

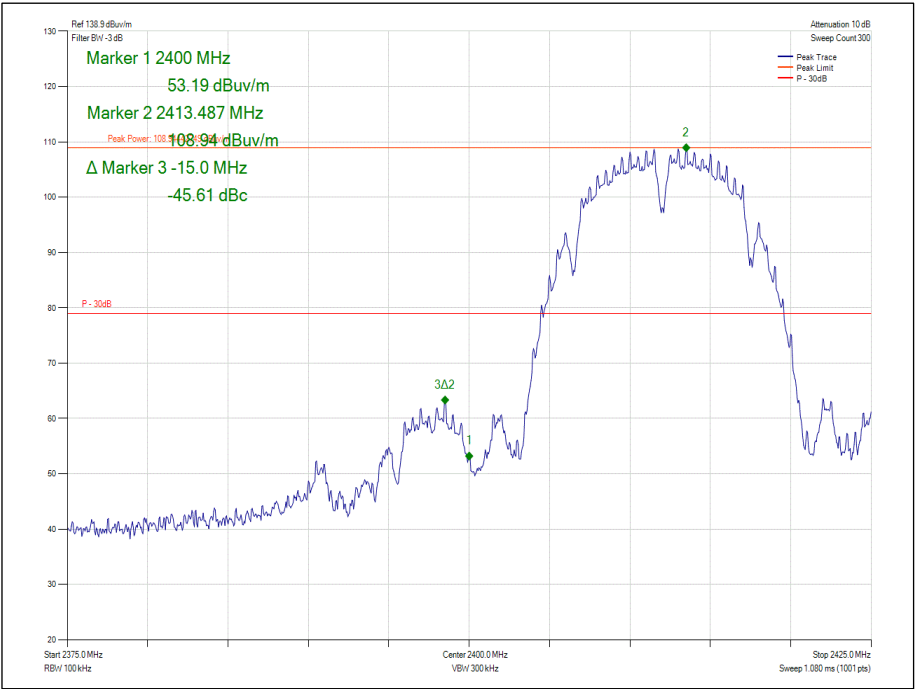


Figure 98 - 802.11b - 2412 MHz
Measured Frequency 2398.5 MHz

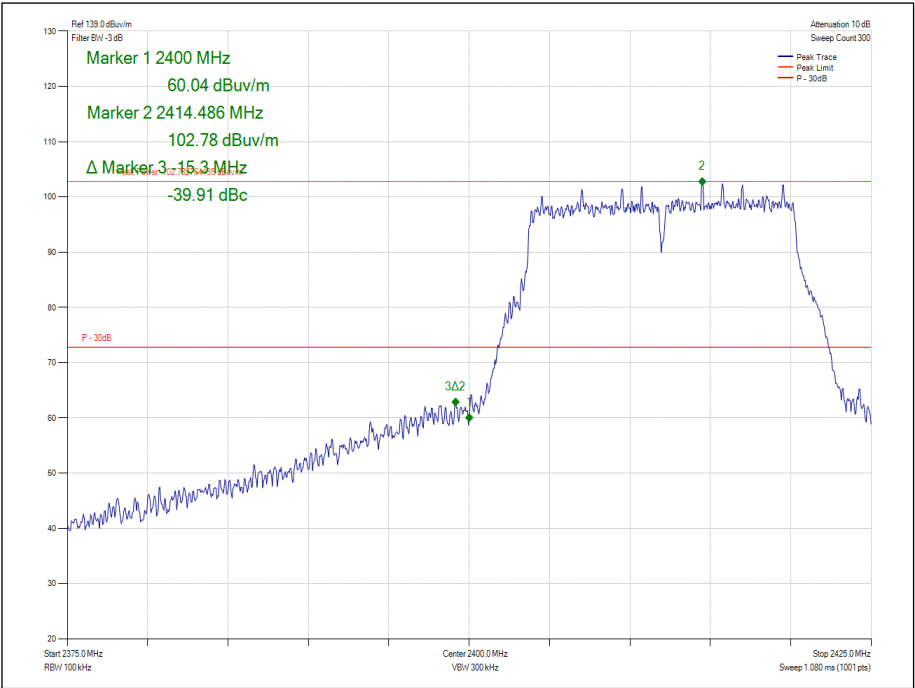


Figure 99 - 802.11g - 2412 MHz
Measured Frequency 2399.15 MHz

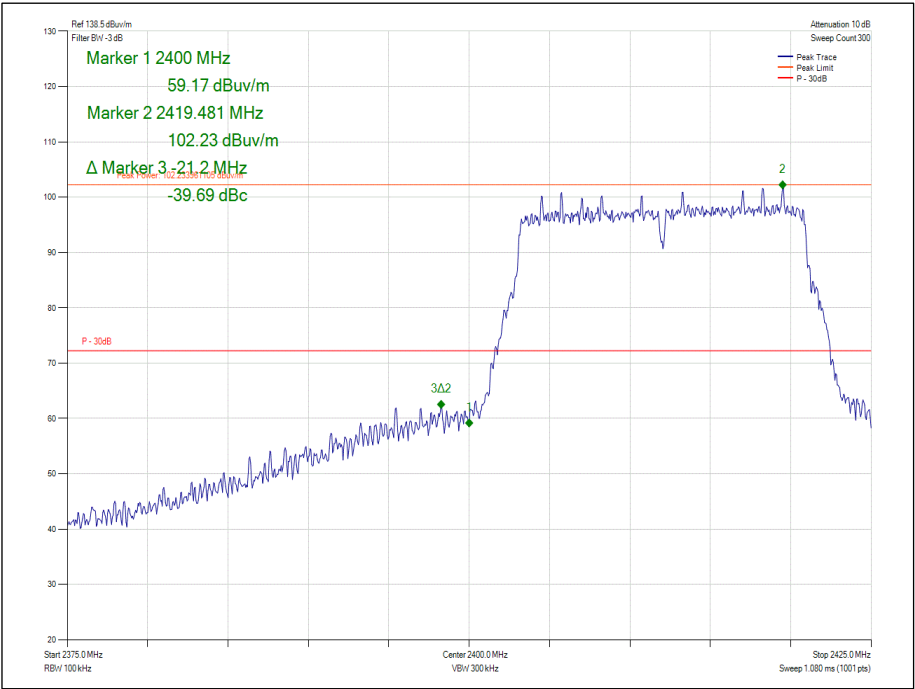


Figure 100 - 802.11n - 2412 MHz
Measured Frequency 2398.25 MHz



Main (SISO)

Mode	Data Rate	Frequency (MHz)	Measured Frequency (MHz)	Level (dBc)
802.11b, Core 0	1 Mbps	2412	2398	-44.01
802.11g, Core 0	6 Mbps	2412	2397	-41.27
802.11n, Core 0	MCS0	2412	2398.25	-41.15

Table 60

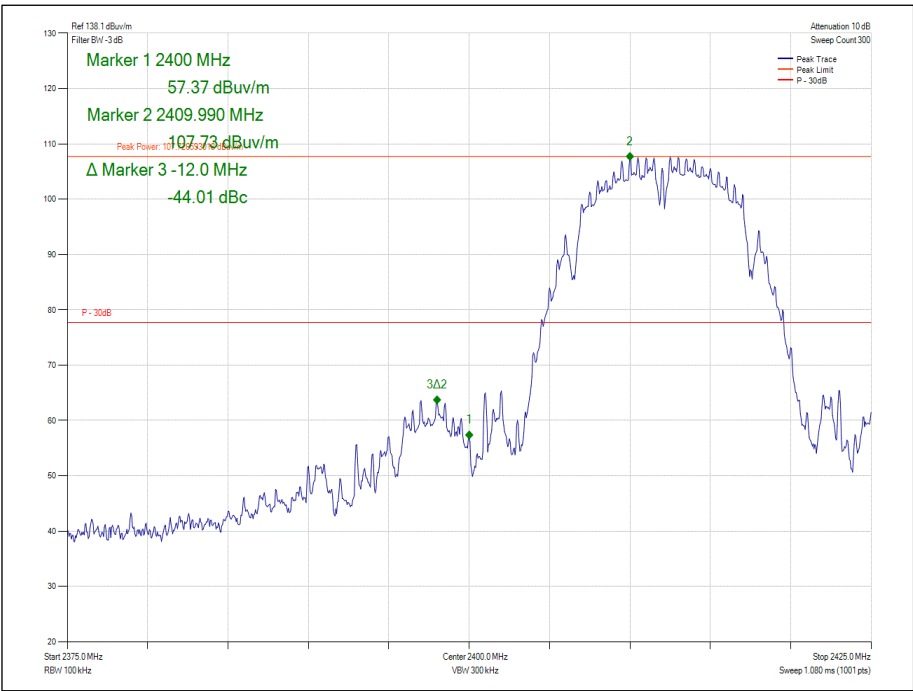


Figure 101 - 802.11b - 2412 MHz
Measured Frequency 2398 MHz

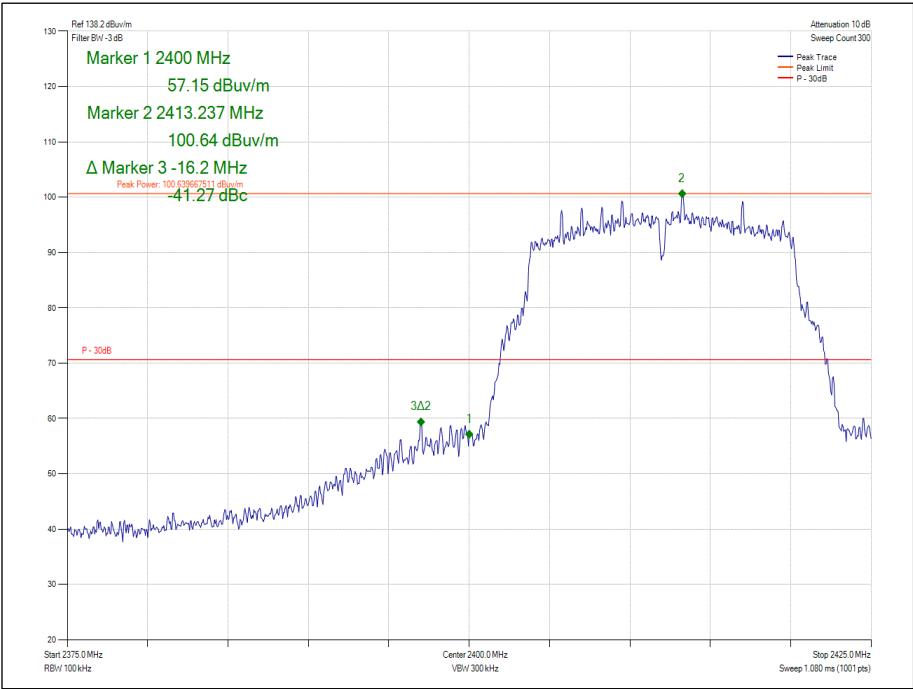


Figure 102 - 802.11g - 2412 MHz
Measured Frequency 2397 MHz

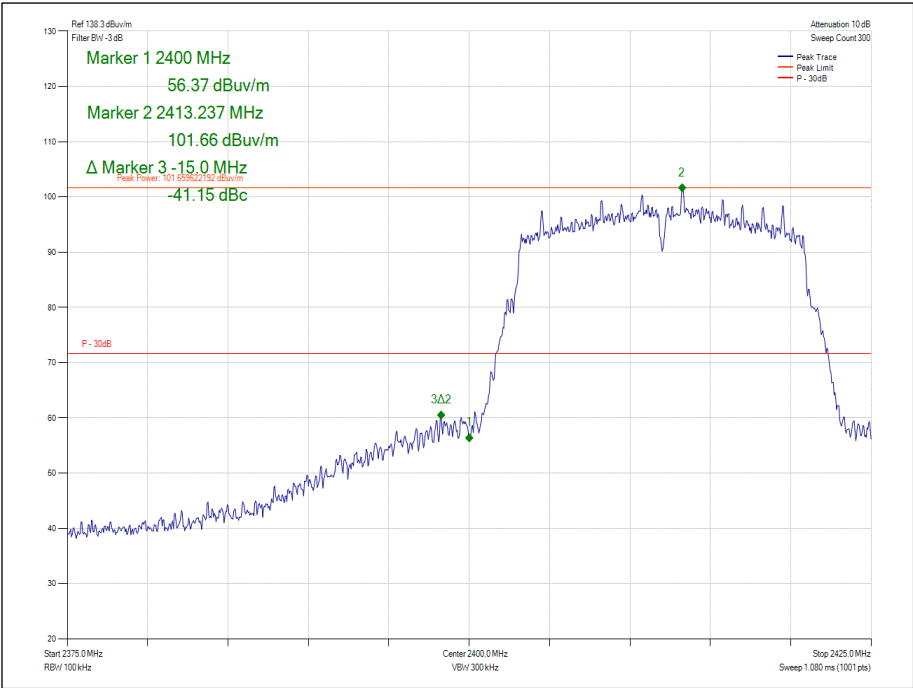


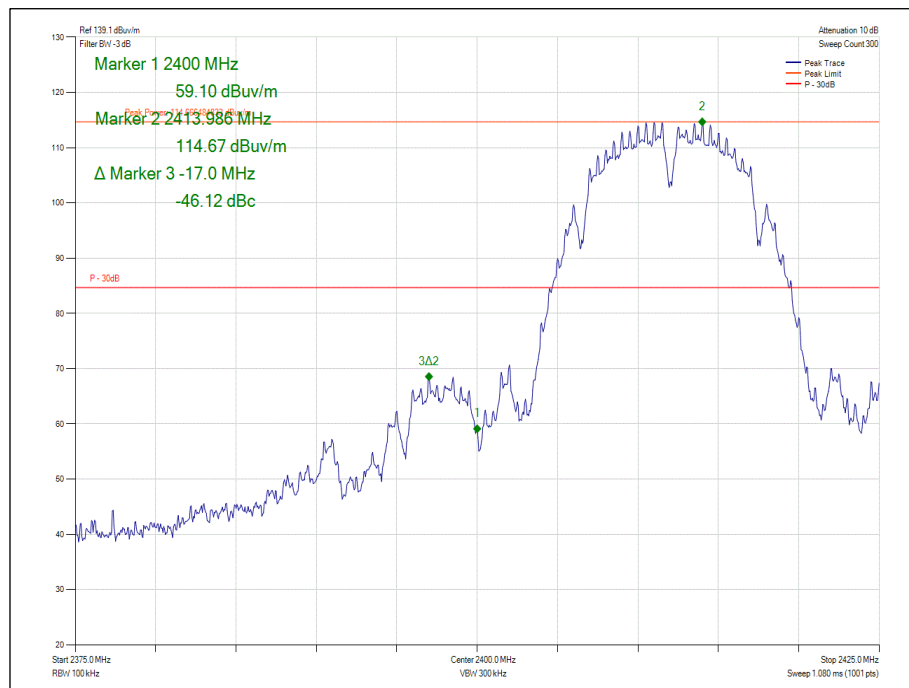
Figure 103 - 802.11n - 2412 MHz
Measured Frequency 2398.25 MHz



Main (MIMO 2Tx)

Mode	Data Rate	Frequency (MHz)	Measured Frequency (MHz)	Level (dBc)
802.11b, Core 0-1	1 Mbps	2412	2397	-46.12
802.11n, Core 0-1	MCS0	2412	2396.7	-45.01
802.11b, Core 0-2	1 Mbps	2412	2398.5	-46.63
802.11n, Core 0-2	MCS0	2412	2398.25	-47.06
802.11b, Core 1-2	1 Mbps	2412	2398	-44.84
802.11n, Core 1-2	MCS0	2412	2398.25	-45.75
Core 0-1, TXBF	MCS0	2412	2399.9	-48.14
Core 0-2, TXBF	MCS0	2412	2399.75	-46.66
Core 1-2, TXBF	MCS0	2412	2398.55	-44.07

Table 61



**Figure 104 - 802.11b, Core 0-1 - 2412 MHz
 Measured Frequency 2397 MHz**

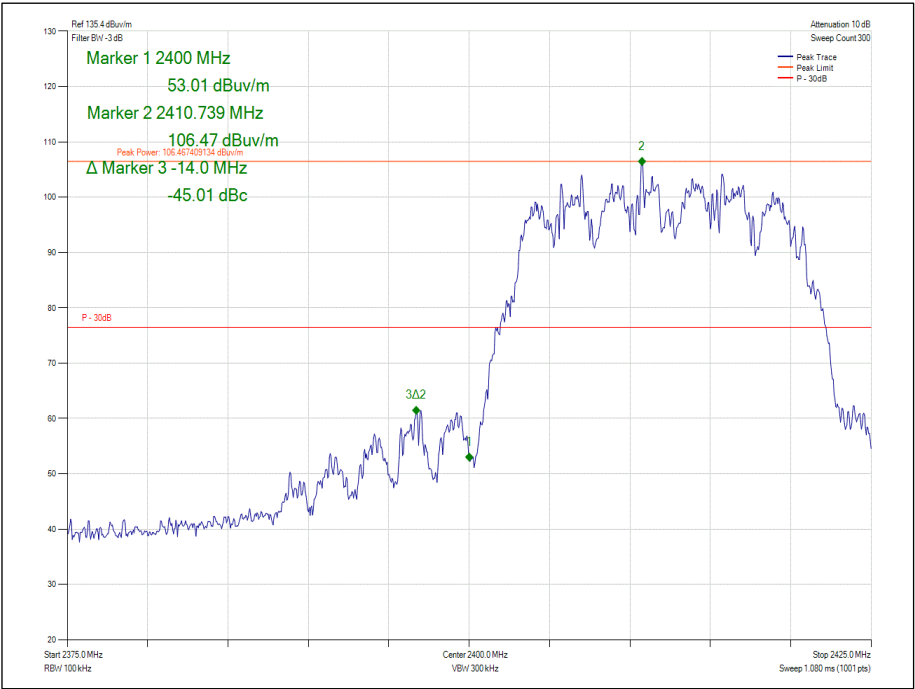


Figure 105 - 802.11n, Core 0-1 - 2412 MHz
Measured Frequency 2396.7 MHz

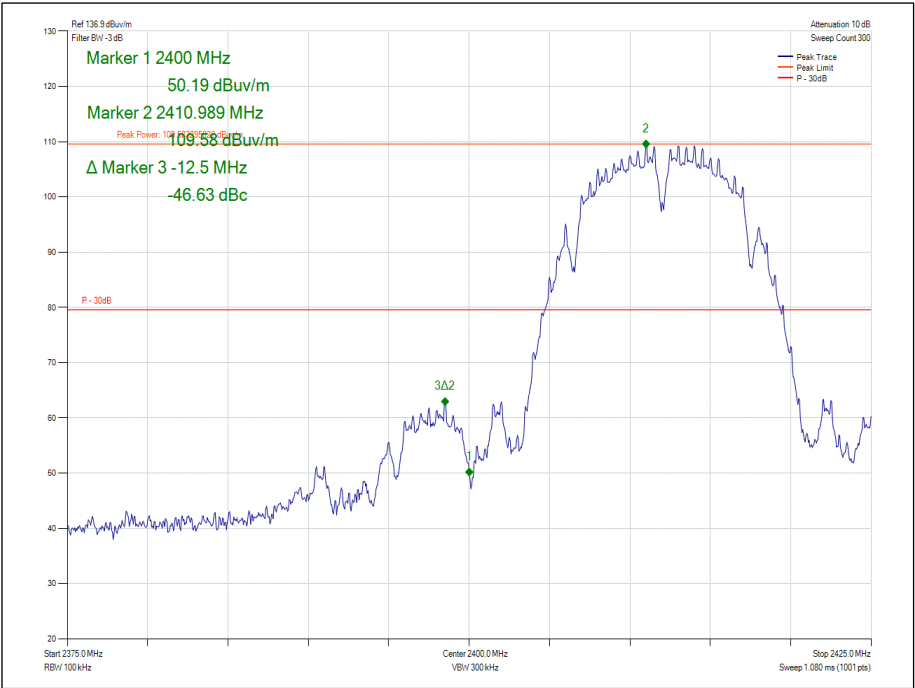


Figure 106 - 802.11b, Core 0-2 - 2412 MHz
Measured Frequency 2398.5 MHz

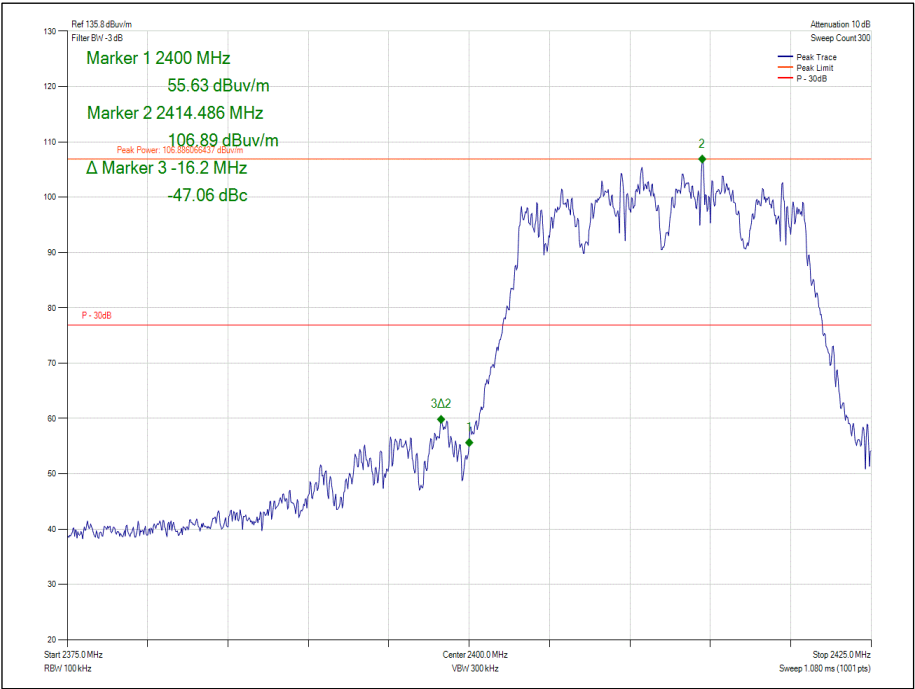


Figure 107 - 802.11n, Core 0-2 - 2412 MHz
Measured Frequency 2398.25 MHz

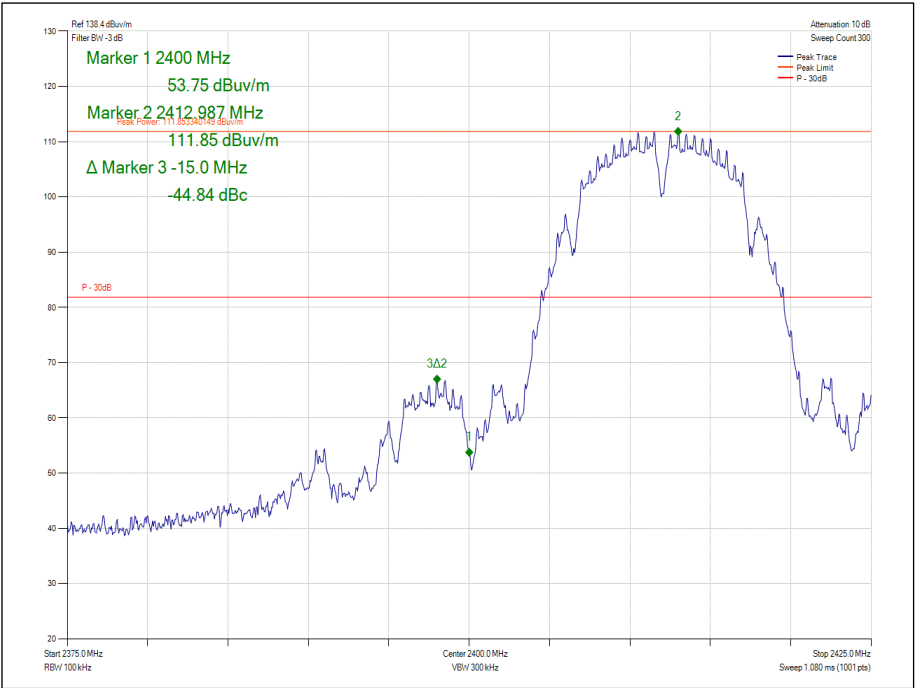


Figure 108 - 802.11b, Core 1-2 - 2412 MHz
Measured Frequency 2398 MHz

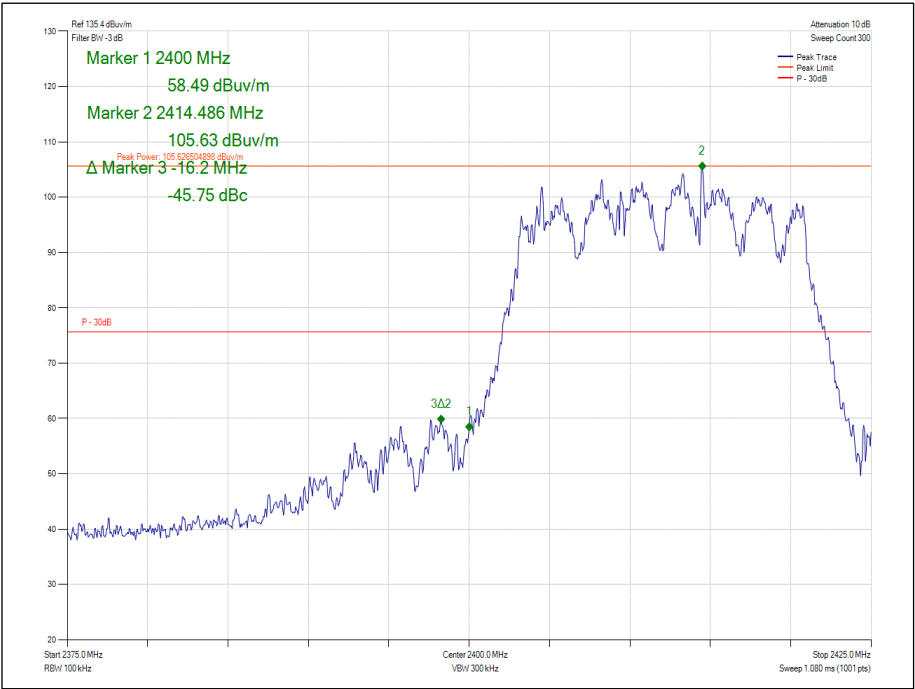


Figure 109 - 802.11n, Core 1-2 - 2412 MHz
Measured Frequency 2398.25 MHz

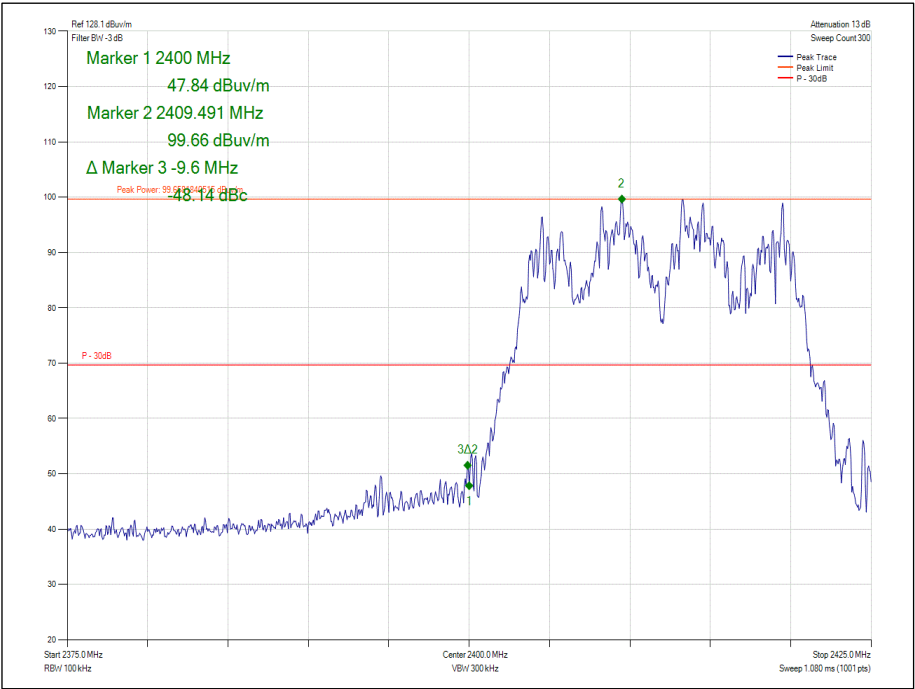


Figure 110 – TXBF, Core 0-1 - 2412 MHz
Measured Frequency 2399.9 MHz

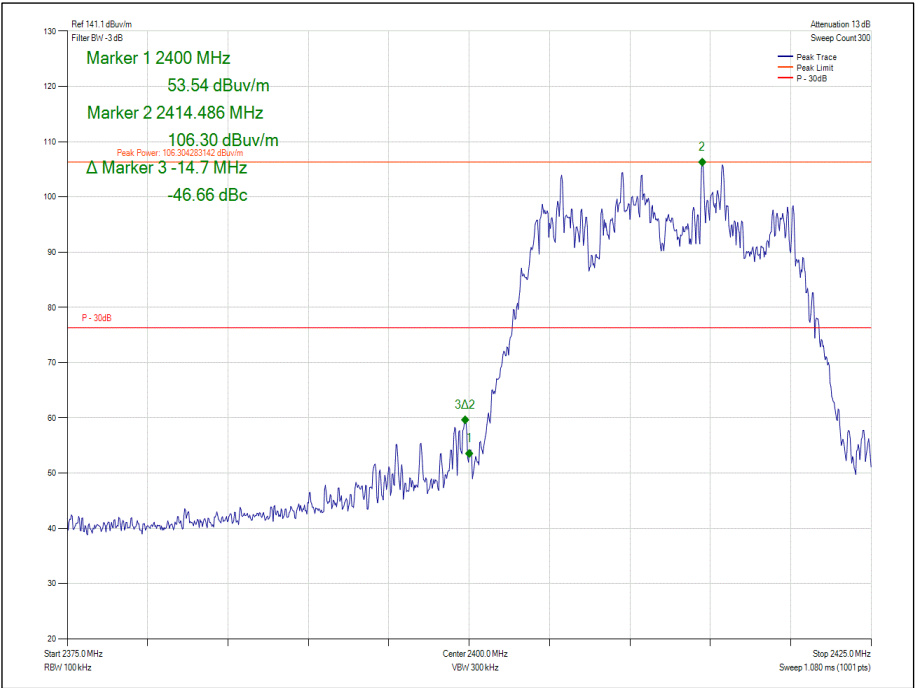


Figure 111 – TXBF, Core 0-2 - 2412 MHz
Measured Frequency 2399.75 MHz

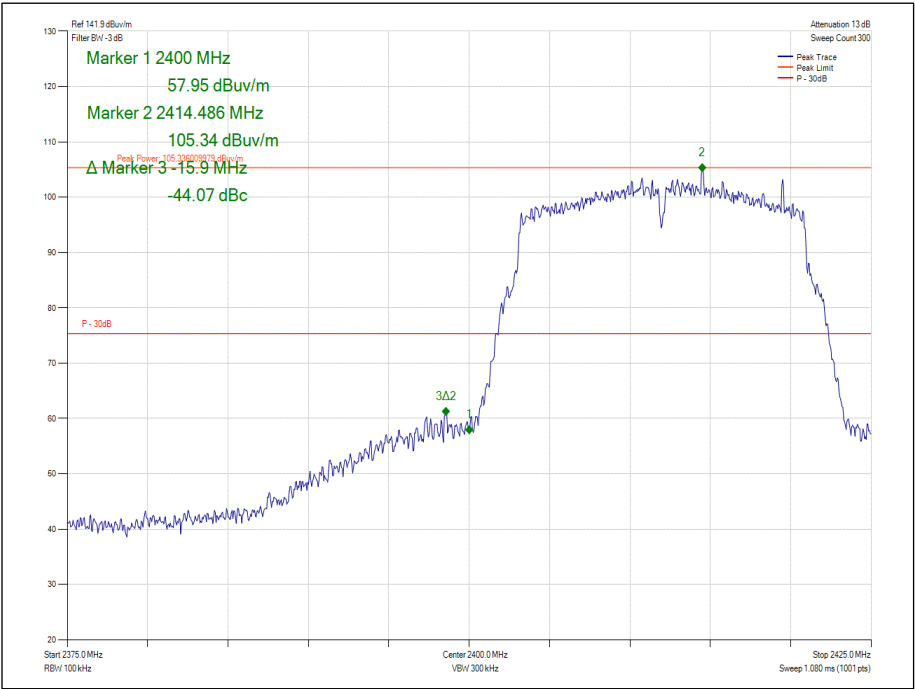


Figure 112 – TXBF, Core 1-2 - 2412 MHz
Measured Frequency 2398.55 MHz



Main (MIMO 3Tx)

Mode	Data Rate	Frequency (MHz)	Measured Frequency (MHz)	Level (dBc)
802.11b, Core 0-1-2	1 Mbps	2412	2398	-46.07
802.11n, Core 0-1-2	MCS0	2412	2399.85	-49.92
TXBF, Core 0-1-2	MCS0	2412	2396.95	-44.07

Table 62

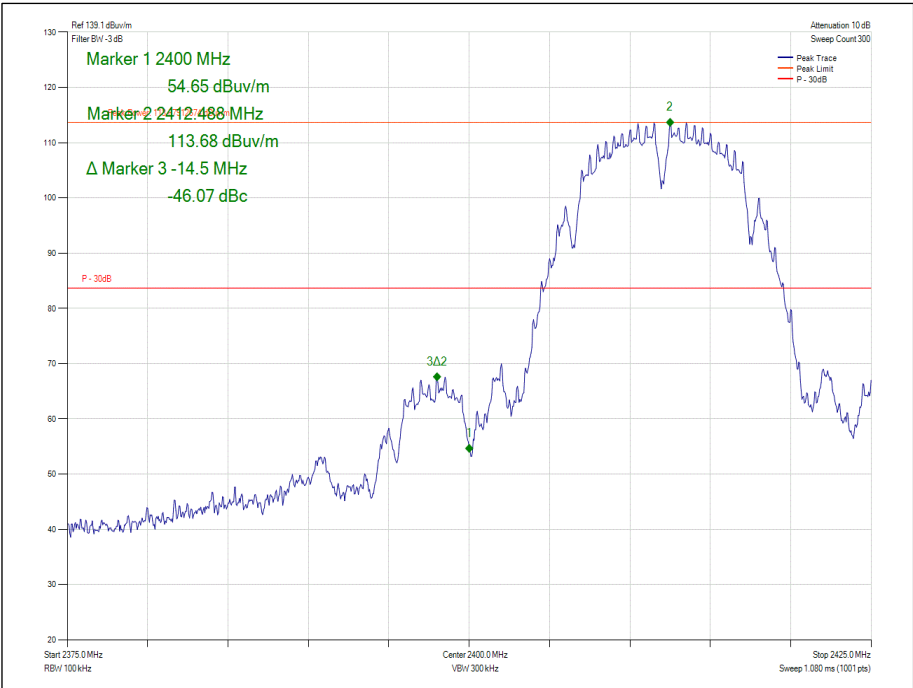


Figure 113 - 802.11b, Core 0-1-2 - 2412 MHz
Measured Frequency 2398 MHz

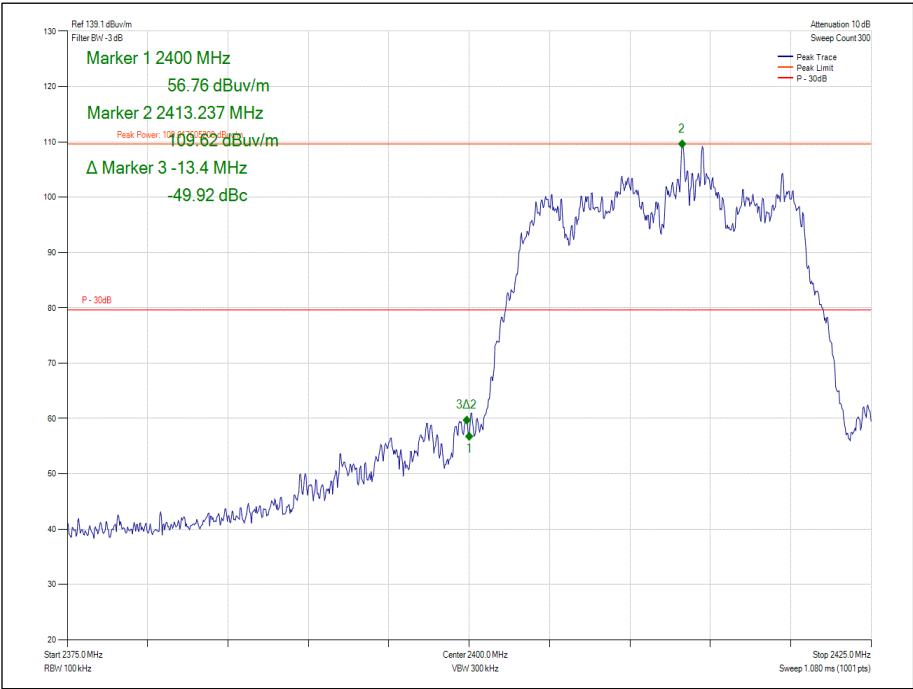


Figure 114 - 802.11n, Core 0-1-2 - 2412 MHz
Measured Frequency 2399.85 MHz

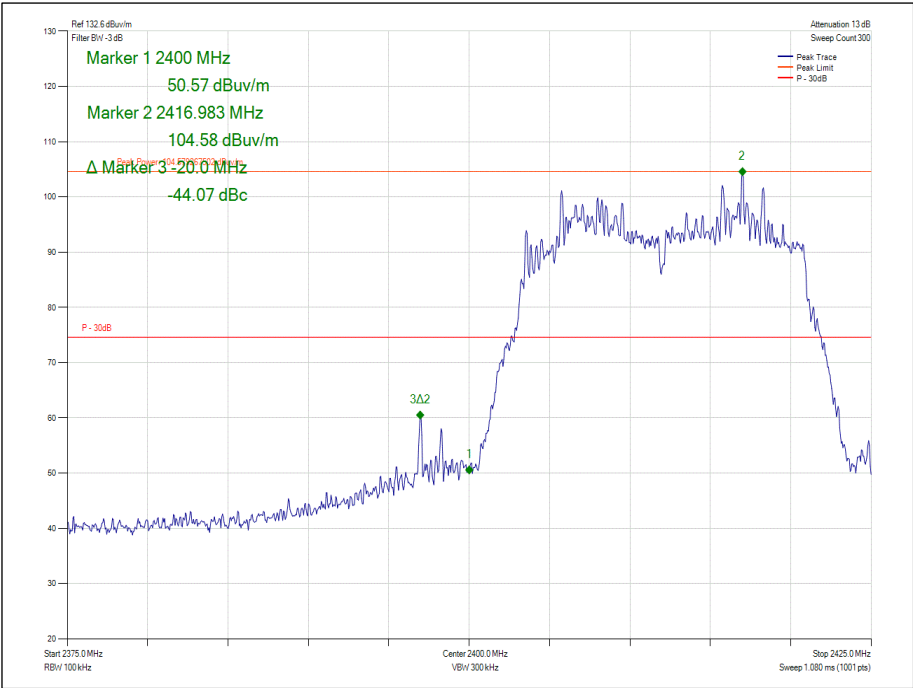


Figure 115 - TXBF, Core 0-1-2 - 2412 MHz
Measured Frequency 2396.95 MHz



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

20 dB below the fundamental measured in a 100 kHz bandwidth using a peak detector. If the transmitter complies with the conducted power limits, based on the use of RMS averaging over a time interval, the attenuation required shall be 30 dB below the fundamental instead of 20 dB.

ISED RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

2.4.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 11

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Hygrometer	Rotronic	HYGROPALM 1	2338	12	15-Nov-2019
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	07-Aug-2020
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	05-Mar-2020
8 - 18 GHz pre amp	Wright Technologies	PS06-0061	4971	12	07-Dec-2019
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	12-Sep-2019
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5095	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5105	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-2000	5107	12	05-Oct-2019
EmX Software	TUV SUD	EmX V.1.4.8.3	5125	-	Software
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU

Table 63

TU – Traceability Unscheduled



2.5 Restricted Band Edges

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
ISED RSS-GEN, Clause 8.10

2.5.2 Equipment Under Test and Modification State

A2141, S/N: C02YT00GL51N - Modification State 0

2.5.3 Date of Test

28 June 2019 to 30 July 2019

2.5.4 Test Method

Testing was performed in accordance with ANSI C63.10, clause 6.10.5 and 11.12.1.

The following conversion can be applied to convert from dB μ V/m to μ V/m:
 $10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$.

Restricted band edge measurements were performed, with the device operating in SISO and MIMO configurations, across the various modes supported by the device.

The measurements displayed within this report, have been limited to those modes which have been shown to be worst case. Further measurements are held on file by TÜV SÜD, and are available if required

2.5.5 Environmental Conditions

Ambient Temperature	21.0 - 23.0 °C
Relative Humidity	45.0 - 62.7 %



2.5.6 Test Results

Aux (SISO)

Mode	Data Rate	Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
802.11b	1 Mbps	2412	2390	57.26	48.72
802.11b	1 Mbps	2462	2483.78	58.63	45.44
802.11b	1 Mbps	2467	2483.86	57.69	45.07
802.11b	1 Mbps	2472	2483.55	60.49	46.81
802.11g	6 Mbps	2412	2390	62.74	50.83
802.11g	6 Mbps	2462	2483.92	65.58	48.85
802.11g	6 Mbps	2467	2483.74	63.03	48.55
802.11g	6 Mbps	2472	2483.5	64.14	49.03
802.11n	MCS0	2412	2389.93	62.57	51.31
802.11n	MCS0	2462	2483.78	65.91	49.82
802.11n	MCS0	2467	2484.04	61.85	47.76
802.11n	MCS0	2472	2483.5	65.69	49.44

Table 64

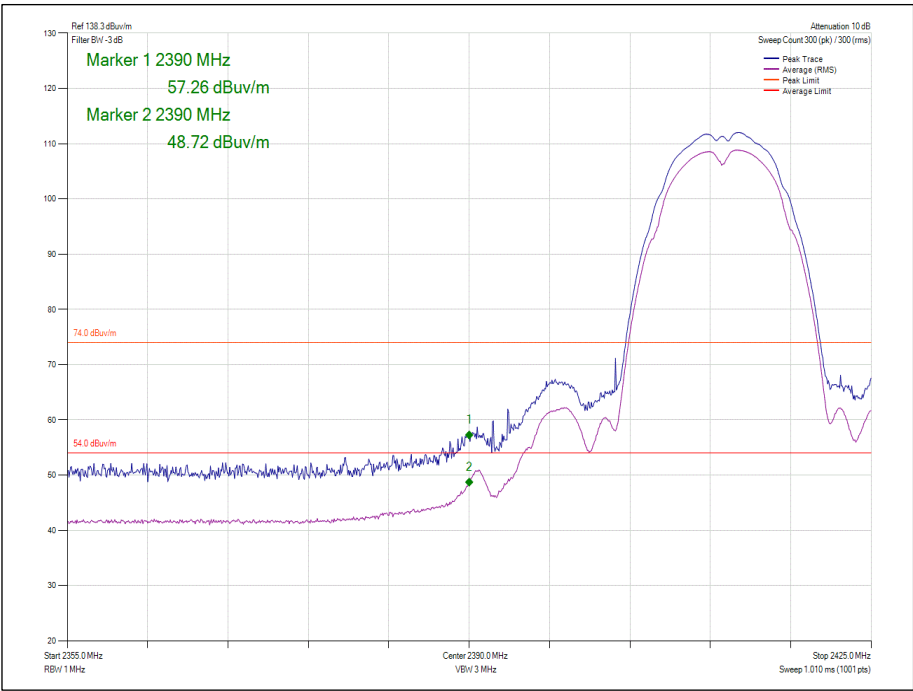


Figure 116 - 802.11b - 2412 MHz
Measured Frequency 2390 MHz

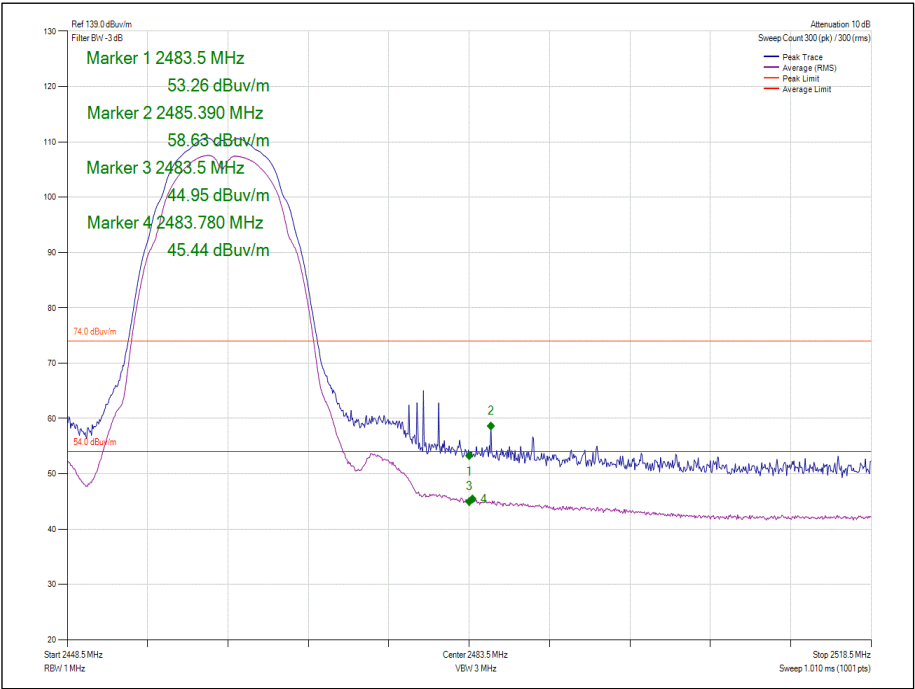


Figure 117 - 802.11b - 2462 MHz
Measured Frequency 2483.78 MHz

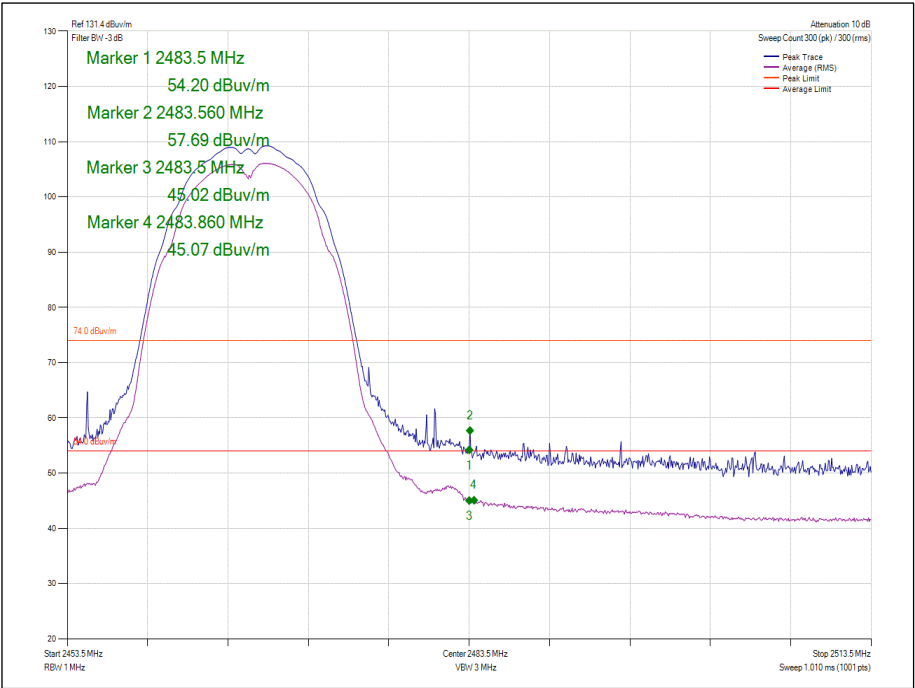
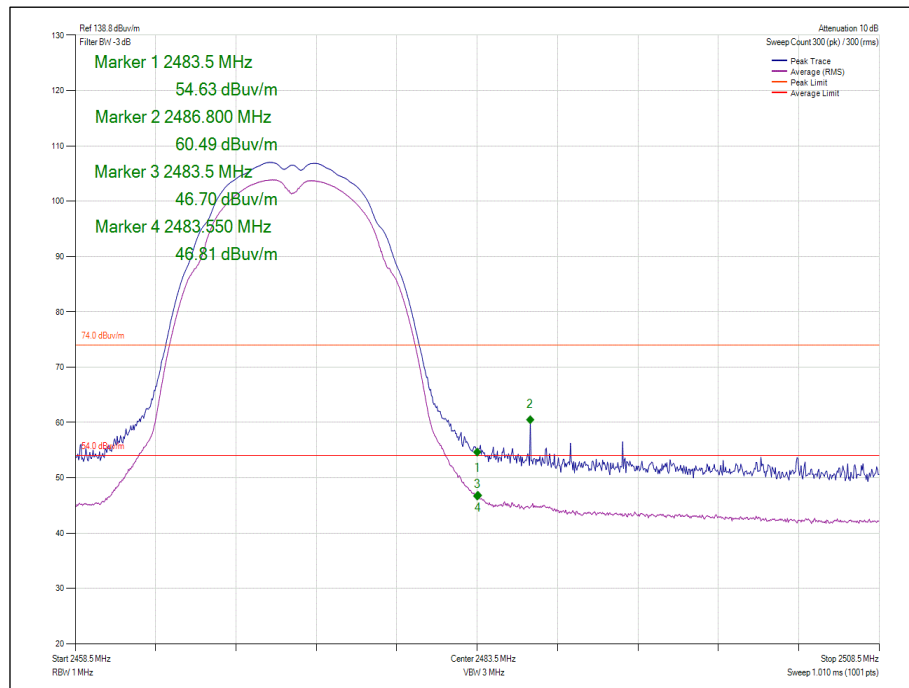
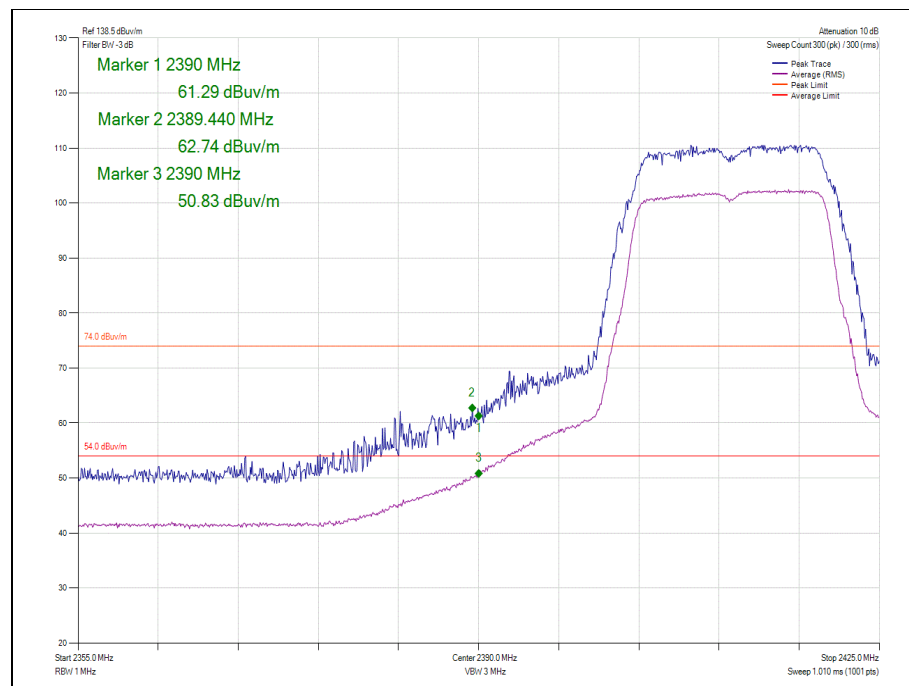


Figure 118 - 802.11b - 2467 MHz
Measured Frequency 2483.86 MHz



**Figure 119 - 802.11b - 2472 MHz
 Measured Frequency 2483.55 MHz**



**Figure 120 - 802.11g - 2412 MHz
 Measured Frequency 2390 MHz**

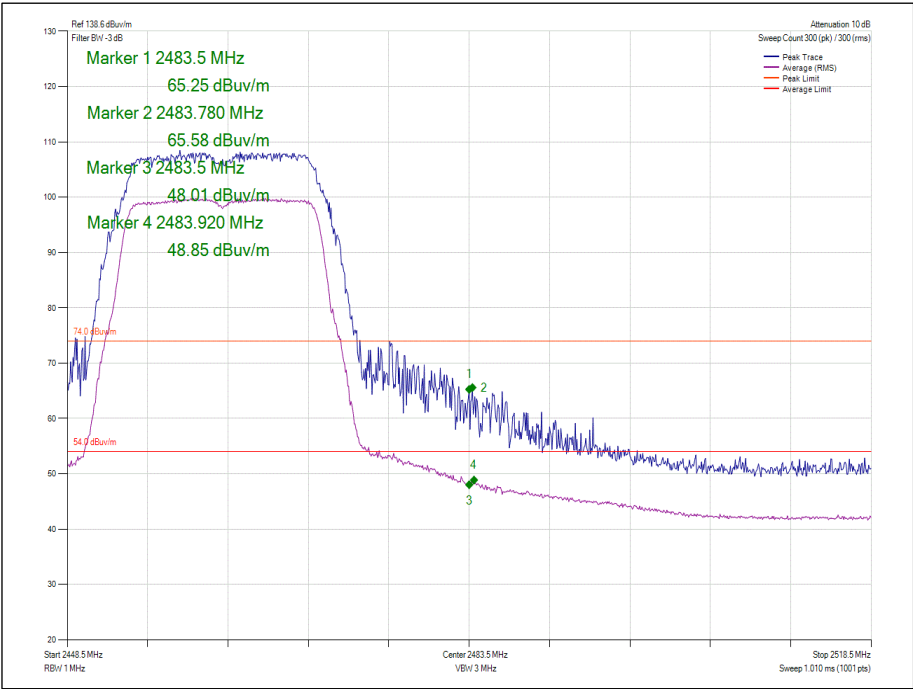


Figure 121 - 802.11g - 2462 MHz
Measured Frequency 2483.92 MHz

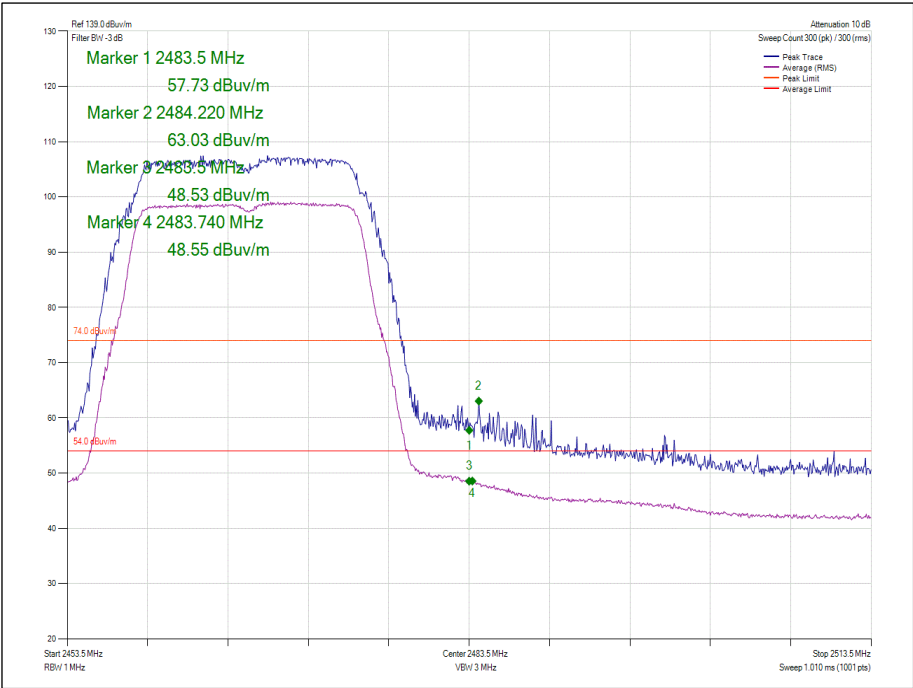
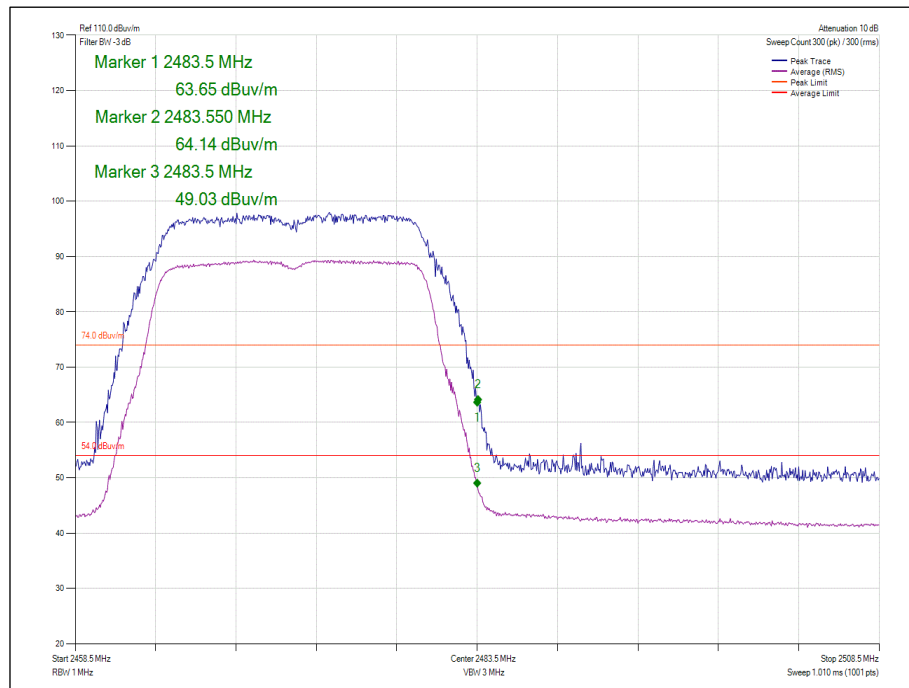
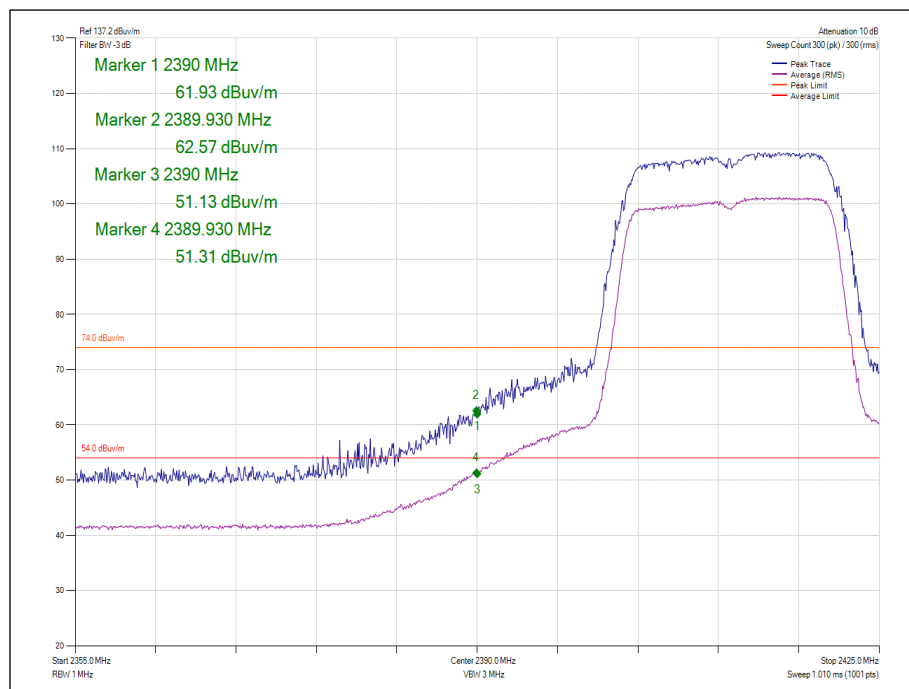


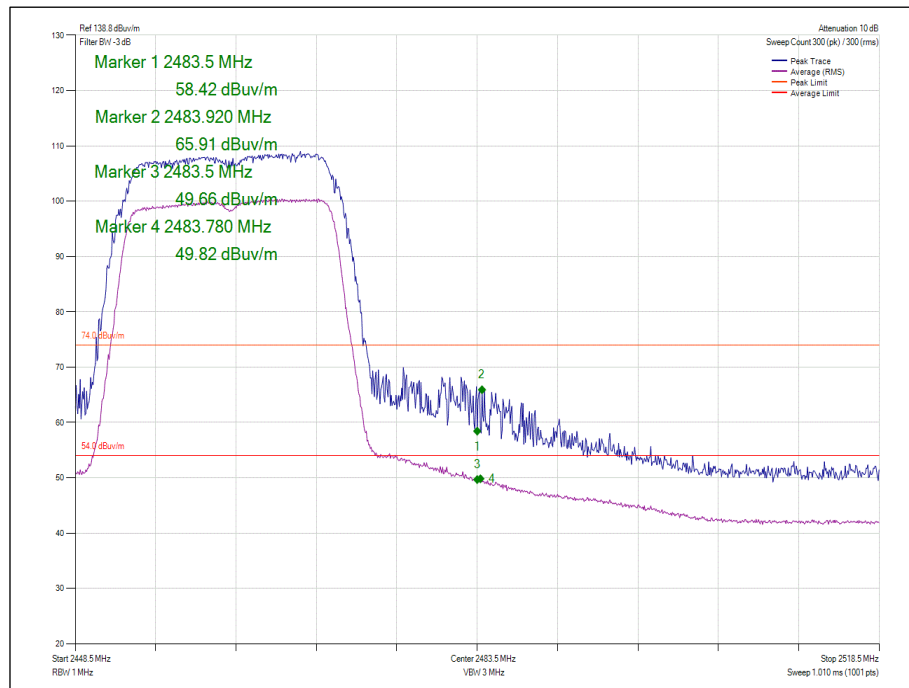
Figure 122 - 802.11g - 2467 MHz
Measured Frequency 2483.74 MHz



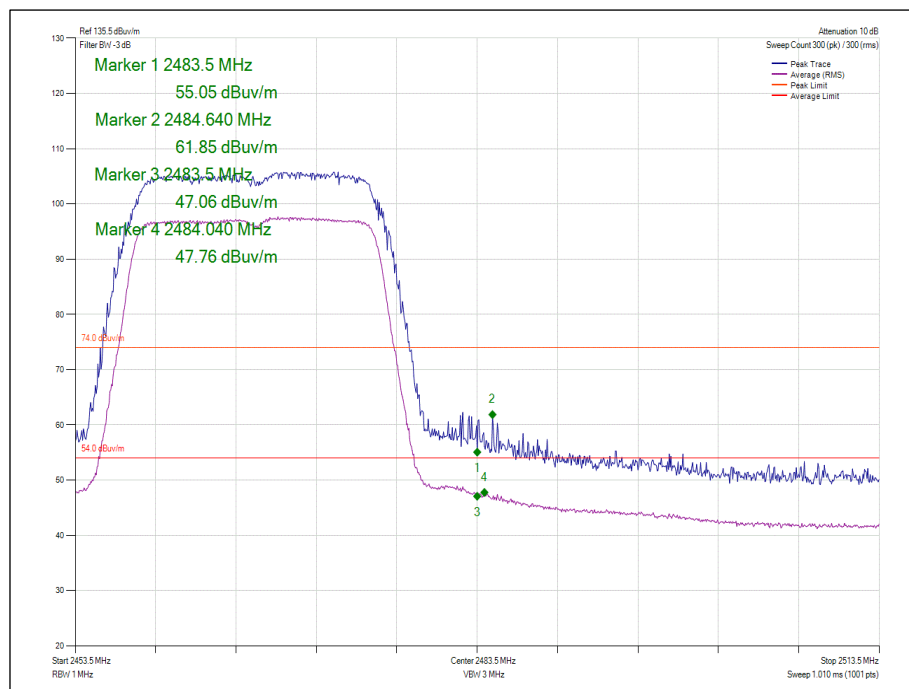
**Figure 123 - 802.11g - 2472 MHz
 Measured Frequency 2483.5 MHz**



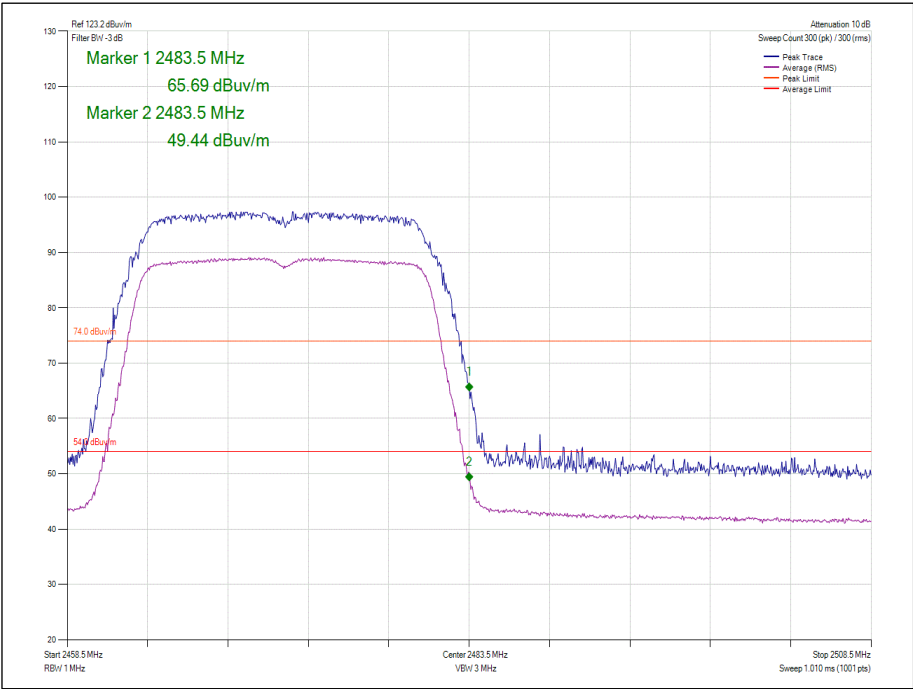
**Figure 124 - 802.11n - 2412 MHz
 Measured Frequency 2389.93 MHz**



**Figure 125 - 802.11n - 2462 MHz
 Measured Frequency 2483.78 MHz**



**Figure 126 - 802.11n - 2467 MHz
 Measured Frequency 2484.04 MHz**



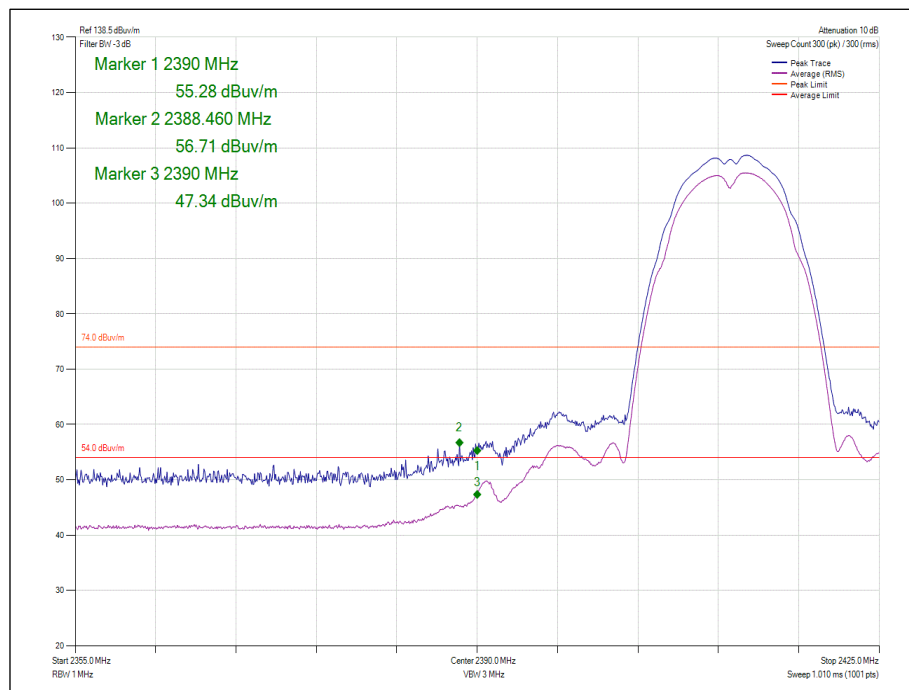
**Figure 127 - 802.11n - 2472 MHz
Measured Frequency 2483.5 MHz**



Main (SISO)

Mode	Data Rate	Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
802.11b, Core 0	1 Mbps	2412	2390	56.71	47.34
802.11b, Core 0	1 Mbps	2462	2484.06	56.81	46.45
802.11b, Core 0	1 Mbps	2467	2484.04	54.92	44.50
802.11b, Core 0	1 Mbps	2472	2483.5	54.24	45.65
802.11g, Core 0	6 Mbps	2412	2389.86	54.22	44.22
802.11g, Core 0	6 Mbps	2462	2483.85	55.64	45.39
802.11g, Core 0	6 Mbps	2467	2483.68	55.15	44.98
802.11g, Core 0	6 Mbps	2472	2483.5	61.77	49.33
802.11n, Core 0	MCS0	2412	2389.72	56.24	44.45
802.11n, Core 0	MCS0	2462	2483.64	55.61	45.50
802.11n, Core 0	MCS0	2467	2483.68	55.86	45.09
802.11n, Core 0	MCS0	2472	2483.5	61.45	50.04

Table 65



**Figure 128 - 802.11b - 2412 MHz
 Measured Frequency 2390 MHz**

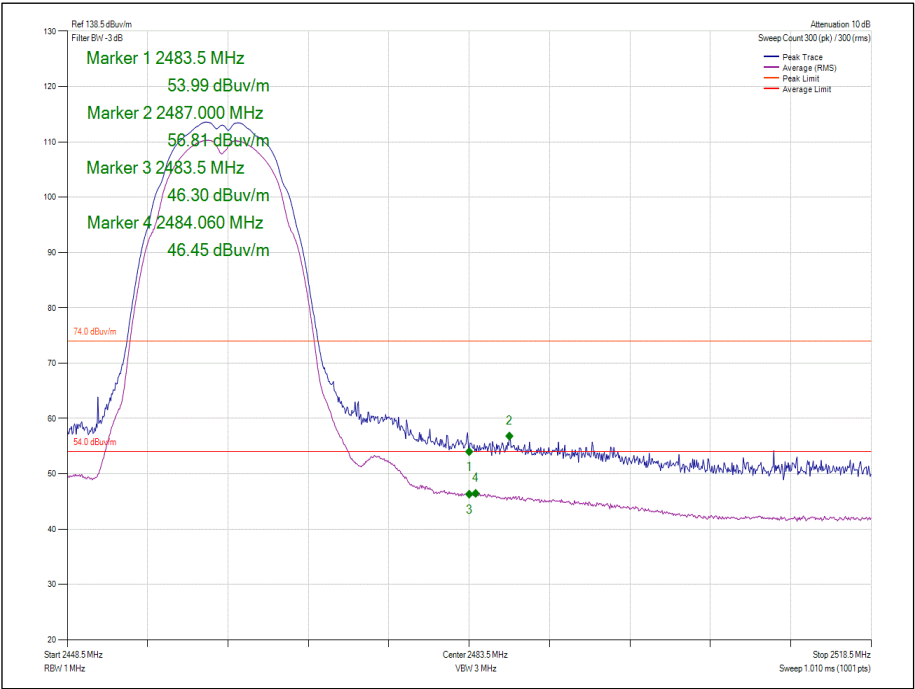


Figure 129 - 802.11b - 2462 MHz
Measured Frequency 2484.06 MHz

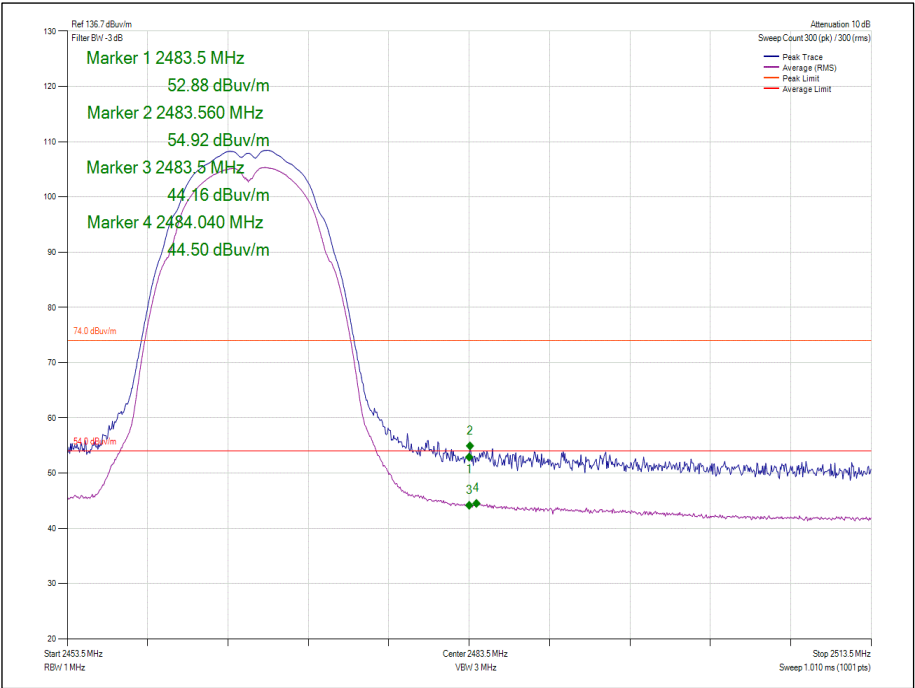


Figure 130 - 802.11b - 2467 MHz
Measured Frequency 2484.04 MHz

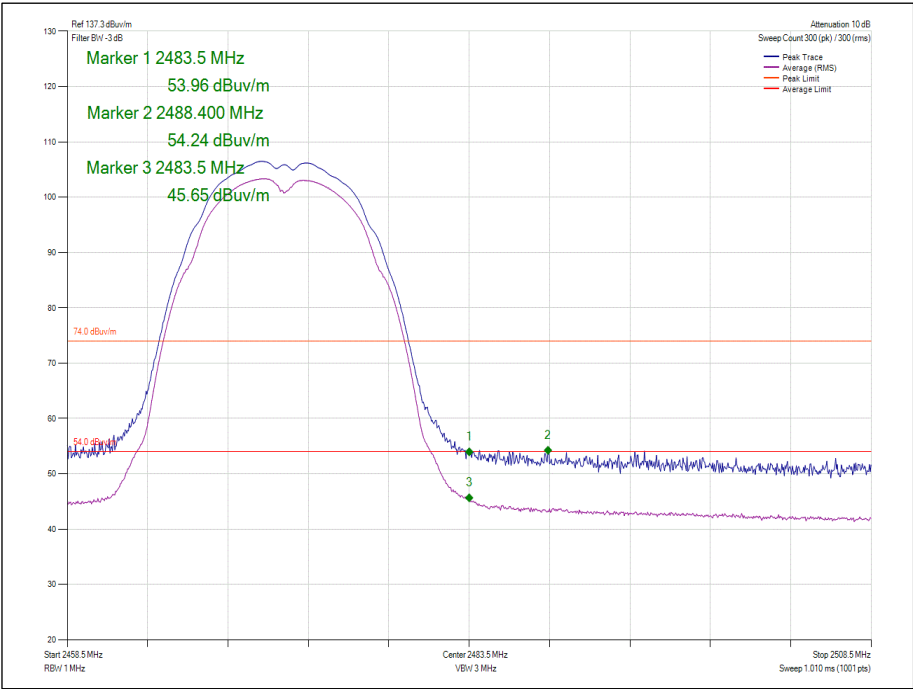


Figure 131 - 802.11b - 2472 MHz
Measured Frequency 2483.5 MHz

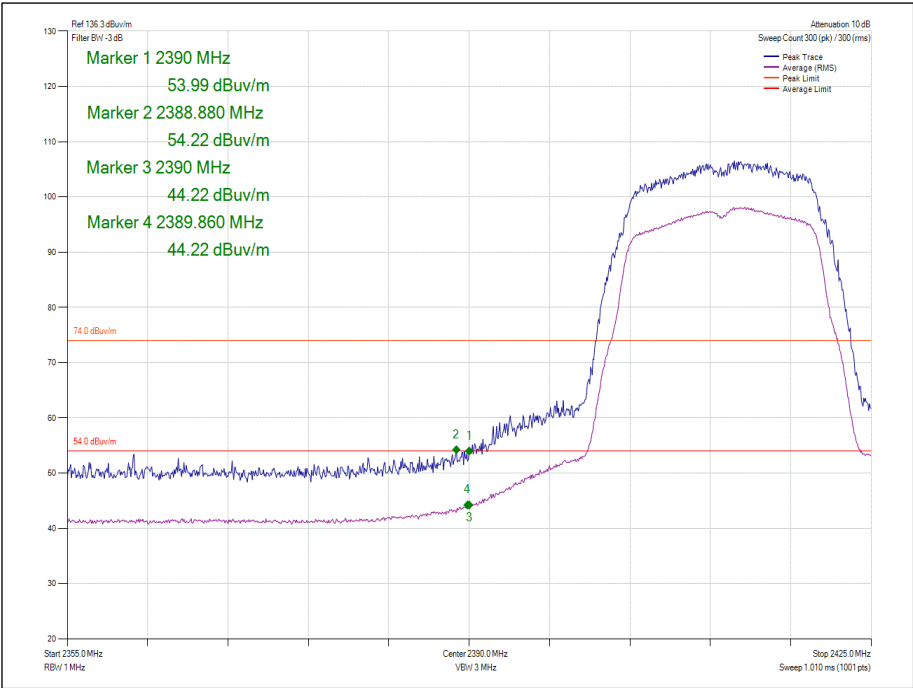


Figure 132 - 802.11g - 2412 MHz
Measured Frequency 2389.86 MHz

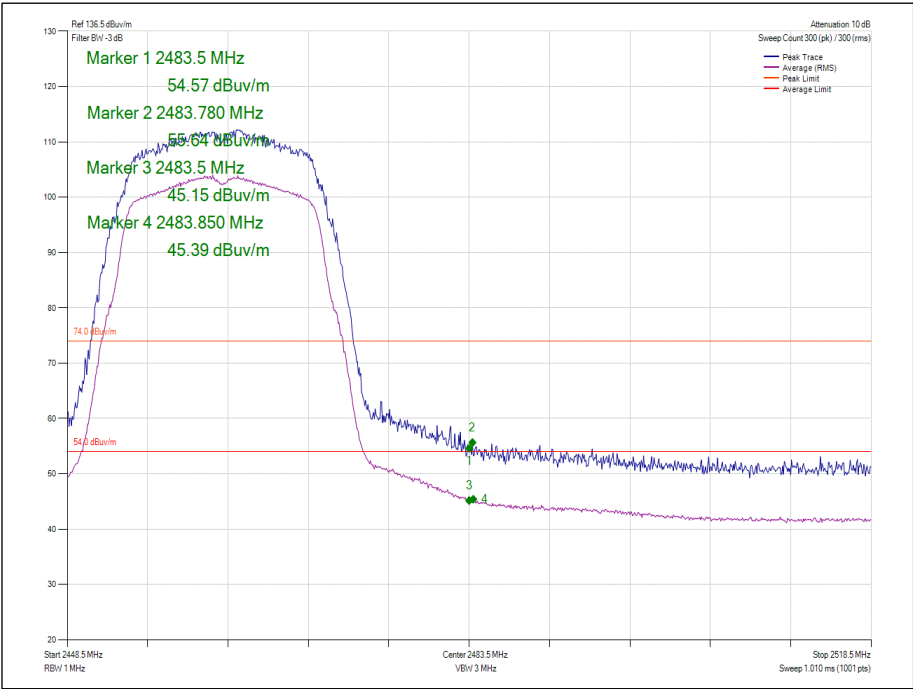


Figure 133 - 802.11g - 2462 MHz
Measured Frequency 2483.85 MHz

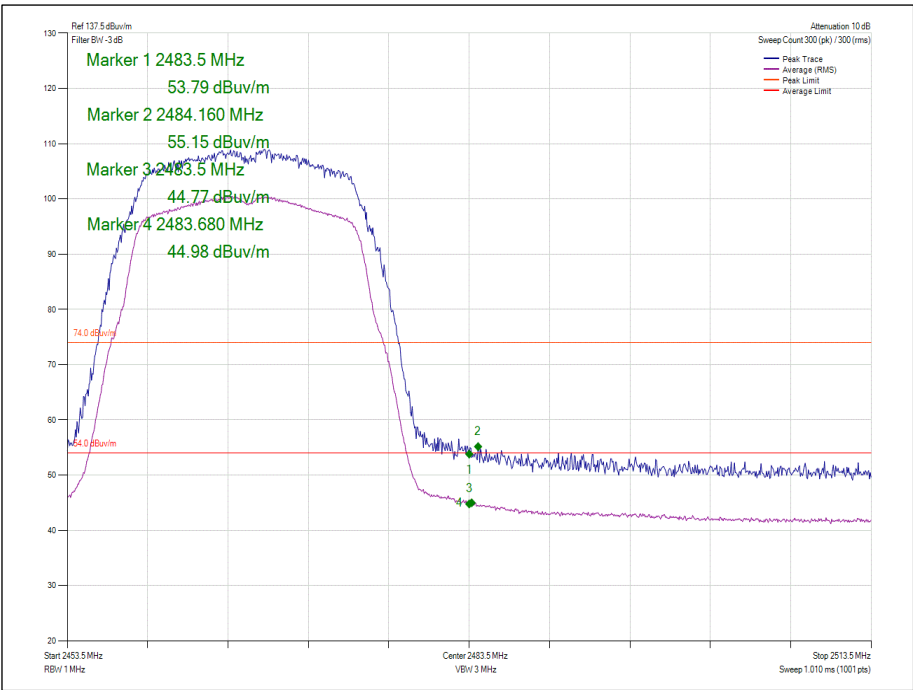


Figure 134 - 802.11g - 2467 MHz
Measured Frequency 2483.68 MHz

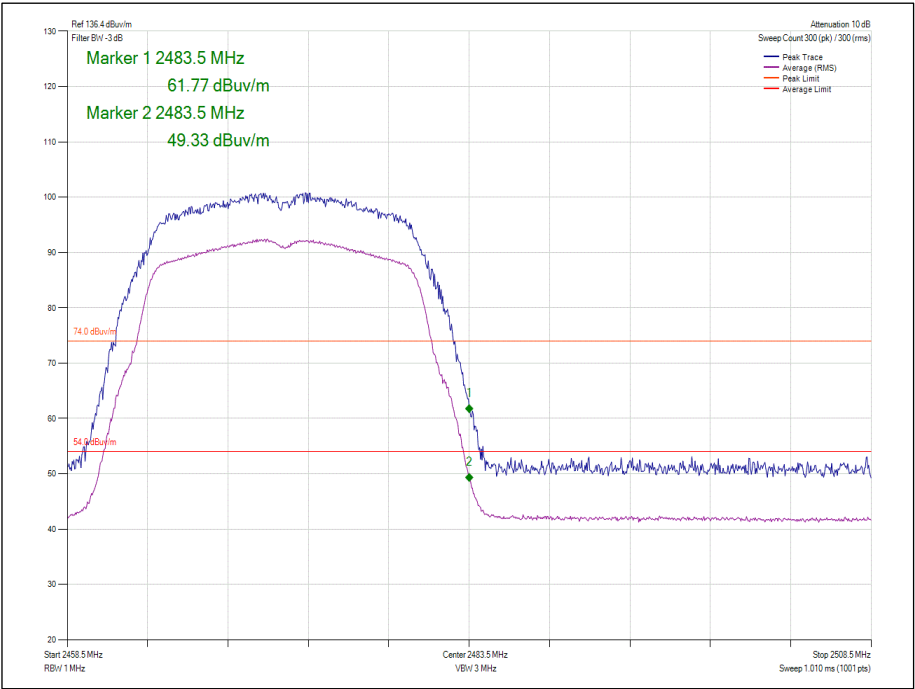


Figure 135 - 802.11g - 2472 MHz
Measured Frequency 2483.5 MHz

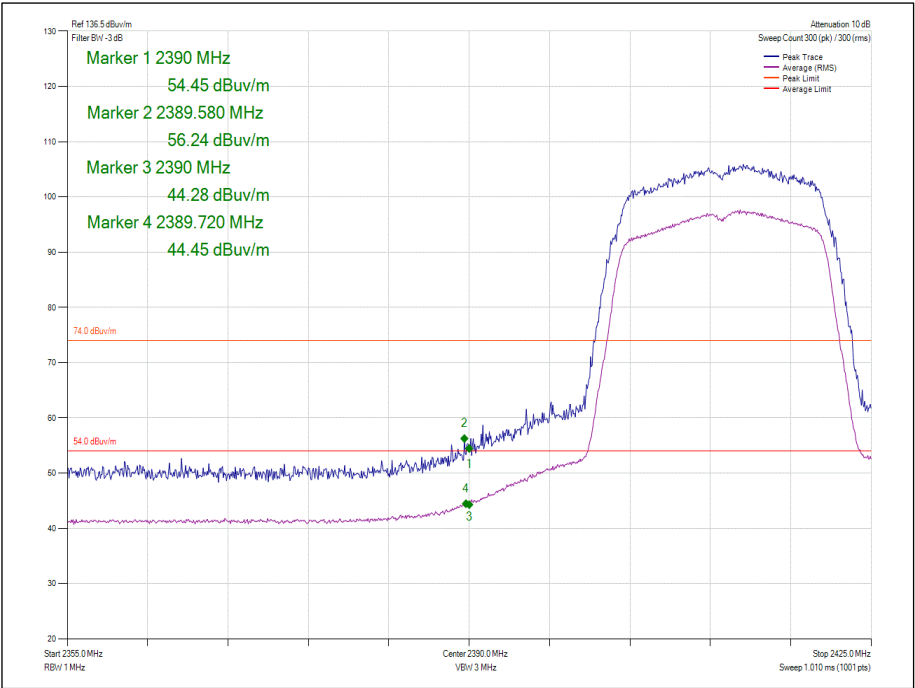


Figure 136 - 802.11n - 2412 MHz
Measured Frequency 2389.72 MHz

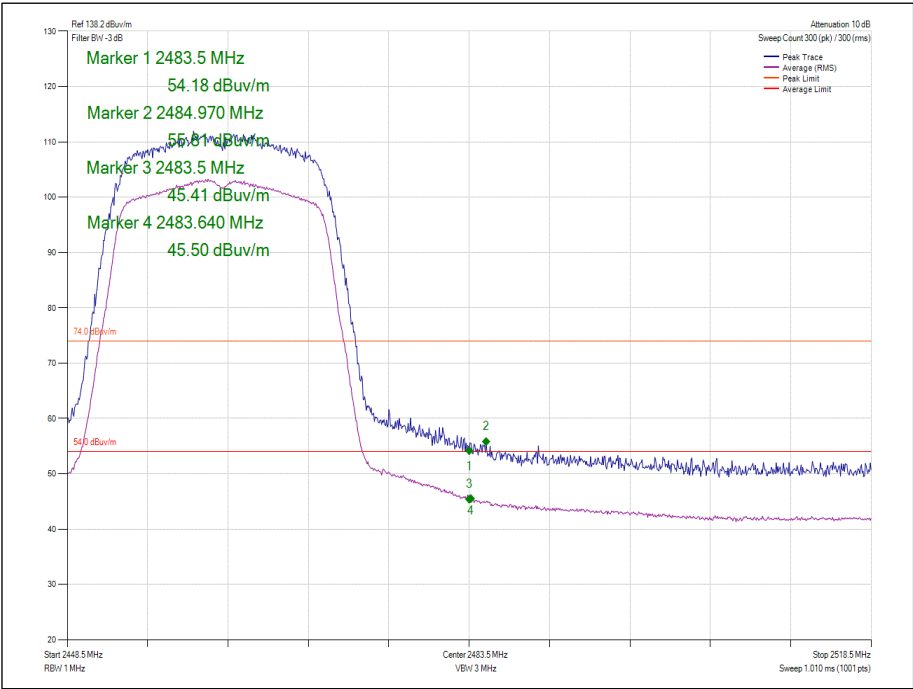


Figure 137 - 802.11n - 2462 MHz
Measured Frequency 2483.64 MHz

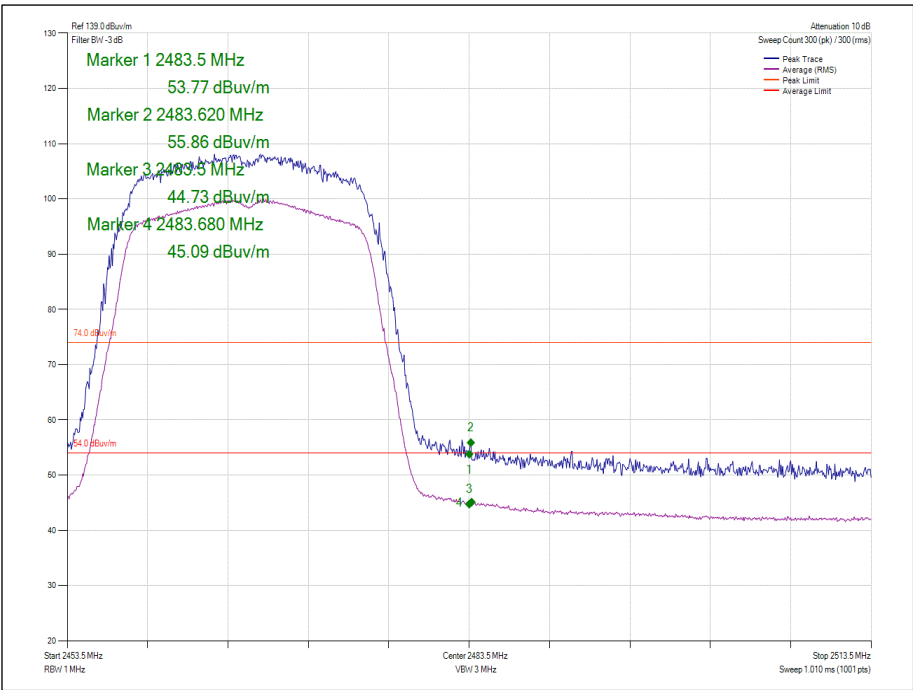
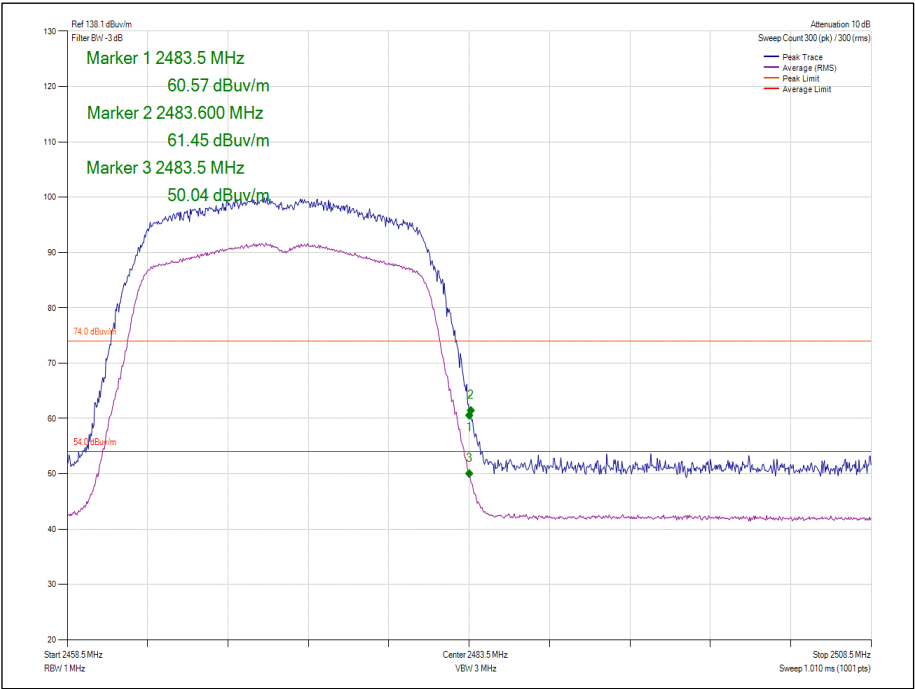


Figure 138 - 802.11n - 2467 MHz
Measured Frequency 2483.68 MHz



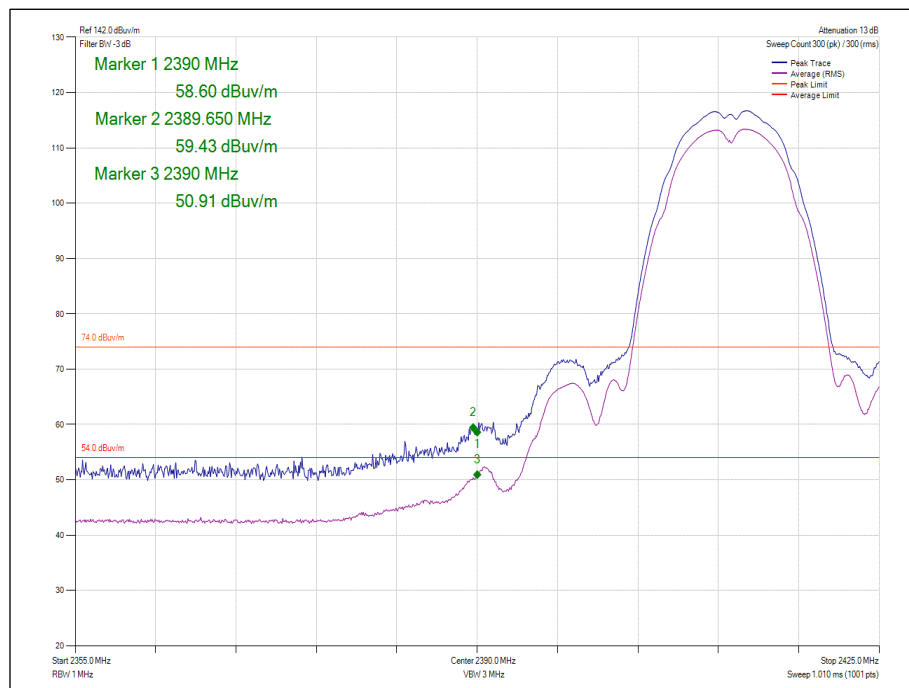
**Figure 139 - 802.11n - 2472 MHz
Measured Frequency 2483.5 MHz**



Main (MIMO 2Tx)

Mode	Data Rate	Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
802.11b, Core 1-2	1 Mbps	2412	2390	59.43	50.91
802.11b, Core 1-2	1 Mbps	2462	2484.2	63.29	46.01
802.11b, Core 1-2	1 Mbps	2467	2484.52	58.72	44.72
802.11b, Core 1-2	1 Mbps	2472	2484.1	62.67	44.27
802.11n, Core 1-2	MCS0	2412	2390	62.60	46.97
802.11n, Core 1-2	MCS0	2462	2483.78	59.78	44.24
802.11n, Core 1-2	MCS0	2467	2483.56	57.04	43.80
802.11n, Core 1-2	MCS0	2472	2483.5	60.28	47.54
TXBF, Core 1-2	MCS0	2412	2390	60.74	48.29
TXBF, Core 1-2	MCS0	2462	2483.85	56.66	44.43
TXBF, Core 1-2	MCS0	2467	2483.74	56.76	43.88
TXBF, Core 1-2	MCS0	2472	2483.5	61.61	48.83

Table 66



**Figure 140 - 802.11b, Core 1-2 - 2412 MHz
Measured Frequency 2390 MHz**

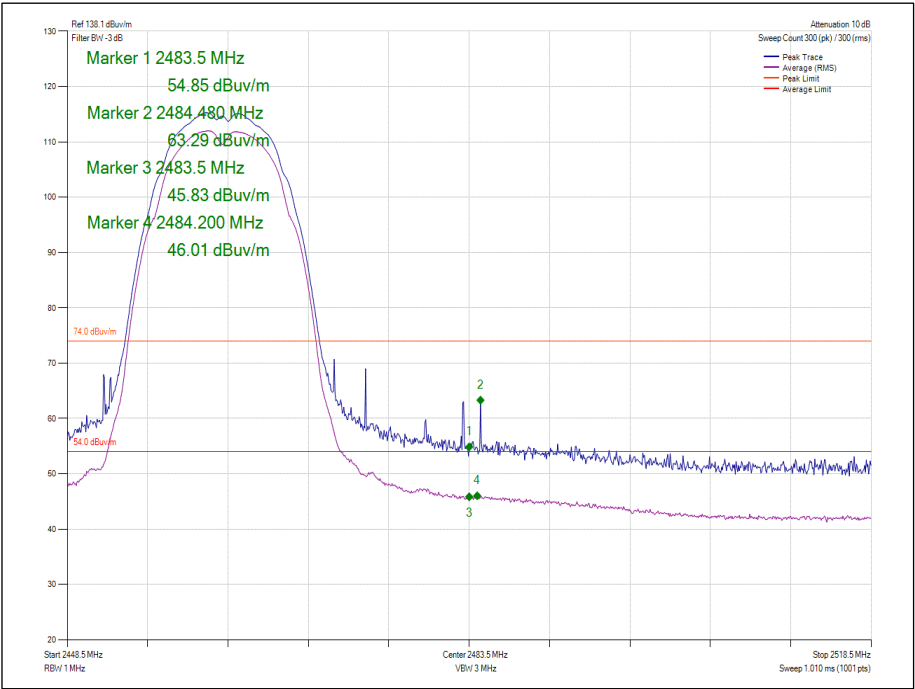


Figure 141 - 802.11b, Core 1-2 - 2462 MHz
Measured Frequency 2484.2 MHz

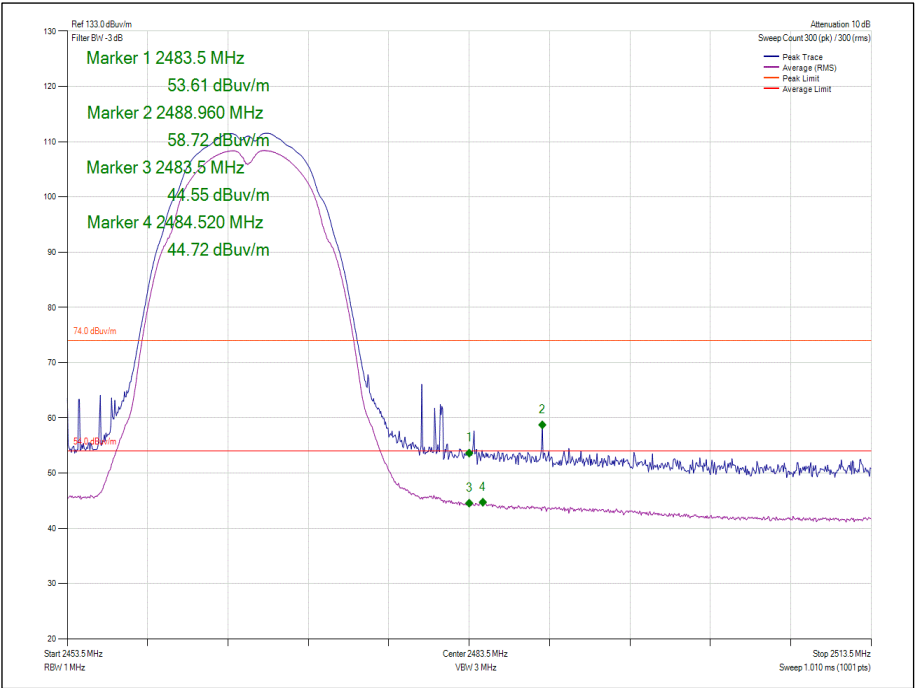
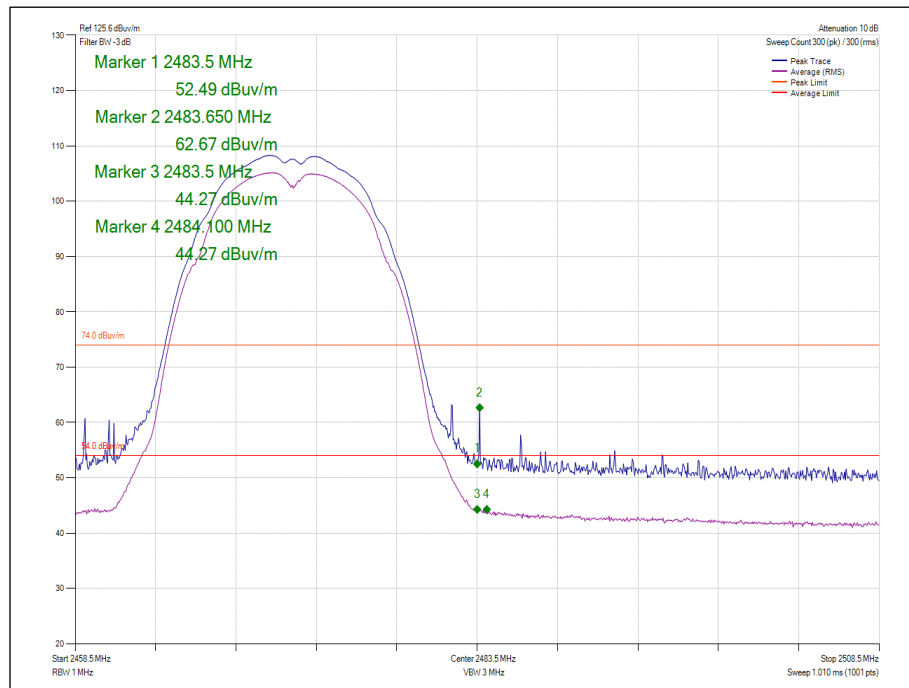
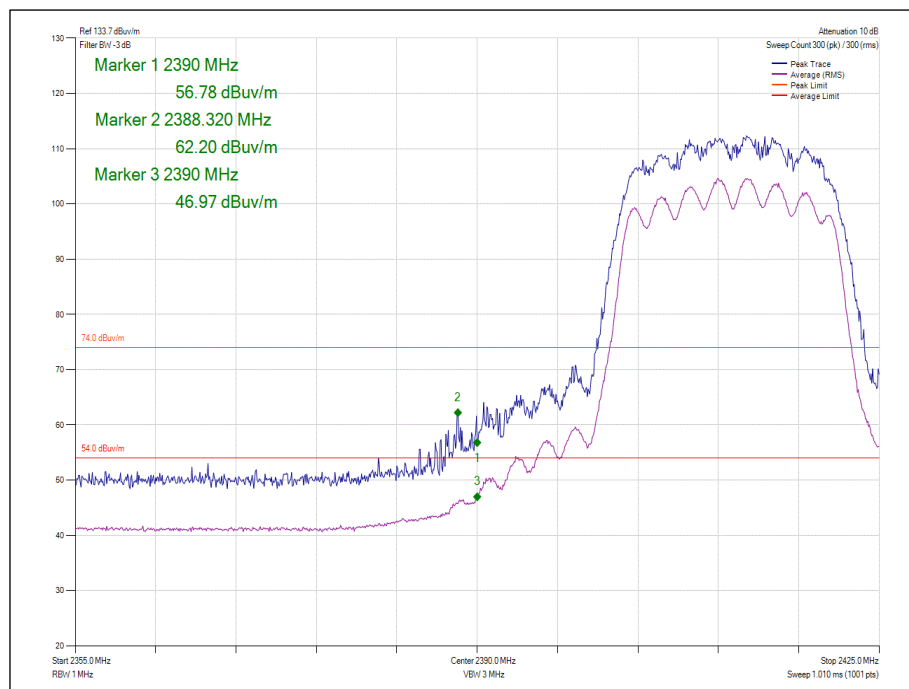


Figure 142 - 802.11b, Core 1-2 - 2467 MHz
Measured Frequency 2484.52 MHz



**Figure 143 - 802.11b, Core 1-2 - 2472 MHz
 Measured Frequency 2484.1 MHz**



**Figure 144 - 802.11n, Core 1-2 - 2412 MHz
 Measured Frequency 2390 MHz**

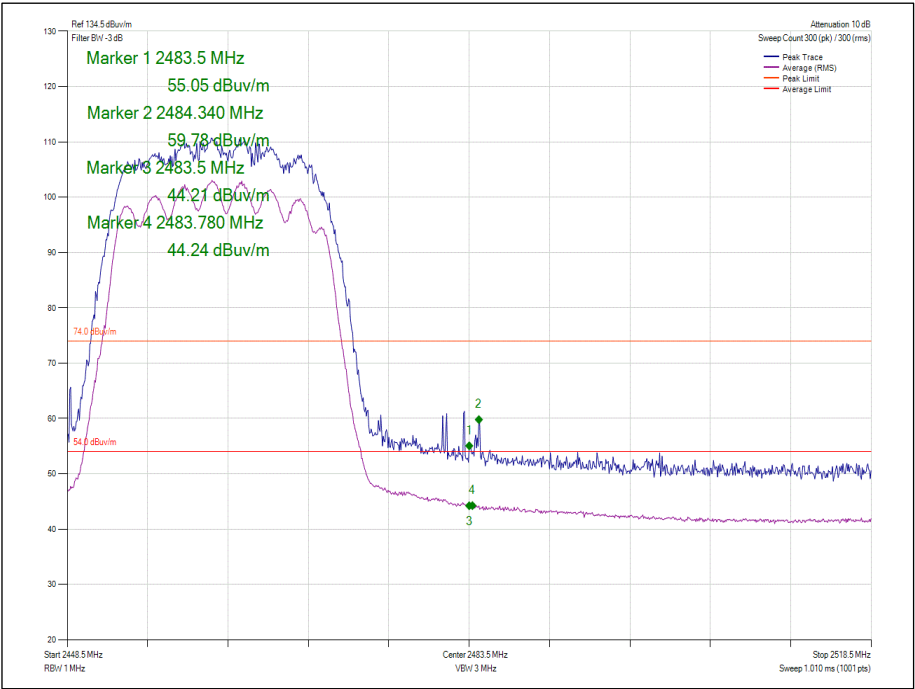


Figure 145 - 802.11n, Core 1-2 - 2462 MHz
Measured Frequency 2483.78 MHz

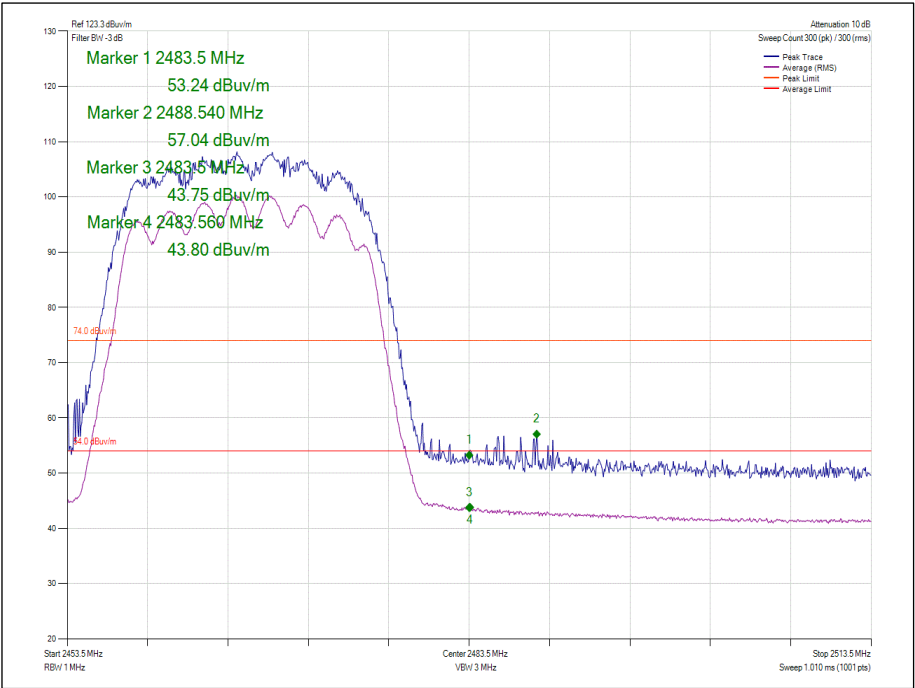
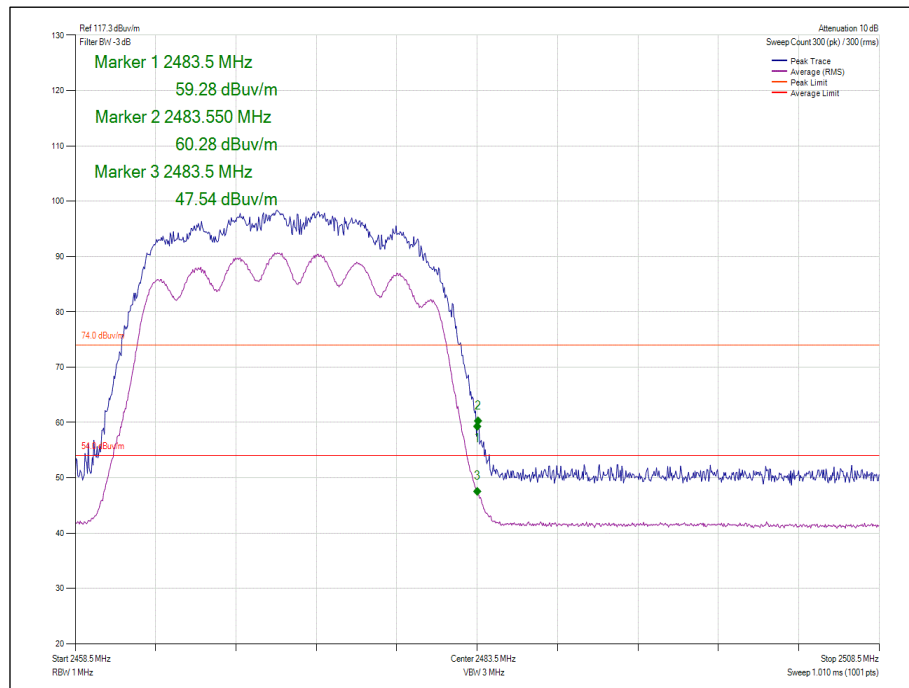
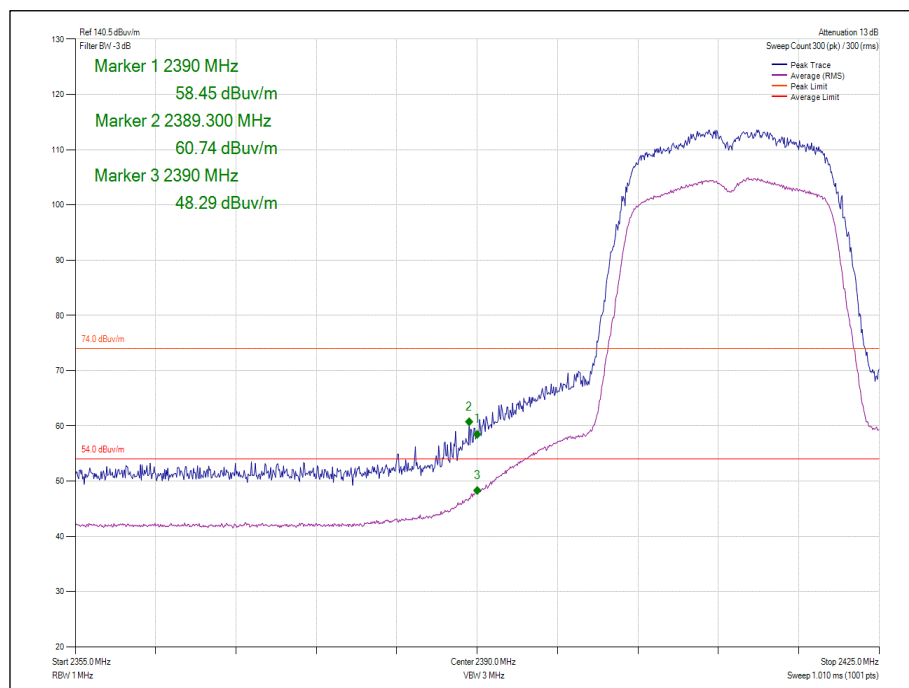


Figure 146 - 802.11n, Core 1-2 - 2467 MHz
Measured Frequency 2483.56 MHz



**Figure 147 - 802.11n, Core 1-2 - 2472 MHz
 Measured Frequency 2483.5 MHz**



**Figure 148 - TXBF, Core 1-2 - 2412 MHz
 Measured Frequency 2390 MHz**

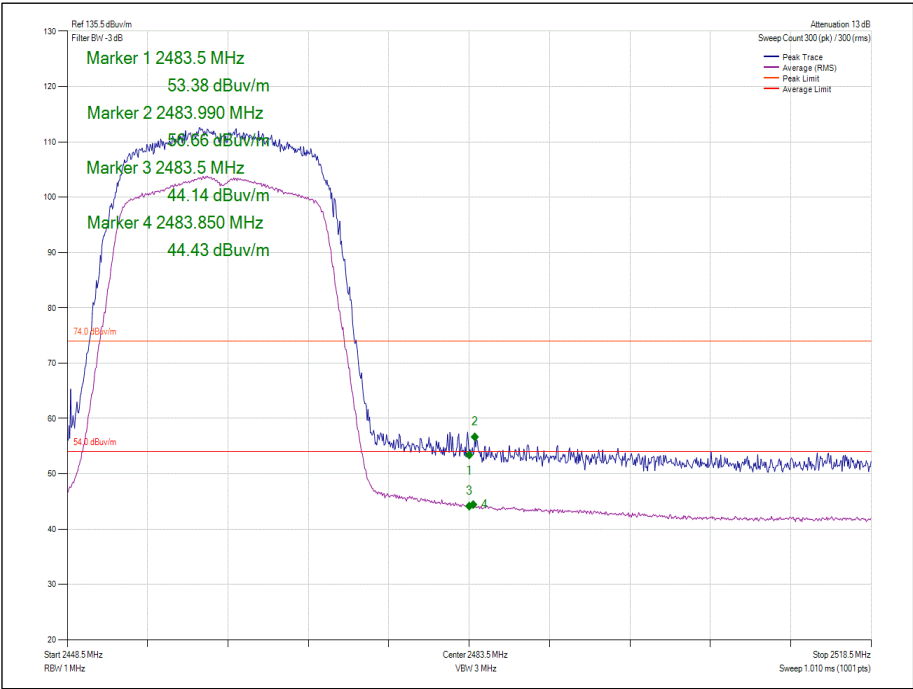


Figure 149 - TXBF, Core 1-2 - 2462 MHz
Measured Frequency 2483.85 MHz

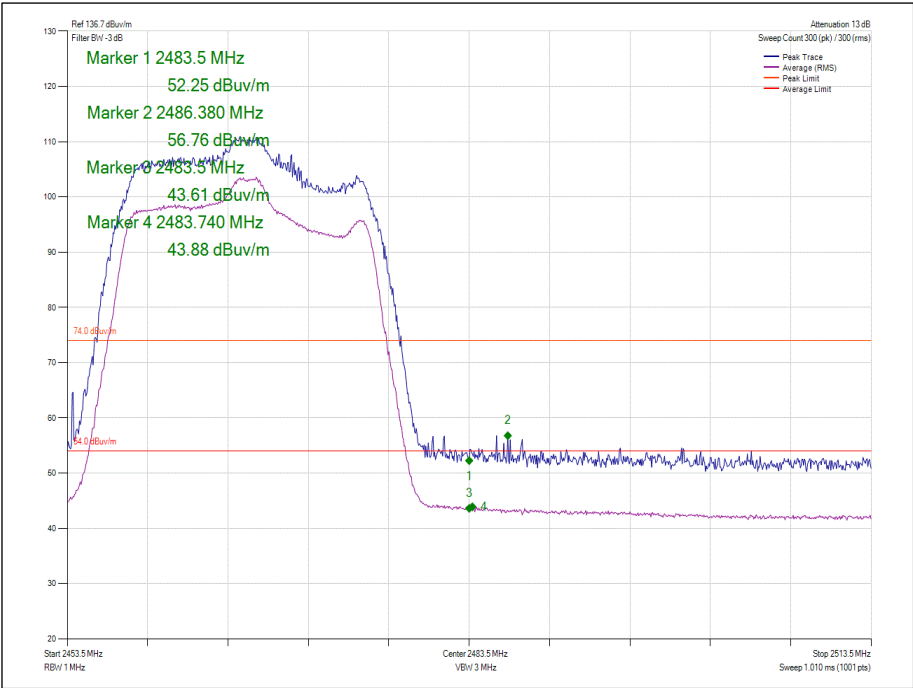


Figure 150 - TXBF, Core 1-2 - 2467 MHz
Measured Frequency 2483.74 MHz

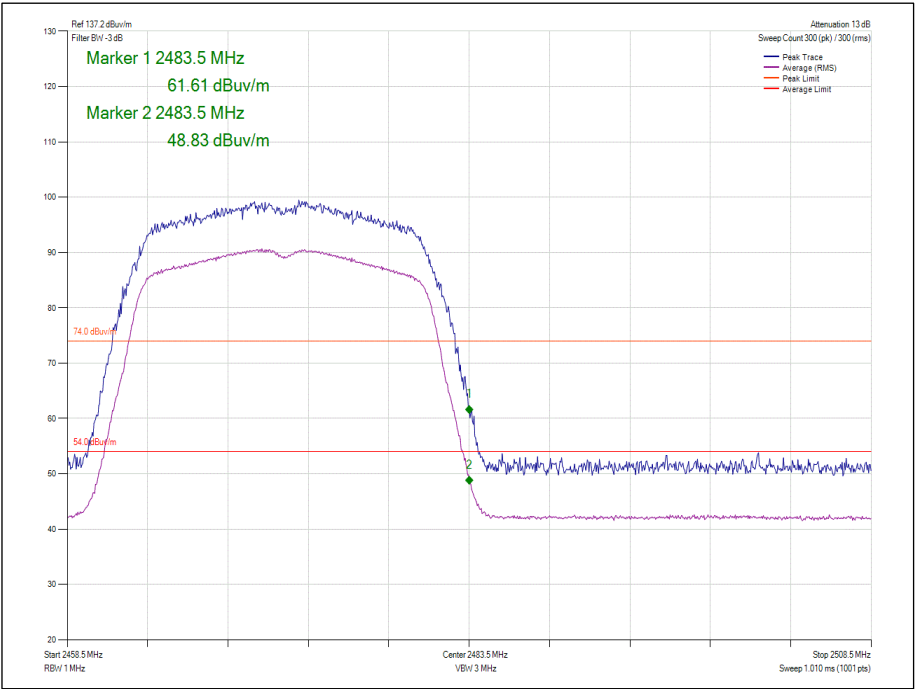


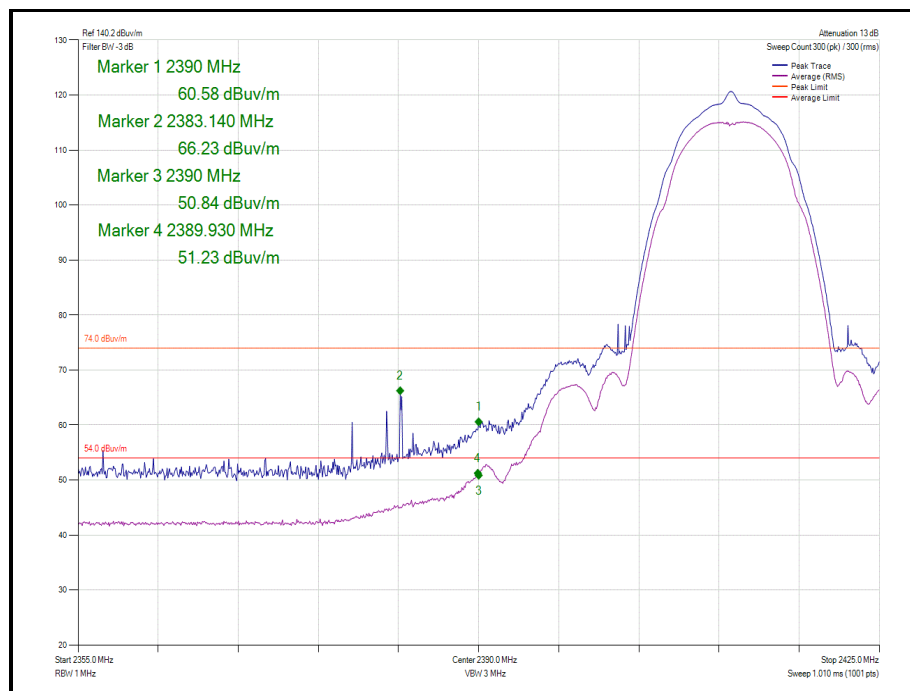
Figure 151 - TXBF, Core 1-2 - 2472 MHz
Measured Frequency 2483.5 MHz



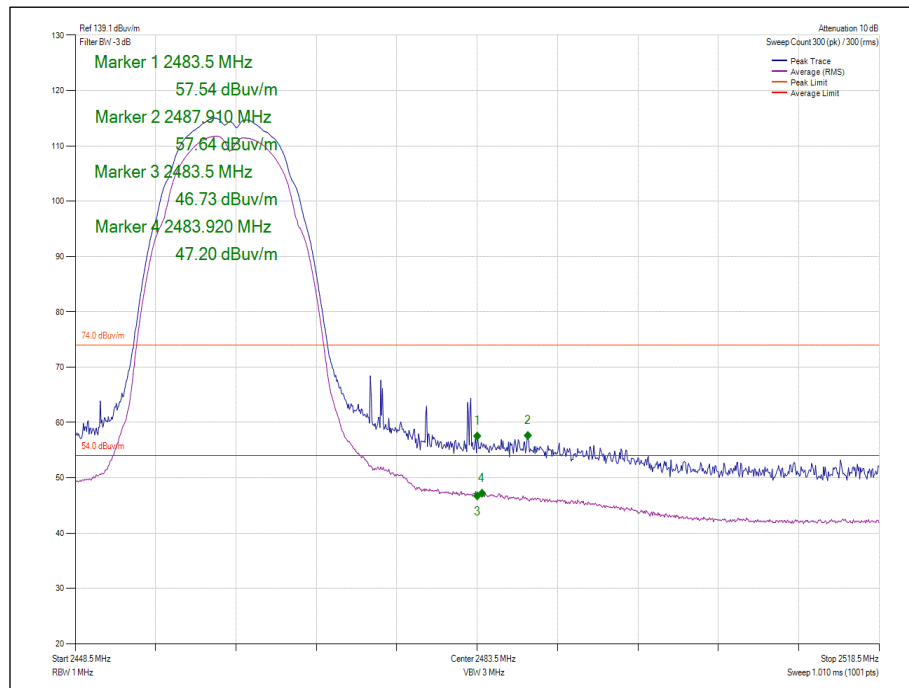
Main (MIMO 3Tx)

Mode	Data Rate	Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
802.11b, Core 0-1-2	1 Mbps	2412	2390	66.23	51.23
802.11b, Core 0-1-2	1 Mbps	2462	2483.92	57.64	47.20
802.11b, Core 0-1-2	1 Mbps	2467	2483.5	61.97	46.46
802.11b, Core 0-1-2	1 Mbps	2472	2483.6	64.40	45.94
802.11n, Core 0-1-2	MCS0	2412	2389.3	62.65	50.00
802.11n, Core 0-1-2	MCS0	2462	2484.55	60.65	46.31
802.11n, Core 0-1-2	MCS0	2467	2483.8	59.72	46.06
802.11n, Core 0-1-2	MCS0	2472	2483.55	60.18	47.09
TXBF, Core 0-1-2	MCS0	2412	2389.79	57.18	45.57
TXBF, Core 0-1-2	MCS0	2462	2483.5	63.14	45.36
TXBF, Core 0-1-2	MCS0	2467	2483.98	54.94	43.89
TXBF, Core 0-1-2	MCS0	2472	2483.5	56.11	43.52

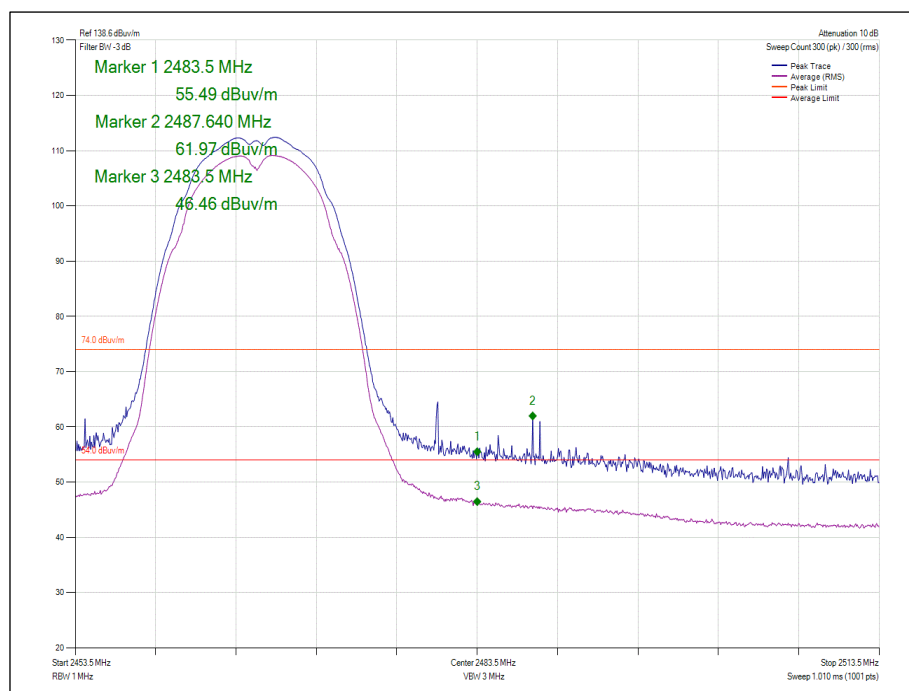
Table 67



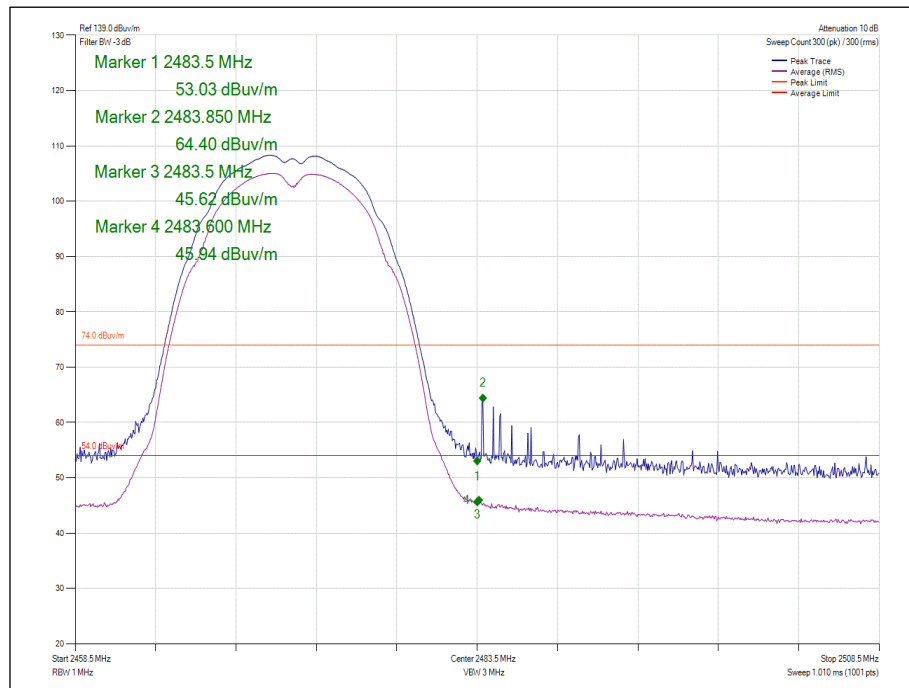
**Figure 152 - 802.11b, Core 0-1-2 - 2412 MHz
Measured Frequency 2390 MHz**



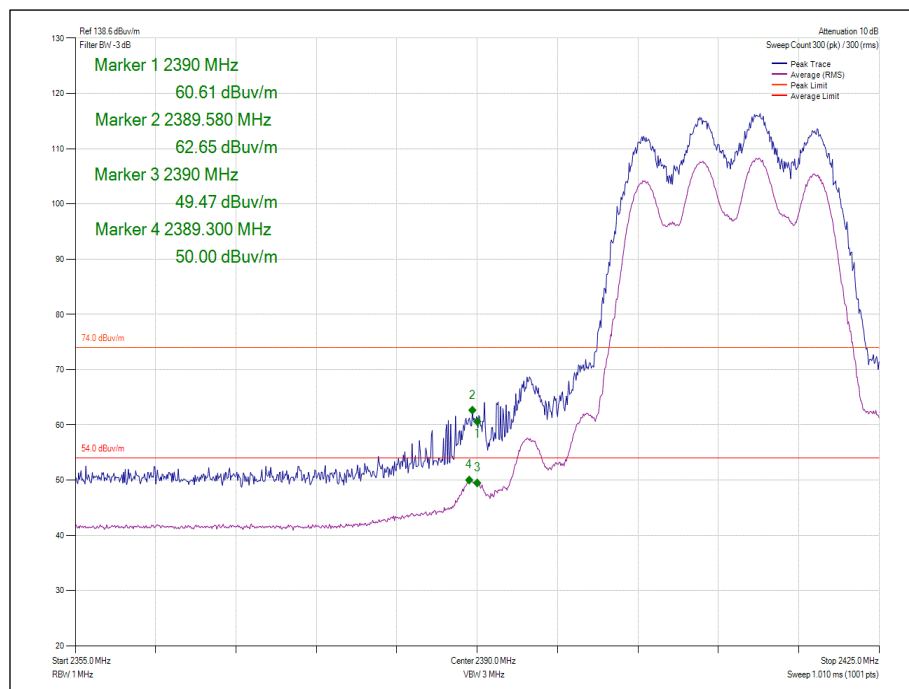
**Figure 153 - 802.11b, Core 0-1-2 - 2462 MHz
Measured Frequency 2483.92 MHz**



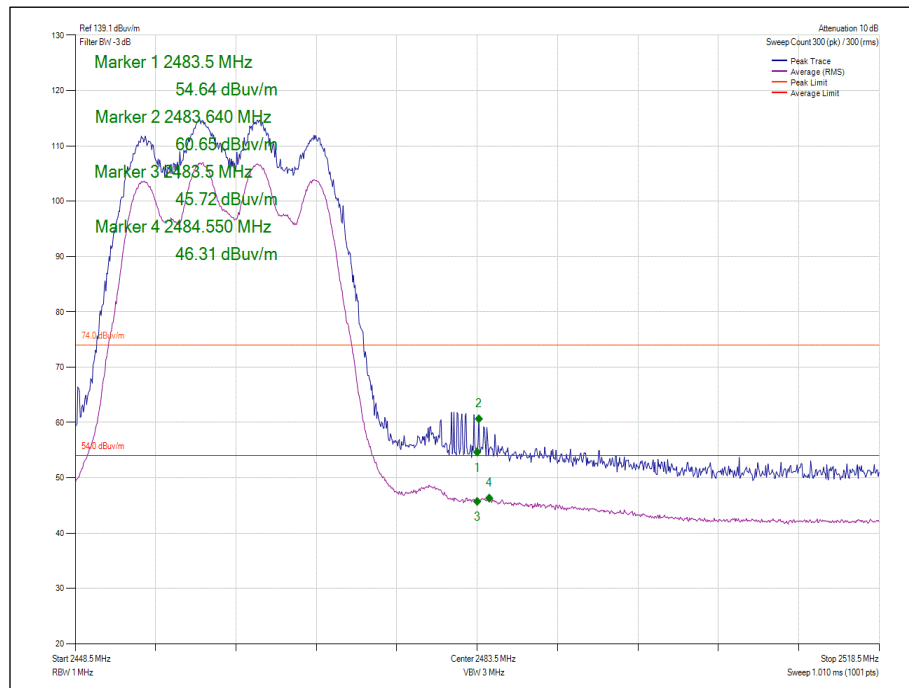
**Figure 154 - 802.11b, Core 0-1-2 - 2467 MHz
Measured Frequency 2483.5 MHz**



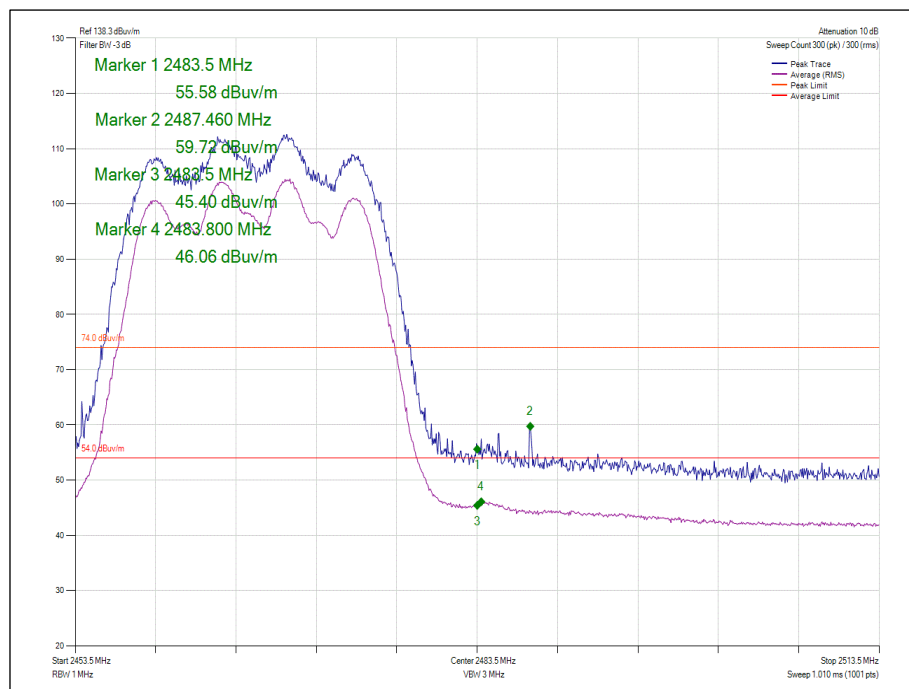
**Figure 155 - 802.11b, Core 0-1-2 - 2472 MHz
 Measured Frequency 2483.6 MHz**



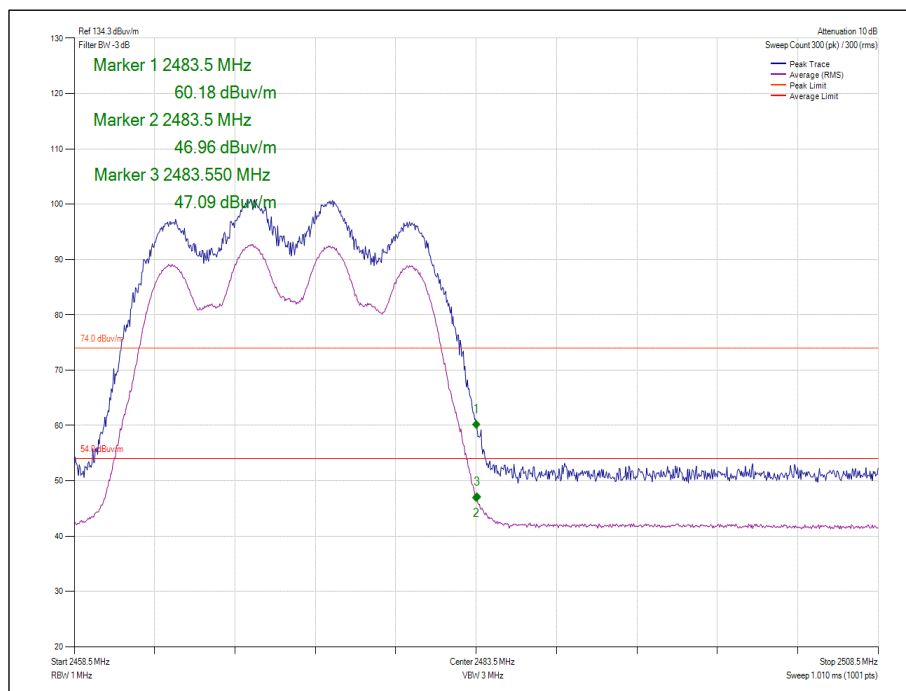
**Figure 156 - 802.11n, Core 0-1-2 - 2412 MHz
 Measured Frequency 2389.3 MHz**



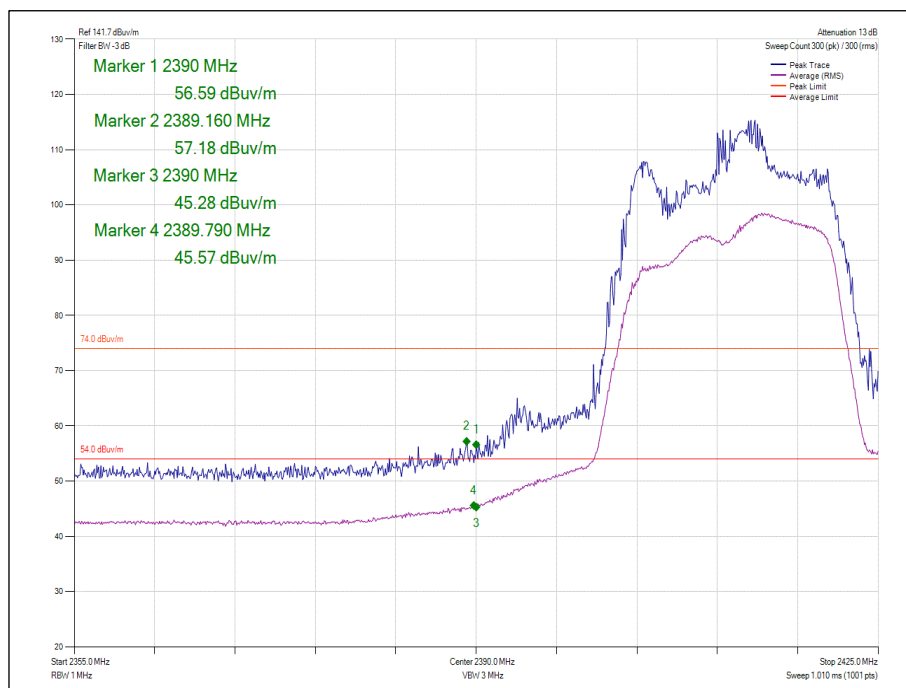
**Figure 157 - 802.11n, Core 0-1-2 - 2462 MHz
 Measured Frequency 2484.55 MHz**



**Figure 158 - 802.11n, Core 0-1-2 - 2467 MHz
 Measured Frequency 2483.8 MHz**



**Figure 159 - 802.11n, Core 0-1-2 - 2472 MHz
 Measured Frequency 2483.55 MHz**



**Figure 160 – TXBF, Core 0-1-2 - 2412 MHz
 Measured Frequency 2389.79 MHz**

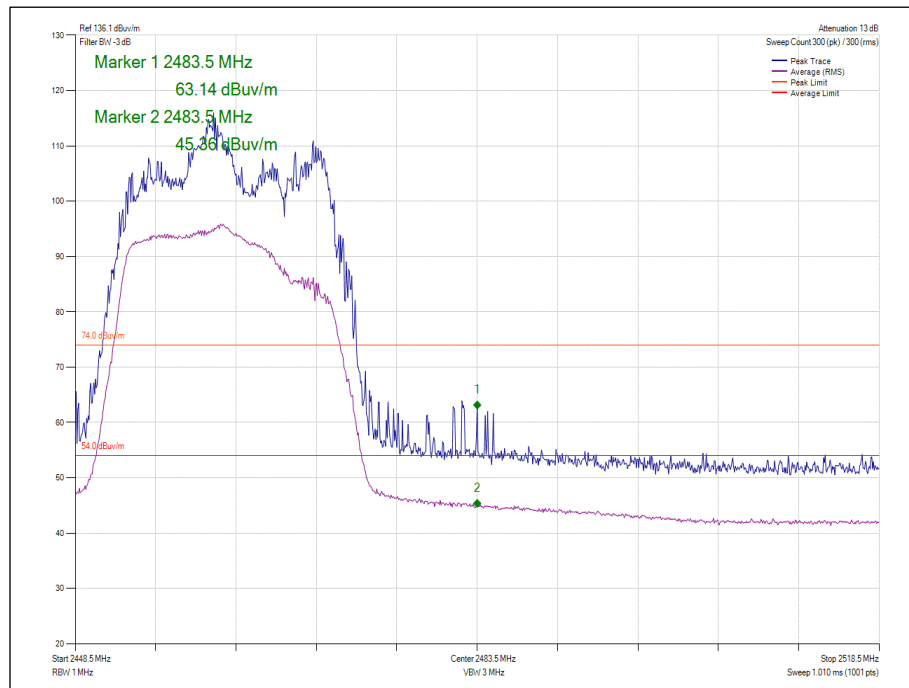


Figure 161 - TXBF, Core 0-1-2 - 2462 MHz
 Measured Frequency 2483.5 MHz

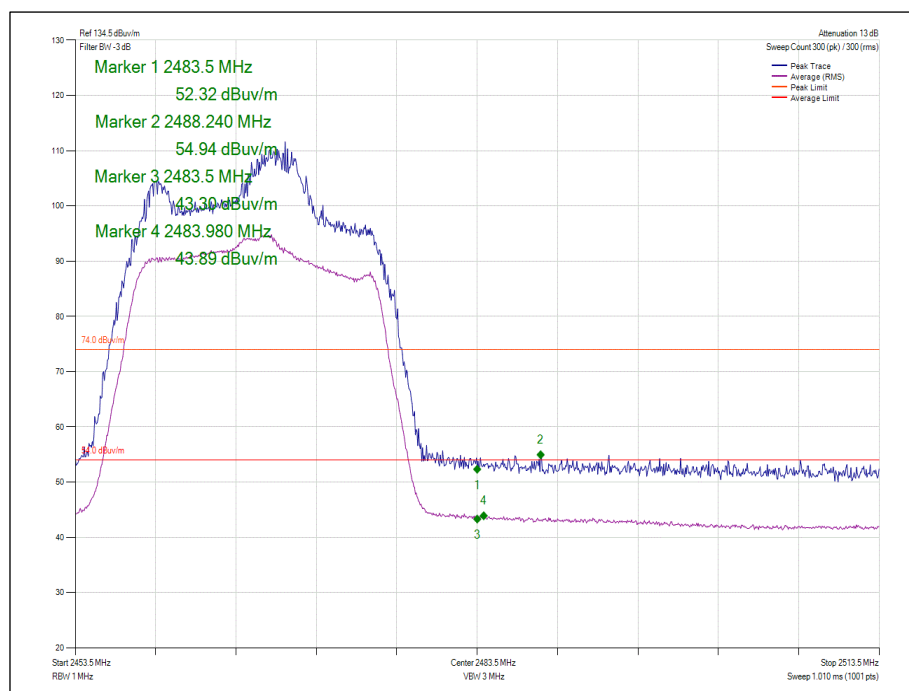


Figure 162 - TXBF, Core 0-1-2 - 2467 MHz
 Measured Frequency 2483.98 MHz

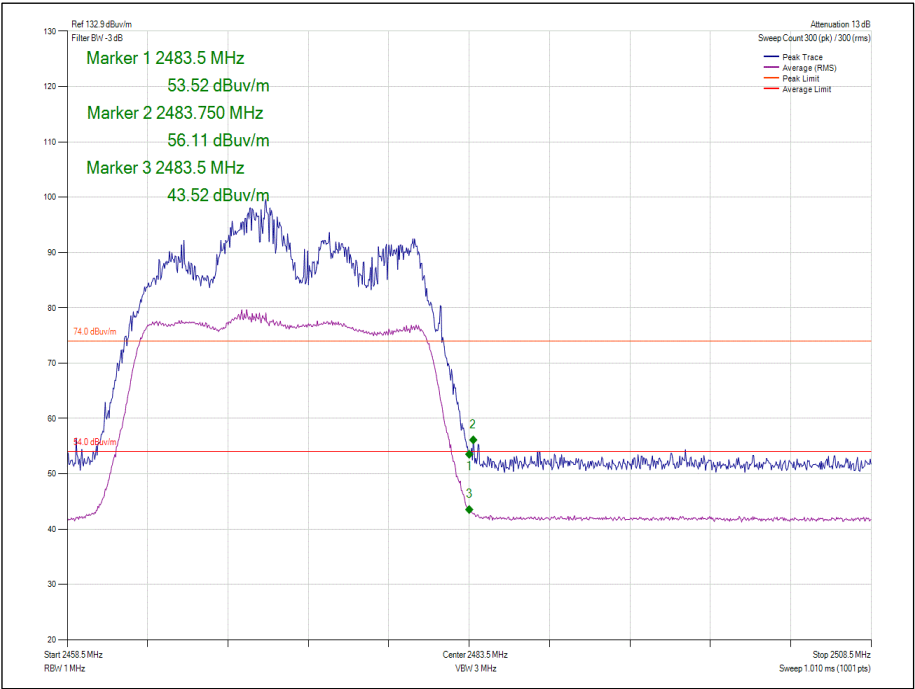


Figure 163 - TXBF, Core 0-1-2 - 2472 MHz
Measured Frequency 2483.5 MHz



FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 68

ISED RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{m}$ at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

Table 69

*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.



2.5.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Hygrometer	Rotronic	HYGROPALM 1	2338	12	15-Nov-2019
DC - 12.4 GHz 10 dB Attenuator	Suhner	6810.17.A	3965	12	07-Aug-2020
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	05-Mar-2020
8 - 18 GHz pre amp	Wright Technologies	PS06-0061	4971	12	07-Dec-2019
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	12-Sep-2019
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5095	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5105	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-2000	5107	12	05-Oct-2019
EmX Software	TUV SUD	EmX V.1.4.8.3	5125	-	Software
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU

Table 70

TU – Traceability Unscheduled



2.6 Spurious Radiated Emissions

2.6.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (d) & 15.205
ISED RSS-247, Clause 5.5
ISED RSS-GEN, Clause 6.13

2.6.2 Equipment Under Test and Modification State

A2141, S/N: C02YT00GL51N - Modification State 0

2.6.3 Date of Test

03-August-2019 to 12-August-2019

2.6.4 Test Method

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

In the 30 MHz to 1 GHz range pre-scans were only performed on the main radio mid channel (2442 MHz) and any emissions identified then measured on bottom (2412 MHz) and top (2472 MHz).

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 @ 3m and 64/84 dBuV/m @ 1m) when compared to 20 dBc (Peak) and 30 dBc (Average) outside restricted bands. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10 dB 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:
 $10^{(\text{Field Strength in dBuV/m} / 20)}$.

Spurious Radiated Emissions measurements were performed, with the device operating in MIMO 3TX during tests on the Main Radio, as this was defined as worst case.

Measurements displayed within this report, have been limited to one mode only for each radio, as tests on other modes have been shown to provide a similar emissions profile.

Further measurements are held on file by TÜV SÜD, and are available if required

2.6.5 Environmental Conditions

Ambient Temperature	21.0 - 23.0 °C
Relative Humidity	45.0 - 62.7 %



2.6.6 Test Results

802.11b, Main Cores 0-1-2

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
7238.053	53.48	-	74	54	20.52	-
7235.057	-	44.26	74	54	-	9.74
4823.901	54.1		74	54	19.9	-
4824.026	-	49.52	74	54	-	4.48
16883.286	-	36.82	74	54	-	17.18

Table 71 – 2412 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
33.742	30.82	40	9.18

Table 72 – 2442 MHz - 30 MHz to 1 GHz – Radiated

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
4884.070	-	41.8	74	54	-	12.20
7325.099	-	42.32	74	54	-	11.68
17093.200	-	35.59	74	54	-	18.41

Table 73 – 2442 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
4943.977	-	44.97	74	54	-	9.03
7417.157	-	41.61	74	54	-	12.39
7417.374	52.28	-	74	54	21.72	-

Table 74 - 2472 MHz - 1 GHz to 26 GHz – Radiated

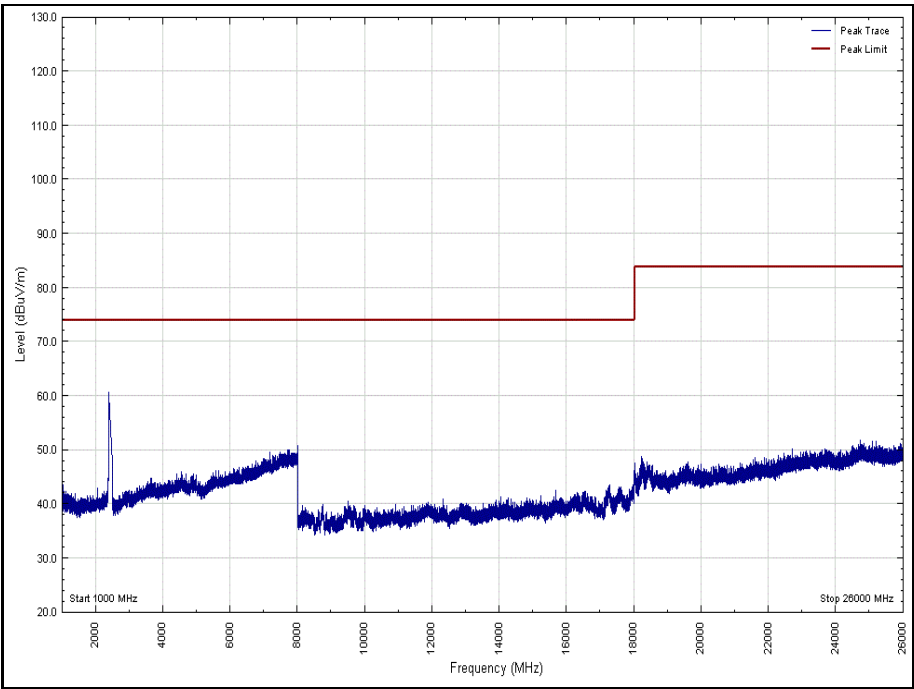


Figure 164 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

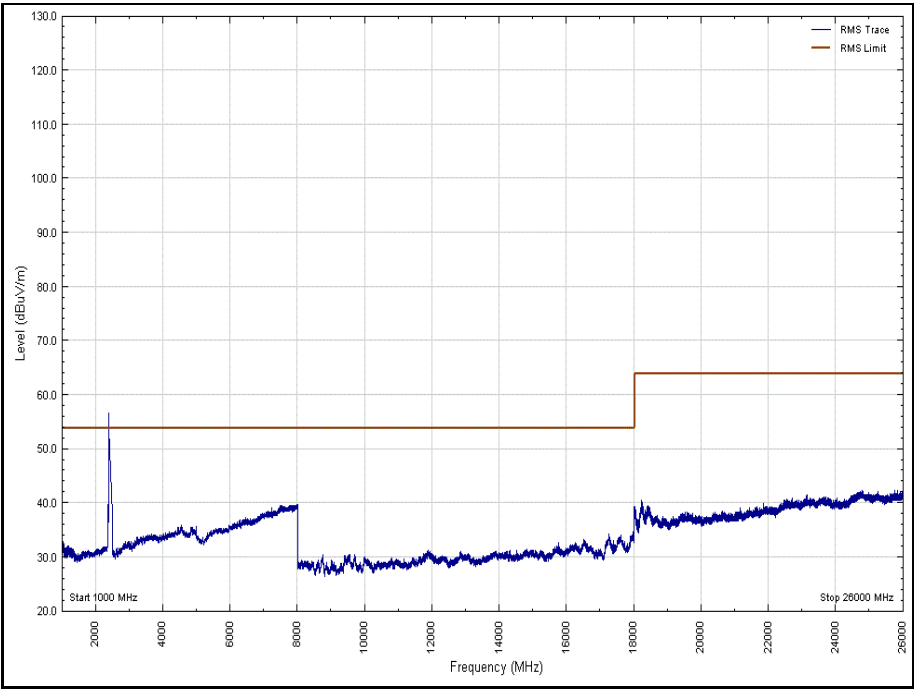


Figure 165 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal - Average

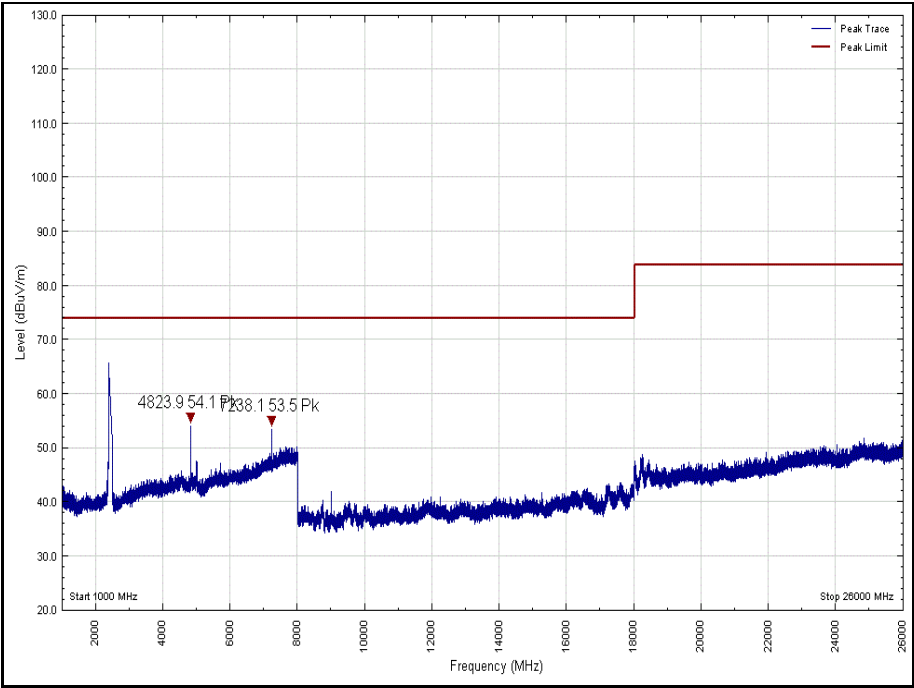


Figure 166 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

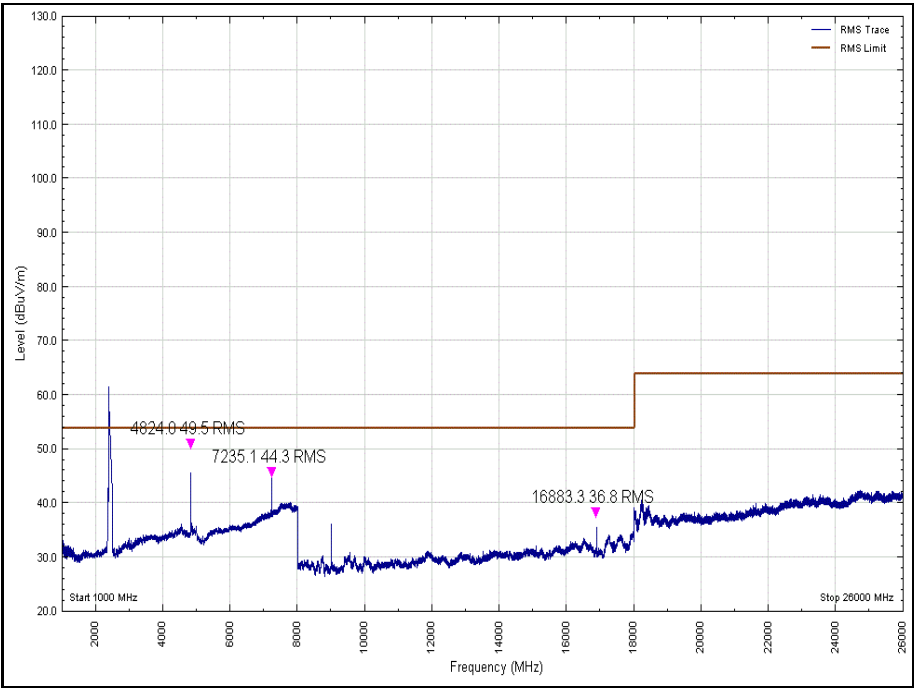


Figure 167 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Average

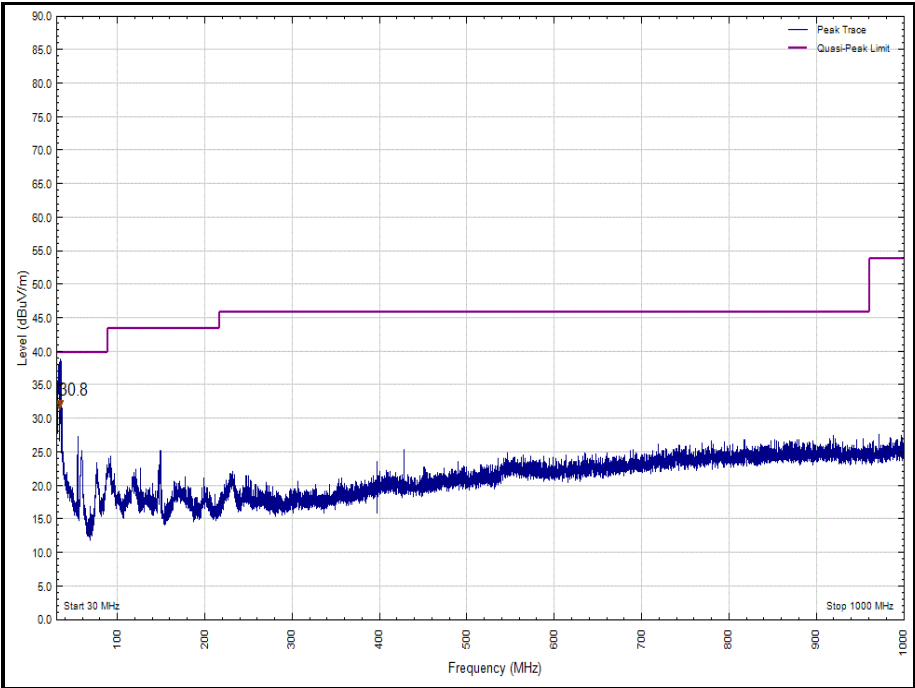


Figure 168 - 2442 MHz – 30 MHz to 1000 MHz, Horizontal – Peak

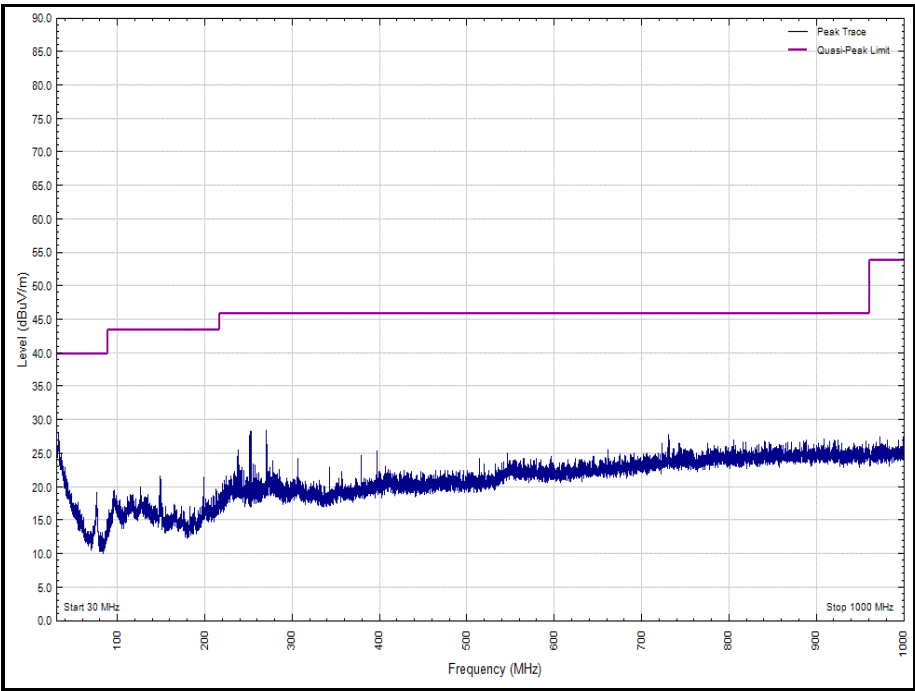


Figure 169 - 2442 MHz – 30MHz to 1000 MHz, Vertical – Peak

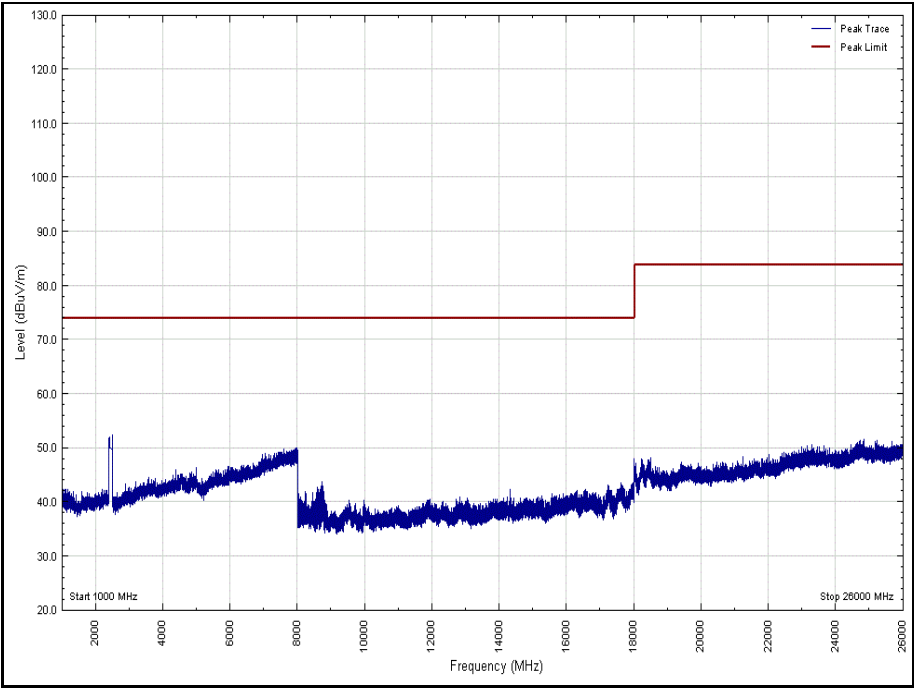


Figure 170 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

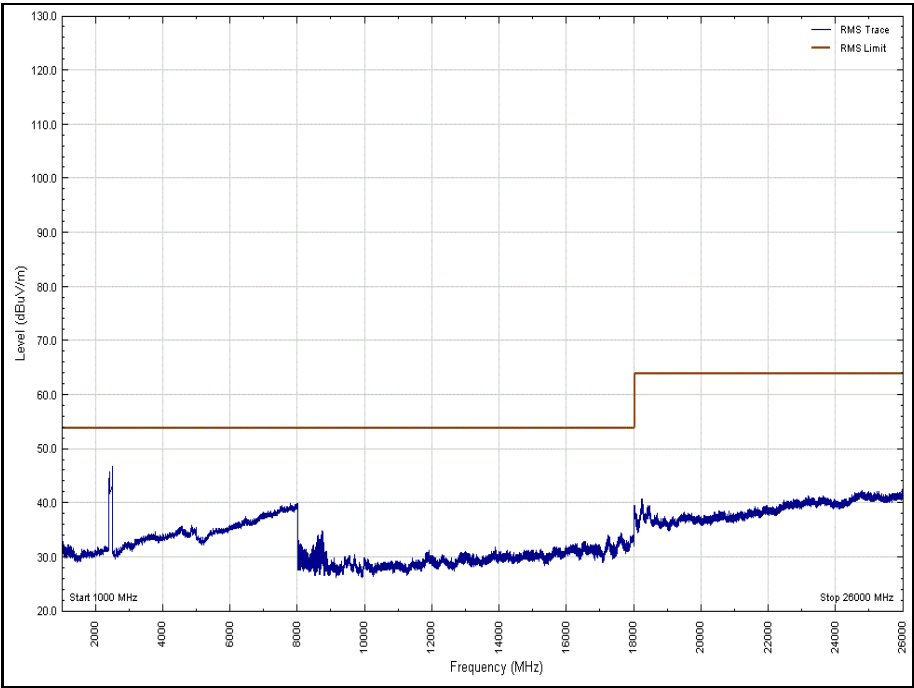


Figure 171 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

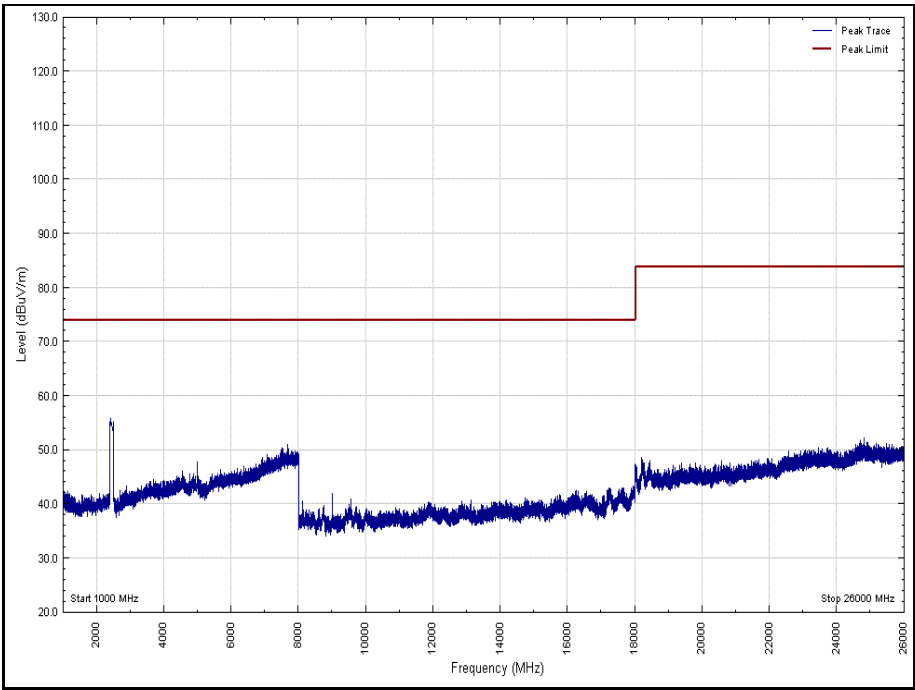


Figure 172 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

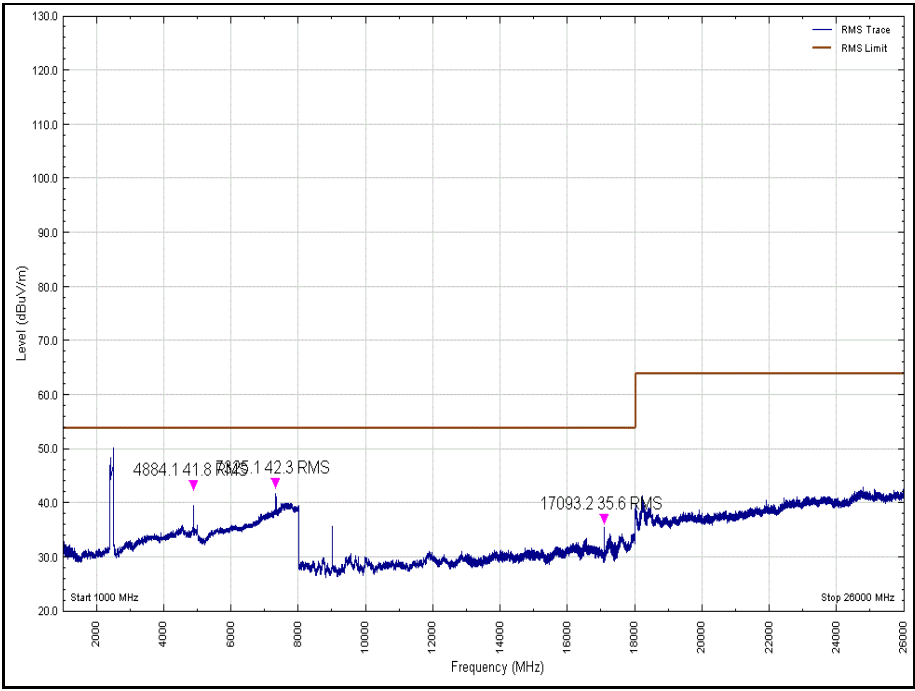


Figure 173 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

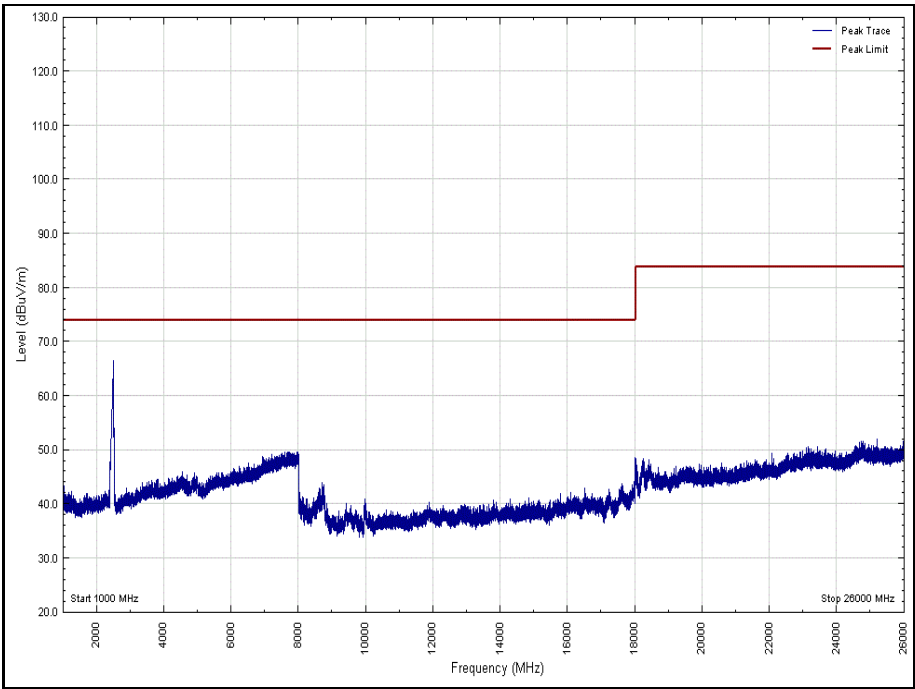


Figure 174 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

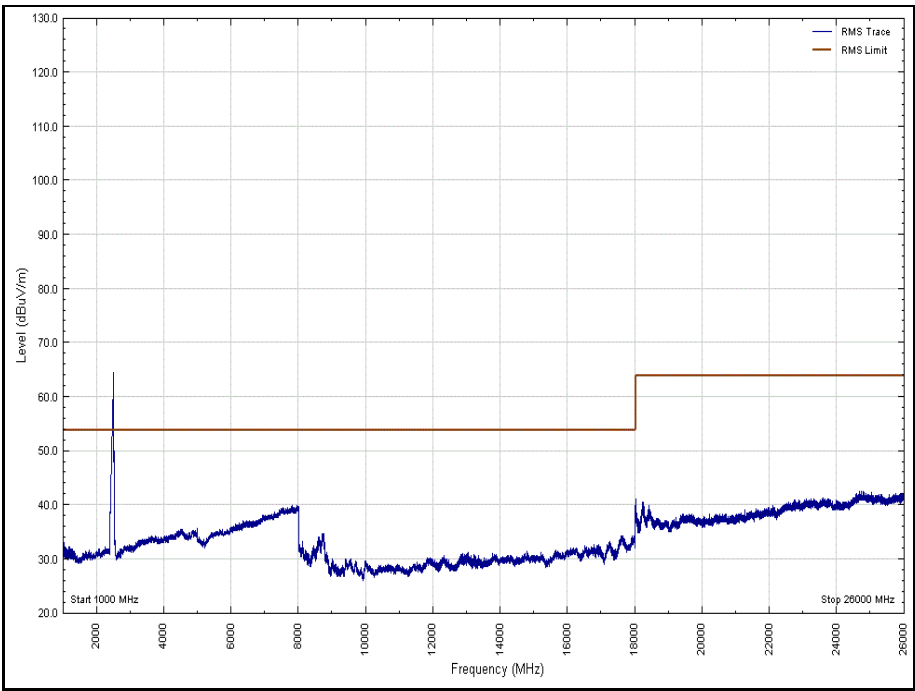


Figure 175 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

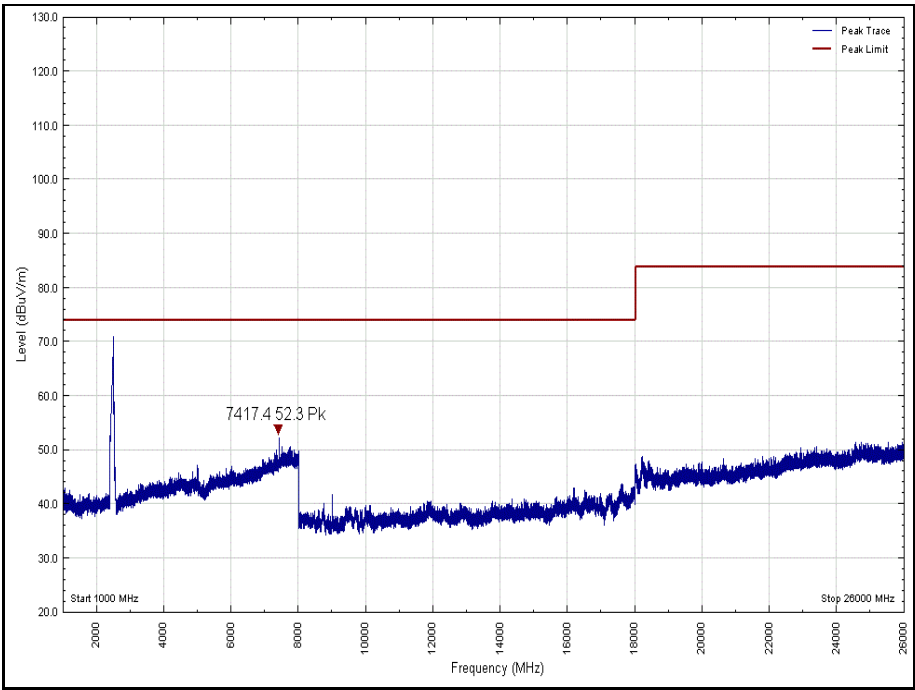


Figure 176 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

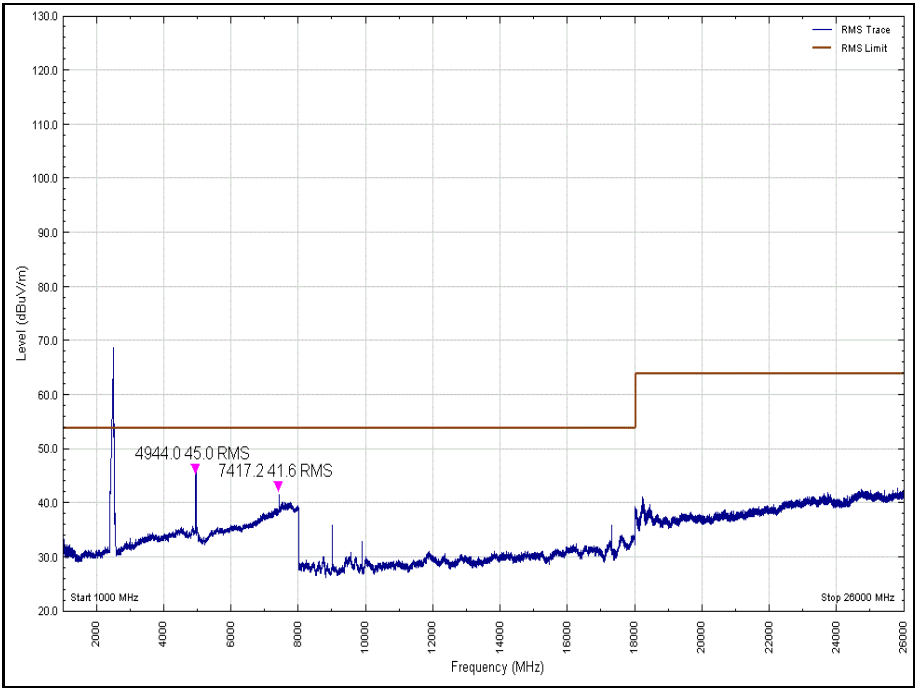


Figure 177 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



802.11g, Main Cores 0-1-2

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
4824.191	-	38.81	74	54	-	13.11
7235.201	-	40.89	74	54	-	15.19

Table 75 – 2412 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
33.746	31.95	40	8.05

Table 76 – 2442 MHz - 30 MHz to 1 GHz – Radiated

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
7326.989	-	37.77	74	54	-	16.23

Table 77 – 2442 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 78 - 2472 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10dB of the specification Limit

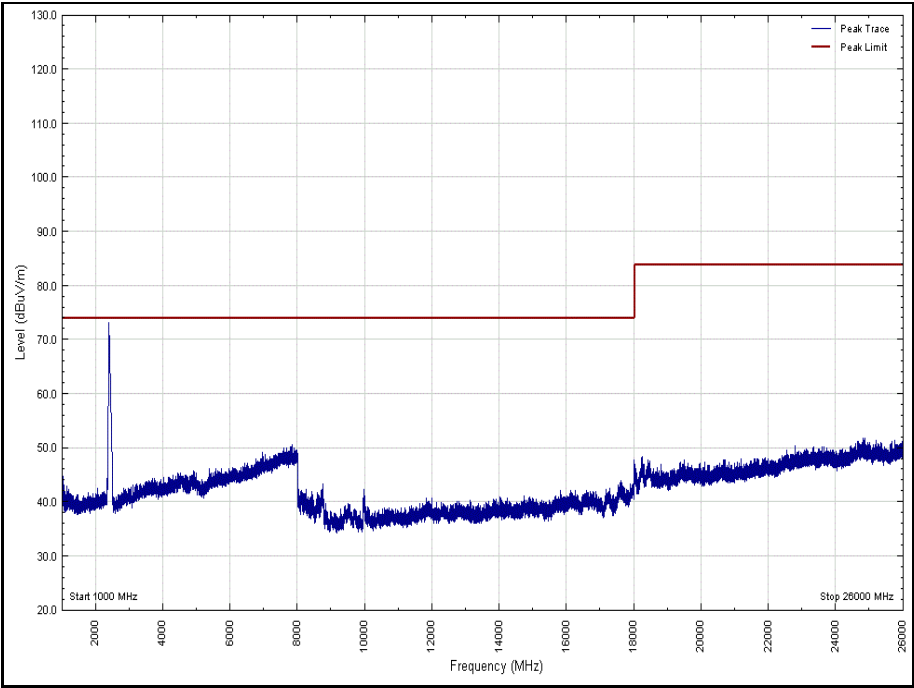


Figure 178 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

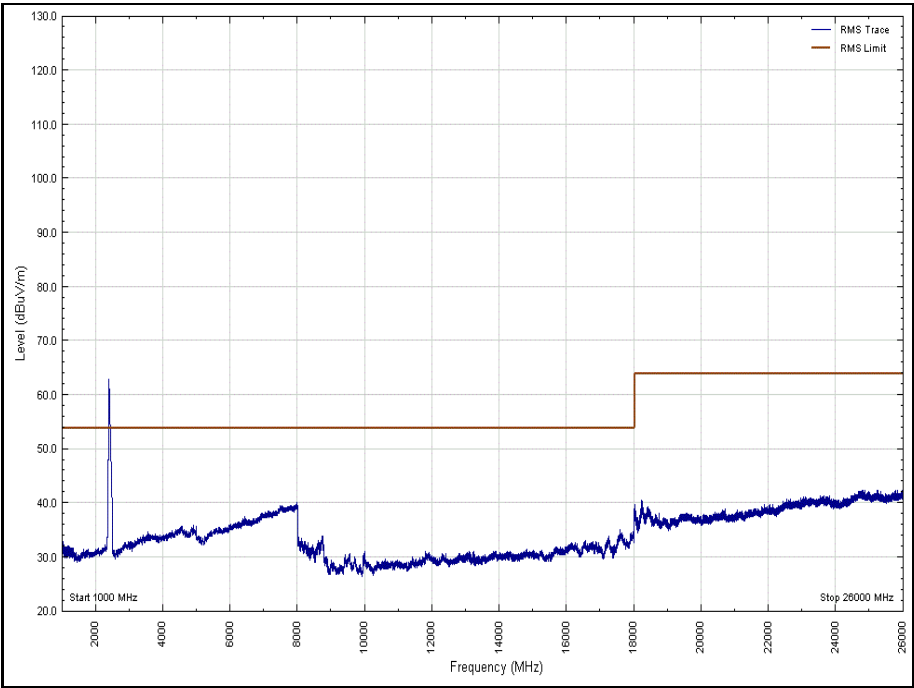


Figure 179 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

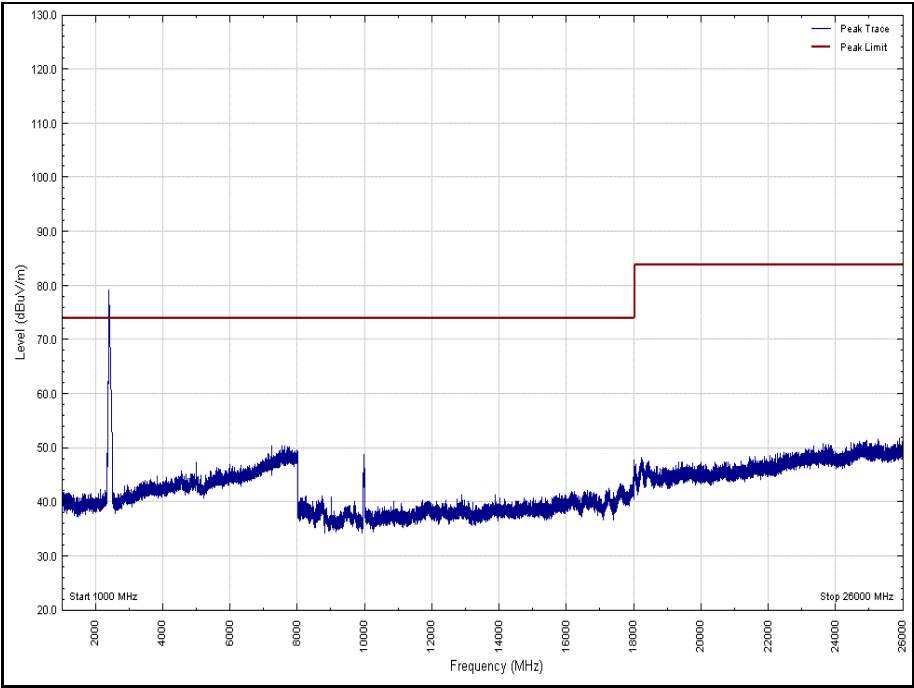


Figure 180 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

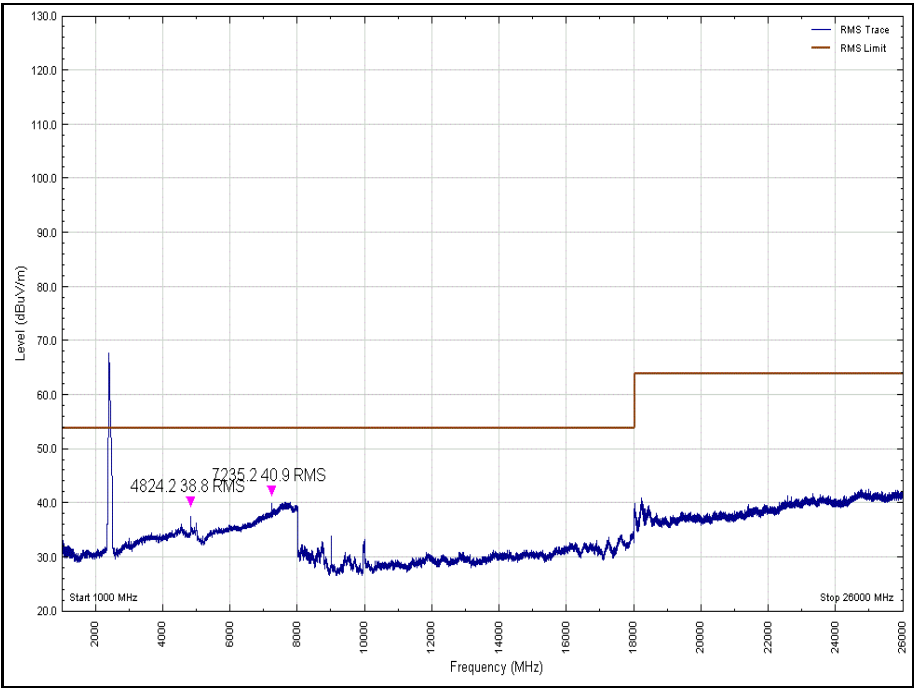


Figure 181 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Average

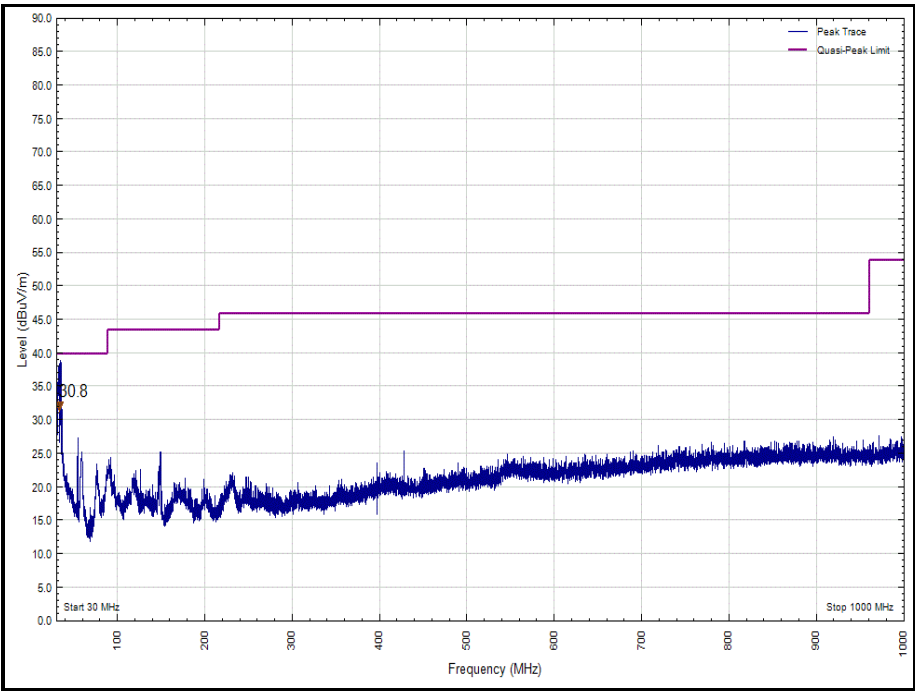


Figure 182 - 2442 MHz – 30 MHz to 1000 MHz, Horizontal – Peak

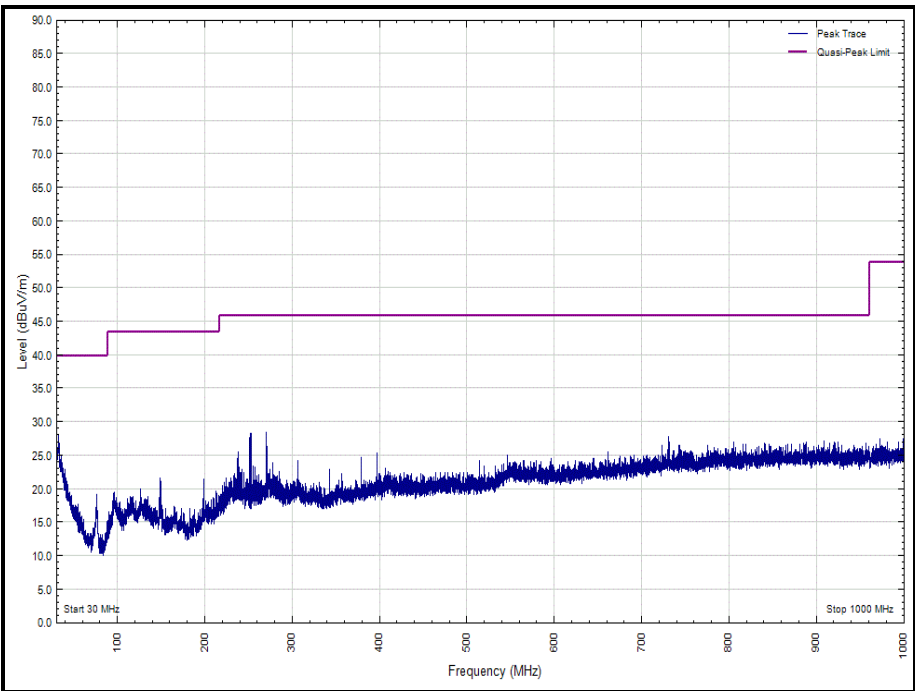


Figure 183 - 2442 MHz – 30MHz to 1000 MHz, Vertical – Peak

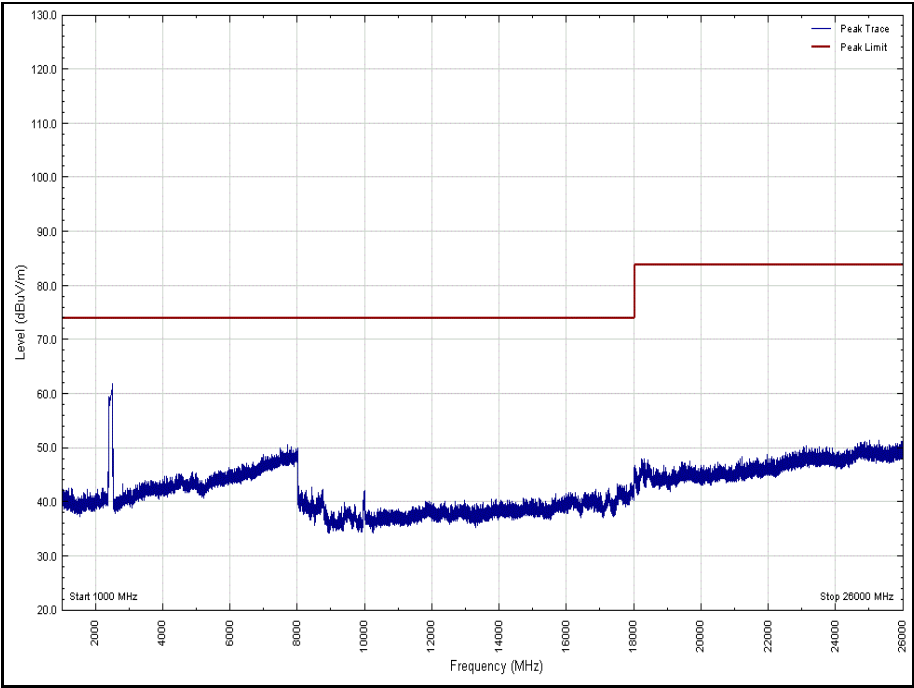


Figure 184 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

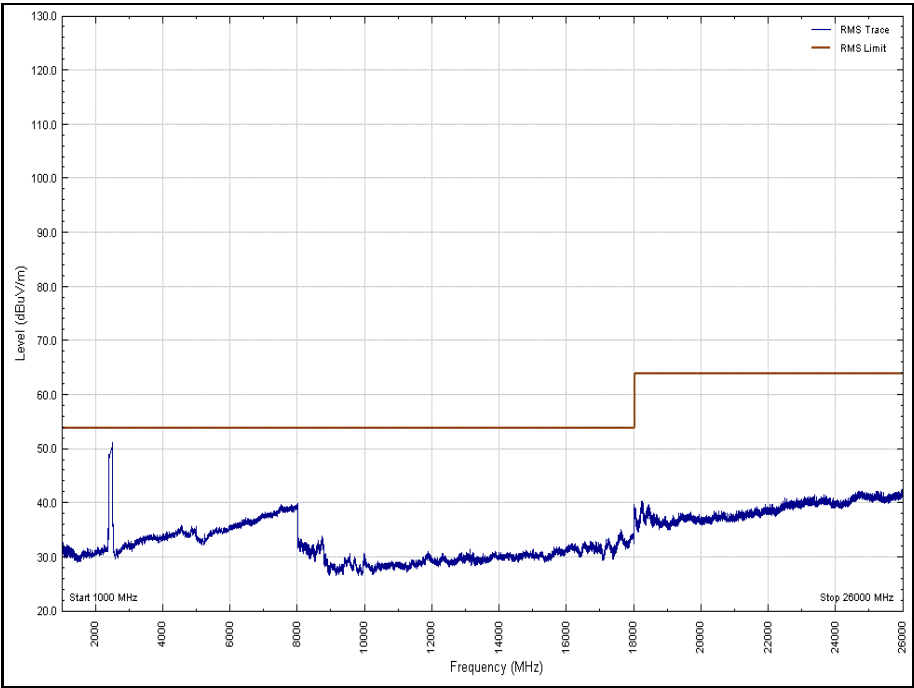


Figure 185 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal - Average

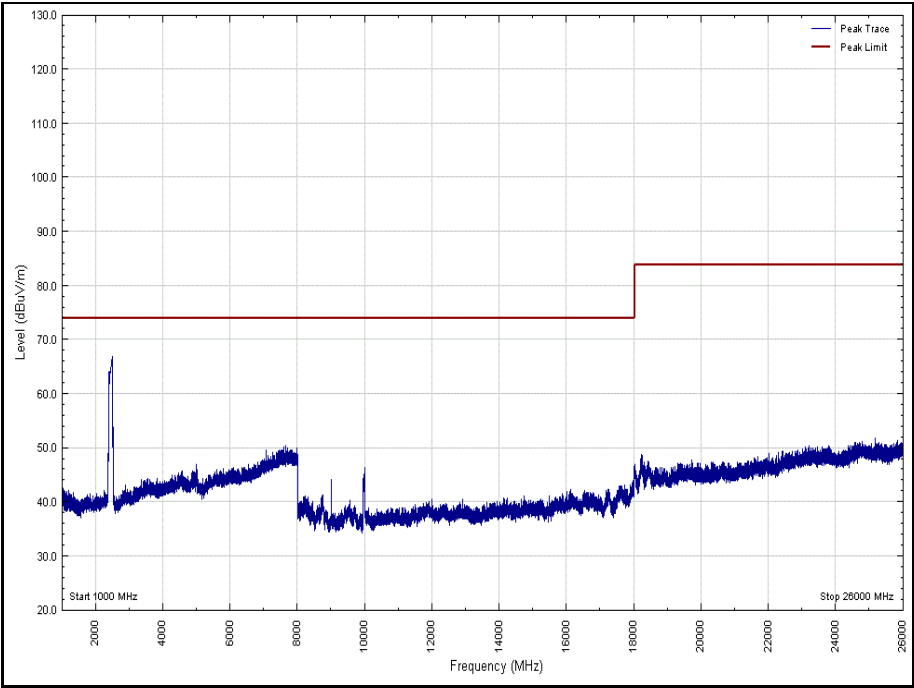


Figure 186 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

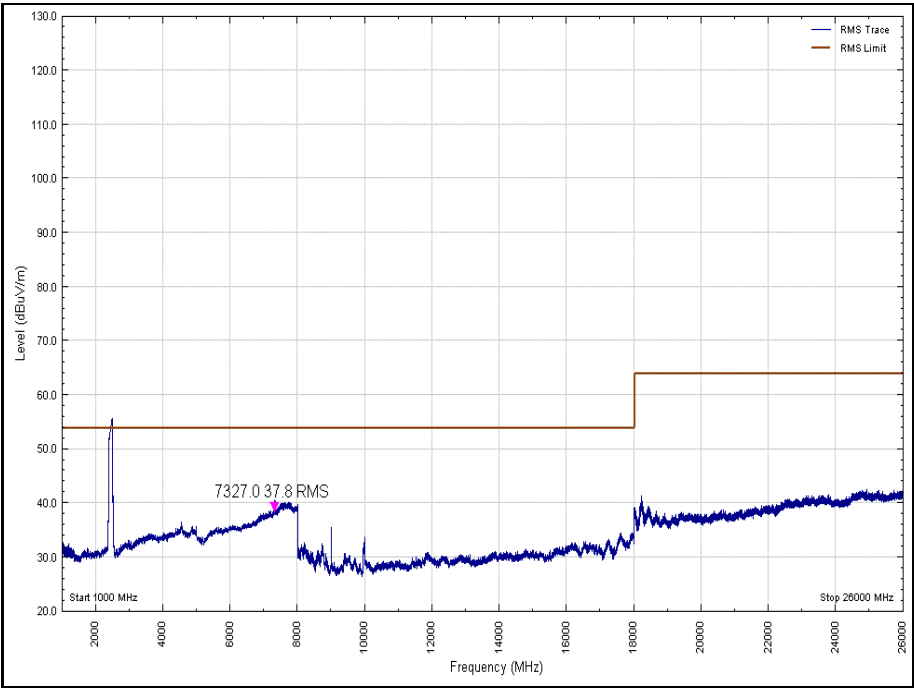


Figure 187 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

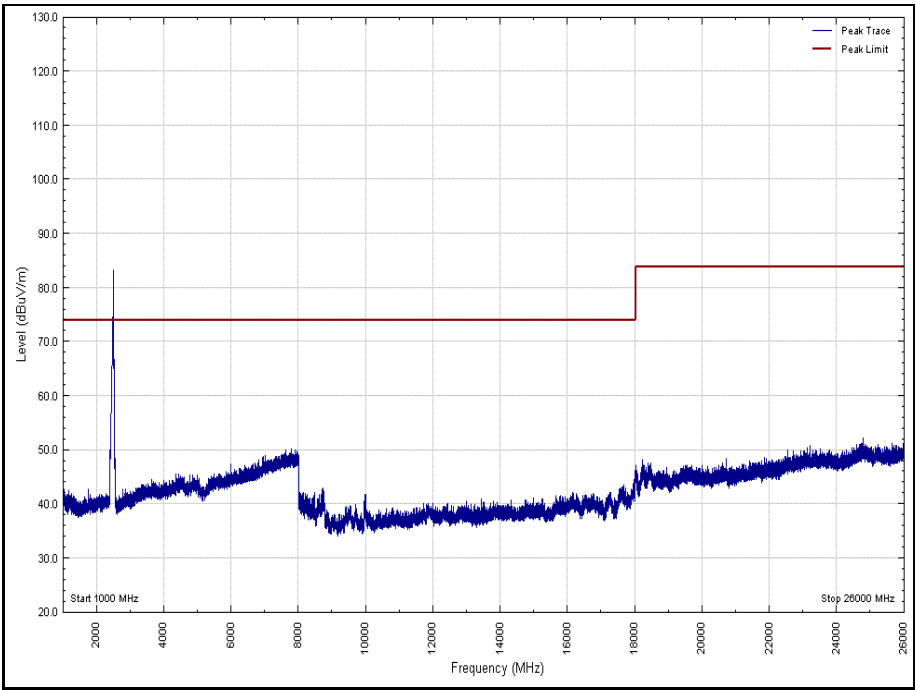


Figure 188 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

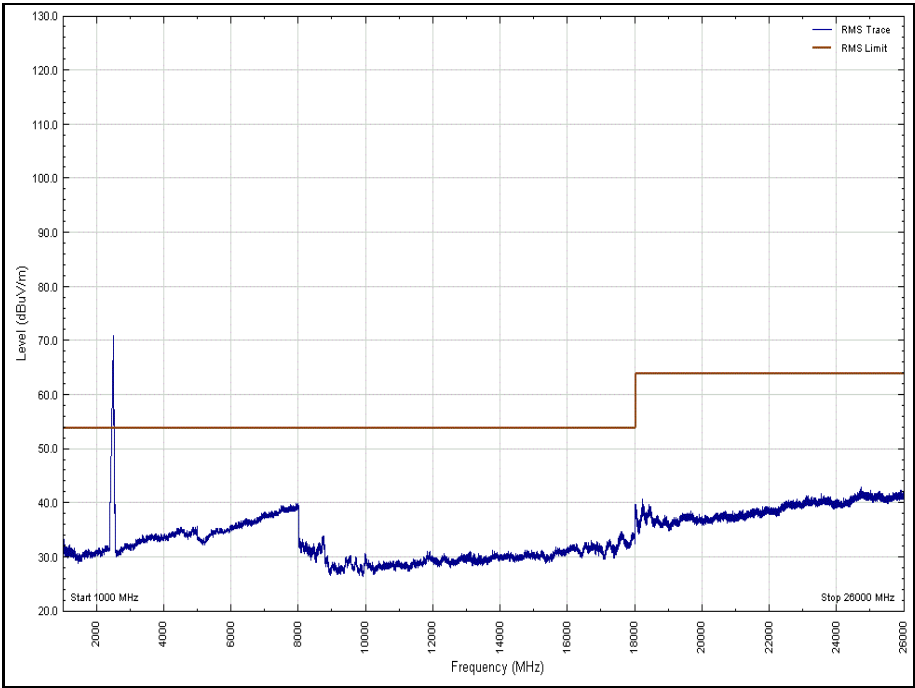


Figure 189 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

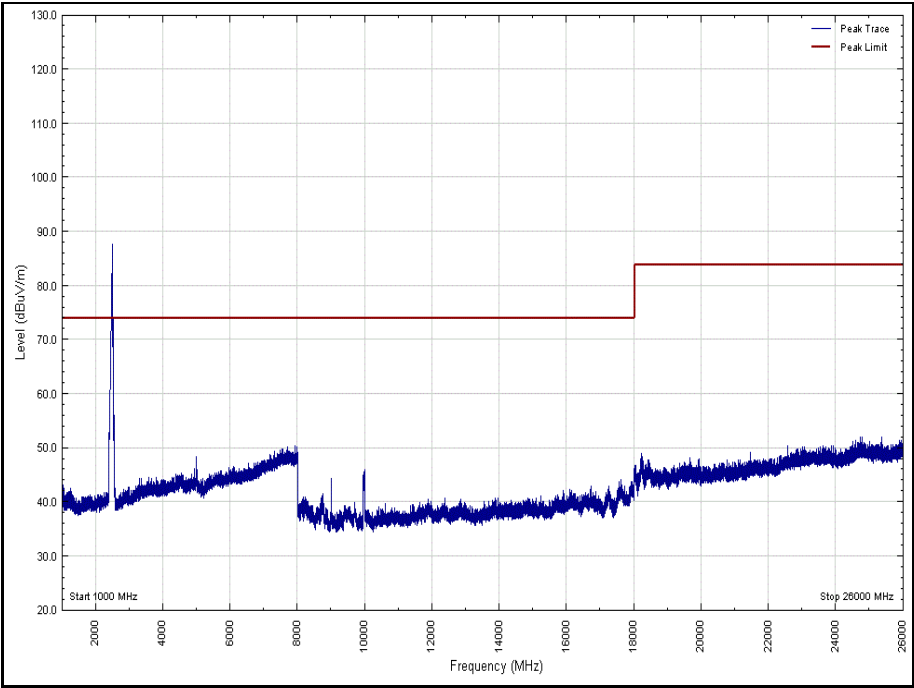


Figure 190 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

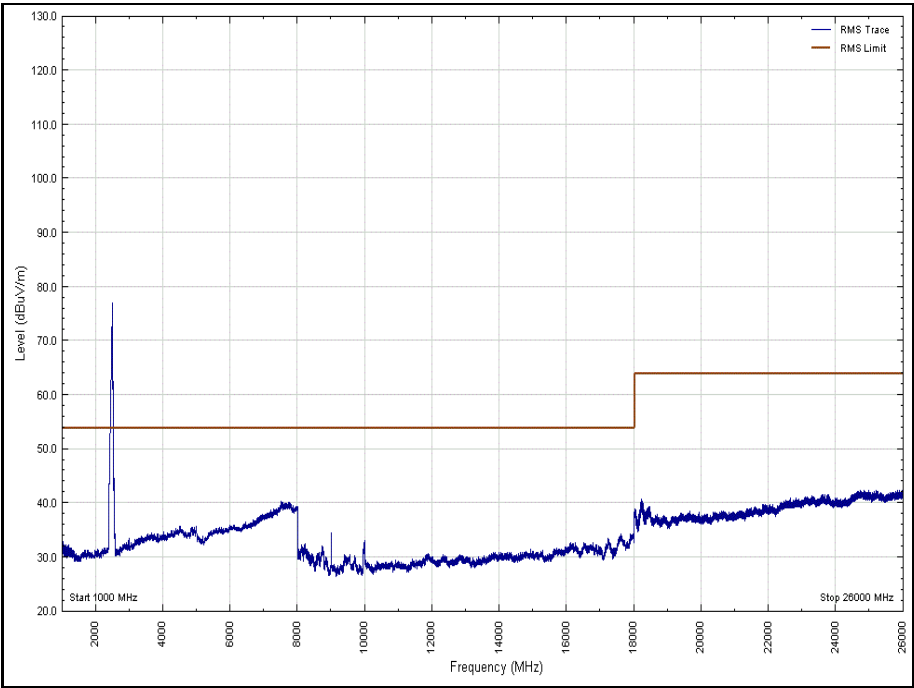


Figure 191 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



802.11n, Main Cores 0-1-2

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
4824.127	-	38.91	74	54	-	15.09
7236.204	-	37.93	74	54	-	16.07

Table 79 – 2412 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dB)
*			

Table 80 – 2442 MHz - 30 MHz to 1 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 81 – 2442 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 82 - 2472 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10dB of the specification Limit

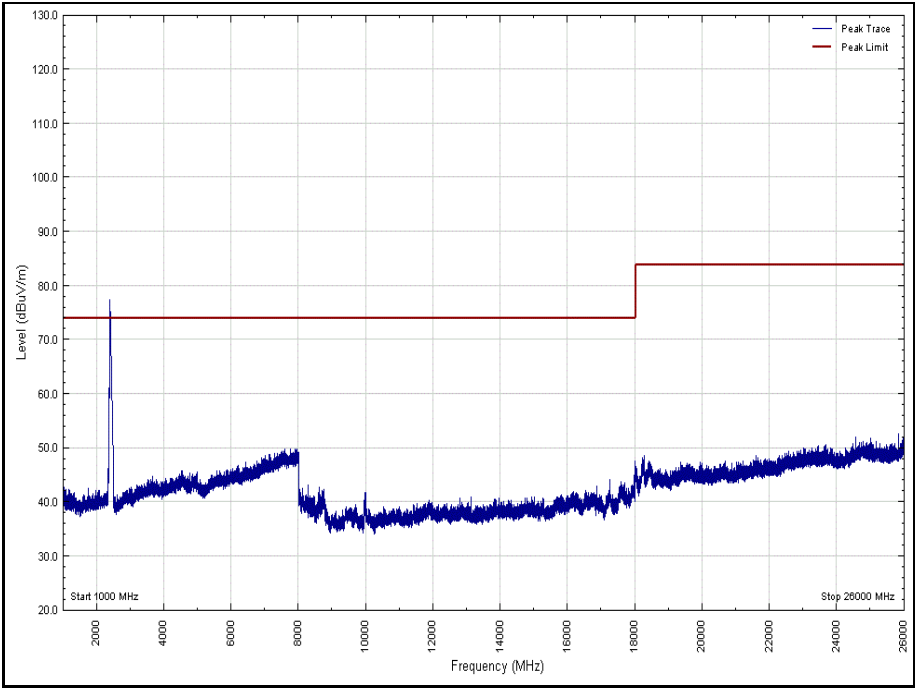


Figure 192 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

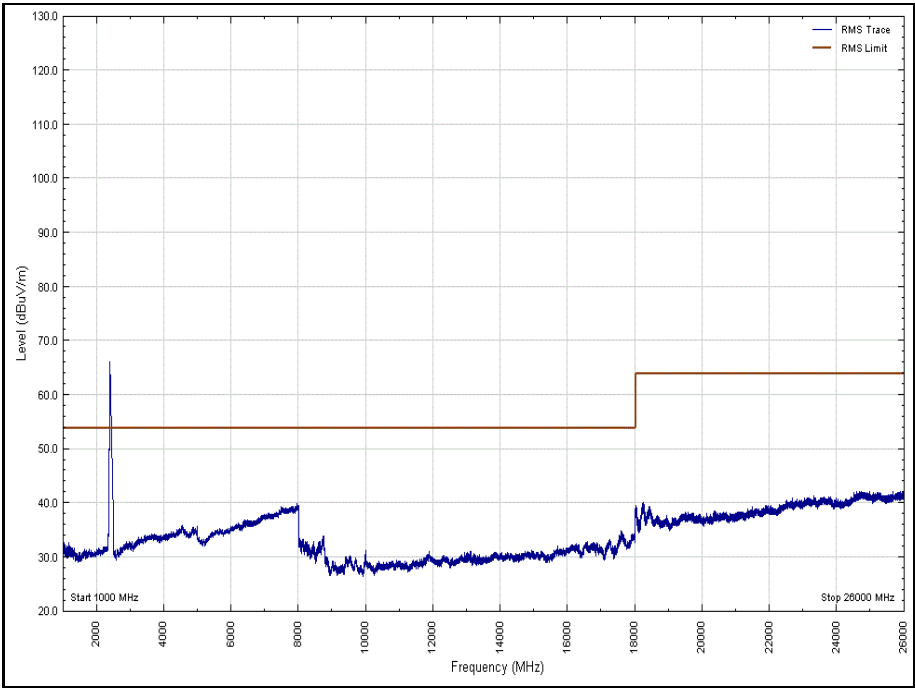


Figure 193 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal - Average

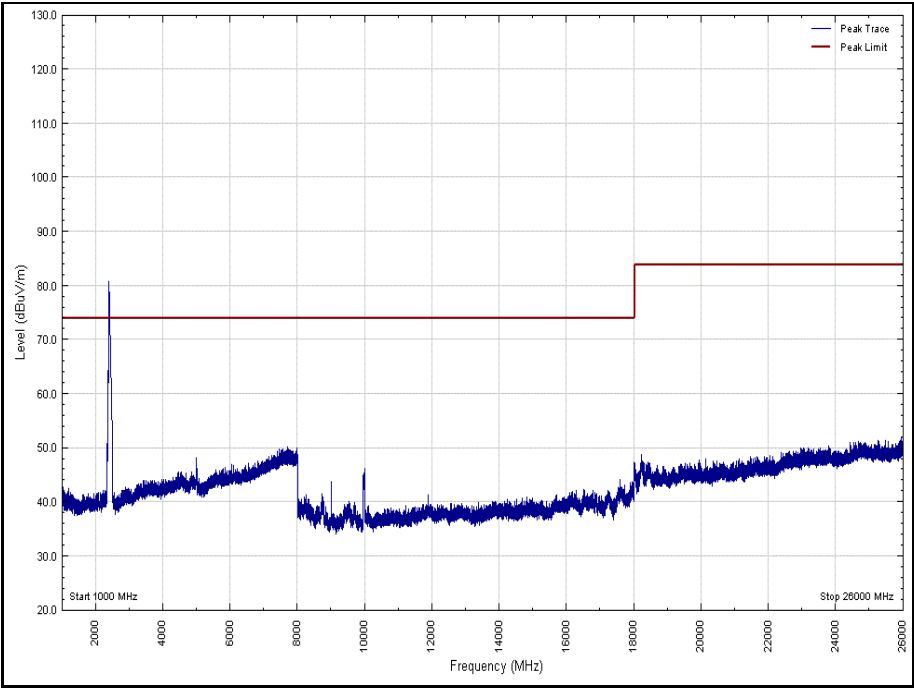


Figure 194 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

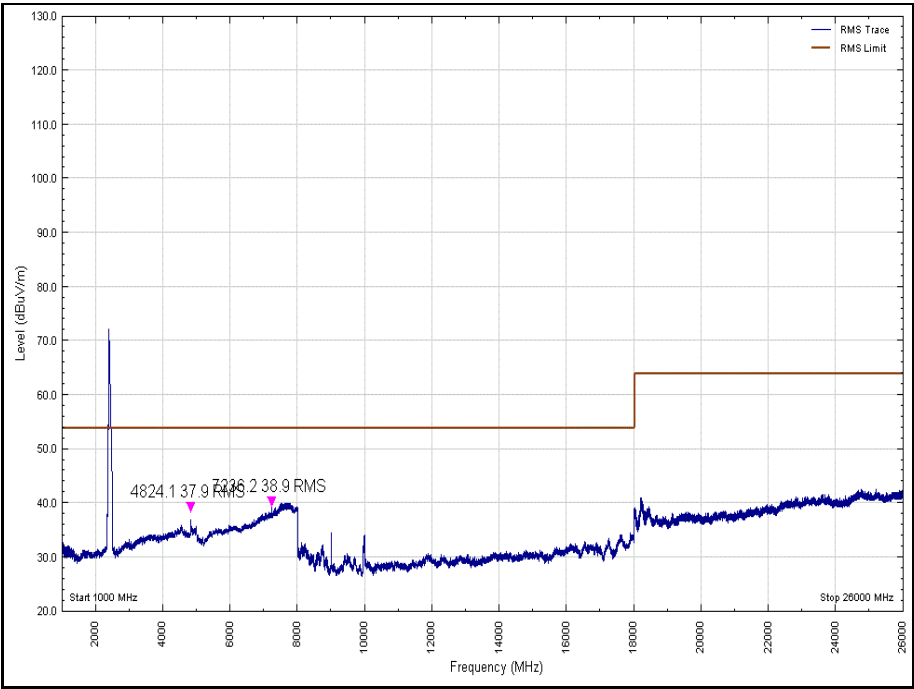


Figure 195 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Average

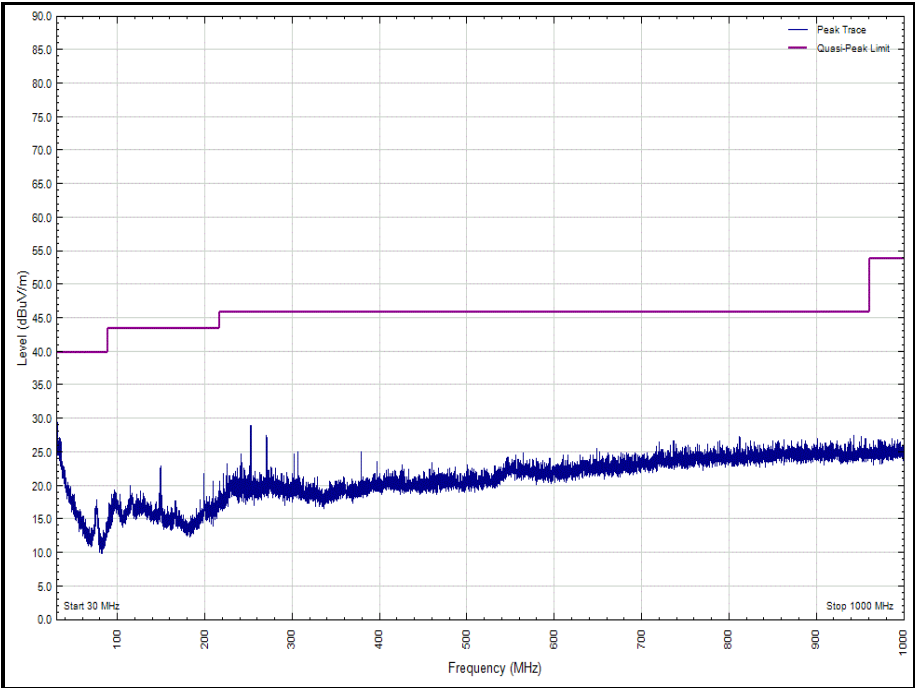


Figure 196 - 2442 MHz – 30 MHz to 1000 MHz, Horizontal – Peak

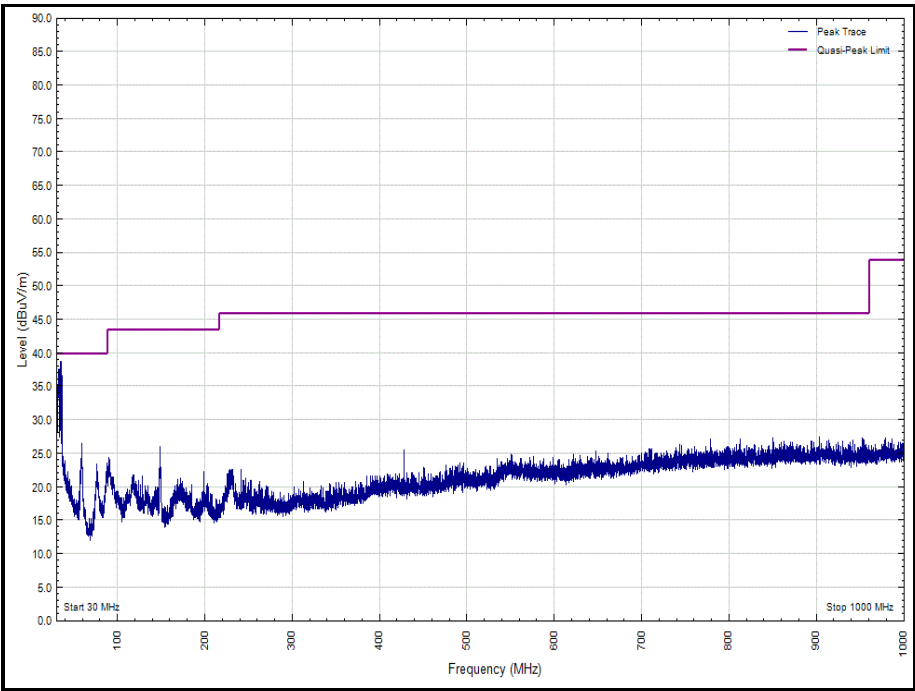


Figure 197 - 2442 MHz – 30MHz to 1000 MHz, Vertical – Peak

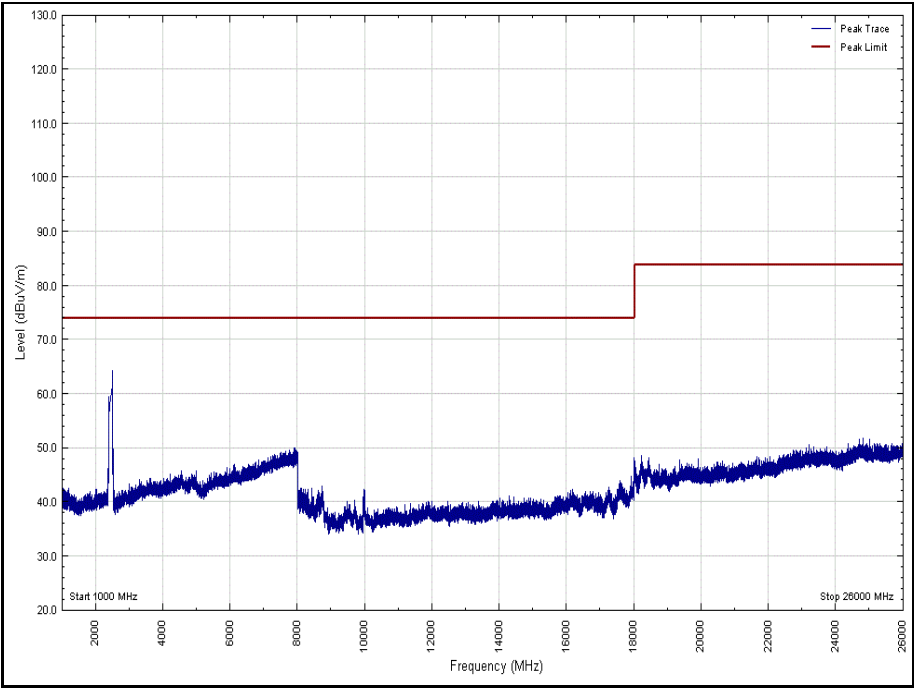


Figure 198 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

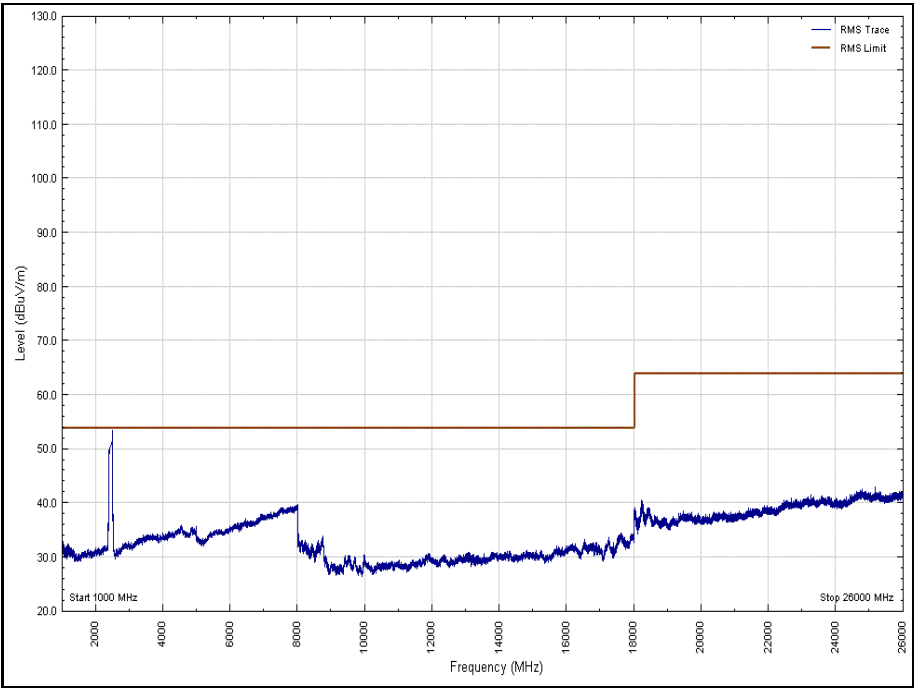


Figure 199 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

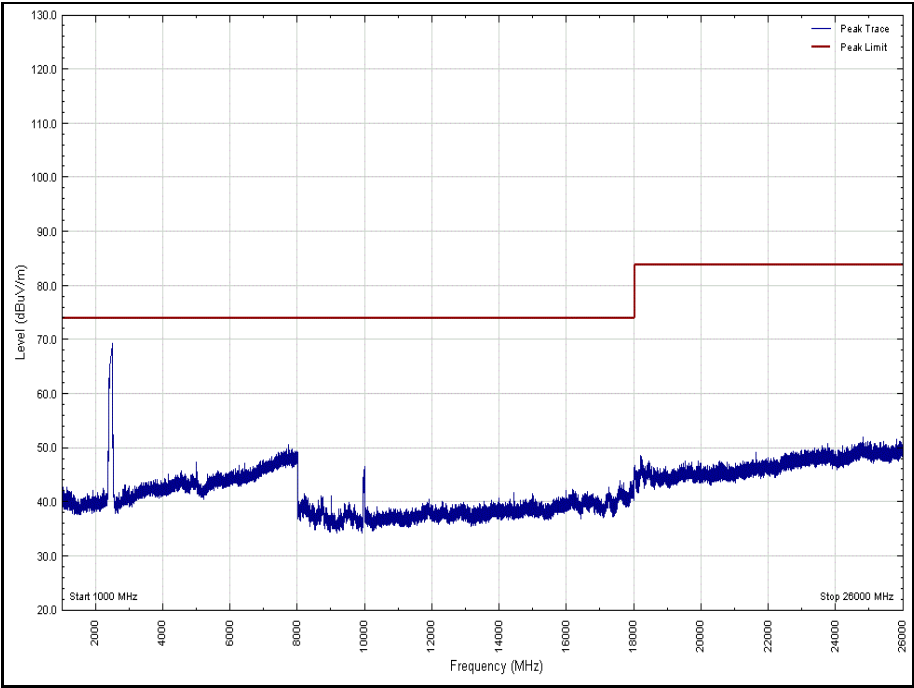


Figure 200 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

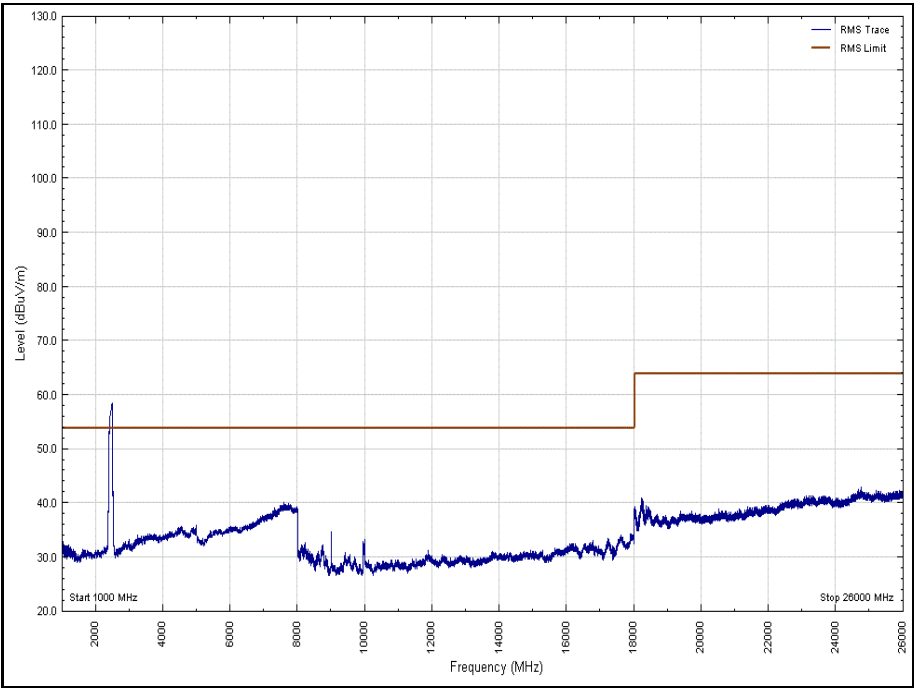


Figure 201 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

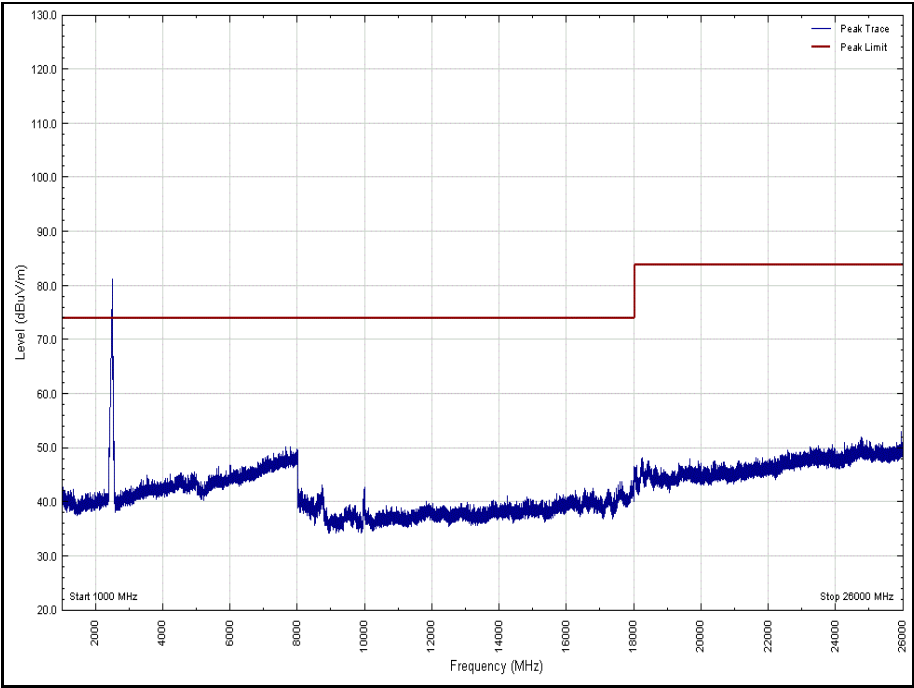


Figure 202 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

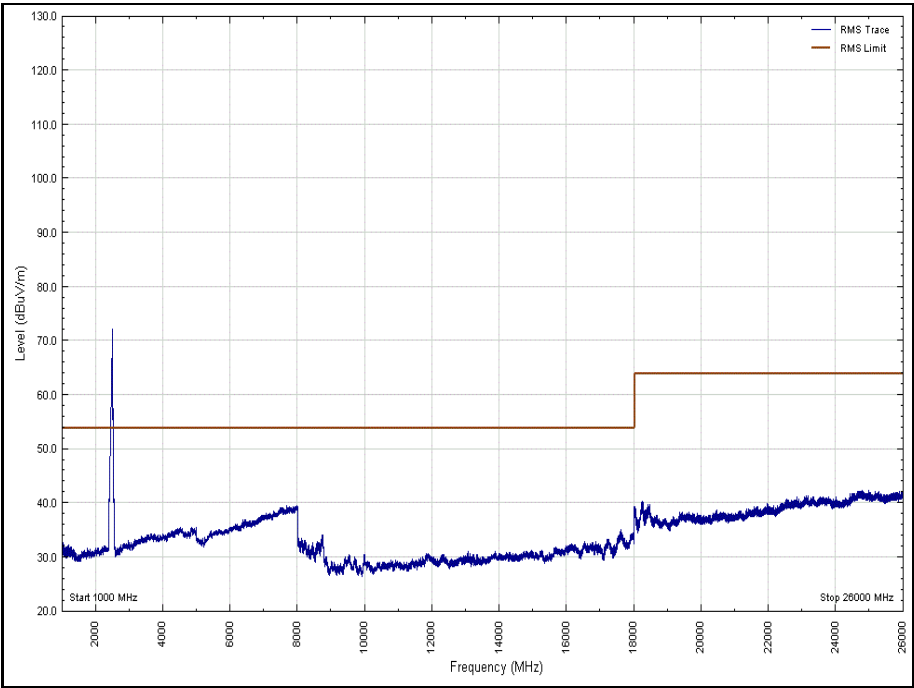


Figure 203 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

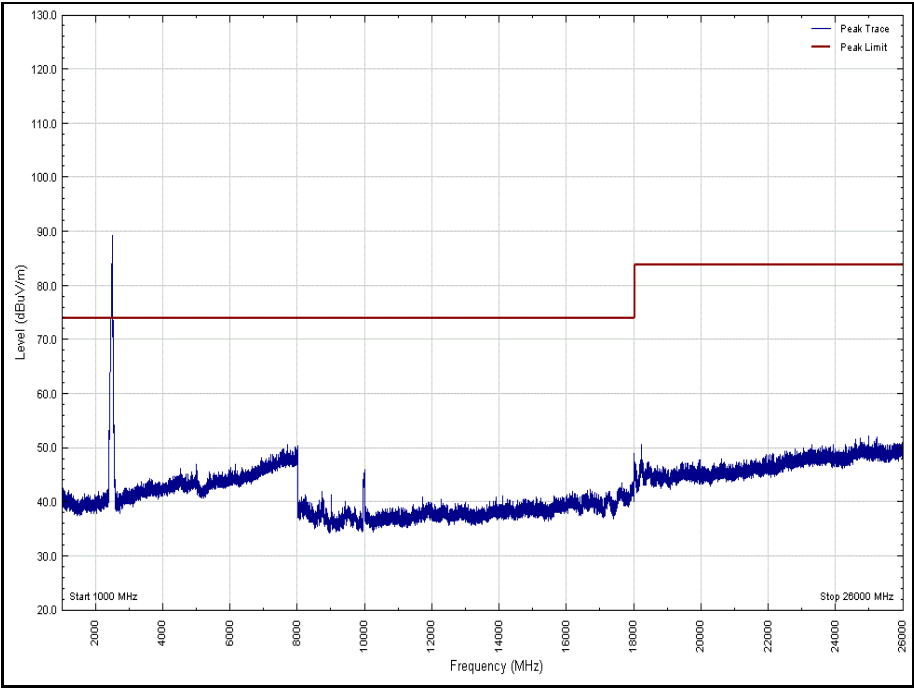


Figure 204 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

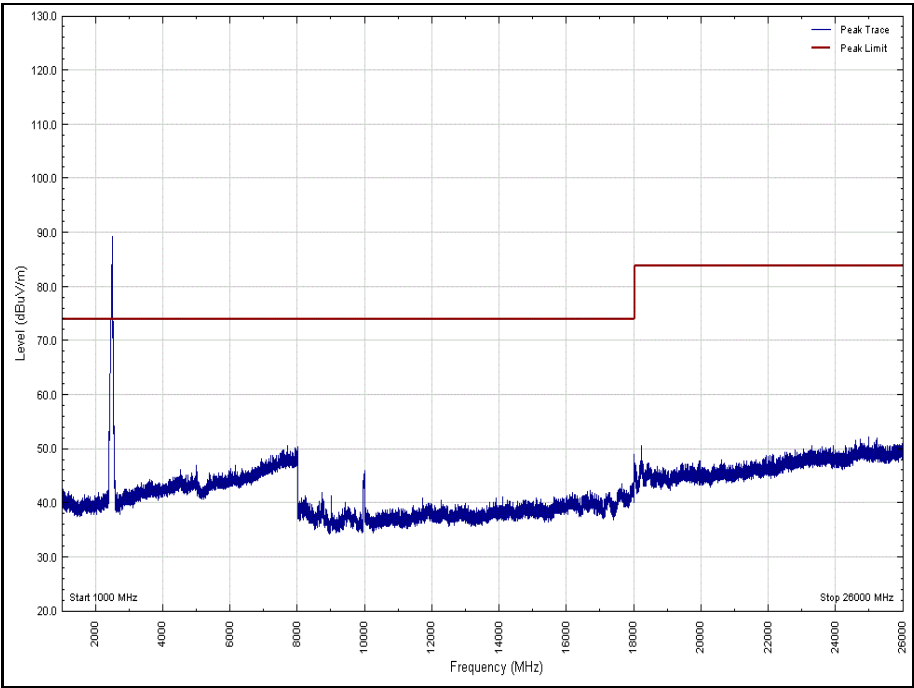


Figure 205 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



802.11b, Aux

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 83 – 2412 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
7325.046	-	37.05	74.0	54.0	-	16.95

Table 84 – 2442 MHz - 1 GHz to 26 GHz – Radiated

Frequency (MHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
7416.970	-	37.64	74.0	54.0	-	16.36

Table 85 - 2472 MHz - 1 GHz to 26 GHz – Radiated

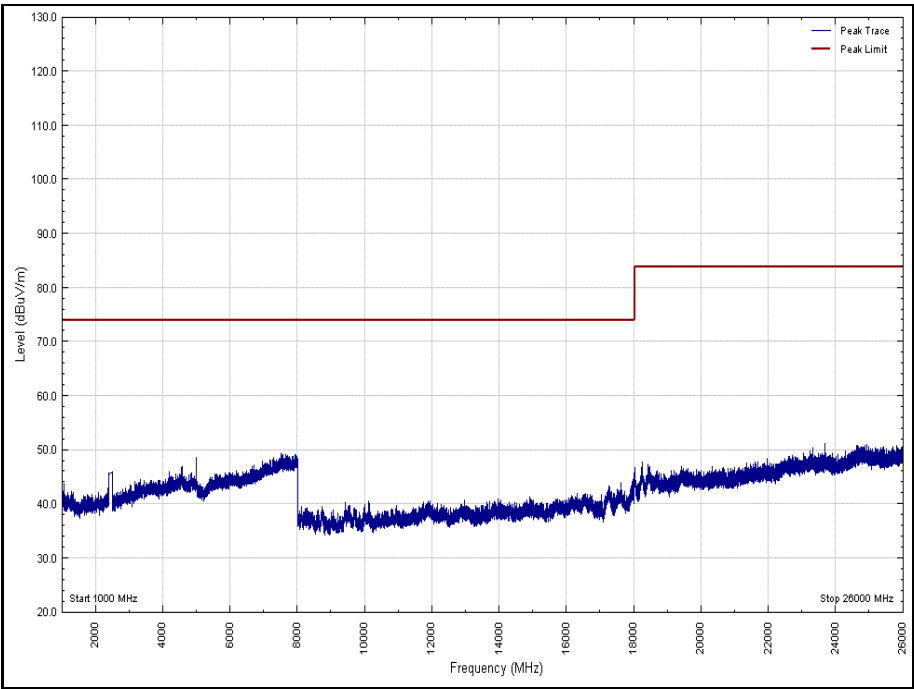


Figure 206 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

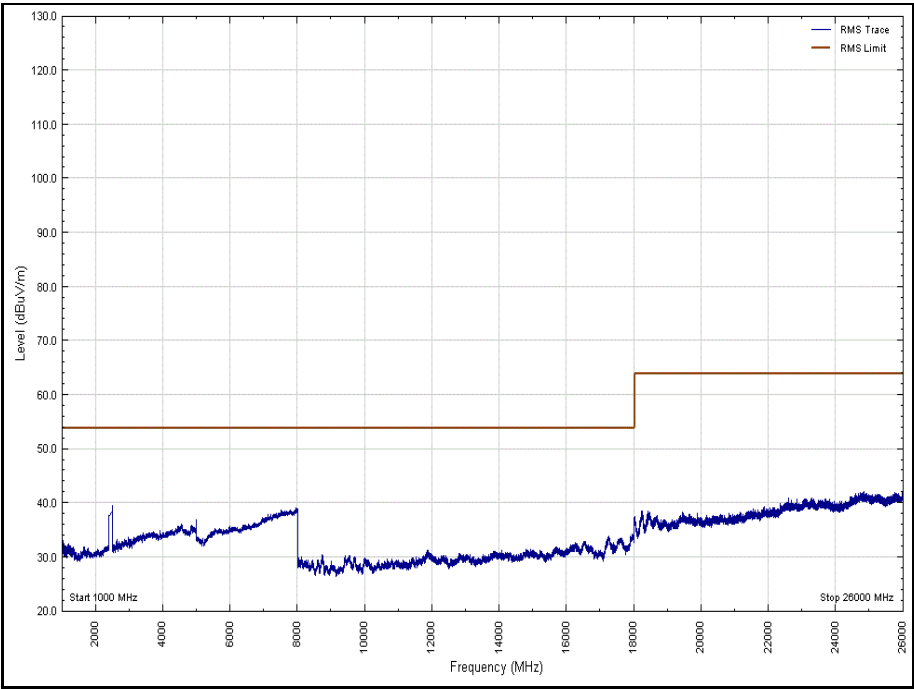


Figure 207 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

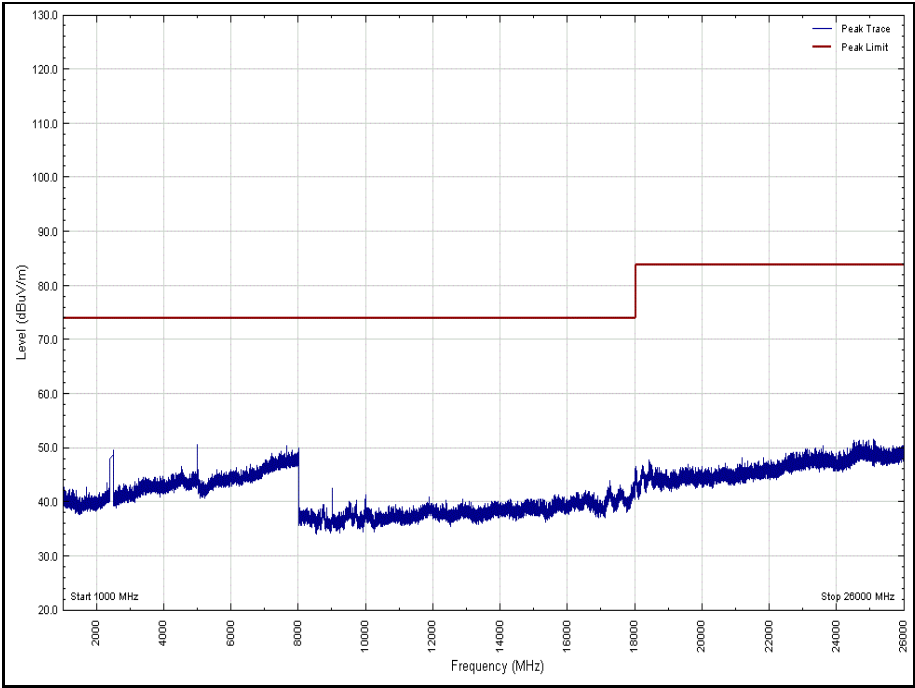


Figure 208 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

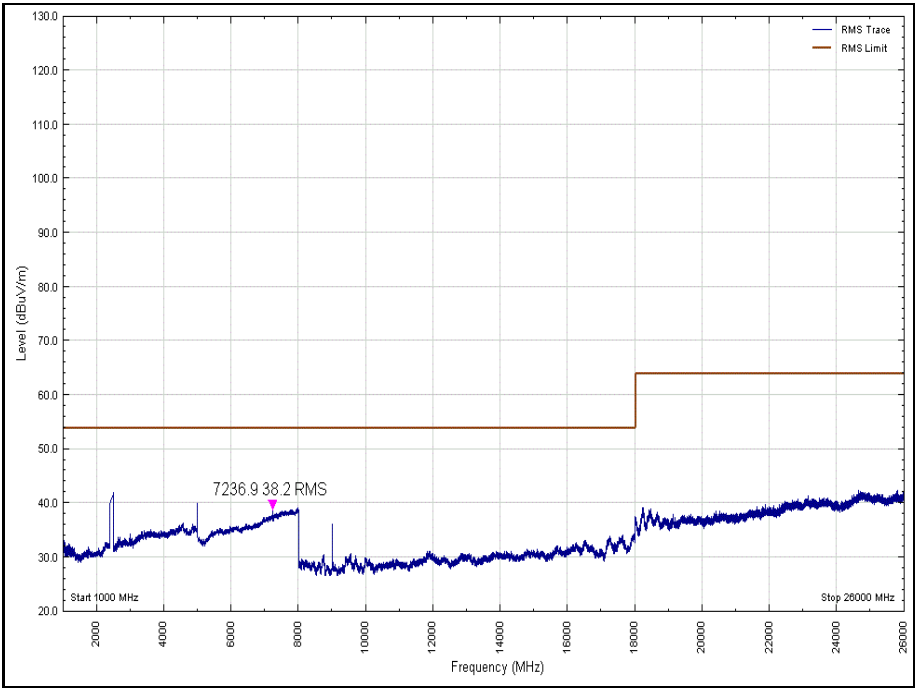


Figure 209 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Average

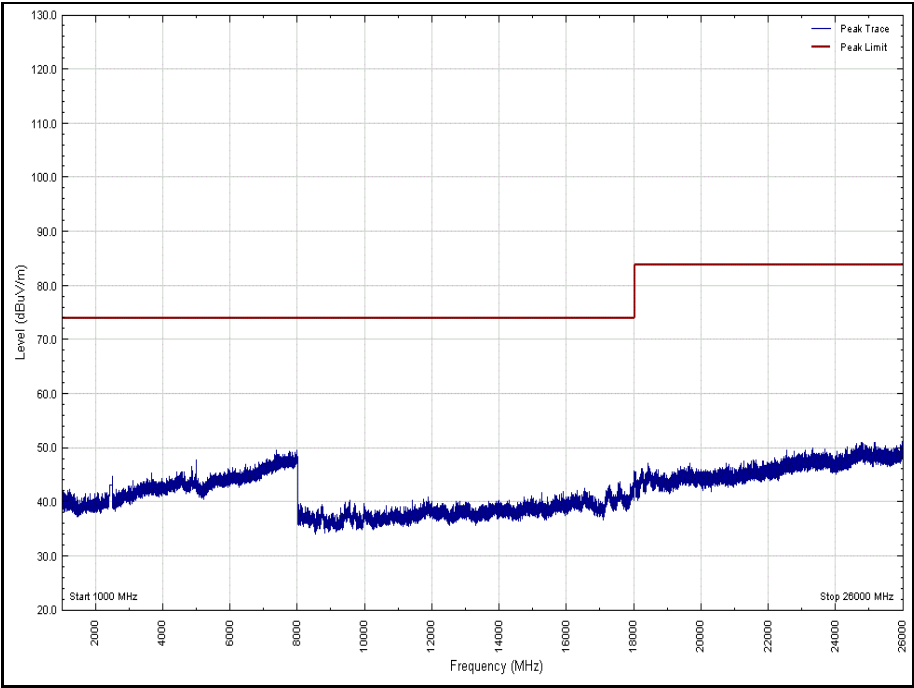


Figure 210 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

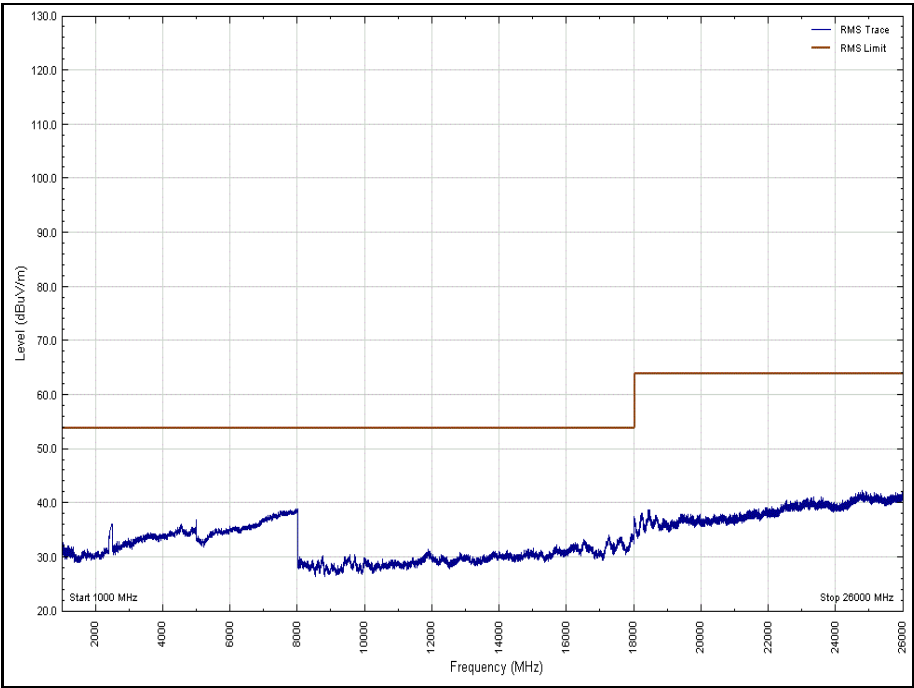


Figure 211 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

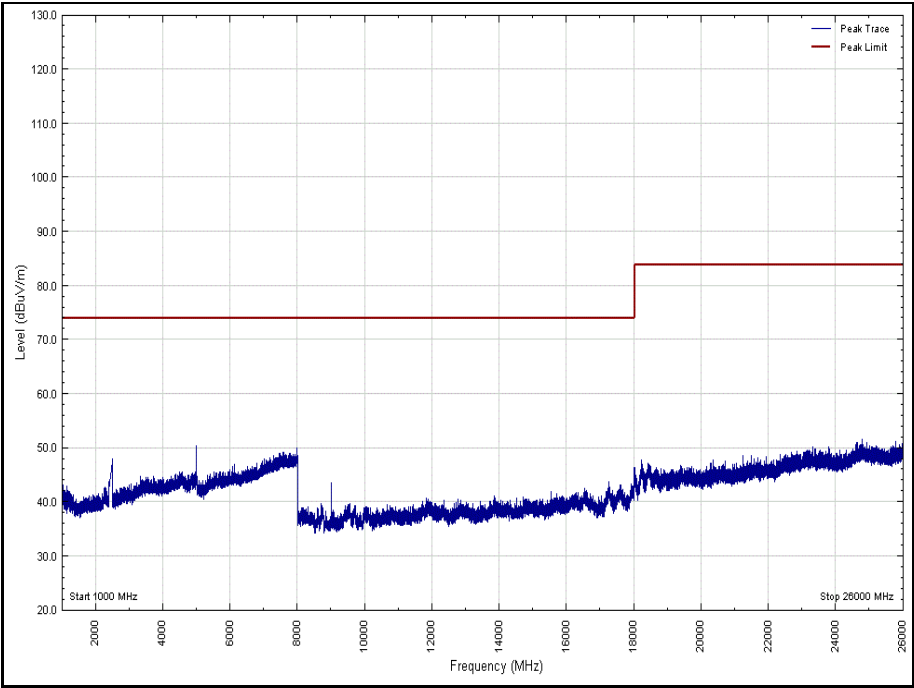


Figure 212 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

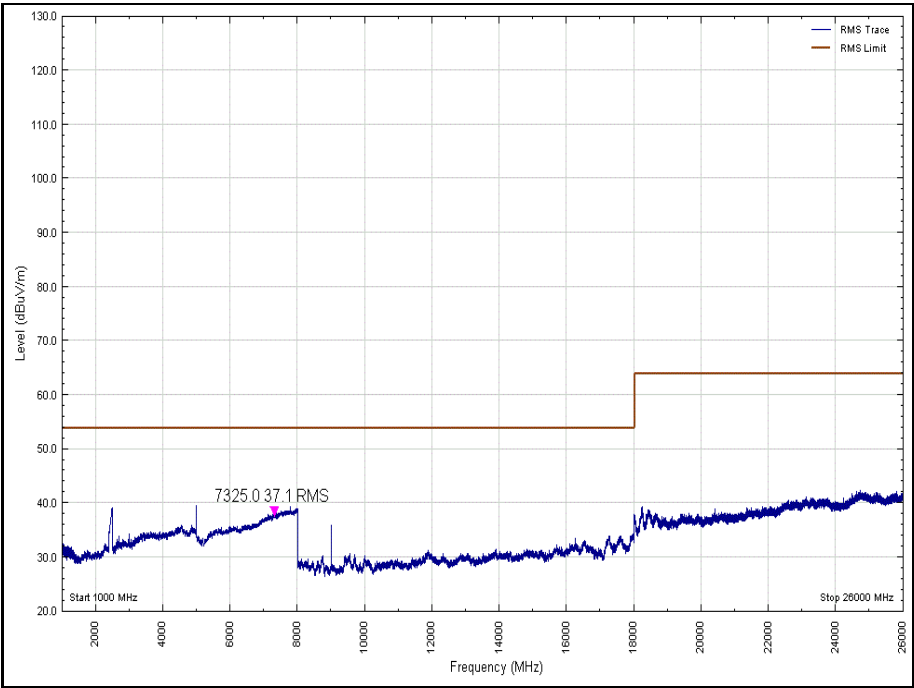


Figure 213 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

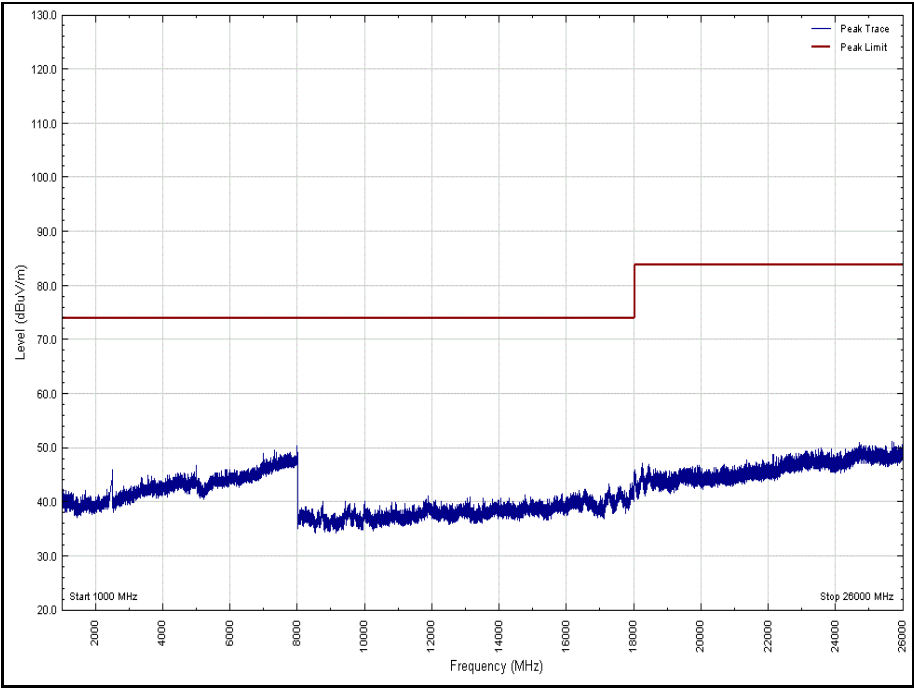


Figure 214 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

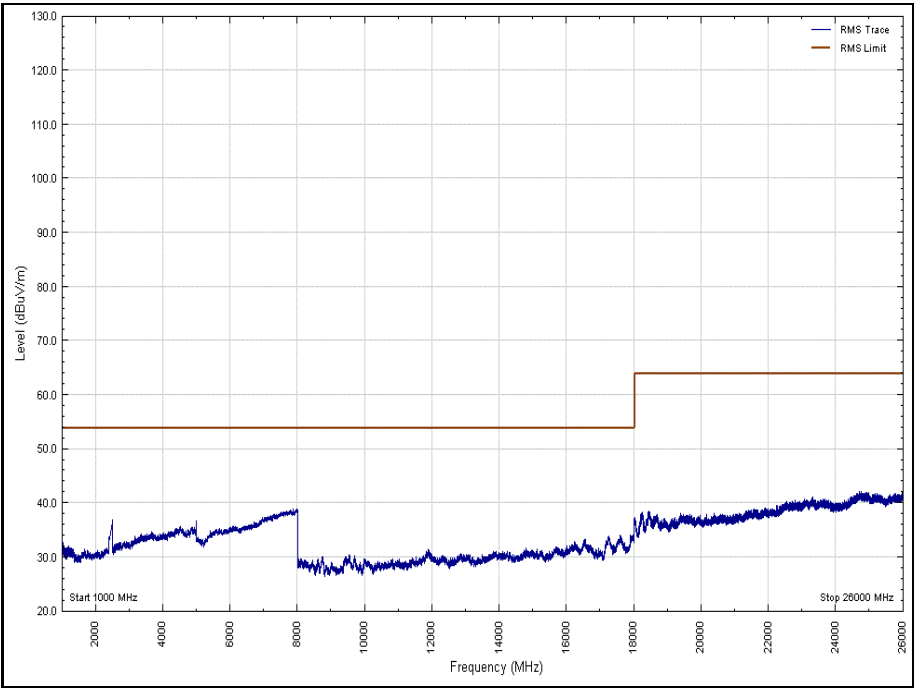


Figure 215 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal - Average

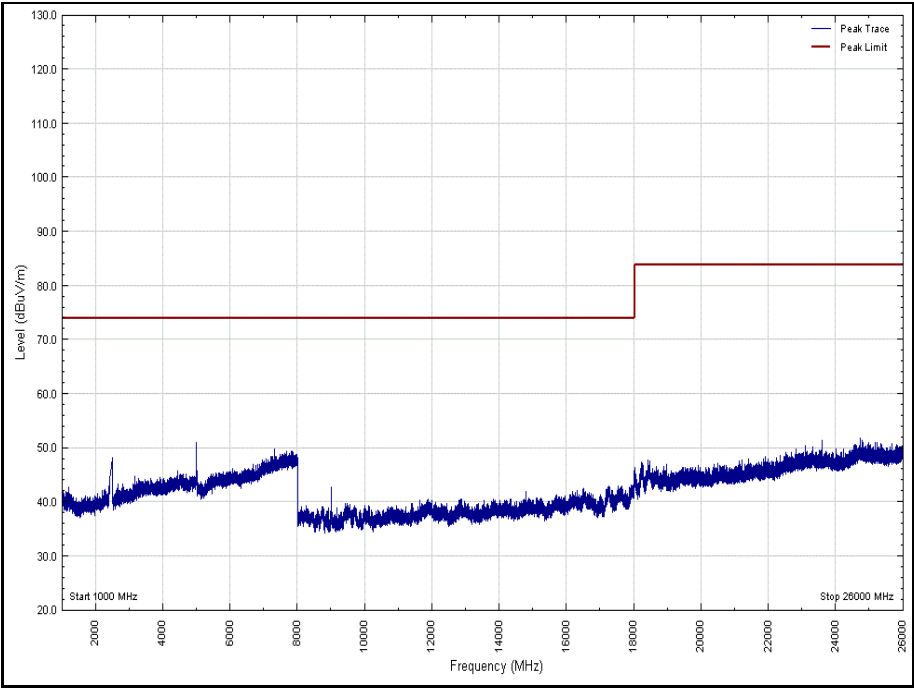


Figure 216 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

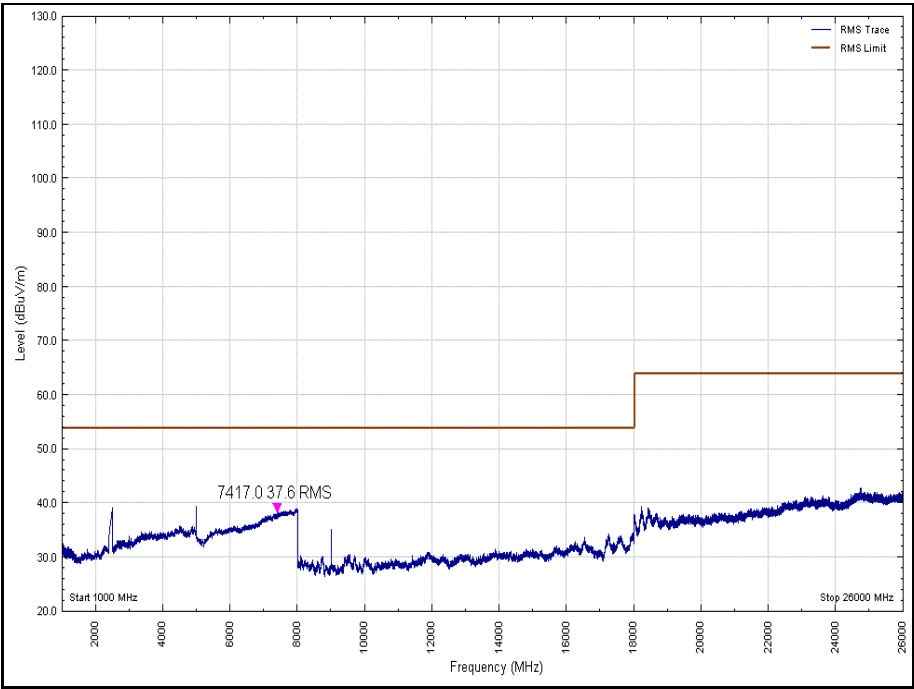


Figure 217 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



802.11g, Aux

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 86 – 2412 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 87 – 2442 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 88 - 2472 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

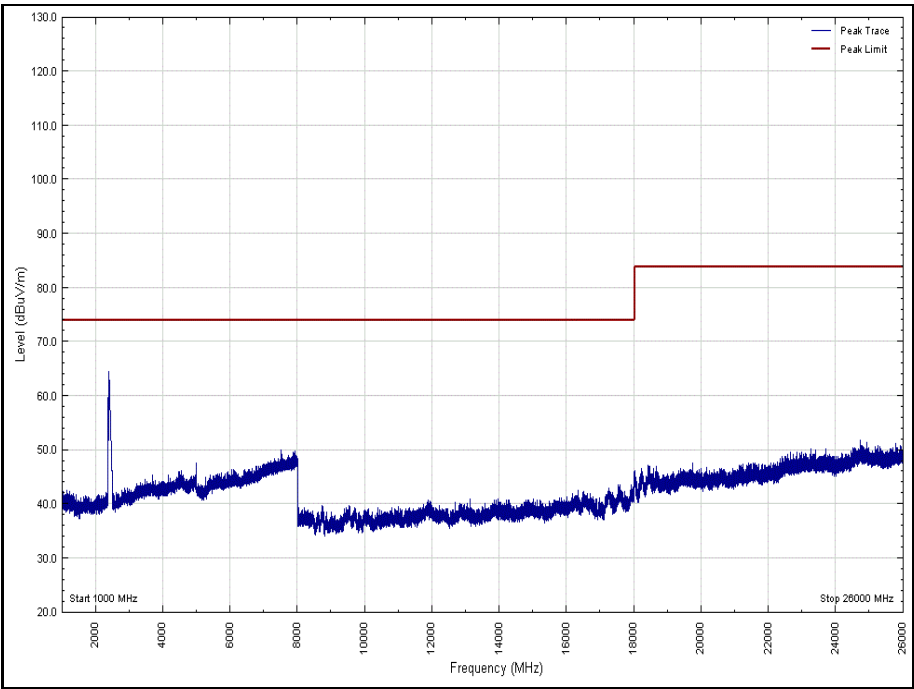


Figure 218 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

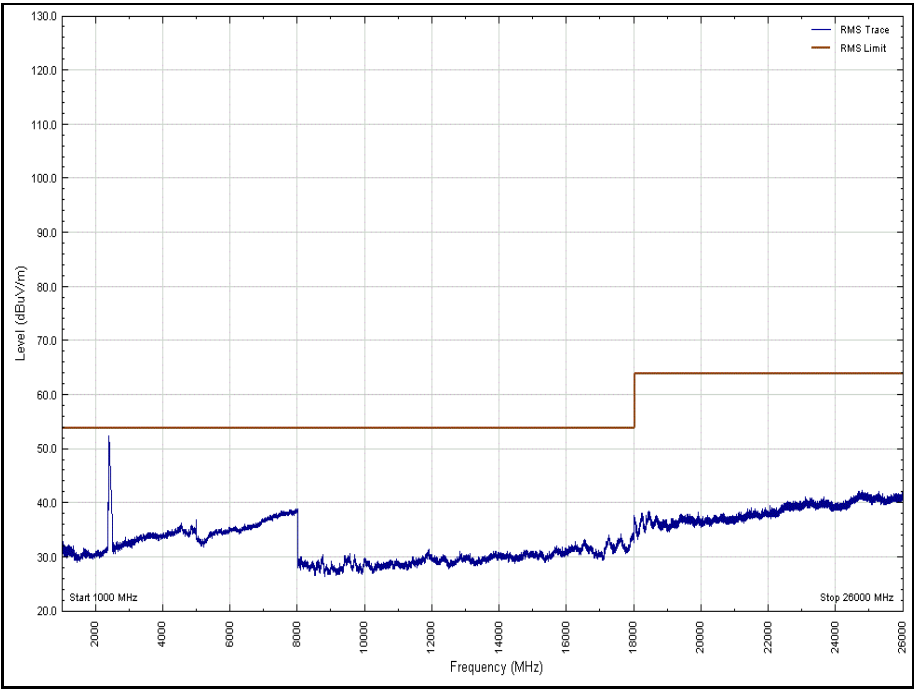


Figure 219 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

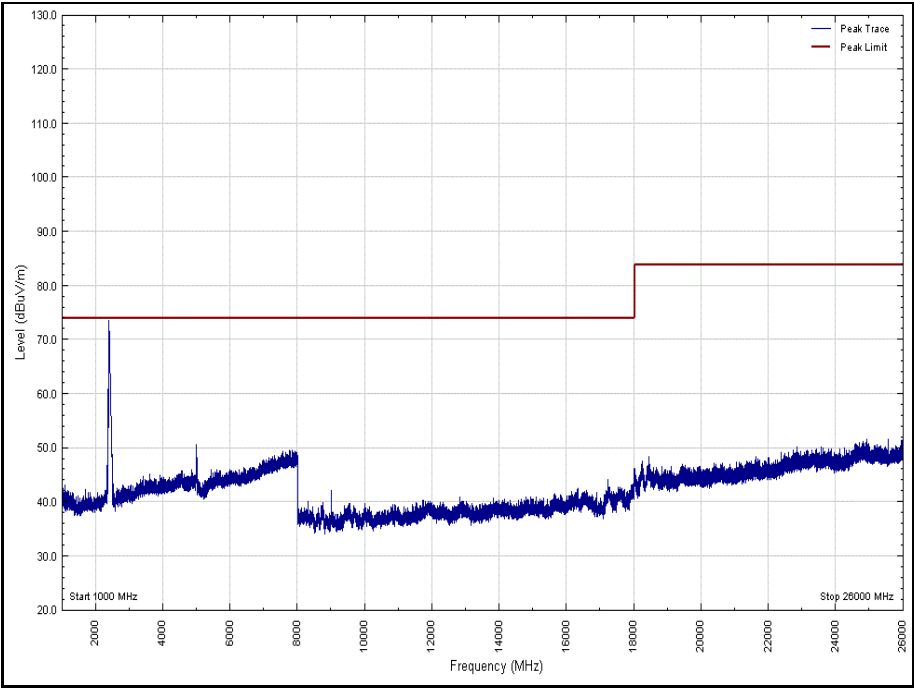


Figure 220 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

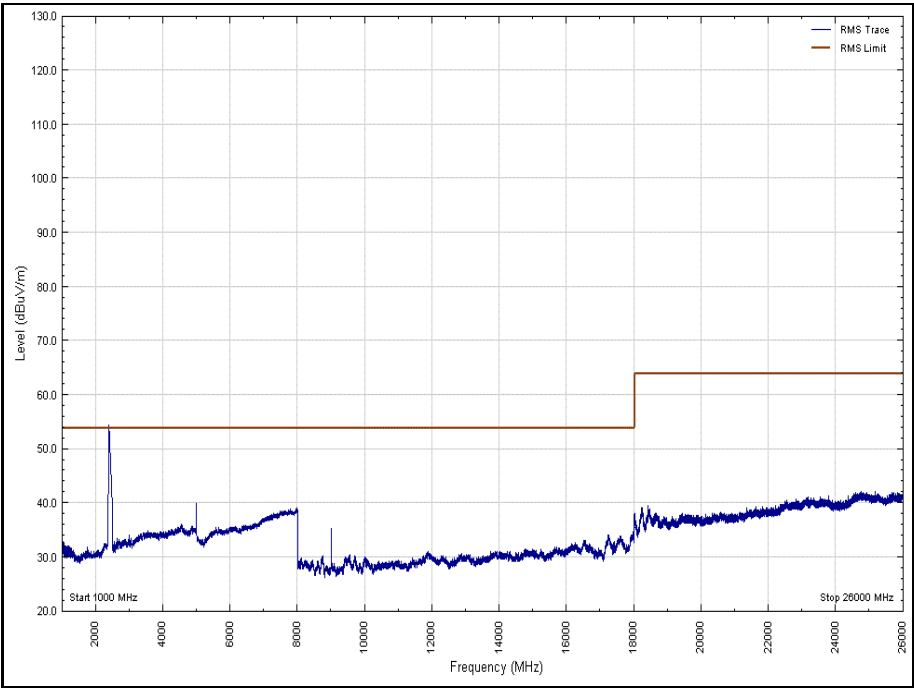


Figure 221 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical - Average

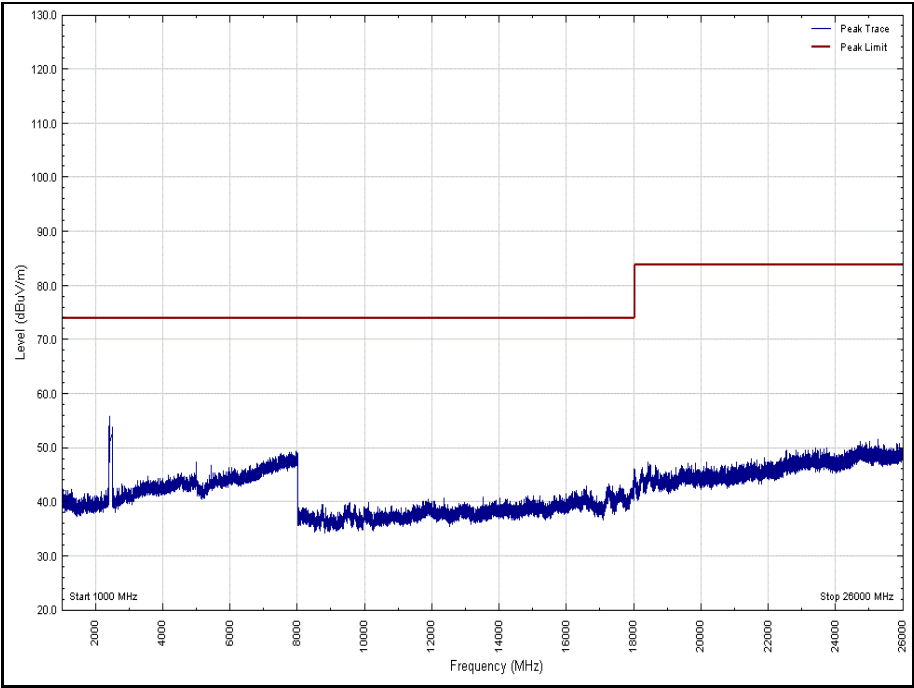


Figure 222 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

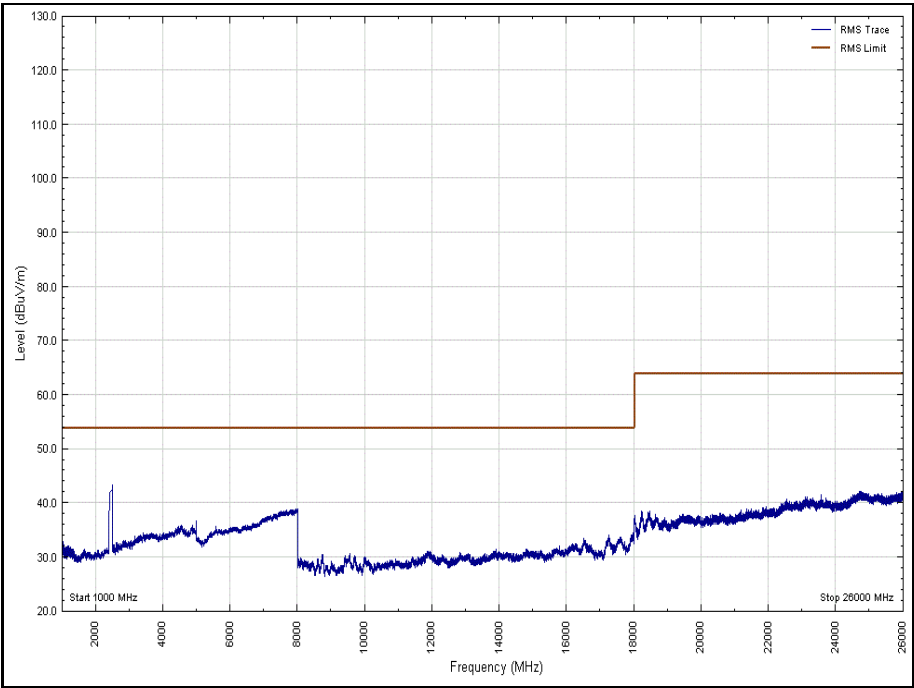


Figure 223 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

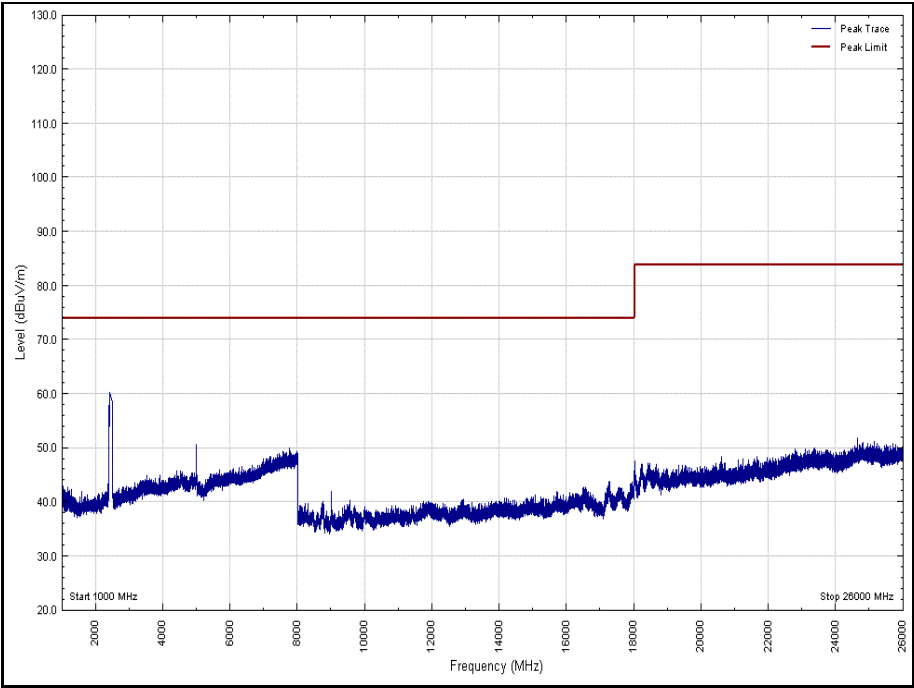


Figure 224 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

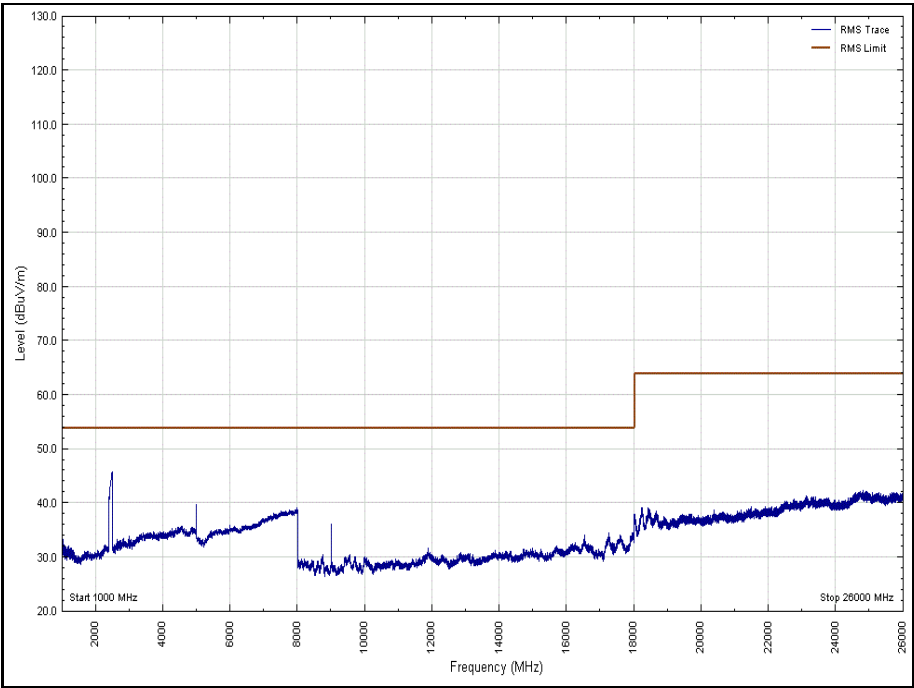


Figure 225 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

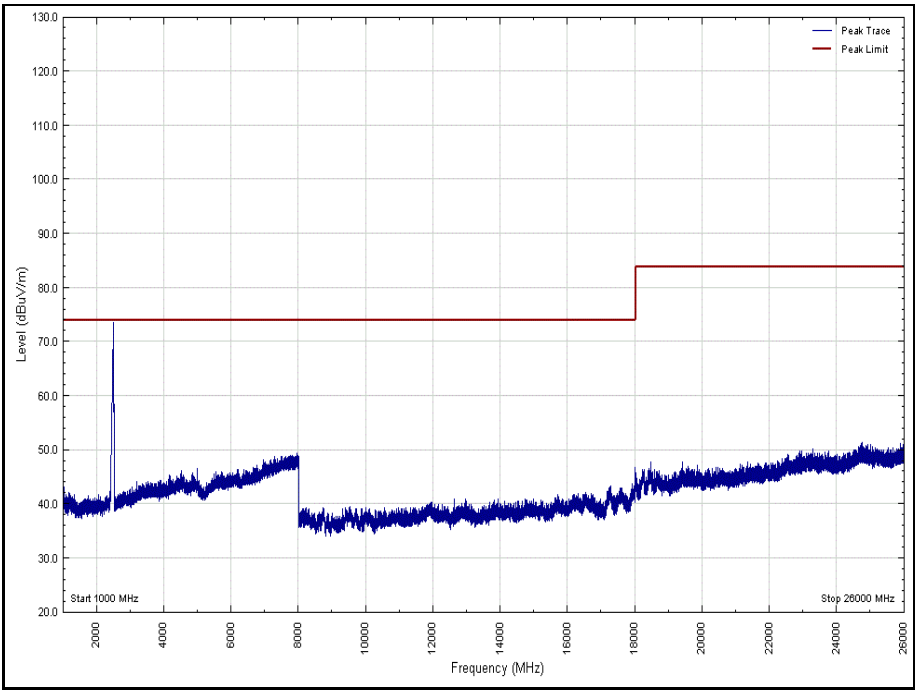


Figure 226 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

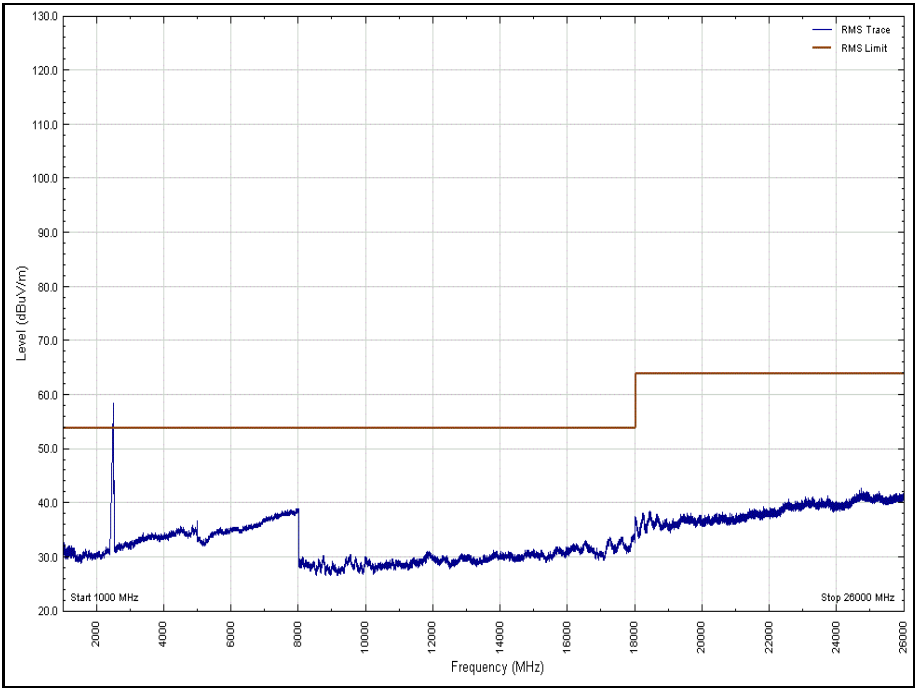


Figure 227 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

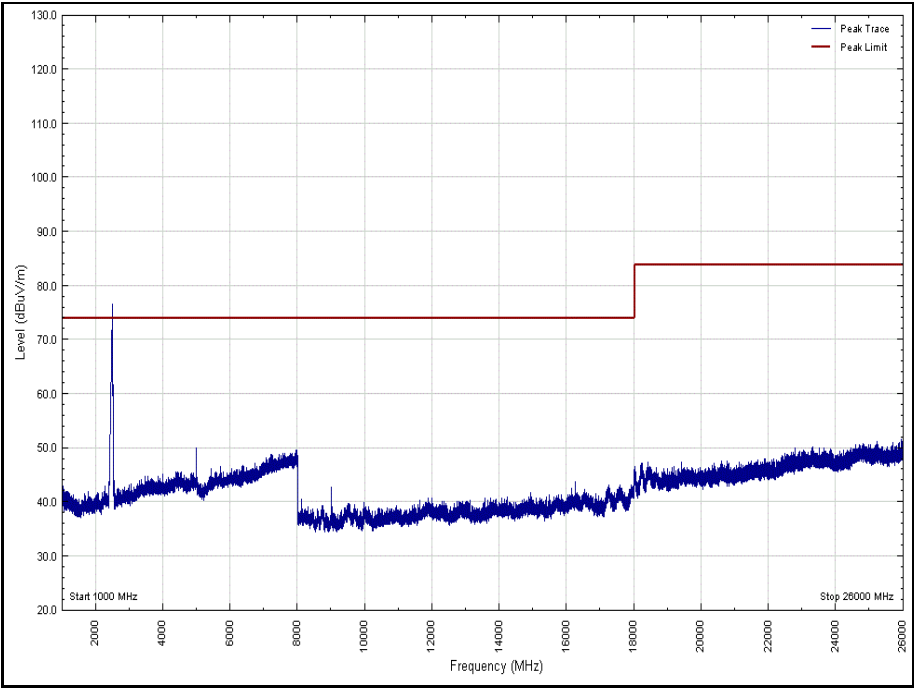


Figure 228 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

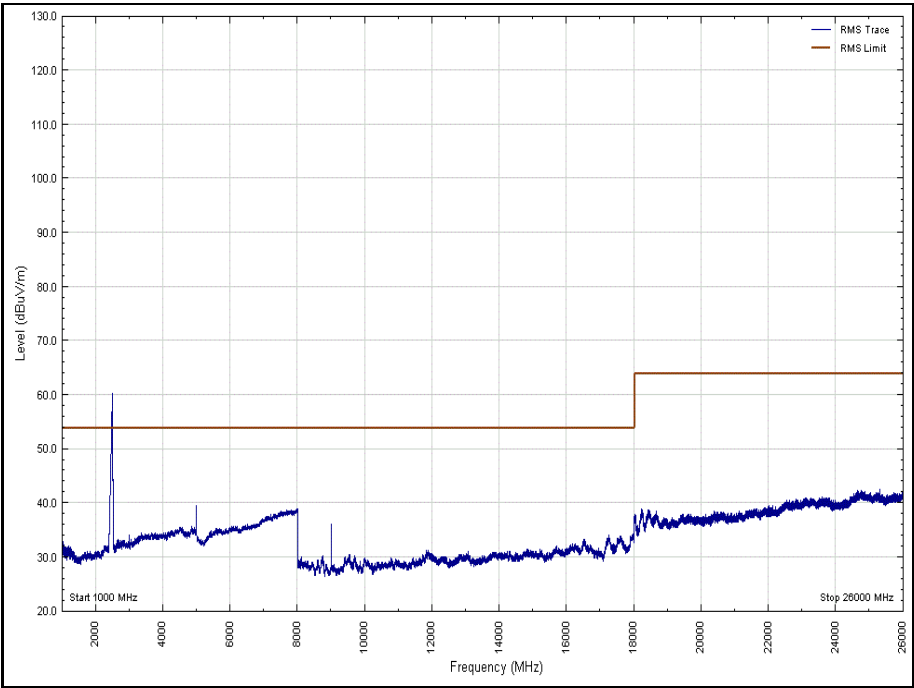


Figure 229 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



802.11n, Aux

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 89 – 2412 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 90 – 2442 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

Frequency (GHz)	Result (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 91 - 2472 MHz - 1 GHz to 26 GHz – Radiated

*No emissions were detected within 10 dB of the limit

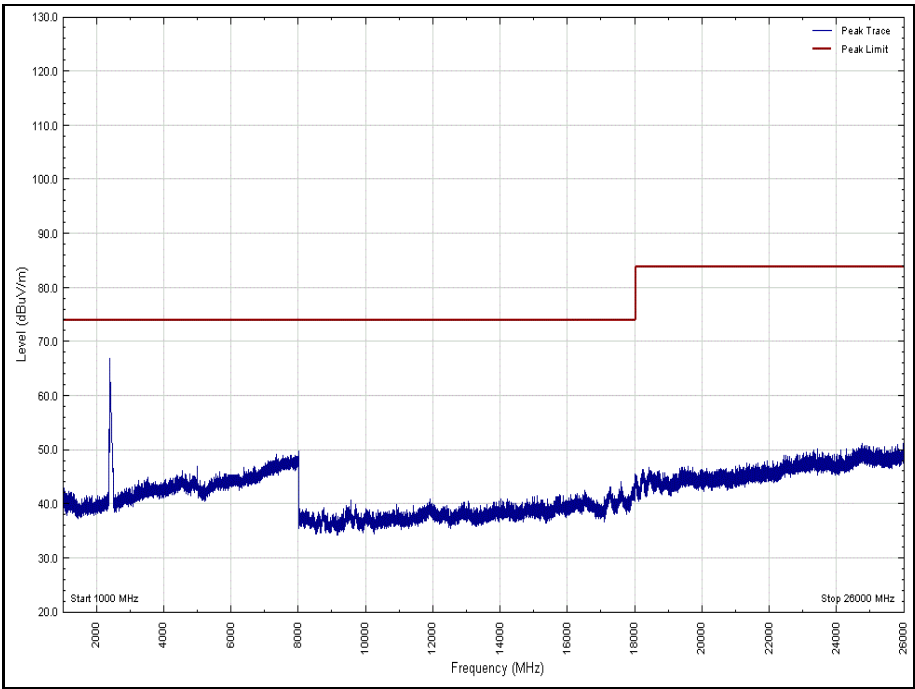


Figure 230 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

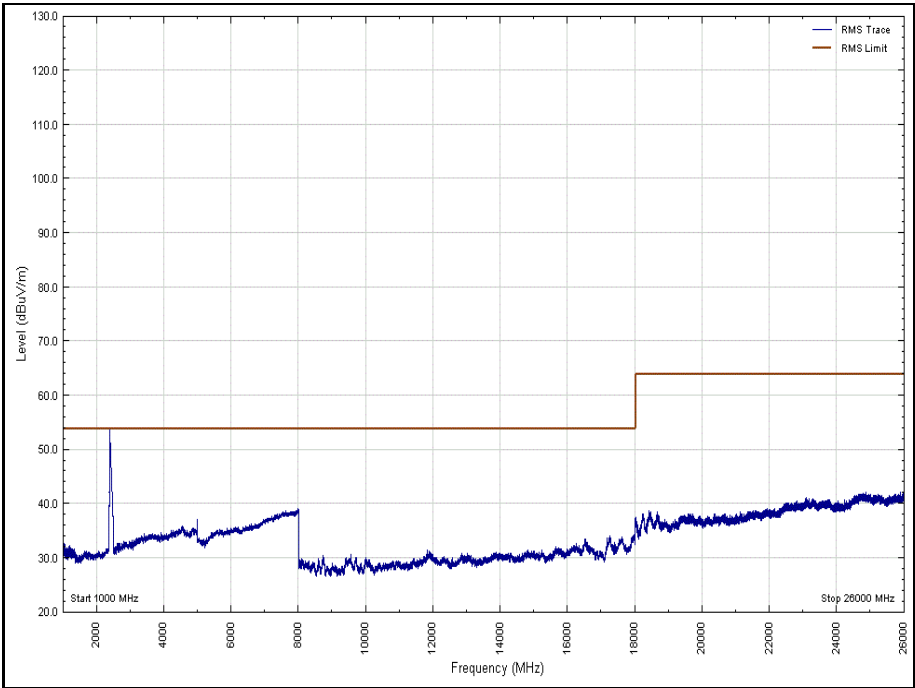


Figure 231 - 2412 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

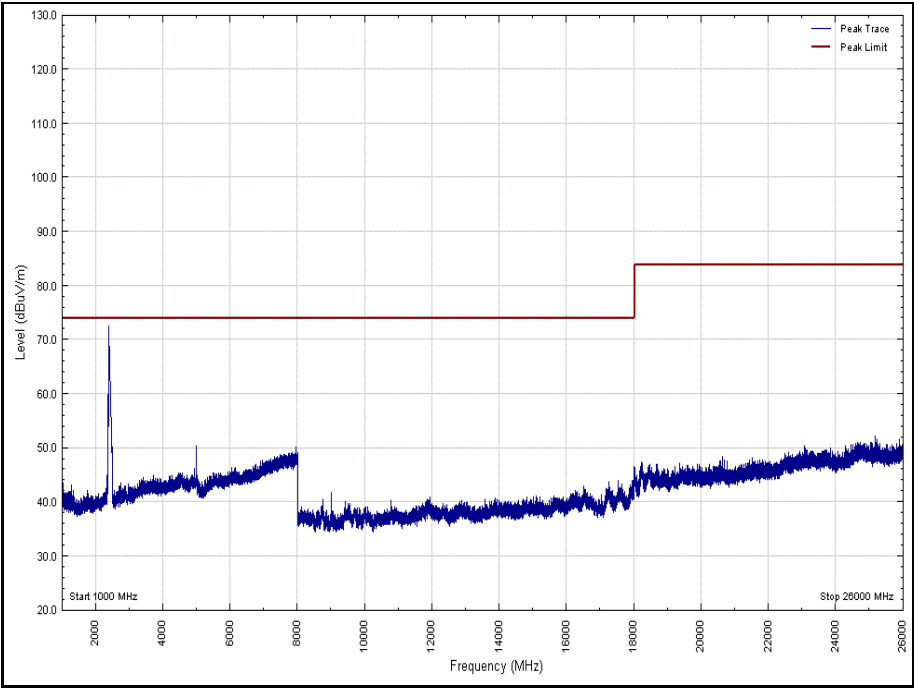


Figure 232 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

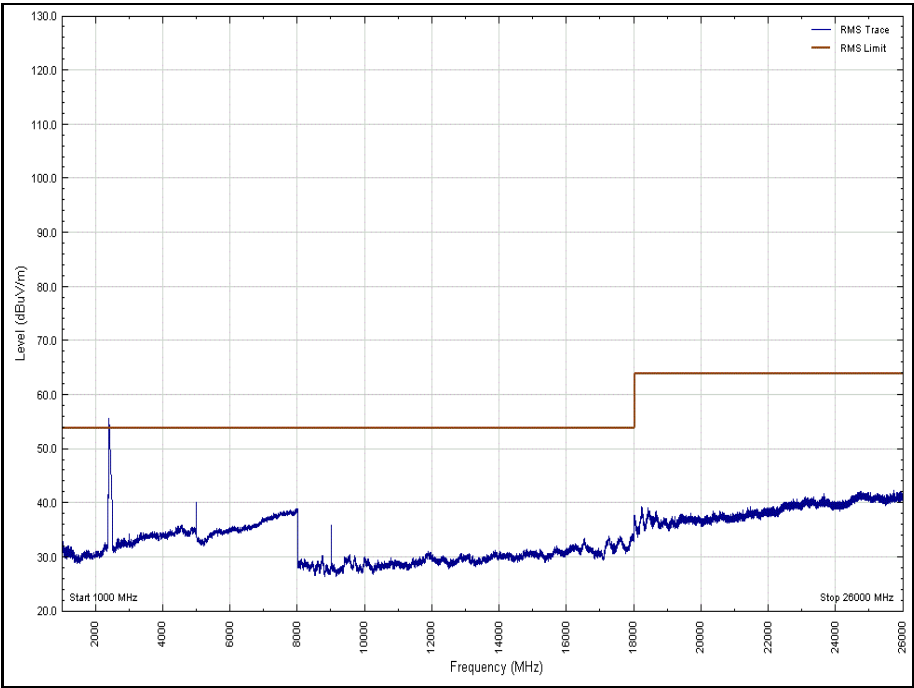


Figure 233 - 2412 MHz - 1000 MHz to 26000 MHz, Vertical - Average

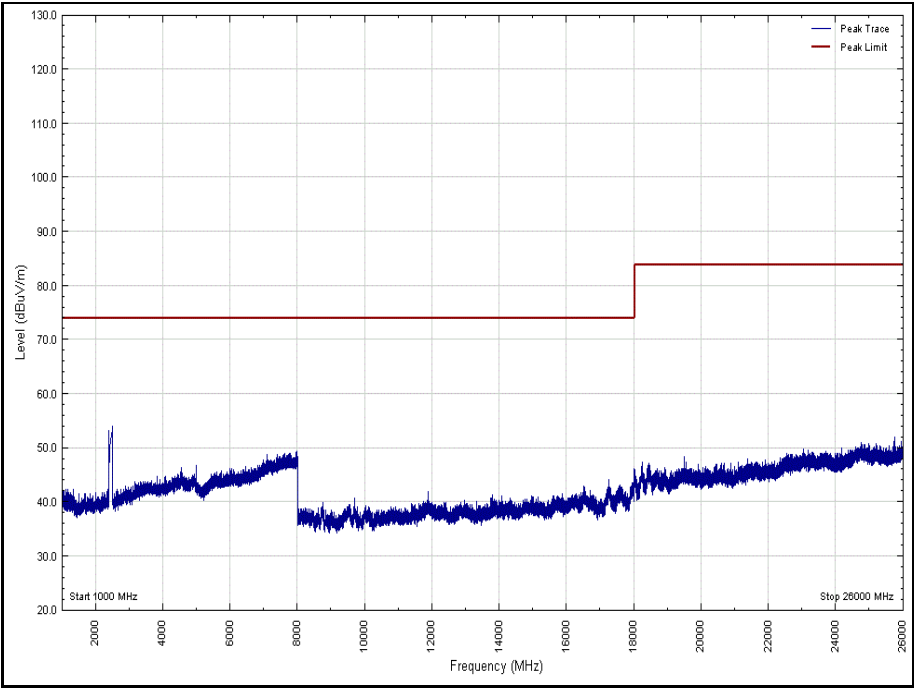


Figure 234 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

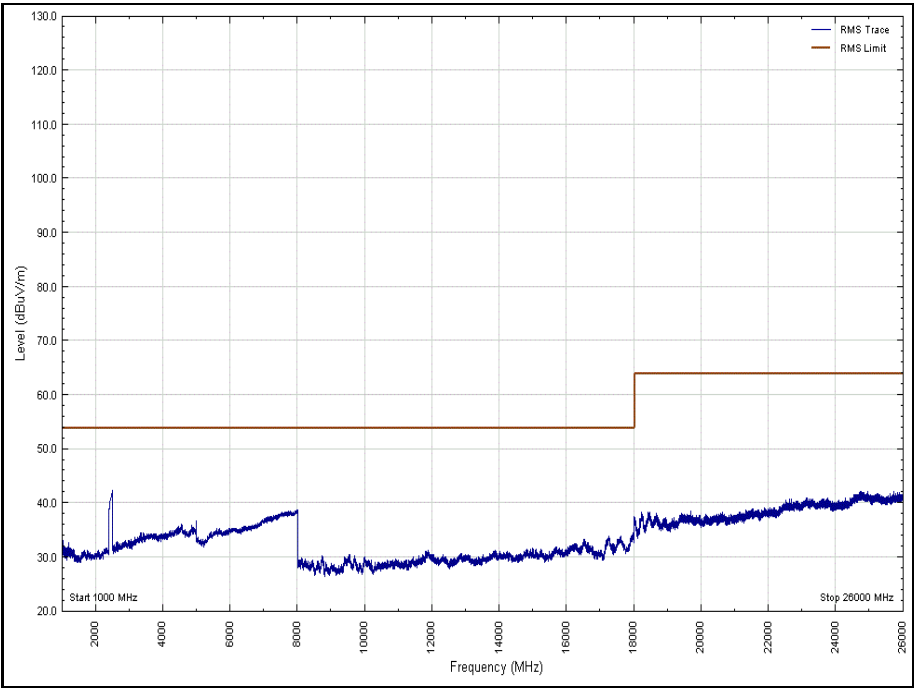


Figure 235 - 2442 MHz - 1000 MHz to 26000 MHz, Horizontal – Average

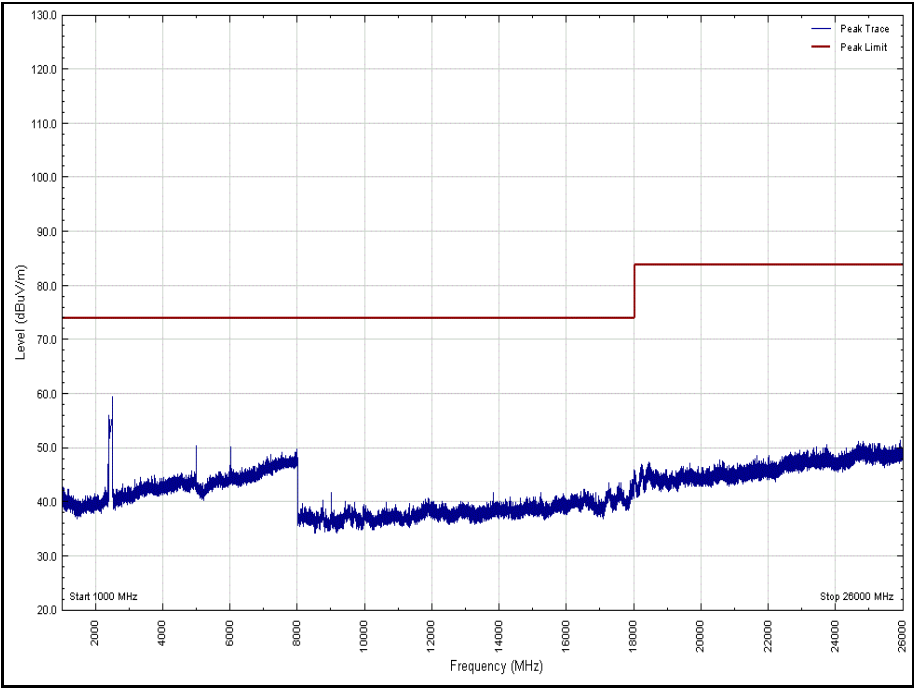


Figure 236 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

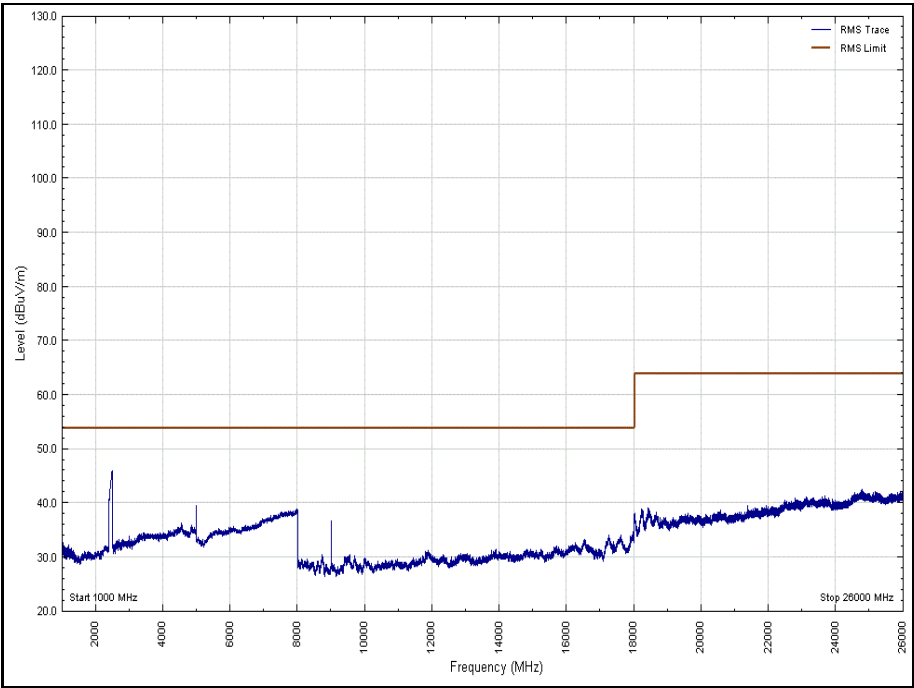


Figure 237 - 2442 MHz - 1000 MHz to 26000 MHz, Vertical – Average

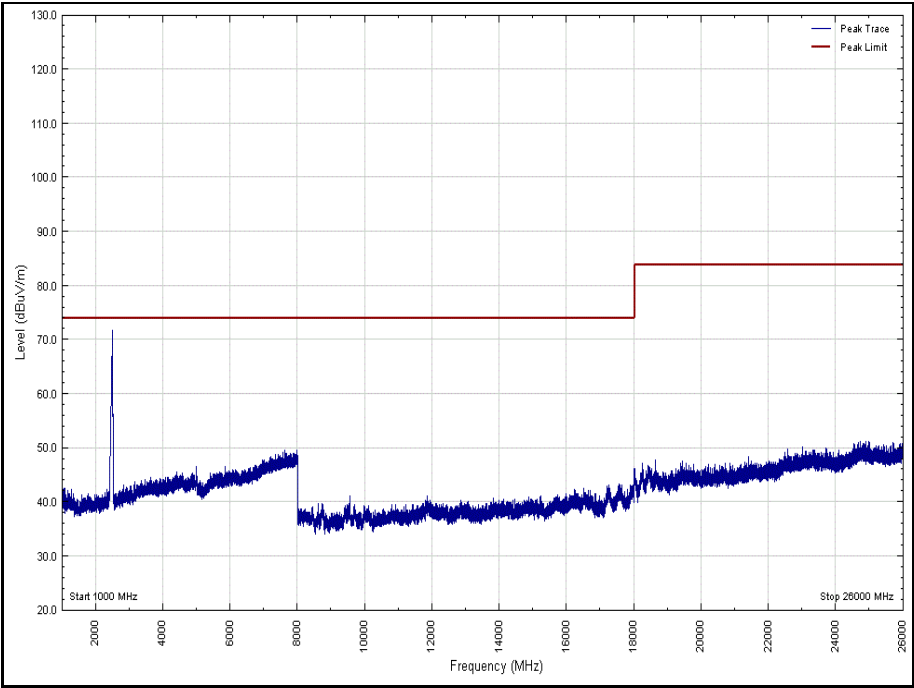


Figure 238 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal – Peak

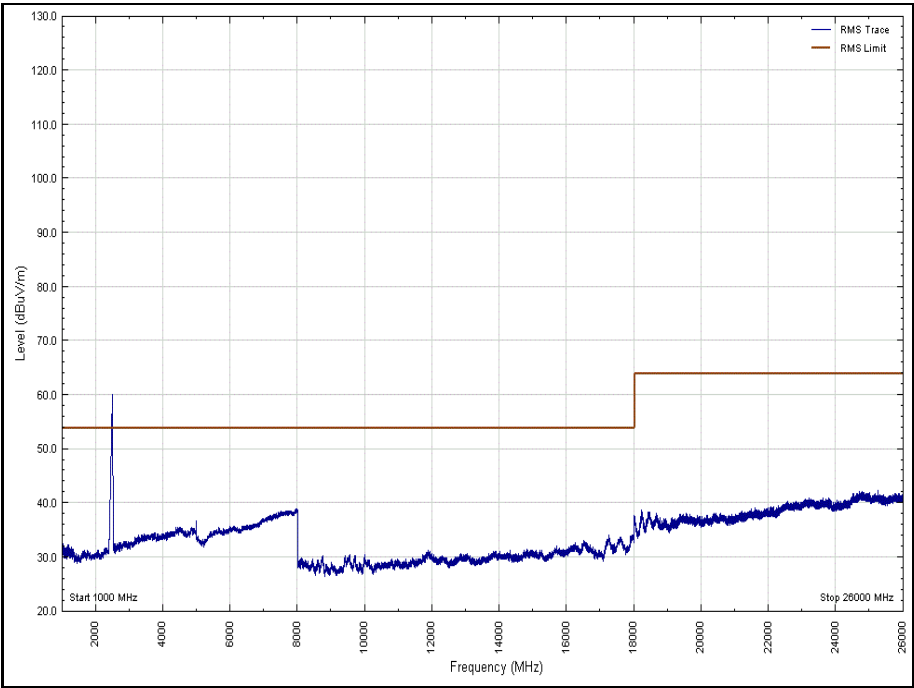


Figure 239 - 2472 MHz - 1000 MHz to 26000 MHz, Horizontal - Average

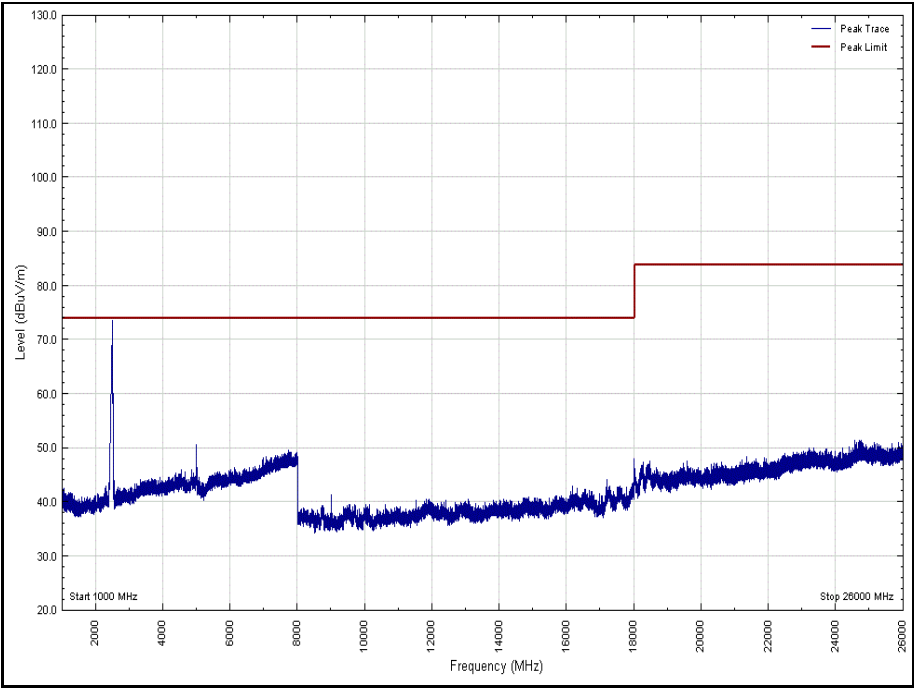


Figure 240 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical – Peak

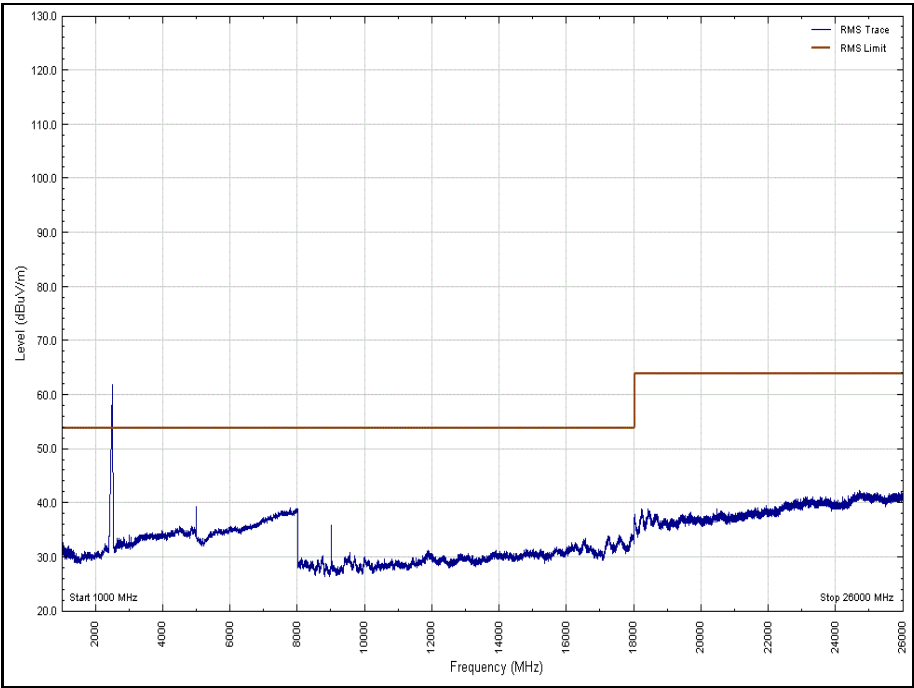


Figure 241 - 2472 MHz - 1000 MHz to 26000 MHz, Vertical - Average



FCC 47 CFR Part 15, Limit Clause 15.247 (d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)

ISED RSS-247, Limit Clause 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.



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
Pre-Amplifier	Phase One	PS04-0086	1533	12	08-Feb-2020
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygrometer	Rotronic	HYGROPALM 1	2338	12	15-Nov-2019
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	17-Dec-2019
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	25-Oct-2019
Cable (Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4526	6	11-Dec-2019
Band Reject Filter - 2.425 GHz	Wainwright	WRCGV14-2390-2400-2450-2460-50SS	5066	12	02-Oct-2019
Band Reject Filter - 2.4585 GHz	Wainwright	WRCGV14-2423.5-2433.5-2483.5-2493.5-50SS	5068	12	02-Oct-2019
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	05-Mar-2020
Mast Controller	Maturo GmbH	NCD	4810	-	TU
Tilt Antenna Mast	Maturo GmbH	TAM 4.0-P	4811	-	TU
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	11-Mar-2020
8 - 18 GHz pre amp	Wright Technologies	PS06-0061	4971	12	07-Dec-2019
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	12-Sep-2019
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5093	12	04-Oct-2019
8m N-Type RF Cable	Teledyne	PR90-088-8MTR	5095	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5102	12	04-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5104	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-1000	5105	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-2000	5107	12	05-Oct-2019
Cable (18 GHz)	Rosenberger	LU7-071-2000	5109	12	05-Oct-2019
EmX Software	TUV SUD	EmX V.1.4.8.3	5125	-	Software



Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
1.5m 40GHz RF Cable	Scott Cables	KPS-1501-2000-KPS	5127	6	11-Dec-2019
Screened Room (11)	Rainford	Rainford	5136	36	01-Nov-2021
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Horn Antenna (1-10GHz)	Schwarzbeck	BBHA 9120 B	5215	12	11-Mar-2020
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5216	12	11-Mar-2020

Table 92

TU – Traceability Unscheduled



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
Power Spectral Density	± 3.2 dB
Emission Bandwidth	± 358.561 kHz
Authorised Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Restricted Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB

Table 93