

FCC and ISED Test Report

Apple Inc
Model: A3545



In accordance with FCC 47 CFR Part 15C
ISED RSS-247 and ISED RSS-GEN
(Thread)

Prepared for: Apple Inc
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Document 75966525-16 Issue 01

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steven White	Senior Technical Specialist	Authorised Signatory	17 July 2026

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Report Generation	George Capps	17 July 2026	

FCC Accreditation

553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation

28798/UK0003 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C: 2024, ISED RSS-247: Issue 4 (2025-07), ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.



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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	17 July 2026

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15C: 2024 ISED RSS-247: Issue 4 (2025-07) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	29-April-2026
Finish of Test	22-June-2026
Name of Engineer(s)	Tony Baby, George Capps and Manohar Thota
Related Document(s)	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15C	RSS-247	RSS-GEN			
Configuration and Mode: Thread						
-	15.203	-	-	Antenna Requirement	N/T	The device complies with the provisions of this section, as it uses permanently attached integral antennas.
2.1	15.205	2.4	8.10	Restricted Band Edges	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024
2.2	15.247 (a)(2)	6.3.1	6.7	Emission Bandwidth	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024
2.3	15.247 (b)	6.3.2	6.12	Maximum Conducted Output Power	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024
2.4	15.247 (d)	6.6	-	Authorised Band Edges	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024
2.5	15.209 and 15.247 (d)	2.4 and 6.6	6.13 and 8.9	Spurious Radiated Emissions	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024
2.6	15.247 (e)	6.3.1	6.12	Power Spectral Density	Pass	ANSI C63.10-2020 +Cor.1-2023+C63.10a-2024

Table 2



1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was a desktop computer

1.4.2 Test Modes

The EUT's 2.4 GHz Thread radio supports SISO operation on three different cores and has two power settings: Lower Power "iPA" & High Power "ePA, with operation on Core 2 limited to Lower Power "iPA"

The EUT uses different output power per core, and the antenna gains vary, resulting in a different radiated powers per core.

The EUT was tested in the following modes:

SISO modes:

iPA/ePA - Core 0

iPA/ePA - Core 1

iPA - Core 2

1.4.3 Test Setup

For conducted tests the EUT antennas were disconnected and replaced with U. FL to SMA test cables to enable conducted testing on each core. The loss of these test cables were known and compensated for in any conducted measurements.

For all tests the EUT was put into a continuous transmit test mode with the chipset manufacturer's test commands to ensure the measured signals were representative.

All testing was performed with the EUT powered via a 120 V AC, 60 Hz source

1.4.4 Antenna Gain Table

Antenna Port	Frequency Range (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
Core 0 (WF1)	2402	1.2	0.71
	2441	1.1	0.71
	2480	0.7	0.71
Core 1 (WF3)	2402	1.4	0.71
	2441	1.1	0.71
	2480	0.4	0.71
Core 2 (WF2)	2402	1.0	0.71
	2441	0.4	0.71
	2480	-0.3	0.71

Table 3



1.5 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.6 Identification of the EUT

The table below details identification of the EUT(s) that have been used to carry out the testing within this report.

Model: A3545		
Serial Number	Hardware Version	Software Version
M9TDL77966	REV1.0	26A285
CQ4KHF6M2W	REV1.0	26A322
H2DG9Y7XQ4	REV1.0	26A322

Table 4

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: A3545, Serial Number: M9TDL77966			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3545, Serial Number: CQ4KHF6M2W			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3545, Serial Number: H2DG9Y7XQ4			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5



1.8 Test Location

TÜV SÜD conducted the following tests at our Concorde Park Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: Thread		
Restricted Band Edges	Ahmed Al Derdiri	UKAS
Emission Bandwidth	Obinna Eze, Arjun Sasikumar	UKAS
Maximum Conducted Output Power	Obinna Eze, Arjun Sasikumar	UKAS
Authorised Band Edges	Ahmed Al Derdiri	UKAS
Spurious Radiated Emissions	Gridi Bilali, Morsalin Hossain, Dulanjan Witharamalage, Zeeshan Zia	UKAS
Power Spectral Density	Obinna Eze, Arjun Sasikumar	UKAS

Table 6

Office Address:

TÜV SÜD
Concorde Park
Concorde Way
Fareham
Hampshire
PO15 5FG
United Kingdom



2 Test Details

2.1 Restricted Band Edges

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
ISED RSS-247, Clause 2.4
ISED RSS-GEN, Clause 8.10

2.1.2 Equipment Under Test and Modification State

A3545, S/N: CQ4KHF6M2W - Modification State 0

2.1.3 Date of Test

29-April-2026

2.1.4 Test Method

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

Plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

The following conversion can be applied to convert from dB μ V/m to μ V/m:

$10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$.

2.1.5 Environmental Conditions

Ambient Temperature	23.7 °C
Relative Humidity	34.9 %

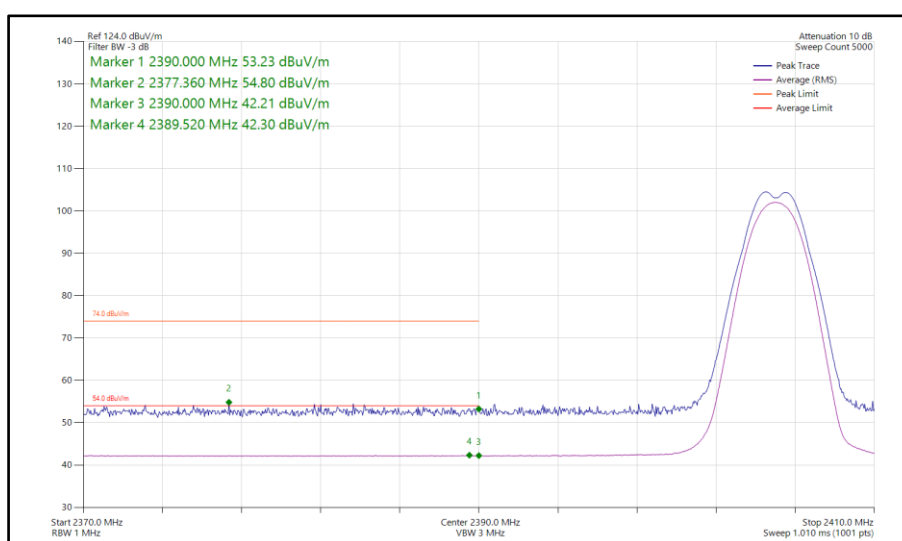
2.1.6 Test Results

Thread

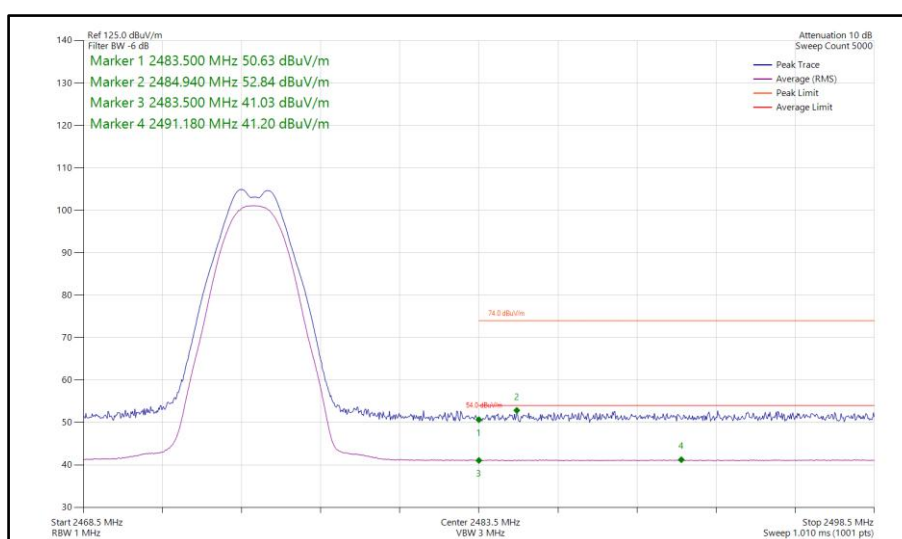
iPA - Core 0 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Thread	2405	2390	54.80	42.30
Thread	2475	2483.5	52.84	41.20

Table 7 - iPA, Core 0, SISO Restricted Band Edge Results



**Figure 1 - Thread, iPA, SISO, Core 0 - 2405 MHz
Band Edge Frequency 2390 MHz**

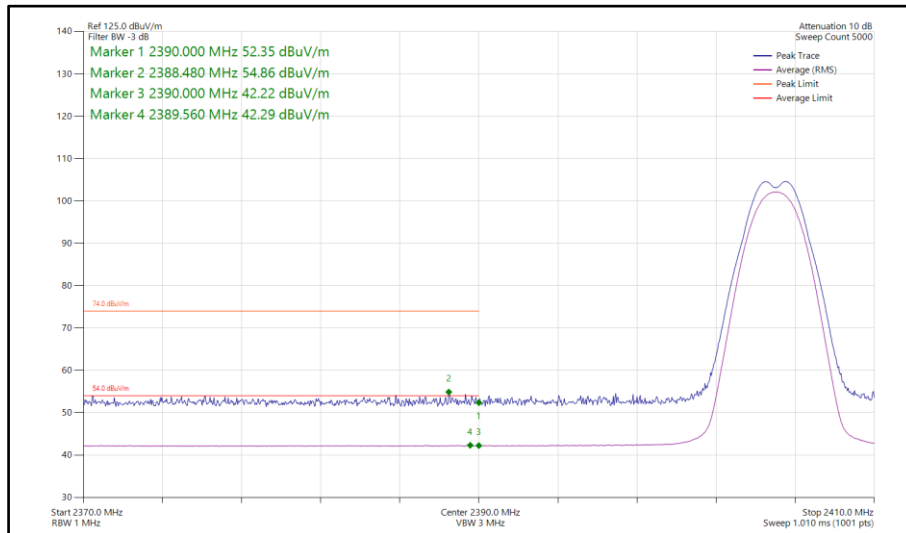


**Figure 2 - Thread, iPA, SISO, Core 0 - 2475 MHz
Band Edge Frequency 2483.5 MHz**

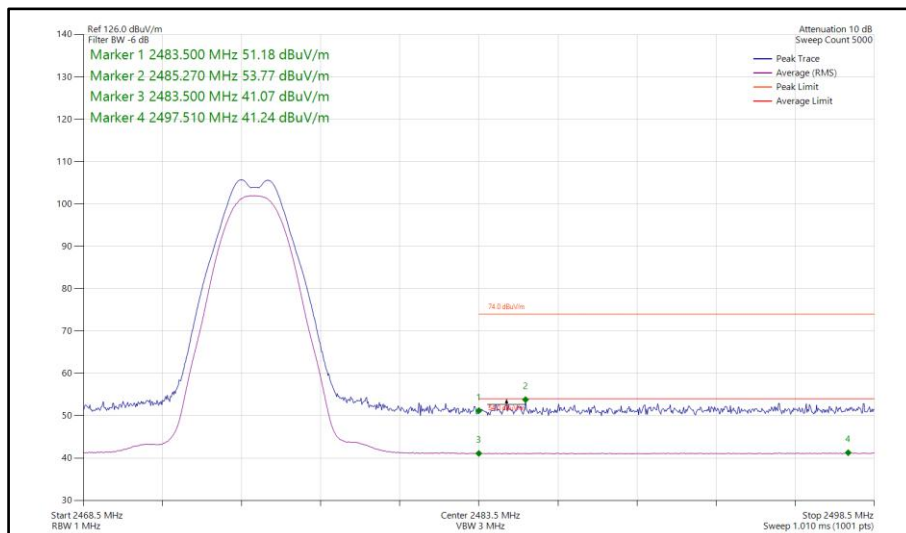
iPA - Core 1 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Thread	2405	2390	54.86	42.29
Thread	2475	2483.5	53.77	41.24

Table 8 - iPA, Core 1, SISO Restricted Band Edge Results



**Figure 3 - Thread, iPA, SISO, Core 1 - 2405 MHz
Band Edge Frequency 2390 MHz**

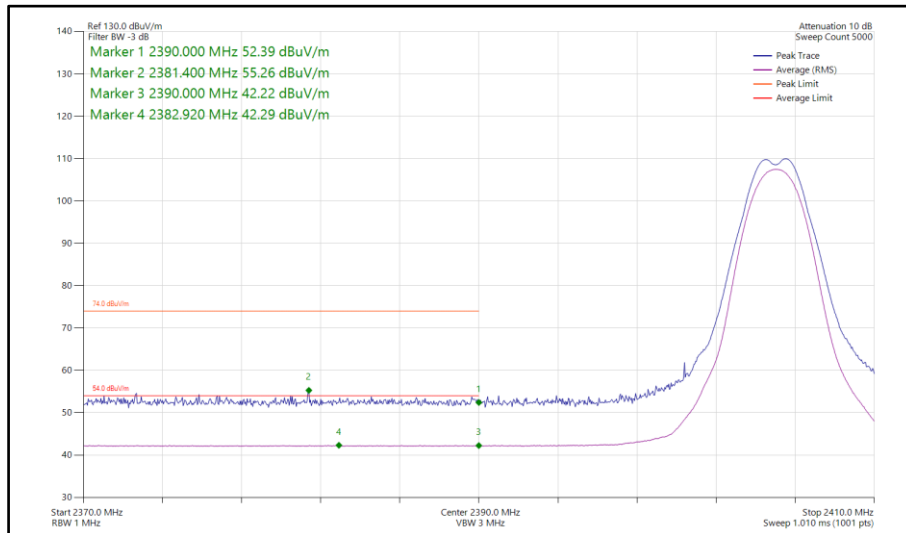


**Figure 4 - Thread, iPA, SISO, Core 1 - 2475 MHz
Band Edge Frequency 2483.5 MHz**

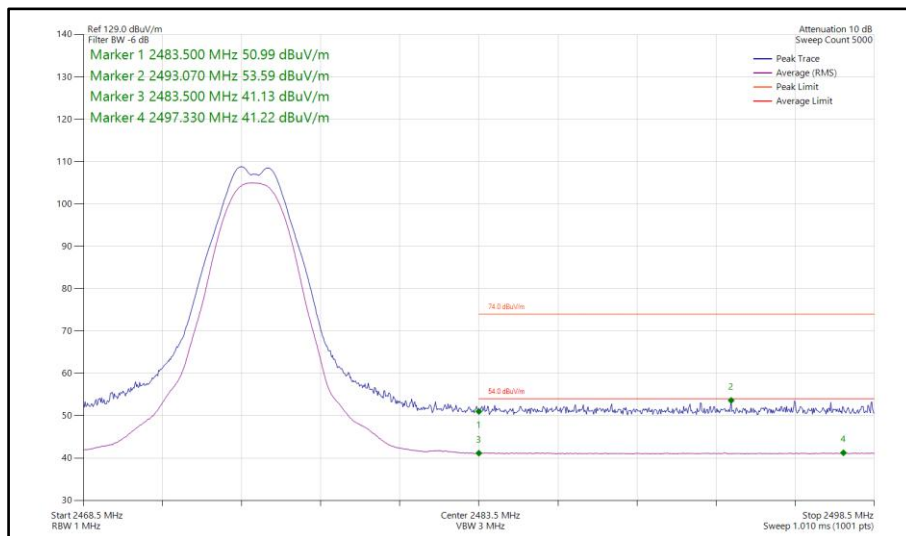
iPA - Core 2 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBμV/m)	Average Level (dBμV/m)
Thread	2405	2390	55.26	42.29
Thread	2475	2483.5	53.59	41.22

Table 9 - iPA, Core 2, SISO Restricted Band Edge Results



**Figure 5 - Thread, iPA, SISO, Core 2 - 2405 MHz
Band Edge Frequency 2390 MHz**

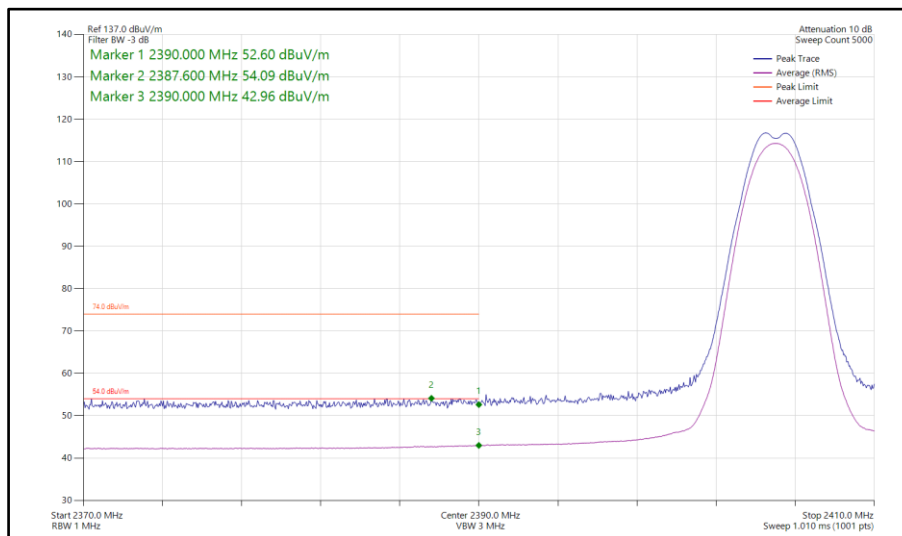


**Figure 6 - Thread, iPA, SISO, Core 2 - 2475 MHz
Band Edge Frequency 2483.5 MHz**

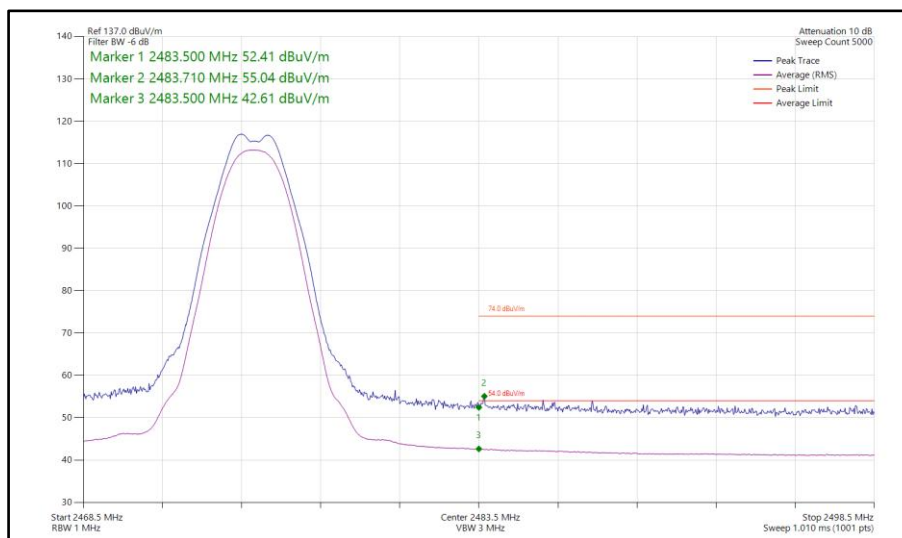
ePA - Core 0 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dB μ V/m)	Average Level (dB μ V/m)
Thread	2405	2390	54.09	42.96
Thread	2475	2483.5	55.04	42.61

Table 10 - ePA, Core 0, SISO Restricted Band Edge Results



**Figure 7 - Thread, ePA, SISO, Core 0 - 2405 MHz
Band Edge Frequency 2390 MHz**

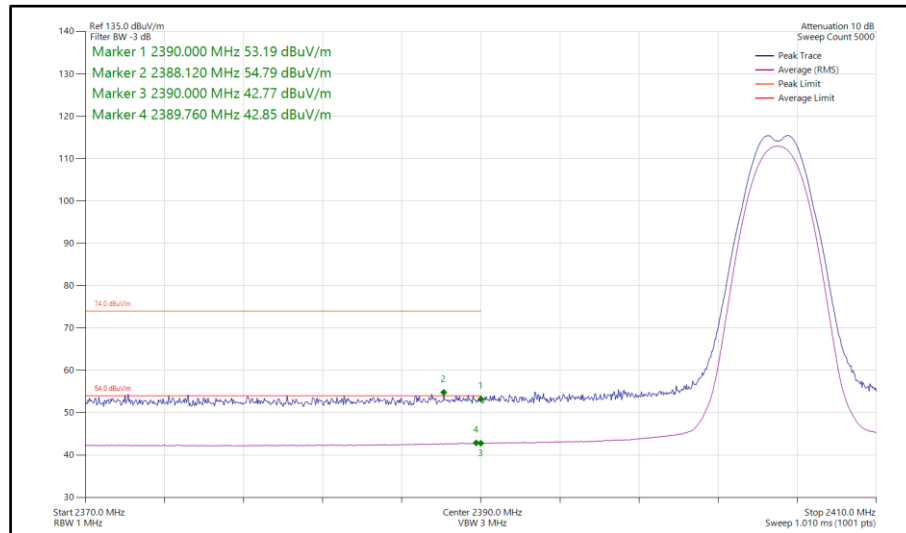


**Figure 8 - Thread, ePA, SISO, Core 0 - 2475 MHz
Band Edge Frequency 2483.5 MHz**

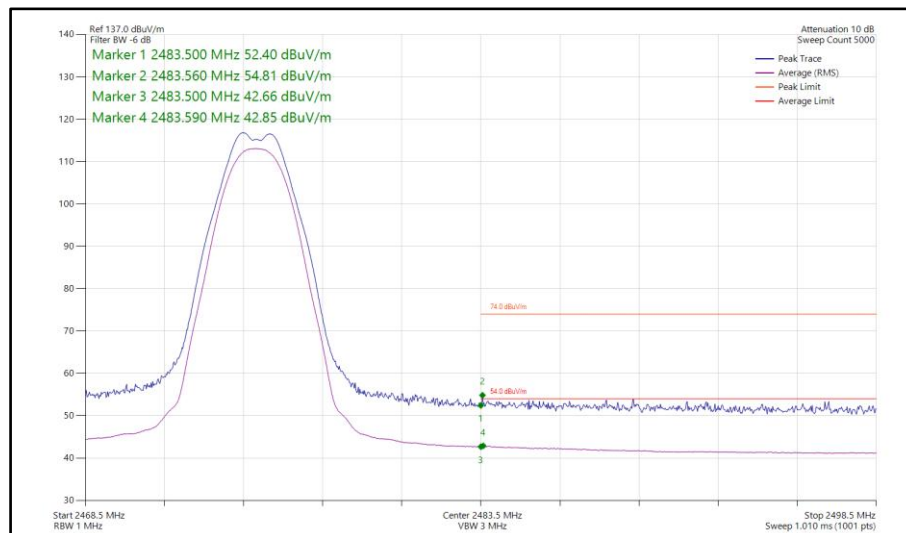
ePA - Core 1 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dB μ V/m)	Average Level (dB μ V/m)
Thread	2405	2390	54.79	42.85
Thread	2475	2483.5	54.81	42.85

Table 11 - ePA, Core 1, SISO Restricted Band Edge Results



**Figure 9 - Thread, ePA, SISO, Core 1 - 2405 MHz
Band Edge Frequency 2390 MHz**



**Figure 10 - Thread, ePA, SISO, Core 1 - 2475 MHz
Band Edge 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 12

ISED RSS-GEN, Limit Clause 8.9

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 13

*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.



2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 17.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.6.3 V.	5125	-	O/P Mon
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6018	12	12-Jun-2026
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	23-Mar-2027
USB Spectrum Analyser	Signal Hound	SA124B	6298	-	TU
Digital Multimeter	Fluke	115	6345	12	24-Jul-2026
SAC Switch Unit	TUV SUD	TUV_SSU_004 PLC	6349	12	16-May-2026
Horn Antenna (1–10.5 GHz)	Schwarzbeck	BBHA 9120 B	6457	12	14-Sep-2026
AC Power Supply	iTech	IT7324	6657	-	O/P Mon
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	07-May-2028
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
Handheld Hygrometer	Fluke	971	6837	12	16-Sep-2026
8m SMA-Type Cable	Junkosha	MWX221-08000AMSAMS/B	6846	12	23-Oct-2026
Cable Assembly	Pasternack	PE300-60	6859	-	TU
Cable Assembly	Pasternack	PE300-60	6860	-	TU
RF Amplifier BROADBAND AMPL/SMA/RoHS	Mini-Circuits	ZX60-83LN12+	6979	12	O/P Mon

Table 14

TU - Traceability Unscheduled

O/P Mon - Output Monitored using calibrated equipment



2.2 Emission Bandwidth

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(2)
ISED RSS-247, Clause 6.3.1
ISED RSS-GEN, Clause 6.7

2.2.2 Equipment Under Test and Modification State

A3545, S/N: H2DG9Y7XQ4 - Modification State 0

2.2.3 Date of Test

11-June-2026 to 22-June-2026

2.2.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.8.1 for 6 dB BW and 6.9.3 for 99% occupied bandwidth measurements.

2.2.5 Environmental Conditions

Ambient Temperature	22.0 - 23.1 °C
Relative Humidity	45.0 - 48.8 %

2.2.6 Test Results

Thread

Protocol	6 dB Bandwidth (MHz)	
	Minimum	Maximum
Thread ePA	1.608	1.624
Thread iPA	1.624	1.656

Table 15 - 6 dB Bandwidth Summary Results - SISO

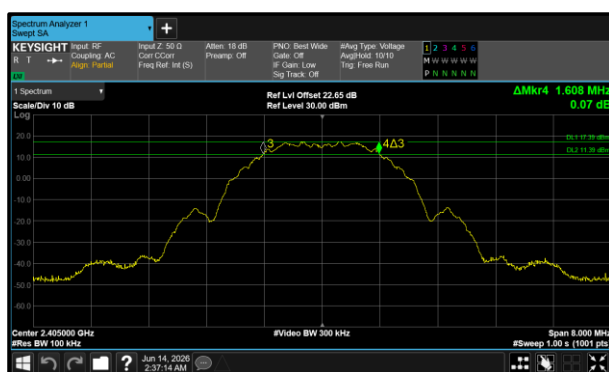


Figure 11 - Thread ePA Minimum 6 dB EBW

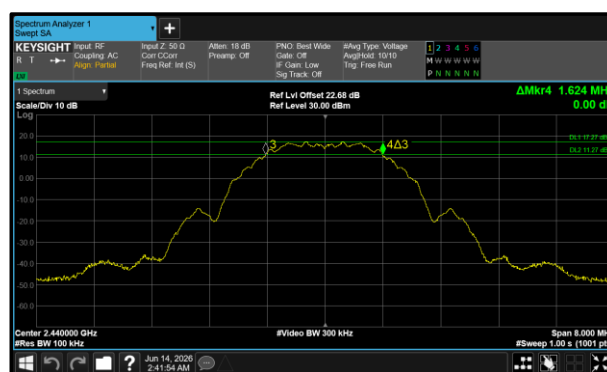


Figure 12 - Thread ePA Maximum 6 dB EBW



Figure 13 - Thread iPA Minimum 6 dB EBW

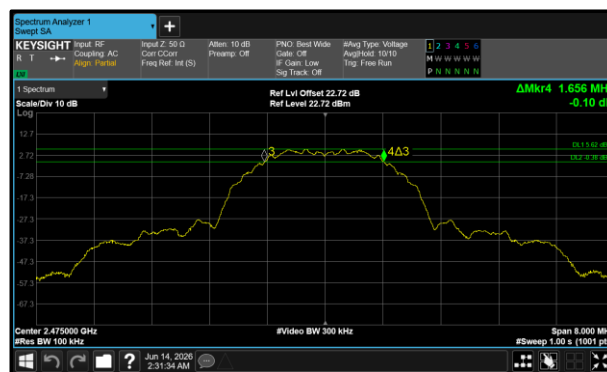


Figure 14 - Thread iPA Maximum 6 dB EBW

Protocol	99% Bandwidth (MHz)	
	Minimum	Maximum
Thread ePA	2.200	2.208
Thread iPA	2.224	2.240

Table 16 - 99% Bandwidth Summary Results - SISO

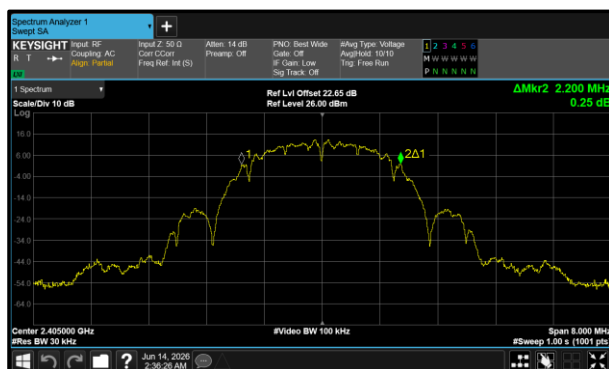


Figure 15 - Thread ePA Minimum 99% OBW

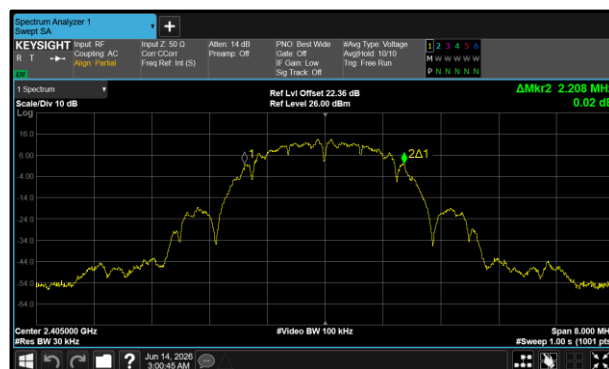


Figure 16 - Thread ePA Maximum 99% OBW

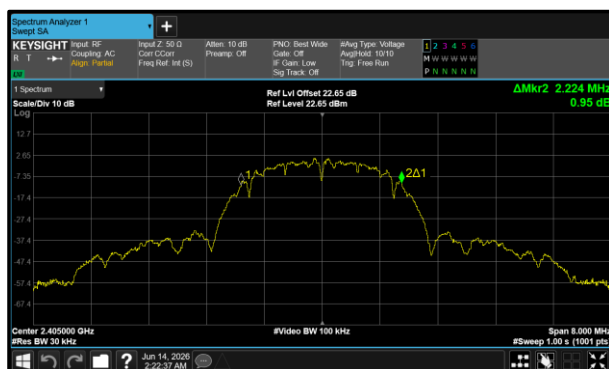


Figure 17 - Thread iPA Minimum 99% OBW



Figure 18 - Thread iPA Maximum 99% OBW



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 6.3.1	Test Method(s):	C63.10 6.9.3 C63.10 6.9.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	-
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	1.608	-	-	-	≥500.0
2440	1.624	-	-	-	≥500.0
2475	1.608	-	-	-	≥500.0

Table 17 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	2.200	-	-	-	-
2440	2.200	-	-	-	-
2475	2.200	-	-	-	-

Table 18 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 6.3.1	Test Method(s):	C63.10 6.9.3 C63.10 6.9.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	-
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	1.616	-	-	≥500.0
2440	-	1.608	-	-	≥500.0
2475	-	1.608	-	-	≥500.0

Table 19 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	2.208	-	-	-
2440	-	2.200	-	-	-
2475	-	2.200	-	-	-

Table 20 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 6.3.1	Test Method(s):	C63.10 6.9.3 C63.10 6.9.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	-
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	1.648	-	-	-	≥500.0
2440	1.648	-	-	-	≥500.0
2475	1.656	-	-	-	≥500.0

Table 21 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	2.224	-	-	-	-
2440	2.232	-	-	-	-
2475	2.232	-	-	-	-

Table 22 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 6.3.1	Test Method(s):	C63.10 6.9.3 C63.10 6.9.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	-
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	1.648	-	-	≥500.0
2440	-	1.632	-	-	≥500.0
2475	-	1.640	-	-	≥500.0

Table 23 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	2.240	-	-	-
2440	-	2.232	-	-	-
2475	-	2.232	-	-	-

Table 24 - 99% Bandwidth Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 6.3.1	Test Method(s):	C63.10 6.9.3 C63.10 6.9.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	-
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	-
Active Port(s):	C (Core 2)	Active Chain(s):	2

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	-	1.624	-	≥500.0
2440	-	-	1.640	-	≥500.0
2475	-	-	1.632	-	≥500.0

Table 25 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2405	-	-	2.240	-	-
2440	-	-	2.240	-	-
2475	-	-	2.240	-	-

Table 26 - 99% Bandwidth Results

FCC 47 CFR Part 15, Limit Clause 15.247(a)(2) and ISSED RSS-247, Clause 6.3.1(a)

The minimum 6 dB bandwidth shall be at least 500 kHz.



2.2.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 14.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5529	24	02-Jan-2027
USB Power Sensor	Boonton	RTP5008	5820	12	16-Mar-2027
USB Power Sensor	Boonton	RTP5008	5821	12	16-Mar-2027
Modular Power System mainframe	Keysight Technologies	N6701C	6151	-	O/P Mon
DC Power Module	Keysight Technologies	N6754A	6152	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6426	12	16-Mar-2027
USB Wideband Power Sensor	Boonton	RTP5008	6591	12	16-Mar-2027
Digital Thermometer	R.S Components	RS 5511	6739	12	02-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6752	12	16-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6753	12	16-Mar-2027
SCU Cable Assembly SCU	TUV SUD	SPECTRUM_SCU_CA	6754	0	16-Mar-2027
Humidity & Temperature meter	Fluke	971	7103	12	05-Aug-2026
Multimeter	Fluke	115	7115	12	13-Aug-2026

Table 27

O/P Mon - Output Monitored using calibrated equipment



2.3 Maximum Conducted Output Power

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (b)
ISED RSS-247, Clause 6.3.2
ISED RSS-GEN, Clause 6.12

2.3.2 Equipment Under Test and Modification State

A3545, S/N: H2DG9Y7XQ4 - Modification State 0

2.3.3 Date of Test

11-June-2026 to 22-June-2026

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10 clause 11.9.2.3.2 Method AVGPM-G

2.3.5 Environmental Conditions

Ambient Temperature	22.0 - 23.1 °C
Relative Humidity	45.0 - 48.8 %



2.3.6 Test Results

Thread

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (b)(3) RSS-247 6.3.2	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	99.5
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.20
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	Σ		
2405	8.73	-	-	-	8.73	30.00	-21.27
2440	8.81	-	-	-	8.81	30.00	-21.19
2475	8.92	-	-	-	8.92	30.00	-21.08

Table 28 - 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	Σ					
2405	8.73	-	-	-	8.73	30.00	-21.27	9.93	36.00	-26.07
2440	8.81	-	-	-	8.81	30.00	-21.19	10.01	36.00	-25.99
2475	8.92	-	-	-	8.92	30.00	-21.08	10.12	36.00	-25.88

Table 29 - 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 6.3.2	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.40
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2405	-	8.50	-	-	8.50	30.00	-21.50
2440	-	8.69	-	-	8.69	30.00	-21.31
2475	-	8.90	-	-	8.90	30.00	-21.10

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	Σ					
2405	-	8.50	-	-	8.50	30.00	-21.50	9.90	36.00	-26.10
2440	-	8.69	-	-	8.69	30.00	-21.31	10.09	36.00	-25.91
2475	-	8.90	-	-	8.90	30.00	-21.10	10.30	36.00	-25.70

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 6.3.2	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.00
Active Port(s):	C (Core 2)	Active Chain(s):	2

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2405	-	-	12.85	-	12.85	30.00	-17.15
2440	-	-	12.72	-	12.72	30.00	-17.28
2475	-	-	12.71	-	12.71	30.00	-17.29

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	Σ					
2405	-	-	12.85	-	12.85	30.00	-17.15	13.85	36.00	-22.15
2440	-	-	12.72	-	12.72	30.00	-17.28	13.72	36.00	-22.28
2475	-	-	12.71	-	12.71	30.00	-17.29	13.71	36.00	-22.29

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 6.3.2	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.20
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	Σ		
2405	20.61	-	-	-	20.61	30.00	-9.39
2440	20.79	-	-	-	20.79	30.00	-9.21
2475	20.74	-	-	-	20.74	30.00	-9.26

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	Σ					
2405	20.61	-	-	-	20.61	30.00	-9.39	21.81	36.00	-14.19
2440	20.79	-	-	-	20.79	30.00	-9.21	21.99	36.00	-14.01
2475	20.74	-	-	-	20.74	30.00	-9.26	21.94	36.00	-14.06

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 6.3.2	Test Method(s):	C63.10 11.9.2.3.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	-
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.40
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	Maximum Conducted Output Power (dBm)					Limit (dBm)	Margin (dB)
	A	B	C	D	Σ		
2405	-	20.81	-	-	20.81	30.00	-9.19
2440	-	20.66	-	-	20.66	30.00	-9.34
2475	-	20.90	-	-	20.90	30.00	-9.10

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	Σ					
2405	-	20.81	-	-	20.81	30.00	-9.19	22.21	36.00	-13.79
2440	-	20.66	-	-	20.66	30.00	-9.34	22.06	36.00	-13.94
2475	-	20.90	-	-	20.90	30.00	-9.10	22.30	36.00	-13.70

Table 37 - 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 6.3.2

For DTSSs 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 Laboratory 14.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5529	24	02-Jan-2027
USB Power Sensor	Boonton	RTP5008	5820	12	16-Mar-2027
USB Power Sensor	Boonton	RTP5008	5821	12	16-Mar-2027
Modular Power System mainframe	Keysight Technologies	N6701C	6151	-	O/P Mon
DC Power Module	Keysight Technologies	N6754A	6152	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6426	12	16-Mar-2027
USB Wideband Power Sensor	Boonton	RTP5008	6591	12	16-Mar-2027
Digital Thermometer	R.S Components	RS 5511	6739	12	02-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6752	12	16-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6753	12	16-Mar-2027
SCU Cable Assembly SCU	TUV SUD	SPECTRUM_SCU_CA	6754	0	16-Mar-2027
Humidity & Temperature meter	Fluke	971	7103	12	05-Aug-2026
Multimeter	Fluke	115	7115	12	13-Aug-2026

Table 38

O/P Mon - Output Monitored using calibrated equipment



2.4 Authorised Band Edges

2.4.1 Specification Reference

FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN, Clause 15.247 (d), 6.6 and N/A

2.4.2 Equipment Under Test and Modification State

A3545, S/N: CQ4KHF6M2W - Modification State 0

2.4.3 Date of Test

29-April-2026

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	23.7 °C
Relative Humidity	34.9 %



2.4.6 Test Results

Thread

iPA - Core 0 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Thread	2405	2400	-56.95

Table 39 - iPA, Core 0, SISO Authorised Band Edge Results

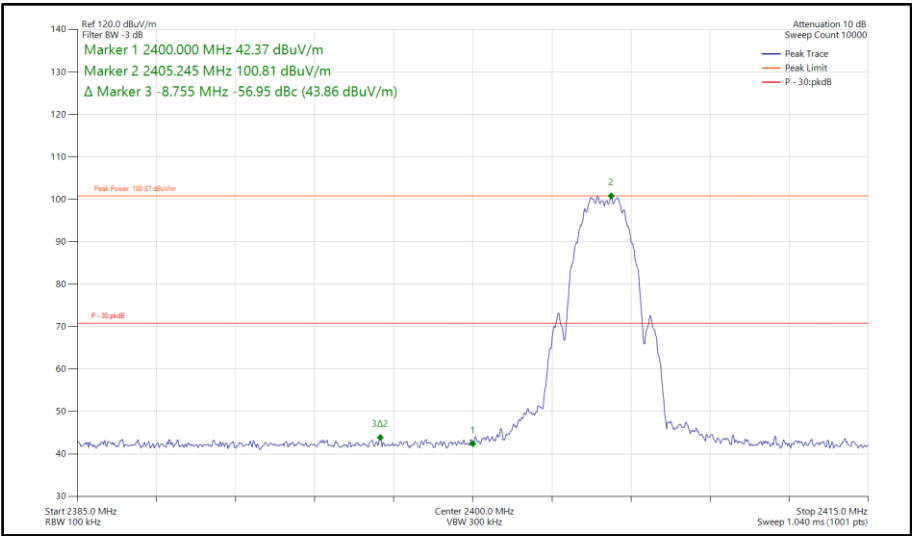


Figure 19 - Thread, iPA, SISO, Core 0 - 2405 MHz
Band Edge Frequency 2400 MHz



iPA - Core 1 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Thread	2405	2400	-57.06

Table 40 - iPA, Core 1, SISO Authorised Band Edge Results

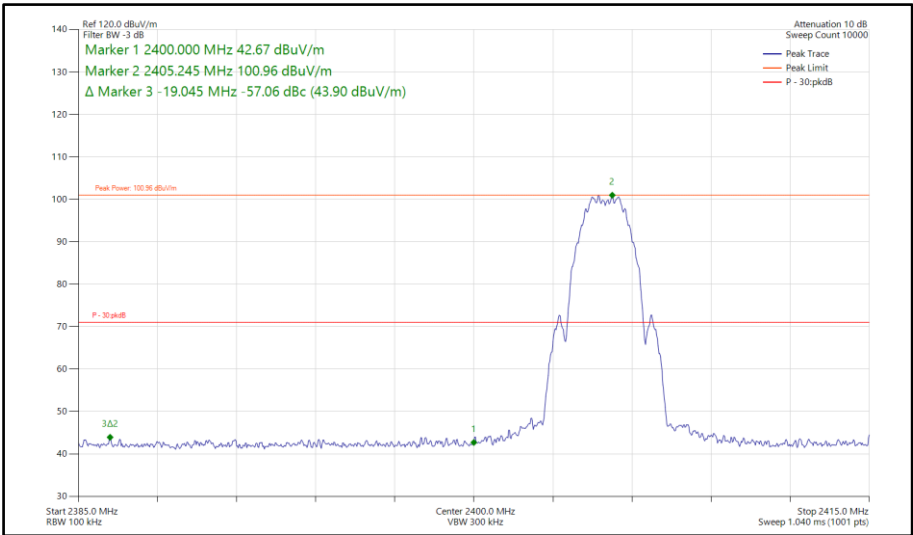


Figure 20 - Thread, iPA, SISO, Core 1 - 2405 MHz
Band Edge Frequency 2400 MHz



iPA - Core 2 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Thread	2405	2400	-61.50

Table 41 - iPA, Core 2, SISO Authorised Band Edge Results

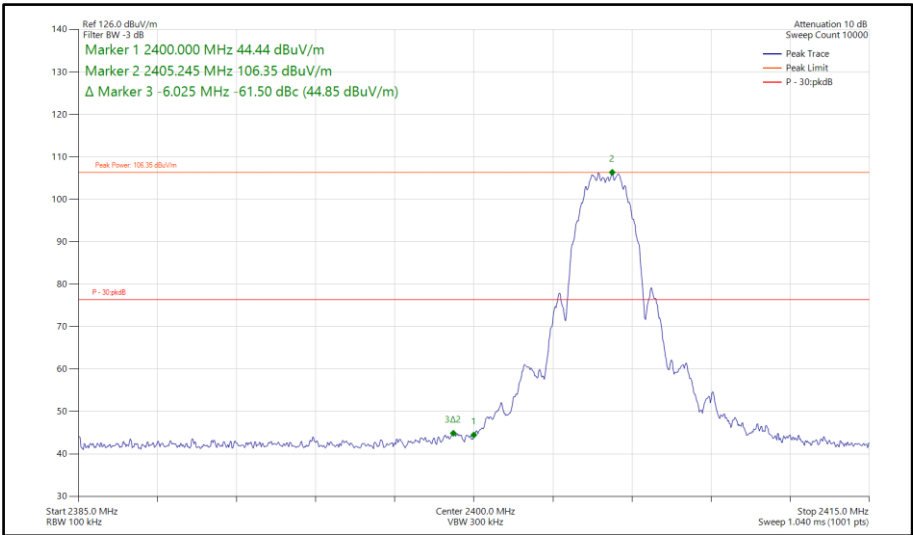


Figure 21 - Thread, iPA, SISO, Core 2 - 2405 MHz
Band Edge Frequency 2400 MHz



ePA - Core 0 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Thread	2405	2400	-66.31

Table 42 - ePA, Core 0, SISO Authorised Band Edge Results

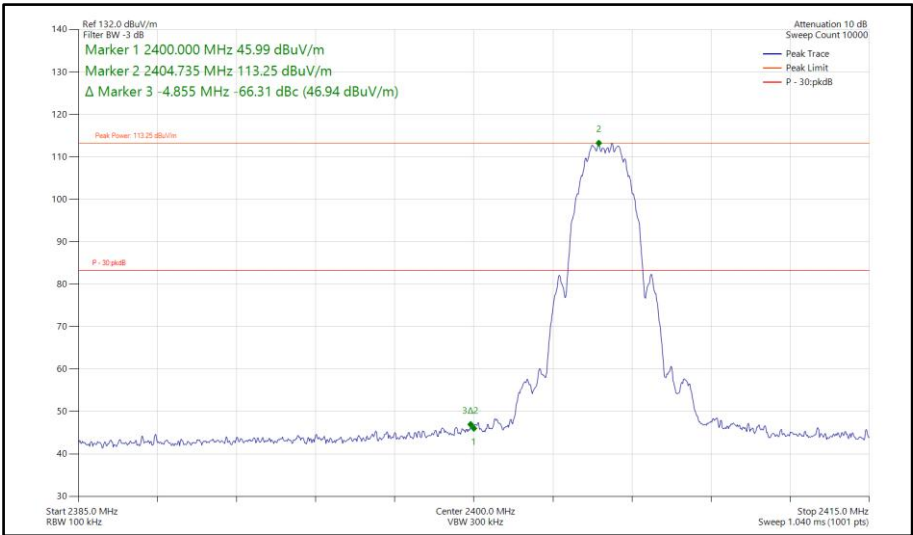
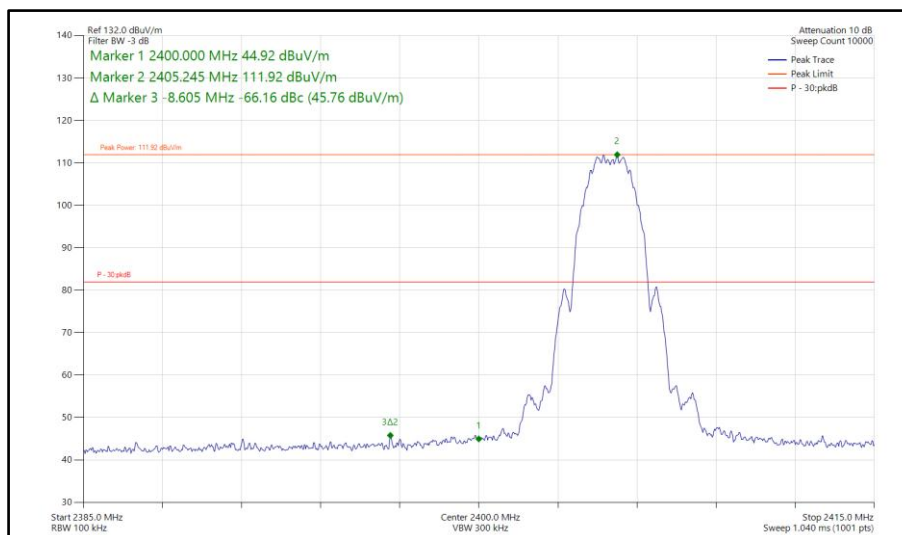


Figure 22 - Thread, ePA, SISO, Core 0 - 2405 MHz
Band Edge Frequency 2400 MHz

ePA - Core 1 (SISO)

Mode	TX Frequency (MHz)	Band Edge Frequency (MHz)	Level (dBc)
Thread	2405	2400	-66.16

Table 43 - ePA, Core 1, SISO Authorised Band Edge Results



**Figure 23 - Thread, ePA, SISO, Core 1 - 2405 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 6.6

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 17.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.6.3 V.	5125	-	O/P Mon
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6018	12	12-Jun-2026
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	23-Mar-2027
USB Spectrum Analyser	Signal Hound	SA124B	6298	-	TU
Digital Multimeter	Fluke	115	6345	12	24-Jul-2026
SAC Switch Unit	TUV SUD	TUV_SSU_004 PLC	6349	12	16-May-2026
Horn Antenna (1–10.5 GHz)	Schwarzbeck	BBHA 9120 B	6457	12	14-Sep-2026
AC Power Supply	iTech	IT7324	6657	-	O/P Mon
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	07-May-2028
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
Handheld Hygrometer	Fluke	971	6837	12	16-Sep-2026
8m SMA-Type Cable	Junkosha	MWX221-08000AMSAMS/B	6846	12	23-Oct-2026
Cable Assembly	Pasternack	PE300-60	6859	-	TU
Cable Assembly	Pasternack	PE300-60	6860	-	TU
RF Amplifier BROADBAND AMPL/SMA/RoHS	Mini-Circuits	ZX60-83LN12+	6979	12	O/P Mon

Table 44

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 2.4 and 6.6
ISED RSS-GEN, Clause 6.13 and 8.9

2.5.2 Equipment Under Test and Modification State

A3545, S/N: M9TDL77966 - Modification State 0
A3545, S/N: CQ4KHF6M2W - Modification State 0

2.5.3 Date of Test

13-May-2026 to 19-May-2026

2.5.4 Test Method

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

Ports on the EUT were terminated with loads as described in ANSI C63.10 clause 6.2.3.

Pre-scans in the 30 MHz to 1 GHz & 18 GHz to 26GHz range were limited to mid channel (2440 MHz).

The plots shown are the characterisation of the EUT. The limits on the plots represent the most stringent case for restricted bands, (74/54 dBµV/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 20 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:
 $10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$

To determine the emission characteristic of the EUT above 18 GHz, the test antenna was swept over all faces of the EUT whilst observing a spectral display. The frequency of any emissions of interest was noted for formal measurement at the correct measurement distance of 1m. This procedure was repeated for all relevant transmit operating channels.

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

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

2.5.5 Example Test Setup Diagram

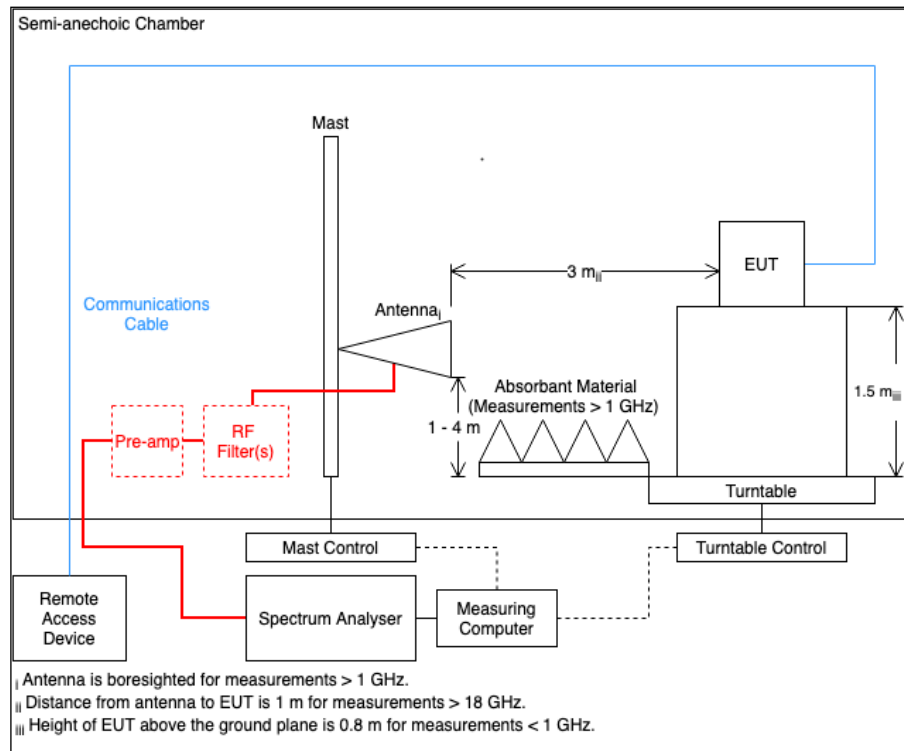


Figure 24

2.5.6 Environmental Conditions

Ambient Temperature	18.8 - 22.1 °C
Relative Humidity	29.6 – 39.4%



2.5.7 Test Results

Thread

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

Table 45 - 2405 MHz (CH11), Thread, ePA, Core 0, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

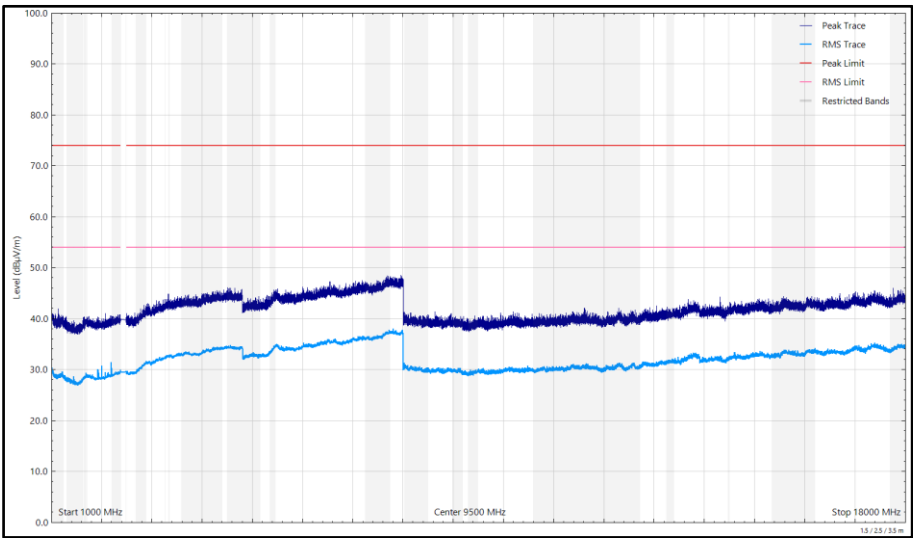


Figure 25 - 2405 MHz (CH11), Thread, ePA, Core 0, 1 GHz to 18 GHz, Horizontal

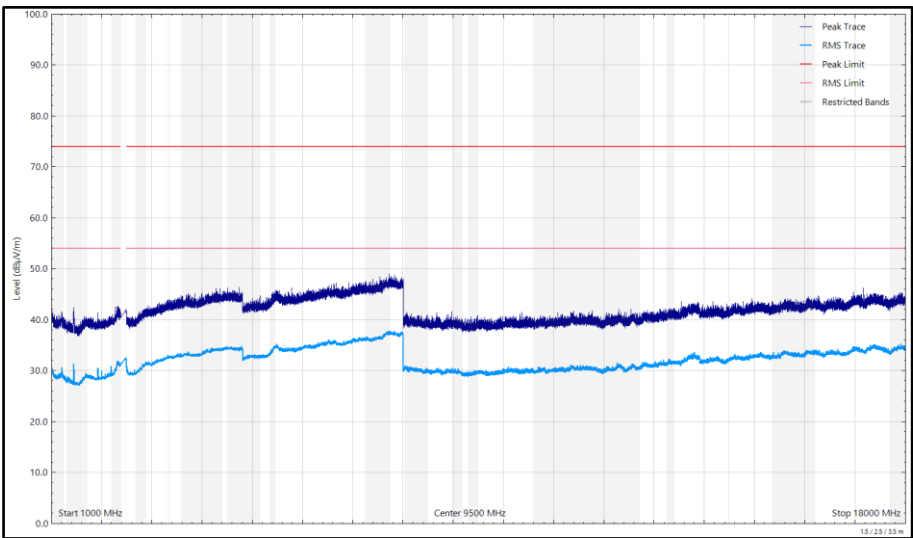


Figure 26 - 2405 MHz (CH11), Thread, ePA, Core 0, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
38.163	21.65	40.00	-18.35	Q-Peak	313	185	Vertical

Table 46 - 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 26 GHz

No other emissions found within 20 dB of the limit.

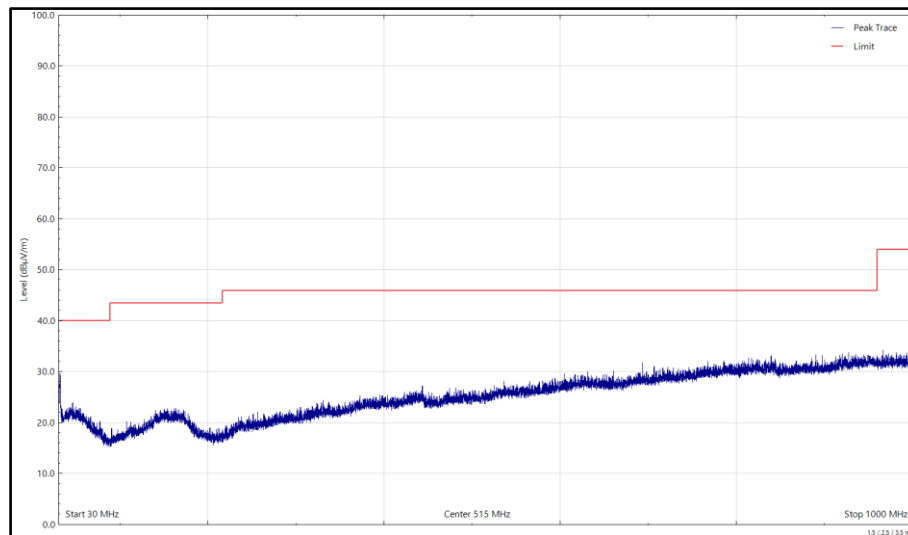


Figure 27 - 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

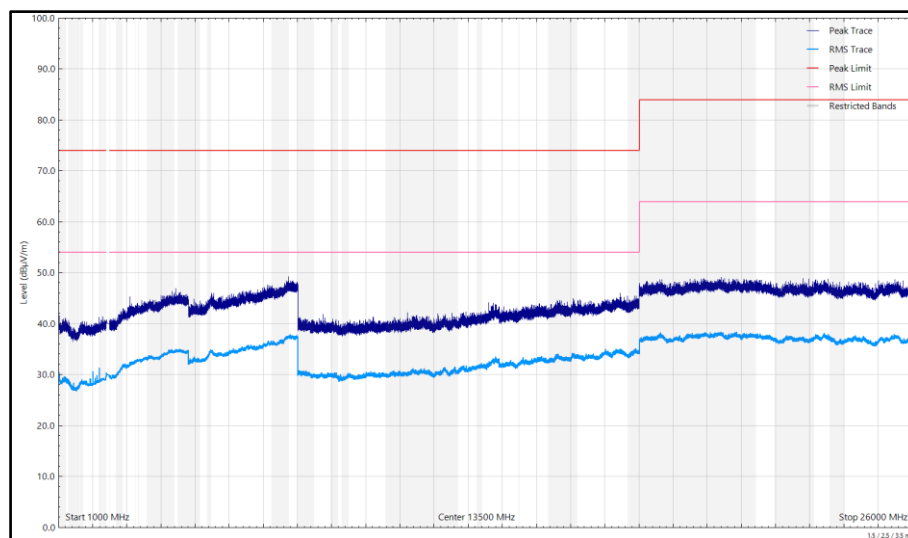


Figure 28 - 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 26 GHz, Horizontal

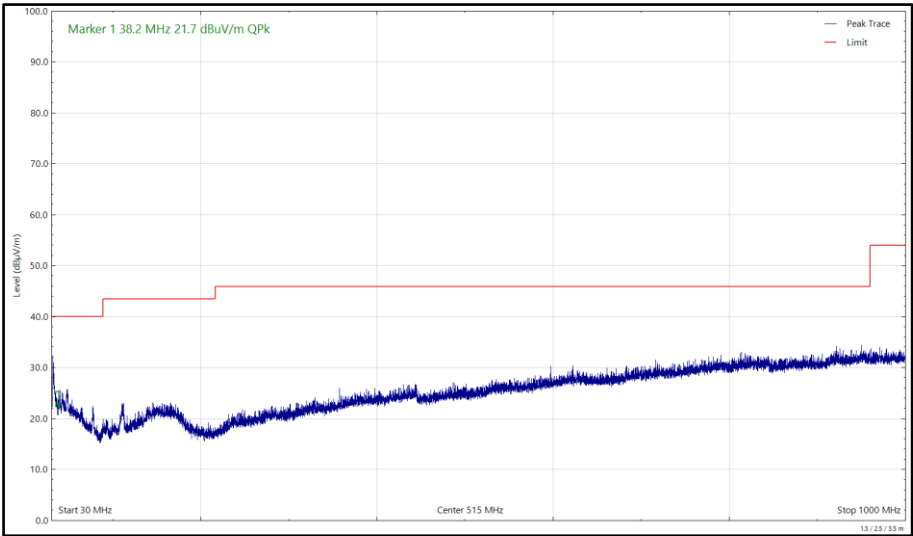


Figure 29 - 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

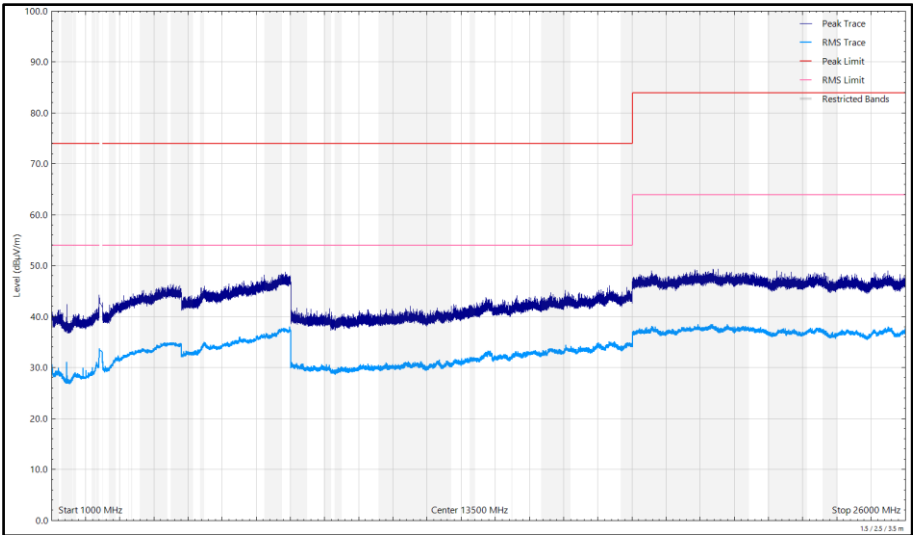


Figure 30 - 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 26 GHz, Vertical



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

Table 47 - 2475 MHz (CH25), Thread, ePA, Core 0, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

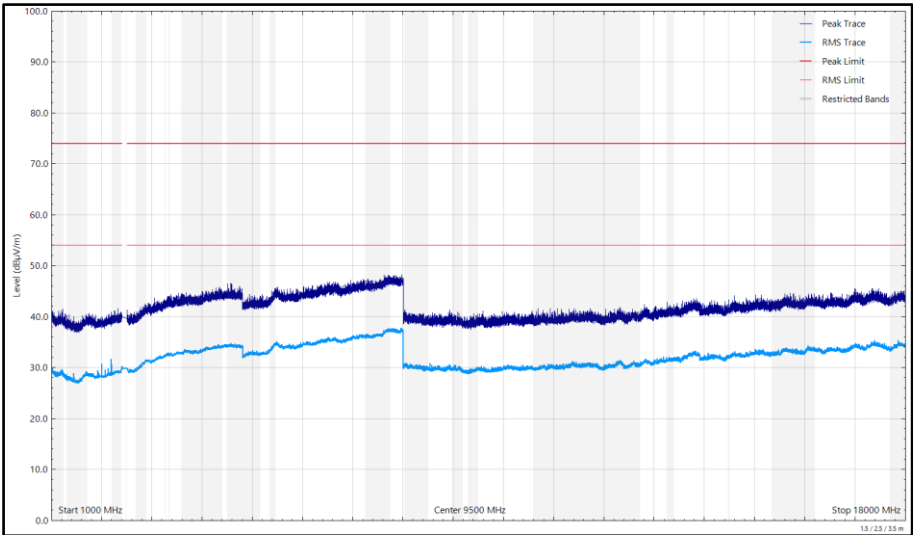


Figure 31 - 2475 MHz (CH25), Thread, ePA, Core 0, 1 GHz to 18 GHz, Horizontal

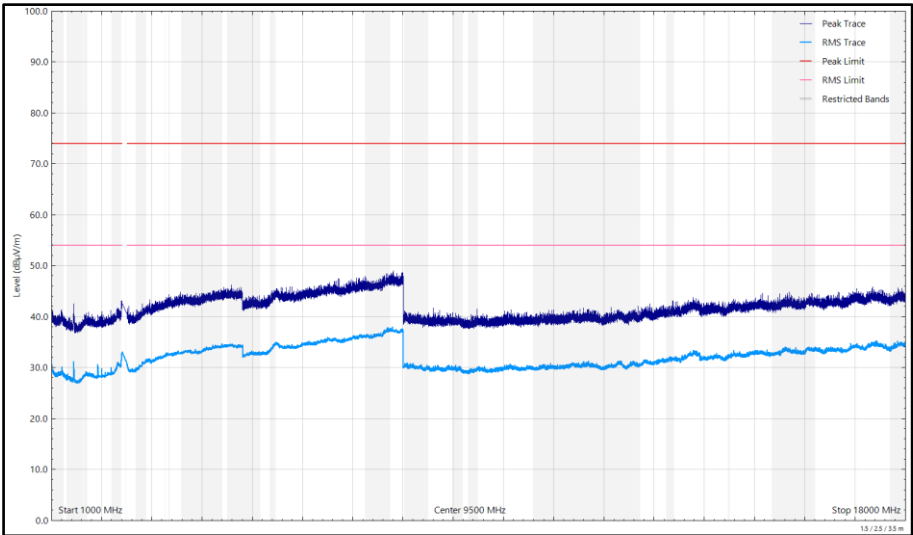


Figure 32 - 2475 MHz (CH25), Thread, ePA, Core 0, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2483.546	33.25	54.00	-20.75	RMS	9	281	Vertical

Table 48 - 2405 MHz (CH11), Thread, ePA, Core 1, 1 GHz to 18 GHz

No other emissions found within 20 dB of the limit.

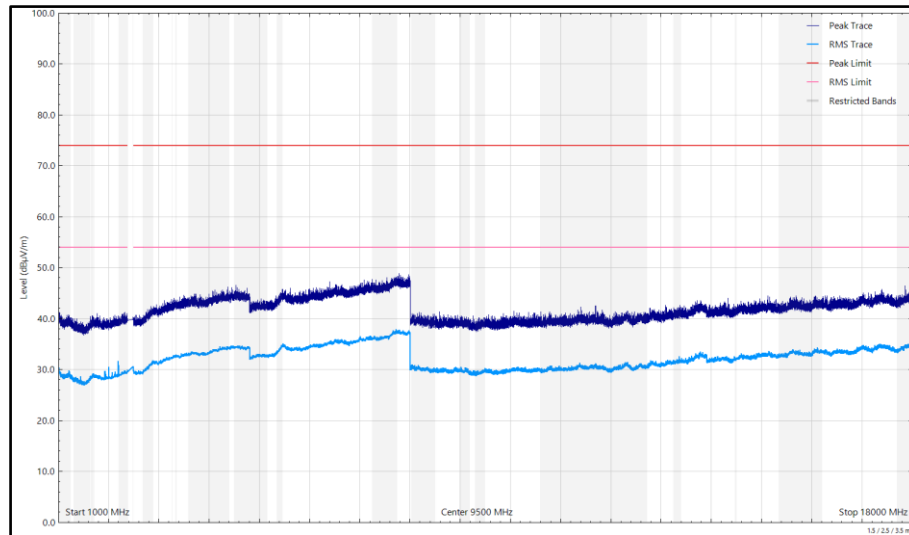


Figure 33 - 2405 MHz (CH11), Thread, ePA, Core 1, 1 GHz to 18 GHz, Horizontal

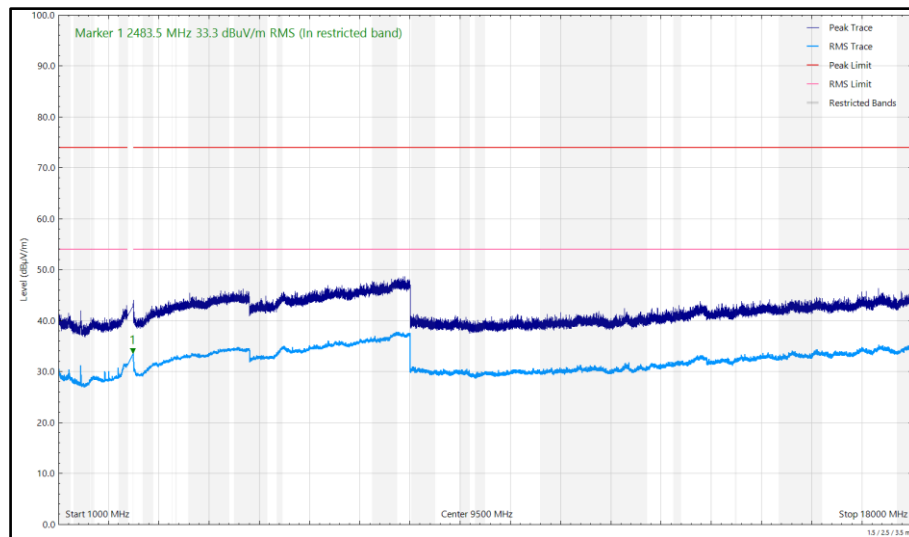


Figure 34 - 2405 MHz (CH11), Thread, ePA, Core 1, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.796	20.90	40.00	-19.10	Q-Peak	10	296	Horizontal
2389.948	34.79	54.00	-19.21	RMS	0	321	Vertical
2483.946	34.37	54.00	-19.63	RMS	0	291	Vertical

Table 49 - 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 26 GHz

No other emissions found within 20 dB of the limit.

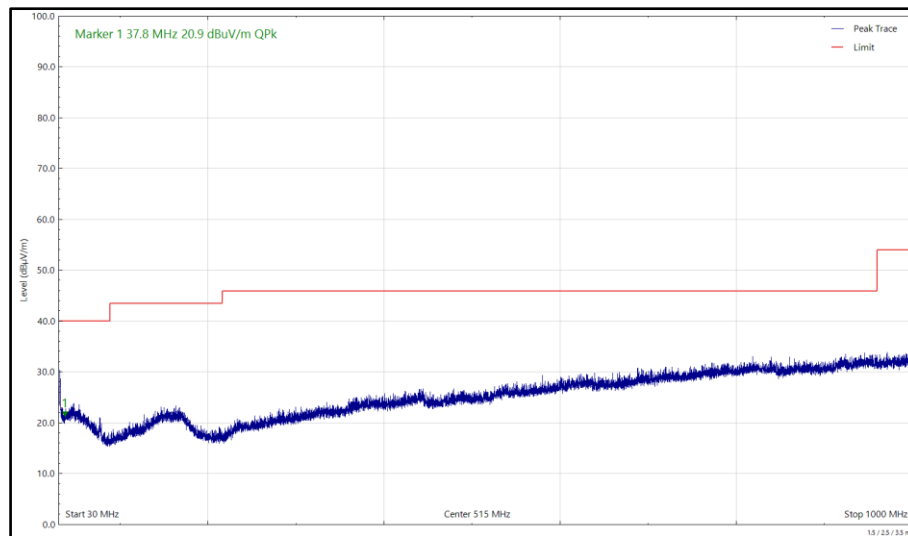


Figure 35 - 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

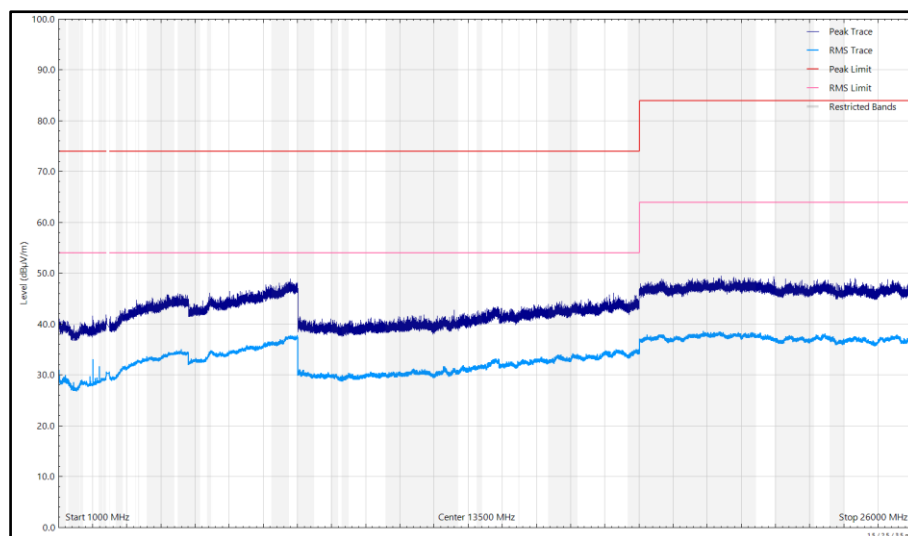


Figure 36 - 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 26 GHz, Horizontal

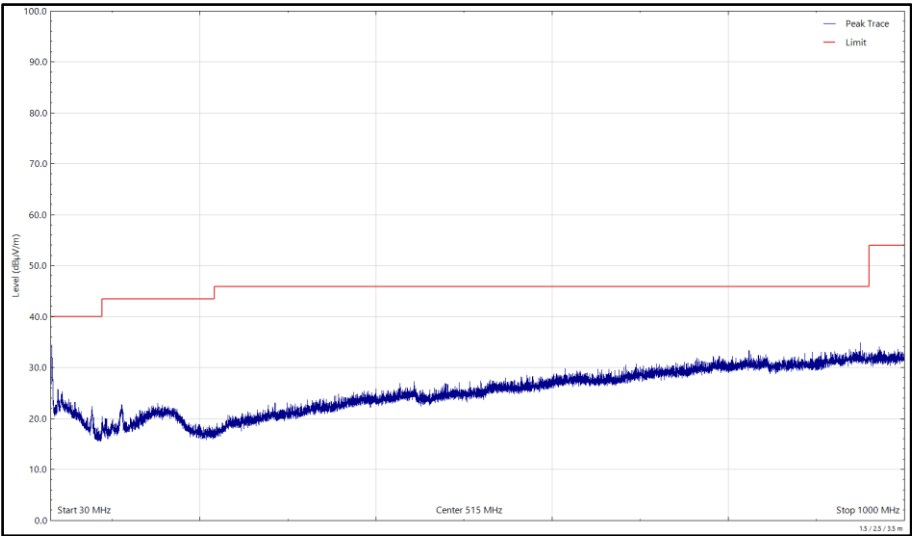


Figure 37 - 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

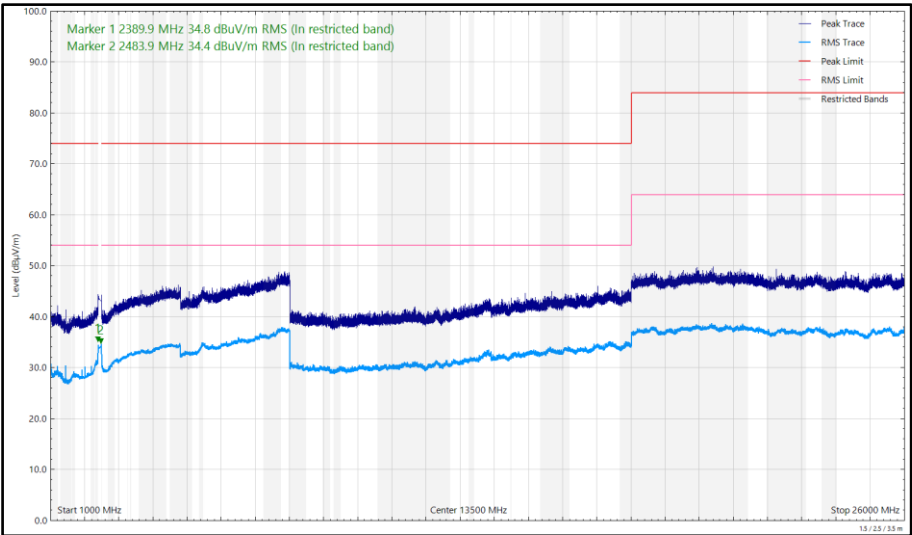


Figure 38 - 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 26 GHz, Vertical



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

Table 50 - 2475 MHz (CH25), Thread, ePA, Core 1, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

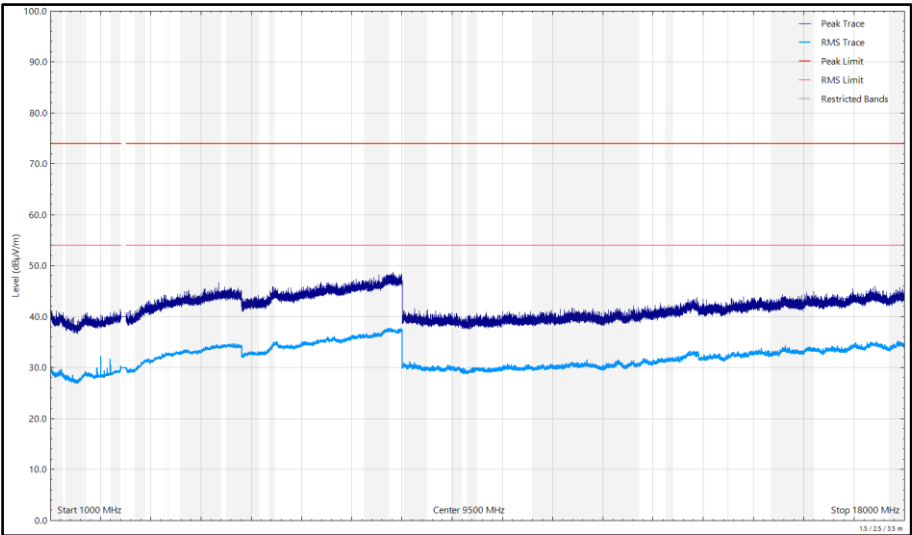


Figure 39 - 2475 MHz (CH25), Thread, ePA, Core 1, 1 GHz to 18 GHz, Horizontal

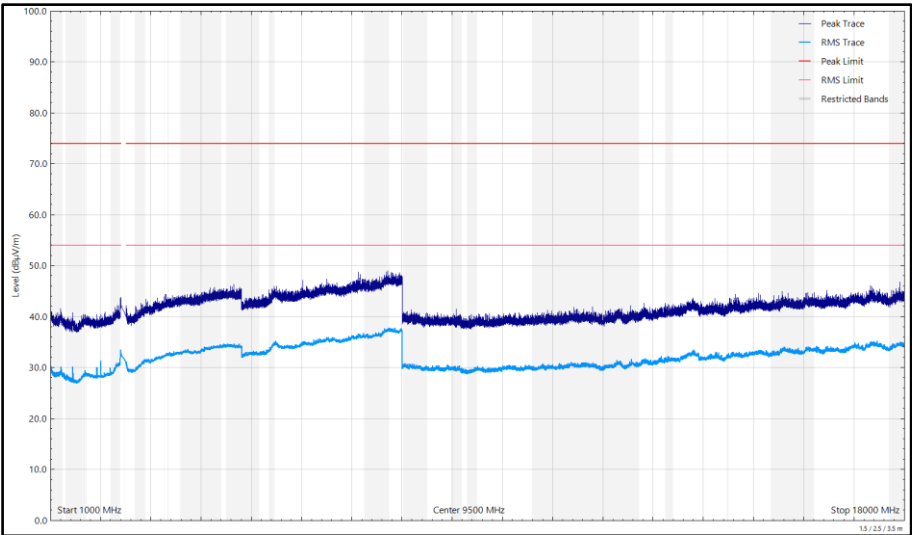


Figure 40 - 2475 MHz (CH25), Thread, ePA, Core 1, 1 GHz to 18 GHz, Vertical



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

Table 51 - 2405 MHz (CH11), Thread, iPA, Core 0, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

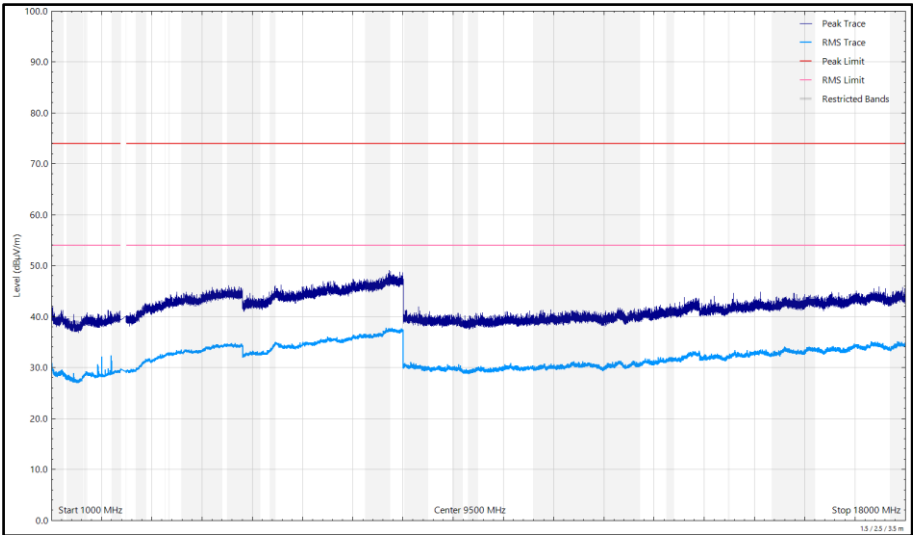


Figure 41 - 2405 MHz (CH11), Thread, iPA, Core 0, 1 GHz to 18 GHz, Horizontal

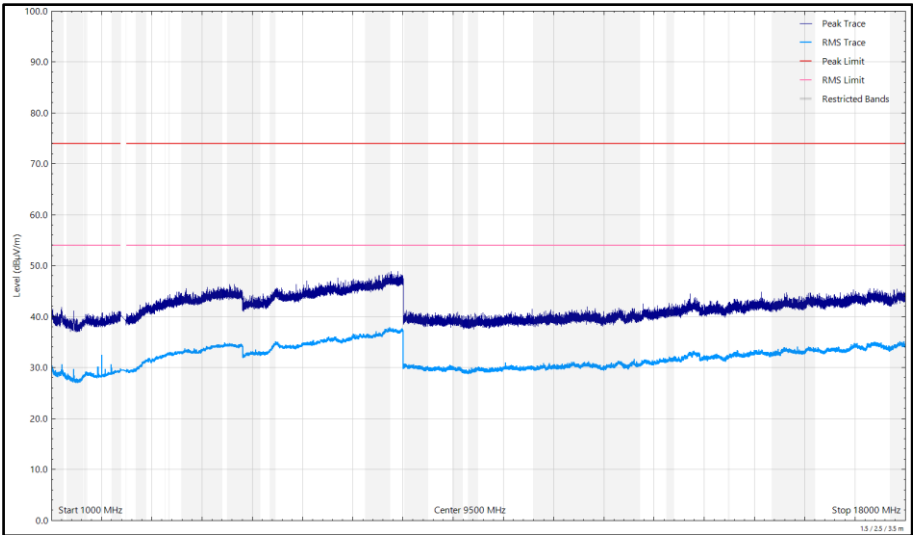


Figure 42 - 2405 MHz (CH11), Thread, iPA, Core 0, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.948	21.98	40.00	-18.02	Q-Peak	279	120	Vertical
167.019	21.43	43.50	-22.07	Q-Peak	40	257	Horizontal

Table 52 - 2440 MHz (CH18), Thread, iPA, Core 0, 30 MHz to 26 GHz

No other emissions found within 20 dB of the limit.

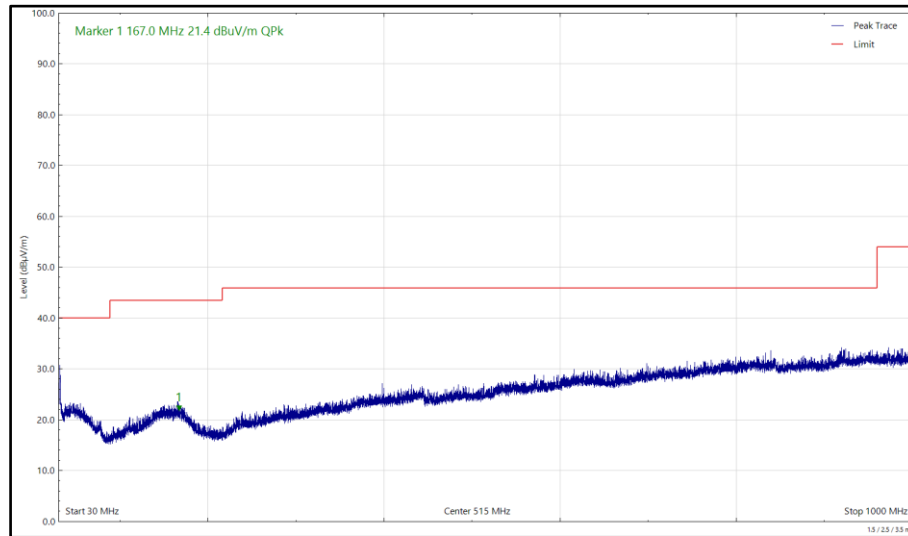


Figure 43 - 2440 MHz (CH18), Thread, iPA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

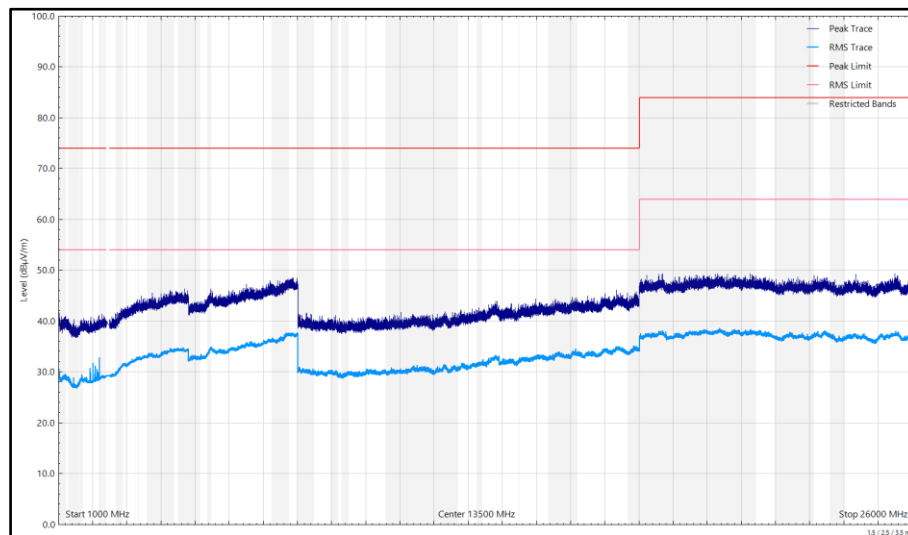


Figure 44 - 2440 MHz (CH18), Thread, iPA, Core 0, 1 GHz to 26 GHz, Horizontal

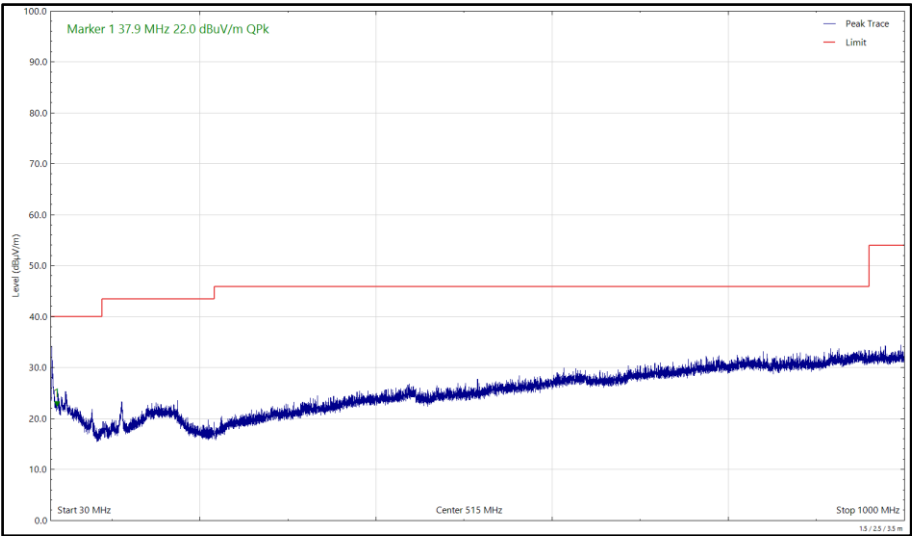


Figure 45 - 2440 MHz (CH18), Thread, iPA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

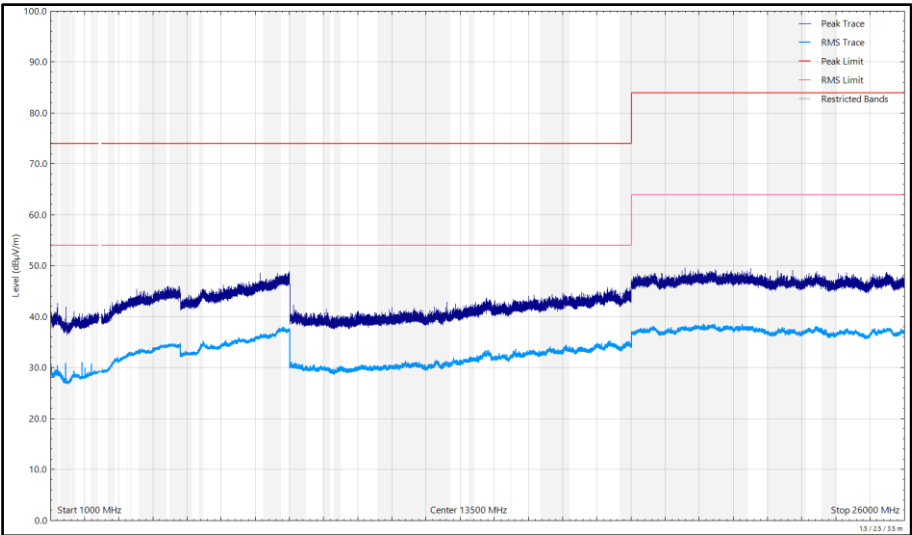


Figure 46 - 2440 MHz (CH18), Thread, iPA, Core 0, 1 GHz to 26 GHz, Vertical



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

Table 53 - 2475 MHz (CH25), Thread, iPA, Core 0, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

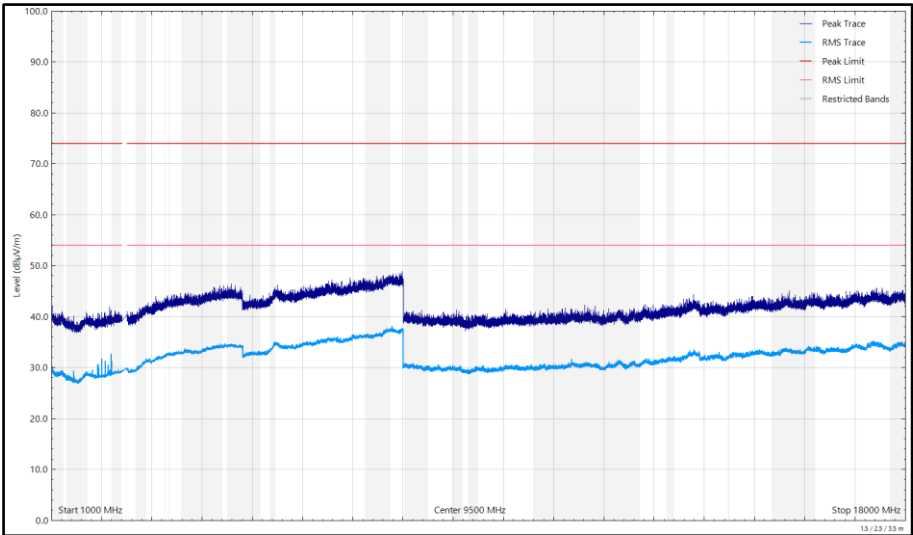


Figure 47 - 2475 MHz (CH25), Thread, iPA, Core 0, 1 GHz to 18 GHz, Horizontal

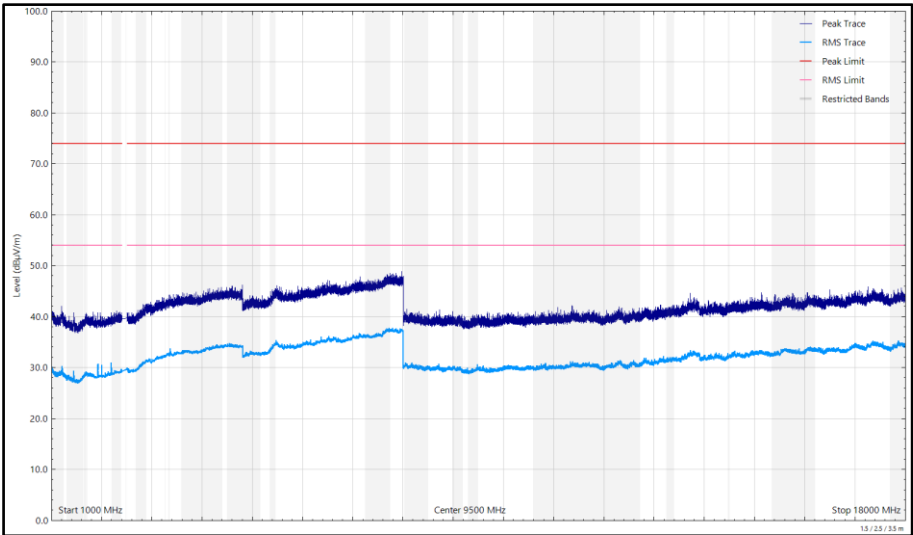


Figure 48 - 2475 MHz (CH25), Thread, iPA, Core 0, 1 GHz to 18 GHz, Vertical



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

Table 54 - 2405 MHz (CH11), Thread, iPA, Core 1, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

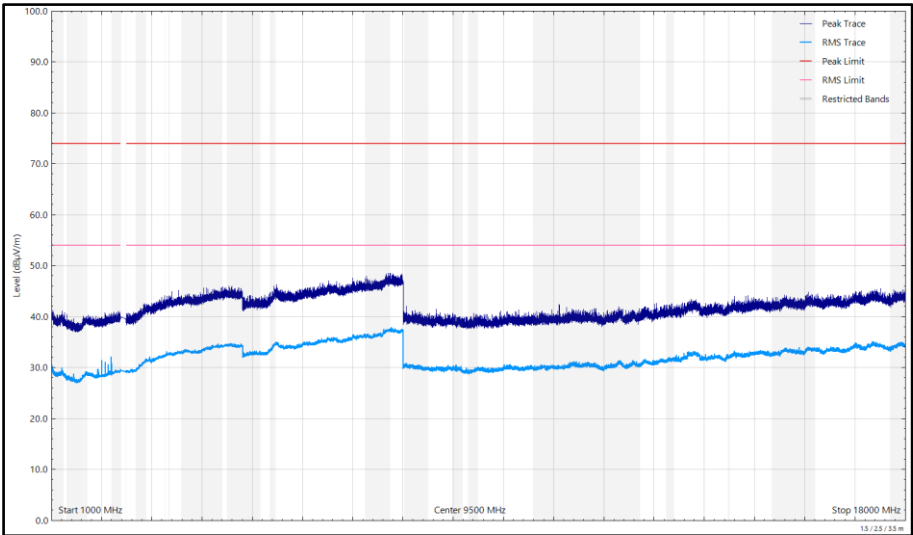


Figure 49 - 2405 MHz (CH11), Thread, iPA, Core 1, 1 GHz to 18 GHz, Horizontal

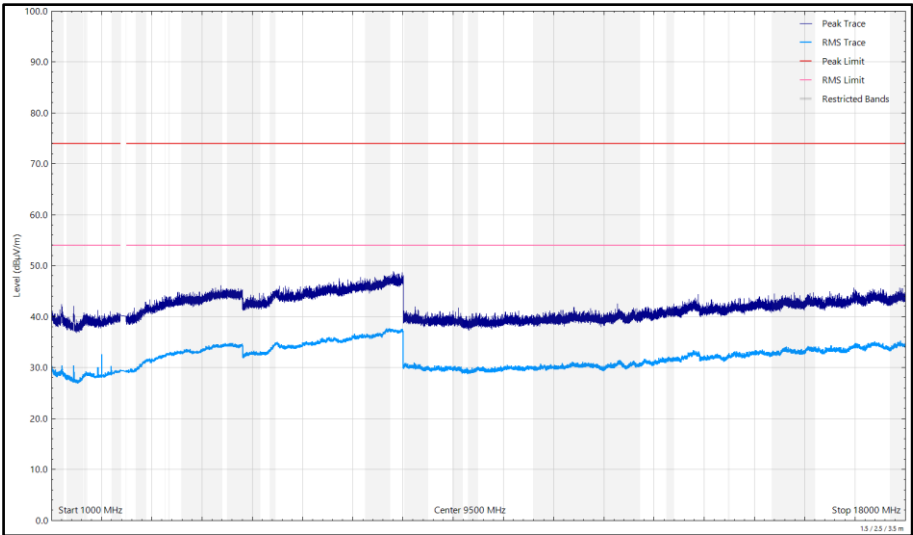


Figure 50 - 2405 MHz (CH11), Thread, iPA, Core 1, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.690	21.00	40.00	-19.00	Q-Peak	144	137	Horizontal
38.091	21.72	40.00	-18.28	Q-Peak	206	159	Vertical
110.835	19.46	43.50	-24.04	Q-Peak	216	150	Vertical
169.954	21.34	43.50	-22.16	Q-Peak	309	191	Vertical
170.581	21.22	43.50	-22.28	Q-Peak	338	100	Horizontal

Table 55 - 2440 MHz (CH18), Thread, iPA, Core 1, 30 MHz to 26 GHz

No other emissions found within 20 dB of the limit.

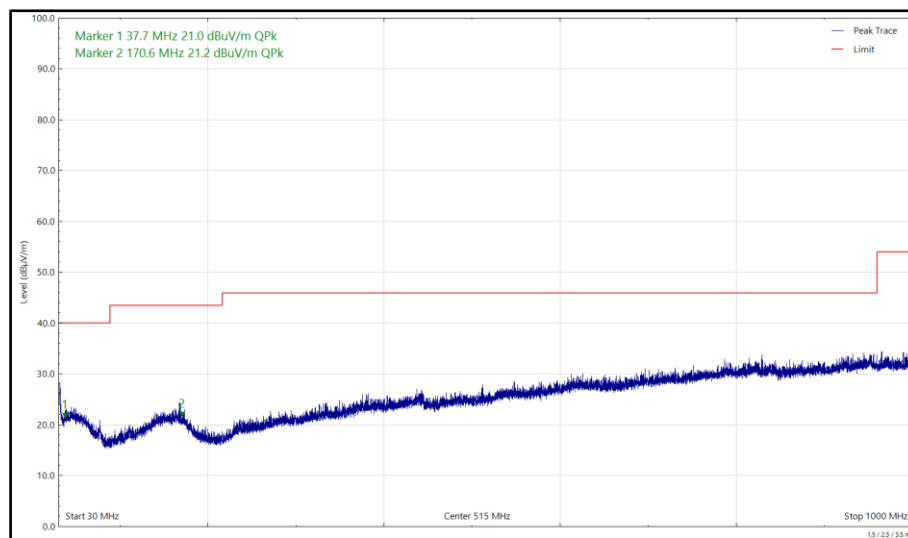


Figure 51 - 2440 MHz (CH18), Thread, iPA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

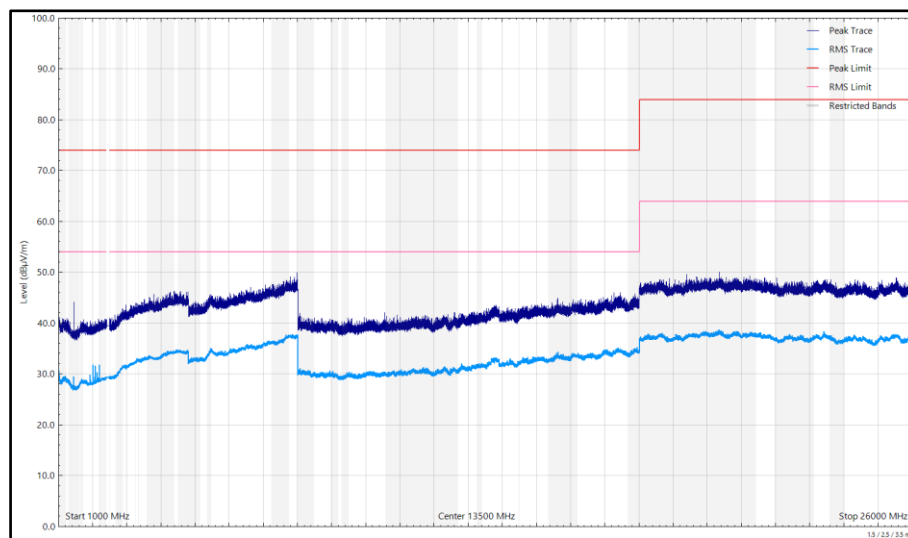


Figure 52 - 2440 MHz (CH18), Thread, iPA, Core 1, 1 GHz to 26 GHz, Horizontal

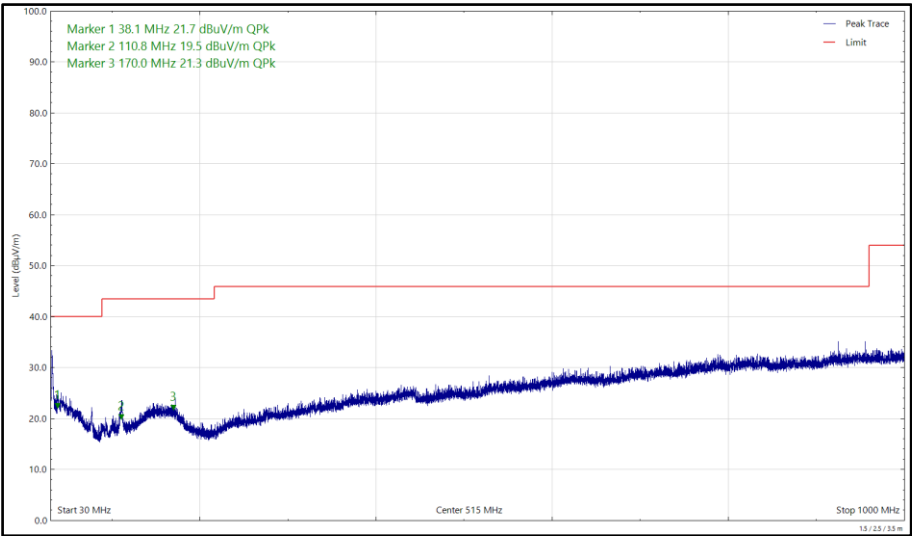


Figure 53 - 2440 MHz (CH18), Thread, iPA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

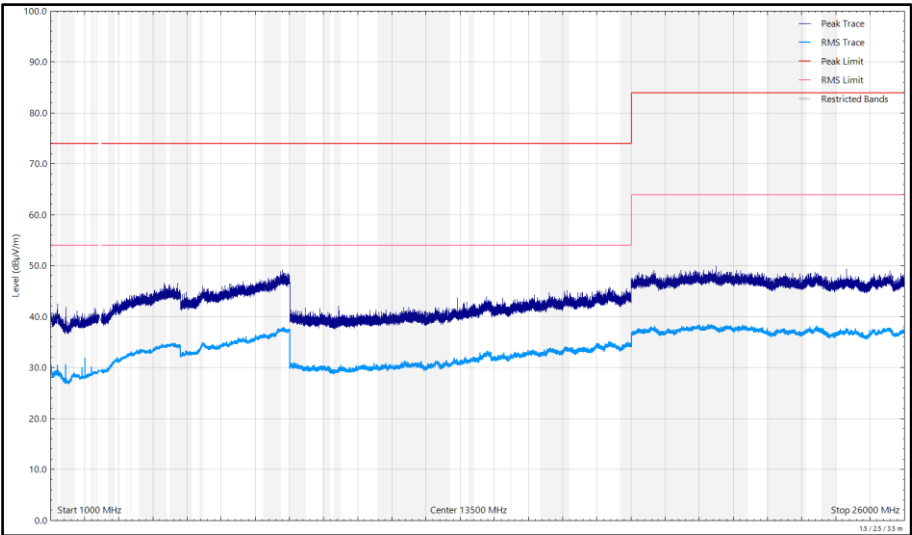


Figure 54 - 2440 MHz (CH18), Thread, iPA, Core 1, 1 GHz to 26 GHz, Vertical



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

Table 56 - 2475 MHz (CH25), Thread, iPA, Core 1, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

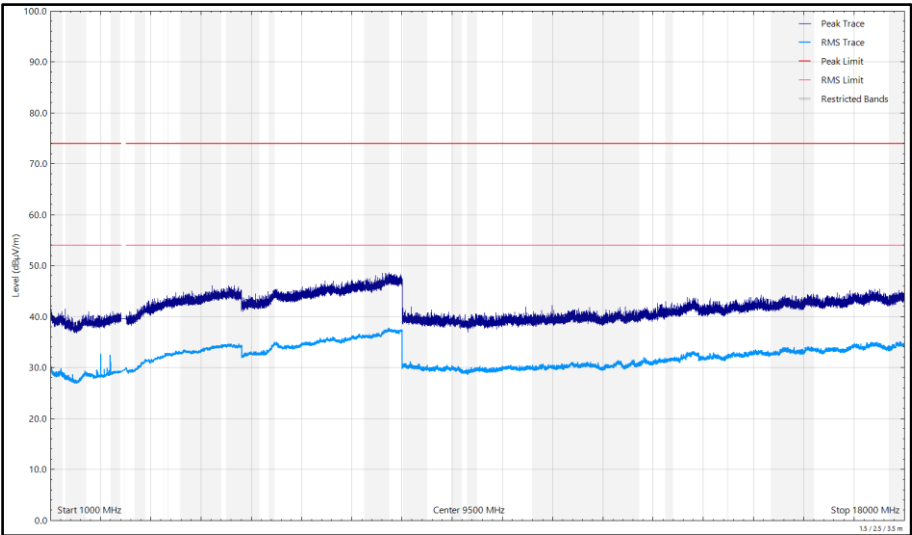


Figure 55 - 2475 MHz (CH25), Thread, iPA, Core 1, 1 GHz to 18 GHz, Horizontal

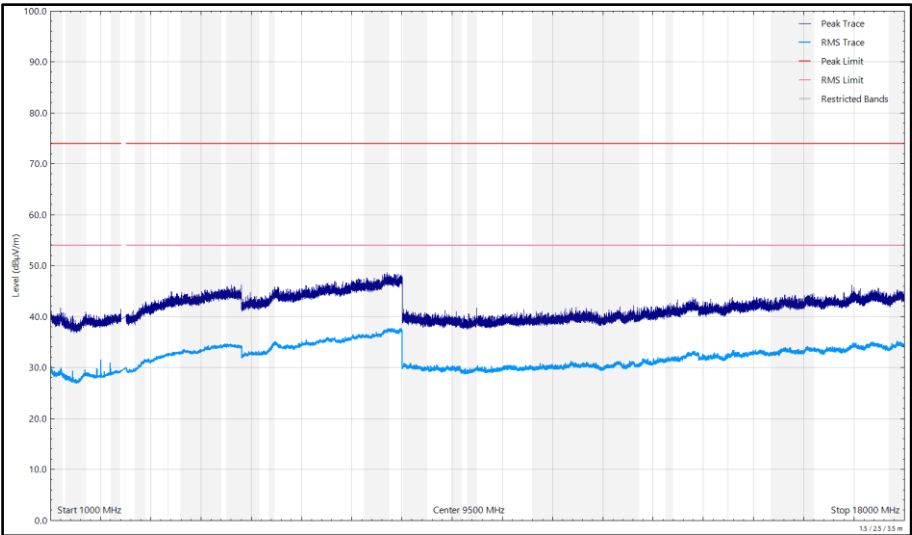


Figure 56 - 2475 MHz (CH25), Thread, iPA, Core 1, 1 GHz to 18 GHz, Vertical



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

Table 57 - 2405 MHz (CH11), Thread, iPA, Core 2, 1 GHz to 18 GHz

*No emissions found within 20 dB of the limit.

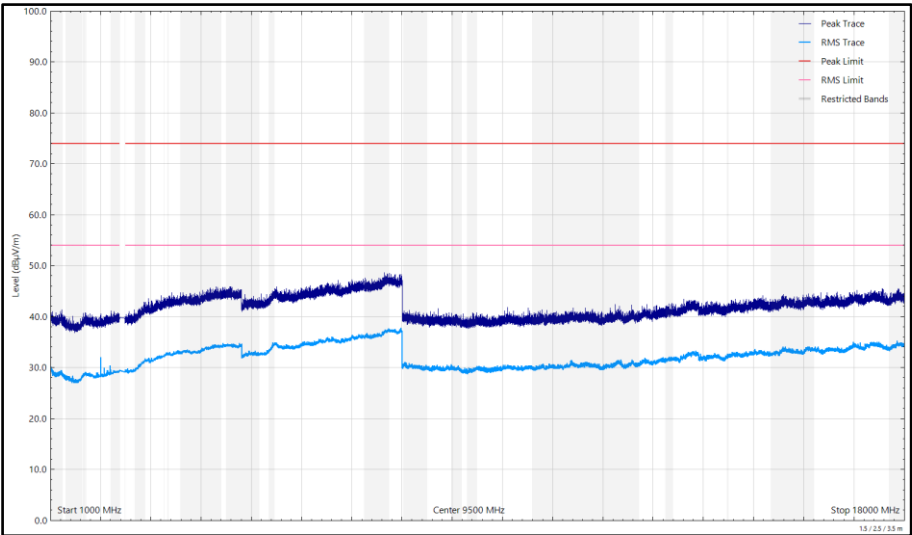


Figure 57 - 2405 MHz (CH11), Thread, iPA, Core 2, 1 GHz to 18 GHz, Horizontal

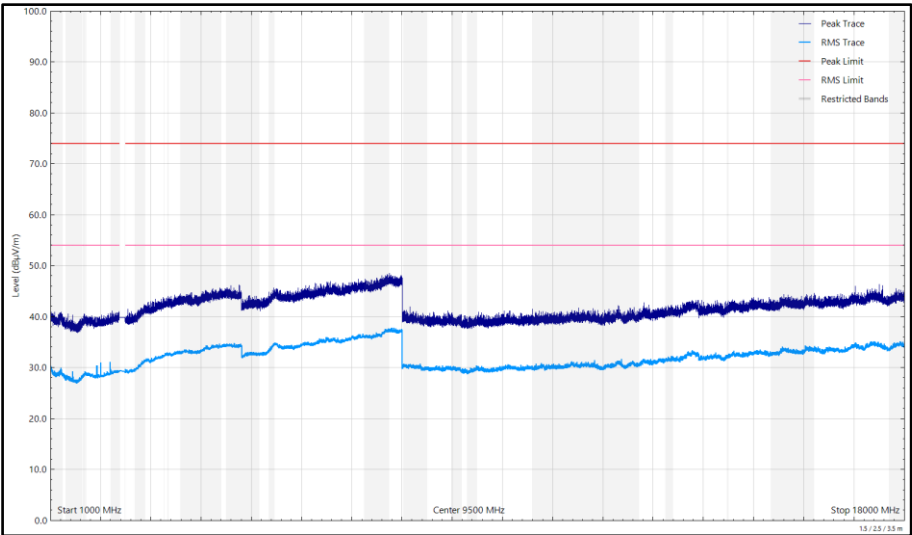


Figure 58 - 2405 MHz (CH11), Thread, iPA, Core 2, 1 GHz to 18 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.537	21.35	40.00	-18.65	Q-Peak	51	100	Vertical
37.854	20.93	40.00	-19.07	Q-Peak	227	353	Horizontal
108.622	19.08	43.50	-24.42	Q-Peak	1	109	Vertical

Table 58 - 2440 MHz (CH18), Thread, iPA, Core 2, 30 MHz to 26 GHz

No other emissions found within 20 dB of the limit.

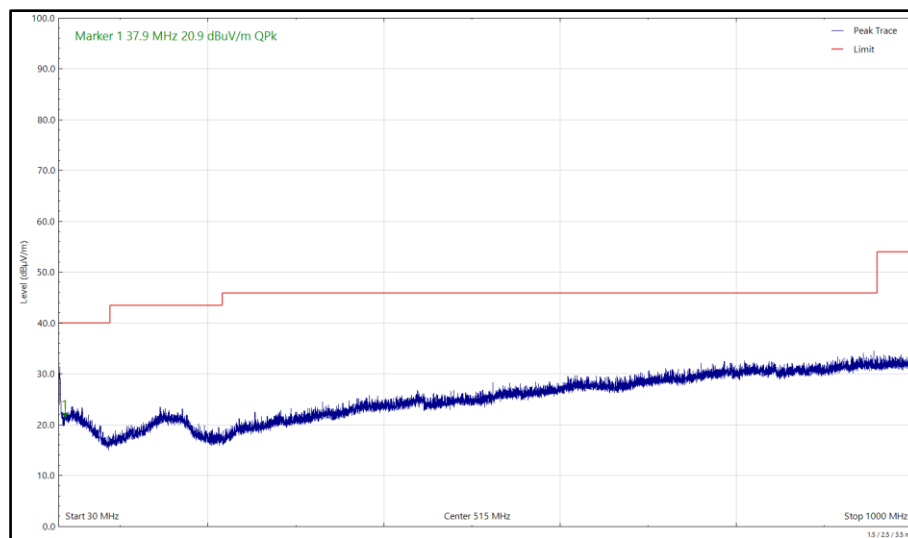


Figure 59 - 2440 MHz (CH18), Thread, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

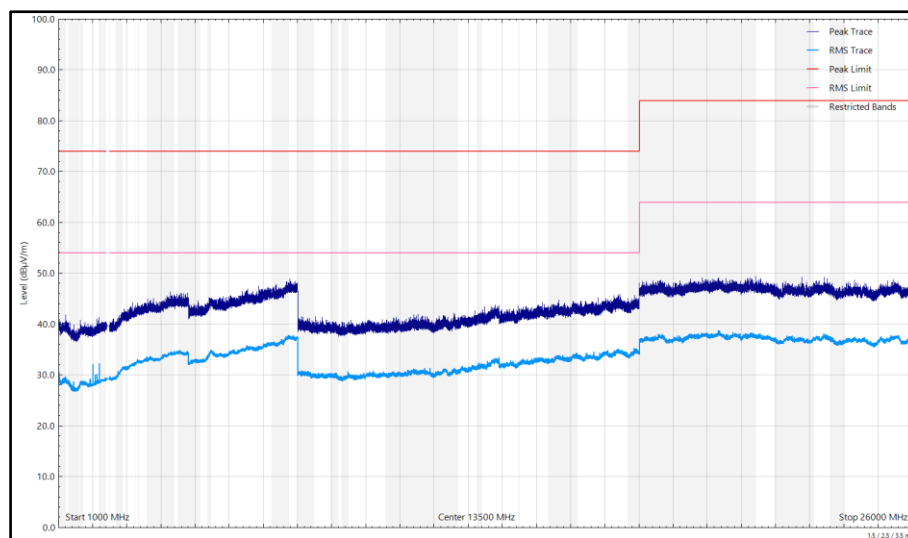


Figure 60 - 2440 MHz (CH18), Thread, iPA, Core 2, 1 GHz to 26 GHz, Horizontal

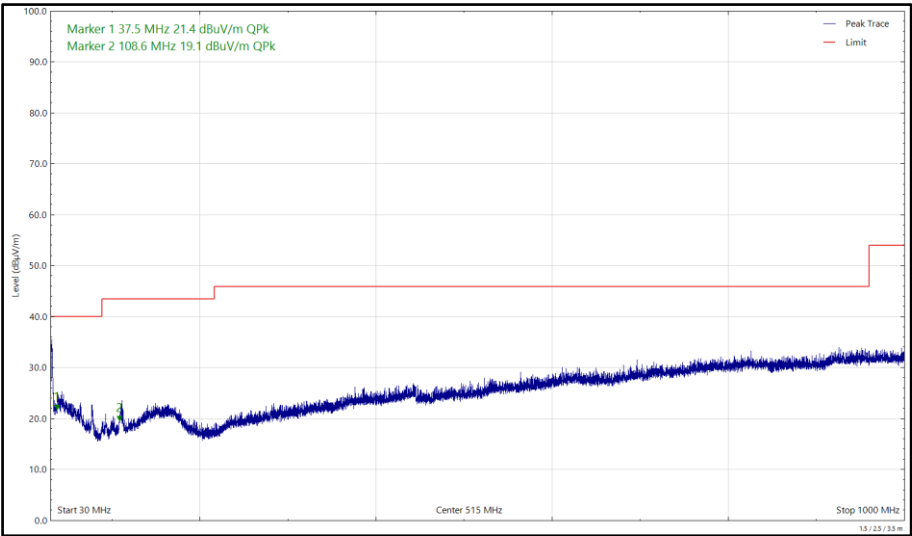


Figure 61 - 2440 MHz (CH18), Thread, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

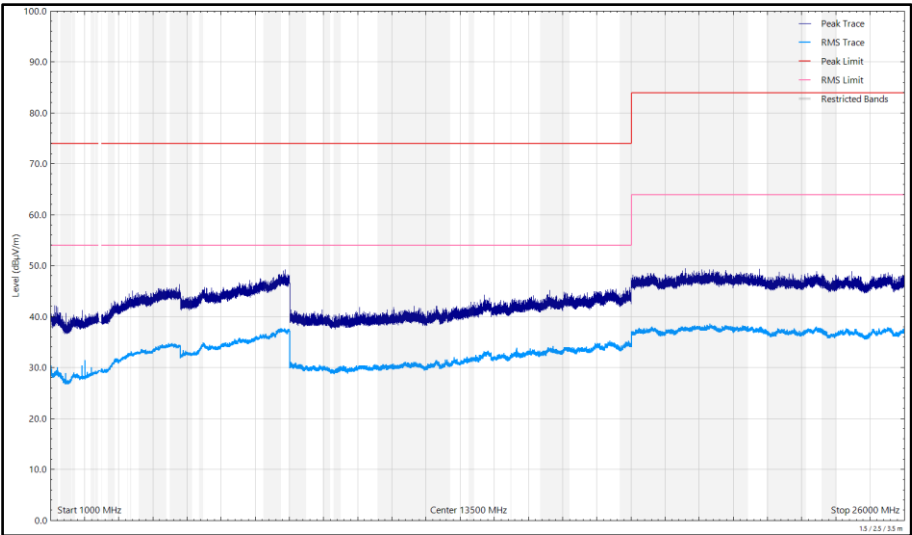


Figure 62 - 2440 MHz (CH18), Thread, iPA, Core 2, 1 GHz to 26 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4950.916	35.92	54.00	-18.08	RMS	54	136	Vertical

Table 59 - 2475 MHz (CH25), Thread, iPA, Core 2, 1 GHz to 18 GHz

No other emissions found within 20 dB of the limit.

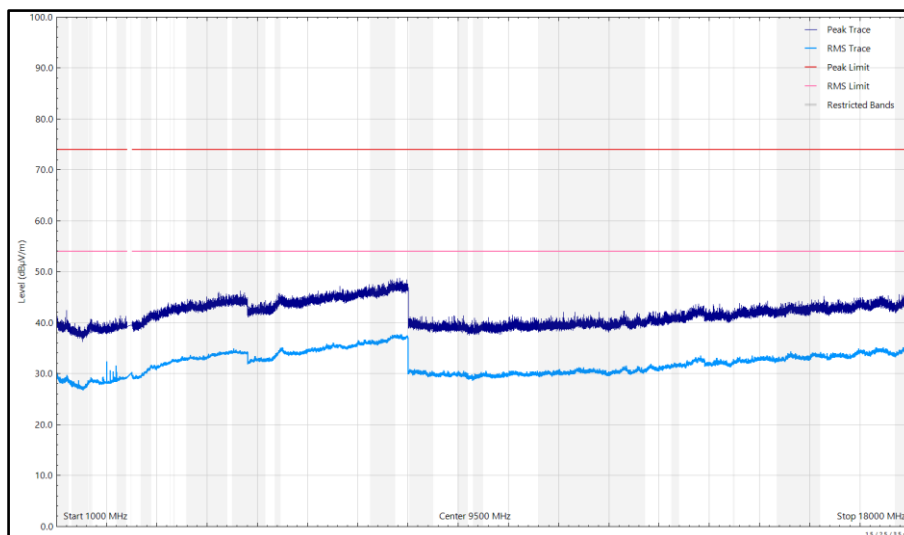


Figure 63 - 2475 MHz (CH25), Thread, iPA, Core 2, 1 GHz to 18 GHz, Horizontal

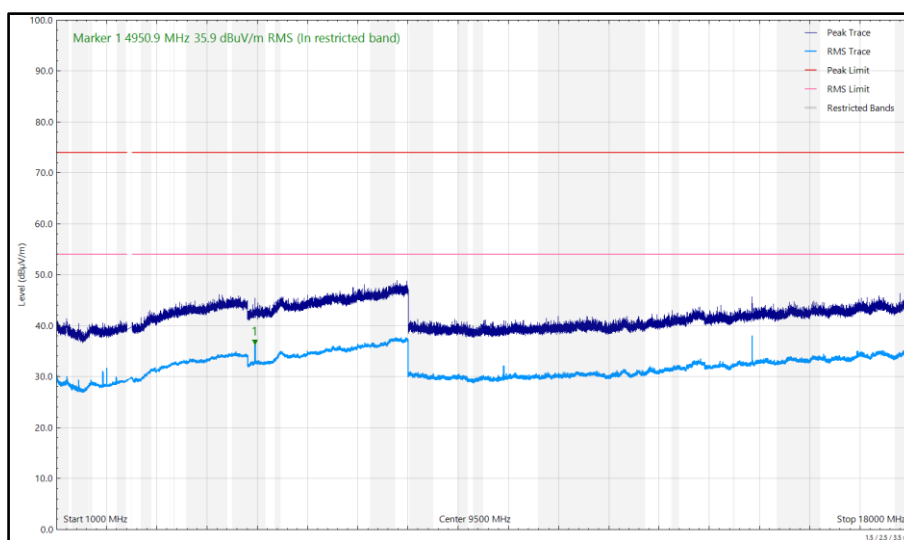


Figure 64 - 2475 MHz (CH25), Thread, iPA, Core 2, 1 GHz to 18 GHz, Vertical



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 6.6

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.



2.5.8 Test Location and Test Equipment Used

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

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.6.1	5125	-	TU
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	5933	12	12-Jun-2026
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5940	12	17-Jun-2026
TRILOG Super Broadband Test Antenna	Schwarzbeck	VULB 9168	5944	24	03-Jan-2027
1500W (300V 12A) AC Power Supply	iTech	IT7324	5957	-	TU
3m Semi-Anechoic Chamber, Chamber16	Albatross Projects	RF Chamber 16	5972	36	07-May-2028
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
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	14-Sep-2026
Digital Multimeter	Fluke	115	6145	12	06-Jun-2026
Double Ridge Active Horn Antenna (18-40 GHz)	Com-Power	AHA-840	6189	24	26-Sep-2026
SAC Switch Unit	TUV SUD	TUV_SSU_001	6191	12	18-Dec-2026
8GHz Highpass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6195	12	23-Apr-2027
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6198	12	09-Jun-2026
Attenuator 4dB	Pasternack	PE7074-4	6203	24	03-Jan-2027
Cable (SMA to SMA 20cm)	TUV SUD	MH-FH 8-18	6214	12	23-Apr-2027
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	23-Mar-2027
Digital Multimeter	Fluke	115	6345	12	24-Jul-2026
USB Spectrum Analyser	Signal Hound	SA124B	6383	-	TU
AC Power Supply	iTech	IT7324	6657	-	TU
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	07-May-2028
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
EMI Test Receiver	Rohde & Schwarz	ESW44	6805	12	24-Jul-2026
Handheld Hygrometer	Fluke	971	6837	12	16-Sep-2026
1m SMA-Type Cable	Junkosha	MWX221-01000AMSAMS/B	6844	12	06-Sep-2026
8m SMA-Type Cable	Junkosha	MWX221-08000AMSAMS/B	6849	12	06-Nov-2026
8m SMA-Type Cable	Junkosha	MWX221-08000AMSAMS/B	6851	12	06-Nov-2026
Cable Assembly	Pasternack	PE300-60	6858	-	TU
Cable Assembly	Pasternack	PE300-60	6864	-	TU
RF Amplifier BROADBAND AMPL/SMA/RoHS	Mini-Circuits	ZX60-83LN12+	6978	12	TU

Table 60

TU - Traceability Unscheduled



2.6 Power Spectral Density

2.6.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (e)
ISED RSS-247, Clause 6.3.1
ISED RSS-GEN, Clause 6.12

2.6.2 Equipment Under Test and Modification State

A3545, S/N: H2DG9Y7XQ4 - Modification State 0

2.6.3 Date of Test

11-June-2026 to 22-June-2026

2.6.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.10.5.

Where the EUT duty cycle was < 98 % and repeatable within 2 %, the spectrum analyser was set to trace (power) averaging and a duty cycle correction was added as calculated in the result tables below (Method AVGPS-2).

2.6.5 Environmental Conditions

Ambient Temperature	22.0 - 23.1 °C
Relative Humidity	45.0 - 48.8 %



2.6.6 Test Results

Thread

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 6.3.1	Test Method(s):	C63.10 11.10.5
Additional Reference(s):	-		
Note(s):	DCCF was added to the spectrum analyser reference level offset.		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	99.5
-:	-	DCCF (dB):	0.02
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.20
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	Σ		
2405	3.0	-14.97	-	-	-	-14.97	8.00	-22.97
2440	3.0	-14.71	-	-	-	-14.71	8.00	-22.71
2475	3.0	-14.77	-	-	-	-14.77	8.00	-22.77

Table 61 - Maximum Power Spectral Density Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 6.3.1	Test Method(s):	C63.10 11.10.5
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.40
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	Σ		
2405	3.0	-	-15.01	-	-	-15.01	8.00	-23.01
2440	3.0	-	-14.80	-	-	-14.80	8.00	-22.80
2475	3.0	-	-15.05	-	-	-15.05	8.00	-23.05

Table 62 - Maximum Power Spectral Density Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 6.3.1	Test Method(s):	C63.10 11.10.5
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread iPA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.00
Active Port(s):	C (Core 2)	Active Chain(s):	2

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	Σ		
2405	3.0	-	-	-10.89	-	-10.89	8.00	-18.89
2440	3.0	-	-	-10.96	-	-10.96	8.00	-18.96
2475	3.0	-	-	-11.02	-	-11.02	8.00	-19.02

Table 63 - Maximum Power Spectral Density Results

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 6.3.1	Test Method(s):	C63.10 11.10.5
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.20
Active Port(s):	A (Core 0)	Active Chain(s):	0

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	Σ		
2405	3.0	-3.26	-	-	-	-3.26	8.00	-11.26
2440	3.0	-3.24	-	-	-	-3.24	8.00	-11.24
2475	3.0	-2.11	-	-	-	-2.11	8.00	-10.11

Table 64 - Maximum Power Spectral Density Results



Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (e) RSS-247 6.3.1	Test Method(s):	C63.10 11.10.5
Additional Reference(s):	-		

DUT Configuration			
Mode:	Thread ePA	Duty Cycle (%):	100.0
-:	-	DCCF (dB):	0.00
Antenna Configuration:	SISO	Peak Antenna Gain (dBi):	1.40
Active Port(s):	B (Core 1)	Active Chain(s):	1

Test Frequency (MHz)	RBW (kHz)	PSD (dBm/RBW)					Limit (dBm/3 kHz)	Margin (dB)
		A	B	C	D	Σ		
2405	3.0	-	-3.03	-	-	-3.03	8.00	-11.03
2440	3.0	-	-3.30	-	-	-3.30	8.00	-11.30
2475	3.0	-	-2.96	-	-	-2.96	8.00	-10.96

Table 65 - Maximum Power Spectral Density Results

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

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

ISED RSS-247, Limit Clause 6.3.1(b)

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission



2.6.7 Test Location and Test Equipment Used

This test was carried out in RF Laboratory 14.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
AC Programmable Power Supply	iTech	IT7324	5225	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5529	24	02-Jan-2027
USB Power Sensor	Boonton	RTP5008	5820	12	16-Mar-2027
USB Power Sensor	Boonton	RTP5008	5821	12	16-Mar-2027
Modular Power System mainframe	Keysight Technologies	N6701C	6151	-	O/P Mon
DC Power Module	Keysight Technologies	N6754A	6152	-	O/P Mon
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6426	12	16-Mar-2027
USB Wideband Power Sensor	Boonton	RTP5008	6591	12	16-Mar-2027
Digital Thermometer	R.S Components	RS 5511	6739	12	02-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6752	12	16-Mar-2027
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6753	12	16-Mar-2027
SCU Cable Assembly SCU	TUV SUD	SPECTRUM_SCU_CA	6754	0	16-Mar-2027
Humidity & Temperature meter	Fluke	971	7103	12	05-Aug-2026
Multimeter	Fluke	115	7115	12	13-Aug-2026

Table 66

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
Emission Bandwidth	± 61.06 kHz
Maximum Conducted Output Power	Method PM: ± 0.65 dB Method SA: ± 1.05 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
Power Spectral Density	± 1.00 dB

Table 67

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.