



REPORT No.: SZ24040244W02

TEST REPORT

APPLICANT : Realme Chongqing Mobile
Telecommunications Corp., Ltd.

PRODUCT NAME : True Wireless Stereo

MODEL NAME : RMA2406

BRAND NAME : realme

FCC ID : 2AUYFRMA2406

STANDARD(S) : 47 CFR Part 15 Subpart C

RECEIPT DATE : 2024-04-28

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Edited by:

Zeng Xiaoying
Zeng Xiaoying (Rapporteur)

Approved by:

Shen Junsheng
Shen Junsheng (Supervisor)

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MORLAB

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

Tel: 86-755-36698555

Http://www.morlab.cn

Fax: 86-755-36698525

E-mail: service@morlab.cn





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Change History		
Version	Date	Reason for change
1.0	2024-06-03	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	15.247(a) 15.247(h)	Hopping Mechanism	N/A	N/A	PASS	No deviation
3	15.247(a)	Number of Hopping Frequency	May 14, 2024	He Yuyang	PASS	No deviation
4	ANSI C63.10	Duty Cycle	May 10, 2024	He Yuyang	PASS	No deviation
5	15.247(b)	Maximum Peak Conducted Output Power	May 10, 2024	He Yuyang	PASS	No deviation
6	15.247(b)	Maximum Average Conducted Output Power	May 10, 2024	He Yuyang	PASS	No deviation
7	15.247(a)	20dB Bandwidth	May 10, 2024	He Yuyang	PASS	No deviation
8	15.247(a)	Carrier Frequency Separation	May 14, 2024	He Yuyang	PASS	No deviation
9	15.247(a)	Time of Occupancy (Dwell time)	May 14, 2024	He Yuyang	PASS	No deviation
10	15.247(d)	Conducted Spurious Emission	May 10, 2024	He Yuyang	PASS	No deviation
11	15.207	Conducted Emission	May 08, 2024	Wang Deyong	PASS	No deviation
12	15.247(d)	Restricted Frequency Bands	May 27, 2024	Yang Lian	PASS	No deviation
13	15.209,	Radiated	May 28, 2024	Yang Lian	PASS	No deviation



	15.247(d)	Emission				
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Note 1: The tests were performed according to the method of measurements prescribed in ANSI C63.10-2013, KDB 558074 D01 v05r02 and DA 00-075.

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	2024.02.19	2025.02.18
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial Cable	CB02	RF02	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A

1.2.2 Conducted Emission Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2024.01.25	2025.01.24
LISN	8127449	NSLK 8127	Schwarzbeck	2024.02.02	2025.02.01
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2023.06.27	2024.06.26
RF Coaxial Cable (DC-100MHz)	BNC	MRE04	Qualwave	N/A	N/A

1.2.3 List of Software Used

Description	Manufacturer	Software Version
Test System	MaiWei	2.0.0.0
TS+ -[JS36-RSE]	Tonscend	V3.0.0.0
TS+ -[JS32-CE]	Tonscend	V2.5.0.0

**1.2.4 Radiated Test Equipment**

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2023.06.21	2024.06.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2023.07.01	2024.06.30
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2023.06.26	2024.06.25
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2023.07.01	2024.06.30
Test Antenna – Horn	BBHA9170 #773	BBHA9170	Schwarzbeck	2023.07.01	2024.06.30
Preamplifier (10MHz-6GHz)	46732	S10M100L38 02	LUCIX CORP.	2023.06.27	2024.06.26
Preamplifier (2GHz-18GHz)	61171/61172	S020180L32 03	LUCIX CORP.	2023.06.27	2024.06.26
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2023.07.04	2024.07.03
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2023.07.04	2024.07.03
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2023.07.04	2024.07.03
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	2023.07.04	2024.07.03
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
Number of Hopping Frequency	±5%	Confidence levels of 95%
Peak Output Power	±2.22dB	Confidence levels of 95%
Bandwidth	±5%	Confidence levels of 95%
Carrier Frequency Separation	±5%	Confidence levels of 95%
Time of Occupancy (Dwell time)	±5%	Confidence levels of 95%
Conducted Spurious Emission	±2.77dB	Confidence levels of 95%
Restricted Frequency Bands	±5%	Confidence levels of 95%
Radiated Emission	±2.95dB	Confidence levels of 95%
Conducted Emission	±2.44dB	Confidence levels of 95%

1.4. Testing Laboratory

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



2. General Description

2.1. Information of Applicant and Manufacturer

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

2.2. Information of EUT

Product Name:	True Wireless Stereo	
Sample No.:	3#	
Hardware Version:	V4	
Software Version:	V1.0.8	
Equipment Type:	Bluetooth classic	
Bluetooth Version:	5.3	
Modulation Type:	FHSS (GFSK(1Mbps), $\pi/4$ -DQPSK(EDR 2Mbps), 8-DPSK(EDR 3Mbps))	
Operating Frequency Range:	2402MHz-2480MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	Left: -0.99dBi; Right: -0.99dBi	
Accessory Information:	Battery (Earphone)	
	Brand Name:	N/A
	Model No.:	501010
	Serial No.:	N/A
	Capacity:	40mAh
	Rated Voltage:	3.7V
	Charge Limit:	4.2V
	Manufacturer:	ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO.,LTD



Accessory Information:	Battery (Charging case)	
	Brand Name:	N/A
	Model No.:	ZWD801435
	Serial No.:	N/A
	Capacity:	400mAh
	Rated Voltage:	3.7V
	Charge Limit:	4.2V
	Manufacturer:	ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO.,LTD

Note 1: The EUT is a TWS earphone, the left and right earphones are accordant in both hardware and software. The main measuring is right ear, only the results for right ear were recorded in this report.

Note 2: We use the dedicated software to control the EUT continuous transmission.

Note 3: 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	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

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

2.4. Test Configuration of EUT

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

2.5. Test Conditions

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

2.6. Test Setup Layout Diagram

2.6.1. Conducted Measurement



2.6.2. Conducted Emission Measurement



2.6.3.Radiation Measurement

1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz 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

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

3.2. Hopping Mechanism

3.2.1. Requirement

According to FCC section 15.247(a)(1), a frequency hopping spread spectrum system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

According to FCC section 15.247(h), the incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

3.2.2. Test Result

The hopping mechanism of the EUT is in compliance with the document "**Bluetooth core specification v5.1**".



3.3. Number of Hopping Frequency

3.3.1. Requirement

According to FCC section 15.247(a)(1)(iii), frequency hopping systems operating in the 2400MHz to 2483.5MHz bands shall use at least 15 hopping frequencies.

3.3.2. Test Procedures

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings:

Span = the frequency band of operation

RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

3.3.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.3.4. Test Result

Refer to Annex A.1 in this report.

3.4. Duty Cycle of Test Signal

3.4.1. 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.

3.4.2. Test Result

Refer to Annex A.2 in this report.



3.5. Maximum Peak Conducted Output Power

3.5.1. Requirement

According to FCC section 15.247(b)(1), for frequency hopping systems that operates in the 2400MHz to 2483.5MHz band employing at least 75 hopping channels, the maximum peak output power of the intentional radiator shall not exceed 1Watt. For all other frequency hopping systems in the 2400MHz to 2483.5MHz band, it is 0.125Watts.

3.5.2. Test Procedures

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

3.5.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.5.4. Test Result

Refer to Annex A.3 in this report.



3.6. Maximum Average Conducted Output Power

3.6.1. Requirement

According to FCC section 15.247(b)(1), for frequency hopping systems that operates in the 2400MHz to 2483.5MHz band employing at least 75 hopping channels, the maximum peak output power of the intentional radiator shall not exceed 1Watt. For all other frequency hopping systems in the 2400MHz to 2483.5MHz band, it is 0.125Watts.

3.6.2. Test Procedures

KDB 558074 Section 8.3.2 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.4 in this report.



3.7.20 dB Bandwidth

3.7.1.Requirement

According to FCC section 15.247(a)(1), the 20 dB bandwidth is known as the 99% emission bandwidth, or 20 dB bandwidth ($10 \cdot \log 1\% = 20 \text{ dB}$) taking the total RF output power.

3.7.1.Test Procedures

Use the following spectrum analyzer settings:

Span = between 2 to 5 times the OBW, centered on the test channel

RBW= 1% to 5% of the OBW

VBW $\geq 3 \times$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

3.7.2.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.7.3.Test Result

Refer to Annex A.5 in this report.



3.8. Carried Frequency Separation

3.8.1. Requirement

According to FCC section 15.247(a)(1), frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

3.8.2. Test Procedures

The EUT must have its hopping function enabled. According to DA 00-705, use the following spectrum analyzer settings:

Span = wide enough to capture the peaks of two adjacent channels

Resolution (or IF) Bandwidth (RBW) $\geq$ 1% of the span

Video (or Average) Bandwidth (VBW) $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels.

3.8.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.8.4. Test Result

Refer to Annex A.6 in this report.



3.9. Time of Occupancy (Dwell time)

3.9.1. Requirement

According to FCC section 15.247(a) (1) (iii), frequency hopping systems in the 2400 - 2483.5MHz band shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

3.9.2. Test Procedures

Normal Mode:

DH1: Dwell time equal to Pulse time (ms) $\times (1600 / 2 / 79) \times 31.6$ Millisecond
DH3: Dwell time equal to Pulse time (ms) $\times (1600 / 4 / 79) \times 31.6$ Millisecond
DH5: Dwell time equal to Pulse Time (ms) $\times (1600 / 6 / 79) \times 31.6$ Millisecond

AFH Mode:

DH1: Dwell time equal to Pulse time (ms) $\times (800 / 2 / 20) \times (0.4 \times 20)$ Millisecond
DH3: Dwell time equal to Pulse time (ms) $\times (800 / 4 / 20) \times (0.4 \times 20)$ Millisecond
DH5: Dwell time equal to Pulse Time (ms) $\times (800 / 6 / 20) \times (0.4 \times 20)$ Millisecond.

3.9.3. Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.9.4. Test Result

Refer to Annex A.7 in this report.



3.10. Conducted Spurious Emissions and Band Edge

3.10.1.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.

3.10.2.Test Procedures

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 100 kHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize.

3.10.3.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.10.4.Test Result

Refer to Annex A.8 and A.9 in this report.

3.11. Conducted Emission

3.11.1.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.

3.11.2.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.

3.11.3.Test Setup Layout

Refer to chapter 2.6.2 in this report.

3.11.4.Test Result

Refer to Annex A.10 in this report.

3.12. Restricted Frequency Bands

3.12.1.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).

3.12.2.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

3.12.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.12.4.Test Result

Refer to Annex A.11 in this report.

3.13. Radiated Emission

3.13.1.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 ($\mu\text{V/m}$)	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).



3.13.2.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.

3.13.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.13.4.Test Result

Refer to Annex A.12 in this report.



Annex A Test Data and Result

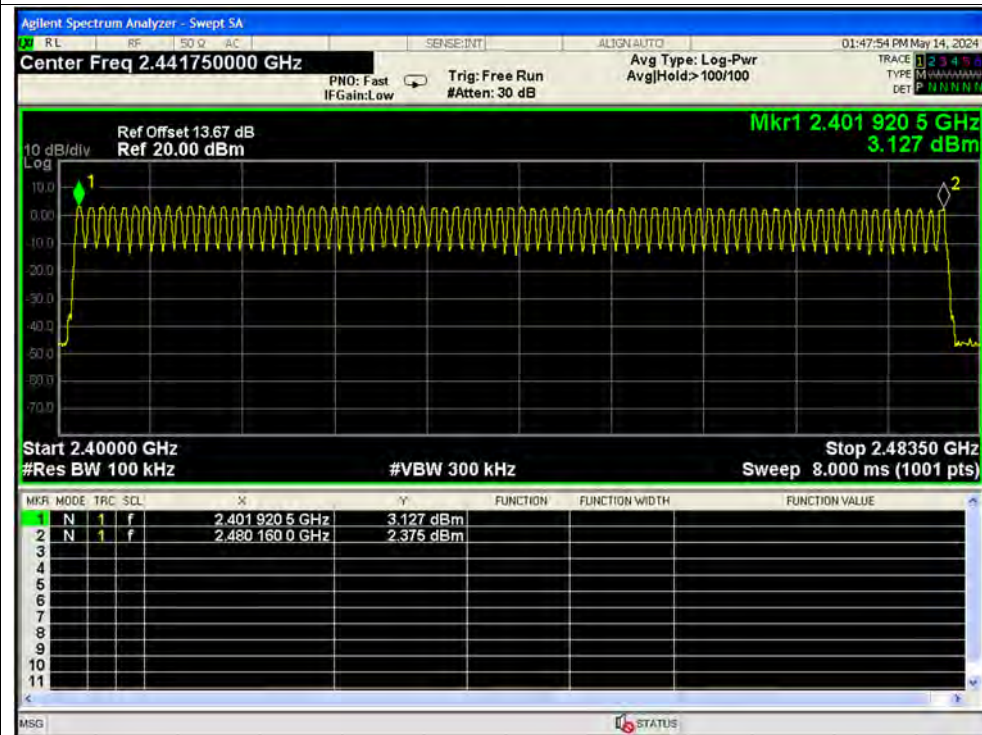
A.1. Number of Hopping Frequency

Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

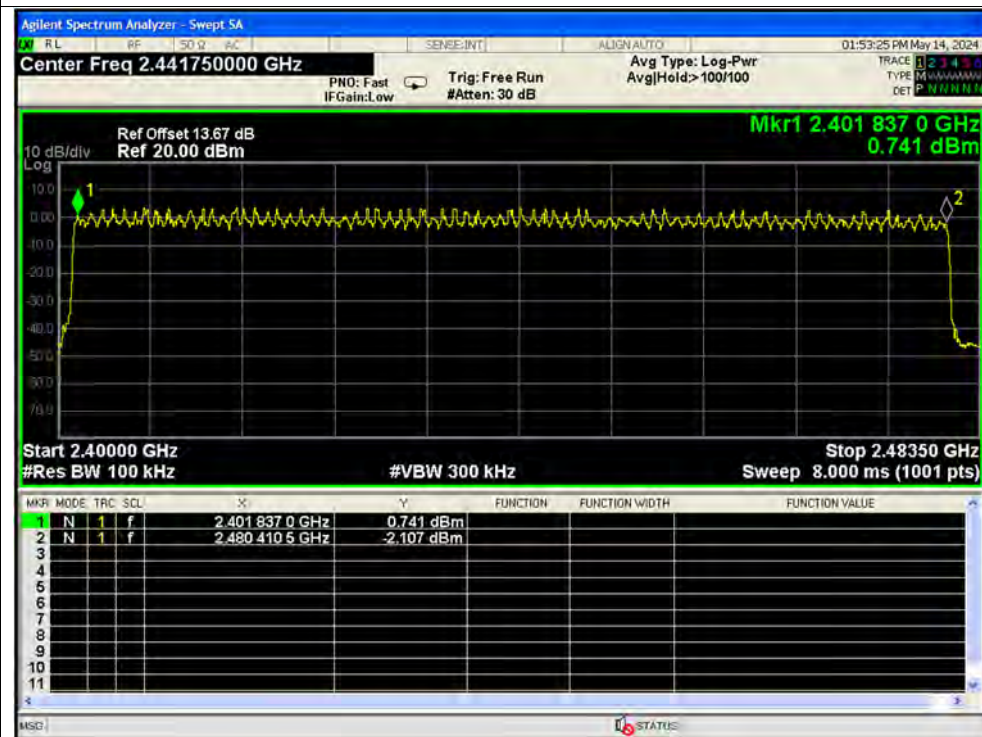


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1

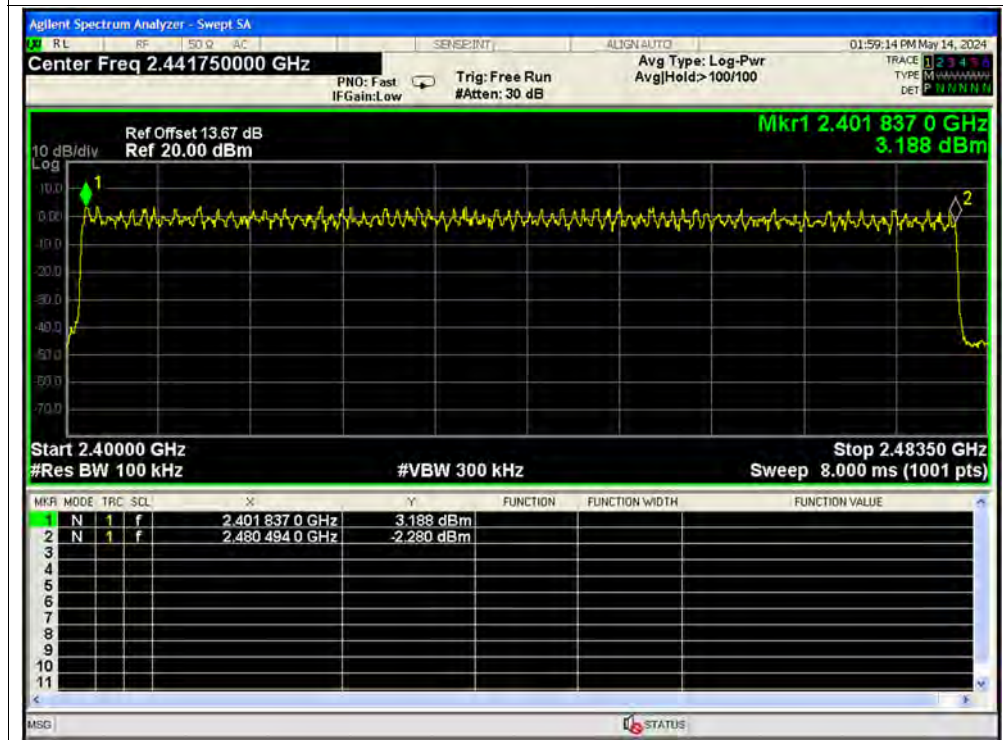


Hopping No. NVNT 2-DH5 2402MHz Ant1





Hopping No. NVNT 3-DH5 2402MHz Ant1

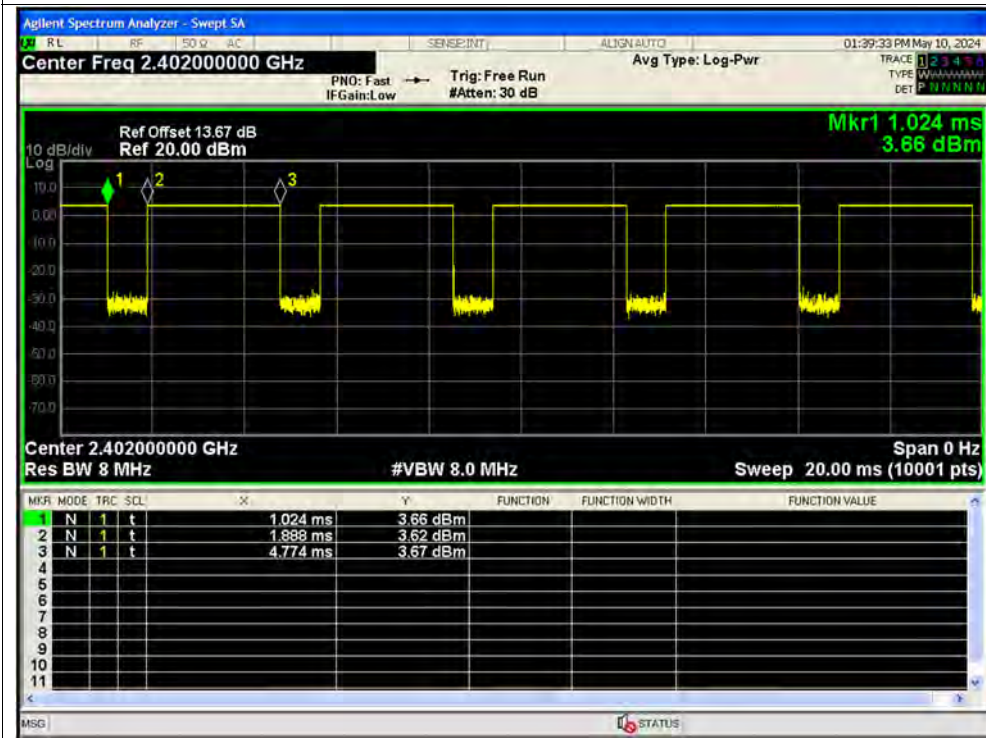


**A.2. Duty Cycle of Test Signal**

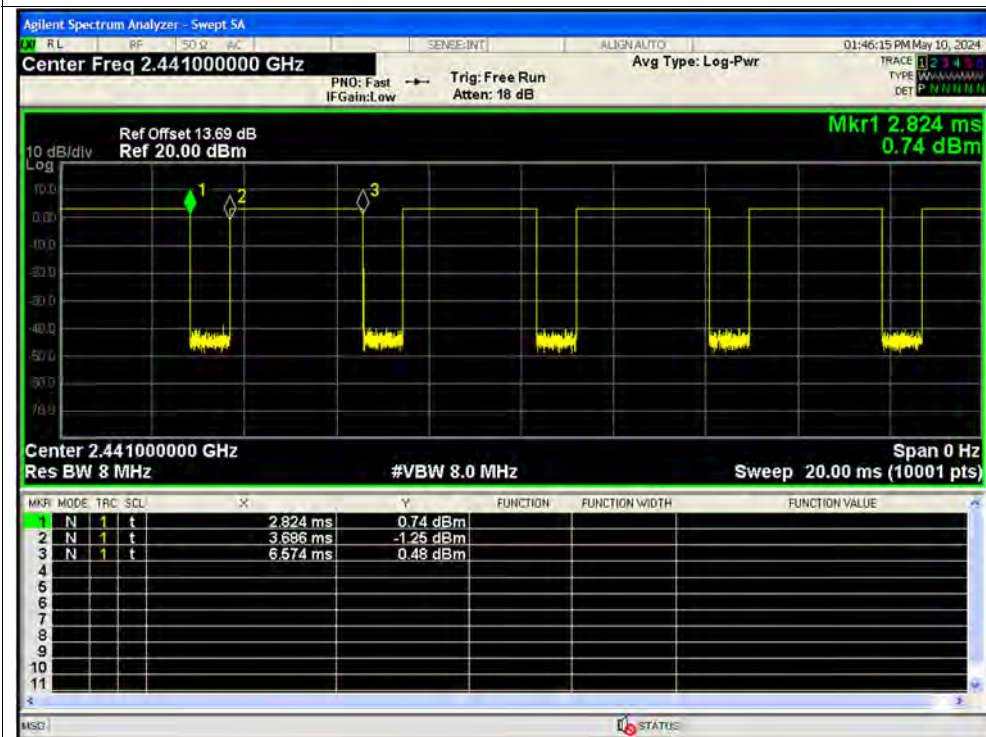
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	76.96	1.14	0.35
NVNT	1-DH5	2441	Ant1	77.01	1.13	0.35
NVNT	1-DH5	2480	Ant1	76.99	1.14	0.35
NVNT	2-DH5	2402	Ant1	77.12	1.13	0.35
NVNT	2-DH5	2441	Ant1	77.17	1.13	0.35
NVNT	2-DH5	2480	Ant1	77.12	1.13	0.35
NVNT	3-DH5	2402	Ant1	77.17	1.13	0.35
NVNT	3-DH5	2441	Ant1	77.17	1.13	0.35
NVNT	3-DH5	2480	Ant1	77.17	1.13	0.35

Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1

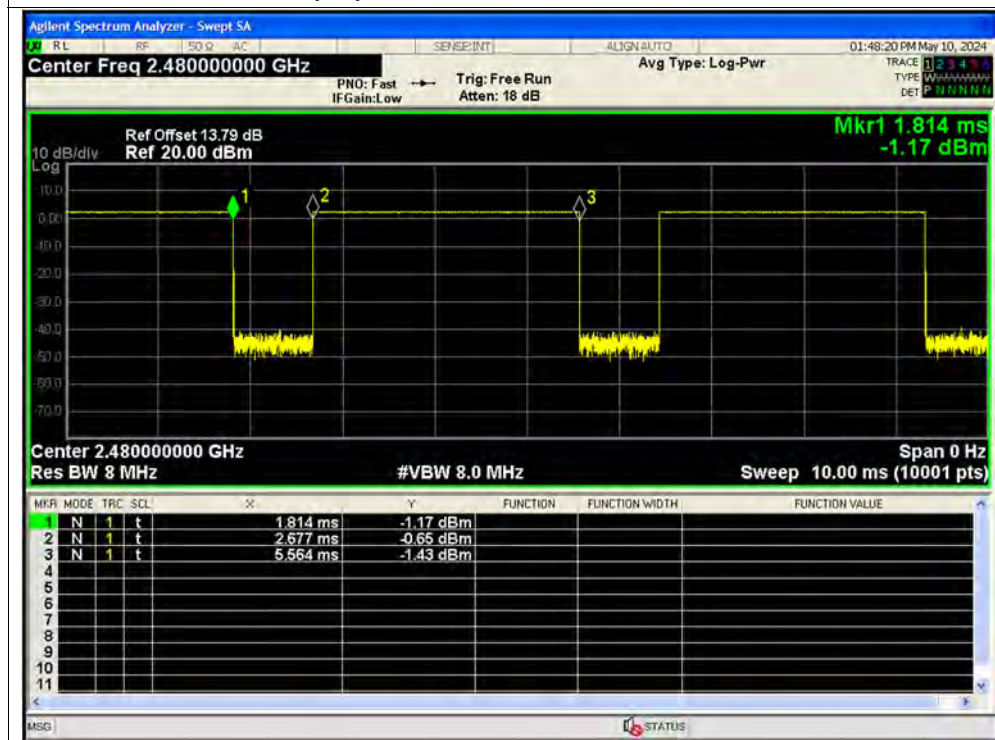


Duty Cycle NVNT 1-DH5 2441MHz Ant1

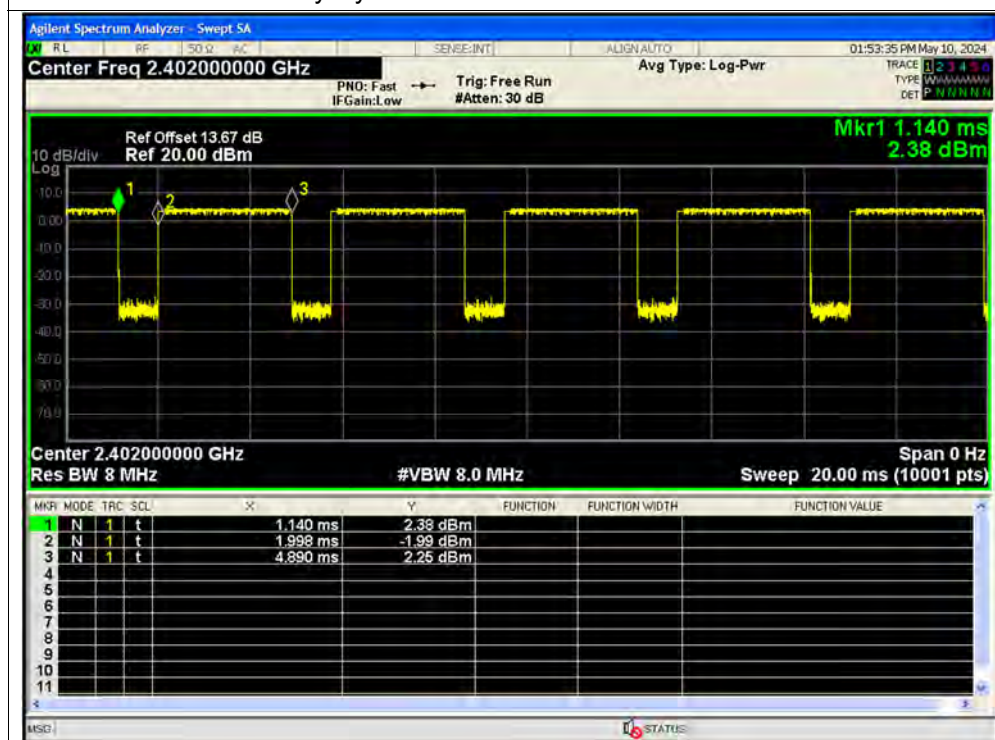




Duty Cycle NVNT 1-DH5 2480MHz Ant1

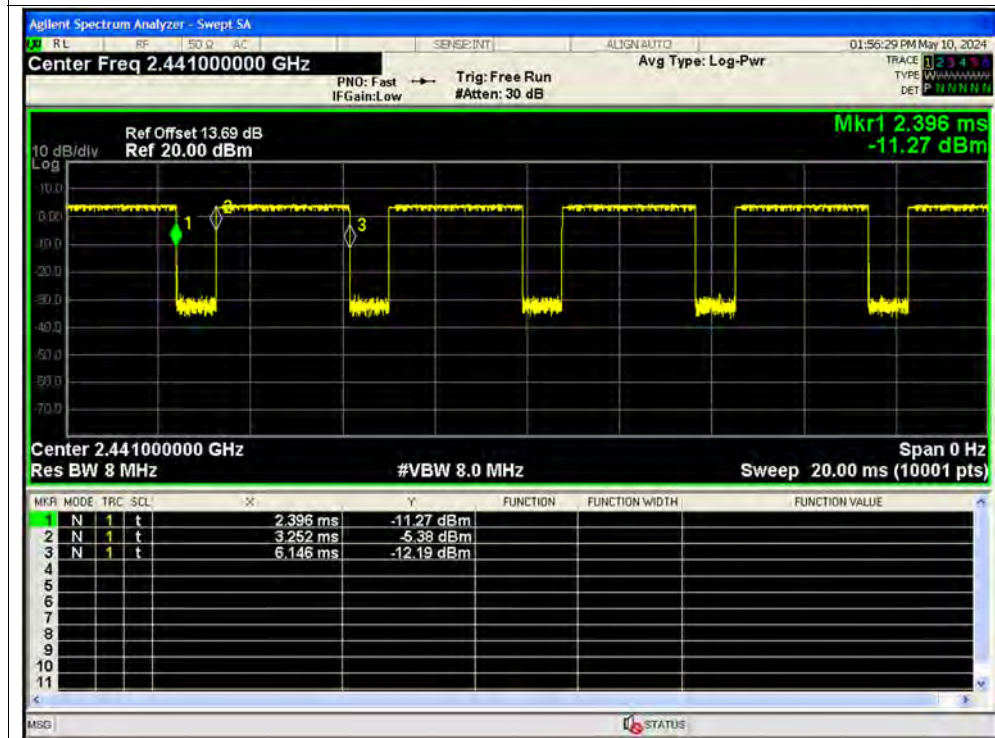


Duty Cycle NVNT 2-DH5 2402MHz Ant1

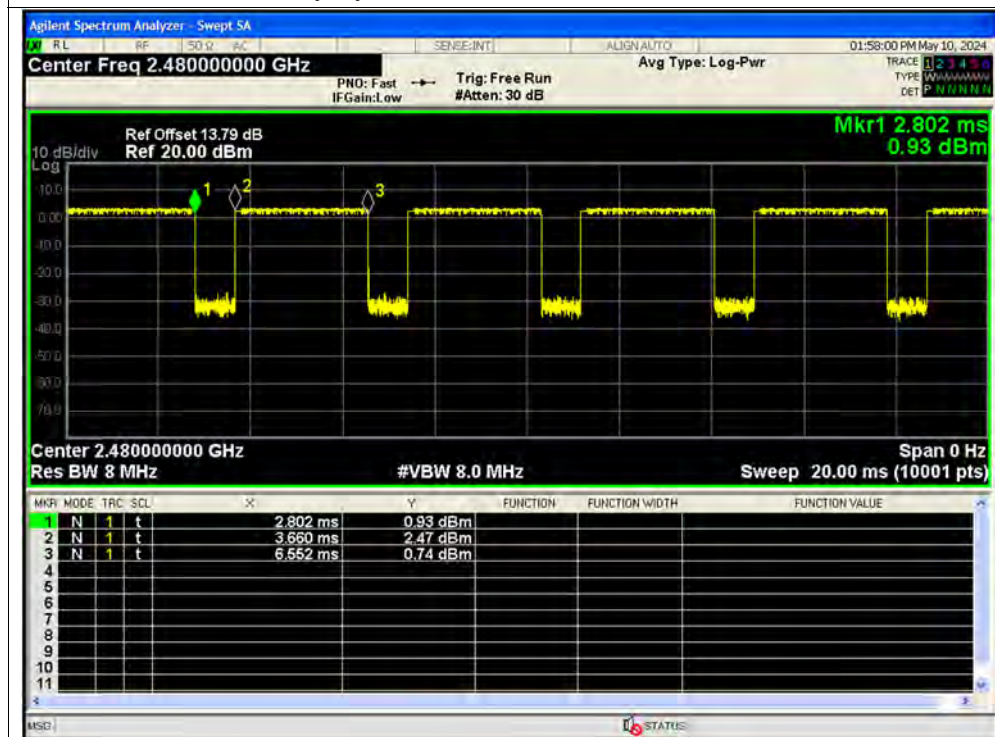




Duty Cycle NVNT 2-DH5 2441MHz Ant1

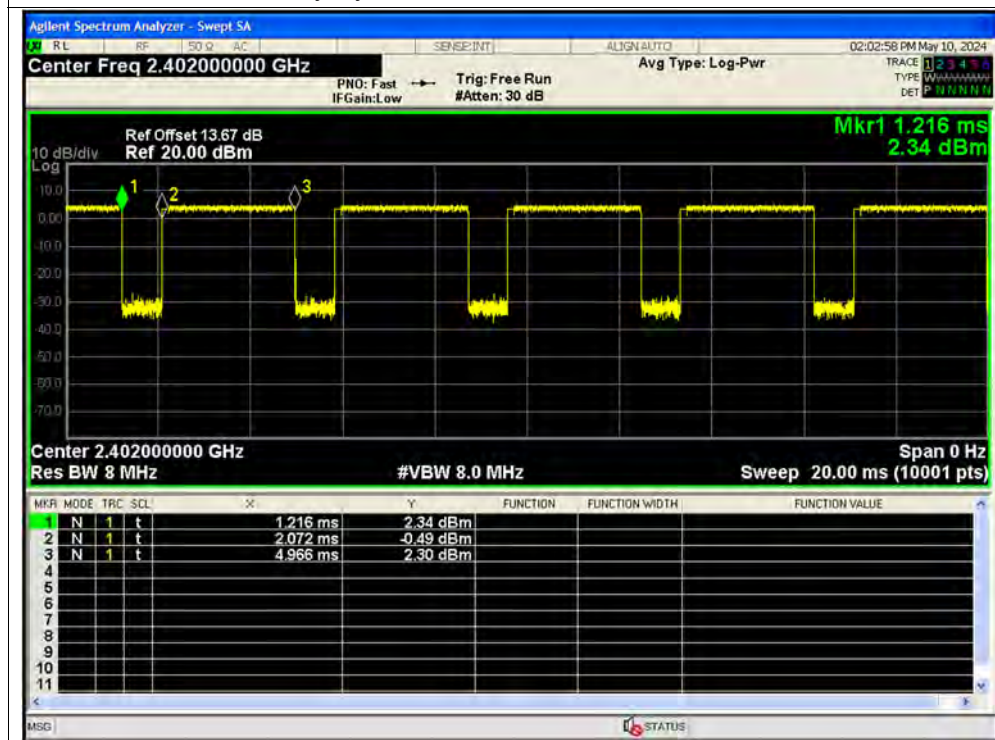


Duty Cycle NVNT 2-DH5 2480MHz Ant1

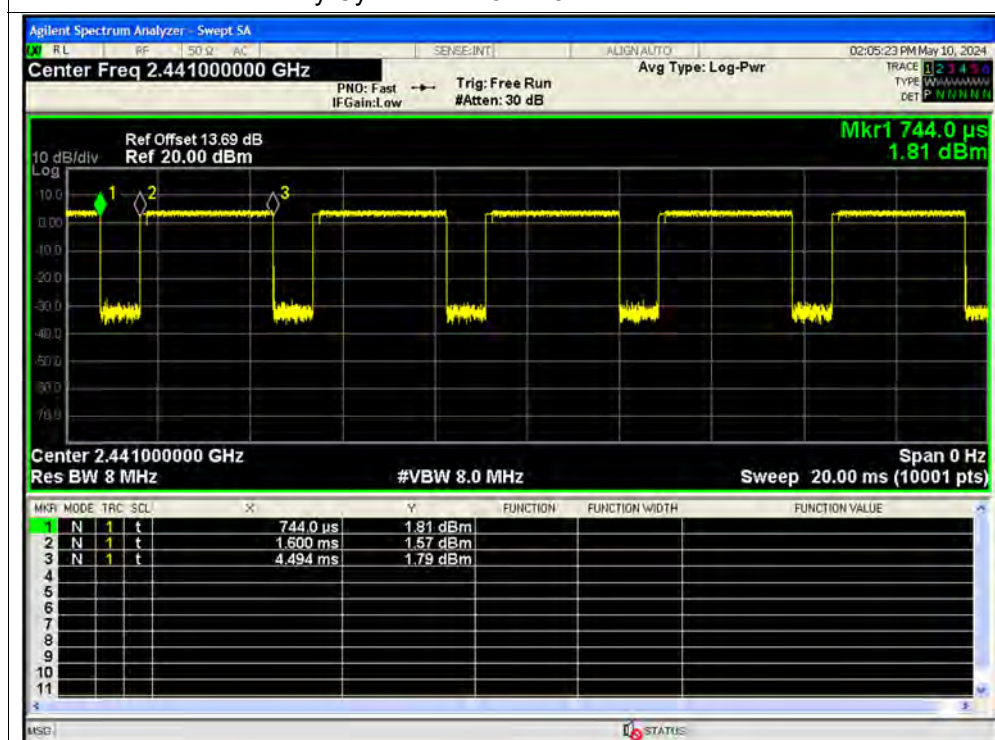


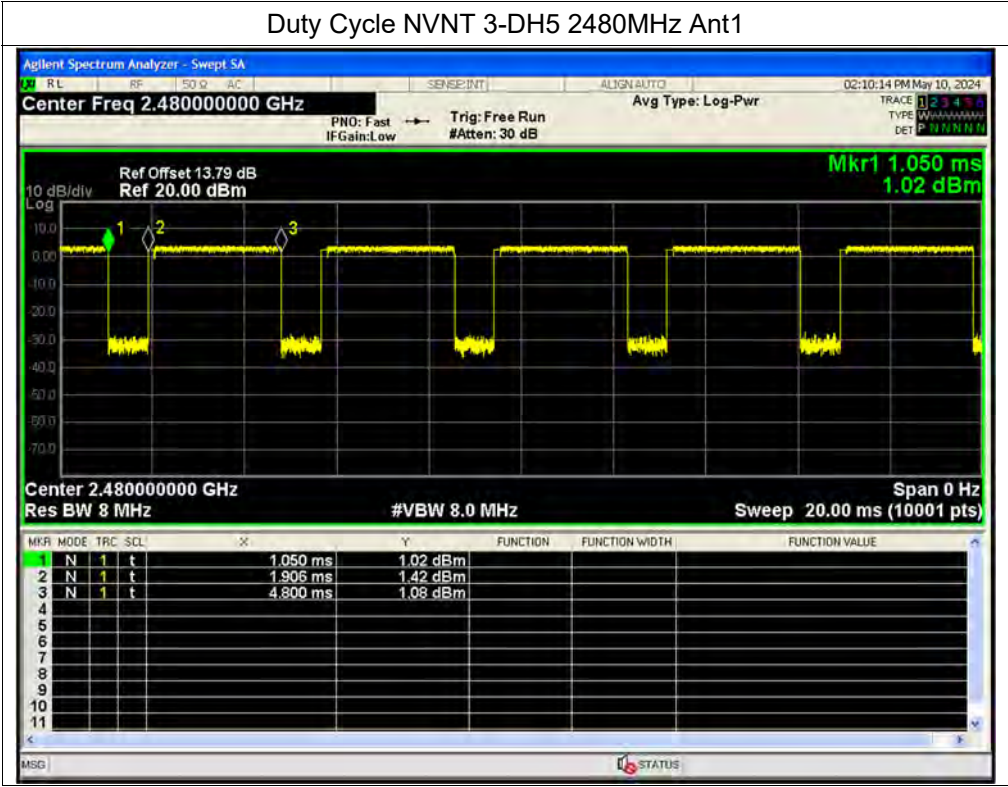


Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1





**A.3. 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	1-DH5	2402	Ant1	3.60	0	3.60	0.00229	30	Pass
NVNT	1-DH5	2441	Ant1	3.35	0	3.35	0.00216	30	Pass
NVNT	1-DH5	2480	Ant1	2.62	0	2.62	0.00183	30	Pass
NVNT	2-DH5	2402	Ant1	4.45	0	4.45	0.00279	30	Pass
NVNT	2-DH5	2441	Ant1	4.21	0	4.21	0.00264	30	Pass
NVNT	2-DH5	2480	Ant1	3.48	0	3.48	0.00223	30	Pass
NVNT	3-DH5	2402	Ant1	4.81	0	4.81	0.00303	30	Pass
NVNT	3-DH5	2441	Ant1	4.59	0	4.59	0.00288	30	Pass
NVNT	3-DH5	2480	Ant1	3.85	0	3.85	0.00243	30	Pass

Test Graphs

Peak Power NVNT 1-DH5 2402MHz Ant1



Peak Power NVNT 1-DH5 2441MHz Ant1



Peak Power NVNT 1-DH5 2480MHz Ant1



Peak Power NVNT 2-DH5 2402MHz Ant1



Peak Power NVNT 2-DH5 2441MHz Ant1



Peak Power NVNT 2-DH5 2480MHz Ant1





Peak Power NVNT 3-DH5 2402MHz Ant1



Peak Power NVNT 3-DH5 2441MHz Ant1





Peak Power NVNT 3-DH5 2480MHz Ant1



**A.4. 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	1-DH5	2402	Ant1	2.26	1.14	3.40	0.00219	30	Pass
NVNT	1-DH5	2441	Ant1	2.19	1.13	3.32	0.00215	30	Pass
NVNT	1-DH5	2480	Ant1	1.32	1.14	2.46	0.00176	30	Pass
NVNT	2-DH5	2402	Ant1	0.93	1.13	2.06	0.00161	30	Pass
NVNT	2-DH5	2441	Ant1	0.44	1.13	1.57	0.00144	30	Pass
NVNT	2-DH5	2480	Ant1	-0.35	1.13	0.78	0.0012	30	Pass
NVNT	3-DH5	2402	Ant1	0.91	1.13	2.04	0.0016	30	Pass
NVNT	3-DH5	2441	Ant1	0.61	1.13	1.74	0.00149	30	Pass
NVNT	3-DH5	2480	Ant1	0	1.13	1.13	0.0013	30	Pass



Test Graphs

Average Power NVNT 1-DH5 2402MHz Ant1



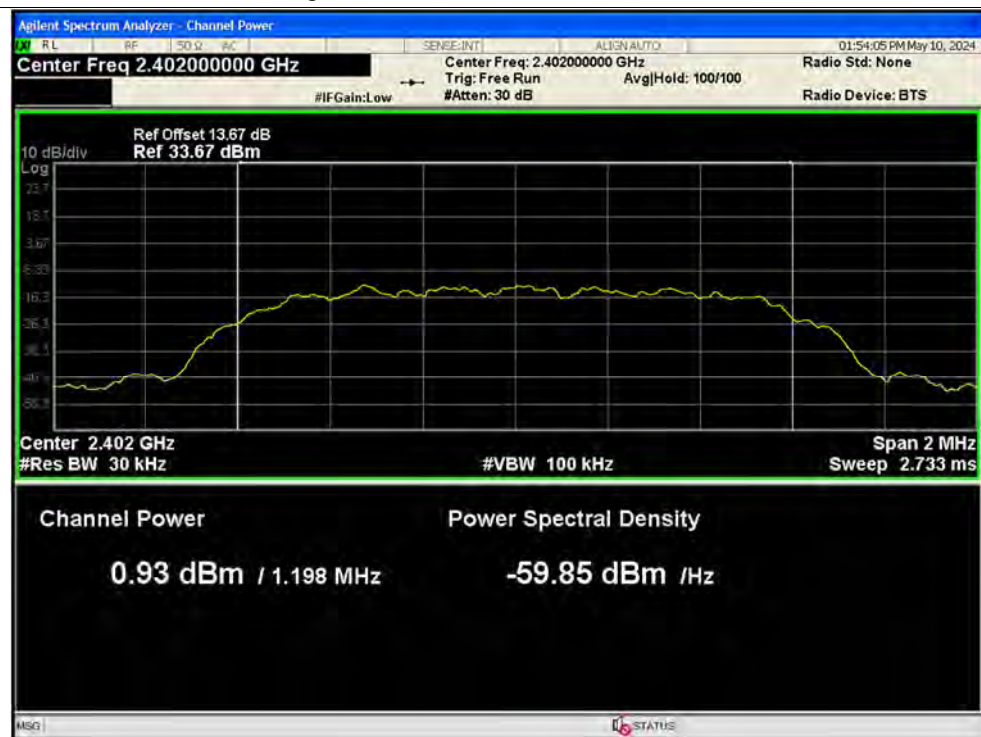
Average Power NVNT 1-DH5 2441MHz Ant1



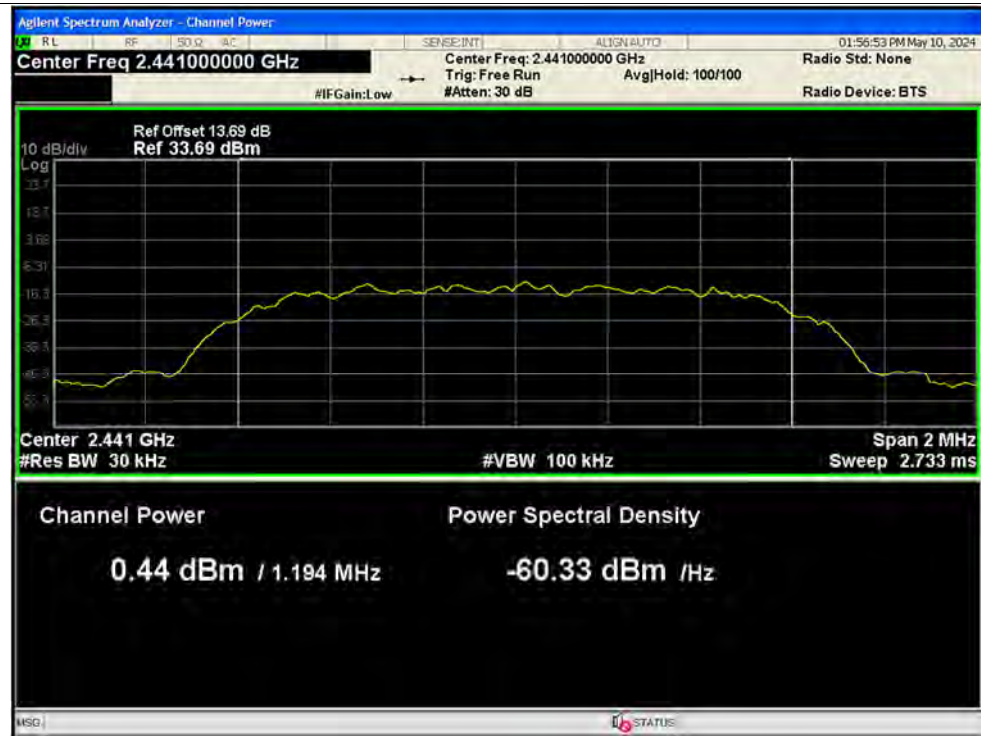
Average Power NVNT 1-DH5 2480MHz Ant1



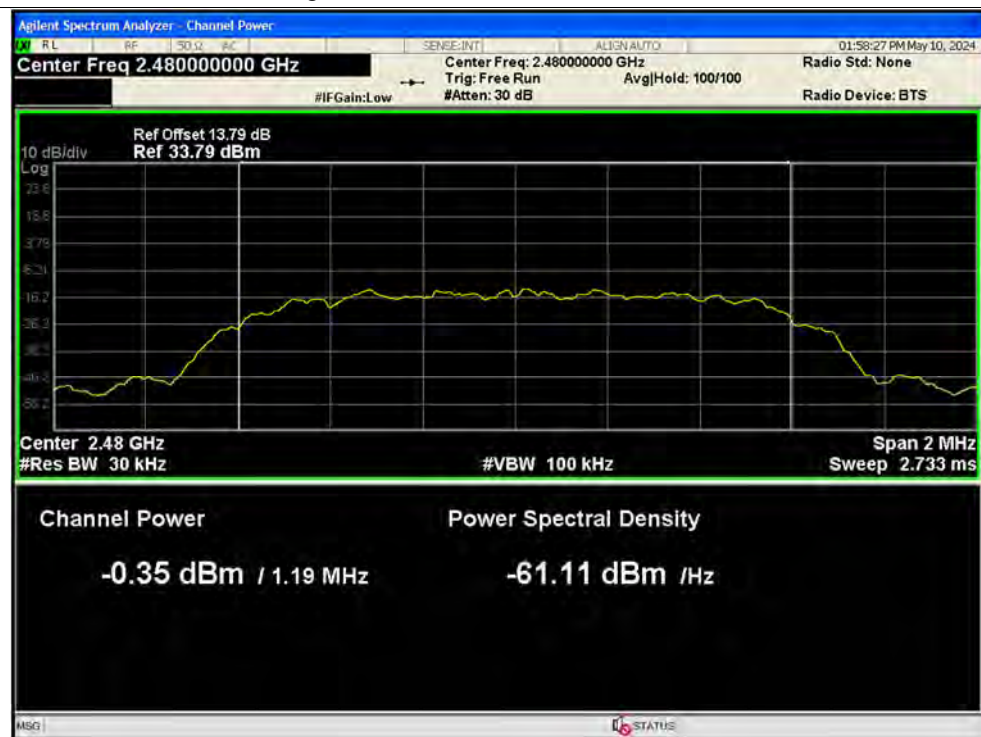
Average Power NVNT 2-DH5 2402MHz Ant1



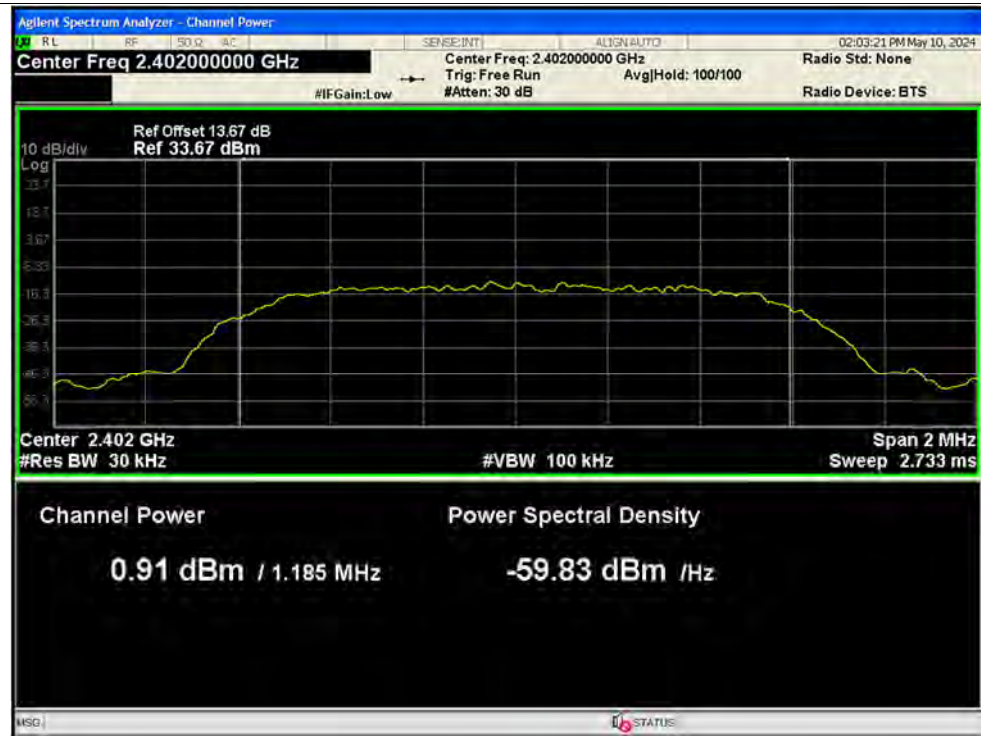
Average Power NVNT 2-DH5 2441MHz Ant1



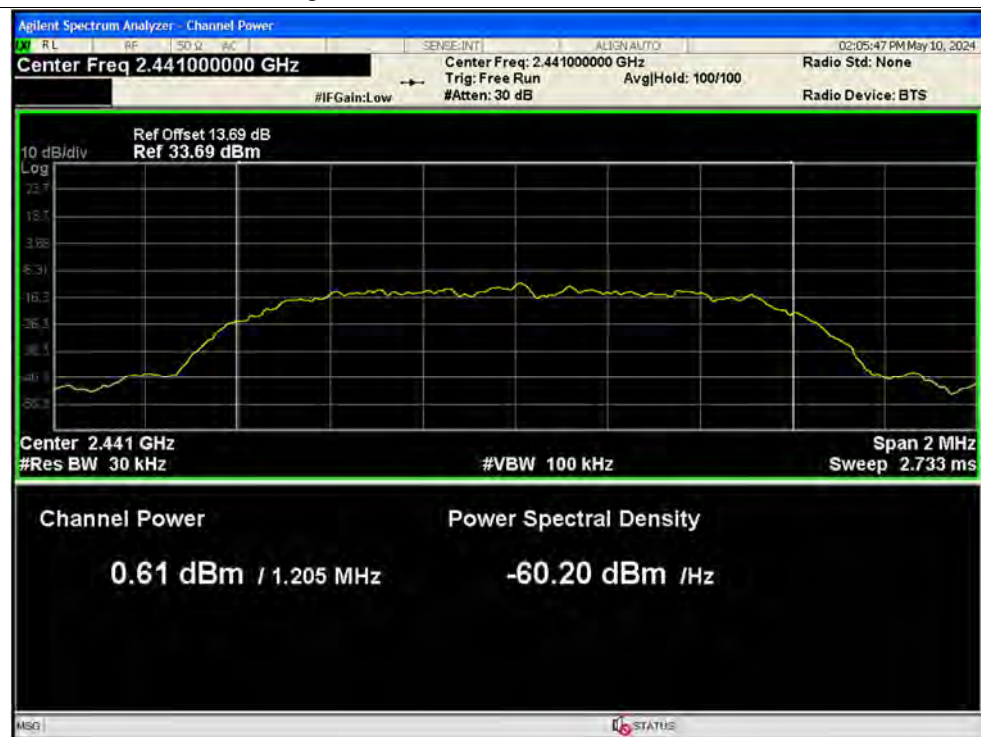
Average Power NVNT 2-DH5 2480MHz Ant1



Average Power NVNT 3-DH5 2402MHz Ant1

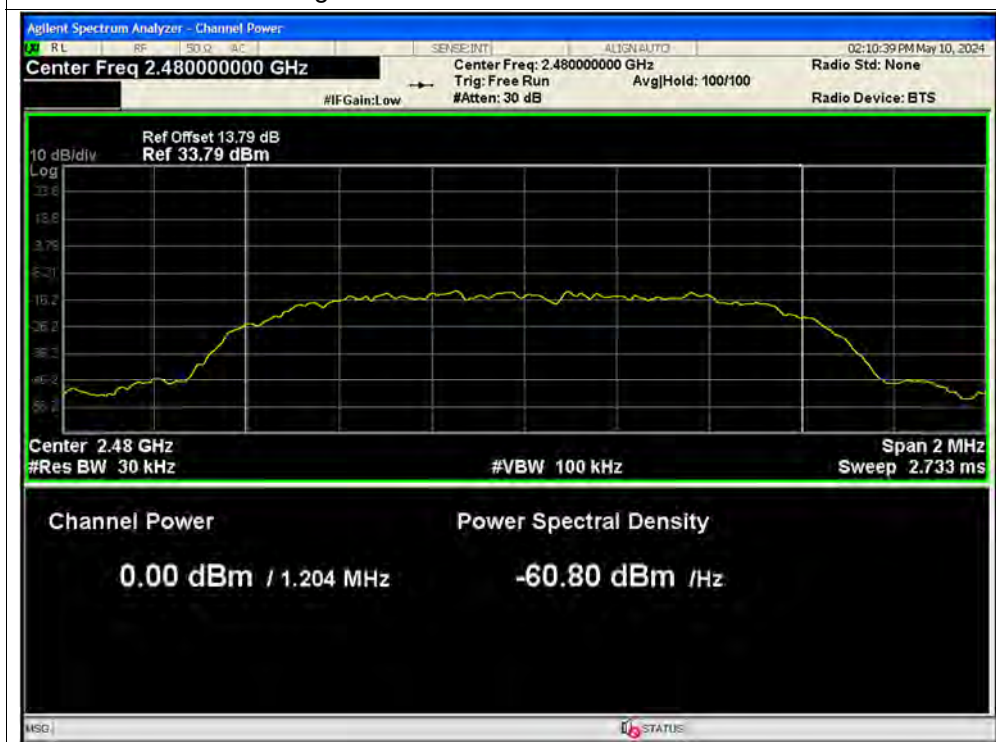


Average Power NVNT 3-DH5 2441MHz Ant1





Average Power NVNT 3-DH5 2480MHz Ant1



**A.5. 20 dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)
NVNT	1-DH5	2402	Ant1	0.998
NVNT	1-DH5	2441	Ant1	0.992
NVNT	1-DH5	2480	Ant1	0.955
NVNT	2-DH5	2402	Ant1	1.280
NVNT	2-DH5	2441	Ant1	1.273
NVNT	2-DH5	2480	Ant1	1.310
NVNT	3-DH5	2402	Ant1	1.277
NVNT	3-DH5	2441	Ant1	1.290
NVNT	3-DH5	2480	Ant1	1.308



Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

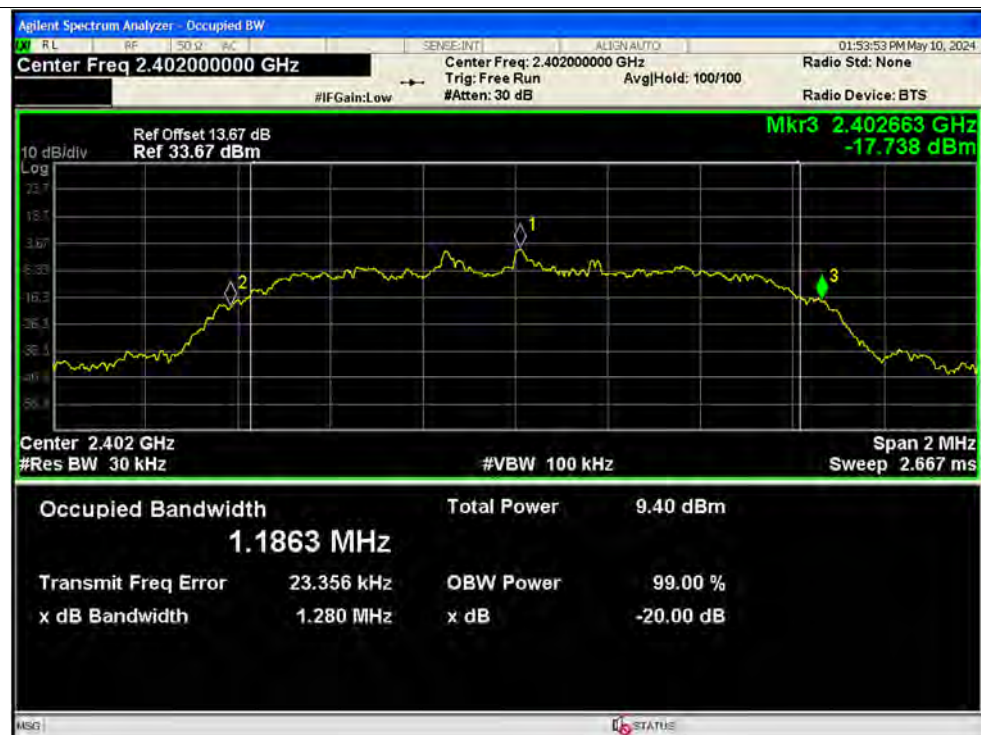




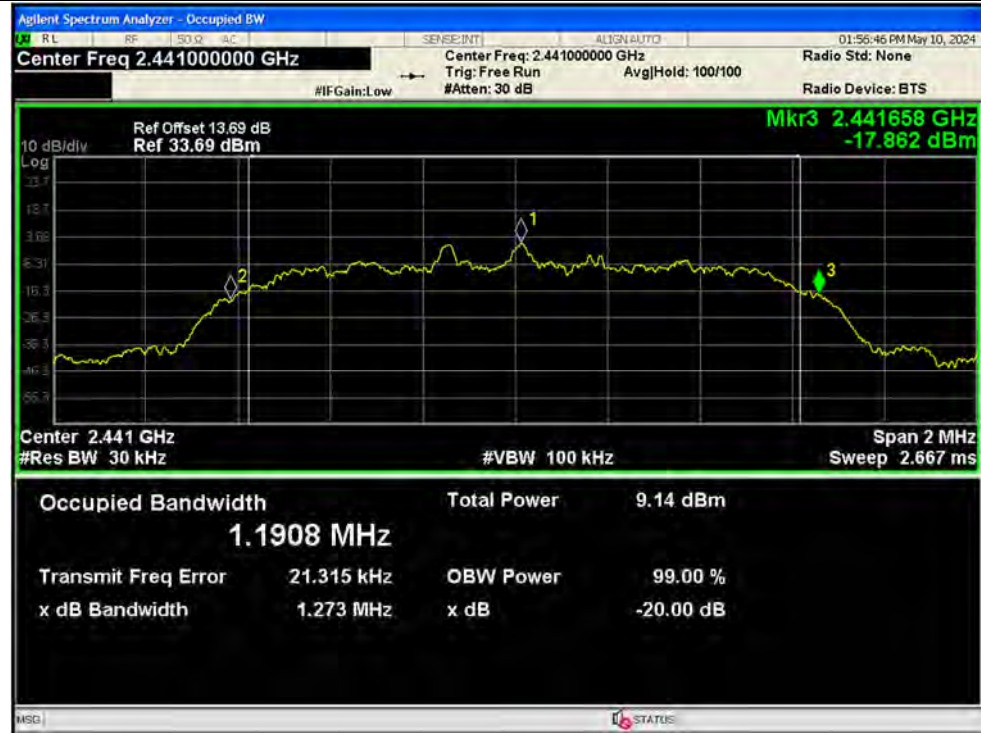
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



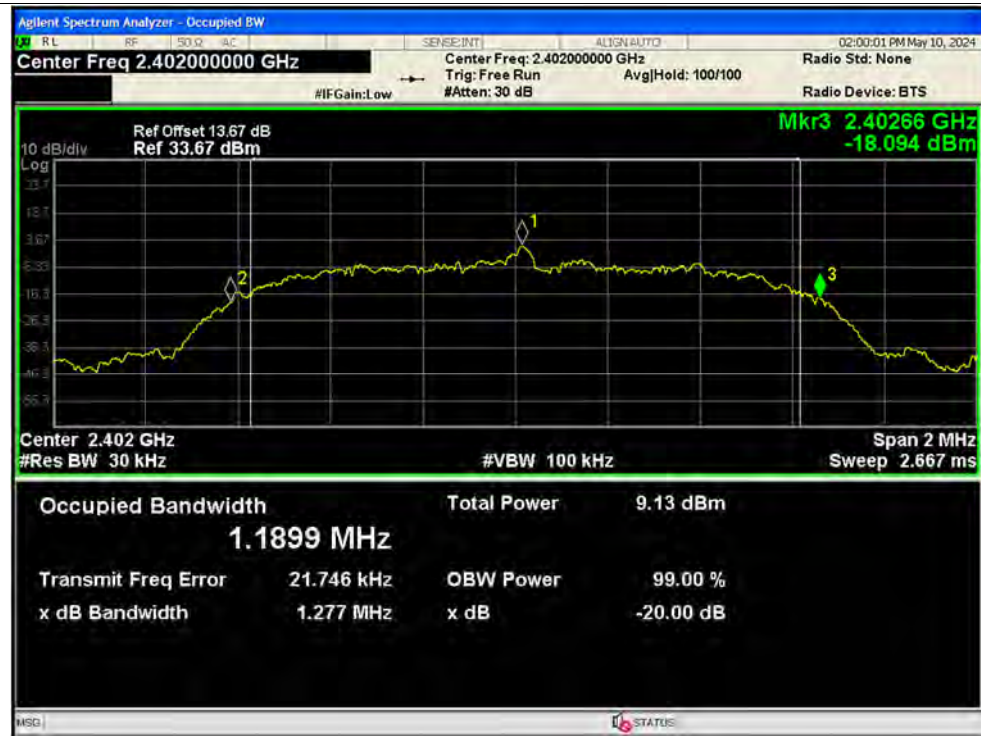
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



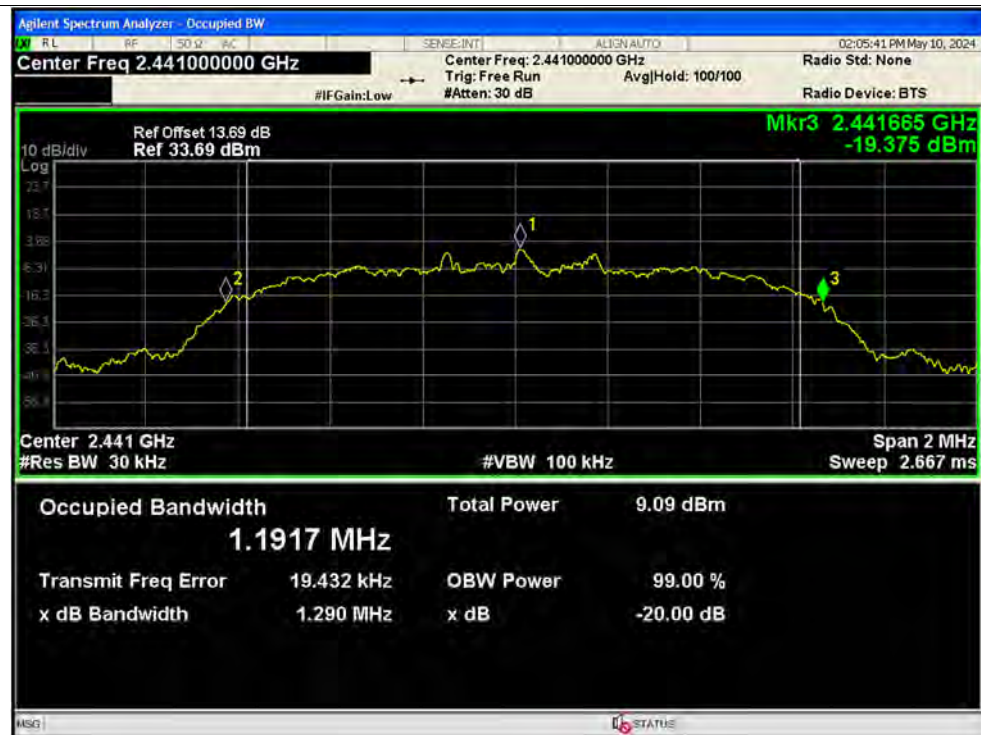
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1

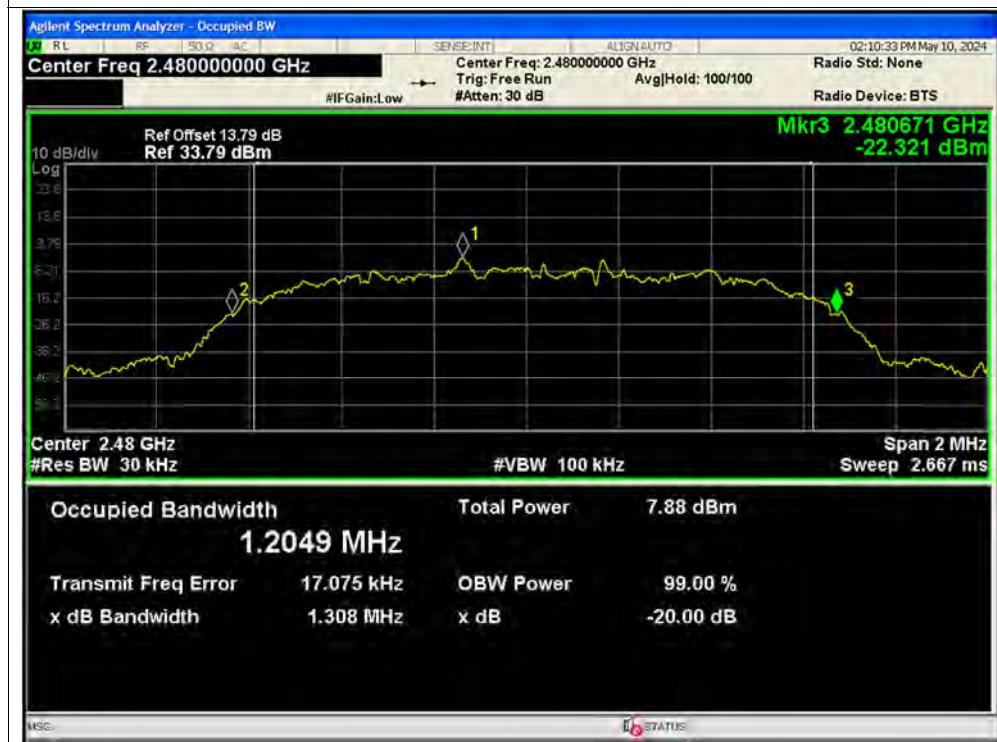


-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





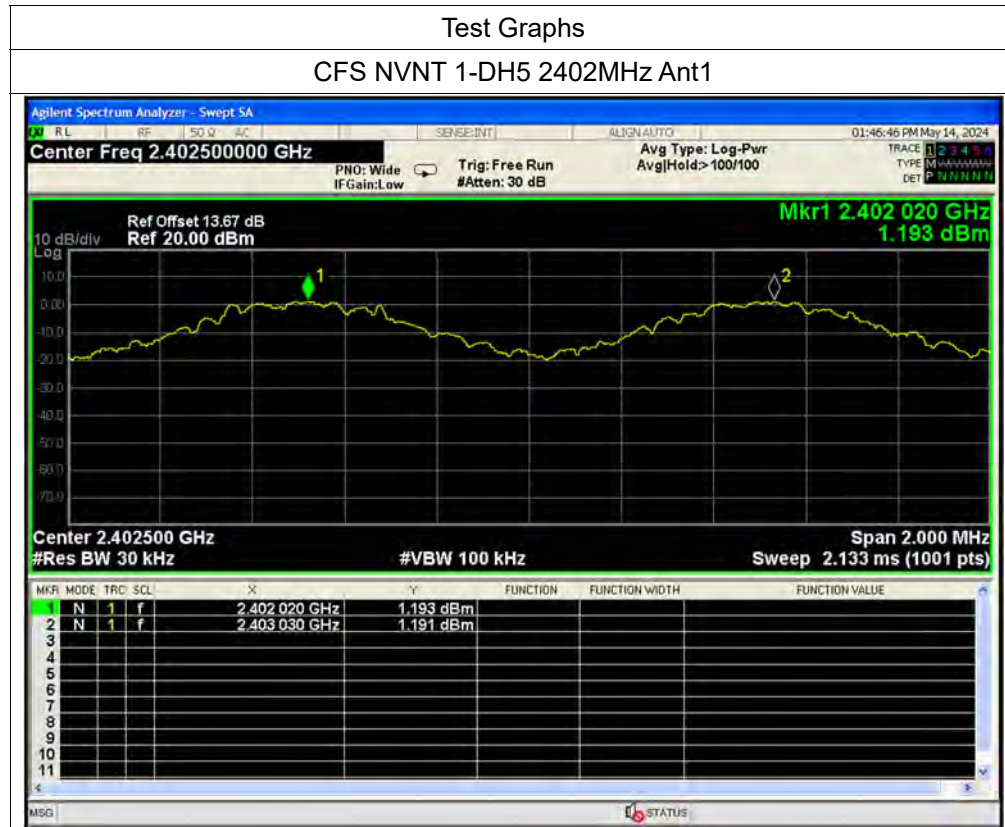
-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1





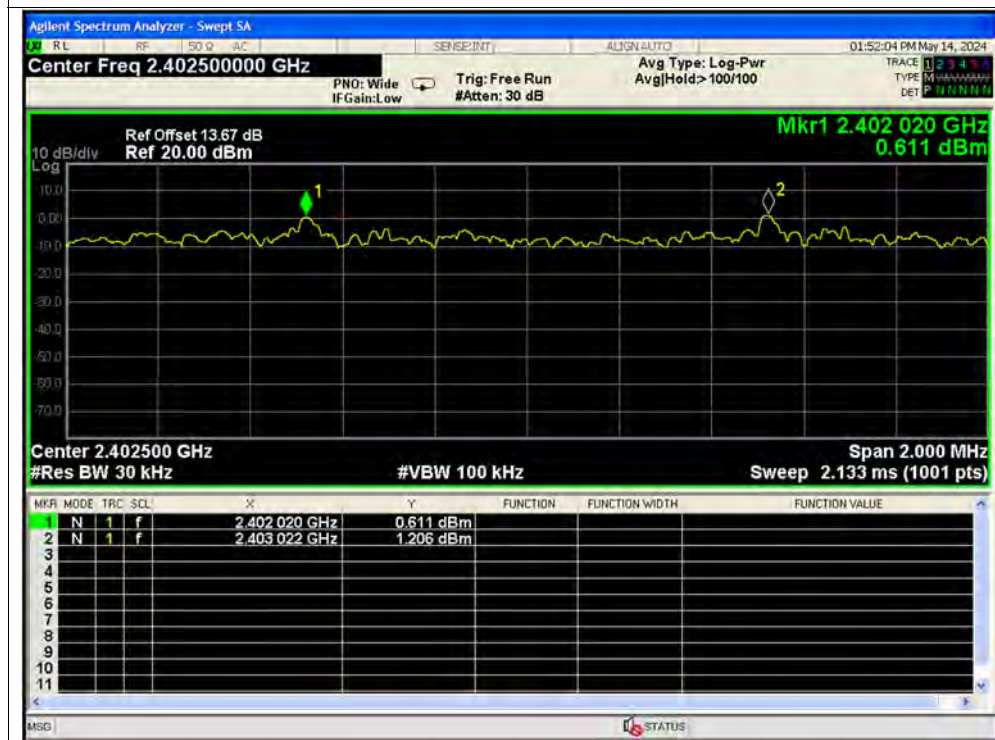
A.6. Carried Frequency Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.020	2403.030	1.010	0.665	Pass
NVNT	2-DH5	Ant1	2402.020	2403.022	1.002	0.853	Pass
NVNT	3-DH5	Ant1	2402.002	2402.854	0.852	0.851	Pass

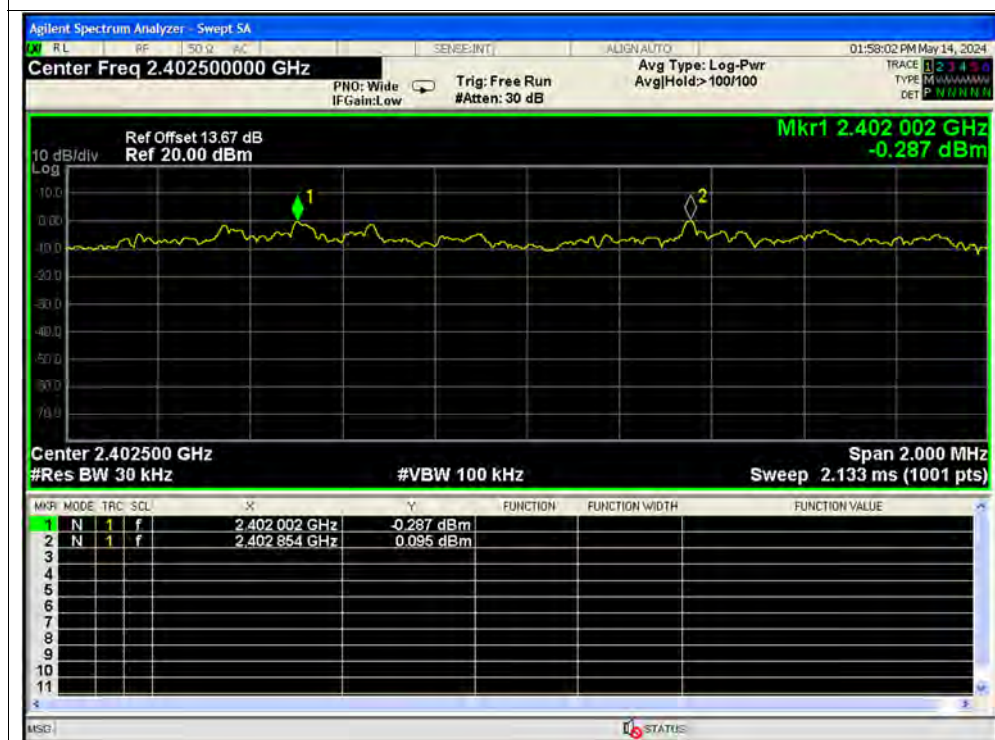




CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

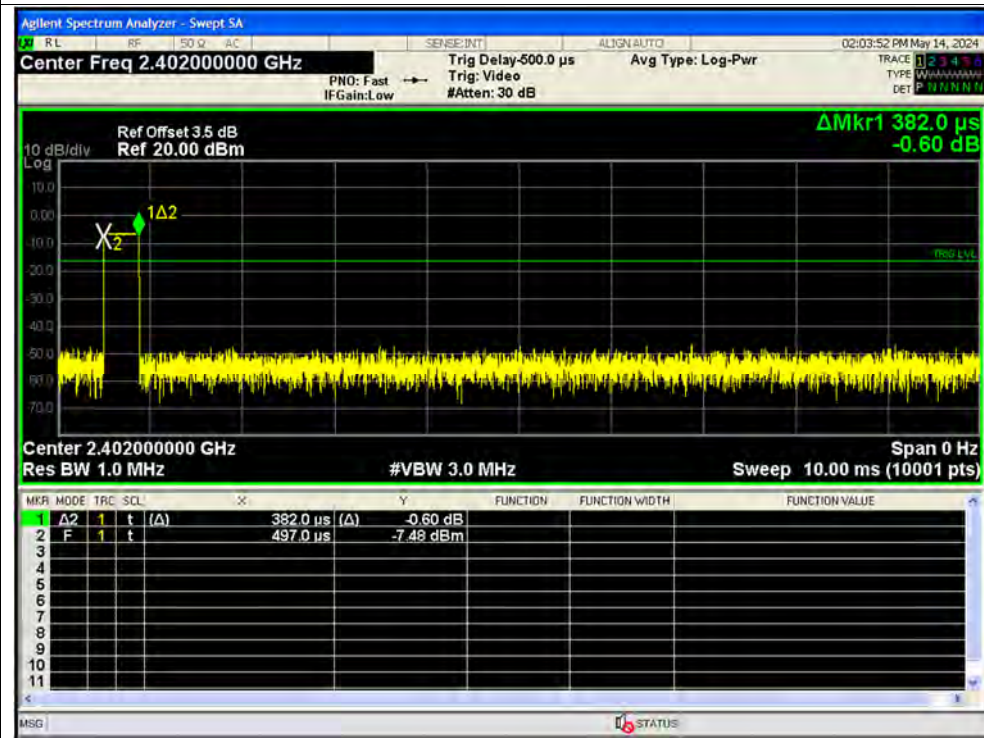


**A.7. Time of Occupancy (Dwell time)**

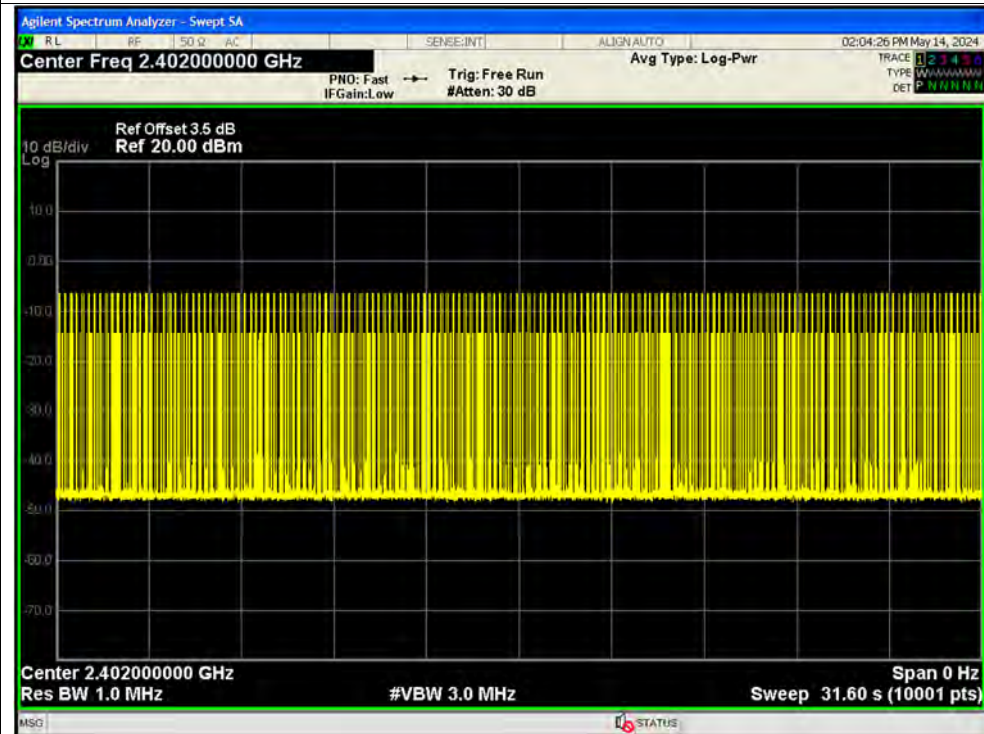
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2402	Ant1	0.382	120.712	316	31600	400	Pass
NVNT	1-DH3	2402	Ant1	1.638	266.994	163	31600	400	Pass
NVNT	1-DH5	2402	Ant1	2.887	265.604	92	31600	400	Pass
NVNT	2-DH1	2402	Ant1	0.392	125.048	319	31600	400	Pass
NVNT	2-DH3	2402	Ant1	1.644	246.6	150	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.892	294.984	102	31600	400	Pass
NVNT	3-DH1	2402	Ant1	0.392	125.048	319	31600	400	Pass
NVNT	3-DH3	2402	Ant1	1.643	267.809	163	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.894	312.552	108	31600	400	Pass

Test Graphs

Dwell NVNT 1-DH1 2402MHz Ant1 One Burst

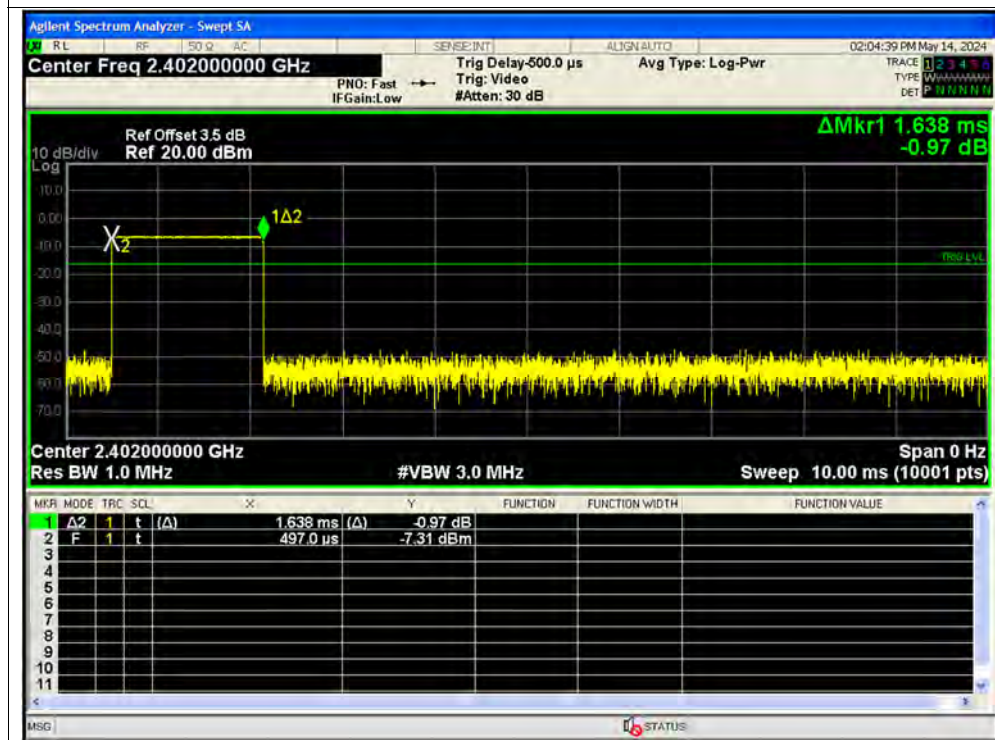


Dwell NVNT 1-DH1 2402MHz Ant1 Accumulated

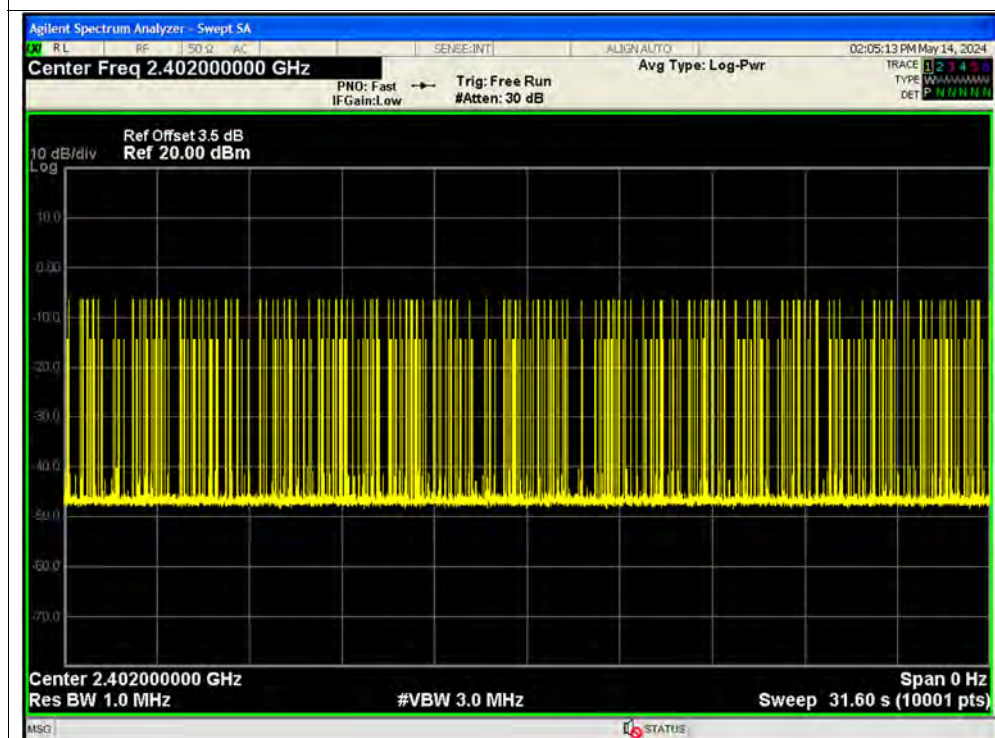




Dwell NVNT 1-DH3 2402MHz Ant1 One Burst

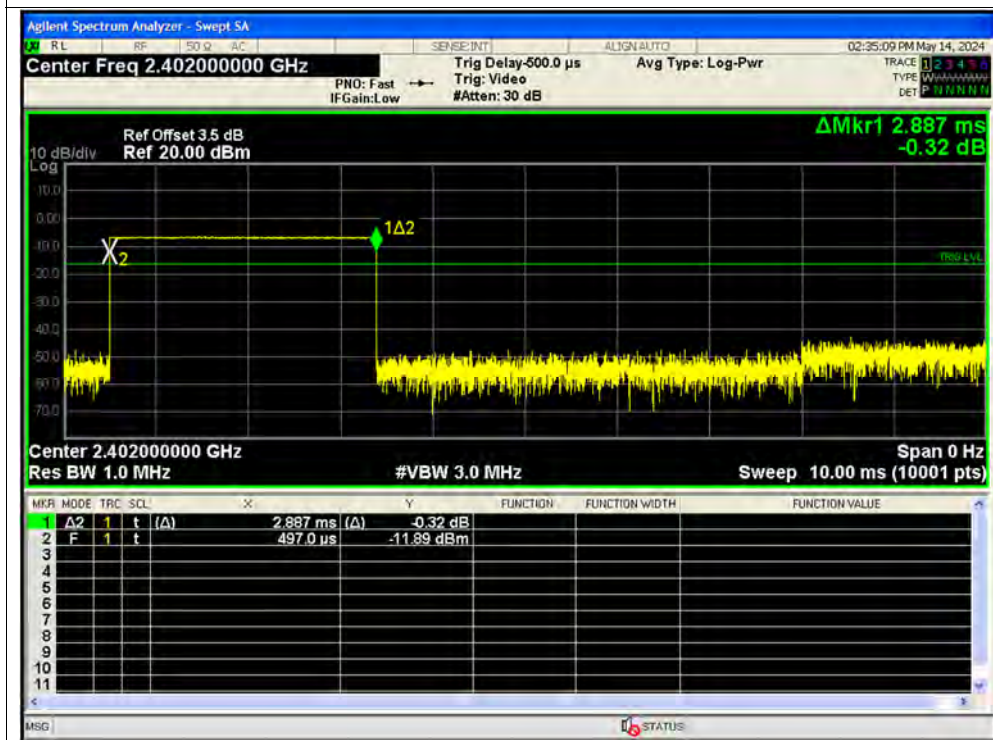


Dwell NVNT 1-DH3 2402MHz Ant1 Accumulated

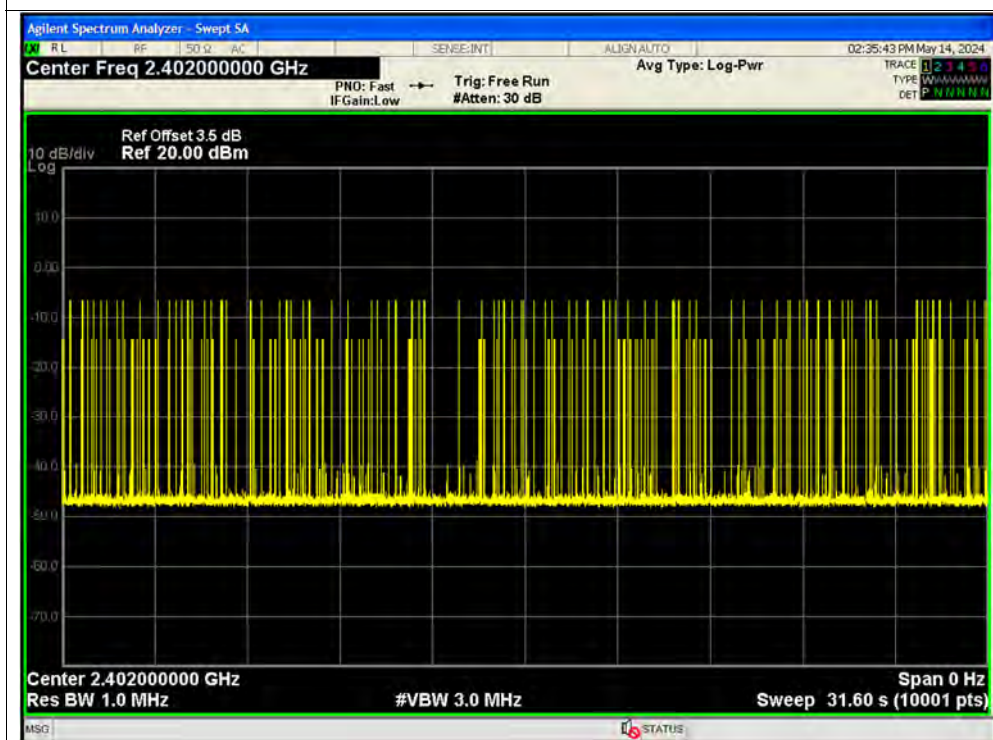




Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

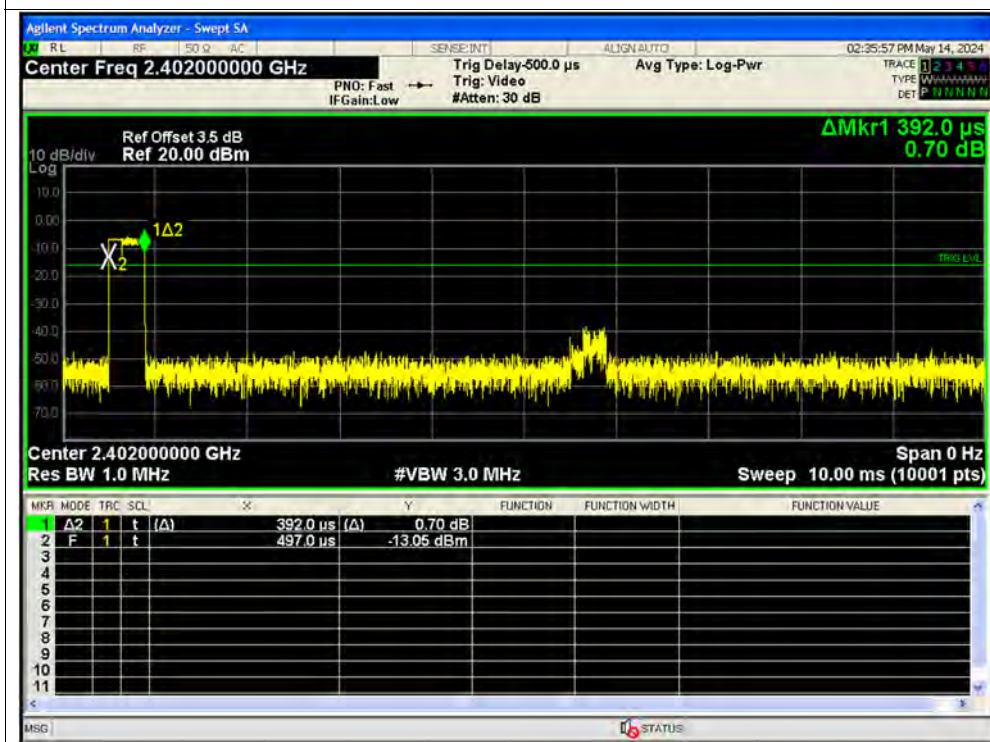


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated

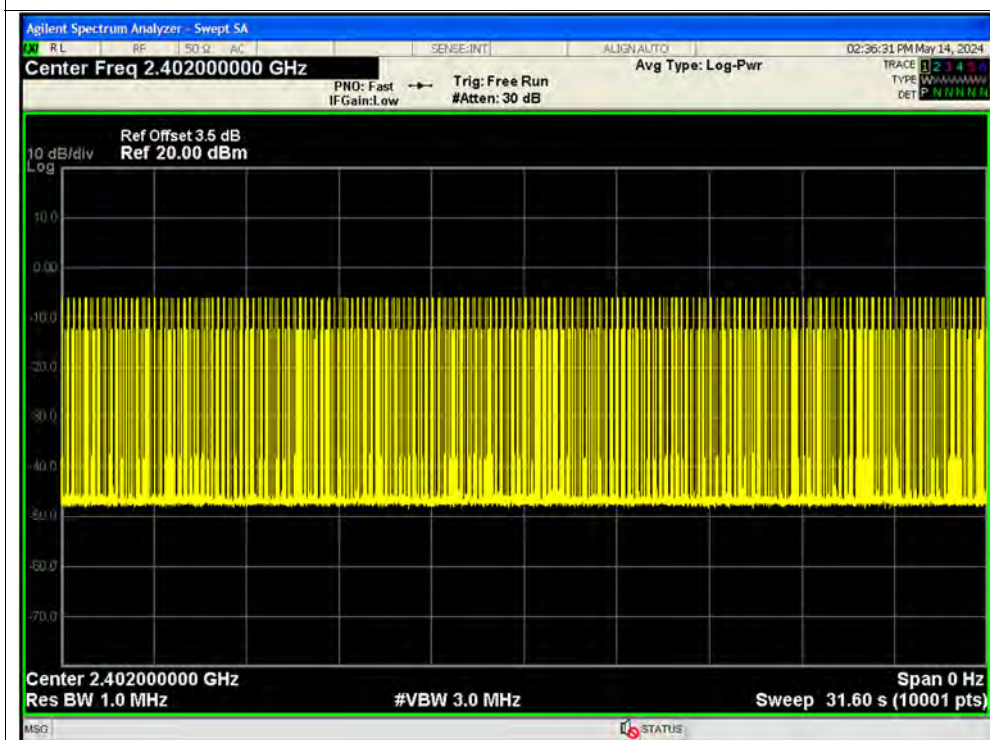




Dwell NVNT 2-DH1 2402MHz Ant1 One Burst

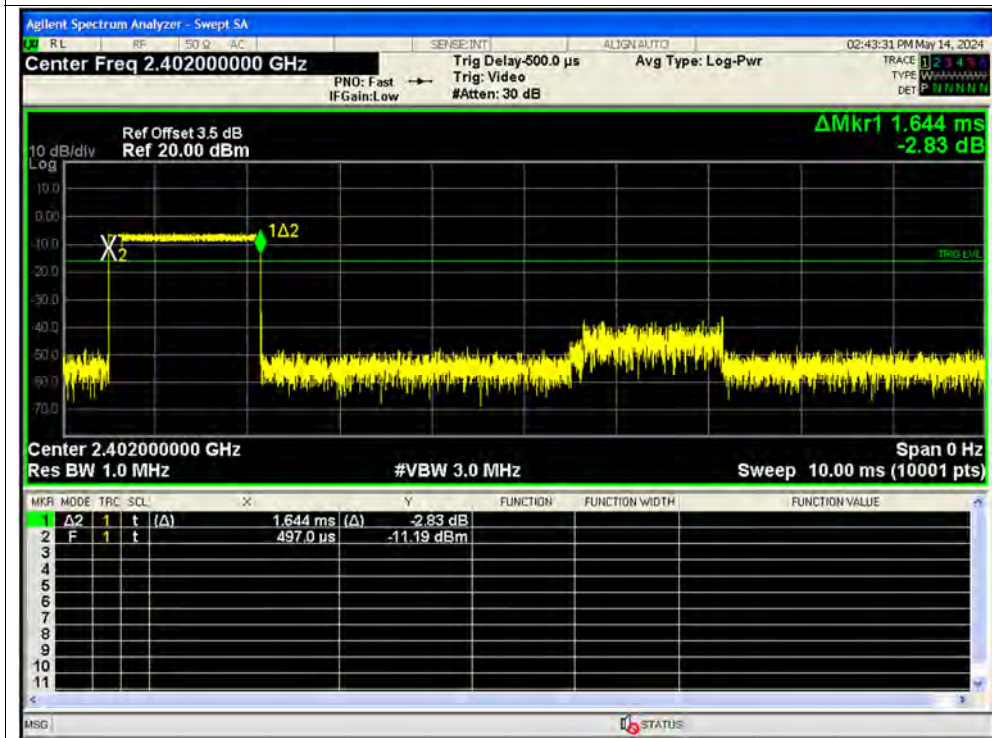


Dwell NVNT 2-DH1 2402MHz Ant1 Accumulated

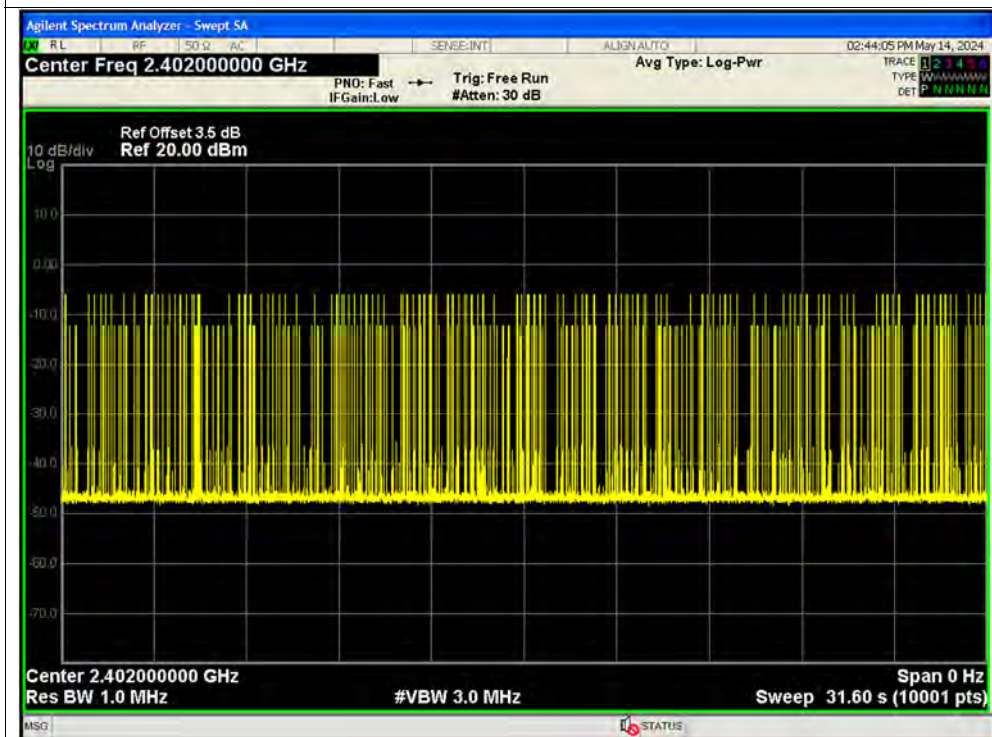




Dwell NVNT 2-DH3 2402MHz Ant1 One Burst

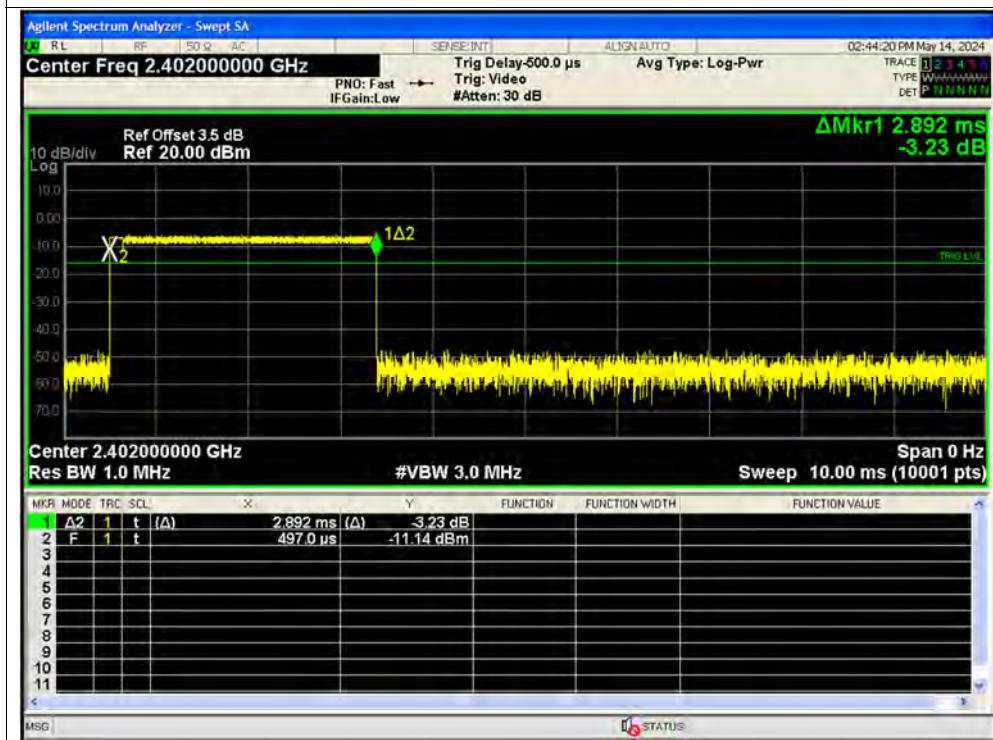


Dwell NVNT 2-DH3 2402MHz Ant1 Accumulated

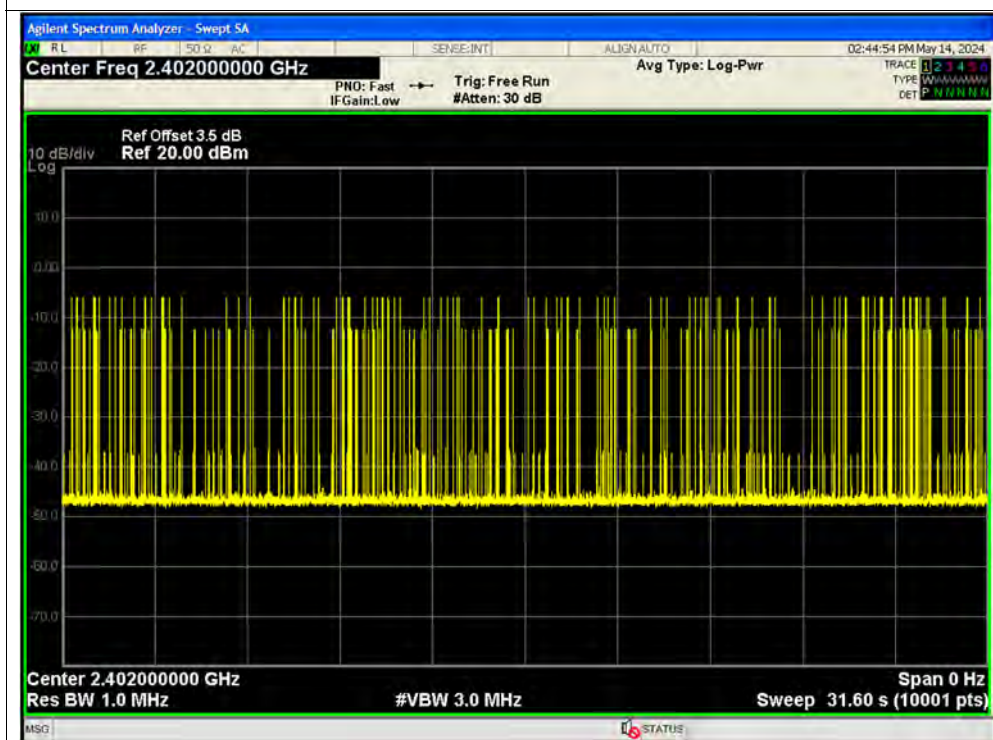




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst

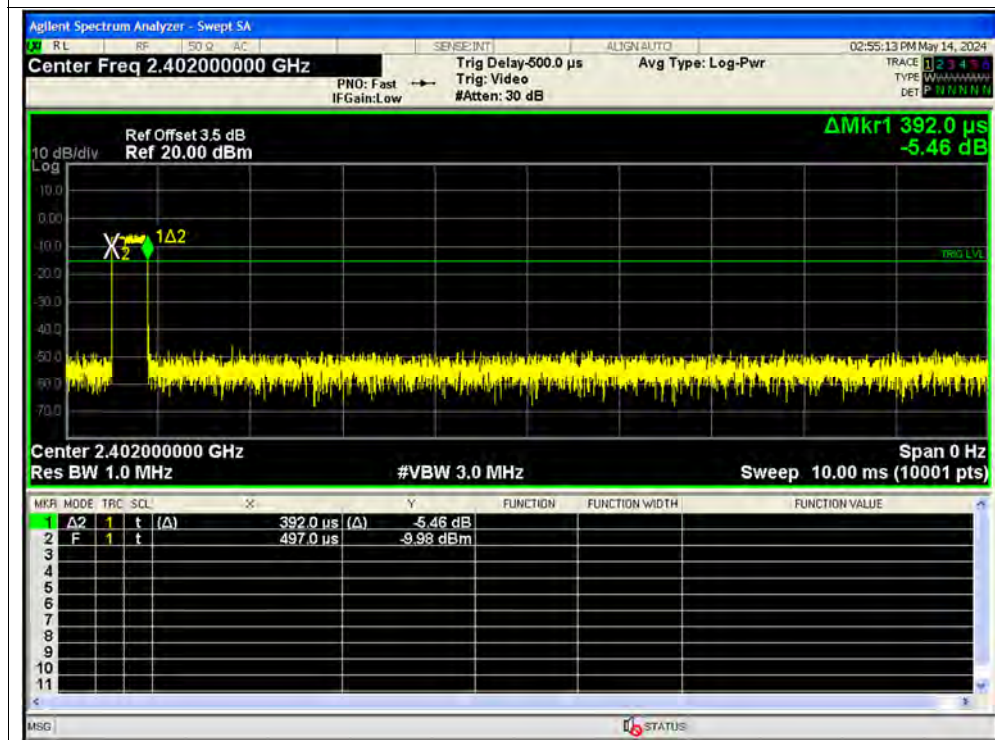


Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated

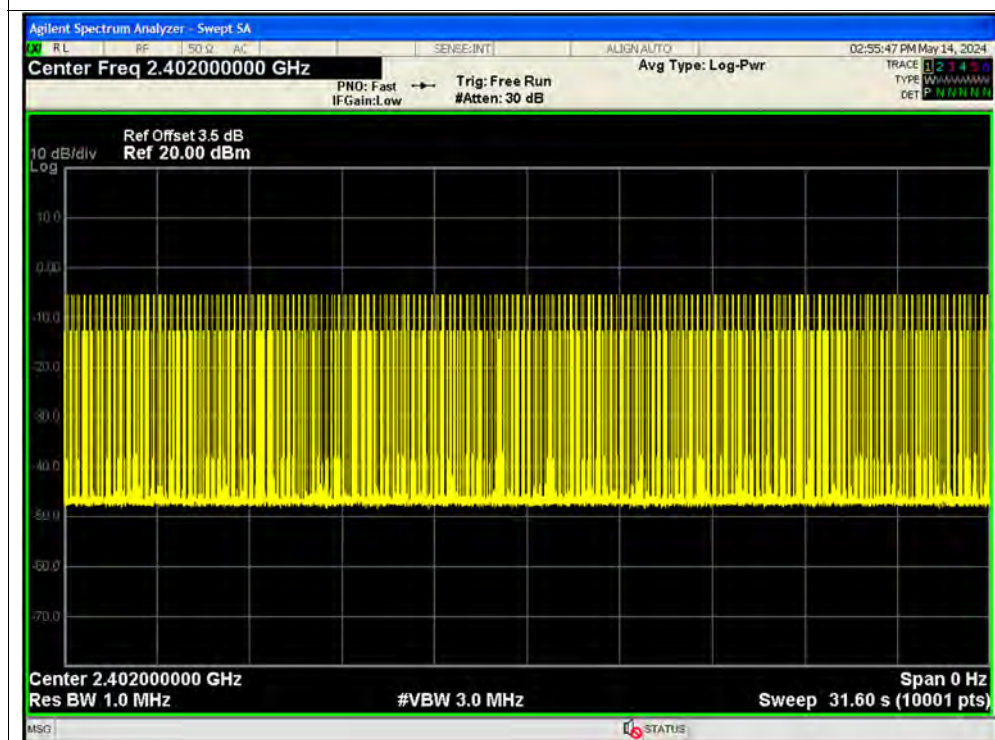




Dwell NVNT 3-DH1 2402MHz Ant1 One Burst

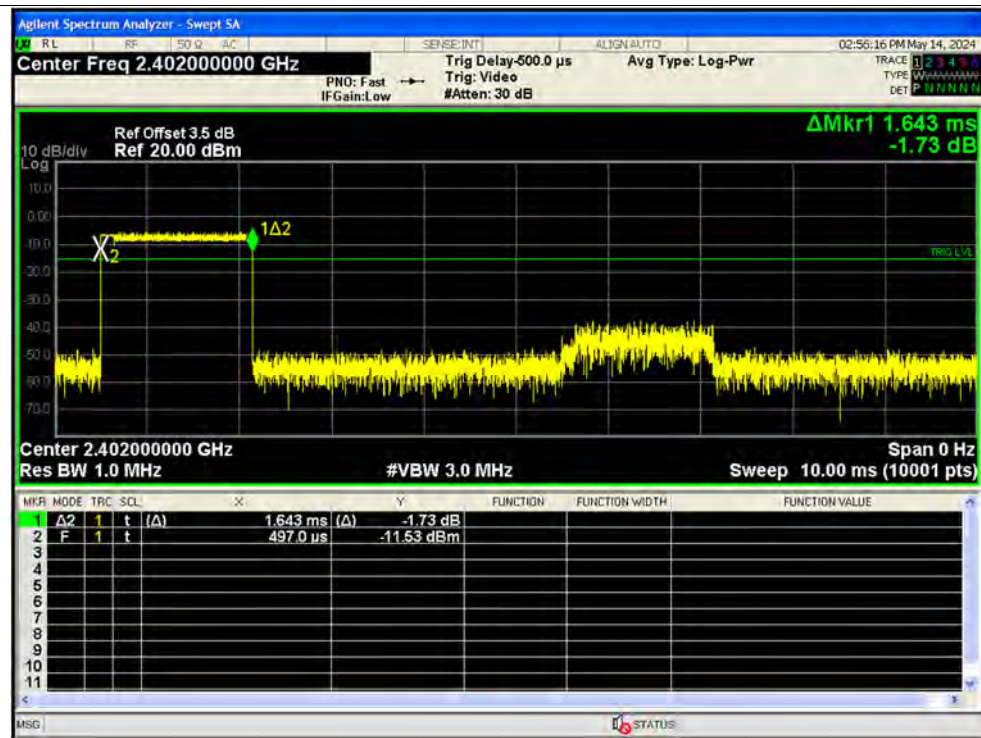


Dwell NVNT 3-DH1 2402MHz Ant1 Accumulated

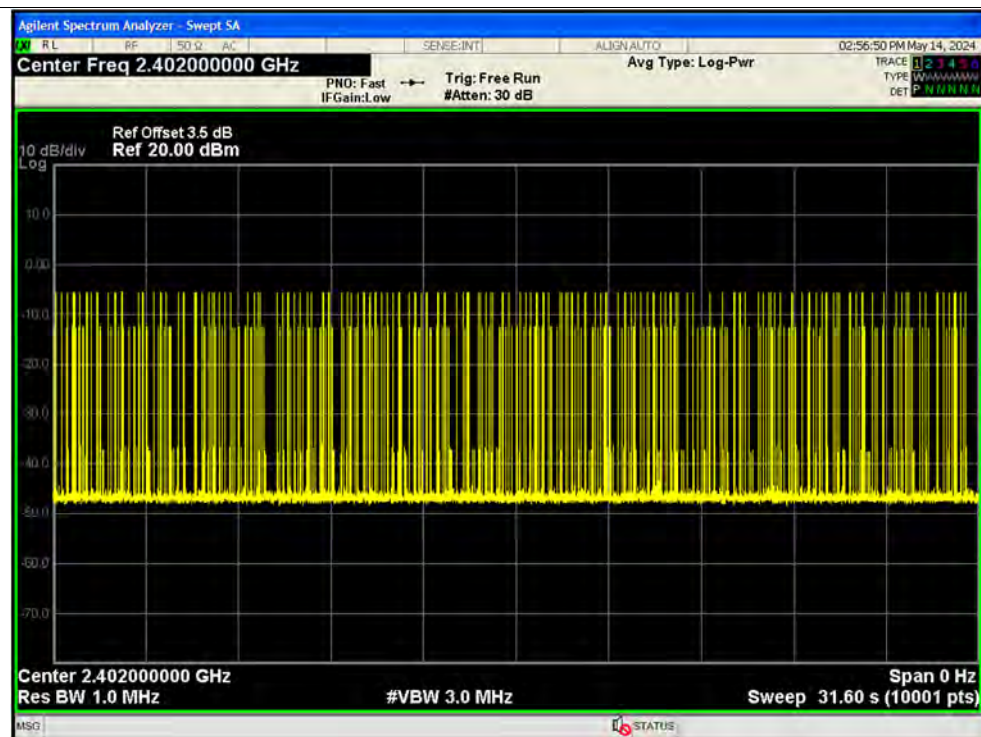




Dwell NVNT 3-DH3 2402MHz Ant1 One Burst

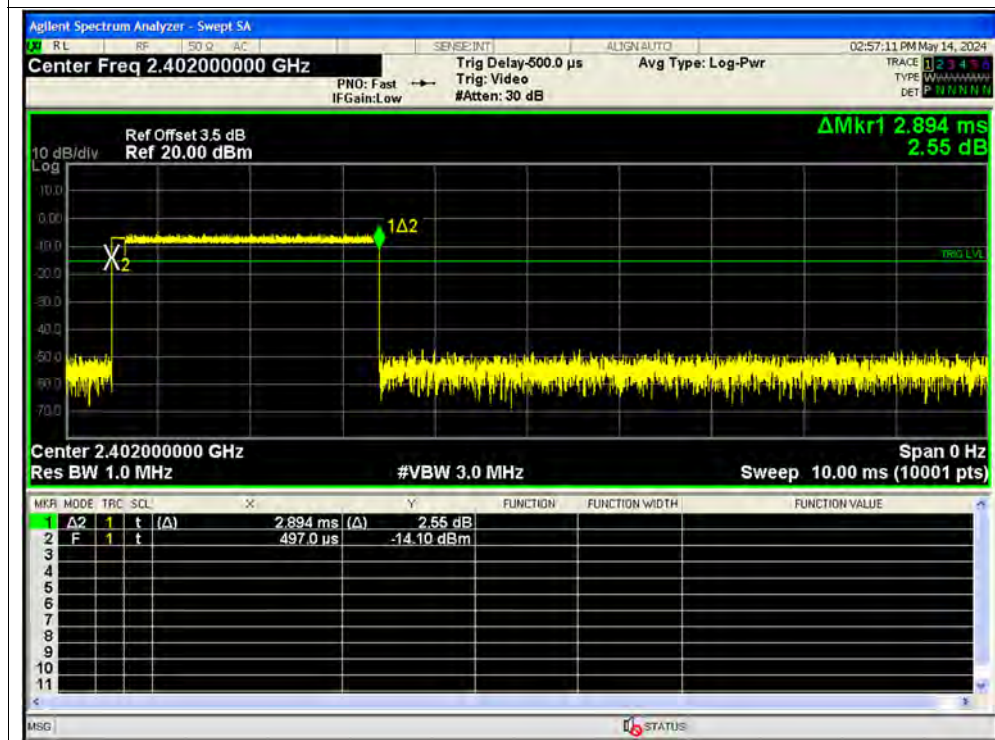


Dwell NVNT 3-DH3 2402MHz Ant1 Accumulated

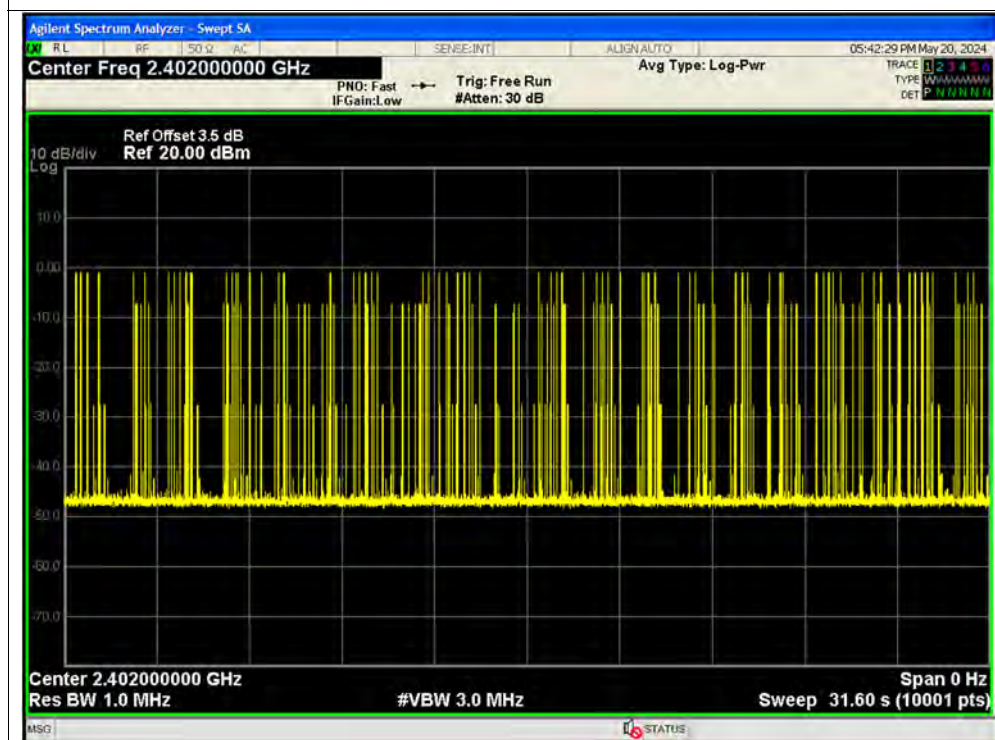




Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated





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A.8. Conducted Spurious Emissions

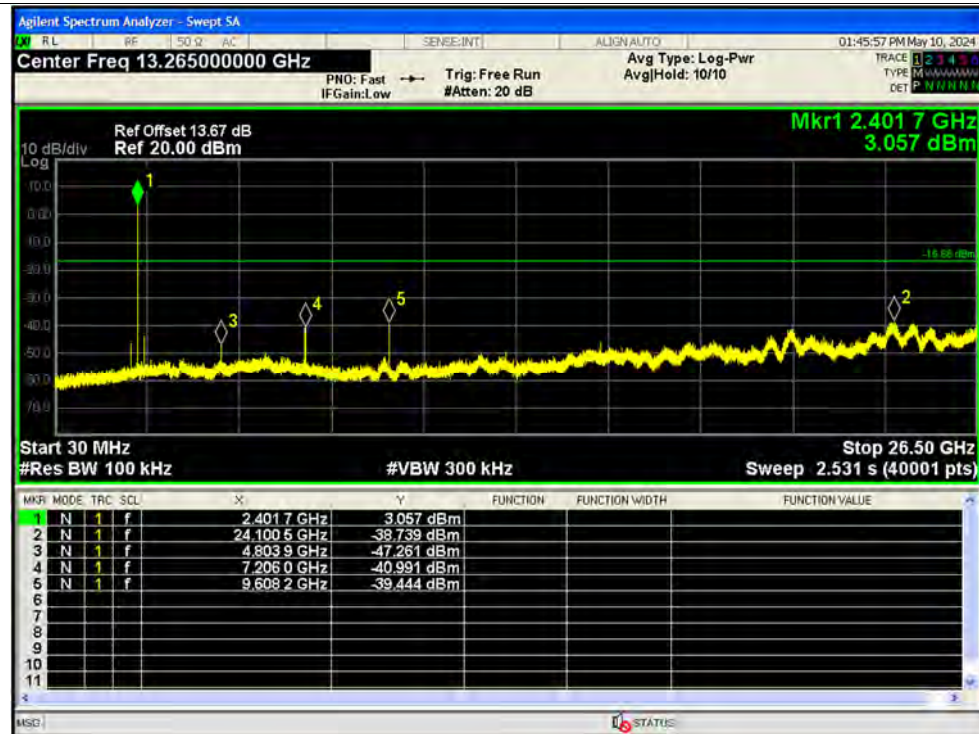
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-42.07	-20	Pass
NVNT	1-DH5	2441	Ant1	-40.92	-20	Pass
NVNT	1-DH5	2480	Ant1	-40.68	-20	Pass
NVNT	2-DH5	2402	Ant1	-41.46	-20	Pass
NVNT	2-DH5	2441	Ant1	-40.64	-20	Pass
NVNT	2-DH5	2480	Ant1	-41.09	-20	Pass
NVNT	3-DH5	2402	Ant1	-40.77	-20	Pass
NVNT	3-DH5	2441	Ant1	-40.84	-20	Pass
NVNT	3-DH5	2480	Ant1	-40.16	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



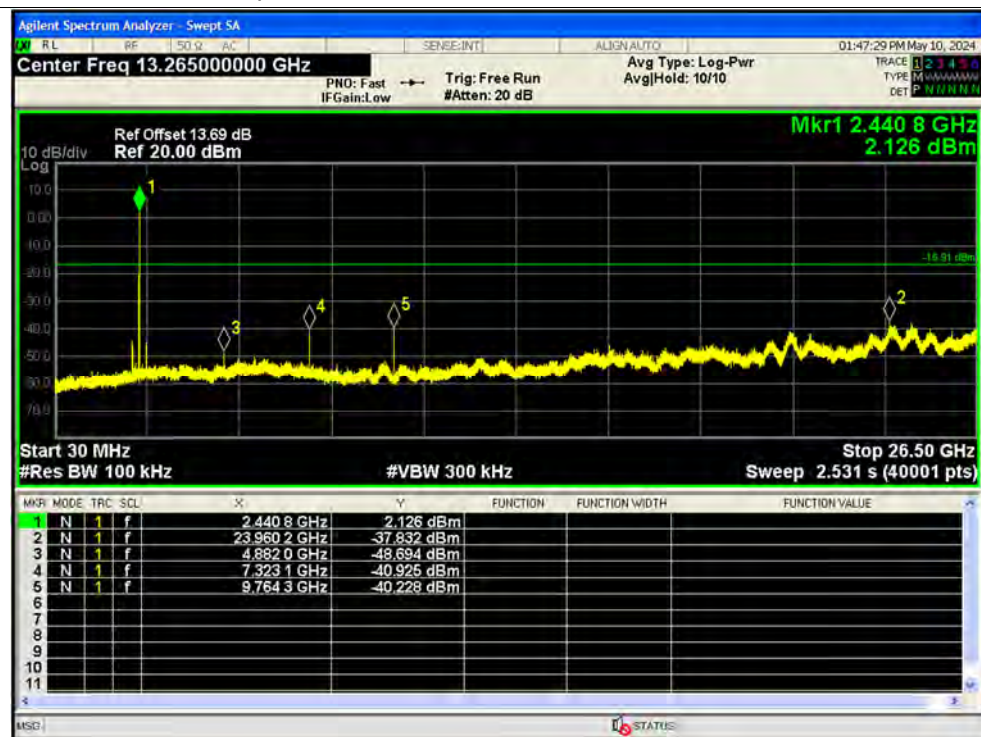
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



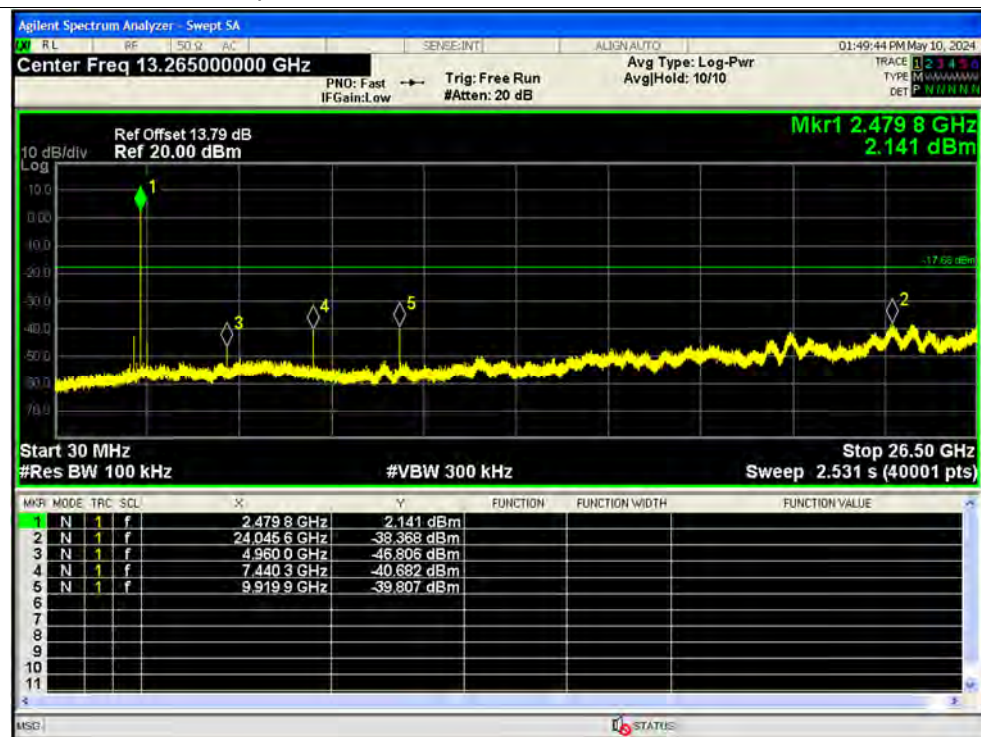
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



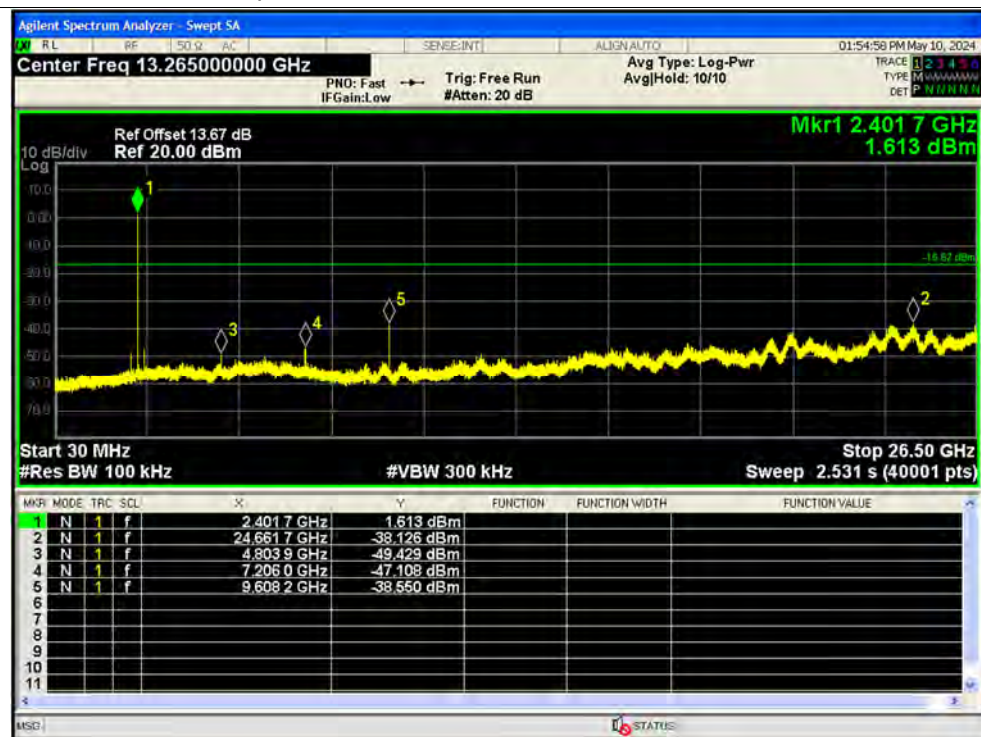
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



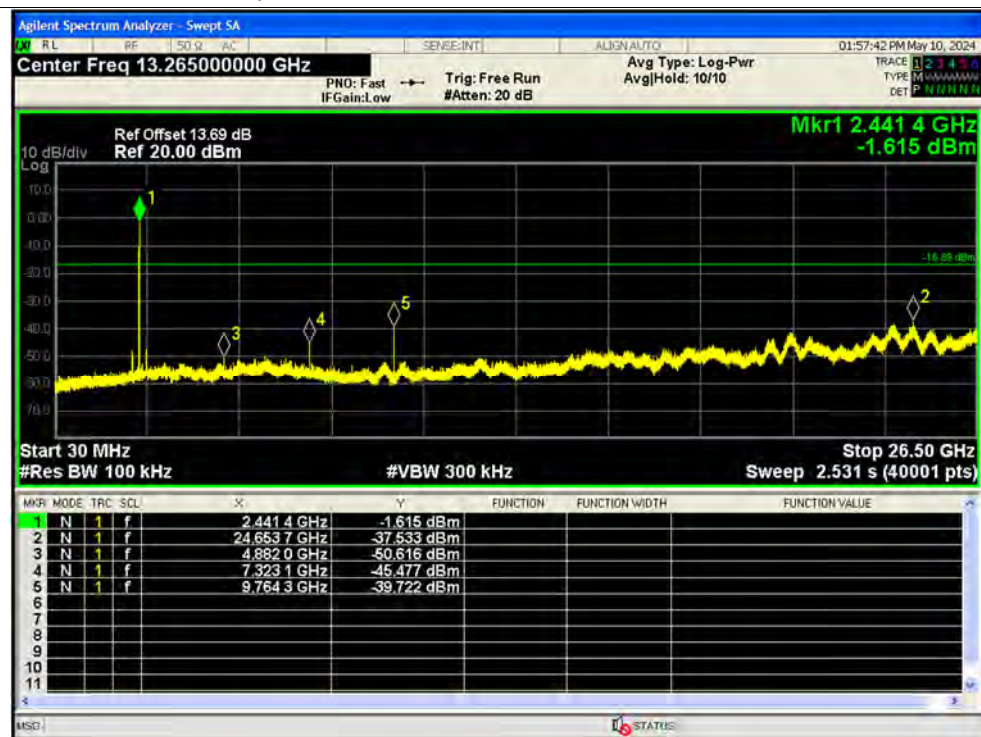
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



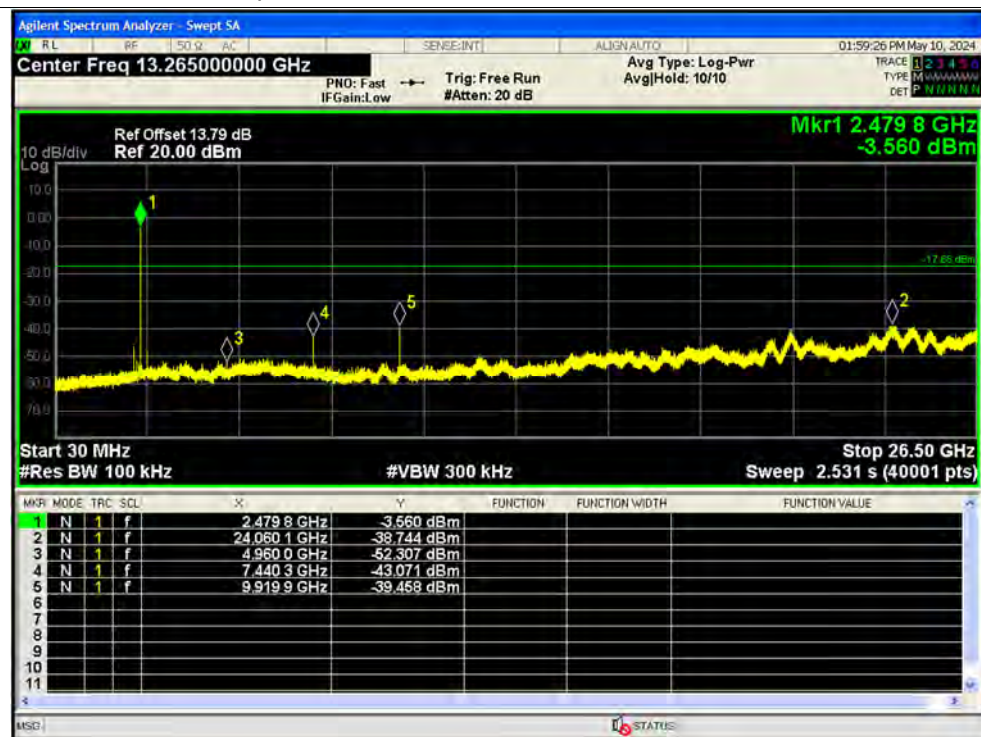
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



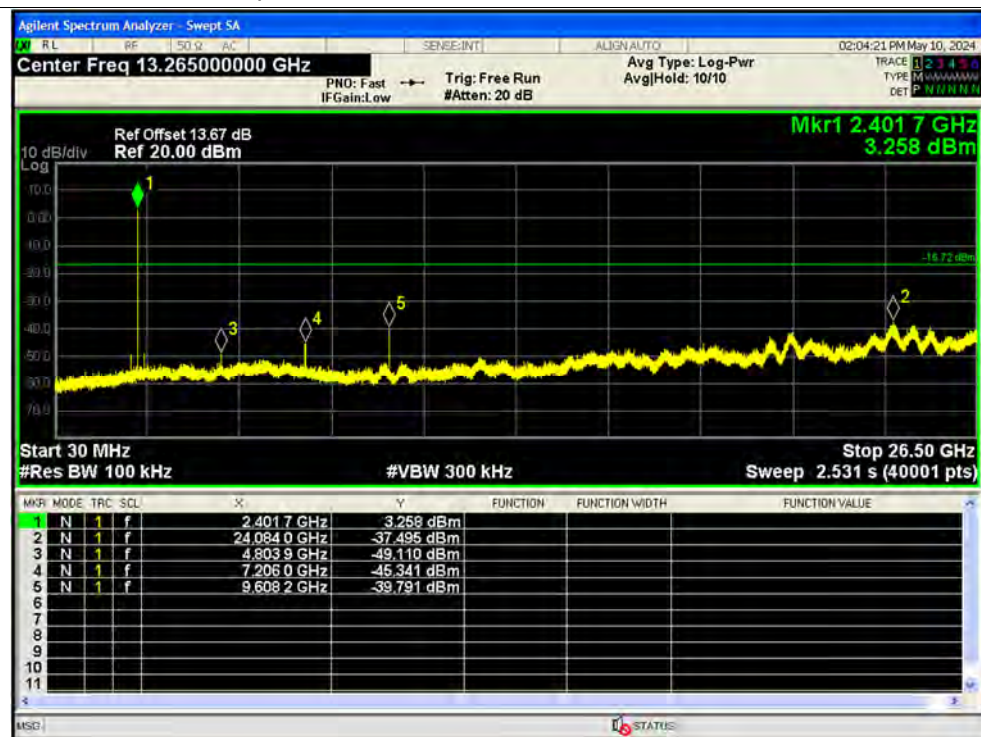
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



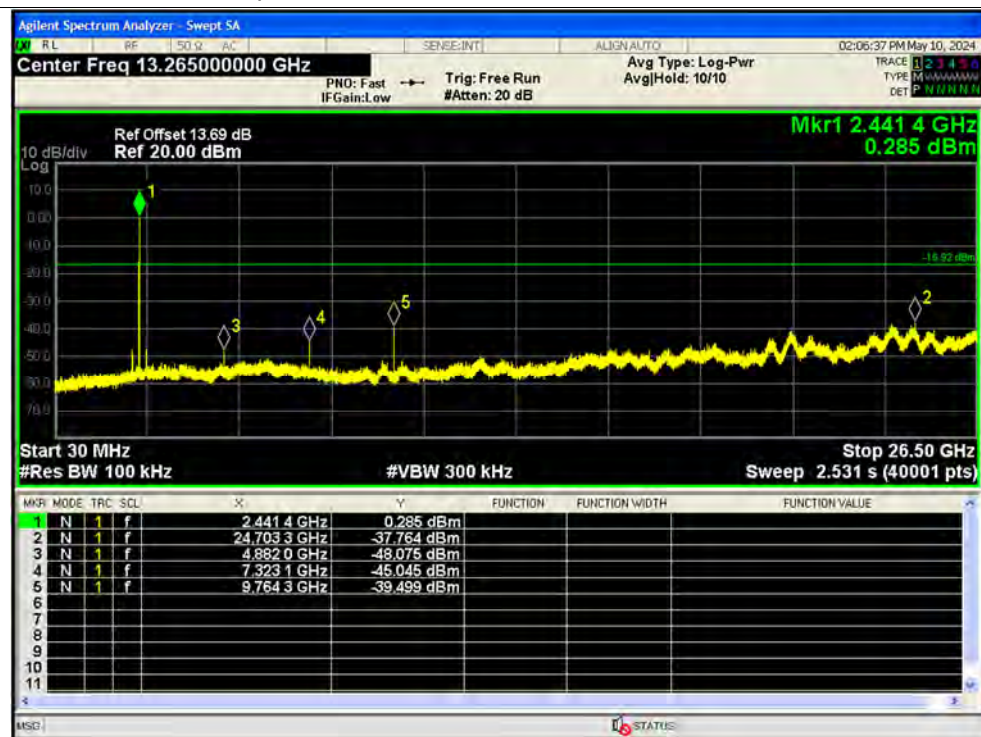
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



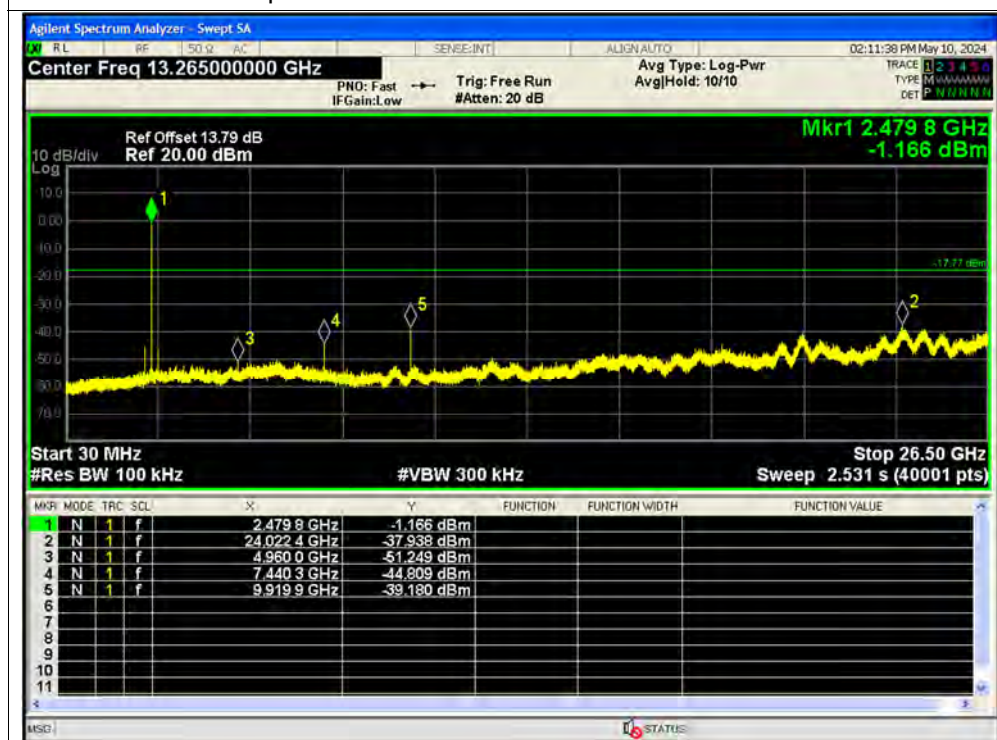
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission



**A.9. Band Edge**

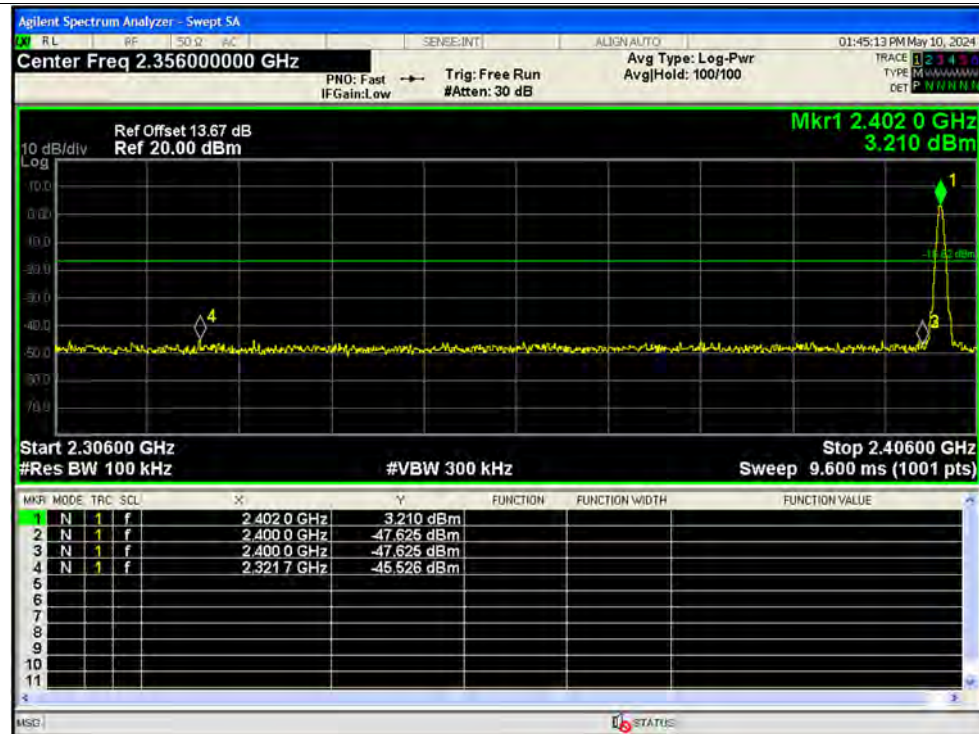
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-48.70	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-47.55	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-48.54	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-45.90	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-48.02	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-47.47	-20	Pass
NVNT	1-DH5	2402	Ant1	Hopping	-47.19	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-46.16	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-47.40	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-45.64	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-47.90	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-45.88	-20	Pass

Test Graphs

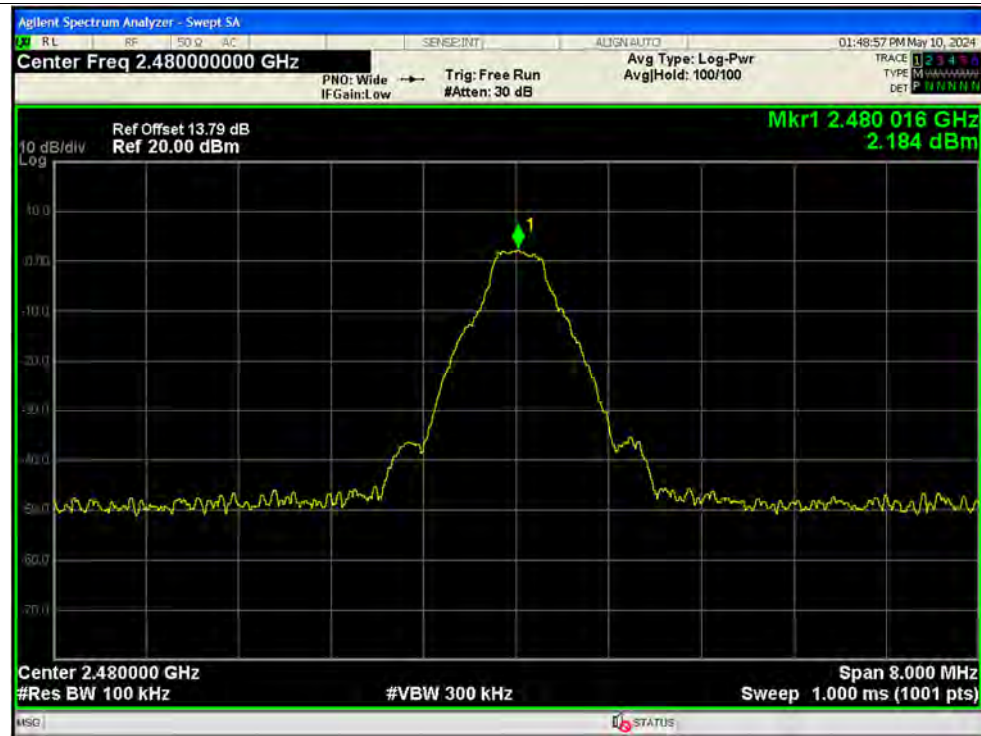
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



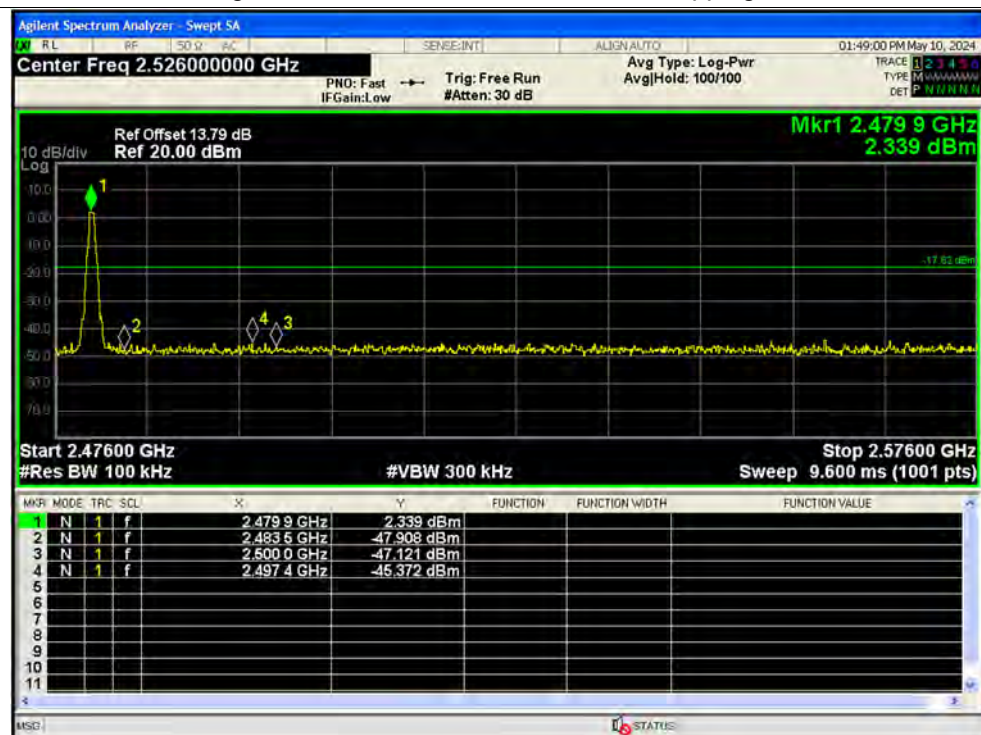
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



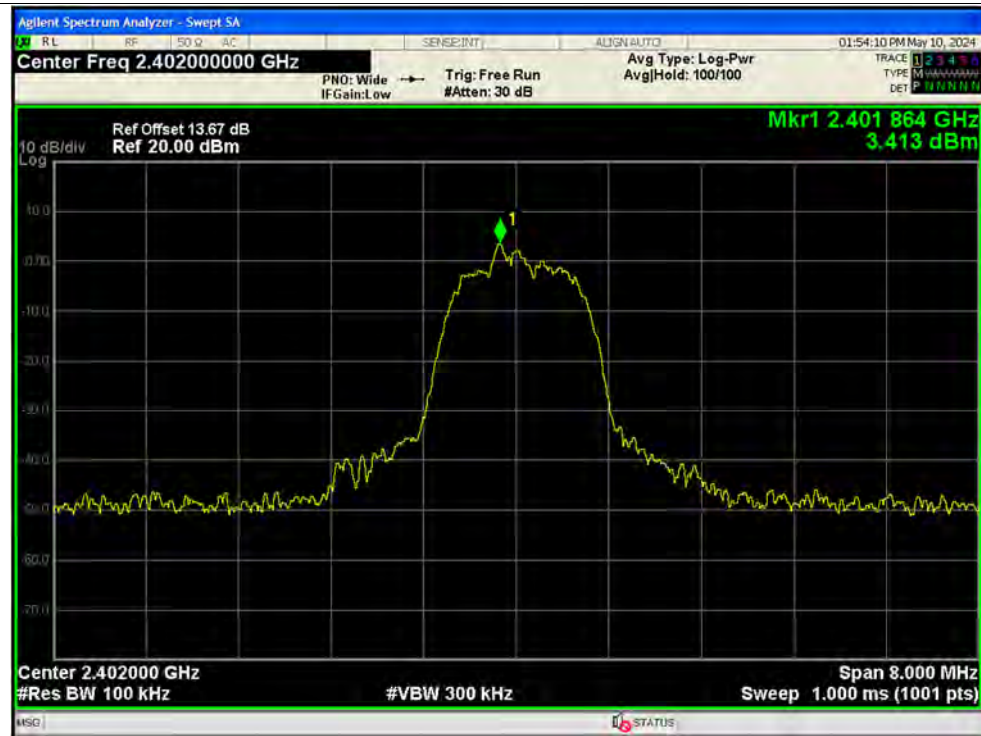
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



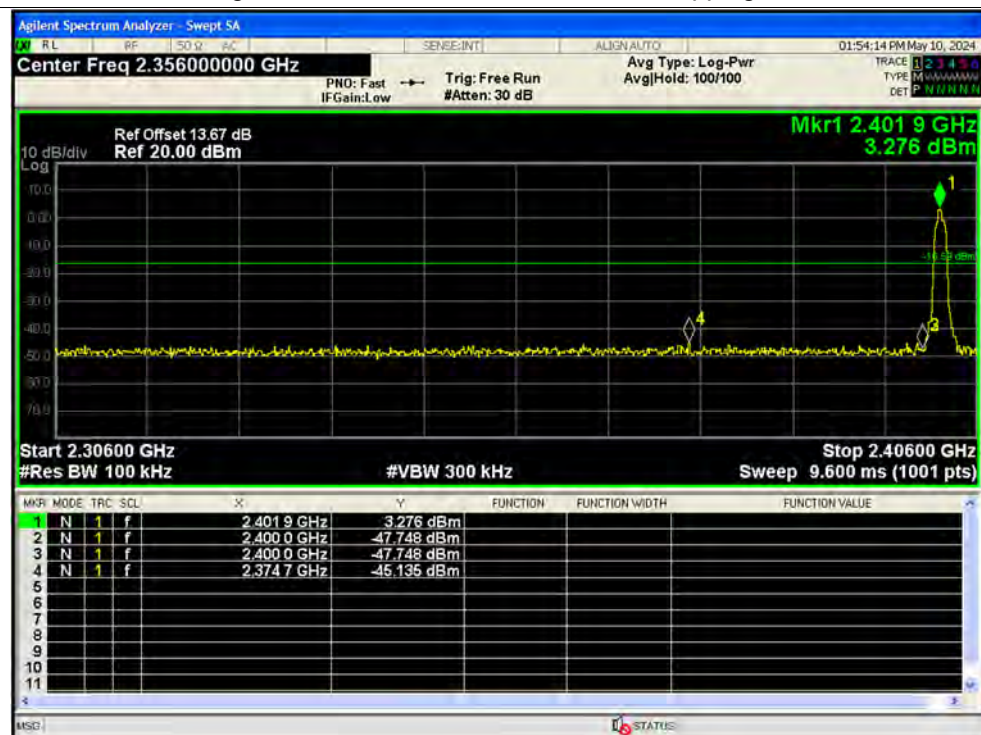
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



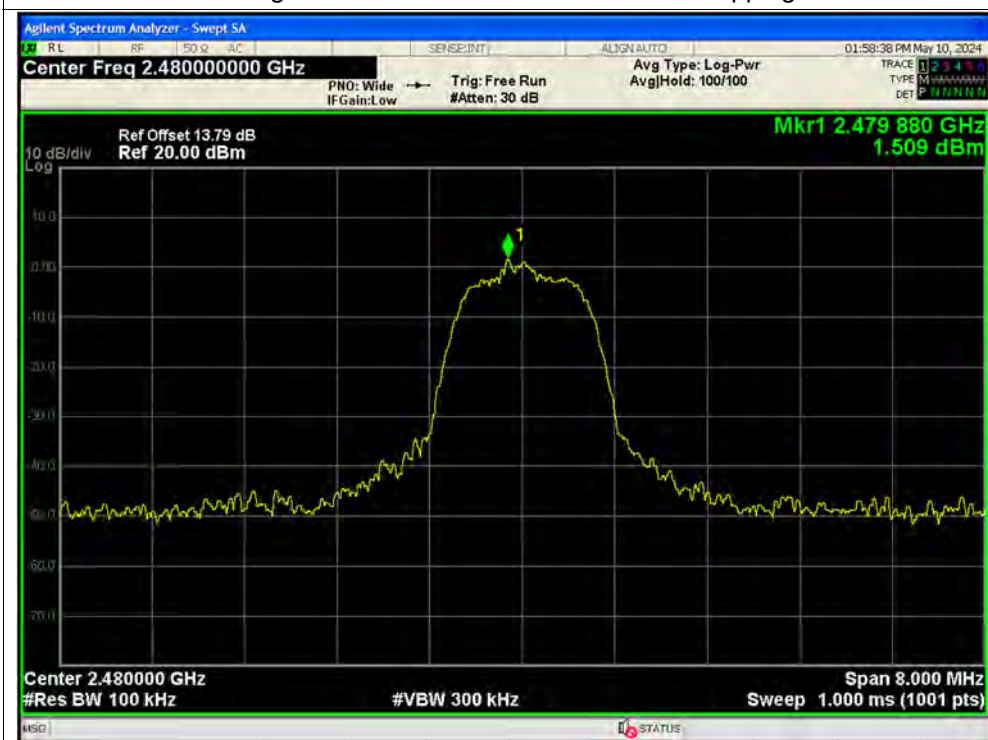
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



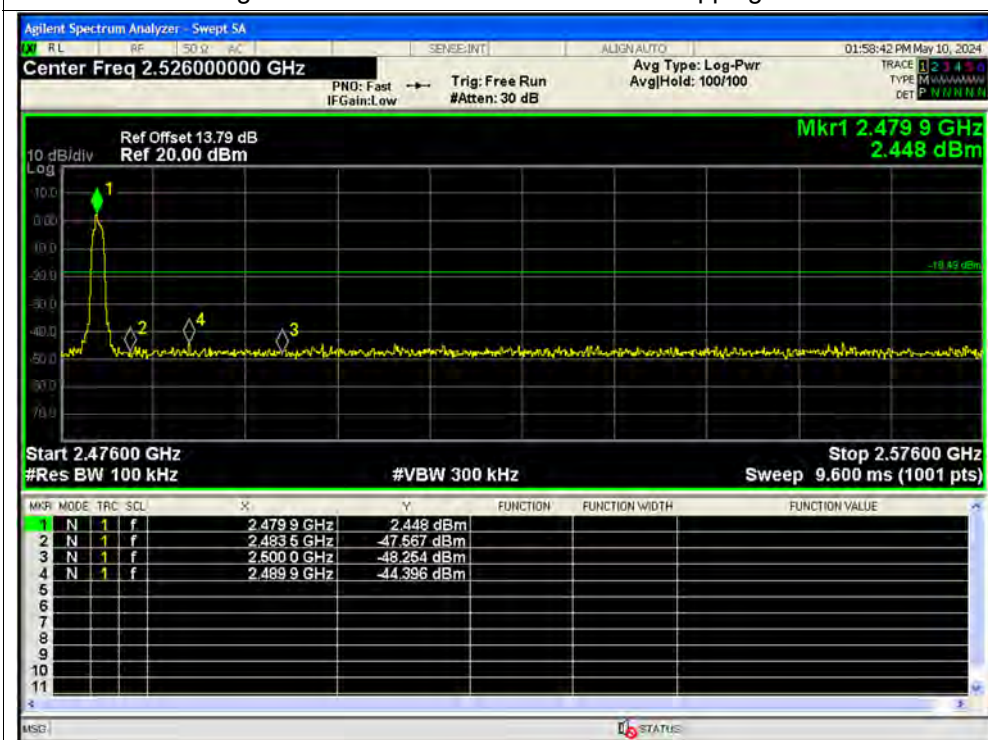
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



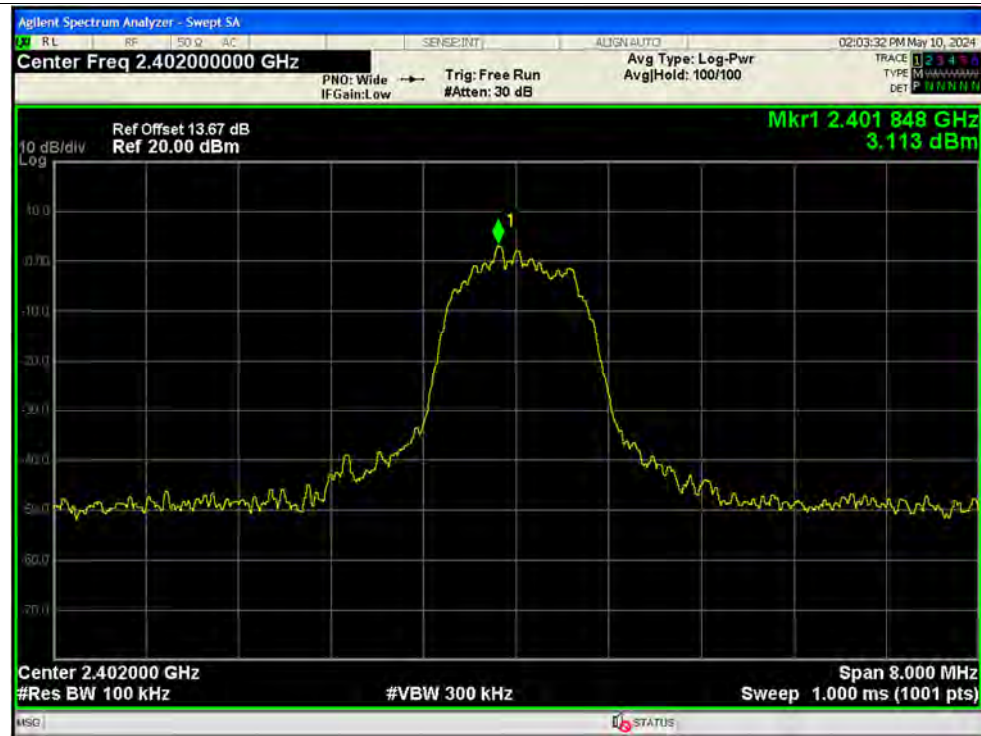
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



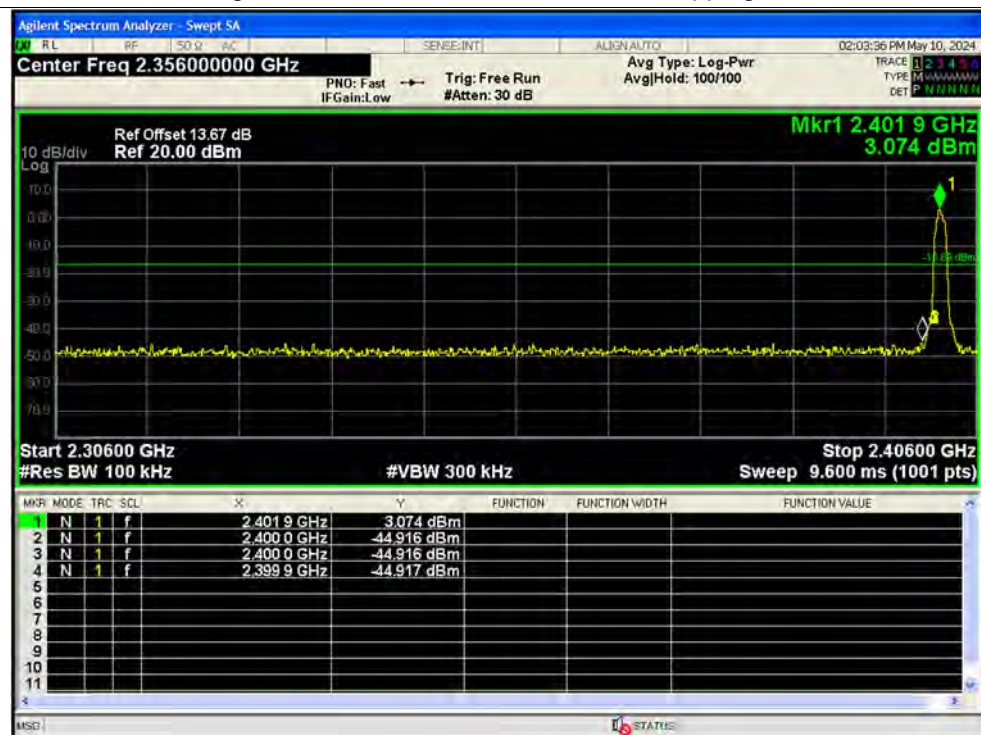
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



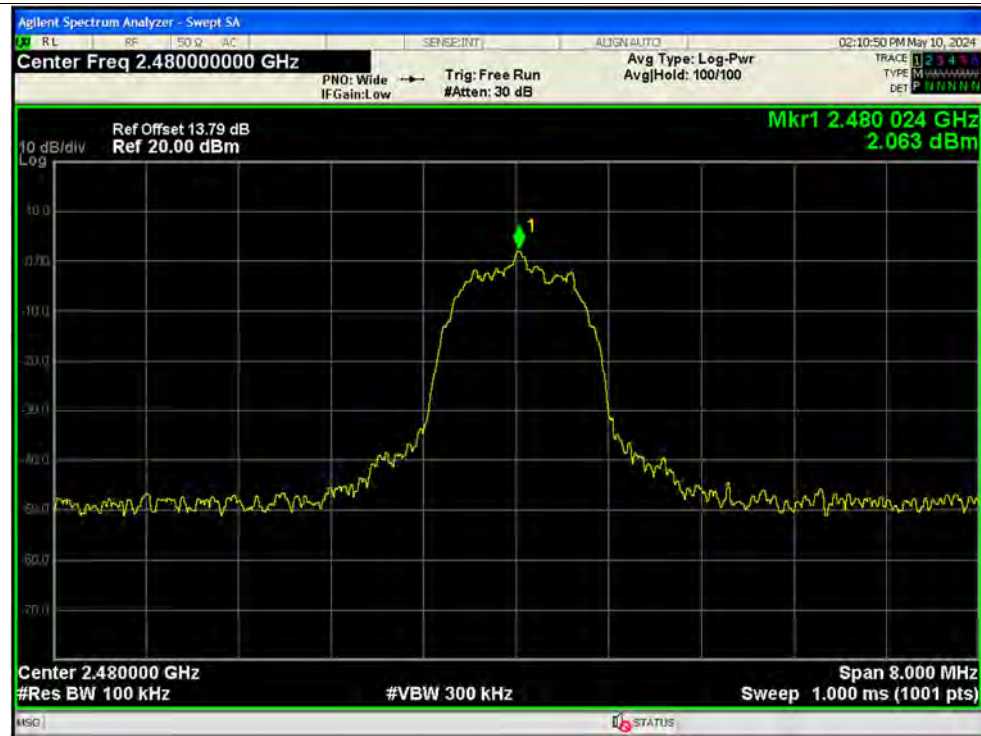
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



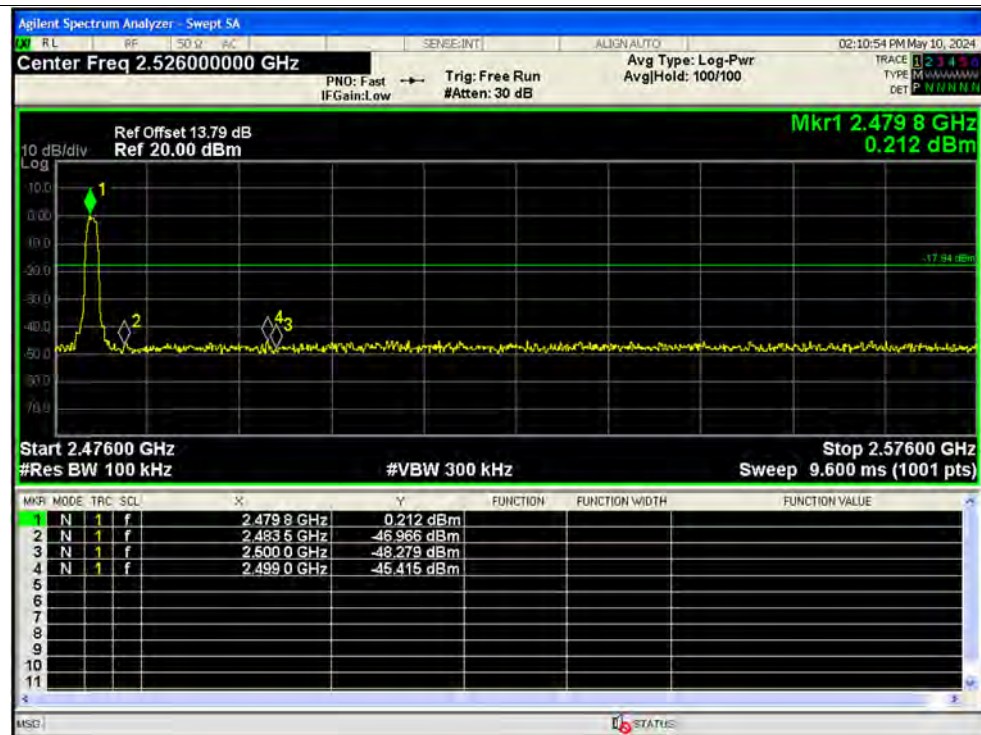
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

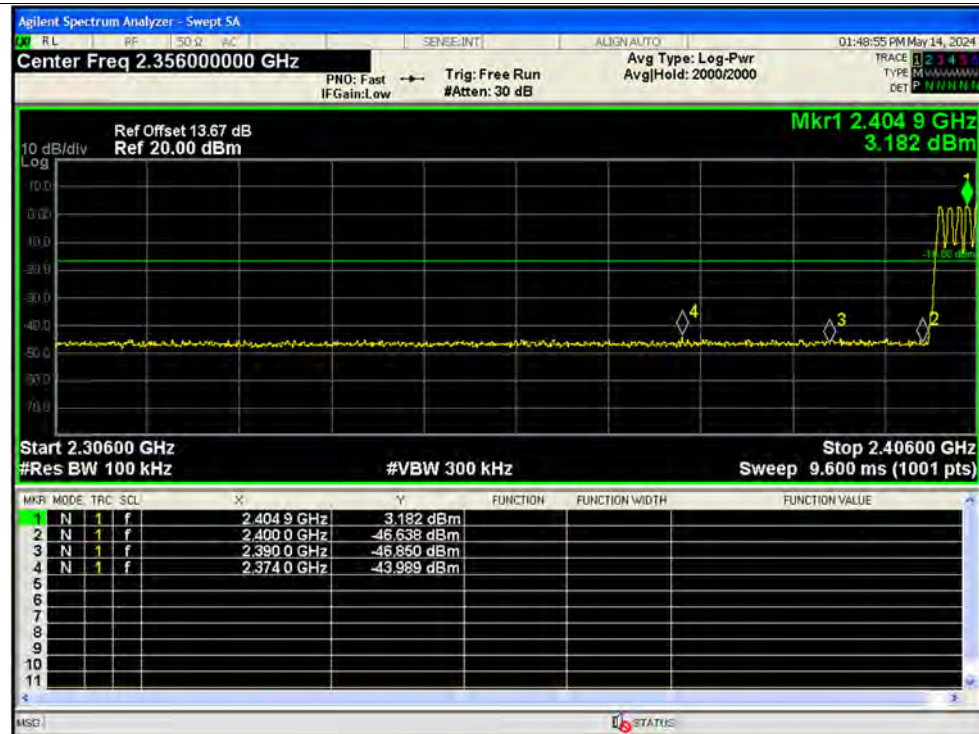


Test Graphs

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



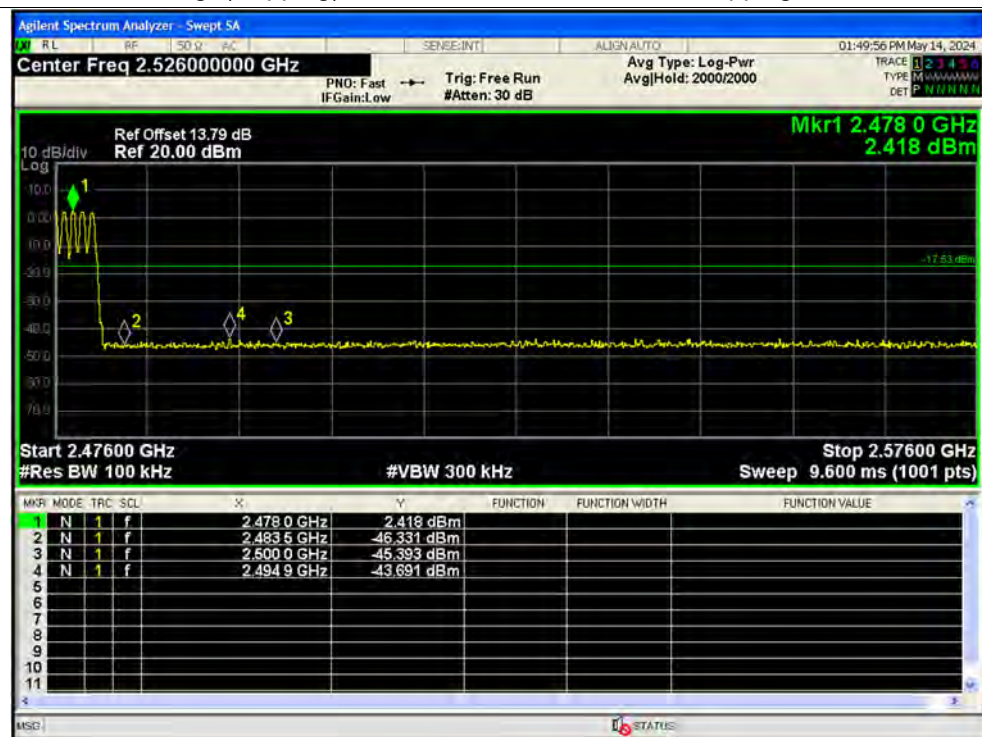
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



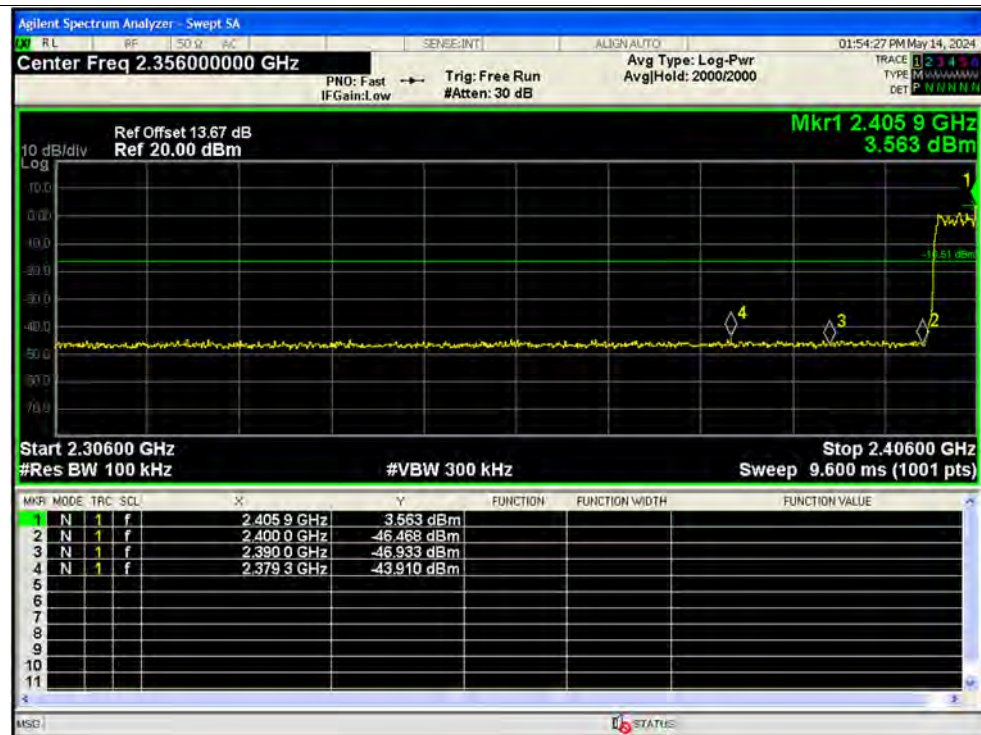
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



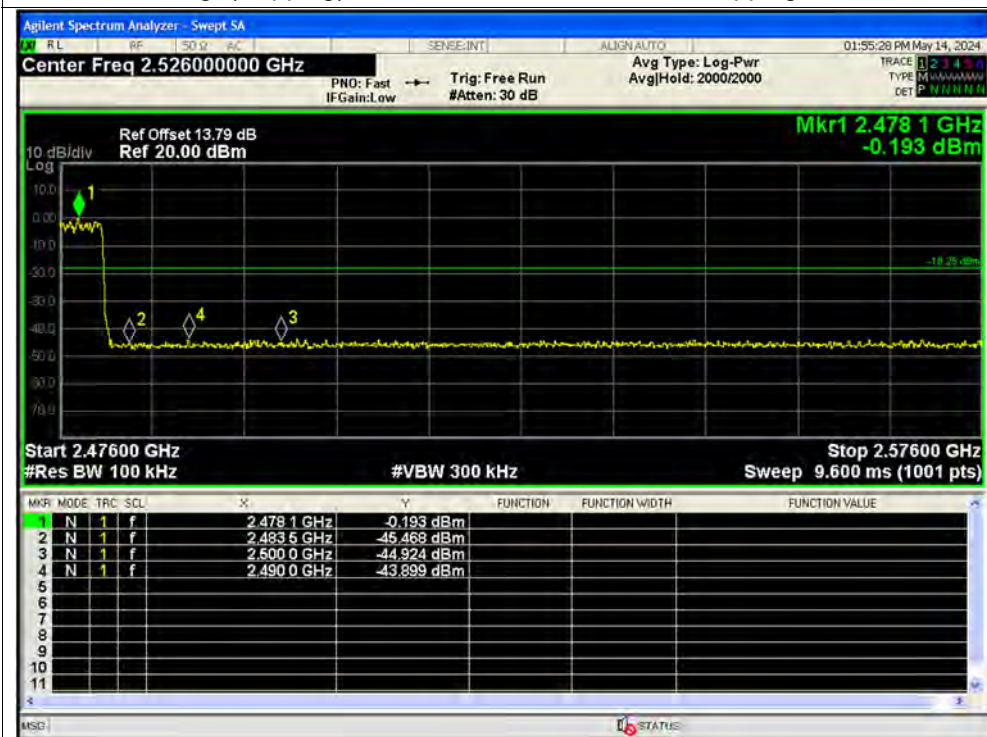
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



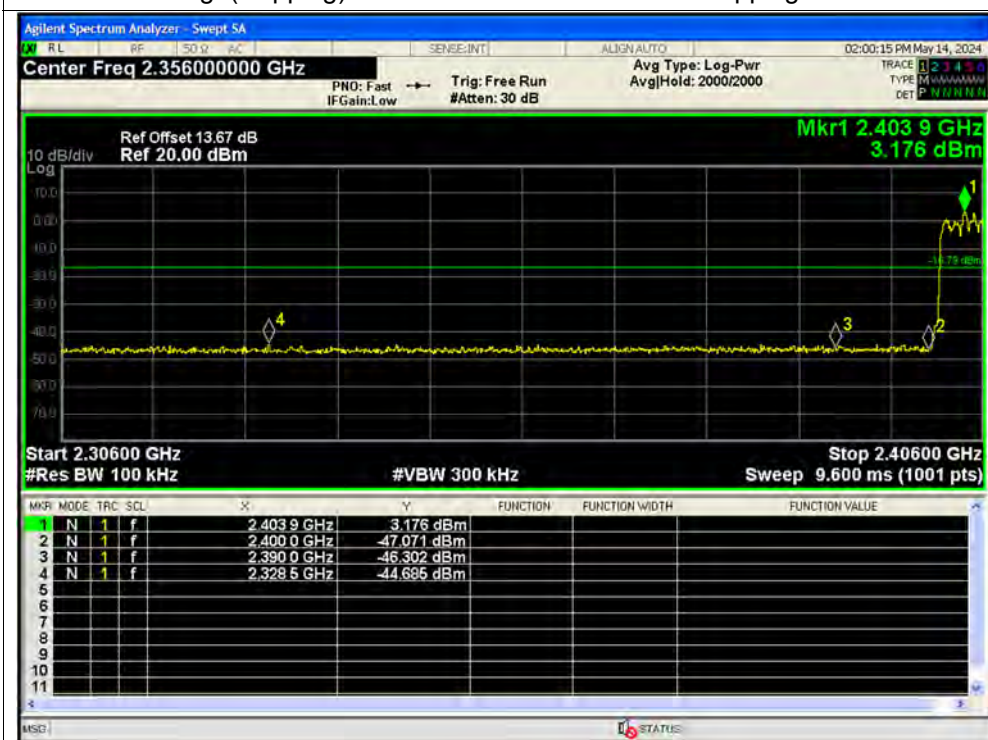
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



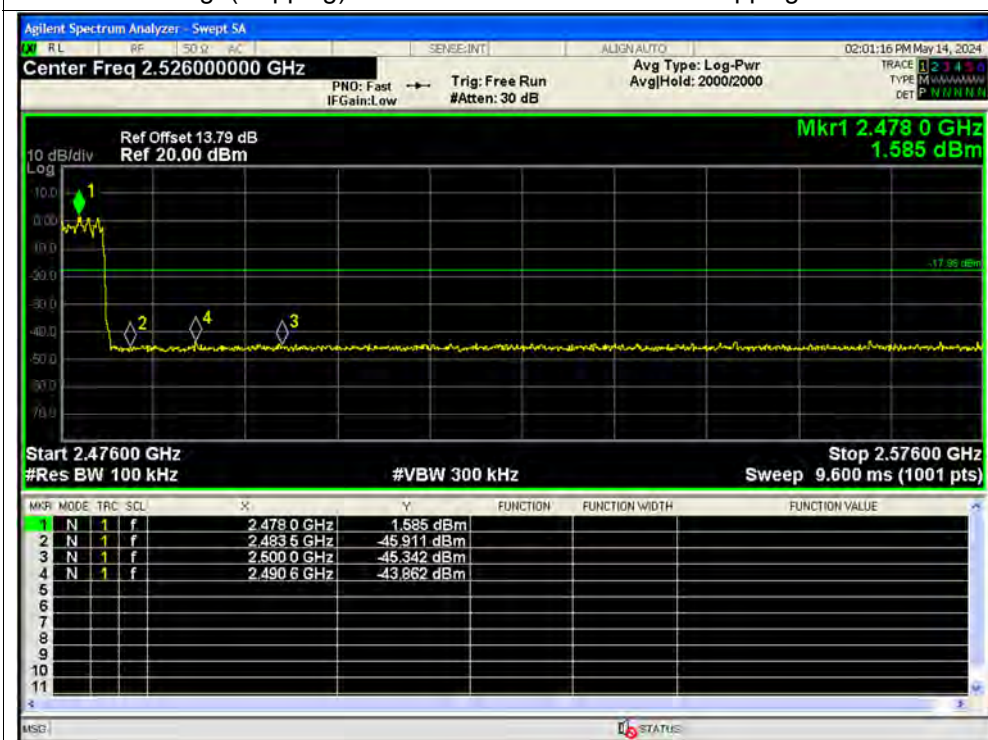
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission





A.10. 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 + BT TX

Test voltage: AC 120V/60Hz

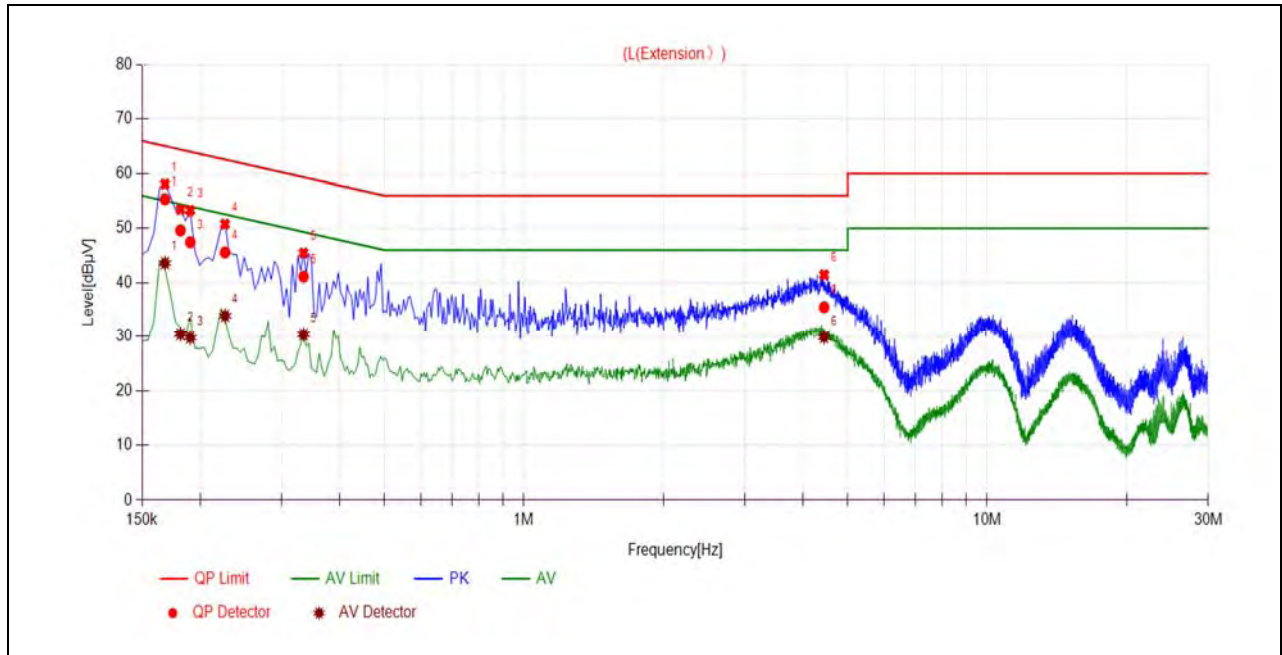
The measurement results are obtained as below:

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

U_R : Receiver Reading

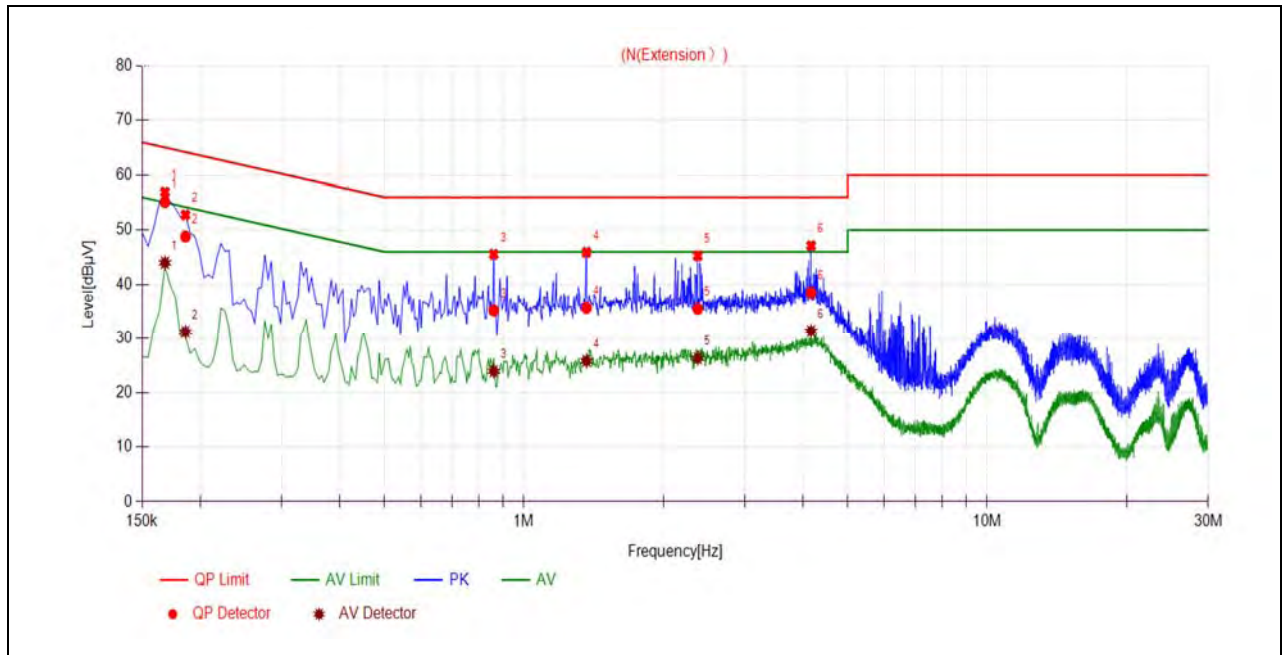
A_{Factor} : Voltage division factor of LISN

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	55.34	65.06	65.06	55.06	Line	PASS
2	0.1815	49.61	64.42	64.42	54.42		PASS
3	0.1905	47.46	64.01	64.01	54.01		PASS
4	0.2265	45.58	62.58	62.58	52.58		PASS
5	0.3345	41.13	59.34	59.34	49.34		PASS
6	4.4474	35.46	56.00	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1680	55.13	44.00	65.06	55.06	Neutral	PASS
2	0.1860	48.82	31.26	64.21	54.21		PASS
3	0.8610	35.25	23.93	56.00	46.00		PASS
4	1.3649	35.73	25.81	56.00	46.00		PASS
5	2.3730	35.53	26.32	56.00	46.00		PASS
6	4.1686	38.49	31.38	56.00	46.00		PASS



A.11. Restricted Frequency Bands

The lowest and highest channels are tested to verify the Restricted Frequency Bands.

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

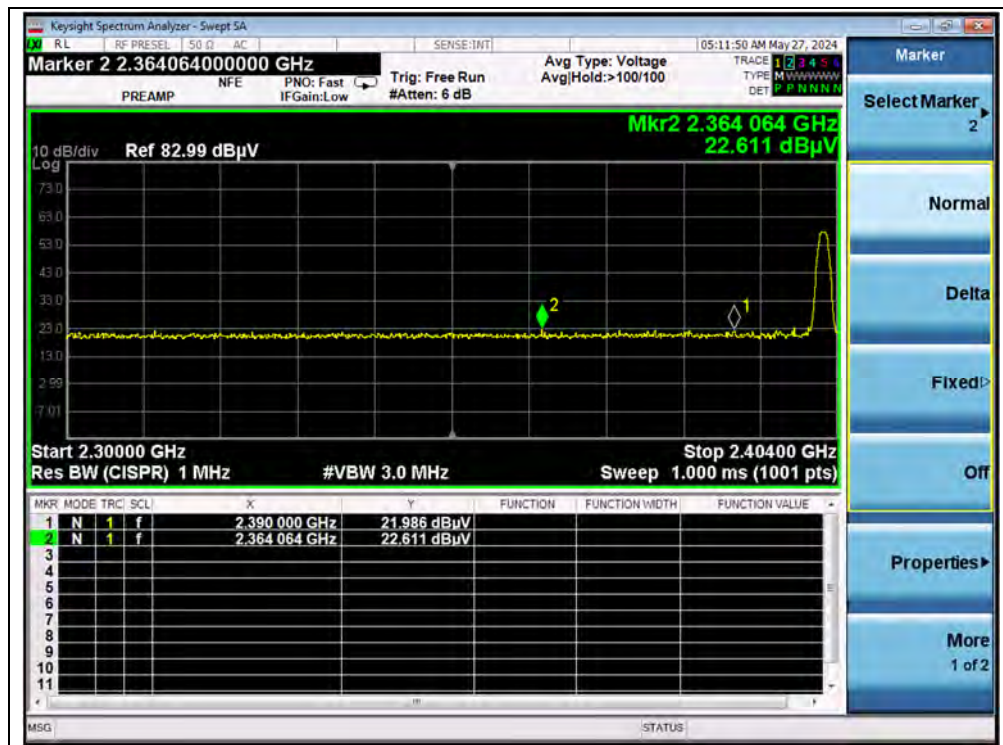
G_{preamp} : Preamplifier Gain

A_{Factor} : Antenna Factor at 3m

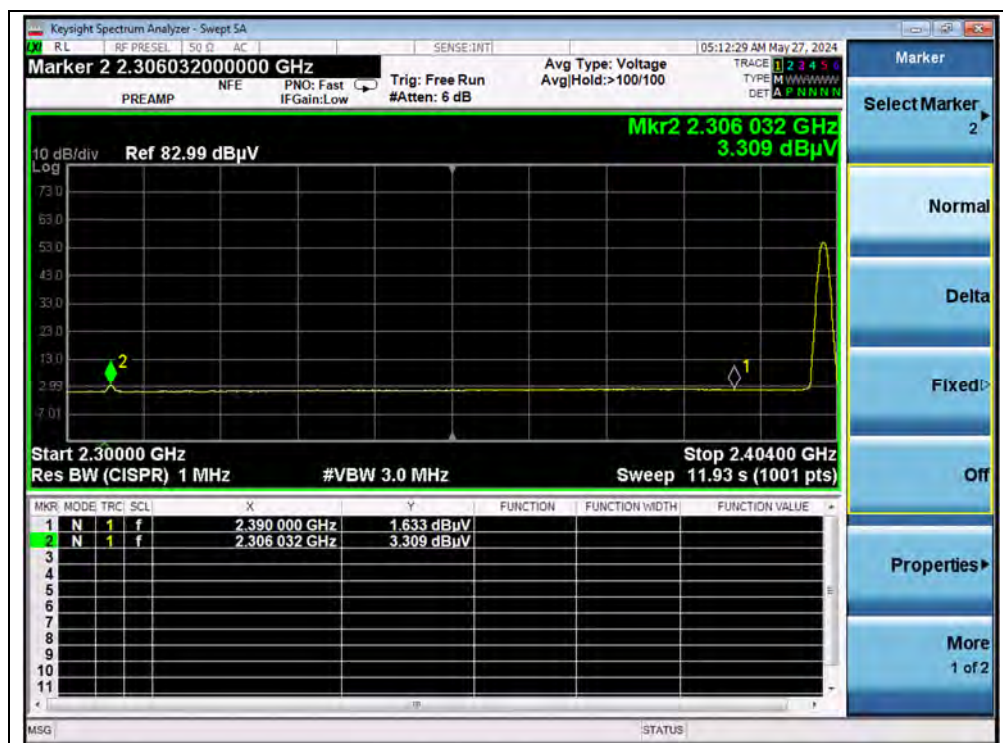
Note: Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

GFSK Mode

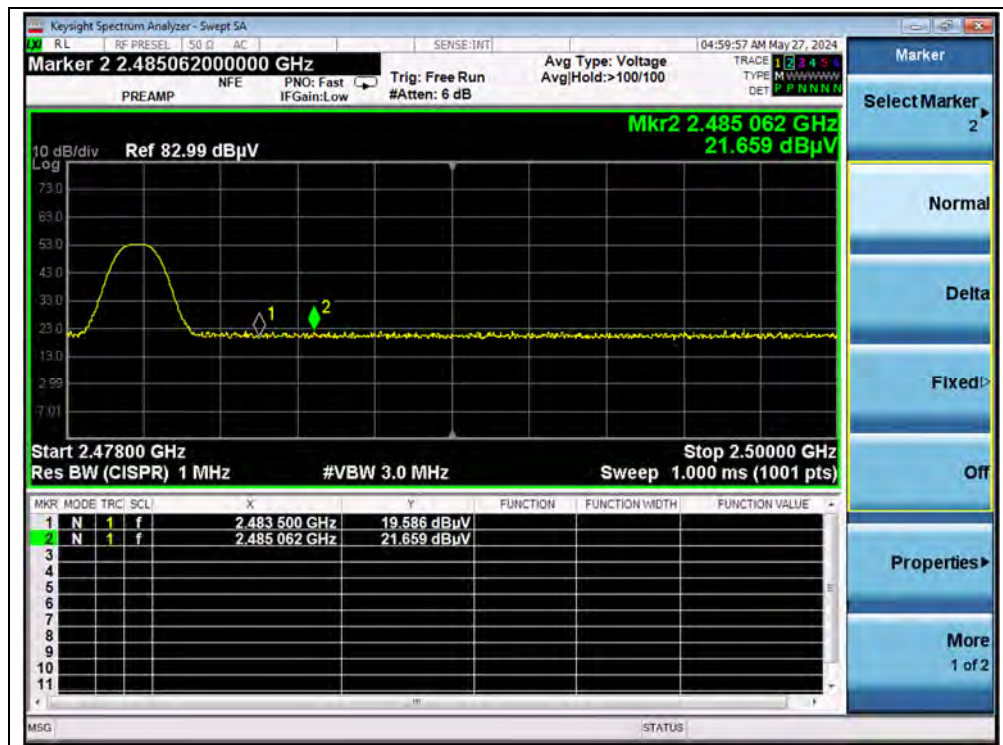
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
0	2364.06	PK	22.61	6.74	27.20	56.55	74	PASS
0	2306.03	AV	3.31	6.74	27.20	37.25	54	PASS
78	2485.06	PK	21.66	6.74	27.20	55.60	74	PASS
78	2483.50	AV	0.61	6.74	27.20	34.55	54	PASS



(PEAK, Channel 0, GFSK)



(AVERAGE, Channel 0, GFSK)



(PEAK, Channel 78, GFSK)

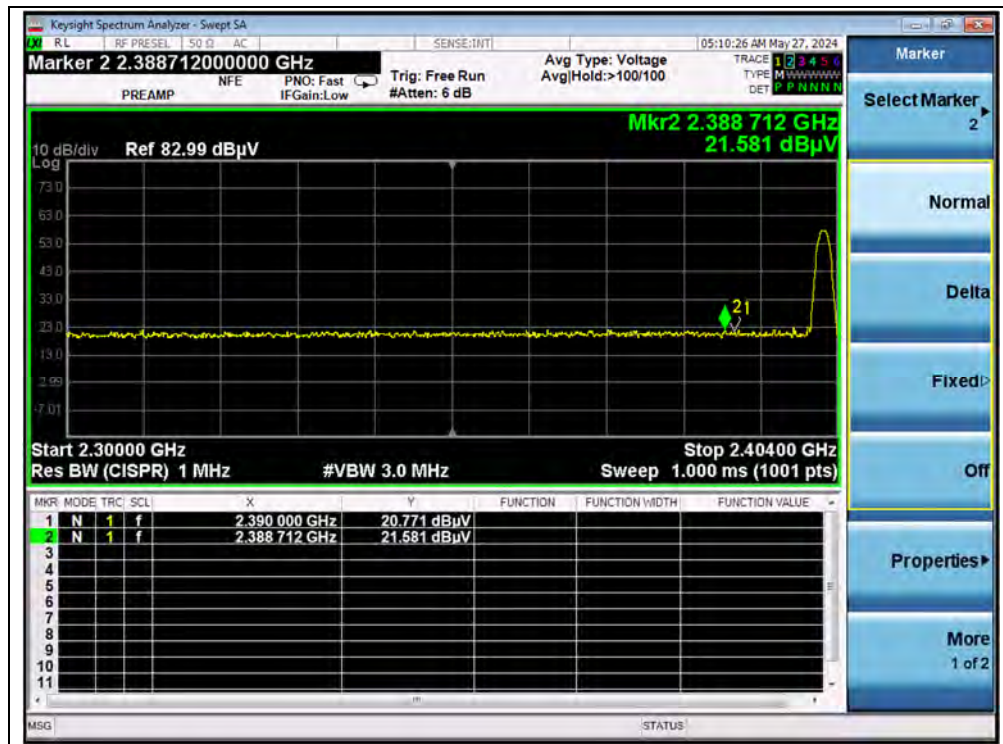


(AVERAGE, Channel 78, GFSK)

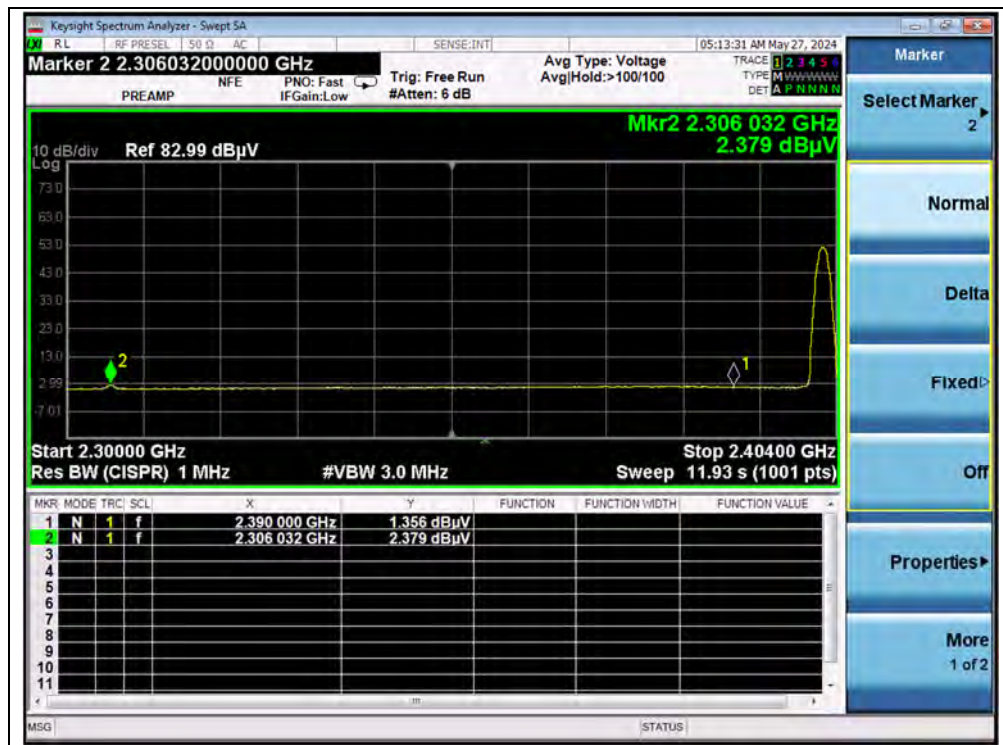
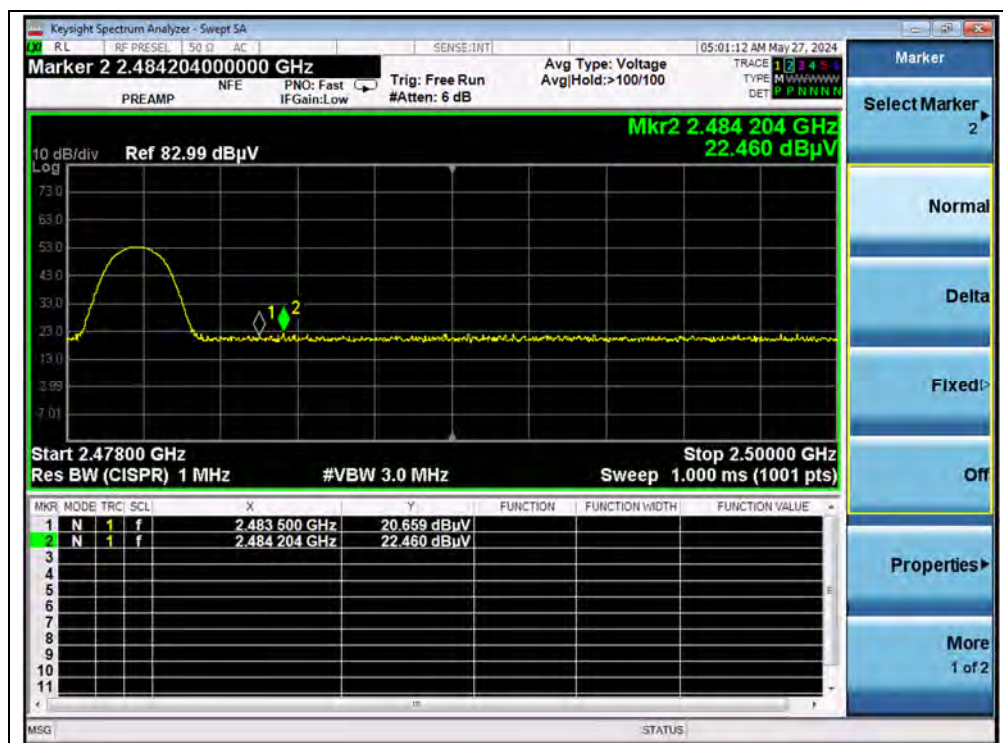


$\pi/4$ -DQPSK Mode

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
0	2388.71	PK	21.58	6.74	27.20	55.52	74	PASS
0	2306.03	AV	2.38	6.74	27.20	36.32	54	PASS
78	2484.20	PK	22.46	6.74	27.20	56.40	74	PASS
78	2483.50	AV	0.61	6.74	27.20	34.55	54	PASS



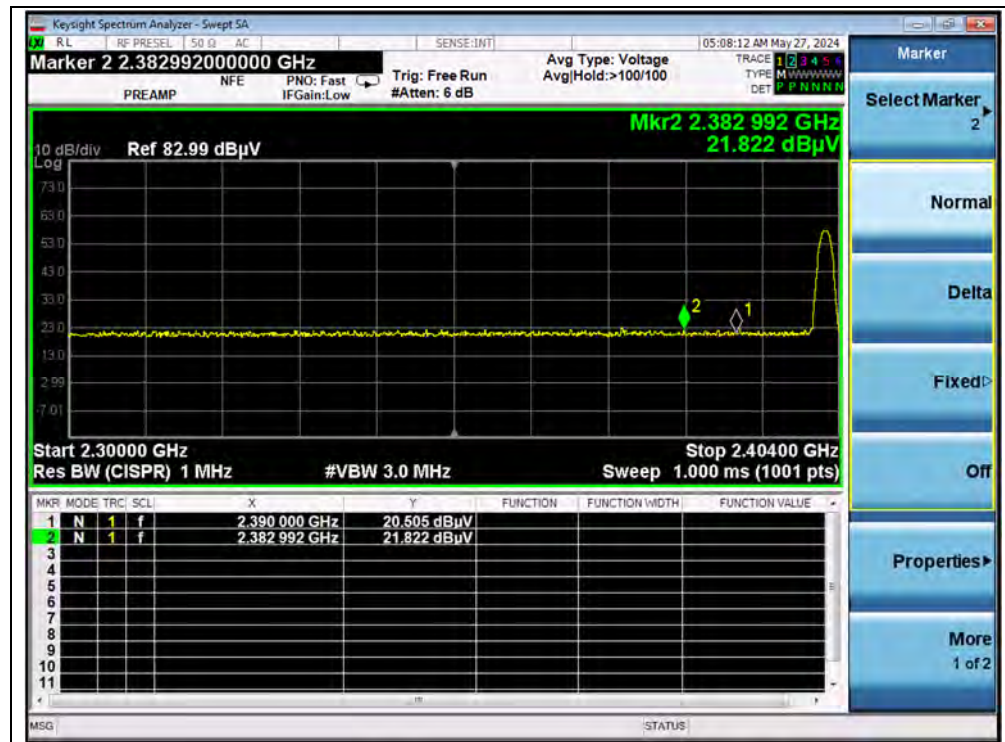
(PEAK, Channel 0, $\pi/4$ -DQPSK)


(AVERAGE, Channel 0, $\pi/4$ -DQPSK)

(PEAK, Channel 78, $\pi/4$ -DQPSK)

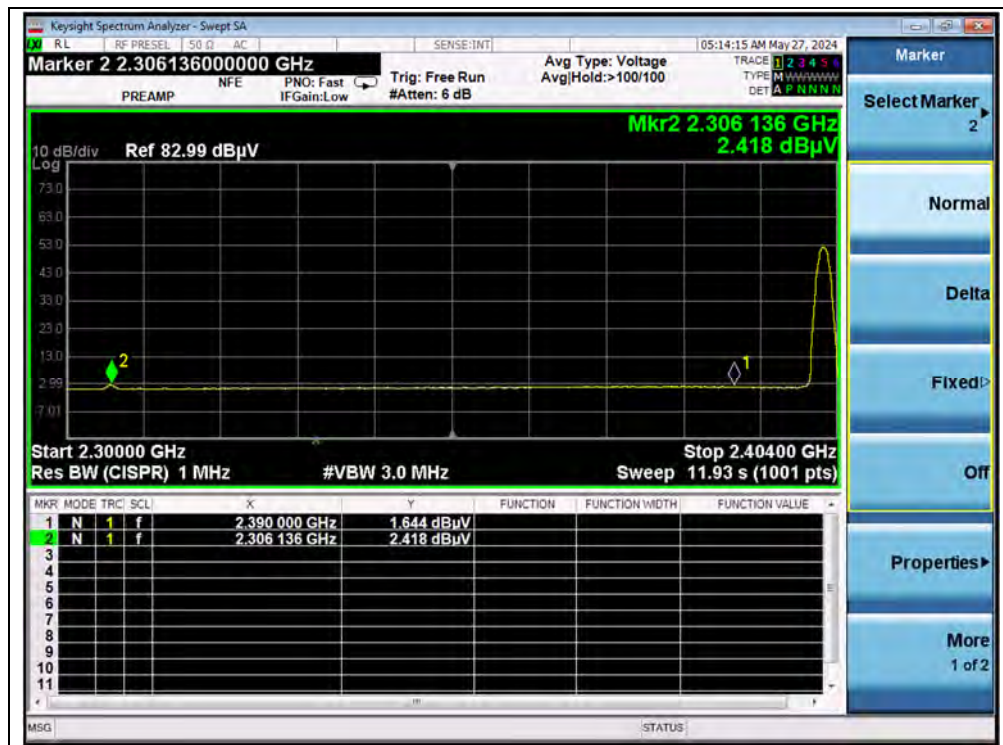
(AVERAGE, Channel 78, $\pi/4$ -DQPSK)

**8-DPSK Mode**

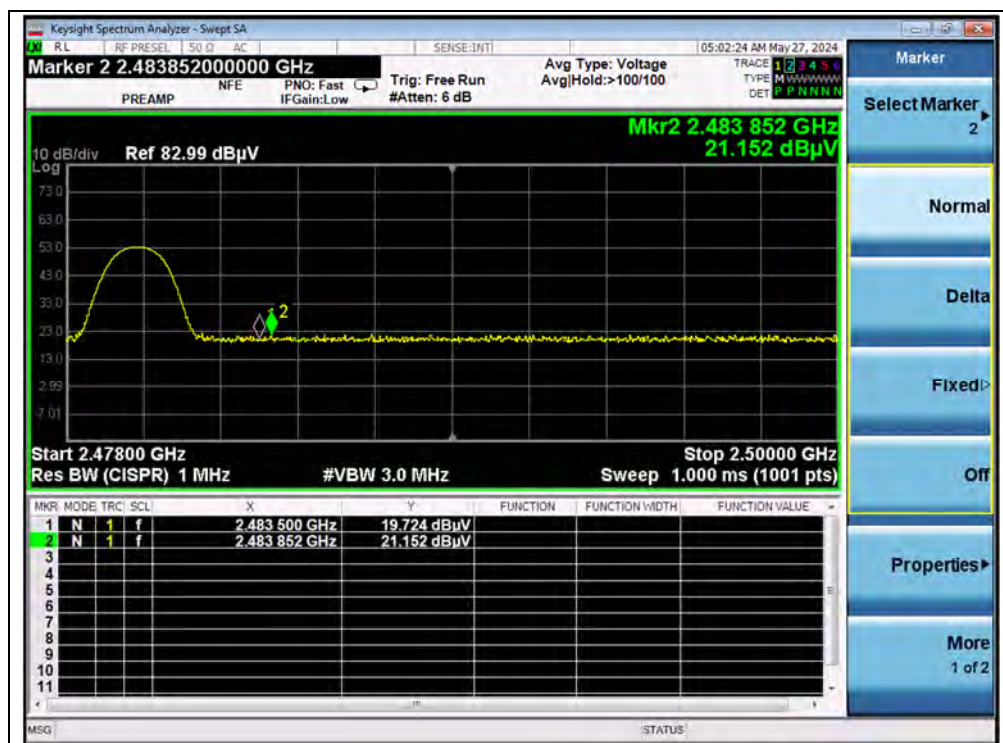
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
0	2382.99	PK	21.82	6.74	27.20	55.76	74	PASS
0	2306.14	AV	2.42	6.74	27.20	36.36	54	PASS
78	2483.85	PK	21.15	6.74	27.20	55.09	74	PASS
78	2483.50	AV	0.54	6.74	27.20	34.48	54	PASS



(PEAK, Channel 0, 8-DPSK)



(AVERAGE, Channel 0, 8-DPSK)



(PEAK, Channel 78, 8-DPSK)



(AVERAGE, Channel 78, 8-DPSK)



A.12. 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.

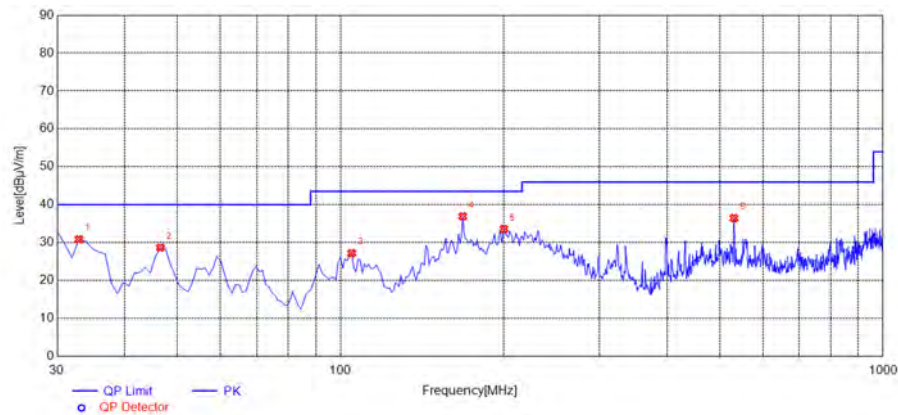
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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.

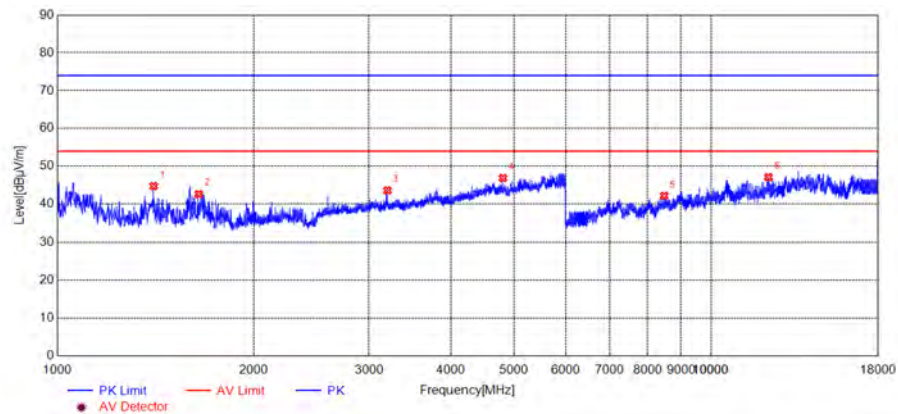
**GFSK Mode**

Plot for Channel 0



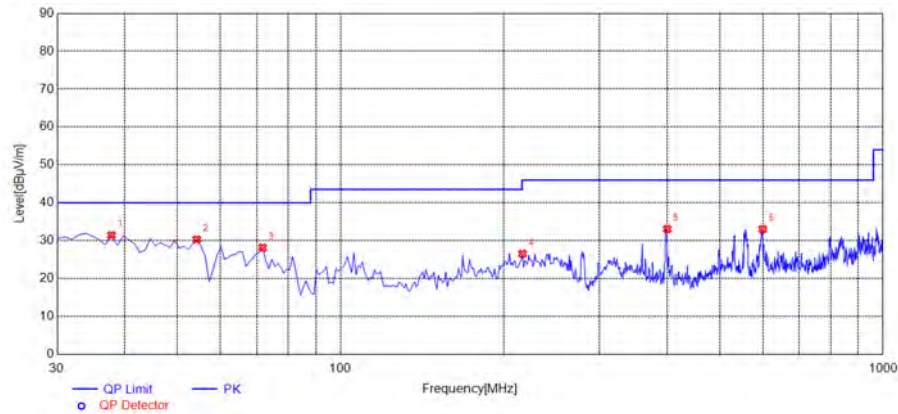
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	30.86	-34.80	40.00	Horizontal	PASS
46.5065	28.67	-29.02	40.00	Horizontal	PASS
104.7648	27.20	-31.03	43.50	Horizontal	PASS
167.8779	36.93	-34.56	43.50	Horizontal	PASS
199.9199	33.59	-31.67	43.50	Horizontal	PASS
531.0210	36.48	-23.63	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



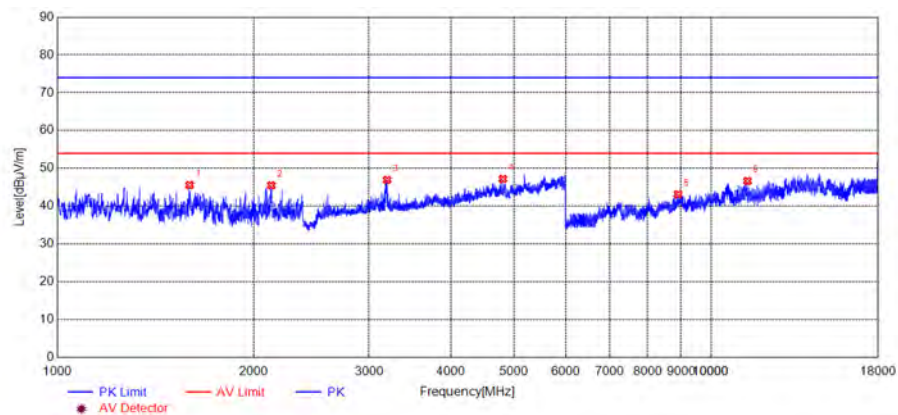
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1405.0675	44.75	-24.07	74.00	Horizontal	PASS
1645.9410	42.62	-23.62	74.00	Horizontal	PASS
3199.5333	43.62	-17.29	74.00	Horizontal	PASS
4804.8008	46.88	-11.35	74.00	Horizontal	PASS
8477.2064	42.19	-2.94	74.00	Horizontal	PASS
12237.5198	47.11	4.83	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
37.7678	31.44	-37.52	40.00	Vertical	PASS
54.2743	30.34	-29.36	40.00	Vertical	PASS
71.7518	28.18	-33.75	40.00	Vertical	PASS
216.4264	26.56	-31.89	46.00	Vertical	PASS
399.9399	33.09	-26.29	46.00	Vertical	PASS
599.9600	33.05	-21.99	46.00	Vertical	PASS

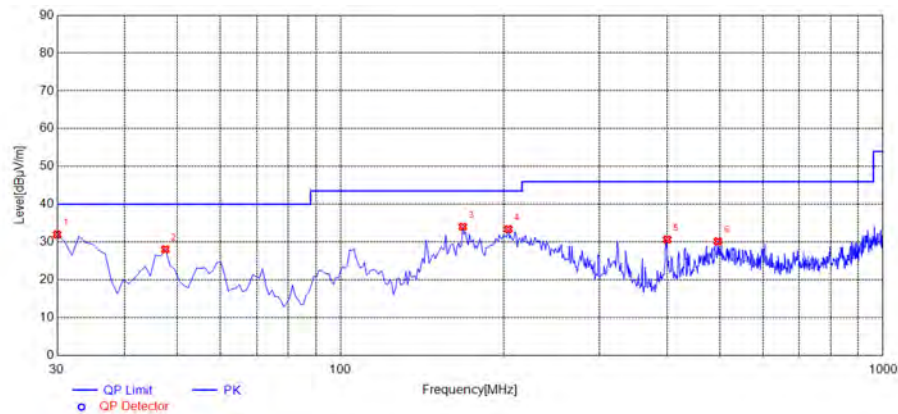
(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1725.1209	46.34	-23.59	74.00	Vertical	PASS
2210.2017	45.79	-21.21	74.00	Vertical	PASS
2956.9928	43.94	-18.47	74.00	Vertical	PASS
4803.9673	46.73	-11.35	74.00	Vertical	PASS
5545.7576	47.80	-8.33	74.00	Vertical	PASS
13043.5870	47.89	6.87	74.00	Vertical	PASS

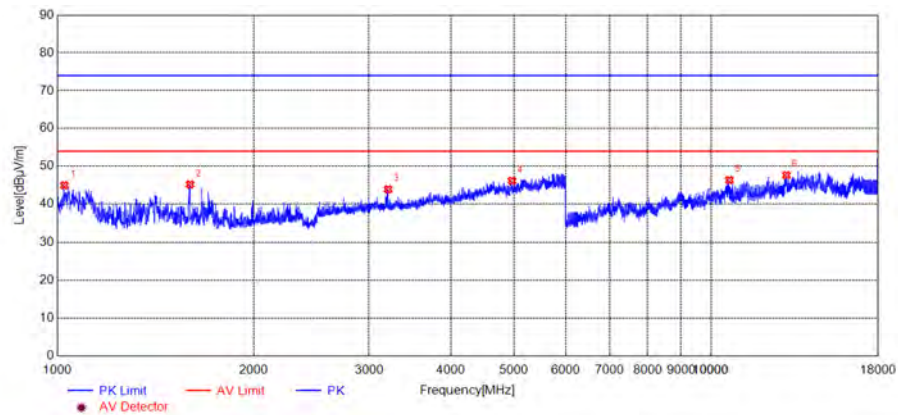
(Antenna Vertical, 1GHz to 18GHz)

Plot for Channel 39



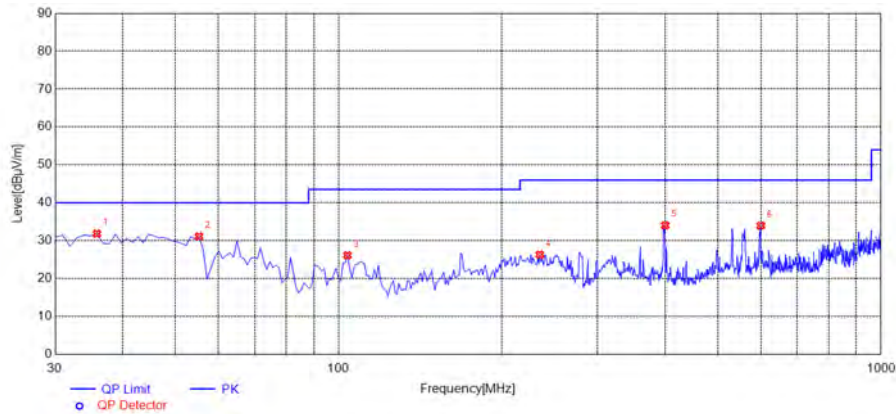
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
30.0000	32.00	-31.77	40.00	Horizontal	PASS
47.4775	28.09	-29.00	40.00	Horizontal	PASS
167.8779	34.06	-34.56	43.50	Horizontal	PASS
203.8038	33.41	-31.70	43.50	Horizontal	PASS
399.9399	30.70	-26.29	46.00	Horizontal	PASS
496.0661	30.20	-24.25	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



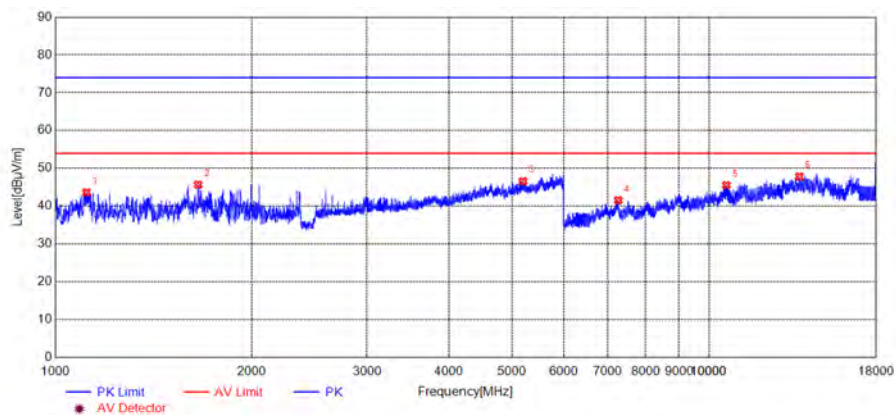
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1025.8376	44.99	-24.30	74.00	Horizontal	PASS
1596.7661	45.21	-23.62	74.00	Horizontal	PASS
3207.0345	43.93	-17.26	74.00	Horizontal	PASS
4960.6601	46.17	-10.84	74.00	Horizontal	PASS
10665.3888	46.38	2.57	74.00	Horizontal	PASS
13041.5868	47.67	6.84	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
35.8258	31.85	-38.14	40.00	Vertical	PASS
55.2452	31.12	-29.38	40.00	Vertical	PASS
103.7938	26.17	-31.13	43.50	Vertical	PASS
234.8749	26.34	-30.87	46.00	Vertical	PASS
399.9399	34.05	-26.29	46.00	Vertical	PASS
599.9600	33.99	-21.99	46.00	Vertical	PASS

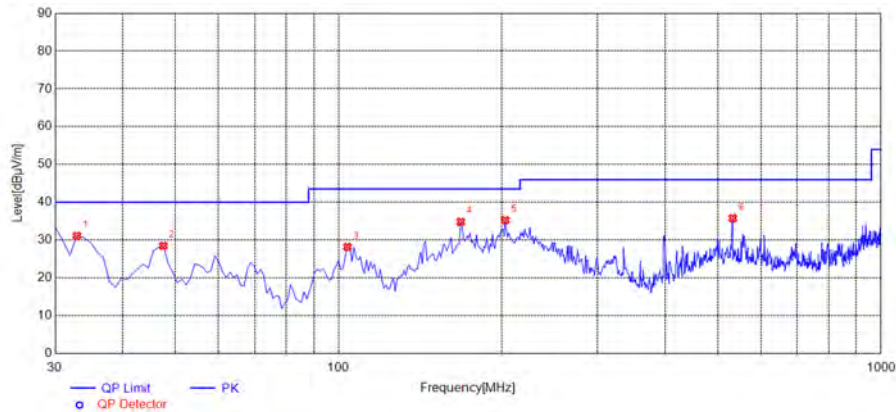
(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1116.6861	43.64	-24.12	74.00	Vertical	PASS
1654.2757	45.70	-23.63	74.00	Vertical	PASS
5194.0323	46.62	-9.98	74.00	Vertical	PASS
7264.1053	41.57	-3.34	74.00	Vertical	PASS
10627.3856	45.57	2.41	74.00	Vertical	PASS
13745.6455	47.86	6.99	74.00	Vertical	PASS

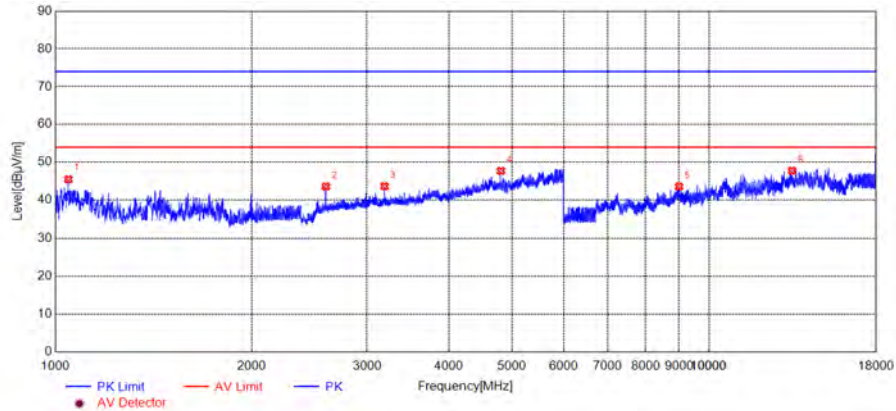
(Antenna Vertical, 1GHz to 18GHz)

Plot for Channel 78



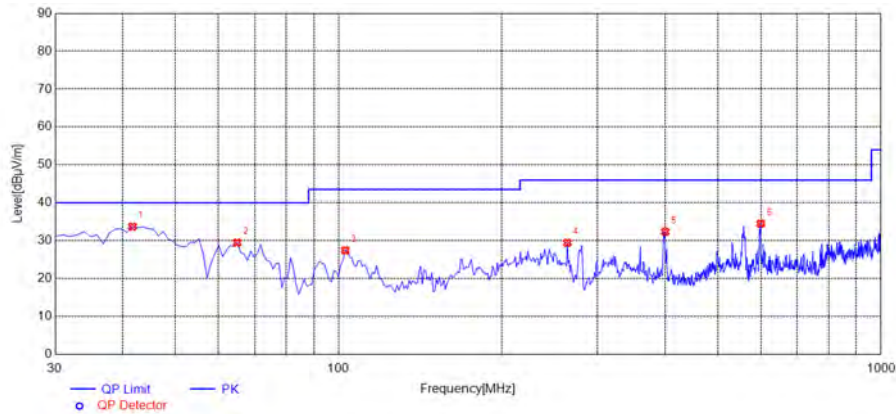
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	31.17	-34.80	40.00	Horizontal	PASS
47.4775	28.49	-29.00	40.00	Horizontal	PASS
103.7938	28.19	-31.13	43.50	Horizontal	PASS
167.8779	34.82	-34.56	43.50	Horizontal	PASS
202.8328	35.27	-31.68	43.50	Horizontal	PASS
532.9630	35.80	-23.62	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



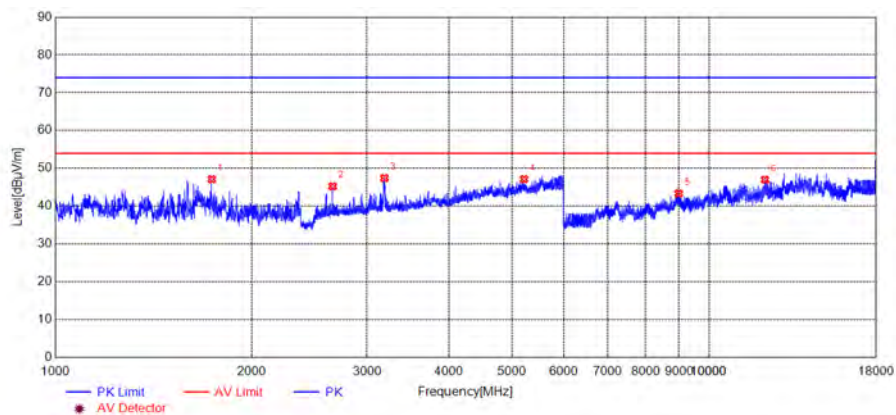
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1047.5079	45.52	-24.11	74.00	Horizontal	PASS
2594.4324	43.59	-19.50	74.00	Horizontal	PASS
3190.3651	43.67	-17.38	74.00	Horizontal	PASS
4803.9673	47.75	-11.35	74.00	Horizontal	PASS
8994.2495	43.58	-0.86	74.00	Horizontal	PASS
13389.6158	47.79	6.42	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
41.6517	33.74	-29.40	40.00	Vertical	PASS
64.9550	29.50	-31.13	40.00	Vertical	PASS
102.8228	27.47	-31.18	43.50	Vertical	PASS
264.0040	29.47	-30.12	46.00	Vertical	PASS
399.9399	32.36	-26.29	46.00	Vertical	PASS
599.9600	34.52	-21.99	46.00	Vertical	PASS

(Antenna Vertical, 30MHz to 1GHz)

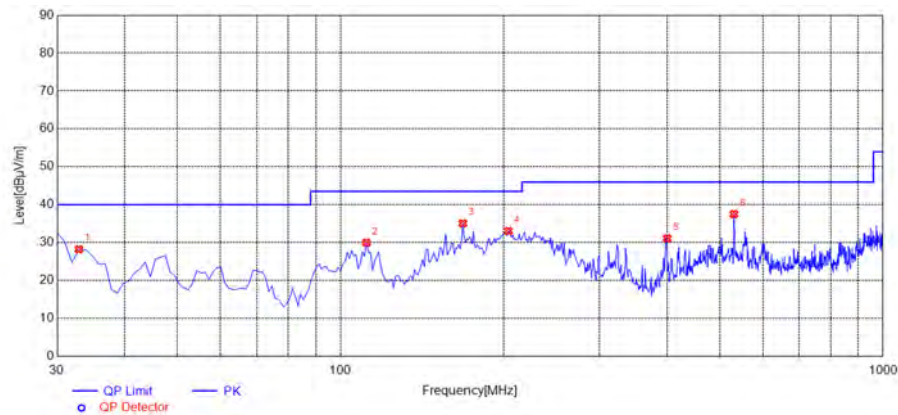


Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1735.9560	47.16	-23.54	74.00	Vertical	PASS
2656.1094	45.26	-19.19	74.00	Vertical	PASS
3187.8646	47.44	-17.41	74.00	Vertical	PASS
5212.3687	47.16	-9.96	74.00	Vertical	PASS
8984.2487	43.36	-0.95	74.00	Vertical	PASS
12178.5149	47.00	3.89	74.00	Vertical	PASS

(Antenna Vertical, 1GHz to 18GHz)

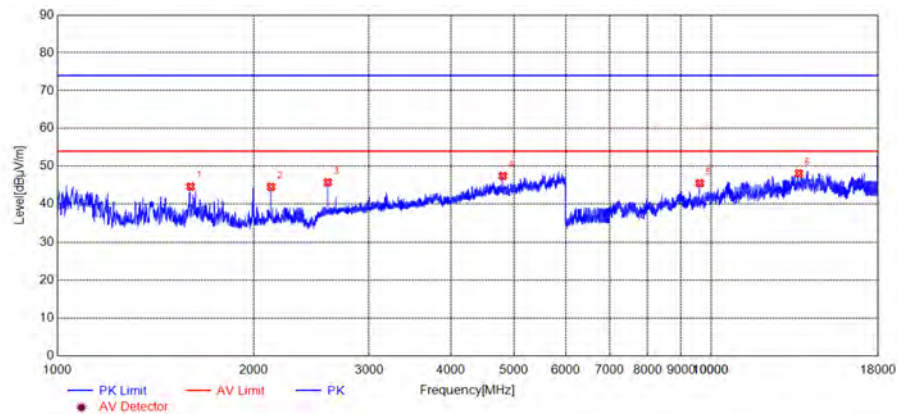
 **$\pi/4$ -DQPSK Mode**

Plot for Channel 0



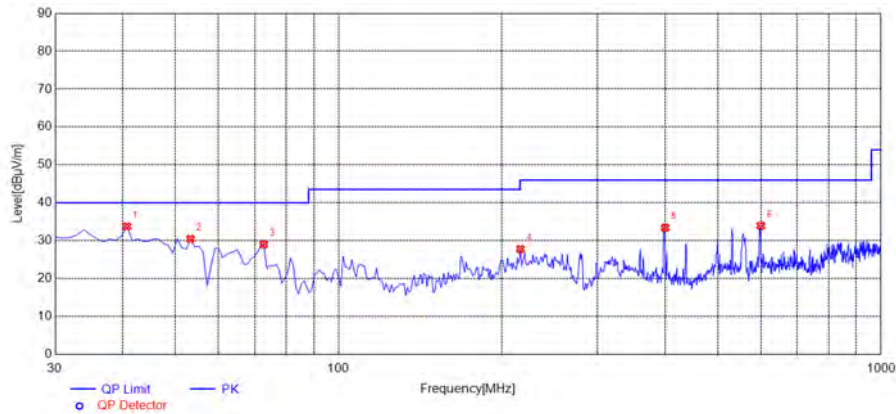
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	28.25	-34.80	40.00	Horizontal	PASS
111.5616	29.98	-31.67	43.50	Horizontal	PASS
167.8779	35.08	-34.56	43.50	Horizontal	PASS
203.8038	33.09	-31.70	43.50	Horizontal	PASS
399.9399	31.11	-26.29	46.00	Horizontal	PASS
531.0210	37.54	-23.63	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



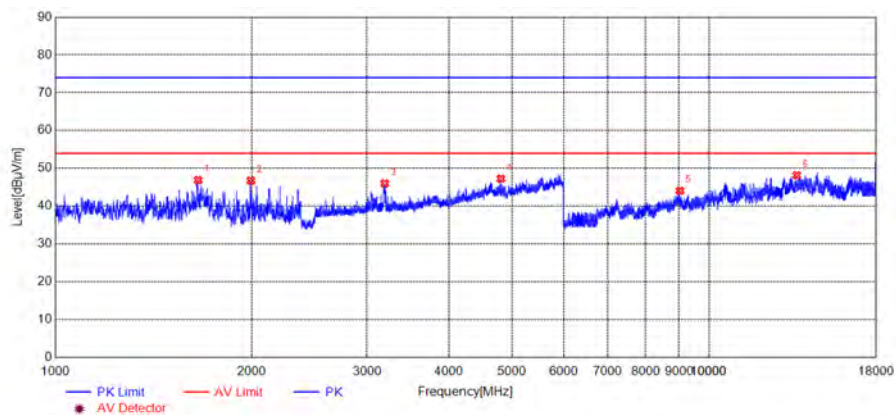
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1600.1000	44.62	-23.59	74.00	Horizontal	PASS
2124.3541	44.55	-21.62	74.00	Horizontal	PASS
2594.4324	45.75	-19.50	74.00	Horizontal	PASS
4803.9673	47.44	-11.35	74.00	Horizontal	PASS
9608.3007	45.53	-0.18	74.00	Horizontal	PASS
13619.6350	48.13	6.53	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
40.6807	33.76	-29.55	40.00	Vertical	PASS
53.3033	30.48	-29.51	40.00	Vertical	PASS
72.7227	29.06	-34.10	40.00	Vertical	PASS
216.4264	27.81	-31.89	46.00	Vertical	PASS
399.9399	33.43	-26.29	46.00	Vertical	PASS
599.9600	33.96	-21.99	46.00	Vertical	PASS

(Antenna Vertical, 30MHz to 1GHz)

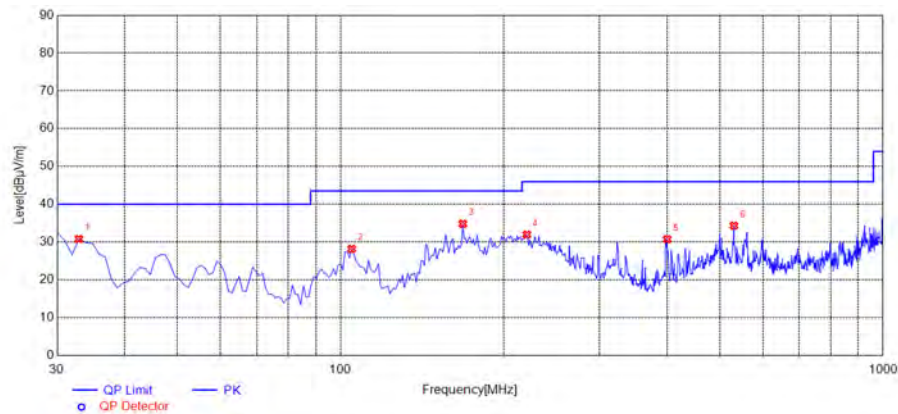


Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1654.2757	46.91	-23.63	74.00	Vertical	PASS
1992.6654	46.78	-22.04	74.00	Vertical	PASS
3192.0320	45.98	-17.37	74.00	Vertical	PASS
4803.9673	47.25	-11.35	74.00	Vertical	PASS
9026.2522	44.07	-1.15	74.00	Vertical	PASS
13617.6348	48.20	6.65	74.00	Vertical	PASS

(Antenna Vertical, 1GHz to 18GHz)

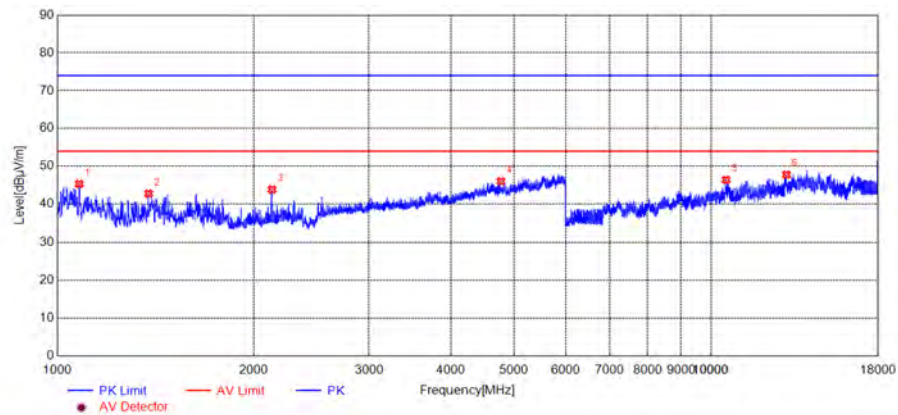


Plot for Channel 39



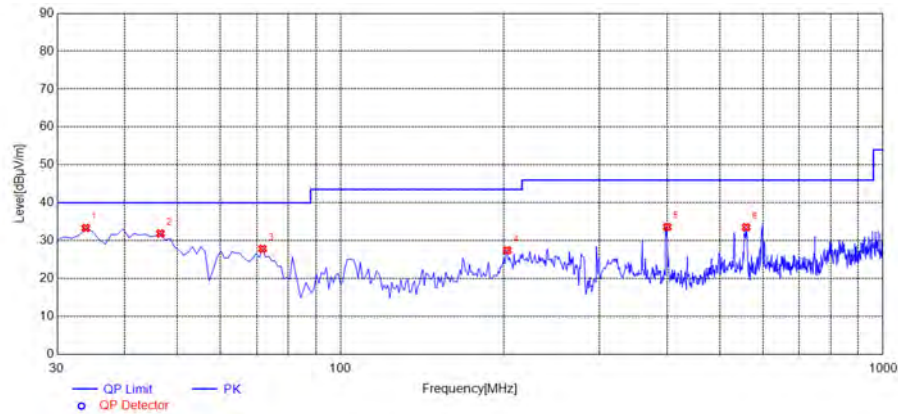
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	30.83	-34.80	40.00	Horizontal	PASS
104.7648	28.20	-31.03	43.50	Horizontal	PASS
167.8779	34.83	-34.56	43.50	Horizontal	PASS
220.3103	31.99	-31.73	46.00	Horizontal	PASS
399.9399	30.76	-26.29	46.00	Horizontal	PASS
531.0210	34.36	-23.63	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



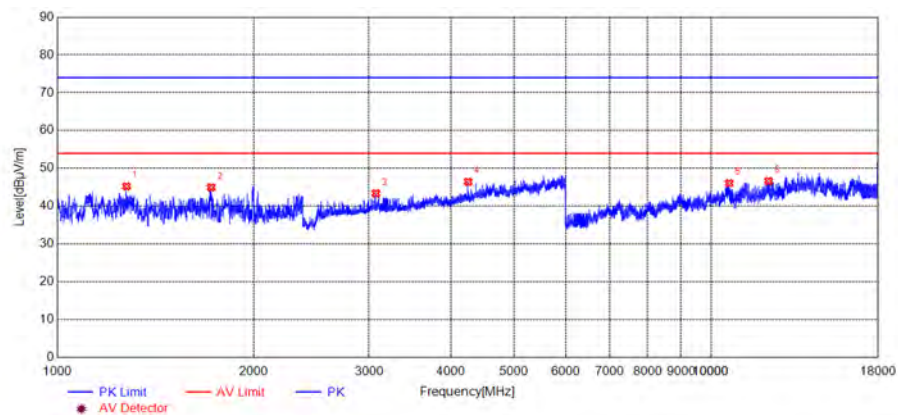
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1080.8468	45.35	-24.28	74.00	Horizontal	PASS
1380.0633	42.79	-23.88	74.00	Horizontal	PASS
2131.0218	43.89	-21.59	74.00	Horizontal	PASS
4771.4619	46.06	-11.35	74.00	Horizontal	PASS
10542.3785	46.43	2.95	74.00	Horizontal	PASS
13039.5866	47.83	6.80	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
33.8839	33.35	-38.23	40.00	Vertical	PASS
46.5065	31.93	-29.02	40.00	Vertical	PASS
71.7518	27.89	-33.75	40.00	Vertical	PASS
202.8328	27.46	-31.68	43.50	Vertical	PASS
399.9399	33.63	-26.29	46.00	Vertical	PASS
559.1792	33.55	-23.26	46.00	Vertical	PASS

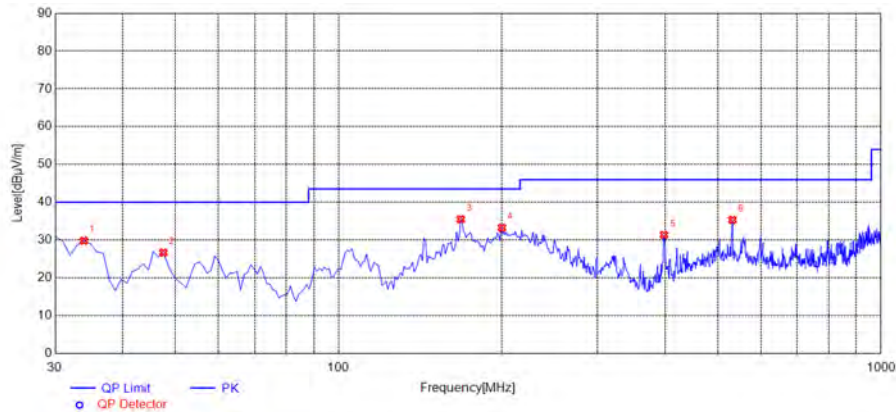
(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1276.7128	45.26	-24.13	74.00	Vertical	PASS
1720.1200	44.94	-23.62	74.00	Vertical	PASS
3072.8455	43.40	-17.45	74.00	Vertical	PASS
4251.3752	46.44	-13.71	74.00	Vertical	PASS
10658.3882	46.08	2.78	74.00	Vertical	PASS
12248.5207	46.67	5.04	74.00	Vertical	PASS

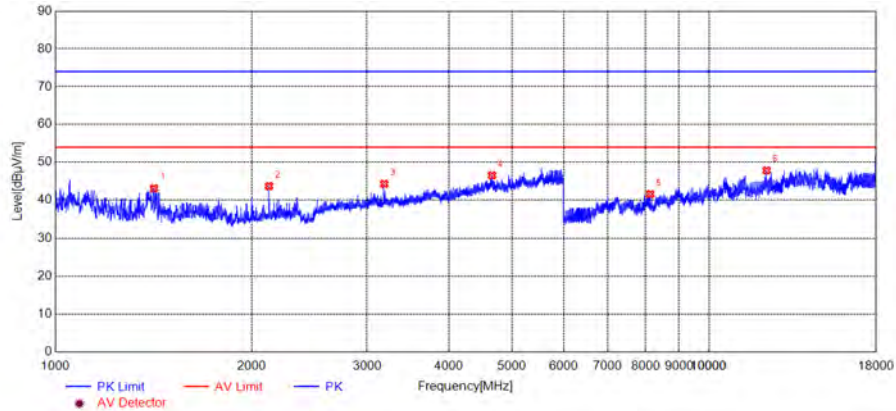
(Antenna Vertical, 1GHz to 18GHz)

Plot for Channel 78



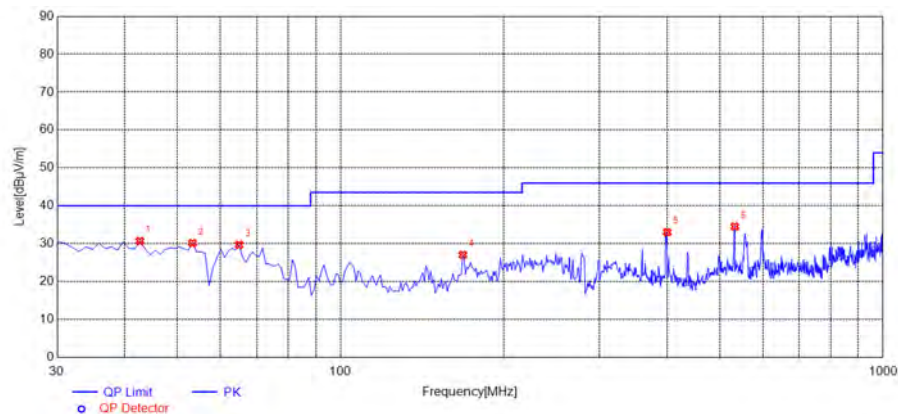
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
33.8839	29.82	-38.23	40.00	Horizontal	PASS
47.4775	26.69	-29.00	40.00	Horizontal	PASS
167.8779	35.52	-34.56	43.50	Horizontal	PASS
199.9199	33.27	-31.67	43.50	Horizontal	PASS
397.9980	31.38	-26.37	46.00	Horizontal	PASS
531.9920	35.34	-23.63	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



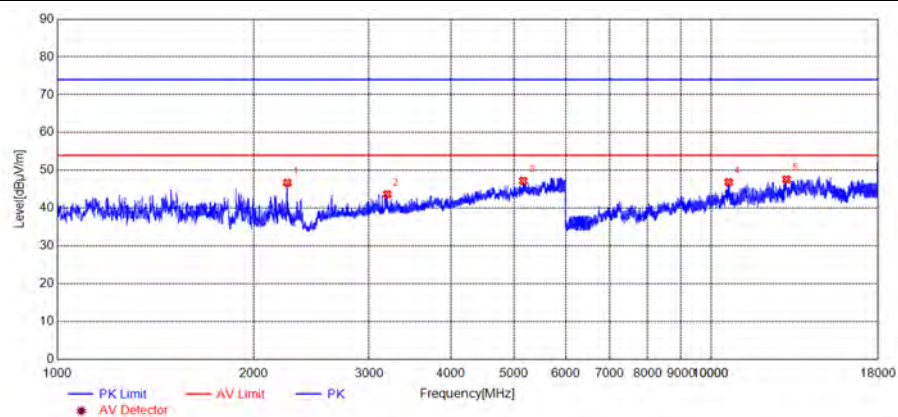
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1416.7361	43.13	-23.90	74.00	Horizontal	PASS
2123.5206	43.71	-21.63	74.00	Horizontal	PASS
3186.1977	44.31	-17.43	74.00	Horizontal	PASS
4658.1097	46.57	-11.31	74.00	Horizontal	PASS
8128.1773	41.60	-3.37	74.00	Horizontal	PASS
12247.5206	47.88	5.02	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
42.6226	30.69	-29.25	40.00	Vertical	PASS
53.3033	30.18	-29.51	40.00	Vertical	PASS
64.9550	29.70	-31.13	40.00	Vertical	PASS
167.8779	27.07	-34.56	43.50	Vertical	PASS
399.9399	33.05	-26.29	46.00	Vertical	PASS
532.9630	34.54	-23.62	46.00	Vertical	PASS

(Antenna Vertical, 30MHz to 1GHz)

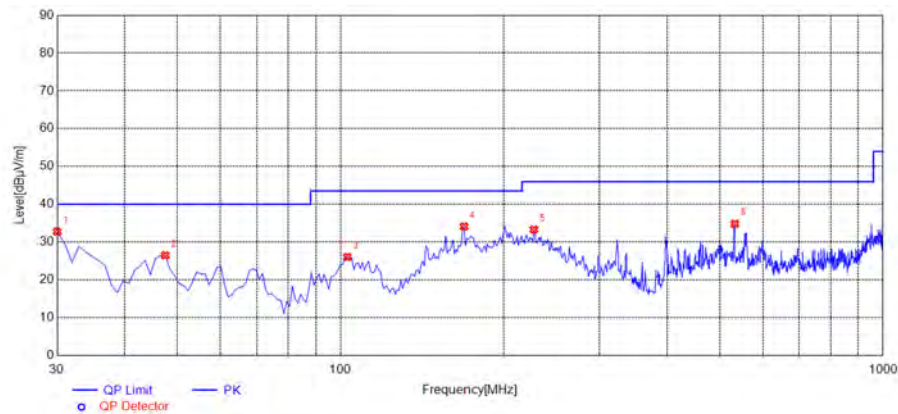


Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
2248.5414	46.75	-21.00	74.00	Vertical	PASS
3198.6998	43.68	-17.29	74.00	Vertical	PASS
5161.5269	47.24	-10.65	74.00	Vertical	PASS
10639.3866	46.89	2.74	74.00	Vertical	PASS
13046.5872	47.62	6.93	74.00	Vertical	PASS

(Antenna Vertical, 1GHz to 18GHz)

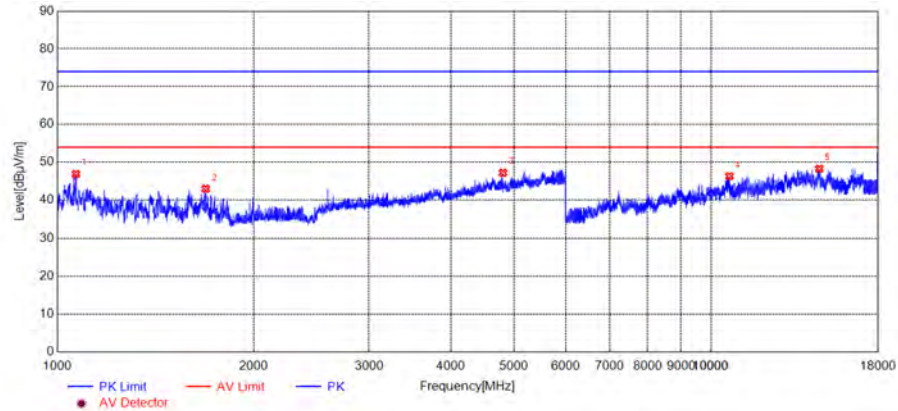
8-DPSK Mode

Plot for Channel 0



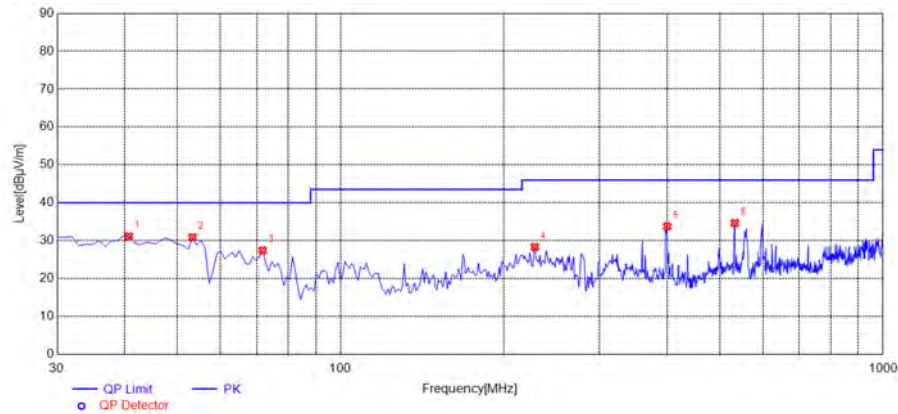
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
30.0000	32.76	-31.77	40.00	Horizontal	PASS
47.4775	26.51	-29.00	40.00	Horizontal	PASS
102.8228	26.06	-31.18	43.50	Horizontal	PASS
168.8488	34.12	-34.40	43.50	Horizontal	PASS
227.1071	33.33	-31.17	46.00	Horizontal	PASS
532.9630	34.83	-23.62	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



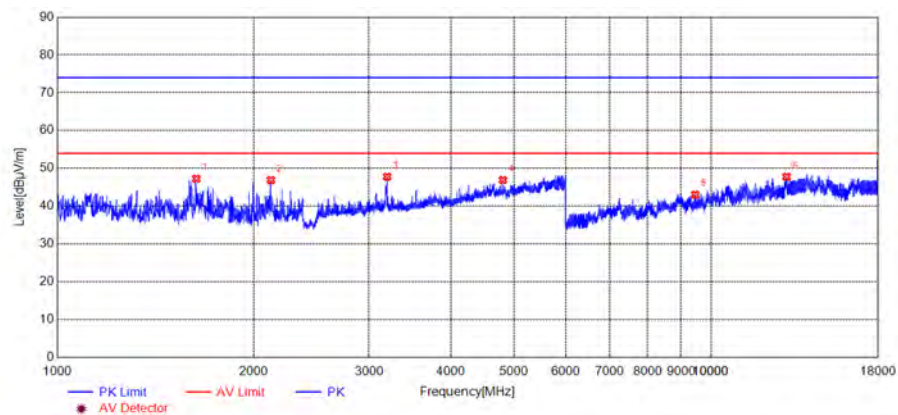
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1068.3447	46.90	-24.20	74.00	Horizontal	PASS
1686.7811	43.00	-23.69	74.00	Horizontal	PASS
4804.8008	47.23	-11.35	74.00	Horizontal	PASS
10668.3890	46.33	2.49	74.00	Horizontal	PASS
14634.7196	48.30	7.46	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
40.6807	31.20	-29.55	40.00	Vertical	PASS
53.3033	30.92	-29.51	40.00	Vertical	PASS
71.7518	27.42	-33.75	40.00	Vertical	PASS
228.0781	28.35	-31.12	46.00	Vertical	PASS
399.9399	33.77	-26.29	46.00	Vertical	PASS
532.9630	34.67	-23.62	46.00	Vertical	PASS

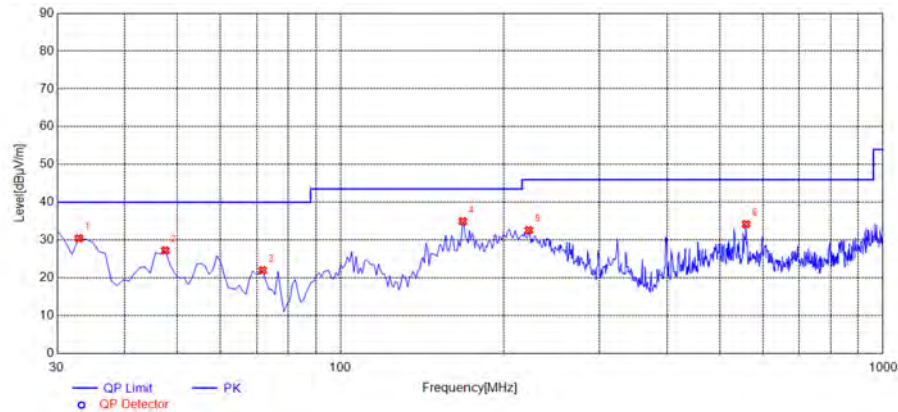
(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1631.7720	47.28	-23.61	74.00	Vertical	PASS
2122.6871	46.90	-21.63	74.00	Vertical	PASS
3197.8663	47.81	-17.30	74.00	Vertical	PASS
4803.9673	46.92	-11.35	74.00	Vertical	PASS
9460.2884	43.06	-0.73	74.00	Vertical	PASS
13045.5871	47.80	6.91	74.00	Vertical	PASS

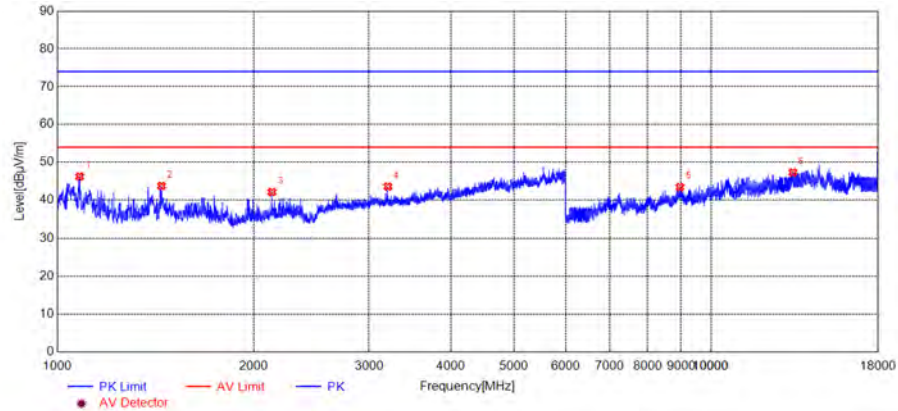
(Antenna Vertical, 1GHz to 18GHz)

Plot for Channel 39



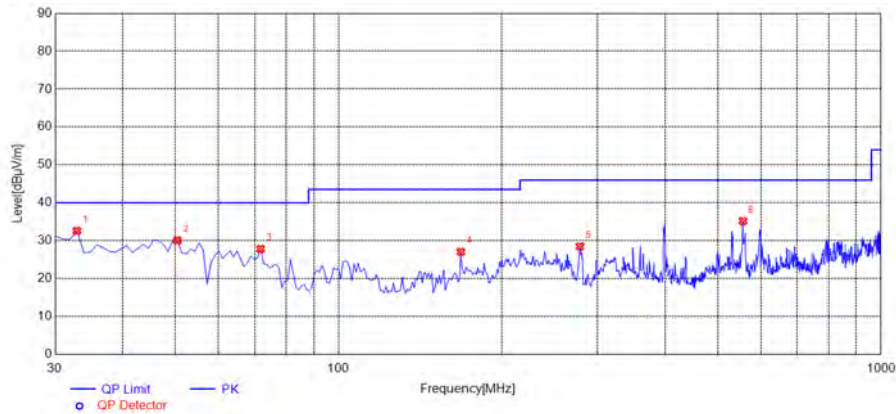
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	30.47	-34.80	40.00	Horizontal	PASS
47.4775	27.25	-29.00	40.00	Horizontal	PASS
71.7518	22.02	-33.75	40.00	Horizontal	PASS
167.8779	34.99	-34.56	43.50	Horizontal	PASS
222.2523	32.62	-31.55	46.00	Horizontal	PASS
559.1792	34.20	-23.26	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



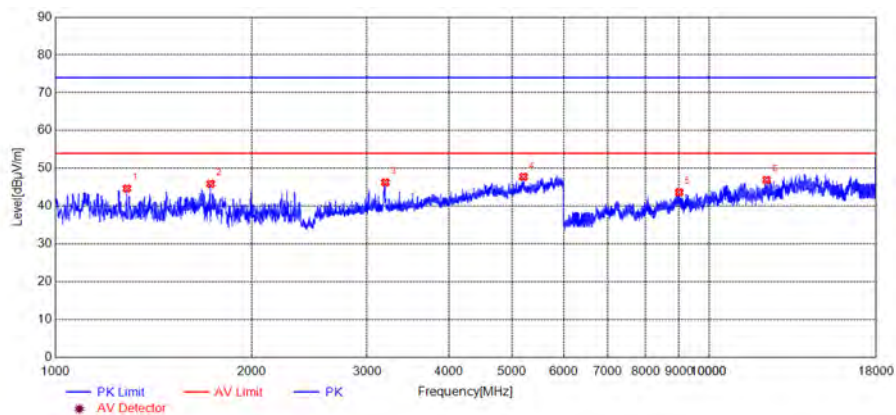
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1082.5138	46.23	-24.29	74.00	Horizontal	PASS
1444.2407	43.78	-23.49	74.00	Horizontal	PASS
2131.0218	42.14	-21.59	74.00	Horizontal	PASS
3204.5341	43.58	-17.27	74.00	Horizontal	PASS
8960.2467	43.45	-1.18	74.00	Horizontal	PASS
13333.6111	47.33	5.53	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
32.9129	32.59	-34.80	40.00	Vertical	PASS
50.3904	30.05	-28.93	40.00	Vertical	PASS
71.7518	27.83	-33.75	40.00	Vertical	PASS
167.8779	27.10	-34.56	43.50	Vertical	PASS
278.5686	28.50	-29.78	46.00	Vertical	PASS
556.2663	35.16	-23.30	46.00	Vertical	PASS

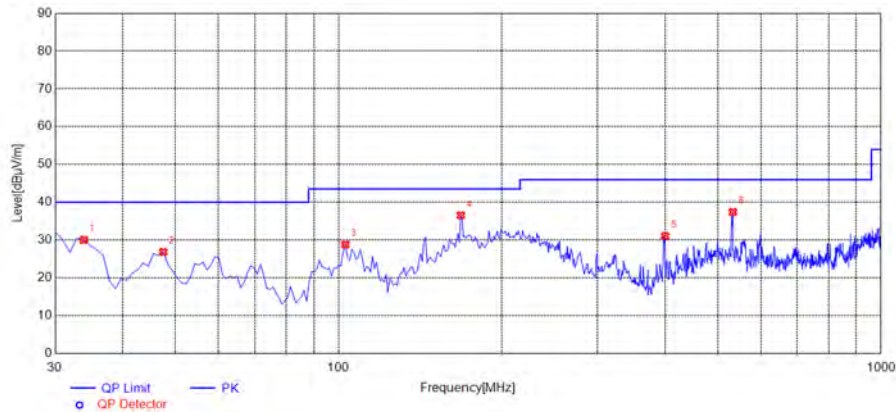
(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1287.5479	44.70	-24.08	74.00	Vertical	PASS
1729.2882	45.92	-23.58	74.00	Vertical	PASS
3198.6998	46.28	-17.29	74.00	Vertical	PASS
5201.5336	47.79	-9.87	74.00	Vertical	PASS
9001.2501	43.67	-0.82	74.00	Vertical	PASS
12247.5206	46.93	5.02	74.00	Vertical	PASS

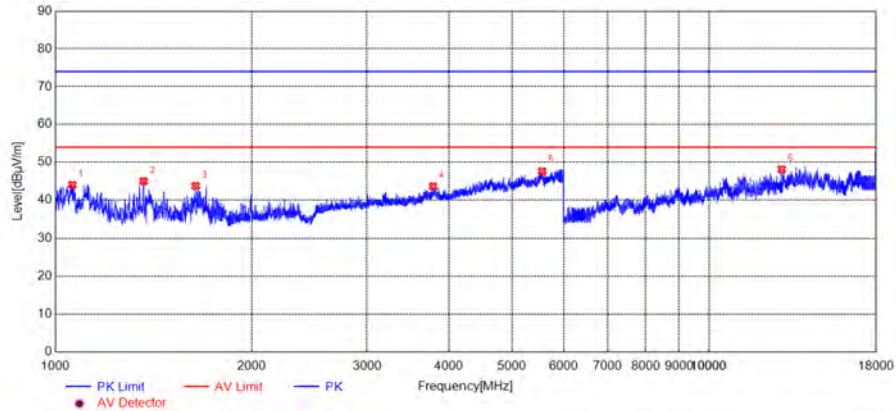
(Antenna Vertical, 1GHz to 18GHz)

Plot for Channel 78



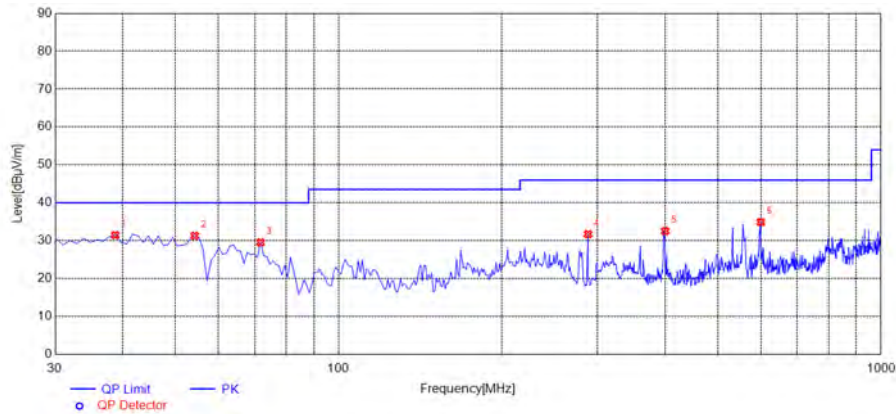
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
33.8839	30.03	-38.23	40.00	Horizontal	PASS
47.4775	26.89	-29.00	40.00	Horizontal	PASS
102.8228	28.81	-31.18	43.50	Horizontal	PASS
167.8779	36.56	-34.56	43.50	Horizontal	PASS
399.9399	31.08	-26.29	46.00	Horizontal	PASS
532.9630	37.42	-23.62	46.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 1GHz)



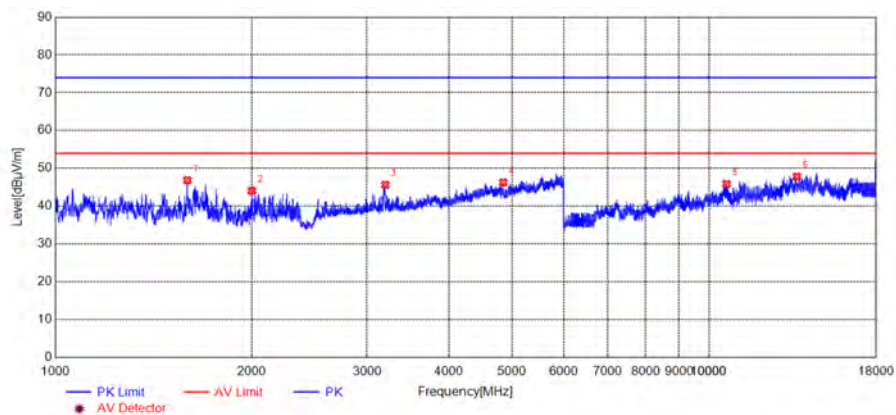
Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1062.5104	44.01	-24.17	74.00	Horizontal	PASS
1365.8943	45.01	-23.69	74.00	Horizontal	PASS
1640.1067	43.76	-23.61	74.00	Horizontal	PASS
3784.6308	43.64	-15.18	74.00	Horizontal	PASS
5555.7593	47.63	-8.43	74.00	Horizontal	PASS
12907.5756	48.15	3.84	74.00	Horizontal	PASS

(Antenna Horizontal, 1GHz to 18GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
38.7387	31.47	-35.84	40.00	Vertical	PASS
54.2743	31.31	-29.36	40.00	Vertical	PASS
71.7518	29.58	-33.75	40.00	Vertical	PASS
288.2783	31.75	-29.45	46.00	Vertical	PASS
399.9399	32.55	-26.29	46.00	Vertical	PASS
599.9600	34.90	-21.99	46.00	Vertical	PASS

(Antenna Vertical, 30MHz to 1GHz)



Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Antenna	Verdict
1593.4322	46.87	-23.64	74.00	Vertical	PASS
1999.3332	44.09	-21.90	74.00	Vertical	PASS
3199.5333	45.67	-17.29	74.00	Vertical	PASS
4843.9740	46.29	-11.10	74.00	Vertical	PASS
10633.3861	45.89	2.57	74.00	Vertical	PASS
13621.6351	47.84	6.42	74.00	Vertical	PASS

(Antenna Vertical, 1GHz to 18GHz)

END OF REPORT