REPORT No. : SZ22090379W06

TEST REPORT

APPLICANT	:	Great Talent Technology Limited
PRODUCT NAME	:	Mobile Hotspot
MODEL NAME	:	RA312
BRAND NAME	:	N/A
FCC ID	:	2ALZM-RA312
STANDARD(S)	:	47 CFR Part 15 Subpart E
RECEIPT DATE	:	2022-10-09
TEST DATE	:	2022-10-19 to 2022-11-11
ISSUE DATE	:	2022-12-08

Edited by: Peng Mi (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

MORLAB
Shenzhen Morlab Communications Technology Co., Ltd.
FL1-3, 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	2022-12-08	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	ANSI C63.10	Duty Cycle of the Test Signal	Oct. 25, 2022	Su Xiaoxian	PASS	No deviation
3	15.407(a)	Maximum Conducted Output Power	Oct. 25, 2022	Su Xiaoxian	PASS	No deviation
4	15.407(a) (e)	Emission Bandwidth	Oct. 25, 2022	Su Xiaoxian	PASS	No deviation
5	15.407(a)	Peak Power Spectral Density	Oct. 25, 2022	Su Xiaoxian	PASS	No deviation
6	15.407(g)	Frequency Stability	Oct. 25, 2022	Su Xiaoxian	PASS	No deviation
7	15.207	Conducted Emission	Oct. 31, 2022	Fan Zehang	PASS	No deviation
8	15.407(b)	Restricted Frequency Bands	Nov. 11, 2022	Gao Jianrou	PASS	No deviation
9	15.407(b)	Radiated Emission	Nov. 09, 2022	Gao Jianrou	PASS	No deviation

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: These RF tests were performed according to the method of measurements prescribed in KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.

Note 4: 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 5: 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 E Radio Frequency Devices

1.2. Test Equipment List

1.2.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2022.03.01	2023.02.28
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2022.10.11	2023.10.10
Temperature Chamber	12108015	DTL-003S101	YOMA	2022.10.10	2023.10.09
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 Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2022.03.03	2023.03.02
LISN	8127449	NSLK 8127	Schwarzbeck	2022.03.03	2023.03.02
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2022.07.06	2023.07.05
Coaxial Cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A

1.2.3 List of Software Used

Description	Manufacturer	Software Version
Test System	MaiWei	2.0.0.0
Morlab EMCR V1.2	Morlab	V1.0
TS+ -[JS32-CE]	Tonscend	V2.5.0.0

1.2.4 Radiated Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2022.07.06	2023.07.05
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2022.02.11	2025.02.10
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2022.07.13	2025.07.12
Test Antenna – Horn	BBHA9170#773	BBHA 9170	Schwarzbeck	2022.07.14	2025.07.13
Coaxial Cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	61171/61172	S020180L3203	Tonscend	2022.07.08	2023.07.07
18-26.5GHz pre-Amplifier	46732	S10M100L3802	Tonscend	2022.07.08	2023.07.07
26-40GHz pre-Amplifier	56774	S40M400L4002	Tonscend	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG-5150-5350	Wainwright	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG-5470-5725	Wainwright	2022.07.08	2023.07.07
Notch Filter	N/A	WRCG-5725-5850	Wainwright	2022.07.08	2023.07.07
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05

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.1-3, 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

2. General Description

2.1. Information of Applicant and Manufacturer

Applicant	Great Talent Technology Limited
Applicant Address	35F, HBC HuiLong Center Building-II Minzhi Street Longhua, Shenzhen, P.R. China
Manufacturer	Great Talent Technology Limited
Manufacturer Address	35F, HBC HuiLong Center Building-II Minzhi Street Longhua, Shenzhen, P.R. China

2.2. Information of EUT

Product Name:	Mobile Hotspot	
Sample No.:	6#	
Hardware Version:	SUB_V1.0_0530	
Software Version:	L13_v1.0.8_RLK	
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:	ANT 0: 2.86dBi; ANT 1: 3.46dBi	
Directional Gain:	6.47dBi Note 2	
Accessory Information:	Battery	
	Brand Name:	N/A
	Model No.:	BTE-3401
	Serial No.:	N/A
	Capacity:	3400mAh
	Rated Voltage:	3.8V
	Charge Limit:	4.35V
	Manufacturer:	Phenix New Energy (Hui Zhou) Co., Ltd.

Accessory Information:	AC Adapter	
	Brand Name:	N/A
	Model No.:	TPA-5950100UU
	Serial No.:	N/A
	Rated Output:	5V⎓1A
	Rated Input:	100-240V～50/60Hz, 0.2A
	Manufacturer:	Shenzhen kingfulin Technology Co.,Ltd

Note 1: The EUT supports a MIMO function. Physically, the EUT provides two completed transmitters and two receivers for 802.11n, 802.11ac and 802.11ax modulation mode.

Modulation Mode:	**TX Function**
802.11n	2TX
802.11ac	2TX

Note 2: According to KDB 662911 D01, the directional gain = G_{ANT} + 10log(N_{ANT}) dBi, where G_{ANT} is the maximum antenna gain in dBi, N_{ANT} is the number of outputs.

Note 3: For conducted test item Conducted Output Power and Peak Power Spectral Density of each modulation mode, we recorded the test result of two antennas separately, for other conducted test items both of the two antennas were tested separately, we only recorded the worst test result (ANT0) in this report.

Note 4: All radiation test items for 802.11n, 802.11ac and 802.11ax modulation mode operate at MIMO mode during the test. Other modulation mode operate at SISO mode, both of the two antennas were tested separately, we only recorded the worst test result(ANT0) in this report.

Note 5: We use the dedicated software to control the EUT continuous transmission.

Note 6: 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

(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	RU Size
802.11a	20	OFDM	**DBPSK**	**1**/2/5.5/11Mbps	N/A
			DQPSK		
			CCK		
802.11n	20/40 (HT20/40)	OFDM	**BPSK**	**MCS0**~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ac	20/40/80 (VHT20/40/80)	OFDM	**BPSK**	**MSC0**~MCS9	N/A
			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.

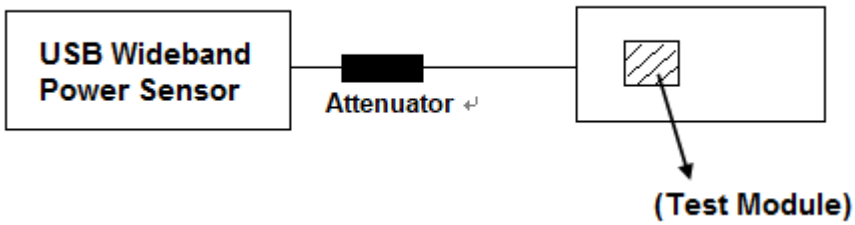
2.5. Test Conditions

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

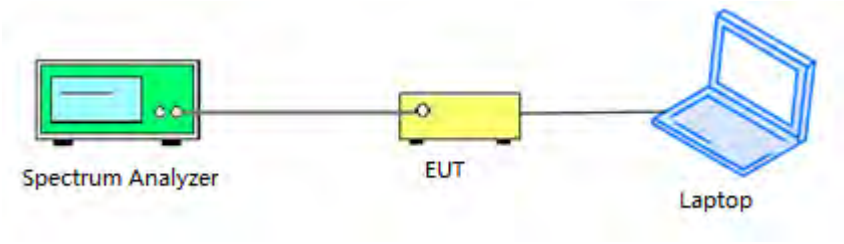
2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

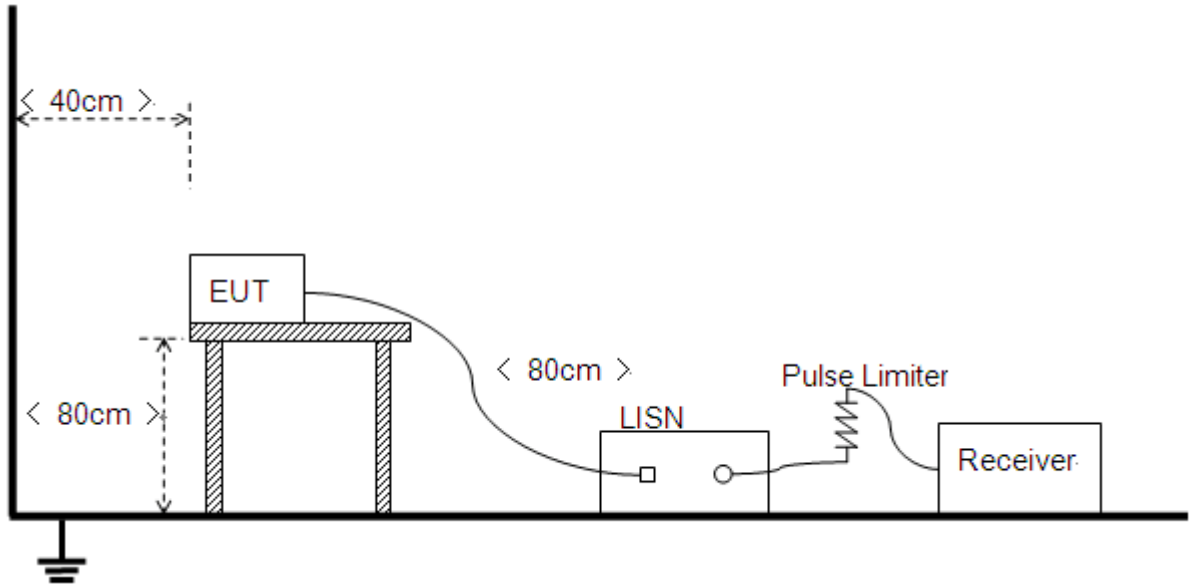
For power item that BW below 80MHz system:



For power item that BW equal or above 80MHz and other items:

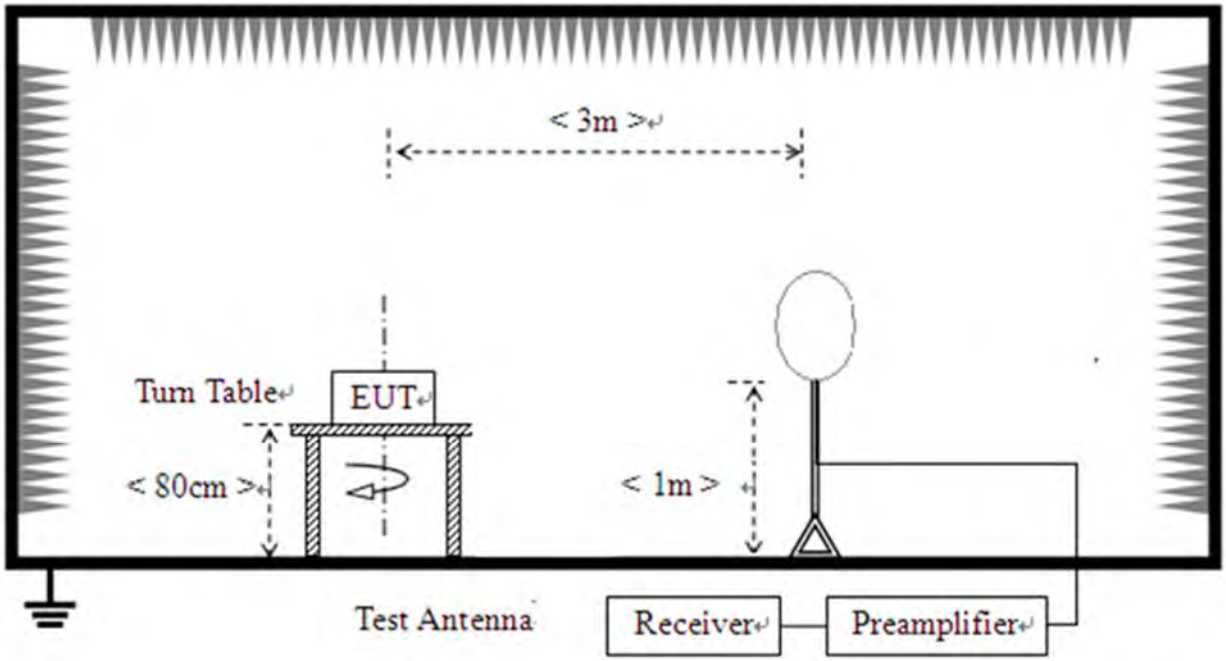


2.6.2.Conducted Emission Measurement

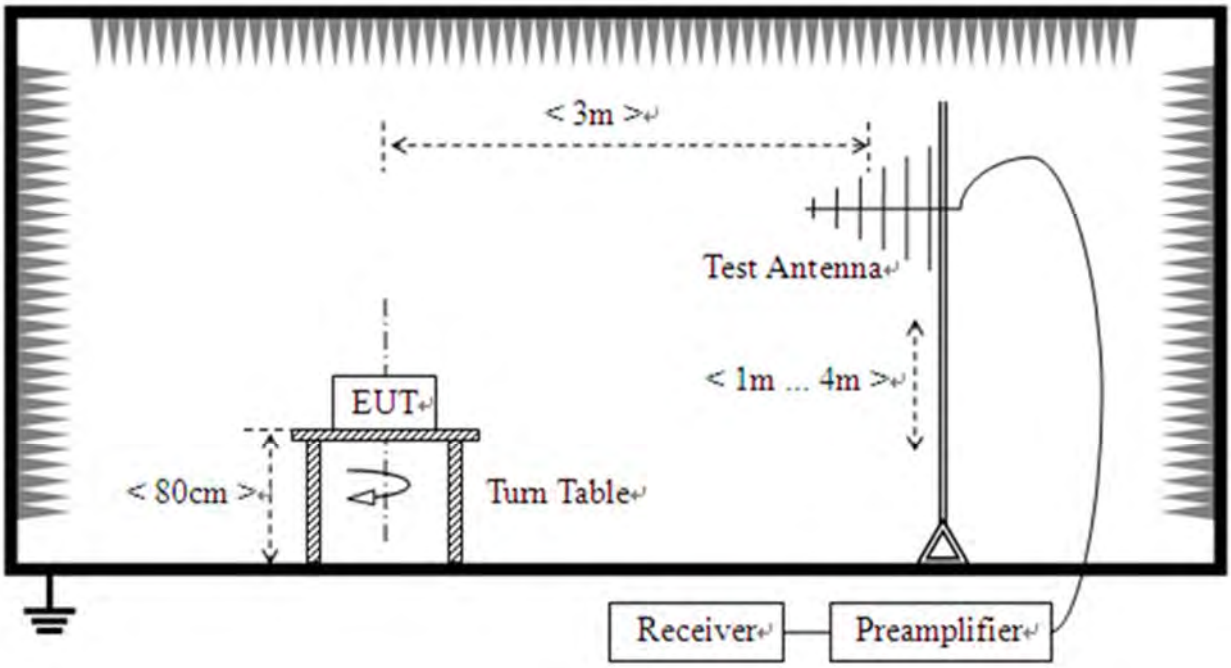


2.6.3.Radiation Measurement

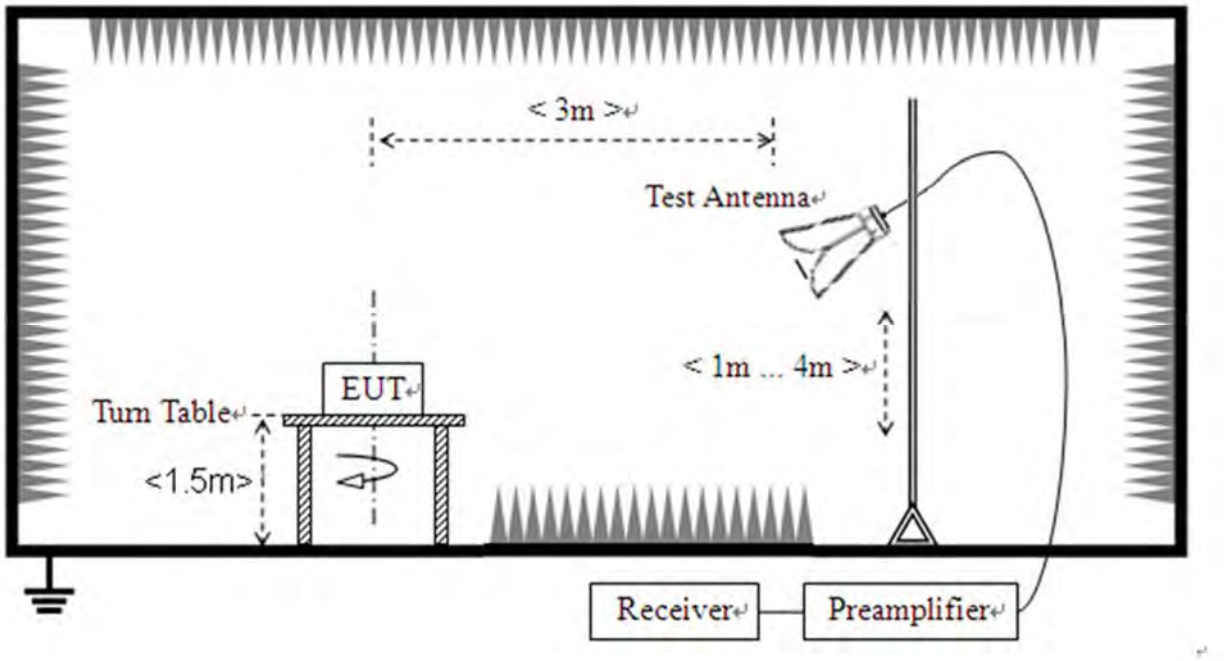
1) For radiated emissions from 9kHz to 30MHz



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

Inside of the EUT has a PIFA antenna coupled with the metal shrapnel. Please refer to the EUT photos.

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.

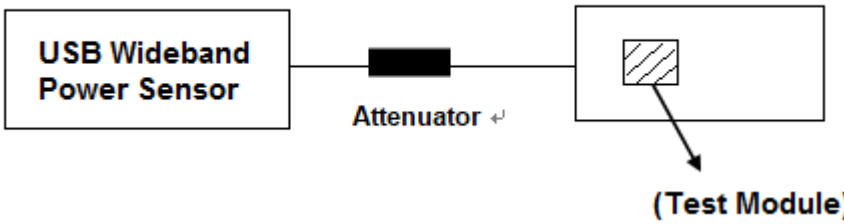
3.3. Maximum Conducted Output Power

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.
(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT})dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

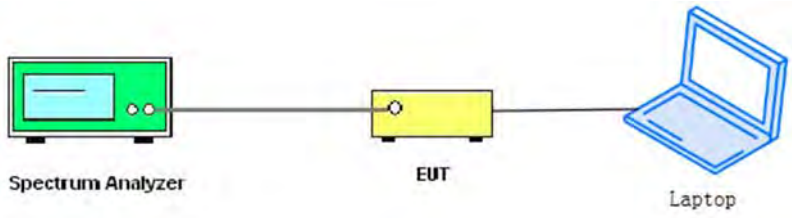
3.3.2.Test Procedures

Section E) 3) of KDB 789033 defines a methodology using a USB Wideband Power Sensor.
Test Setup:



The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in USB Wideband Power Sensor.

For ac (VHT80) mode power



The EUT (Equipment under the test) is coupled to the Spectrum analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in Spectrum analyzer.

3.3.3.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.
(5) According to KDB 662911 D01, the directional gain = G_{ANT} +10log(N_{ANT}) dBi, where G_{ANT} is the antenna gain in dBi, N_{ANT} is the number of outputs.

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

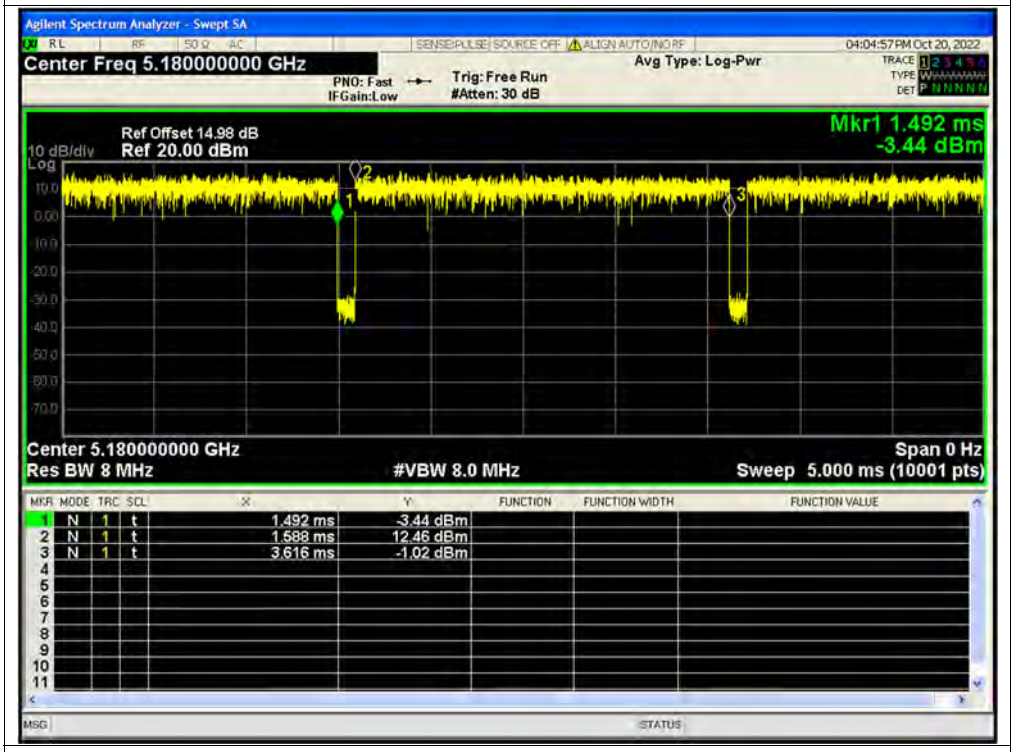
Refer to Annex A.9 in this report.

Annex A Test Data and Result

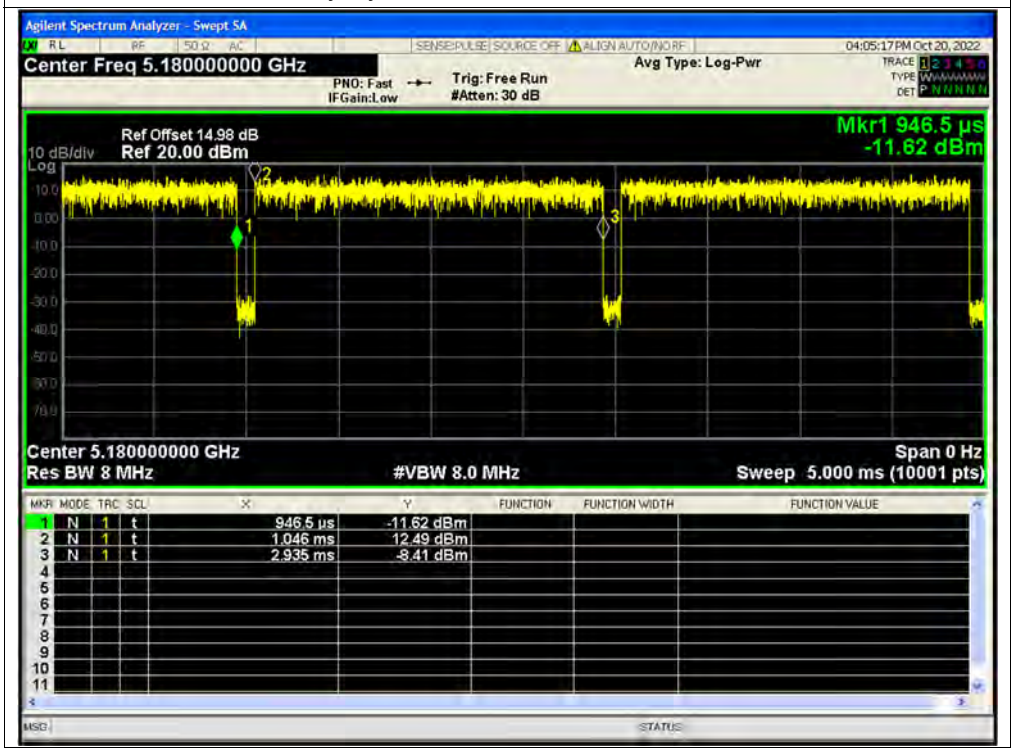
A.1. Duty Cycle of Test Signal

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	Ant1	95.5	0.2	0.49
NVNT	n20	5180	Ant1	94.99	0.22	0.53
NVNT	n40	5190	Ant1	90.76	0.42	1.08
NVNT	ac20	5180	Ant1	95	0.22	0.53
NVNT	ac40	5190	Ant1	83.26	0.8	2.03
NVNT	ac80	5210	Ant1	72.81	1.38	3.96

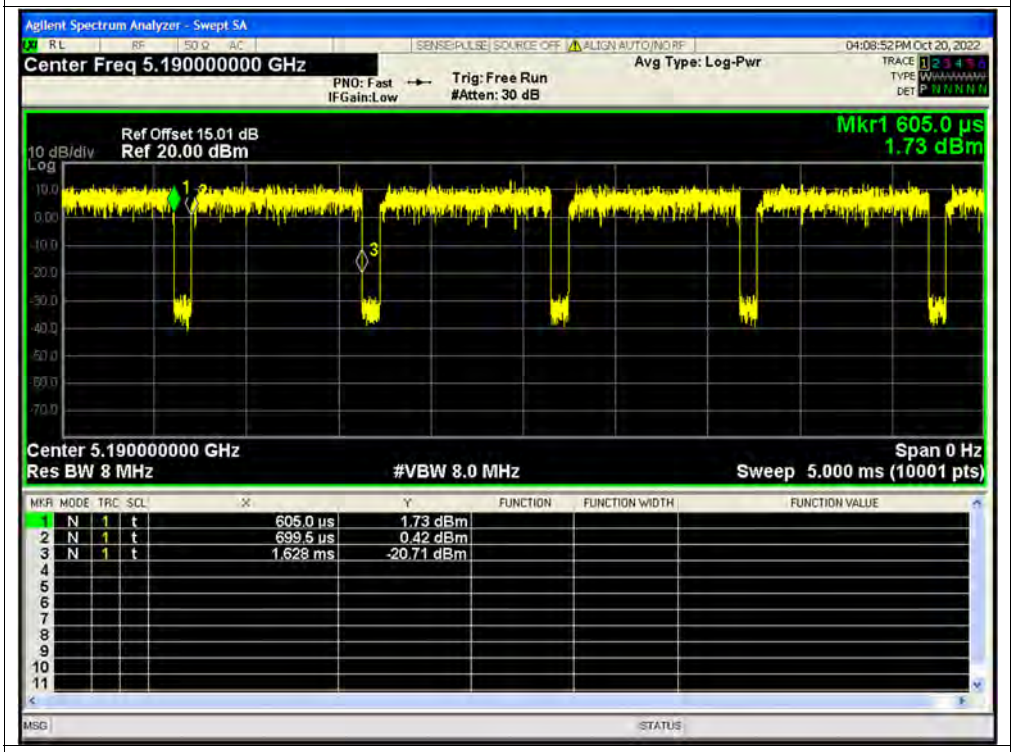
Test Graphs
Duty Cycle NVNT a 5180MHz Ant1



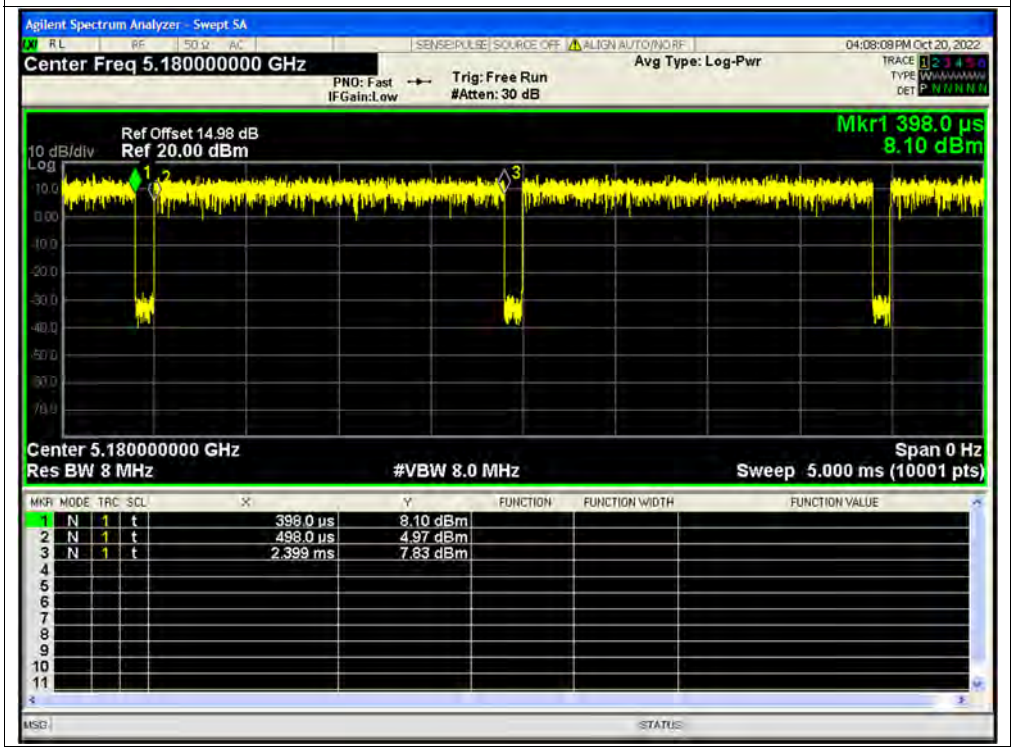
Duty Cycle NVNT n20 5180MHz Ant1



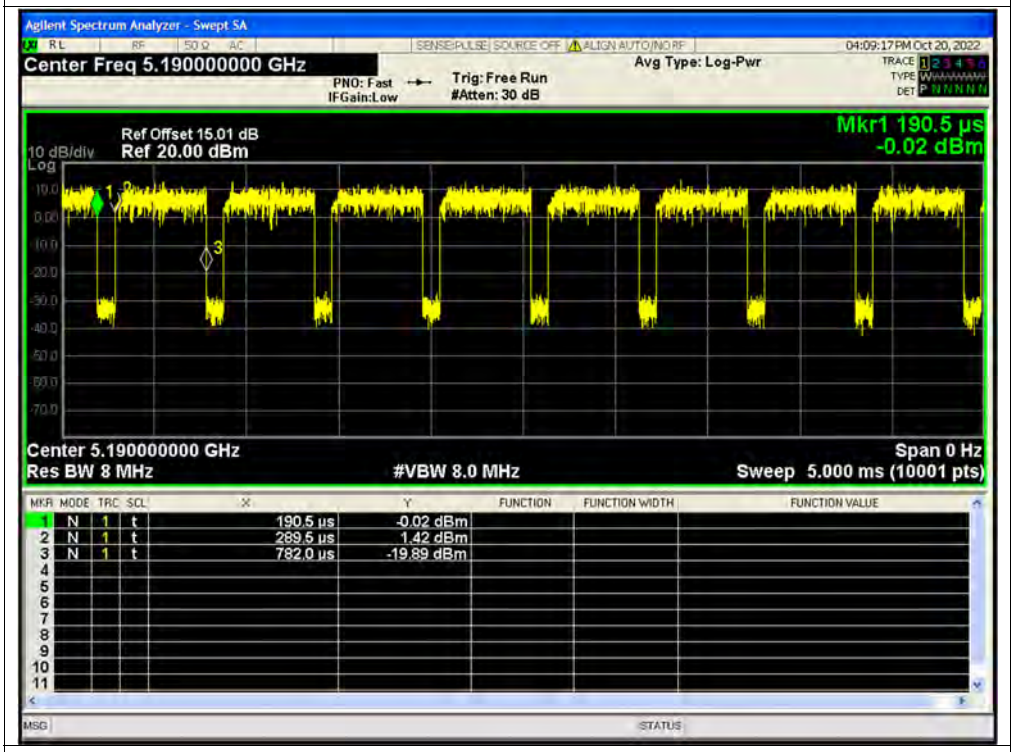
Duty Cycle NVNT n40 5190MHz Ant1



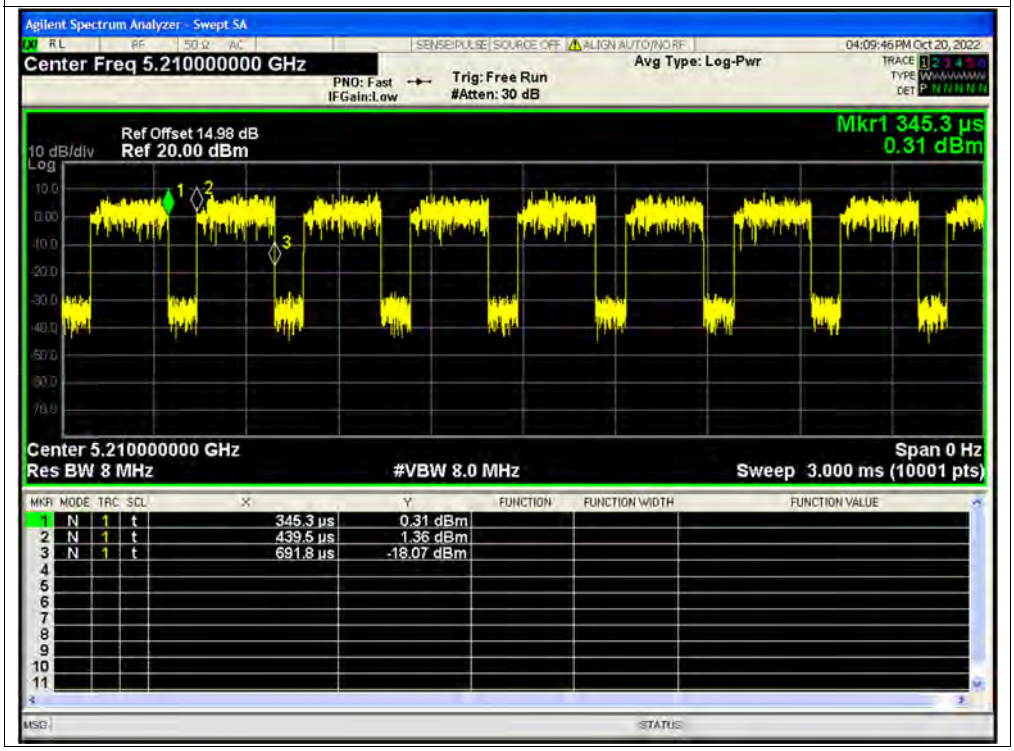
Duty Cycle NVNT ac20 5180MHz Ant1



Duty Cycle NVNT ac40 5190MHz Ant1



Duty Cycle NVNT ac80 5210MHz Ant1



A.2. Maximum Conducted Output Power

802.11a Mode

Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty Factor Calculated						
	ANT0	ANT1		ANT0		ANT1				
	dBm	dBm		dBm	W	dBm	W	dBm	W	
5180	11.81	11.21	0.20	12.01	0.016	11.41	0.014	24	0.25	PASS
5220	12.17	11.45		12.37	0.017	11.65	0.015			
5240	12.19	11.47		12.39	0.017	11.67	0.015			
5745	14.22	12.05		14.42	0.028	12.25	0.017	30	1	
5785	11.97	12.10		12.17	0.016	12.30	0.017			
5825	12.18	12.41		12.38	0.017	12.61	0.018			

802.11n (HT20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1						
	dBm	dBm		dBm	W	dBm	W	
5180	11.62	10.96	0.22	14.47	0.028	23.53	0.23	PASS
5220	11.91	11.19		14.77	0.030			
5240	11.90	11.20		14.77	0.030			
5745	13.97	11.82		16.23	0.042	29.53	0.90	
5785	11.85	11.77		15.05	0.032			
5825	11.86	12.18		15.31	0.034			

Note: Directional gain =2.86dBi +10log(2) = 6.47dBi＞6dBi, so the power limit shall be reduced to 24-(6.47-6) = 23.53dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.47-6) = 29.53dBm for 5.745-5.825GHz band.

802.11n (HT40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1						
	dBm	dBm		dBm	W	dBm	W	
5190	12.20	11.39	0.42	15.19	0.033	23.53	0.23	PASS
5230	12.32	11.64		15.44	0.035			
5755	14.60	12.20		16.99	0.050	29.53	0.90	
5795	12.30	12.11		15.68	0.037			
Note: Directional gain =2.86dBi +10log(2) = 6.47dBi＞6dBi, so the power limit shall be reduced to 24-(6.47-6) = 23.53dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.47-6) = 29.53dBm for 5.745-5.825GHz band.								

802.11ac (VHT20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1						
	dBm	dBm		dBm	W	dBm	W	
5180	11.47	10.86	0.22	14.47	0.028	23.53	0.23	PASS
5220	11.88	11.17		14.77	0.030			
5240	11.97	11.26		14.91	0.031			
5745	13.95	11.78		16.23	0.042	29.53	0.90	
5785	11.90	11.81		15.05	0.032			
5825	11.88	12.07		15.19	0.033			
Note: Directional gain =2.86dBi +10log(2) = 6.47dBi＞6dBi, so the power limit shall be reduced to 24-(6.47-6) = 23.53dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.47-6) = 29.53dBm for 5.745-5.825GHz band.								

802.11ac (VHT40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1						
	dBm	dBm		dBm	W	dBm	W	
5190	12.06	11.43	0.80	15.56	0.036	23.53	0.23	PASS
5230	12.24	11.46		15.68	0.037			
5755	14.49	12.25		17.32	0.054	29.53	0.90	
5795	11.80	12.18		15.80	0.038			
Note: Directional gain =2.86dBi +10log(2) = 6.47dBi＞6dBi, so the power limit shall be reduced to 24-(6.47-6) = 23.53dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.47-6) = 29.53dBm for 5.745-5.825GHz band.								

802.11ac (VHT80) Mode

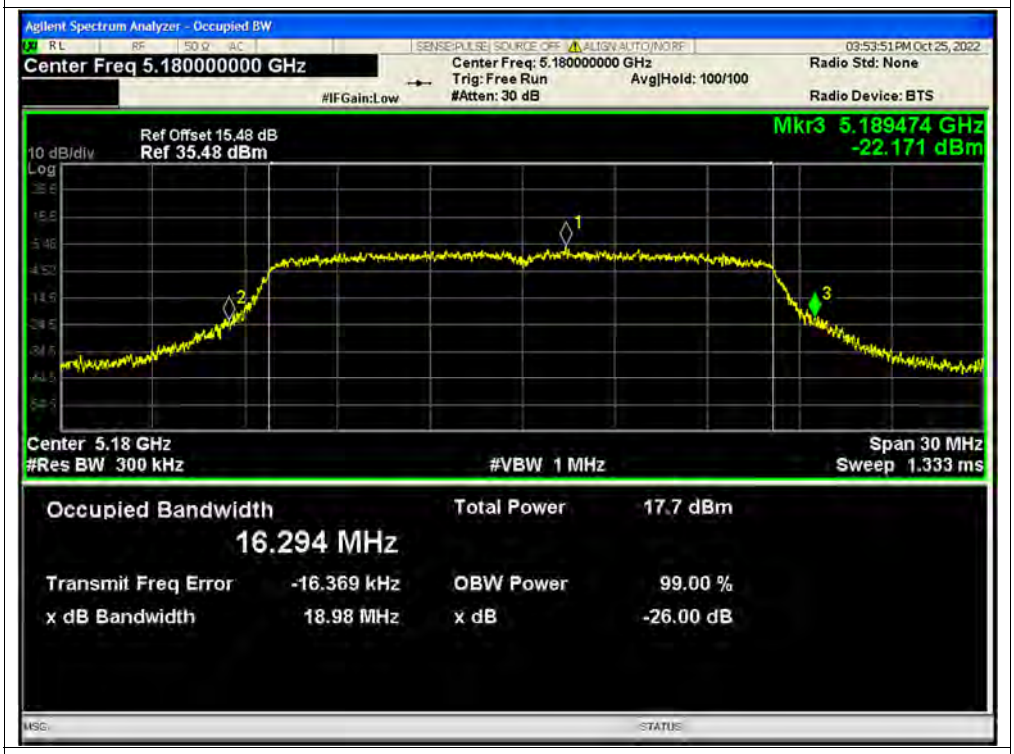
Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1						
	dBm	dBm		dBm	W	dBm	W	
5210	12.01	11.22	1.38	16.02	0.040	23.53	0.23	PASS
5775	14.66	12.55		18.13	0.065	29.53	0.90	
Note: Directional gain =2.86dBi +10log(2) = 6.47dBi＞6dBi, so the power limit shall be reduced to 24-(6.47-6) = 23.53dBm for 5.18-5.24GHz, 5.260-5.320GHz, 5.500-5.720GHz band and reduced to 30-(6.47-6) = 29.53dBm for 5.745-5.825GHz band.								

A.3. Emission Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)
NVNT	a	5180	Ant1	18.981
NVNT	a	5220	Ant1	19.141
NVNT	a	5240	Ant1	19.232
NVNT	n20	5180	Ant1	20.046
NVNT	n20	5220	Ant1	19.883
NVNT	n20	5240	Ant1	19.965
NVNT	n40	5190	Ant1	40.411
NVNT	n40	5230	Ant1	40.428
NVNT	ac20	5180	Ant1	20.044
NVNT	ac20	5220	Ant1	20.039
NVNT	ac20	5240	Ant1	20.207
NVNT	ac40	5190	Ant1	40.577
NVNT	ac40	5230	Ant1	40.603
NVNT	ac80	5210	Ant1	82.817

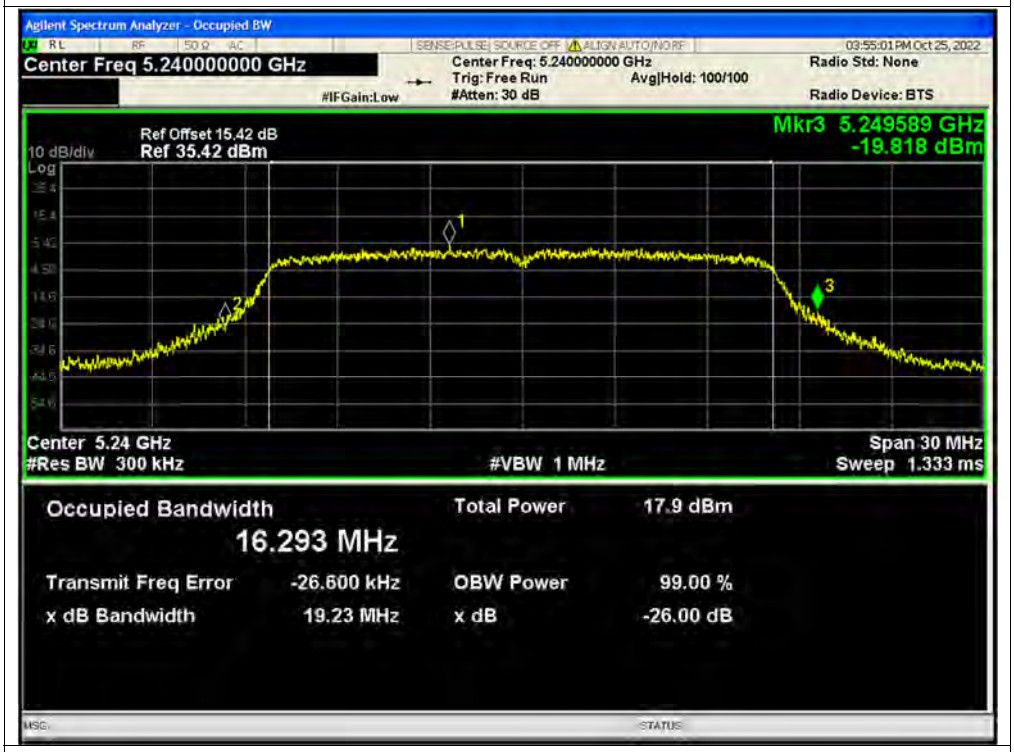
Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)
NVNT	a	5745	Ant1	14.754
NVNT	a	5785	Ant1	14.425
NVNT	a	5825	Ant1	14.468
NVNT	n20	5745	Ant1	15.039
NVNT	n20	5785	Ant1	14.752
NVNT	n20	5825	Ant1	15.301
NVNT	n40	5755	Ant1	32.638
NVNT	n40	5795	Ant1	31.306
NVNT	ac20	5745	Ant1	14.373
NVNT	ac20	5785	Ant1	14.944
NVNT	ac20	5825	Ant1	14.211
NVNT	ac40	5755	Ant1	35.098
NVNT	ac40	5795	Ant1	33.868
NVNT	ac80	5775	Ant1	75.086

Test Graphs
-26dB Bandwidth NVNT a 5180MHz Ant1



-26dB Bandwidth NVNT a 5220MHz Ant1

-26dB Bandwidth NVNT a 5240MHz Ant1

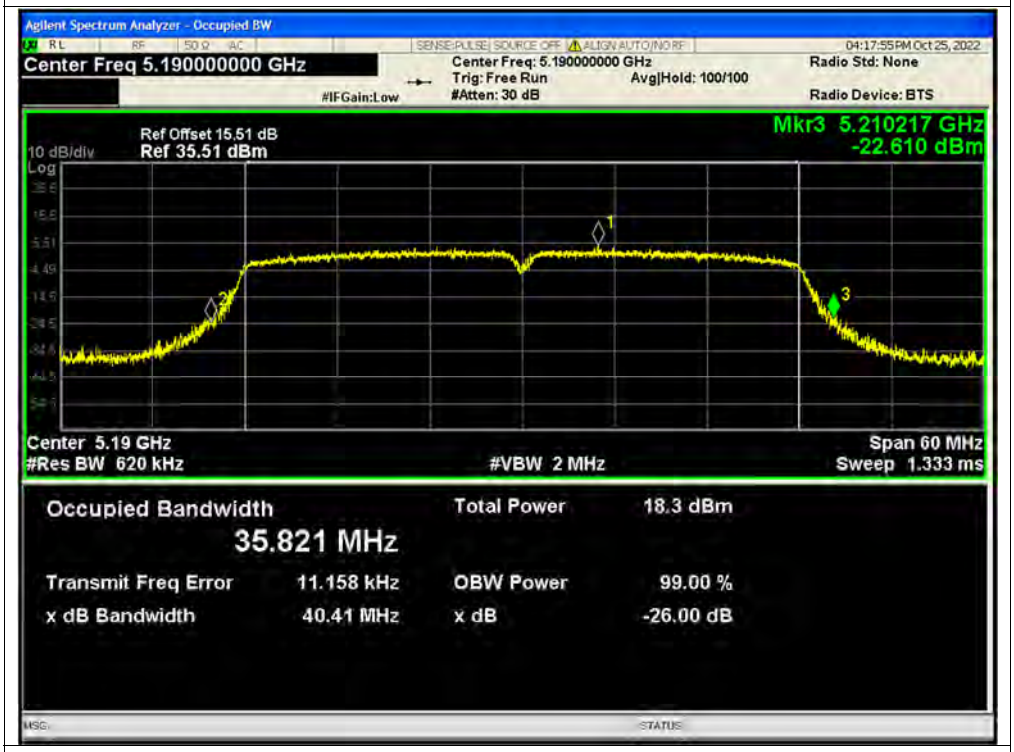


-26dB Bandwidth NVNT n20 5180MHz Ant1

-26dB Bandwidth NVNT n20 5220MHz Ant1

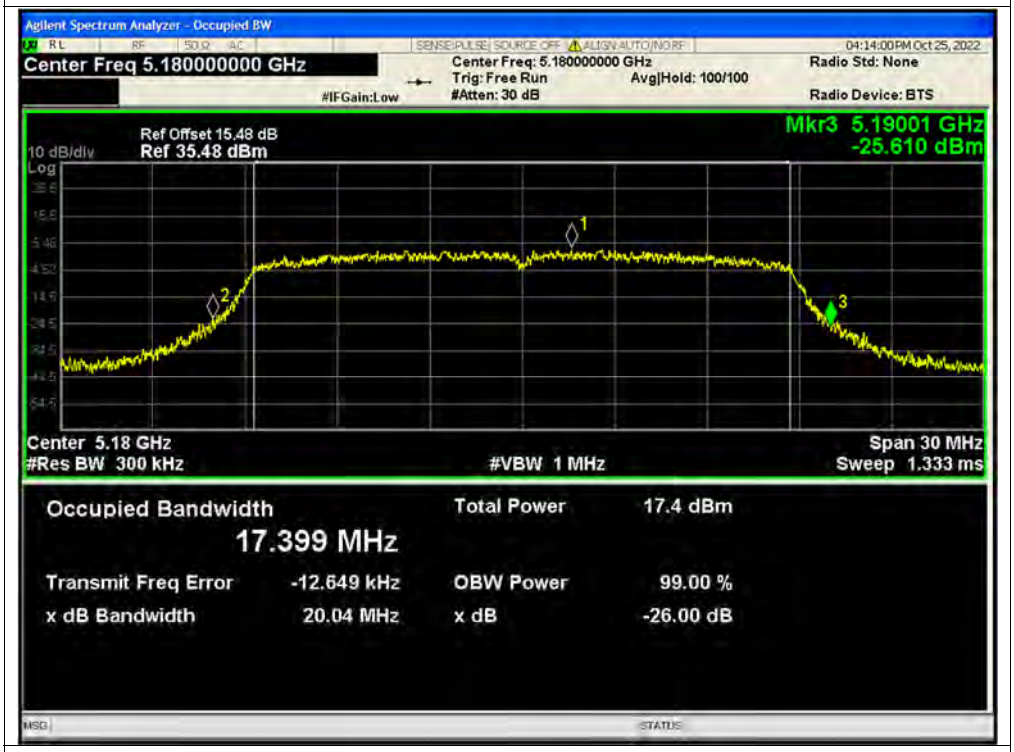
-26dB Bandwidth NVNT n20 5240MHz Ant1

-26dB Bandwidth NVNT n40 5190MHz Ant1



-26dB Bandwidth NVNT n40 5230MHz Ant1

-26dB Bandwidth NVNT ac20 5180MHz Ant1



-26dB Bandwidth NVNT ac20 5220MHz Ant1

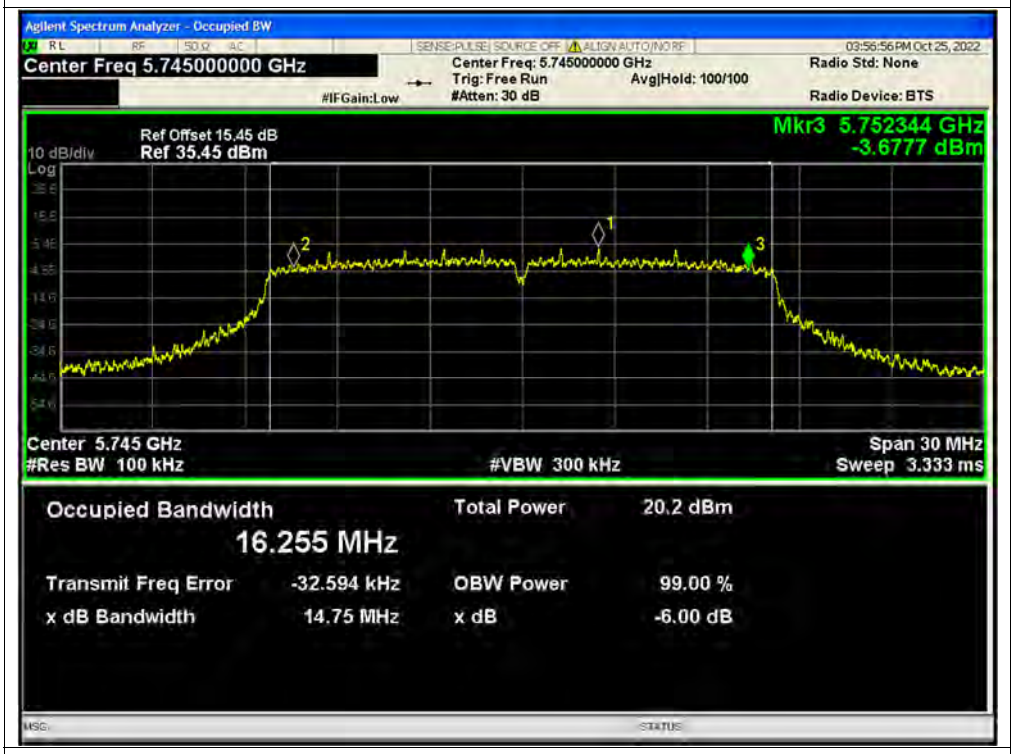
-26dB Bandwidth NVNT ac20 5240MHz Ant1

-26dB Bandwidth NVNT ac40 5190MHz Ant1

-26dB Bandwidth NVNT ac40 5230MHz Ant1

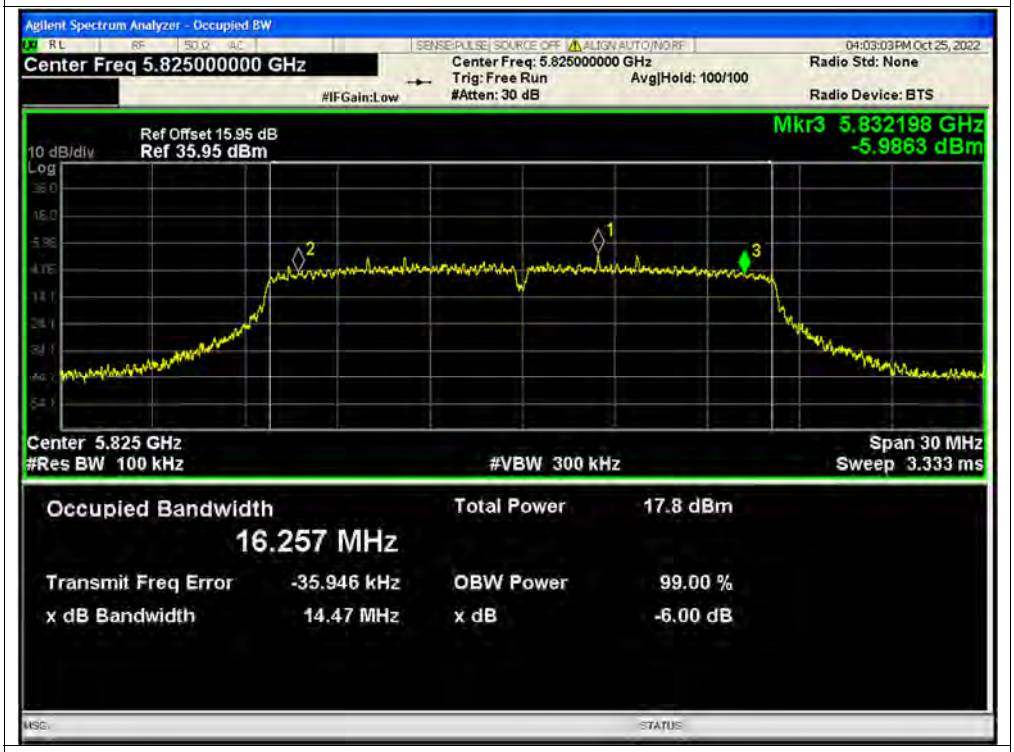
-26dB Bandwidth NVNT ac80 5210MHz Ant1

Test Graphs
-6dB Bandwidth NVNT a 5745MHz Ant1



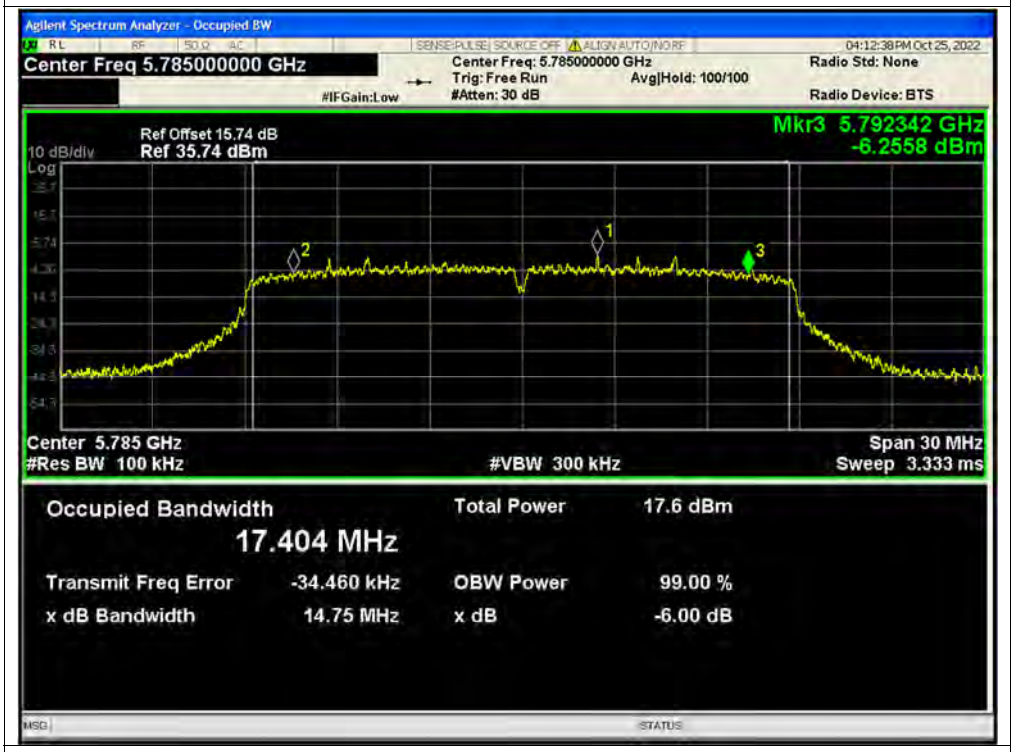
-6dB Bandwidth NVNT a 5785MHz Ant1

-6dB Bandwidth NVNT a 5825MHz Ant1

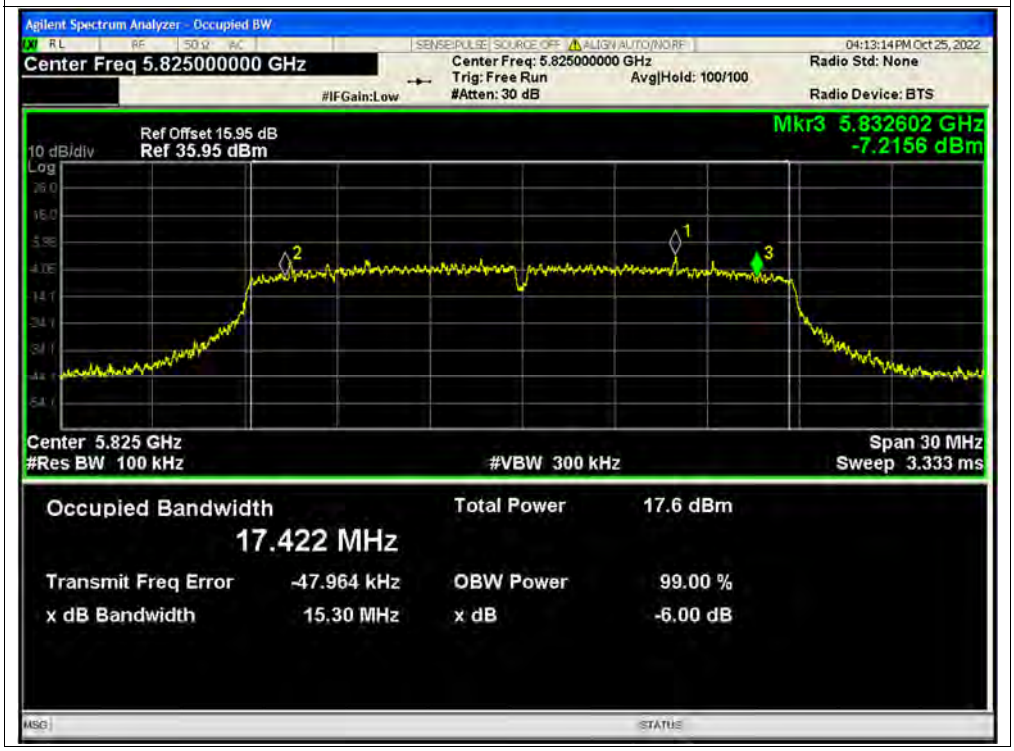


-6dB Bandwidth NVNT n20 5745MHz Ant1

-6dB Bandwidth NVNT n20 5785MHz Ant1

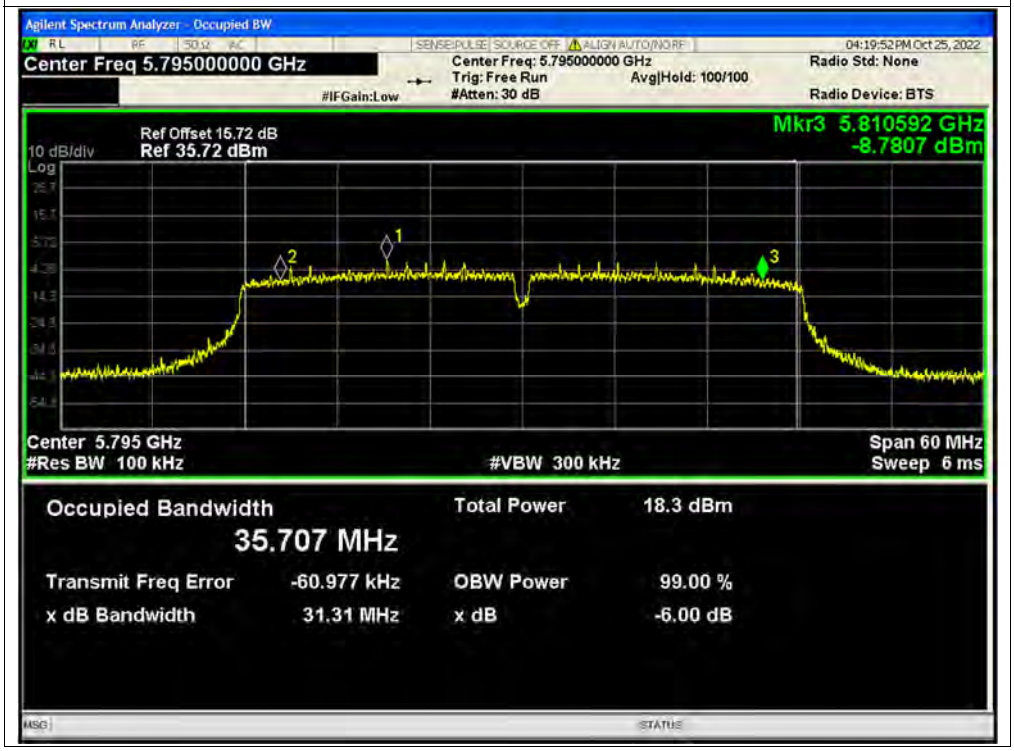


-6dB Bandwidth NVNT n20 5825MHz Ant1

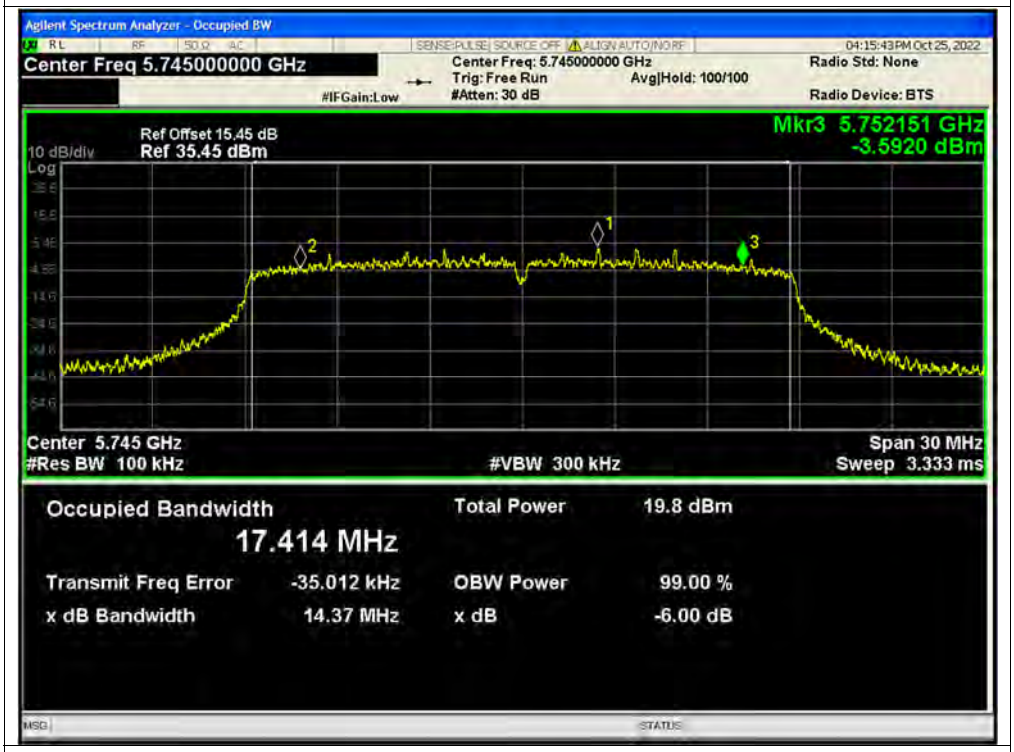


-6dB Bandwidth NVNT n40 5755MHz Ant1

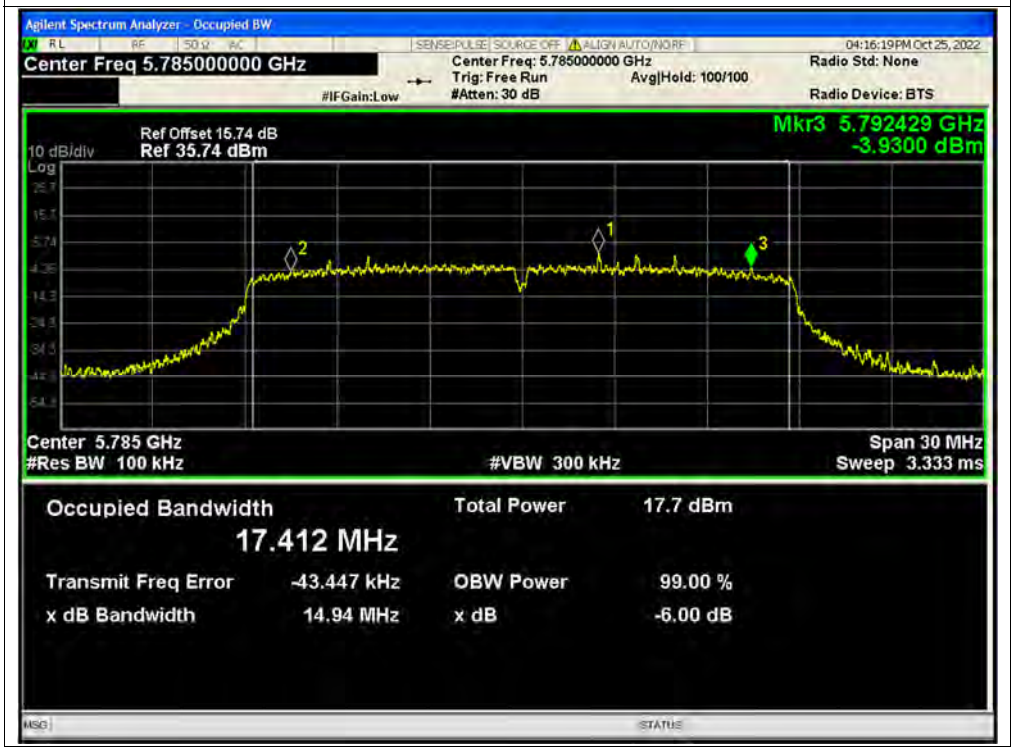
-6dB Bandwidth NVNT n40 5795MHz Ant1



-6dB Bandwidth NVNT ac20 5745MHz Ant1



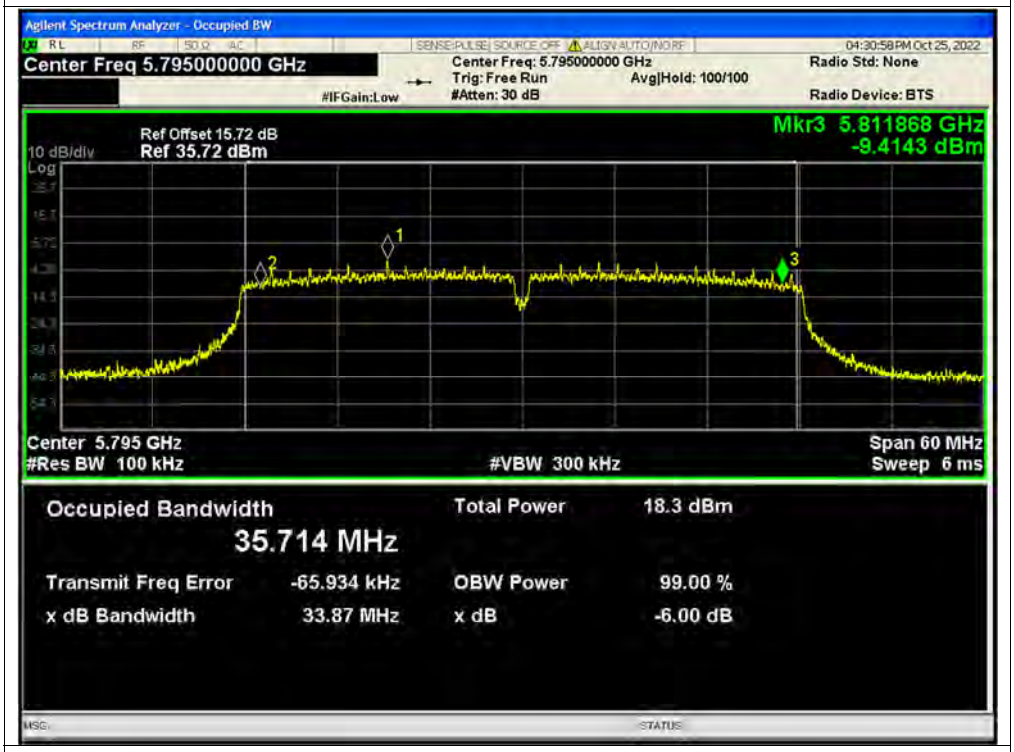
-6dB Bandwidth NVNT ac20 5785MHz Ant1



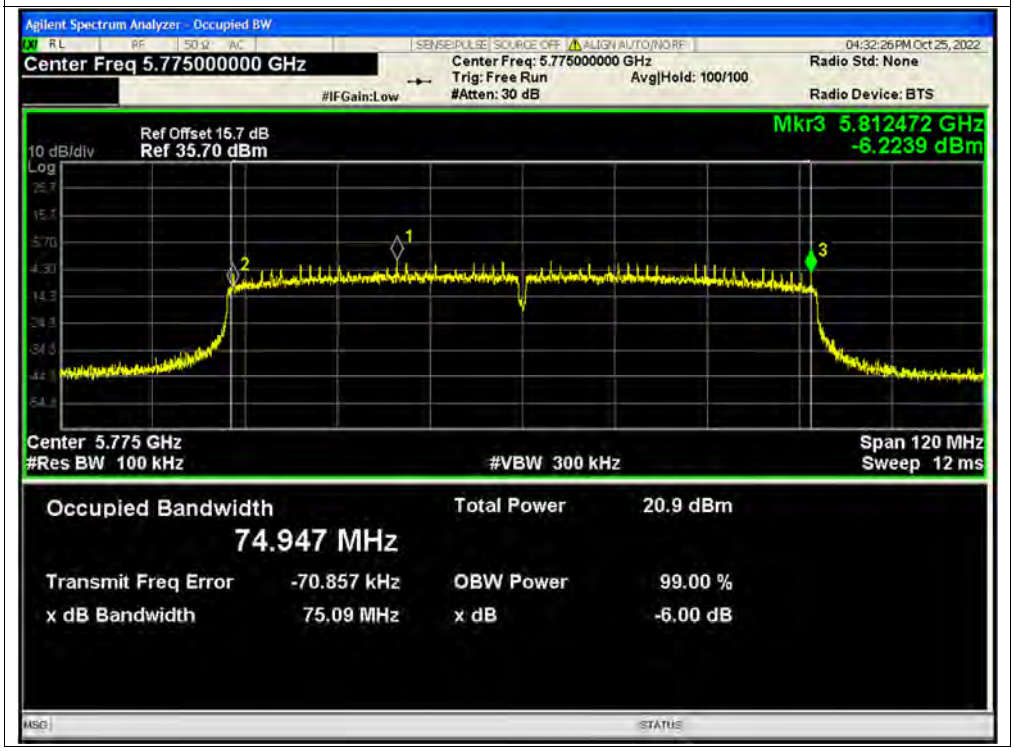
-6dB Bandwidth NVNT ac20 5825MHz Ant1

-6dB Bandwidth NVNT ac40 5755MHz Ant1

-6dB Bandwidth NVNT ac40 5795MHz Ant1



-6dB Bandwidth NVNT ac80 5775MHz Ant1



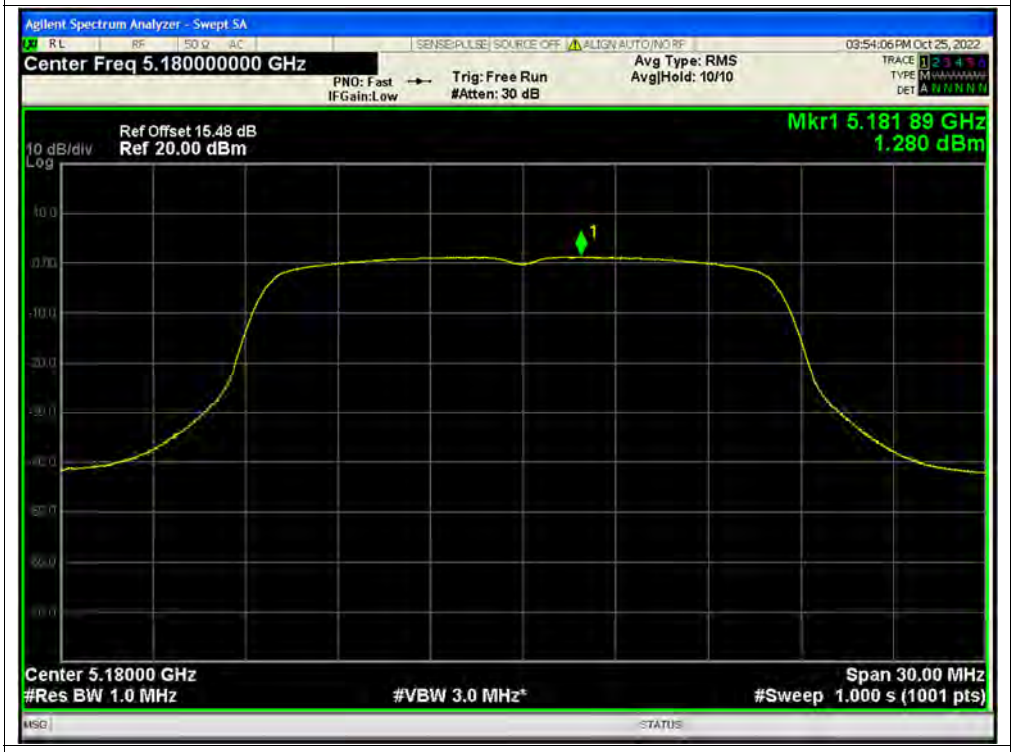
A.4. Peak Power Spectral Density

Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	1.28	0.20	1.48	11	Pass
NVNT	a	5220	Ant1	1.44	0.20	1.64	11	Pass
NVNT	a	5240	Ant1	1.44	0.20	1.64	11	Pass
NVNT	a	5745	Ant1	0.67	0.20	0.87	30	Pass
NVNT	a	5785	Ant1	-1.54	0.20	-1.34	30	Pass
NVNT	a	5825	Ant1	-1.65	0.20	-1.45	30	Pass
NVNT	a	5180	Ant2	0.41	0.20	0.61	11	Pass
NVNT	a	5220	Ant2	0.77	0.20	0.97	11	Pass
NVNT	a	5240	Ant2	0.9	0.20	1.10	11	Pass
NVNT	a	5745	Ant2	-1.55	0.20	-1.35	30	Pass
NVNT	a	5785	Ant2	-1.7	0.20	-1.50	30	Pass
NVNT	a	5825	Ant2	-1.5	0.20	-1.30	30	Pass
NVNT	n20	5180	Ant1	0.74	0.22	0.96	11	Pass
NVNT	n20	5220	Ant1	0.94	0.22	1.16	11	Pass
NVNT	n20	5240	Ant1	1.03	0.22	1.25	11	Pass
NVNT	n20	5745	Ant1	0.38	0.22	0.60	30	Pass
NVNT	n20	5785	Ant1	-1.8	0.22	-1.58	30	Pass
NVNT	n20	5825	Ant1	-1.98	0.22	-1.76	30	Pass
NVNT	n20	5180	Ant2	0.14	0.22	0.36	11	Pass
NVNT	n20	5220	Ant2	0.46	0.22	0.68	11	Pass
NVNT	n20	5240	Ant2	0.57	0.22	0.79	11	Pass
NVNT	n20	5745	Ant2	-1.72	0.22	-1.50	30	Pass
NVNT	n20	5785	Ant2	-2	0.22	-1.78	30	Pass
NVNT	n20	5825	Ant2	-1.82	0.22	-1.60	30	Pass
NVNT	n20	5180	Ant1+2	-	-	3.68	10.53	Pass
NVNT	n20	5220	Ant1+2	-	-	3.94	10.53	Pass
NVNT	n20	5240	Ant1+2	-	-	4.04	10.53	Pass
NVNT	n20	5745	Ant1+2	-	-	2.69	29.53	Pass
NVNT	n20	5785	Ant1+2	-	-	1.33	29.53	Pass
NVNT	n20	5825	Ant1+2	-	-	1.33	29.53	Pass
NVNT	n40	5190	Ant1	-2.08	0.42	-1.66	11	Pass
NVNT	n40	5230	Ant1	-1.97	0.42	-1.55	11	Pass
NVNT	n40	5755	Ant1	-2.33	0.42	-1.91	30	Pass
NVNT	n40	5795	Ant1	-4.89	0.42	-4.47	30	Pass

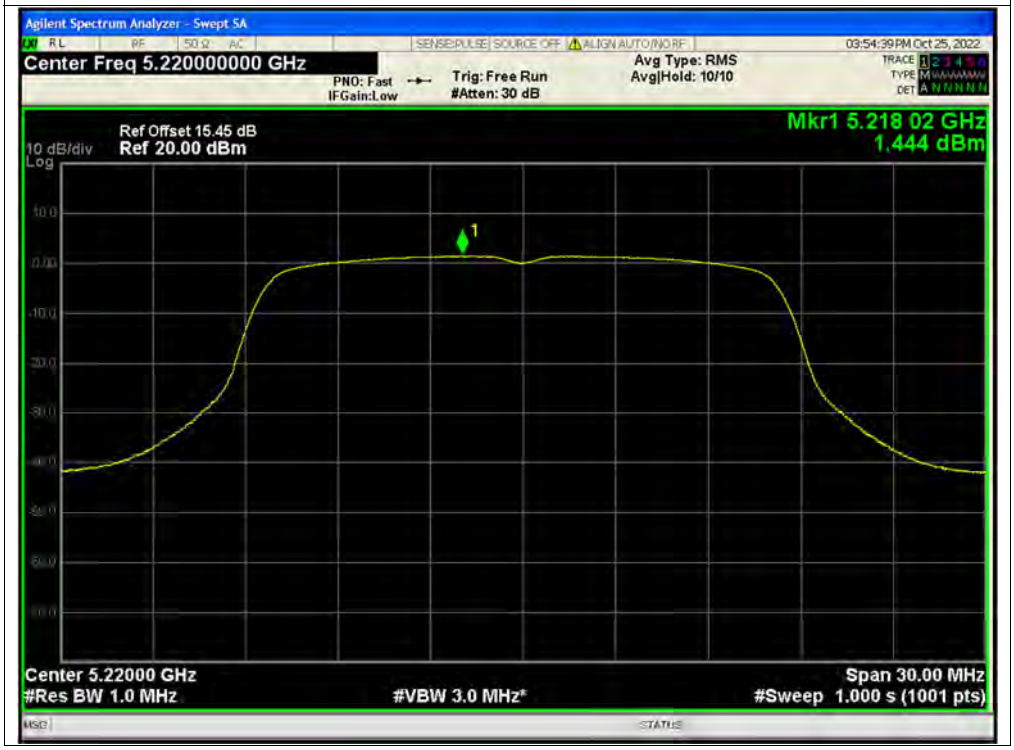
NVNT	n40	5190	Ant2	-2.63	0.42	-2.21	11	Pass
NVNT	n40	5230	Ant2	-2.41	0.42	-1.99	11	Pass
NVNT	n40	5755	Ant2	-4.78	0.42	-4.36	30	Pass
NVNT	n40	5795	Ant2	-4.98	0.42	-4.56	30	Pass
NVNT	n40	5190	Ant1+2	-	-	1.08	10.53	Pass
NVNT	n40	5230	Ant1+2	-	-	1.25	10.53	Pass
NVNT	n40	5755	Ant1+2	-	-	0.05	29.53	Pass
NVNT	n40	5795	Ant1+2	-	-	-1.50	29.53	Pass
NVNT	ac20	5180	Ant1	0.65	0.22	0.87	11	Pass
NVNT	ac20	5220	Ant1	0.99	0.22	1.21	11	Pass
NVNT	ac20	5240	Ant1	1.02	0.22	1.24	11	Pass
NVNT	ac20	5745	Ant1	0.33	0.22	0.55	30	Pass
NVNT	ac20	5785	Ant1	-1.96	0.22	-1.74	30	Pass
NVNT	ac20	5825	Ant1	-2.17	0.22	-1.95	30	Pass
NVNT	ac20	5180	Ant2	0.13	0.22	0.35	11	Pass
NVNT	ac20	5220	Ant2	0.53	0.22	0.75	11	Pass
NVNT	ac20	5240	Ant2	0.61	0.22	0.83	11	Pass
NVNT	ac20	5745	Ant2	-1.66	0.22	-1.44	30	Pass
NVNT	ac20	5785	Ant2	-2.08	0.22	-1.86	30	Pass
NVNT	ac20	5825	Ant2	-1.87	0.22	-1.65	30	Pass
NVNT	ac20	5180	Ant1+2	-	-	3.63	10.53	Pass
NVNT	ac20	5220	Ant1+2	-	-	4.00	10.53	Pass
NVNT	ac20	5240	Ant1+2	-	-	4.05	10.53	Pass
NVNT	ac20	5745	Ant1+2	-	-	2.68	29.53	Pass
NVNT	ac20	5785	Ant1+2	-	-	1.21	29.53	Pass
NVNT	ac20	5825	Ant1+2	-	-	1.21	29.53	Pass
NVNT	ac40	5190	Ant1	-2.02	0.80	-1.22	11	Pass
NVNT	ac40	5230	Ant1	-1.87	0.80	-1.07	11	Pass
NVNT	ac40	5755	Ant1	-2.38	0.80	-1.58	30	Pass
NVNT	ac40	5795	Ant1	-4.89	0.80	-4.09	30	Pass
NVNT	ac40	5190	Ant2	-2.65	0.80	-1.85	11	Pass
NVNT	ac40	5230	Ant2	-2.42	0.80	-1.62	11	Pass
NVNT	ac40	5755	Ant2	-4.94	0.80	-4.14	30	Pass
NVNT	ac40	5795	Ant2	-5.09	0.80	-4.29	30	Pass
NVNT	ac40	5190	Ant1+2	-	-	1.49	10.53	Pass
NVNT	ac40	5230	Ant1+2	-	-	1.67	10.53	Pass
NVNT	ac40	5755	Ant1+2	-	-	0.34	29.53	Pass
NVNT	ac40	5795	Ant1+2	-	-	-1.18	29.53	Pass

NVNT	ac80	5210	Ant1	-5.4	1.38	-4.02	11	Pass
NVNT	ac80	5775	Ant1	-5.77	1.38	-4.39	30	Pass
NVNT	ac80	5210	Ant2	-6.16	1.38	-4.78	11	Pass
NVNT	ac80	5775	Ant2	-8.24	1.38	-6.86	30	Pass
NVNT	Ac80	5210	Ant1+2	-	-	-1.37	10.53	Pass
NVNT	Ac80	5775	Ant1+2	-	-	-2.44	29.53	Pass

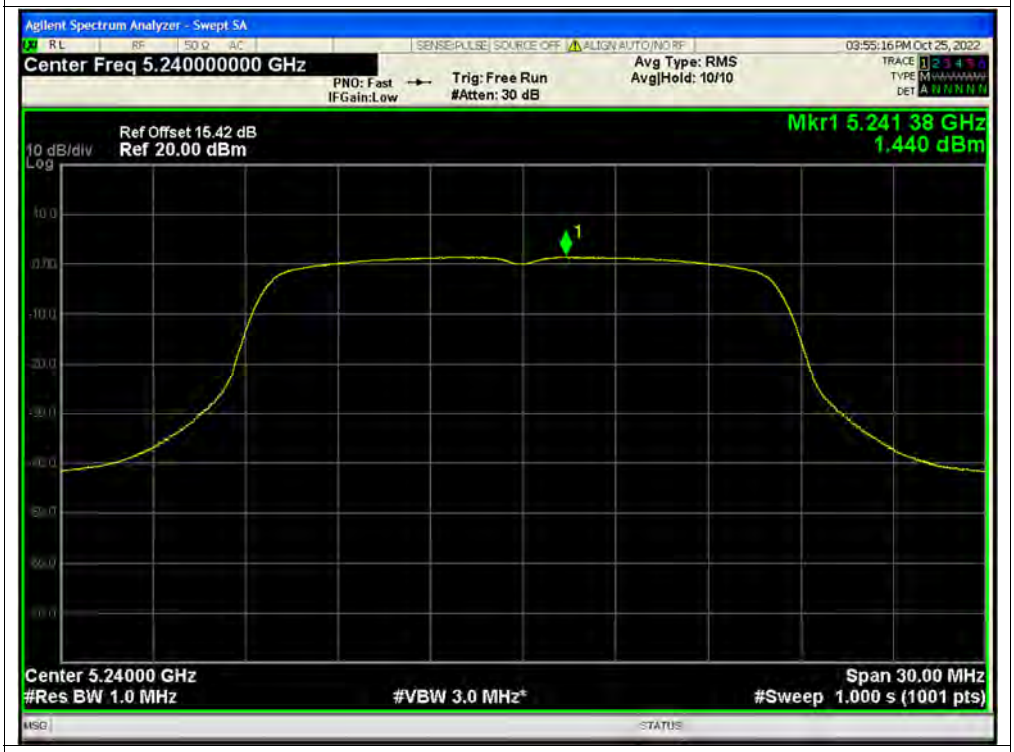
Test Graphs
PSD NVNT a 5180MHz Ant1



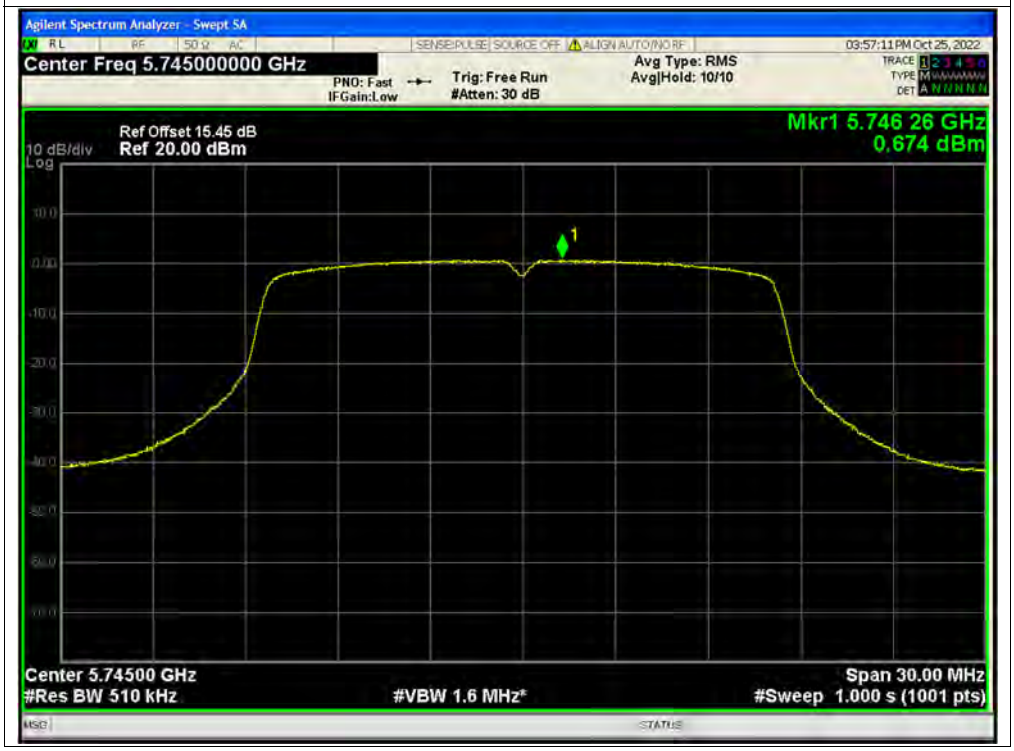
PSD NVNT a 5220MHz Ant1



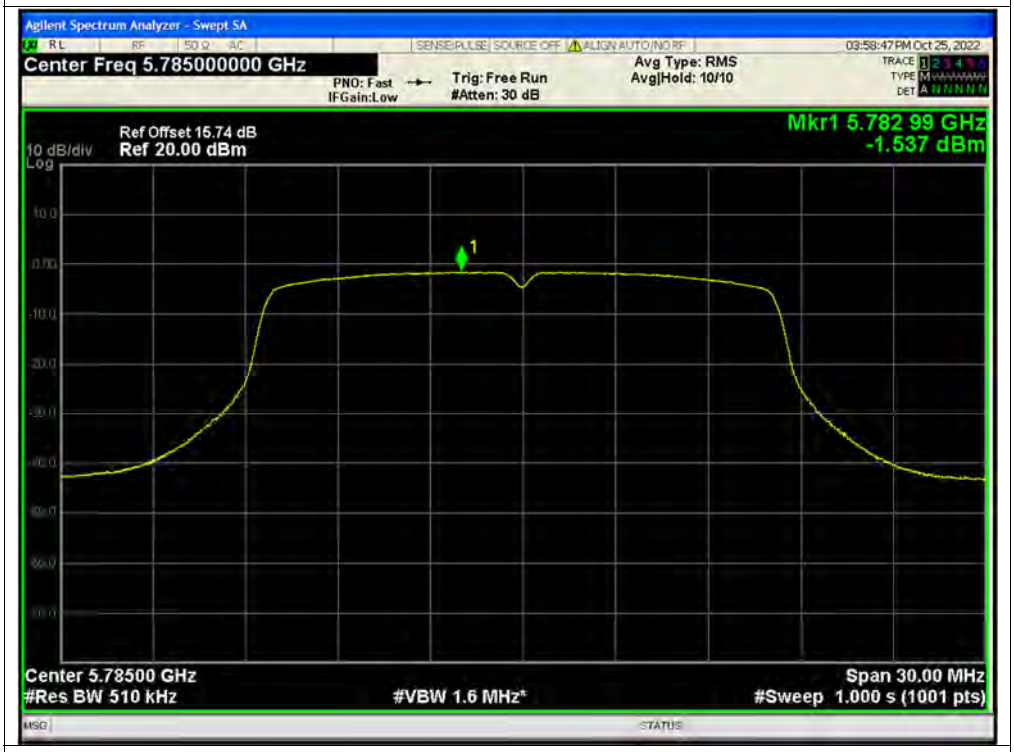
PSD NVNT a 5240MHz Ant1



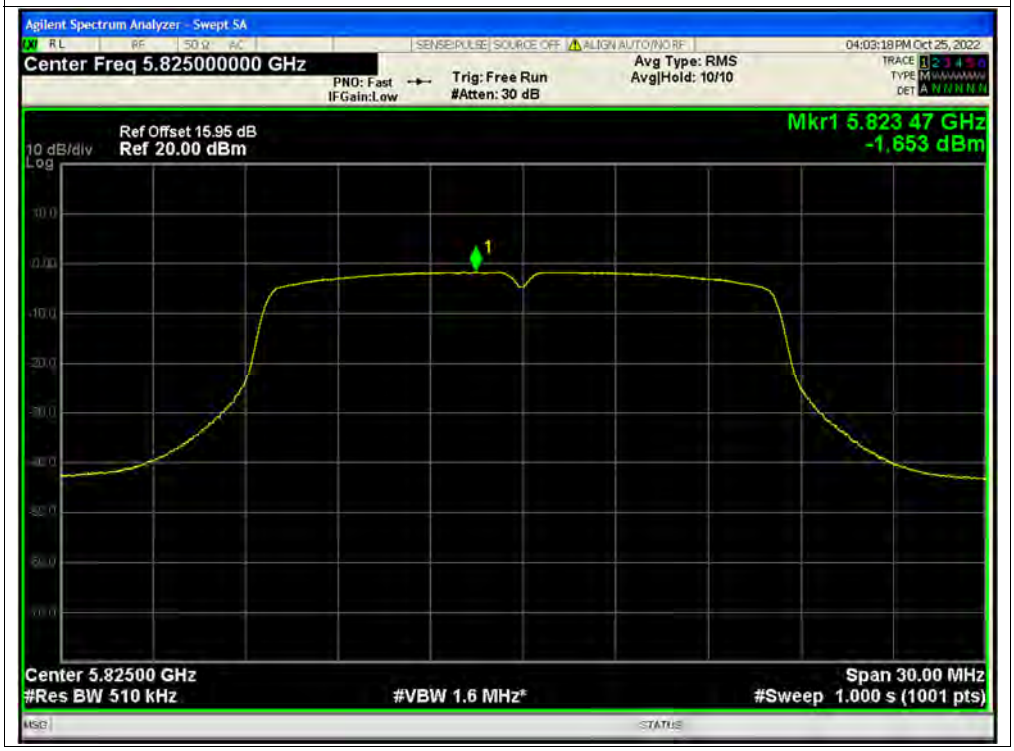
PSD NVNT a 5745MHz Ant1



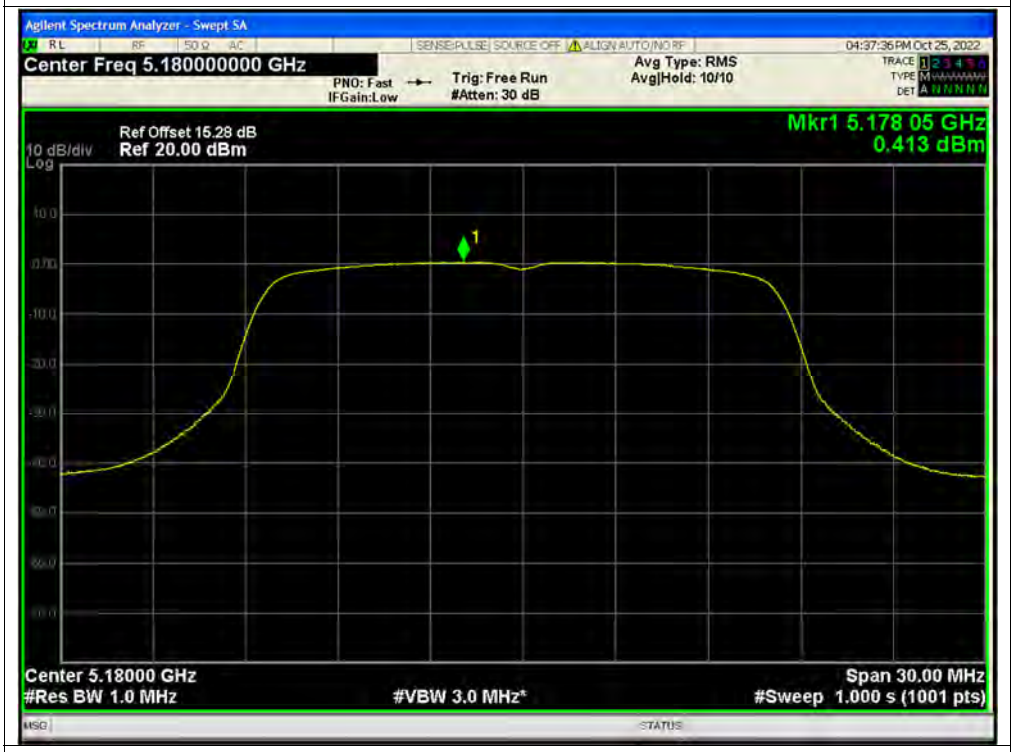
PSD NVNT a 5785MHz Ant1



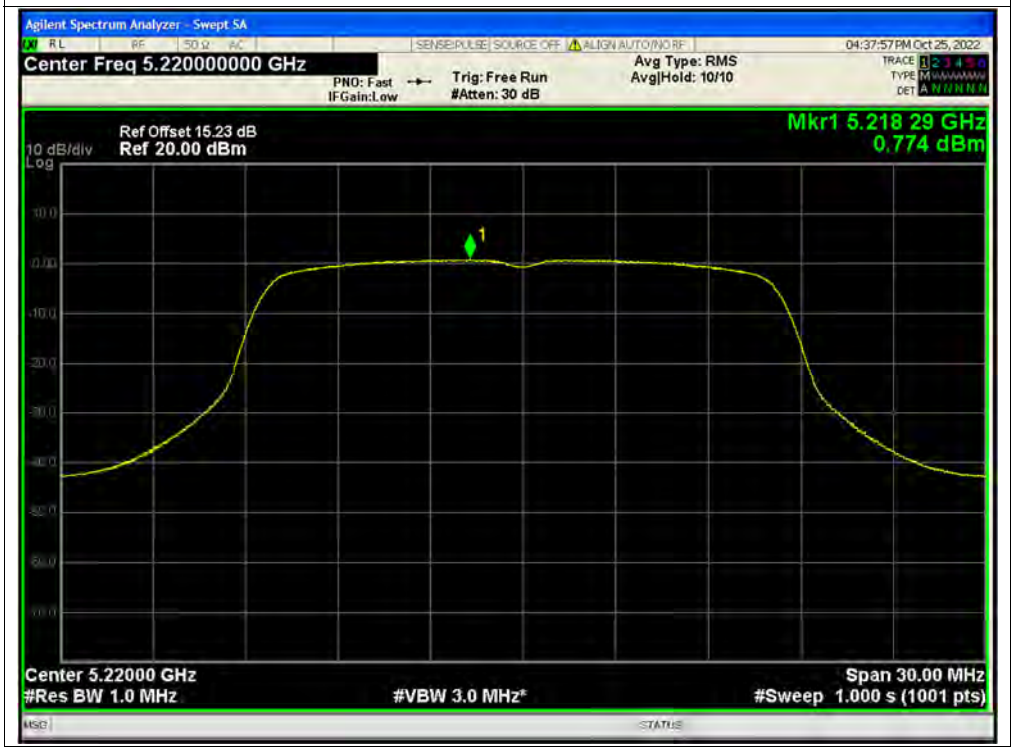
PSD NVNT a 5825MHz Ant1



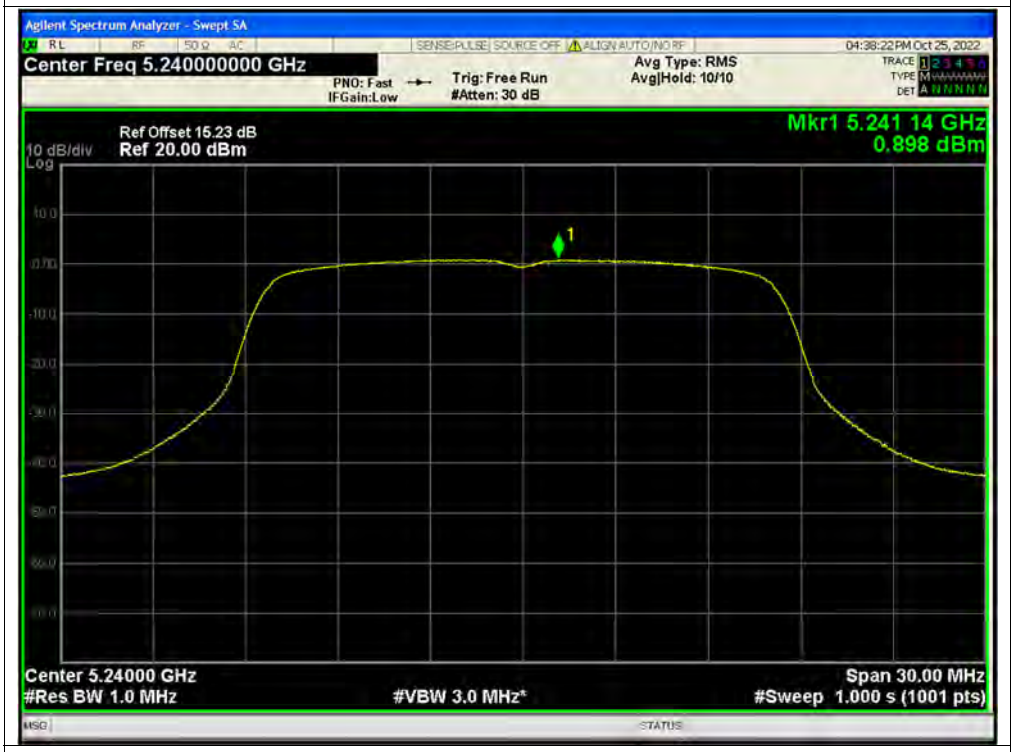
PSD NVNT a 5180MHz Ant2



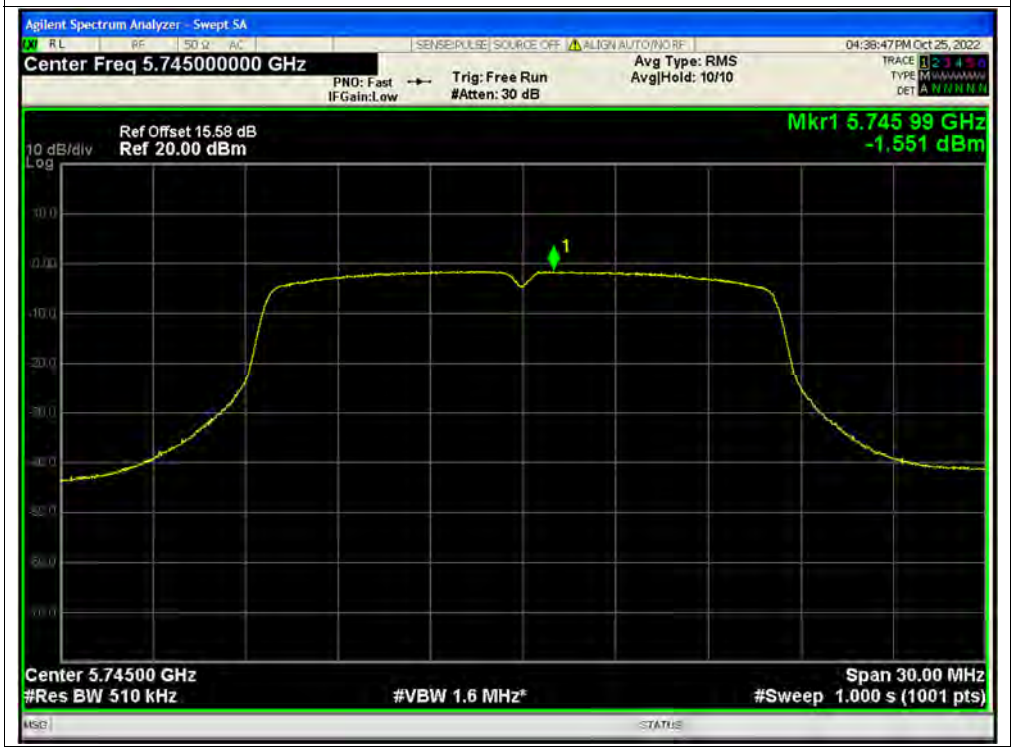
PSD NVNT a 5220MHz Ant2



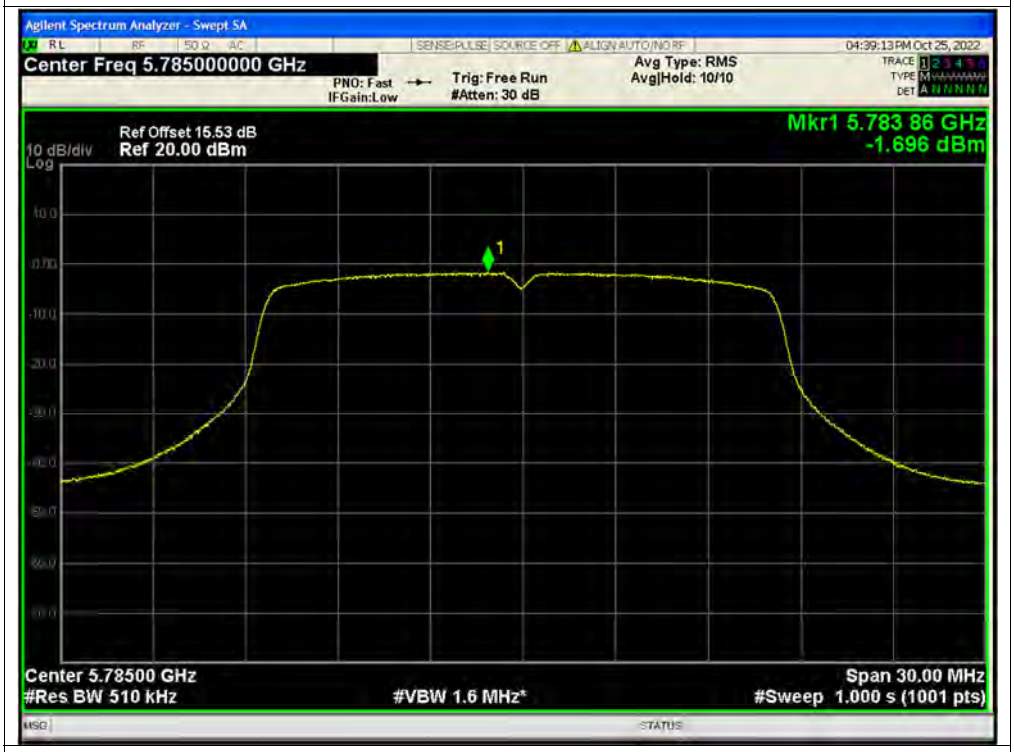
PSD NVNT a 5240MHz Ant2



PSD NVNT a 5745MHz Ant2

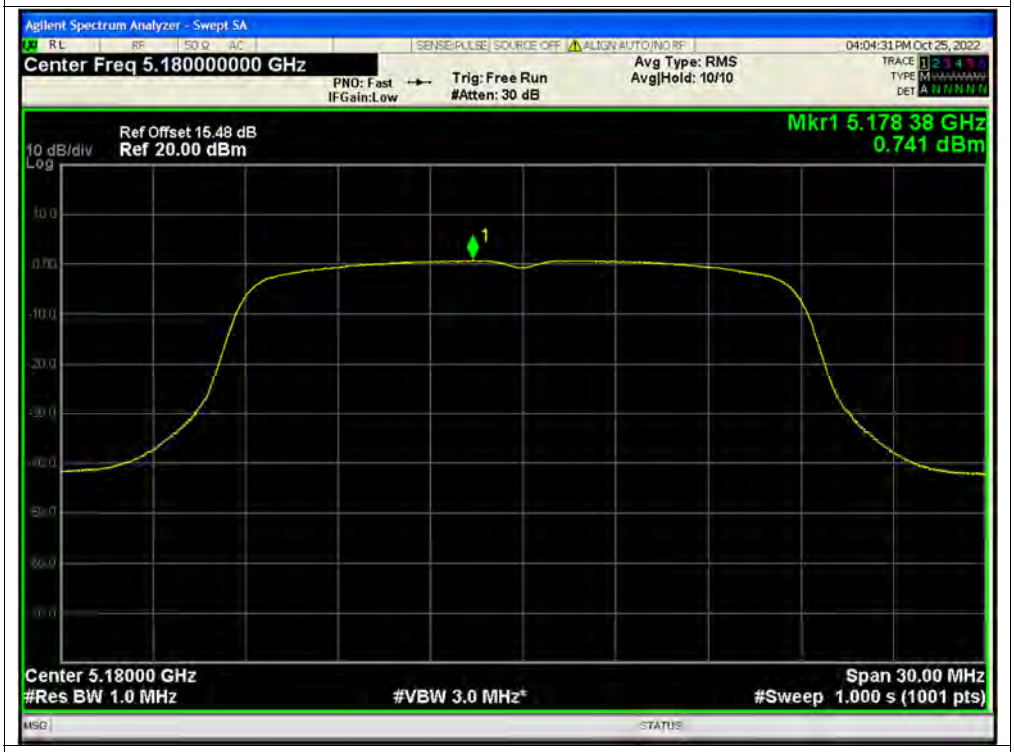


PSD NVNT a 5785MHz Ant2

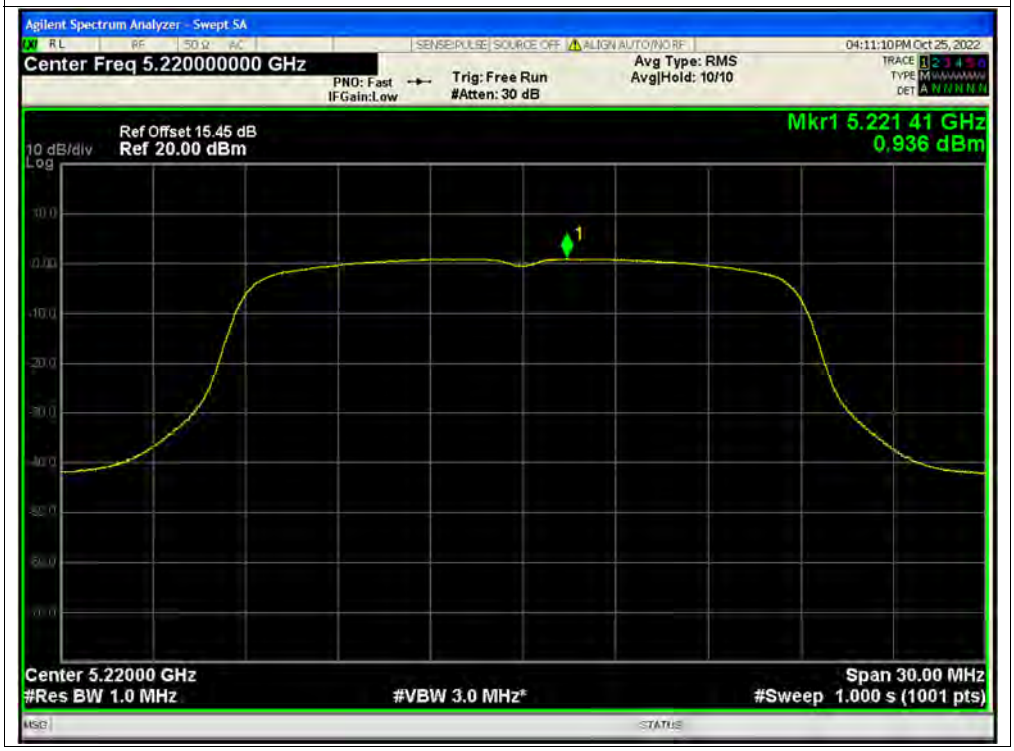


PSD NVNT a 5825MHz Ant2

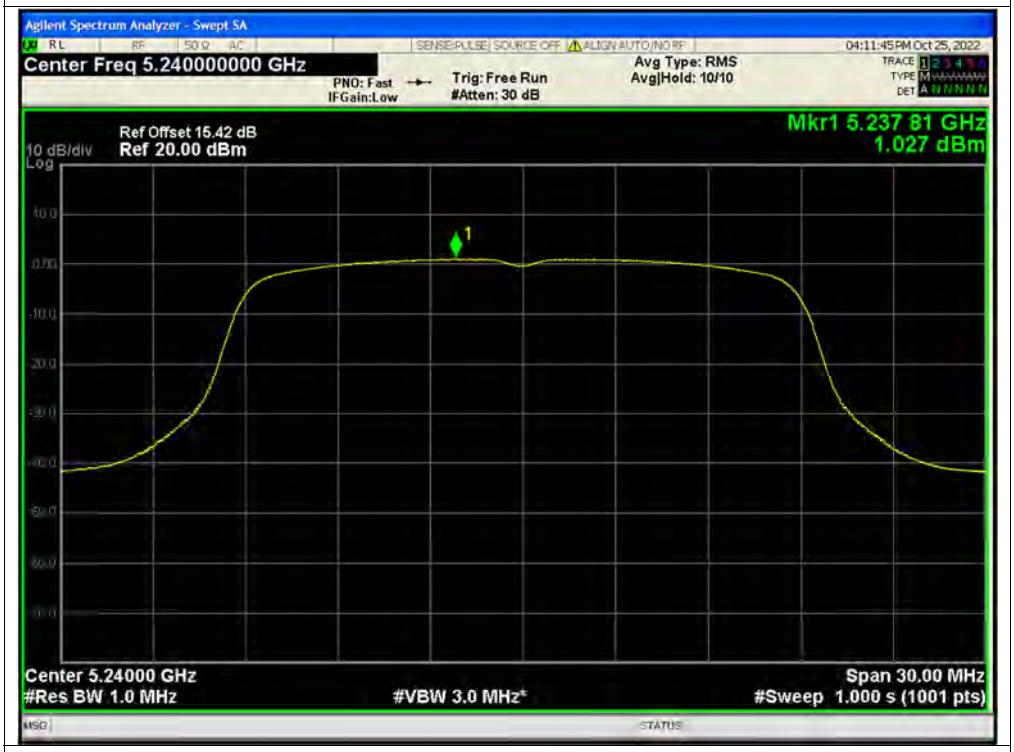
PSD NVNT n20 5180MHz Ant1



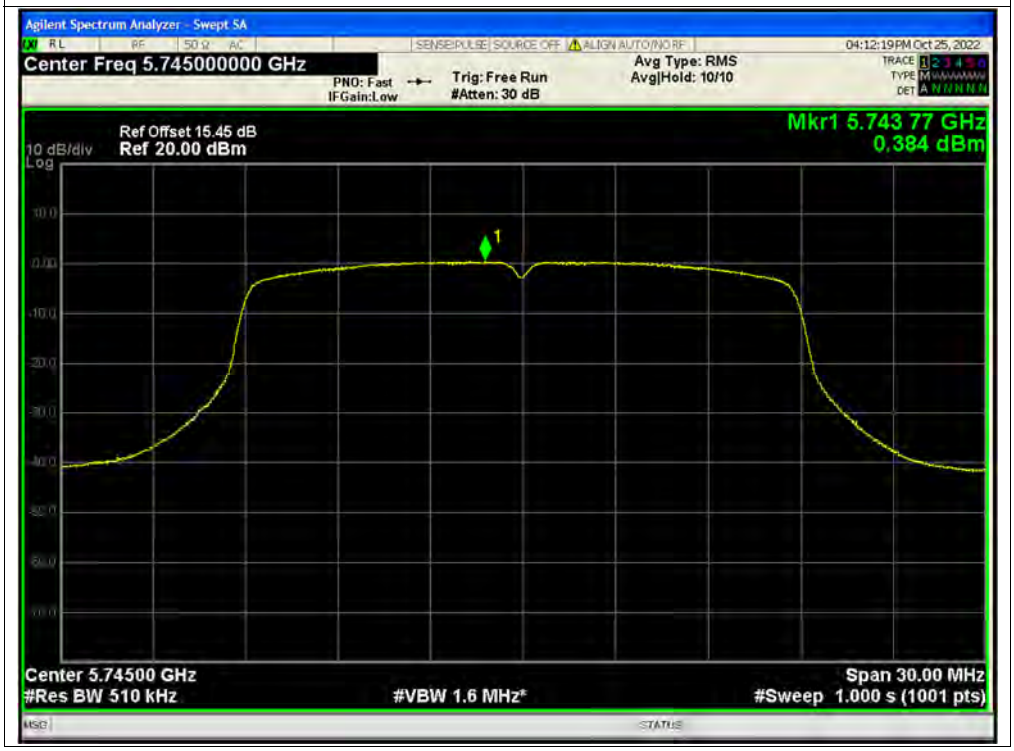
PSD NVNT n20 5220MHz Ant1



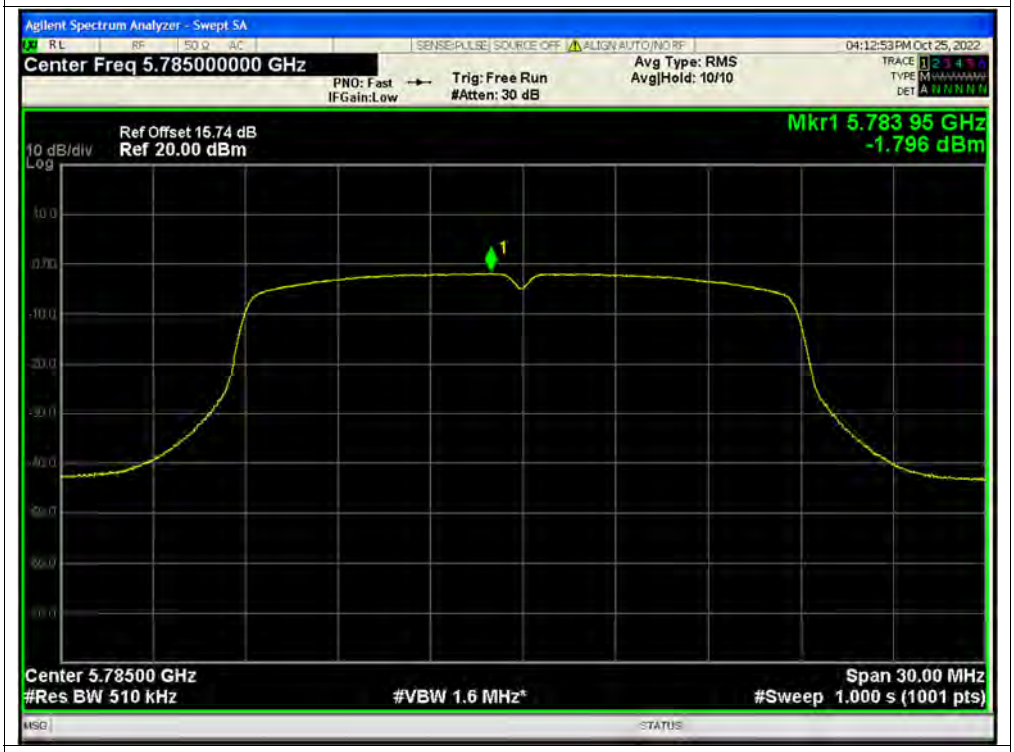
PSD NVNT n20 5240MHz Ant1



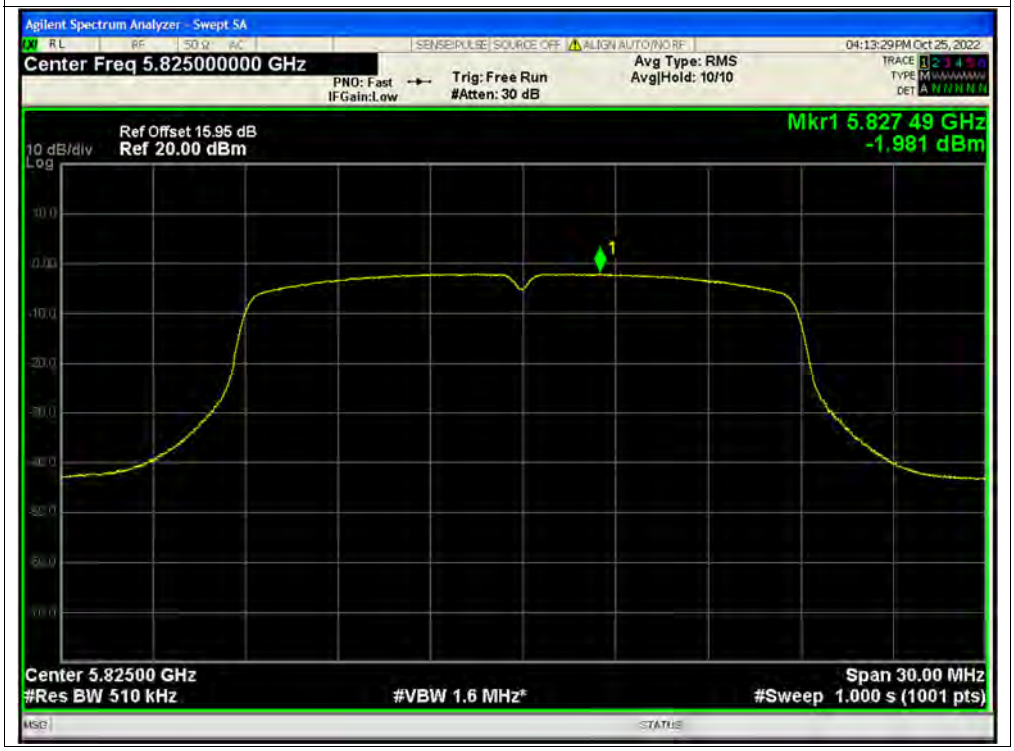
PSD NVNT n20 5745MHz Ant1



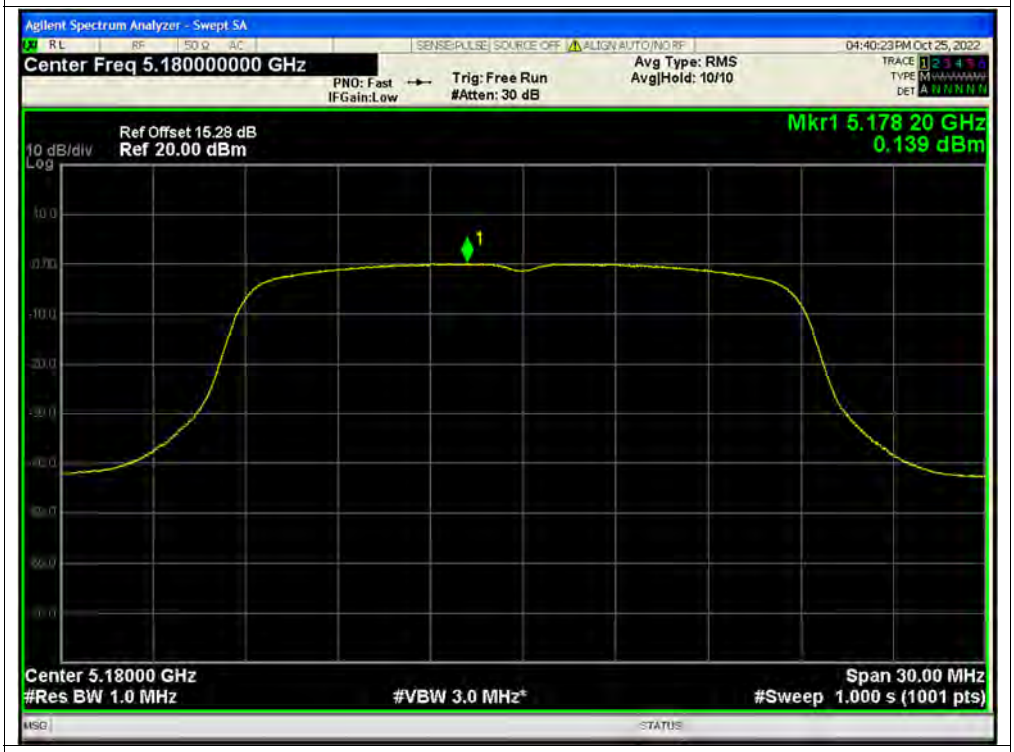
PSD NVNT n20 5785MHz Ant1



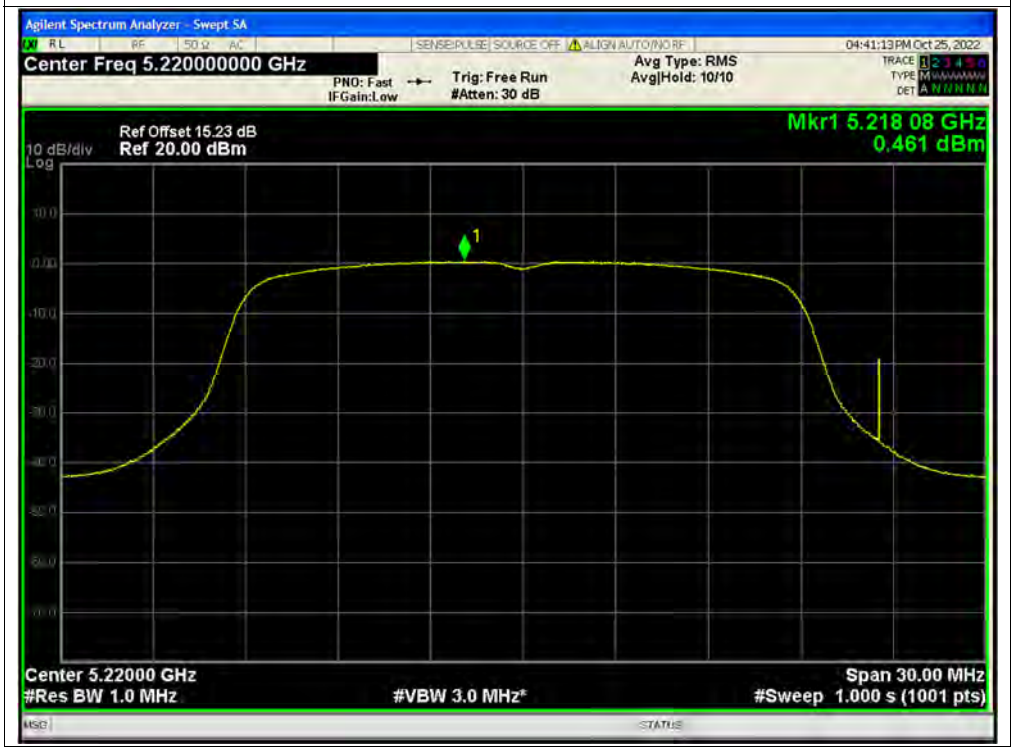
PSD NVNT n20 5825MHz Ant1



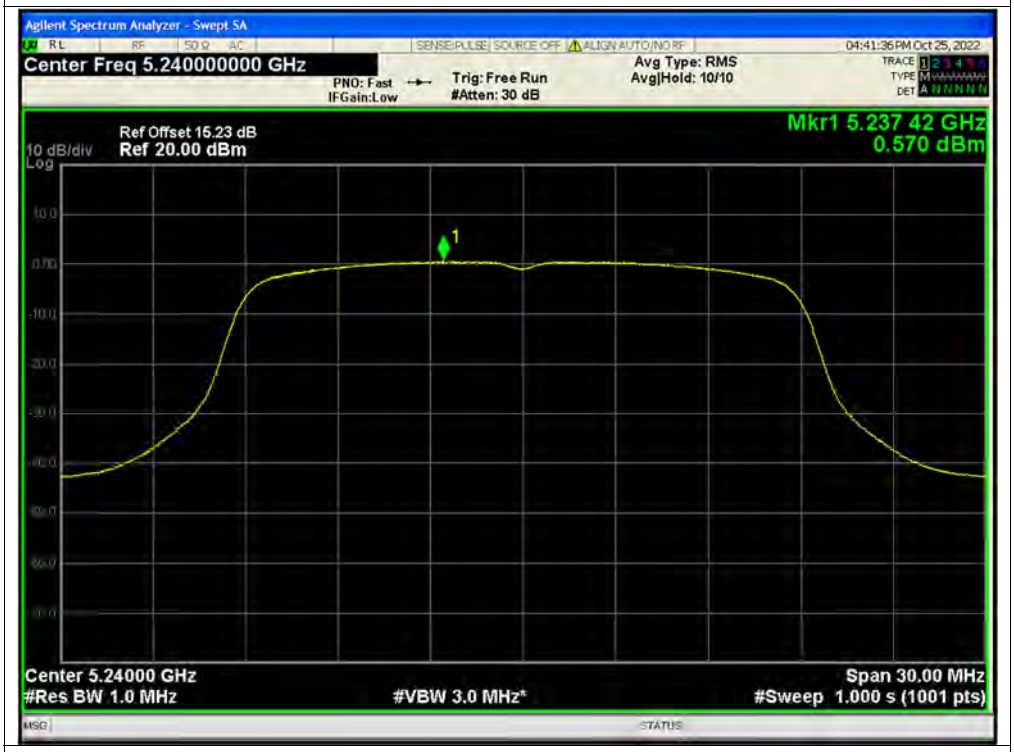
PSD NVNT n20 5180MHz Ant2



PSD NVNT n20 5220MHz Ant2

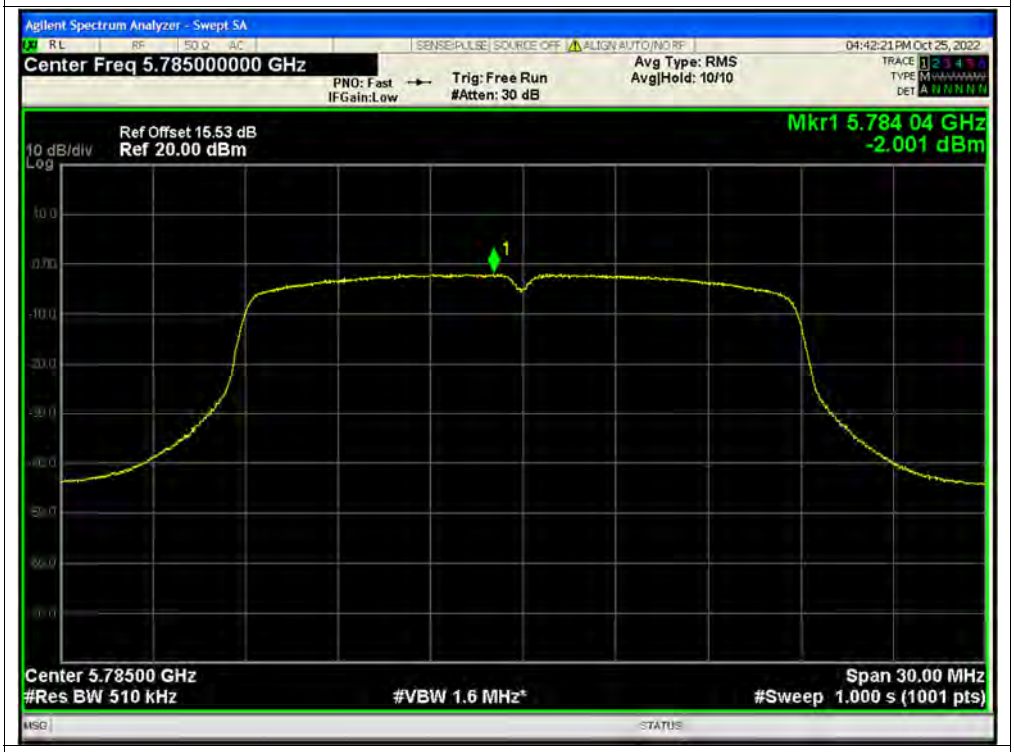


PSD NVNT n20 5240MHz Ant2



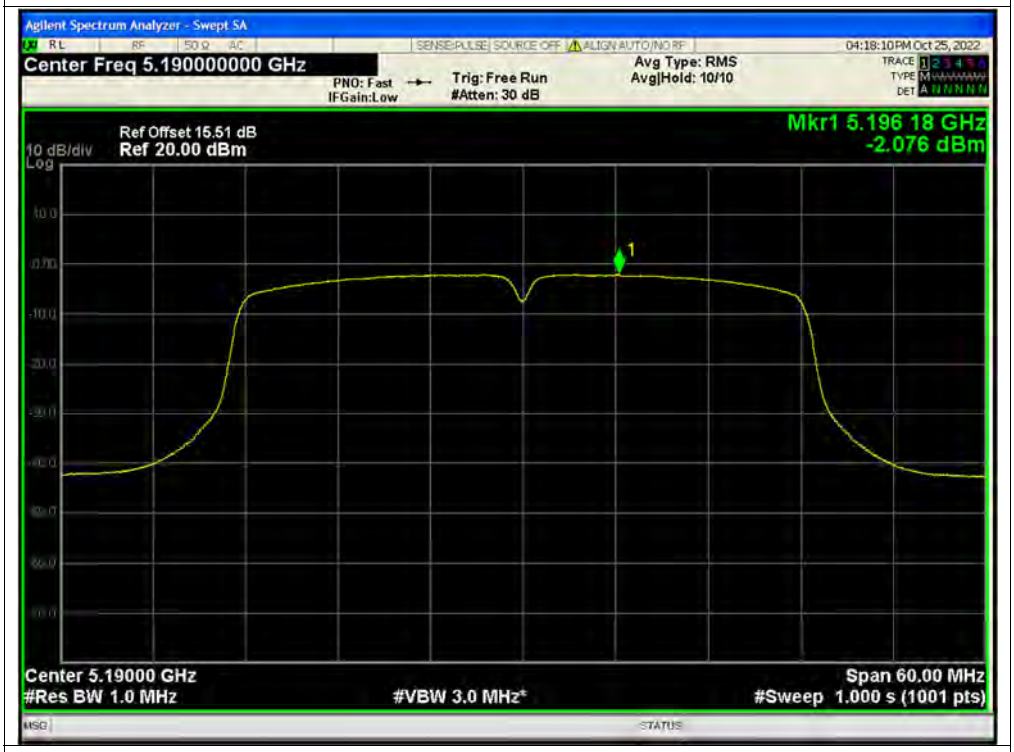
PSD NVNT n20 5745MHz Ant2

PSD NVNT n20 5785MHz Ant2

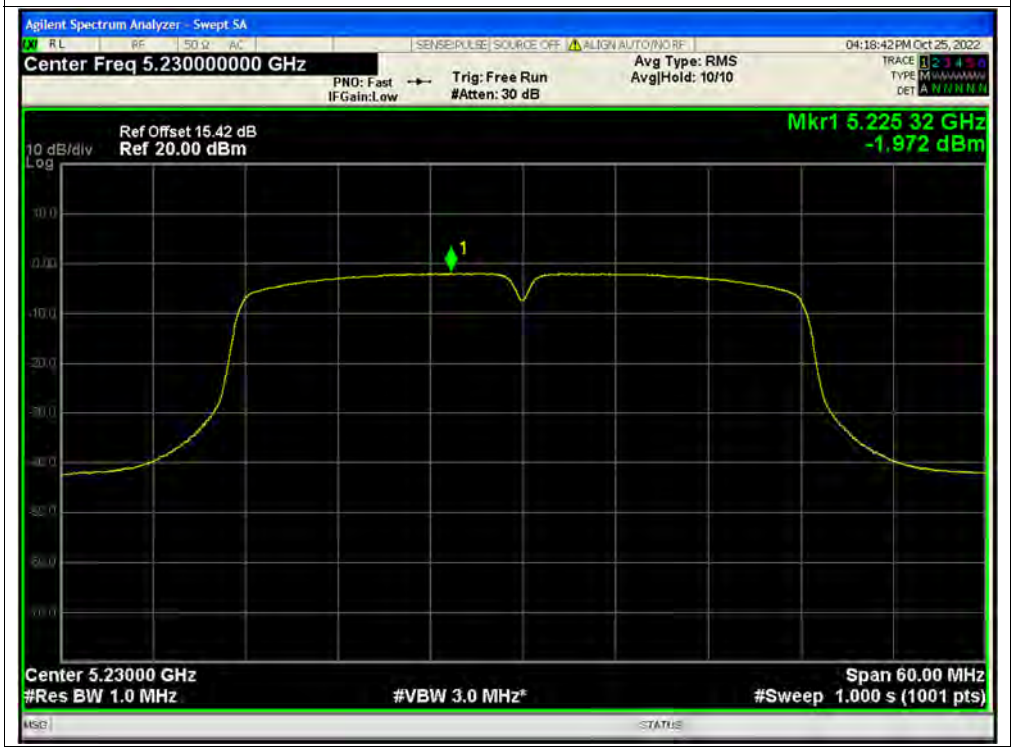


PSD NVNT n20 5825MHz Ant2

PSD NVNT n40 5190MHz Ant1



PSD NVNT n40 5230MHz Ant1



PSD NVNT n40 5755MHz Ant1

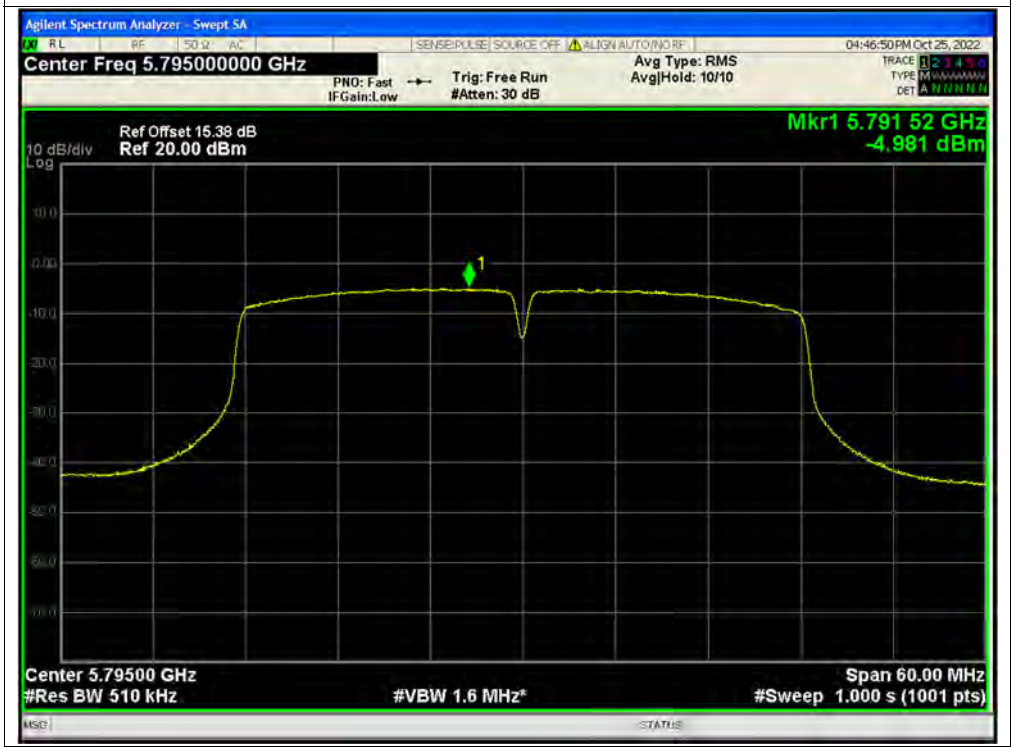
PSD NVNT n40 5795MHz Ant1

PSD NVNT n40 5190MHz Ant2

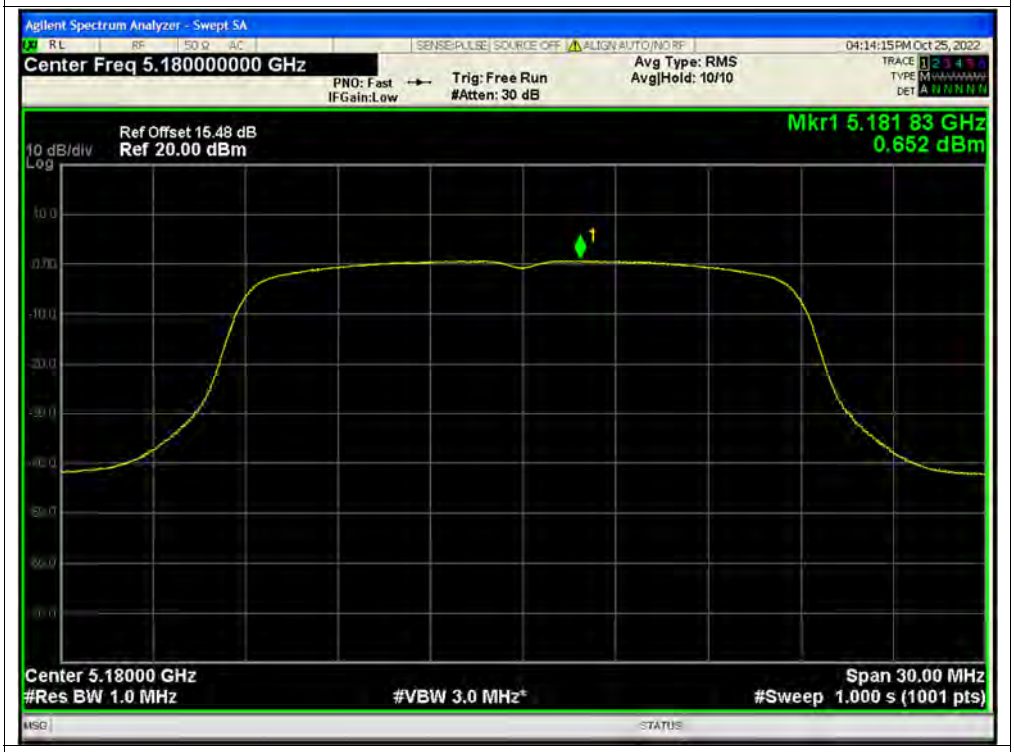
PSD NVNT n40 5230MHz Ant2

PSD NVNT n40 5755MHz Ant2

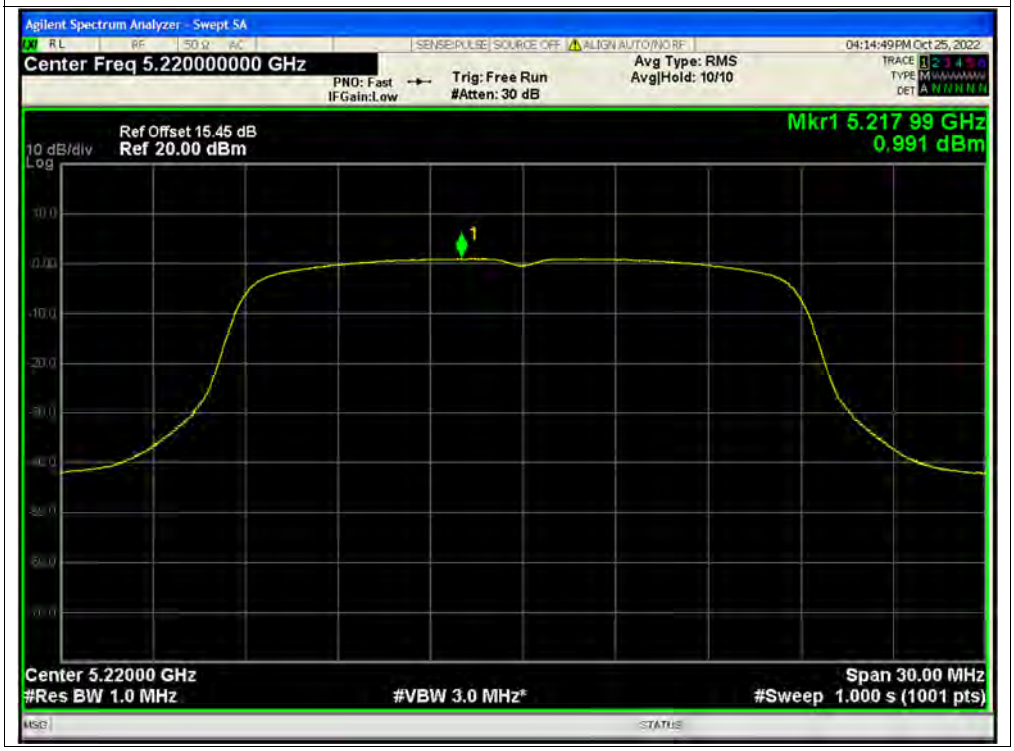
PSD NVNT n40 5795MHz Ant2



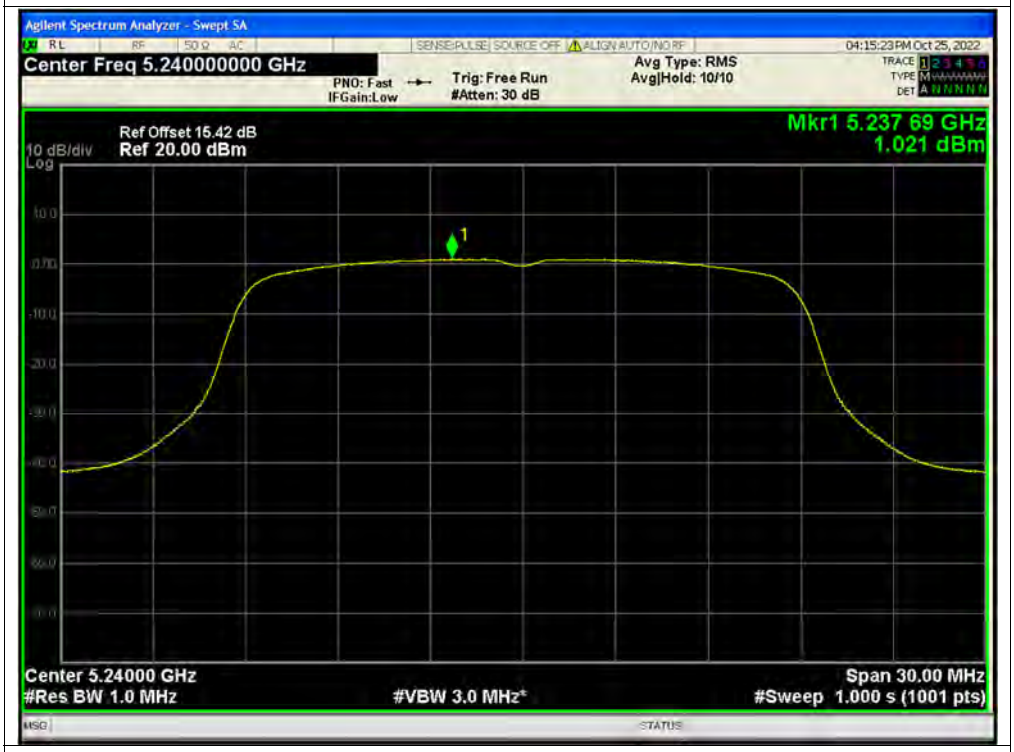
PSD NVNT ac20 5180MHz Ant1



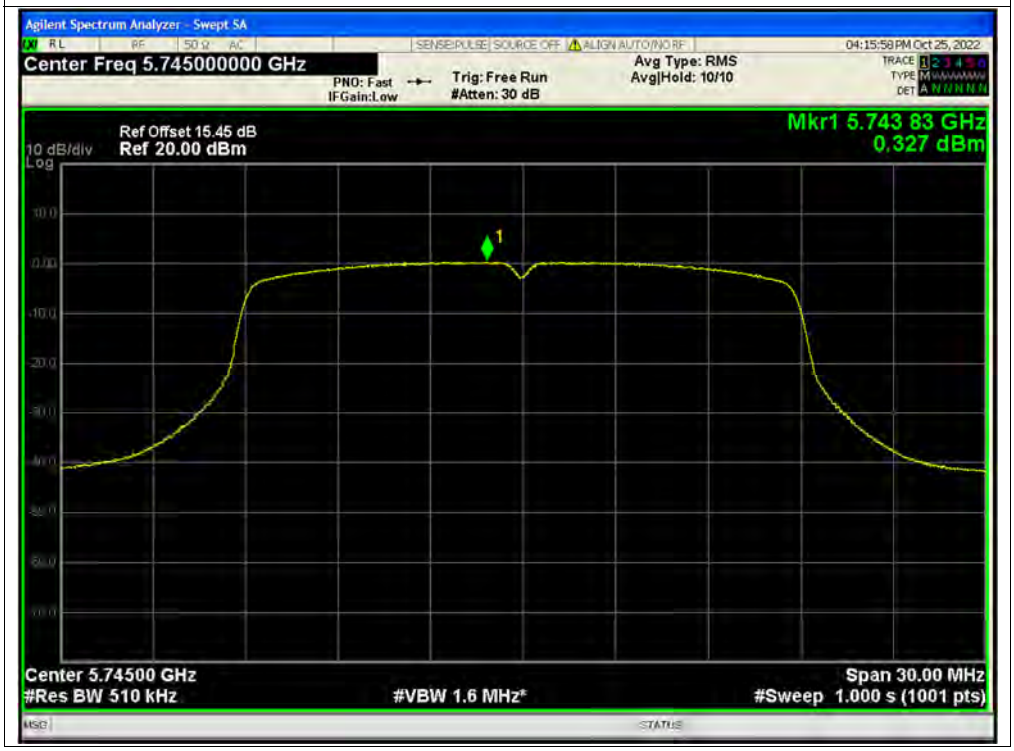
PSD NVNT ac20 5220MHz Ant1



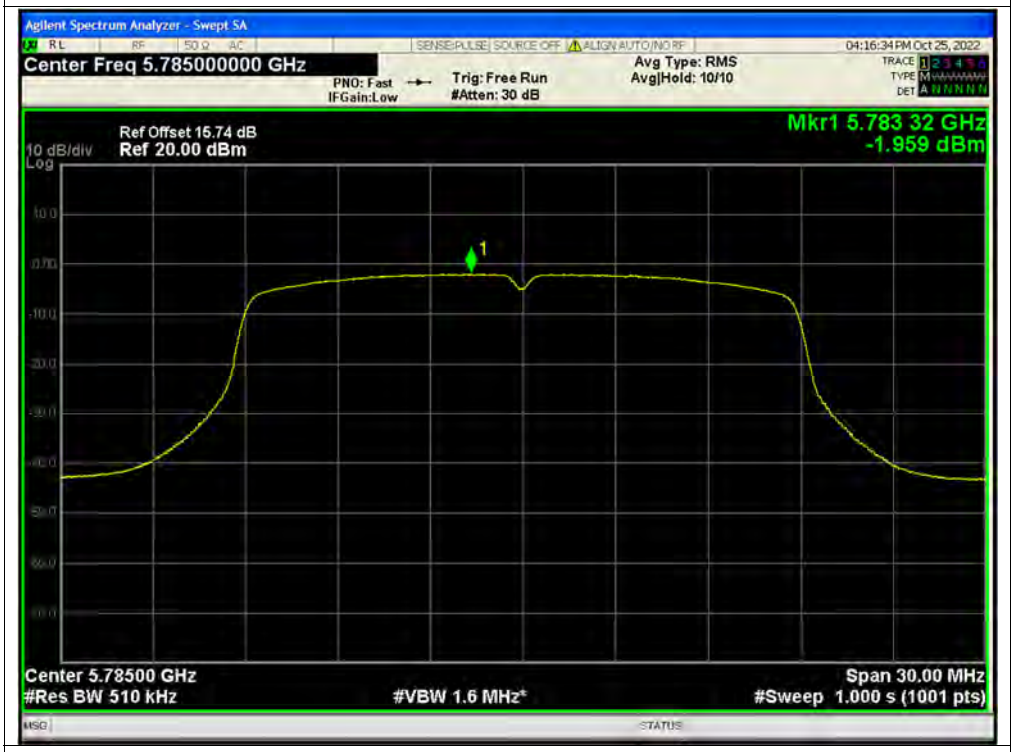
PSD NVNT ac20 5240MHz Ant1



PSD NVNT ac20 5745MHz Ant1

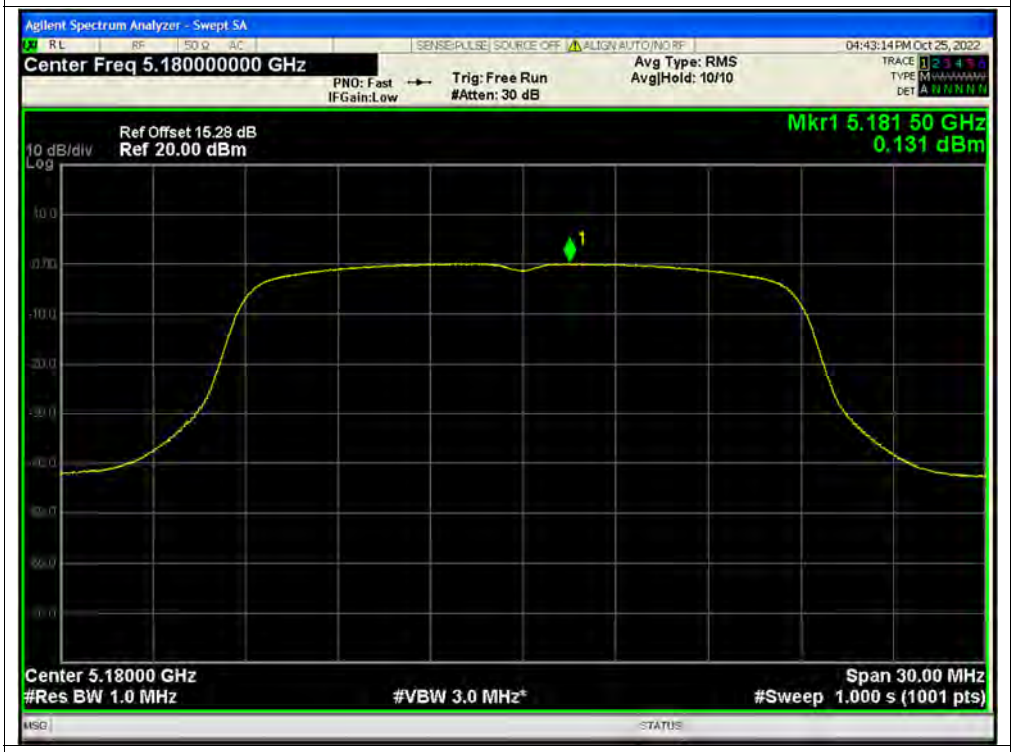


PSD NVNT ac20 5785MHz Ant1

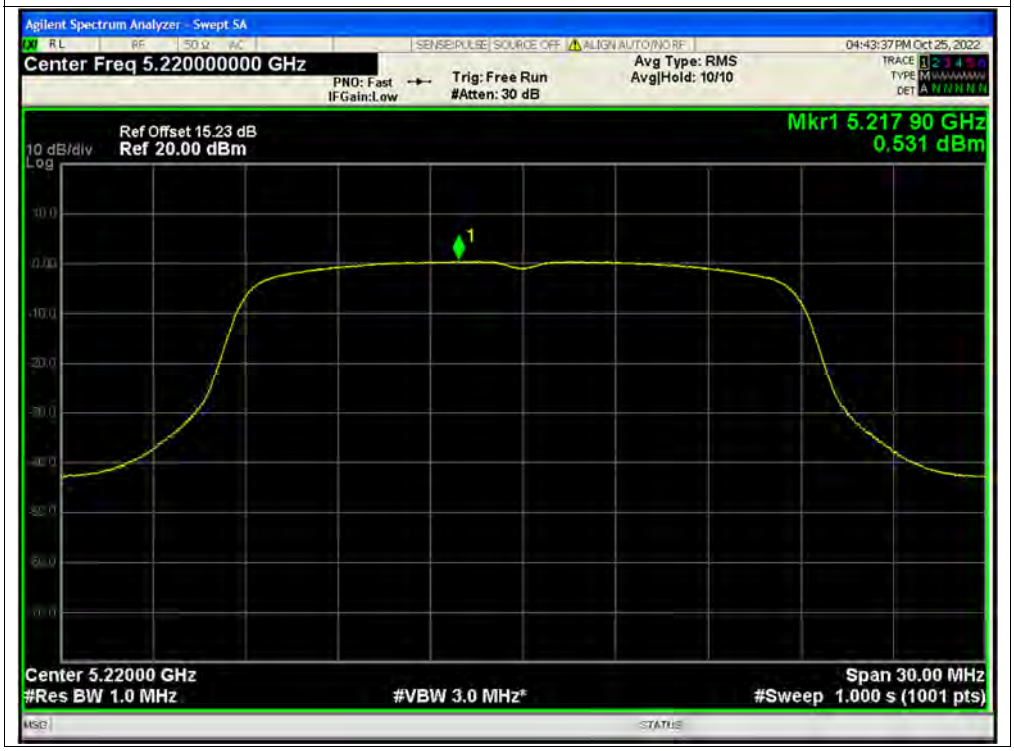


PSD NVNT ac20 5825MHz Ant1

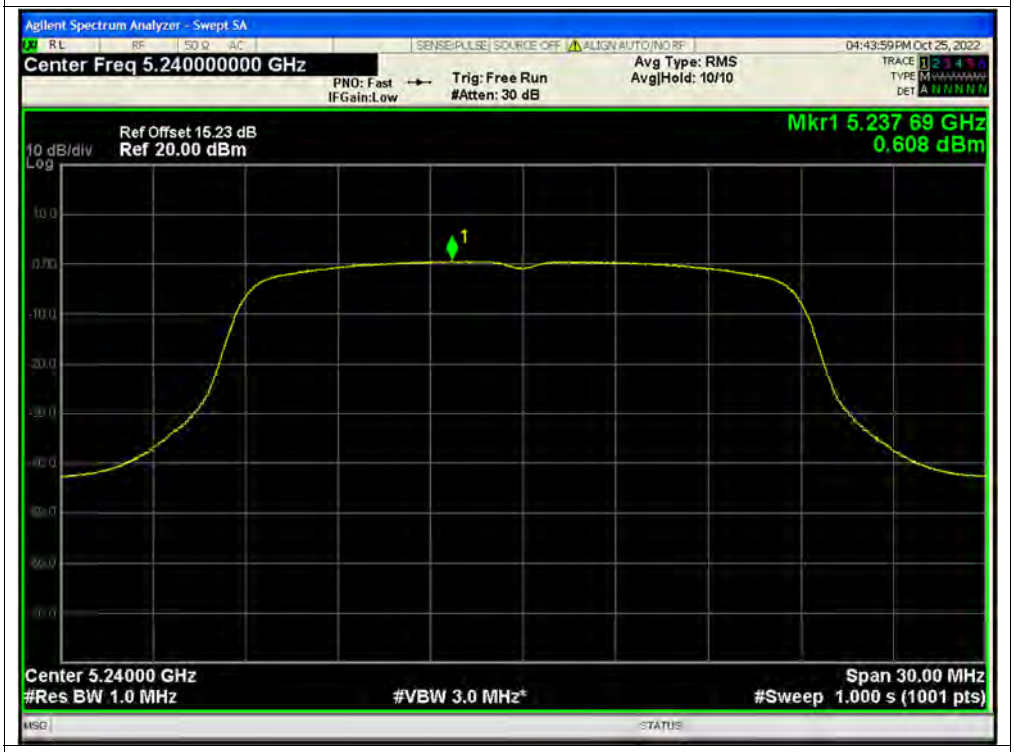
PSD NVNT ac20 5180MHz Ant2



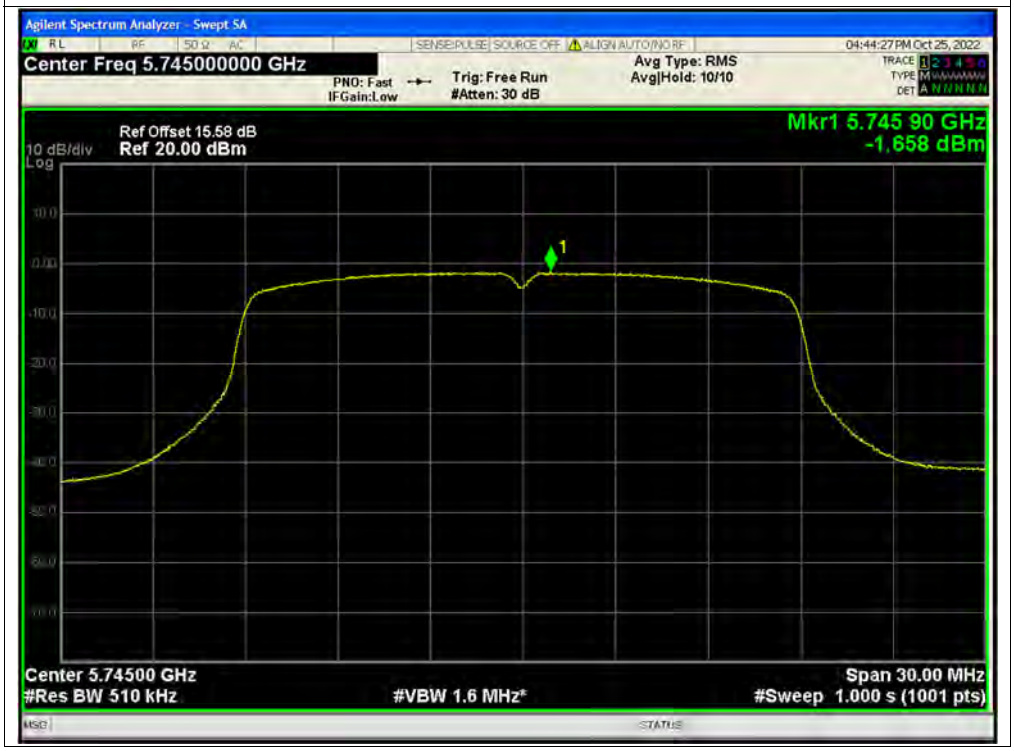
PSD NVNT ac20 5220MHz Ant2



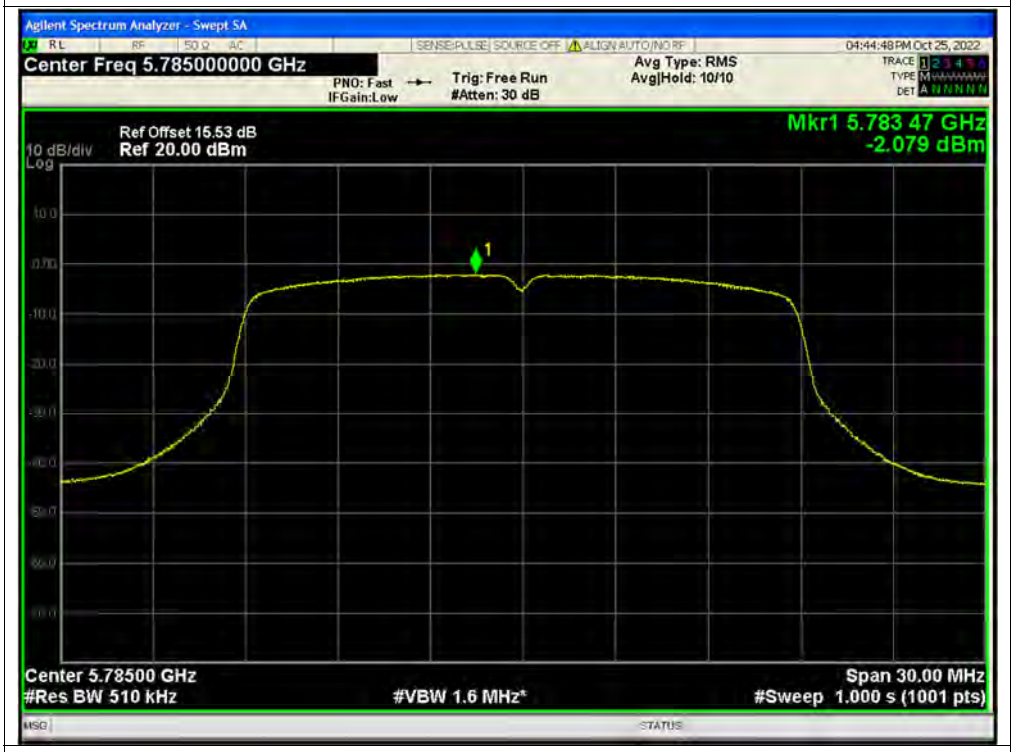
PSD NVNT ac20 5240MHz Ant2



PSD NVNT ac20 5745MHz Ant2

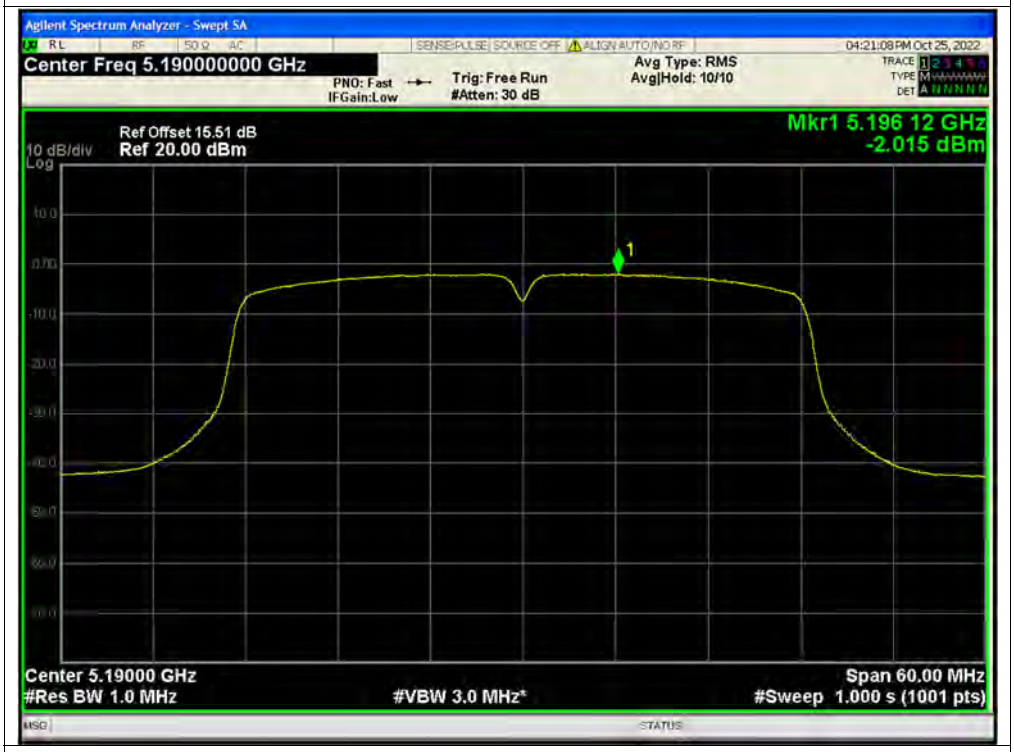


PSD NVNT ac20 5785MHz Ant2



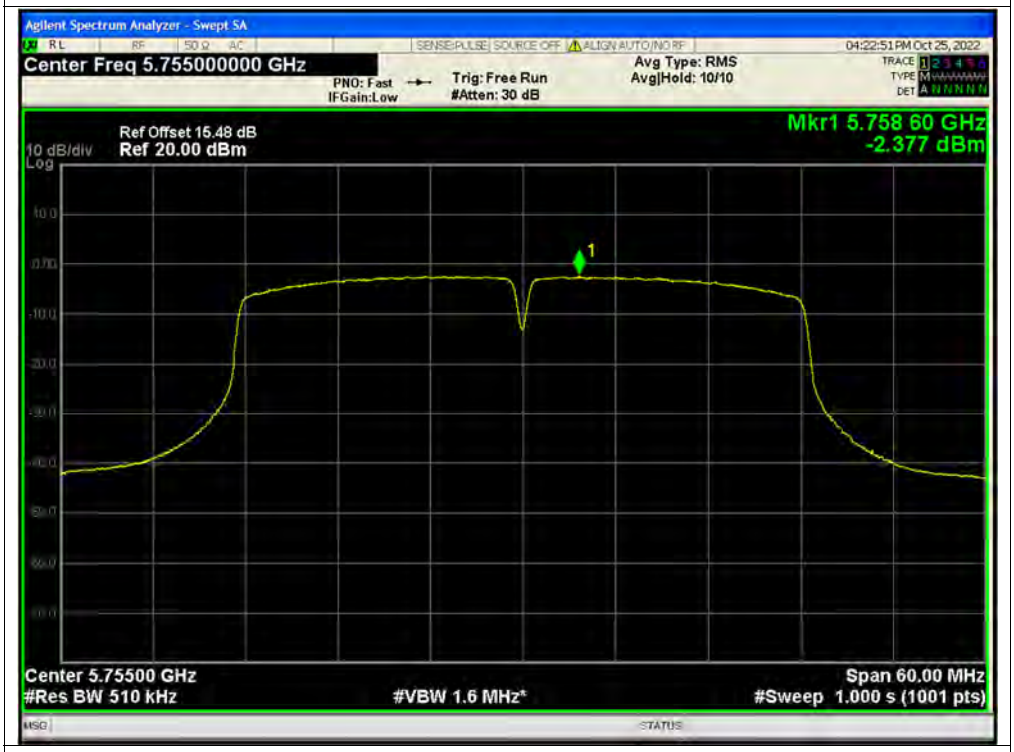
PSD NVNT ac20 5825MHz Ant2

PSD NVNT ac40 5190MHz Ant1

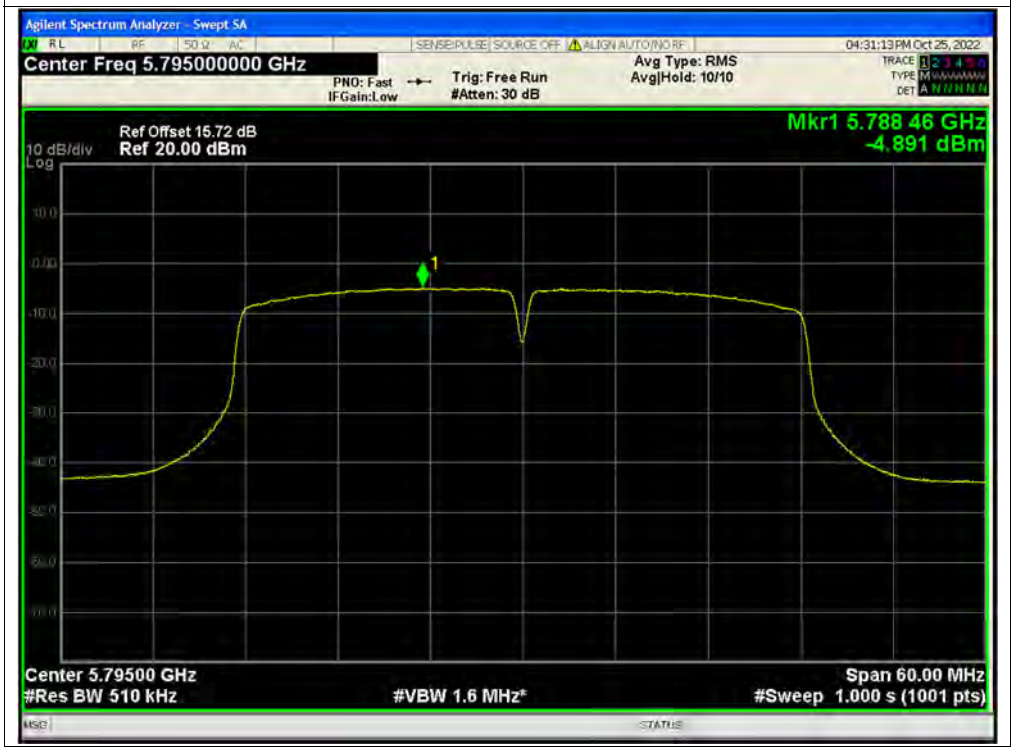


PSD NVNT ac40 5230MHz Ant1

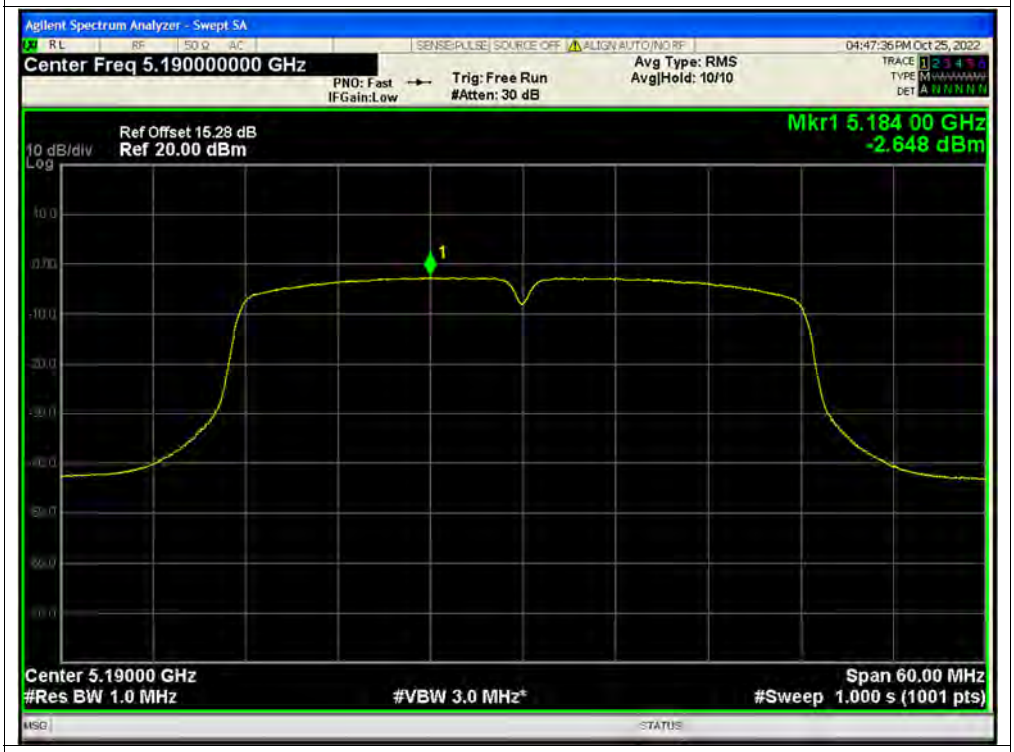
PSD NVNT ac40 5755MHz Ant1



PSD NVNT ac40 5795MHz Ant1

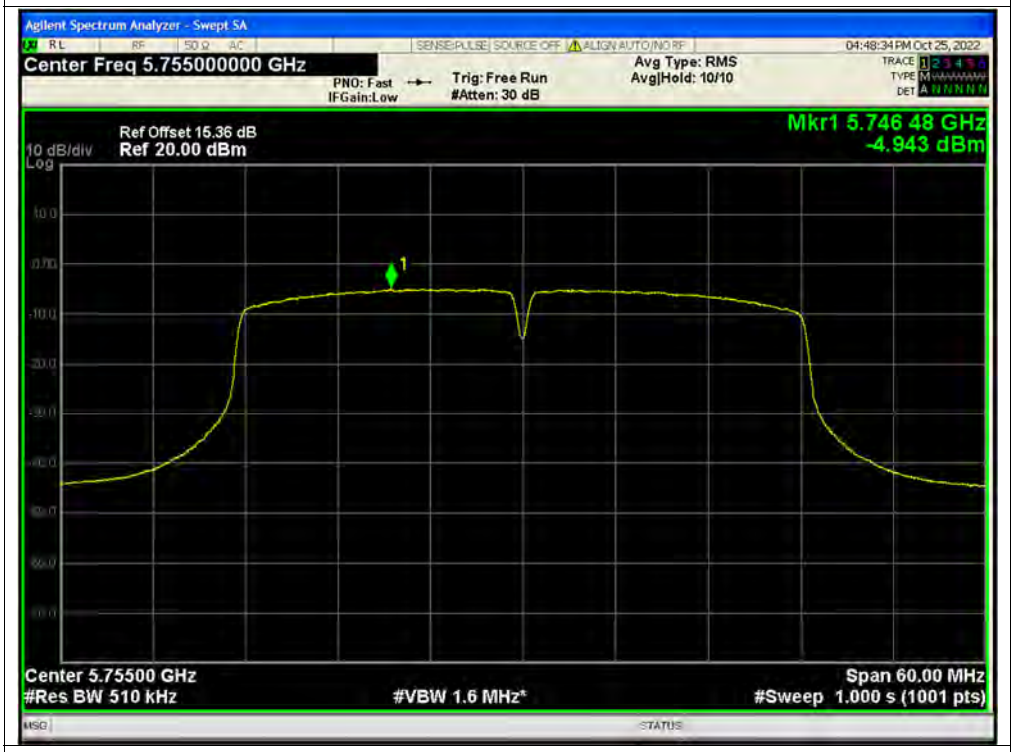


PSD NVNT ac40 5190MHz Ant2

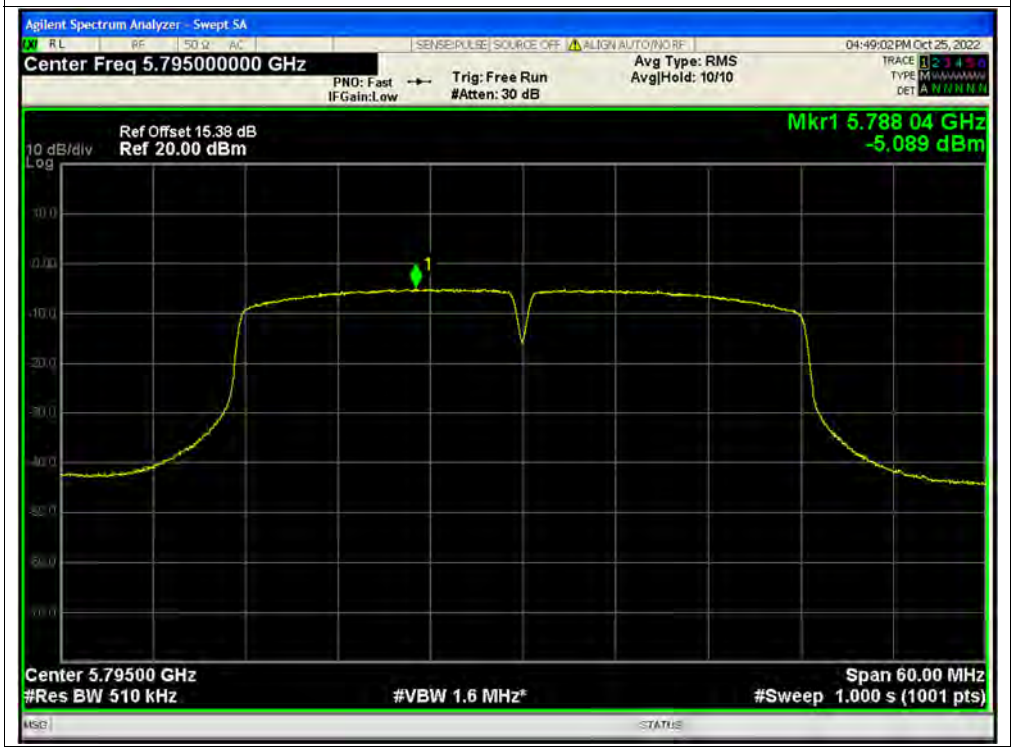


PSD NVNT ac40 5230MHz Ant2

PSD NVNT ac40 5755MHz Ant2



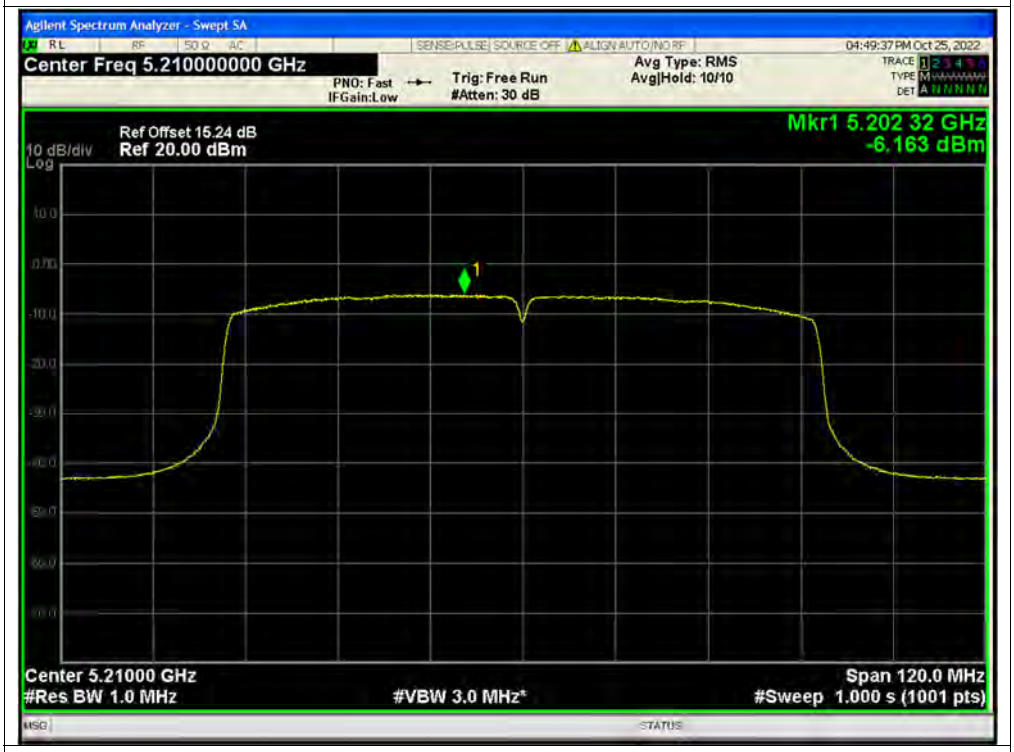
PSD NVNT ac40 5795MHz Ant2



PSD NVNT ac80 5210MHz Ant1

PSD NVNT ac80 5775MHz Ant1

PSD NVNT ac80 5210MHz Ant2



PSD NVNT ac80 5775MHz Ant2

A.5. Frequency Stability

U-NII-1 (Ch. 36) 5180MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	23	4.440
100%		-30	25	4.826
100%		-20	22	4.247
100%		-10	31	5.985
100%		0	20	3.861
100%		+10	22	4.247
100%		+20	19	3.668
100%		+30	23	4.440
100%		+40	24	4.633
100%		+50	27	5.212
115%	5.75	+20	28	5.405
85%	4.25	+20	26	5.019

U-NII-3 (Ch. 149) 5745MHz				
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	Fre. Dev. (kHz)	Deviation (ppm)
100%	5.00	+20(Ref)	22	3.829
100%		-30	24	4.178
100%		-20	25	4.352
100%		-10	21	3.655
100%		0	29	5.048
100%		+10	25	4.352
100%		+20	22	3.829
100%		+30	26	4.526
100%		+40	27	4.700
100%		+50	28	4.874
115%	5.75	+20	30	5.222
85%	4.25	+20	29	5.048

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 + Computer +WIFI TX

Test voltage: AC 120V/60Hz

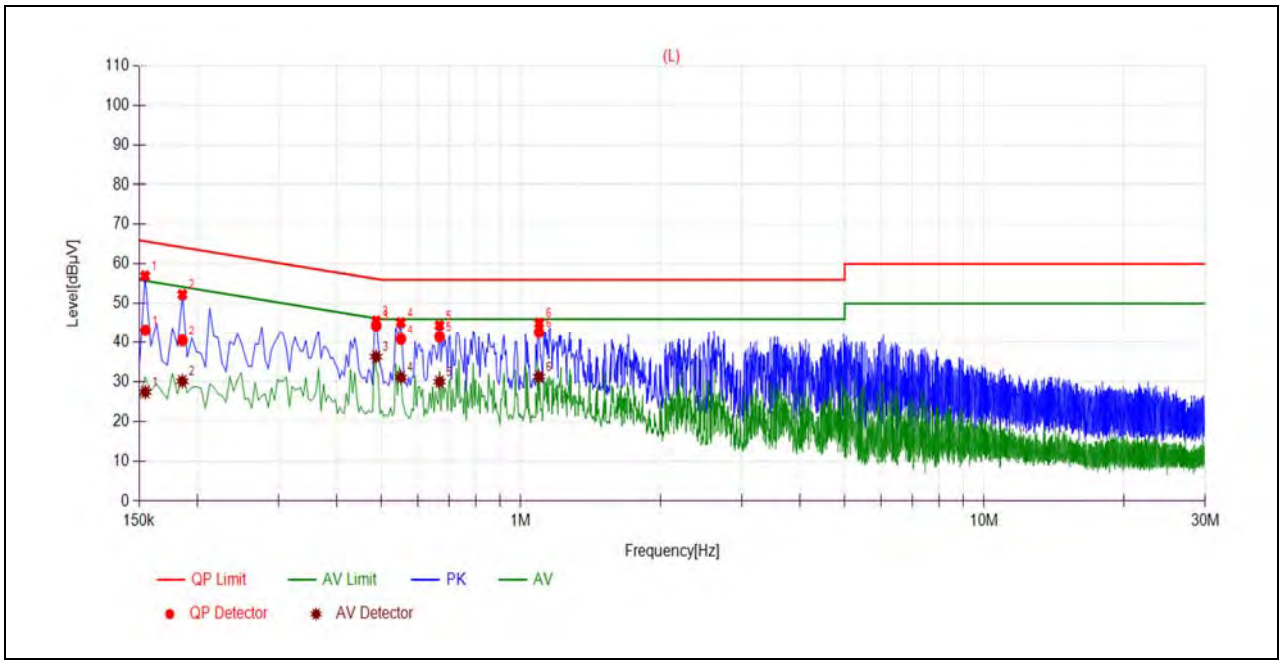
The measurement results are obtained as below:

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

U_R: Receiver Reading

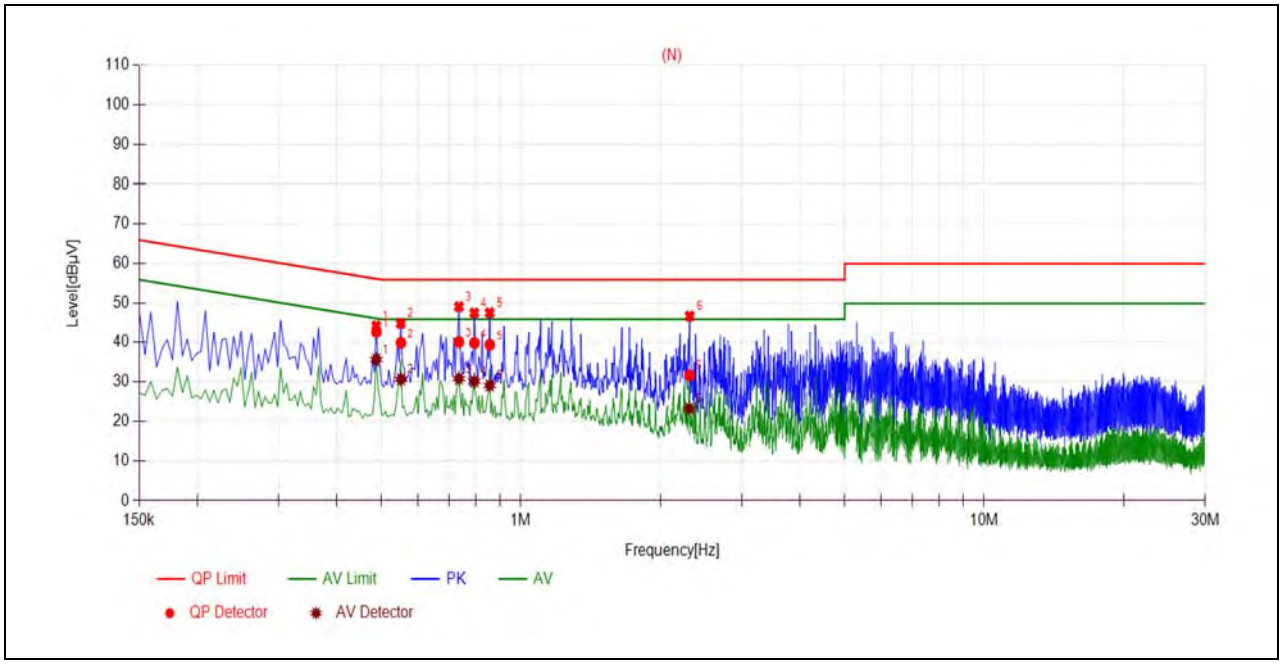
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1547	43.11	27.39	65.75	55.75	Line	PASS
2	0.1859	40.50	30.11	64.22	54.22		PASS
3	0.4872	44.37	36.31	56.22	46.22		PASS
4	0.5509	40.81	31.09	56.00	46.00		PASS
5	0.6676	41.38	29.98	56.00	46.00		PASS
6	1.0944	42.58	31.28	56.00	46.00		PASS



(N Phase)

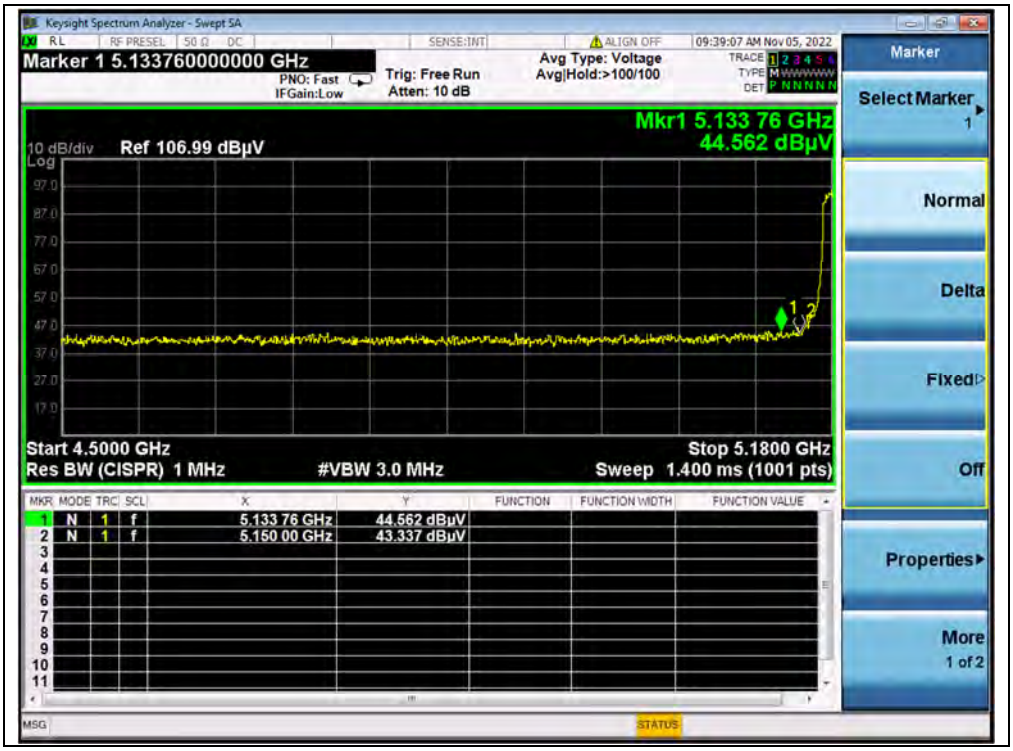
No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.4876	42.59	35.56	56.21	46.21	Neutral	PASS
2	0.5509	39.81	30.57	56.00	46.00		PASS
3	0.7350	40.03	30.77	56.00	46.00		PASS
4	0.7937	39.77	30.08	56.00	46.00		PASS
5	0.8566	39.30	29.02	56.00	46.00		PASS
6	2.3123	31.59	23.13	56.00	46.00		PASS

A.7. Restricted Frequency Bands

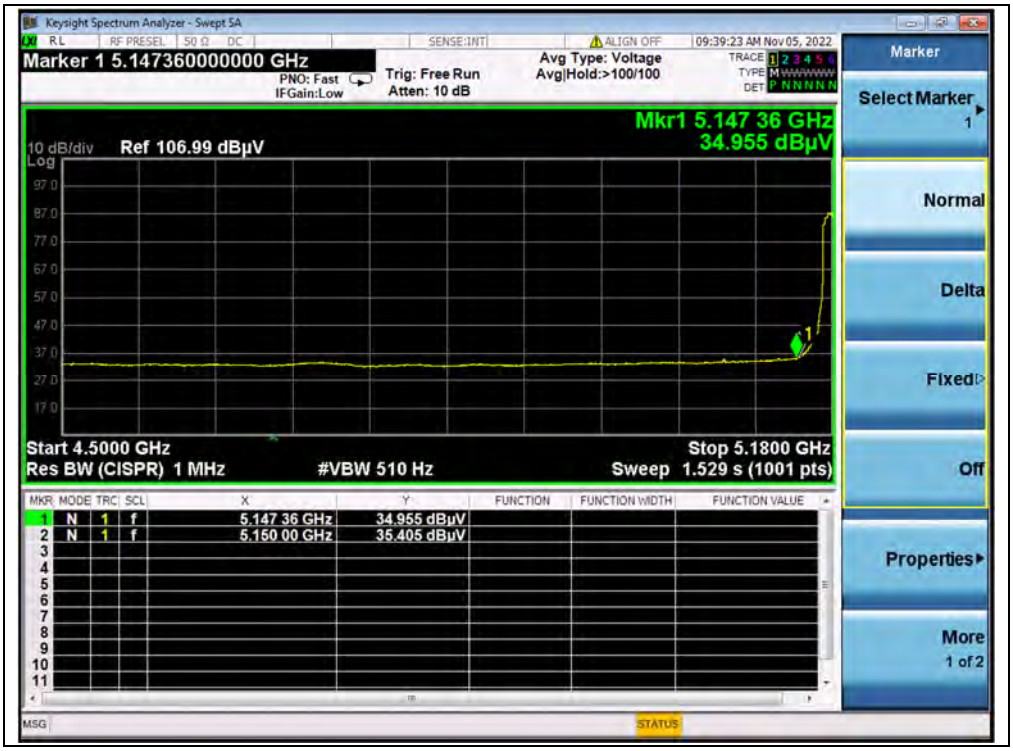
The lowest and highest channels are tested to verify the Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [dB]
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3m
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

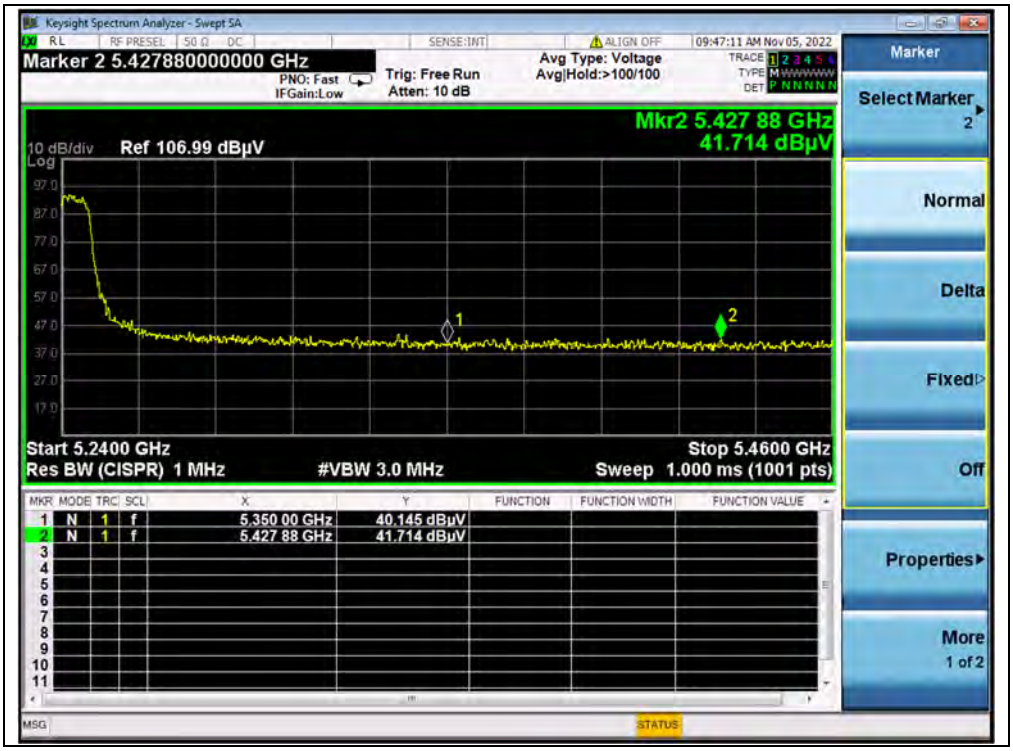
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@ 3m)	Max. Emission E (dBμV/m)	Limit (dBμV/ m)	Verdict
		PK/ AV						
36	5133.76	PK	44.56	-19.54	32.20	57.22	74	PASS
36	5150.00	AV	35.41	-19.54	32.20	48.07	54	PASS
48	5427.88	PK	41.71	-19.54	32.20	54.37	74	PASS
48	5356.38	AV	31.77	-19.54	32.20	44.43	54	PASS
149	5725.00	PK	47.25	-19.01	32.20	60.44	122.23	PASS
165	5862.10	PK	50.41	-19.01	32.20	63.60	90.95	PASS



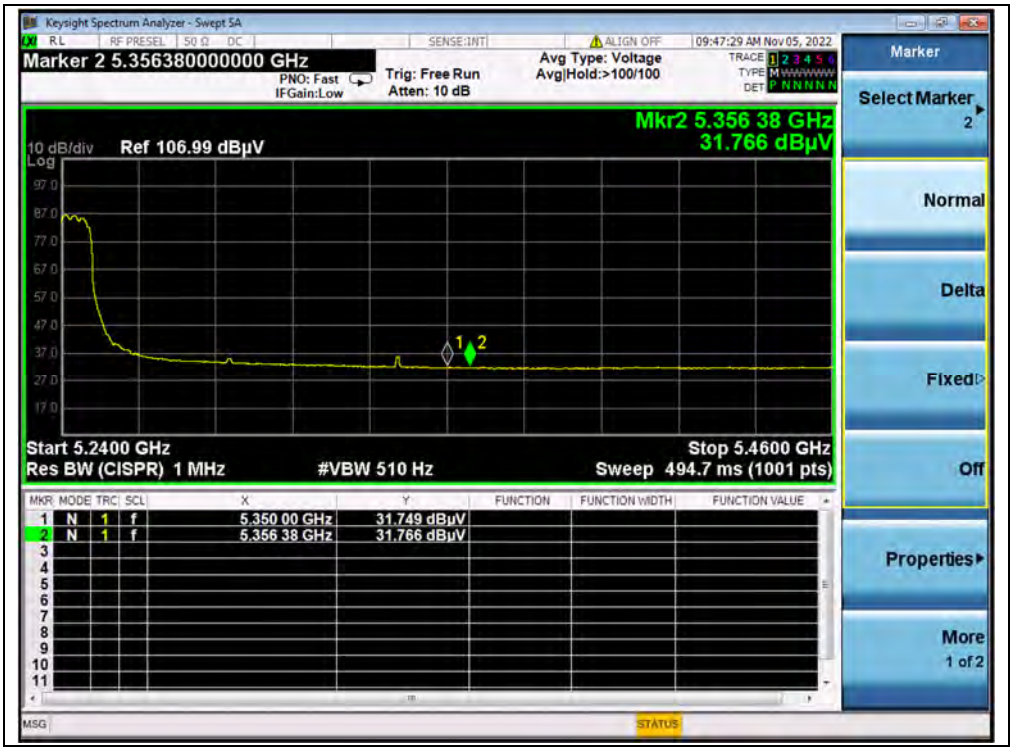
(PEAK, Channel 36, 802.11a)



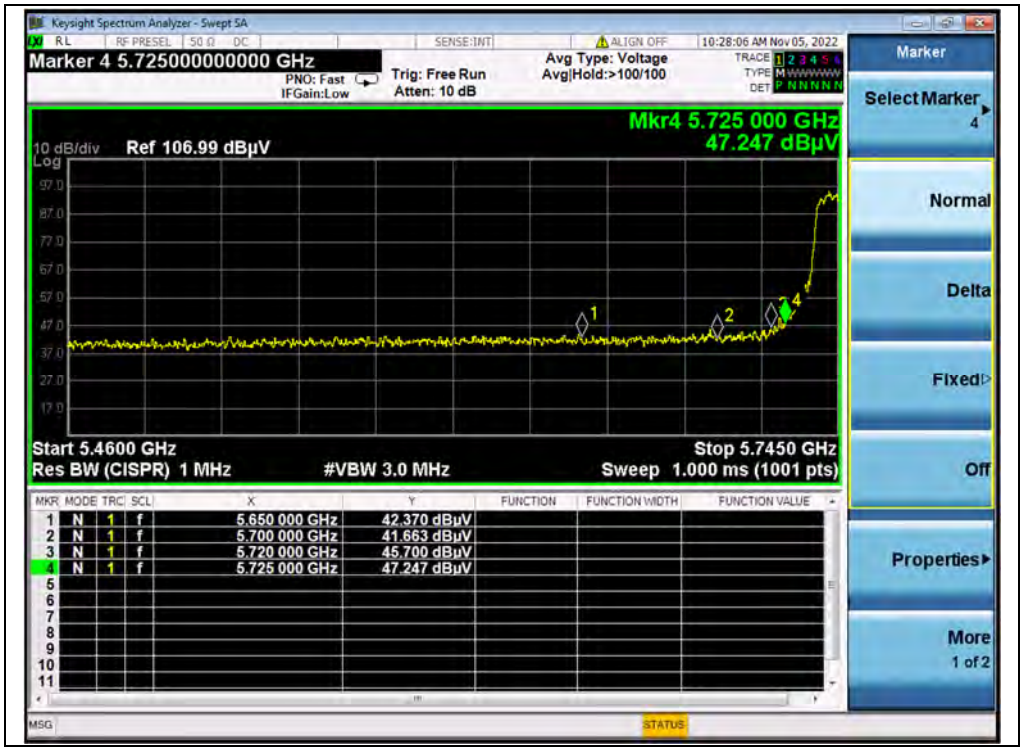
(AVERAGE, Channel 36, 802.11a)



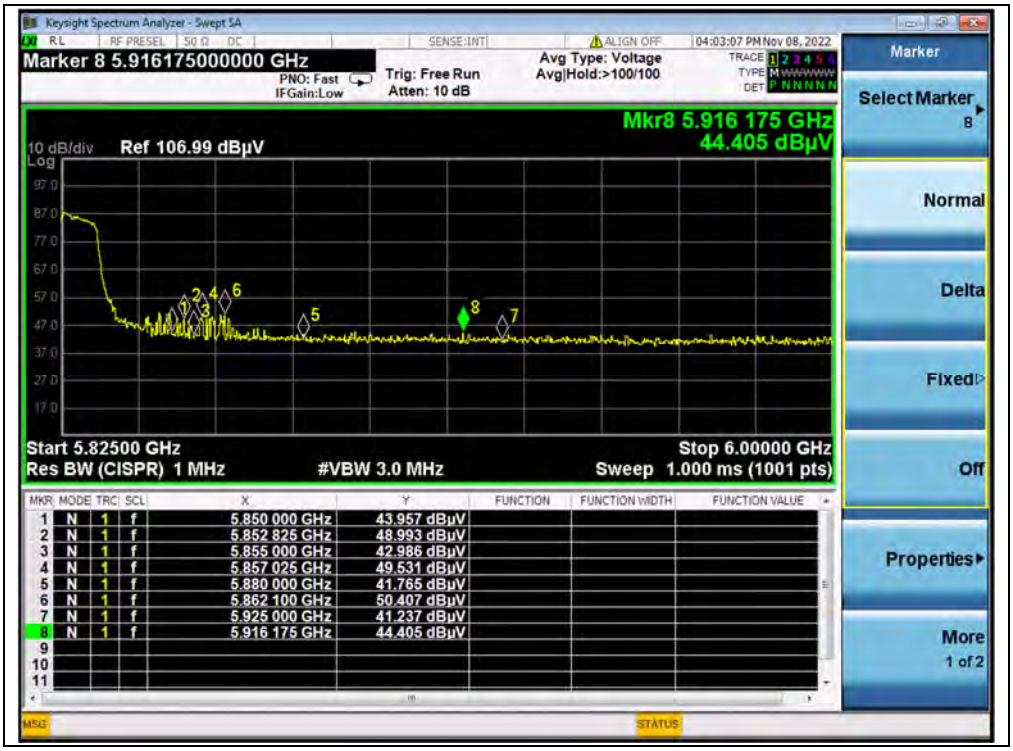
(PEAK, Channel 48, 802.11a)



(AVERAGE, Channel 48, 802.11a)



(PEAK, Channel 149, 802.11a)



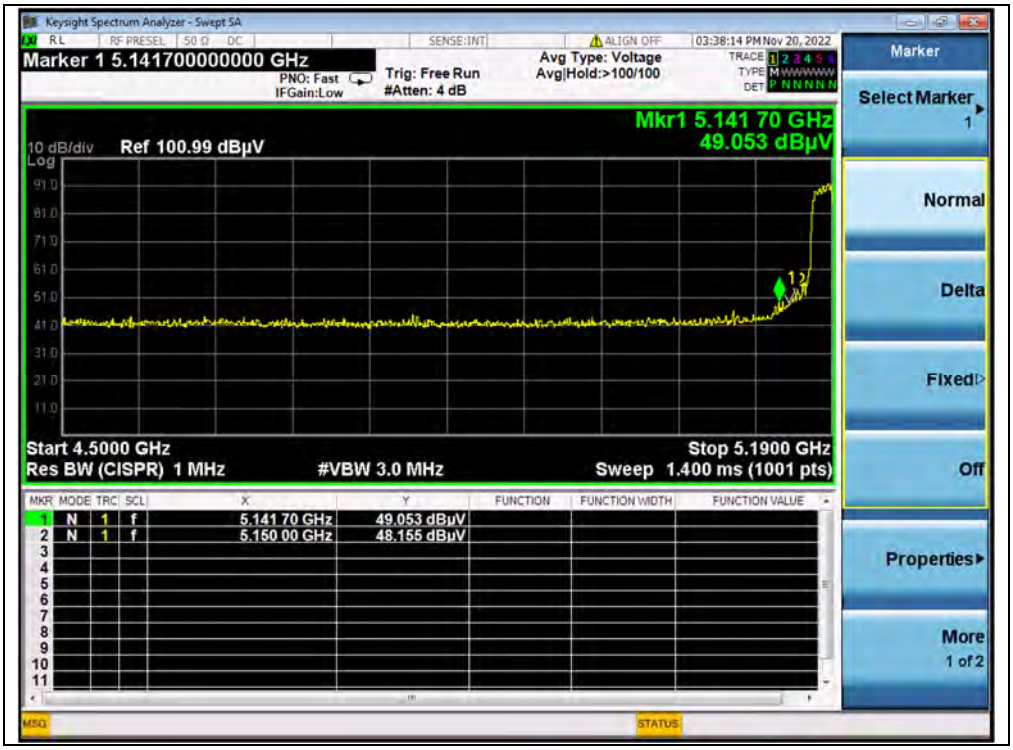
(PEAK, Channel 165, 802.11a)

802.11n (HT40) Mode

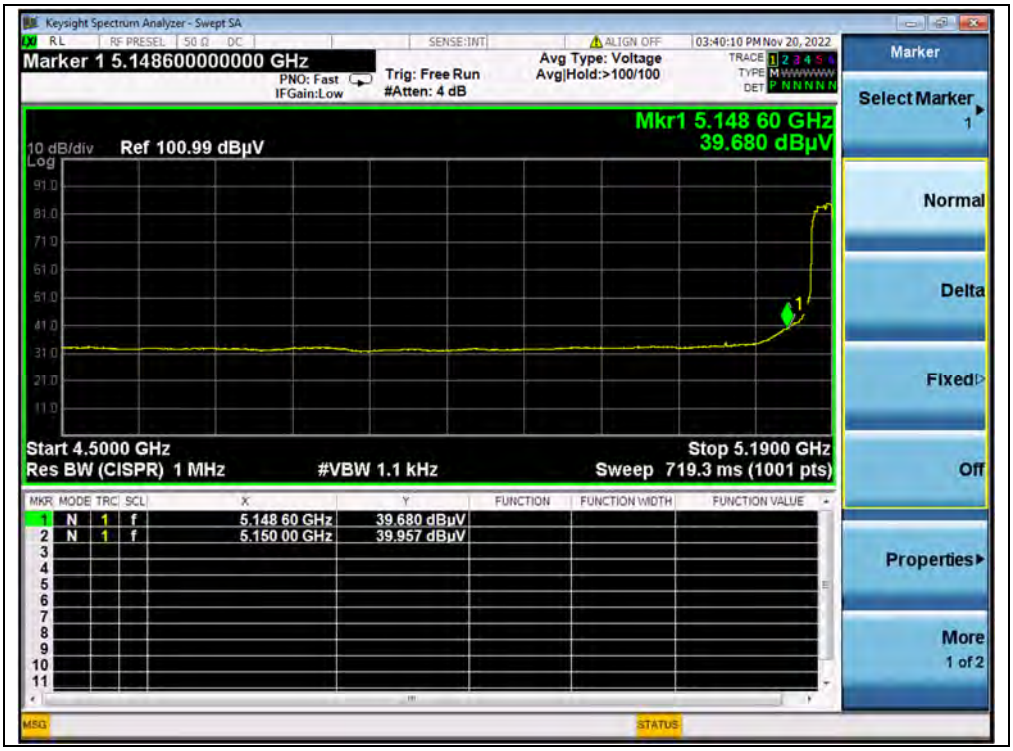
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
38	5141.70	PK	49.05	-19.54	32.20	61.71	74	PASS
38	5150.00	AV	39.96	-19.54	32.20	52.62	54	PASS
46	5402.36	PK	42.98	-19.54	32.20	55.64	74	PASS
46	5351.98	AV	32.13	-19.54	32.20	44.79	54	PASS
151	5725.00	PK	52.35	-19.01	32.20	65.54	122.23	PASS
159	5850.00	PK	52.65	-19.01	32.20	65.84	122.23	PASS

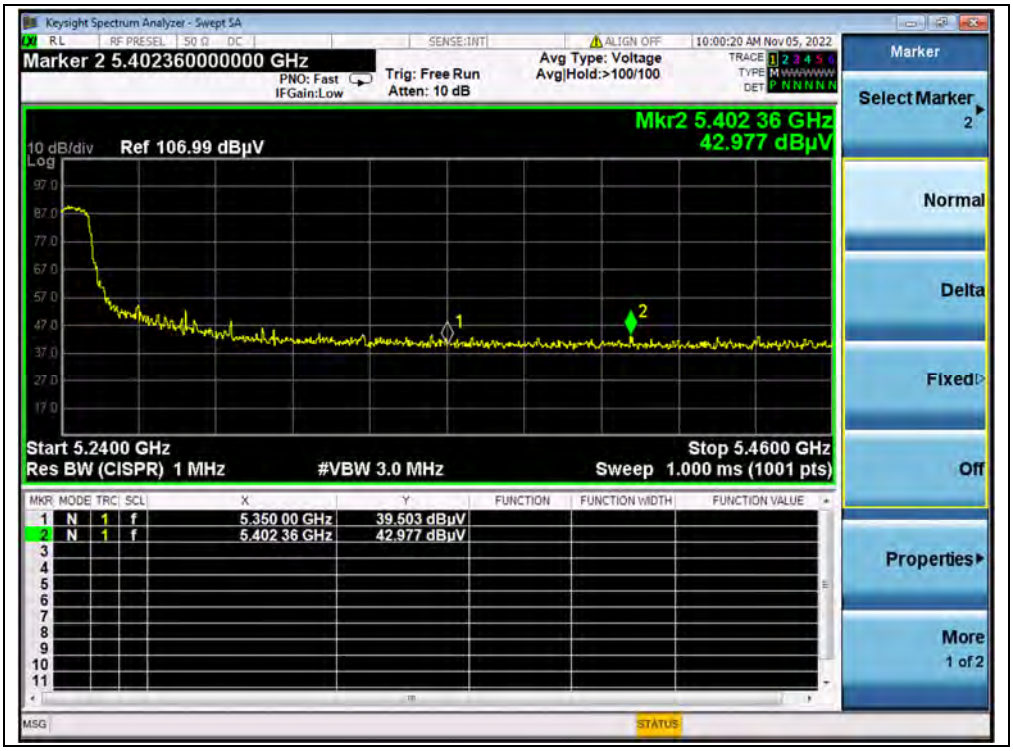
B.Test Plot:



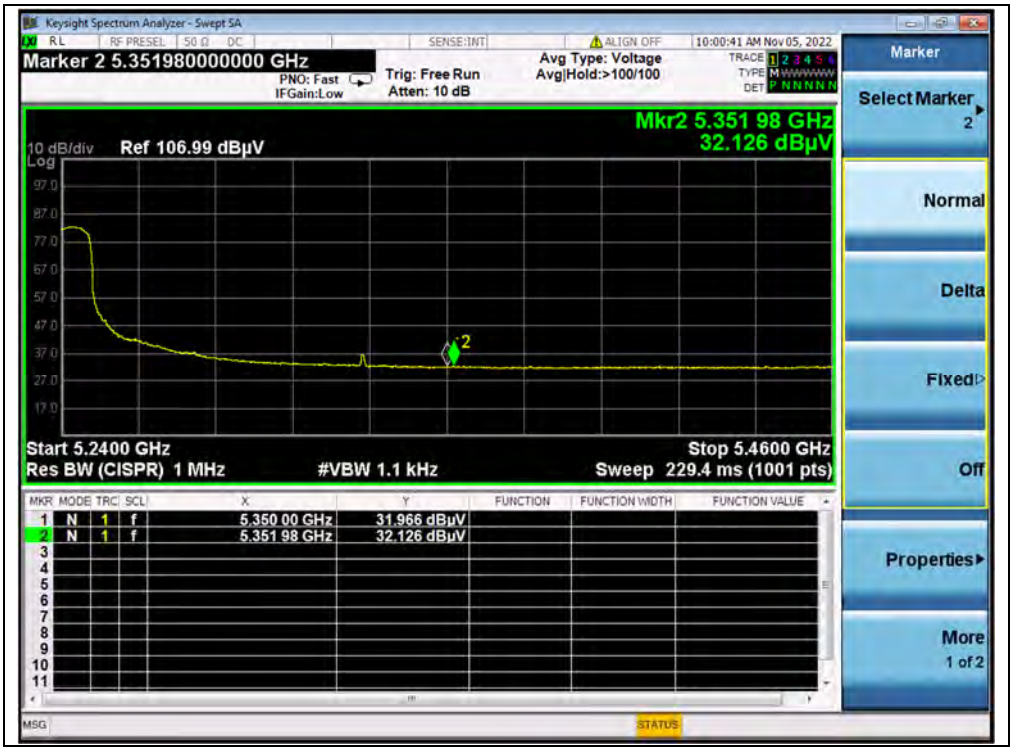
(PEAK, Channel 38, 802.11n (HT40))



(AVERAGE, Channel 38, 802.11n (HT40))

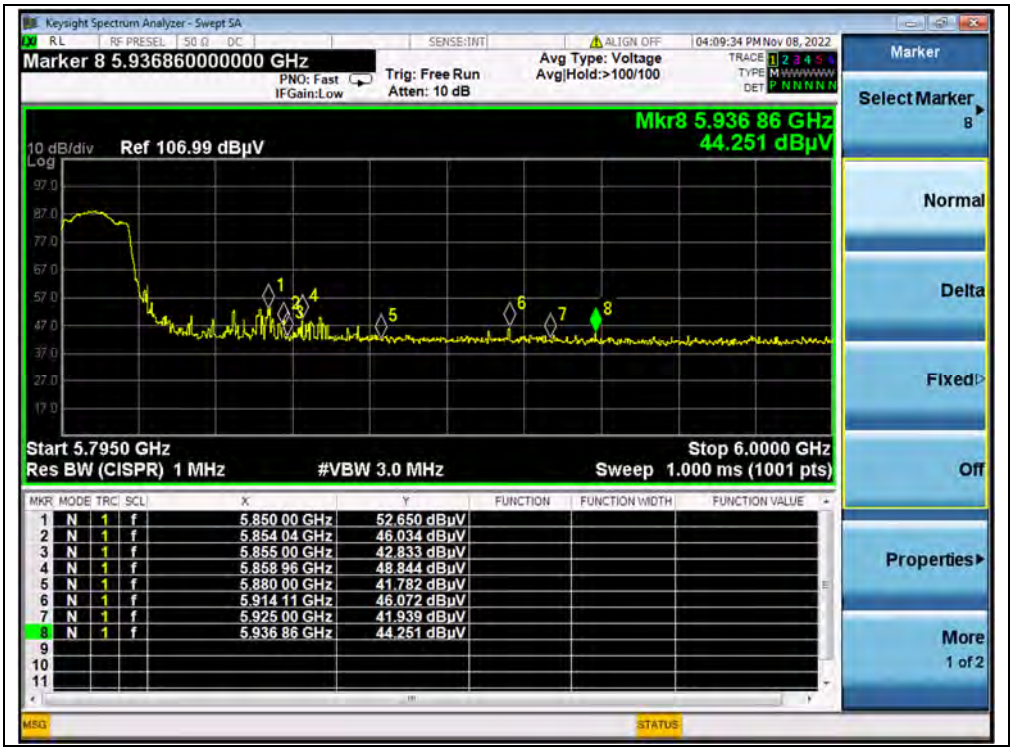


(PEAK, Channel 48, 802.11n (HT40))



(AVERAGE, Channel 48, 802.11n (HT40))

(PEAK, Channel 151, 802.11n (HT40))



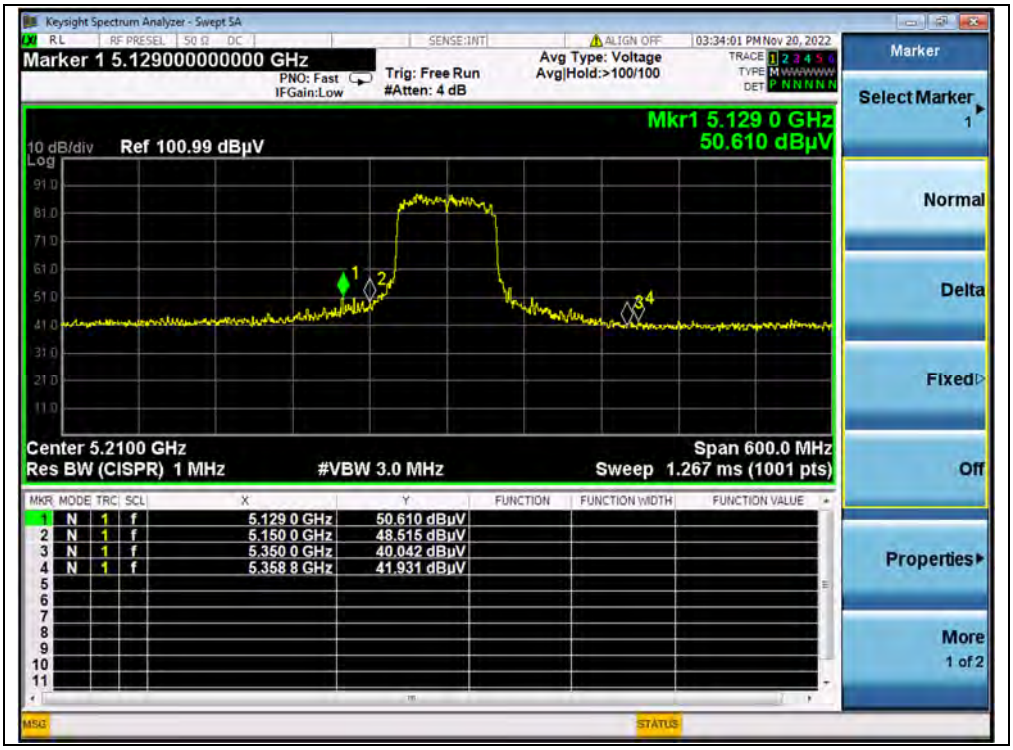
(PEAK, Channel 159, 802.11n (HT40))

802.11 ac (VHT80) Mode

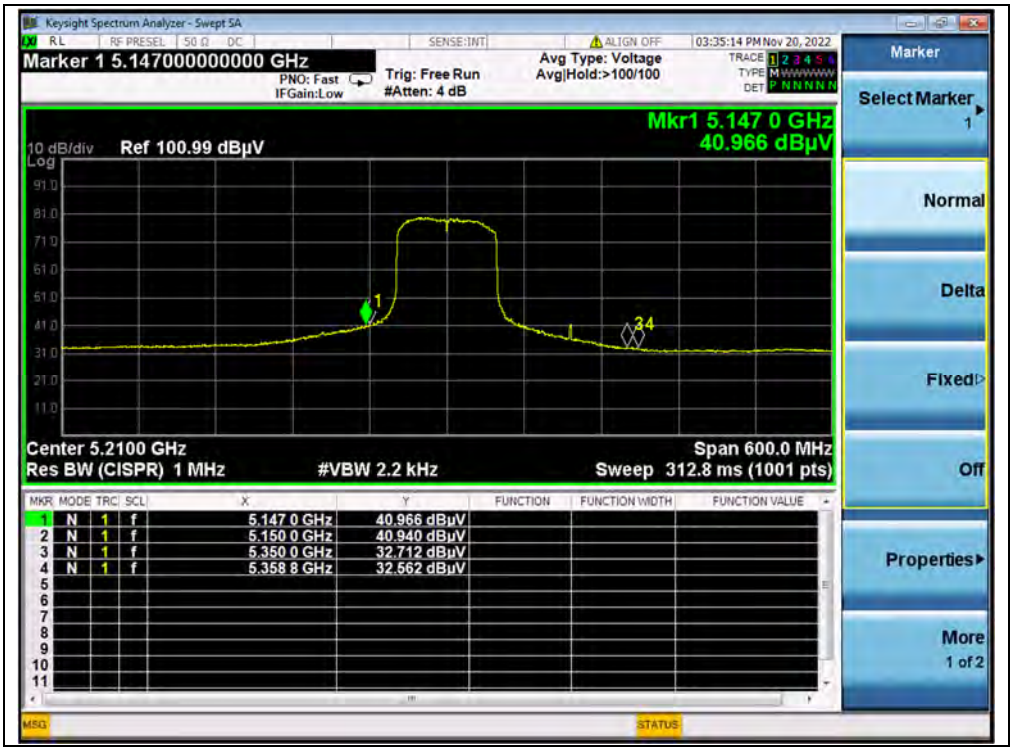
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@ 3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
42	5129.00	PK	50.61	-19.54	32.20	63.27	74	PASS
42	5147.00	AV	40.97	-19.54	32.20	53.63	54	PASS
42	5358.80	PK	41.93	-19.54	32.20	54.59	74	PASS
42	5350.00	AV	32.71	-19.54	32.20	45.37	54	PASS
155	5725.00	PK	55.58	-19.01	32.20	68.77	122.23	PASS
155	5880.00	PK	53.38	-19.01	32.20	66.57	101.53	PASS

B.Test Plot:



(Channel 42, PEAK, 802.11ac (VHT80))



(Channel 42, AVG, 802.11ac (VHT80))

(Channel 155, PEAK, 802.11ac (VHT80))

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.

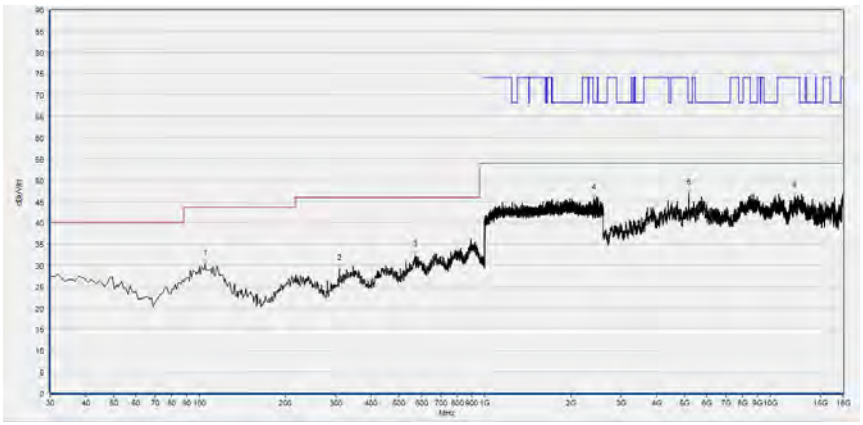
Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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

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

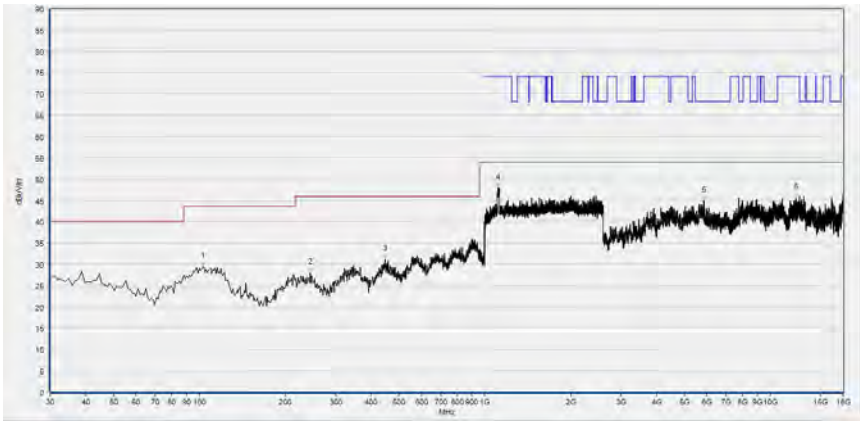
802.11a Mode

Plot for Channel 36



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	30.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
309.360	29.17	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
569.320	32.27	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2409.600	45.77	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5181.040	46.91	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12181.880	46.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

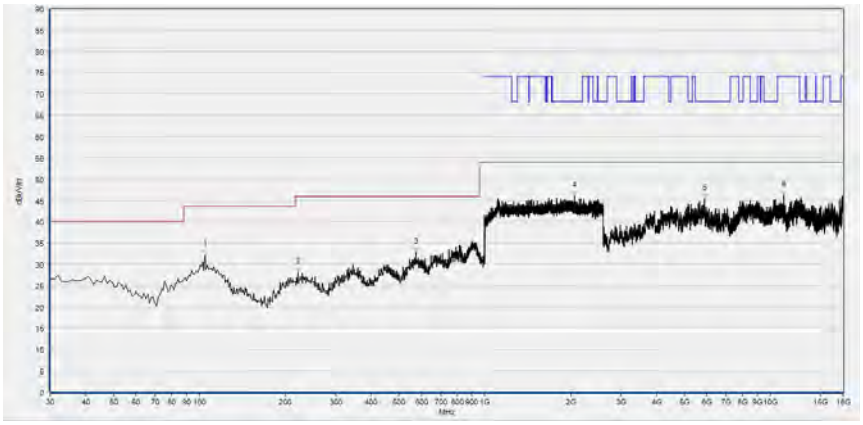
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.750	29.46	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
244.370	27.94	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
447.100	31.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1113.067	47.93	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5849.400	44.91	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12280.440	45.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

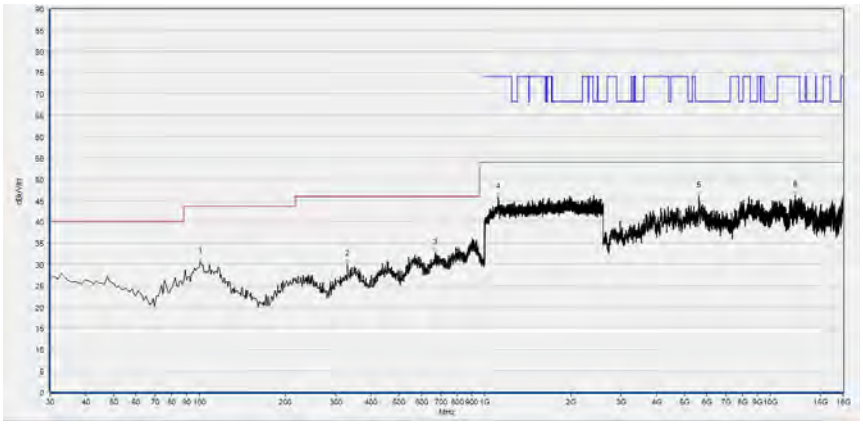
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 44



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	32.18	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
221.090	28.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
573.200	32.86	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2062.933	46.04	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5870.960	45.46	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
11131.600	46.30	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

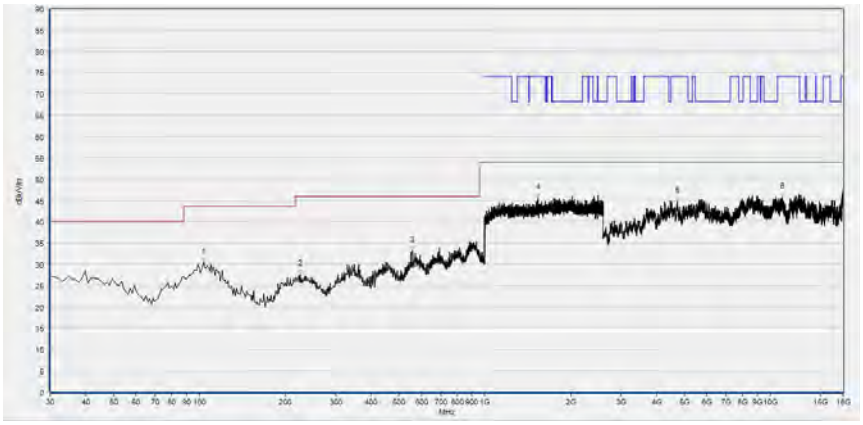
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
100.810	30.62	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
330.700	29.96	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
670.200	32.64	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1115.200	45.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5630.720	46.02	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12212.680	46.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

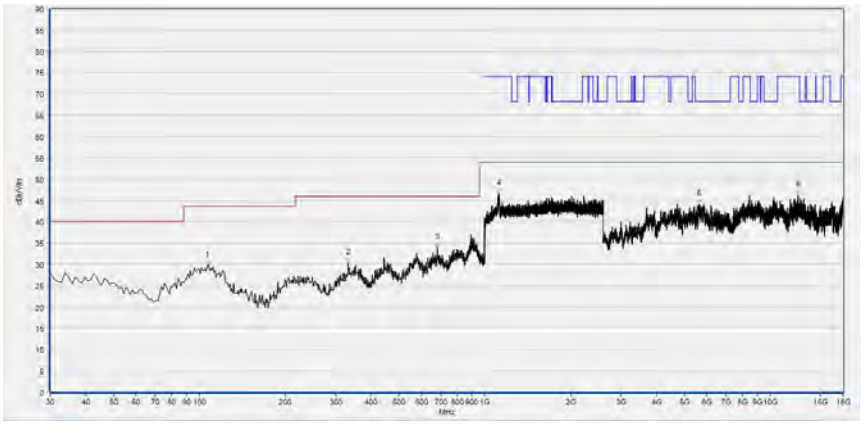
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 48



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
103.720	30.42	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
224.970	27.67	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
558.650	33.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1539.200	45.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4722.120	44.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11029.960	45.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

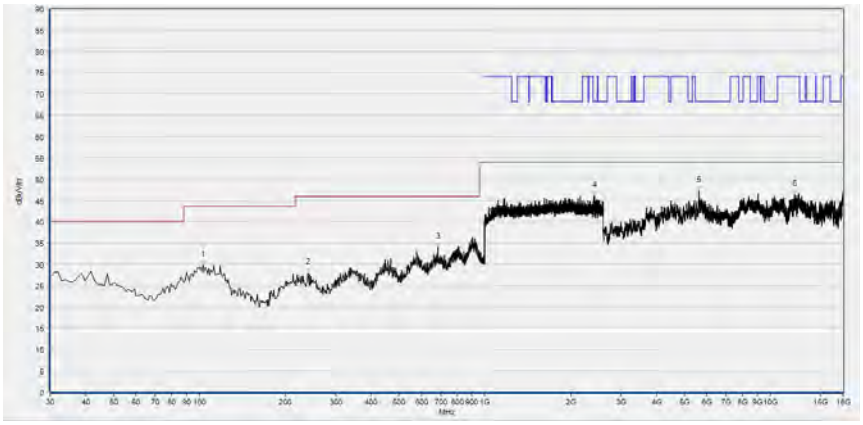
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
106.630	29.72	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
332.640	30.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
682.810	33.88	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1117.867	46.52	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5627.640	44.12	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12502.200	46.22	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

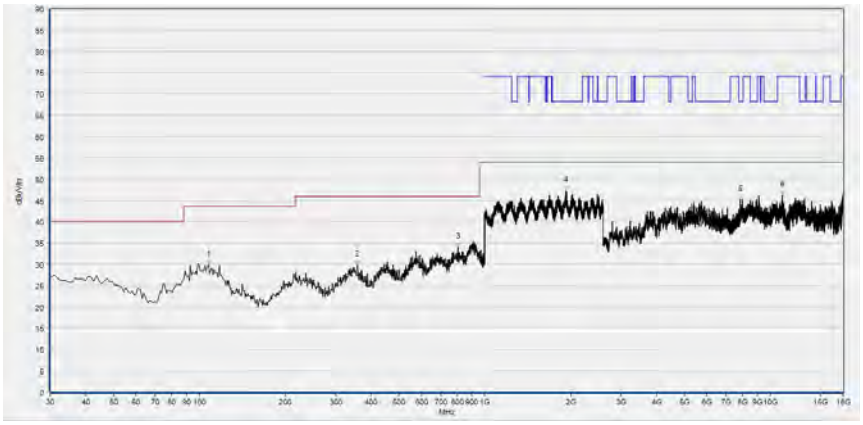
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 149



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.750	29.82	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
240.490	27.99	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
683.780	34.05	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2418.133	46.17	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5633.800	47.30	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12194.200	46.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

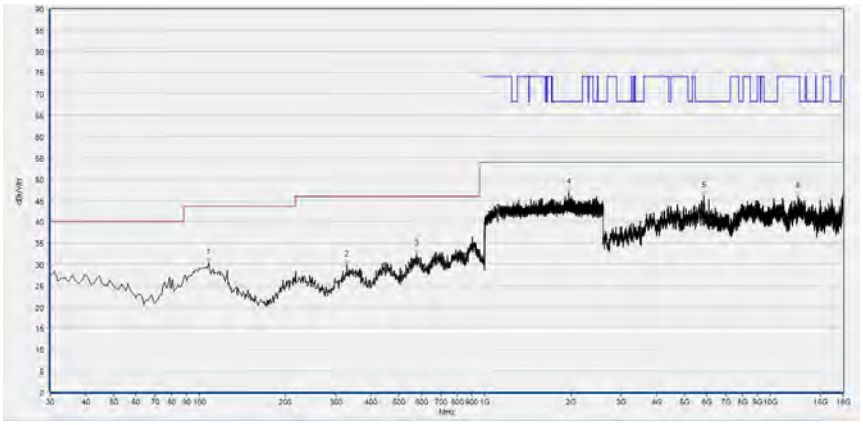
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	29.76	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
357.860	29.79	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
804.060	34.02	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1925.333	47.31	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
7832.920	45.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
11014.560	46.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

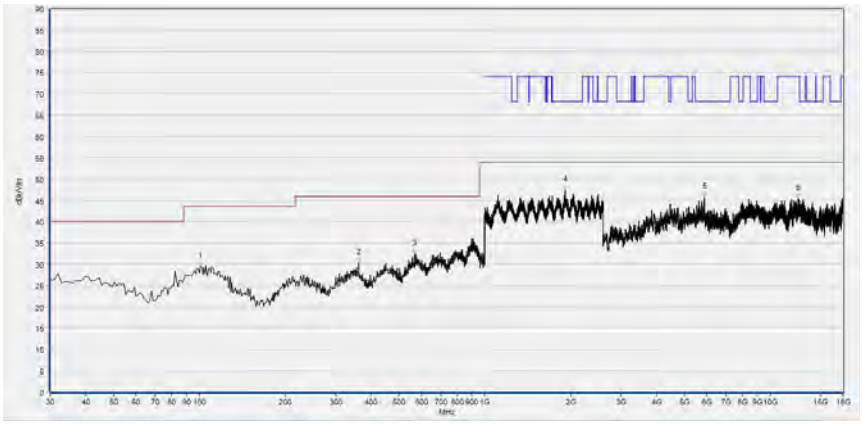
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 157



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	30.34	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
328.760	29.76	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
578.050	32.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1969.067	46.94	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5852.480	46.13	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12526.840	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

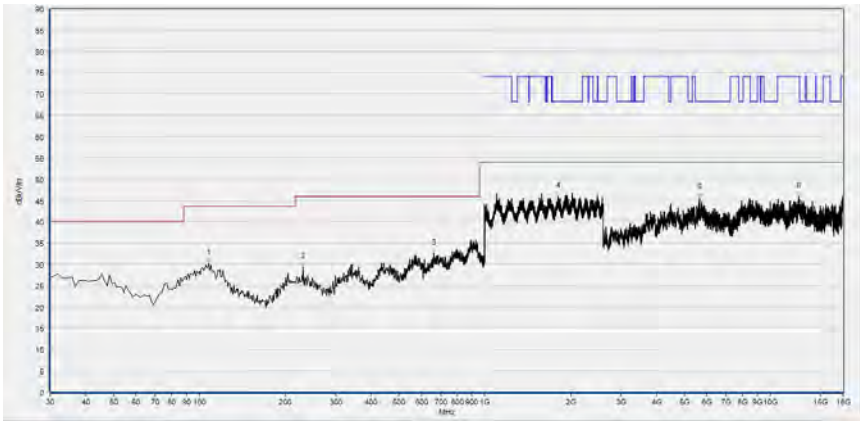
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
100.810	29.42	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
361.740	30.36	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
567.380	32.38	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1916.800	47.42	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5870.960	45.69	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12502.200	45.45	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

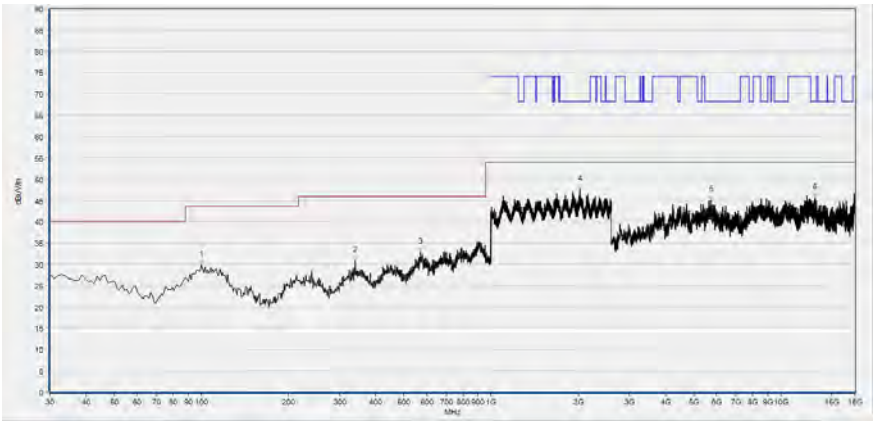
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 165



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	30.11	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
230.790	29.36	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
663.410	32.52	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1806.933	45.98	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5639.960	45.66	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12557.640	45.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

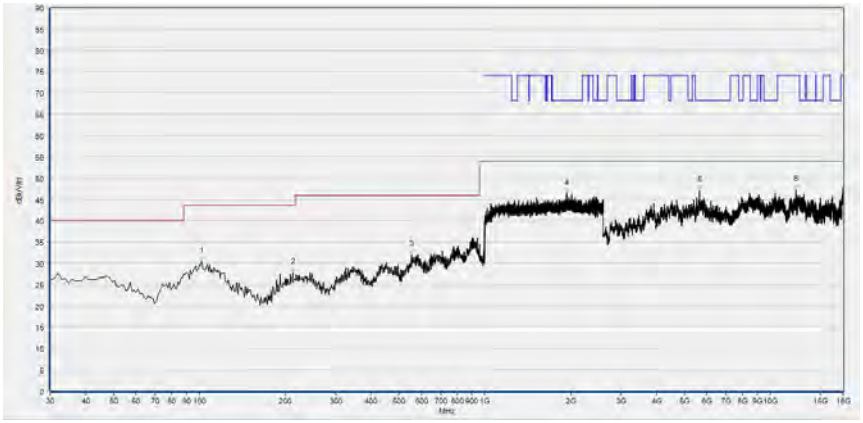


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.840	29.91	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
340.400	30.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
571.260	32.77	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2021.333	47.52	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5735.440	45.11	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
13075.080	45.64	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

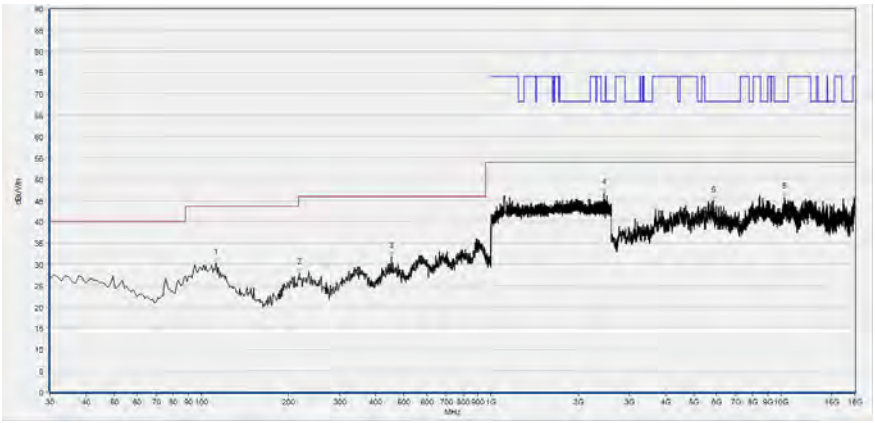
802.11n (HT40) mode

Plot for Channel 38



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
101.780	30.45	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
212.360	27.74	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
552.830	31.96	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1932.267	46.47	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5649.200	47.08	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12274.280	47.25	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

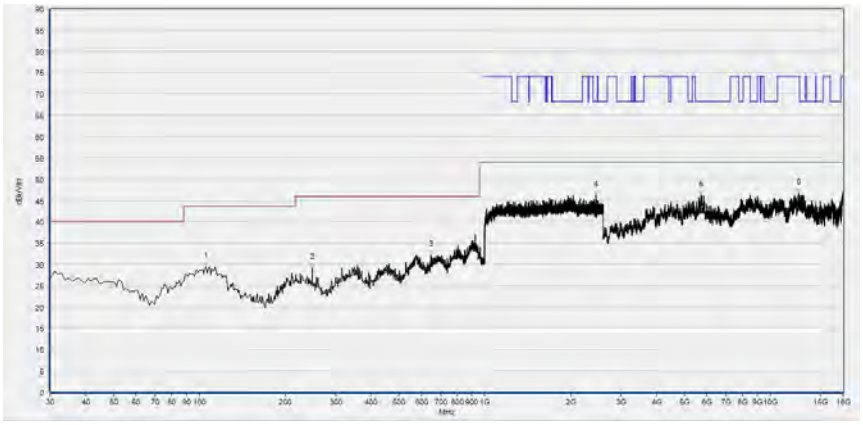
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
112.450	30.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
217.210	27.99	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
452.920	31.84	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2457.600	46.84	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5855.560	44.93	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10306.160	45.77	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

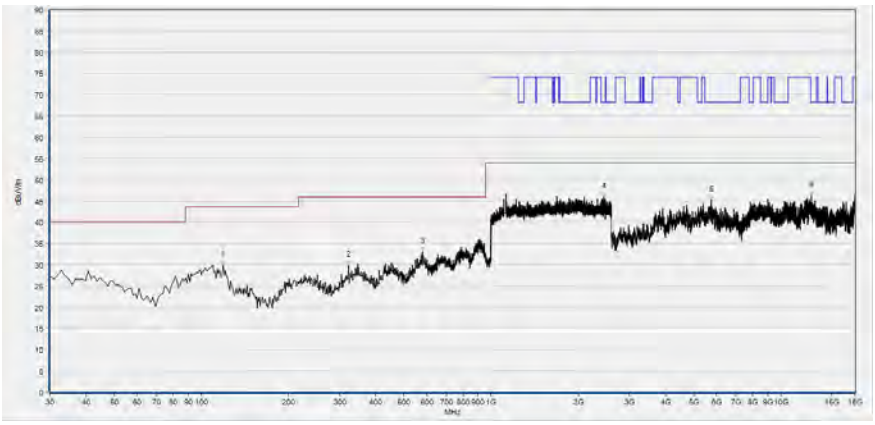
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 46



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
105.660	29.50	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
248.250	29.22	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
645.950	32.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2450.667	46.25	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5729.280	46.32	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12600.760	46.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

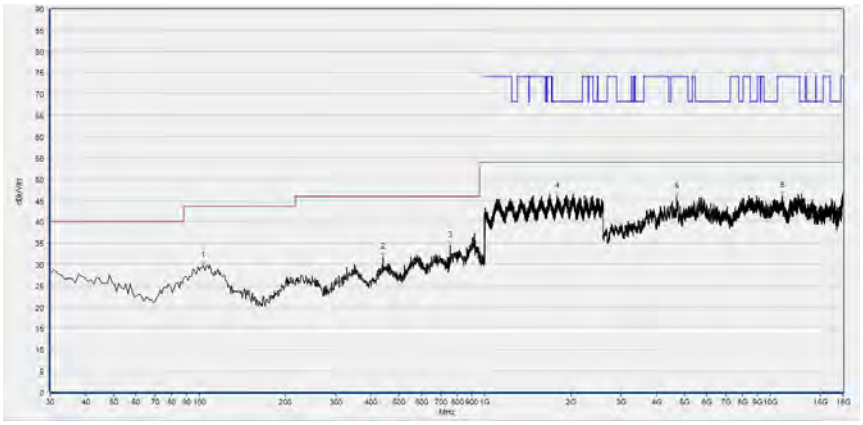
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
119.240	29.79	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
321.970	29.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
579.990	33.04	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2452.267	45.96	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
5763.160	45.21	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12742.440	46.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

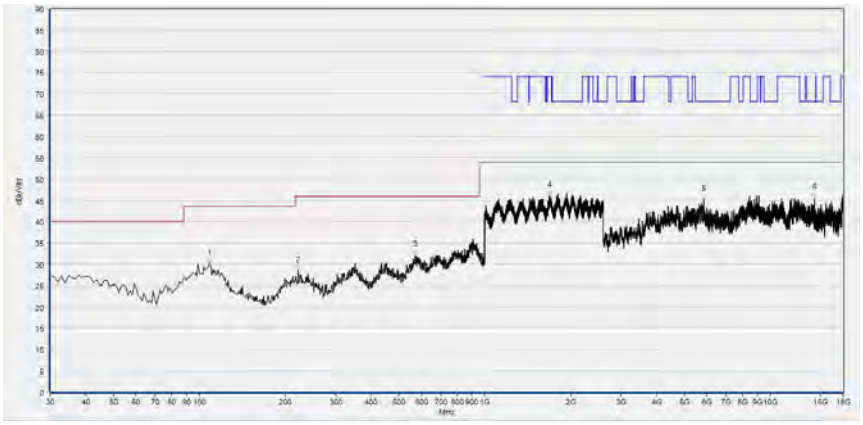
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 151



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
102.750	29.62	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
439.340	31.59	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
754.590	34.36	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1795.733	45.89	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
4703.640	45.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10999.160	46.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

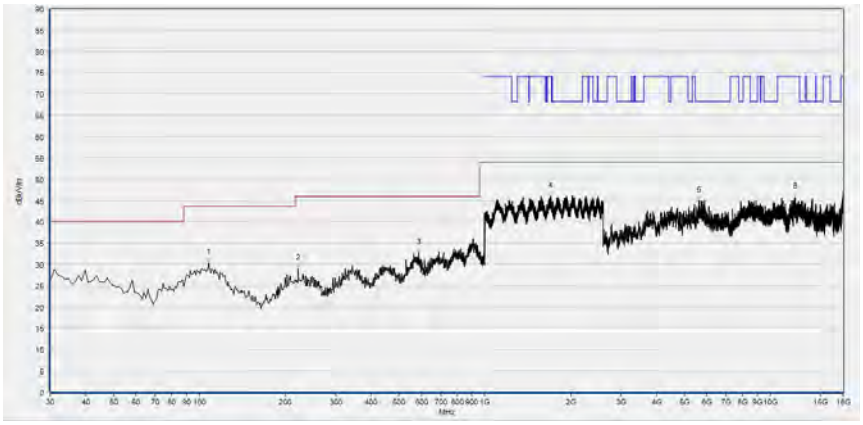
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	30.16	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
222.060	28.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
570.290	32.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1681.600	46.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5861.720	45.27	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
14254.720	45.57	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

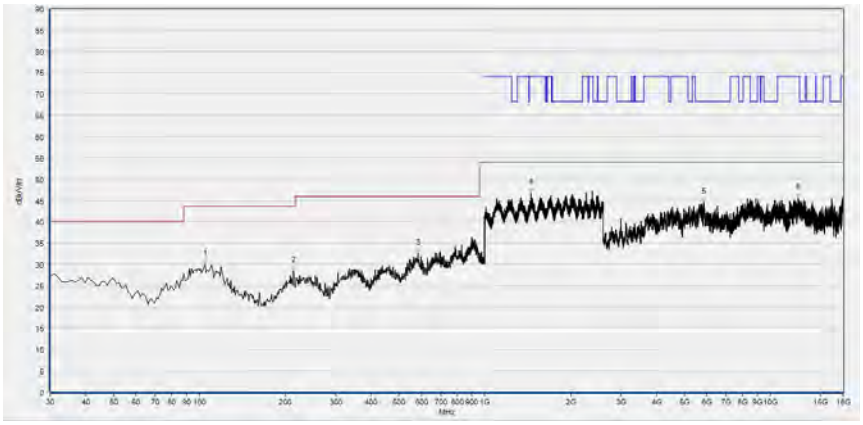
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 159



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	30.38	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
222.060	29.00	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
586.780	32.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1691.200	45.95	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5633.800	44.84	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12209.600	45.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

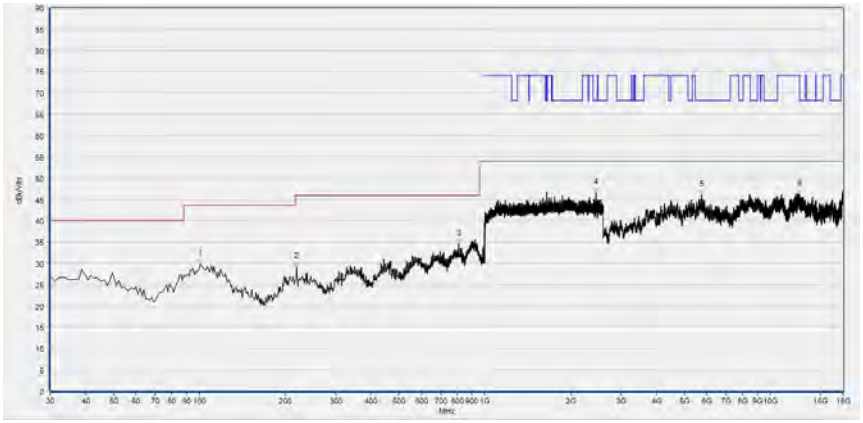


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	29.94	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
214.300	28.43	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
581.930	32.60	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1446.933	46.75	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5837.080	44.62	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12539.160	45.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

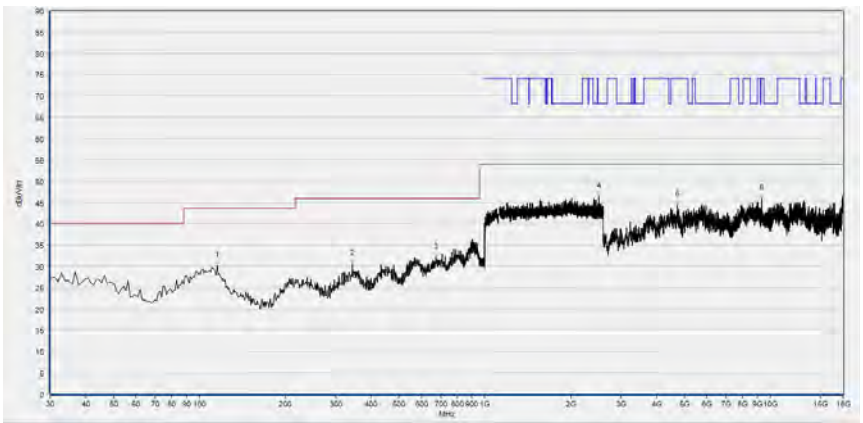
802.11ac (VHT80) Mode

Plot for Channel 42



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
100.810	29.88	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
219.150	29.24	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
808.910	34.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2450.667	46.51	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
5763.160	46.17	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12683.920	46.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

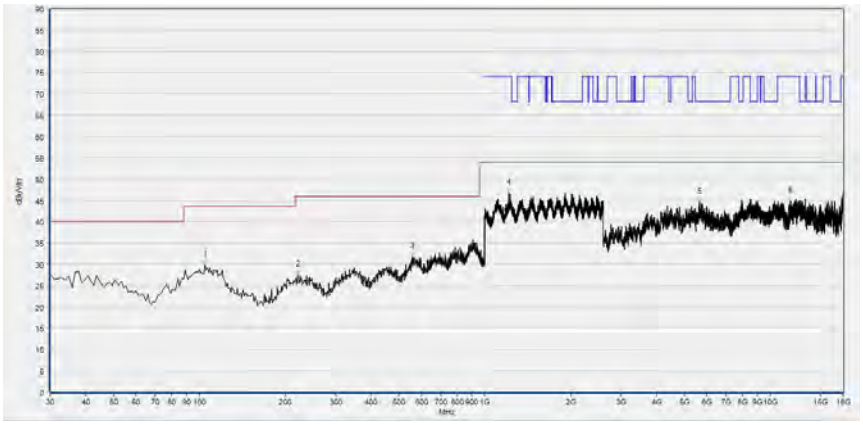
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
115.360	30.20	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
344.280	30.55	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
672.140	32.07	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2514.133	46.39	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
4725.200	44.34	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9326.720	45.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

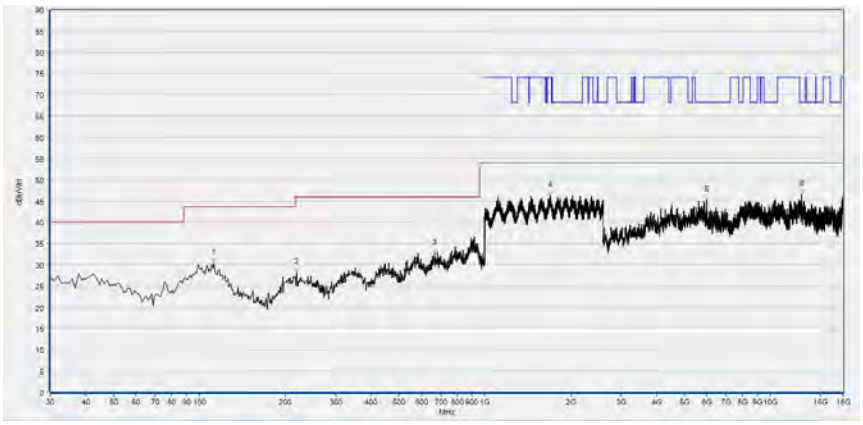
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 155



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
104.690	29.83	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
221.090	27.41	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
556.710	31.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1216.000	46.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5646.120	44.55	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
11738.360	44.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	30.26	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
219.150	28.17	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
666.320	32.67	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1698.667	46.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5997.240	45.24	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12877.960	46.59	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

END OF REPORT