REPORT No.: SZ24070014W03

TEST REPORT

APPLICANT	:	MARMA SECURITY INC
PRODUCT NAME	:	MarmaSecurity V2.0
MODEL NAME	:	MarmaSecurity V2.0
BRAND NAME	:	Marma Security Inc
FCC ID	:	2BKM9-MSDV2
STANDARD(S)	:	47 CFR Part 15 Subpart E
RECEIPT DATE	:	2024-07-03
TEST DATE	:	2024-07-16 to 2024-08-19
ISSUE DATE	:	2024-09-05

Edited by: Zeng Xiaoying (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

MORLAB

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

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

Change History		
Version	**Date**	**Reason for change**
1.0	2024-09-05	First edition

1. Summary of Test Result

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	ANSI C63.10	Duty Cycle of the Test Signal	Jul. 26&29, 2024	Li Xinpeng	PASS	No deviation
3	15.407(a)	Maximum Conducted Output Power	Jul. 26&29, 2024	Li Xinpeng	PASS	No deviation
4	15.407(a)(e)	Emission Bandwidth	Aug. 14, 2023	Li Xinpeng	PASS	No deviation
5	15.407(a)	Peak Power Spectral Density	Jul. 29, 2024 Aug. 06, 2023	Li Xinpeng	PASS	No deviation
6	15.407(g)	Frequency Stability	Aug. 14, 2023	Li Xinpeng	PASS	No deviation
7	15.207	Conducted Emission	Jul. 15, 2024	Wang Deyong	PASS	No deviation
8	15.407(b)	Restricted Frequency Bands	Aug. 05&15, 2024	Gao Jianrou	PASS	No deviation
9	15.407(b)	Radiated Emission	Aug. 02, 2024	Gao Jianrou	PASS	No deviation

Note 1: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2013.

Note 2: These RF tests were performed according to the method of measurements prescribed in KDB 789033 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 Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2024.02.19	2025.02.18
USB Wideband Power Sensor	MY54180008	U2021XA	Agilent	2023.10.17	2024.10.16
Temperature Chamber	12108015	DTL-003S101	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 Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2024.01.25	2025.01.24
LISN	8127449	NSLK 8127	Schwarzbeck	2024.02.02	2025.02.01
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2024.05.30	2025.05.29
RF Coaxial Cable (DC-100MHz)	BNC	MRE04	Qualwave	2024.07.02	2025.07.01

1.2.3 List of Software Used

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

1.2.4 Radiated Test Equipment

Equipment	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Signal Analyzer	MY56060145	N9020A	Agilent	2024.05.30	2025.05.29
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2024.06.22	2025.06.21
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2024.06.03	2025.06.02
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2024.06.22	2025.06.21
Test Antenna – Horn	BBHA9170 #773	BBHA9170	Schwarzbeck	2024.06.22	2025.06.21
Preamplifier (10MHz-6GHz)	46732	S10M100L3802	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier (2GHz-18GHz)	61171/61172	S020180L3203	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier (18GHz-40GHz)	DS77209	DCLNA0118-40C-S	Decentest	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE001	PE330	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE002	CLU18	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-18GHz)	MRE003	CLU18	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable (DC-40GHz)	22290045	QA360-40-KK-0.5	Qualwave	2024.07.03	2025.07.02
RF Coaxial Cable (DC-40GHz)	22290046	QA360-40-KKF-2	Qualwave	2024.07.03	2025.07.02
RF Coaxial Cable (DC-18GHz)	22120181	QA500-18-NN-5	Qualwave	2024.07.03	2025.07.02
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	N/A	N/A
Anechoic Chamber	N/A	9m*6m*6m	CRT	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	MARMA SECURITY INC
Applicant Address	211 Hebron Circle, Sacramento, California, United States
Manufacturer	MARMA SECURITY INC
Manufacturer Address	211 Hebron Circle, Sacramento, California, United States

2.2. Information of EUT

Product Name:	MarmaSecurity V2.0	
Sample No.:	1#	
Hardware Version:	WIFI Gateway - QM8400 - MAR24 - VER 1.1	
Software Version:	mt7986a-emmc-20240413-single-image	
Modulation Technology:	OFDM, OFDMA	
Modulation Mode:	802.11a, 802.11n (HT20), 802.11n (HT40) 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80), 802.11ax (HEW20), 802.11ax (HEW40), 802.11ax (HEW80)	
Operating Frequency Range:	5180MHz-5240MHz; 5745MHz-5825MHz	
Antenna Type:	5180MHz-5240MHz	ANT 1: FPC Antenna ANT 2: PCB Antenna ANT 3: PCB Antenna ANT 4: FPC Antenna
	5745MHz-5825MHz	Copper Tube Antenna
Antenna Gain:	5180MHz-5240MHz	ANT 1: 2.77dBi ANT 2: 2.09dBi ANT 3: 2.27dBi ANT 4: 2.76dBi
	5745MHz-5825MHz	ANT 1: 1.16dBi ANT 2: 0.42dBi ANT 3: 1.39dBi ANT 4: 1.24dBi
Directional Gain:	5180MHz-5240MHz	8.50dBi Note 2
	5745MHz-5825MHz	7.08dBi Note 2

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

Modulation Mode:	TX Function
802.11a	1TX
802.11n	4TX
802.11ac	4TX
802.11ax	4TX

Note 2: According to KDB 662911 D01, the directional gain = $10\log[(10^{G0/20}+10^{G1/20})^2/2$.

Note 3: All radiation test items for 802.11n, 802.11ac and 802.11ax modulation mode operate at MIMO mode during the test. Other modulation mode operate at SISO mode, all of the four antennas were tested separately, we only recorded the worst test result(ANT 4) in this report.

Note 4: We use the dedicated software to control the EUT continuous transmission.

Note 5: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.3. Channel List of EUT

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

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

2.4. Test Configuration of EUT

2.4.1.802.11ax ru allocation

For ru allocation of 802.11ax, only full ru configuration is supported.

2.4.2.Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate
802.11a	20	OFDM	**BPSK**	**6**/9/12/18/24/36/48/54Mbps
			QPSK	
			16QAM	
			64QAM	
802.11n	20/40 (HT20/40)	OFDM	**BPSK**	**MCS0**~MCS7
			QPSK	
			16QAM	
			64QAM	
802.11ac	20/40/80 (VHT20/40/80)	OFDM	**BPSK**	**MSC0**~MCS9
			QPSK	
			16QAM	
			64QAM	
			256QAM	
802.11ax	20/40/80 (HEW20/40/80)	OFDM/ OFDMA	**BPSK**	**MSC0**~MCS11
			QPSK	
			16QAM	
			64QAM	
			256QAM	
			1024QAM	

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.

2.4.3.Operation and Transmitter Power Level Setting

The EUT was tested while in a continues transmitter/receiver mode under the control of tool which is provided by manufacturer, all the items of transmitter were tested under the power setting as below:

Modulation Technology	Power Setting (U-NII-1)				
	ANT 1	ANT 2	ANT 3	ANT 4	ANT 1+2+3+4
802.11a	31.5	31.5	31.5	31.5	/
802.11n (HT20)	31.5	31.5	31.5	31.5	23
802.11ac (VHT20)	31.5	31.5	31.5	30	24
802.11ax (HE20)	31.5	30	31.5	30	24
802.11n (HT40)	30	29	30	28	24
802.11ac (VHT40)	30	28	30	29	24
802.11ax (HE40)	29	28	30	30	24
802.11ac (VHT80)	30	28	31.5	30	25
802.11ax (HE80)	28	28	30	28	24
Modulation Technology	**Power Setting (U-NII-3)**				
	ANT 1	**ANT 2**	**ANT 3**	**ANT 4**	**ANT 1+2+3+4**
802.11a	30	30	31	30	/
802.11n (HT20)	27	27	27	26	21
802.11ac (VHT20)	27	27	27	26	20
802.11ax (HE20)	26	27	27	26	20
802.11n (HT40)	27	27	27	26	21
802.11ac (VHT40)	26	27	27	25	21
802.11ax (HE40)	26	27	27	25	20
802.11ac (VHT80)	27	29	29	27	20
802.11ax (HE80)	26	27	28	25	20

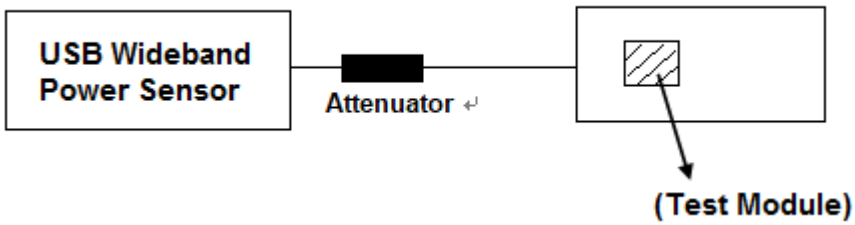
2.5. Test Conditions

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

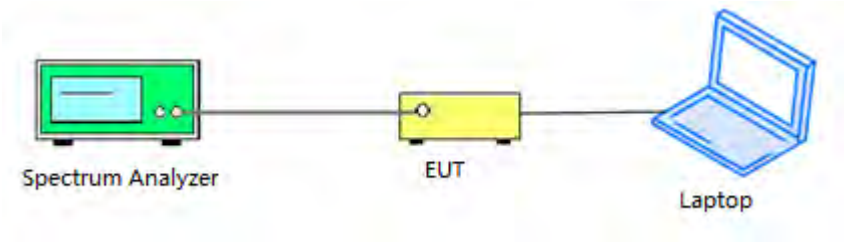
2.6. Test Setup Layout Diagram

2.6.1.Conducted Measurement

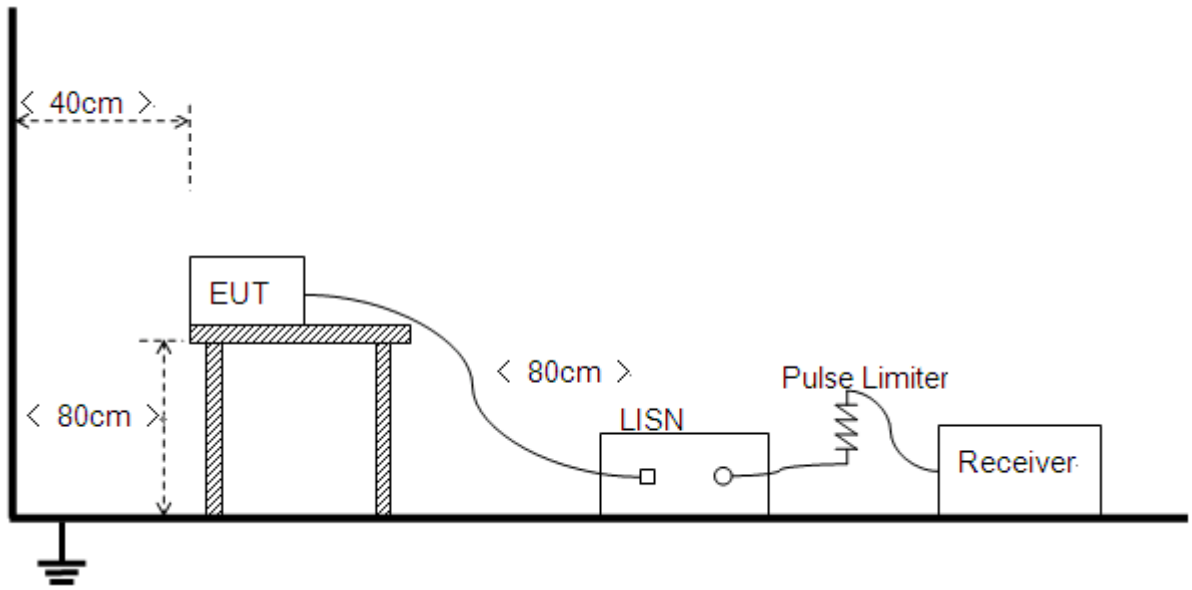
For power item that BW below 80MHz system:



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

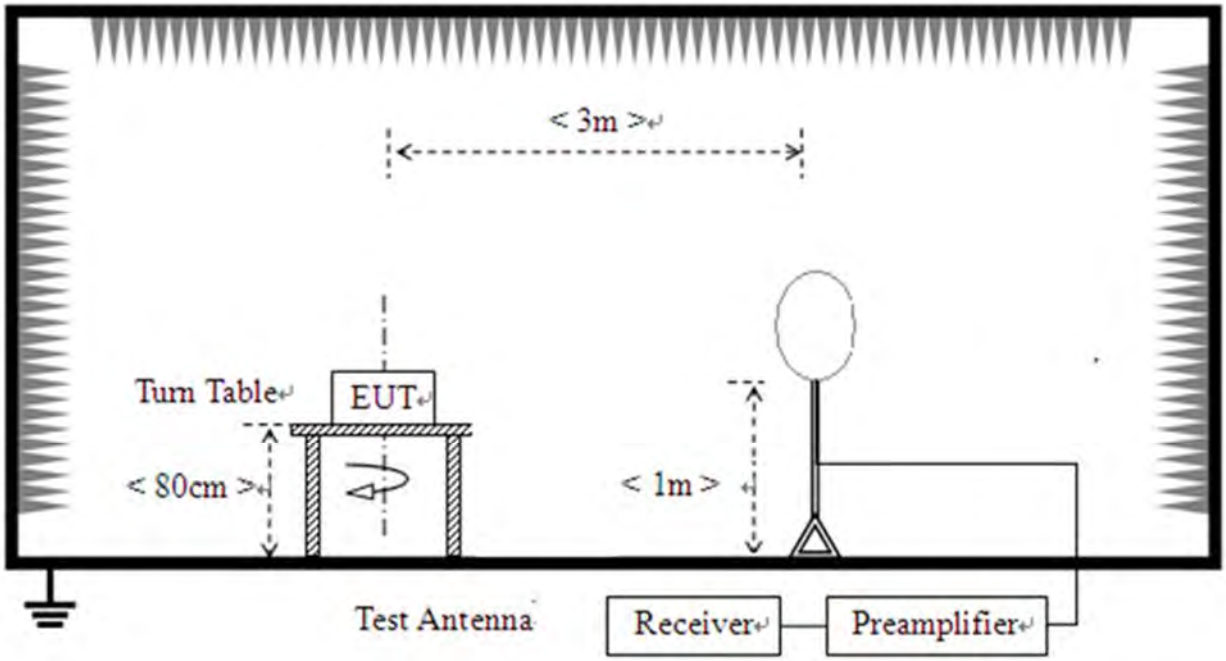


2.6.2.Conducted Emission Measurement

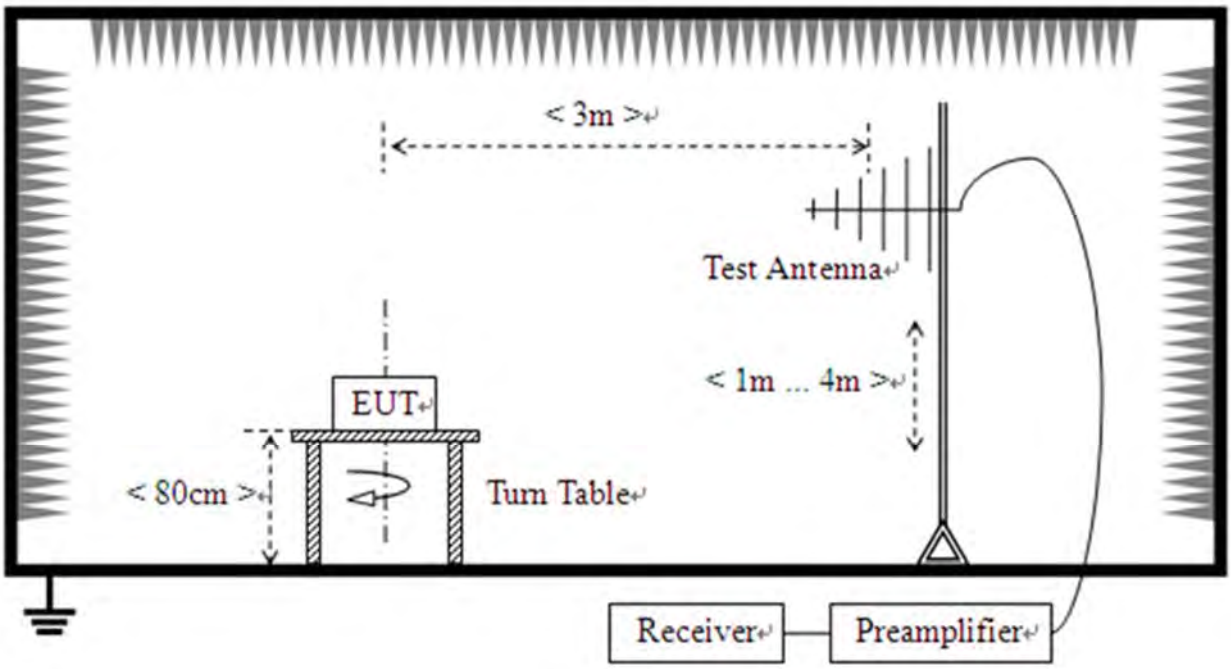


2.6.3.Radiation Measurement

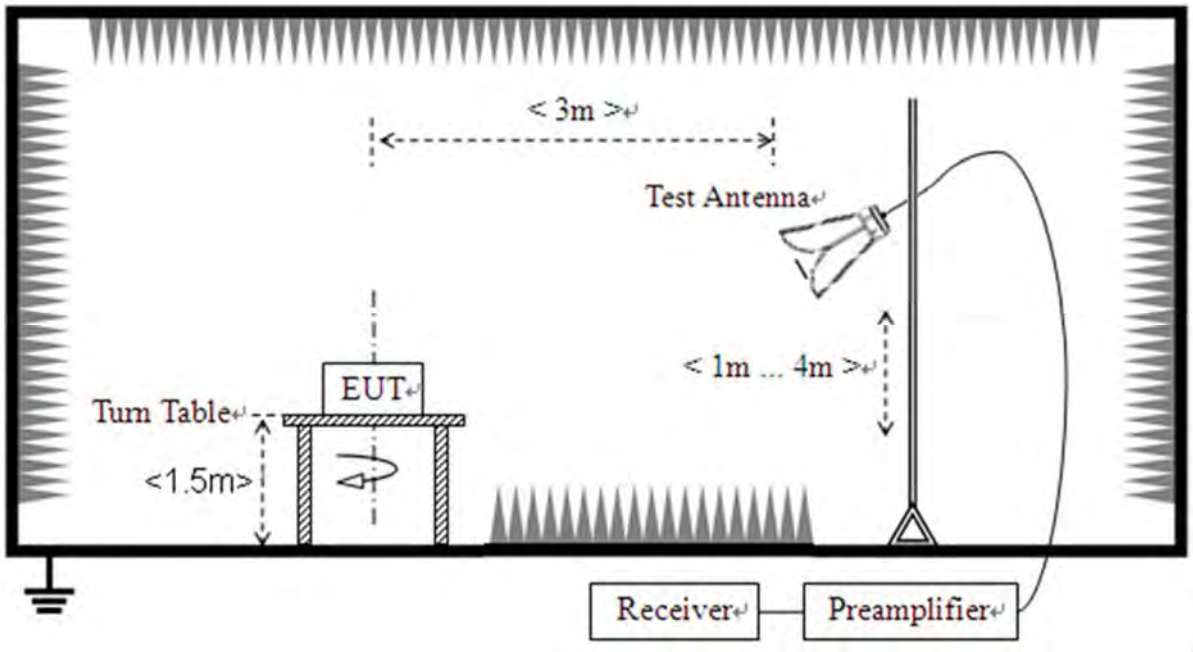
1) For radiated emissions from 9kHz to 30MHz



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

Antenna location	Antenna Type	Coupling Method
☒Internal ☐External	☒FPC Antenna ☐Spring Antenna ☐Ceramic Antenna ☐Integrated Antenna ☐Dipole Antenna ☒PCB Antenna ☐PIFA Antenna	☒I-PEX Connector ☐SMA Connector ☐RP-SMA Connector ☐Metal Shrapnel ☒Layout

3.2. Duty Cycle of Test Signal

3.2.1.Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%).When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration(T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e.,no transmitter OFF-time is to be considered).
When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this sub clause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than ±2%; otherwise, the duty cycle is considered to be non constant.

3.2.2.Test Result

Refer to Annex A.1 in this report.

3.3. Maximum Conducted Output Power

3.3.1.Requirement

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

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

For ac (VHT80) mode power
The EUT (Equipment under the test) is coupled to the Spectrum analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading, all test result in Spectrum analyzer.

3.3.3.Test 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 10º intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

3.6.3. Test Result

Refer to Annex A.5 in this report.

3.7. Conducted Emission

3.7.1.Requirement

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

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

Note:

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

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

3.7.2.Test Procedures

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

3.7.3.Test Setup Layout

Refer to chapter 2.6.2 in this report.

3.7.4.Test Result

Refer to Annex A.6 in this report.

3.8. Restricted Frequency Bands

3.8.1.Requirement

The peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.

(2) For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.

(3) For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

The following formula is used to convert the equipment isotropic radiated power(e.i.r.p.) to field strength (dBμV/m);

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

where P is the EIRP in Watts

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

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

3.8.2.Test Procedures

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.
KDB 789033 Section H) 3)5)6(d)) was used in order to prove compliance
For the Test Antenna:
Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.

3.8.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.8.4.Test Result

Refer to Annex A.7 in this report.

3.9. Radiated Emission

3.9.1.Requirement

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

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

where P is the EIRP in Watts

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

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

For Above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.
In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

3.9.2.Test Procedures

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

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

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

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

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

3.9.3.Test Setup Layout

Refer to chapter 2.6.3 in this report.

3.9.4.Test Result

Refer to Annex A.8 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	86.96	0.61	0.71
NVNT	a	5220	Ant1	95.89	0.18	0.71
NVNT	a	5240	Ant1	95.86	0.18	0.72
NVNT	a	5180	Ant2	96.55	0.15	0.71
NVNT	a	5220	Ant2	95.89	0.18	0.71
NVNT	a	5240	Ant2	95.89	0.18	0.71
NVNT	a	5180	Ant3	96.55	0.15	0.71
NVNT	a	5220	Ant3	95.86	0.18	0.72
NVNT	a	5240	Ant3	95.89	0.18	0.71
NVNT	a	5180	Ant4	95.86	0.18	0.72
NVNT	a	5220	Ant4	96.55	0.15	0.71
NVNT	a	5240	Ant4	95.86	0.18	0.72
NVNT	a	5745	Ant1	95.86	0.18	0.72
NVNT	a	5785	Ant1	96.55	0.15	0.71
NVNT	a	5825	Ant1	95.86	0.18	0.72
NVNT	a	5745	Ant2	95.86	0.18	0.72
NVNT	a	5785	Ant2	96.55	0.15	0.71
NVNT	a	5825	Ant2	95.86	0.18	0.72
NVNT	a	5745	Ant3	95.86	0.18	0.72
NVNT	a	5785	Ant3	96.55	0.15	0.71
NVNT	a	5825	Ant3	96.55	0.15	0.71
NVNT	a	5745	Ant4	95.89	0.18	0.71
NVNT	a	5785	Ant4	95.86	0.18	0.72
NVNT	a	5825	Ant4	95.86	0.18	0.72
NVNT	n20	5180	Ant1	96.32	0.16	0.76
NVNT	n20	5220	Ant1	95.59	0.2	0.77
NVNT	n20	5240	Ant1	96.32	0.16	0.76
NVNT	n20	5180	Ant2	95.62	0.19	0.76
NVNT	n20	5220	Ant2	95.62	0.19	0.76
NVNT	n20	5240	Ant2	96.32	0.16	0.76
NVNT	n20	5180	Ant3	95.62	0.19	0.76

NVNT	n20	5220	Ant3	95.62	0.19	0.76
NVNT	n20	5240	Ant3	95.62	0.19	0.76
NVNT	n20	5180	Ant4	95.62	0.19	0.76
NVNT	n20	5220	Ant4	95.59	0.2	0.77
NVNT	n20	5240	Ant4	95.62	0.19	0.76
NVNT	n20	5180	Sum	96.32	0.16	0.76
NVNT	n20	5220	Sum	95.59	0.2	0.77
NVNT	n20	5240	Sum	95.59	0.2	0.77
NVNT	n20	5745	Ant1	95.62	0.19	0.76
NVNT	n20	5785	Ant1	95.62	0.19	0.76
NVNT	n20	5825	Ant1	95.62	0.19	0.76
NVNT	n20	5745	Ant2	95.59	0.2	0.77
NVNT	n20	5785	Ant2	95.59	0.2	0.77
NVNT	n20	5825	Ant2	95.62	0.19	0.76
NVNT	n20	5745	Ant3	95.62	0.19	0.76
NVNT	n20	5785	Ant3	95.59	0.2	0.77
NVNT	n20	5825	Ant3	95.59	0.2	0.77
NVNT	n20	5745	Ant4	95.59	0.2	0.77
NVNT	n20	5785	Ant4	96.32	0.16	0.76
NVNT	n20	5825	Ant4	95.62	0.19	0.76
NVNT	n20	5745	Sum	95.62	0.19	0.76
NVNT	n20	5785	Sum	96.32	0.16	0.76
NVNT	n20	5825	Sum	95.59	0.2	0.77
NVNT	n40	5190	Ant1	91.55	0.38	1.54
NVNT	n40	5230	Ant1	91.55	0.38	1.54
NVNT	n40	5190	Ant2	95.42	0.2	0.8
NVNT	n40	5230	Ant2	95.45	0.2	0.79
NVNT	n40	5190	Ant3	95.42	0.2	0.8
NVNT	n40	5230	Ant3	92.86	0.32	1.54
NVNT	n40	5190	Ant4	96.32	0.16	0.76
NVNT	n40	5230	Ant4	95.86	0.18	0.72
NVNT	n40	5190	Sum	92.86	0.32	1.54
NVNT	n40	5230	Sum	91.55	0.38	1.54
NVNT	n40	5755	Ant1	91.43	0.39	1.56
NVNT	n40	5795	Ant1	91.43	0.39	1.56
NVNT	n40	5755	Ant2	91.43	0.39	1.56
NVNT	n40	5795	Ant2	91.55	0.38	1.54
NVNT	n40	5755	Ant3	91.55	0.38	1.54

NVNT	n40	5795	Ant3	91.55	0.38	1.54
NVNT	n40	5755	Ant4	91.55	0.38	1.54
NVNT	n40	5795	Ant4	91.55	0.38	1.54
NVNT	n40	5755	Sum	91.43	0.39	1.56
NVNT	n40	5795	Sum	92.86	0.32	1.54
NVNT	ac20	5180	Ant1	86.05	0.65	2.7
NVNT	ac20	5220	Ant1	86.05	0.65	2.7
NVNT	ac20	5240	Ant1	86.05	0.65	2.7
NVNT	ac20	5180	Ant2	86.05	0.65	2.7
NVNT	ac20	5220	Ant2	88.1	0.55	2.7
NVNT	ac20	5240	Ant2	86.05	0.65	2.7
NVNT	ac20	5180	Ant3	88.37	0.54	2.63
NVNT	ac20	5220	Ant3	86.05	0.65	2.7
NVNT	ac20	5240	Ant3	88.37	0.54	2.63
NVNT	ac20	5180	Ant4	86.05	0.65	2.7
NVNT	ac20	5220	Ant4	86.05	0.65	2.7
NVNT	ac20	5240	Ant4	88.37	0.54	2.63
NVNT	ac20	5180	Sum	86.05	0.65	2.7
NVNT	ac20	5220	Sum	86.05	0.65	2.7
NVNT	ac20	5240	Sum	88.37	0.54	2.63
NVNT	ac20	5745	Ant1	86.05	0.65	2.7
NVNT	ac20	5785	Ant1	86.05	0.65	2.7
NVNT	ac20	5825	Ant1	88.37	0.54	2.63
NVNT	ac20	5745	Ant2	88.37	0.54	2.63
NVNT	ac20	5785	Ant2	86.05	0.65	2.7
NVNT	ac20	5825	Ant2	86.05	0.65	2.7
NVNT	ac20	5745	Ant3	88.37	0.54	2.63
NVNT	ac20	5785	Ant3	86.05	0.65	2.7
NVNT	ac20	5825	Ant3	88.37	0.54	2.63
NVNT	ac20	5745	Ant4	86.05	0.65	2.7
NVNT	ac20	5785	Ant4	86.05	0.65	2.7
NVNT	ac20	5825	Ant4	86.36	0.64	2.63
NVNT	ac20	5745	Sum	86.05	0.65	2.7
NVNT	ac20	5785	Sum	86.05	0.65	2.7
NVNT	ac20	5825	Sum	86.05	0.65	2.7
NVNT	ac40	5190	Ant1	80.77	0.93	4.76
NVNT	ac40	5230	Ant1	76.92	1.14	5
NVNT	ac40	5190	Ant2	77.78	1.09	4.76

NVNT	ac40	5230	Ant2	80.77	0.93	4.76
NVNT	ac40	5190	Ant3	87.8	0.56	2.78
NVNT	ac40	5230	Ant3	85.71	0.67	2.78
NVNT	ac40	5190	Ant4	77.78	1.09	4.76
NVNT	ac40	5230	Ant4	77.78	1.09	4.76
NVNT	ac40	5190	Sum	77.78	1.09	4.76
NVNT	ac40	5230	Sum	77.78	1.09	4.76
NVNT	ac40	5755	Ant1	77.78	1.09	4.76
NVNT	ac40	5795	Ant1	76.92	1.14	5
NVNT	ac40	5755	Ant2	77.78	1.09	4.76
NVNT	ac40	5795	Ant2	76.92	1.14	5
NVNT	ac40	5755	Ant3	76.92	1.14	5
NVNT	ac40	5795	Ant3	80.77	0.93	4.76
NVNT	ac40	5755	Ant4	80.77	0.93	4.76
NVNT	ac40	5795	Ant4	76.92	1.14	5
NVNT	ac40	5755	Sum	76.92	1.14	5
NVNT	ac40	5795	Sum	76.92	1.14	5
NVNT	ac80	5210	Ant1	72.22	1.41	7.69
NVNT	ac80	5210	Ant2	66.67	1.76	8.33
NVNT	ac80	5210	Ant3	66.67	1.76	8.33
NVNT	ac80	5210	Ant4	66.67	1.76	8.33
NVNT	ac80	5210	Sum	66.67	1.76	8.33
NVNT	ac80	5775	Ant1	72.22	1.41	7.69
NVNT	ac80	5775	Ant2	66.67	1.76	8.33
NVNT	ac80	5775	Ant3	66.67	1.76	8.33
NVNT	ac80	5775	Ant4	66.67	1.76	8.33
NVNT	ac80	5775	Sum	68.42	1.65	7.69
NVNT	ax20	5180	Ant1	85	0.71	2.94
NVNT	ax20	5220	Ant1	85.37	0.69	2.86
NVNT	ax20	5240	Ant1	85	0.71	2.94
NVNT	ax20	5180	Ant2	85	0.71	2.94
NVNT	ax20	5220	Ant2	87.5	0.58	2.86
NVNT	ax20	5240	Ant2	87.5	0.58	2.86
NVNT	ax20	5180	Ant3	87.5	0.58	2.86
NVNT	ax20	5220	Ant3	85.37	0.69	2.86
NVNT	ax20	5240	Ant3	85	0.71	2.94
NVNT	ax20	5180	Ant4	85.37	0.69	2.86
NVNT	ax20	5220	Ant4	85.37	0.69	2.86

NVNT	ax20	5240	Ant4	87.5	0.58	2.86
NVNT	ax20	5180	Sum	85.37	0.69	2.86
NVNT	ax20	5220	Sum	87.5	0.58	2.86
NVNT	ax20	5240	Sum	85.37	0.69	2.86
NVNT	ax20	5745	Ant1	84.62	0.73	3.03
NVNT	ax20	5785	Ant1	87.18	0.6	2.94
NVNT	ax20	5825	Ant1	84.62	0.73	3.03
NVNT	ax20	5745	Ant2	86.05	0.65	2.7
NVNT	ax20	5785	Ant2	84.62	0.73	3.03
NVNT	ax20	5825	Ant2	87.18	0.6	2.94
NVNT	ax20	5745	Ant3	84.62	0.73	3.03
NVNT	ax20	5785	Ant3	85	0.71	2.94
NVNT	ax20	5825	Ant3	85	0.71	2.94
NVNT	ax20	5745	Ant4	84.62	0.73	3.03
NVNT	ax20	5785	Ant4	85	0.71	2.94
NVNT	ax20	5825	Ant4	84.62	0.73	3.03
NVNT	ax20	5745	Sum	85	0.71	2.94
NVNT	ax20	5785	Sum	87.18	0.6	2.94
NVNT	ax20	5825	Sum	85	0.71	2.94
NVNT	ax40	5190	Ant1	85	0.71	2.94
NVNT	ax40	5230	Ant1	87.5	0.58	2.86
NVNT	ax40	5190	Ant2	85.37	0.69	2.86
NVNT	ax40	5230	Ant2	87.5	0.58	2.86
NVNT	ax40	5190	Ant3	87.5	0.58	2.86
NVNT	ax40	5230	Ant3	87.5	0.58	2.86
NVNT	ax40	5190	Ant4	79.31	1.01	4.35
NVNT	ax40	5230	Ant4	78.57	1.05	4.55
NVNT	ax40	5190	Sum	87.5	0.58	2.86
NVNT	ax40	5230	Sum	85	0.71	2.94
NVNT	ax40	5755	Ant1	77.78	1.09	4.76
NVNT	ax40	5795	Ant1	77.78	1.09	4.76
NVNT	ax40	5755	Ant2	77.78	1.09	4.76
NVNT	ax40	5795	Ant2	77.78	1.09	4.76
NVNT	ax40	5755	Ant3	77.78	1.09	4.76
NVNT	ax40	5795	Ant3	77.78	1.09	4.76
NVNT	ax40	5755	Ant4	81.48	0.89	4.55
NVNT	ax40	5795	Ant4	81.48	0.89	4.55
NVNT	ax40	5755	Sum	77.78	1.09	4.76

NVNT	ax40	5795	Sum	77.78	1.09	4.76
NVNT	ax80	5210	Ant1	85	0.71	2.94
NVNT	ax80	5210	Ant2	87.18	0.6	2.94
NVNT	ax80	5210	Ant3	87.18	0.6	2.94
NVNT	ax80	5210	Ant4	84.62	0.73	3.03
NVNT	ax80	5210	Sum	85	0.71	2.94
NVNT	ax80	5775	Ant1	72.73	1.38	6.25
NVNT	ax80	5775	Ant2	72.73	1.38	6.25
NVNT	ax80	5775	Ant3	72.22	1.41	7.69
NVNT	ax80	5775	Ant4	72.73	1.38	6.25
NVNT	ax80	5775	Sum	72.73	1.38	6.25

A.2. Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Conducted Power (dBm)	Total Conducted Power (W)	Limit Conducted (dBm)	Verdict
NVNT	a	5180	Ant1	21.4	0.13804	30	Pass
NVNT	a	5220	Ant1	21.77	0.15031	30	Pass
NVNT	a	5240	Ant1	20.88	0.12246	30	Pass
NVNT	a	5180	Ant2	23.37	0.21727	30	Pass
NVNT	a	5220	Ant2	22.19	0.16558	30	Pass
NVNT	a	5240	Ant2	21.8	0.15136	30	Pass
NVNT	a	5180	Ant3	20.88	0.12246	30	Pass
NVNT	a	5220	Ant3	19.6	0.0912	30	Pass
NVNT	a	5240	Ant3	18.88	0.07727	30	Pass
NVNT	a	5180	Ant4	23.78	0.23878	30	Pass
NVNT	a	5220	Ant4	22.81	0.19099	30	Pass
NVNT	a	5240	Ant4	22.34	0.1714	30	Pass
NVNT	a	5745	Ant1	24.98	0.31477	30	Pass
NVNT	a	5785	Ant1	23.8	0.23988	30	Pass
NVNT	a	5825	Ant1	24.14	0.25942	30	Pass
NVNT	a	5745	Ant2	23.72	0.2355	30	Pass
NVNT	a	5785	Ant2	23.89	0.24491	30	Pass
NVNT	a	5825	Ant2	24.62	0.28973	30	Pass
NVNT	a	5745	Ant3	24.29	0.26853	30	Pass
NVNT	a	5785	Ant3	24.34	0.27164	30	Pass
NVNT	a	5825	Ant3	25.03	0.31842	30	Pass
NVNT	a	5745	Ant4	24.66	0.29242	30	Pass
NVNT	a	5785	Ant4	24.33	0.27102	30	Pass
NVNT	a	5825	Ant4	24.59	0.28774	30	Pass
NVNT	n20	5180	Ant1	22.6	0.18197	30	Pass
NVNT	n20	5220	Ant1	20.66	0.11641	30	Pass
NVNT	n20	5240	Ant1	19.89	0.0975	30	Pass
NVNT	n20	5180	Ant2	22.54	0.17947	30	Pass
NVNT	n20	5220	Ant2	21.52	0.14191	30	Pass
NVNT	n20	5240	Ant2	20.99	0.1256	30	Pass
NVNT	n20	5180	Ant3	20.34	0.10814	30	Pass
NVNT	n20	5220	Ant3	19.18	0.08279	30	Pass
NVNT	n20	5240	Ant3	18.32	0.06792	30	Pass
NVNT	n20	5180	Ant4	23.44	0.2208	30	Pass

NVNT	n20	5220	Ant4	22.58	0.18113	30	Pass
NVNT	n20	5240	Ant4	21.93	0.15596	30	Pass
NVNT	n20	5180	Ant1	13.75	0.02371	30	Pass
NVNT	n20	5180	Ant2	14.42	0.02767	30	Pass
NVNT	n20	5180	Ant3	14.07	0.02553	30	Pass
NVNT	n20	5180	Ant4	14.88	0.03076	30	Pass
NVNT	n20	5180	Sum	20.32	0.10767	27.51	Pass
NVNT	n20	5220	Ant1	12.39	0.01734	30	Pass
NVNT	n20	5220	Ant2	13.54	0.02259	30	Pass
NVNT	n20	5220	Ant3	12.59	0.01816	30	Pass
NVNT	n20	5220	Ant4	13.77	0.02382	30	Pass
NVNT	n20	5220	Sum	19.13	0.08191	27.51	Pass
NVNT	n20	5240	Ant1	11.53	0.01422	30	Pass
NVNT	n20	5240	Ant2	12.81	0.0191	30	Pass
NVNT	n20	5240	Ant3	11.45	0.01396	30	Pass
NVNT	n20	5240	Ant4	13.04	0.02014	30	Pass
NVNT	n20	5240	Sum	18.29	0.06742	27.51	Pass
NVNT	n20	5745	Ant1	21.49	0.14093	30	Pass
NVNT	n20	5785	Ant1	20.59	0.11455	30	Pass
NVNT	n20	5825	Ant1	21.07	0.12794	30	Pass
NVNT	n20	5745	Ant2	21.3	0.1349	30	Pass
NVNT	n20	5785	Ant2	21.43	0.139	30	Pass
NVNT	n20	5825	Ant2	22.26	0.16827	30	Pass
NVNT	n20	5745	Ant3	20.94	0.12417	30	Pass
NVNT	n20	5785	Ant3	21.08	0.12823	30	Pass
NVNT	n20	5825	Ant3	21.71	0.14825	30	Pass
NVNT	n20	5745	Ant4	20.83	0.12106	30	Pass
NVNT	n20	5785	Ant4	20.8	0.12023	30	Pass
NVNT	n20	5825	Ant4	21.2	0.13183	30	Pass
NVNT	n20	5745	Ant1	16.19	0.04159	30	Pass
NVNT	n20	5745	Ant2	14.87	0.03069	30	Pass
NVNT	n20	5745	Ant3	15.05	0.03199	30	Pass
NVNT	n20	5745	Ant4	16.82	0.04808	30	Pass
NVNT	n20	5745	Sum	21.83	0.15235	28.92	Pass
NVNT	n20	5785	Ant1	14.48	0.02805	30	Pass
NVNT	n20	5785	Ant2	14.29	0.02685	30	Pass
NVNT	n20	5785	Ant3	13.87	0.02438	30	Pass
NVNT	n20	5785	Ant4	16.1	0.04074	30	Pass

NVNT	n20	5785	Sum	20.79	0.12002	28.92	Pass
NVNT	n20	5825	Ant1	14.69	0.02944	30	Pass
NVNT	n20	5825	Ant2	15	0.03162	30	Pass
NVNT	n20	5825	Ant3	14.5	0.02818	30	Pass
NVNT	n20	5825	Ant4	16.22	0.04188	30	Pass
NVNT	n20	5825	Sum	21.18	0.13113	28.92	Pass
NVNT	n40	5190	Ant1	21.4	0.13804	30	Pass
NVNT	n40	5230	Ant1	20.17	0.10399	30	Pass
NVNT	n40	5190	Ant2	21.64	0.14588	30	Pass
NVNT	n40	5230	Ant2	20.72	0.11803	30	Pass
NVNT	n40	5190	Ant3	21.08	0.12823	30	Pass
NVNT	n40	5230	Ant3	19.65	0.09226	30	Pass
NVNT	n40	5190	Ant4	20.89	0.12274	30	Pass
NVNT	n40	5230	Ant4	20.05	0.10116	30	Pass
NVNT	n40	5190	Ant1	14.54	0.02844	30	Pass
NVNT	n40	5190	Ant2	15.53	0.03573	30	Pass
NVNT	n40	5190	Ant3	14.93	0.03112	30	Pass
NVNT	n40	5190	Ant4	15.99	0.03972	30	Pass
NVNT	n40	5190	Sum	21.3	0.13501	27.51	Pass
NVNT	n40	5230	Ant1	13.22	0.02099	30	Pass
NVNT	n40	5230	Ant2	14.44	0.0278	30	Pass
NVNT	n40	5230	Ant3	13.21	0.02094	30	Pass
NVNT	n40	5230	Ant4	14.86	0.03062	30	Pass
NVNT	n40	5230	Sum	20.02	0.10035	27.51	Pass
NVNT	n40	5755	Ant1	21.88	0.15417	30	Pass
NVNT	n40	5795	Ant1	20.76	0.11912	30	Pass
NVNT	n40	5755	Ant2	20.54	0.11324	30	Pass
NVNT	n40	5795	Ant2	20.77	0.1194	30	Pass
NVNT	n40	5755	Ant3	20.76	0.11912	30	Pass
NVNT	n40	5795	Ant3	20.16	0.10375	30	Pass
NVNT	n40	5755	Ant4	21.4	0.13804	30	Pass
NVNT	n40	5795	Ant4	21.03	0.12677	30	Pass
NVNT	n40	5755	Ant1	15.37	0.03443	30	Pass
NVNT	n40	5755	Ant2	14.31	0.02698	30	Pass
NVNT	n40	5755	Ant3	14.52	0.02831	30	Pass
NVNT	n40	5755	Ant4	16.52	0.04487	30	Pass
NVNT	n40	5755	Sum	21.29	0.1346	28.92	Pass
NVNT	n40	5795	Ant1	14.61	0.02891	30	Pass

NVNT	n40	5795	Ant2	14.69	0.02944	30	Pass
NVNT	n40	5795	Ant3	14	0.02512	30	Pass
NVNT	n40	5795	Ant4	16.37	0.04335	30	Pass
NVNT	n40	5795	Sum	21.03	0.12682	28.92	Pass
NVNT	ac20	5180	Ant1	22.05	0.16032	30	Pass
NVNT	ac20	5220	Ant1	20.77	0.1194	30	Pass
NVNT	ac20	5240	Ant1	20.03	0.10069	30	Pass
NVNT	ac20	5180	Ant2	22.47	0.1766	30	Pass
NVNT	ac20	5220	Ant2	21.42	0.13868	30	Pass
NVNT	ac20	5240	Ant2	20.88	0.12246	30	Pass
NVNT	ac20	5180	Ant3	20.3	0.10715	30	Pass
NVNT	ac20	5220	Ant3	19.08	0.08091	30	Pass
NVNT	ac20	5240	Ant3	18.14	0.06516	30	Pass
NVNT	ac20	5180	Ant4	22.09	0.16181	30	Pass
NVNT	ac20	5220	Ant4	21.25	0.13335	30	Pass
NVNT	ac20	5240	Ant4	20.5	0.1122	30	Pass
NVNT	ac20	5180	Ant1	14.5	0.02818	30	Pass
NVNT	ac20	5180	Ant2	15.32	0.03404	30	Pass
NVNT	ac20	5180	Ant3	14.87	0.03069	30	Pass
NVNT	ac20	5180	Ant4	15.96	0.03945	30	Pass
NVNT	ac20	5180	Sum	21.22	0.13236	27.51	Pass
NVNT	ac20	5220	Ant1	13.64	0.02312	30	Pass
NVNT	ac20	5220	Ant2	14.76	0.02992	30	Pass
NVNT	ac20	5220	Ant3	13.93	0.02472	30	Pass
NVNT	ac20	5220	Ant4	15.39	0.03459	30	Pass
NVNT	ac20	5220	Sum	20.51	0.11235	27.51	Pass
NVNT	ac20	5240	Ant1	12.59	0.01816	30	Pass
NVNT	ac20	5240	Ant2	13.86	0.02432	30	Pass
NVNT	ac20	5240	Ant3	12.54	0.01795	30	Pass
NVNT	ac20	5240	Ant4	14.34	0.02716	30	Pass
NVNT	ac20	5240	Sum	19.42	0.08759	27.51	Pass
NVNT	ac20	5745	Ant1	21.92	0.1556	30	Pass
NVNT	ac20	5785	Ant1	20.82	0.12078	30	Pass
NVNT	ac20	5825	Ant1	21.18	0.13122	30	Pass
NVNT	ac20	5745	Ant2	20.13	0.10304	30	Pass
NVNT	ac20	5785	Ant2	20.32	0.10765	30	Pass
NVNT	ac20	5825	Ant2	21.06	0.12764	30	Pass
NVNT	ac20	5745	Ant3	20.91	0.12331	30	Pass

NVNT	ac20	5785	Ant3	20.72	0.11803	30	Pass
NVNT	ac20	5825	Ant3	21.6	0.14454	30	Pass
NVNT	ac20	5745	Ant4	21.94	0.15631	30	Pass
NVNT	ac20	5785	Ant4	21.17	0.13092	30	Pass
NVNT	ac20	5825	Ant4	21.17	0.13092	30	Pass
NVNT	ac20	5745	Ant1	15.05	0.03199	30	Pass
NVNT	ac20	5745	Ant2	13.67	0.02328	30	Pass
NVNT	ac20	5745	Ant3	13.95	0.02483	30	Pass
NVNT	ac20	5745	Ant4	15.71	0.03724	30	Pass
NVNT	ac20	5745	Sum	20.69	0.11734	28.92	Pass
NVNT	ac20	5785	Ant1	13.68	0.02333	30	Pass
NVNT	ac20	5785	Ant2	13.47	0.02223	30	Pass
NVNT	ac20	5785	Ant3	13.21	0.02094	30	Pass
NVNT	ac20	5785	Ant4	15.35	0.03428	30	Pass
NVNT	ac20	5785	Sum	20.03	0.10079	28.92	Pass
NVNT	ac20	5825	Ant1	14.13	0.02588	30	Pass
NVNT	ac20	5825	Ant2	14.45	0.02786	30	Pass
NVNT	ac20	5825	Ant3	14.11	0.02576	30	Pass
NVNT	ac20	5825	Ant4	15.54	0.03581	30	Pass
NVNT	ac20	5825	Sum	20.62	0.11532	28.92	Pass
NVNT	ac40	5190	Ant1	22.05	0.16032	30	Pass
NVNT	ac40	5230	Ant1	21	0.12589	30	Pass
NVNT	ac40	5190	Ant2	21.43	0.139	30	Pass
NVNT	ac40	5230	Ant2	20.6	0.11482	30	Pass
NVNT	ac40	5190	Ant3	20.39	0.1094	30	Pass
NVNT	ac40	5230	Ant3	19.44	0.0879	30	Pass
NVNT	ac40	5190	Ant4	20.26	0.10617	30	Pass
NVNT	ac40	5230	Ant4	19.5	0.08913	30	Pass
NVNT	ac40	5190	Ant1	14.28	0.02679	30	Pass
NVNT	ac40	5190	Ant2	15.2	0.03311	30	Pass
NVNT	ac40	5190	Ant3	14.6	0.02884	30	Pass
NVNT	ac40	5190	Ant4	15.63	0.03656	30	Pass
NVNT	ac40	5190	Sum	20.98	0.1253	27.51	Pass
NVNT	ac40	5230	Ant1	13.34	0.02158	30	Pass
NVNT	ac40	5230	Ant2	14.6	0.02884	30	Pass
NVNT	ac40	5230	Ant3	13.4	0.02188	30	Pass
NVNT	ac40	5230	Ant4	15.13	0.03258	30	Pass
NVNT	ac40	5230	Sum	20.21	0.10488	27.51	Pass

NVNT	ac40	5755	Ant1	21.88	0.15417	30	Pass
NVNT	ac40	5795	Ant1	20.42	0.11015	30	Pass
NVNT	ac40	5755	Ant2	20.75	0.11885	30	Pass
NVNT	ac40	5795	Ant2	20.65	0.11614	30	Pass
NVNT	ac40	5755	Ant3	21.05	0.12735	30	Pass
NVNT	ac40	5795	Ant3	20.45	0.11092	30	Pass
NVNT	ac40	5755	Ant4	20.95	0.12445	30	Pass
NVNT	ac40	5795	Ant4	20.73	0.1183	30	Pass
NVNT	ac40	5755	Ant1	15.72	0.03733	30	Pass
NVNT	ac40	5755	Ant2	14.62	0.02897	30	Pass
NVNT	ac40	5755	Ant3	14.93	0.03112	30	Pass
NVNT	ac40	5755	Ant4	16.79	0.04775	30	Pass
NVNT	ac40	5755	Sum	21.62	0.14517	28.92	Pass
NVNT	ac40	5795	Ant1	15.08	0.03221	30	Pass
NVNT	ac40	5795	Ant2	15.12	0.03251	30	Pass
NVNT	ac40	5795	Ant3	14.44	0.0278	30	Pass
NVNT	ac40	5795	Ant4	16.77	0.04753	30	Pass
NVNT	ac40	5795	Sum	21.46	0.14005	28.92	Pass
NVNT	ac80	5210	Ant1	21.23	0.13274	30	Pass
NVNT	ac80	5210	Ant2	20.58	0.11429	30	Pass
NVNT	ac80	5210	Ant3	20.28	0.10666	30	Pass
NVNT	ac80	5210	Ant4	21.48	0.1406	30	Pass
NVNT	ac80	5210	Ant1	14.12	0.02582	30	Pass
NVNT	ac80	5210	Ant2	15.14	0.03266	30	Pass
NVNT	ac80	5210	Ant3	14.38	0.02742	30	Pass
NVNT	ac80	5210	Ant4	15.62	0.03648	30	Pass
NVNT	ac80	5210	Sum	20.88	0.12237	27.51	Pass
NVNT	ac80	5775	Ant1	20.88	0.12246	30	Pass
NVNT	ac80	5775	Ant2	21.47	0.14028	30	Pass
NVNT	ac80	5775	Ant3	21.59	0.14421	30	Pass
NVNT	ac80	5775	Ant4	21.63	0.14555	30	Pass
NVNT	ac80	5775	Ant1	14.22	0.02642	30	Pass
NVNT	ac80	5775	Ant2	14.35	0.02723	30	Pass
NVNT	ac80	5775	Ant3	13.34	0.02158	30	Pass
NVNT	ac80	5775	Ant4	15.76	0.03767	30	Pass
NVNT	ac80	5775	Sum	20.53	0.1129	28.92	Pass
NVNT	ax20	5180	Ant1	21.27	0.13397	30	Pass
NVNT	ax20	5220	Ant1	19.9	0.09772	30	Pass

NVNT	ax20	5240	Ant1	19.15	0.08222	30	Pass
NVNT	ax20	5180	Ant2	22.07	0.16106	30	Pass
NVNT	ax20	5220	Ant2	21.14	0.13002	30	Pass
NVNT	ax20	5240	Ant2	20.6	0.11482	30	Pass
NVNT	ax20	5180	Ant3	18.96	0.0787	30	Pass
NVNT	ax20	5220	Ant3	19.82	0.09594	30	Pass
NVNT	ax20	5240	Ant3	18.72	0.07447	30	Pass
NVNT	ax20	5180	Ant4	21.42	0.13868	30	Pass
NVNT	ax20	5220	Ant4	20.36	0.10864	30	Pass
NVNT	ax20	5240	Ant4	19.43	0.0877	30	Pass
NVNT	ax20	5180	Ant1	13.52	0.02249	30	Pass
NVNT	ax20	5180	Ant2	14.41	0.02761	30	Pass
NVNT	ax20	5180	Ant3	14.08	0.02559	30	Pass
NVNT	ax20	5180	Ant4	14.82	0.03034	30	Pass
NVNT	ax20	5180	Sum	20.25	0.10602	27.51	Pass
NVNT	ax20	5220	Ant1	12.39	0.01734	30	Pass
NVNT	ax20	5220	Ant2	13.46	0.02218	30	Pass
NVNT	ax20	5220	Ant3	12.6	0.0182	30	Pass
NVNT	ax20	5220	Ant4	13.9	0.02455	30	Pass
NVNT	ax20	5220	Sum	19.15	0.08226	27.51	Pass
NVNT	ax20	5240	Ant1	11.65	0.01462	30	Pass
NVNT	ax20	5240	Ant2	13.02	0.02004	30	Pass
NVNT	ax20	5240	Ant3	11.72	0.01486	30	Pass
NVNT	ax20	5240	Ant4	13.21	0.02094	30	Pass
NVNT	ax20	5240	Sum	18.48	0.07047	27.51	Pass
NVNT	ax20	5745	Ant1	20.39	0.1094	30	Pass
NVNT	ax20	5785	Ant1	19.27	0.08453	30	Pass
NVNT	ax20	5825	Ant1	19.53	0.08974	30	Pass
NVNT	ax20	5745	Ant2	20.05	0.10116	30	Pass
NVNT	ax20	5785	Ant2	19.6	0.0912	30	Pass
NVNT	ax20	5825	Ant2	20.49	0.11194	30	Pass
NVNT	ax20	5745	Ant3	20.39	0.1094	30	Pass
NVNT	ax20	5785	Ant3	19.83	0.09616	30	Pass
NVNT	ax20	5825	Ant3	20.56	0.11376	30	Pass
NVNT	ax20	5745	Ant4	20.69	0.11722	30	Pass
NVNT	ax20	5785	Ant4	20.16	0.10375	30	Pass
NVNT	ax20	5825	Ant4	20.26	0.10617	30	Pass
NVNT	ax20	5745	Ant1	14.02	0.02523	30	Pass

NVNT	ax20	5745	Ant2	13.69	0.02339	30	Pass
NVNT	ax20	5745	Ant3	12.77	0.01892	30	Pass
NVNT	ax20	5745	Ant4	15.16	0.03281	30	Pass
NVNT	ax20	5745	Sum	20.02	0.10036	28.92	Pass
NVNT	ax20	5785	Ant1	13.18	0.0208	30	Pass
NVNT	ax20	5785	Ant2	13.51	0.02244	30	Pass
NVNT	ax20	5785	Ant3	12.42	0.01746	30	Pass
NVNT	ax20	5785	Ant4	15.12	0.03251	30	Pass
NVNT	ax20	5785	Sum	19.69	0.0932	28.92	Pass
NVNT	ax20	5825	Ant1	13.76	0.02377	30	Pass
NVNT	ax20	5825	Ant2	14.28	0.02679	30	Pass
NVNT	ax20	5825	Ant3	13.27	0.02123	30	Pass
NVNT	ax20	5825	Ant4	15.57	0.03606	30	Pass
NVNT	ax20	5825	Sum	20.33	0.10785	28.92	Pass
NVNT	ax40	5190	Ant1	20.72	0.11803	30	Pass
NVNT	ax40	5230	Ant1	19.56	0.09036	30	Pass
NVNT	ax40	5190	Ant2	20.64	0.11588	30	Pass
NVNT	ax40	5230	Ant2	19.66	0.09247	30	Pass
NVNT	ax40	5190	Ant3	19.64	0.09204	30	Pass
NVNT	ax40	5230	Ant3	18.61	0.07261	30	Pass
NVNT	ax40	5190	Ant4	19.86	0.09683	30	Pass
NVNT	ax40	5230	Ant4	18.98	0.07907	30	Pass
NVNT	ax40	5190	Ant1	13.14	0.02061	30	Pass
NVNT	ax40	5190	Ant2	14.04	0.02535	30	Pass
NVNT	ax40	5190	Ant3	13.5	0.02239	30	Pass
NVNT	ax40	5190	Ant4	14.35	0.02723	30	Pass
NVNT	ax40	5190	Sum	19.8	0.09557	27.51	Pass
NVNT	ax40	5230	Ant1	12.04	0.016	30	Pass
NVNT	ax40	5230	Ant2	13.28	0.02128	30	Pass
NVNT	ax40	5230	Ant3	12.13	0.01633	30	Pass
NVNT	ax40	5230	Ant4	13.54	0.02259	30	Pass
NVNT	ax40	5230	Sum	18.82	0.0762	27.51	Pass
NVNT	ax40	5755	Ant1	20.88	0.12246	30	Pass
NVNT	ax40	5795	Ant1	19.71	0.09354	30	Pass
NVNT	ax40	5755	Ant2	19.99	0.09977	30	Pass
NVNT	ax40	5795	Ant2	20.01	0.10023	30	Pass
NVNT	ax40	5755	Ant3	20.37	0.10889	30	Pass
NVNT	ax40	5795	Ant3	19.53	0.08974	30	Pass

NVNT	ax40	5755	Ant4	20.41	0.1099	30	Pass
NVNT	ax40	5795	Ant4	19.86	0.09683	30	Pass
NVNT	ax40	5755	Ant1	14.19	0.02624	30	Pass
NVNT	ax40	5755	Ant2	13.98	0.025	30	Pass
NVNT	ax40	5755	Ant3	13.21	0.02094	30	Pass
NVNT	ax40	5755	Ant4	15.56	0.03597	30	Pass
NVNT	ax40	5755	Sum	20.34	0.10816	28.92	Pass
NVNT	ax40	5795	Ant1	13.53	0.02254	30	Pass
NVNT	ax40	5795	Ant2	14.12	0.02582	30	Pass
NVNT	ax40	5795	Ant3	12.58	0.01811	30	Pass
NVNT	ax40	5795	Ant4	15.47	0.03524	30	Pass
NVNT	ax40	5795	Sum	20.07	0.10172	28.92	Pass
NVNT	ax80	5210	Ant1	19.5	0.08913	30	Pass
NVNT	ax80	5210	Ant2	20.27	0.10641	30	Pass
NVNT	ax80	5210	Ant3	19.47	0.08851	30	Pass
NVNT	ax80	5210	Ant4	19.43	0.0877	30	Pass
NVNT	ax80	5210	Ant1	12.68	0.01854	30	Pass
NVNT	ax80	5210	Ant2	13.7	0.02344	30	Pass
NVNT	ax80	5210	Ant3	12.88	0.01941	30	Pass
NVNT	ax80	5210	Ant4	13.98	0.025	30	Pass
NVNT	ax80	5210	Sum	19.36	0.08639	27.51	Pass
NVNT	ax80	5775	Ant1	20.08	0.10186	30	Pass
NVNT	ax80	5775	Ant2	19.56	0.09036	30	Pass
NVNT	ax80	5775	Ant3	20.9	0.12303	30	Pass
NVNT	ax80	5775	Ant4	19.73	0.09397	30	Pass
NVNT	ax80	5775	Ant1	14.14	0.02594	30	Pass
NVNT	ax80	5775	Ant2	14.27	0.02673	30	Pass
NVNT	ax80	5775	Ant3	13.3	0.02138	30	Pass
NVNT	ax80	5775	Ant4	15.72	0.03733	30	Pass
NVNT	ax80	5775	Sum	20.47	0.11138	28.92	Pass

Note 1: Directional gain = $10\log[(10^{G0/20}+10^{G1/20})^2/2$ = 8.50dBi＞6dBi, so the power limit shall be reduced to 30-(8.50-6) = 27.5dBm for 5.18-5.24GHz band.

Note 2: Directional gain = $10\log[(10^{G0/20}+10^{G1/20})^2/2$ = 7.08dBi＞6dBi, so the power limit shall be reduced to 30-(7.08-6) = 28.92dBm for 5.745-5.825GHz band.

A.3. Emission Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	37.371	Pass
NVNT	a	5220	Ant1	35.811	Pass
NVNT	a	5240	Ant1	34.673	Pass
NVNT	a	5180	Ant2	40.133	Pass
NVNT	a	5220	Ant2	38.715	Pass
NVNT	a	5240	Ant2	36.22	Pass
NVNT	a	5180	Ant3	41.178	Pass
NVNT	a	5220	Ant3	38.807	Pass
NVNT	a	5240	Ant3	36.777	Pass
NVNT	a	5180	Ant4	38.117	Pass
NVNT	a	5220	Ant4	38.759	Pass
NVNT	a	5240	Ant4	37.951	Pass
NVNT	n20	5180	Ant1	39.088	Pass
NVNT	n20	5220	Ant1	38.652	Pass
NVNT	n20	5240	Ant1	38.601	Pass
NVNT	n20	5180	Ant2	39.067	Pass
NVNT	n20	5220	Ant2	38.673	Pass
NVNT	n20	5240	Ant2	39.271	Pass
NVNT	n20	5180	Ant3	37.455	Pass
NVNT	n20	5220	Ant3	40.969	Pass
NVNT	n20	5240	Ant3	38.907	Pass
NVNT	n20	5180	Ant4	37.506	Pass
NVNT	n20	5220	Ant4	40.952	Pass
NVNT	n20	5240	Ant4	36.251	Pass
NVNT	n40	5190	Ant1	55.924	Pass
NVNT	n40	5230	Ant1	46.912	Pass
NVNT	n40	5190	Ant2	39.525	Pass
NVNT	n40	5230	Ant2	42.34	Pass
NVNT	n40	5190	Ant3	41.17	Pass
NVNT	n40	5230	Ant3	58.601	Pass
NVNT	n40	5190	Ant4	51.345	Pass
NVNT	n40	5230	Ant4	45.539	Pass
NVNT	ac20	5180	Ant1	38.898	Pass
NVNT	ac20	5220	Ant1	41.164	Pass
NVNT	ac20	5240	Ant1	35.544	Pass
NVNT	ac20	5180	Ant2	35.018	Pass

NVNT	ac20	5220	Ant2	38.165	Pass
NVNT	ac20	5240	Ant2	36.142	Pass
NVNT	ac20	5180	Ant3	35.821	Pass
NVNT	ac20	5220	Ant3	34.269	Pass
NVNT	ac20	5240	Ant3	31.213	Pass
NVNT	ac20	5180	Ant4	34.348	Pass
NVNT	ac20	5220	Ant4	28.929	Pass
NVNT	ac20	5240	Ant4	27.837	Pass
NVNT	ac40	5190	Ant1	67.588	Pass
NVNT	ac40	5230	Ant1	73.043	Pass
NVNT	ac40	5190	Ant2	49.101	Pass
NVNT	ac40	5230	Ant2	40.525	Pass
NVNT	ac40	5190	Ant3	59.87	Pass
NVNT	ac40	5230	Ant3	58.063	Pass
NVNT	ac40	5190	Ant4	53.67	Pass
NVNT	ac40	5230	Ant4	49.964	Pass
NVNT	ac80	5210	Ant1	103.785	Pass
NVNT	ac80	5210	Ant2	95.433	Pass
NVNT	ac80	5210	Ant3	119.996	Pass
NVNT	ac80	5210	Ant4	114.143	Pass
NVNT	ax20	5180	Ant1	34.059	Pass
NVNT	ax20	5220	Ant1	37.45	Pass
NVNT	ax20	5240	Ant1	34.685	Pass
NVNT	ax20	5180	Ant2	29.093	Pass
NVNT	ax20	5220	Ant2	32.564	Pass
NVNT	ax20	5240	Ant2	25.67	Pass
NVNT	ax20	5180	Ant3	31.655	Pass
NVNT	ax20	5220	Ant3	31.368	Pass
NVNT	ax20	5240	Ant3	23.24	Pass
NVNT	ax20	5180	Ant4	25.264	Pass
NVNT	ax20	5220	Ant4	24.062	Pass
NVNT	ax20	5240	Ant4	19.935	Pass
NVNT	ax40	5190	Ant1	42.797	Pass
NVNT	ax40	5230	Ant1	43.848	Pass
NVNT	ax40	5190	Ant2	39.626	Pass
NVNT	ax40	5230	Ant2	39.368	Pass
NVNT	ax40	5190	Ant3	55.798	Pass
NVNT	ax40	5230	Ant3	53.118	Pass

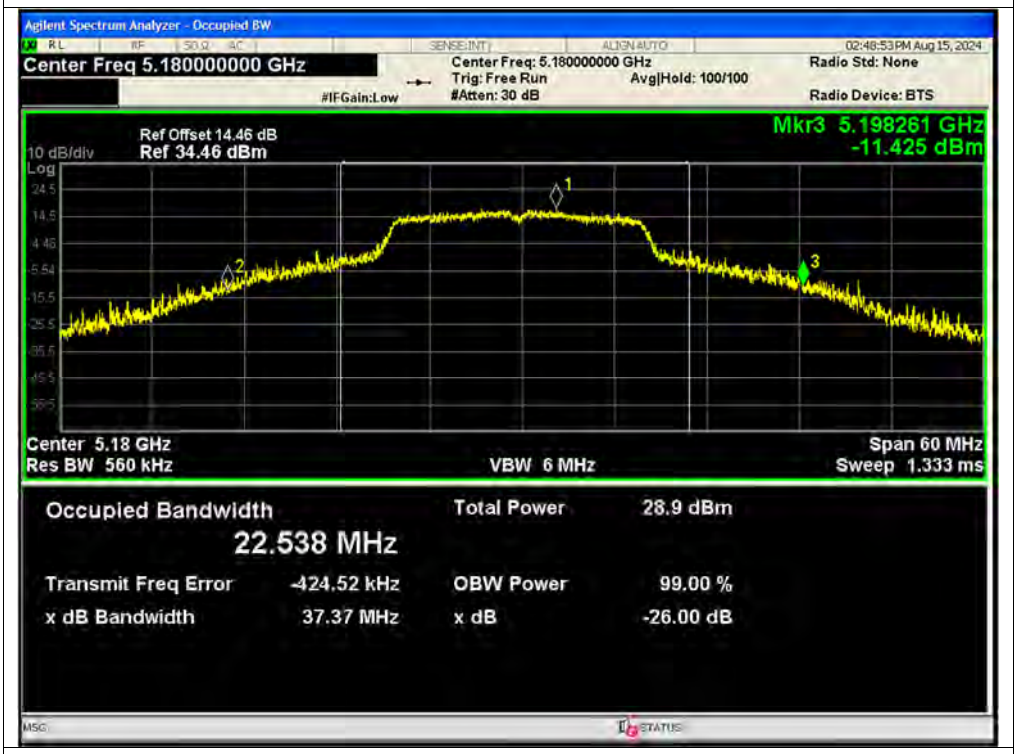
NVNT	ax40	5190	Ant4	44.178	Pass
NVNT	ax40	5230	Ant4	41.732	Pass
NVNT	ax80	5210	Ant1	85.024	Pass
NVNT	ax80	5210	Ant2	95.14	Pass
NVNT	ax80	5210	Ant3	119.311	Pass
NVNT	ax80	5210	Ant4	86.552	Pass

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	13.814	0.5	Pass
NVNT	a	5785	Ant1	14.983	0.5	Pass
NVNT	a	5825	Ant1	13.772	0.5	Pass
NVNT	a	5745	Ant2	15.523	0.5	Pass
NVNT	a	5785	Ant2	15.091	0.5	Pass
NVNT	a	5825	Ant2	15.028	0.5	Pass
NVNT	a	5745	Ant3	15.011	0.5	Pass
NVNT	a	5785	Ant3	13.787	0.5	Pass
NVNT	a	5825	Ant3	14.691	0.5	Pass
NVNT	a	5745	Ant4	15.645	0.5	Pass
NVNT	a	5785	Ant4	12.915	0.5	Pass
NVNT	a	5825	Ant4	15.115	0.5	Pass
NVNT	n20	5745	Ant1	12.997	0.5	Pass
NVNT	n20	5785	Ant1	15.054	0.5	Pass
NVNT	n20	5825	Ant1	13.865	0.5	Pass
NVNT	n20	5745	Ant2	12.786	0.5	Pass
NVNT	n20	5785	Ant2	15.023	0.5	Pass
NVNT	n20	5825	Ant2	11.404	0.5	Pass
NVNT	n20	5745	Ant3	14.15	0.5	Pass
NVNT	n20	5785	Ant3	13.735	0.5	Pass
NVNT	n20	5825	Ant3	15.014	0.5	Pass
NVNT	n20	5745	Ant4	15.057	0.5	Pass
NVNT	n20	5785	Ant4	15.007	0.5	Pass
NVNT	n20	5825	Ant4	13.815	0.5	Pass
NVNT	n40	5755	Ant1	35.095	0.5	Pass
NVNT	n40	5795	Ant1	35.071	0.5	Pass
NVNT	n40	5755	Ant2	33.851	0.5	Pass
NVNT	n40	5795	Ant2	34.991	0.5	Pass
NVNT	n40	5755	Ant3	35.058	0.5	Pass
NVNT	n40	5795	Ant3	33.832	0.5	Pass
NVNT	n40	5755	Ant4	31.296	0.5	Pass
NVNT	n40	5795	Ant4	32.511	0.5	Pass
NVNT	ac20	5745	Ant1	15.08	0.5	Pass
NVNT	ac20	5785	Ant1	15.066	0.5	Pass
NVNT	ac20	5825	Ant1	15.089	0.5	Pass
NVNT	ac20	5745	Ant2	15.058	0.5	Pass

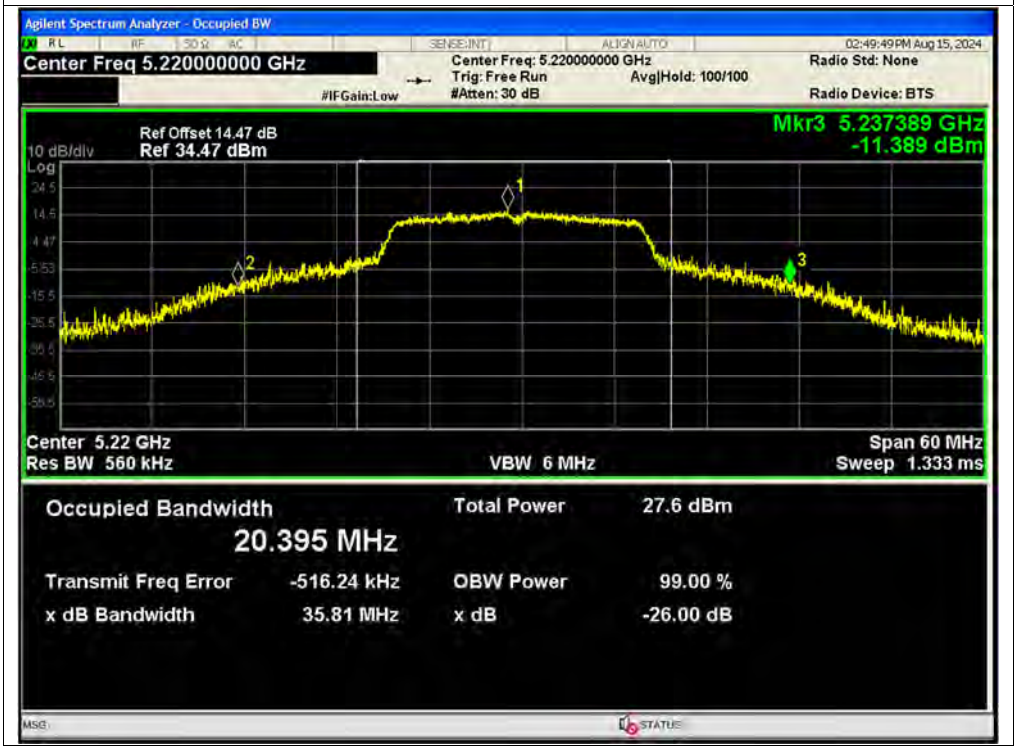
NVNT	ac20	5785	Ant2	15.011	0.5	Pass
NVNT	ac20	5825	Ant2	15.032	0.5	Pass
NVNT	ac20	5745	Ant3	15.082	0.5	Pass
NVNT	ac20	5785	Ant3	15.052	0.5	Pass
NVNT	ac20	5825	Ant3	15.068	0.5	Pass
NVNT	ac20	5745	Ant4	15.037	0.5	Pass
NVNT	ac20	5785	Ant4	15.08	0.5	Pass
NVNT	ac20	5825	Ant4	15.082	0.5	Pass
NVNT	ac40	5755	Ant1	34.995	0.5	Pass
NVNT	ac40	5795	Ant1	35.056	0.5	Pass
NVNT	ac40	5755	Ant2	35.044	0.5	Pass
NVNT	ac40	5795	Ant2	33.804	0.5	Pass
NVNT	ac40	5755	Ant3	35.033	0.5	Pass
NVNT	ac40	5795	Ant3	35.034	0.5	Pass
NVNT	ac40	5755	Ant4	32.56	0.5	Pass
NVNT	ac40	5795	Ant4	35.063	0.5	Pass
NVNT	ac80	5775	Ant1	75.067	0.5	Pass
NVNT	ac80	5775	Ant2	75.08	0.5	Pass
NVNT	ac80	5775	Ant3	75.049	0.5	Pass
NVNT	ac80	5775	Ant4	75.051	0.5	Pass
NVNT	ax20	5745	Ant1	15.026	0.5	Pass
NVNT	ax20	5785	Ant1	15.006	0.5	Pass
NVNT	ax20	5825	Ant1	14.173	0.5	Pass
NVNT	ax20	5745	Ant2	15.097	0.5	Pass
NVNT	ax20	5785	Ant2	15.081	0.5	Pass
NVNT	ax20	5825	Ant2	16.312	0.5	Pass
NVNT	ax20	5745	Ant3	15.161	0.5	Pass
NVNT	ax20	5785	Ant3	15.209	0.5	Pass
NVNT	ax20	5825	Ant3	15.18	0.5	Pass
NVNT	ax20	5745	Ant4	15.899	0.5	Pass
NVNT	ax20	5785	Ant4	14.999	0.5	Pass
NVNT	ax20	5825	Ant4	15.111	0.5	Pass
NVNT	ax40	5755	Ant1	35.059	0.5	Pass
NVNT	ax40	5795	Ant1	35.078	0.5	Pass
NVNT	ax40	5755	Ant2	35.078	0.5	Pass
NVNT	ax40	5795	Ant2	35.08	0.5	Pass
NVNT	ax40	5755	Ant3	35	0.5	Pass
NVNT	ax40	5795	Ant3	35.087	0.5	Pass

NVNT	ax40	5755	Ant4	35.102	0.5	Pass
NVNT	ax40	5795	Ant4	35.096	0.5	Pass
NVNT	ax80	5775	Ant1	75.075	0.5	Pass
NVNT	ax80	5775	Ant2	75.088	0.5	Pass
NVNT	ax80	5775	Ant3	75.065	0.5	Pass
NVNT	ax80	5775	Ant4	75.084	0.5	Pass

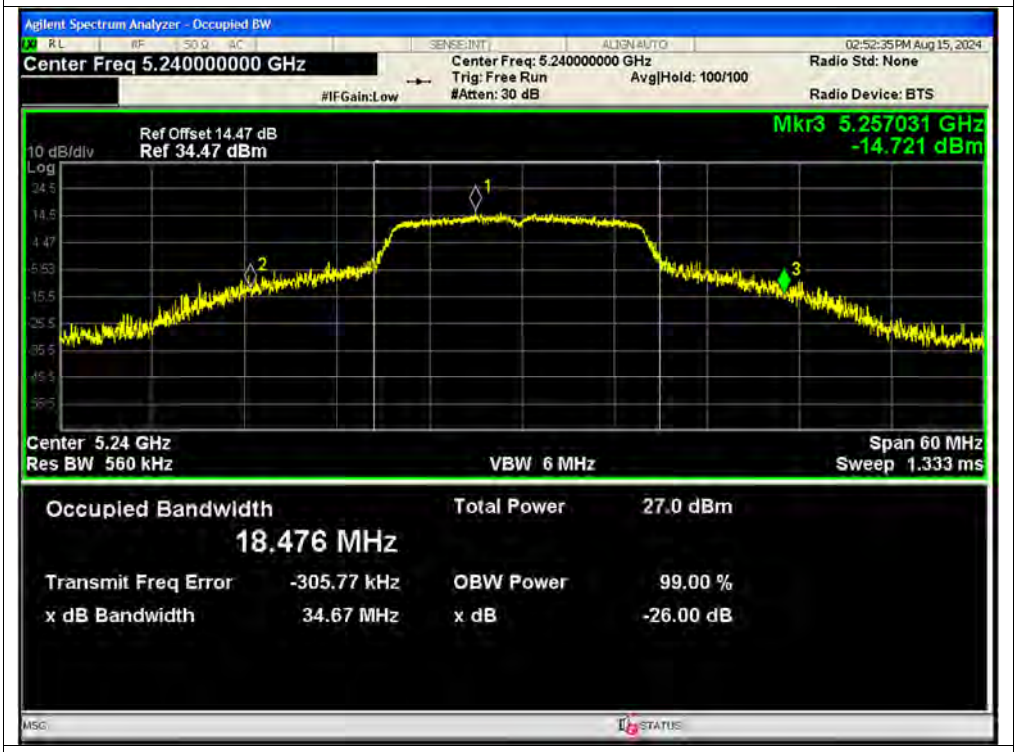
Test Graphs
-26dB Bandwidth NVNT a 5180MHz Ant1



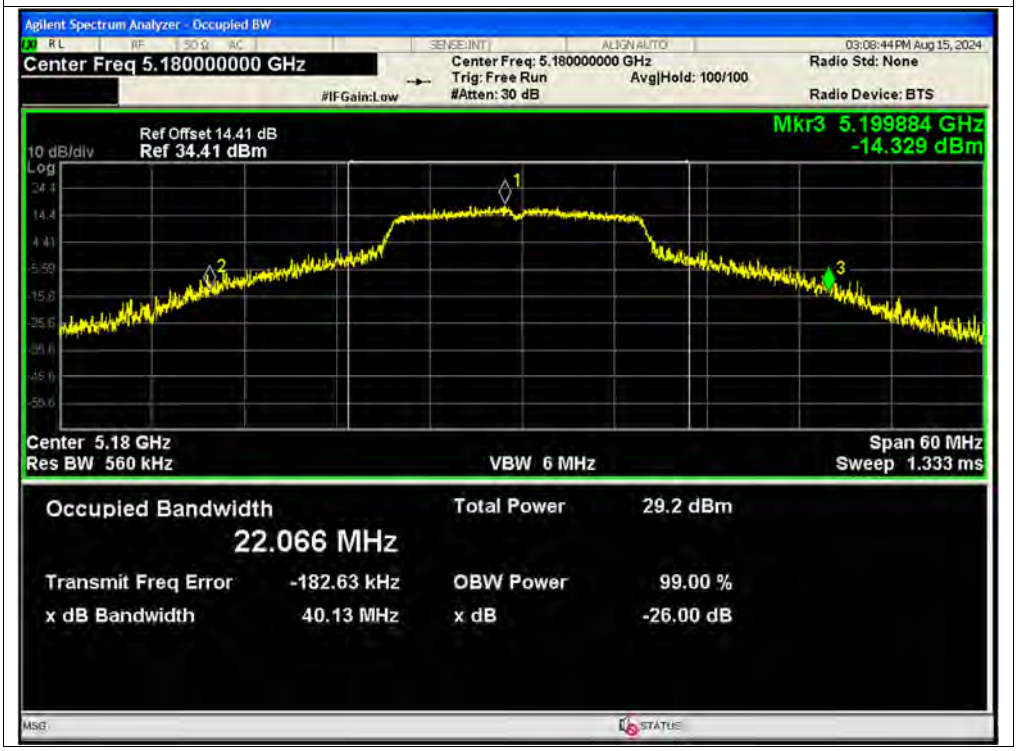
-26dB Bandwidth NVNT a 5220MHz Ant1



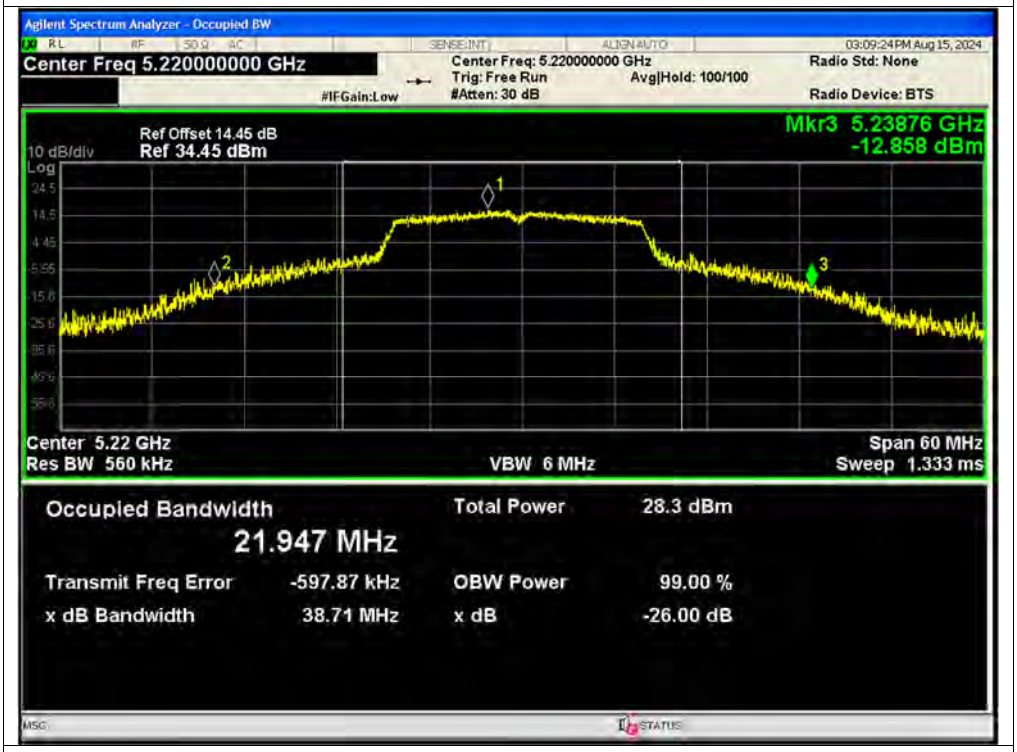
-26dB Bandwidth NVNT a 5240MHz Ant1



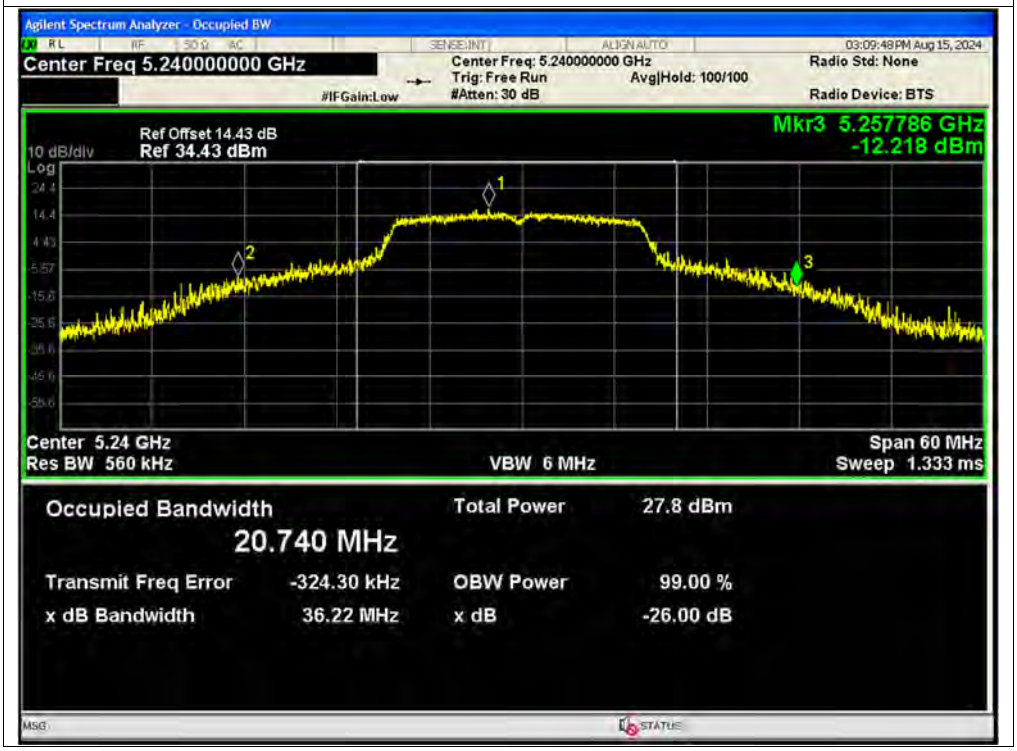
-26dB Bandwidth NVNT a 5180MHz Ant2



-26dB Bandwidth NVNT a 5220MHz Ant2

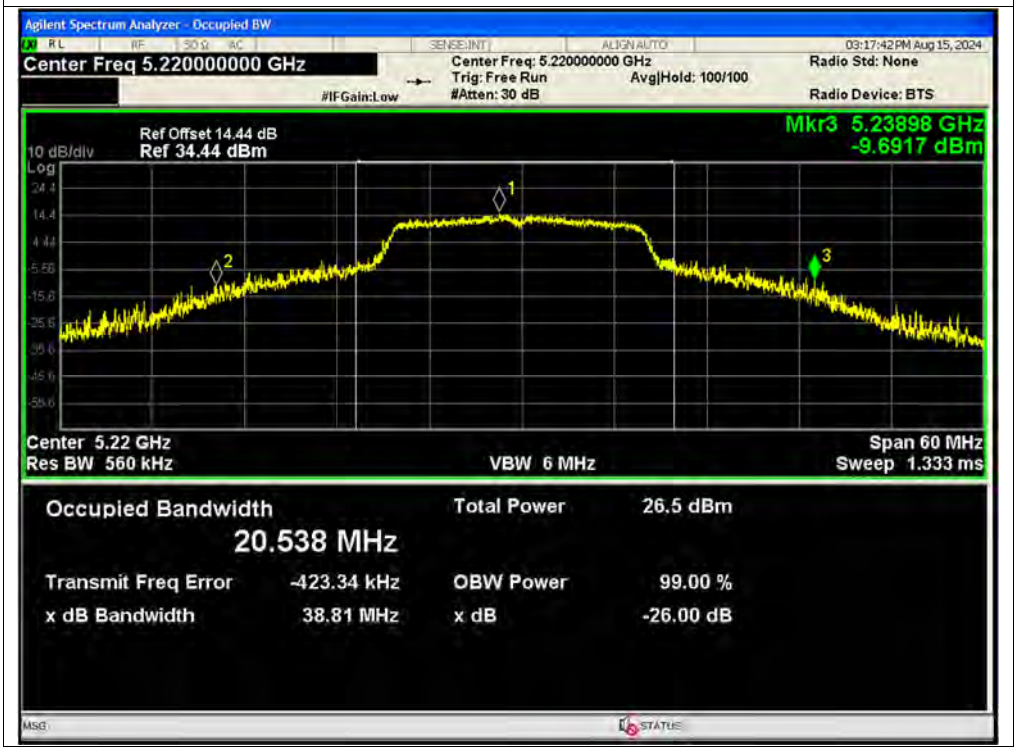


-26dB Bandwidth NVNT a 5240MHz Ant2



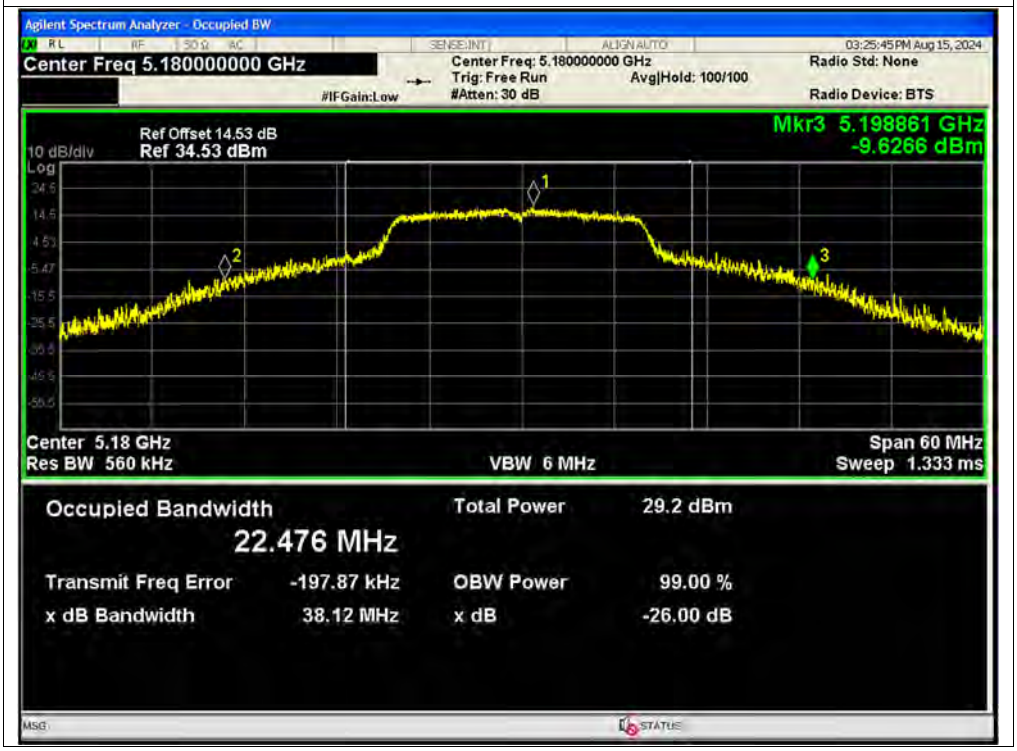
-26dB Bandwidth NVNT a 5180MHz Ant3

-26dB Bandwidth NVNT a 5220MHz Ant3

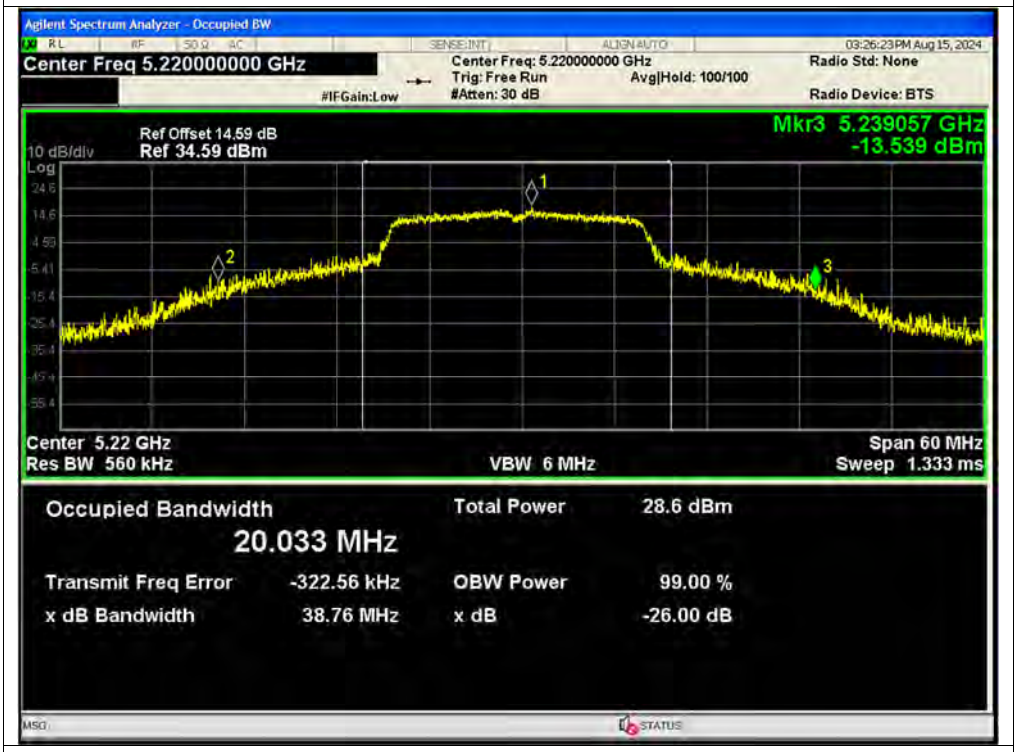


-26dB Bandwidth NVNT a 5240MHz Ant3

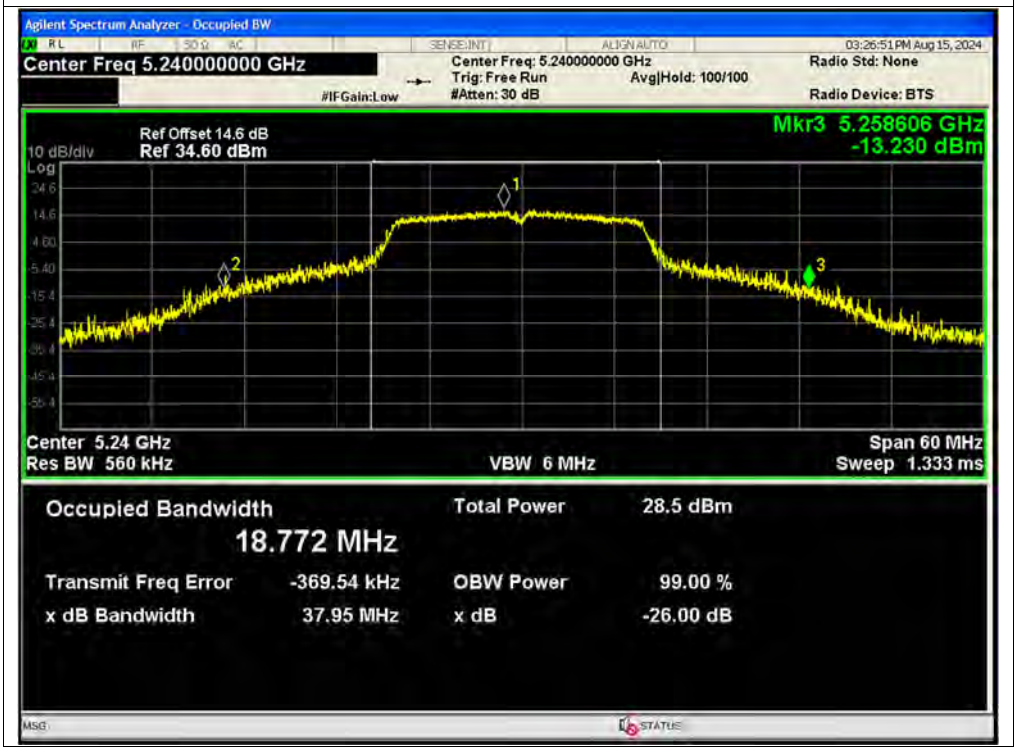
-26dB Bandwidth NVNT a 5180MHz Ant4



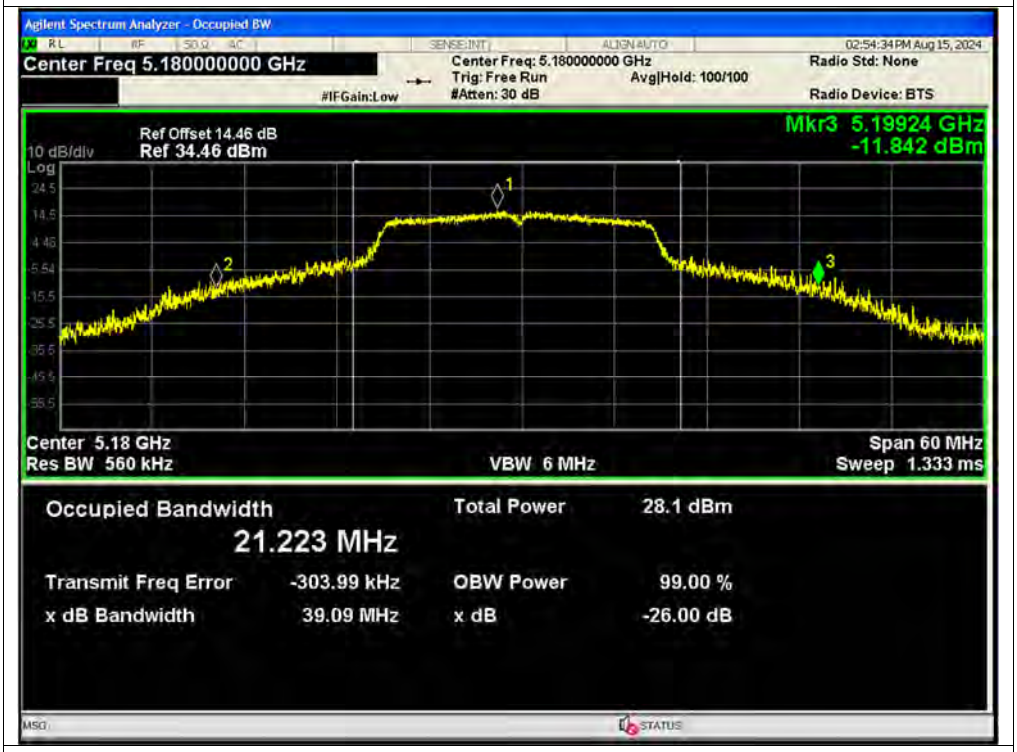
-26dB Bandwidth NVNT a 5220MHz Ant4



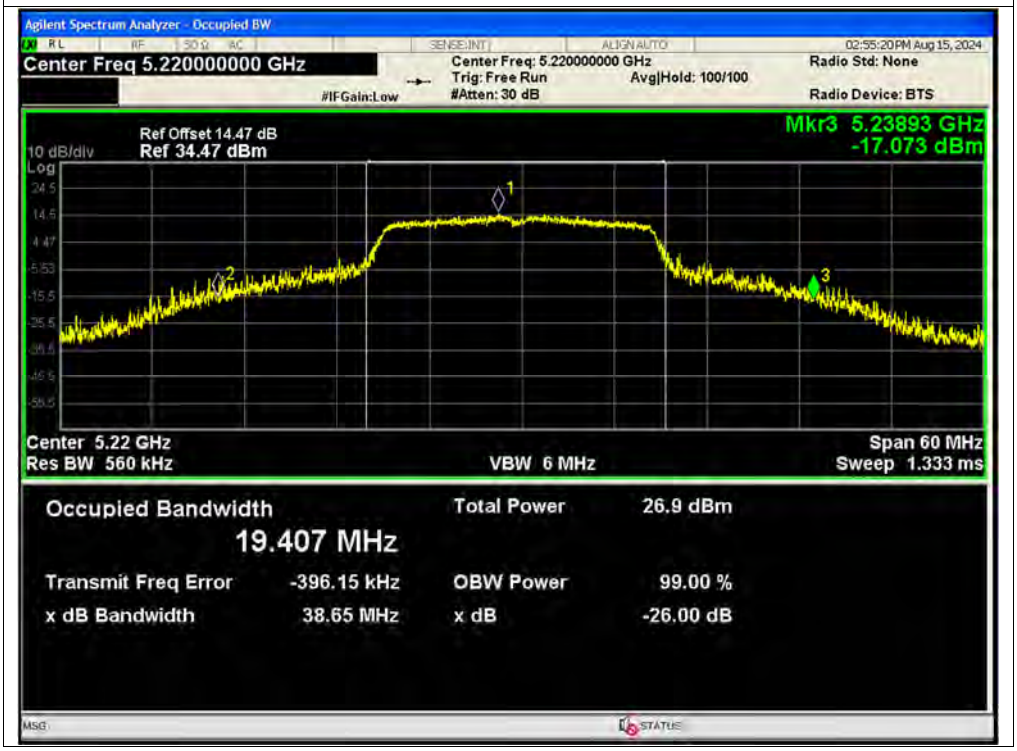
-26dB Bandwidth NVNT a 5240MHz Ant4



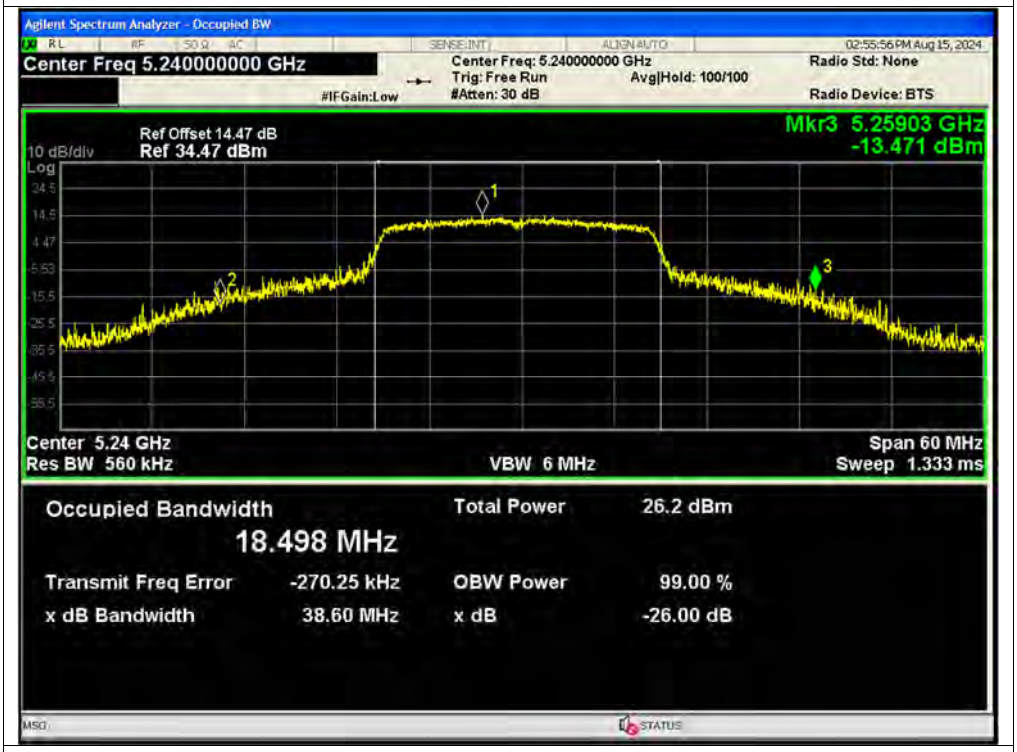
-26dB Bandwidth NVNT n20 5180MHz Ant1



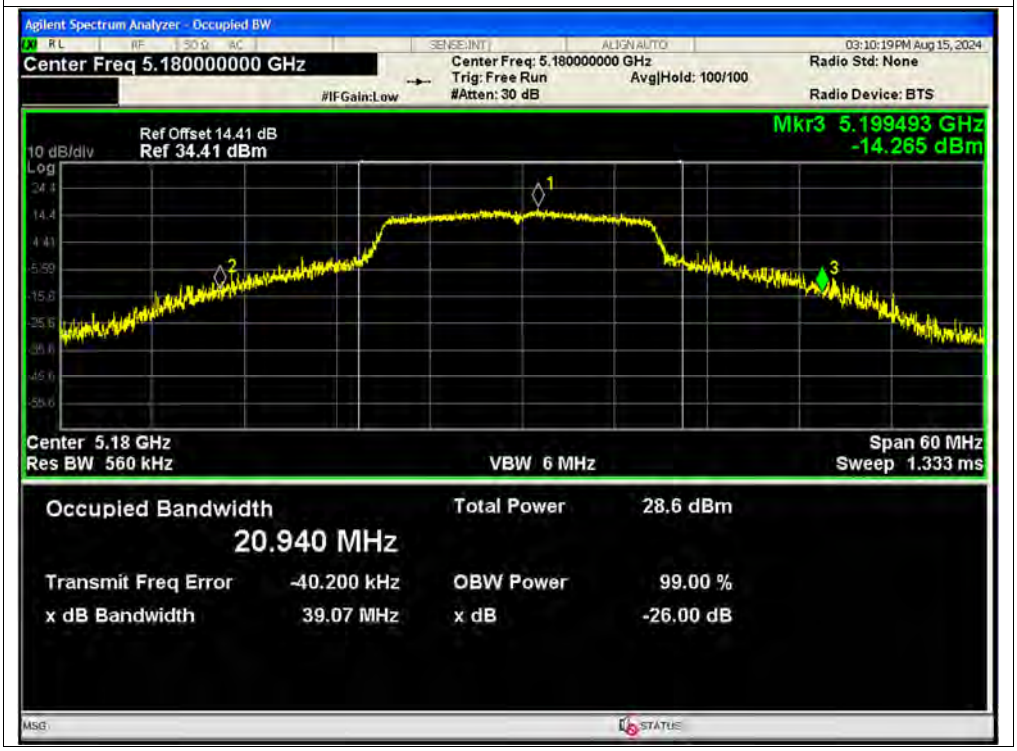
-26dB Bandwidth NVNT n20 5220MHz Ant1



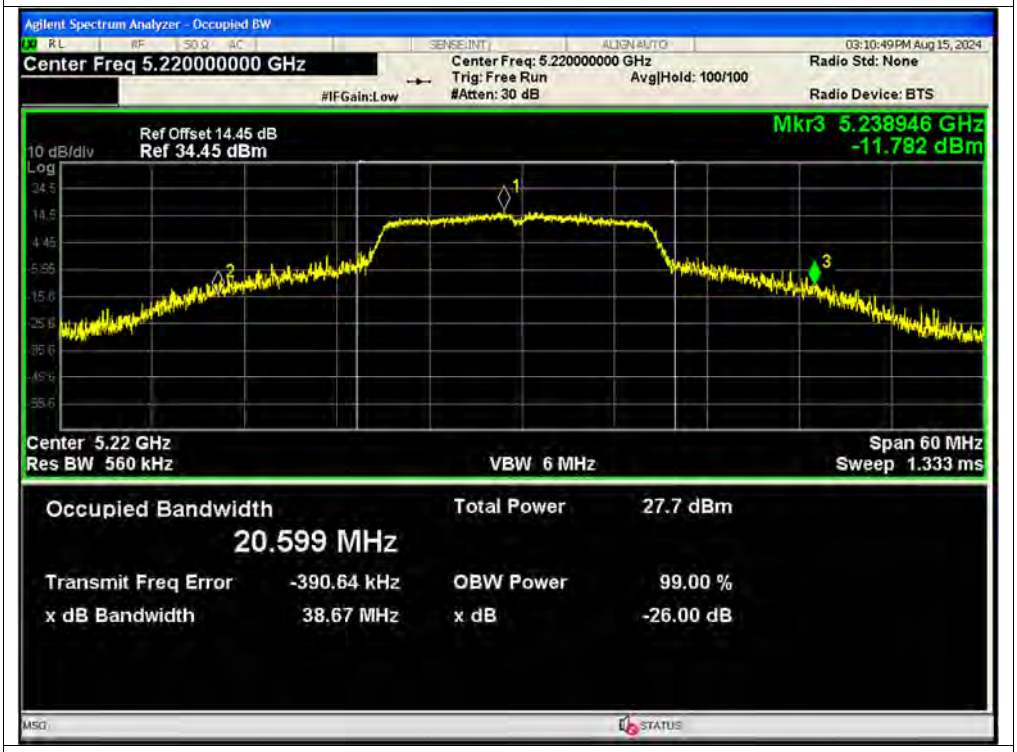
-26dB Bandwidth NVNT n20 5240MHz Ant1



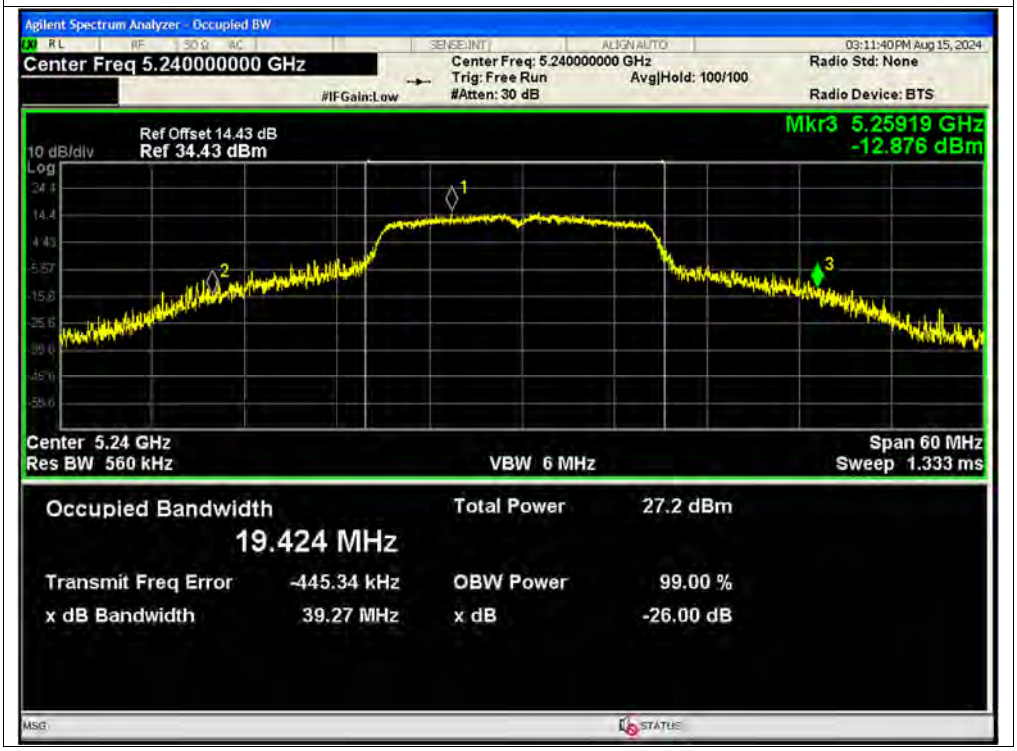
-26dB Bandwidth NVNT n20 5180MHz Ant2



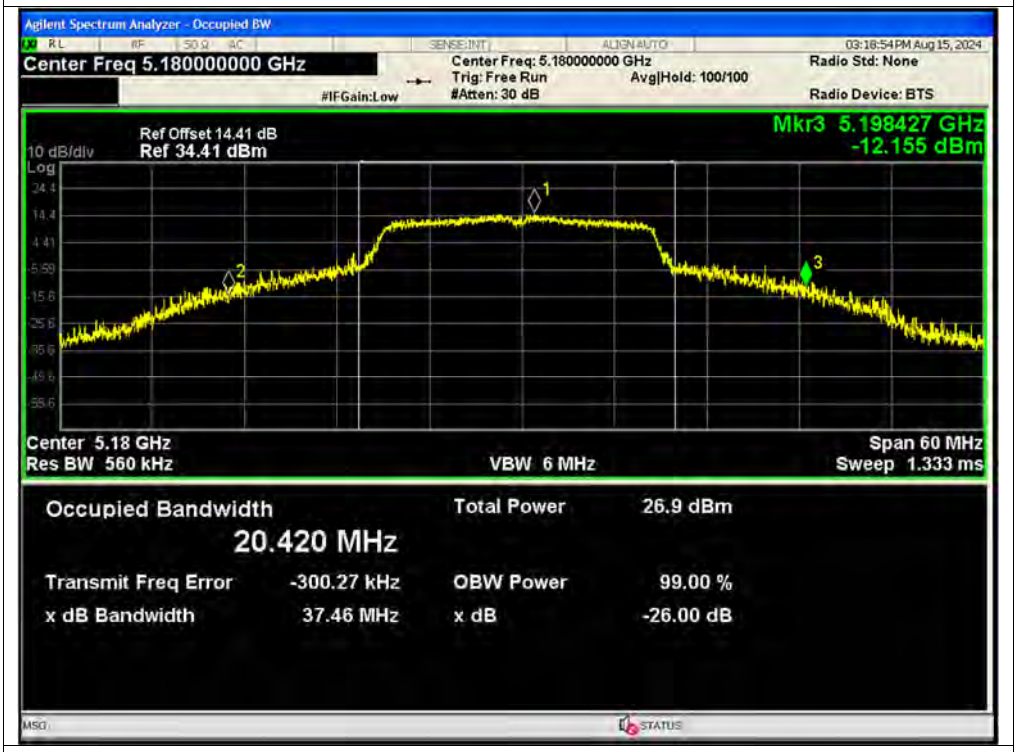
-26dB Bandwidth NVNT n20 5220MHz Ant2



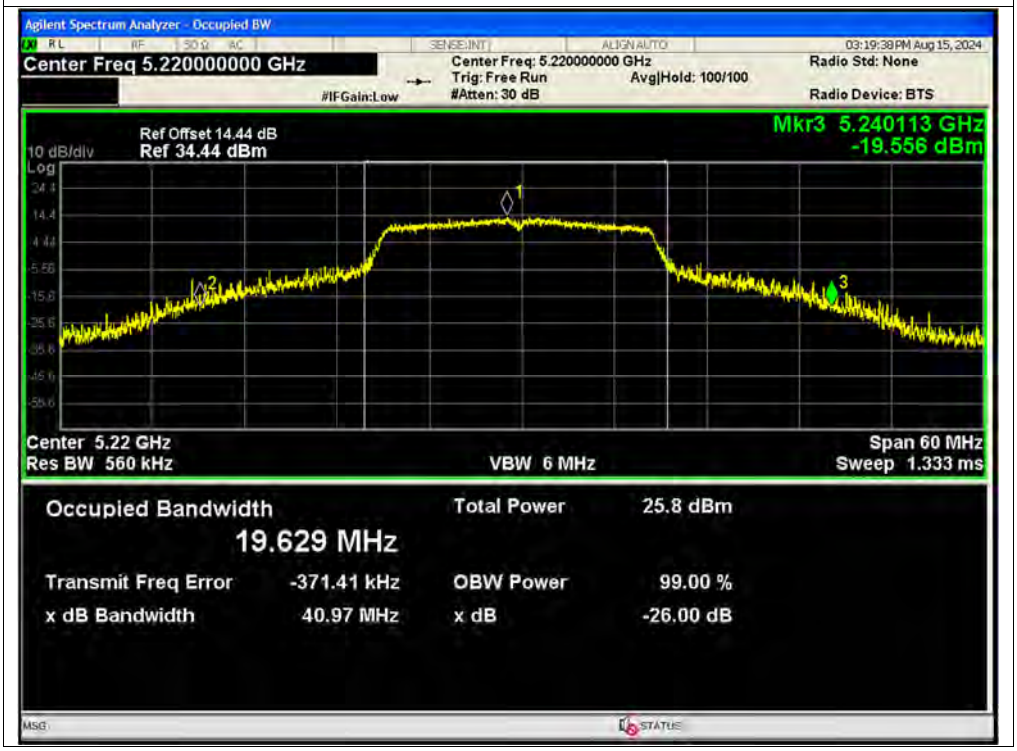
-26dB Bandwidth NVNT n20 5240MHz Ant2



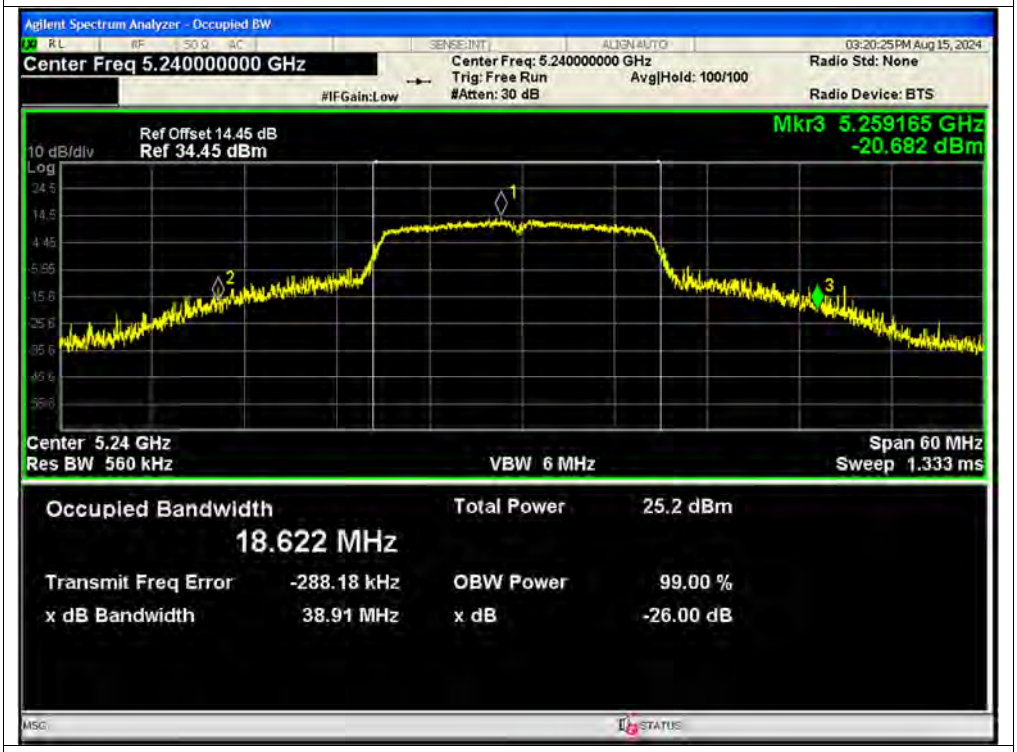
-26dB Bandwidth NVNT n20 5180MHz Ant3



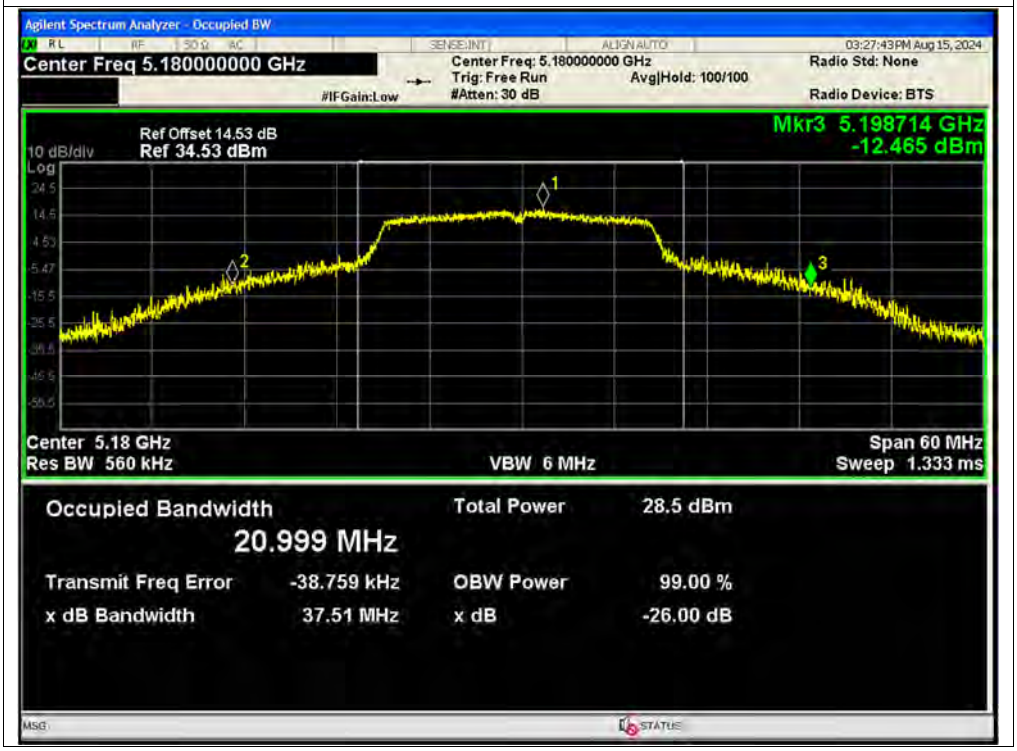
-26dB Bandwidth NVNT n20 5220MHz Ant3



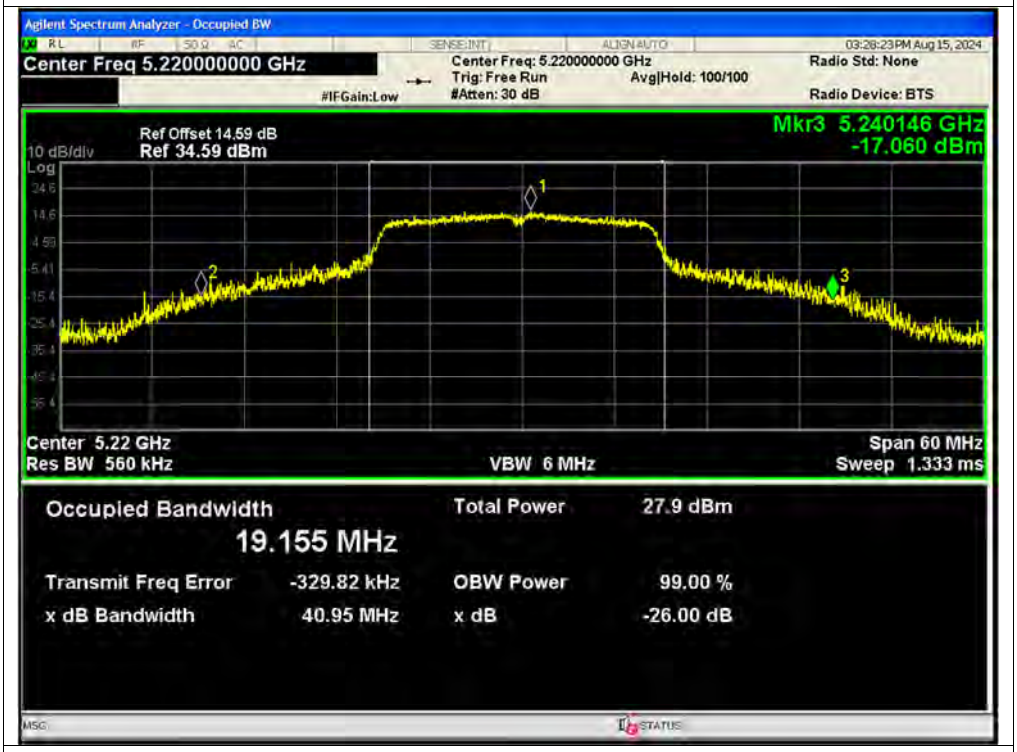
-26dB Bandwidth NVNT n20 5240MHz Ant3



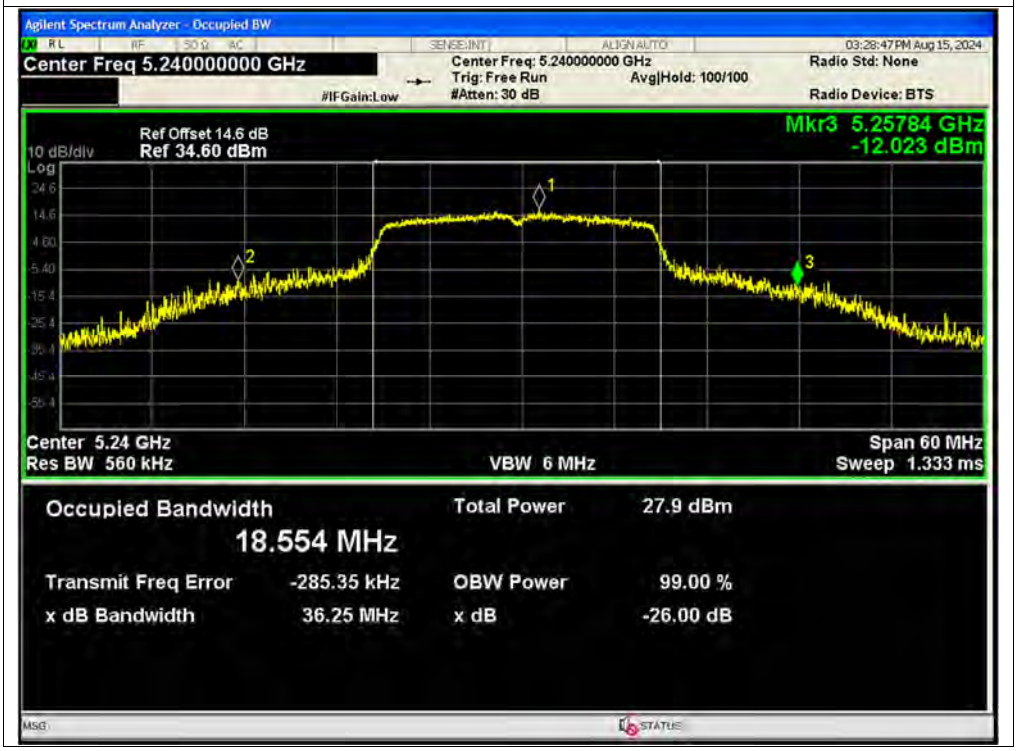
-26dB Bandwidth NVNT n20 5180MHz Ant4



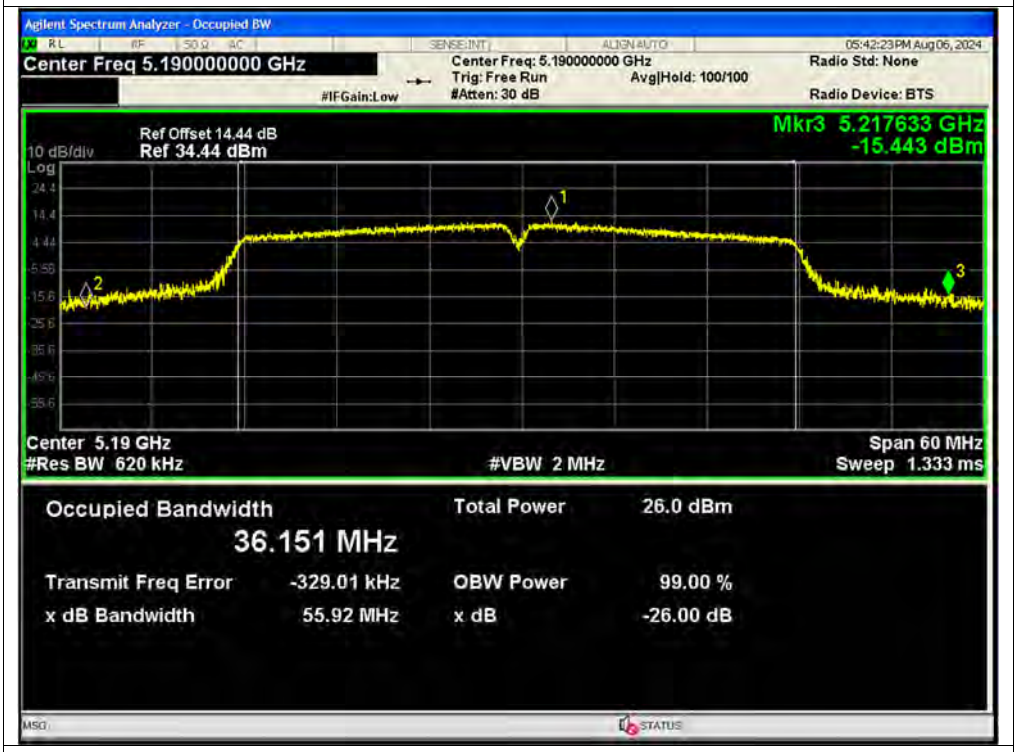
-26dB Bandwidth NVNT n20 5220MHz Ant4



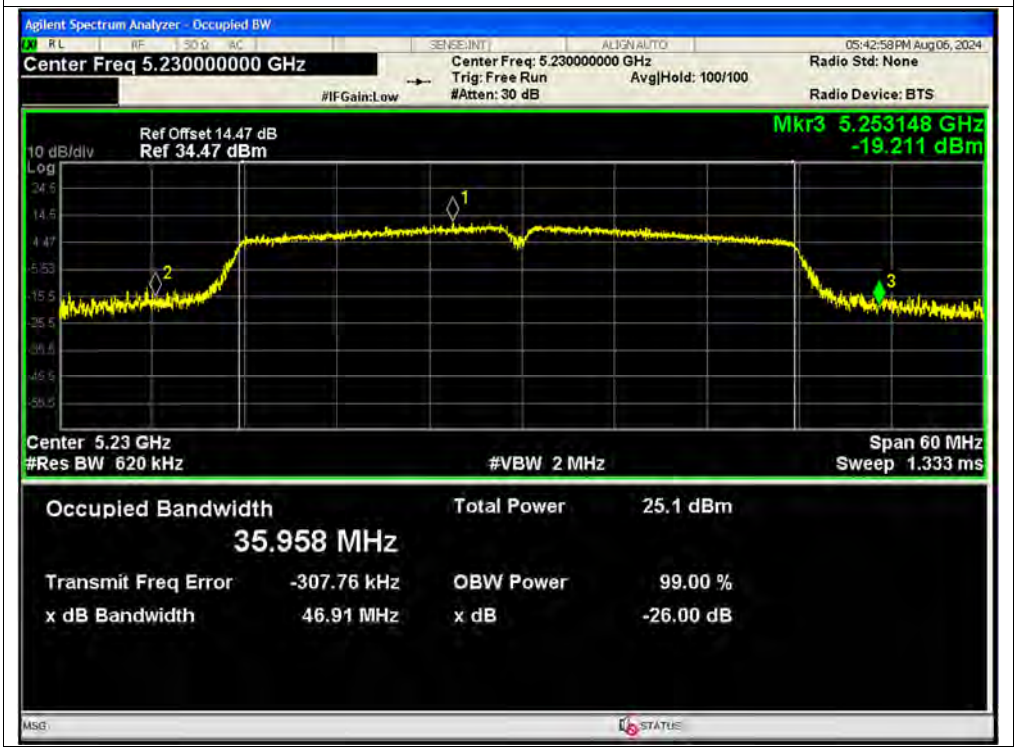
-26dB Bandwidth NVNT n20 5240MHz Ant4



-26dB Bandwidth NVNT n40 5190MHz Ant1



-26dB Bandwidth NVNT n40 5230MHz Ant1

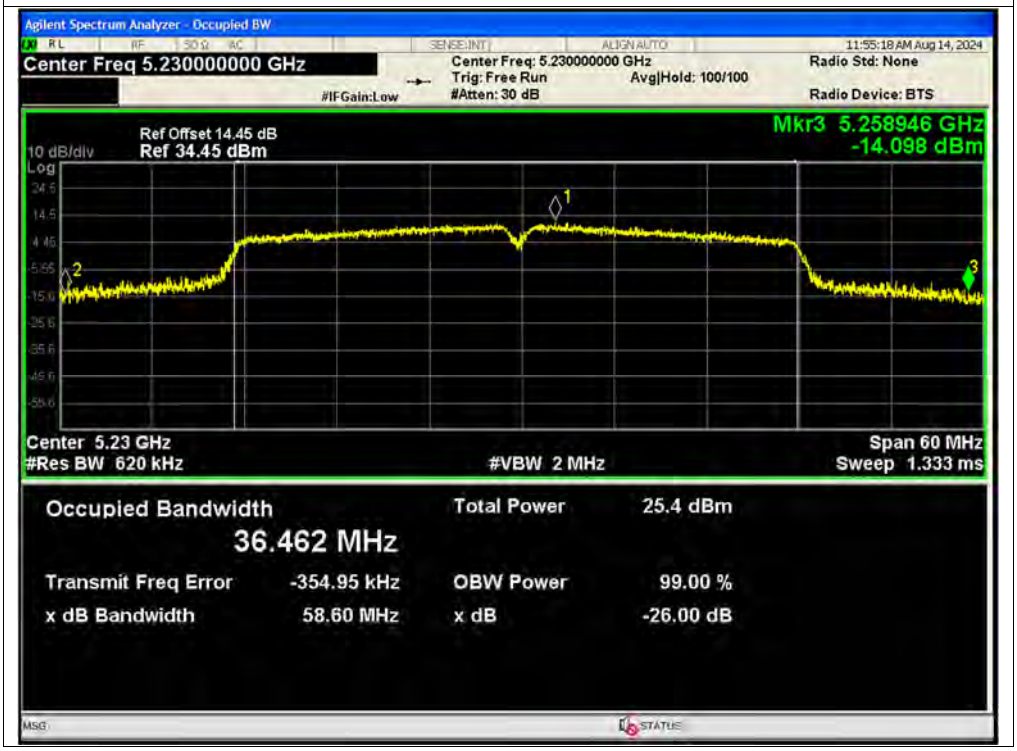


-26dB Bandwidth NVNT n40 5190MHz Ant2

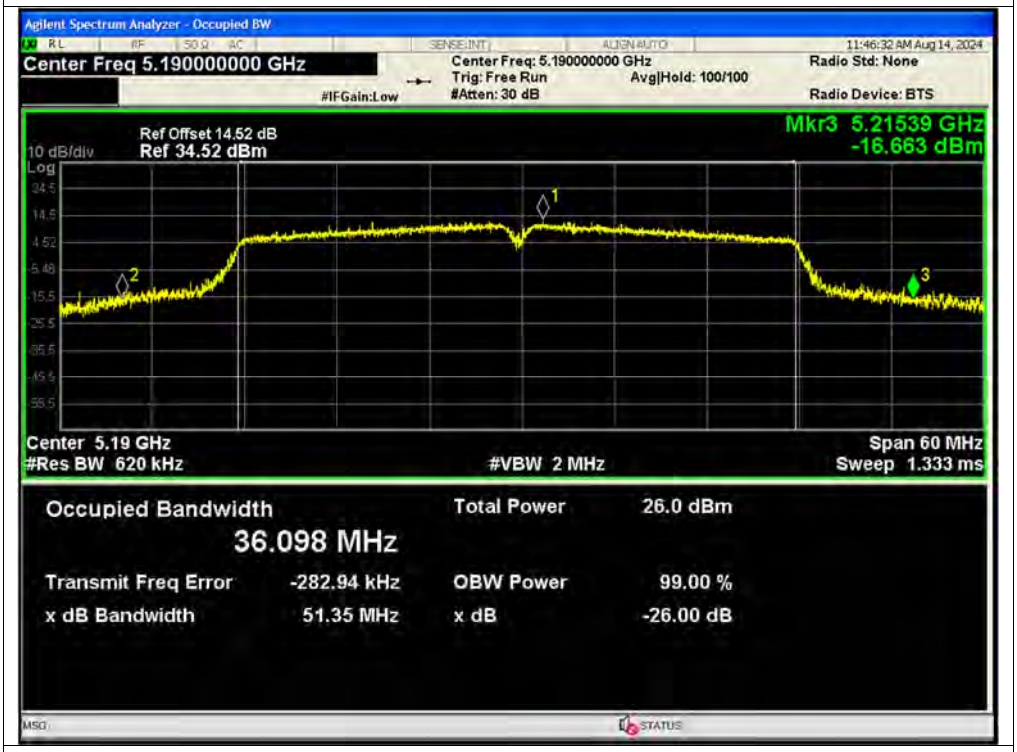
-26dB Bandwidth NVNT n40 5230MHz Ant2

-26dB Bandwidth NVNT n40 5190MHz Ant3

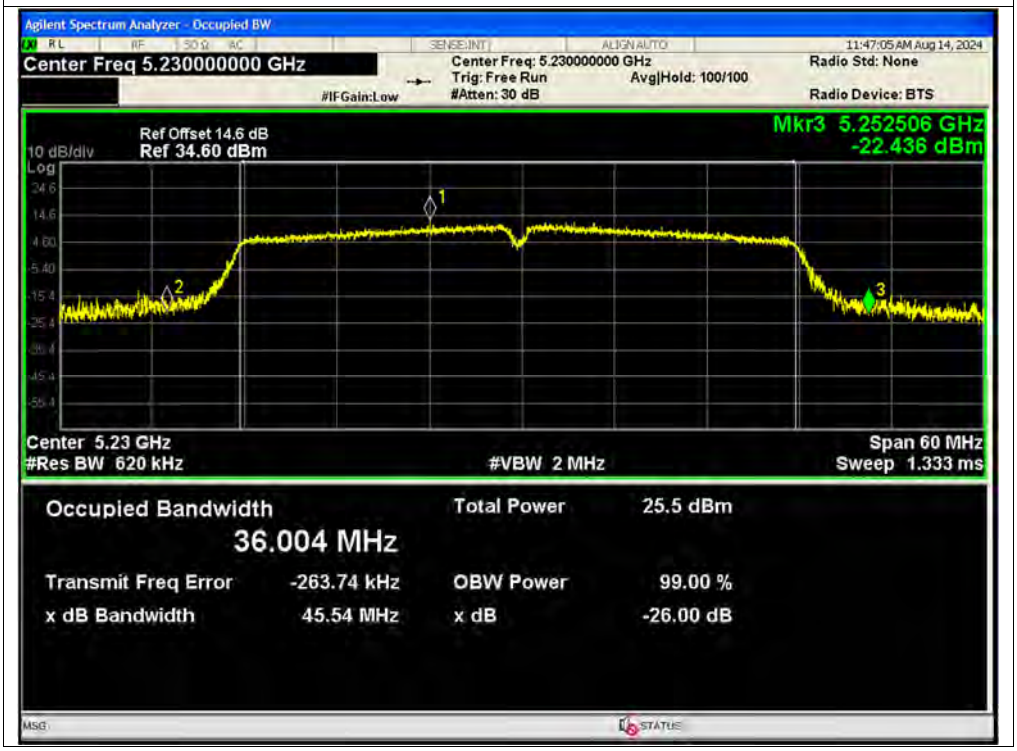
-26dB Bandwidth NVNT n40 5230MHz Ant3



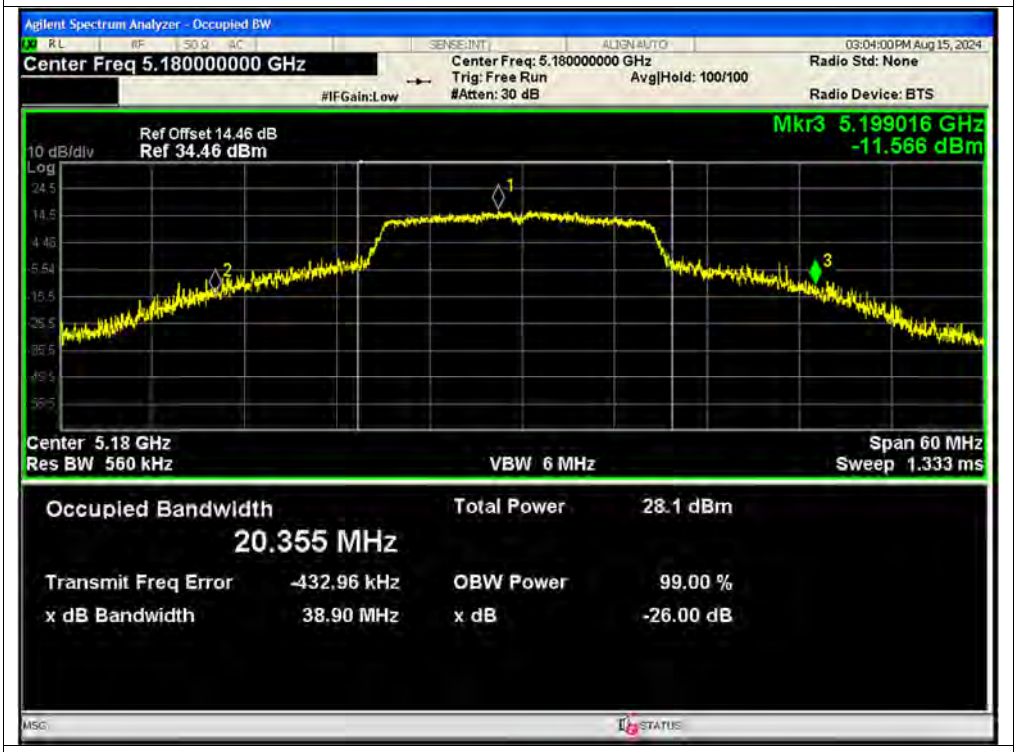
-26dB Bandwidth NVNT n40 5190MHz Ant4



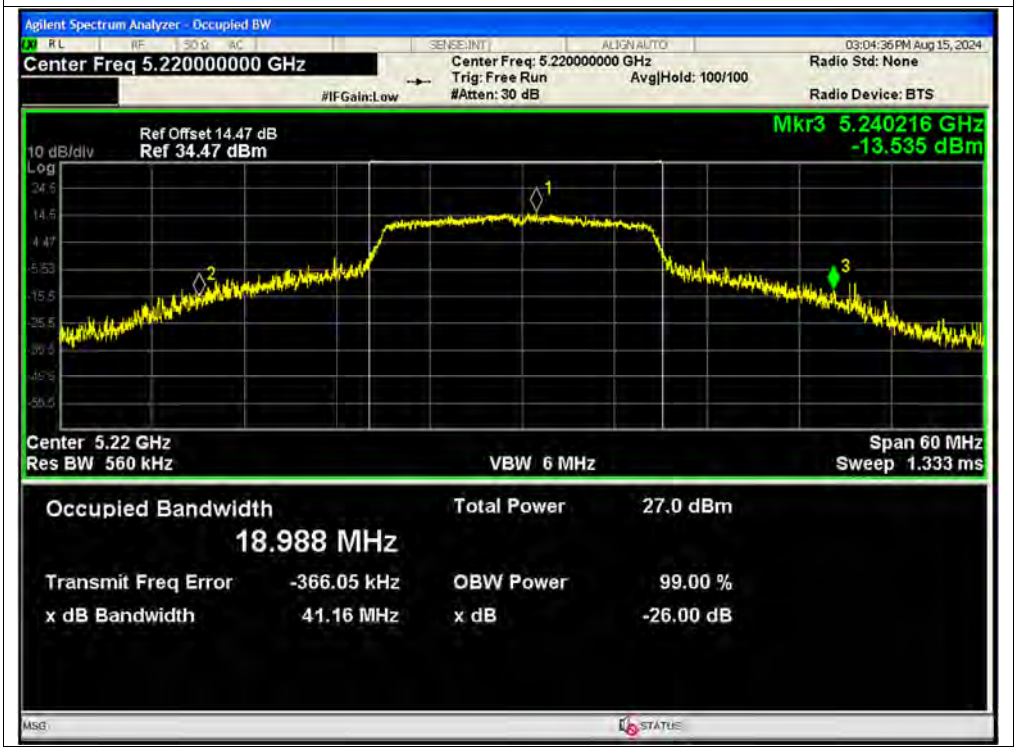
-26dB Bandwidth NVNT n40 5230MHz Ant4



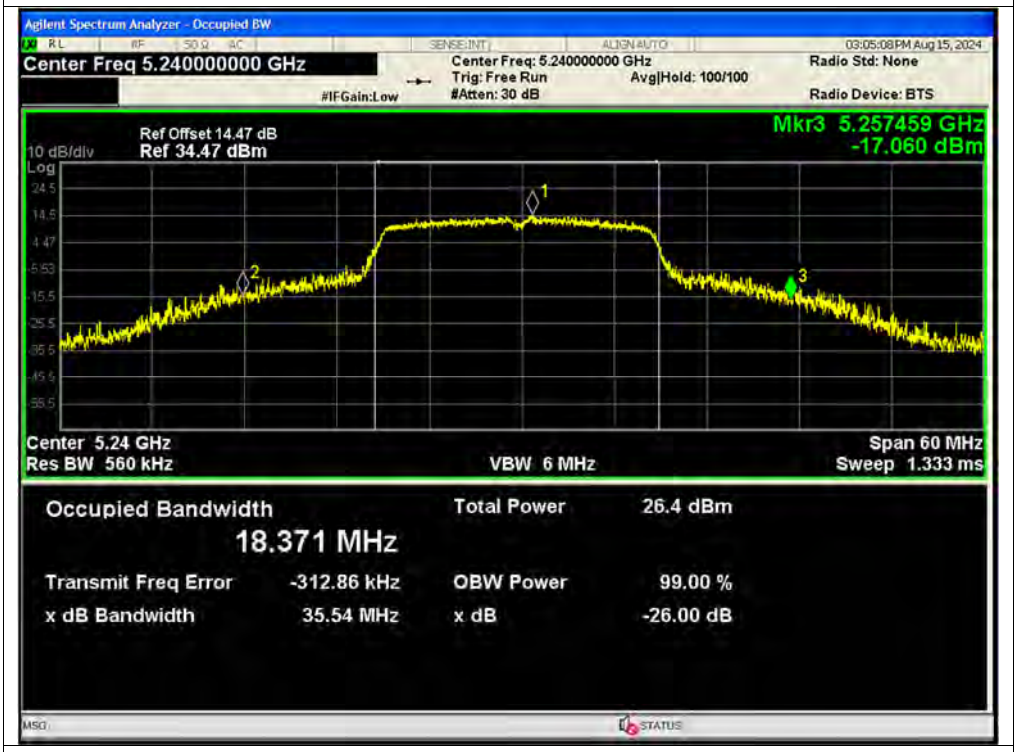
-26dB Bandwidth NVNT ac20 5180MHz Ant1



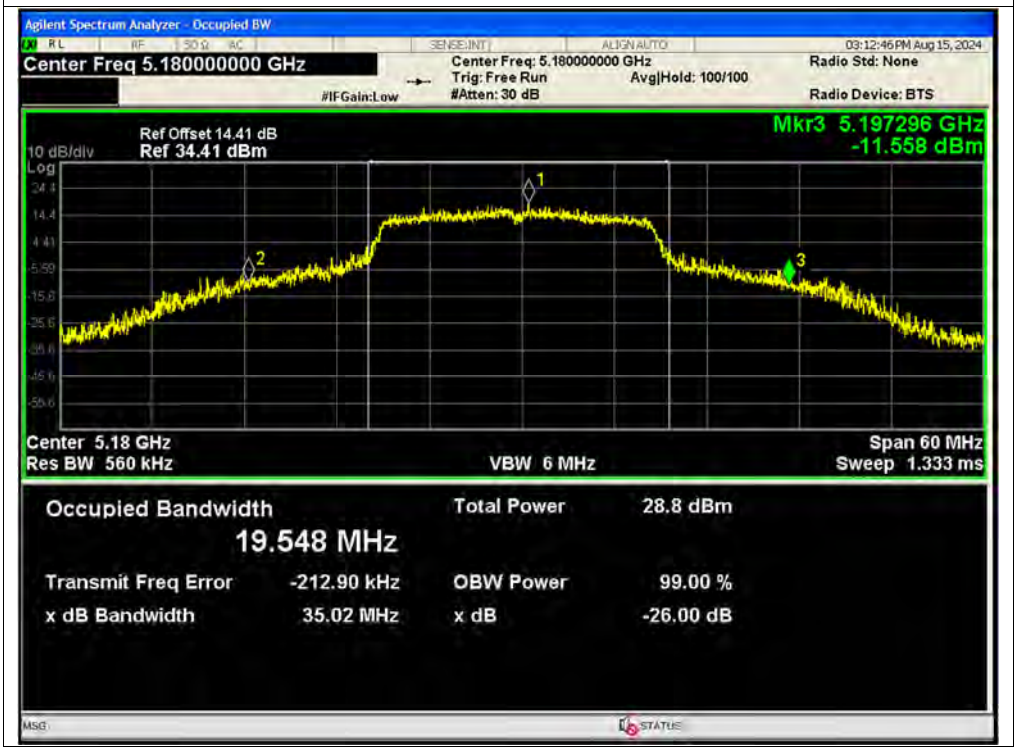
-26dB Bandwidth NVNT ac20 5220MHz Ant1



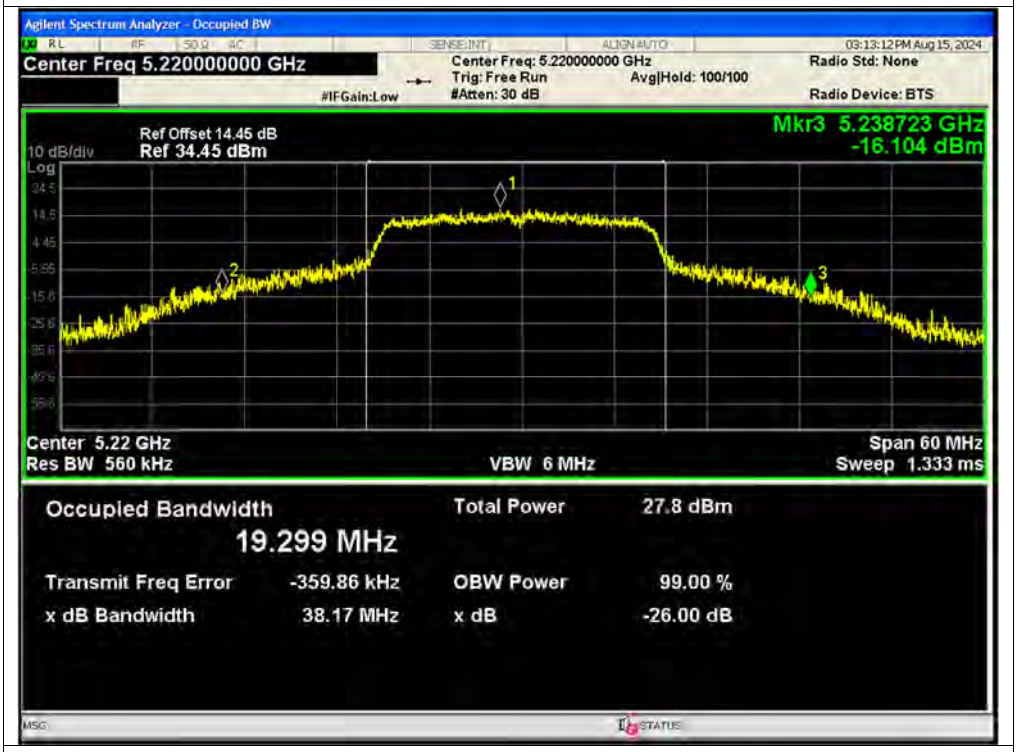
-26dB Bandwidth NVNT ac20 5240MHz Ant1



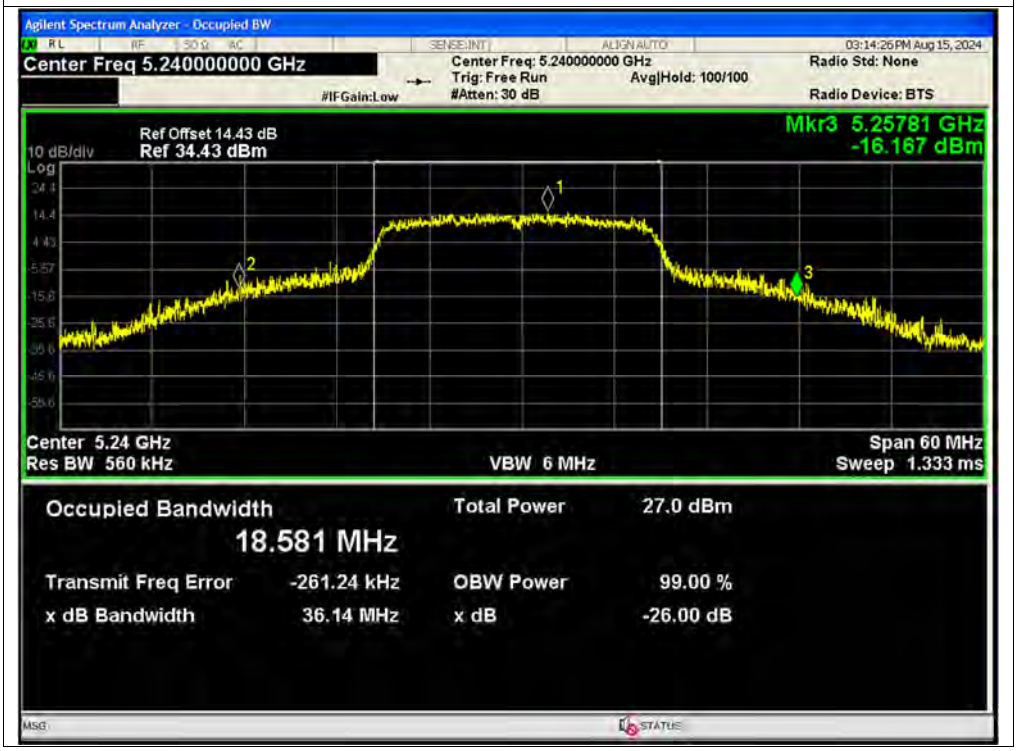
-26dB Bandwidth NVNT ac20 5180MHz Ant2



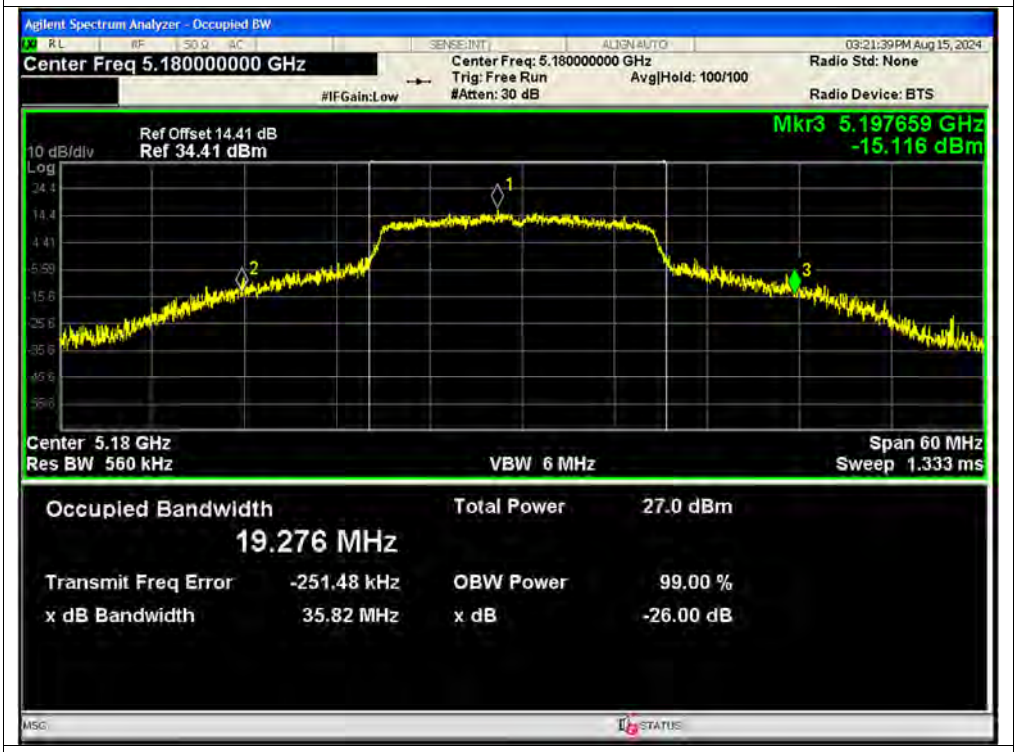
-26dB Bandwidth NVNT ac20 5220MHz Ant2



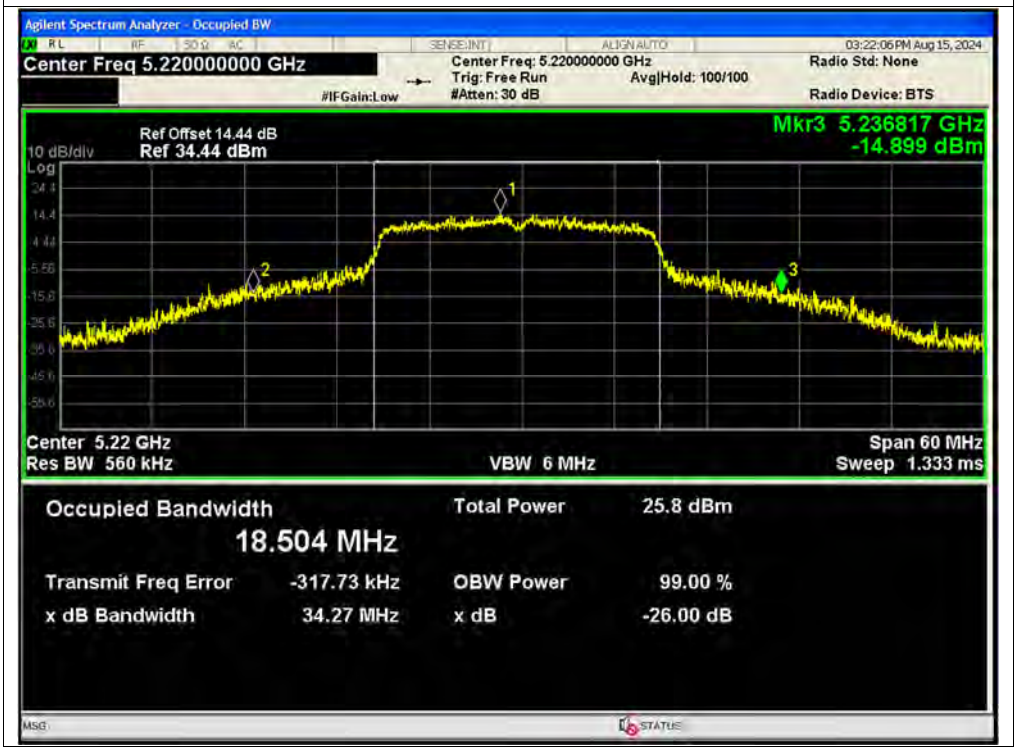
-26dB Bandwidth NVNT ac20 5240MHz Ant2



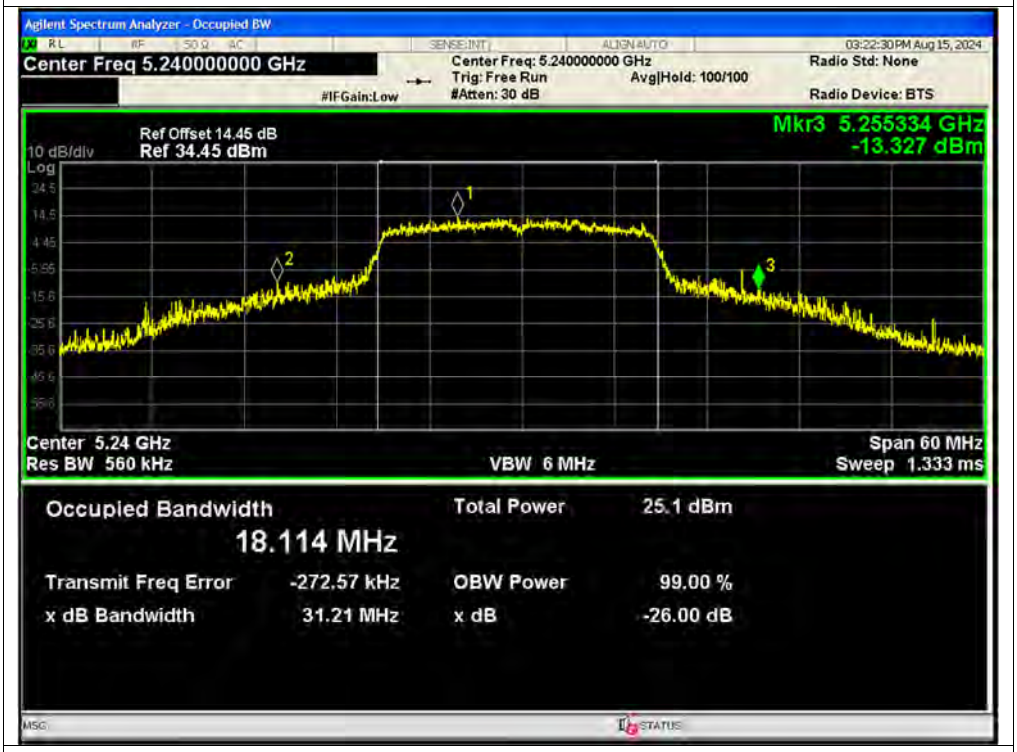
-26dB Bandwidth NVNT ac20 5180MHz Ant3



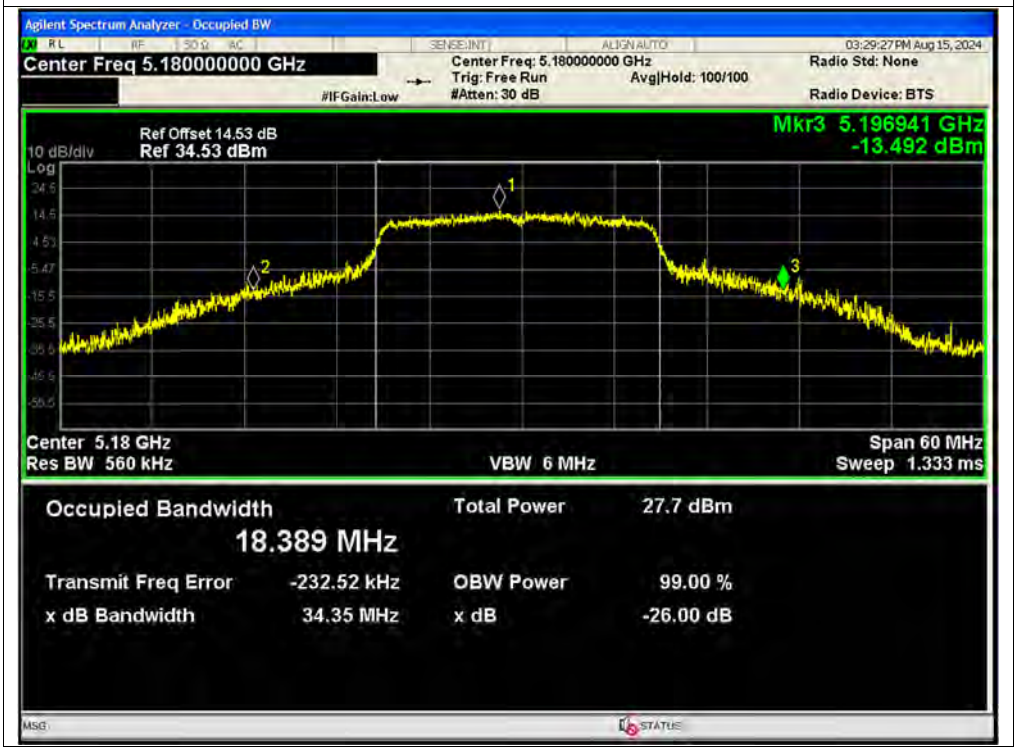
-26dB Bandwidth NVNT ac20 5220MHz Ant3



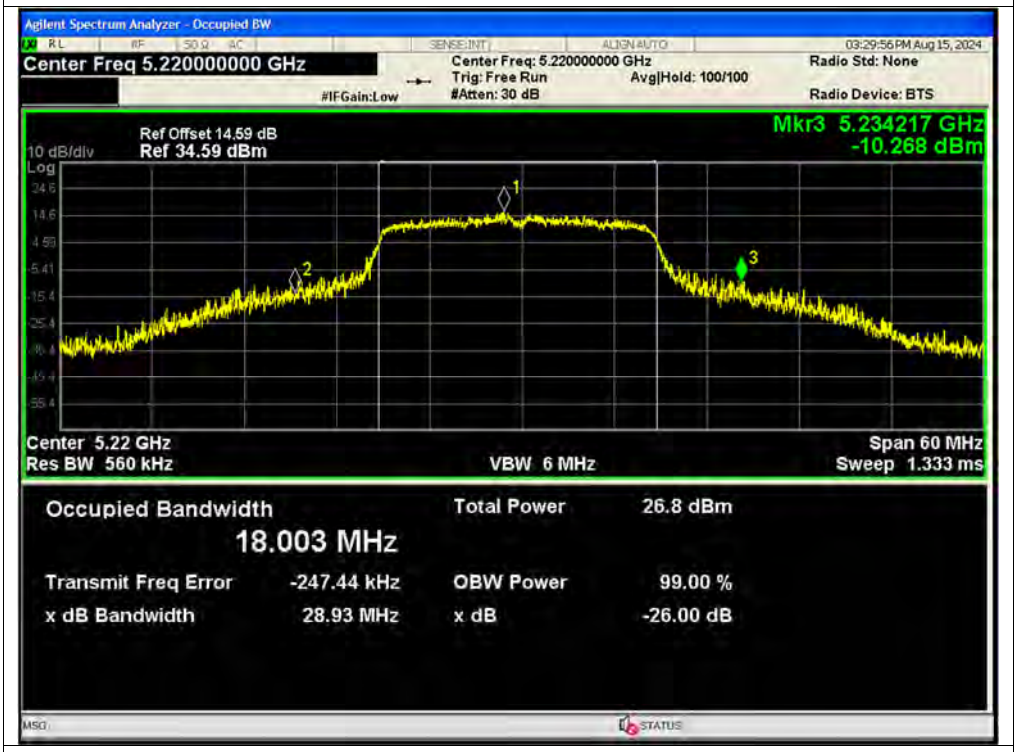
-26dB Bandwidth NVNT ac20 5240MHz Ant3



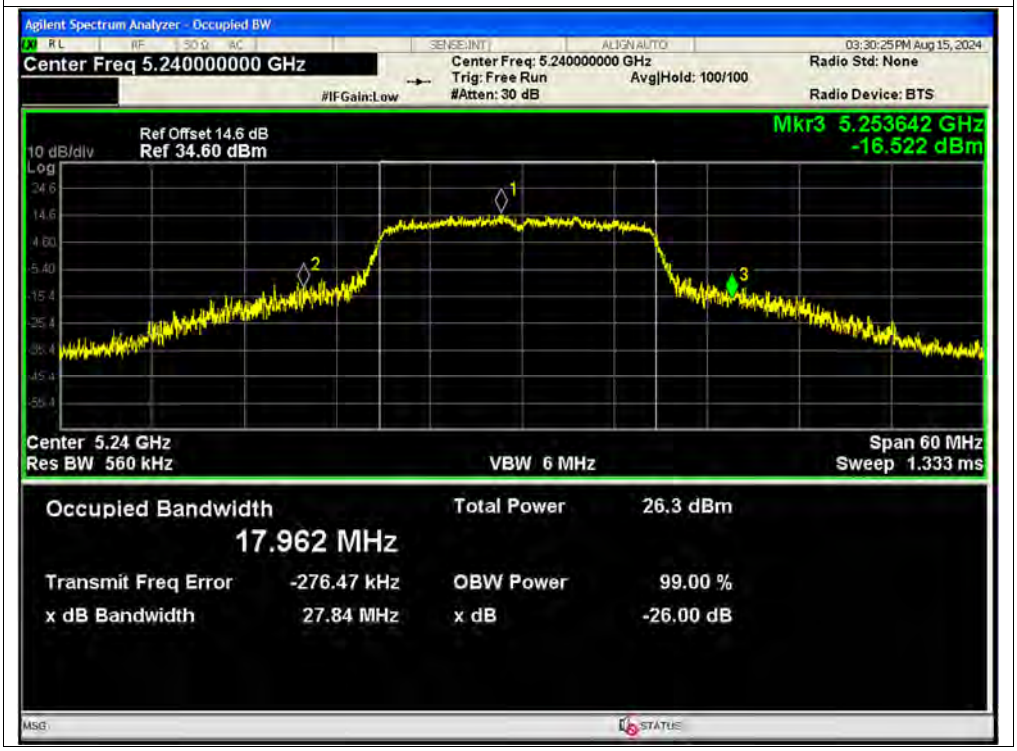
-26dB Bandwidth NVNT ac20 5180MHz Ant4



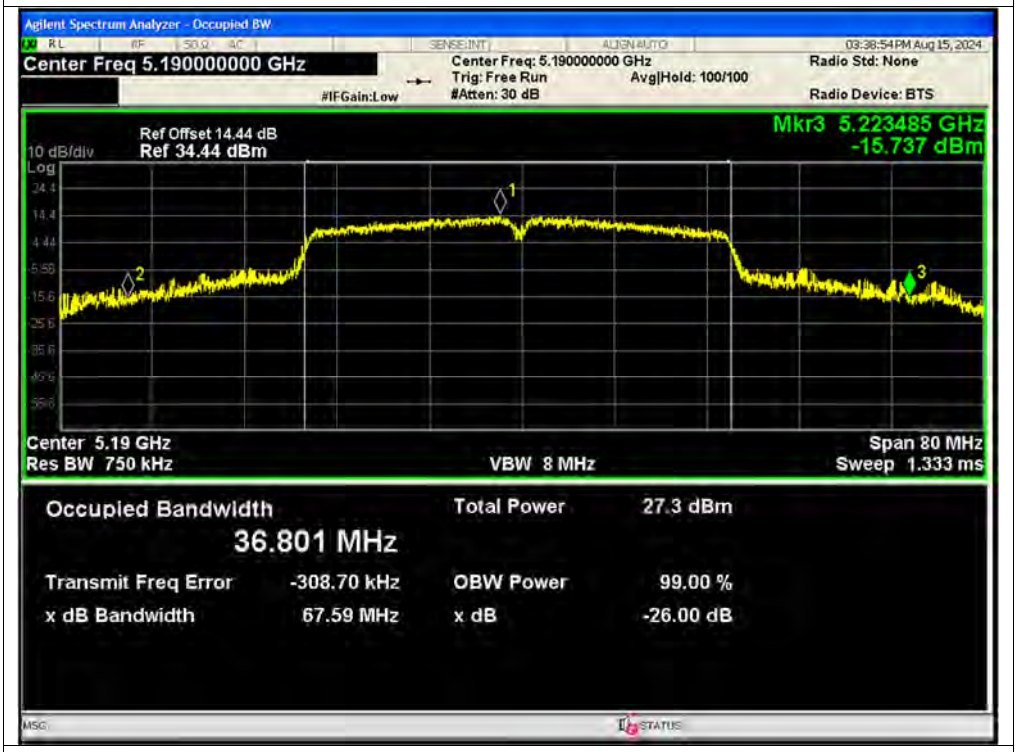
-26dB Bandwidth NVNT ac20 5220MHz Ant4



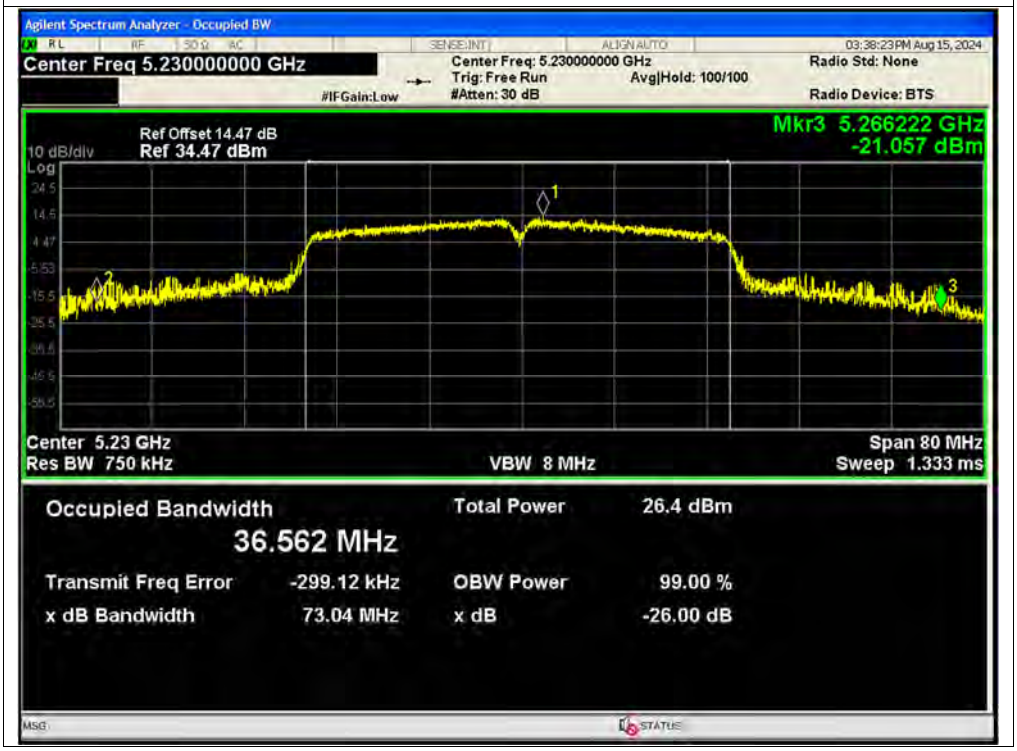
-26dB Bandwidth NVNT ac20 5240MHz Ant4



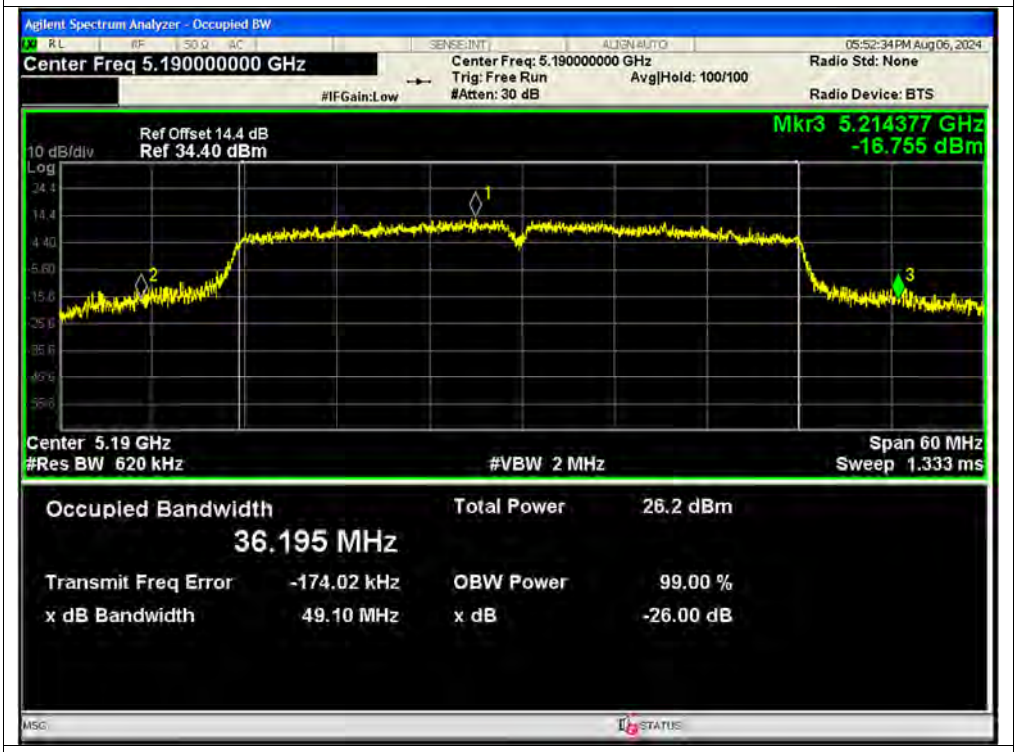
-26dB Bandwidth NVNT ac40 5190MHz Ant1



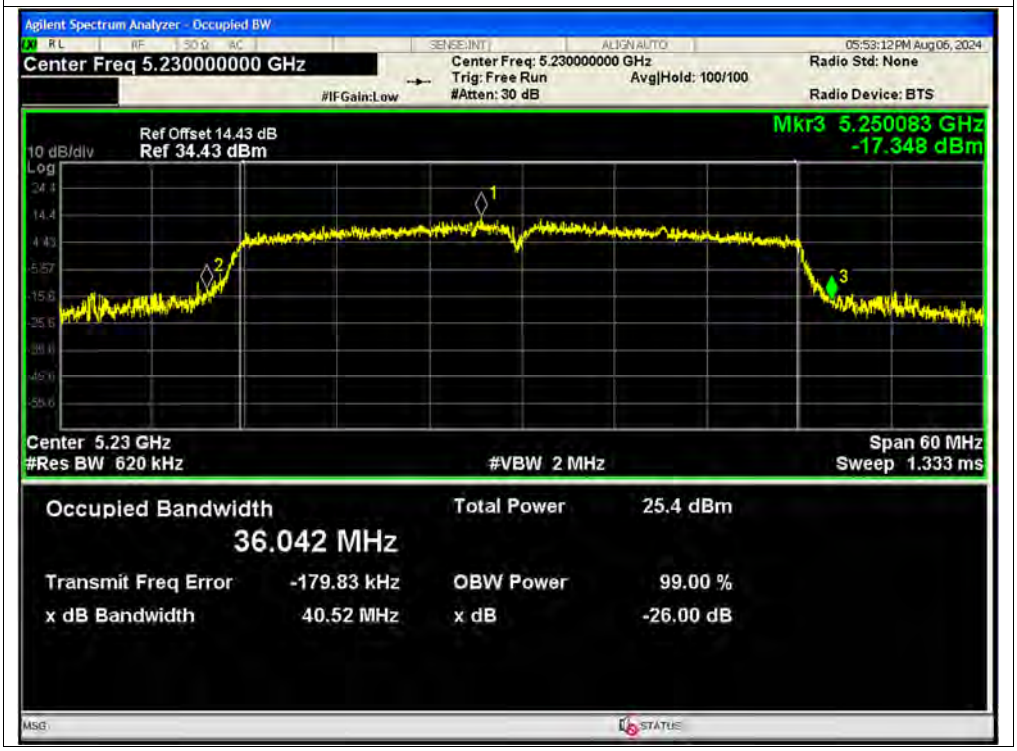
-26dB Bandwidth NVNT ac40 5230MHz Ant1



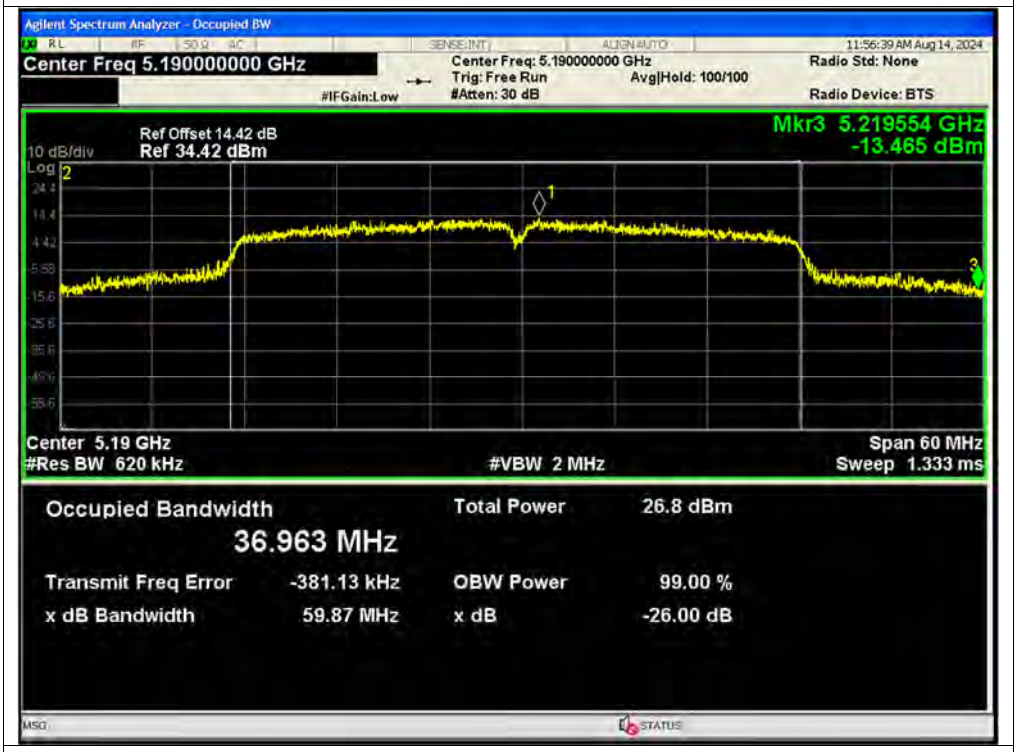
-26dB Bandwidth NVNT ac40 5190MHz Ant2



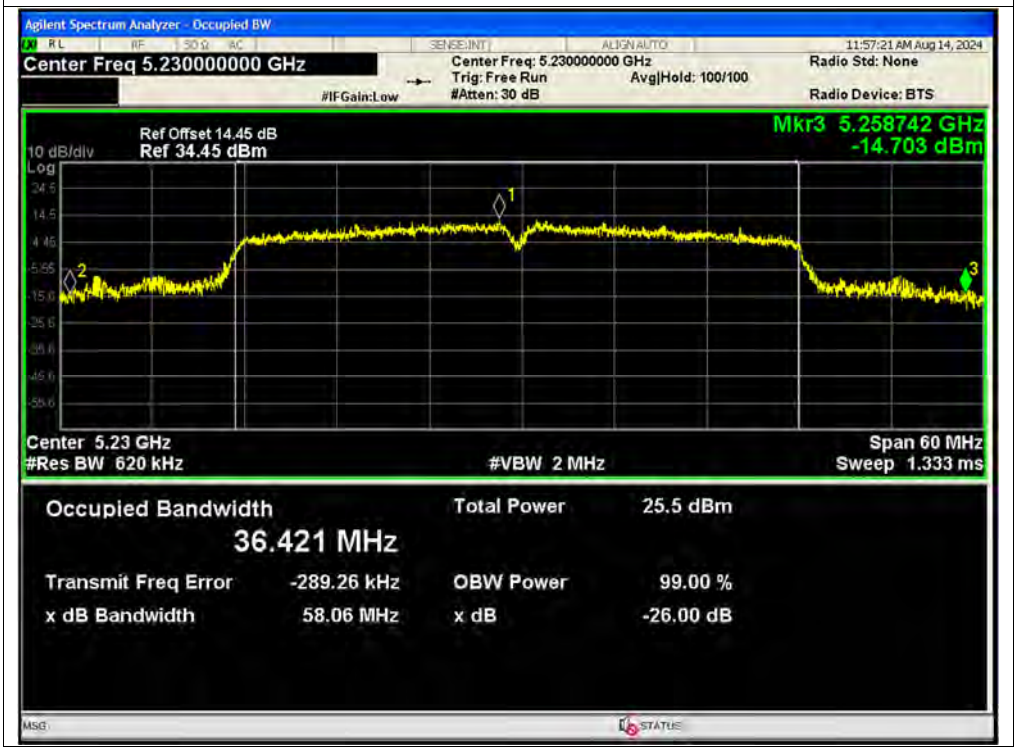
-26dB Bandwidth NVNT ac40 5230MHz Ant2



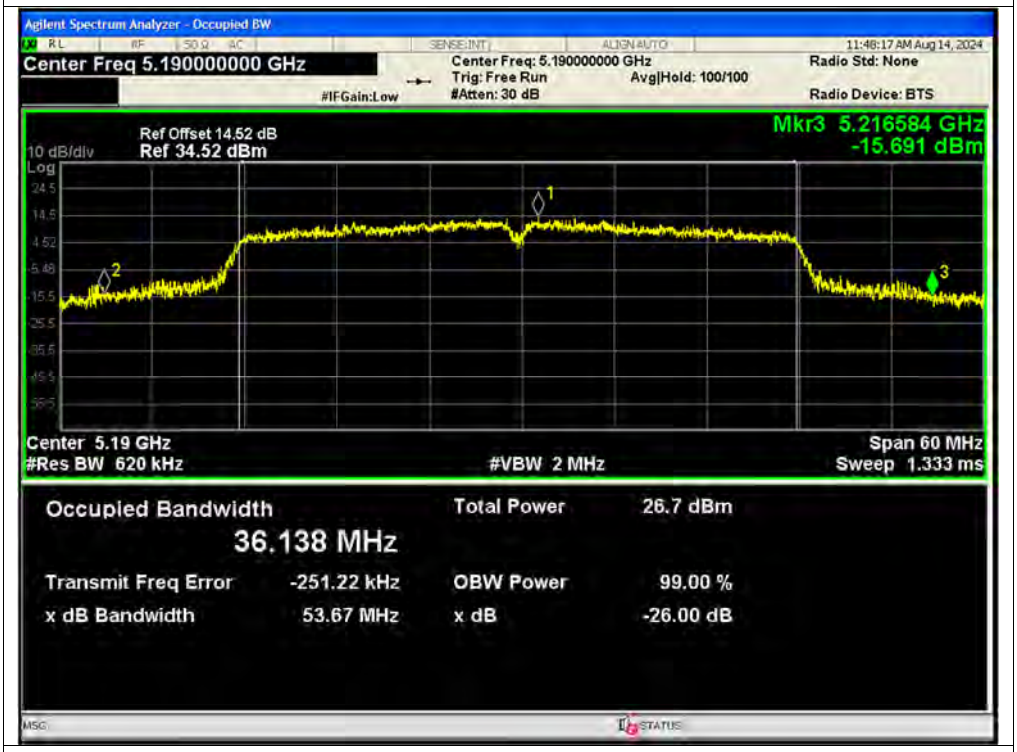
-26dB Bandwidth NVNT ac40 5190MHz Ant3



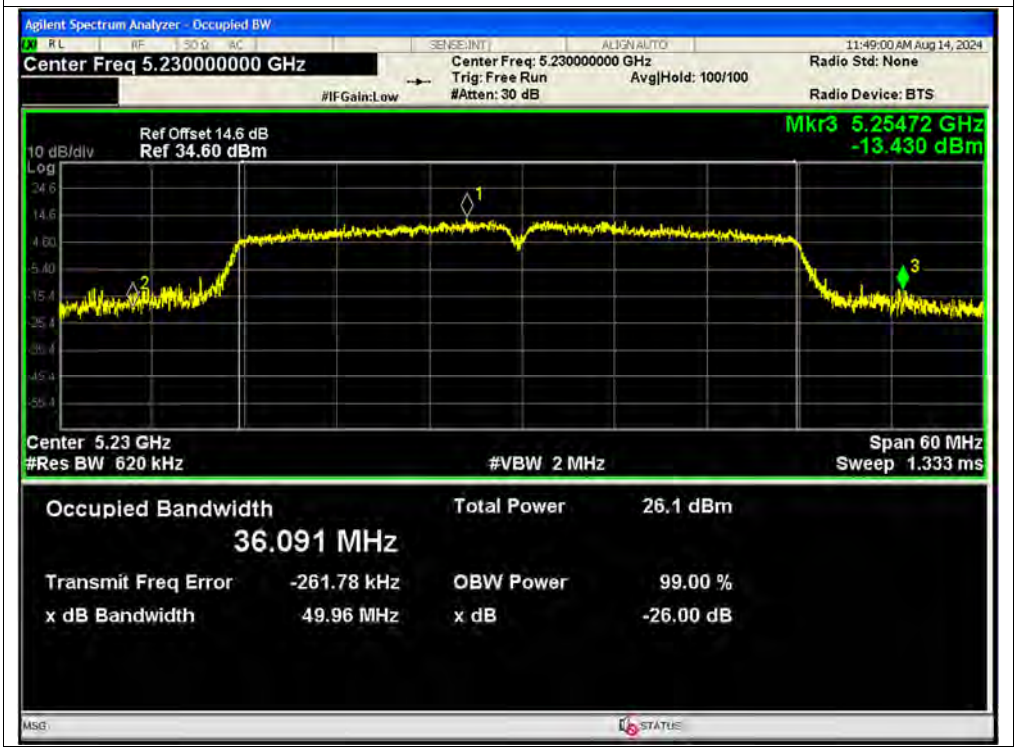
-26dB Bandwidth NVNT ac40 5230MHz Ant3



-26dB Bandwidth NVNT ac40 5190MHz Ant4

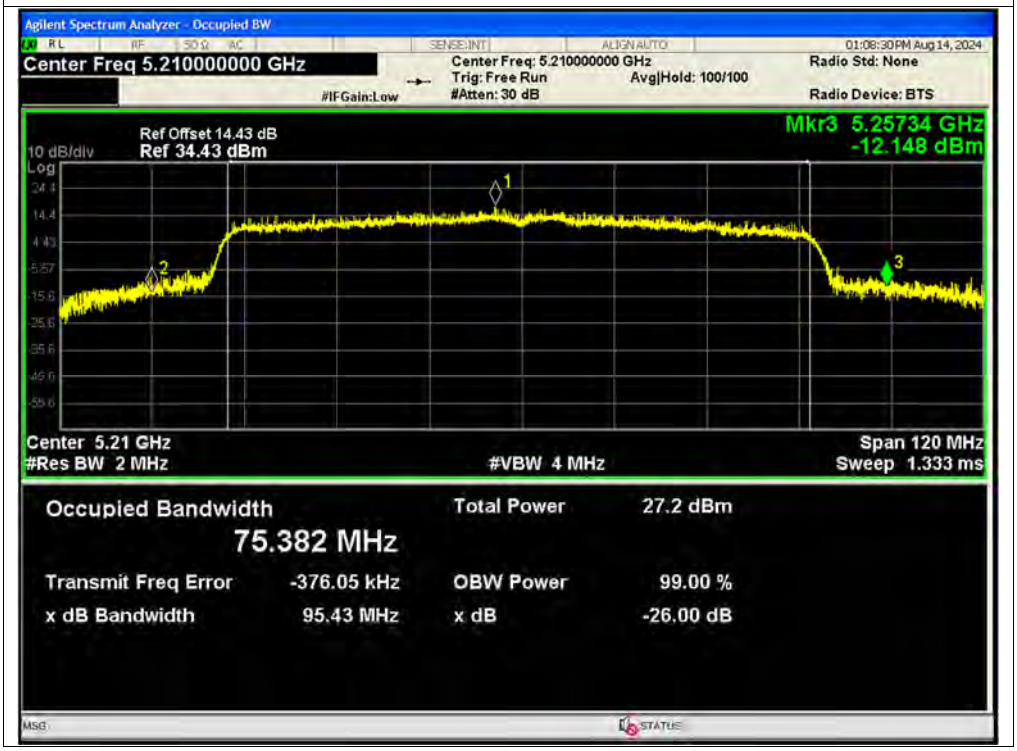


-26dB Bandwidth NVNT ac40 5230MHz Ant4



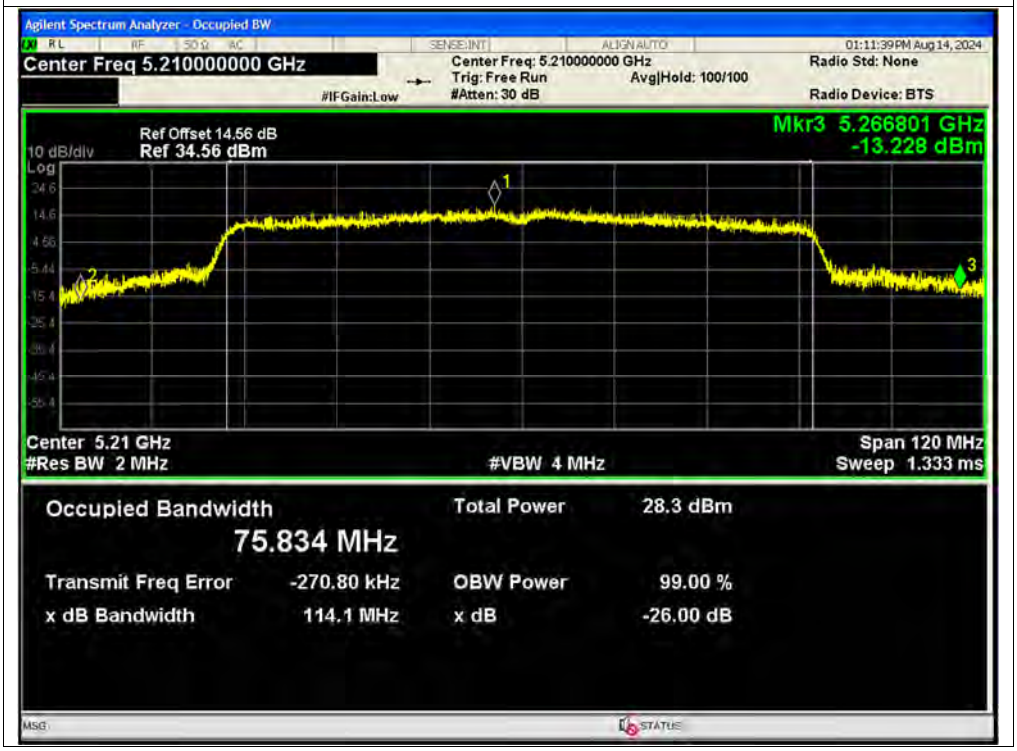
-26dB Bandwidth NVNT ac80 5210MHz Ant1

-26dB Bandwidth NVNT ac80 5210MHz Ant2

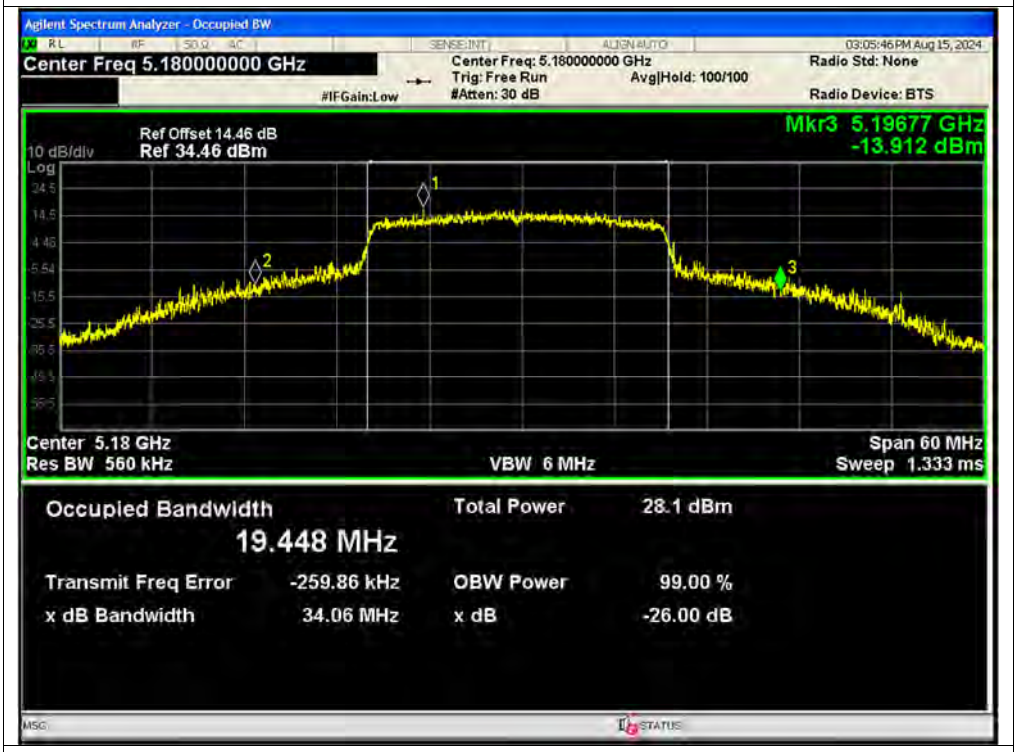


-26dB Bandwidth NVNT ac80 5210MHz Ant3

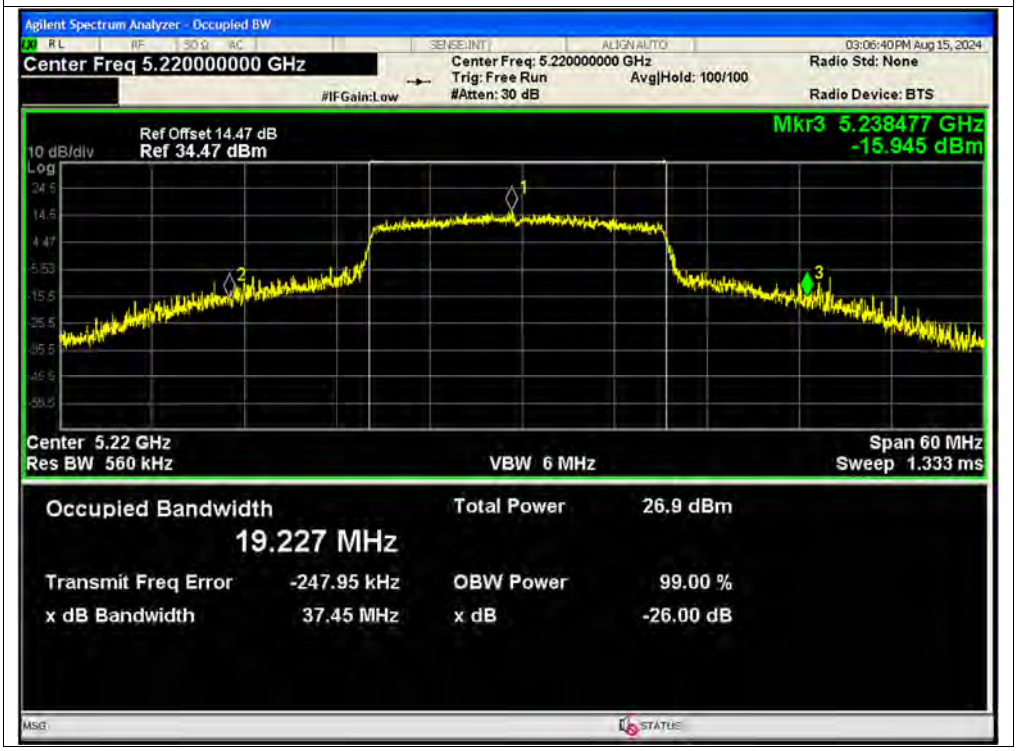
-26dB Bandwidth NVNT ac80 5210MHz Ant4



-26dB Bandwidth NVNT ax20 5180MHz Ant1



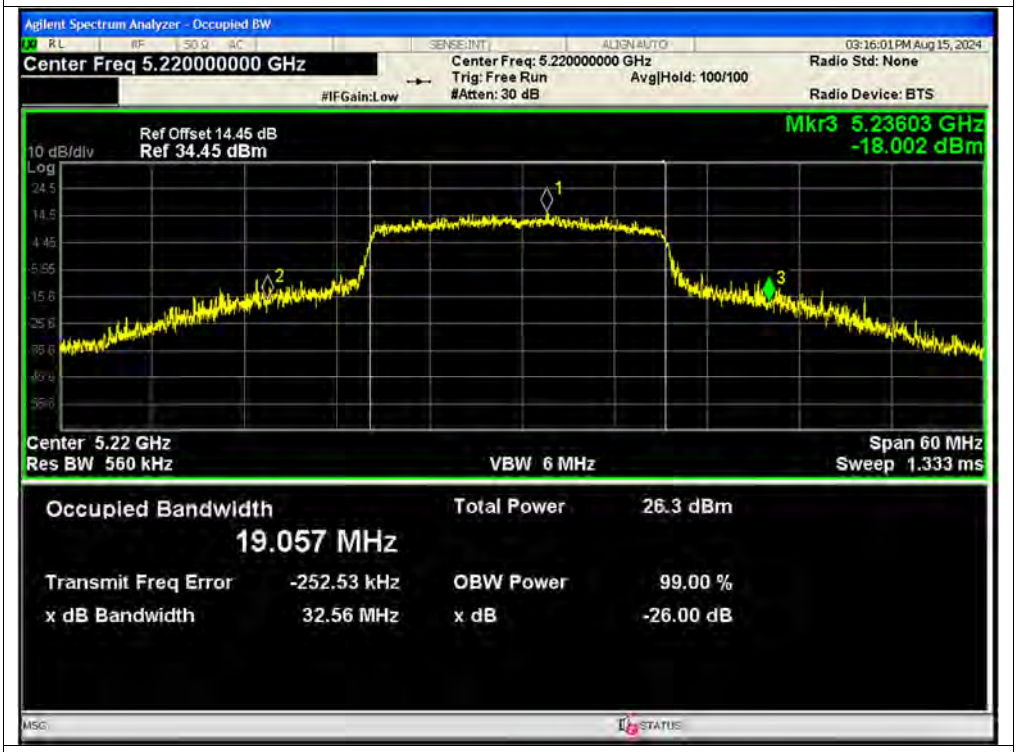
-26dB Bandwidth NVNT ax20 5220MHz Ant1



-26dB Bandwidth NVNT ax20 5240MHz Ant1

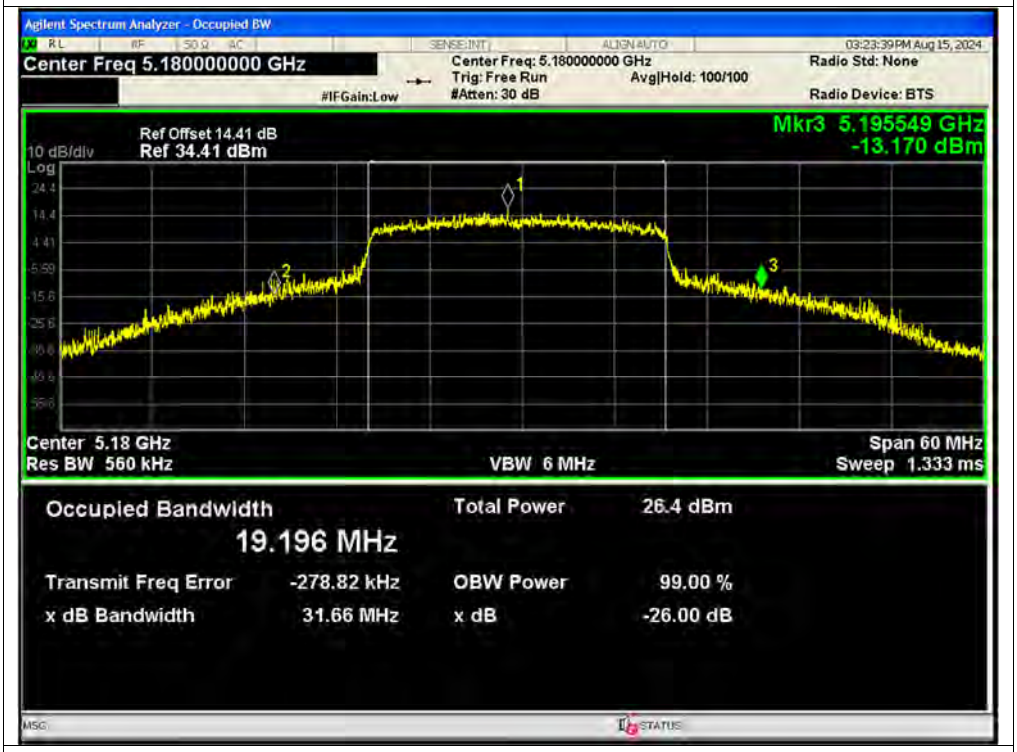
-26dB Bandwidth NVNT ax20 5180MHz Ant2

-26dB Bandwidth NVNT ax20 5220MHz Ant2

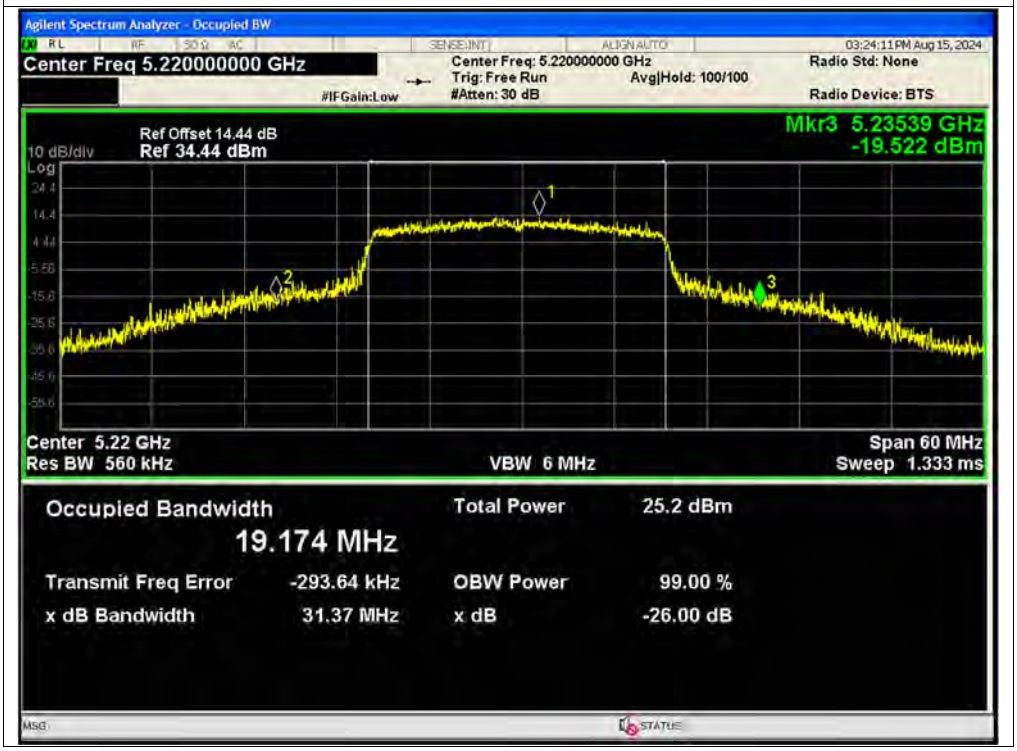


-26dB Bandwidth NVNT ax20 5240MHz Ant2

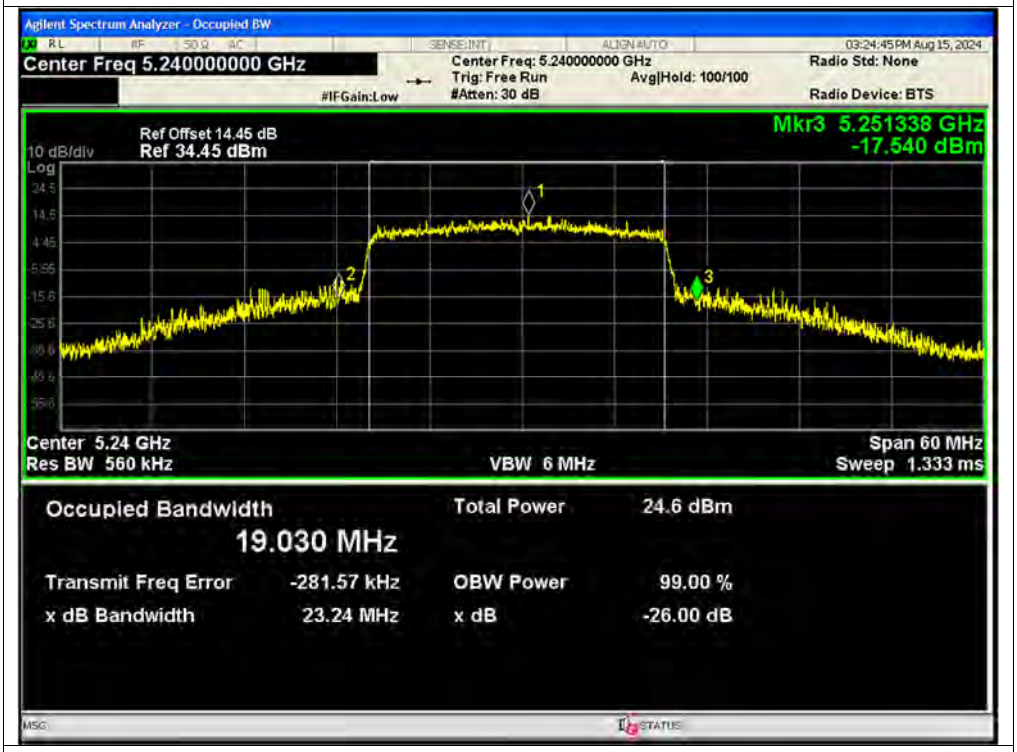
-26dB Bandwidth NVNT ax20 5180MHz Ant3



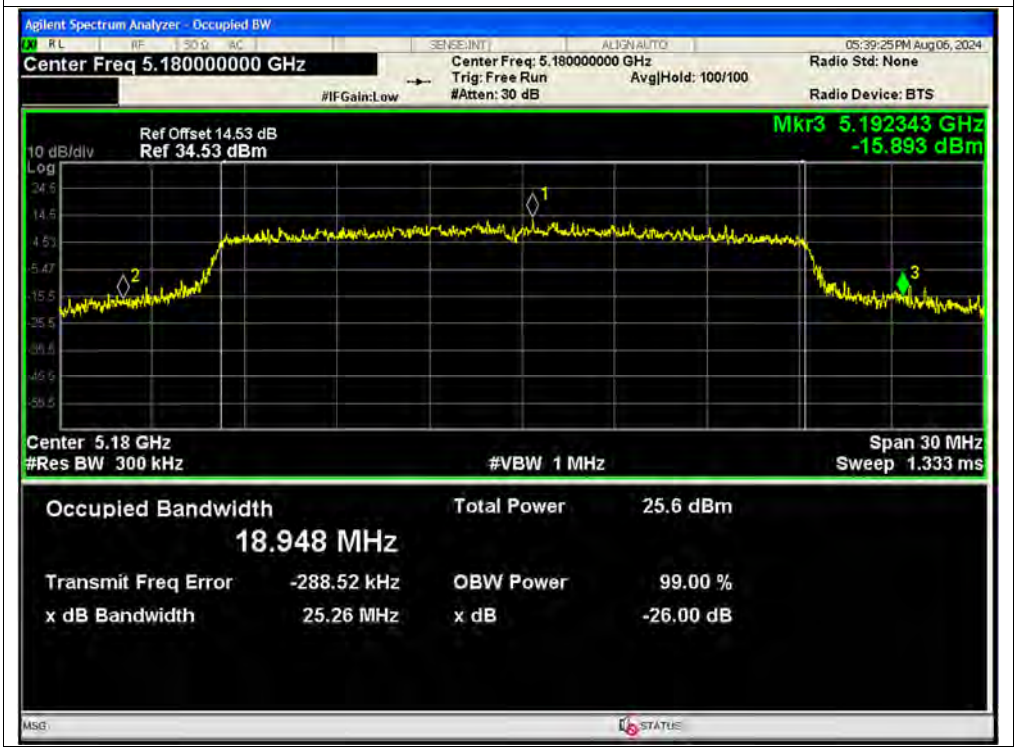
-26dB Bandwidth NVNT ax20 5220MHz Ant3



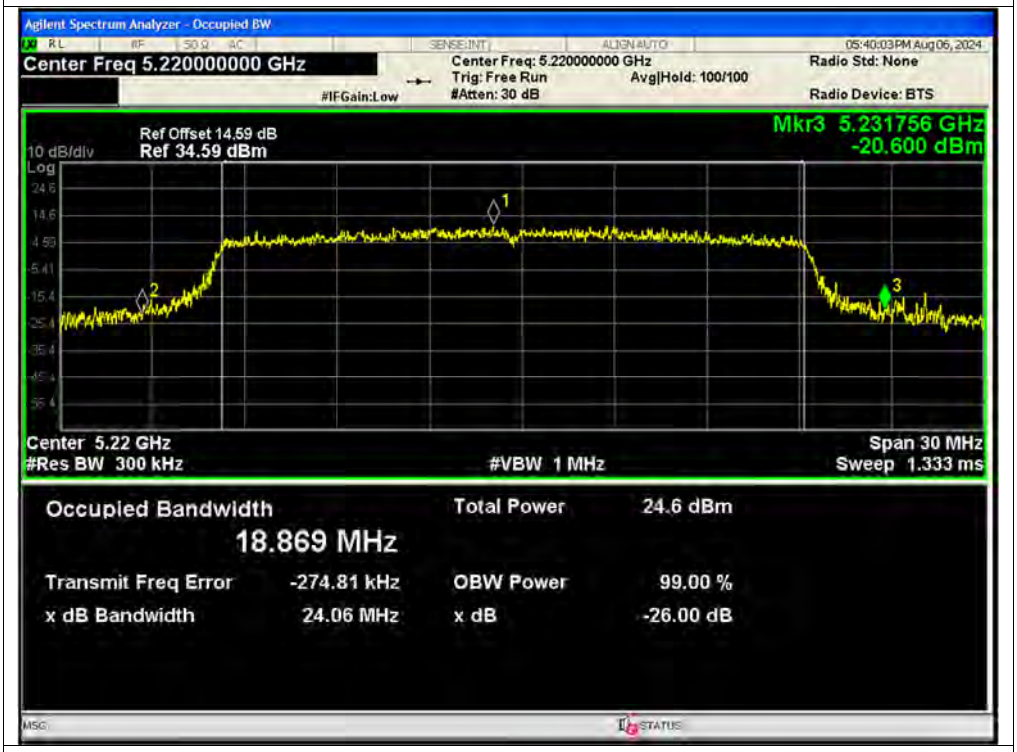
-26dB Bandwidth NVNT ax20 5240MHz Ant3



-26dB Bandwidth NVNT ax20 5180MHz Ant4



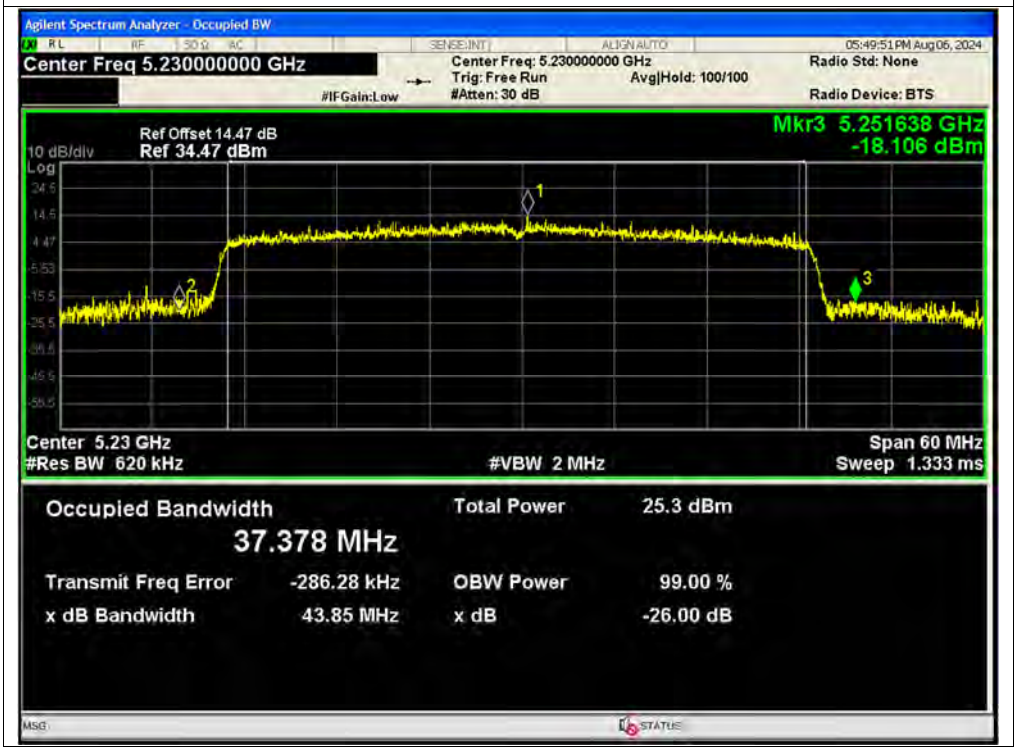
-26dB Bandwidth NVNT ax20 5220MHz Ant4



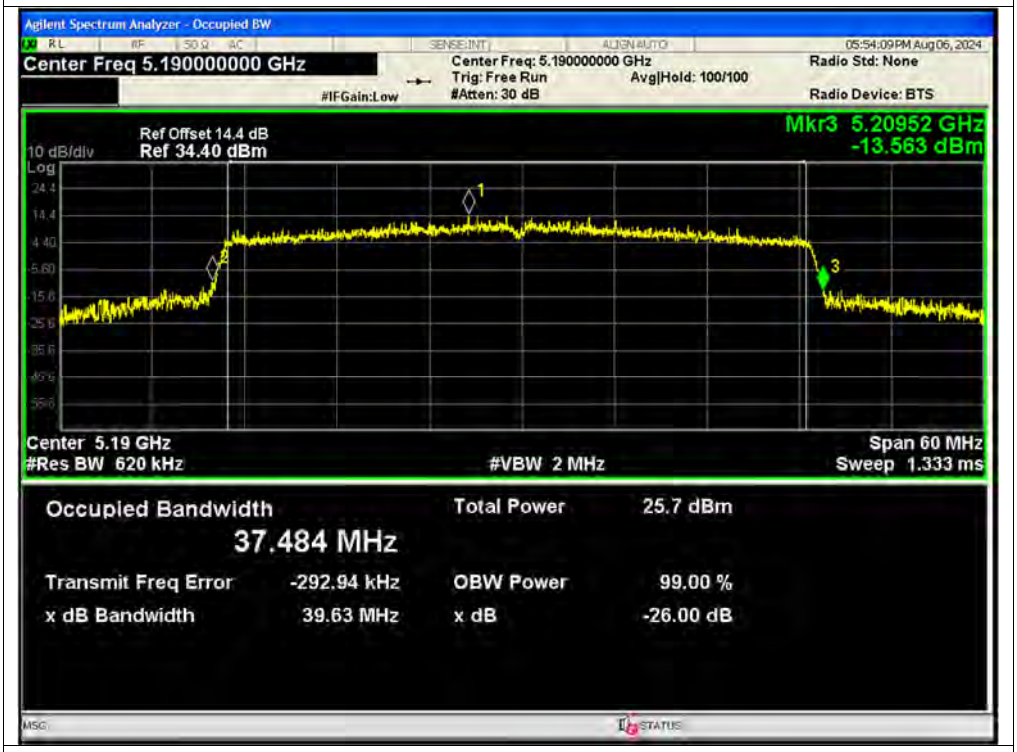
-26dB Bandwidth NVNT ax20 5240MHz Ant4

-26dB Bandwidth NVNT ax40 5190MHz Ant1

-26dB Bandwidth NVNT ax40 5230MHz Ant1



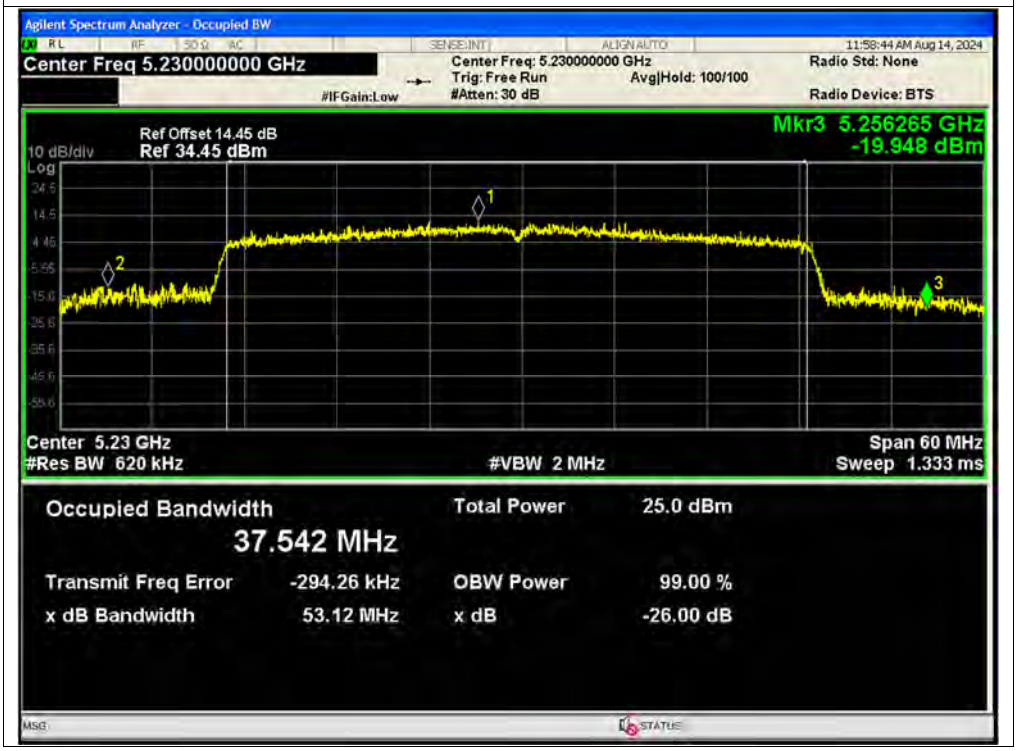
-26dB Bandwidth NVNT ax40 5190MHz Ant2



-26dB Bandwidth NVNT ax40 5230MHz Ant2

-26dB Bandwidth NVNT ax40 5190MHz Ant3

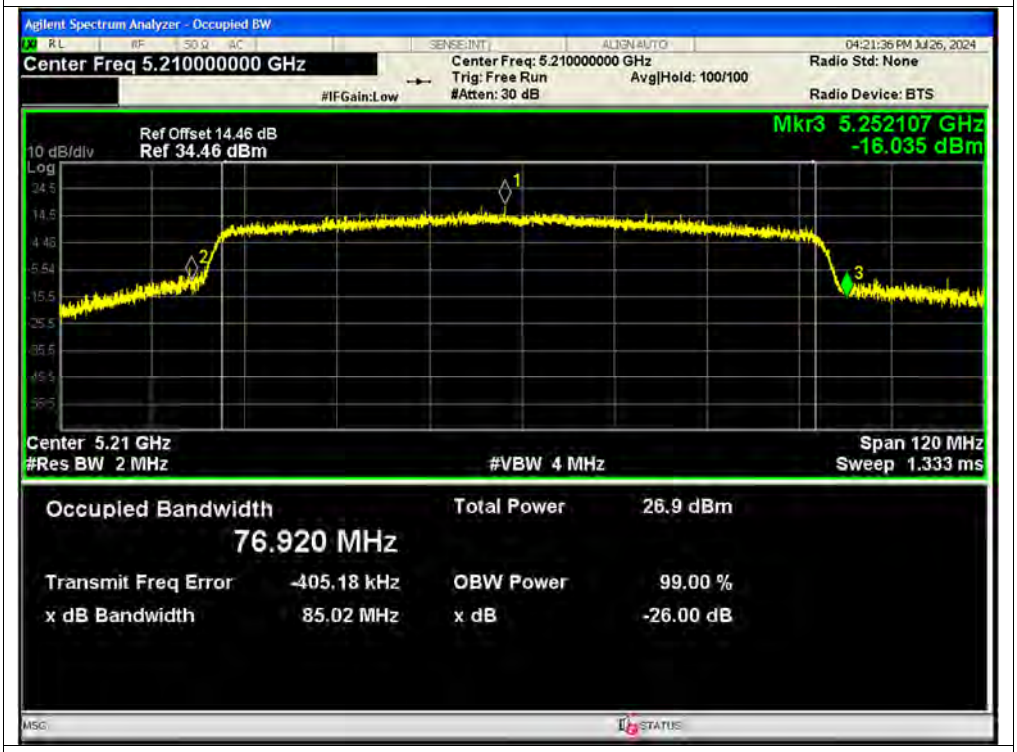
-26dB Bandwidth NVNT ax40 5230MHz Ant3



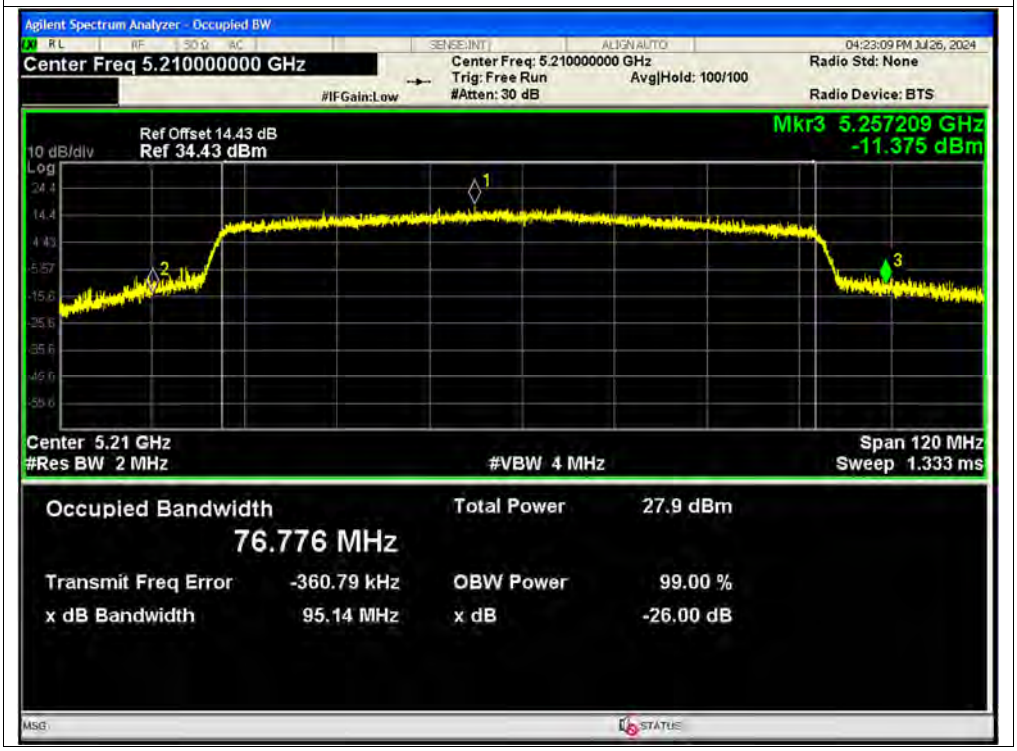
-26dB Bandwidth NVNT ax40 5190MHz Ant4

-26dB Bandwidth NVNT ax40 5230MHz Ant4

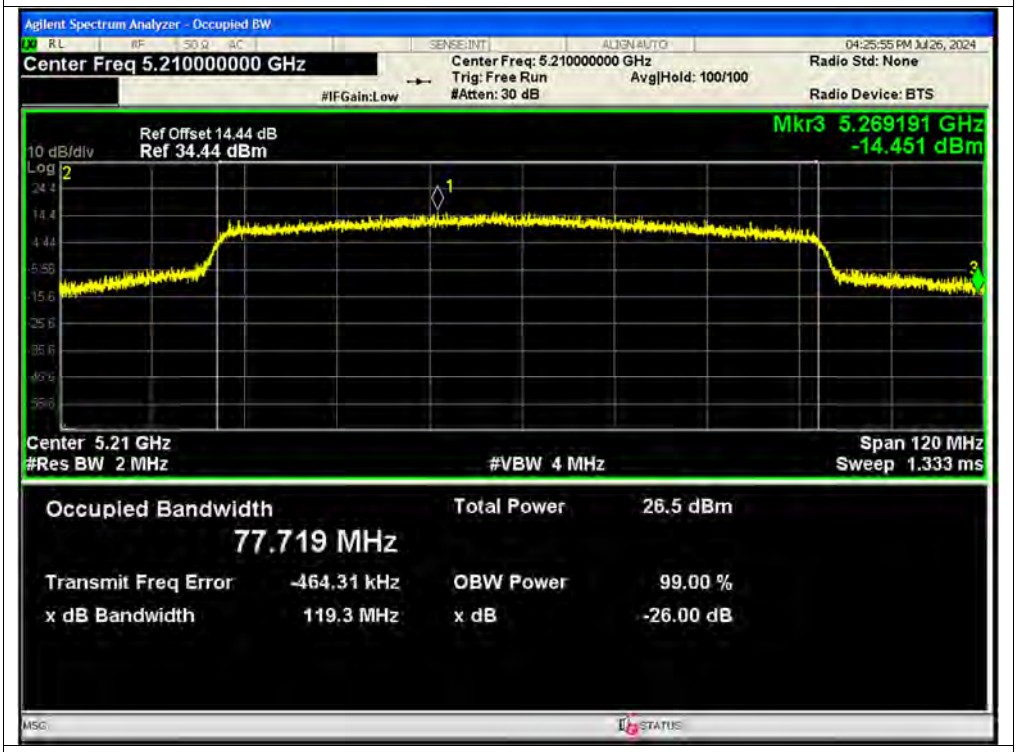
-26dB Bandwidth NVNT ax80 5210MHz Ant1



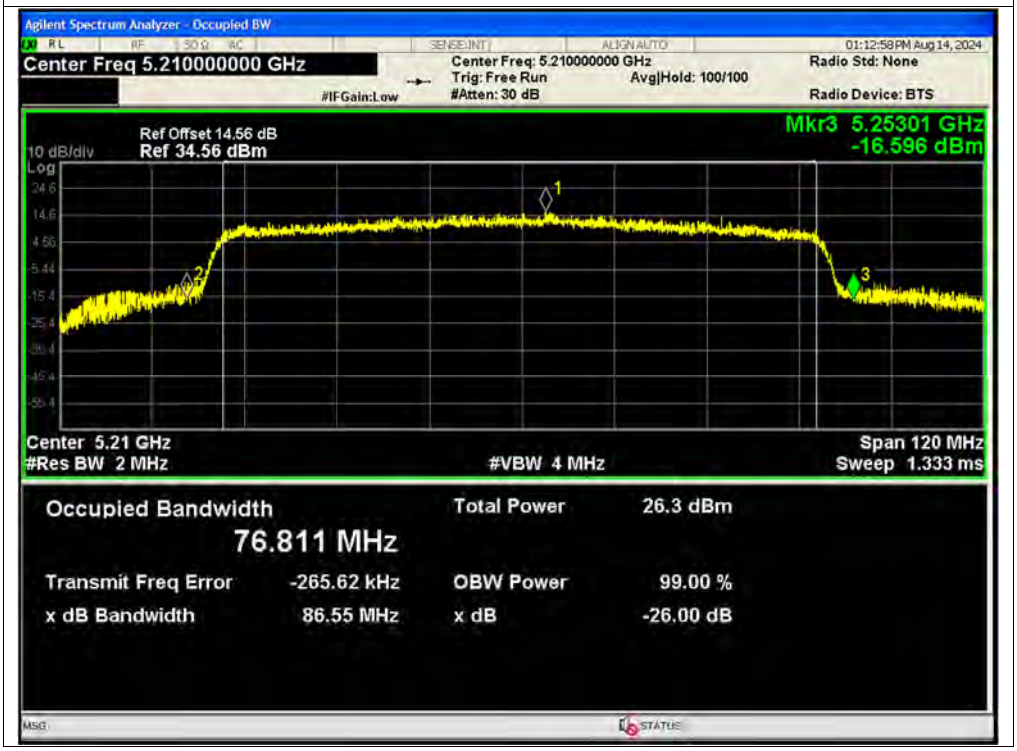
-26dB Bandwidth NVNT ax80 5210MHz Ant2



-26dB Bandwidth NVNT ax80 5210MHz Ant3



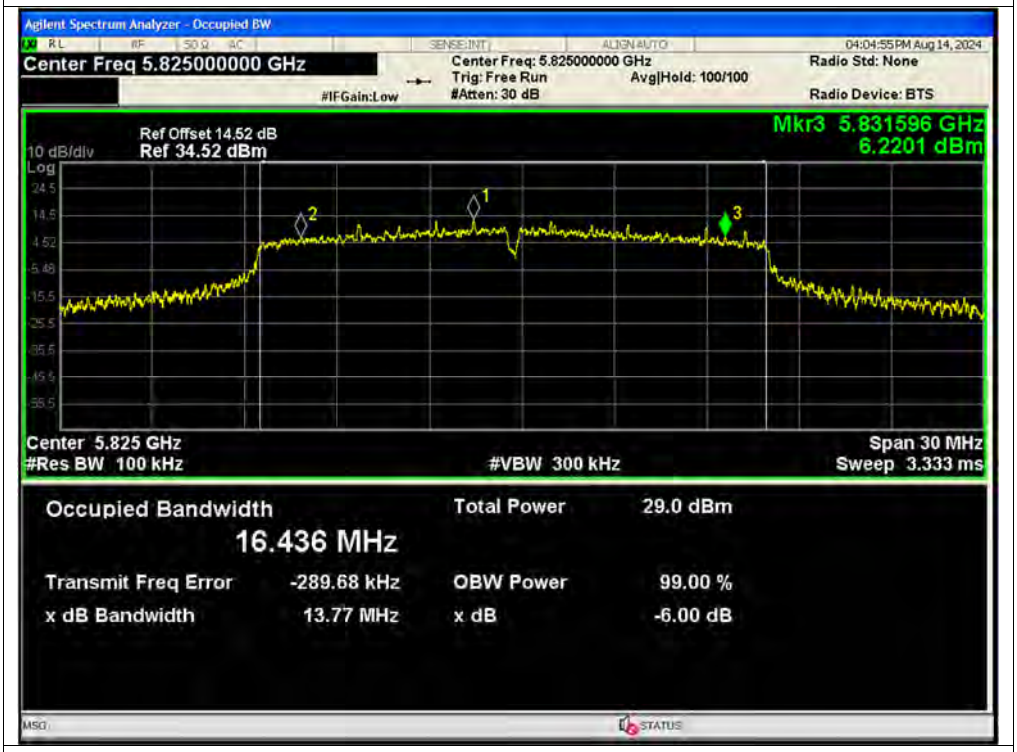
-26dB Bandwidth NVNT ax80 5210MHz Ant4



Test Graphs
-6dB Bandwidth NVNT a 5745MHz Ant1

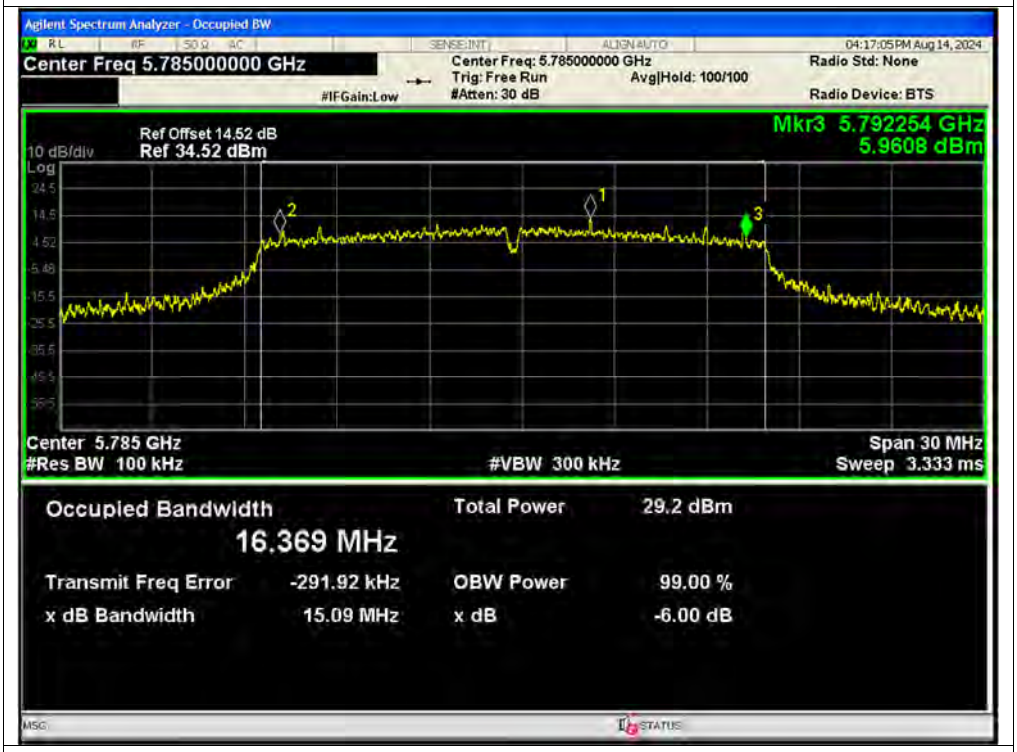
-6dB Bandwidth NVNT a 5785MHz Ant1

-6dB Bandwidth NVNT a 5825MHz Ant1



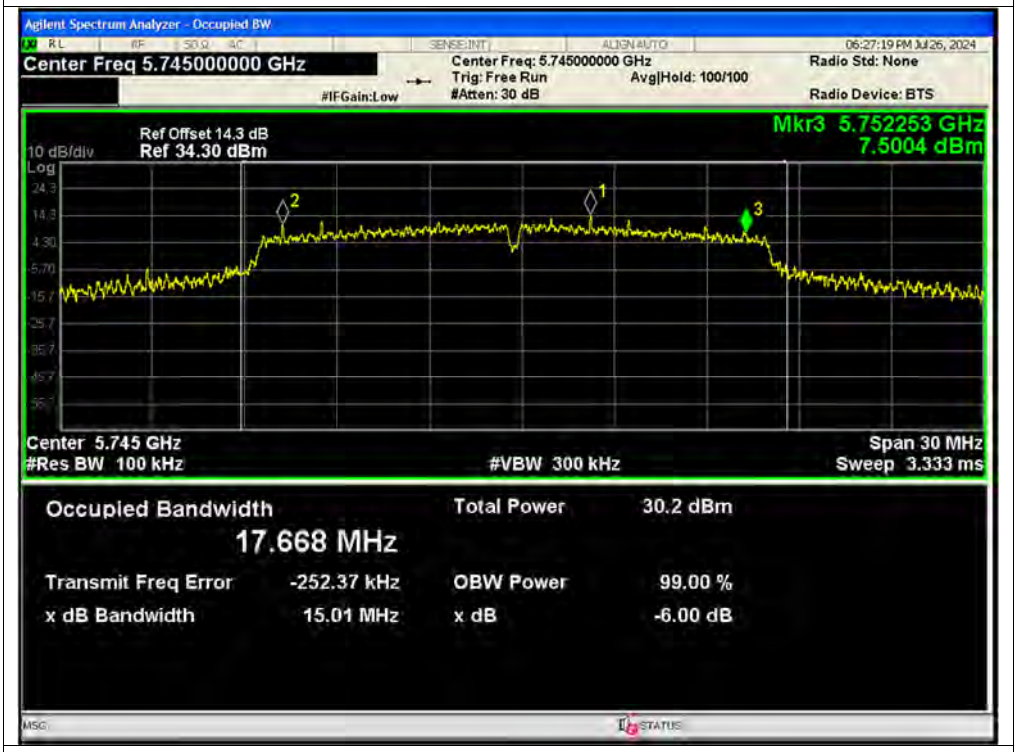
-6dB Bandwidth NVNT a 5745MHz Ant2

-6dB Bandwidth NVNT a 5785MHz Ant2



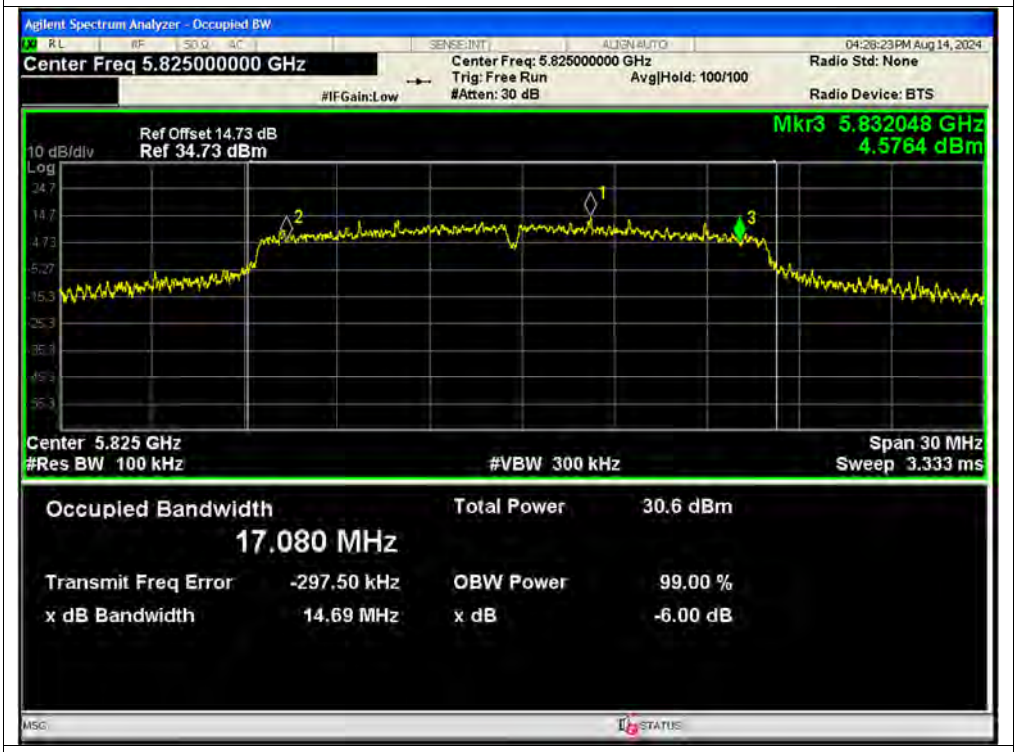
-6dB Bandwidth NVNT a 5825MHz Ant2

-6dB Bandwidth NVNT a 5745MHz Ant3



-6dB Bandwidth NVNT a 5785MHz Ant3

-6dB Bandwidth NVNT a 5825MHz Ant3

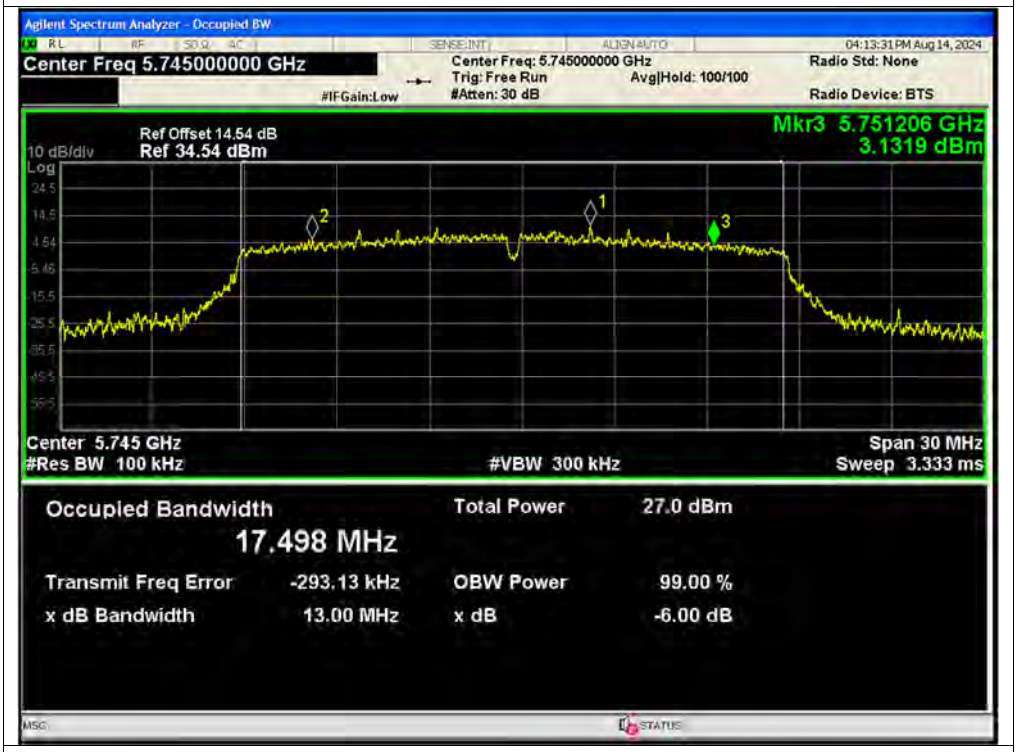


-6dB Bandwidth NVNT a 5745MHz Ant4

-6dB Bandwidth NVNT a 5785MHz Ant4

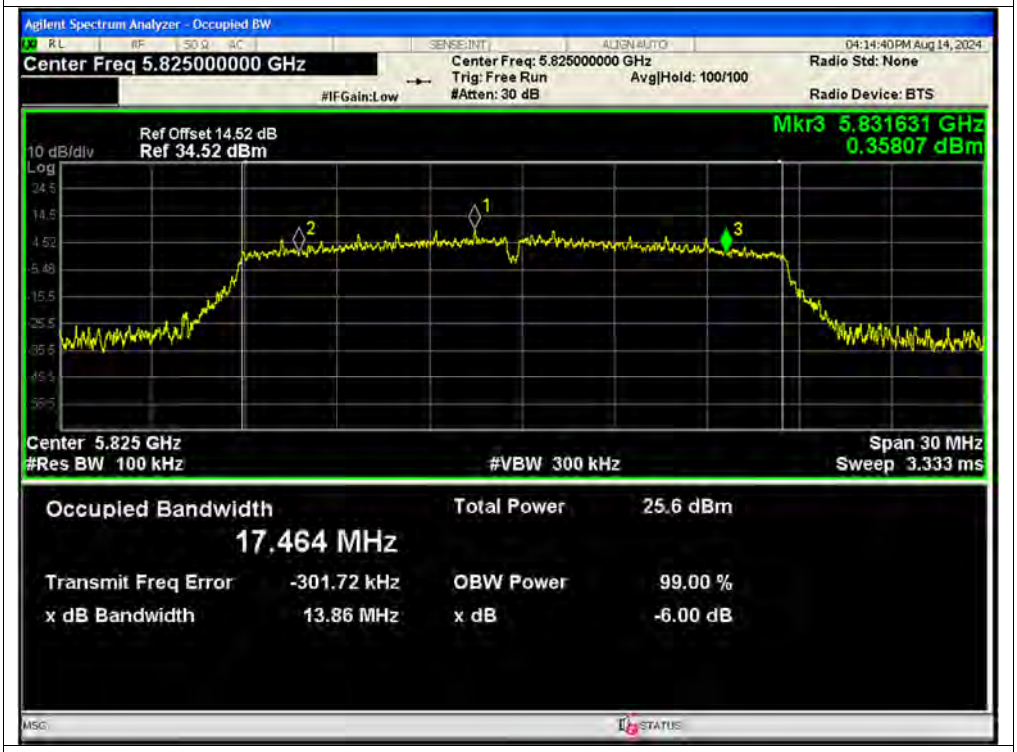
-6dB Bandwidth NVNT a 5825MHz Ant4

-6dB Bandwidth NVNT n20 5745MHz Ant1

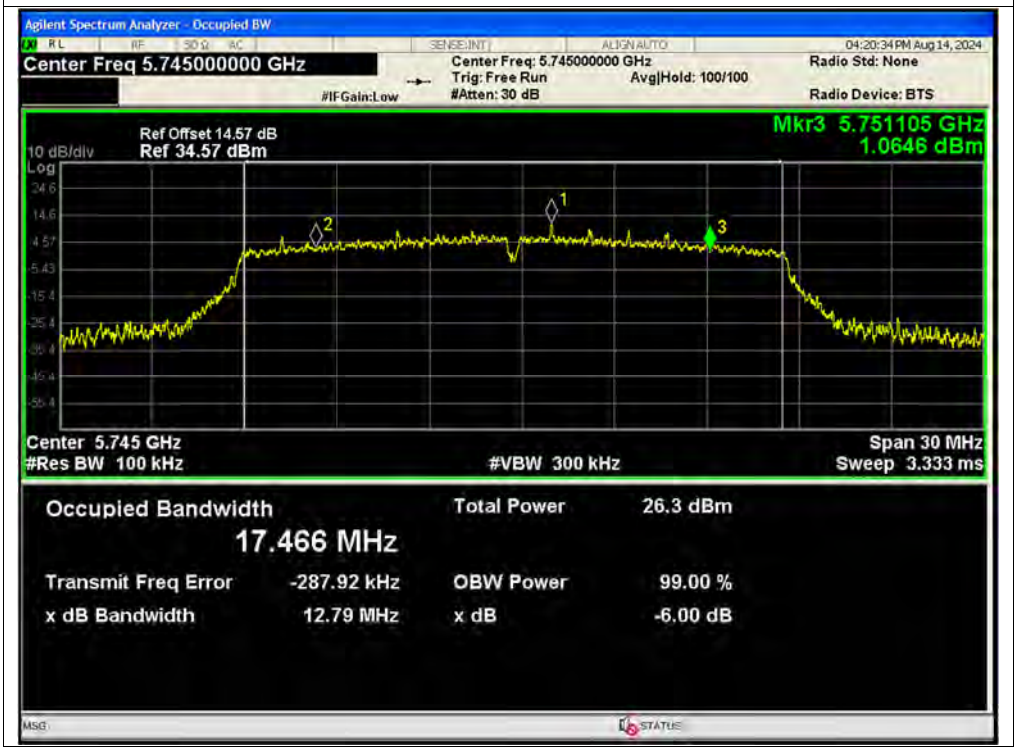


-6dB Bandwidth NVNT n20 5785MHz Ant1

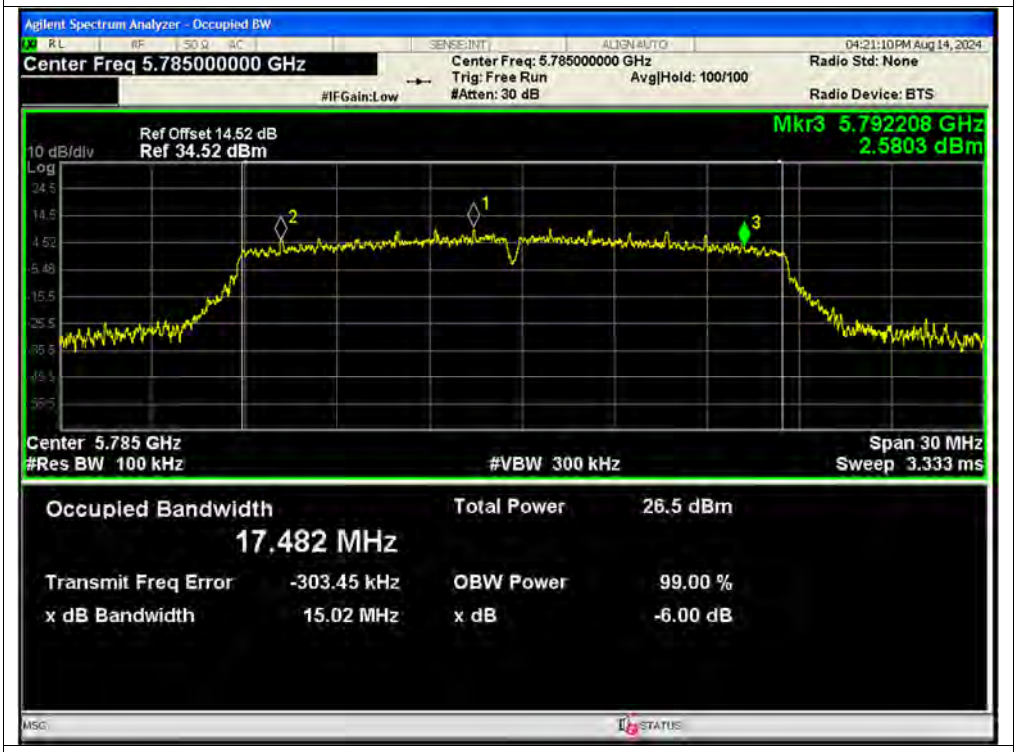
-6dB Bandwidth NVNT n20 5825MHz Ant1



-6dB Bandwidth NVNT n20 5745MHz Ant2

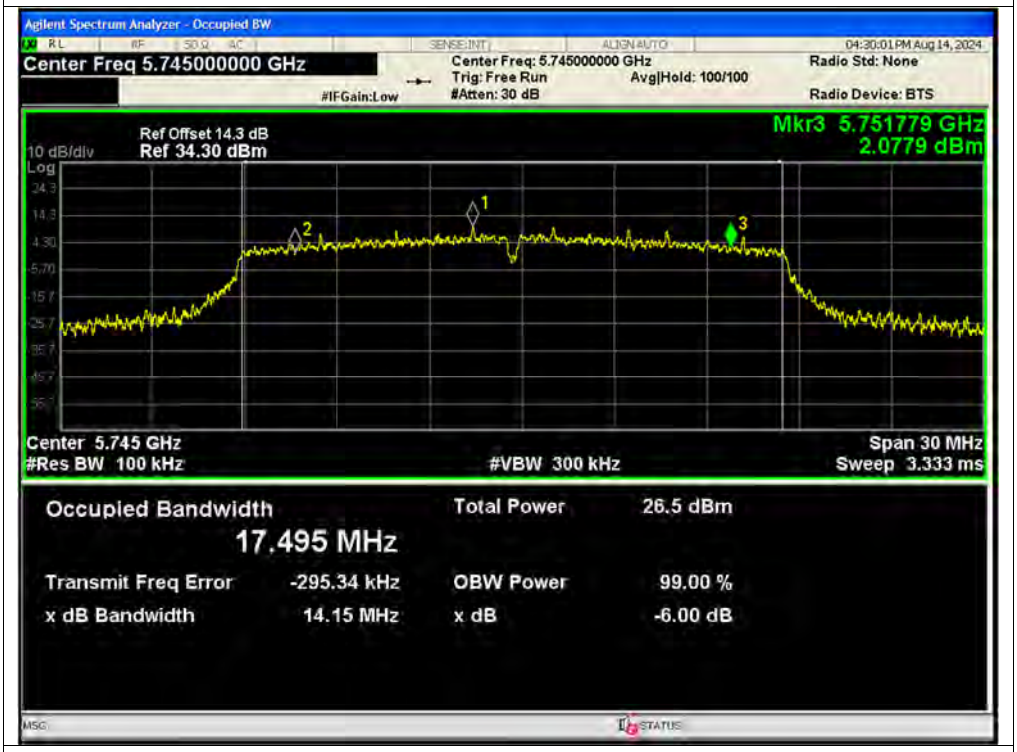


-6dB Bandwidth NVNT n20 5785MHz Ant2



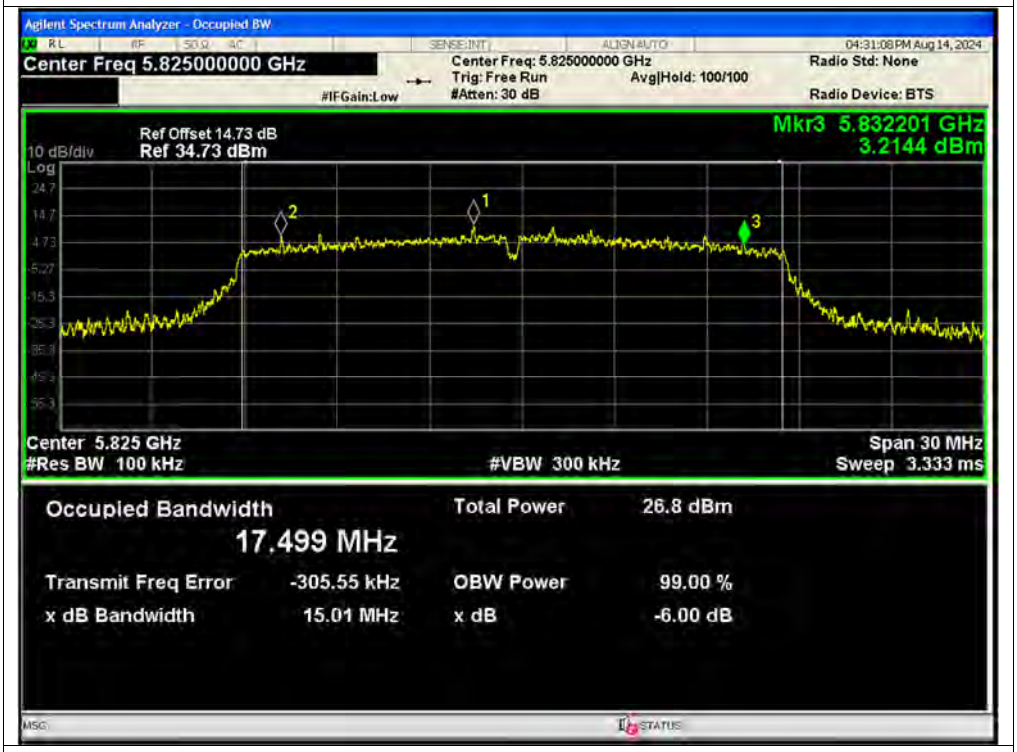
-6dB Bandwidth NVNT n20 5825MHz Ant2

-6dB Bandwidth NVNT n20 5745MHz Ant3

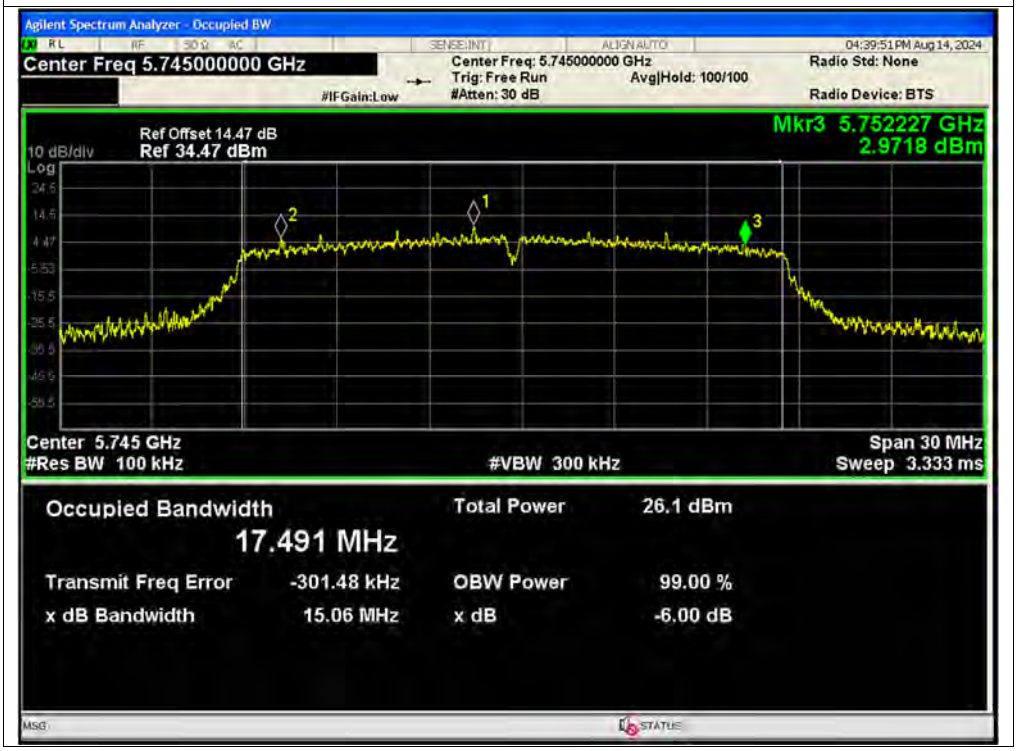


-6dB Bandwidth NVNT n20 5785MHz Ant3

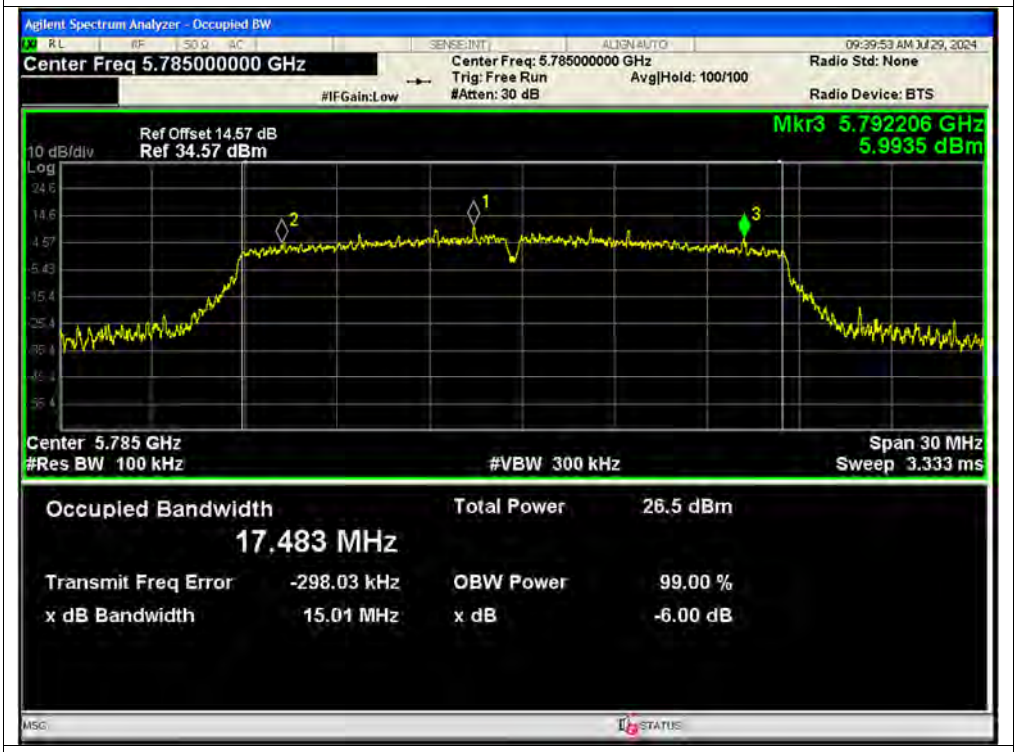
-6dB Bandwidth NVNT n20 5825MHz Ant3



-6dB Bandwidth NVNT n20 5745MHz Ant4

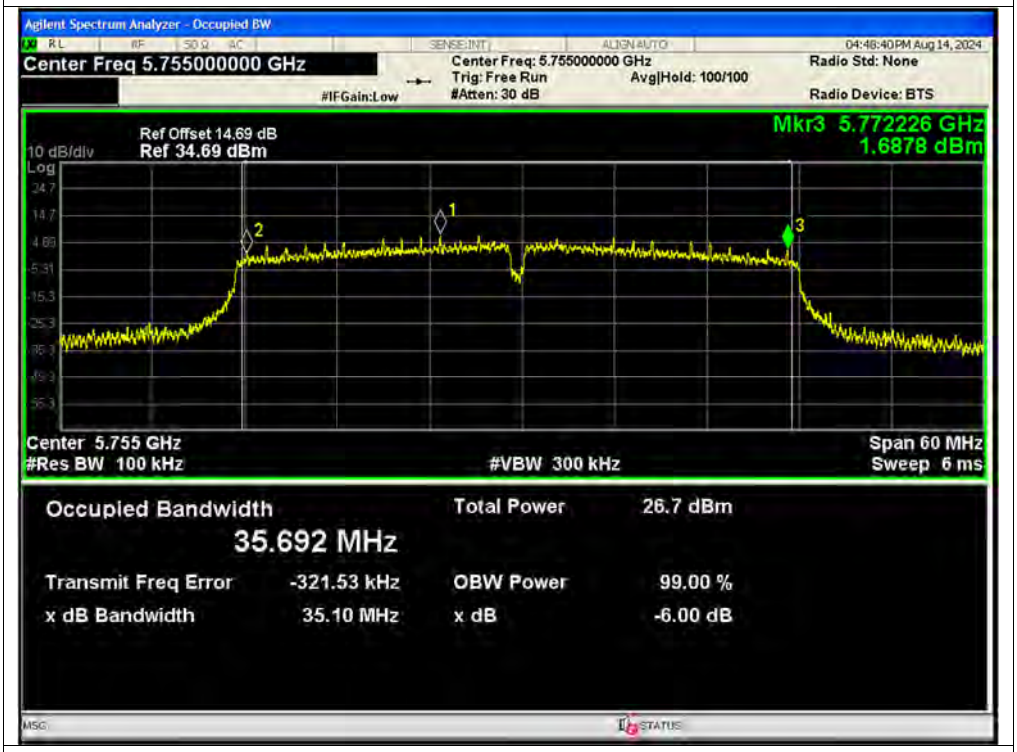


-6dB Bandwidth NVNT n20 5785MHz Ant4

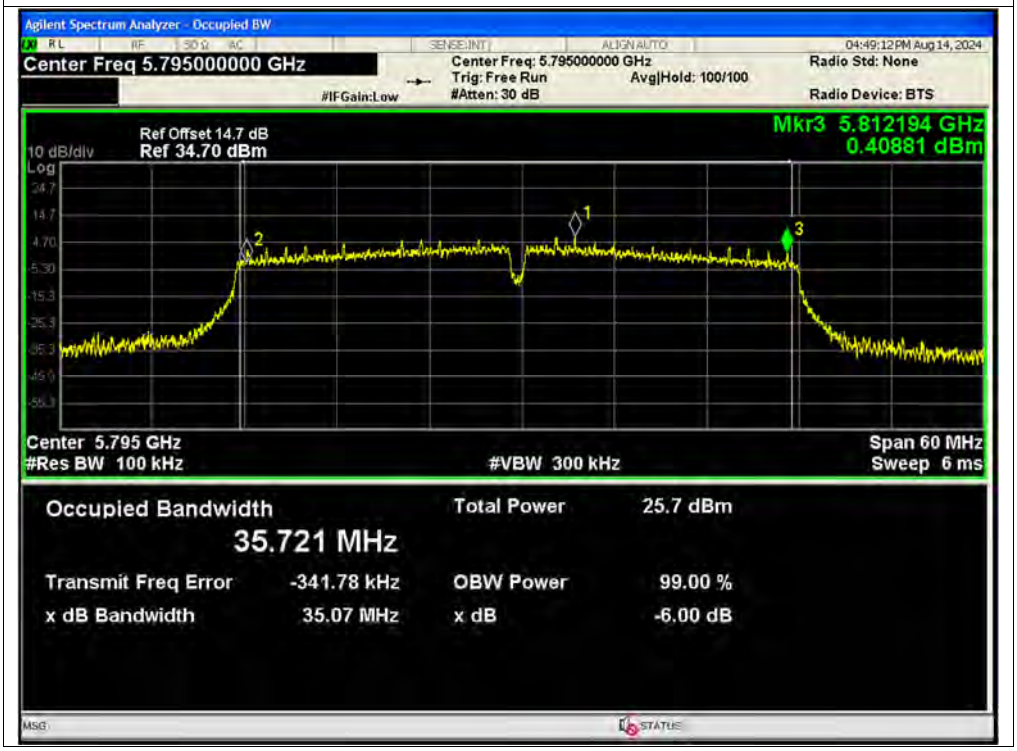


-6dB Bandwidth NVNT n20 5825MHz Ant4

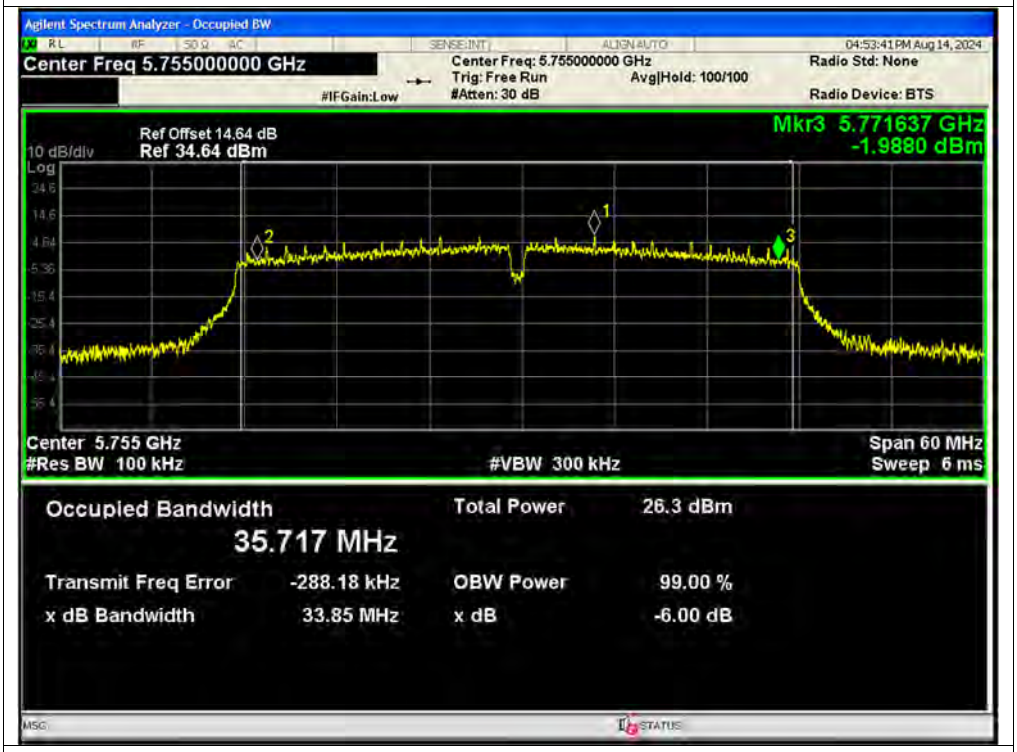
-6dB Bandwidth NVNT n40 5755MHz Ant1



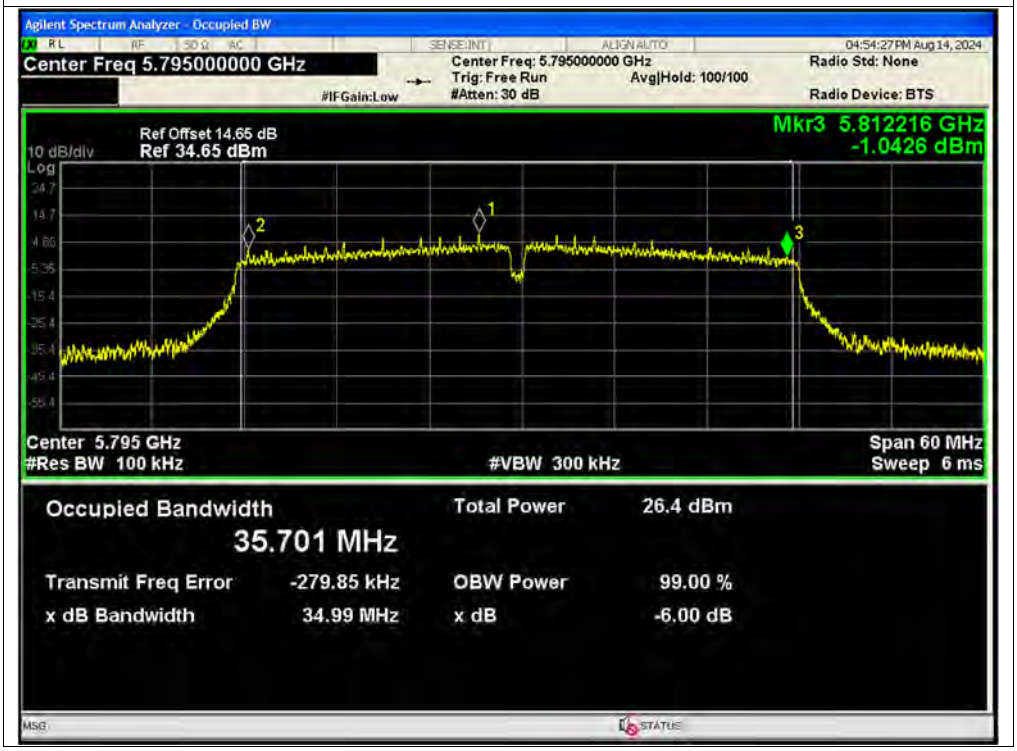
-6dB Bandwidth NVNT n40 5795MHz Ant1



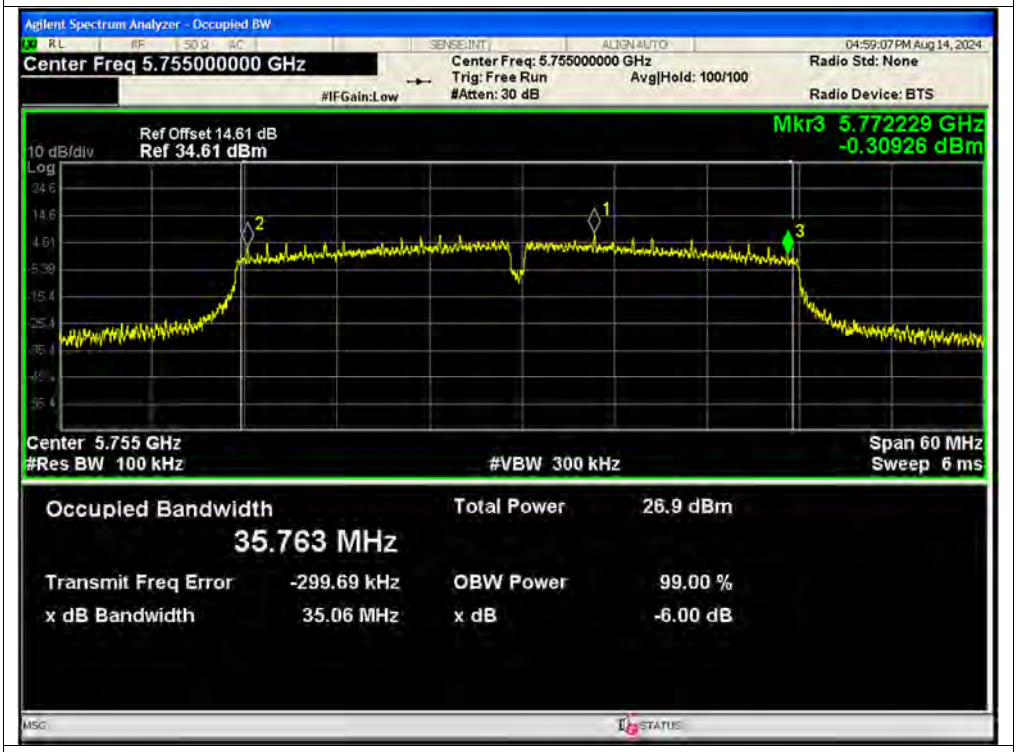
-6dB Bandwidth NVNT n40 5755MHz Ant2



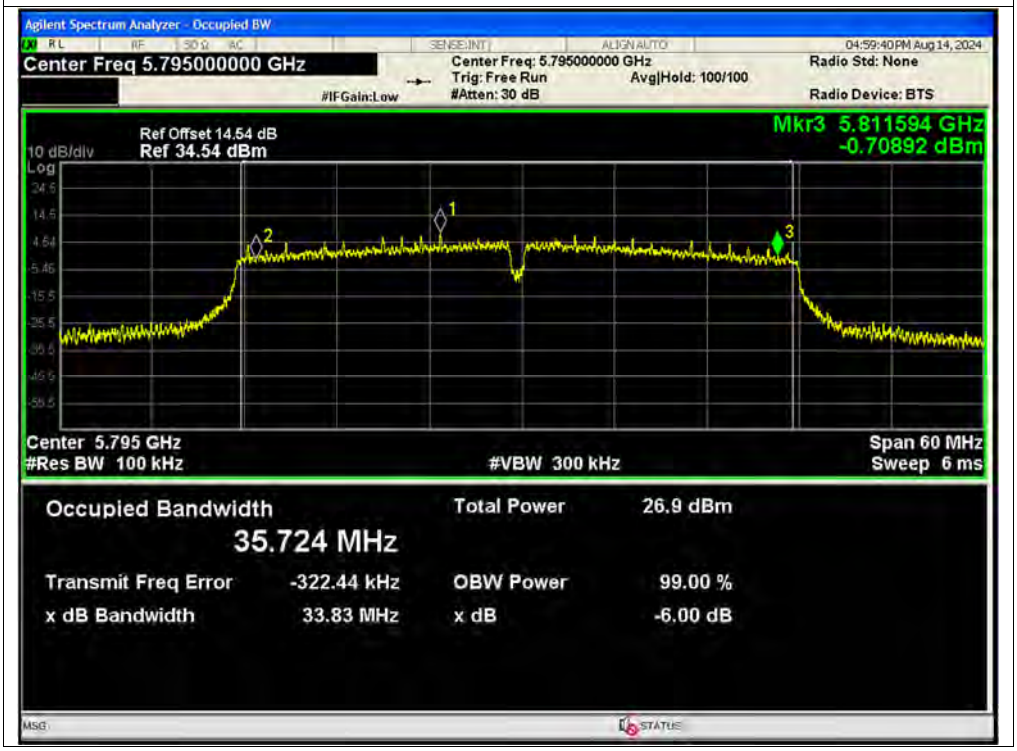
-6dB Bandwidth NVNT n40 5795MHz Ant2



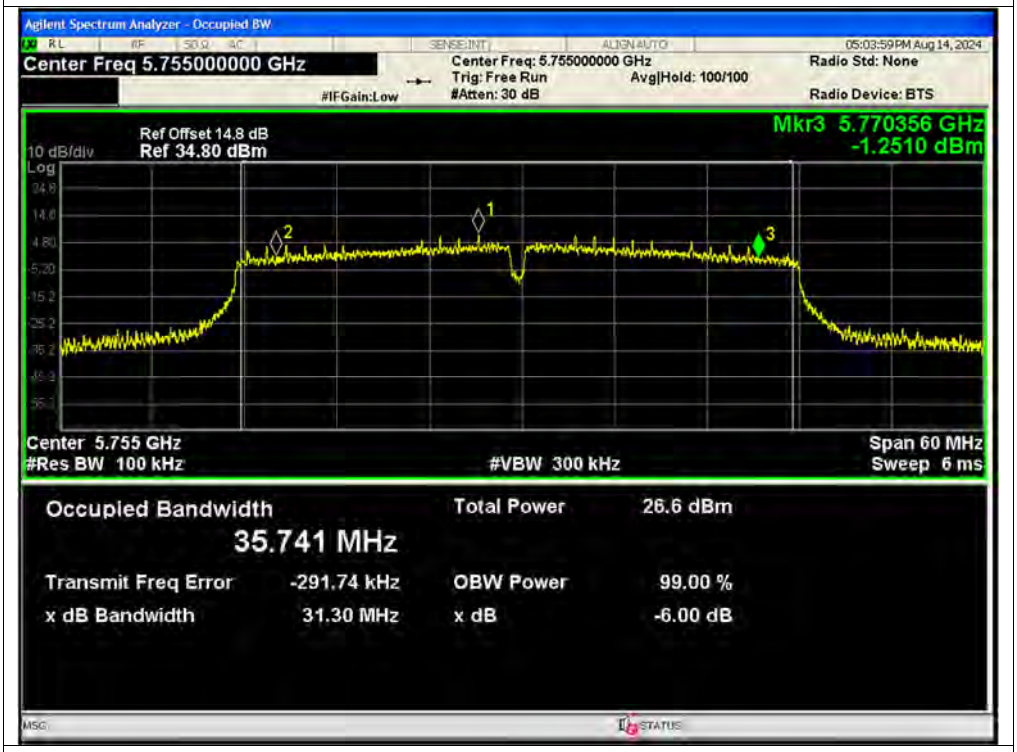
-6dB Bandwidth NVNT n40 5755MHz Ant3



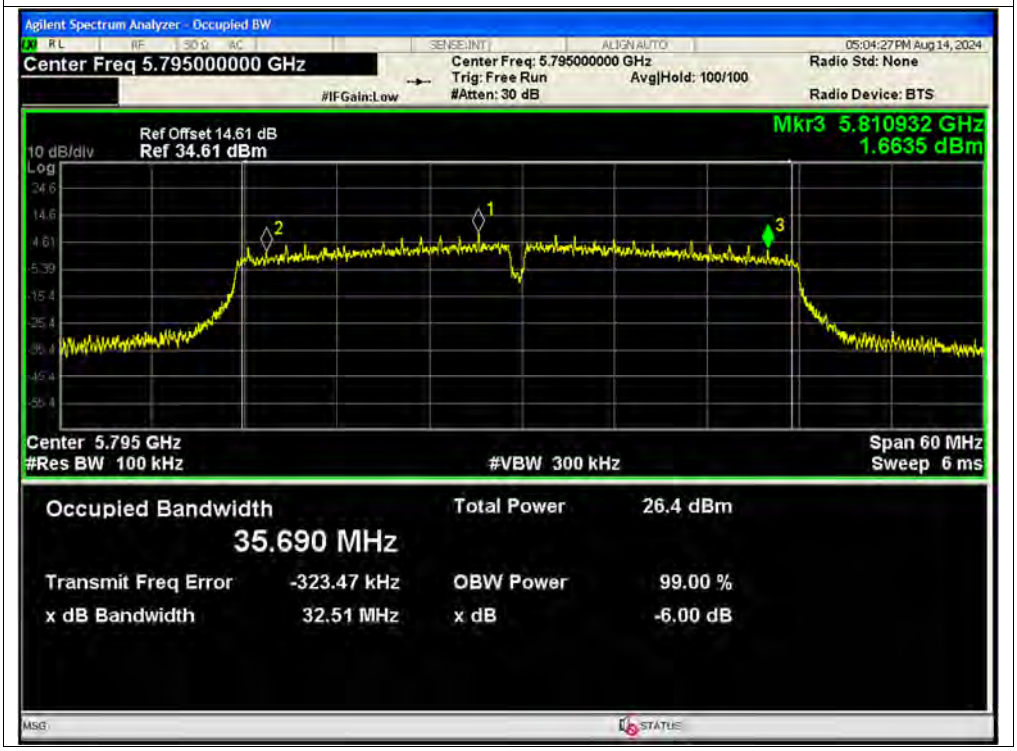
-6dB Bandwidth NVNT n40 5795MHz Ant3



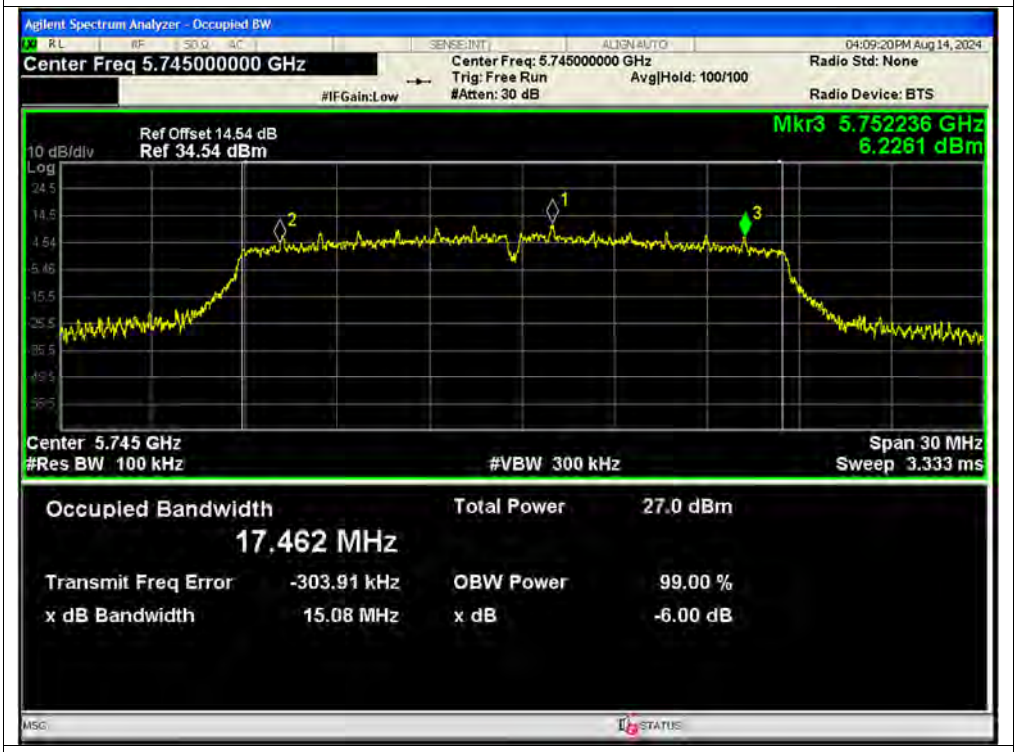
-6dB Bandwidth NVNT n40 5755MHz Ant4



-6dB Bandwidth NVNT n40 5795MHz Ant4



-6dB Bandwidth NVNT ac20 5745MHz Ant1

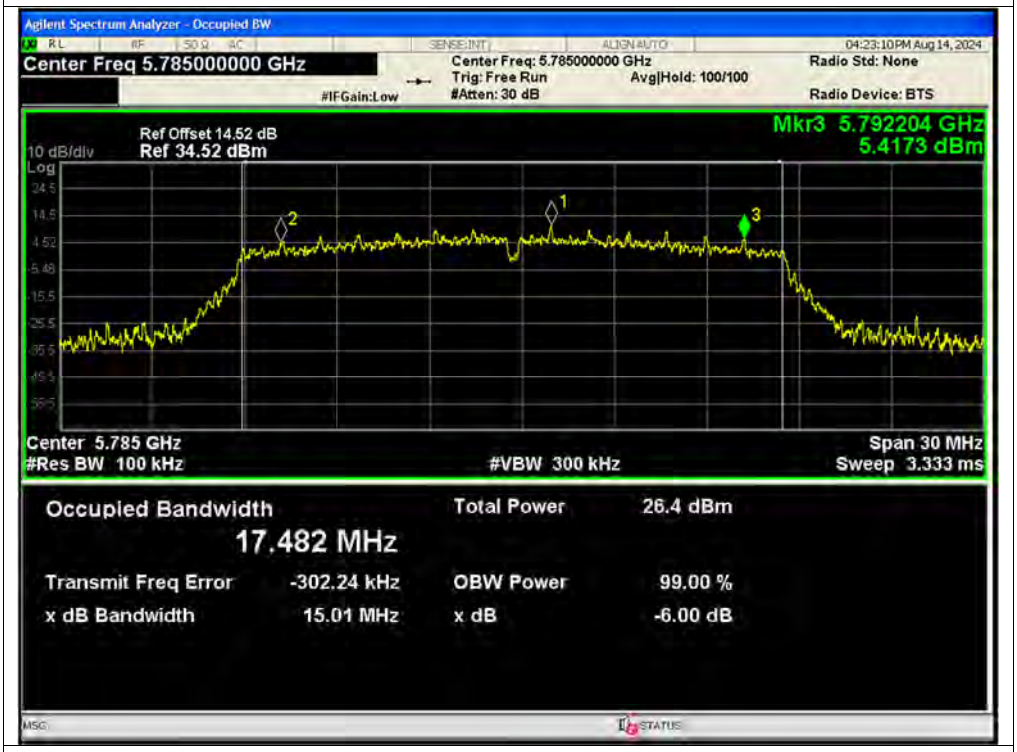


-6dB Bandwidth NVNT ac20 5785MHz Ant1

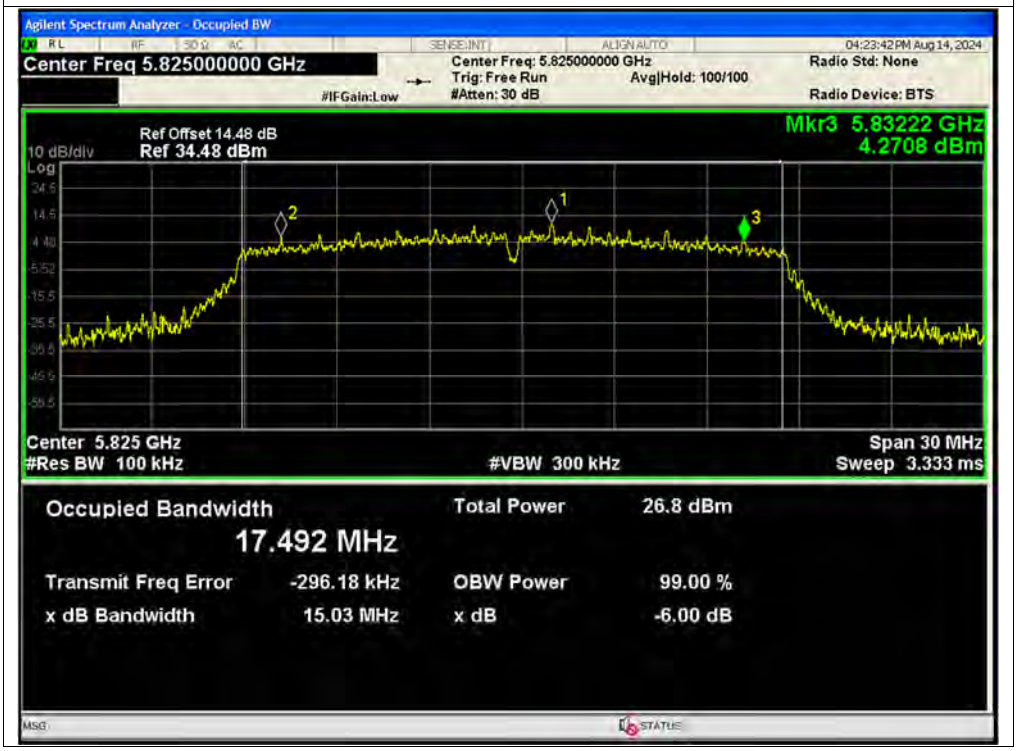
-6dB Bandwidth NVNT ac20 5825MHz Ant1

-6dB Bandwidth NVNT ac20 5745MHz Ant2

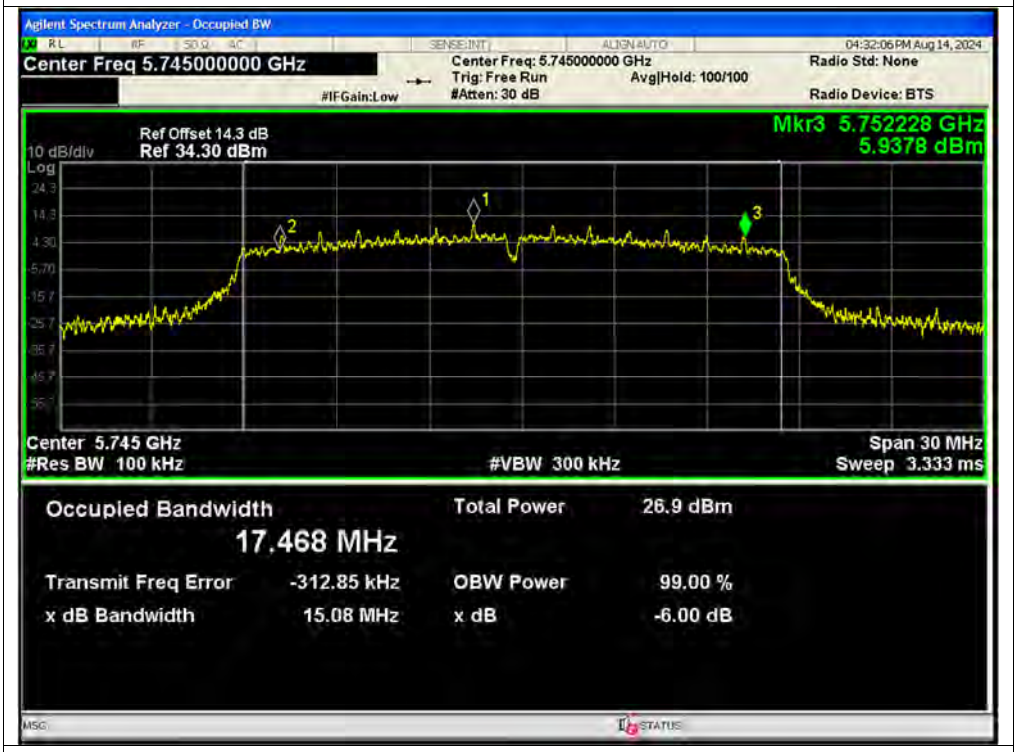
-6dB Bandwidth NVNT ac20 5785MHz Ant2



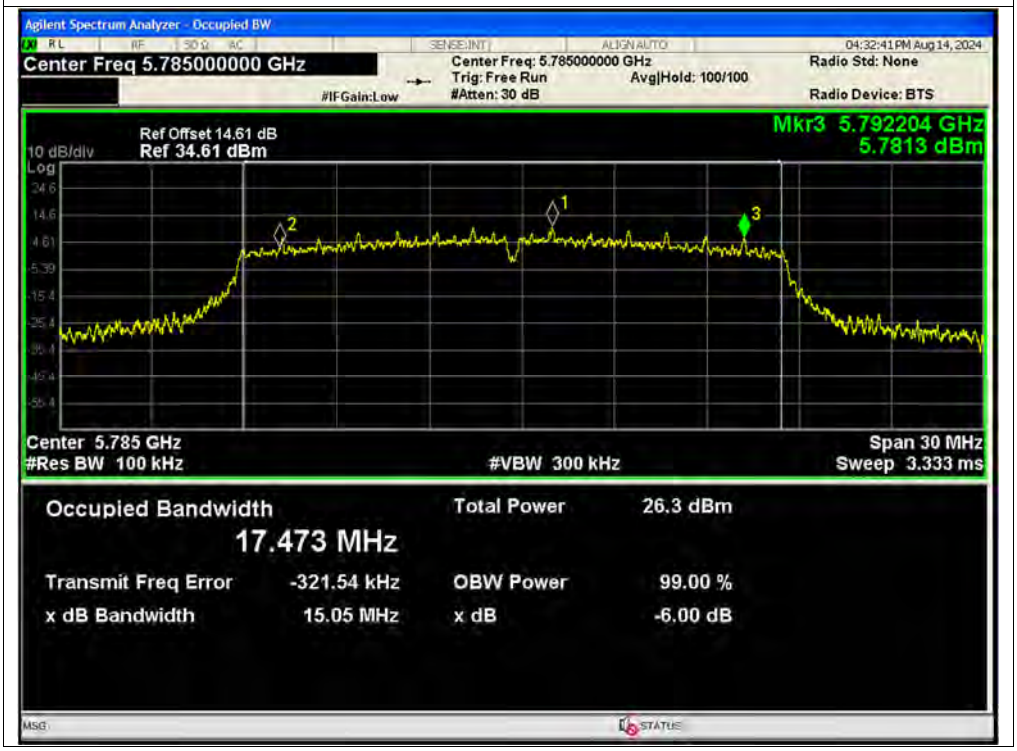
-6dB Bandwidth NVNT ac20 5825MHz Ant2



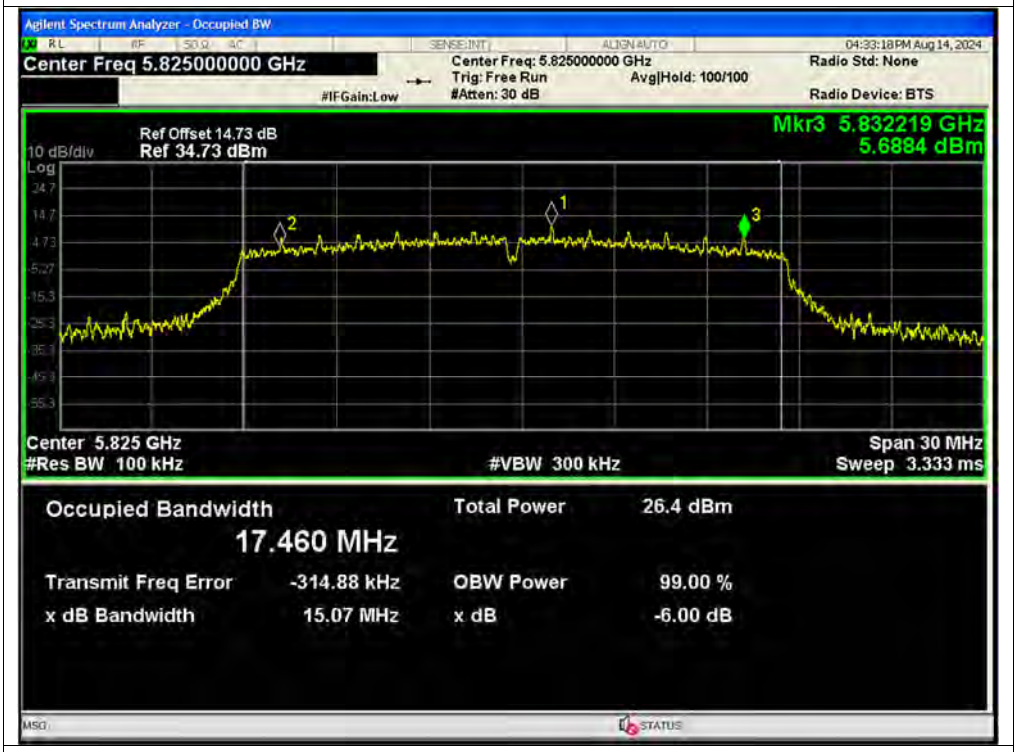
-6dB Bandwidth NVNT ac20 5745MHz Ant3



-6dB Bandwidth NVNT ac20 5785MHz Ant3



-6dB Bandwidth NVNT ac20 5825MHz Ant3

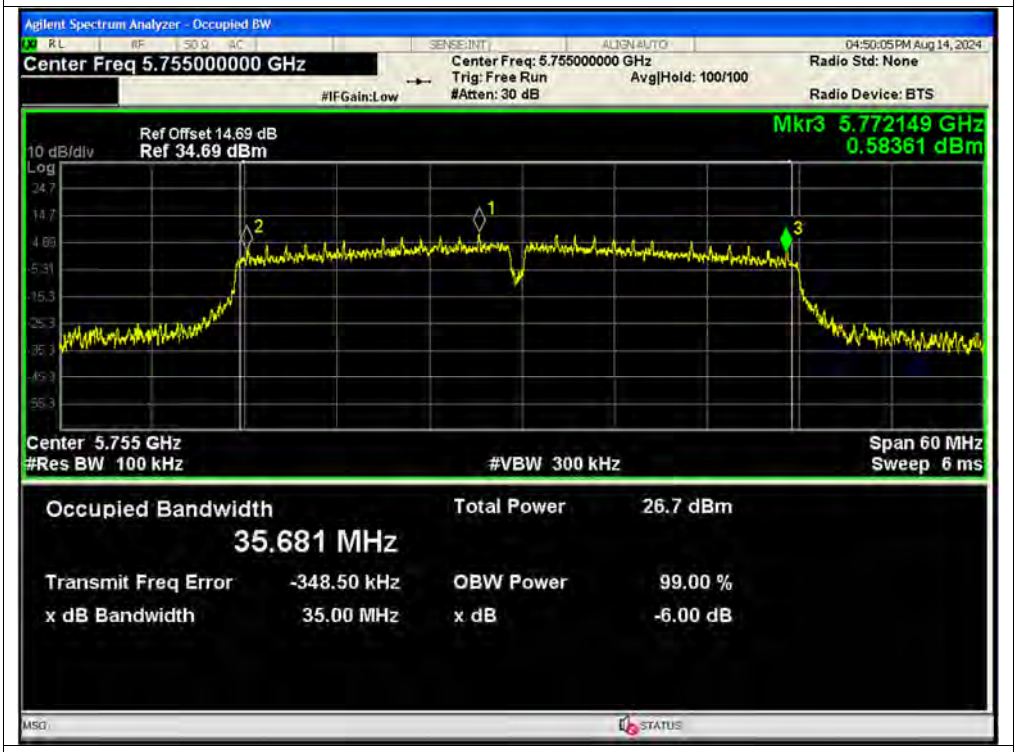


-6dB Bandwidth NVNT ac20 5745MHz Ant4

-6dB Bandwidth NVNT ac20 5785MHz Ant4

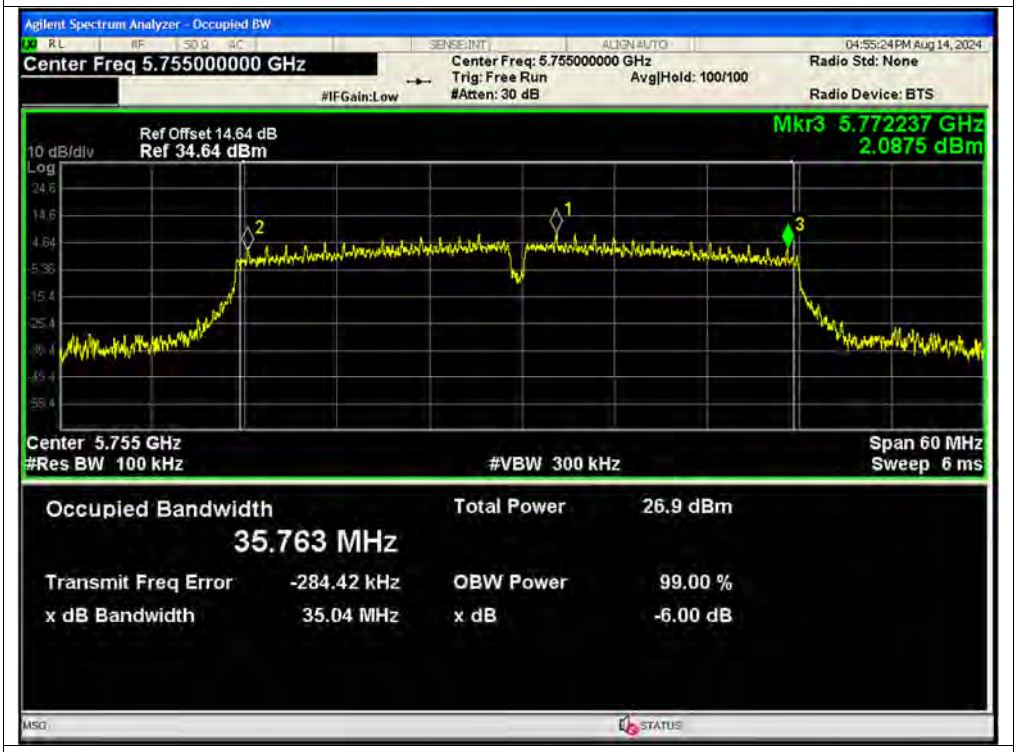
-6dB Bandwidth NVNT ac20 5825MHz Ant4

-6dB Bandwidth NVNT ac40 5755MHz Ant1

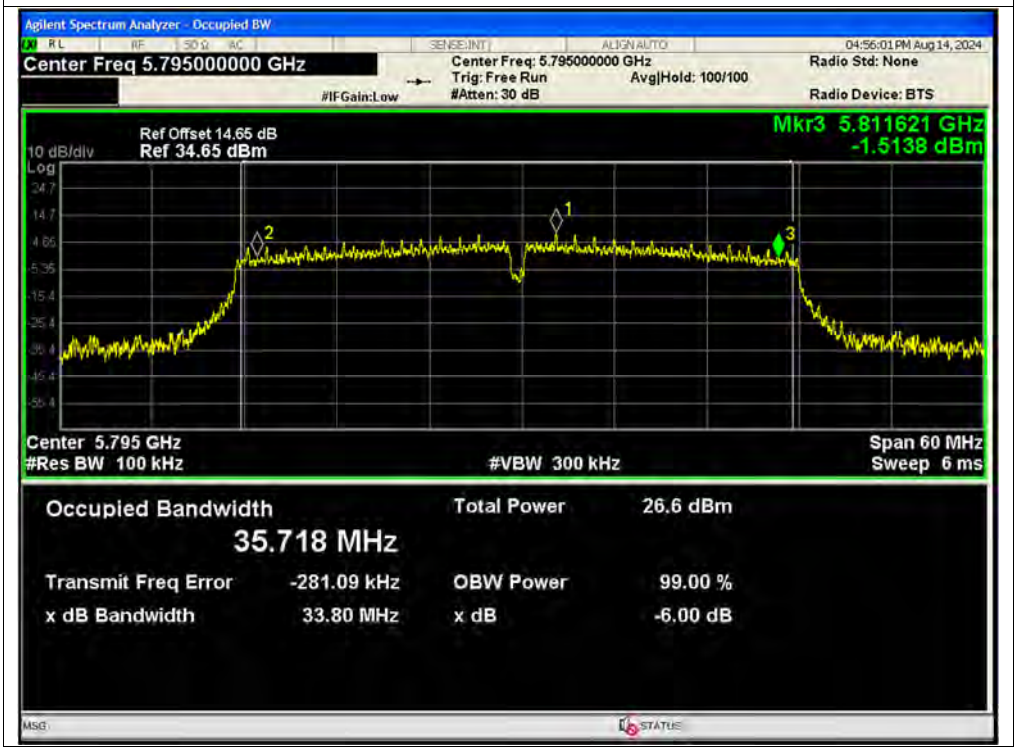


-6dB Bandwidth NVNT ac40 5795MHz Ant1

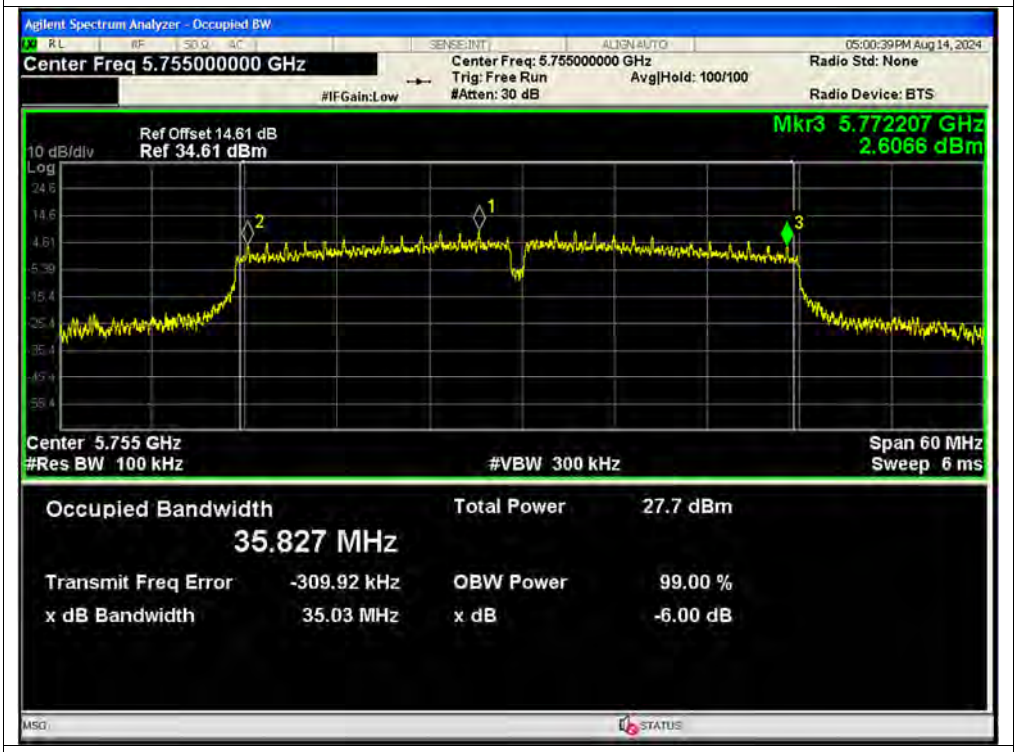
-6dB Bandwidth NVNT ac40 5755MHz Ant2



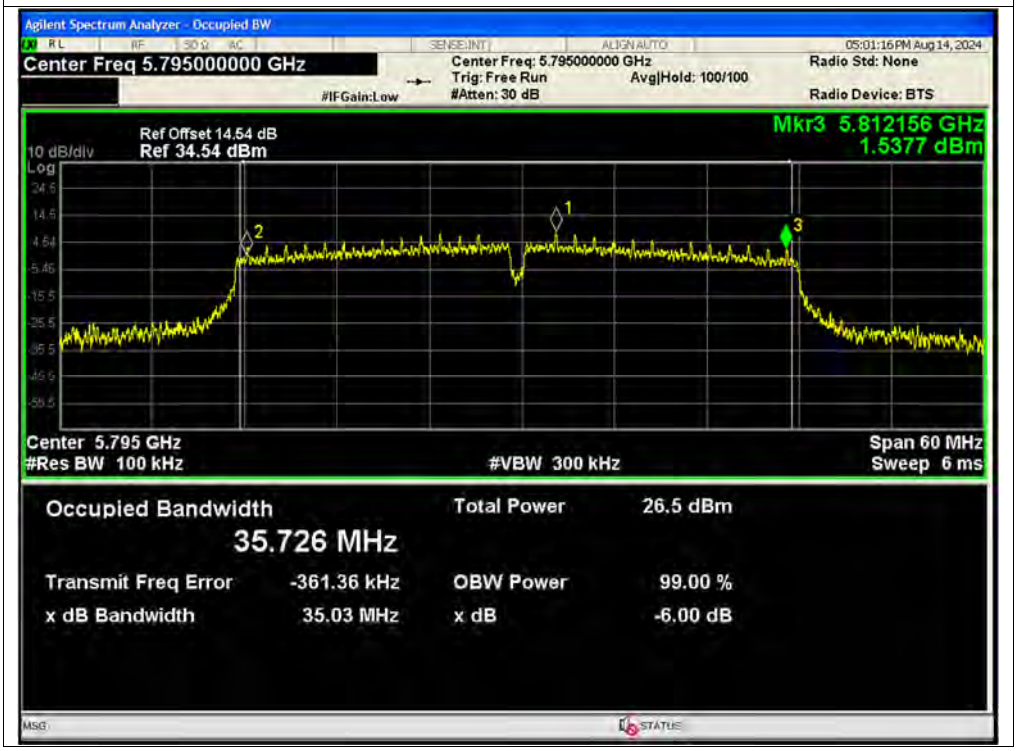
-6dB Bandwidth NVNT ac40 5795MHz Ant2



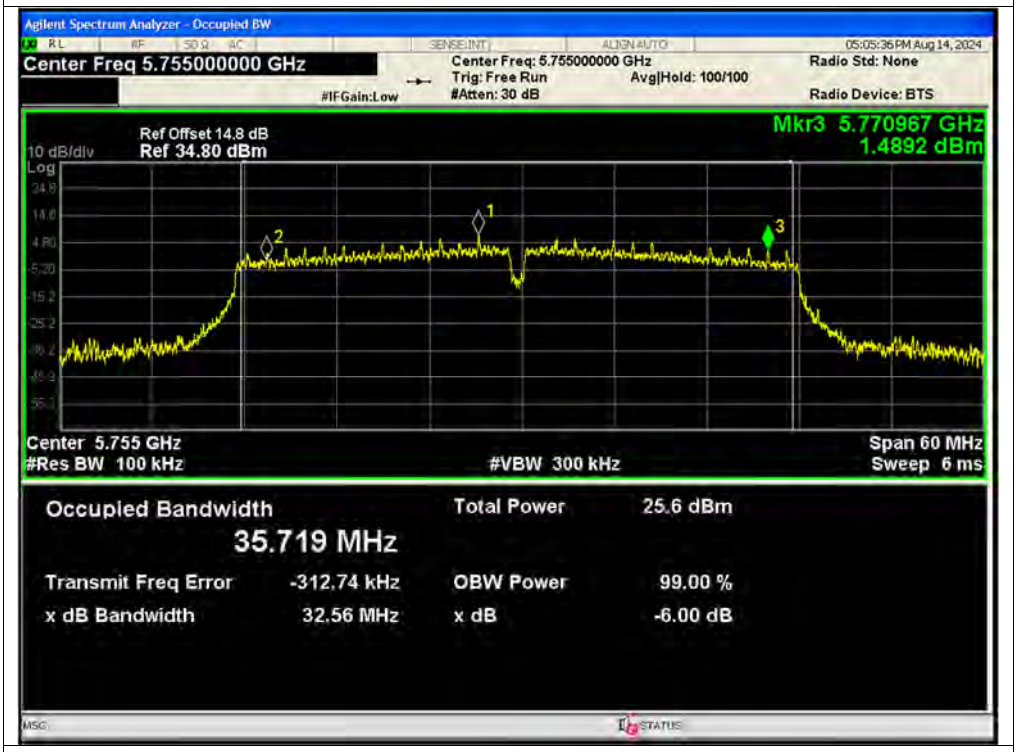
-6dB Bandwidth NVNT ac40 5755MHz Ant3



-6dB Bandwidth NVNT ac40 5795MHz Ant3

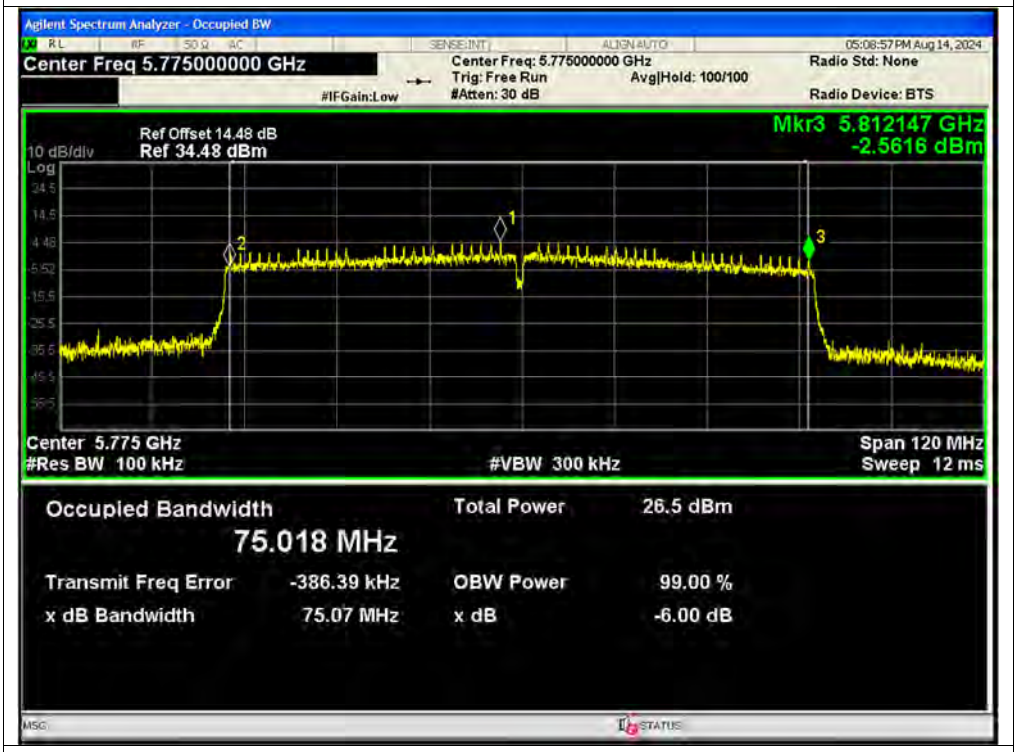


-6dB Bandwidth NVNT ac40 5755MHz Ant4



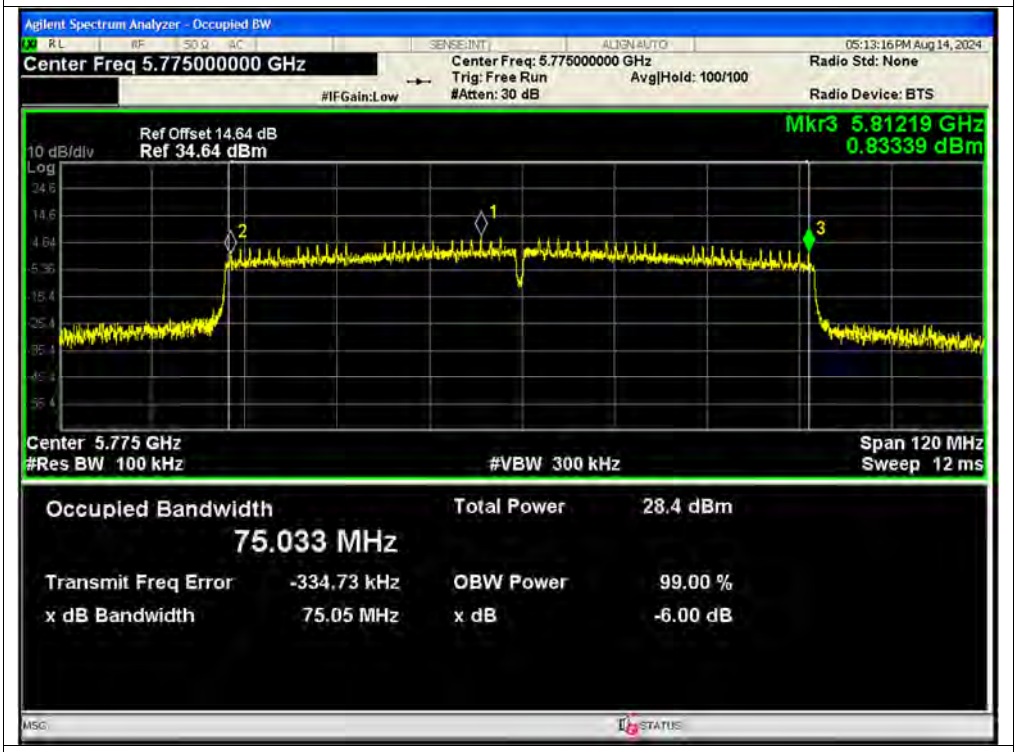
-6dB Bandwidth NVNT ac40 5795MHz Ant4

-6dB Bandwidth NVNT ac80 5775MHz Ant1

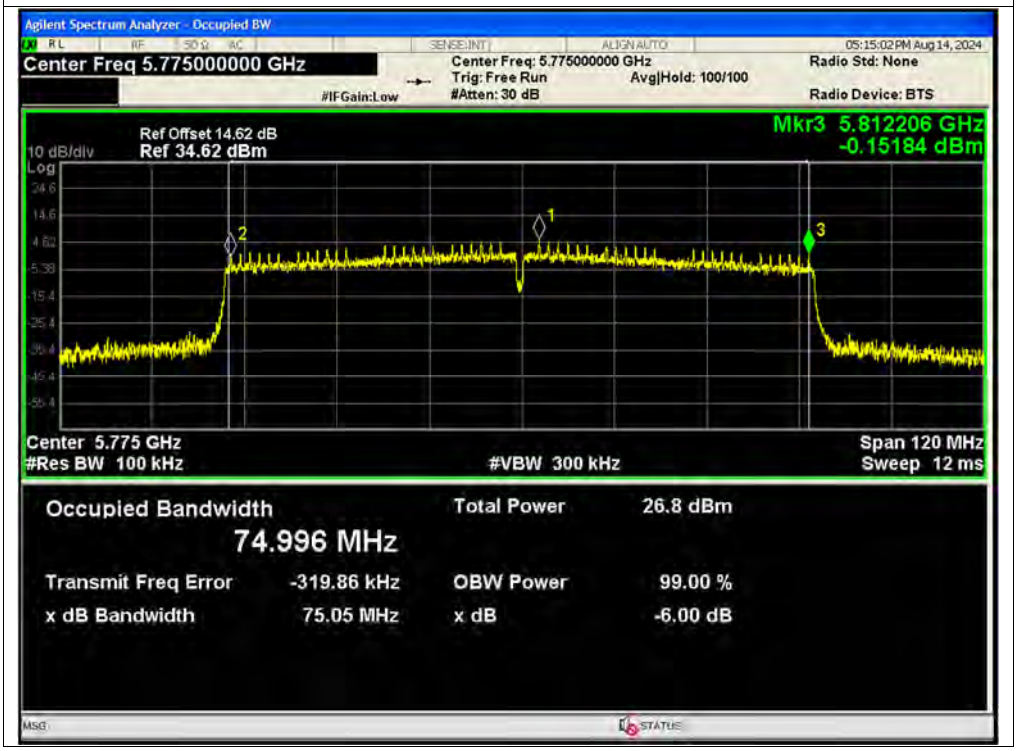


-6dB Bandwidth NVNT ac80 5775MHz Ant2

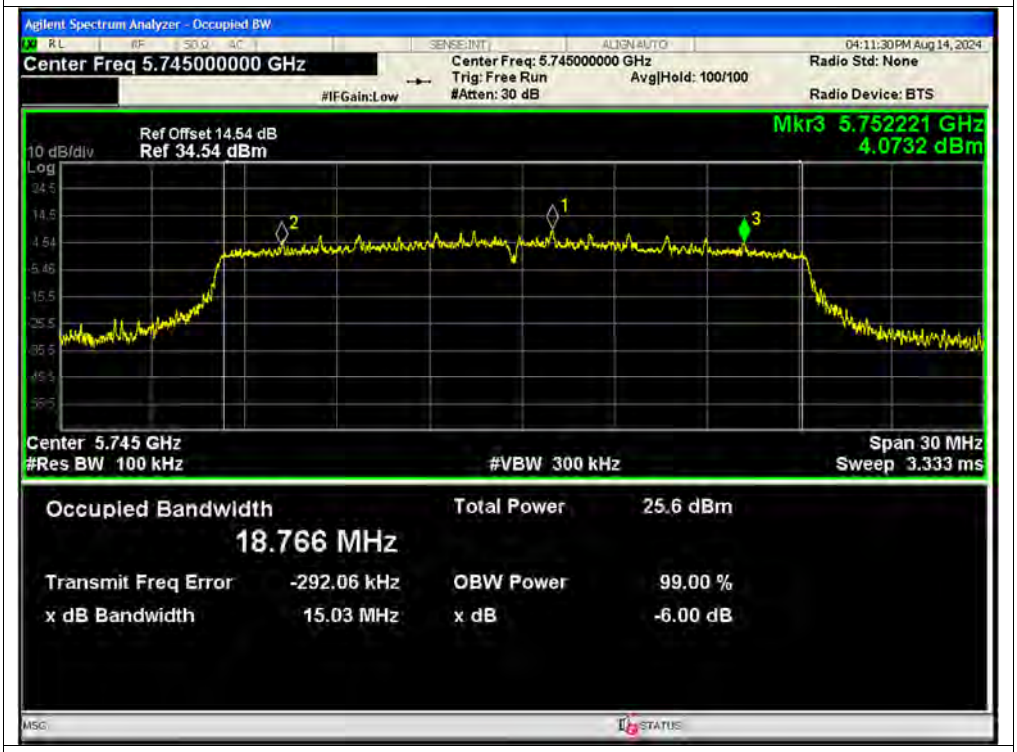
-6dB Bandwidth NVNT ac80 5775MHz Ant3



-6dB Bandwidth NVNT ac80 5775MHz Ant4



-6dB Bandwidth NVNT ax20 5745MHz Ant1

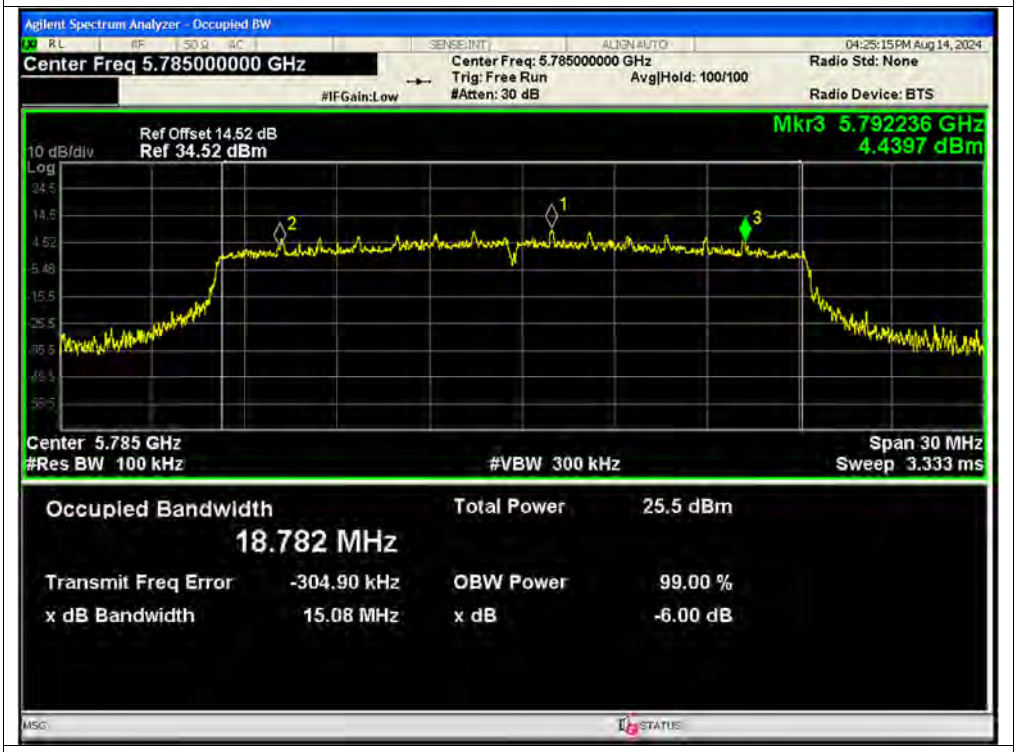


-6dB Bandwidth NVNT ax20 5785MHz Ant1

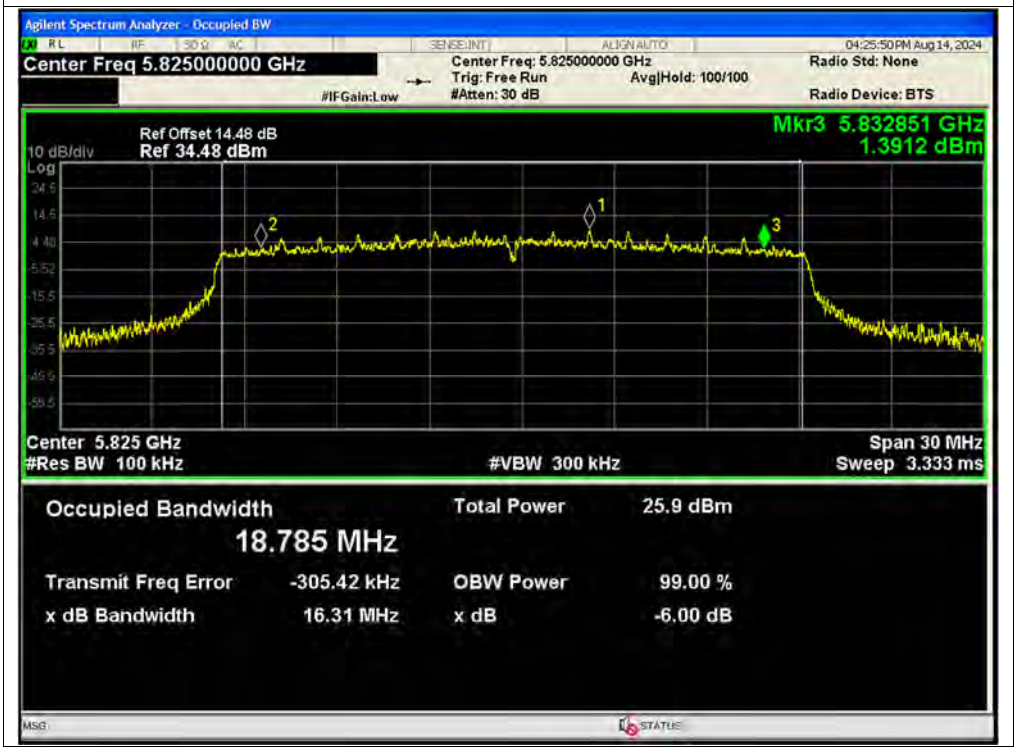
-6dB Bandwidth NVNT ax20 5825MHz Ant1

-6dB Bandwidth NVNT ax20 5745MHz Ant2

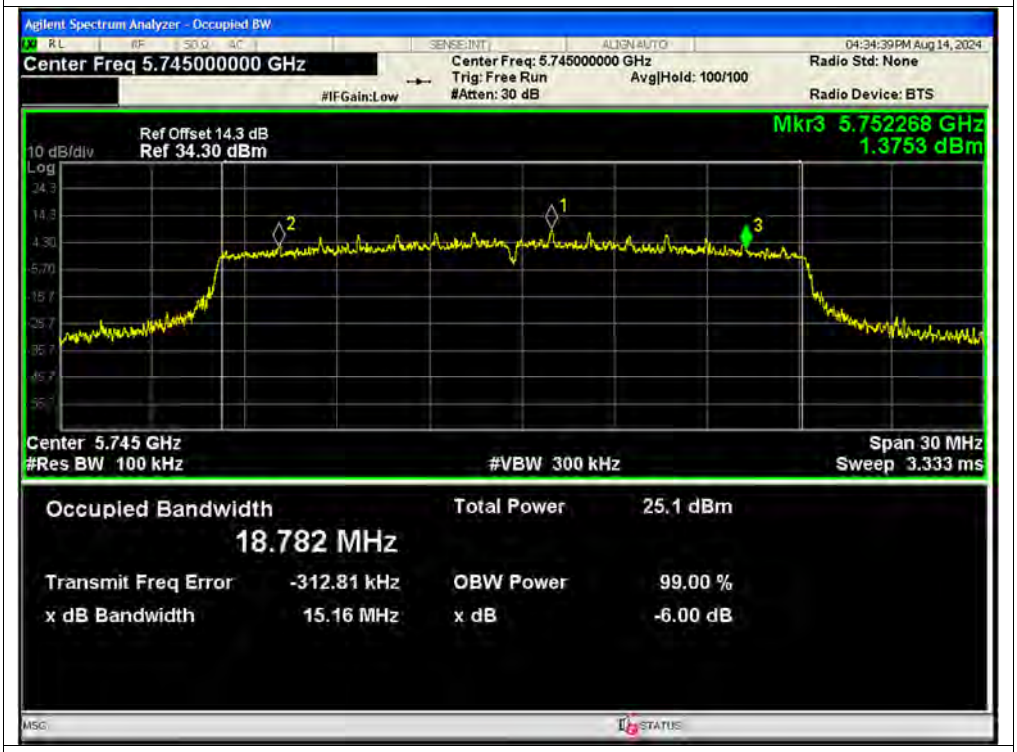
-6dB Bandwidth NVNT ax20 5785MHz Ant2



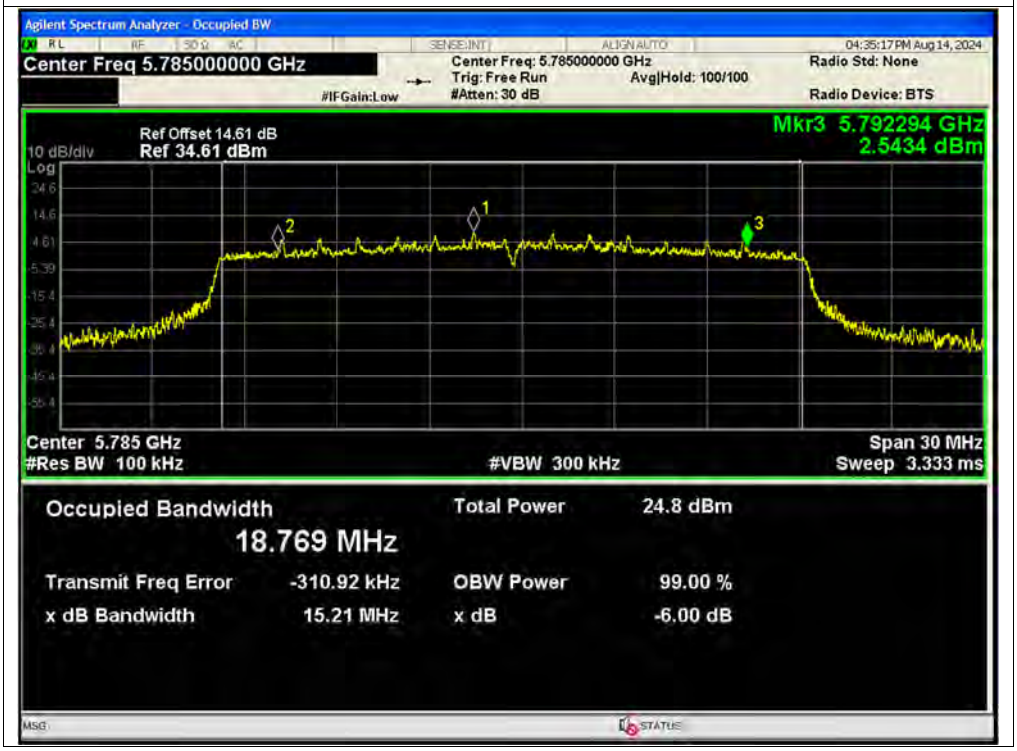
-6dB Bandwidth NVNT ax20 5825MHz Ant2



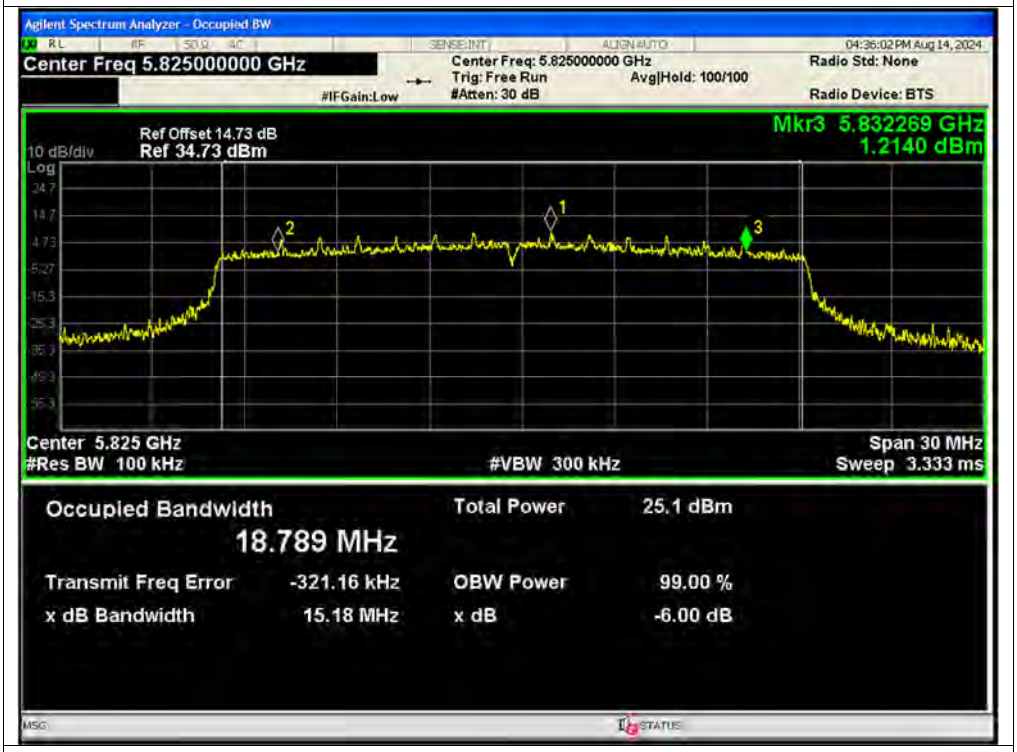
-6dB Bandwidth NVNT ax20 5745MHz Ant3



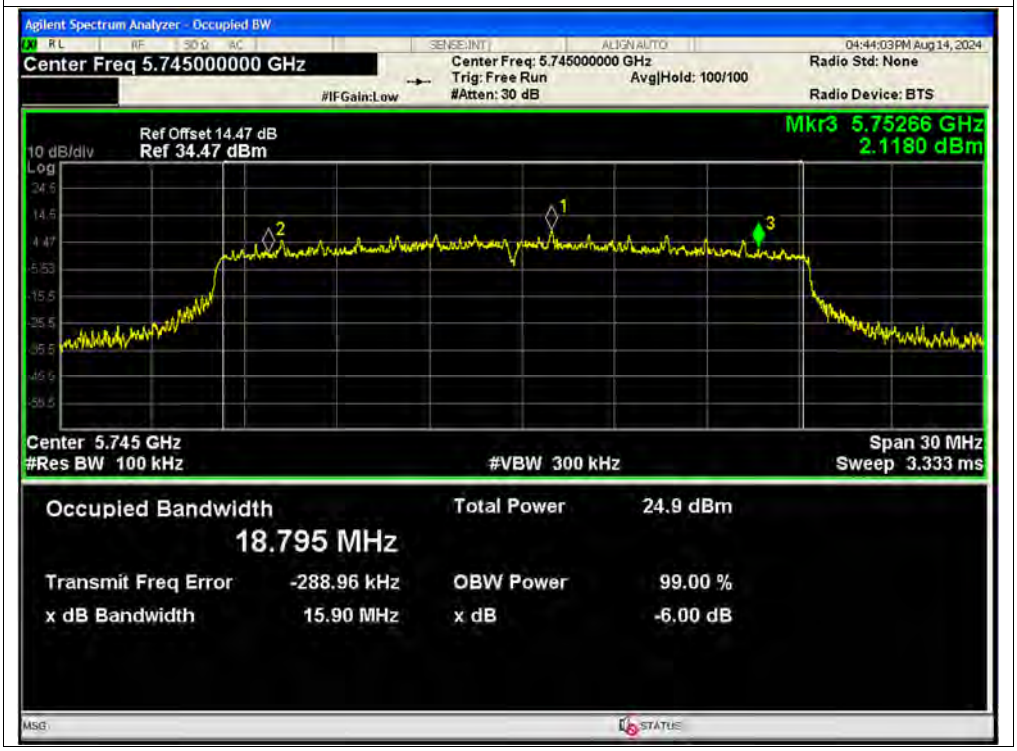
-6dB Bandwidth NVNT ax20 5785MHz Ant3



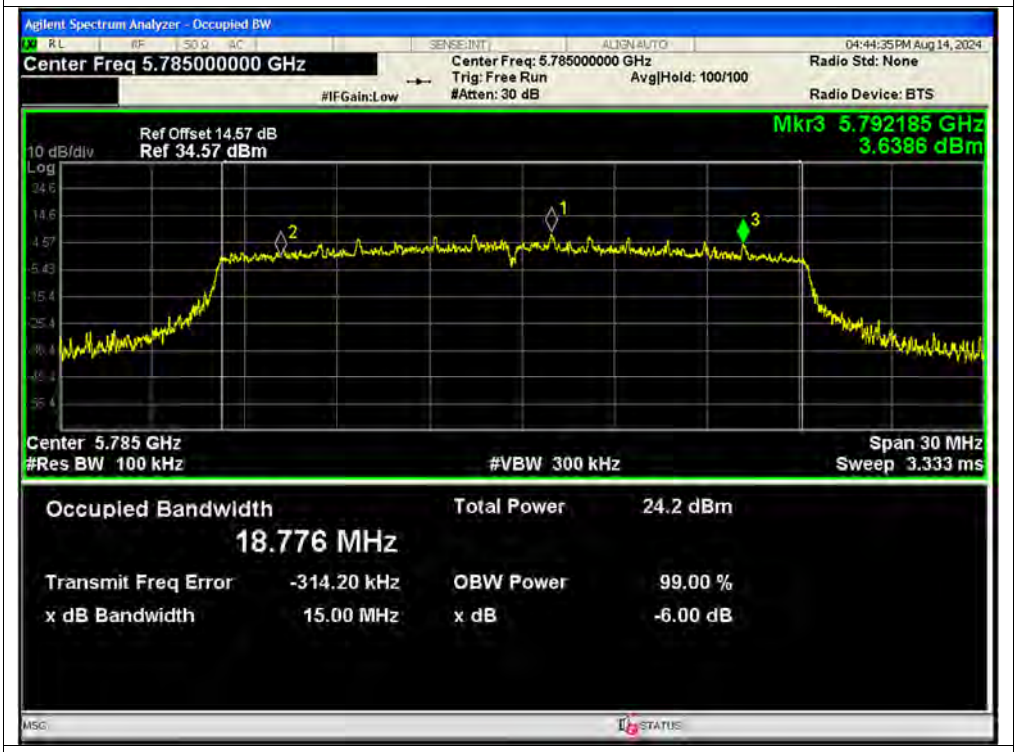
-6dB Bandwidth NVNT ax20 5825MHz Ant3



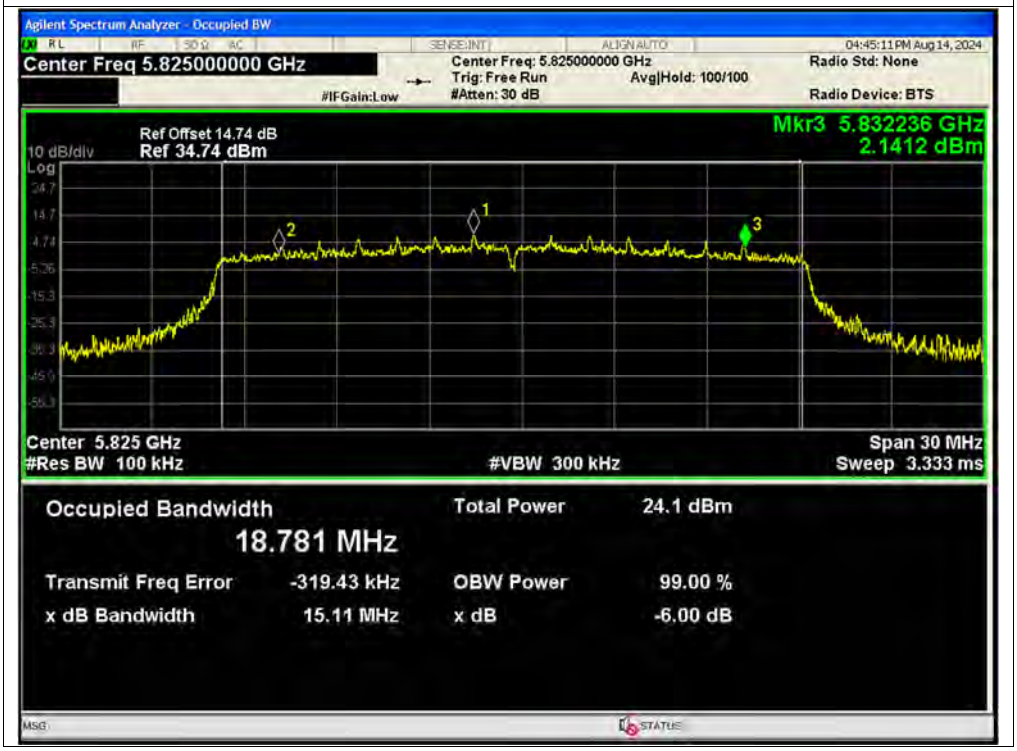
-6dB Bandwidth NVNT ax20 5745MHz Ant4



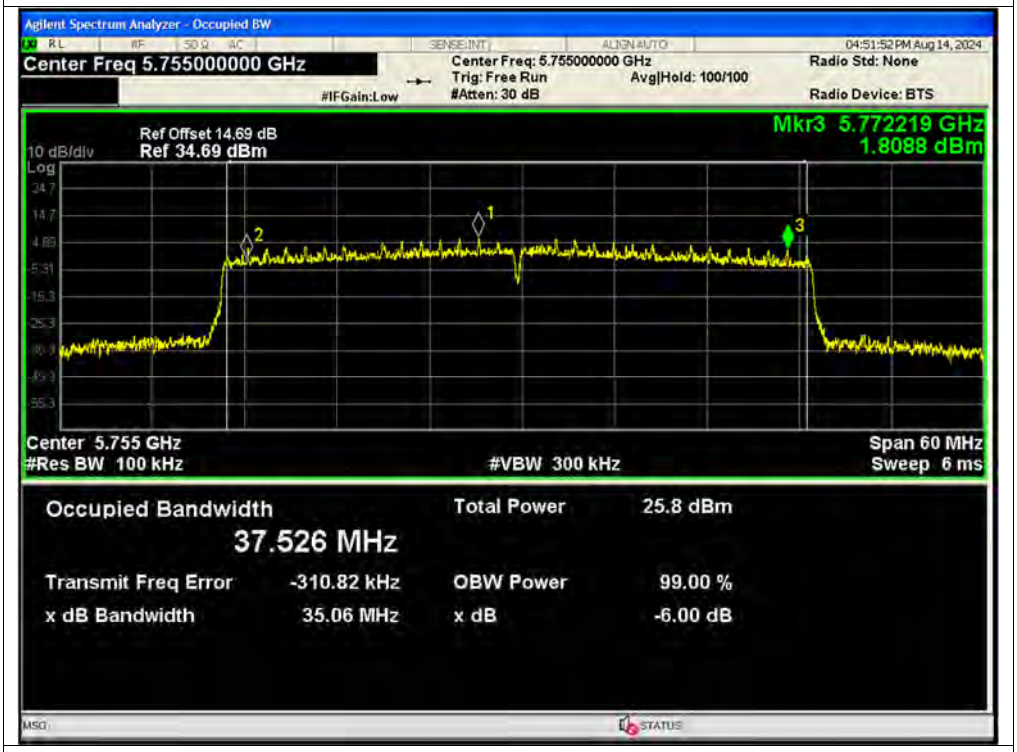
-6dB Bandwidth NVNT ax20 5785MHz Ant4



-6dB Bandwidth NVNT ax20 5825MHz Ant4

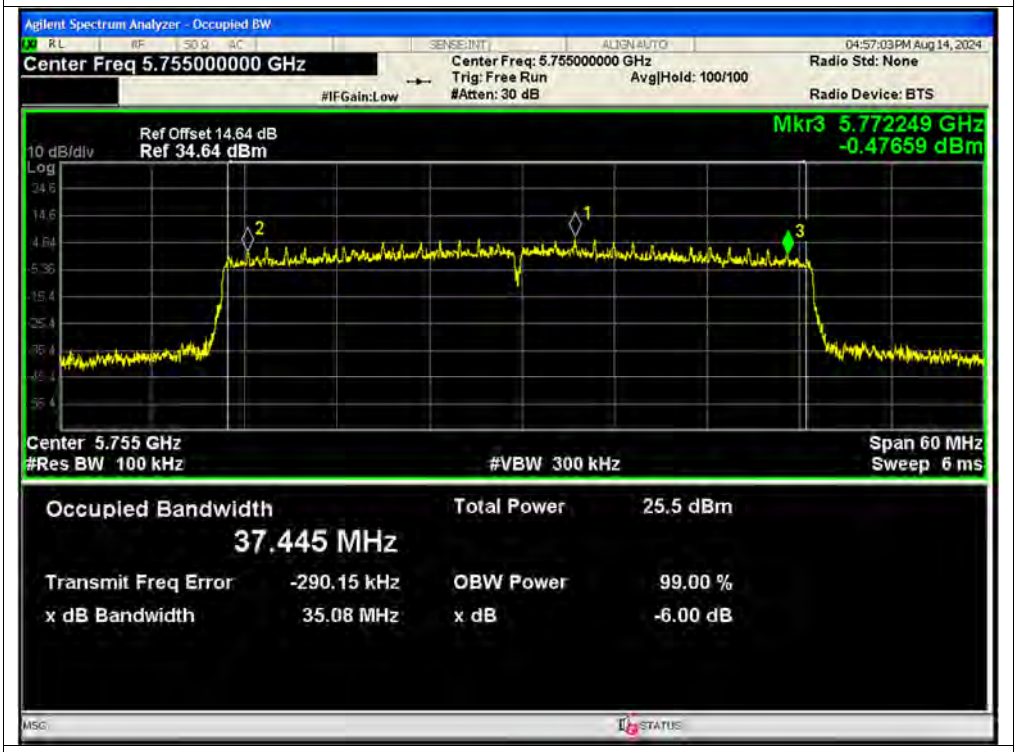


-6dB Bandwidth NVNT ax40 5755MHz Ant1



-6dB Bandwidth NVNT ax40 5795MHz Ant1

-6dB Bandwidth NVNT ax40 5755MHz Ant2



-6dB Bandwidth NVNT ax40 5795MHz Ant2