



TEST REPORT

Applicant: QINGDAO HISTONE INTELLIGENT COMMERCIAL SYSTEM CO., LTD.
Address of Applicant: Wisdom Valley, No.8 Shengshui Road, Laoshan District, Qingdao City, China
Manufacturer: QINGDAO HISTONE INTELLIGENT COMMERCIAL SYSTEM CO., LTD.
Address of Manufacturer: Wisdom Valley, No.8 Shengshui Road, Laoshan District, Qingdao City, China
Product Name: Tablet POS
Model No.: HM638N, HM638, HM638A
Trade Mark: HiStone
FCC ID: 2A397-HM638N
Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407
Date of Test: Mar.05, 2025-Mar.26, 2026
Date of report issued: Mar.27, 2026

Remark:

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The report would be invalid without specific stamp of test institute and the signatures of compiler and approver

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1 Test Summary

Test Item	Section in CFR 47	Result	Test by
Antenna requirement	47CFR part 15.203	Pass	/
AC Power Line Conducted Emission	47CFR part 15.207	Pass	Jason Huang
Conducted Output Power	47CFR part 15.407 (a)(1)/(a)(3)	Pass	Oliver Wang
26dB Bandwidth	47CFR part 15.407 (a)(12)	Pass	Oliver Wang
6dB Bandwidth	47CFR part 15.407 (e)	Pass	Oliver Wang
Power Spectral Density	47CFR part 15.407(a)(1)/(a)(3)	Pass	Oliver Wang
Band Edge	47CFR part 15.407(b)(1)/(b)(4)	Pass	Oliver Wang
Spurious Emission	47CFR part 15.205/15.209 47CFR part 15.407(b)(1)/(b)(4)/(b)(8)	Pass	Leo Zhong
Frequency Stability	47CFR part 15.407(g)	Pass	Oliver Wang

Remarks:

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10-2020+COR.1-2023 KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
3. Note: Compliance determination rules
 - 1).The Compliance determination of test results does not take into account measurement uncertainty. Measurement results are determined based on regulatory limitations or requirements specified by the applicant/manufacture. If measurement uncertainty is taken into account, the applicant/manufacture will bear all possible risks of non-compliance.
 - 2).The measurement uncertainty please refer to each test result in the "Measurement Uncertainty"

1.1 Measurement Uncertainty

Test Item	Measurement Uncertainty	Notes
Occupied Channel Bandwidth	0.72%	(1)
RF output power, conducted	±0.67 dB	(1)
Power Spectral Density, conducted	±0.51 dB	(1)
Unwanted Emissions, conducted	±0.64 dB	(1)
AC Power Line Conducted Emission	± 3.38 dB	(1)
Radiated emissions 9K-30MHz	±4.26 dB	(1)
Radiated emissions 30M- 1GHz	±4.88 dB	(1)
Radiated emissions 1GHz-18GHz	± 4.16 dB	(1)
Radiated emissions 18GHz-40GHz	±4.14 dB	(1)
Frequency error	Uc=6X10 ⁻⁷	(1)
Duty Cycle	0.03	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

2 General Information

2.1 General Description of EUT

Product Name:	Tablet POS
Model No.:	HM638N, HM638, HM638A
Difference of model(s)	All the model are the same circuit and RF module, except the model names and housing colors.
Test Model:	HM638N
Hardware Version:	N/A
Software Version:	N/A
Power supply:	DC 24V from adapter with AC 100-240V or DC 7.7V From Battery
Adapter information:	Model: GM60-240250-F Input: 100-240VAC, 50-60Hz; Output: 24.0VDC 2.5A Model: FSP060-DAAN3 INPUT:100-240VAC, 50-60Hz Output: 24.0VDC 2.5A Model: FSP120-AAAN3 Input: 100-240VAC, 50-60Hz; Output: 24.0VDC 5.0A Model: GQ65PD02-E1 Input: 100-240VAC, 50-60Hz; Output: 20.0VDC 3.25A Model: PA-1650-58 Input: 100-240VAC, 50-60Hz; Output: 20.0VDC 3.25A
Battery:	DC 7.7V 4416mAh
Radio Technology:	5G RLAN
Operation Frequency:	☒ 5180-5240MHz for 802.11a/n20/ac20 5190-5230MHz for 802.11n40/ac40 5210MHz for 802.11ac80 ☒ 5745-5825 MHz for 802.11a/n20/ac20; 5755-5795 MHz for 802.11n40/ac40; 5775MHz for 802.11 ac80
Channel numbers:	☒ 4 channels for 802.11a/n20/ac20 in the 5180-5240MHz band; 2 channels for 802.11 n40/ac40 in the 5190-5230MHz band ; 1 channels for 802.11 ac80 in the 5210MHz band ; ☒ 5 channels for 802.11a/n20/ac20 in the 5745-5825MHz band ; 2 channels for 802.11 n40/ac40 in the 5755-5795MHz band ; 1 channels for 802.11 ac80 in the 5775MHz band
Channel bandwidth:	802.11an20/ ac20 : 20MHz 802.11n40/ac40 : 40MHz 802.11ac80: 80MHz
Modulation technology:	Orthogonal Frequency Division Multiplexing (OFDM) with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM
Antenna Type:	FPC antenna
Antenna gain:	3.11dBi (Note: Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information.)
Note: 1. For more details, refer to the user's manual of the EUT. 2. Antenna information is provided by applicant, Testing lab is not responsible for the accuracy of the information 3. EUTt has two structural differences, mainly whether it has a base: Structure 1: Handheld PAD Structure 2: Handheld PAD+Regular Function Base Structure 3: Handheld PAD+Multi functional Base	

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	38	5190MHz	40	5200MHz	42	5210MHz
44	5220MHz	46	5230MHz	48	5240MHz	/	/
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	151	5755MHz	153	5765MHz	155	5775MHz
157	5785MHz	159	5795MHz	161	5805MHz	/	/
165	5825MHz	/					

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	Frequency (MHz)		
	802.11 a /n20/ac20	802.11 n40/ac40	802.11ac80
Lowest channel	5180	5190	5210
Middle channel	5200	X	
Highest channel	5240		

Test channel	Frequency (MHz)		
	802.11 a /n20/ac20	802.11 n40/ac40	802.11ac80
Lowest channel	5745	5755	5775
Middle channel	5785	X	
Highest channel	5825		



2.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
<i>Remark: For battery operated equipment, the EUT was performed using a new DC 7.7V battery.</i>	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pretest Mode	Description
Mode 1	802.11a / n20/ ac20 CH36/CH40/CH48 802.11a /n 20/ac 20 CH149/CH157/CH165
Mode 2	802.11n 40/ac40 CH38/CH46 802.11n 40/ac40 CH 151/CH159
Mode 3	802.11 ac80 CH 42/CH155
Mode 4	/
Mode 5	Link Mode

Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a / n20/ ac20 CH36/CH40/CH48 802.11a /n 20/ac 20 CH149/CH157/CH165
Mode 2	802.11n 40/ac40 CH38/CH46 802.11n 40/ac40 CH 151/CH159
Mode 3	802.11 ac80 CH 42/CH155
Mode 4	/

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.



2.3 Description of Support Units

No.	Description	Manufacturer	Model	Serial Number
1	MOUSE	DELL	MS116	/
2	KEYBOARD	DELL	KB216T	/

2.4 Test Facility

Test laboratory:	Shenzhen ETR Standard Technology Co., Ltd.
CNAS Registration Number:	L11864
A2LA Certificate Number:	6640.01
FCC Designation Number:	CN1326
FCC Test Firm Registration:	183064
IC Company Number:	28440
IC CAB identifier:	CN0132
Laboratory location:	No.103, No.10, Phase I, Zone 3, Xinxing Industrial Park, Xinhe, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

2.5 Additional Instructions

Test Software	Engineering Mode
Power level setup	Default



3 Test Instruments list

Conducted Emission

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI3	102696	2026.3.05	2027.3.04
2	Artificial power network	schwarabeck	NSLK8127	8127483	2026.3.05	2027.3.04
3	Artificial power network	ETS	3186/2NM	1132	2026.3.05	2027.3.04
4	10dB attenuator	HUBER+SUHNER	10dB	/	2026.3.05	2027.3.04
5	Cable 4	HUBER SUNNER	3M	/	2026.3.05	2027.3.04
6	Absorbing Clamp	schwarabeck	MDS21	D69250	2025.3.06	2026.3.05

Radiated Emission & RF Conducted test:

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	101032	2026.3.05	2027.3.04
2	Broadband antenna	schwarabeck	VULB9168	1064	2026.3.11	2028.3.10
3	Horn antenna	schwarabeck	BBHA9120D	9120D-1145	2026.3.08	2028.3.07
4	Amplifier	EMtrace	RP01A	50117	2026.3.05	2027.3.04
5	Amplifier	Space-Dtronics	EWLAN0118G-P40	19113001	2026.3.05	2027.3.04
6	Spectrum analyzer	KEYSIGHT	N9020A	MY55370280	2026.3.05	2027.3.04
7	Power detector meter	MWRFTtest	MW100-PSB	MW201020JYT	2026.3.05	2027.3.04
8	Signal generator	Agilent	N5182A	MY49060455	2026.3.05	2027.3.04
9	Spectrum analyzer	Rohde&schwarz	FSV-40N	102137	2026.3.05	2027.3.04
10	Amplifier	SKET	LNPA_1840-50	SK2019040302	2026.3.05	2027.3.04
11	Horn antenna	schwarabeck	BBHA 9170	946	2026.3.08	2028.3.07
12	Loop antenna	schwarabeck	FMZB 1519 B	128	2026.3.08	2028.3.07
13	Cable 6	HUBER SUNNER	0.5M	/	2026.3.05	2027.3.04
14	Cable7	HUBER SUNNER	2.0M	/	2026.3.05	2027.3.04
15	Cable8	HUBER SUNNER	6.0M	/	2026.3.05	2027.3.04
16	Filter	Xin bo	XBLBQ-GTA29	210410-3-2	2026.3.05	2027.3.04
17	Power Sensor	Keysight	U2021XA	MY54111006	2026.3.05	2027.3.04
18	Temp. & Humidity Chamber	Jiecheng Instrument	QA-LP-80	20160705001	2026/3/06	2027/3/05

Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).

Software Name	Manufacturer	Model	Version
RF test software	MWRFTtest	MTS 8310	V2.0.0.0
Conducted test software	EZ-EMC	Farad	Ver.EMC-CON 3A1.1
Radiated test software	EZ-EMC	Farad	Ver.FA-03A2 RE

4 Test results and Measurement Data

4.1 Antenna requirement

Standard requirement:	47CFR Part 15.203
<i>15.203 requirement:</i> <i>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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i>	
E.U.T Antenna:	
The antenna is FPC antenna, the best case gain of the antenna is 3.11dBi, reference to the ET-26030668IP for details.	

4.2 Conducted Emissions

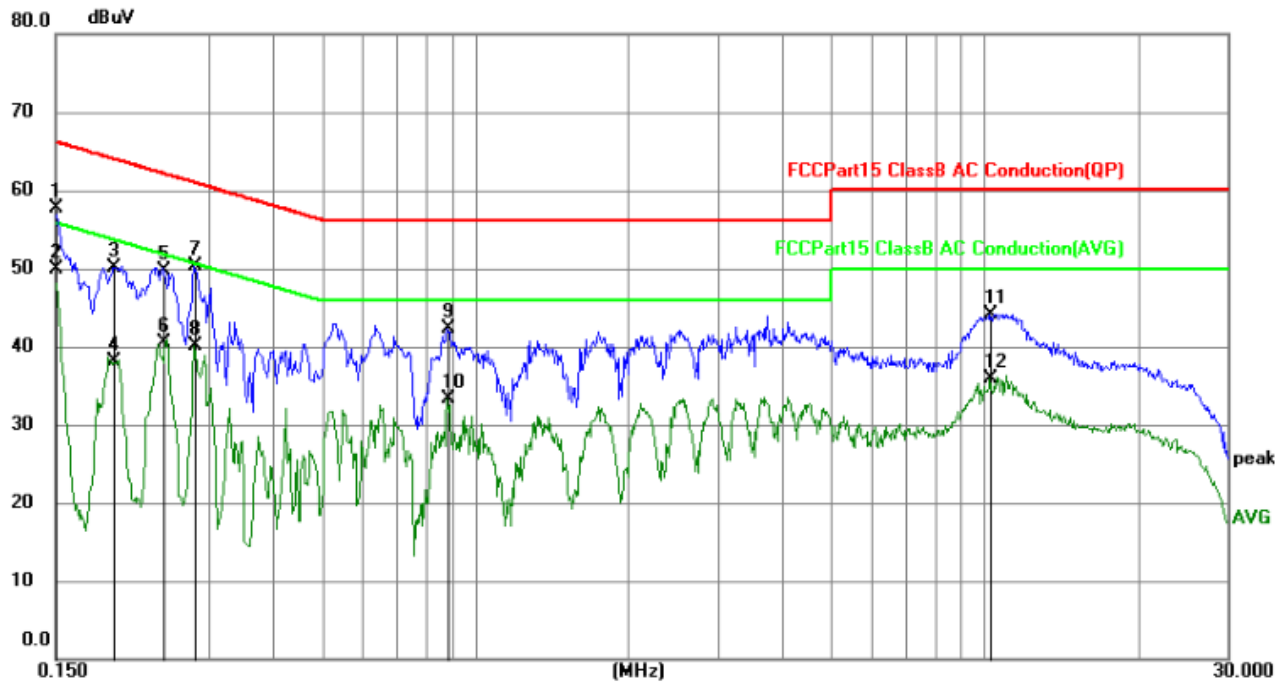
Test Requirement:	47CFR Part 15.207						
Test Method:	ANSI C63.10-2020+COR.1-2023 §6.2						
Test Frequency Range:	150KHz to 30MHz						
Class / Severity:	Class B						
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto						
Limit:	Frequency range (MHz)		Limit (dBuV)				
			Quasi-peak		Average		
	0.15-0.5		66 to 56*		56 to 46*		
	0.5-5		56		46		
	5-30		60		50		
* Decreases with the logarithm of the frequency.							
Test setup:	Reference Plane <i>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network</i>						
Test procedure:	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10-2020+COR.1-2023 on conducted measurement.						
Test Instruments:	Refer to section 3.0 for details						
Test mode:	Refer to section 2.2 for details						
Test environment:	Temp.:	24.4°C	Humid.:	41%	Press.:	1012mbar	
Test voltage:	AC 120V 60Hz						
Test results:	Pass						

Remark:

1. Both high voltage and low voltage have been tested, and the report only shows the worst case data with AC 120V/60Hz.
- 2..All adapters were tested, and found the Model: GM60-240250-F had the worst test data, and only show the worst case data in the report

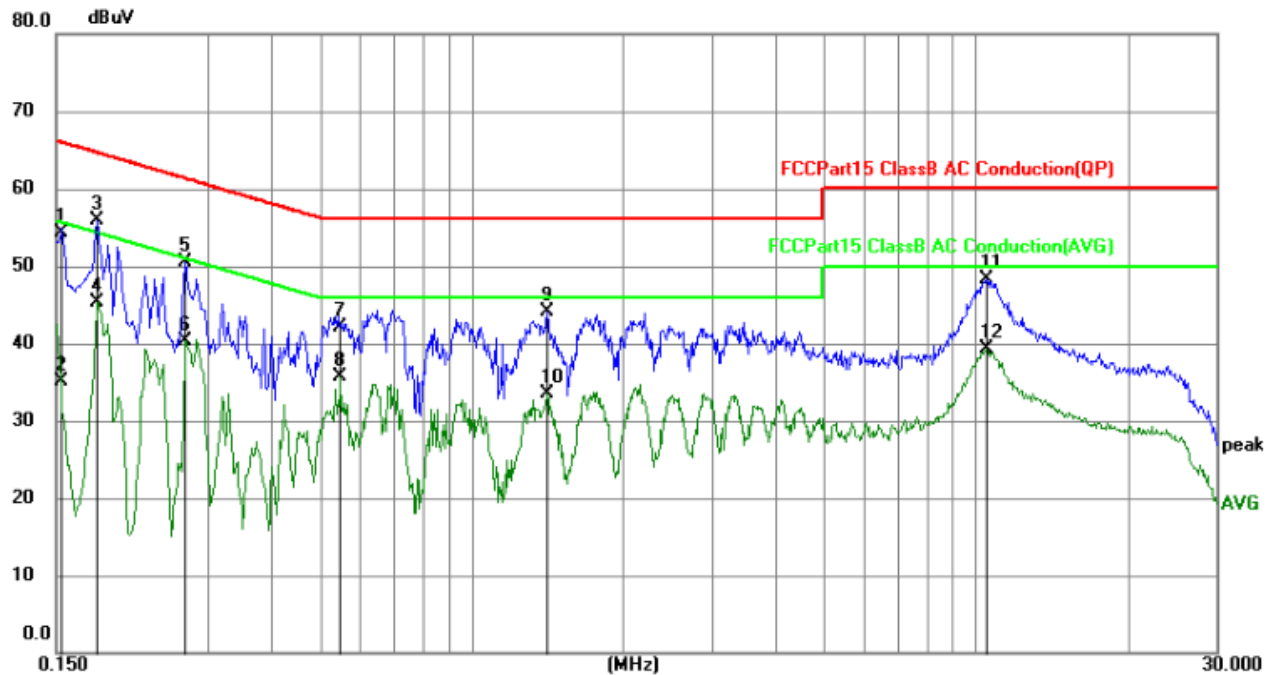
Measurement Result

Line:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	47.95	9.80	57.75	66.00	-8.25	QP
2	0.1500	40.12	9.80	49.92	56.00	-6.08	AVG
3	0.1949	40.35	9.81	50.16	63.83	-13.67	QP
4	0.1949	28.27	9.81	38.08	53.83	-15.75	AVG
5	0.2444	39.98	9.82	49.80	61.95	-12.15	QP
6	0.2444	30.76	9.82	40.58	51.95	-11.37	AVG
7	0.2805	40.56	9.84	50.40	60.80	-10.40	QP
8	0.2805	30.35	9.84	40.19	50.80	-10.61	AVG
9	0.8831	32.41	9.96	42.37	56.00	-13.63	QP
10	0.8831	23.30	9.96	33.26	46.00	-12.74	AVG
11	10.2432	34.27	9.84	44.11	60.00	-15.89	QP
12	10.2432	25.99	9.84	35.83	50.00	-14.17	AVG

Neutral:

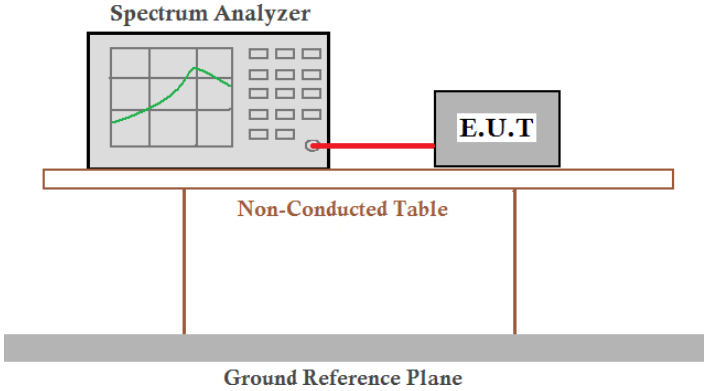


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1532	44.59	9.80	54.39	65.82	-11.43	QP
2	0.1532	25.28	9.80	35.08	55.82	-20.74	AVG
3	0.1804	46.18	9.81	55.99	64.47	-8.48	QP
4	0.1804	35.41	9.81	45.22	54.47	-9.25	AVG
5	0.2700	40.73	9.83	50.56	61.12	-10.56	QP
6	0.2700	30.38	9.83	40.21	51.12	-10.91	AVG
7	0.5463	32.08	9.94	42.02	56.00	-13.98	QP
8	0.5463	25.86	9.94	35.80	46.00	-10.20	AVG
9	1.4106	34.29	9.91	44.20	56.00	-11.80	QP
10	1.4106	23.52	9.91	33.43	46.00	-12.57	AVG
11	10.5077	38.38	9.83	48.21	60.00	-11.79	QP
12	10.5077	29.52	9.83	39.35	50.00	-10.65	AVG

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

4.3 Duty cycle

Test Method :	ANSI C63.10-2020+COR.1-2023§ 12.2	
Limit:	/	
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	



Measurement Result

5180-5240MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	100	0
TX 802.11n20 Mode	100	0
TX 802.11ac20 Mode	100	0
TX 802.11n40 Mode	100	0
TX 802.11ac40 Mode	100	0
TX 802.11ac80 Mode	100	0

5745-5825 MHz

Mode	Duty cycle (%)	Correction Factor (dB)
TX 802.11a Mode	100	0
TX 802.11n20 Mode	100	0
TX 802.11ac20 Mode	100	0
TX 802.11n40 Mode	100	0
TX 802.11ac40 Mode	100	0
TX 802.11ac80 Mode	100	0

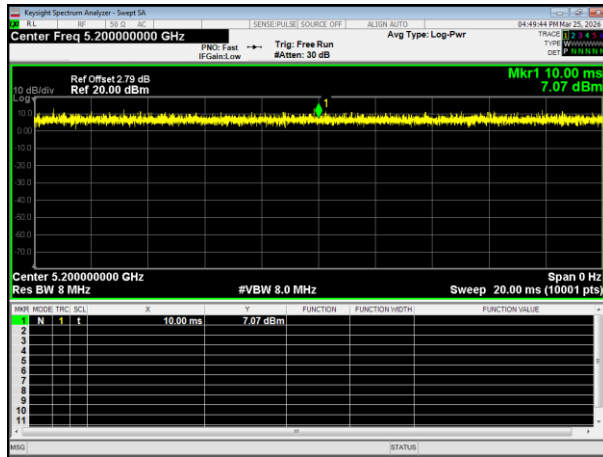
Note: Duty cycle factor (dB) = $10 * \log (1 / \text{Duty cycle})$



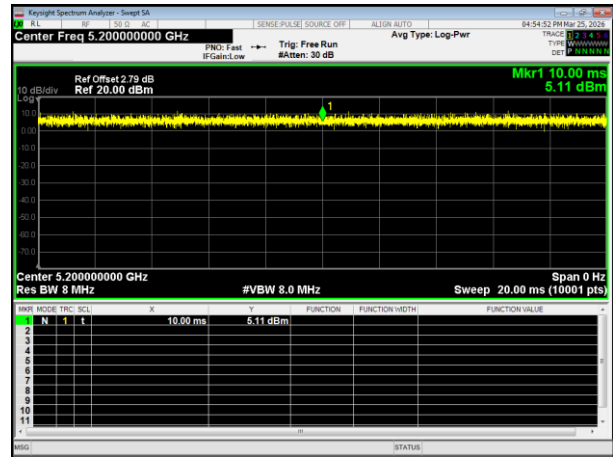
Test plot

5180-5240MHz

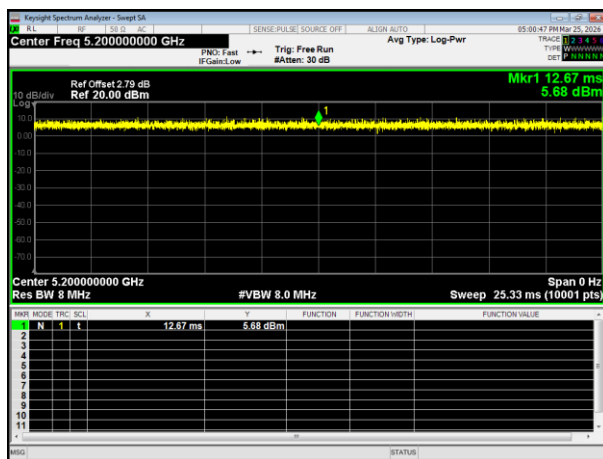
(802.11a) plot



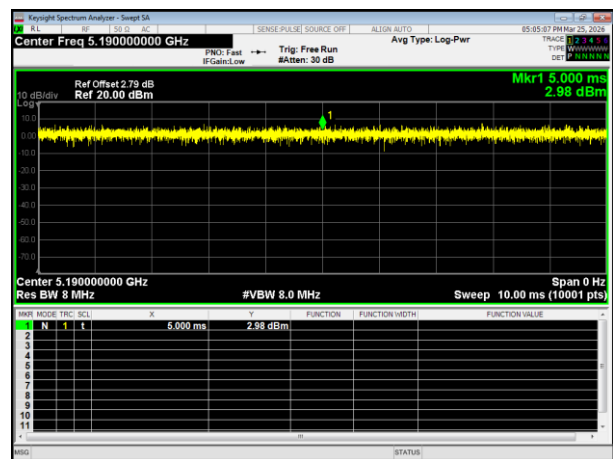
(802.11 n20) plot



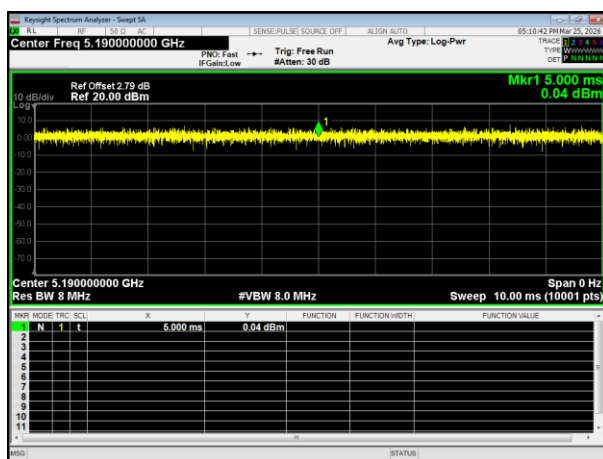
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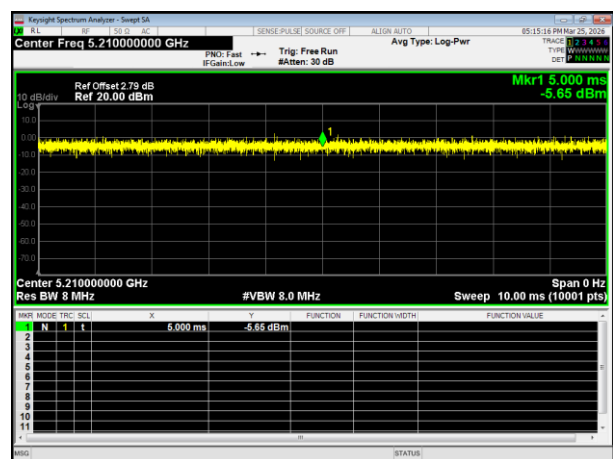
(802.11 n40) plot



(802.11ac40) plot



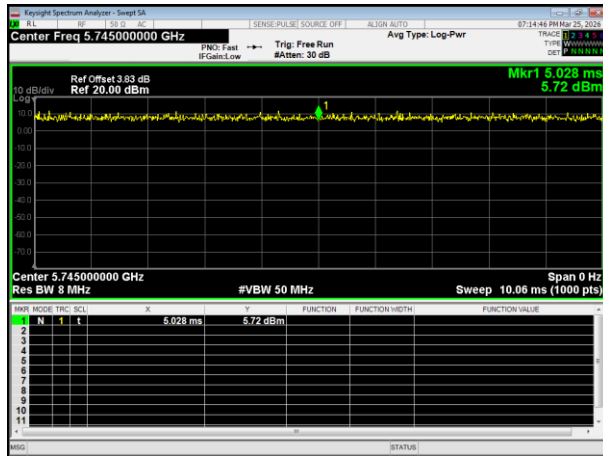
(802.11ac80) plot



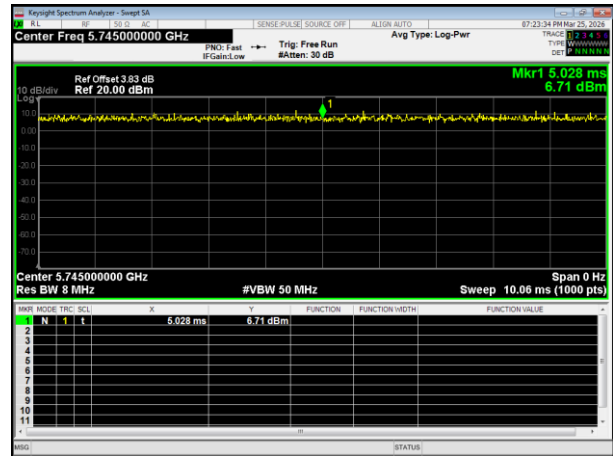


5745-5825 MHz

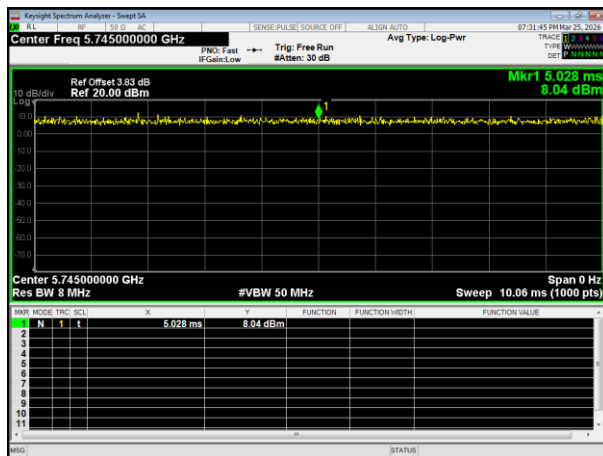
(802.11a) plot



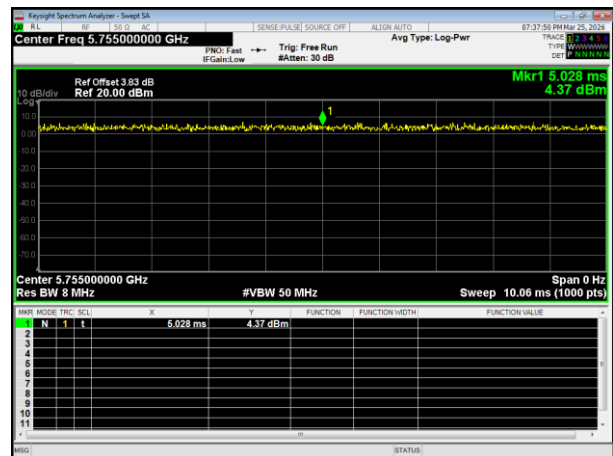
(802.11 n20) plot



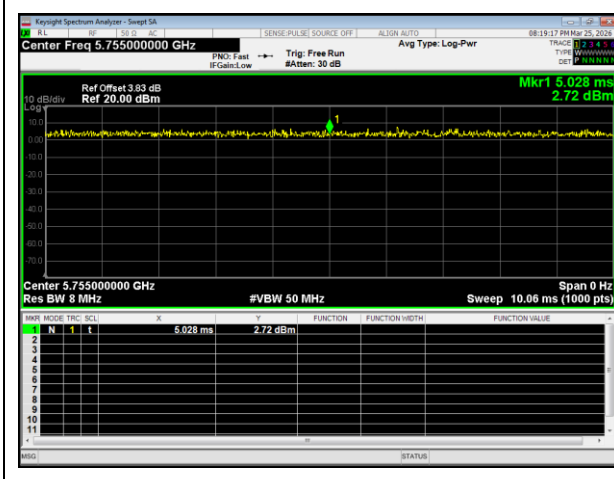
(802.11ac20) plot



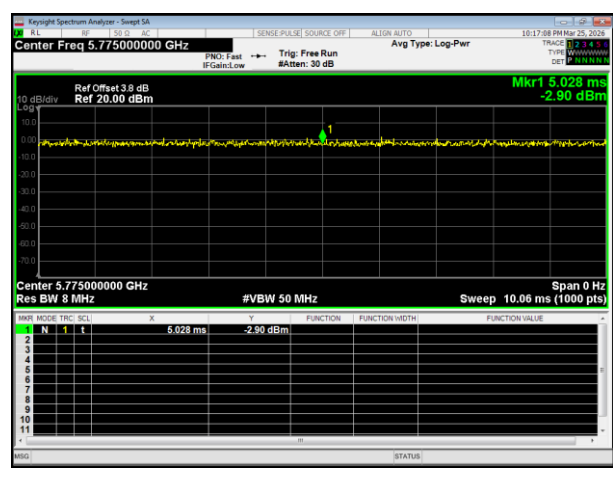
(802.11 n40) plot



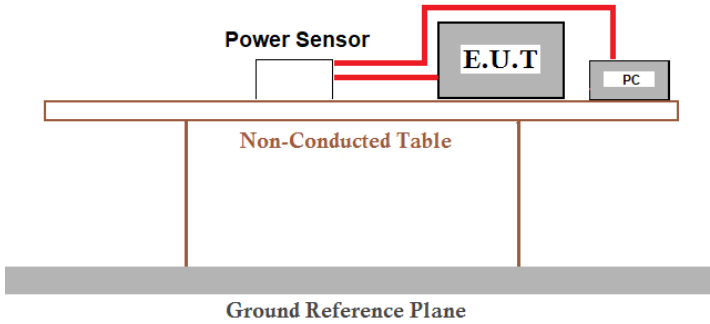
(802.11ac40) plot



(802.11ac80) plot



4.4 Conducted Output Power

Test Requirement:	47CFR Part 15.407 (a)(1)/(a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 ANSI C63.10-2020+COR.1-2023 § 12.4.3.1	
Limit:	5150-5250MHz : 250mW 5725~5850MHz : 1W	
Test setup:	 The diagram illustrates the test setup. A 'Power Sensor' is connected via red lines to an 'E.U.T.' (Equipment Under Test) and a 'PC'. These components are placed on a 'Non-Conducted Table'. The table is supported by a 'Ground Reference Plane'.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	



Measurement Result

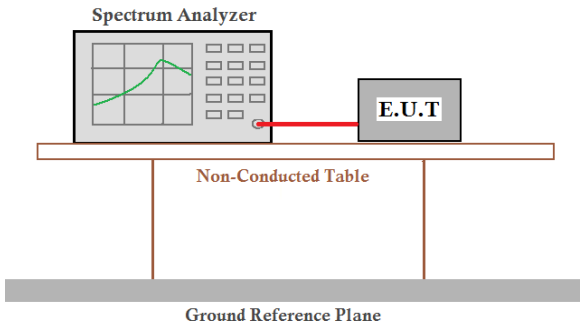
5180-5240MHz

Test Mode	Test Channel	Frequency	Correction Factor	Output power	Total Power	Result
		(MHz)	(dB)	(dBm)	(dBm)	
802.11a	CH36	5180	0	7.42	7.42	Pass
	CH40	5200	0	7.63	7.63	Pass
	CH48	5240	0	7.66	7.66	Pass
802.11n20	CH36	5180	0	7.23	7.23	Pass
	CH40	5200	0	7.37	7.37	Pass
	CH48	5240	0	7.33	7.33	Pass
802.11ac20	CH36	5180	0	7.27	7.27	Pass
	CH40	5200	0	7.40	7.40	Pass
	CH48	5240	0	7.22	7.22	Pass
802.11n40	CH38	5190	0	6.63	6.63	Pass
	CH46	5230	0	6.65	6.65	Pass
802.11ac40	CH38	5190	0	6.52	6.52	Pass
	CH46	5230	0	6.60	6.60	Pass
802.11ac80	CH42	5210	0	5.35	5.35	Pass

5745-5825 MHz

Test Mode	Test Channel	Frequency	Correction Factor	Output power	Total Power	Result
		(MHz)	(dB)	(dBm)	(dBm)	
802.11a	CH149	5745	0	7.39	7.39	Pass
	CH157	5785	0	7.31	7.31	Pass
	CH165	5825	0	7.46	7.46	Pass
802.11n20	CH149	5745	0	7.20	7.20	Pass
	CH157	5785	0	7.41	7.41	Pass
	CH165	5825	0	7.38	7.38	Pass
802.11ac20	CH149	5745	0	7.71	7.71	Pass
	CH157	5785	0	7.17	7.17	Pass
	CH165	5825	0	7.24	7.24	Pass
802.11n40	CH151	5755	0	6.44	6.44	Pass
	CH159	5795	0	6.22	6.22	Pass
802.11ac40	CH151	5755	0	6.31	6.31	Pass
	CH159	5795	0	6.60	6.60	Pass
802.11ac80	CH42	5210	0	5.74	5.74	Pass

4.5 Occupancy Bandwidth

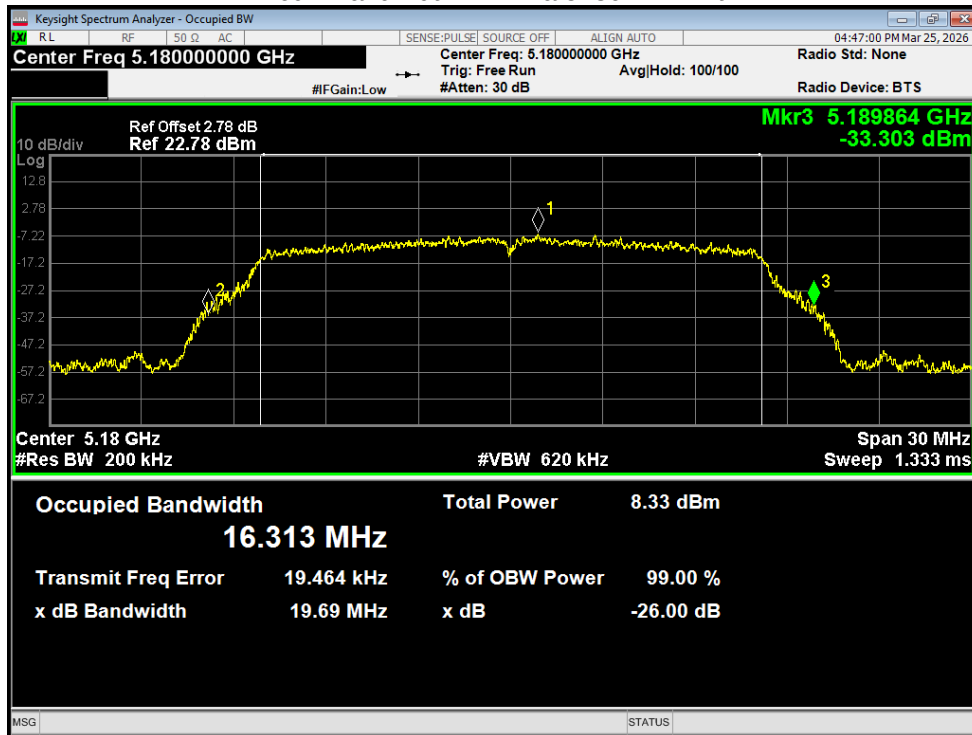
Test Requirement:	47CFR Part 15.407(a)(12)&15.407(e),	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10-2020+COR.1-2023§12.5	
Limit:	Measurements in the 5.725-5.85 GHz band, the minimum bandwidth 6 dB bandwidth of U-NII devices shall be at least 500KHz. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.	
Test setup:		
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	

Measurement Result

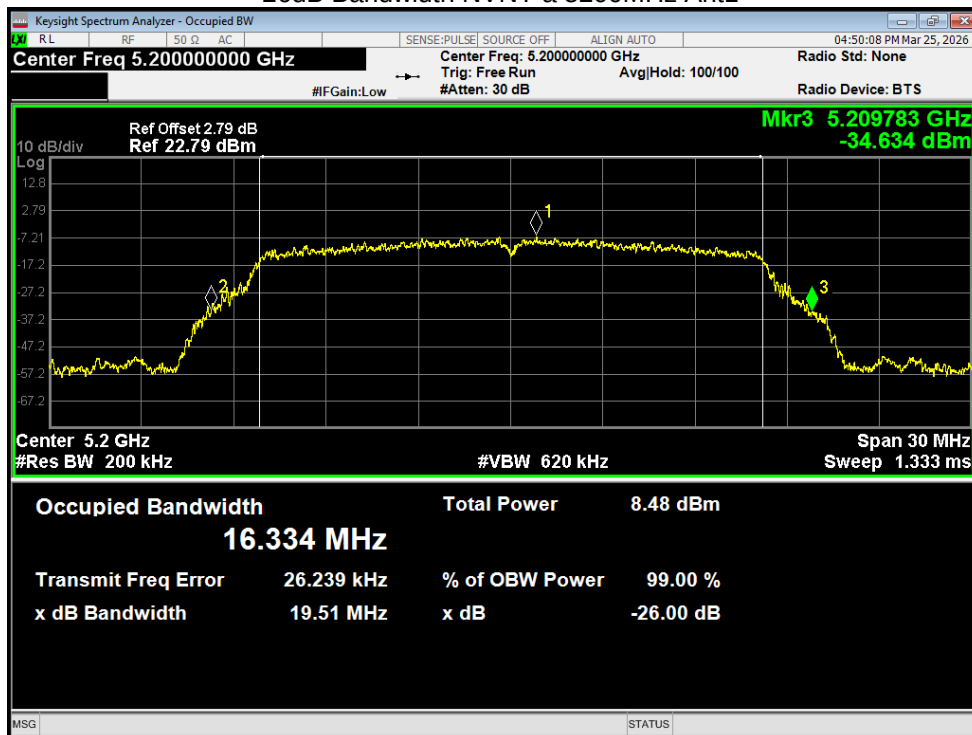
5180-5240MHz

Condition	Mode	Frequency (MHz)	-26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	19.69	Pass
NVNT	a	5200	19.51	Pass
NVNT	a	5240	19.63	Pass
NVNT	n20	5180	19.85	Pass
NVNT	n20	5200	19.95	Pass
NVNT	n20	5240	19.88	Pass
NVNT	n40	5190	39.92	Pass
NVNT	n40	5230	40.11	Pass
NVNT	ac20	5180	19.91	Pass
NVNT	ac20	5200	20.10	Pass
NVNT	ac20	5240	19.89	Pass
NVNT	ac40	5190	40.05	Pass
NVNT	ac40	5230	40.38	Pass
NVNT	ac80	5210	79.88	Pass

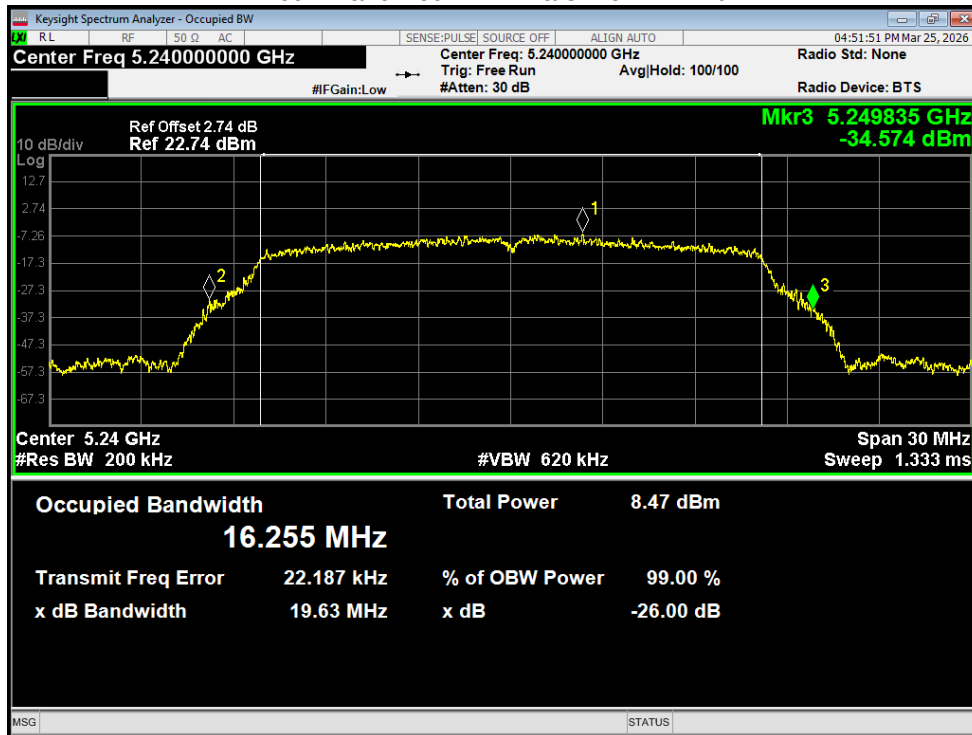
-26dB Bandwidth NVNT a 5180MHz Ant1



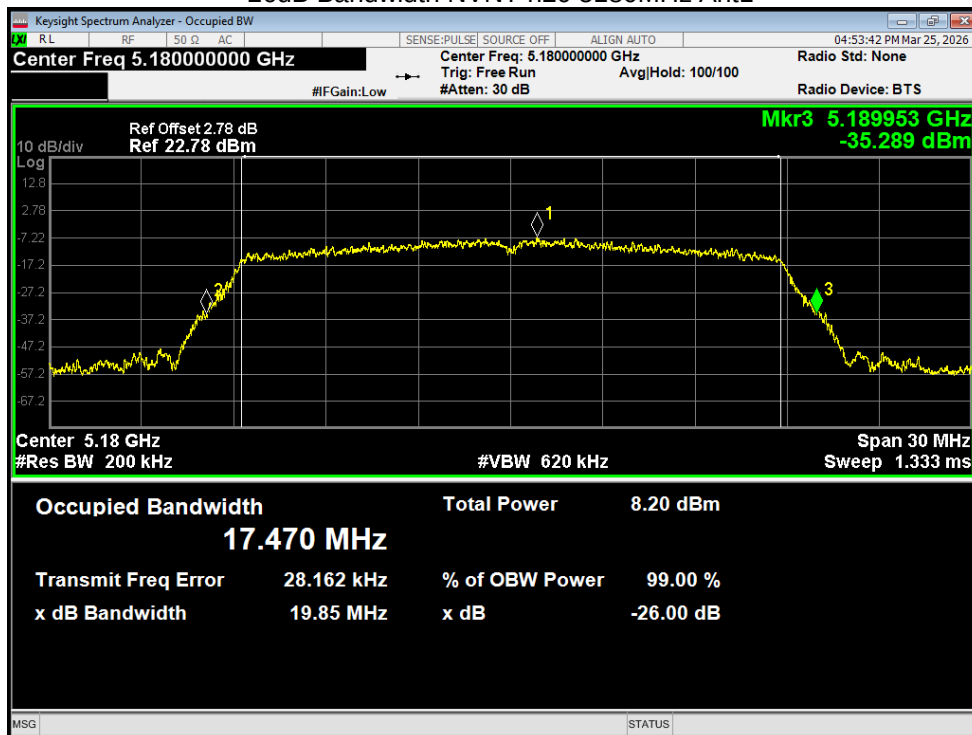
-26dB Bandwidth NVNT a 5200MHz Ant1



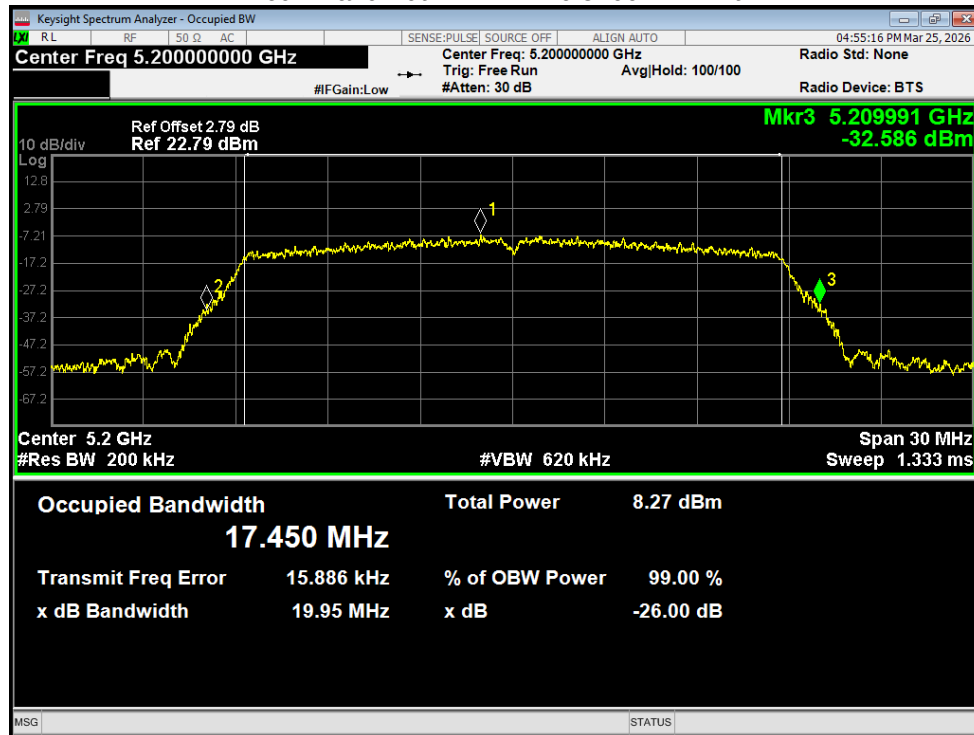
-26dB Bandwidth NVNT a 5240MHz Ant1



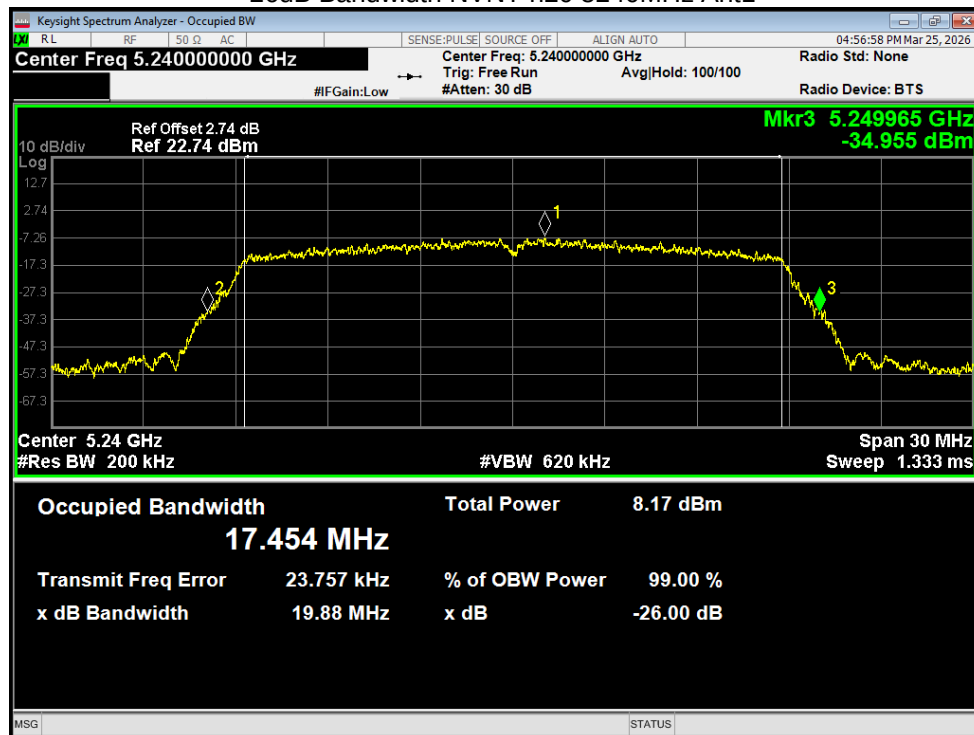
-26dB Bandwidth NVNT n20 5180MHz Ant1



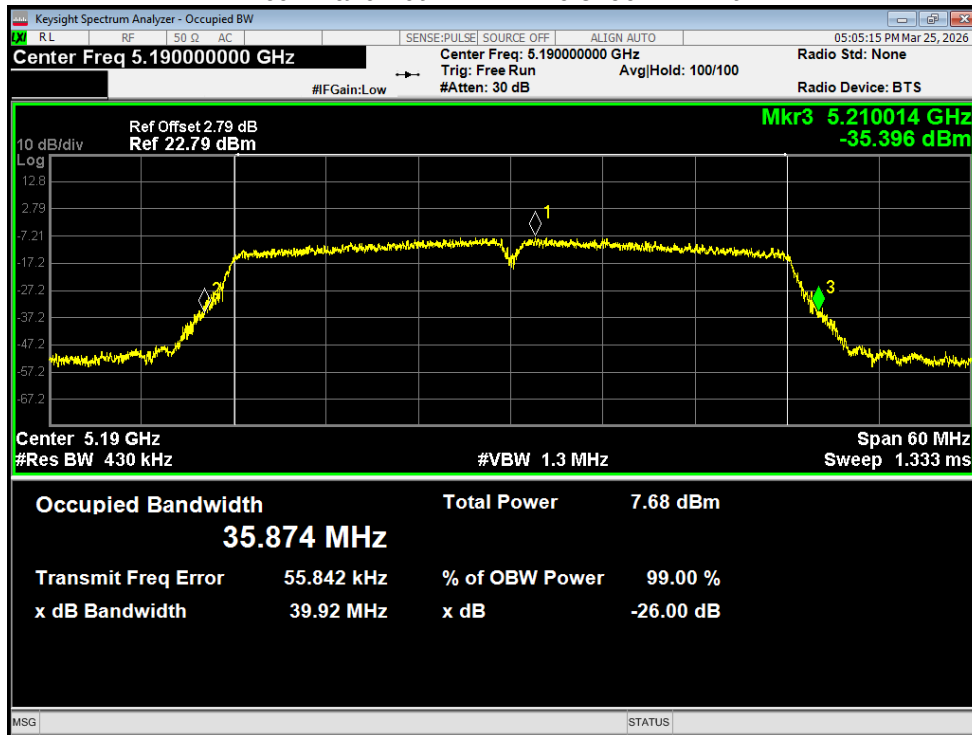
-26dB Bandwidth NVNT n20 5200MHz Ant1



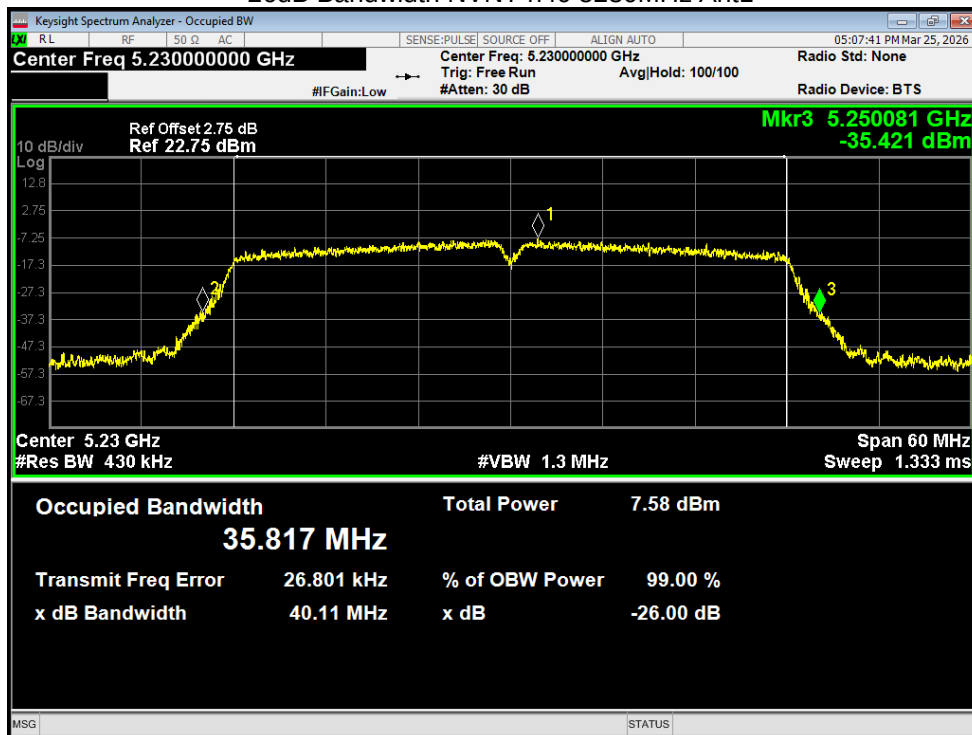
-26dB Bandwidth NVNT n20 5240MHz Ant1



-26dB Bandwidth NVNT n40 5190MHz Ant1

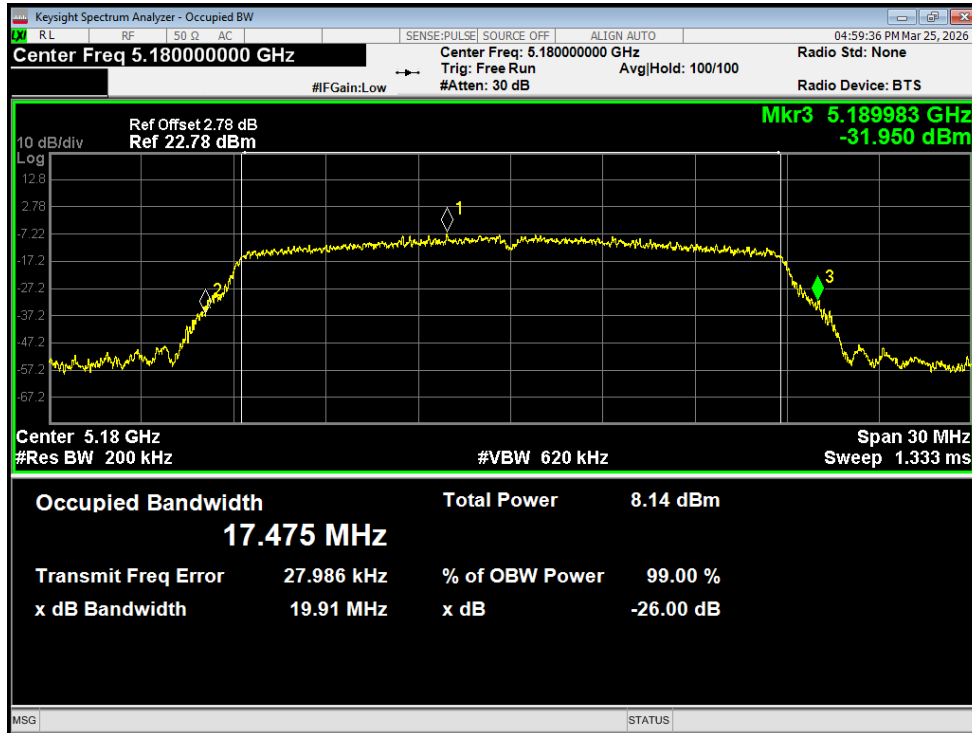


-26dB Bandwidth NVNT n40 5230MHz Ant1

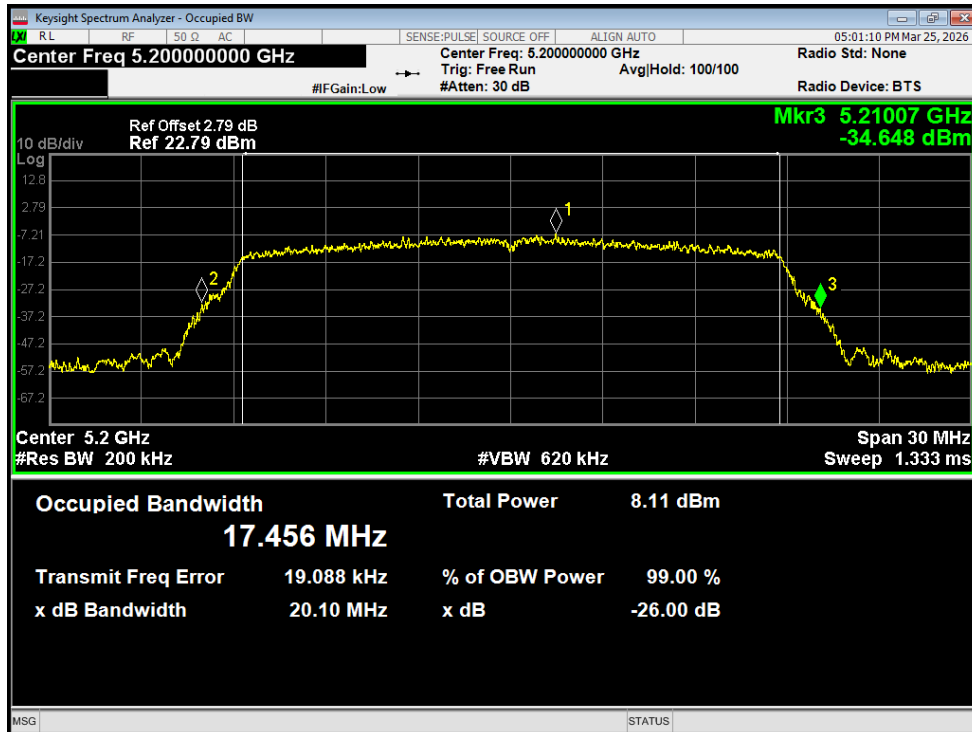




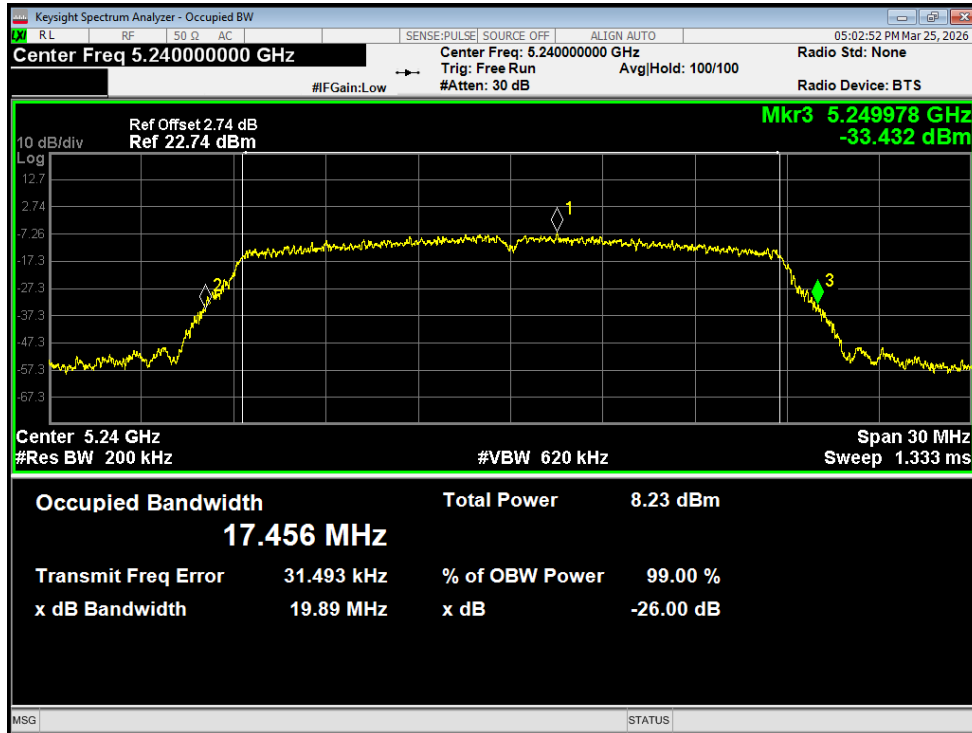
-26dB Bandwidth NVNT ac20 5180MHz Ant1



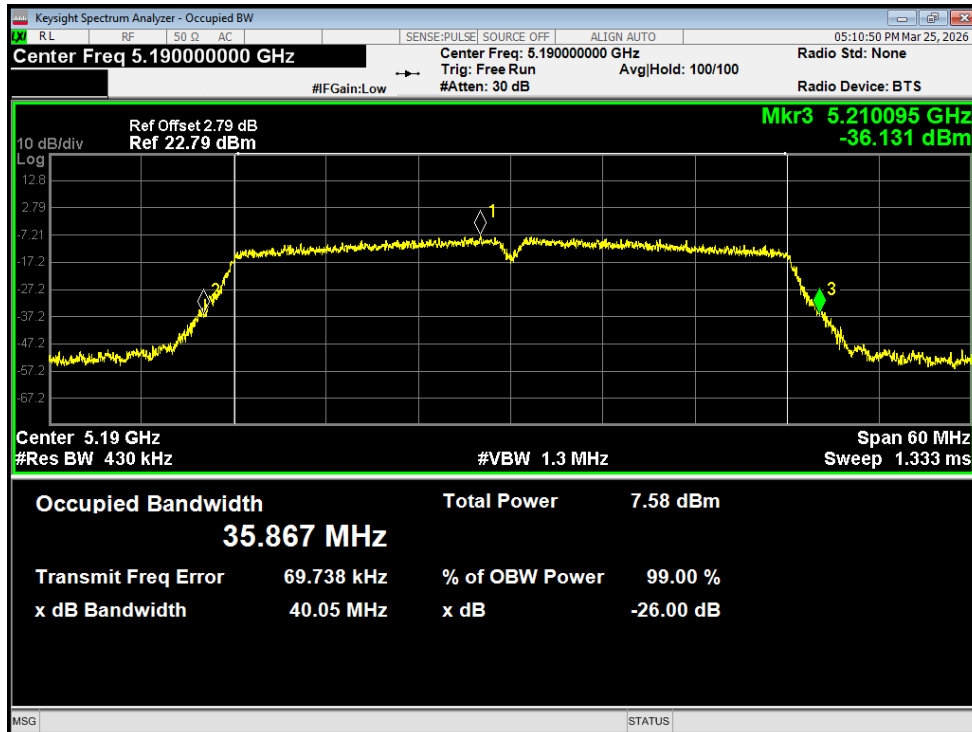
-26dB Bandwidth NVNT ac20 5200MHz Ant1



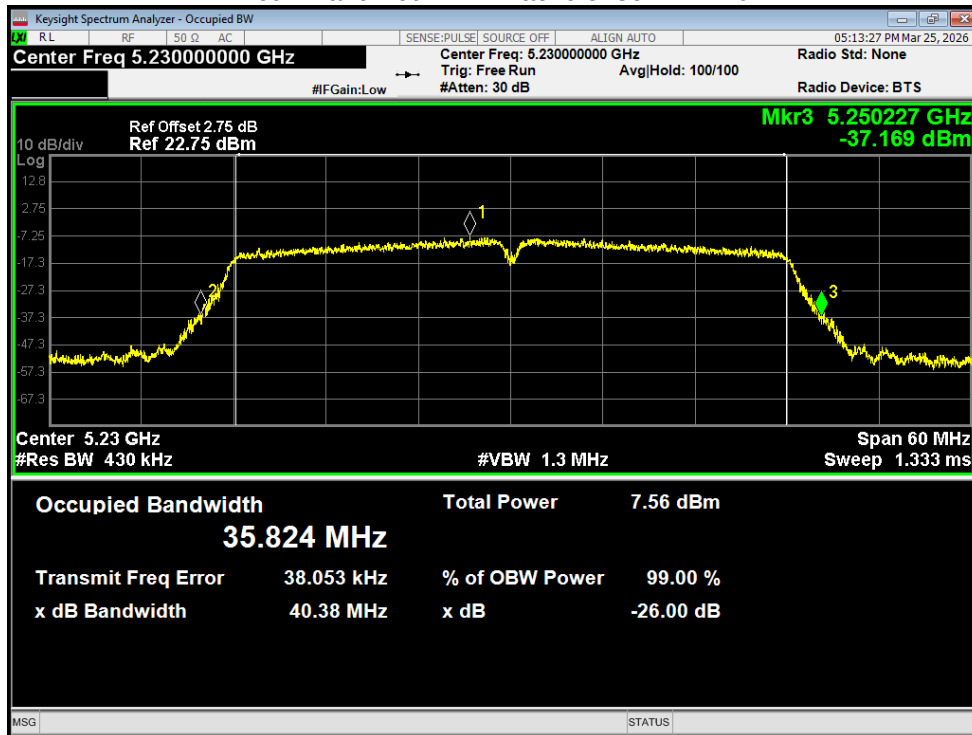
-26dB Bandwidth NVNT ac20 5240MHz Ant1



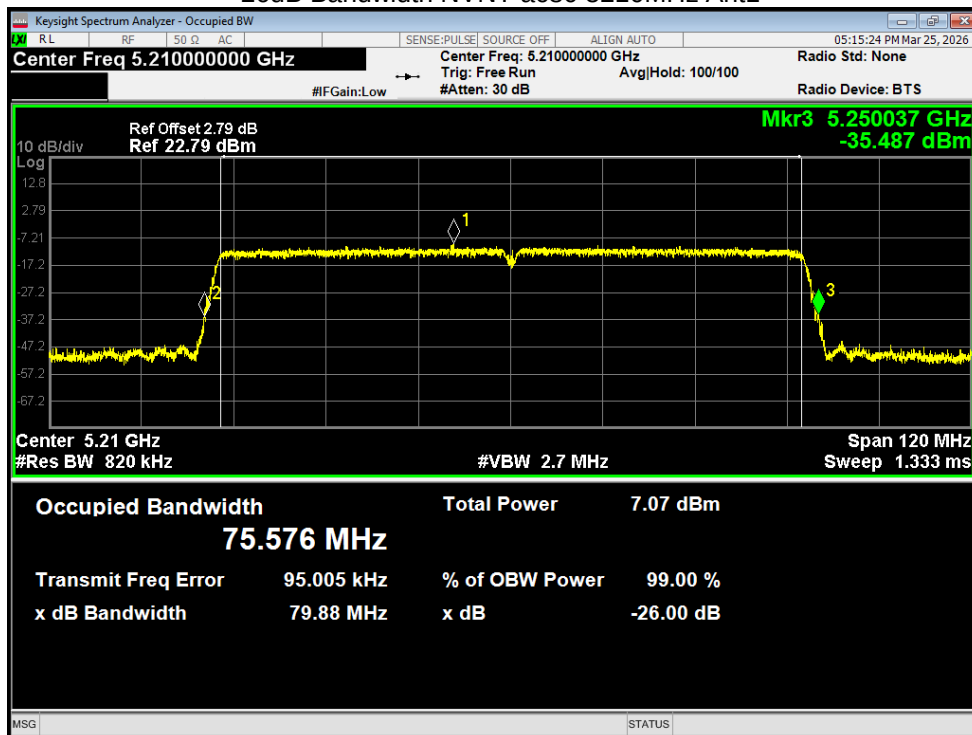
-26dB Bandwidth NVNT ac40 5190MHz Ant1



-26dB Bandwidth NVNT ac40 5230MHz Ant1



-26dB Bandwidth NVNT ac80 5210MHz Ant1

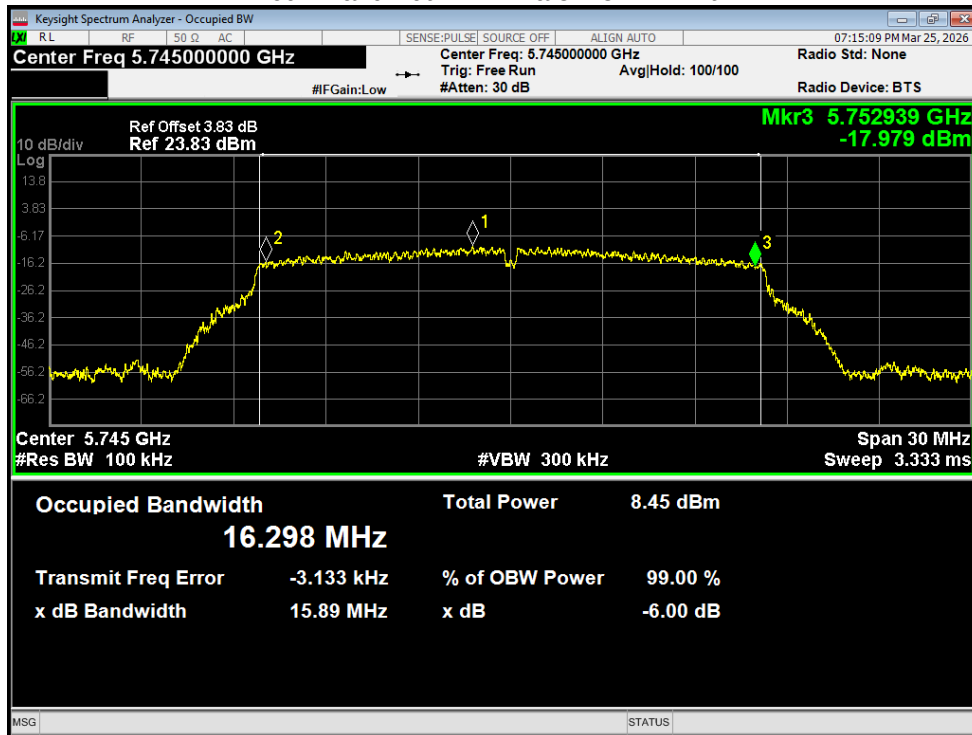




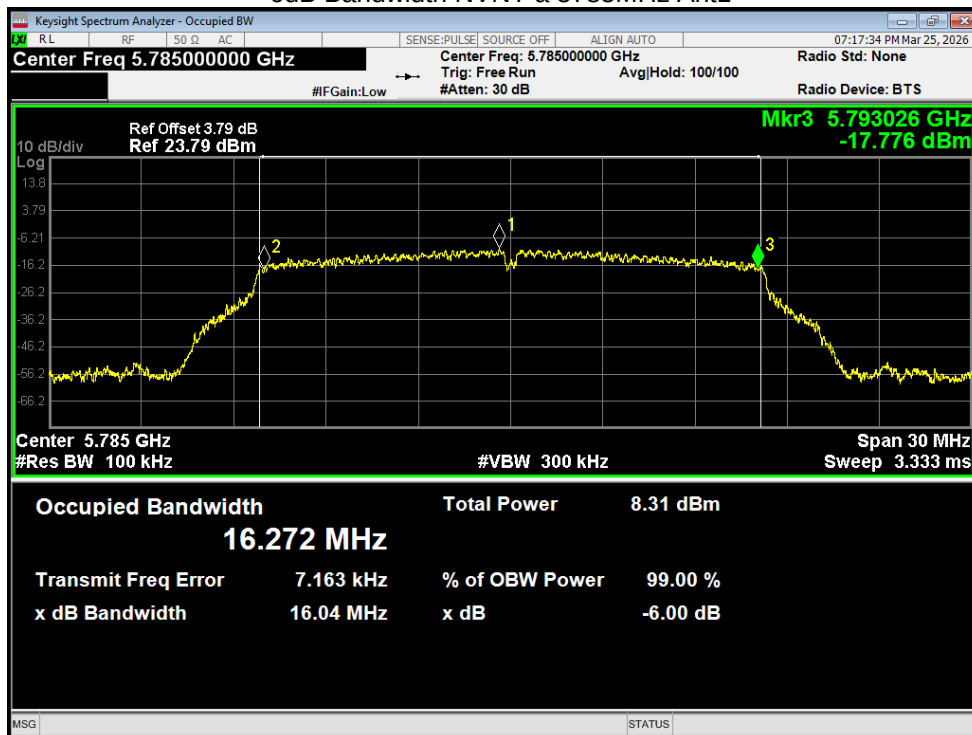
5745-5825MHz

Condition	Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	15.89	0.5	Pass
NVNT	a	5785	16.04	0.5	Pass
NVNT	a	5825	15.78	0.5	Pass
NVNT	n20	5745	16.27	0.5	Pass
NVNT	n20	5785	16.40	0.5	Pass
NVNT	n20	5825	15.63	0.5	Pass
NVNT	n40	5755	35.60	0.5	Pass
NVNT	n40	5795	35.65	0.5	Pass
NVNT	ac20	5745	15.81	0.5	Pass
NVNT	ac20	5785	16.28	0.5	Pass
NVNT	ac20	5825	16.55	0.5	Pass
NVNT	ac40	5755	34.70	0.5	Pass
NVNT	ac40	5795	33.77	0.5	Pass
NVNT	ac80	5775	76.48	0.5	Pass

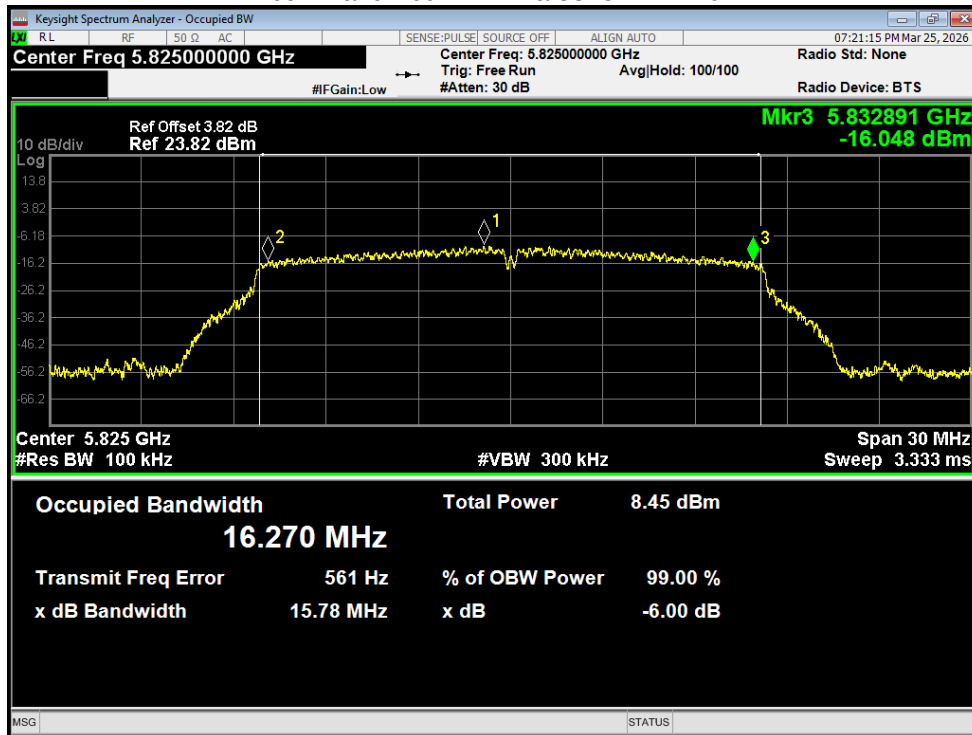
-6dB Bandwidth NVNT a 5745MHz Ant1



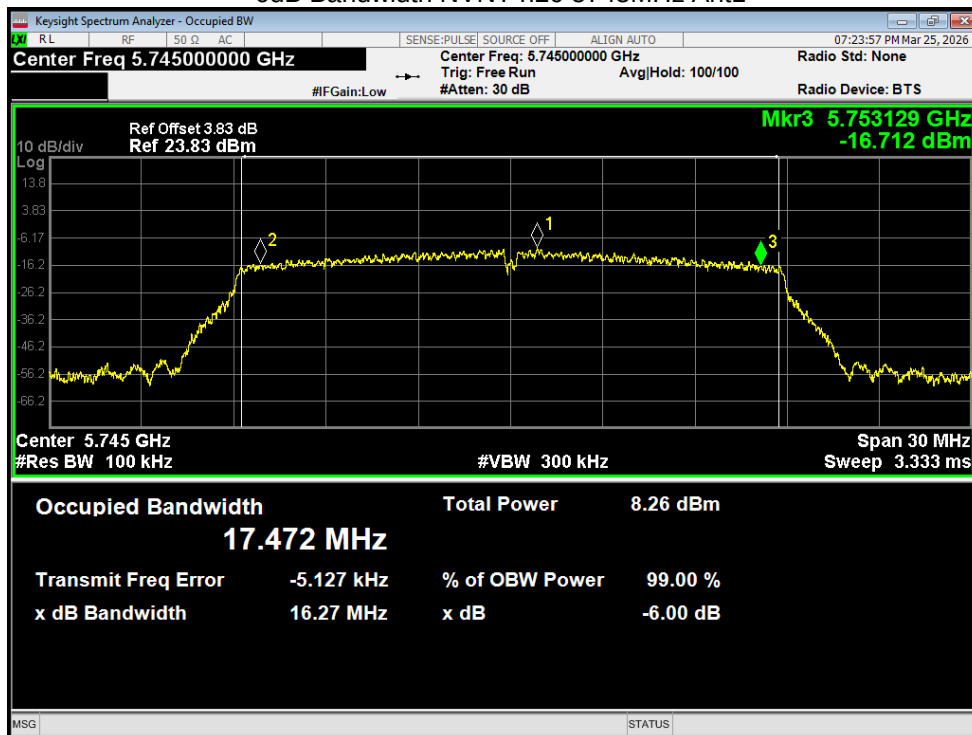
-6dB Bandwidth NVNT a 5785MHz Ant1



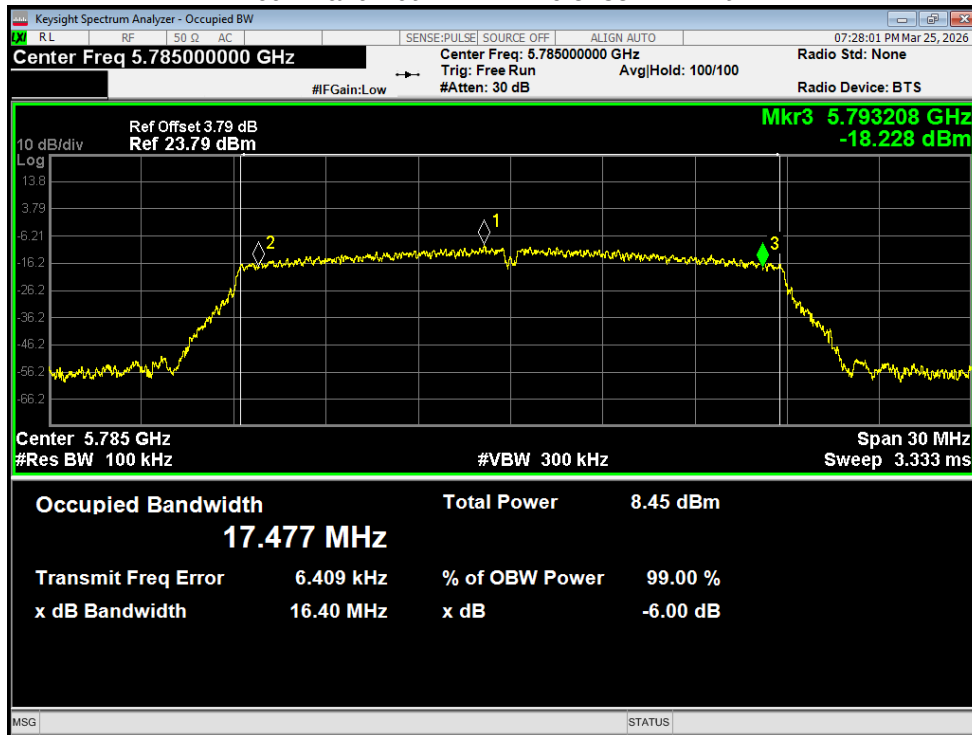
-6dB Bandwidth NVNT a 5825MHz Ant1



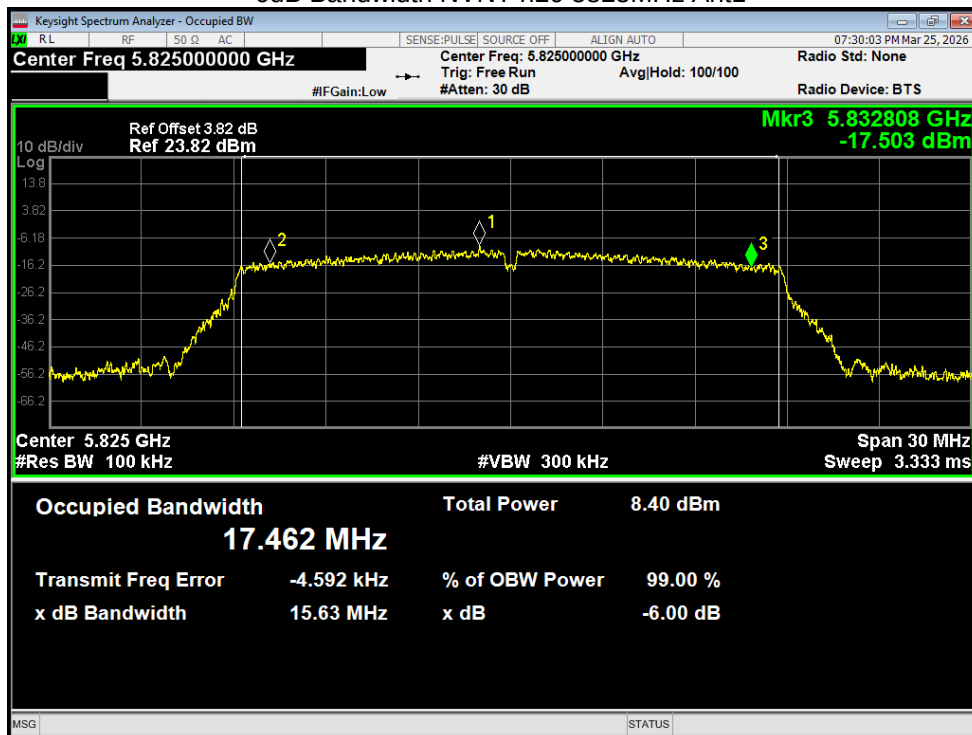
-6dB Bandwidth NVNT n20 5745MHz Ant1



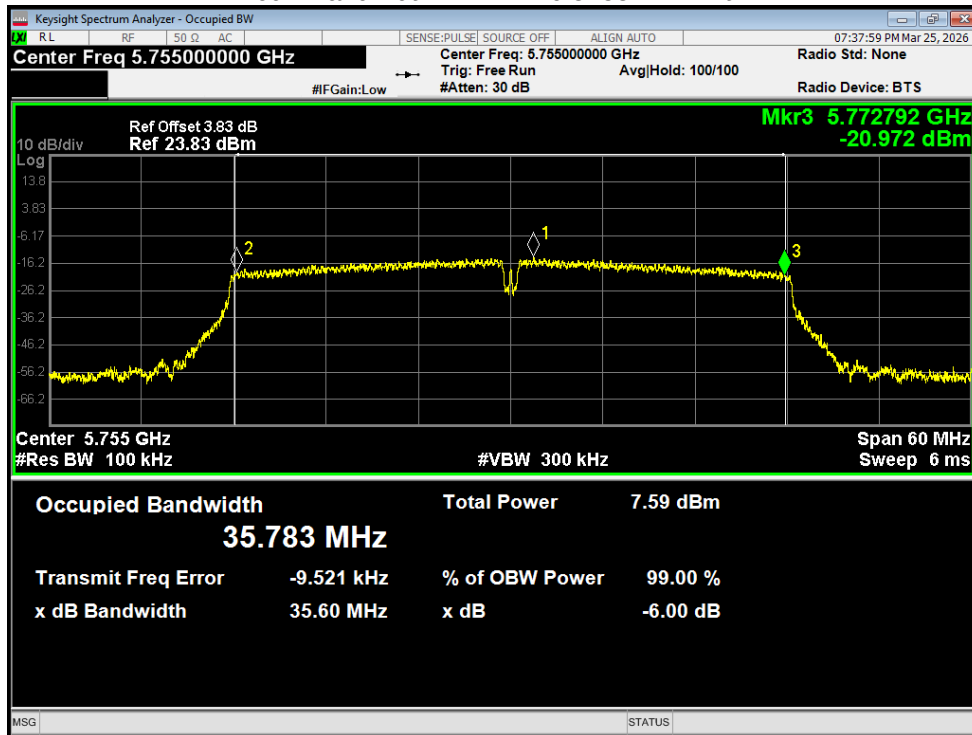
-6dB Bandwidth NVNT n20 5785MHz Ant1



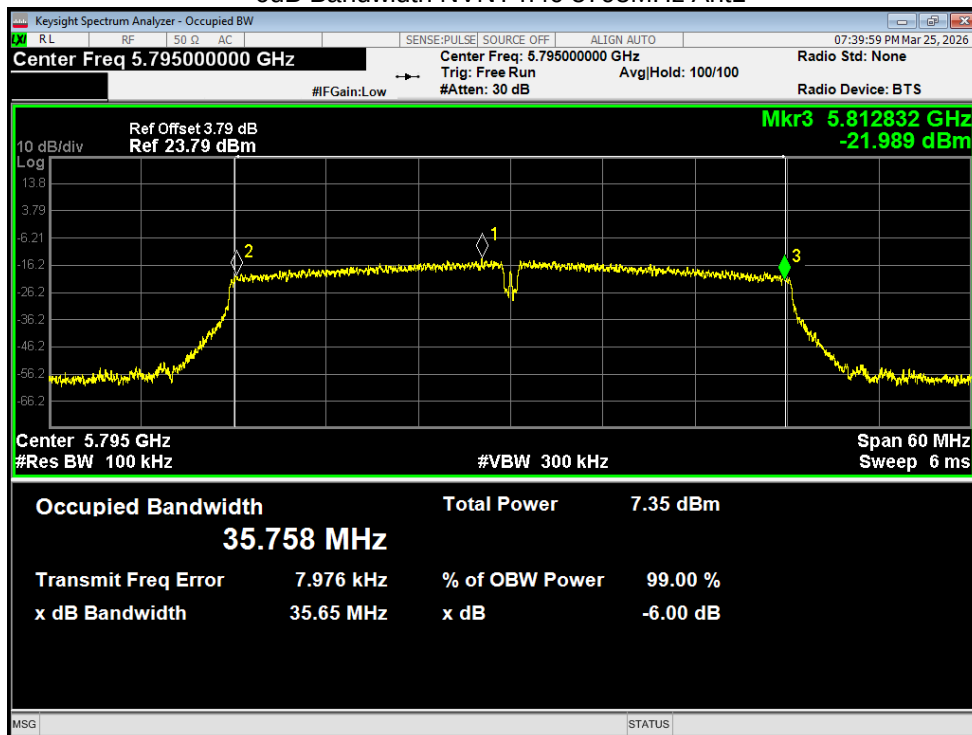
-6dB Bandwidth NVNT n20 5825MHz Ant1



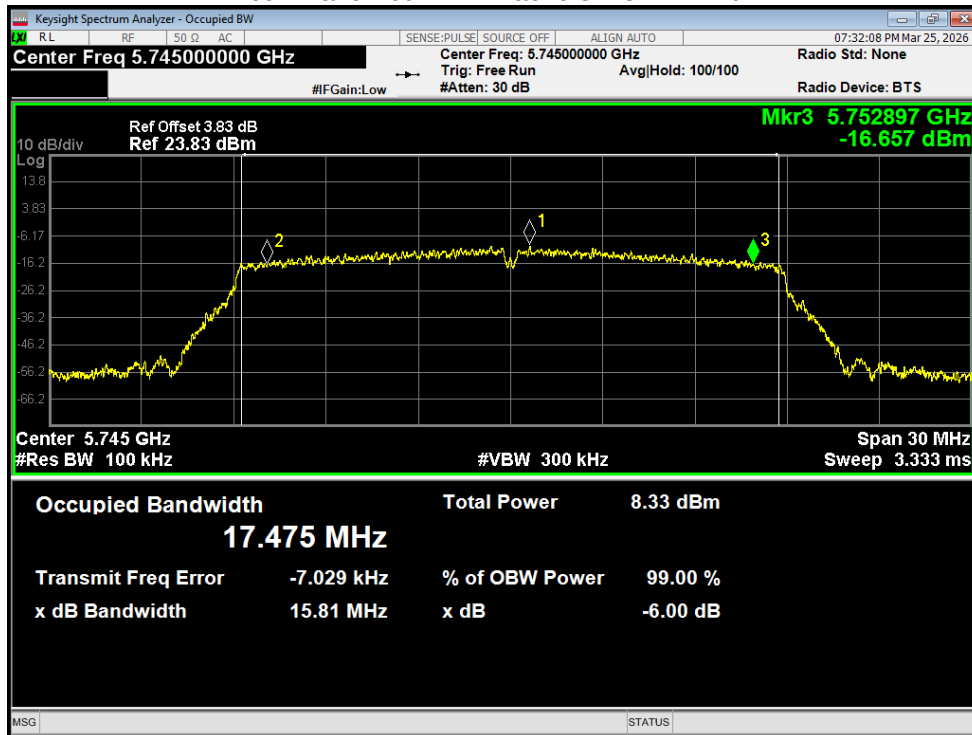
-6dB Bandwidth NVNT n40 5755MHz Ant1



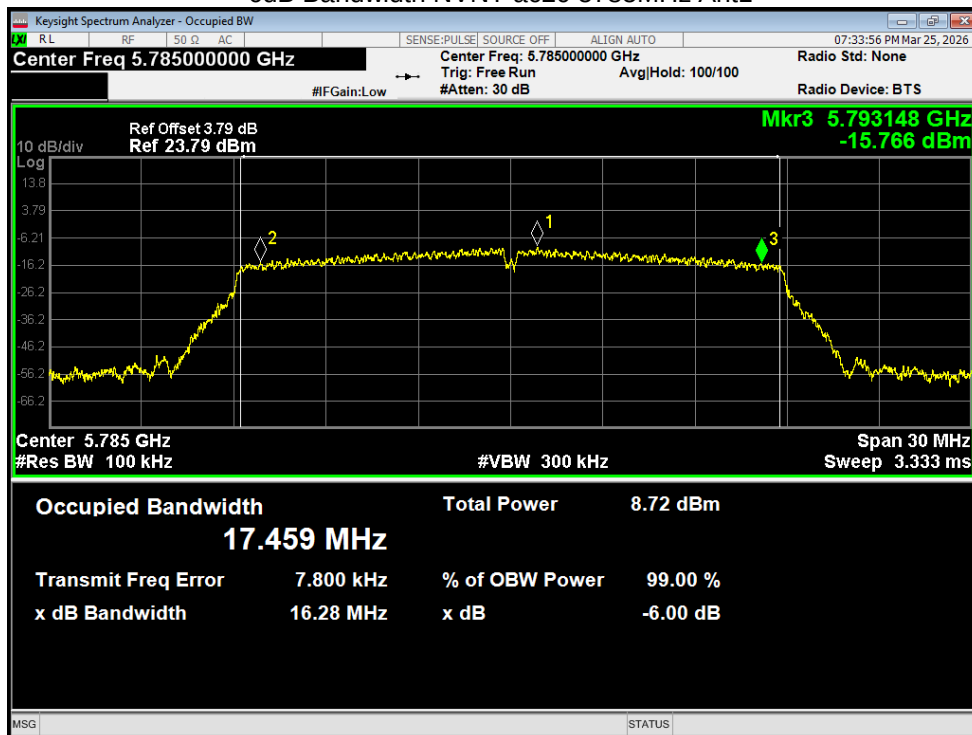
-6dB Bandwidth NVNT n40 5795MHz Ant1



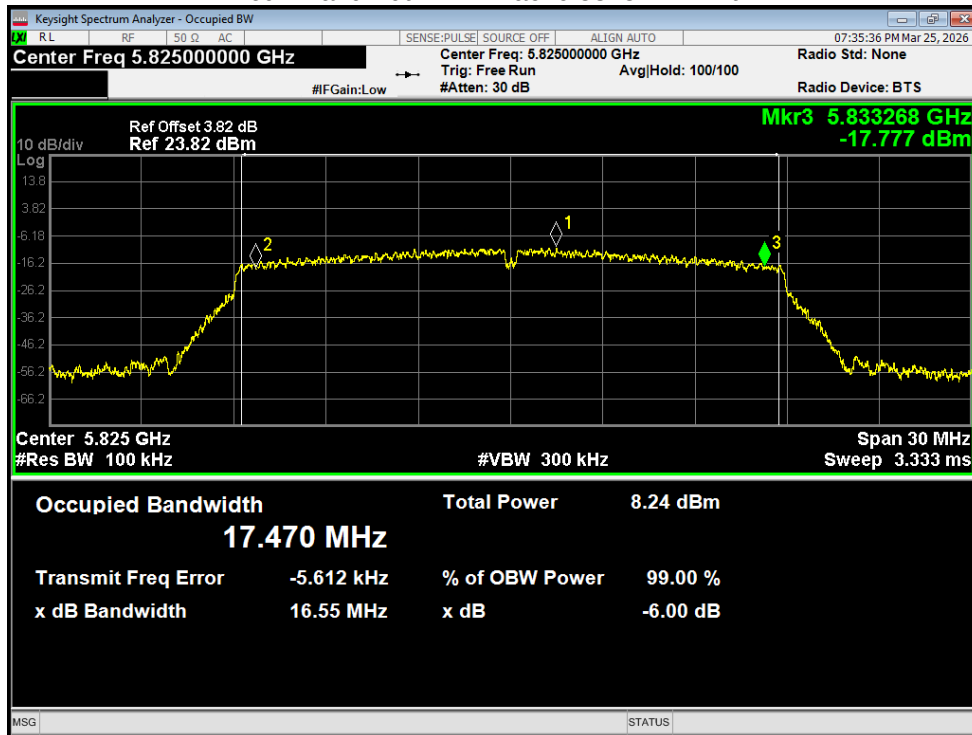
-6dB Bandwidth NVNT ac20 5745MHz Ant1



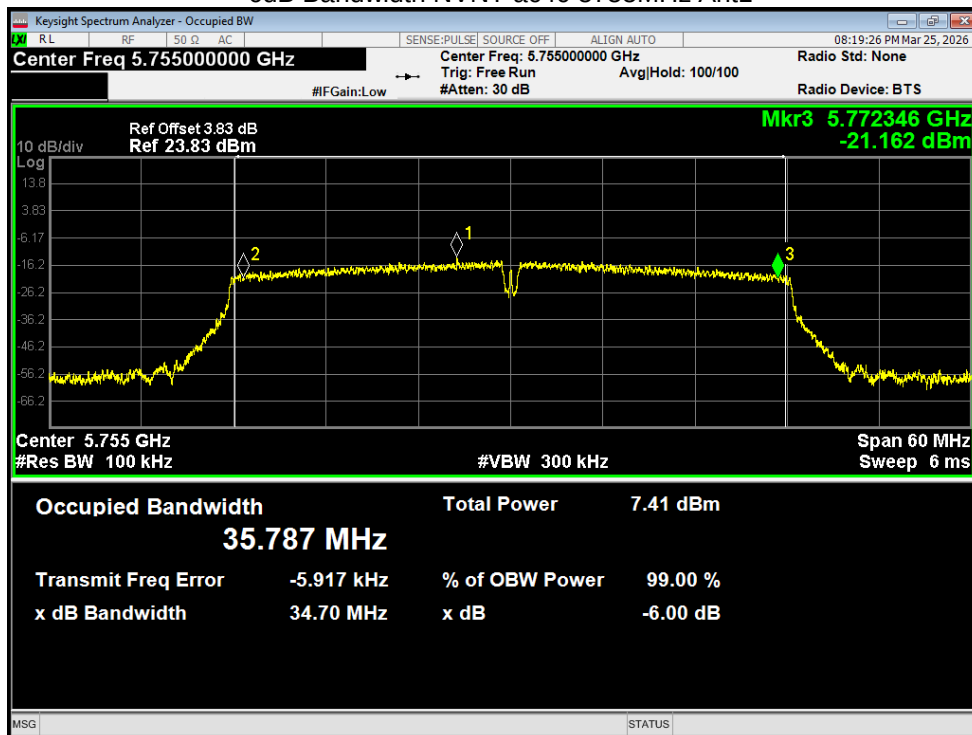
-6dB Bandwidth NVNT ac20 5785MHz Ant1



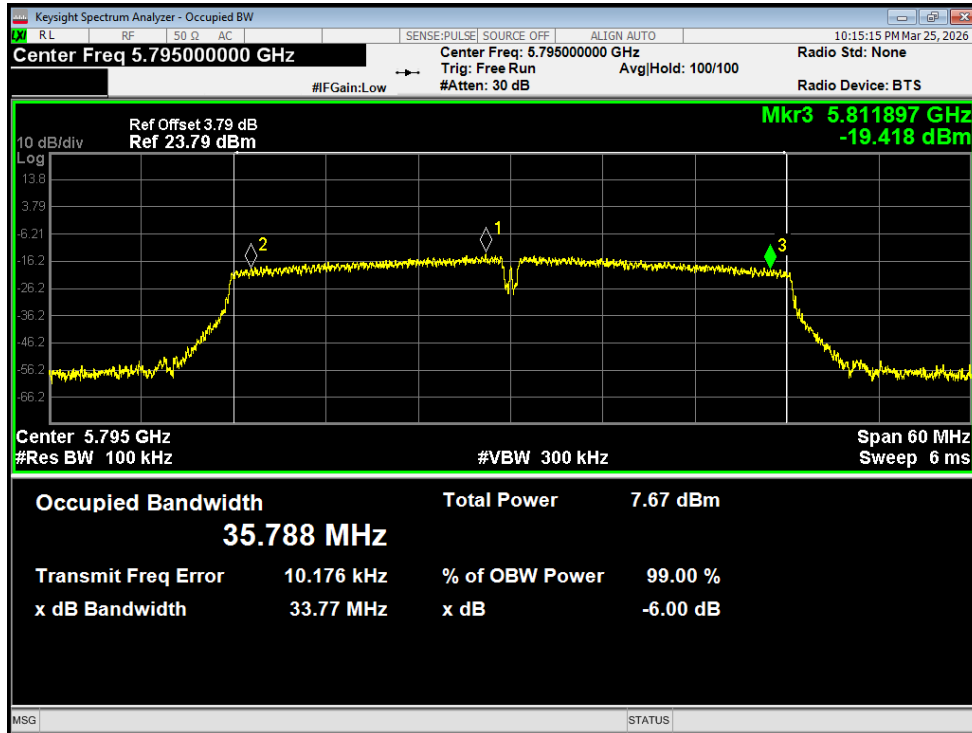
-6dB Bandwidth NVNT ac20 5825MHz Ant1



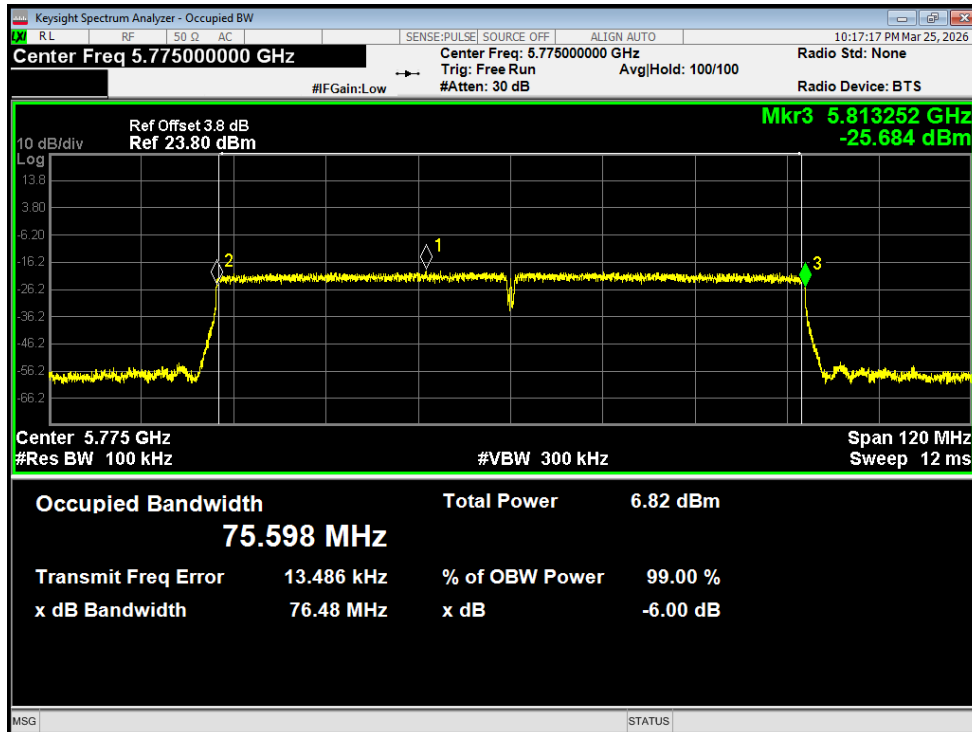
-6dB Bandwidth NVNT ac40 5755MHz Ant1



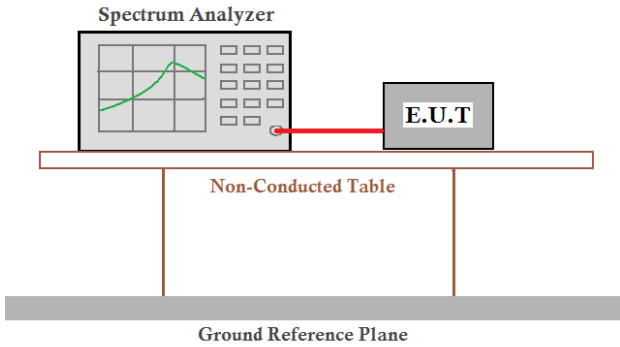
-6dB Bandwidth NVNT ac40 5795MHz Ant1



-6dB Bandwidth NVNT ac80 5775MHz Ant1



4.6 Power Spectral Density

Test Requirement:	47CFR Part 15.407(a)(1)/ (a)(3)	
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01, ANSI C63.10-2020+COR.1-2023§12.6	
Limit:	Frequency band (MHz)	Limit
	5150-5250	≤17dBm/1MHz for master device
		≤11dBm/1MHz for client device
	5250-5350	≤11dBm/1MHz for client device
	5470-5725	≤11dBm/1MHz for client device
	5725-5850	≤30dBm/500kHz
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	

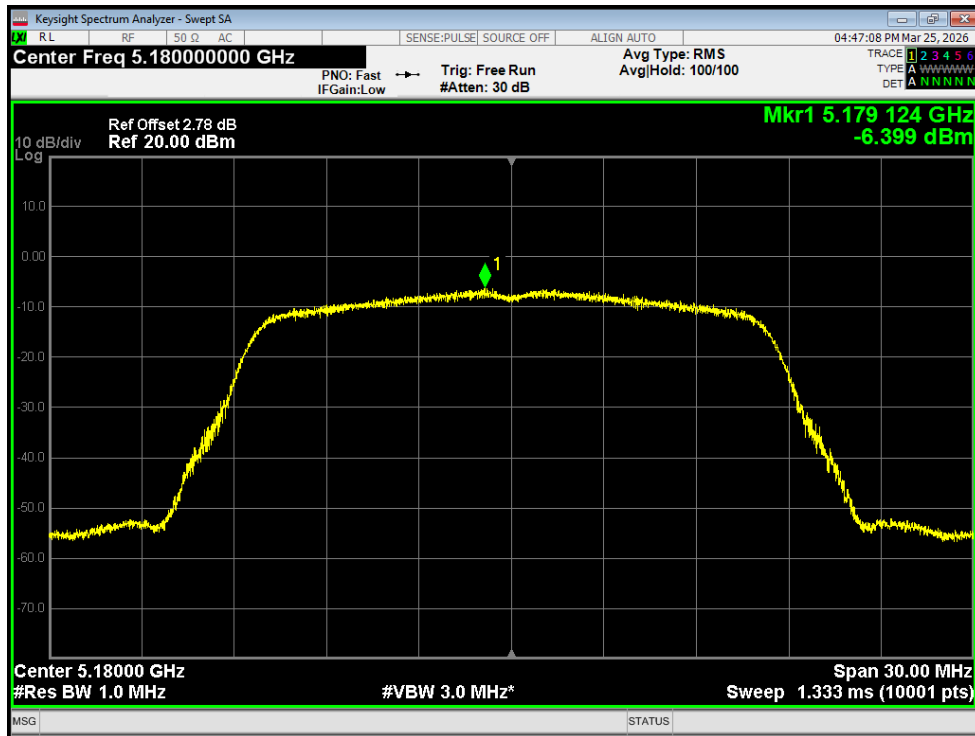


Measurement Result

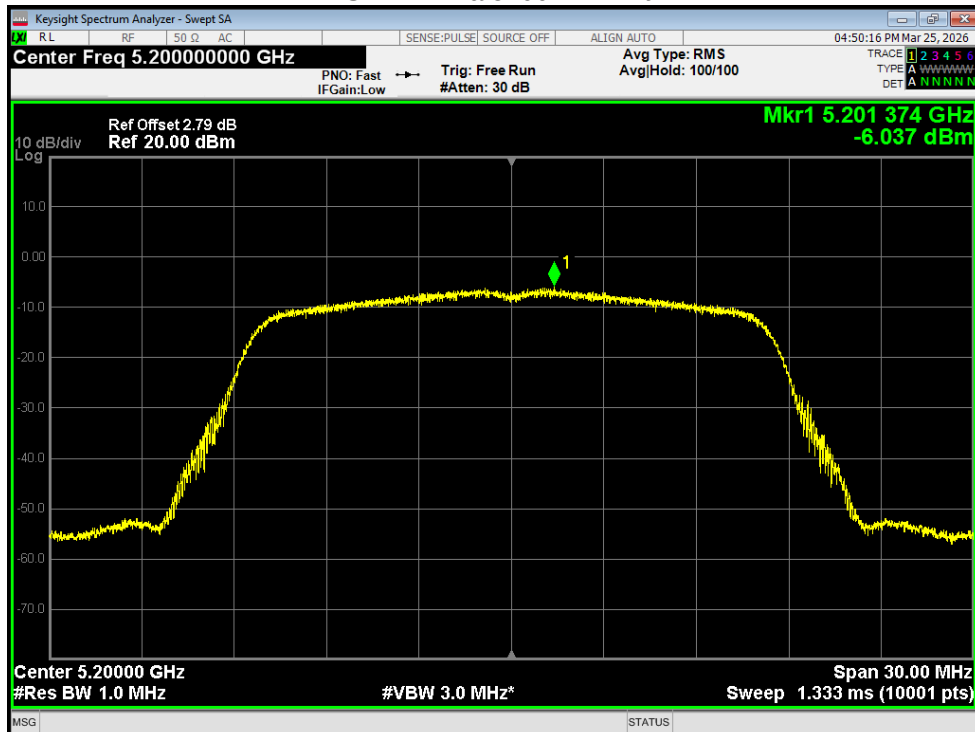
5180-5240MHz

Mode	Frequency	Measured Power Density (dBm/MHz)	Correction Factor (dB)	Total Measured Power Density (dBm/MHz)	Limit (dBm/MHz)
802.11 a	5180 MHz	-6.399	0	-6.399	11
	5200 MHz	-6.037	0	-6.037	11
	5240 MHz	-6.053	0	-6.053	11
802.11 n20	5180 MHz	-6.737	0	-6.737	11
	5200 MHz	-6.264	0	-6.264	11
	5240 MHz	-6.666	0	-6.666	11
802.11 ac20	5180 MHz	-6.645	0	-6.645	11
	5200 MHz	-6.667	0	-6.667	11
	5240 MHz	-6.615	0	-6.615	11
802.11 n40	5190 MHz	-10.473	0	-10.473	11
	5230 MHz	-10.284	0	-10.284	11
802.11 ac40	5190 MHz	-10.28	0	-10.28	11
	5230 MHz	-10.665	0	-10.665	11
802.11 ac80	5210 MHz	-16.516	0	-16.516	11

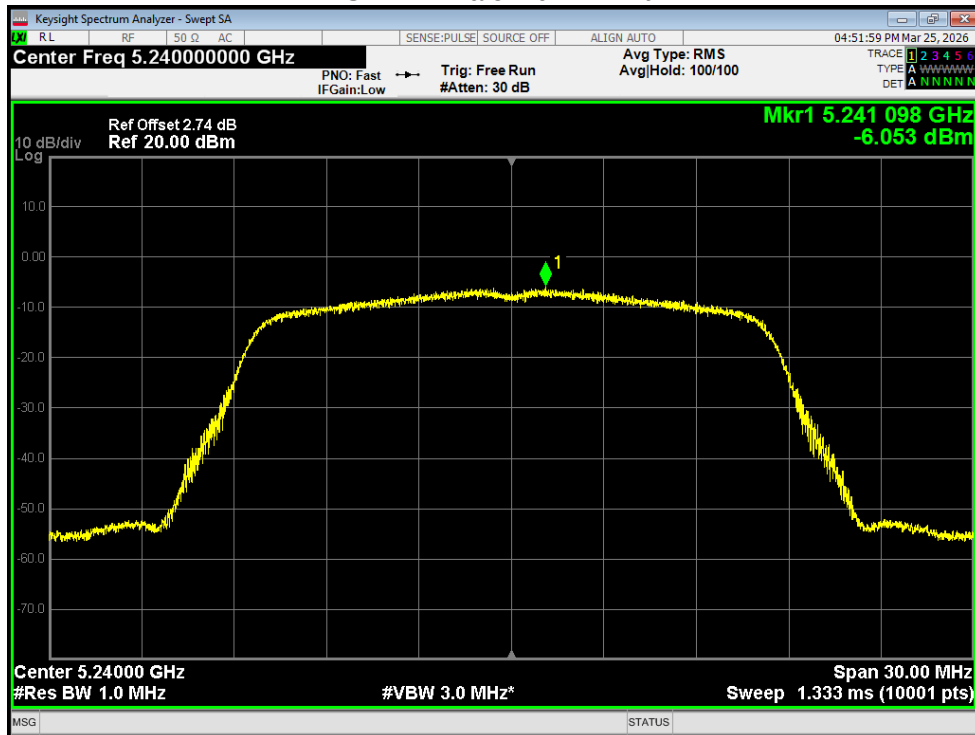
PSD NVNT a 5180MHz Ant1



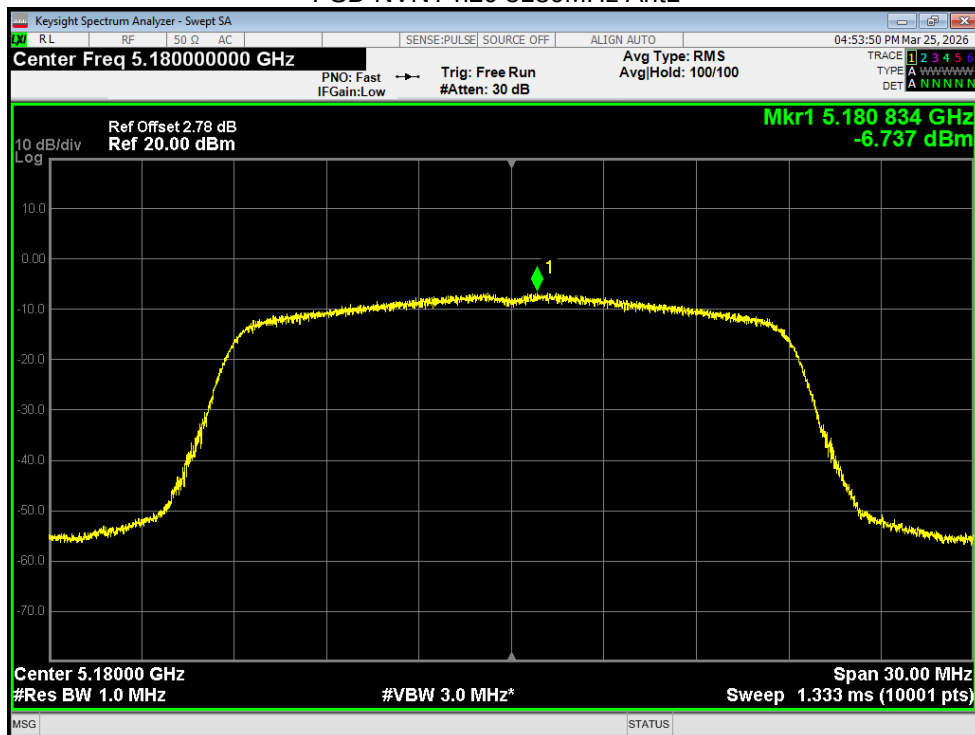
PSD NVNT a 5200MHz Ant1



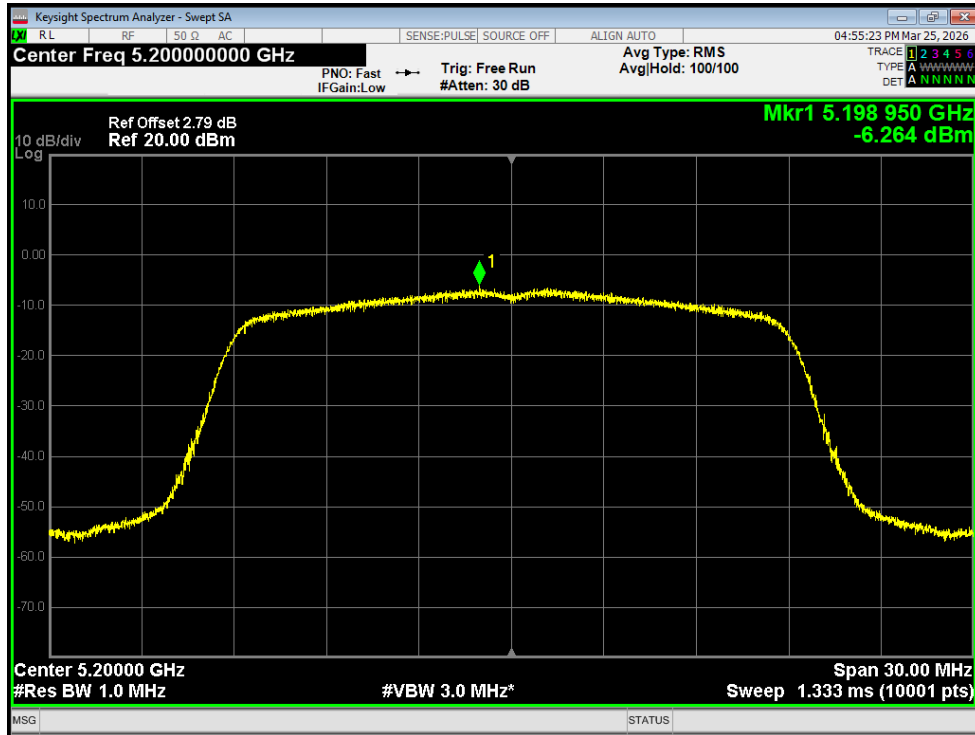
PSD NVNT a 5240MHz Ant1



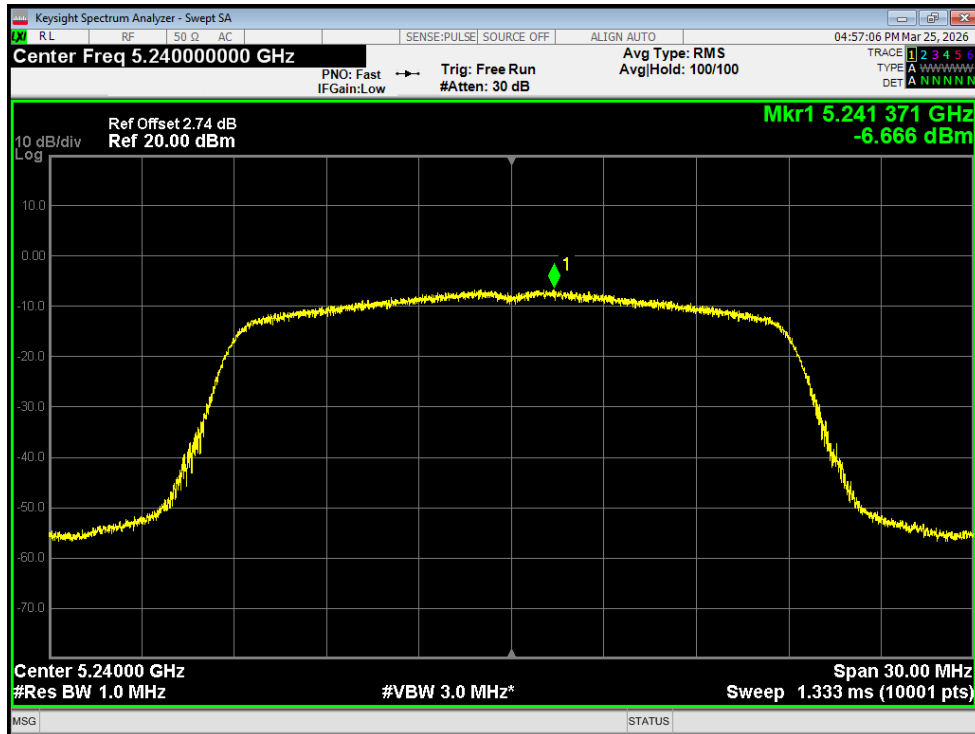
PSD NVNT n20 5180MHz Ant1



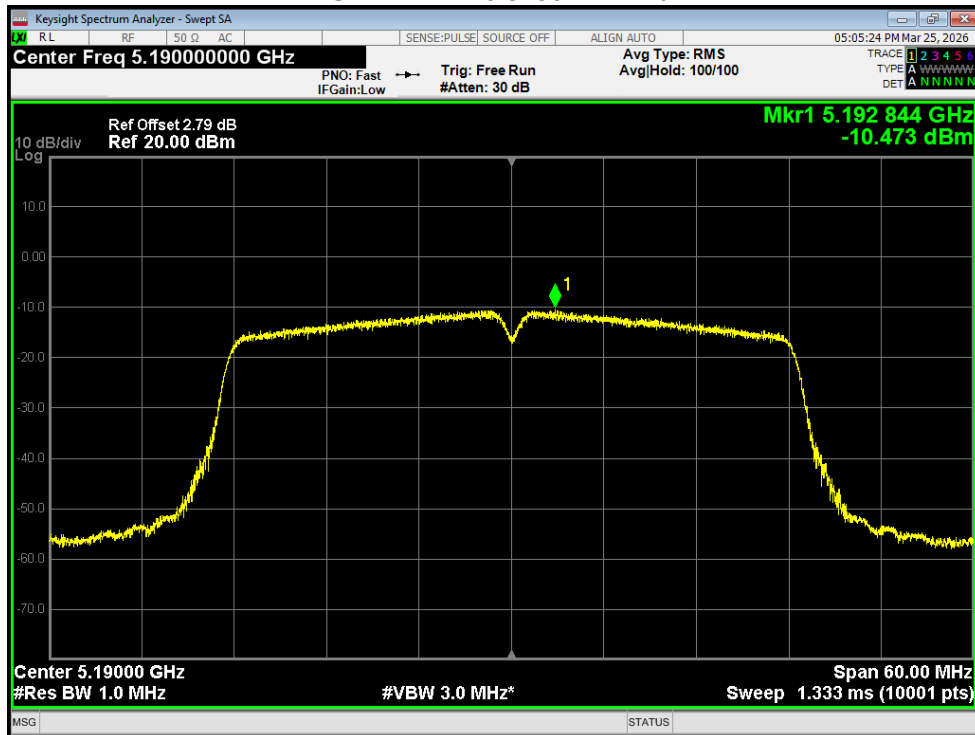
PSD NVNT n20 5200MHz Ant1



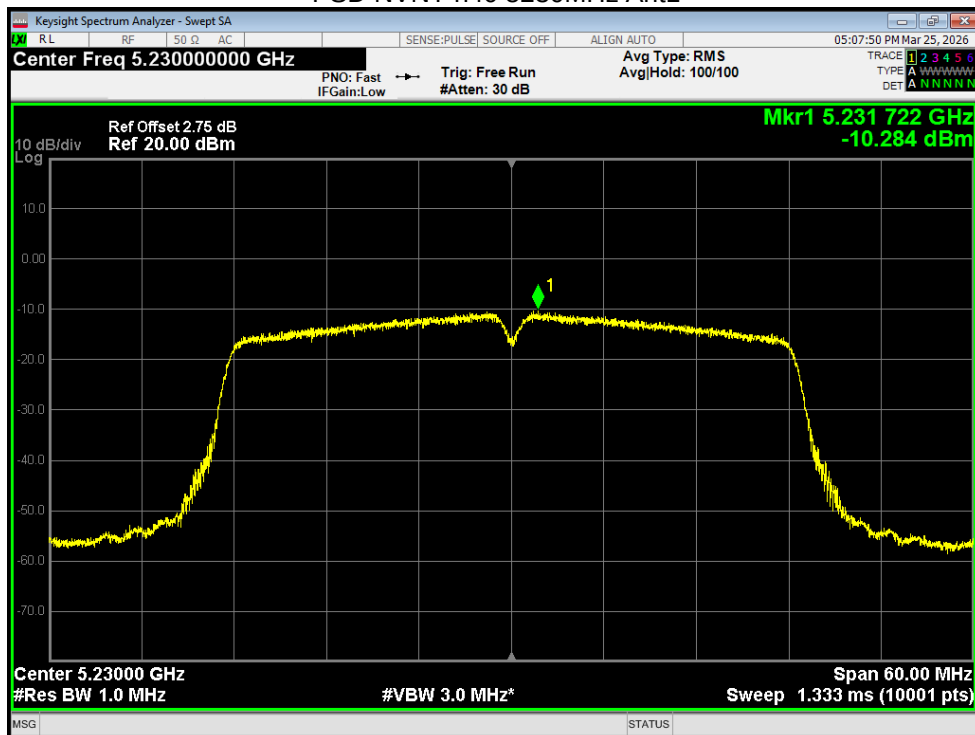
PSD NVNT n20 5240MHz Ant1



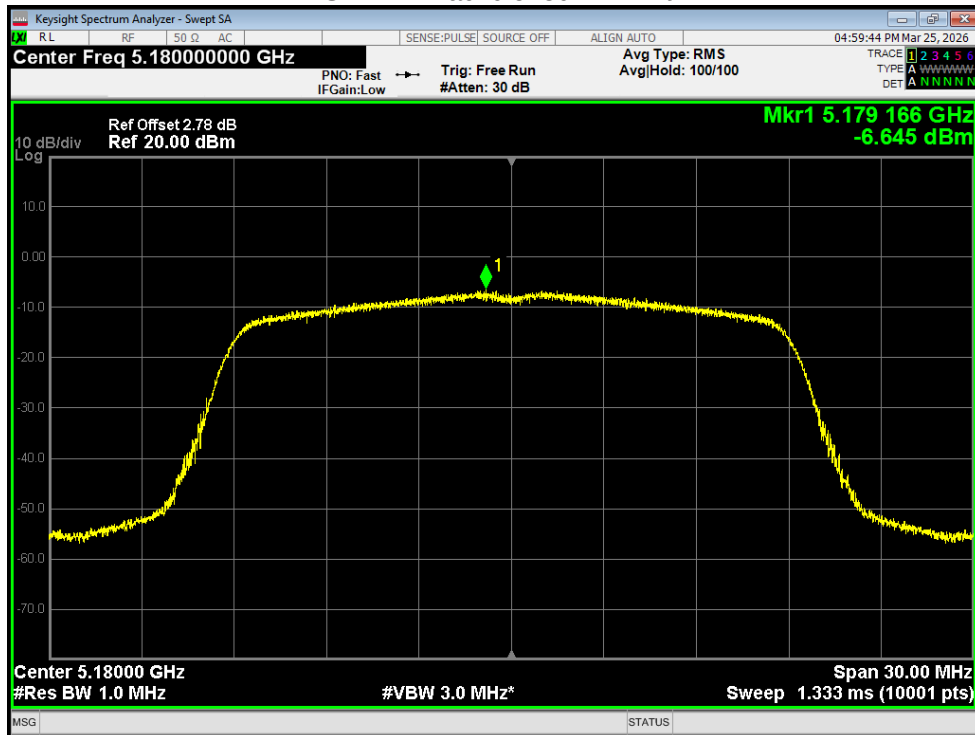
PSD NVNT n40 5190MHz Ant1



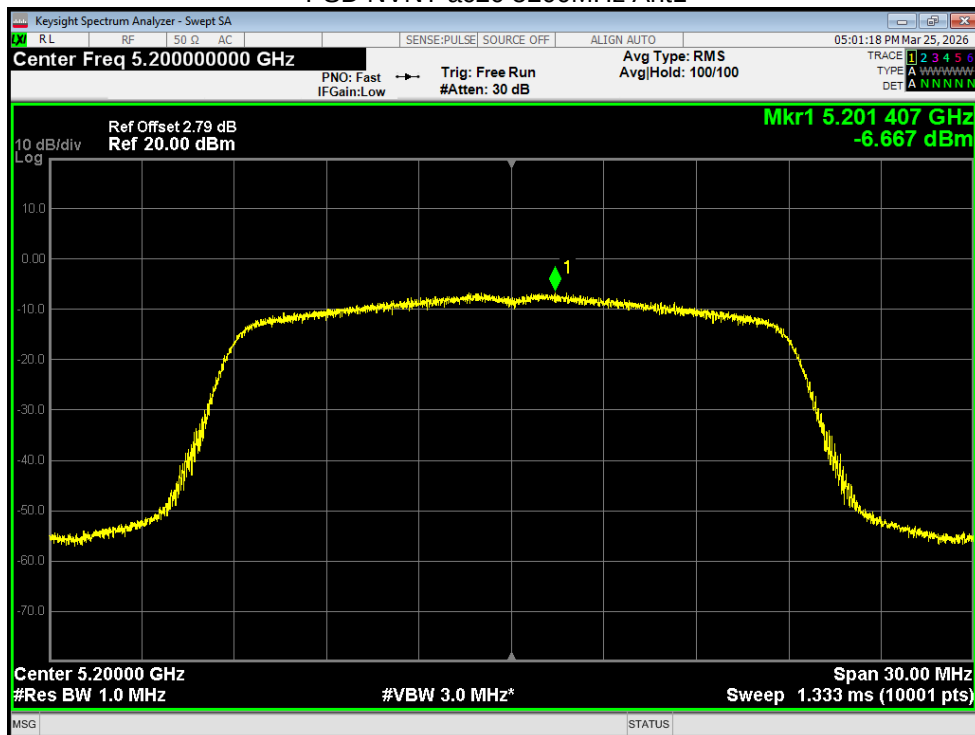
PSD NVNT n40 5230MHz Ant1



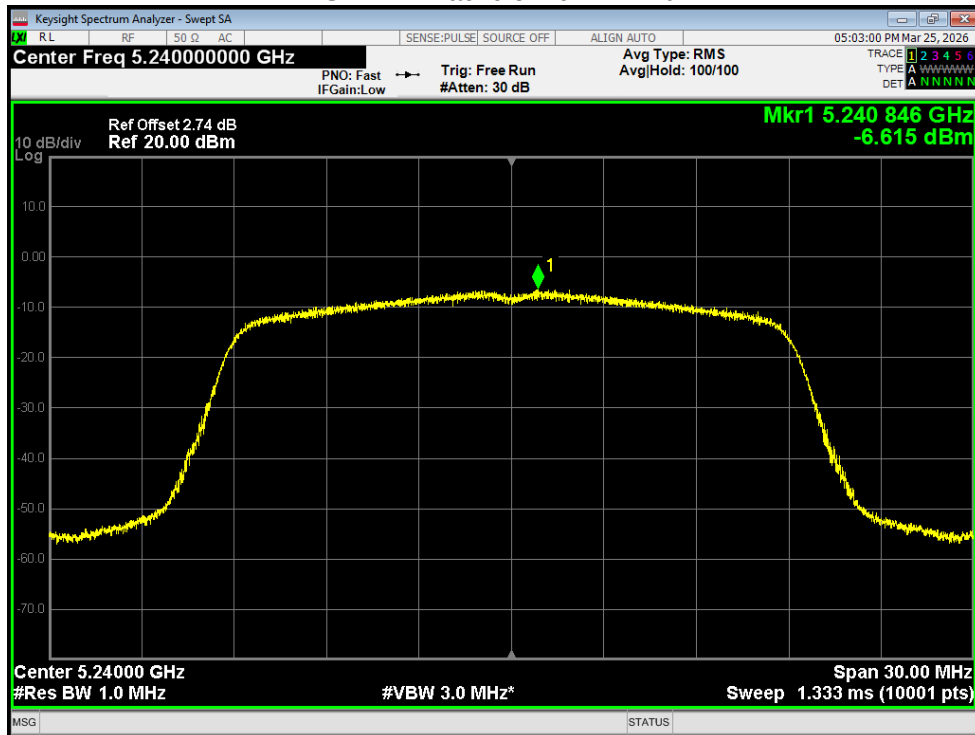
PSD NVNT ac20 5180MHz Ant1



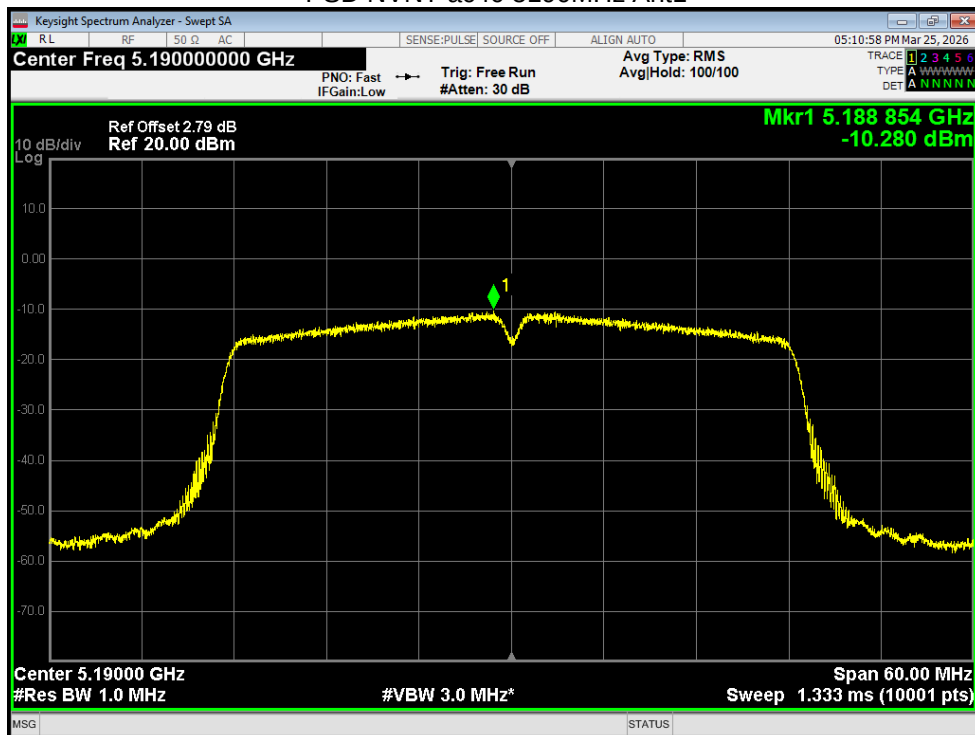
PSD NVNT ac20 5200MHz Ant1



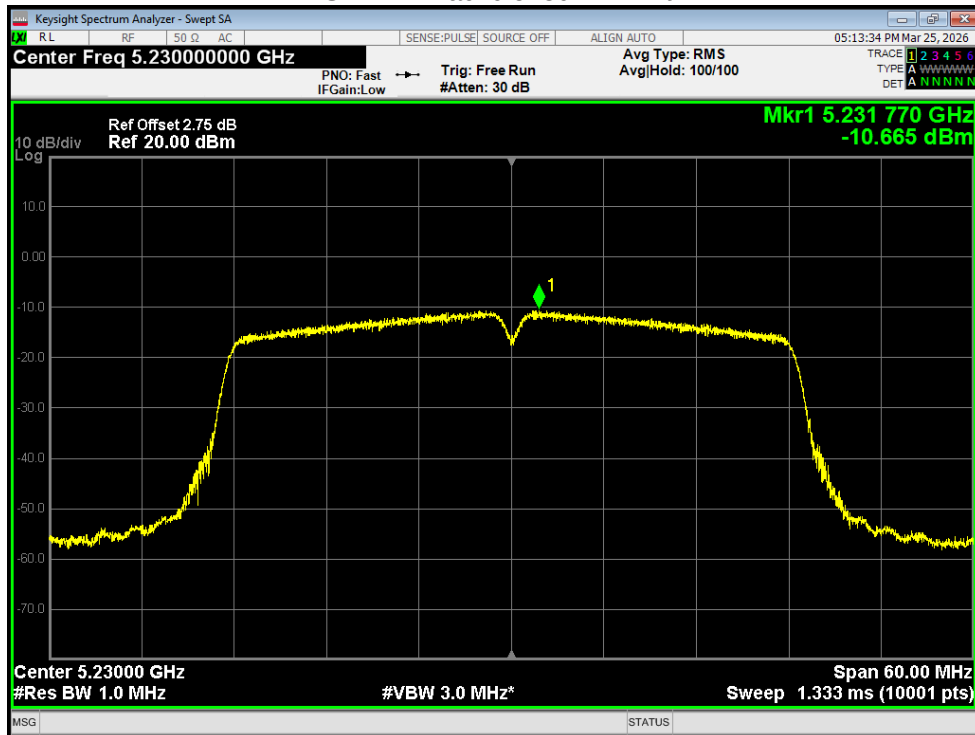
PSD NVNT ac20 5240MHz Ant1



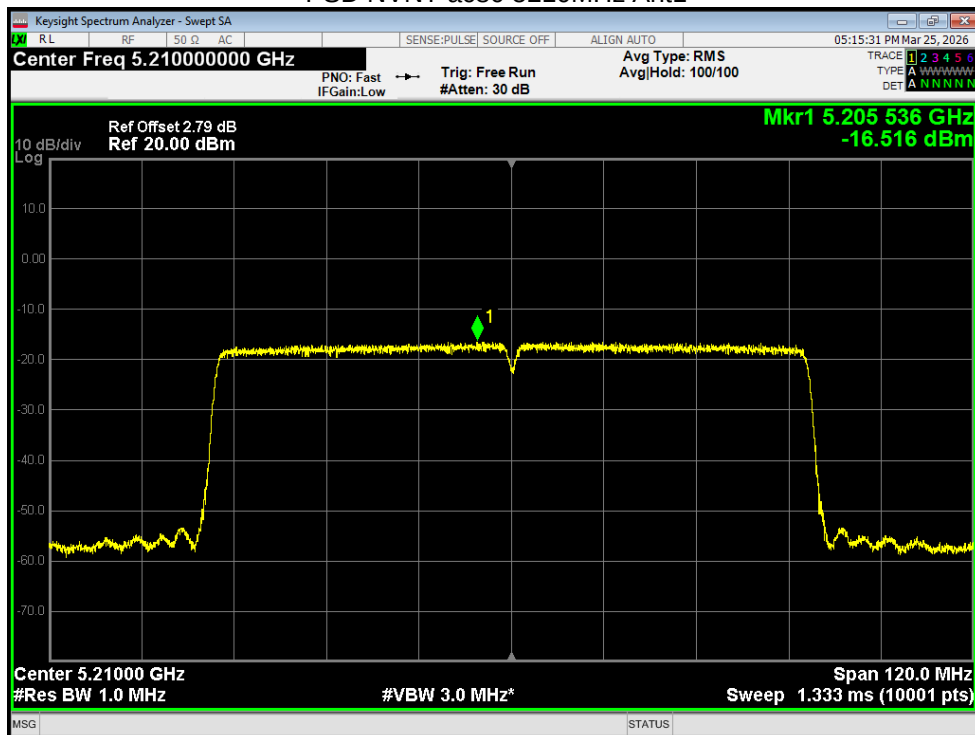
PSD NVNT ac40 5190MHz Ant1



PSD NVNT ac40 5230MHz Ant1



PSD NVNT ac80 5210MHz Ant1



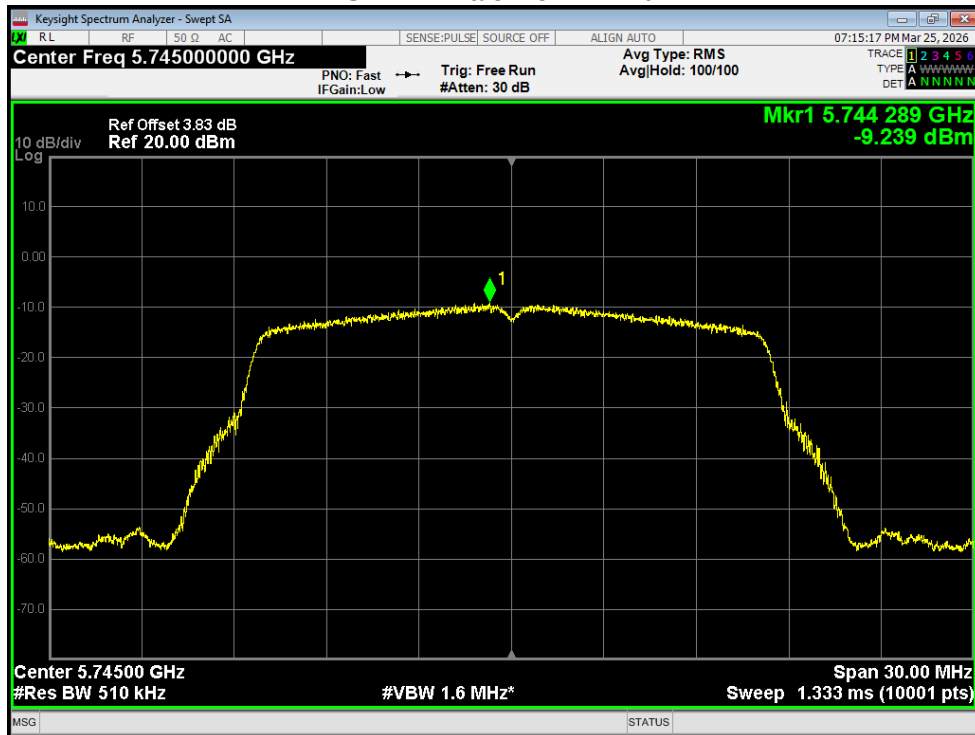
Mode	Frequency MHz	Measured Power Density (dBm/510KHz)	Measured Power Density (dBm/500KHz)	Correction Factor (dB)	Total Measured Power Density (dBm/500KHz)	Limit (dBm/500kHz)
802.11a	5745	-9.239	-9.325	0	-9.325	30
	5785	-9.251	-9.337	0	-9.337	30
	5825	-9.262	-9.348	0	-9.348	30
802.11n20	5745	-9.826	-9.912	0	-9.912	30
	5785	-9.358	-9.444	0	-9.444	30
	5825	-9.344	-9.430	0	-9.430	30
802.11ac20	5745	-9.521	-9.607	0	-9.607	30
	5785	-9.353	-9.439	0	-9.439	30
	5825	-9.710	-9.796	0	-9.796	30
802.11n40	5755	-13.743	-13.829	0	-13.829	30
	5795	-13.744	-13.830	0	-13.830	30
802.11ac40	5755	-13.893	-13.979	0	-13.979	30
	5795	-13.283	-13.369	0	-13.369	30
802.11ac80	5775	-19.238	-19.324	0	-19.324	30

Note: 1. If the measurement is X dBm/510kHz, thus $X \text{ dBm/510kHz} = (10^{X/10}) \cdot (500 / 510) \text{ dBm/500kHz}$

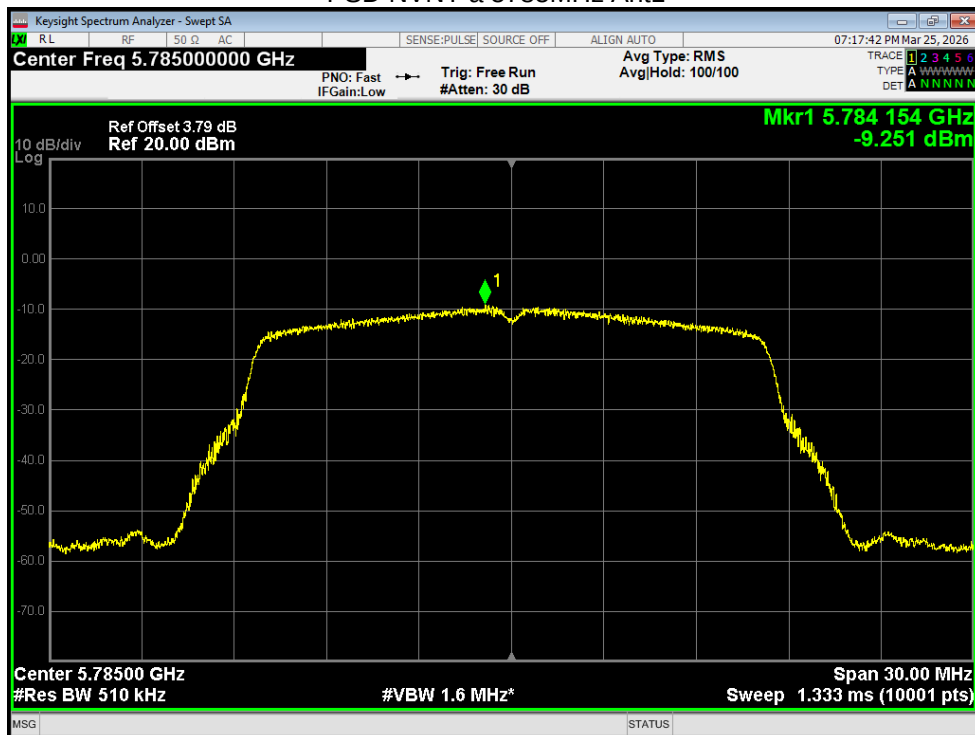
2. Correction Factor (dB)= duty cycle factor

3. Total PSD= Measured PSD (dBm/510kHz) + Correction factor duty cycle (dB)

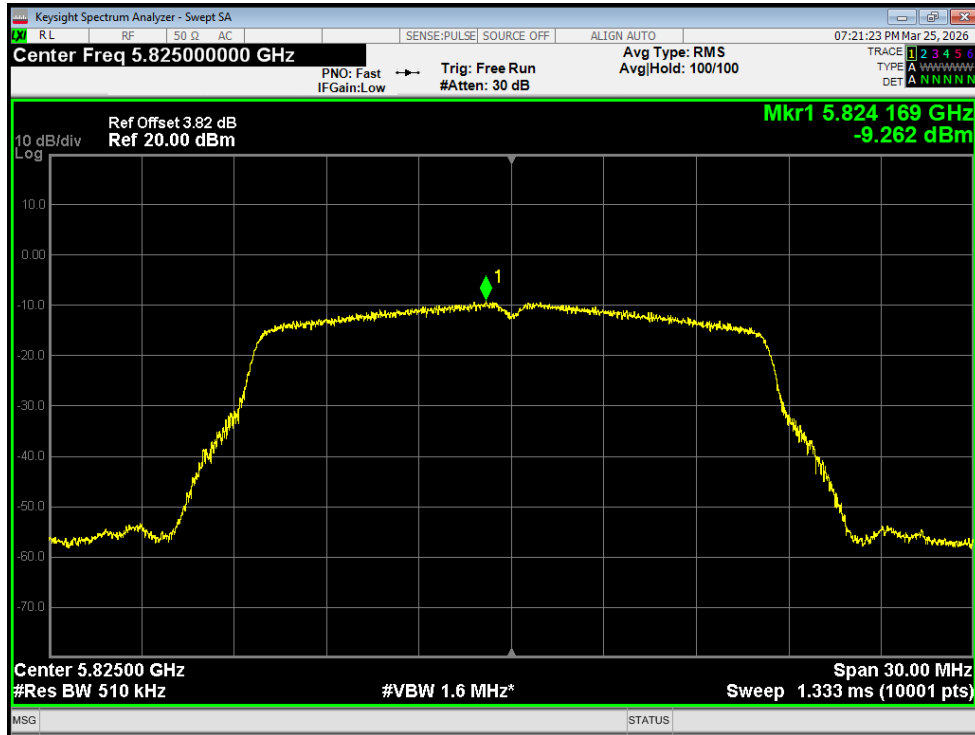
PSD NVNT a 5745MHz Ant1



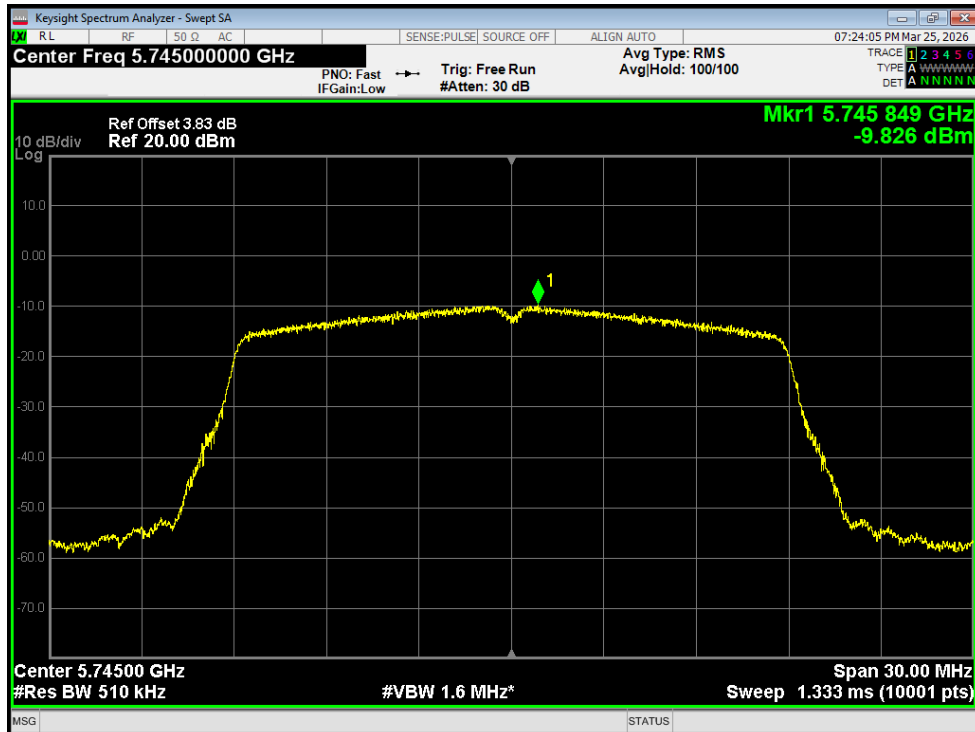
PSD NVNT a 5785MHz Ant1



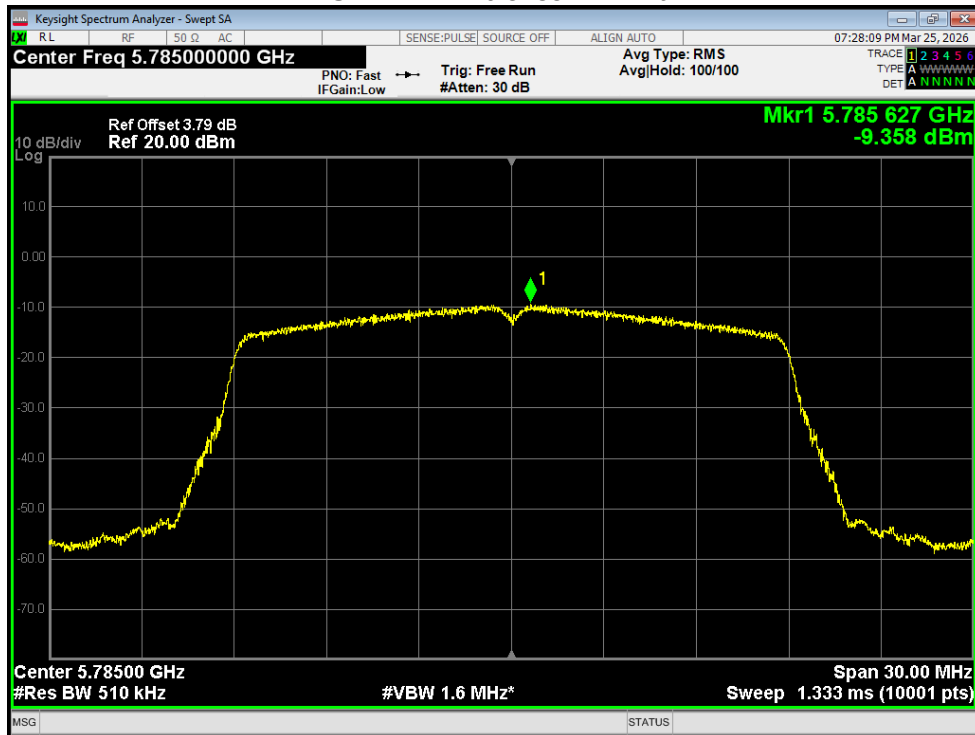
PSD NVNT a 5825MHz Ant1



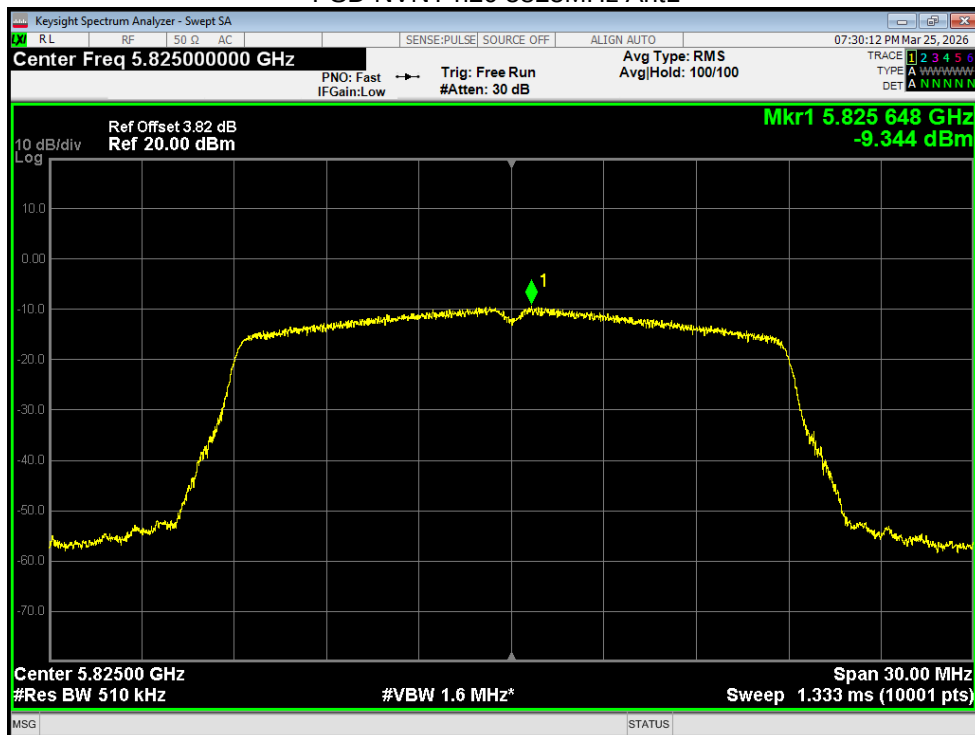
PSD NVNT n20 5745MHz Ant1



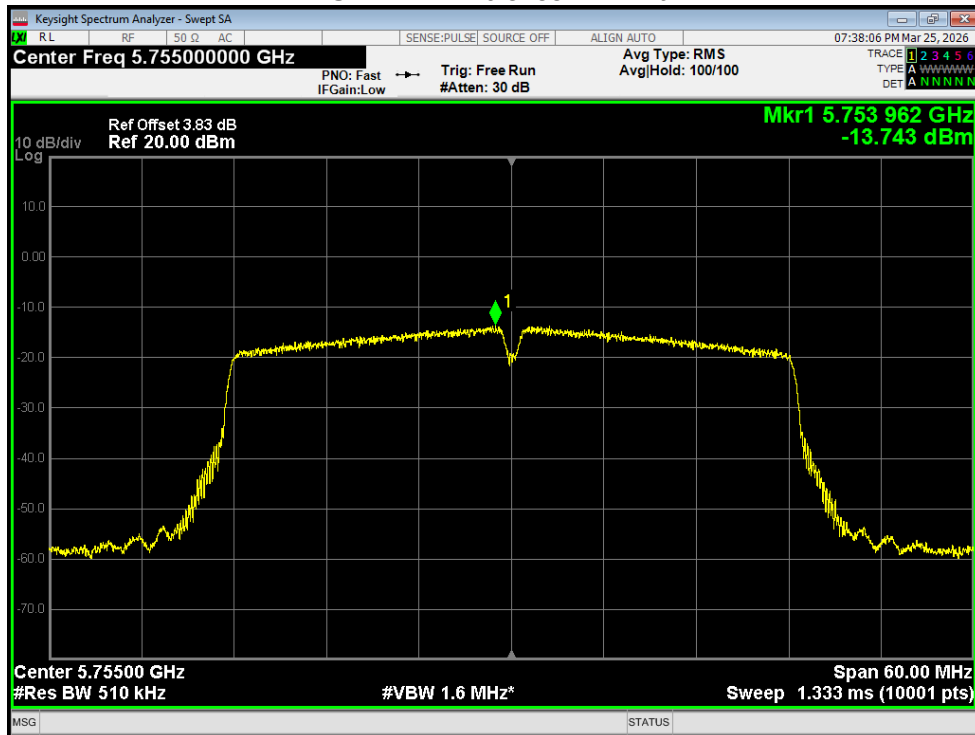
PSD NVNT n20 5785MHz Ant1



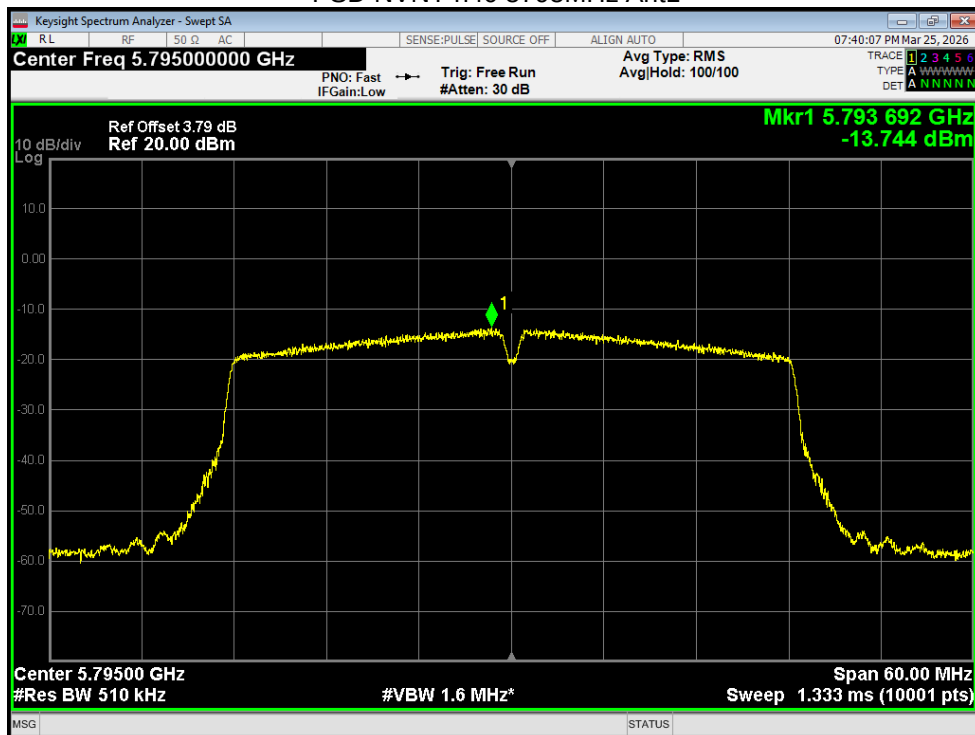
PSD NVNT n20 5825MHz Ant1



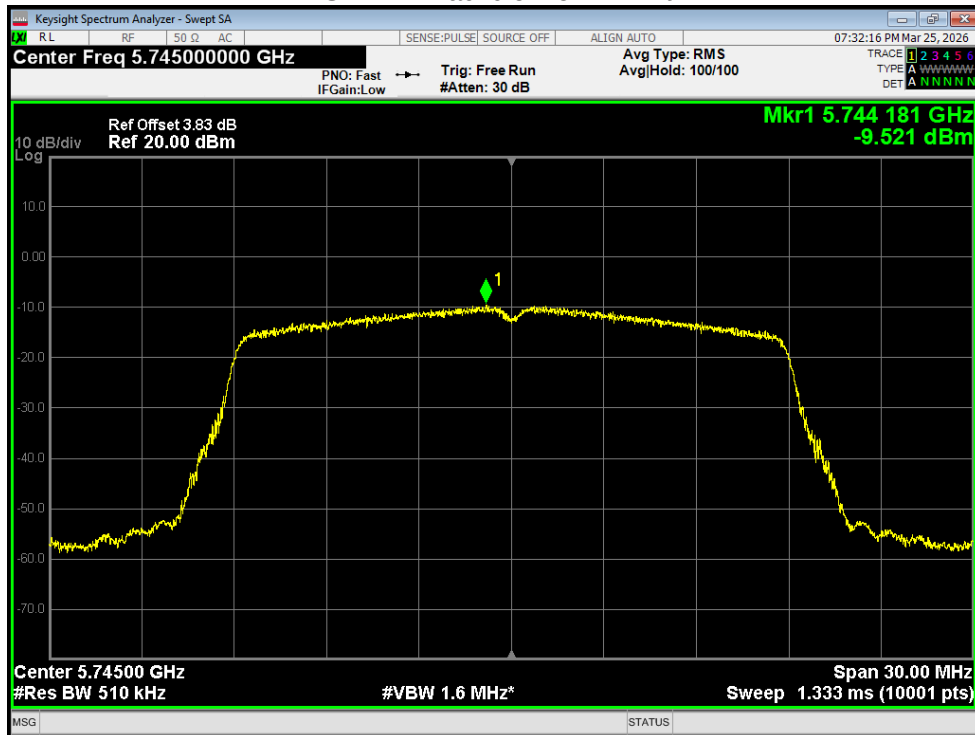
PSD NVNT n40 5755MHz Ant1



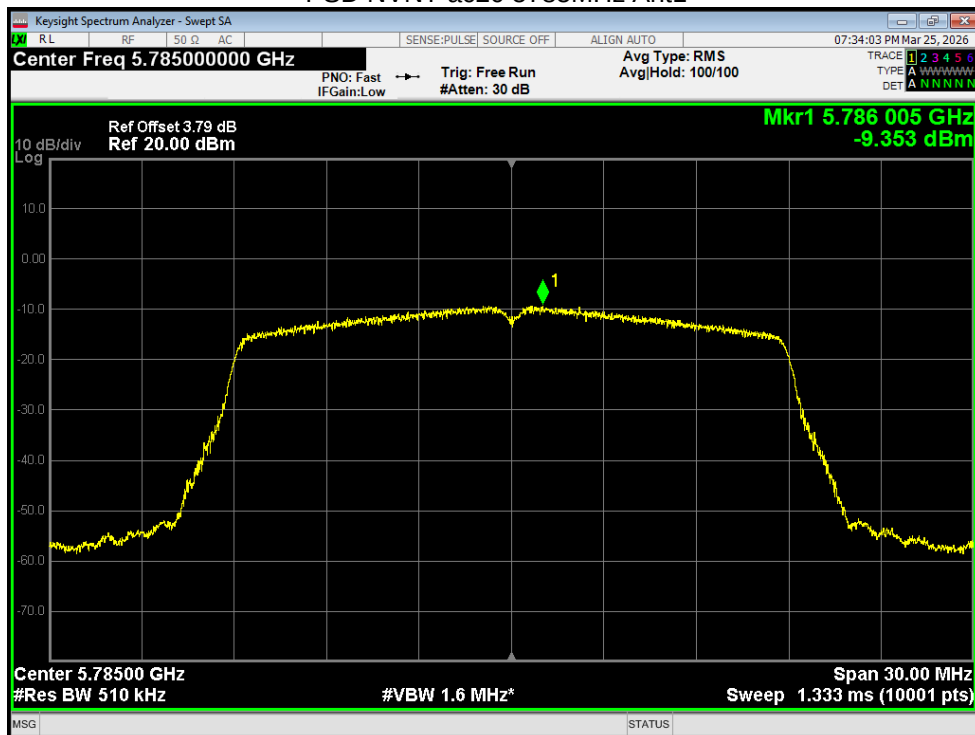
PSD NVNT n40 5795MHz Ant1



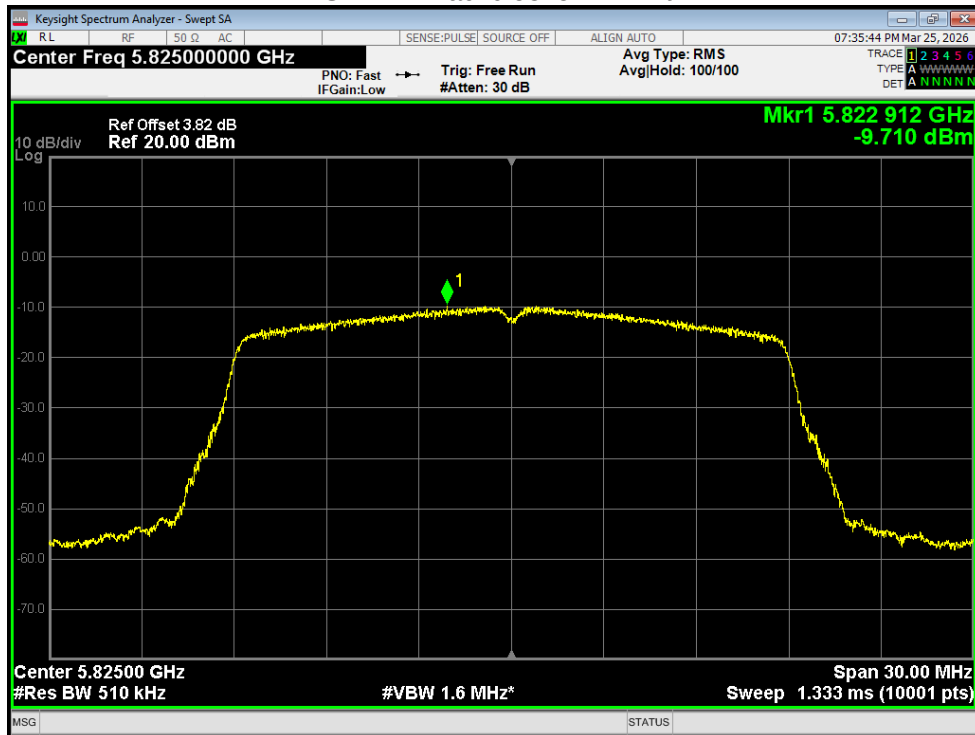
PSD NVNT ac20 5745MHz Ant1



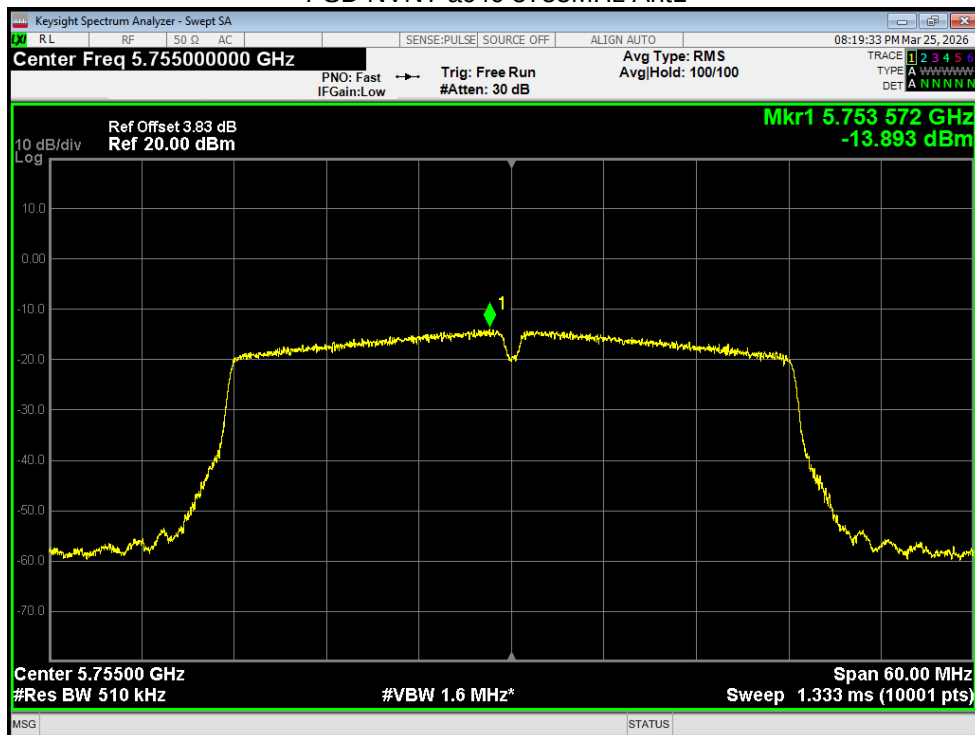
PSD NVNT ac20 5785MHz Ant1



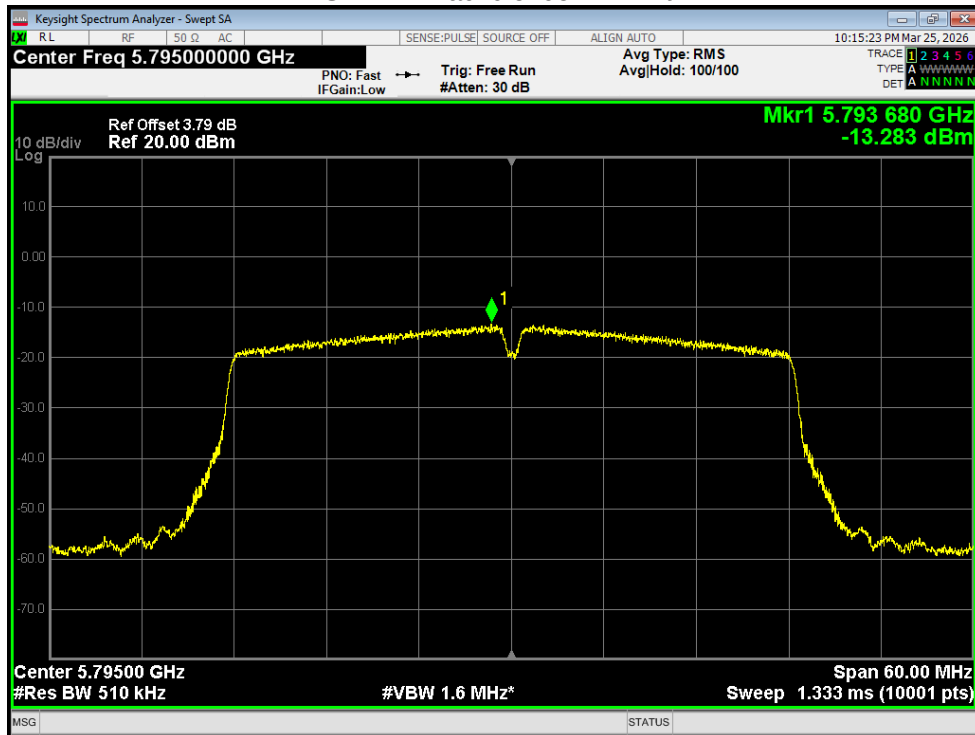
PSD NVNT ac20 5825MHz Ant1



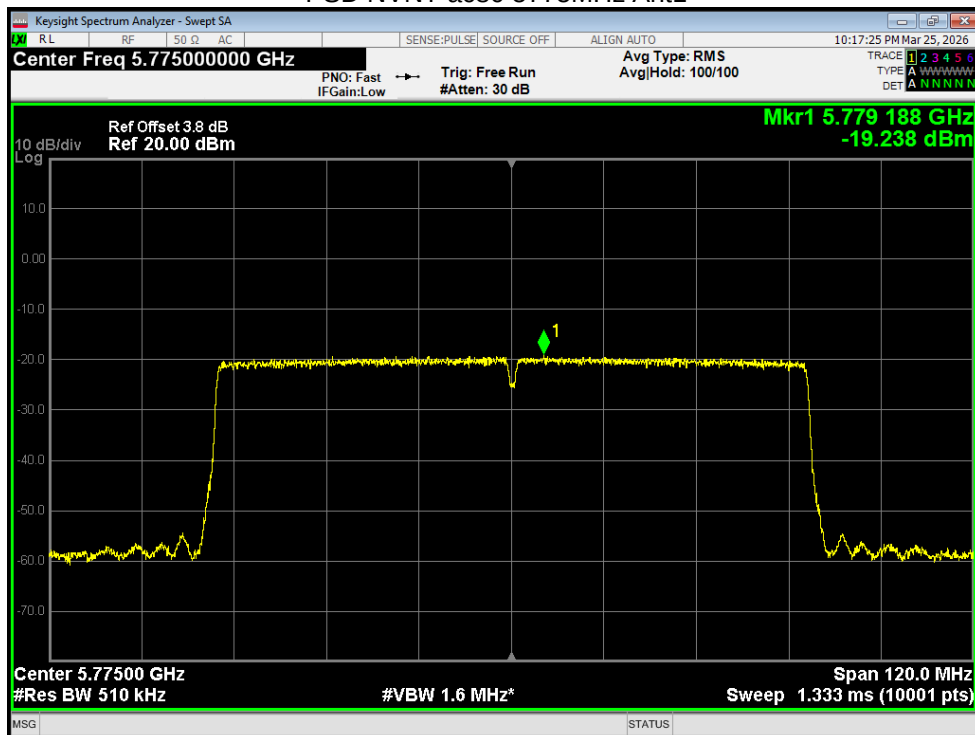
PSD NVNT ac40 5755MHz Ant1



PSD NVNT ac40 5795MHz Ant1

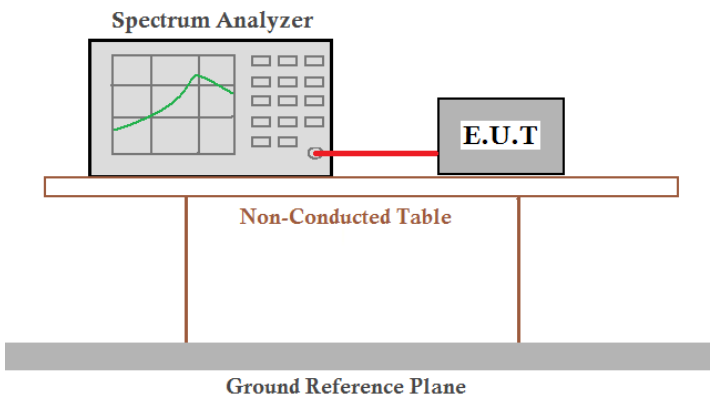


PSD NVNT ac80 5775MHz Ant1



4.6 Band edge

4.6.1 Conducted test Method

Test Requirement:	47CFR Part 15.209 and 15.205	
Test Method:	ANSI C63.10-2020+COR.1-2023 §6.10.2	
Limit:	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 e.i.r.p. of -27 dBm/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 e.i.r.p. of -27 dBm/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 e.i.r.p. of -27 dBm/MHz. (4) For transmitters operating solely in the 5.725-5.850 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.	
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.	
Test Procedure:	1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator. 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range. 3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span. 4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency. 5. Repeat above procedures until all measured frequencies were complete..	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	

Remark: $Ref\ offset(dB) = Antenna\ gain(dBi) + cable\ loss(dB)$.

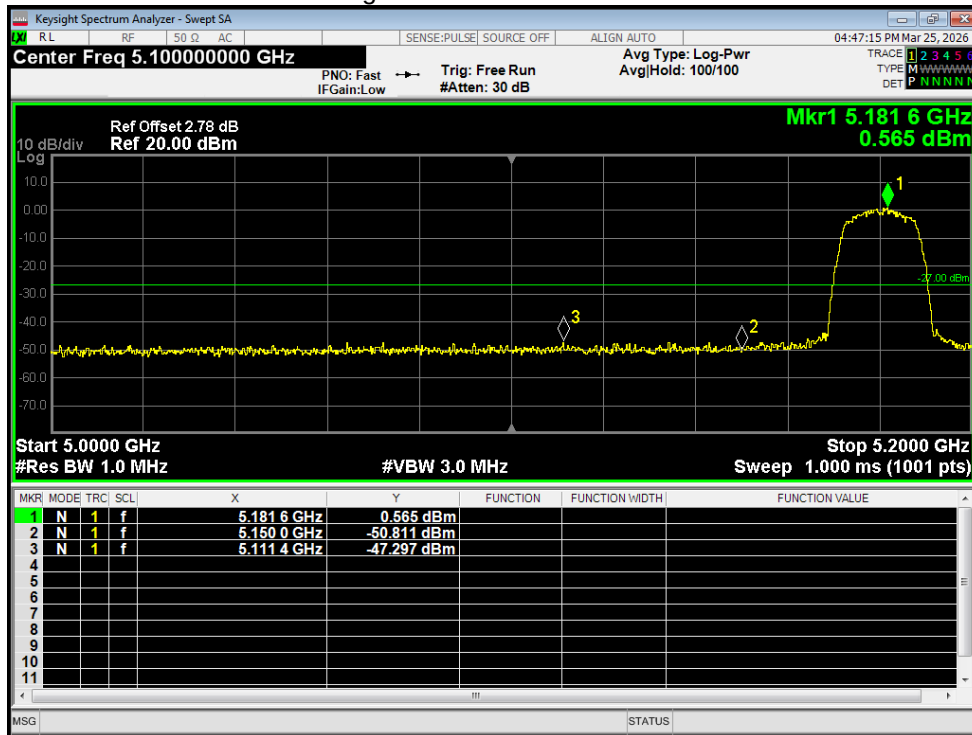


Band Edge

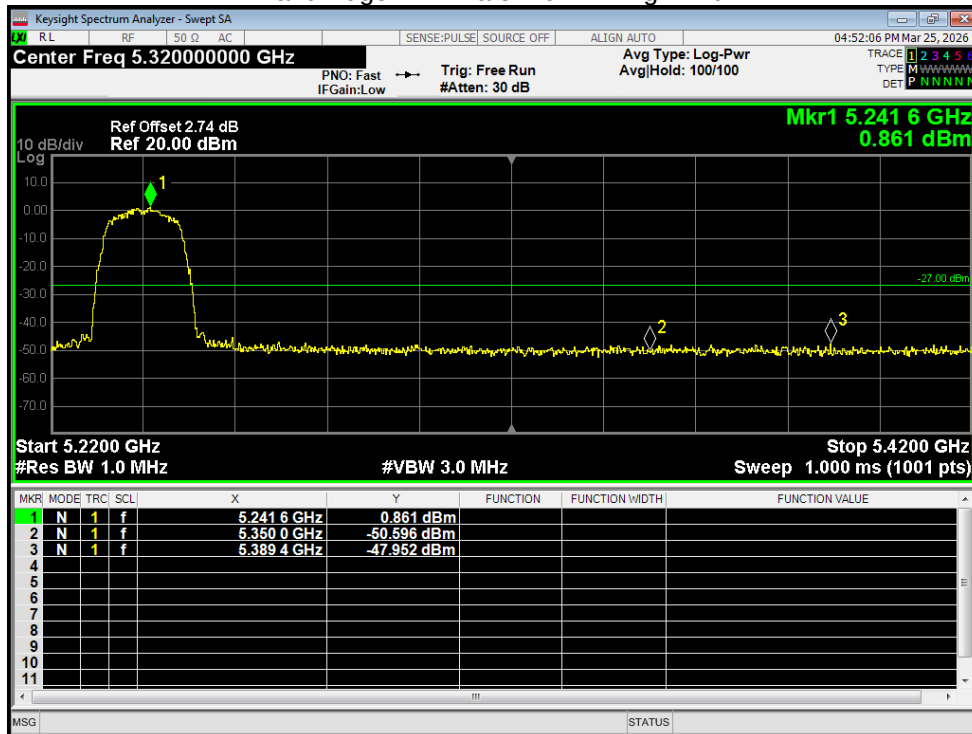
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Antenna(dBi)	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	a	5180	Ant1	-47.29	3.11	-44.18	-27	Pass
NVNT	a	5240	Ant1	-47.95	3.11	-44.84	-27	Pass
NVNT	n20	5180	Ant1	-46.66	3.11	-43.55	-27	Pass
NVNT	n20	5240	Ant1	-47.41	3.11	-44.30	-27	Pass
NVNT	n40	5190	Ant1	-47.12	3.11	-44.01	-27	Pass
NVNT	n40	5230	Ant1	-48.59	3.11	-45.48	-27	Pass
NVNT	ac20	5180	Ant1	-46.5	3.11	-43.39	-27	Pass
NVNT	ac20	5240	Ant1	-47.58	3.11	-44.47	-27	Pass
NVNT	ac40	5190	Ant1	-46.86	3.11	-43.75	-27	Pass
NVNT	ac40	5230	Ant1	-48.09	3.11	-44.98	-27	Pass
NVNT	ac80	5210	Ant1	-47.11	3.11	-44.00	-27	Pass

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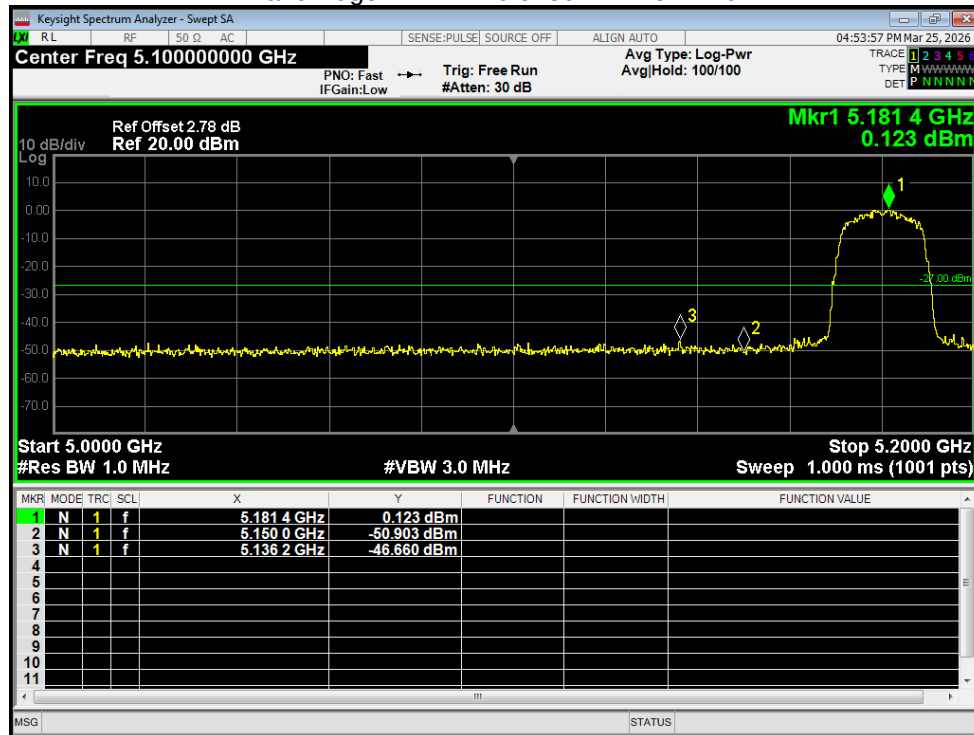
Band Edge NVNT a 5180MHz Low Ant1



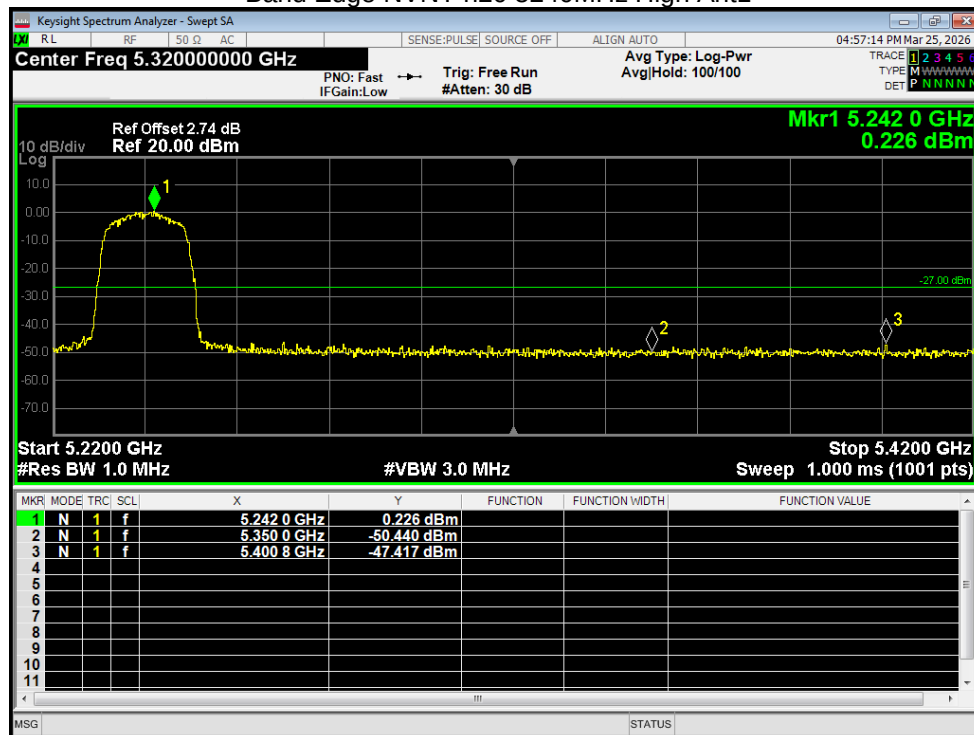
Band Edge NVNT a 5240MHz High Ant1



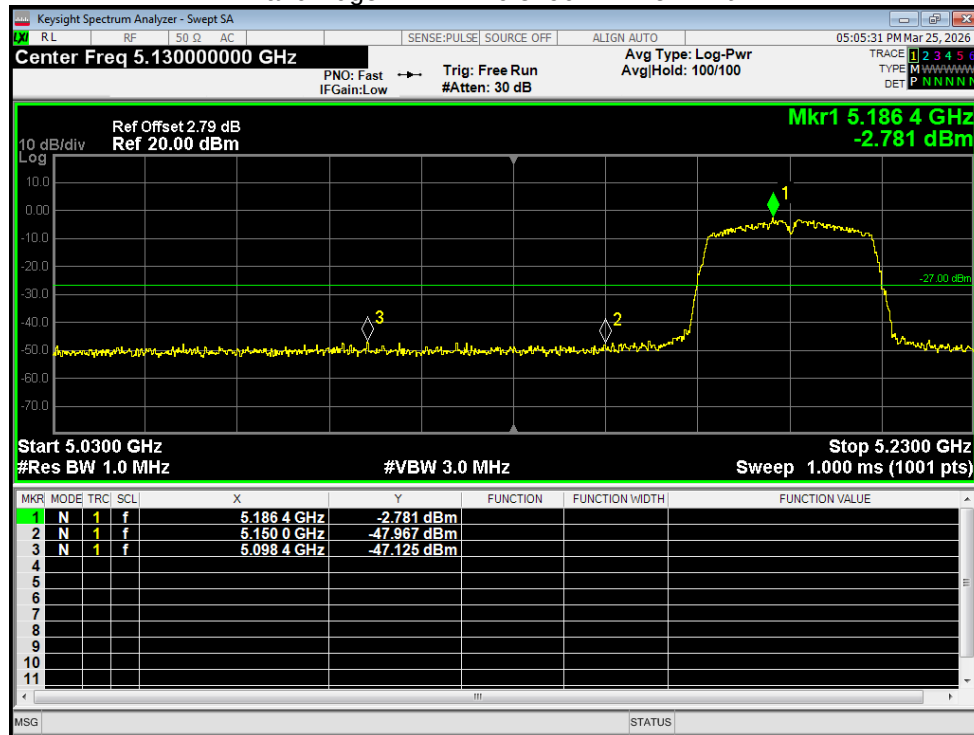
Band Edge NVNT n20 5180MHz Low Ant1



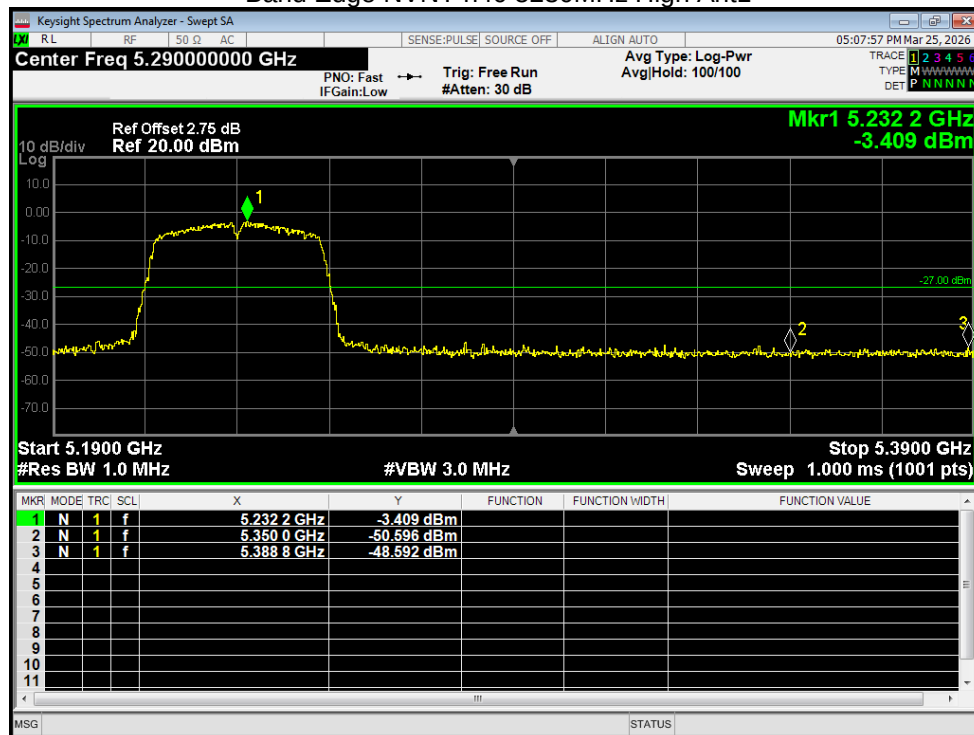
Band Edge NVNT n20 5240MHz High Ant1



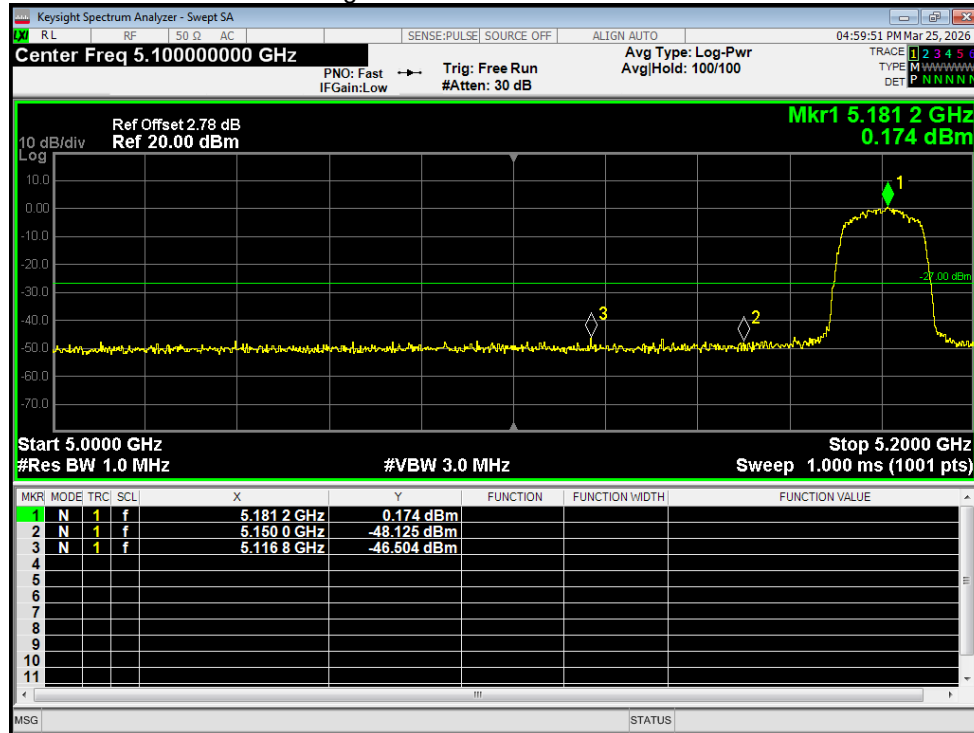
Band Edge NVNT n40 5190MHz Low Ant1



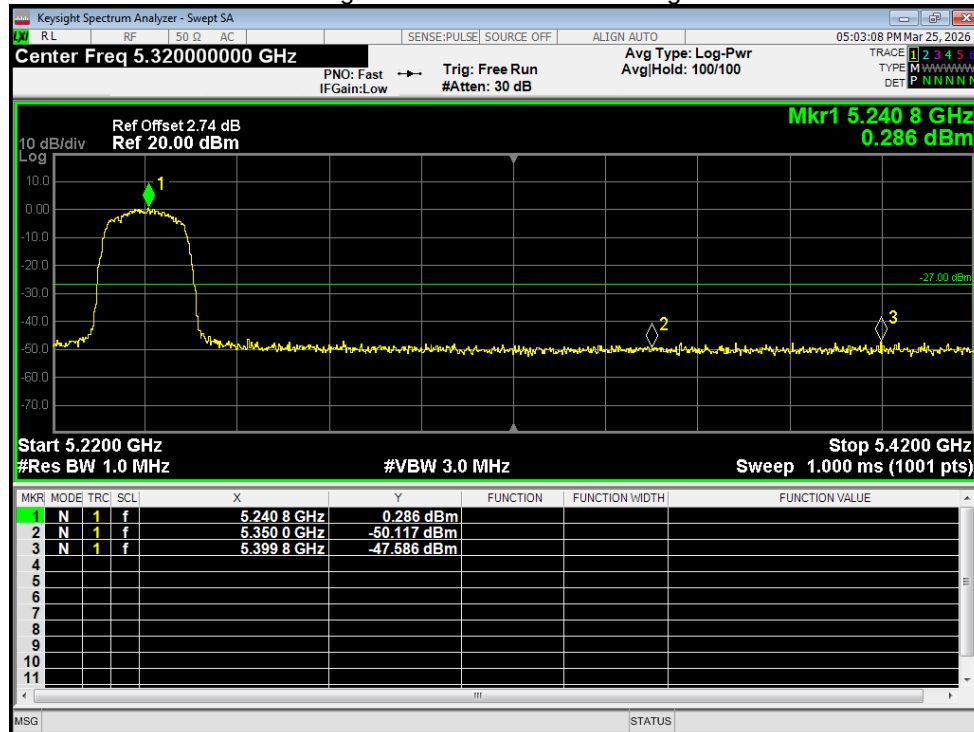
Band Edge NVNT n40 5230MHz High Ant1



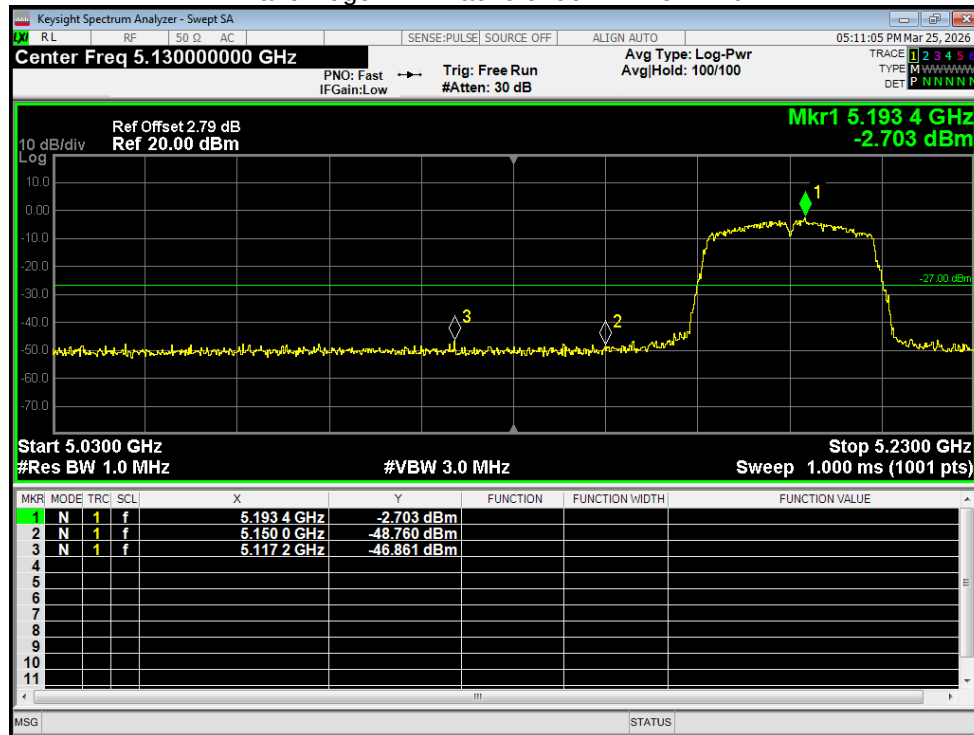
Band Edge NVNT ac20 5180MHz Low Ant1



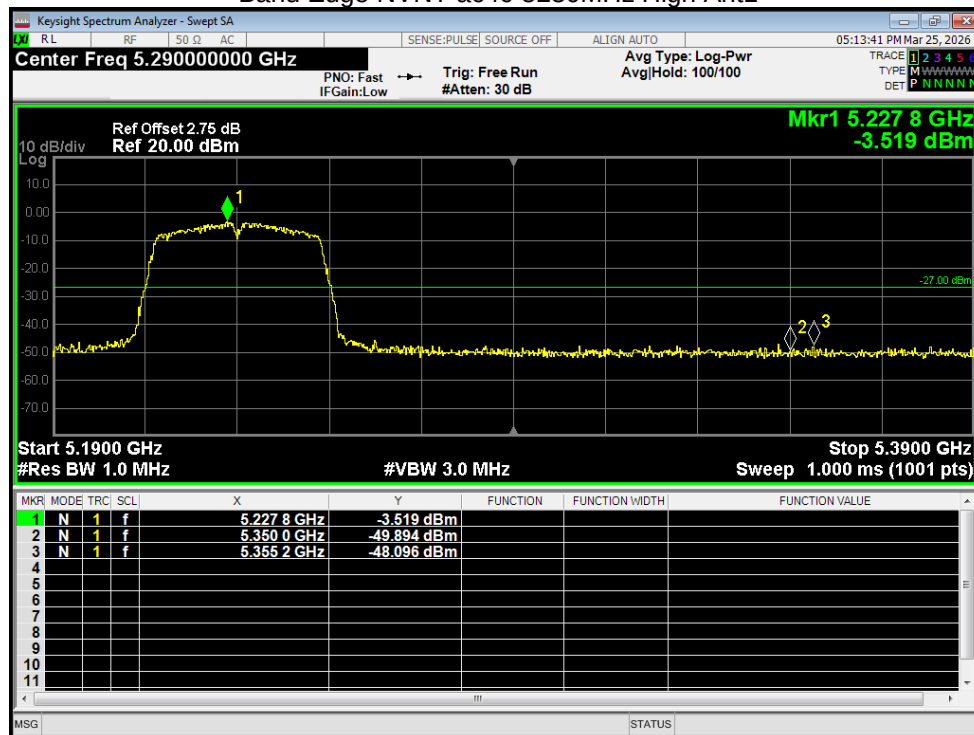
Band Edge NVNT ac20 5240MHz High Ant1



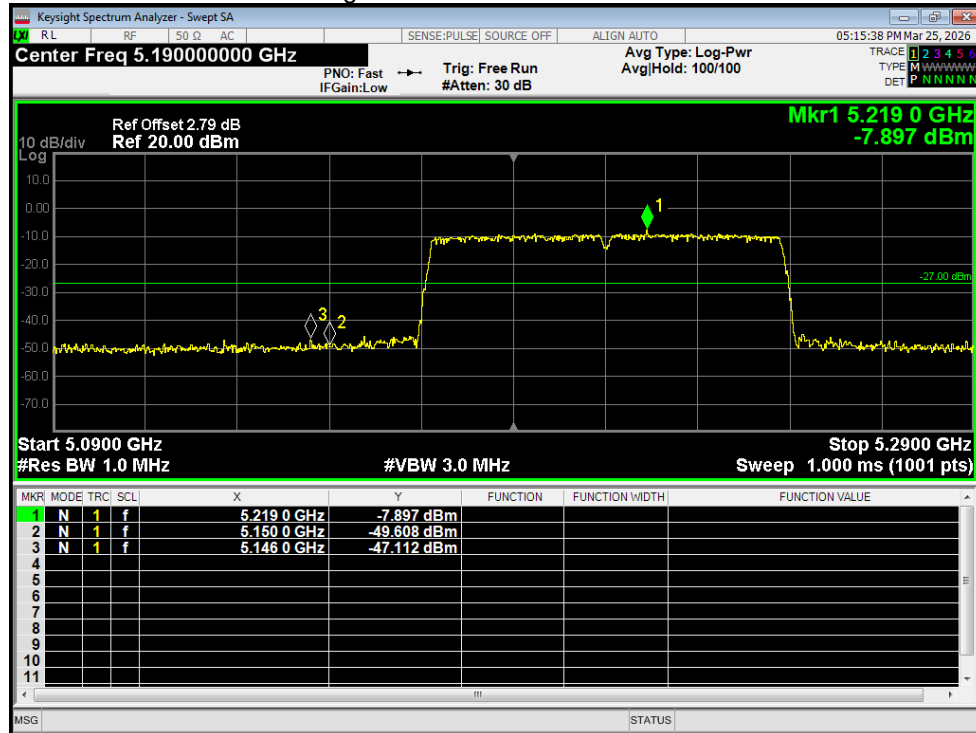
Band Edge NVNT ac40 5190MHz Low Ant1



Band Edge NVNT ac40 5230MHz High Ant1



Band Edge NVNT ac80 5210MHz Low Ant1





Band Edge

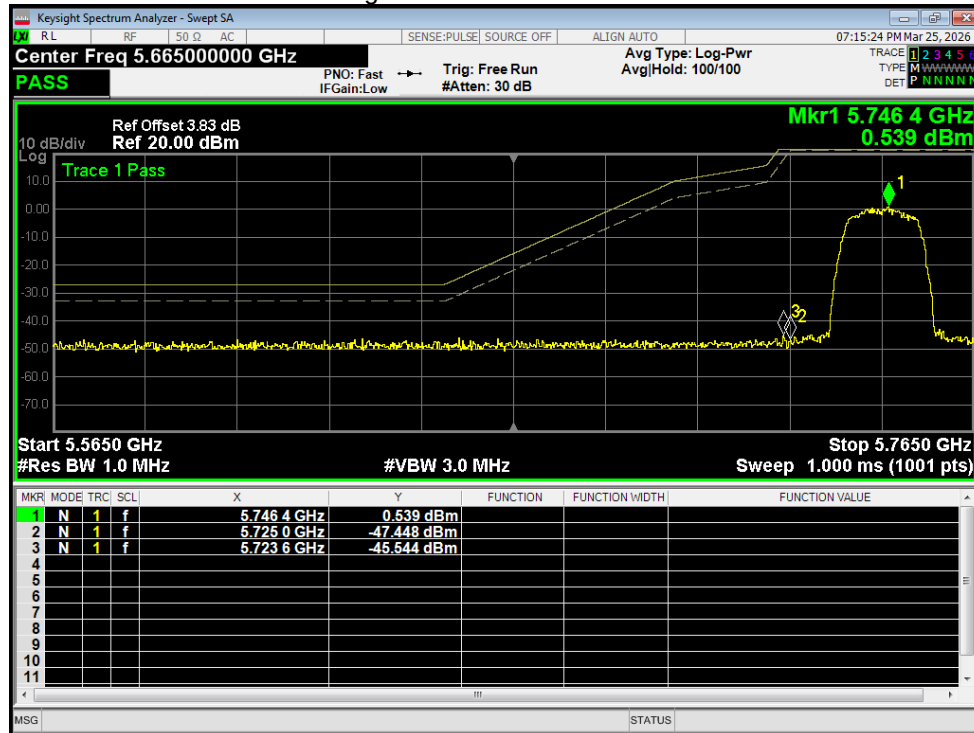
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Antenna(dBi)	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	a	5745	Ant1	-45.54	3.11	-42.43	-27	Pass
NVNT	a	5825	Ant1	-45.12	3.11	-42.01	-27	Pass
NVNT	n20	5745	Ant1	-45.46	3.11	-42.35	-27	Pass
NVNT	n20	5825	Ant1	-45.54	3.11	-42.43	-27	Pass
NVNT	n40	5755	Ant1	-44.2	3.11	-41.09	-27	Pass
NVNT	n40	5795	Ant1	-45.73	3.11	-42.62	-27	Pass
NVNT	ac20	5745	Ant1	-45.98	3.11	-42.87	-27	Pass
NVNT	ac20	5825	Ant1	-45.66	3.11	-42.55	-27	Pass
NVNT	ac40	5755	Ant1	-45.44	3.11	-42.33	-27	Pass
NVNT	ac40	5795	Ant1	-45.12	3.11	-42.01	-27	Pass
NVNT	ac80	5775	Ant1	-45.11	3.11	-42.00	-27	Pass

Note: The calculated value of Max Value+Antenna meets the requirement of meeting the minimum limit of -27dBm/MHz, while also meeting the requirements of other limits

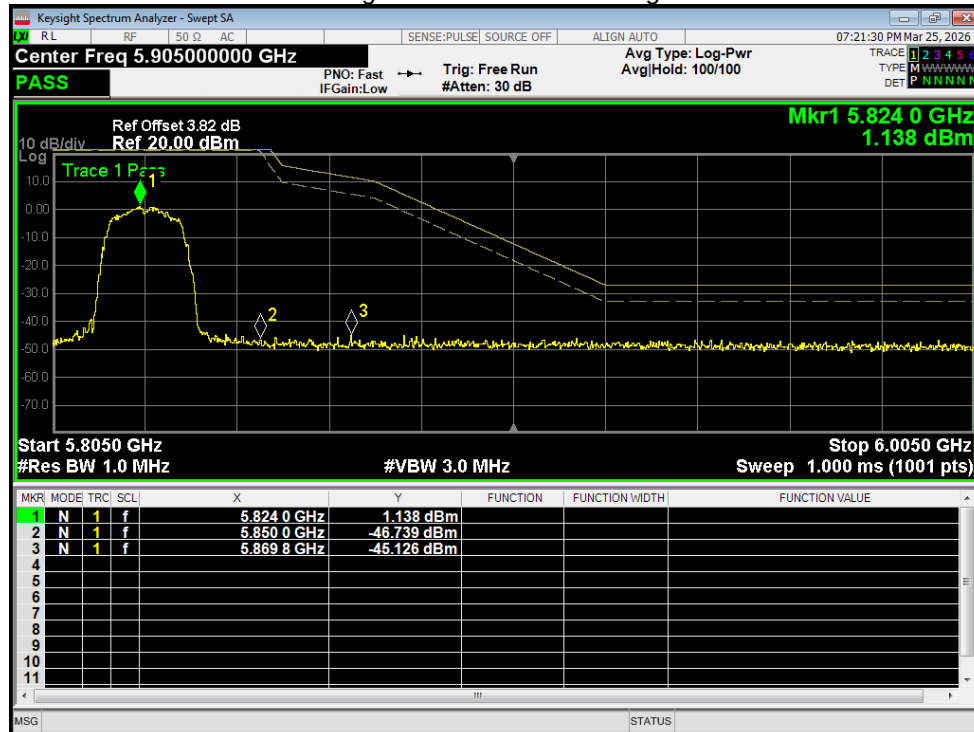


UNII-3

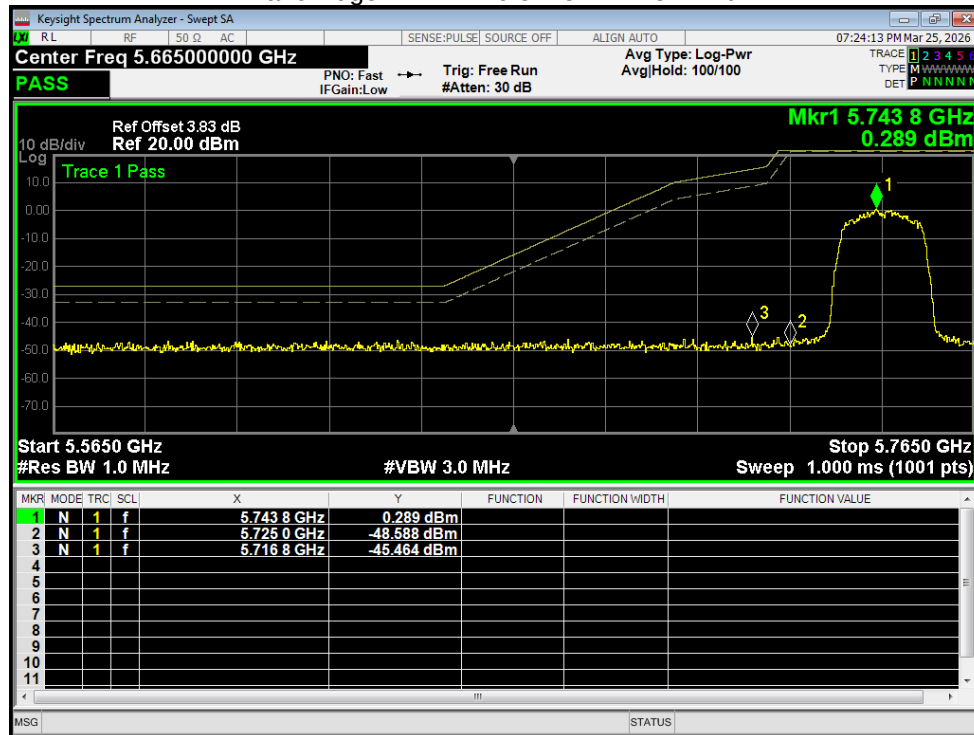
Band Edge NVNT a 5745MHz Low Ant1



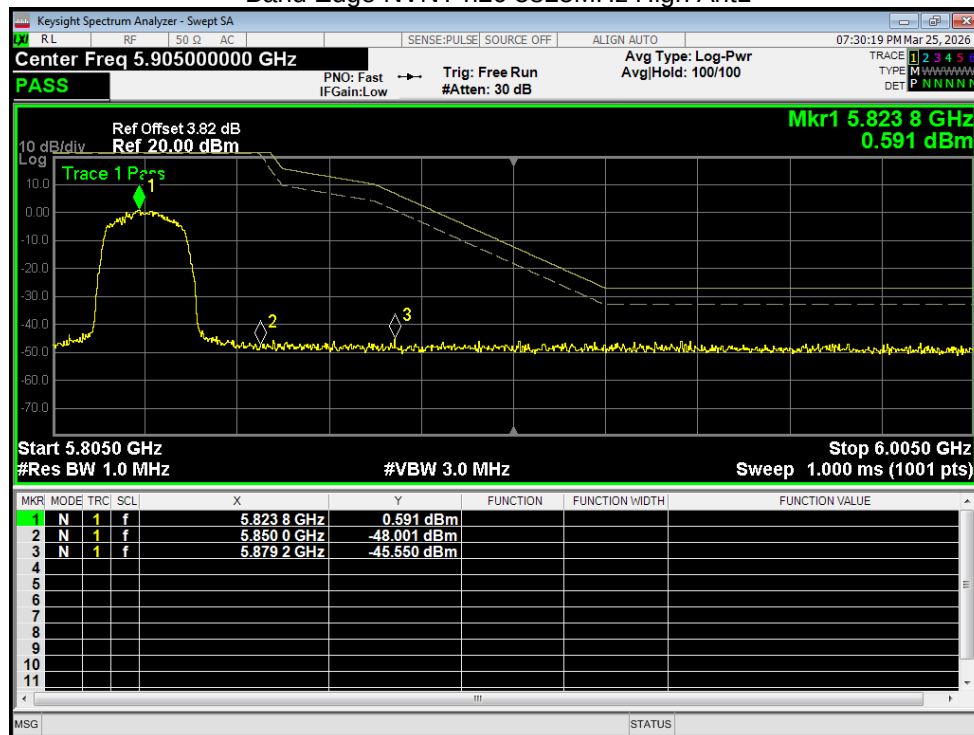
Band Edge NVNT a 5825MHz High Ant1



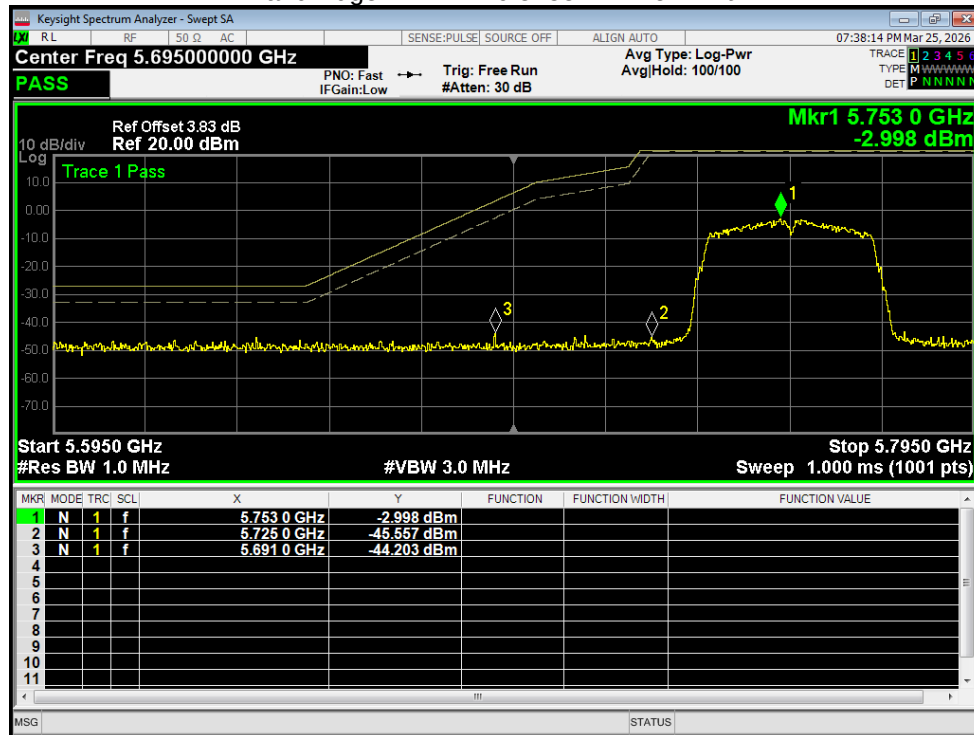
Band Edge NVNT n20 5745MHz Low Ant1



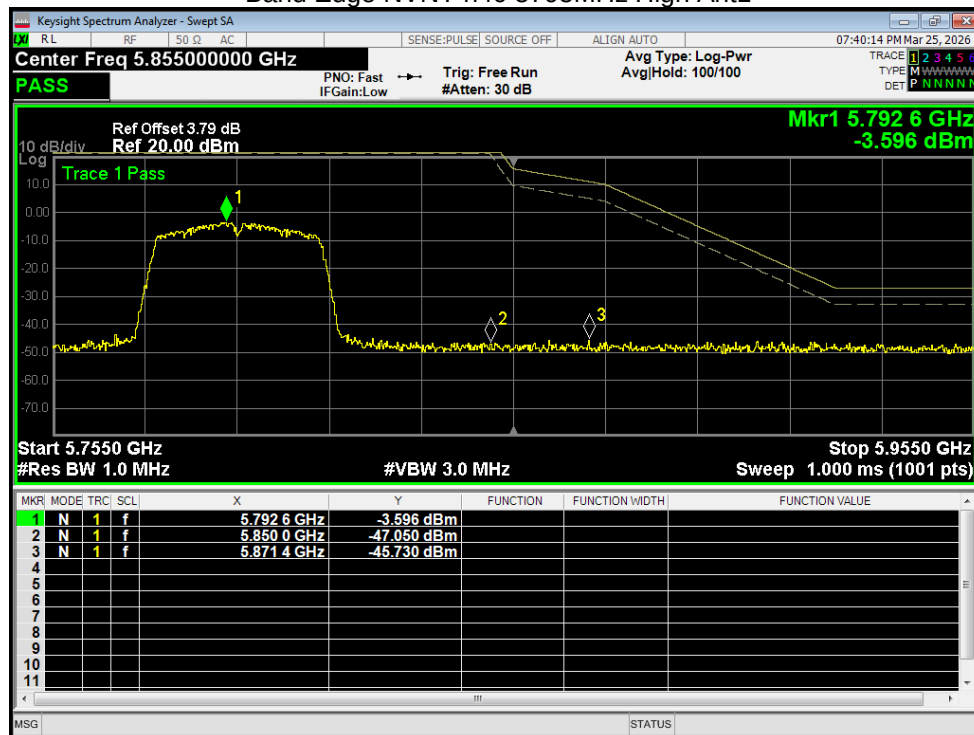
Band Edge NVNT n20 5825MHz High Ant1



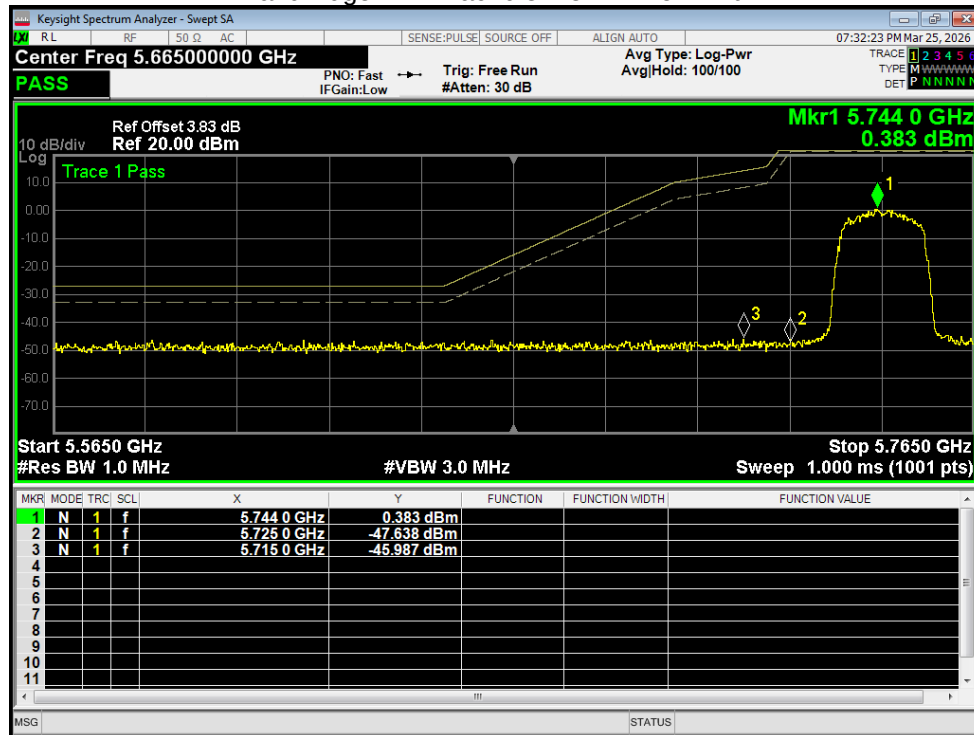
Band Edge NVNT n40 5755MHz Low Ant1



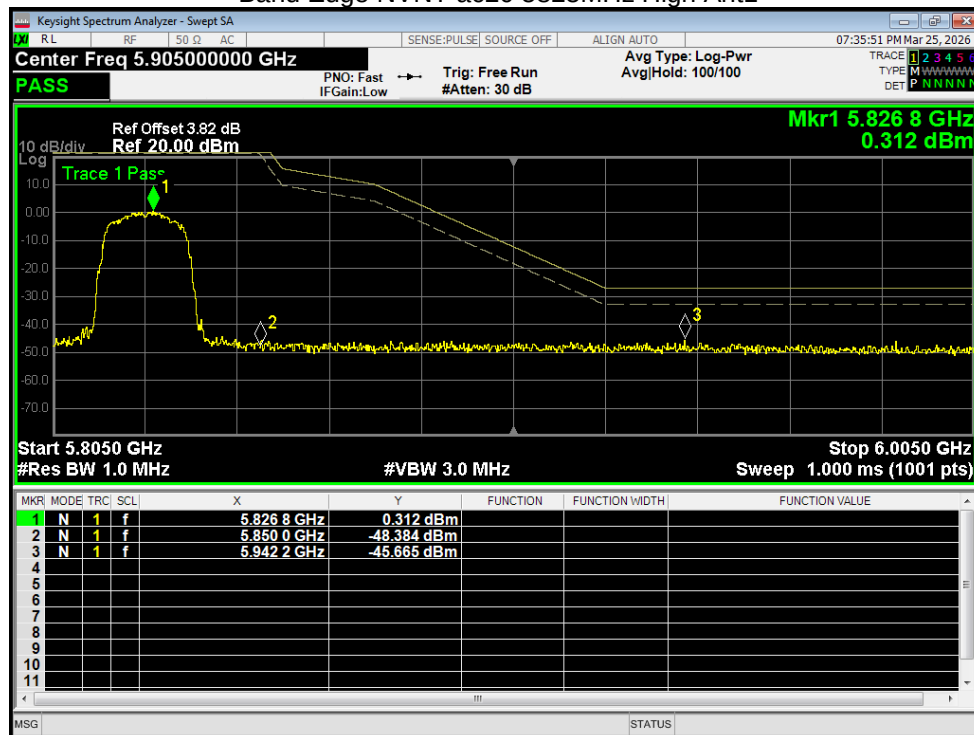
Band Edge NVNT n40 5795MHz High Ant1



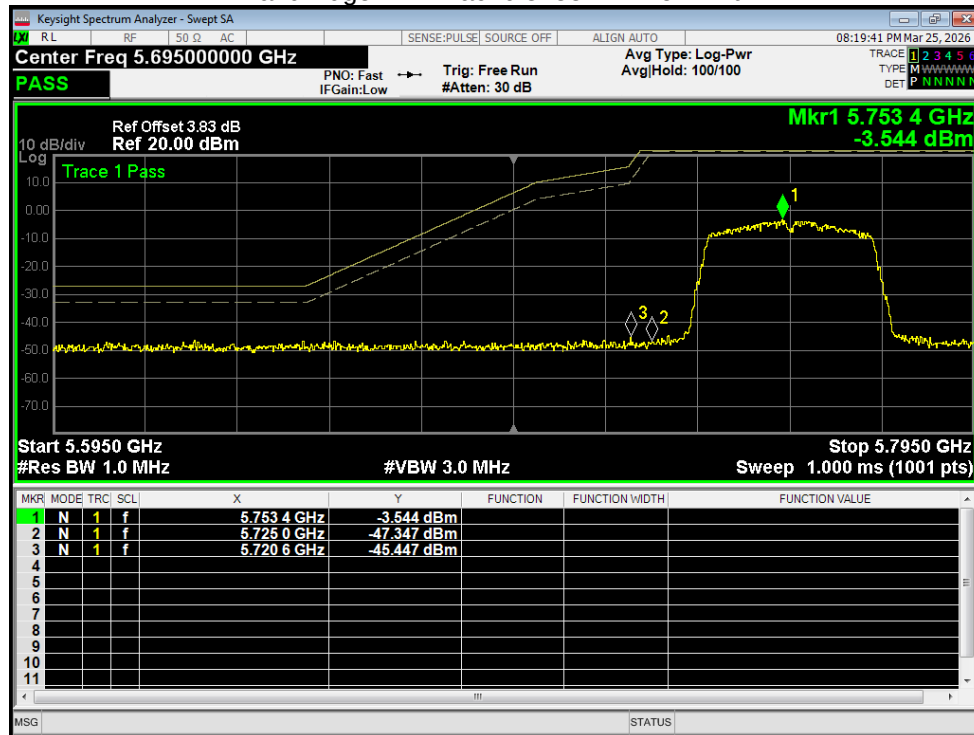
Band Edge NVNT ac20 5745MHz Low Ant1



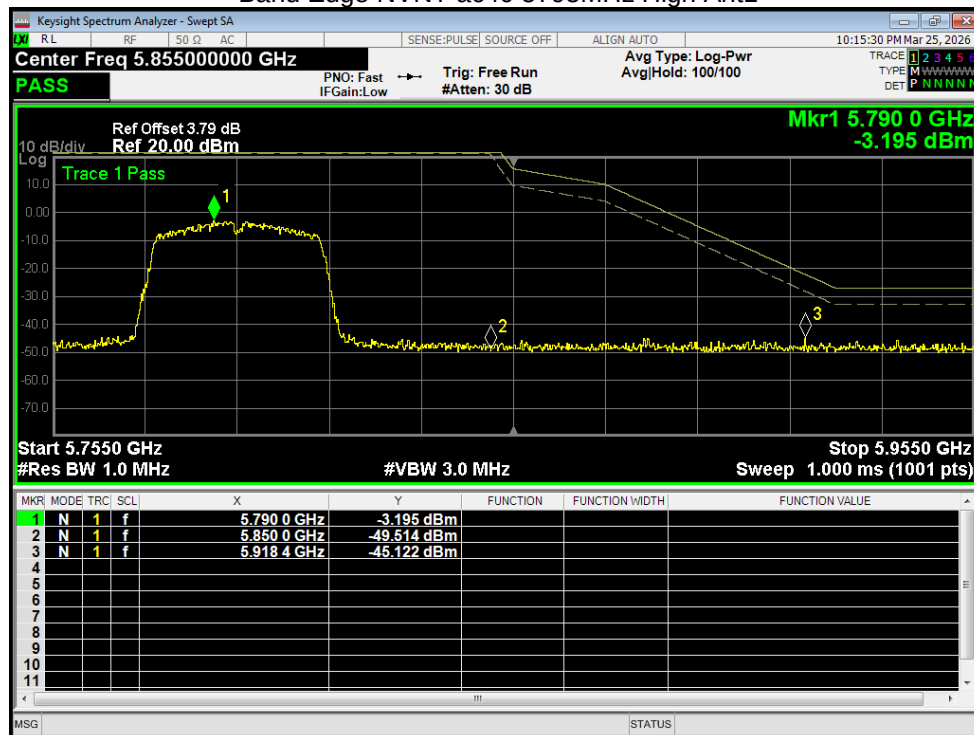
Band Edge NVNT ac20 5825MHz High Ant1



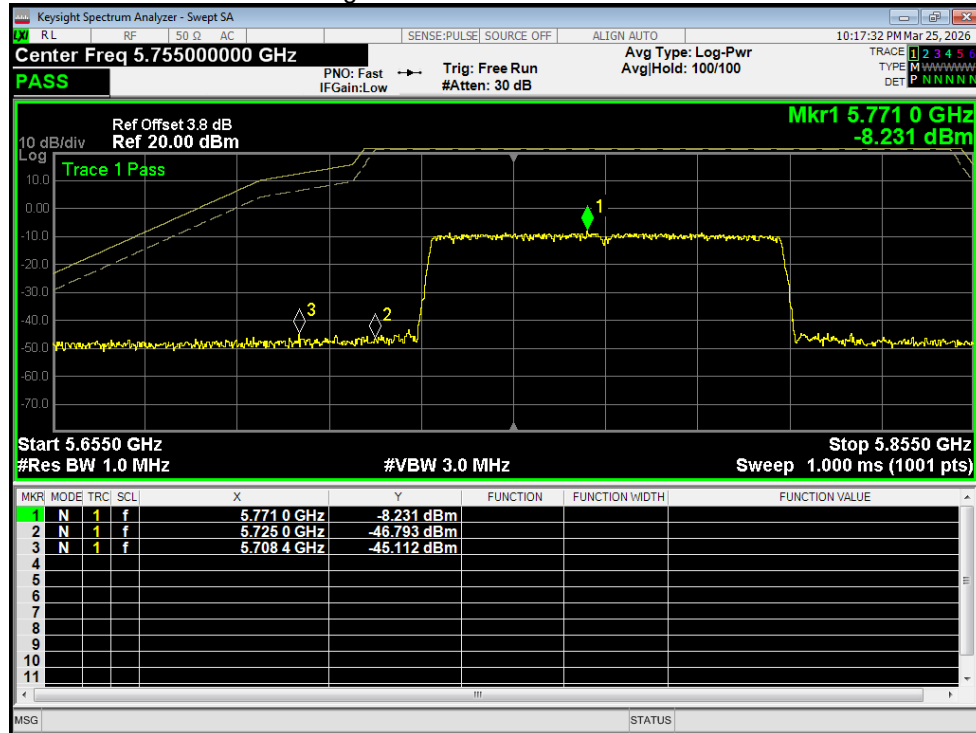
Band Edge NVNT ac40 5755MHz Low Ant1



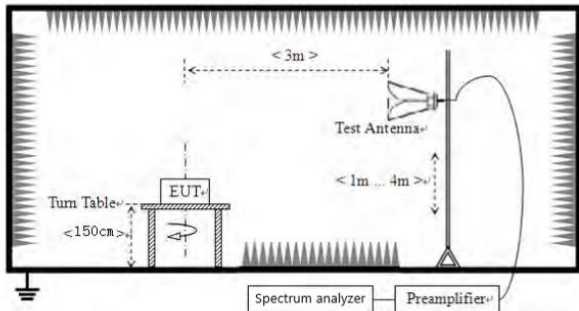
Band Edge NVNT ac40 5795MHz High Ant1



Band Edge NVNT ac80 5775MHz Low Ant1



4.6.2 Radiated test Method

Test Requirement:	47CFR Part 15.209 and 15.205				
Test Method:	ANSI C63.10-2020+COR.1-2023+COR 1-2023 § 6.10				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (dBuV/m @3m)		Remark
	30MHz-88MHz		40.0		Quasi-peak Value
	88MHz-216MHz		43.5		Quasi-peak Value
	216MHz-960MHz		46.0		Quasi-peak Value
	960MHz-1GHz		54.0		Quasi-peak Value
	Above 1GHz		54.0		Average Value
			68.2		Peak Value
	Undesirable emission 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 -27 dBm/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 -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.				
(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 -27 dBm/MHz.					
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.					
Test setup:	Above 1GHz				
					

Test Procedure:	a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.	
Test Instruments:	Refer to section 3.0 for details	
Test mode:	Refer to section 2.2 for details	
Test environment:	Temp.: 24.4°C	Humid.: 41%RH
Test voltage:	DC 7.7V From Battery	
Test results:	Pass	

Remark:

1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2.The emission levels of other frequencies are very lower than the limit and not show in test report.

3.Two antennas are tested, only the worst case's (Main Antenna) data was showed.

4.The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

5.According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:

$$E[\text{dBuV/m}] = \text{EIRP}[\text{dBm}] + 95.2;$$

For example, if EIRP = -27dBm

$$E[\text{dBuV/m}] = -27 + 95.2 = 68.2\text{dBuV/m}.$$

$$E[\text{dBuV/m}] = 10 + 95.2 = 105.2\text{dBuV/m}.$$

$$E[\text{dBuV/m}] = 15.6 + 95.2 = 110.8\text{dBuV/m}.$$

$$E[\text{dBuV/m}] = 27 + 95.2 = 122.2\text{dBuV/m}$$



IEEE 802.11a							
Operation Frequency:5180MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	48.21	-7.53	40.68	74.00	-33.32	Horizontal	PK
5150	47.52	-7.53	39.99	74.00	-34.01	Vertical	PK
5150	38.61	-7.53	31.08	54.00	-22.92	Horizontal	AV
5150	38.06	-7.53	30.53	54.00	-23.47	Vertical	AV

IEEE 802.11a							
Operation Frequency:5240MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	43.81	-7.06	36.75	74.00	-37.25	Horizontal	PK
5350	48.95	-7.06	41.89	74.00	-32.11	Vertical	PK
5350	35.10	-7.06	28.04	54.00	-25.96	Horizontal	AV
5350	39.21	-7.06	32.15	54.00	-21.85	Vertical	AV

IEEE 802.11n20							
Operation Frequency:5180MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	47.26	-7.53	39.73	74.00	-34.27	Horizontal	PK
5150	46.59	-7.53	39.06	74.00	-34.94	Vertical	PK
5150	37.85	-7.53	30.32	54.00	-23.68	Horizontal	AV
5150	37.31	-7.53	29.78	54.00	-24.22	Vertical	AV

IEEE 802.11n20							
Operation Frequency:5240MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	42.95	-7.06	35.89	74.00	-38.11	Horizontal	PK
5350	47.99	-7.06	40.93	74.00	-33.07	Vertical	PK
5350	34.40	-7.06	27.34	54.00	-26.66	Horizontal	AV
5350	38.43	-7.06	31.37	54.00	-22.63	Vertical	AV



IEEE 802.11ac20 Operation Frequency:5180MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	49.66	-7.53	42.13	74.00	-31.87	Horizontal	PK
5150	48.94	-7.53	41.41	74.00	-32.59	Vertical	PK
5150	39.76	-7.53	32.23	54.00	-21.77	Horizontal	AV
5150	39.21	-7.53	31.68	54.00	-22.32	Vertical	AV

IEEE 802.11ac20 Operation Frequency:5240MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	45.13	-7.06	38.07	74.00	-35.93	Horizontal	PK
5350	50.42	-7.06	43.36	74.00	-30.64	Vertical	PK
5350	36.14	-7.06	29.08	54.00	-24.92	Horizontal	AV
5350	40.37	-7.06	33.31	54.00	-20.69	Vertical	AV

IEEE 802.11n40 Operation Frequency:5190MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	48.69	-7.53	41.16	74.00	-32.84	Horizontal	PK
5150	48.00	-7.53	40.47	74.00	-33.53	Vertical	PK
5150	38.99	-7.53	31.46	54.00	-22.54	Horizontal	AV
5150	38.45	-7.53	30.92	54.00	-23.08	Vertical	AV

IEEE 802.11n40 Operation Frequency:5230MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	44.26	-7.06	37.20	74.00	-36.80	Horizontal	PK
5350	49.44	-7.06	42.38	74.00	-31.62	Vertical	PK
5350	35.45	-7.06	28.39	54.00	-25.61	Horizontal	AV
5350	39.60	-7.06	32.54	54.00	-21.46	Vertical	AV

IEEE 802.11ac40 Operation Frequency:5190MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	51.08	-7.53	43.55	74.00	-30.45	Horizontal	PK
5150	50.38	-7.53	42.85	74.00	-31.15	Vertical	PK
5150	40.90	-7.53	33.37	54.00	-20.63	Horizontal	AV
5150	40.33	-7.53	32.80	54.00	-21.20	Vertical	AV



IEEE 802.11ac40 Operation Frequency:5230MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	46.43	-7.06	39.37	74.00	-34.63	Horizontal	PK
5350	51.89	-7.06	44.83	74.00	-29.17	Vertical	PK
5350	37.19	-7.06	30.13	54.00	-23.87	Horizontal	AV
5350	41.55	-7.06	34.49	54.00	-19.51	Vertical	AV

IEEE 802.11ac80 Operation Frequency:5210MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5150	50.61	-7.53	43.08	74.00	-30.92	Horizontal	PK
5150	49.90	-7.53	42.37	74.00	-31.63	Vertical	PK
5150	40.53	-7.53	33.00	54.00	-21.00	Horizontal	AV
5150	39.96	-7.53	32.43	54.00	-21.57	Vertical	AV

IEEE 802.11ac80 Operation Frequency:5210MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5350	46.00	-7.06	38.94	74.00	-35.06	Horizontal	PK
5350	51.40	-7.06	44.34	74.00	-29.66	Vertical	PK
5350	36.84	-7.06	29.78	54.00	-24.22	Horizontal	AV
5350	41.15	-7.06	34.09	54.00	-19.91	Vertical	AV



Measurement data:

IEEE 802.11a							
Operation Frequency:5745MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	47.85	-6.34	41.51	68.20	-26.69	Horizontal	PK
5650	35.56	-6.34	29.22	54.00	-24.78	Horizontal	AV
5700	45.34	-6.22	39.12	105.20	-66.08	Horizontal	PK
5700	34.19	-6.22	27.97	54.00	-26.03	Horizontal	AV
5720	48.55	-6.17	42.38	110.80	-68.42	Horizontal	PK
5720	37.34	-6.17	31.17	54.00	-22.83	Horizontal	AV
5725	50.00	-6.16	43.84	122.20	-78.36	Horizontal	PK
5725	38.47	-6.16	32.31	54.00	-21.69	Horizontal	AV
5650	50.40	-6.34	44.06	68.20	-24.14	Vertical	PK
5650	38.50	-6.34	32.16	54.00	-21.84	Vertical	AV
5700	54.48	-6.22	48.26	105.20	-56.94	Vertical	PK
5700	42.90	-6.22	36.68	54.00	-17.32	Vertical	AV
5720	51.32	-6.17	45.15	110.80	-65.66	Vertical	PK
5720	44.01	-6.17	37.84	54.00	-16.16	Vertical	AV
5725	48.90	-6.16	42.74	122.20	-79.46	Vertical	PK
5725	38.98	-6.16	32.82	54.00	-21.18	Vertical	AV

IEEE 802.11a							
Operation Frequency:5825MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	57.11	-5.87	51.24	122.20	-70.96	Vertical	PK
5850	43.01	-5.87	37.14	54.00	-16.86	Vertical	AV
5855	53.59	-5.85	47.74	110.80	-63.06	Vertical	PK
5855	44.01	-5.85	38.16	54.00	-15.84	Vertical	AV
5875	48.36	-5.80	42.56	105.20	-62.64	Vertical	PK
5875	36.16	-5.80	30.36	54.00	-23.64	Vertical	AV
5925	47.56	-5.68	41.88	68.20	-26.32	Vertical	PK
5925	37.35	-5.68	31.67	54.00	-22.33	Vertical	AV
5850	45.20	-5.87	39.33	122.20	-82.87	Horizontal	PK
5850	33.90	-5.87	28.03	54.00	-25.97	Horizontal	AV
5855	43.52	-5.85	37.67	110.80	-73.13	Horizontal	PK
5855	34.44	-5.85	28.59	54.00	-25.41	Horizontal	AV
5875	48.35	-5.80	42.55	105.20	-62.65	Horizontal	PK
5875	36.87	-5.80	31.07	54.00	-22.93	Horizontal	AV
5925	57.16	-5.68	51.48	68.20	-16.72	Horizontal	PK
5925	40.48	-5.68	34.80	54.00	-19.20	Horizontal	AV



IEEE 802.11n20							
Operation Frequency:5745MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	48.79	-6.34	42.45	68.20	-25.75	Horizontal	PK
5650	36.26	-6.34	29.92	54.00	-24.08	Horizontal	AV
5700	46.25	-6.22	40.03	105.20	-65.17	Horizontal	PK
5700	34.87	-6.22	28.65	54.00	-25.35	Horizontal	AV
5720	49.52	-6.17	43.35	110.80	-67.45	Horizontal	PK
5720	38.08	-6.17	31.91	54.00	-22.09	Horizontal	AV
5725	51.00	-6.16	44.84	122.20	-77.36	Horizontal	PK
5725	39.23	-6.16	33.07	54.00	-20.93	Horizontal	AV
5650	51.41	-6.34	45.07	68.20	-23.13	Vertical	PK
5650	39.26	-6.34	32.92	54.00	-21.08	Vertical	AV
5700	55.57	-6.22	49.35	105.20	-55.85	Vertical	PK
5700	43.75	-6.22	37.53	54.00	-16.47	Vertical	AV
5720	52.34	-6.17	46.17	110.80	-64.63	Vertical	PK
5720	44.88	-6.17	38.71	54.00	-15.29	Vertical	AV
5725	49.87	-6.16	43.71	122.20	-78.49	Vertical	PK
5725	39.76	-6.16	33.60	54.00	-20.40	Vertical	AV

IEEE 802.11n20							
Operation Frequency:5825MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	58.24	-5.87	52.37	122.20	-69.83	Vertical	PK
5850	43.87	-5.87	38.00	54.00	-16.00	Vertical	AV
5855	54.66	-5.85	48.81	110.80	-61.99	Vertical	PK
5855	44.88	-5.85	39.03	54.00	-14.97	Vertical	AV
5875	49.32	-5.80	43.52	105.20	-61.68	Vertical	PK
5875	36.88	-5.80	31.08	54.00	-22.92	Vertical	AV
5925	48.51	-5.68	42.83	68.20	-25.37	Vertical	PK
5925	38.09	-5.68	32.41	54.00	-21.59	Vertical	AV
5850	46.11	-5.87	40.24	122.20	-81.96	Horizontal	PK
5850	34.58	-5.87	28.71	54.00	-25.30	Horizontal	AV
5855	44.39	-5.85	38.54	110.80	-72.26	Horizontal	PK
5855	35.12	-5.85	29.27	54.00	-24.73	Horizontal	AV
5875	49.31	-5.80	43.51	105.20	-61.69	Horizontal	PK
5875	37.61	-5.80	31.81	54.00	-22.19	Horizontal	AV
5925	58.29	-5.68	52.61	68.20	-15.59	Horizontal	PK
5925	41.28	-5.68	35.60	54.00	-18.40	Horizontal	AV



IEEE 802.11ac20							
Operation Frequency:5745MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	45.47	-6.34	39.13	68.20	-29.07	Horizontal	PK
5650	33.79	-6.34	27.45	54.00	-26.55	Horizontal	AV
5700	43.08	-6.22	36.86	105.20	-68.34	Horizontal	PK
5700	32.49	-6.22	26.27	54.00	-27.73	Horizontal	AV
5720	46.13	-6.17	39.96	110.80	-70.84	Horizontal	PK
5720	35.48	-6.17	29.31	54.00	-24.69	Horizontal	AV
5725	47.51	-6.16	41.35	122.20	-80.85	Horizontal	PK
5725	36.56	-6.16	30.40	54.00	-23.60	Horizontal	AV
5650	47.89	-6.34	41.55	68.20	-26.65	Vertical	PK
5650	36.58	-6.34	30.24	54.00	-23.76	Vertical	AV
5700	51.77	-6.22	45.55	105.20	-59.65	Vertical	PK
5700	40.76	-6.22	34.54	54.00	-19.46	Vertical	AV
5720	48.77	-6.17	42.60	110.80	-68.20	Vertical	PK
5720	41.82	-6.17	35.65	54.00	-18.35	Vertical	AV
5725	46.47	-6.16	40.31	122.20	-81.89	Vertical	PK
5725	37.05	-6.16	30.89	54.00	-23.11	Vertical	AV

IEEE 802.11ac20							
Operation Frequency:5825MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	54.27	-5.87	48.40	122.20	-73.80	Vertical	PK
5850	40.87	-5.87	35.00	54.00	-19.00	Vertical	AV
5855	50.92	-5.85	45.07	110.80	-65.73	Vertical	PK
5855	41.82	-5.85	35.97	54.00	-18.03	Vertical	AV
5875	45.94	-5.80	40.14	105.20	-65.06	Vertical	PK
5875	34.36	-5.80	28.56	54.00	-25.44	Vertical	AV
5925	45.19	-5.68	39.51	68.20	-28.69	Vertical	PK
5925	35.49	-5.68	29.81	54.00	-24.19	Vertical	AV
5850	42.95	-5.87	37.08	122.20	-85.12	Horizontal	PK
5850	32.21	-5.87	26.34	54.00	-27.66	Horizontal	AV
5855	41.35	-5.85	35.50	110.80	-75.30	Horizontal	PK
5855	32.73	-5.85	26.88	54.00	-27.12	Horizontal	AV
5875	45.93	-5.80	40.13	105.20	-65.07	Horizontal	PK
5875	35.04	-5.80	29.24	54.00	-24.76	Horizontal	AV
5925	54.30	-5.68	48.62	68.20	-19.58	Horizontal	PK
5925	38.46	-5.68	32.78	54.00	-21.22	Horizontal	AV



IEEE 802.11n40							
Operation Frequency:5755MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	48.31	-6.34	41.97	68.20	-26.23	Horizontal	PK
5650	35.90	-6.34	29.56	54.00	-24.44	Horizontal	AV
5700	45.79	-6.22	39.57	105.20	-65.63	Horizontal	PK
5700	34.54	-6.22	28.32	54.00	-25.68	Horizontal	AV
5720	49.04	-6.17	42.87	110.80	-67.93	Horizontal	PK
5720	37.71	-6.17	31.54	54.00	-22.46	Horizontal	AV
5725	50.51	-6.16	44.35	122.20	-77.85	Horizontal	PK
5725	38.85	-6.16	32.69	54.00	-21.31	Horizontal	AV
5650	50.91	-6.34	44.57	68.20	-23.63	Vertical	PK
5650	38.88	-6.34	32.54	54.00	-21.46	Vertical	AV
5700	55.03	-6.22	48.81	105.20	-56.39	Vertical	PK
5700	43.34	-6.22	37.12	54.00	-16.88	Vertical	AV
5720	51.83	-6.17	45.66	110.80	-65.14	Vertical	PK
5720	44.44	-6.17	38.27	54.00	-15.73	Vertical	AV
5725	49.38	-6.16	43.22	122.20	-78.98	Vertical	PK
5725	39.37	-6.16	33.21	54.00	-20.79	Vertical	AV

IEEE 802.11n40							
Operation Frequency:5795MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	57.69	-5.87	51.82	122.20	-70.38	Vertical	PK
5850	43.44	-5.87	37.57	54.00	-16.43	Vertical	AV
5855	54.13	-5.85	48.28	110.80	-62.52	Vertical	PK
5855	44.44	-5.85	38.59	54.00	-15.41	Vertical	AV
5875	48.83	-5.80	43.03	105.20	-62.17	Vertical	PK
5875	36.52	-5.80	30.72	54.00	-23.28	Vertical	AV
5925	48.03	-5.68	42.35	68.20	-25.85	Vertical	PK
5925	37.72	-5.68	32.04	54.00	-21.96	Vertical	AV
5850	45.65	-5.87	39.78	122.20	-82.42	Horizontal	PK
5850	34.24	-5.87	28.37	54.00	-25.63	Horizontal	AV
5855	43.96	-5.85	38.11	110.80	-72.69	Horizontal	PK
5855	34.79	-5.85	28.94	54.00	-25.06	Horizontal	AV
5875	48.82	-5.80	43.02	105.20	-62.18	Horizontal	PK
5875	37.24	-5.80	31.44	54.00	-22.56	Horizontal	AV
5925	57.72	-5.68	52.04	68.20	-16.16	Horizontal	PK
5925	40.88	-5.68	35.20	54.00	-18.80	Horizontal	AV



IEEE 802.11ac40							
Operation Frequency:5755MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	50.70	-6.34	44.36	68.20	-23.84	Horizontal	PK
5650	37.68	-6.34	31.34	54.00	-22.66	Horizontal	AV
5700	48.05	-6.22	41.83	105.20	-63.37	Horizontal	PK
5700	36.23	-6.22	30.01	54.00	-23.99	Horizontal	AV
5720	51.45	-6.17	45.28	110.80	-65.52	Horizontal	PK
5720	39.57	-6.17	33.40	54.00	-20.60	Horizontal	AV
5725	53.00	-6.16	46.84	122.20	-75.36	Horizontal	PK
5725	40.77	-6.16	34.61	54.00	-19.39	Horizontal	AV
5650	53.42	-6.34	47.08	68.20	-21.12	Vertical	PK
5650	40.80	-6.34	34.46	54.00	-19.54	Vertical	AV
5700	57.73	-6.22	51.51	105.20	-53.69	Vertical	PK
5700	45.47	-6.22	39.25	54.00	-14.75	Vertical	AV
5720	54.38	-6.17	48.21	110.80	-62.59	Vertical	PK
5720	46.64	-6.17	40.47	54.00	-13.53	Vertical	AV
5725	51.82	-6.16	45.66	122.20	-76.54	Vertical	PK
5725	41.32	-6.16	35.16	54.00	-18.84	Vertical	AV

IEEE 802.11ac40							
Operation Frequency:5795MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	60.53	-5.87	54.66	122.20	-67.54	Vertical	PK
5850	45.59	-5.87	39.72	54.00	-14.28	Vertical	AV
5855	56.80	-5.85	50.95	110.80	-59.85	Vertical	PK
5855	46.64	-5.85	40.79	54.00	-13.21	Vertical	AV
5875	51.25	-5.80	45.45	105.20	-59.75	Vertical	PK
5875	38.32	-5.80	32.52	54.00	-21.48	Vertical	AV
5925	50.40	-5.68	44.72	68.20	-23.48	Vertical	PK
5925	39.58	-5.68	33.90	54.00	-20.10	Vertical	AV
5850	47.90	-5.87	42.03	122.20	-80.17	Horizontal	PK
5850	35.92	-5.87	30.05	54.00	-23.95	Horizontal	AV
5855	46.13	-5.85	40.28	110.80	-70.52	Horizontal	PK
5855	36.50	-5.85	30.65	54.00	-23.35	Horizontal	AV
5875	51.24	-5.80	45.44	105.20	-59.76	Horizontal	PK
5875	39.08	-5.80	33.28	54.00	-20.72	Horizontal	AV
5925	60.57	-5.68	54.89	68.20	-13.31	Horizontal	PK
5925	42.90	-5.68	37.22	54.00	-16.78	Horizontal	AV



IEEE 802.11ac80							
Operation Frequency:5775MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5650	48.57	-6.34	42.23	68.20	-25.97	Horizontal	PK
5650	35.93	-6.34	29.59	54.00	-24.41	Horizontal	AV
5700	46.00	-6.22	39.78	105.20	-65.42	Horizontal	PK
5700	34.52	-6.22	28.30	54.00	-25.70	Horizontal	AV
5720	49.31	-6.17	43.14	110.80	-67.66	Horizontal	PK
5720	37.76	-6.17	31.59	54.00	-22.41	Horizontal	AV
5725	50.80	-6.16	44.64	122.20	-77.56	Horizontal	PK
5725	38.92	-6.16	32.76	54.00	-21.24	Horizontal	AV
5650	51.21	-6.34	44.87	68.20	-23.33	Vertical	PK
5650	38.96	-6.34	32.62	54.00	-21.38	Vertical	AV
5700	55.42	-6.22	49.20	105.20	-56.00	Vertical	PK
5700	43.49	-6.22	37.27	54.00	-16.73	Vertical	AV
5720	52.16	-6.17	45.99	110.80	-64.81	Vertical	PK
5720	44.63	-6.17	38.46	54.00	-15.54	Vertical	AV
5725	49.66	-6.16	43.50	122.20	-78.70	Vertical	PK
5725	39.46	-6.16	33.30	54.00	-20.70	Vertical	AV

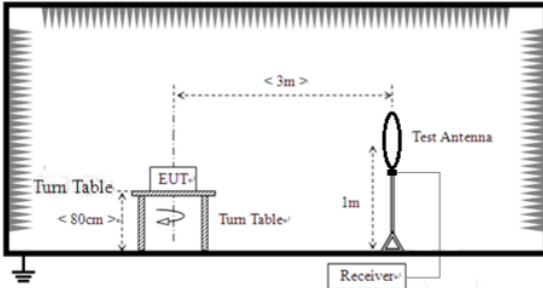
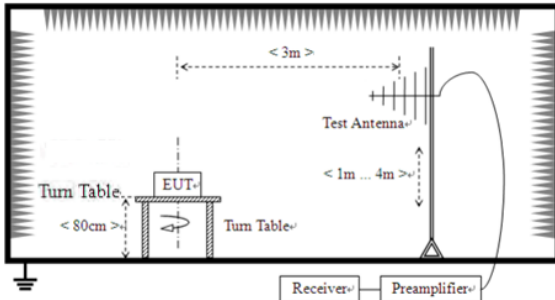
IEEE 802.11ac80							
Operation Frequency:5775MHz							
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Detect or Type
5850	58.82	-5.87	52.95	122.20	-69.25	Vertical	PK
5850	44.29	-5.87	38.42	54.00	-15.58	Vertical	AV
5855	55.20	-5.85	49.35	110.80	-61.45	Vertical	PK
5855	45.32	-5.85	39.47	54.00	-14.53	Vertical	AV
5875	49.80	-5.80	44.00	105.20	-61.20	Vertical	PK
5875	37.23	-5.80	31.43	54.00	-22.57	Vertical	AV
5925	48.98	-5.68	43.30	68.20	-24.90	Vertical	PK
5925	38.46	-5.68	32.78	54.00	-21.22	Vertical	AV
5850	46.54	-5.87	40.67	122.20	-81.53	Horizontal	PK
5850	34.92	-5.87	29.05	54.00	-24.95	Horizontal	AV
5855	44.81	-5.85	38.96	110.80	-71.84	Horizontal	PK
5855	35.47	-5.85	29.62	54.00	-24.38	Horizontal	AV
5875	49.79	-5.80	43.99	105.20	-61.21	Horizontal	PK
5875	37.98	-5.80	32.18	54.00	-21.82	Horizontal	AV
5925	58.86	-5.68	53.18	68.20	-15.02	Horizontal	PK
5925	41.68	-5.68	36.00	54.00	-18.00	Horizontal	AV

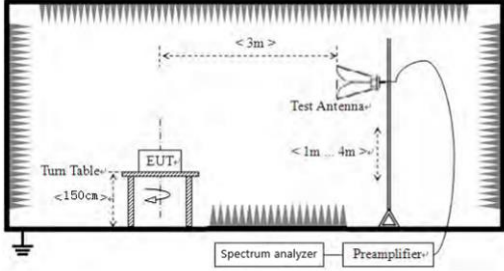
Remark:

Factor =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

4.7 Spurious Emission

4.7.1 Radiated Emission Method

Test Requirement:	47CFR Part 15.209, Part 15E Section 15.407(b)(4)				
Test Method:	ANSI C63.10-2020+COR.1-2023§6.4&6.5&6.6				
Test Frequency Range:	9kHz to 40GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		AV	1MHz	3MHz	Average Value
Limit:	Frequency		Limit (uV/m)	Value	Measurement Distance
	0.009MHz-0.490MHz		2400/F(KHz)	QP	300m
	0.490MHz-1.705MHz		24000/F(KHz)	QP	300m
	1.705MHz-30MHz		30	QP	30m
	30MHz-88MHz		100	QP	3m
	88MHz-216MHz		150	QP	
	216MHz-960MHz		200	QP	
	960MHz-1GHz		500	QP	
	Frequency		Limit (dBm/MHz)	Remark	
	Above 1GHz		-27.0	Peak Value	
Test setup:	For radiated emissions from 9kHz to 30MHz				
					
	For radiated emissions from 30MHz to1GHz				
					
	For radiated emissions above 1GHz				

	
Test Procedure:	1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.
Test Instruments:	Refer to section 3.0 for details
Test mode:	Refer to section 2.2 for details
Test results:	Pass

Remarks:

1. The report only shows the worst mode.
2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.
3. All models and modes have been tested, and the report only displays the worst mode 802.11ac20 (5180MHz) data
4. All adapters were tested, and found the Model: GM60-240250-F had the worst test data, and only show the worst case data in the report
5. Three structurals have been tested, and the report only show the worst test data(structural 3)

Measurement Data:

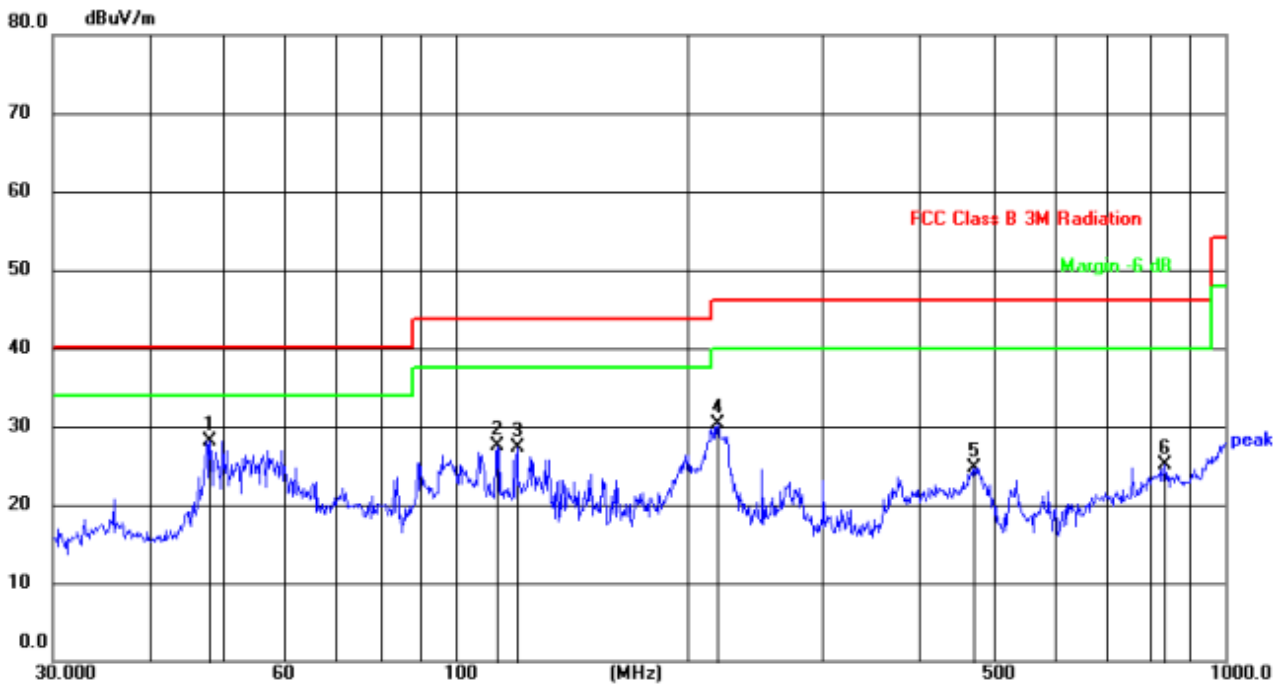
9 kHz ~ 30 MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Below 1GHz

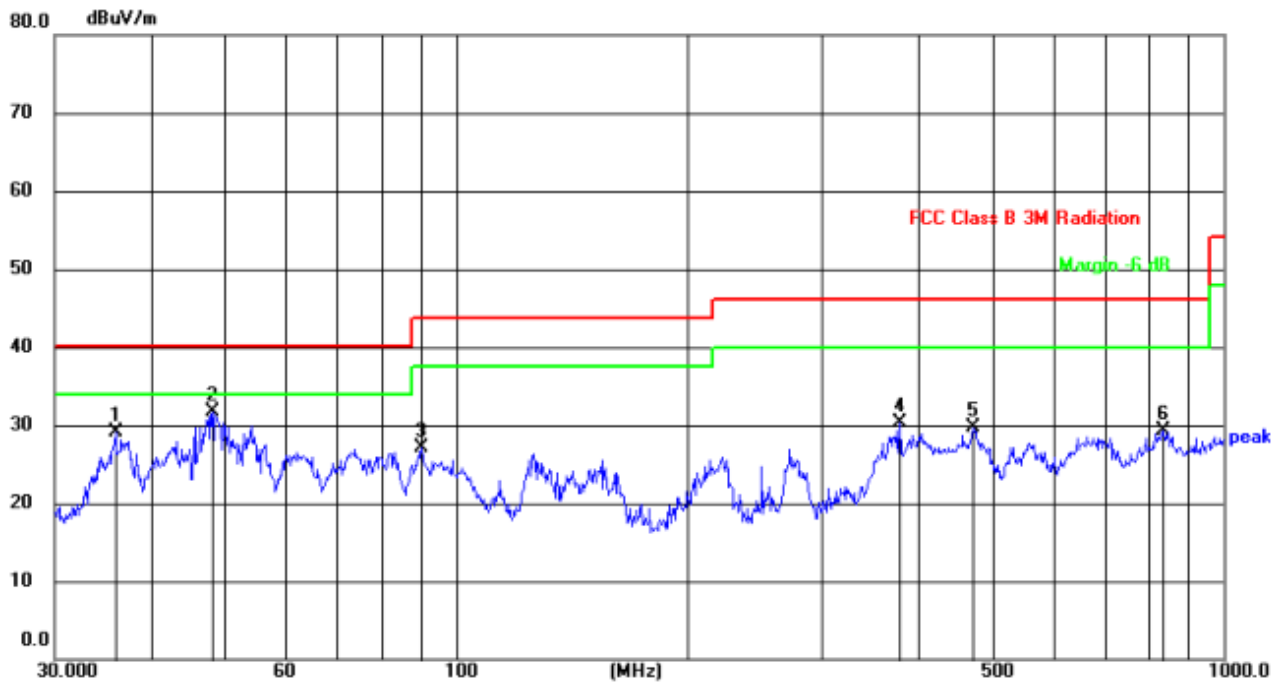
Temperature:	24℃	Relative Humidity:	56%RH
Pressure:	101.2kPa	Test Voltage :	DC 7.7V From Battery
Test Mode :	TX- 802.11ac20 (5180MHz)		

Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	47.9938	50.35	-22.29	28.06	40.00	-11.94	QP
2	113.3161	52.44	-24.92	27.52	43.50	-15.98	QP
3	120.2766	51.57	-24.33	27.24	43.50	-16.26	QP
4	219.0751	55.38	-25.17	30.21	46.00	-15.79	QP
5	472.1759	42.73	-18.05	24.68	46.00	-21.32	QP
6	836.2441	34.80	-9.73	25.07	46.00	-20.93	QP

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.0007	51.28	-22.15	29.13	40.00	-10.87	QP
2	48.1625	54.09	-22.31	31.78	40.00	-8.22	QP
3	90.2202	53.42	-26.41	27.01	43.50	-16.49	QP
4	378.5842	50.59	-20.26	30.33	46.00	-15.67	QP
5	472.1759	47.73	-18.05	29.68	46.00	-16.32	QP
6	836.2441	38.96	-9.73	29.23	46.00	-16.77	QP

Remarks:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.
3. The test data shows only the worst case 802.11ac mode



Above 1GHz:

Temperature:	24°C	Relative Humidity:	56%
Pressure:	101.2kPa	Test Voltage :	DC 7.7V From Battery
Test Mode :	5.2G TX- 802.11ac20		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5180MHz							
V	10360.00	43.36	1.77	45.13	68.20	-23.07	PK
V	10360.00	38.74	1.77	40.51	54.00	-13.49	AV
V	15540.00	43.85	7.72	51.57	74.00	-22.43	PK
V	15540.00	33.11	7.72	40.83	54.00	-13.17	AV
V	20720.00	53.34	-5.73	47.61	68.20	-20.59	PK
V	20720.00	47.54	-5.73	41.81	54.00	-12.19	AV
V	25900.00	51.81	-2.89	48.92	68.20	-19.28	PK
V	25900.00	47.01	-2.89	44.12	54.00	-9.88	AV
V	31080.00	46.57	1.66	48.23	68.20	-19.97	PK
V	31080.00	42.31	1.66	43.97	54.00	-10.03	AV
V	36260.00	44.73	4.63	49.36	68.20	-18.84	PK
V	36260.00	40.32	4.63	44.95	54.00	-9.05	AV
H	10360.00	44.40	1.77	46.17	68.20	-22.03	PK
H	10360.00	39.09	1.77	40.86	54.00	-13.14	AV
H	15540.00	43.41	7.72	51.13	74.00	-22.87	PK
H	15540.00	33.03	7.72	40.75	54.00	-13.25	AV
H	20720.00	55.09	-5.73	49.36	68.20	-18.84	PK
H	20720.00	49.93	-5.73	44.20	54.00	-9.80	AV
H	25900.00	51.91	-2.89	49.02	68.20	-19.18	PK
H	25900.00	46.83	-2.89	43.94	54.00	-10.06	AV
H	31080.00	45.74	1.66	47.40	68.20	-20.80	PK
H	31080.00	41.16	1.66	42.82	54.00	-11.18	AV
H	36260.00	45.79	4.63	50.42	68.20	-17.78	PK
H	36260.00	39.90	4.63	44.53	54.00	-9.47	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Middle Channel:5200Hz							
V	10400.00	43.97	1.85	45.82	68.20	-22.38	PK
V	10400.00	38.96	1.85	40.81	54.00	-13.19	AV
V	15600.00	43.52	7.64	51.16	74.00	-22.84	PK
V	15600.00	33.51	7.64	41.15	54.00	-12.85	AV
V	20800.00	52.18	-5.67	46.51	68.20	-21.69	PK
V	20800.00	47.93	-5.67	42.26	54.00	-11.74	AV
V	26000.00	52.13	-2.85	49.28	68.20	-18.92	PK
V	26000.00	47.17	-2.85	44.32	54.00	-9.68	AV
V	31200.00	47.33	1.57	48.90	68.20	-19.30	PK
V	31200.00	42.49	1.57	44.06	54.00	-9.94	AV
V	36400.00	43.36	4.93	48.29	68.20	-19.91	PK
V	36400.00	38.12	4.93	43.05	54.00	-10.95	AV
H	10400.00	43.49	1.85	45.34	68.20	-22.86	PK
H	10400.00	38.80	1.85	40.65	54.00	-13.35	AV
H	15600.00	44.33	7.64	51.97	74.00	-22.03	PK
H	15600.00	33.22	7.64	40.86	54.00	-13.14	AV
H	20800.00	54.79	-5.67	49.12	68.20	-19.08	PK
H	20800.00	49.78	-5.67	44.11	54.00	-9.89	AV
H	26000.00	51.91	-2.85	49.06	68.20	-19.14	PK
H	26000.00	46.84	-2.85	43.99	54.00	-10.01	AV
H	31200.00	46.72	1.57	48.29	68.20	-19.91	PK
H	31200.00	41.81	1.57	43.38	54.00	-10.62	AV
H	36400.00	45.09	4.93	50.02	68.20	-18.18	PK
H	36400.00	39.08	4.93	44.01	54.00	-9.99	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
High Channel:5240MHz							
V	10480.00	43.32	2.02	45.34	68.20	-22.86	PK
V	10480.00	38.47	2.02	40.49	54.00	-13.51	AV
V	15720.00	44.32	7.46	51.78	74.00	-22.22	PK
V	15720.00	33.18	7.46	40.64	54.00	-13.36	AV
V	20960.00	51.08	-5.56	45.52	68.20	-22.68	PK
V	20960.00	46.32	-5.56	40.76	54.00	-13.24	AV
V	26200.00	51.79	-2.50	49.29	68.20	-18.91	PK
V	26200.00	45.24	-2.50	42.74	54.00	-11.26	AV
V	31440.00	45.96	1.39	47.35	68.20	-20.85	PK
V	31440.00	41.15	1.39	42.54	54.00	-11.46	AV
V	36680.00	43.51	5.25	48.76	68.20	-19.44	PK
V	36680.00	38.63	5.25	43.88	54.00	-10.13	AV
H	10480.00	43.71	2.02	45.73	68.20	-22.47	PK
H	10480.00	38.90	2.02	40.92	54.00	-13.08	AV
H	15720.00	43.63	7.46	51.09	74.00	-22.91	PK
H	15720.00	32.98	7.46	40.44	54.00	-13.56	AV
H	20960.00	54.05	-5.56	48.49	68.20	-19.71	PK
H	20960.00	48.71	-5.56	43.15	54.00	-10.85	AV
H	26200.00	52.08	-2.50	49.58	68.20	-18.62	PK
H	26200.00	45.78	-2.50	43.28	54.00	-10.72	AV
H	31440.00	47.01	1.39	48.40	68.20	-19.80	PK
H	31440.00	41.49	1.39	42.88	54.00	-11.12	AV
H	36680.00	44.19	5.15	49.34	68.20	-18.86	PK
H	36680.00	39.20	5.15	44.35	54.00	-9.65	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Temperature:	24°C	Relative Humidity:	56%RH
Pressure:	101.2kPa	Test Voltage :	DC 7.7V From Battery
Test Mode :	5.8G TX- 802.11ac20		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5745MHz							
V	11490.00	49.23	3.31	52.54	74.00	-21.46	PK
V	11490.00	38.39	3.31	41.70	54.00	-12.30	AV
V	17235.00	36.02	10.10	46.12	68.20	-22.08	PK
V	17235.00	31.16	10.10	41.26	54.00	-12.74	AV
V	22980.00	56.07	-4.61	51.46	74.00	-22.54	PK
V	22980.00	45.10	-4.61	40.49	54.00	-13.51	AV
V	28725.00	48.33	0.87	49.20	68.20	-19.00	PK
V	28725.00	42.33	0.87	43.20	54.00	-10.80	AV
V	34470.00	45.55	3.82	49.37	68.20	-18.83	PK
V	34470.00	39.99	3.82	43.81	54.00	-10.19	AV
H	11490.00	47.54	3.31	50.85	74.00	-23.15	PK
H	11490.00	36.62	3.31	39.93	54.00	-14.07	AV
H	17235.00	35.49	10.10	45.59	68.20	-22.61	PK
H	17235.00	30.60	10.10	40.70	54.00	-13.30	AV
H	22980.00	58.49	-4.61	53.88	74.00	-20.12	PK
H	22980.00	46.87	-4.61	42.26	54.00	-11.75	AV
H	28725.00	48.50	0.87	49.37	68.20	-18.83	PK
H	28725.00	43.00	0.87	43.87	54.00	-10.13	AV
H	34470.00	46.10	3.82	49.92	68.20	-18.28	PK
H	34470.00	41.01	3.82	44.83	54.00	-9.17	AV

Remark:

- Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
- If peak below the average limit, the average emission was no test.
- The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5785MHz							
V	11570.00	48.98	3.34	52.32	74.00	-21.68	PK
V	11570.00	37.50	3.34	40.84	54.00	-13.16	AV
V	17355.00	34.49	10.52	45.01	68.20	-23.19	PK
V	17355.00	30.54	10.52	41.06	54.00	-12.94	AV
V	23140.00	56.06	-4.66	51.40	74.00	-22.60	PK
V	23140.00	45.05	-4.66	40.39	54.00	-13.61	AV
V	28925.00	45.64	1.36	47.00	68.20	-21.20	PK
V	28925.00	40.66	1.36	42.02	54.00	-11.98	AV
V	34710.00	45.29	3.95	49.24	68.20	-18.96	PK
V	34710.00	39.49	3.95	43.44	54.00	-10.56	AV
H	11570.00	48.72	3.34	52.06	74.00	-21.94	PK
H	11570.00	37.28	3.34	40.62	54.00	-13.38	AV
H	17355.00	35.18	10.52	45.70	68.20	-22.50	PK
H	17355.00	30.18	10.52	40.70	54.00	-13.30	AV
H	23140.00	60.26	-4.66	55.60	74.00	-18.41	PK
H	23140.00	47.98	-4.66	43.32	54.00	-10.68	AV
H	28925.00	47.99	1.36	49.35	68.20	-18.85	PK
H	28925.00	42.16	1.36	43.52	54.00	-10.48	AV
H	34710.00	46.32	3.95	50.27	68.20	-17.93	PK
H	34710.00	40.83	3.95	44.78	54.00	-9.22	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detect or Type
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
Low Channel:5825MHz							
V	11650.00	47.92	3.36	51.28	74.00	-22.72	PK
V	11650.00	36.39	3.36	39.75	54.00	-14.25	AV
V	17475.00	35.75	10.93	46.68	68.20	-21.52	PK
V	17475.00	30.57	10.93	41.50	54.00	-12.50	AV
V	23300.00	54.01	-4.77	49.24	68.20	-18.96	PK
V	23300.00	48.02	-4.77	43.25	54.00	-10.75	AV
V	29125.00	44.16	1.65	45.81	68.20	-22.39	PK
V	29125.00	39.80	1.65	41.45	54.00	-12.55	AV
V	34950.00	43.98	4.09	48.07	68.20	-20.13	PK
V	34950.00	39.73	4.09	43.82	54.00	-10.18	AV
H	11650.00	48.13	3.36	51.49	74.00	-22.51	PK
H	11650.00	37.30	3.36	40.66	54.00	-13.34	AV
H	17475.00	35.47	10.93	46.40	68.20	-21.80	PK
H	17475.00	30.70	10.93	41.63	54.00	-12.37	AV
H	23300.00	52.37	-4.77	47.60	68.20	-20.60	PK
H	23300.00	47.29	-4.77	42.52	54.00	-11.48	AV
H	29125.00	47.68	1.65	49.33	68.20	-18.87	PK
H	29125.00	42.39	1.65	44.04	54.00	-9.96	AV
H	34950.00	45.57	4.09	49.66	68.20	-18.54	PK
H	34950.00	40.92	4.09	45.01	54.00	-8.99	AV

Remark:

1. Emission Level = Meter Reading + Factor,
Factor=Antenna Factor + Cable Loss – Pre-amplifier
Margin= Emission Level – Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



5 Test Setup Photo

Reference to the file No.: ET-26030668SP for details.

6 EUT Constructional Details

Reference to the file No.: ET-26030668EP and ET-26030668IP for details

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