

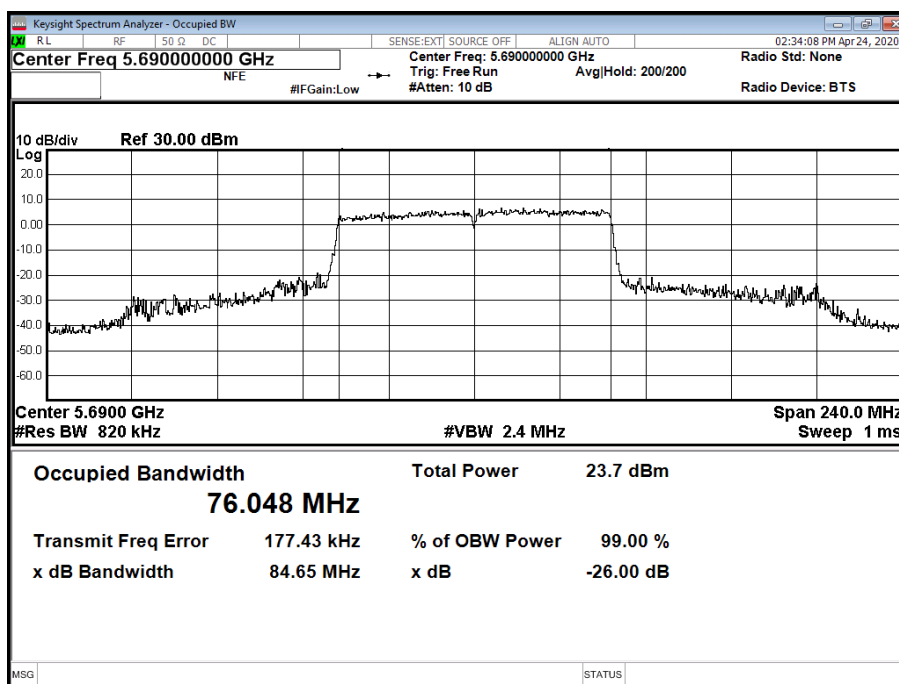


Figure 1006 - 5690 MHz - 99% Occupied Bandwidth

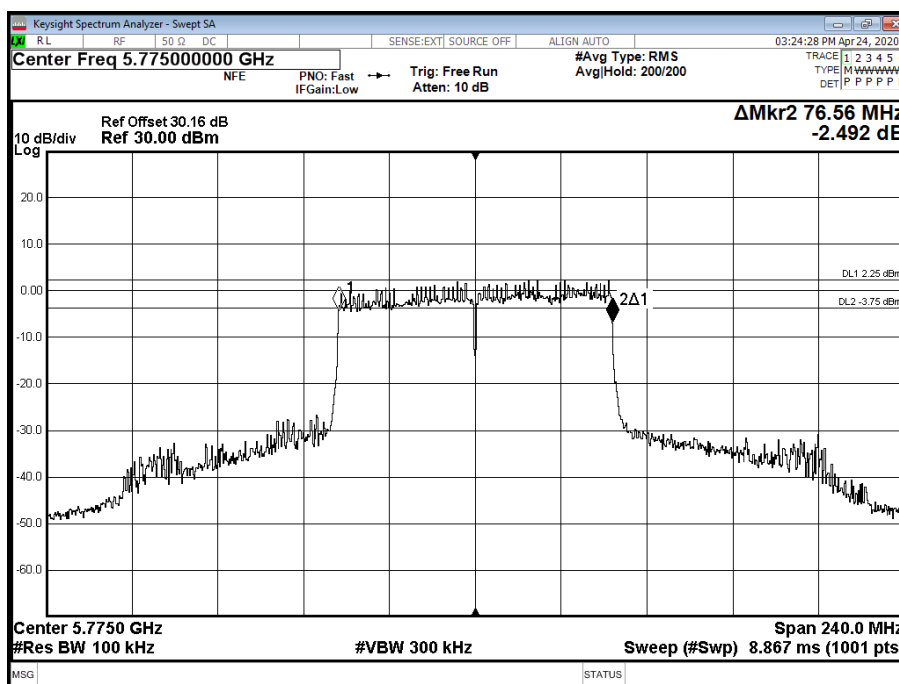


Figure 1007 - 5775 MHz - 6 dB DTS Bandwidth

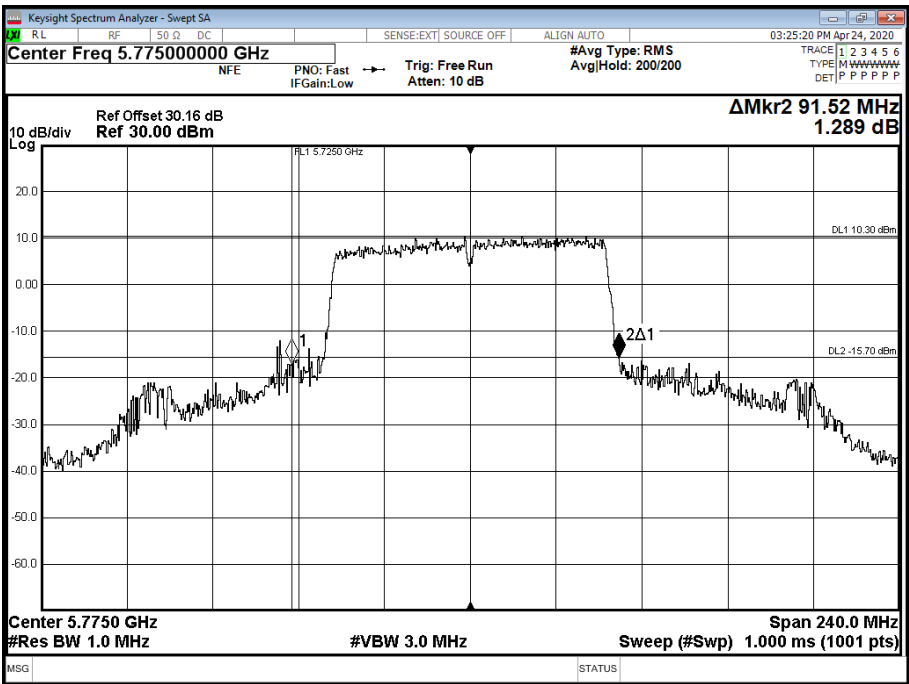


Figure 1008 - 5775 MHz - 26 dB Emission Bandwidth

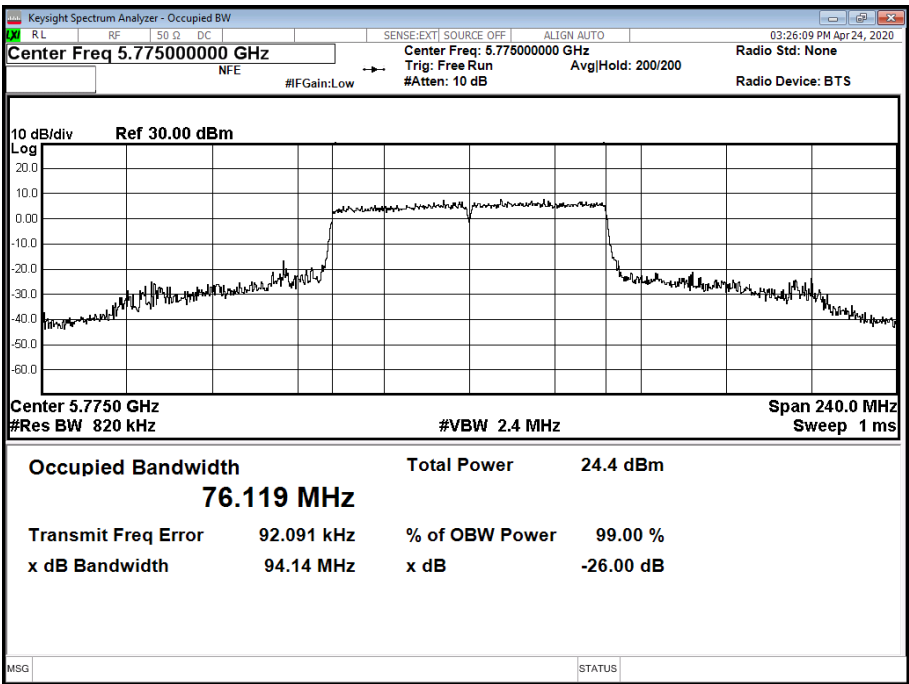


Figure 1009 - 5775 MHz - 99% Occupied Bandwidth



Channel	Straddle	Middle
Frequency (MHz)	5690	5775
6 dB Bandwidth (MHz)	2.920	76.080
26 dB Bandwidth (MHz)	7.000	82.320
99% Bandwidth (MHz)	77.409	77.142

Table 509 - 802.11ax / HE80 MCS0x1 / SU / SISO / Core 1

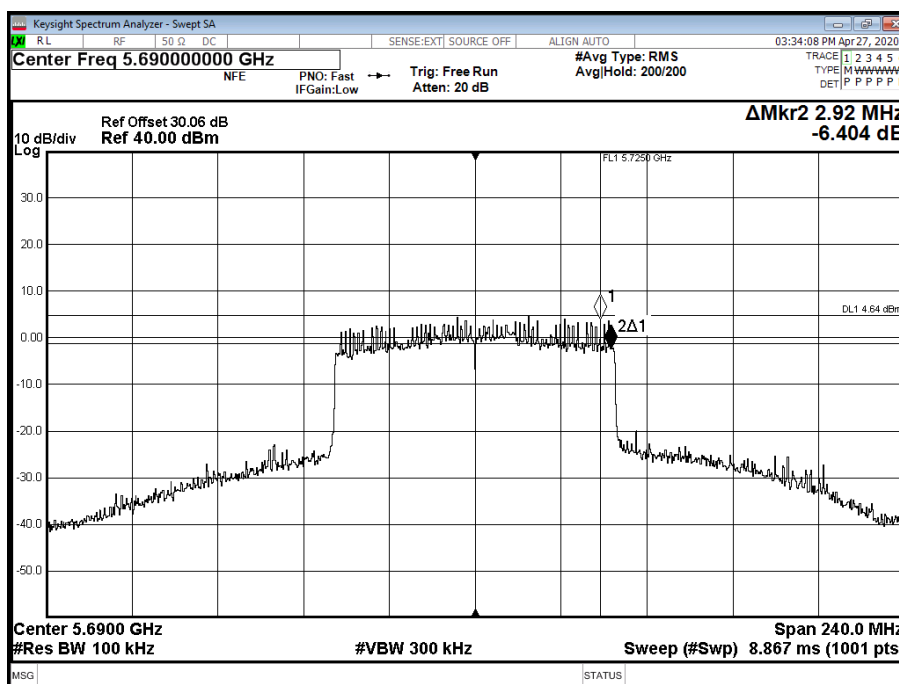


Figure 1010 - 5690 MHz - 6 dB DTS Bandwidth

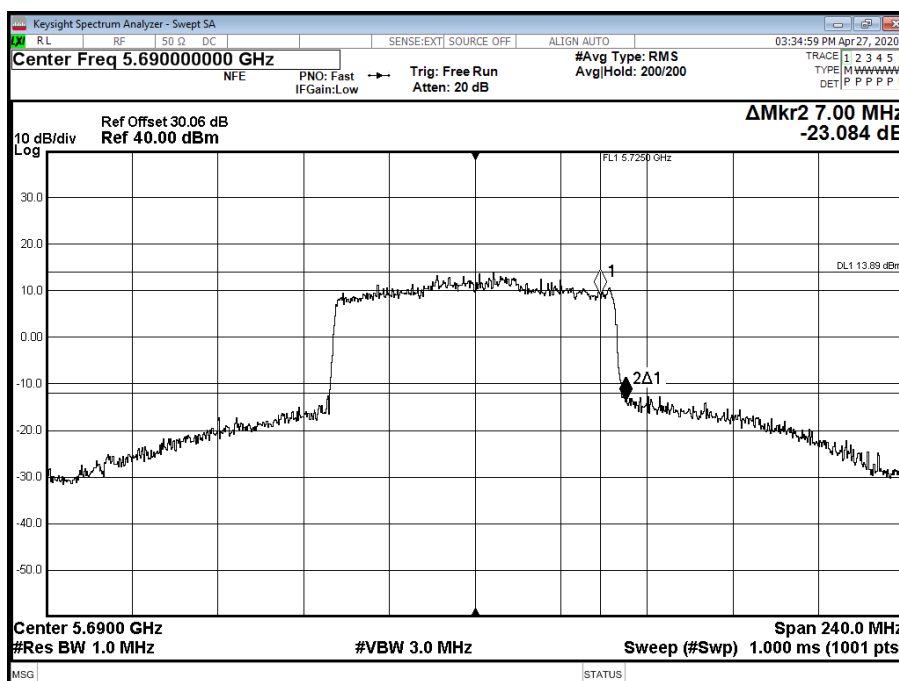


Figure 1011 - 5690 MHz - 26 dB Emission Bandwidth

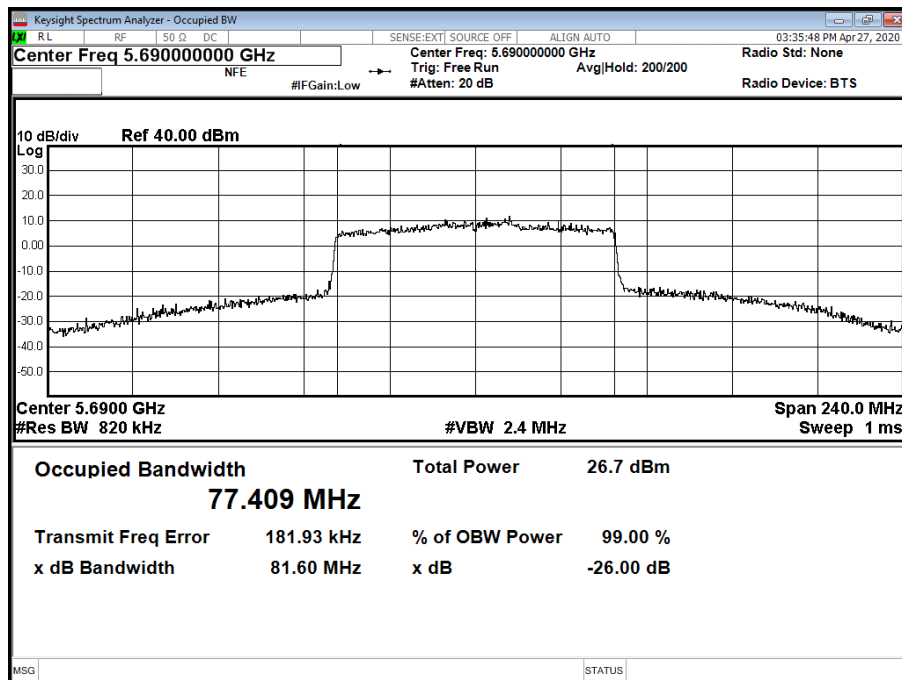


Figure 1012 - 5690 MHz - 99% Occupied Bandwidth

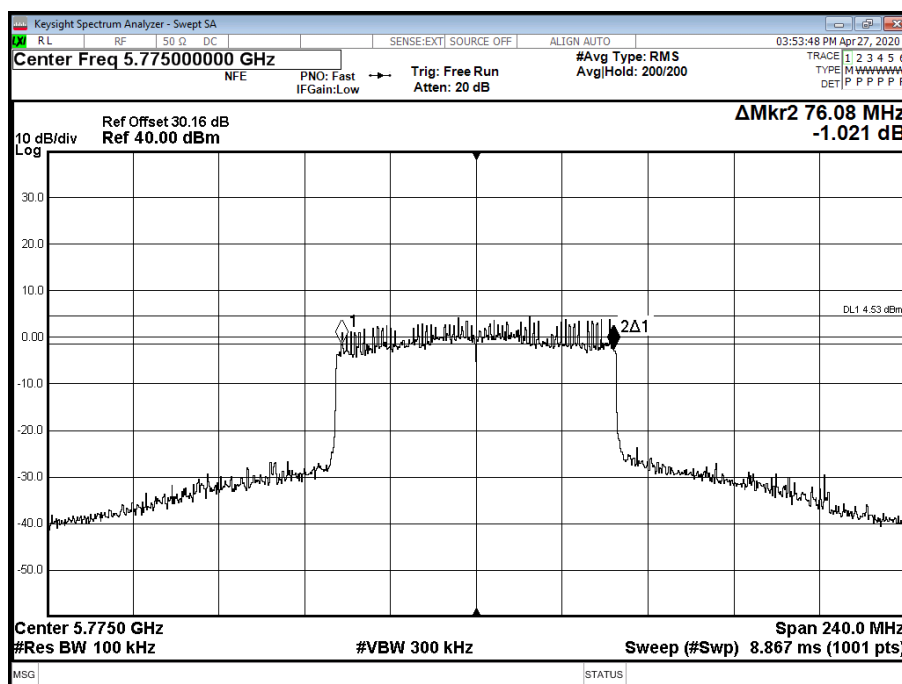


Figure 1013 - 5775 MHz - 6 dB DTS Bandwidth

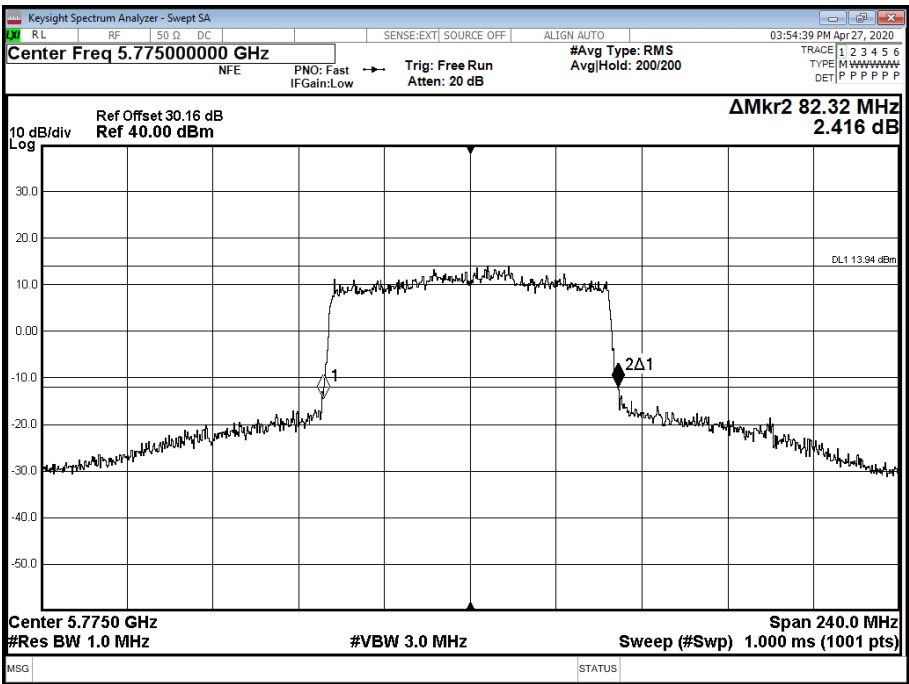


Figure 1014 - 5775 MHz - 26 dB Emission Bandwidth

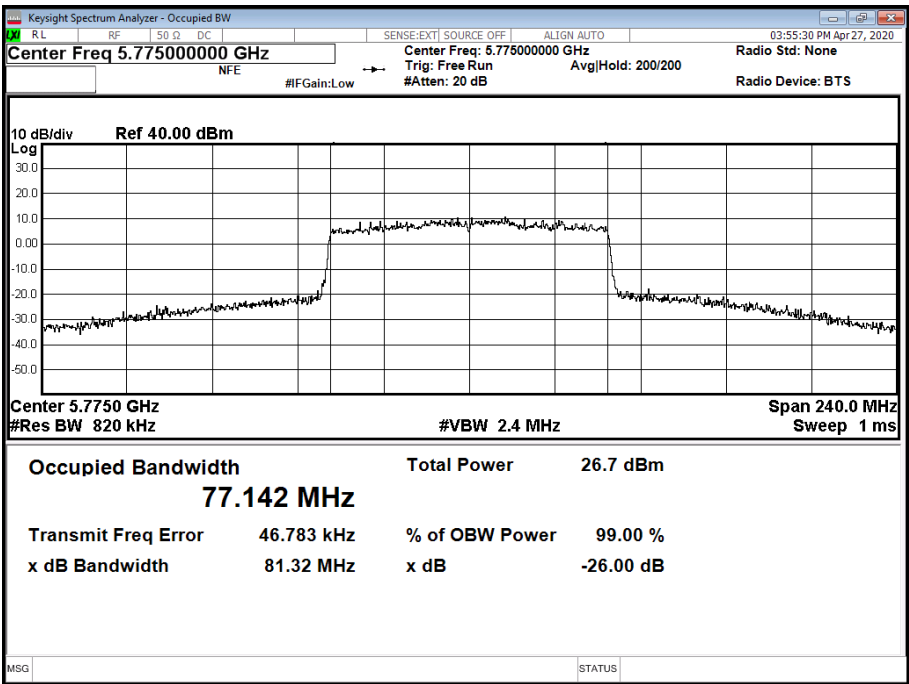


Figure 1015 - 5775 MHz - 99% Occupied Bandwidth

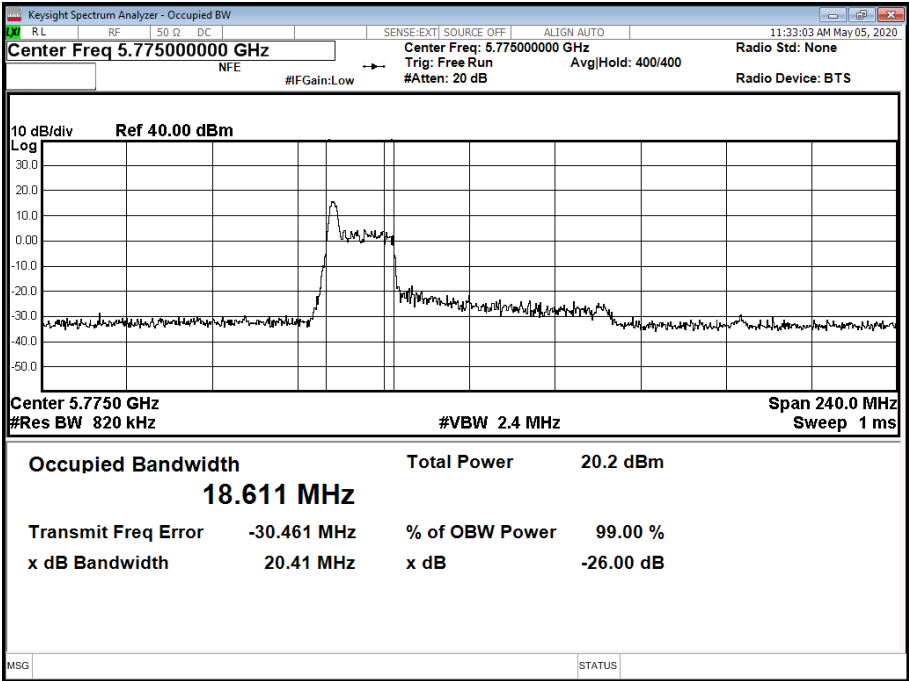


Figure 1018 - 5775 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5775
6 dB Bandwidth (MHz)	2.640
26 dB Bandwidth (MHz)	19.920
99% Bandwidth (MHz)	18.469

Table 511 - 802.11ax / HE80 MCS0x1 / RU 26-36 / SISO / Core 1

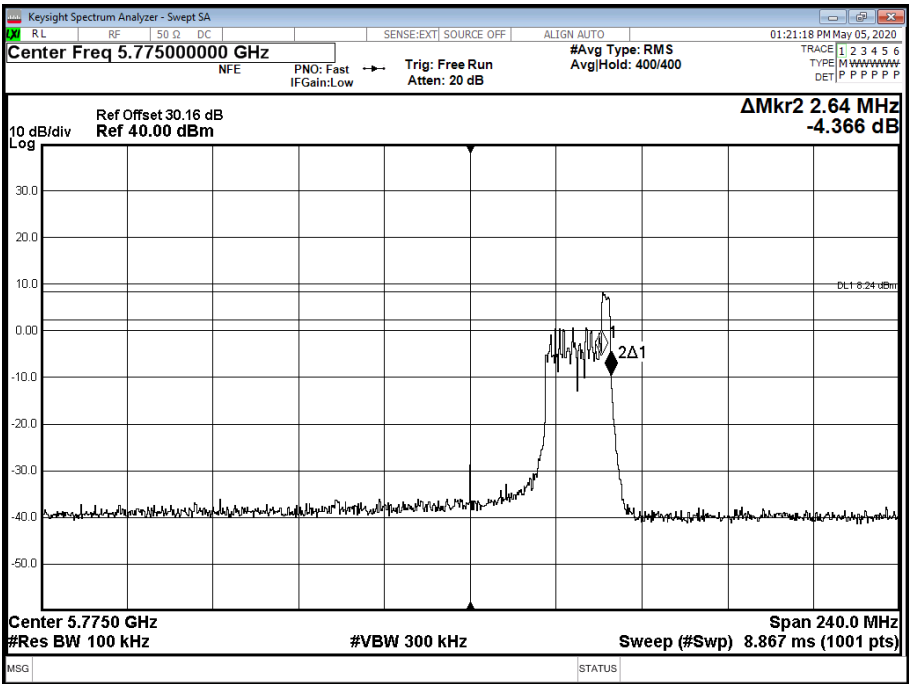


Figure 1019 - 5775 MHz - 6 dB DTS Bandwidth

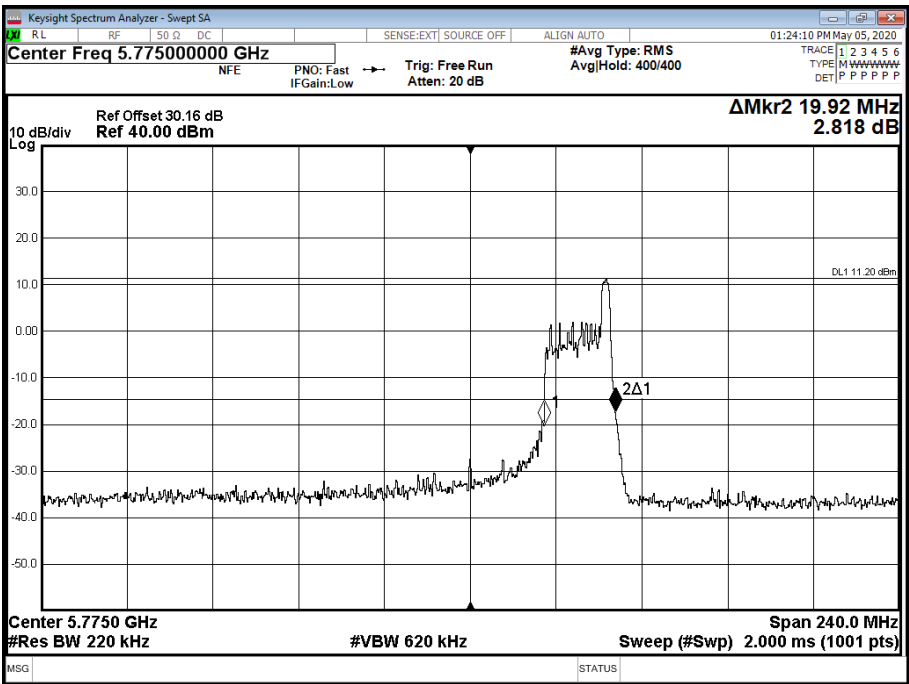


Figure 1020 - 5775 MHz - 26 dB Emission Bandwidth

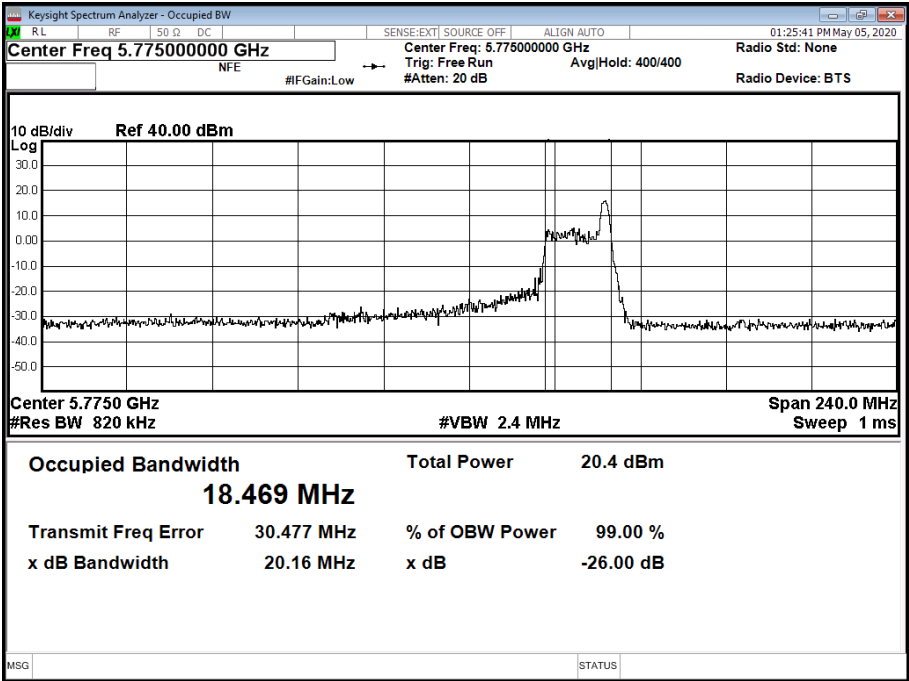


Figure 1021 - 5775 MHz - 99% Occupied Bandwidth



Channel	Straddle	Middle
Frequency (MHz)	5690	5775
6 dB Bandwidth (MHz)	2.680	76.560
26 dB Bandwidth (MHz)	11.800	82.080
99% Bandwidth (MHz)	77.469	77.394

Table 512 - 802.11ax / HE80 MCS0x1 / SU / MIMO CDD / Cores 0+1

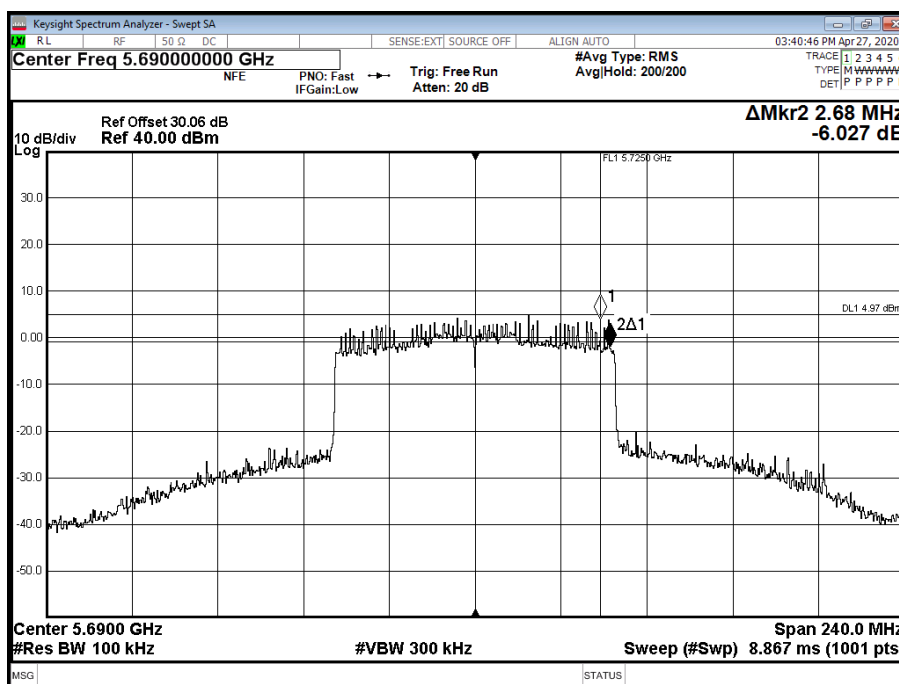


Figure 1022 - 5690 MHz - 6 dB DTS Bandwidth

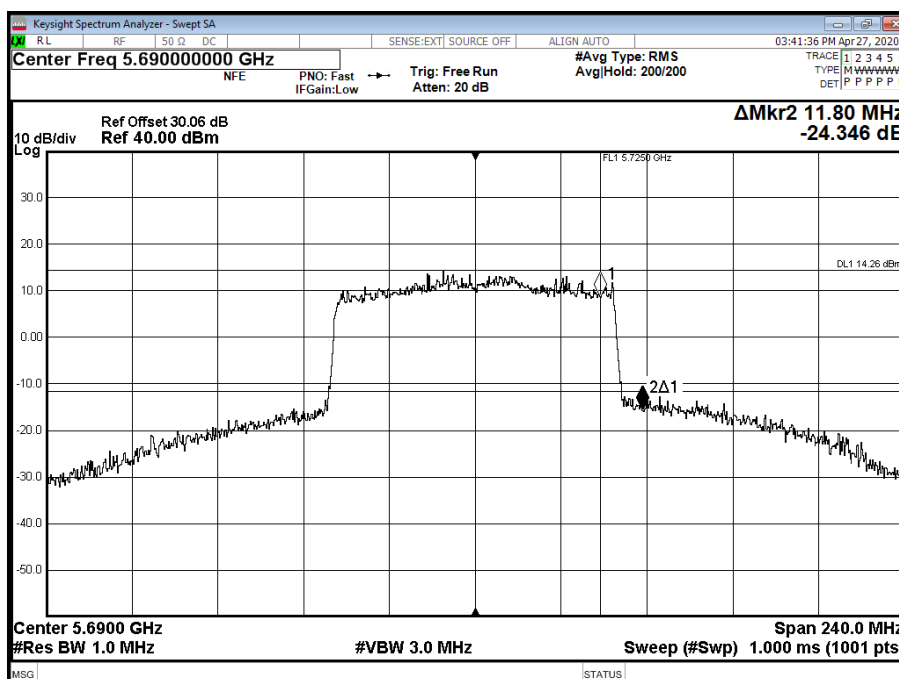


Figure 1023 - 5690 MHz - 26 dB Emission Bandwidth

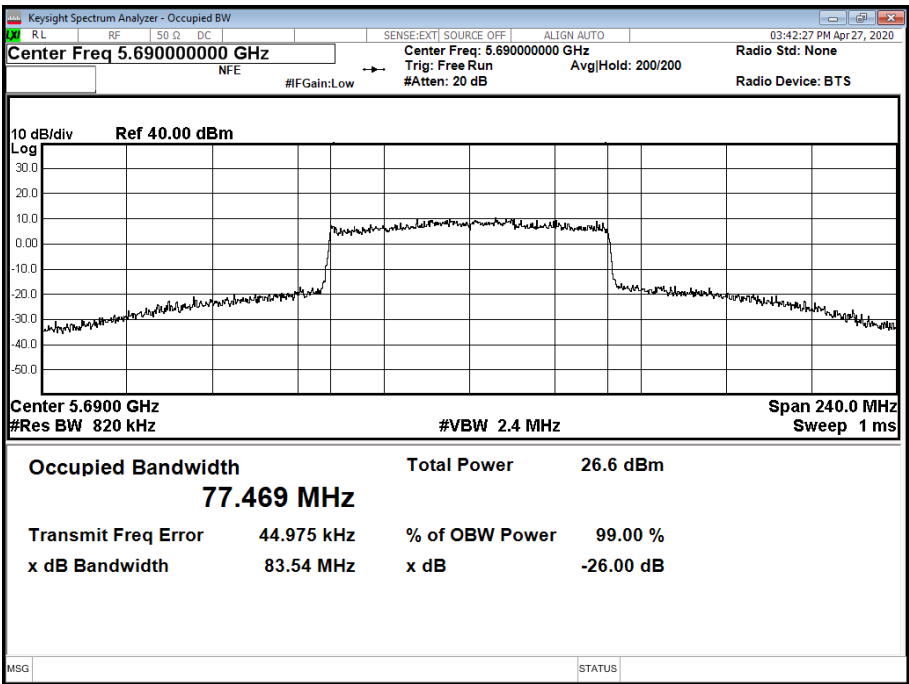


Figure 1024 - 5690 MHz - 99% Occupied Bandwidth

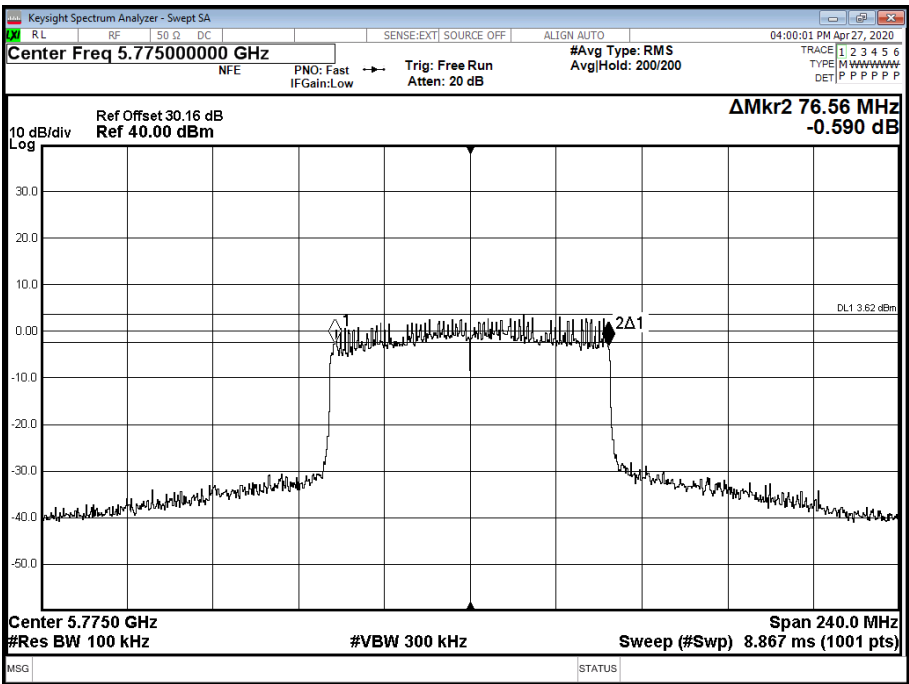


Figure 1025 - 5775 MHz - 6 dB DTS Bandwidth

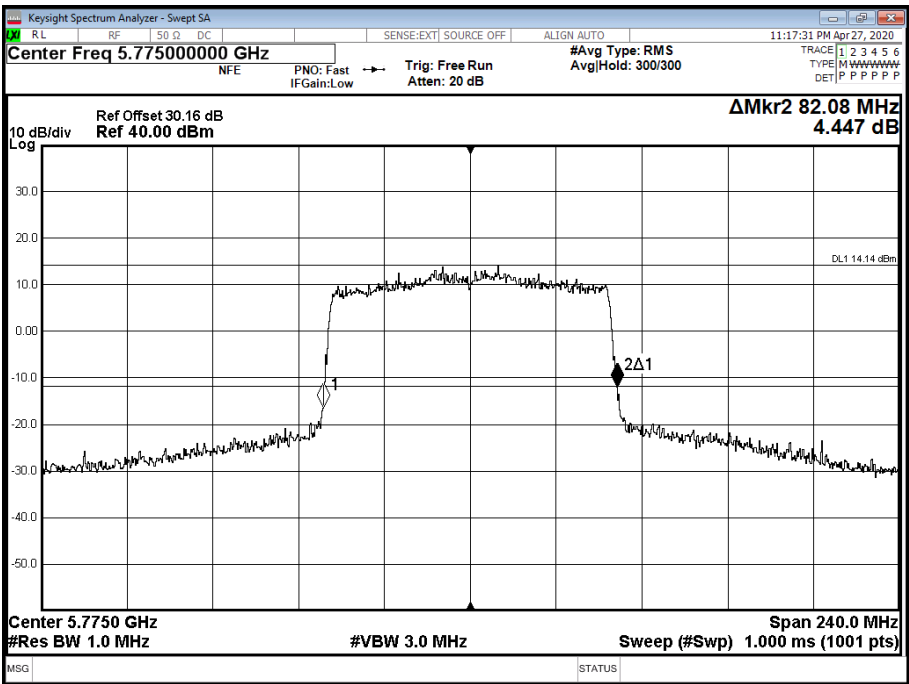


Figure 1026 - 5775 MHz - 26 dB Emission Bandwidth

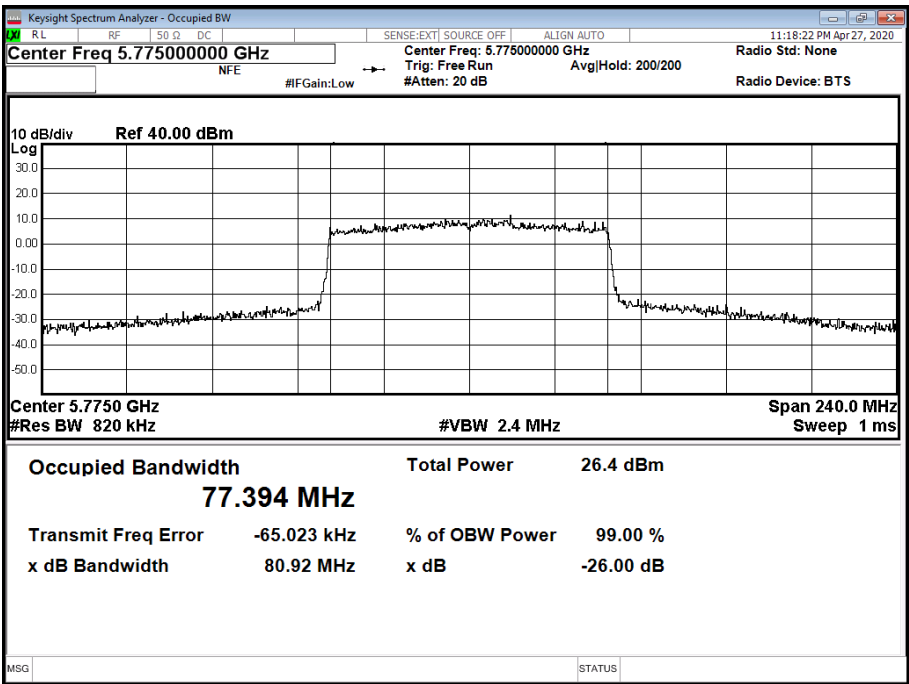


Figure 1027 - 5775 MHz - 99% Occupied Bandwidth

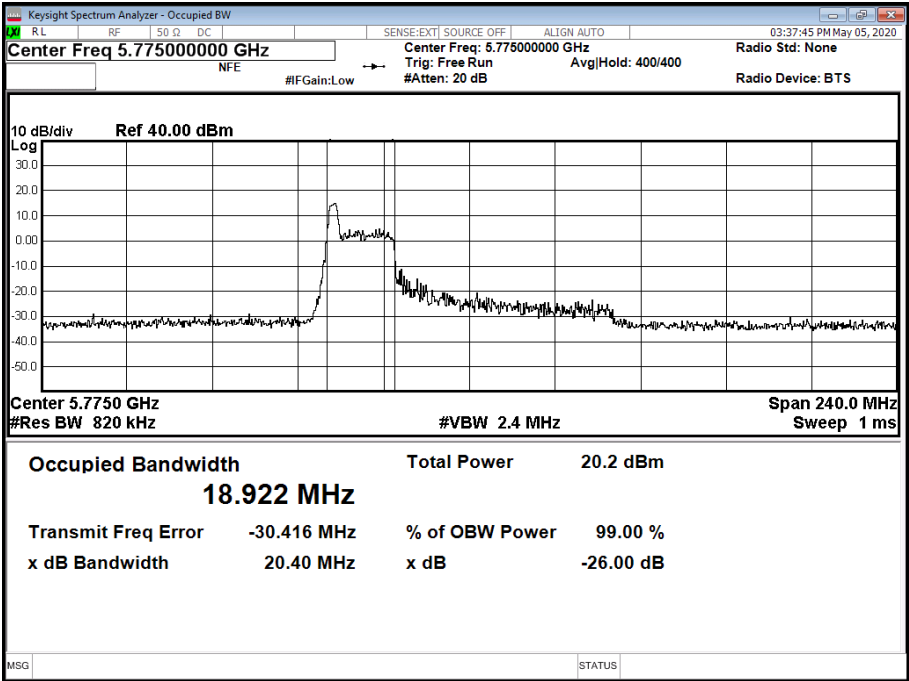


Figure 1030 - 5775 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5775
6 dB Bandwidth (MHz)	2.400
26 dB Bandwidth (MHz)	20.880
99% Bandwidth (MHz)	19.106

Table 514 - 802.11ax / HE80 MCS0x1 / RU 26-36 / MIMO CDD / Cores 0+1

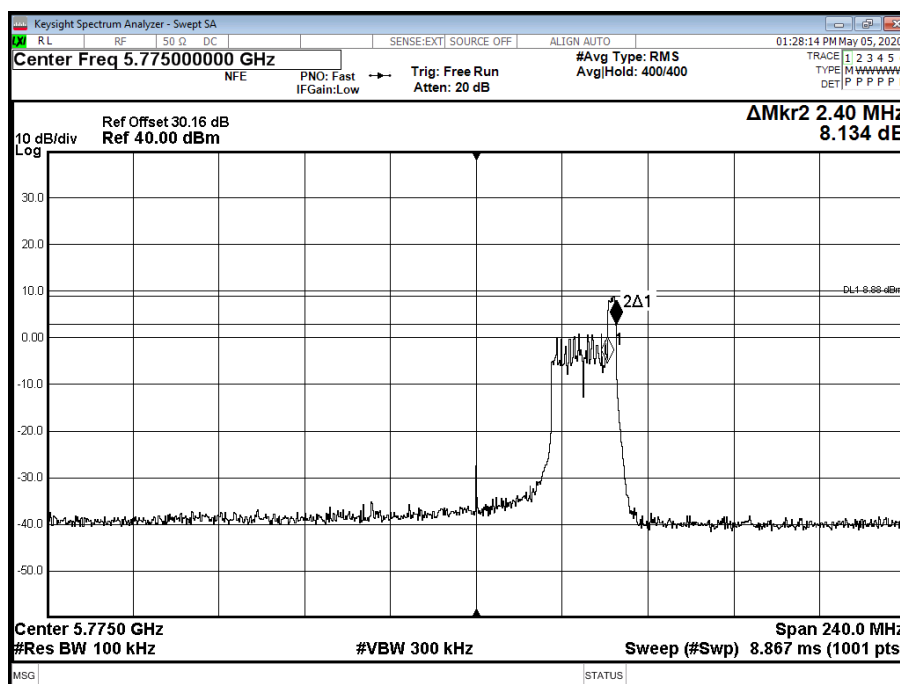


Figure 1031 - 5775 MHz - 6 dB DTS Bandwidth

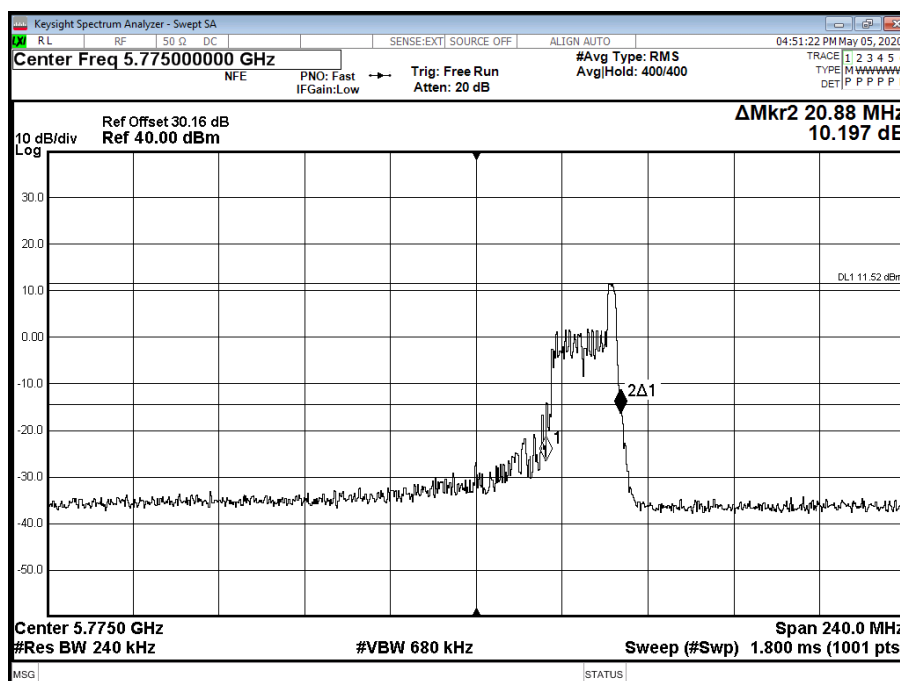


Figure 1032 - 5775 MHz - 26 dB Emission Bandwidth

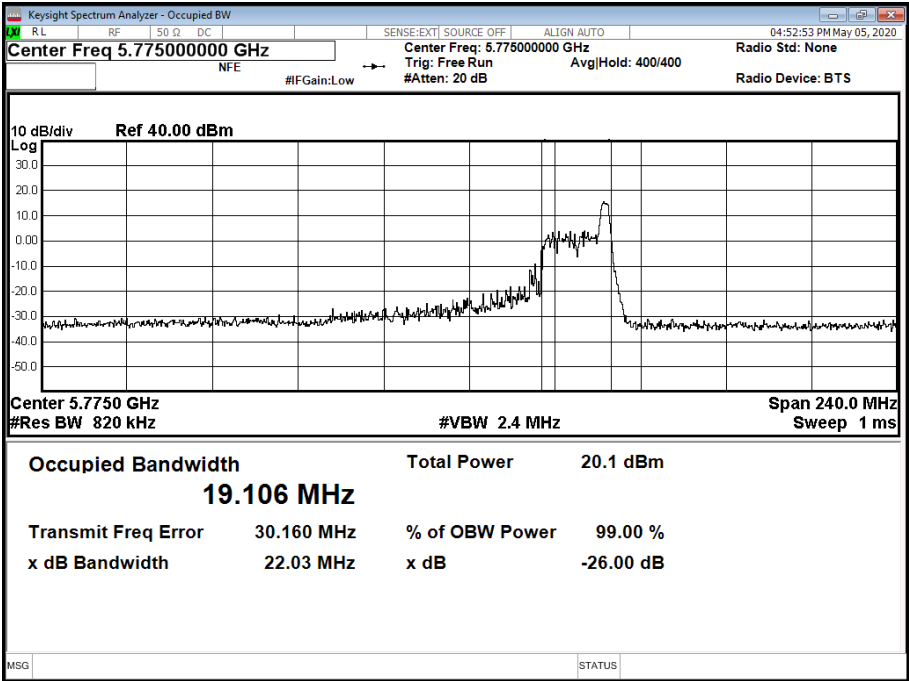


Figure 1033 - 5775 MHz - 99% Occupied Bandwidth



Channel	Straddle	Middle
Frequency (MHz)	5690	5775
6 dB Bandwidth (MHz)	2.920	75.600
26 dB Bandwidth (MHz)	6.760	81.600
99% Bandwidth (MHz)	77.400	77.112

Table 515 - 802.11ax / HE80 MCS0x2 / SU / MIMO SDM / Cores 0+1

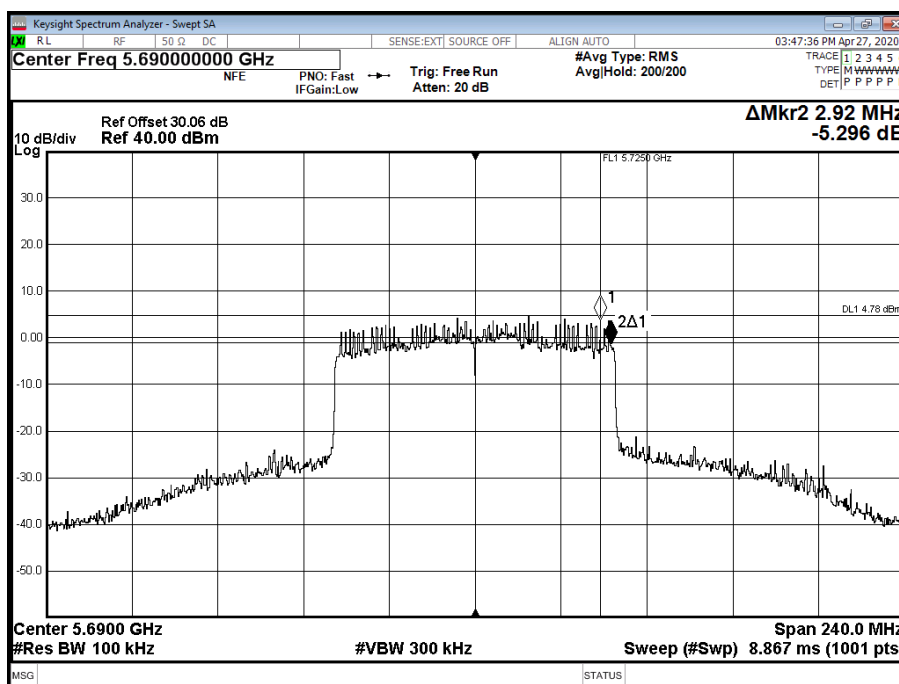


Figure 1034 - 5690 MHz - 6 dB DTS Bandwidth

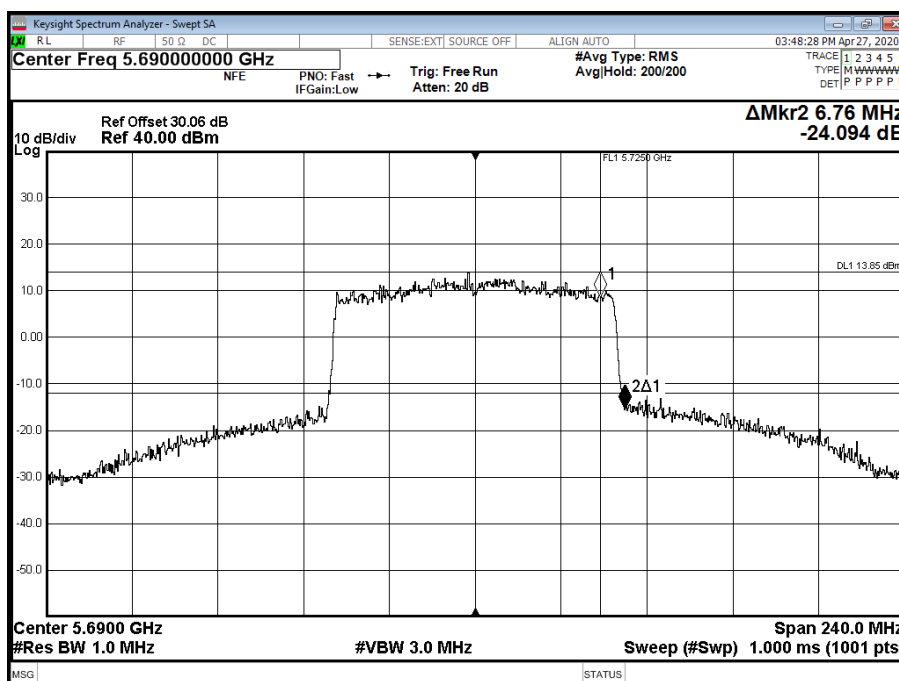


Figure 1035 - 5690 MHz - 26 dB Emission Bandwidth

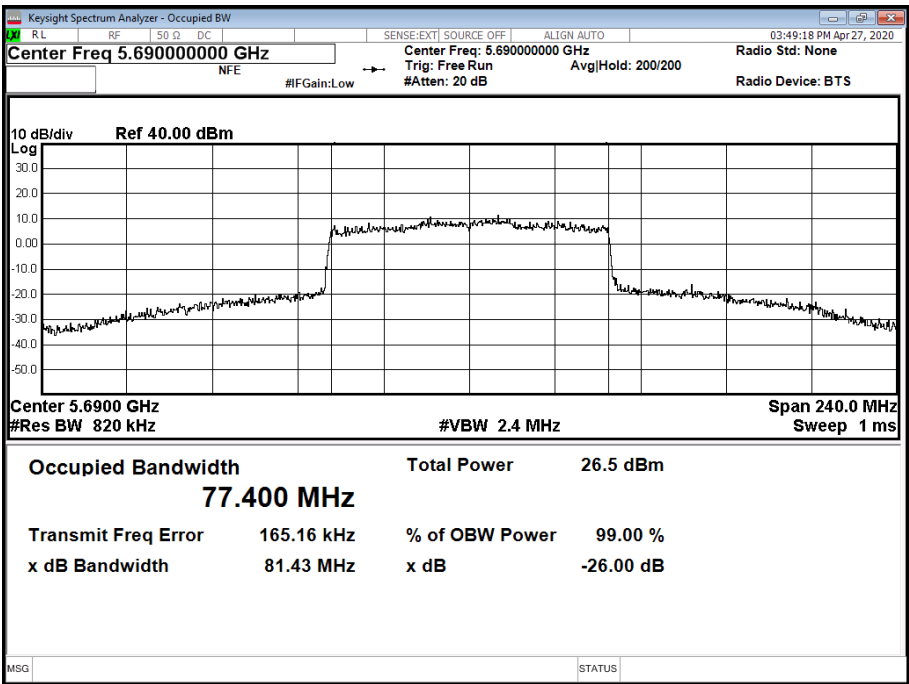


Figure 1036 - 5690 MHz - 99% Occupied Bandwidth

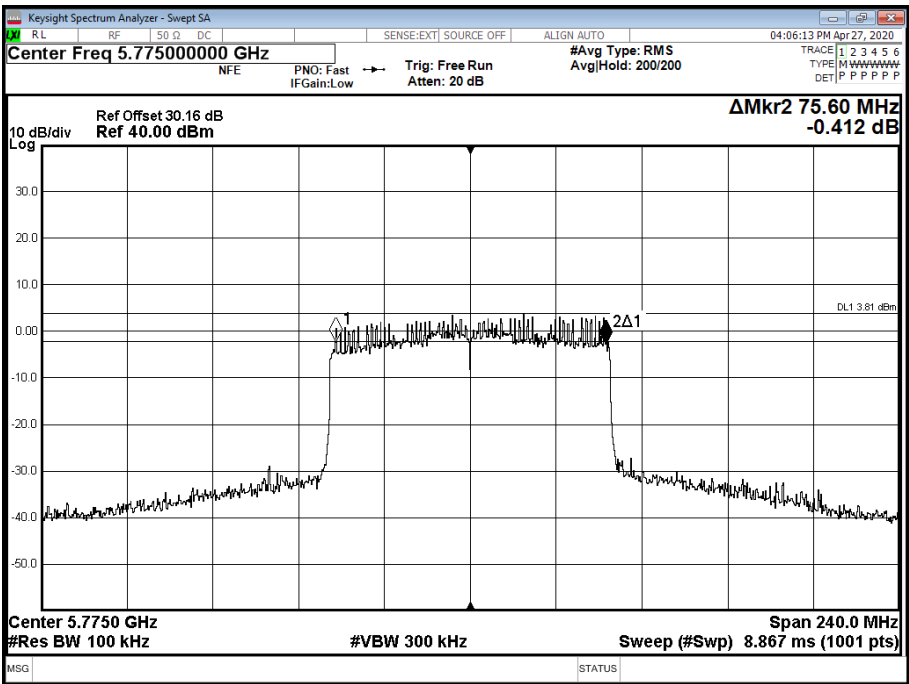


Figure 1037 - 5775 MHz - 6 dB DTS Bandwidth

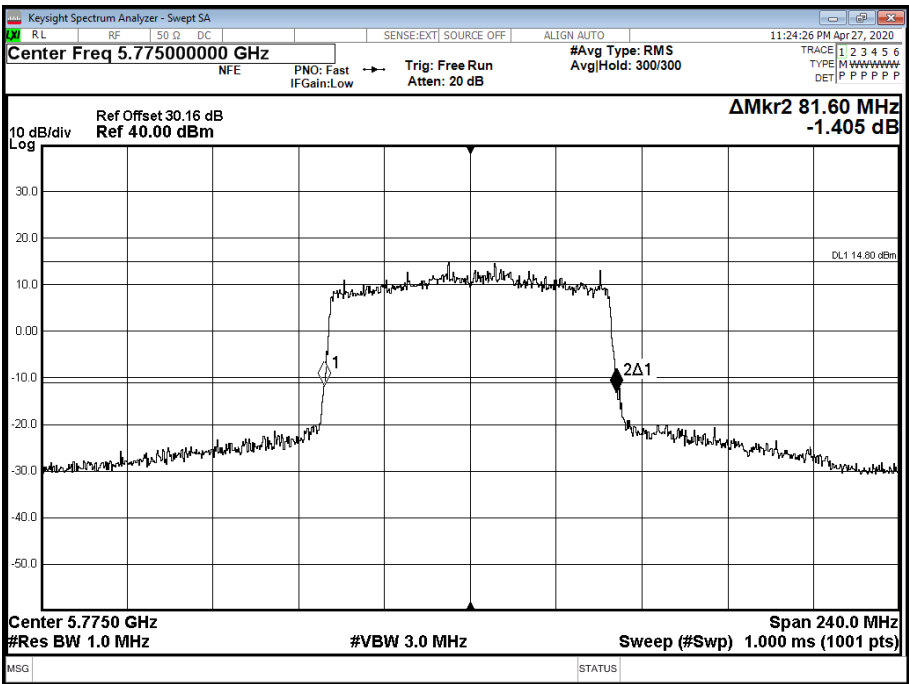


Figure 1038 - 5775 MHz - 26 dB Emission Bandwidth

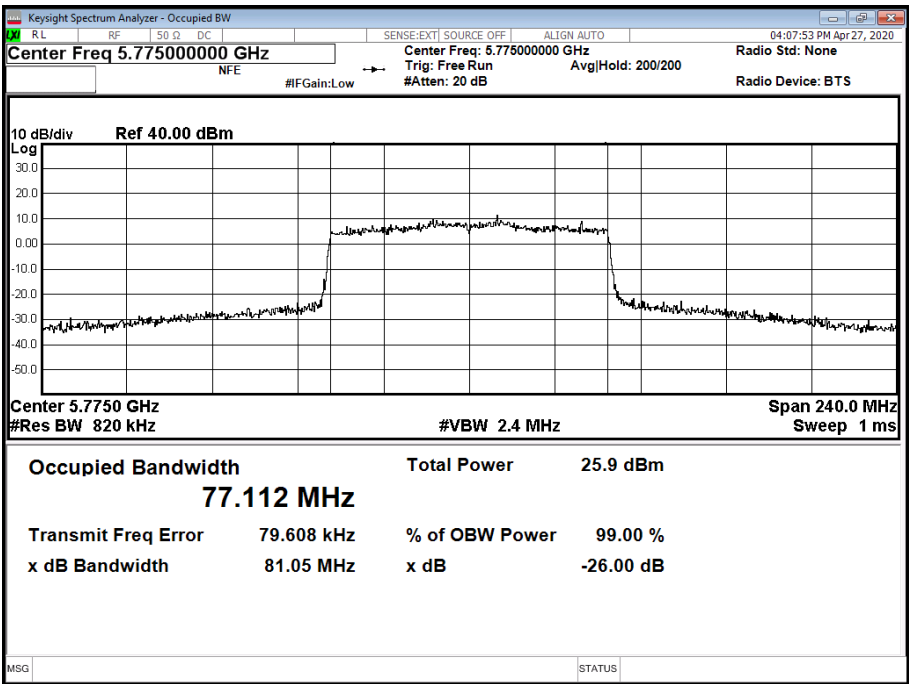


Figure 1039 - 5775 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5775
6 dB Bandwidth (MHz)	2.640
26 dB Bandwidth (MHz)	19.920
99% Bandwidth (MHz)	18.899

Table 516 - 802.11ax / HE80 MCS0x2 / RU 26-0 / MIMO SDM / Cores 0+1

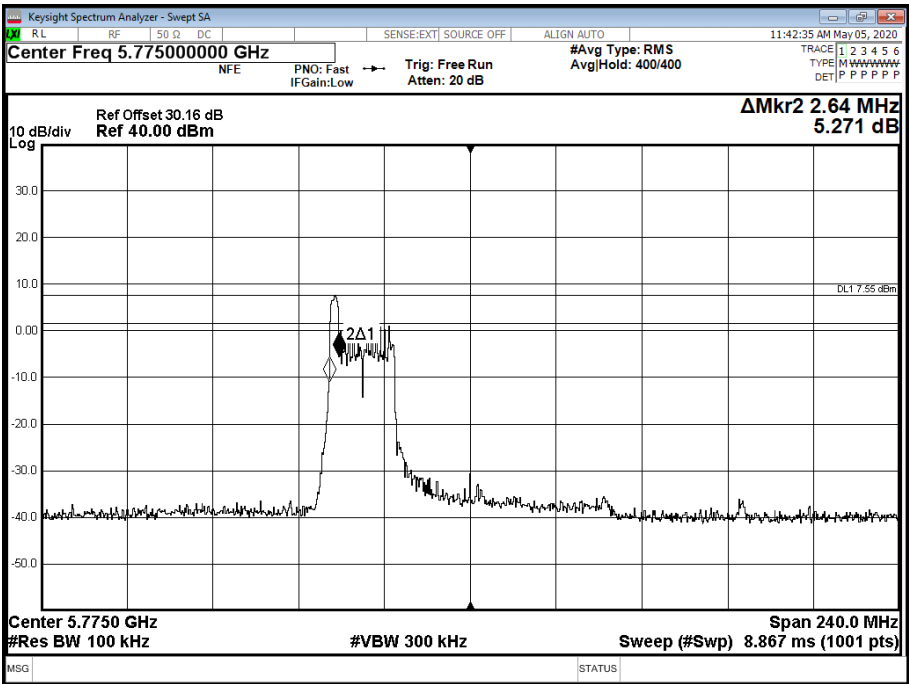


Figure 1040 - 5775 MHz - 6 dB DTS Bandwidth

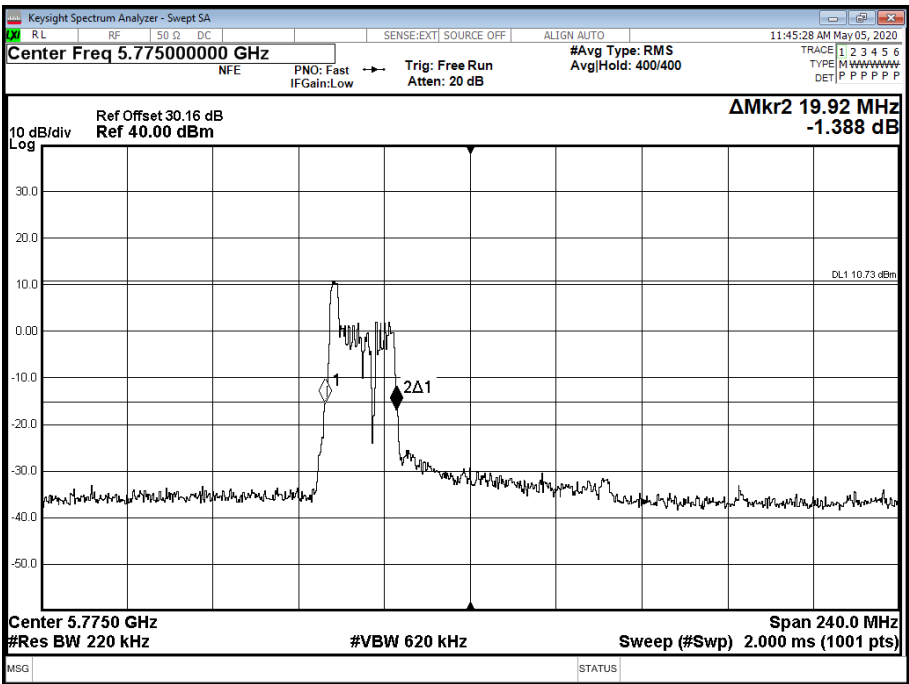


Figure 1041 - 5775 MHz - 26 dB Emission Bandwidth

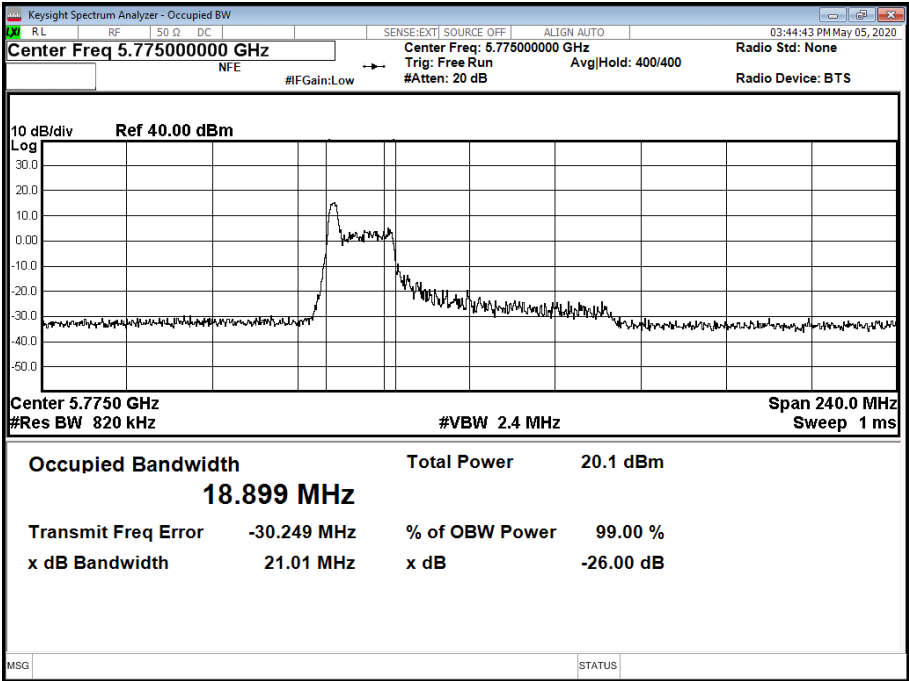


Figure 1042 - 5775 MHz - 99% Occupied Bandwidth



Channel	Middle
Frequency (MHz)	5775
6 dB Bandwidth (MHz)	2.640
26 dB Bandwidth (MHz)	20.880
99% Bandwidth (MHz)	18.744

Table 517 - 802.11ax / HE80 MCS0x2 / RU 26-36 / MIMO SDM / Cores 0+1

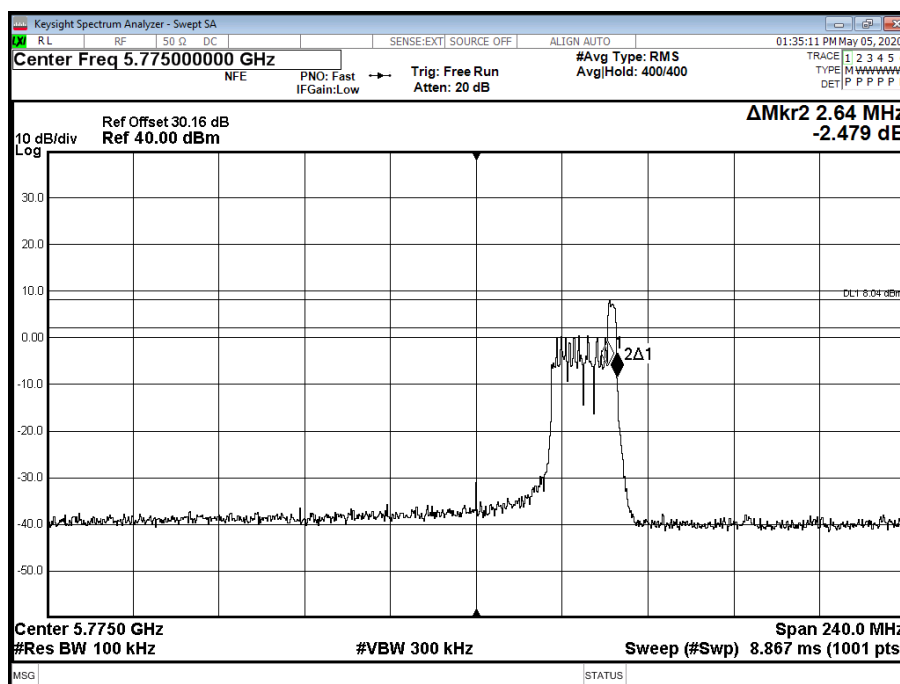


Figure 1043 - 5775 MHz - 6 dB DTS Bandwidth

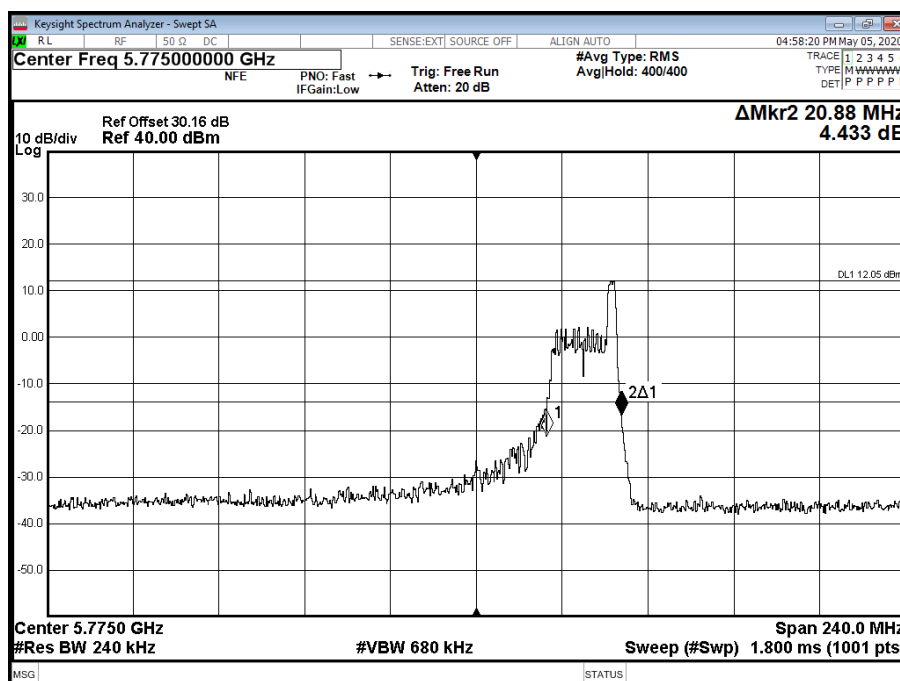


Figure 1044 - 5775 MHz - 26 dB Emission Bandwidth

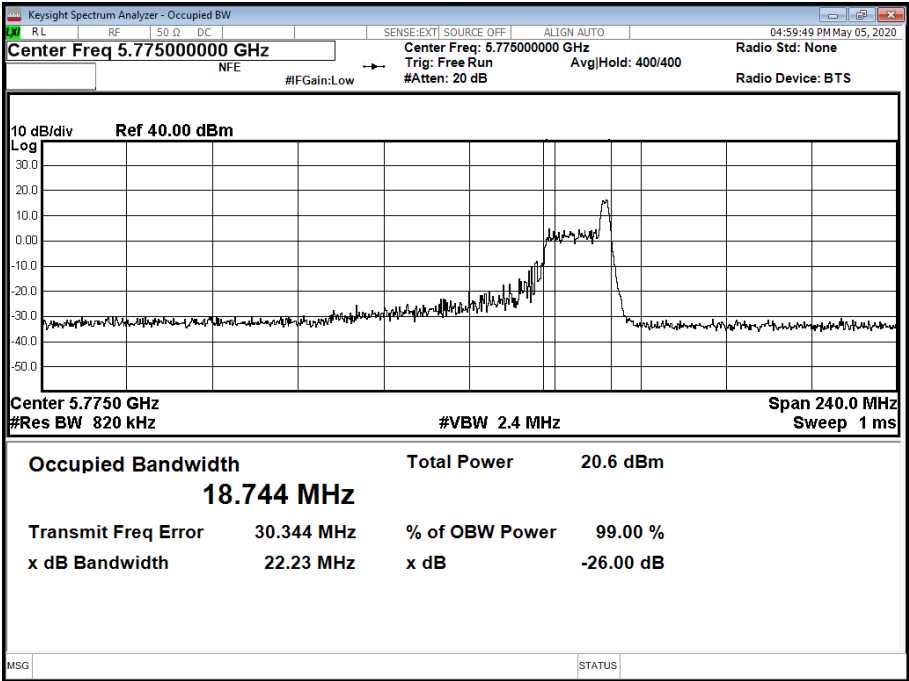


Figure 1045 - 5775 MHz - 99% Occupied Bandwidth



2.5.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Rubidium Standard	Rohde & Schwarz	XSRM	1316	6	05-May-2020
Multimeter	Iso-tech	IDM101	2424	12	12-Dec-2020
Hygrometer	Rotronic	I-1000	3220	12	25-Sep-2020
Network Analyser	Rohde & Schwarz	ZVA 40	3548	12	11-Dec-2020
1800-6000 MHz Power Splitter	Mini-Circuits	ZN2PD-63-S+	4055	-	O/P Mon
Calibration Unit	Rohde & Schwarz	ZV-Z54	4368	12	28-Nov-2020
Frequency Standard	Spectracom	SecureSync 1200-0408-0601	4393	6	05-May-2020
PXA Signal Analyser	Keysight Technologies	N9030A	4654	12	21-Oct-2020
Power splitter - 2 port	Mini-Circuits	ZN2PD-63-S+	4743	12	23-Sep-2020
Power splitter - 4 port	Mini-Circuits	ZN4PD1-63-S+	4744	12	23-Sep-2020
EXA	Keysight Technologies	N9010B	4969	24	03-Feb-2022
Cable (18 GHz)	Rosenberger	LU7-071-1000	5099	12	06-Oct-2020
USB Power Sensor	Boonton	RTP5006	5186	12	28-Nov-2020
AC Programmable Power Supply	iTech	IT7324	5227	12	O/P Mon
3.5 mm 1m Cable	Junkosha	MWX221-01000DMS	5418	6	12-Jun-2020
3.5 mm 1m Cable	Junkosha	MWX221-01000DMS	5419	6	12-Jun-2020
3.5 mm 2m Cable	Junkosha	MWX221-02000DMS	5424	6	13-Jun-2020
3.5 mm 2m Cable	Junkosha	MWX221-02000DMS	5429	6	13-Jun-2020

Table 518

O/P Mon – Output Monitored using calibrated equipment



2.6 Spurious Radiated Emissions

2.6.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (b) and 15.205
ISED RSS-247, Clause 6.2

2.6.2 Equipment Under Test and Modification State

A2330, S/N: C07CG081PW8X - Modification State 0

2.6.3 Date of Test

06-April-2020 to 06-May-2020

2.6.4 Test Method

Testing was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.6.

Tests were performed in HT20 CDD 2TX MIMO mode, with measurements undertaken from 30 MHz to 40 GHz, on channel 36 (5180 MHz) and channel 165 (5825 MHz).

All testing was performed using the lowest data rate/modulation scheme for the applicable mode since this was declared worst case by the customer.

For the purpose of this testing, spurious emissions were limited to 1 GHz to 40 GHz on all other test channels.

Tests were additionally performed in HE20 CDD (RU 26-0) 2TX MIMO mode, on channels which supported this configuration.

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2. with max-hold trace to characterize the EUT. Where emissions were detected, final average measurements were taken in accordance with ANSI C63.10, clause 12.7.7.2.

The plots shown are the characterization of the EUT. The limits on the plots represent the most stringent case for restricted bands, (54/74 dBuV/m @ 3 m and 64/84 dBuV/m @ 1m) when compared to -27 dBm/MHz EIRP outside restricted bands. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

The following conversion can be applied to convert from dBuV/m to uV/m:
 $10^{(\text{Field Strength in dBuV/m}/20)}$

EIRP was converted to field strength at 3m using the following formula:
 $\text{Field Strength (dBuV/m at 3 m)} = \text{EIRP (dBm)} + 95.2 \text{ dB}$

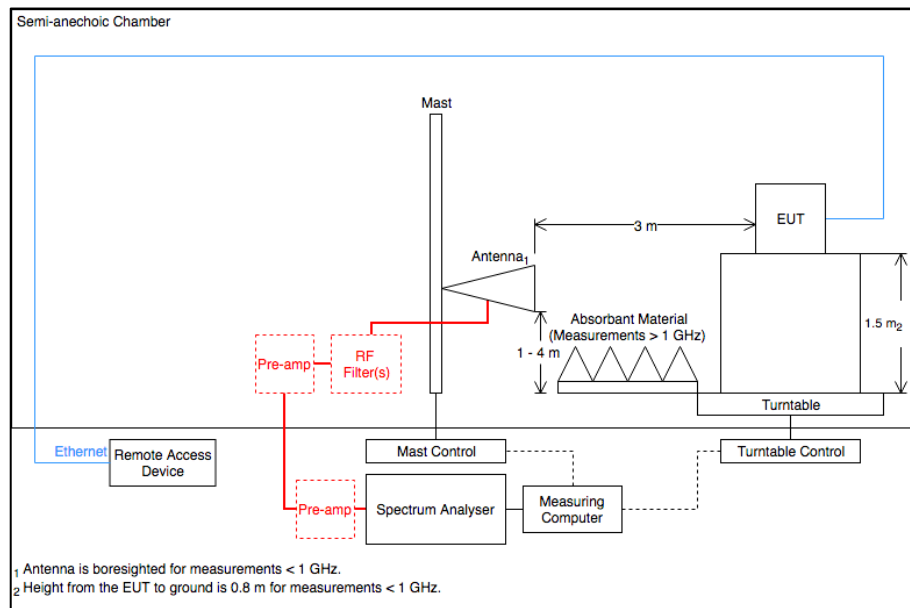


Figure 1046 - Radiated Emissions Test Setup Diagram

2.6.5 Environmental Conditions

Ambient Temperature	18.2 - 23.6 °C
Relative Humidity	37.6 - 49.9 %

2.6.6 Test Results

5 GHz WLAN (HT20, 2TX MIMO, CDD)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
30.471	28.6	40.0	-11.4	Q-Peak	358	100	Vertical
72.096	24.8	40.0	-15.2	Q-Peak	196	110	Vertical
88.459	27.1	43.5	-16.4	Q-Peak	50	101	Vertical
144.215	29.5	43.5	-14.0	Q-Peak	151	103	Vertical
288.365	31.3	46.0	-14.7	Q-Peak	82	104	Horizontal
1891.824	50.6	74.0	-23.4	Peak	254	213	Horizontal
1891.863	50.4	74.0	-23.6	Peak	288	301	Vertical

Table 519 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 40 GHz

No other emissions found within 6 dB of the limit.

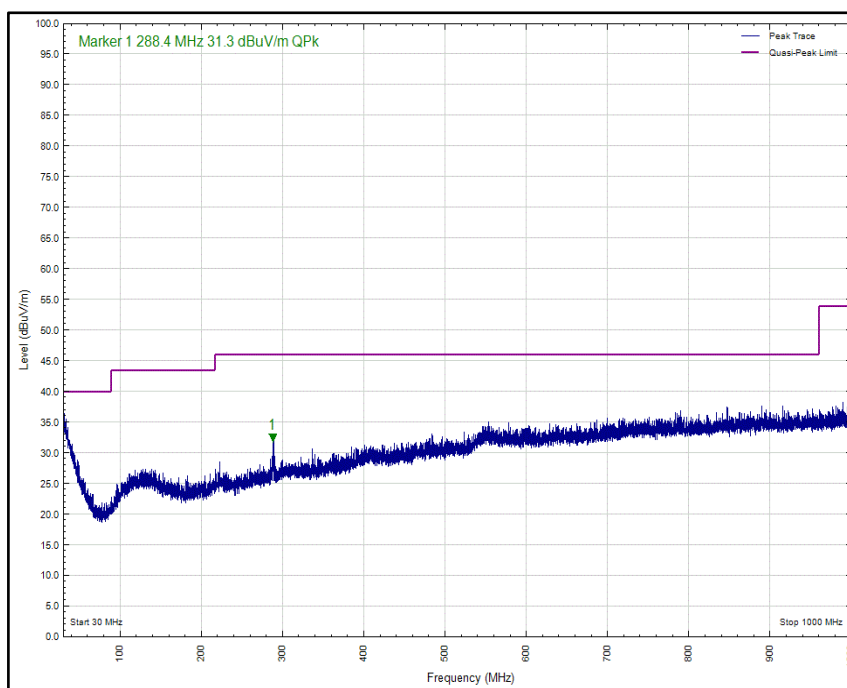


Figure 1047 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 1 GHz, Horizontal (Peak)

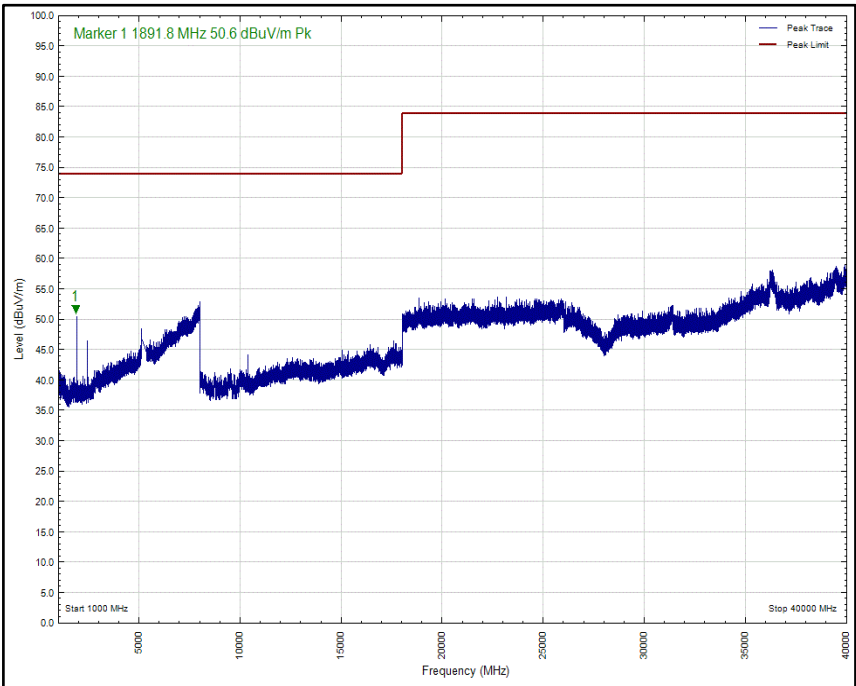


Figure 1048 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

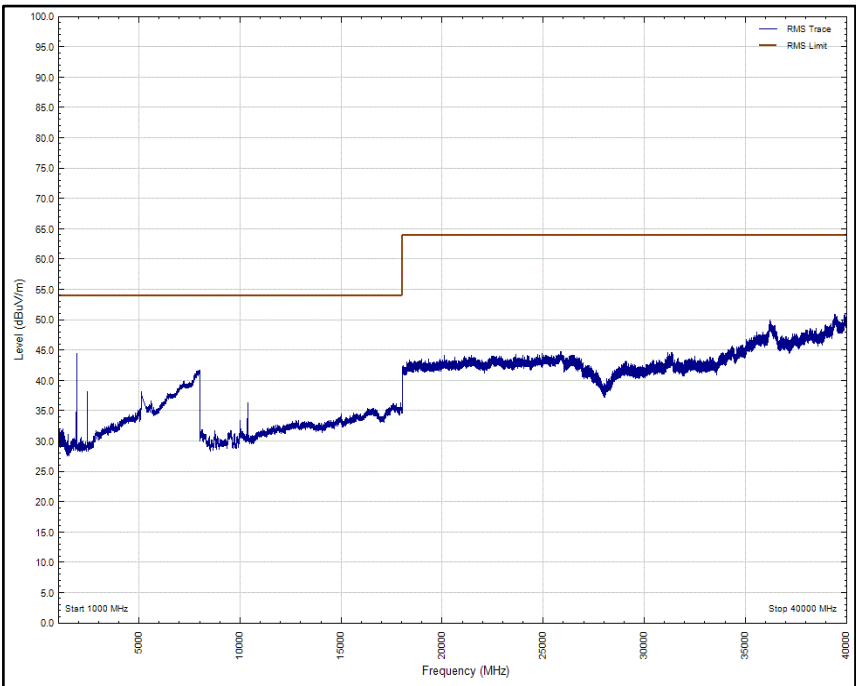


Figure 1049 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

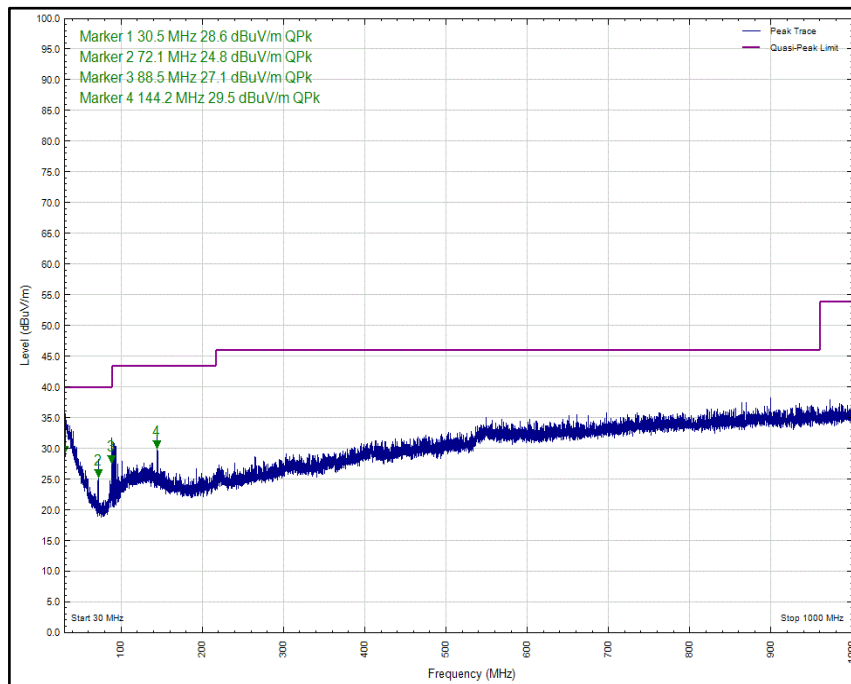


Figure 1050 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 1 GHz, Vertical (Peak)

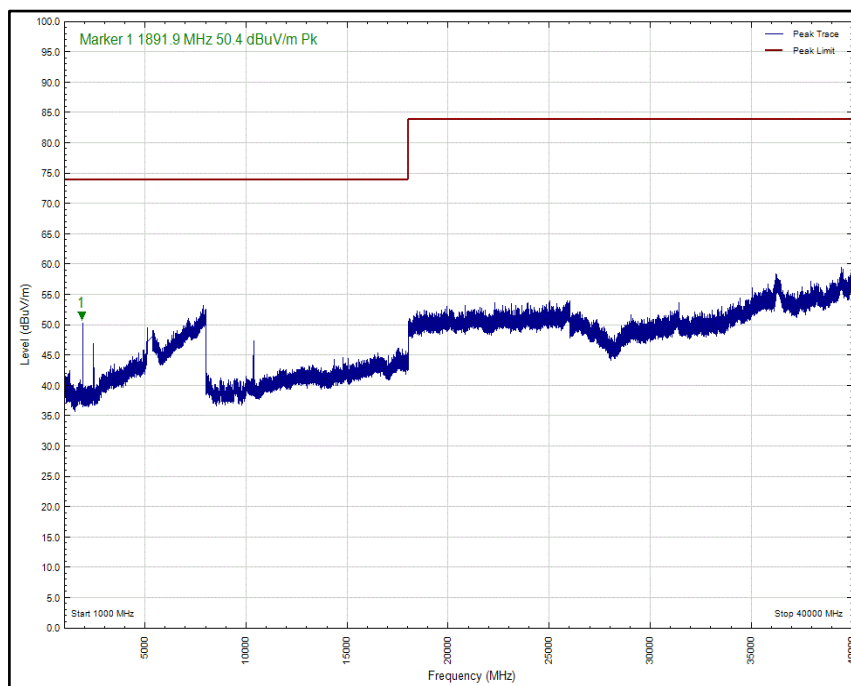


Figure 1051 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

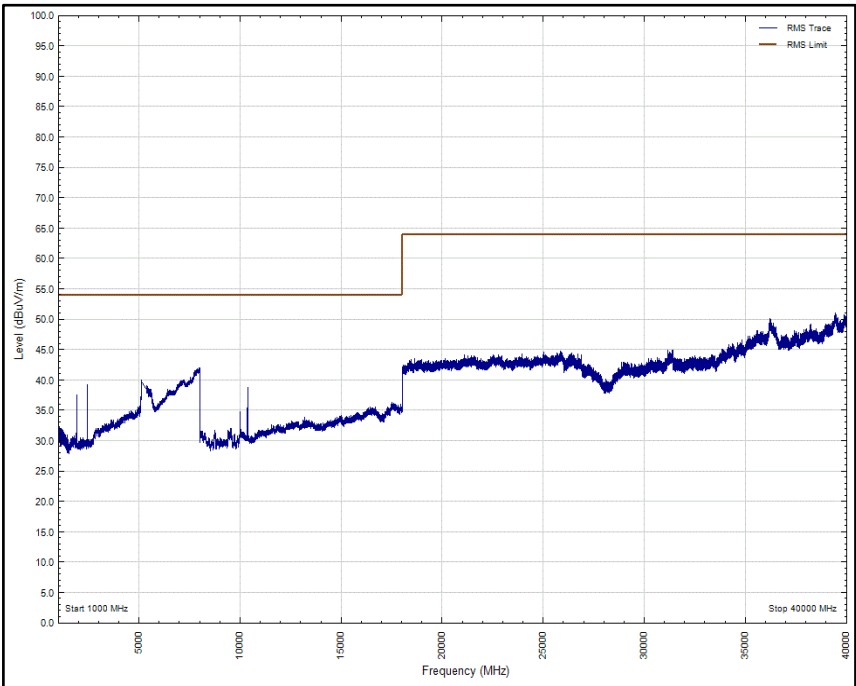


Figure 1052 - U-NII-1 - Channel 36 (5180 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
10640.079	31.3	54.0	-22.7	RMS	180	110	Vertical
10640.110	32.5	54.0	-21.5	RMS	247	131	Horizontal

Table 520 - U-NII-2A - Channel 64 (5320 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz

No other emissions found within 6 dB of the limit.

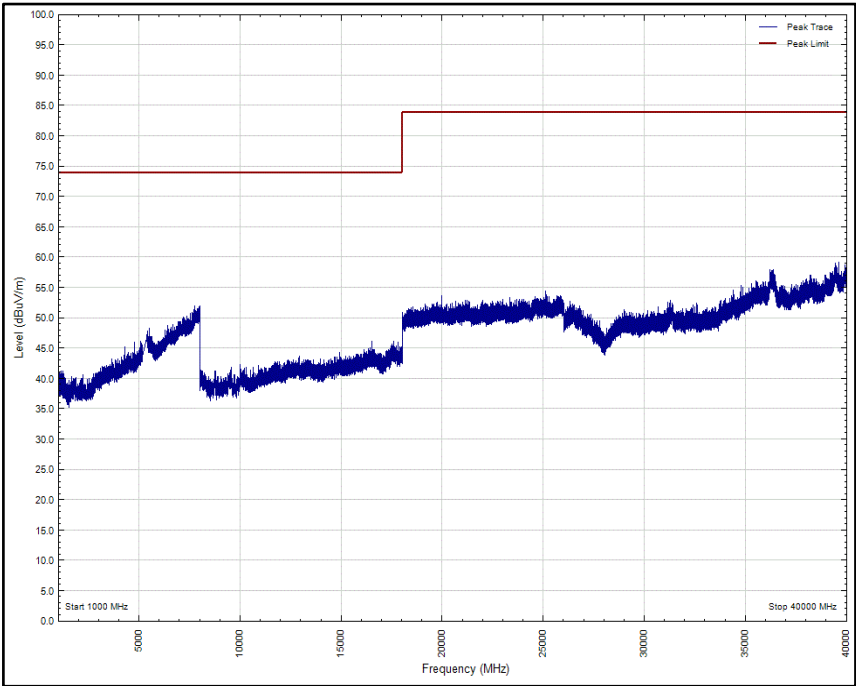


Figure 1053 - U-NII-2A - Channel 64 (5320 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

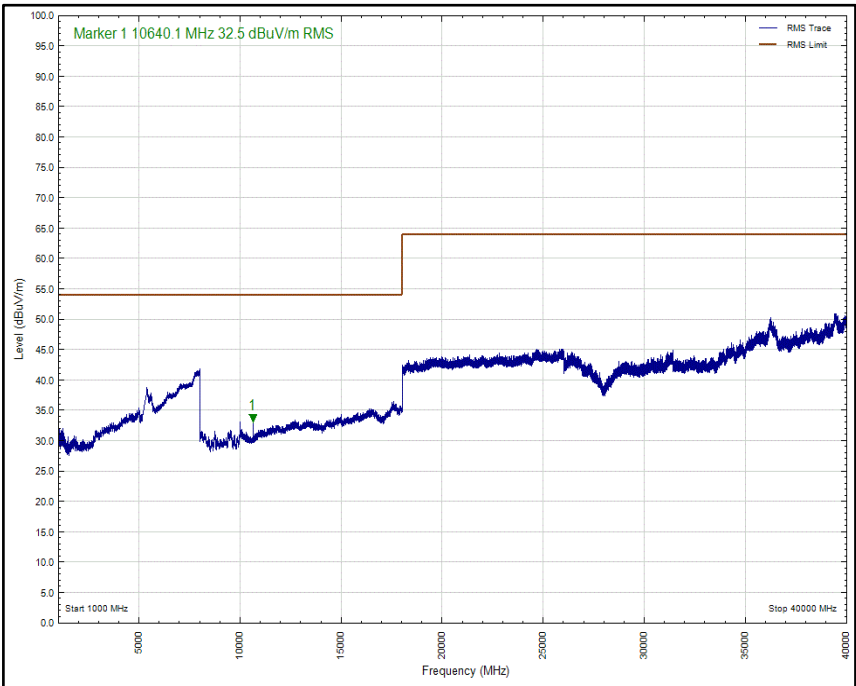


Figure 1054 - U-NII-2A - Channel 64 (5320 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

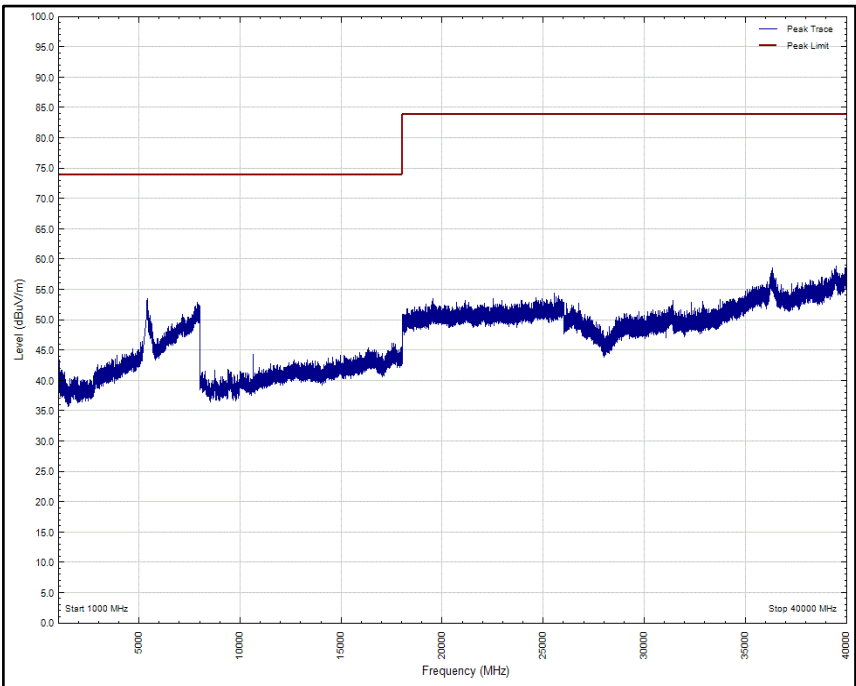


Figure 1055 - U-NII-2A - Channel 64 (5320 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

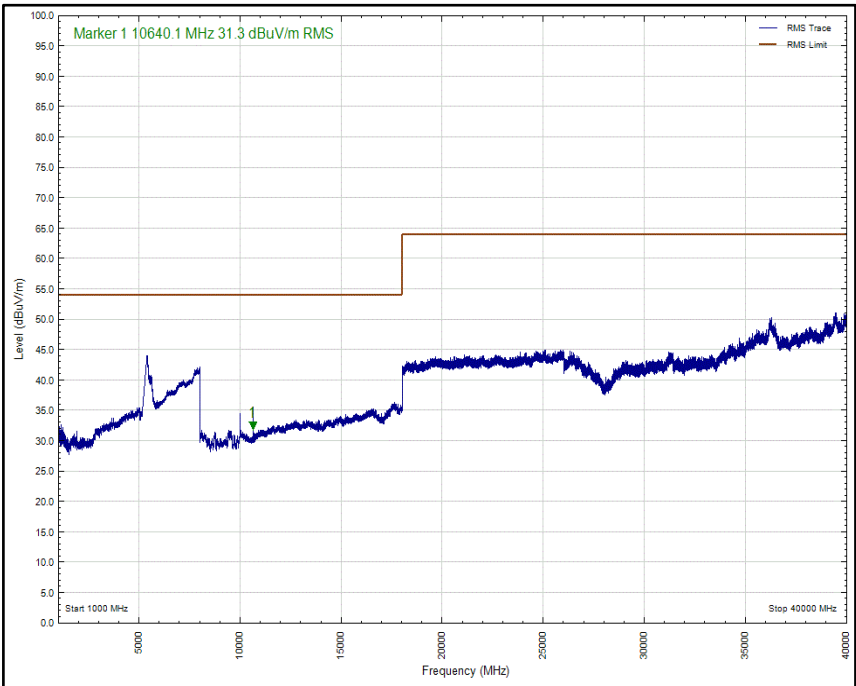


Figure 1056 - U-NII-2A - Channel 64 (5320 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1741.225	41.7	74.0	-32.4	Peak	131	109	Vertical
10999.875	38.0	54.0	-16.0	RMS	229	110	Horizontal
10999.955	62.0	74.0	-12.0	Peak	178	155	Vertical
10999.995	42.5	54.0	-11.5	RMS	178	110	Vertical

Table 521 - U-NII-2C - Channel 100 (5500 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz

No other emissions found within 6 dB of the limit.

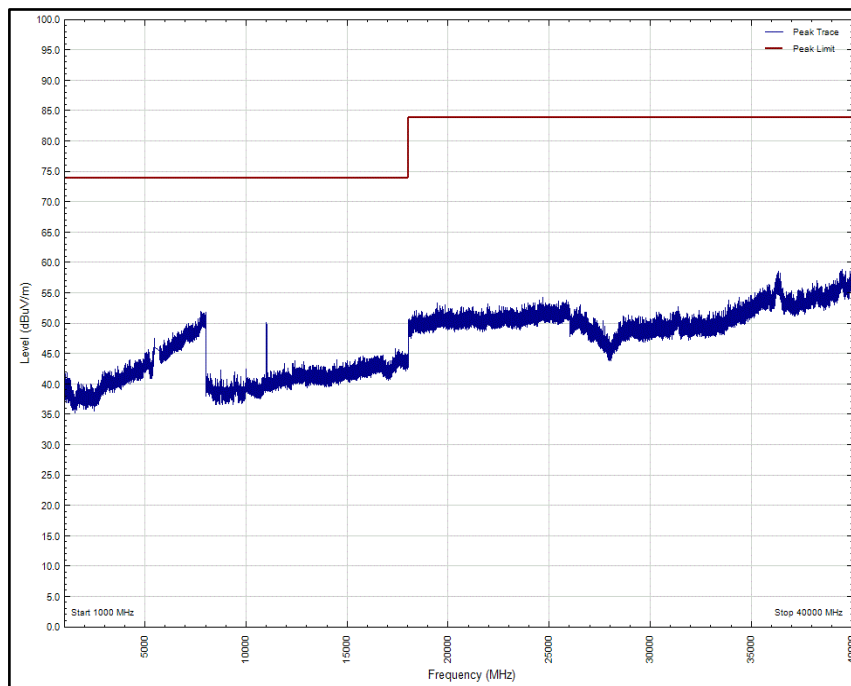


Figure 1057 - U-NII-2C - Channel 100 (5500 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

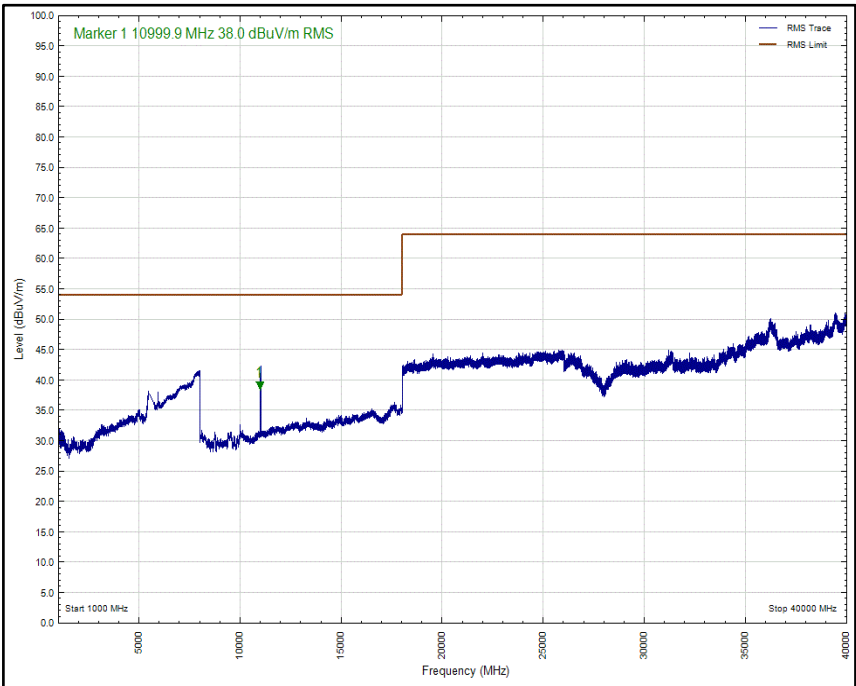


Figure 1058 - U-NII-2C - Channel 100 (5500 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

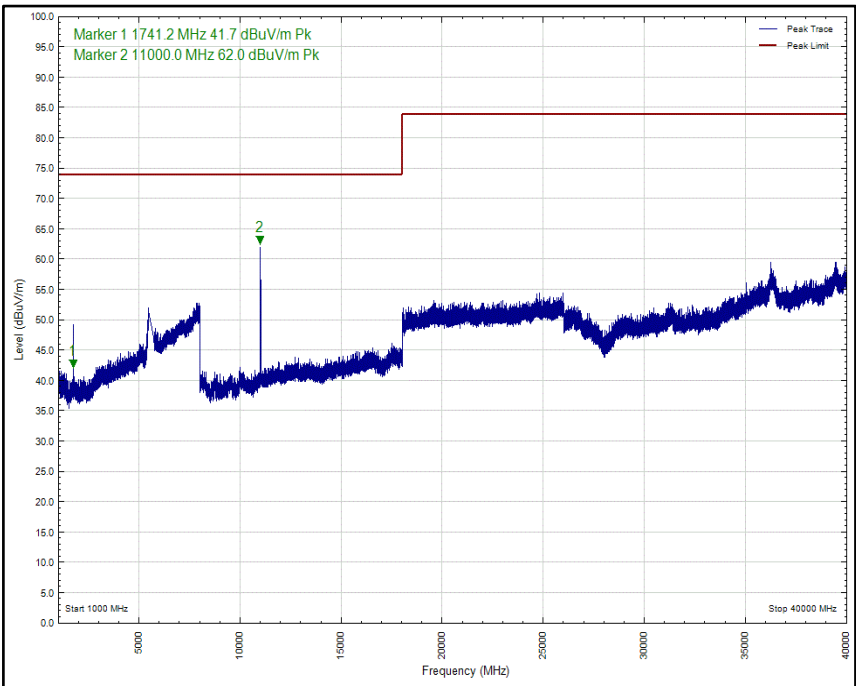


Figure 1059 - U-NII-2C - Channel 100 (5500 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

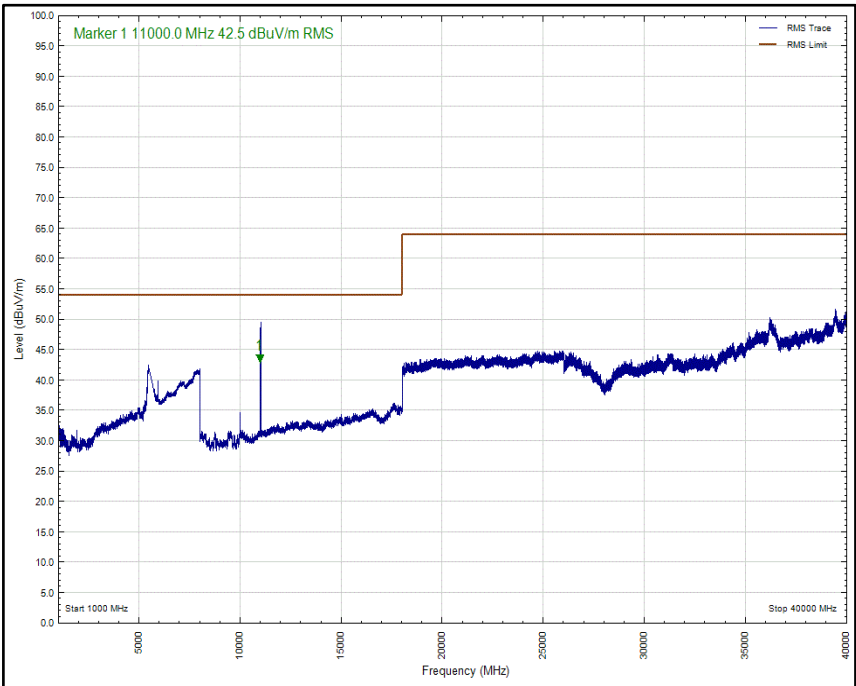


Figure 1060 - U-NII-2C - Channel 100 (5500 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)



Frequency (MHz)	Level (dBuv/m)	Limit (dBuv/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
11399.788	41.6	54.0	-12.4	RMS	189	134	Horizontal
11399.809	57.1	74.0	-16.9	Peak	176	100	Vertical
11399.924	47.3	54.0	-6.7	RMS	176	257	Vertical

Table 522 - U-NII-2C - Channel 140 (5700 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz

No other emissions found within 6 dB of the limit.

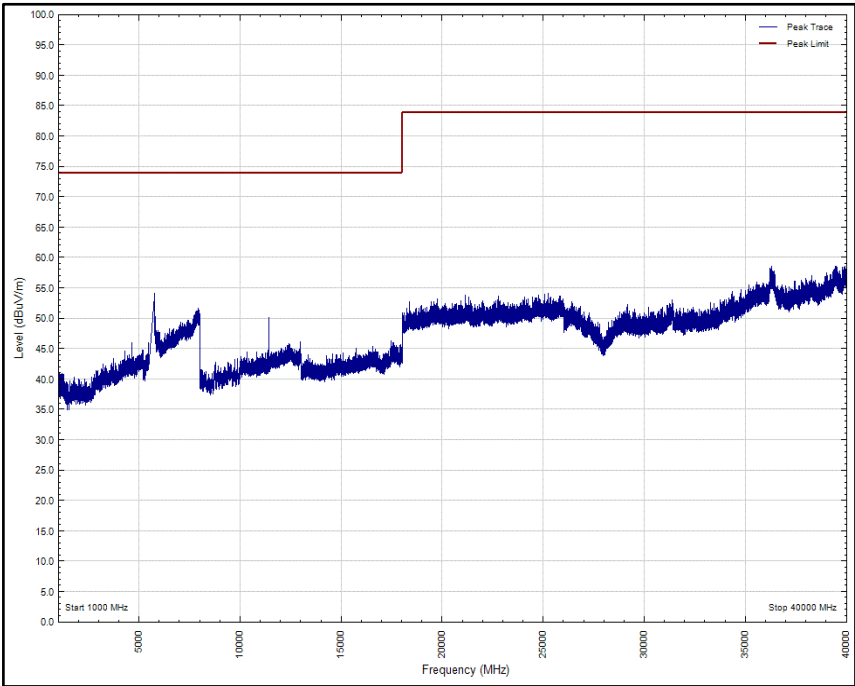


Figure 1061 - U-NII-2C - Channel 140 (5700 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

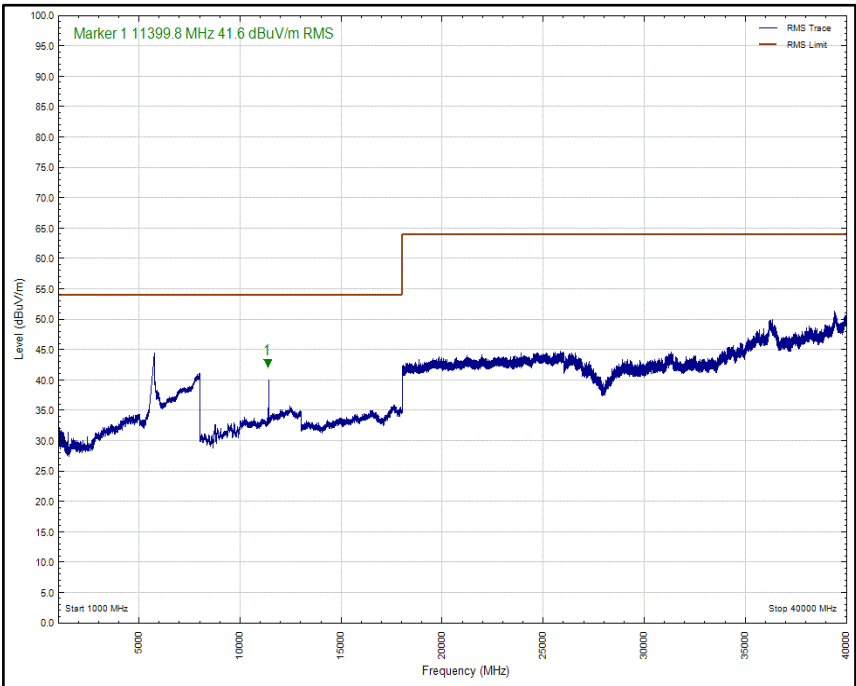


Figure 1062 - U-NII-2C - Channel 140 (5700 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

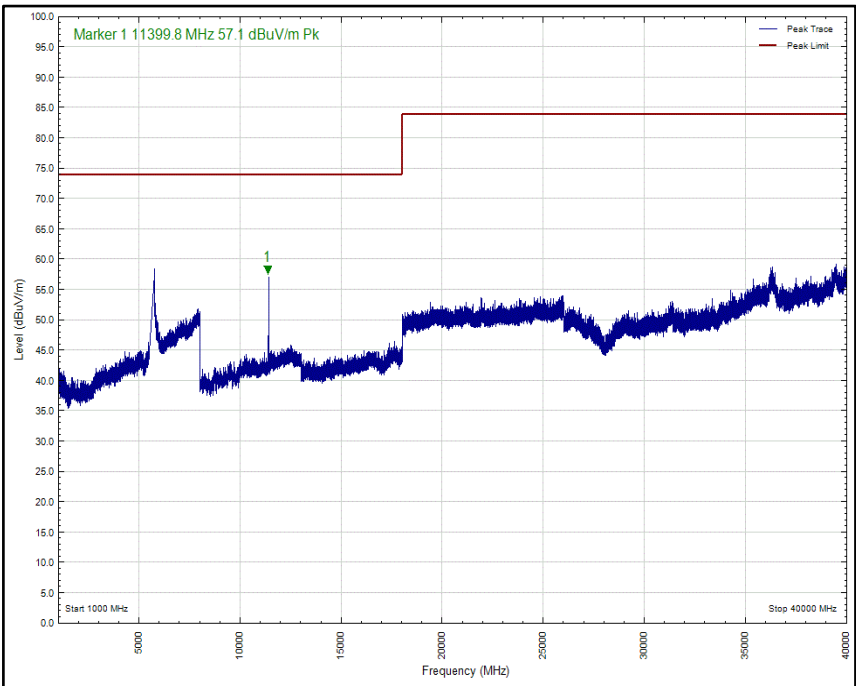


Figure 1063 - U-NII-2C - Channel 140 (5700 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

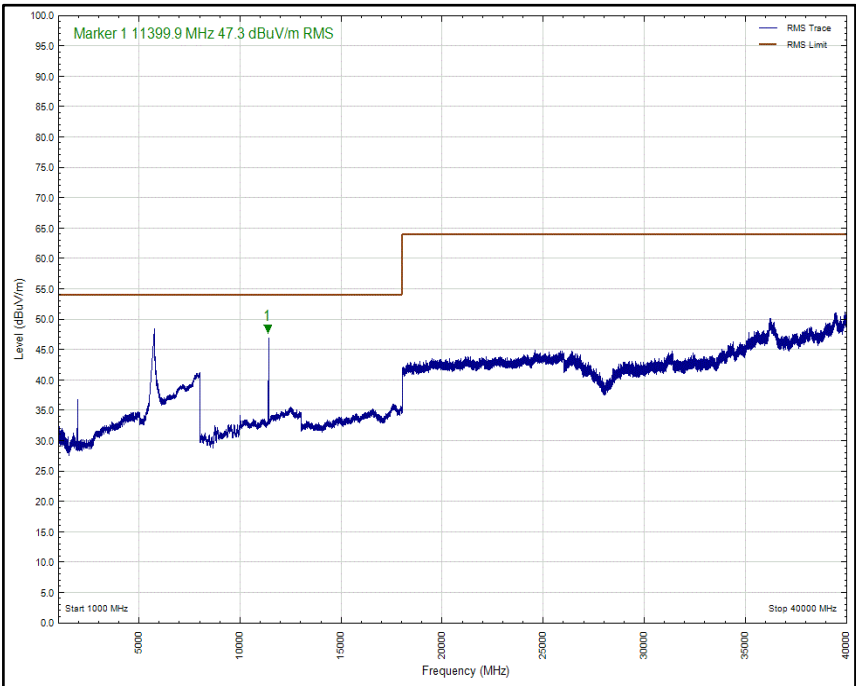


Figure 1064 - U-NII-2C - Channel 140 (5700 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1738.119	41.3	74.0	-32.7	Peak	330	105	Horizontal
11489.654	59.8	74.0	-14.2	Peak	178	166	Vertical
11489.764	42.2	54.0	-11.8	RMS	188	105	Horizontal
11489.858	49.2	54.0	-4.8	RMS	191	164	Vertical
11492.509	53.2	74.0	-20.8	Peak	188	110	Horizontal

Table 523 - U-NII-3 - Channel 149 (5745 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz

No other emissions found within 6 dB of the limit.

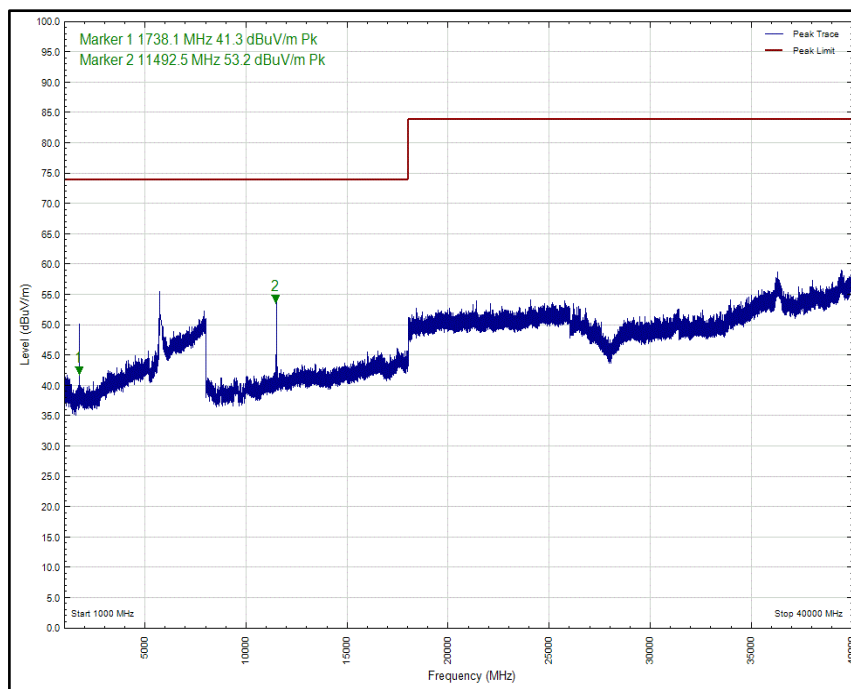


Figure 1065 - U-NII-3 - Channel 149 (5745 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

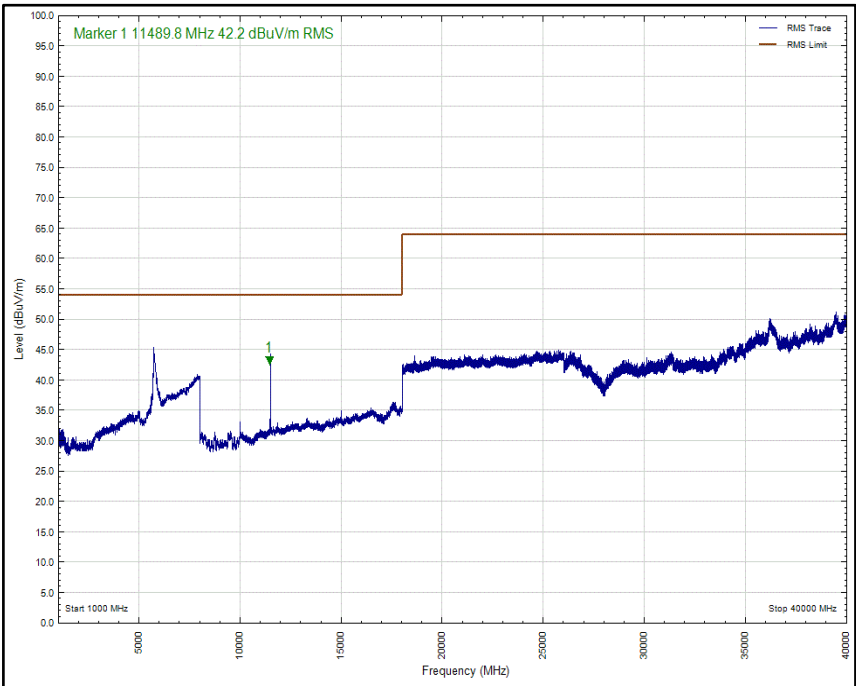


Figure 1066 - U-NII-3 - Channel 149 (5745 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

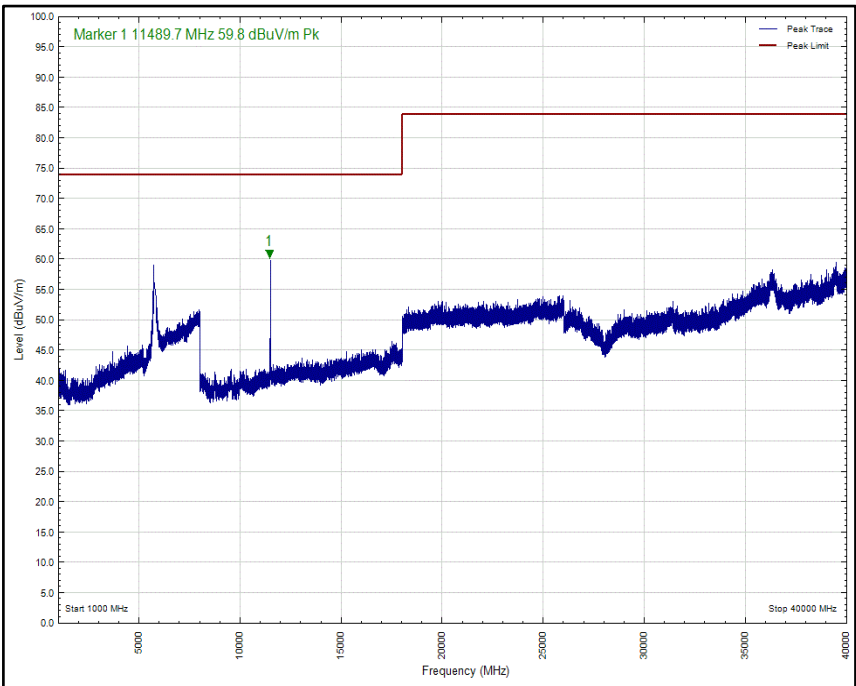


Figure 1067 - U-NII-3 - Channel 149 (5745 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

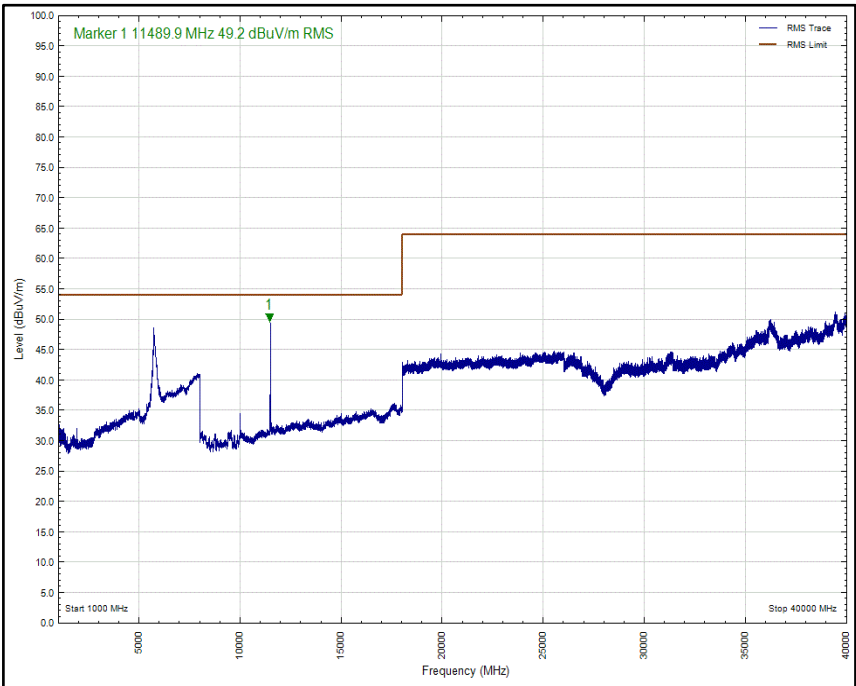


Figure 1068 - U-NII-3 - Channel 149 (5745 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
90.697	32.9	43.5	-10.6	Q-Peak	97	110	Vertical
144.210	29.8	43.5	-13.7	Q-Peak	115	101	Vertical
288.372	31.4	46.0	-14.6	Q-Peak	76	100	Horizontal
336.454	28.6	46.0	-17.5	Q-Peak	125	108	Horizontal
11649.934	59.5	74.0	-14.5	Peak	192	154	Vertical
11649.985	39.9	54.0	-14.1	RMS	48	127	Horizontal
11649.993	47.2	54.0	-6.9	RMS	191	146	Vertical

Table 524 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 40 GHz

No other emissions found within 6 dB of the limit.

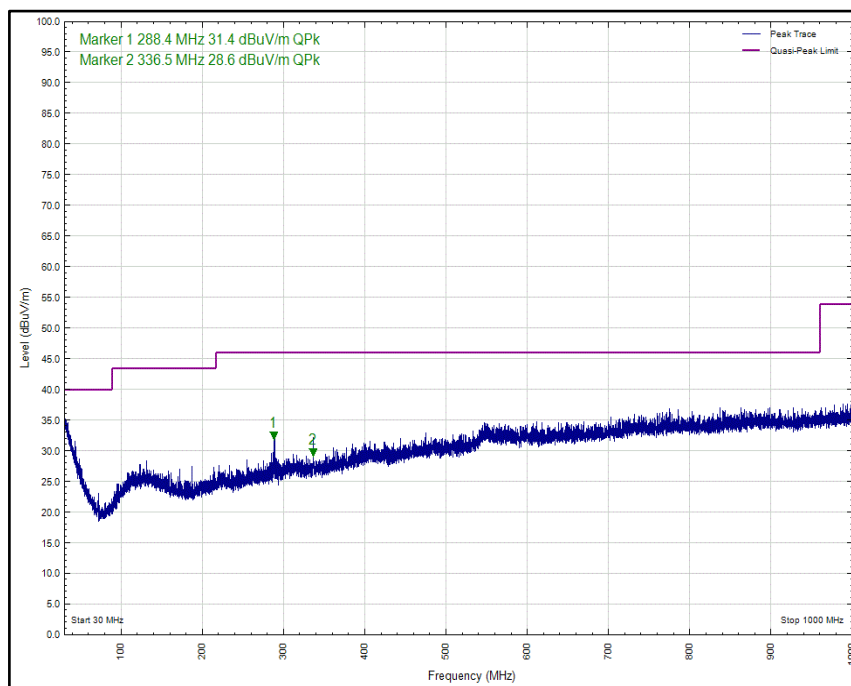


Figure 1069 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 1 GHz, Horizontal (Peak)

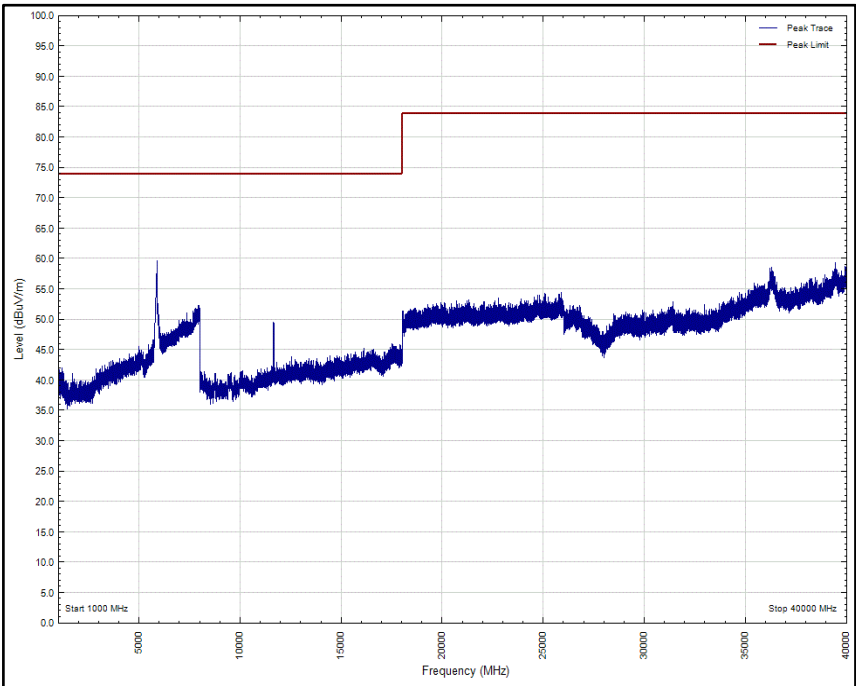


Figure 1070 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

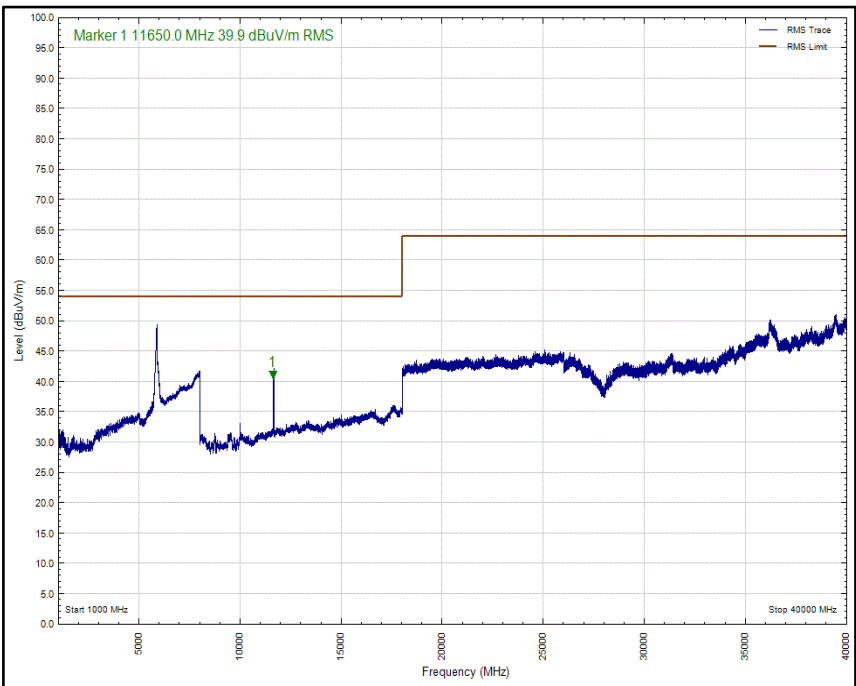


Figure 1071 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

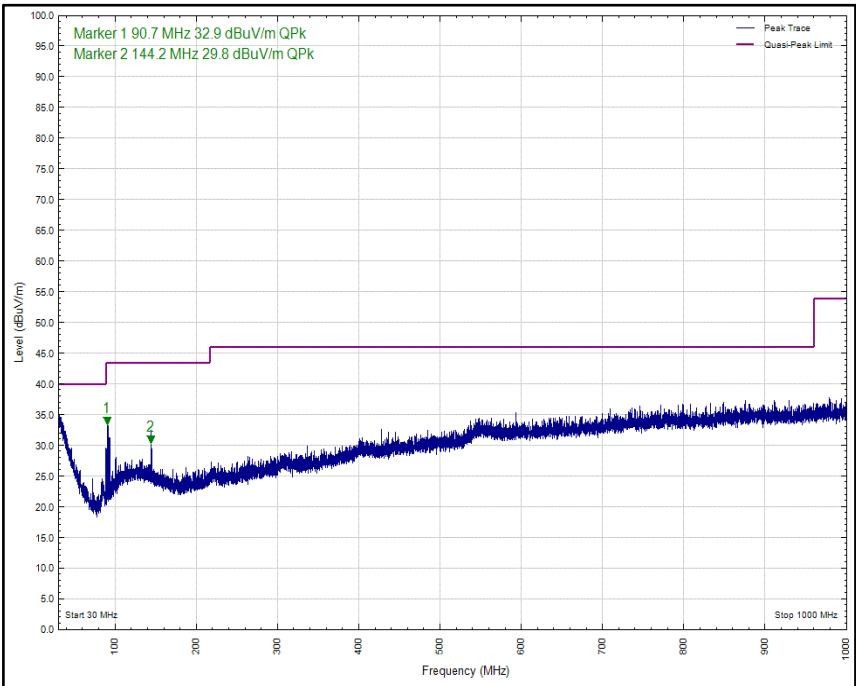


Figure 1072 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 30 MHz to 1 GHz, Vertical (Peak)

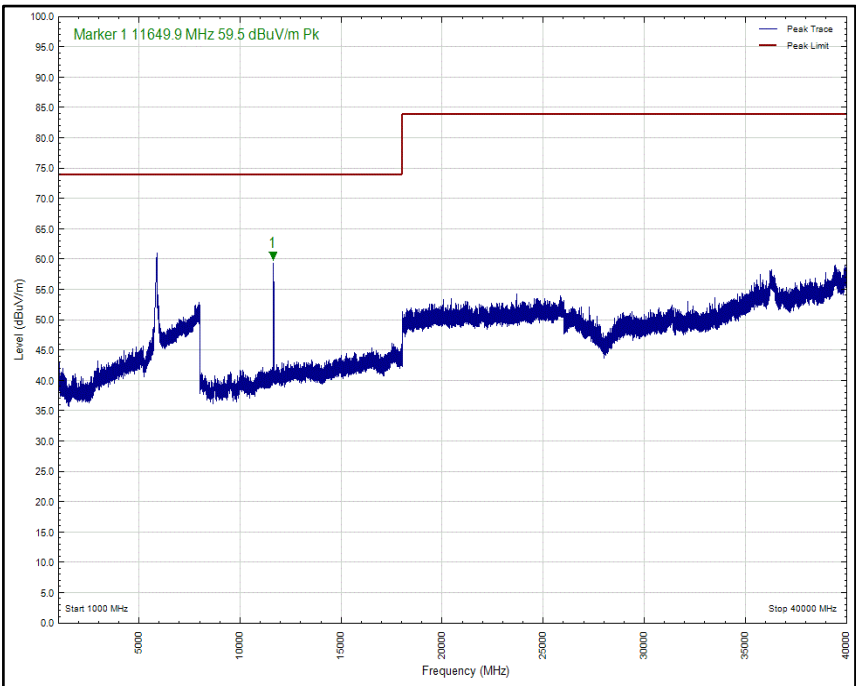


Figure 1073 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

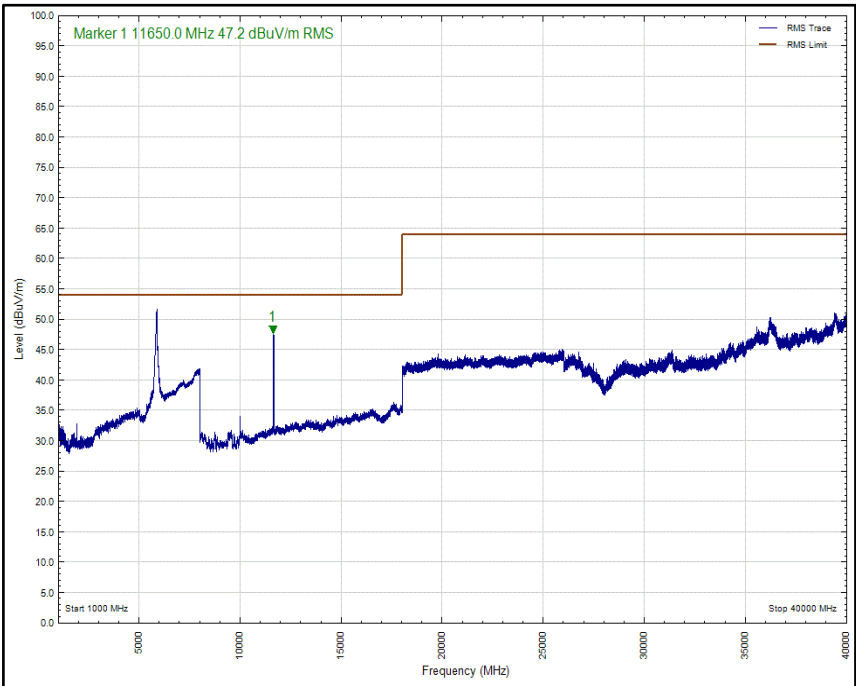


Figure 1074 - U-NII-3 - Channel 165 (5825 MHz), HT20 MIMO CDD, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)

5 GHz WLAN (HE20, 2TX MIMO, CDD)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
72.080	22.7	40.0	-17.3	Q-Peak	254	102	Vertical
90.687	32.7	43.5	-10.8	Q-Peak	91	108	Vertical
144.205	30.0	43.5	-13.5	Q-Peak	85	102	Vertical
288.373	31.0	46.0	-15.1	Q-Peak	83	109	Horizontal
336.415	29.3	46.0	-16.7	Q-Peak	112	100	Horizontal
5090.837	39.2	54.0	-14.8	RMS	113	203	Horizontal
10342.034	53.8	74.0	-20.2	Peak	245	134	Horizontal
10342.099	52.0	74.0	-22.0	Peak	180	110	Vertical

Table 525 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 40 GHz

No other emissions found within 6 dB of the limit.

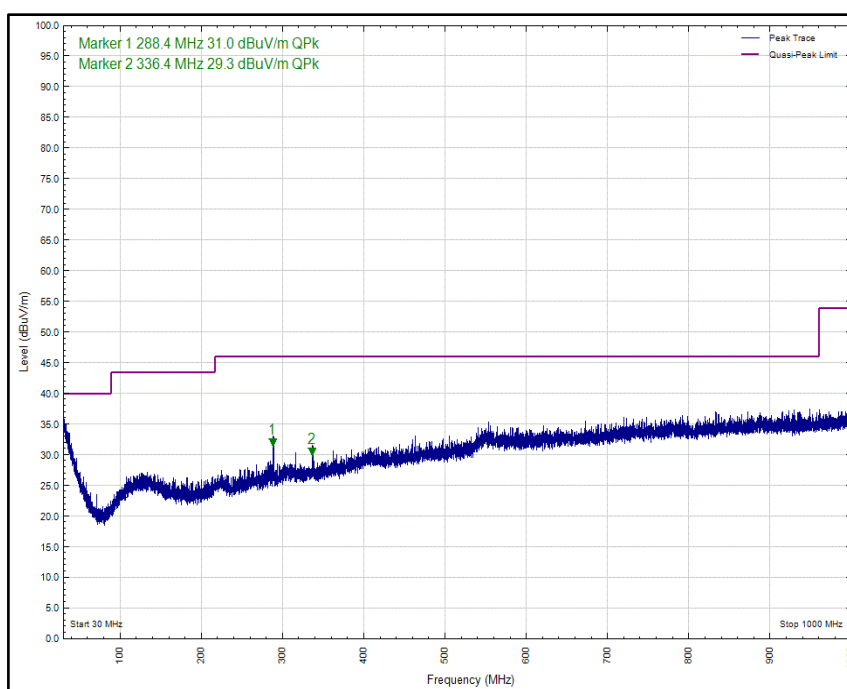


Figure 1075 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 1 GHz, Horizontal (Peak)

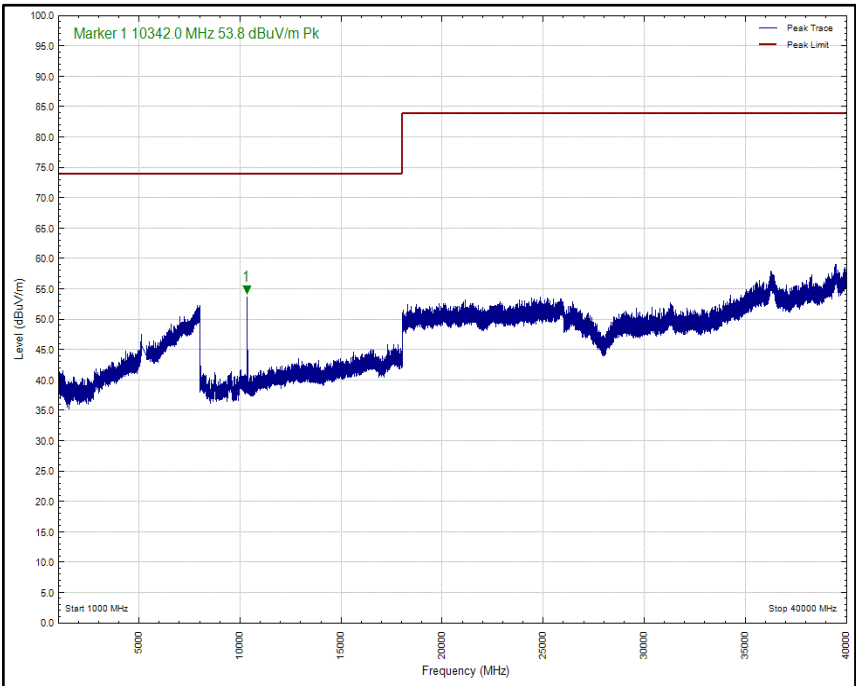
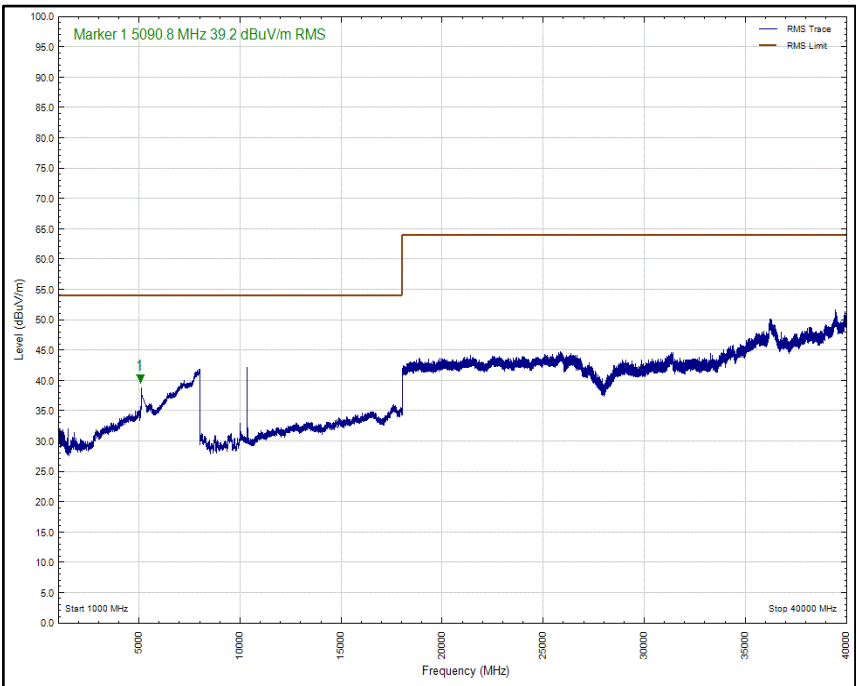


Figure 1076 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)



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Figure 1077 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

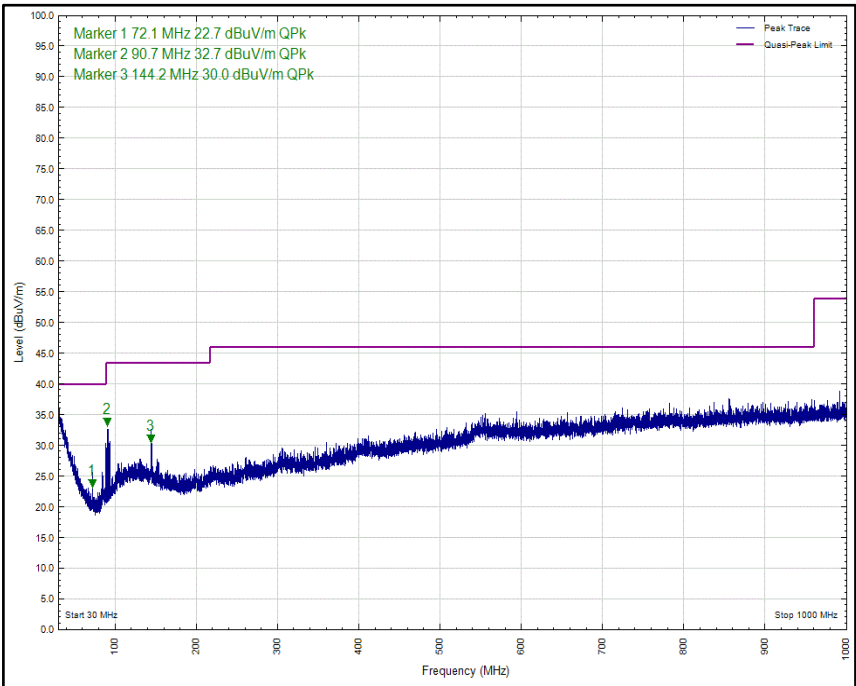


Figure 1078 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 1 GHz, Vertical (Peak)

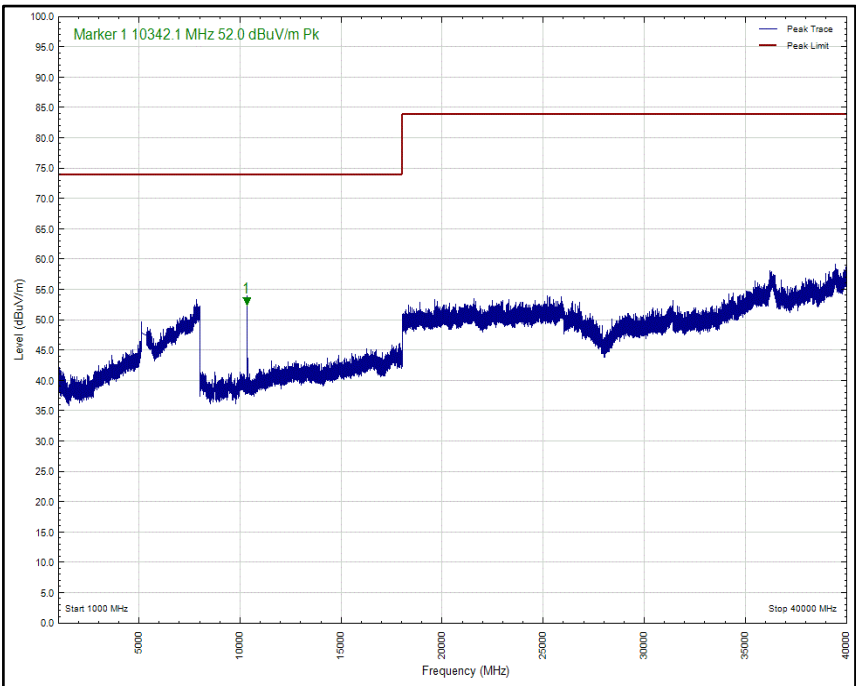


Figure 1079 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

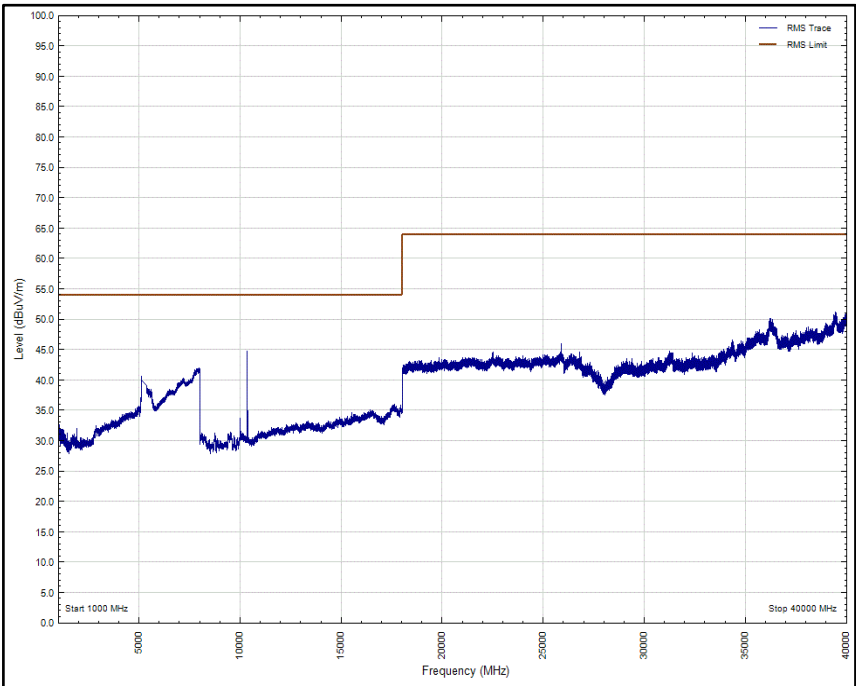


Figure 1080 - U-NII-1 - Channel 36 (5180 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1893.720	50.0	74.0	-24.0	Peak	57	108	Horizontal
1893.882	51.1	74.0	-22.9	Peak	248	102	Vertical
2480.007	48.2	74.0	-25.8	Peak	271	100	Horizontal
11472.287	57.9	74.0	-16.1	Peak	172	244	Vertical
11472.351	41.2	54.0	-12.8	RMS	171	174	Vertical
11472.698	38.3	54.0	-15.7	RMS	189	102	Horizontal

Table 526 - U-NII-3 - Channel 149 (5745 MHz), RU26-0, Core 0 - 1, 1 GHz to 40 GHz

No other emissions found within 6 dB of the limit.

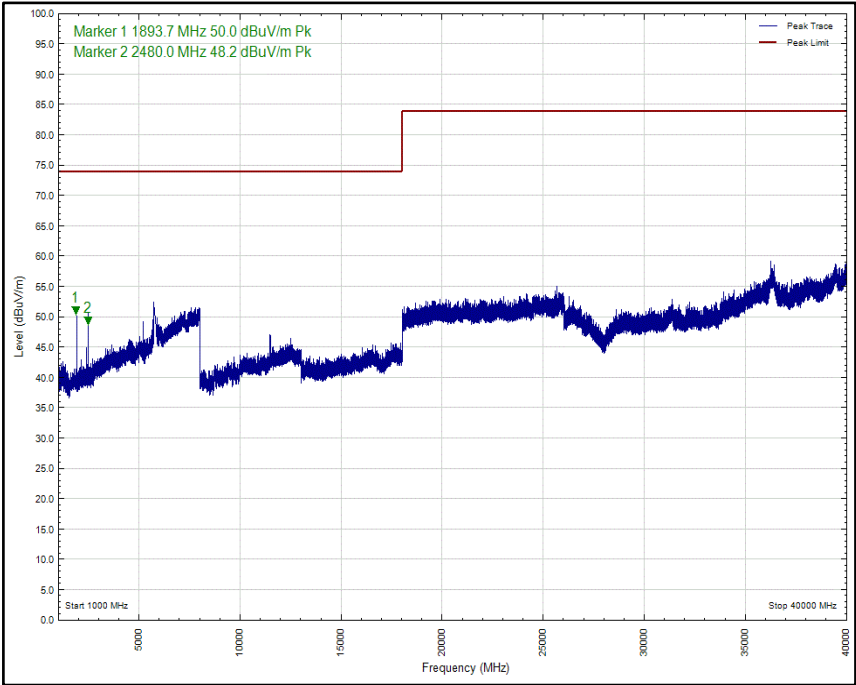


Figure 1081 - U-NII-3 - Channel 149 (5745 MHz), RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

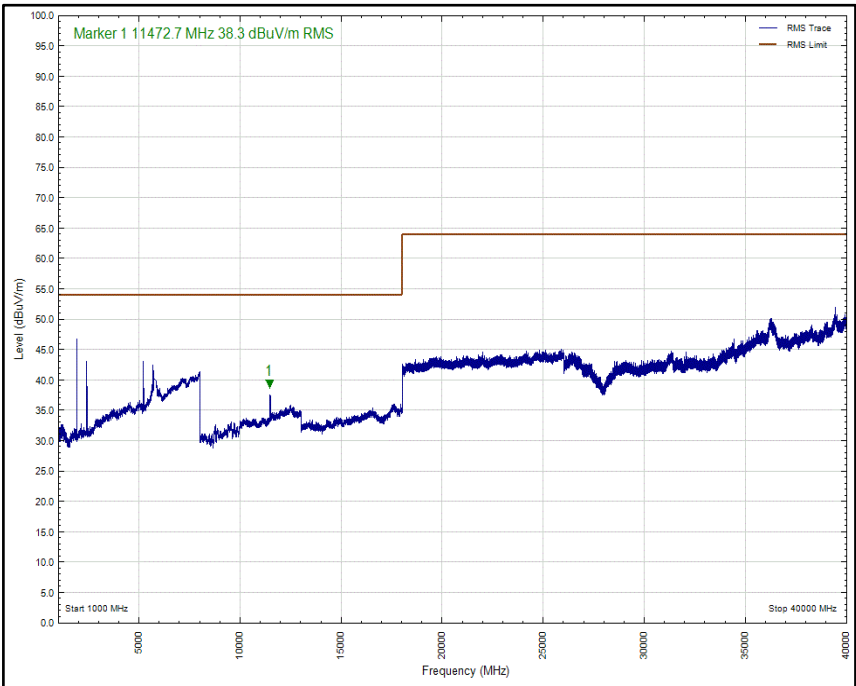


Figure 1082 - U-NII-3 - Channel 149 (5745 MHz), RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

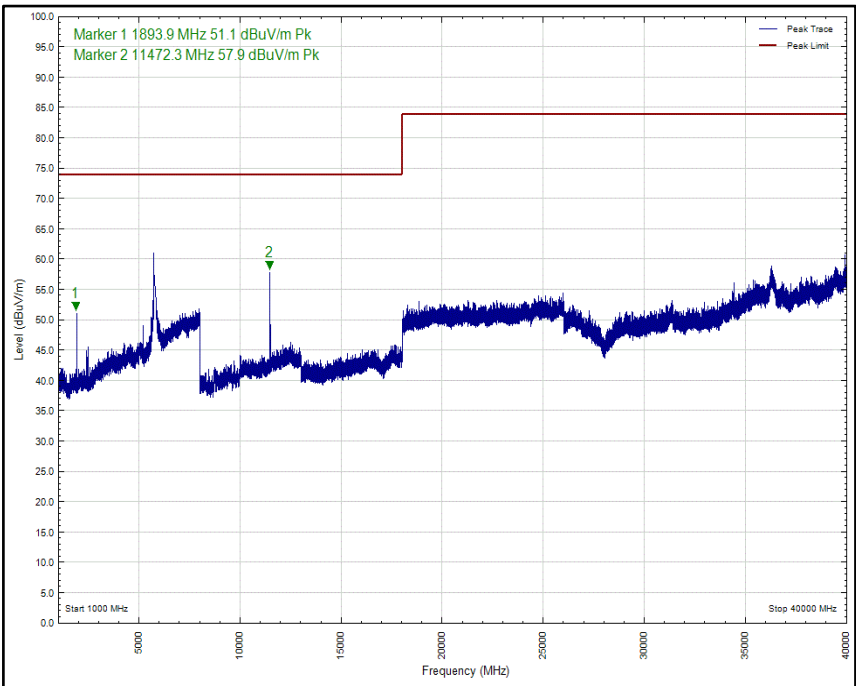


Figure 1083 - U-NII-3 - Channel 149 (5745 MHz), RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

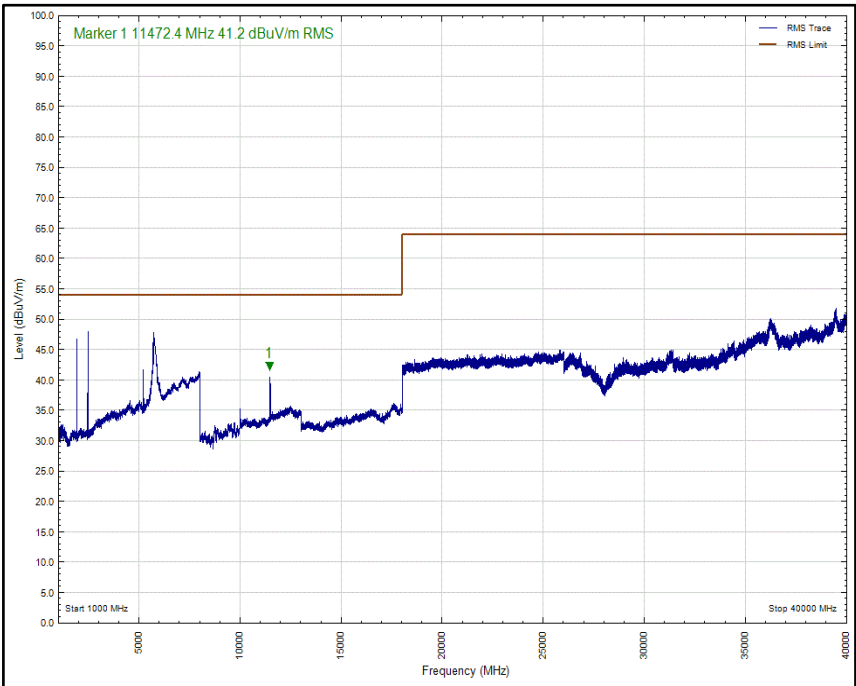


Figure 1084 - U-NII-3 - Channel 149 (5745 MHz), RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
88.477	31.2	43.5	-12.3	Q-Peak	131	102	Vertical
92.914	24.1	43.5	-19.4	Q-Peak	10	105	Vertical
144.243	27.9	43.5	-15.7	Q-Peak	133	107	Vertical
288.383	30.4	46.0	-15.6	Q-Peak	91	100	Horizontal
2426.336	51.3	74.0	-22.8	Peak	58	107	Vertical
2426.401	51.4	74.0	-22.6	Peak	112	107	Horizontal
2479.612	49.6	74.0	-24.4	Peak	166	104	Vertical
5184.851	57.1	74.0	-16.9	Peak	285	103	Horizontal
11632.166	59.5	74.0	-14.5	Peak	50	134	Horizontal
11632.410	59.6	74.0	-14.4	Peak	195	110	Vertical
11632.534	46.6	54.0	-7.4	RMS	196	110	Vertical
11632.602	47.2	54.0	-6.8	RMS	197	110	Horizontal

Table 527 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 40 GHz

No other emissions found within 6 dB of the limit.

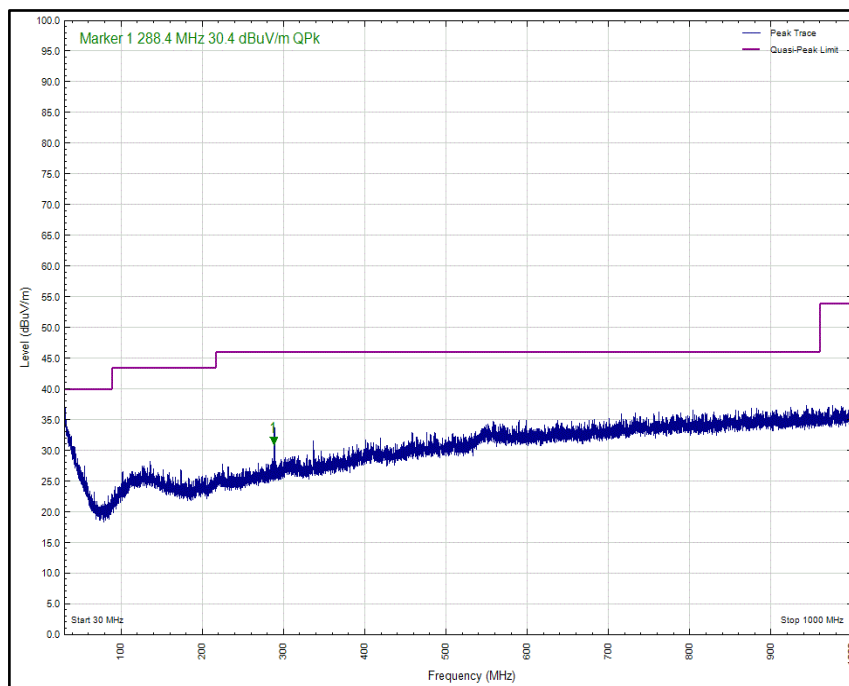


Figure 1085 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 1 GHz, Horizontal (Peak)

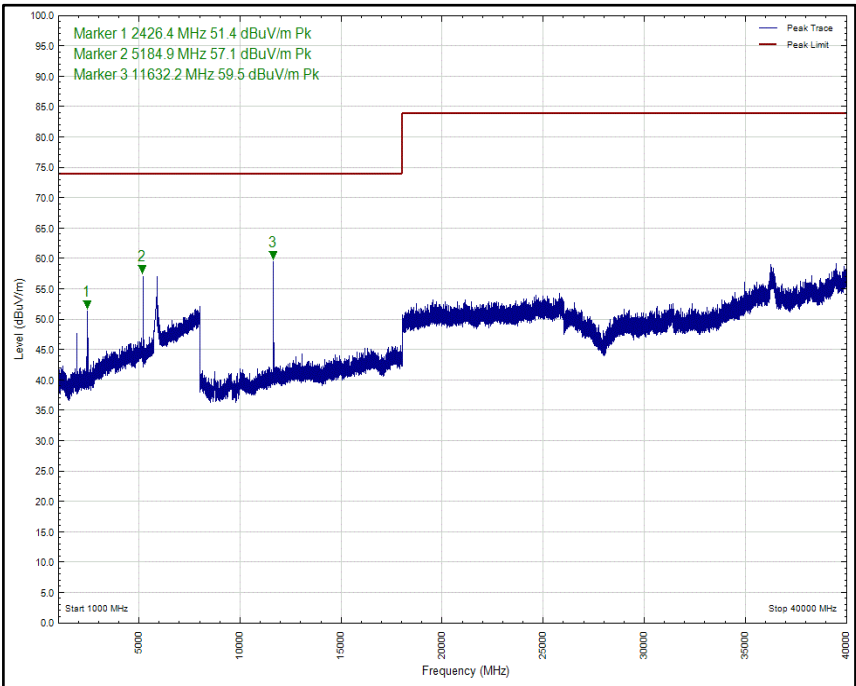


Figure 1086 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Peak)

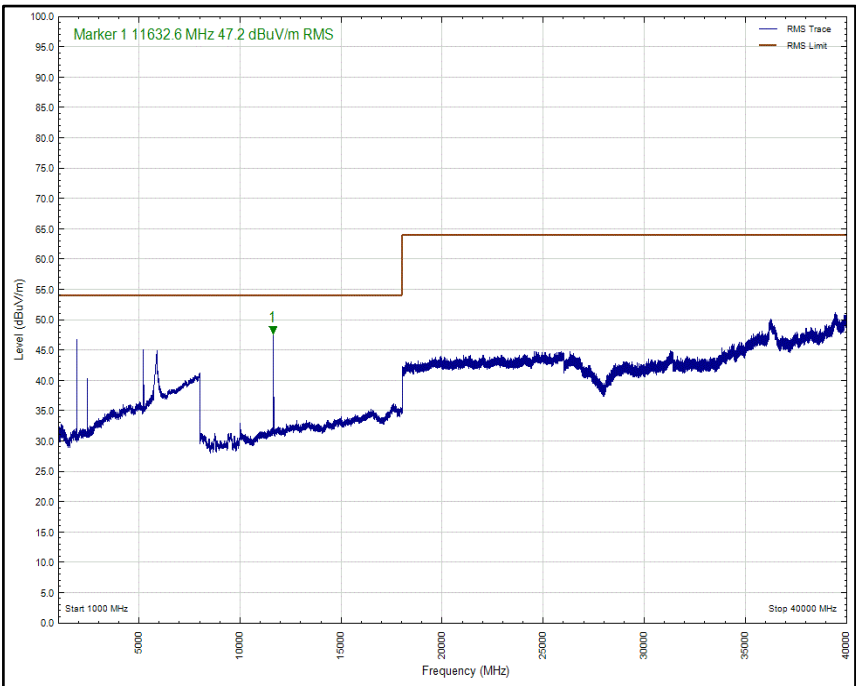


Figure 1087 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Horizontal (Average)

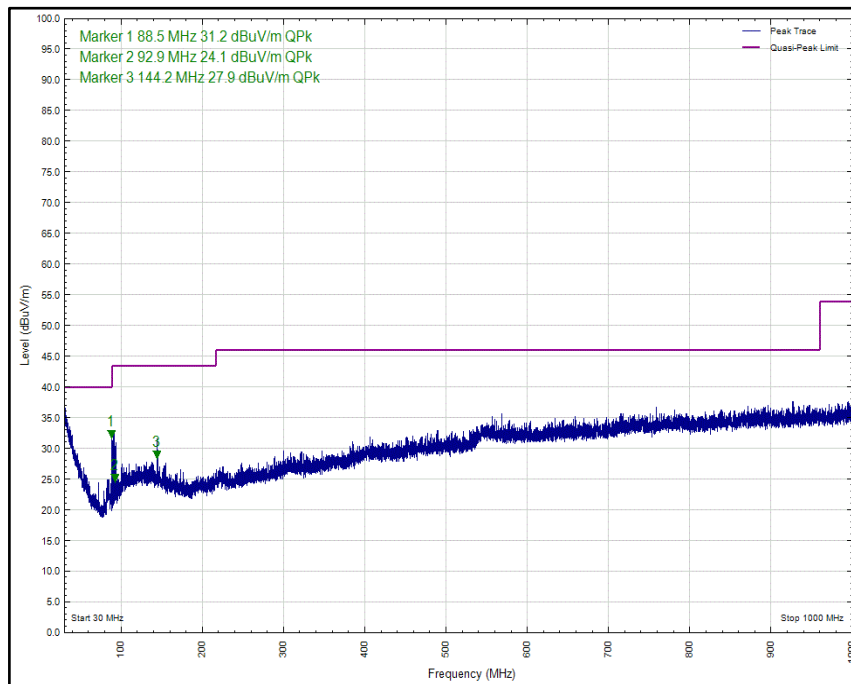


Figure 1088 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 30 MHz to 1 GHz, Vertical (Peak)

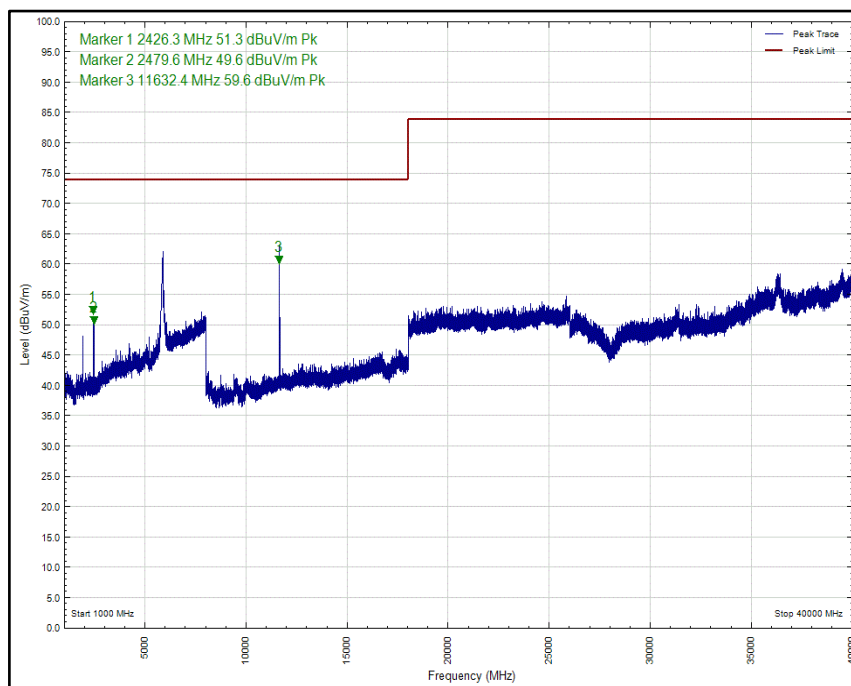


Figure 1089 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Peak)

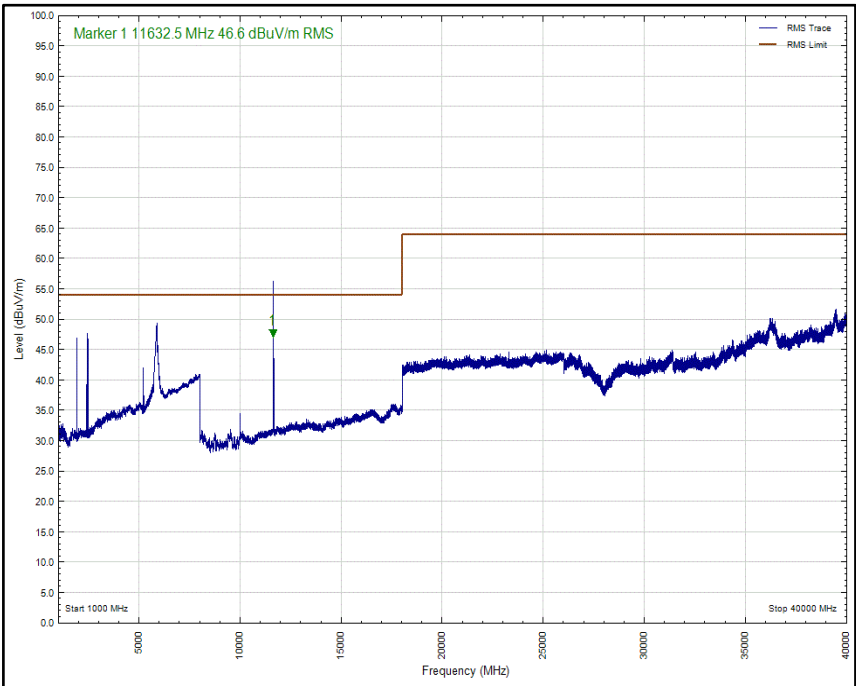


Figure 1090 - U-NII-3 - Channel 165 (5825 MHz), HE20 RU26-0, Core 0 - 1, 1 GHz to 40 GHz, Vertical (Average)



FCC 47 CFR Part 15, Limit Clause 15.407(b)(1)(2)(3)(4)

Emissions not falling within the restricted bands listed in FCC 47 CFR Part 15.209:

For transmitters operating in the 5.15-5.25 GHz band: ≤ -27 dBm/MHz outside 5150-5350 MHz.

For transmitters operating in the 5.25-5.35 GHz band: ≤ -27 dBm/MHz outside 5150-5350 MHz.

For transmitters operating in the 5.47-5.725 GHz band: ≤ -27 dBm/MHz outside 5470-5725 MHz

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Emissions within the restricted bands listed in FCC 47 CFR Part 15.209:

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Measurement Distance (m)
0.009 to 0.490	2400/F(kHz)	300
0.490 to 1.705	24000/F(kHz)	30
1.705 to 30	30	30
30 to 88	100	3
88 to 216	150	3
216 to 960	200	3
Above 960	500	3

Table 528 - Radiated Emissions Limit Table (FCC)



ISED RSS-247, Limit Clause 6.2.1.2, 6.2.2.2, 6.2.3.2 and 6.2.4.2 and ISED RSS-GEN, Limit Clause 8.9

Emissions not falling within the restricted bands listed in Industry Canada RSS-GEN, Clause 8.10:

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB.

For transmitters with operating frequencies in the bands 5250-5350 MHz and 5470-5725 MHz, all emissions outside the band 5250-5350 MHz and 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

- a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Emissions not falling within the restricted bands listed in Industry Canada RSS-GEN, Clause 8.10:

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)
0.009 to 0.490	2400/F(kHz)
0.490 to 1.705	24000/F(kHz)
1.705 to 30	30
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 529 - Radiated Emissions Limit Table (ISED)



2.6.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Antenna with permanent attenuator (Bilog)	Schaffner	CBL6143	287	24	15-May-2020
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Filter (High Pass)	Lorch	SHP7-7000-SR	566	12	06-Jun-2020
Pre-Amplifier	Phase One	PS04-0086	1533	12	04-Aug-2020
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	07-Aug-2020
Band Reject Filter - 2.425 GHz	Wainwright	WRCGV14-2390-2400-2450-2460-50SS	5066	12	01-Oct-2020
Band Reject Filter - 2.4585 GHz	Wainwright	WRCGV14-2423.5-2433.5-2483.5-2493.5-50SS	5068	12	01-Oct-2020
Band Reject Filter - 5.795GHz	Wainwright	WRCJV10-5725-5755-5835-5865-50SS	5070	12	26-Sep-2020
Band Reject Filter - 5.22 GHz	Wainwright	WRCJV12-5120-5150-5290-5320-50SS	5072	12	24-Sep-2020
Band Reject Filter - 5.28 GHz	Wainwright	WRCJV12-5180-5210-5350-5380-50SS	5074	12	24-Sep-2020
Band Reject Filter - 5.775 GHz	Wainwright	WRCJV10-5700-5735-5815-5850-50SS	5076	12	01-Oct-2020
Band Reject Filter - 5.570 GHz	Wainwright	WRCJV10-5440-5490-5650-5700-50SS	5078	12	02-Oct-2020
Band Reject Filter - 5.690 GHz	Wainwright	WRCJV8-5635-5670-5710-5745-50SS	5080	12	25-Sep-2020
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	28-Nov-2020
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5092	12	06-Dec-2020
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5095	12	04-Dec-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5103	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	09-Dec-2020
Cable (18 GHz)	Rosenberger	LU7-071-1000	5105	12	06-Oct-2020
Cable (18 GHz)	Rosenberger	LU7-071-2000	5107	12	06-Oct-2020
EmX Emissions Software	TUV SUD	EmX	5125	-	Software
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU



Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	5215	12	10-Mar-2021
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5216	12	10-Mar-2021
Horn Antenna (15-40GHz)	Schwarzbeck	BBHA 9170	5217	12	09-Jul-2020
Preamplifier (30dB 18-40GHz)	Schwarzbeck	BBV 9721	5218	12	09-Jul-2020

Table 530

TU - Traceability Unscheduled



2.7 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

2.7.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (h)(2)(iii)(iv)
ISED RSS-247, Clause 6.3.2(c)(d)(e)

2.7.2 Equipment Under Test and Modification State

A2330, S/N: C07CF010PW92 - Modification State 0

2.7.3 Date of Test

24-April-2020 to 29-May-2020

2.7.4 Test Method

This test was performed in accordance with FCC KDB 905462 D02, clause 7.8.3.

Radar Pulse Type 0 was then transmitted, and the Spectrum monitored. The transmissions from the UUT were observed for a period of 12 seconds after the final injected Radar Pulse.

It was checked that all transmissions stopped within the 10 second period defined from the point of the end of the final Radar pulse + 10 seconds. In addition, the aggregate on time during the first 200ms and the following 9.8 seconds of the Channel Move Time was computed by the Aeroflex DFS Software.

The markers on the trace data correspond to the following time periods:

Red - End Of Radar Burst, (T0)
Purple - End Of 200ms Period, (T0 + 200 ms)
Orange - End Of Channel Move Time, (T0 + 10 seconds)

To verify the non-occupancy period, the PXI digitiser was replaced with a Spectrum Analyser. The external trigger from the Aeroflex DFS test system was used to trigger a 30-minute sweep from the moment the radar burst sequence was injected. It was verified that no transmissions occurred on the test channel during this time period.

2.7.5 Environmental Conditions

Ambient Temperature	21.8 - 25.0 °C
Relative Humidity	29.6 - 37.0 %

2.7.6 Test Results

802.11ac VHT80

The equipment was set up as shown in the diagram below. The EUT was configured to run iPerf, transmitting UDP at packets to the client laptop. The channel loading was set to >17% by adjusting the bandwidth specified in the iPerf UDP transfer.

To calibrate the level of the radar at the input to the companion device, the companion device was replaced by the spectrum analyser and the output of the PXI RF generator adjusted to give -62 dBm.

Radar Type	Pulse Width (μ s)	PRI (μ s)	Number of Pulses
0	1	1428	18

Table 531 - Radar Pulse Type 0 Characteristics

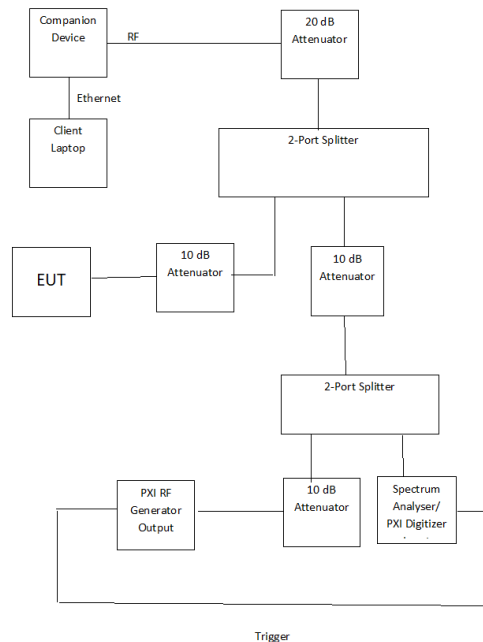


Figure 1091 - Test Equipment Setup Diagram for Client without Radar Detection with Injection at the Master



Figure 1092 - Verification of Radar Type 0

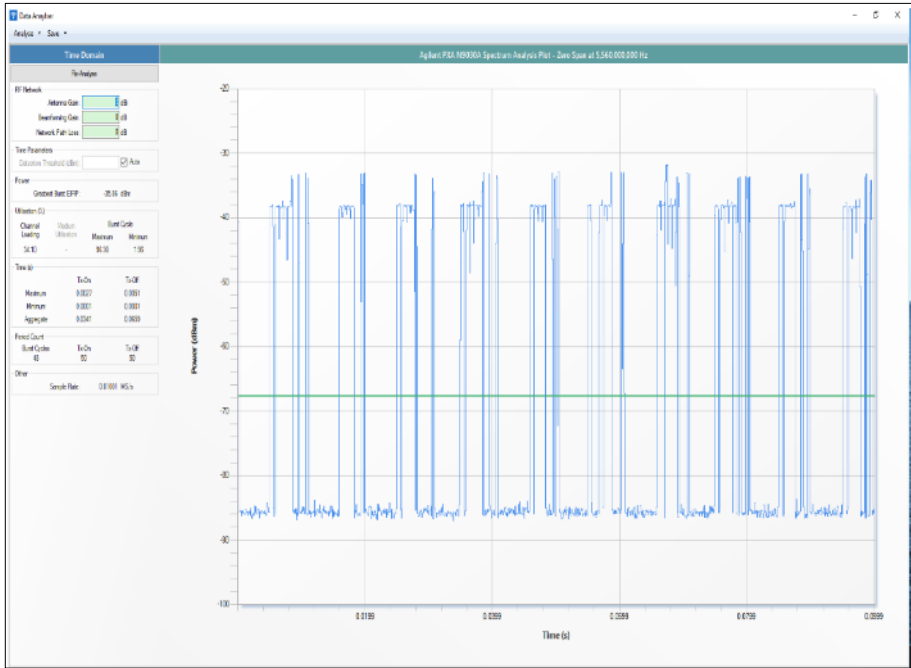


Figure 1093 - Channel Loading

The channel loading was 34.10%



Maximum Transmit Power	Value (Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Table 532 - DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Test Parameter	Result
Channel Move Time	4.16 s
Channel Closing Time (Aggregate Time During 200 ms)	9.54 ms
Channel Closing Time (Aggregate Time During 200 ms to 10 s)	15.13 ms
Channel Closing Time (Aggregate Time During 10 s)	24.67 ms
Transmission Observed During Non-Occupancy Period	None

Table 533 - In-Service Monitoring Test Results

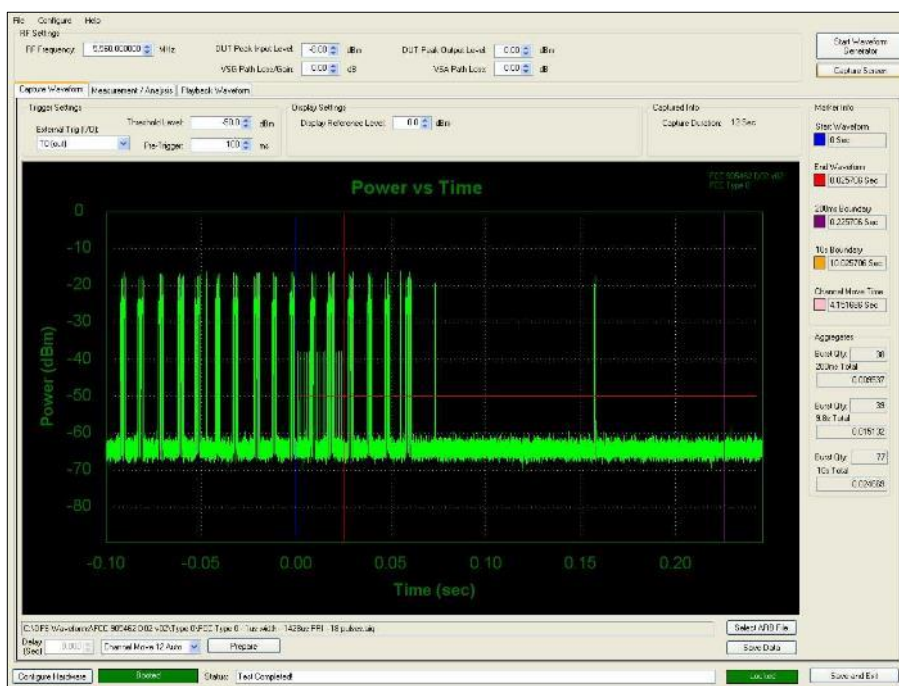


Figure 1094 - First 200 ms of Channel Shutdown Period

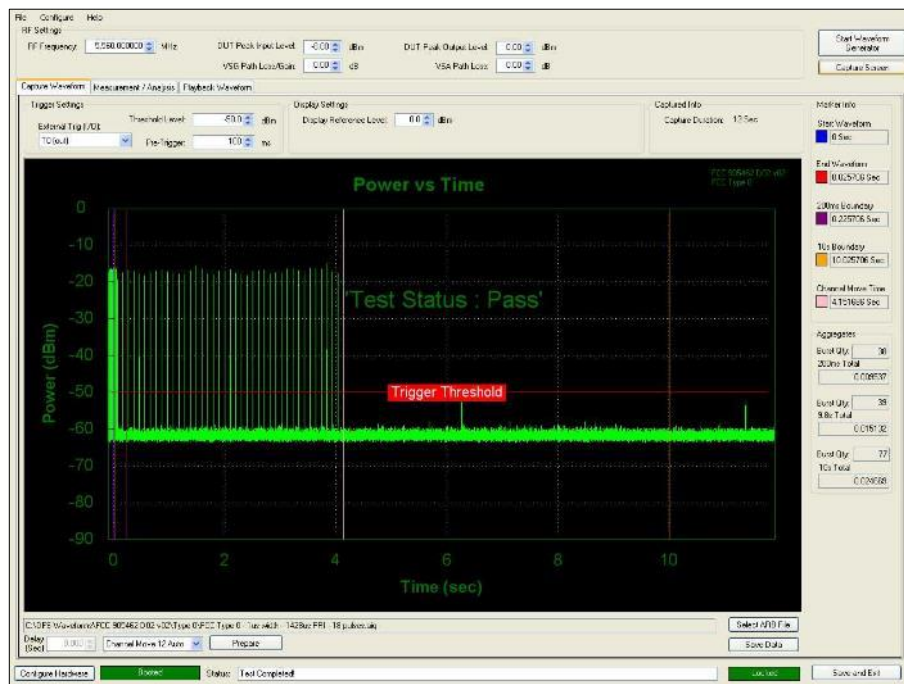


Figure 1095 - First 12 s of Channel Shutdown Period

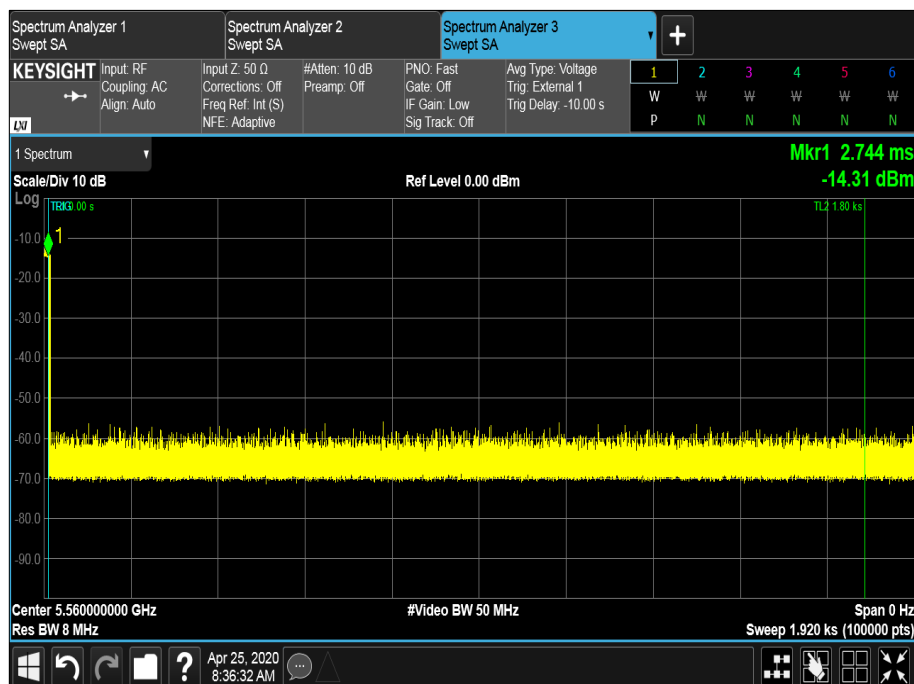


Figure 1096 - 30 minute Non-Occupancy Period

5 GHz WLAN - Client to Client

The equipment was set up as shown in the diagram below. The EUT was connected to a router via a conducted link. The client device was connected to the router via a radiated link, the client device was configured to run iPerf, transmitting UDP to the EUT directly i.e. not via the router. The channel loading was set to >17% by adjusting the bandwidth specified in the iPerf UDP transfer.

To calibrate the level of the radar at the input to the companion device, the companion device was replaced by the spectrum analyser and the output of the PXI RF generator adjusted to give -62 dBm.

Radar Type	Pulse Width (μ s)	PRI (μ s)	Number of Pulses
0	1	1428	18

Table 534 - Radar Pulse Type 0 Characteristics

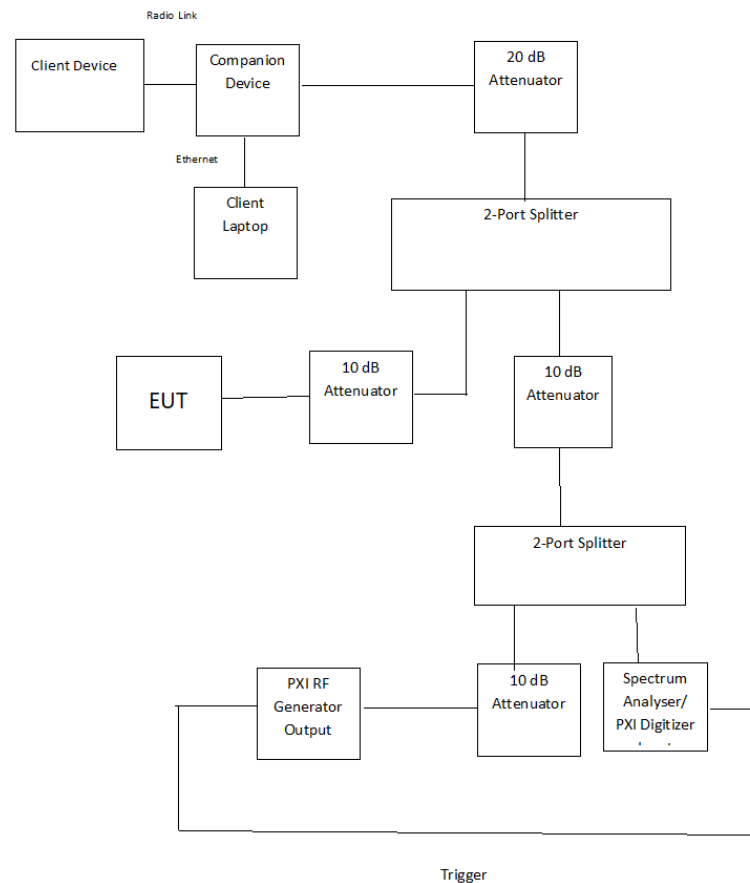


Figure 1097 - Test Equipment Setup Diagram for Client without Radar Detection with Injection at the Master

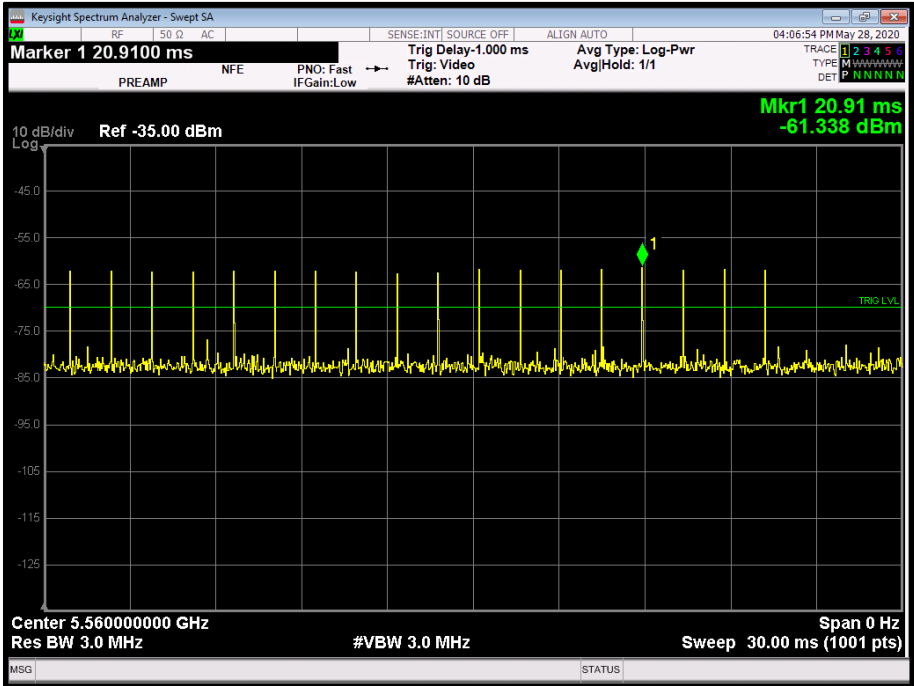


Figure 1098 - Verification of Radar Type 0

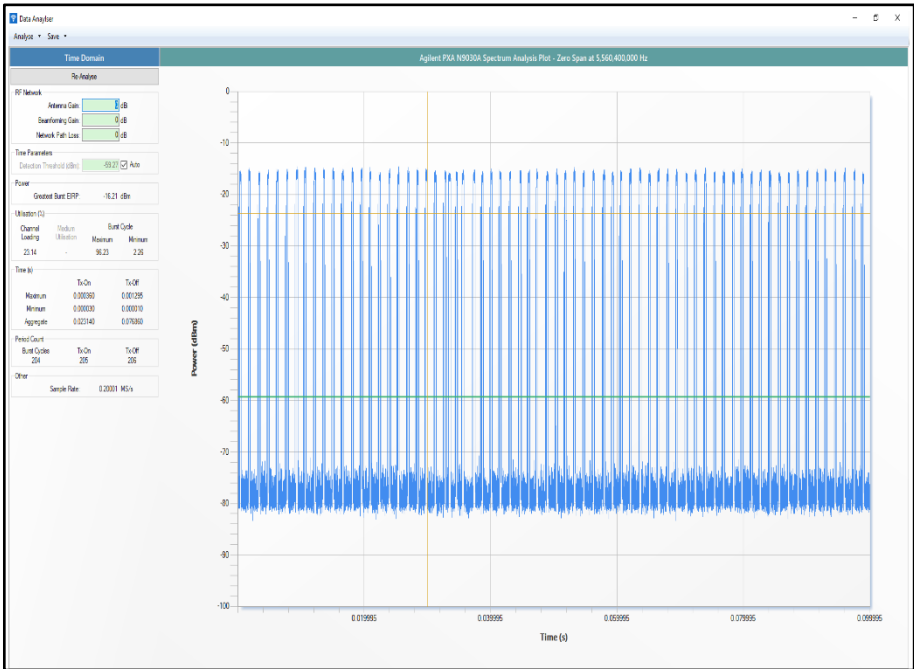


Figure 1099 - Channel Loading

The channel loading was 23.14 %



Maximum Transmit Power	Value (Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.	
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	

Table 535 - DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Test Parameter	Result
Channel Move Time	4.00 sec
Channel Closing Time (Aggregate Time During 200 ms)	11.90 ms
Channel Closing Time (Aggregate Time During 200 ms to 10 s)	14.36 ms
Channel Closing Time (Aggregate Time During 10 s)	26.26 ms
Transmission Observed During Non-Occupancy Period	None

Table 536 - In-Service Monitoring Test Results

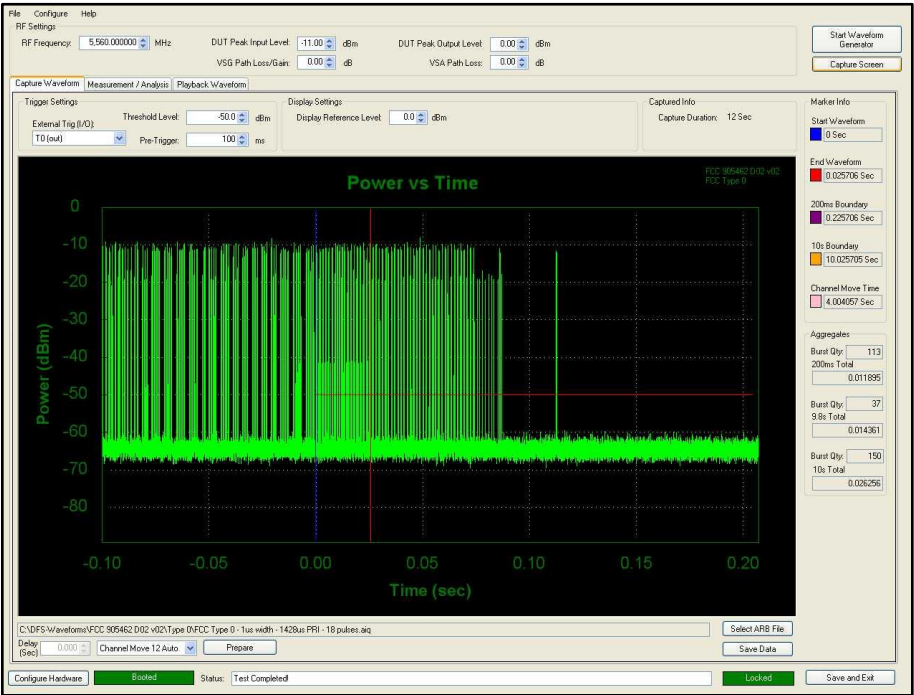


Figure 1100 - First 200 ms of Channel Shutdown Period

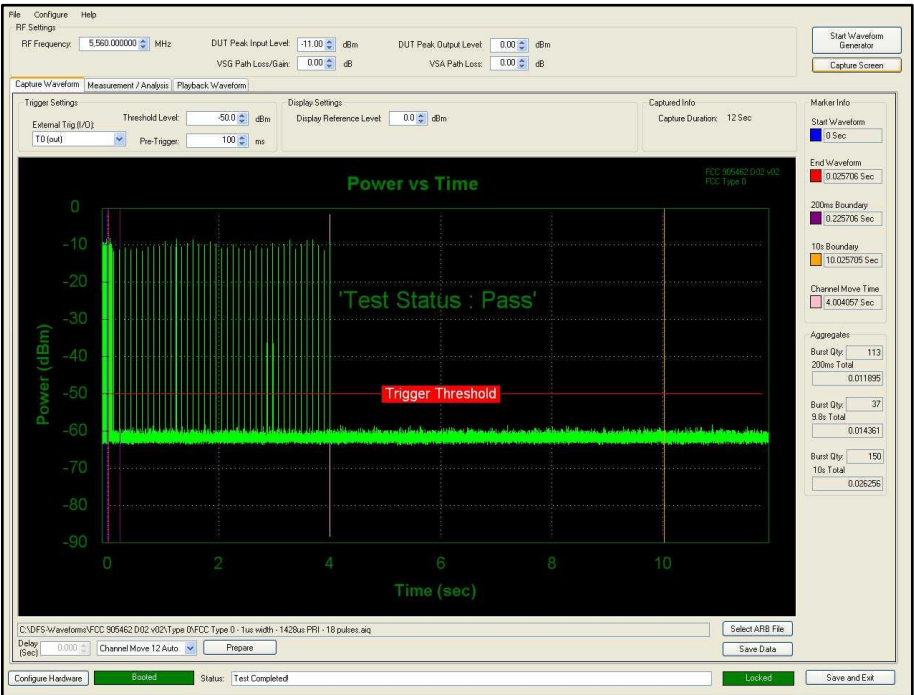


Figure 1101 - First 12 s of Channel Shutdown Period

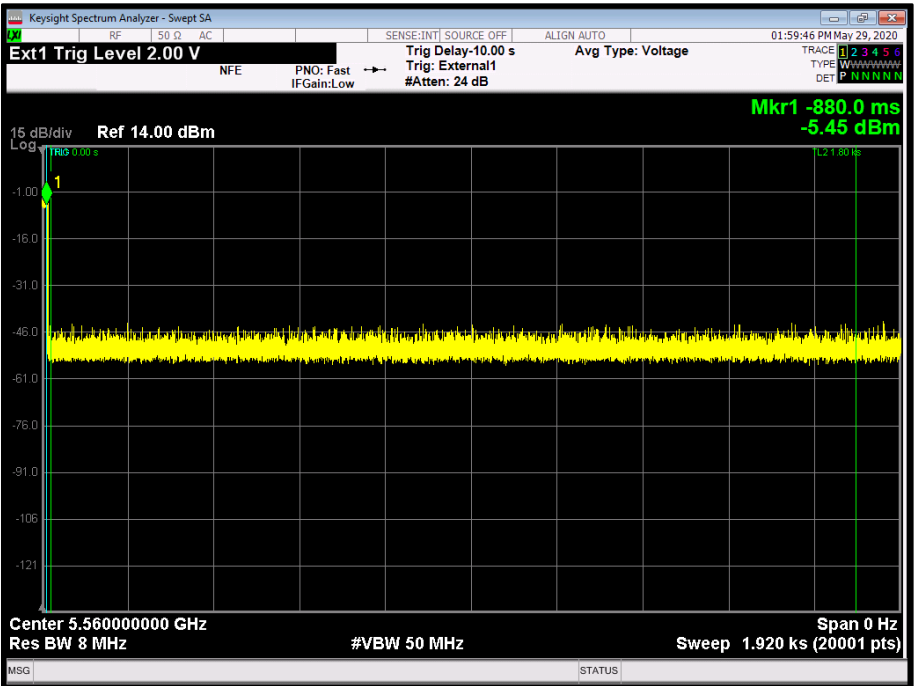


Figure 1102 - 30 minute Non-Occupancy Period

FCC 47 CFR Part 15, Limit Clause 15.407 (h)(2)(iii)

Channel Move Time	<10 seconds
Channel Closing Time (Aggregate Time During 200ms)	<200 ms
Channel Closing Time (Aggregate Time During +200ms to 10s)	<60 ms



Table 537 - Channel Move Time and Channel Closing Transmission Time Limit

FCC 47 CFR Part 15, Limit Clause 15.407 (h)(2)(iv)

Non-occupancy Period	> 30 minutes
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Table 538 - Non-Occupancy Limit



2.7.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 1.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Hygrometer	Rotronic	I-1000	3220	12	25-Sep-2020
PXI RF Digitizer	Aeroflex	3035	4012	24	15-Mar-2020
PXI RF Synthesizer	Aeroflex	3010	4013	24	15-Mar-2020
PXI RF Synthesizer	Aeroflex	3011	4014	24	15-Mar-2020
PXI Digital RF Signal Generator	Aeroflex	3025	4015	24	15-Mar-2020
Wireless Cable & Fibre Router - AC 1900, Dual-band	Asus	RT-AC68U	4881	-	TU
EXA	Keysight Technologies	N9010B	4968	24	23-Dec-2021
Cable (18 GHz)	Rosenberger	LU7-071-1000	5100	12	13-Dec-2020
Power Splitter, 2 way	Mini-Circuits	ZN2PD2-63-S+	5237	-	O/P Mon
Power Splitter, 2 way	Mini-Circuits	ZN2PD2-63-S+	5239	-	O/P Mon
Attenuator 5W 10dB DC-18GHz	Aaren	AT40A-4041-D18-10	5492	12	14-Apr-2021
Attenuator 5W 10dB DC-18GHz	Aaren	AT40A-4041-D18-10	5494	12	14-Apr-2021
Attenuator 5W 10dB DC-18GHz	Aaren	AT40A-4041-D18-10	5495	12	14-Apr-2021
Attenuator 5W 20dB DC-18GHz	Aaren	AT40A-4041-D18-20	5497	12	14-Apr-2021

Table 539

TU - Traceability Unscheduled

O/P Mon – Output Monitored using calibrated equipment



3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Maximum Conducted Output Power	± 3.2 dB
Maximum Conducted Power Spectral Density	± 3.2 dB
Authorised Band Edges	± 6.3 dB
Restricted Band Edges	± 6.3 dB
Emission Bandwidth	± 73555.16 Hz
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Time: ± 0.47 % Power: ± 1.29 dB

Table 540

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.