



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(1) RSS-247 5.4 b)	Test Method(s):	C63.10 7.8.5
Additional Reference(s):	662911 D01 v02r01 F)2)d)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	76.7
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	4.47

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2402	13.69	13.14	-	-	16.43	30.00	-13.57
2441	13.19	13.17	-	-	16.19	30.00	-13.81
2480	13.17	13.13	-	-	16.16	30.00	-13.84

Table 102 - FCC Maximum Conducted (peak) 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	Σ					
2402	13.69	13.14	-	-	16.43	30.00	-13.57	20.90	36.00	-15.10
2441	13.19	13.17	-	-	16.19	30.00	-13.81	20.66	36.00	-15.34
2480	13.17	13.13	-	-	16.16	30.00	-13.84	20.63	36.00	-15.37

Table 103 - ISSED Maximum Conducted (peak) Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(1) RSS-247 5.4 b)	Test Method(s):	C63.10 7.8.5
Additional Reference(s):	662911 D01 v02r01 F)2)d)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	iPA $\pi/4$ DQPSK (2-DH5)	Duty Cycle (%):	76.8
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	4.47

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2402	11.87	11.53	-	-	14.71	30.00	-15.29
2441	11.82	11.59	-	-	14.71	30.00	-15.29
2480	11.87	11.60	-	-	14.75	30.00	-15.25

Table 104 - FCC Maximum Conducted (peak) 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	Σ					
2402	11.87	11.53	-	-	14.71	30.00	-15.29	19.18	36.00	-16.82
2441	11.82	11.59	-	-	14.71	30.00	-15.29	19.18	36.00	-16.82
2480	11.87	11.60	-	-	14.75	30.00	-15.25	19.21	36.00	-16.79

Table 105 - ISD Maximum Conducted (peak) Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(1) RSS-247 5.4 b)	Test Method(s):	C63.10 7.8.5
Additional Reference(s):	662911 D01 v02r01 F)2)d)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	76.9
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	4.47

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2402	12.41	11.90	-	-	15.17	30.00	-14.83
2441	12.36	11.92	-	-	15.16	30.00	-14.84
2480	12.31	11.94	-	-	15.14	30.00	-14.86

Table 106 - FCC Maximum Conducted (peak) 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	Σ					
2402	12.41	11.90	-	-	15.17	30.00	-14.83	19.64	36.00	-16.36
2441	12.36	11.92	-	-	15.16	30.00	-14.84	19.62	36.00	-16.38
2480	12.31	11.94	-	-	15.14	30.00	-14.86	19.61	36.00	-16.39

Table 107 - ISD Maximum Conducted (peak) Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(1) RSS-247 5.4 b)	Test Method(s):	C63.10 7.8.5
Additional Reference(s):	662911 D01 v02r01 F)2)d)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	ePA $\pi/4$ DQPSK (2-DH5)	Duty Cycle (%):	76.9
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	4.47

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2402	16.13	16.07	-	-	19.11	30.00	-10.89
2441	16.17	16.07	-	-	19.13	30.00	-10.87
2480	16.03	15.92	-	-	18.98	30.00	-11.02

Table 108 - FCC Maximum Conducted (peak) 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	Σ					
2402	16.13	16.07	-	-	19.11	30.00	-10.89	23.58	36.00	-12.42
2441	16.17	16.07	-	-	19.13	30.00	-10.87	23.60	36.00	-12.40
2480	16.03	15.92	-	-	18.98	30.00	-11.02	23.45	36.00	-12.55

Table 109 - ISD Maximum Conducted (peak) Output Power Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(1) RSS-247 5.4 b)	Test Method(s):	C63.10 7.8.5
Additional Reference(s):	662911 D01 v02r01 F)2)d)(i), 662911 D01 v02r01 E)1)		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	76.9
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	4.47

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2402	16.85	16.63	-	-	19.75	30.00	-10.25
2441	16.89	16.59	-	-	19.76	30.00	-10.24
2480	16.68	16.59	-	-	19.64	30.00	-10.36

Table 110 - FCC Maximum Conducted (peak) 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	Σ					
2402	16.85	16.63	-	-	19.75	30.00	-10.25	24.22	36.00	-11.78
2441	16.89	16.59	-	-	19.76	30.00	-10.24	24.22	36.00	-11.78
2480	16.68	16.59	-	-	19.64	30.00	-10.36	24.11	36.00	-11.89

Table 111 - ISSED Maximum Conducted (peak) Output Power Results

FCC 47 CFR Part 15, Limit Clause 15.247 (b)(1)

For frequency Hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non overlapping Hopping channels, and all frequency Hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency Hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

ISSED RSS-247, Limit Clause 5.4 (b)

For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more Hopping channel; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 Hopping channel. The e.i.r.p. shall not exceed 4 W except as provided in section 5.4(e) of the specification.



2.6.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 18 and RF Laboratory 14.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Hygrometer	Rotronic	I-1000	3068	12	07-Nov-2024
Digital Multimeter	Fluke	115	6145	12	06-Jun-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6517	12	22-Feb-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6518	12	16-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6526	12	22-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6527	12	05-Mar-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6528	12	22-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6529	12	16-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6530	12	16-Feb-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6531	12	16-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6585	12	20-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6586	12	20-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6587	12	13-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6588	12	13-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6589	12	13-Feb-2025
USB Wideband Power Sensor	Boonton	RTP5008	6590	12	20-Feb-2025
AC Programmable Power Supply	iTech	IT7324	6662	-	O/P Mon
AC Programmable Power Supply	iTech	IT7324	6665	-	O/P Mon

Table 112

O/P Mon - Output Monitored using calibrated equipment



2.7 Authorised Band Edges

2.7.1 Specification Reference

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

2.7.2 Equipment Under Test and Modification State

A3239, S/N: D4D3YLHFTQ - Modification State 0

2.7.3 Date of Test

12-August-2024 to 14-August-2024

2.7.4 Test Method

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

2.7.5 Environmental Conditions

Ambient Temperature	21.8 - 22.8 °C
Relative Humidity	43.4 - 48.3 %

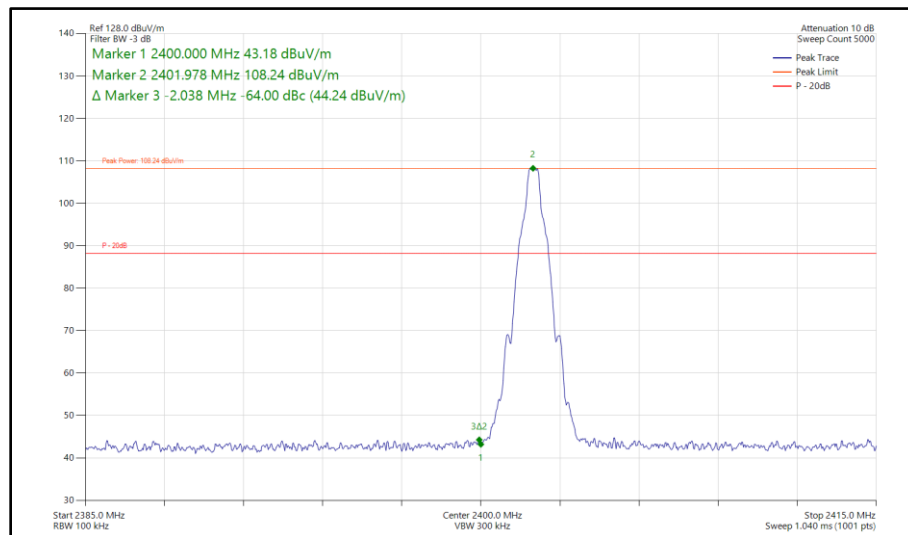
2.7.6 Test Results

2.4 GHz Bluetooth BDR/EDR

iPA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	DH5	2402	2400	-64.00
Static	2DH5	2402	2400	-59.38
Static	3DH5	2402	2400	-58.84
Hopping	DH5	Hopping	2400	-64.16
Hopping	2DH5	Hopping	2400	-59.75
Hopping	3DH5	Hopping	2400	-61.73

Table 113 - SISO Authorised Band Edge Results



**Figure 220 - Bluetooth DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2400 MHz**

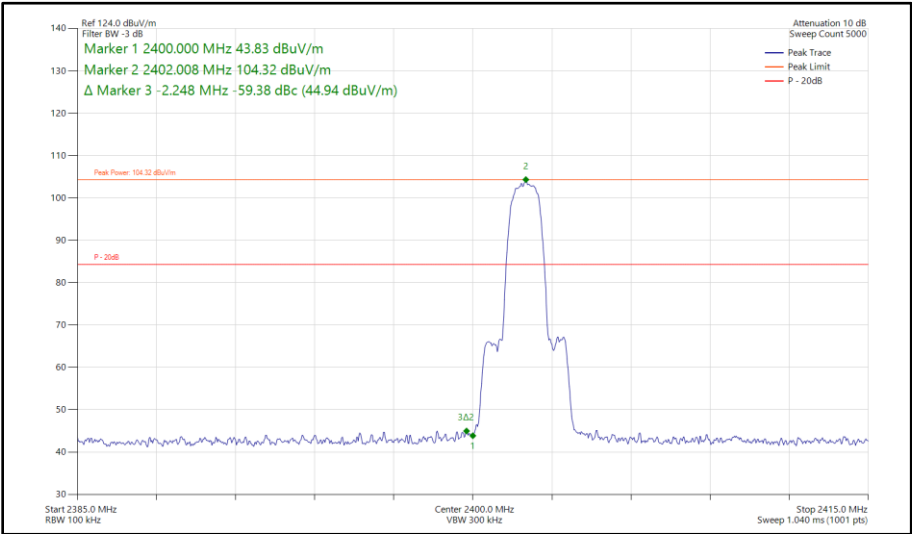


Figure 221 - Bluetooth 2DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2400 MHz

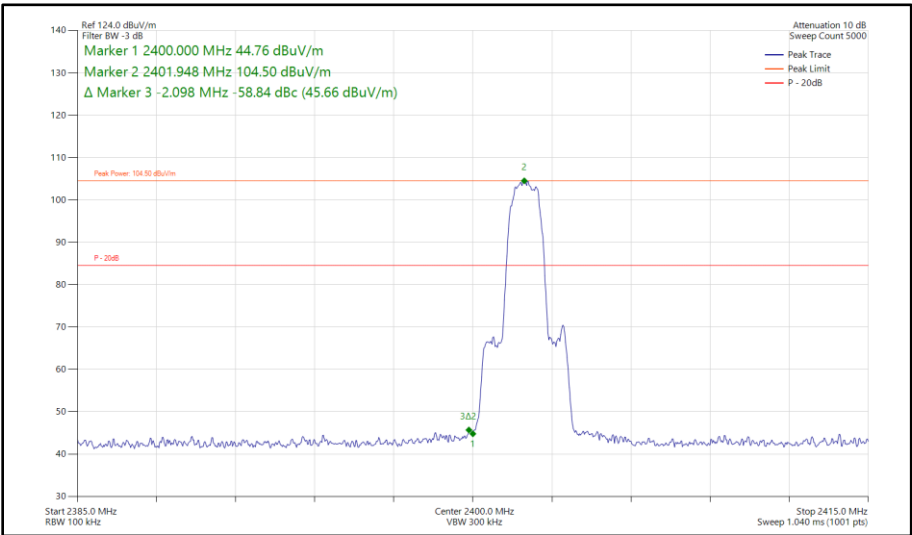


Figure 222 - Bluetooth 3DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2400 MHz

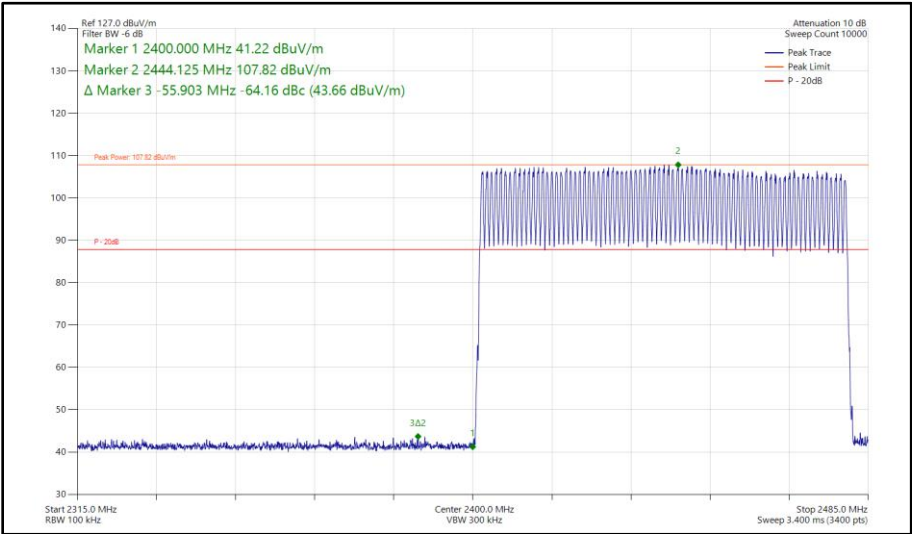


Figure 223 - Bluetooth DH5, SISO, Core 0 - Hopping MHz
Band Edge Frequency 2400 MHz

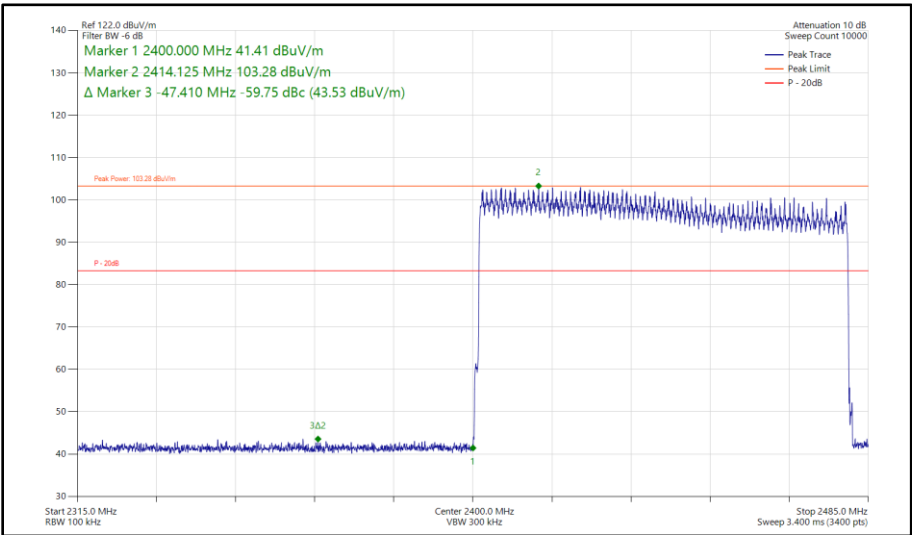
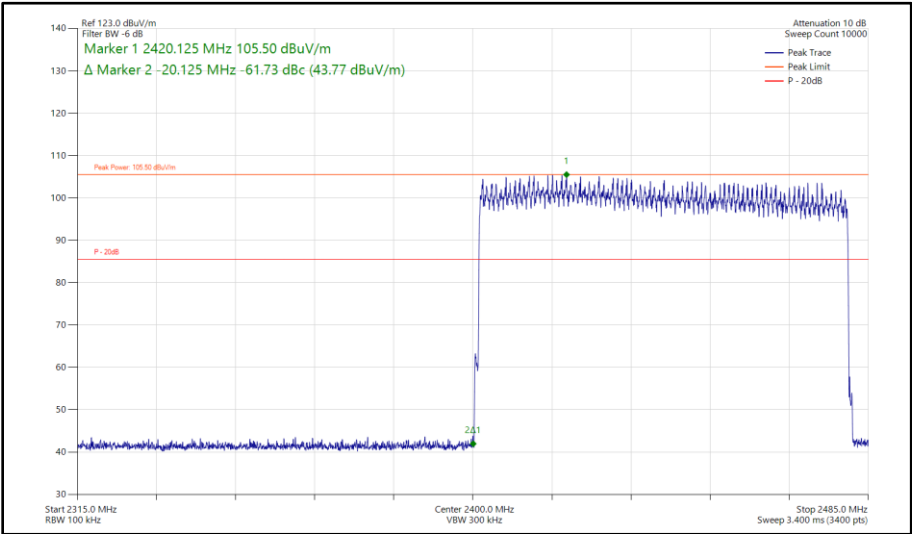


Figure 224 - Bluetooth 2DH5, SISO, Core 0 - Hopping MHz
Band Edge Frequency 2400 MHz



**Figure 225 - Bluetooth 3DH5, SISO, Core 0 - Hopping MHz
Band Edge Frequency 2400 MHz**

iPA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	DH5	2402	2400	-61.67
Static	2DH5	2402	2400	-55.65
Static	3DH5	2402	2400	-55.70
Hopping	DH5	Hopping	2400	-64.21
Hopping	2DH5	Hopping	2400	-61.35
Hopping	3DH5	Hopping	2400	-59.94

Table 114 - SISO Authorised Band Edge Results

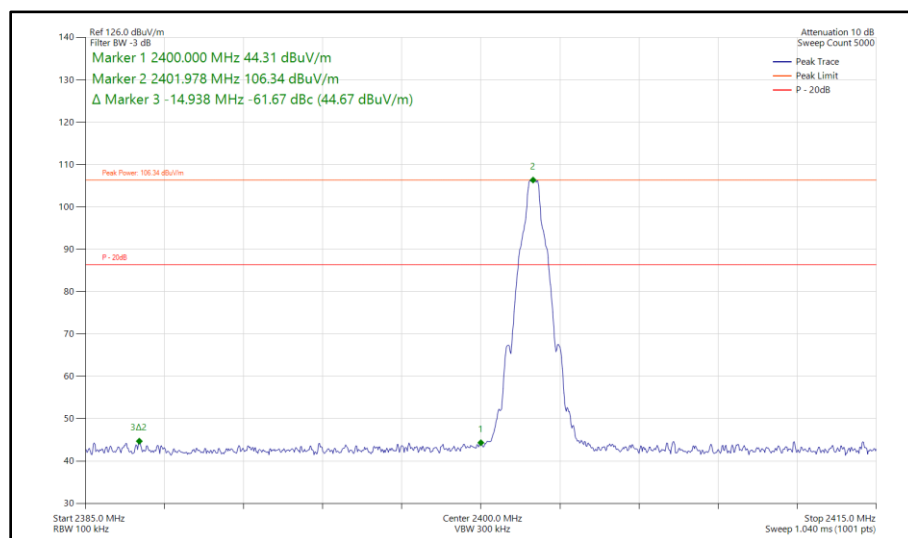


Figure 226 - Bluetooth DH5, SISO, Core 1 - 2402 MHz
Band Edge Frequency 2400 MHz

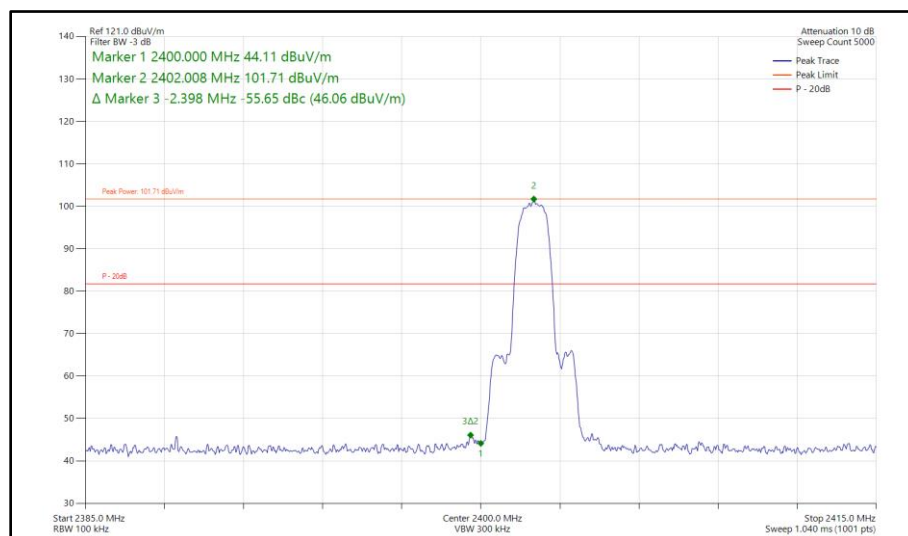


Figure 227 - Bluetooth 2DH5, SISO, Core 1 - 2402 MHz
Band Edge Frequency 2400 MHz

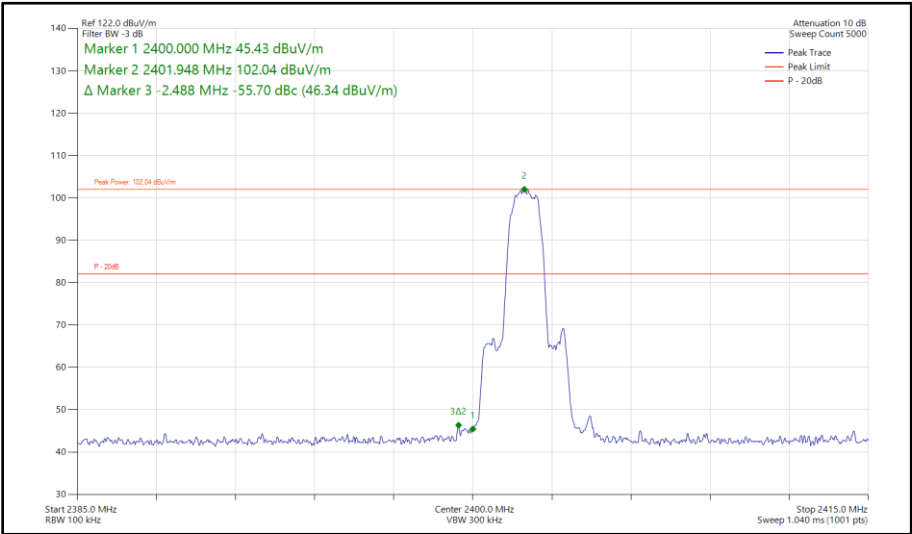


Figure 228 - Bluetooth 3DH5, SISO, Core 1 - 2402 MHz
Band Edge Frequency 2400 MHz

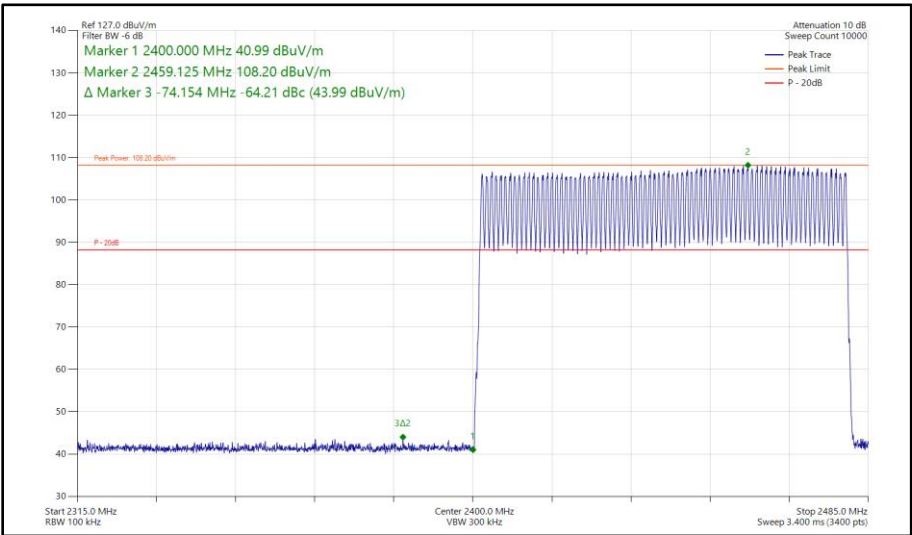


Figure 229 - Bluetooth DH5, SISO, Core 1 - Hopping MHz
Band Edge Frequency 2400 MHz

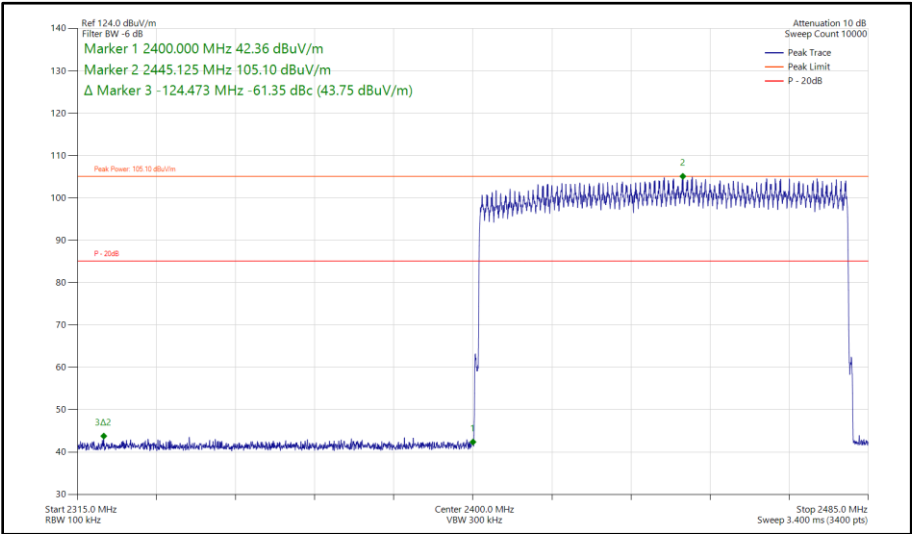


Figure 230 - Bluetooth 2DH5, SISO, Core 1 - Hopping MHz
Band Edge Frequency 2400 MHz

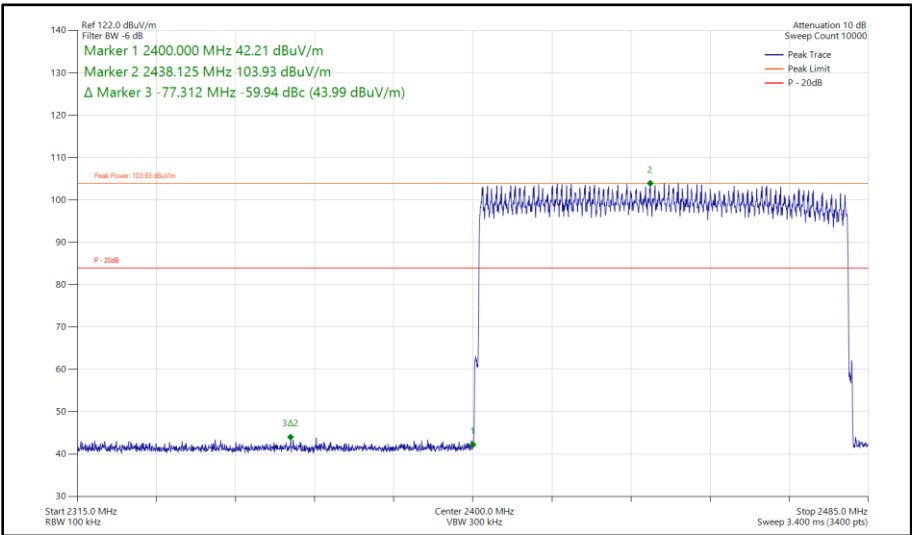


Figure 231 - Bluetooth 3DH5, SISO, Core 1 - Hopping MHz
Band Edge Frequency 2400 MHz

iPA - Core 2 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	DH5	2402	2400	-47.86
Static	2DH5	2402	2400	-46.85
Static	3DH5	2402	2400	-47.97
Hopping	DH5	Hopping	2400	-51.76
Hopping	2DH5	Hopping	2400	-50.26
Hopping	3DH5	Hopping	2400	-50.85

Table 115 - SISO Authorised Band Edge Results

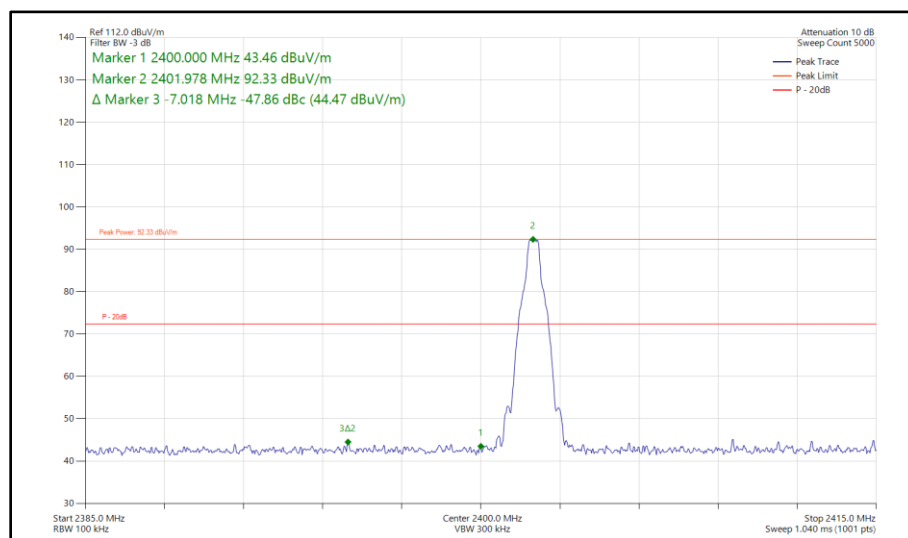


Figure 232 - Bluetooth DH5, SISO, Core 2 - 2402 MHz
Band Edge Frequency 2400 MHz

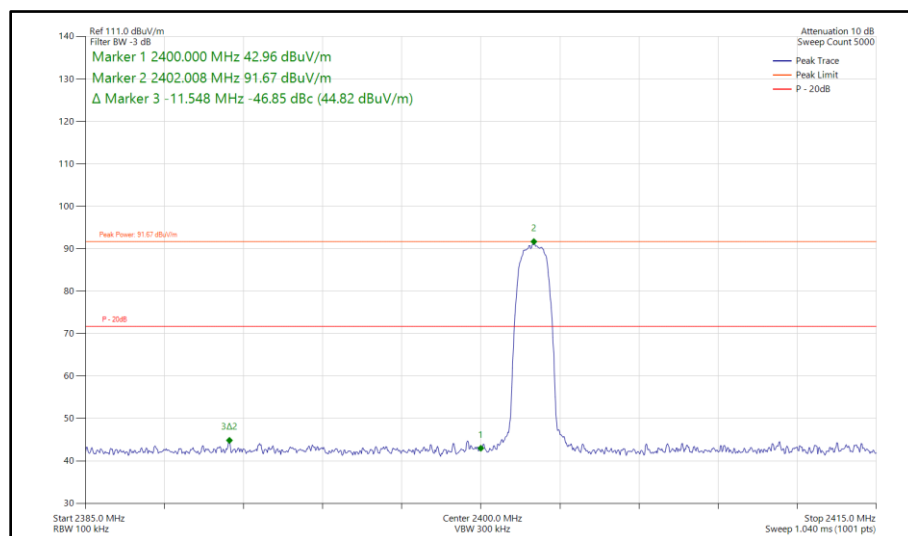


Figure 233 - Bluetooth 2DH5, SISO, Core 2 - 2402 MHz
Band Edge Frequency 2400 MHz

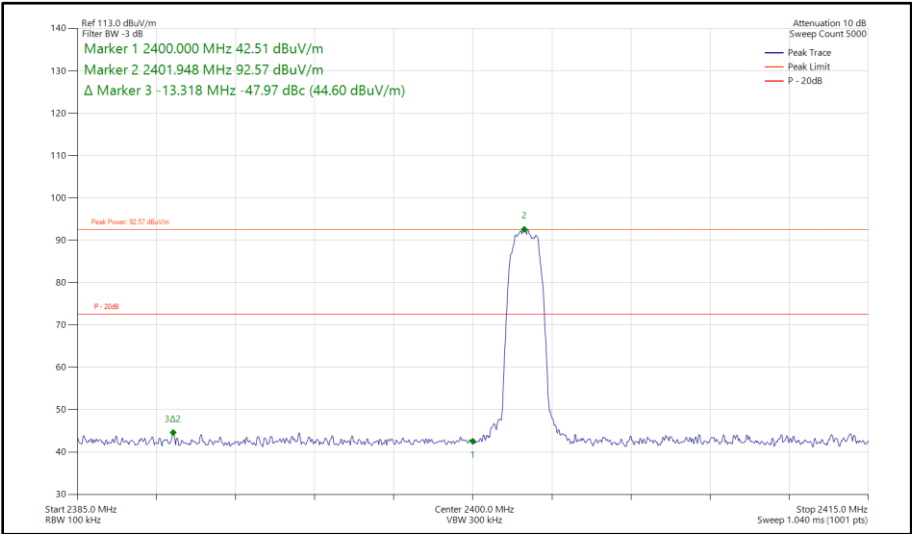


Figure 234 - Bluetooth 3DH5, SISO, Core 2 - 2402 MHz
Band Edge Frequency 2400 MHz

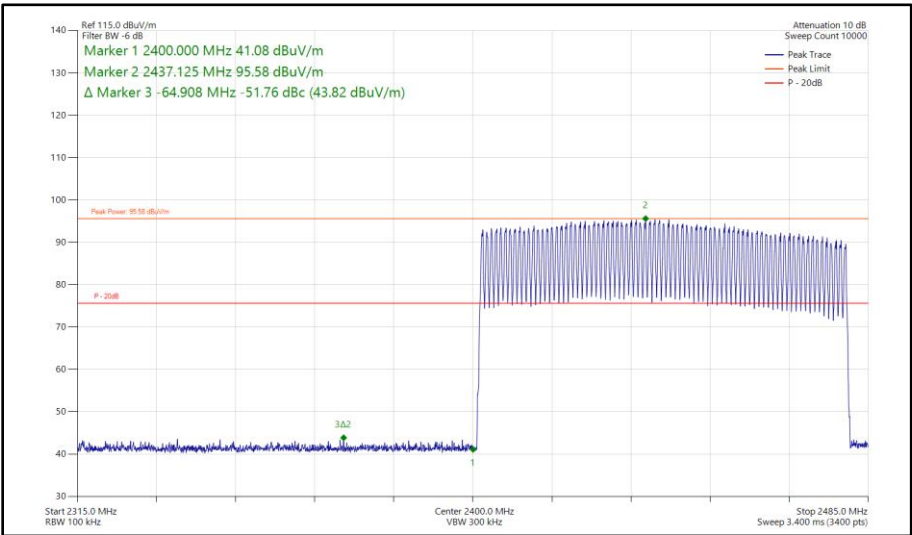


Figure 235 - Bluetooth DH5, SISO, Core 2 - Hopping MHz
Band Edge Frequency 2400 MHz

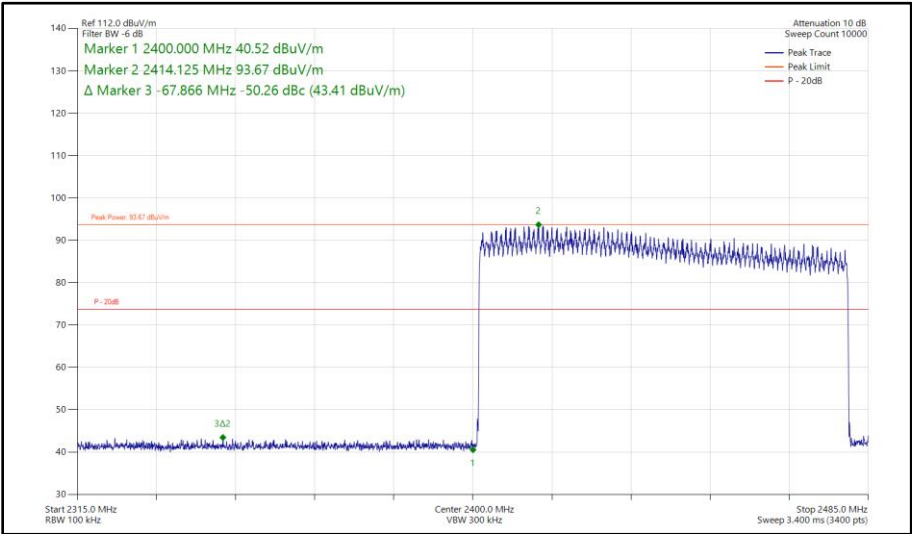


Figure 236 - Bluetooth 2DH5, SISO, Core 2 - Hopping MHz
Band Edge Frequency 2400 MHz

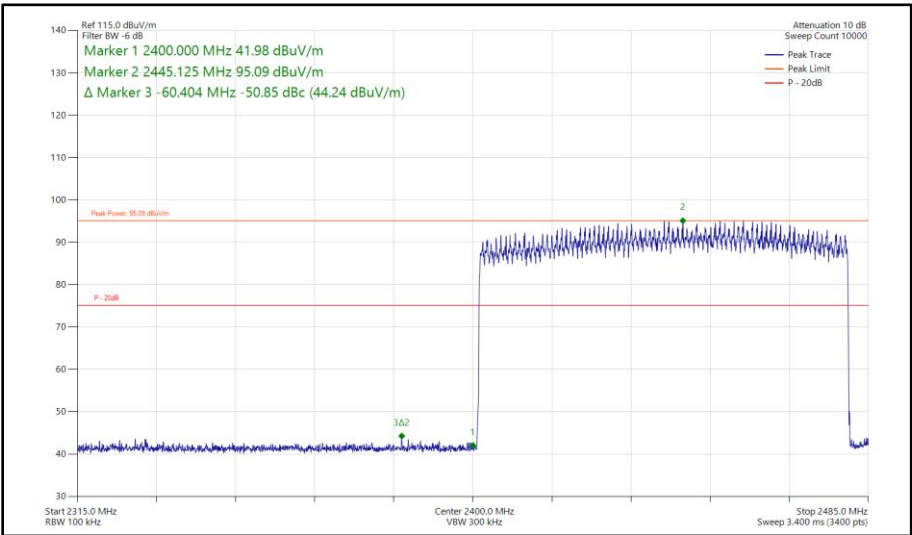


Figure 237 - Bluetooth 3DH5, SISO, Core 2 - Hopping MHz
Band Edge Frequency 2400 MHz

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	DH5	2402	2400	-64.26
Static	2DH5	2402	2400	-59.59
Static	3DH5	2402	2400	-59.94
Hopping	DH5	Hopping	2400	-67.57
Hopping	2DH5	Hopping	2400	-59.08
Hopping	3DH5	Hopping	2400	-63.16

Ref 129.0 dBuV/m
Filter BW -3 dB

Marker 1 2400.000 MHz 44.60 dBuV/m
Marker 2 2401.978 MHz 109.30 dBuV/m
Δ Marker 3 -3.088 MHz -64.26 dBc (45.04 dBuV/m)

Peak Power 109.30 dBuV/m

P = 20dB

Start 2385.0 MHz
RBW 100 kHz

Center 2400.0 MHz
VBW 300 kHz

Stop 2415.0 MHz
Sweep 1.040 ms (1001 pts)

Attenuation 10 dB
Sweep Count 5000

Peak Trace
Peak Limit
P = 20dB

Ref 126.0 dBuV/m
Filter BW 3 dB

Marker 1 2400.000 MHz 45.00 dBuV/m
Marker 2 2402.008 MHz 105.61 dBuV/m
Δ Marker 3 -2.878 MHz -59.59 dBc (46.02 dBuV/m)

Peak Power 105.61 dBuV/m
P = 20dB

Start 2385.0 MHz
Center 2400.0 MHz
VBW 300 kHz

Stop 2415.0 MHz
Sweep 1.040 ms (1001 pts)

Legend:
— Peak Trace
— Peak Limit
— P = 20dB

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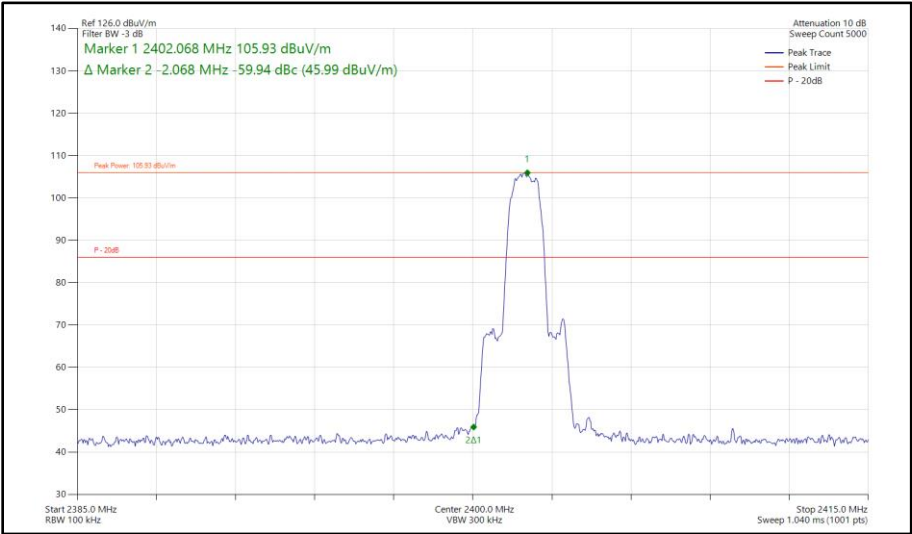


Figure 240 - Bluetooth 3DH5, MIMO, Core 0-1 - 2402 MHz
Band Edge Frequency 2400 MHz

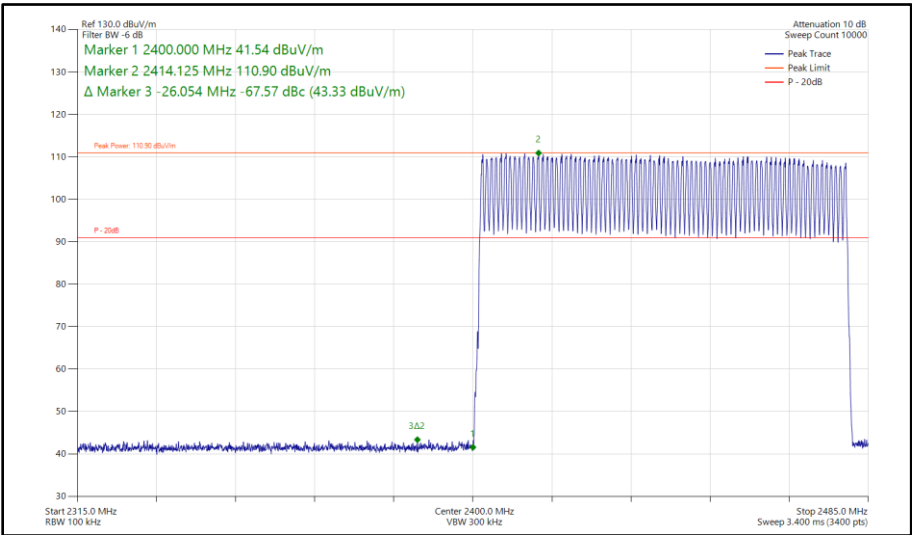
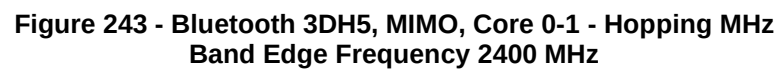
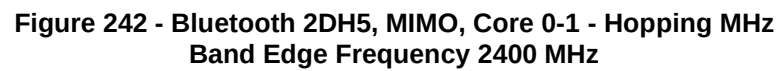


Figure 241 - Bluetooth DH5, MIMO, Core 0-1 - Hopping MHz
Band Edge Frequency 2400 MHz





ePA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	2DH5	2402	2400	-61.95
Static	3DH5	2402	2400	-61.08
Hopping	2DH5	Hopping	2400	-66.23
Hopping	3DH5	Hopping	2400	-66.34

Table 117 - SISO Authorised Band Edge Results

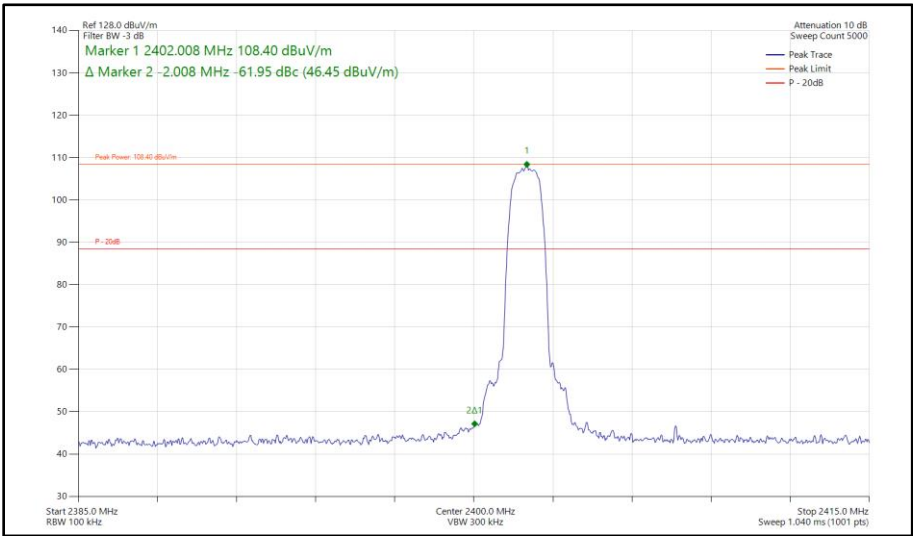


Figure 244 - Bluetooth 2DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2400 MHz

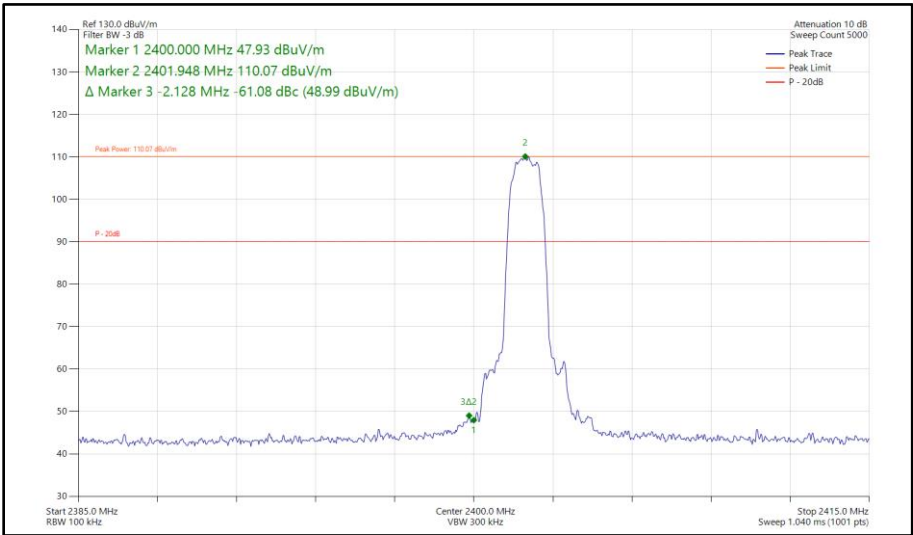


Figure 245 - Bluetooth 3DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2400 MHz

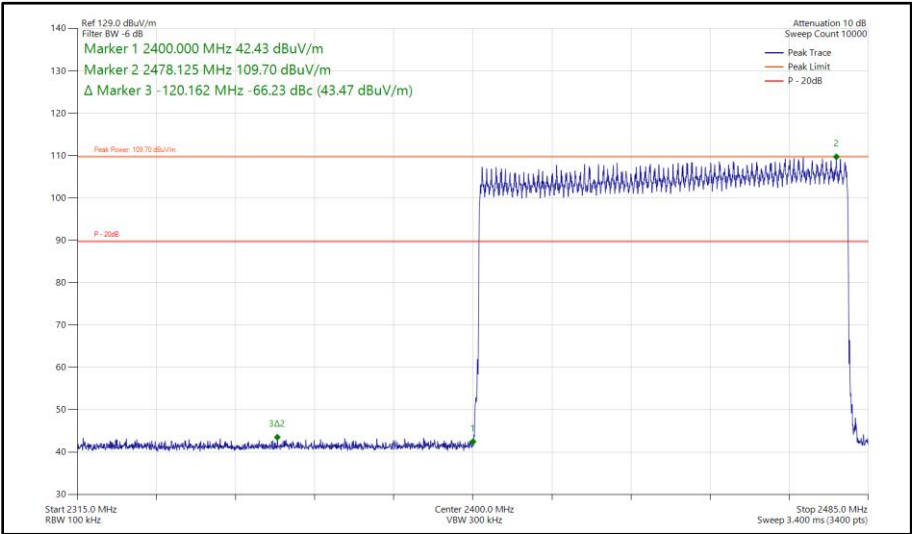


Figure 246 - Bluetooth 2DH5, SISO, Core 0 - Hopping MHz
Band Edge Frequency 2400 MHz

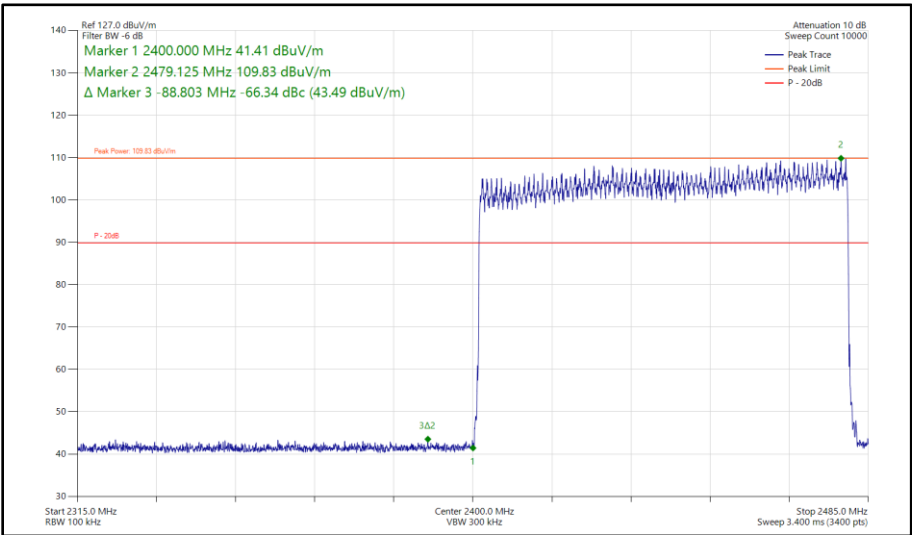


Figure 247 - Bluetooth 3DH5, SISO, Core 0 - Hopping MHz
Band Edge Frequency 2400 MHz

ePA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	2DH5	2402	2400	-59.63
Static	3DH5	2402	2400	-59.18
Hopping	2DH5	Hopping	2400	-65.04
Hopping	3DH5	Hopping	2400	-66.00

Table 118 - SISO Authorised Band Edge Results

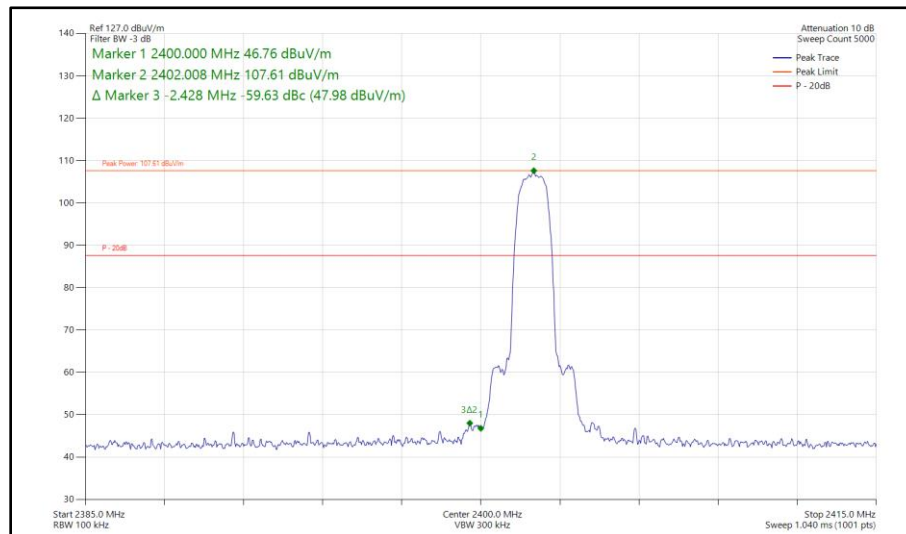


Figure 248 - Bluetooth 2DH5, SISO, Core 1 - 2402 MHz
Band Edge Frequency 2400 MHz

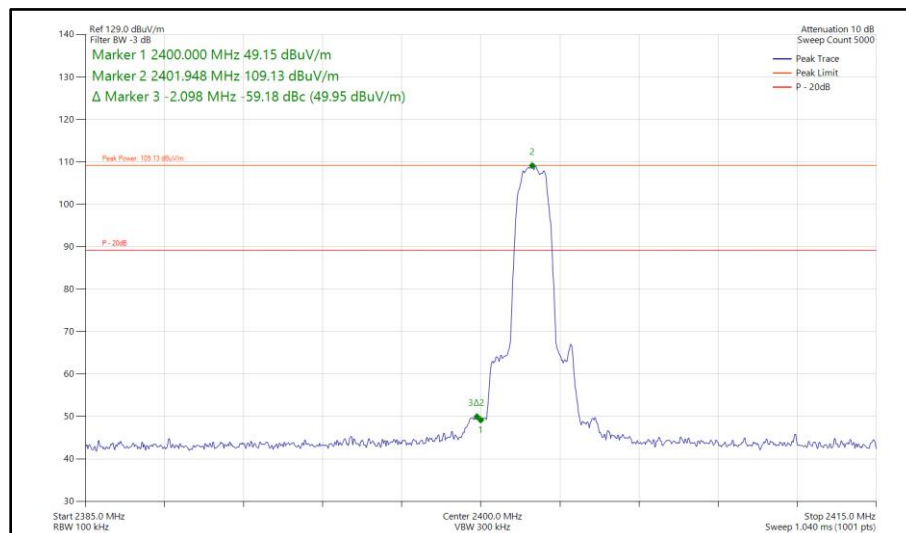


Figure 249 - Bluetooth 3DH5, SISO, Core 1 - 2402 MHz
Band Edge Frequency 2400 MHz

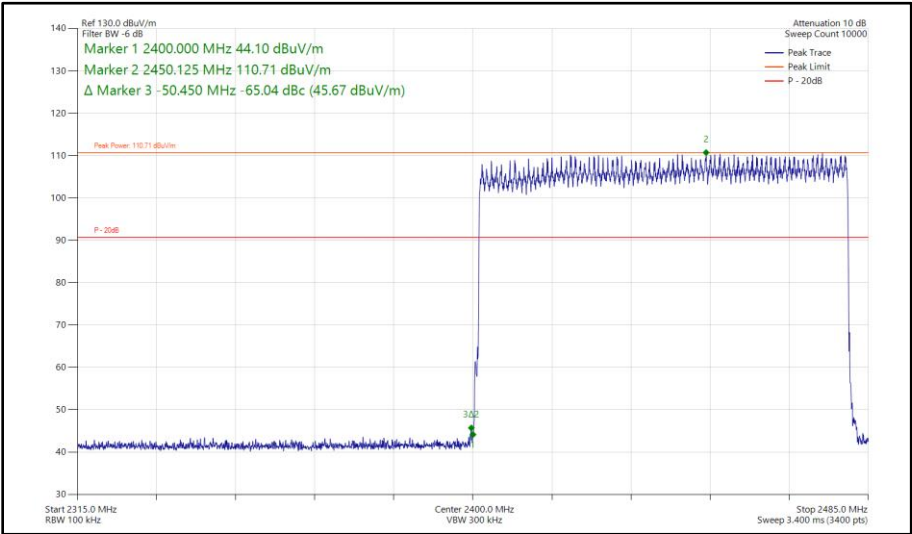


Figure 250 - Bluetooth 2DH5, SISO, Core 1 - Hopping MHz
Band Edge Frequency 2400 MHz

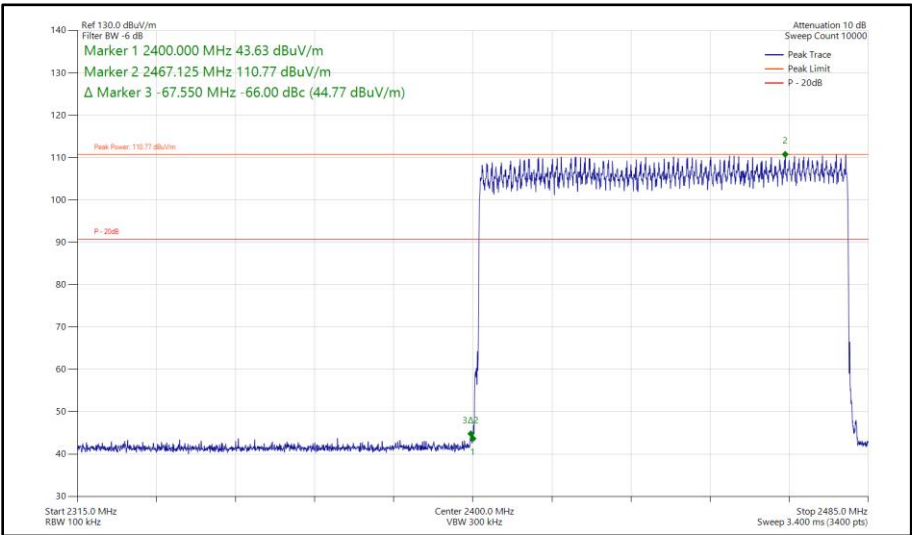


Figure 251 - Bluetooth 3DH5, SISO, Core 1 - Hopping MHz
Band Edge Frequency 2400 MHz

ePA - Core 0-1 (MIMO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Static	2DH5	2402	2400	-61.69
Static	3DH5	2402	2400	-62.79
Hopping	2DH5	Hopping	2400	-63.79
Hopping	3DH5	Hopping	2400	-66.12

Table 119 - MIMO Authorised Band Edge Results

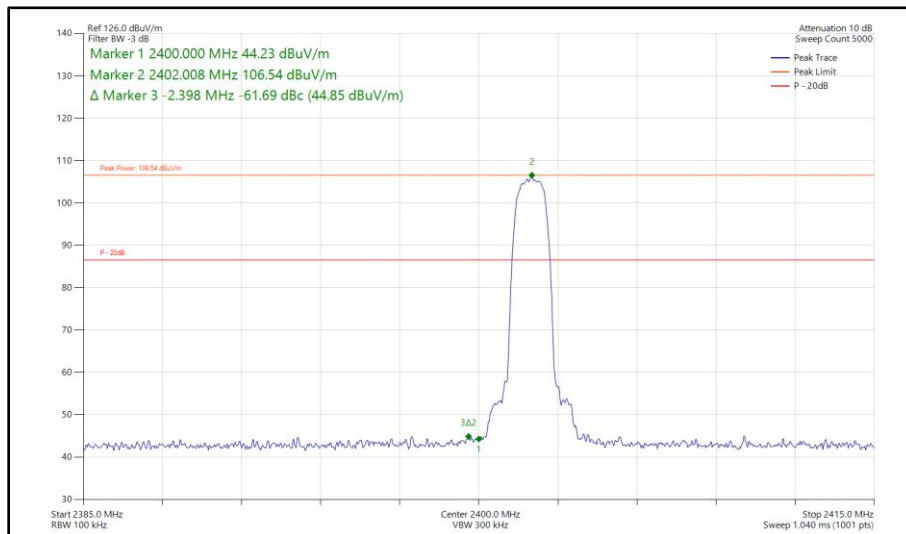


Figure 252 - Bluetooth 2DH5, MIMO, Core 0-1 - 2402 MHz
Band Edge Frequency 2400 MHz

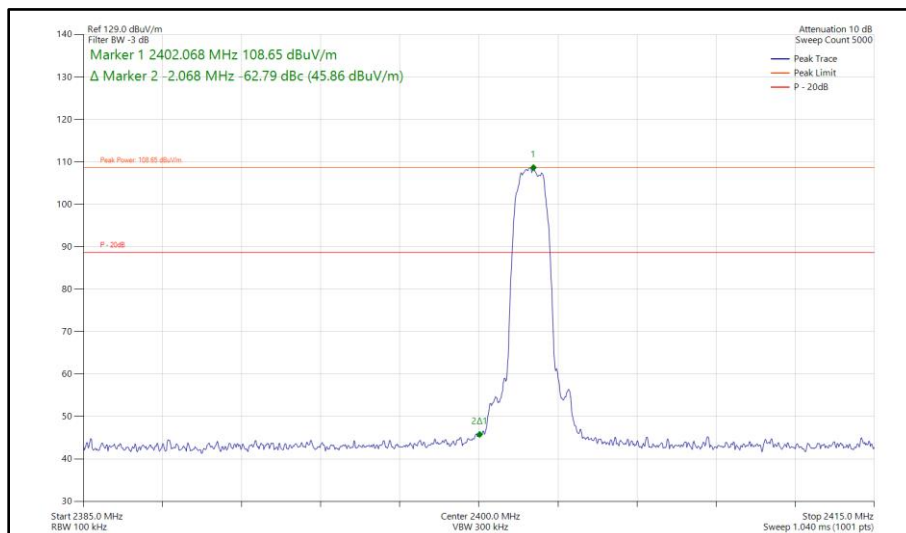
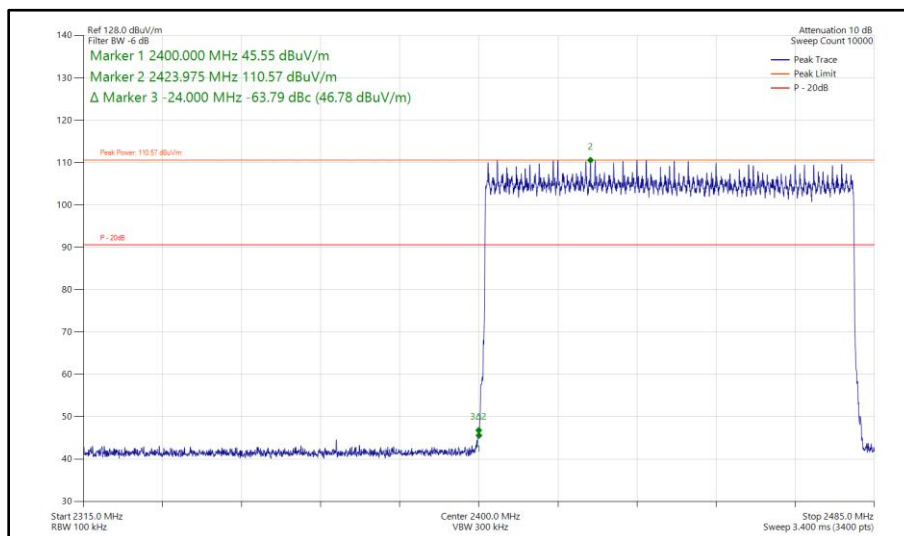
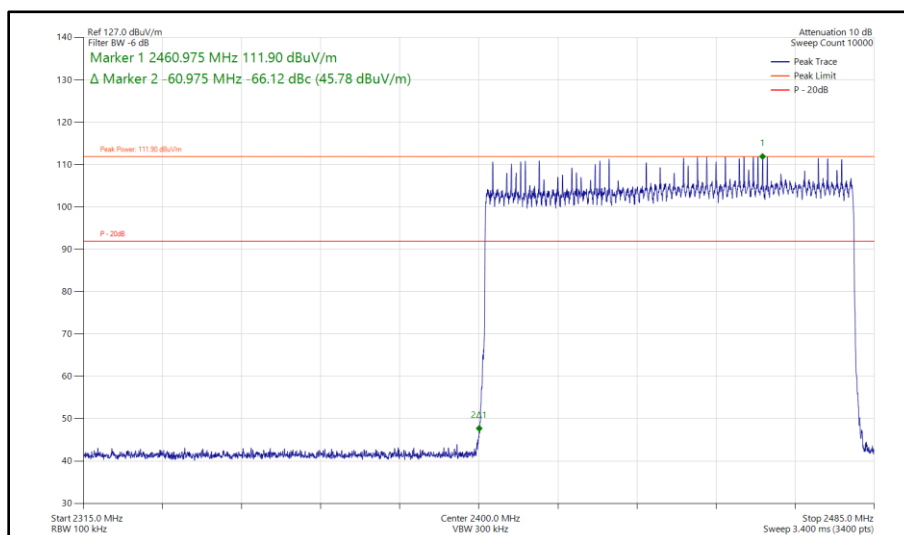


Figure 253 - Bluetooth 3DH5, MIMO, Core 0-1 - 2402 MHz
Band Edge Frequency 2400 MHz



**Figure 254 - Bluetooth 2DH5, MIMO, Core 0-1 - Hopping MHz
Band Edge Frequency 2400 MHz**



**Figure 255 - Bluetooth 3DH5, MIMO, Core 0-1 - Hopping 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.

2.7.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 16.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
1500W (300V 12A) AC Power Supply	iTech	IT7324	5957	-	O/P Mon
3m Semi-Anechoic Chamber, Chamber16	Albatross Projects	RF Chamber 16	5972	36	24-May-2025
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5973	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5974	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5975	-	TU
Cable (N to N 7m)	Junkosha	MWX221-0700NMSNMS/B	6005	12	20-May-2025
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6018	12	10-Jun-2025
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	05-May-2025
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	05-May-2025
Digital Multimeter	Fluke	115	6146	12	06-Jun-2025
Humidity & Temperature meter	R.S Components	1364	6148	12	29-Jul-2025
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	06-Jan-2025
Cable (SMA to SMA 8m)	Junkosha	MWX221-08000AMSAMS/B	6319	-	04-Feb-2025
SAC Switch Unit	TUV SUD	TUV_SSU_004 PLC	6349	12	07-May-2025

Table 120

TU - Traceability Unscheduled

O/P Mon - Output Monitored using calibrated equipment



2.8 Spurious Radiated Emissions

2.8.1 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

2.8.2 Equipment Under Test and Modification State

A3239, S/N: N7C7VWDN4T - Modification State 0

2.8.3 Date of Test

18-August-2024 to 22-August-2024

2.8.4 Test Method

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

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

In the 30 MHz to 1 GHz range pre-scans were only performed on the mid channel (2441 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 20 dBc outside restricted bands. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 20 dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

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.

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

Above 18 GHz, the measurement distance was reduced to 1 m. The limit line was increased by $20 \cdot \text{LOG}(3/1) = 9.54$ dB.

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

2.8.5 Example Test Setup Diagram

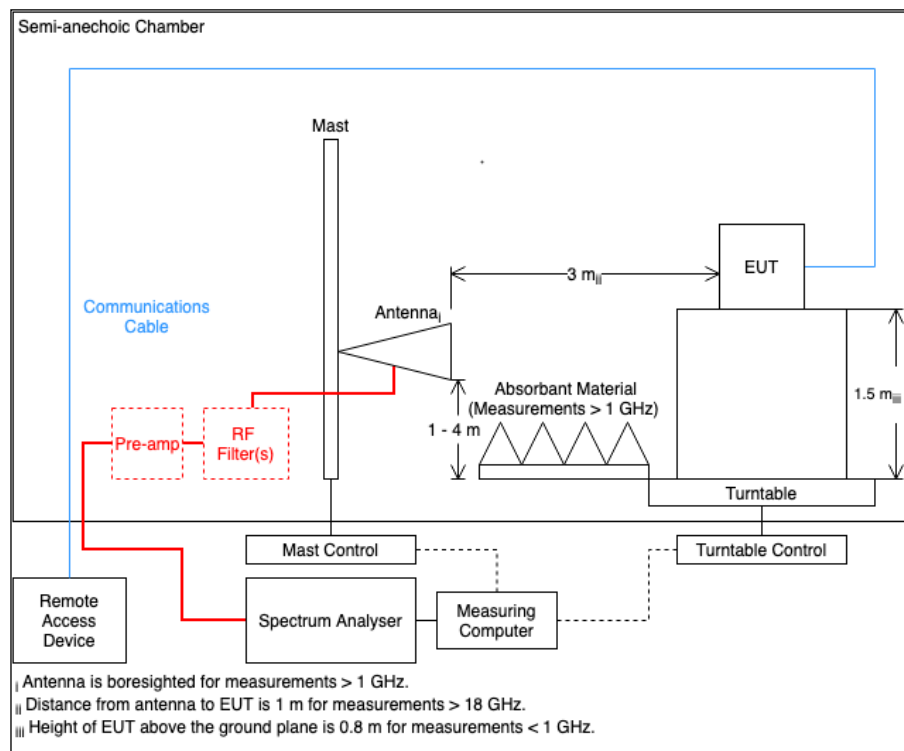


Figure 256

2.8.6 Environmental Conditions

Ambient Temperature	22.3 - 23.6 °C
Relative Humidity	41.6 - 57.2 %



2.8.7 Test Results

2.4 GHz Bluetooth BDR/EDR

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2371.838	29.49	54.00	-24.51	CISPR Avg	114	120	Vertical

Table 121 - 2402 MHz (CH0), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz

No other emissions found within 10 dB of the limit.

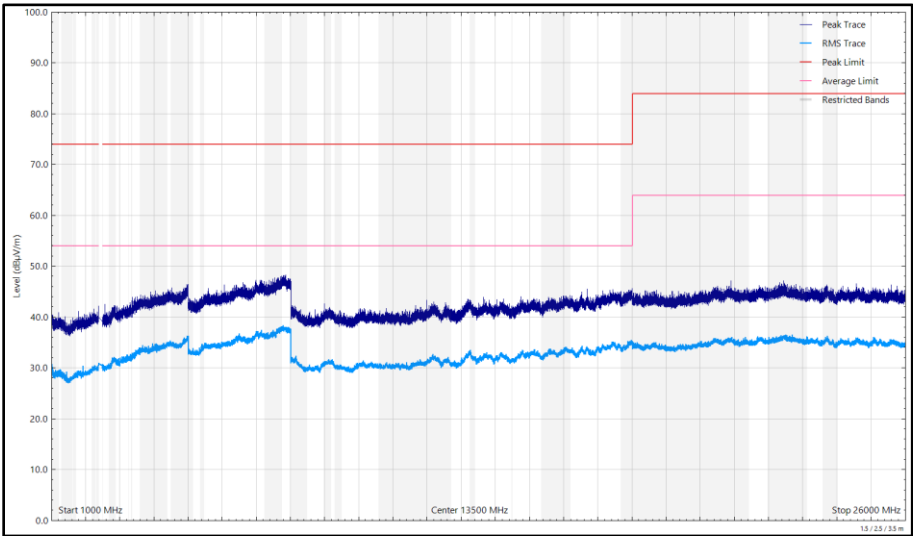


Figure 257 - 2402 MHz (CH0), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

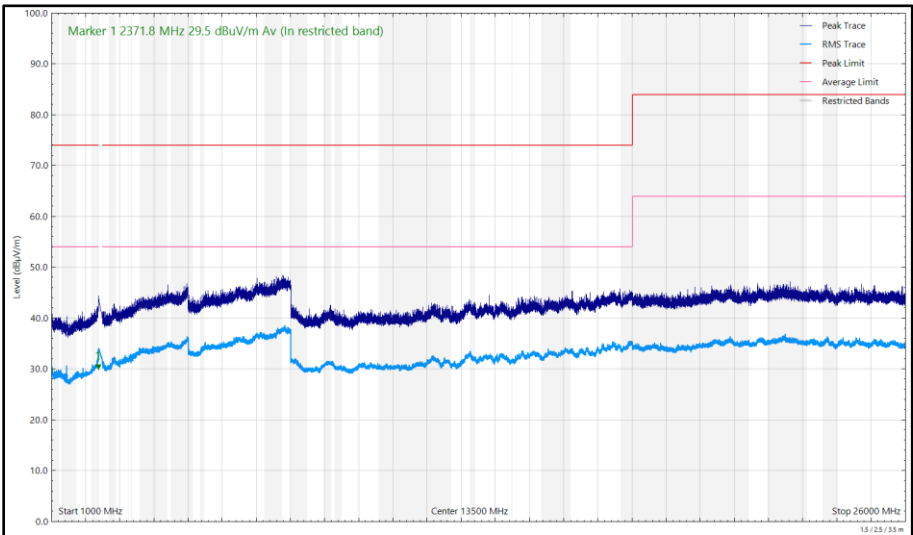


Figure 258 - 2402 MHz (CH0), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
401.536	25.27	46.00	-20.73	Q-Peak	45	100	Horizontal
612.567	24.06	46.00	-21.94	Q-Peak	164	104	Vertical

Table 122 - 2441 MHz (CH39), 2DH5, ePA, Core 0 + Core 1, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

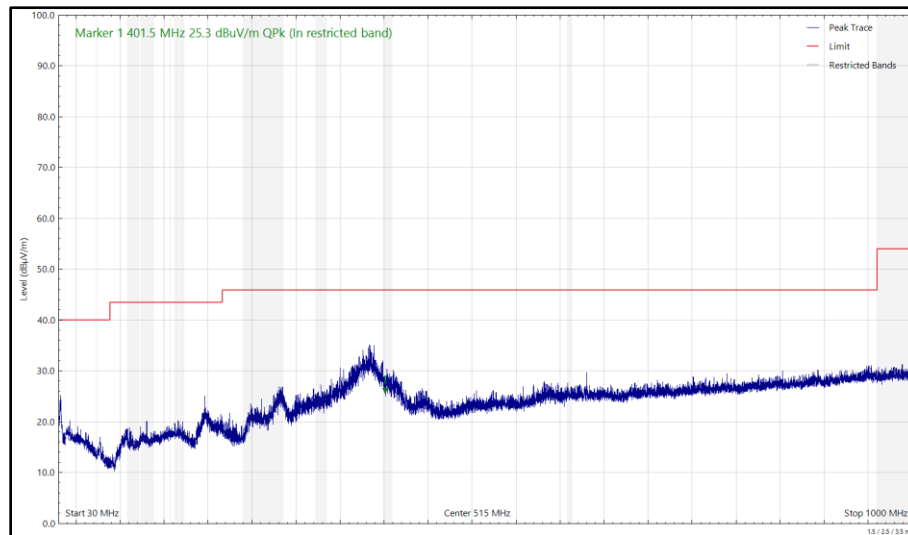


Figure 259 - 2441 MHz (CH39), 2DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

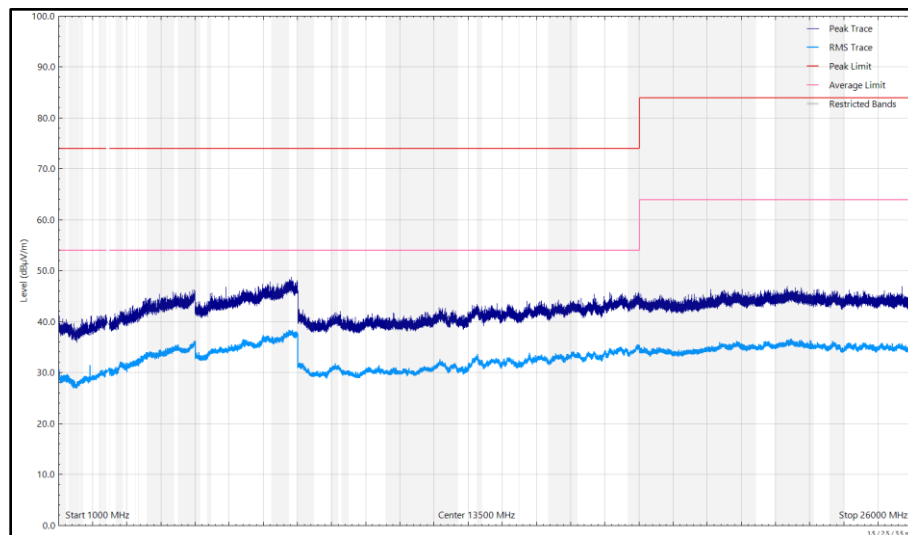


Figure 260 - 2441 MHz (CH39), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

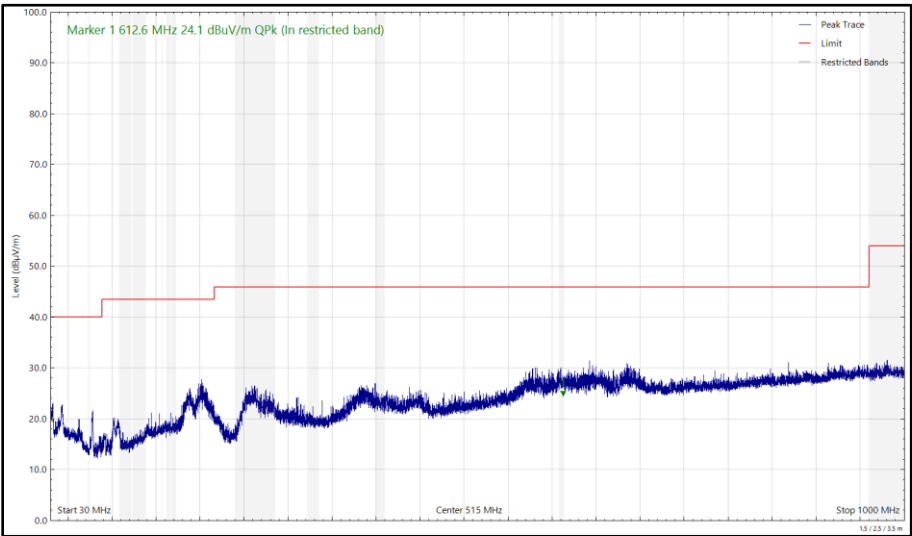


Figure 261 - 2441 MHz (CH39), 2DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

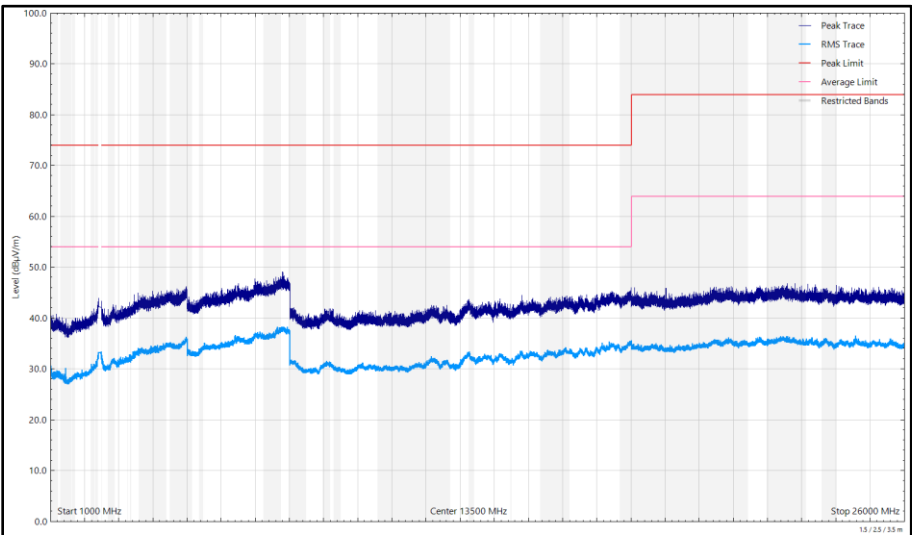


Figure 262 - 2441 MHz (CH39), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2498.672	32.80	54.00	-21.20	CISPR Avg	81	104	Vertical

Table 123 - 2480 MHz (CH78), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz

No other emissions found within 10 dB of the limit.

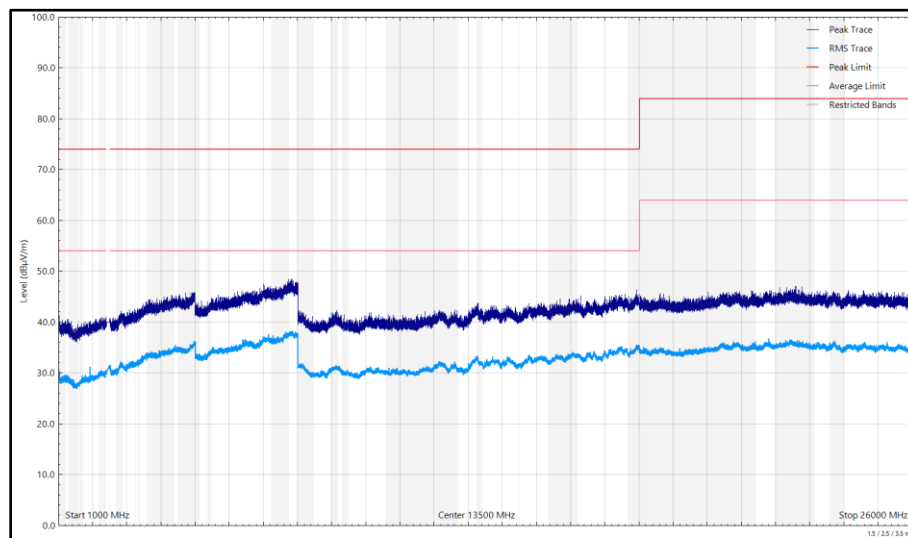


Figure 263 - 2480 MHz (CH78), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

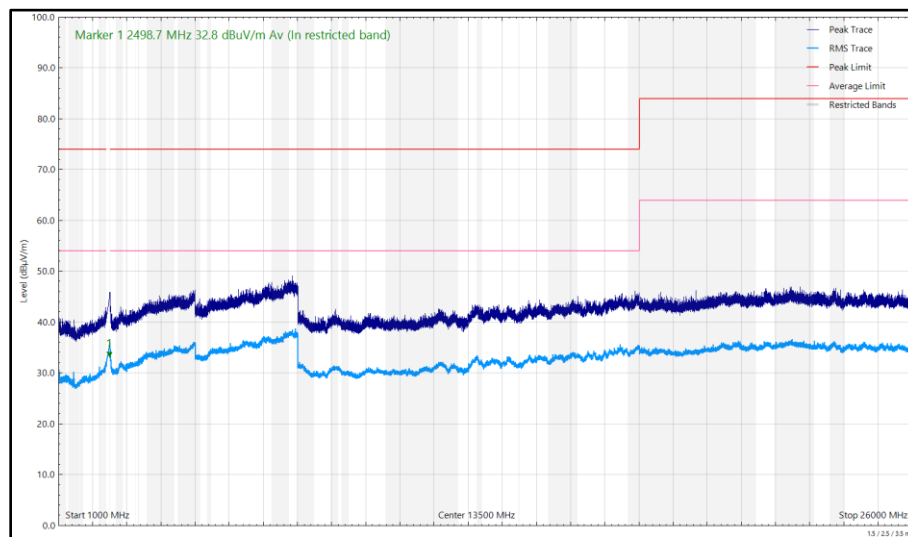


Figure 264 - 2480 MHz (CH78), 2DH5, ePA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4003.438	36.74	54.00	-17.26	CISPR Avg	93	111	Vertical
4806.992	30.35	54.00	-23.65	CISPR Avg	236	232	Vertical

Table 124 - 2402 MHz (CH0), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz

No other emissions found within 10 dB of the limit.

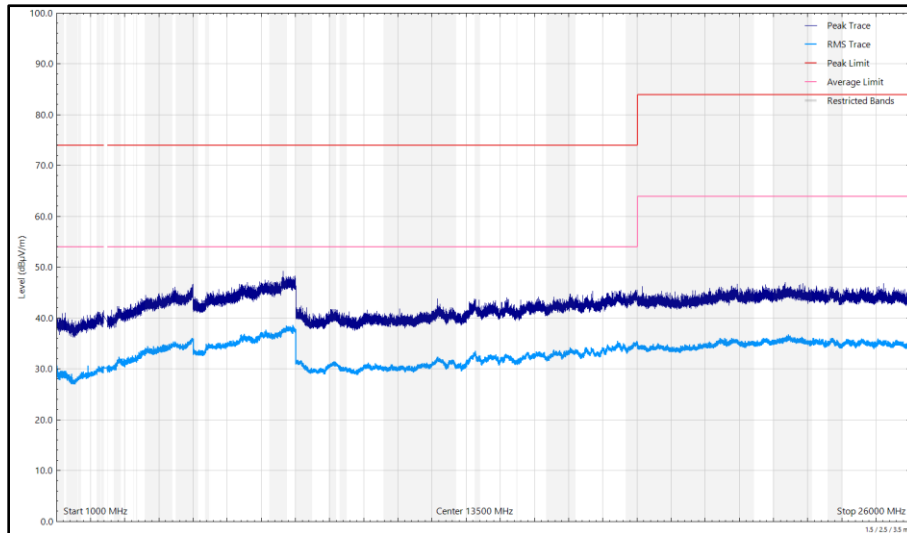


Figure 265 - 2402 MHz (CH0), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

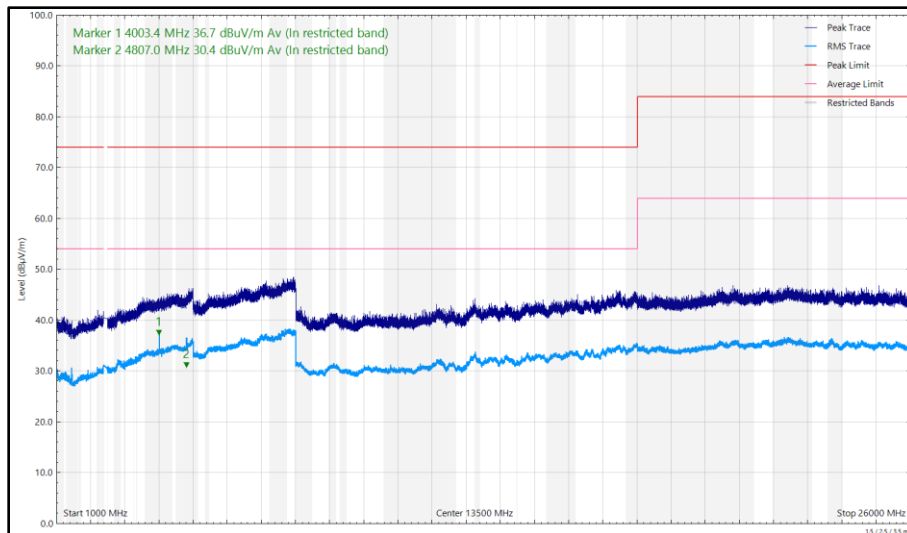


Figure 266 - 2402 MHz (CH0), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
401.299	25.16	46.00	-20.84	Q-Peak	145	100	Horizontal
4078.021	29.75	54.00	-24.25	CISPR Avg	255	182	Vertical

Table 125 - 2441 MHz (CH39), DH5, iPA, Core 0 + Core 1, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

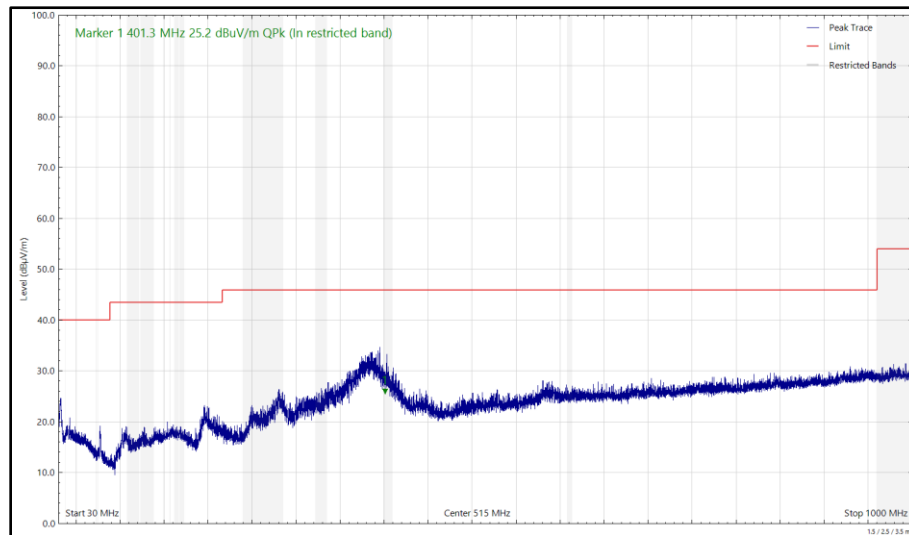


Figure 267 - 2441 MHz (CH39), DH5, iPA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

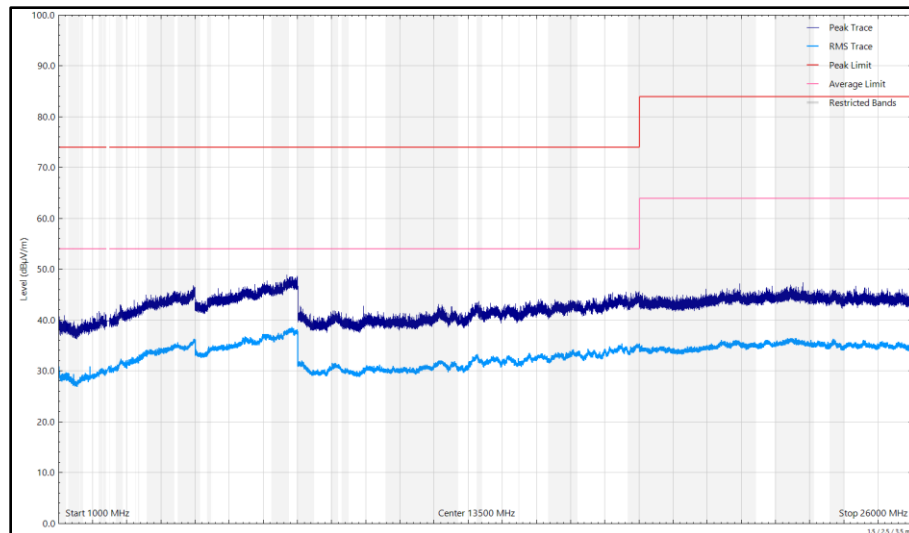


Figure 268 - 2441 MHz (CH39), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

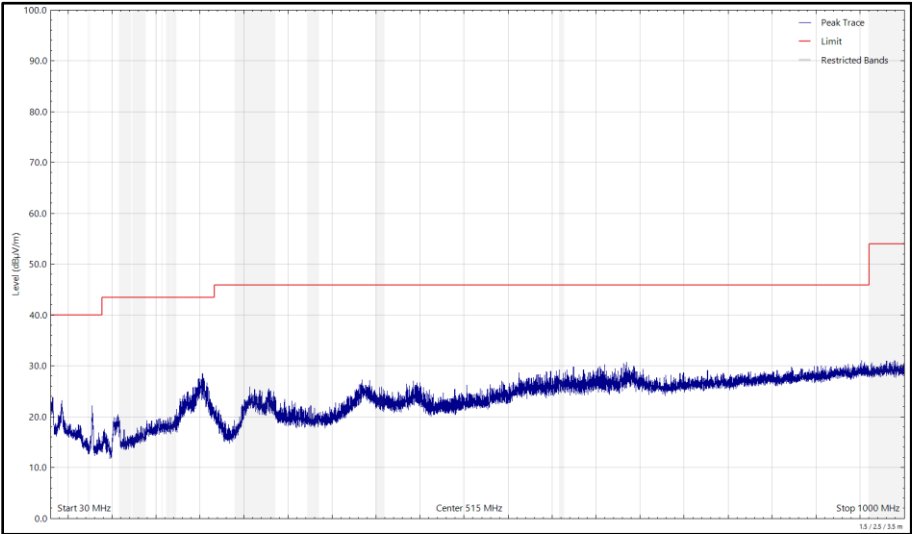


Figure 269 - 2441 MHz (CH39), DH5, iPA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

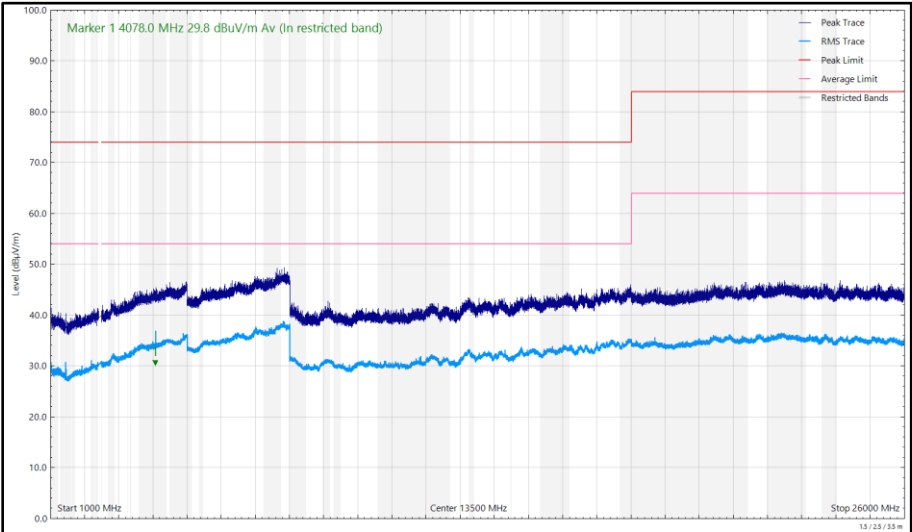


Figure 270 - 2441 MHz (CH39), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical



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

Table 126 - 2480 MHz (CH78), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

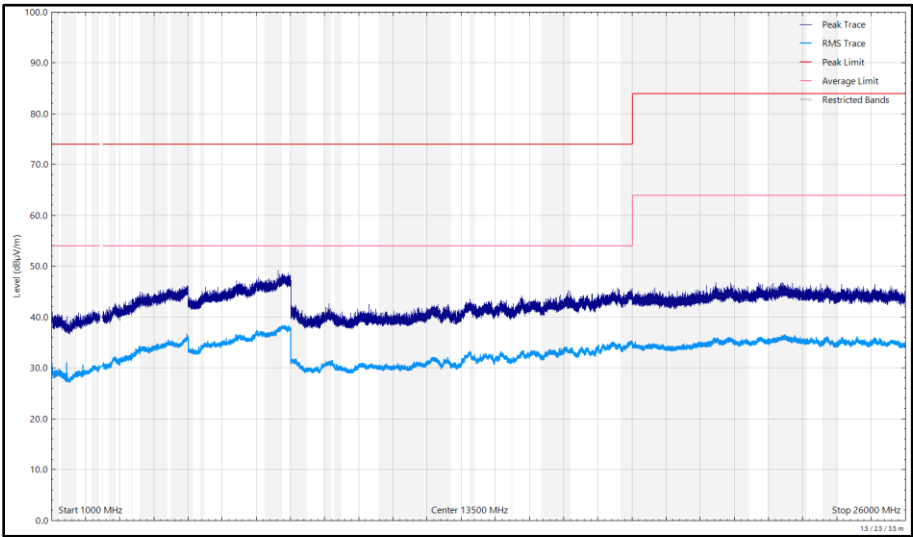


Figure 271 - 2480 MHz (CH78), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Horizontal

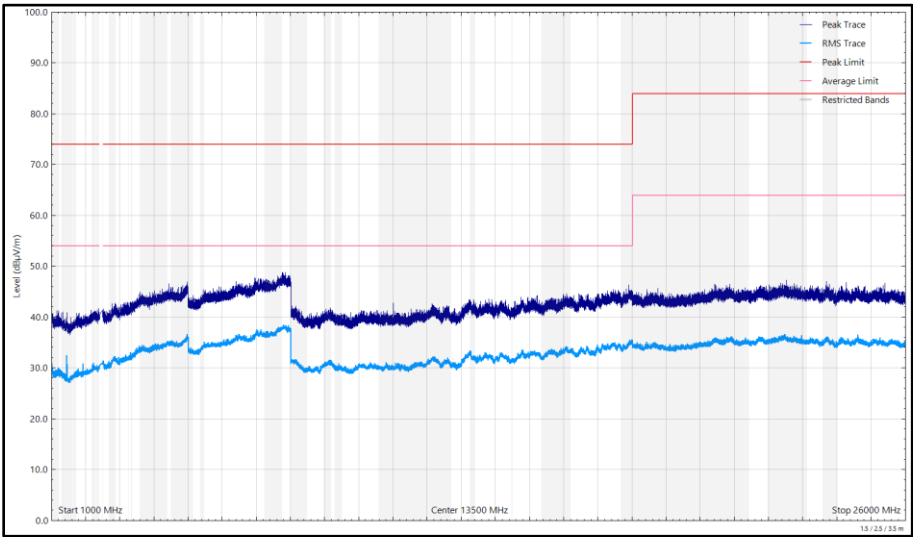


Figure 272 - 2480 MHz (CH78), DH5, iPA, Core 0 + Core 1, 1 GHz to 26 GHz, Vertical



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

Table 127 - 2402 MHz (CH0), DH5, iPA, Core 2, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

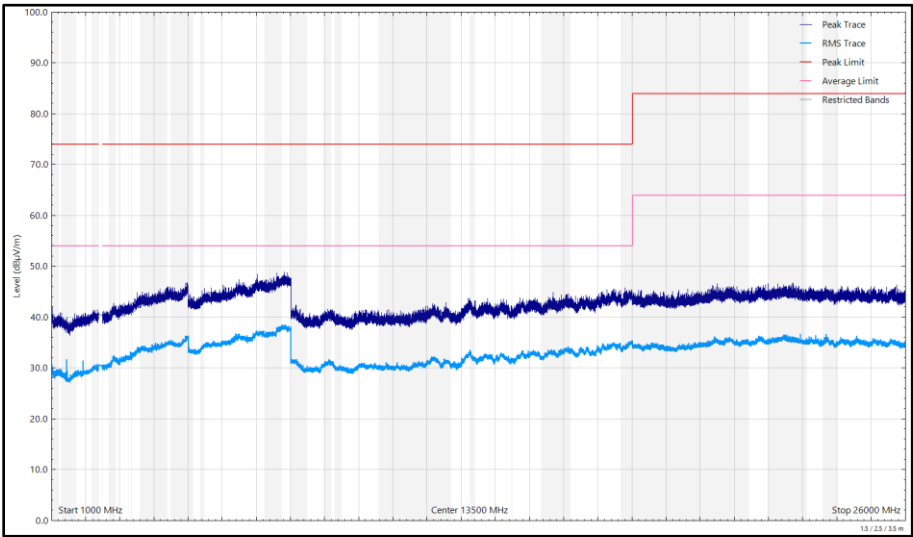


Figure 273 - 2402 MHz (CH0), DH5, iPA, Core 2, 1 GHz to 26 GHz, Horizontal

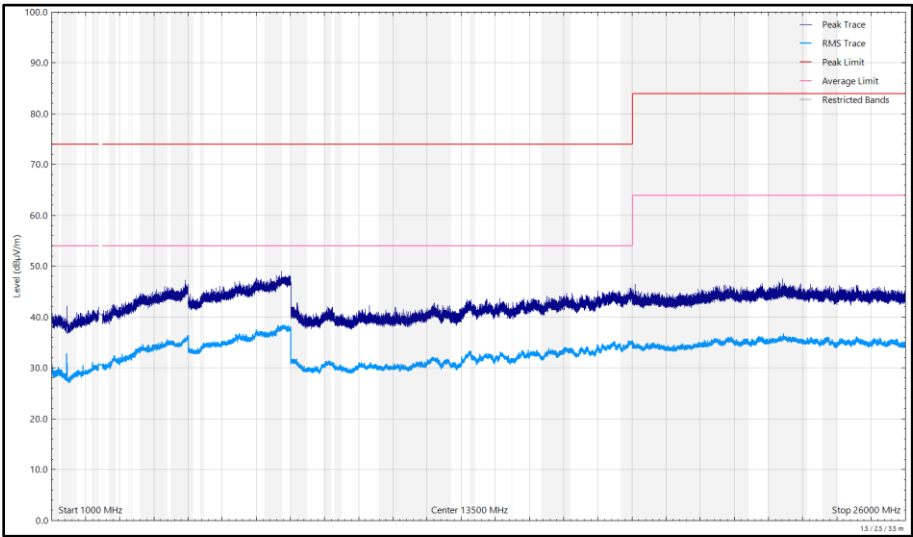


Figure 274 - 2402 MHz (CH0), DH5, iPA, Core 2, 1 GHz to 26 GHz, Vertical



Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
282.029	21.18	46.00	-24.82	Q-Peak	233	106	Horizontal
401.558	26.07	46.00	-19.93	Q-Peak	51	100	Horizontal

Table 128 - 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 26 GHz

No other emissions found within 10 dB of the limit.

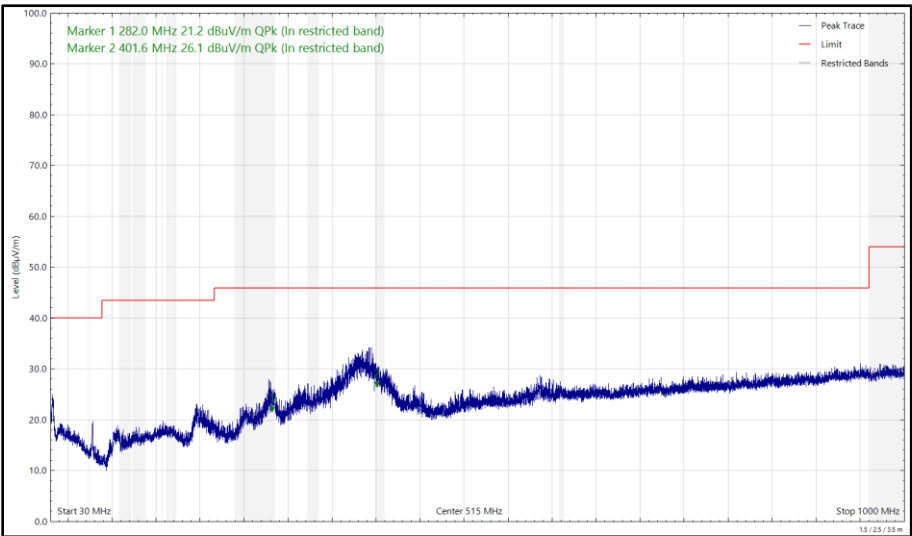


Figure 275 - 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

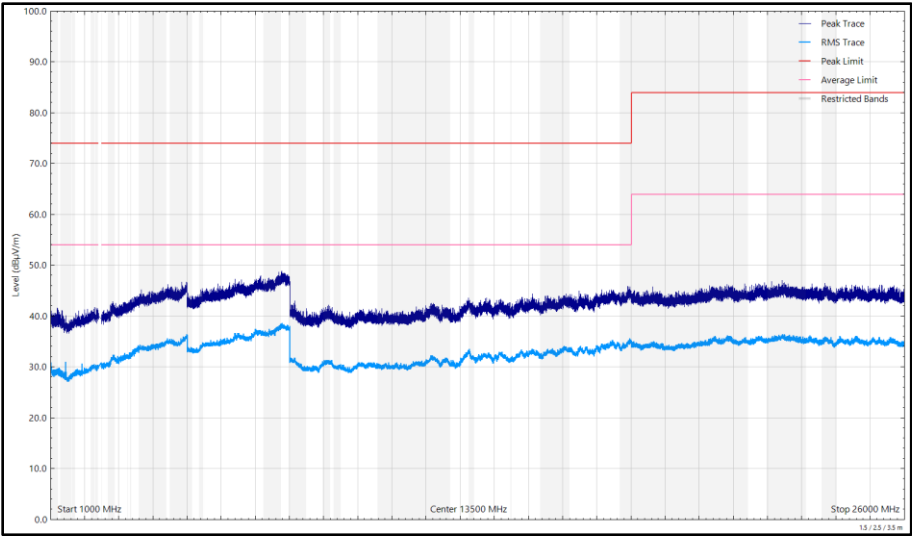


Figure 276 - 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 26 GHz, Horizontal

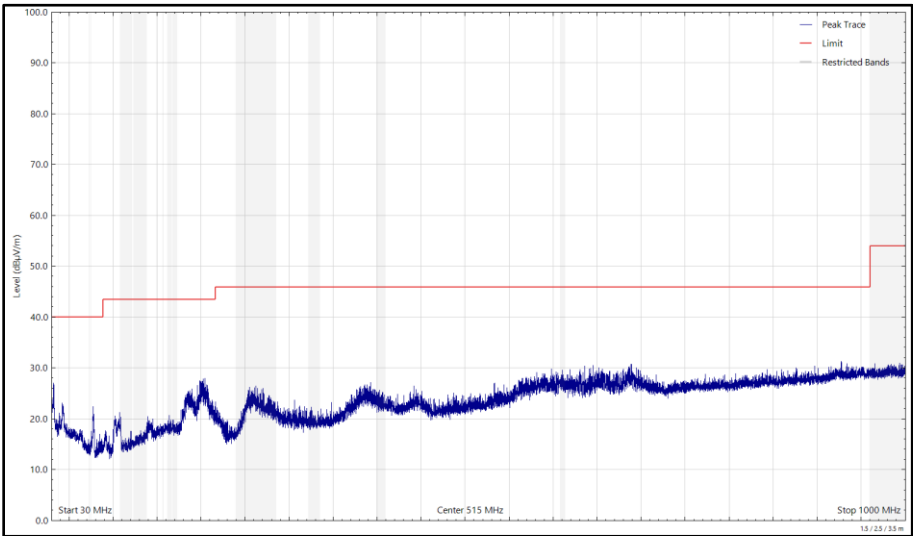


Figure 277 - 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

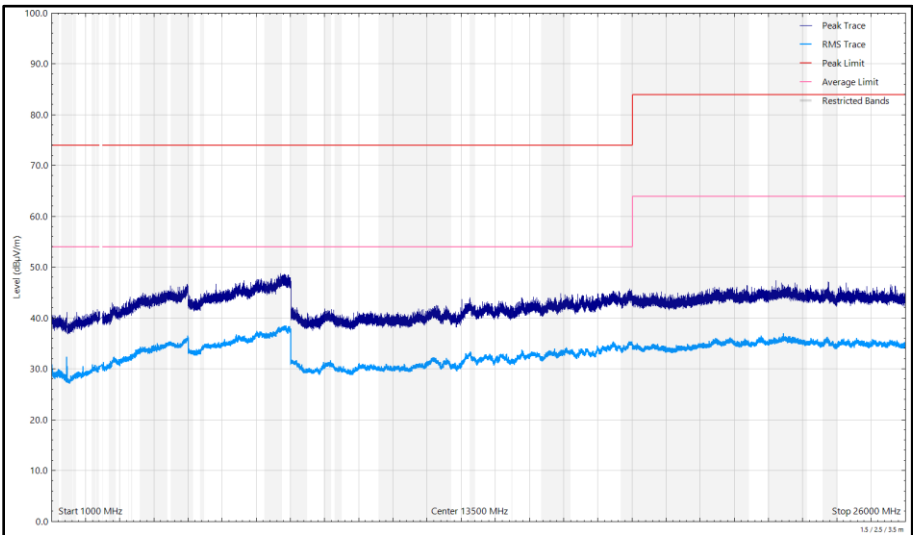


Figure 278 - 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 26 GHz, Vertical



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

Table 129 - 2480 MHz (CH78), DH5, iPA, Core 2, 1 GHz to 26 GHz

*No emissions found within 10 dB of the limit.

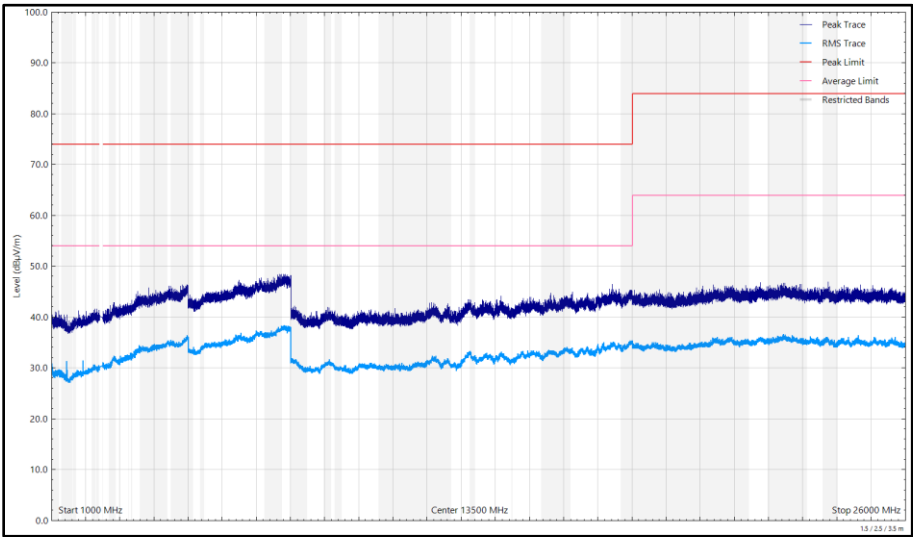


Figure 279 - 2480 MHz (CH78), DH5, iPA, Core 2, 1 GHz to 26 GHz, Horizontal

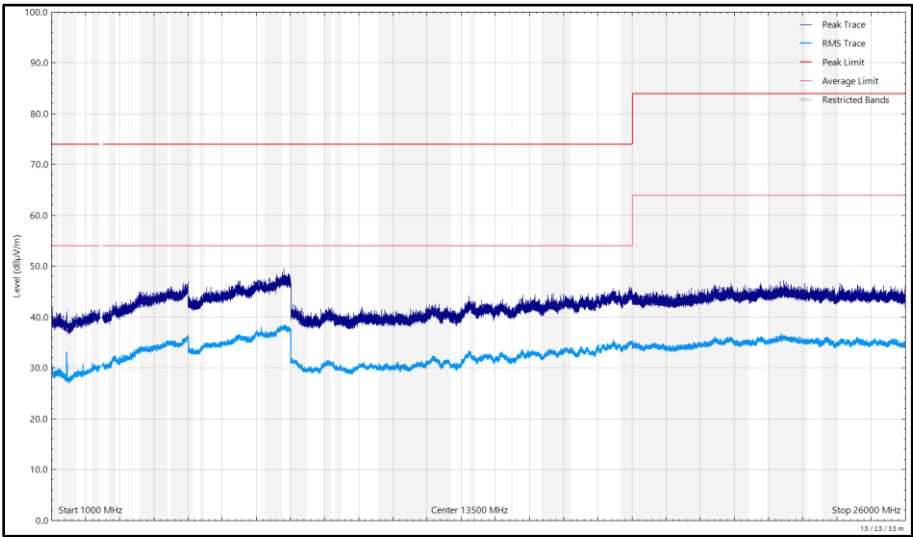


Figure 280 - 2480 MHz (CH78), DH5, iPA, Core 2, 1 GHz to 26 GHz, Vertical



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.

In addition, radiated emissions which fall in the restricted bands, as defined in RSS-GEN, clause 8.10, must also comply with the radiated emission limits specified in RSS-GEN clause 8.9.



2.8.8 Test Location and Test Equipment Used

This test was carried out in RF Chamber 16, RF Chamber 17 and RF Chamber 18.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Cable 2.92m	Junkosha	MWX241-01000KMS	5413	12	23-May-2025
EMI Test Receiver	Rohde & Schwarz	ESW44	5911	12	11-Sep-2024
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	5935	12	10-Jun-2025
1500W (300V 12A) AC Power Supply	iTech	IT7324	5957	-	O/P Mon
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5960	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5961	-	TU
3m Semi-Anechoic Chamber, Chamber16	Albatross Projects	RF Chamber 16	5972	36	24-May-2025
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5973	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5974	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5975	-	TU
Cable (N to N 7m)	Junkosha	MWX221-07000NMSNMS/B	6005	12	20-May-2025
Cable (N to N 1m)	Junkosha	MWX221-01000AMSAMS/B	6009	12	20-May-2025
SAC Switch Unit	TUV SUD	TUV_SSU_001	6144	12	11-Dec-2024
Digital Multimeter	Fluke	115	6145	12	06-Jun-2025
Digital Multimeter	Fluke	115	6146	12	06-Jun-2025
Humidity & Temperature meter	R.S Components	1364	6149	12	12-Aug-2025
8GHz Highpass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6194	12	23-Apr-2025
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6200	12	03-Jun-2025
Attenuator 4dB	Pasternack	PE7074-4	6204	24	20-Jun-2026
Cable (SMA to SMA 20cm)	TUV SUD	MH-FH 8-18	6215	12	23-Apr-2025
USB Spectrum Analyser	Signal Hound	SA124B	6295	-	TU
USB Spectrum Analyser	Signal Hound	SA124B	6298	-	TU
Cable (SMA to SMA 8m)	Junkosha	MWX221-08000AMSAMS/B	6318	12	18-Feb-2025
EMC Test Receiver	Rohde & Schwarz	ESW44	6333	12	16-Feb-2025
SAC Switch Unit	TUV SUD	TUV_SSU_004 PLC	6349	12	07-May-2025
USB Spectrum Analyser	Signal Hound	SA124B	6383	-	TU
2m Coaxial Cable Assy	Junkosha	MWX241-02000KMSKMS/A	6413	-	O/P Mon
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9168	6456	24	10-Feb-2025



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
DRG Horn Antenna (8-18 GHz)	Schwarzbeck	HWRD750	6458	12	05-May-2025
Humidity and Temperature Meter	R.S Components	1364	6486	12	04-Jun-2025
3m Semi-Anechoic Chamber	Albatross Projects	Chamber 18	6597	36	07-Feb-2026
AC Power Supply	iTech	IT7324	6657	-	O/P Mon
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	28-Jan-2026
Mast and Turntable Controller	Maturo Gmbh	FCU3.0	6659	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	6660	-	TU
Turntable	Maturo Gmbh	TT1.5SI	6661	-	TU
8m Cable	Junkosha	MWX221-08000AMSAMS/B	6748	12	01-Feb-2025
Double Ridge Active Horn Antenna (18-40 GHz)	Com-Power	AHA-840	6771	24	17-Jan-2025
Turntable	Maturo Gmbh	TT1.5SI	6797	-	TU
AC Programmable Power Supply	iTech	IT7324	6812	-	O/P Mon
Broad-Band Horn Antenna 1-10GHz N	Schwarzbeck	BBHA9120B	6825	12	18-Jul-2025

Table 130

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

3 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Restricted Band Edges	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Frequency Hopping Systems - Average Time of Occupancy	-
Frequency Hopping Systems - Channel Separation	± 42.30 kHz
Frequency Hopping Systems - Number of Hopping Channels	-
Frequency Hopping Systems - 20 dB Bandwidth	± 37.42 kHz
Maximum Conducted Output Power	± 1.38 dB
Authorised 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 131

Measurement Uncertainty Decision Rule – Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.