REPORT No.: SZ25040455W02

TEST REPORT

APPLICANT	:	Shanghai SenseRobot Intelligent Technology Co., Ltd.
PRODUCT NAME	:	SenseRobot Chess Lite
MODEL NAME	:	RM4G-D, RM4G-N, RM4G-E, RM4G-S, RM4G-A, RM4W-D, RM4W-N, RM4W-E, RM4W-S, RM4W-A
BRAND NAME	:	SenseRobot
FCC ID	:	2BLUE-RM4G-D
STANDARD(S)	:	47 CFR Part 15 Subpart E
RECEIPT DATE	:	2025-05-12
TEST DATE	:	2025-06-06 to 2025-06-25
ISSUE DATE	:	2025-08-08

Edited by: Zeng Xiaoying (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

NOTE: This document is issued by Shenzhen Morlab Communications Technology Co., Ltd., the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

MORLAB
Shenzhen Morlab Communications Technology Co., Ltd.
FL.1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2025-08-08	First edition

1. Summary of Test Result

No.	Section	Description	Test Date	Test Engineer	Result	Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	/
2	ANSI C63.10	Duty Cycle of the Test Signal	Jun. 06, 2025	Li Xinpeng	PASS	/
3	15.407(a)	Maximum Conducted Output Power	Jun. 06, 2025	Li Xinpeng	PASS	/
4	15.407(a)(e)	Emission Bandwidth	Jun. 06, 2025	Li Xinpeng	PASS	/
5	15.407(a)	Peak Power Spectral Density	Jun. 06, 2025	Li Xinpeng	PASS	/
6	15.407(g)	Frequency Stability	Jun. 12, 2025	Li Xinpeng	PASS	/
7	15.207	Conducted Emission	Jun. 20, 2025	Fan Shengquan	PASS	/
8	15.407(b)	Restricted Frequency Bands	Jun. 25, 2025	Zhang Liyun	PASS	/
9	15.407(b)	Radiated Emission	Jun. 25, 2025	Zhang Liyun	PASS	/

Note 1: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.102013.

Note 2: These RF tests were performed according to the method of measurements prescribed in KDB789033 D02 v02r01.

Note 3: Any additions, deviation, or exclusions from the method shall be noted in the “Remark”.

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 E 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
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2024.09.11	2025.09.10
Temperature Chamber	12108015	DTL-003S101	YOMA	2024.09.11	2025.09.10
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Attenuator	MTJ6004-10	10dB	MTJ cooperation	N/A	N/A

1.2.2 Conducted Emission Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	101052	ESPI	R&S	2025.05.15	2026.05.14
LISN	103131	ENV 216	R&S	2025.03.20	2026.03.19
RF Coaxial Cable (DC-100MHz)	EMC-CE-00514	N/A	N/A	2025.05.06	2026.05.05

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	2025.05.13	2026.05.12
Test Antenna - Bi-Log	01267	VULB 9163	Schwarzbeck	2024.07.26	2025.07.25
Test Antenna - Loop	00131	FMZB1519B	Schwarzbeck	2024.09.19	2025.09.18
Test Antenna – Horn	02634	BBHA 9120D	Schwarzbeck	2024.06.29	2025.06.28
Test Antenna – Horn	BBHA9170 #773	BBHA9170	Schwarzbeck	2025.05.13	2026.05.12
Preamplifier (10MHz-6GHz)	46732	S10M100L3802	LUCIX CORP.	2025.05.13	2026.05.12
Preamplifier (2GHz-18GHz)	61171/61172	S020180L3203	LUCIX CORP.	2025.05.13	2026.05.12
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2025.05.13	2026.05.12
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2025.05.13	2026.05.12
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2025.05.13	2026.05.12
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2025.05.13	2026.05.12
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2024.09.11	2025.09.10
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2024.09.11	2025.09.10
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	2024.09.11	2025.09.10
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%
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:	Shanghai SenseRobot Intelligent Technology Co., Ltd.
Applicant Address:	Unit 6-77, 6th Floor, No. 1900 Hongmei Road, Xuhui District, Shanghai, China
Manufacturer:	Shanghai SenseRobot Intelligent Technology Co., Ltd.
Manufacturer Address:	Unit 6-77, 6th Floor, No. 1900 Hongmei Road, Xuhui District, Shanghai, China

2.2. Information of EUT

Product Name:	SenseRobot Chess Lite	
Sample No.:	1#, 2#, 3#	
Hardware Version:	V1	
Software Version:	V1.0.6 R3	
Modulation Technology:	OFDM	
Modulation Mode:	802.11a, 802.11n (HT20), 802.11n (HT40) 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)	
Operating Frequency Range:	5180MHz-5240MHz; 5745MHz-5825MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	2.71dBi	
Accessory Information:	AC Adaptor	
	Brand Name:	N/A
	Model No.:	KA3601A-1203000DE
	Serial No.:	N/A
	Rated Output:	11.4-12.6V⎓3A
	Rated Input:	100-240V~50/60Hz, <1A
	Manufacturer:	Shenzhen Keyu Power Supply Technology Co..Ltd.

Note 1: The EUT description presented in the report are provided by applicant and/or manufacturer, and the test laboratory is not responsible for the accuracy of the information. For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

Note 2: According to the certificate holder, they declared that the models RM4G-D, RM4G-N, RM4G-E, RM4G-S, RM4G-A, RM4W-D, RM4W-N, RM4W-E, RM4W-S, RM4W-A, are the same

products. These ten models only different in model name and color. Their electrical circuit design, layout, components used and internal wiring are identical. The main measuring model is RM4G-D, only the results for RM4G-D were recorded in this report.

2.3. Channel List of EUT

(U-NII-1) 5180MHz-5240MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**36**	**5180**	40	5200
	44	**5220**	**48**	**5240**
40MHz	**38**	**5190**	**46**	**5230**
80MHz	**42**	**5210**		
(U-NII-3) 5745MHz-5825MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**149**	**5745**	153	5765
	157	**5785**	161	5805
	165	**5825**		
40MHz	**151**	**5775**	**159**	**5795**
80MHz	**155**	**5775**		

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

2.4. Test Configuration of EUT

2.4.1.Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate
802.11a	20	OFDM	**BPSK**	**6**/9/12/18/24/36/48/54 Mbps
			QPSK	
			16QAM	
			64QAM	
802.11n	20/40 (HT20/40)	OFDM	**BPSK**	**MCS0**~MCS7
			QPSK	
			16QAM	
			64QAM	
802.11ac	20/40/80 (VHT20/40/80)	OFDM	**BPSK**	**MSC0**~MCS9
			QPSK	
			16QAM	
			64QAM	
			256QAM	

Note1: The worst-case mode (bold face) in all data rates has been determined during the pre-scan, only the test data of the worst-case were recorded in this report.

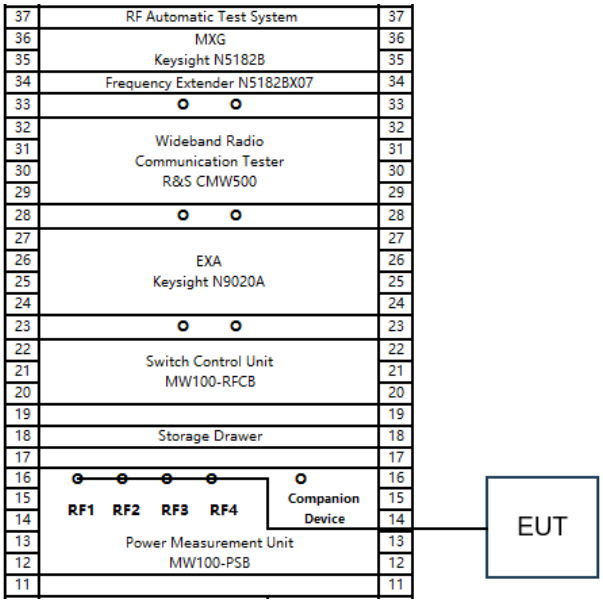
Note2: The RF signal transmission of EUT is controlled by the build-in engineering mode which is provided by the manufacturer. The recorded power setting value is the maximum that the engineering mode has configuration during testing.

2.5. Test Conditions

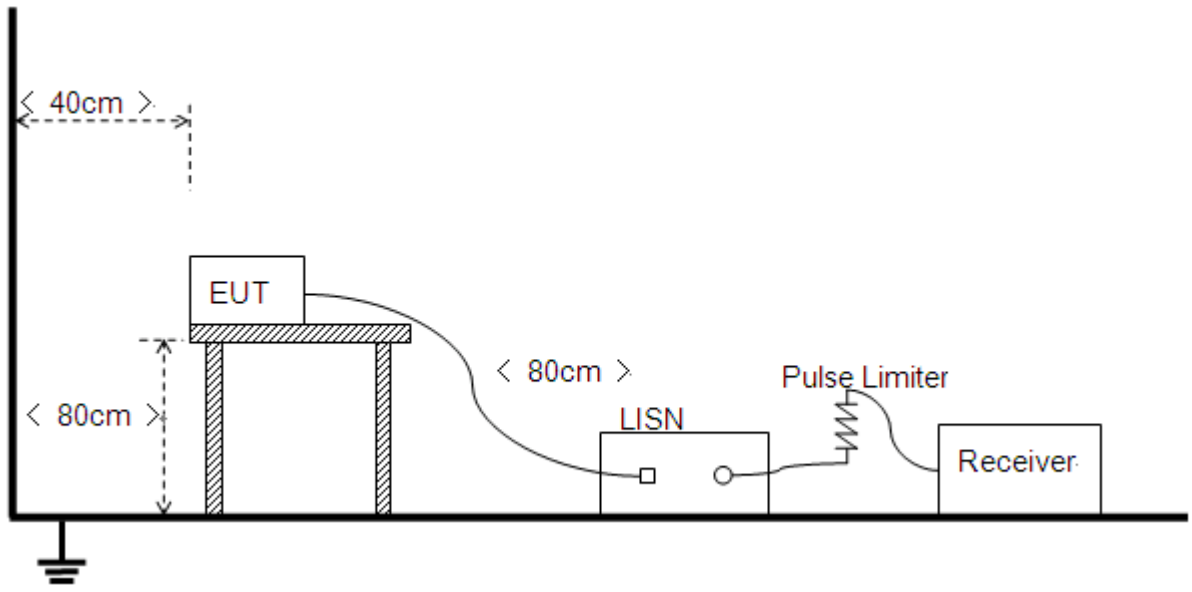
Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106

2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

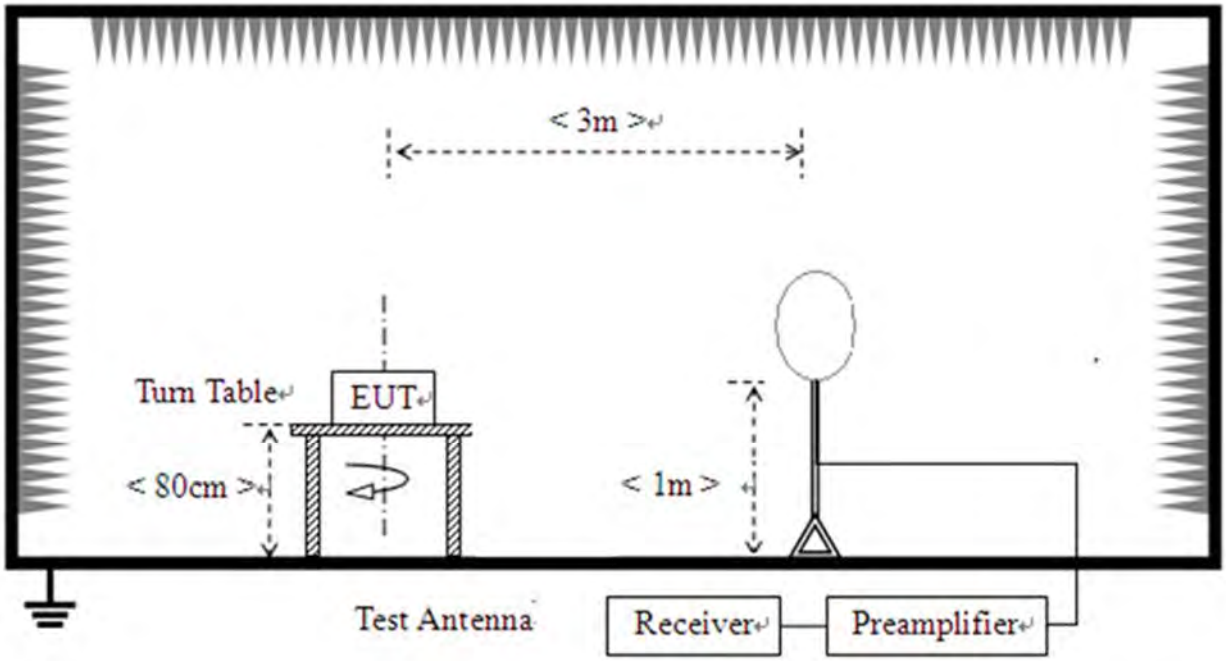


2.6.2.Conducted Emission Measurement

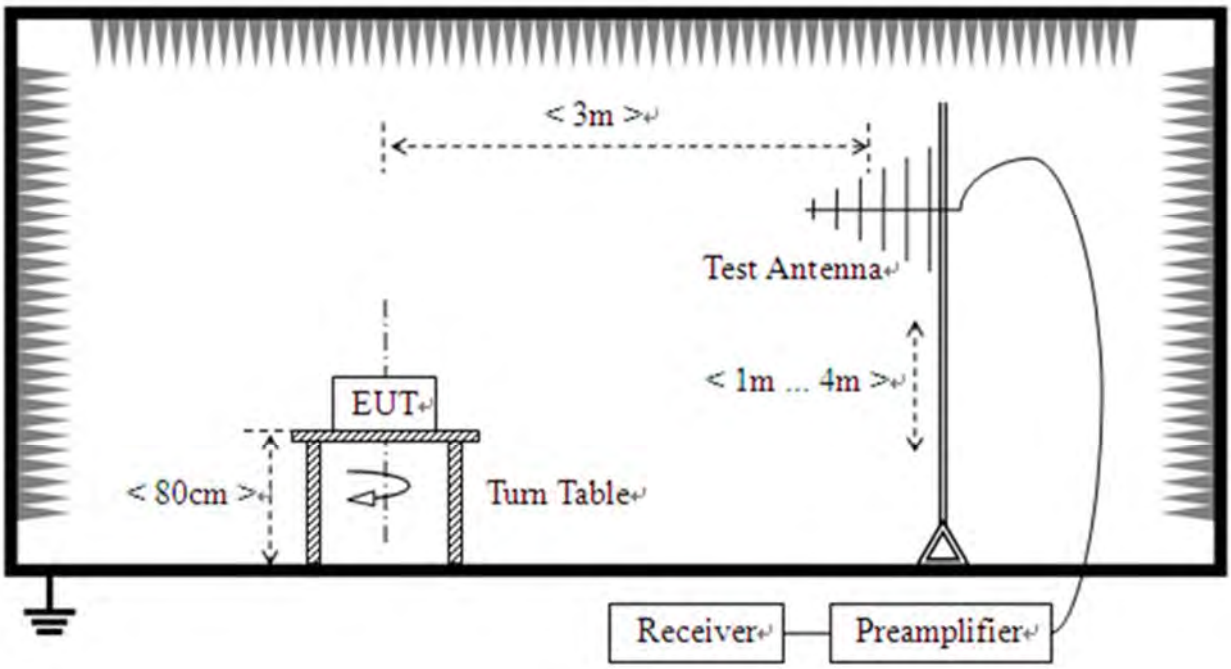


2.6.3.Radiation Measurement

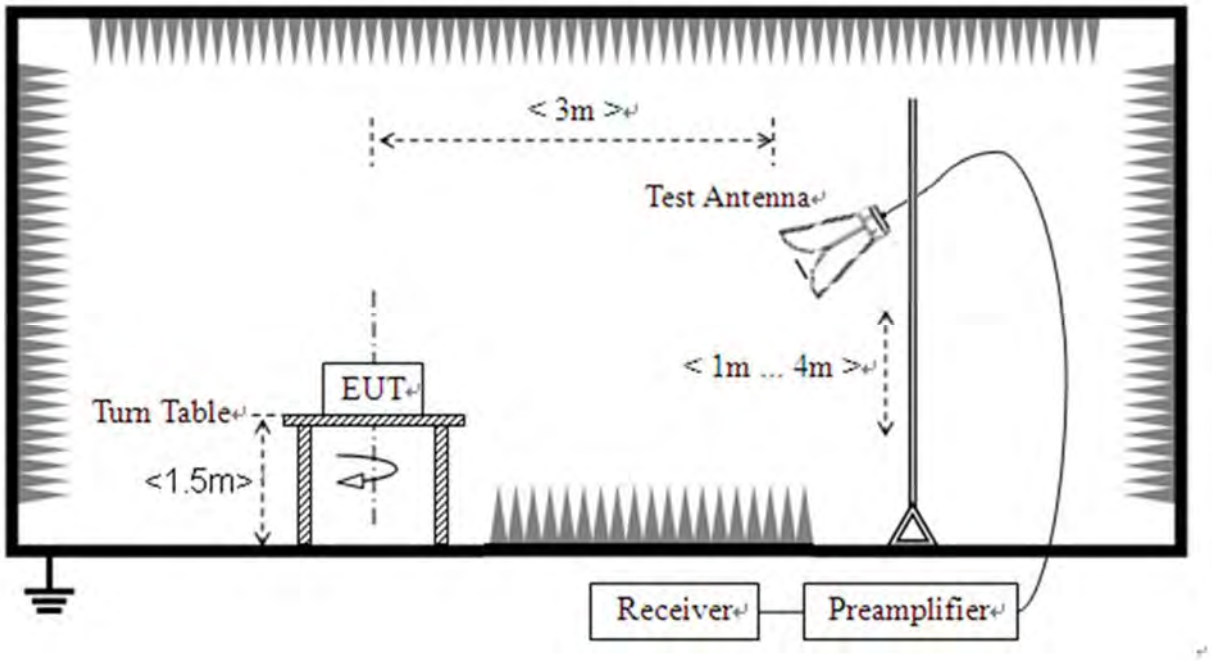
1) For radiated emissions from 9kHz to 30MHz



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 Conducted Output Power

3.3.1.Requirement

(1) For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the maximum antenna gain does not exceed 6dBi.
(2)For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or 11dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.
(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.
If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.
(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

3.3.2.Test Procedures

Based on method PM-G in Section Ⅱ.E.3.b) of KDB 789033 D02.

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. Emission Bandwidth

3.4.1.Requirement

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Determination of the emissions bandwidth is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement. Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.4.1.Test Procedures

1. KDB 789033 Section C) 1) Emission Bandwidth was used in order to prove compliance
a) Set RBW = approximately 1% of the emission bandwidth.
b) Set VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
2. KDB 789033 Section C) 2) minimum emission bandwidth for the band 5.725-5.85GHz was used in order to prove compliance.
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for theband5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.4.2.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.4.3.Test Result

Refer to Annex A.3 in this report.

3.5. Peak Power Spectral Density

3.5.1.Requirement

(1)For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.
(2)For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.
(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30dBm in any 500kHz band.
If transmitting antennas of directional gain greater than 6dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.
(4) According to KDB662911D01Measure-and-sum technique, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically to determine the total emission level from the device. Summing is performed in units that are directly proportional to power.

3.5.2.Test Procedures

KDB 789033 Section F) Maximum Power Spectral Density (PSD) Method SA-3 was used in order to prove compliance

1) Set span to encompass the entire 26-dB emission bandwidth
2) Set RBW = 1MHz. Set VBW ≥ 3MHz
3) Number of points in sweep ≥ 2 Span / RBW. Sweep time = auto
4) Detector = Average
5) Trace mode=Max hold

Record the max value

3.5.3.Test Setup Layout

Refer to chapter 2.6.1 in this report.

3.5.4.Test Result

Refer to Annex A.4 in this report.

3.6. Frequency Stability

3.6.1. Requirement

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2. Test Procedures

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between 5°Cto 40°C. The temperature was incremented by 10º intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

3.6.3. Test Result

Refer to Annex A.5 in this report.

3.7. Conducted Emission

3.7.1.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.

3.7.2.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.

3.7.3.Test Setup Layout

Refer to chapter 2.6.2 in this report.

3.7.4.Test Result

Refer to Annex A.7 in this report.

3.8. Restricted Frequency Bands

3.8.1.Requirement

The peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
The following formula is used to convert the equipment isotropic radiated power(e.i.r.p.) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \ \mu V/m$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBuV/m

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. 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

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.
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).

3.8.2.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.
KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance
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.

3.8.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.8.4.Test Result

Refer to Annex A.8 in this report.

3.9. Radiated Emission

3.9.1.Requirement

The peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.
(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.
The following formula is used to convert the equipment isotropic radiated power(e.i.r.p.) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \ \mu V/m$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz = 68.23 dBuV/m

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. 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

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.
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).

3.9.2.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.

3.9.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.9.4.Test Result

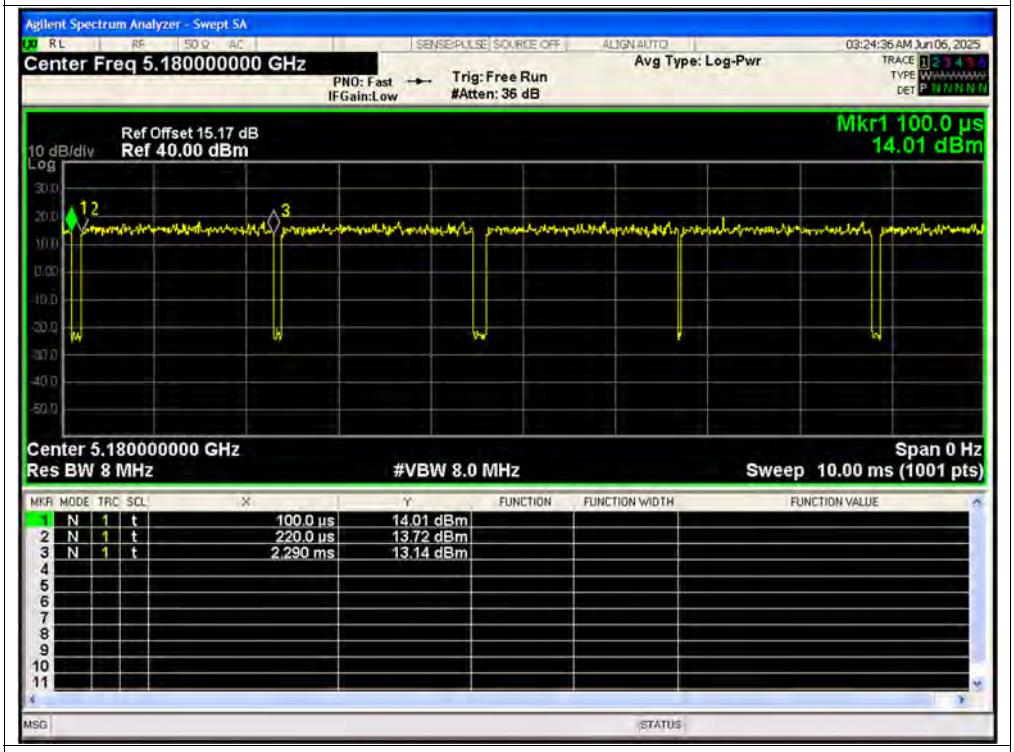
Refer to Annex A.9 in this report.

Annex A Test Data and Result

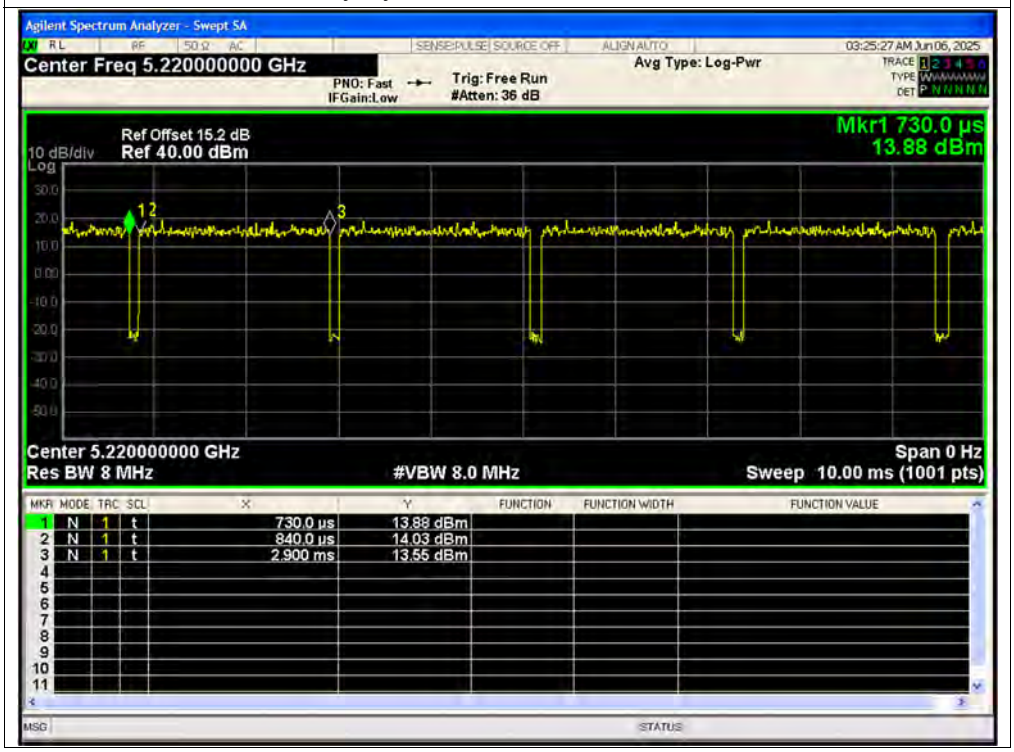
A.1. Duty Cycle of Test Signal

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	94.52	0.24	0.48
NVNT	a	5220	Ant1	94.93	0.23	0.49
NVNT	a	5240	Ant1	94.06	0.27	0.49
NVNT	a	5745	Ant1	97.18	0.12	0.48
NVNT	a	5785	Ant1	96.26	0.17	0.49
NVNT	a	5825	Ant1	93.21	0.31	0.49
NVNT	n20	5180	Ant1	95.05	0.22	0.52
NVNT	n20	5220	Ant1	93.2	0.31	0.52
NVNT	n20	5240	Ant1	95.05	0.22	0.52
NVNT	n20	5745	Ant1	94.58	0.24	0.52
NVNT	n20	5785	Ant1	93.66	0.28	0.52
NVNT	n20	5825	Ant1	93.66	0.28	0.52
NVNT	n40	5190	Ant1	89.52	0.48	1.06
NVNT	n40	5230	Ant1	95.92	0.18	1.06
NVNT	n40	5755	Ant1	92.16	0.35	1.06
NVNT	n40	5795	Ant1	91.26	0.4	1.06
NVNT	ac20	5180	Ant1	93.24	0.3	0.52
NVNT	ac20	5220	Ant1	94.17	0.26	0.52
NVNT	ac20	5240	Ant1	91.47	0.39	0.52
NVNT	ac20	5745	Ant1	93.69	0.28	0.52
NVNT	ac20	5785	Ant1	91.9	0.37	0.52
NVNT	ac20	5825	Ant1	95.54	0.2	0.52
NVNT	ac40	5190	Ant1	85.71	0.67	1.04
NVNT	ac40	5230	Ant1	93.14	0.31	1.05
NVNT	ac40	5755	Ant1	84.96	0.71	1.04
NVNT	ac40	5795	Ant1	96.97	0.13	1.04
NVNT	ac80	5210	Ant1	79.31	1.01	2.17
NVNT	ac80	5775	Ant1	77.97	1.08	2.17

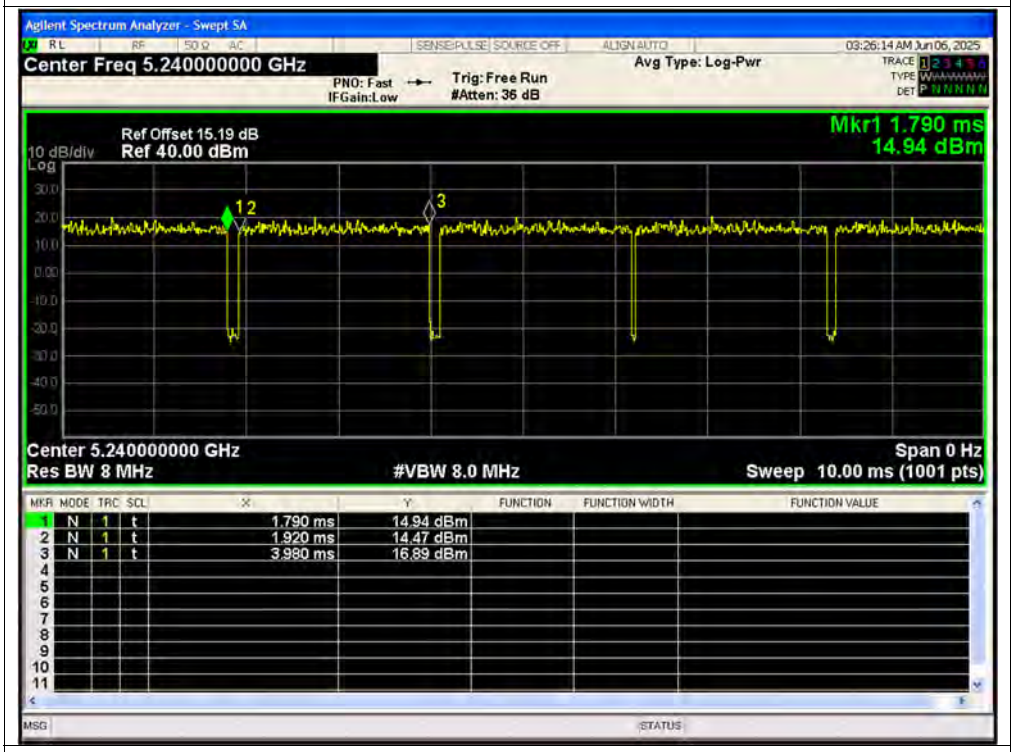
Test Graphs
Duty Cycle NVNT a 5180MHz Ant1



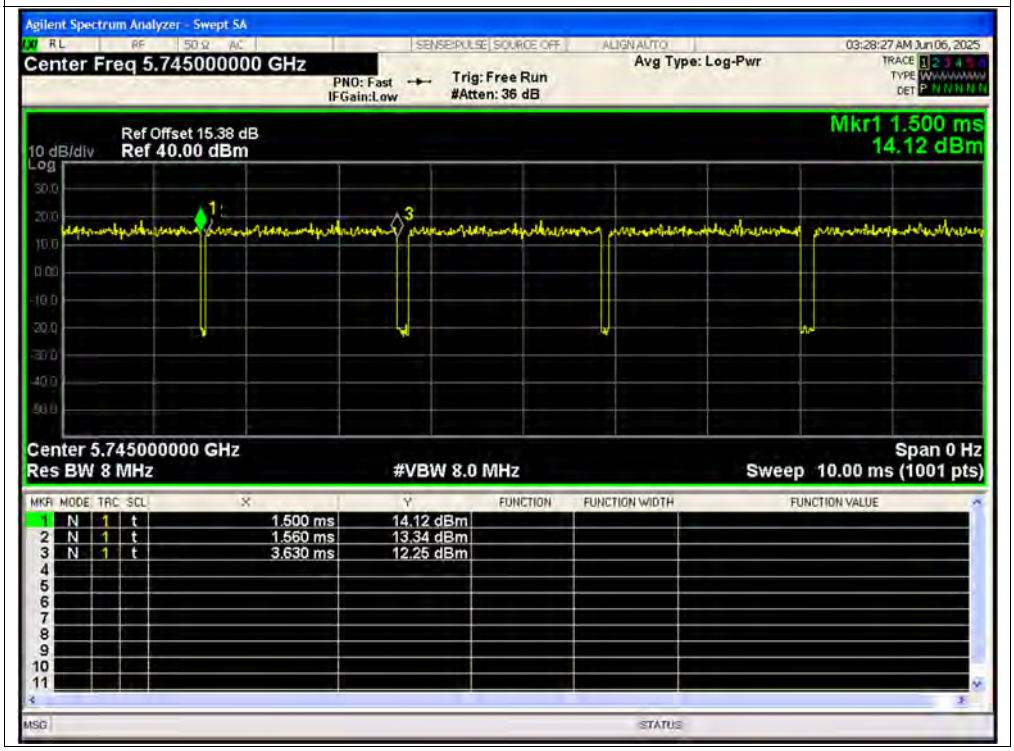
Duty Cycle NVNT a 5220MHz Ant1



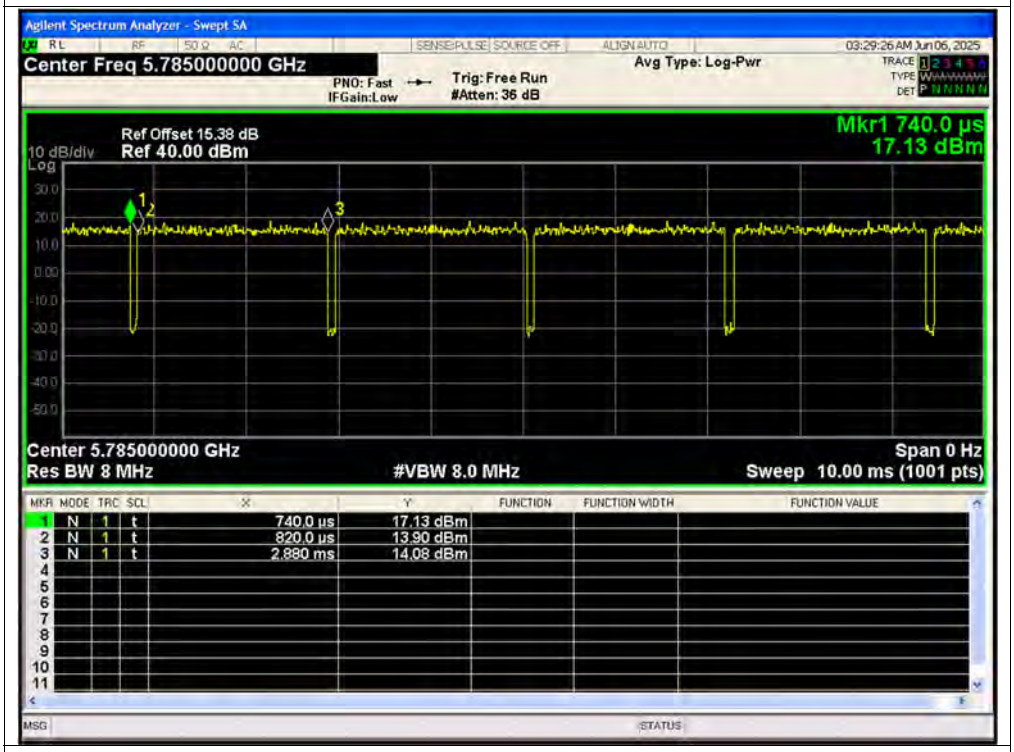
Duty Cycle NVNT a 5240MHz Ant1



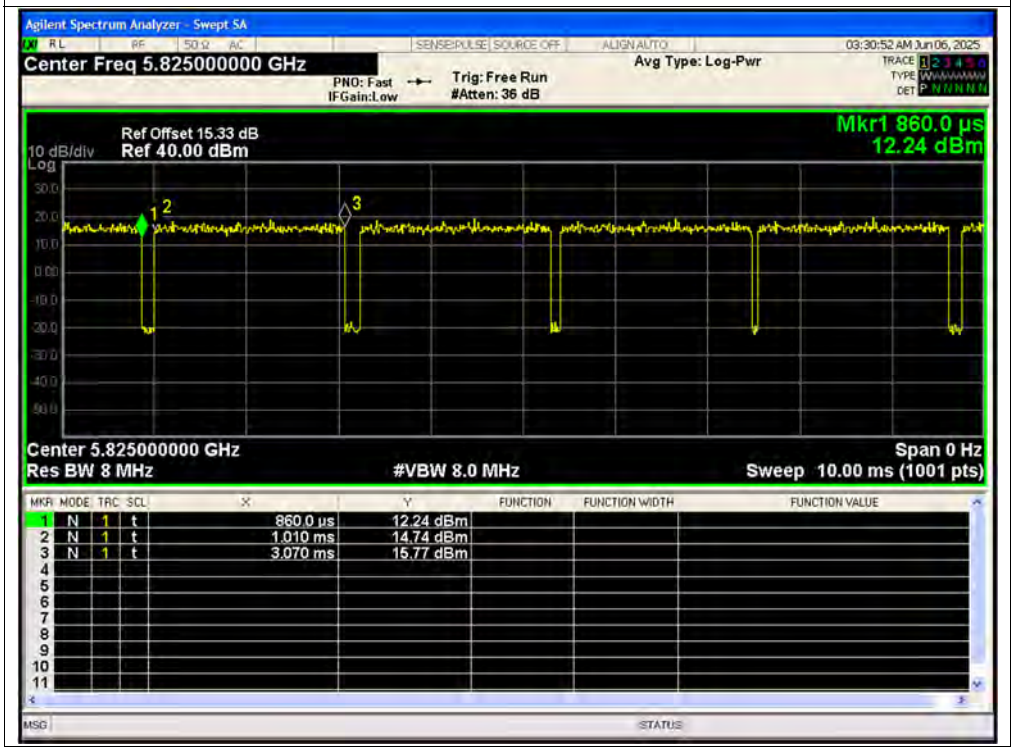
Duty Cycle NVNT a 5745MHz Ant1



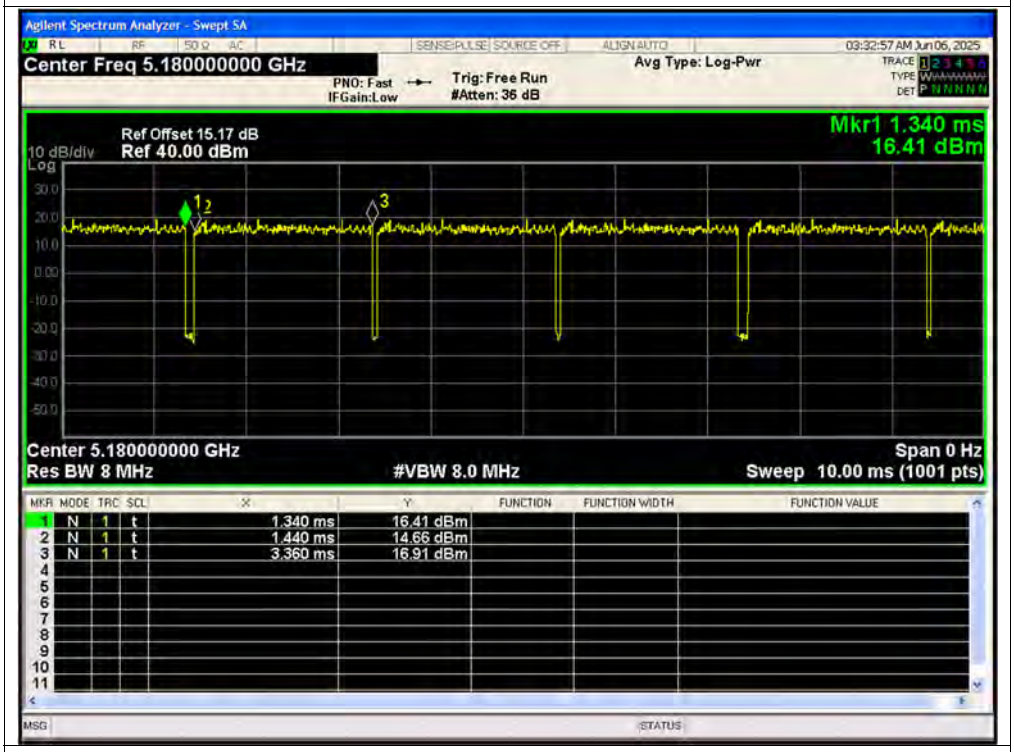
Duty Cycle NVNT a 5785MHz Ant1



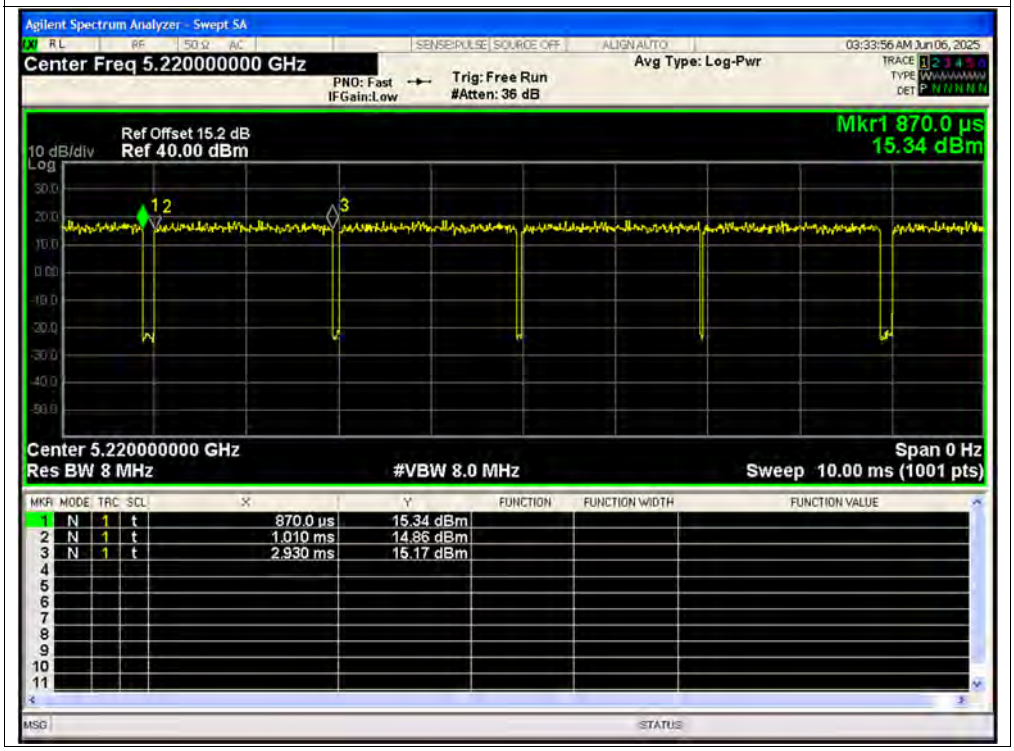
Duty Cycle NVNT a 5825MHz Ant1



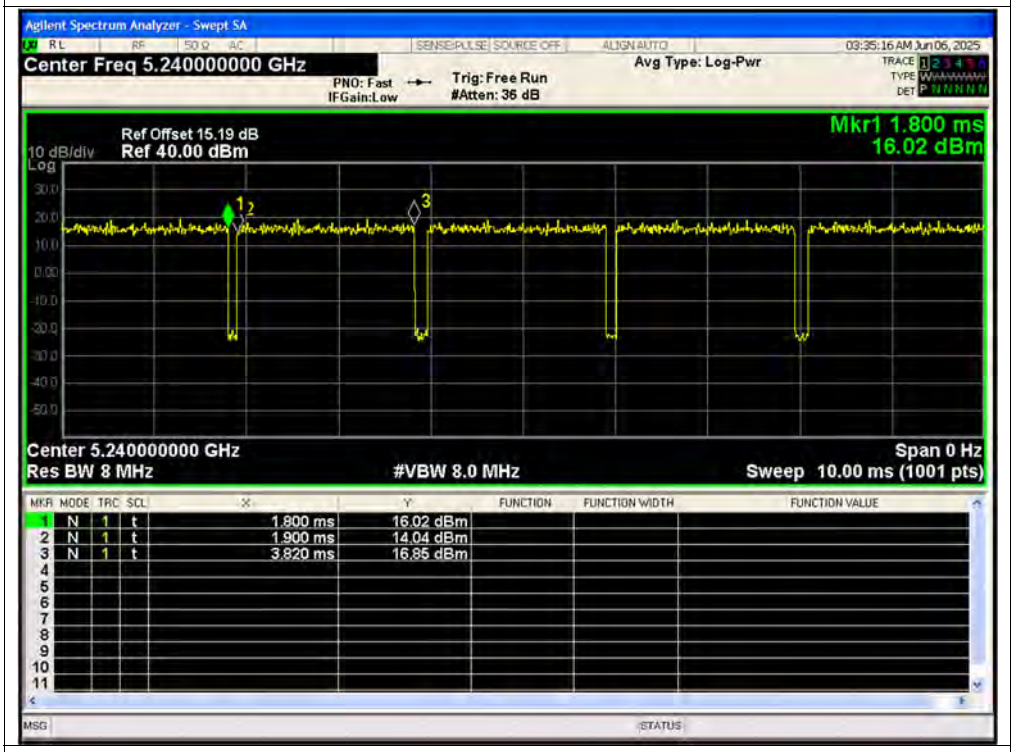
Duty Cycle NVNT n20 5180MHz Ant1



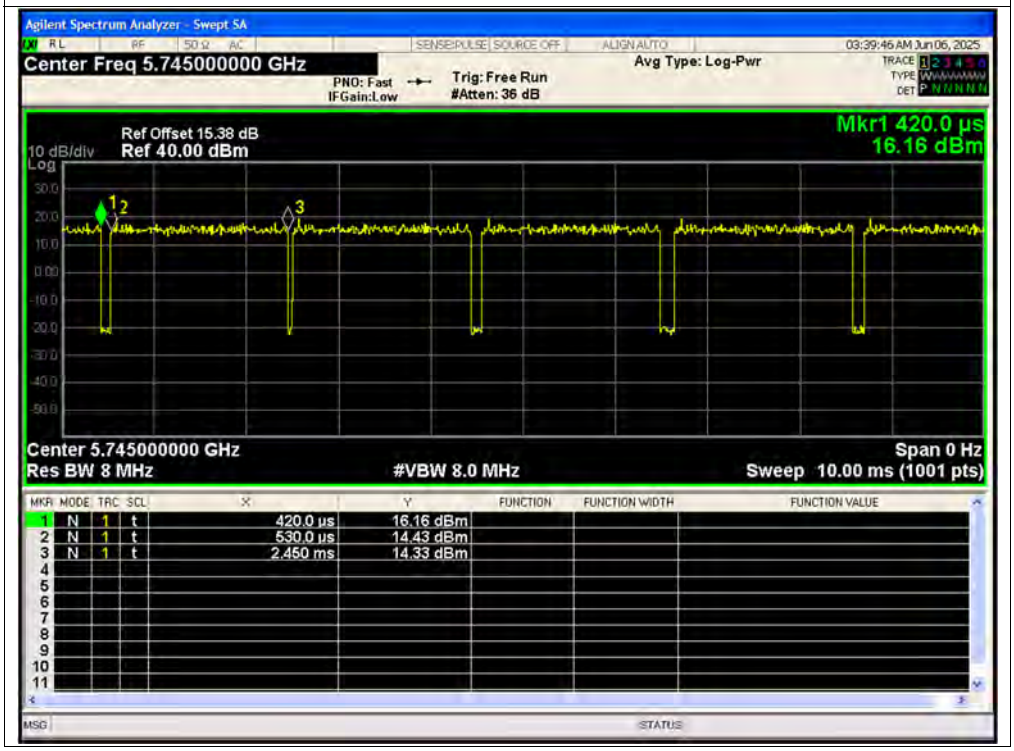
Duty Cycle NVNT n20 5220MHz Ant1



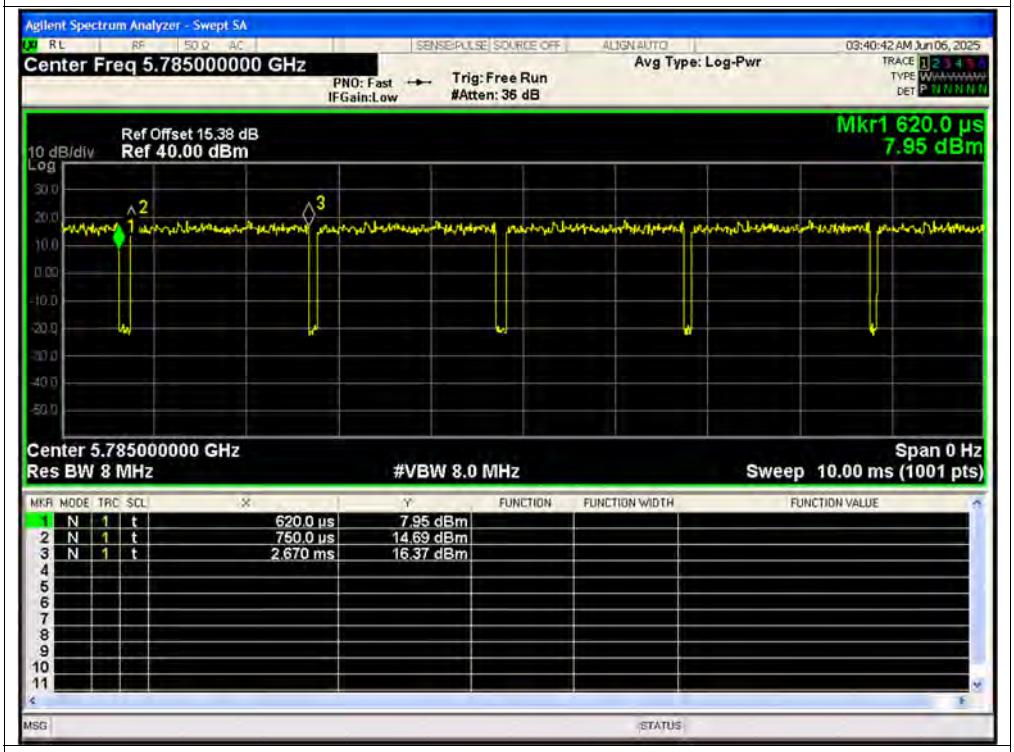
Duty Cycle NVNT n20 5240MHz Ant1



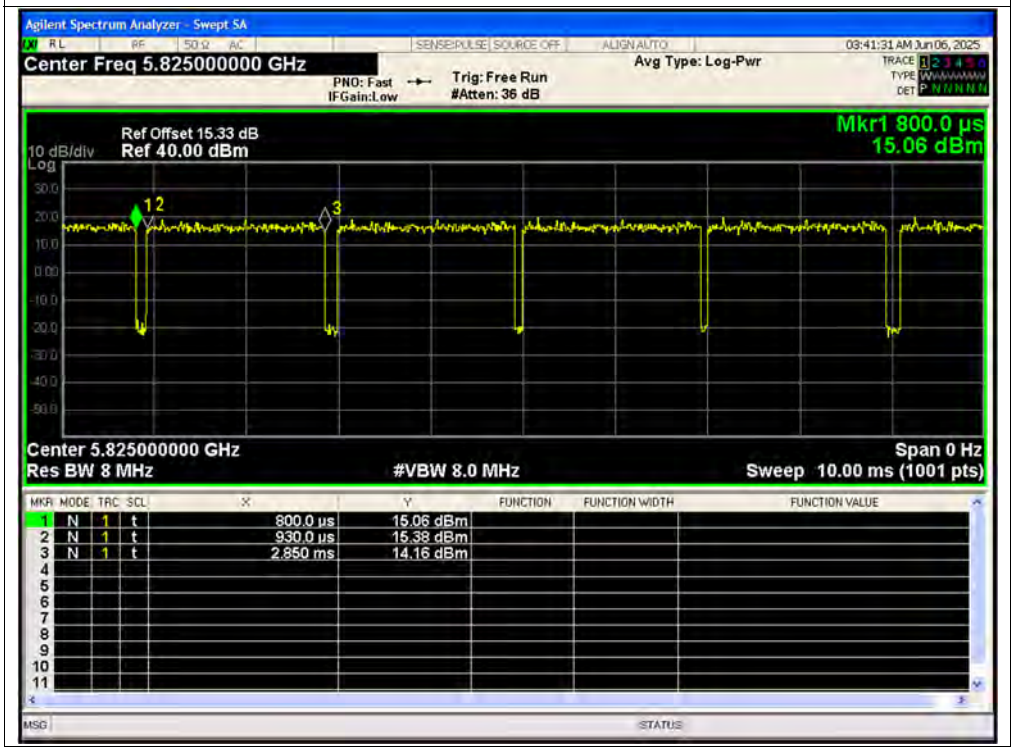
Duty Cycle NVNT n20 5745MHz Ant1



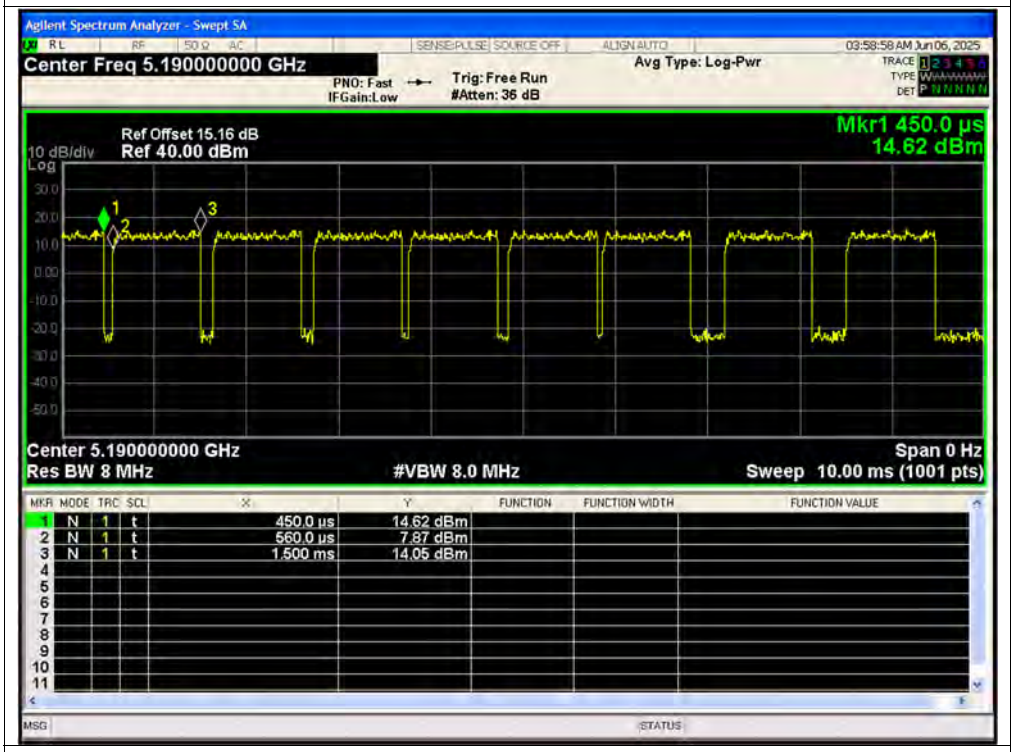
Duty Cycle NVNT n20 5785MHz Ant1



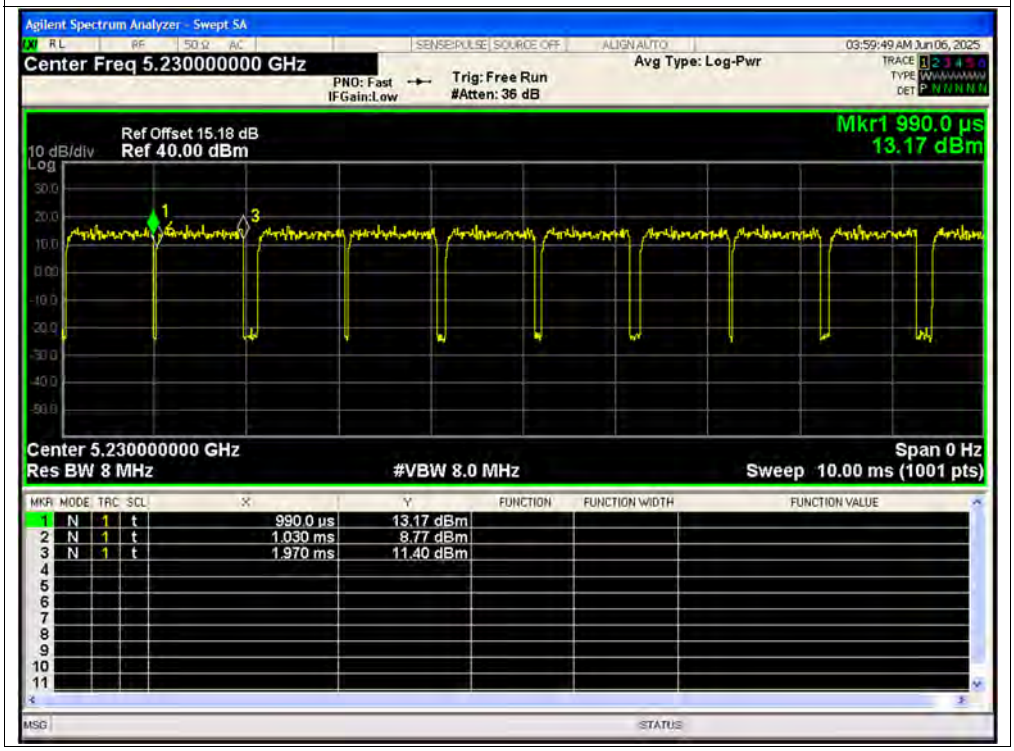
Duty Cycle NVNT n20 5825MHz Ant1



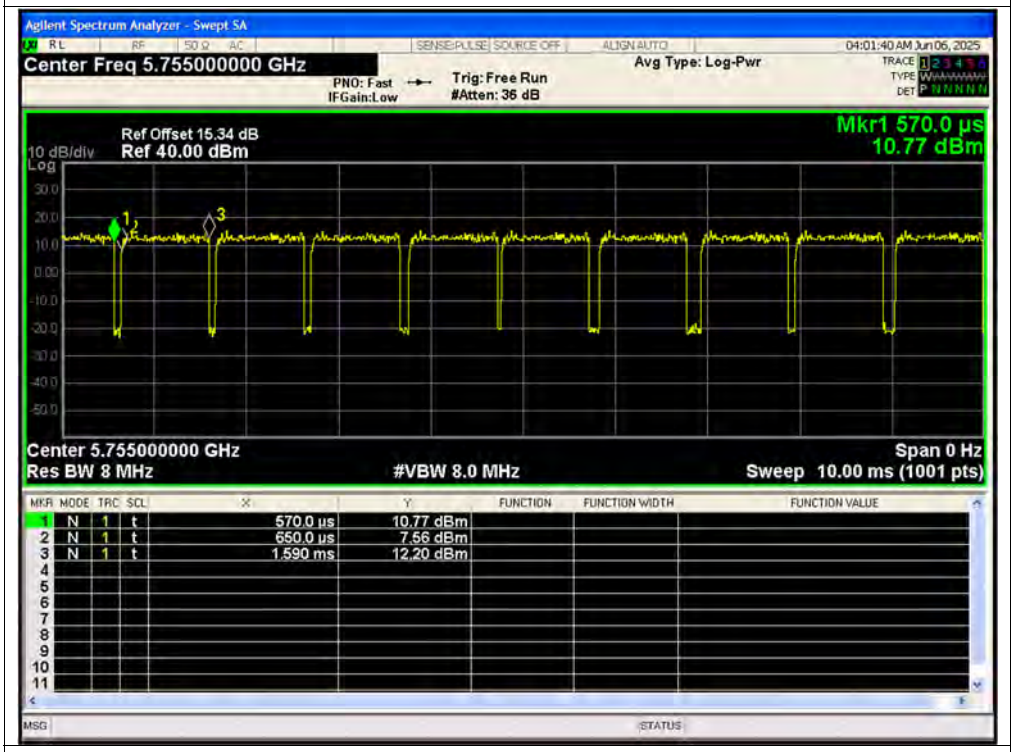
Duty Cycle NVNT n40 5190MHz Ant1



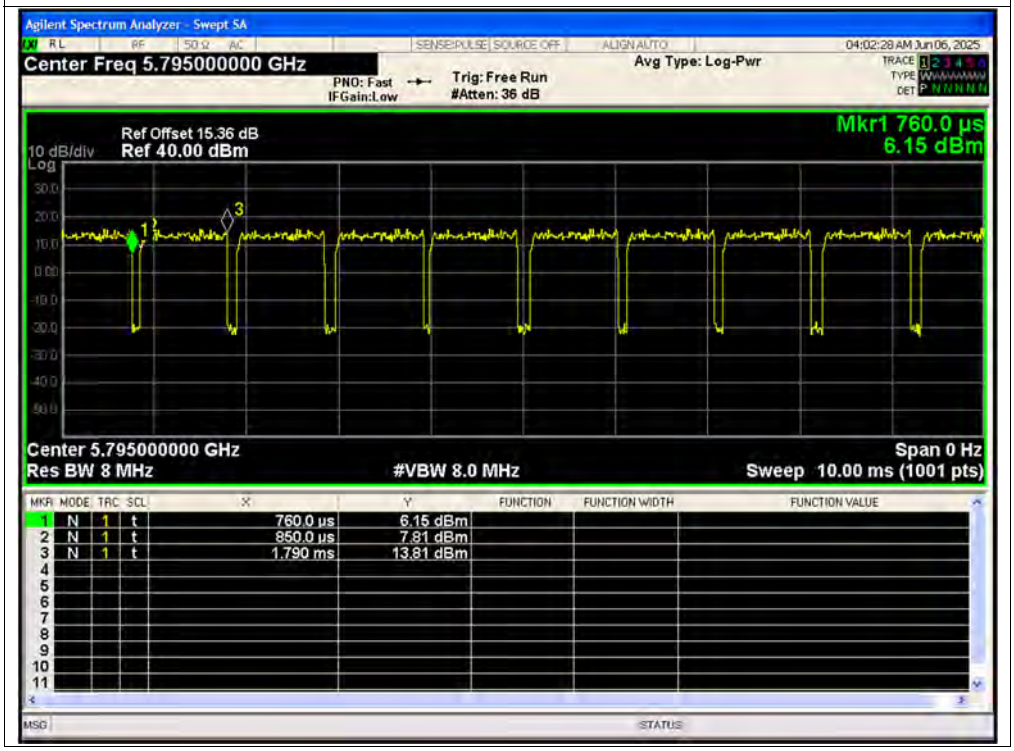
Duty Cycle NVNT n40 5230MHz Ant1



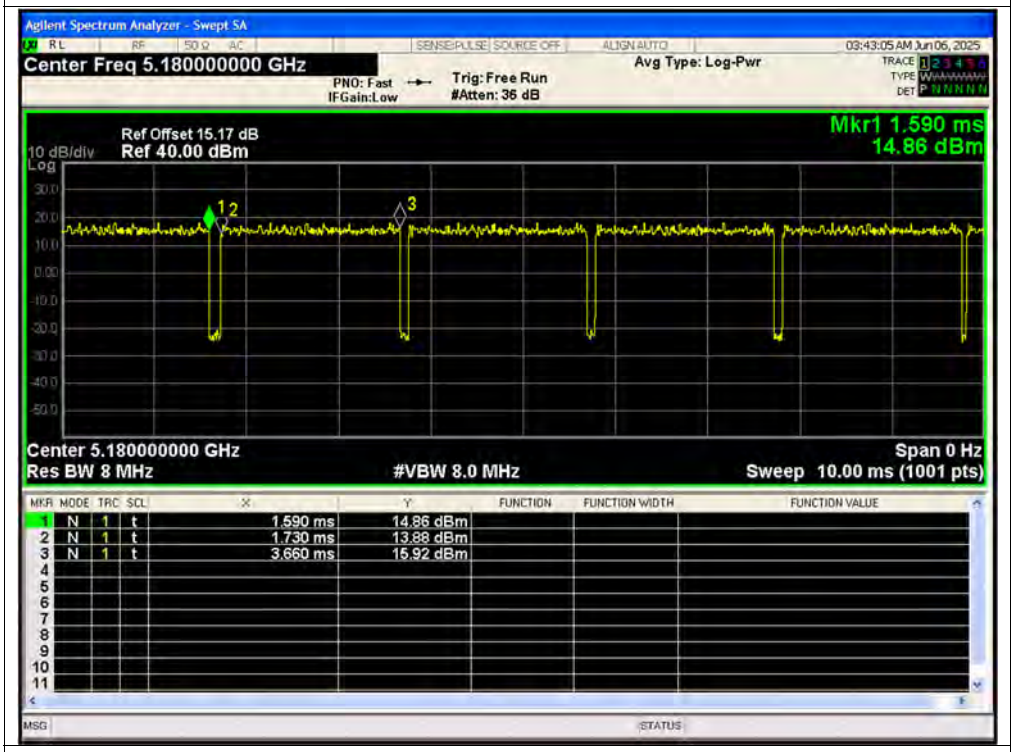
Duty Cycle NVNT n40 5755MHz Ant1



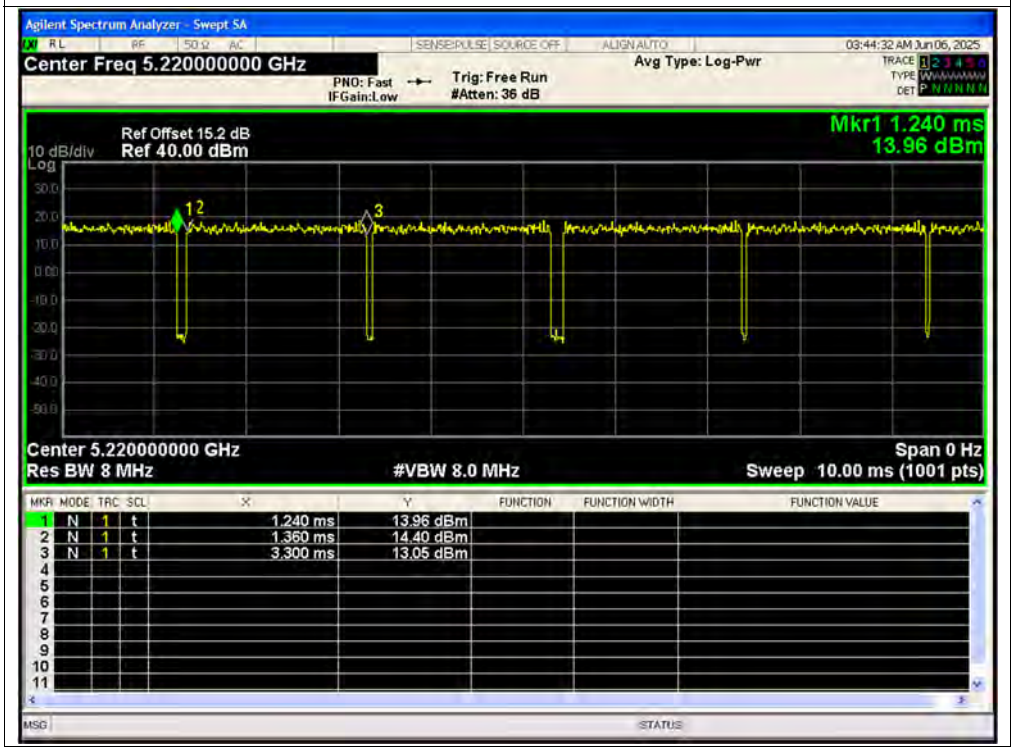
Duty Cycle NVNT n40 5795MHz Ant1



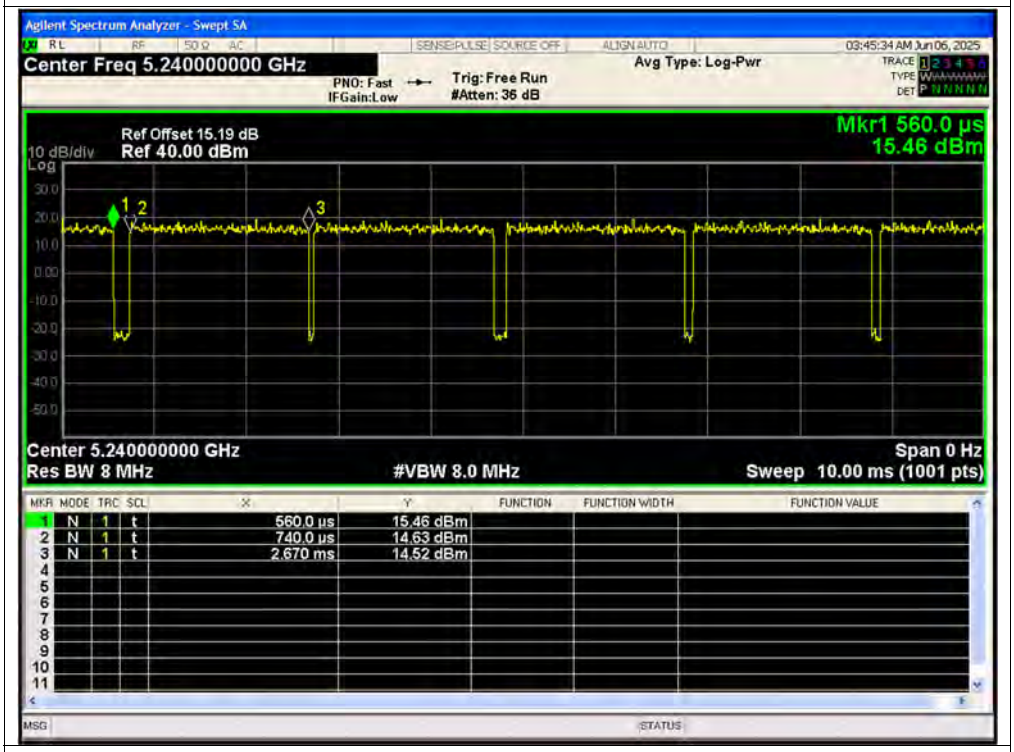
Duty Cycle NVNT ac20 5180MHz Ant1



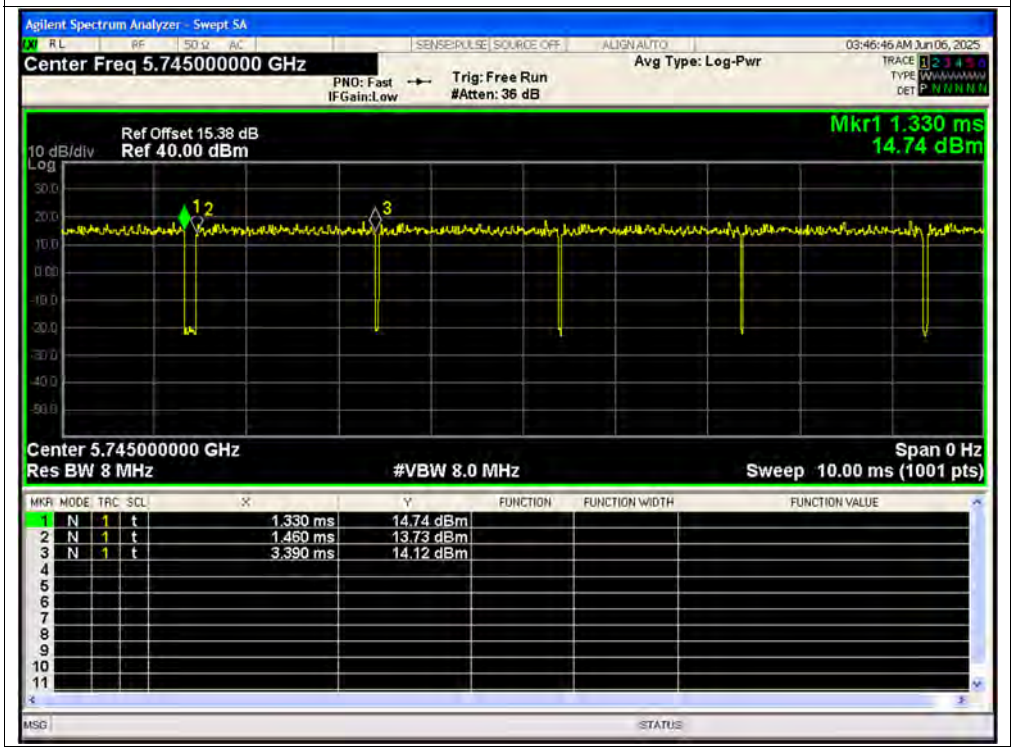
Duty Cycle NVNT ac20 5220MHz Ant1



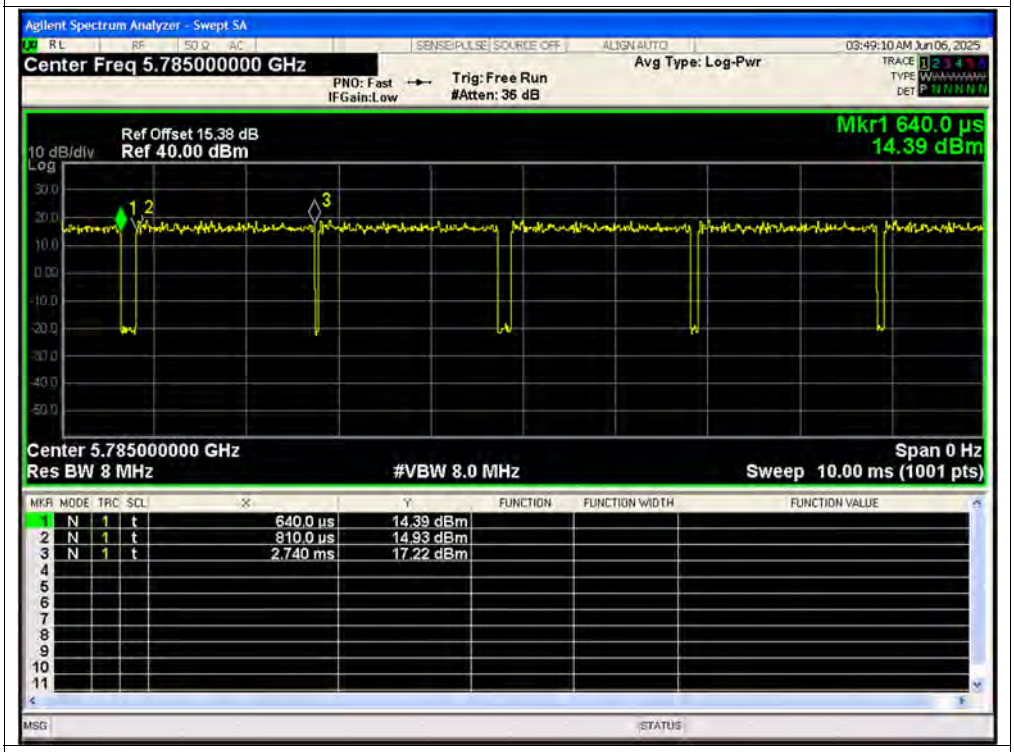
Duty Cycle NVNT ac20 5240MHz Ant1



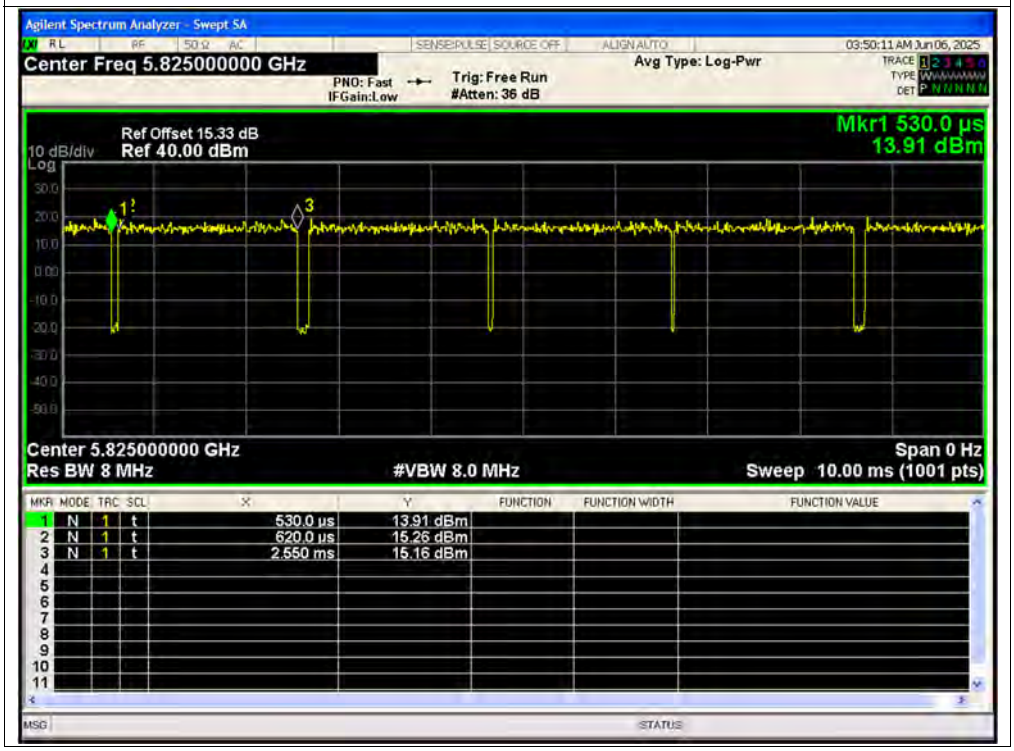
Duty Cycle NVNT ac20 5745MHz Ant1



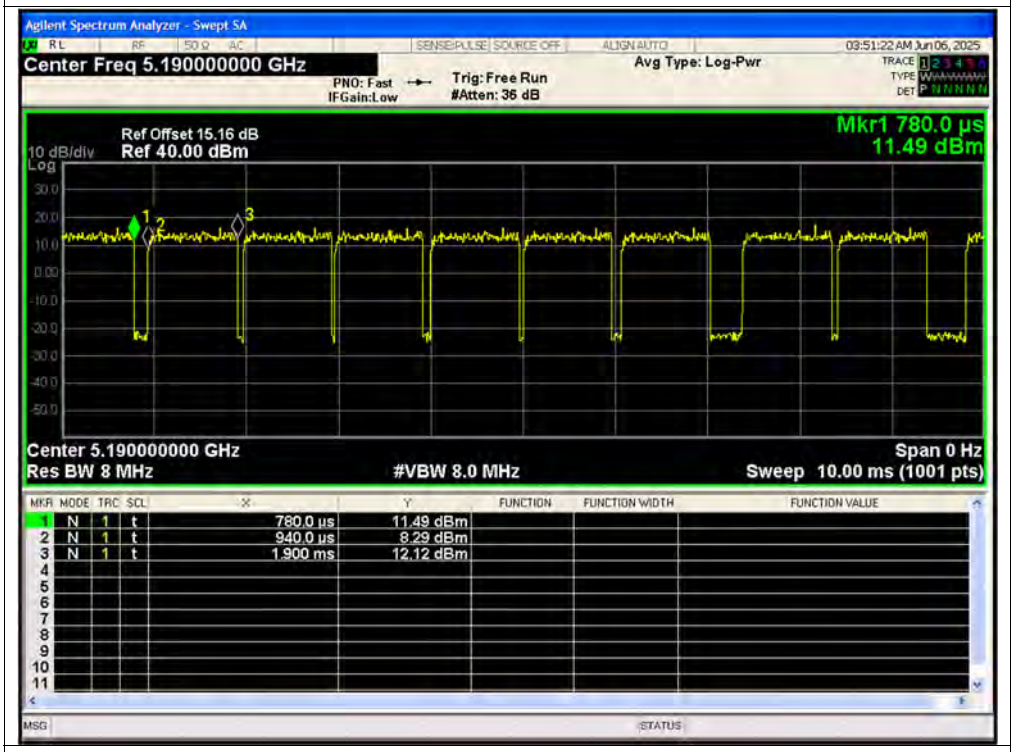
Duty Cycle NVNT ac20 5785MHz Ant1



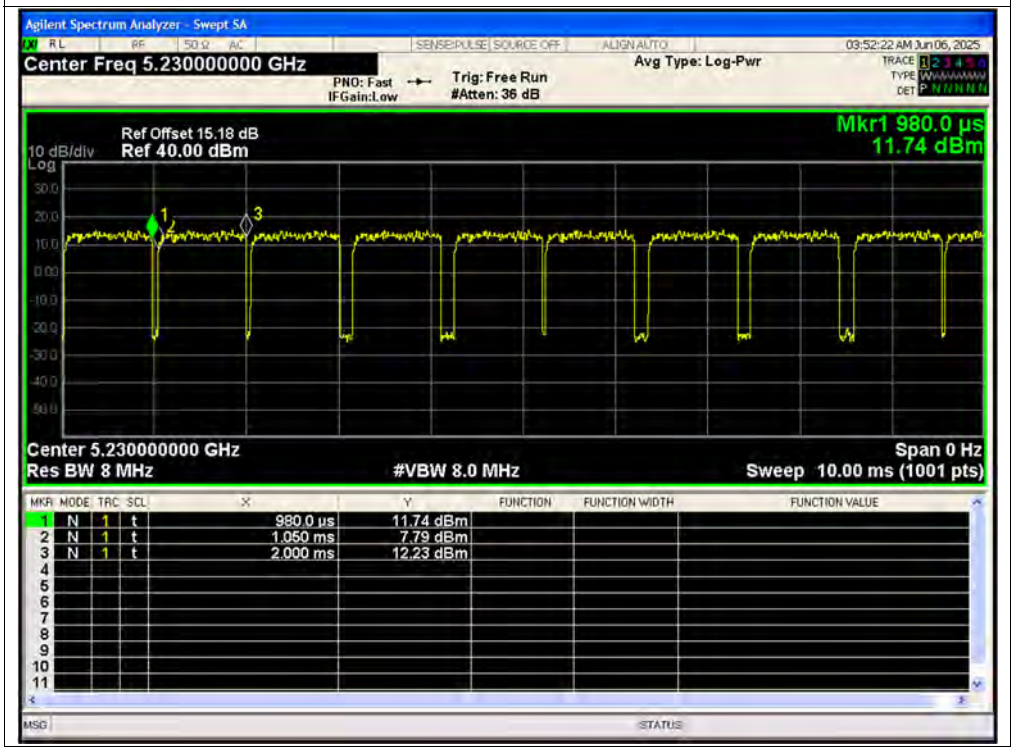
Duty Cycle NVNT ac20 5825MHz Ant1



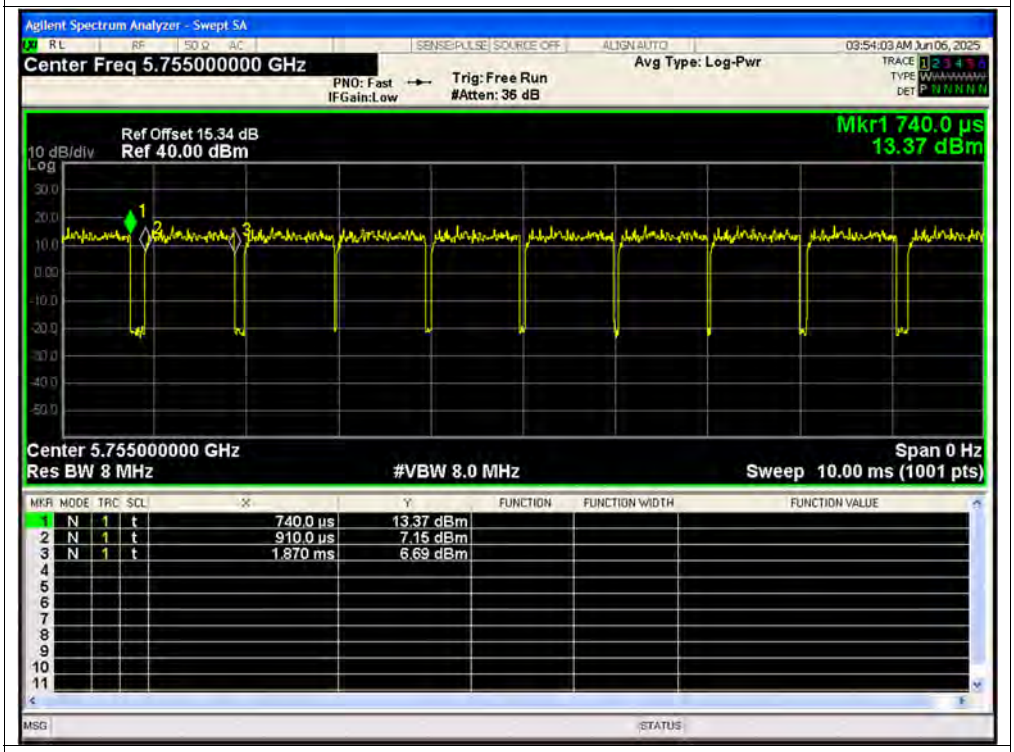
Duty Cycle NVNT ac40 5190MHz Ant1



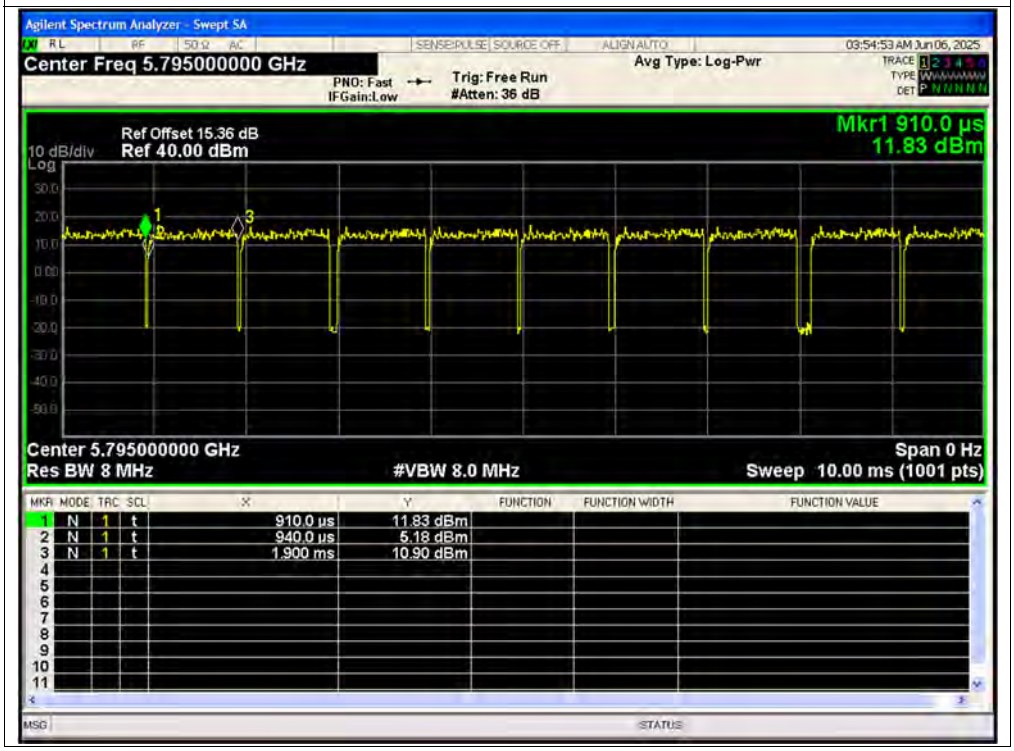
Duty Cycle NVNT ac40 5230MHz Ant1



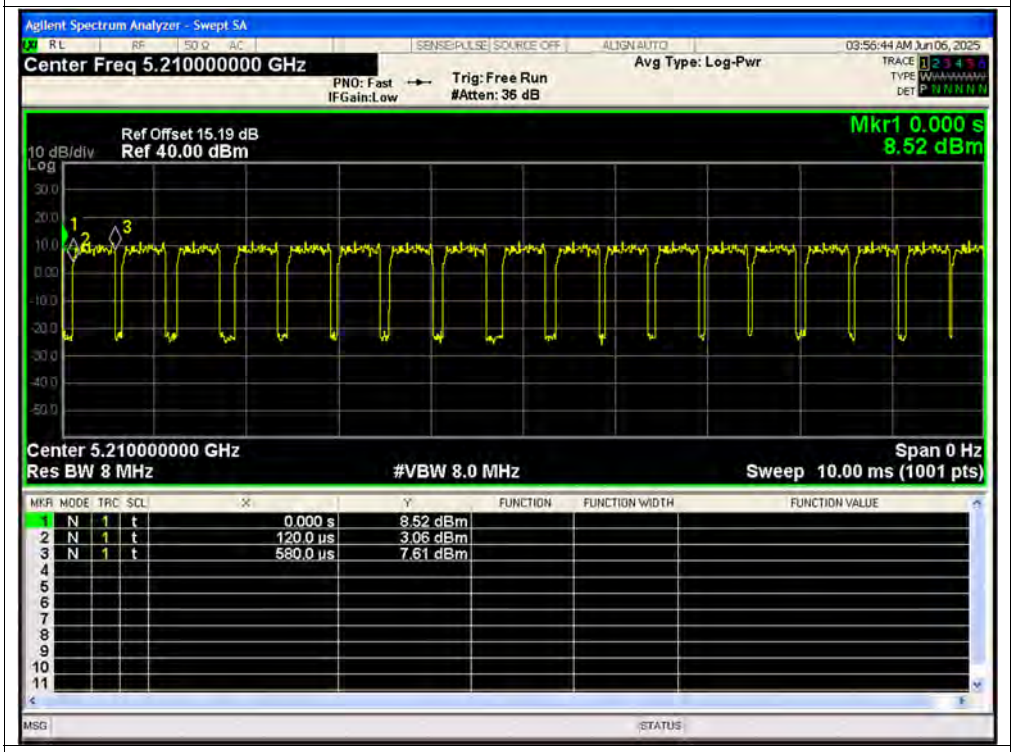
Duty Cycle NVNT ac40 5755MHz Ant1



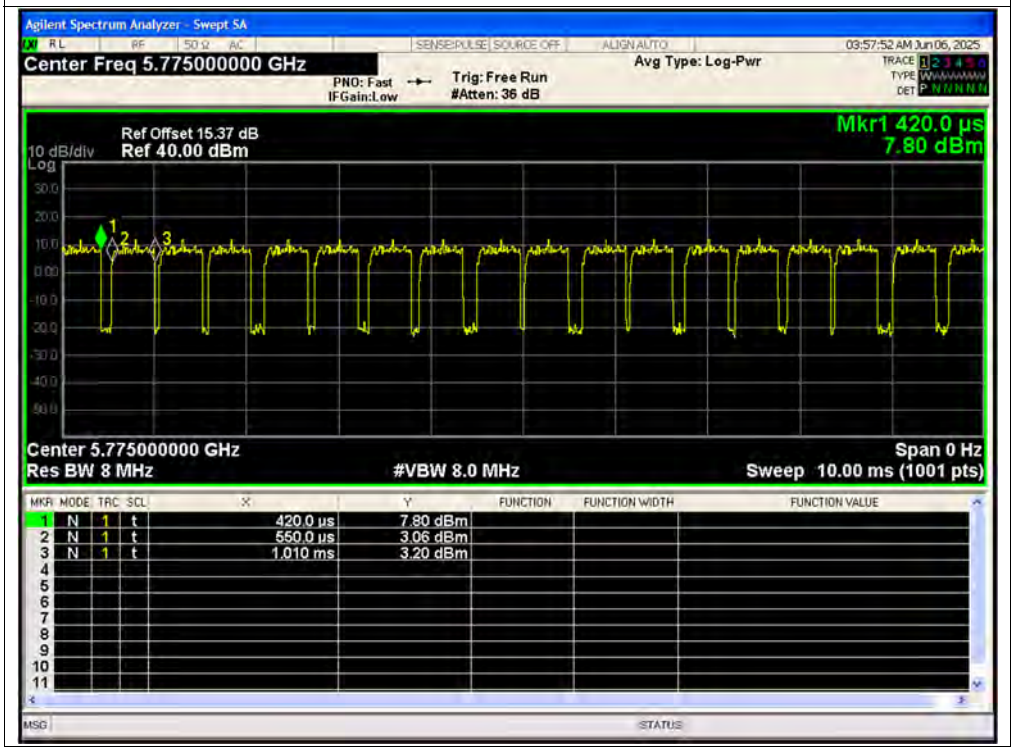
Duty Cycle NVNT ac40 5795MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1



Duty Cycle NVNT ac80 5775MHz Ant1



A.2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	a	5180	Ant1	13.15	0.02065	23.7	Pass
NVNT	a	5220	Ant1	13.23	0.02104	23.7	Pass
NVNT	a	5240	Ant1	13.46	0.02218	23.7	Pass
NVNT	a	5745	Ant1	12.95	0.01972	29.7	Pass
NVNT	a	5785	Ant1	13.87	0.02438	29.7	Pass
NVNT	a	5825	Ant1	14.03	0.02529	29.7	Pass
NVNT	n20	5180	Ant1	13.9	0.02455	23.7	Pass
NVNT	n20	5220	Ant1	14.2	0.0263	23.7	Pass
NVNT	n20	5240	Ant1	14.11	0.02576	23.7	Pass
NVNT	n20	5745	Ant1	13.55	0.02265	29.7	Pass
NVNT	n20	5785	Ant1	14.36	0.02729	29.7	Pass
NVNT	n20	5825	Ant1	14.58	0.02871	29.7	Pass
NVNT	n40	5190	Ant1	14.21	0.02636	23.7	Pass
NVNT	n40	5230	Ant1	14.5	0.02818	23.7	Pass
NVNT	n40	5755	Ant1	14.11	0.02576	29.7	Pass
NVNT	n40	5795	Ant1	14.6	0.02884	29.7	Pass
NVNT	ac20	5180	Ant1	13.84	0.02421	23.7	Pass
NVNT	ac20	5220	Ant1	14.01	0.02518	23.7	Pass
NVNT	ac20	5240	Ant1	13.99	0.02506	23.7	Pass
NVNT	ac20	5745	Ant1	13.48	0.02228	29.7	Pass
NVNT	ac20	5785	Ant1	14.38	0.02742	29.7	Pass
NVNT	ac20	5825	Ant1	14.49	0.02812	29.7	Pass
NVNT	ac40	5190	Ant1	14.15	0.026	23.7	Pass
NVNT	ac40	5230	Ant1	14.29	0.02685	23.7	Pass
NVNT	ac40	5755	Ant1	14.14	0.02594	29.7	Pass
NVNT	ac40	5795	Ant1	14.69	0.02944	29.7	Pass
NVNT	ac80	5210	Ant1	13.3	0.02138	23.7	Pass
NVNT	ac80	5775	Ant1	13.68	0.02333	29.7	Pass

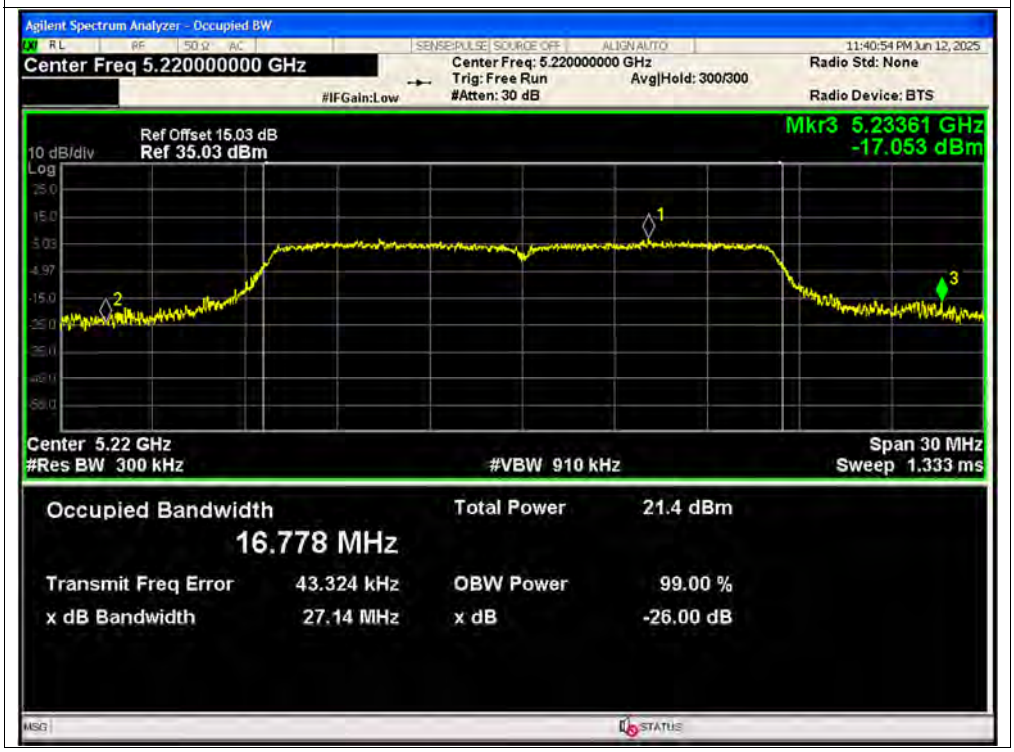
A.3. Emission Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)
NVNT	a	5180	Ant1	26.45
NVNT	a	5220	Ant1	27.14
NVNT	a	5240	Ant1	34.25
NVNT	n20	5180	Ant1	28.54
NVNT	n20	5220	Ant1	33.67
NVNT	n20	5240	Ant1	32.93
NVNT	n40	5190	Ant1	60.6
NVNT	n40	5230	Ant1	65.22
NVNT	ac20	5180	Ant1	27.81
NVNT	ac20	5220	Ant1	38.29
NVNT	ac20	5240	Ant1	36.6
NVNT	ac40	5190	Ant1	60.79
NVNT	ac40	5230	Ant1	65.93
NVNT	ac80	5210	Ant1	109.6

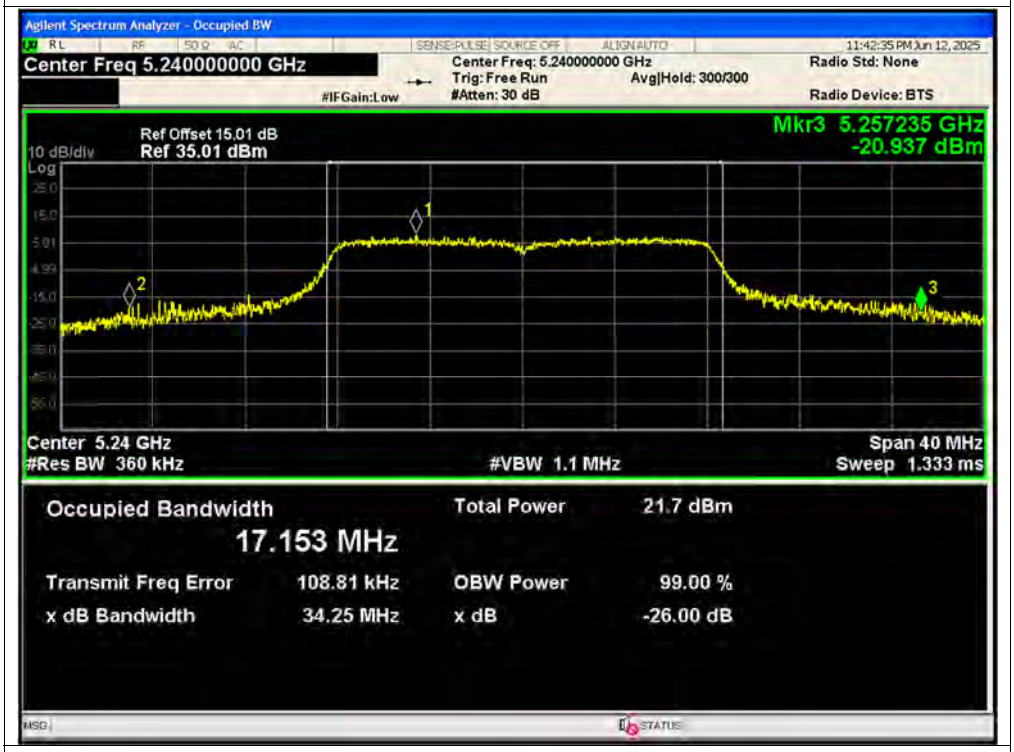
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.31	0.5	Pass
NVNT	a	5785	Ant1	16.31	0.5	Pass
NVNT	a	5825	Ant1	16.31	0.5	Pass
NVNT	n20	5745	Ant1	16.74	0.5	Pass
NVNT	n20	5785	Ant1	16.99	0.5	Pass
NVNT	n20	5825	Ant1	16.8	0.5	Pass
NVNT	n40	5755	Ant1	35.15	0.5	Pass
NVNT	n40	5795	Ant1	35.16	0.5	Pass
NVNT	ac20	5745	Ant1	16.91	0.5	Pass
NVNT	ac20	5785	Ant1	17.03	0.5	Pass
NVNT	ac20	5825	Ant1	17.08	0.5	Pass
NVNT	ac40	5755	Ant1	35.15	0.5	Pass
NVNT	ac40	5795	Ant1	35.12	0.5	Pass
NVNT	ac80	5775	Ant1	75.11	0.5	Pass

Test Graphs
-26dB Bandwidth NVNT a 5180MHz Ant1

-26dB Bandwidth NVNT a 5220MHz Ant1

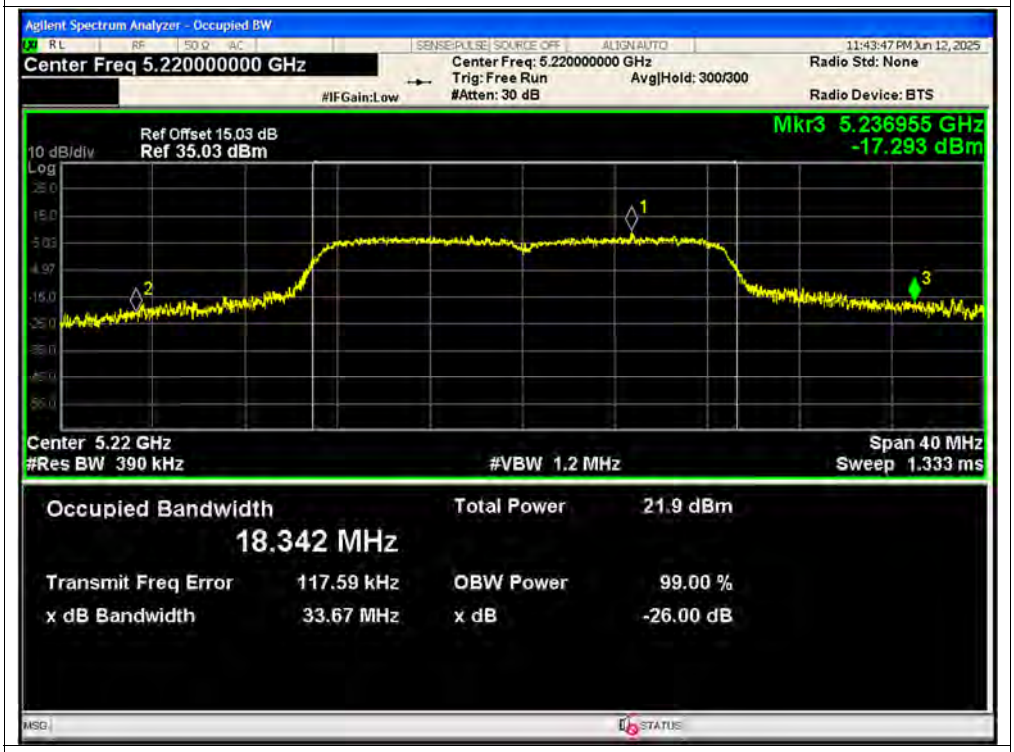


-26dB Bandwidth NVNT a 5240MHz Ant1

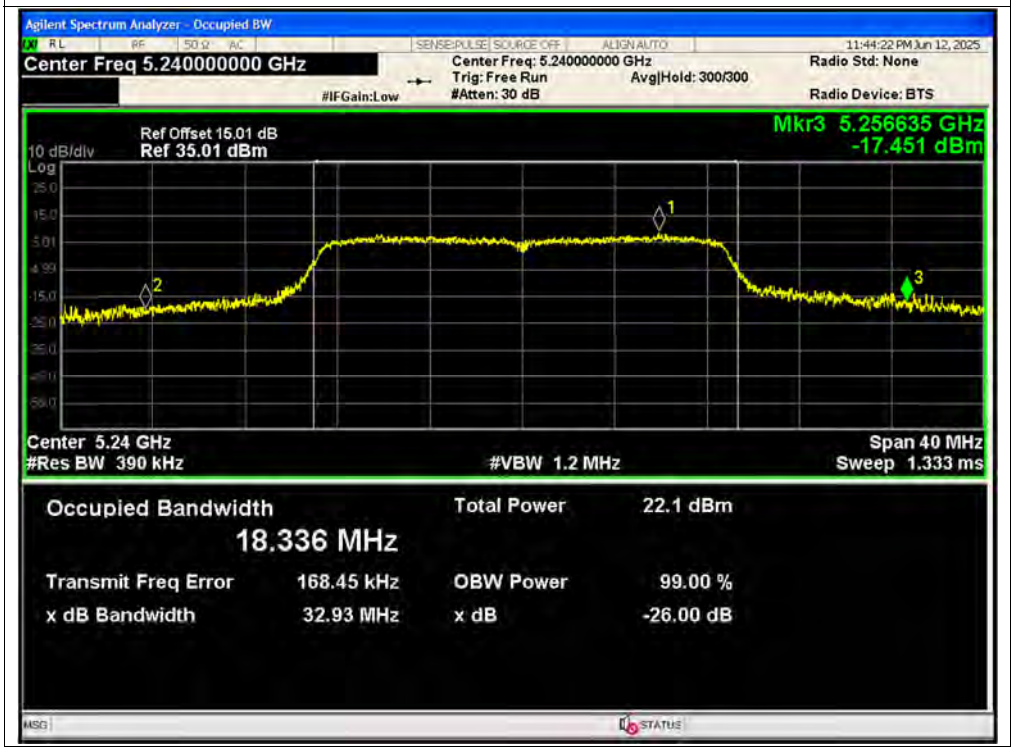


-26dB Bandwidth NVNT n20 5180MHz Ant1

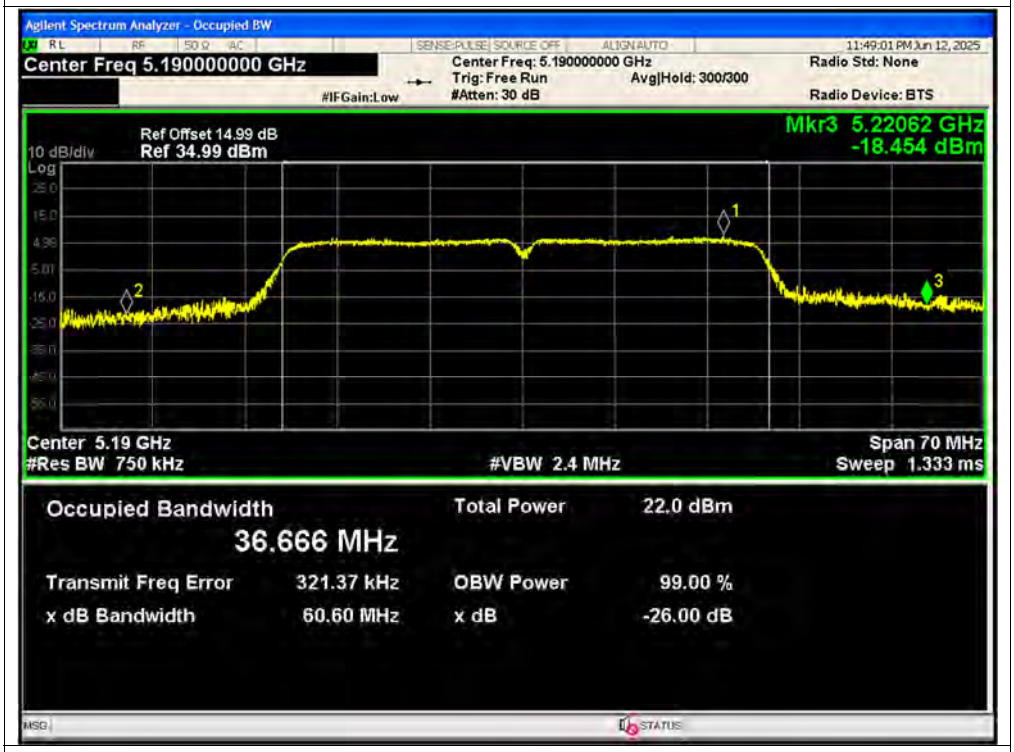
-26dB Bandwidth NVNT n20 5220MHz Ant1



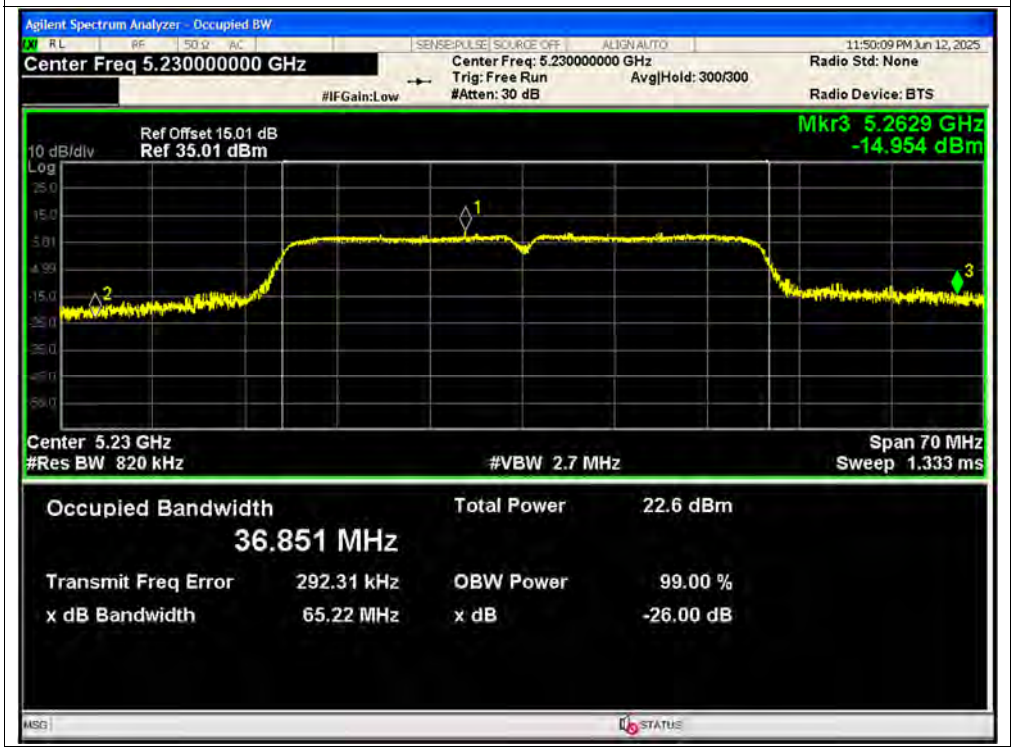
-26dB Bandwidth NVNT n20 5240MHz Ant1



-26dB Bandwidth NVNT n40 5190MHz Ant1

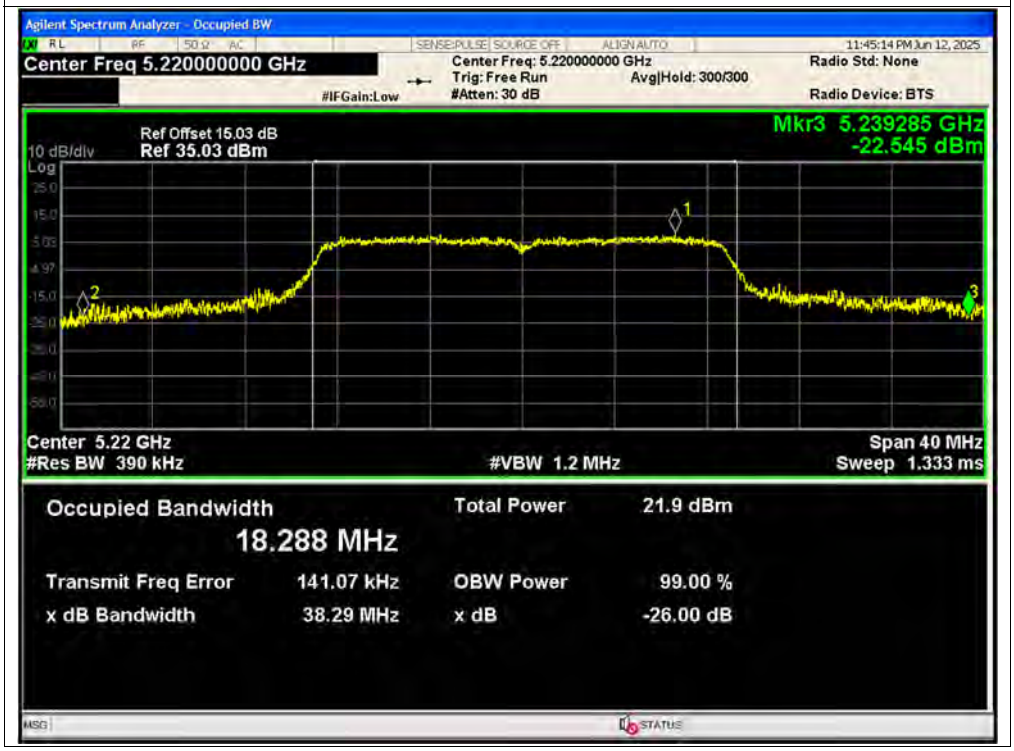


-26dB Bandwidth NVNT n40 5230MHz Ant1



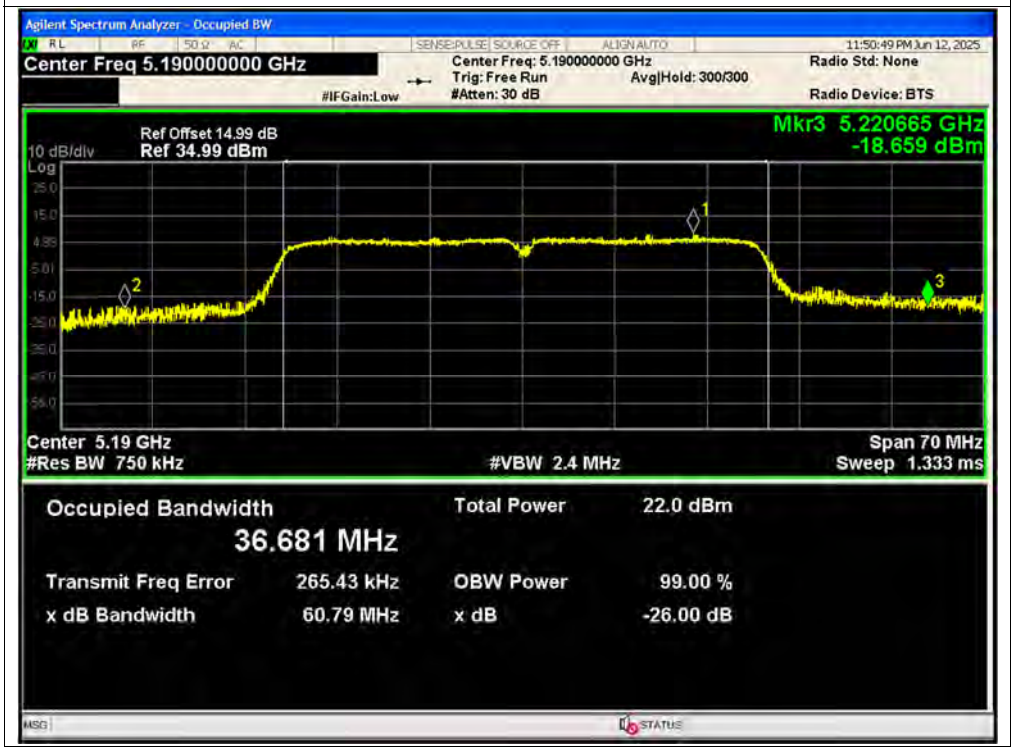
-26dB Bandwidth NVNT ac20 5180MHz Ant1

-26dB Bandwidth NVNT ac20 5220MHz Ant1

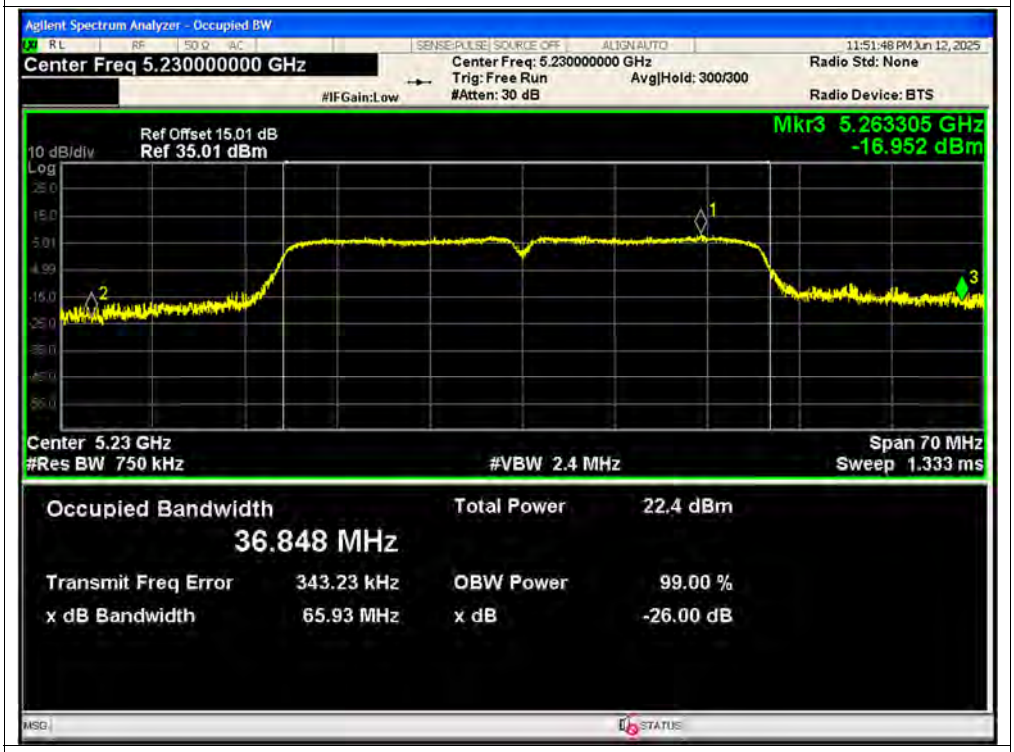


-26dB Bandwidth NVNT ac20 5240MHz Ant1

-26dB Bandwidth NVNT ac40 5190MHz Ant1



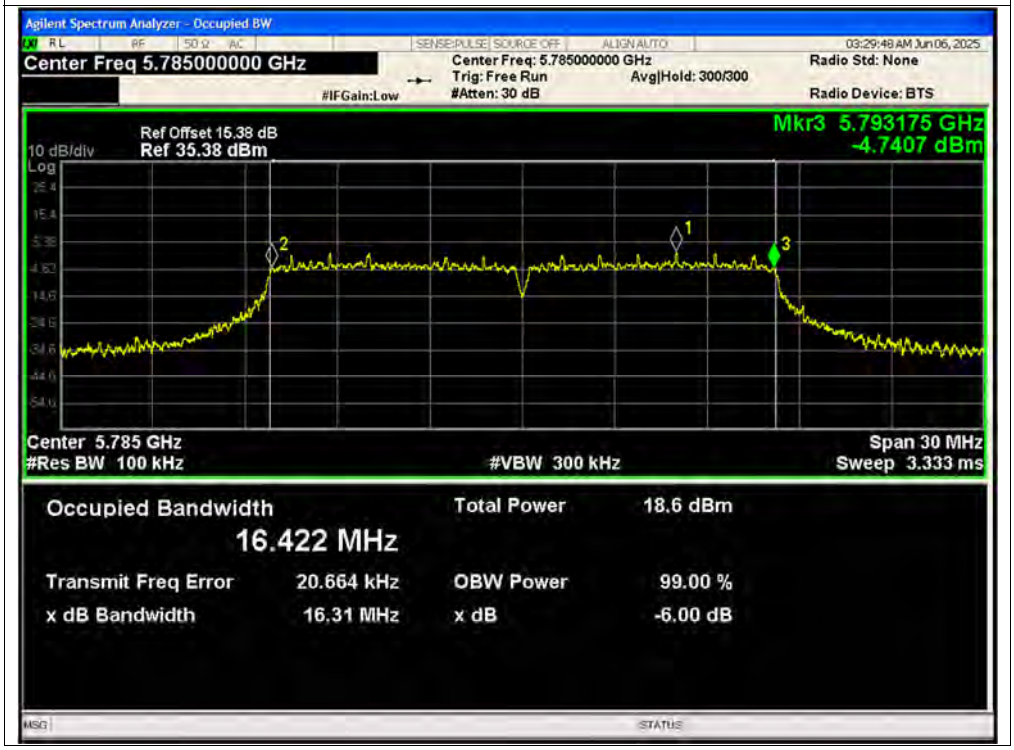
-26dB Bandwidth NVNT ac40 5230MHz Ant1



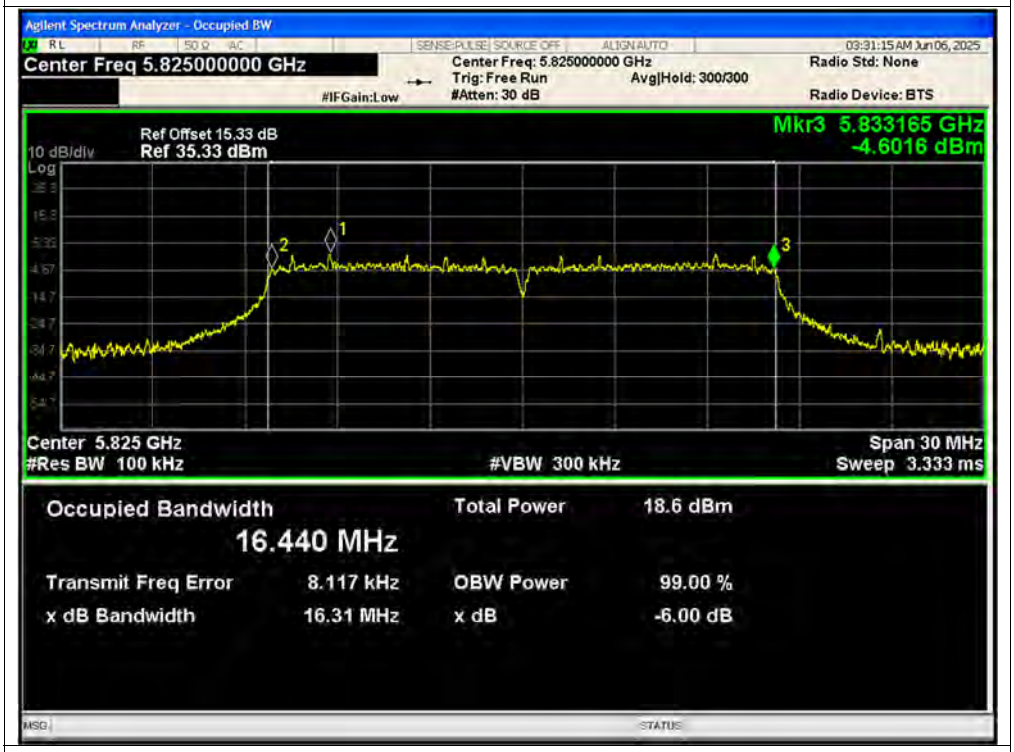
-26dB Bandwidth NVNT ac80 5210MHz Ant1

Test Graphs
-6dB Bandwidth NVNT a 5745MHz Ant1

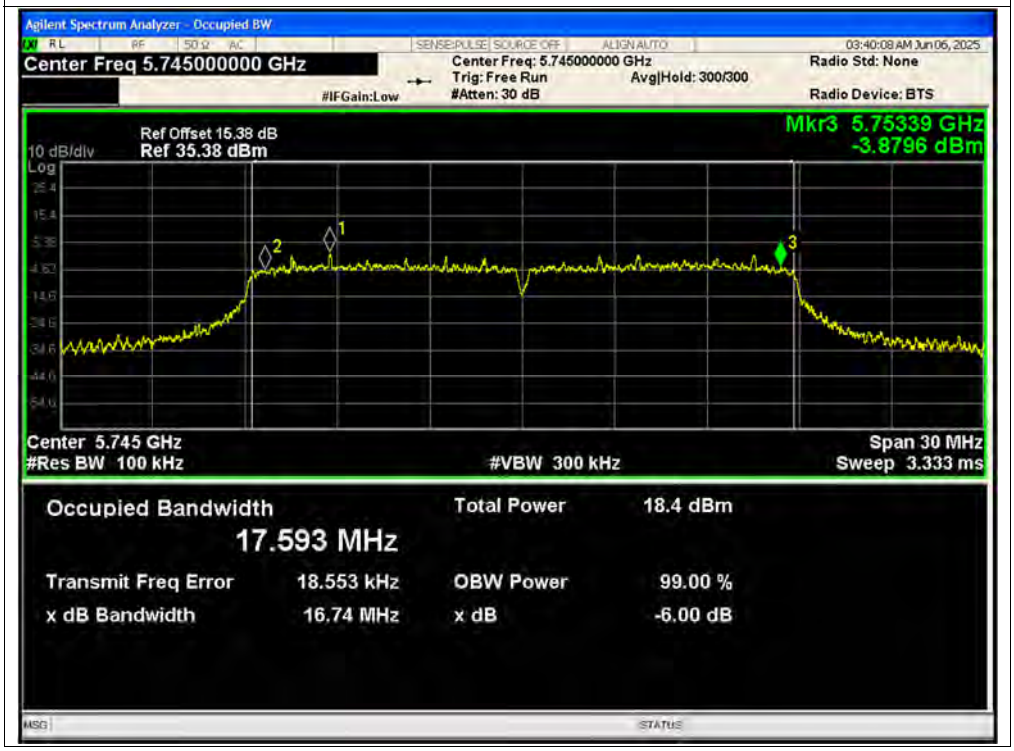
-6dB Bandwidth NVNT a 5785MHz Ant1



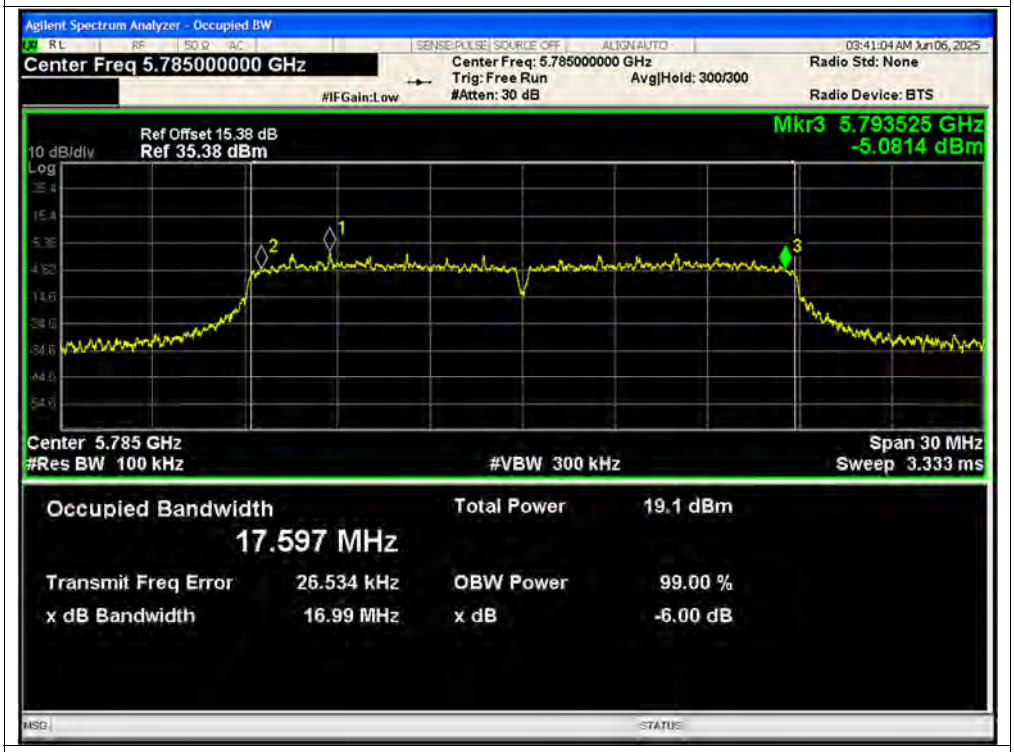
-6dB Bandwidth NVNT a 5825MHz Ant1



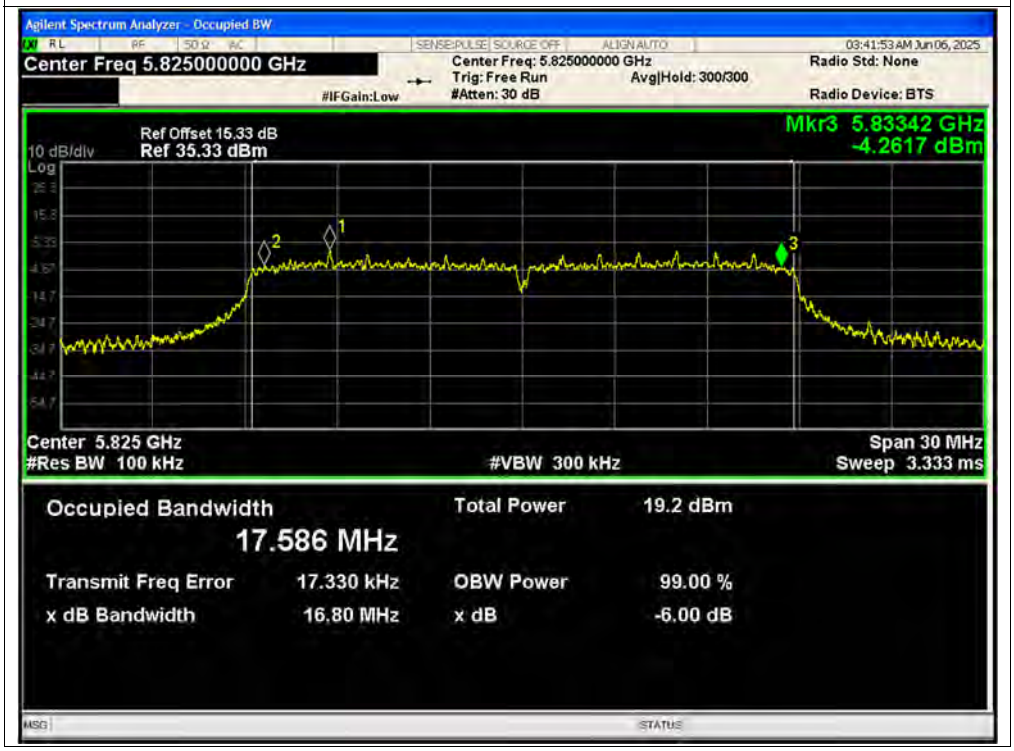
-6dB Bandwidth NVNT n20 5745MHz Ant1



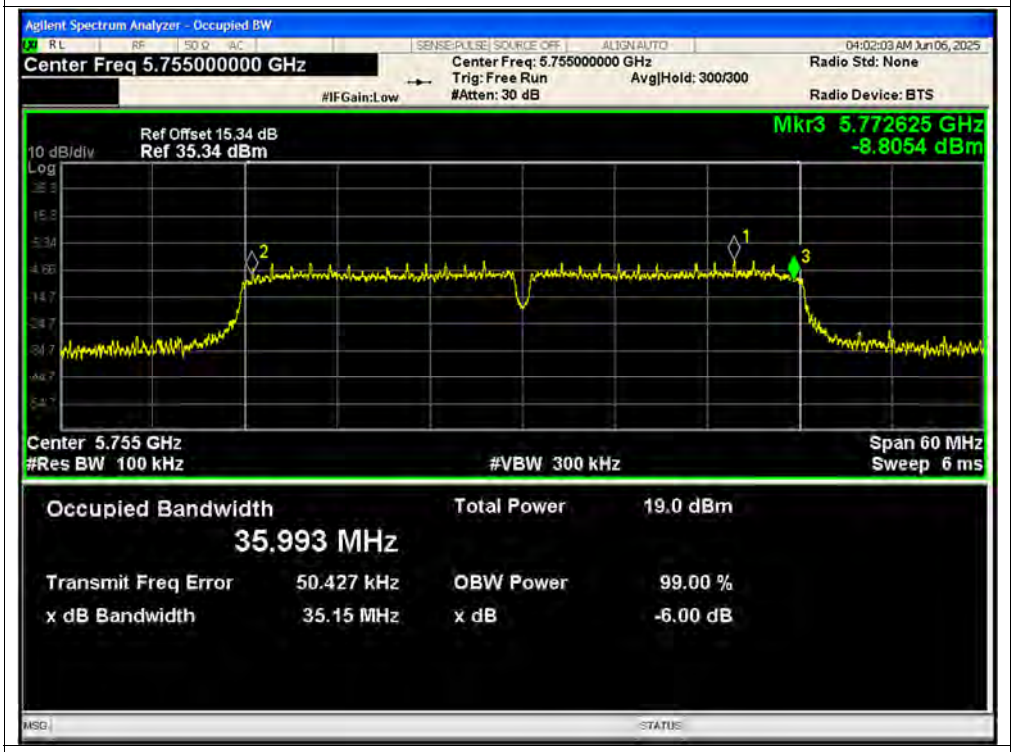
-6dB Bandwidth NVNT n20 5785MHz Ant1



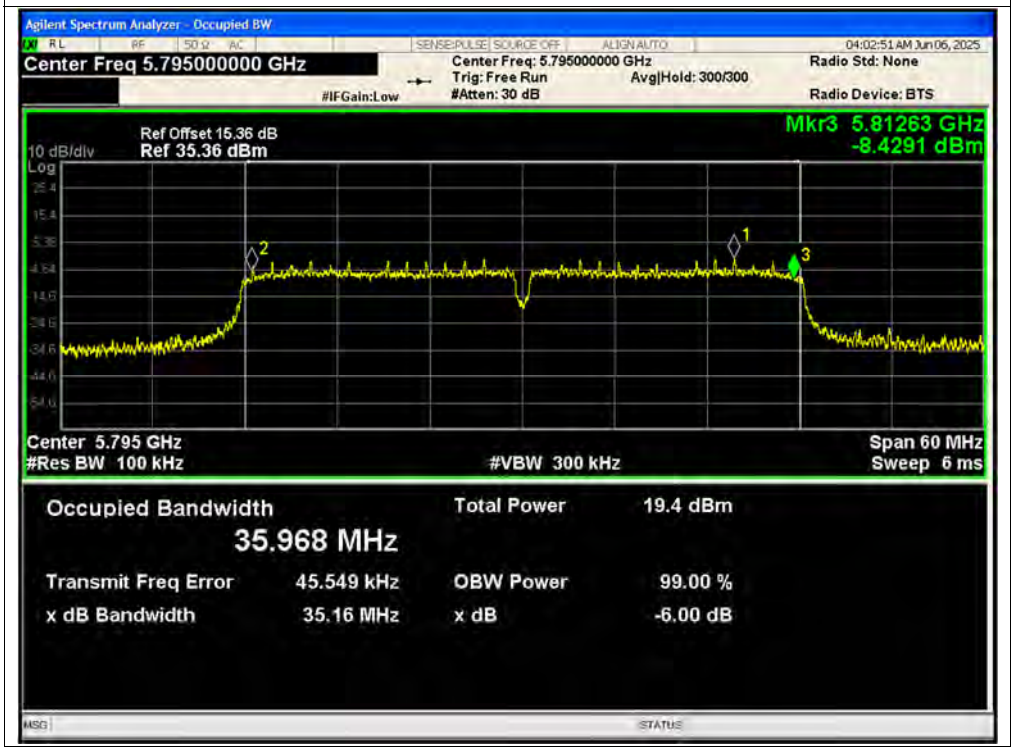
-6dB Bandwidth NVNT n20 5825MHz Ant1



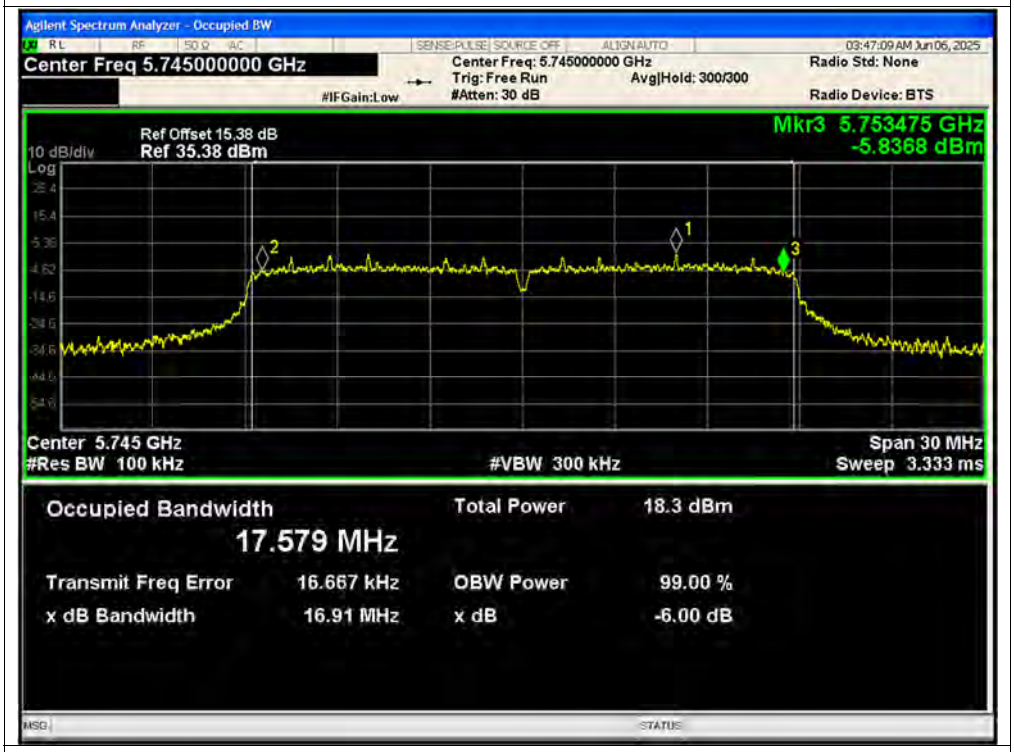
-6dB Bandwidth NVNT n40 5755MHz Ant1



-6dB Bandwidth NVNT n40 5795MHz Ant1

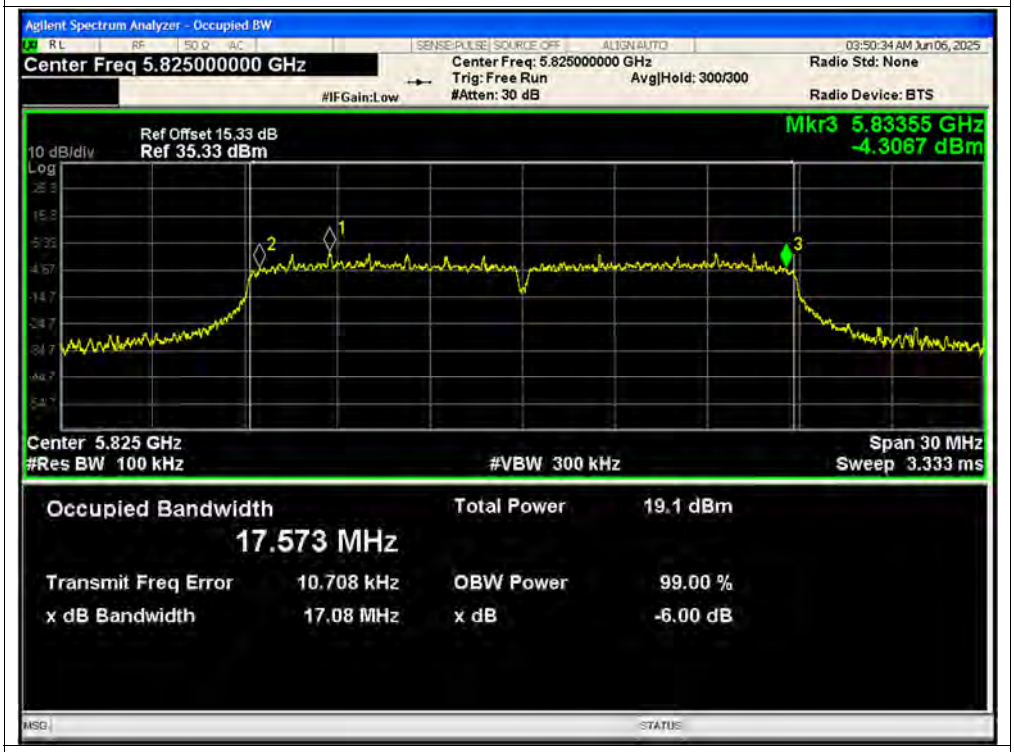


-6dB Bandwidth NVNT ac20 5745MHz Ant1

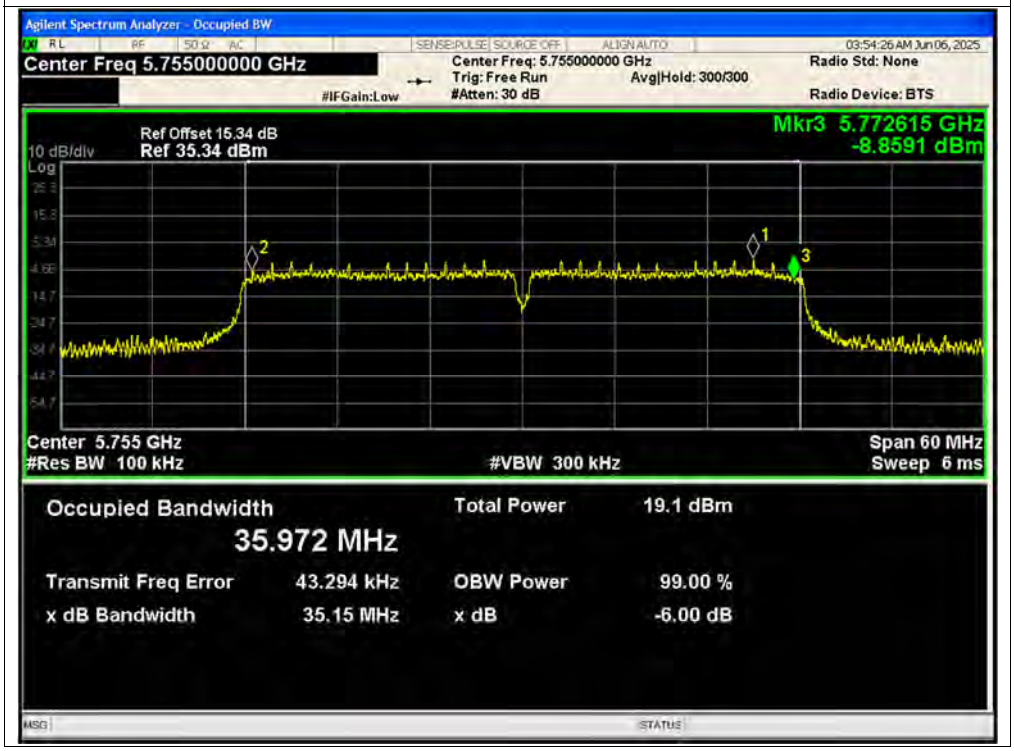


-6dB Bandwidth NVNT ac20 5785MHz Ant1

-6dB Bandwidth NVNT ac20 5825MHz Ant1

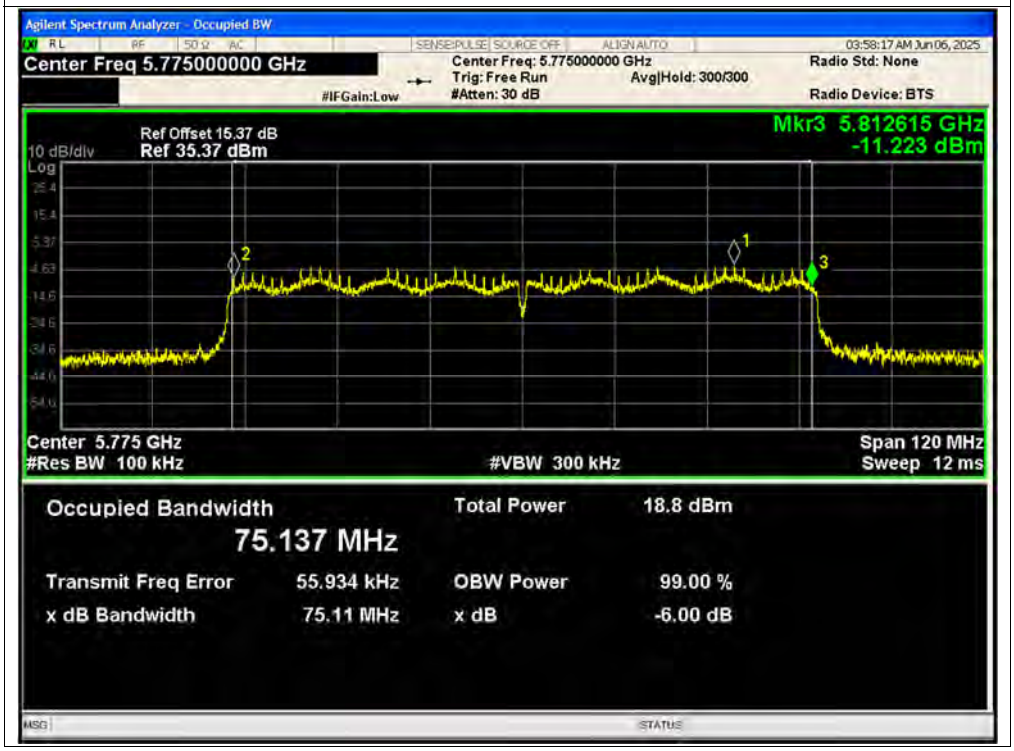


-6dB Bandwidth NVNT ac40 5755MHz Ant1



-6dB Bandwidth NVNT ac40 5795MHz Ant1

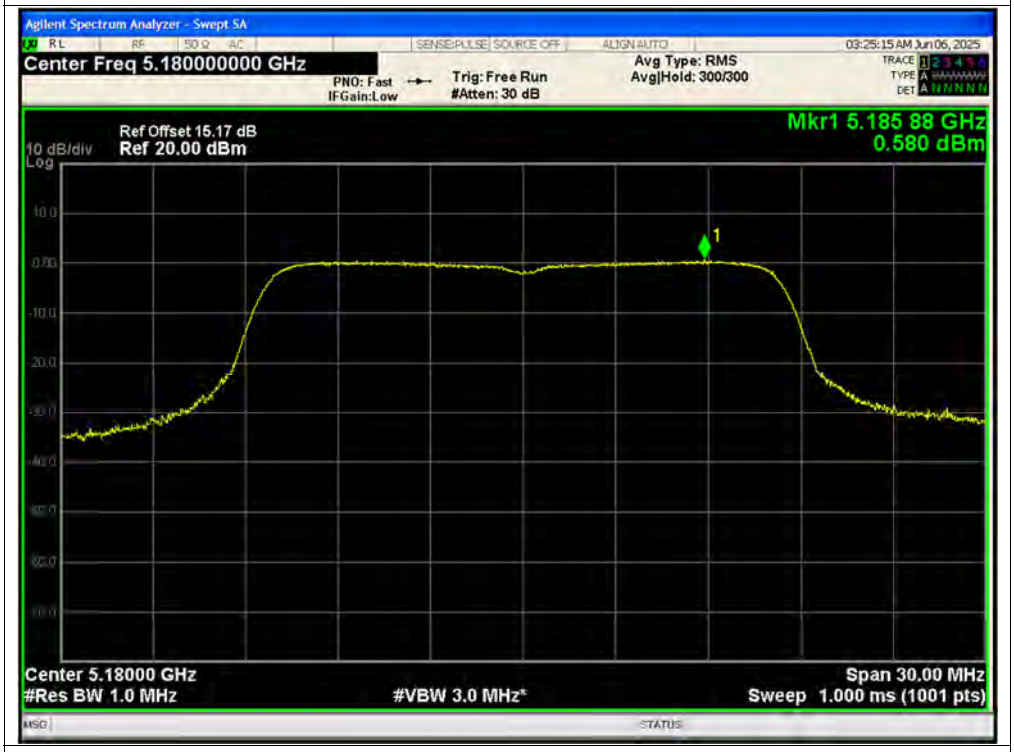
-6dB Bandwidth NVNT ac80 5775MHz Ant1



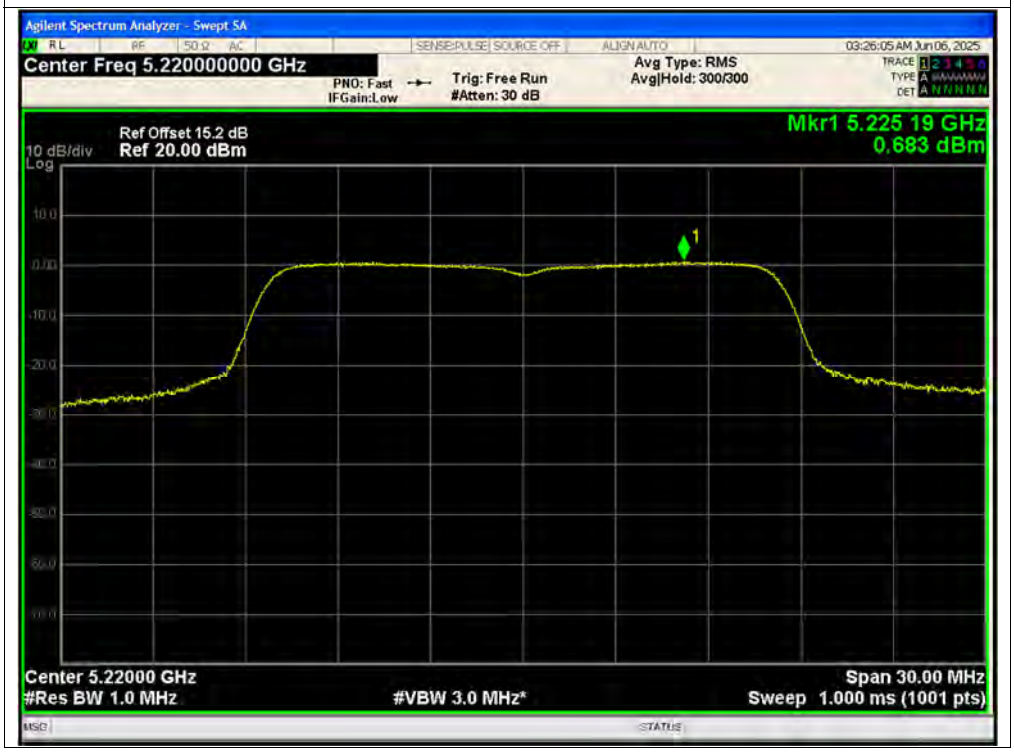
A.4. Peak Power Spectral Density

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	0.58	0.24	0.82	10.7	Pass
NVNT	a	5220	Ant1	0.68	0.23	0.91	10.7	Pass
NVNT	a	5240	Ant1	0.99	0.27	1.26	10.7	Pass
NVNT	a	5745	Ant1	-2.32	0.12	-2.2	29.7	Pass
NVNT	a	5785	Ant1	-1.68	0.17	-1.51	29.7	Pass
NVNT	a	5825	Ant1	-1.61	0.31	-1.3	29.7	Pass
NVNT	n20	5180	Ant1	1.3	0.22	1.52	10.7	Pass
NVNT	n20	5220	Ant1	1.3	0.31	1.61	10.7	Pass
NVNT	n20	5240	Ant1	1.3	0.22	1.52	10.7	Pass
NVNT	n20	5745	Ant1	-2.2	0.24	-1.96	29.7	Pass
NVNT	n20	5785	Ant1	-1.41	0.28	-1.13	29.7	Pass
NVNT	n20	5825	Ant1	-1.52	0.28	-1.24	29.7	Pass
NVNT	n40	5190	Ant1	-1.92	0.48	-1.44	10.7	Pass
NVNT	n40	5230	Ant1	-1.61	0.18	-1.43	10.7	Pass
NVNT	n40	5755	Ant1	-5.04	0.35	-4.69	29.7	Pass
NVNT	n40	5795	Ant1	-4.11	0.4	-3.71	29.7	Pass
NVNT	ac20	5180	Ant1	0.88	0.3	1.18	10.7	Pass
NVNT	ac20	5220	Ant1	1.19	0.26	1.45	10.7	Pass
NVNT	ac20	5240	Ant1	1.23	0.39	1.62	10.7	Pass
NVNT	ac20	5745	Ant1	-2.3	0.28	-2.01	29.7	Pass
NVNT	ac20	5785	Ant1	-1.53	0.37	-1.16	29.7	Pass
NVNT	ac20	5825	Ant1	-1.44	0.2	-1.24	29.7	Pass
NVNT	ac40	5190	Ant1	-2.21	0.67	-1.54	10.7	Pass
NVNT	ac40	5230	Ant1	-1.75	0.31	-1.44	10.7	Pass
NVNT	ac40	5755	Ant1	-4.9	0.71	-4.19	29.7	Pass
NVNT	ac40	5795	Ant1	-4.46	0.13	-4.33	29.7	Pass
NVNT	ac80	5210	Ant1	-5.13	1.01	-4.12	10.7	Pass
NVNT	ac80	5775	Ant1	-6.81	1.08	-5.73	29.7	Pass

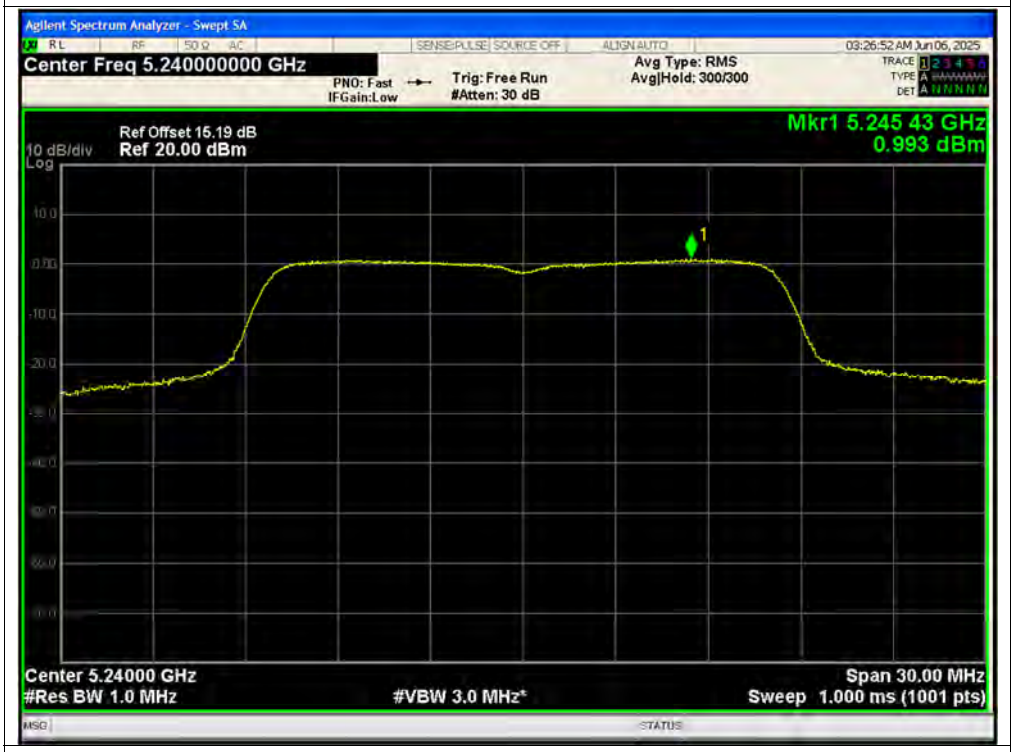
Test Graphs
PSD NVNT a 5180MHz Ant1



PSD NVNT a 5220MHz Ant1



PSD NVNT a 5240MHz Ant1



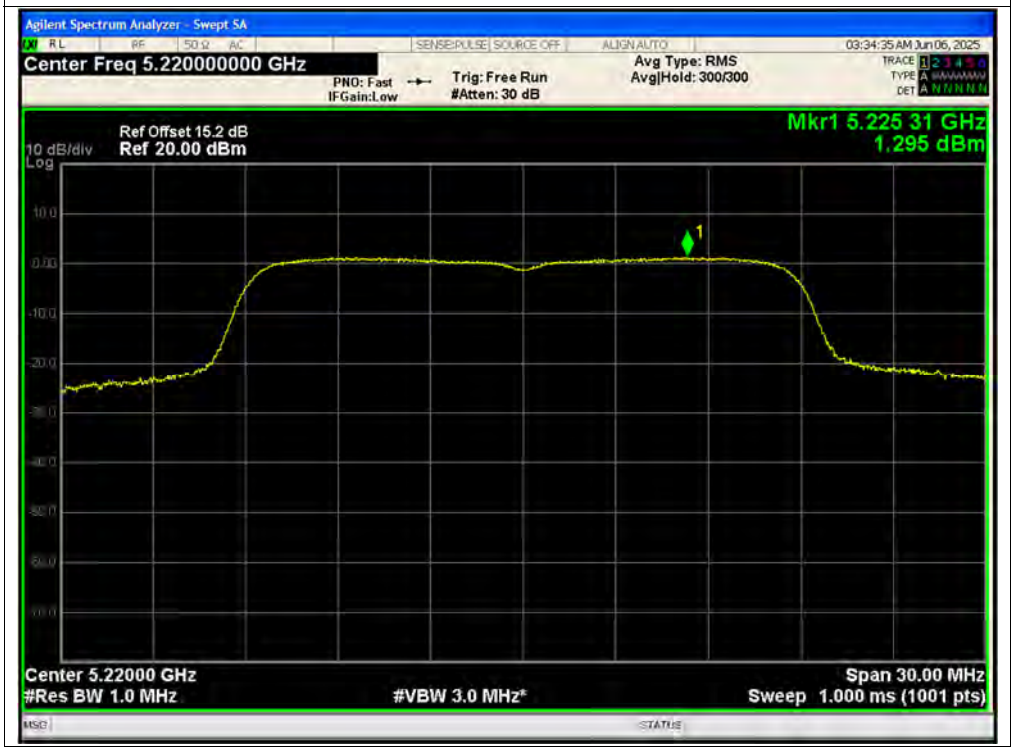
PSD NVNT a 5745MHz Ant1

PSD NVNT a 5785MHz Ant1

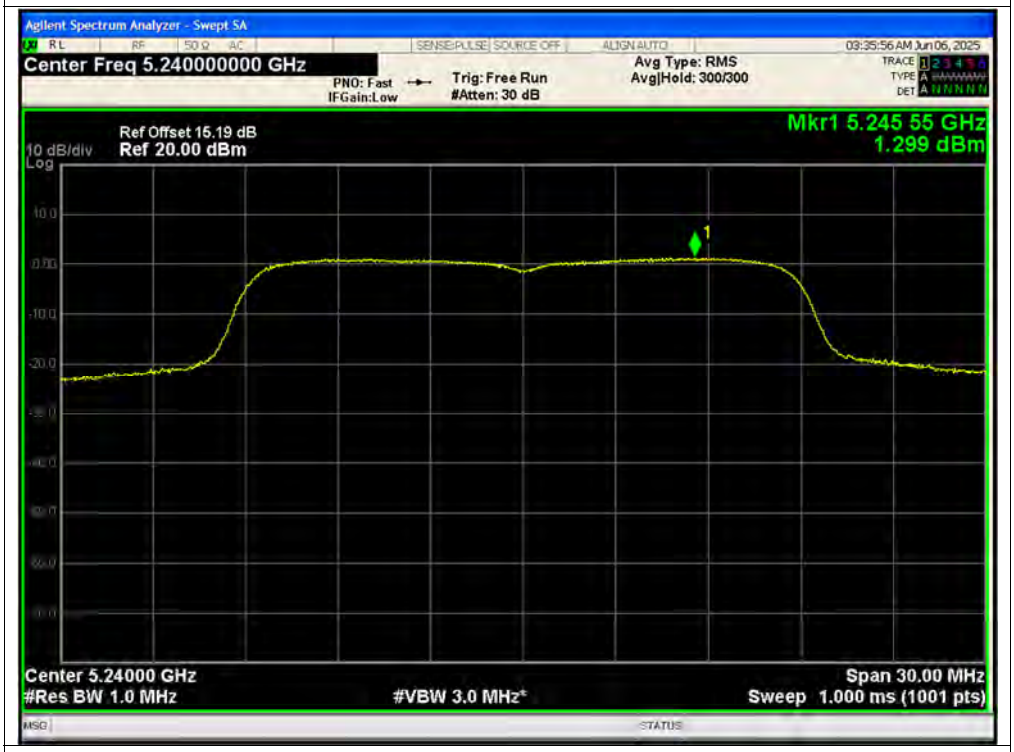
PSD NVNT a 5825MHz Ant1

PSD NVNT n20 5180MHz Ant1

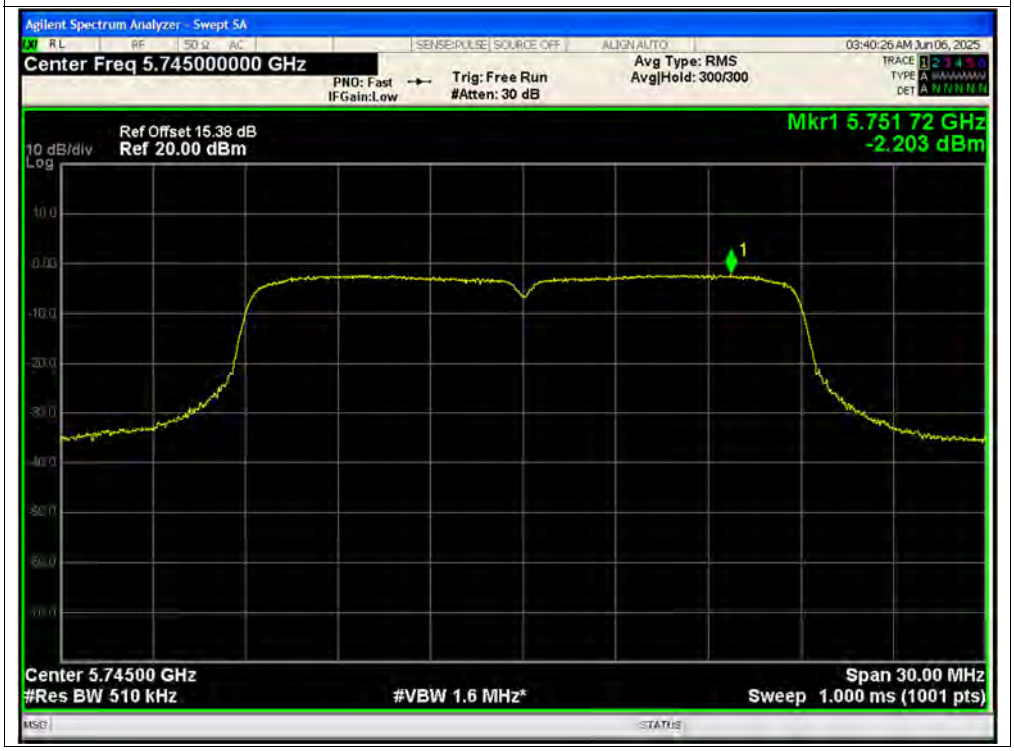
PSD NVNT n20 5220MHz Ant1



PSD NVNT n20 5240MHz Ant1

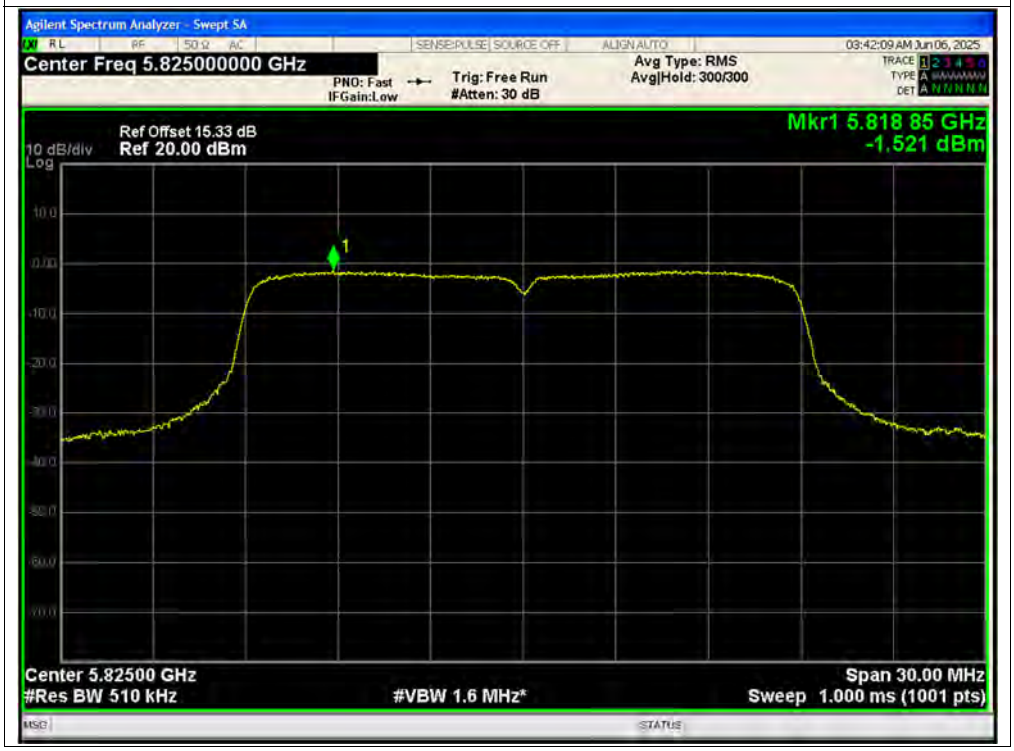


PSD NVNT n20 5745MHz Ant1

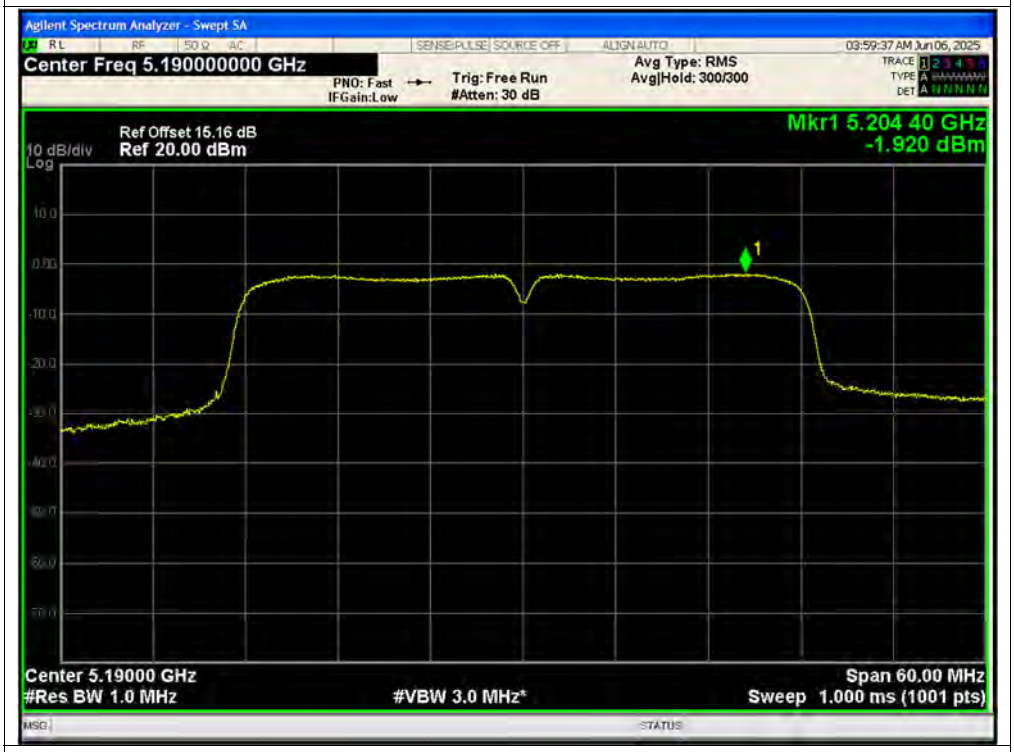


PSD NVNT n20 5785MHz Ant1

PSD NVNT n20 5825MHz Ant1

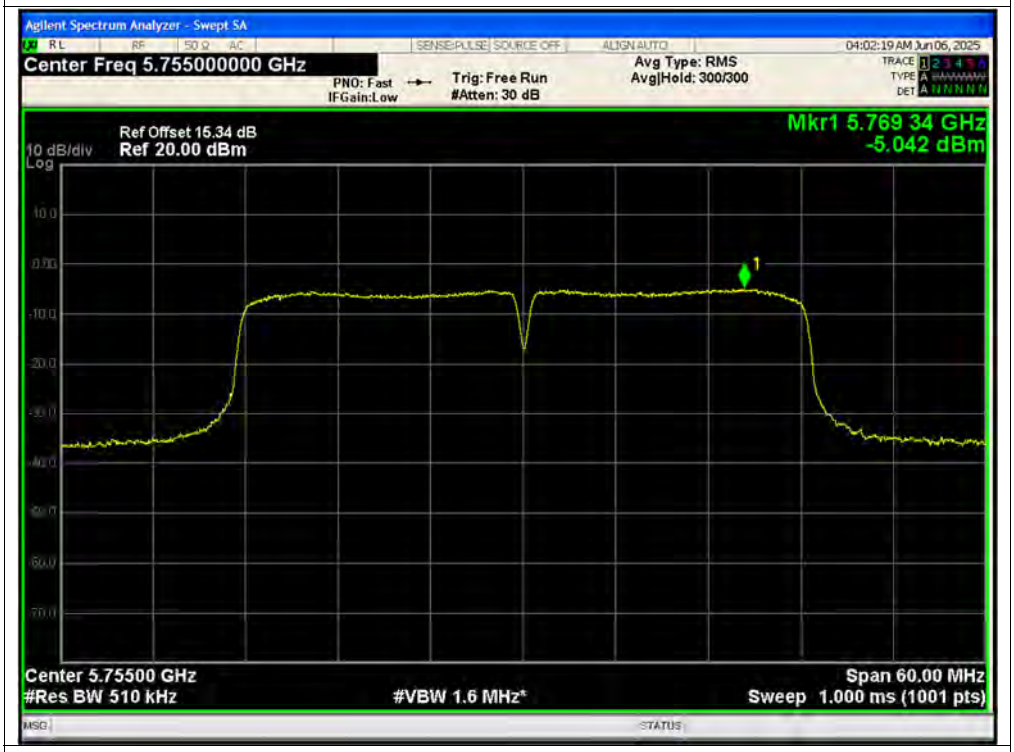


PSD NVNT n40 5190MHz Ant1

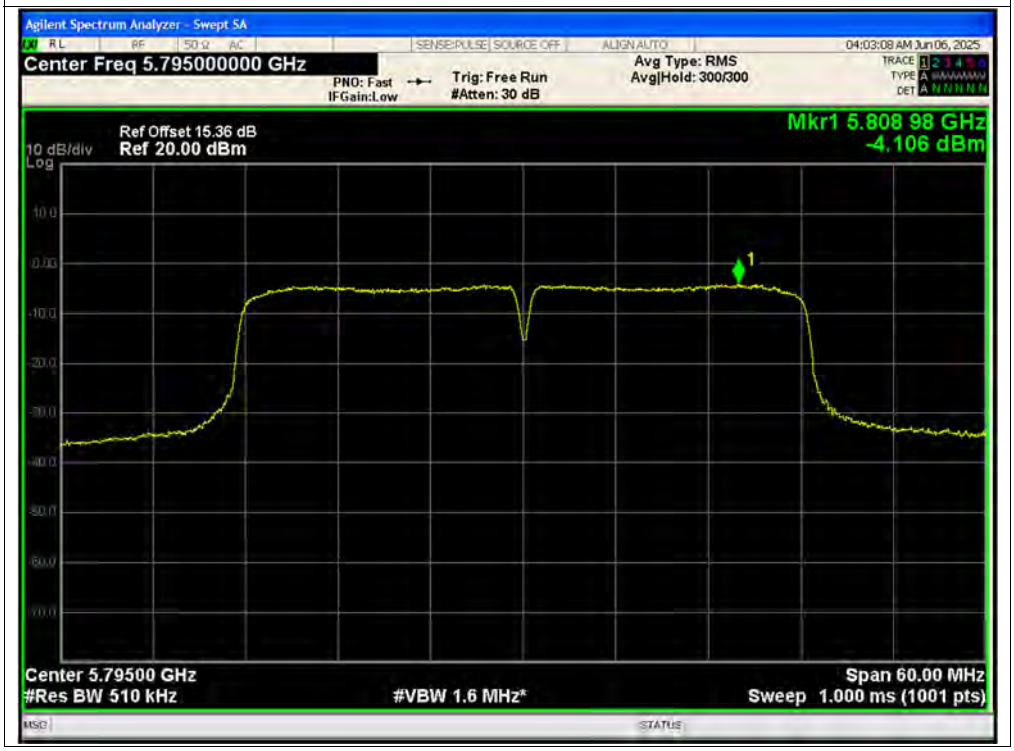


PSD NVNT n40 5230MHz Ant1

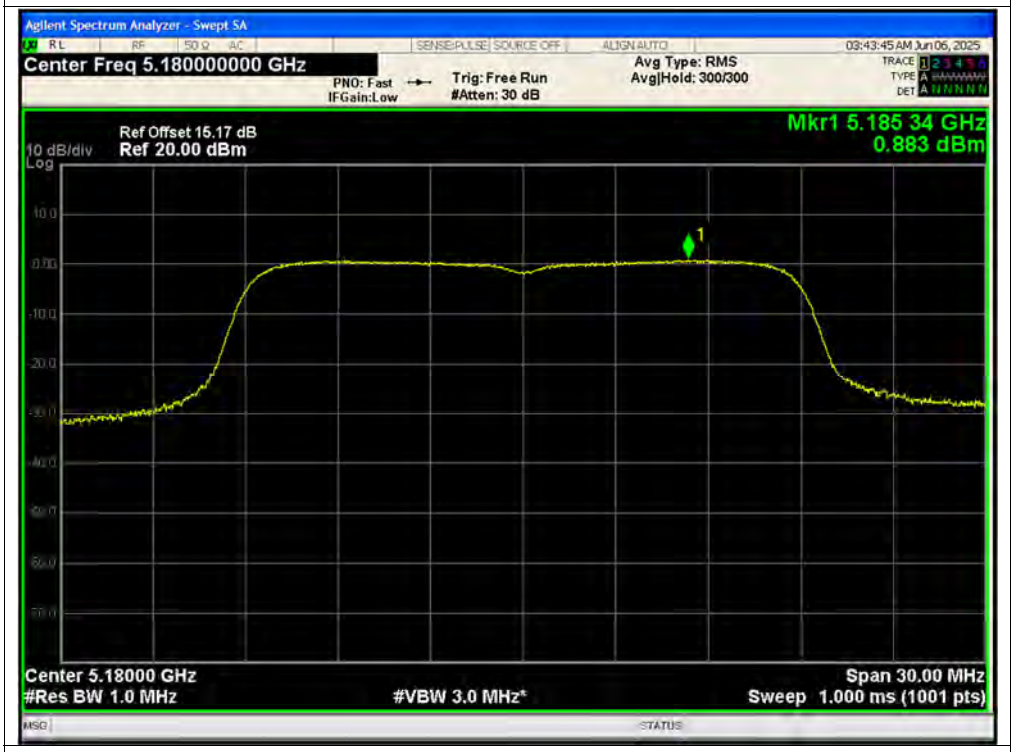
PSD NVNT n40 5755MHz Ant1



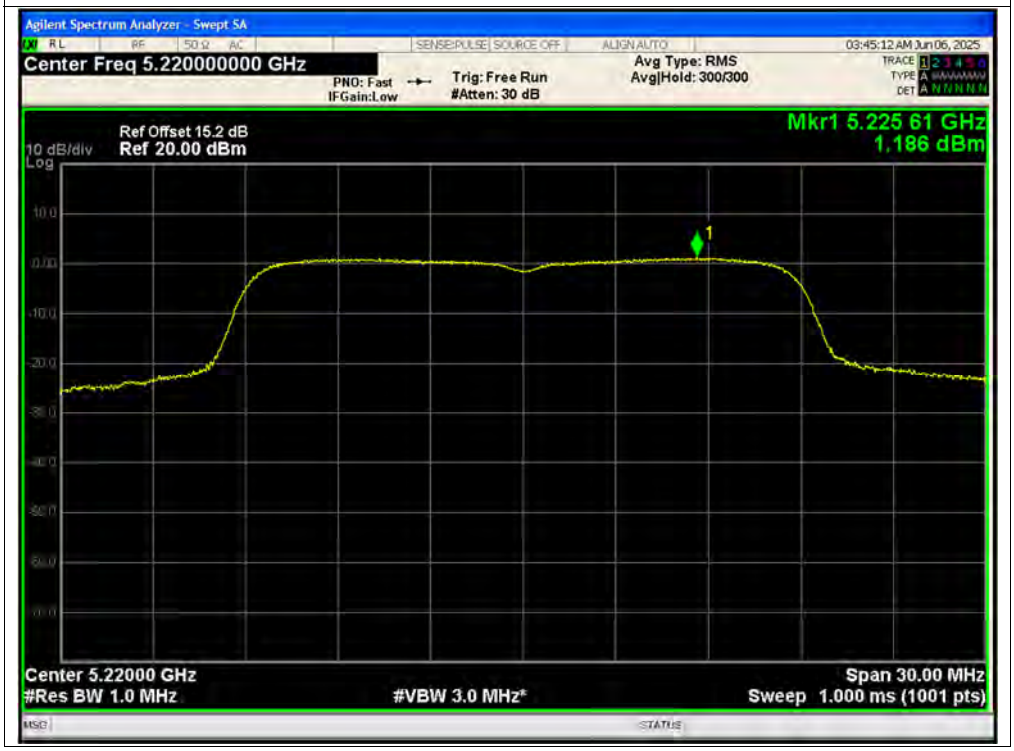
PSD NVNT n40 5795MHz Ant1



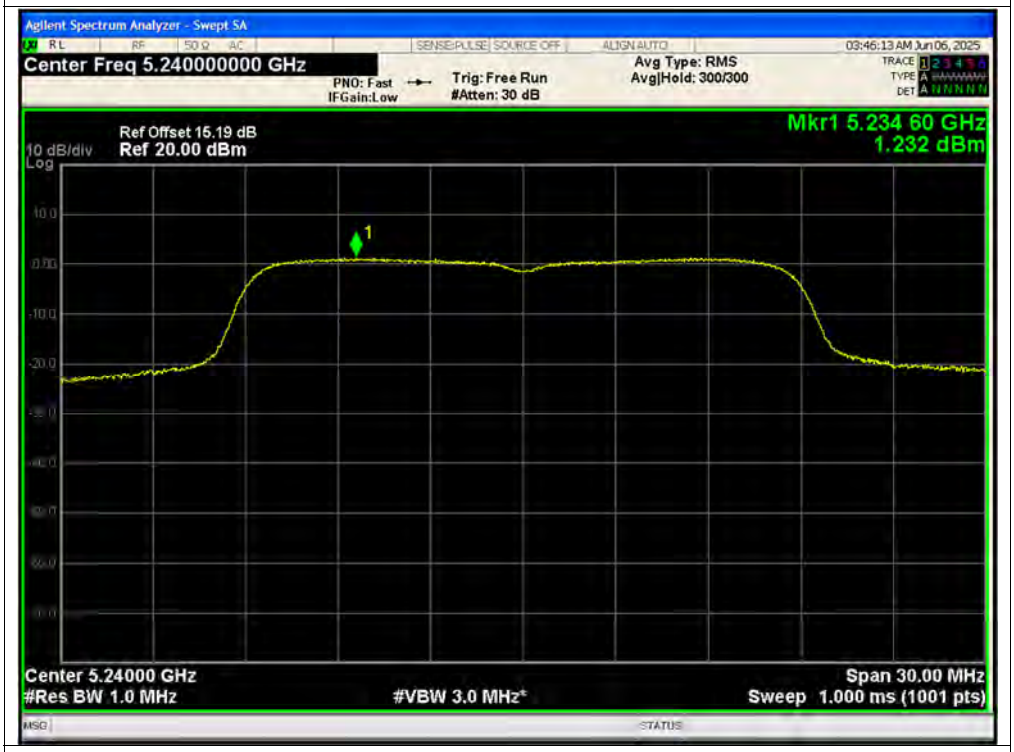
PSD NVNT ac20 5180MHz Ant1



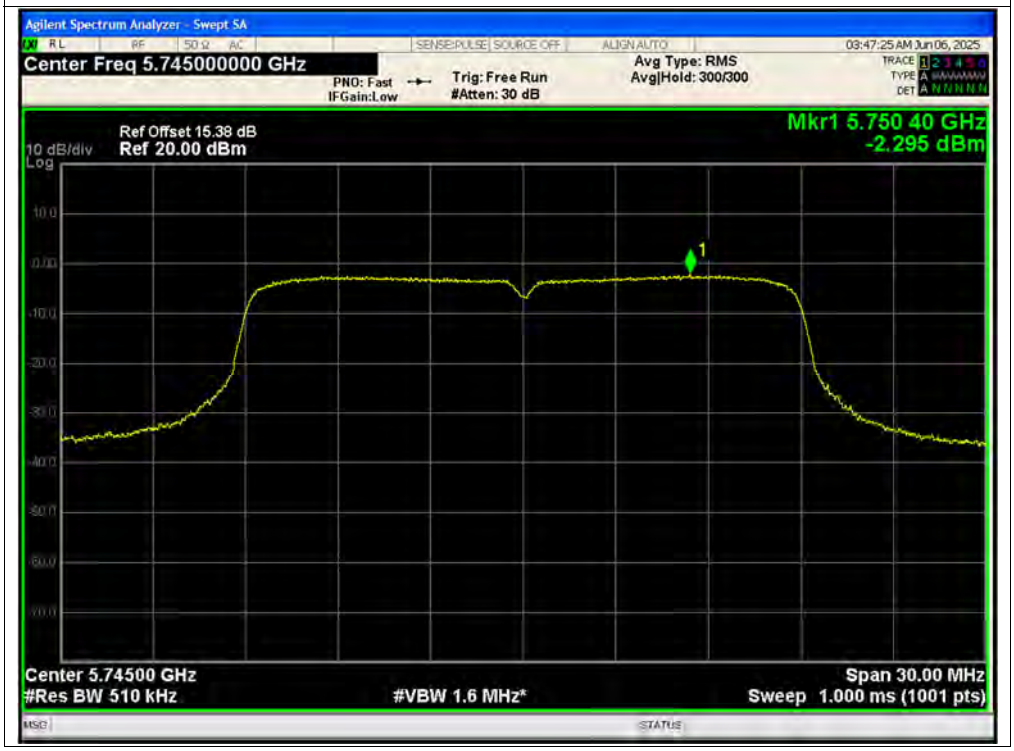
PSD NVNT ac20 5220MHz Ant1



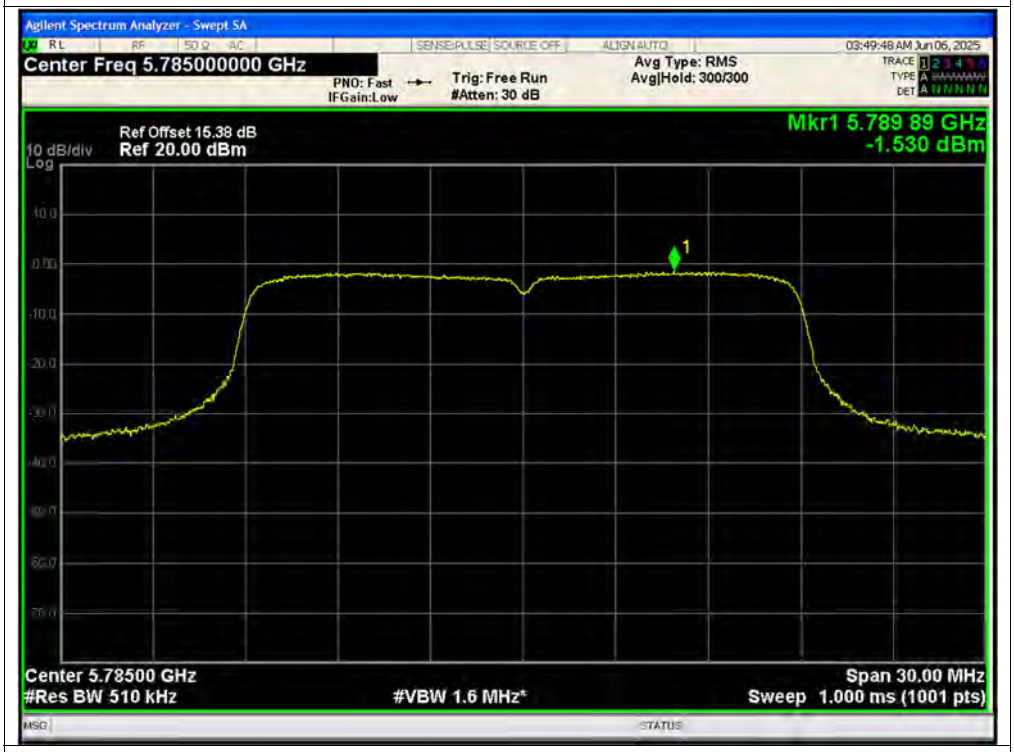
PSD NVNT ac20 5240MHz Ant1



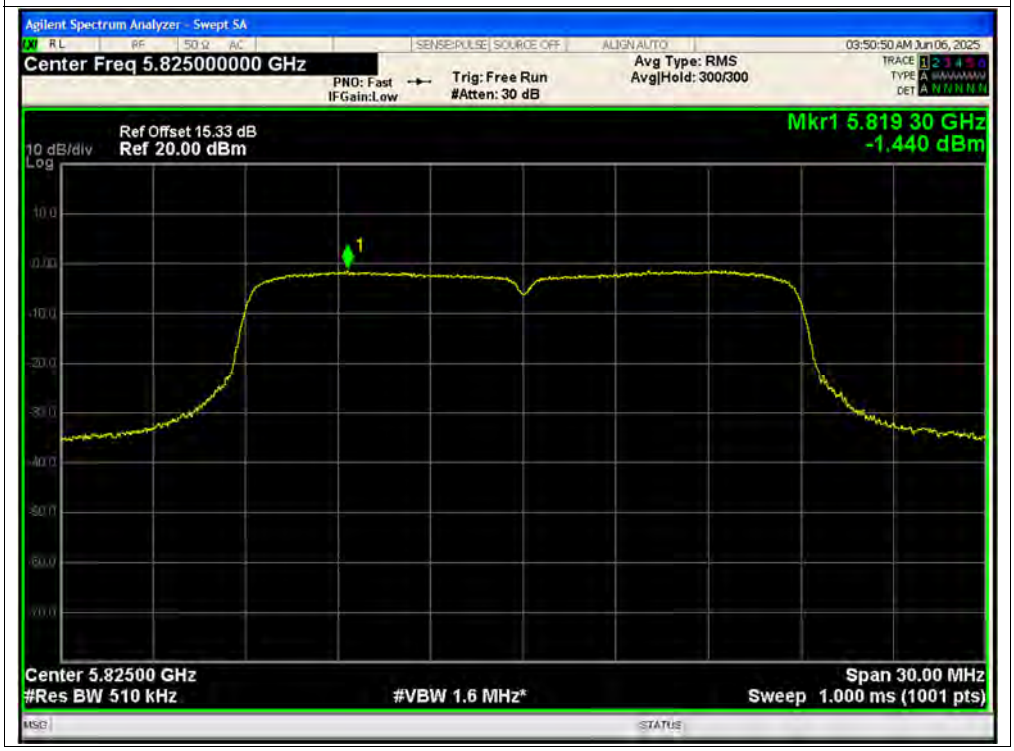
PSD NVNT ac20 5745MHz Ant1



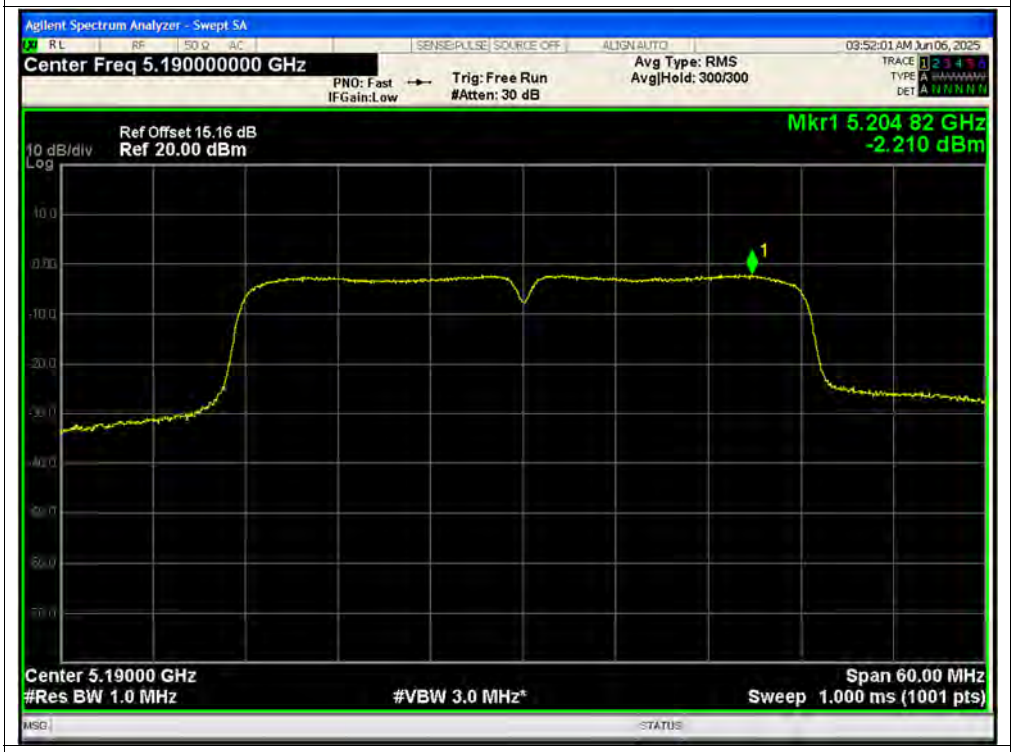
PSD NVNT ac20 5785MHz Ant1



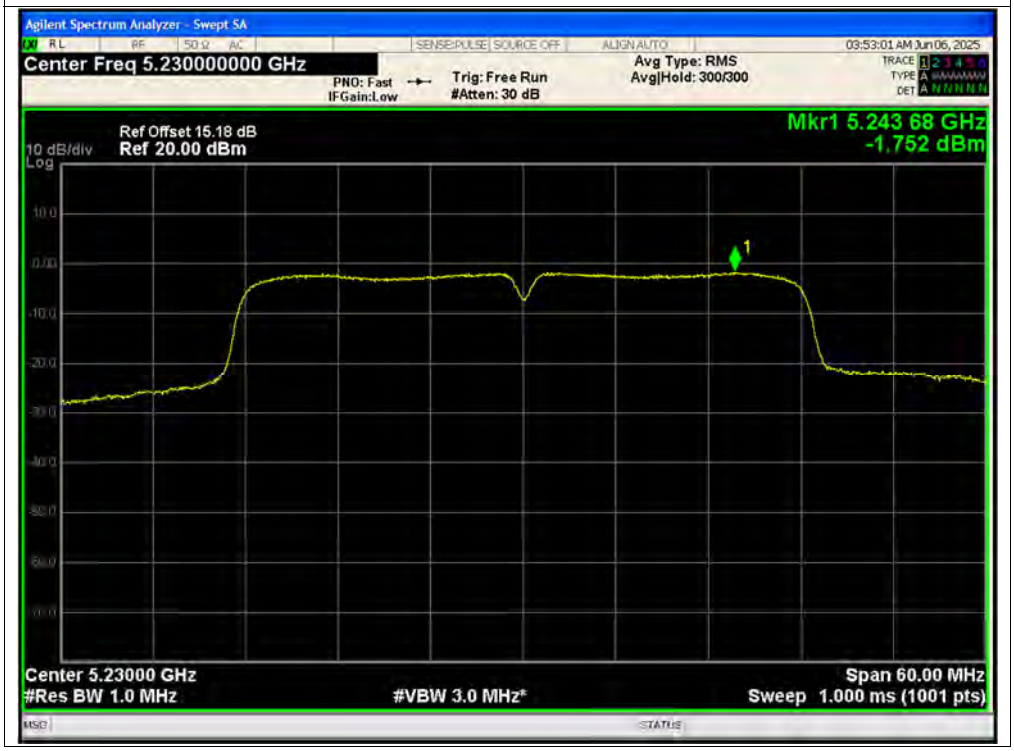
PSD NVNT ac20 5825MHz Ant1



PSD NVNT ac40 5190MHz Ant1

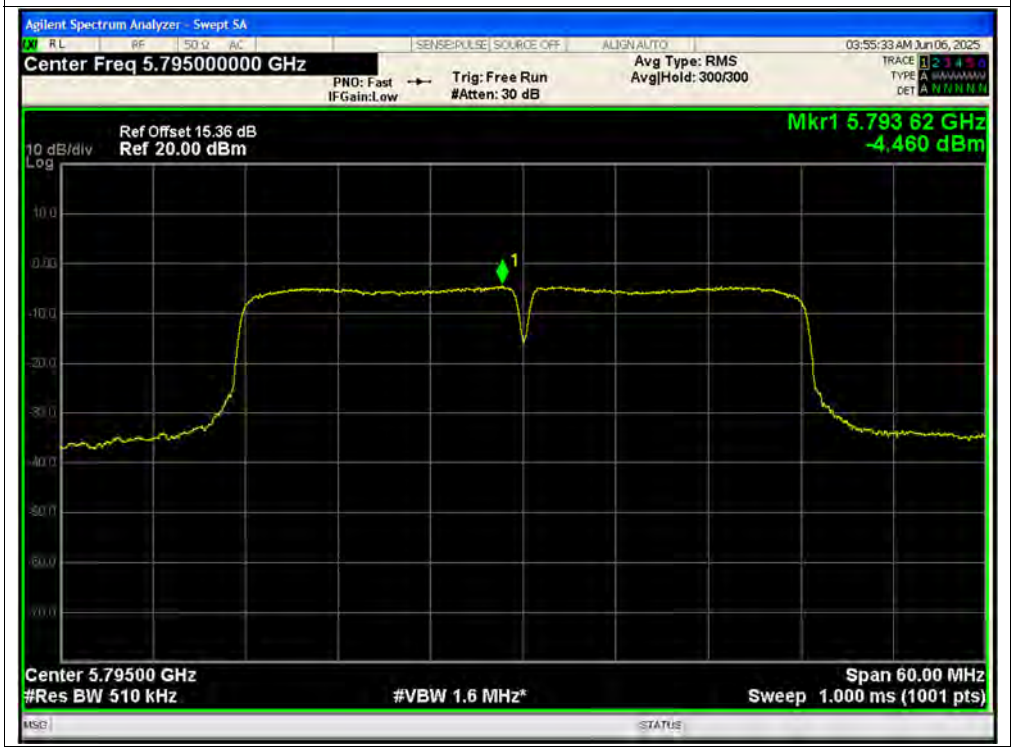


PSD NVNT ac40 5230MHz Ant1



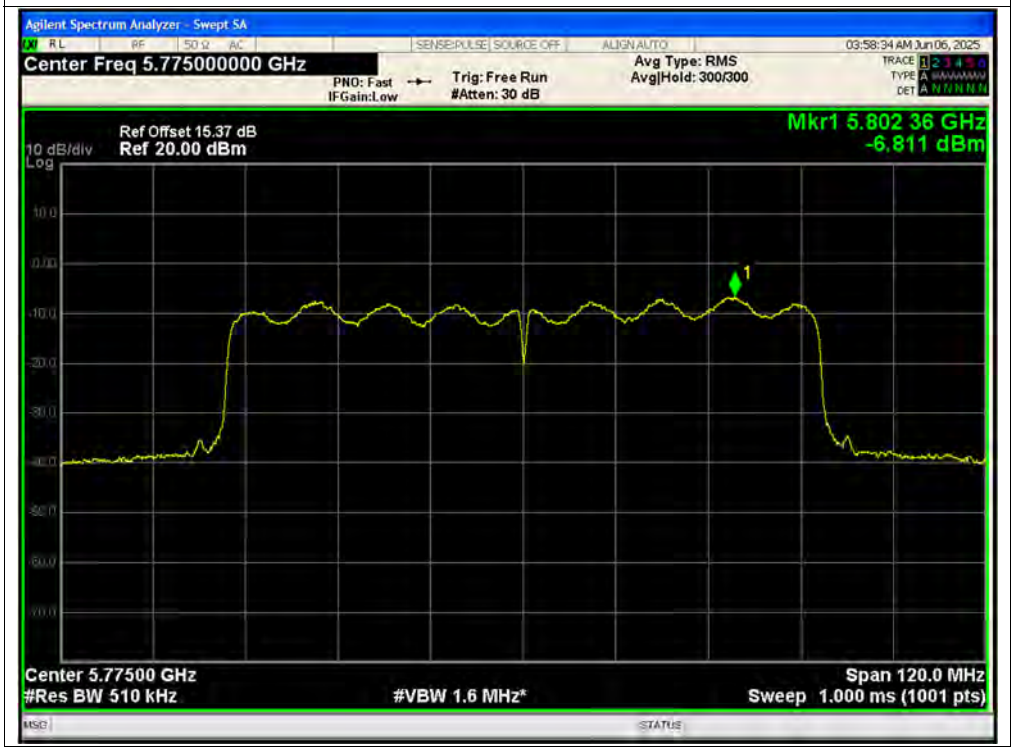
PSD NVNT ac40 5755MHz Ant1

PSD NVNT ac40 5795MHz Ant1



PSD NVNT ac80 5210MHz Ant1

PSD NVNT ac80 5775MHz Ant1



A.5. Frequency Stability

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20C 9V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
20C 12V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
20C 15V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
0C 12V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
10C 12V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
30C 12V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
40C 12V	Carrier	5180	Ant1	5179.998	-2000	-0.39	25	Pass
20C 9V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
20C 12V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
20C 15V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
0C 12V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
10C 12V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
30C 12V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass
40C 12V	Carrier	5745	Ant1	5744.997	-3000	-0.52	25	Pass

A.6. 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+Mobile Phone+WIFI TX

Test voltage: AC 120V/60Hz

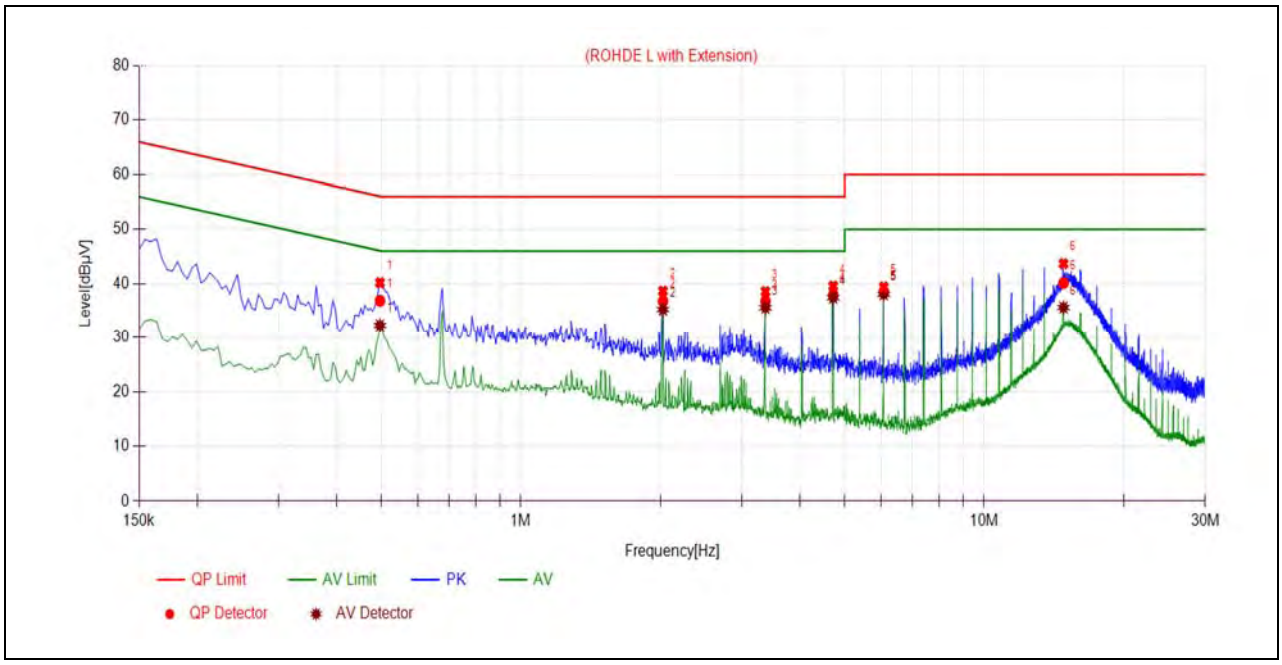
The measurement results are obtained as below:

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

U_R: Receiver Reading

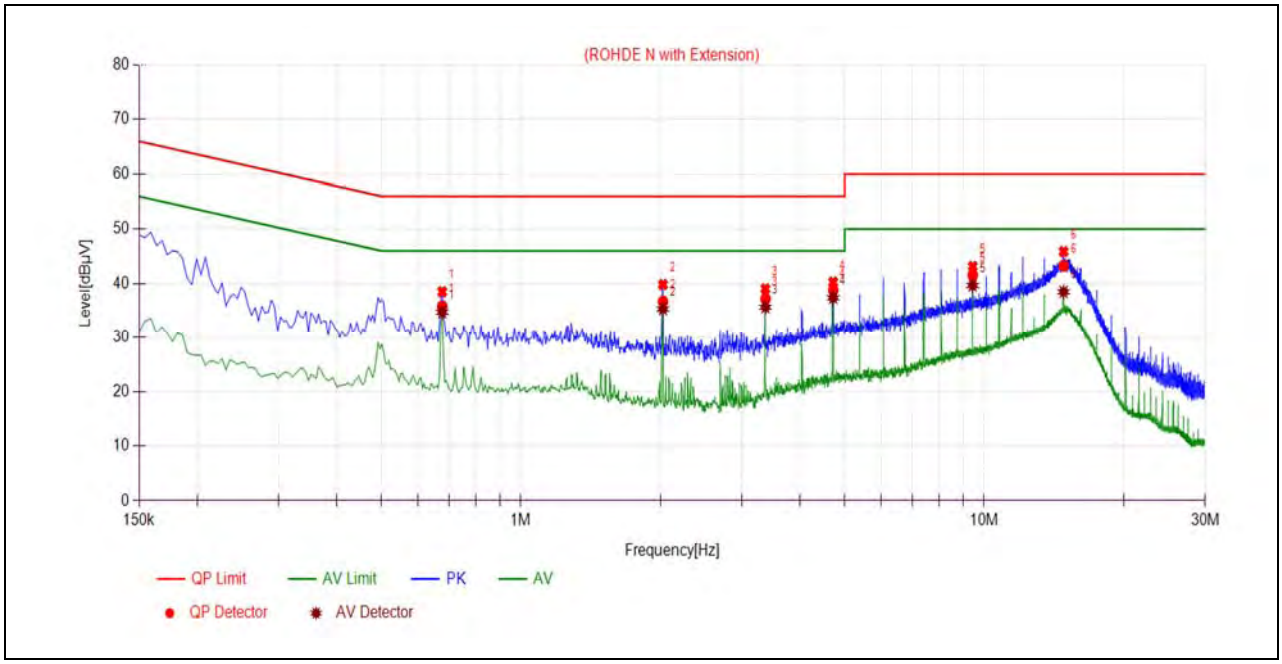
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.4965	36.85	32.29	56.06	46.06	Line	PASS
2	2.0264	36.79	35.24	56.00	46.00		PASS
3	3.3721	36.75	35.56	56.00	46.00		PASS
4	4.7219	37.92	37.43	56.00	46.00		PASS
5	6.0723	38.39	38.08	60.00	50.00		PASS
6	14.8384	40.14	35.61	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	0.6765	35.83	34.75	56.00	46.00	Neutral	PASS
2	2.0264	36.70	35.34	56.00	46.00		PASS
3	3.3723	37.22	35.66	56.00	46.00		PASS
4	4.7221	38.78	37.40	56.00	46.00		PASS
5	9.4462	41.57	39.67	60.00	50.00		PASS
6	14.8427	43.29	38.50	60.00	50.00		PASS

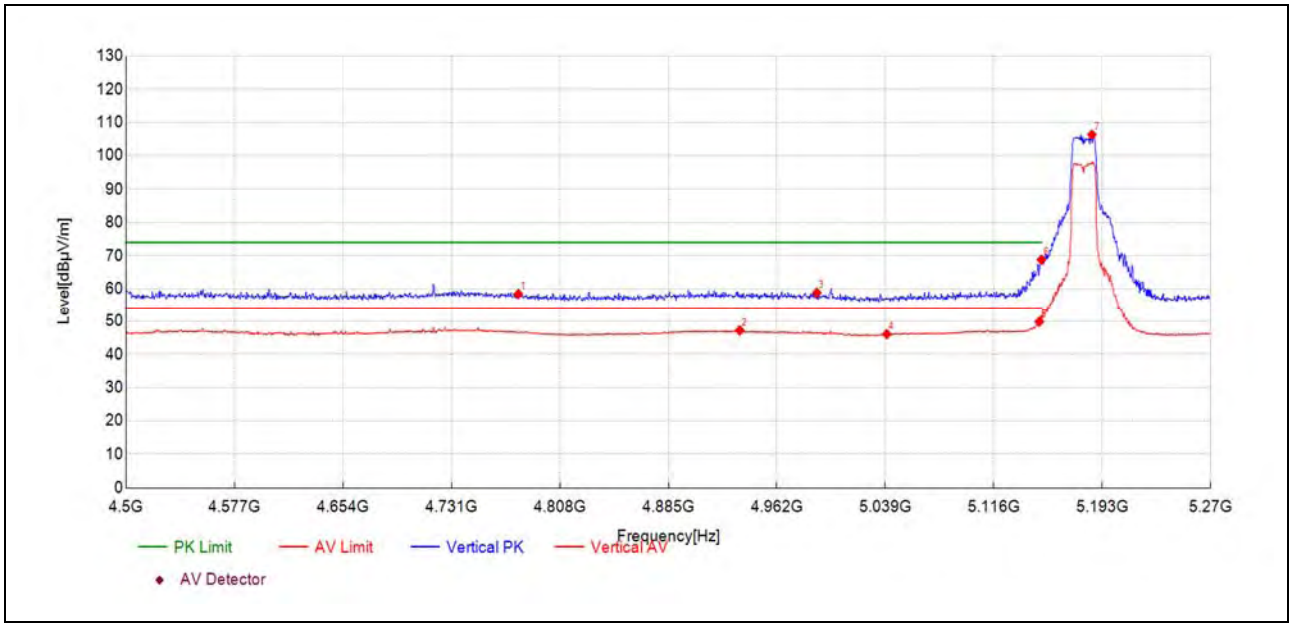
A.7. Restricted Frequency Bands

Note 1: 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.

Note 2 All test modes and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

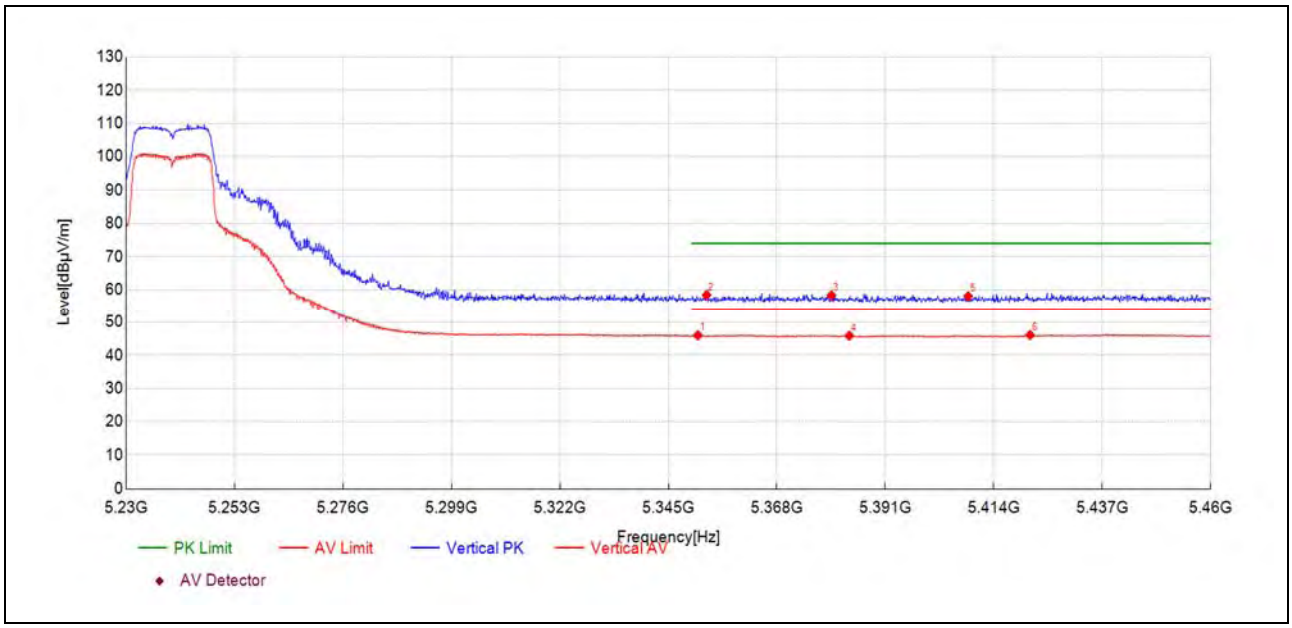
802.11a Mode

Plot for Channel 36



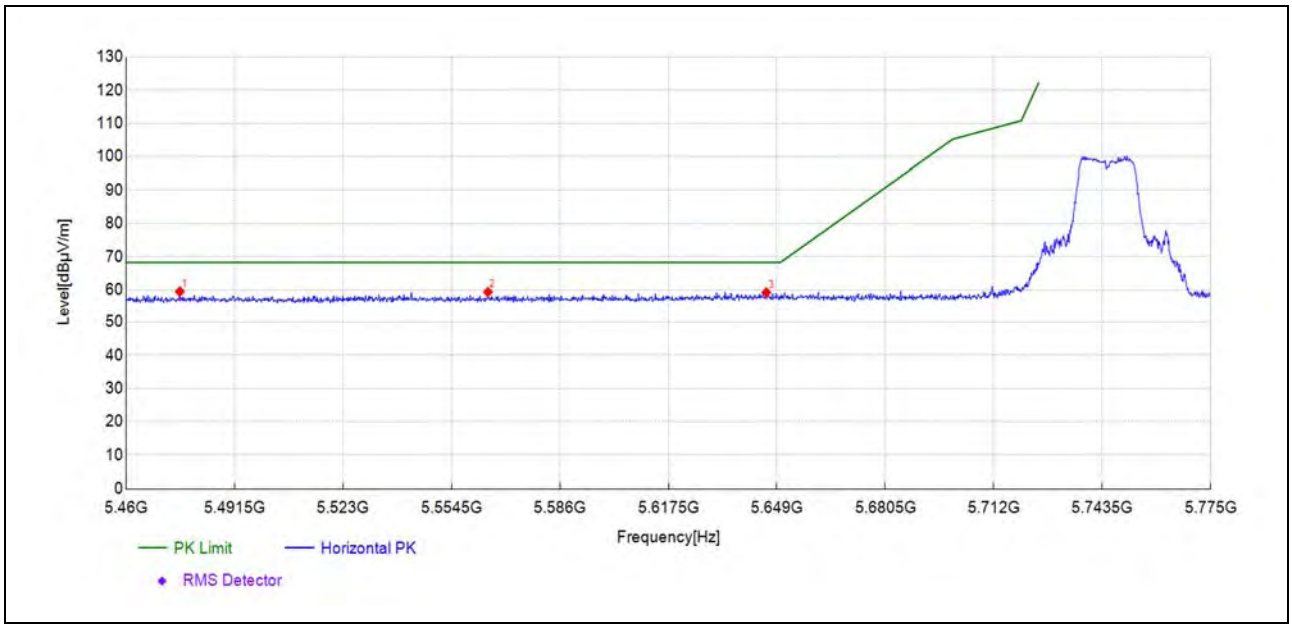
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
4778.49	38.6	58.41	19.830	74.00	15.59	150	120	PK	PASS
4935.65	27.2	47.17	19.950	54.00	6.83	150	14	AV	PASS
4990.35	38.9	58.76	19.870	74.00	15.24	150	158	PK	PASS
5040.04	25.9	46.06	20.140	54.00	7.94	150	342	AV	PASS
5148.28	29.5	49.82	20.320	54.00	4.18	150	151	AV	PASS
5149.82	48.4	68.76	20.320	74.00	5.24	150	151	PK	PASS
5185.64	85.9	106.31	20.390	-	-	150	158	PK	NA

Plot for Channel 48



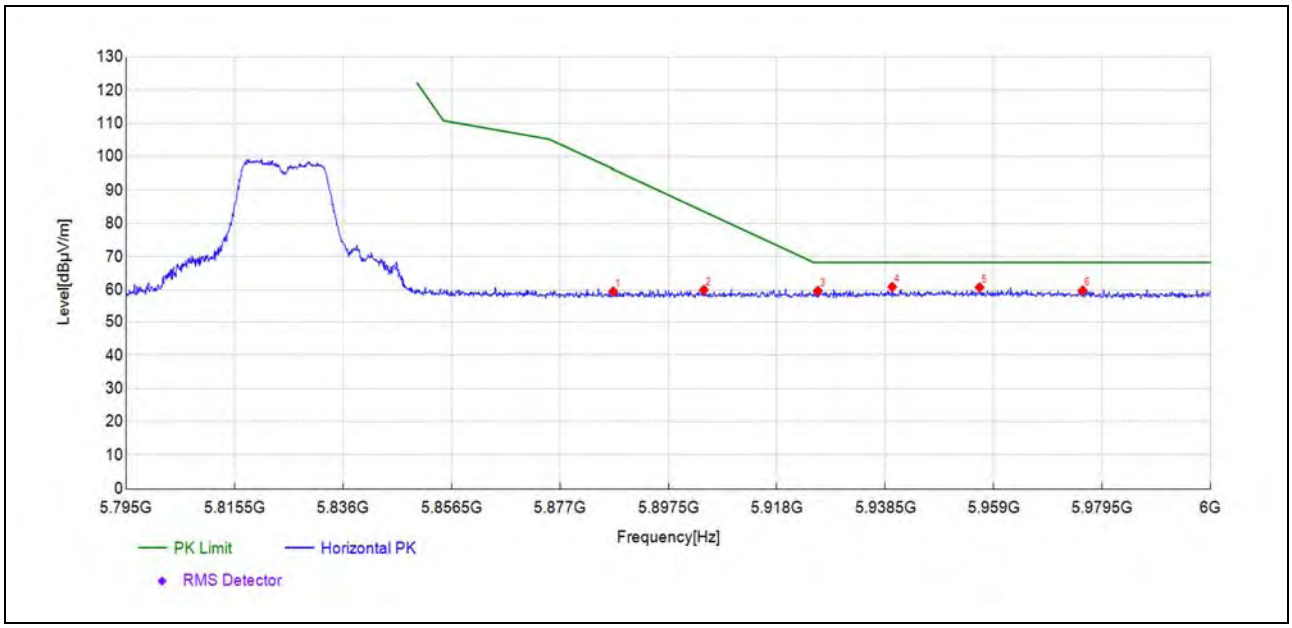
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5351.27	26.1	46.00	19.940	54.00	8.00	150	178	AV	PASS
5353.11	38.5	58.38	19.930	74.00	15.62	150	324	PK	PASS
5379.57	38.4	58.29	19.870	74.00	15.71	150	324	PK	PASS
5383.37	26.0	45.88	19.860	54.00	8.12	150	224	AV	PASS
5408.57	38.1	58.01	19.940	74.00	15.99	150	355	PK	PASS
5421.69	26.0	46.07	20.110	54.00	7.93	150	147	AV	PASS

Plot for Channel 149



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5475.60	39.1	59.46	20.340	68.23	8.77	150	112	PK	PASS
5565.11	39.1	59.33	20.230	68.23	8.90	150	351	PK	PASS
5645.94	38.3	59.18	20.930	68.23	9.05	150	139	PK	PASS

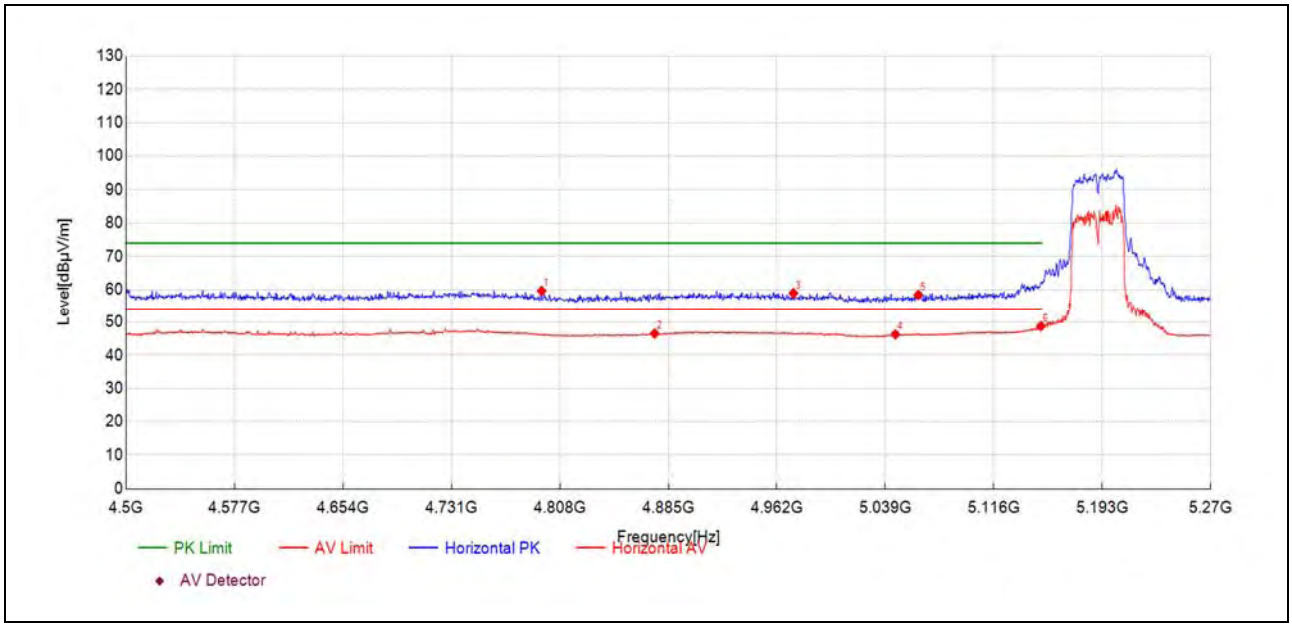
Plot for Channel 165



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5887.09	37.6	59.46	21.910	96.28	36.82	150	359	PK	PASS
5904.22	38.2	59.94	21.760	83.61	23.67	150	185	PK	PASS
5925.75	37.7	59.65	21.920	68.23	8.58	150	354	PK	PASS
5939.80	38.8	60.86	22.040	68.23	7.37	150	185	PK	PASS
5956.31	38.7	60.73	22.070	68.23	7.50	150	163	PK	PASS
5975.80	37.9	59.78	21.910	68.23	8.45	150	360	PK	PASS

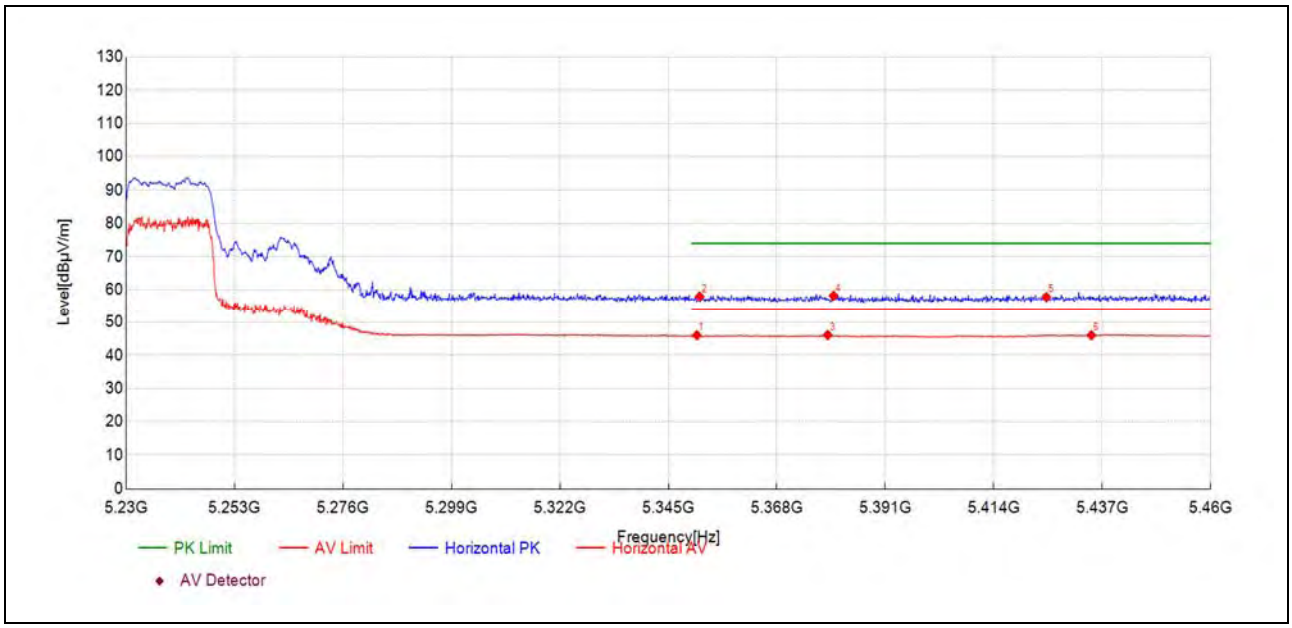
802.11n (HT40) Mode

Plot for Channel 38



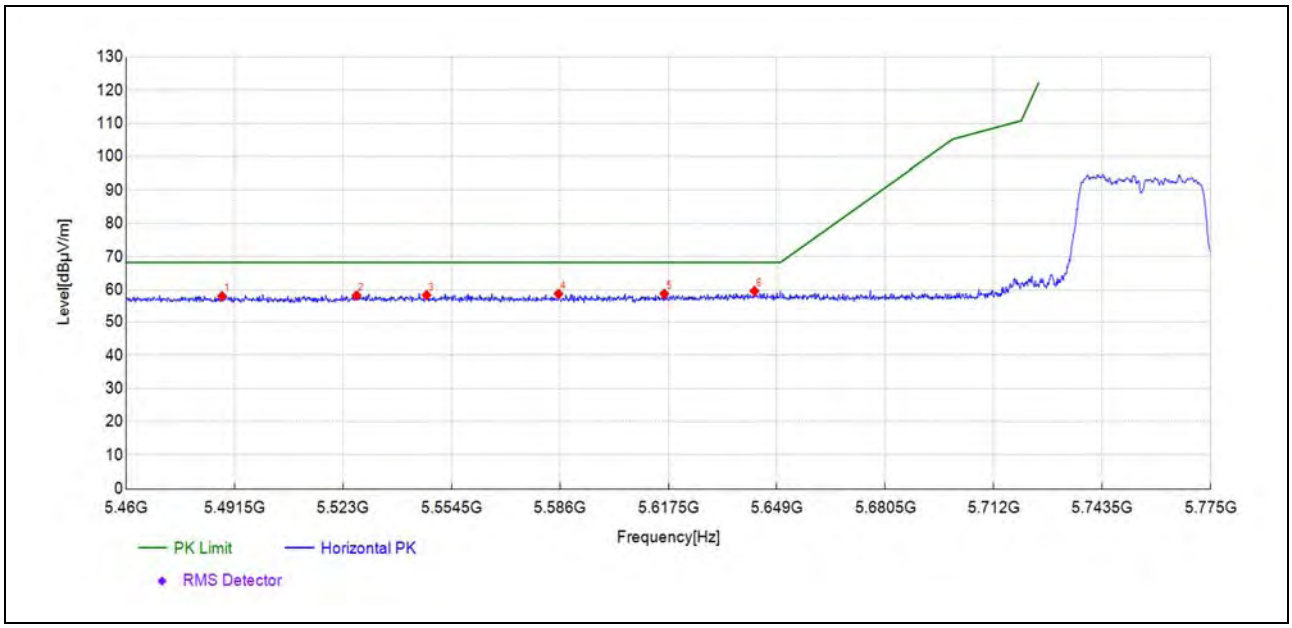
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
4795.06	40.0	59.58	19.540	74.00	14.42	150	247	PK	PASS
4875.18	26.5	46.52	20.040	54.00	7.48	150	208	AV	PASS
4973.79	39.0	58.89	19.850	74.00	15.11	150	208	PK	PASS
5046.20	26.1	46.25	20.170	54.00	7.75	150	200	AV	PASS
5062.38	38.1	58.39	20.280	74.00	15.61	150	330	PK	PASS
5149.43	28.5	48.77	20.320	54.00	5.23	150	240	AV	PASS

Plot for Channel 46



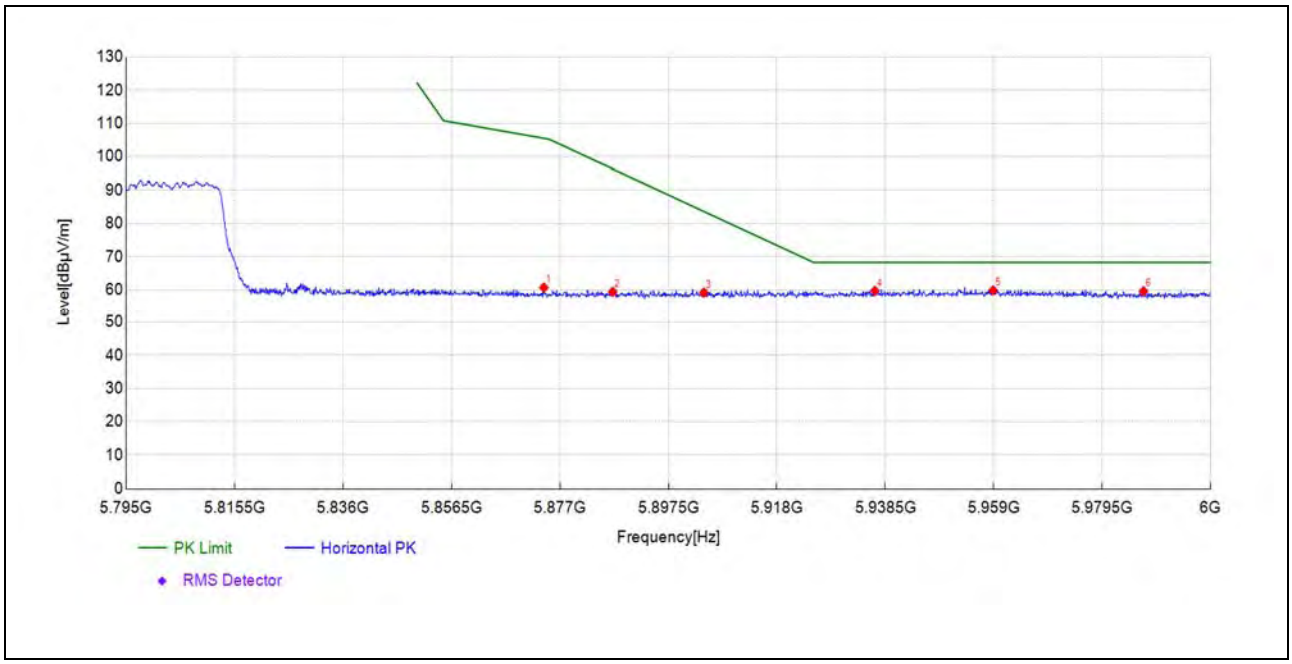
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5351.04	26.1	46.02	19.940	54.00	7.98	150	137	AV	PASS
5351.62	38.0	57.91	19.940	74.00	16.09	150	290	PK	PASS
5378.77	26.2	46.09	19.870	54.00	7.91	150	0	AV	PASS
5380.04	38.3	58.18	19.870	74.00	15.82	150	0	PK	PASS
5425.14	37.6	57.78	20.150	74.00	16.22	150	99	PK	PASS
5434.69	25.7	46.02	20.280	54.00	7.98	150	92	AV	PASS

Plot for Channel 151



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5487.89	37.8	58.06	20.270	68.23	10.17	150	3	PK	PASS
5526.97	38.0	58.28	20.240	68.23	9.95	150	51	PK	PASS
5547.30	38.1	58.39	20.260	68.23	9.84	150	3	PK	PASS
5585.59	38.6	58.77	20.170	68.23	9.46	150	359	PK	PASS
5616.32	38.4	58.77	20.420	68.23	9.46	150	3	PK	PASS
5642.48	38.7	59.61	20.870	68.23	8.62	150	66	PK	PASS

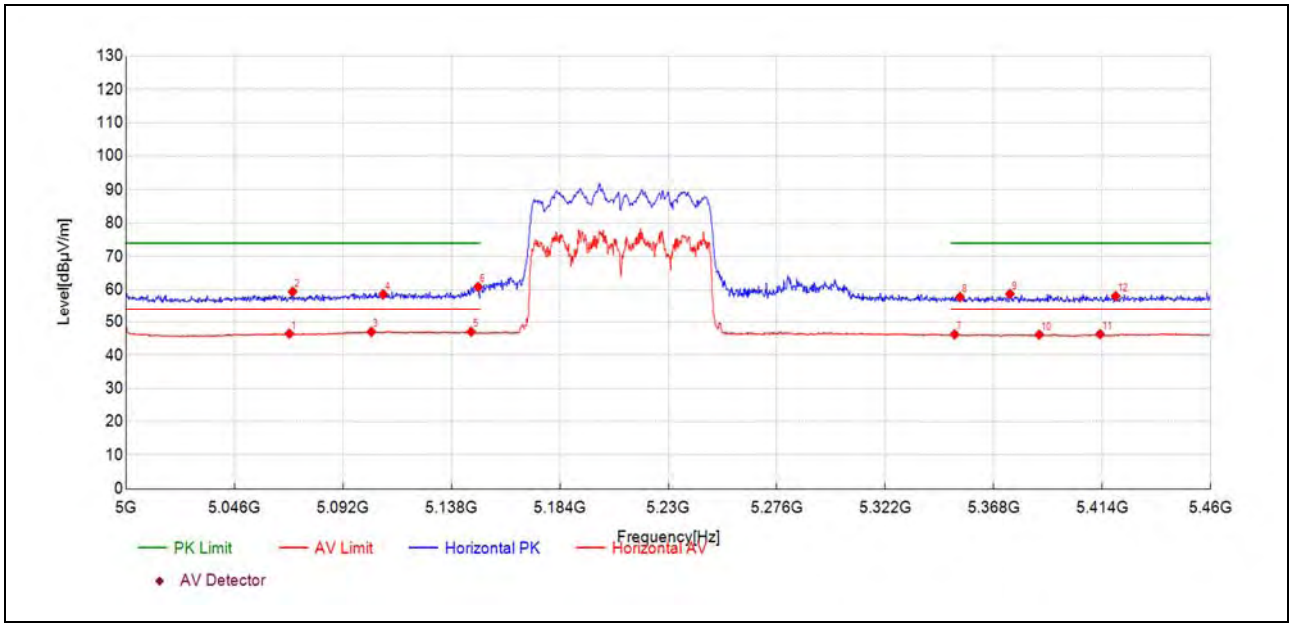
Plot for Channel 159



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5873.96	38.6	60.67	22.100	105.52	44.85	150	82	PK	PASS
5886.99	37.5	59.37	21.910	96.36	36.99	150	1	PK	PASS
5904.22	37.4	59.14	21.760	83.61	24.47	150	60	PK	PASS
5936.52	37.7	59.70	22.010	68.23	8.53	150	301	PK	PASS
5958.88	37.8	59.85	22.050	68.23	8.38	150	46	PK	PASS
5987.28	37.7	59.55	21.820	68.23	8.68	150	202	PK	PASS

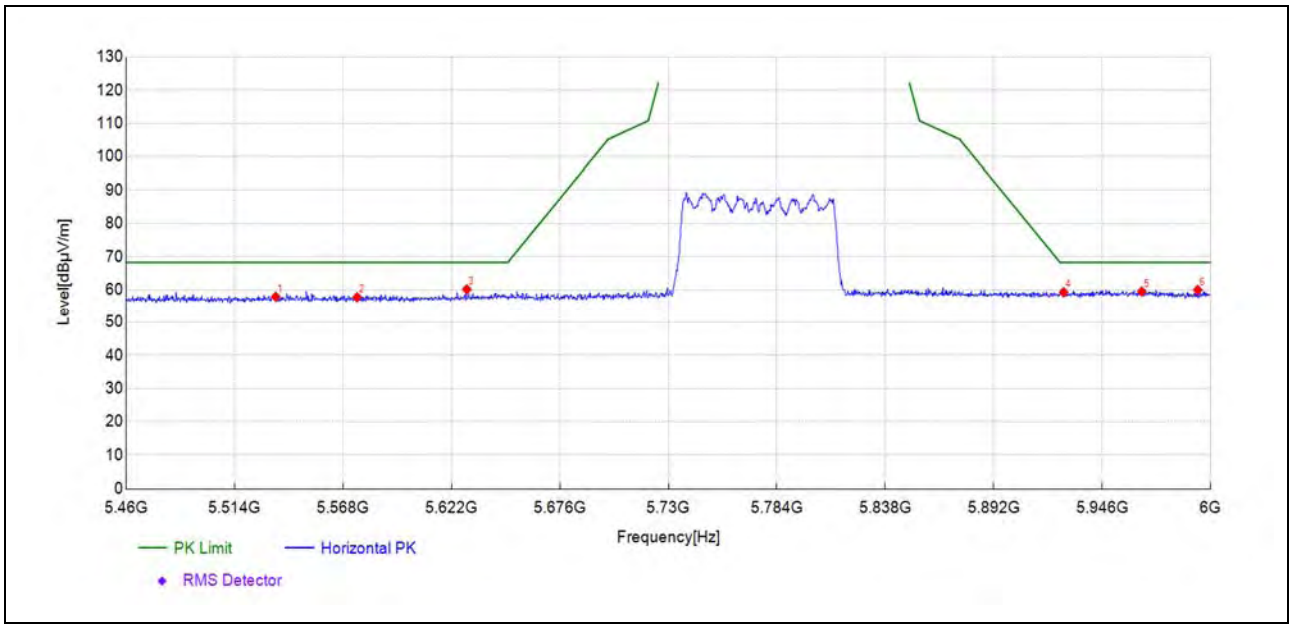
802.11ac (VHT80) Mode

Plot for Channel 42



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5069.26	26.1	46.46	20.330	54.00	7.54	150	240	AV	PASS
5070.65	39.1	59.38	20.330	74.00	14.62	150	25	PK	PASS
5104.01	26.5	47.01	20.500	54.00	6.99	150	10	AV	PASS
5109.07	38.1	58.61	20.480	74.00	15.39	150	49	PK	PASS
5146.35	26.7	47.04	20.340	54.00	6.96	150	232	AV	PASS
5149.34	40.5	60.85	20.320	74.00	13.15	150	240	PK	PASS
5351.39	26.3	46.25	19.940	54.00	7.75	150	354	AV	PASS
5353.69	37.9	57.80	19.930	74.00	16.20	150	300	PK	PASS
5374.86	38.8	58.71	19.890	74.00	15.29	150	285	PK	PASS
5387.28	26.3	46.18	19.860	54.00	7.82	150	247	AV	PASS
5413.06	26.3	46.32	20.000	54.00	7.68	150	4	AV	PASS
5419.73	38.0	58.04	20.090	74.00	15.96	150	79	PK	PASS

Plot for Channel 155



Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
5534.56	37.6	57.87	20.250	68.23	10.36	150	96	PK	PASS
5575.08	37.5	57.74	20.200	68.23	10.49	150	328	PK	PASS
5629.64	39.5	60.12	20.650	68.23	8.11	150	153	PK	PASS
5926.79	37.3	59.27	21.930	68.23	8.96	150	82	PK	PASS
5965.69	37.5	59.47	21.990	68.23	8.76	150	96	PK	PASS
5993.52	38.2	59.95	21.770	68.23	8.28	150	33	PK	PASS

A.8. 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.

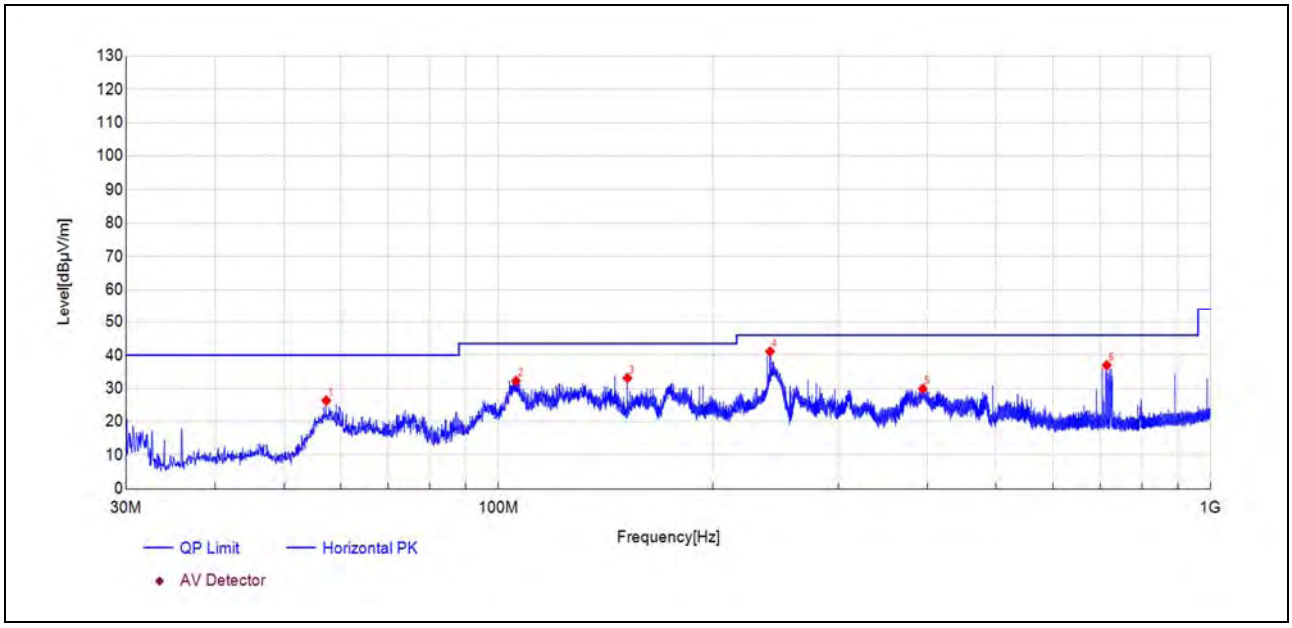
Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

Note3: For the frequency, which started from 18GHz to 40GHz 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 and bandwidth were considered and evaluated respectively by performing full test, only the worst data were recorded for each bandwidth.

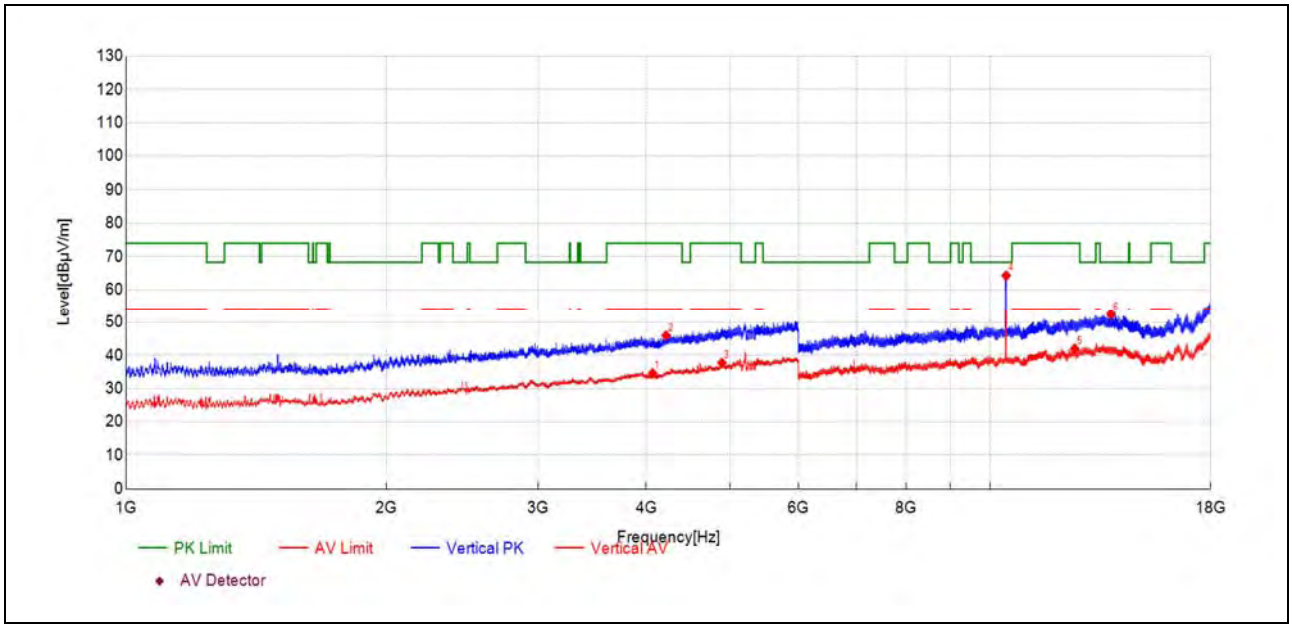
802.11a Mode

Plot for Channel 44



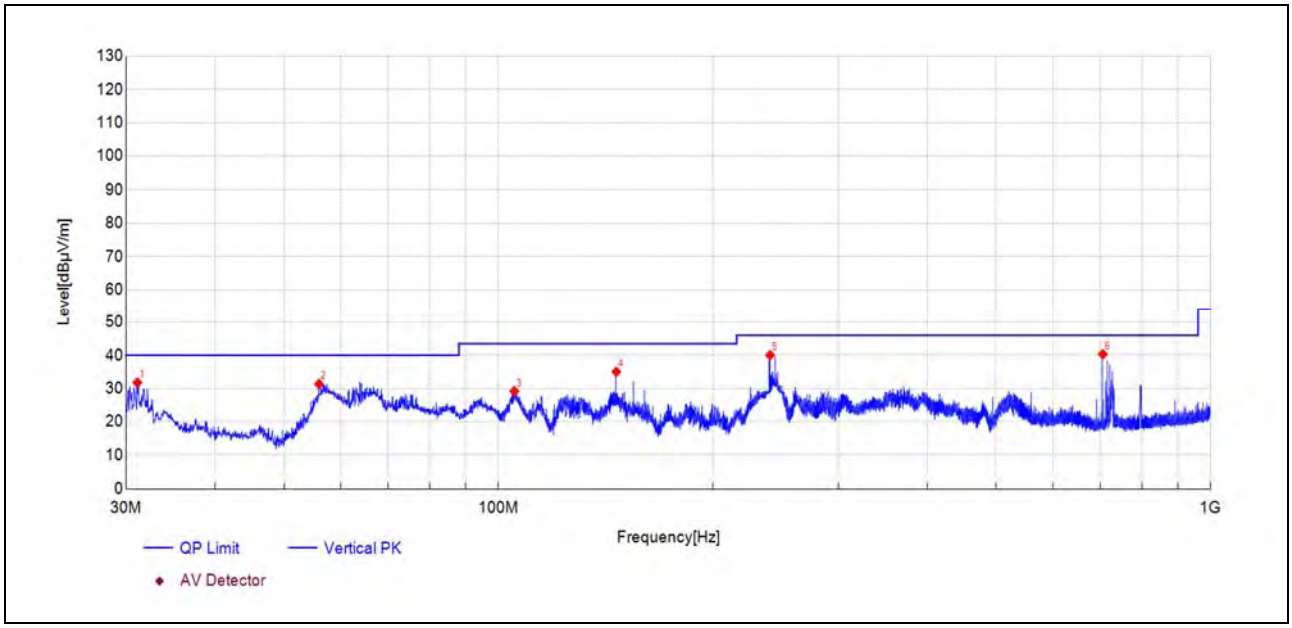
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
57.31	56.4	26.33	-30.020	40.00	13.67	150	167	PK	PASS
105.86	62.7	32.27	-30.410	43.50	11.23	150	86	PK	PASS
151.74	66.4	33.10	-33.260	43.50	10.40	150	228	PK	PASS
240.60	69.5	41.10	-28.400	46.00	4.90	150	349	PK	PASS
394.25	54.2	29.92	-24.260	46.00	16.08	150	26	PK	PASS
714.42	54.9	36.96	-17.900	46.00	9.04	150	55	PK	PASS



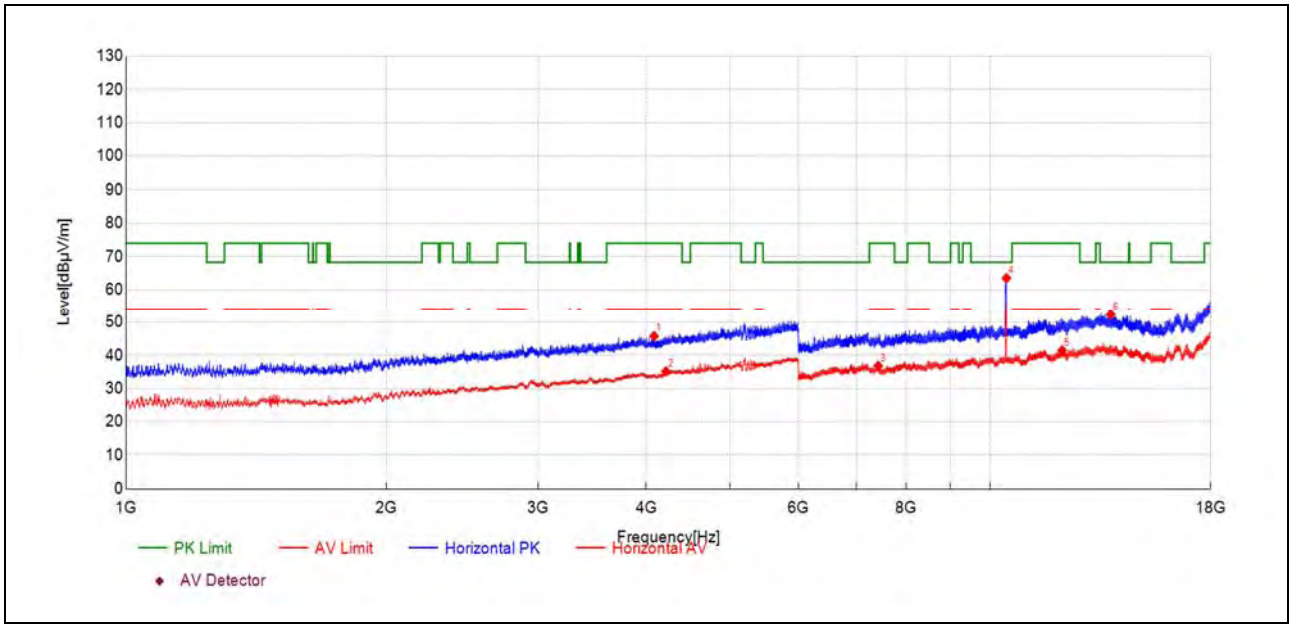
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
4068.81	28.8	34.58	5.800	54.00	19.42	150	355	AV	PASS
4218.32	39.3	45.94	6.600	74.00	28.06	150	360	PK	PASS
4893.39	28.5	37.70	9.190	54.00	16.30	150	289	AV	PASS
10436.18	64.8	64.24	-0.580	68.23	3.99	150	7	PK	PASS
12528.27	38.5	41.98	3.470	54.00	12.02	150	0	AV	PASS
13798.82	47.0	52.44	5.440	68.23	15.79	150	216	PK	PASS



(AntenN/A Vertical, 30MHz to 1GHz)

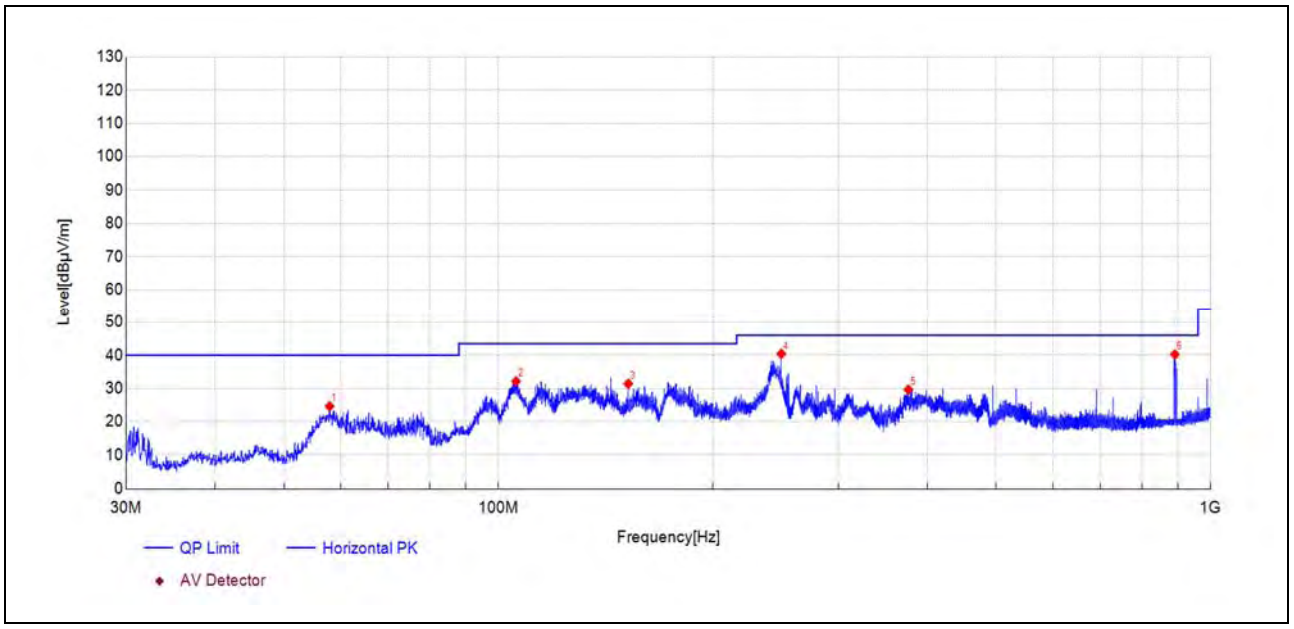
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
31.12	64.7	31.79	-32.870	40.00	8.21	150	92	PK	PASS
56.00	61.1	31.35	-29.730	40.00	8.65	150	359	PK	PASS
105.28	59.6	29.19	-30.420	43.50	14.31	150	283	PK	PASS
146.41	68.5	35.05	-33.480	43.50	8.45	150	358	PK	PASS
240.65	68.4	40.04	-28.400	46.00	5.96	150	112	PK	PASS
705.44	58.5	40.34	-18.180	46.00	5.66	150	51	PK	PASS



(AntenN/A Vertical, 1GHz to 18GHz)

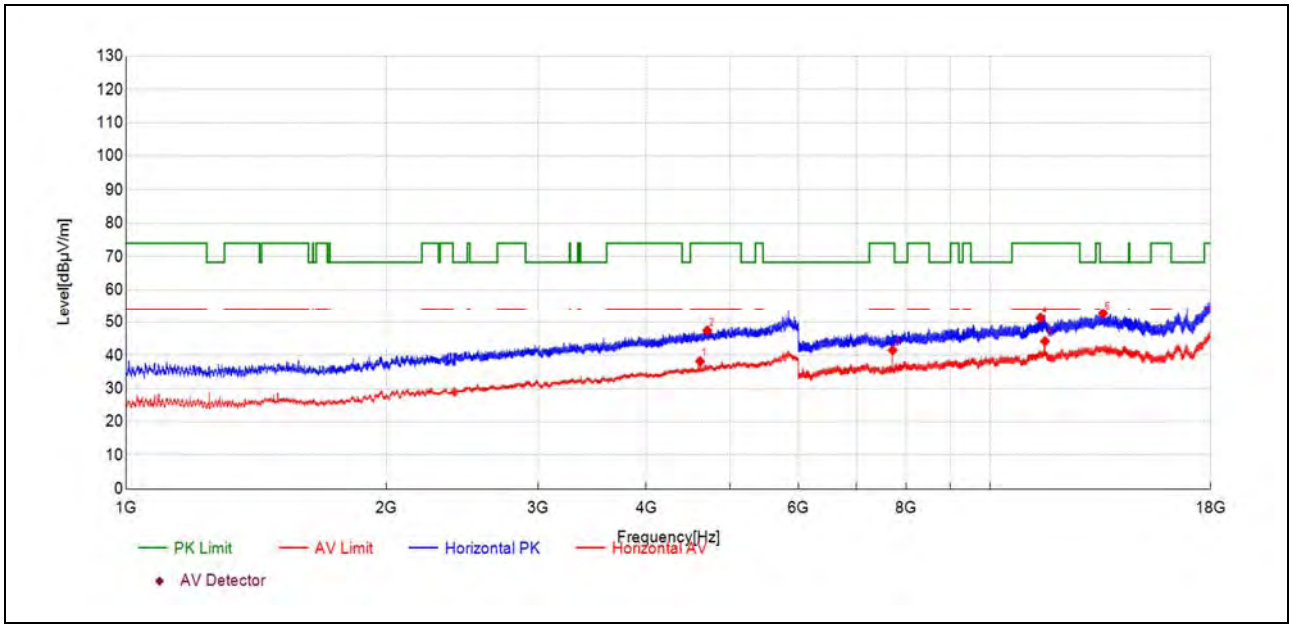
Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
4083.81	40.0	45.76	5.740	74.00	28.24	150	69	PK	PASS
4216.32	28.6	35.16	6.580	54.00	18.84	150	278	AV	PASS
7421.06	41.0	36.80	-4.220	54.00	17.20	150	307	AV	PASS
10442.69	64.0	63.47	-0.530	68.23	3.76	150	89	PK	PASS
12116.75	38.5	41.46	2.940	54.00	12.54	150	307	AV	PASS
13787.32	47.0	52.33	5.350	68.23	15.90	150	152	PK	PASS

Plot for Channel 157



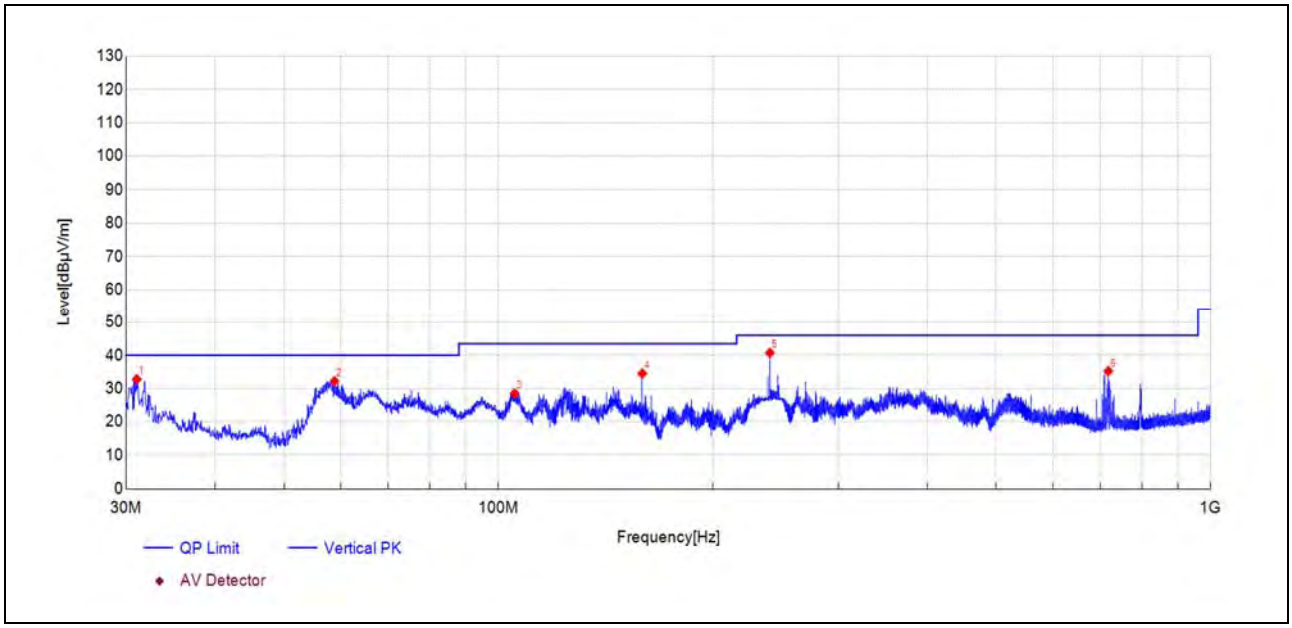
(Antenna Horizontal, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
57.94	54.9	24.66	-30.210	40.00	15.34	150	163	PK	PASS
105.86	62.6	32.17	-30.410	43.50	11.33	150	102	PK	PASS
152.13	64.7	31.45	-33.250	43.50	12.05	150	133	PK	PASS
249.52	68.5	40.41	-28.130	46.00	5.59	150	32	PK	PASS
376.26	54.5	29.66	-24.800	46.00	16.34	150	265	PK	PASS
890.68	55.4	40.24	-15.140	46.00	5.76	150	32	PK	PASS



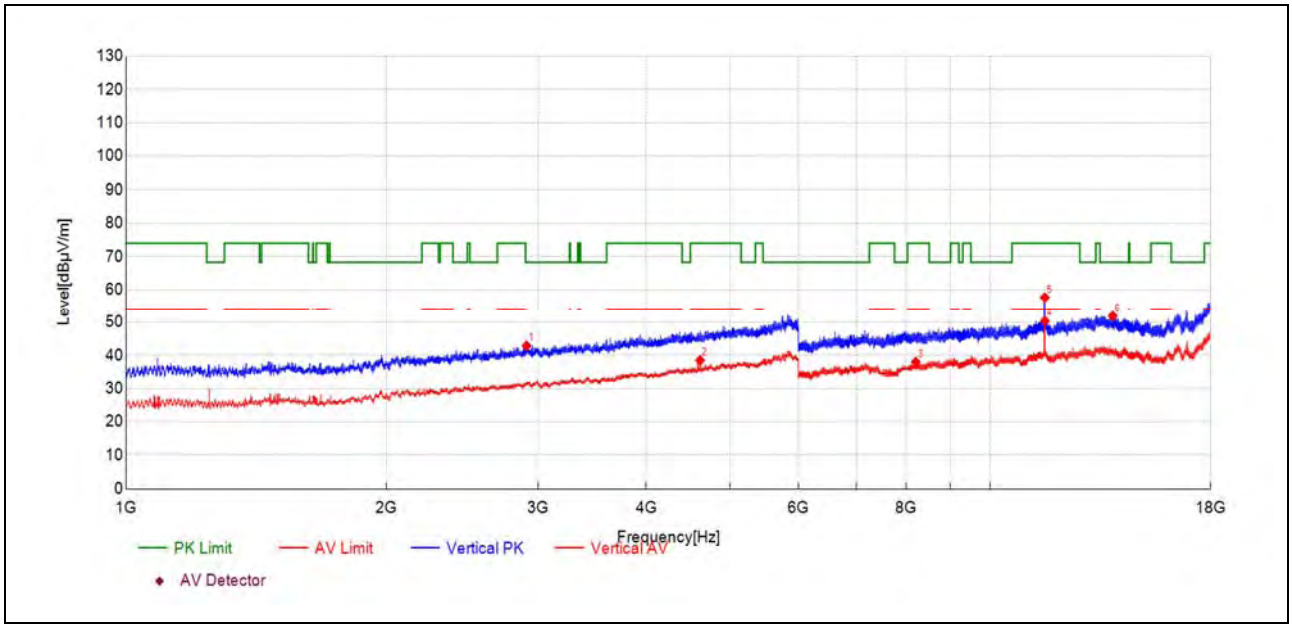
(Antenna Horizontal, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
4617.36	30.0	38.20	8.180	54.00	15.80	150	184	AV	PASS
4706.37	38.8	47.45	8.620	74.00	26.55	150	332	PK	PASS
7713.07	45.6	41.51	-4.080	54.00	12.49	150	0	AV	PASS
11432.73	48.7	51.25	2.560	74.00	22.75	150	7	PK	PASS
11574.73	41.2	44.20	2.990	54.00	9.80	150	138	AV	PASS
13511.81	47.8	52.65	4.890	68.23	15.58	150	186	PK	PASS



(AntenN/A Vertical, 30MHz to 1GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
31.07	65.7	32.76	-32.900	40.00	7.24	150	188	PK	PASS
58.86	62.8	32.20	-30.560	40.00	7.80	150	138	PK	PASS
105.37	58.9	28.50	-30.420	43.50	15.00	150	299	PK	PASS
159.21	67.3	34.54	-32.760	43.50	8.96	150	350	PK	PASS
240.50	69.1	40.73	-28.400	46.00	5.27	150	48	PK	PASS
718.20	53.0	35.25	-17.790	46.00	10.75	150	48	PK	PASS



(AntenN/A Vertical, 1GHz to 18GHz)

Fre. (MHz)	Reading [dBµV]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Verdict
2907.69	40.5	42.87	2.330	68.23	25.36	150	6	PK	PASS
4617.36	30.3	38.49	8.180	54.00	15.51	150	358	AV	PASS
8203.59	41.1	37.96	-3.160	54.00	16.04	150	0	AV	PASS
11570.73	47.4	50.38	2.960	54.00	3.62	150	62	AV	PASS
11570.73	54.7	57.62	2.960	74.00	16.38	150	62	PK	PASS
13863.33	47.0	51.87	4.900	68.23	16.36	150	201	PK	PASS

END OF REPORT