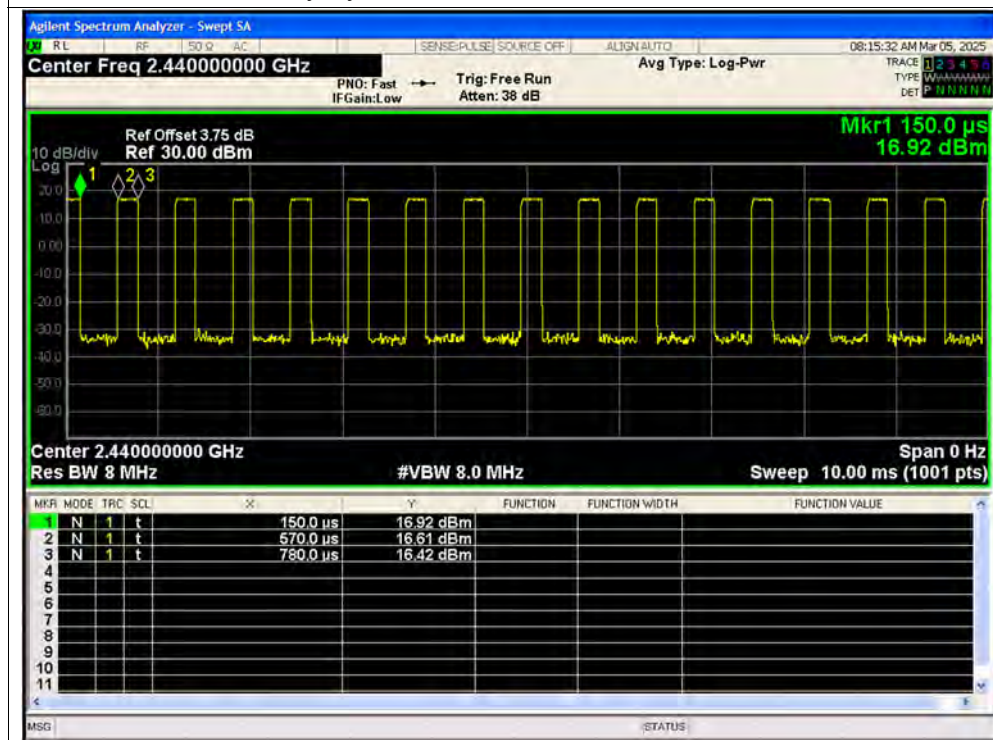
Duty Cycle NVNT BLE 1M 2480MHz Ant1



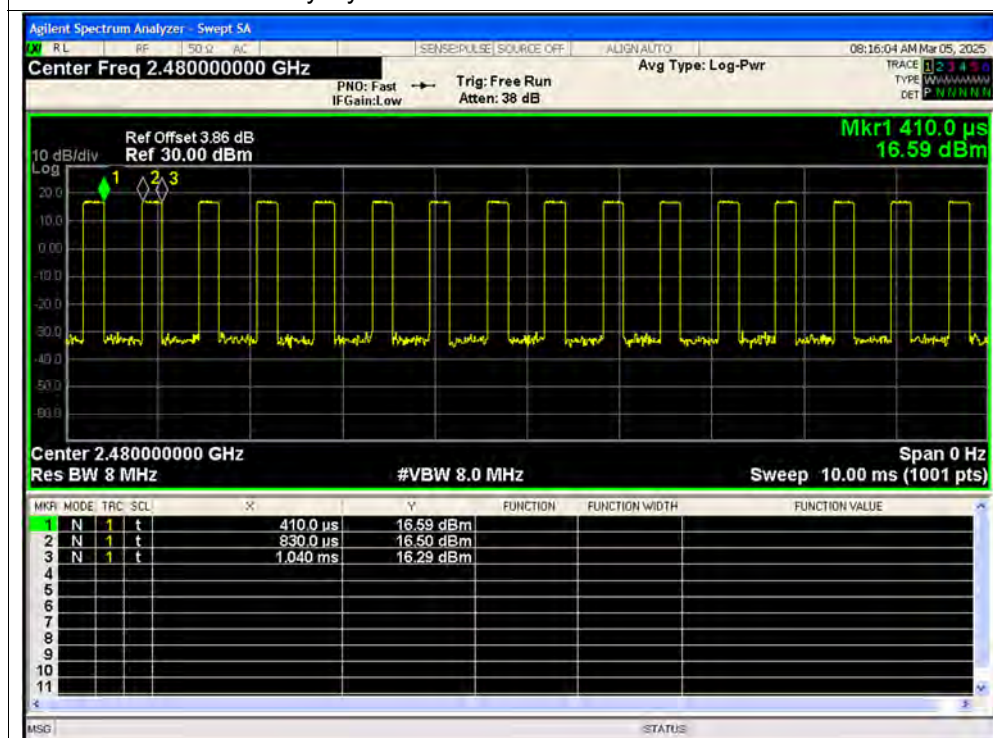
Duty Cycle NVNT BLE 2M 2402MHz Ant1



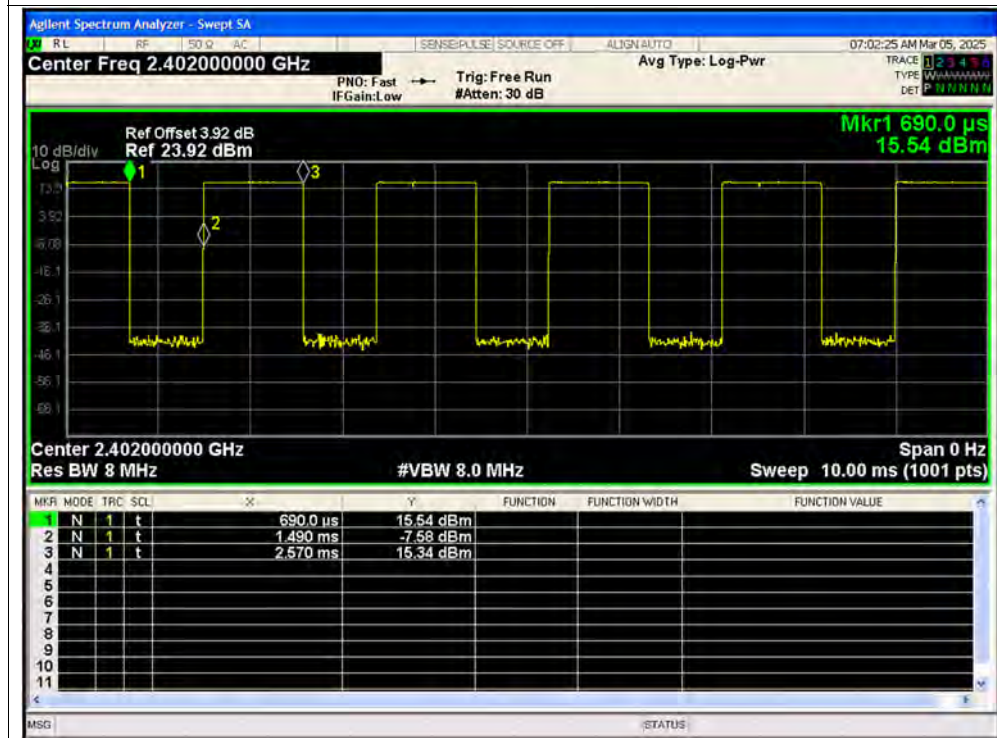
Duty Cycle NVNT BLE 2M 2440MHz Ant1



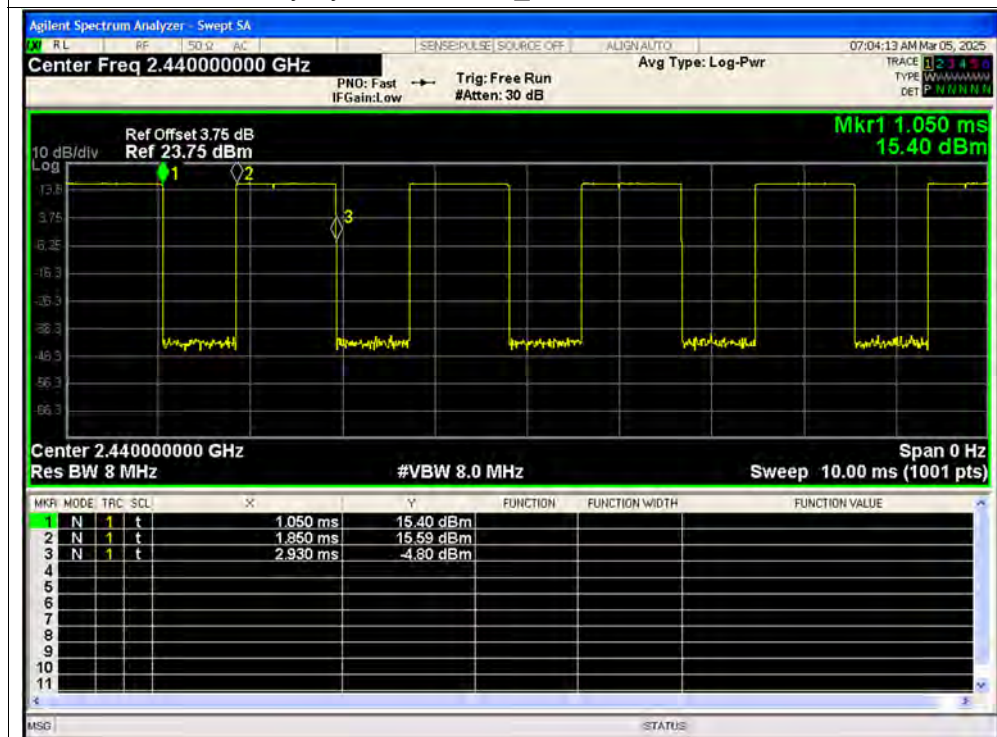
Duty Cycle NVNT BLE 2M 2480MHz Ant1



Duty Cycle NVNT BLE_512K 2402MHz Ant1

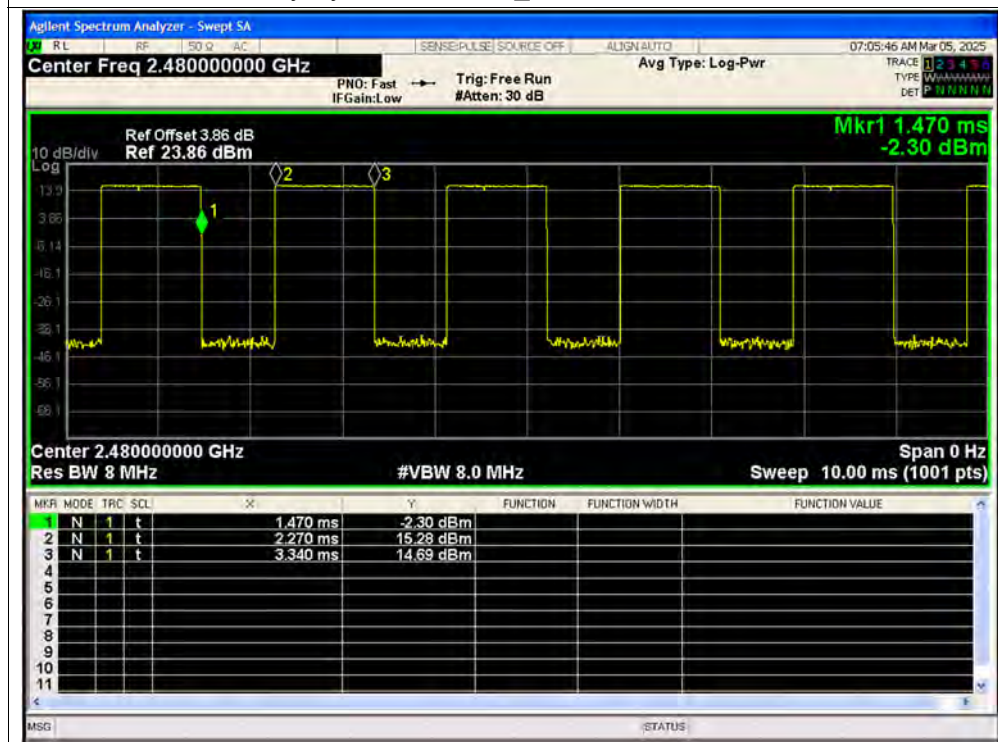


Duty Cycle NVNT BLE_512K 2440MHz Ant1





Duty Cycle NVNT BLE_512K 2480MHz Ant1

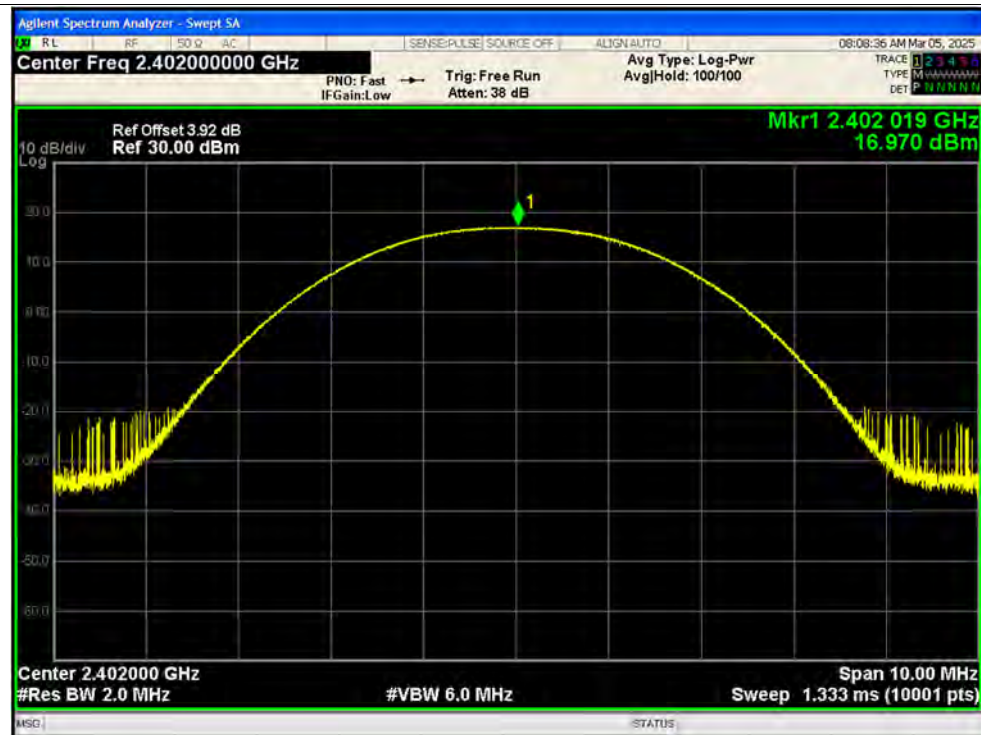


**A.2. Maximum Peak Conducted Output Power**

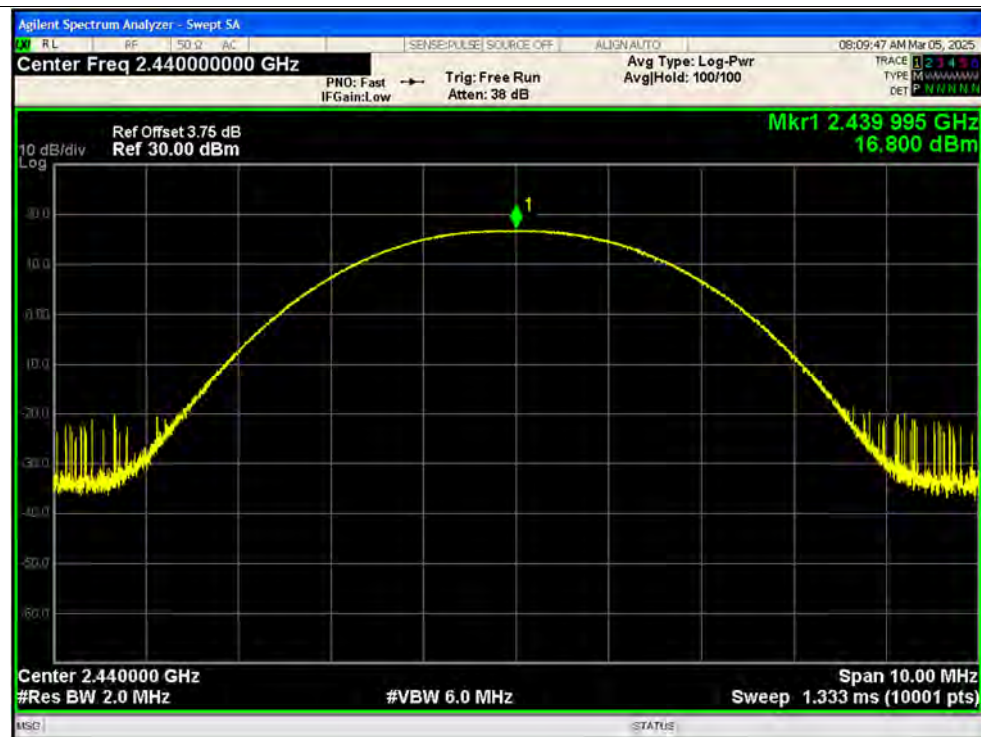
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	16.97	0	16.97	0.04977	30	Pass
NVNT	BLE 1M	2440	Ant1	16.8	0	16.8	0.04786	30	Pass
NVNT	BLE 1M	2480	Ant1	16.79	0	16.79	0.04775	30	Pass
NVNT	BLE 2M	2402	Ant1	16.77	0	16.77	0.04753	30	Pass
NVNT	BLE 2M	2440	Ant1	16.74	0	16.74	0.04721	30	Pass
NVNT	BLE 2M	2480	Ant1	16.54	0	16.54	0.04508	30	Pass
NVNT	BLE_512K	2402	Ant1	16.45	0	16.45	0.04416	30	Pass
NVNT	BLE_512K	2440	Ant1	16.55	0	16.55	0.04519	30	Pass
NVNT	BLE_512K	2480	Ant1	16.4	0	16.4	0.04365	30	Pass

Test Graphs

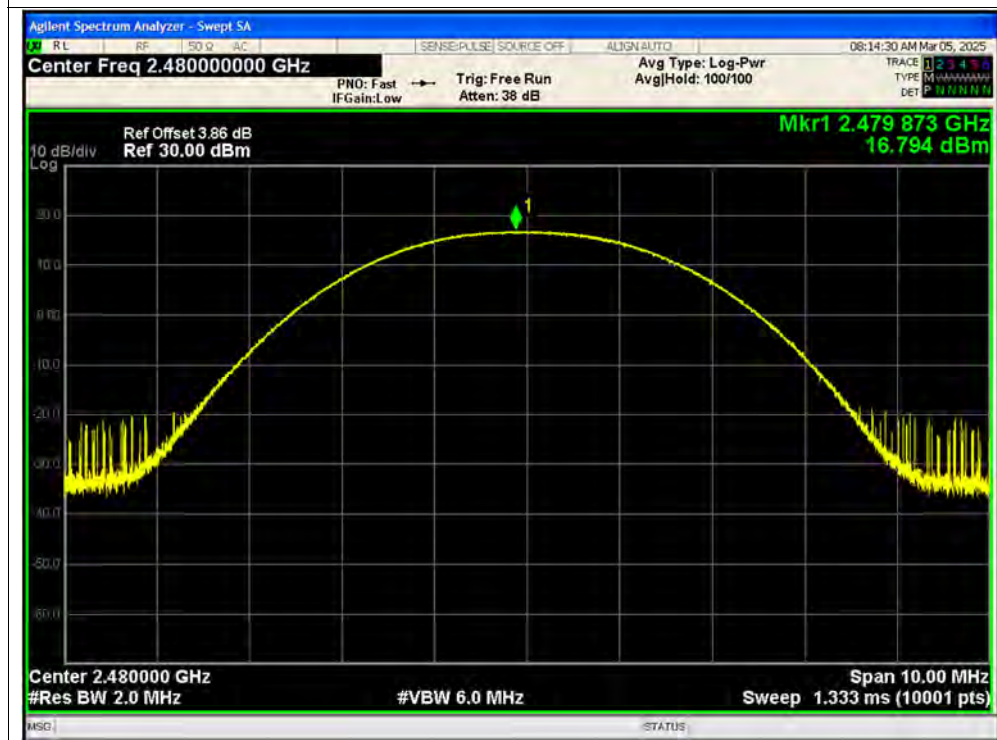
Peak Power NVNT BLE 1M 2402MHz Ant1



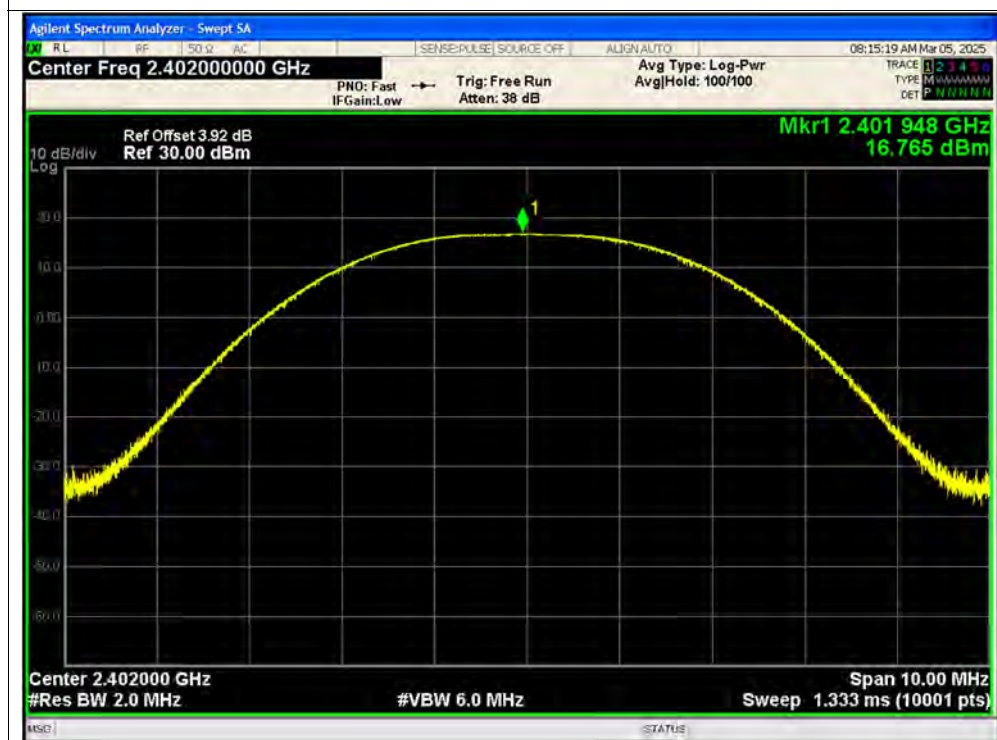
Peak Power NVNT BLE 1M 2440MHz Ant1



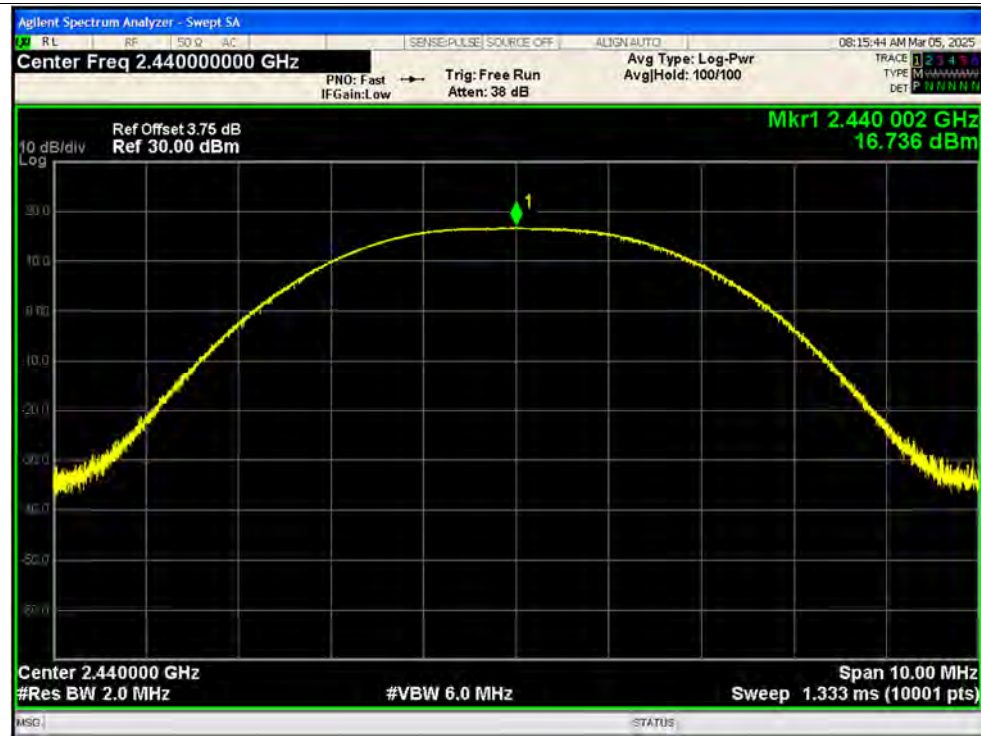
Peak Power NVNT BLE 1M 2480MHz Ant1



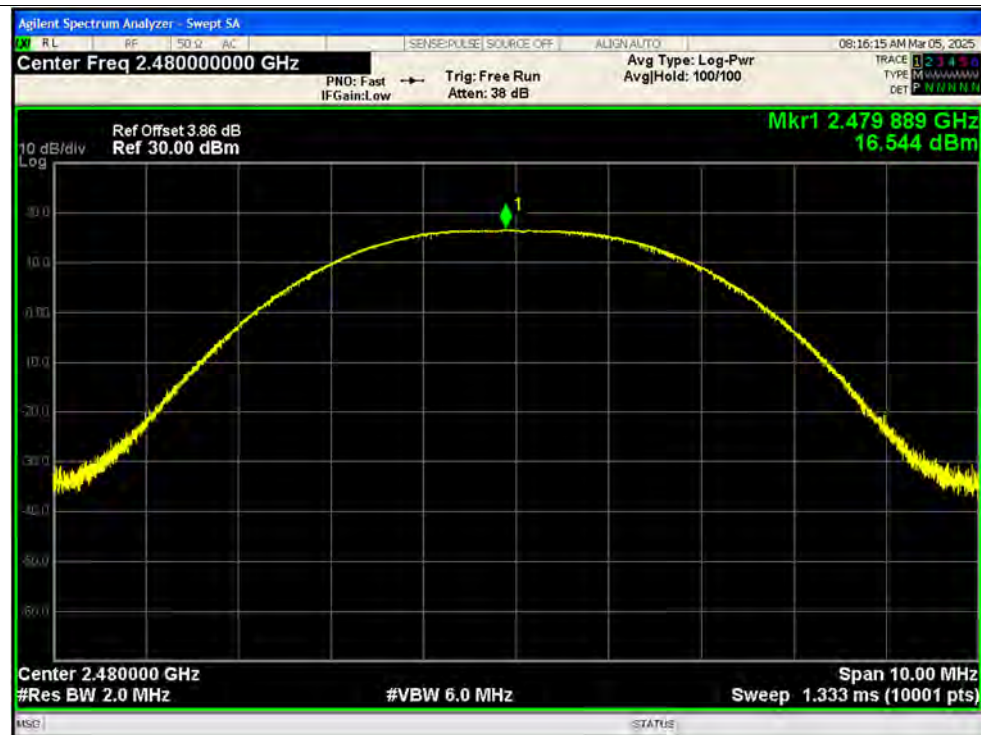
Peak Power NVNT BLE 2M 2402MHz Ant1



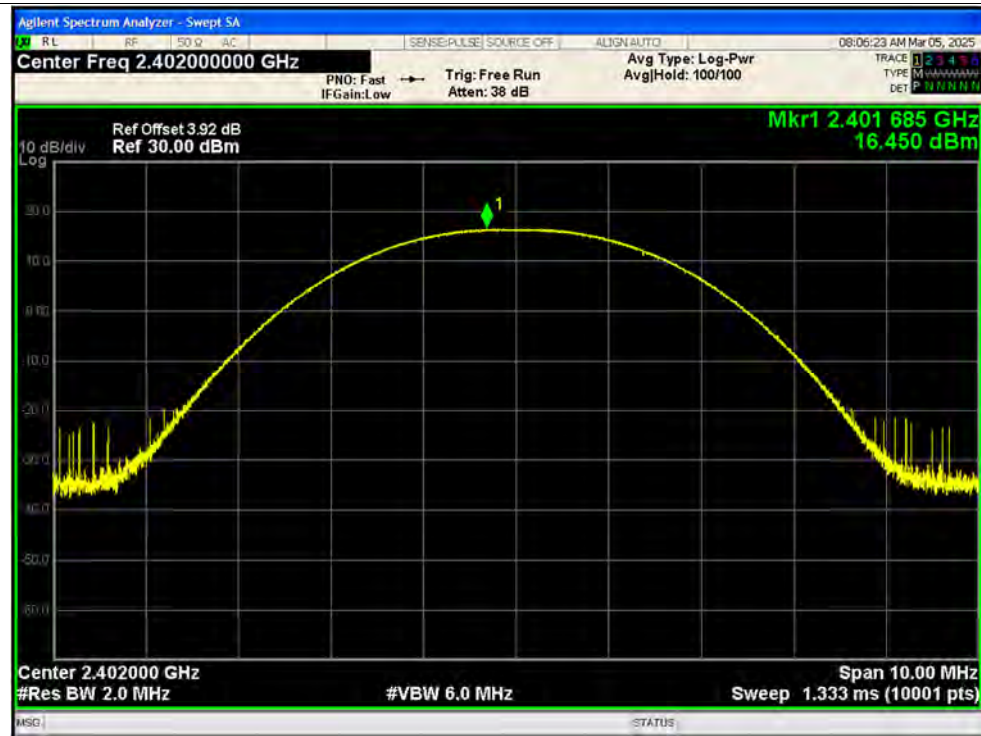
Peak Power NVNT BLE 2M 2440MHz Ant1



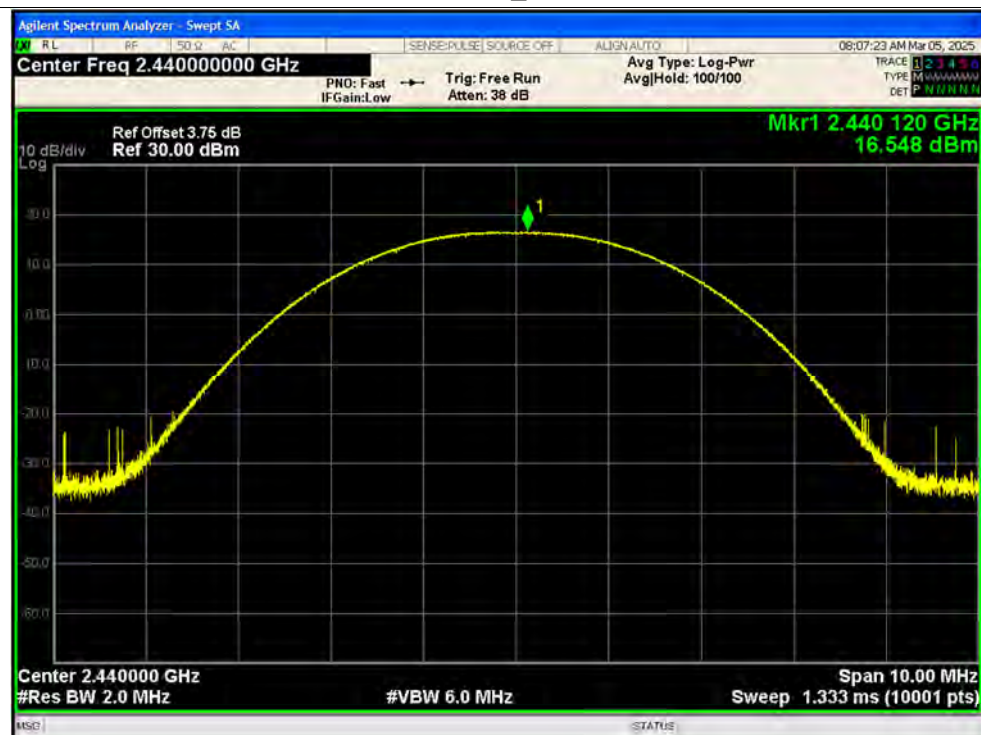
Peak Power NVNT BLE 2M 2480MHz Ant1



Peak Power NVNT BLE_512K 2402MHz Ant1

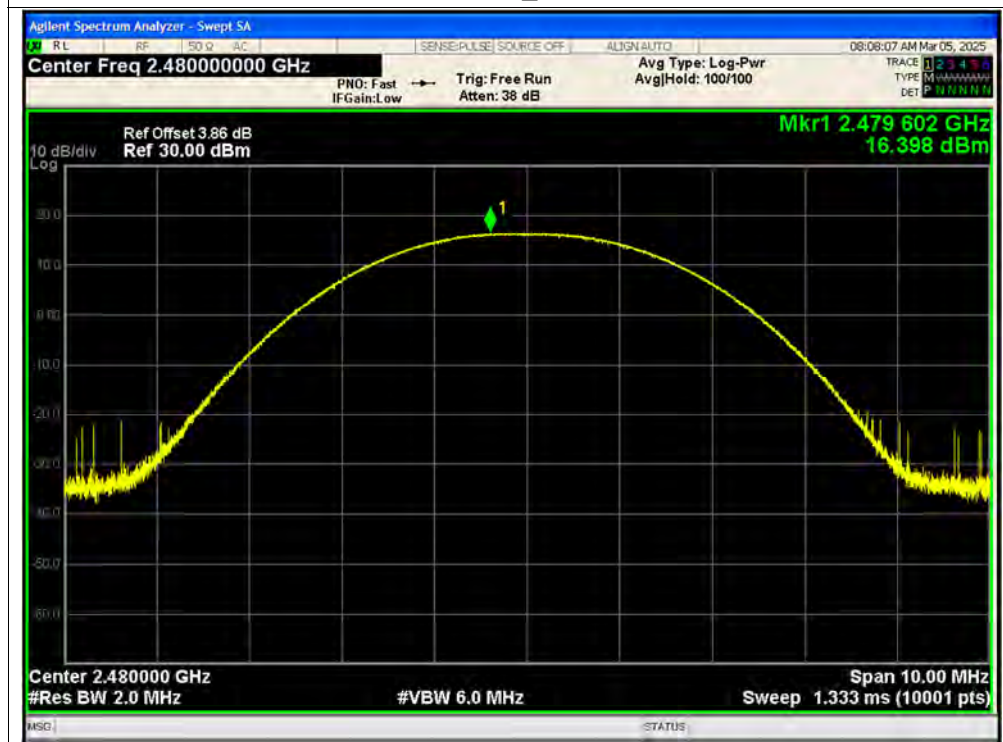


Peak Power NVNT BLE_512K 2440MHz Ant1





Peak Power NVNT BLE_512K 2480MHz Ant1

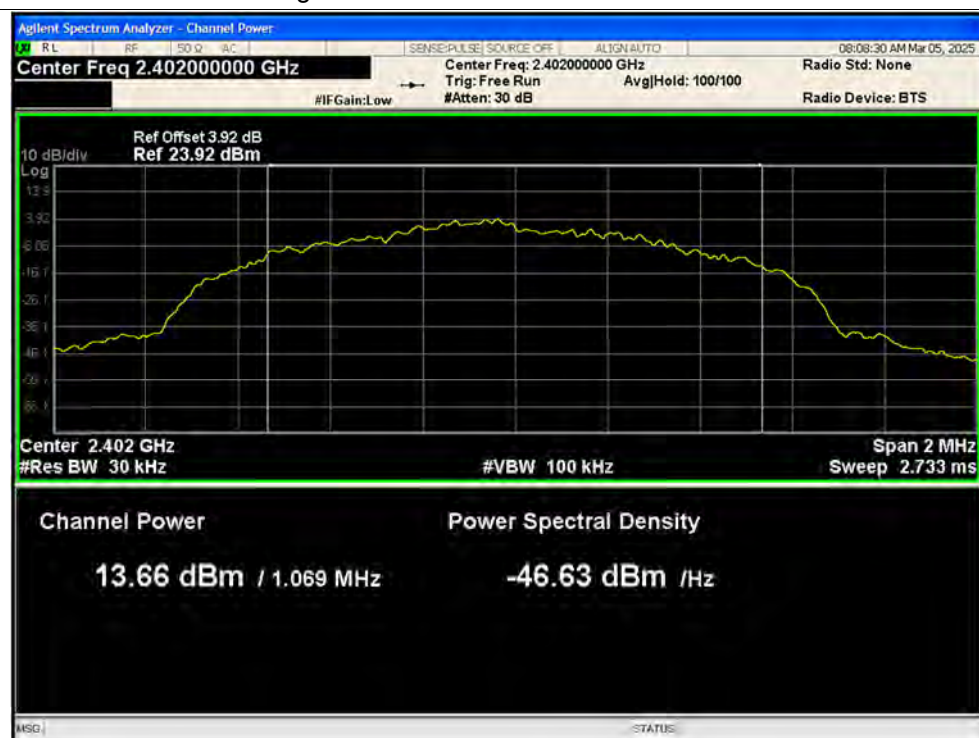


**A.3. Maximum Average Conducted Output Power**

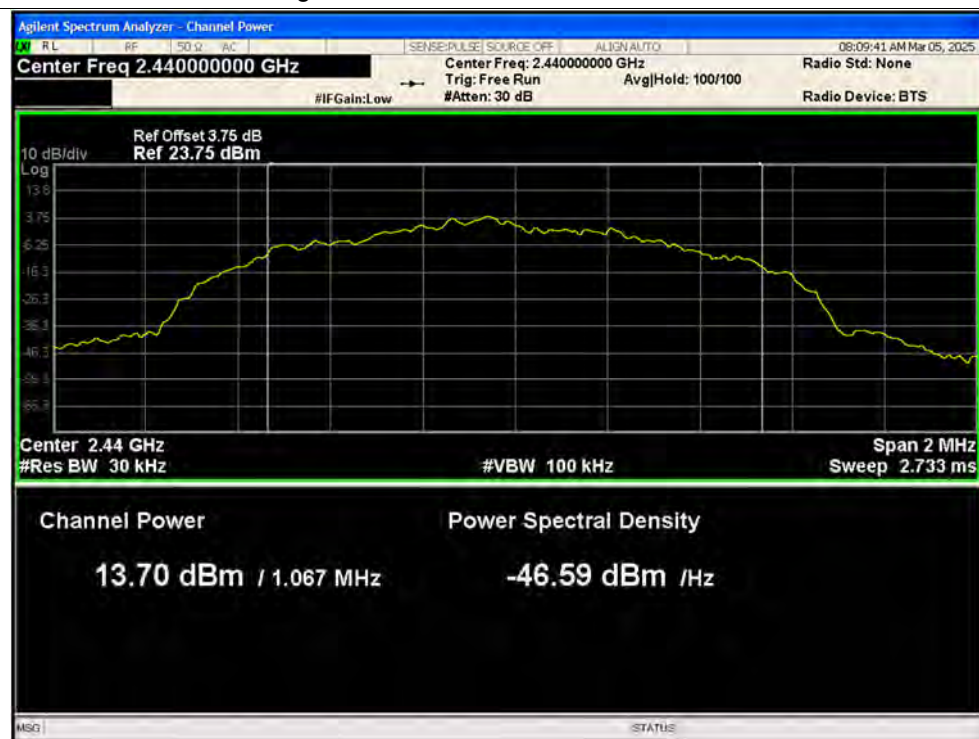
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	BLE 1M	2402	Ant1	13.66	1.97	15.63	0.03656	30	Pass
NVNT	BLE 1M	2440	Ant1	13.7	2.01	15.71	0.03724	30	Pass
NVNT	BLE 1M	2480	Ant1	13.28	1.97	15.25	0.0335	30	Pass
NVNT	BLE 2M	2402	Ant1	11.18	4.7	15.88	0.03873	30	Pass
NVNT	BLE 2M	2440	Ant1	11.22	4.77	15.99	0.03972	30	Pass
NVNT	BLE 2M	2480	Ant1	11.03	4.77	15.8	0.03802	30	Pass
NVNT	BLE_512K	2402	Ant1	12.26	2.41	14.67	0.02931	30	Pass
NVNT	BLE_512K	2440	Ant1	12.55	2.41	14.96	0.03133	30	Pass
NVNT	BLE_512K	2480	Ant1	11.65	2.42	14.07	0.02553	30	Pass

Test Graphs

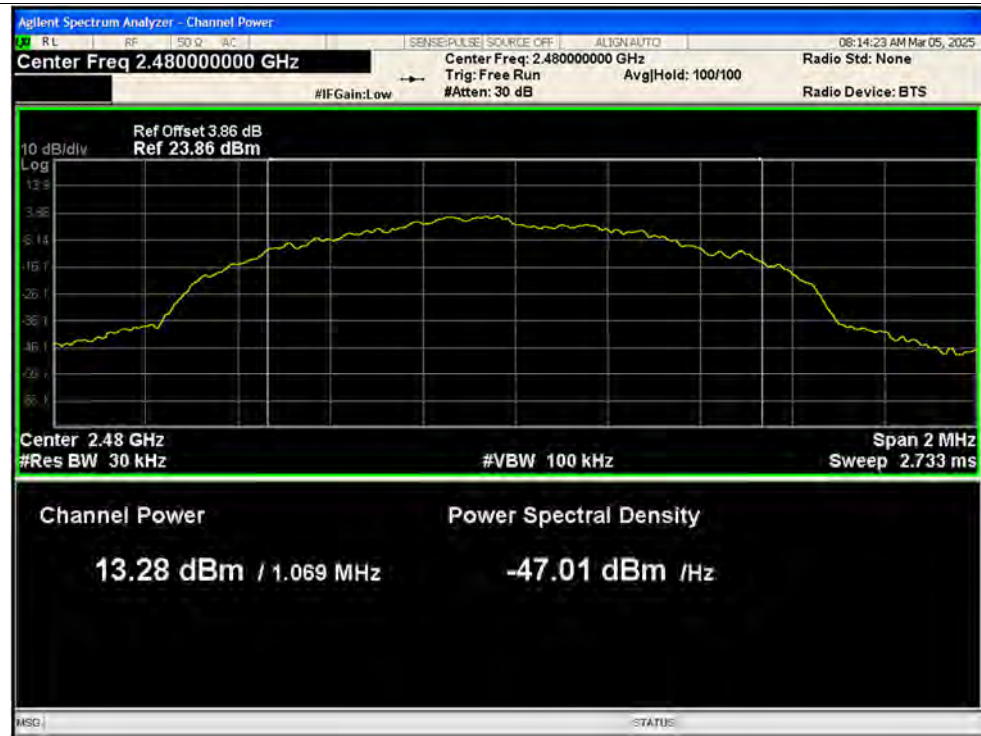
Average Power NVNT BLE 1M 2402MHz Ant1



Average Power NVNT BLE 1M 2440MHz Ant1



Average Power NVNT BLE 1M 2480MHz Ant1



Average Power NVNT BLE 2M 2402MHz Ant1



Average Power NVNT BLE 2M 2440MHz Ant1

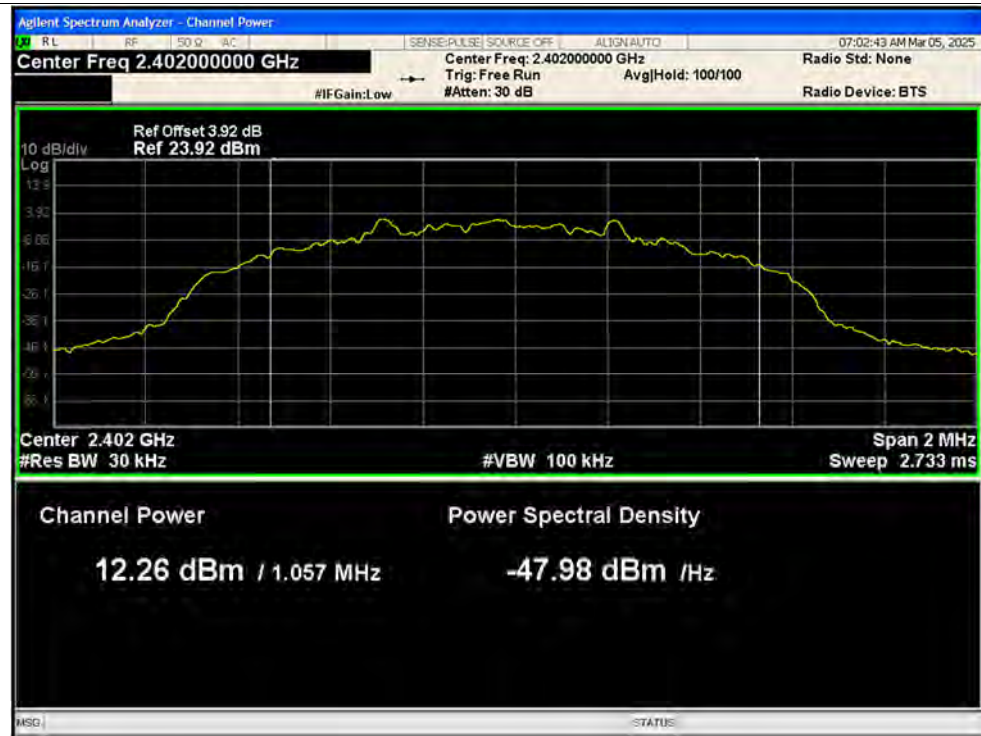


Average Power NVNT BLE 2M 2480MHz Ant1

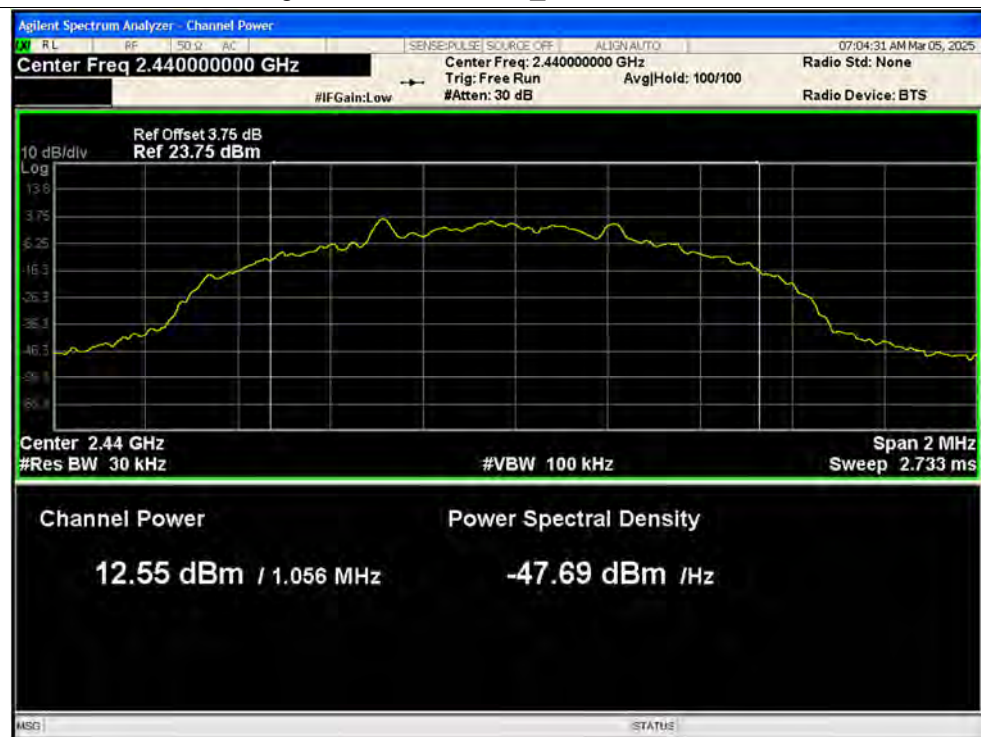


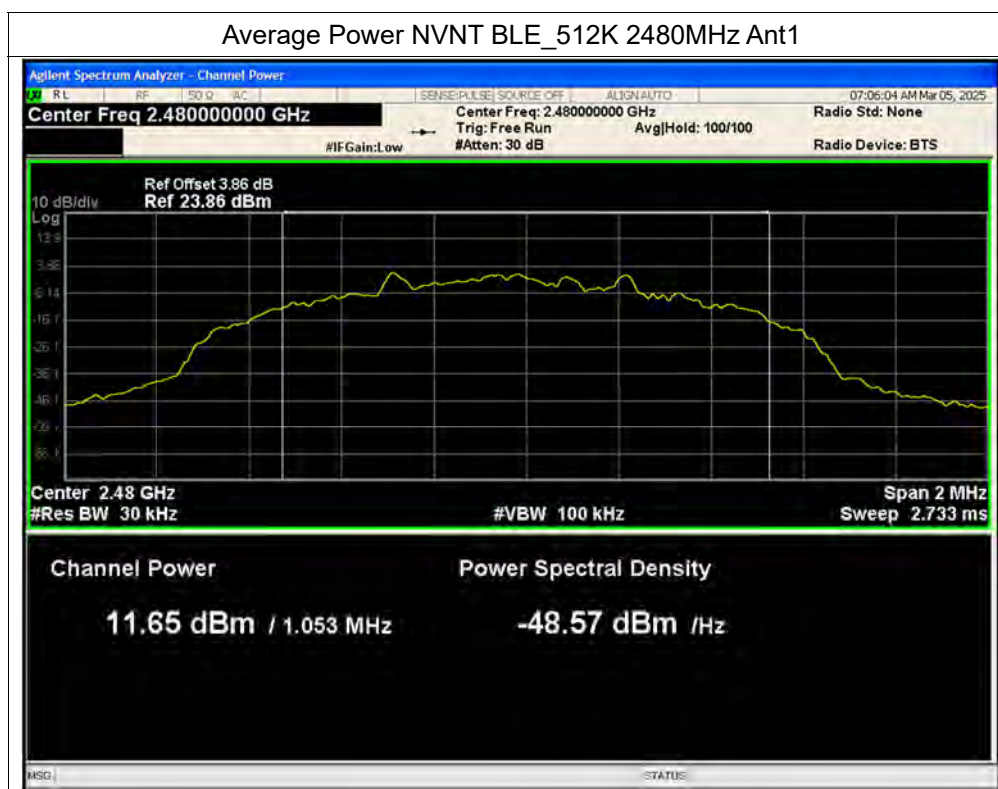


Average Power NVNT BLE_512K 2402MHz Ant1



Average Power NVNT BLE_512K 2440MHz Ant1





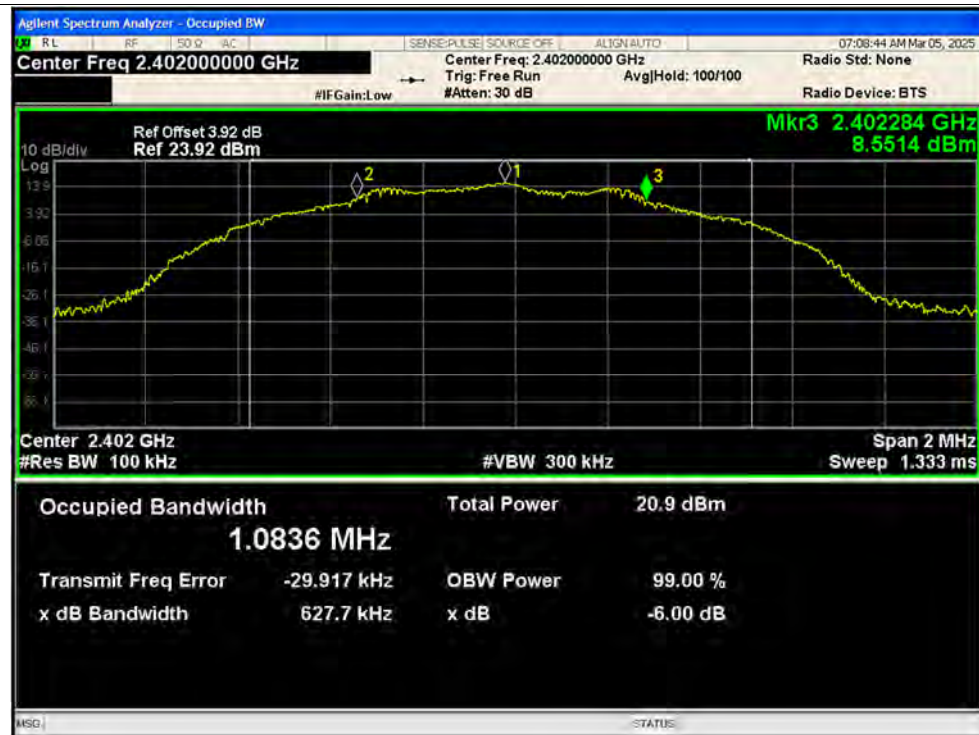
**A.4. 6 dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	BLE 1M	2402	Ant1	0.6277	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6201	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.6262	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.051	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.032	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.042	0.5	Pass
NVNT	BLE_512K	2402	Ant1	0.6208	0.5	Pass
NVNT	BLE_512K	2440	Ant1	0.6055	0.5	Pass
NVNT	BLE_512K	2480	Ant1	0.6209	0.5	Pass

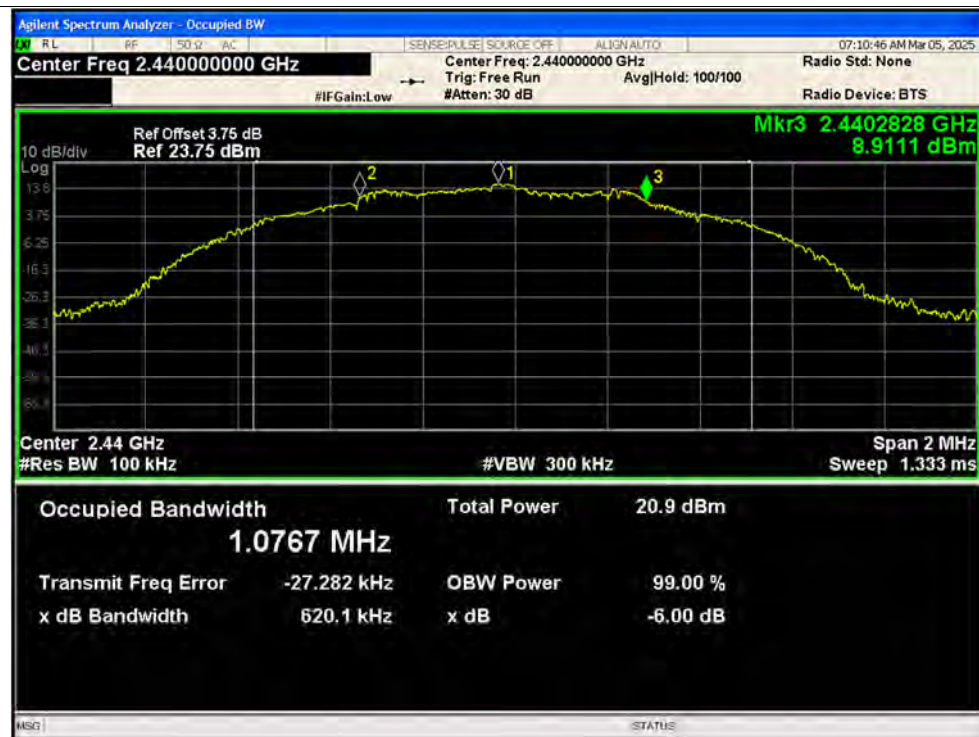


Test Graphs

-6dB Bandwidth NVNT BLE 1M 2402MHz Ant1

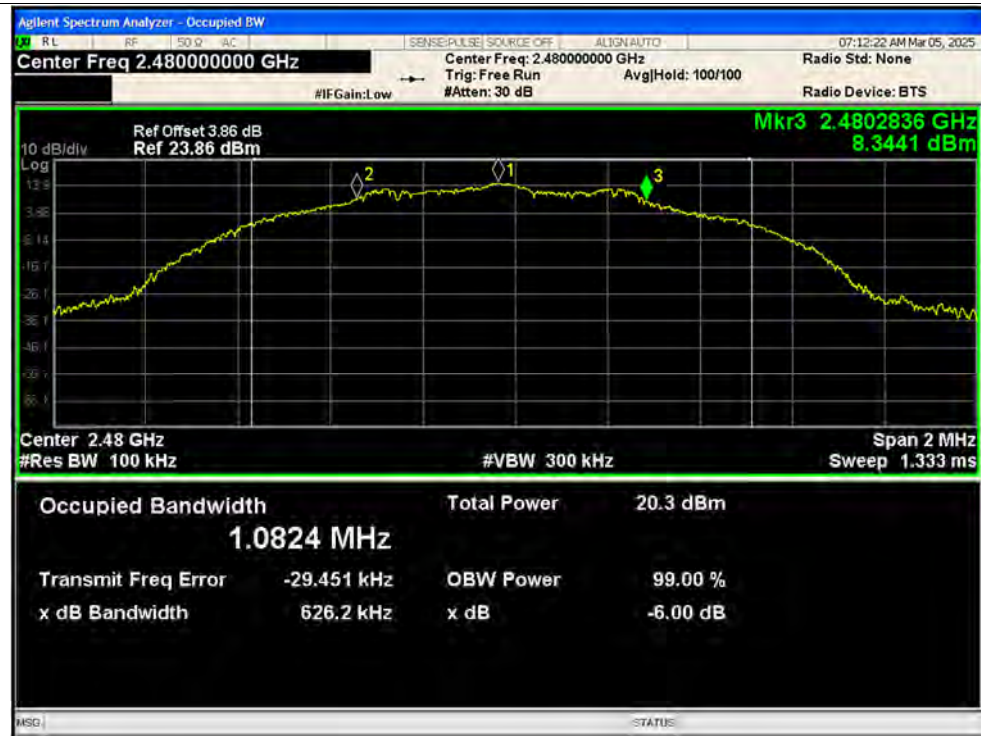


-6dB Bandwidth NVNT BLE 1M 2440MHz Ant1





-6dB Bandwidth NVNT BLE 1M 2480MHz Ant1

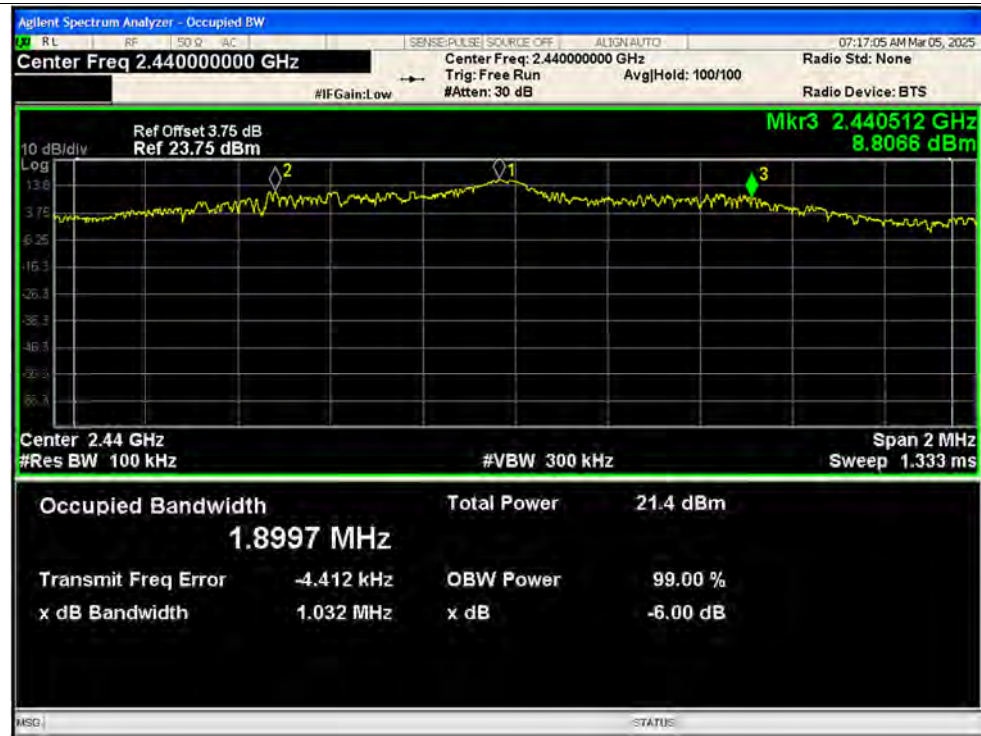


-6dB Bandwidth NVNT BLE 2M 2402MHz Ant1





-6dB Bandwidth NVNT BLE 2M 2440MHz Ant1

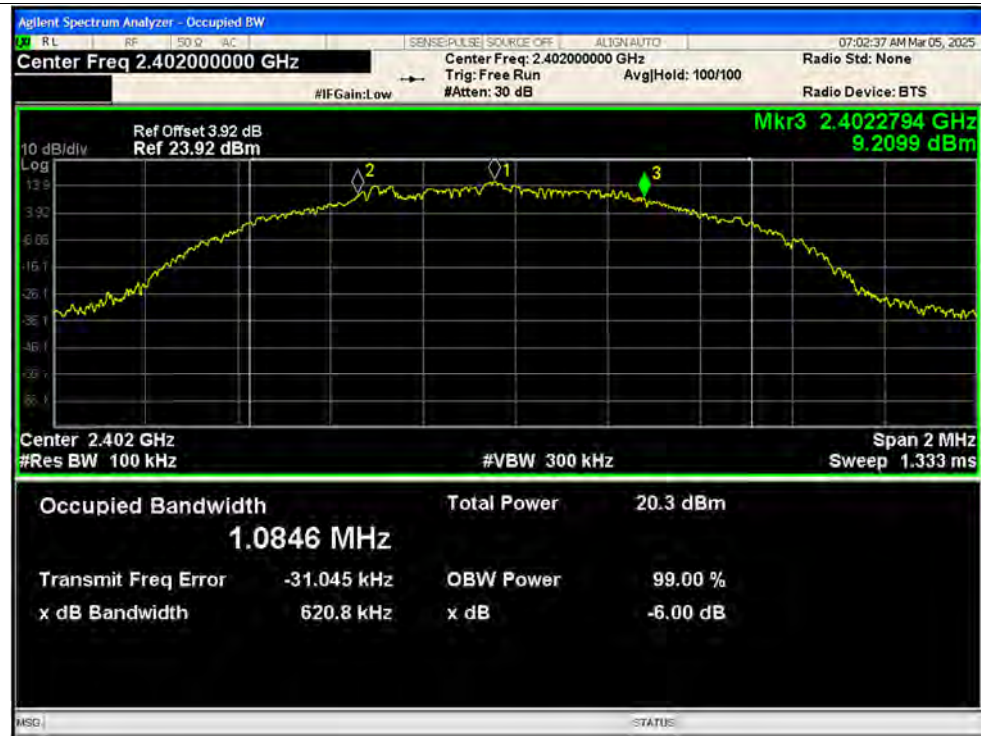


-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1



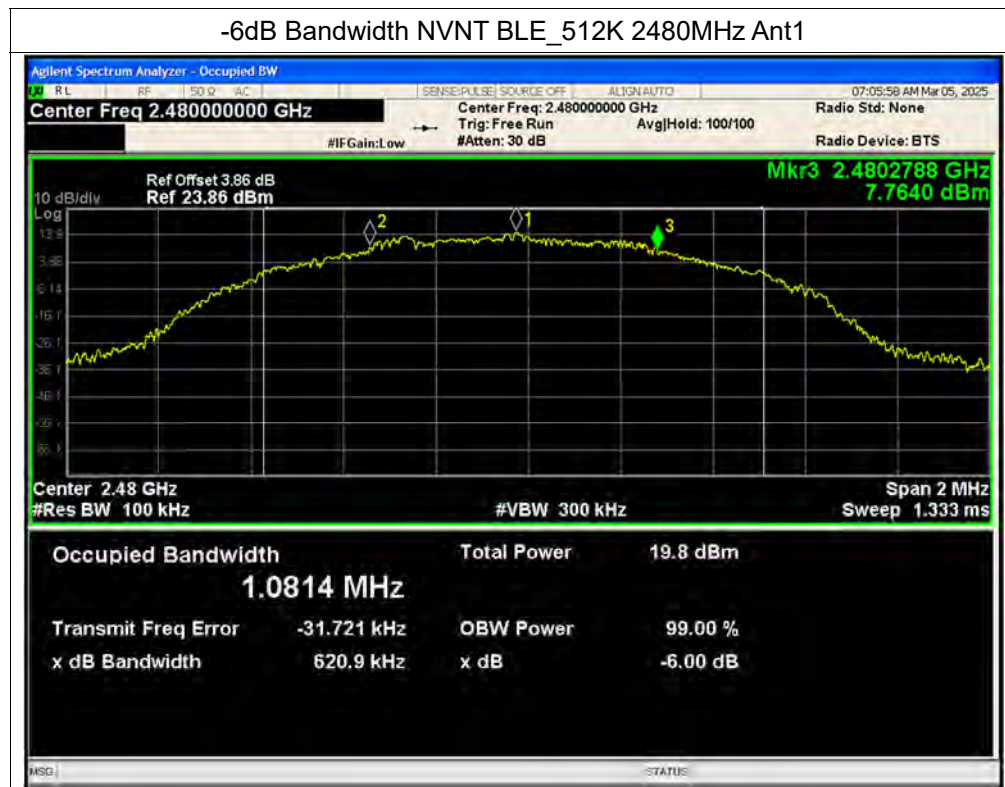


-6dB Bandwidth NVNT BLE_512K 2402MHz Ant1



-6dB Bandwidth NVNT BLE_512K 2440MHz Ant1





**A.5. Conducted Spurious Emissions**

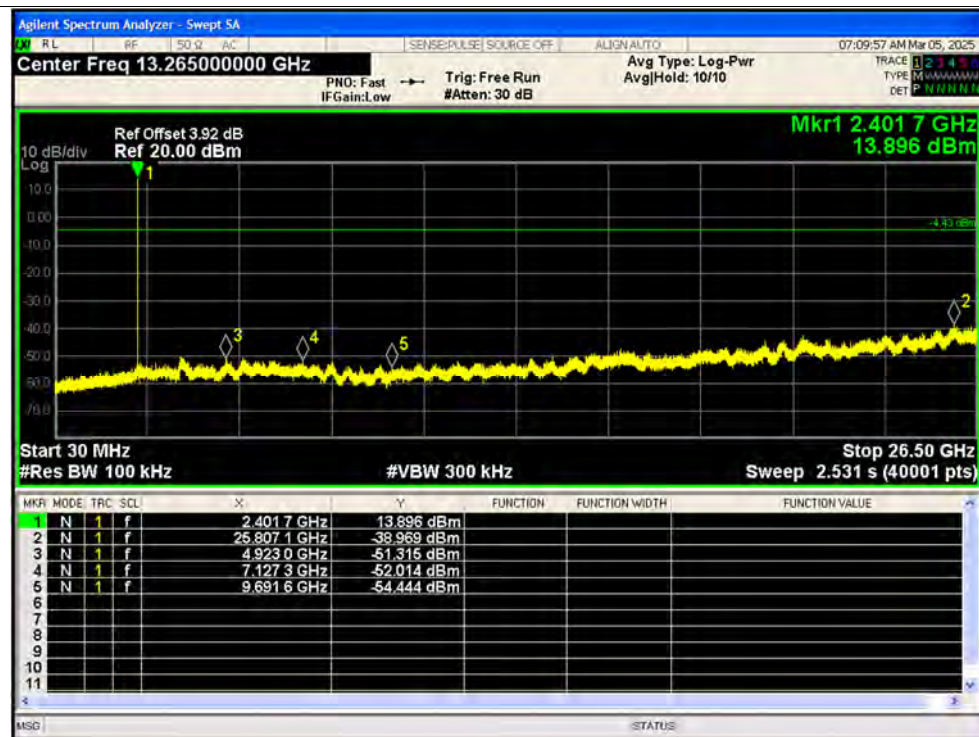
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-54.53	-20	Pass
NVNT	BLE 1M	2440	Ant1	-54.67	-20	Pass
NVNT	BLE 1M	2480	Ant1	-53.31	-20	Pass
NVNT	BLE 2M	2402	Ant1	-54.65	-20	Pass
NVNT	BLE 2M	2440	Ant1	-54.31	-20	Pass
NVNT	BLE 2M	2480	Ant1	-54.61	-20	Pass
NVNT	BLE_512K	2402	Ant1	-54.63	-20	Pass
NVNT	BLE_512K	2440	Ant1	-53.55	-20	Pass
NVNT	BLE_512K	2480	Ant1	-53.02	-20	Pass

Test Graphs

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref



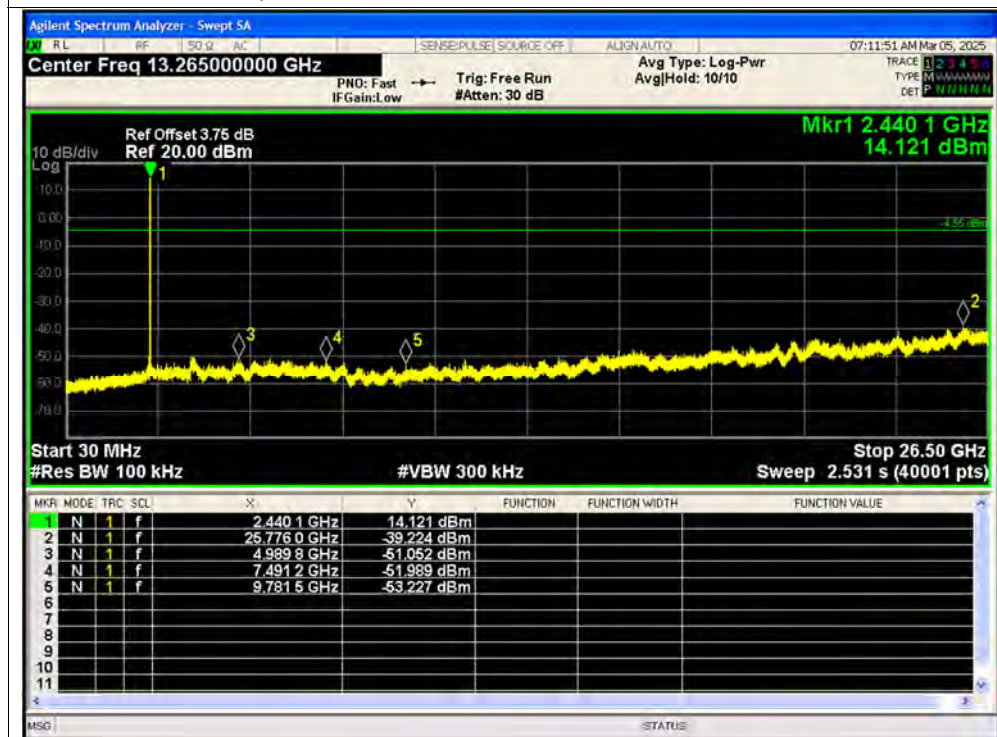
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref



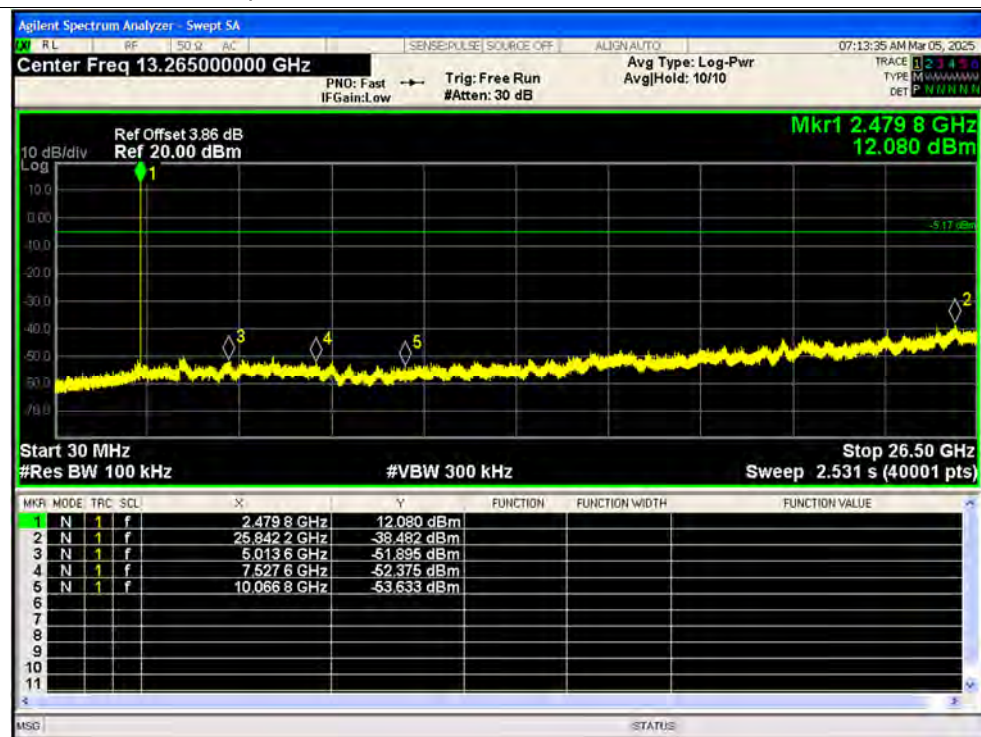
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref



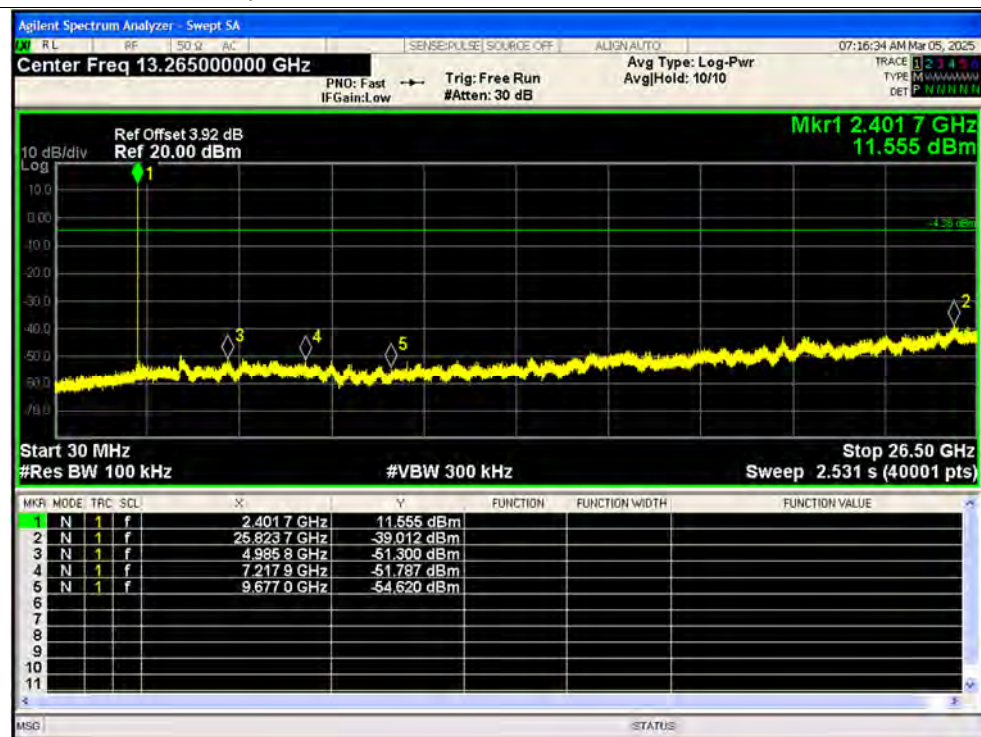
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref



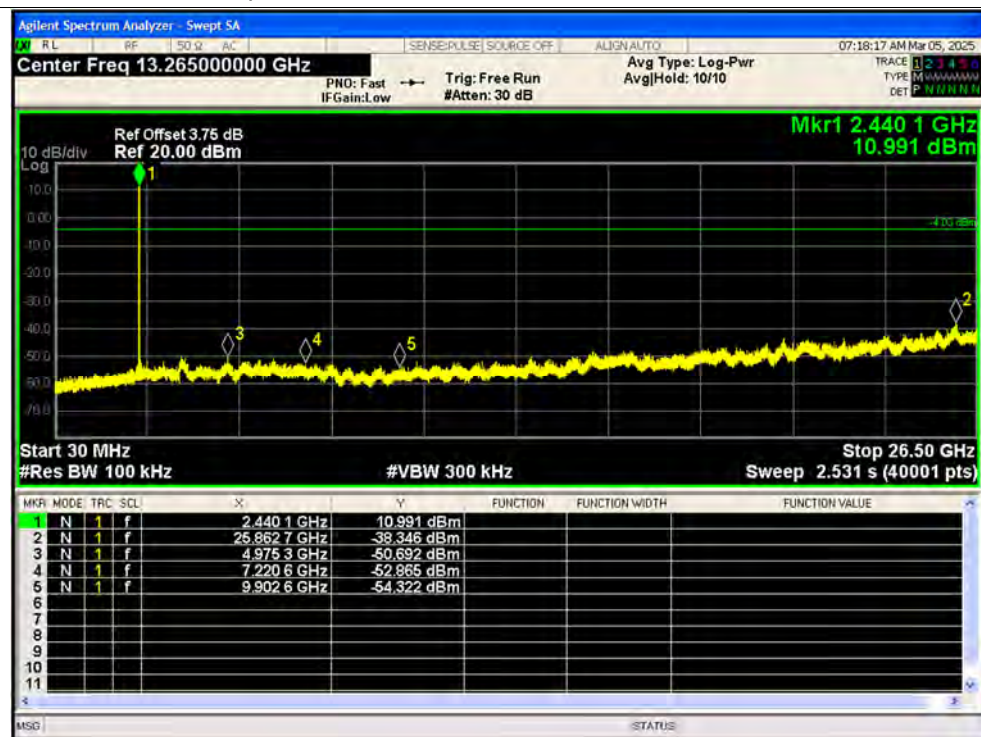
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref



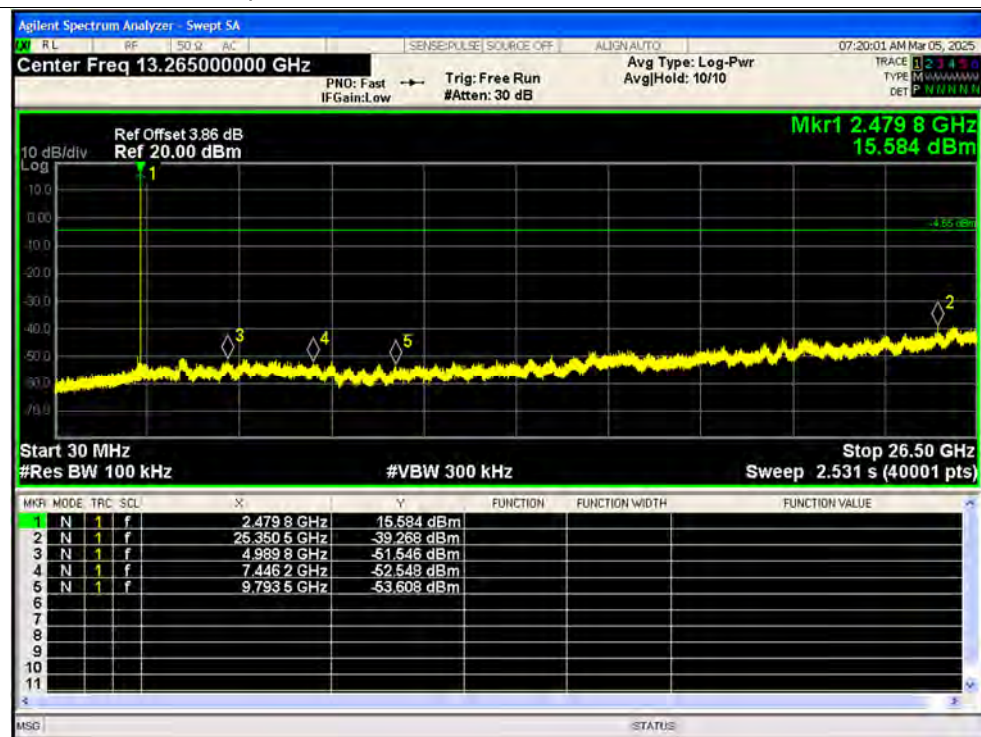
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref



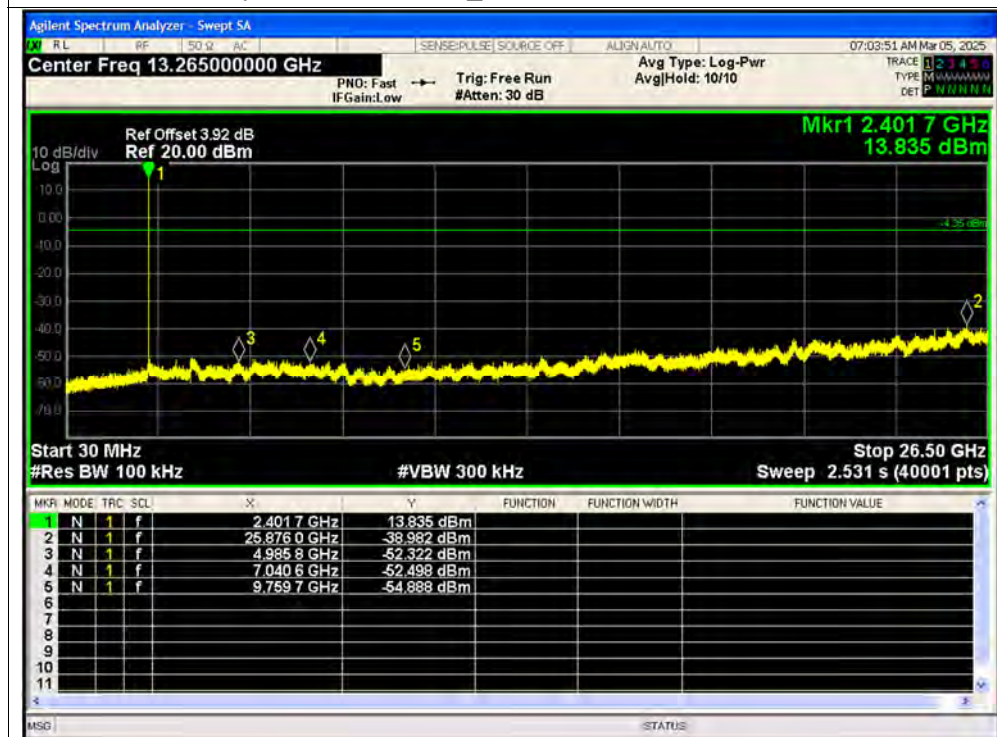
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission



Tx. Spurious NVNT BLE_512K 2402MHz Ant1 Ref



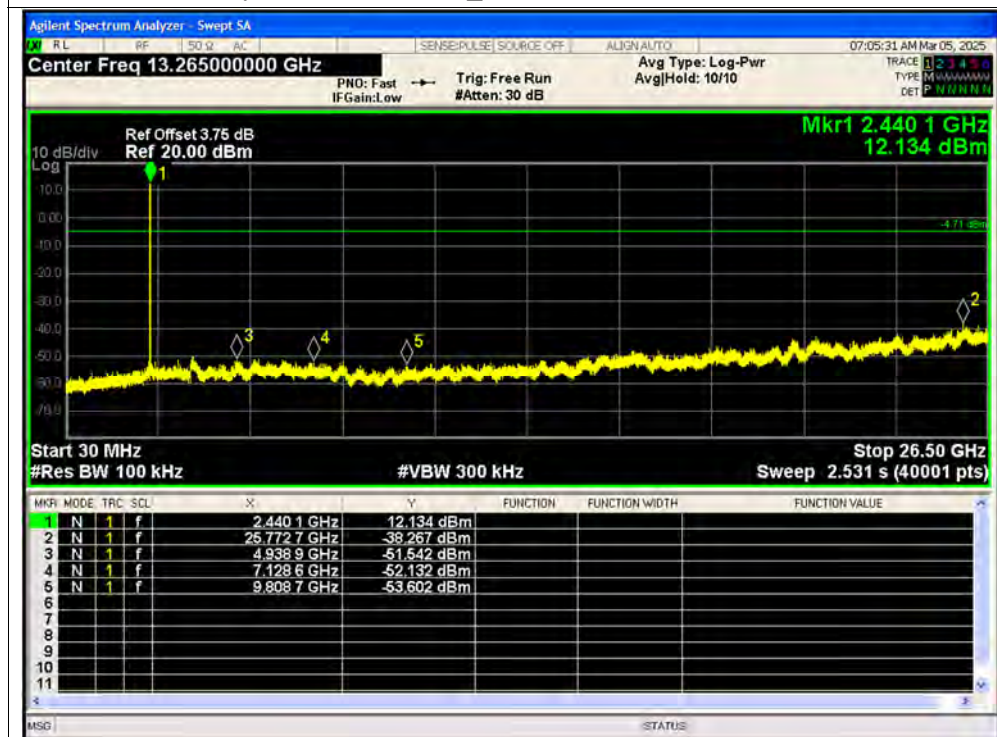
Tx. Spurious NVNT BLE_512K 2402MHz Ant1 Emission



Tx. Spurious NVNT BLE_512K 2440MHz Ant1 Ref



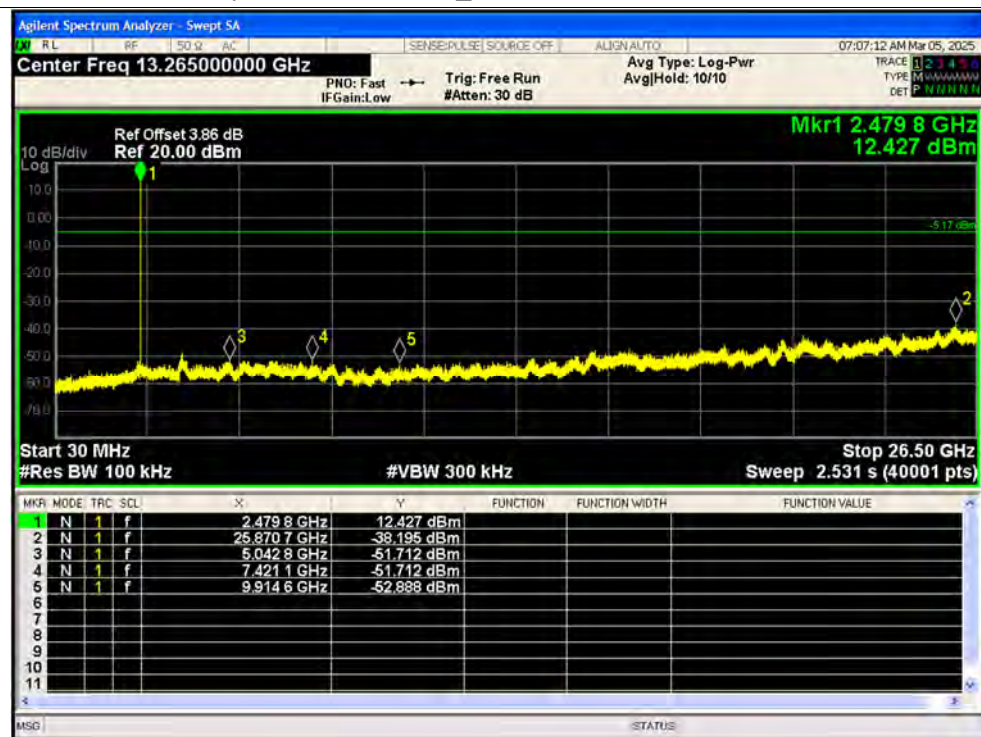
Tx. Spurious NVNT BLE_512K 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE_512K 2480MHz Ant1 Ref



Tx. Spurious NVNT BLE_512K 2480MHz Ant1 Emission

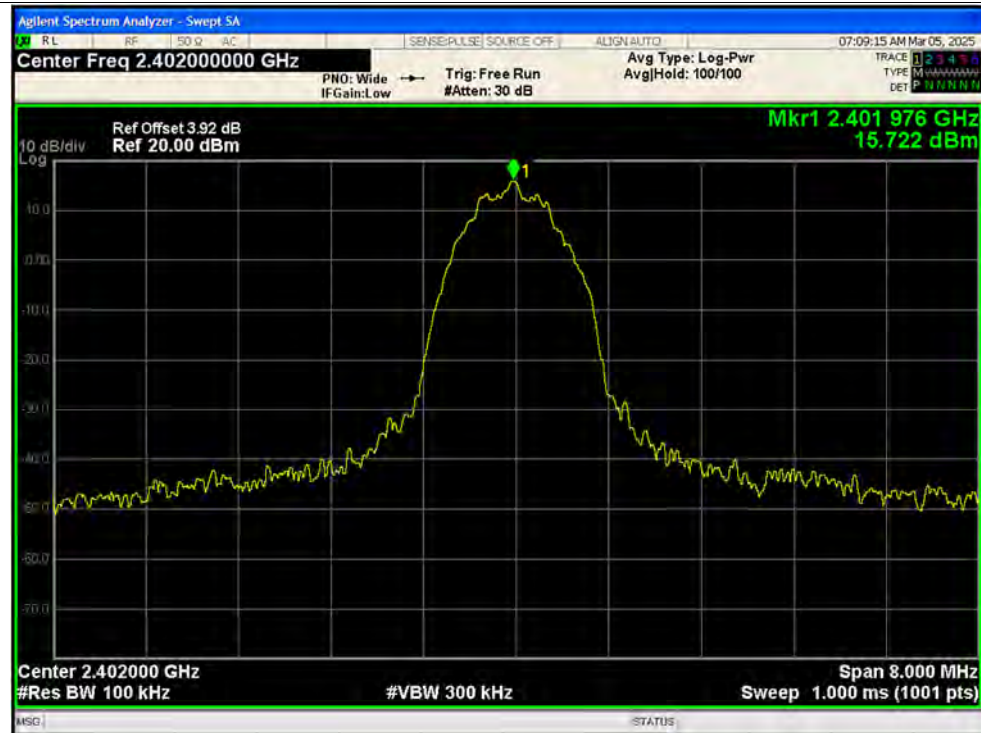


**A.6. Band Edge**

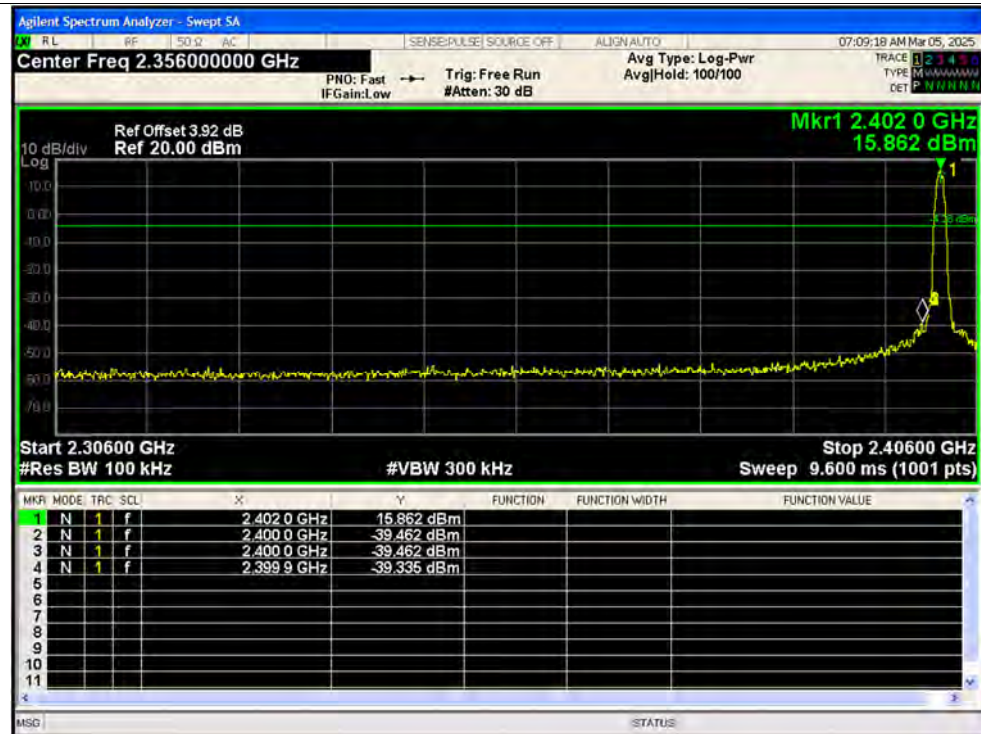
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-55.05	-20	Pass
NVNT	BLE 1M	2480	Ant1	-59.95	-20	Pass
NVNT	BLE 2M	2402	Ant1	-48.82	-20	Pass
NVNT	BLE 2M	2480	Ant1	-60.34	-20	Pass
NVNT	BLE_512K	2402	Ant1	-55.57	-20	Pass
NVNT	BLE_512K	2480	Ant1	-58.9	-20	Pass

Test Graphs

Band Edge NVNT BLE 1M 2402MHz Ant1 Ref



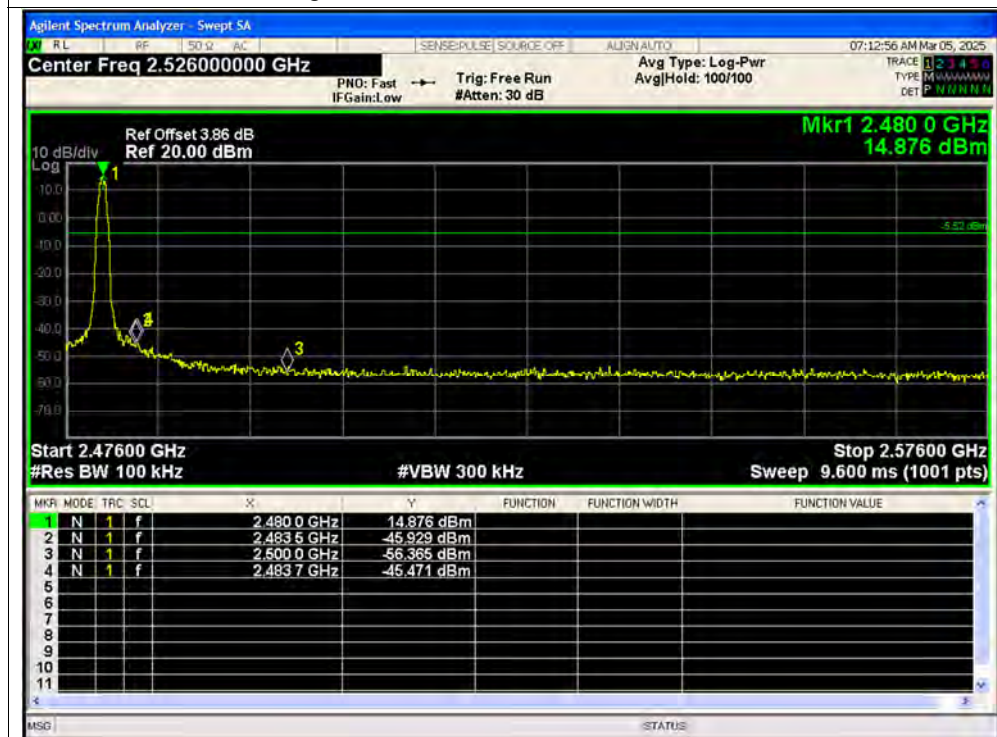
Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



Band Edge NVNT BLE 1M 2480MHz Ant1 Ref



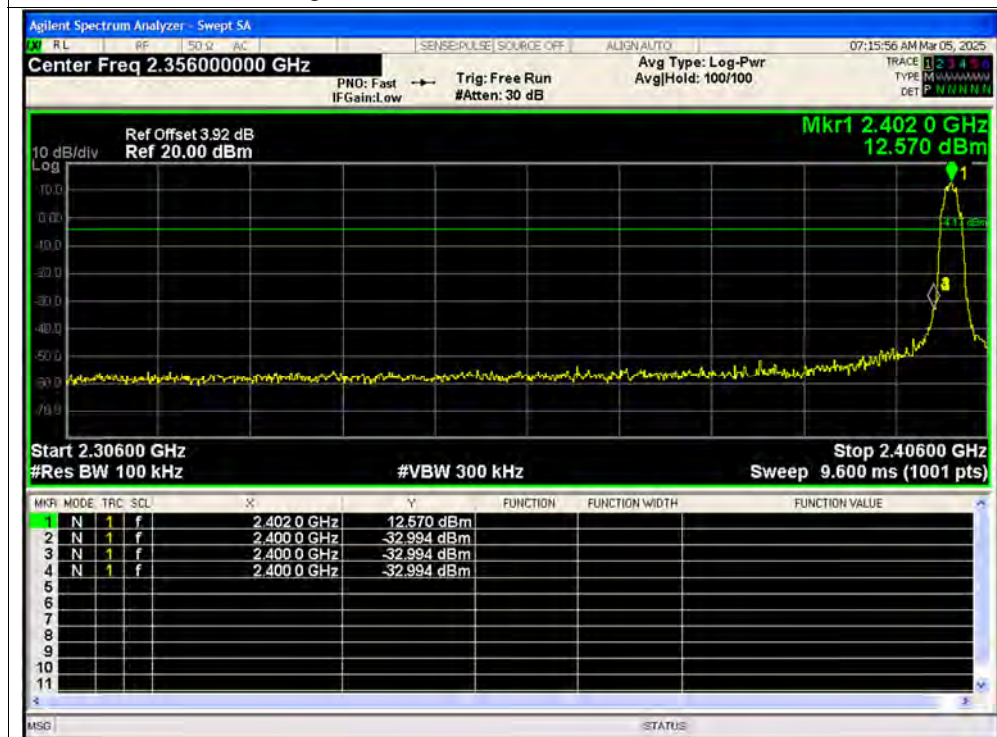
Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



Band Edge NVNT BLE 2M 2402MHz Ant1 Ref



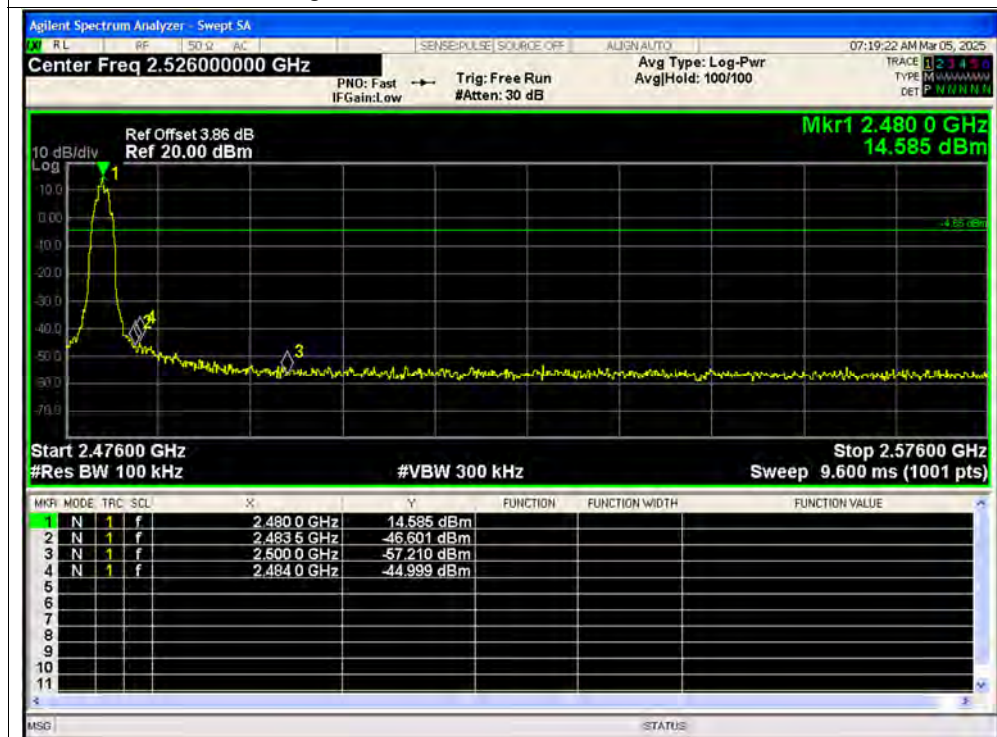
Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



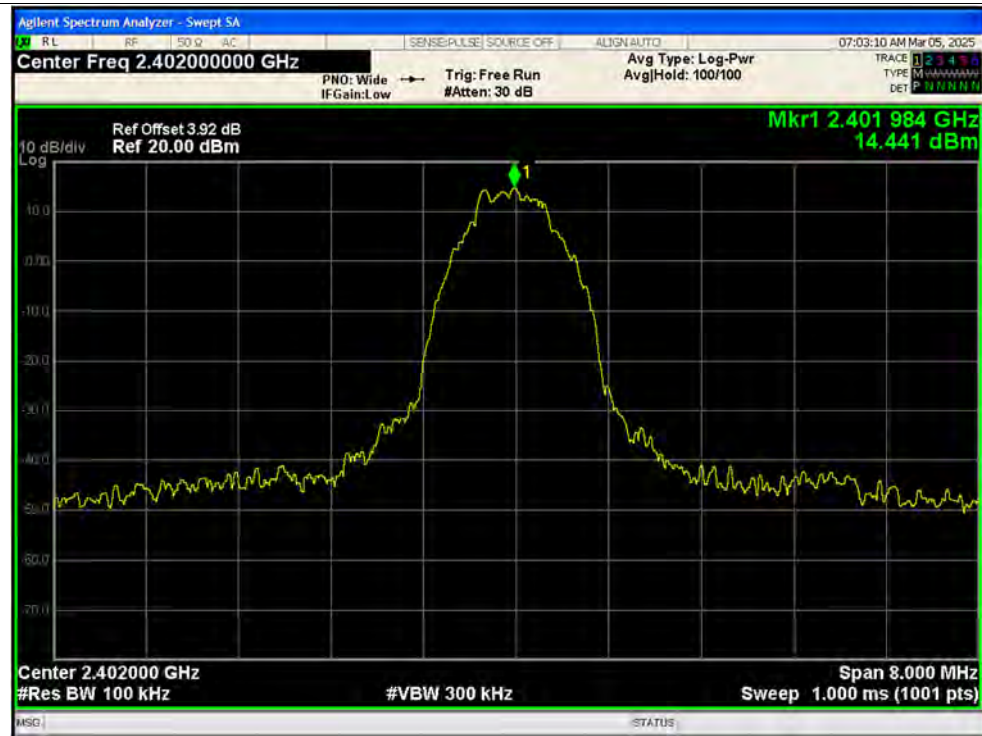
Band Edge NVNT BLE 2M 2480MHz Ant1 Ref



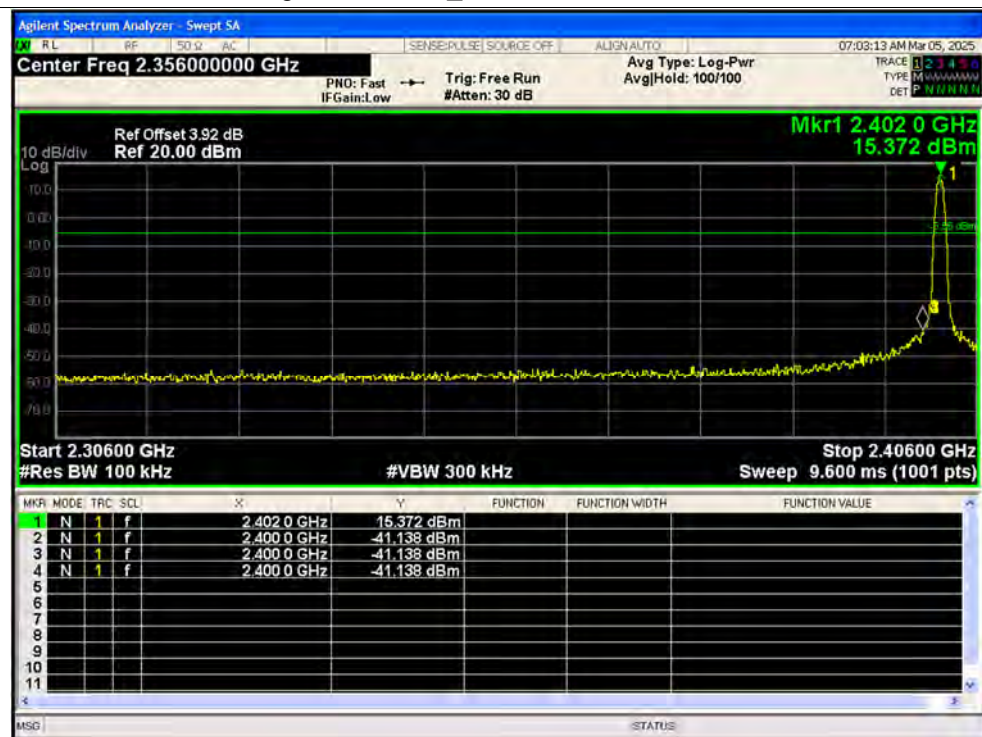
Band Edge NVNT BLE 2M 2480MHz Ant1 Emission



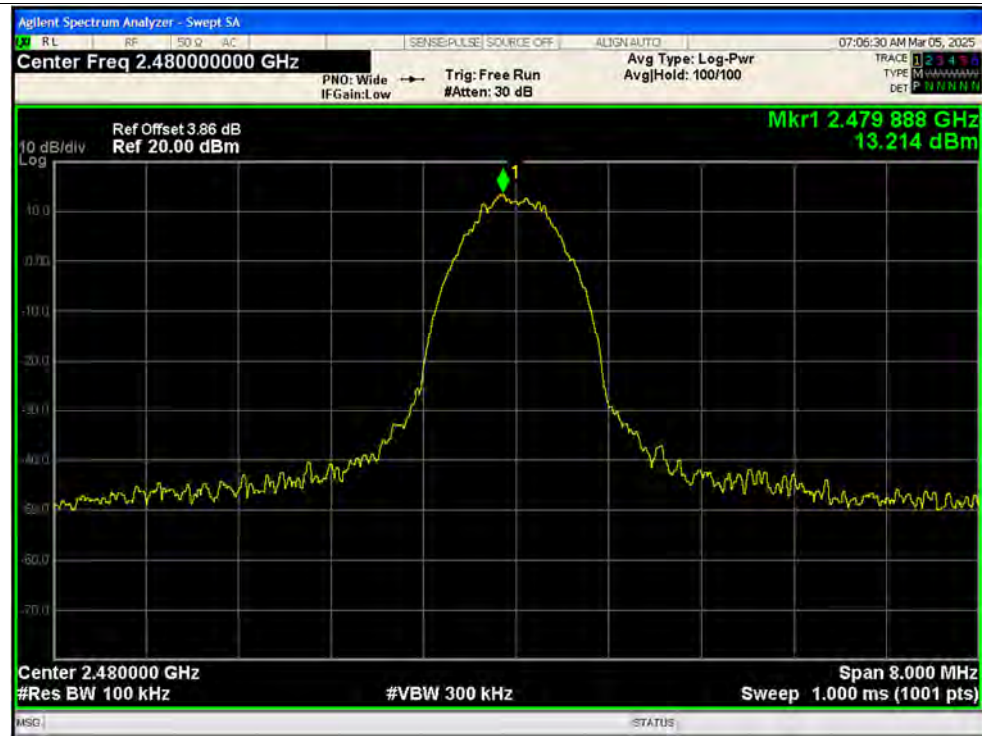
Band Edge NVNT BLE_512K 2402MHz Ant1 Ref



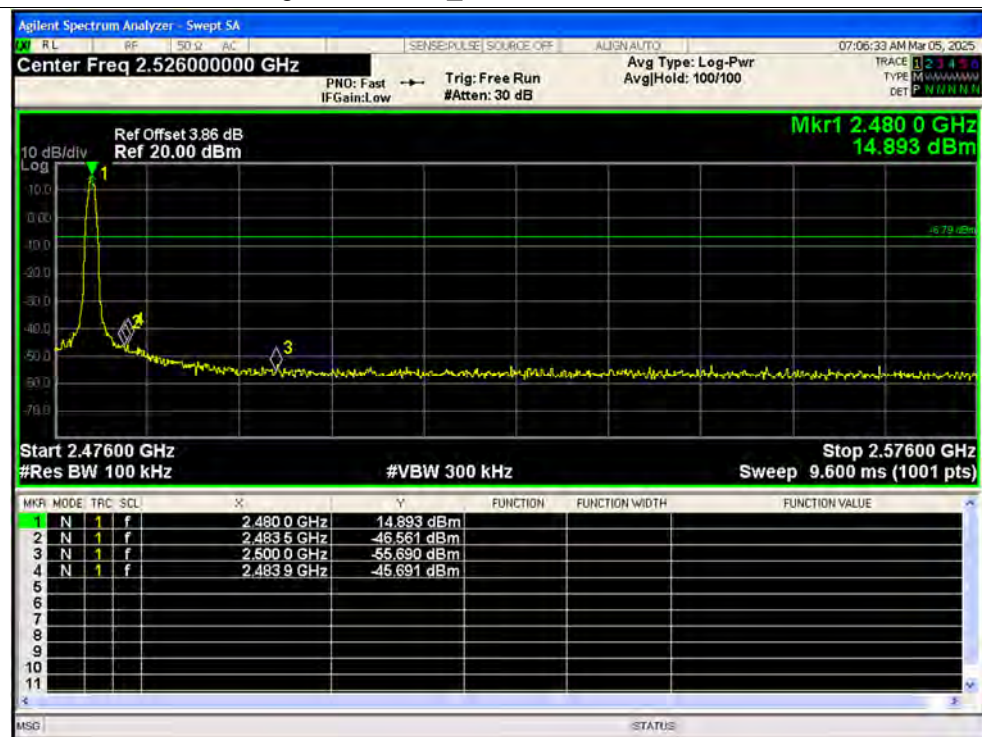
Band Edge NVNT BLE_512K 2402MHz Ant1 Emission



Band Edge NVNT BLE_512K 2480MHz Ant1 Ref



Band Edge NVNT BLE_512K 2480MHz Ant1 Emission



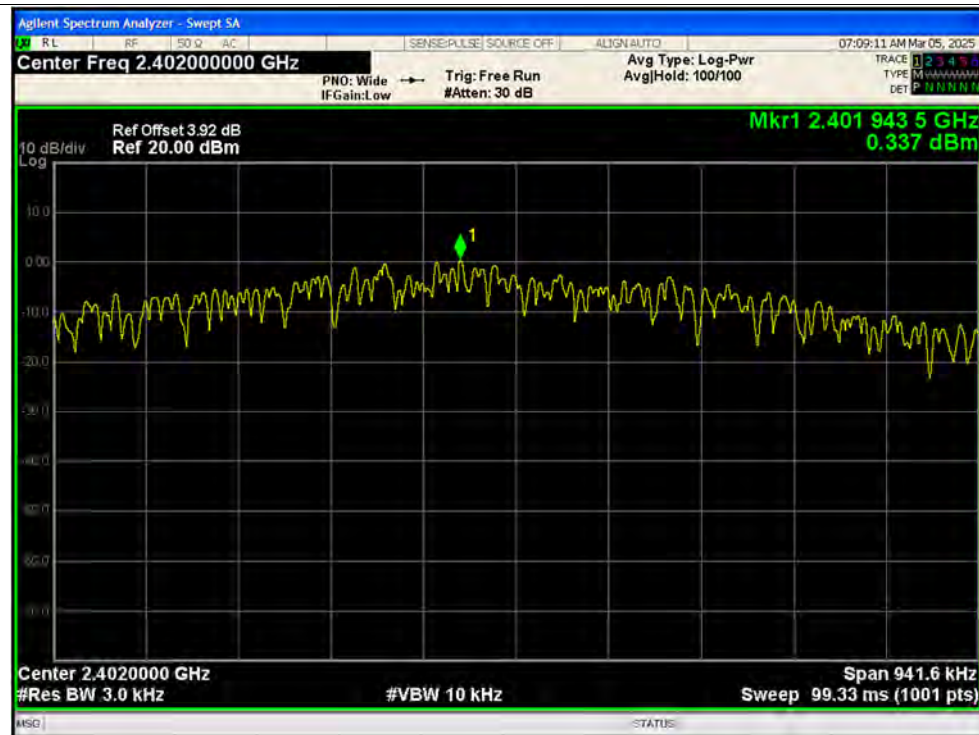
**A.7. Power Spectral Density**

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	0.34	0	0.34	8	Pass
NVNT	BLE 1M	2440	Ant1	0.16	0	0.16	8	Pass
NVNT	BLE 1M	2480	Ant1	-0.41	0	-0.41	8	Pass
NVNT	BLE 2M	2402	Ant1	-1.64	0	-1.64	8	Pass
NVNT	BLE 2M	2440	Ant1	-1.44	0	-1.44	8	Pass
NVNT	BLE 2M	2480	Ant1	-2.07	0	-2.07	8	Pass
NVNT	BLE_512K	2402	Ant1	7.93	0	7.93	8	Pass
NVNT	BLE_512K	2440	Ant1	7.85	0	7.85	8	Pass
NVNT	BLE_512K	2480	Ant1	7.41	0	7.41	8	Pass



Test Graphs

PSD NVNT BLE 1M 2402MHz Ant1

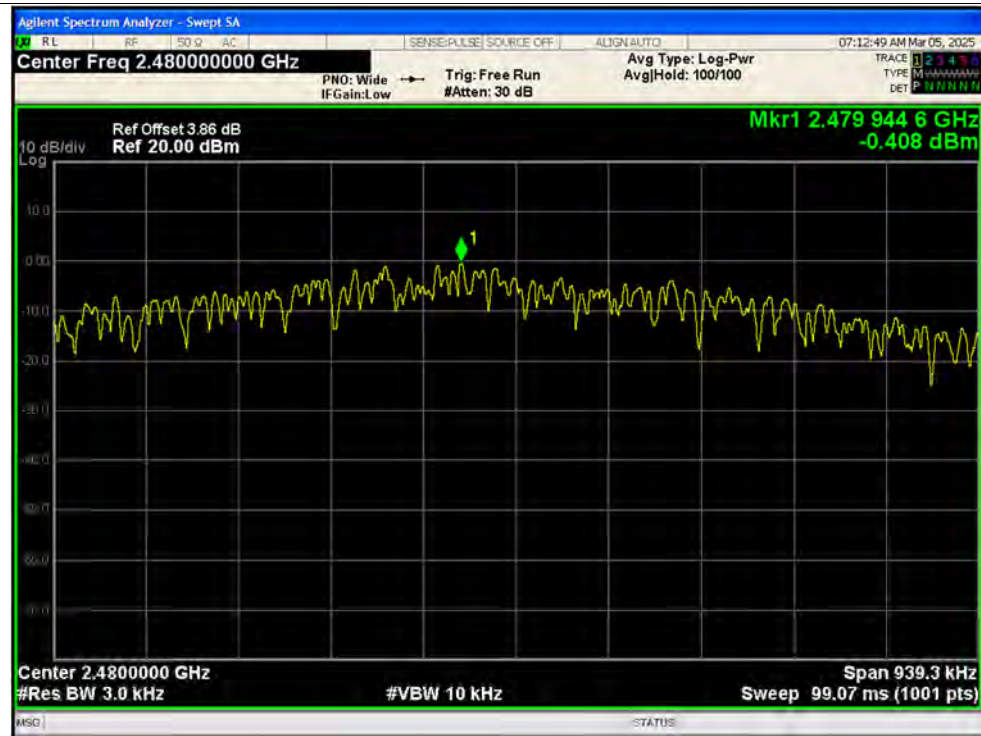


PSD NVNT BLE 1M 2440MHz Ant1

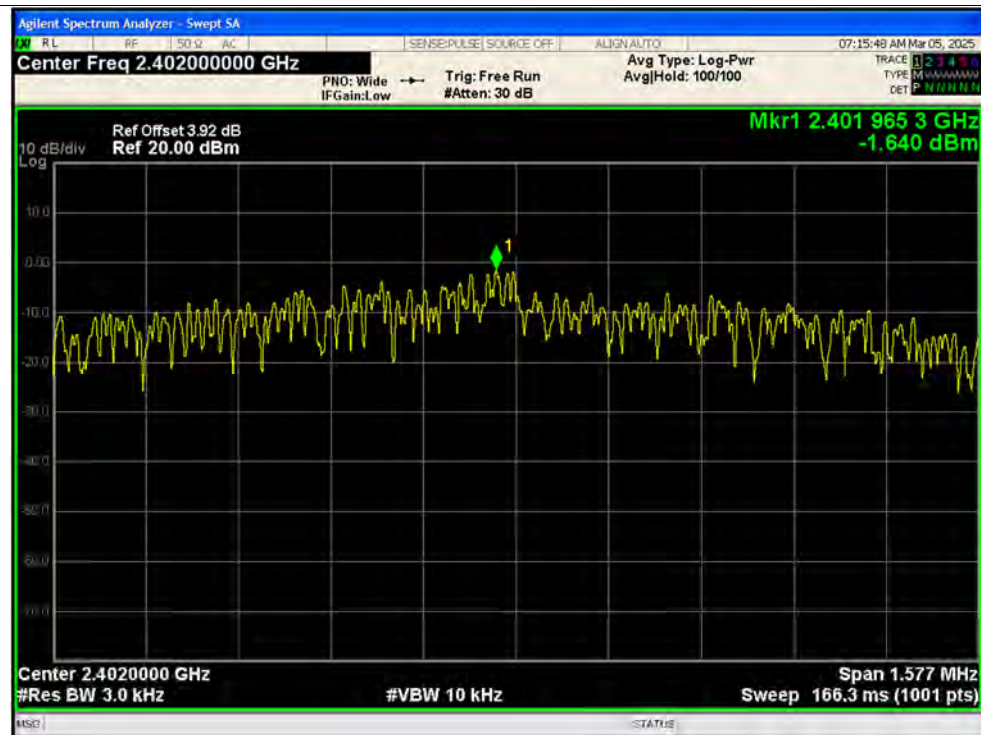




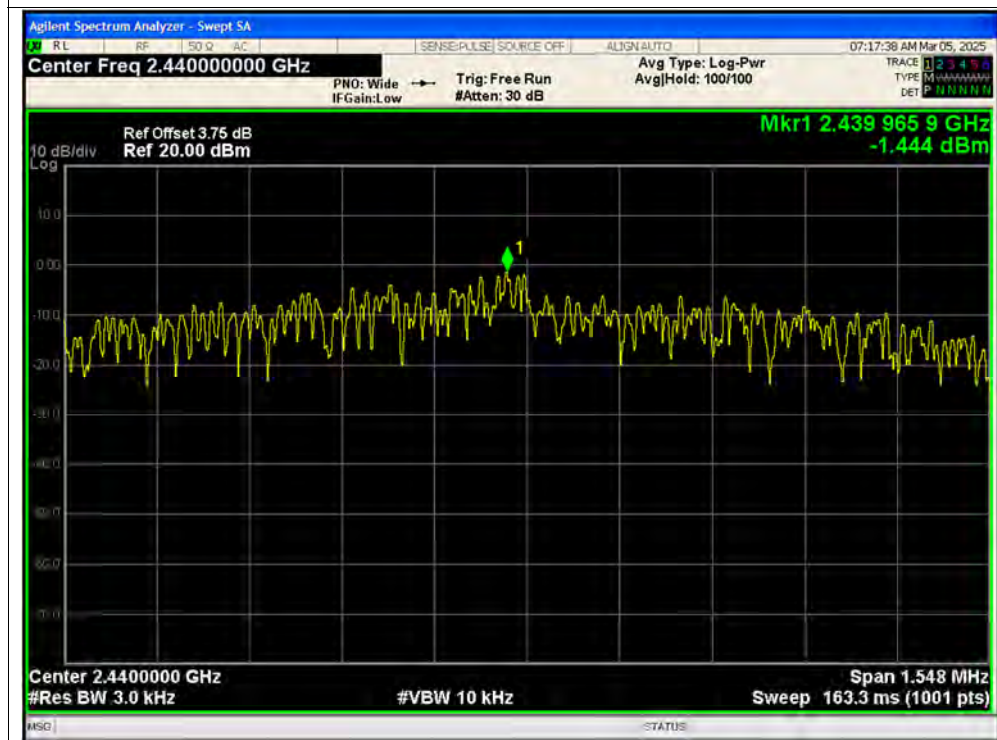
PSD NVNT BLE 1M 2480MHz Ant1



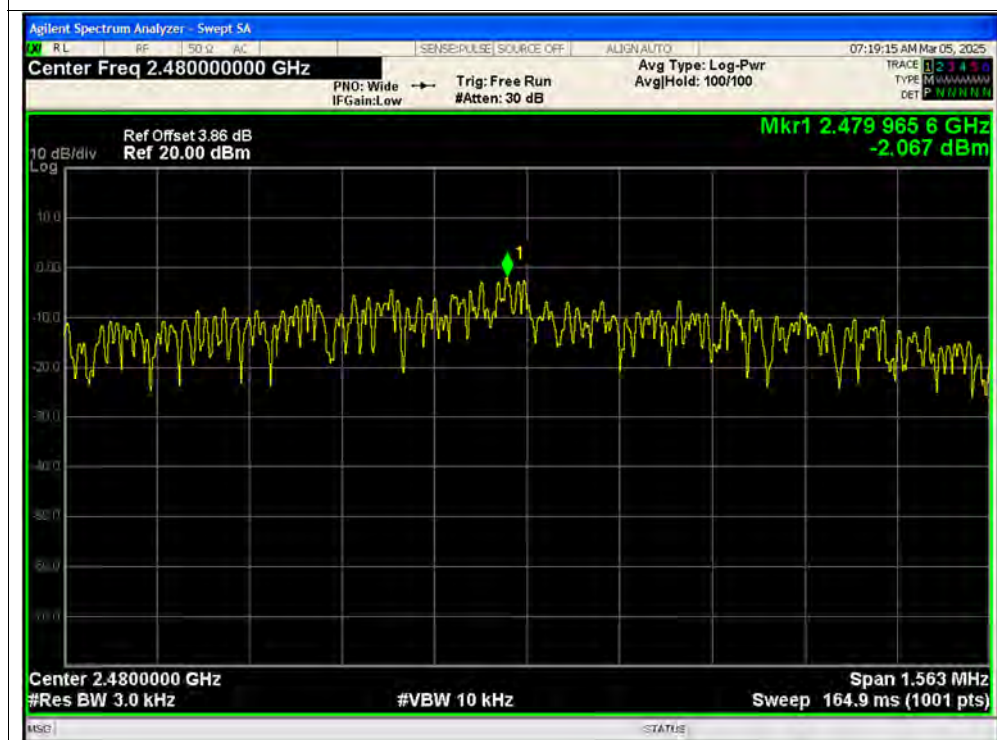
PSD NVNT BLE 2M 2402MHz Ant1



PSD NVNT BLE 2M 2440MHz Ant1



PSD NVNT BLE 2M 2480MHz Ant1

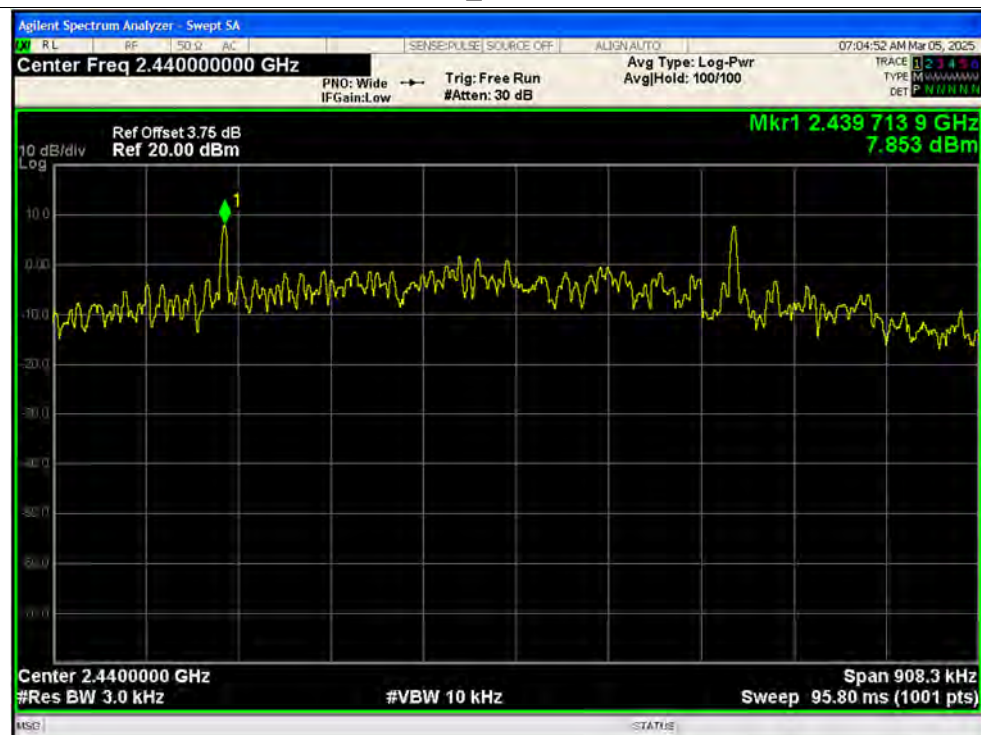


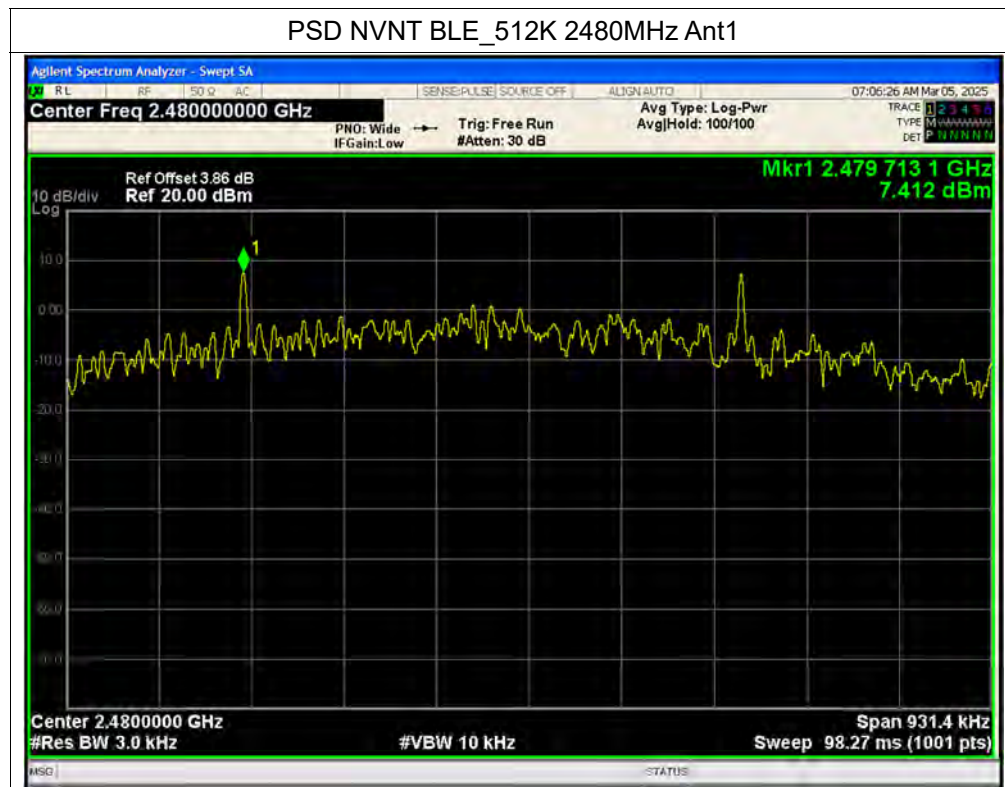


PSD NVNT BLE_512K 2402MHz Ant1



PSD NVNT BLE_512K 2440MHz 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+PC+PC Adapter+Serial Port Board+BLE TX

Test voltage: AC 120V/60Hz

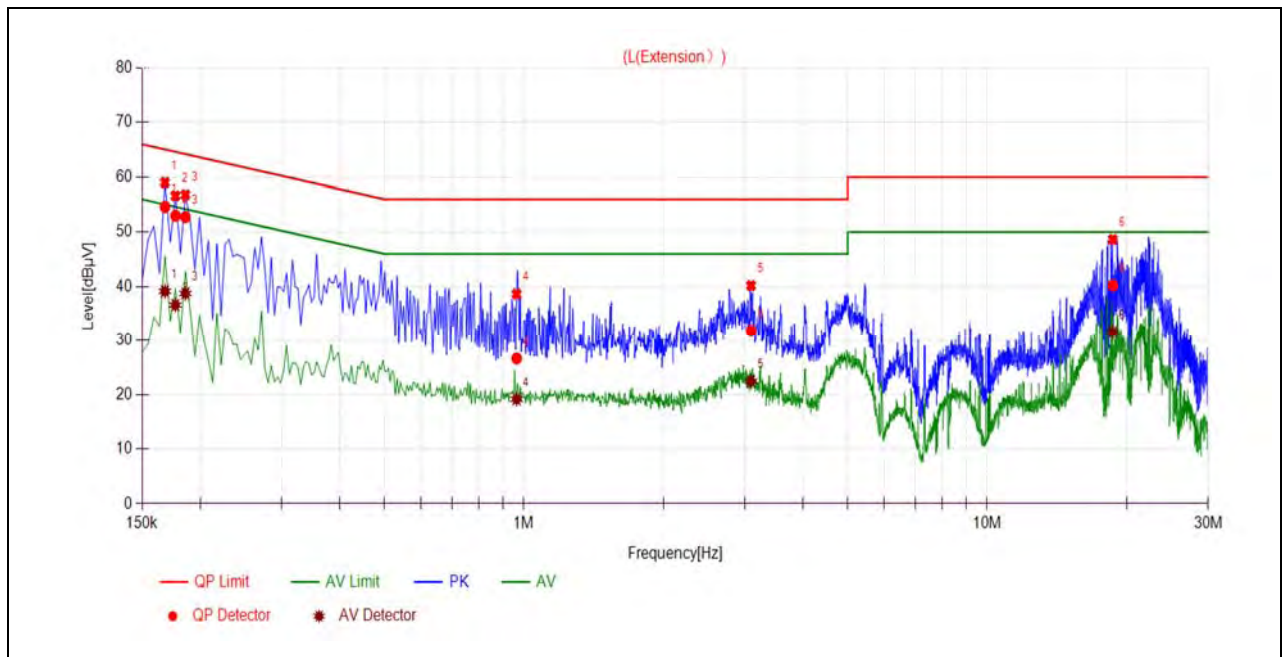
The measurement results are obtained as below:

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

U_R : Receiver Reading

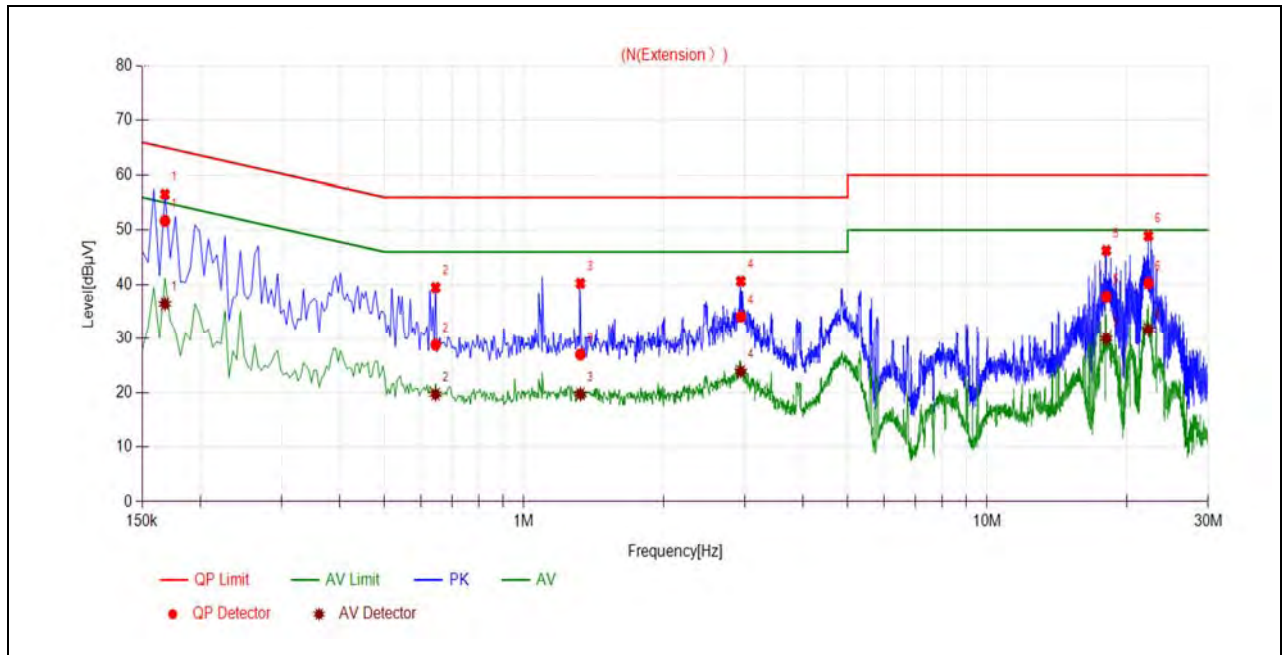
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1680	54.62	39.15	65.06	55.06	Line	PASS
2	0.1770	53.01	36.62	64.62	54.62		PASS
3	0.1860	52.76	38.75	64.21	54.21		PASS
4	0.9646	26.65	19.13	56.00	46.00		PASS
5	3.0931	31.82	22.43	56.00	46.00		PASS
6	18.6777	40.24	31.62	60.00	50.00		PASS



(N Phase)

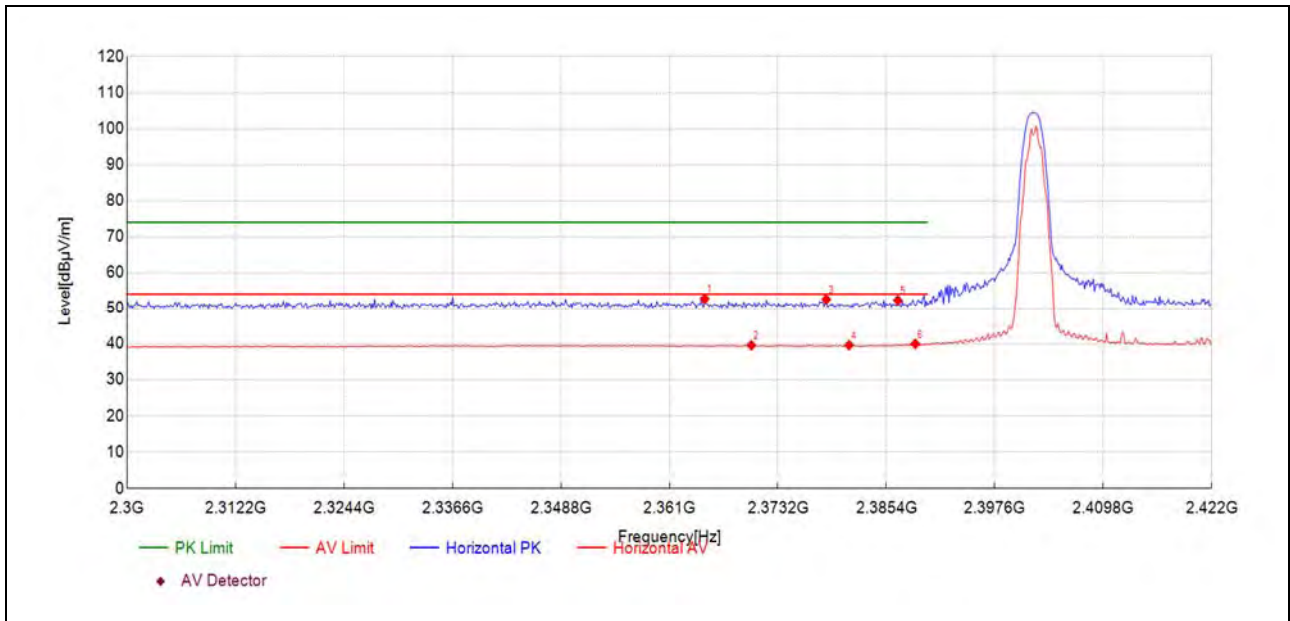
No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1680	51.70	36.47	65.06	55.06	Neutral	PASS
2	0.6449	28.80	19.69	56.00	46.00		PASS
3	1.3244	27.00	19.72	56.00	46.00		PASS
4	2.9402	34.11	23.88	56.00	46.00		PASS
5	18.0789	37.76	30.00	60.00	50.00		PASS
6	22.2883	40.26	31.69	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.

1Mbps

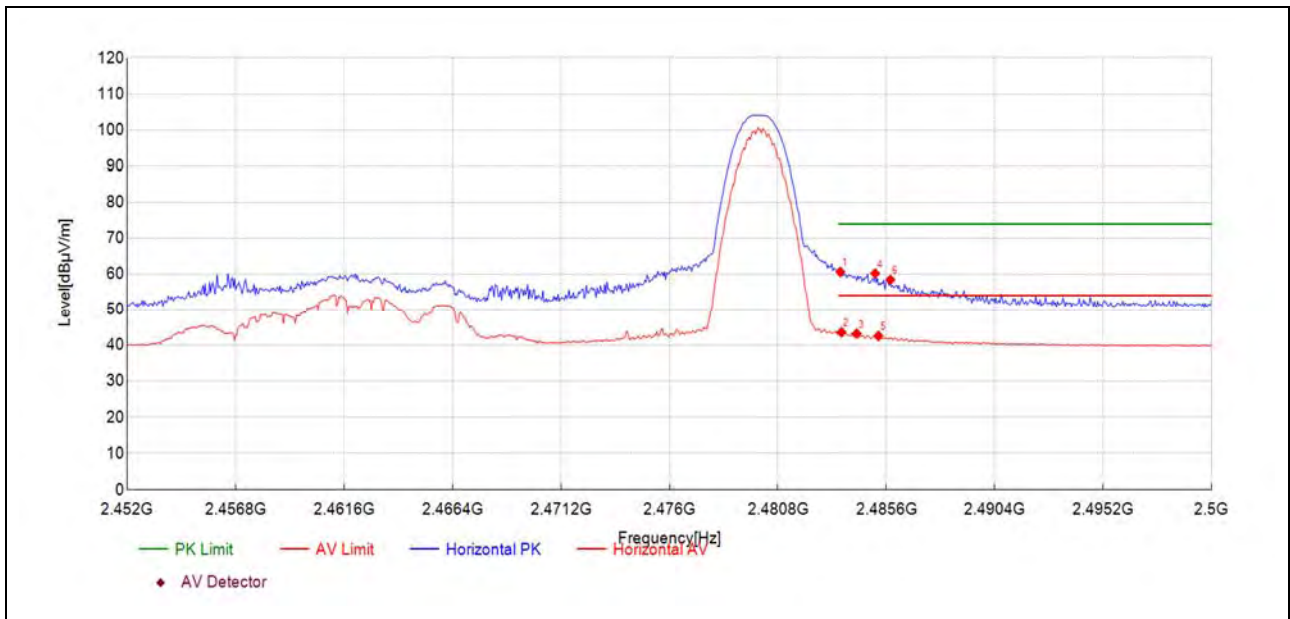
Plot for Channel 0



Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2364.97	15.3	52.72	37.470	74.00	21.28	150	187	PK	PASS
2370.22	2.1	39.59	37.470	54.00	14.41	150	80	AV	PASS
2378.65	15.1	52.57	37.480	74.00	21.43	150	111	PK	PASS
2381.21	2.2	39.63	37.480	54.00	14.37	150	173	AV	PASS
2386.71	14.8	52.31	37.490	74.00	21.69	150	116	PK	PASS
2388.66	2.5	39.98	37.490	54.00	14.02	150	107	AV	PASS



Plot for Channel 39

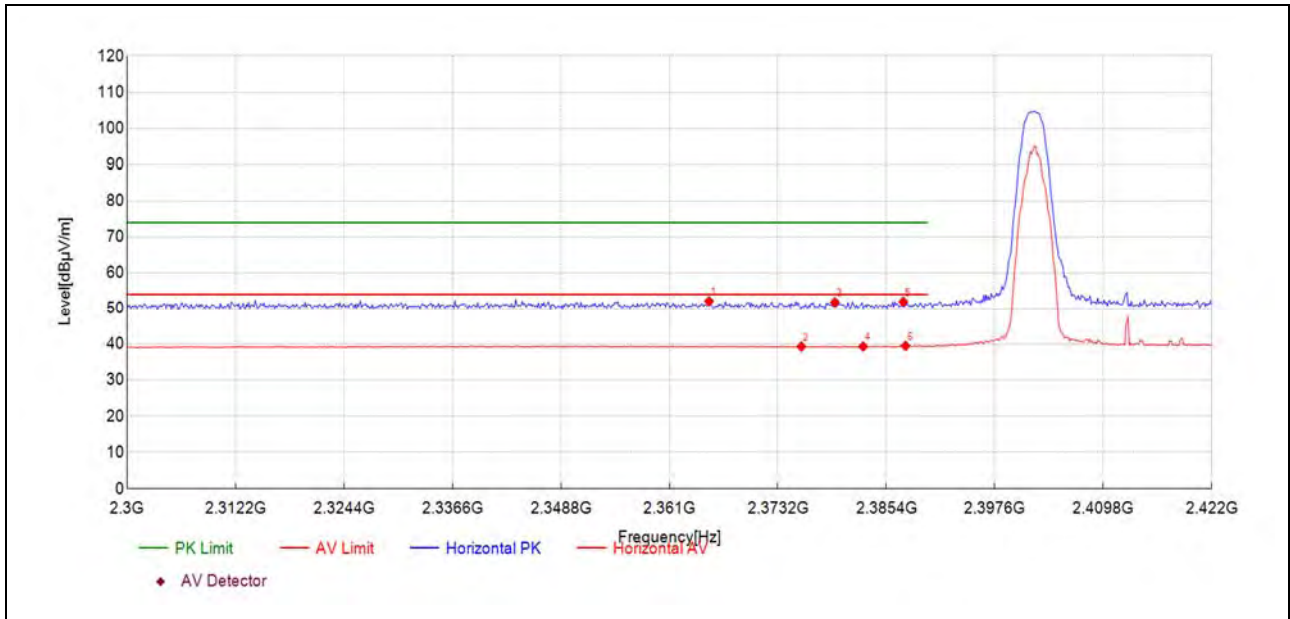


Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2483.57	22.3	60.62	38.280	74.00	13.38	150	319	PK	PASS
2483.62	5.3	43.58	38.280	54.00	10.42	150	102	AV	PASS
2484.29	4.9	43.21	38.270	54.00	10.79	150	106	AV	PASS
2485.11	21.9	60.21	38.270	74.00	13.79	150	111	PK	PASS
2485.25	4.3	42.57	38.270	54.00	11.43	150	111	AV	PASS
2485.78	20.2	58.45	38.270	74.00	15.55	150	111	PK	PASS



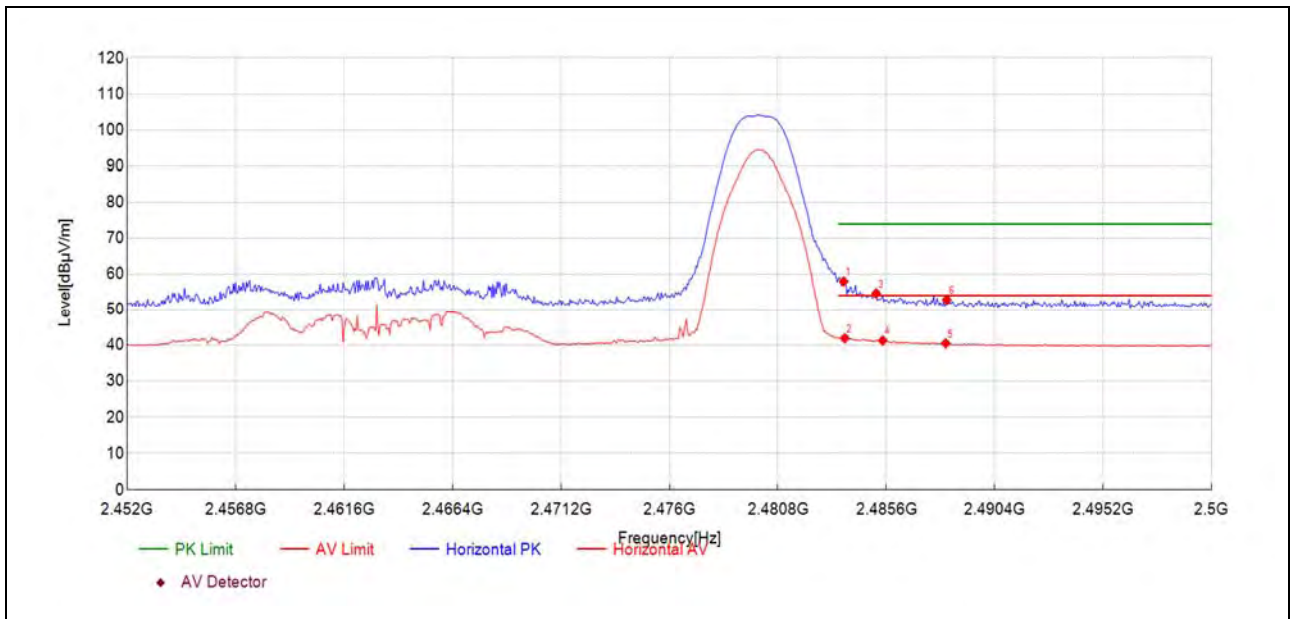
2Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2365.46	14.7	52.14	37.470	74.00	21.86	150	161	PK	PASS
2375.84	1.8	39.31	37.480	54.00	14.69	150	188	AV	PASS
2379.62	14.4	51.83	37.480	74.00	22.17	150	108	PK	PASS
2382.80	1.9	39.33	37.480	54.00	14.67	150	121	AV	PASS
2387.32	14.5	51.98	37.490	74.00	22.02	150	224	PK	PASS
2387.56	2.0	39.51	37.490	54.00	14.49	150	86	AV	PASS

Plot for Channel 39

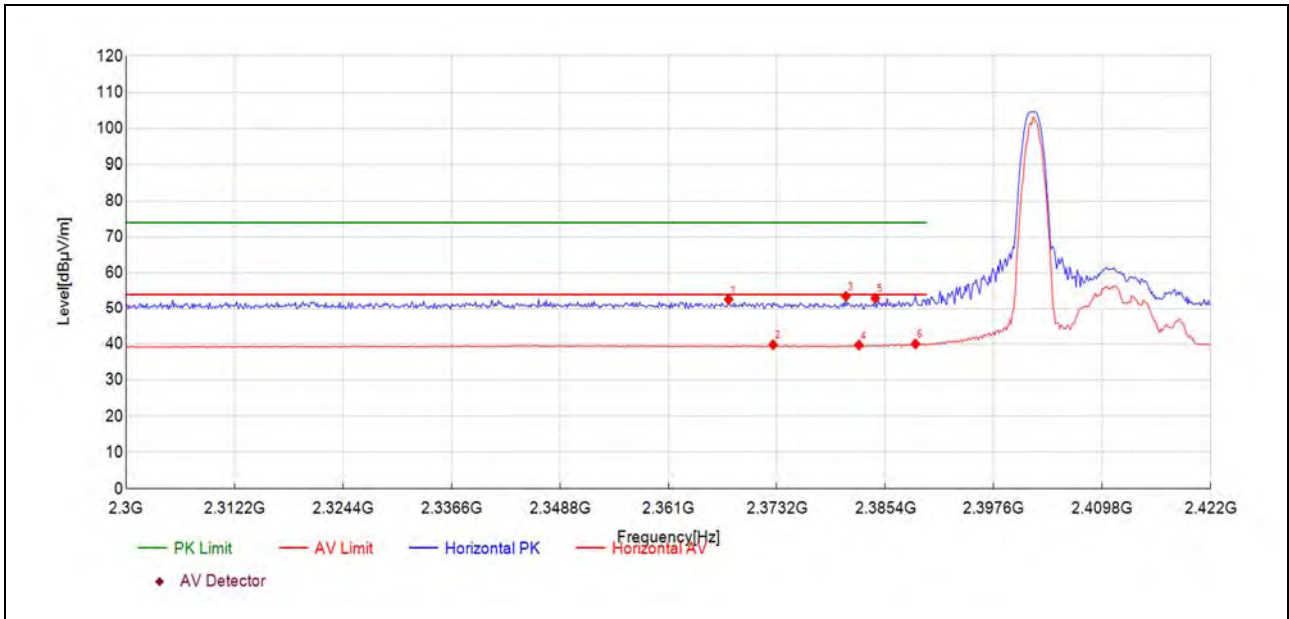


Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2483.71	19.7	57.98	38.280	74.00	16.02	150	105	PK	PASS
2483.76	3.7	41.92	38.270	54.00	12.08	150	105	AV	PASS
2485.15	16.4	54.63	38.270	74.00	19.37	150	105	PK	PASS
2485.44	3.0	41.27	38.270	54.00	12.73	150	105	AV	PASS
2488.23	2.2	40.48	38.270	54.00	13.52	150	100	AV	PASS
2488.28	14.6	52.83	38.270	74.00	21.17	150	105	PK	PASS



512kbps

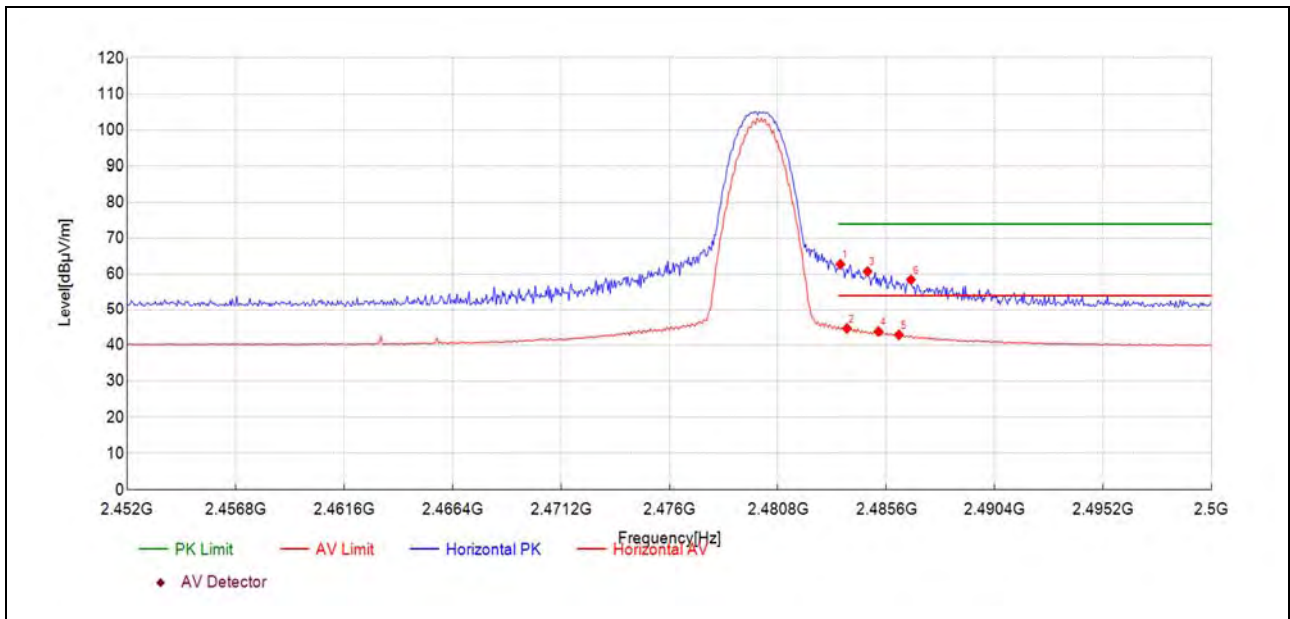
Plot for Channel 0



Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2367.78	15.2	52.68	37.470	74.00	21.32	150	107	PK	PASS
2372.78	2.3	39.81	37.480	54.00	14.19	150	80	AV	PASS
2380.97	16.1	53.56	37.480	74.00	20.44	150	71	PK	PASS
2382.43	2.3	39.73	37.480	54.00	14.27	150	76	AV	PASS
2384.26	15.5	53.03	37.490	74.00	20.97	150	76	PK	PASS
2388.78	2.6	40.05	37.490	54.00	13.95	150	71	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
2483.57	24.5	62.77	38.280	74.00	11.23	150	49	PK	PASS
2483.86	6.4	44.63	38.270	54.00	9.37	150	109	AV	PASS
2484.77	22.5	60.75	38.270	74.00	13.25	150	109	PK	PASS
2485.25	5.5	43.81	38.270	54.00	10.19	150	105	AV	PASS
2486.16	4.6	42.86	38.280	54.00	11.14	150	109	AV	PASS
2486.69	20.2	58.46	38.270	74.00	15.54	150	105	PK	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:

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

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.

Note1: 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.

Note2: 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.

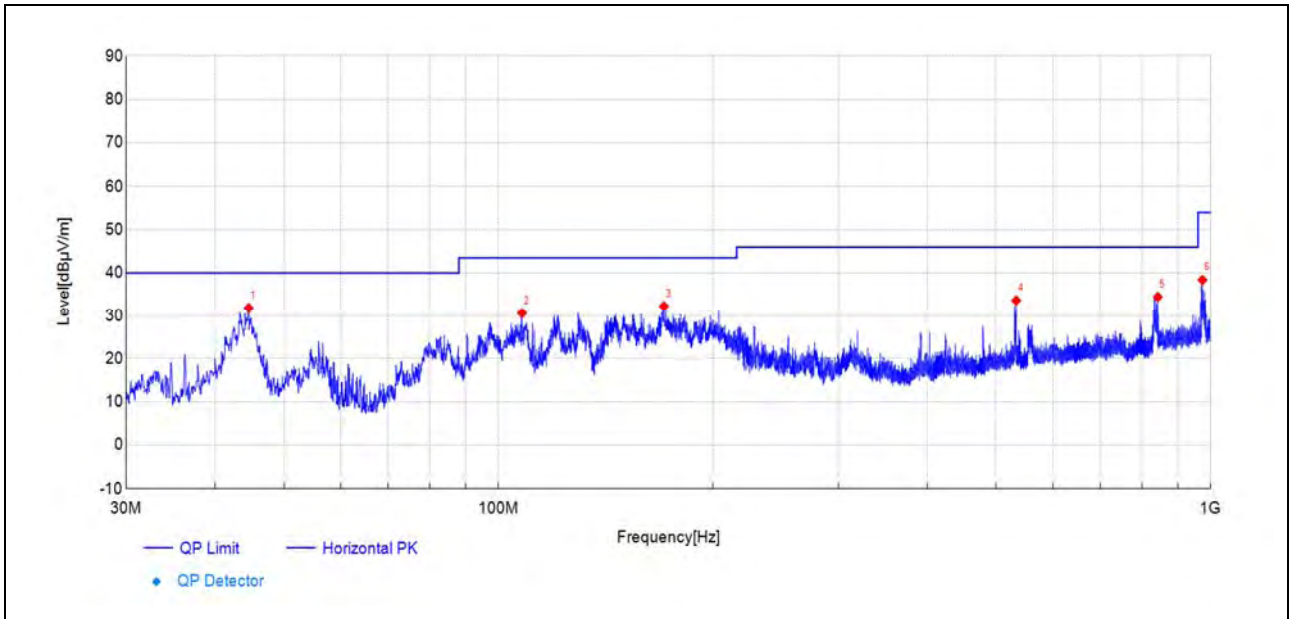
Note3: For the frequency, which started from 18GHz to 10th harmonic of the highest frequency, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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



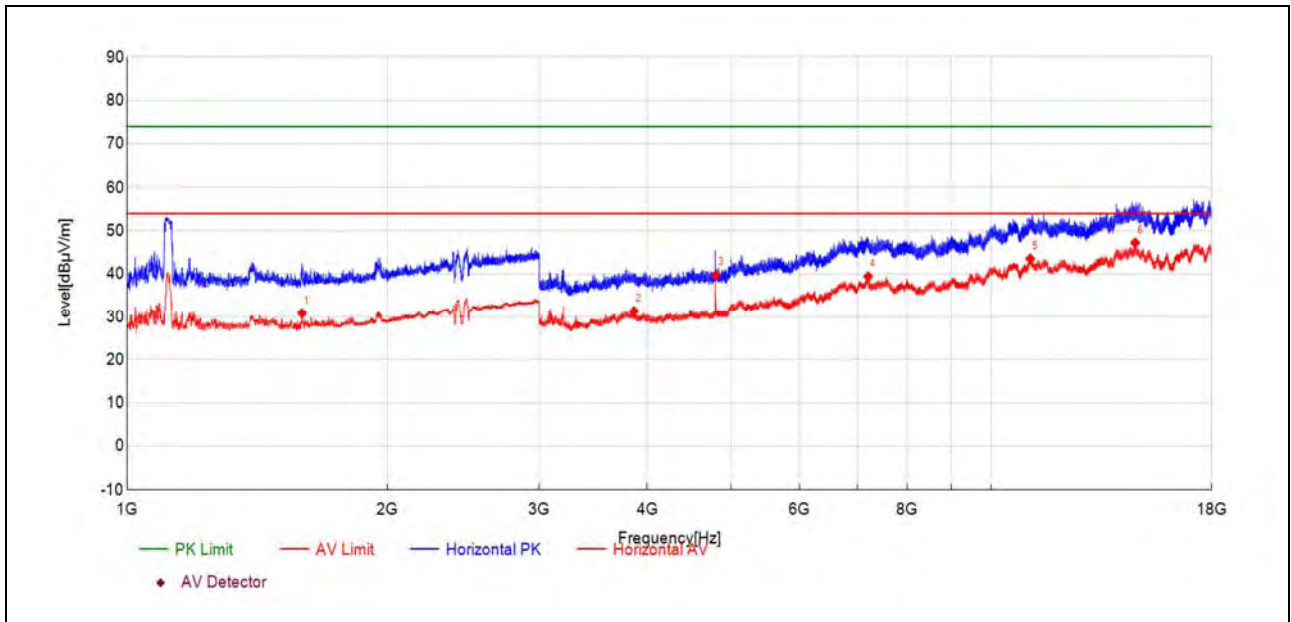
1Mbps

Plot for Channel 0



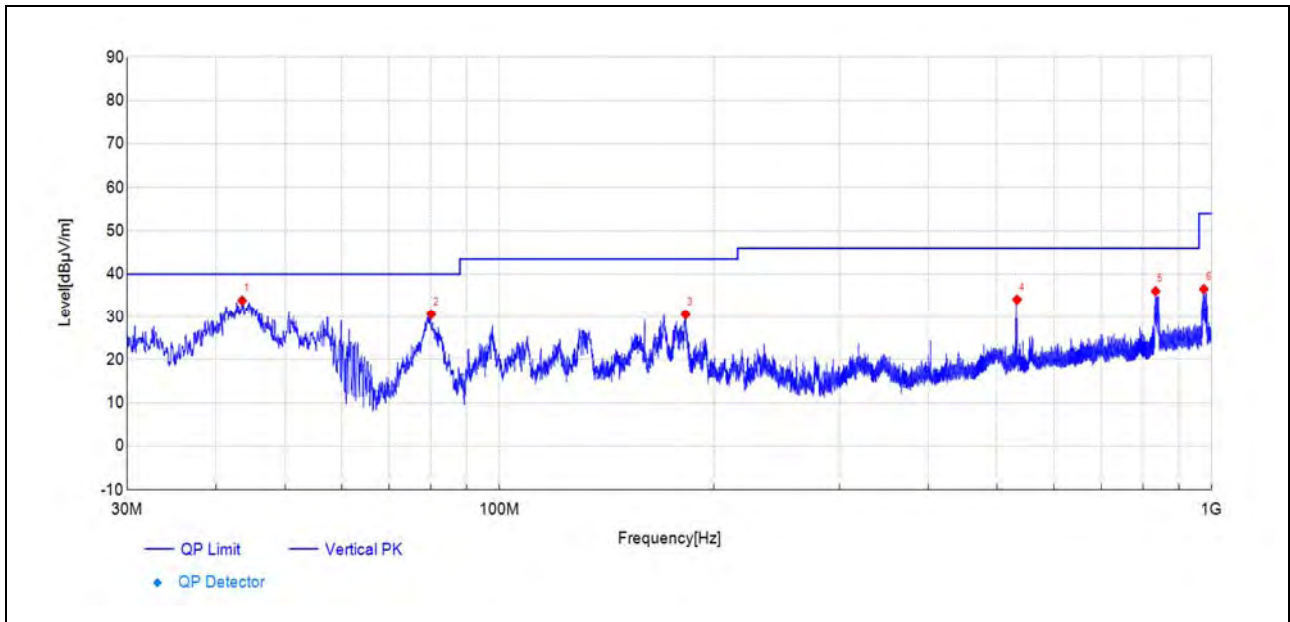
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.60	59.8	31.80	-27.980	40.00	8.20	150	16	PK	PASS
107.94	59.6	30.59	-28.980	43.50	12.91	150	102	PK	PASS
170.71	63.4	32.22	-31.160	43.50	11.28	150	41	PK	PASS
533.21	52.6	33.59	-19.020	46.00	12.41	150	310	PK	PASS
842.80	48.1	34.43	-13.690	46.00	11.57	150	102	PK	PASS
973.66	49.4	38.37	-11.020	54.00	15.63	150	41	PK	PASS



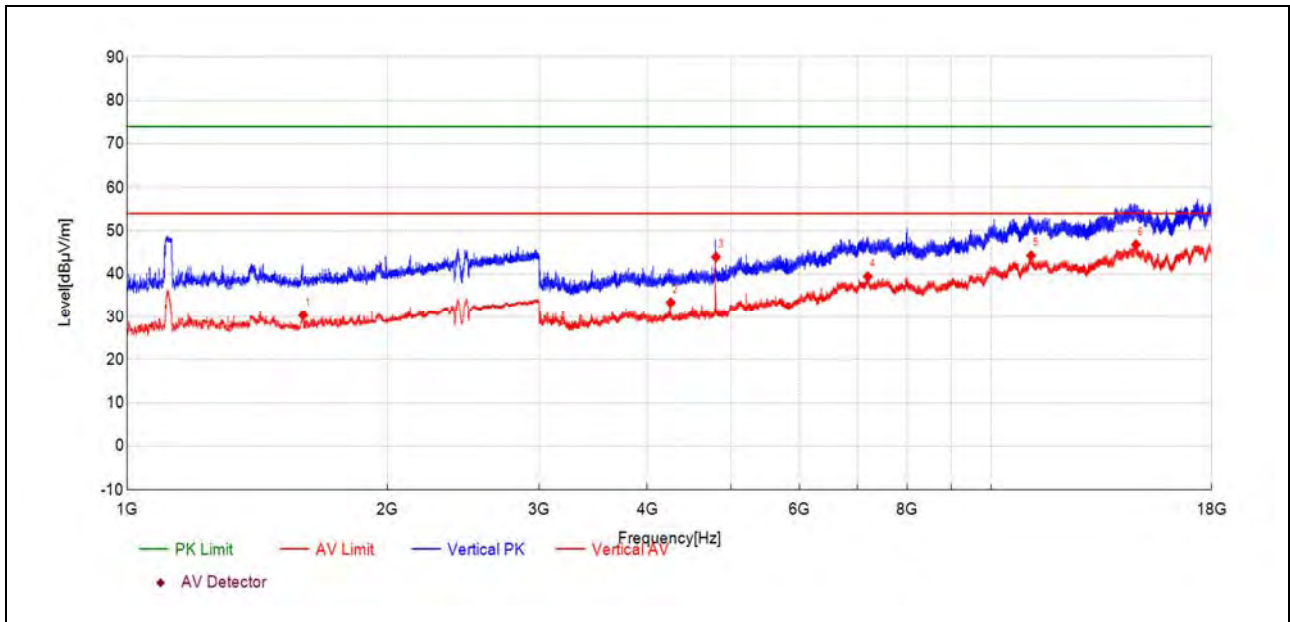
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1594.35	31.3	30.83	-0.440	54.00	23.17	150	92	AV	PASS
3861.63	39.7	31.31	-8.360	54.00	22.69	150	300	AV	PASS
4804.27	45.0	39.81	-5.140	54.00	14.19	150	182	AV	PASS
7205.57	34.4	39.44	5.030	54.00	14.56	150	290	AV	PASS
11100.92	29.5	43.54	14.080	54.00	10.46	150	42	AV	PASS
14681.87	26.7	47.26	20.550	54.00	6.74	150	9	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

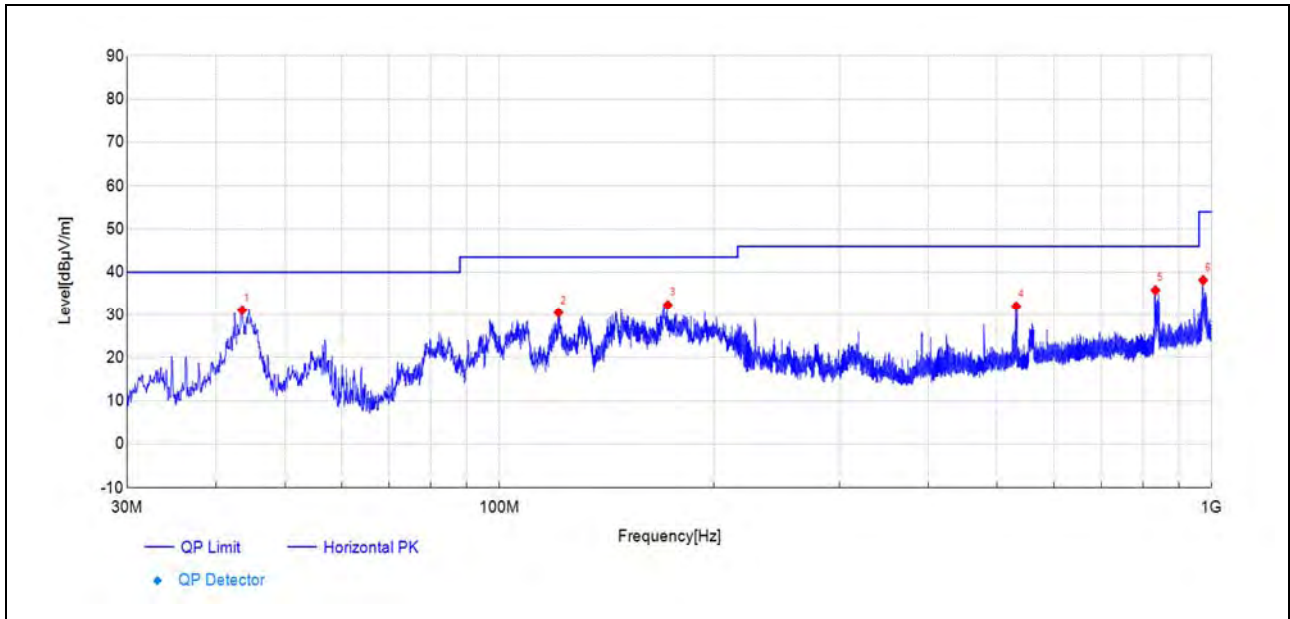
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
43.53	61.8	33.84	-27.910	40.00	6.16	150	106	PK	PASS
80.20	63.1	30.57	-32.550	40.00	9.43	150	183	PK	PASS
182.54	60.9	30.50	-30.380	43.50	13.00	150	24	PK	PASS
532.92	53.1	34.07	-19.010	46.00	11.93	150	199	PK	PASS
834.22	49.9	36.03	-13.860	46.00	9.97	150	101	PK	PASS
975.02	47.3	36.52	-10.800	54.00	17.48	150	29	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

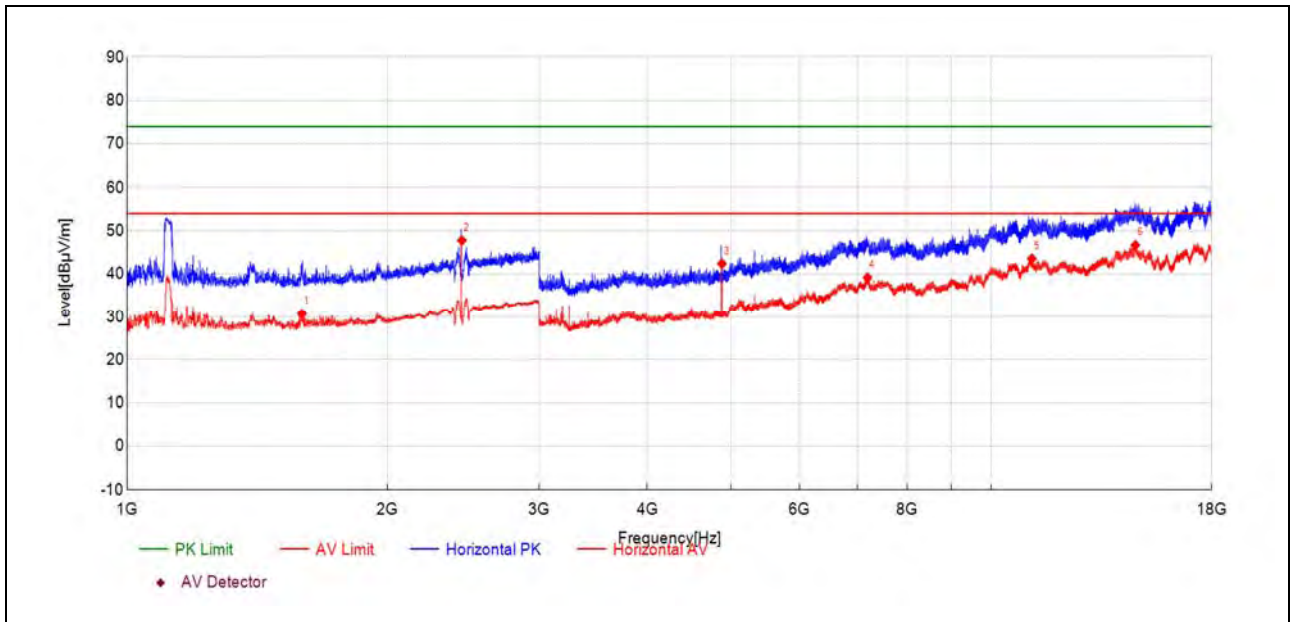
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1599.24	30.7	30.34	-0.390	54.00	23.66	150	62	AV	PASS
4257.65	40.6	33.38	-7.200	54.00	20.62	150	127	AV	PASS
4804.87	49.1	43.96	-5.140	54.00	10.04	150	84	AV	PASS
7197.77	34.3	39.43	5.090	54.00	14.57	150	104	AV	PASS
11123.72	30.3	44.27	13.940	54.00	9.73	150	222	AV	PASS
14711.87	26.3	46.82	20.500	54.00	7.18	150	360	AV	PASS

Plot for Channel 19



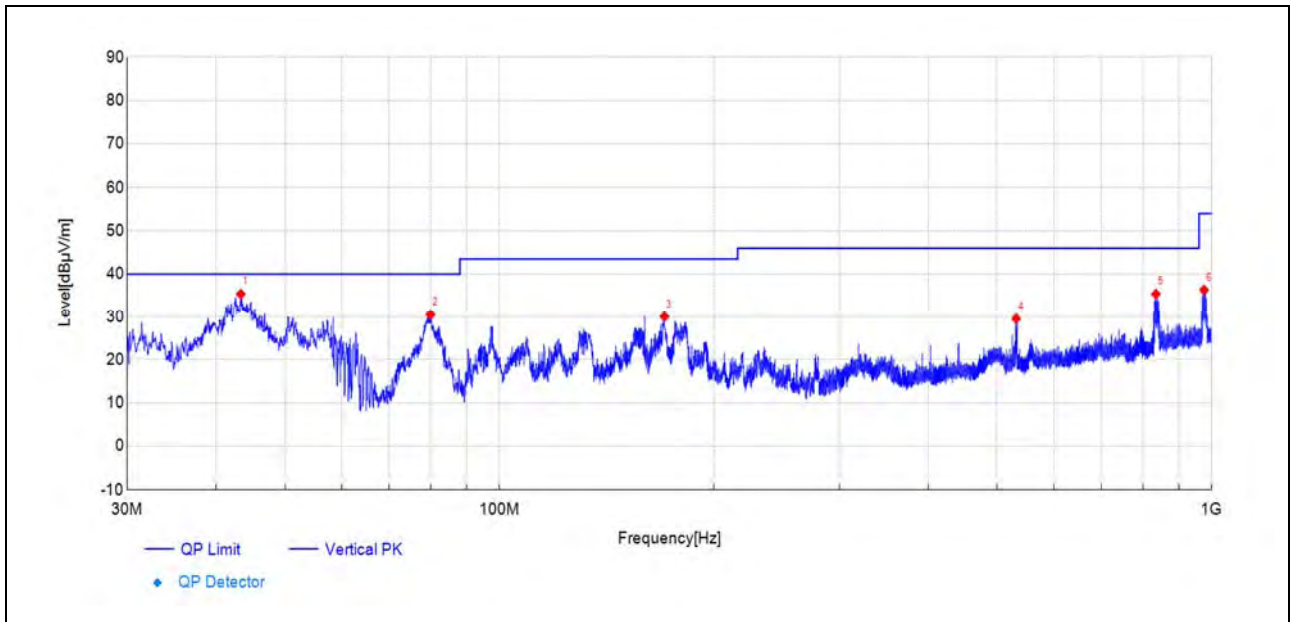
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
43.53	59.0	31.05	-27.910	40.00	8.95	150	35	PK	PASS
121.04	61.1	30.44	-30.620	43.50	13.06	150	91	PK	PASS
172.31	63.0	32.32	-30.670	43.50	11.18	150	212	PK	PASS
531.52	51.0	32.00	-18.950	46.00	14.00	150	121	PK	PASS
833.69	49.7	35.77	-13.950	46.00	10.23	150	146	PK	PASS
972.55	49.4	38.14	-11.210	54.00	15.86	150	40	PK	PASS



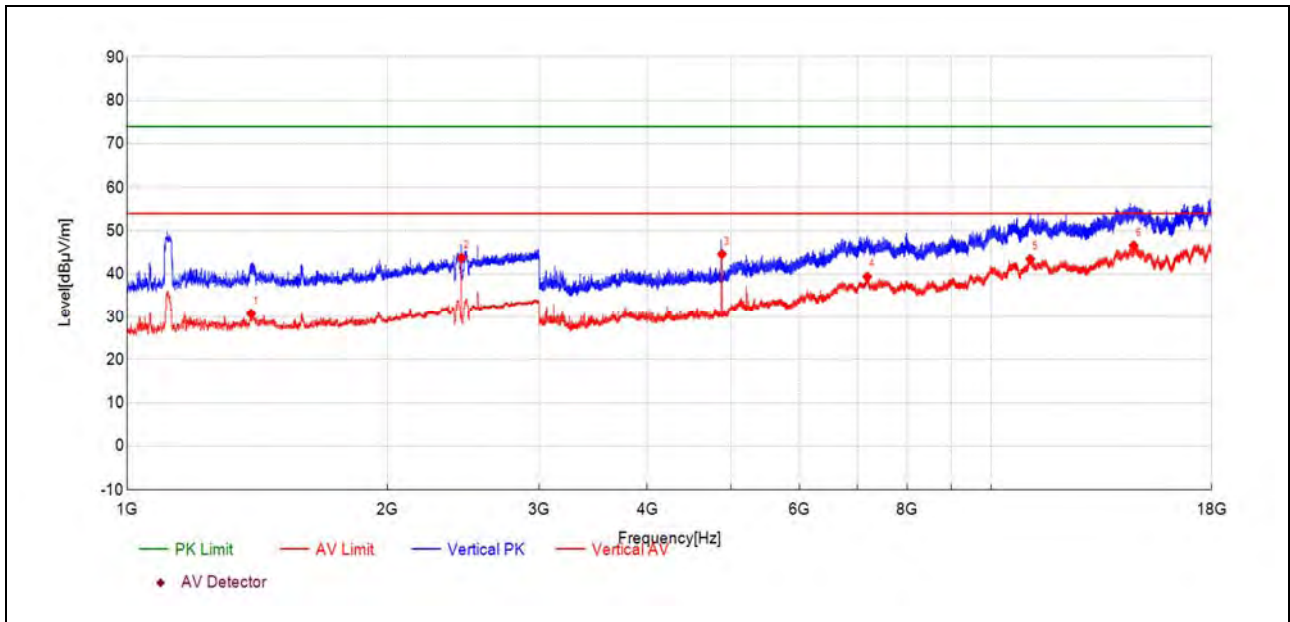
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1593.91	31.1	30.69	-0.440	54.00	23.31	150	163	AV	PASS
2440.32	42.0	47.79	5.820	-	-	150	297	AV	NA
4880.48	47.4	42.41	-5.000	54.00	11.59	150	319	AV	PASS
7192.97	34.2	39.20	5.040	54.00	14.80	150	9	AV	PASS
11145.93	29.8	43.56	13.800	54.00	10.44	150	223	AV	PASS
14686.67	26.1	46.70	20.560	54.00	7.30	150	9	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

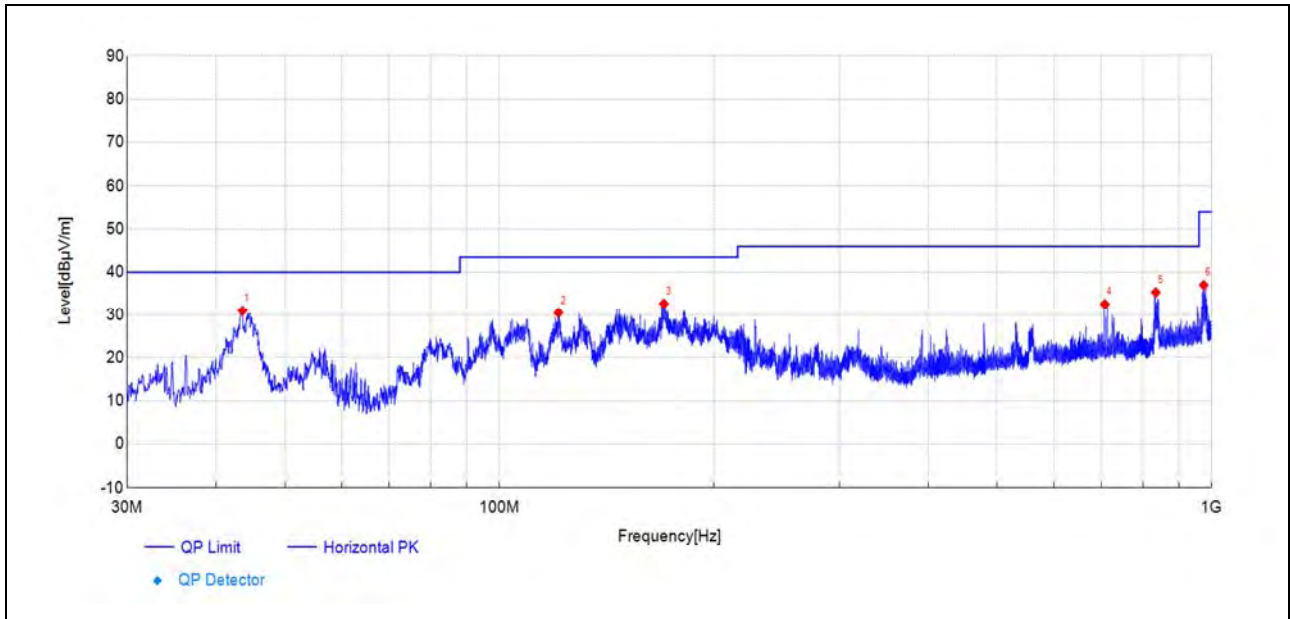
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
43.34	63.3	35.36	-27.960	40.00	4.64	150	310	PK	PASS
80.01	63.1	30.46	-32.650	40.00	9.54	150	198	PK	PASS
170.46	61.2	30.00	-31.160	43.50	13.50	150	351	PK	PASS
531.52	48.5	29.54	-18.950	46.00	16.46	150	163	PK	PASS
835.04	49.1	35.37	-13.730	46.00	10.63	150	101	PK	PASS
975.60	47.2	36.29	-10.860	54.00	17.71	150	26	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

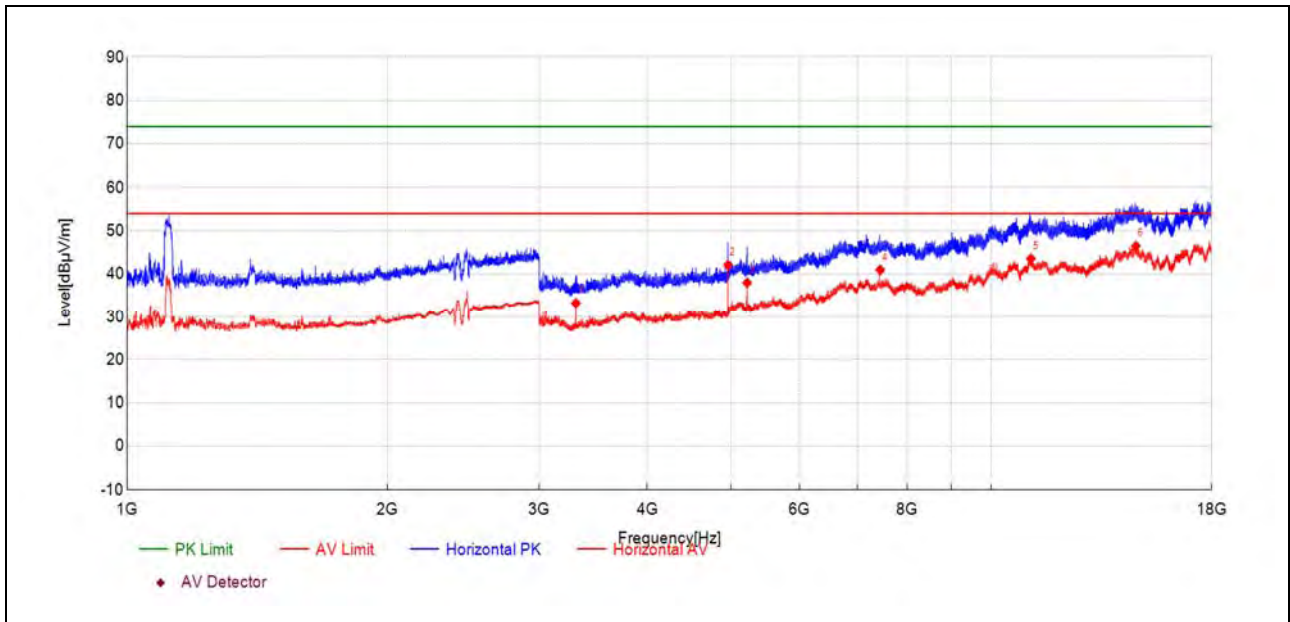
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1392.09	31.0	30.70	-0.300	54.00	23.30	150	106	AV	PASS
2440.32	37.9	43.74	5.820	-	-	150	208	AV	NA
4881.08	49.6	44.61	-5.010	54.00	9.39	150	84	AV	PASS
7189.37	34.4	39.40	5.000	54.00	14.60	150	284	AV	PASS
11099.72	29.4	43.46	14.080	54.00	10.54	150	127	AV	PASS
14618.86	26.2	46.62	20.380	54.00	7.38	150	211	AV	PASS

Plot for Channel 39



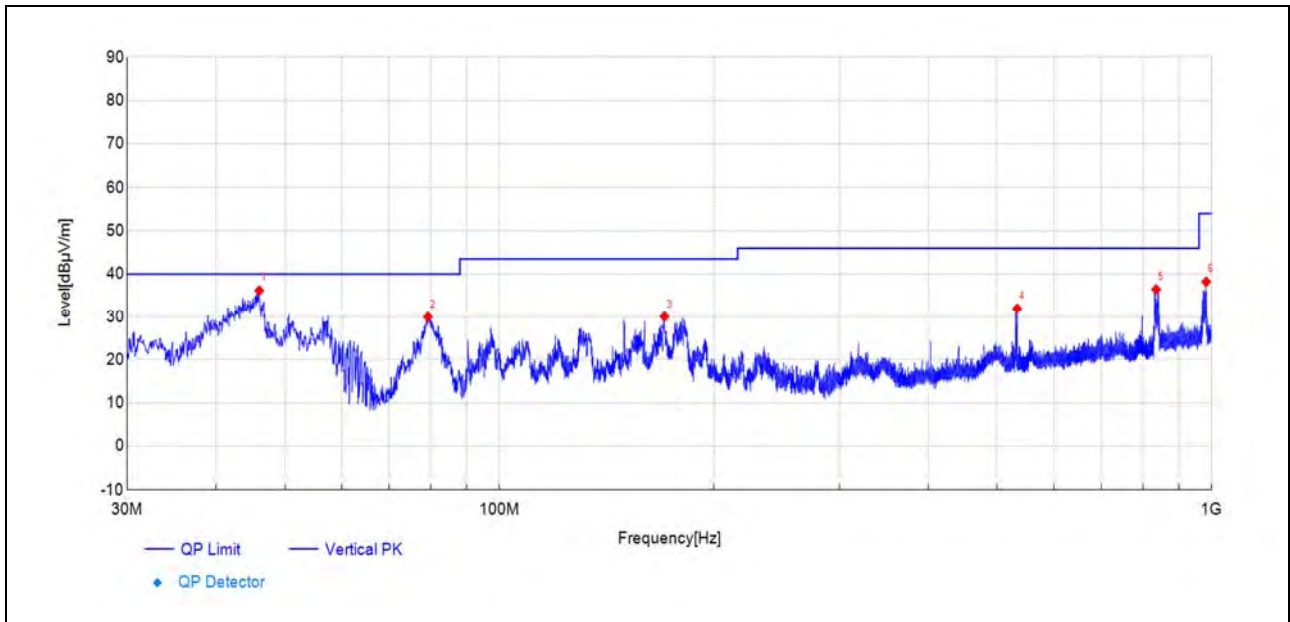
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
43.58	58.8	30.92	-27.900	40.00	9.08	150	42	PK	PASS
120.99	61.0	30.43	-30.600	43.50	13.07	150	87	PK	PASS
170.17	63.8	32.61	-31.170	43.50	10.89	150	52	PK	PASS
707.87	48.2	32.50	-15.730	46.00	13.50	150	219	PK	PASS
834.66	49.1	35.28	-13.790	46.00	10.72	150	97	PK	PASS
974.49	47.9	36.98	-10.880	54.00	17.02	150	37	PK	PASS



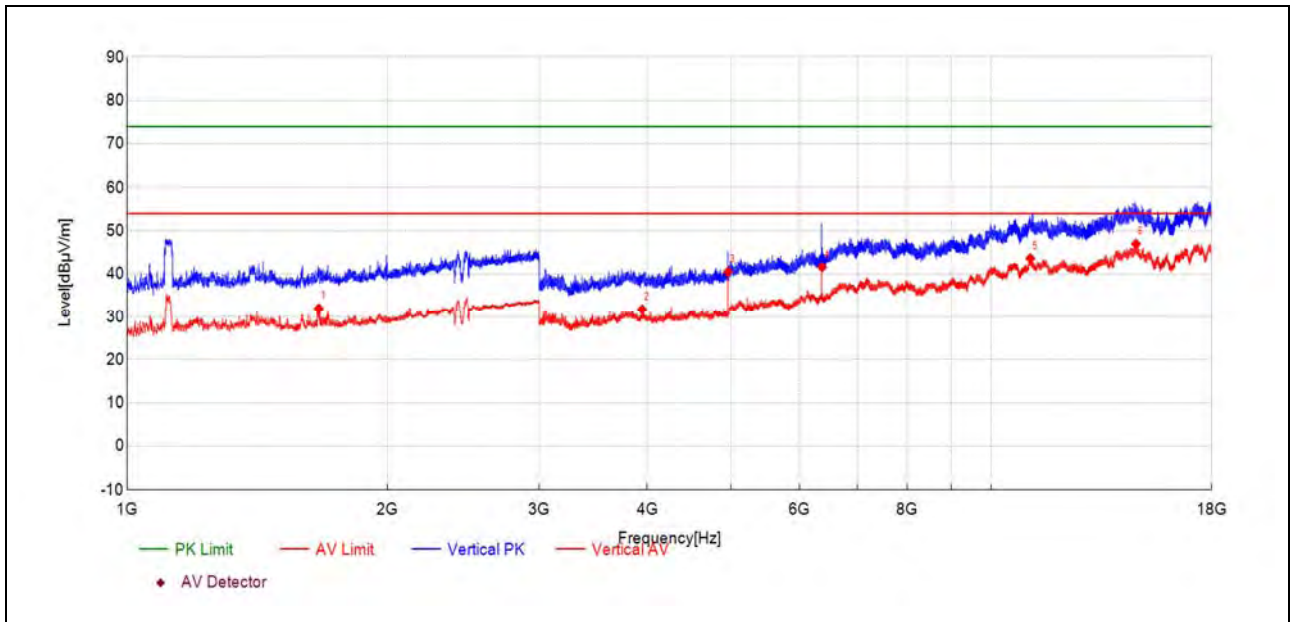
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
3307.21	44.2	33.24	-10.990	54.00	20.76	150	213	AV	PASS
4960.28	46.7	42.09	-4.610	54.00	11.91	150	201	AV	PASS
5220.09	41.3	37.97	-3.330	54.00	16.03	150	63	AV	PASS
7440.78	36.4	40.98	4.630	54.00	13.02	150	234	AV	PASS
11118.92	29.6	43.57	13.970	54.00	10.43	150	9	AV	PASS
14706.47	26.0	46.49	20.540	54.00	7.51	150	169	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
46.01	64.6	36.17	-28.470	40.00	3.83	150	137	PK	PASS
79.38	62.7	29.92	-32.730	40.00	10.08	150	228	PK	PASS
170.51	61.2	30.00	-31.160	43.50	13.50	150	350	PK	PASS
533.12	50.9	31.92	-19.020	46.00	14.08	150	172	PK	PASS
835.38	50.2	36.44	-13.760	46.00	9.56	150	106	PK	PASS
982.25	49.4	38.22	-11.220	54.00	15.78	150	86	PK	PASS

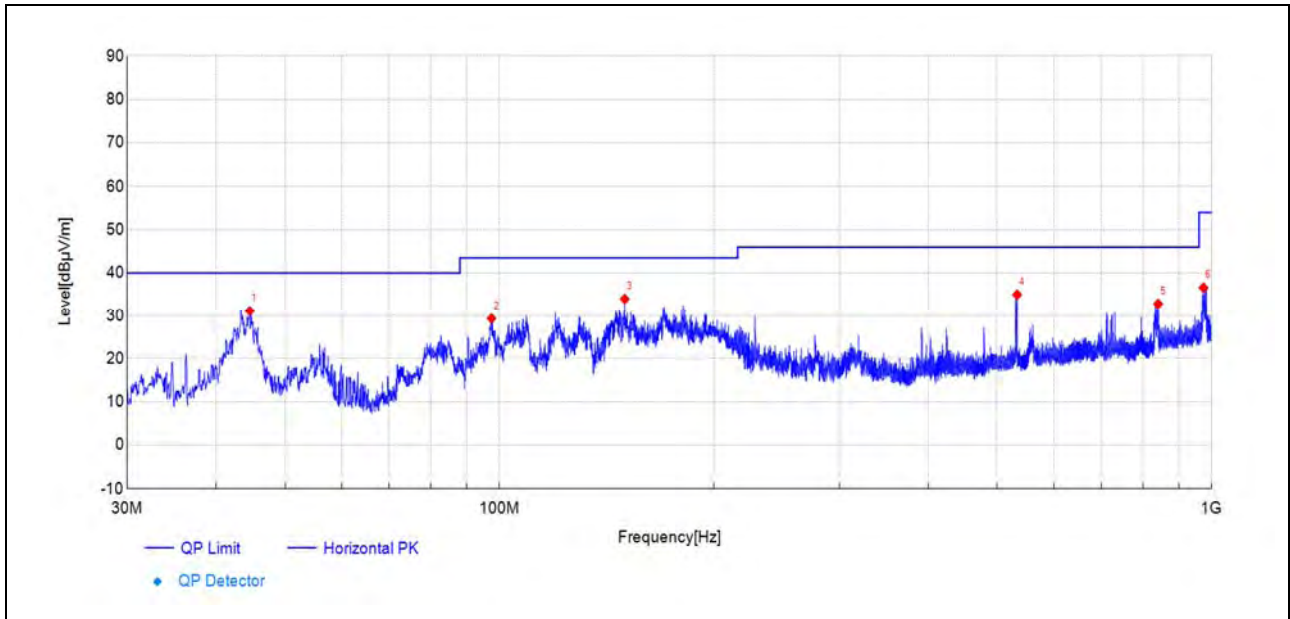


(Antenna Vertical, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1667.26	31.9	31.95	0.040	54.00	22.05	150	2	AV	PASS
3945.64	39.5	31.72	-7.810	54.00	22.28	150	117	AV	PASS
4960.28	45.2	40.56	-4.610	54.00	13.44	150	181	AV	PASS
6372.73	40.5	41.61	1.110	54.00	12.39	150	52	AV	PASS
11102.12	29.6	43.64	14.070	54.00	10.36	150	233	AV	PASS
14710.67	26.5	46.98	20.500	54.00	7.02	150	170	AV	PASS

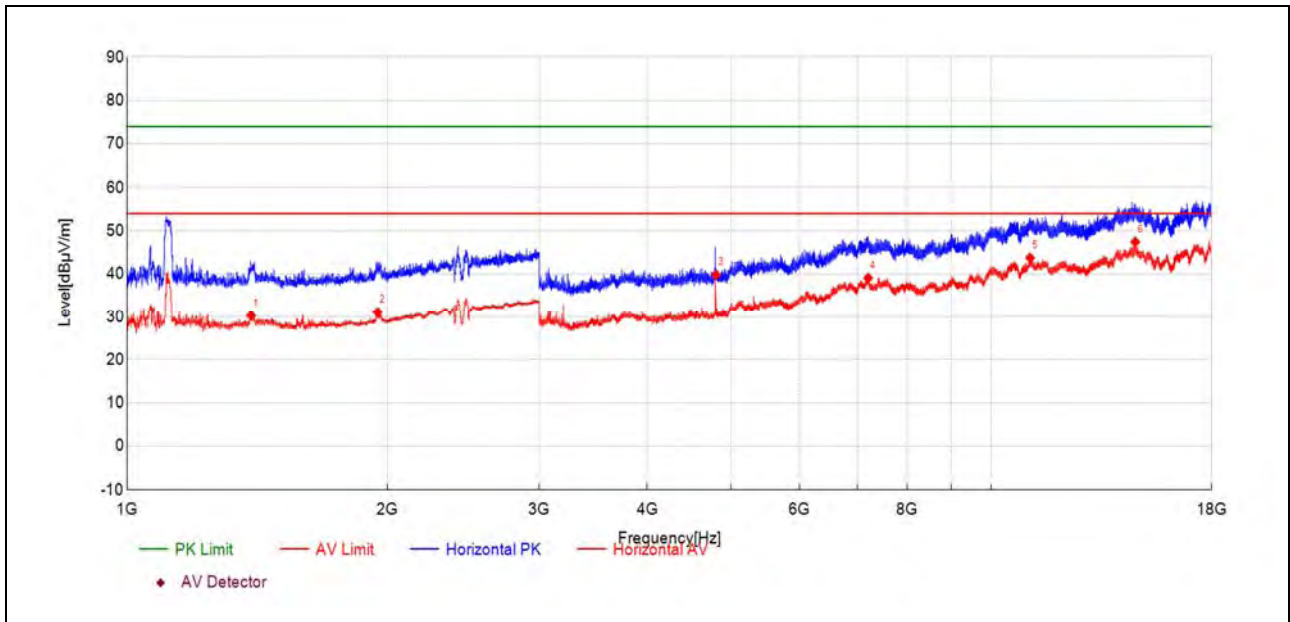
**512kbps**

Plot for Channel 0



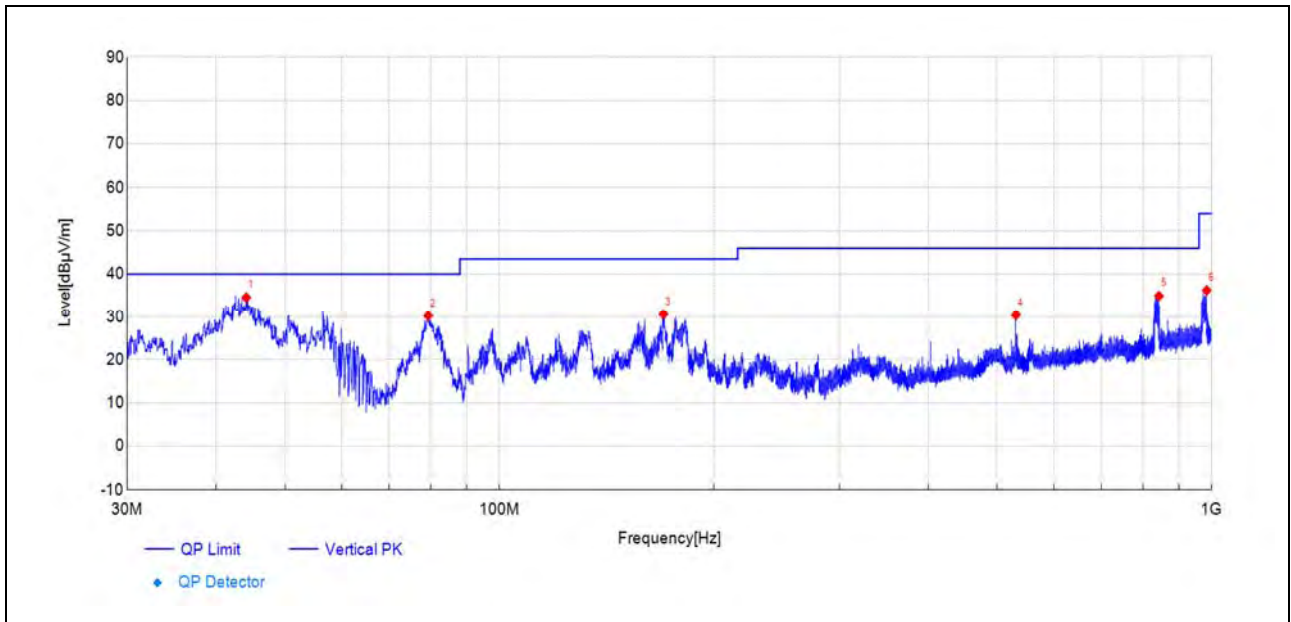
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.60	59.1	31.11	-27.980	40.00	8.89	150	45	PK	PASS
97.47	59.2	29.30	-29.910	43.50	14.20	150	80	PK	PASS
149.95	65.4	33.94	-31.480	43.50	9.56	150	80	PK	PASS
533.12	54.0	34.96	-19.020	46.00	11.04	150	130	PK	PASS
841.11	46.7	32.80	-13.940	46.00	13.20	150	95	PK	PASS
974.00	47.6	36.58	-10.970	54.00	17.42	150	35	PK	PASS



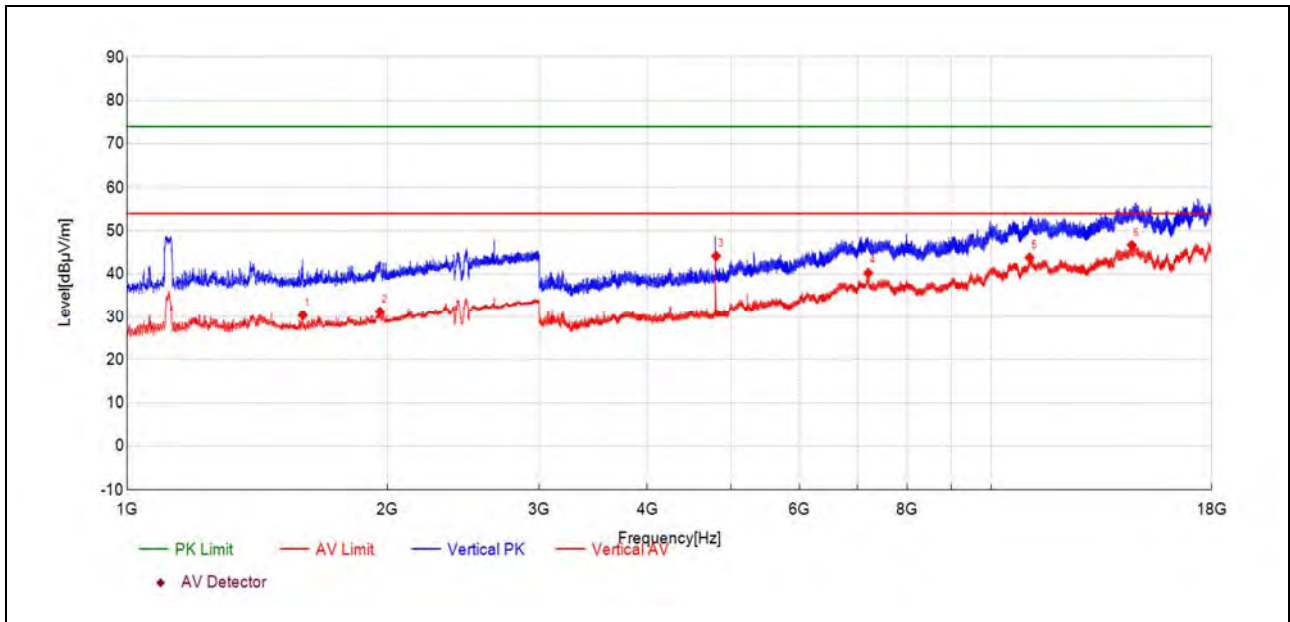
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1391.64	30.6	30.25	-0.310	54.00	23.75	150	194	AV	PASS
1949.54	28.9	31.09	2.180	54.00	22.91	150	162	AV	PASS
4804.87	45.0	39.85	-5.140	54.00	14.15	150	202	AV	PASS
7206.17	34.1	39.10	5.030	54.00	14.90	150	84	AV	PASS
11094.92	29.7	43.76	14.020	54.00	10.24	150	342	AV	PASS
14681.87	26.9	47.43	20.550	54.00	6.57	150	169	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

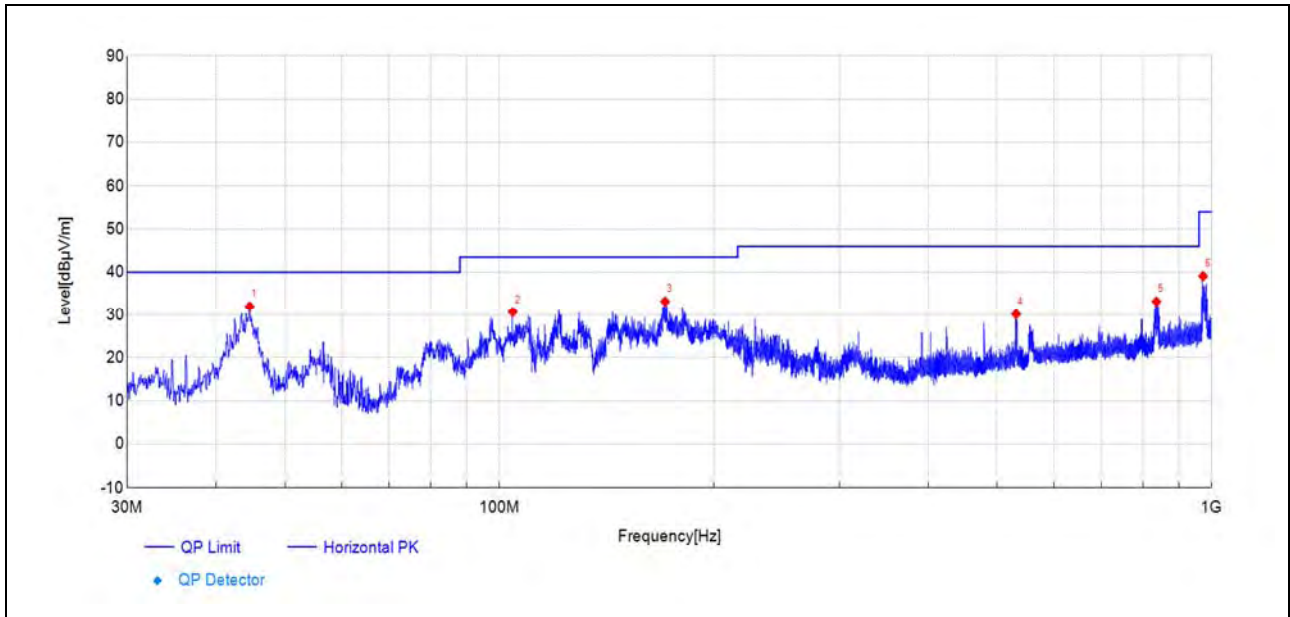
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.11	62.4	34.55	-27.840	40.00	5.45	150	80	PK	PASS
79.42	62.9	30.19	-32.730	40.00	9.81	150	203	PK	PASS
169.93	61.8	30.56	-31.190	43.50	12.94	150	0	PK	PASS
530.98	49.3	30.36	-18.930	46.00	15.64	150	213	PK	PASS
843.14	48.6	34.92	-13.640	46.00	11.08	150	106	PK	PASS
983.99	47.3	36.21	-11.130	54.00	17.79	150	85	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

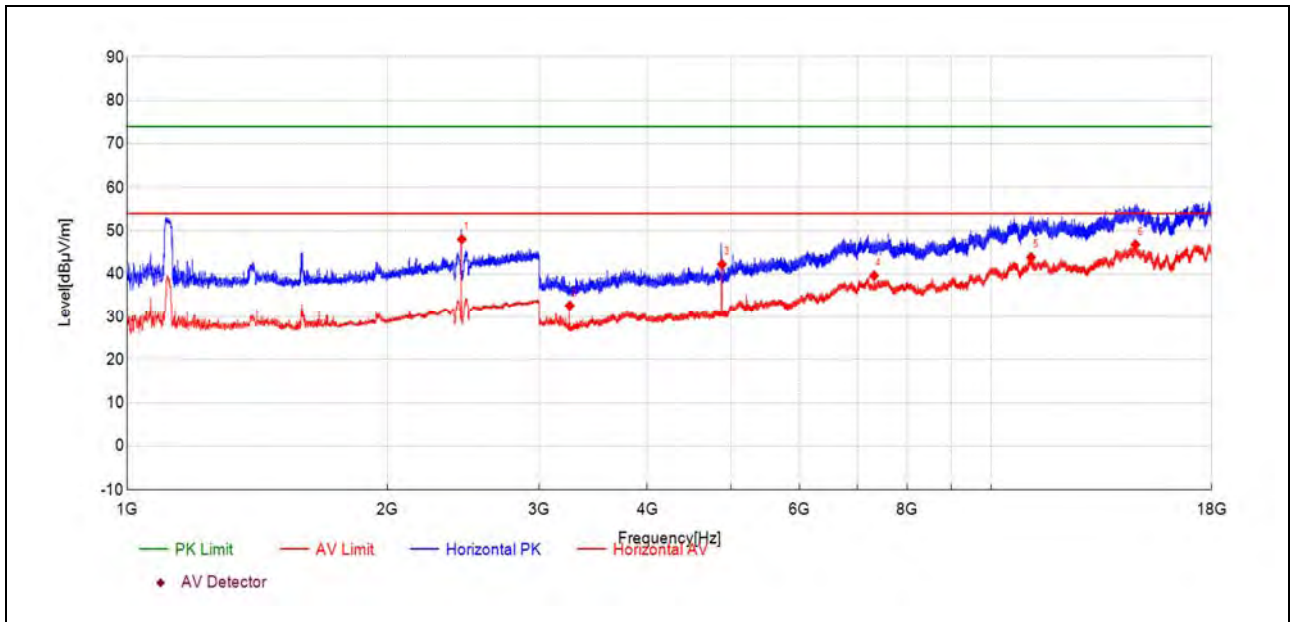
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1597.02	30.8	30.35	-0.420	54.00	23.65	150	122	AV	PASS
1961.55	28.9	31.20	2.290	54.00	22.80	150	63	AV	PASS
4804.87	49.3	44.18	-5.140	54.00	9.82	150	85	AV	PASS
7206.77	35.2	40.23	5.020	54.00	13.77	150	297	AV	PASS
11078.12	30.0	43.80	13.790	54.00	10.20	150	320	AV	PASS
14548.66	26.6	46.69	20.060	54.00	7.31	150	73	AV	PASS

Plot for Channel 19



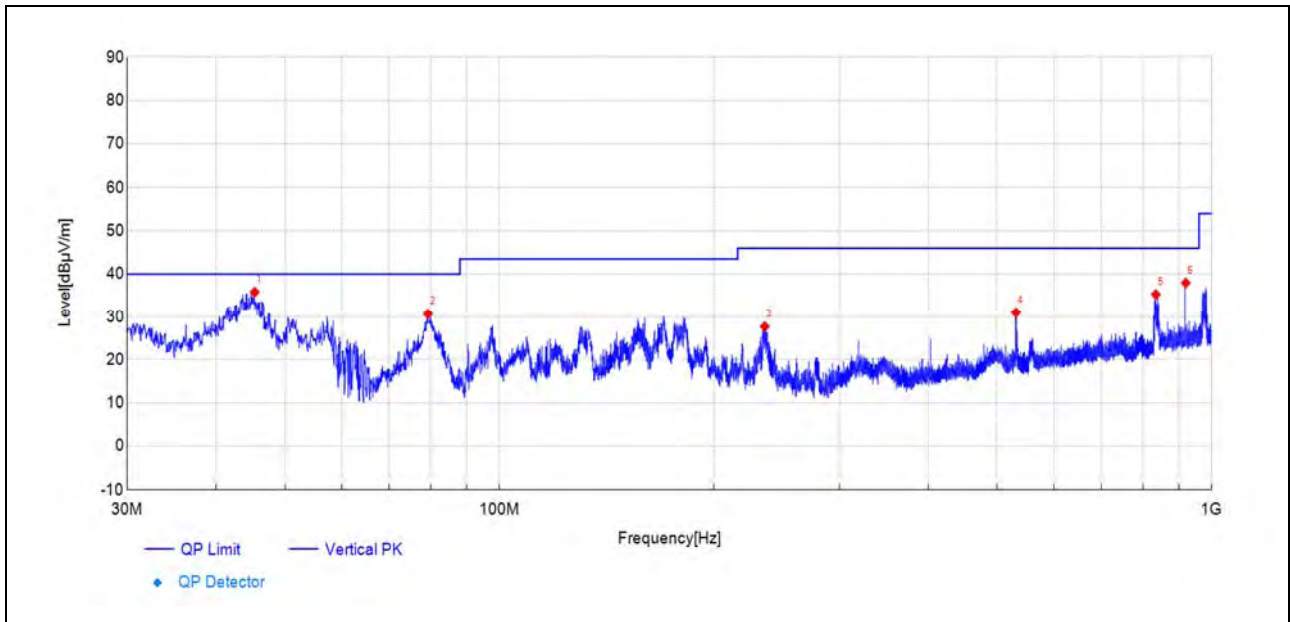
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.60	59.9	31.93	-27.980	40.00	8.07	150	58	PK	PASS
104.40	60.1	30.63	-29.470	43.50	12.87	150	54	PK	PASS
170.85	64.3	33.12	-31.160	43.50	10.38	150	269	PK	PASS
531.32	49.1	30.12	-18.940	46.00	15.88	150	321	PK	PASS
836.30	46.9	33.12	-13.820	46.00	12.88	150	146	PK	PASS
972.50	50.3	39.07	-11.220	54.00	14.93	150	33	PK	PASS



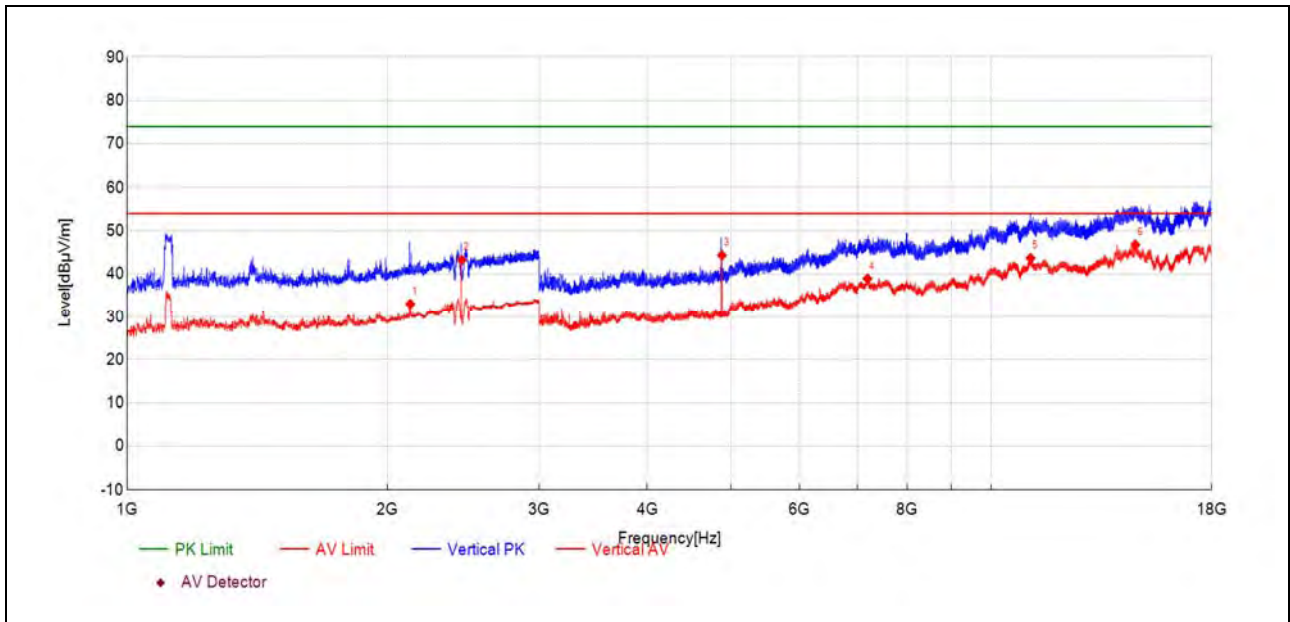
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2440.32	42.2	48.04	5.820	-	-	150	25	AV	NA
3253.81	44.0	32.66	-11.300	54.00	21.34	150	181	AV	PASS
4880.48	47.3	42.27	-5.000	54.00	11.73	150	181	AV	PASS
7320.17	35.4	39.63	4.270	54.00	14.37	150	277	AV	PASS
11123.72	30.0	43.90	13.940	54.00	10.10	150	287	AV	PASS
14687.87	26.3	46.83	20.570	54.00	7.17	150	149	AV	PASS



(Antenna Vertical, 30MHz to 1GHz)

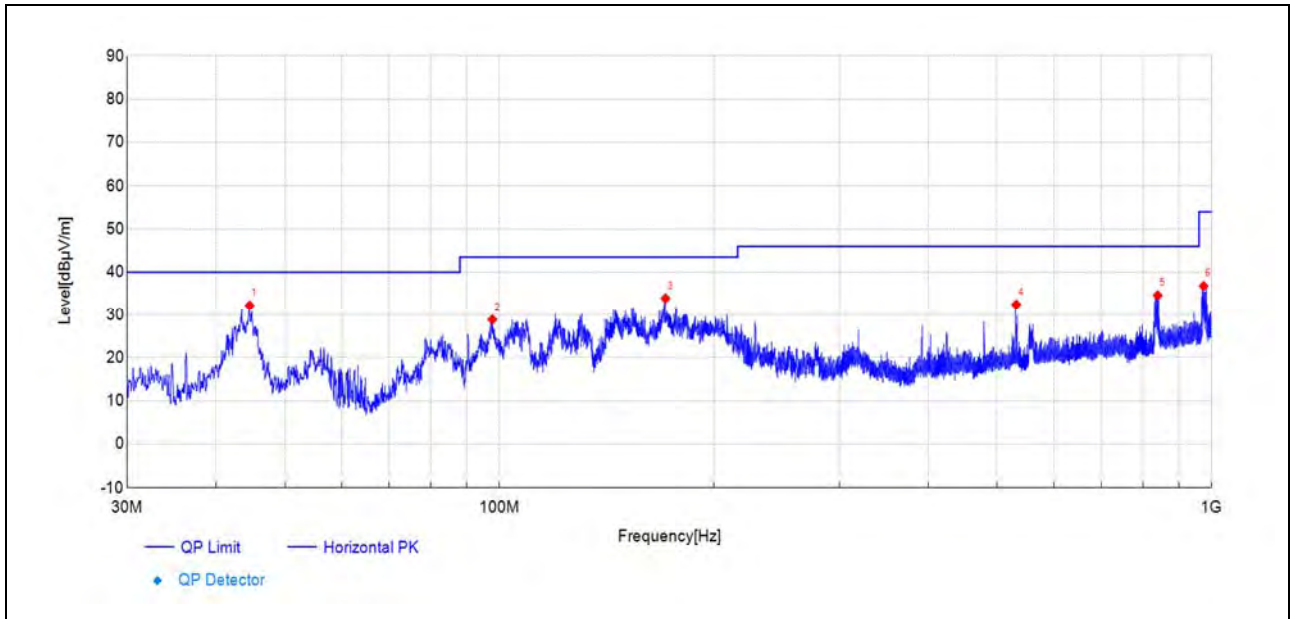
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
45.33	64.0	35.80	-28.210	40.00	4.20	150	107	PK	PASS
79.38	63.4	30.66	-32.730	40.00	9.34	150	183	PK	PASS
235.75	55.6	27.67	-27.910	46.00	18.33	150	138	PK	PASS
531.13	49.9	30.98	-18.930	46.00	15.02	150	239	PK	PASS
834.85	49.0	35.24	-13.750	46.00	10.76	150	112	PK	PASS
919.58	49.5	37.95	-11.530	46.00	8.05	150	168	PK	PASS



(Antenna Vertical, 1GHz to 18GHz)

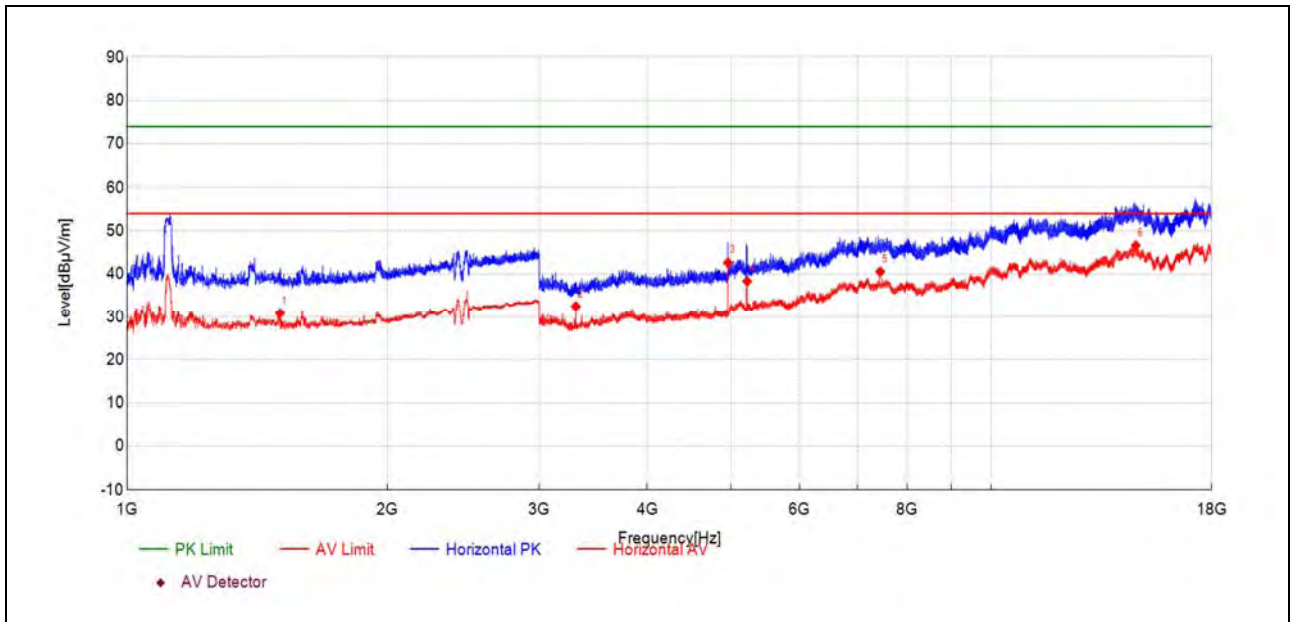
Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2127.36	29.5	33.02	3.510	54.00	20.98	150	74	AV	PASS
2440.32	37.5	43.28	5.820	-	-	150	202	AV	NA
4880.48	49.4	44.36	-5.000	54.00	9.64	150	93	AV	PASS
7191.77	33.9	38.95	5.030	54.00	15.05	150	264	AV	PASS
11108.72	29.7	43.71	14.030	54.00	10.29	150	318	AV	PASS
14682.47	26.2	46.79	20.550	54.00	7.21	150	212	AV	PASS

Plot for Channel 39



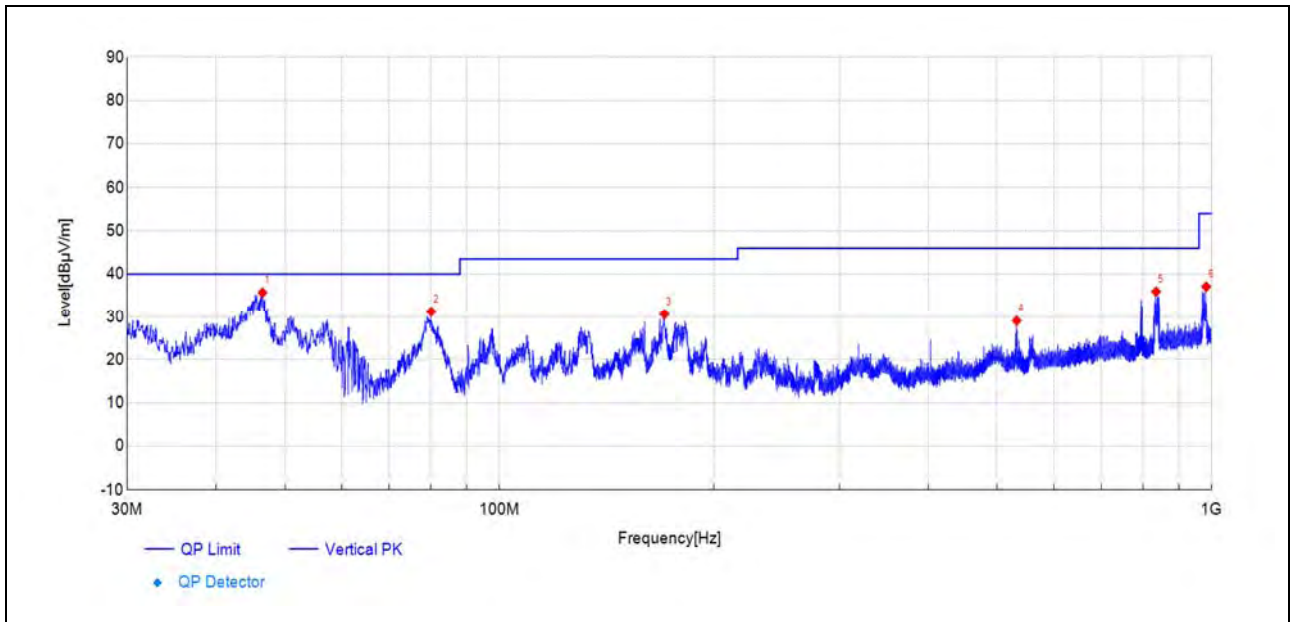
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
44.60	60.2	32.19	-27.980	40.00	7.81	150	45	PK	PASS
97.76	58.6	28.82	-29.810	43.50	14.68	150	65	PK	PASS
171.05	65.0	33.86	-31.130	43.50	9.64	150	19	PK	PASS
531.56	51.4	32.41	-18.950	46.00	13.59	150	116	PK	PASS
839.84	48.7	34.57	-14.090	46.00	11.43	150	96	PK	PASS
974.39	47.7	36.75	-10.910	54.00	17.25	150	55	PK	PASS



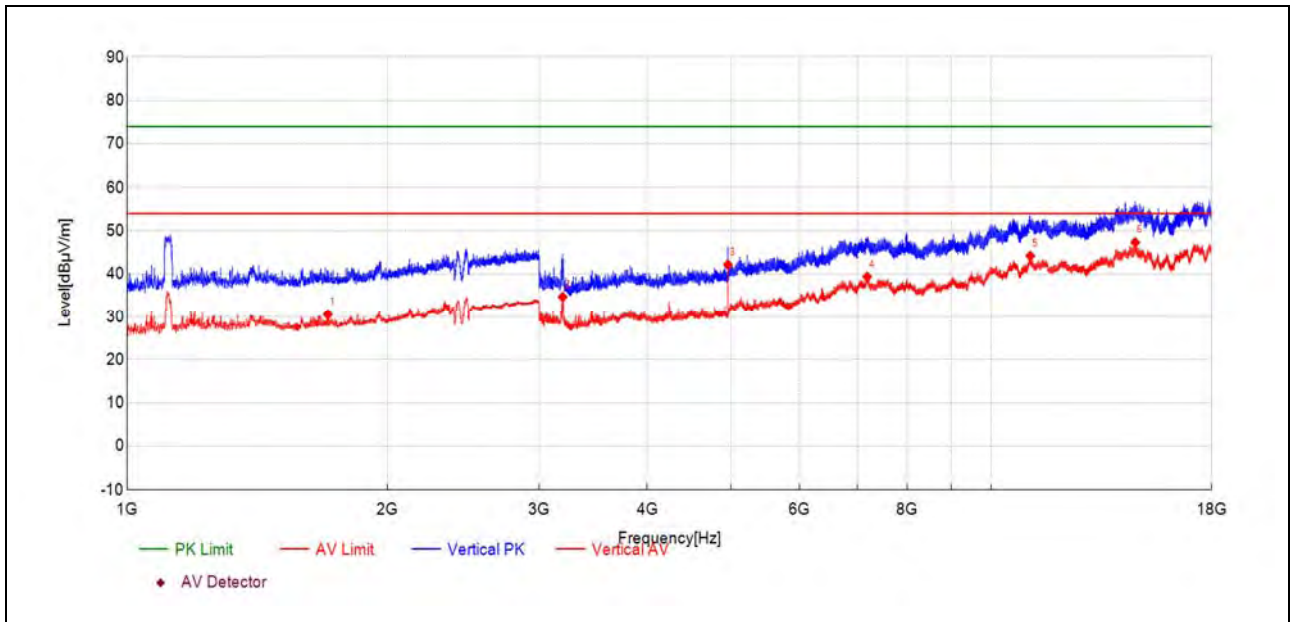
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
1503.22	31.3	30.80	-0.480	54.00	23.20	150	45	AV	PASS
3307.21	43.5	32.46	-10.990	54.00	21.54	150	266	AV	PASS
4960.28	47.3	42.64	-4.610	54.00	11.36	150	149	AV	PASS
5219.49	41.7	38.32	-3.340	54.00	15.68	150	192	AV	PASS
7440.18	35.9	40.55	4.630	54.00	13.45	150	278	AV	PASS
14701.67	26.0	46.61	20.580	54.00	7.39	150	331	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
46.49	64.1	35.69	-28.410	40.00	4.31	150	151	PK	PASS
80.20	63.7	31.19	-32.550	40.00	8.81	150	186	PK	PASS
170.46	61.8	30.61	-31.160	43.50	12.89	150	3	PK	PASS
532.39	48.0	29.06	-18.980	46.00	16.94	150	146	PK	PASS
835.43	49.7	35.92	-13.760	46.00	10.08	150	115	PK	PASS
982.49	48.3	37.08	-11.210	54.00	16.92	150	84	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
1707.71	30.2	30.52	0.310	54.00	23.48	150	141	AV	PASS
3193.21	45.5	34.69	-10.790	54.00	19.31	150	104	AV	PASS
4960.28	46.8	42.19	-4.610	54.00	11.81	150	116	AV	PASS
7186.37	34.4	39.37	4.980	54.00	14.63	150	104	AV	PASS
11102.12	30.1	44.21	14.070	54.00	9.79	150	9	AV	PASS
14681.27	26.8	47.34	20.550	54.00	6.66	150	31	AV	PASS

————— END OF REPORT —————