TUV SUD Limited Digitally signed by TUV SUD Limited Date: 2024.10.14 14:41:36 +01'00'

2.3.6 Test Results

2.4 GHz WLAN

SISO

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11b	Duty Cycle (%):	99.4
Data Rate:	1 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	18.97	-	-	-	18.97	30.00	-11.03
2442	18.85	-	-	-	18.85	30.00	-11.15
2472	14.88	-	-	-	14.88	30.00	-15.12

Table 30 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	18.97	-	-	-	18.97	30.00	-11.03	21.57	36.00	-14.43
2442	18.85	-	-	-	18.85	30.00	-11.15	21.45	36.00	-14.55
2472	14.88	-	-	-	14.88	30.00	-15.12	17.48	36.00	-18.52

Table 31 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11g	Duty Cycle (%):	97.6
Data Rate:	12 Mbps	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	18.45	-	-	-	18.45	30.00	-11.55
2442	22.25	-	-	-	22.25	30.00	-7.75
2472	9.98	-	-	-	9.98	30.00	-20.02

Table 32 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	18.45	-	-	-	18.45	30.00	-11.55	21.05	36.00	-14.95
2442	22.25	-	-	-	22.25	30.00	-7.75	24.85	36.00	-11.15
2472	9.98	-	-	-	9.98	30.00	-20.02	12.58	36.00	-23.42

Table 33 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11n HT20	Duty Cycle (%):	96.6
Modulation Coding Scheme:	MCS2	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	17.97	-	-	-	17.97	30.00	-12.03
2442	22.46	-	-	-	22.46	30.00	-7.54
2472	9.76	-	-	-	9.76	30.00	-20.24

Table 34 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	17.97	-	-	-	17.97	30.00	-12.03	20.57	36.00	-15.43
2442	22.46	-	-	-	22.46	30.00	-7.54	25.06	36.00	-10.94
2472	9.76	-	-	-	9.76	30.00	-20.24	12.36	36.00	-23.64

Table 35 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 SU	Duty Cycle (%):	95.8
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	16.92	-	-	-	16.92	30.00	-13.08
2442	22.32	-	-	-	22.32	30.00	-7.68
2472	9.59	-	-	-	9.59	30.00	-20.41

Table 36 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	16.92	-	-	-	16.92	30.00	-13.08	19.52	36.00	-16.48
2442	22.32	-	-	-	22.32	30.00	-7.68	24.92	36.00	-11.08
2472	9.59	-	-	-	9.59	30.00	-20.41	12.19	36.00	-23.81

Table 37 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 RU26	Duty Cycle (%):	96.5
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	14.33	-	-	-	14.33	30.00	-15.67
2442	14.48	-	-	-	14.48	30.00	-15.52
2472	-1.81	-	-	-	-1.81	30.00	-31.81

Table 38 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	14.33	-	-	-	14.33	30.00	-15.67	16.93	36.00	-19.07
2442	14.48	-	-	-	14.48	30.00	-15.52	17.08	36.00	-18.92
2472	-1.81	-	-	-	-1.81	30.00	-31.81	0.79	36.00	-35.21

Table 39 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 RU52	Duty Cycle (%):	96.3
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	17.50	-	-	-	17.50	30.00	-12.50
2442	17.33	-	-	-	17.33	30.00	-12.67
2472	1.15	-	-	-	1.15	30.00	-28.85

Table 40 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	17.50	-	-	-	17.50	30.00	-12.50	20.10	36.00	-15.90
2442	17.33	-	-	-	17.33	30.00	-12.67	19.93	36.00	-16.07
2472	1.15	-	-	-	1.15	30.00	-28.85	3.75	36.00	-32.25

Table 41 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	802.11ax HE20 RU106	Duty Cycle (%):	97.8
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	18.40	-	-	-	18.40	30.00	-11.60
2442	20.32	-	-	-	20.32	30.00	-9.68
2472	1.75	-	-	-	1.75	30.00	-28.25

Table 42 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	18.40	-	-	-	18.40	30.00	-11.60	21.00	36.00	-15.00
2442	20.32	-	-	-	20.32	30.00	-9.68	22.92	36.00	-13.08
2472	1.75	-	-	-	1.75	30.00	-28.25	4.35	36.00	-31.65

Table 43 - ISED Maximum Conducted (average) Output Power Results

MIMO CDD

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	662911 D01 v02r01 F)2)f)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	802.11n HT20	Duty Cycle (%):	96.5
Modulation Coding Scheme:	MCS2	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	17.12	17.74	-	-	20.45	30.00	-9.55
2442	21.28	22.25	-	-	24.81	30.00	-5.19
2472	9.31	10.25	-	-	12.81	30.00	-17.19

Table 44 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	17.12	17.74	-	-	20.45	30.00	-9.55	23.05	36.00	-12.95
2442	21.28	22.25	-	-	24.81	30.00	-5.19	27.41	36.00	-8.59
2472	9.31	10.25	-	-	12.81	30.00	-17.19	15.41	36.00	-20.59

Table 45 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	662911 D01 v02r01 F)2)f)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	802.11ax HE20 SU	Duty Cycle (%):	95.8
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	16.75	17.47	-	-	20.13	30.00	-9.87
2442	21.07	22.21	-	-	24.69	30.00	-5.31
2472	8.75	9.70	-	-	12.26	30.00	-17.74

Table 46 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	16.75	17.47	-	-	20.13	30.00	-9.87	22.73	36.00	-13.27
2442	21.07	22.21	-	-	24.69	30.00	-5.31	27.29	36.00	-8.71
2472	8.75	9.70	-	-	12.26	30.00	-17.74	14.86	36.00	-21.14

Table 47 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	662911 D01 v02r01 F)2)f)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	802.11ax HE20 RU26	Duty Cycle (%):	96.4
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	13.57	14.35	-	-	16.99	30.00	-13.01
2442	13.41	14.37	-	-	16.93	30.00	-13.07
2472	-1.47	-0.68	-	-	1.96	30.00	-28.04

Table 48 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	13.57	14.35	-	-	16.99	30.00	-13.01	19.59	36.00	-16.41
2442	13.41	14.37	-	-	16.93	30.00	-13.07	19.53	36.00	-16.47
2472	-1.47	-0.68	-	-	1.96	30.00	-28.04	4.56	36.00	-31.44

Table 49 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	662911 D01 v02r01 F)2)f)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	802.11ax HE20 RU52	Duty Cycle (%):	96.3
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	16.80	17.48	-	-	20.17	30.00	-9.83
2442	16.86	17.39	-	-	20.15	30.00	-9.85
2472	-0.18	0.66	-	-	3.27	30.00	-26.73

Table 50 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	16.80	17.48	-	-	20.17	30.00	-9.83	22.77	36.00	-13.23
2442	16.86	17.39	-	-	20.15	30.00	-9.85	22.75	36.00	-13.25
2472	-0.18	0.66	-	-	3.27	30.00	-26.73	5.87	36.00	-30.13

Table 51 - ISED Maximum Conducted (average) Output Power Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 5.4 d)	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	662911 D01 v02r01 F)2)f)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	802.11ax HE20 RU106	Duty Cycle (%):	97.8
Modulation Coding Scheme:	MCS2x1	DCCF (dB):	-
Antenna Configuration:	MIMO CDD	Peak Antenna Gain (dBi):	2.60
Active Port(s):	A+B (Core 0 + Core 1)	Active Chain(s):	0+1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	∑		
2412	16.73	17.45	-	-	20.12	30.00	-9.88
2442	19.56	20.32	-	-	22.97	30.00	-7.03
2472	2.08	2.84	-	-	5.49	30.00	-24.51

Table 52 - FCC Maximum Conducted (average) Output Power Results

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)	EIRP (dBm)	EIRP Limit (dBm)	EIRP Margin (dB)
	A	B	C	D	∑					
2412	16.73	17.45	-	-	20.12	30.00	-9.88	22.72	36.00	-13.28
2442	19.56	20.32	-	-	22.97	30.00	-7.03	25.57	36.00	-10.43
2472	2.08	2.84	-	-	5.49	30.00	-24.51	8.09	36.00	-27.91

Table 53 - ISED Maximum Conducted (average) Output Power Results

FCC 47 CFR Part 15, Limit Clause 15.247 (b)(3)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt.

ISED RSS-247, Limit Clause 5.4 (d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e) of the specification.

2.3.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 18.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Hygrometer	Rotronic	I-1000	3068	12	07-Nov-2024
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
USB Power Sensor	Boonton	RTP5008	5820	12	07-Feb-2025
USB Power Sensor	Boonton	RTP5008	5821	12	07-Feb-2025
Digital Multimeter	Fluke	115	6145	12	06-Jun-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6426	12	07-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6752	12	06-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6753	12	06-Feb-2025

Table 54

O/P Mon - Output Monitored using calibrated equipment

2.4 Authorised Band Edges

2.4.1 Specification Reference

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

2.4.2 Equipment Under Test and Modification State

A3247, S/N: KN47NTDQRY - Modification State 0

2.4.3 Date of Test

25-April-2024 to 31-May-2024

2.4.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.10.4.

2.4.5 Environmental Conditions

Ambient Temperature	22.2 - 23.0 °C
Relative Humidity	38.3 - 41.5 %

2.4.6 Test Results

2.4 GHz WLAN

20 MHz Bandwidth - Core 0 (SISO)

Mode	Data Rate/ MCS	Resource Size	Resource Index	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
802.11b	1 Mbps	-	-	2412	2400	-53.55
802.11b	1 Mbps	-	-	2417	2400	-55.57
802.11g	54 Mbps	-	-	2412	2400	-34.58
802.11g	54 Mbps	-	-	2417	2400	-34.51
802.11g	54 Mbps	-	-	2422	2400	-38.91
802.11g	54 Mbps	-	-	2427	2400	-48.05
802.11n HT20	MCS 4	-	-	2412	2400	-34.68
802.11n HT20	MCS 7	-	-	2417	2400	-35.12
802.11n HT20	MCS 7	-	-	2422	2400	-38.13
802.11n HT20	MCS 7	-	-	2427	2400	-44.65
802.11ax HE20	MCS 4x1	SU	-	2412	2400	-35.84
802.11ax HE20	MCS 9x1	106	53	2412	2400	-36.36
802.11ax HE20	MCS 4x1	SU	-	2417	2400	-34.76
802.11ax HE20	MCS 9x1	106	54	2417	2400	-47.46
802.11ax HE20	MCS 9x1	SU	-	2422	2400	-36.47
802.11ax HE20	MCS 9x1	SU	-	2427	2400	-44.06
802.11ax HE20	MCS 9x1	SU	-	2432	2400	-48.81

Table 55 - SISO Authorised Band Edge Results

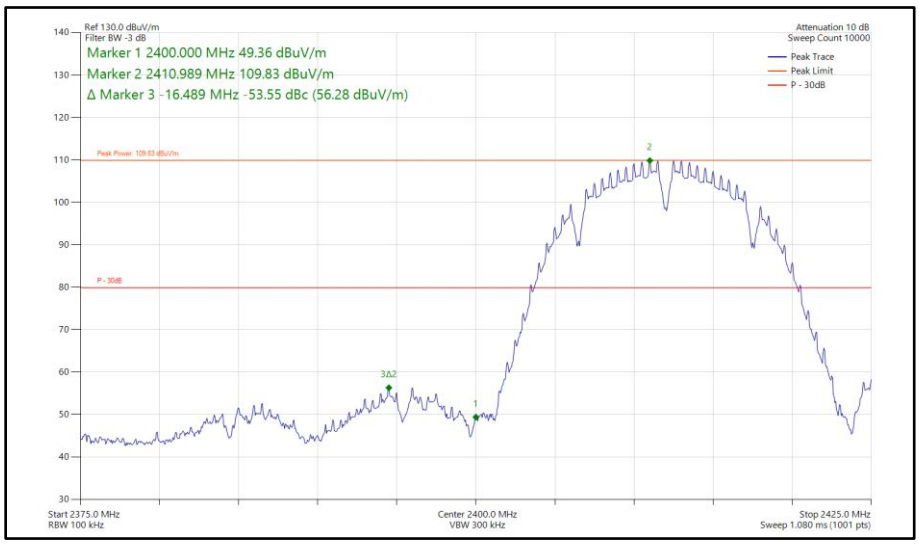

Figure 134 - 802.11b, SISO, Core 0 - 2412 MHz
Band Edge Frequency 2400 MHz

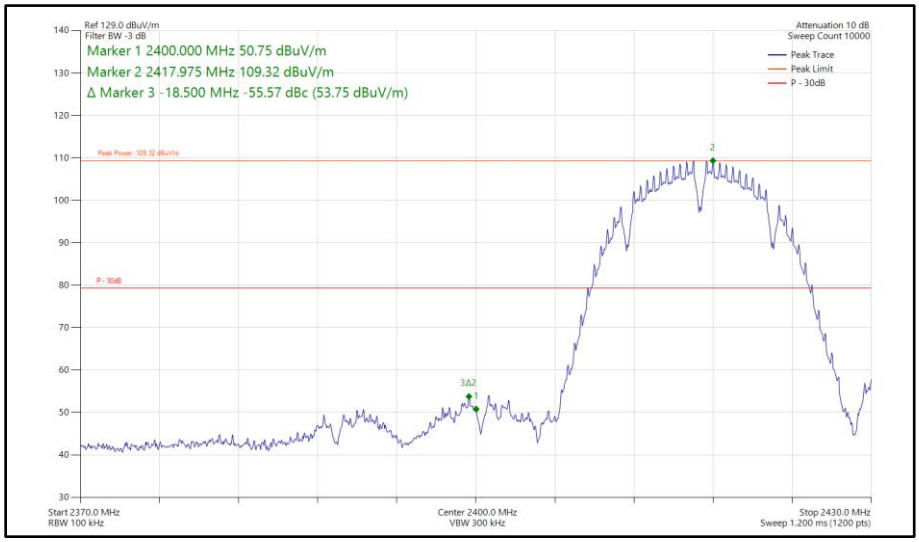

Figure 135 - 802.11b, SISO, Core 0 - 2417 MHz
Band Edge Frequency 2400 MHz

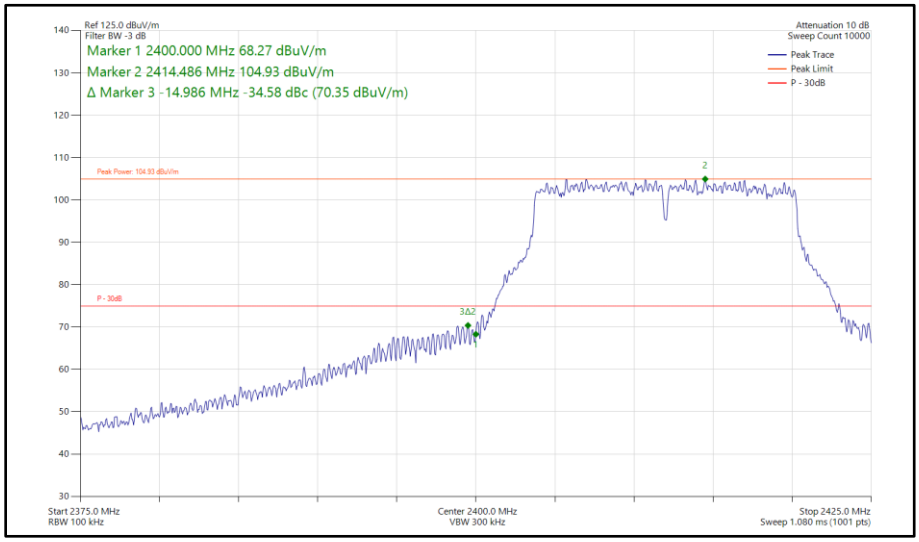

Figure 136 - 802.11g, SISO, Core 0 - 2412 MHz
Band Edge Frequency 2400 MHz

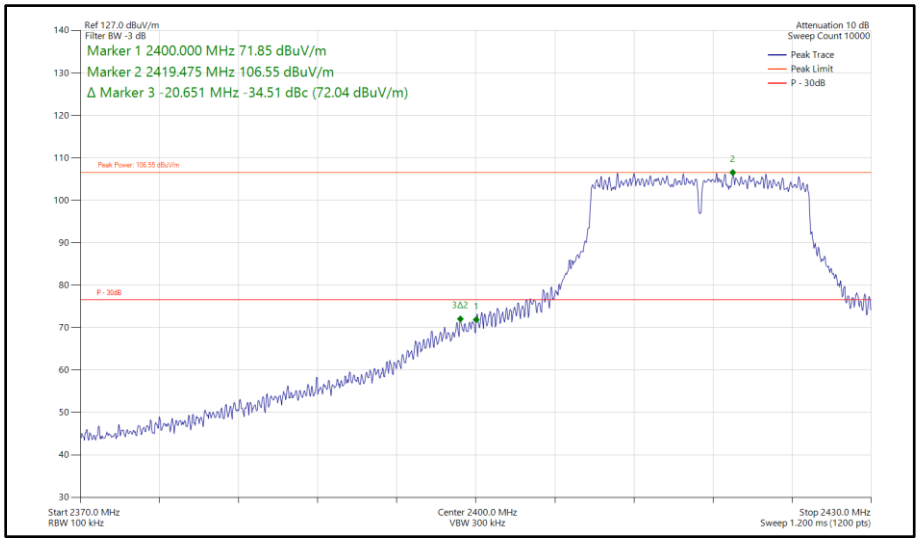

Figure 137 - 802.11g, SISO, Core 0 - 2417 MHz
Band Edge Frequency 2400 MHz

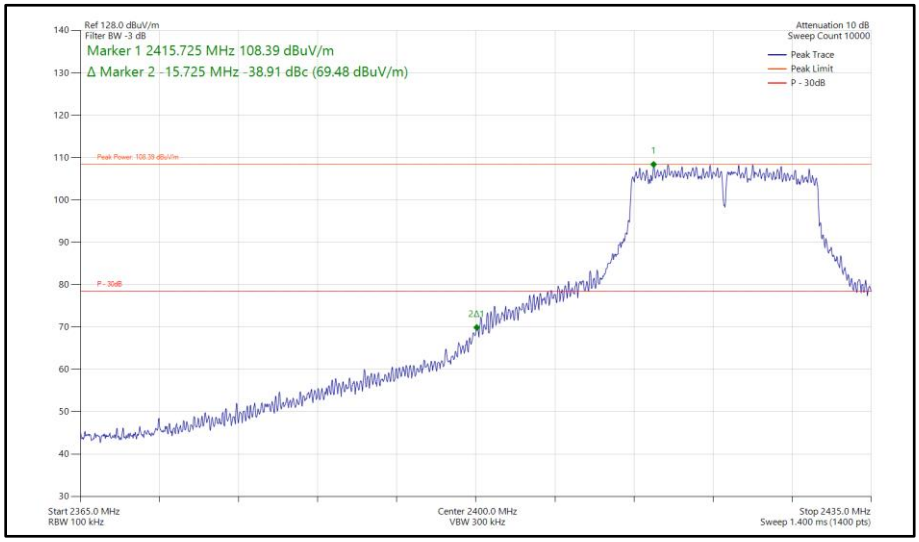

Figure 138 - 802.11g, SISO, Core 0 - 2422 MHz
Band Edge Frequency 2400 MHz

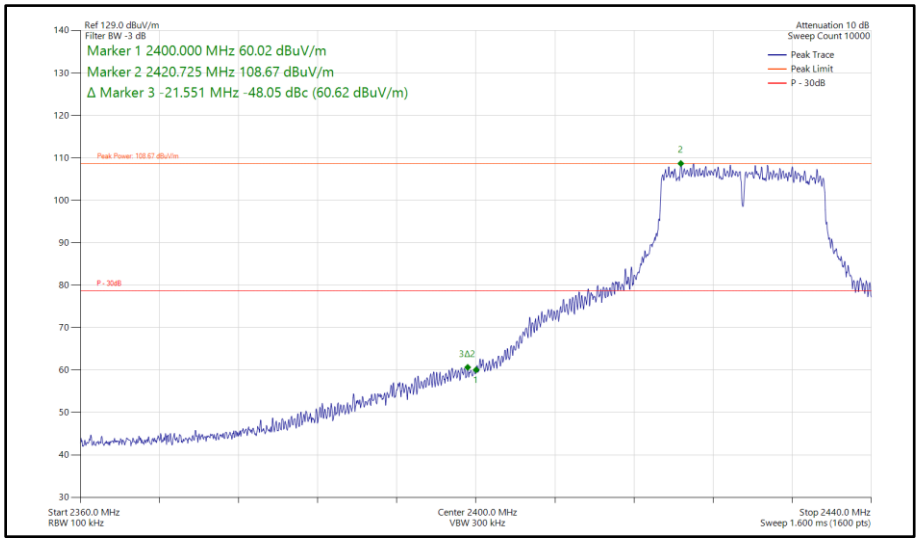

Figure 139 - 802.11g, SISO, Core 0 - 2427 MHz
Band Edge Frequency 2400 MHz

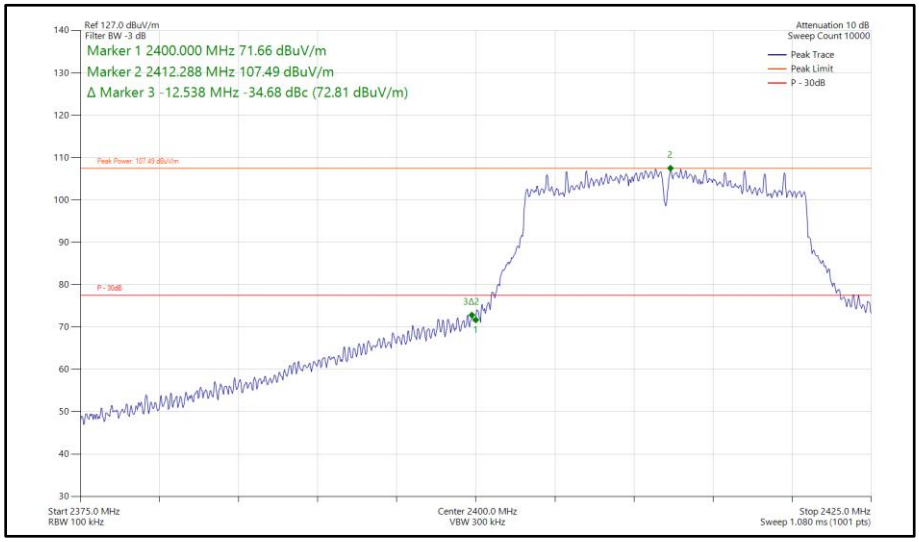

Figure 140 - 802.11n HT20, SISO, Core 0 - 2412 MHz
Band Edge Frequency 2400 MHz

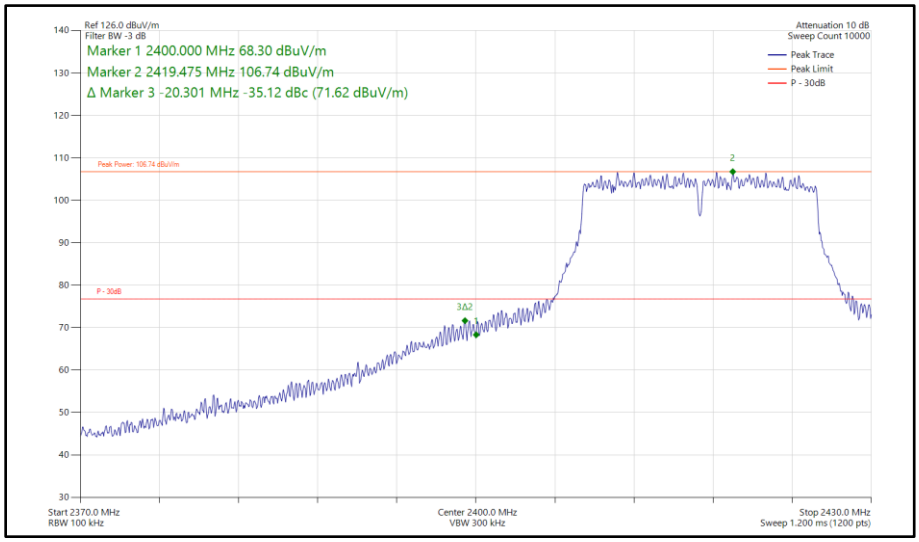

Figure 141 - 802.11n HT20, SISO, Core 0 - 2417 MHz
Band Edge Frequency 2400 MHz

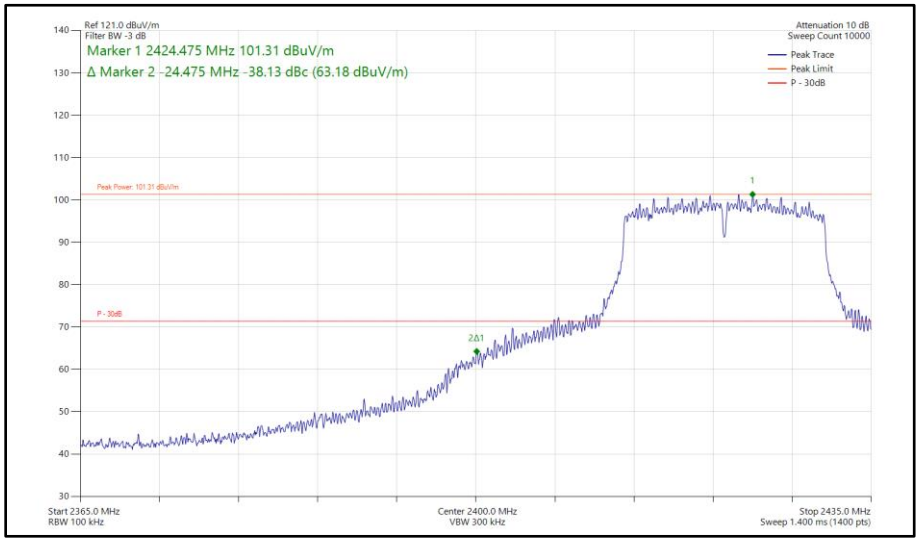

Figure 142 - 802.11n HT20, SISO, Core 0 - 2422 MHz
Band Edge Frequency 2400 MHz

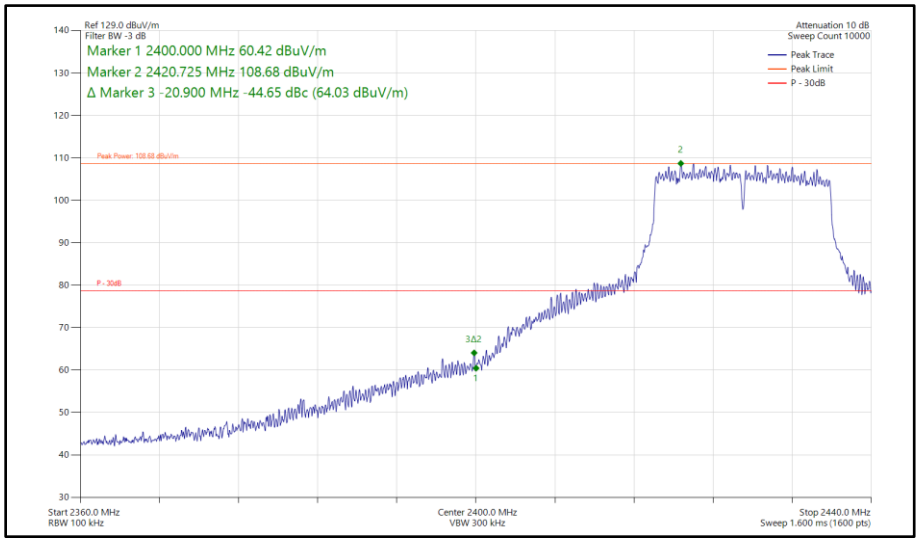

Figure 143 - 802.11n HT20, SISO, Core 0 - 2427 MHz
Band Edge Frequency 2400 MHz

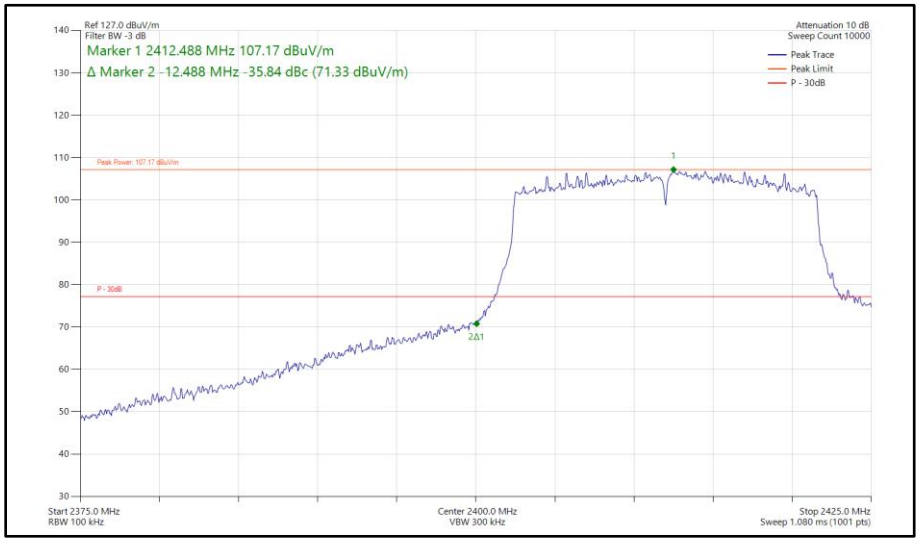

Figure 144 - 802.11ax HE20, SU, SISO, Core 0 - 2412 MHz
Band Edge Frequency 2400 MHz

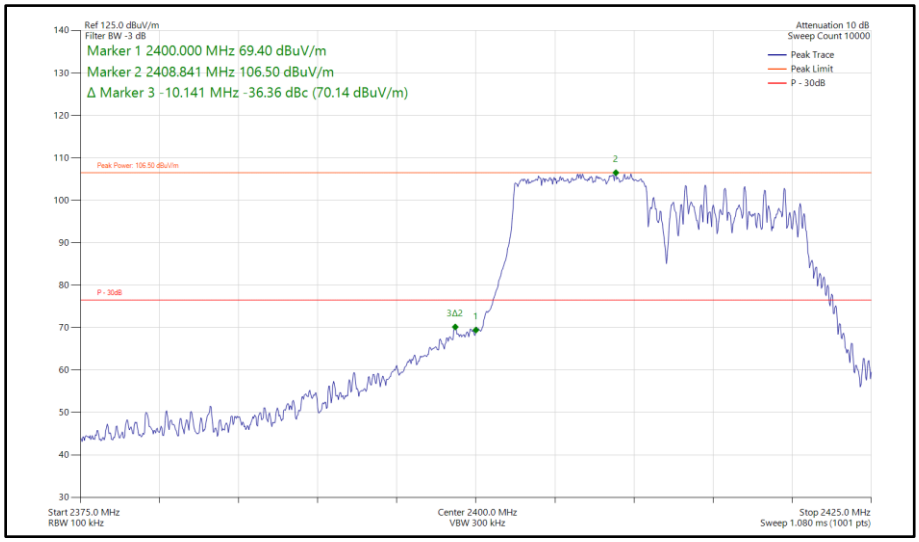

Figure 145 - 802.11ax HE20, RU 106-53, SISO, Core 0 - 2412 MHz Band Edge Frequency 2400 MHz

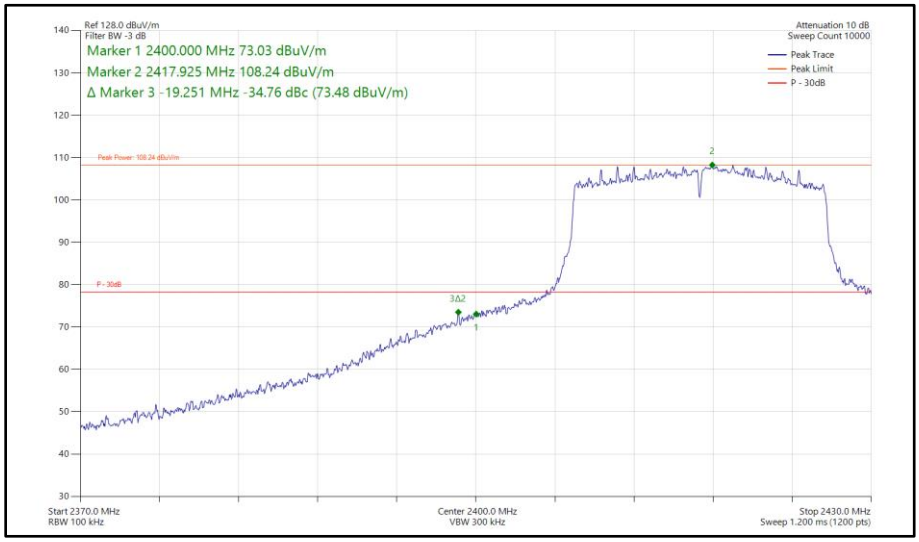

Figure 146 - 802.11ax HE20, SU, SISO, Core 0 - 2417 MHz Band Edge Frequency 2400 MHz

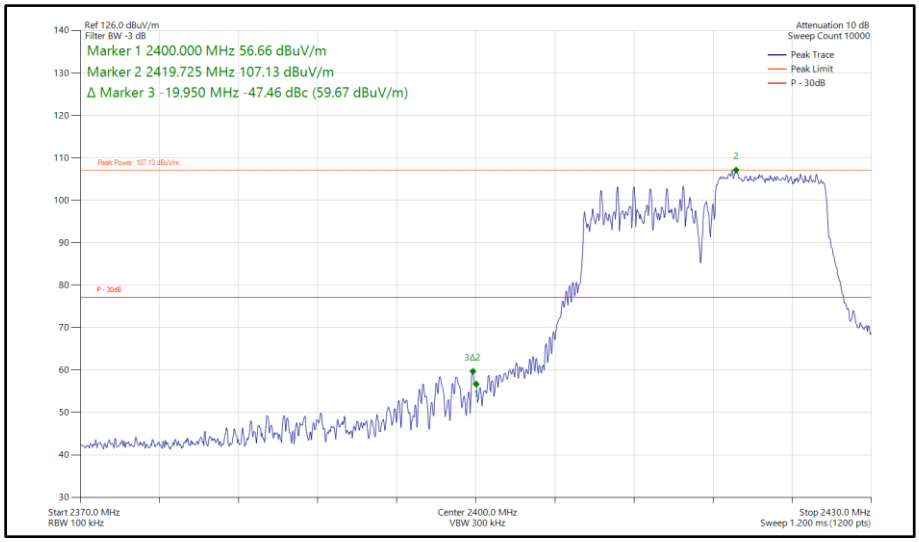

Figure 147 - 802.11ax HE20, RU 106-54, SISO, Core 0 - 2417 MHz Band Edge Frequency 2400 MHz

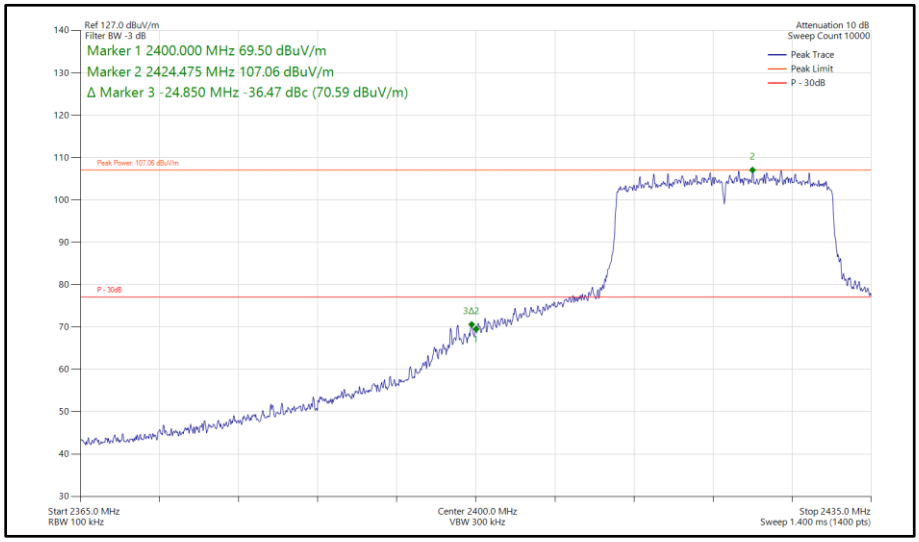

Figure 148 - 802.11ax HE20, SU, SISO, Core 0 - 2422 MHz Band Edge Frequency 2400 MHz

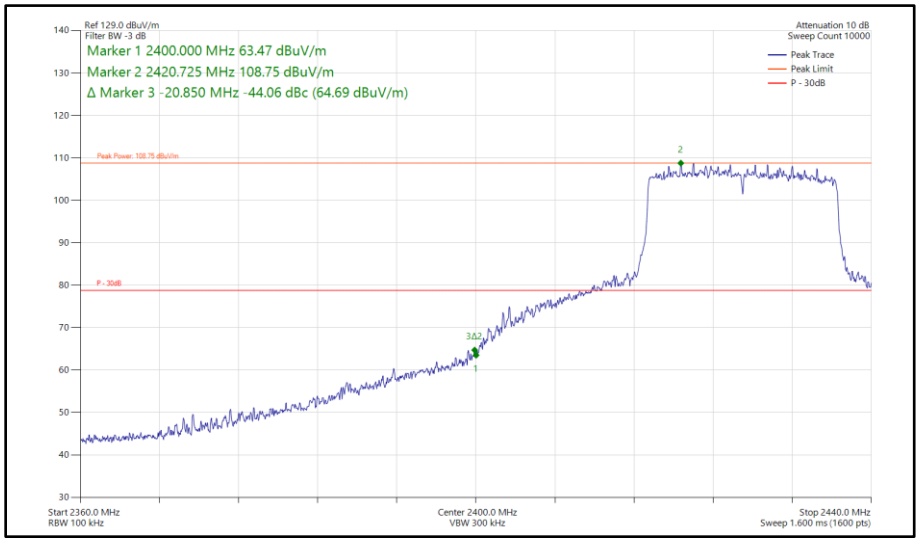

Figure 149 - 802.11ax HE20, SU, SISO, Core 0 - 2427 MHz
Band Edge Frequency 2400 MHz

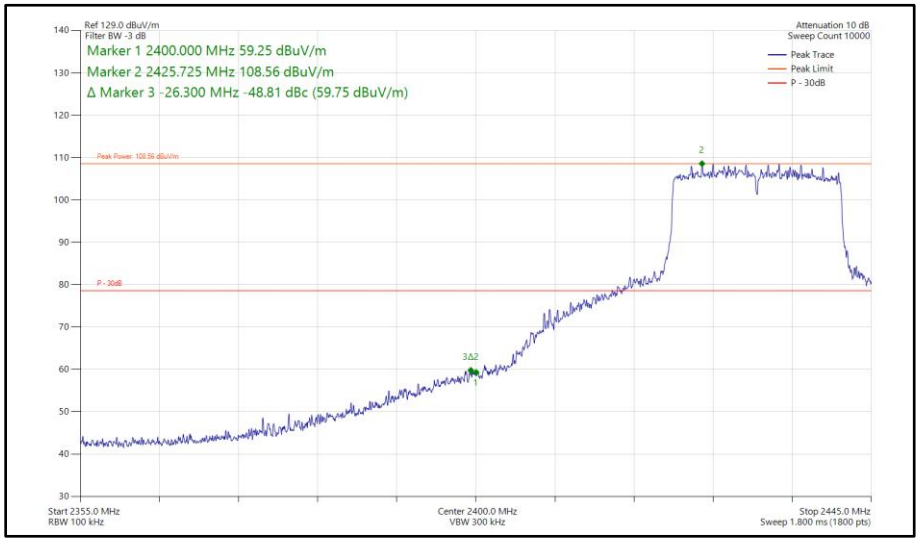

Figure 150 - 802.11ax HE20, SU, SISO, Core 0 - 2432 MHz
Band Edge Frequency 2400 MHz

20 MHz Bandwidth - Core 1 (SISO)

Mode	Data Rate/ MCS	Resource Size	Resource Index	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
802.11b	1 Mbps	-	-	2412	2400	-53.51
802.11b	1 Mbps	-	-	2417	2400	-56.36
802.11g	54 Mbps	-	-	2412	2400	-34.52
802.11g	54 Mbps	-	-	2417	2400	-35.06
802.11g	54 Mbps	-	-	2422	2400	-39.80
802.11g	54 Mbps	-	-	2427	2400	-48.69
802.11n HT20	MCS 4	-	-	2412	2400	-35.18
802.11n HT20	MCS 7	-	-	2417	2400	-34.92
802.11n HT20	MCS 7	-	-	2422	2400	-37.60
802.11n HT20	MCS 7	-	-	2427	2400	-46.60
802.11ax HE20	MCS 4x1	SU	-	2412	2400	-35.74
802.11ax HE20	MCS 9x1	106	53	2412	2400	-39.86
802.11ax HE20	MCS 9x1	SU	-	2417	2400	-35.14
802.11ax HE20	MCS 9x1	106	53	2417	2400	-48.73
802.11ax HE20	MCS 9x1	SU	-	2422	2400	-35.47
802.11ax HE20	MCS 9x1	SU	-	2427	2400	-44.26
802.11ax HE20	MCS 9x1	SU	-	2432	2400	-47.55

Table 56 - SISO Authorised Band Edge Results

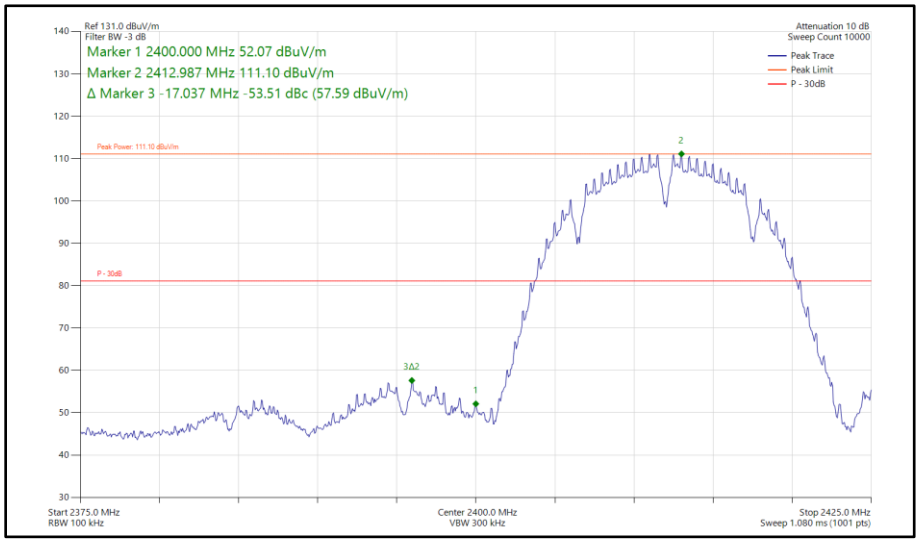

Figure 151 - 802.11b, SISO, Core 1 - 2412 MHz
Band Edge Frequency 2400 MHz

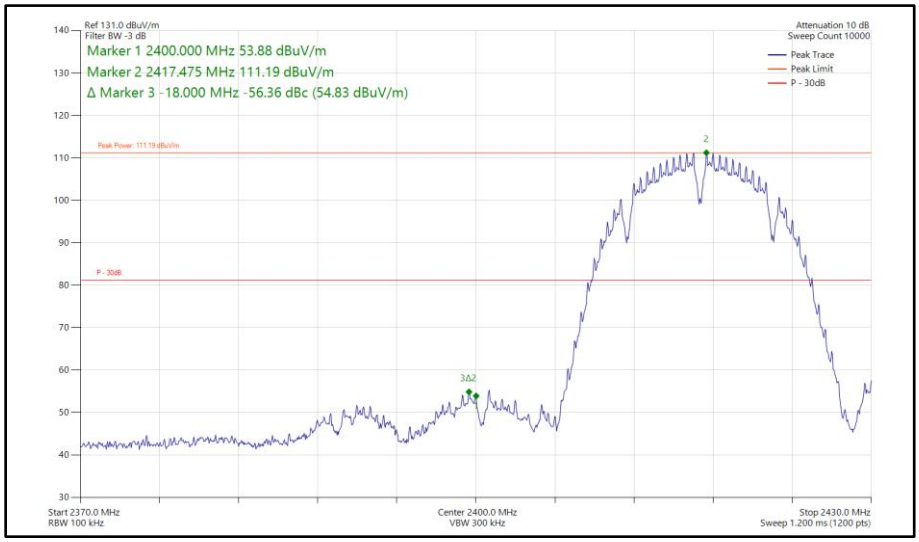

Figure 152 - 802.11b, SISO, Core 1 - 2417 MHz
Band Edge Frequency 2400 MHz

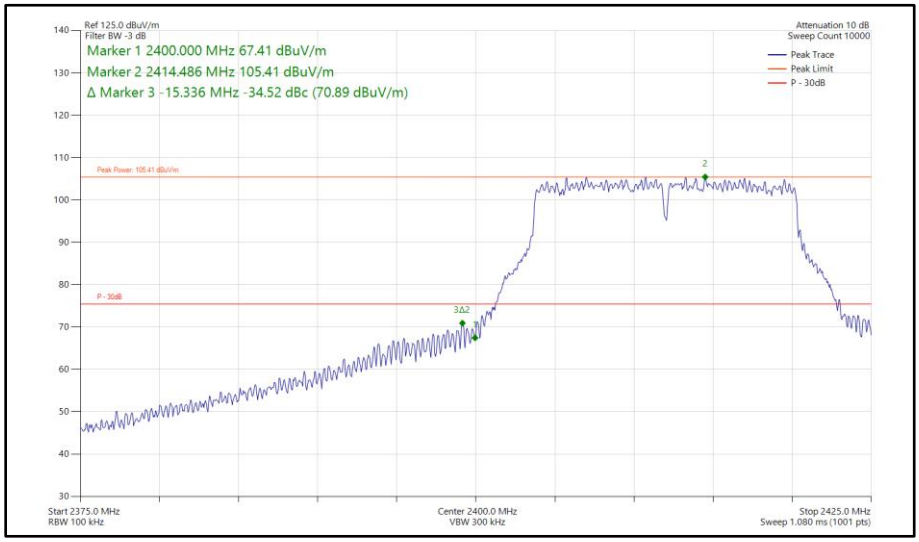

Figure 153 - 802.11g, SISO, Core 1 - 2412 MHz
Band Edge Frequency 2400 MHz

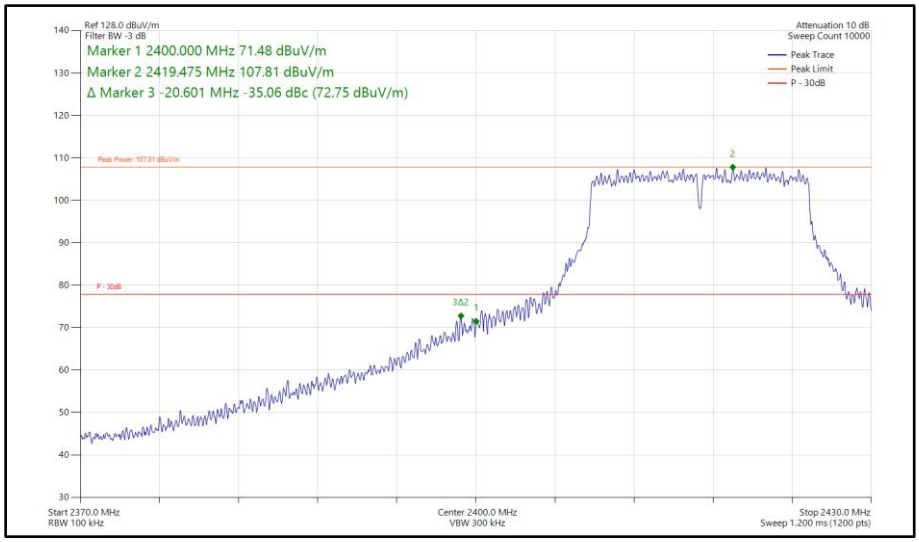

Figure 154 - 802.11g, SISO, Core 1 - 2417 MHz
Band Edge Frequency 2400 MHz

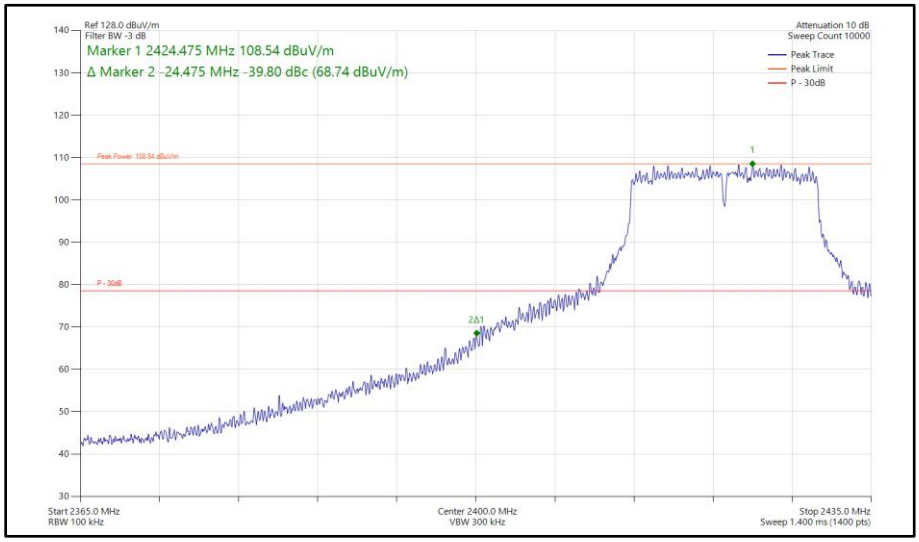

Figure 155 - 802.11g, SISO, Core 1 - 2422 MHz
Band Edge Frequency 2400 MHz

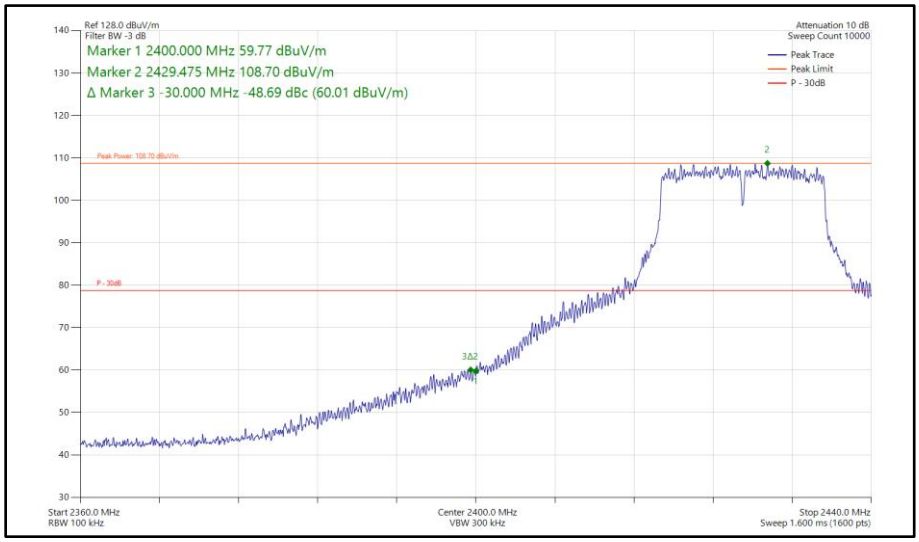

Figure 156 - 802.11g, SISO, Core 1 - 2427 MHz
Band Edge Frequency 2400 MHz

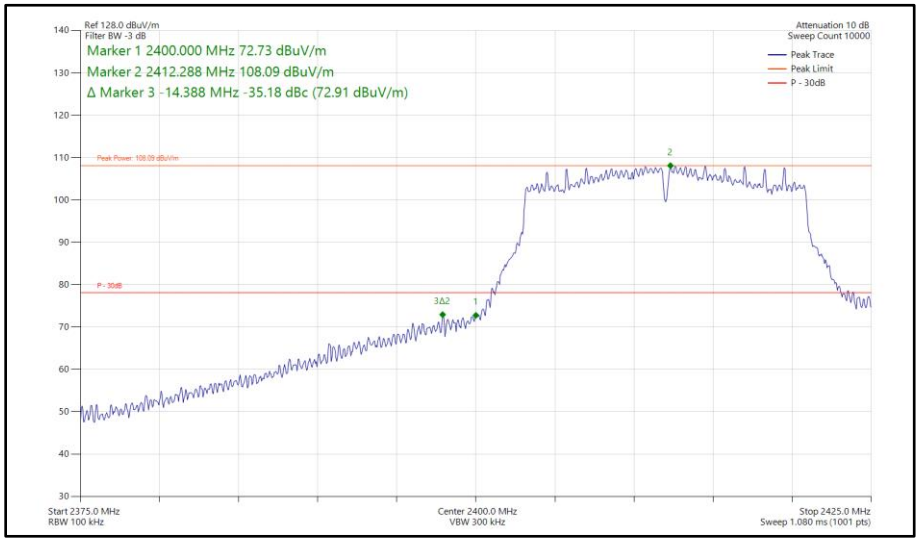

Figure 157 - 802.11n HT20, SISO, Core 1 - 2412 MHz
Band Edge Frequency 2400 MHz

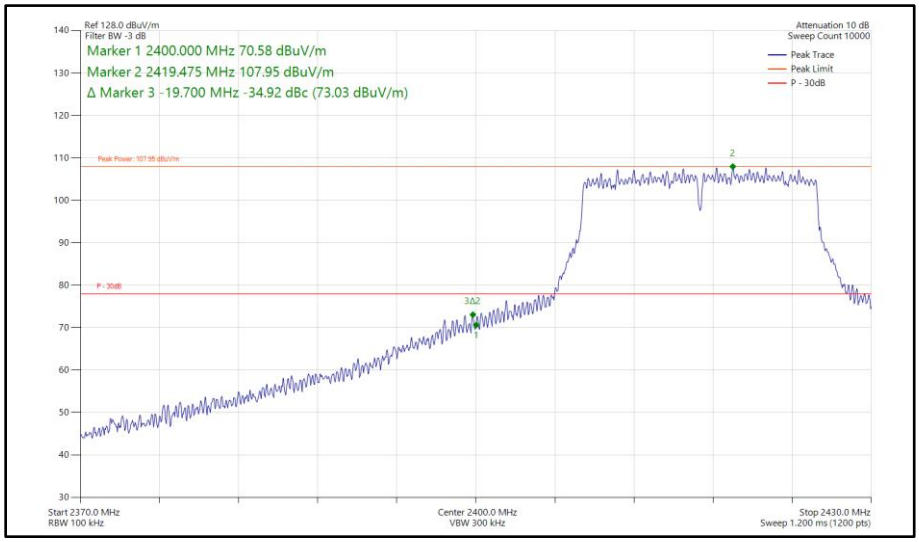

Figure 158 - 802.11n HT20, SISO, Core 1 - 2417 MHz
Band Edge Frequency 2400 MHz

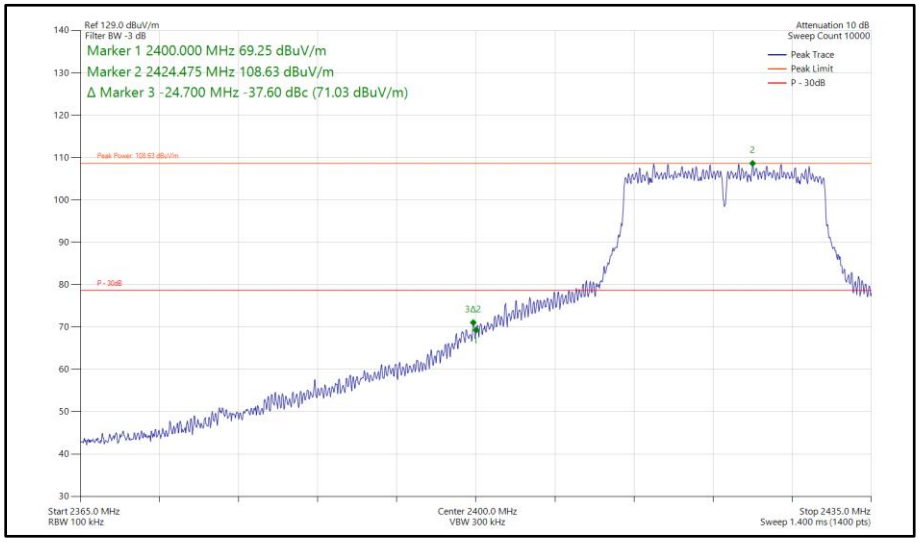

Figure 159 - 802.11n HT20, SISO, Core 1 - 2422 MHz
Band Edge Frequency 2400 MHz

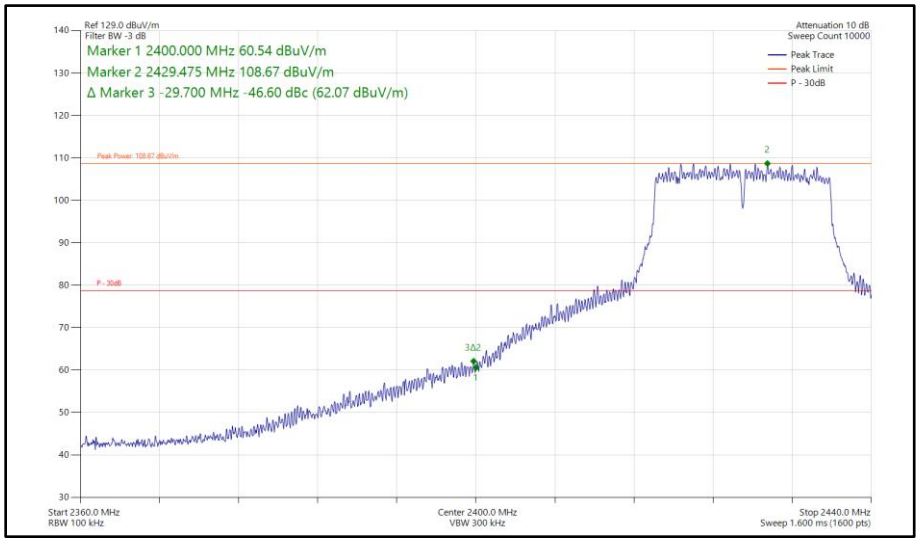

Figure 160 - 802.11n HT20, SISO, Core 1 - 2427 MHz
Band Edge Frequency 2400 MHz

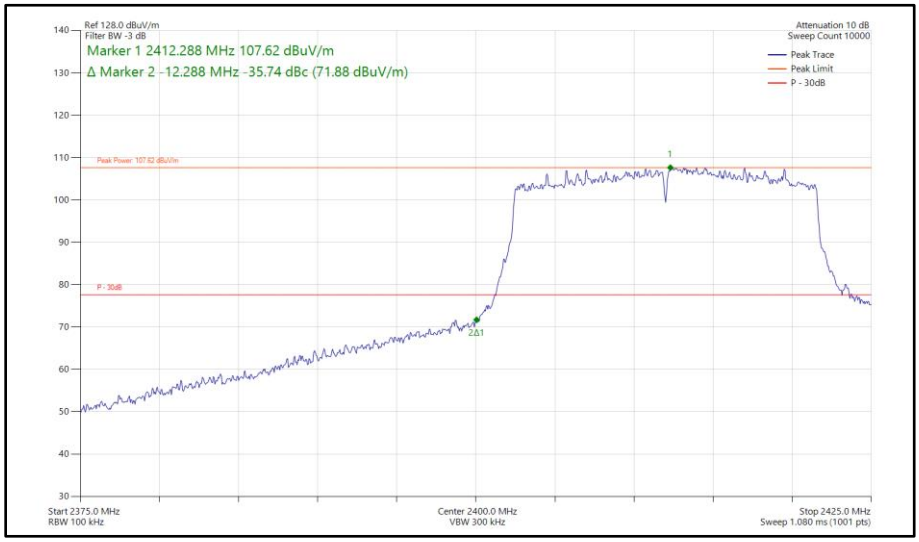

Figure 161 - 802.11ax HE20, SU, SISO, Core 1 - 2412 MHz
Band Edge Frequency 2400 MHz

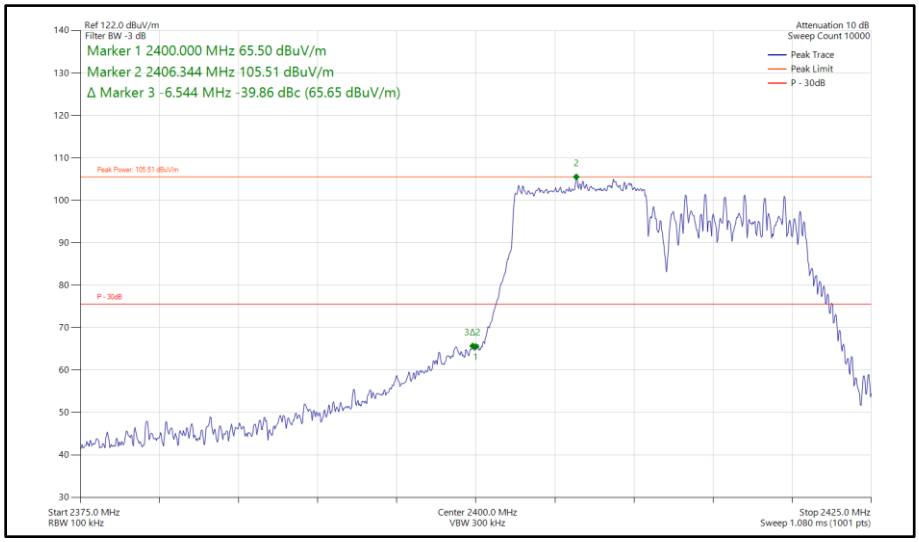

Figure 162 - 802.11ax HE20, RU 106-53, SISO, Core 1 - 2412 MHz Band Edge Frequency 2400 MHz

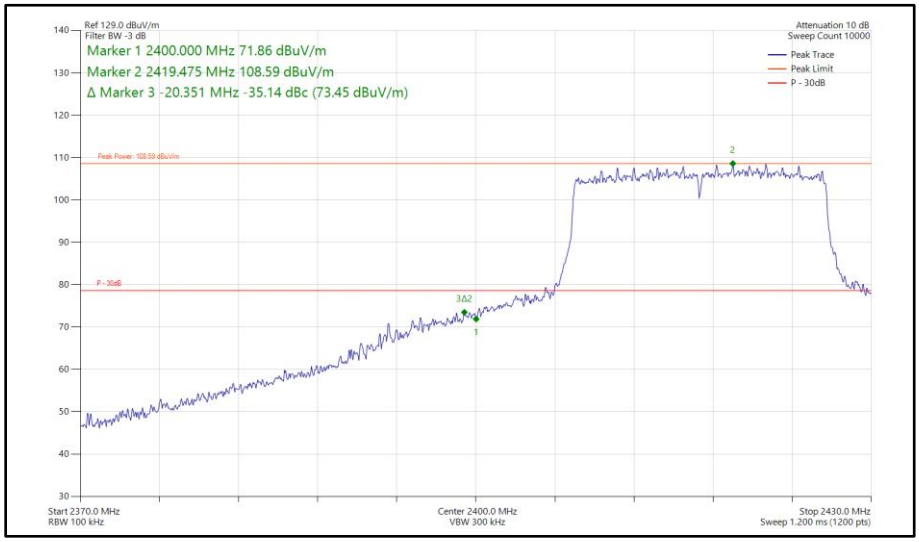

Figure 163 - 802.11ax HE20, SU, SISO, Core 1 - 2417 MHz Band Edge Frequency 2400 MHz

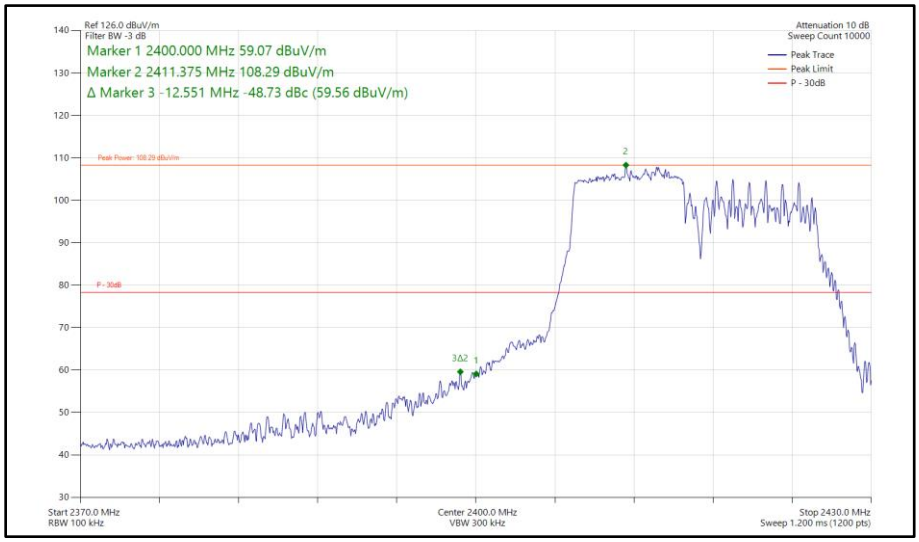

Figure 164 - 802.11ax HE20, RU 106-53, SISO, Core 1 - 2417 MHz Band Edge Frequency 2400 MHz

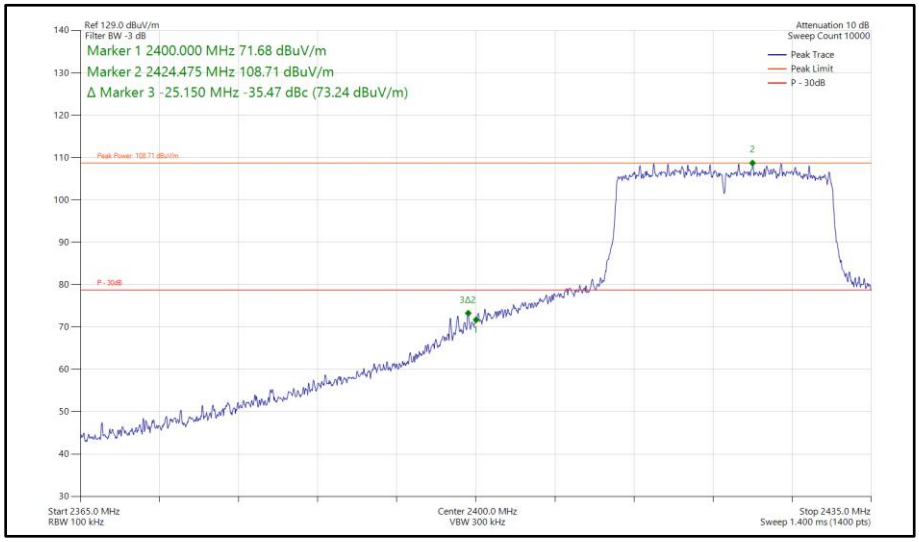

Figure 165 - 802.11ax HE20, SU, SISO, Core 1 - 2422 MHz Band Edge Frequency 2400 MHz

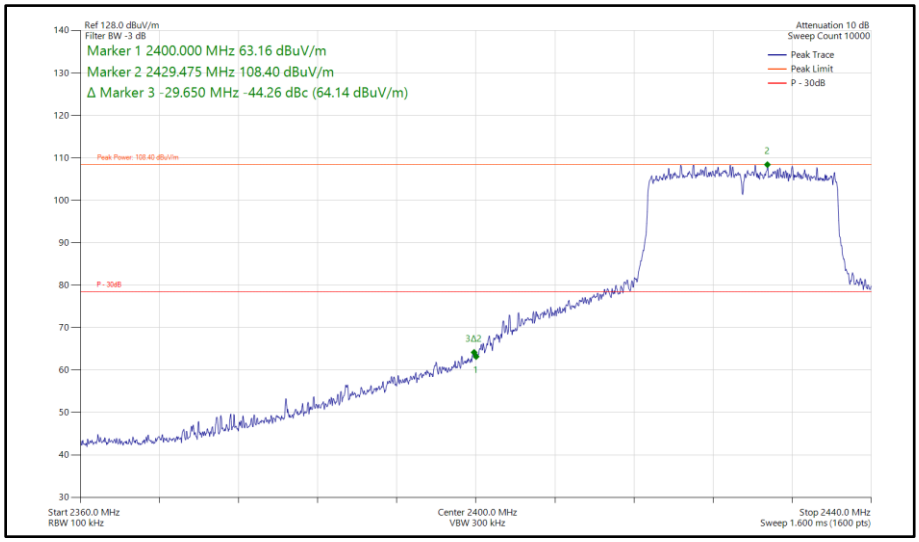

Figure 166 - 802.11ax HE20, SU, SISO, Core 1 - 2427 MHz
Band Edge Frequency 2400 MHz

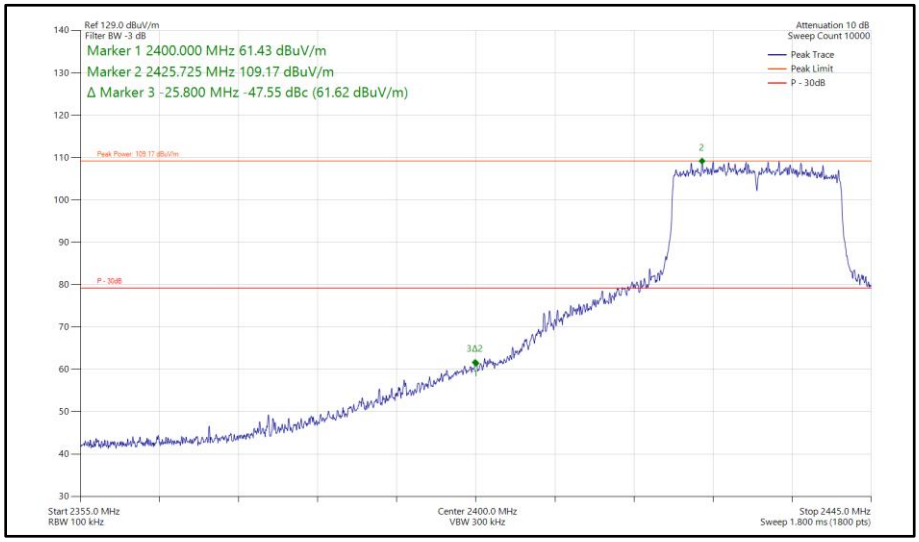

Figure 167 - 802.11ax HE20, SU, SISO, Core 1 - 2432 MHz
Band Edge Frequency 2400 MHz

20 MHz Bandwidth - Core 0 - Core 1 (CDD)

Mode	Data Rate/ MCS	Resource Size	Resource Index	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
802.11n HT20	MCS 7	-	-	2412	2400	-34.91
802.11n HT20	MCS 7	-	-	2417	2400	-34.81
802.11n HT20	MCS 7	-	-	2422	2400	-40.02
802.11n HT20	MCS 7	-	-	2427	2400	-48.13
802.11n HT20	MCS 7	-	-	2432	2400	-50.53
802.11ax HE20	MCS 9x1	SU	-	2412	2400	-34.86
802.11ax HE20	MCS 9x1	106	53	2412	2400	-37.13
802.11ax HE20	MCS 9x1	SU	-	2417	2400	-34.78
802.11ax HE20	MCS 9x1	106	53	2417	2400	-47.15
802.11ax HE20	MCS 9x1	SU	-	2422	2400	-36.02
802.11ax HE20	MCS 9x1	106	53	2422	2400	-54.21
802.11ax HE20	MCS 9x1	SU	-	2427	2400	-43.65
802.11ax HE20	MCS 9x1	SU	-	2432	2400	-48.23

Table 57 - CDD Authorised Band Edge Results

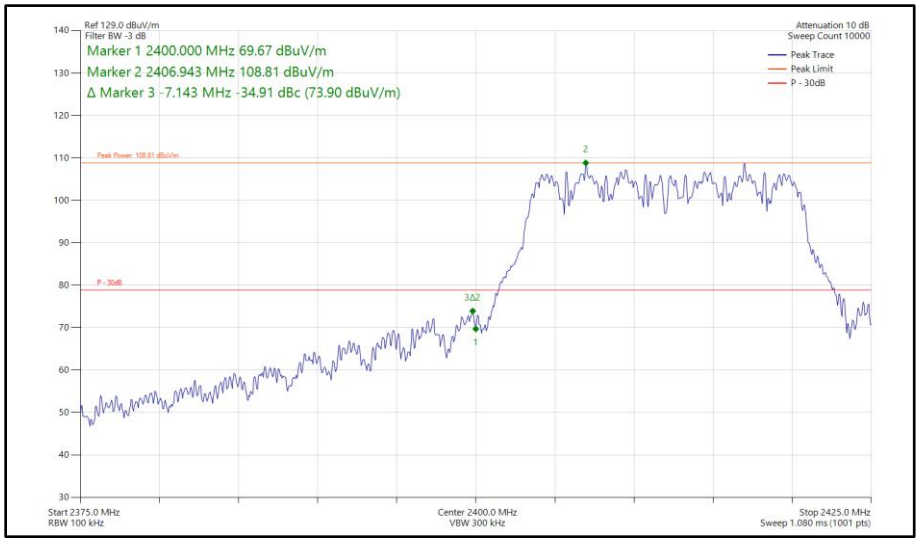

Figure 168 - 802.11n HT20, CDD, Core 0 - Core 1 - 2412 MHz Band Edge Frequency 2400 MHz

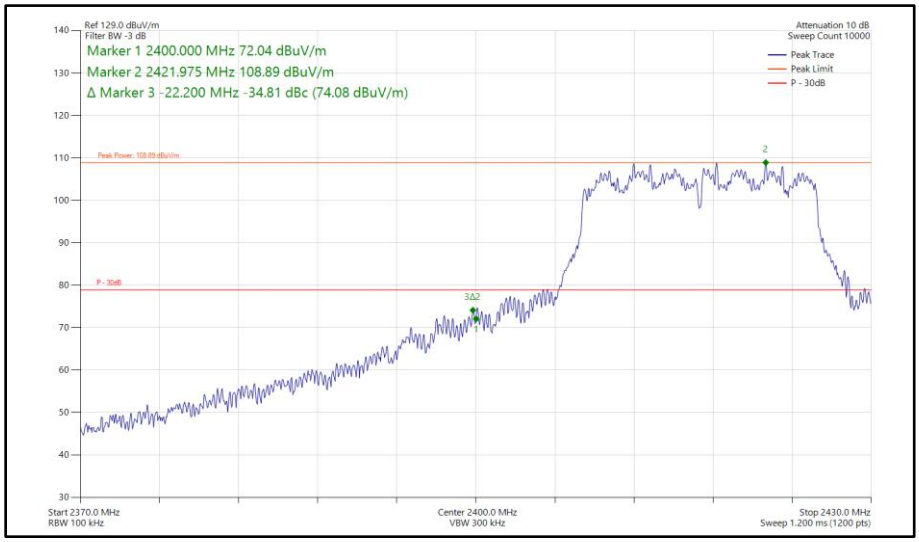

Figure 169 - 802.11n HT20, CDD, Core 0 - Core 1 - 2417 MHz Band Edge Frequency 2400 MHz

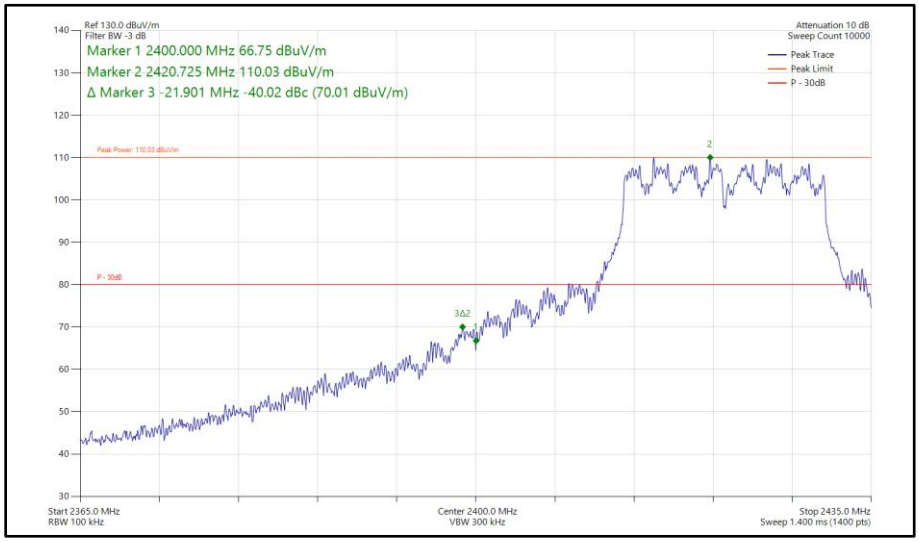

Figure 170 - 802.11n HT20, CDD, Core 0 - Core 1 - 2422 MHz Band Edge Frequency 2400 MHz

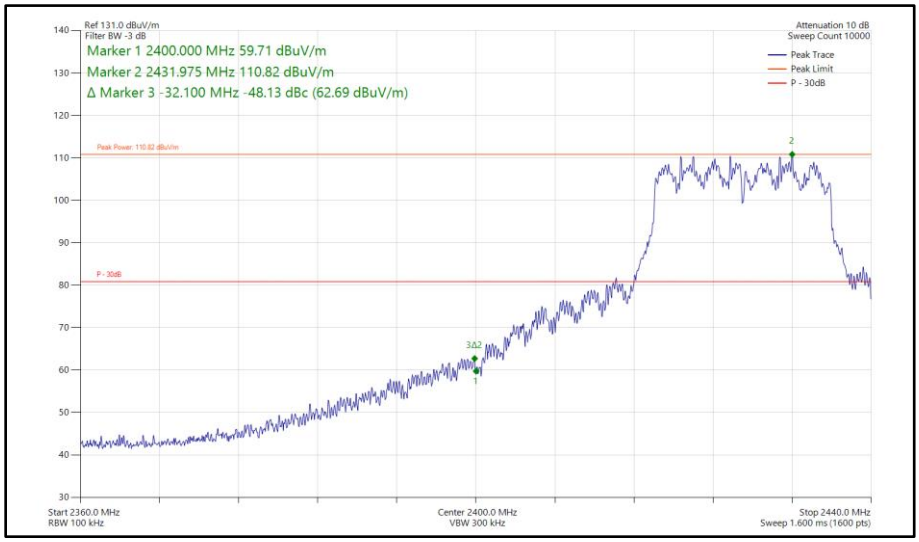

Figure 171 - 802.11n HT20, CDD, Core 0 - Core 1 - 2427 MHz Band Edge Frequency 2400 MHz

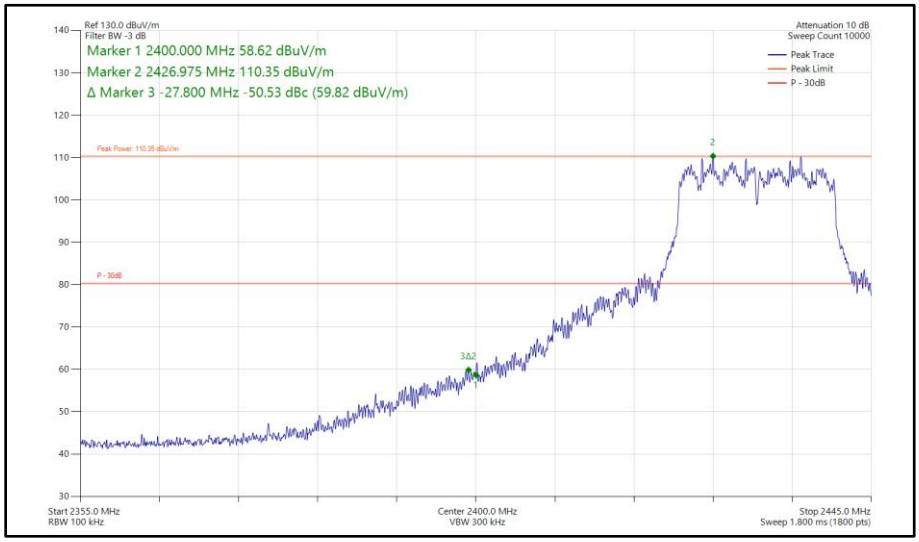

Figure 172 - 802.11n HT20, CDD, Core 0 - Core 1 - 2432 MHz Band Edge Frequency 2400 MHz

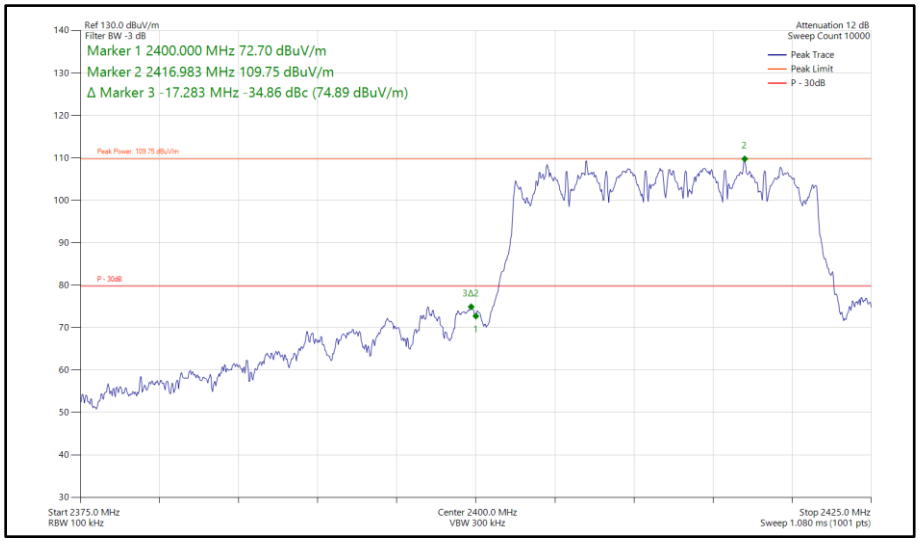

Figure 173 - 802.11ax HE20, SU, CDD, Core 0 - Core 1 - 2412 MHz Band Edge Frequency 2400 MHz

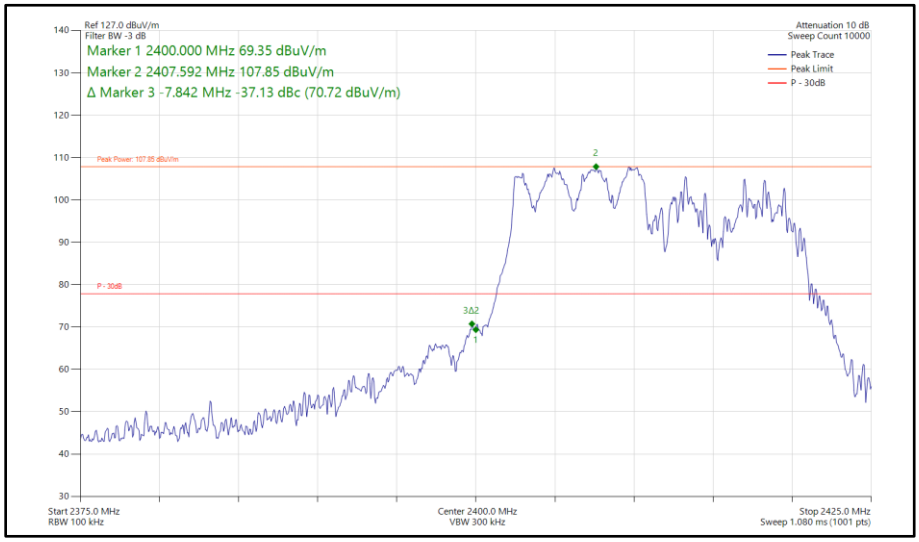

Figure 174 - 802.11ax HE20, RU 106-53, CDD, Core 0 - Core 1 - 2412 MHz Band Edge Frequency 2400 MHz

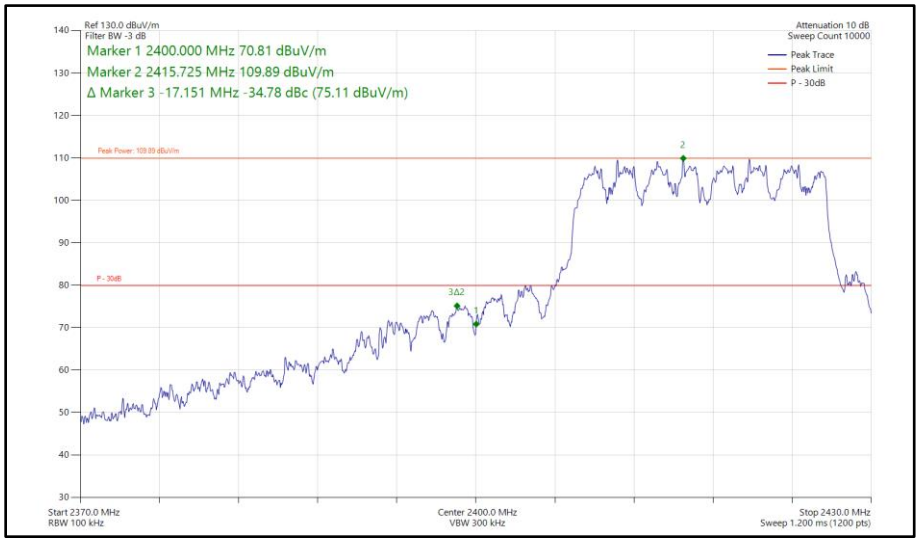

Figure 175 - 802.11ax HE20, SU, CDD, Core 0 - Core 1 - 2417 MHz Band Edge Frequency 2400 MHz

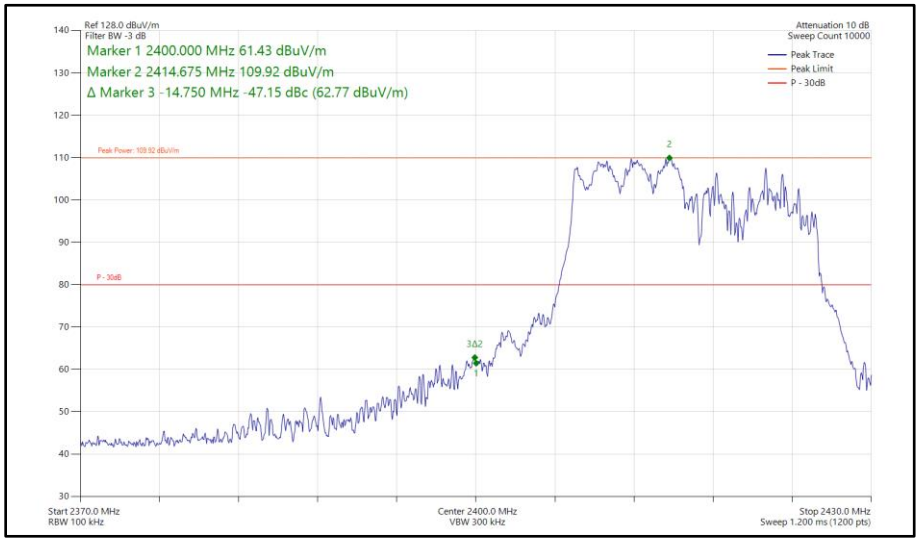

Figure 176 - 802.11ax HE20, RU 106-53, CDD, Core 0 - Core 1 - 2417 MHz Band Edge Frequency 2400 MHz

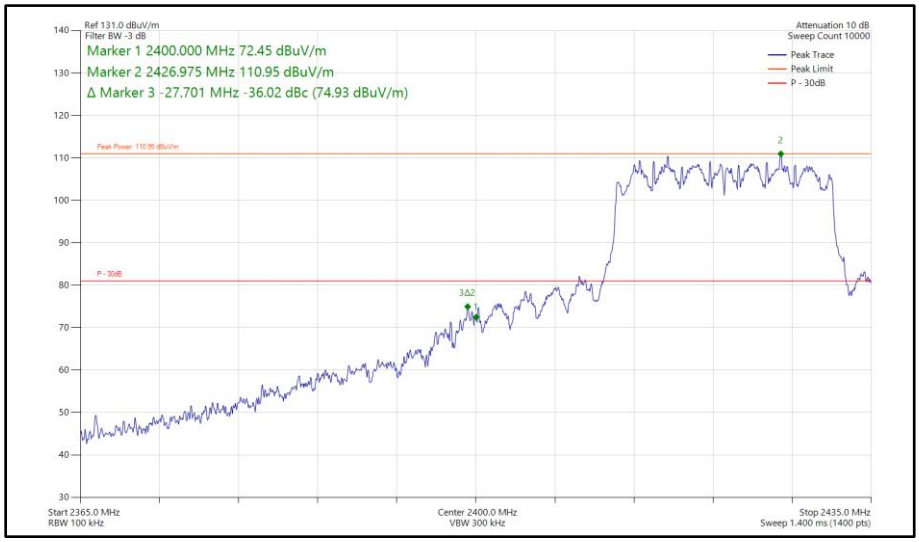

Figure 177 - 802.11ax HE20, SU, CDD, Core 0 - Core 1 - 2422 MHz Band Edge Frequency 2400 MHz

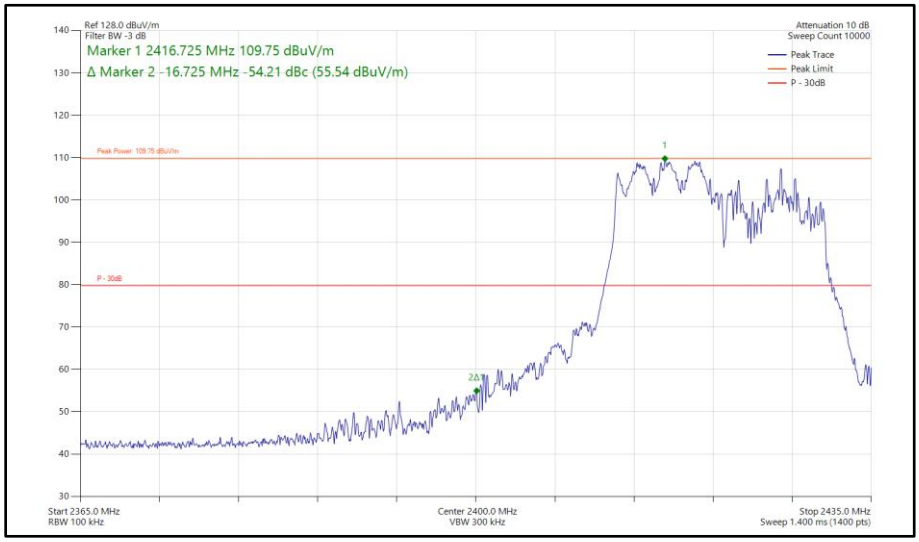

Figure 178 - 802.11ax HE20, RU 106-53, CDD, Core 0 - Core 1 - 2422 MHz Band Edge Frequency 2400 MHz

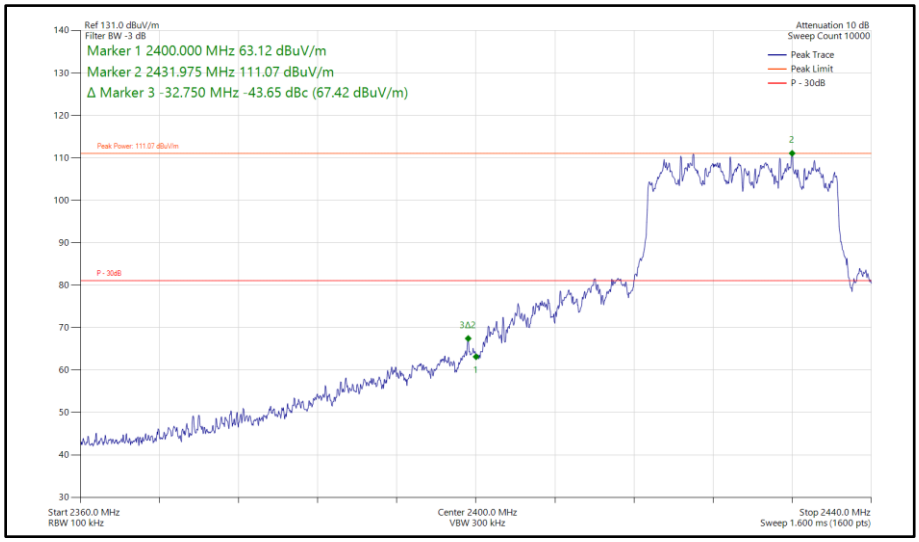

Figure 179 - 802.11ax HE20, SU, CDD, Core 0 - Core 1 - 2427 MHz Band Edge Frequency 2400 MHz

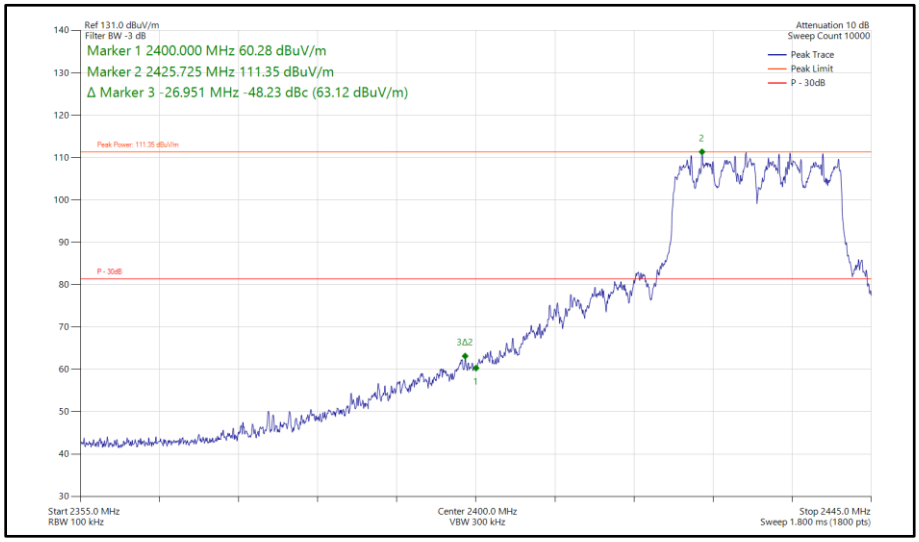

Figure 180 - 802.11ax HE20, SU, CDD, Core 0 - Core 1 - 2432 MHz Band Edge Frequency 2400 MHz

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 RF Chamber 14 and RF Chamber 15.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.2.0	5125	-	Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5911	12	11-Sep-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5912	12	05-Jul-2024
1500W (300V 12A) AC Power Supply	iTech	IT7324	5955	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5956	-	O/P Mon
5m Semi-Anechoic Chamber (Dual-Axis)	Albatross Projects	RF Chamber 14	5958	36	26-Apr-2025
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5960	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5961	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5962	-	TU
5m Semi-Anechoic Chamber (Dual-Axis), Chamber 15	Albatross Projects	RF Chamber 15	5963	36	28-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5964	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5966	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5967	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5968	-	TU
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	5996	12	20-May-2025
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	5997	12	14-Sep-2024
Cable (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6003	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	20-May-2025
Cable (N to N 1m)	Junkosha	MWX221-01000AMSAMS/B	6009	12	05-Jun-2024
Cable (N to N 1m)	Junkosha	MWX221-01000AMSAMS/B	6009	12	20-May-2025
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	26-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6141	12	26-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	26-Aug-2024
Digital Multimeter	Fluke	115	6145	12	15-Jun-2024
Digital Multimeter	Fluke	115	6147	12	16-Jun-2024

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Humidity and Temperature Meter	R.S Components	1364	6148	12	21-Jul-2024
Humidity & Temperature meter	R.S Components	1364	6149	12	07-Jul-2024
SAC Switch Unit	TUV SUD	TUV_SSU_001	6191	12	18-Dec-2024
SAC Switch Unit	TUV SUD	TUV_SSU_004 PLC	6349	12	07-May-2025
1m Cable	Junkosha	MWX241-01000AMSAMS/B	6740	12	01-Feb-2025
1m Cable	Junkosha	MWX241-01000AMSAMS/B	6741	12	01-Feb-2025
6.5m Cable	Junkosha	MWX221-06500AMSAMS/B	6744	12	01-Feb-2025

Table 58

TU - Traceability Unscheduled
O/P Mon - Output Monitored using calibrated equipment

2.5 Spurious Radiated Emissions

2.5.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.209 and 15.247 (d)
ISED RSS-247, Clause 3.3 and 5.5
ISED RSS-GEN, Clause 6.13 and 8.9

2.5.2 Equipment Under Test and Modification State

A3247, S/N: KN47NTDQRY - Modification State 0

2.5.3 Date of Test

30-May-2024 to 24-June-2024

2.5.4 Test Method

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

For frequencies > 1 GHz, plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

The EUT was placed on the non-conducting platform in a manner typical of a normal installation.

Ports on the EUT were terminated with loads as described in ANSI C63.4 clause 6.2.4. For EUT's with multiple connectors of the same type, additional interconnecting cables were connected, and pre-scans performed to determine whether the level of the emissions were increased by >2 dB.

In the 30 MHz to 1 GHz range pre-scans were only performed on the mid channel (2442 MHz) only.

The plots shown are the characterisation of the EUT. The limits on the plots represent the most stringent case for restricted bands, (74/54 dBuV/m) when compared to 30 dBc 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 dBµV/m to µV/m:
10^(Field Strength in dBµV/m/20).

Above 18 GHz, the measurement distance was reduced to 1 m. The limit line was increased by 20*LOG(3/1) = 9.54 dB.

Where formal measurements have been necessary, the results have been presented in the emissions table.

2.5.5 Example Test Setup Diagram

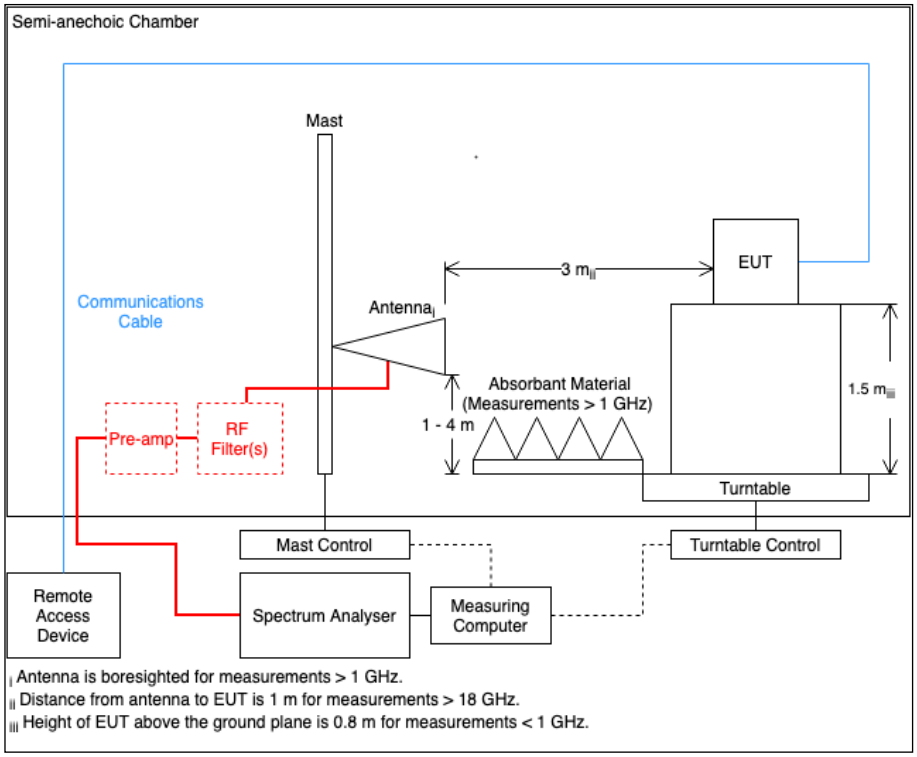

Figure 181

2.5.6 Environmental Conditions

Ambient Temperature	20.8 - 24.5 °C
Relative Humidity	37.2 - 52.3 %

2.5.7 Test Results

2.4 GHz WLAN

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 59 - 2412 MHz (CH1), 802.11b, Core 0, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

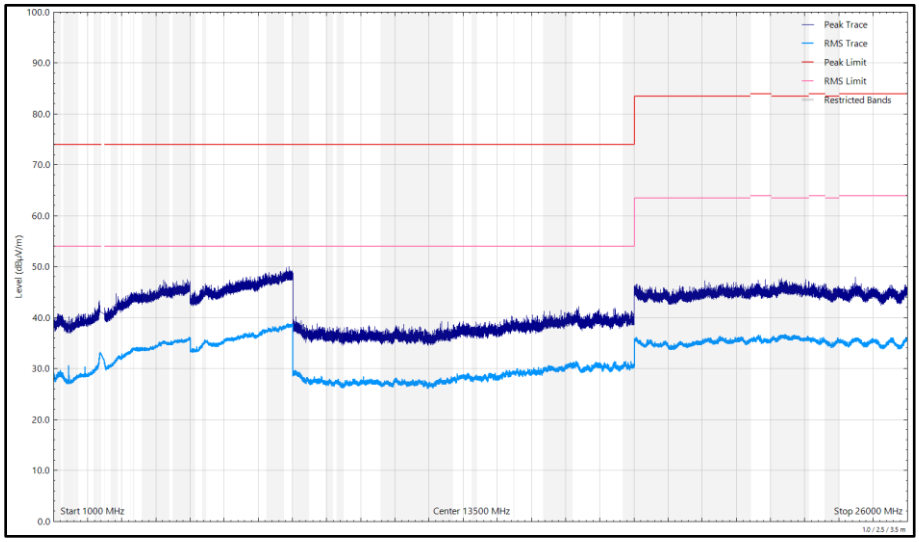

Figure 182 - 2412 MHz (CH1), 802.11b, Core 0, 1 GHz to 26 GHz, Horizontal

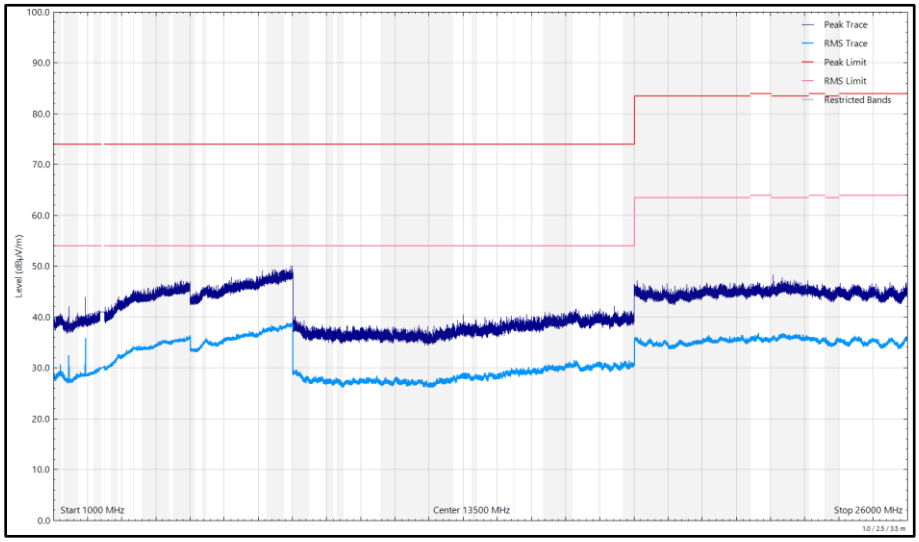

Figure 183 - 2412 MHz (CH1), 802.11b, Core 0, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2389.721	34.44	54.00	-19.56	RMS	73	291	Horizontal

Table 60 - 2442 MHz (CH7), 802.11b, Core 0, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

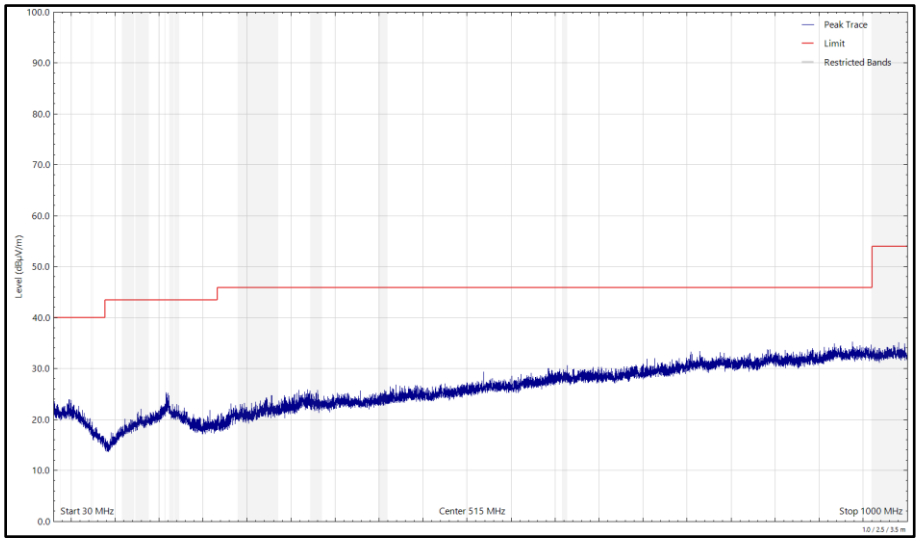

Figure 184 - 2442 MHz (CH7), 802.11b, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

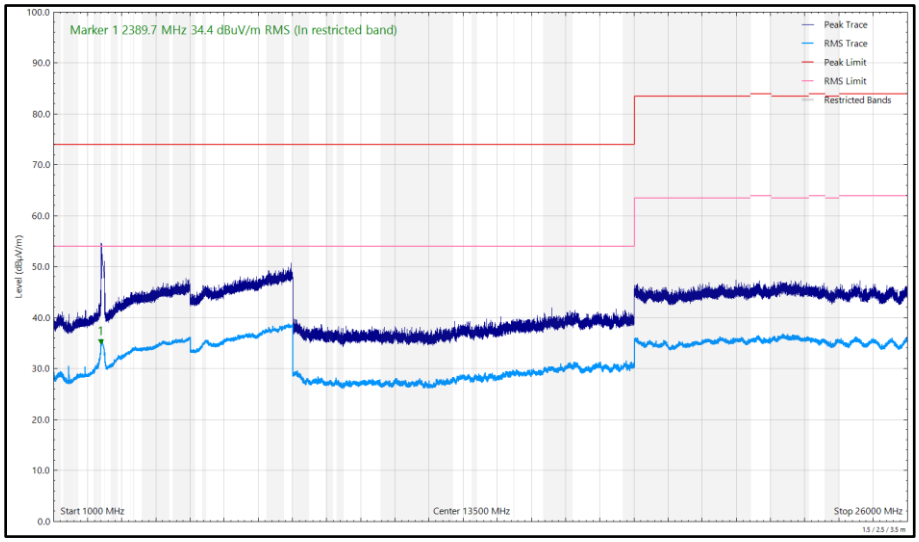

Figure 185 - 2442 MHz (CH7), 802.11b, Core 0, 1 GHz to 26 GHz, Horizontal

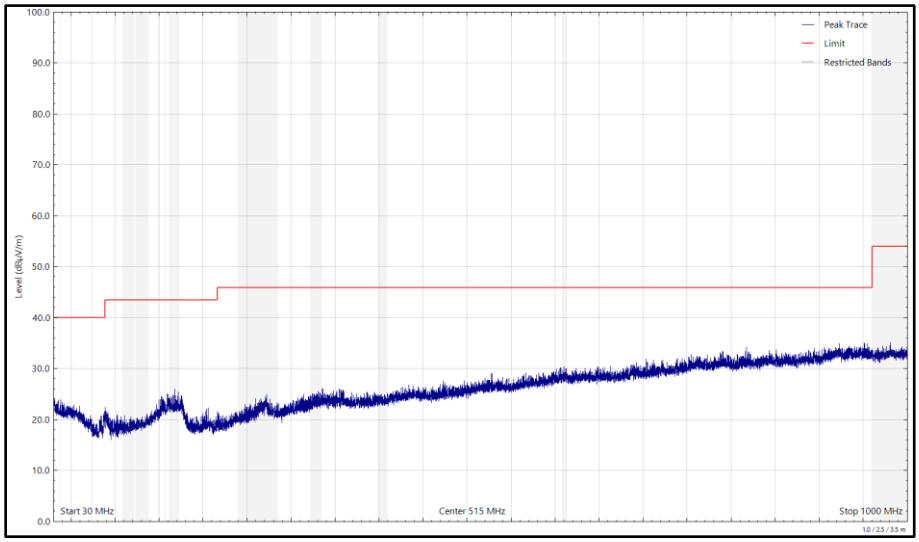

Figure 186 - 2442 MHz (CH7), 802.11b, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

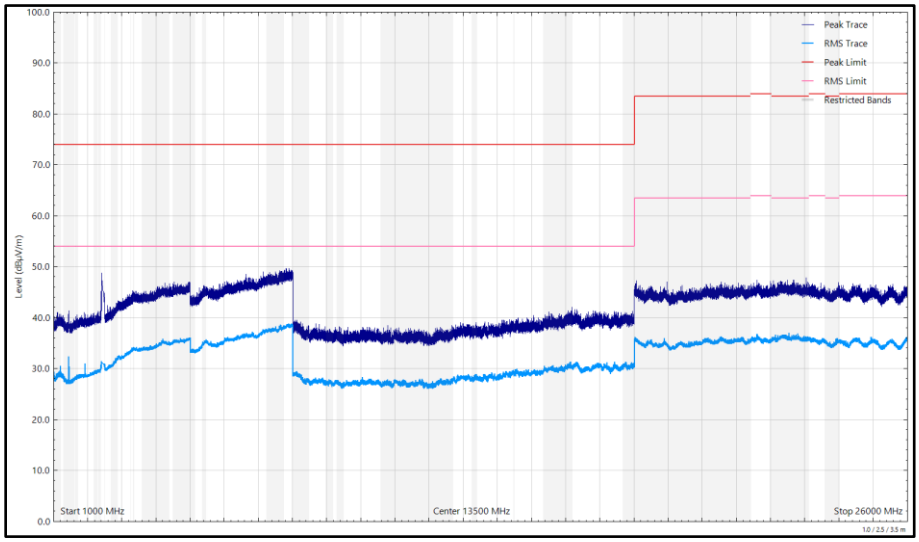

Figure 187 - 2442 MHz (CH7), 802.11b, Core 0, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 61 - 2472 MHz (CH13), 802.11b, Core 0, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

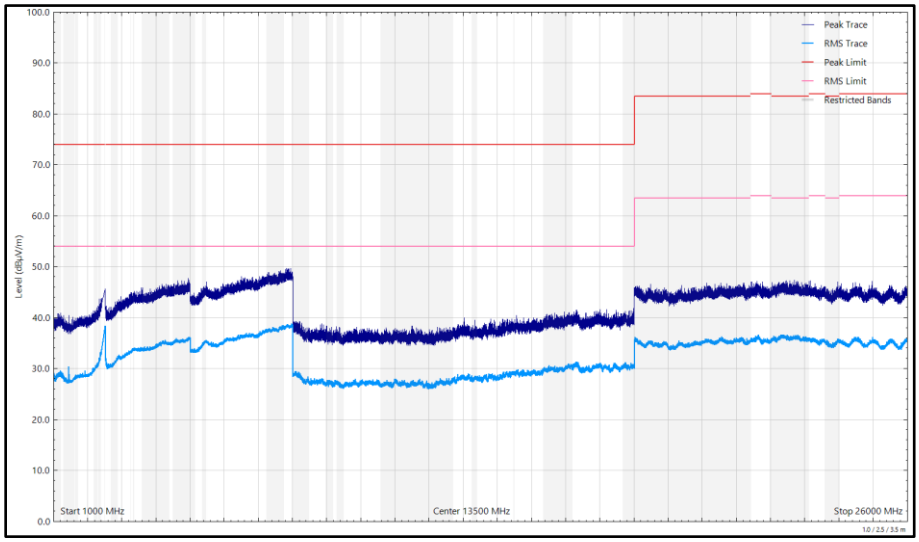

Figure 188 - 2472 MHz (CH13), 802.11b, Core 0, 1 GHz to 26 GHz, Horizontal

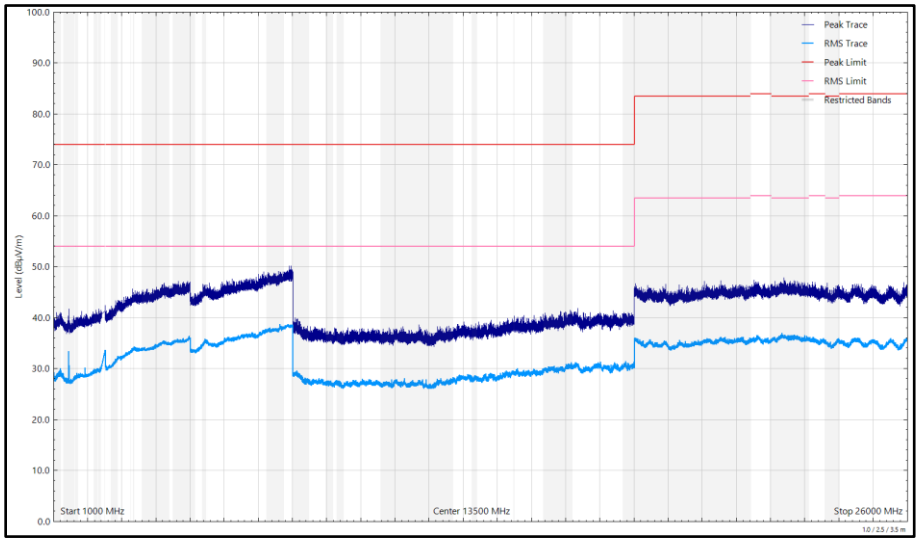

Figure 189 - 2472 MHz (CH13), 802.11b, Core 0, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 62 - 2412 MHz (CH1), 802.11b, Core 1, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

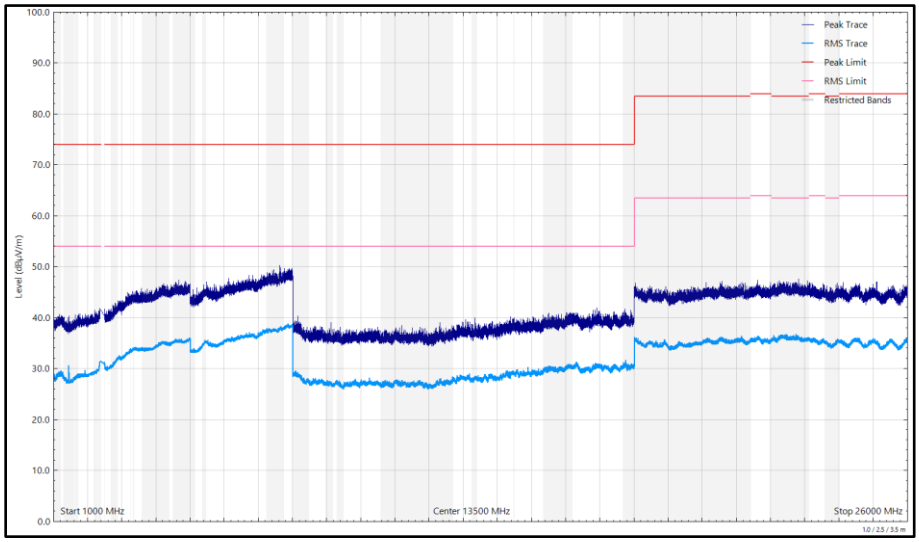

Figure 190 - 2412 MHz (CH1), 802.11b, Core 1, 1 GHz to 26 GHz, Horizontal

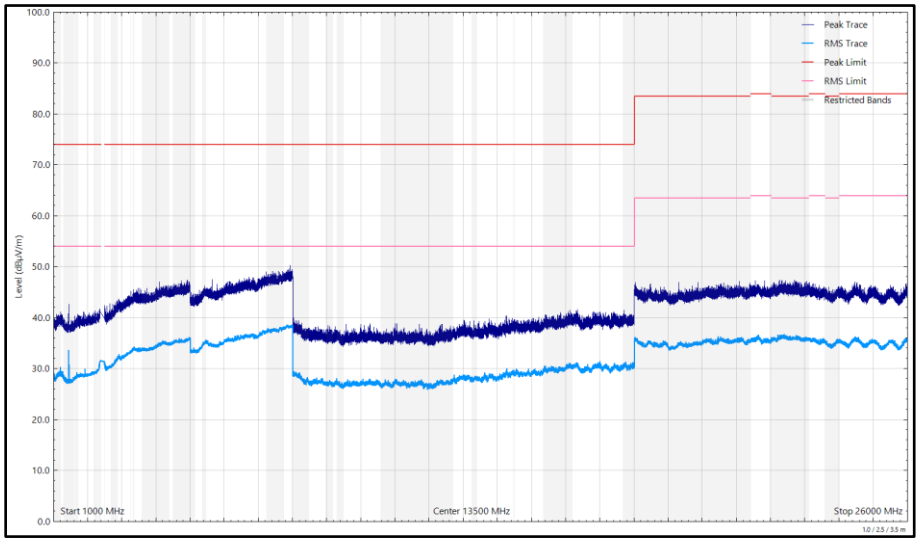

Figure 191 - 2412 MHz (CH1), 802.11b, Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 63 - 2442 MHz (CH7), 802.11b, Core 1, 30 MHz to 26 GHz

*No emissions found within 10 dB of the limit.

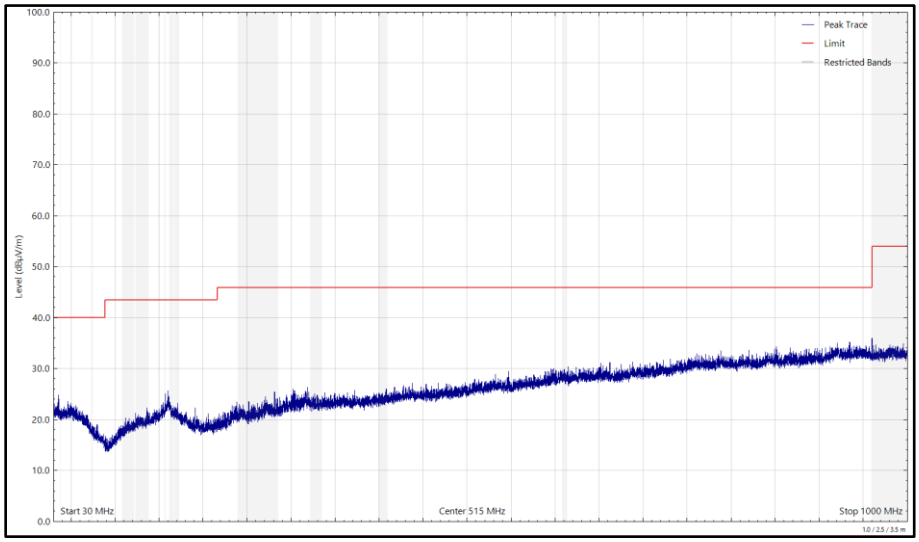

Figure 192 - 2442 MHz (CH7), 802.11b, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

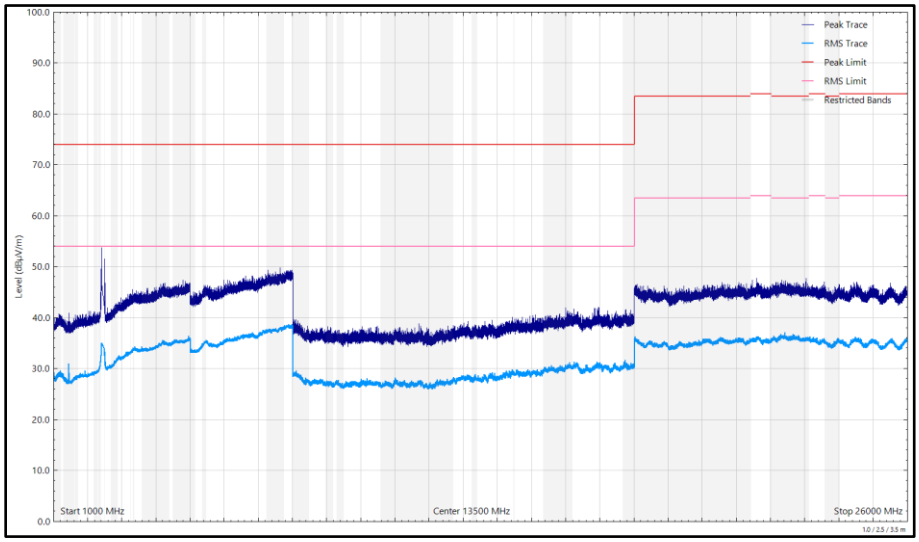

Figure 193 - 2442 MHz (CH7), 802.11b, Core 1, 1 GHz to 26 GHz, Horizontal

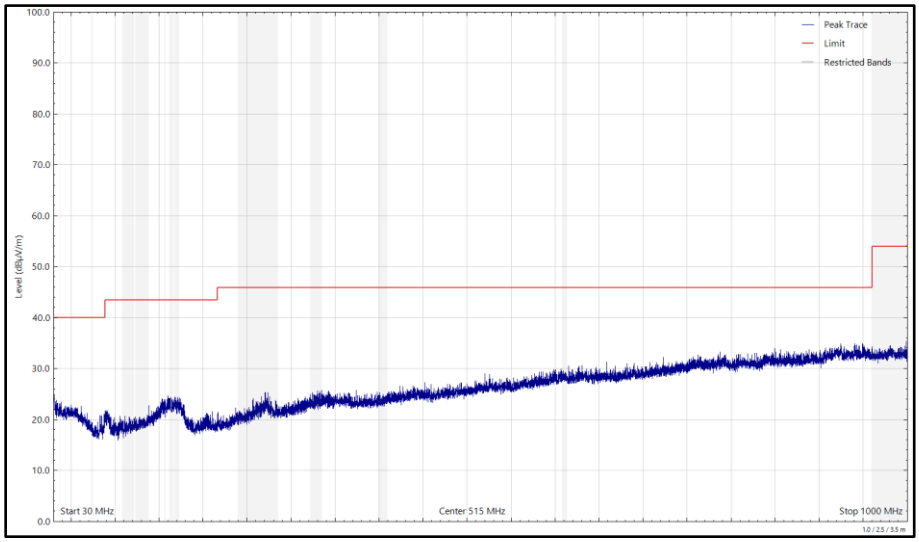

Figure 194 - 2442 MHz (CH7), 802.11b, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

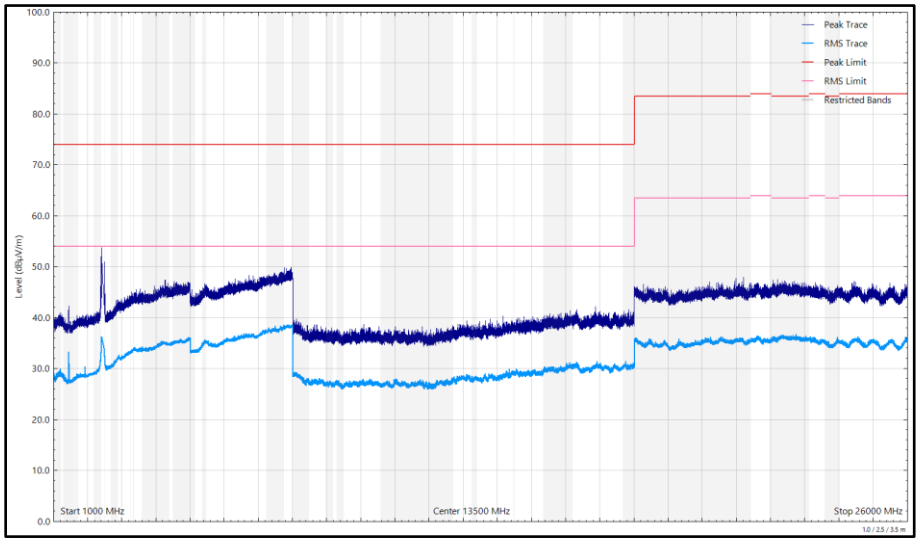

Figure 195 - 2442 MHz (CH7), 802.11b, Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 64 - 2472 MHz (CH13), 802.11b, Core 1, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

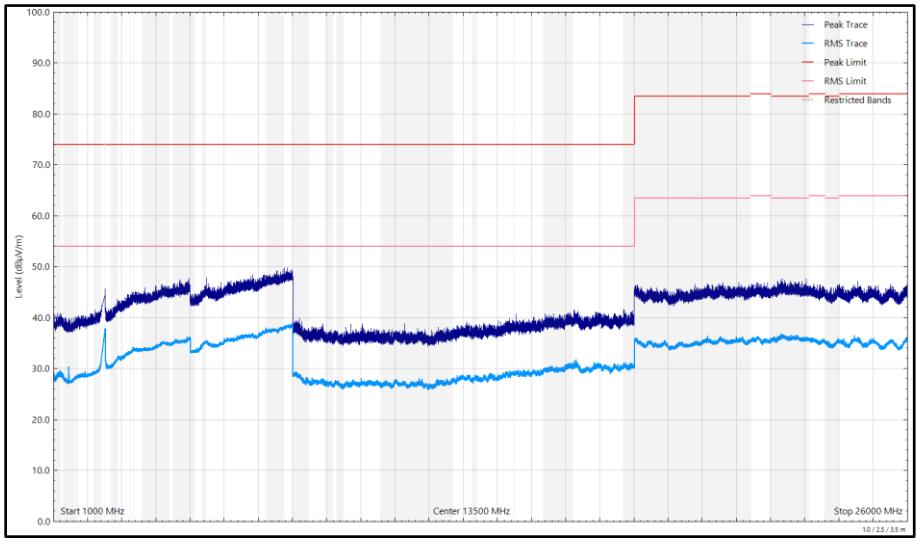

Figure 196 - 2472 MHz (CH13), 802.11b, Core 1, 1 GHz to 26 GHz, Horizontal

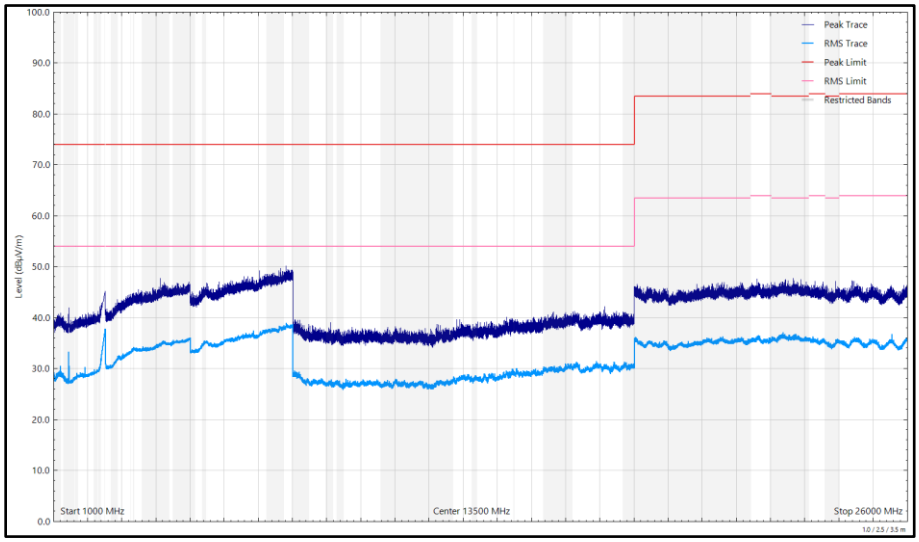

Figure 197 - 2472 MHz (CH13), 802.11b, Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
*							

Table 65 - 2412 MHz (CH1), 802.11g, Core 0, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

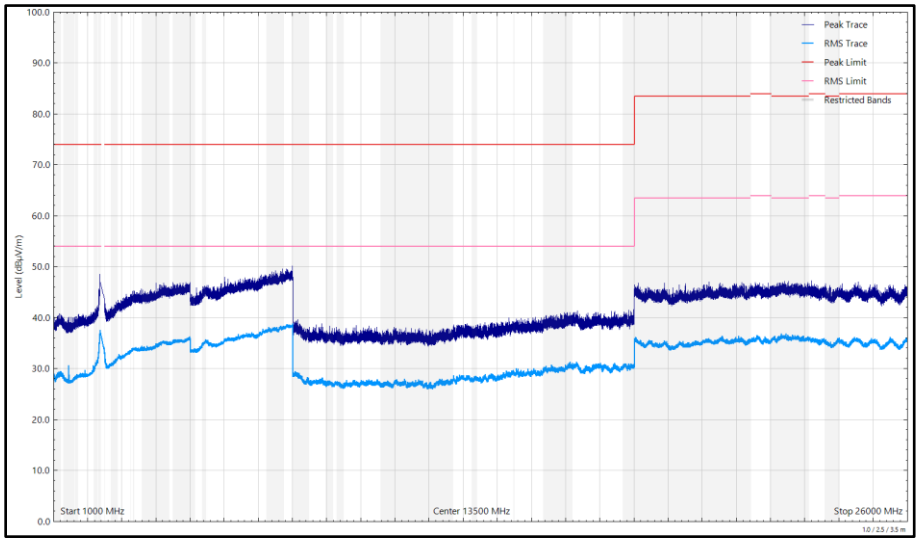

Figure 198 - 2412 MHz (CH1), 802.11g, Core 0, 1 GHz to 26 GHz, Horizontal

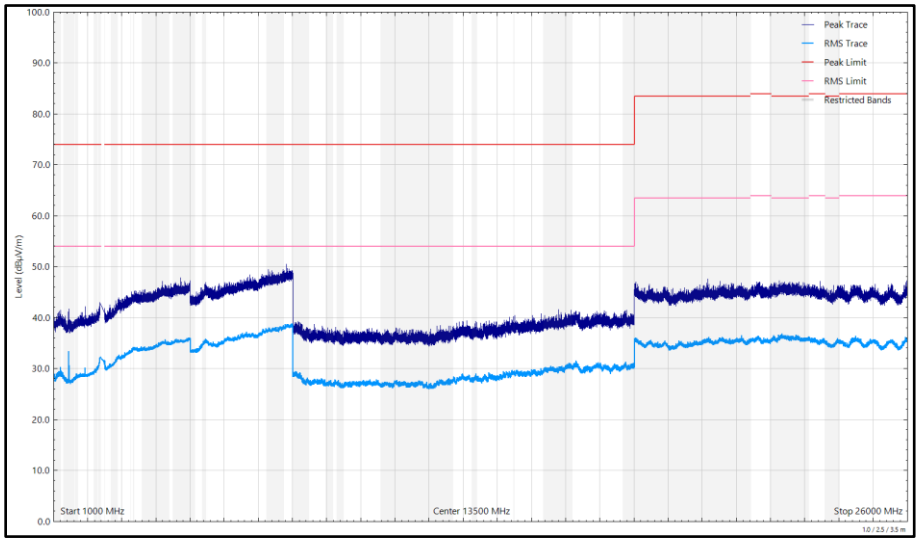

Figure 199 - 2412 MHz (CH1), 802.11g, Core 0, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2389.863	34.03	54.00	-19.97	RMS	262	393	Vertical
2389.916	40.22	54.00	-13.78	RMS	72	262	Horizontal
2483.506	40.03	54.00	-13.97	RMS	30	176	Vertical
2483.516	43.02	54.00	-10.98	RMS	165	187	Horizontal
2484.256	58.56	74.00	-15.44	Peak	198	210	Horizontal

Table 66 - 2442 MHz (CH7), 802.11g, Core 0, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

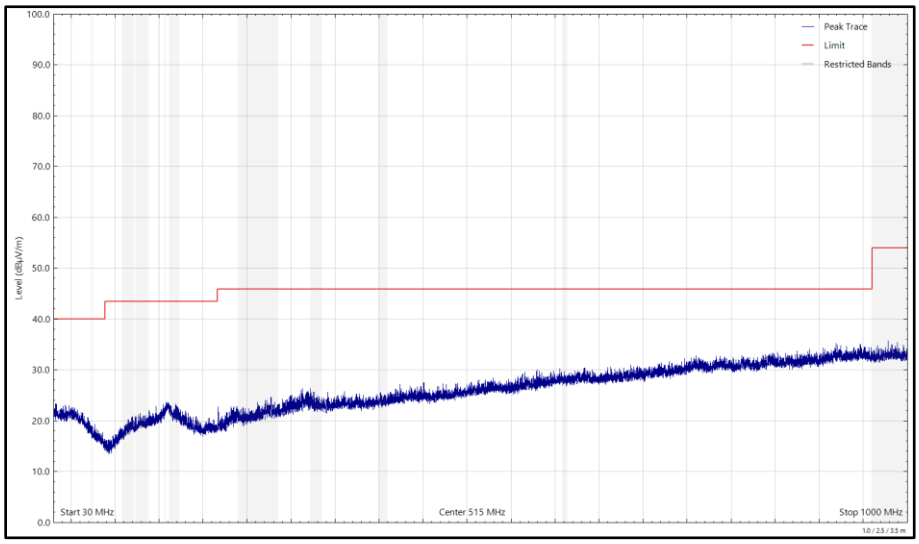

Figure 200 - 2442 MHz (CH7), 802.11g, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

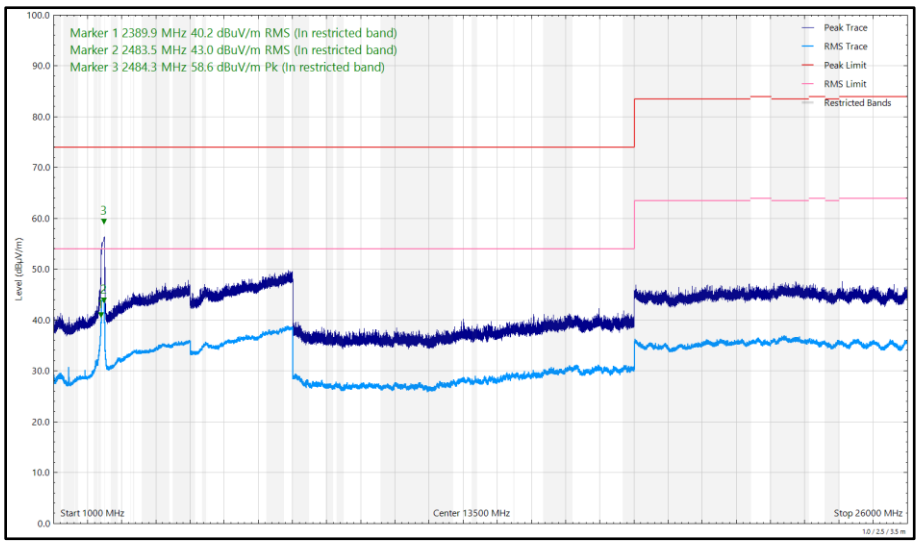

Figure 201 - 2442 MHz (CH7), 802.11g, Core 0, 1 GHz to 26 GHz, Horizontal

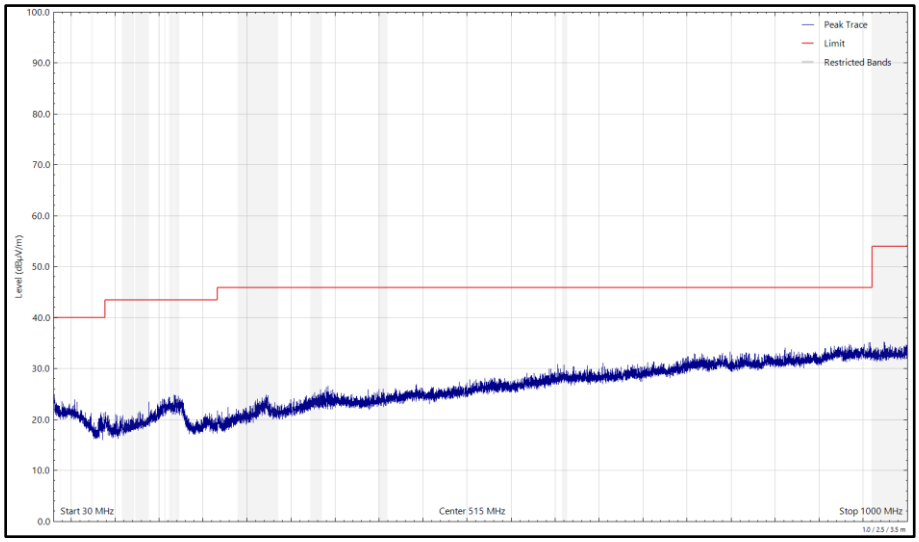

Figure 202 - 2442 MHz (CH7), 802.11g, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

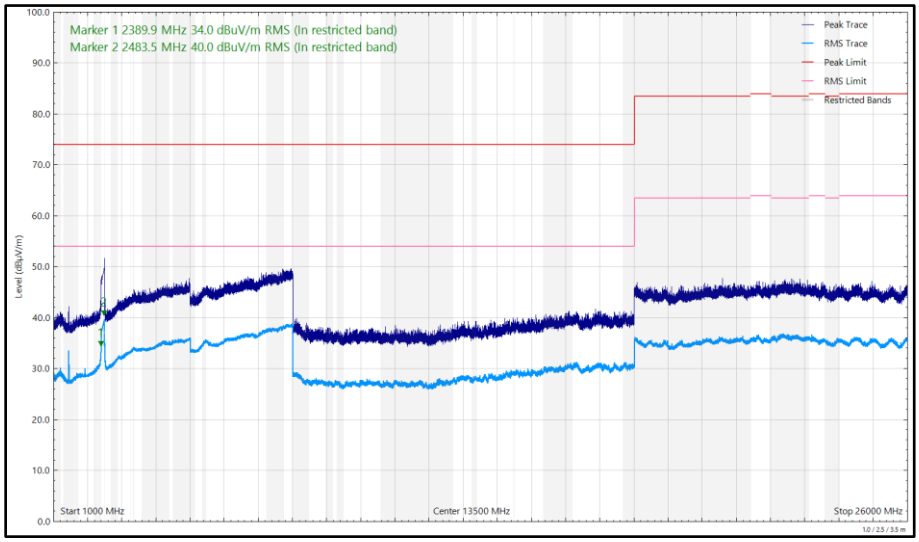

Figure 203 - 2442 MHz (CH7), 802.11g, Core 0, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2389.850	36.77	54.00	-17.23	RMS	75	261	Horizontal
2509.480	53.27	74.00	-20.73	Peak	159	110	Horizontal
2509.175	58.17	74.00	-15.83	Peak	77	104	Vertical

Table 67 - 2472 MHz (CH13), 802.11g, Core 0, 1 GHz to 26 GHz

No other emissions found within 10 dB of the limit.

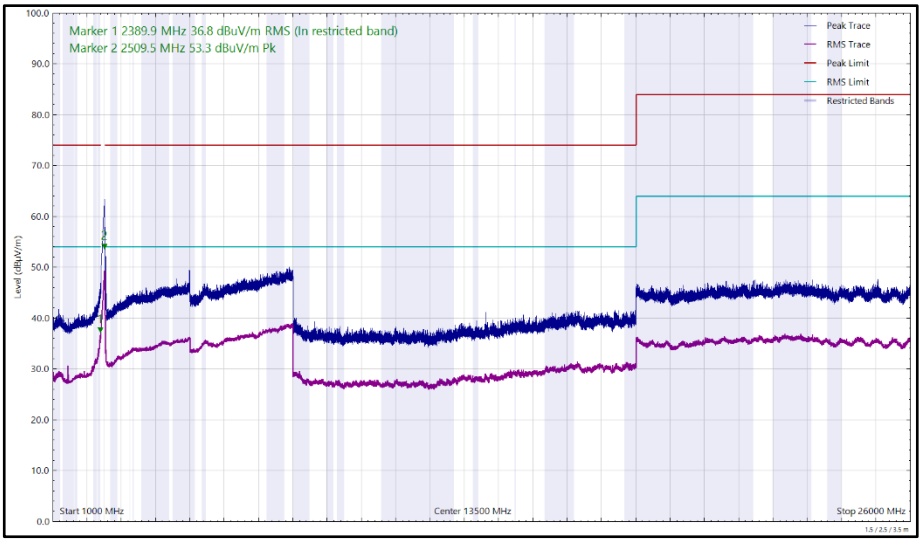

Figure 204 - 2472 MHz (CH13), 802.11g, Core 0, 1 GHz to 26 GHz, Horizontal

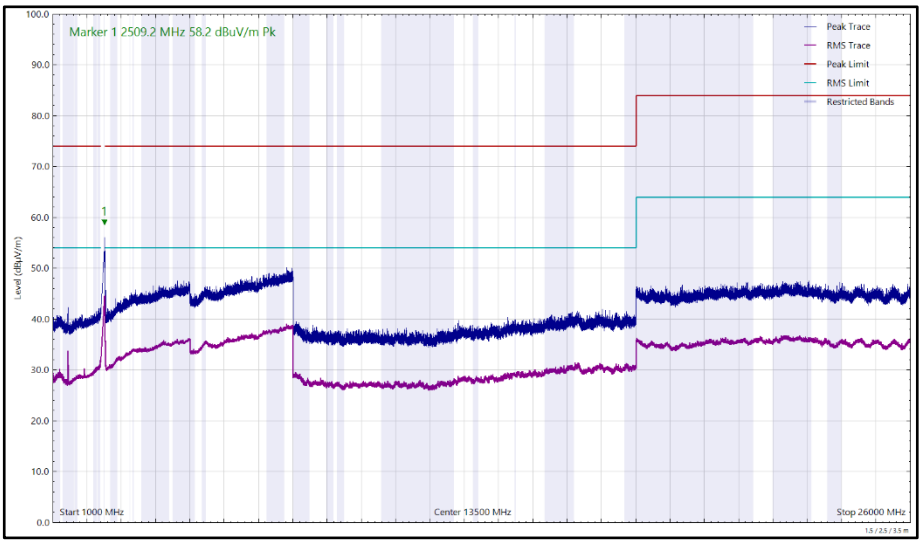

Figure 205 - 2472 MHz (CH13), 802.11g, Core 0, 1 GHz to 26 GHz, Vertical