



FCC TEST REPORT

FCC ID: SY4-B01015

On Behalf of
Shanghai Huace Navigation Technology Ltd.
Handheld GNSS Data Collector
Model No.: HCE600

Prepared for : Shanghai Huace Navigation Technology Ltd.
Address : Building D, 599 Gaojing Road, Qingpu District, Shanghai, China

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.
Address : Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103,
Shenzhen, Guangdong, China

Report Number : A2108332-C01-R06
Date of Receipt : September 7, 2021
Date of Test : September 8, 2021- October 9, 2021
Date of Report : October 11, 2021
Version Number : V0

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TEST REPORT DECLARATION

Applicant : Shanghai Huace Navigation Technology Ltd.
Address : Building D, 599 Gaojing Road, Qingpu District, Shanghai, China
Manufacturer : Shanghai Huace Navigation Technology Ltd.
Address : Building D, 599 Gaojing Road, Qingpu District, Shanghai, China
EUT Description : Handheld GNSS Data Collector
(A) Model No. : HCE600
(B) Trademark : 

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart E

RSS-247 Issue 2, ANSI C63.4:2014, ANSI C63.10:2013

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart E limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Lucas Pang
Project Engineer



Approved by (name + signature).....:

Simple Guan
Project Manager



Date of issue.....

October 11, 2021

Revision History

Revision	Issue Date	Revisions	Revised By
V0	October 11, 2021	Initial released Issue	Lucas Pang

1 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	Section 15.203 Section 7.1.4 RSS-Gen Issue 5	PASS
AC Power Line Conducted Emission	Section 15.207 Section 7.2.4 RSS-GEN(8.8), ANSI C63.10	PASS
Peak Transmit Power	Section 15.407(a), RSS-247 5.4(2)	PASS
Power Spectral Density	Section 15.407(a), RSS-247 5.2(2)	PASS
Undesirable Emission	Section 15.407(b), RSS-247 5.5	PASS
Radiated Emission	Section 15.407(b)&15.209 Section 5.5 RSS-Gen(8.9), RSS-247(5.5), ANSI C63.10	PASS
Band Edge	15.205, RSS-247 Issue 2, ANSI C63.10	PASS
Frequency Stability	15.407(f), RSS-GEN(6.11)	PASS

Remark: Pass: The EUT complies with the essential requirements in the standard.

Frequency Stability: The manufacturer stated in the user's manual.

1.1 Measurement Uncertainty

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	2.74dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB(Polarize: V)
	2.57dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.77dB(Polarize: V)
	3.80dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	4.16dB(Polarize: H)
	4.13dB(Polarize: V)
Uncertainty for radio frequency	5.4×10^{-8}
Uncertainty for conducted RF Power	0.37dB
Uncertainty for temperature	0.2°C
Uncertainty for humidity	1%
Uncertainty for DC and low frequency voltages	0.06%

2 General Information

2.1 General Description of EUT

EUT Name : Handheld GNSS Data Collector

Trademark : 

Model No. : HCE600

DIFF. : N/A

Power supply : DC 3.85V from battery, DC 5V from adapter

Radio Technology : 5G WIFI

Operation Frequency : 802.11a/n(HT20)/ac(HT20): 5180~5240MHz, 5260-5320MHz, 5745~5825MHz
 802.11n(HT40)/ac(HT40): 5190~5230MHz, 5260-5320MHz, 5755~5795MHz
 802.11ac(HT80): 5210MHz, 5290MHz, 5775MHz

Channel separation : 20MHz for 802.11a/ 802.11ac20/ 802.11n(HT20)
 40MHz for 802.11ac40/ 802.11n(HT40)
 80MHz for 802.11ac80

Modulation technology: : IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)
 IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)
 IEEE 802.11ac: OFDM (64QAM, 16QAM, QPSK, BPSK)

Antenna Type : Internal Antenna, max gain 0.7dBi

Software version : Android 10

Hardware version : 3.0

Intend use environment : Residential, commercial and light industrial environment

2.2 Test mode

Transmitting mode Keep the EUT in transmitting with modulation.
EUT was test with 99% duty cycle at its maximum power control level.

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

2.3 Test Facility

Shenzhen Alpha Product Testing Co., Ltd
Building i, No.2, Lixin Road, Fuyong Street, Bao'an District, 518103, Shenzhen, Guangdong, China

June 21, 2018 File on Federal Communication Commission
Registration Number: 293961

July 25, 2017 Certificated by IC
Registration Number: CN0085

2.4 Description of Support Units

Accessories1	:	AC Adapter
Manufacturer	:	EDAC POWER Electronics Co., Ltd
Model	:	EA1012AVRU-050
Ratings	:	Input: 100-240Vac~50/60Hz 1.0A Output: 5.0V=2.4A

2.5 Deviation from Standards

None.

2.6 Abnormalities from Standard Conditions

None.

2.7 Other Information Requested by the Customer

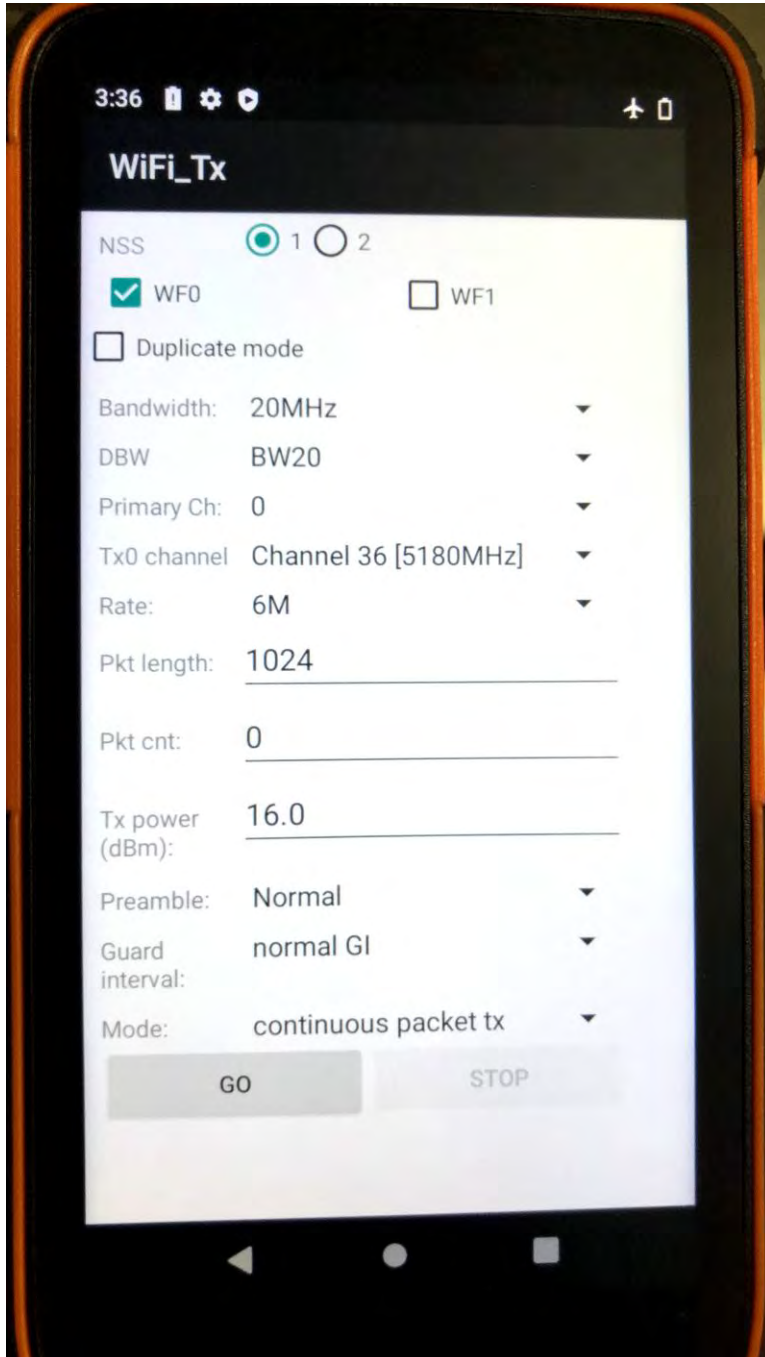
None.

2.8 Additional instructions

Software (Used for test) from client

Channel	Power level
Lowest	Default
Middle	Default
Highest	Default

Test software set:



3 Test Instruments list

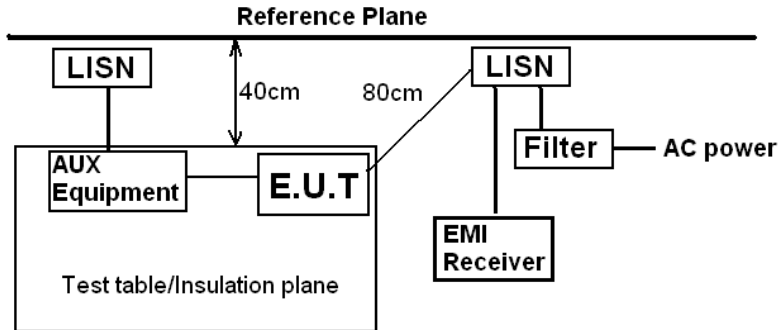
Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
9*6*6 anechoic chamber	CHENYU	9*6*6	N/A	2020.09.02	3Year
Spectrum analyzer	ROHDE&SCHWARZ	FSV40-N	102137	2021.08.25	1Year
Spectrum analyzer	Agilent	N9020A	MY499100060	2021.08.25	1Year
Receiver	ROHDE&SCHWARZ	ESR	1316.3003K03-102082-Wa	2021.08.25	1Year
Receiver	R&S	ESCI	101165	2021.08.25	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	VULB9168-438	2020.04.12	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2020.04.12	2Year
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00059	2021.08.30	2Year
RF Cable	Resenberger	Cable 1	RE1	2021.08.25	1Year
RF Cable	Resenberger	Cable 2	RE2	2021.08.25	1Year
RF Cable	Resenberger	Cable 3	CE1	2021.08.25	1Year
Pre-amplifier	HP	HP8347A	2834A00455	2021.08.25	1Year
Pre-amplifier	Agilent	8449B	3008A02664	2021.08.25	1Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126-466	2021.08.25	1Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	101043	2021.08.25	1 Year
Horn Antenna	SCHWARZBECK	BBHA9170	00946	2021.08.30	2 Year
Preamplifier	SKET	LNPA_1840-50	SK2018101801	2021.08.25	1 Year
Power Meter	Agilent	E9300A	MY41496628	2021.08.25	1 Year
Power Sensor	DARE	RPR3006W	15100041SNO91	2021.08.25	1 Year
Temp. & Humid. Chamber	Wei Huang	WHTH-1000-40-880	100631	2021.04.21	1 Year
Switching Mode Power Supply	JUNKE	JK12010S	20140927-6	2021.08.25	1 Year
Adjustable attenuator	MWRFtest	N/A	N/A	N/A	N/A
10dB Attenuator	Mini-Circuits	DC-6G	N/A	N/A	N/A

4 Test results and Measurement Data

4.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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.	
E.U.T Antenna:	
The antenna is internal antenna. The best case gain of the antenna is 0.7dBi for 5.15~5.25GHz, 5.25~5.35GHz , 5.725~5.85GHz  5G Antenna	

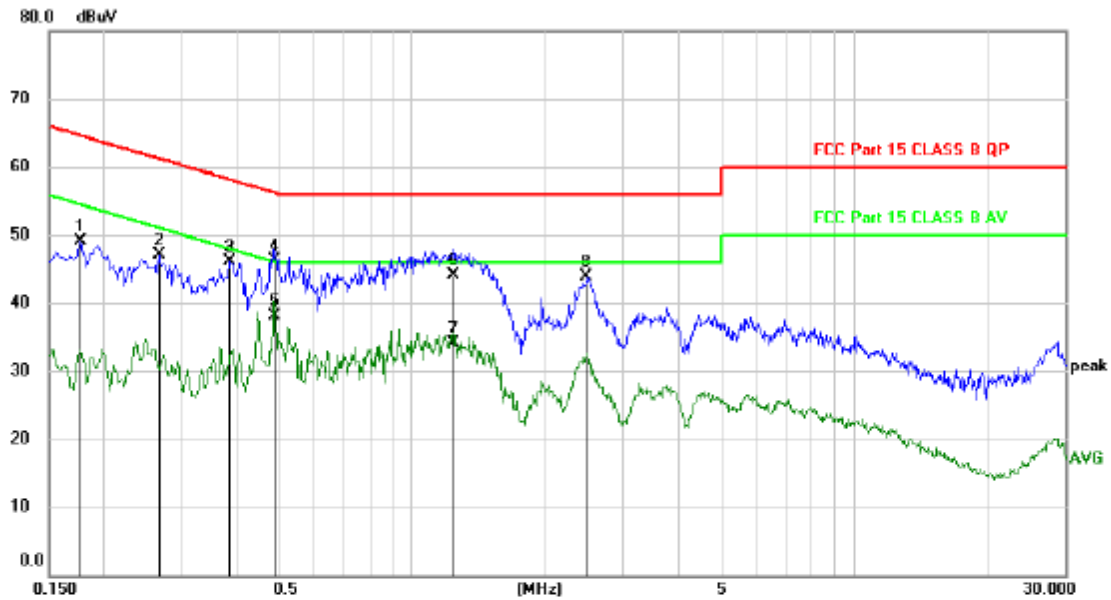
4.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207		
Test Method:	ANSI C63.10:2013		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz		
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 procedure	The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 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 C63.10:2013 on conducted measurement.		
Test setup:	 <i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m		
Test Instruments:	Refer to section 5.10 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

Measurement Data

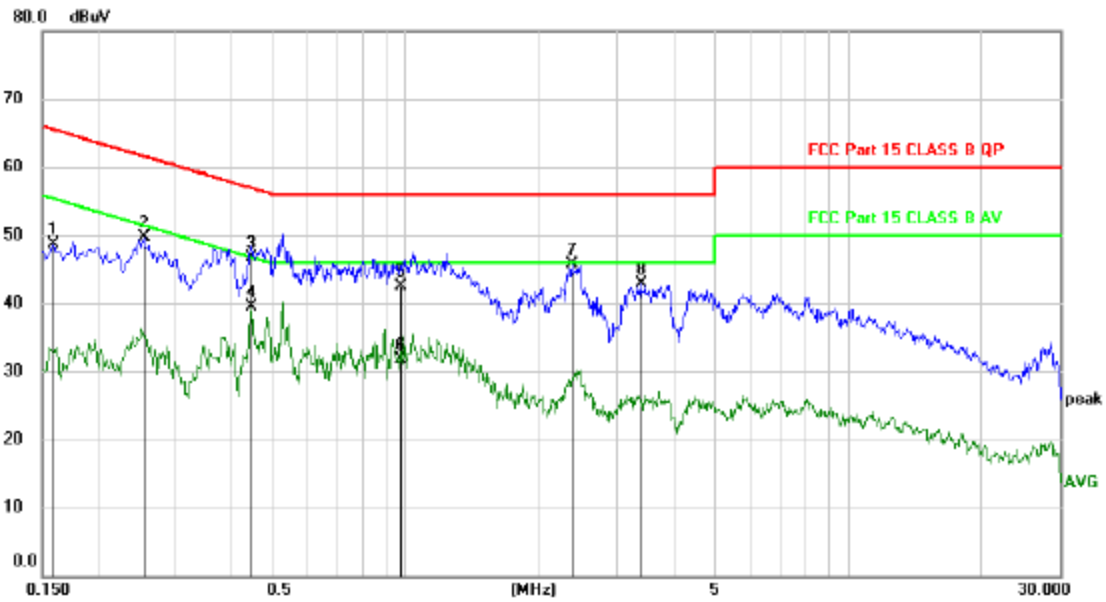
An initial pre-scan was performed on the line and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Line:



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1770	39.02	10.06	49.08	64.63	-15.55	peak	
2		0.2670	36.95	10.13	47.08	61.21	-14.13	peak	
3		0.3870	35.92	10.14	46.06	58.13	-12.07	peak	
4		0.4864	36.02	10.25	46.27	56.23	-9.96	QP	
5	*	0.4864	27.79	10.25	38.04	46.23	-8.19	AVG	
6		1.2337	33.60	10.42	44.02	56.00	-11.98	QP	
7		1.2337	23.59	10.42	34.01	46.00	-11.99	AVG	
8		2.4750	33.50	10.46	43.96	56.00	-12.04	peak	

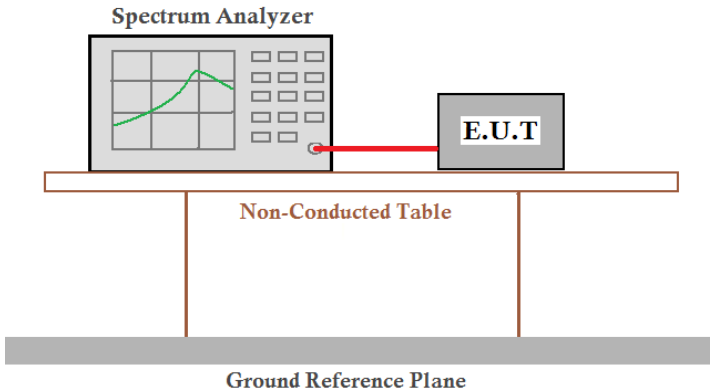
Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Neutral:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1590	38.59	10.06	48.65	65.52	-16.87	peak	
2		0.2550	39.59	10.11	49.70	61.59	-11.89	peak	
3		0.4463	36.49	10.20	46.69	56.94	-10.25	QP	
4	*	0.4463	29.24	10.20	39.44	46.94	-7.50	AVG	
5		0.9704	32.17	10.40	42.57	56.00	-13.43	QP	
6		0.9704	21.39	10.40	31.79	46.00	-14.21	AVG	
7		2.3610	35.29	10.44	45.73	56.00	-10.27	peak	
8		3.3960	32.35	10.53	42.88	56.00	-13.12	peak	

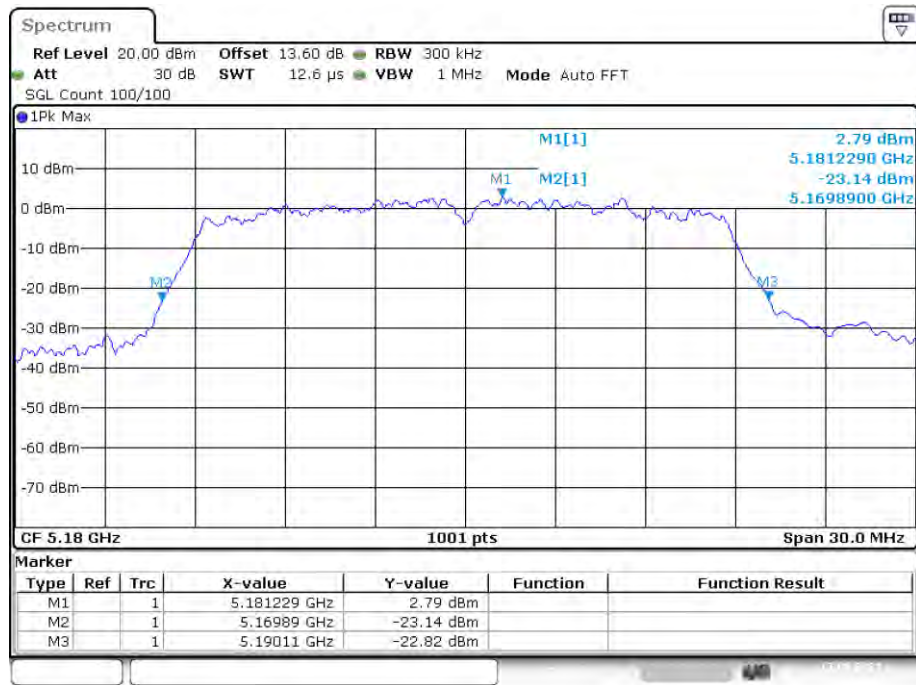
Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

4.3 Emission Bandwidth and 99% Occupied Bandwidth

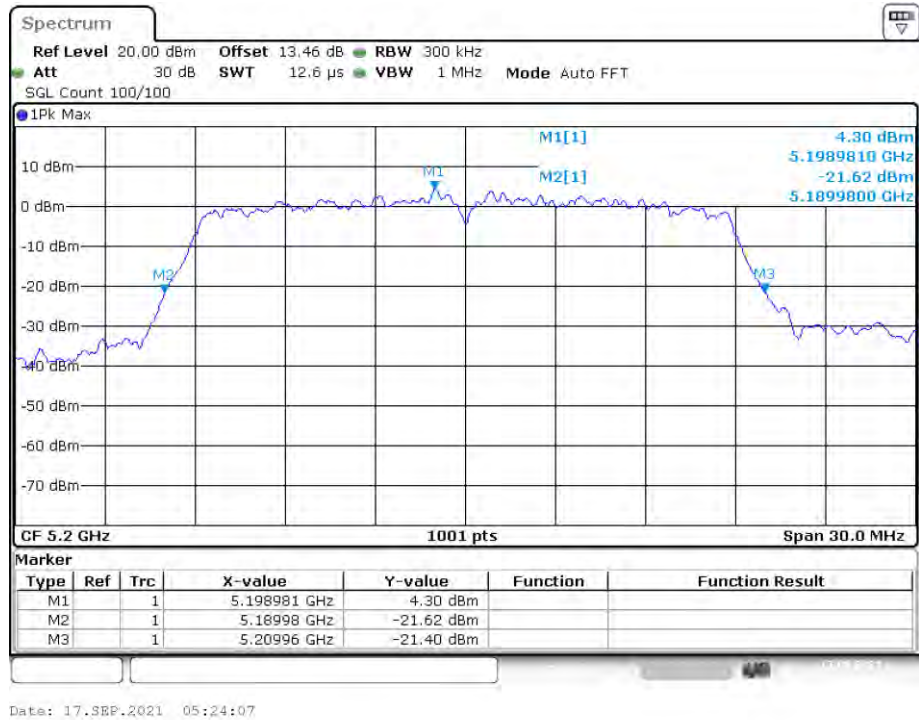
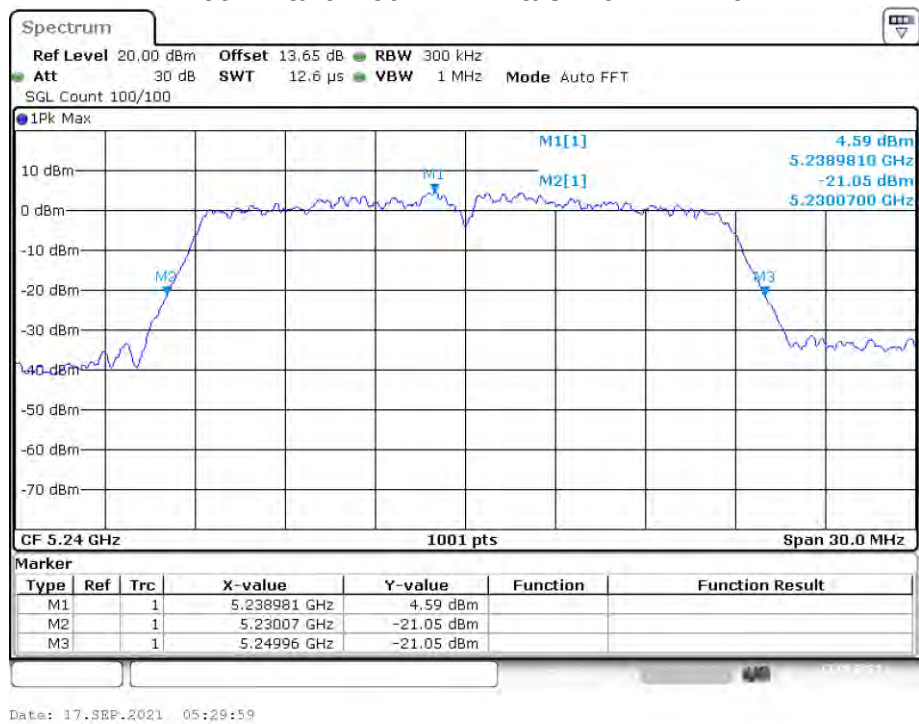
Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	N/A
Test setup:	 The diagram illustrates the test setup. A Spectrum Analyzer, shown with a grid and a green curve, is connected to an E.U.T (Equipment Under Test) box by a red cable. Both the Spectrum Analyzer and the E.U.T are positioned on a Non-Conducted Table, which is supported by two vertical legs. Below the table, a Ground Reference Plane is indicated by a thick gray bar.
Test procedure:	According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

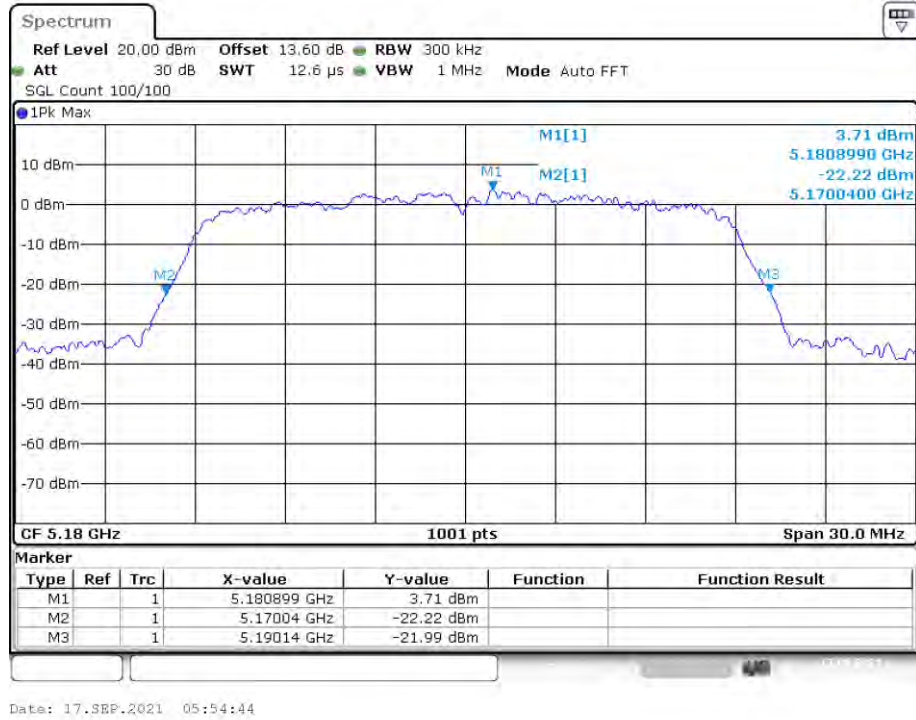
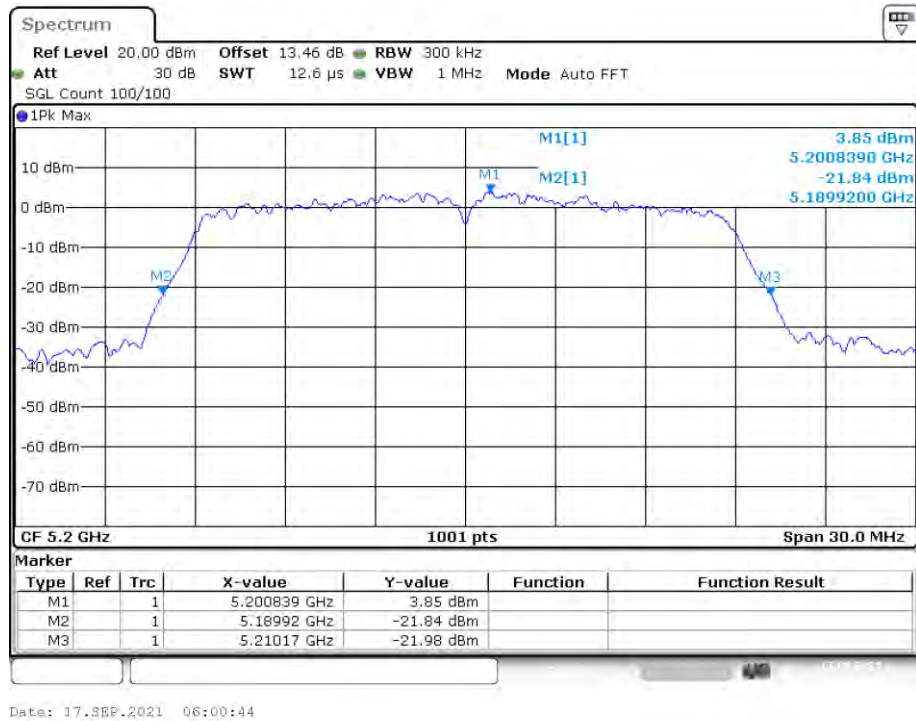
Measurement Data:**Band 1 (5150-5250 MHz):****-26dB Bandwidth**

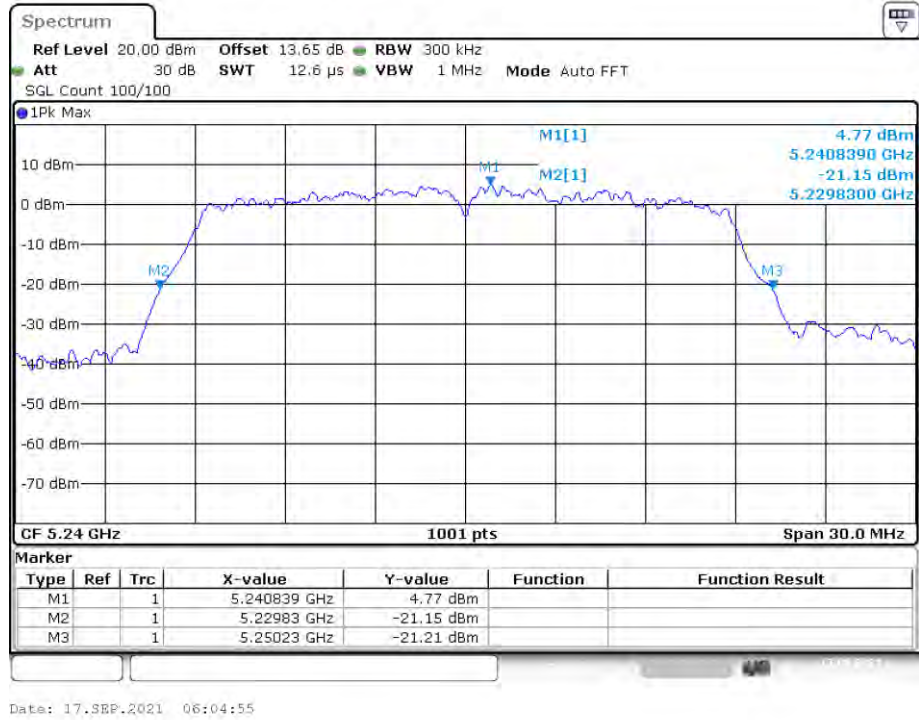
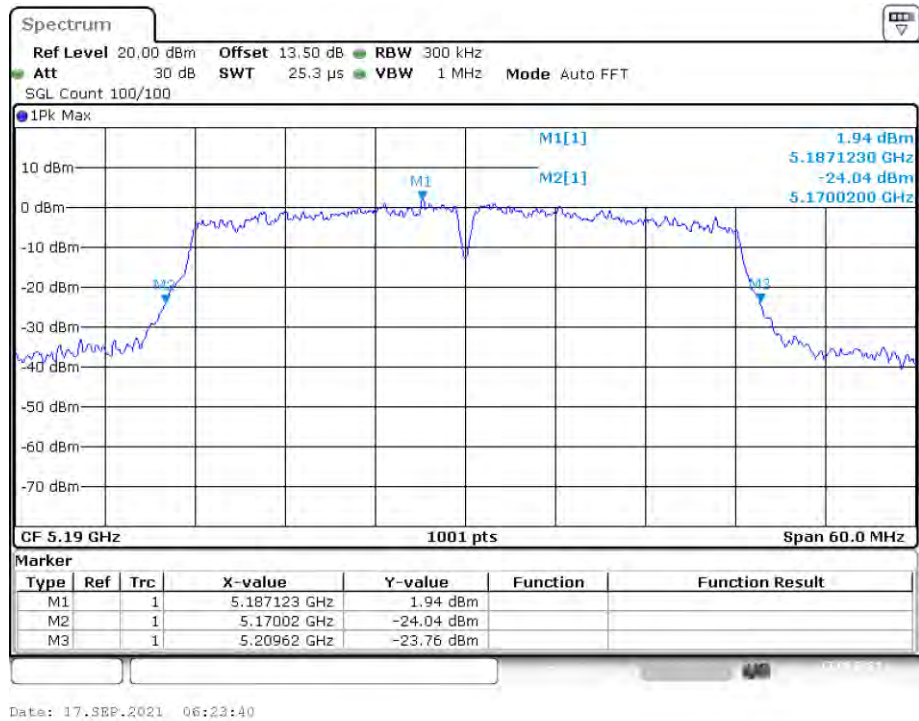
Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	a	5180	Ant1	20.22	0.5	Pass
NVNT	a	5200	Ant1	19.98	0.5	Pass
NVNT	a	5240	Ant1	19.89	0.5	Pass
NVNT	ac20	5180	Ant1	20.1	0.5	Pass
NVNT	ac20	5200	Ant1	20.25	0.5	Pass
NVNT	ac20	5240	Ant1	20.4	0.5	Pass
NVNT	ac40	5190	Ant1	39.6	0.5	Pass
NVNT	ac40	5230	Ant1	38.58	0.5	Pass
NVNT	ac80	5210	Ant1	79.8	0.5	Pass
NVNT	n20	5180	Ant1	19.74	0.5	Pass
NVNT	n20	5200	Ant1	19.98	0.5	Pass
NVNT	n20	5240	Ant1	19.95	0.5	Pass
NVNT	n40	5190	Ant1	39.12	0.5	Pass
NVNT	n40	5230	Ant1	39.48	0.5	Pass

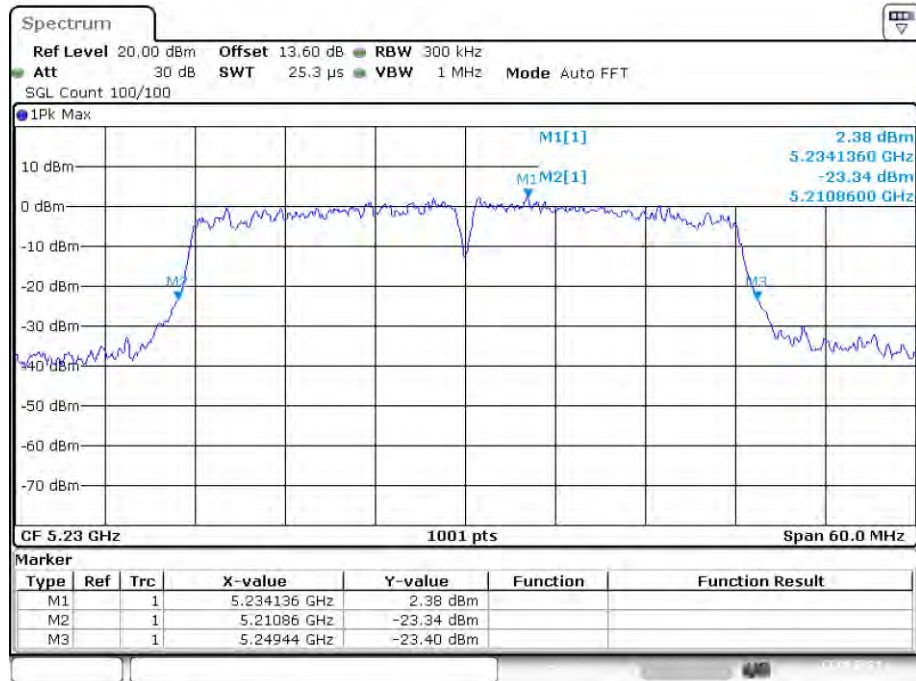
-26dB Bandwidth NVNT a 5180MHz Ant1

Date: 17.SEP.2021 05:21:11

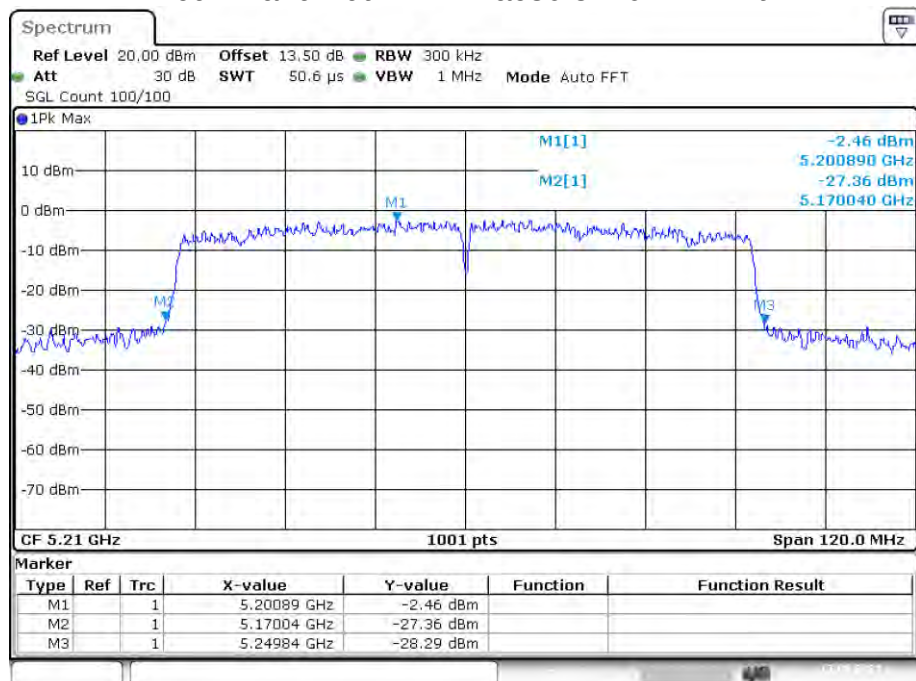
-26dB Bandwidth NVNT a 5200MHz Ant1**-26dB Bandwidth NVNT a 5240MHz Ant1**

-26dB Bandwidth NVNT ac20 5180MHz Ant1**-26dB Bandwidth NVNT ac20 5200MHz Ant1**

-26dB Bandwidth NVNT ac20 5240MHz Ant1**-26dB Bandwidth NVNT ac40 5190MHz Ant1**

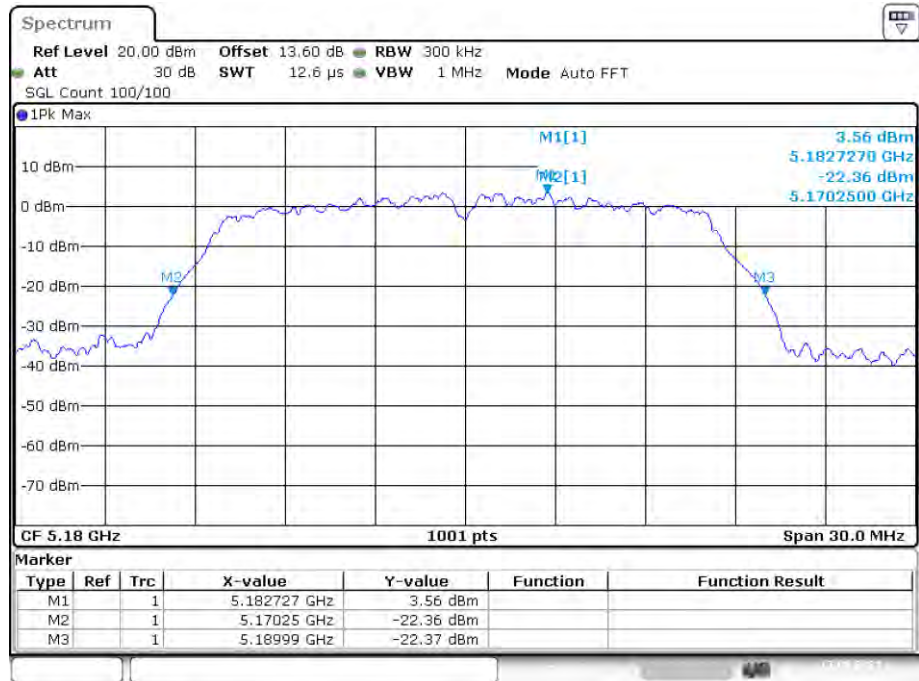
-26dB Bandwidth NVNT ac40 5230MHz Ant1

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-26dB Bandwidth NVNT ac80 5210MHz Ant1

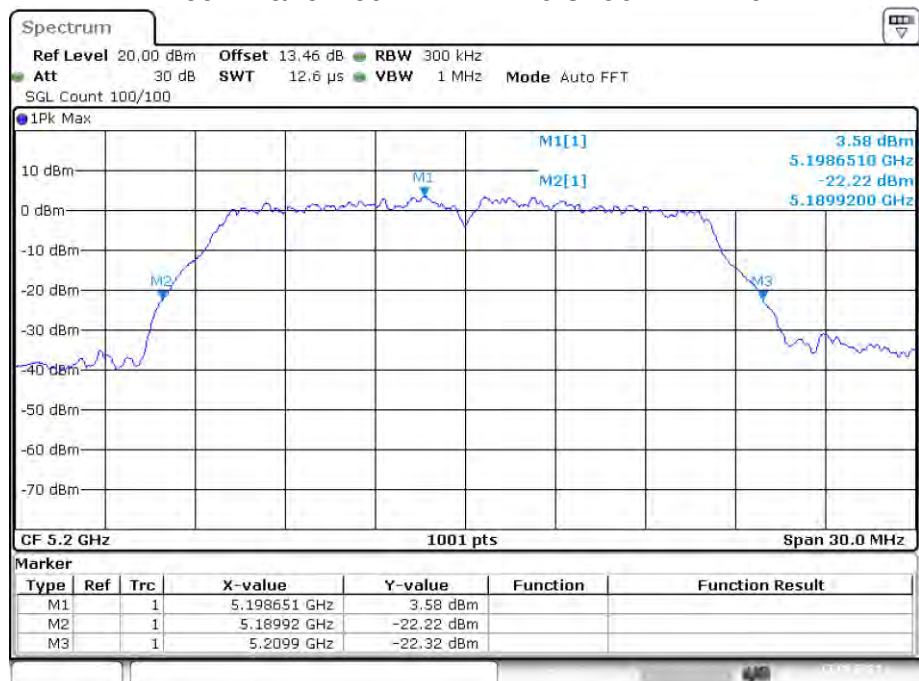
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-26dB Bandwidth NVNT n20 5180MHz Ant1

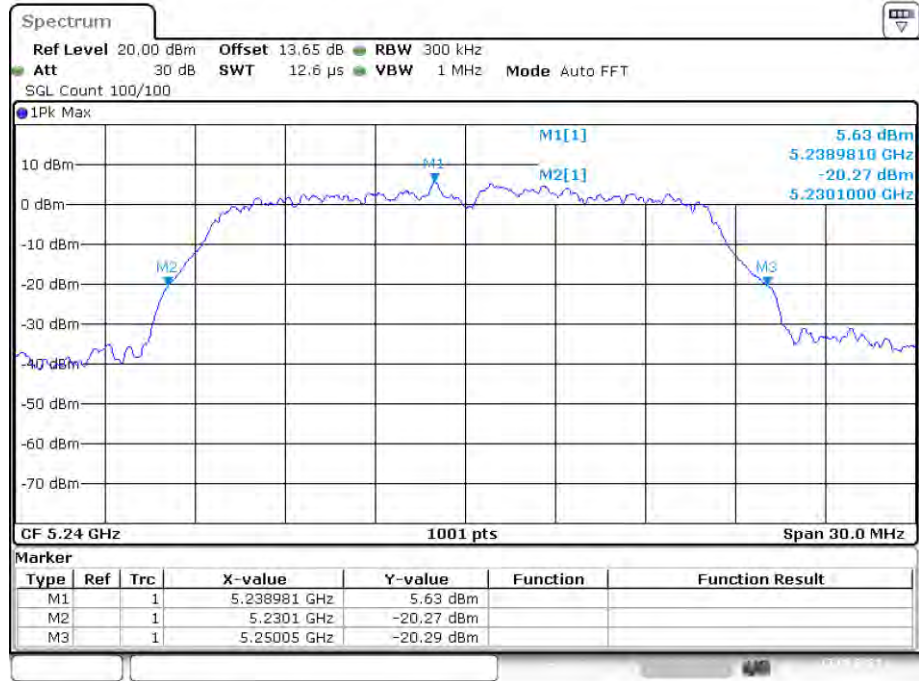


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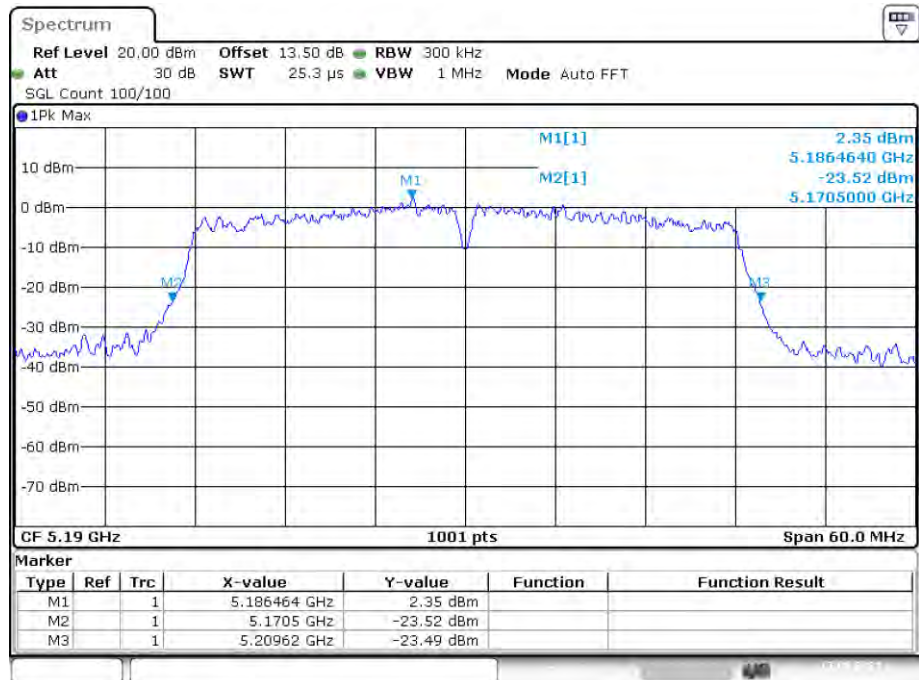
-26dB Bandwidth NVNT n20 5200MHz Ant1



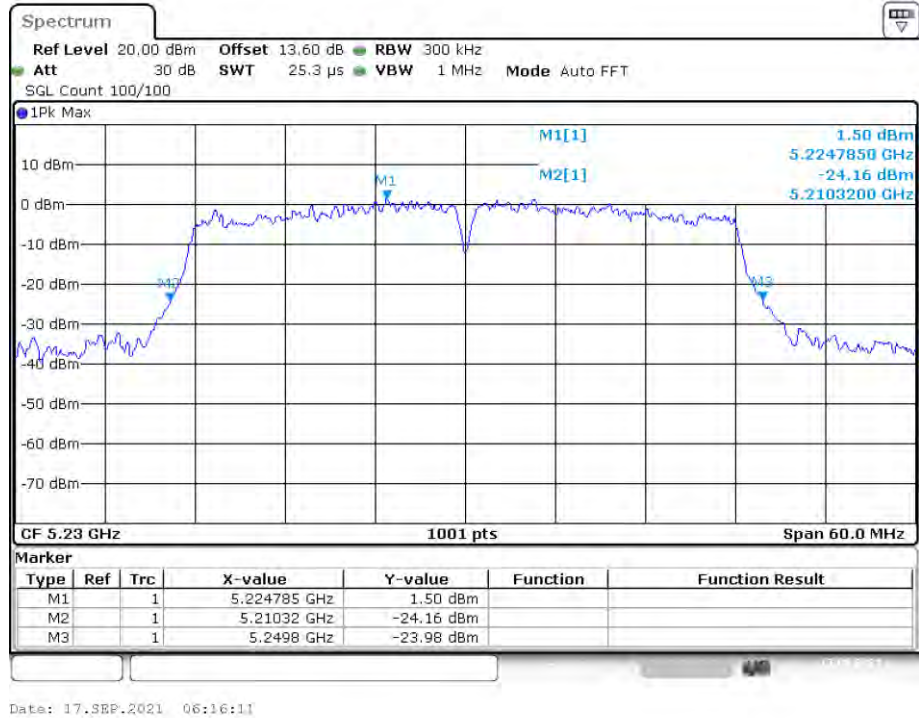
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-26dB Bandwidth NVNT n20 5240MHz Ant1

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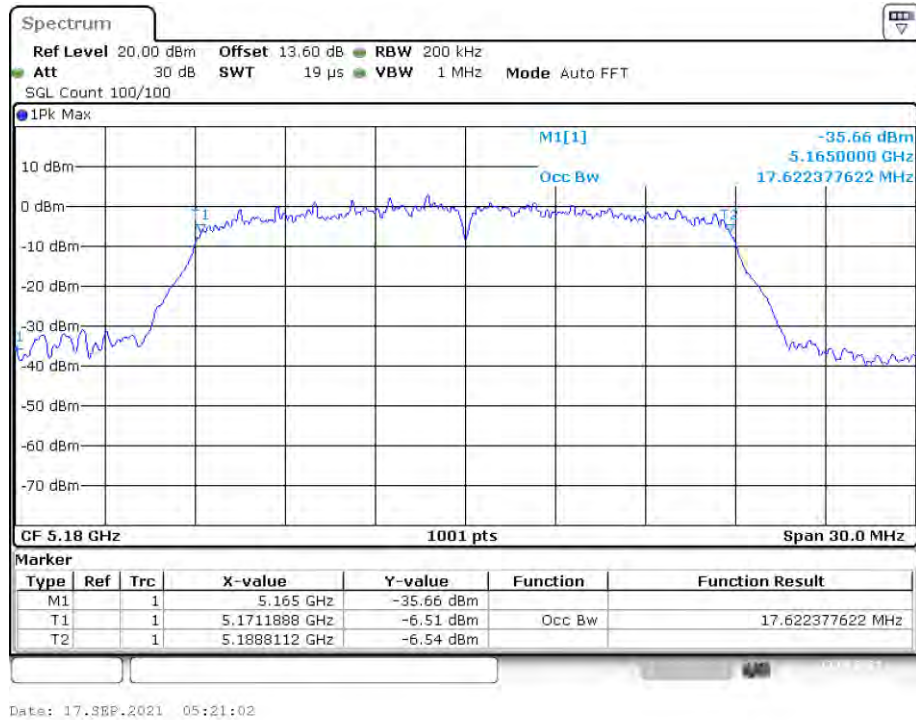
-26dB Bandwidth NVNT n40 5190MHz Ant1

Date: 17.SEP.2021 06:11:56

-26dB Bandwidth NVNT n40 5230MHz Ant1**Occupied Channel Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5180	Ant1	17.622
NVNT	a	5200	Ant1	17.652
NVNT	a	5240	Ant1	17.532
NVNT	ac20	5180	Ant1	17.532
NVNT	ac20	5200	Ant1	17.532
NVNT	ac20	5240	Ant1	17.532
NVNT	ac40	5190	Ant1	35.904
NVNT	ac40	5230	Ant1	36.144
NVNT	ac80	5210	Ant1	75.524
NVNT	n20	5180	Ant1	16.334
NVNT	n20	5200	Ant1	16.424
NVNT	n20	5240	Ant1	16.424
NVNT	n40	5190	Ant1	35.904
NVNT	n40	5230	Ant1	36.324

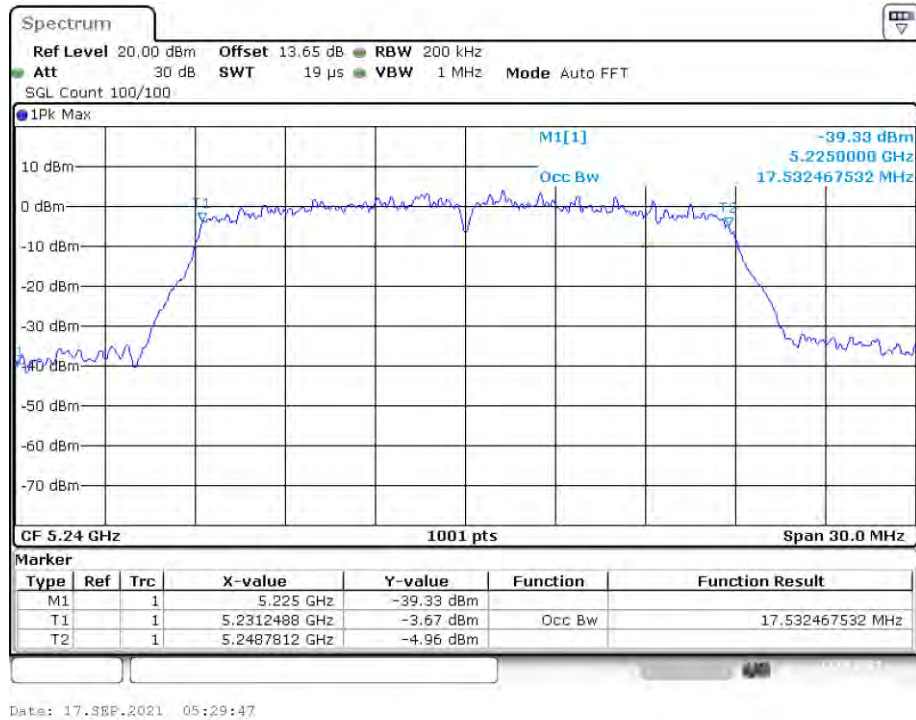
OBW NVNT a 5180MHz Ant1



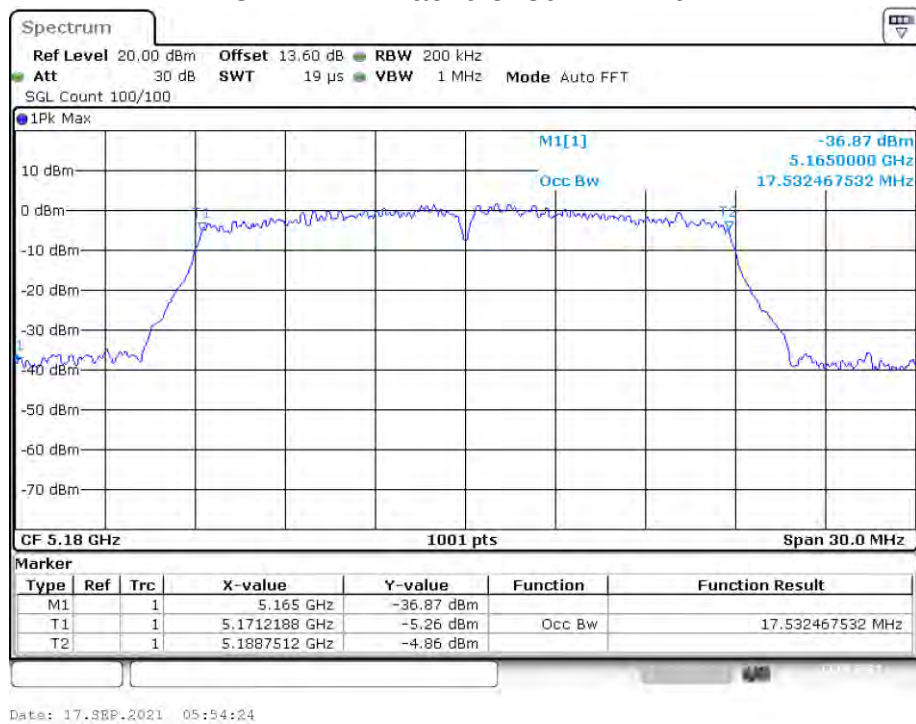
OBW NVNT a 5200MHz Ant1



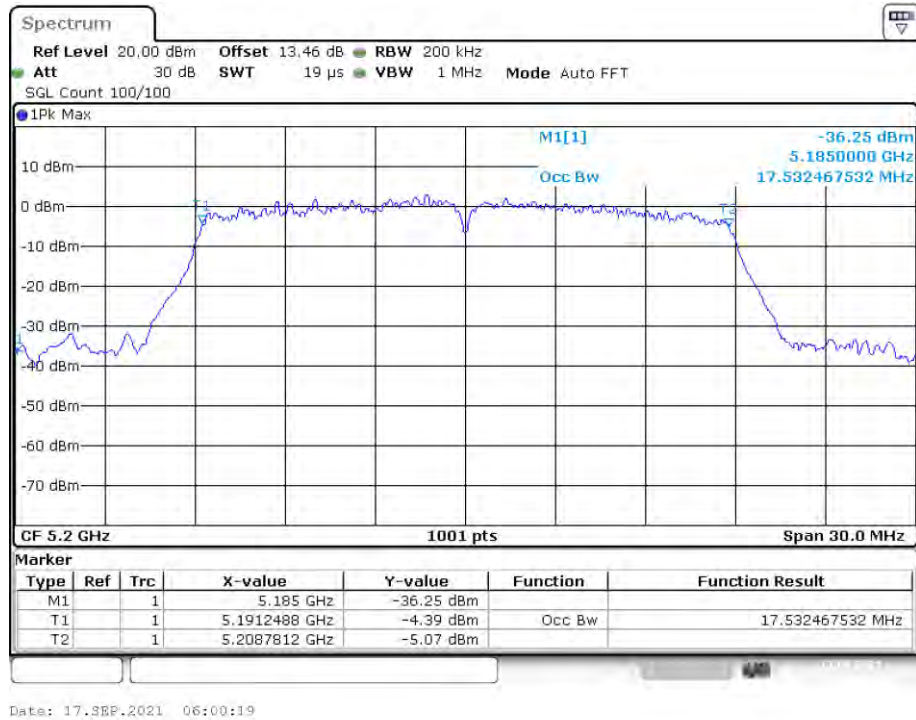
OBW NVNT a 5240MHz Ant1



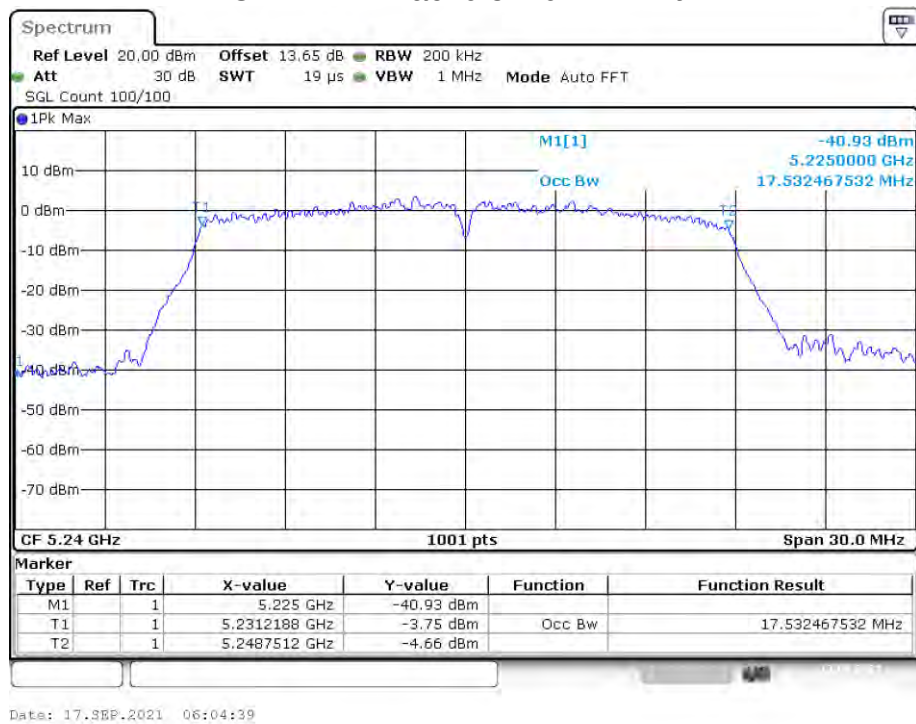
OBW NVNT ac20 5180MHz Ant1



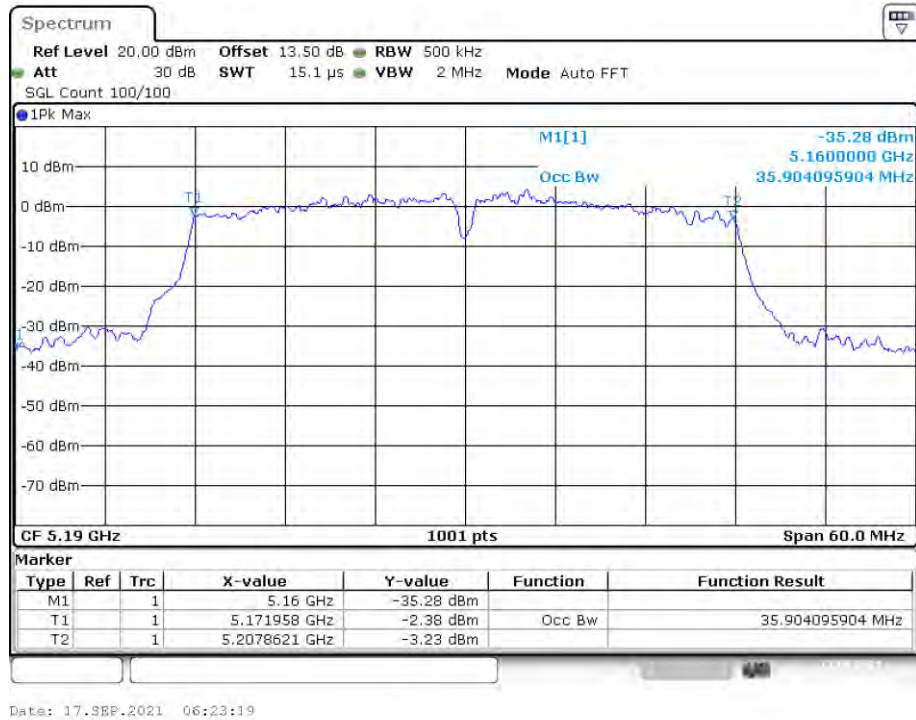
OBW NVNT ac20 5200MHz Ant1



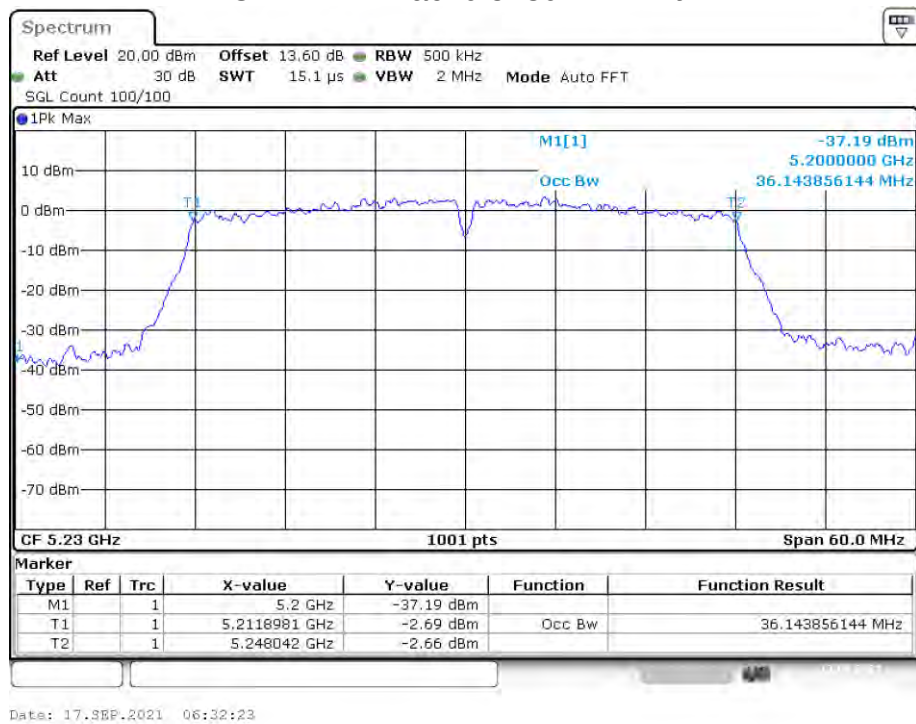
OBW NVNT ac20 5240MHz Ant1



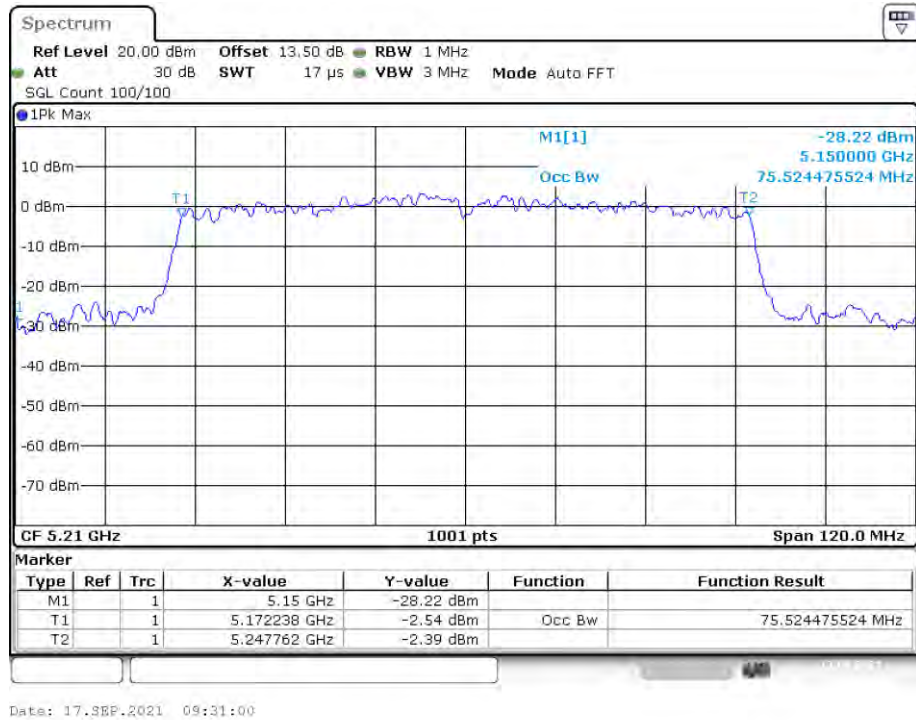
OBW NVNT ac40 5190MHz Ant1



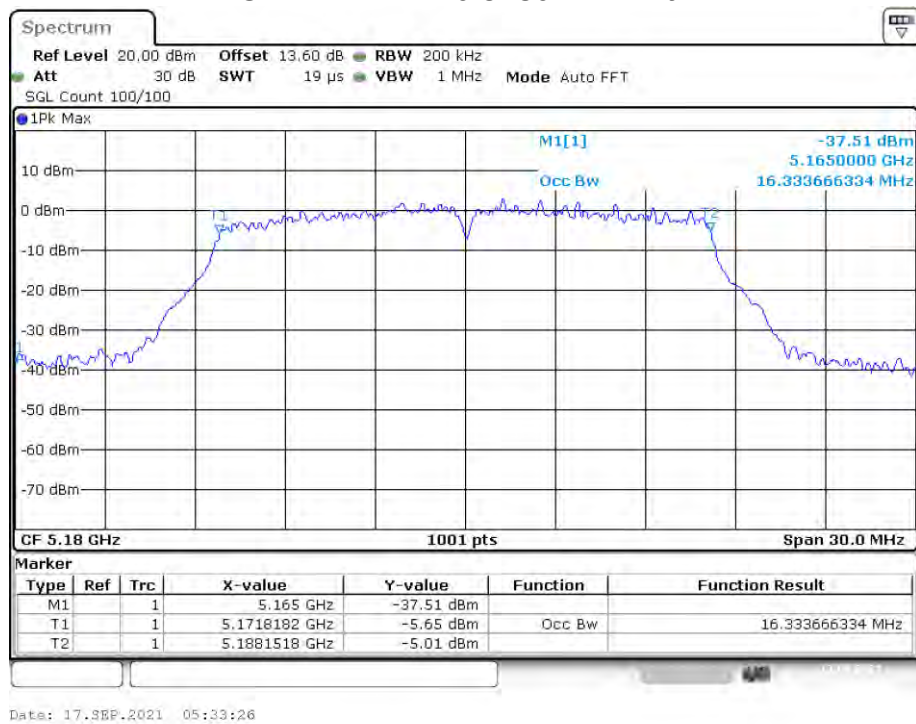
OBW NVNT ac40 5230MHz Ant1



OBW NVNT ac80 5210MHz Ant1



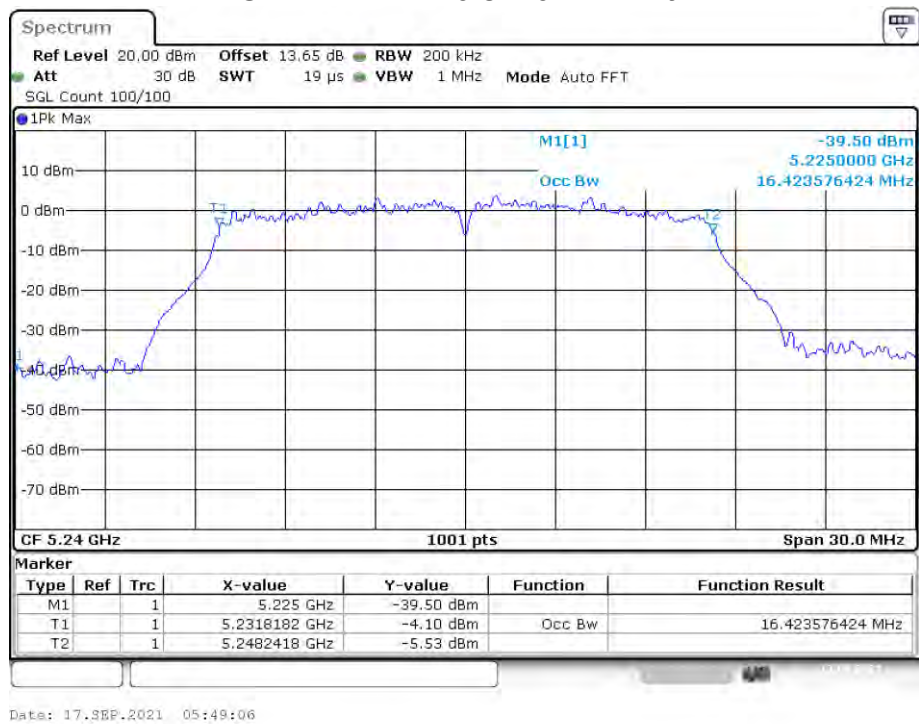
OBW NVNT n20 5180MHz Ant1



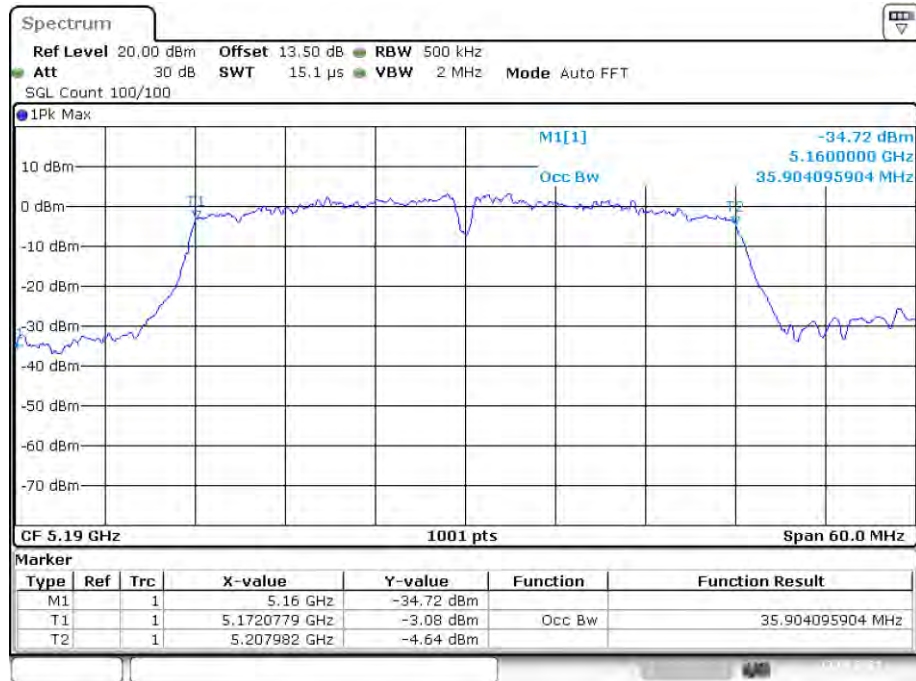
OBW NVNT n20 5200MHz Ant1



OBW NVNT n20 5240MHz Ant1

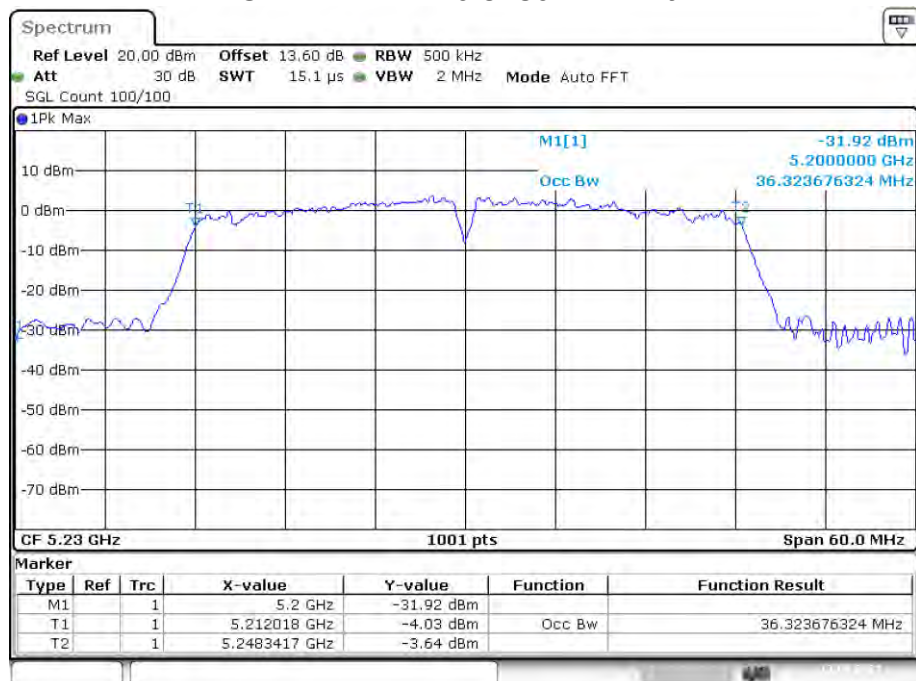


OBW NVNT n40 5190MHz Ant1



Date: 17.SEP.2021 06:11:38

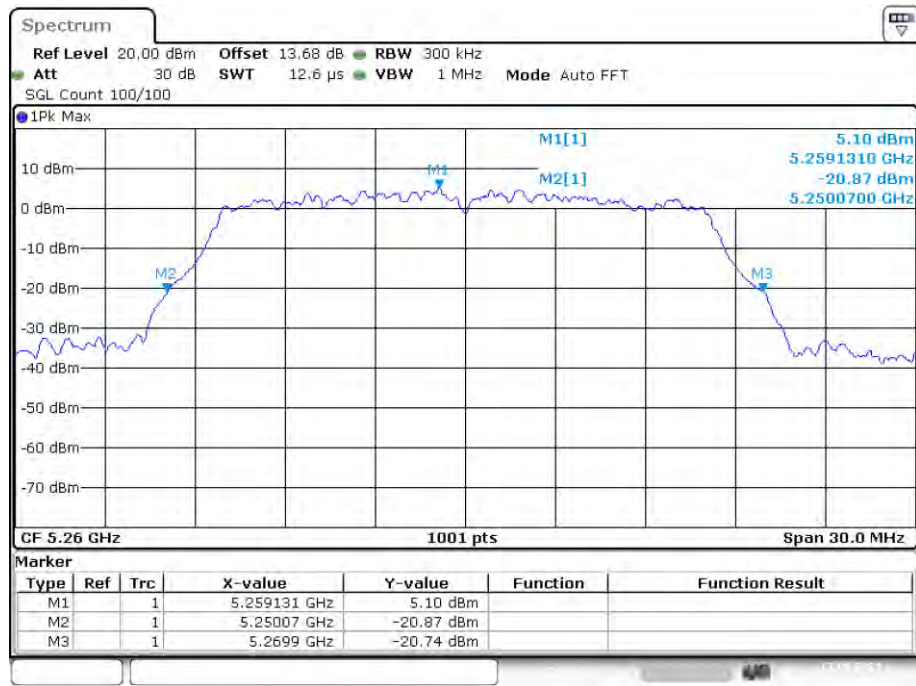
OBW NVNT n40 5230MHz Ant1



Date: 17.SEP.2021 06:15:53

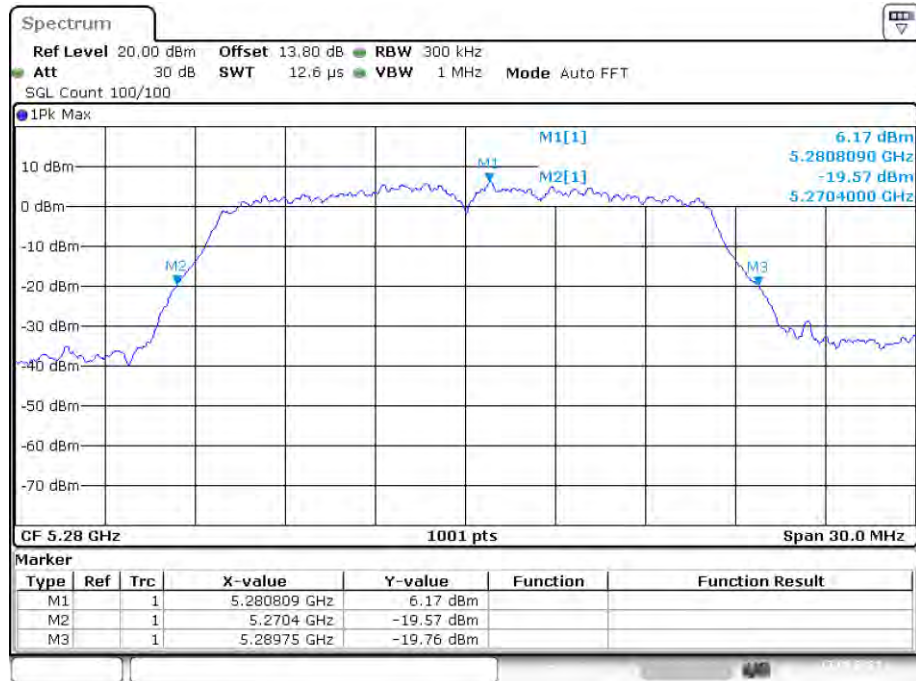
Band 2 (5250-5350 MHz):**-26dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-26 dB Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
NVNT	a	5260	Ant1	19.83	0.5	Pass
NVNT	a	5280	Ant1	19.35	0.5	Pass
NVNT	a	5320	Ant1	19.8	0.5	Pass
NVNT	ac20	5260	Ant1	20.61	0.5	Pass
NVNT	ac20	5280	Ant1	20.07	0.5	Pass
NVNT	ac20	5320	Ant1	20.43	0.5	Pass
NVNT	ac40	5270	Ant1	39.9	0.5	Pass
NVNT	ac40	5310	Ant1	39.42	0.5	Pass
NVNT	ac80	5290	Ant1	79.2	0.5	Pass
NVNT	n20	5260	Ant1	20.7	0.5	Pass
NVNT	n20	5280	Ant1	20.25	0.5	Pass
NVNT	n20	5320	Ant1	20.37	0.5	Pass
NVNT	n40	5270	Ant1	39.96	0.5	Pass
NVNT	n40	5310	Ant1	39.96	0.5	Pass

-26dB Bandwidth NVNT a 5260MHz Ant1

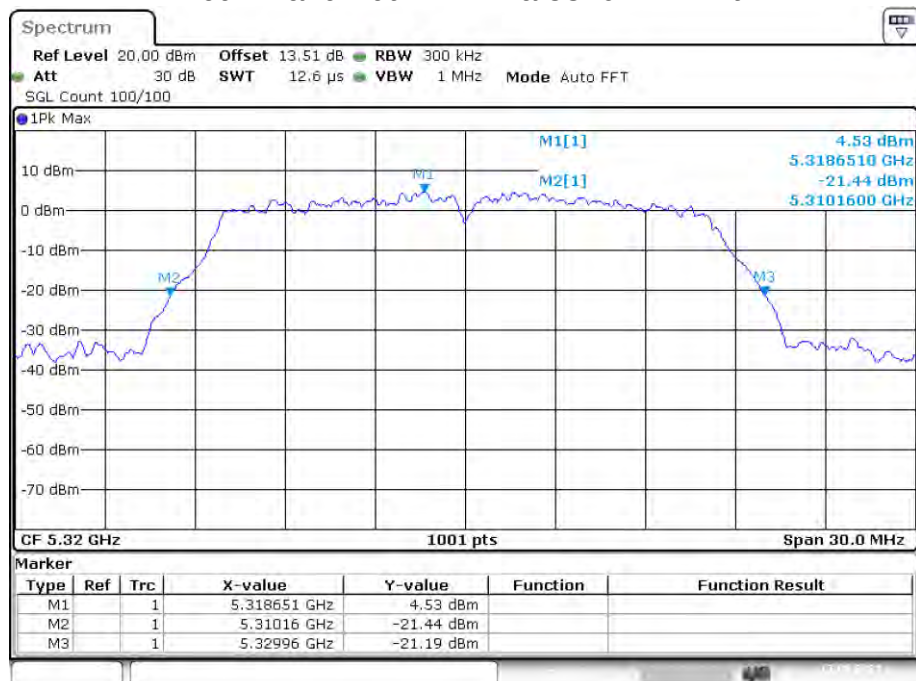
Date: 17.SEP.2021 13:07:45

-26dB Bandwidth NVNT a 5280MHz Ant1



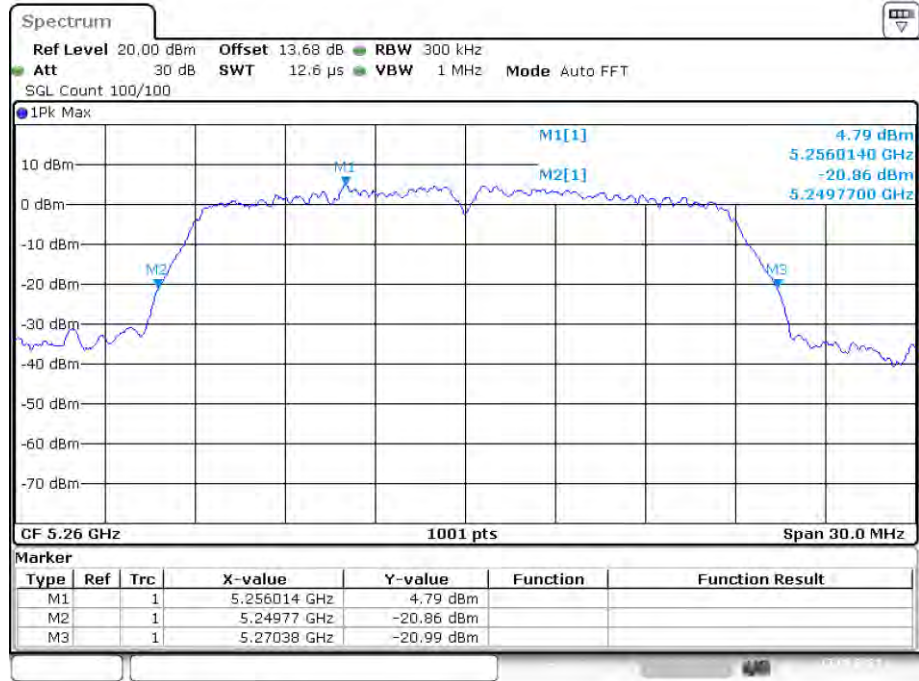
Date: 17.SEP.2021 13:10:22

-26dB Bandwidth NVNT a 5320MHz Ant1



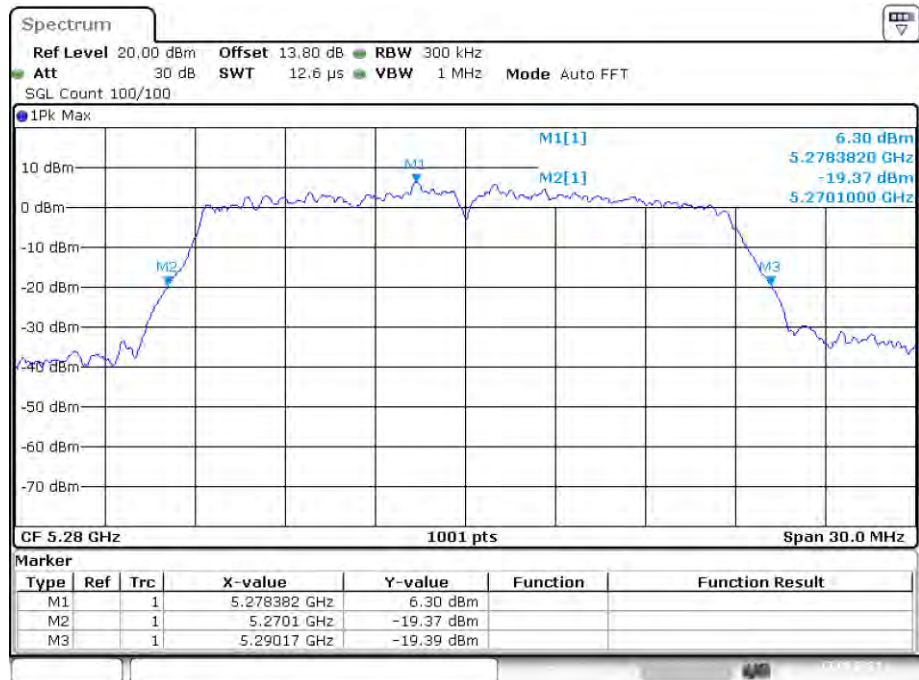
Date: 17.SEP.2021 13:13:07

-26dB Bandwidth NVNT ac20 5260MHz Ant1



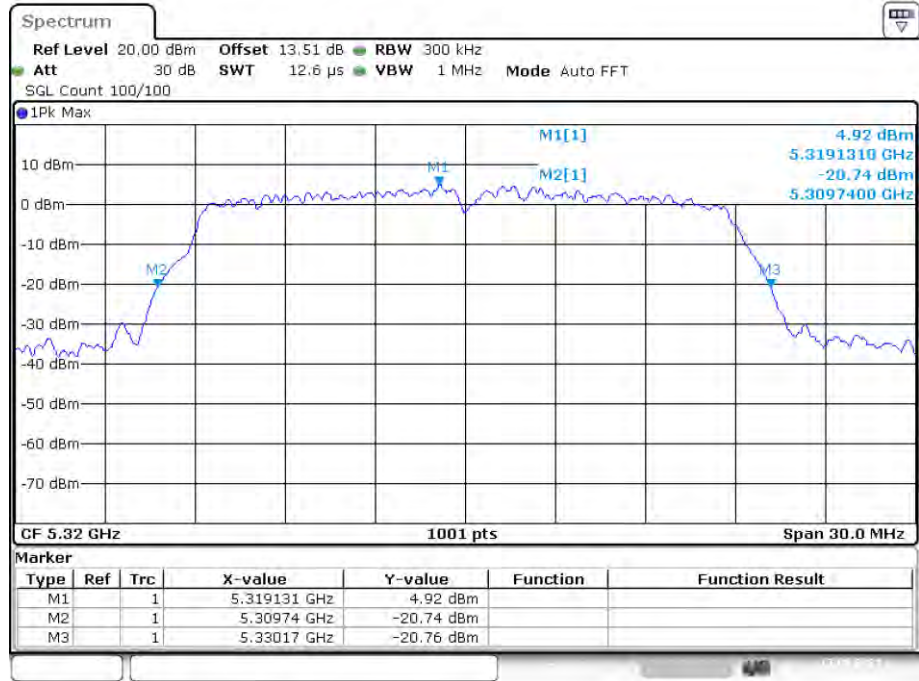
Date: 17.SEP.2021 14:01:56

-26dB Bandwidth NVNT ac20 5280MHz Ant1



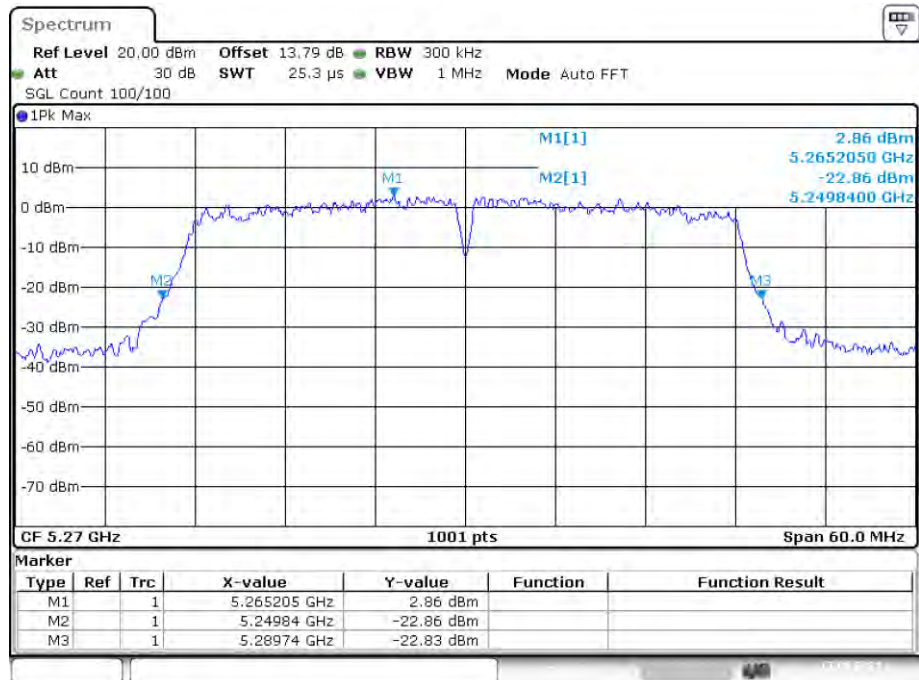
Date: 17.SEP.2021 14:18:34

-26dB Bandwidth NVNT ac20 5320MHz Ant1

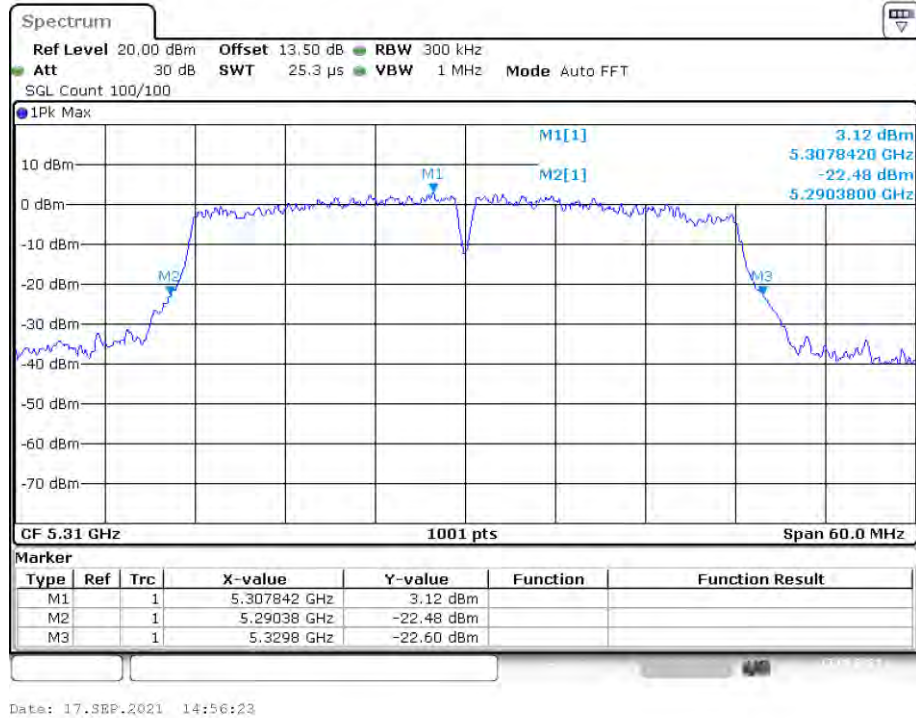
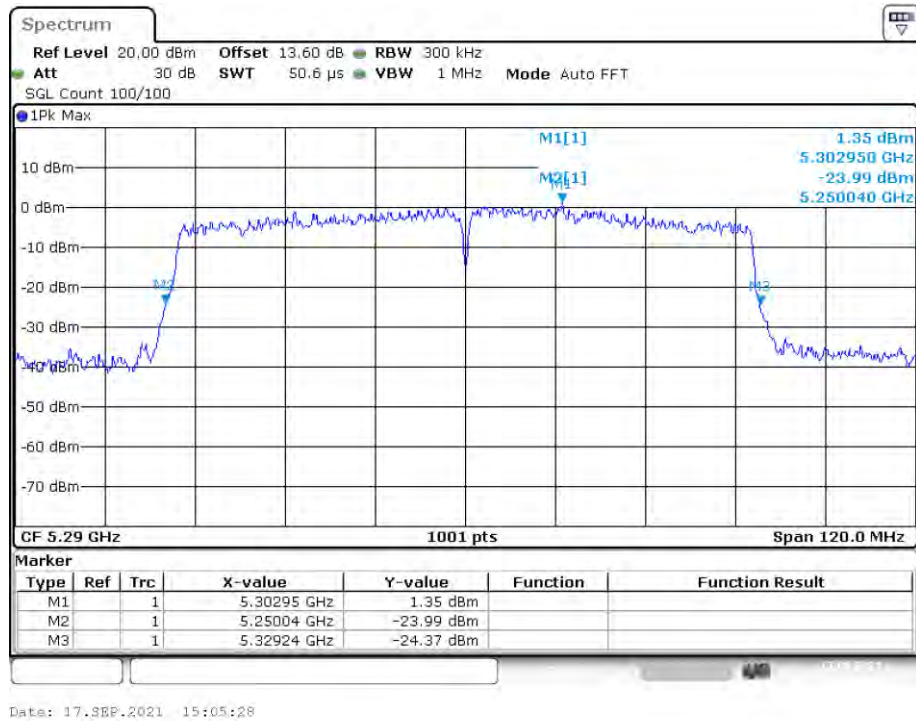


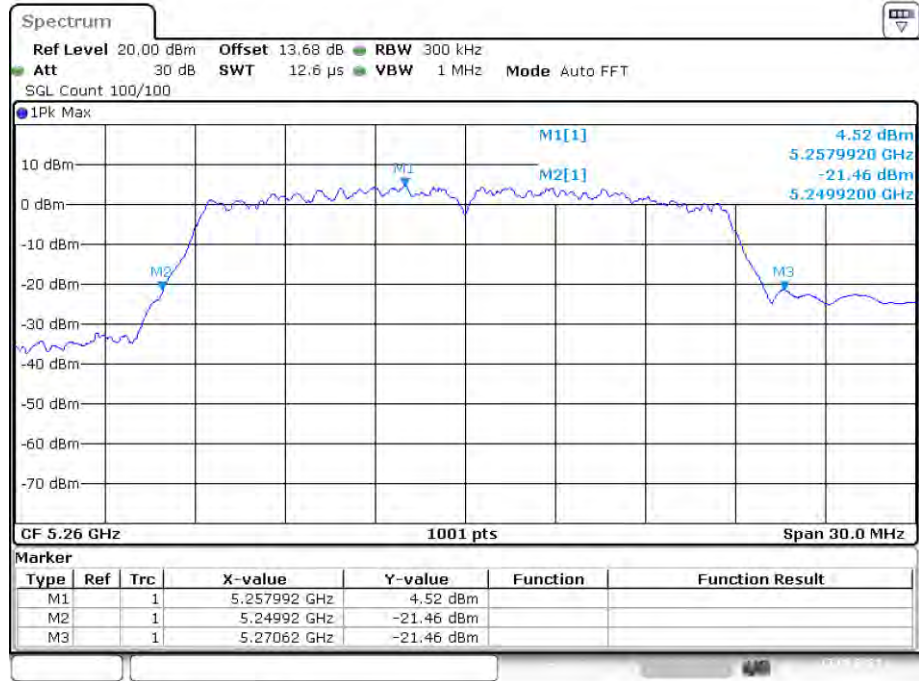
Date: 17.SEP.2021 14:31:02

-26dB Bandwidth NVNT ac40 5270MHz Ant1

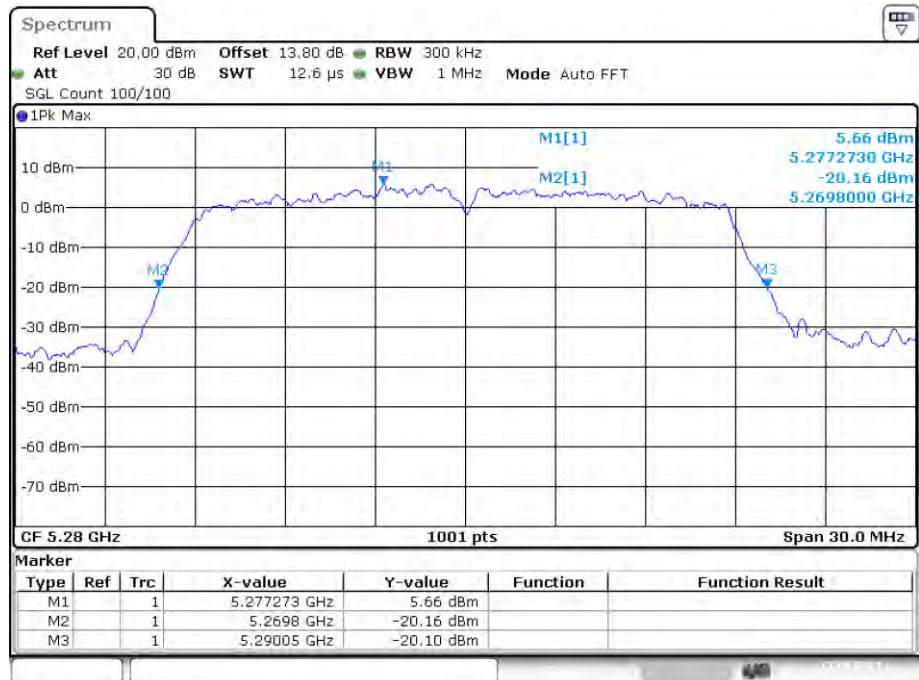


Date: 17.SEP.2021 14:52:04

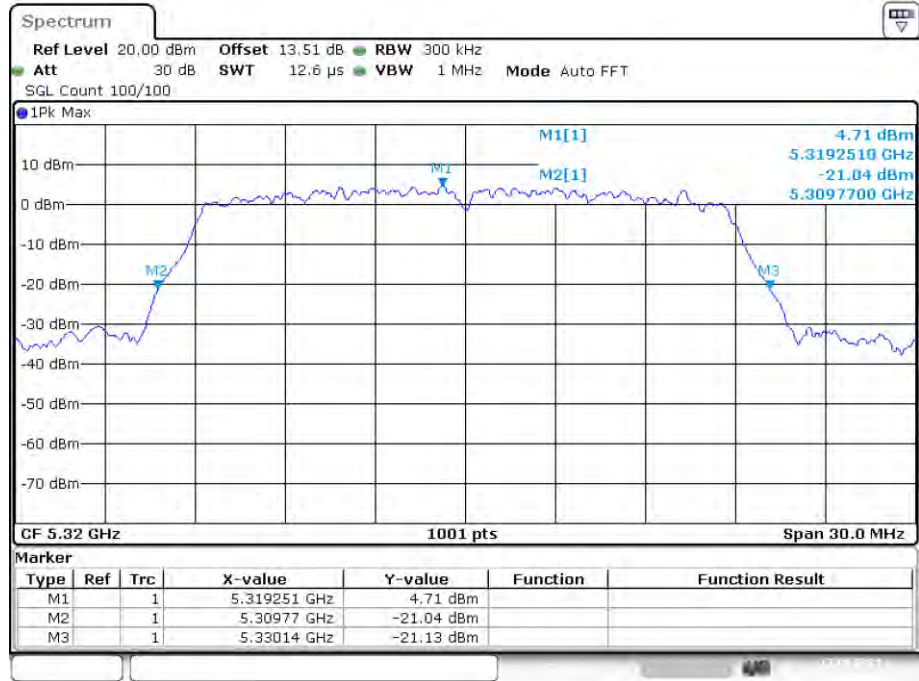
-26dB Bandwidth NVNT ac40 5310MHz Ant1**-26dB Bandwidth NVNT ac80 5290MHz Ant1**

-26dB Bandwidth NVNT n20 5260MHz Ant1

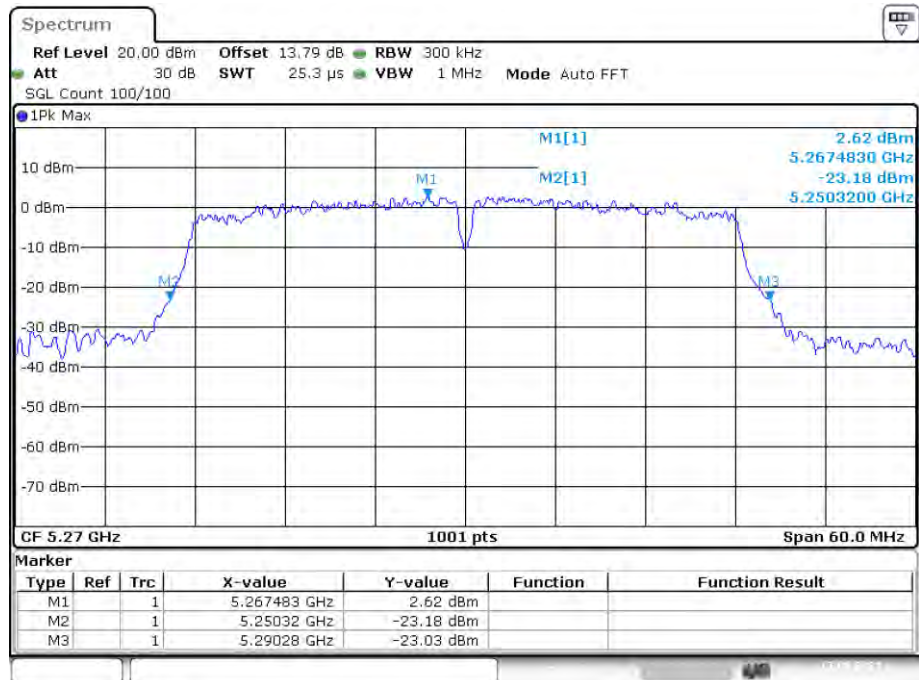
Date: 17.SEP.2021 13:18:03

-26dB Bandwidth NVNT n20 5280MHz Ant1

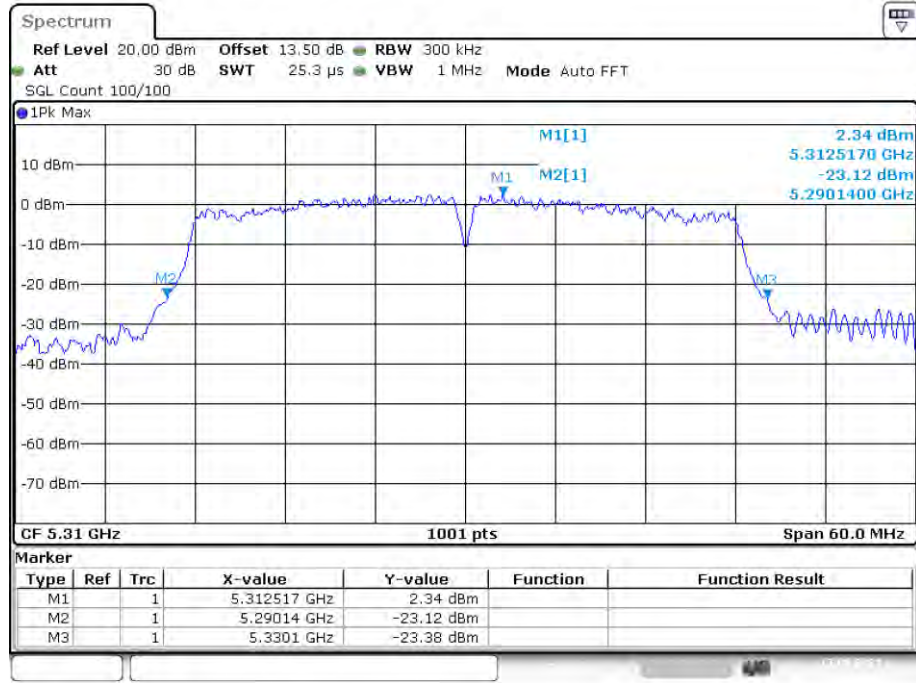
Date: 17.SEP.2021 13:54:39

-26dB Bandwidth NVNT n20 5320MHz Ant1

Date: 17.SEP.2021 13:58:12

-26dB Bandwidth NVNT n40 5270MHz Ant1

Date: 17.SEP.2021 14:39:43

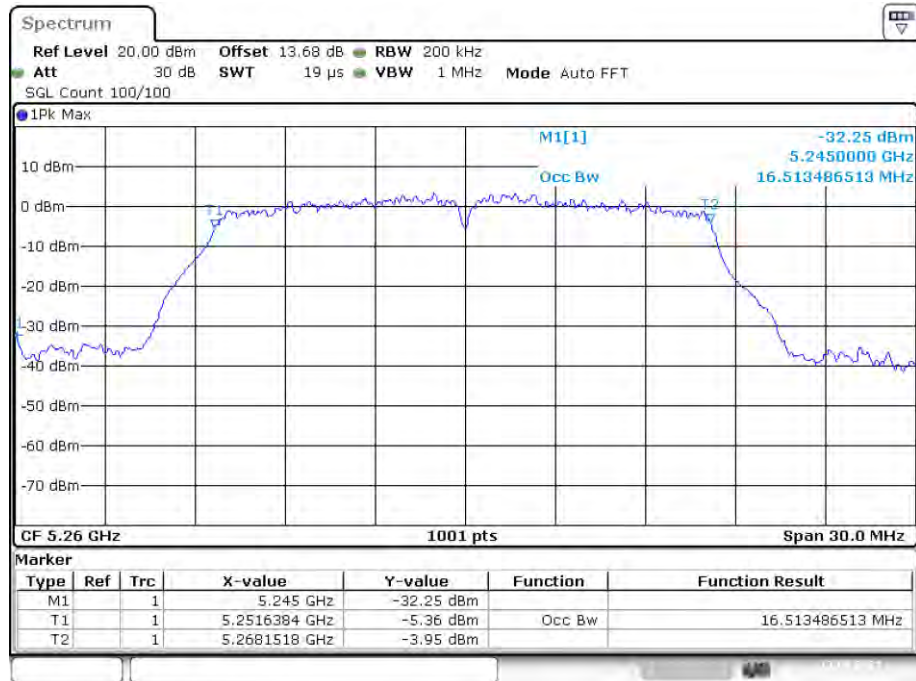
-26dB Bandwidth NVNT n40 5310MHz Ant1

Date: 17.SEP.2021 14:44:10

Occupied Channel Bandwidth

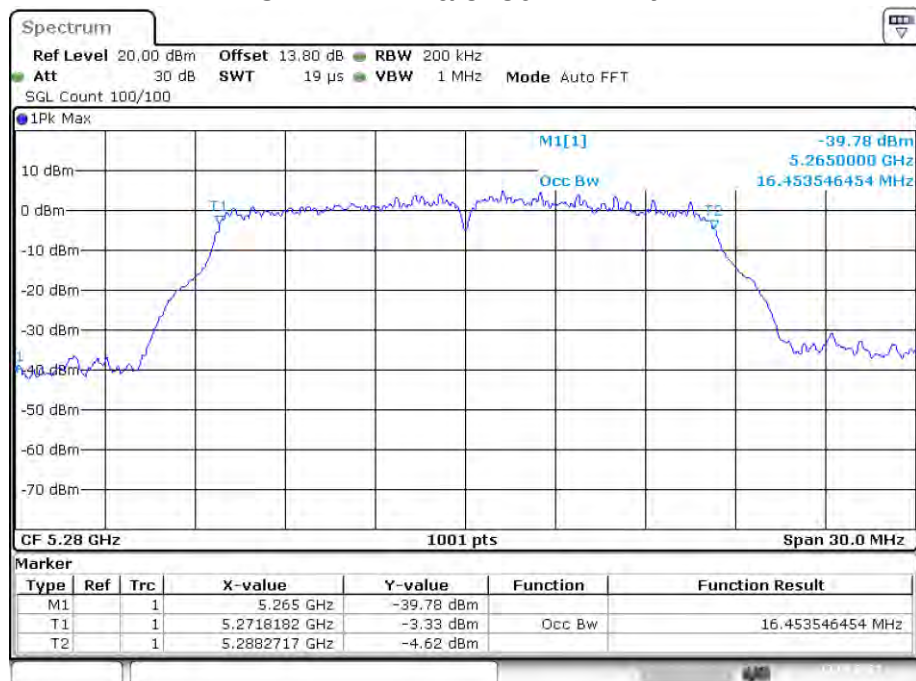
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5260	Ant1	16.513
NVNT	a	5280	Ant1	16.454
NVNT	a	5320	Ant1	16.454
NVNT	ac20	5260	Ant1	17.502
NVNT	ac20	5280	Ant1	17.562
NVNT	ac20	5320	Ant1	17.502
NVNT	ac40	5270	Ant1	35.844
NVNT	ac40	5310	Ant1	35.904
NVNT	ac80	5290	Ant1	75.045
NVNT	n20	5260	Ant1	17.622
NVNT	n20	5280	Ant1	17.502
NVNT	n20	5320	Ant1	17.562
NVNT	n40	5270	Ant1	36.024
NVNT	n40	5310	Ant1	35.844

OBW NVNT a 5260MHz Ant1



Date: 17.SEP.2021 13:07:36

OBW NVNT a 5280MHz Ant1

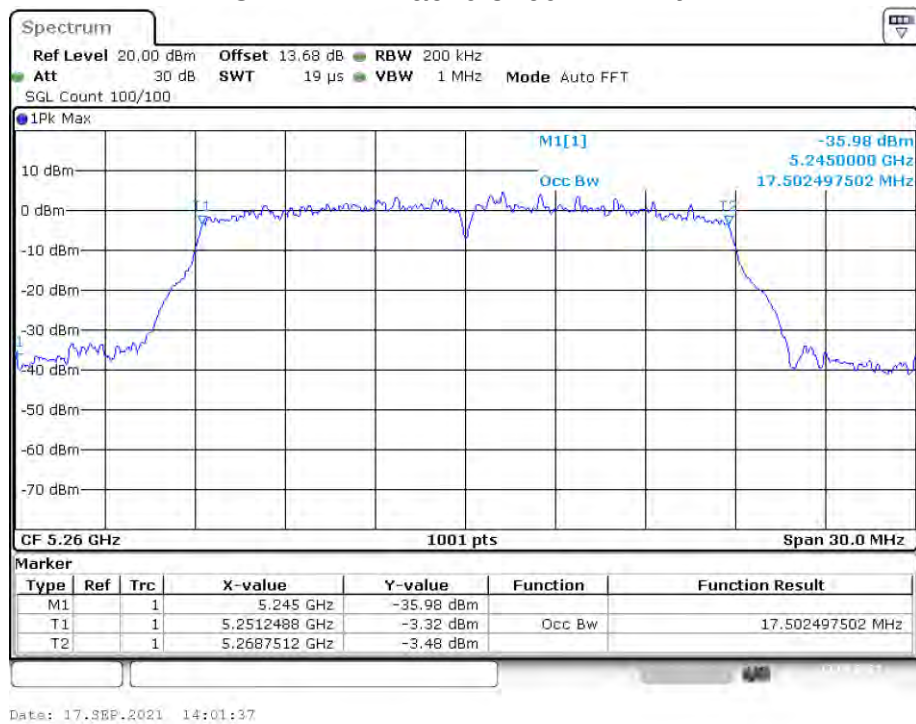


Date: 17.SEP.2021 13:10:12

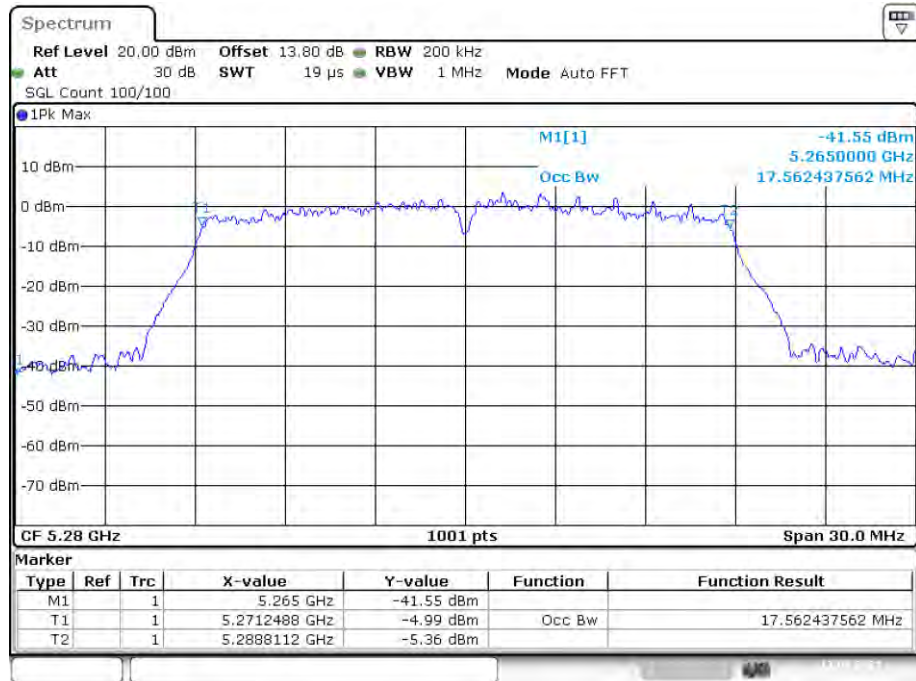
OBW NVNT a 5320MHz Ant1



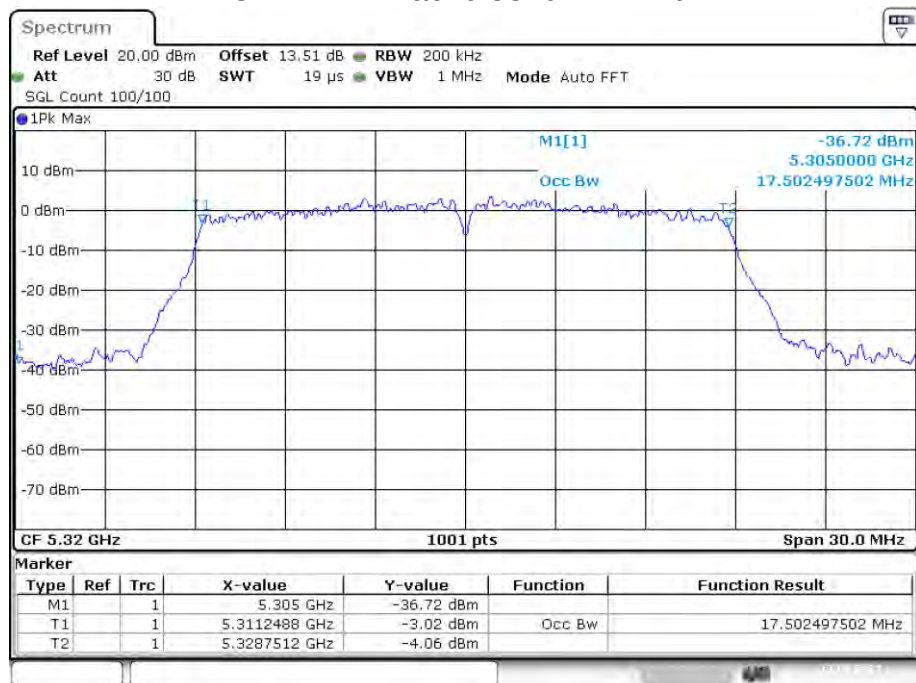
OBW NVNT ac20 5260MHz Ant1



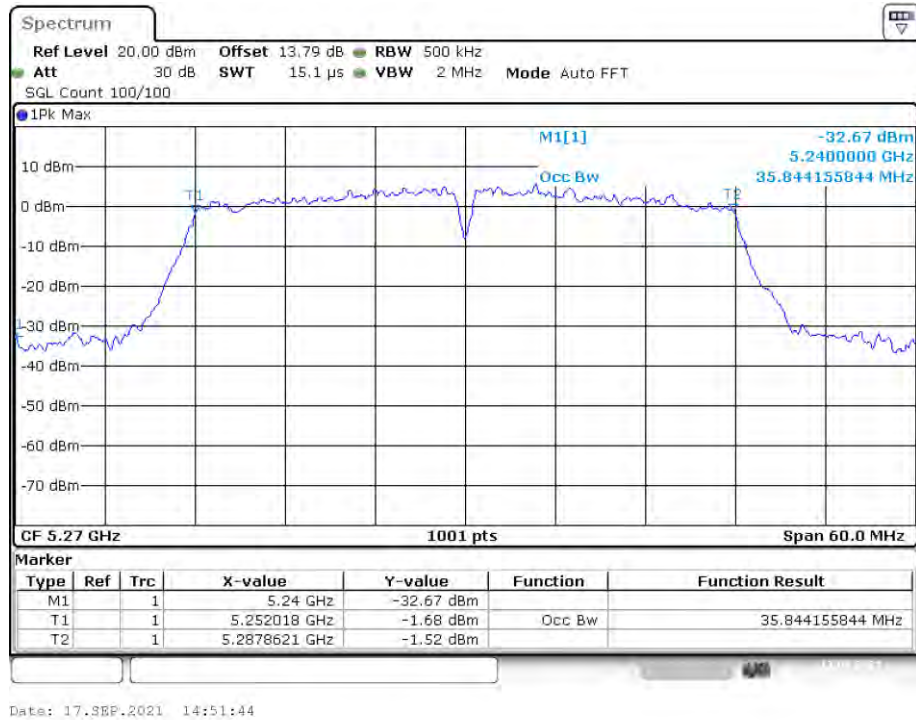
OBW NVNT ac20 5280MHz Ant1



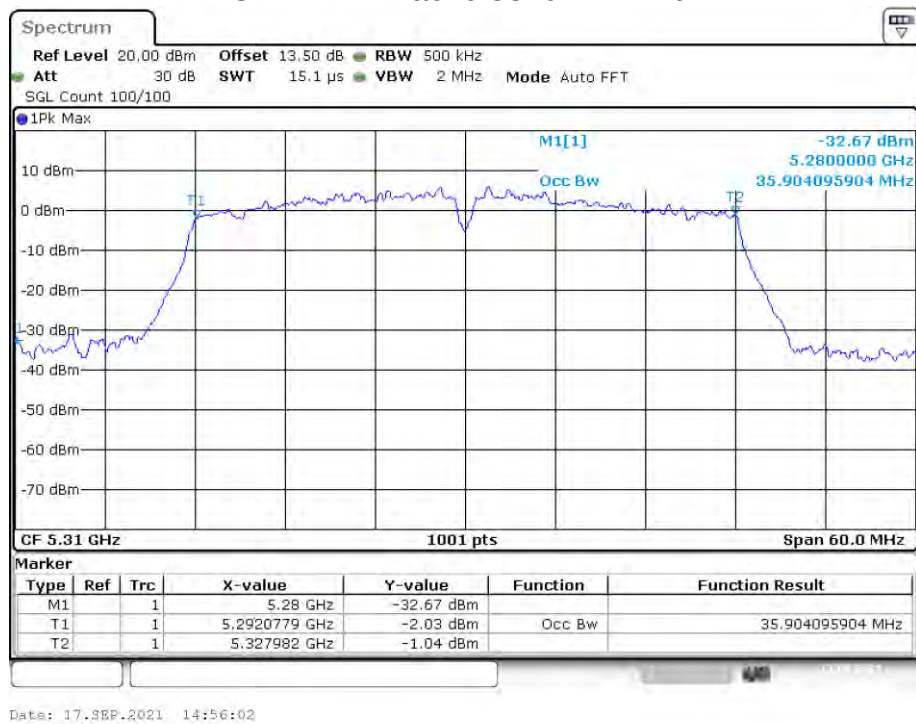
OBW NVNT ac20 5320MHz Ant1



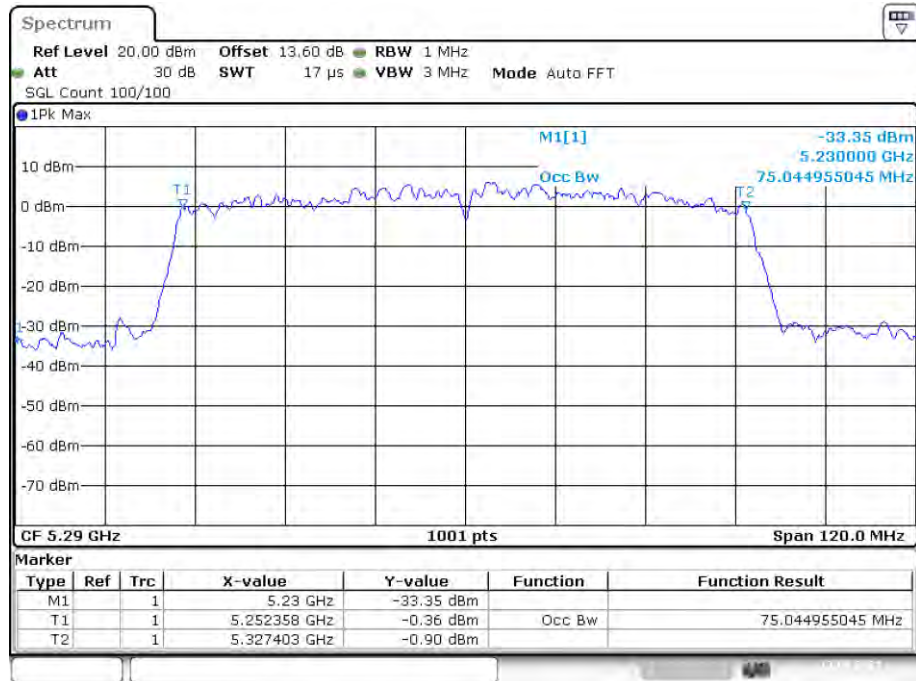
OBW NVNT ac40 5270MHz Ant1



OBW NVNT ac40 5310MHz Ant1

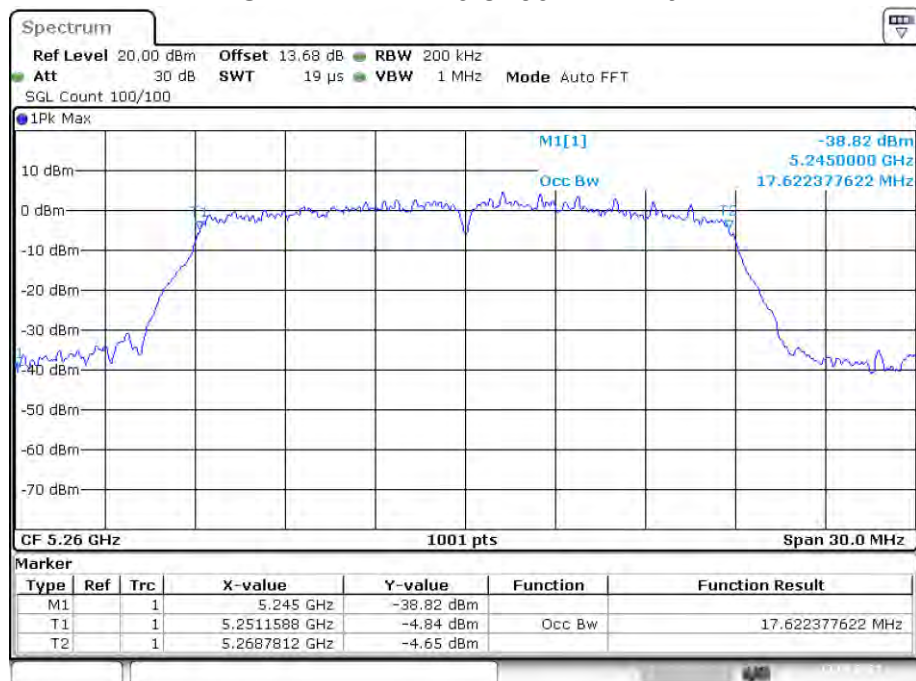


OBW NVNT ac80 5290MHz Ant1



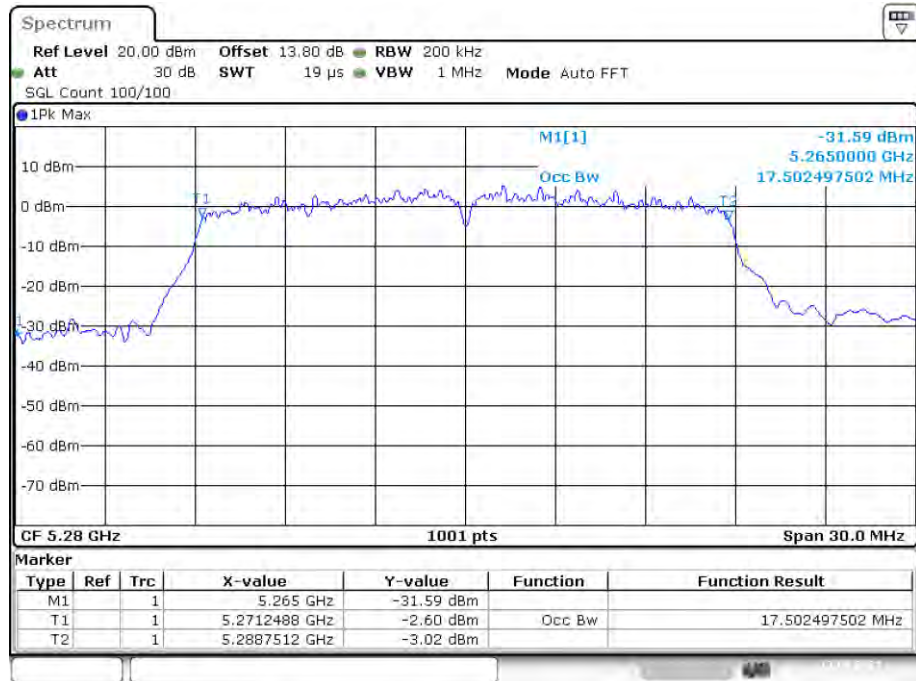
Date: 17.SEP.2021 15:05:16

OBW NVNT n20 5260MHz Ant1

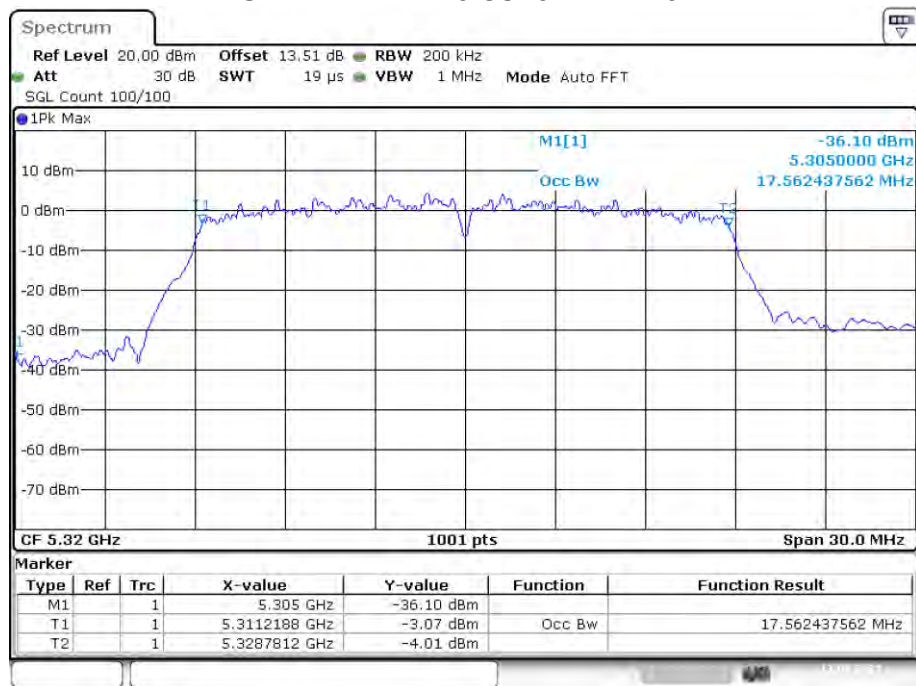


Date: 17.SEP.2021 13:17:50

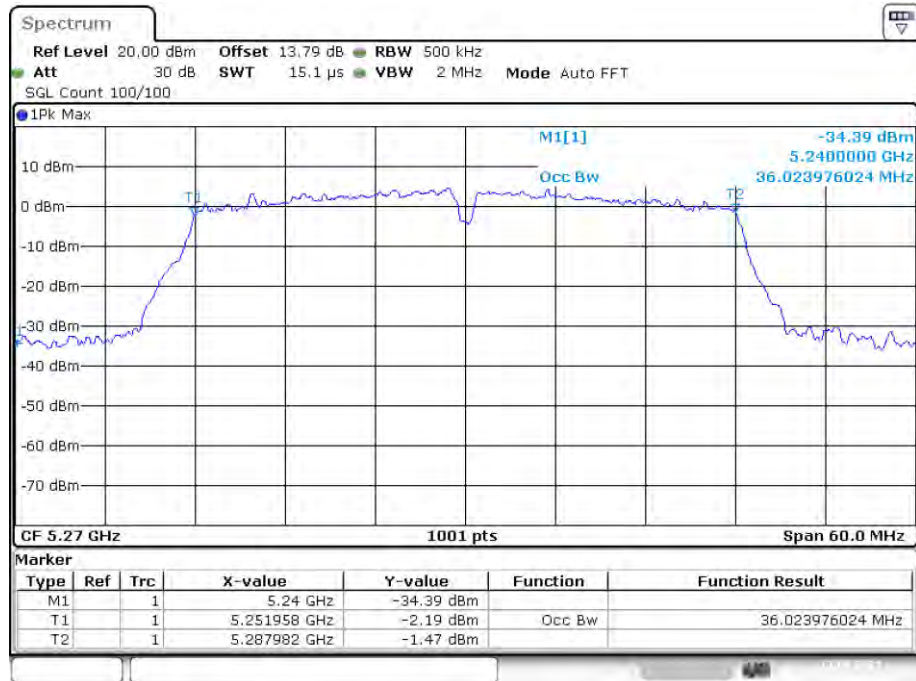
OBW NVNT n20 5280MHz Ant1



OBW NVNT n20 5320MHz Ant1

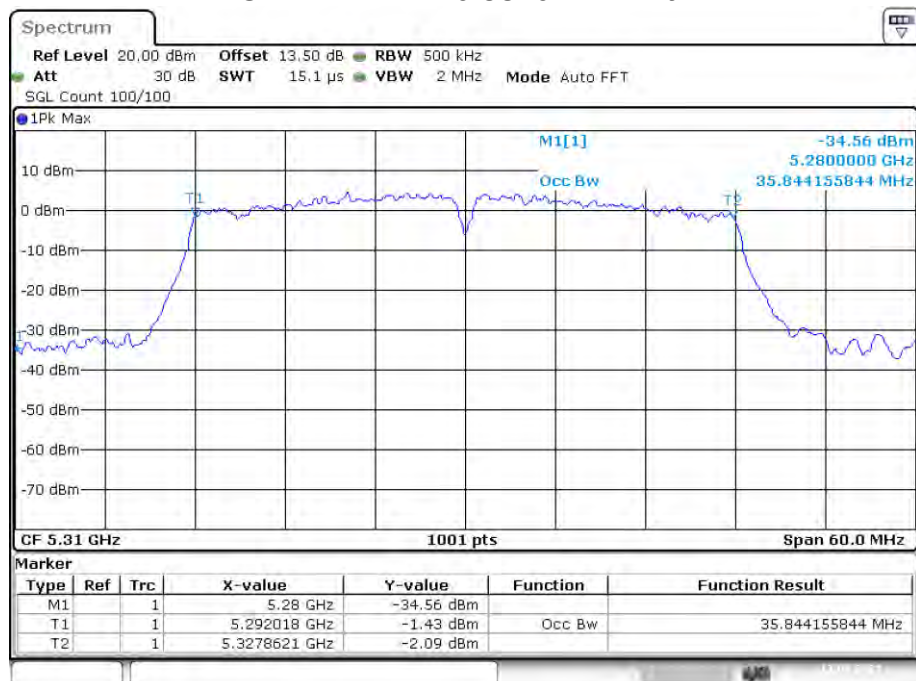


OBW NVNT n40 5270MHz Ant1



Date: 17.SEP.2021 14:39:25

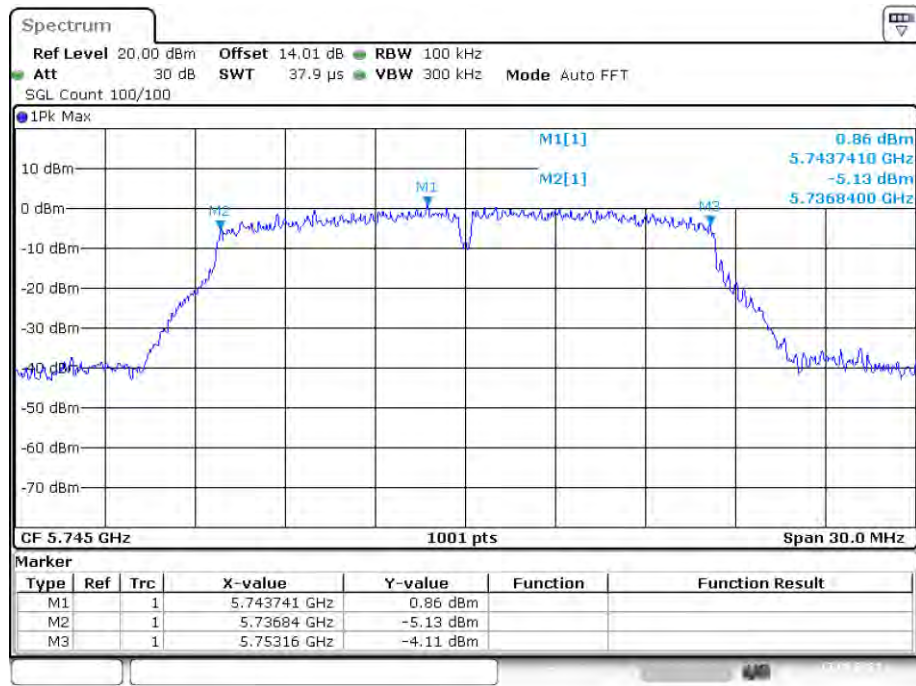
OBW NVNT n40 5310MHz Ant1



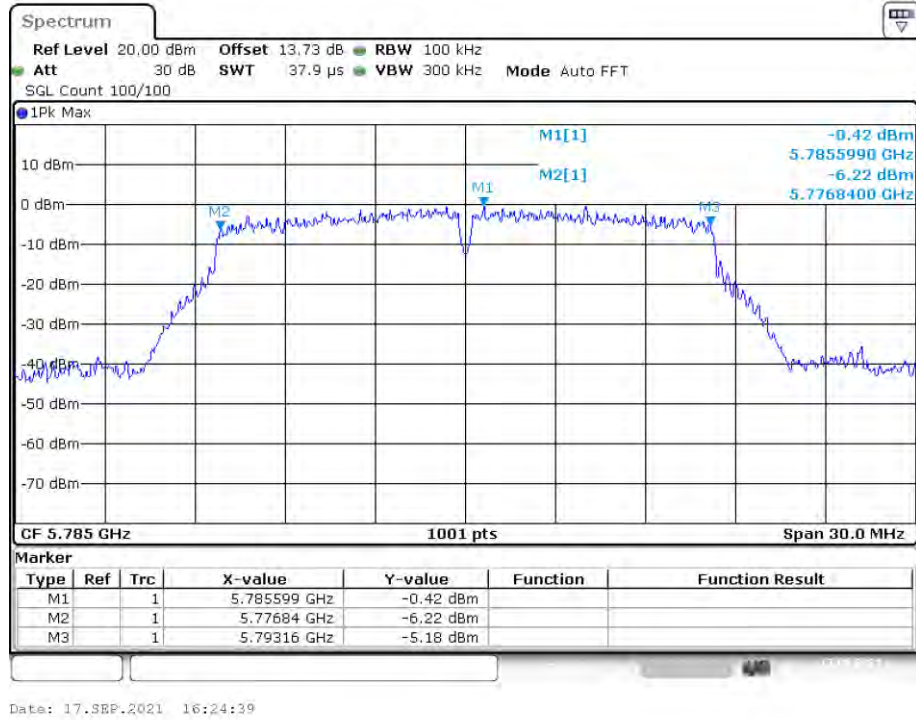
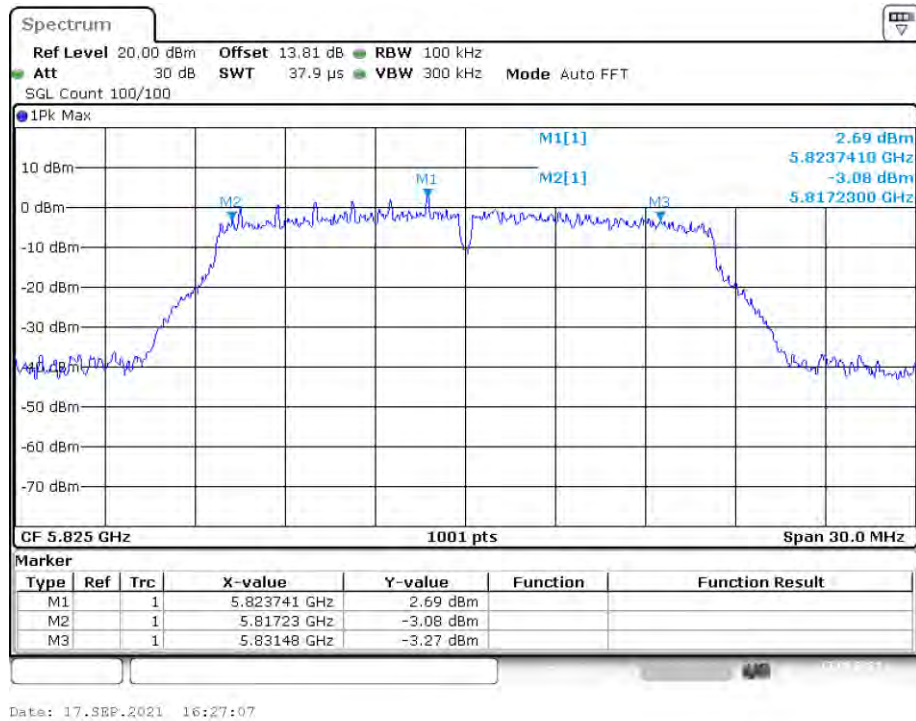
Date: 17.SEP.2021 14:43:51

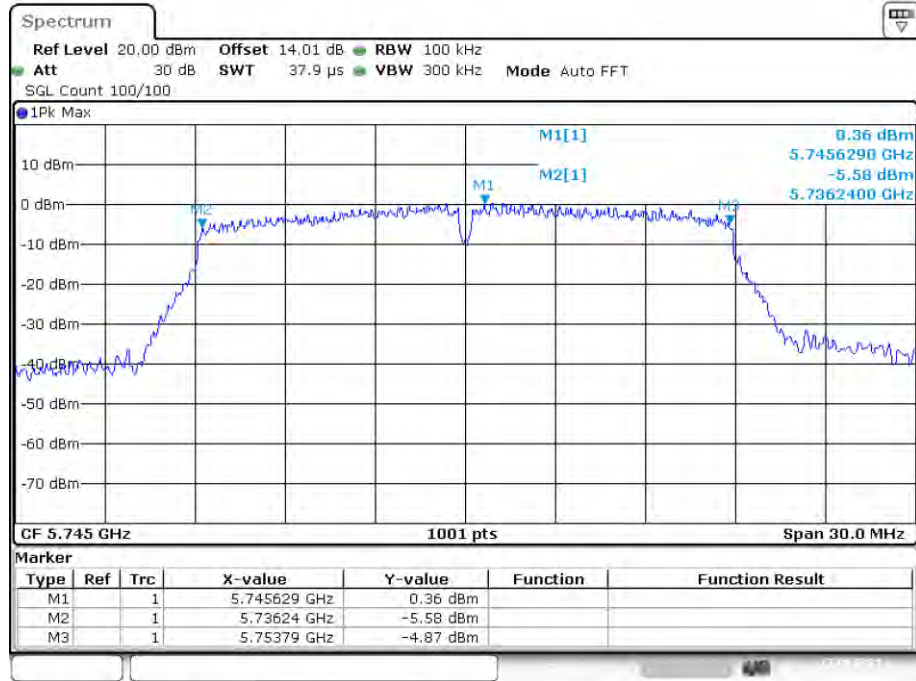
Band 4 (5725-5850 MHz):**-6dB Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.32	0.5	Pass
NVNT	a	5785	Ant1	16.32	0.5	Pass
NVNT	a	5825	Ant1	14.25	0.5	Pass
NVNT	ac20	5745	Ant1	17.55	0.5	Pass
NVNT	ac20	5785	Ant1	15.69	0.5	Pass
NVNT	ac20	5825	Ant1	17.58	0.5	Pass
NVNT	ac40	5755	Ant1	30.12	0.5	Pass
NVNT	ac40	5795	Ant1	31.32	0.5	Pass
NVNT	ac80	5775	Ant1	75.12	0.5	Pass
NVNT	n20	5745	Ant1	15.63	0.5	Pass
NVNT	n20	5785	Ant1	15.69	0.5	Pass
NVNT	n20	5825	Ant1	16.56	0.5	Pass
NVNT	n40	5755	Ant1	30	0.5	Pass
NVNT	n40	5795	Ant1	31.32	0.5	Pass

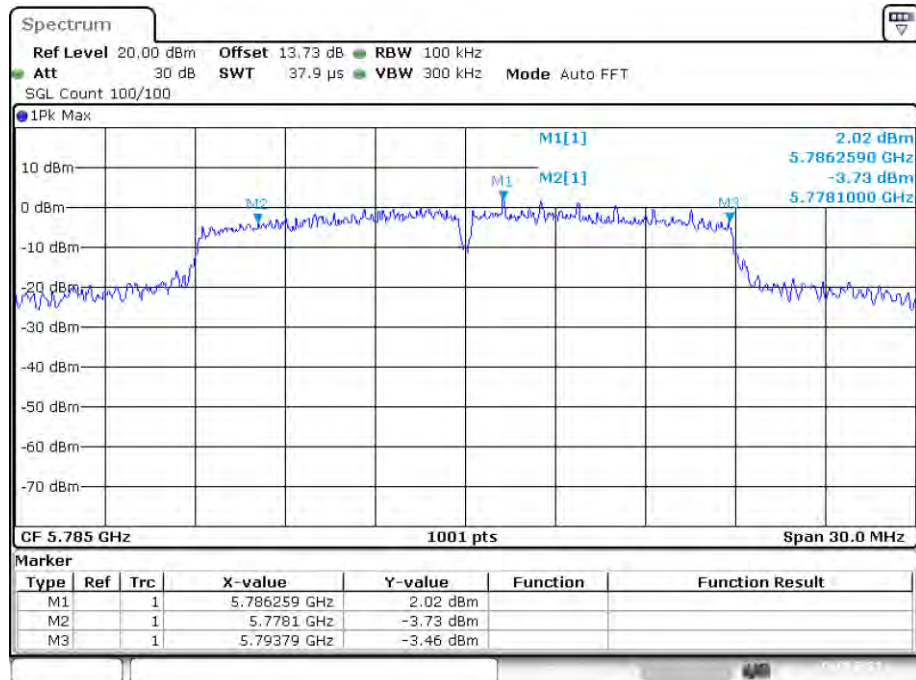
-6dB Bandwidth NVNT a 5745MHz Ant1

Date: 17.SEP.2021 16:19:53

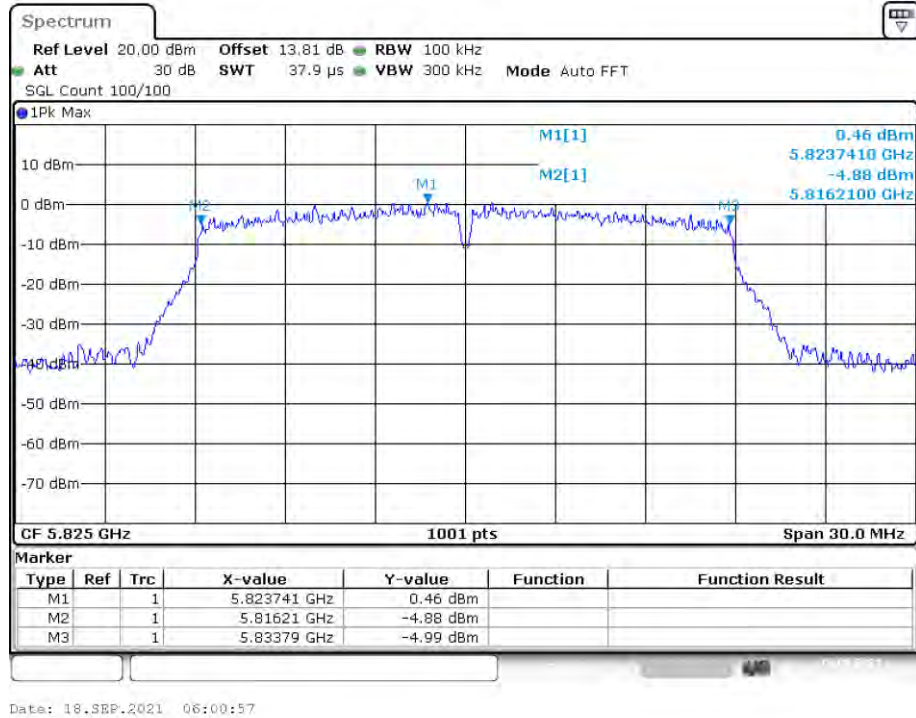
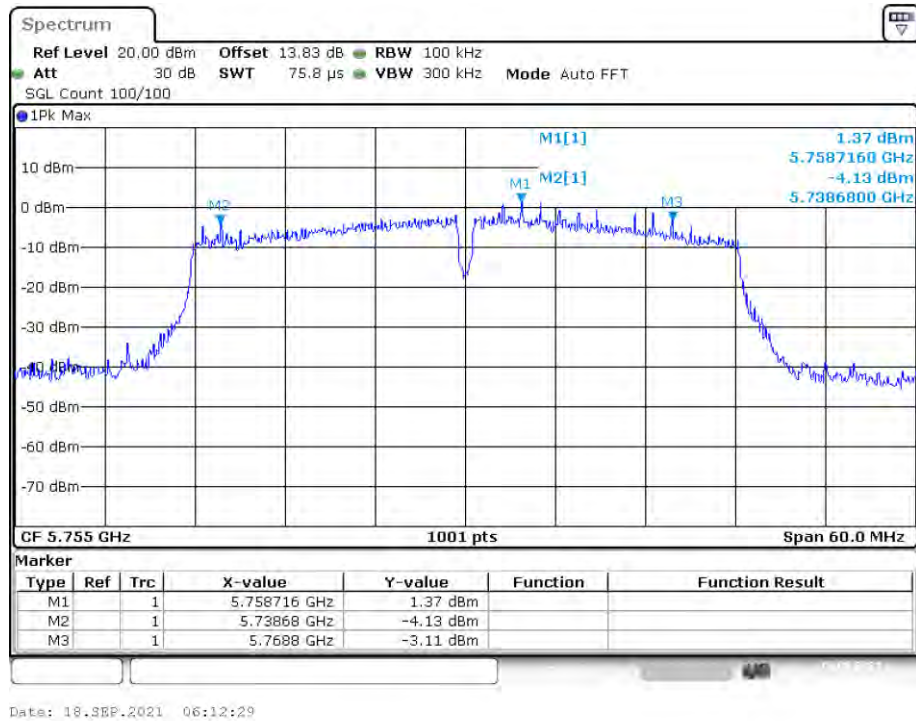
-6dB Bandwidth NVNT a 5785MHz Ant1**-6dB Bandwidth NVNT a 5825MHz Ant1**

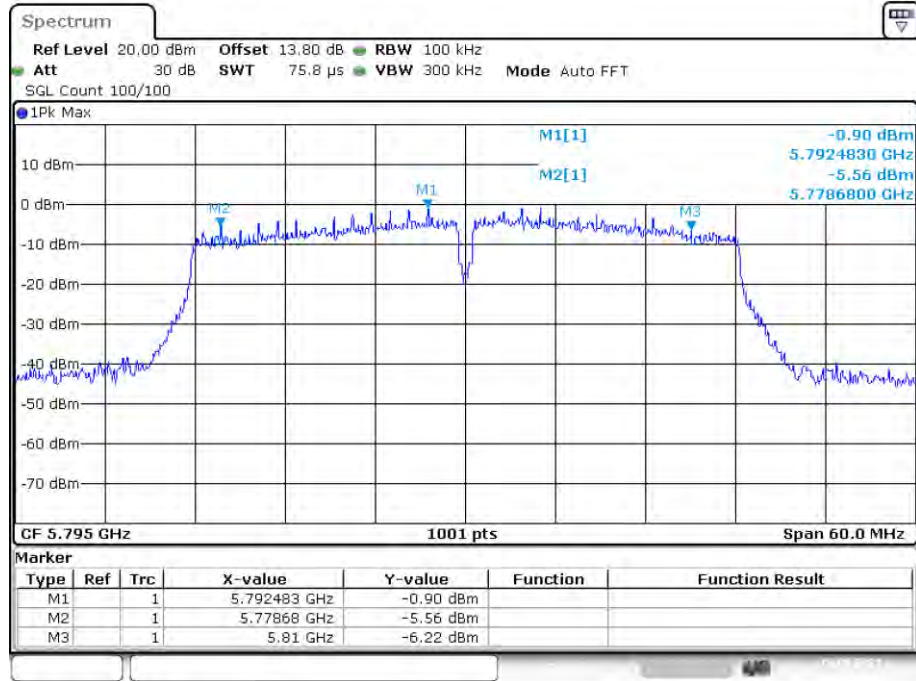
-6dB Bandwidth NVNT ac20 5745MHz Ant1

Date: 17.SEP.2021 16:48:53

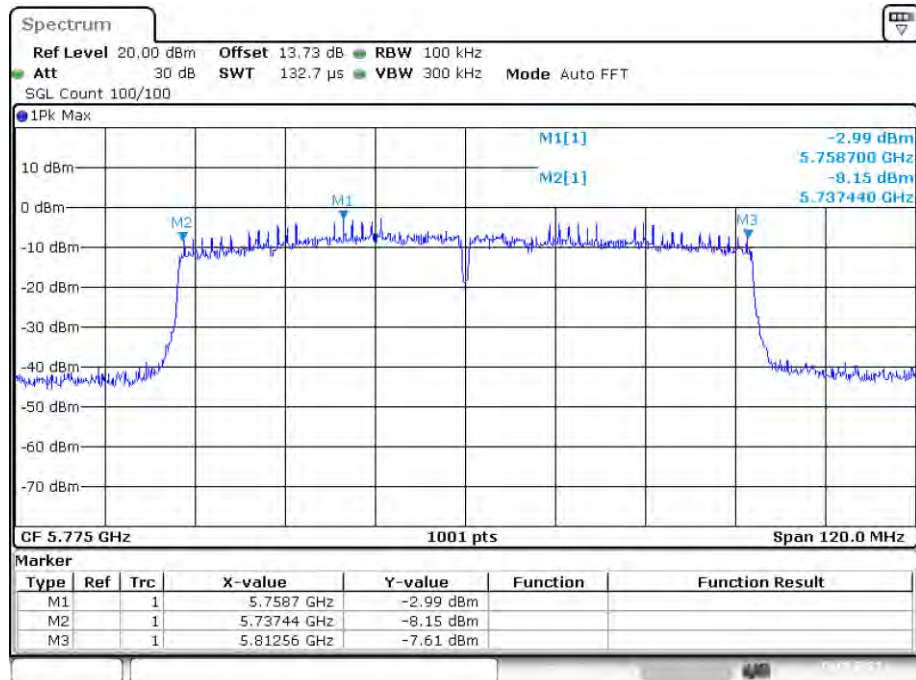
-6dB Bandwidth NVNT ac20 5785MHz Ant1

Date: 18.SEP.2021 05:58:22

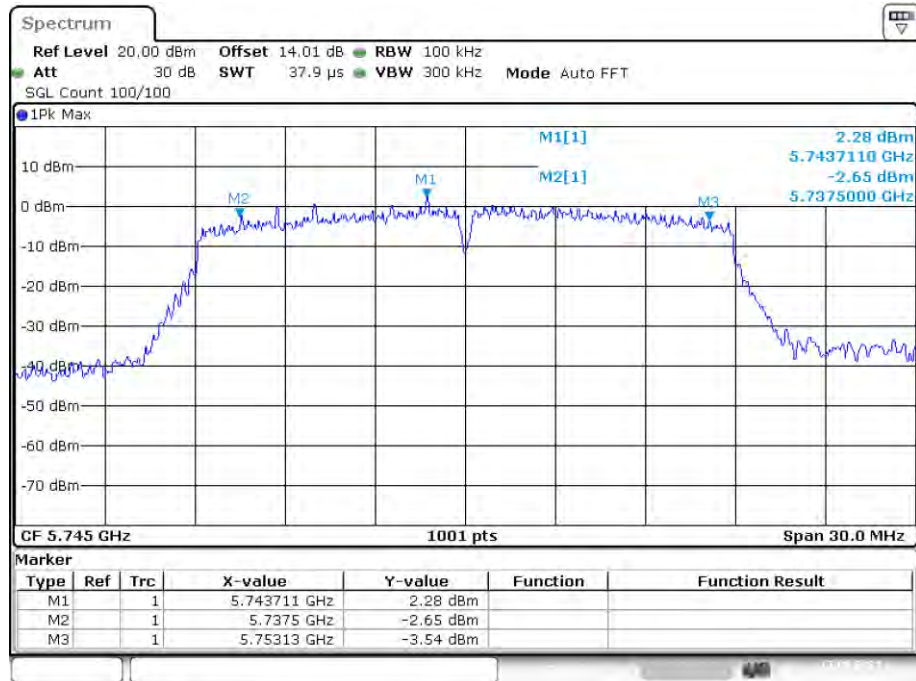
-6dB Bandwidth NVNT ac20 5825MHz Ant1**-6dB Bandwidth NVNT ac40 5755MHz Ant1**

-6dB Bandwidth NVNT ac40 5795MHz Ant1

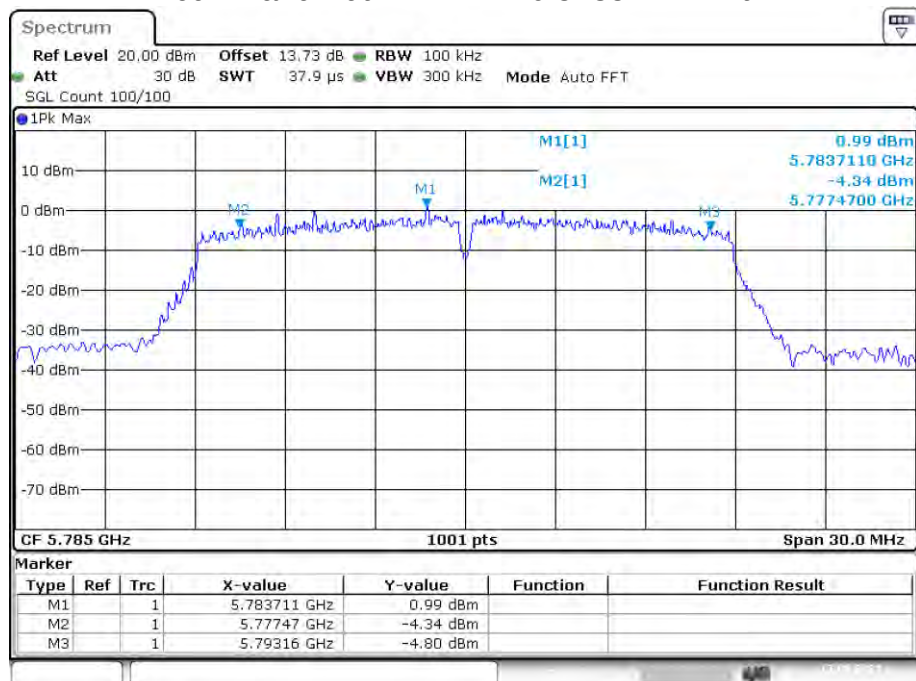
Date: 18.SEP.2021 06:16:31

-6dB Bandwidth NVNT ac80 5775MHz Ant1

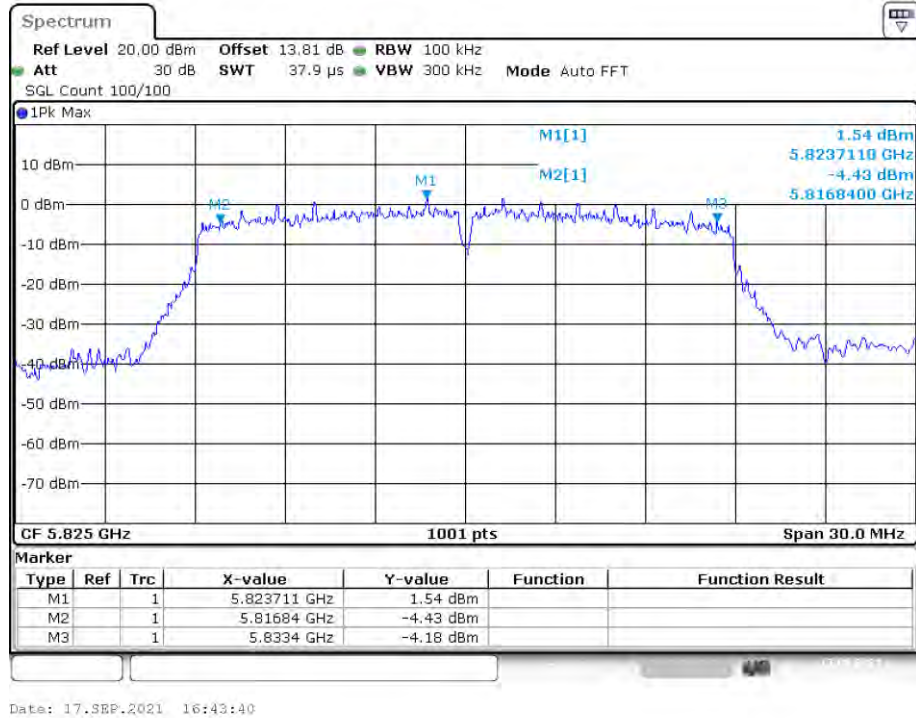
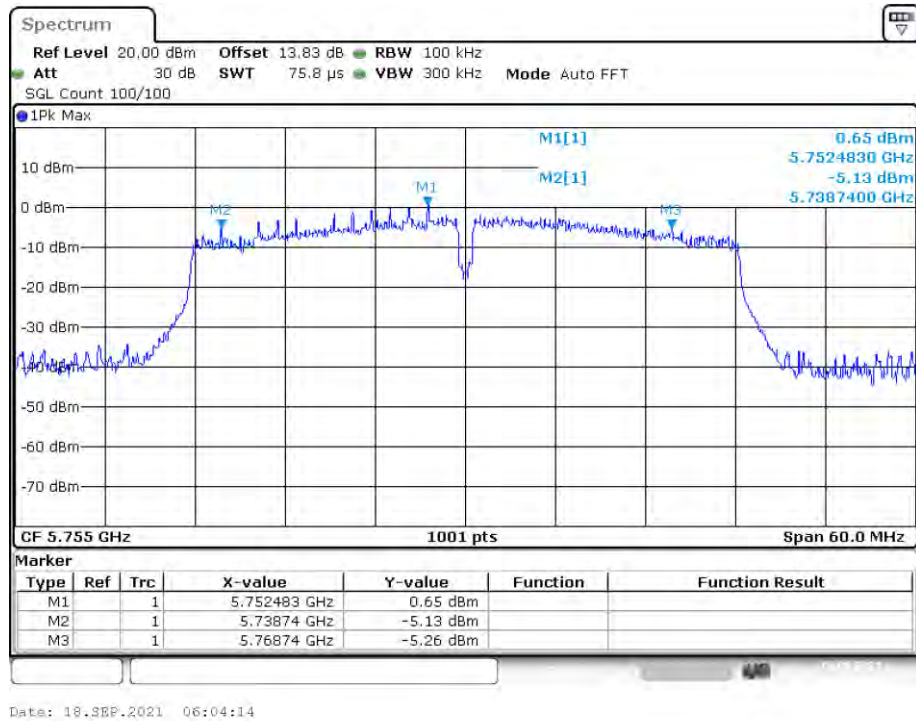
Date: 18.SEP.2021 06:20:20

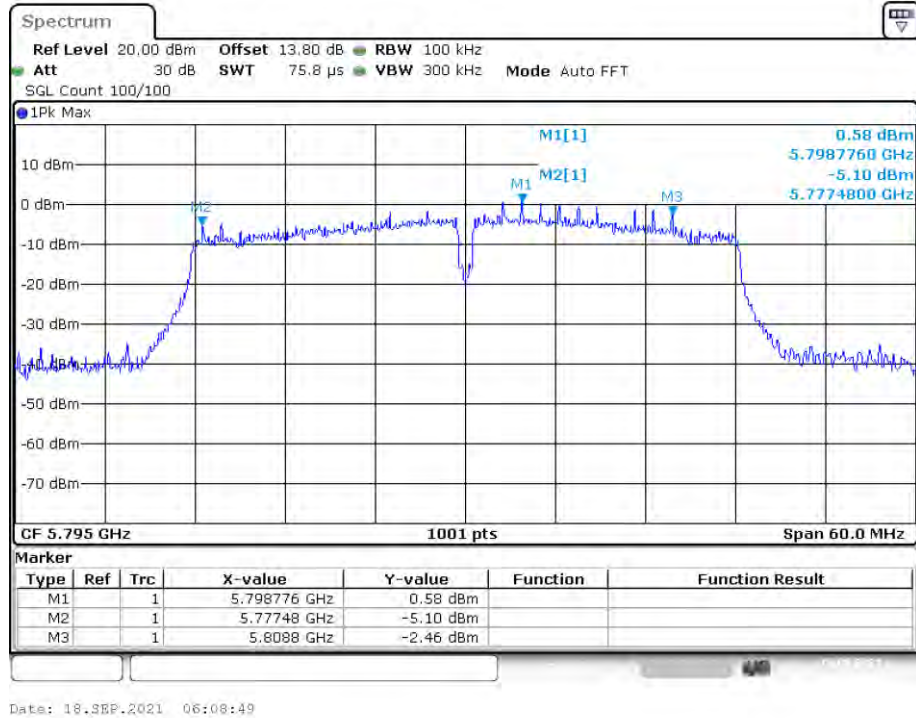
-6dB Bandwidth NVNT n20 5745MHz Ant1

Date: 17.SEP.2021 16:35:25

-6dB Bandwidth NVNT n20 5785MHz Ant1

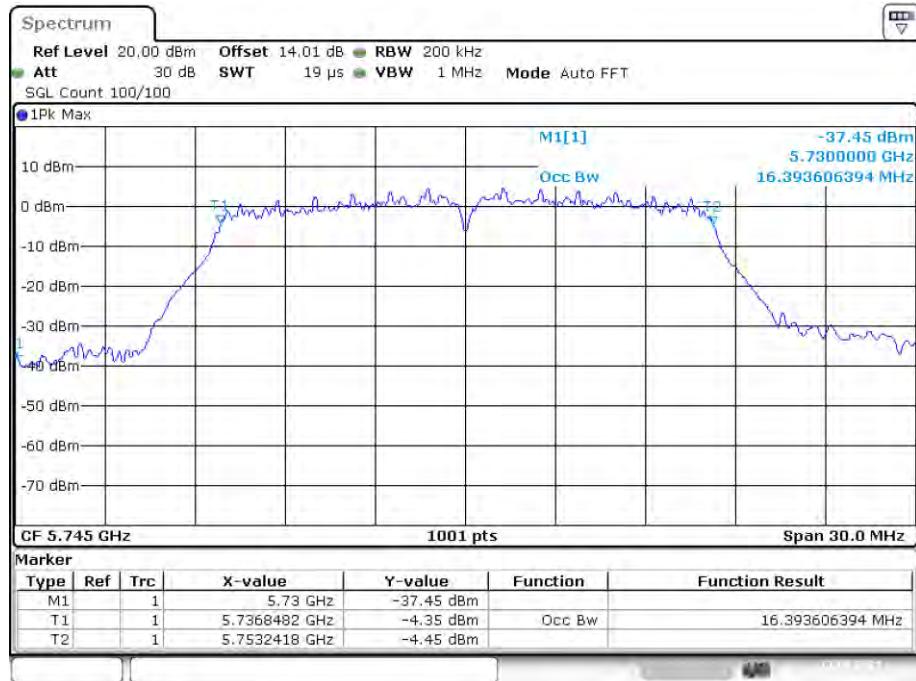
Date: 17.SEP.2021 16:39:19

-6dB Bandwidth NVNT n20 5825MHz Ant1**-6dB Bandwidth NVNT n40 5755MHz Ant1**

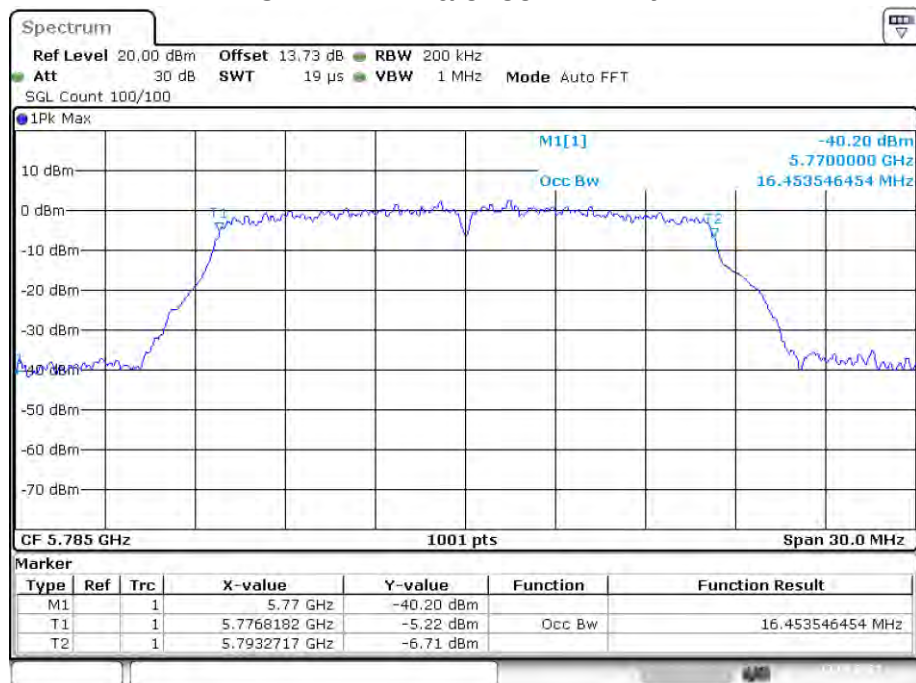
-6dB Bandwidth NVNT n40 5795MHz Ant1**Occupied Channel Bandwidth**

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5745	Ant1	16.394
NVNT	a	5785	Ant1	16.454
NVNT	a	5825	Ant1	16.454
NVNT	ac20	5745	Ant1	17.532
NVNT	ac20	5785	Ant1	19.421
NVNT	ac20	5825	Ant1	17.562
NVNT	ac40	5755	Ant1	35.724
NVNT	ac40	5795	Ant1	35.964
NVNT	ac80	5775	Ant1	75.045
NVNT	n20	5745	Ant1	17.562
NVNT	n20	5785	Ant1	17.532
NVNT	n20	5825	Ant1	17.562
NVNT	n40	5755	Ant1	35.844
NVNT	n40	5795	Ant1	35.904

OBW NVNT a 5745MHz Ant1



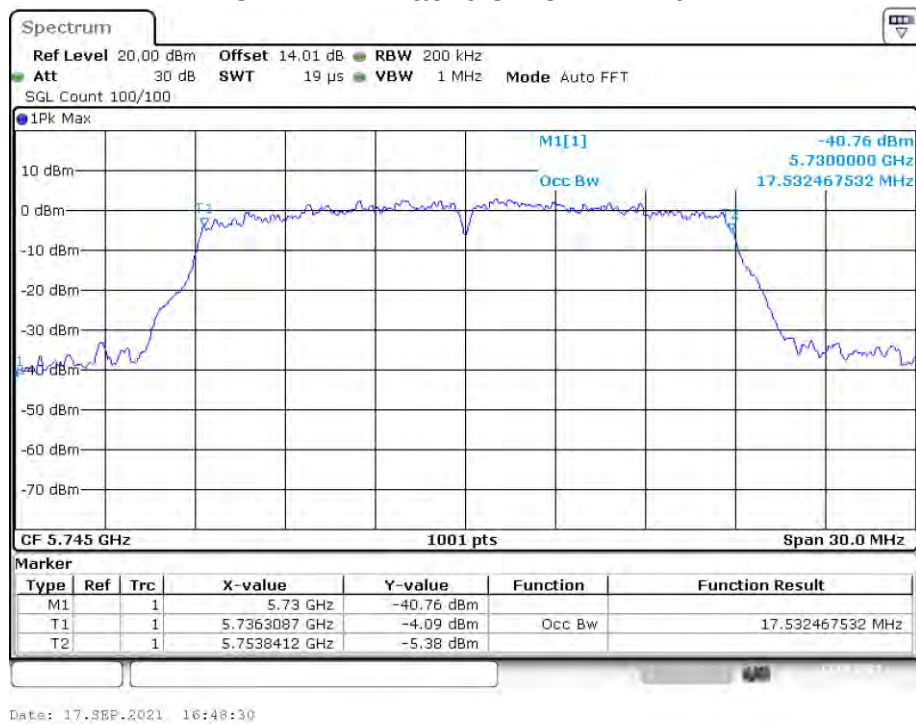
OBW NVNT a 5785MHz Ant1



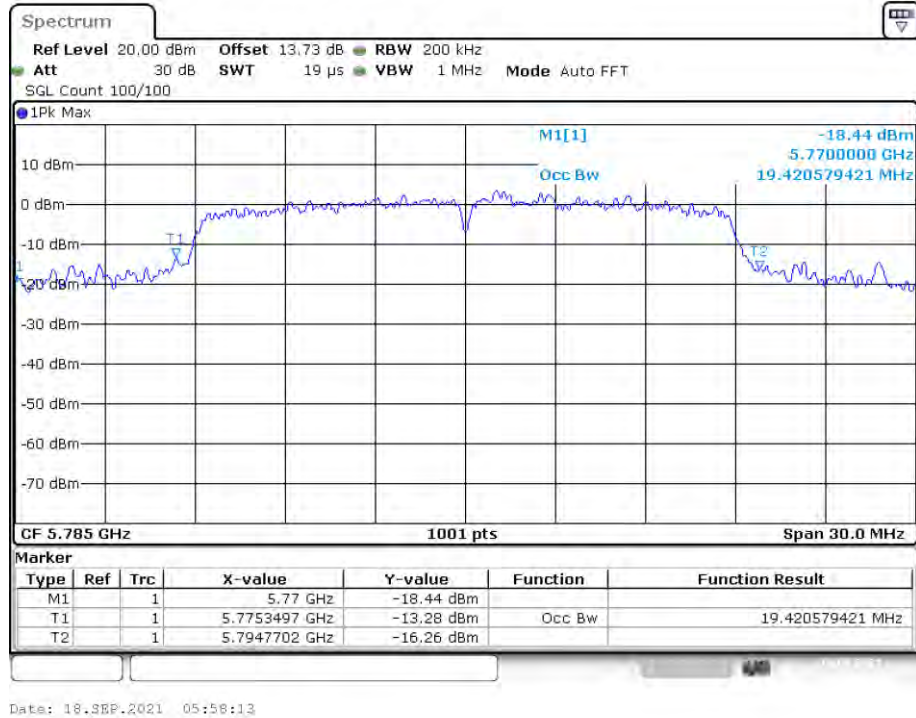
OBW NVNT a 5825MHz Ant1



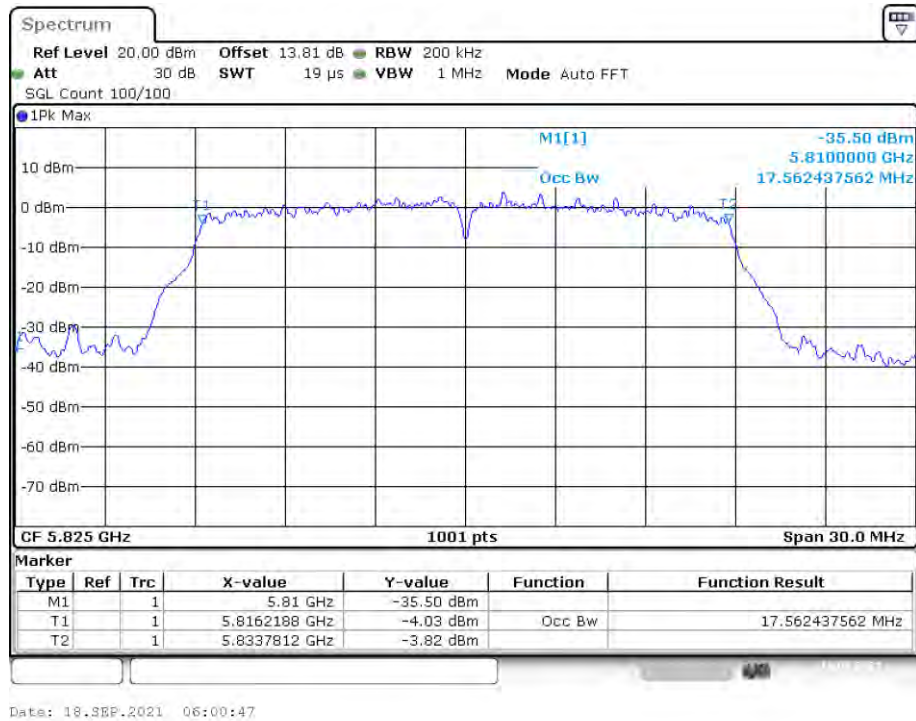
OBW NVNT ac20 5745MHz Ant1



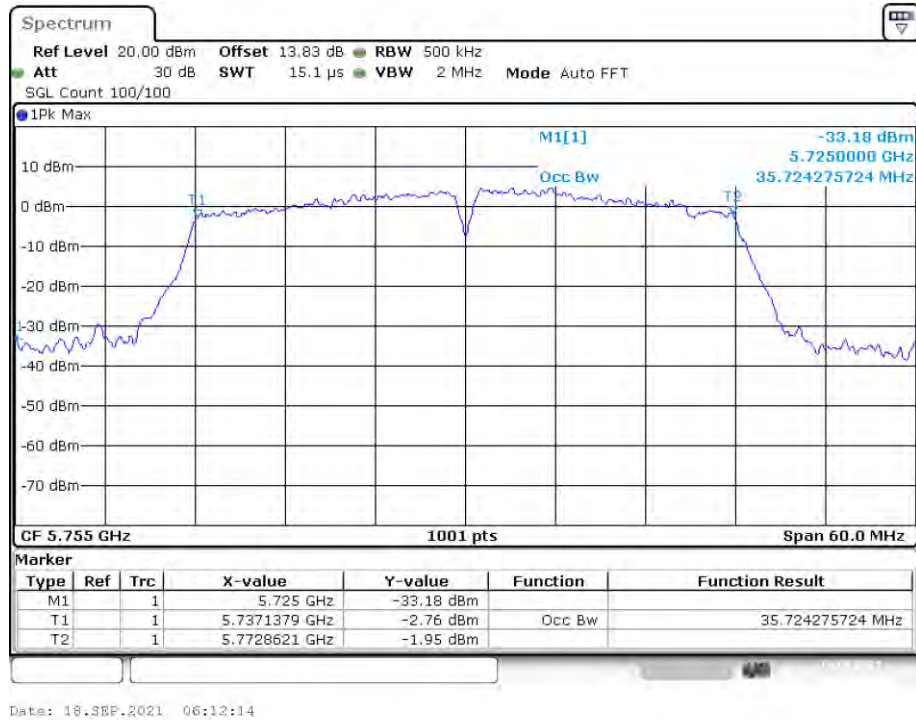
OBW NVNT ac20 5785MHz Ant1



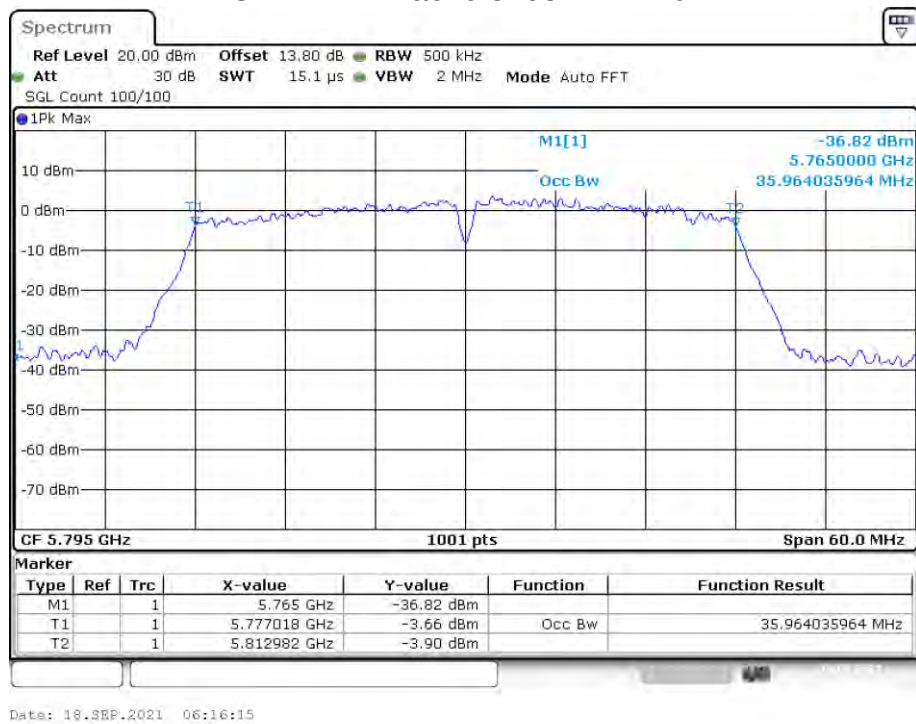
OBW NVNT ac20 5825MHz Ant1



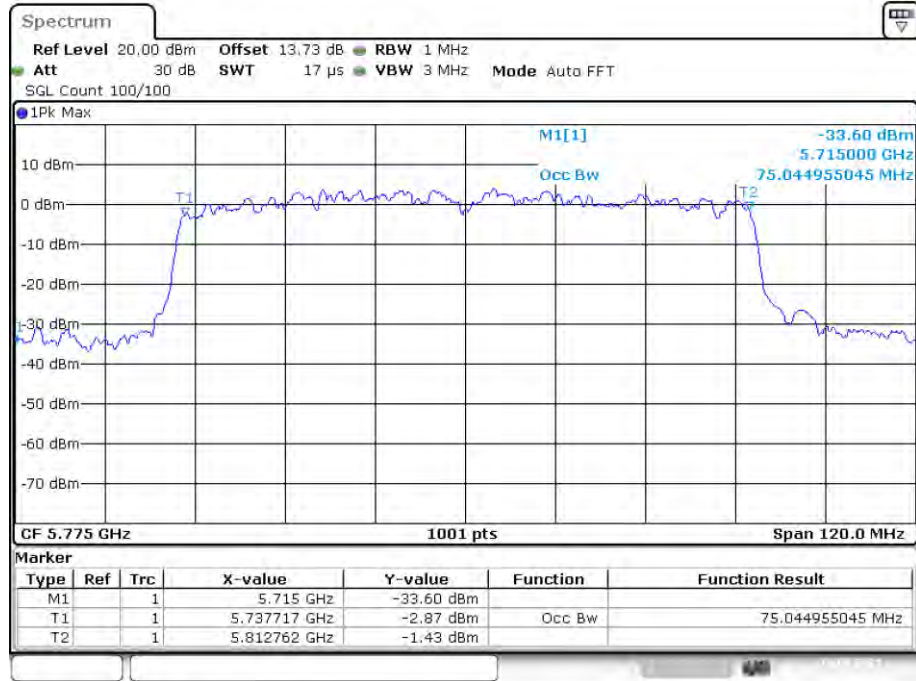
OBW NVNT ac40 5755MHz Ant1



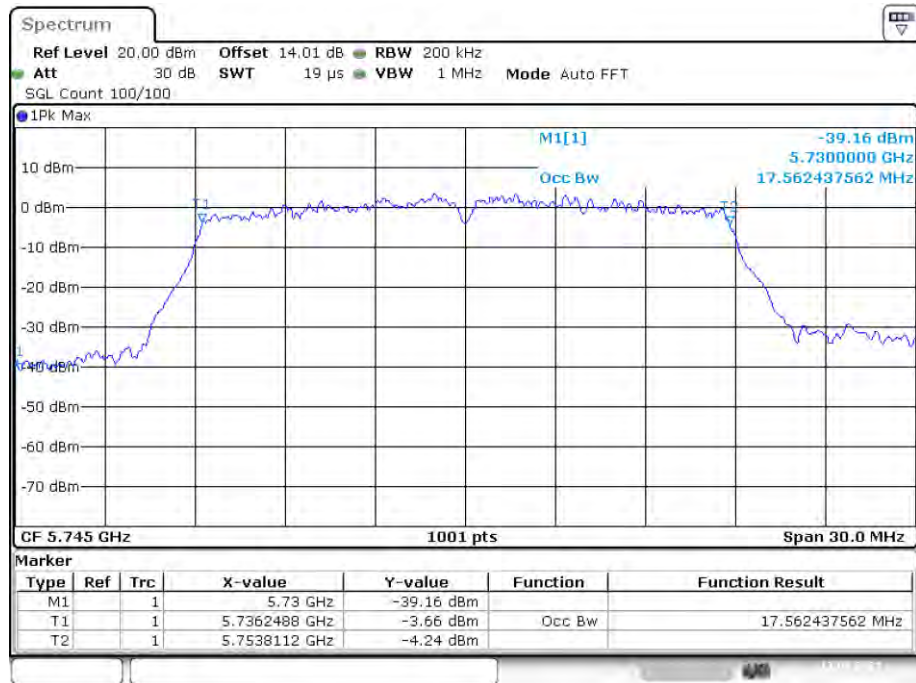
OBW NVNT ac40 5795MHz Ant1



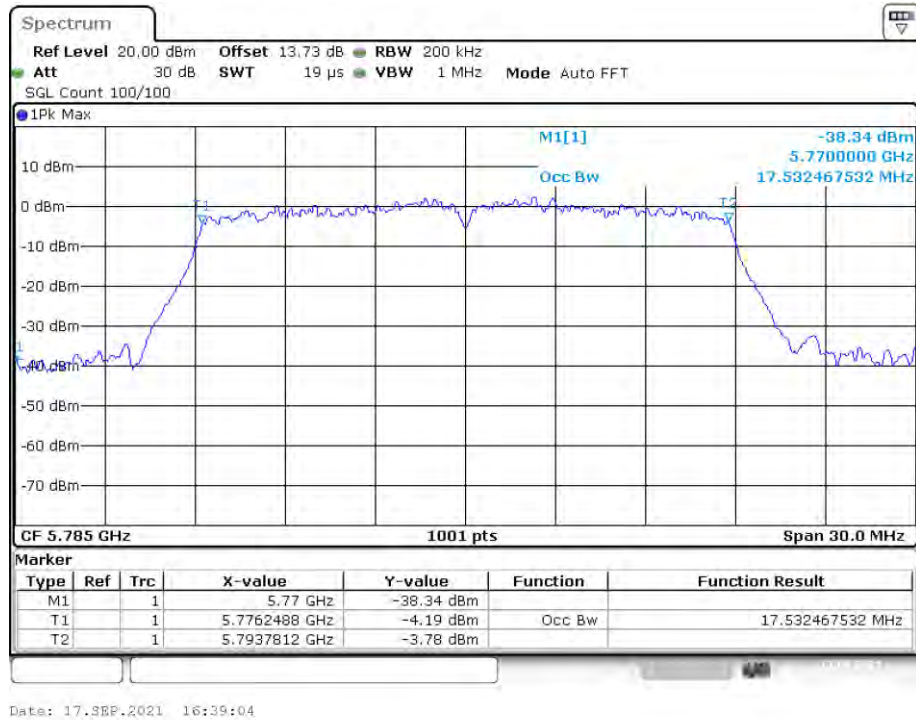
OBW NVNT ac80 5775MHz Ant1



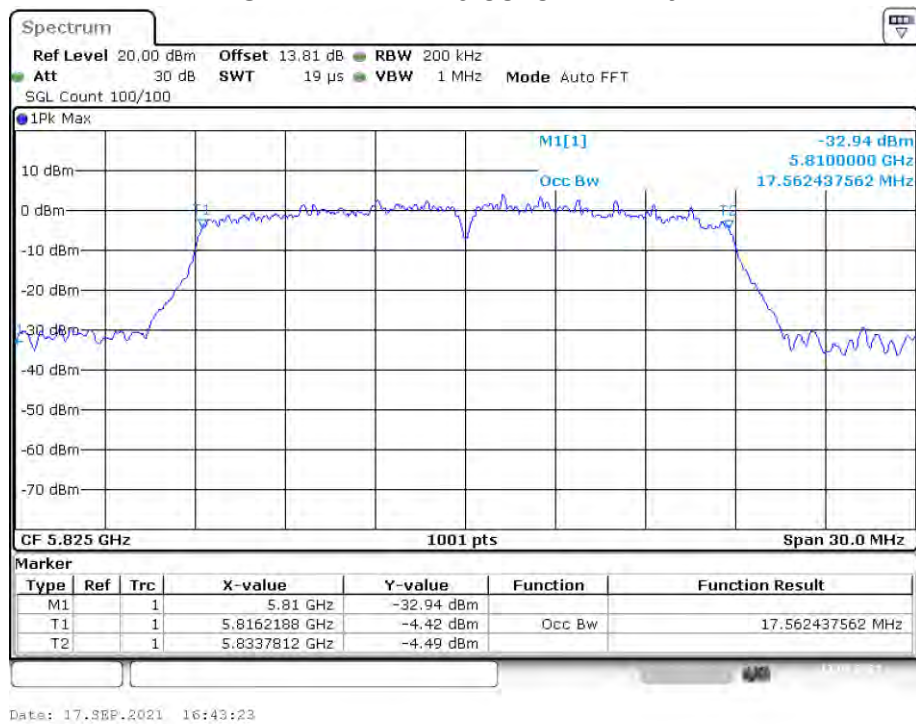
OBW NVNT n20 5745MHz Ant1



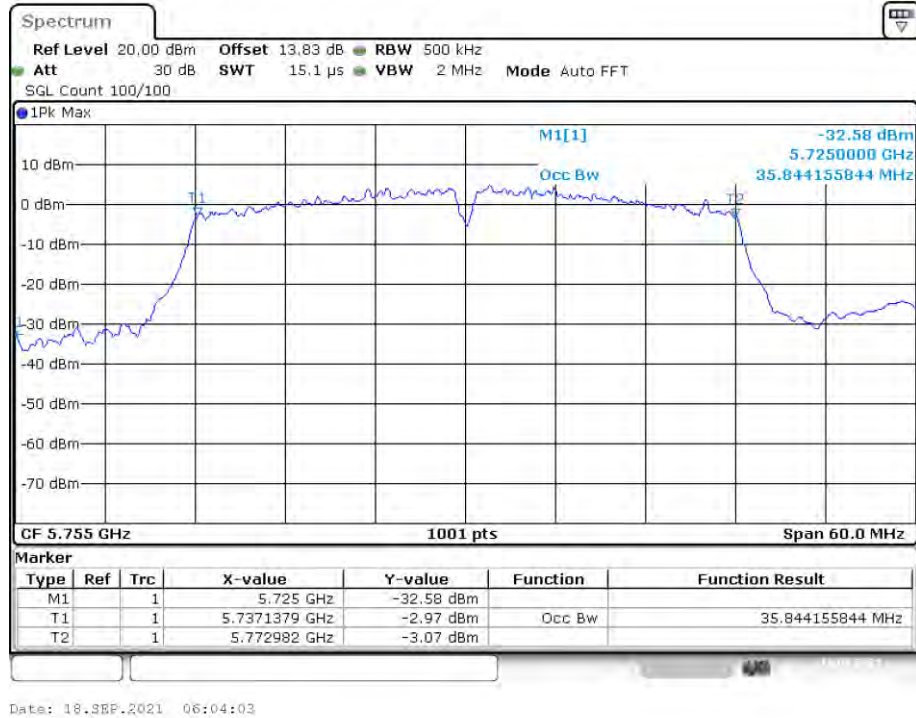
OBW NVNT n20 5785MHz Ant1



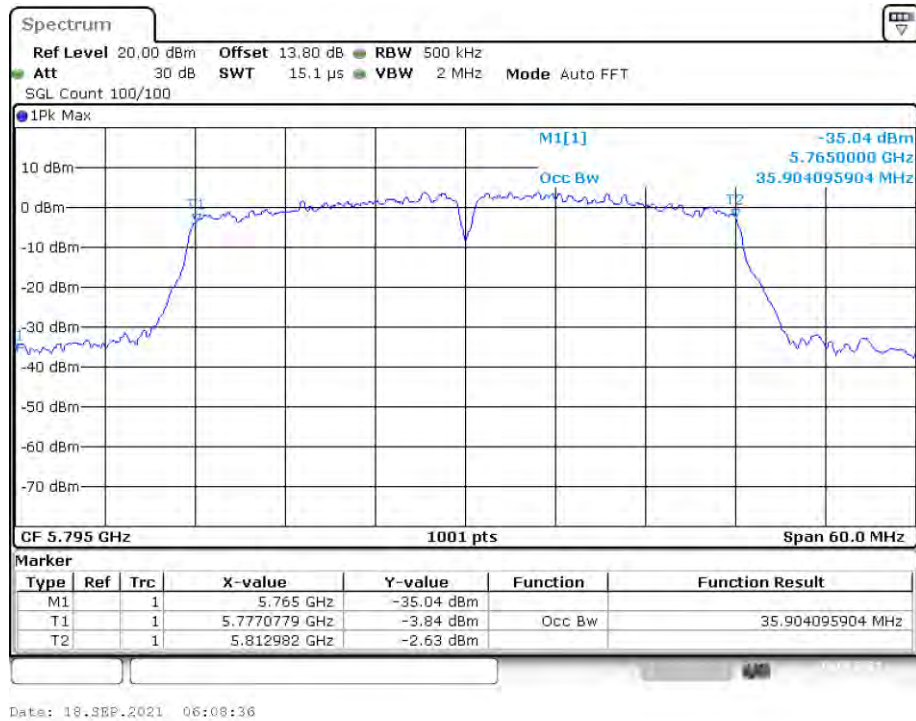
OBW NVNT n20 5825MHz Ant1



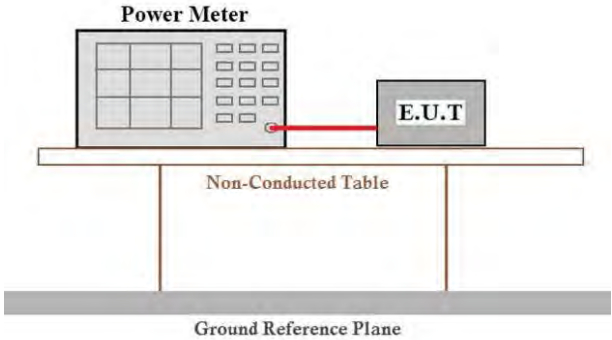
OBW NVNT n40 5755MHz Ant1



OBW NVNT n40 5795MHz Ant1



4.4 Peak Transmit Power

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	For the band 5.15-5.25GHz, 5.25-5.35GHz, 5.47-5.725GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW. For the band 5.725-5.85GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 1W.
Test setup:	 The diagram illustrates the test setup. A 'Power Meter' is connected to an 'E.U.T.' (Equipment Under Test) using a red cable. Both the Power Meter and the E.U.T. are placed on a 'Non-Conducted Table'. This table is supported by a 'Ground Reference Plane'.
Test procedure:	Measurement using an RF average power meter (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle. b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level. c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five. (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B). (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter. (iv) Adjust the measurement in dBm by adding $10 \log(1/x)$ where x is the duty cycle (e.g., $10 \log(1/0.25)$ if the duty cycle is 25 percent).
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data**Band 1 (5150-5250 MHz)**

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	12.568	0	12.568	24	Pass
NVNT	a	5200	Ant1	13.143	0	13.143	24	Pass
NVNT	a	5240	Ant1	13.666	0	13.666	24	Pass
NVNT	ac20	5180	Ant1	12.818	0.01	12.828	24	Pass
NVNT	ac20	5200	Ant1	13.201	0	13.201	24	Pass
NVNT	ac20	5240	Ant1	13.736	0	13.736	24	Pass
NVNT	ac40	5190	Ant1	13.39	0.01	13.400	24	Pass
NVNT	ac40	5230	Ant1	13.727	0.01	13.737	24	Pass
NVNT	ac80	5210	Ant1	12.93	0.01	12.94	24	Pass
NVNT	n20	5180	Ant1	12.837	0	12.837	24	Pass
NVNT	n20	5200	Ant1	12.771	0	12.771	24	Pass
NVNT	n20	5240	Ant1	13.908	0	13.908	24	Pass
NVNT	n40	5190	Ant1	13.101	0.01	13.111	24	Pass
NVNT	n40	5230	Ant1	13.71	0	13.71	24	Pass

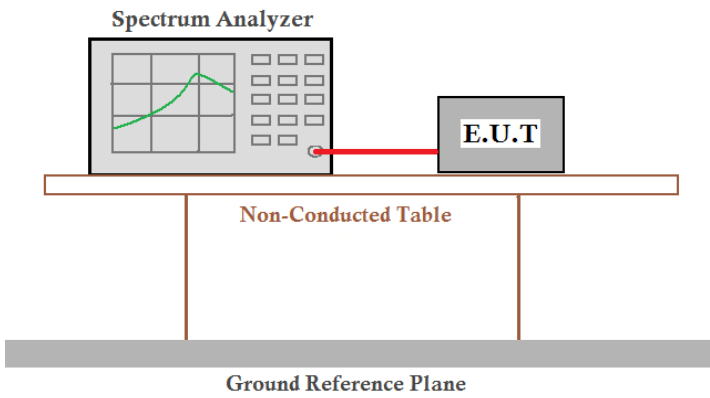
Band 2 (5250 -5350 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5260	Ant1	14.393	0	14.393	24	Pass
NVNT	a	5280	Ant1	14.722	0	14.722	24	Pass
NVNT	a	5320	Ant1	14.139	0	14.139	24	Pass
NVNT	ac20	5260	Ant1	14.326	0	14.326	24	Pass
NVNT	ac20	5280	Ant1	14.852	0	14.852	24	Pass
NVNT	ac20	5320	Ant1	14.358	0	14.358	24	Pass
NVNT	ac40	5270	Ant1	15.153	0	15.153	24	Pass
NVNT	ac40	5310	Ant1	14.96	0	14.960	24	Pass
NVNT	ac80	5290	Ant1	15.241	0	15.241	24	Pass
NVNT	n20	5260	Ant1	14.331	0	14.331	24	Pass
NVNT	n20	5280	Ant1	15.202	0	15.202	24	Pass
NVNT	n20	5320	Ant1	14.549	0	14.549	24	Pass
NVNT	n40	5270	Ant1	15.177	0	15.177	24	Pass
NVNT	n40	5310	Ant1	14.805	0	14.805	24	Pass

Band 4 (5725 - 5850)

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	14.358	0	14.358	30	Pass
NVNT	a	5785	Ant1	13.281	0	13.281	30	Pass
NVNT	a	5825	Ant1	13.828	0	13.828	30	Pass
NVNT	ac20	5745	Ant1	14.437	0	14.437	30	Pass
NVNT	ac20	5785	Ant1	13.957	0	13.957	30	Pass
NVNT	ac20	5825	Ant1	13.927	0	13.927	30	Pass
NVNT	ac40	5755	Ant1	14.351	0	14.351	30	Pass
NVNT	ac40	5795	Ant1	13.537	0	13.537	30	Pass
NVNT	ac80	5775	Ant1	13.522	0	13.522	30	Pass
NVNT	n20	5745	Ant1	14.278	0	14.278	30	Pass
NVNT	n20	5785	Ant1	13.325	0	13.325	30	Pass
NVNT	n20	5825	Ant1	13.82	0	13.82	30	Pass
NVNT	n40	5755	Ant1	14.217	0	14.217	30	Pass
NVNT	n40	5795	Ant1	13.982	0	13.982	30	Pass

4.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	$\leq 11.00\text{dBm/MHz}$ for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz $\leq 30.00\text{dBm/500KHz}$ for 5725MHz-5850MHz
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 two vertical legs. Below the table is a Ground Reference Plane.
Test procedure:	1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...". 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PSD.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data**Band 1 (5150 - 5250 MHz)**

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	1.914	11	Pass
NVNT	a	5200	Ant1	2.558	11	Pass
NVNT	a	5240	Ant1	3.337	11	Pass
NVNT	ac20	5180	Ant1	2.368	11	Pass
NVNT	ac20	5200	Ant1	2.634	11	Pass
NVNT	ac20	5240	Ant1	3.358	11	Pass
NVNT	ac40	5190	Ant1	0.134	11	Pass
NVNT	ac40	5230	Ant1	0.53	11	Pass
NVNT	ac80	5210	Ant1	-3.677	11	Pass
NVNT	n20	5180	Ant1	2.19	11	Pass
NVNT	n20	5200	Ant1	2.43	11	Pass
NVNT	n20	5240	Ant1	3.585	11	Pass
NVNT	n40	5190	Ant1	0.088	11	Pass
NVNT	n40	5230	Ant1	0.316	11	Pass

Band 2 (5250 -5350 MHz)

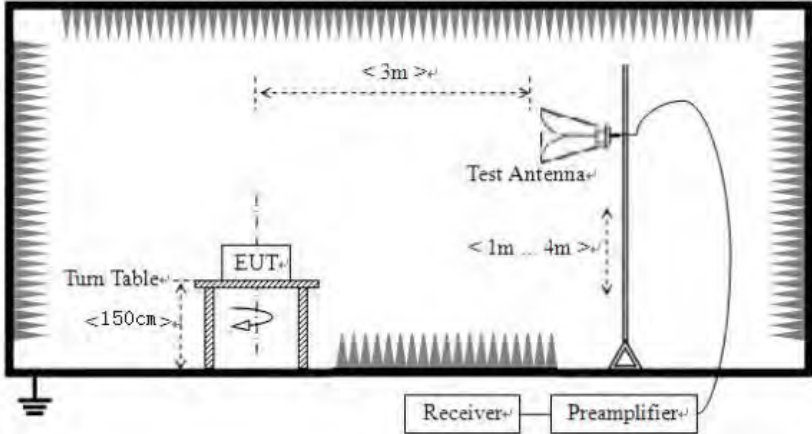
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5260	Ant1	4.004	11	Pass
NVNT	a	5280	Ant1	4.349	11	Pass
NVNT	a	5320	Ant1	3.75	11	Pass
NVNT	ac20	5260	Ant1	3.812	11	Pass
NVNT	ac20	5280	Ant1	4.221	11	Pass
NVNT	ac20	5320	Ant1	3.811	11	Pass
NVNT	ac40	5270	Ant1	1.722	11	Pass
NVNT	ac40	5310	Ant1	1.804	11	Pass
NVNT	ac80	5290	Ant1	-1.188	11	Pass
NVNT	n20	5260	Ant1	3.772	11	Pass
NVNT	n20	5280	Ant1	4.614	11	Pass
NVNT	n20	5320	Ant1	4.006	11	Pass
NVNT	n40	5270	Ant1	1.745	11	Pass
NVNT	n40	5310	Ant1	1.63	11	Pass

Band 4 (5725 - 5850 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	1.468	30	Pass
NVNT	a	5785	Ant1	0.234	30	Pass
NVNT	a	5825	Ant1	0.713	30	Pass
NVNT	ac20	5745	Ant1	1.32	30	Pass
NVNT	ac20	5785	Ant1	0.775	30	Pass
NVNT	ac20	5825	Ant1	0.767	30	Pass
NVNT	ac40	5755	Ant1	-1.099	30	Pass
NVNT	ac40	5795	Ant1	-2.1	30	Pass
NVNT	ac80	5775	Ant1	-5.471	30	Pass
NVNT	n20	5745	Ant1	1.232	30	Pass
NVNT	n20	5785	Ant1	0.372	30	Pass
NVNT	n20	5825	Ant1	0.751	30	Pass
NVNT	n40	5755	Ant1	-1.26	30	Pass
NVNT	n40	5795	Ant1	-1.754	30	Pass

4.6 Band Edge

Test Requirement:	FCC Part15 E Section 15.407 and 15.205				
Test Method:	ANSI C63.10:2013				
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.					
Test Procedure:	a. The EUT was placed on the top of a rotating table 1.5 m 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.				
Test setup:	Above 1GHz				

	
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for 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 $\text{EIRP} = -27\text{dBm}$

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

Measurement Data:**Band1**

Mode:		802.11a		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	31.81	17.18	48.99	68.20	-19.21	PK
V	5150.00	35.95	17.18	53.13	68.20	-15.07	PK
Mode:		802.11a		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	26.15	17.18	43.33	54.00	-10.67	AV
V	5150.00	25.16	17.18	42.34	54.00	-11.66	AV
Mode:		802.11a		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.26	17.18	51.44	68.20	-16.76	PK
V	5350.00	31.27	17.18	48.45	68.20	-19.75	PK
Mode:		802.11a		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.98	17.18	43.16	54.00	-10.84	AV
V	5350.00	25.36	17.18	42.54	54.00	-11.46	AV

Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.13	17.20	51.33	68.20	-16.87	PK
V	5150.00	32.20	17.20	49.40	68.20	-18.80	PK
Mode:		802.11n(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	25.99	17.20	43.19	54.00	-10.81	AV
V	5150.00	25.23	17.20	42.43	54.00	-11.57	AV
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.04	17.18	51.22	68.20	-16.98	PK
V	5350.00	33.30	17.18	50.48	68.20	-17.72	PK
Mode:		802.11n(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	24.63	17.18	41.81	54.00	-12.19	AV
V	5350.00	24.68	17.18	41.86	54.00	-12.14	AV

Mode:		802.11ac(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	35.31	17.18	52.49	68.20	-15.71	PK
V	5150.00	34.38	17.18	51.56	68.20	-16.64	PK
Mode:		802.11ac(HT20)		Frequency:		5180MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	27.40	17.18	44.58	54.00	-9.42	AV
V	5150.00	25.65	17.18	42.83	54.00	-11.17	AV
Mode:		802.11ac(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	35.92	17.20	53.12	68.20	-15.08	PK
V	5350.00	32.69	17.20	49.89	68.20	-18.31	PK
Mode:		802.11ac(HT20)		Frequency:		5240MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.26	17.20	42.46	54.00	-11.54	AV
V	5350.00	24.59	17.20	41.79	54.00	-12.21	AV

Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.72	17.18	51.90	68.20	-16.30	PK
V	5150.00	33.14	17.18	50.32	68.20	-17.88	PK
Mode:		802.11n(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	25.62	17.18	42.80	54.00	-11.20	AV
V	5150.00	22.78	17.18	39.96	54.00	-14.04	AV
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.87	17.18	52.05	68.20	-16.15	PK
V	5350.00	32.66	17.18	49.84	68.20	-18.36	PK
Mode:		802.11n(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.66	17.18	42.84	54.00	-11.16	AV
V	5350.00	27.49	17.18	44.67	54.00	-9.33	AV

Mode:		802.11ac(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	36.40	17.20	53.60	68.20	-14.60	PK
V	5150.00	32.90	17.20	50.10	68.20	-18.10	PK
Mode:		802.11ac(HT40)		Frequency:		5190MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	25.67	17.20	42.87	54.00	-11.13	AV
V	5150.00	25.90	17.20	43.10	54.00	-10.90	AV
Mode:		802.11ac(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.49	17.18	51.67	68.20	-16.53	PK
V	5350.00	35.60	17.18	52.78	68.20	-15.42	PK
Mode:		802.11ac(HT40)		Frequency:		5230MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	26.26	17.18	43.44	54.00	-10.56	AV
V	5350.00	25.21	17.18	42.39	54.00	-11.61	AV

Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	35.31	17.18	52.49	68.20	-15.71	PK
V	5150.00	35.05	17.18	52.23	68.20	-15.97	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	28.01	17.18	45.19	54.00	-8.81	AV
V	5150.00	25.49	17.18	42.67	54.00	-11.33	AV
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	37.56	17.20	54.76	68.20	-13.44	PK
V	5350.00	34.02	17.20	51.22	68.20	-16.98	PK
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	27.96	17.20	45.16	54.00	-8.84	AV
V	5350.00	27.88	17.20	45.08	54.00	-8.92	AV

Band2

Mode:		802.11a		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.01	17.18	51.19	68.20	-17.01	PK
V	5150.00	34.29	17.18	51.47	68.20	-16.73	PK
Mode:		802.11a		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.30	17.18	41.48	54.00	-12.52	AV
V	5150.00	25.18	17.18	42.36	54.00	-11.64	AV
Mode:		802.11a		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	35.44	17.18	52.62	68.20	-15.58	PK
V	5350.00	34.11	17.18	51.29	68.20	-16.91	PK
Mode:		802.11a		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.14	17.18	42.32	54.00	-11.68	AV
V	5350.00	24.78	17.18	41.96	54.00	-12.04	AV

Mode:		802.11n(HT20)		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	35.16	17.20	52.36	68.20	-15.84	PK
V	5150.00	34.87	17.20	52.07	68.20	-16.13	PK
Mode:		802.11n(HT20)		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	26.70	17.20	43.90	54.00	-10.10	AV
V	5150.00	25.92	17.20	43.12	54.00	-10.88	AV
Mode:		802.11n(HT20)		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	35.55	17.20	52.75	68.20	-15.45	PK
V	5350.00	34.26	17.20	51.46	68.20	-16.74	PK
Mode:		802.11n(HT20)		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	26.33	17.18	43.51	54.00	-10.49	AV
V	5350.00	23.56	17.18	40.74	54.00	-13.26	AV

Mode:		802.11ac(HT20)		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.53	17.18	51.71	68.20	-16.49	PK
V	5150.00	33.86	17.18	51.04	68.20	-17.16	PK
Mode:		802.11ac(HT20)		Frequency:		5260MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	23.32	17.18	40.50	54.00	-13.50	AV
V	5150.00	25.88	17.18	43.06	54.00	-10.94	AV
Mode:		802.11ac(HT20)		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	32.48	17.18	49.66	68.20	-18.54	PK
V	5350.00	34.03	17.18	51.21	68.20	-16.99	PK
Mode:		802.11ac(HT20)		Frequency:		5320MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	24.55	17.18	41.73	54.00	-12.27	AV
V	5350.00	27.45	17.18	44.63	54.00	-9.37	AV

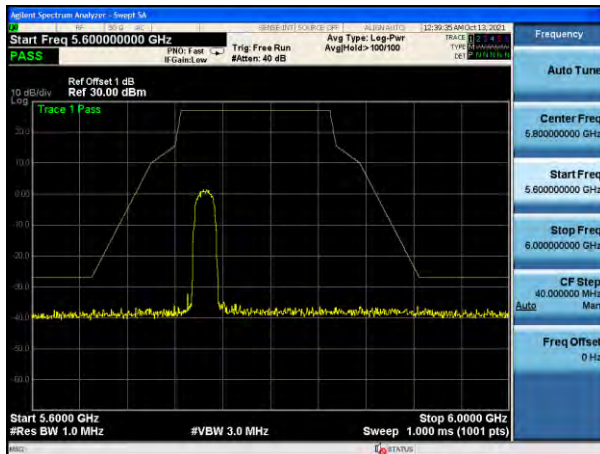
Mode:		802.11n(HT40)		Frequency:		5270MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	33.16	17.18	50.34	68.20	-17.86	PK
V	5150.00	36.56	17.18	53.74	68.20	-14.46	PK
Mode:		802.11n(HT40)		Frequency:		5270MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.09	17.18	41.27	54.00	-12.73	AV
V	5150.00	23.48	17.18	40.66	54.00	-13.34	AV
Mode:		802.11n(HT40)		Frequency:		5310MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	32.62	17.18	49.80	68.20	-18.40	PK
V	5350.00	32.12	17.18	49.30	68.20	-18.90	PK
Mode:		802.11n(HT40)		Frequency:		5310MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.10	17.18	42.28	54.00	-11.72	AV
V	5350.00	24.23	17.18	41.41	54.00	-12.59	AV

Mode:		802.11ac(HT40)		Frequency:		5270MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	34.17	17.18	51.35	68.20	-16.85	PK
V	5150.00	35.72	17.18	52.90	68.20	-15.30	PK
Mode:		802.11ac(HT40)		Frequency:		5270MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	24.55	17.18	41.73	54.00	-12.27	AV
V	5150.00	22.90	17.18	40.08	54.00	-13.92	AV
Mode:		802.11ac(HT40)		Frequency:		5310MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	34.65	17.18	51.83	68.20	-16.37	PK
V	5350.00	33.56	17.18	50.74	68.20	-17.46	PK
Mode:		802.11ac(HT40)		Frequency:		5310MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	27.81	17.18	44.99	54.00	-9.01	AV
V	5350.00	25.77	17.18	42.95	54.00	-11.05	AV

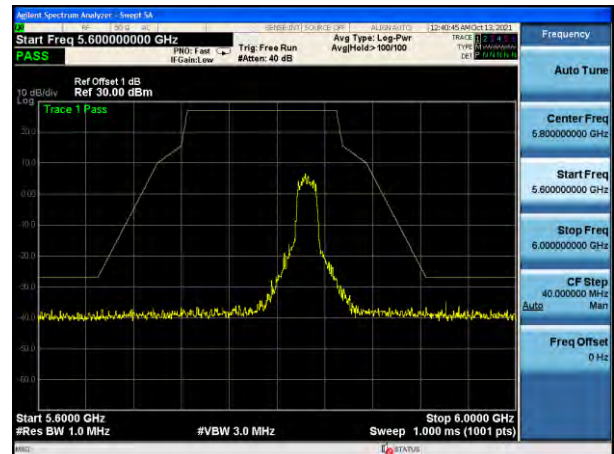
Mode:		802.11ac(HT80)		Frequency:		5290MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	37.58	17.20	54.78	68.20	-13.42	PK
V	5150.00	32.11	17.20	49.31	68.20	-18.89	PK
Mode:		802.11ac(HT80)		Frequency:		5290MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	26.37	17.18	43.55	54.00	-10.45	AV
V	5150.00	23.70	17.18	40.88	54.00	-13.12	AV
Mode:		802.11ac(HT80)		Frequency:		5290MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	33.34	17.18	50.52	68.20	-17.68	PK
V	5350.00	33.72	17.18	50.90	68.20	-17.30	PK
Mode:		802.11ac(HT80)		Frequency:		5290MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	24.05	17.18	41.23	54.00	-12.77	AV
V	5350.00	25.57	17.18	42.75	54.00	-11.25	AV

Band4

802.11a

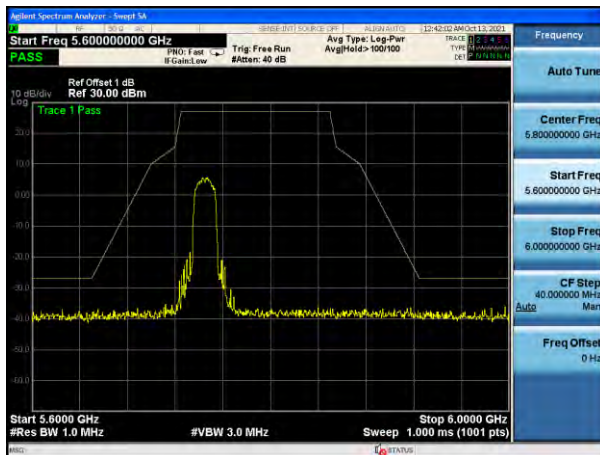


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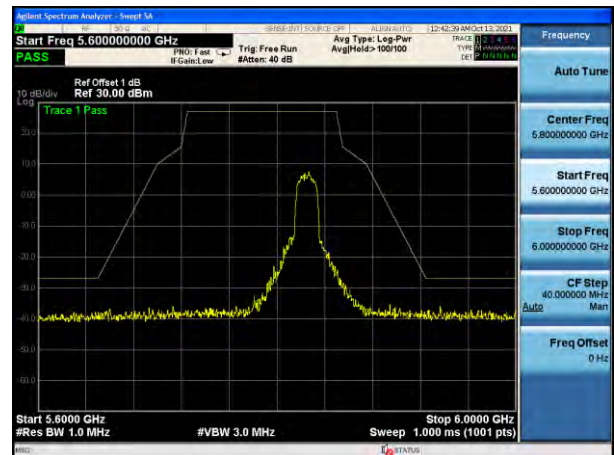


High: 5825MHz

802.11n(HT20)

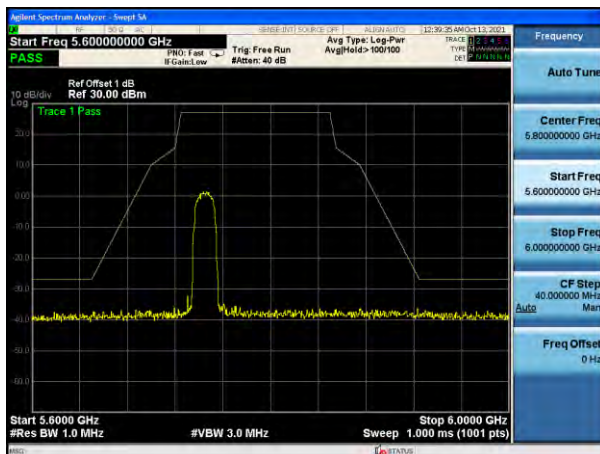


Low: 5745MHz

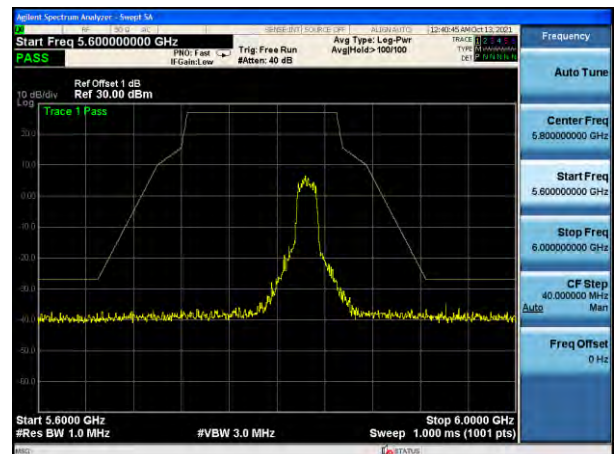


High: 5825MHz

802.11ac(HT20)

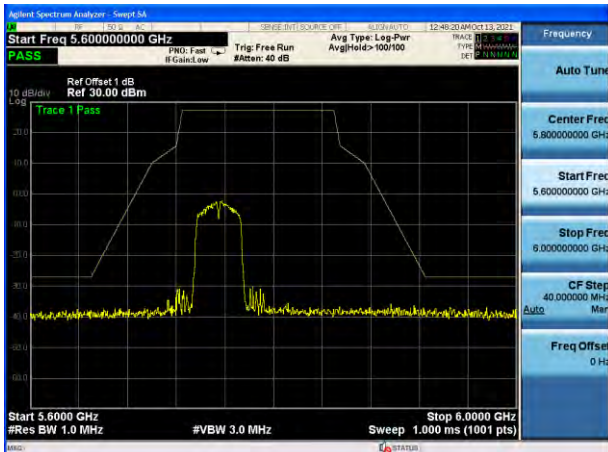


Low: 5745MHz

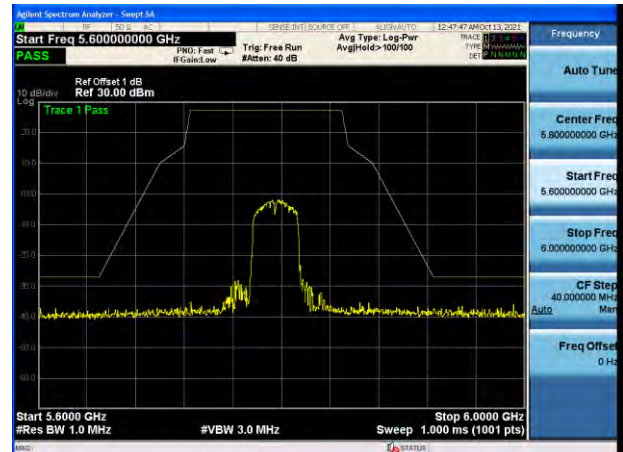


High: 5825MHz

802.11n(HT40)

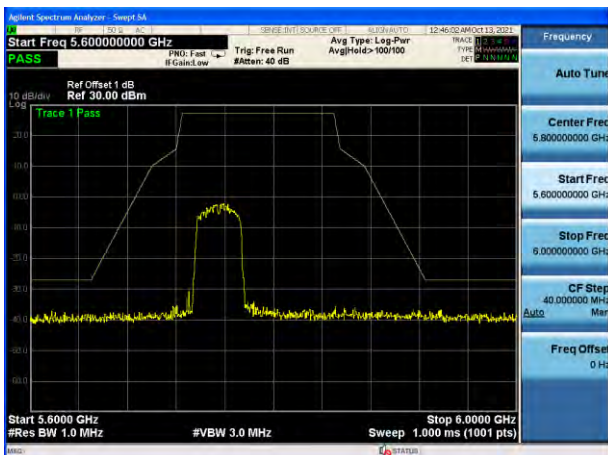


Low: 5755MHz

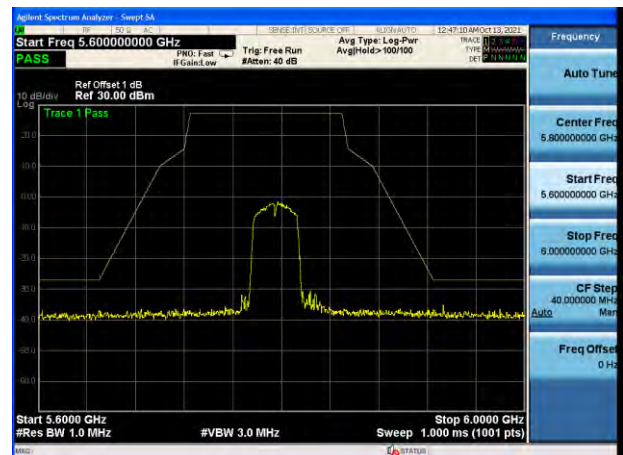


High: 5795MHz

802.11ac(HT40)



Low: 5755MHz



High: 5795MHz

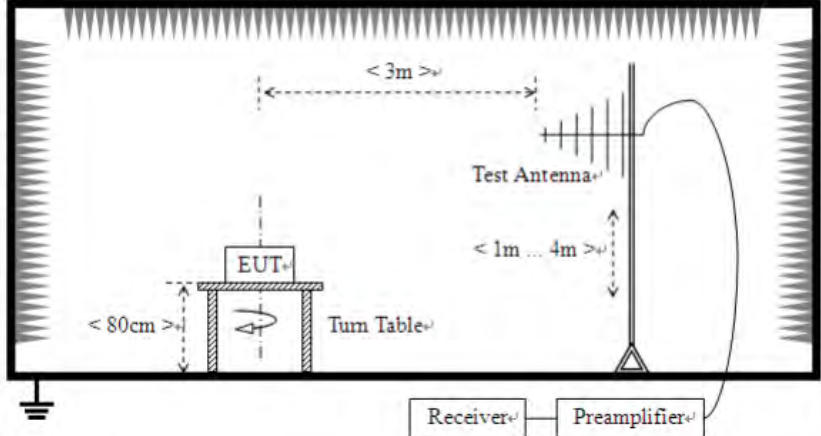
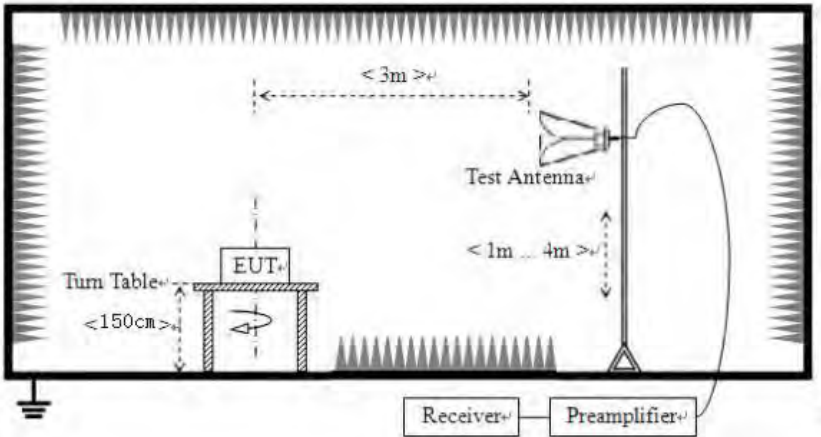
802.11ac(HT80)



5775MHz

4.7 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	30MHz to 40GHz				
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	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		74.0		Peak Value
			54.0		Average Value
Test Procedure:	Substitution method was performed to determine the actual ERP emission levels of the EUT. The following test procedure as below: 1>.Below 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 rotatable 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. 2>.Above 1GHz test procedure: 1. On the test site as test setup graph above,the EUT shall be placed at the 1.5m support on the turntable and in the position closest to normal use as declared by the provider. 2. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter.The output of the test antenna shall be connected to the measuring receiver. 3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test. 4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver. 5. Repeat step 4 for test frequency with the test antenna polarized horizontally.				

	6. Remove the transmitter and replace it with a substitution antenna 7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output. 8. Repeat step 7 with both antennas horizontally polarized for each test frequency. 9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula: $\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$ where: Pg is the generator output power into the substitution antenna.
Test setup:	Below 1GHz  Above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data:**Below 1GHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.12	47.87	11.25	0.59	30.08	29.63	40	-10.37	Vertical
55.01	41.65	11.93	0.81	29.96	24.43	40	-15.57	Vertical
120.74	47.12	9.4	1.36	29.57	28.31	43.5	-15.19	Vertical
172.38	42.66	8.5	1.7	29.31	23.55	43.5	-19.95	Vertical
440.96	37.36	16.29	3.05	29.41	27.29	46	-18.71	Vertical
860.93	33.37	21.83	4.69	29.14	30.75	46	-15.25	Vertical
64.45	35.62	8.73	0.9	29.89	15.36	40	-24.64	Horizontal
99.70	34.08	11.73	1.19	29.7	17.30	43.5	-26.20	Horizontal
269.43	45.83	12.53	2.22	29.79	30.79	46	-15.21	Horizontal
350.62	36.36	14.5	2.62	29.73	23.75	46	-22.25	Horizontal
628.22	35.75	19.43	3.83	29.27	29.74	46	-16.26	Horizontal
955.51	40.87	22.54	5.06	29.1	39.37	46	-6.63	Horizontal

Above 1GHz:**802.11a(HT20) 5180MHz**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.17	29.03	11.25	14.62	32.65	22.25	74	-51.75	Vertical
15540.86	30.91	11.93	17.66	34.46	26.04	74	-47.96	Vertical
10360.61	32.96	9.4	14.62	32.65	24.33	74	-49.67	Horizontal
15540.51	31.83	8.5	17.66	34.46	23.53	74	-50.47	Horizontal

802.11a(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.88	28.37	16.29	14.62	32.65	26.63	74	-47.37	Vertical
15540.31	30.98	21.83	17.66	34.46	36.01	74	-37.99	Vertical
10360.60	32.25	8.73	14.62	32.65	22.95	74	-51.05	Horizontal
15540.83	31.89	11.73	17.66	34.46	26.82	74	-47.18	Horizontal

802.11a(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.84	28.57	11.25	14.62	32.65	21.79	74	-52.21	Vertical
15540.89	30.21	11.93	17.66	34.46	25.34	74	-48.66	Vertical
10360.68	32.74	9.4	14.62	32.65	24.11	74	-49.89	Horizontal
15540.50	31.98	8.5	17.66	34.46	23.68	74	-50.32	Horizontal

802.11n(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.57	29.02	16.29	14.62	32.65	27.28	74	-46.72	Vertical
15540.21	30.30	21.83	17.66	34.46	35.33	74	-38.67	Vertical
10360.33	32.92	8.73	14.62	32.65	23.62	74	-50.38	Horizontal
15540.02	32.24	11.73	17.66	34.46	27.17	74	-46.83	Horizontal

802.11n(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.85	29.06	11.25	14.62	32.65	22.28	74	-51.72	Vertical
15540.85	31.18	11.93	17.66	34.46	26.31	74	-47.69	Vertical
10360.57	32.84	9.4	14.62	32.65	24.21	74	-49.79	Horizontal
15540.80	31.50	8.5	17.66	34.46	23.20	74	-50.80	Horizontal

802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.00	28.79	16.29	14.62	32.65	27.05	74	-46.95	Vertical
15540.49	31.04	21.83	17.66	34.46	36.07	74	-37.93	Vertical
10360.68	32.32	8.73	14.62	32.65	23.02	74	-50.98	Horizontal
15540.65	32.41	11.73	17.66	34.46	27.34	74	-46.66	Horizontal

802.11ac(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.29	29.07	11.25	14.62	32.65	22.29	74	-51.71	Vertical
15540.78	30.24	11.93	17.66	34.46	25.37	74	-48.63	Vertical
10360.00	32.34	9.4	14.62	32.65	23.71	74	-50.29	Horizontal
15540.99	31.90	8.5	17.66	34.46	23.60	74	-50.40	Horizontal

802.11ac(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.81	28.71	16.29	14.62	32.65	26.97	74	-47.03	Vertical
15540.37	31.12	21.83	17.66	34.46	36.15	74	-37.85	Vertical
10360.28	32.70	8.73	14.62	32.65	23.40	74	-50.60	Horizontal
15540.83	31.53	11.73	17.66	34.46	26.46	74	-47.54	Horizontal

802.11ac(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.55	28.95	11.25	14.62	32.65	22.17	74	-51.83	Vertical
15540.41	30.98	11.93	17.66	34.46	26.11	74	-47.89	Vertical
10360.43	32.41	9.4	14.62	32.65	23.78	74	-50.22	Horizontal
15540.63	32.05	8.5	17.66	34.46	23.75	74	-50.25	Horizontal

802.11n(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.67	28.16	16.29	14.62	32.65	26.42	74	-47.58	Vertical
15540.43	30.54	21.83	17.66	34.46	35.57	74	-38.43	Vertical
10360.74	32.35	8.73	14.62	32.65	23.05	74	-50.95	Horizontal
15540.72	32.43	11.73	17.66	34.46	27.36	74	-46.64	Horizontal

802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.19	28.91	11.25	14.62	32.65	22.13	74	-51.87	Vertical
15540.80	30.32	11.93	17.66	34.46	25.45	74	-48.55	Vertical
10360.85	33.06	9.4	14.62	32.65	24.43	74	-49.57	Horizontal
15540.40	31.50	8.5	17.66	34.46	23.20	74	-50.80	Horizontal

802.11ac(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.05	29.03	16.29	14.62	32.65	27.29	74	-46.71	Vertical
15540.76	30.29	21.83	17.66	34.46	35.32	74	-38.68	Vertical
10360.05	32.84	8.73	14.62	32.65	23.54	74	-50.46	Horizontal
15540.01	31.99	11.73	17.66	34.46	26.92	74	-47.08	Horizontal

802.11ac(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.19	28.50	11.25	14.62	32.65	21.72	74	-52.28	Vertical
15540.06	30.78	11.93	17.66	34.46	25.91	74	-48.09	Vertical
10360.79	32.20	9.4	14.62	32.65	23.57	74	-50.43	Horizontal
15540.31	31.81	8.5	17.66	34.46	23.51	74	-50.49	Horizontal

802.11ac(HT80) 5210MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.51	28.58	16.29	14.62	32.65	26.84	74	-47.16	Vertical
15540.20	30.79	21.83	17.66	34.46	35.82	74	-38.18	Vertical
10360.11	32.42	8.73	14.62	32.65	23.12	74	-50.88	Horizontal
15540.25	31.92	11.73	17.66	34.46	26.85	74	-47.15	Horizontal

Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamplifier Factor.
2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. This Report only show the test plots of the worst case (U-NII-1).

4.8 Frequency stability

Test limit	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.
Test results:	Pass

Measurement Data:

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	DC 3.3V	5179.999	1	5240.000	0
	DC 3.85V	5179.997	3	5239.999	1
	DC 4.4V	5179.995	5	5239.997	3
Mode	Voltage (V)	FHL (5260MHz)	Deviation (KHz)	FHH (5320MHz)	Deviation (KHz)
Band 2 (5250-5350 MHz)	DC 3.3V	5259.998	2	5319.999	1
	DC 3.85V	5260.000	0	5319.998	2
	DC 4.4V	5259.998	2	5319.999	1
Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	DC 3.3V	5745.000	0	5824.998	2
	DC 3.85V	5745.000	0	5824.996	4
	DC 4.4V	5744.998	2	5824.996	4

Mode	Voltage (V)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	-10°C	5179.964	36	5239.964	36
	-5°C	5179.976	24	5239.971	29
	0°C	5179.968	32	5239.965	35
	+10°C	5179.969	31	5239.968	32
	+20°C	5179.975	25	5239.973	27
	+30°C	5179.972	28	5239.971	29
	+40°C	5179.969	31	5239.969	31
	+50°C	5179.965	35	5239.964	36
	+60°C	5179.972	28	5239.974	26
Mode	Voltage (V)	FHL (5260MHz)	Deviation (KHz)	FHH (5320MHz)	Deviation (KHz)
Band 2 (5250-5350 MHz)	-10°C	5259.968	32	5319.968	32
	-5°C	5259.975	25	5319.974	26
	0°C	5259.964	36	5319.965	35
	+10°C	5259.974	26	5319.971	29
	+20°C	5259.970	30	5319.969	31
	+30°C	5259.966	34	5319.967	33
	+40°C	5259.968	32	5319.970	30
	+50°C	5259.967	33	5319.967	33
	+60°C	5259.975	25	5319.974	26

Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	-10°C	5744.971	29	5824.968	32
	-5°C	5744.975	25	5824.974	26
	0°C	5744.963	37	5824.962	38
	+10°C	5744.973	27	5824.972	28
	+20°C	5744.968	32	5824.969	31
	+30°C	5744.962	38	5824.965	35
	+40°C	5744.968	32	5824.968	32
	+50°C	5744.968	32	5824.968	32
	+60°C	5744.971	29	5824.976	24

-----END OF THE REPORT-----