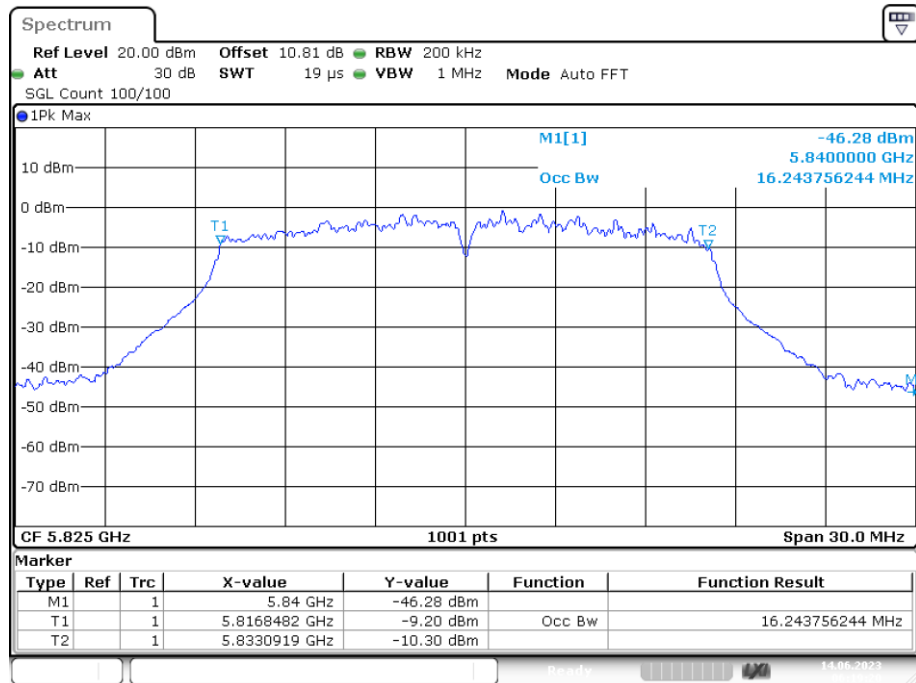
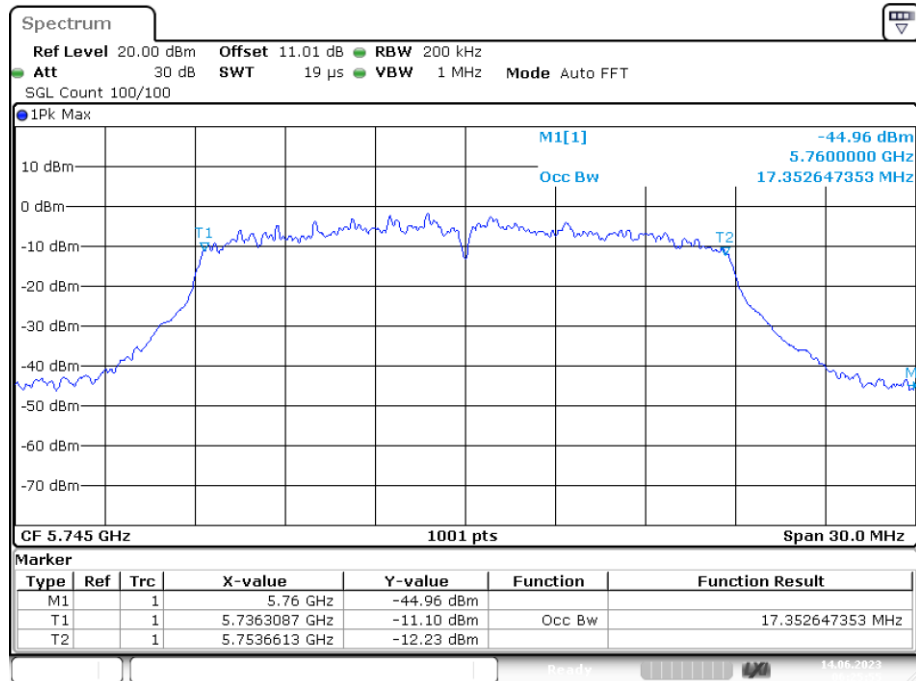


OBW NVNT a 5825MHz Ant1



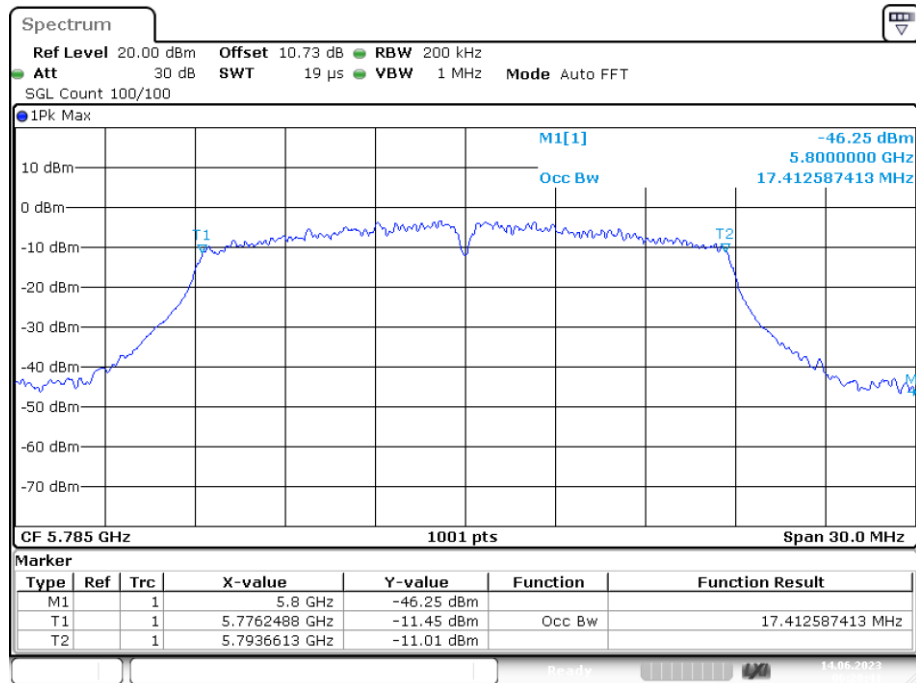
Date: 14.JUN.2023 06:19:20

OBW NVNT n20 5745MHz Ant1



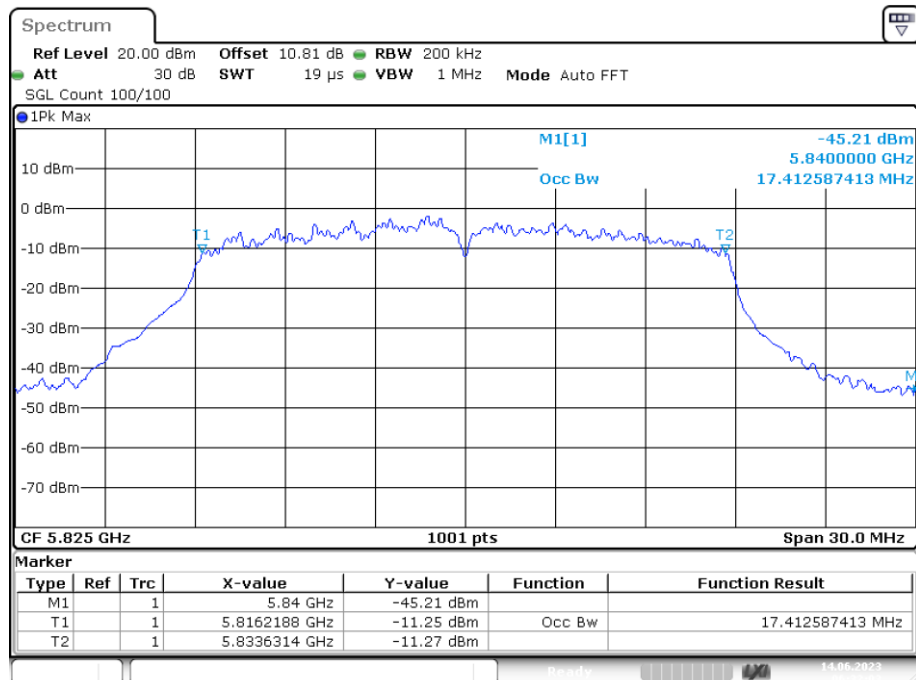
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OBW NVNT n20 5785MHz Ant1



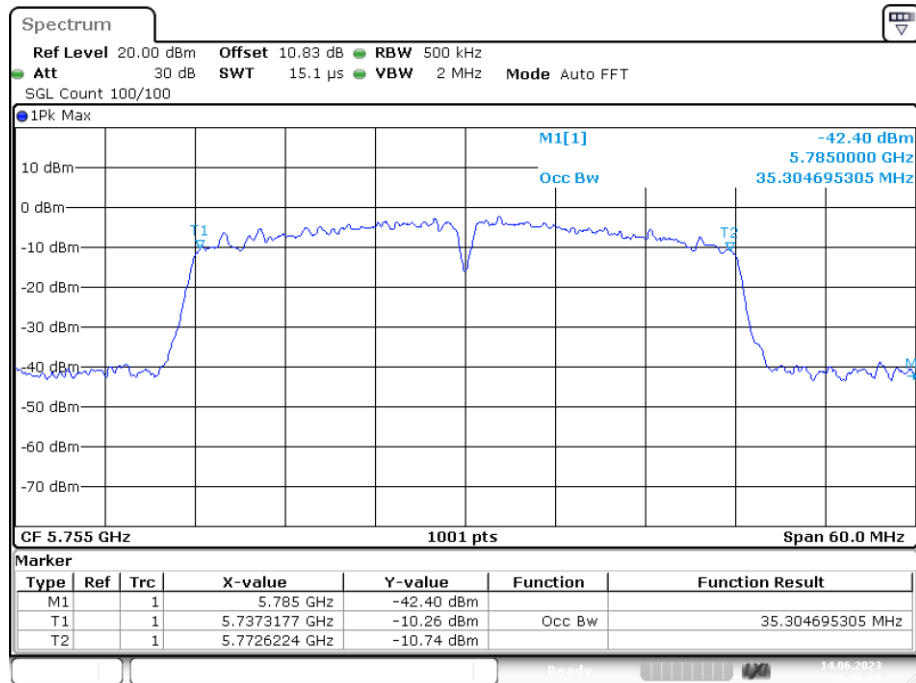
Date: 14.JUN.2023 06:28:41

OBW NVNT n20 5825MHz Ant1



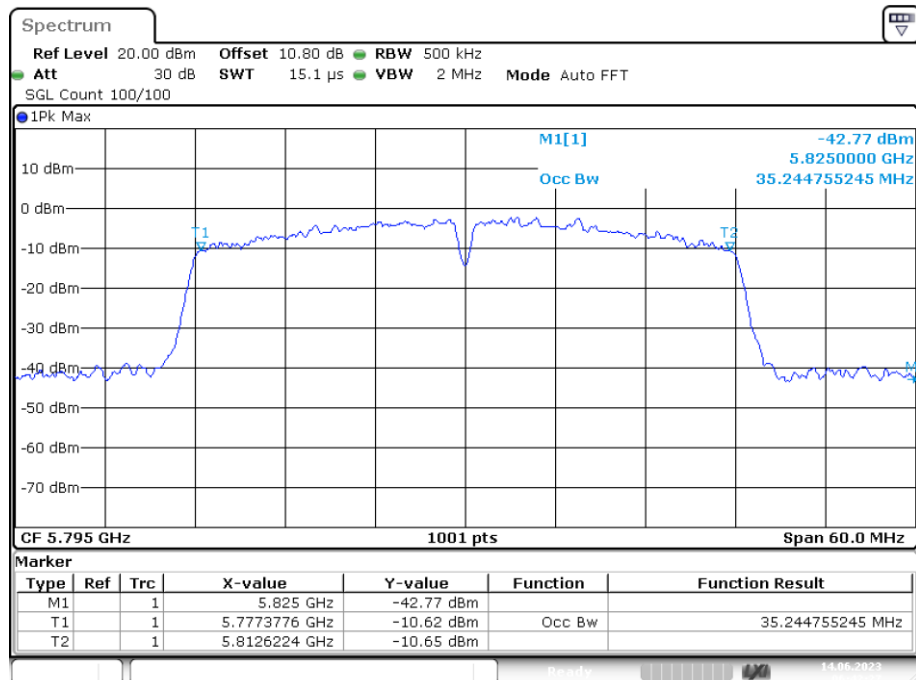
Date: 14.JUN.2023 06:32:03

OBW NVNT n40 5755MHz Ant1



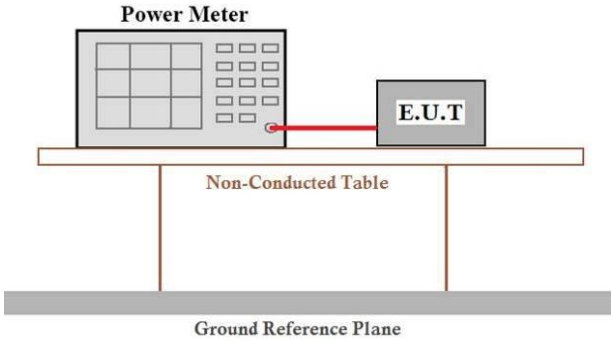
Date: 14.JUN.2023 06:36:18

OBW NVNT n40 5795MHz Ant1



Date: 14.JUN.2023 06:42:28

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) via 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	16.793	0	16.793	24	Pass
NVNT	a	5200	Ant1	15.727	0	15.727	24	Pass
NVNT	a	5240	Ant1	15.874	0	15.874	24	Pass
NVNT	n20	5180	Ant1	15.681	0	15.681	24	Pass
NVNT	n20	5200	Ant1	15.354	0	15.354	24	Pass
NVNT	n20	5240	Ant1	15.385	0	15.385	24	Pass
NVNT	n40	5190	Ant1	15.883	0	15.883	24	Pass
NVNT	n40	5230	Ant1	15.889	0	15.889	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	16.443	0	16.443	24	Pass
NVNT	a	5280	Ant1	16.633	0	16.633	24	Pass
NVNT	a	5320	Ant1	16.503	0	16.503	24	Pass
NVNT	n20	5260	Ant1	15.724	0	15.724	24	Pass
NVNT	n20	5280	Ant1	15.787	0	15.787	24	Pass
NVNT	n20	5320	Ant1	15.819	0	15.819	24	Pass
NVNT	n40	5270	Ant1	15.161	0	15.161	24	Pass
NVNT	n40	5310	Ant1	15.372	0	15.372	24	Pass

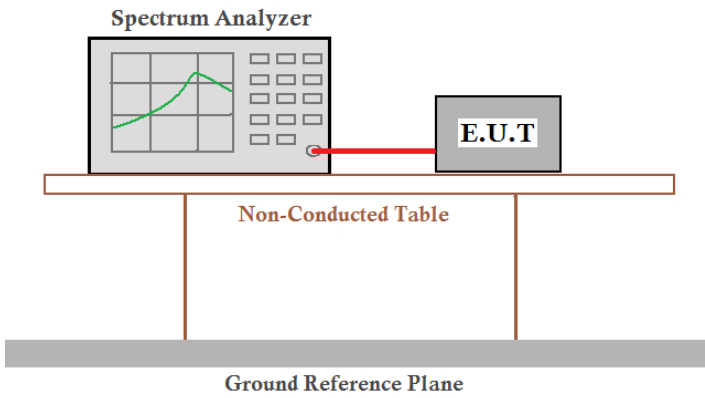
Band 3 (5740 -5725 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	a	5500	Ant1	16.812	0	16.812	24	Pass
NVNT	a	5580	Ant1	16.788	0	16.788	24	Pass
NVNT	a	5700	Ant1	16.695	0	16.695	24	Pass
NVNT	n20	5500	Ant1	15.881	0	15.881	24	Pass
NVNT	n20	5580	Ant1	15.915	0	15.915	24	Pass
NVNT	n20	5700	Ant1	15.506	0	15.506	24	Pass
NVNT	n40	5510	Ant1	15.703	0	15.703	24	Pass
NVNT	n40	5670	Ant1	15.353	0	15.353	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	16.865	0	16.865	30	Pass
NVNT	a	5785	Ant1	16.613	0	16.613	30	Pass
NVNT	a	5825	Ant1	16.831	0	16.831	30	Pass
NVNT	n20	5745	Ant1	15.479	0	15.479	30	Pass
NVNT	n20	5785	Ant1	15.688	0	15.688	30	Pass
NVNT	n20	5825	Ant1	15.672	0	15.672	30	Pass
NVNT	n40	5755	Ant1	15.358	0	15.358	30	Pass
NVNT	n40	5795	Ant1	15.455	0	15.455	30	Pass

4.5 Power Spectral Density

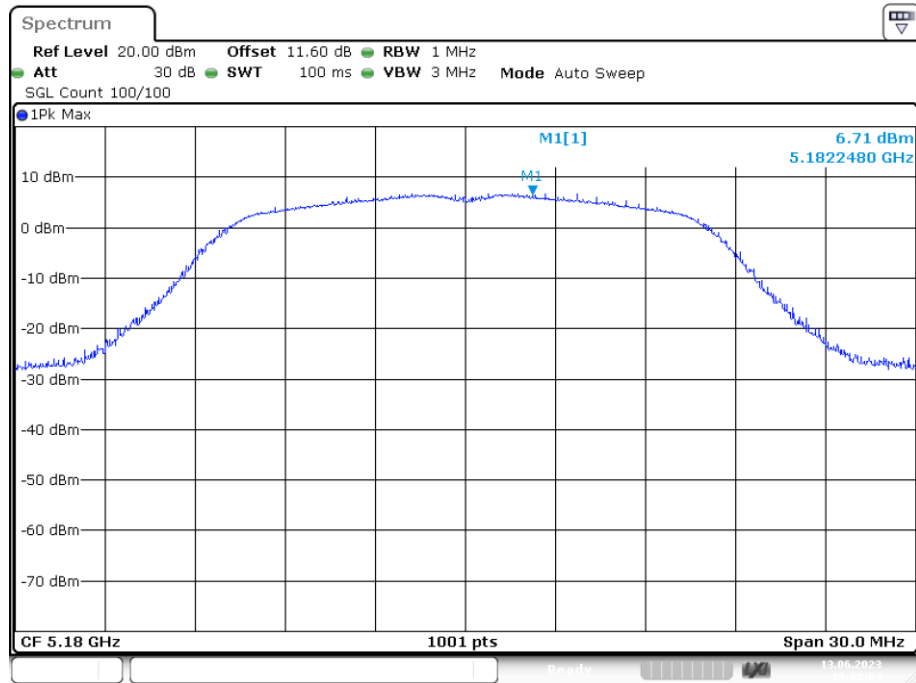
Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02r01
Limit:	$\leq 11.00\text{dBm/MHz}$ for 5150MHz-5250MHz, 5250-5350MHz and 5470-5725 MHz $\leq 30.00\text{dBm/500KHz}$ for 5725MHz-5850MHz
Test setup:	 The diagram illustrates the test 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 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)

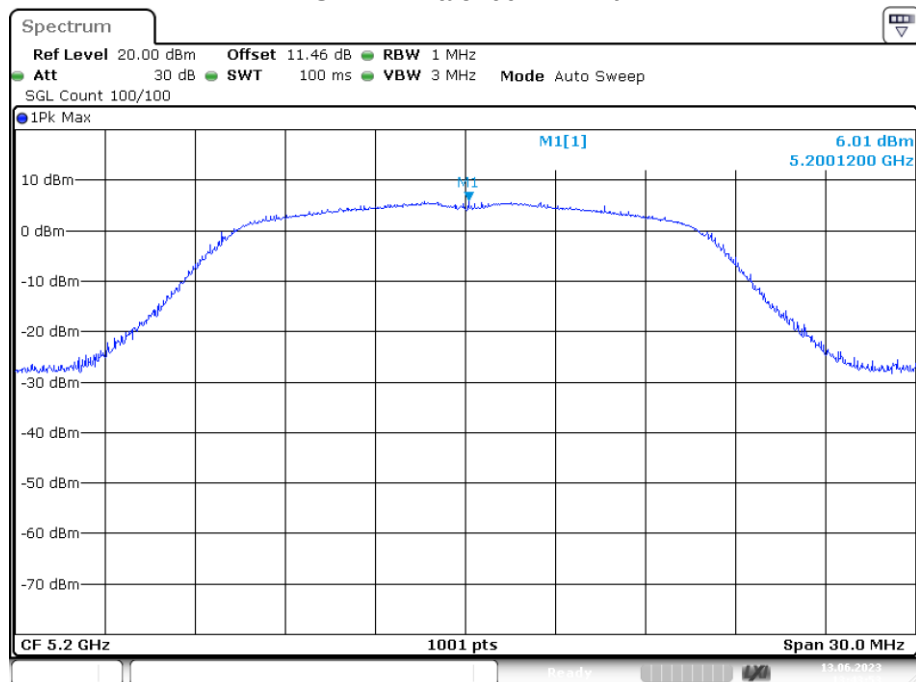
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5180	Ant1	6.706	11	Pass
NVNT	a	5200	Ant1	6.005	11	Pass
NVNT	a	5240	Ant1	6.5	11	Pass
NVNT	n20	5180	Ant1	5.842	11	Pass
NVNT	n20	5200	Ant1	5.455	11	Pass
NVNT	n20	5240	Ant1	5.402	11	Pass
NVNT	n40	5190	Ant1	3.356	11	Pass
NVNT	n40	5230	Ant1	3.487	11	Pass

PSD NVNT a 5180MHz Ant1



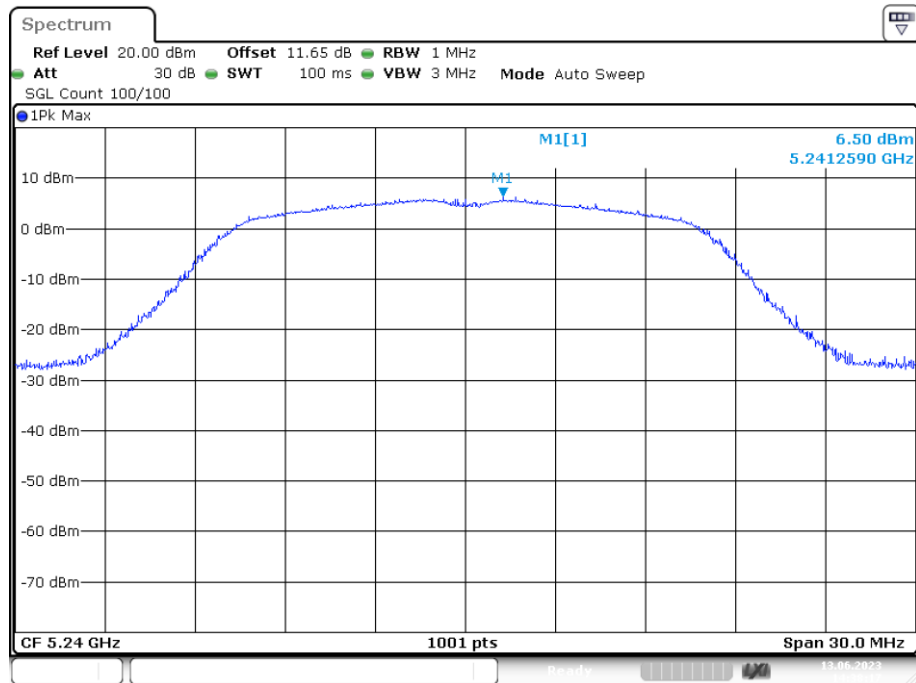
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PSD NVNT a 5200MHz Ant1



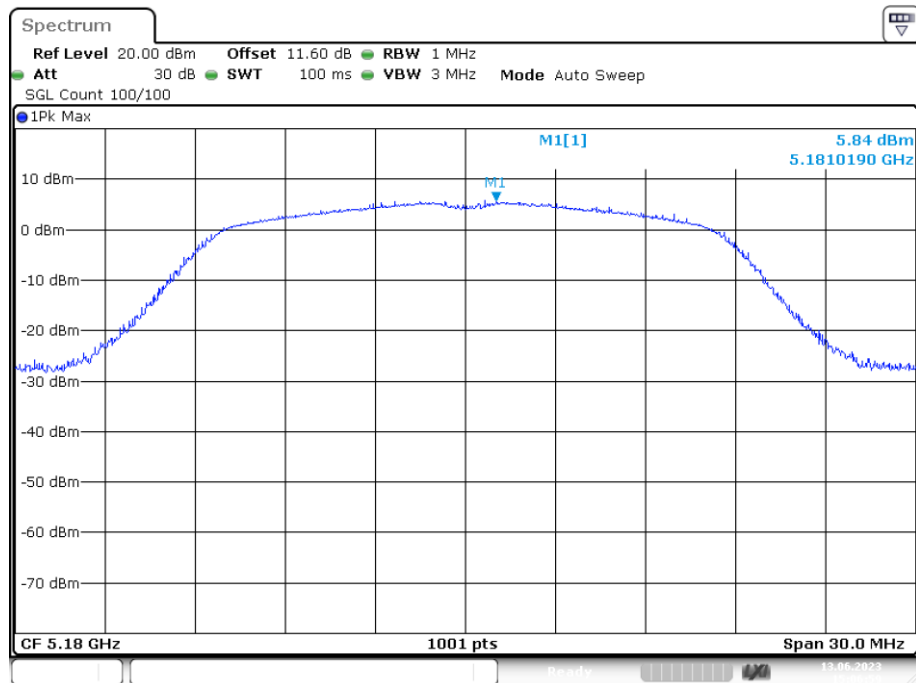
Date: 13.JUN.2023 13:43:53

PSD NVNT a 5240MHz Ant1



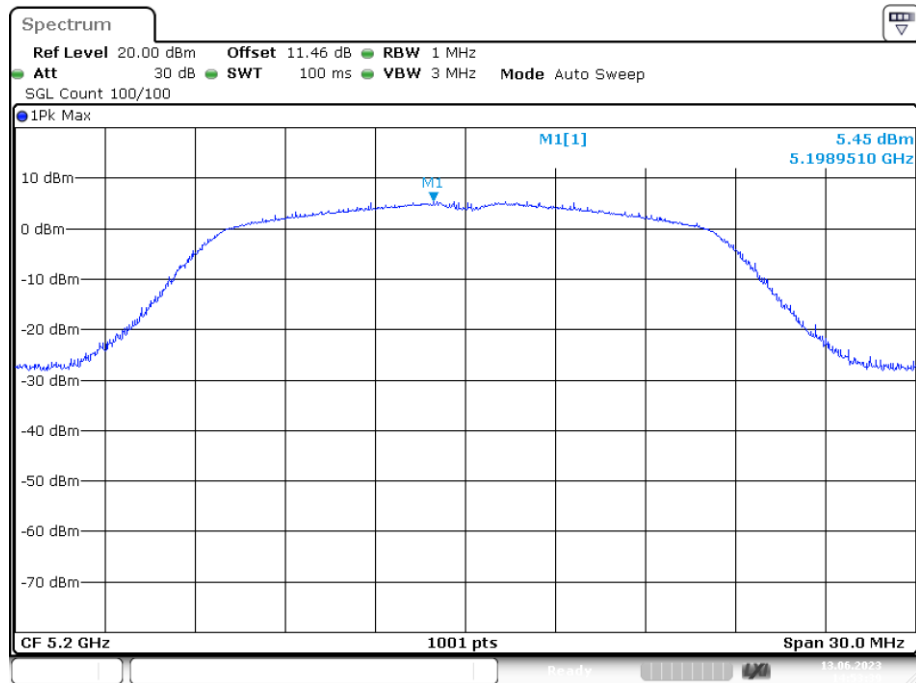
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PSD NVNT n20 5180MHz Ant1



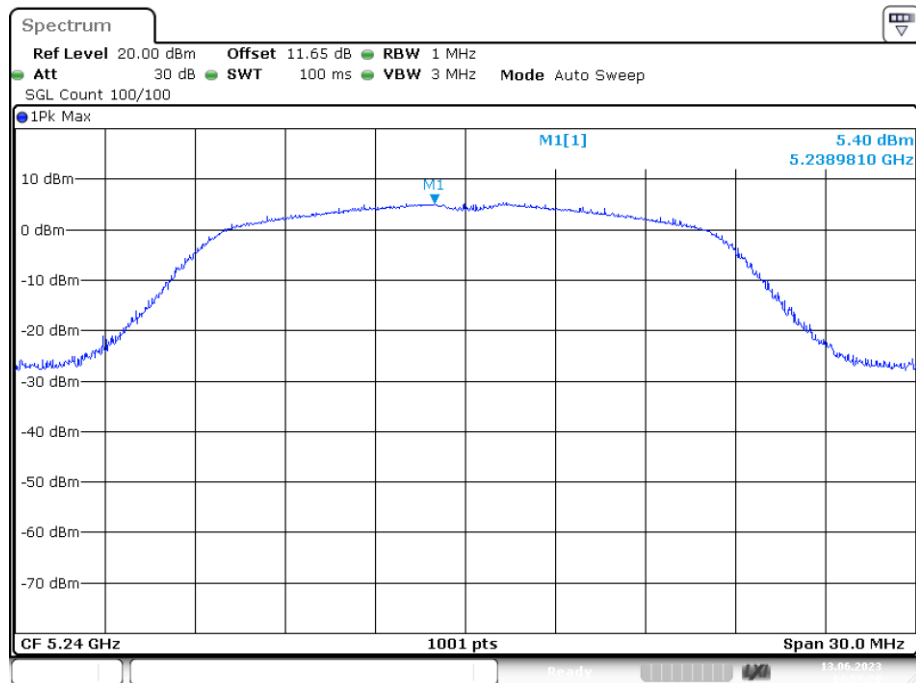
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PSD NVNT n20 5200MHz Ant1



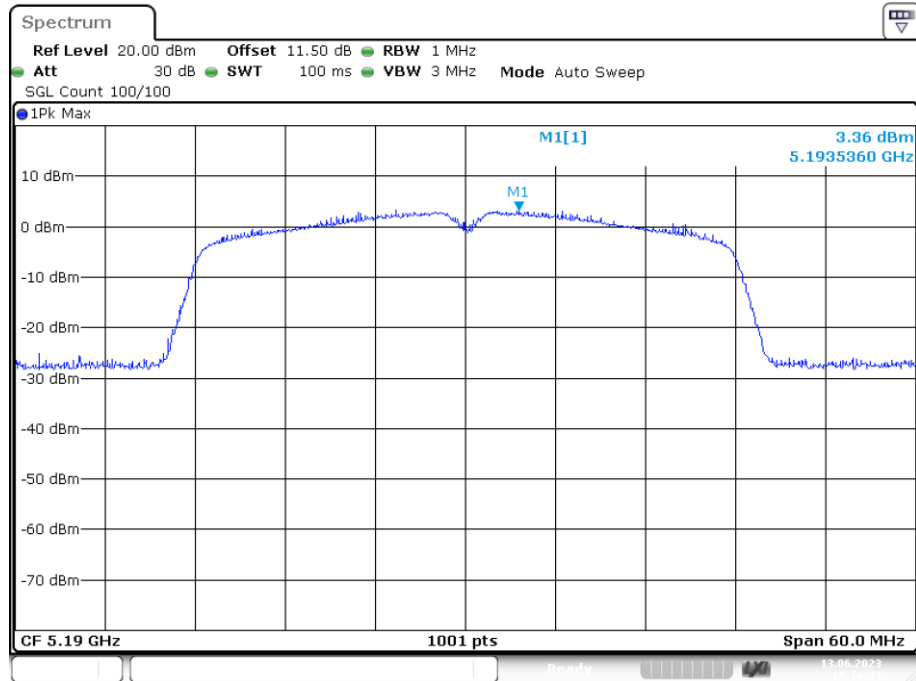
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PSD NVNT n20 5240MHz Ant1



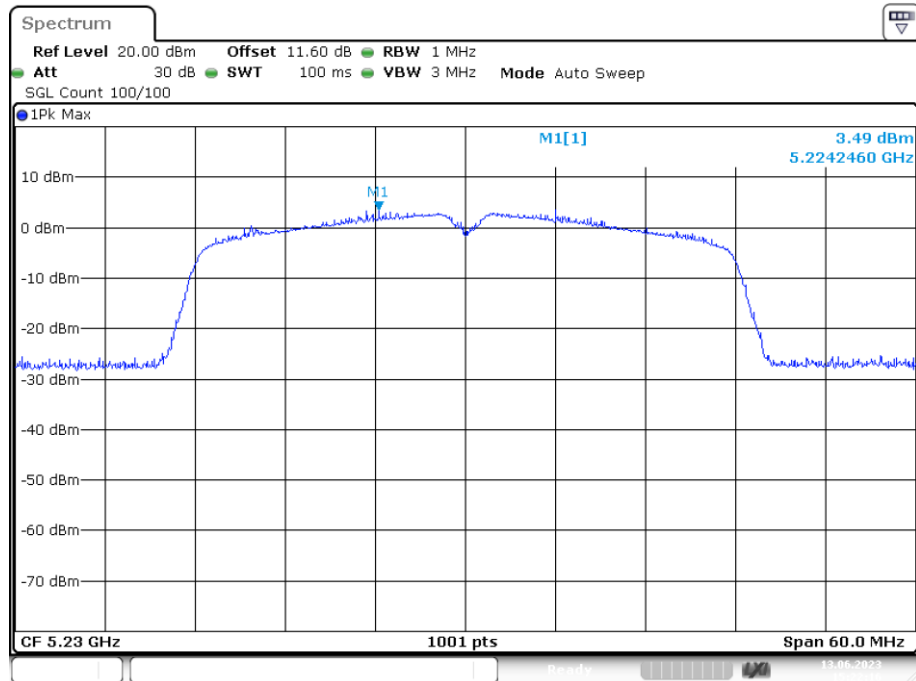
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PSD NVNT n40 5190MHz Ant1



Date: 13.JUN.2023 15:16:22

PSD NVNT n40 5230MHz Ant1

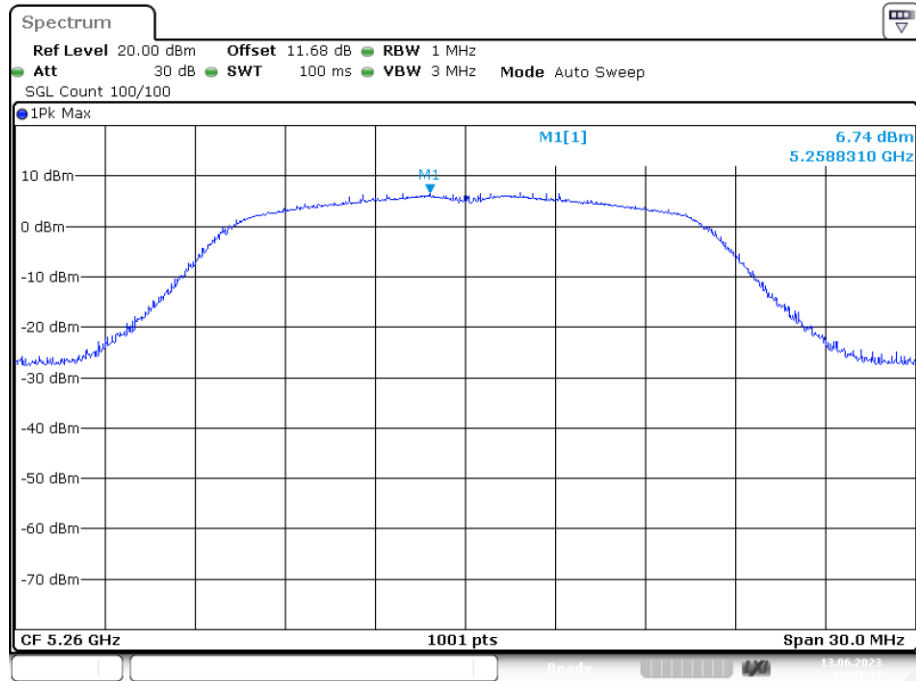


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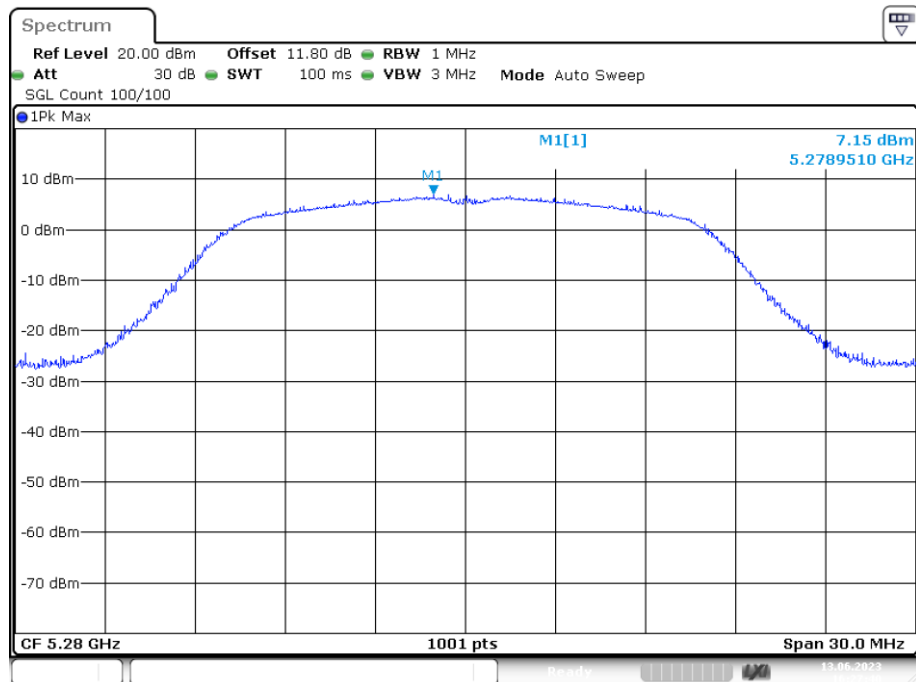
Band 2 (5250-5350 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5260	Ant1	6.737	11	Pass
NVNT	a	5280	Ant1	7.151	11	Pass
NVNT	a	5320	Ant1	7.027	11	Pass
NVNT	n20	5260	Ant1	5.962	11	Pass
NVNT	n20	5280	Ant1	5.978	11	Pass
NVNT	n20	5320	Ant1	6.313	11	Pass
NVNT	n40	5270	Ant1	2.208	11	Pass
NVNT	n40	5310	Ant1	2.831	11	Pass

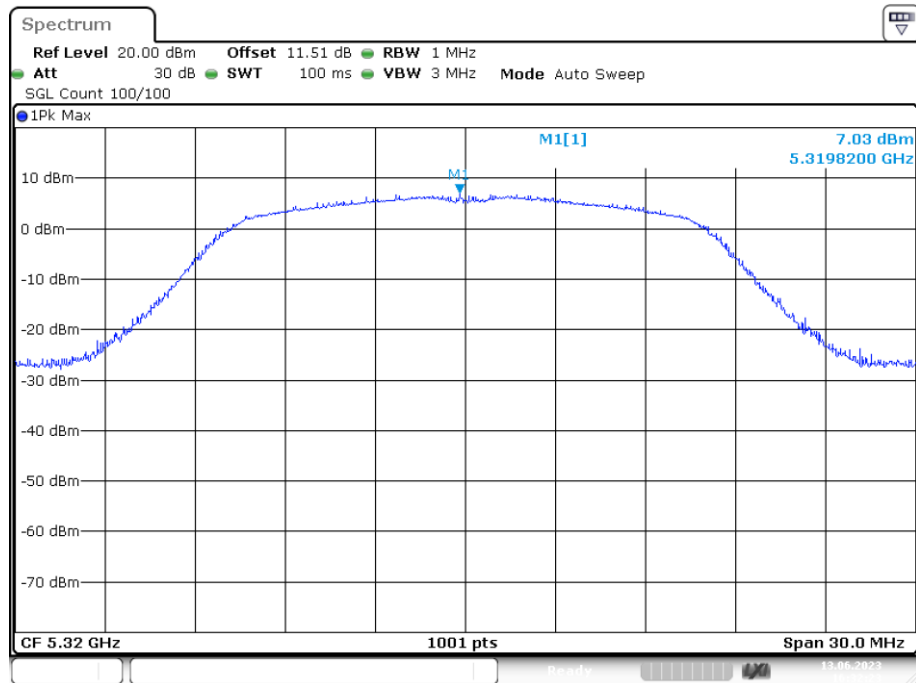
PSD NVNT a 5260MHz Ant1



PSD NVNT a 5280MHz Ant1

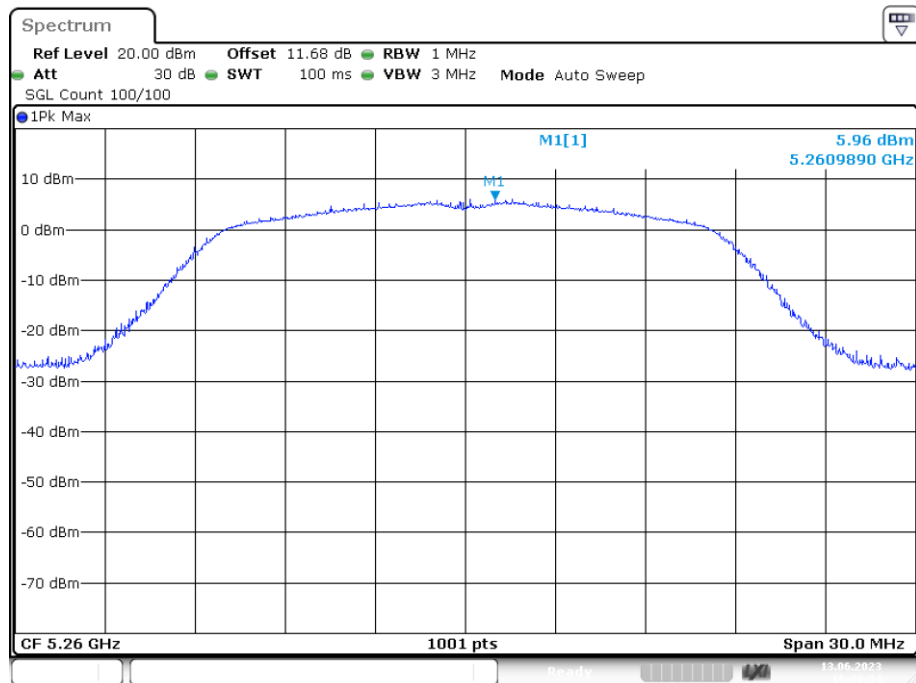


PSD NVNT a 5320MHz Ant1



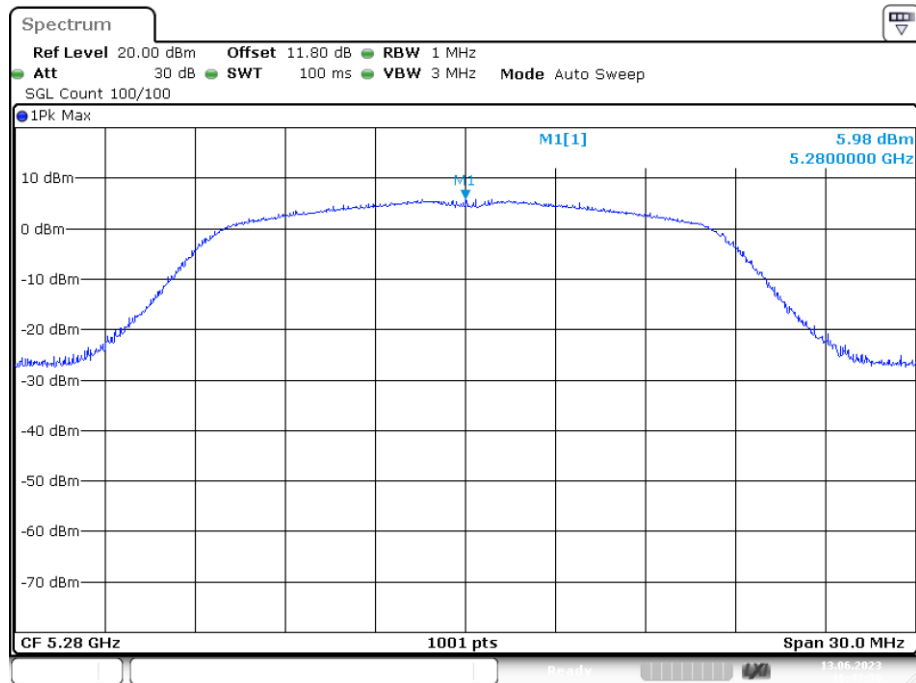
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PSD NVNT n20 5260MHz Ant1



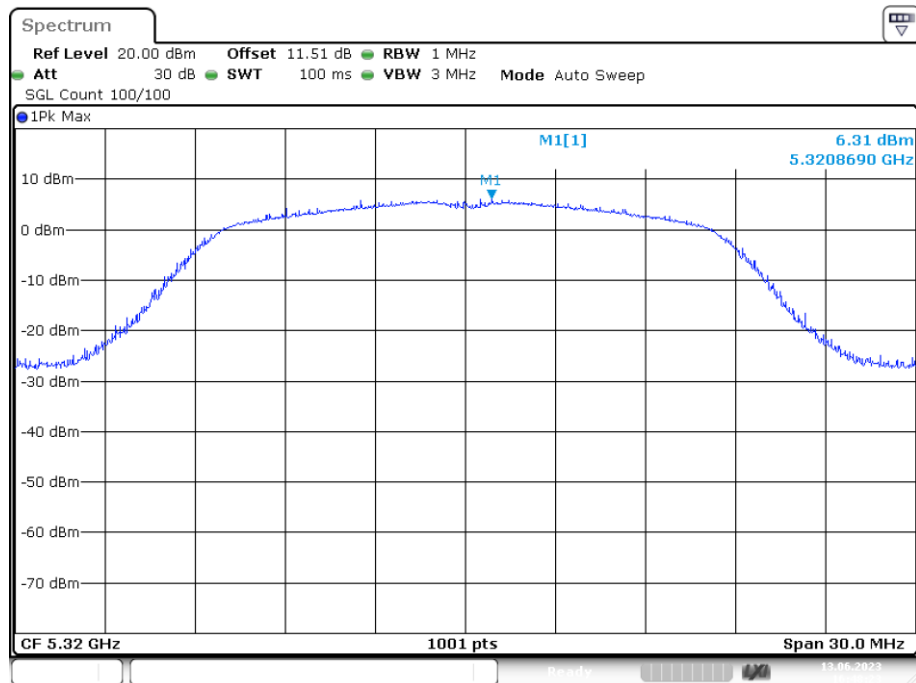
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PSD NVNT n20 5280MHz Ant1



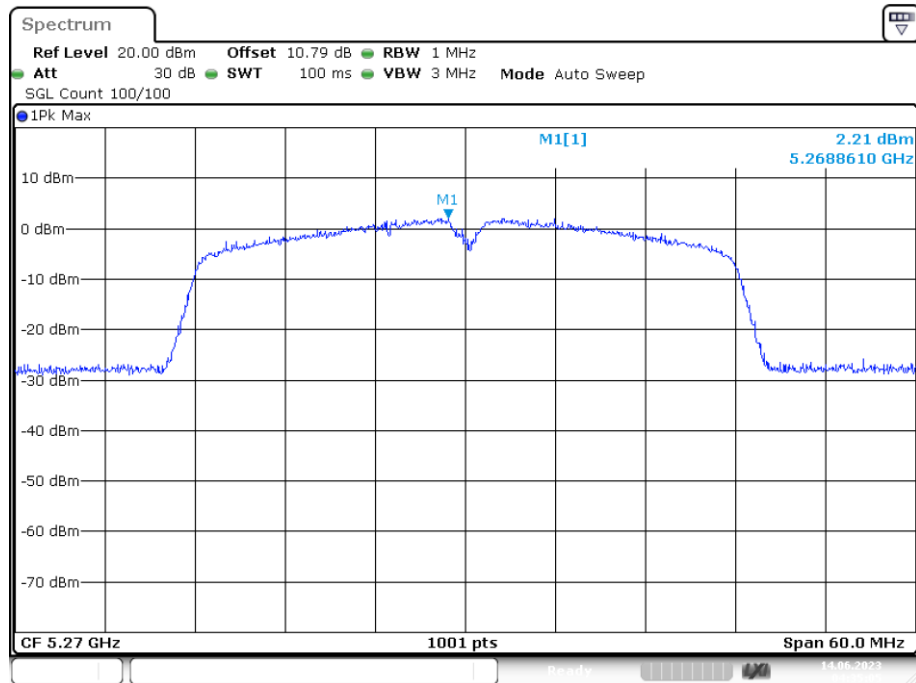
Date: 13.JUN.2023 16:43:30

PSD NVNT n20 5320MHz Ant1



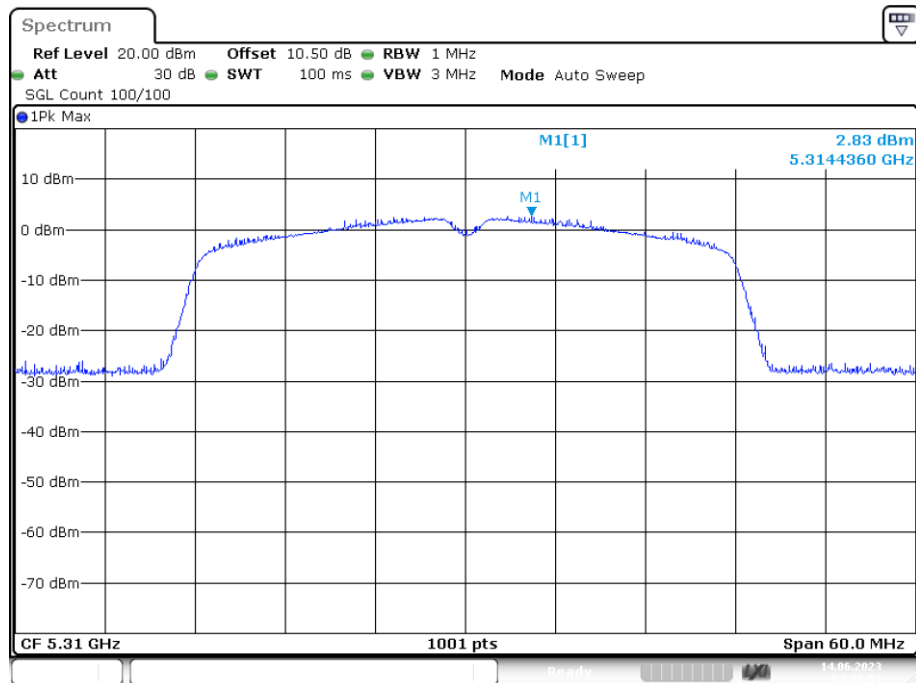
Date: 13.JUN.2023 16:48:23

PSD NVNT n40 5270MHz Ant1



Date: 14.JUN.2023 04:35:05

PSD NVNT n40 5310MHz Ant1

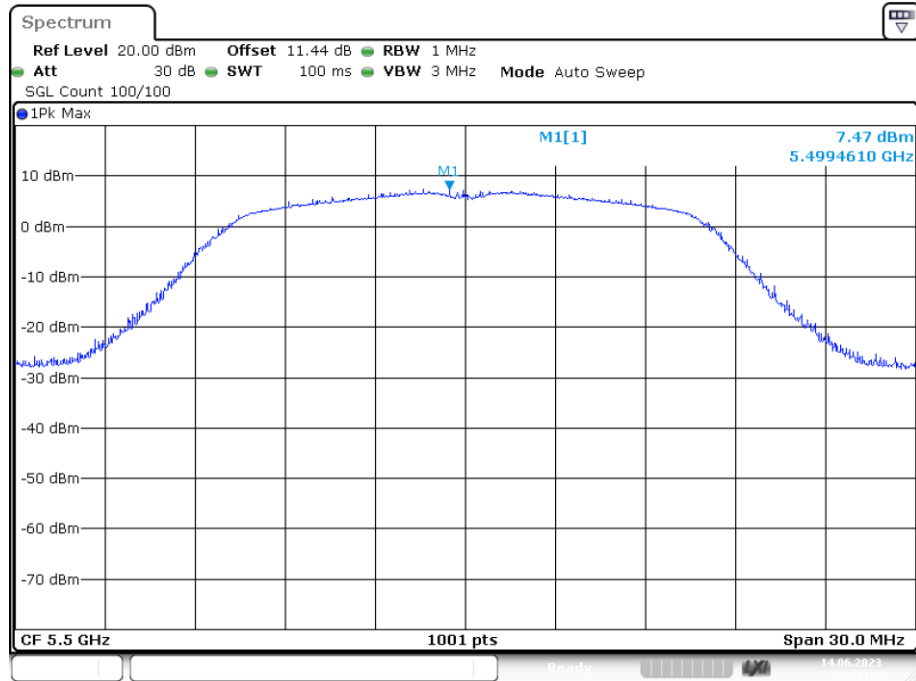


Date: 14.JUN.2023 04:41:52

Band 3 (5740 -5725 MHz)

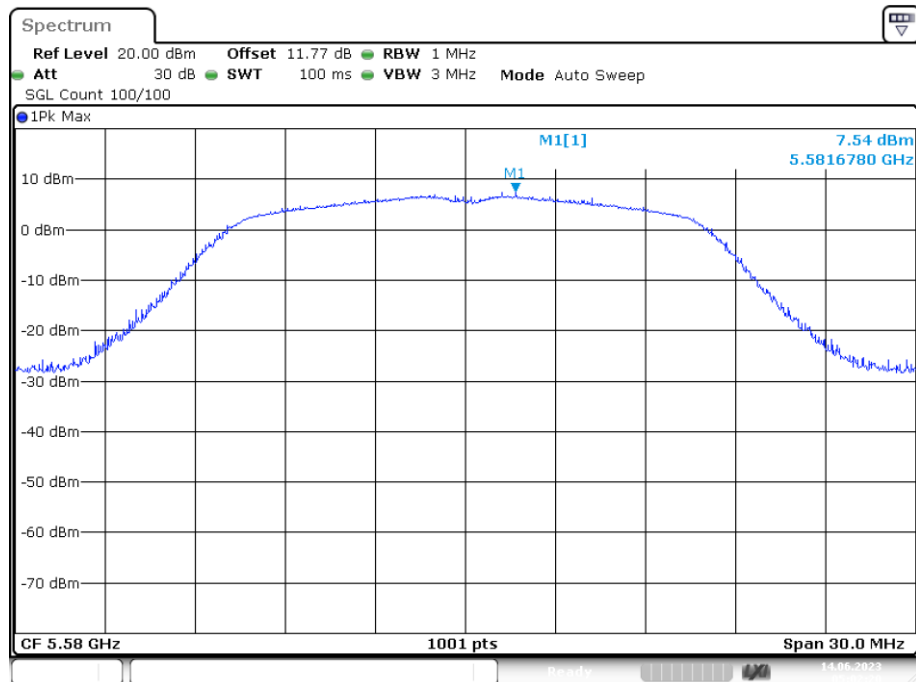
Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5500	Ant1	7.469	11	Pass
NVNT	a	5580	Ant1	7.538	11	Pass
NVNT	a	5700	Ant1	6.863	11	Pass
NVNT	n20	5500	Ant1	6.381	11	Pass
NVNT	n20	5580	Ant1	6.186	11	Pass
NVNT	n20	5700	Ant1	5.71	11	Pass
NVNT	n40	5510	Ant1	3.406	11	Pass
NVNT	n40	5670	Ant1	2.769	11	Pass

PSD NVNT a 5500MHz Ant1



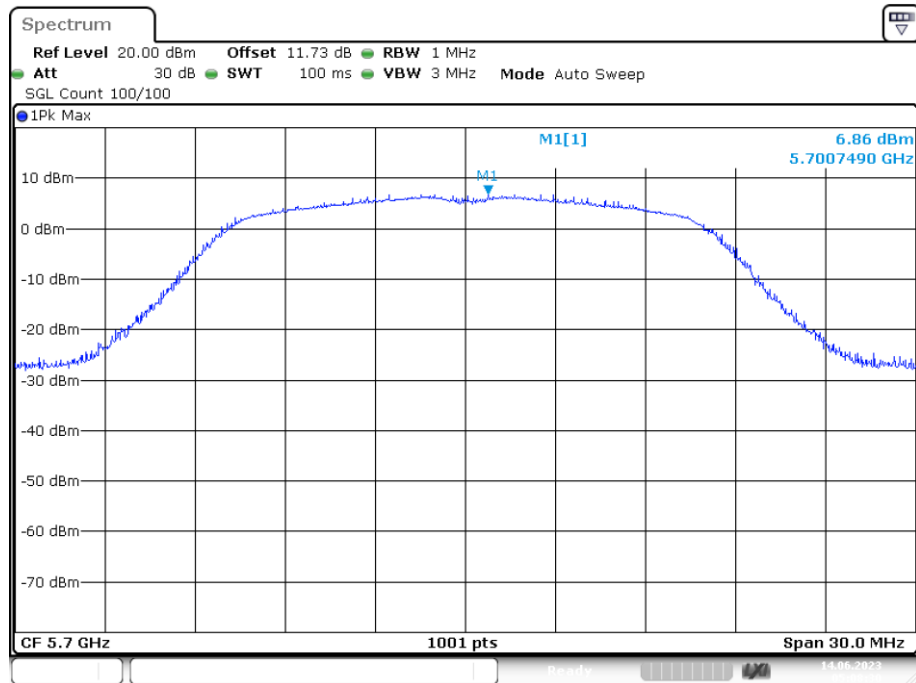
Date: 14.JUN.2023 04:51:10

PSD NVNT a 5580MHz Ant1



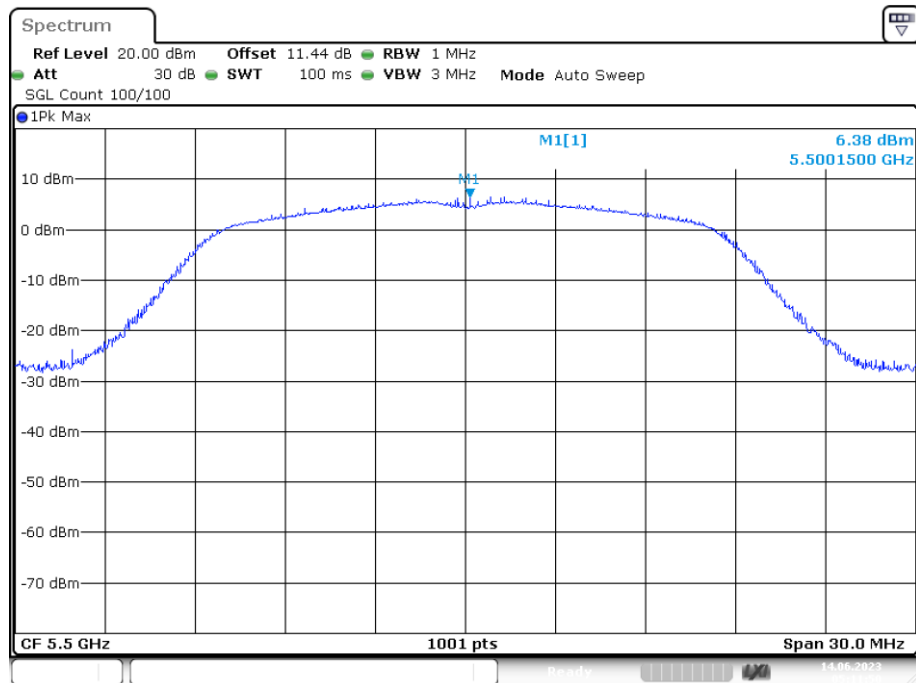
Date: 14.JUN.2023 05:02:20

PSD NVNT a 5700MHz Ant1



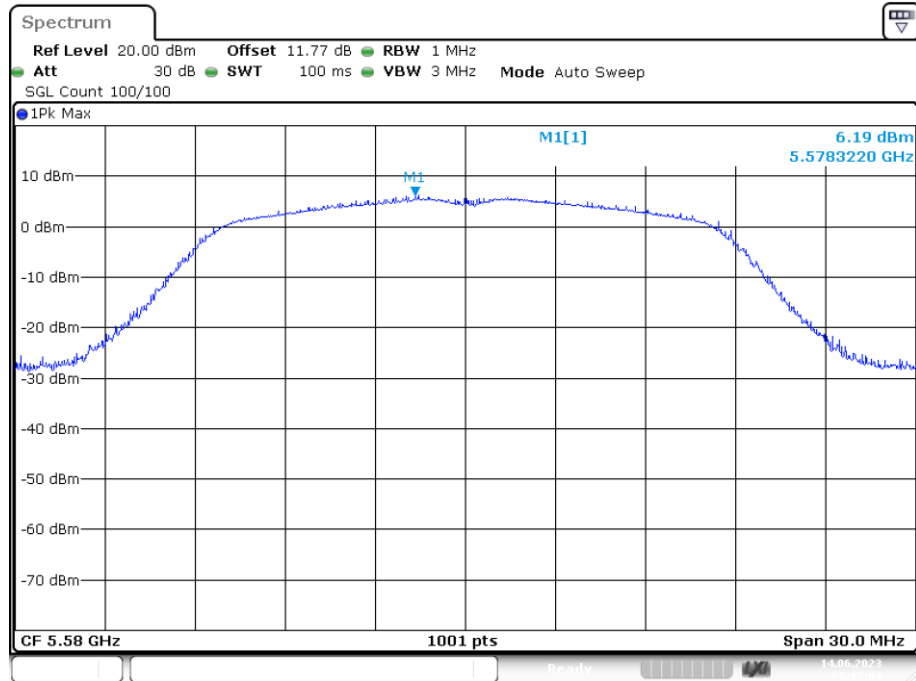
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PSD NVNT n20 5500MHz Ant1



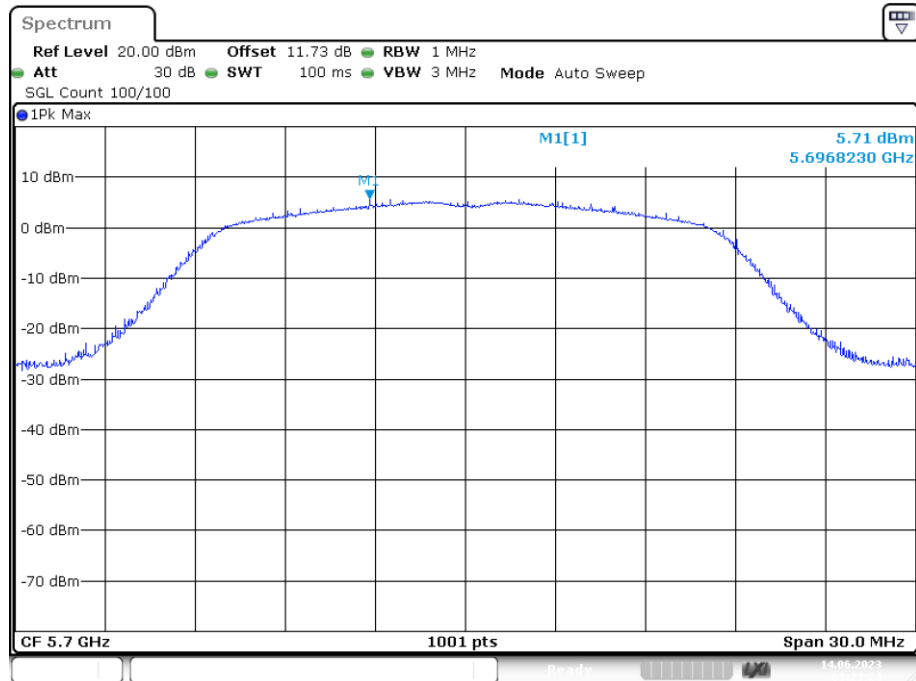
Date: 14.JUN.2023 05:11:49

PSD NVNT n20 5580MHz Ant1



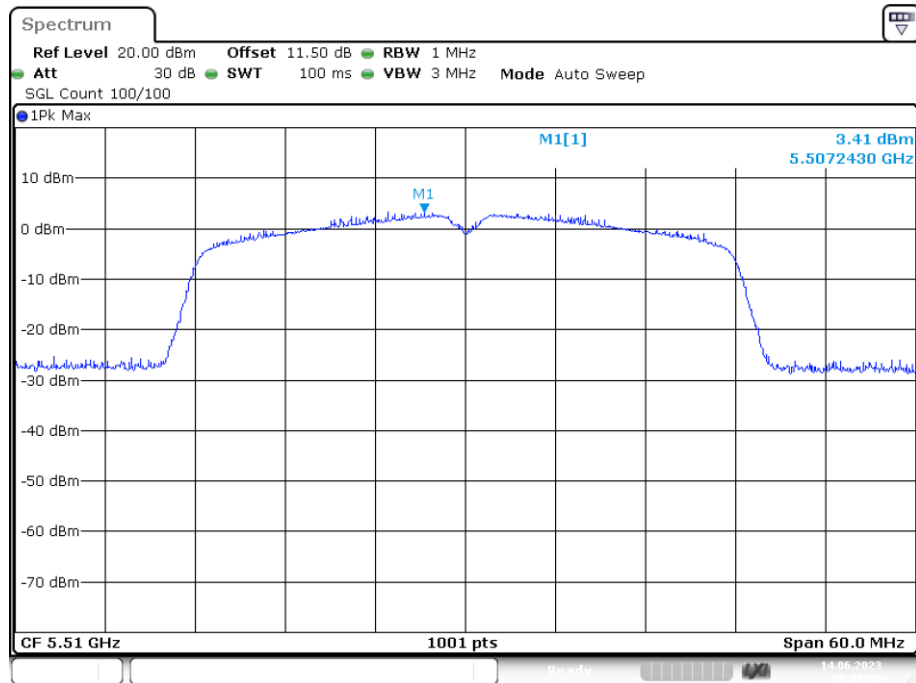
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PSD NVNT n20 5700MHz Ant1

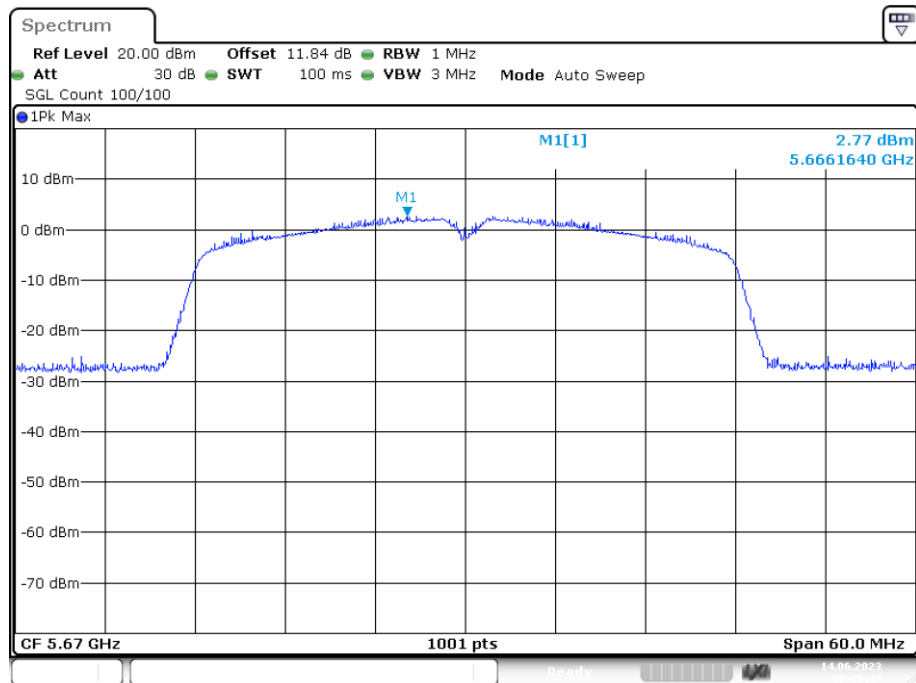


Date: 14.JUN.2023 05:23:23

PSD NVNT n40 5510MHz Ant1



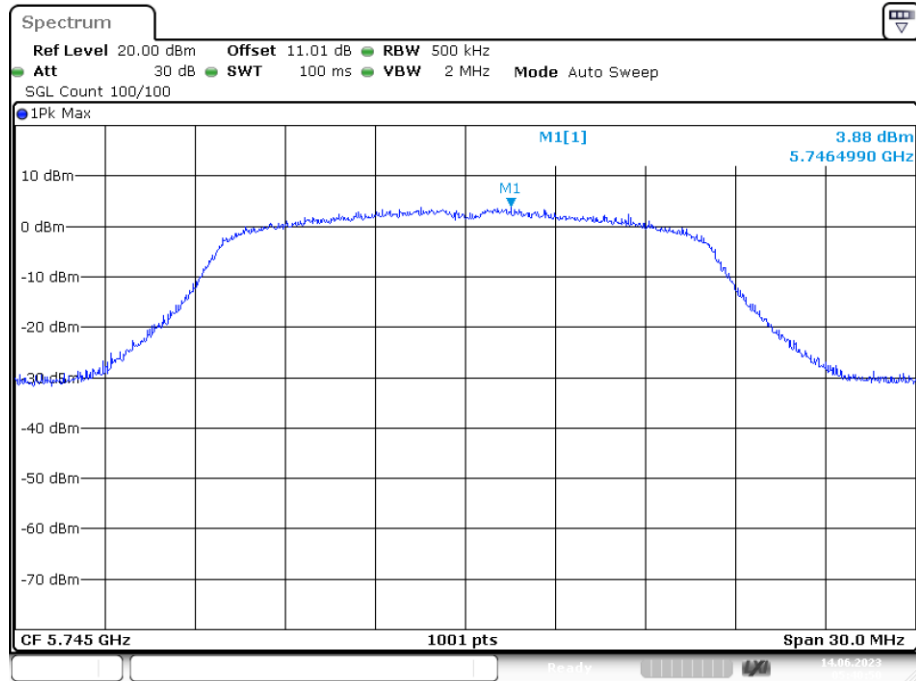
PSD NVNT n40 5670MHz Ant1



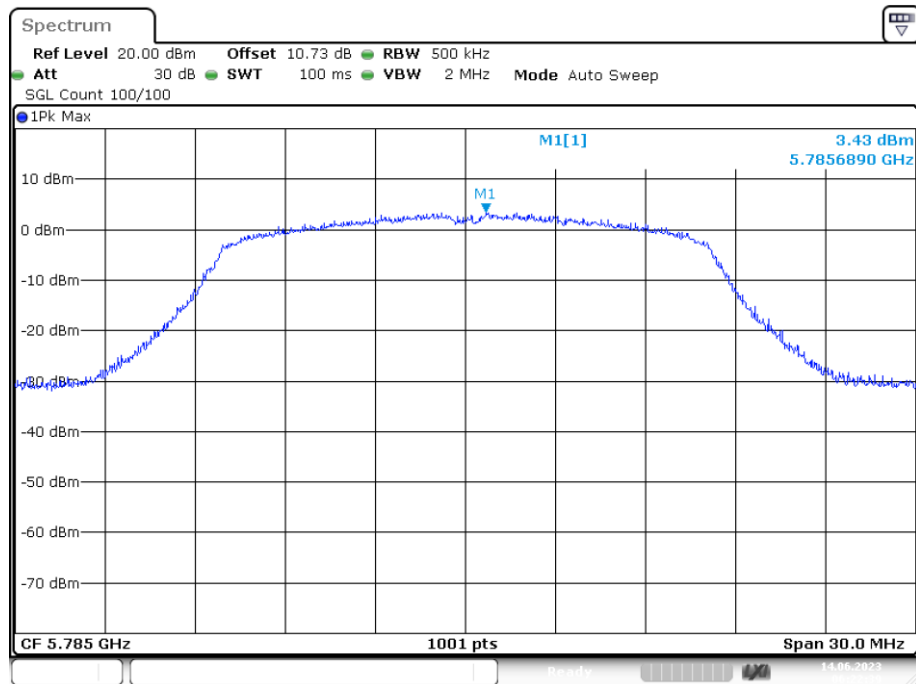
Band 4 (5725 – 5850 MHz)

Condition	Mode	Frequency (MHz)	Antenna	Max PSD (dBm)	Limit (dBm)	Verdict
NVNT	a	5745	Ant1	3.88	30	Pass
NVNT	a	5785	Ant1	3.427	30	Pass
NVNT	a	5825	Ant1	3.47	30	Pass
NVNT	n20	5745	Ant1	2.557	30	Pass
NVNT	n20	5785	Ant1	2.615	30	Pass
NVNT	n20	5825	Ant1	2.29	30	Pass
NVNT	n40	5755	Ant1	-0.682	30	Pass
NVNT	n40	5795	Ant1	-0.258	30	Pass

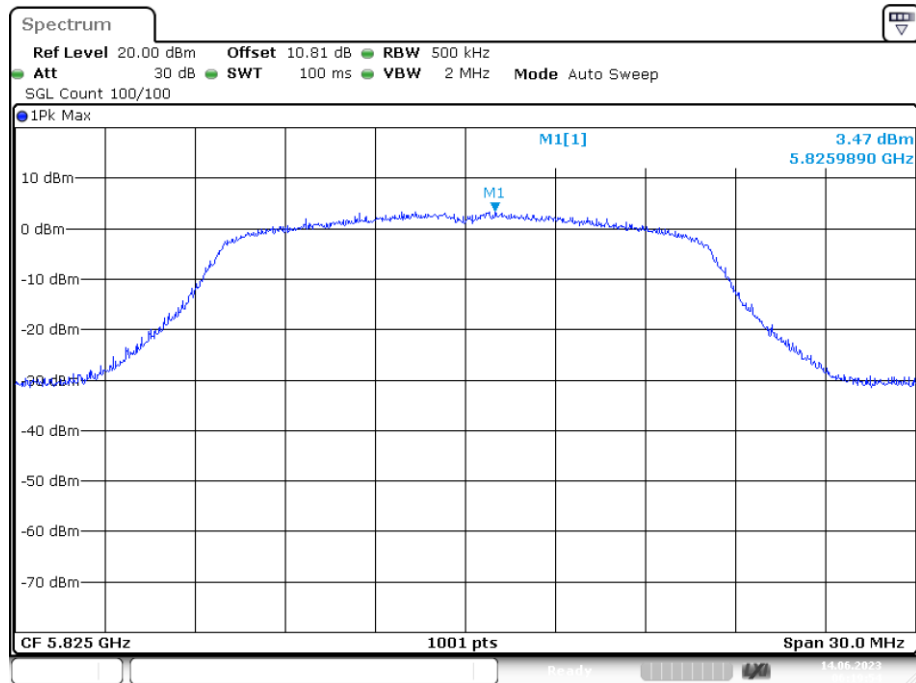
PSD NVNT a 5745MHz Ant1



PSD NVNT a 5785MHz Ant1

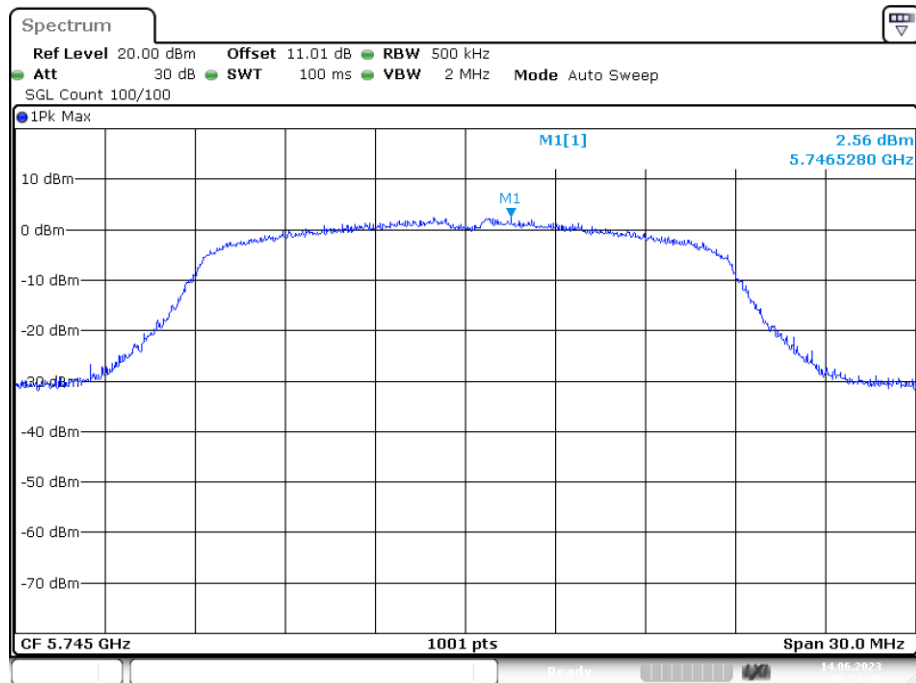


PSD NVNT a 5825MHz Ant1



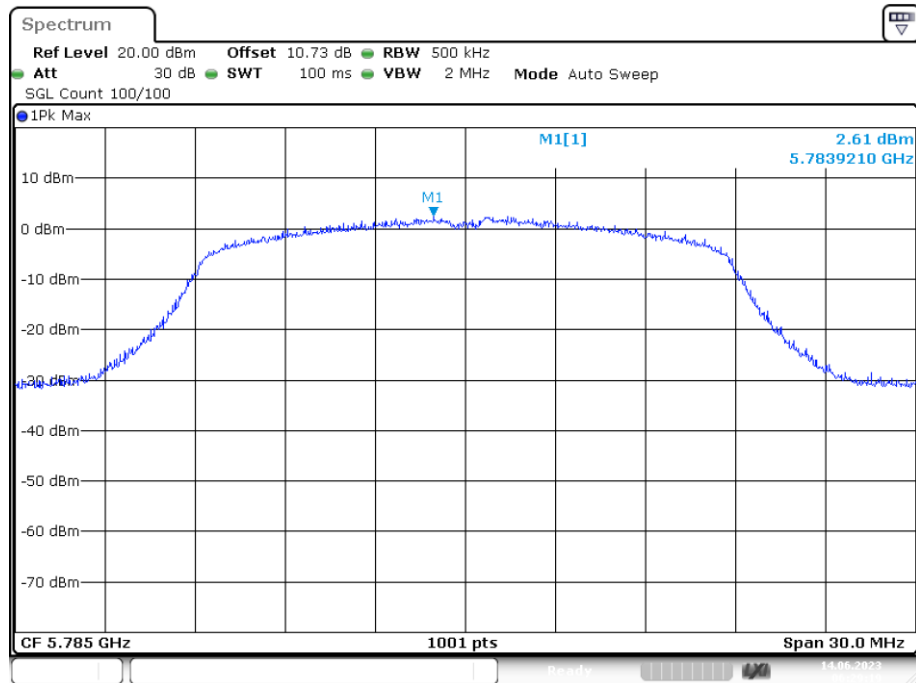
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PSD NVNT n20 5745MHz Ant1



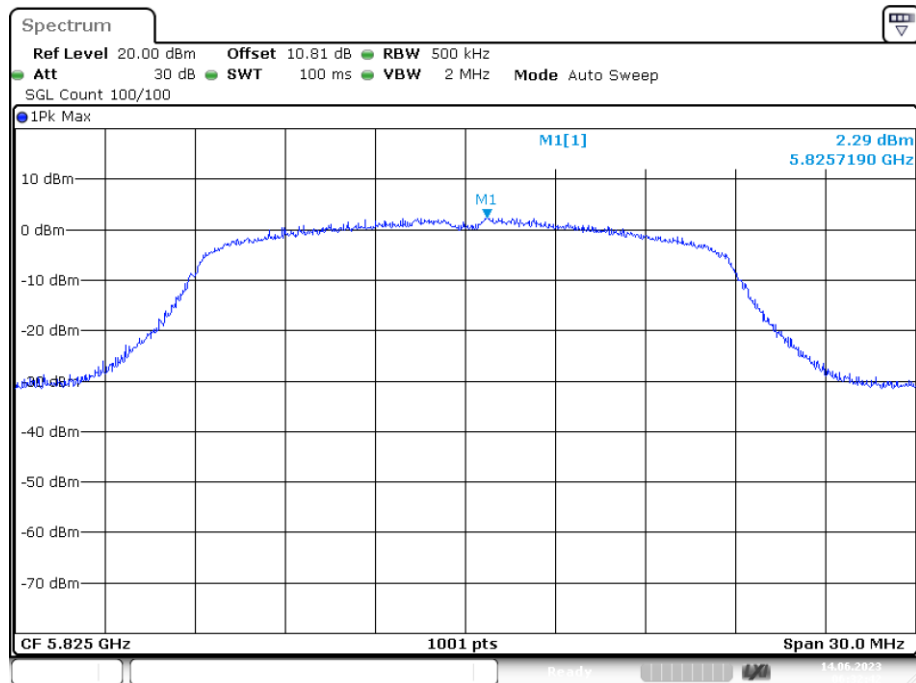
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PSD NVNT n20 5785MHz Ant1



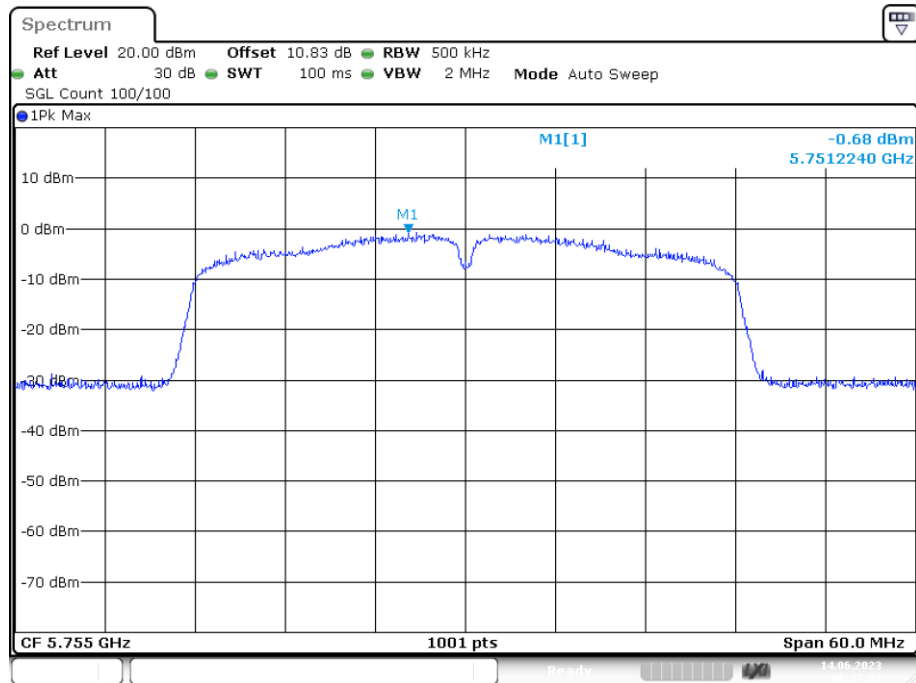
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PSD NVNT n20 5825MHz Ant1



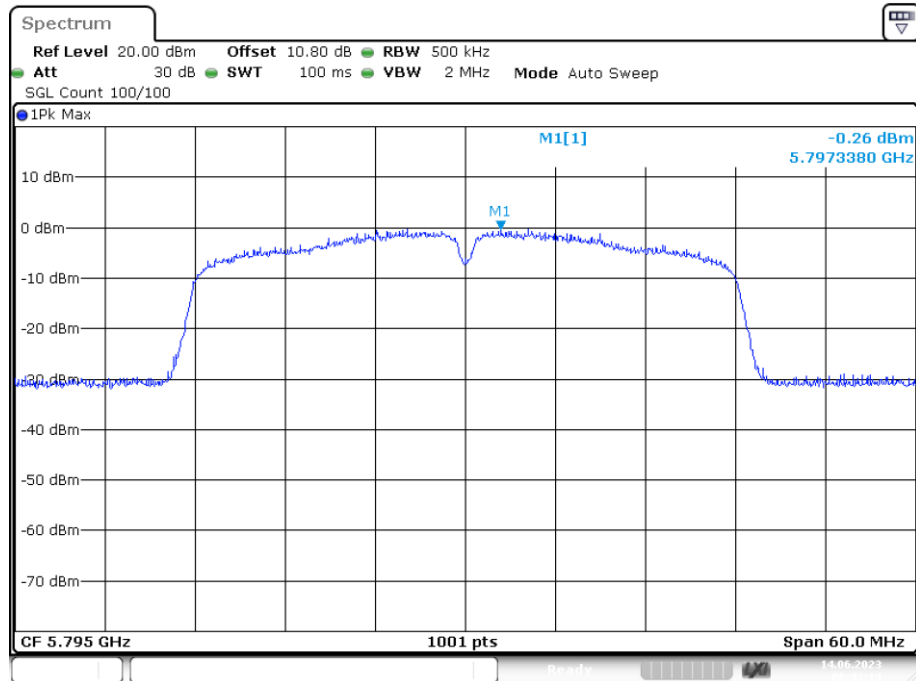
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PSD NVNT n40 5755MHz Ant1



Date: 14.JUN.2023 06:37:02

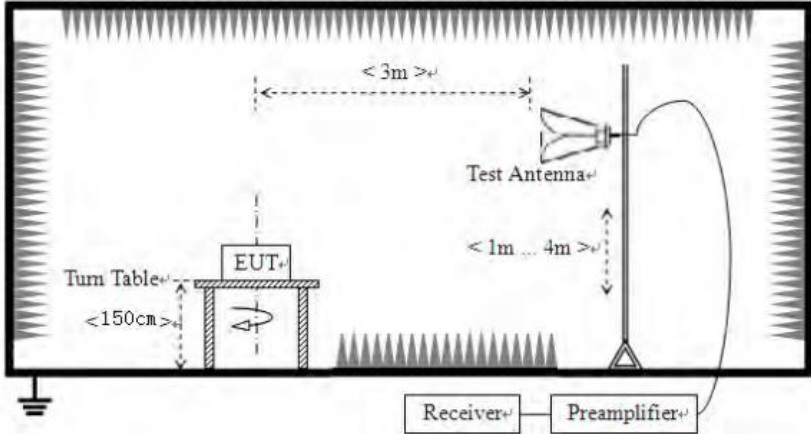
PSD NVNT n40 5795MHz Ant1



Date: 14.JUN.2023 06:43:13

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:	<table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></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>					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	
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:	<table><tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></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.					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
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																							
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 EIRP = -27dBm

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

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	36.43	17.18	53.61	68.20	-14.59	PK
V	5150.00	36.26	17.18	53.44	68.20	-14.76	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	28.21	17.18	45.39	54.00	-8.61	AV
V	5150.00	26.22	17.18	43.40	54.00	-10.60	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	36.99	17.18	54.17	68.20	-14.03	PK
V	5350.00	33.58	17.18	50.76	68.20	-17.44	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	24.96	17.18	42.14	54.00	-11.86	AV
V	5350.00	24.68	17.18	41.86	54.00	-12.14	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	36.69	17.18	53.87	68.20	-14.33	PK
V	5150.00	35.56	17.18	52.74	68.20	-15.46	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	26.54	17.18	43.72	54.00	-10.28	AV
V	5150.00	23.88	17.18	41.06	54.00	-12.94	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	35.91	17.18	53.09	68.20	-15.11	PK
V	5350.00	34.07	17.18	51.25	68.20	-16.95	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	27.62	17.18	44.80	54.00	-9.20	AV
V	5350.00	23.98	17.18	41.16	54.00	-12.84	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	35.51	17.18	52.69	68.20	-15.51	PK
V	5150.00	34.84	17.18	52.02	68.20	-16.18	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	25.77	17.18	42.95	54.00	-11.05	AV
V	5150.00	24.65	17.18	41.83	54.00	-12.17	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	36.21	17.18	53.39	68.20	-14.81	PK
V	5350.00	32.77	17.18	49.95	68.20	-18.25	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	24.74	17.18	41.92	54.00	-12.08	AV
V	5350.00	24.78	17.18	41.96	54.00	-12.04	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	35.62	17.19	52.81	68.20	-15.39	PK
V	5150.00	33.89	17.19	51.08	68.20	-17.12	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	25.10	17.19	42.29	54.00	-11.71	AV
V	5150.00	26.91	17.19	44.10	54.00	-9.90	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	35.53	17.19	52.72	68.20	-15.48	PK
V	5350.00	36.76	17.19	53.95	68.20	-14.25	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	28.25	17.19	45.44	54.00	-8.56	AV
V	5350.00	24.87	17.19	42.06	54.00	-11.94	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	35.67	17.19	52.86	68.20	-15.34	PK
V	5150.00	34.54	17.19	51.73	68.20	-16.47	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	24.76	17.19	41.95	54.00	-12.05	AV
V	5150.00	26.41	17.19	43.60	54.00	-10.40	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	35.24	17.19	52.43	68.20	-15.77	PK
V	5350.00	35.79	17.19	52.98	68.20	-15.22	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	25.82	17.19	43.01	54.00	-10.99	AV
V	5350.00	26.34	17.19	43.53	54.00	-10.47	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	35.72	17.19	52.91	68.20	-15.29	PK
V	5150.00	34.96	17.19	52.15	68.20	-16.05	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	27.40	17.19	44.59	54.00	-9.41	AV
V	5150.00	23.62	17.19	40.81	54.00	-13.19	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	35.55	17.19	52.74	68.20	-15.46	PK
V	5350.00	36.04	17.19	53.23	68.20	-14.97	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	27.05	17.19	44.24	54.00	-9.76	AV
V	5350.00	23.97	17.19	41.16	54.00	-12.84	AV

Band3

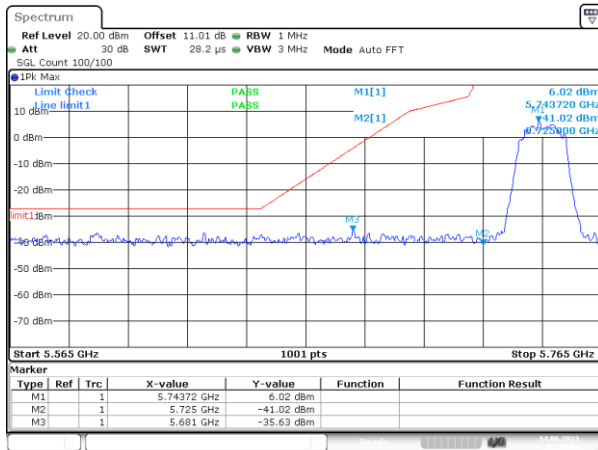
Mode:		802.11a		Frequency:		5500MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5470.00	37.93	17.21	55.14	68.20	-13.06	PK
V	5470.00	35.51	17.21	52.72	68.20	-15.48	PK
Mode:		802.11a		Frequency:		5500MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5470.00	28.77	17.21	45.98	54.00	-8.02	AV
V	5470.00	25.41	17.21	42.62	54.00	-11.38	AV
Mode:		802.11a		Frequency:		5700MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5725.00	36.91	17.21	54.12	68.20	-14.08	PK
V	5725.00	34.63	17.21	51.84	68.20	-16.36	PK
Mode:		802.11a		Frequency:		5700MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5725.00	27.27	17.21	44.48	54.00	-9.52	AV
V	5725.00	24.74	17.21	41.95	54.00	-12.05	AV

Mode:		802.11n(HT20)		Frequency:		5500MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5470.00	37.96	17.21	55.17	68.20	-13.03	PK
V	5470.00	38.08	17.21	55.29	68.20	-12.91	PK
Mode:		802.11n(HT20)		Frequency:		5500MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5470.00	24.98	17.21	42.19	54.00	-11.81	AV
V	5470.00	27.14	17.21	44.35	54.00	-9.65	AV
Mode:		802.11n(HT20)		Frequency:		5700MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5725.00	36.34	17.21	53.55	68.20	-14.65	PK
V	5725.00	34.50	17.21	51.71	68.20	-16.49	PK
Mode:		802.11n(HT20)		Frequency:		5700MHz	
Antenna Pol.	Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector
H	5725.00	26.16	17.21	43.37	54.00	-10.63	AV
V	5725.00	27.83	17.21	45.04	54.00	-8.96	AV

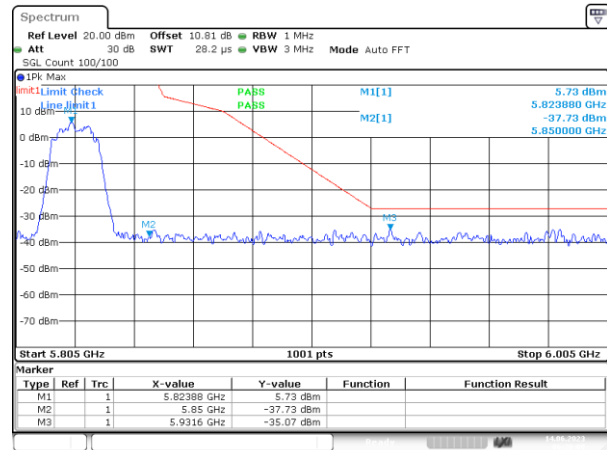
Mode:		802.11n(HT40)		Frequency:		5510MHz	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Over limit(dB)	Detector
		(dBuV)	(dB/m)	(dBuV/m)			
H	5470.00	38.31	17.21	55.52	68.20	-12.68	PK
V	5470.00	35.81	17.21	53.02	68.20	-15.18	PK
Mode:		802.11n(HT40)		Frequency:		5510MHz	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Over limit(dB)	Detector
		(dBuV)	(dB/m)	(dBuV/m)			
H	5470.00	27.36	17.21	44.57	54.00	-9.43	AV
V	5470.00	27.94	17.21	45.15	54.00	-8.85	AV
Mode:		802.11n(HT40)		Frequency:		5670MHz	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Over limit(dB)	Detector
		(dBuV)	(dB/m)	(dBuV/m)			
H	5725.00	39.42	17.21	56.63	68.20	-11.57	PK
V	5725.00	37.28	17.21	54.49	68.20	-13.71	PK
Mode:		802.11n(HT40)		Frequency:		5670MHz	
Antenna Pol.	Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Over limit(dB)	Detector
		(dBuV)	(dB/m)	(dBuV/m)			
H	5725.00	28.53	17.21	45.74	54.00	-8.26	AV
V	5725.00	25.87	17.21	43.08	54.00	-10.92	AV

Band4

802.11a

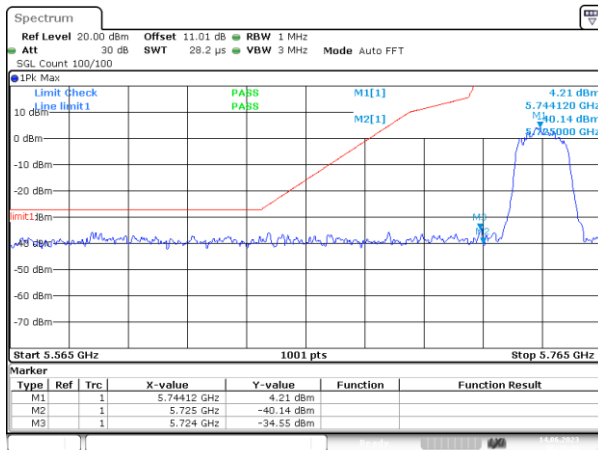


Low: 5745MHz

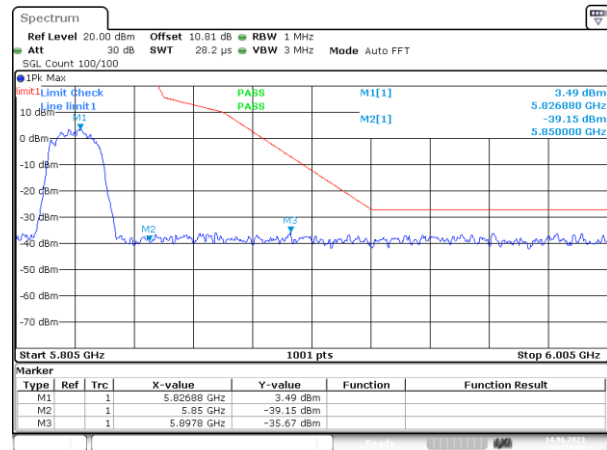


High: 5825MHz

802.11n(HT20)

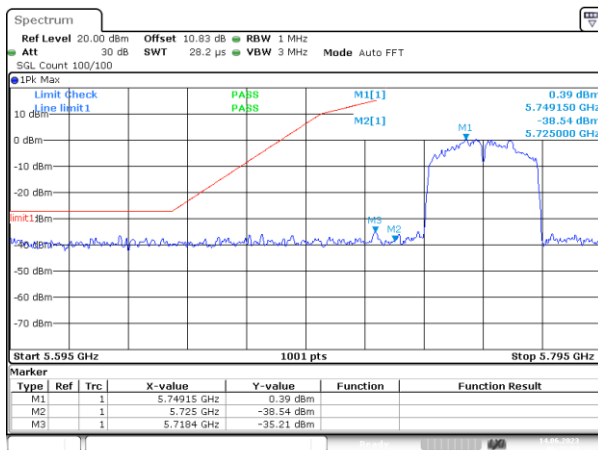


Low: 5745MHz

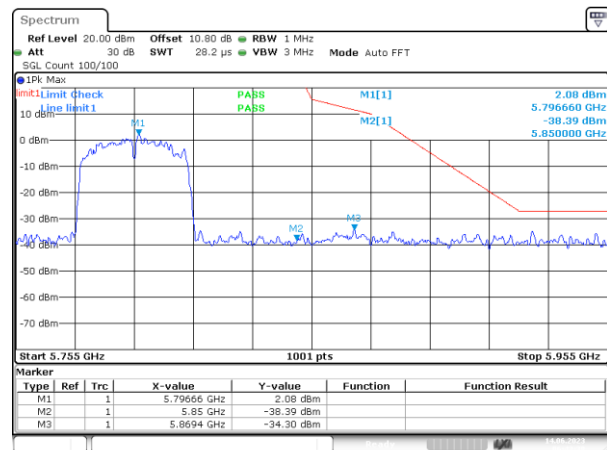


High: 5825MHz

802.11n(HT40)



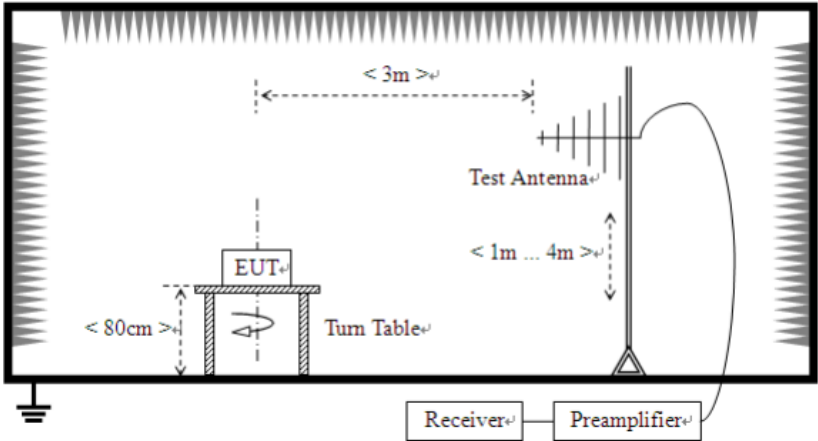
Low: 5755MHz

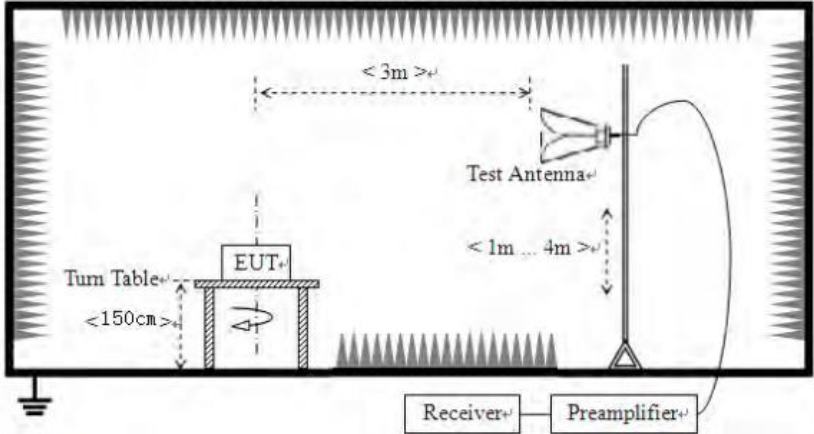


High: 5795MHz

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. - 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. - Repeat step 4 for test frequency with the test antenna polarized horizontally. - Remove the transmitter and replace it with a substitution antenna - 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. - Repeat step 7 with both antennas horizontally polarized for each test frequency. - 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
33.33	48.39	11.25	0.59	30.08	30.15	40	-9.85	Vertical
54.49	41.15	11.93	0.81	29.96	23.93	40	-16.07	Vertical
120.39	46.39	9.4	1.36	29.57	27.58	43.5	-15.92	Vertical
172.76	42.72	8.5	1.7	29.31	23.61	43.5	-19.89	Vertical
440.48	37.64	16.29	3.05	29.41	27.57	46	-18.43	Vertical
860.76	33.56	21.83	4.69	29.14	30.94	46	-15.06	Vertical
64.73	35.86	8.73	0.9	29.89	15.60	40	-24.40	Horizontal
100.30	33.72	11.73	1.19	29.7	16.94	43.5	-26.56	Horizontal
269.86	45.69	12.53	2.22	29.79	30.65	46	-15.35	Horizontal
351.13	36.44	14.5	2.62	29.73	23.83	46	-22.17	Horizontal
627.98	35.64	19.43	3.83	29.27	29.63	46	-16.37	Horizontal
955.68	41.33	22.54	5.06	29.1	39.83	46	-6.17	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
10360.07	50.79	11.25	14.62	32.65	44.01	74	-29.99	Vertical
15540.81	51.76	11.93	17.66	34.46	46.89	74	-27.11	Vertical
10360.90	52.96	9.4	14.62	32.65	44.33	74	-29.67	Horizontal
15540.73	53.30	8.5	17.66	34.46	45.00	74	-29.00	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
10360.33	50.87	16.29	14.62	32.65	49.13	74	-24.87	Vertical
15540.22	51.89	21.83	17.66	34.46	56.92	74	-17.08	Vertical
10360.19	52.85	8.73	14.62	32.65	43.55	74	-30.45	Horizontal
15540.17	53.07	11.73	17.66	34.46	48.00	74	-26.00	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
10360.38	50.76	11.25	14.62	32.65	43.98	74	-30.02	Vertical
15540.85	51.90	11.93	17.66	34.46	47.03	74	-26.97	Vertical
10360.78	52.03	9.4	14.62	32.65	43.40	74	-30.60	Horizontal
15540.10	53.39	8.5	17.66	34.46	45.09	74	-28.91	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
10360.93	50.52	16.29	14.62	32.65	48.78	74	-25.22	Vertical
15540.62	51.54	21.83	17.66	34.46	56.57	74	-17.43	Vertical
10360.93	52.14	8.73	14.62	32.65	42.84	74	-31.16	Horizontal
15540.11	53.52	11.73	17.66	34.46	48.45	74	-25.55	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
10360.03	50.24	11.25	14.62	32.65	43.46	74	-30.54	Vertical
15540.45	51.11	11.93	17.66	34.46	46.24	74	-27.76	Vertical
10360.55	52.42	9.4	14.62	32.65	43.79	74	-30.21	Horizontal
15540.89	53.93	8.5	17.66	34.46	45.63	74	-28.37	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
10360.34	50.81	16.29	14.62	32.65	49.07	74	-24.93	Vertical
15540.40	51.60	21.83	17.66	34.46	56.63	74	-17.37	Vertical
10360.74	52.62	8.73	14.62	32.65	43.32	74	-30.68	Horizontal
15540.38	53.42	11.73	17.66	34.46	48.35	74	-25.65	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
10360.51	50.92	11.25	14.62	32.65	44.14	74	-29.86	Vertical
15540.51	51.19	11.93	17.66	34.46	46.32	74	-27.68	Vertical
10360.56	52.43	9.4	14.62	32.65	43.80	74	-30.20	Horizontal
15540.67	53.46	8.5	17.66	34.46	45.16	74	-28.84	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
10360.97	50.92	16.29	14.62	32.65	49.18	74	-24.82	Vertical
15540.55	51.14	21.83	17.66	34.46	56.17	74	-17.83	Vertical
10360.96	52.01	8.73	14.62	32.65	42.71	74	-31.29	Horizontal
15540.46	53.42	11.73	17.66	34.46	48.35	74	-25.65	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 3.0V	5179.987	13	5239.991	9
	DC 3.3V	5179.989	11	5239.986	14
	DC 3.6V	5179.986	14	5239.982	18
Mode	Voltage (V)	FHL (5260MHz)	Deviation (KHz)	FHH (5320MHz)	Deviation (KHz)
Band 2 (5250-5350 MHz)	DC 3.0V	5259.990	10	5319.989	11
	DC 3.3V	5259.990	10	5319.987	13
	DC 3.6V	5259.983	17	5319.986	14
Mode	DC 5.0V	FHL (5500MHz)	Deviation (KHz)	FHH (5700MHz)	Deviation (KHz)
Band 3 (5470-5725 MHz)	DC 3.0V	5499.989	11	5699.990	10
	DC 3.3V	5499.986	14	5699.986	14
	DC 3.6V	5499.985	15	5699.983	17
Mode	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	DC 3.0V	5744.990	10	5824.987	13
	DC 3.3V	5744.990	10	5824.988	12
	DC 3.6V	5744.985	15	5824.984	16

Mode	Temperature (°C)	FHL (5180MHz)	Deviation (KHz)	FHH (5240MHz)	Deviation (KHz)
Band 1 (5150-5250 MHz)	0°C	5179.992	8	5239.988	12
	+10°C	5179.988	12	5239.989	11
	+20°C	5179.983	17	5239.987	13
	+30°C	5179.990	10	5239.990	10
	+40°C	5179.985	15	5239.987	13
	+50°C	5179.989	11	5239.990	10
	+60°C	5179.991	9	5239.989	11
	+70°C	5179.987	13	5239.986	14

Mode	Temperature (°C)	FHL (5260MHz)	Deviation (KHz)	FHH (5320MHz)	Deviation (KHz)
Band 2 (5250-5350 MHz)	0°C	5259.990	10	5319.990	10
	+10°C	5259.990	10	5319.990	10
	+20°C	5259.983	17	5319.985	15
	+30°C	5259.989	11	5319.988	12
	+40°C	5259.984	16	5319.988	12
	+50°C	5259.989	11	5319.987	13
	+60°C	5259.989	11	5319.991	9
	+70°C	5259.986	14	5319.988	12
Mode	Temperature (°C)	FHL (5500MHz)	Deviation (KHz)	FHH (5700MHz)	Deviation (KHz)
Band 3 (5470-5725 MHz)	0°C	5499.988	12	5699.990	10
	+10°C	5499.985	15	5699.986	14
	+20°C	5499.983	17	5699.983	17
	+30°C	5499.986	14	5699.991	9
	+40°C	5499.987	13	5699.987	13
	+50°C	5499.989	11	5699.986	14
	+60°C	5499.988	12	5699.986	14
	+70°C	5499.986	14	5699.987	13
Mode	Temperature (°C)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
Band 4 (5725-5850 MHz)	0°C	5744.990	10	5824.987	13
	+10°C	5744.990	10	5824.988	12
	+20°C	5744.985	15	5824.984	16
	+30°C	5744.985	15	5824.988	12
	+40°C	5744.989	11	5824.987	13
	+50°C	5744.987	13	5824.990	10
	+60°C	5744.991	9	5824.986	14
	+70°C	5744.988	12	5824.988	12

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