REPORT No.: SZ25050026W01

TEST REPORT

APPLICANT	:	Anker Innovations Limited
PRODUCT NAME	:	eufy Smart Lock C220
MODEL NAME	:	T8506C
BRAND NAME	:	eufy
FCC ID	:	2AOKB-T8506C
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2025-05-08
TEST DATE	:	2025-05-13 to 2025-05-27
ISSUE DATE	:	2025-06-05

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DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2025-06-05	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	May 13, 2025	Su Xiaoxian	PASS	No deviation
3	15.247(b)	Maximum Peak Conducted Output Power	May 13, 2025	Su Xiaoxian	PASS	No deviation
4	15.247(b)	Maximum Average Conducted Output Power	May 13, 2025	Su Xiaoxian	PASS	No deviation
5	15.247(a)	Bandwidth	May 13, 2025	Su Xiaoxian	PASS	No deviation
6	15.247(d)	Conducted Spurious Emission and Band Edge	May 13, 2025	Su Xiaoxian	PASS	No deviation
7	15.247(e)	Power Spectral Density	May 13, 2025	Su Xiaoxian	PASS	No deviation
8	15.207	Conducted Emission	May 20, 2025	Fan Shengquan Wang Yapeng	PASS	No deviation
9	15.247(d)	Restricted Frequency Bands	May 15 to 16, 2025	Yuan Zihong	PASS	No deviation
10	15.209, 15.247(d)	Radiated Emission	May 15 to 16, 2025	Yuan Zihong	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	2026.01.08
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	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	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	2025.04.19	2028.04.18
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.11.30	2025.11.29

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:	Anker Innovations Limited
Applicant Address:	Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong Kong
Manufacturer:	Anker Innovations Limited
Manufacturer Address:	Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong Kong

2.2. Information of EUT

Product Name:	eufy Smart Lock C220
Sample No.:	1#, 3#
Hardware Version:	V3.3
Software Version:	V1.3.0.2
Equipment Type:	Bluetooth LE
Bluetooth Version:	5.0
Modulation Type:	GFSK
Data Rate:	1Mbps, 2Mbps
Operating Frequency Range:	2402MHz-2480MHz
Antenna Type:	PCB Antenna
Antenna Gain:	3.70dBi

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

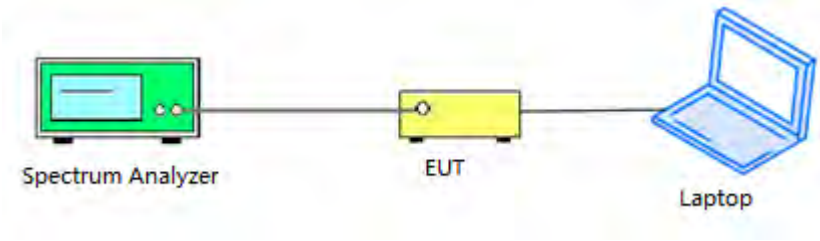
The EUT is controlled by dedicated software to transmit at the default maximum power level.

2.5. Test Conditions

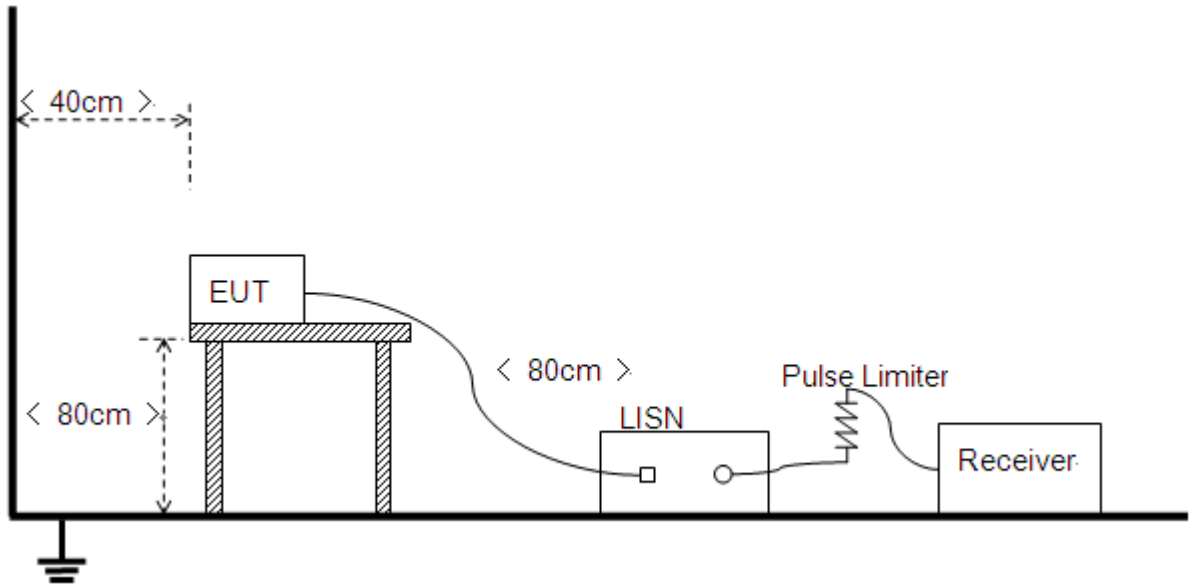
Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

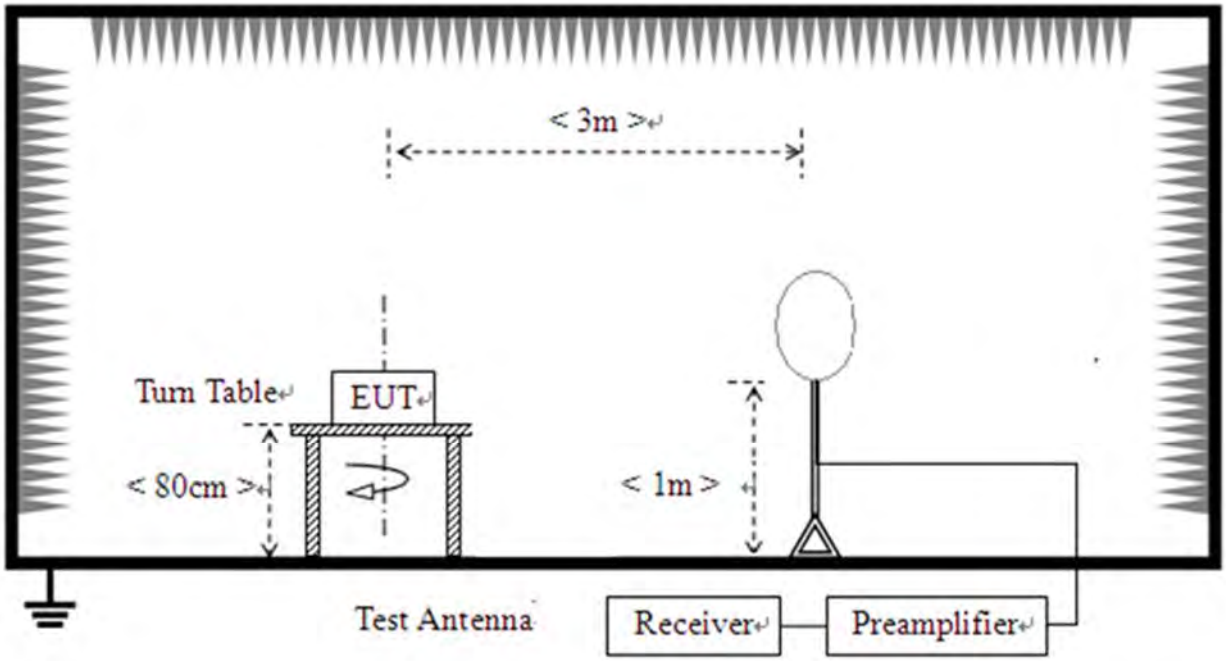


2.6.2.Conducted Emission Measurement

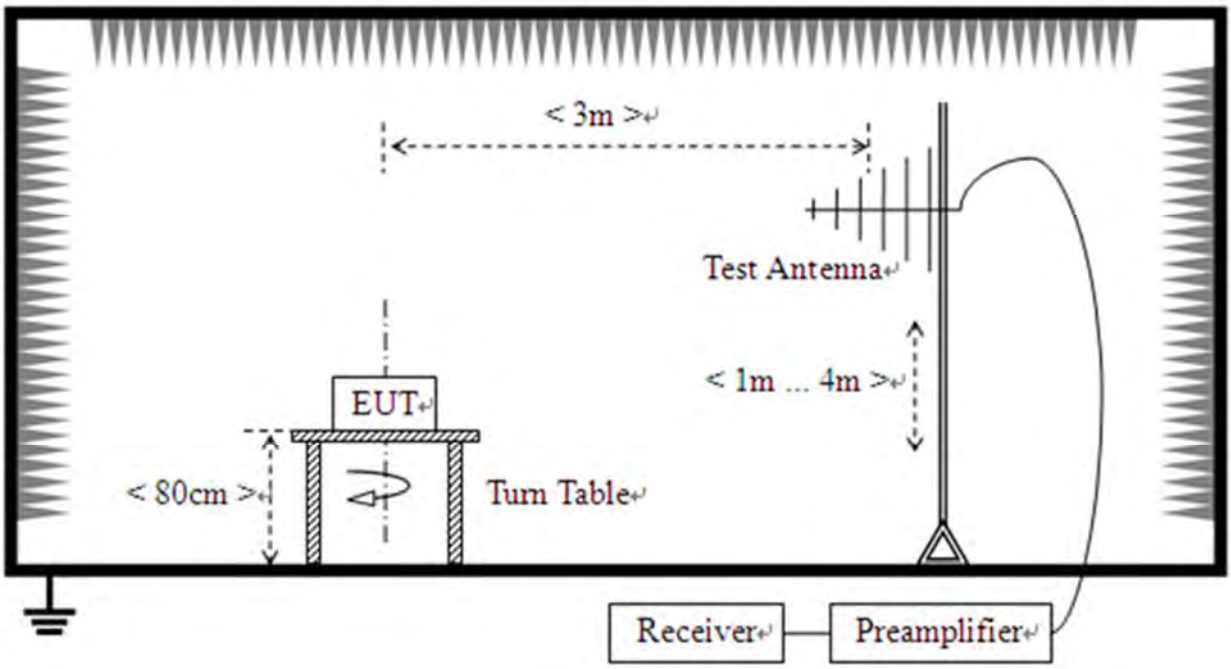


2.6.3.Radiation Measurement

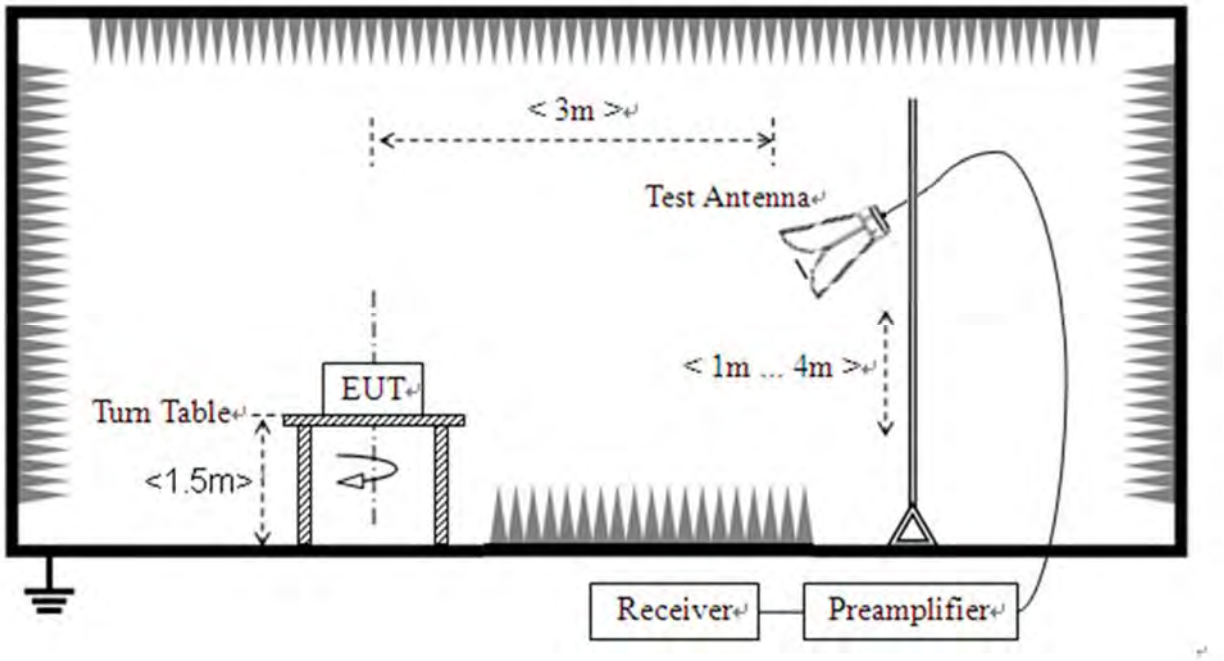
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz 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.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 (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

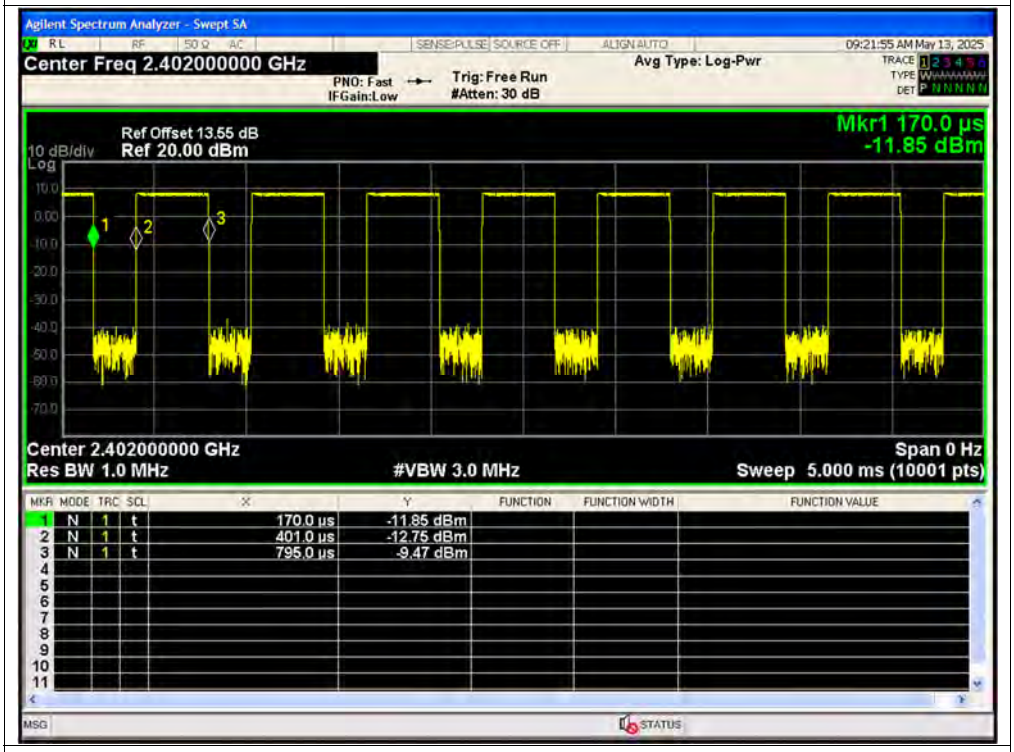
Refer to Annex A.10 in this report.

Annex A Test Data and Result

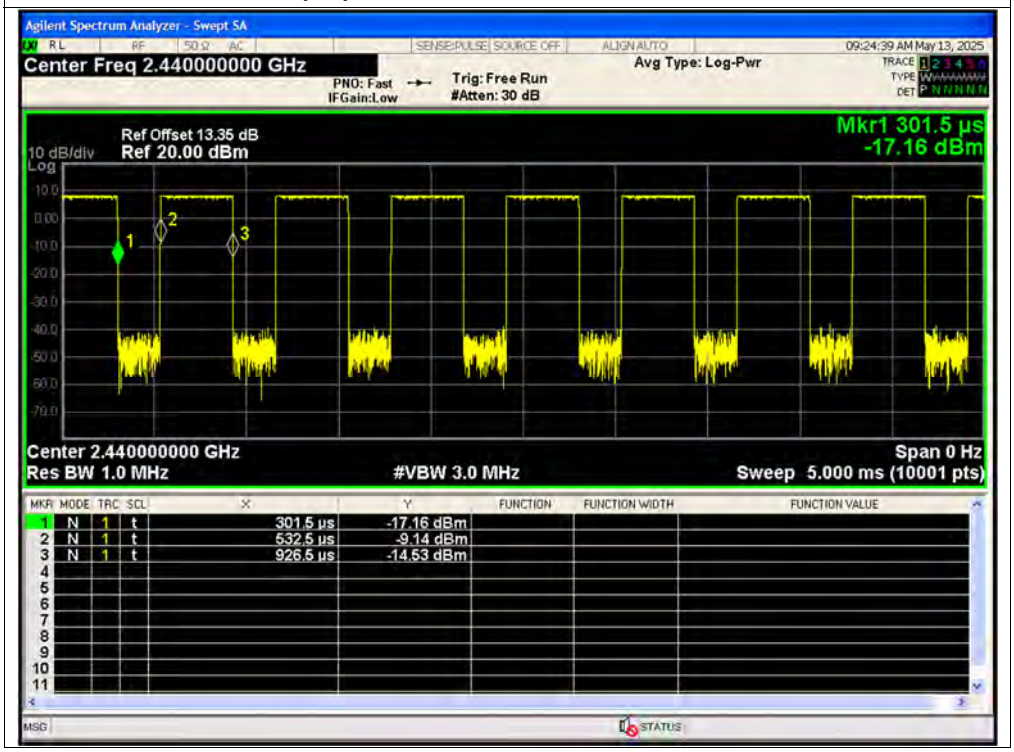
A.1. Duty Cycle of Test Signal

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	BLE 1M	2402	Ant1	63.04	2	2.54
NVNT	BLE 1M	2440	Ant1	63.04	2	2.54
NVNT	BLE 1M	2480	Ant1	63.04	2	2.54
NVNT	BLE 2M	2402	Ant1	33.28	4.78	4.81
NVNT	BLE 2M	2440	Ant1	33.28	4.78	4.81
NVNT	BLE 2M	2480	Ant1	33.33	4.77	4.8

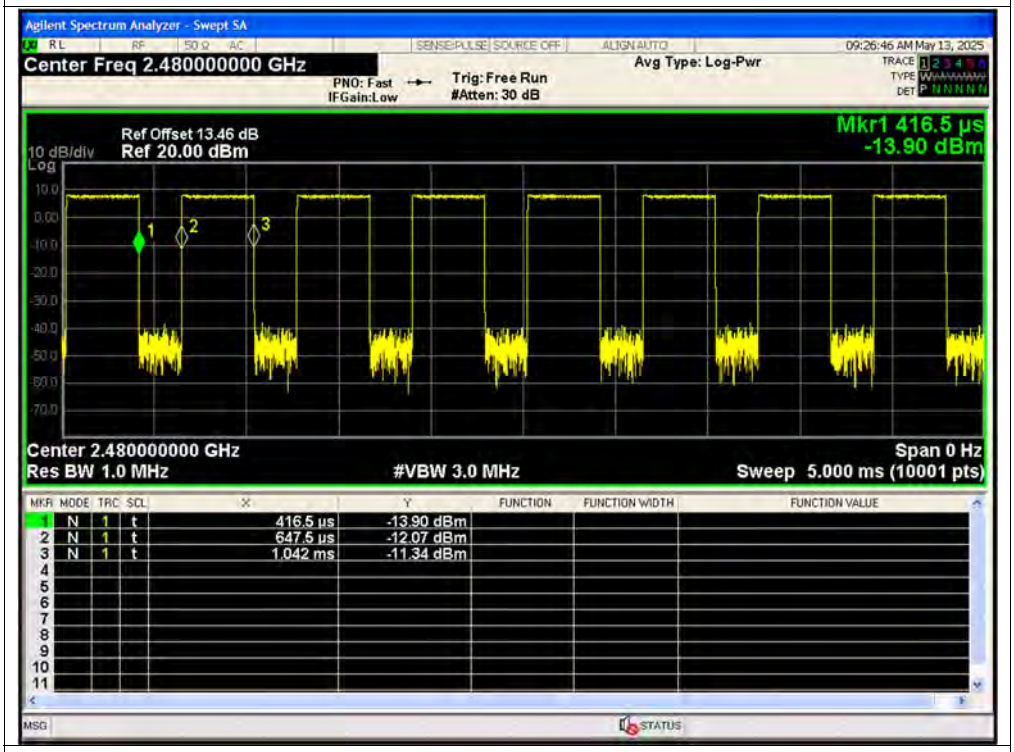
Test Graphs
Duty Cycle NVNT BLE 1M 2402MHz Ant1



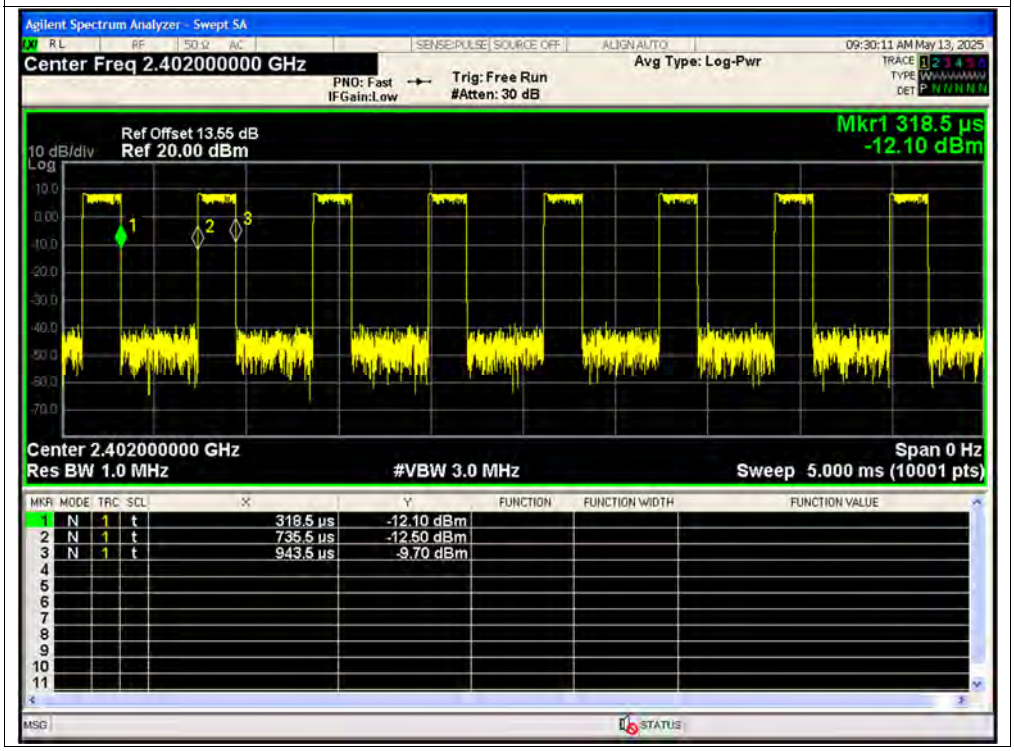
Duty Cycle NVNT BLE 1M 2440MHz Ant1



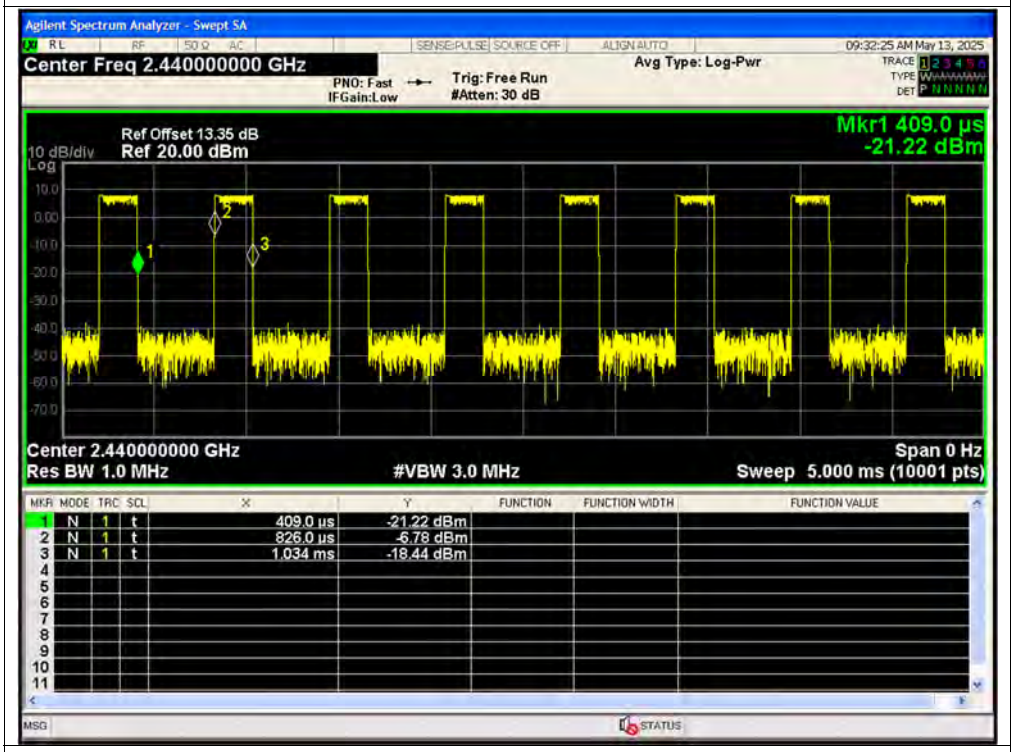
Duty Cycle NVNT BLE 1M 2480MHz Ant1



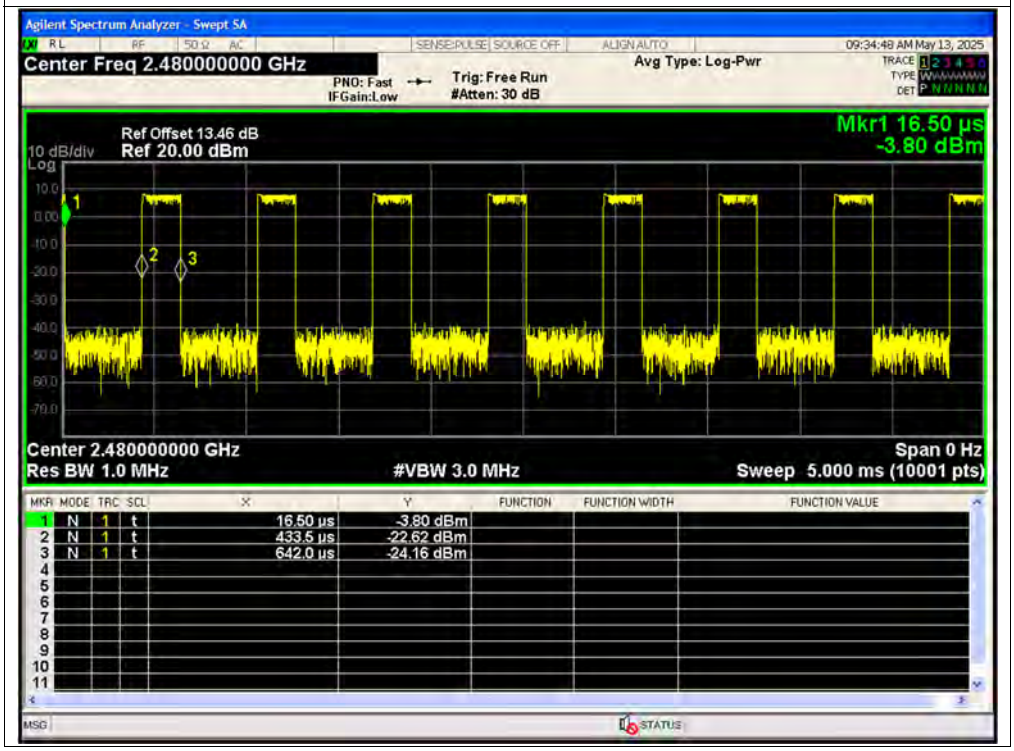
Duty Cycle NVNT BLE 2M 2402MHz Ant1



Duty Cycle NVNT BLE 2M 2440MHz Ant1



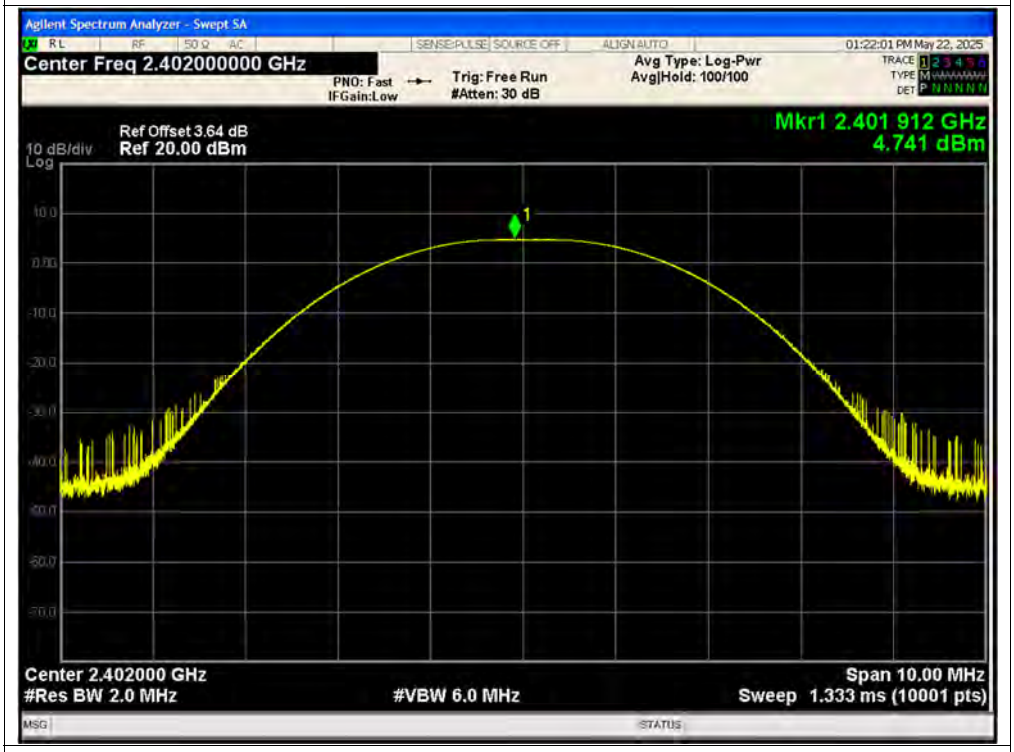
Duty Cycle NVNT BLE 2M 2480MHz Ant1



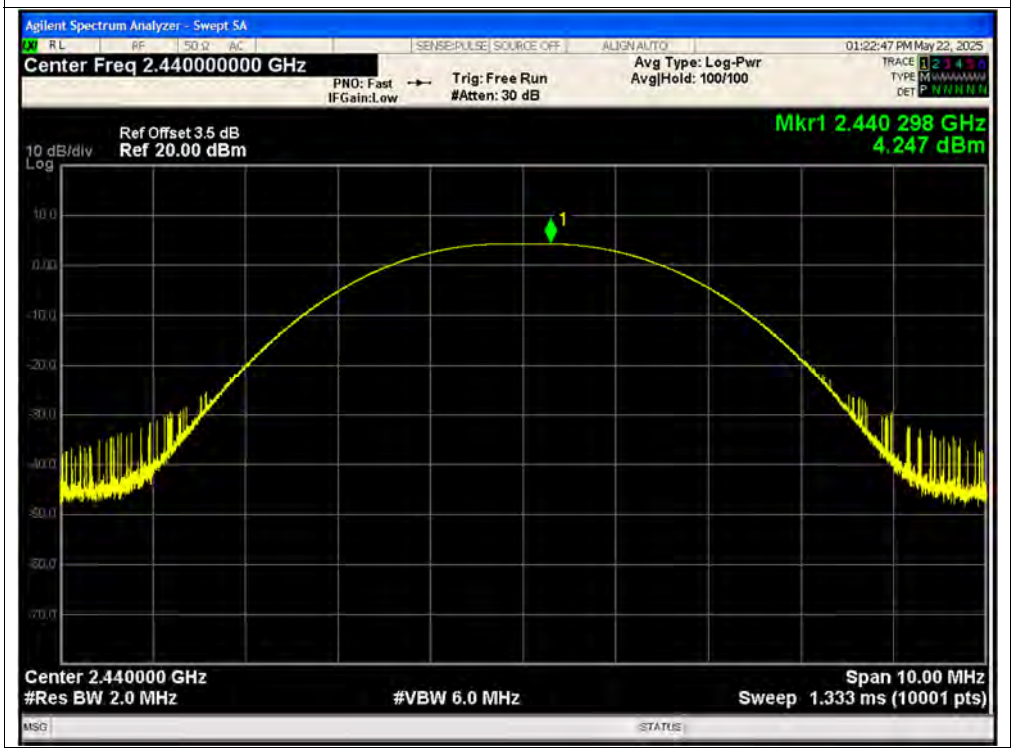
A.2. Maximum Peak Conducted Output Power

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	4.74	0	4.74	0.00298	30	Pass
NVNT	BLE 1M	2440	Ant1	4.25	0	4.25	0.00266	30	Pass
NVNT	BLE 1M	2480	Ant1	4.45	0	4.45	0.00279	30	Pass
NVNT	BLE 2M	2402	Ant1	5.29	0	5.29	0.00338	30	Pass
NVNT	BLE 2M	2440	Ant1	4.89	0	4.89	0.00308	30	Pass
NVNT	BLE 2M	2480	Ant1	5.07	0	5.07	0.00321	30	Pass

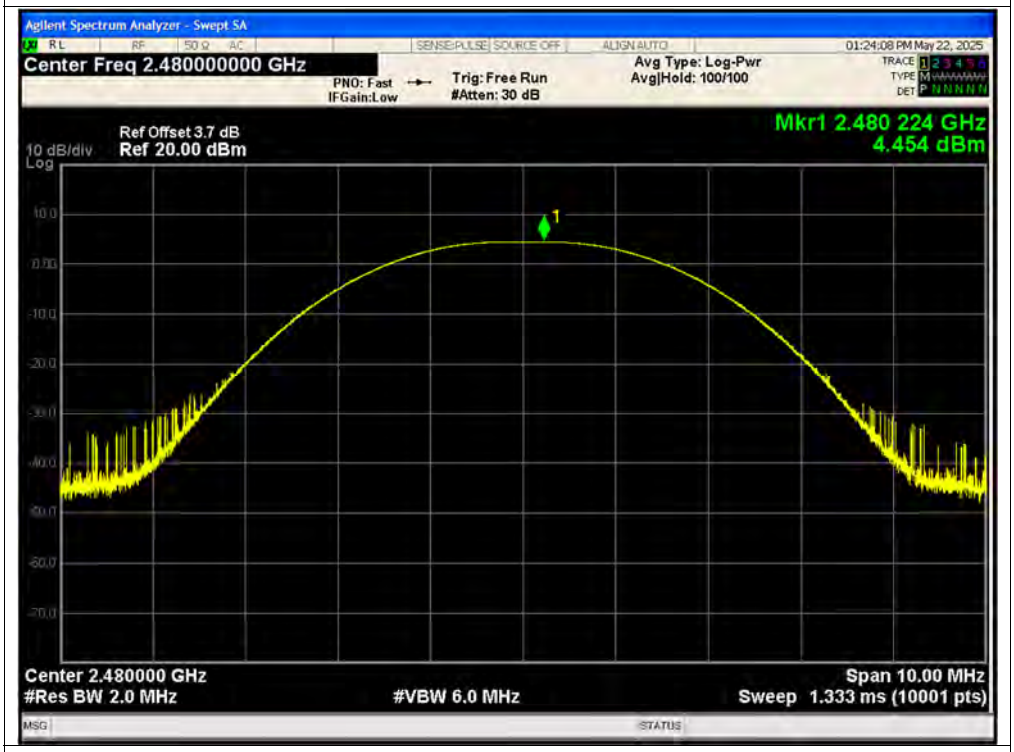
Test Graphs
Peak Power NVNT BLE 1M 2402MHz Ant1



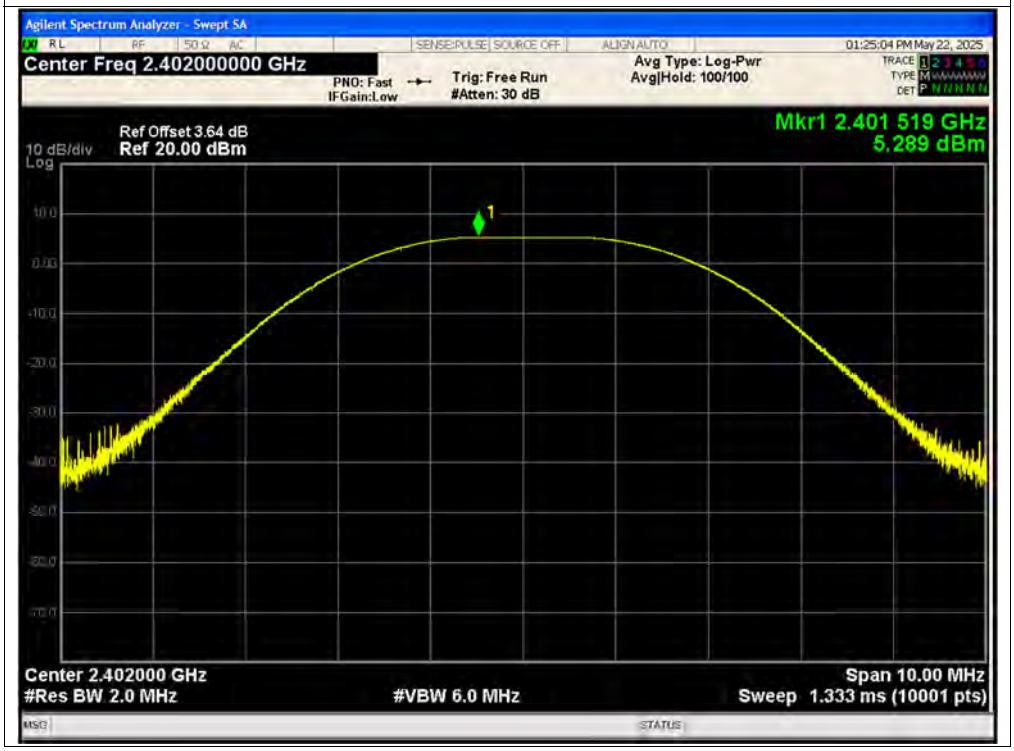
Peak Power NVNT BLE 1M 2440MHz Ant1



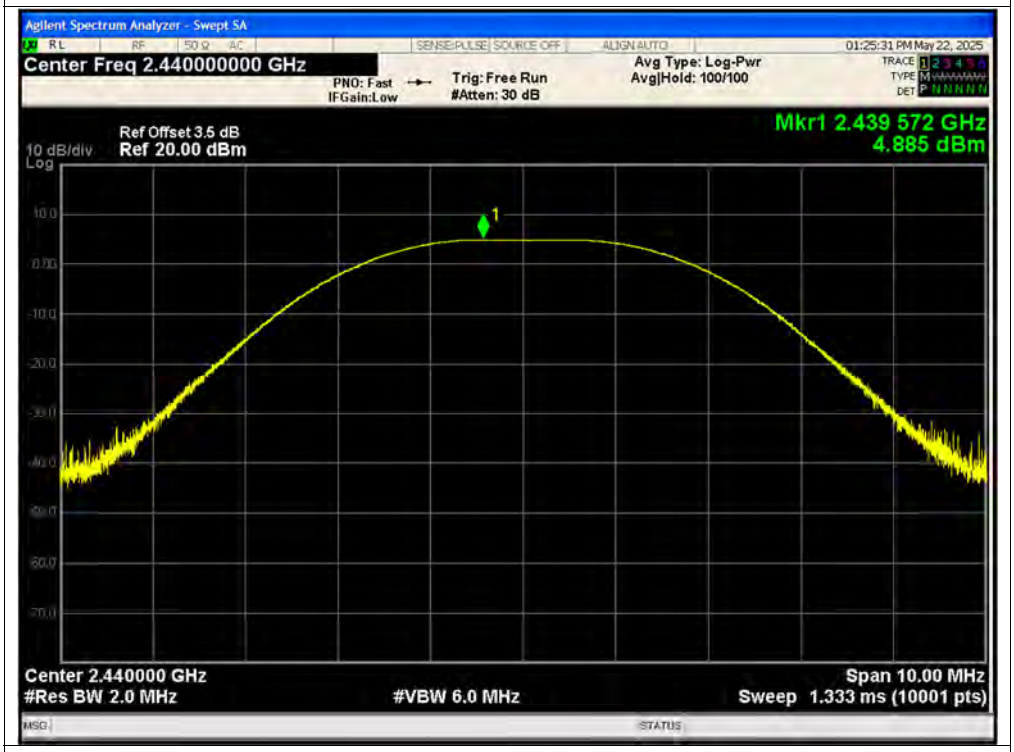
Peak Power NVNT BLE 1M 2480MHz Ant1



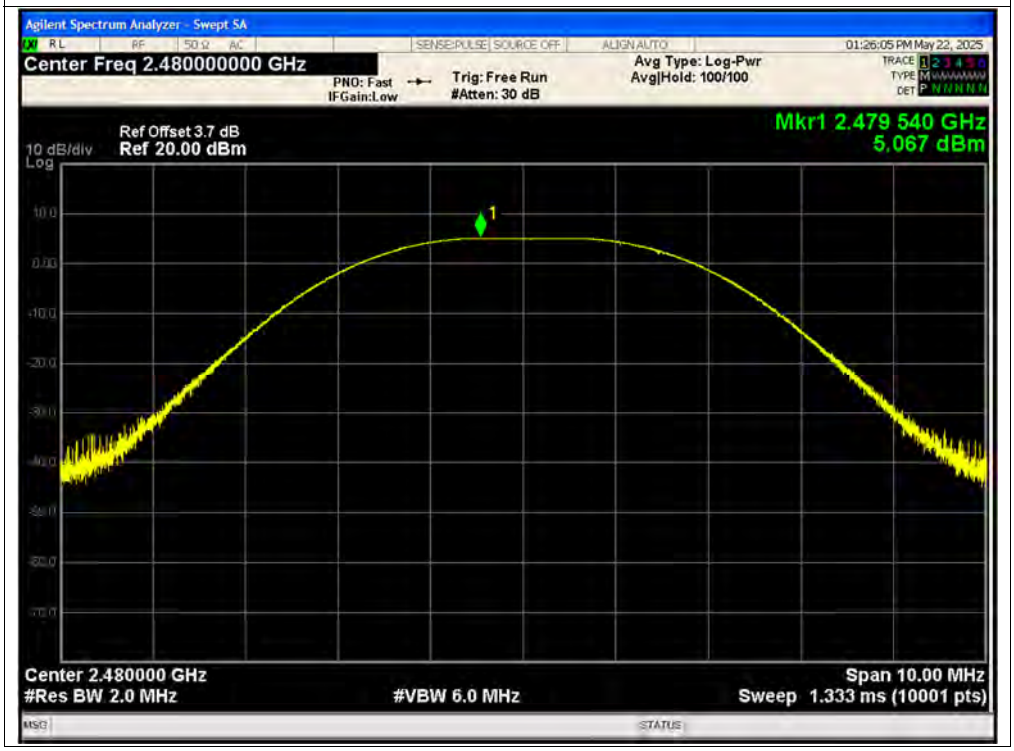
Peak Power NVNT BLE 2M 2402MHz Ant1



Peak Power NVNT BLE 2M 2440MHz Ant1



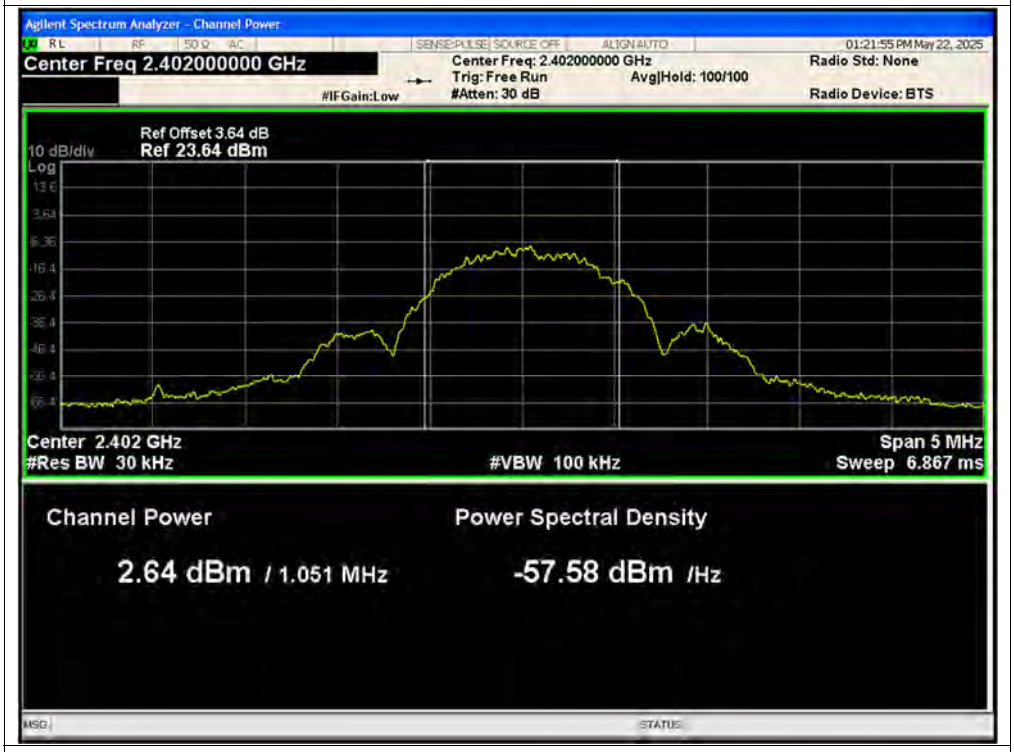
Peak Power NVNT BLE 2M 2480MHz Ant1



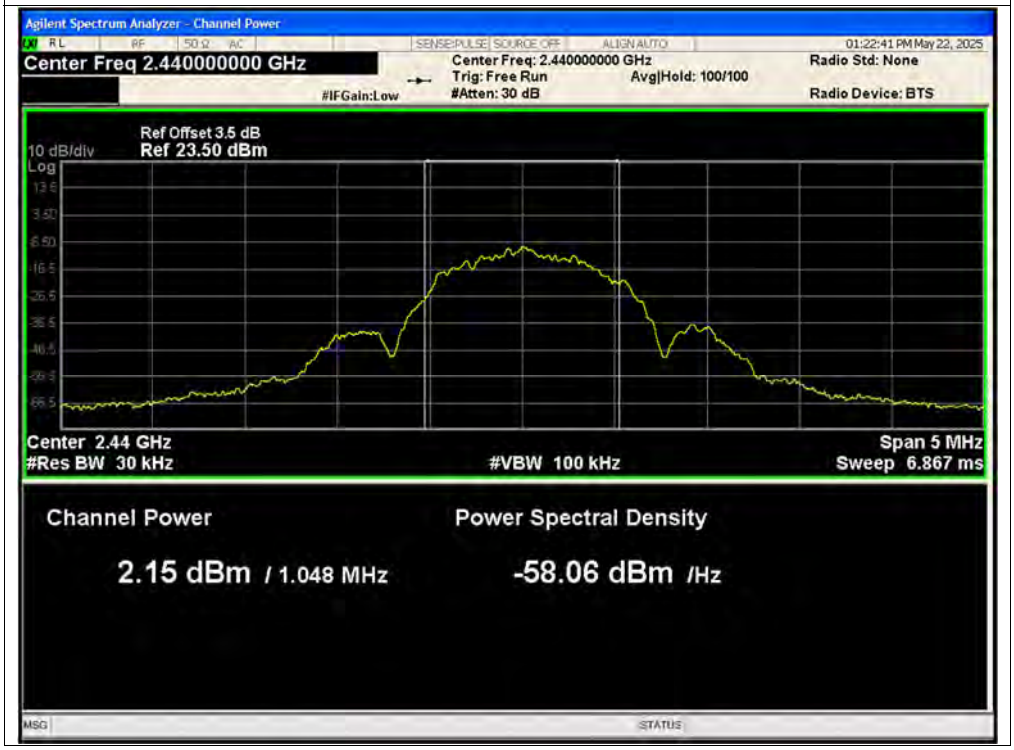
A.3. Maximum Average Conducted Output Power

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	2.64	2	4.64	0.00291	30	Pass
NVNT	BLE 1M	2440	Ant1	2.15	2	4.15	0.0026	30	Pass
NVNT	BLE 1M	2480	Ant1	2.16	2	4.16	0.00261	30	Pass
NVNT	BLE 2M	2402	Ant1	0.26	4.78	5.04	0.00319	30	Pass
NVNT	BLE 2M	2440	Ant1	0.04	4.78	4.82	0.00303	30	Pass
NVNT	BLE 2M	2480	Ant1	0.23	4.77	5	0.00316	30	Pass

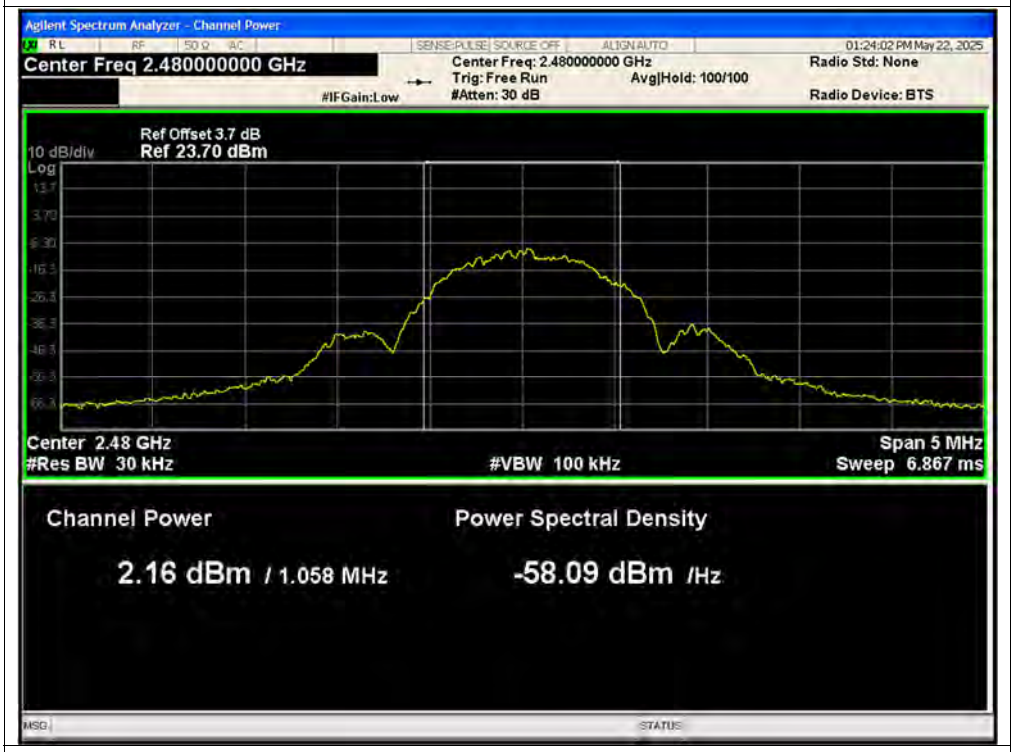
Test Graphs
Average Power NVNT BLE 1M 2402MHz Ant1



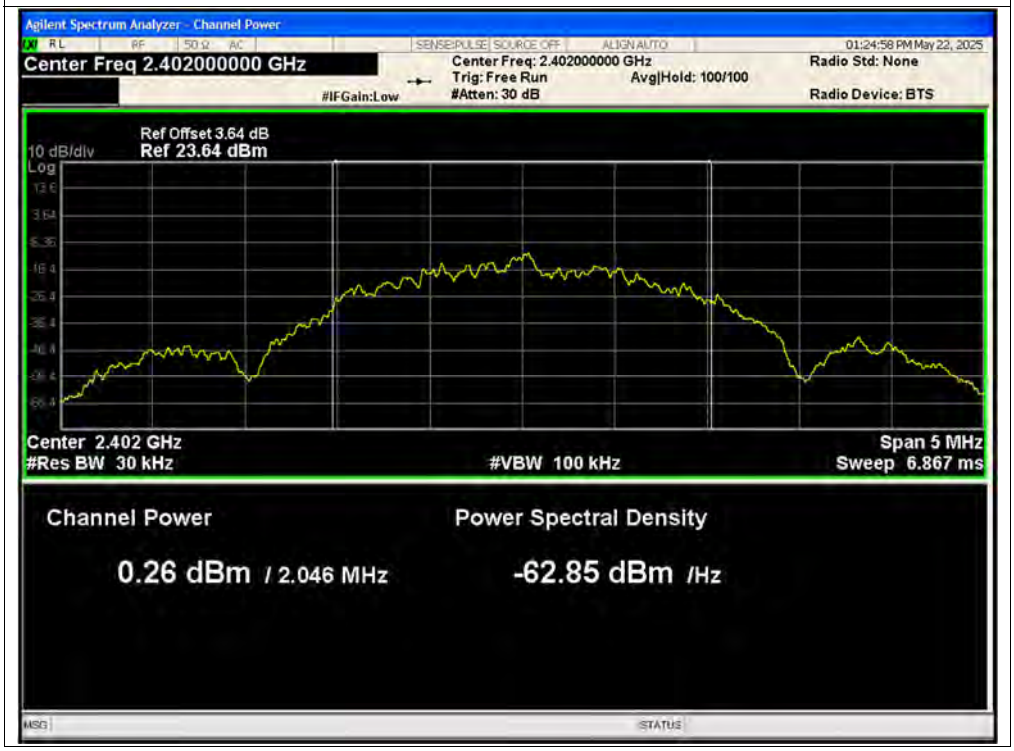
Average Power NVNT BLE 1M 2440MHz Ant1



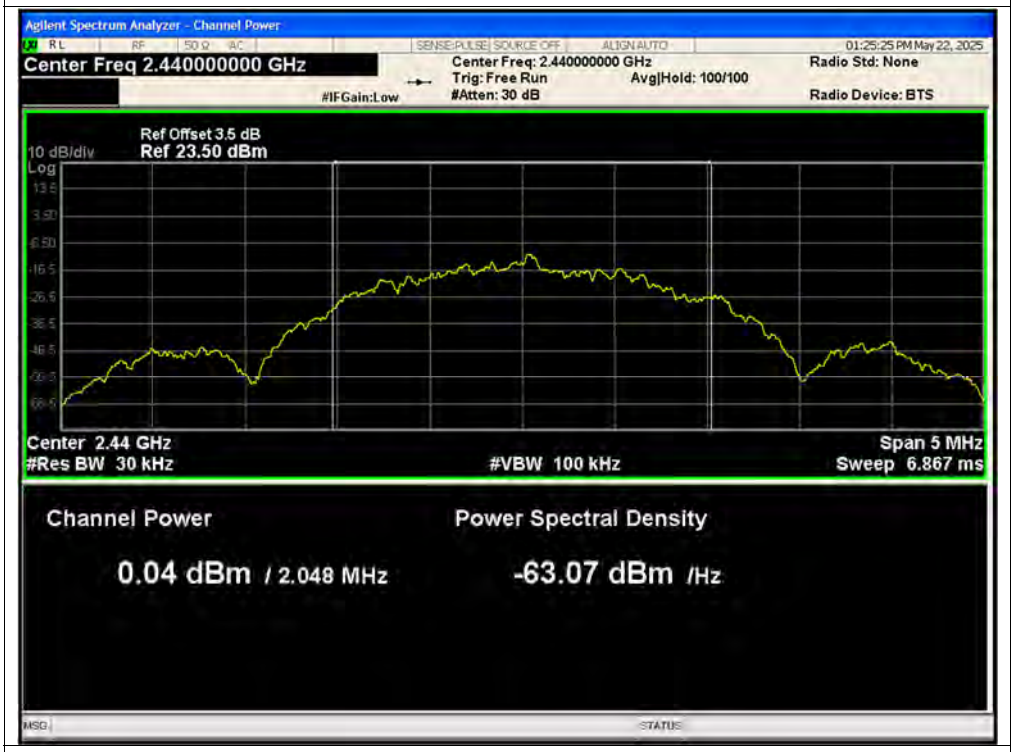
Average Power NVNT BLE 1M 2480MHz Ant1



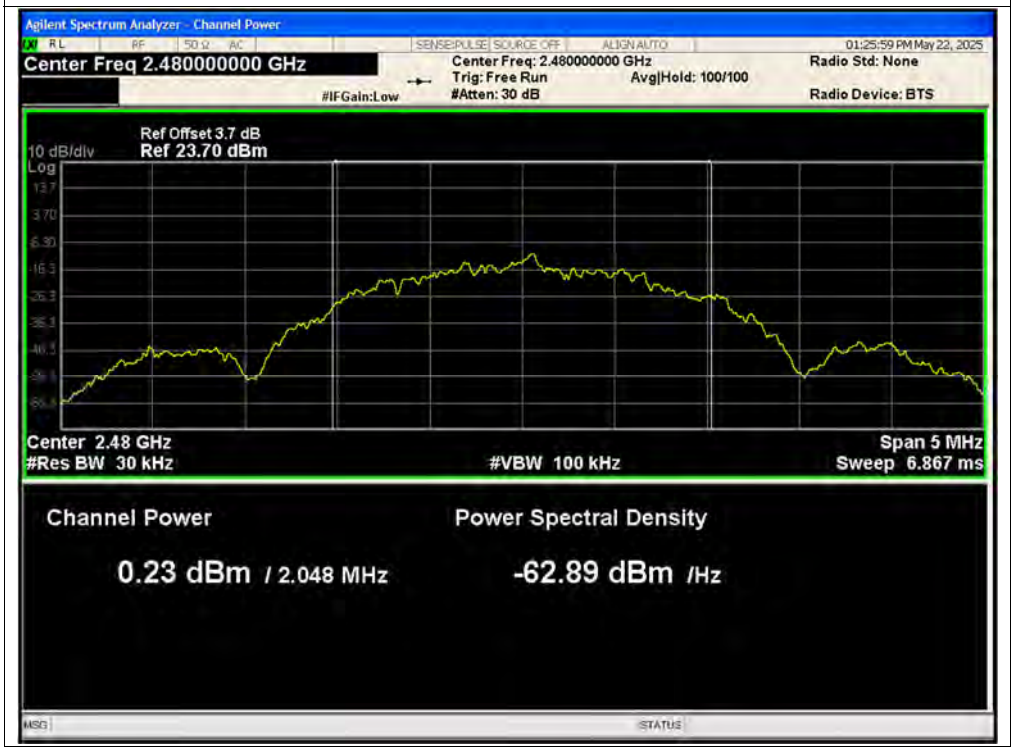
Average Power NVNT BLE 2M 2402MHz Ant1



Average Power NVNT BLE 2M 2440MHz Ant1



Average Power NVNT BLE 2M 2480MHz Ant1



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	0.6862	0.5	Pass
NVNT	BLE 1M	2440	Ant1	0.6993	0.5	Pass
NVNT	BLE 1M	2480	Ant1	0.6773	0.5	Pass
NVNT	BLE 2M	2402	Ant1	1.104	0.5	Pass
NVNT	BLE 2M	2440	Ant1	1.046	0.5	Pass
NVNT	BLE 2M	2480	Ant1	1.148	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

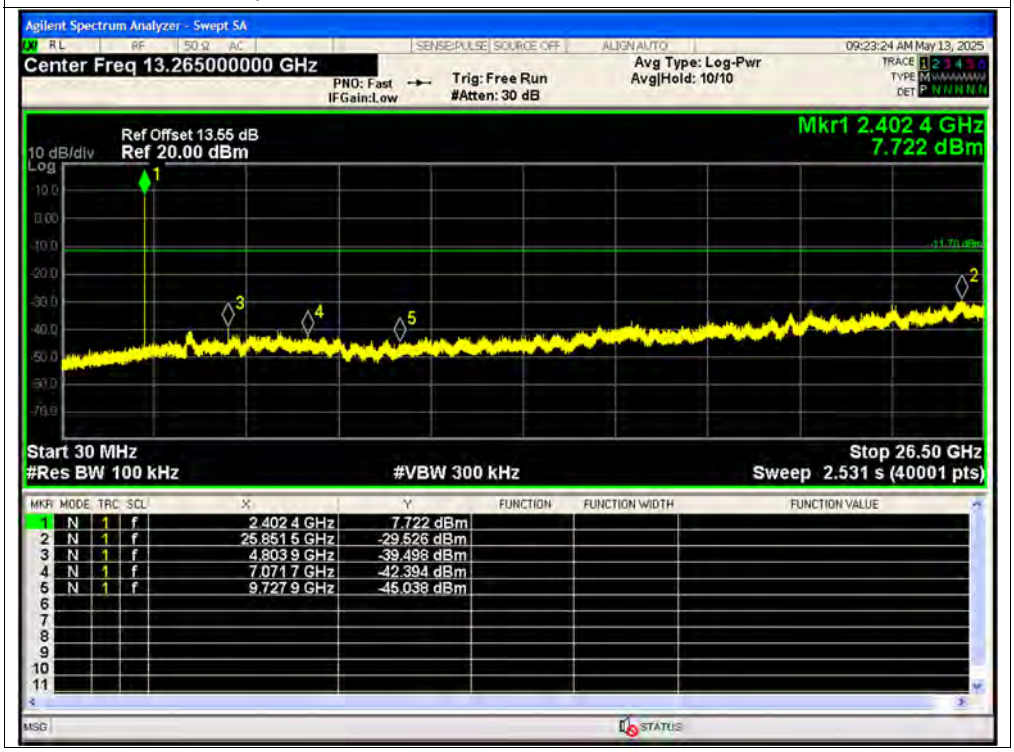
-6dB Bandwidth NVNT BLE 2M 2480MHz Ant1

A.5. Conducted Spurious Emissions

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-37.82	-20	Pass
NVNT	BLE 1M	2440	Ant1	-37.71	-20	Pass
NVNT	BLE 1M	2480	Ant1	-37.65	-20	Pass
NVNT	BLE 2M	2402	Ant1	-37.59	-20	Pass
NVNT	BLE 2M	2440	Ant1	-38.24	-20	Pass
NVNT	BLE 2M	2480	Ant1	-37.07	-20	Pass

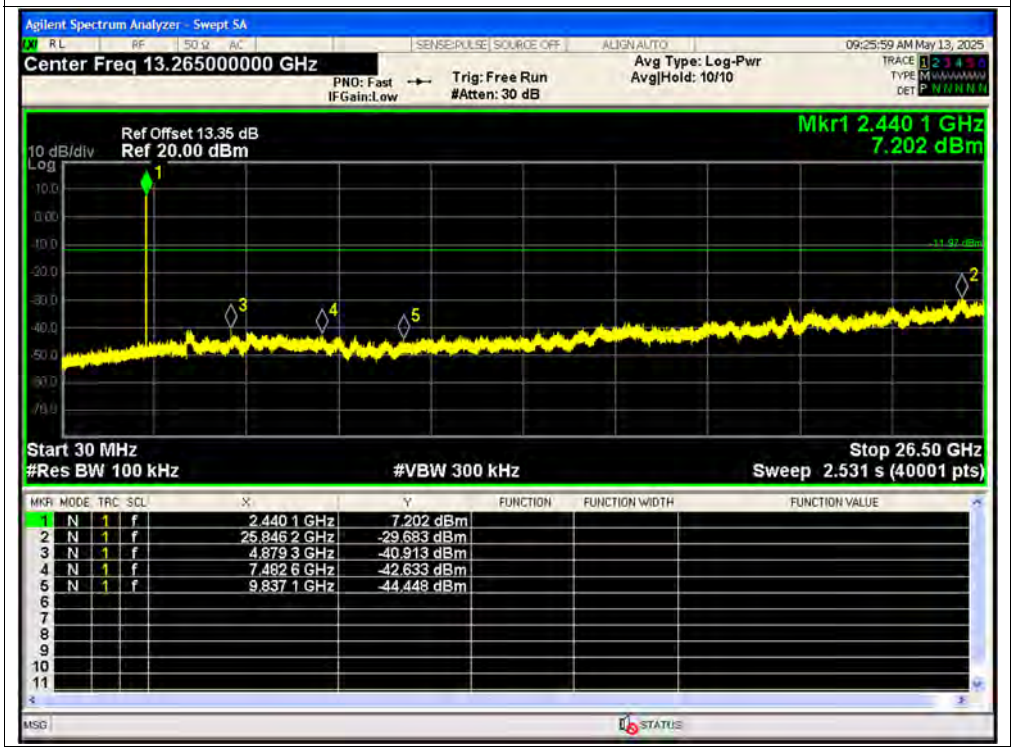
Test Graphs
Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2402MHz Ant1 Emission



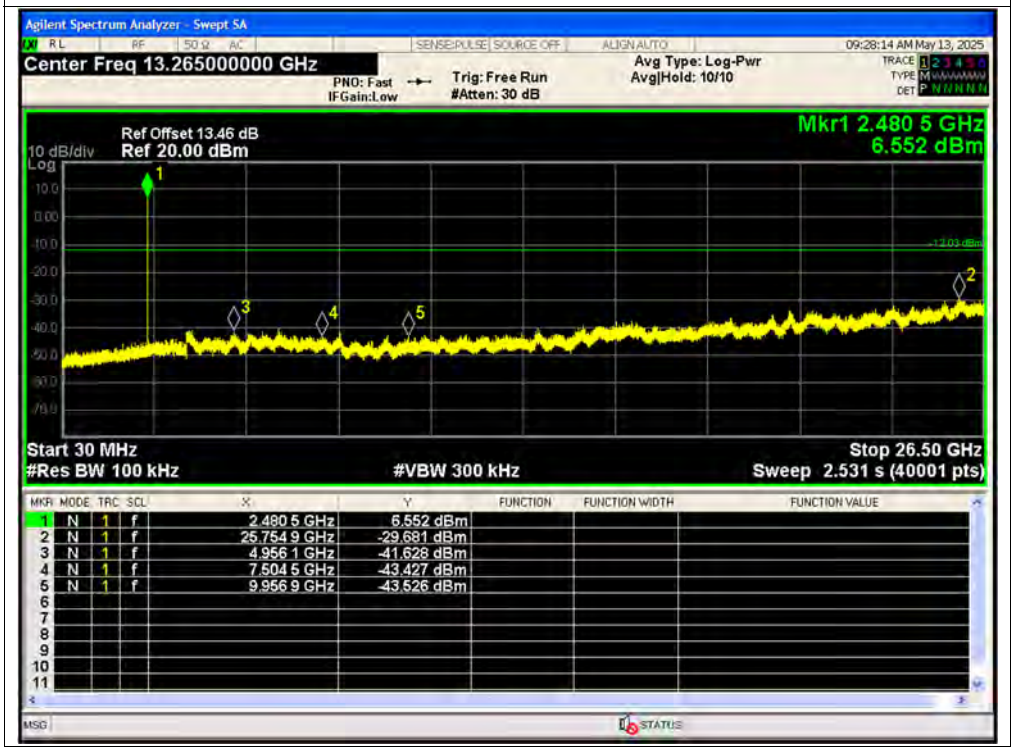
Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2440MHz Ant1 Emission



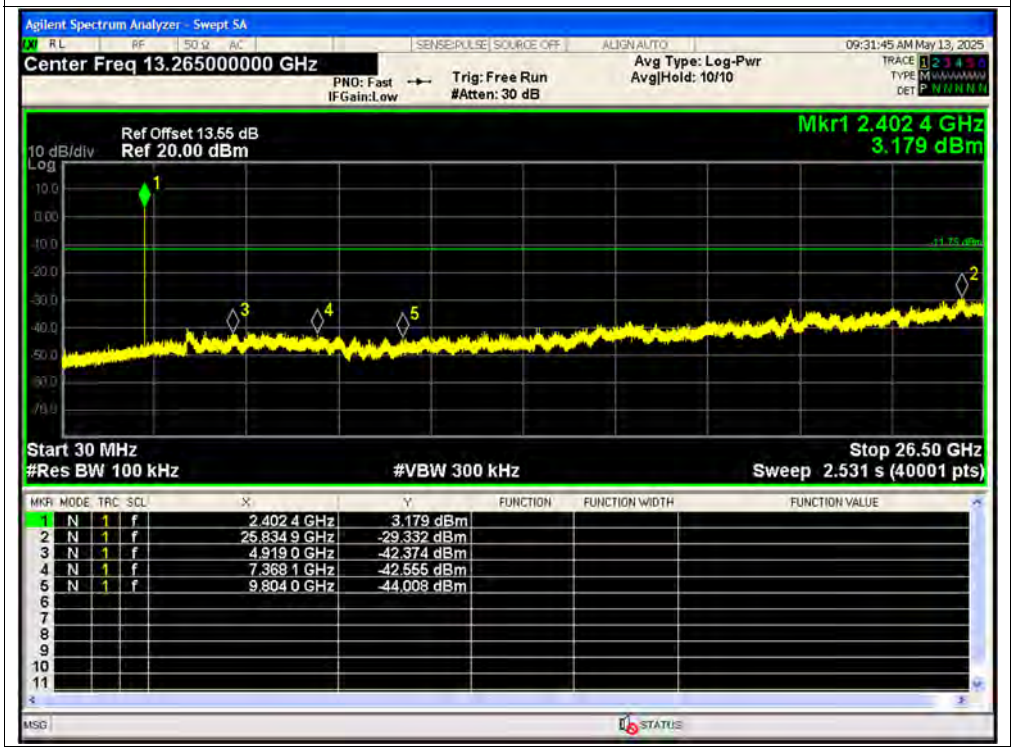
Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Ref

Tx. Spurious NVNT BLE 1M 2480MHz Ant1 Emission



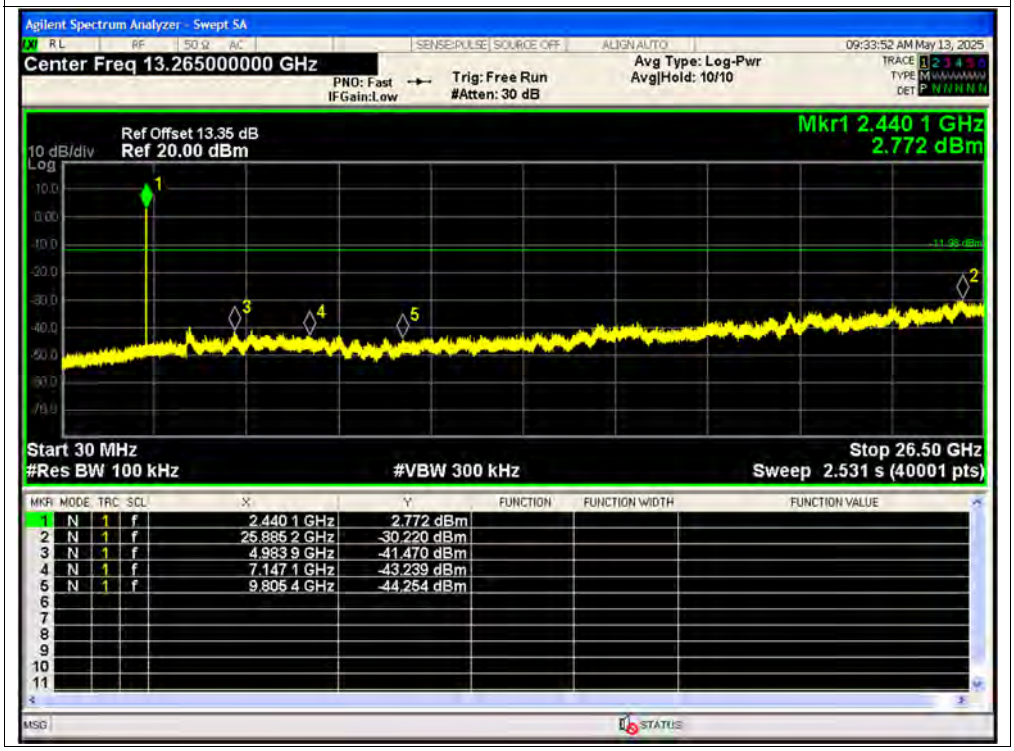
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2402MHz Ant1 Emission



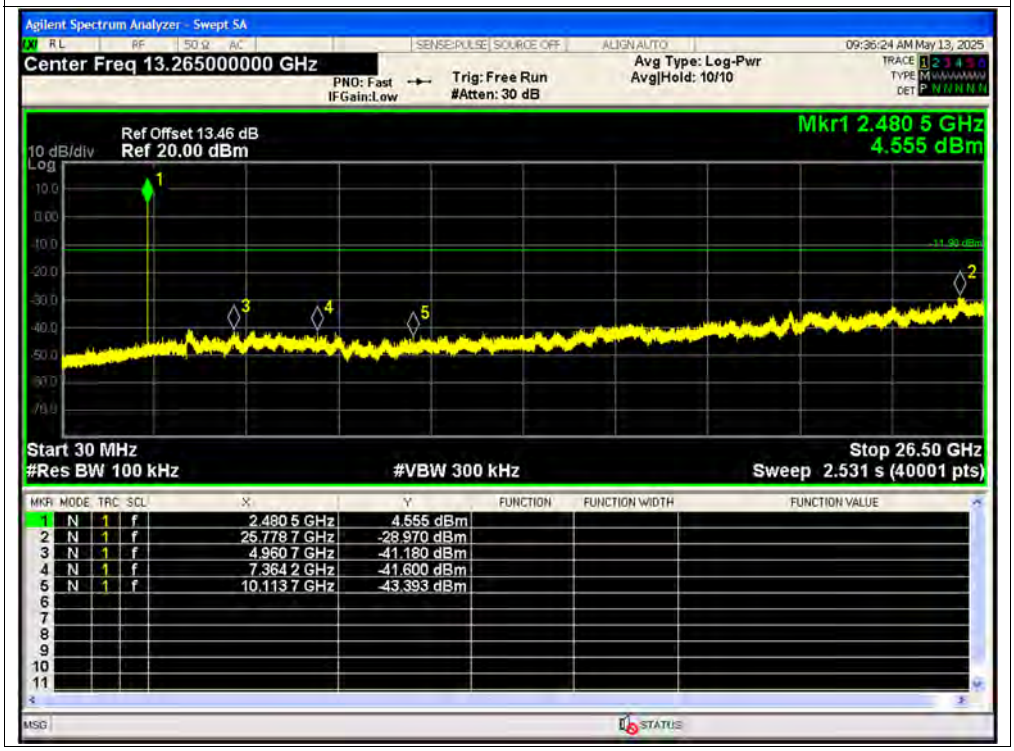
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Ref

Tx. Spurious NVNT BLE 2M 2480MHz Ant1 Emission

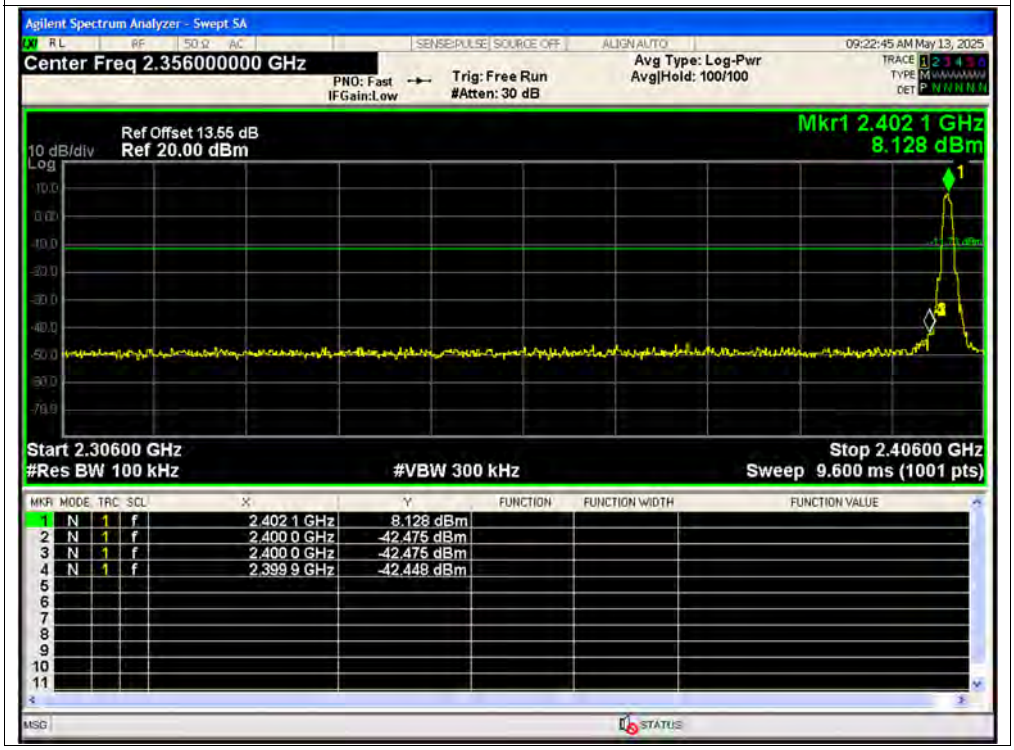


A.6. Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	BLE 1M	2402	Ant1	-50.71	-20	Pass
NVNT	BLE 1M	2480	Ant1	-53.6	-20	Pass
NVNT	BLE 2M	2402	Ant1	-32.48	-20	Pass
NVNT	BLE 2M	2480	Ant1	-51.72	-20	Pass

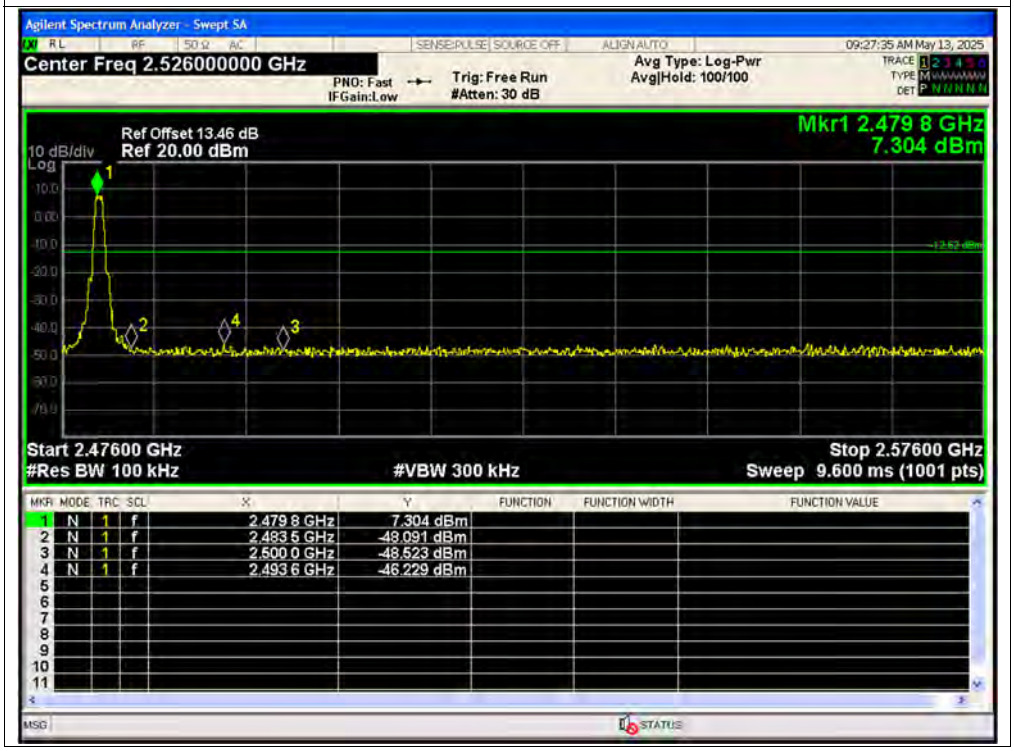
Test Graphs
Band Edge NVNT BLE 1M 2402MHz Ant1 Ref

Band Edge NVNT BLE 1M 2402MHz Ant1 Emission



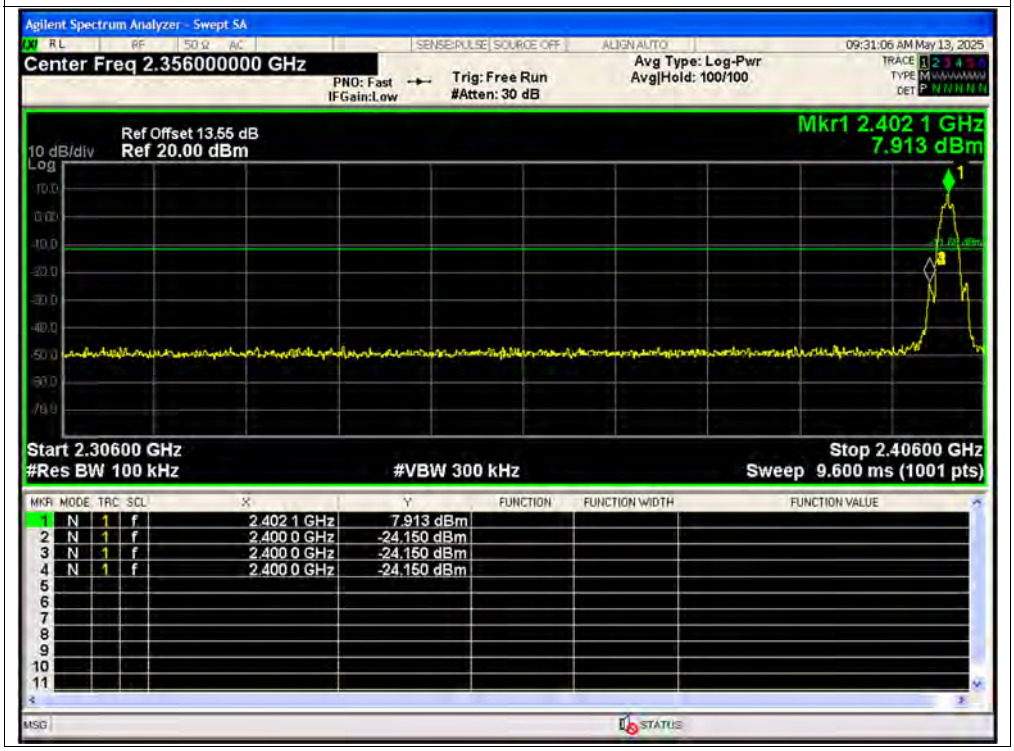
Band Edge NVNT BLE 1M 2480MHz Ant1 Ref

Band Edge NVNT BLE 1M 2480MHz Ant1 Emission



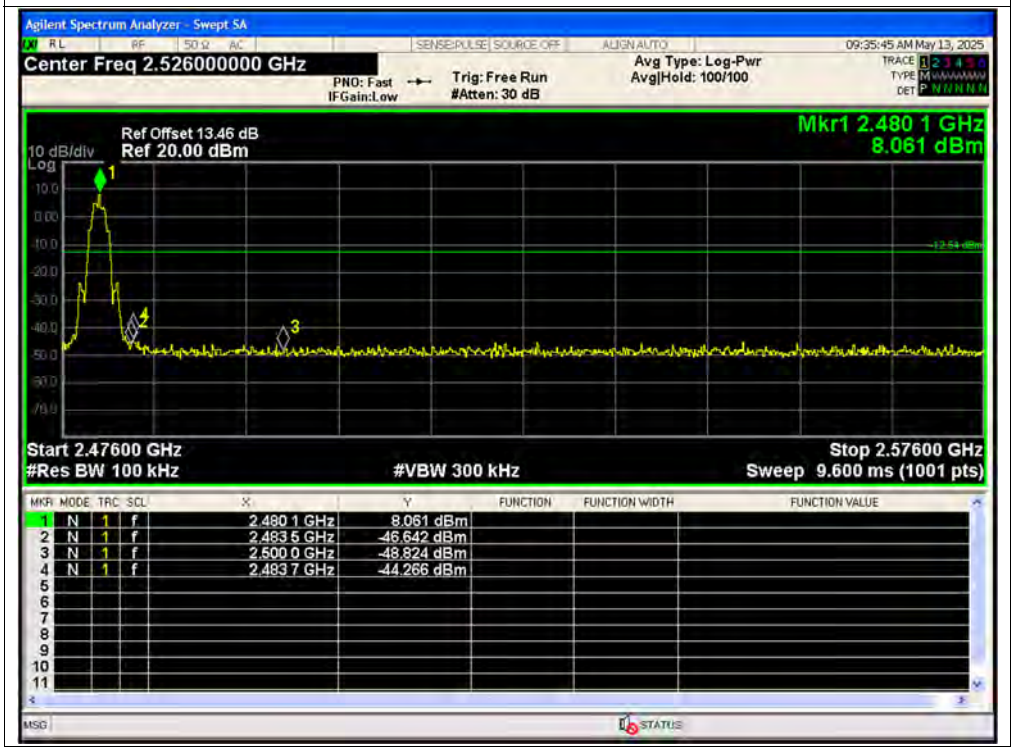
Band Edge NVNT BLE 2M 2402MHz Ant1 Ref

Band Edge NVNT BLE 2M 2402MHz Ant1 Emission



Band Edge NVNT BLE 2M 2480MHz Ant1 Ref

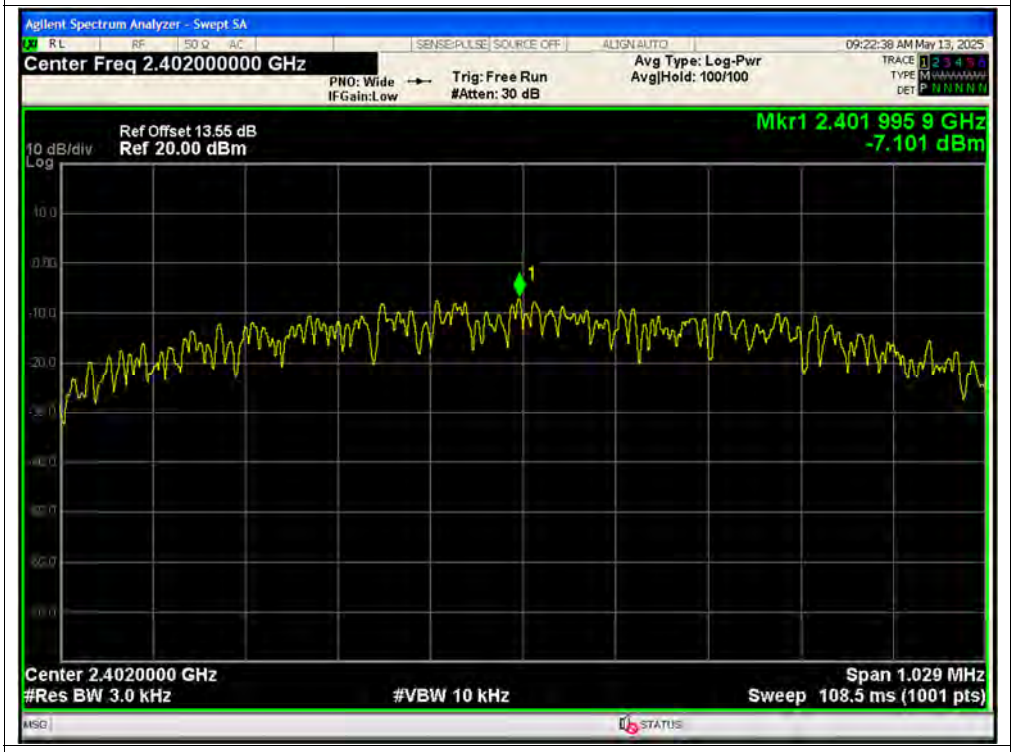
Band Edge NVNT BLE 2M 2480MHz Ant1 Emission



A.7. Power Spectral Density

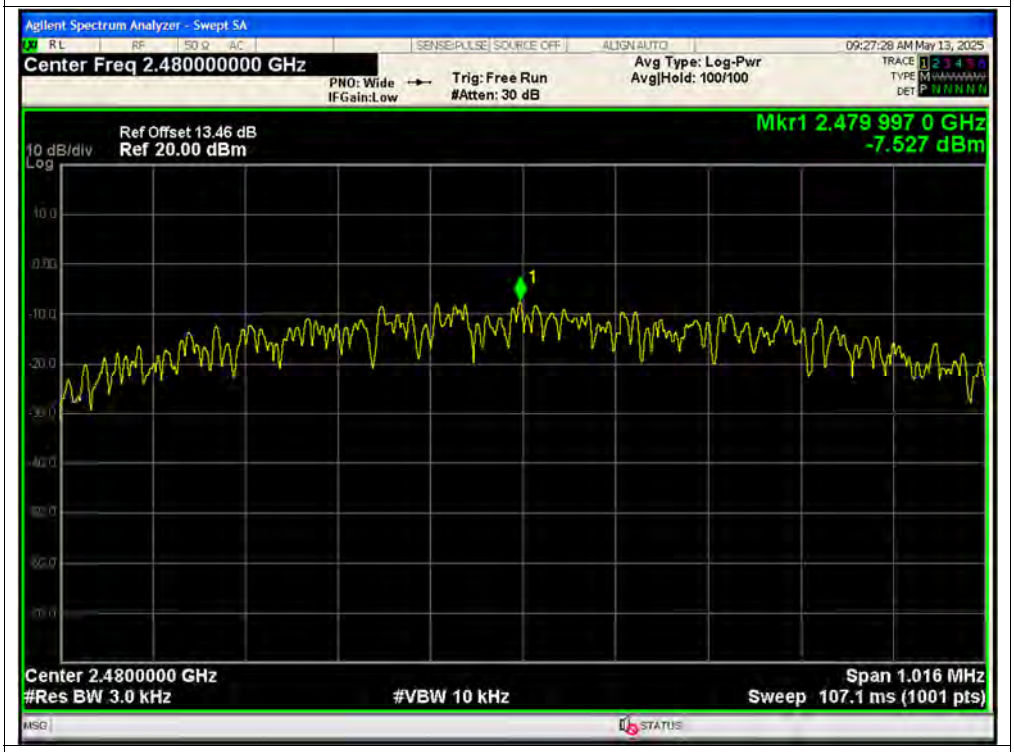
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm/3kHz)	Duty Factor (dB)	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	Ant1	-7.1	0	-7.1	8	Pass
NVNT	BLE 1M	2440	Ant1	-7.38	0	-7.38	8	Pass
NVNT	BLE 1M	2480	Ant1	-7.53	0	-7.53	8	Pass
NVNT	BLE 2M	2402	Ant1	-9.26	0	-9.26	8	Pass
NVNT	BLE 2M	2440	Ant1	-9.49	0	-9.49	8	Pass
NVNT	BLE 2M	2480	Ant1	-9.52	0	-9.52	8	Pass

Test Graphs
PSD NVNT BLE 1M 2402MHz Ant1

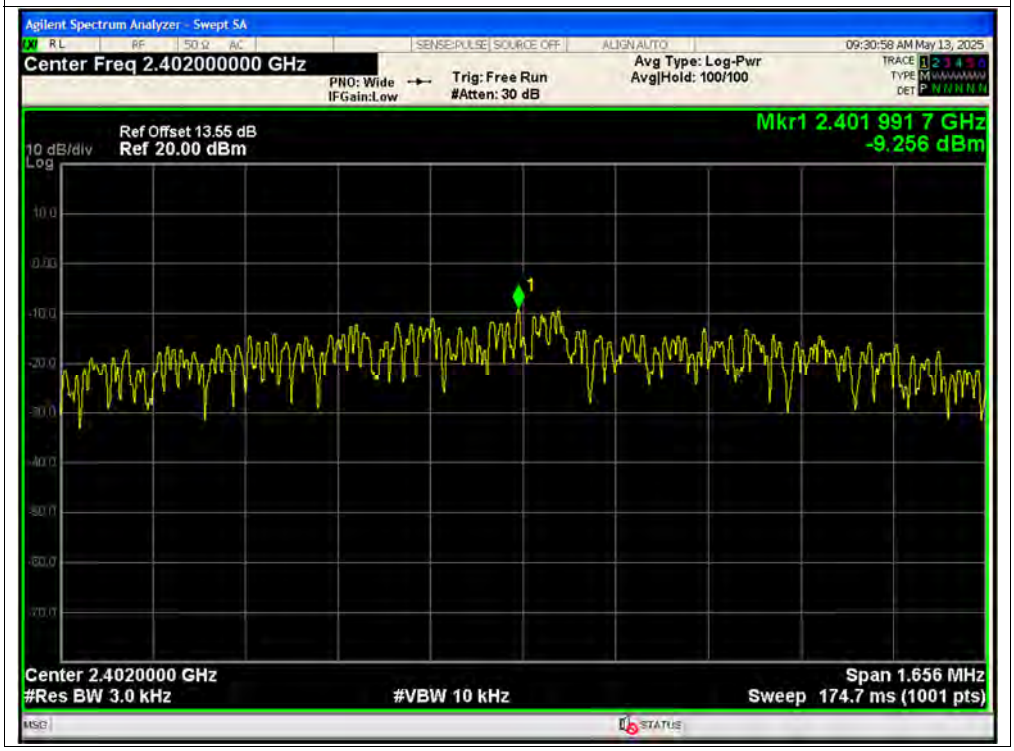


PSD NVNT BLE 1M 2440MHz Ant1

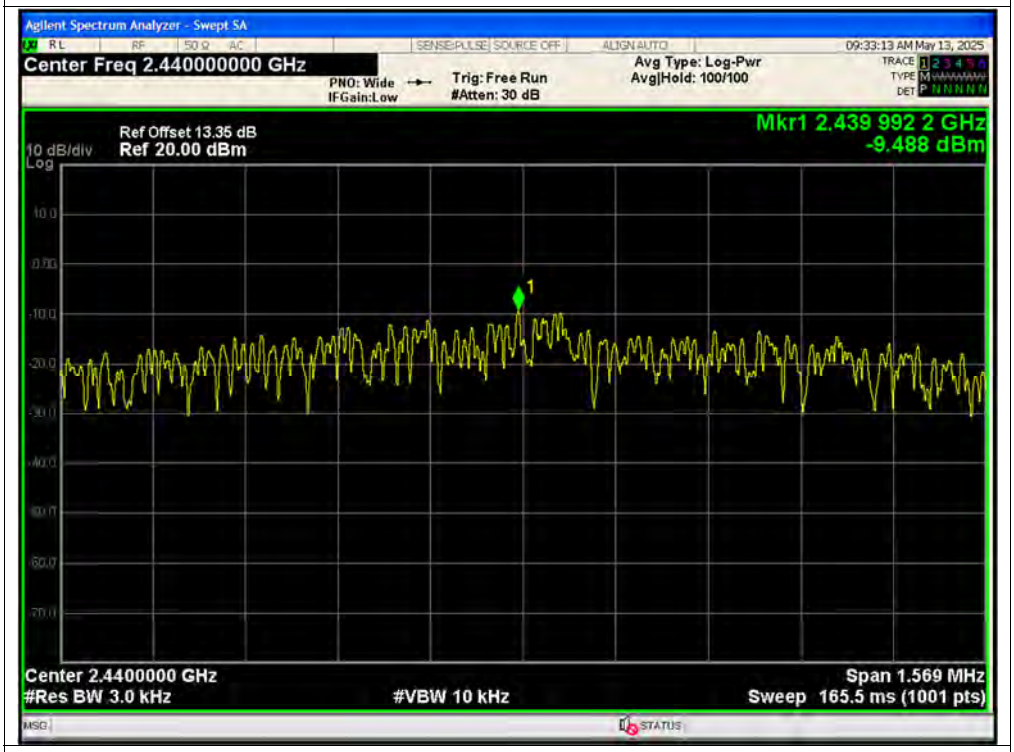
PSD NVNT BLE 1M 2480MHz Ant1



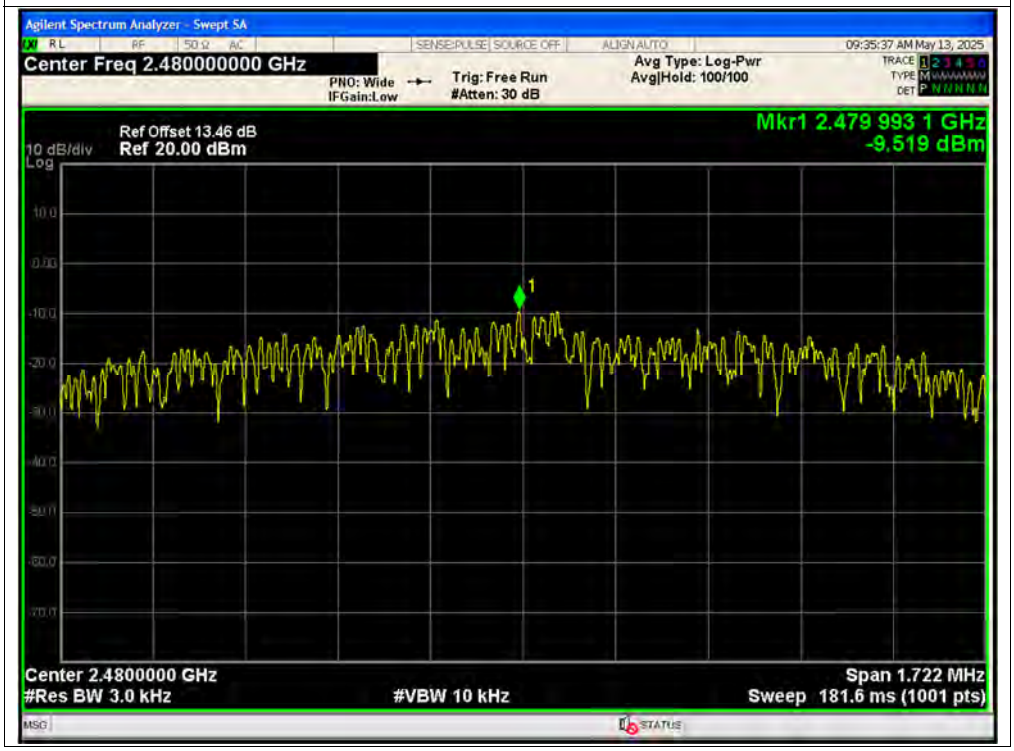
PSD NVNT BLE 2M 2402MHz Ant1



PSD NVNT BLE 2M 2440MHz Ant1



PSD NVNT BLE 2M 2480MHz Ant1



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+Adapter+Data cable+battery+mobile phone+BLE TX

Test voltage: AC 120V/60Hz

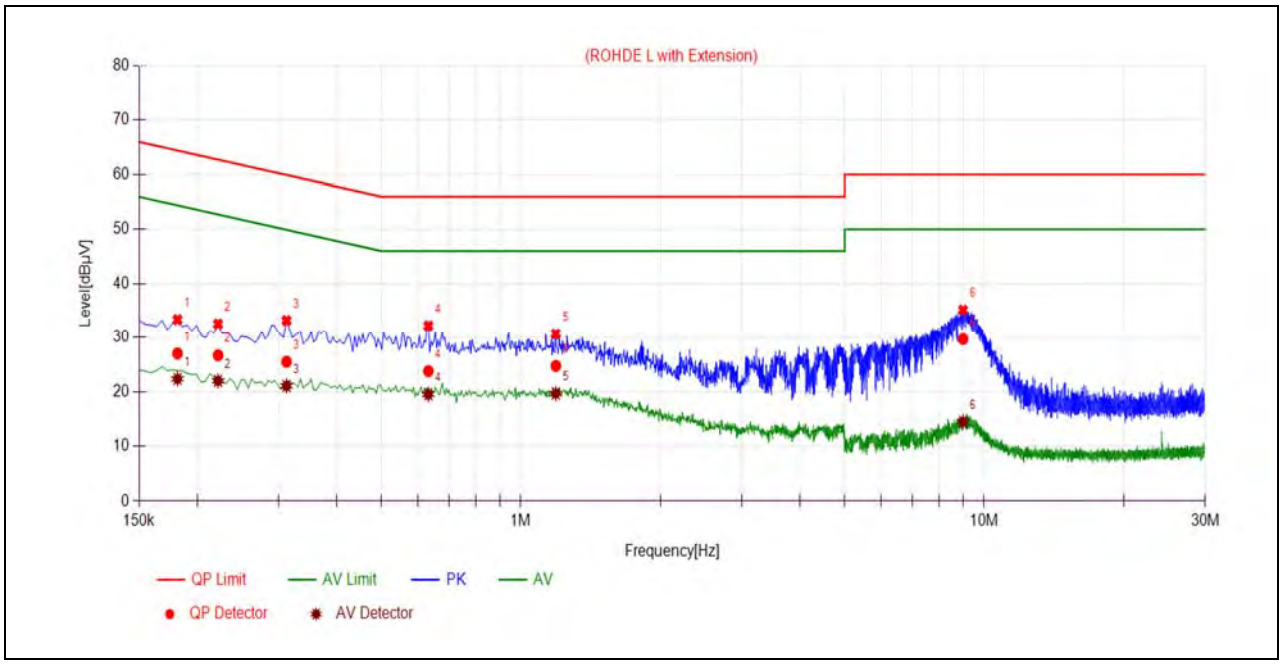
The measurement results are obtained as below:

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

U_R: Receiver Reading

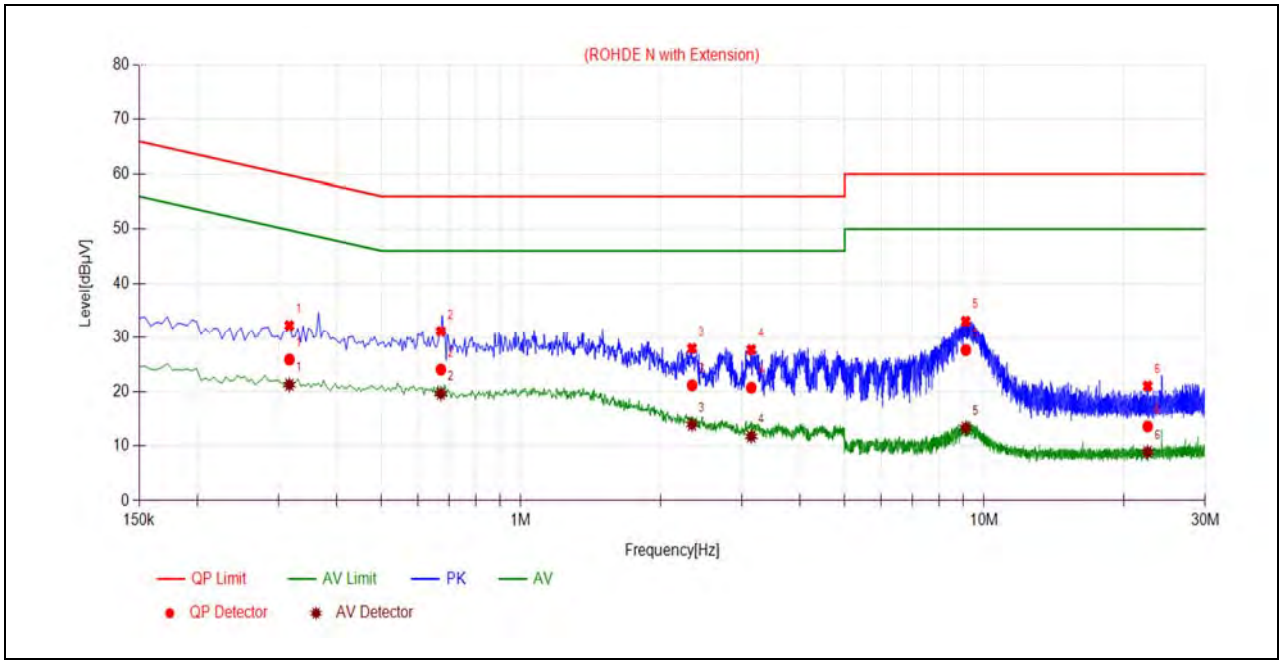
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1815	27.01	22.34	64.42	54.42	Line	PASS
2	0.2220	26.67	21.97	62.74	52.74		PASS
3	0.3120	25.49	21.04	59.92	49.92		PASS
4	0.6314	23.76	19.50	56.00	46.00		PASS
5	1.1895	24.71	19.65	56.00	46.00		PASS
6	9.0018	29.69	14.46	60.00	50.00		PASS



(N Phase)

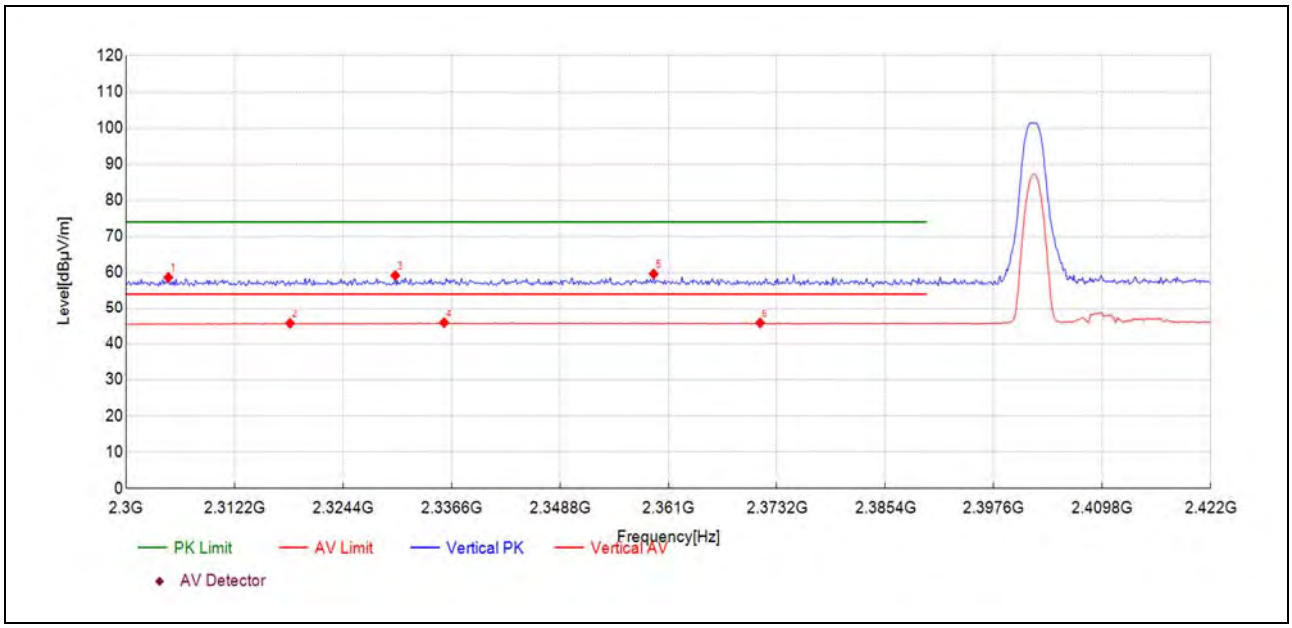
No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.3165	25.89	21.24	59.80	49.80	Neutral	PASS
2	0.6720	24.03	19.60	56.00	46.00		PASS
3	2.3416	21.13	13.92	56.00	46.00		PASS
4	3.1425	20.69	11.73	56.00	46.00		PASS
5	9.1269	27.63	13.32	60.00	50.00		PASS
6	22.5368	13.56	8.85	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 (Vertical) was recorded in this test report.

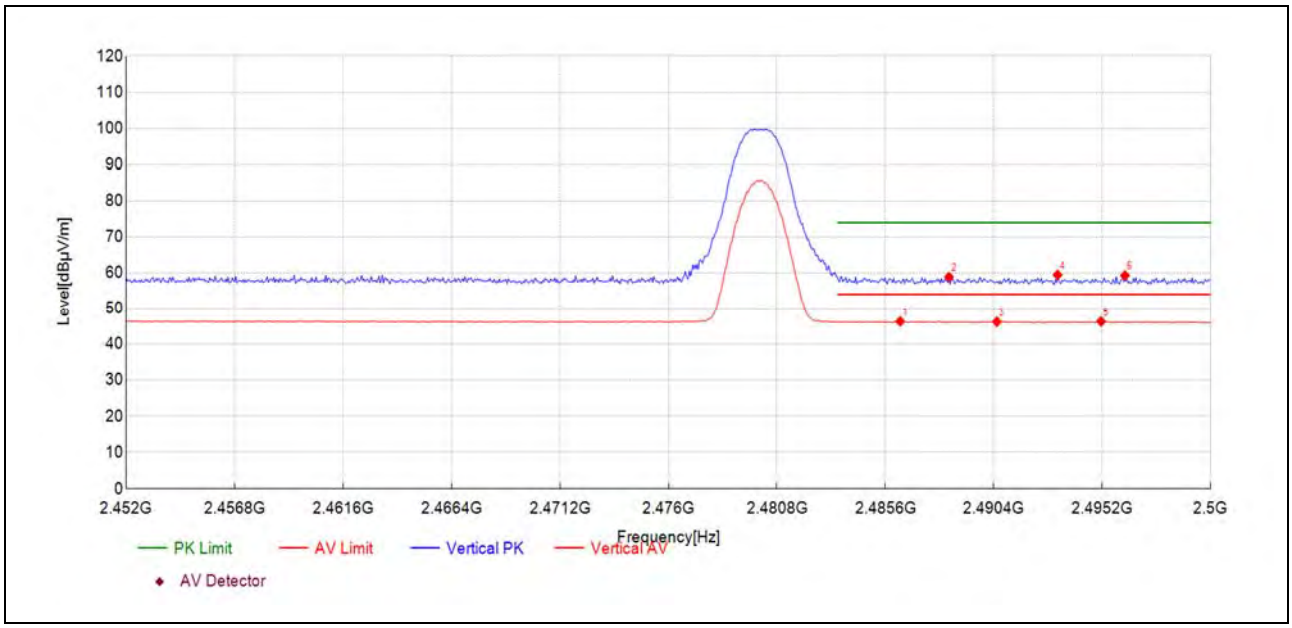
1Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2304.76	21.6	58.66	37.050	74.00	15.34	150	236	PK	PASS
2318.44	8.5	45.69	37.180	54.00	8.31	150	26	AV	PASS
2330.29	21.9	59.20	37.280	74.00	14.80	150	325	PK	PASS
2335.78	8.6	45.88	37.330	54.00	8.12	150	13	AV	PASS
2359.35	22.2	59.63	37.460	74.00	14.37	150	13	PK	PASS
2371.32	8.3	45.80	37.470	54.00	8.20	150	40	AV	PASS

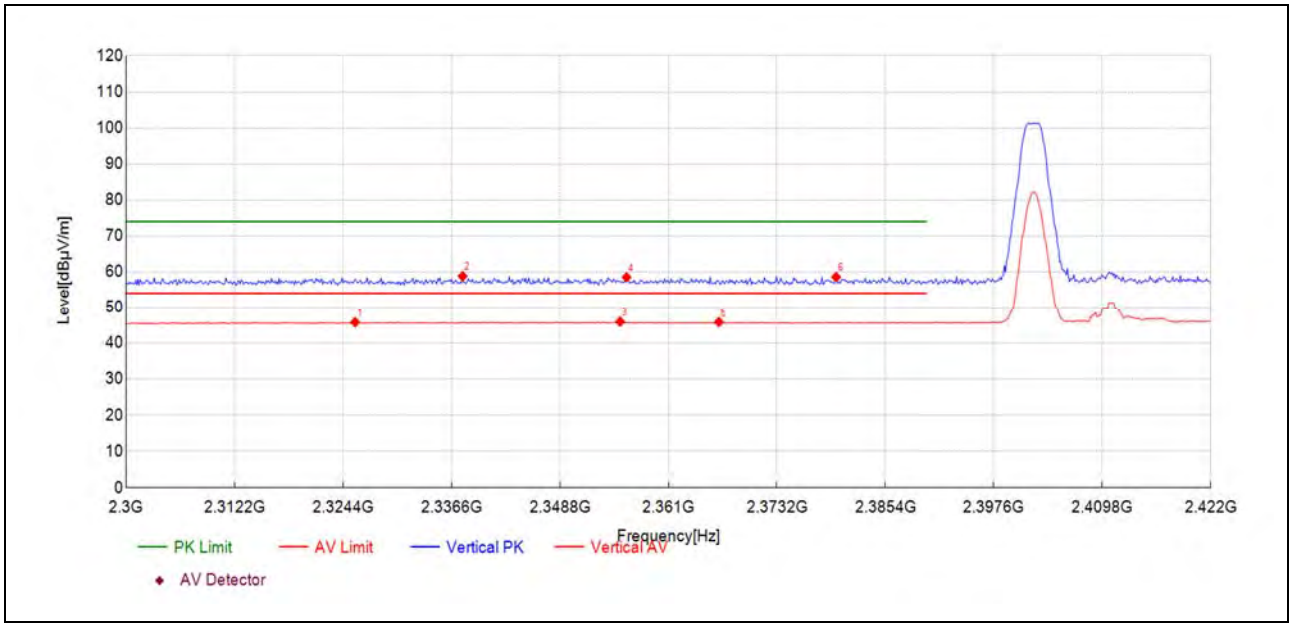
Plot for Channel 39



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2486.26	8.1	46.34	38.270	54.00	7.66	150	360	AV	PASS
2488.42	20.7	58.92	38.270	74.00	15.08	150	142	PK	PASS
2490.53	8.0	46.23	38.270	54.00	7.77	150	190	AV	PASS
2493.23	21.2	59.50	38.260	74.00	14.50	150	310	PK	PASS
2495.15	8.1	46.33	38.260	54.00	7.67	150	360	AV	PASS
2496.20	21.1	59.32	38.260	74.00	14.68	150	200	PK	PASS

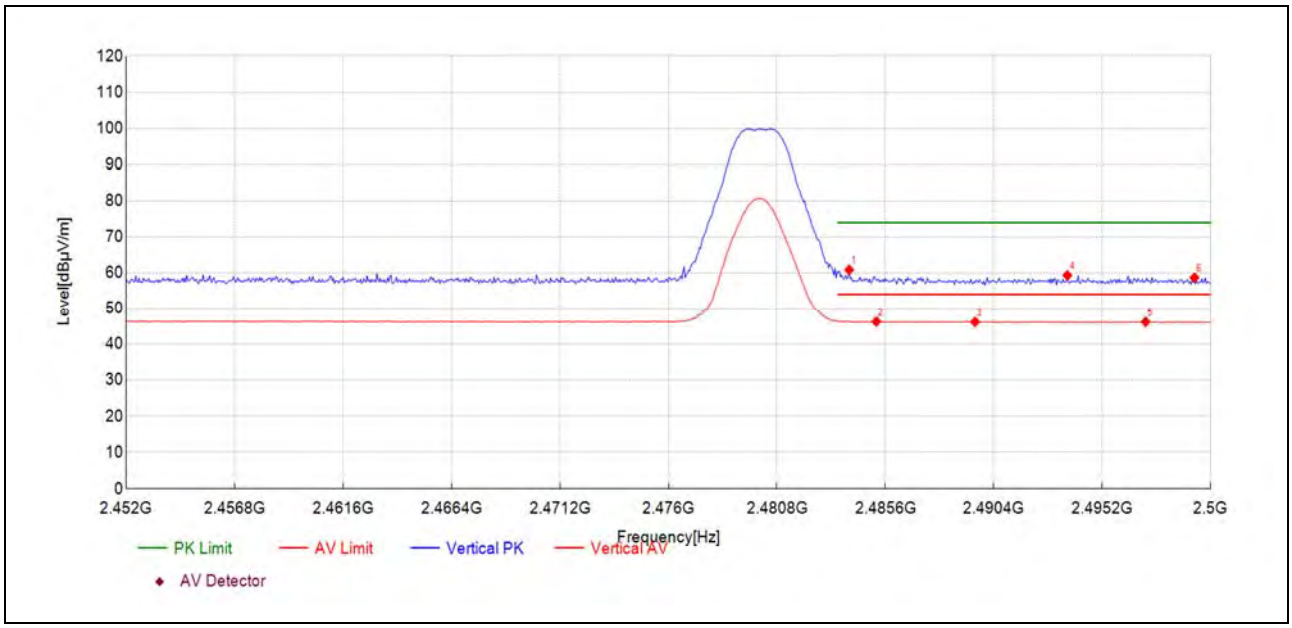
2Mbps

Plot for Channel 0



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2325.77	8.6	45.83	37.240	54.00	8.17	150	31	AV	PASS
2337.86	21.5	58.84	37.340	74.00	15.16	150	18	PK	PASS
2355.57	8.5	45.98	37.460	54.00	8.02	150	93	AV	PASS
2356.30	21.1	58.54	37.460	74.00	15.46	150	181	PK	PASS
2366.68	8.4	45.88	37.470	54.00	8.12	150	146	AV	PASS
2379.87	21.1	58.61	37.480	74.00	15.39	150	5	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
2484.00	22.6	60.88	38.270	74.00	13.12	150	152	PK	PASS
2485.20	8.0	46.31	38.270	54.00	7.69	150	125	AV	PASS
2489.57	7.9	46.20	38.260	54.00	7.80	150	103	AV	PASS
2493.66	21.1	59.35	38.260	74.00	14.65	150	36	PK	PASS
2497.12	8.0	46.21	38.250	54.00	7.79	150	152	AV	PASS
2499.28	20.5	58.72	38.250	74.00	15.28	150	328	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:
$E\ [dB\mu V/m] = U_R + A_T + A_{Factor}\ [dB]$; $A_T = L_{Cable\ loss}\ [dB] - G_{preamp}\ [dB]$
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.
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.

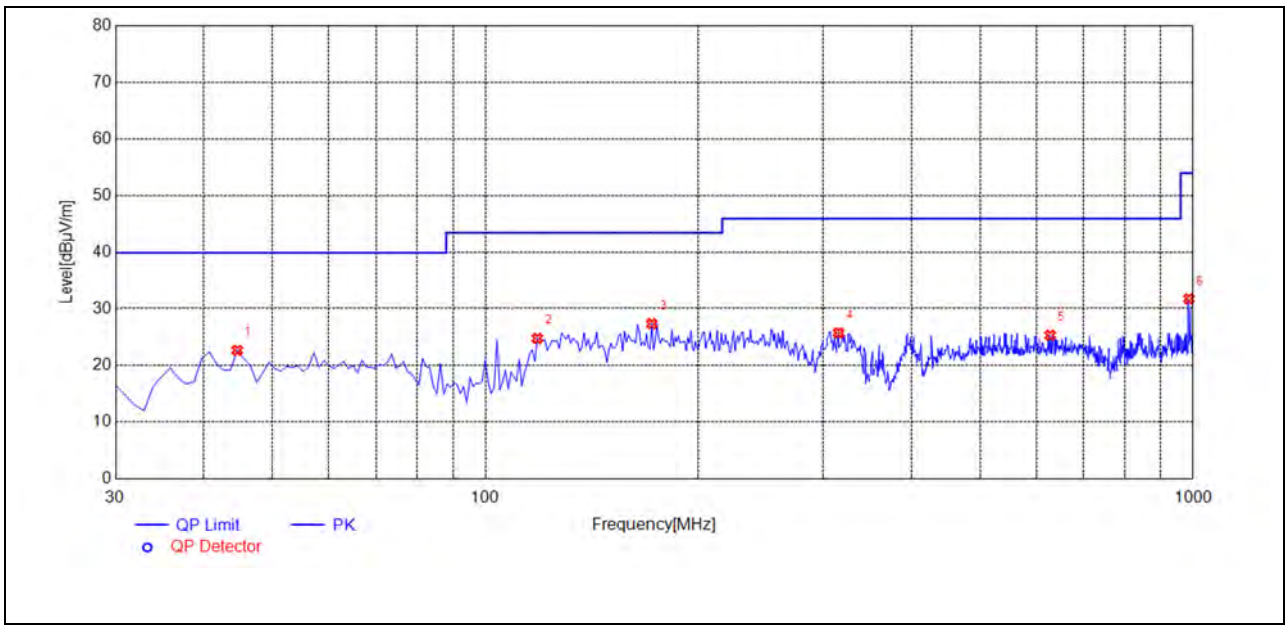
Field strength of fundamental:

Frequency [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Detector	Antenna Polarity
2401.85	63.9	101.41	37.530	PK	Horizontal

The field strength (the lowest) of fundamenta is more than 20dB higher than the unwanted emissions, in accordance with FCC part 15.215(b).

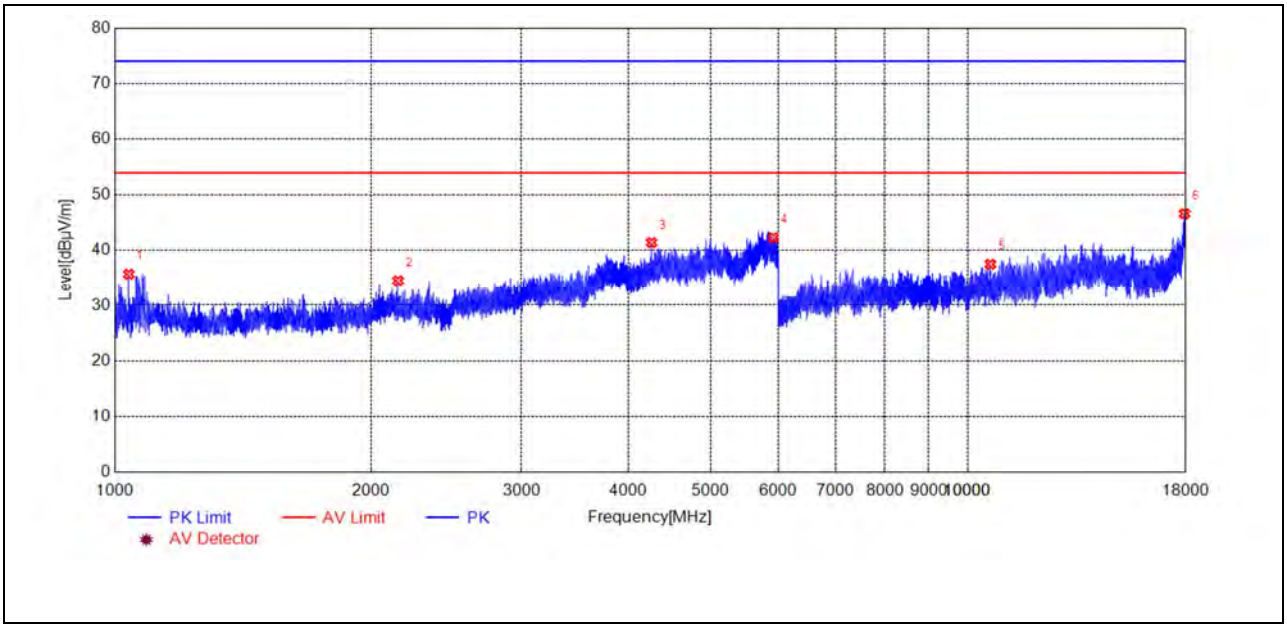
1Mbps

Plot for Channel 0



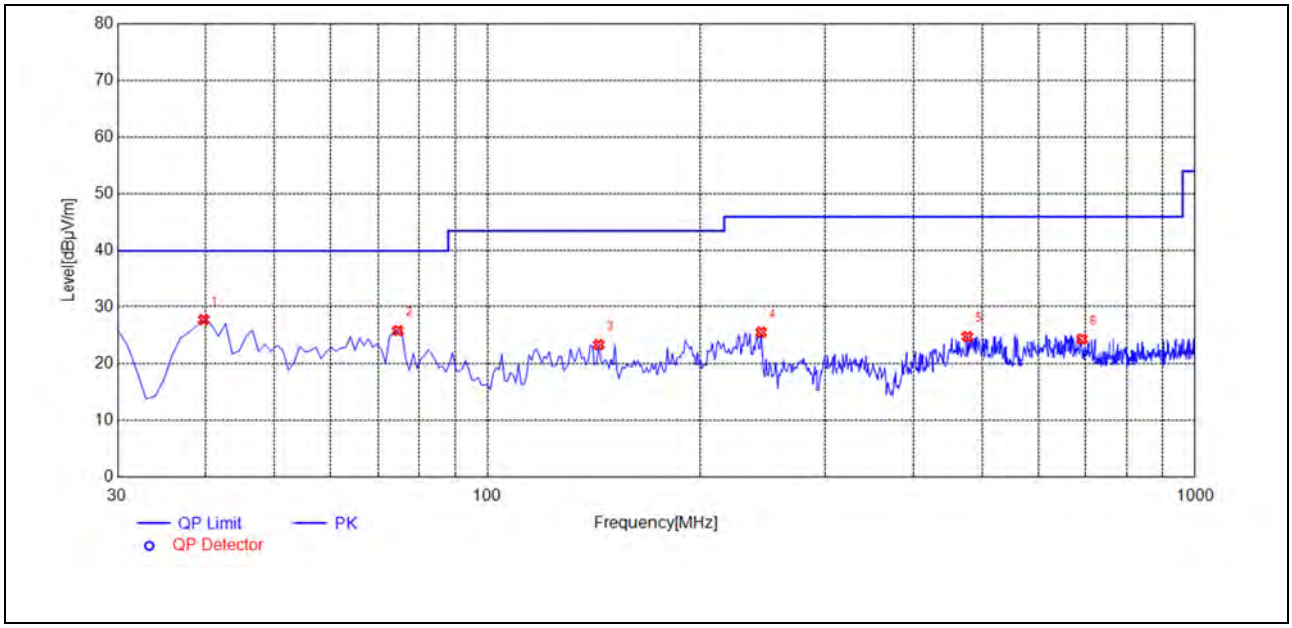
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
44.5646	22.61	-30.36	40.00	17.39	150	191	Horizontal	PASS
118.3584	24.72	-32.72	43.50	18.78	150	352	Horizontal	PASS
171.7618	27.31	-33.74	43.50	16.19	150	123	Horizontal	PASS
315.4655	25.70	-29.33	46.00	20.30	150	131	Horizontal	PASS
628.1181	25.27	-22.33	46.00	20.73	150	301	Horizontal	PASS
986.4064	31.70	-18.05	54.00	22.30	150	46	Horizontal	PASS



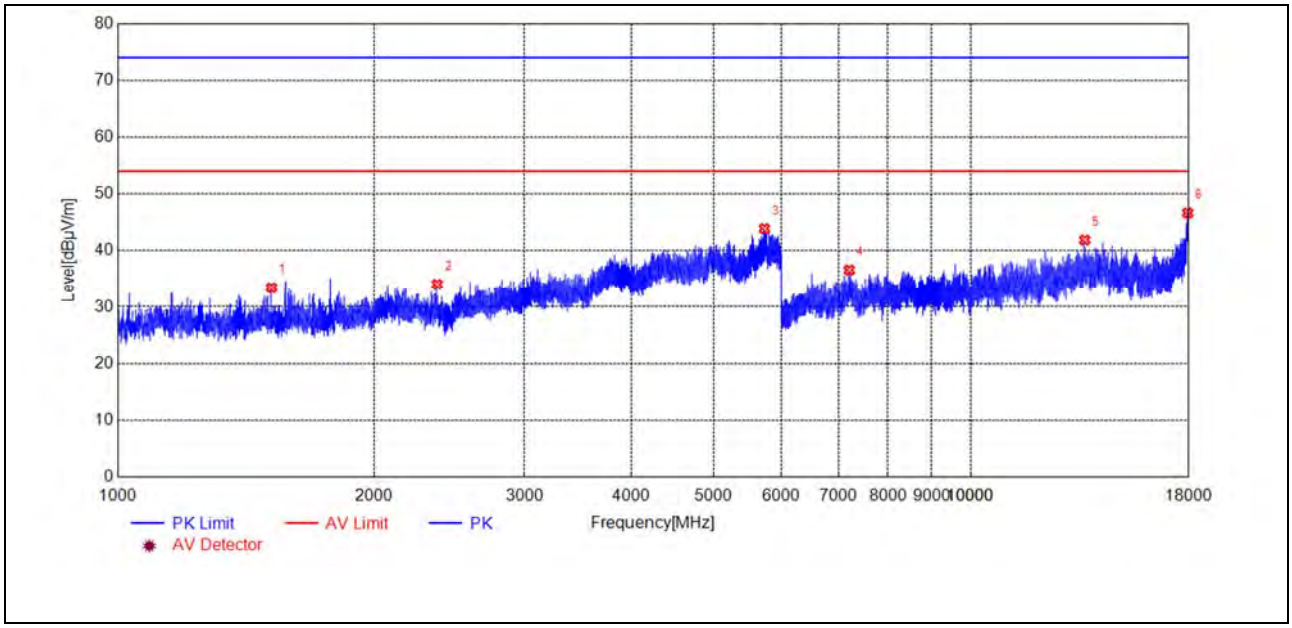
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1039.1683	35.72	-24.66	74.00	38.28	150	343	Horizontal	PASS
2149.4229	34.53	-20.38	74.00	39.47	150	245	Horizontal	PASS
4259.7192	41.41	-12.84	74.00	32.59	150	0	Horizontal	PASS
5917.0799	42.31	-6.77	74.00	31.69	150	22	Horizontal	PASS
10630.6929	37.50	3.05	74.00	36.50	150	360	Horizontal	PASS
17952.4980	46.64	15.72	74.00	27.36	150	0	Horizontal	PASS



(Antenna Vertical, 30MHz to 1GHz)

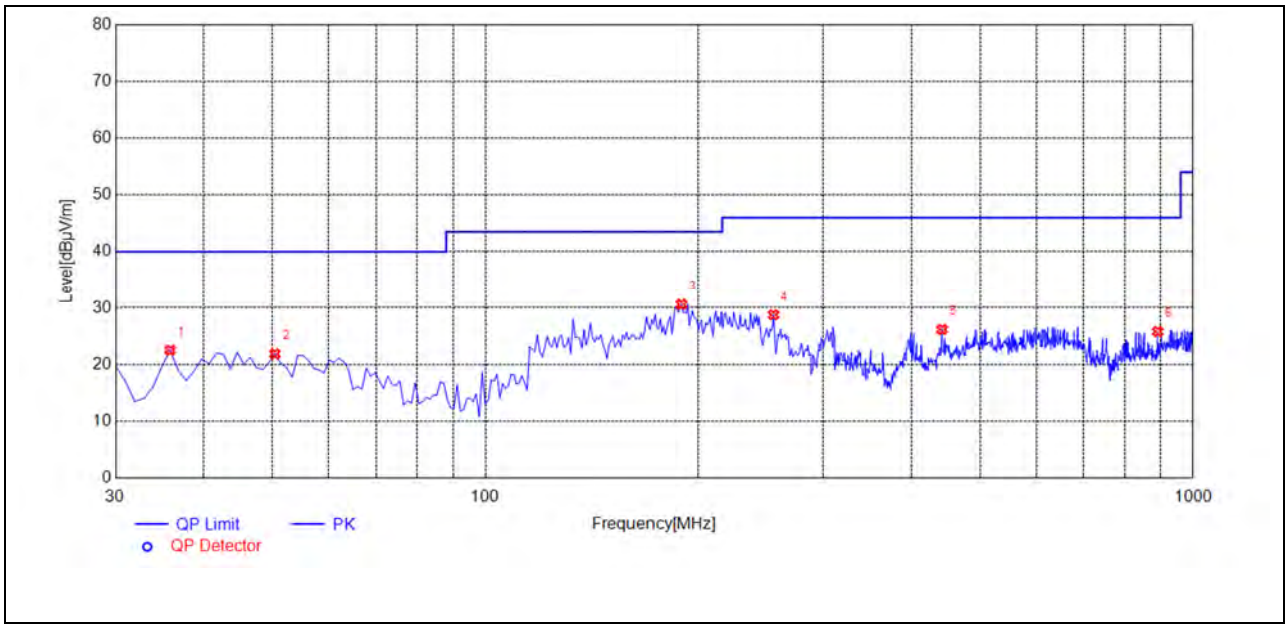
Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
39.7097	27.68	-31.29	40.00	12.32	150	49	Vertical	PASS
74.6647	25.78	-34.80	40.00	14.22	150	108	Vertical	PASS
143.6036	23.30	-35.27	43.50	20.20	150	100	Vertical	PASS
243.6136	25.50	-30.61	46.00	20.50	150	40	Vertical	PASS
476.6466	24.72	-24.71	46.00	21.28	150	168	Vertical	PASS
692.2022	24.29	-21.59	46.00	21.71	150	6	Vertical	PASS



(Antenna Vertical, 1GHz to 18GHz)

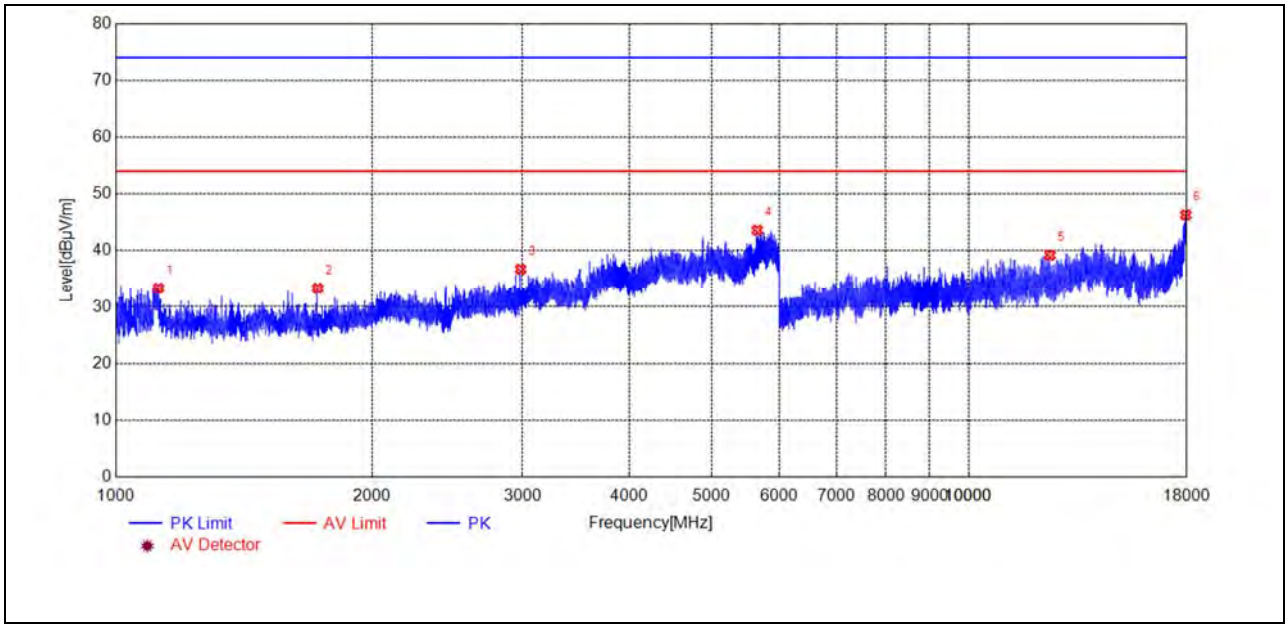
Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1515.2298	33.41	-23.31	74.00	40.59	150	217	Vertical	PASS
2369.6404	34.03	-20.89	74.00	39.97	150	266	Vertical	PASS
5731.4471	43.90	-7.03	74.00	30.10	150	241	Vertical	PASS
7204.0502	36.61	-2.97	74.00	37.39	150	94	Vertical	PASS
13601.5667	41.90	7.57	74.00	32.10	150	42	Vertical	PASS
17956.4982	46.65	15.52	74.00	27.35	150	191	Vertical	PASS

Plot for Channel 19



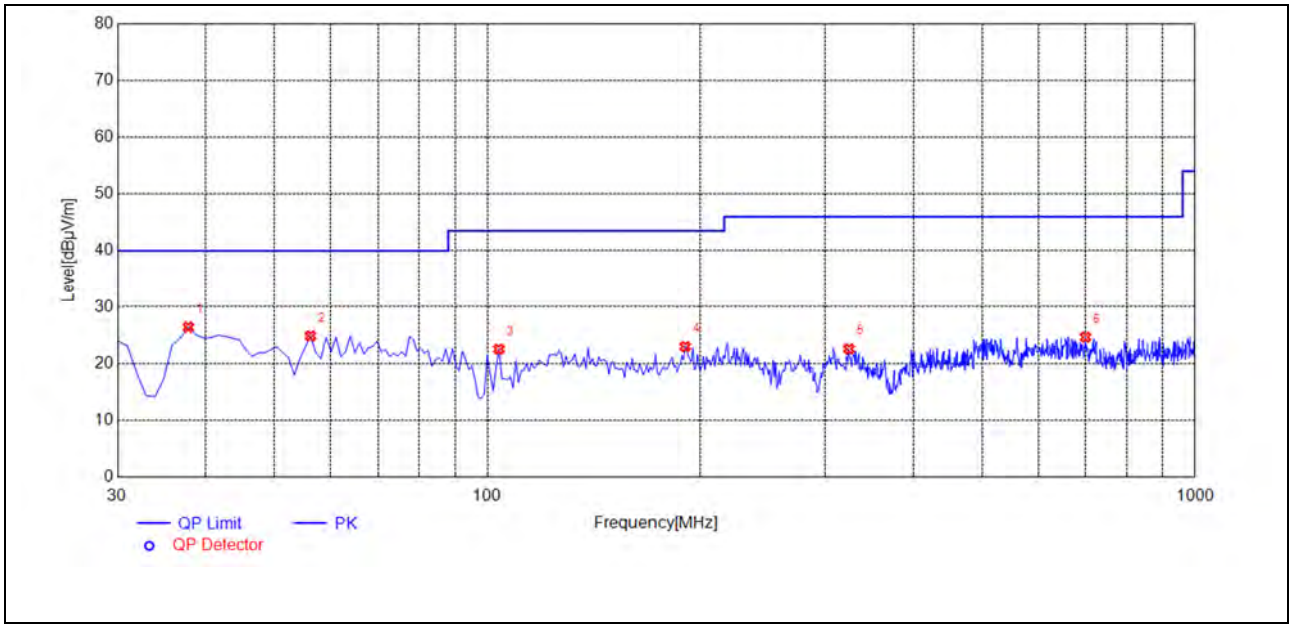
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
35.8258	22.50	-38.57	40.00	17.50	150	85	Horizontal	PASS
50.3904	21.85	-29.06	40.00	18.15	150	68	Horizontal	PASS
189.2392	30.59	-33.19	43.50	12.91	150	85	Horizontal	PASS
255.2653	28.74	-30.45	46.00	17.26	150	204	Horizontal	PASS
441.6917	26.15	-24.85	46.00	19.85	150	76	Horizontal	PASS
891.2513	25.79	-18.73	46.00	20.21	150	170	Horizontal	PASS



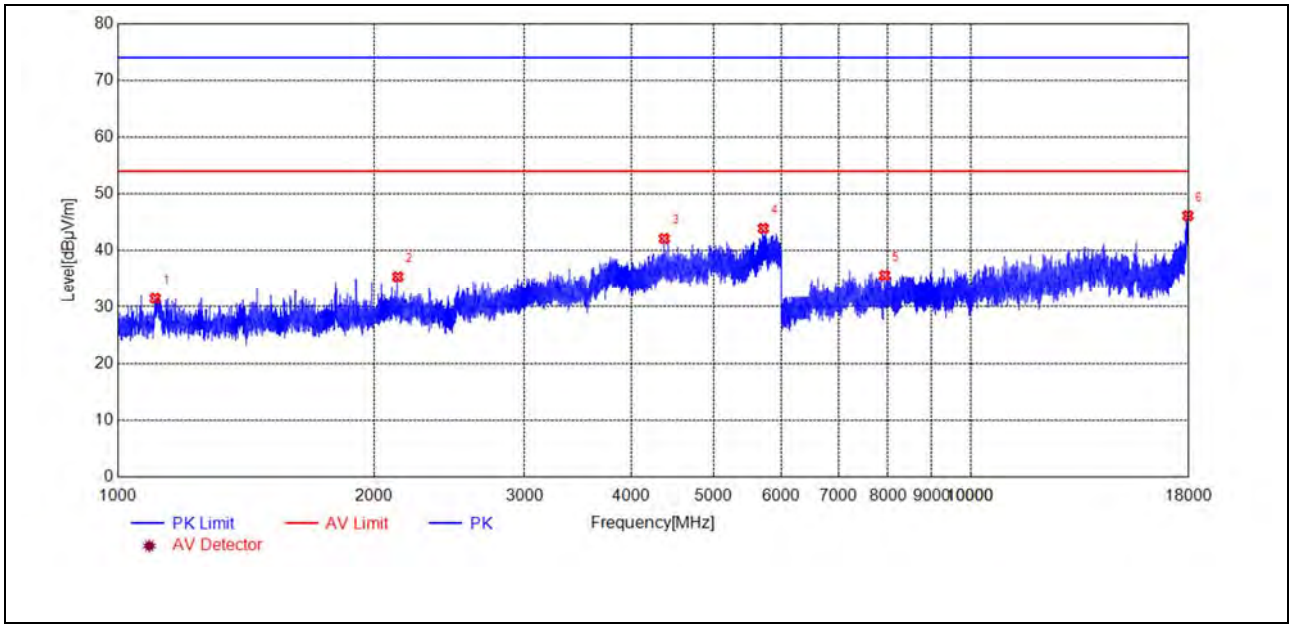
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1122.7134	33.33	-24.44	74.00	40.67	150	94	Horizontal	PASS
1725.6552	33.32	-23.69	74.00	40.68	150	144	Horizontal	PASS
2983.8327	36.74	-18.35	74.00	37.26	150	343	Horizontal	PASS
5649.9854	43.62	-8.60	74.00	30.38	150	0	Horizontal	PASS
12451.7688	39.24	4.75	74.00	34.76	150	16	Horizontal	PASS
17963.7485	46.31	15.17	74.00	27.69	150	268	Horizontal	PASS



(Antenna Vertical, 30MHz to 1GHz)

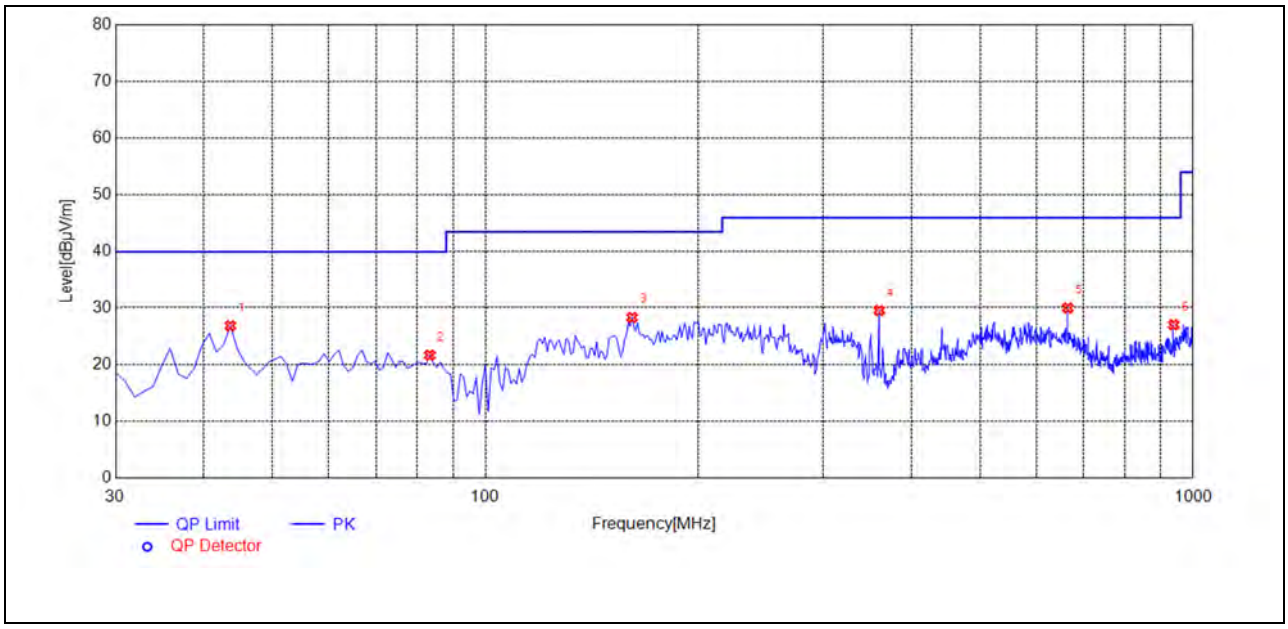
Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
37.7678	26.41	-35.52	40.00	13.59	150	80	Vertical	PASS
56.2162	24.86	-29.66	40.00	15.14	150	360	Vertical	PASS
103.7938	22.53	-31.13	43.50	20.97	150	360	Vertical	PASS
190.2102	22.97	-32.48	43.50	20.53	150	20	Vertical	PASS
324.2042	22.56	-28.49	46.00	23.44	150	157	Vertical	PASS
699.9700	24.64	-21.45	46.00	21.36	150	37	Vertical	PASS



(Antenna Vertical, 1GHz to 18GHz)

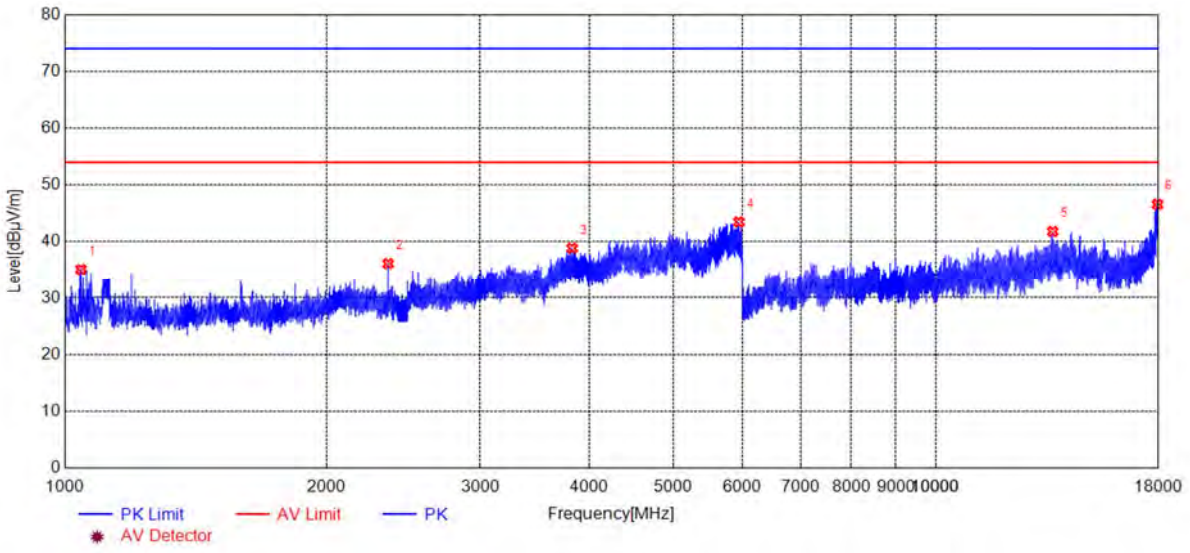
Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1107.0878	31.47	-24.48	74.00	42.53	150	220	Vertical	PASS
2130.4638	35.41	-20.29	74.00	38.59	150	146	Vertical	PASS
4373.2656	42.15	-11.99	74.00	31.85	150	18	Vertical	PASS
5712.4880	43.94	-7.34	74.00	30.06	150	70	Vertical	PASS
7927.3303	35.66	-3.10	74.00	38.34	150	318	Vertical	PASS
17966.4986	46.17	15.04	74.00	27.83	150	192	Vertical	PASS

Plot for Channel 39



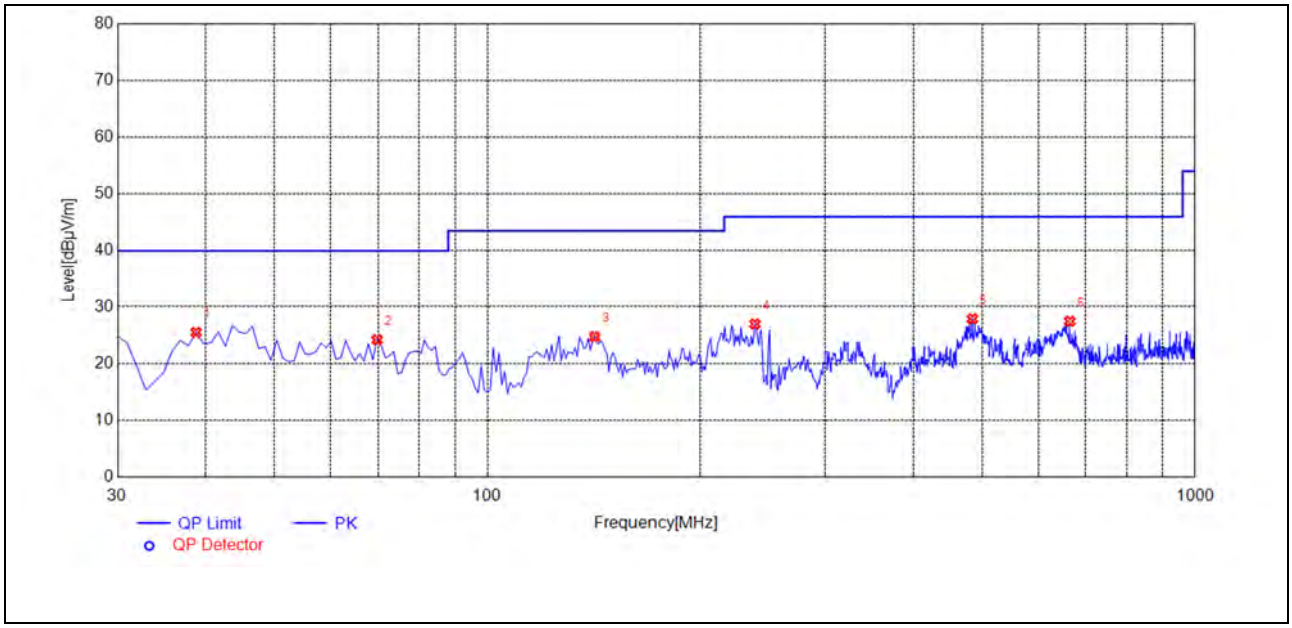
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
43.5936	26.79	-30.09	40.00	13.21	150	148	Horizontal	PASS
83.4034	21.63	-33.50	40.00	18.37	150	29	Horizontal	PASS
161.0811	28.27	-34.63	43.50	15.23	150	123	Horizontal	PASS
360.1301	29.47	-26.44	46.00	16.53	150	105	Horizontal	PASS
665.0150	29.93	-21.84	46.00	16.07	150	132	Horizontal	PASS
938.8288	26.97	-18.55	46.00	19.03	150	64	Horizontal	PASS



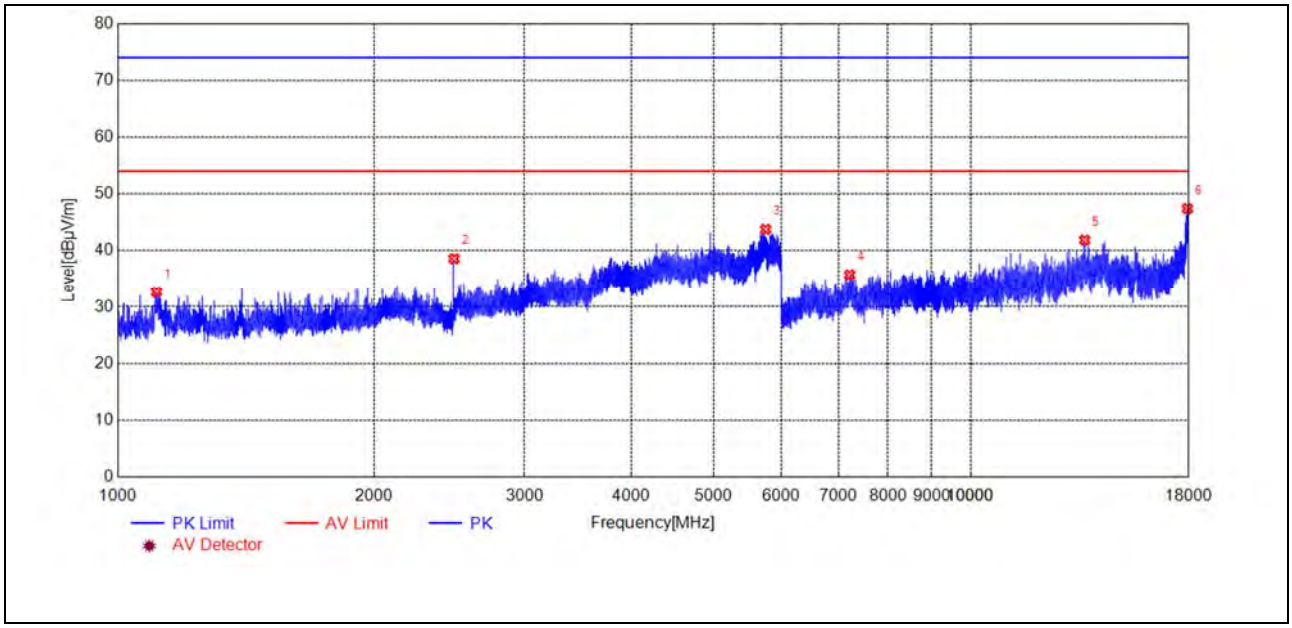
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1044.1685	35.11	-24.63	74.00	38.89	150	343	Horizontal	PASS
2351.9313	36.17	-21.33	74.00	37.83	150	64	Horizontal	PASS
3824.2843	38.89	-14.41	74.00	35.11	150	115	Horizontal	PASS
5942.7059	43.51	-6.40	74.00	30.49	150	189	Horizontal	PASS
13622.5676	41.82	6.41	74.00	32.18	150	169	Horizontal	PASS
17966.2486	46.61	15.05	74.00	27.39	150	44	Horizontal	PASS



(Antenna Vertical, 30MHz to 1GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
38.7387	25.45	-35.32	40.00	14.55	150	59	Vertical	PASS
69.8098	24.18	-33.23	40.00	15.82	150	340	Vertical	PASS
141.6617	24.71	-35.25	43.50	18.79	150	16	Vertical	PASS
238.7588	26.95	-30.70	46.00	19.05	150	41	Vertical	PASS
484.4144	27.85	-24.45	46.00	18.15	150	212	Vertical	PASS
665.0150	27.42	-21.44	46.00	18.58	150	127	Vertical	PASS



(Antenna Vertical, 1GHz to 18GHz)

Fre. (MHz)	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1110.8380	32.63	-24.47	74.00	41.37	150	67	Vertical	PASS
2480.0617	38.59	-20.15	74.00	35.41	150	295	Vertical	PASS
5749.3646	43.76	-6.74	74.00	30.24	150	194	Vertical	PASS
7212.0505	35.74	-2.90	74.00	38.26	150	18	Vertical	PASS
13601.3167	41.88	7.59	74.00	32.12	150	317	Vertical	PASS
17944.9977	47.44	15.43	74.00	26.56	150	292	Vertical	PASS

END OF REPORT