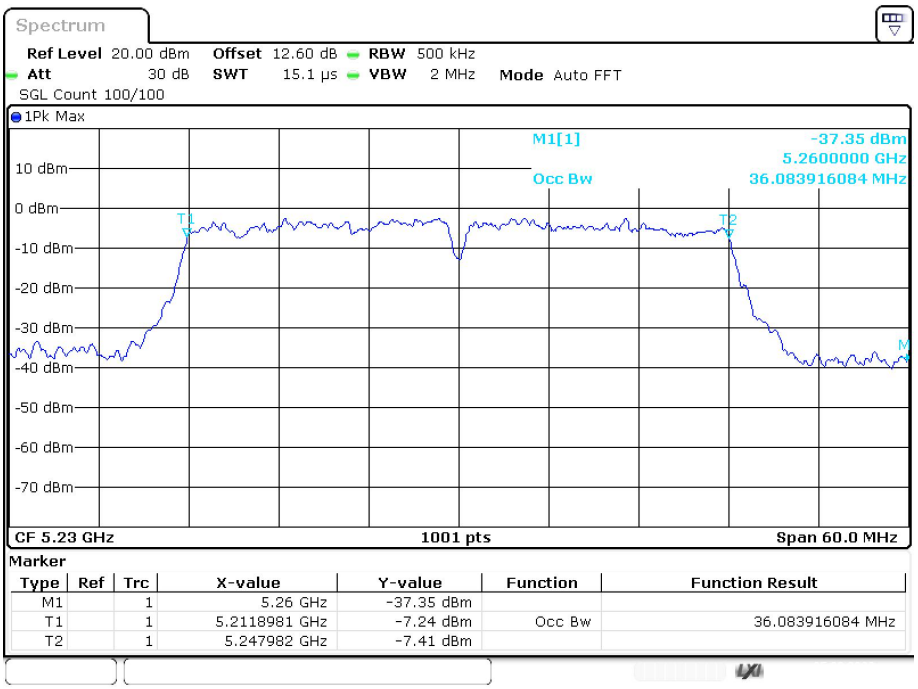
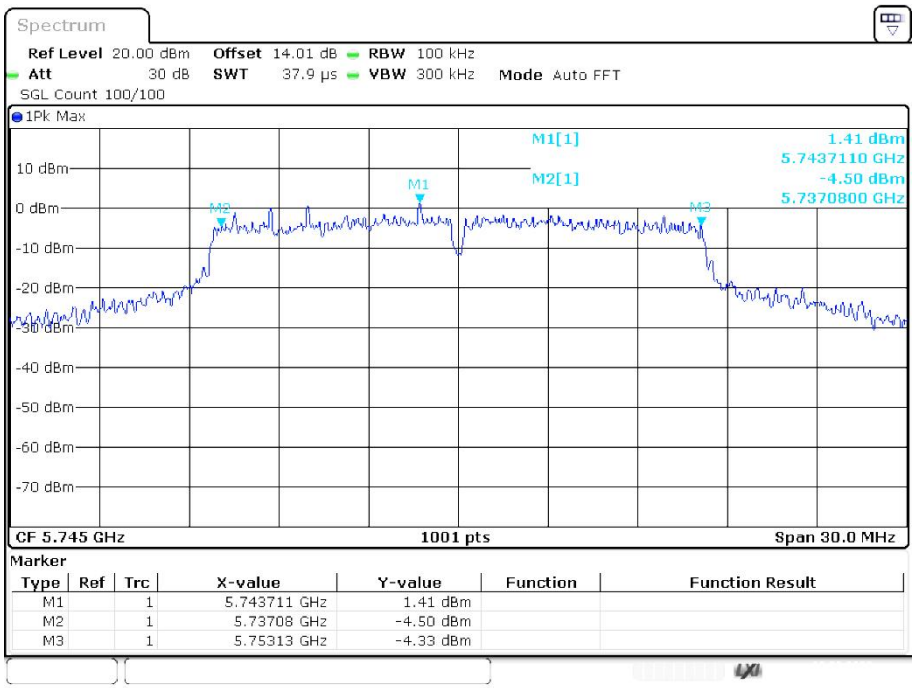
OBW NVNT n40 5230MHz Ant1



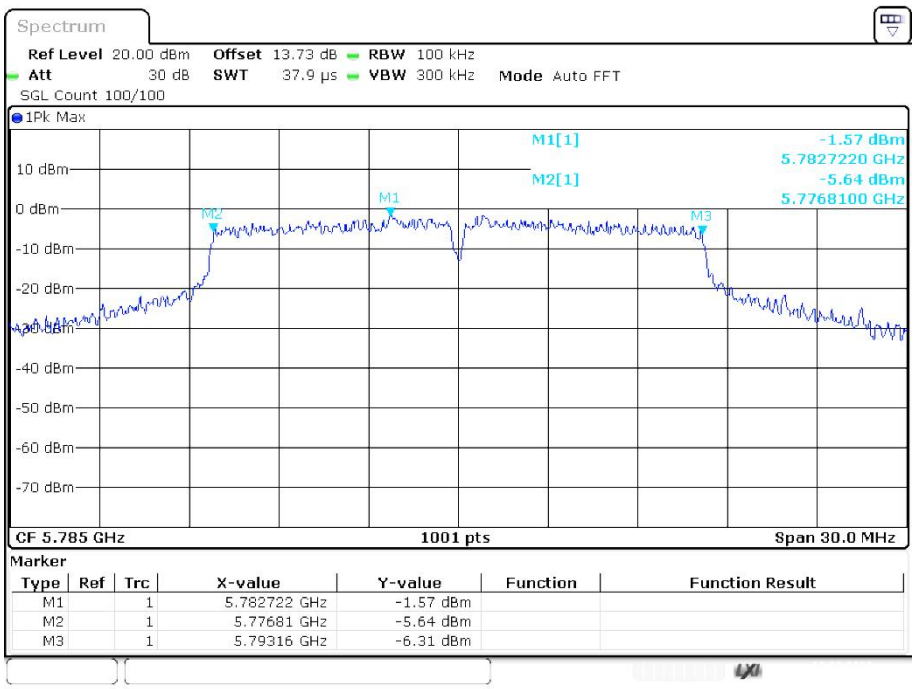
Band 4 (5725-5850 MHz):
-6dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	a	5745	Ant1	16.05	0.5	Pass
NVNT	a	5785	Ant1	16.35	0.5	Pass
NVNT	a	5825	Ant1	15.66	0.5	Pass
NVNT	ac20	5745	Ant1	17.7	0.5	Pass
NVNT	ac20	5785	Ant1	17.58	0.5	Pass
NVNT	ac20	5825	Ant1	17.61	0.5	Pass
NVNT	ac40	5755	Ant1	36.3	0.5	Pass
NVNT	ac40	5795	Ant1	35.34	0.5	Pass
NVNT	ac80	5775	Ant1	75.12	0.5	Pass
NVNT	n20	5745	Ant1	17.61	0.5	Pass
NVNT	n20	5785	Ant1	15.96	0.5	Pass
NVNT	n20	5825	Ant1	16.8	0.5	Pass
NVNT	n40	5755	Ant1	36.36	0.5	Pass
NVNT	n40	5795	Ant1	35.94	0.5	Pass

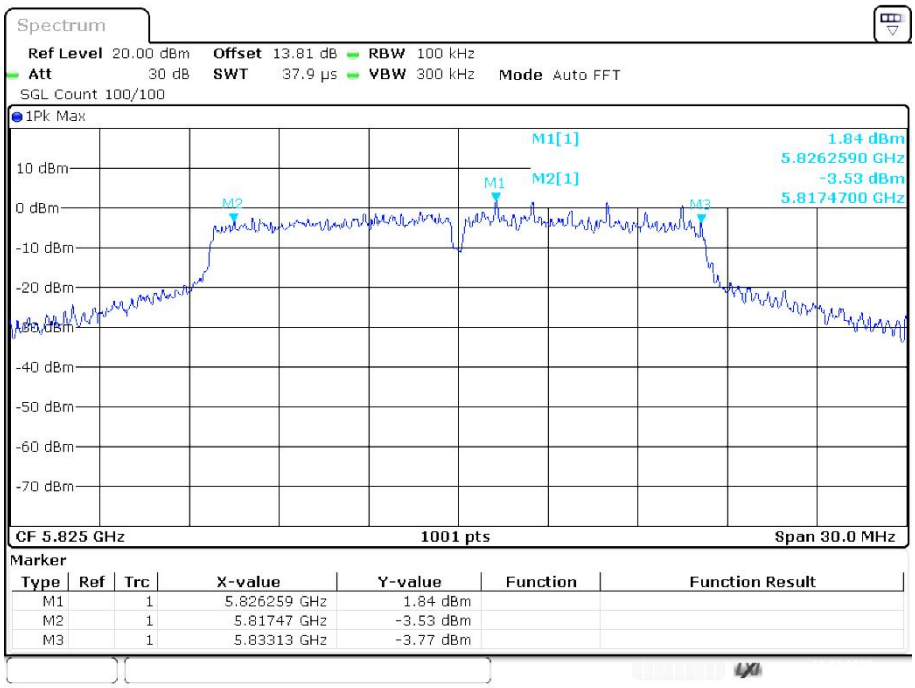
-6dB Bandwidth NVNT a 5745MHz Ant1



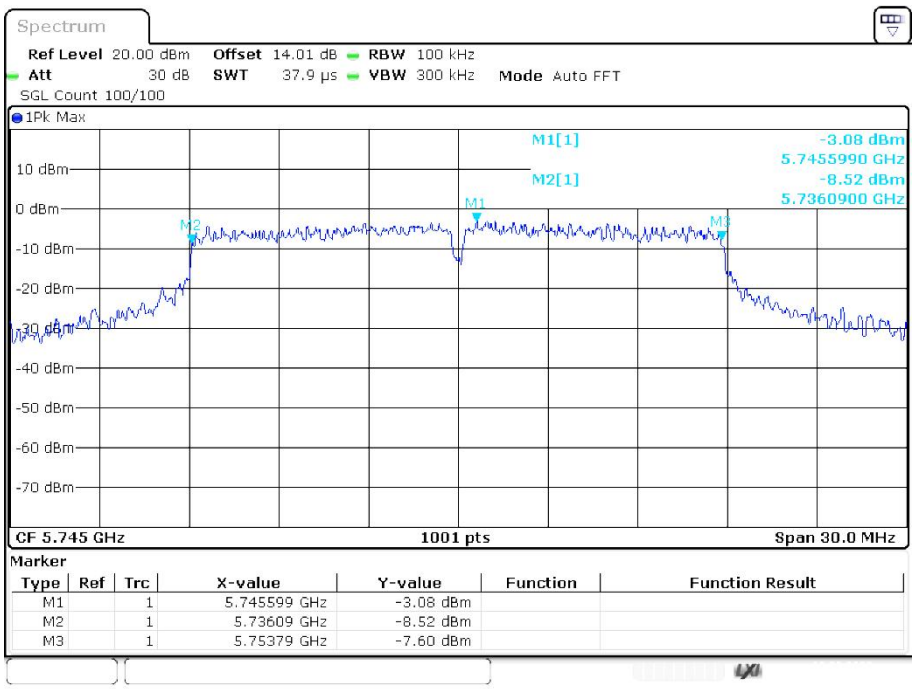
-6dB Bandwidth NVNT a 5785MHz Ant1



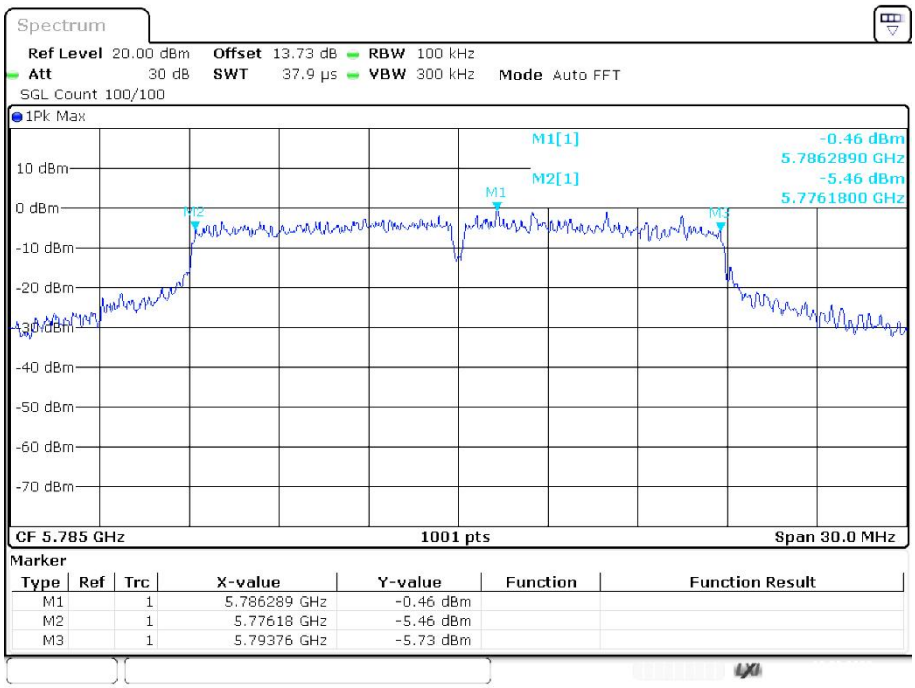
-6dB Bandwidth NVNT a 5825MHz Ant1



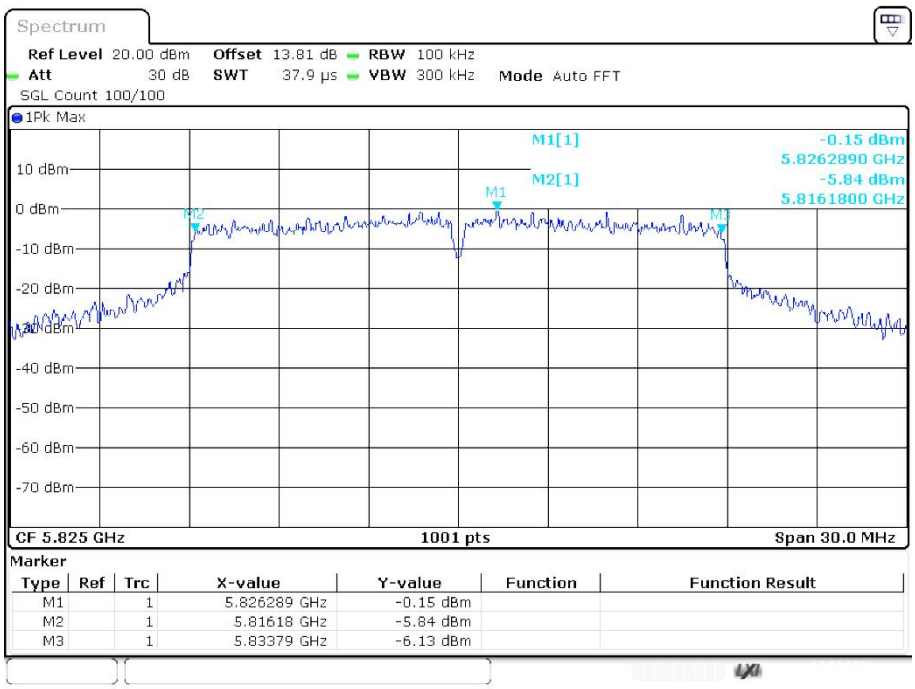
-6dB Bandwidth NVNT ac20 5745MHz Ant1



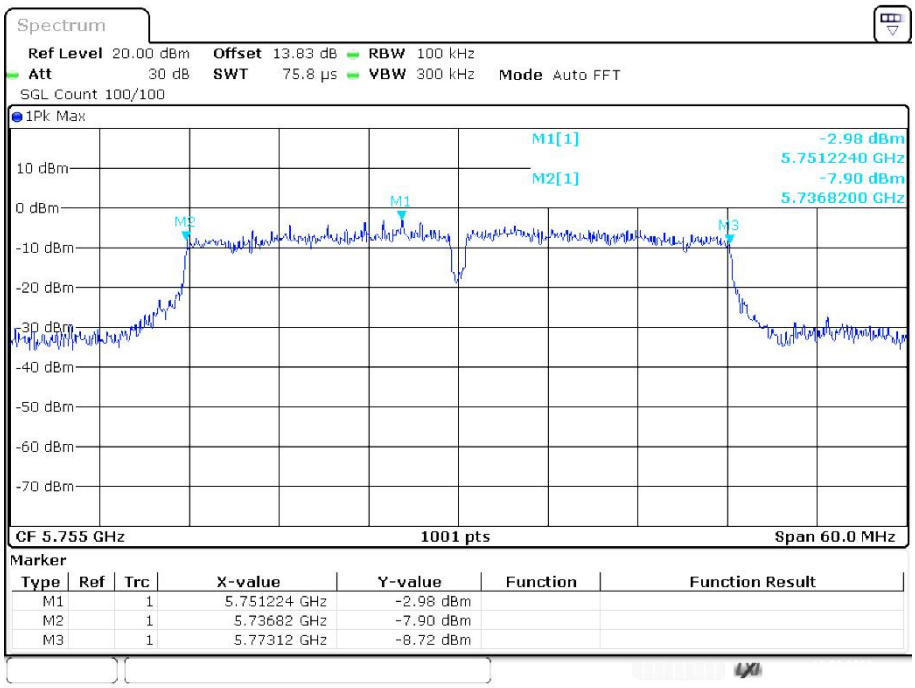
-6dB Bandwidth NVNT ac20 5785MHz Ant1



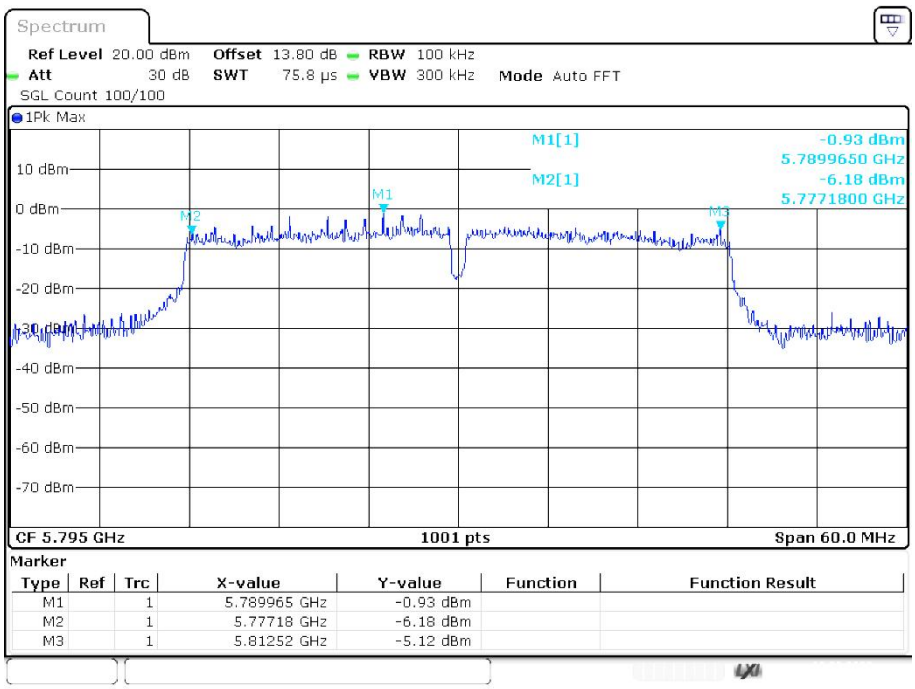
-6dB Bandwidth NVNT ac20 5825MHz Ant1



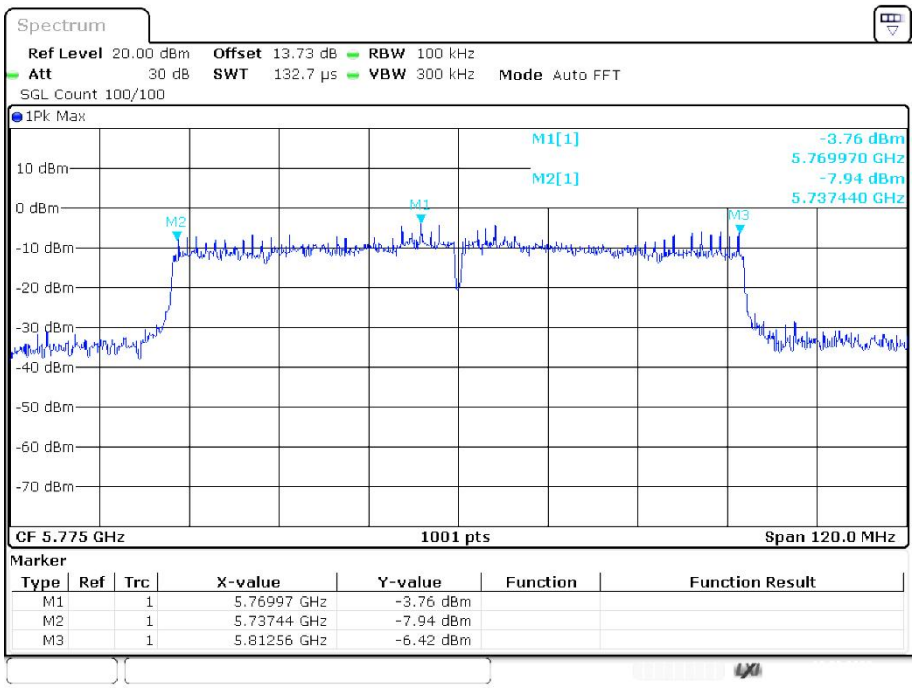
-6dB Bandwidth NVNT ac40 5755MHz Ant1



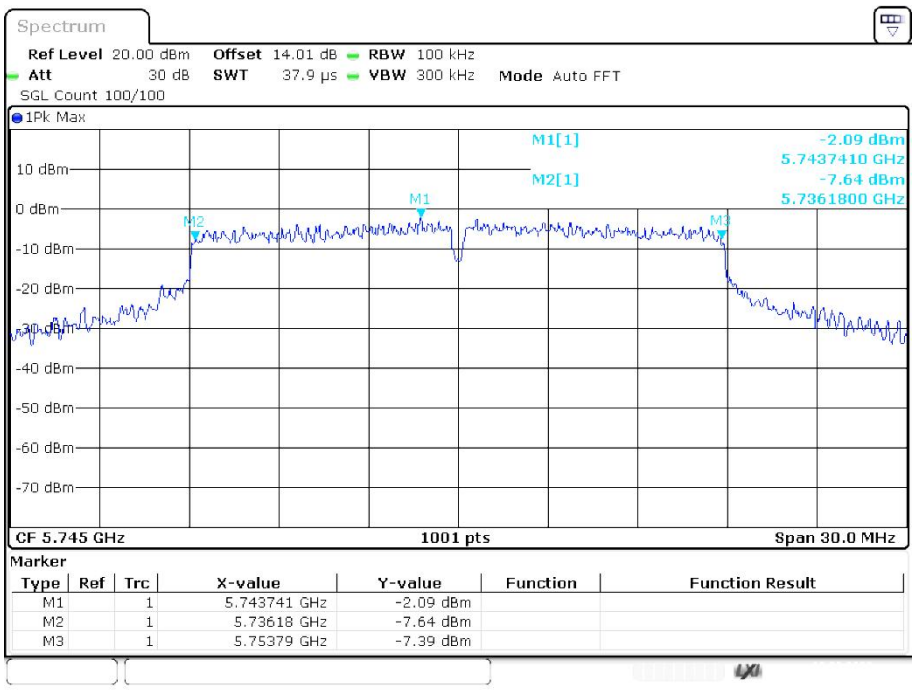
-6dB Bandwidth NVNT ac40 5795MHz Ant1



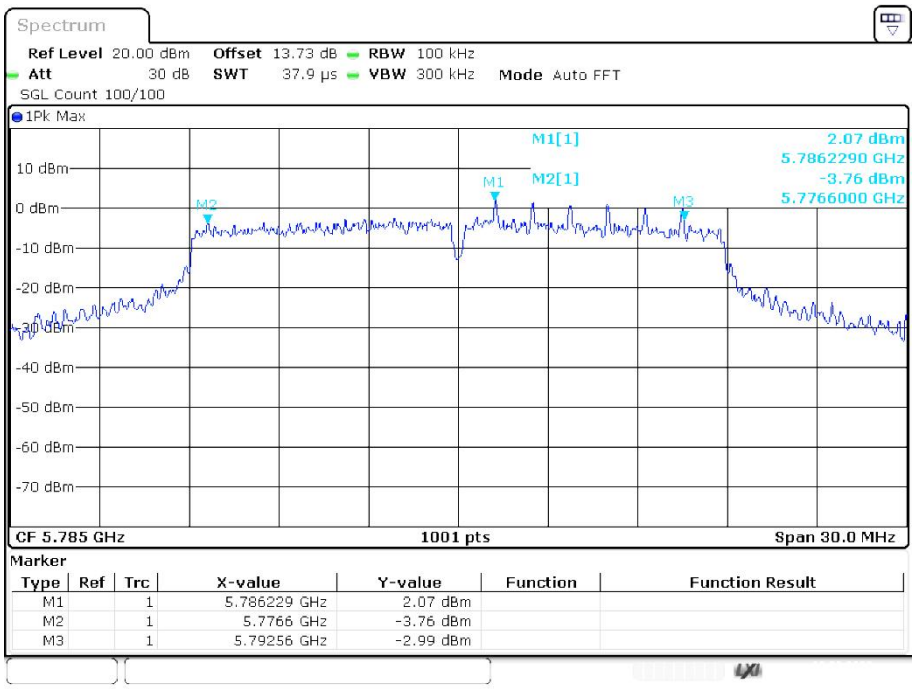
-6dB Bandwidth NVNT ac80 5775MHz Ant1



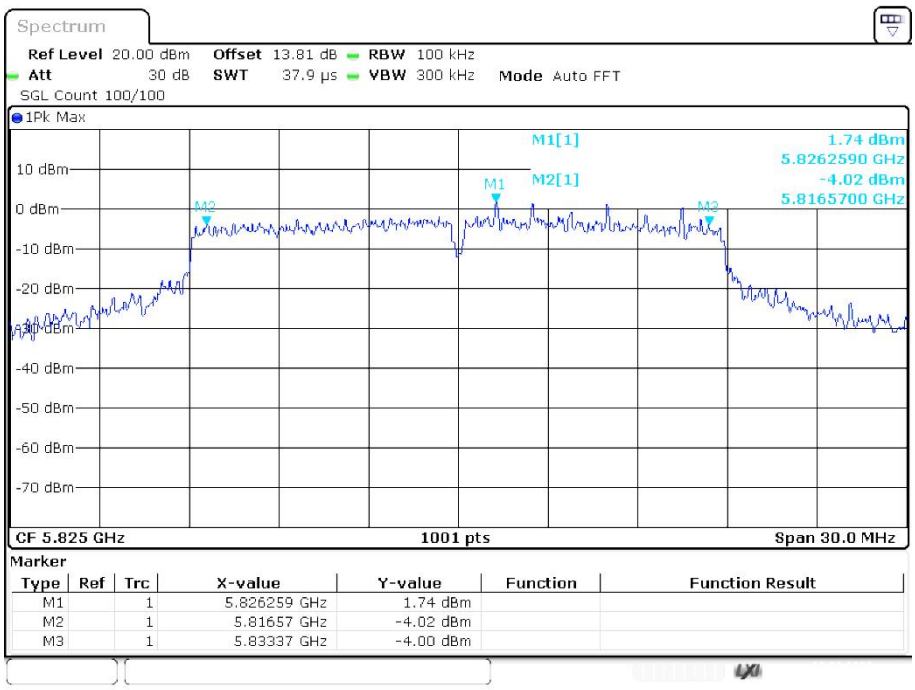
-6dB Bandwidth NVNT n20 5745MHz Ant1



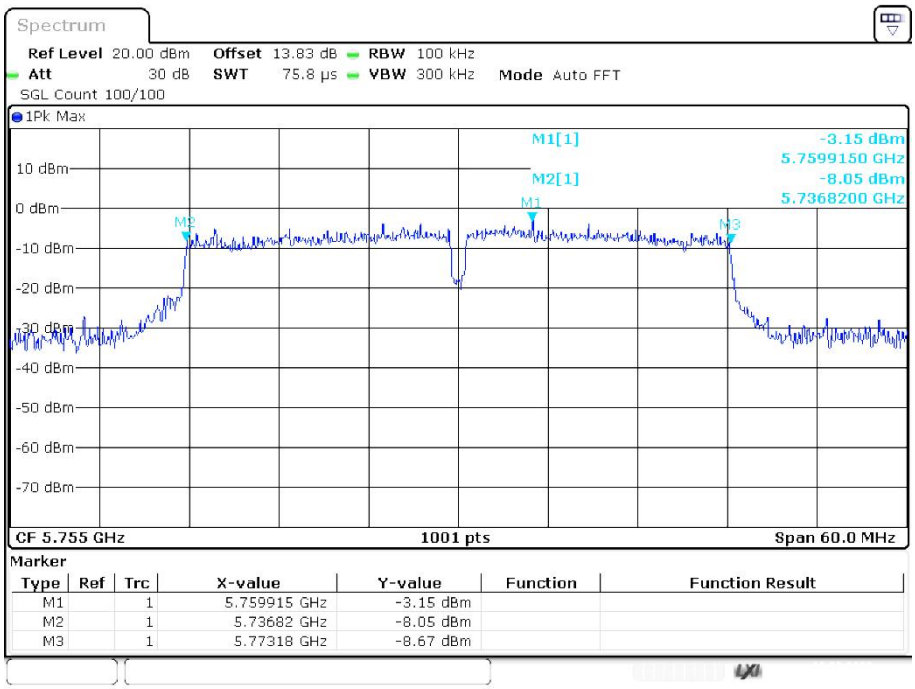
-6dB Bandwidth NVNT n20 5785MHz Ant1



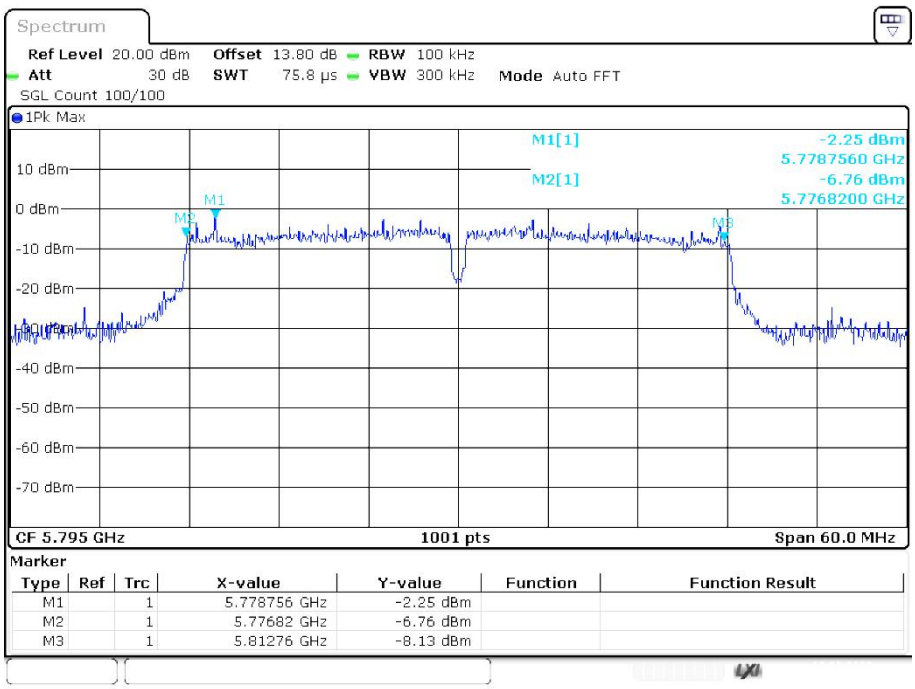
-6dB Bandwidth NVNT n20 5825MHz Ant1



-6dB Bandwidth NVNT n40 5755MHz Ant1



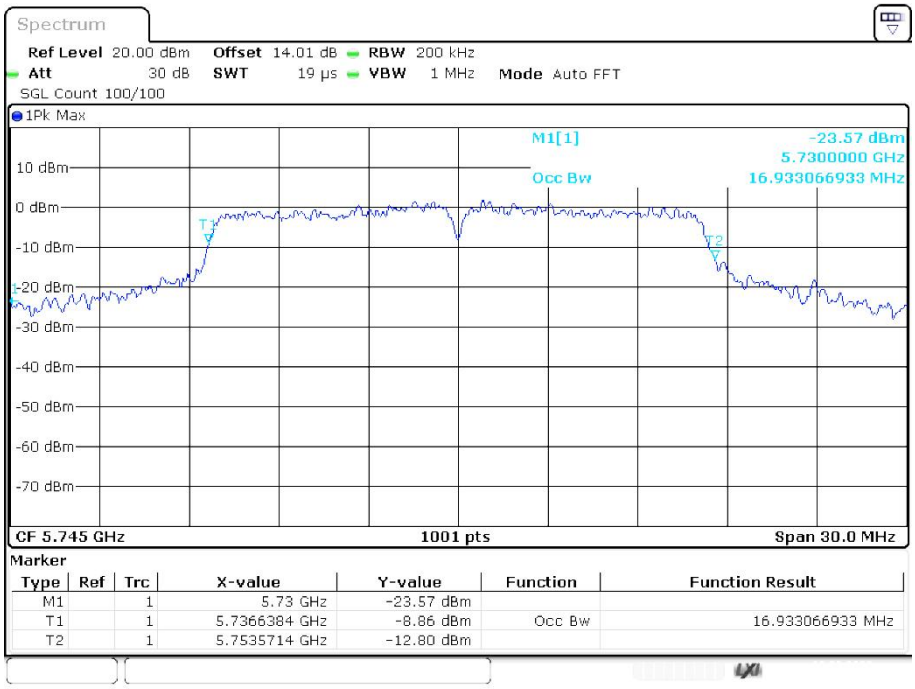
-6dB Bandwidth NVNT n40 5795MHz Ant1



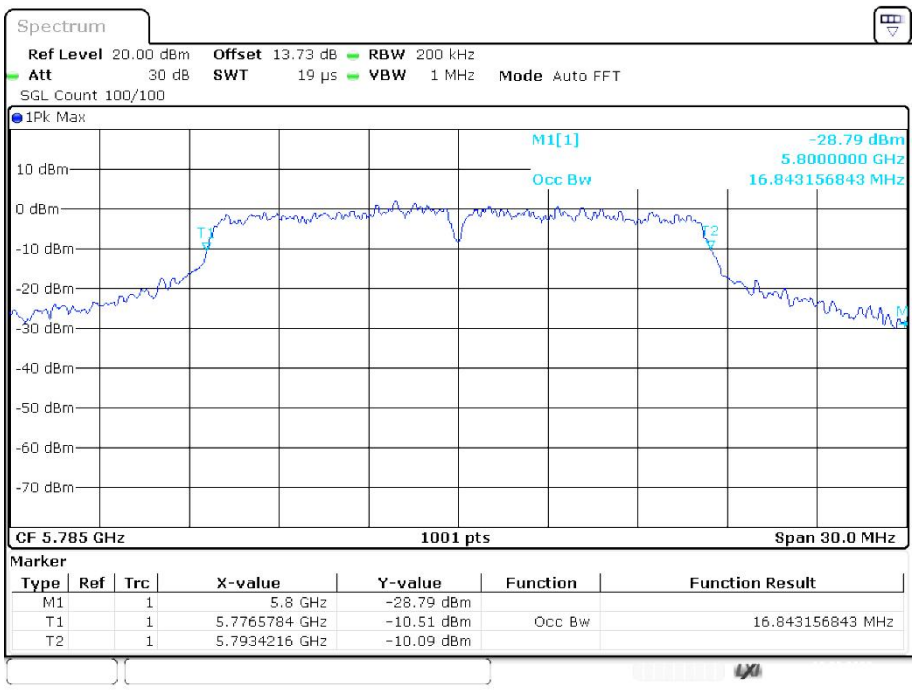
Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	a	5745	Ant1	16.933
NVNT	a	5785	Ant1	16.843
NVNT	a	5825	Ant1	16.873
NVNT	ac20	5745	Ant1	17.802
NVNT	ac20	5785	Ant1	17.952
NVNT	ac20	5825	Ant1	17.952
NVNT	ac40	5755	Ant1	36.324
NVNT	ac40	5795	Ant1	36.324
NVNT	ac80	5775	Ant1	75.764
NVNT	n20	5745	Ant1	17.892
NVNT	n20	5785	Ant1	17.862
NVNT	n20	5825	Ant1	17.922
NVNT	n40	5755	Ant1	36.384
NVNT	n40	5795	Ant1	36.384

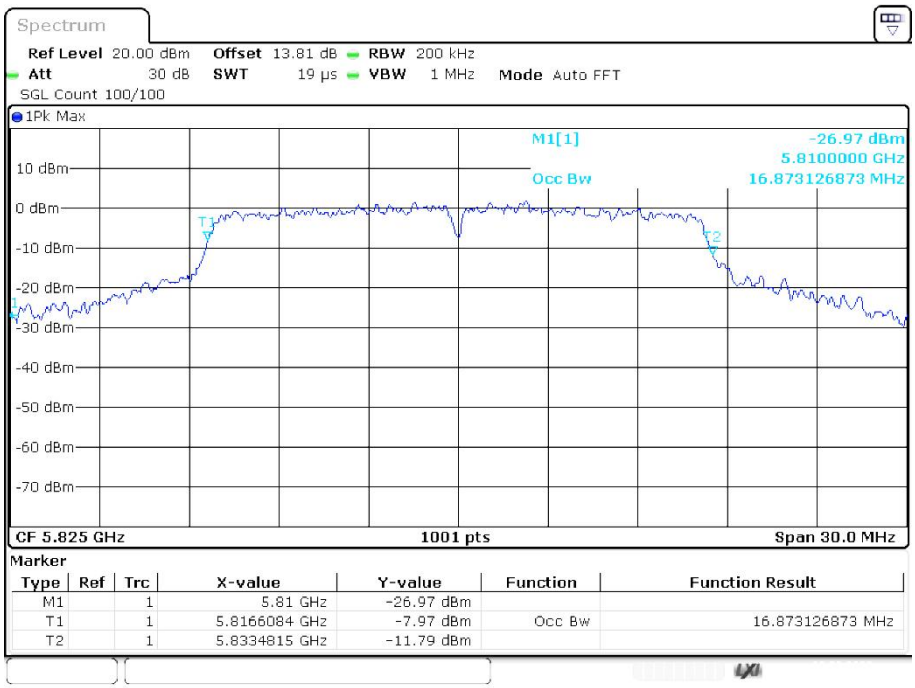
OBW NVNT a 5745MHz Ant1



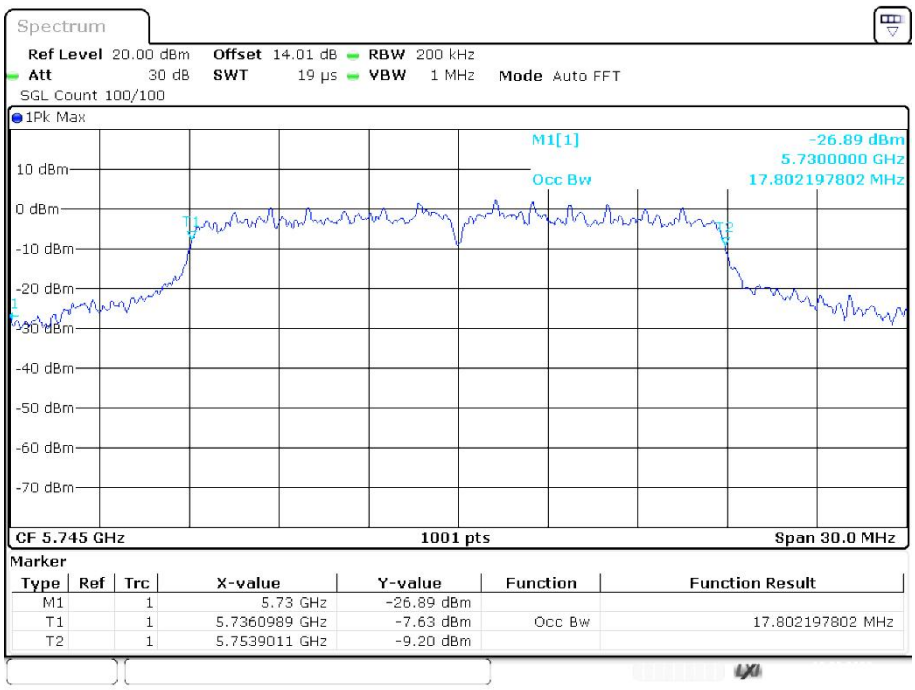
OBW NVNT a 5785MHz Ant1



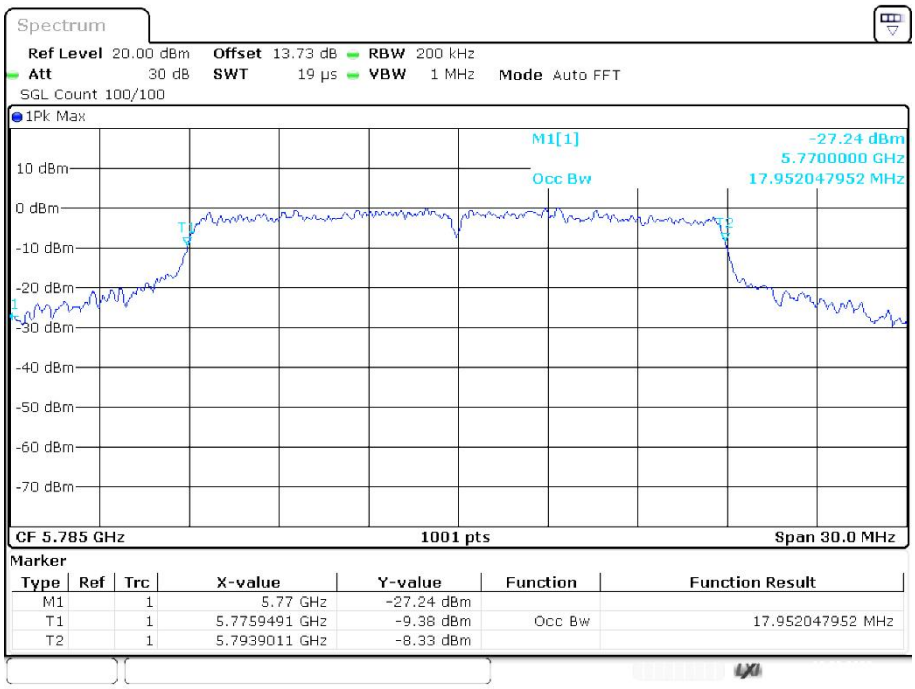
OBW NVNT a 5825MHz Ant1



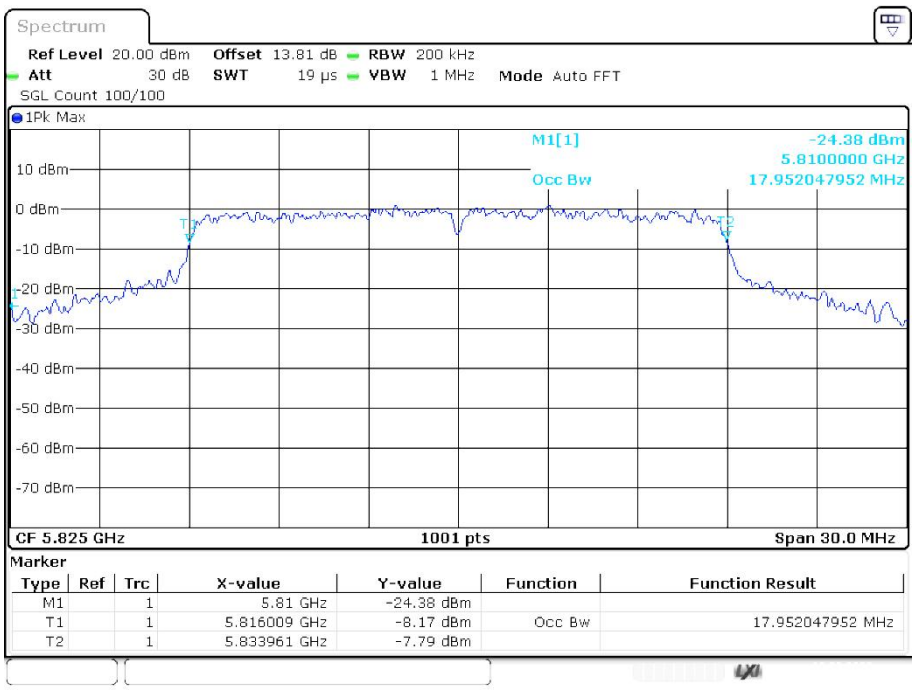
OBW NVNT ac20 5745MHz Ant1



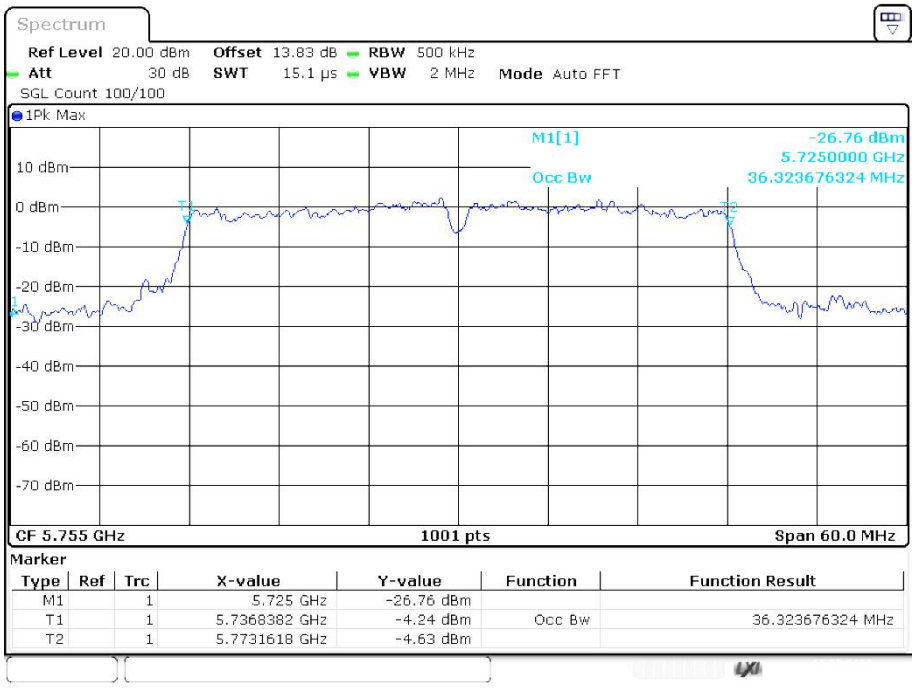
OBW NVNT ac20 5785MHz Ant1



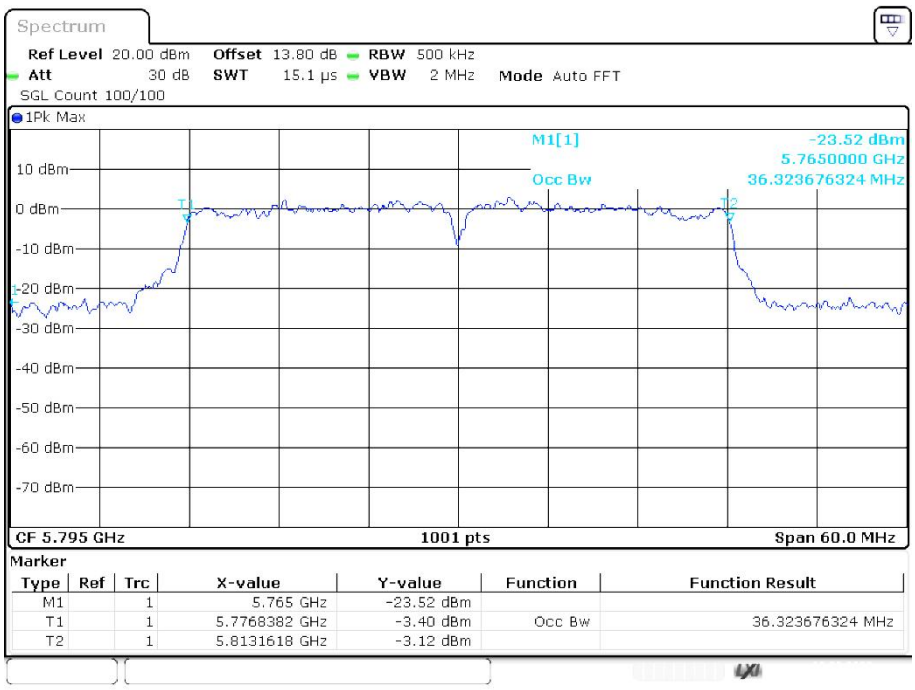
OBW NVNT ac20 5825MHz Ant1



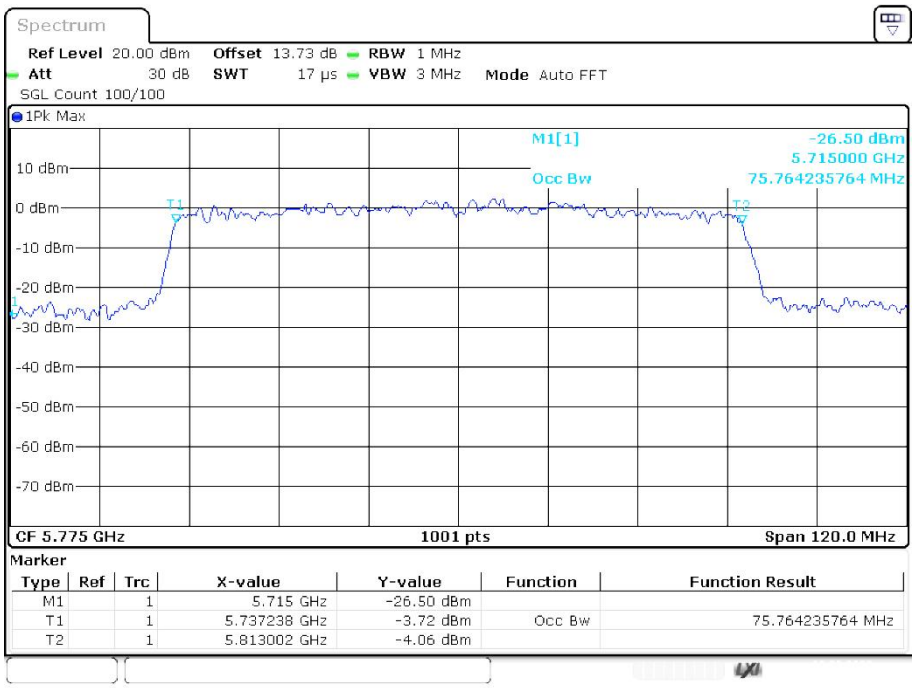
OBW NVNT ac40 5755MHz Ant1



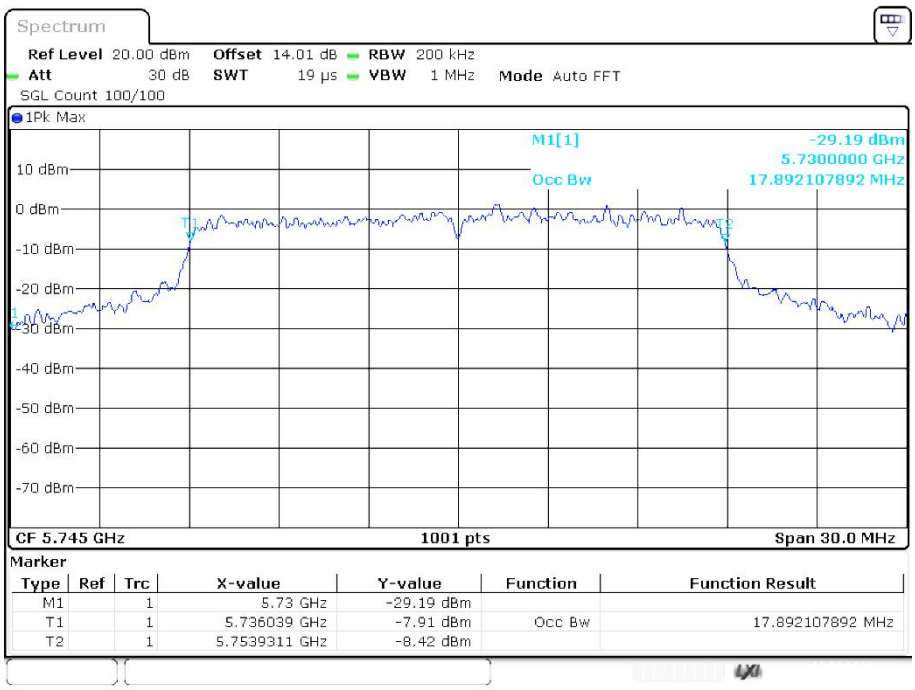
OBW NVNT ac40 5795MHz Ant1



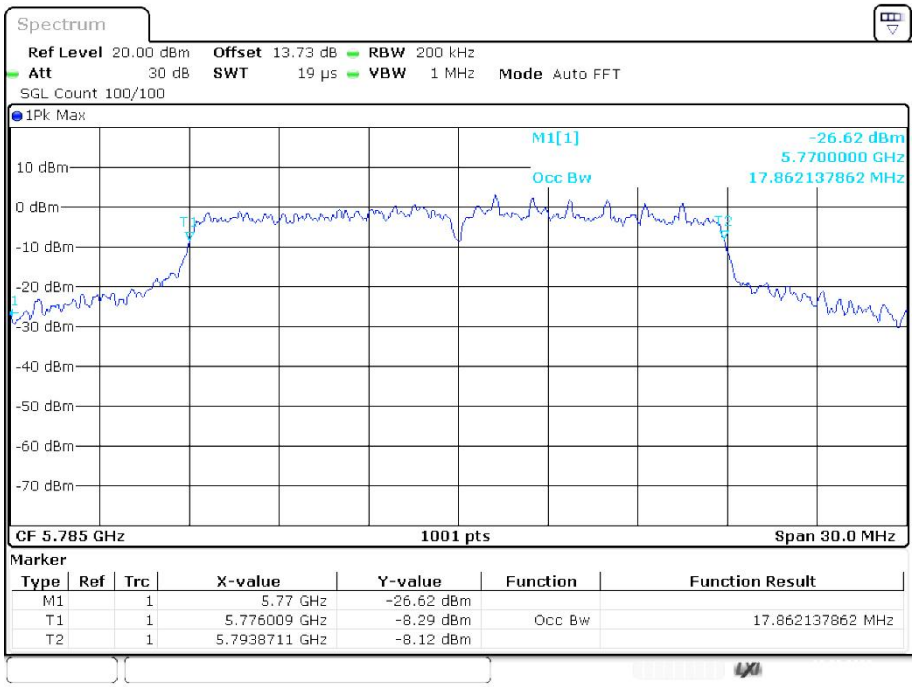
OBW NVNT ac80 5775MHz Ant1



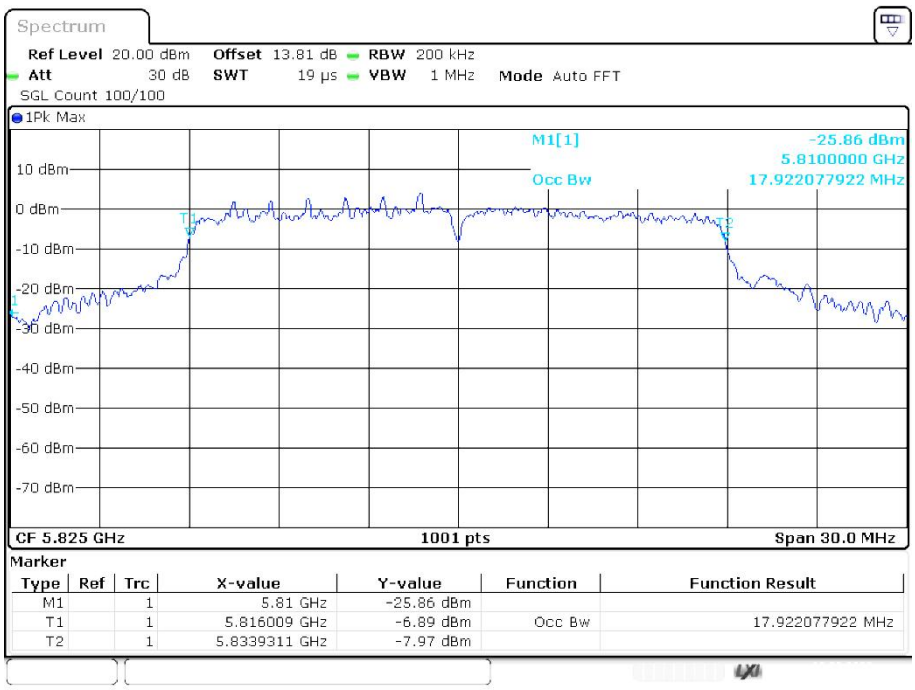
OBW NVNT n20 5745MHz Ant1



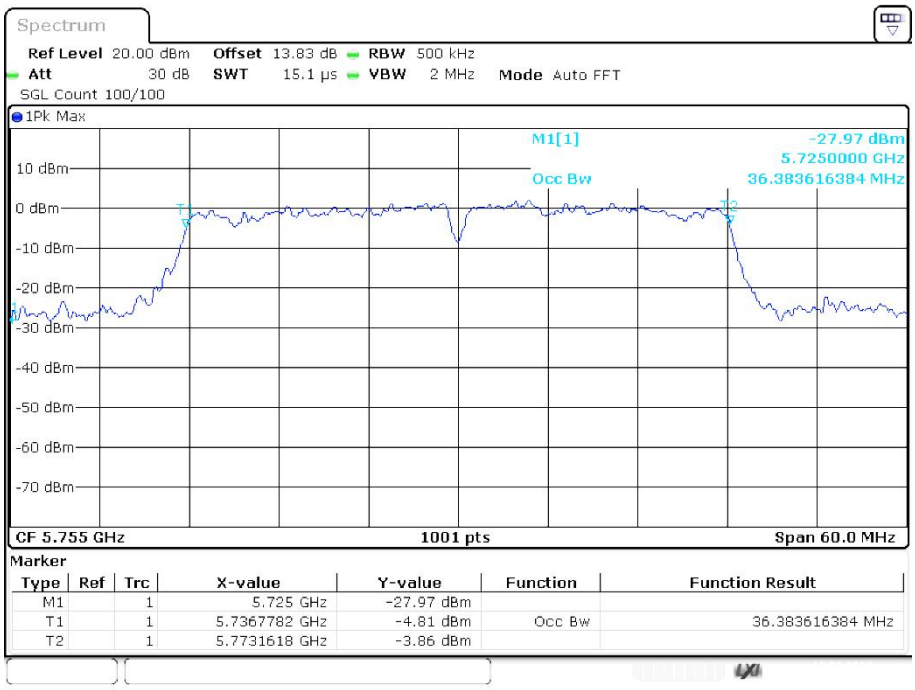
OBW NVNT n20 5785MHz Ant1



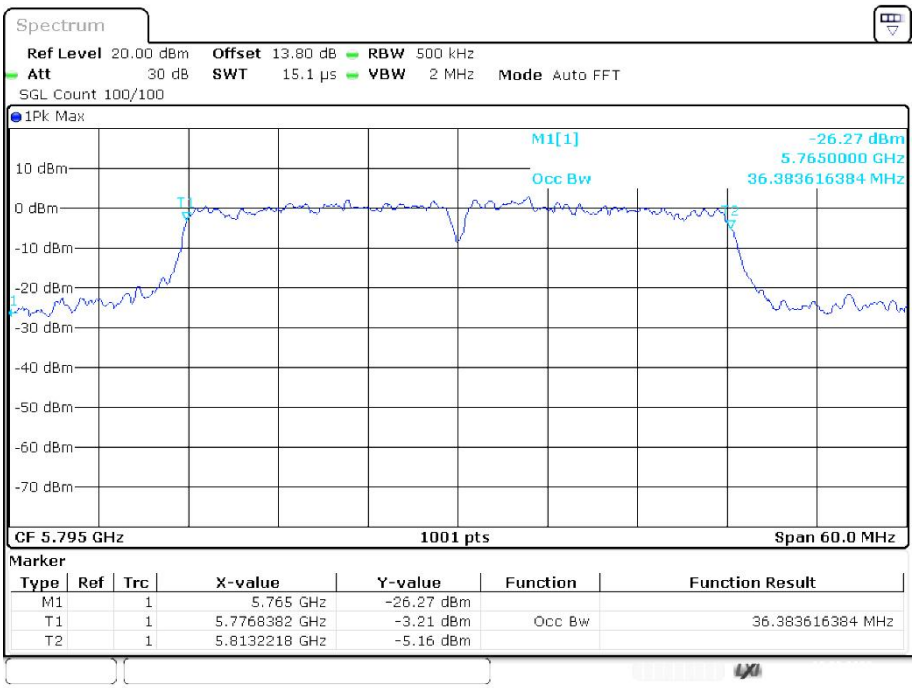
OBW NVNT n20 5825MHz Ant1



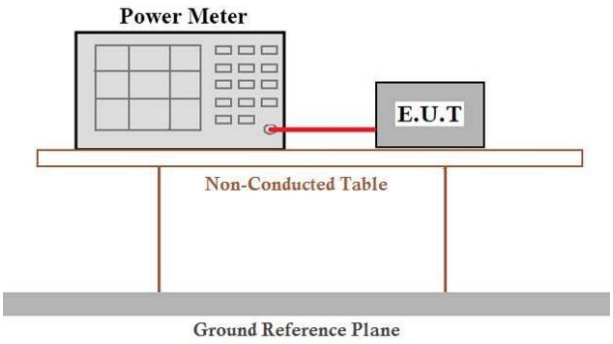
OBW NVNT n40 5755MHz Ant1



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:	
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., 10log(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

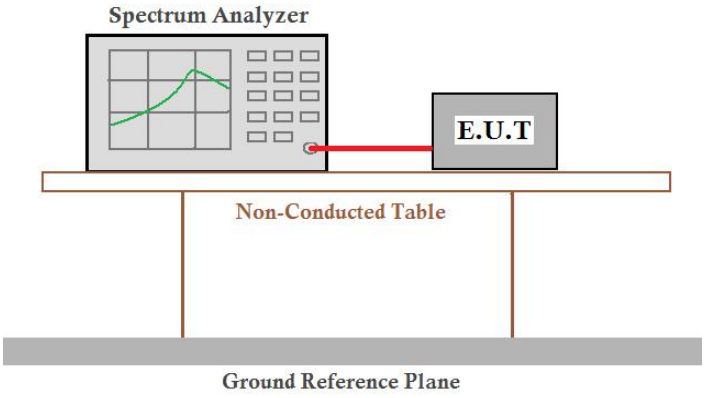
Band 1 (5150-5250 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	17.07	0	17.07	24	Pass
NVNT	a	5200	Ant1	17.65	0	17.65	24	Pass
NVNT	a	5240	Ant1	17.54	0	17.54	24	Pass
NVNT	ac20	5180	Ant1	16.67	0	16.67	24	Pass
NVNT	ac20	5200	Ant1	16.90	0	16.90	24	Pass
NVNT	ac20	5240	Ant1	17.28	0	17.28	24	Pass
NVNT	ac40	5190	Ant1	17.83	0	**17.83**	24	Pass
NVNT	ac40	5230	Ant1	17.16	0	17.16	24	Pass
NVNT	ac80	5210	Ant1	17.68	0	17.68	24	Pass
NVNT	n20	5180	Ant1	16.43	0	16.43	24	Pass
NVNT	n20	5200	Ant1	17.64	0	17.64	24	Pass
NVNT	n20	5240	Ant1	17.21	0	17.21	24	Pass
NVNT	n40	5190	Ant1	17.66	0	17.66	24	Pass
NVNT	n40	5230	Ant1	17.65	0	17.65	24	Pass

Band 4 (5725 – 5850 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	17.01	0	17.01	30	Pass
NVNT	a	5785	Ant1	17.57	0	17.57	30	Pass
NVNT	a	5825	Ant1	17.50	0	17.50	30	Pass
NVNT	ac20	5745	Ant1	16.69	0	16.69	30	Pass
NVNT	ac20	5785	Ant1	16.97	0	16.97	30	Pass
NVNT	ac20	5825	Ant1	17.35	0	17.35	30	Pass
NVNT	ac40	5755	Ant1	17.94	0	**17.94**	30	Pass
NVNT	ac40	5795	Ant1	17.22	0	17.22	30	Pass
NVNT	ac80	5775	Ant1	17.78	0	17.78	30	Pass
NVNT	n20	5745	Ant1	16.49	0	16.49	30	Pass
NVNT	n20	5785	Ant1	17.58	0	17.58	30	Pass
NVNT	n20	5825	Ant1	17.25	0	17.25	30	Pass
NVNT	n40	5755	Ant1	17.63	0	17.63	30	Pass
NVNT	n40	5795	Ant1	17.57	0	17.57	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:	≤11.00dBm/MHz for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz ≤30.00dBm/500KHz for 5725MHz-5850MHz
Test setup:	
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	6.425	11	Pass
NVNT	a	5200	Ant1	7.38	11	Pass
NVNT	a	5240	Ant1	7.261	11	Pass
NVNT	ac20	5180	Ant1	6.046	11	Pass
NVNT	ac20	5200	Ant1	6.291	11	Pass
NVNT	ac20	5240	Ant1	6.284	11	Pass
NVNT	ac40	5190	Ant1	4.418	11	Pass
NVNT	ac40	5230	Ant1	3.586	11	Pass
NVNT	n20	5180	Ant1	5.747	11	Pass
NVNT	n20	5200	Ant1	6.917	11	Pass
NVNT	n20	5240	Ant1	6.31	11	Pass
NVNT	n40	5190	Ant1	4.172	11	Pass
NVNT	n40	5230	Ant1	4.029	11	Pass

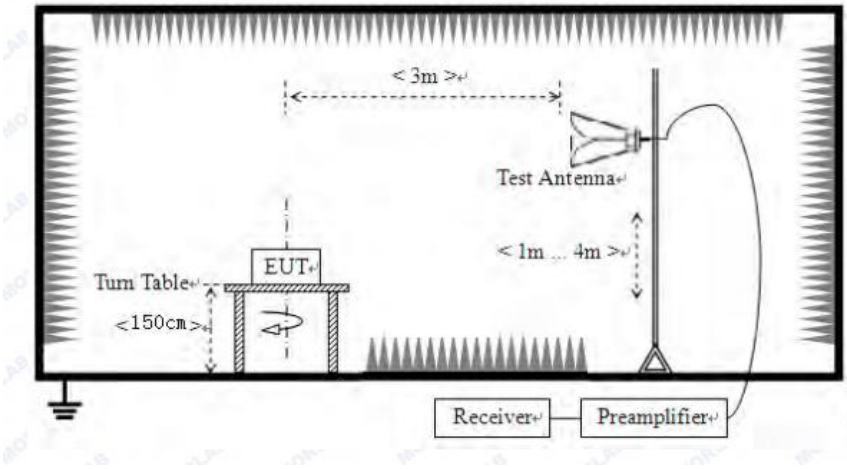
Band 4 (5725 - 5850 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	0.368	30	Pass
NVNT	a	5785	Ant1	-0.049	30	Pass
NVNT	a	5825	Ant1	0.782	30	Pass
NVNT	ac20	5745	Ant1	-0.741	30	Pass
NVNT	ac20	5785	Ant1	-0.192	30	Pass
NVNT	ac20	5825	Ant1	0.813	30	Pass
NVNT	ac40	5755	Ant1	-3.125	30	Pass
NVNT	ac40	5795	Ant1	-2.596	30	Pass
NVNT	ac80	5775	Ant1	-5.68	30	Pass
NVNT	n20	5745	Ant1	-0.679	30	Pass
NVNT	n20	5785	Ant1	0.052	30	Pass
NVNT	n20	5825	Ant1	0.712	30	Pass
NVNT	n40	5755	Ant1	-3.217	30	Pass
NVNT	n40	5795	Ant1	-2.485	30	Pass

4.6 Band Edge

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>68.2</td><td>Peak Value</td></tr>
</table>

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.
</td></tr>
<tr><td>Test Procedure:</td><td>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 rotable 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.</td></tr>
<tr><td>Test setup:</td><td>Above 1GHz</td></tr>
</table>

	
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[dBuV/m] = EIRP[dBm] + 95.2,

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/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	37.15	17.18	54.33	68.20	-13.87	PK
V	5150.00	36.43	17.18	53.61	68.20	-14.59	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	27.45	17.18	44.63	54.00	-9.37	AV
V	5150.00	26.50	17.18	43.68	54.00	-10.32	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	34.32	17.18	51.50	68.20	-16.70	PK
V	5350.00	34.19	17.18	51.37	68.20	-16.83	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	26.82	17.18	44.00	54.00	-10.00	AV
V	5350.00	26.28	17.18	43.46	54.00	-10.54	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	34.31	17.18	51.49	68.20	-16.71	PK
V	5150.00	36.14	17.18	53.32	68.20	-14.88	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	24.11	17.18	41.29	54.00	-12.71	AV
V	5150.00	23.78	17.18	40.96	54.00	-13.04	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	32.36	17.18	49.54	68.20	-18.66	PK
V	5350.00	31.80	17.18	48.98	68.20	-19.22	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	24.66	17.18	41.84	54.00	-12.16	AV
V	5350.00	27.02	17.18	44.20	54.00	-9.80	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	32.01	17.18	49.19	68.20	-19.01	PK
V	5150.00	33.83	17.18	51.01	68.20	-17.19	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	26.95	17.18	44.13	54.00	-9.87	AV
V	5150.00	23.12	17.18	40.30	54.00	-13.70	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	32.68	17.18	49.86	68.20	-18.34	PK
V	5350.00	31.62	17.18	48.80	68.20	-19.40	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	27.70	17.18	44.88	54.00	-9.12	AV
V	5350.00	25.40	17.18	42.58	54.00	-11.42	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	33.23	17.18	50.41	68.20	-17.79	PK
V	5150.00	36.33	17.18	53.51	68.20	-14.69	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	26.86	17.18	44.04	54.00	-9.96	AV
V	5150.00	23.22	17.18	40.40	54.00	-13.60	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	35.25	17.18	52.43	68.20	-15.77	PK
V	5350.00	32.00	17.18	49.18	68.20	-19.02	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	27.15	17.18	44.33	54.00	-9.67	AV
V	5350.00	23.80	17.18	40.98	54.00	-13.02	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	34.86	17.20	52.06	68.20	-16.14	PK
V	5150.00	34.28	17.20	51.48	68.20	-16.72	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	26.98	17.20	44.18	54.00	-9.82	AV
V	5150.00	25.42	17.20	42.62	54.00	-11.38	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	32.62	17.18	49.80	68.20	-18.40	PK
V	5350.00	32.84	17.18	50.02	68.20	-18.18	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	26.99	17.18	44.17	54.00	-9.83	AV
V	5350.00	22.33	17.18	39.51	54.00	-14.49	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	34.63	17.18	51.81	68.20	-16.39	PK
V	5150.00	31.35	17.18	48.53	68.20	-19.67	PK

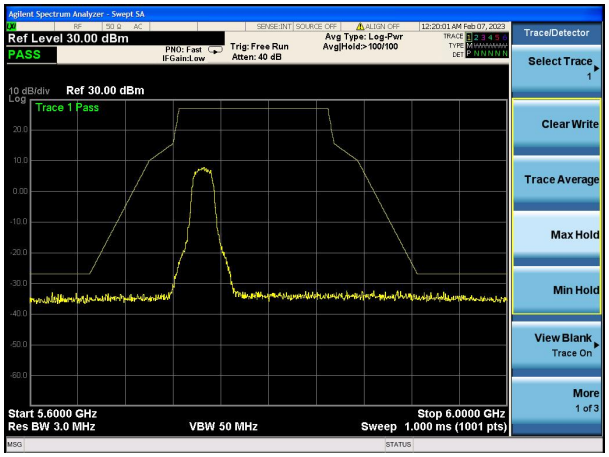
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5150.00	26.56	17.18	43.74	54.00	-10.26	AV
V	5150.00	25.90	17.18	43.08	54.00	-10.92	AV

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	35.52	17.20	52.72	68.20	-15.48	PK
V	5350.00	33.72	17.20	50.92	68.20	-17.28	PK

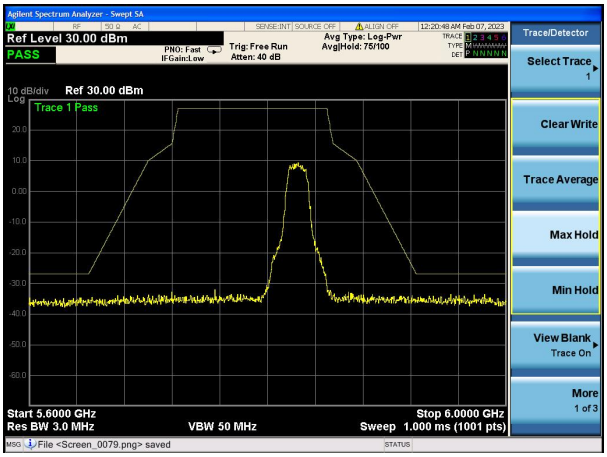
Mode:		802.11ac(HT80)		Frequency:		5210MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5350.00	25.06	17.20	42.26	54.00	-11.74	AV
V	5350.00	27.64	17.20	44.84	54.00	-9.16	AV

Band4

802.11a

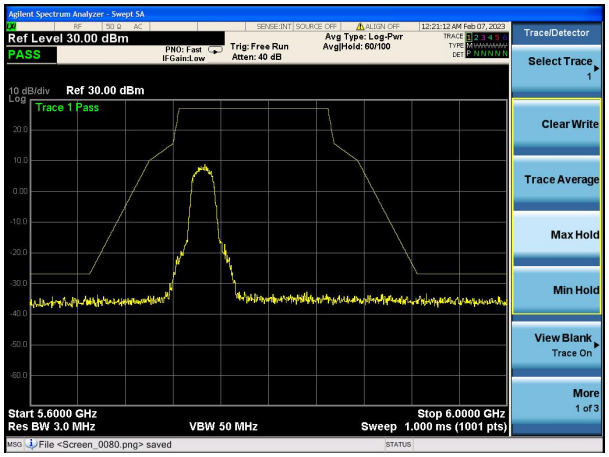


Low: 5745MHz

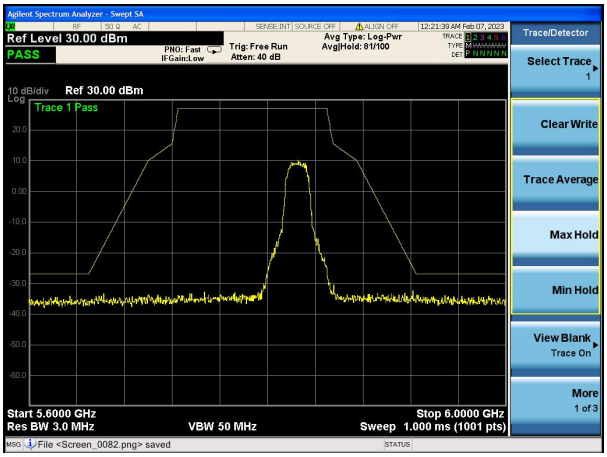


High: 5825MHz

802.11n(HT20)

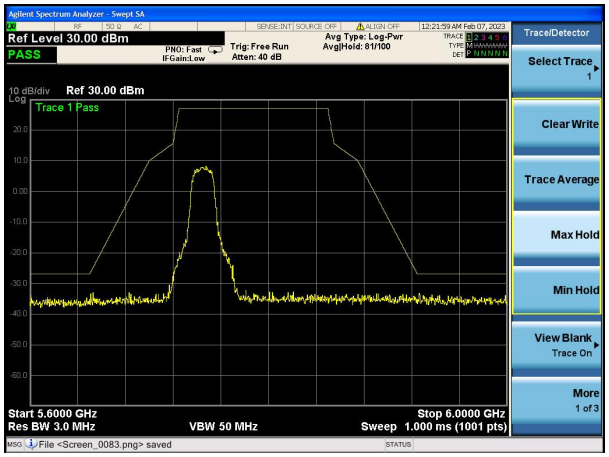


Low: 5745MHz

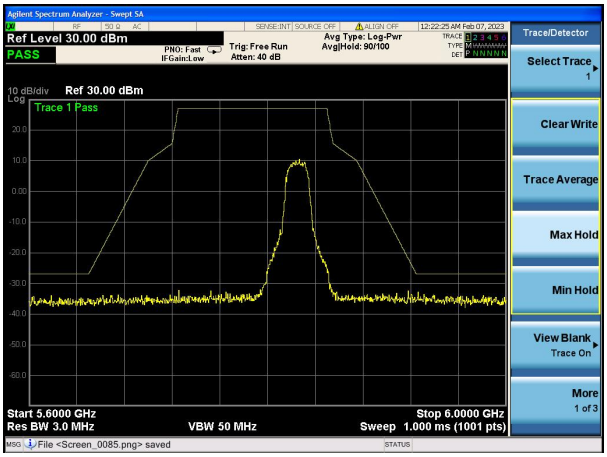


High: 5825MHz

802.11ac(HT20)

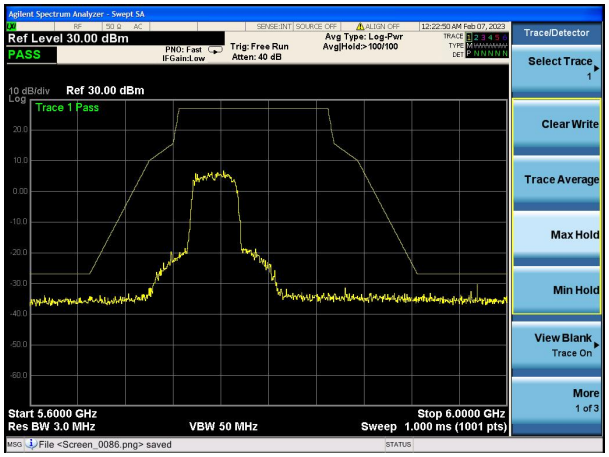


Low: 5745MHz

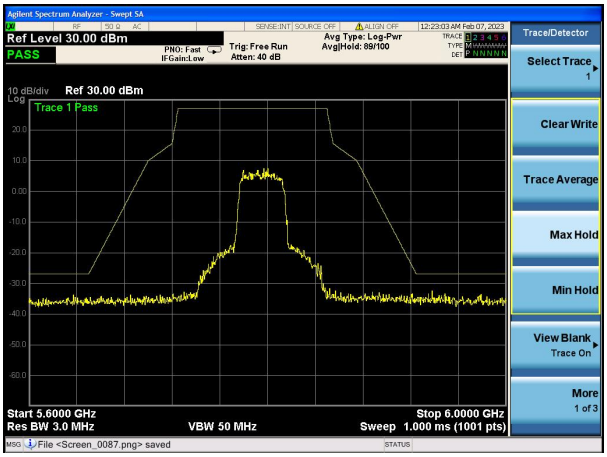


High: 5825MHz

802.11n(HT40)

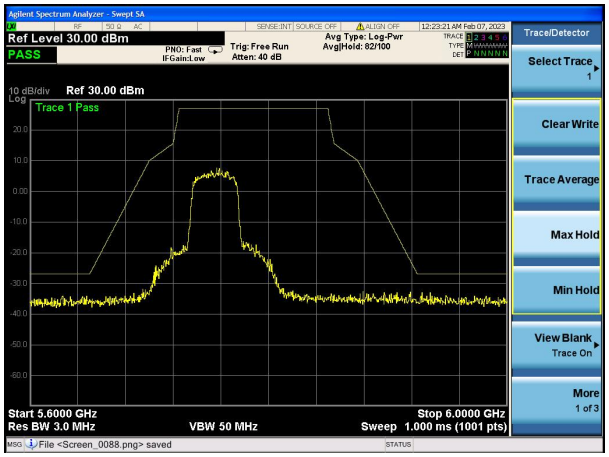


Low: 5755MHz

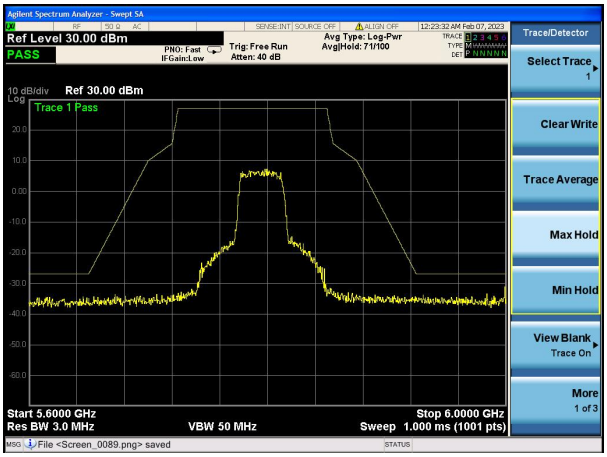


High: 5795MHz

802.11ac(HT40)

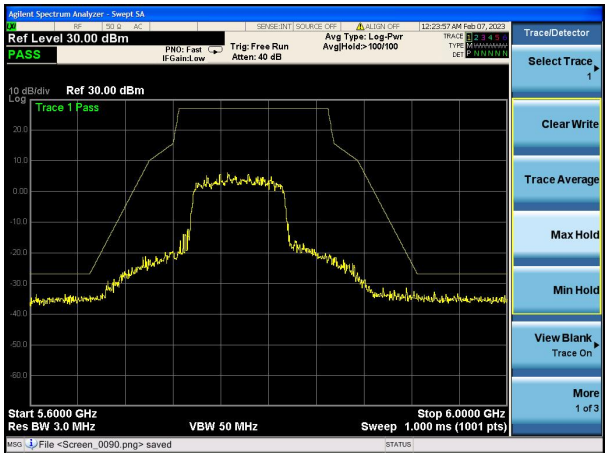


Low: 5755MHz



High: 5795MHz

802.11ac(HT80)



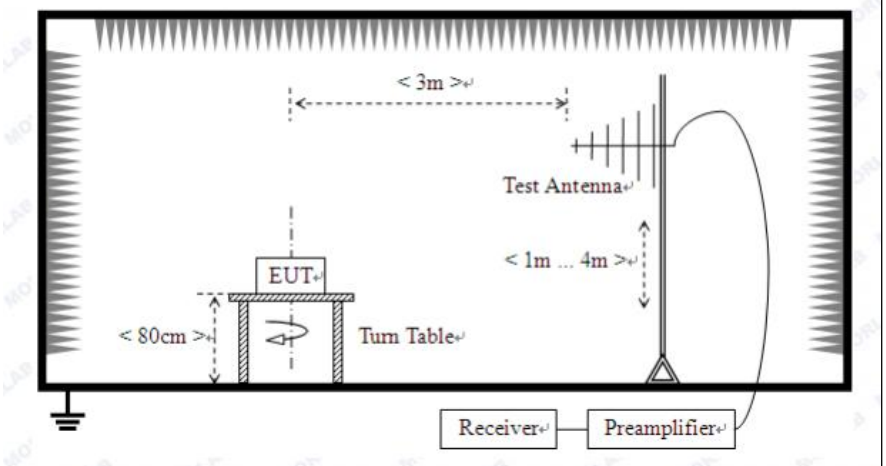
5775MHz

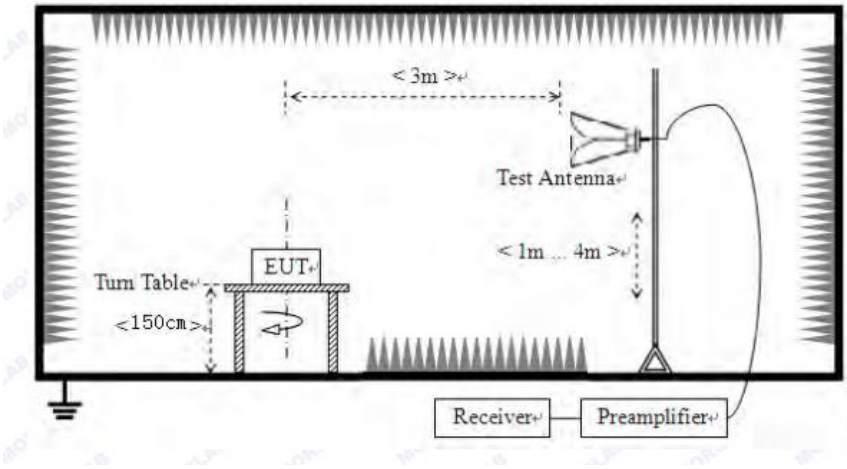
4.7 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 40GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>74.0</td><td>Peak Value</td></tr>
<tr><td>54.0</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>
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 rotable 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
</td></tr>
</table>

	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: EIRP(dBm) = Pg(dBm) – cable loss (dB) + 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)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
33.38	48.51	11.25	0.59	30.08	30.27	40	-9.73	Vertical
54.83	41.36	11.93	0.81	29.96	24.14	40	-15.86	Vertical
120.58	47.01	9.4	1.36	29.57	28.20	43.5	-15.30	Vertical
172.41	42.92	8.5	1.7	29.31	23.81	43.5	-19.69	Vertical
441.06	37.15	16.29	3.05	29.41	27.08	46	-18.92	Vertical
860.61	33.10	21.83	4.69	29.14	30.48	46	-15.52	Vertical
65.03	36.44	8.73	0.9	29.89	16.18	40	-23.82	Horizontal
100.04	33.91	11.73	1.19	29.7	17.13	43.5	-26.37	Horizontal
269.67	45.55	12.53	2.22	29.79	30.51	46	-15.49	Horizontal
350.79	36.82	14.5	2.62	29.73	24.21	46	-21.79	Horizontal
627.32	36.17	19.43	3.83	29.27	30.16	46	-15.84	Horizontal
956.40	40.53	22.54	5.06	29.1	39.03	46	-6.97	Horizontal

Above 1GHz:

802.11a(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.42	28.25	11.25	14.62	32.65	21.47	74	-52.53	Vertical
15540.10	30.24	11.93	17.66	34.46	25.37	74	-48.63	Vertical
10360.19	32.30	9.4	14.62	32.65	23.67	74	-50.33	Horizontal
15540.86	31.66	8.5	17.66	34.46	23.36	74	-50.64	Horizontal

802.11a(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.45	28.42	16.29	14.62	32.65	26.68	74	-47.32	Vertical
15540.65	30.21	21.83	17.66	34.46	35.24	74	-38.76	Vertical
10360.43	32.19	8.73	14.62	32.65	22.89	74	-51.11	Horizontal
15540.91	32.29	11.73	17.66	34.46	27.22	74	-46.78	Horizontal

802.11a(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.94	28.62	11.25	14.62	32.65	21.84	74	-52.16	Vertical
15540.08	30.96	11.93	17.66	34.46	26.09	74	-47.91	Vertical
10360.17	33.05	9.4	14.62	32.65	24.42	74	-49.58	Horizontal
15540.98	31.50	8.5	17.66	34.46	23.20	74	-50.80	Horizontal

802.11n(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.30	28.78	16.29	14.62	32.65	27.04	74	-46.96	Vertical
15540.71	30.92	21.83	17.66	34.46	35.95	74	-38.05	Vertical
10360.81	32.17	8.73	14.62	32.65	22.87	74	-51.13	Horizontal
15540.76	32.19	11.73	17.66	34.46	27.12	74	-46.88	Horizontal

802.11n(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.34	28.40	11.25	14.62	32.65	21.62	74	-52.38	Vertical
15540.66	30.60	11.93	17.66	34.46	25.73	74	-48.27	Vertical
10360.21	32.59	9.4	14.62	32.65	23.96	74	-50.04	Horizontal
15540.94	31.72	8.5	17.66	34.46	23.42	74	-50.58	Horizontal

802.11n(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.03	28.95	16.29	14.62	32.65	27.21	74	-46.79	Vertical
15540.18	31.06	21.83	17.66	34.46	36.09	74	-37.91	Vertical
10360.55	32.13	8.73	14.62	32.65	22.83	74	-51.17	Horizontal
15540.97	31.94	11.73	17.66	34.46	26.87	74	-47.13	Horizontal

802.11ac(HT20) 5180MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.05	28.25	11.25	14.62	32.65	21.47	74	-52.53	Vertical
15540.35	30.90	11.93	17.66	34.46	26.03	74	-47.97	Vertical
10360.77	32.82	9.4	14.62	32.65	24.19	74	-49.81	Horizontal
15540.48	32.43	8.5	17.66	34.46	24.13	74	-49.87	Horizontal

802.11ac(HT20) 5200MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.21	28.45	16.29	14.62	32.65	26.71	74	-47.29	Vertical
15540.12	30.36	21.83	17.66	34.46	35.39	74	-38.61	Vertical
10360.85	32.84	8.73	14.62	32.65	23.54	74	-50.46	Horizontal
15540.40	32.21	11.73	17.66	34.46	27.14	74	-46.86	Horizontal

802.11ac(HT20) 5240MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.23	28.45	11.25	14.62	32.65	21.67	74	-52.33	Vertical
15540.88	30.93	11.93	17.66	34.46	26.06	74	-47.94	Vertical
10360.34	32.89	9.4	14.62	32.65	24.26	74	-49.74	Horizontal
15540.13	31.80	8.5	17.66	34.46	23.50	74	-50.50	Horizontal

802.11n(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.93	29.08	16.29	14.62	32.65	27.34	74	-46.66	Vertical
15540.20	31.02	21.83	17.66	34.46	36.05	74	-37.95	Vertical
10360.41	32.77	8.73	14.62	32.65	23.47	74	-50.53	Horizontal
15540.58	32.06	11.73	17.66	34.46	26.99	74	-47.01	Horizontal

802.11n(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.20	28.93	11.25	14.62	32.65	22.15	74	-51.85	Vertical
15540.11	30.79	11.93	17.66	34.46	25.92	74	-48.08	Vertical
10360.16	32.43	9.4	14.62	32.65	23.80	74	-50.20	Horizontal
15540.27	32.15	8.5	17.66	34.46	23.85	74	-50.15	Horizontal

802.11ac(HT40) 5190MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.69	28.59	16.29	14.62	32.65	26.85	74	-47.15	Vertical
15540.98	30.61	21.83	17.66	34.46	35.64	74	-38.36	Vertical
10360.17	32.23	8.73	14.62	32.65	22.93	74	-51.07	Horizontal
15540.29	31.68	11.73	17.66	34.46	26.61	74	-47.39	Horizontal

802.11ac(HT40) 5230MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.04	28.98	11.25	14.62	32.65	22.20	74	-51.80	Vertical
15540.06	30.45	11.93	17.66	34.46	25.58	74	-48.42	Vertical
10360.10	32.48	9.4	14.62	32.65	23.85	74	-50.15	Horizontal
15540.27	32.23	8.5	17.66	34.46	23.93	74	-50.07	Horizontal

802.11ac(HT80) 5210MHz

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360.62	28.71	16.29	14.62	32.65	26.97	74	-47.03	Vertical
15540.63	30.51	21.83	17.66	34.46	35.54	74	-38.46	Vertical
10360.63	32.57	8.73	14.62	32.65	23.27	74	-50.73	Horizontal
15540.38	31.77	11.73	17.66	34.46	26.70	74	-47.30	Horizontal

Note:

1. Level = Read Level + Antenna Factor+ Cable loss- Preamp 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 3.61V	5179.989	11	5239.988	12
	DC 3.80V	5179.989	11	5239.991	9
	DC 4.18V	5179.986	14	5239.988	12
Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	DC 3.61V	5744.988	12	5824.988	12
	DC 3.80V	5744.988	12	5824.991	9
	DC 4.18V	5744.992	8	5824.987	13

Mode	Temperature (℃)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	-10℃	5179.990	10	5239.992	8
	-5℃	5179.988	12	5239.989	11
	0℃	5179.986	14	5239.991	9
	+10℃	5179.991	9	5239.988	12
	+20℃	5179.988	12	5239.991	9
	+30℃	5179.990	10	5239.990	10
	+40℃	5179.990	10	5239.990	10
	+50℃	5179.988	12	5239.991	9
	+60℃	5179.988	12	5239.988	12
Mode	Temperature (℃)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	-10℃	5744.988	12	5824.987	13
	-5℃	5744.991	9	5824.989	11
	0℃	5744.992	8	5824.991	9
	+10℃	5744.988	12	5824.993	7
	+20℃	5744.988	12	5824.989	11
	+30℃	5744.992	8	5824.990	10
	+40℃	5744.989	11	5824.989	11
	+50℃	5744.990	10	5824.989	11
	+60℃	5744.991	9	5824.989	11

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