REPORT No.: SZ23100008W03

TEST REPORT

APPLICANT	:	Vaultek Safe, Inc.
PRODUCT NAME	:	Dual Bands Dual Modes Module
MODEL NAME	:	VT22M
BRAND NAME	:	Vaultek
FCC ID	:	2AONI-2450-8720DB16
STANDARD(S)	:	47 CFR Part 15 Subpart E
RECEIPT DATE	:	2023-10-10
TEST DATE	:	2023-10-12 to 2023-10-25
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Change History		
Version	**Date**	**Reason for change**
1.0	2023-11-14	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 12, 2023	Zhong Yanshan	PASS	No deviation
3	15.407(a)	Maximum Conducted Output Power	Oct 12, 2023	Zhong Yanshan	PASS	No deviation
4	15.407(a) (e)	Emission Bandwidth	Oct 12, 2023	Zhong Yanshan	PASS	No deviation
5	15.407(a)	Peak Power Spectral Density	Oct 12, 2023	Zhong Yanshan	PASS	No deviation
6	15.407(g)	Frequency Stability	Oct 12, 2023	Zhong Yanshan	PASS	No deviation
7	15.407(h)	DFS	Oct 12, 2023	Zhong Yanshan	PASS	No deviation
8	15.207	Conducted Emission	Oct 13, 2023	Wang Deyong	PASS	No deviation
9	15.407(b)	Restricted Frequency Bands	Oct 24, 2023	Su Zhan	PASS	No deviation
10	15.407(b)	Radiated Emission	Oct 24, 2023	Su Zhan	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	2023.02.27	2024.02.26
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2023.09.19	2024.09.18
Temperature Chamber	12108015	DTL-003S 101	YOMA	2023.09.19	2024.09.18
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial Cable	CB02	RF02	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Attenuator	MTJ6004-10	10dB	MTJ cooperation	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	2023.02.09	2024.02.08
LISN	8127449	NSLK 8127	Schwarzbeck	2023.02.21	2024.02.20
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2023.06.27	2024.06.26
RF Coaxial Cable (DC-100MHz)	BNC	MRE04	Qualwave	N/A	N/A

1.2.3 List of Software Used

Description	Manufacturer	Software Version
Test System	MaiWei	2.0.0.0
Morlab EMCR	Morlab	V1.2
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	2023.06.21	2024.06.20
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	BBHA9170	Schwarzbeck	2022.07.14	2025.07.13
Preamplifier (10MHz-6GHz)	46732	S10M100L3802	LUCIX CORP.	2023.06.27	2024.06.26
Preamplifier (2GHz-18GHz)	61171/61172	S020180L3203	LUCIX CORP.	2023.06.27	2024.06.26
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2023.07.04	2024.07.03
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2023.06.27	2024.06.26
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2023.06.27	2024.06.26
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2023.06.27	2024.06.26
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	2023.06.27	2024.06.26
Notch Filter	N/A	WRCG-5150-5350	Wainwright	N/A	N/A
Notch Filter	N/A	WRCG-5470-5725	Wainwright	N/A	N/A
Notch Filter	N/A	WRCG-5725-5850	Wainwright	N/A	N/A
Anechoic Chamber	N/A	9m*6m*6m	CRT	2022.05.10	2025.05.09

1.3. Measurement Uncertainty

Test Items	Uncertainty	Remark
Peak Output Power	±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	Vaultek Safe, Inc.
Applicant Address	37 N Orange Ave.Suite 770 Orlando, FL 32801
Manufacturer	Jeritech Electronics, Ltd.
Manufacturer Address	Guannanyong Industrial Estate, Shiqi Town, Panyu, GuangZhou, China

2.2. Information of EUT

Product Name:	Dual Bands Dual Modes Module
Sample No.:	1#
Hardware Version:	1.0.0
Software Version:	1.0.0
Modulation Technology:	OFDM
Modulation Mode:	802.11a, 802.11n (HT20), 802.11n (HT40)
Operating Frequency Range:	5180MHz-5240MHz; 5260MHz-5320MHz; 5500MHz-5720MHz; 5745MHz-5825MHz
Antenna Type:	PCB Antenna
Antenna Gain:	2.94dBi

Note 1: We use the dedicated software to control the EUT continuous transmission.

Note 2: 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**
(U-NII-2A) 5260MHz-5320MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**52**	**5260**	56	5280
	60	**5300**	**64**	**5320**
40MHz	**54**	**5270**	**62**	**5310**
(U-NII-2C) 5500MHz-5720MHz				
Bandwidth	Channel	Frequency (MHz)	Channel	Frequency (MHz)
20MHz	**100**	**5500**	105	5520
	108	5540	112	5560
	116	5580	**120**	**5600**
	124	5620	128	5640
	132	5660	136	5680
	140	5700	**144**	**5720**
40MHz	**102**	**5510**	110	5550
	118	5590	**126**	**5630**
	134	5670	**142**	**5710**
(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**

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**	**6**/9/12/18/24/36/48/54Mbps	N/A
			DQPSK		
			CCK		
802.11n	20/40 (HT20/40)	OFDM	**BPSK**	**MCS0**~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		

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.

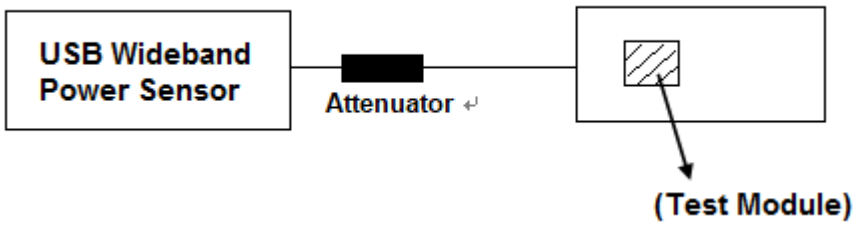
2.5. Test Conditions

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

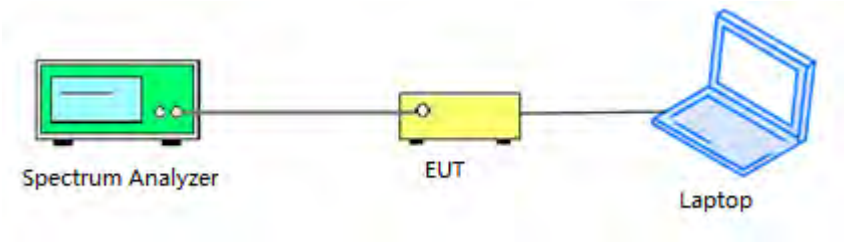
2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

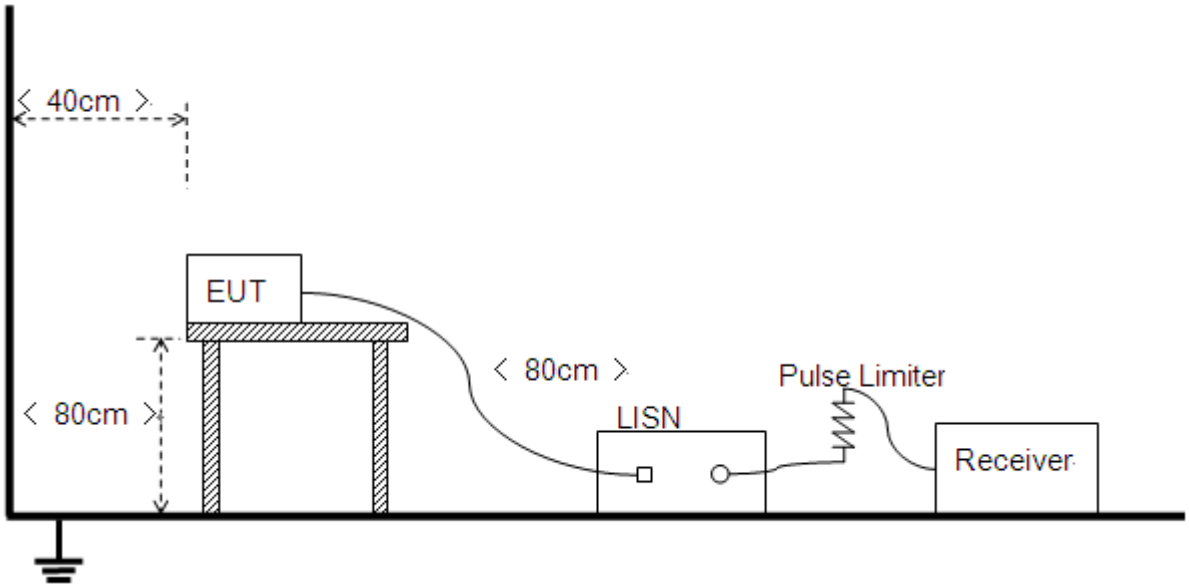
For power item that BW below 80MHz system:



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

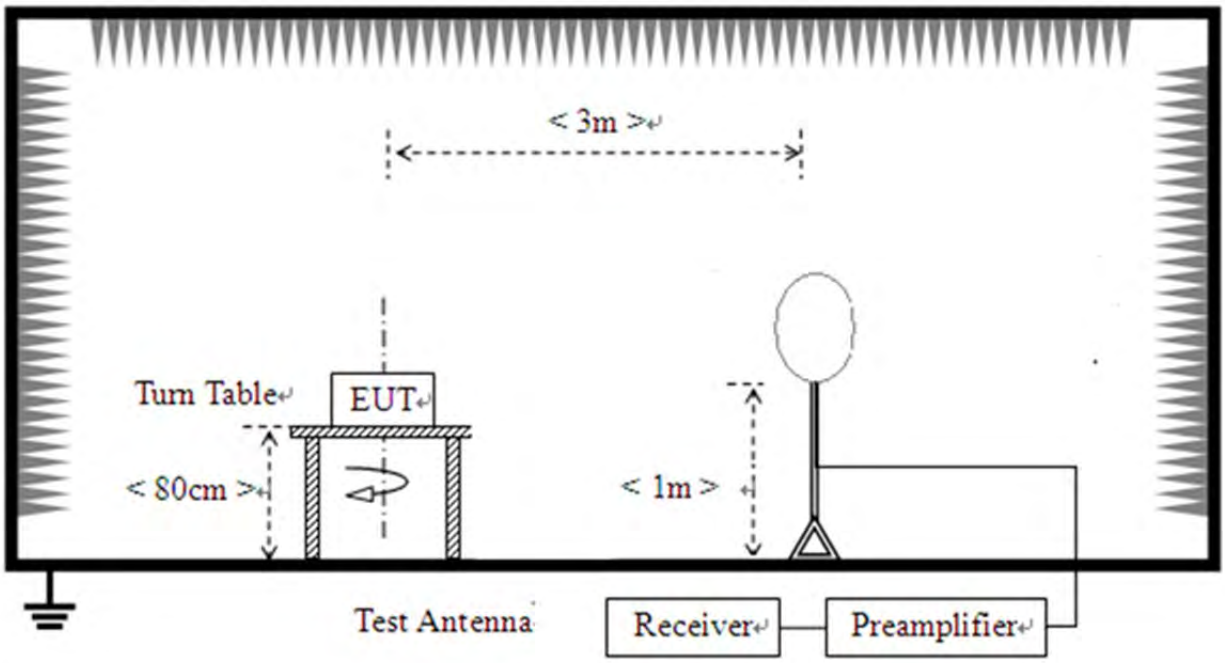


2.6.2.Conducted Emission Measurement

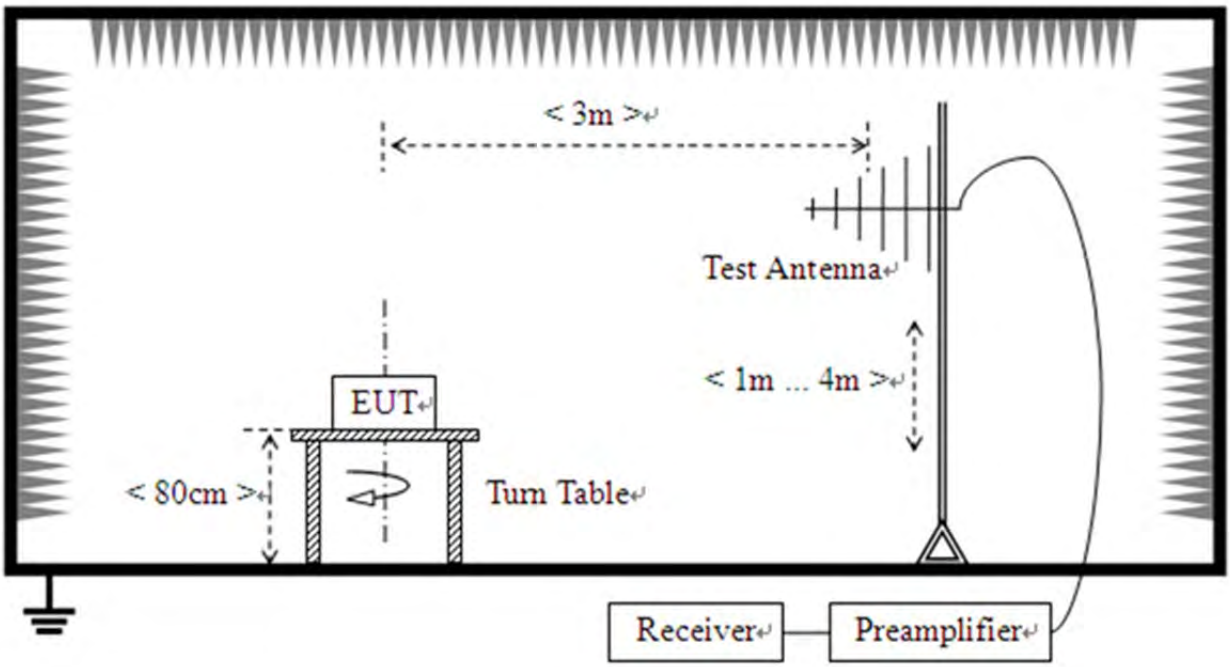


2.6.3.Radiation Measurement

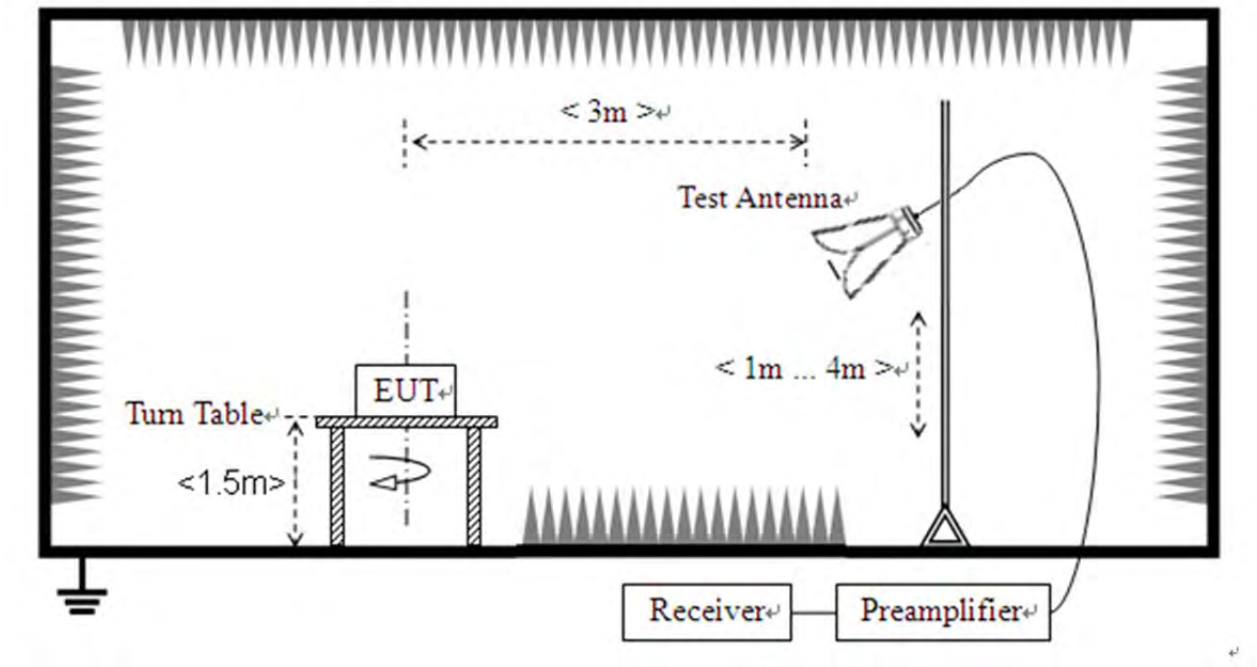
1) For radiated emissions from 9kHz to 30MHz



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

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

Select of test method listed in the ANSI C63.10:

Instrument	Method	Chapter
Spectrum Analyzer	☐Method SA-1	12.3.2.2
	☐Method SA-1A(alternative)	12.3.2.3
	☐Method SA-2	12.3.2.4
	☐Method SA-2A(alternative)	12.3.2.5
	☐Method SA-3	12.3.2.6
	☐Method SA-3A(alternative)	12.3.2.7
Spectrum Analyzer	☐Method PM	12.3.3.1
	☒Method PM-G	12.3.3.2

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.

The internal ref offset of the spectrum analyzer already includes the duty factor.

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.
(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 10^{o} 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. Dynamic Frequency Selection

3.7.1.Requirement

According to FCC section 15.407(h), (1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW. (2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W is −64 dBm. For devices that operate with less than 200 mW e.i.r.p. and a power spectral density of less than 10 dBm in a 1 MHz band, the minimum detection threshold is −62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.1

Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode.2

Tables 1 and 2 shown below summarize the information contained in sections 5.1.1 and 5.1.2.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master	Client Without Radar Detection

DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	**Master Device or Client with Radar Detection**	**Client Without Radar Detection**
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

The operational behavior and individual DFS requirements that are associated with these modes are as follows:

Master Devices

a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 − 5350 MHz and 5470 − 5725 MHz bands. DFS is not required in the 5150 − 5250 MHz or 5725 − 5825 MHz bands.

b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.

c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.

d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).

e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.

f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period. 3.

g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the

combination will be tested to the requirements described under d) through f) above.

Client Devices

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

DFS Detection Thresholds

Table 3 below provides the DFS Detection Thresholds for Master Devices as well as Client Devices incorporating In-Service Monitoring.

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 mill watt	-64 dBm
EIRP < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 mill watt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

Response Requirements

Table 4 provides the response requirements for Master and Client Devices incorporating DFS.

Table 4: DFS Response Requirement Values

Parameter	Value

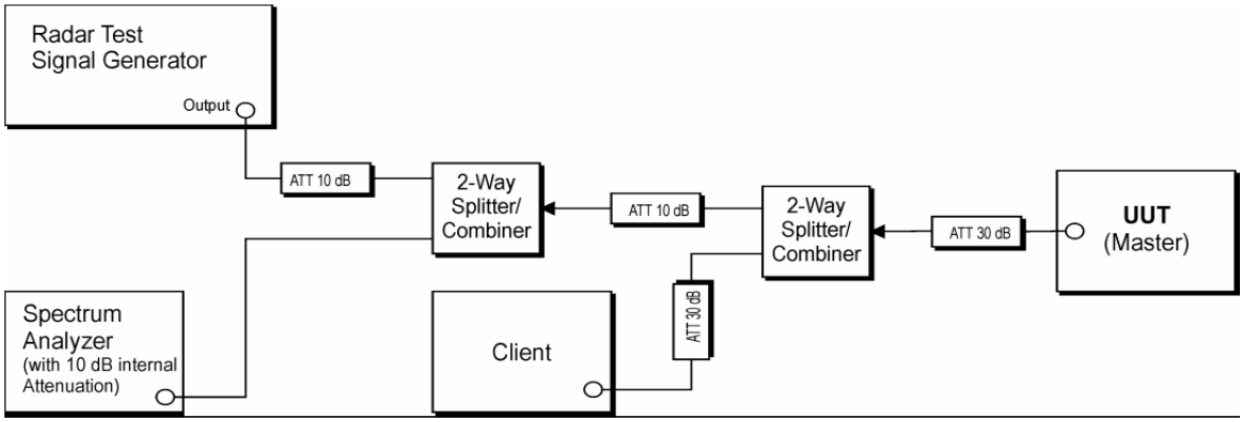
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

3.7.2.Test Description

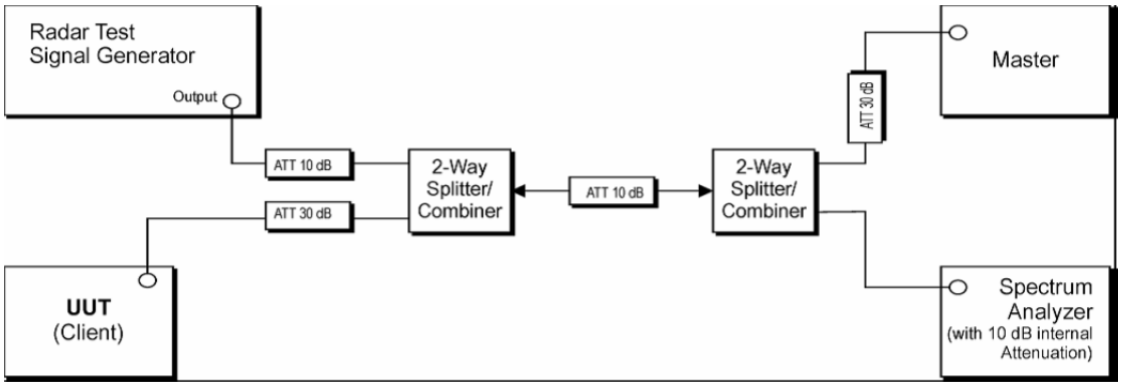
According to Section 7.2 of KDB 905462 D02 V01R01

1. Setup for Master with injection at the Master



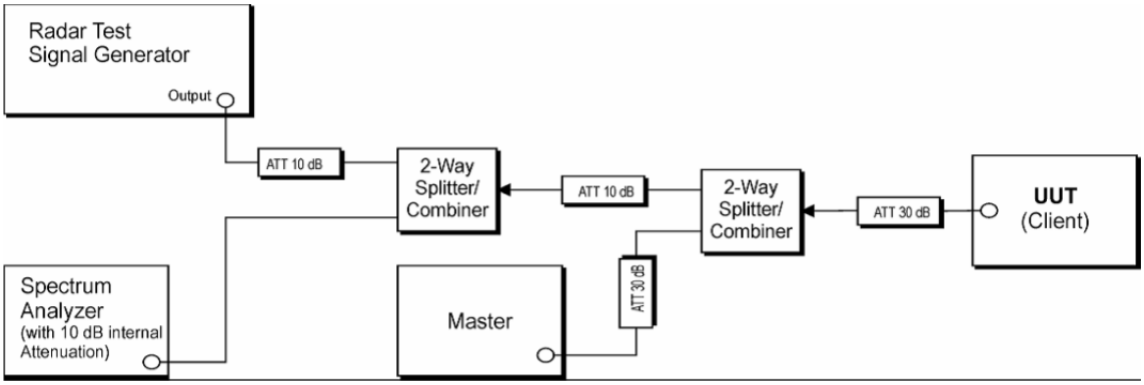
(Example Conducted Setup where UUT is a Master and Radar Test Waveforms are injected into the Master)

2. Setup for Client with injection at the Master



(Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Master)

3. Setup for Client with injection at the Client



(Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Client)

3.7.3.Information of Companion Device

Product Name:	Router
Manufacturer:	ASUS
FCC ID:	MSQ-RTAXJF00
Device Type:	Master Device
Operating Mode:	Master Mode
Serial No:	M3IAJF201046
Antenna Gain:	2.0dBi

3.7.4.Test Result

Refer to Annex A.6 in this report.

3.8. Conducted Emission

3.8.1.Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.8.2.Test Procedures

The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10: 2013.

3.8.3.Test Setup Layout

Refer to chapter 2.6.2 in this report.

3.8.4.Test Result

Refer to Annex A.7 in this report.

3.9. Restricted Frequency Bands

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:

(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).

3.9.2.Test Procedures

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.
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.

3.9.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.9.4.Test Result

Refer to Annex A.8 in this report.

3.10. Radiated Emission

3.10.1.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).

3.10.2.Test Procedures

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz.The antenna to EUT distance is 3meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 30MHz, the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90 kHz, 110kHz-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions. For measurements above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

3.10.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.10.4.Test Result

Refer to Annex A.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	94.07	0.27	0.48
NVNT	a	5220	Ant1	94.07	0.27	0.48
NVNT	a	5240	Ant1	94.07	0.27	0.48
NVNT	a	5260	Ant1	94.07	0.27	0.48
NVNT	a	5300	Ant1	94.07	0.27	0.48
NVNT	a	5320	Ant1	94.07	0.27	0.48
NVNT	a	5500	Ant1	94.07	0.27	0.48
NVNT	a	5600	Ant1	94.07	0.27	0.48
NVNT	a	5720	Ant1	94.07	0.27	0.48
NVNT	a	5745	Ant1	94.07	0.27	0.48
NVNT	a	5785	Ant1	94.07	0.27	0.48
NVNT	a	5825	Ant1	94.07	0.27	0.48
NVNT	n20	5180	Ant1	93.66	0.28	0.52
NVNT	n20	5220	Ant1	93.66	0.28	0.52
NVNT	n20	5240	Ant1	93.66	0.28	0.52
NVNT	n20	5260	Ant1	93.66	0.28	0.52
NVNT	n20	5300	Ant1	93.66	0.28	0.52
NVNT	n20	5320	Ant1	93.66	0.28	0.52
NVNT	n20	5500	Ant1	93.66	0.28	0.52
NVNT	n20	5600	Ant1	93.66	0.28	0.52
NVNT	n20	5720	Ant1	93.66	0.28	0.52
NVNT	n20	5745	Ant1	93.66	0.28	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	87.9	0.56	1.06
NVNT	n40	5230	Ant1	87.9	0.56	1.06
NVNT	n40	5270	Ant1	87.9	0.56	1.06
NVNT	n40	5310	Ant1	87.9	0.56	1.06
NVNT	n40	5510	Ant1	87.9	0.56	1.06
NVNT	n40	5630	Ant1	87.9	0.56	1.06
NVNT	n40	5710	Ant1	87.9	0.56	1.06
NVNT	n40	5755	Ant1	87.9	0.56	1.06
NVNT	n40	5795	Ant1	87.9	0.56	1.06

A.2. Maximum Conducted Output Power

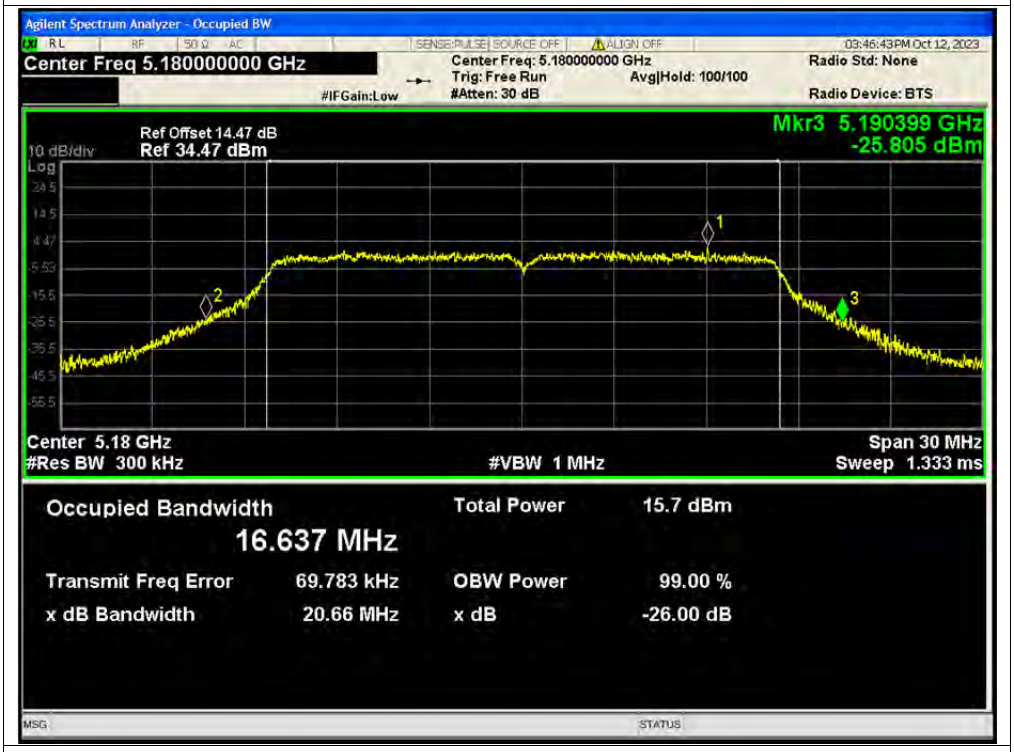
Condition	Mode	Frequency (MHz)	Antenna	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	11.65	0.01462	24	Pass
NVNT	a	5220	Ant1	11.46	0.014	24	Pass
NVNT	a	5240	Ant1	11.15	0.01303	24	Pass
NVNT	a	5260	Ant1	11.85	0.01531	24	Pass
NVNT	a	5300	Ant1	11.29	0.01346	24	Pass
NVNT	a	5320	Ant1	11.06	0.01276	24	Pass
NVNT	a	5500	Ant1	14.32	0.02704	24	Pass
NVNT	a	5600	Ant1	13.44	0.02208	24	Pass
NVNT	a	5720	Ant1	11.97	0.01574	24	Pass
NVNT	a	5745	Ant1	11.48	0.01406	30	Pass
NVNT	a	5785	Ant1	11.14	0.013	30	Pass
NVNT	a	5825	Ant1	11.5	0.01413	30	Pass
NVNT	n20	5180	Ant1	11.06	0.01276	24	Pass
NVNT	n20	5220	Ant1	11.27	0.0134	24	Pass
NVNT	n20	5240	Ant1	11.04	0.01271	24	Pass
NVNT	n20	5260	Ant1	11.68	0.01472	24	Pass
NVNT	n20	5300	Ant1	11.21	0.01321	24	Pass
NVNT	n20	5320	Ant1	10.85	0.01216	24	Pass
NVNT	n20	5500	Ant1	14.38	0.02742	24	Pass
NVNT	n20	5600	Ant1	13.52	0.02249	24	Pass
NVNT	n20	5720	Ant1	12.54	0.01795	24	Pass
NVNT	n20	5745	Ant1	12.13	0.01633	30	Pass
NVNT	n20	5785	Ant1	11.22	0.01324	30	Pass
NVNT	n20	5825	Ant1	12.32	0.01706	30	Pass
NVNT	n40	5190	Ant1	11.17	0.01309	24	Pass
NVNT	n40	5230	Ant1	11.13	0.01297	24	Pass
NVNT	n40	5270	Ant1	11.35	0.01365	24	Pass
NVNT	n40	5310	Ant1	10.71	0.01178	24	Pass
NVNT	n40	5510	Ant1	14.03	0.02529	24	Pass
NVNT	n40	5630	Ant1	12.71	0.01866	24	Pass
NVNT	n40	5710	Ant1	12.22	0.01667	24	Pass
NVNT	n40	5755	Ant1	11.5	0.01413	30	Pass
NVNT	n40	5795	Ant1	10.77	0.01194	30	Pass

A.3. Emission Bandwidth

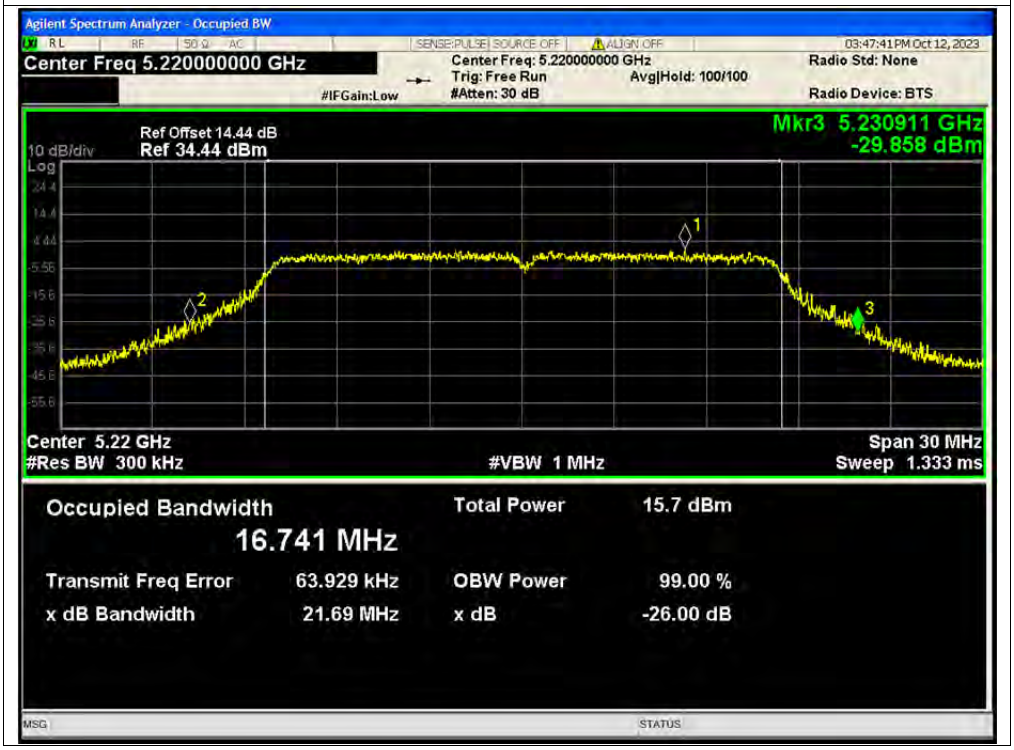
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)
NVNT	a	5180	Ant1	20.659
NVNT	a	5220	Ant1	21.693
NVNT	a	5240	Ant1	21.186
NVNT	a	5260	Ant1	21.752
NVNT	a	5300	Ant1	21.569
NVNT	a	5320	Ant1	21.078
NVNT	a	5500	Ant1	21.233
NVNT	a	5600	Ant1	21.652
NVNT	a	5720	Ant1	21.068
NVNT	n20	5180	Ant1	21.922
NVNT	n20	5220	Ant1	21.43
NVNT	n20	5240	Ant1	21.922
NVNT	n20	5260	Ant1	22.092
NVNT	n20	5300	Ant1	22.014
NVNT	n20	5320	Ant1	21.814
NVNT	n20	5500	Ant1	22.029
NVNT	n20	5600	Ant1	22.353
NVNT	n20	5720	Ant1	21.799
NVNT	n40	5190	Ant1	38.787
NVNT	n40	5230	Ant1	38.801
NVNT	n40	5270	Ant1	38.598
NVNT	n40	5310	Ant1	39.484
NVNT	n40	5510	Ant1	38.619
NVNT	n40	5630	Ant1	38.842
NVNT	n40	5710	Ant1	38.806

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.314	0.5	Pass
NVNT	a	5785	Ant1	16.317	0.5	Pass
NVNT	a	5825	Ant1	16.321	0.5	Pass
NVNT	n20	5745	Ant1	16.688	0.5	Pass
NVNT	n20	5785	Ant1	17.045	0.5	Pass
NVNT	n20	5825	Ant1	17.516	0.5	Pass
NVNT	n40	5755	Ant1	34.97	0.5	Pass
NVNT	n40	5795	Ant1	35.136	0.5	Pass

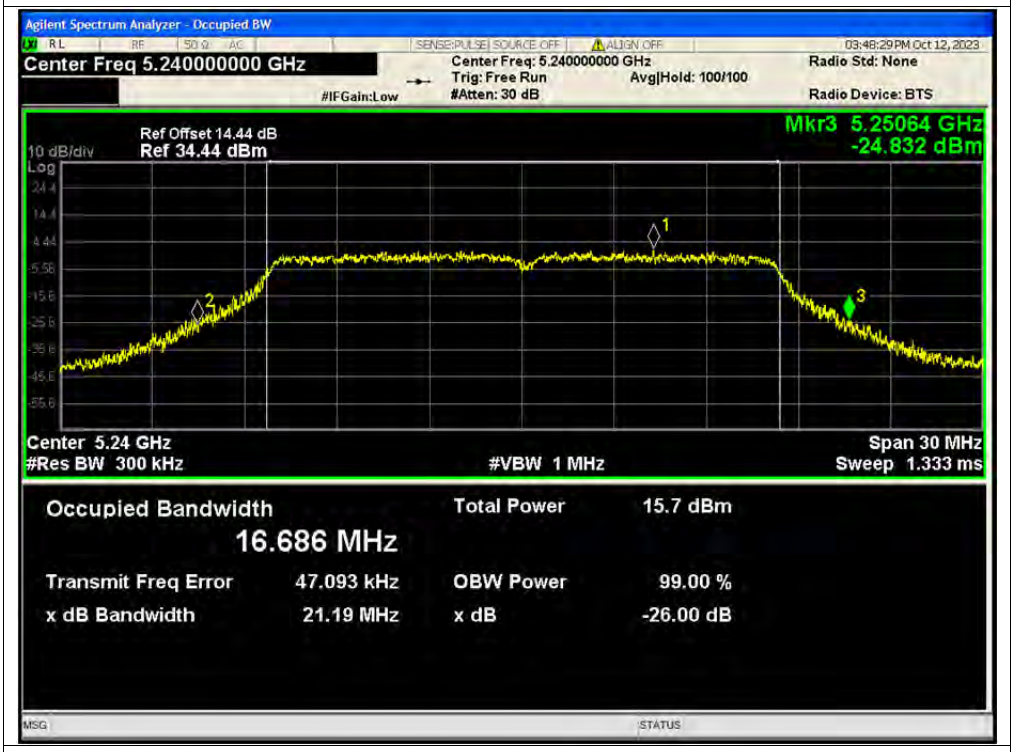
Test Graphs
-26dB Bandwidth NVNT a 5180MHz Ant1



-26dB Bandwidth NVNT a 5220MHz Ant1

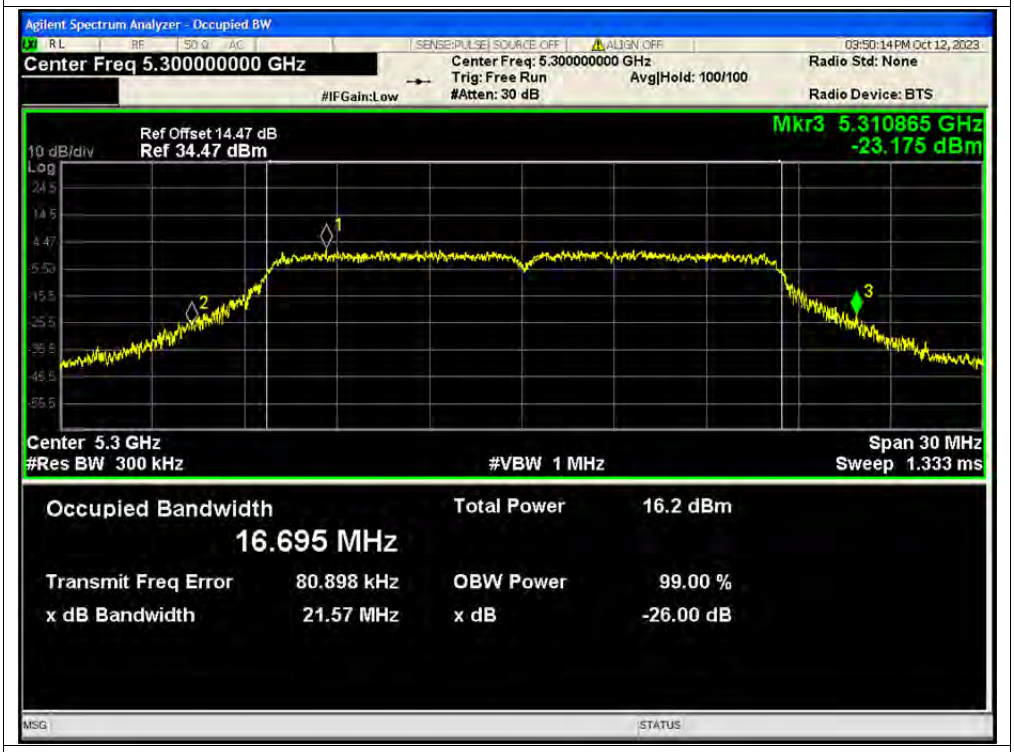


-26dB Bandwidth NVNT a 5240MHz Ant1



-26dB Bandwidth NVNT a 5260MHz Ant1

-26dB Bandwidth NVNT a 5300MHz Ant1



-26dB Bandwidth NVNT a 5320MHz Ant1

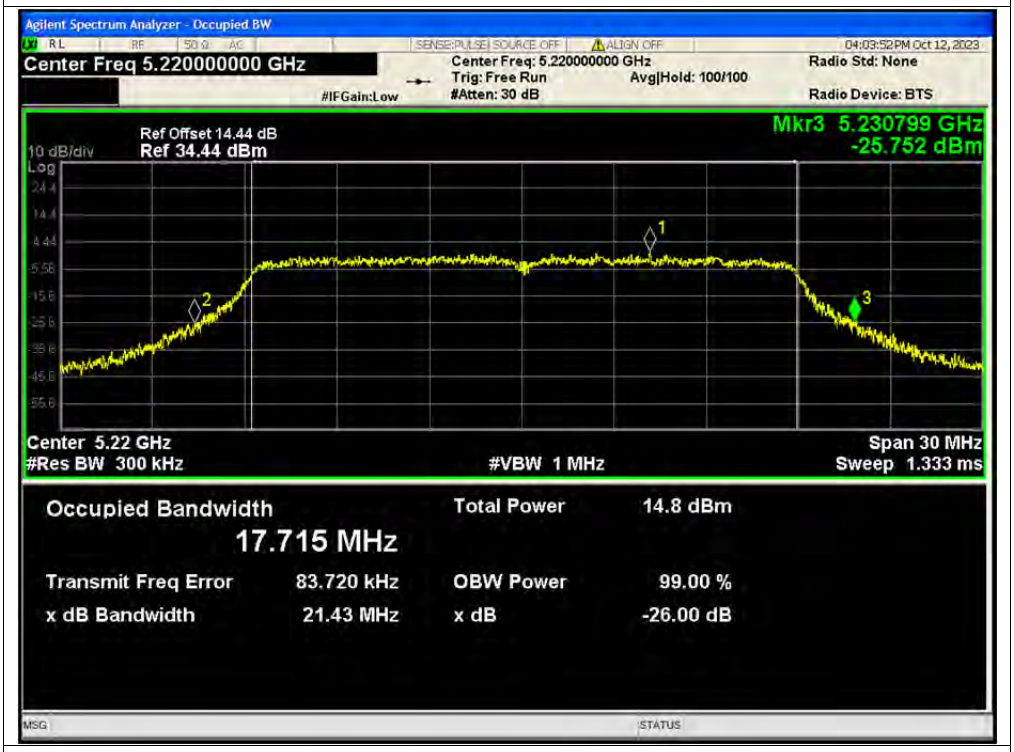
-26dB Bandwidth NVNT a 5500MHz Ant1

-26dB Bandwidth NVNT a 5600MHz Ant1

-26dB Bandwidth NVNT a 5720MHz Ant1

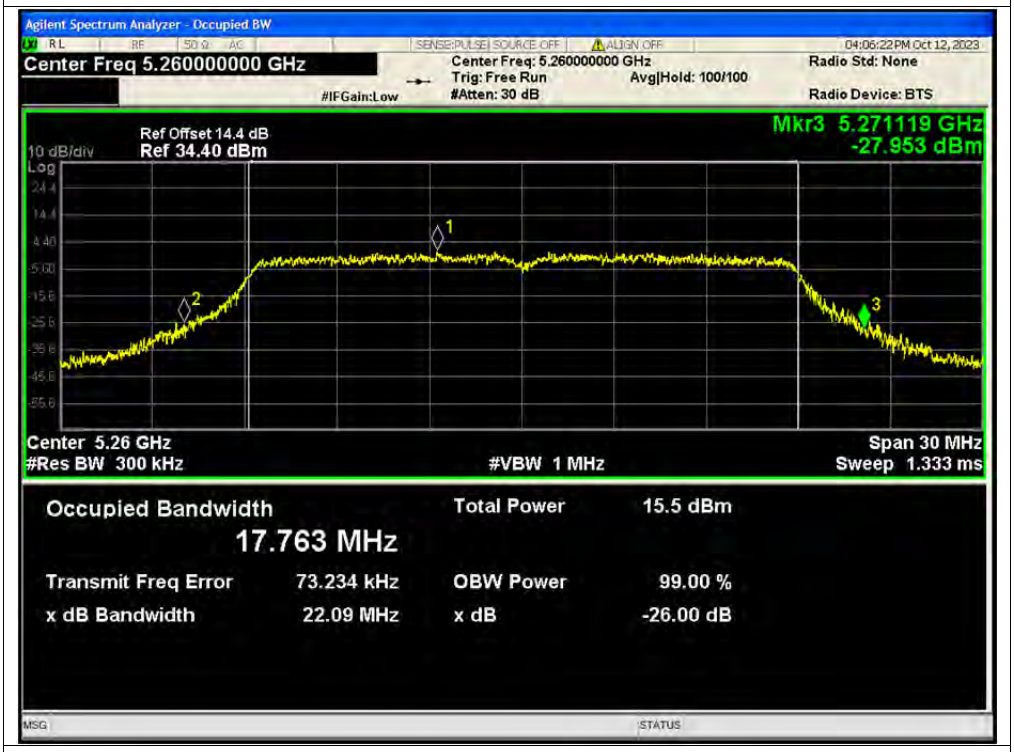
-26dB Bandwidth NVNT n20 5180MHz Ant1

-26dB Bandwidth NVNT n20 5220MHz Ant1

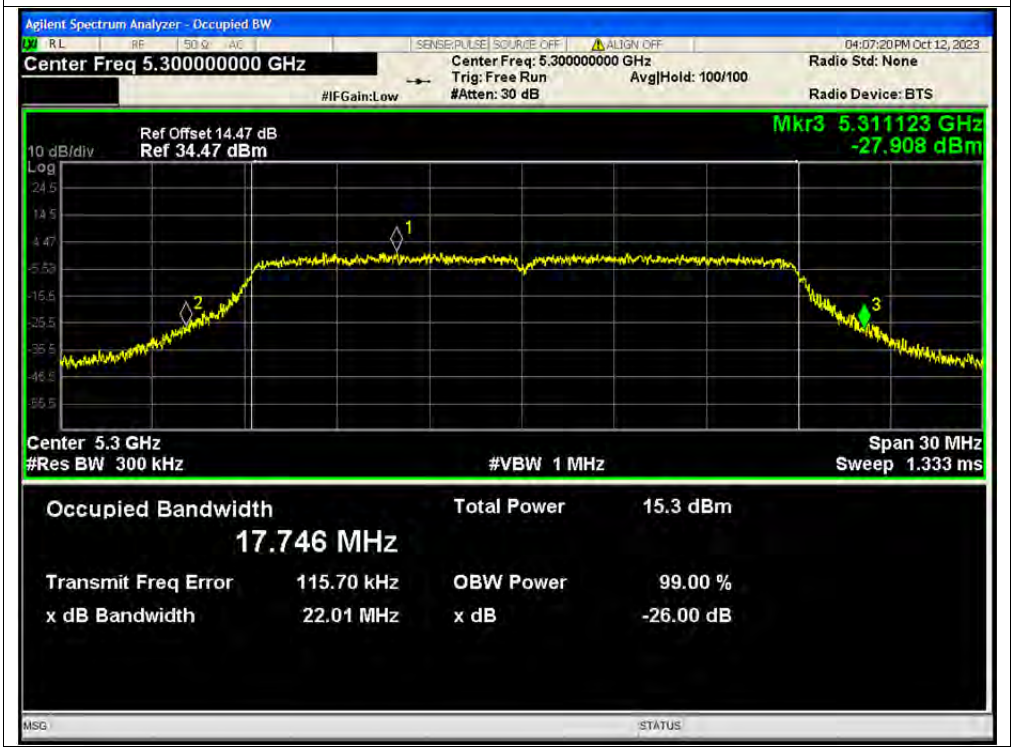


-26dB Bandwidth NVNT n20 5240MHz Ant1

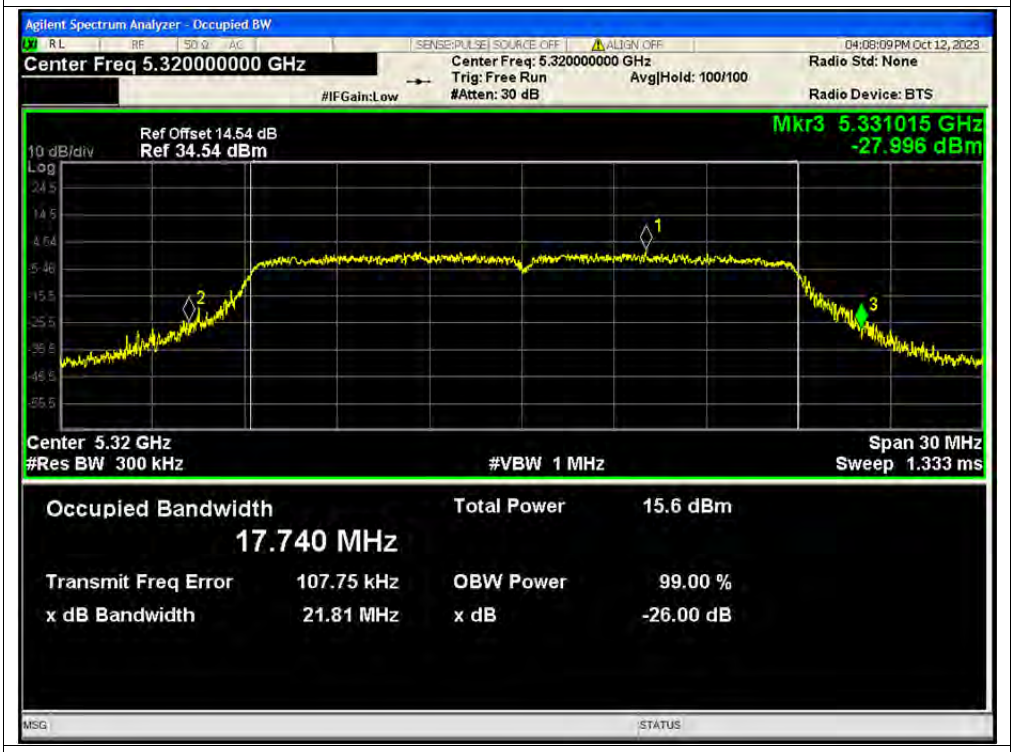
-26dB Bandwidth NVNT n20 5260MHz Ant1



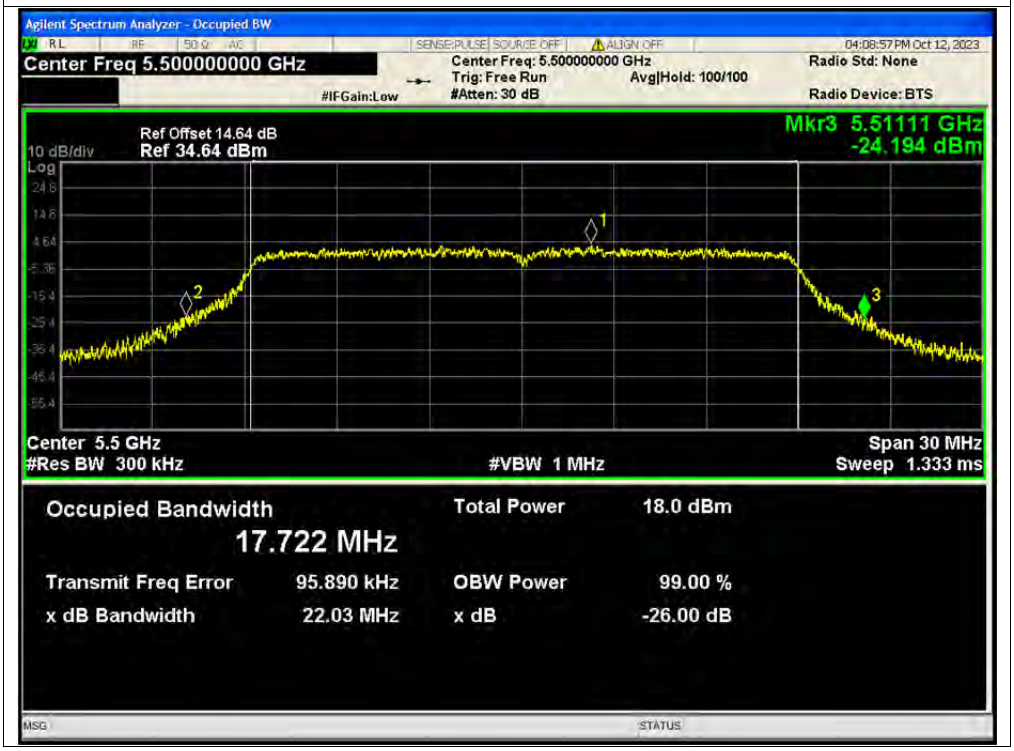
-26dB Bandwidth NVNT n20 5300MHz Ant1



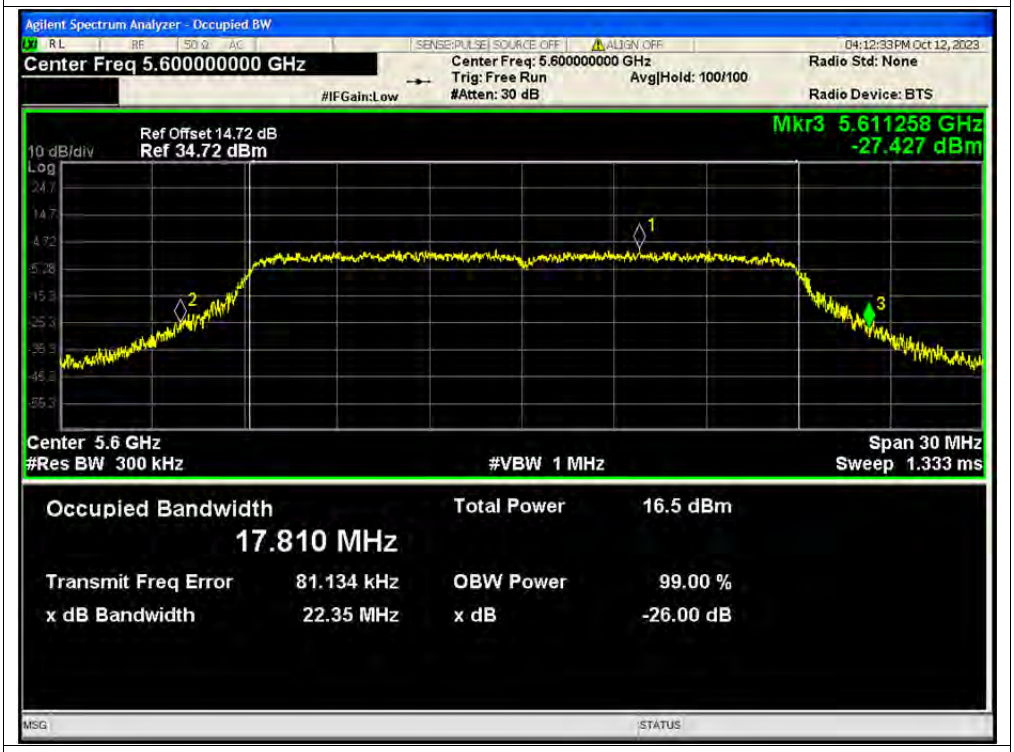
-26dB Bandwidth NVNT n20 5320MHz Ant1



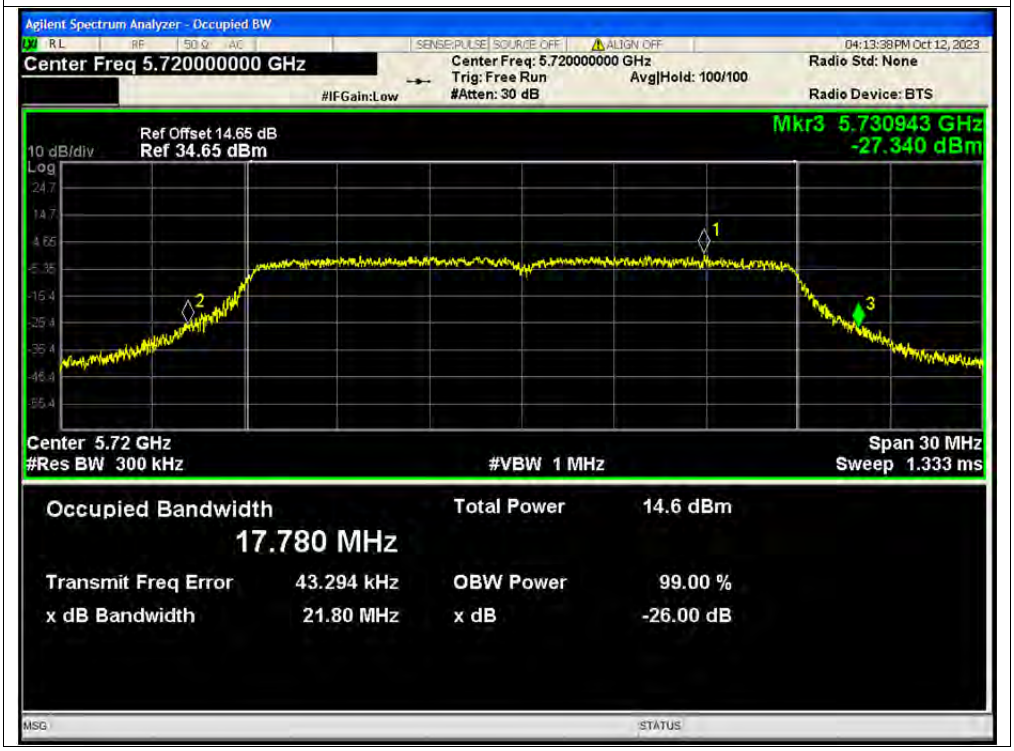
-26dB Bandwidth NVNT n20 5500MHz Ant1



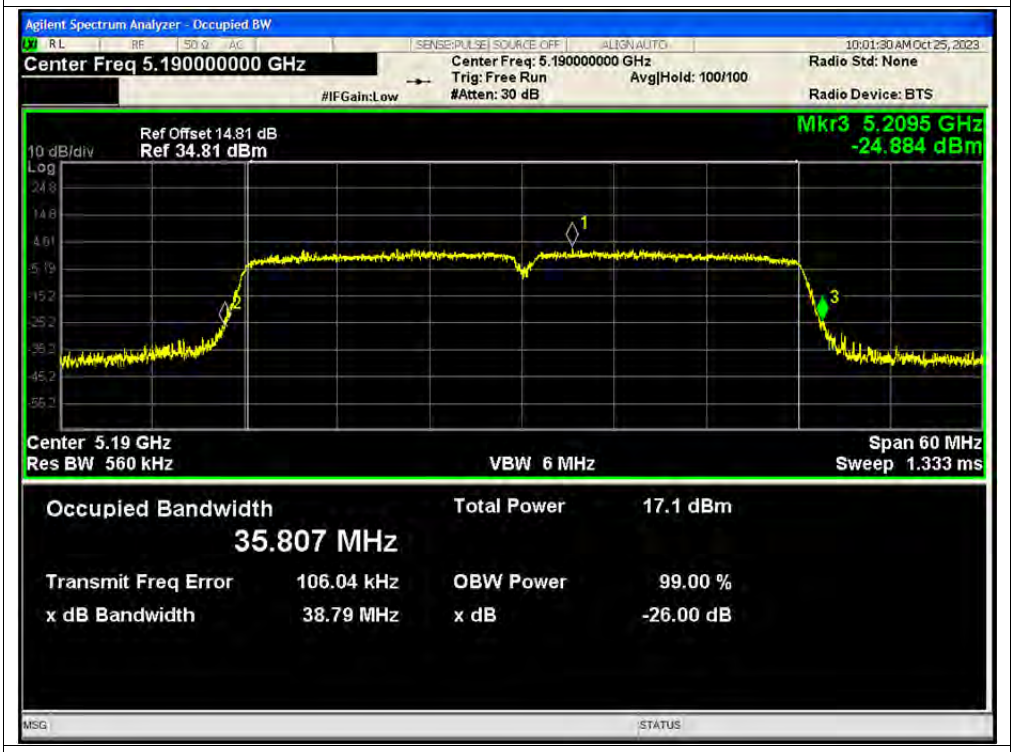
-26dB Bandwidth NVNT n20 5600MHz Ant1



-26dB Bandwidth NVNT n20 5720MHz Ant1

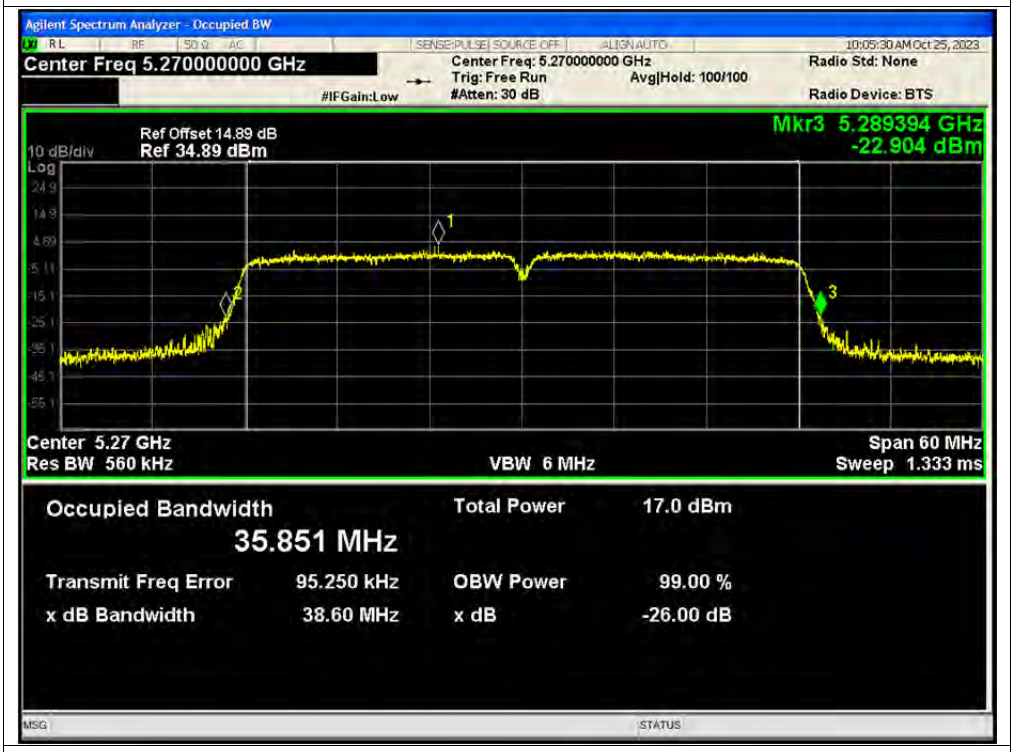


-26dB Bandwidth NVNT n40 5190MHz Ant1

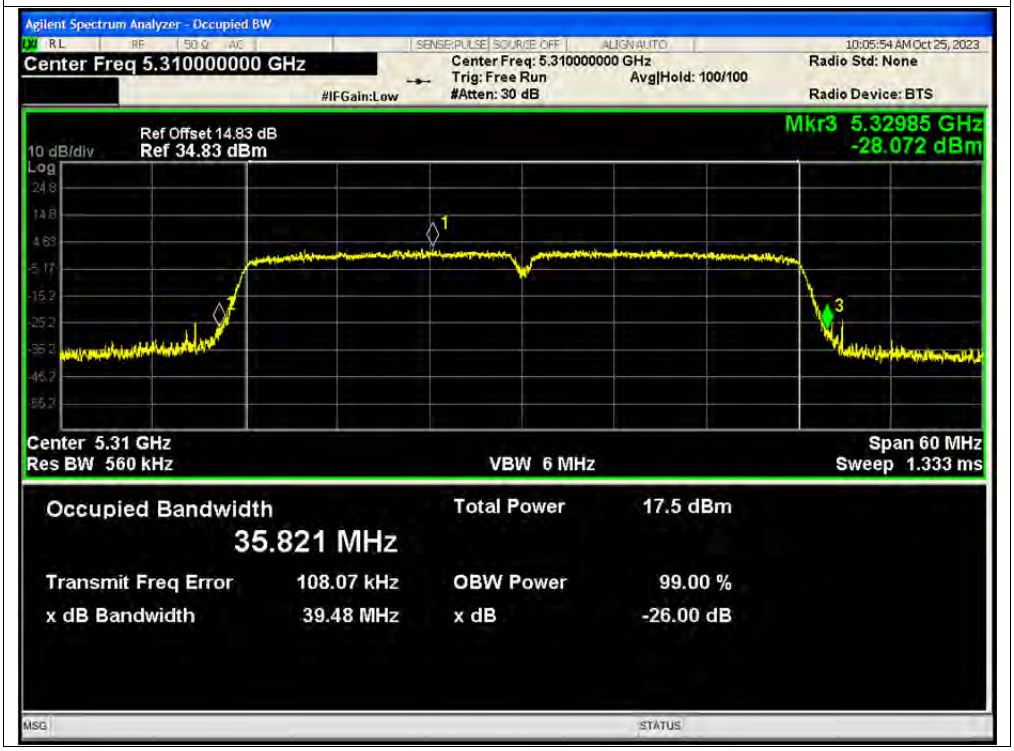


-26dB Bandwidth NVNT n40 5230MHz Ant1

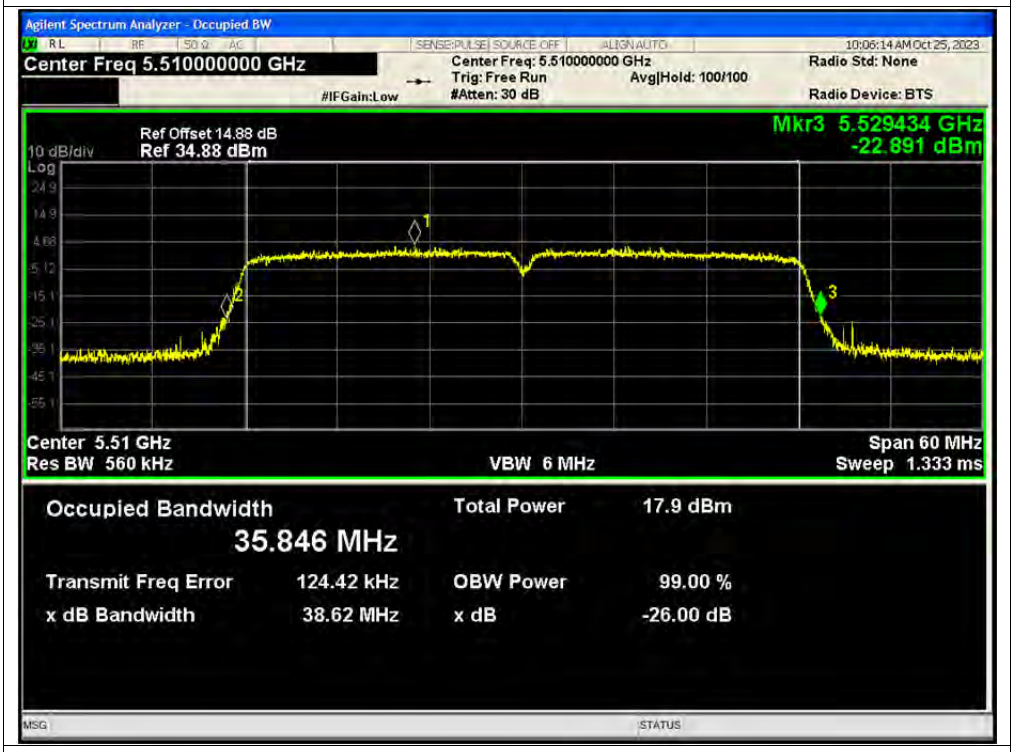
-26dB Bandwidth NVNT n40 5270MHz Ant1



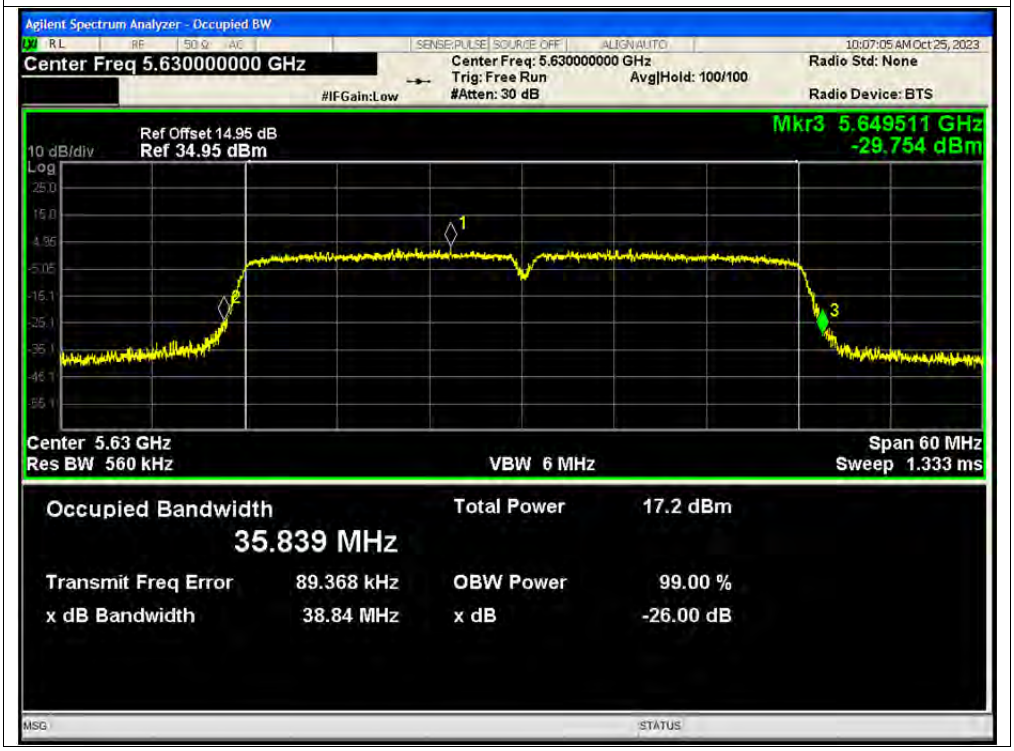
-26dB Bandwidth NVNT n40 5310MHz Ant1



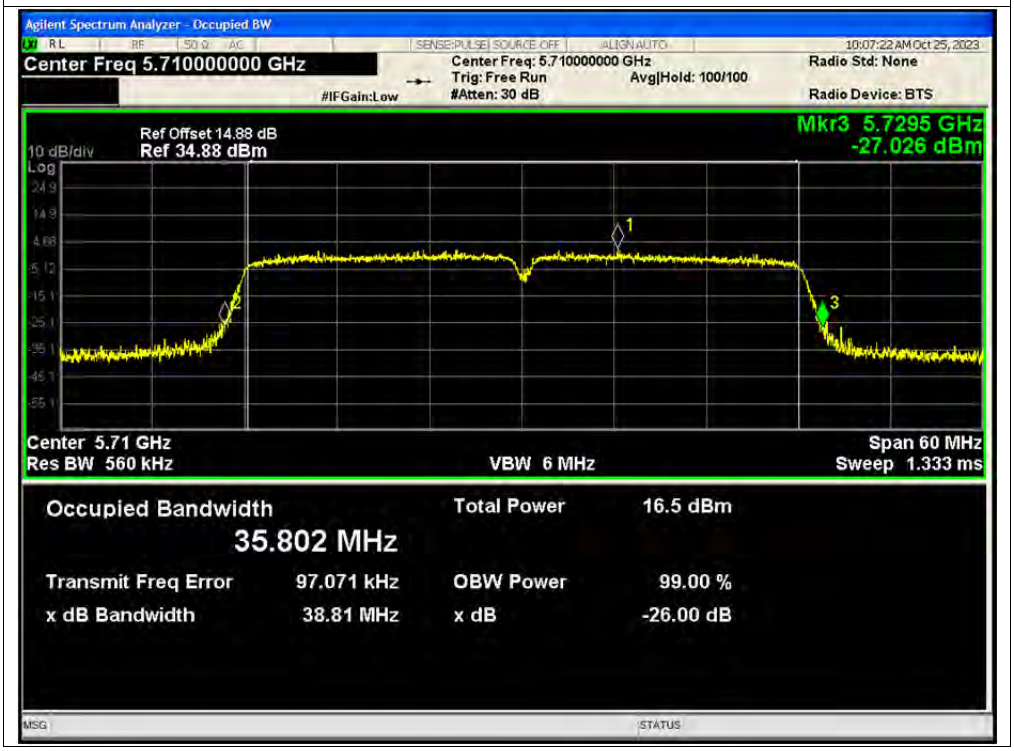
-26dB Bandwidth NVNT n40 5510MHz Ant1



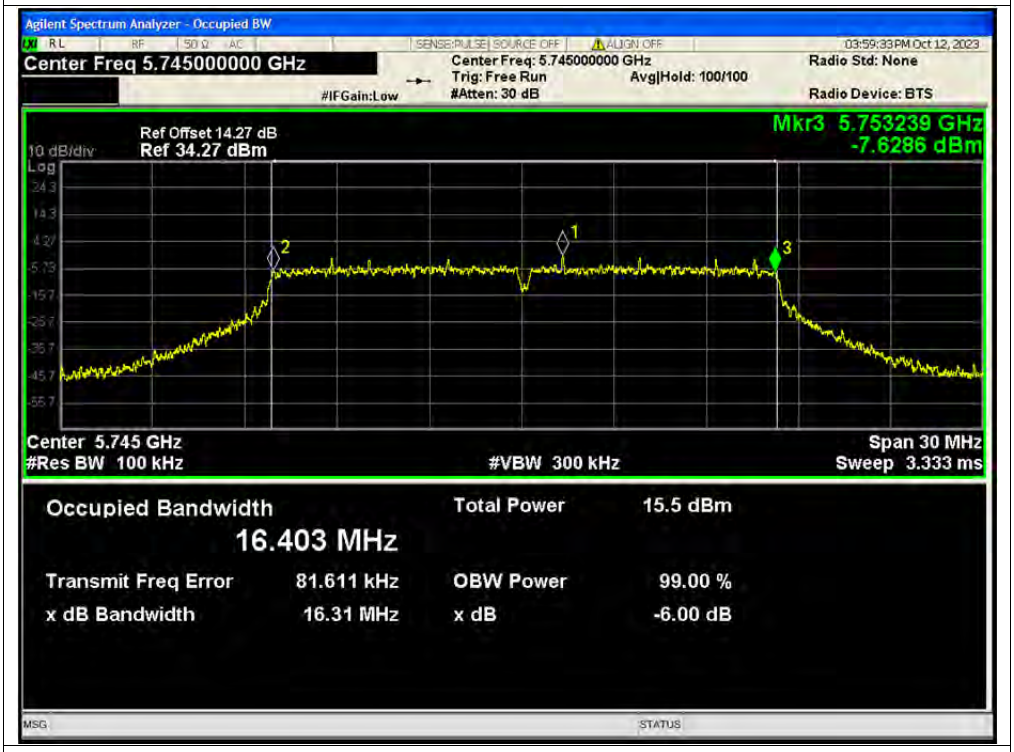
-26dB Bandwidth NVNT n40 5630MHz Ant1



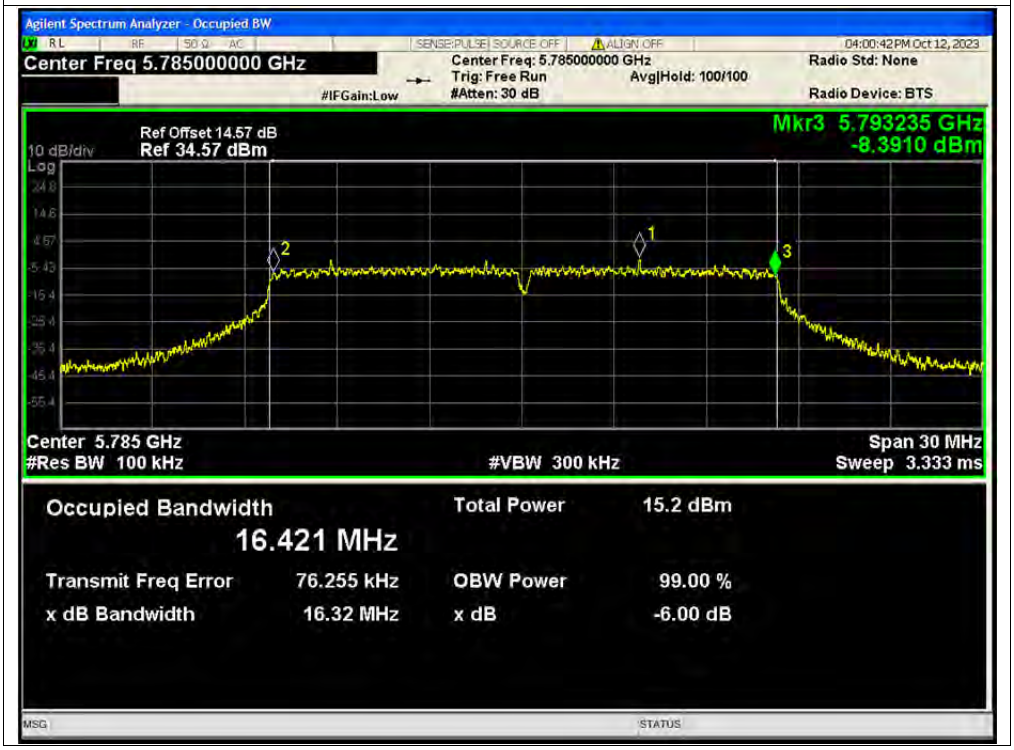
-26dB Bandwidth NVNT n40 5710MHz Ant1



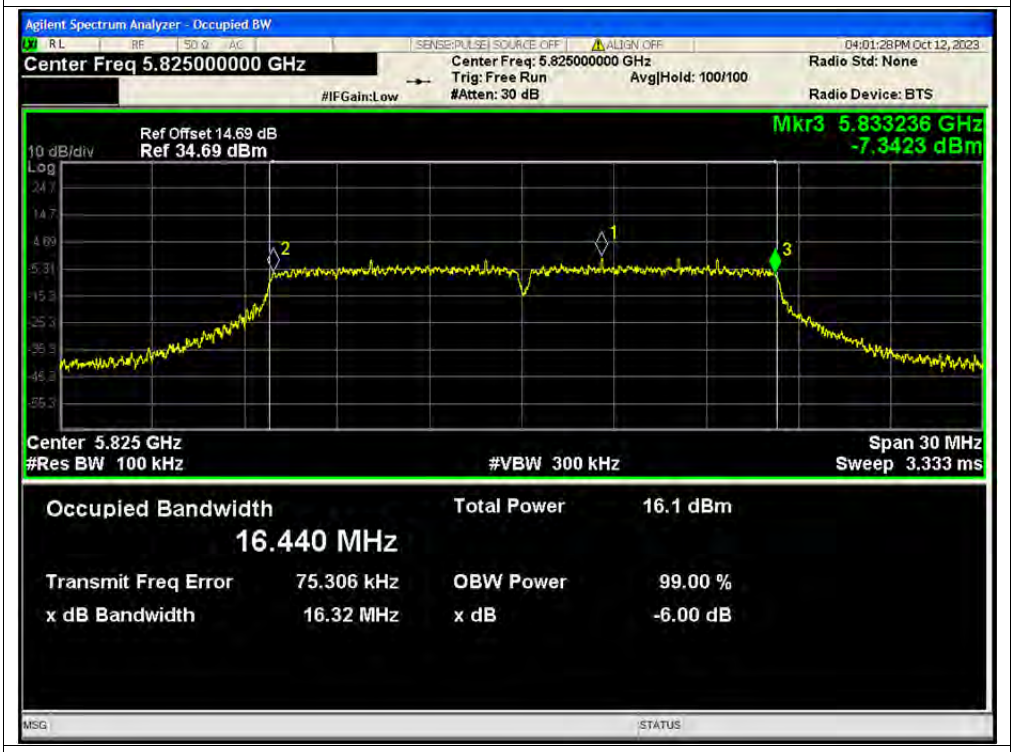
Test Graphs
-6dB Bandwidth NVNT a 5745MHz Ant1



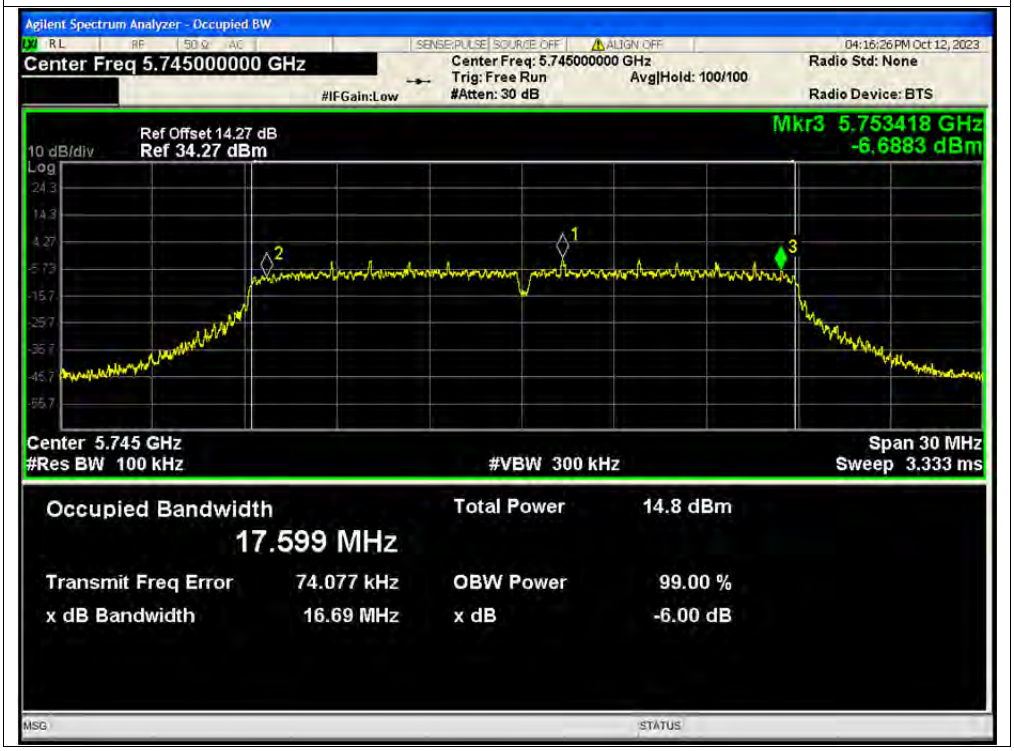
-6dB Bandwidth NVNT a 5785MHz Ant1



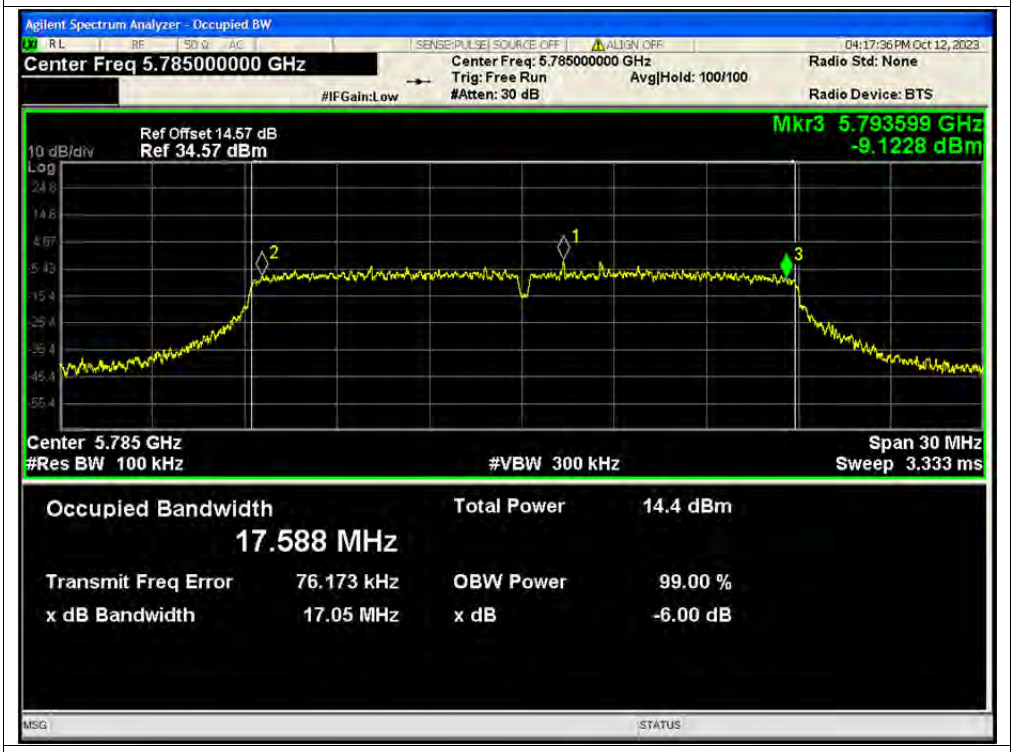
-6dB Bandwidth NVNT a 5825MHz Ant1



-6dB Bandwidth NVNT n20 5745MHz Ant1

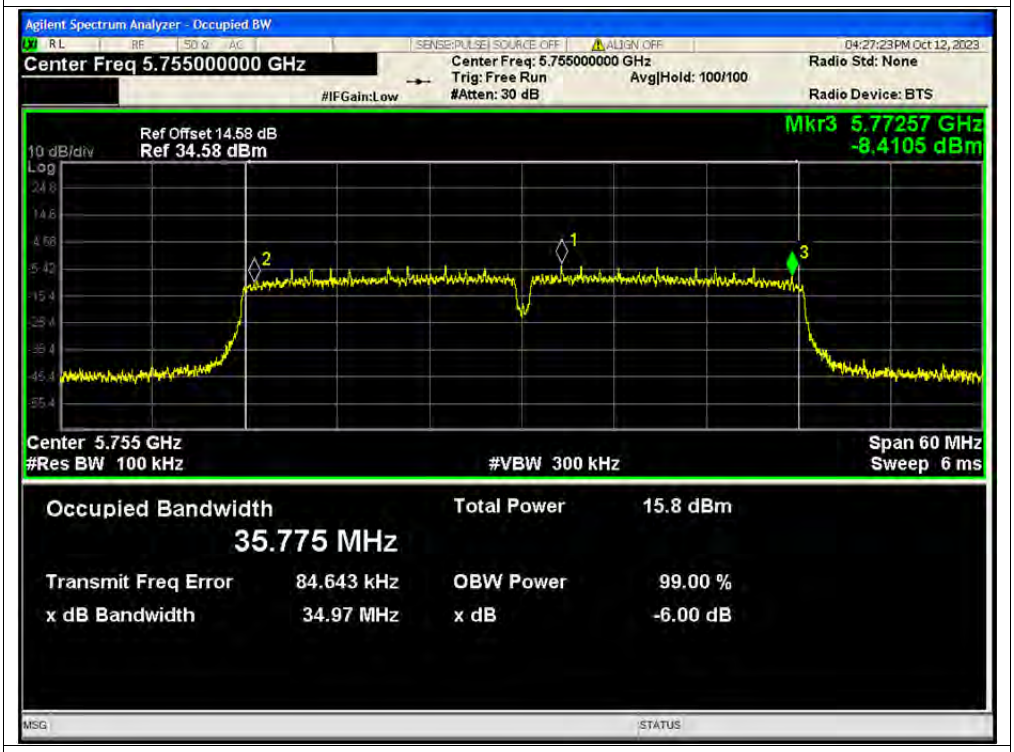


-6dB Bandwidth NVNT n20 5785MHz Ant1

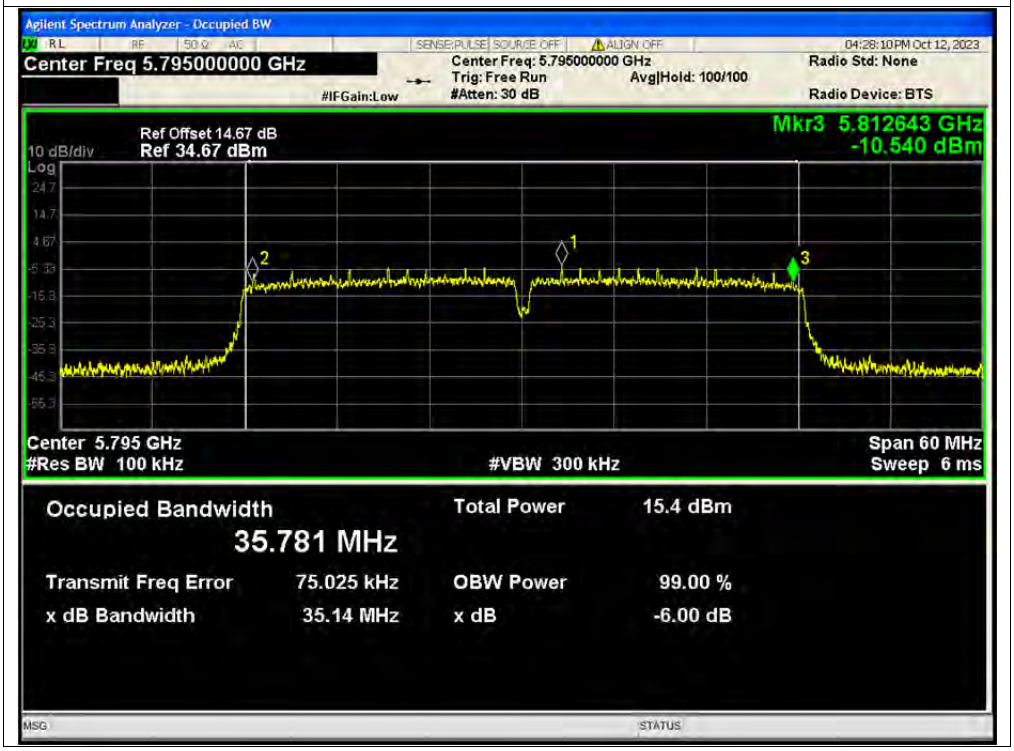


-6dB Bandwidth NVNT n20 5825MHz Ant1

-6dB Bandwidth NVNT n40 5755MHz Ant1



-6dB Bandwidth NVNT n40 5795MHz Ant1

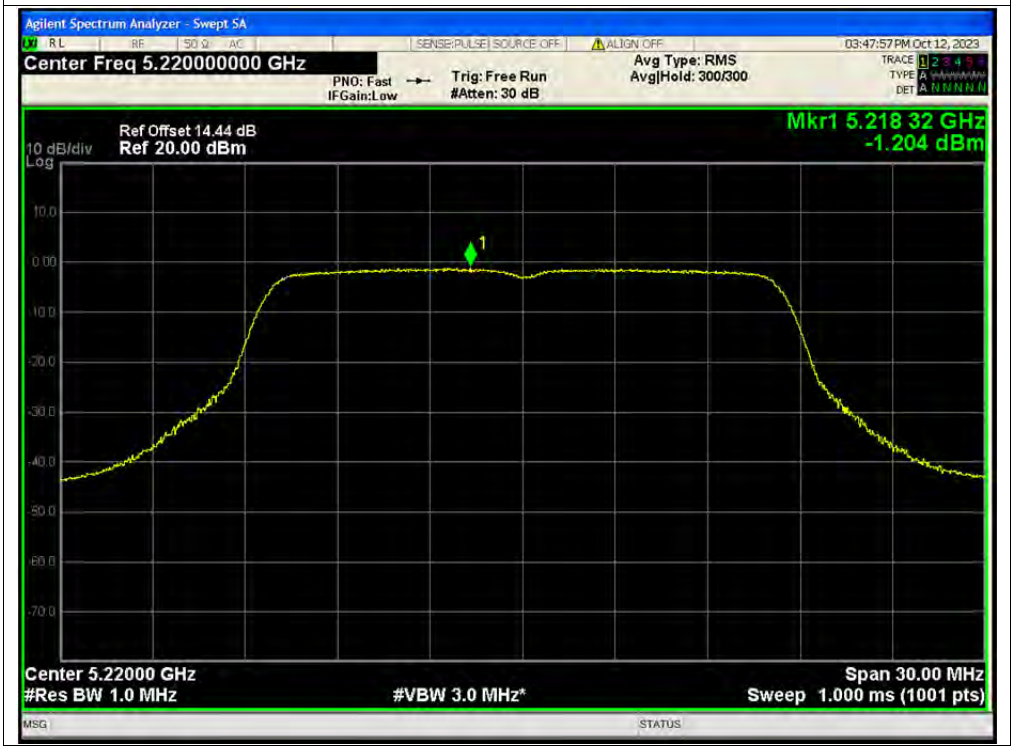


A.4. Peak Power Spectral Density

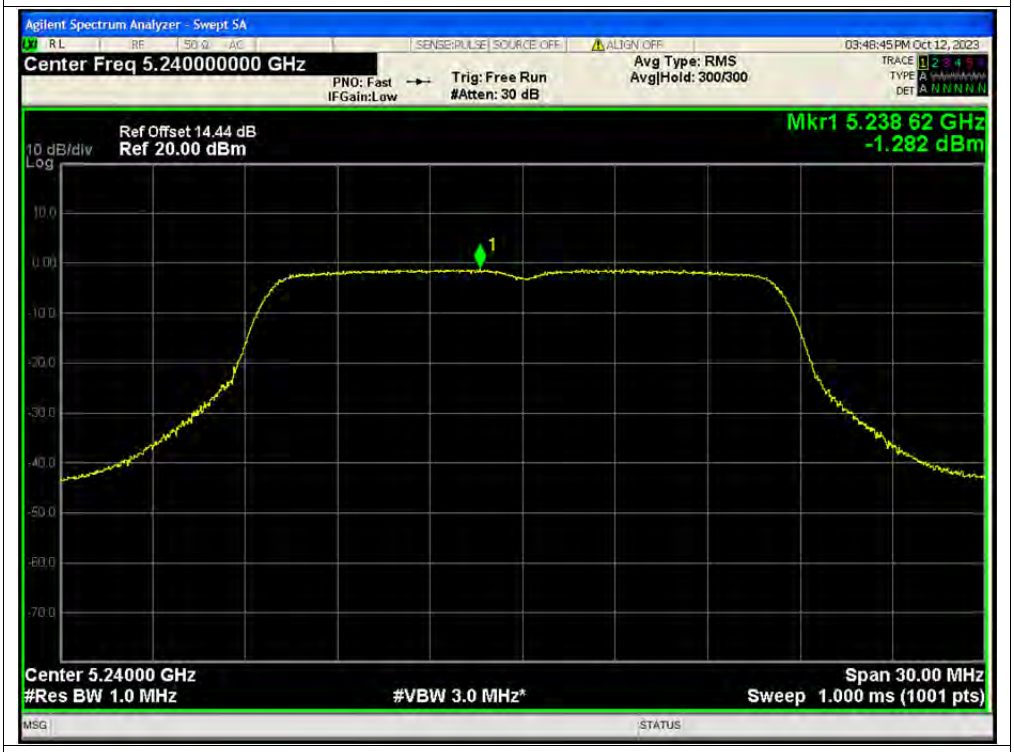
Condition	Mode	Frequency (MHz)	Antenna	Conducted PSD (dBm)	Duty Factor (dB)	Total PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	-1.13	0.27	-0.86	11	Pass
NVNT	a	5220	Ant1	-1.2	0.27	-0.93	11	Pass
NVNT	a	5240	Ant1	-1.28	0.27	-1.01	11	Pass
NVNT	a	5260	Ant1	-0.48	0.27	-0.21	11	Pass
NVNT	a	5300	Ant1	-0.71	0.27	-0.44	11	Pass
NVNT	a	5320	Ant1	-0.42	0.27	-0.15	11	Pass
NVNT	a	5500	Ant1	1.52	0.27	1.79	11	Pass
NVNT	a	5600	Ant1	-0.06	0.27	0.21	11	Pass
NVNT	a	5720	Ant1	-1.26	0.27	-0.99	11	Pass
NVNT	a	5745	Ant1	-4.45	0.27	-4.18	30	Pass
NVNT	a	5785	Ant1	-4.78	0.27	-4.51	30	Pass
NVNT	a	5825	Ant1	-3.87	0.27	-3.6	30	Pass
NVNT	n20	5180	Ant1	-2.78	0.28	-2.5	11	Pass
NVNT	n20	5220	Ant1	-2.42	0.28	-2.14	11	Pass
NVNT	n20	5240	Ant1	-2.47	0.28	-2.19	11	Pass
NVNT	n20	5260	Ant1	-1.76	0.28	-1.48	11	Pass
NVNT	n20	5300	Ant1	-1.91	0.28	-1.63	11	Pass
NVNT	n20	5320	Ant1	-1.63	0.28	-1.35	11	Pass
NVNT	n20	5500	Ant1	0.83	0.28	1.11	11	Pass
NVNT	n20	5600	Ant1	-0.74	0.28	-0.46	11	Pass
NVNT	n20	5720	Ant1	-2.48	0.28	-2.2	11	Pass
NVNT	n20	5745	Ant1	-5.73	0.28	-5.45	30	Pass
NVNT	n20	5785	Ant1	-5.93	0.28	-5.65	30	Pass
NVNT	n20	5825	Ant1	-4.91	0.28	-4.63	30	Pass
NVNT	n40	5190	Ant1	-4.99	0.56	-4.43	11	Pass
NVNT	n40	5230	Ant1	-4.93	0.56	-4.37	11	Pass
NVNT	n40	5270	Ant1	-4.21	0.56	-3.65	11	Pass
NVNT	n40	5310	Ant1	-4.75	0.56	-4.19	11	Pass
NVNT	n40	5510	Ant1	-2.03	0.56	-1.47	11	Pass
NVNT	n40	5630	Ant1	-4.2	0.56	-3.64	11	Pass
NVNT	n40	5710	Ant1	-4.32	0.56	-3.76	11	Pass
NVNT	n40	5755	Ant1	-7.77	0.56	-7.21	30	Pass
NVNT	n40	5795	Ant1	-8.36	0.56	-7.8	30	Pass

Test Graphs
PSD NVNT a 5180MHz Ant1

PSD NVNT a 5220MHz Ant1



PSD NVNT a 5240MHz Ant1



PSD NVNT a 5260MHz Ant1

PSD NVNT a 5300MHz Ant1

PSD NVNT a 5320MHz Ant1

PSD NVNT a 5500MHz Ant1

PSD NVNT a 5600MHz Ant1

PSD NVNT a 5720MHz 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

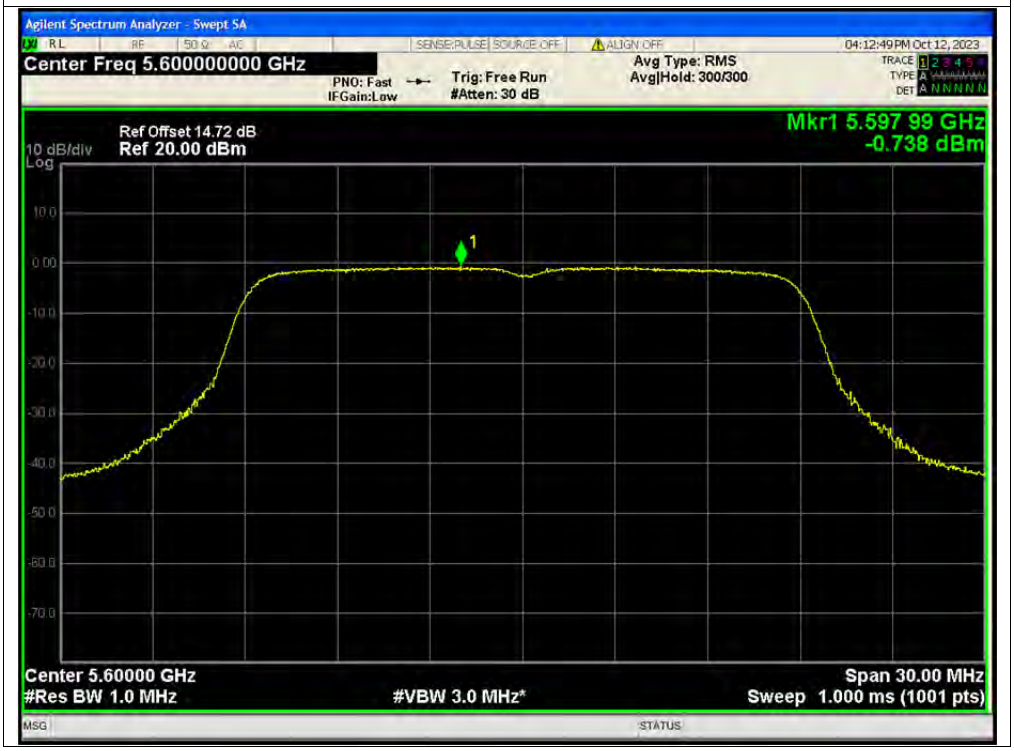
PSD NVNT n20 5260MHz Ant1

PSD NVNT n20 5300MHz Ant1

PSD NVNT n20 5320MHz Ant1

PSD NVNT n20 5500MHz Ant1

PSD NVNT n20 5600MHz Ant1



PSD NVNT n20 5720MHz 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

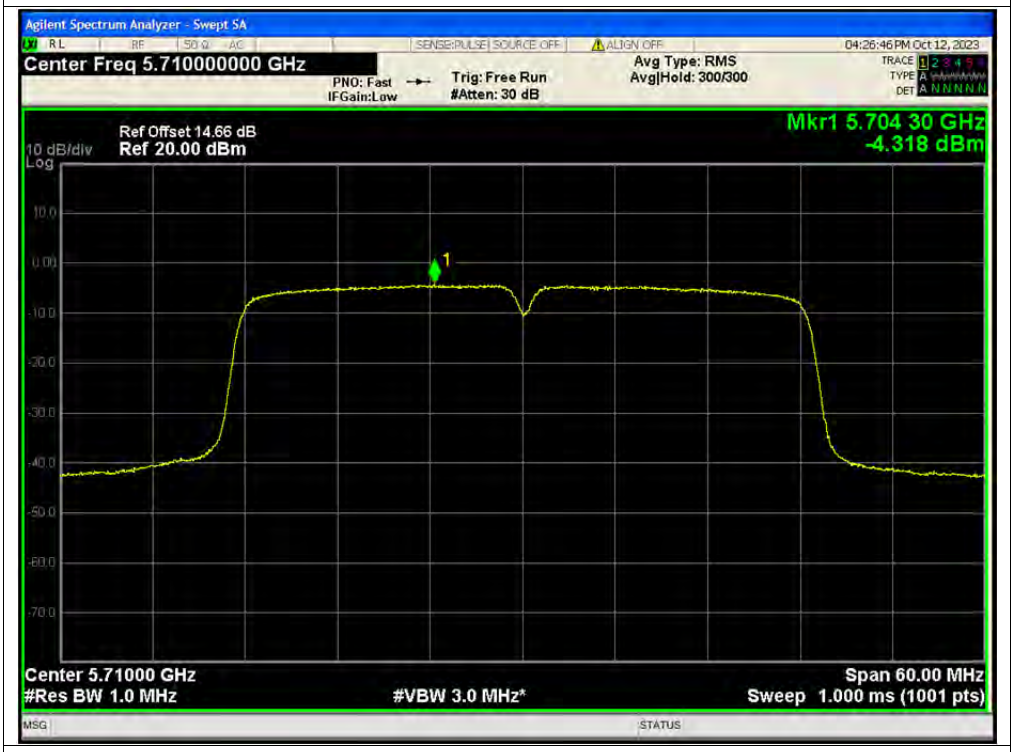
PSD NVNT n40 5270MHz Ant1

PSD NVNT n40 5310MHz Ant1

PSD NVNT n40 5510MHz Ant1

PSD NVNT n40 5630MHz Ant1

PSD NVNT n40 5710MHz Ant1



PSD NVNT n40 5755MHz Ant1

PSD NVNT n40 5795MHz Ant1


A.5. Frequency Stability

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
20C 3V	Carrier	5180	Ant1	5180.004	4000	0.77	25	Pass
20C 3.6V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
-40C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
-30C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
-20C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
-10C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
0C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
10C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
20C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
30C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
40C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
50C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
60C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
70C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
80C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
85C 3.3V	Carrier	5180	Ant1	5180.003	3000	0.58	25	Pass
20C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
20C 3.6V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
-40C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
-30C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
-20C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
-10C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
0C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
10C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
30C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
40C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
50C 3V	Carrier	5260	Ant1	5260.006	6000	1.14	25	Pass
60C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
70C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
80C 3V	Carrier	5260	Ant1	5260.005	5000	0.95	25	Pass
85C 3V	Carrier	5260	Ant1	5260.006	6000	1.14	25	Pass
20C 3V	Carrier	5500	Ant1	5500.005	5000	0.91	25	Pass
20C 3.6V	Carrier	5500	Ant1	5500.005	5000	0.91	25	Pass
-40C 3.3V	Carrier	5500	Ant1	5500.005	5000	0.91	25	Pass

-30C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
-20C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
-10C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
0C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
10C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
20C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
30C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
40C 3.3V	Carrier	5500	Ant1	5500.004	4000	0.73	25	Pass
50C 3.3V	Carrier	5500	Ant1	5500.003	3000	0.55	25	Pass
60C 3.3V	Carrier	5500	Ant1	5500.003	3000	0.55	25	Pass
70C 3.3V	Carrier	5500	Ant1	5500.003	3000	0.55	25	Pass
80C 3.3V	Carrier	5500	Ant1	5500.003	3000	0.55	25	Pass
85C 3.3V	Carrier	5500	Ant1	5500.003	3000	0.55	25	Pass
20C 3V	Carrier	5745	Ant1	5745.005	5000	0.87	25	Pass
20C 3.6V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
-40C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
-30C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
-20C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
-10C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
0C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
10C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
20C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
30C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
40C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
50C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
60C 3.3V	Carrier	5745	Ant1	5745.003	3000	0.52	25	Pass
70C 3.3V	Carrier	5745	Ant1	5745.003	3000	0.52	25	Pass
80C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass
85C 3.3V	Carrier	5745	Ant1	5745.004	4000	0.7	25	Pass

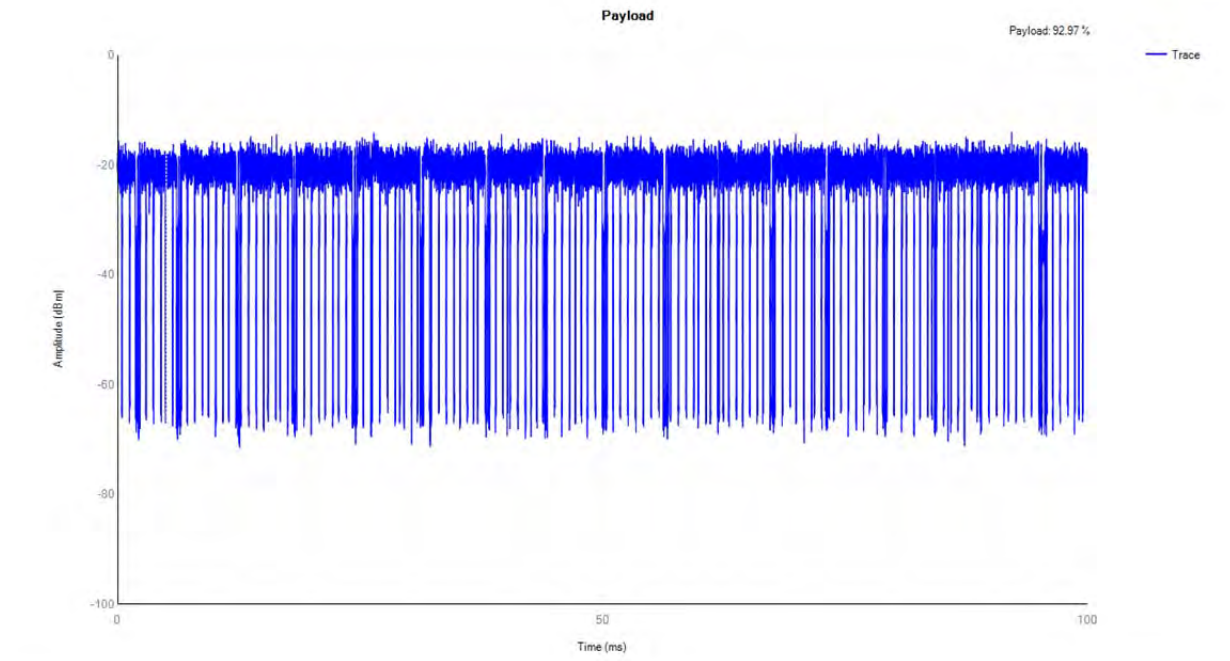
A.6. Dynamic Frequency Selection

Payload

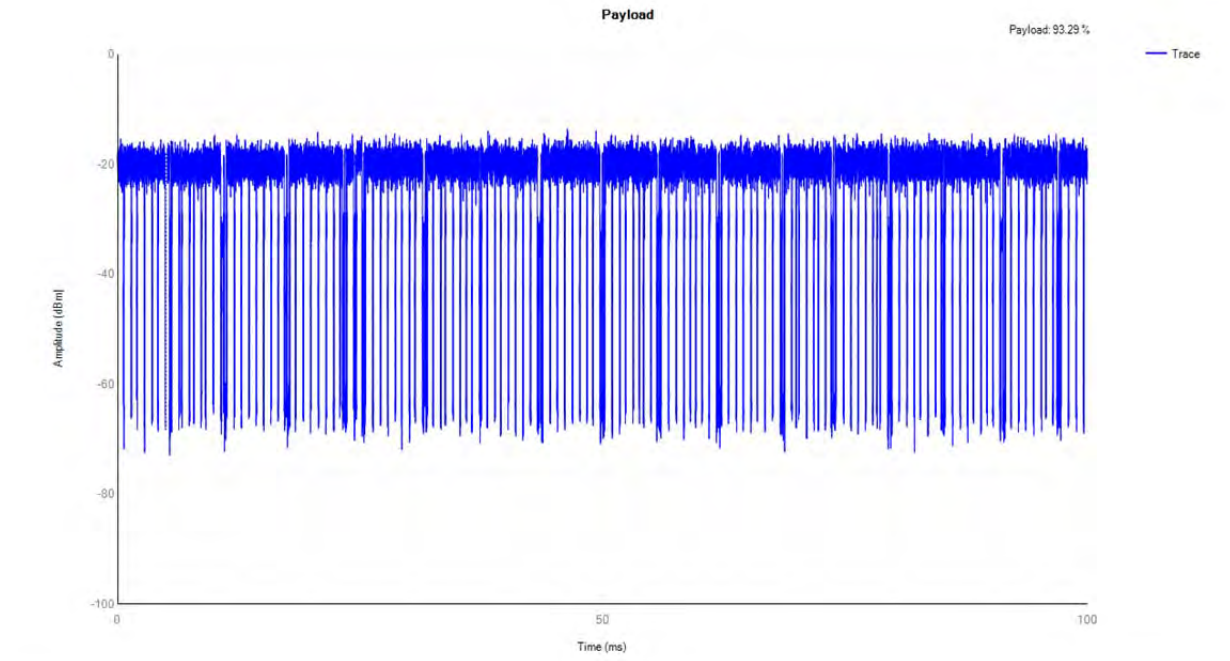
Mode	Frequency (MHz)	Result	Verdict
a	5320	92.97	Pass
a	5500	93.29	Pass
n40	5310	39.18	Pass
n40	5510	43.66	Pass

Test Graphs

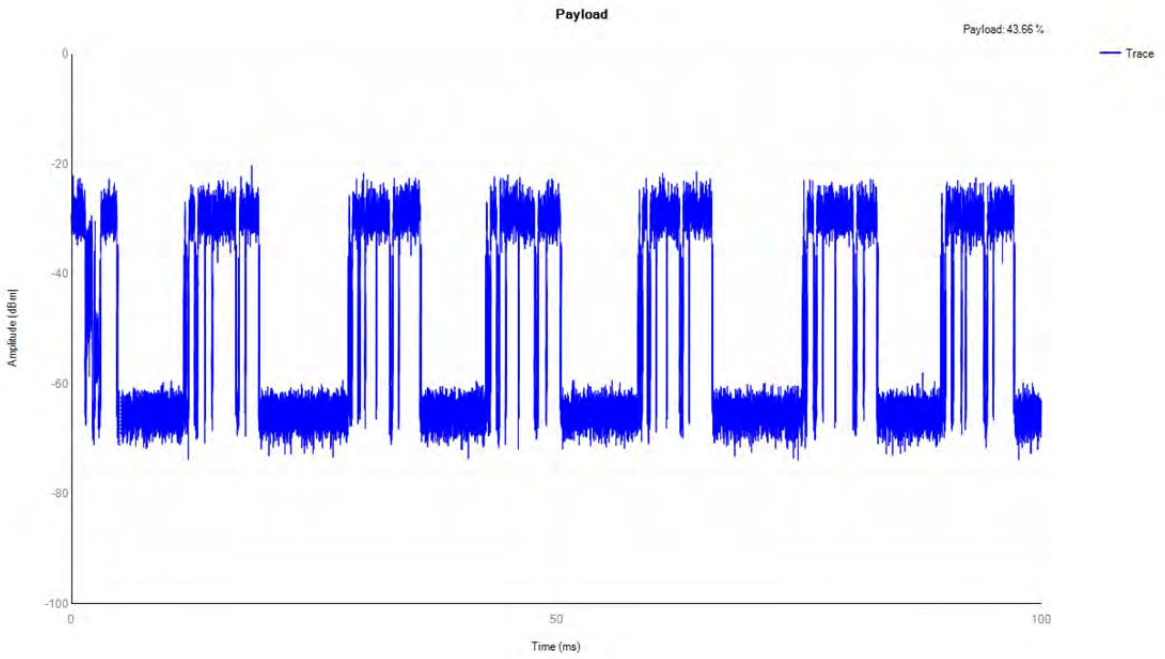
a 5320MHz Payload



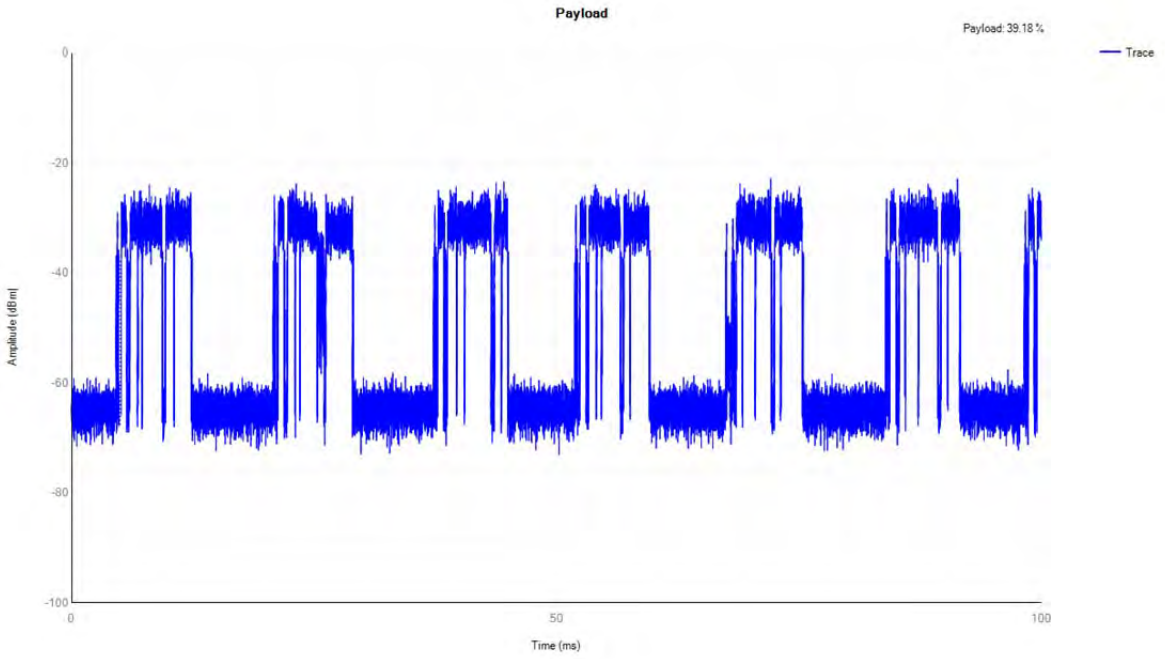
a 5500MHz Payload



n40 5310MHz Payload



n40 5510MHz Payload



Calibration

Mode	Frequency (MHz)	Type	Result	Verdict
a	5320	DFS_FCC_T0	See test Graph	Pass
a	5500	DFS_FCC_T0	See test Graph	Pass
ac80	5290	DFS_FCC_T0	See test Graph	Pass
ac80	5530	DFS_FCC_T0	See test Graph	Pass

Spectrum analyzer settings:

Span: Zero

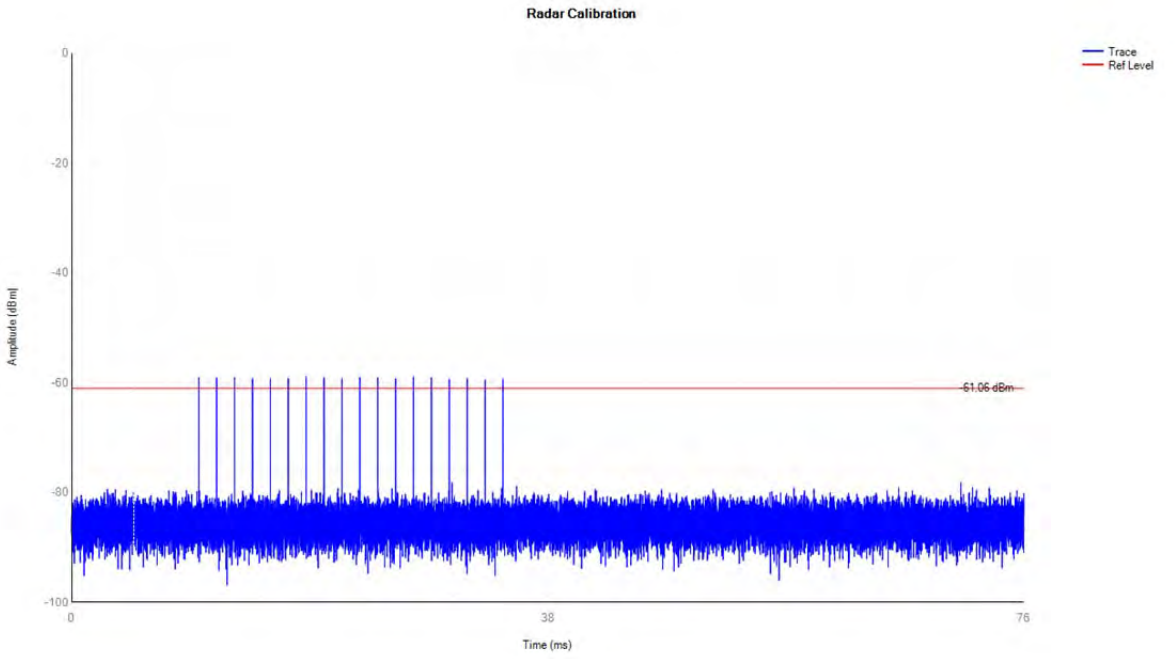
Detector Type: Peak

RBW: 3MHz

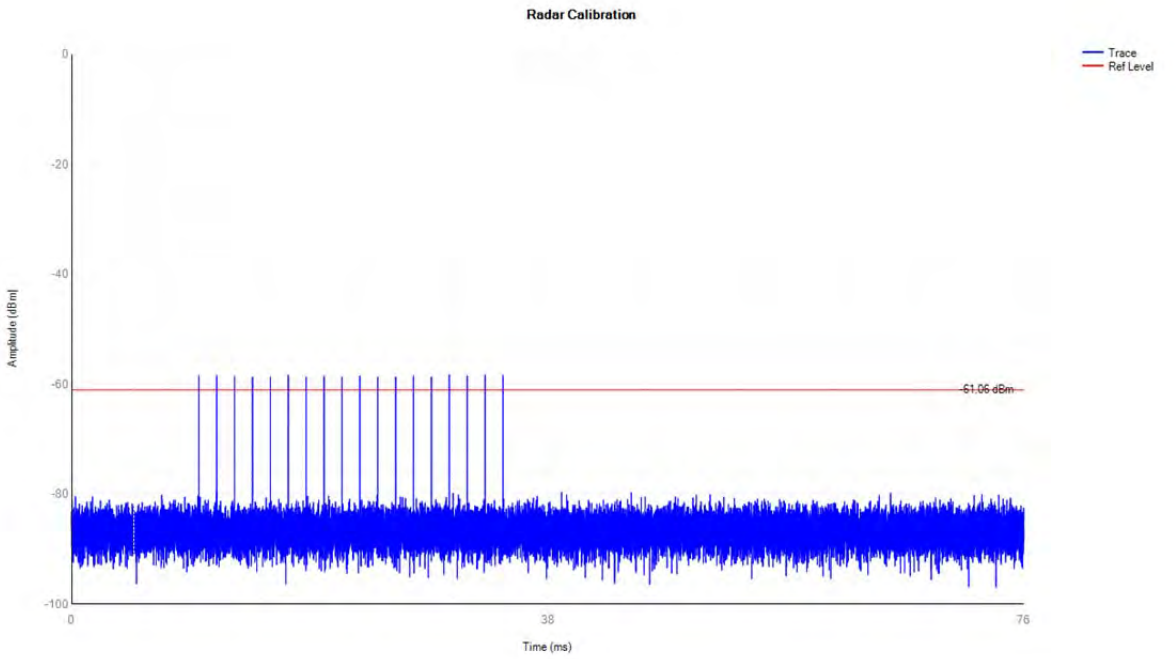
VBW: 3MHz

Test Graphs

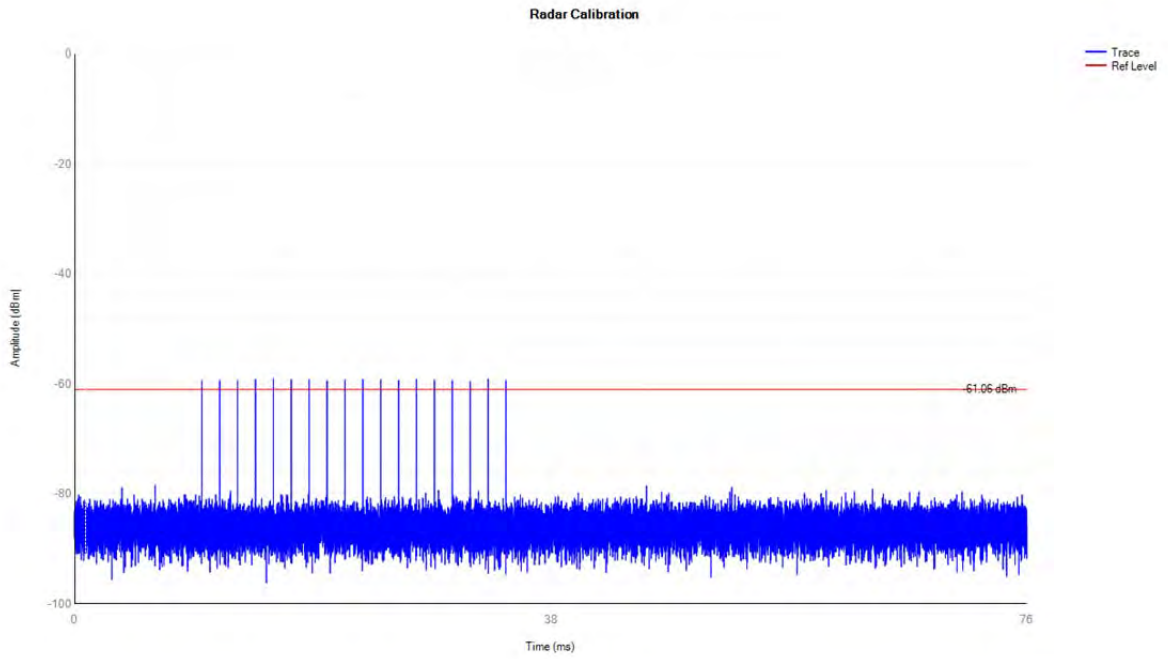
5320MHz DFS_FCC_T0



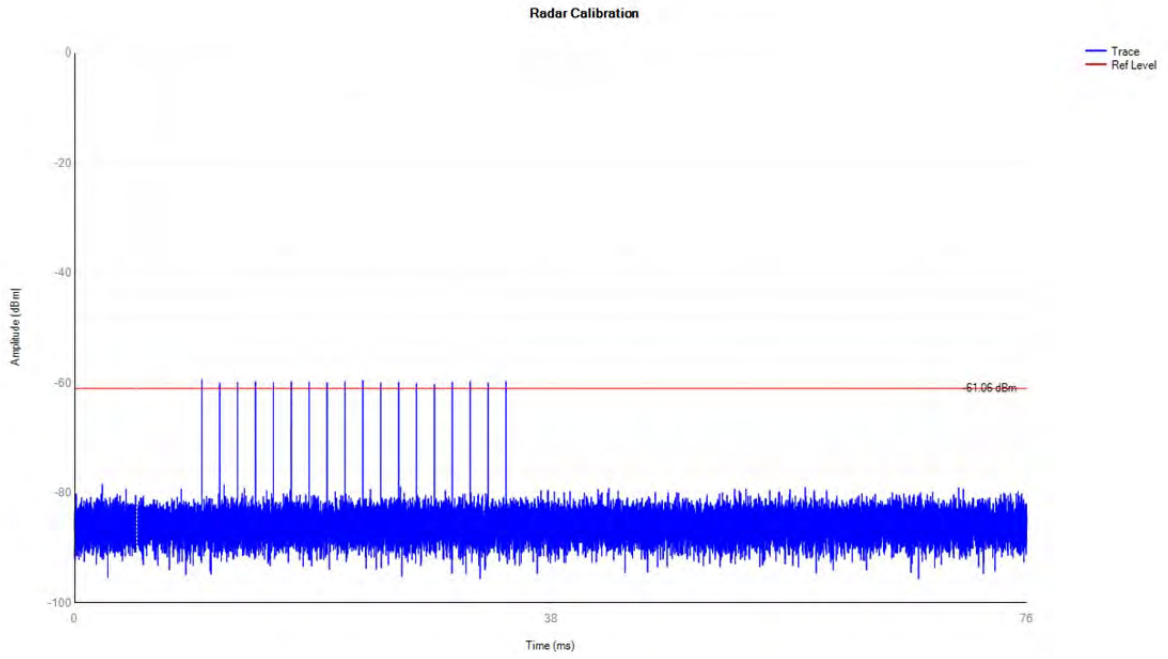
5500MHz DFS_FCC_T0



5310MHz DFS_FCC_T0



5510MHz DFS_FCC_T0



Channel Move Time and Channel Closing Transmission Time

Mode	Frequency (MHz)	Channel Move Time (s)	Limit Channel Move Time (s)	Close Transmission Time (s)	Limit Close Transmission Time (s)	Close Transmission Time after 200ms(s)	Limit Close Transmission Time after 200ms (s)	Verdict
a	5320	0.855	10	0.107	0.26	0.016	0.06	Pass
a	5500	0.973	10	0.128	0.26	0.021	0.06	Pass
n40	5310	0.796	10	0.049	0.26	0.013	0.06	Pass
n40	5510	1.008	10	0.099	0.26	0.031	0.06	Pass

Spectrum analyzer settings:

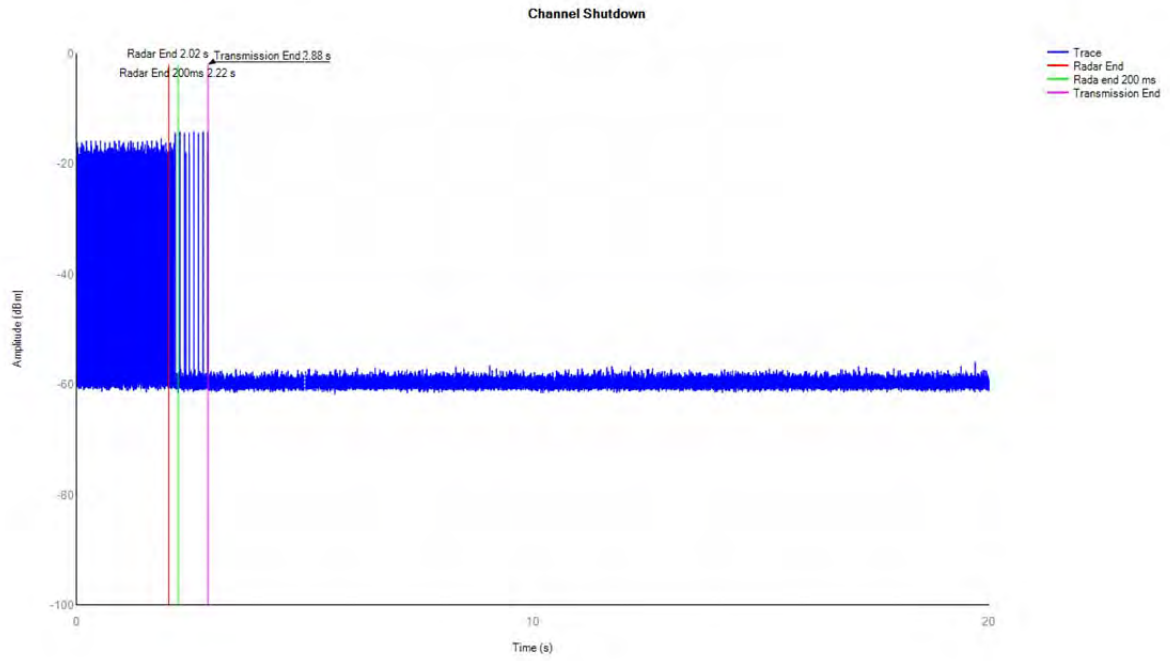
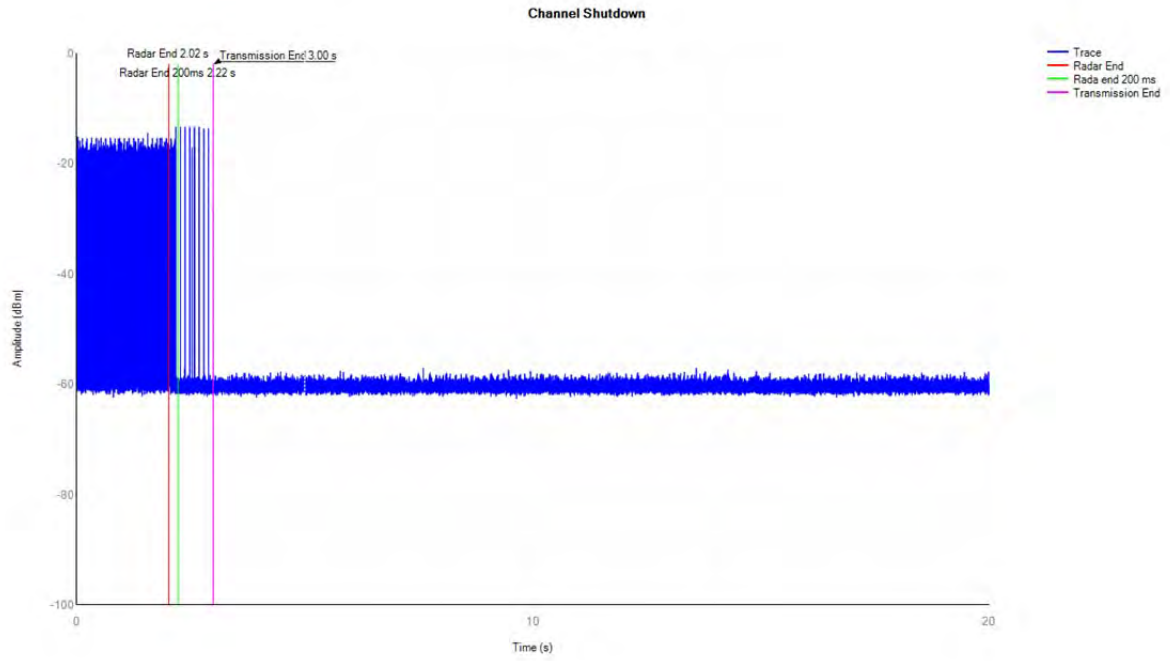
Span: Zero

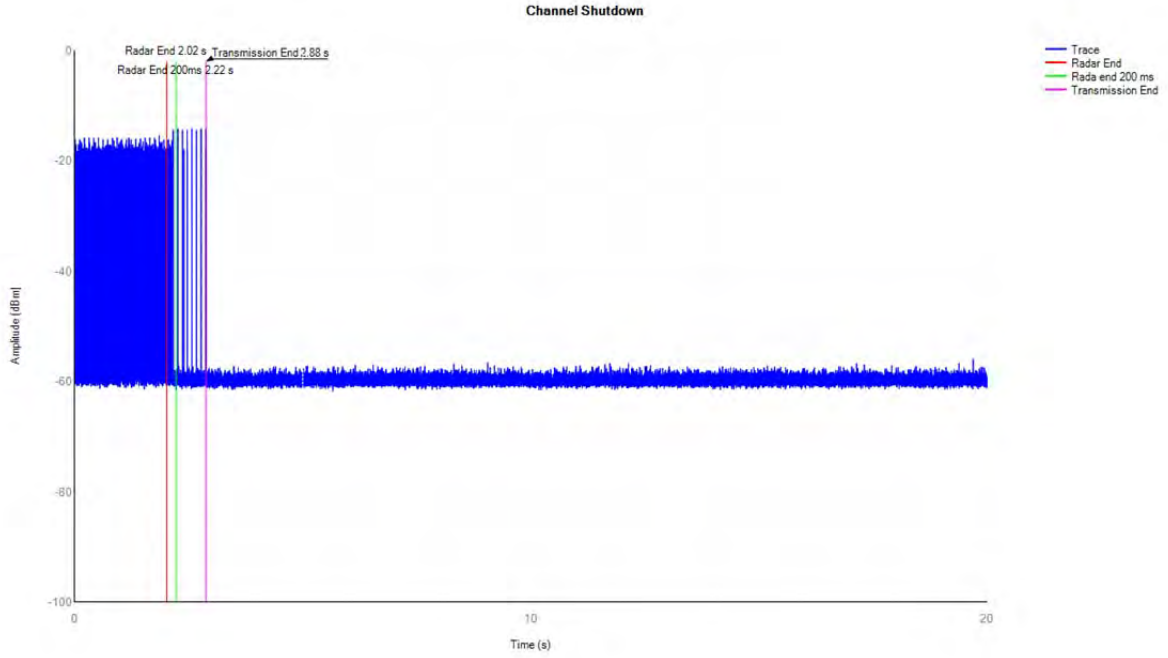
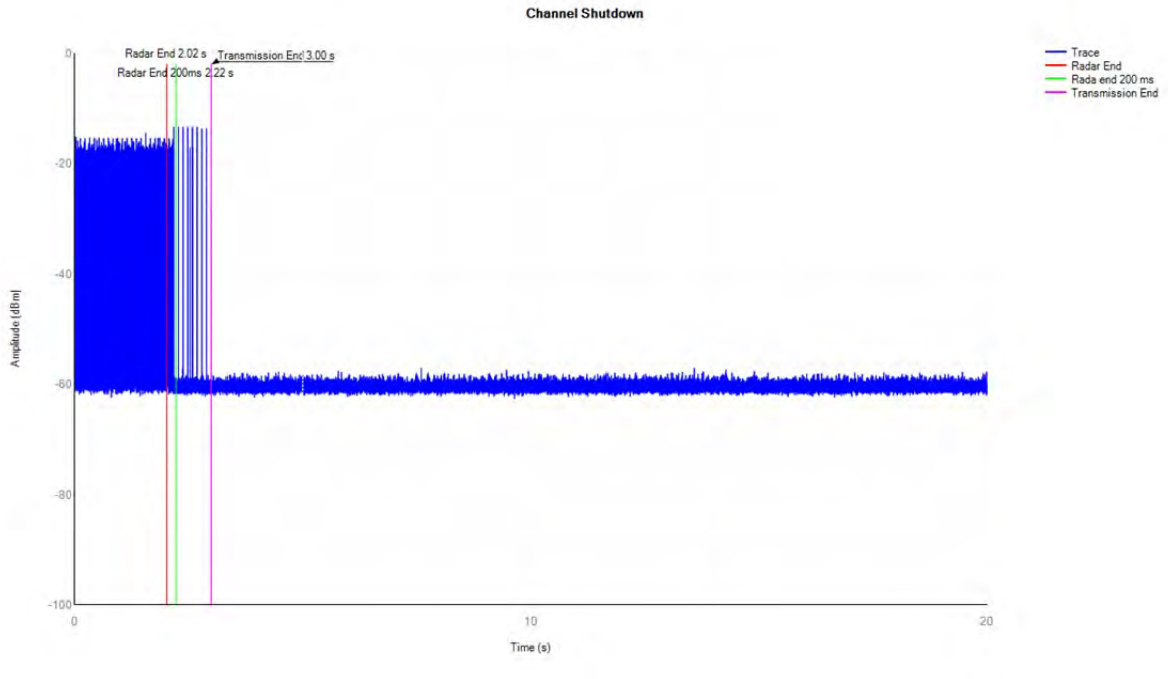
Detector type: Peak

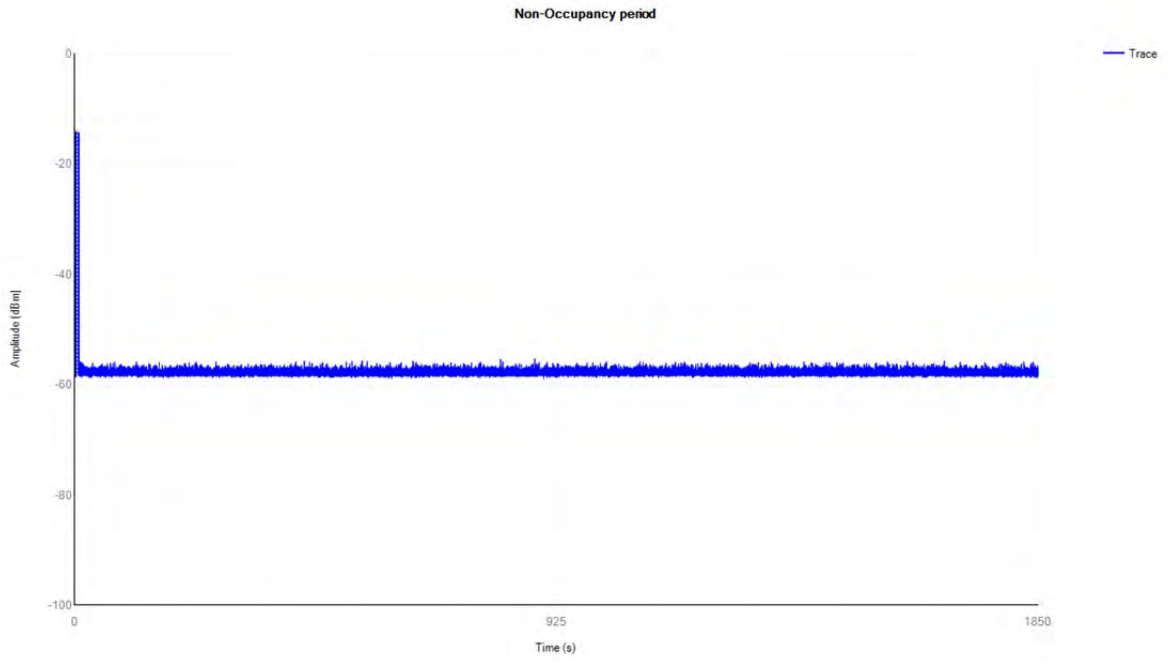
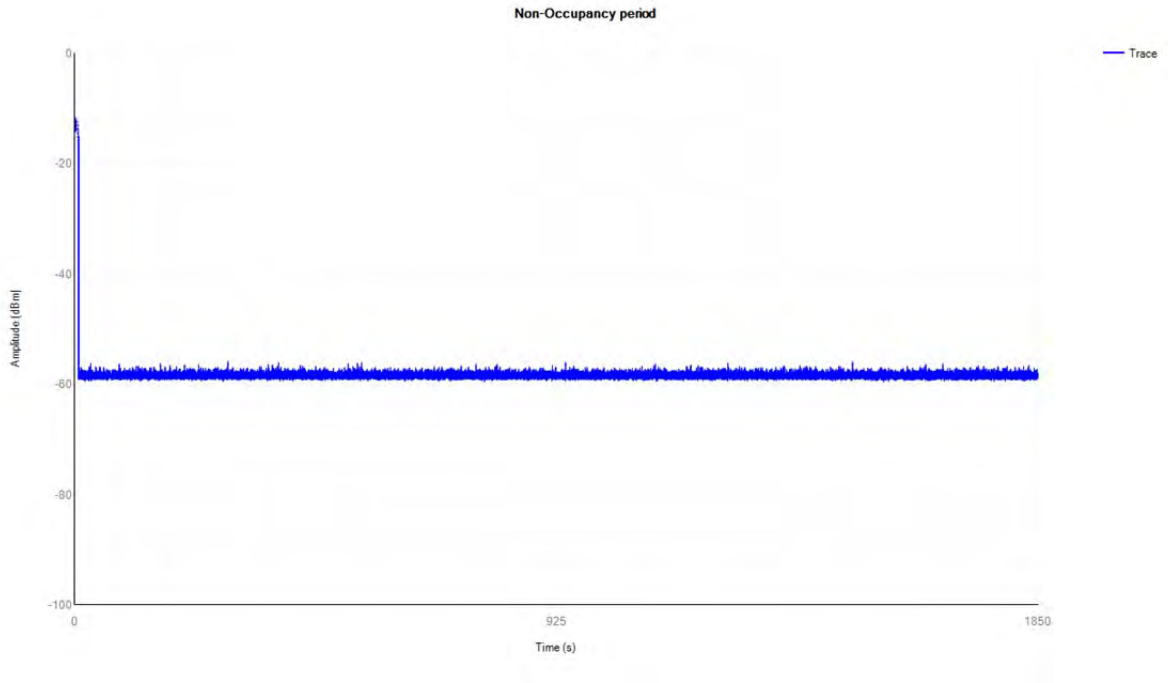
RBW: 3MHz

VBW: 3MHz

Sweep time: 20s

Test Graphs
a 5320MHz Shutdown

a 5500MHz Shutdown


Test Graphs
N40 5310MHz Shutdown

N40 5510MHz Shutdown


Test Graphs
a 5320MHz Non-Occupancy

a 5500MHz Non-Occupancy


A.7. Conducted Emission

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Set RBW=9kHz, VBW=30kHz. Refer to recorded points and plots below.

Note: Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

A. Test Setup:

Test Mode: EUT + PC Adapter + PC + WIFI TX

Test voltage: AC 120V/60Hz

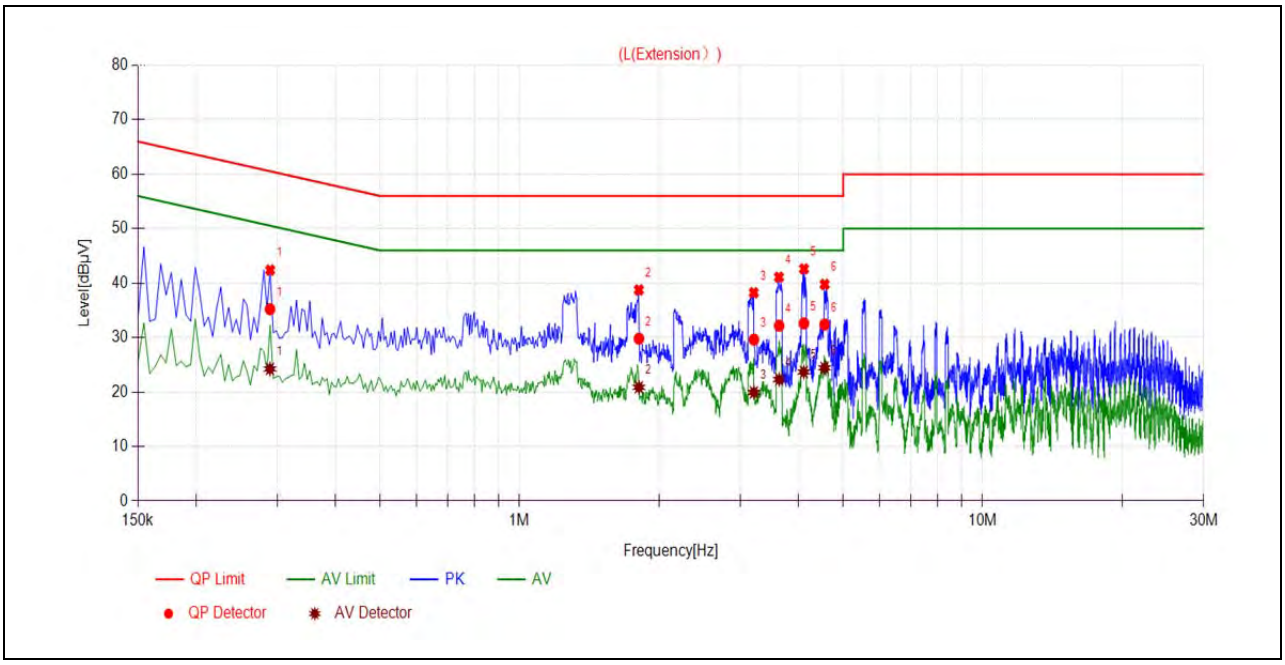
The measurement results are obtained as below:

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

U_R: Receiver Reading

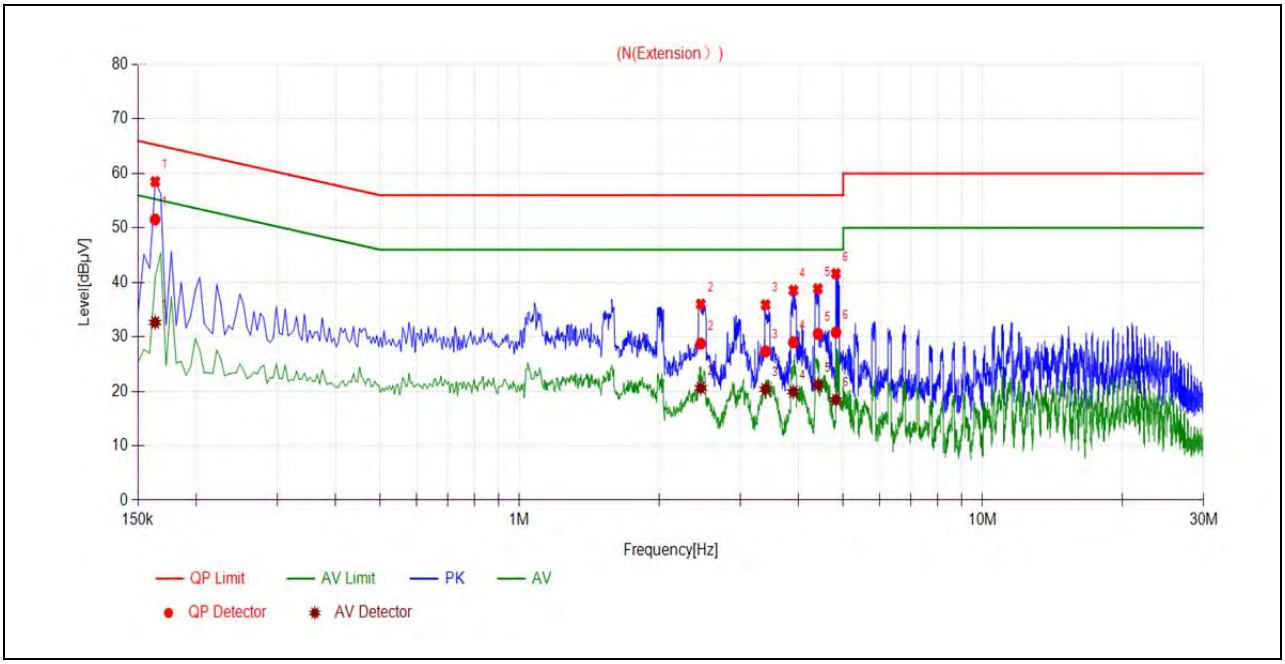
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.2892	35.22	24.24	60.55	50.55	Line	PASS
2	1.8105	29.80	20.87	56.00	46.00		PASS
3	3.2067	29.63	19.93	56.00	46.00		PASS
4	3.6366	32.19	22.31	56.00	46.00		PASS
5	4.1112	32.60	23.68	56.00	46.00		PASS
6	4.5567	32.40	24.44	56.00	46.00		PASS



(N Phase)

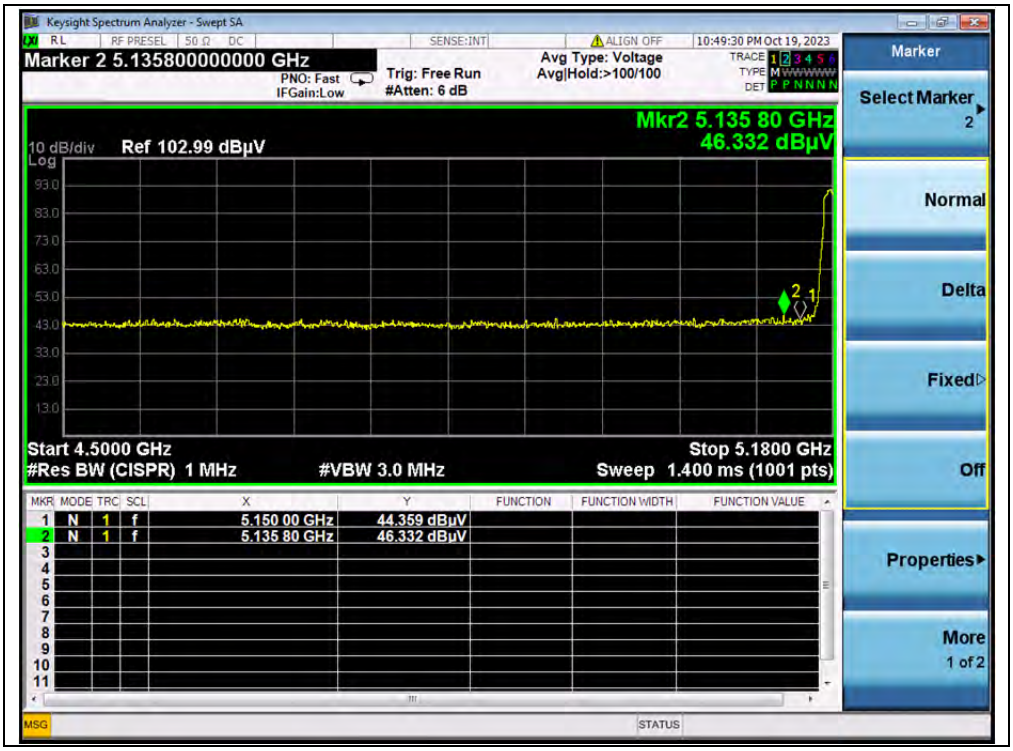
No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1634	51.57	32.65	65.29	55.29	Neutral	PASS
2	2.4620	28.76	20.63	56.00	46.00		PASS
3	3.3979	27.32	20.39	56.00	46.00		PASS
4	3.9006	28.99	19.91	56.00	46.00		PASS
5	4.4106	30.55	21.19	56.00	46.00		PASS
6	4.8238	30.81	18.44	56.00	46.00		PASS

A.8. Restricted Frequency Bands

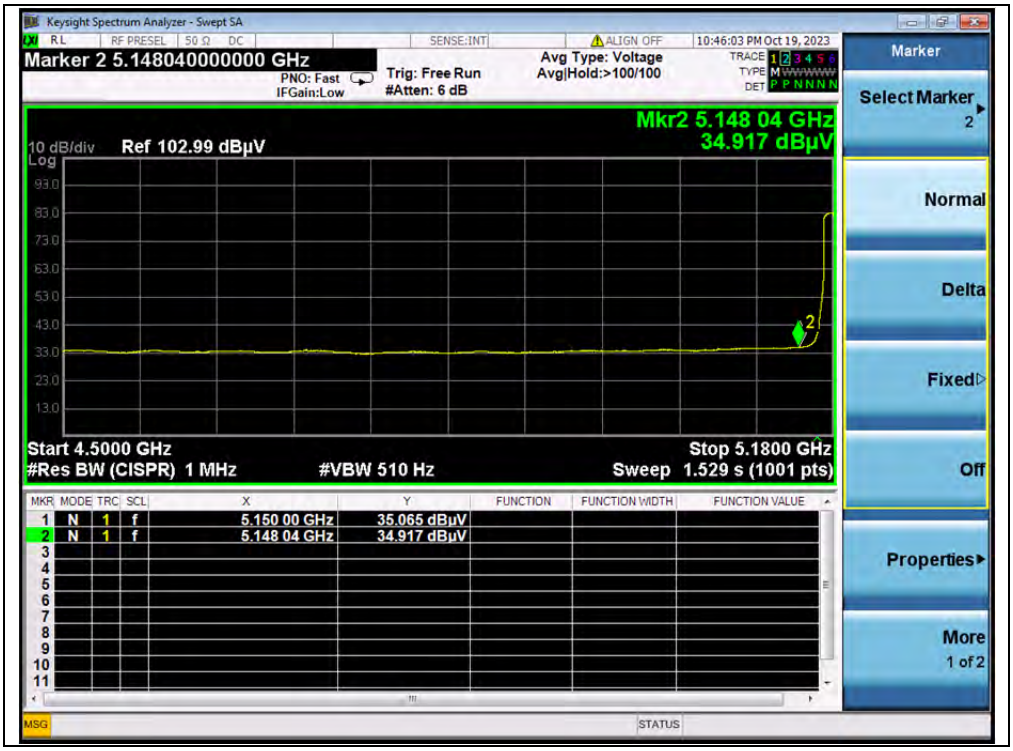
The lowest and highest channels are tested to verify the Restricted Frequency Bands.
The measurement results are obtained as below:
E [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [dB]
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier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

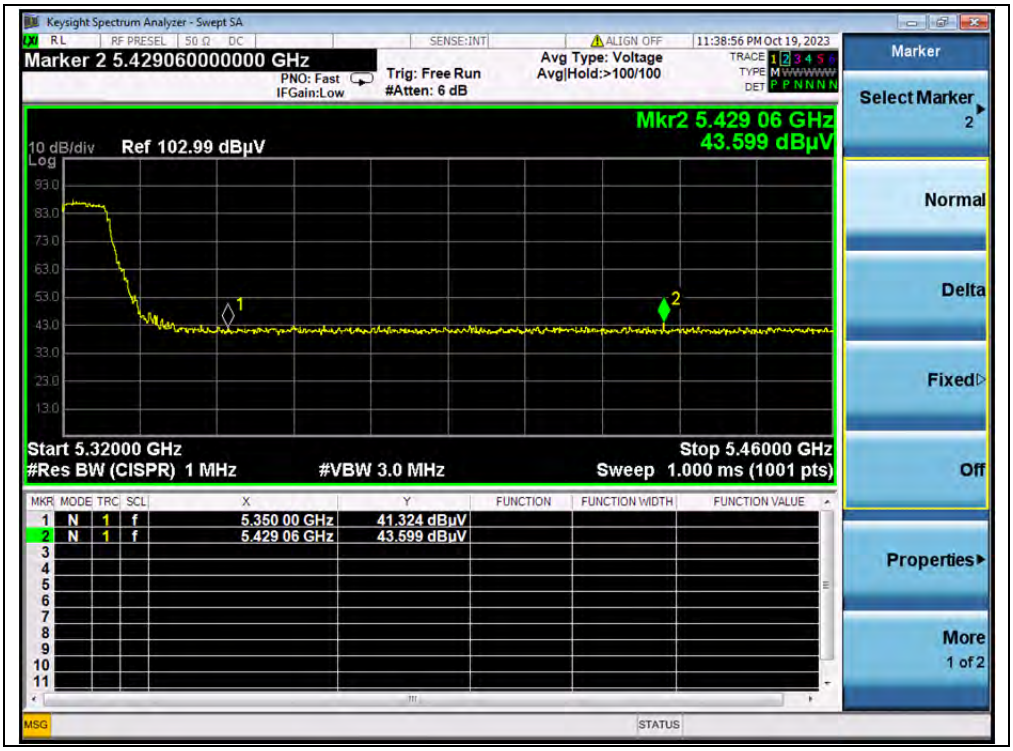
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
36	5135.80	PK	46.33	-19.54	32.20	58.99	74	PASS
36	5150.00	AV	35.07	-19.54	32.20	47.73	54	PASS
64	5429.06	PK	43.60	-18.80	32.20	57.00	74	PASS
64	5351.22	AV	32.79	-18.80	32.20	46.19	54	PASS
100	5085.68	PK	46.08	-19.20	32.20	59.08	74	PASS
100	5100.47	AV	34.17	-19.20	32.20	47.17	54	PASS
144	5740.20	PK	44.63	-19.20	32.20	57.63	68.23	PASS
149	5725.00	PK	45.11	-19.01	32.20	58.30	122.23	PASS
165	5855.00	PK	43.44	-19.01	32.20	56.63	110.83	PASS



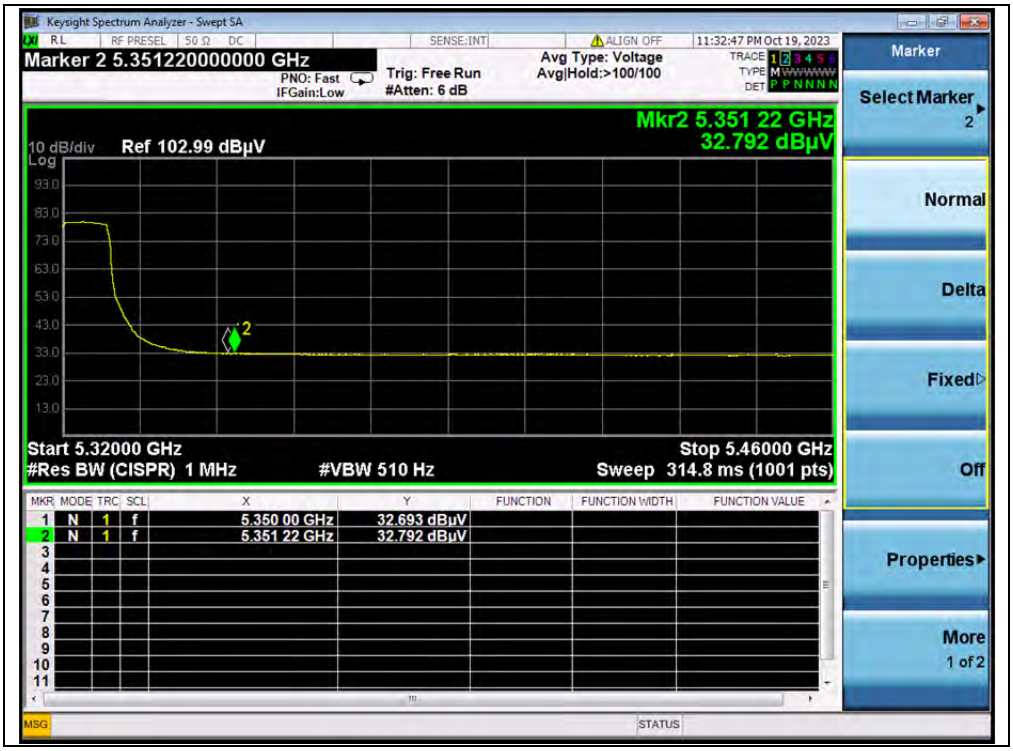
(PEAK, Channel 36, 802.11a)



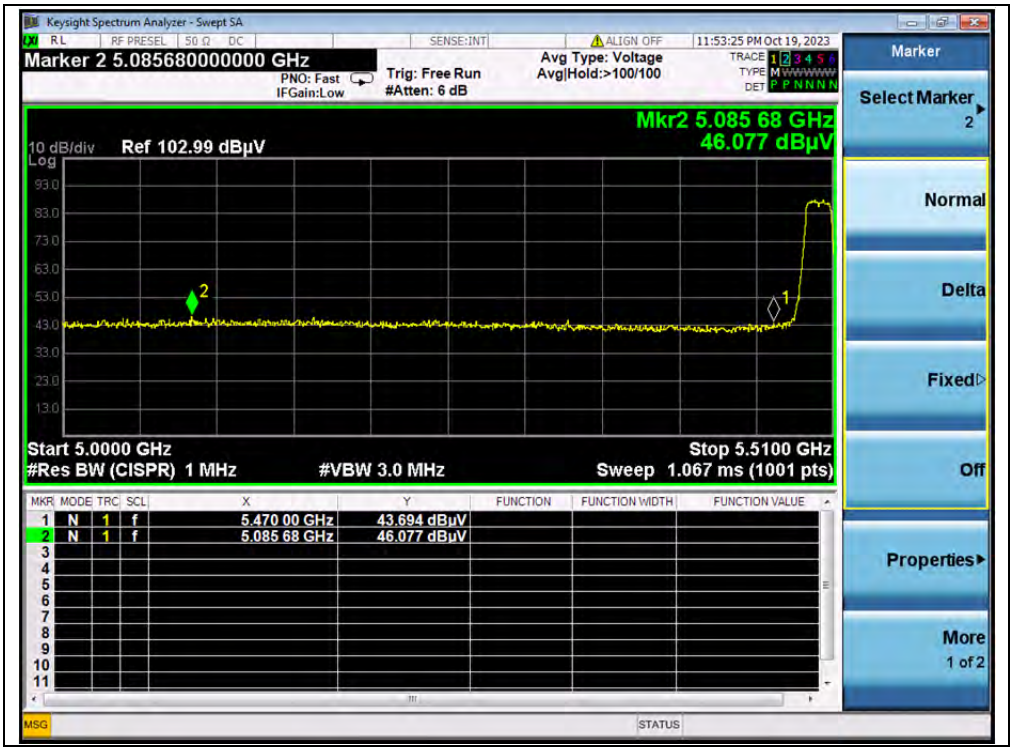
(AVERAGE, Channel 36, 802.11a)



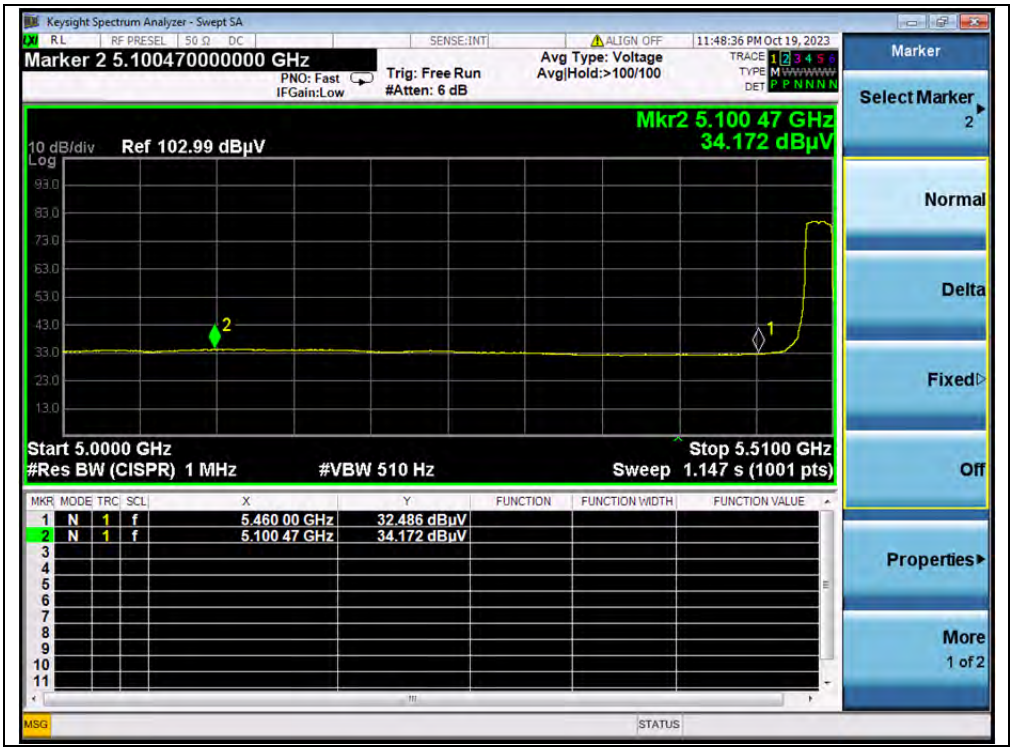
(PEAK, Channel 64, 802.11a)



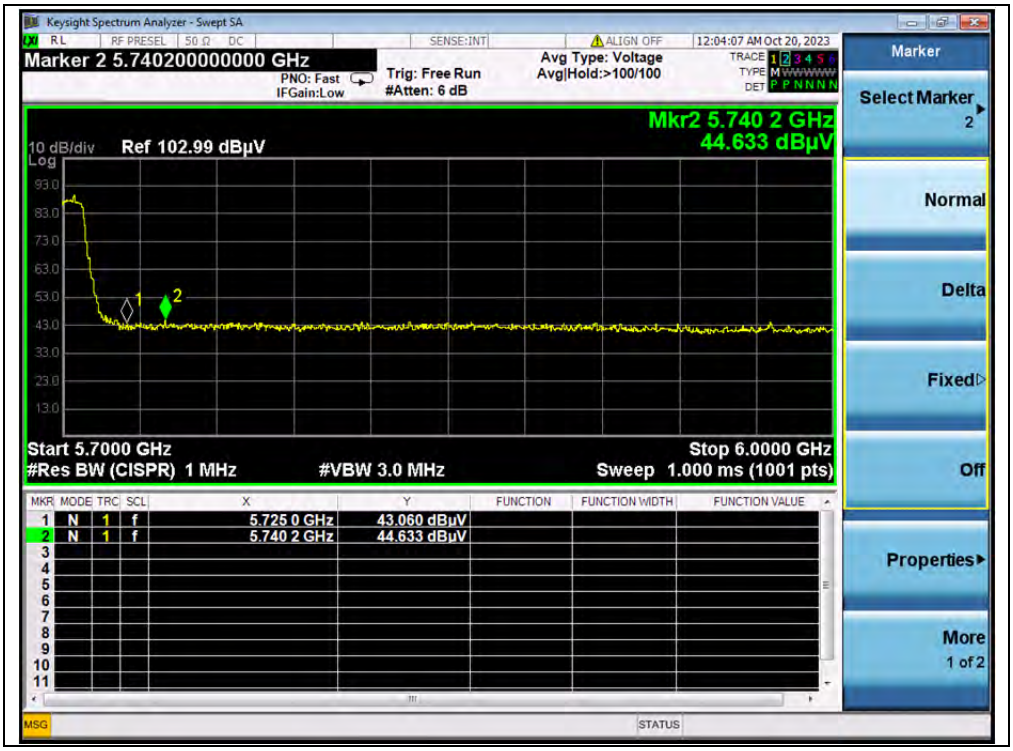
(AVERAGE, Channel 64, 802.11a)



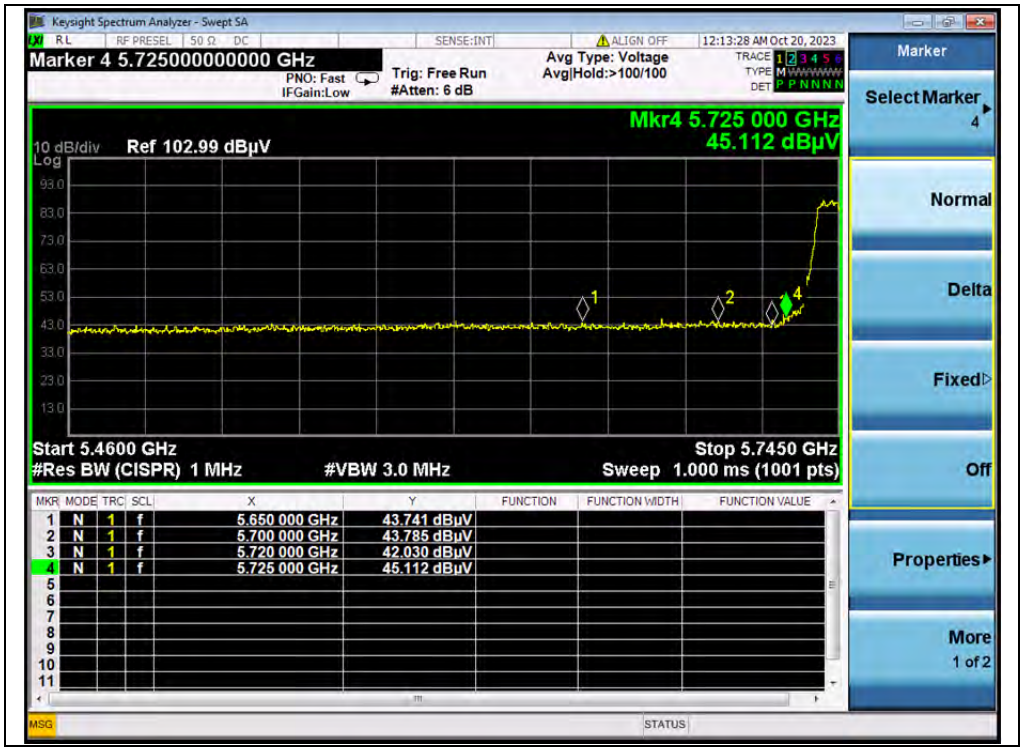
(PEAK, Channel 100, 802.11a)



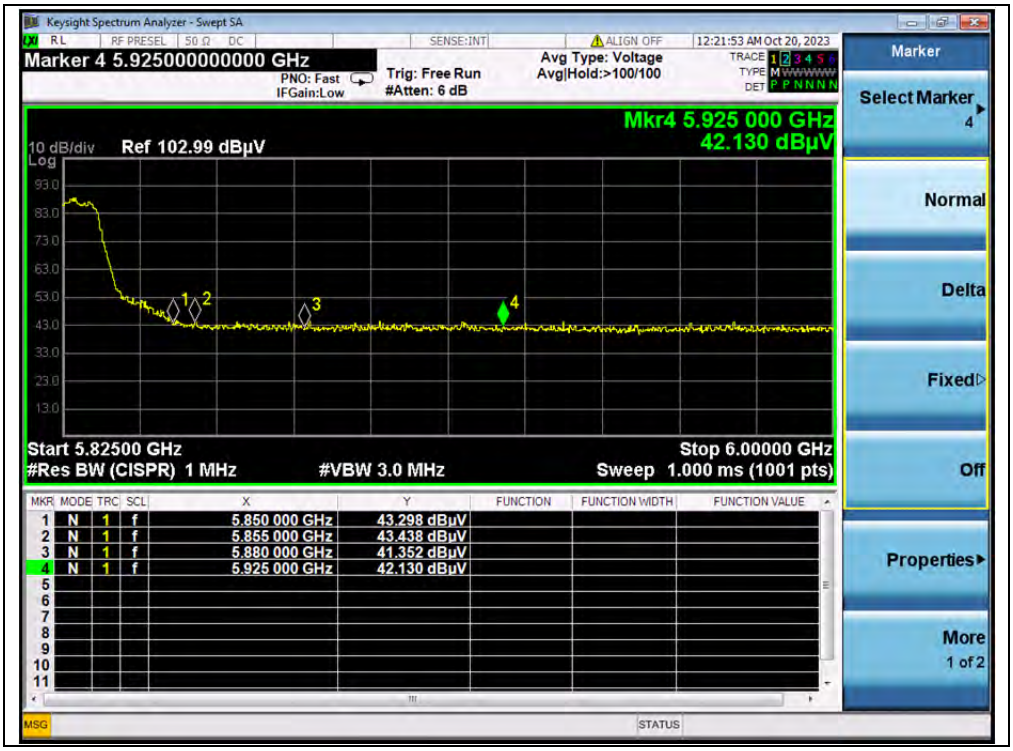
(AVERAGE, Channel 100, 802.11a)



(PEAK, Channel 144, 802.11a)



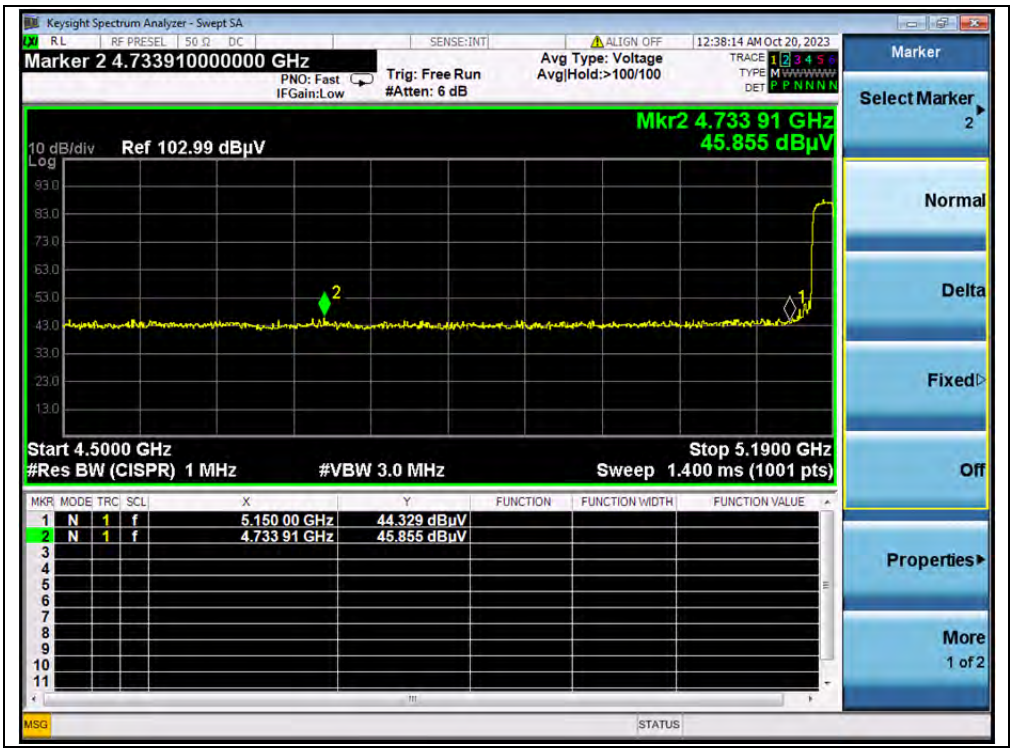
(PEAK, Channel 149, 802.11a)



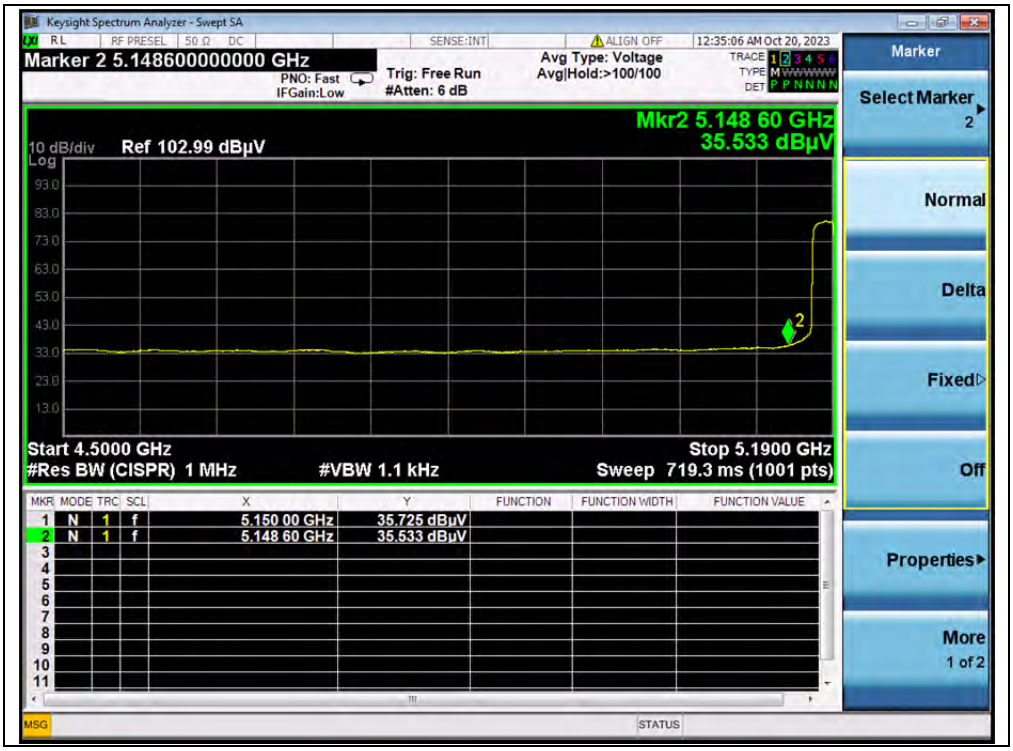
(PEAK, Channel 165, 802.11a)

802.11n (HT40) Mode

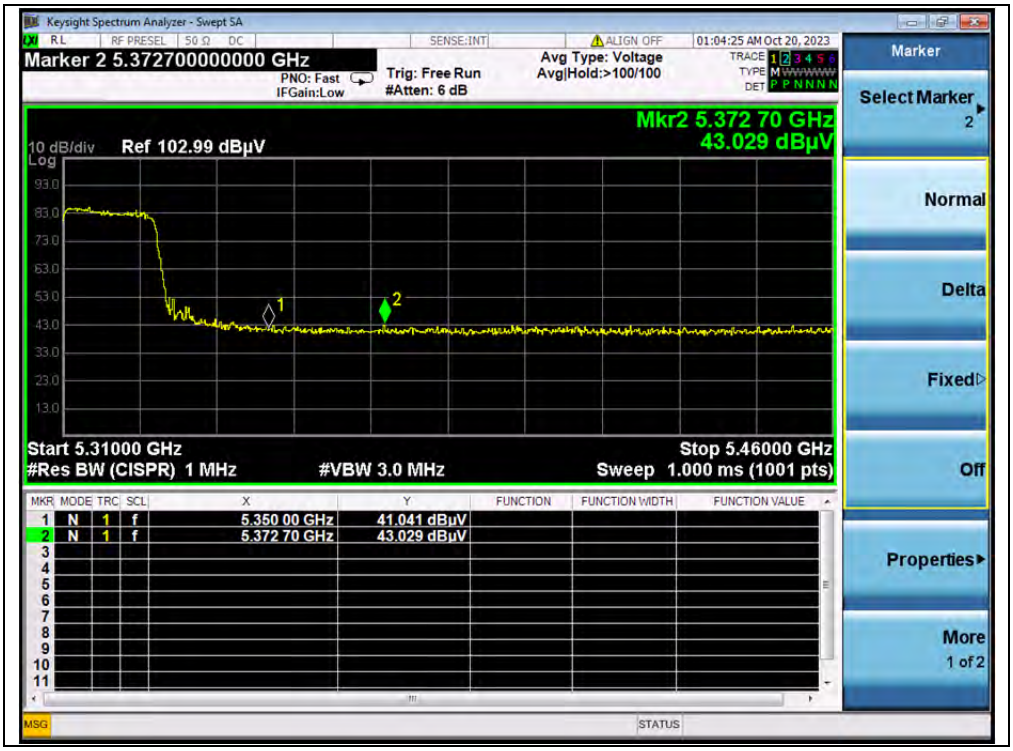
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
38	4733.91	PK	45.86	-19.54	32.20	58.52	74	PASS
38	5150.00	AV	35.73	-19.54	32.20	48.39	54	PASS
62	5372.70	PK	43.03	-18.80	32.20	56.43	74	PASS
62	5350.20	AV	33.58	-18.80	32.20	46.98	54	PASS
102	5082.62	PK	45.49	-19.20	32.20	58.49	74	PASS
102	5106.08	AV	34.47	-19.20	32.20	47.47	54	PASS
142	5729.73	PK	45.09	-19.20	32.20	58.09	68.23	PASS
151	5725.00	PK	47.75	-19.01	32.20	60.94	122.23	PASS
159	5855.00	PK	43.69	-19.01	32.20	56.88	110.83	PASS



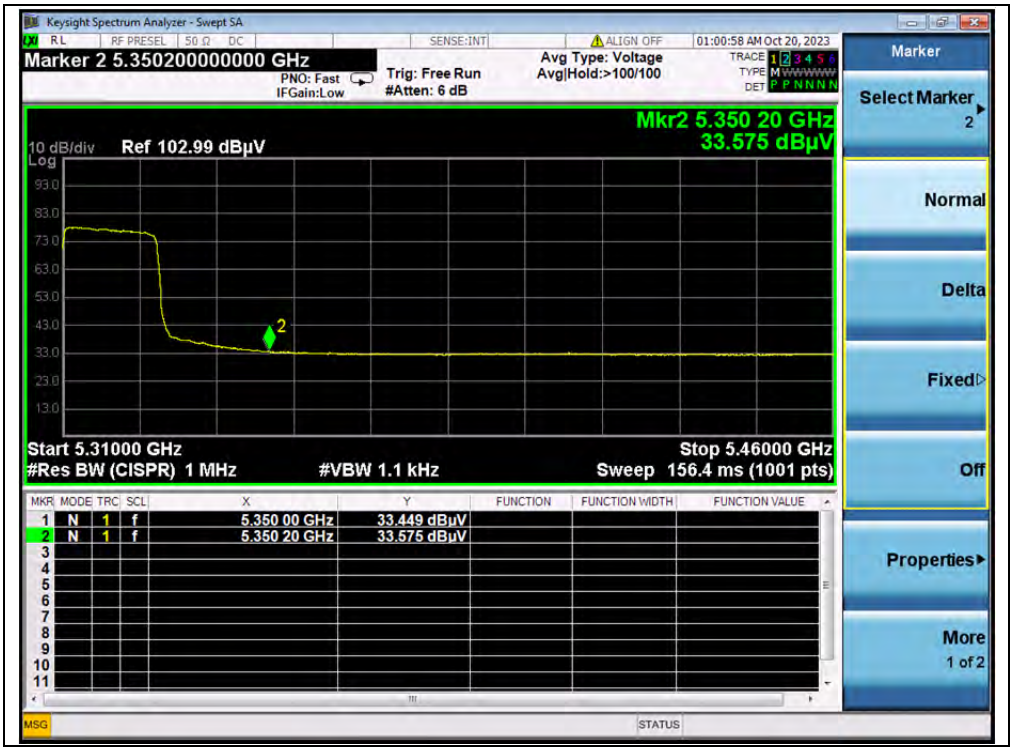
(PEAK, Channel 38, 802.11n (HT40))



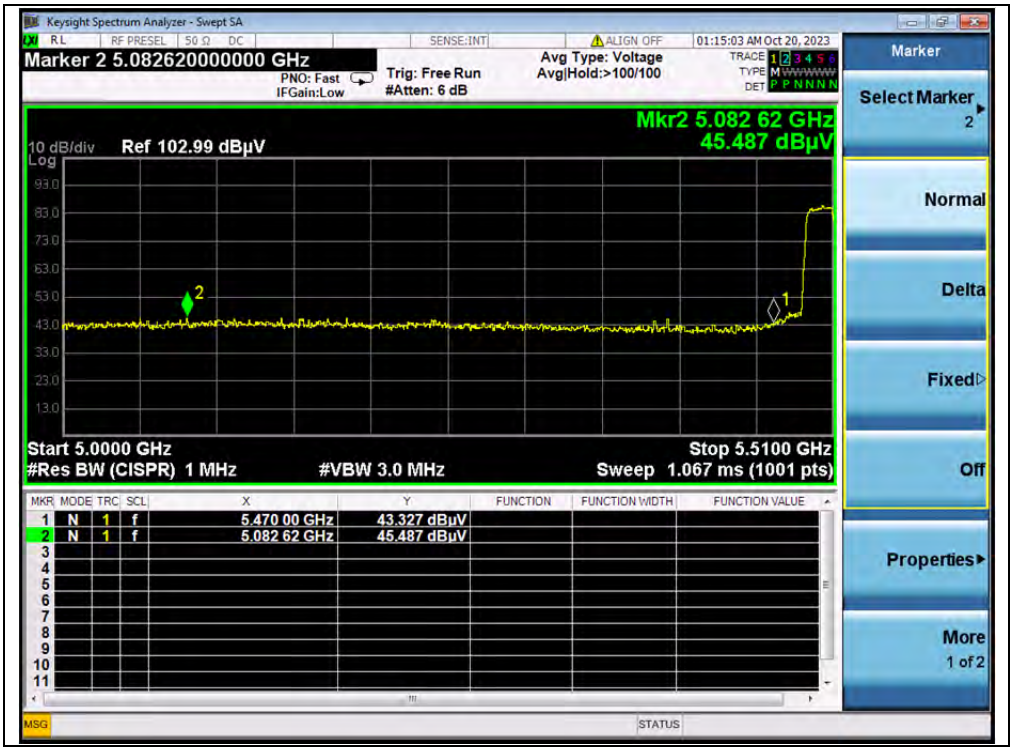
(AVERAGE, Channel 38, 802.11n (HT40))



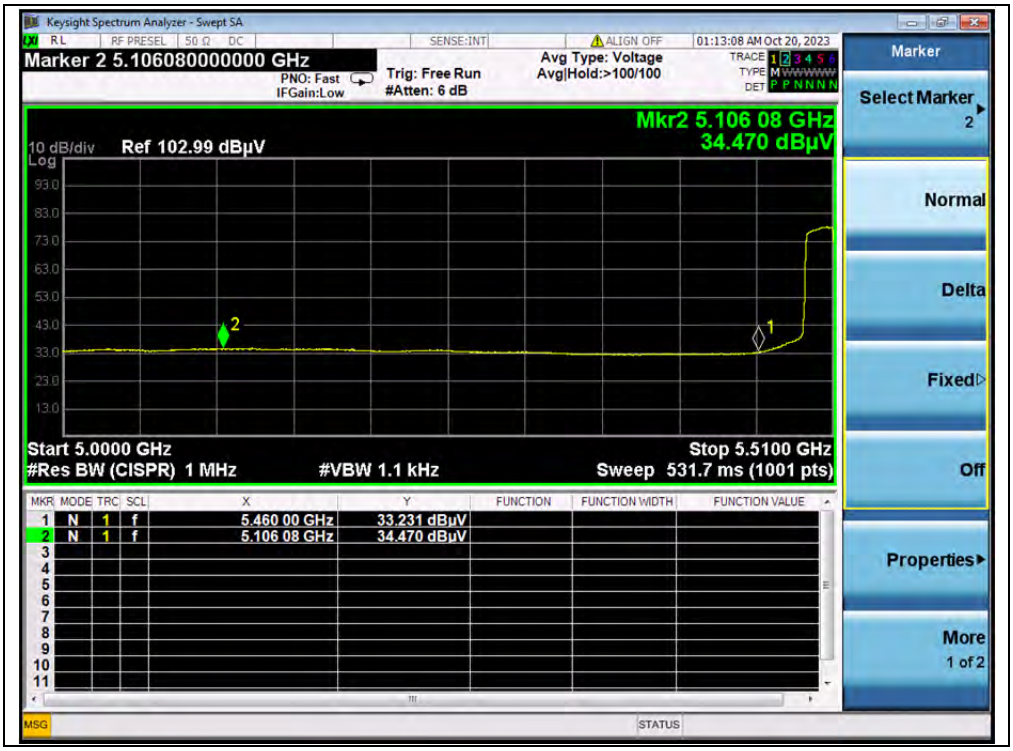
(PEAK, Channel 62, 802.11n (HT40))



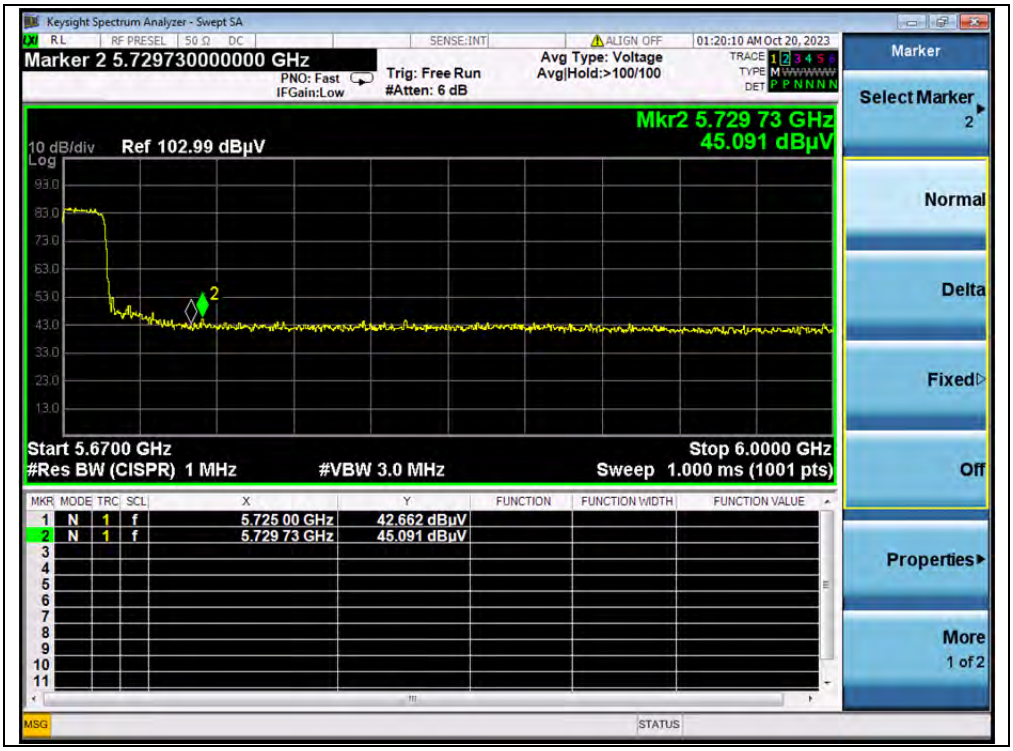
(AVERAGE, Channel 62, 802.11n (HT40))



(PEAK, Channel 102, 802.11n (HT40))



(AVERAGE, Channel 102, 802.11n (HT40))



(PEAK, Channel 142, 802.11n (HT40))

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

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

A.9. 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.

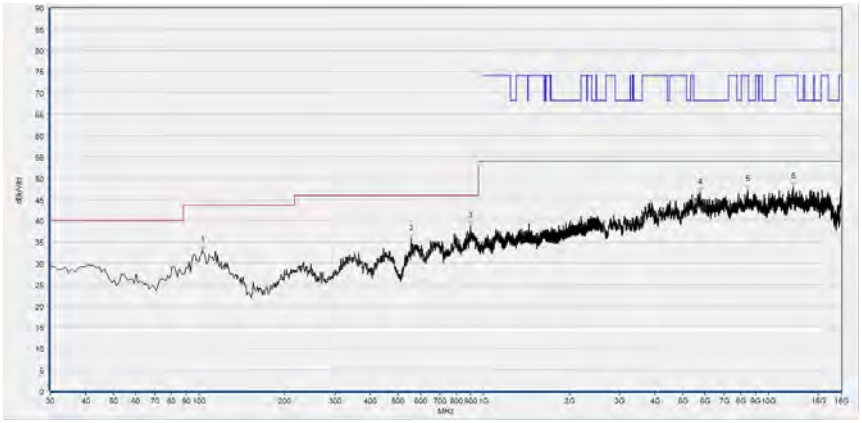
Note2: For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

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.

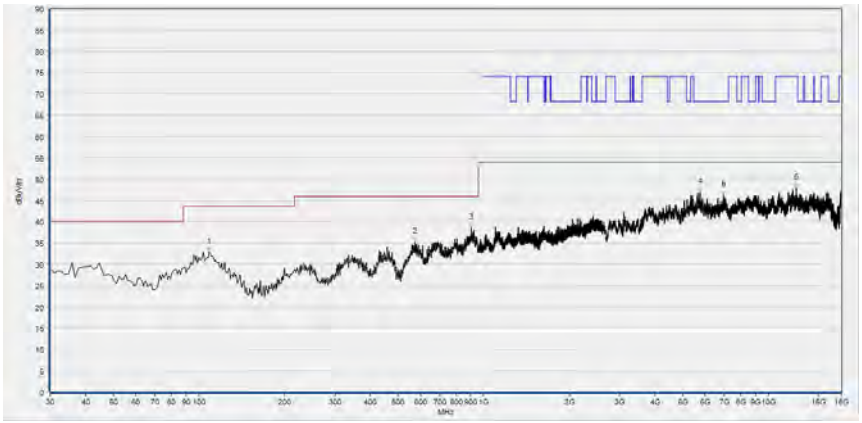
802.11a Mode

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
102.823	32.94	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
556.266	35.66	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
898.048	38.70	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5763.793	46.53	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8440.848	47.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12199.200	47.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

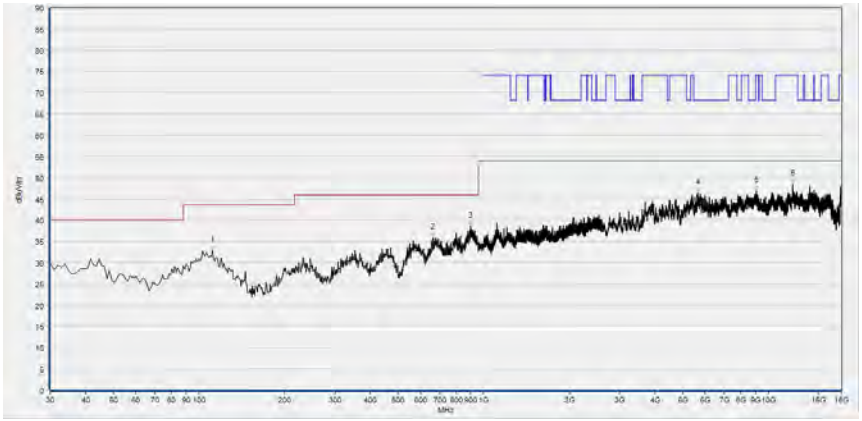
(Antenna Horizontal, 30MHz to 18GHz)



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
108.649	32.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
574.715	35.14	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
906.787	38.48	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5745.309	46.95	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
6968.314	46.28	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12513.423	47.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

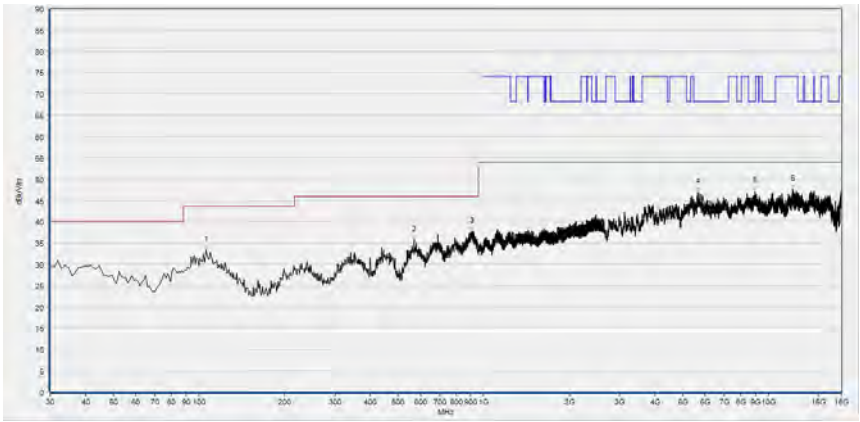
(Antenna Vertical, 30MHz to 18GHz)

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
111.562	32.82	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
664.044	35.93	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
899.990	38.49	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5637.487	46.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9056.971	46.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12168.394	48.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

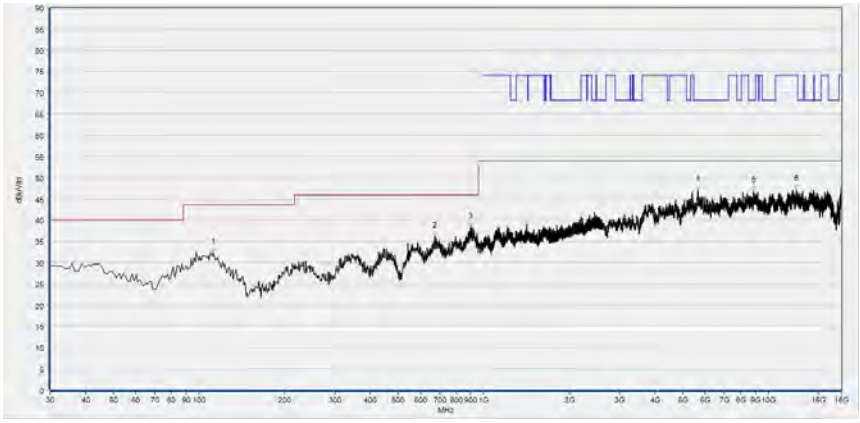
(Antenna Horizontal, 30MHz to 18GHz)



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
105.736	33.35	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
568.889	35.76	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
909.700	37.67	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5649.810	46.88	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8939.908	47.05	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12146.829	47.52	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

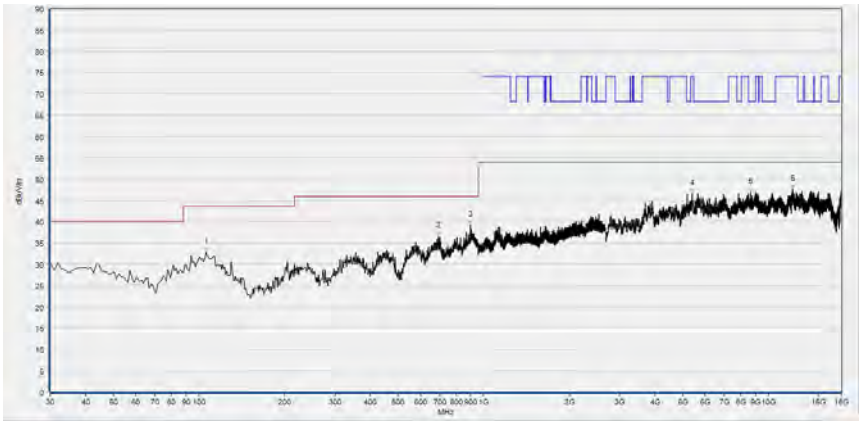
(Antenna Vertical, 30MHz to 18GHz)

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
112.533	32.39	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
674.725	36.16	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
899.990	38.38	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5652.891	47.08	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8862.893	46.98	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12507.261	47.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

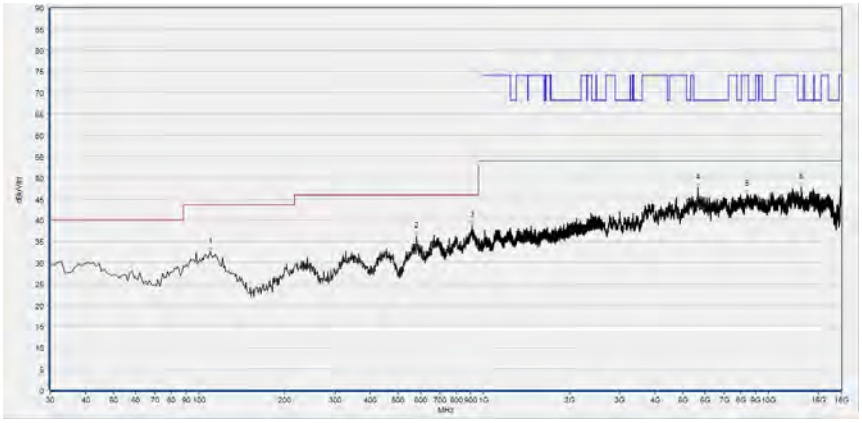
(Antenna Horizontal, 30MHz to 18GHz)



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
105.736	32.81	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
694.144	36.57	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
899.990	39.20	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5400.280	46.66	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8678.056	46.89	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12165.313	47.61	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

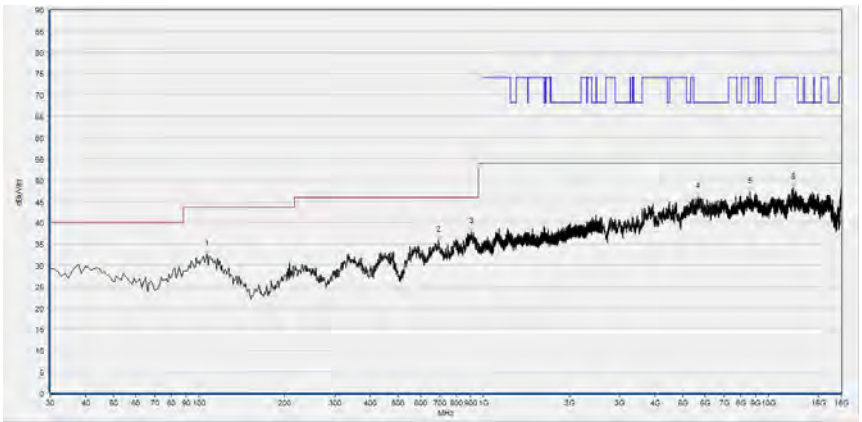
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 52



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
109.620	32.52	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
581.512	36.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
911.642	38.72	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5659.052	47.59	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8416.203	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13058.692	47.81	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS

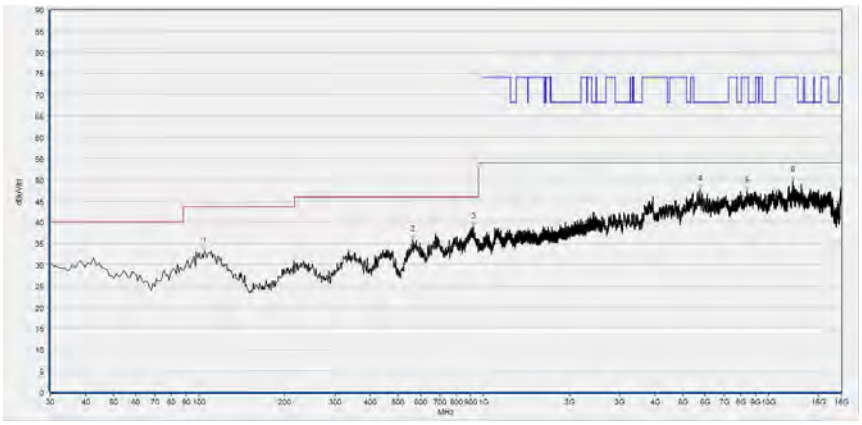
(Antenna Horizontal, 30MHz to 18GHz)



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
106.707	32.58	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
693.173	35.81	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
901.932	37.80	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5655.971	46.03	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8631.846	47.32	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12202.280	48.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

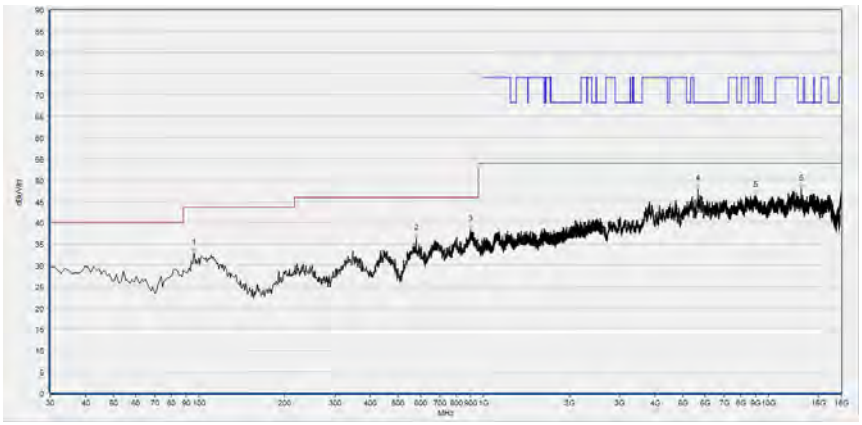
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 60



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
104.765	33.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
564.034	35.93	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
921.351	38.94	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5751.470	47.81	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8388.478	47.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12165.313	49.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

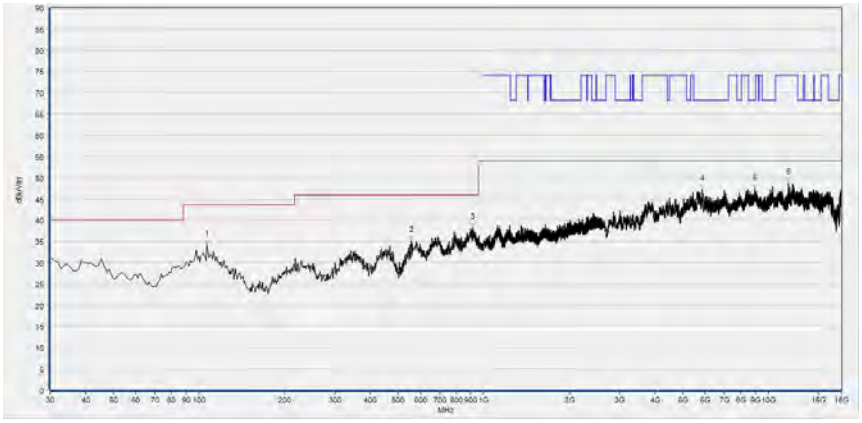
(Antenna Horizontal, 30MHz to 18GHz)



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
96.026	32.87	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
578.599	36.34	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
899.019	38.33	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5662.132	47.86	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
9007.682	46.38	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13058.692	47.98	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

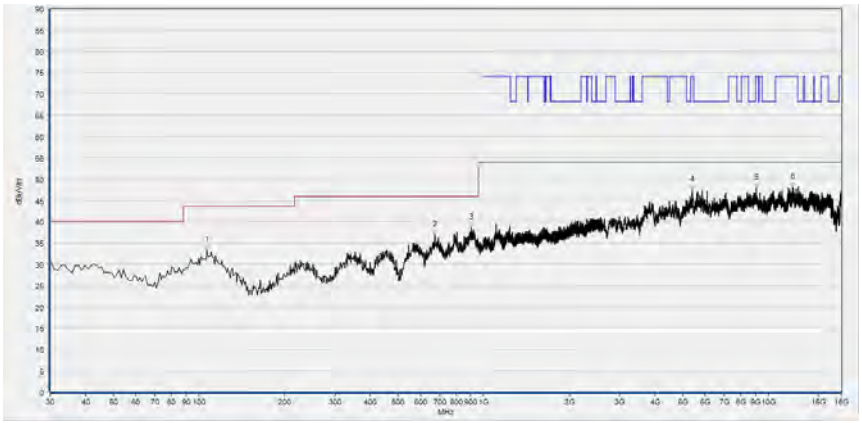
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 64



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
106.707	34.14	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
558.208	35.22	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
916.496	38.19	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5865.453	47.23	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8983.037	47.35	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
11746.349	48.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

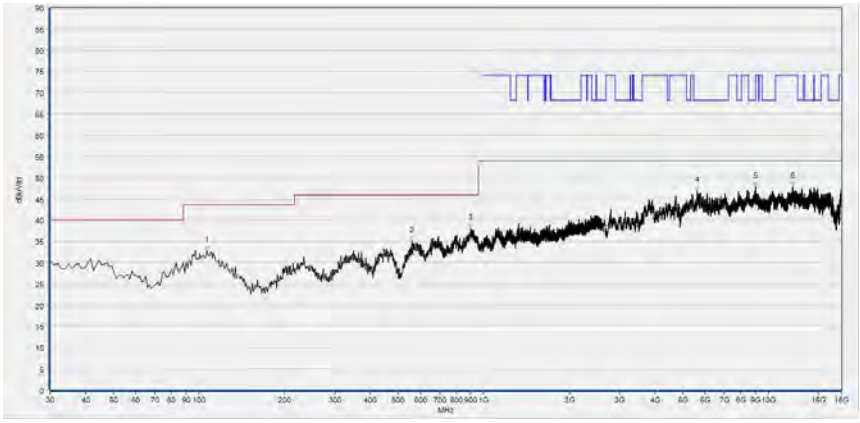
(Antenna Horizontal, 30MHz to 18GHz)



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
106.707	33.29	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
672.783	36.81	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
906.787	38.53	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5400.280	47.43	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9075.455	47.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12143.749	48.07	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

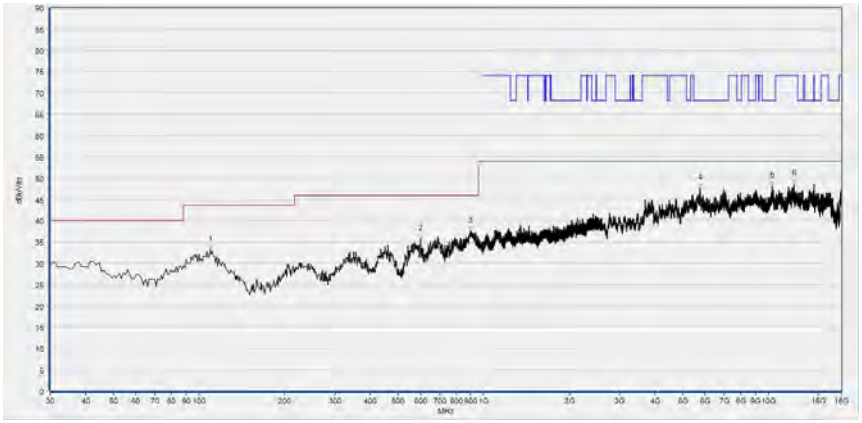
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 100



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
106.707	32.90	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
559.179	35.10	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
900.961	38.03	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5631.326	46.93	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9035.407	47.96	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12152.991	47.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

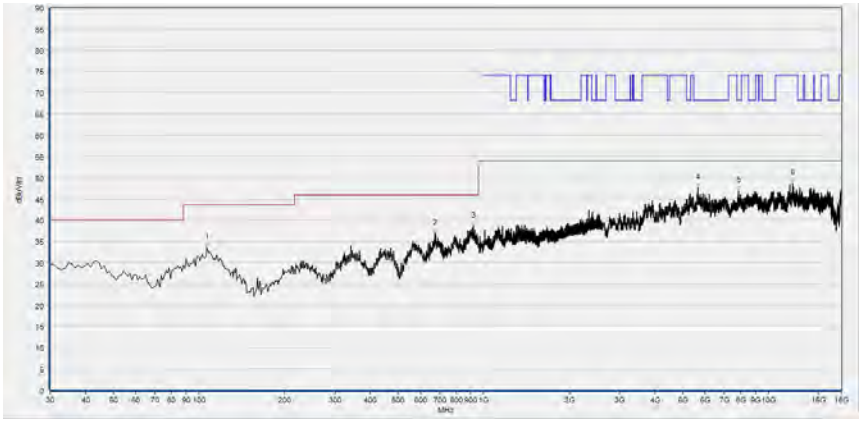
(Antenna Horizontal, 30MHz to 18GHz)



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
109.620	33.20	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
599.960	35.70	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
899.990	37.51	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5739.148	47.58	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10273.815	48.02	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12279.296	48.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

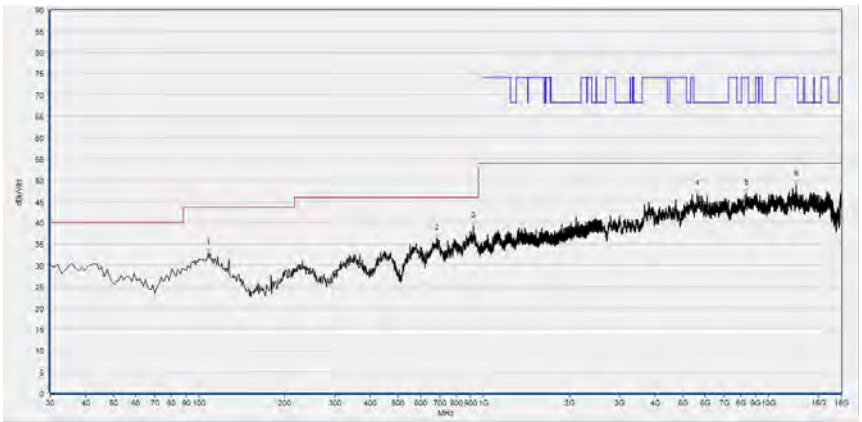
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 120



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
106.707	33.48	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
673.754	36.85	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
917.467	38.62	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5649.810	47.67	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7830.886	46.92	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12180.716	48.65	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

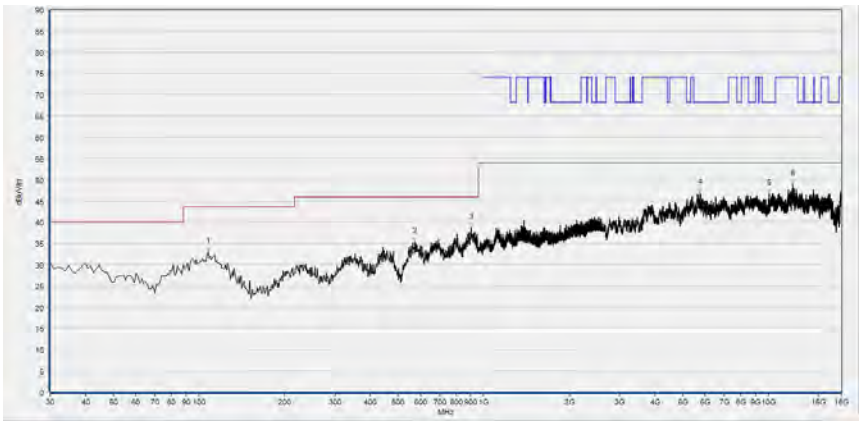
(Antenna Horizontal, 30MHz to 18GHz)



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
107.678	32.85	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
685.405	36.36	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
920.380	39.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5631.326	46.69	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8348.430	46.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12516.503	48.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

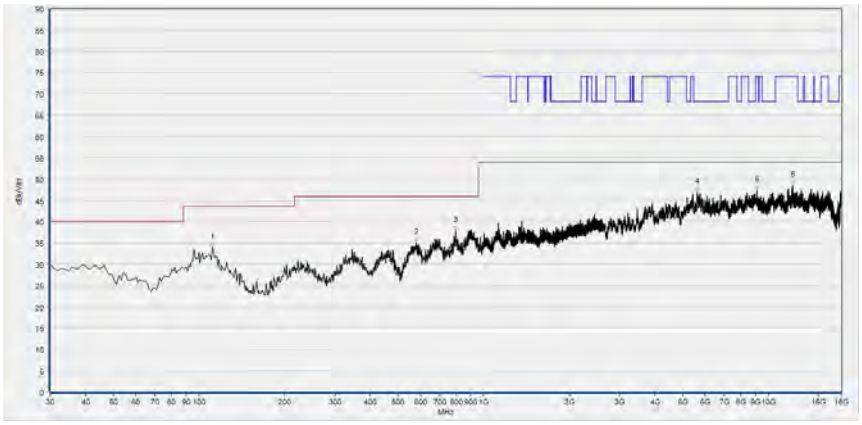
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 144



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
107.678	32.94	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
572.773	35.30	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
901.932	38.70	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5742.228	46.91	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
10070.494	46.69	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12159.152	48.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

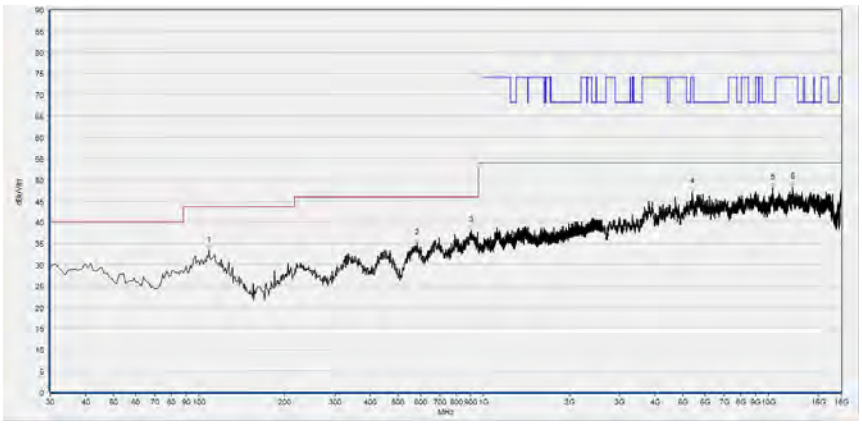
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	33.92	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
578.599	34.98	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
798.038	37.81	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5622.084	46.99	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
9093.939	47.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12152.991	48.42	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

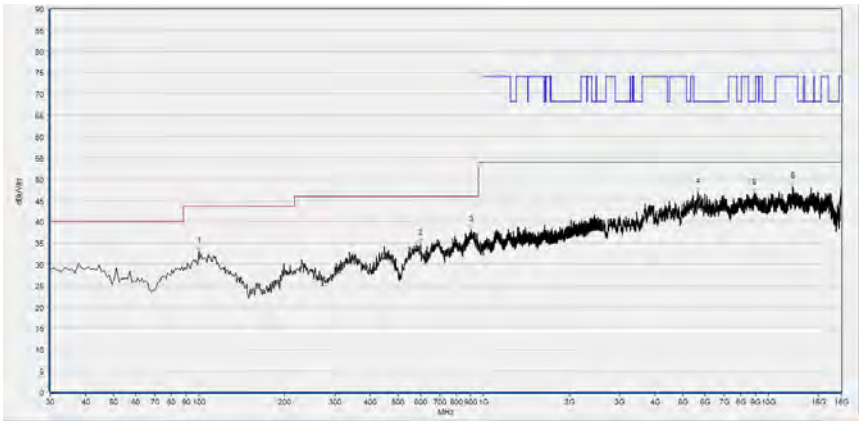
(Antenna Vertical, 30MHz to 18GHz)

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
108.649	33.27	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
584.424	35.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
905.816	37.98	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5391.038	47.08	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10341.588	48.12	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12143.749	48.28	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

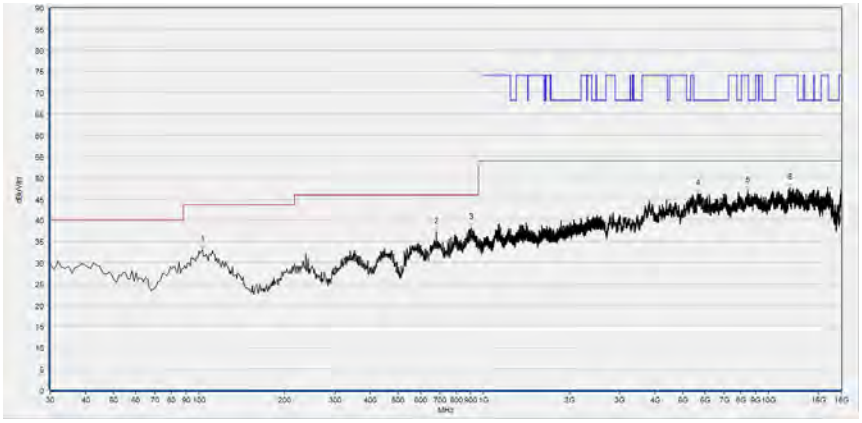
(Antenna Horizontal, 30MHz to 18GHz)



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
99.910	33.00	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
600.931	34.93	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
905.816	38.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5649.810	46.94	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8902.941	46.78	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12146.829	48.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

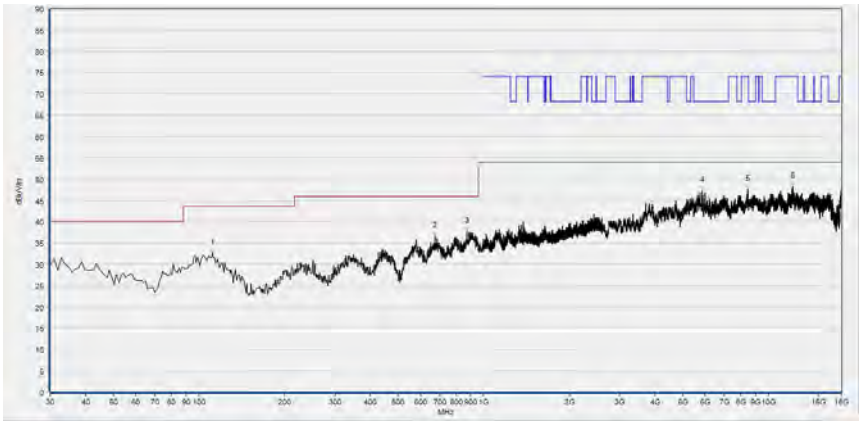
(Antenna Vertical, 30MHz to 18GHz)

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
102.823	32.99	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
682.492	37.27	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
904.845	38.28	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5637.487	46.21	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8462.412	46.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11863.413	47.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

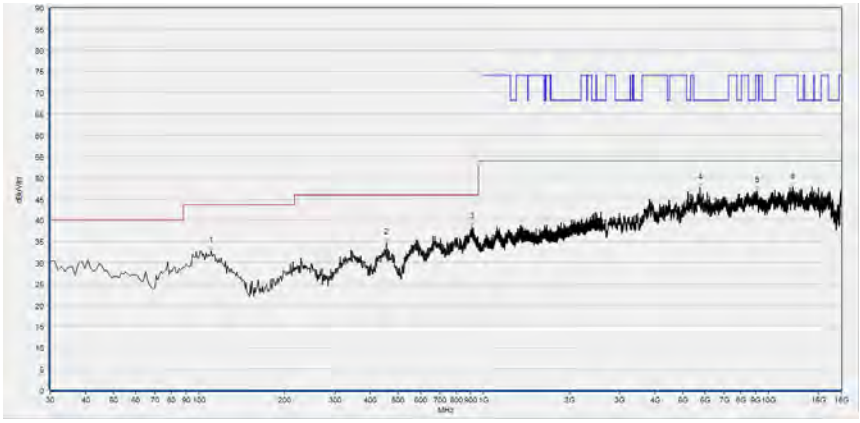
(Antenna Horizontal, 30MHz to 18GHz)



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
111.562	32.47	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
675.696	36.61	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
874.745	37.76	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5843.889	47.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8450.090	47.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12152.991	48.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

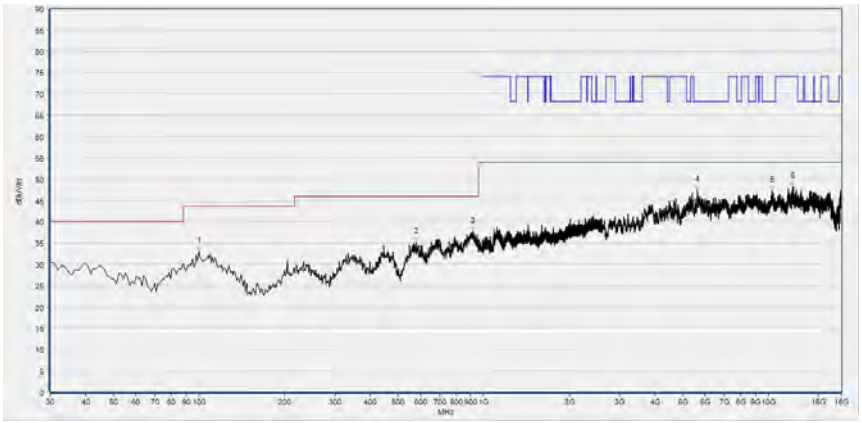
(Antenna Vertical, 30MHz to 18GHz)

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
110.591	32.65	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
455.285	34.75	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
911.642	38.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5751.470	47.57	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9109.342	46.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12174.555	47.74	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

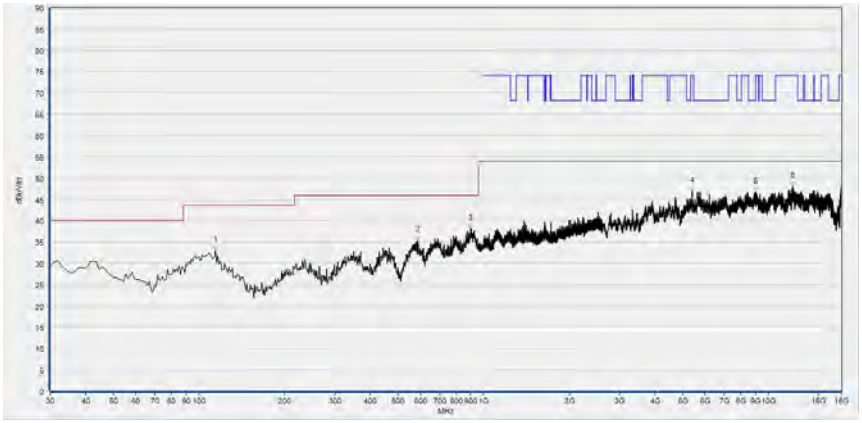


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.910	33.08	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
578.599	35.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
914.555	37.66	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5634.407	47.39	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10301.540	47.23	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12143.749	48.25	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

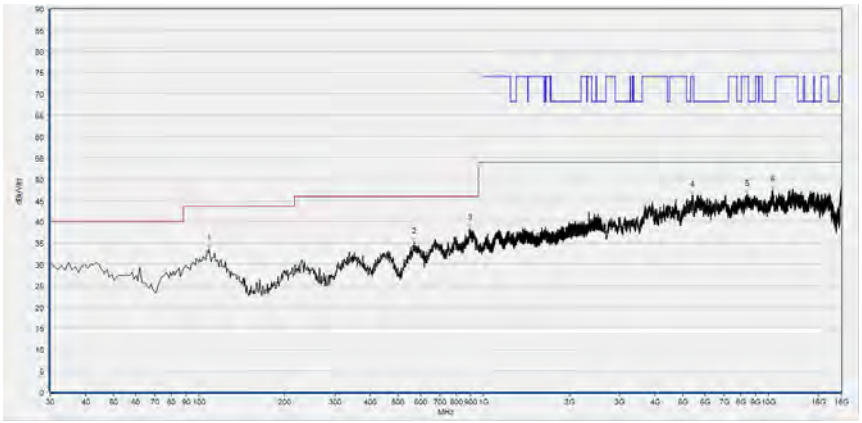
802.11n (HT40) mode

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
114.474	33.05	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
585.395	35.44	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
899.990	38.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5409.522	46.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8989.198	46.77	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12177.636	48.12	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

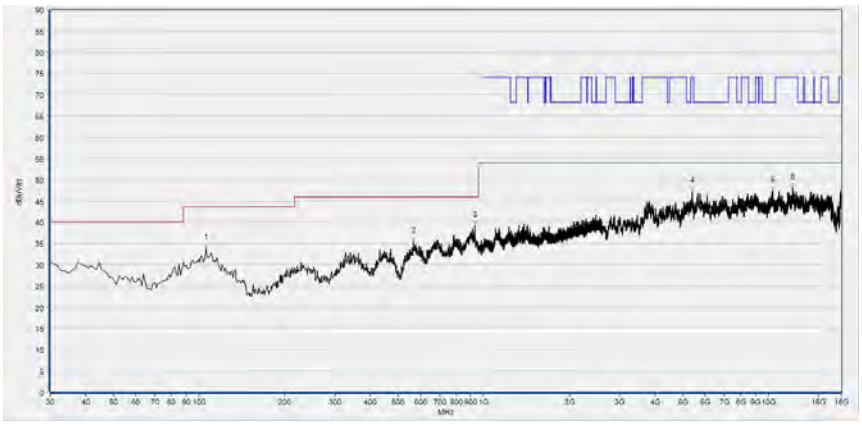
(Antenna Horizontal, 30MHz to 18GHz)



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
108.649	33.52	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
569.860	35.25	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
894.164	38.38	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5397.199	46.27	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8410.042	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10335.427	47.51	N/A	N/A	68.23	N/A	N/A	Vertical	PASS

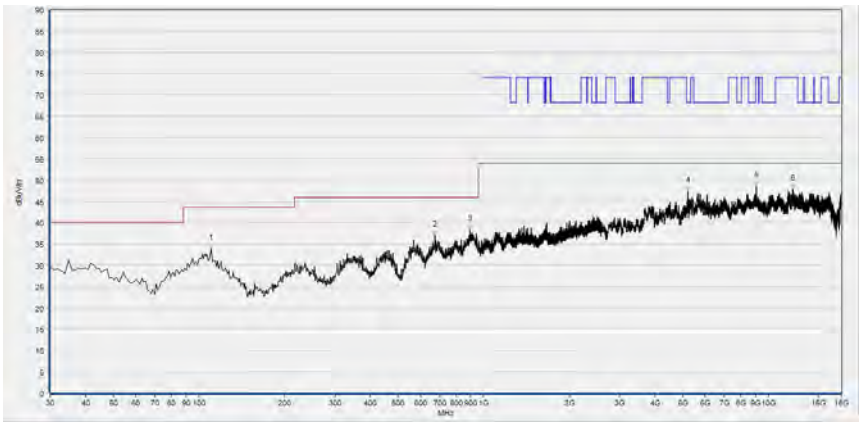
(Antenna Vertical, 30MHz to 18GHz)

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
105.736	33.89	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
566.947	35.31	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
929.119	39.15	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5406.441	47.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10366.233	47.38	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12162.232	48.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

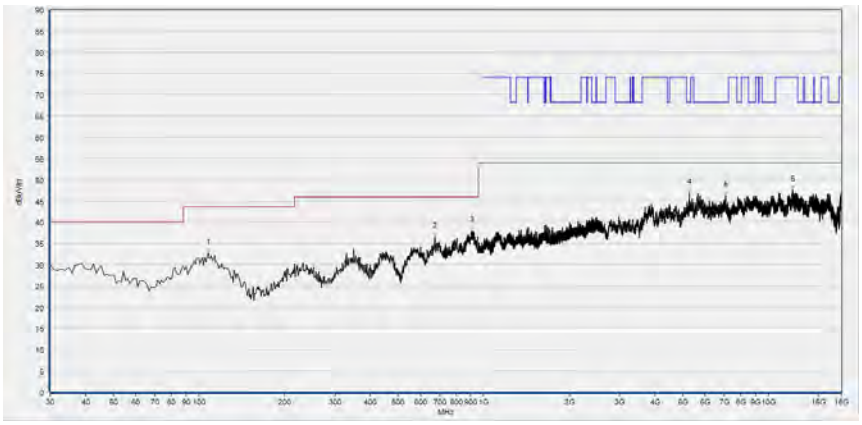
(Antenna Horizontal, 30MHz to 18GHz)



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
110.591	33.87	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
674.725	37.05	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
894.164	38.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5221.604	47.51	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
9069.294	48.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12137.588	47.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

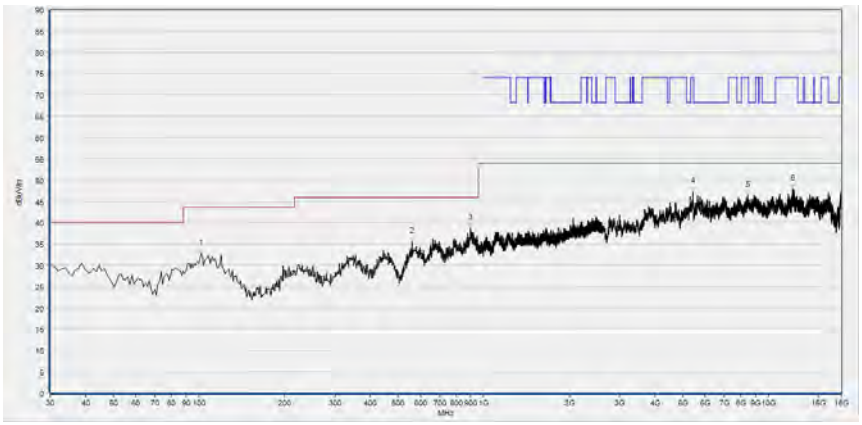
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 54



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
107.678	32.70	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
672.783	36.56	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
911.642	38.08	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5273.975	46.99	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7073.055	46.29	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12174.555	47.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

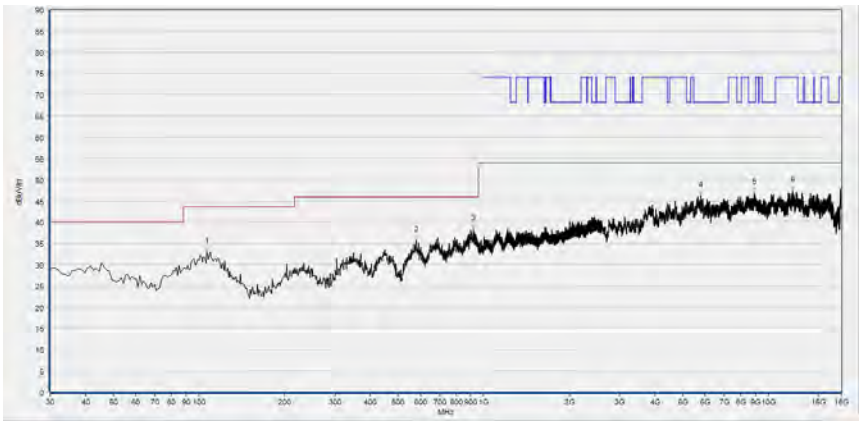
(Antenna Horizontal, 30MHz to 18GHz)



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
101.852	32.69	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
559.179	35.47	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
899.019	38.66	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5431.086	47.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8471.654	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12143.749	47.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

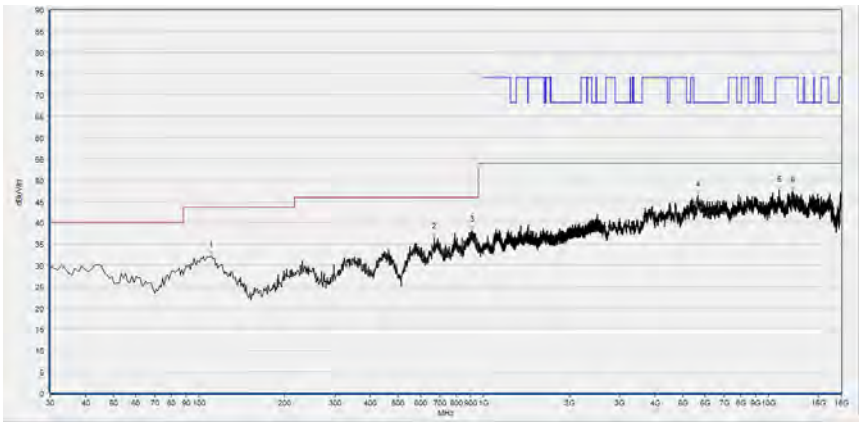
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 62



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
106.707	33.10	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
578.599	35.75	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
918.438	38.41	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5769.954	46.28	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8902.941	46.95	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12193.039	47.36	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

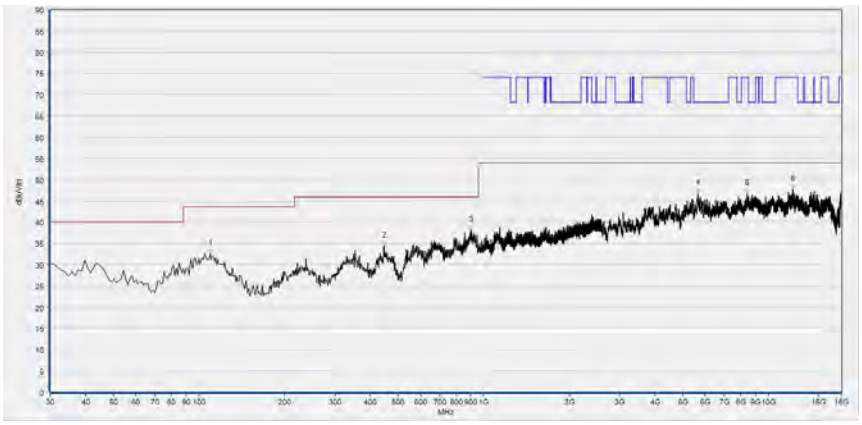
(Antenna Horizontal, 30MHz to 18GHz)



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
110.591	32.12	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
671.812	36.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
908.729	38.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5652.891	46.37	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10914.583	47.65	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12152.991	47.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

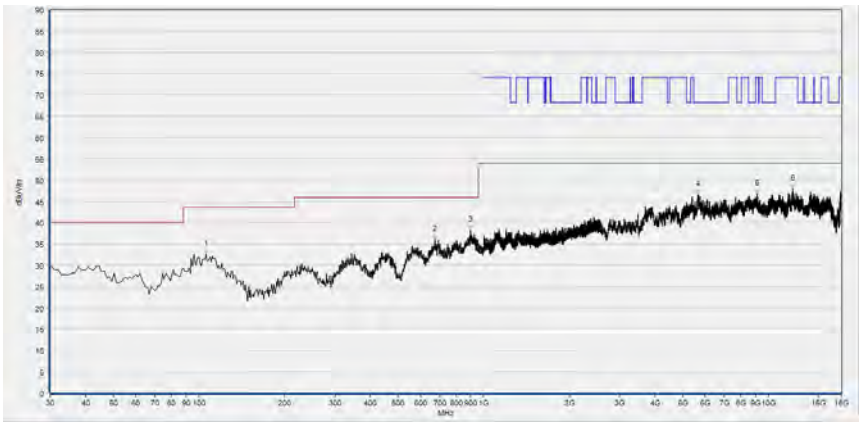
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 102



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
109.620	32.48	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
447.518	34.37	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
901.932	38.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5662.132	46.72	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8419.284	46.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12143.749	47.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

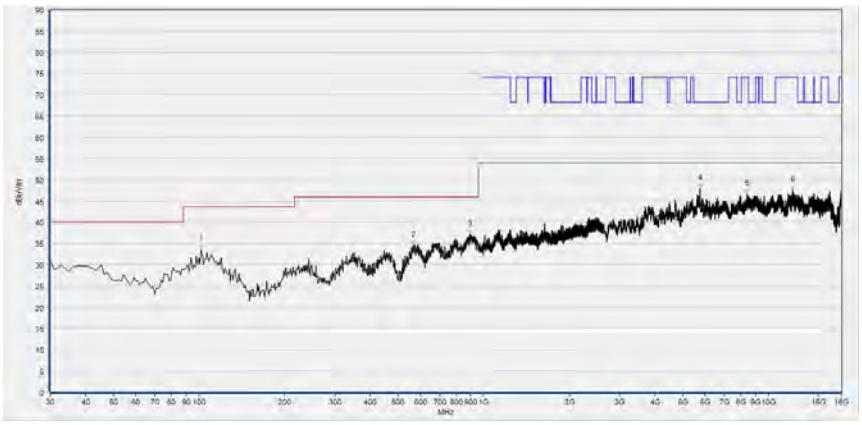
(Antenna Horizontal, 30MHz to 18GHz)



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
105.736	32.55	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
675.696	35.95	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
898.048	38.27	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5646.729	46.62	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
9118.584	46.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12149.910	47.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

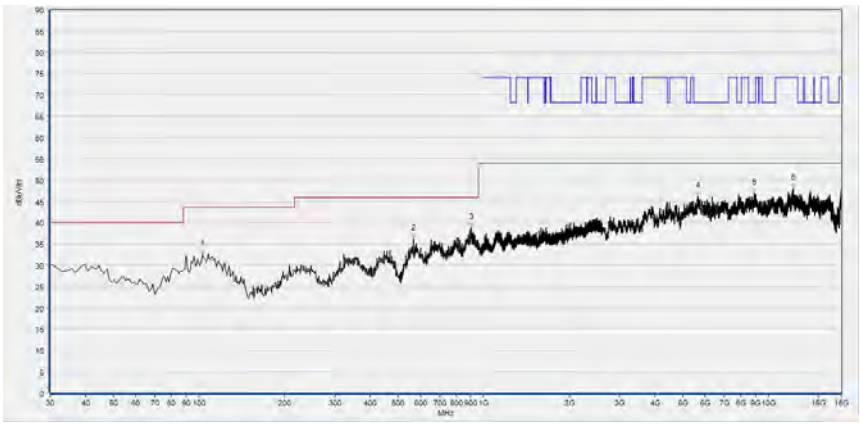
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 126



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
101.852	33.49	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
567.918	34.50	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
894.164	37.16	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5754.551	47.86	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8419.284	46.62	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12143.749	47.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

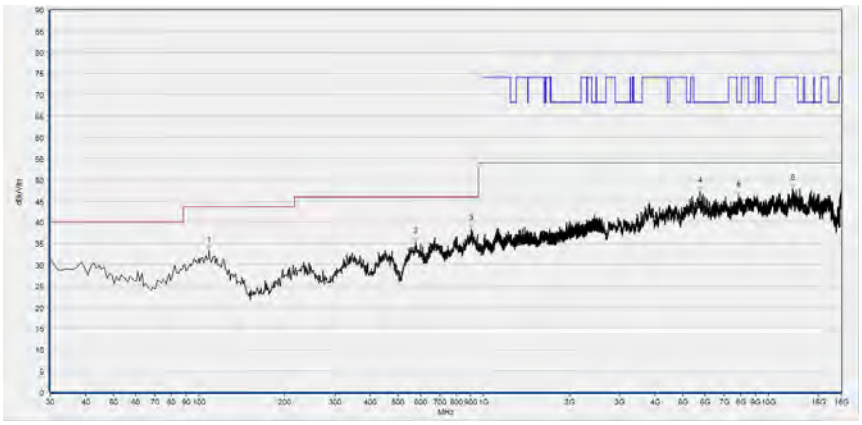
(Antenna Horizontal, 30MHz to 18GHz)



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
102.823	32.52	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
565.976	36.16	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
902.903	38.89	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5640.568	46.18	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8927.586	46.95	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12199.200	48.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

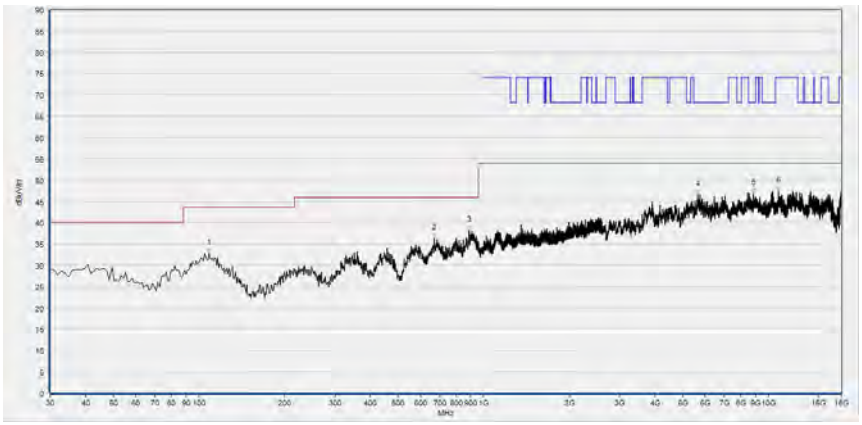
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 142



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
108.649	33.29	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
577.628	35.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
904.845	38.44	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5754.551	47.31	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
7855.531	46.29	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12186.877	47.98	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

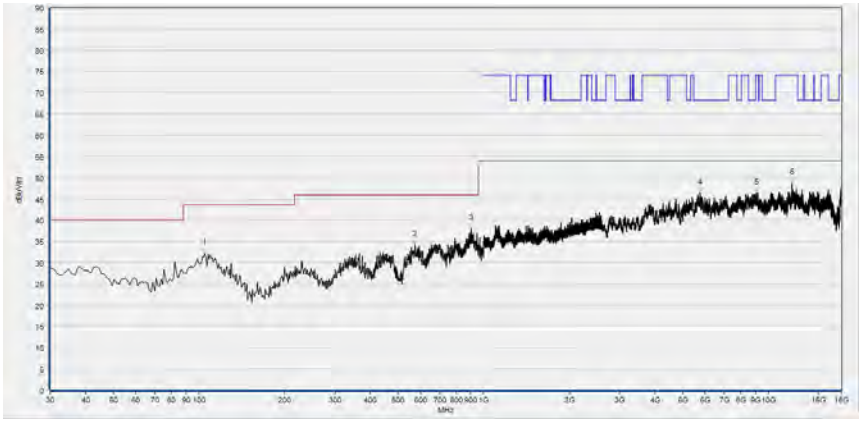
(Antenna Horizontal, 30MHz to 18GHz)



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
108.649	32.78	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
671.812	36.37	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
891.251	38.15	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5640.568	46.54	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
8853.651	46.89	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
10862.212	47.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

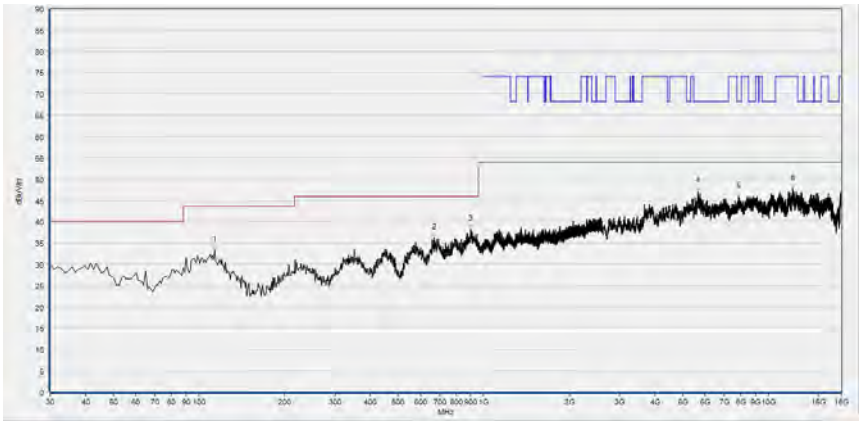
(Antenna Vertical, 30MHz to 18GHz)

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
104.765	32.25	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
574.715	34.15	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
902.903	37.99	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5757.632	46.40	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
9066.213	46.46	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12066.733	48.83	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

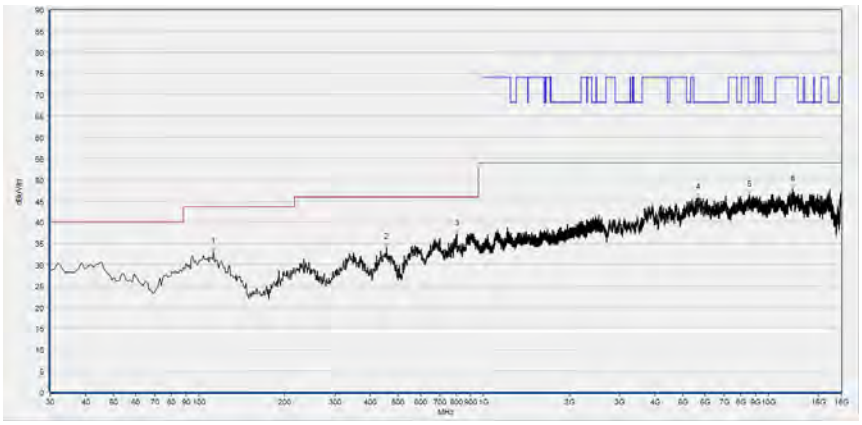
(Antenna Horizontal, 30MHz to 18GHz)



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
113.504	33.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
670.841	36.19	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
900.961	38.24	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
5655.971	47.14	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
7870.934	45.98	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12140.668	47.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

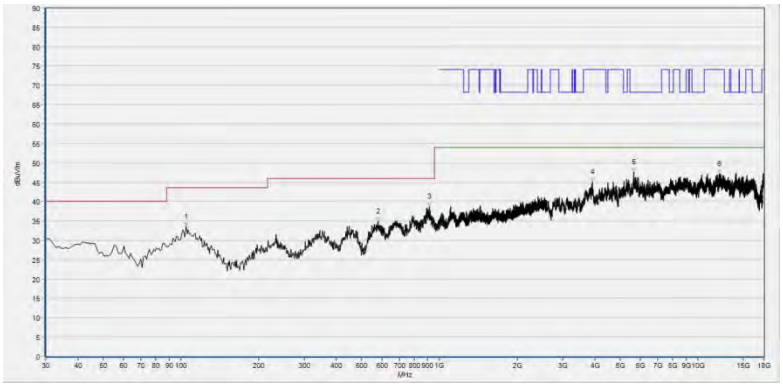
(Antenna Vertical, 30MHz to 18GHz)

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
112.533	33.04	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
456.256	34.07	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
803.864	37.22	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
5649.810	45.81	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
8576.395	46.45	N/A	N/A	68.23	N/A	N/A	Horizontal	PASS
12159.152	47.75	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
104.765	33.60	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
578.599	34.90	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
914.555	38.77	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
3912.342	45.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5637.487	47.66	N/A	N/A	68.23	N/A	N/A	Vertical	PASS
12063.653	47.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

END OF REPORT