

FCC and ISED Test Report

Apple Inc
Model: A3114

In accordance with FCC 47 CFR Part 15, ISED RSS-247, ISED RSS-248 and ISED RSS-GEN (2.4 GHz Bluetooth, 2.4 GHz WLAN, 5 GHz WLAN, 6 GHz WLAN, Narrowband and Thread)

Prepared for: Apple Inc
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FCC ID: BCGA3114

IC: 579C-A3114

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Document 75959606-11 Issue 01

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steve White	Senior Technical Specialist	Authorised Signatory	08 November 2023

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 15, ISED RSS-247, ISED RSS-248 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	Lauren Walters	08 November 2023	

FCC Accreditation

553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation

28798 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15: 2021, ISED RSS-247: Issue 2 (2017-02), ISED RSS-248: Issue 2 (2022-12) and 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	08-Nov-2023

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A3114
Serial Number(s)	D93J4WJ66Y, M62426V40D and FK0XNQ2YWP
Hardware Version(s)	REV 1.0
Software Version(s)	23A32771a
Number of Samples Tested	3
Test Specification/Issue/Date	FCC 47 CFR Part 15: 2021 ISED RSS-247: Issue 2 (2017-02) ISED RSS-248: Issue 2 (2022-12) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	29-September-2023
Finish of Test	20-October-2023
Name of Engineer(s)	Ahmed Al Dirdiri, Ioan-Alexandru Bogatu, Jamal Imoro Abubakar, James Woods, Michael Evans, Tony Baby, Akhil Rajendran Bhaskaran Nair, Nicolae Mihailiuc, Thomas Randall and Colin Brain
Related Document(s)	ANSI C63.10 (2013) ANSI C63.10 (2020) ANSI C63.4 (2014) KDB 789033 D02 v02r01



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15, ISED RSS-247, ISED RSS-248 and ISED RSS-GEN is shown below.

Section	Specification Clause				Test Description	Result	Comments/Base Standard
	Part 15	RSS-247	RSS-248	RSS-GEN			
Configuration and Mode: 2.4 GHz Bluetooth and 5 GHz WLAN							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.10: 2013 ANSI C63.10: 2020
Configuration and Mode: 2.4 GHz Bluetooth and 6 GHz WLAN							
2.1	15.209, 15.247(d) and 15.407(b)	5.5	4.6	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.10: 2013 ANSI C63.10: 2020
Configuration and Mode: 2.4 GHz WLAN and Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.10: 2013 ANSI C63.10: 2020
Configuration and Mode: Thread and 5 GHz WLAN							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.10: 2013 ANSI C63.10: 2020
Configuration and Mode: Thread and 6 GHz WLAN							
2.1	15.209, 15.247(d) and 15.407(b)	5.5	4.6	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.10: 2013 ANSI C63.10: 2020

Table 2



1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was a portable laptop computer.

1.5 Deviations from the Standard

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

1.6 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: A3114, Serial Number: D93J4WJ66Y			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3114, Serial Number: FK0XNQ2YWP			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3114, Serial Number: M62426V40D			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3



1.7 Test Location

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

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz Bluetooth and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Ahmed Al Derdiri, Ioan-Alexandru Bogatu, Jamal Imoro Abubakar, James Woods, Michael Evans and Tony Baby	UKAS
Configuration and Mode: 2.4 GHz Bluetooth and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Ahmed Al Derdiri, Ioan-Alexandru Bogatu, Jamal Imoro Abubakar, James Woods and Tony Baby	UKAS
Configuration and Mode: 2.4 GHz WLAN and Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Ahmed Al Derdiri, Jamal Imoro Abubakar, James Woods and Tony Baby	UKAS
Configuration and Mode: Thread and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Akhil Rajendran Bhaskaran Nair, Jamal Imoro Abubakar, Nicolae Mihailiuc and Thomas Randall	UKAS
Configuration and Mode: Thread and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Akhil Rajendran Bhaskaran Nair, Colin Brain, Jamal Imoro Abubakar and Nicolae Mihailiuc	UKAS

Table 4

Office Address:

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



2 Test Details

2.1 Radiated Spurious Emissions (Simultaneous Transmission)

2.1.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.209, 15.247(d) and 15.407(b)
ISED RSS-247, Clause 5.5 and 6.2
ISED RSS-248, Clause 4.6
ISED RSS-GEN, Clause 6.13 and 8.9

2.1.2 Equipment Under Test and Modification State

A3114, S/N: D93J4WJ66Y - Modification State 0
A3114, S/N: M62426V40D - Modification State 0
A3114, S/N: FK0XNQ2YWP - Modification State 0

2.1.3 Date of Test

29-September-2023 to 20-October-2023

2.1.4 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 C63.4 clause 6.2.4 for each type of port on the EUT.

For frequencies > 1 GHz, plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.5 to characterize the EUT. Where emissions were detected, final average measurements were taken in accordance with ANSI C63.10, clause 4.1.4.2.2, 11.11, 11.12, 12.7.2 or 12.7.3 depending on the nature of the emission measured.

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 non-restricted band limits. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10 dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

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

At a measurement distance of 1 meter the limit line was increased by $20 \cdot \text{LOG}(3/1) = 9.54$ dB.

2.1.5 Example Test Setup Diagram

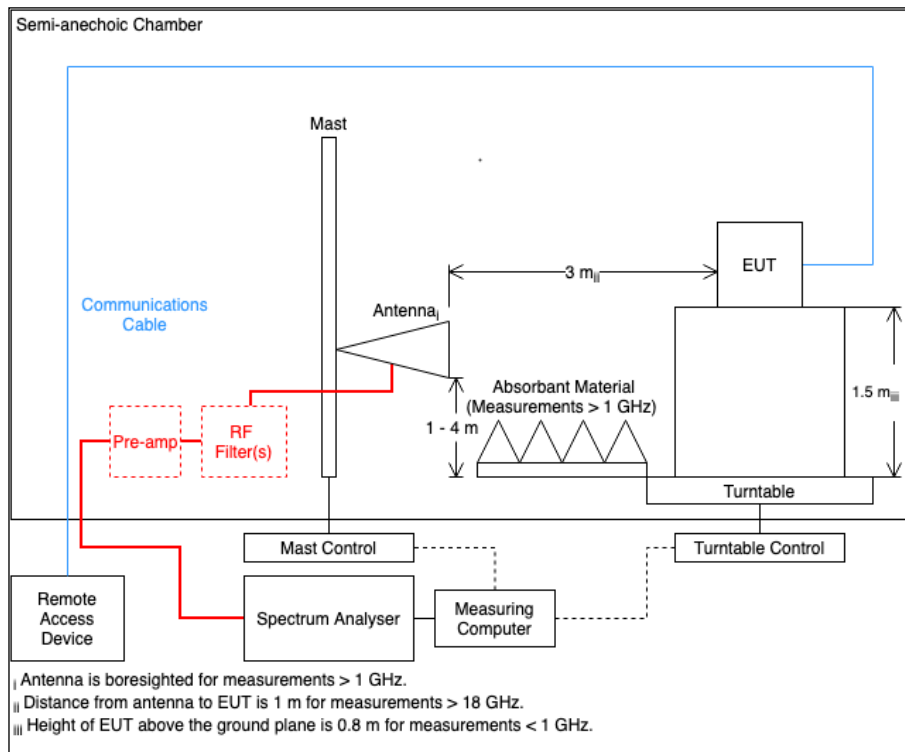


Figure 1

2.1.6 Environmental Conditions

Ambient Temperature 21.7 - 24.3 °C
Relative Humidity 37.4 - 58.4 %



2.1.7 Test Results

2.4 GHz Bluetooth and 5 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2487.800	36.34	54.00	-17.66	RMS	354	355	Vertical
2800.311	35.24	54.00	-18.76	RMS	14	324	Vertical
4882.217	42.69	54.00	-11.31	CISPR Avg	9	245	Vertical
5116.185	55.89	74.00	-18.11	Peak	12	272	Vertical
5116.185	44.15	54.00	-9.85	RMS	12	272	Vertical
5361.906	56.08	74.00	-17.92	Peak	335	311	Vertical
5361.906	44.05	54.00	-9.95	RMS	335	311	Vertical

Table 5 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

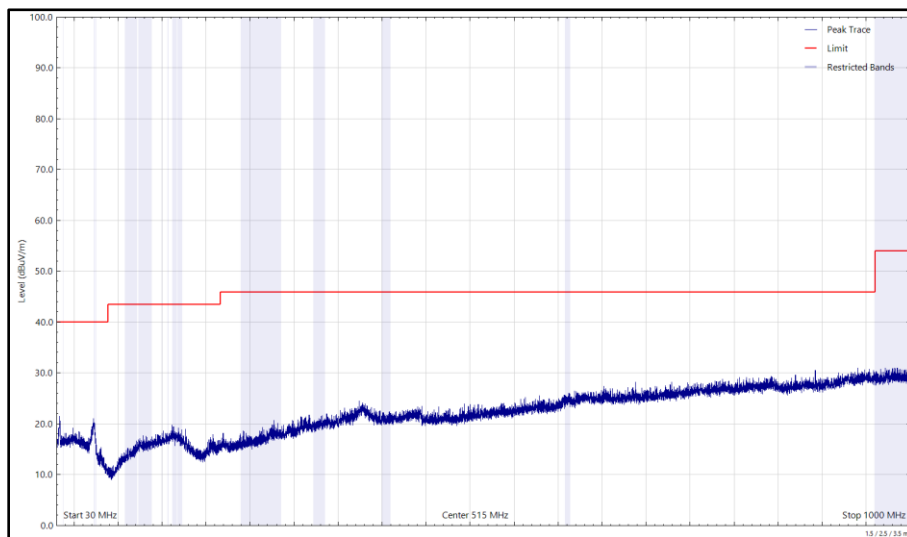


Figure 2 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

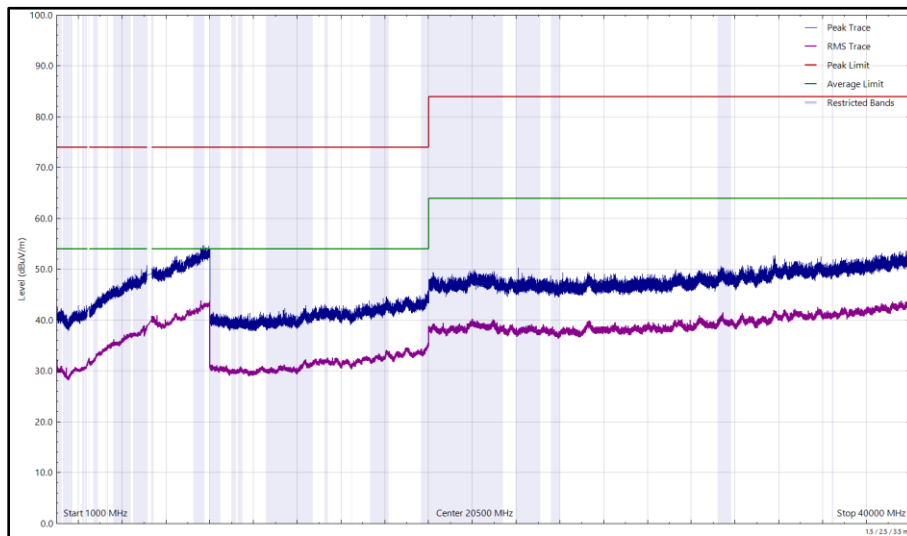


Figure 3 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

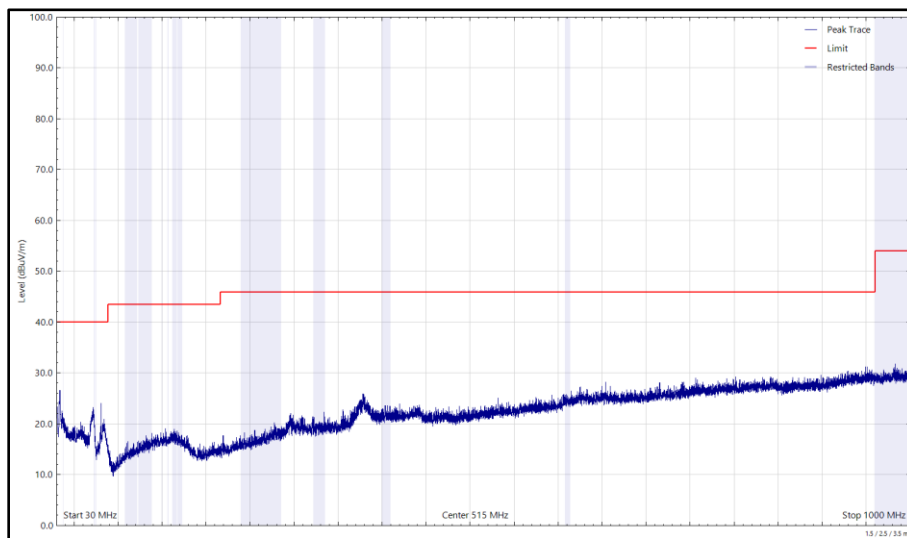


Figure 4 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

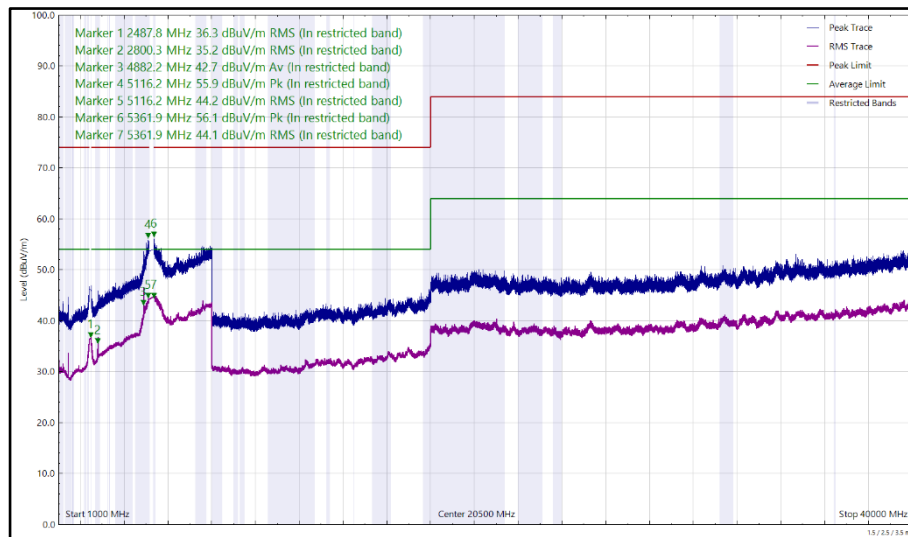


Figure 5 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4881.836	41.96	54.00	-12.04	CISPR Avg	10	330	Vertical
5457.305	57.53	74.00	-16.47	Peak	327	319	Vertical
5457.305	44.12	54.00	-9.88	RMS	327	319	Vertical

Table 6 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

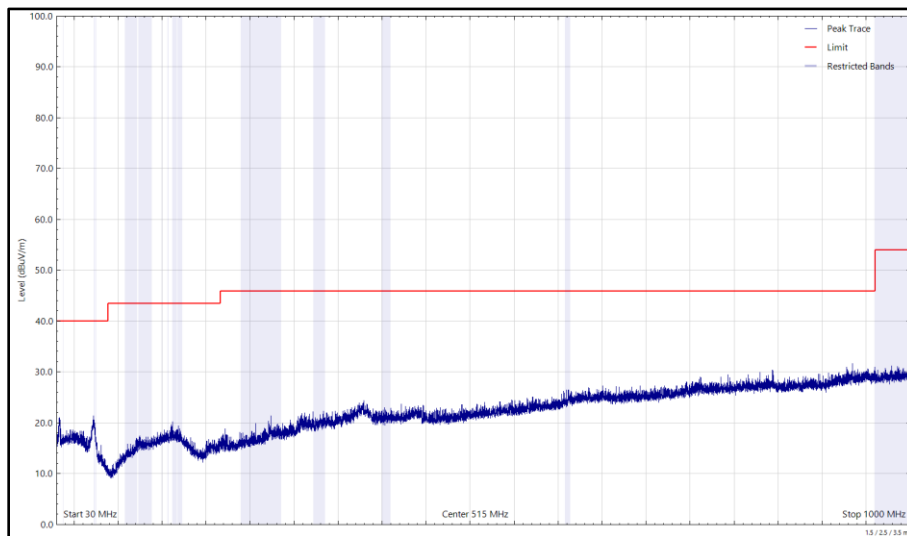


Figure 6 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

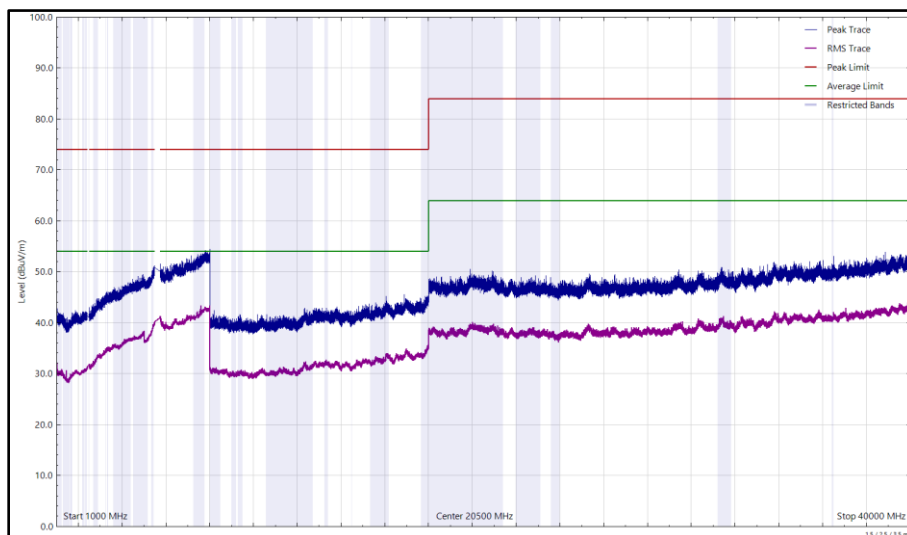


Figure 7 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

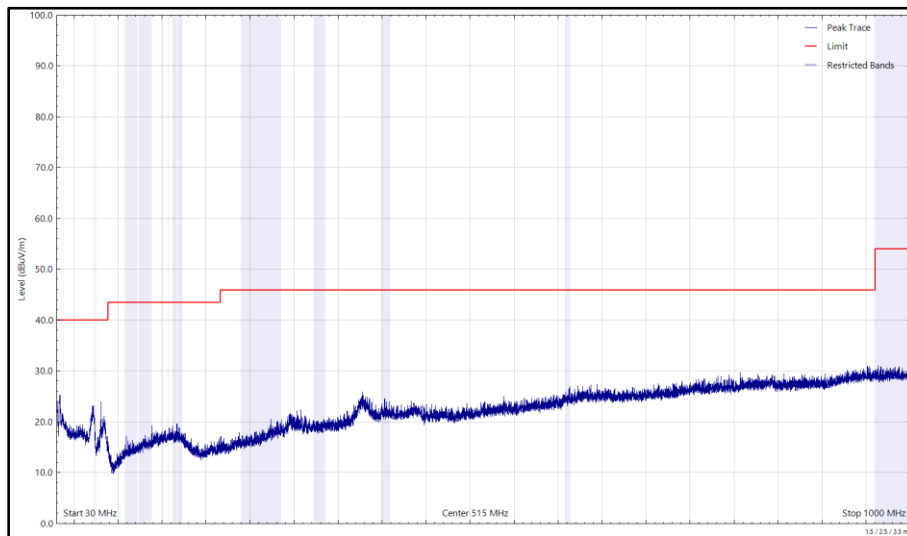


Figure 8 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

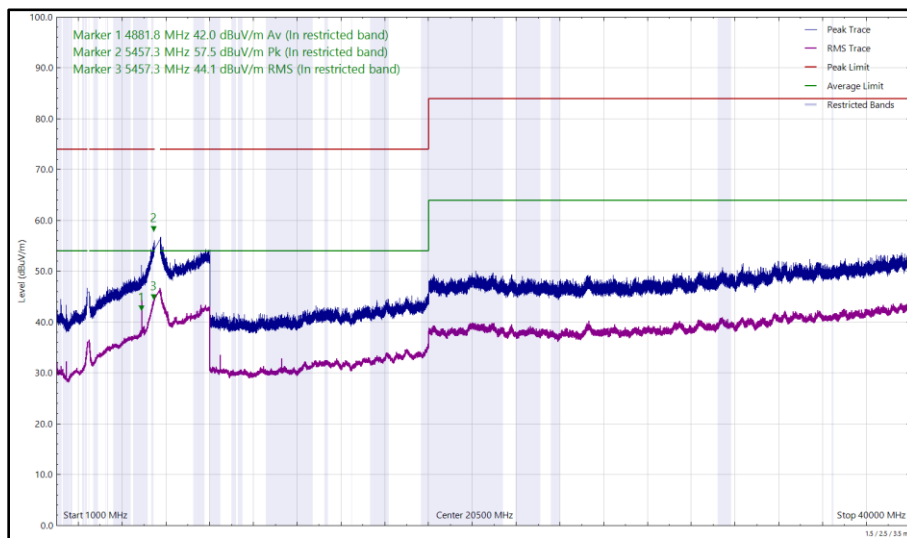


Figure 9 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2487.520	36.02	54.00	-17.98	RMS	353	352	Vertical
4881.703	41.25	54.00	-12.75	CISPR Avg	11	358	Vertical

Table 7 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

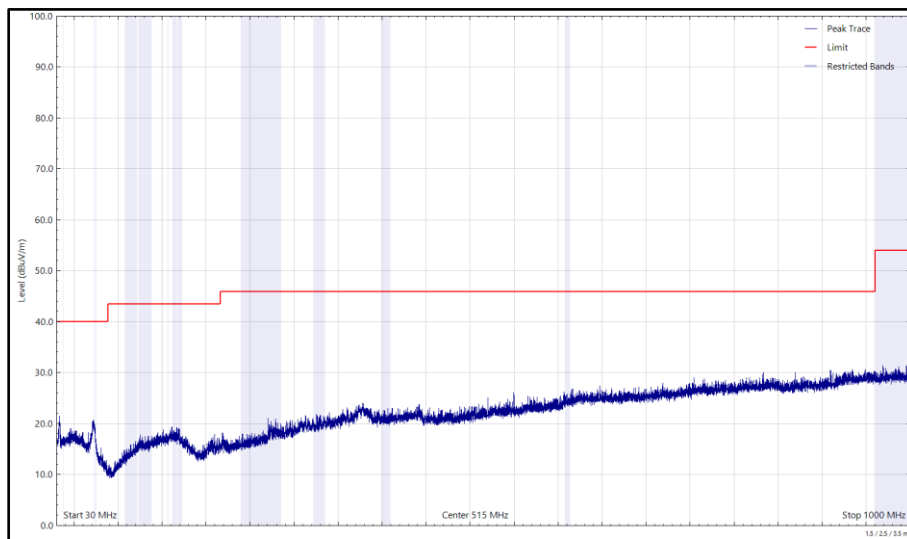


Figure 10 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

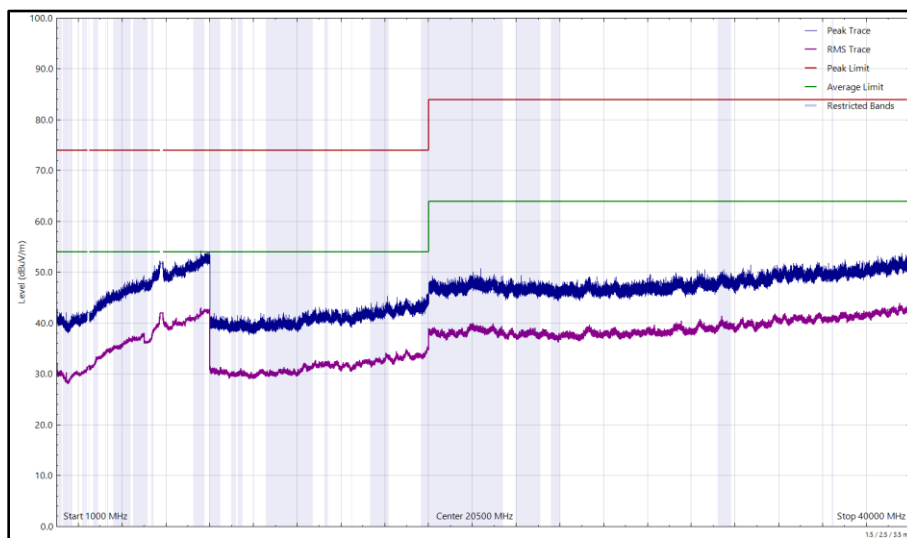


Figure 11 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

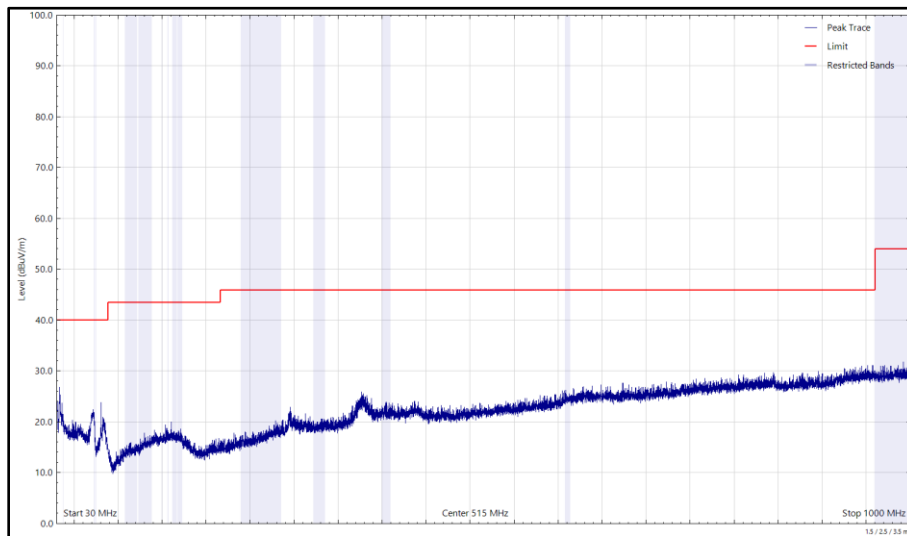


Figure 12 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

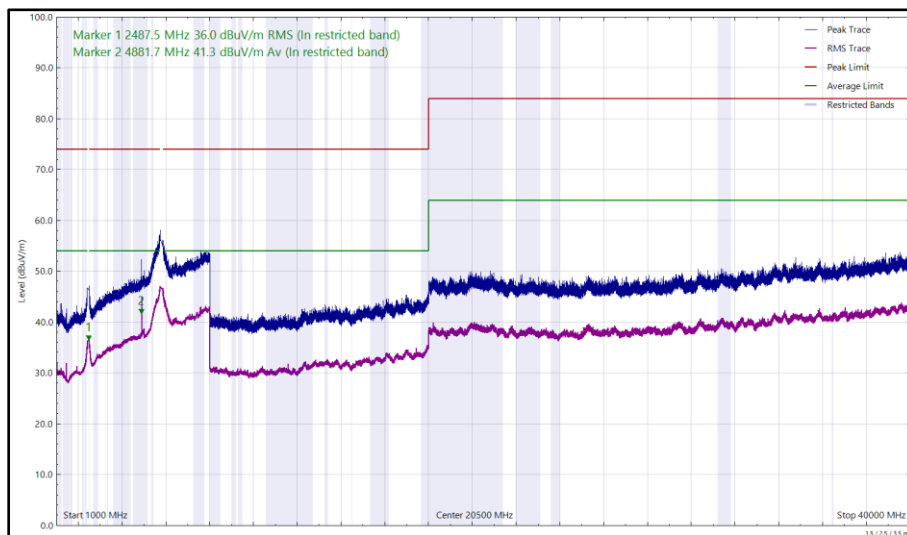


Figure 13 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



FCC 47 CFR Part 15, ISED RSS-247 and ISED RSS-GEN

The least stringent limit from the applicable rule parts was used to determine compliance for Radiated Emissions testing of multiple transmission sources.

The least stringent applicable limit was:

Clause	Limit
Part 15 247 (d) / RSS-247 Clause 5.5	-20 dBc
Part 15.407 (b) / RSS-247 Clause 6.2	-27 dBm e.i.r.p
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dB μ V/m at 3m, Average 54 dB μ V/m at 3m (Restricted bands > 1 GHz)

Table 8



2.4 GHz Bluetooth and 6 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2488.894	35.21	54.00	-18.79	RMS	356	283	Vertical
7322.713	40.33	54.00	-13.67	RMS	252	396	Horizontal
7323.086	43.96	54.00	-10.04	RMS	300	253	Vertical

Table 9 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

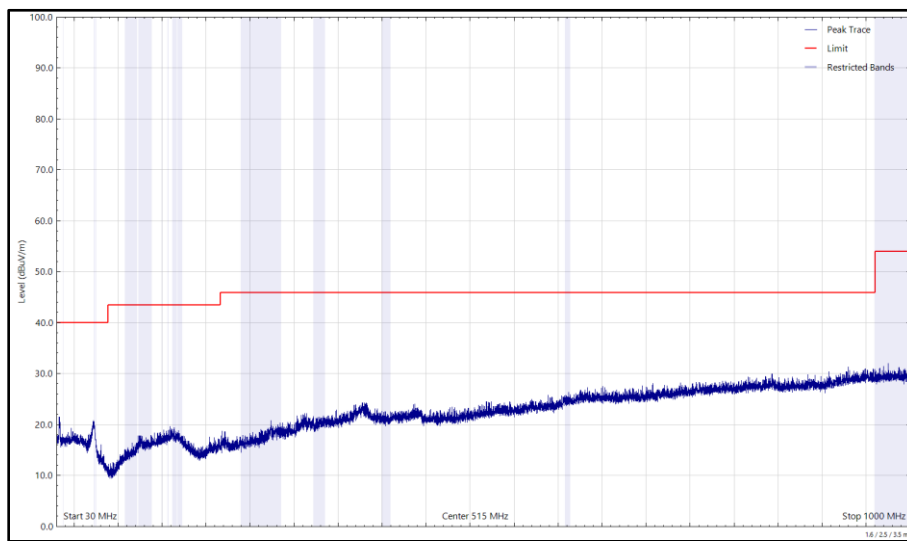


Figure 14 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

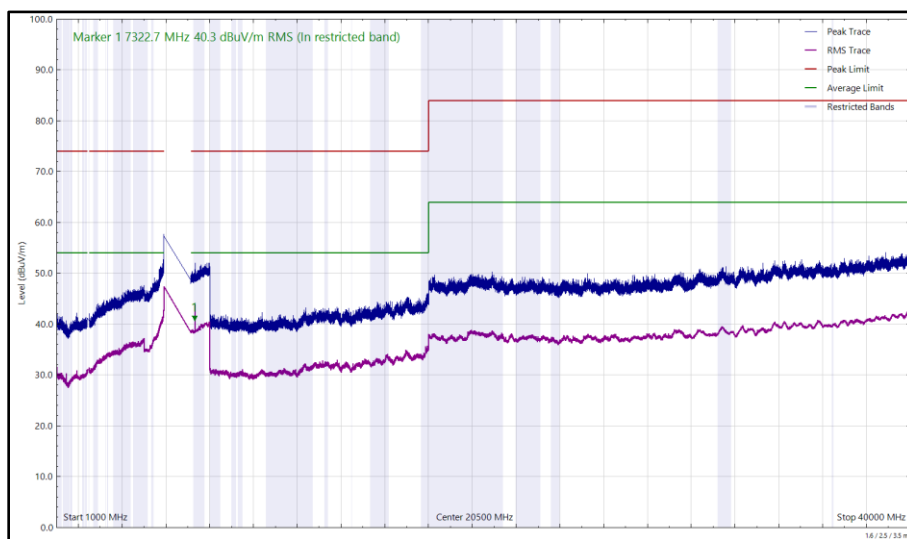


Figure 15 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

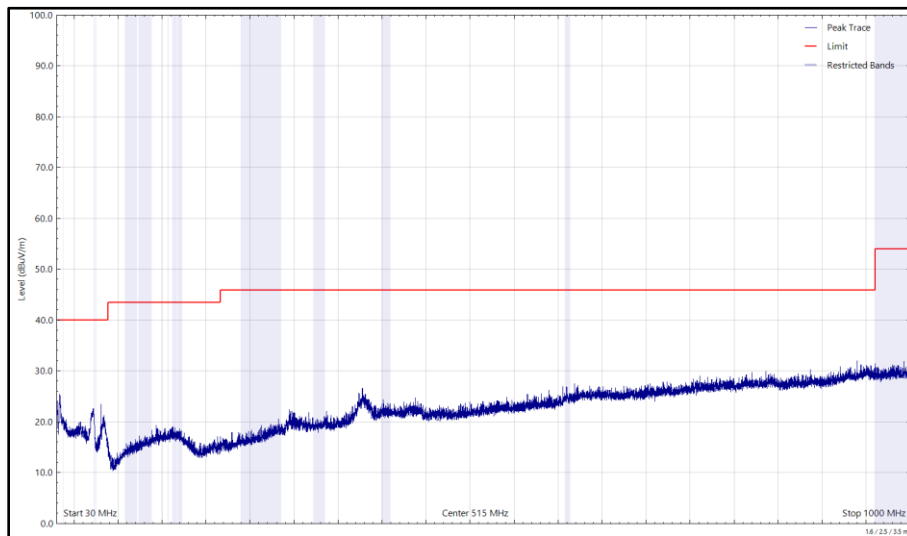


Figure 16 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

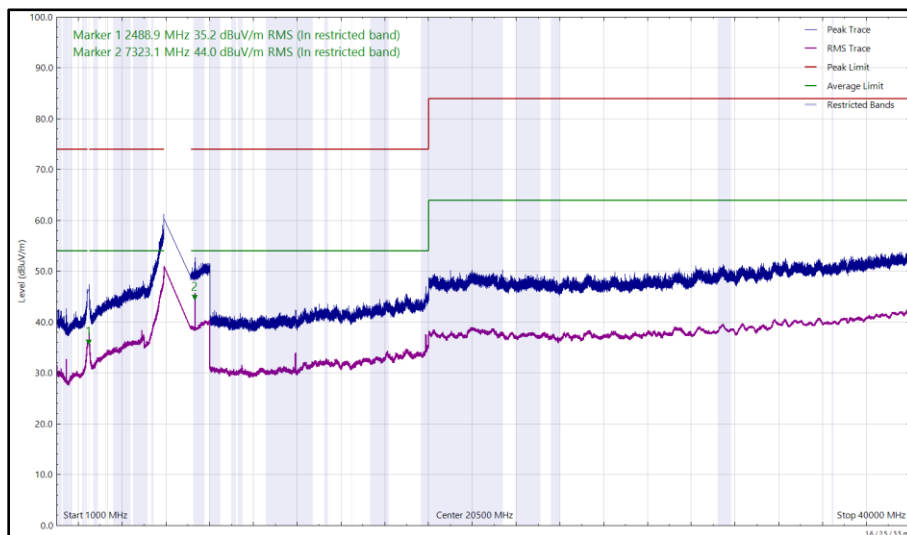


Figure 17 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2491.317	35.07	54.00	-18.93	RMS	356	357	Vertical
7158.299	70.46	88.2	-17.74	Peak	63	291	Vertical
7322.891	43.65	54.00	-10.35	RMS	298	295	Vertical
7323.160	38.82	54.00	-15.18	RMS	242	399	Horizontal

Table 10 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

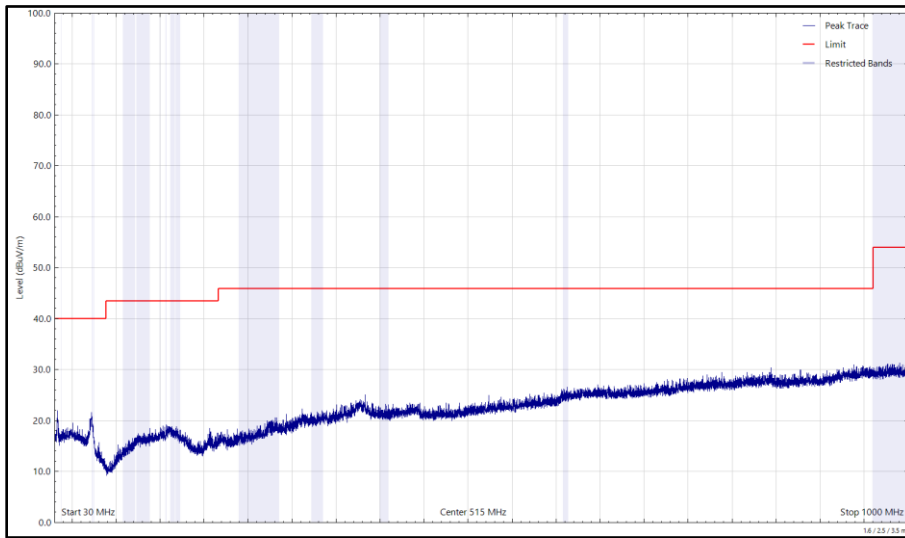


Figure 18 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

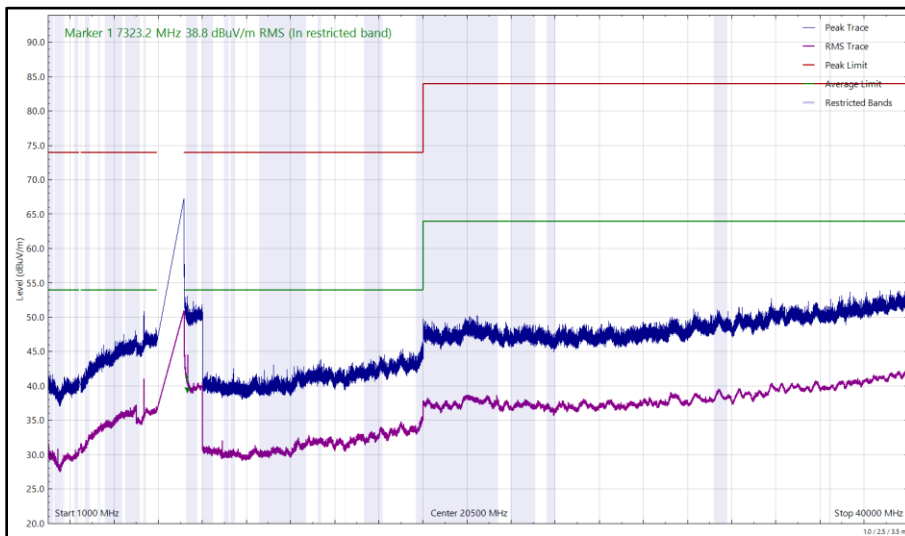


Figure 19 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

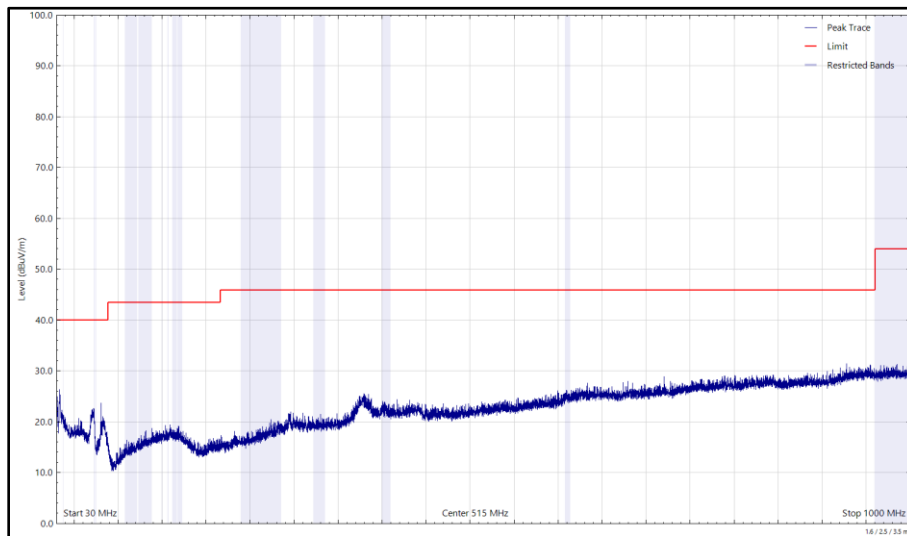


Figure 20 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

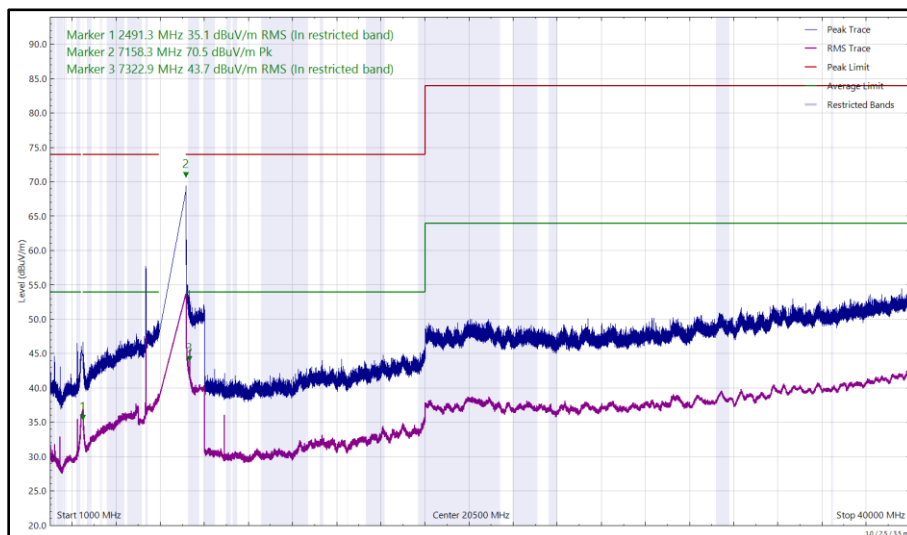


Figure 21 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



FCC 47 CFR Part 15, ISED RSS-247, ISED RSS-248 and ISED RSS-GEN

The least stringent limit from the applicable rule parts was used to determine compliance for Radiated Emissions testing of multiple transmission sources.

The least stringent applicable limit was:

Clause	Limit
Part 15.247 (d) / RSS-247 Clause 5.5	-20 dBc
Part 15.407 (b) / RSS-248 Clause 4.7.2	Peak: -7 dBm/MHz e.i.r.p, Average: -27 dBm/MHz e.i.r.p.
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dB μ V/m at 3m, Average 54 dB μ V/m at 3m (Restricted bands > 1 GHz)

Table 11



2.4 GHz WLAN and Narrowband

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
34.953	7.79	40.00	-32.21	Q-Peak	182	448	Horizontal
2483.600	43.23	54.00	-10.77	RMS	105	312	Vertical
2484.738	57.86	74.00	-16.14	Peak	105	312	Vertical

Table 12 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

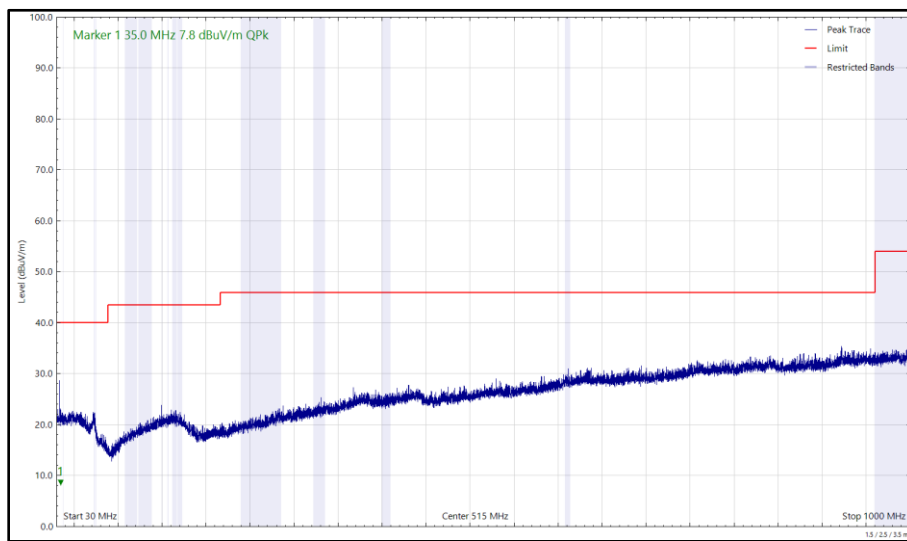


Figure 22 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

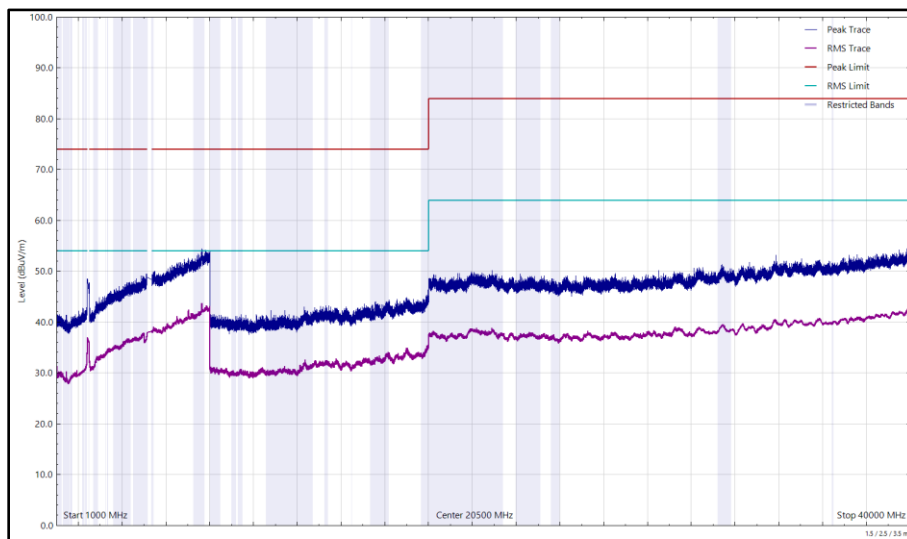


Figure 23 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

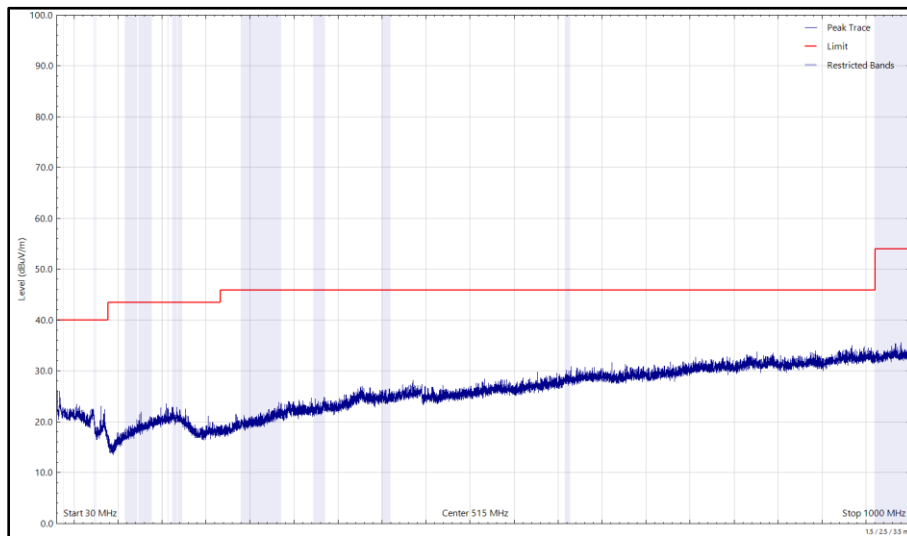


Figure 24 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

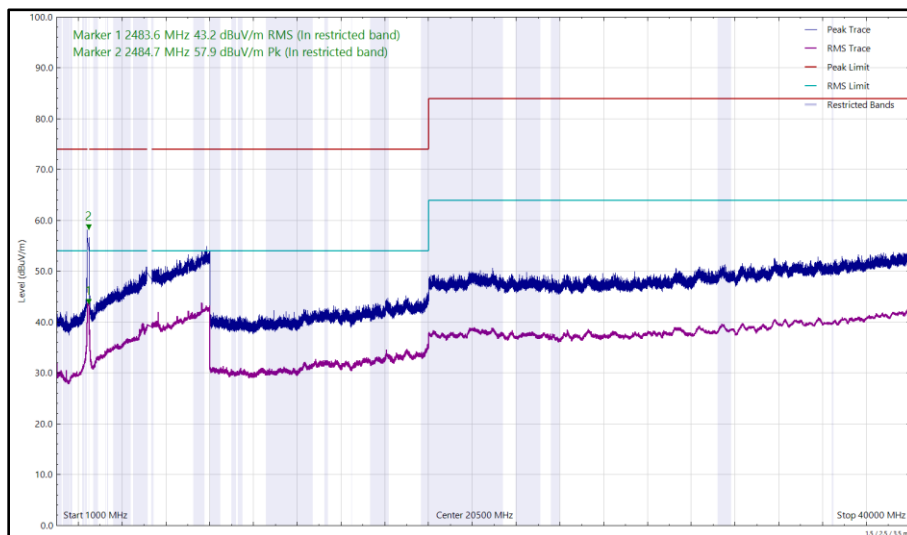


Figure 25 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
149.761	7.44	43.50	-36.06	Q-Peak	111	388	Vertical
2483.501	43.09	54.00	-10.91	RMS	101	353	Vertical
2485.072	58.37	74.00	-15.63	Peak	101	353	Vertical
4961.170	39.79	54.00	-14.21	RMS	119	304	Vertical
5374.665	45.61	54.00	-8.39	RMS	156	309	Vertical
11575.992	33.05	54.00	-20.95	RMS	324	359	Vertical

Table 13 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

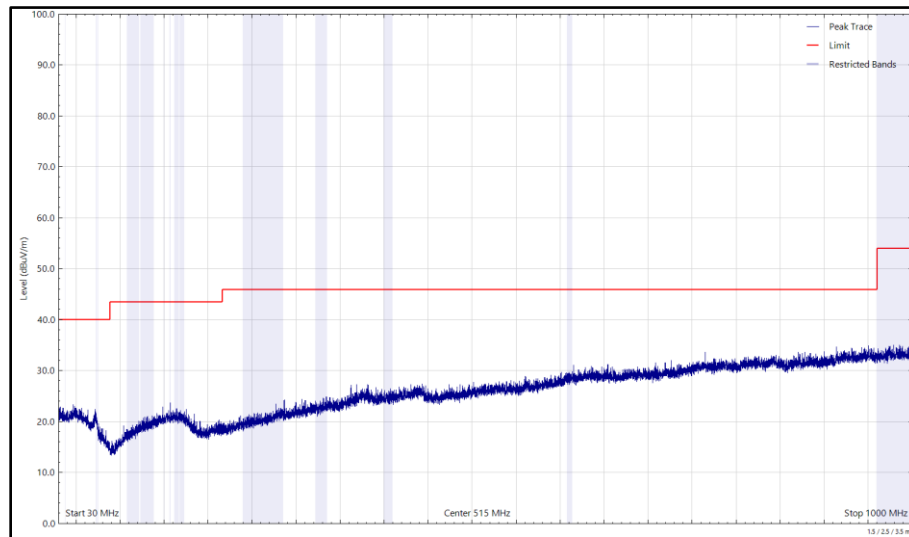


Figure 26 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

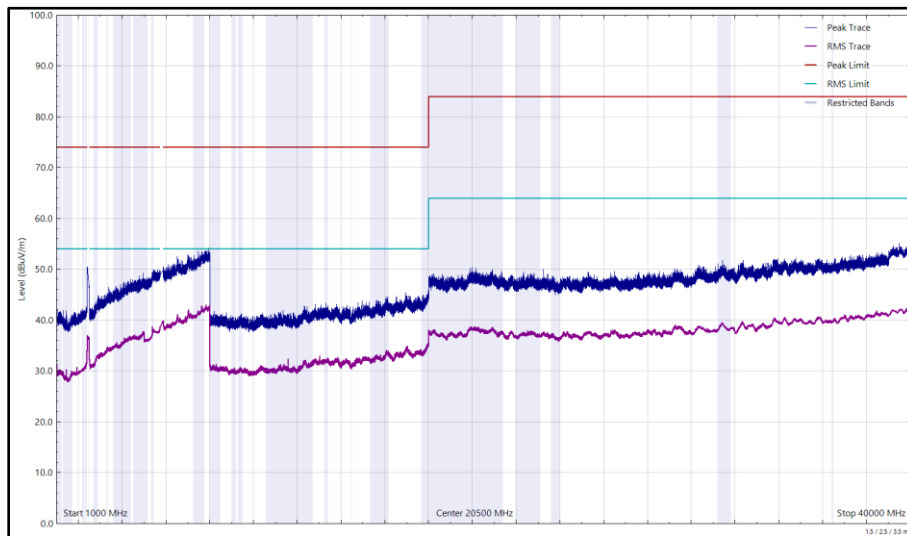


Figure 27 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

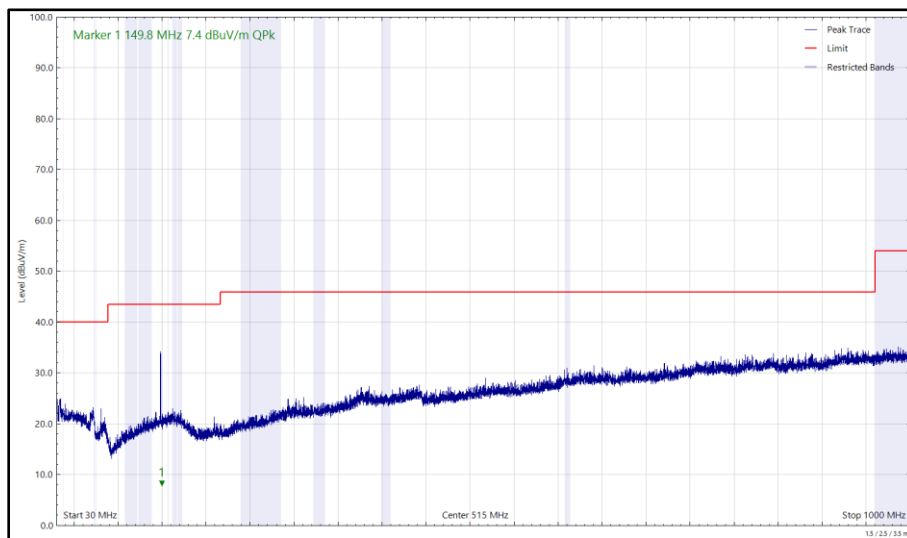


Figure 28 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

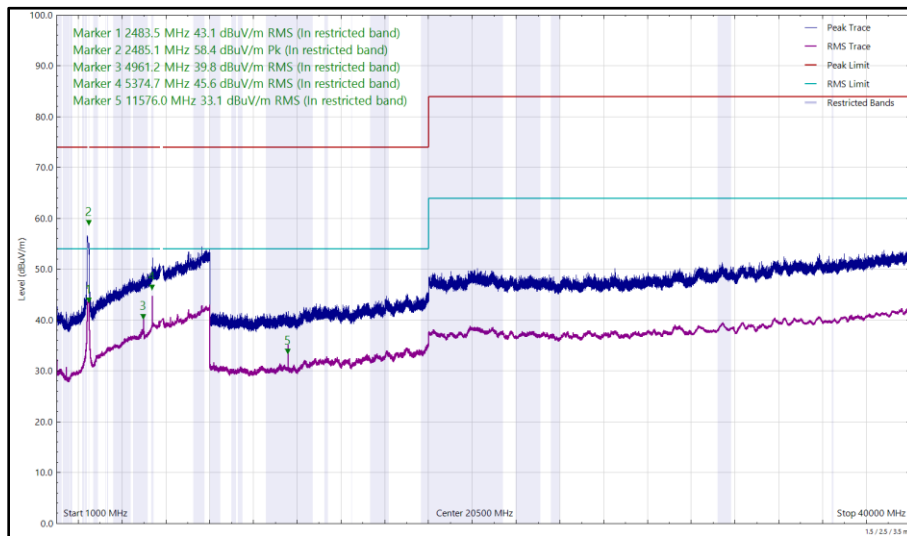


Figure 29 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 1 GHz to 40 GHz, Vertical



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

Table 14 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

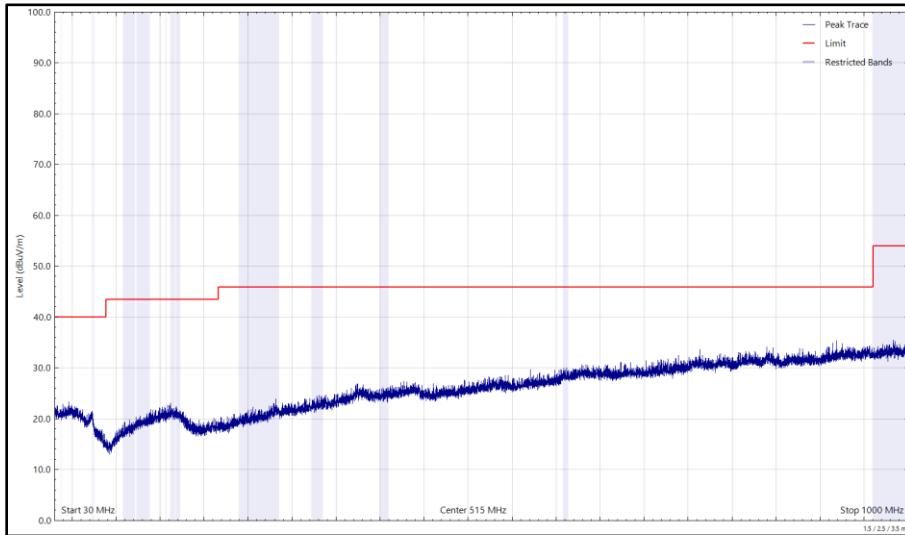


Figure 30 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

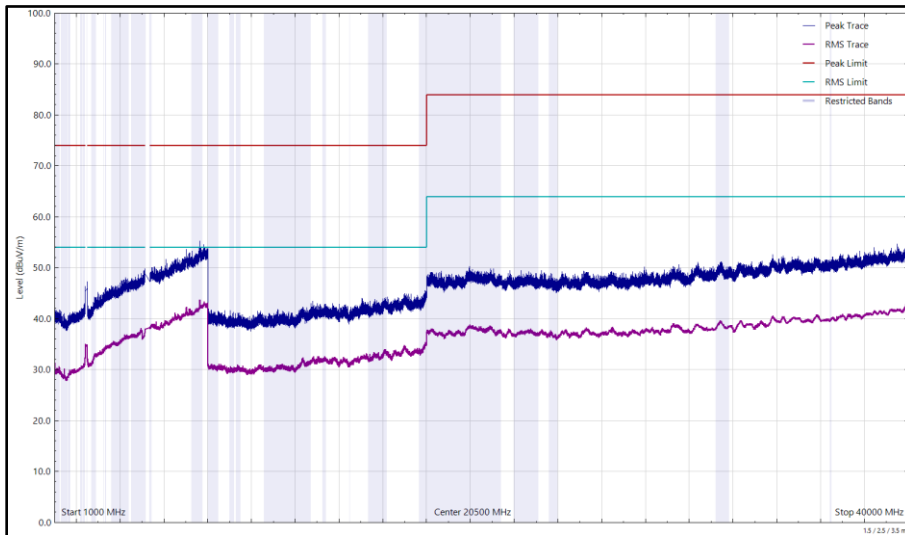


Figure 31 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

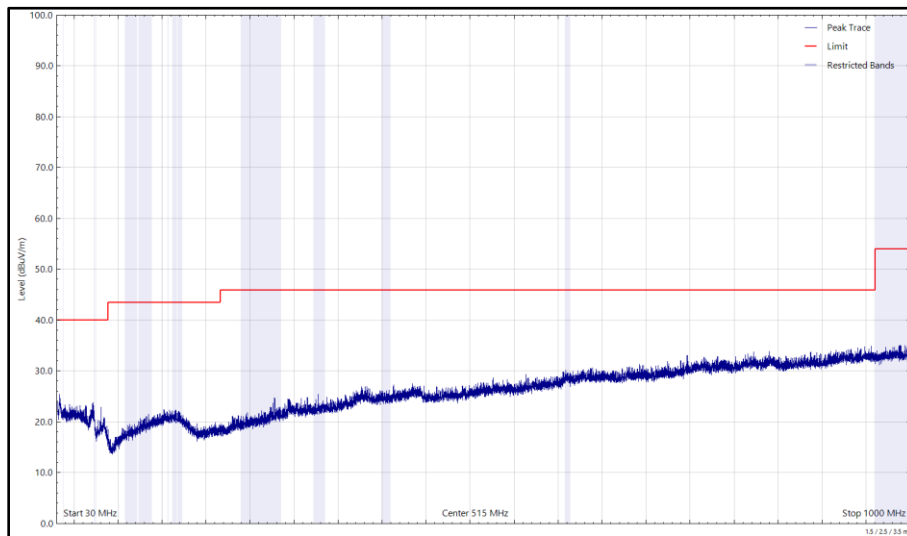


Figure 32 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

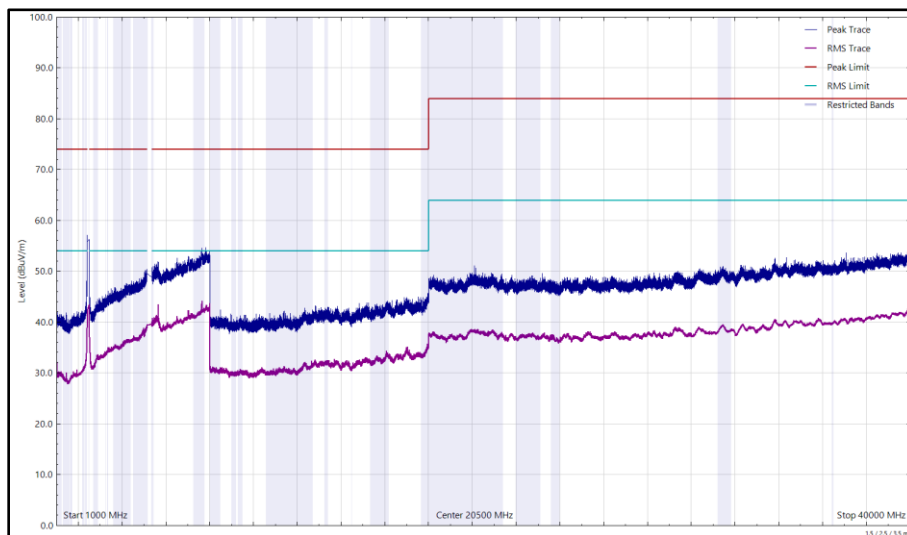


Figure 33 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
149.158	6.93	43.50	-36.57	Q-Peak	115	292	Vertical
2483.528	43.11	54.00	-10.89	RMS	123	319	Vertical
2485.003	59.57	74.00	-14.43	Peak	123	319	Vertical
5374.524	43.90	54.00	-10.10	RMS	102	304	Vertical
11575.895	30.13	54.00	-23.87	RMS	360	430	Vertical

Table 15 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

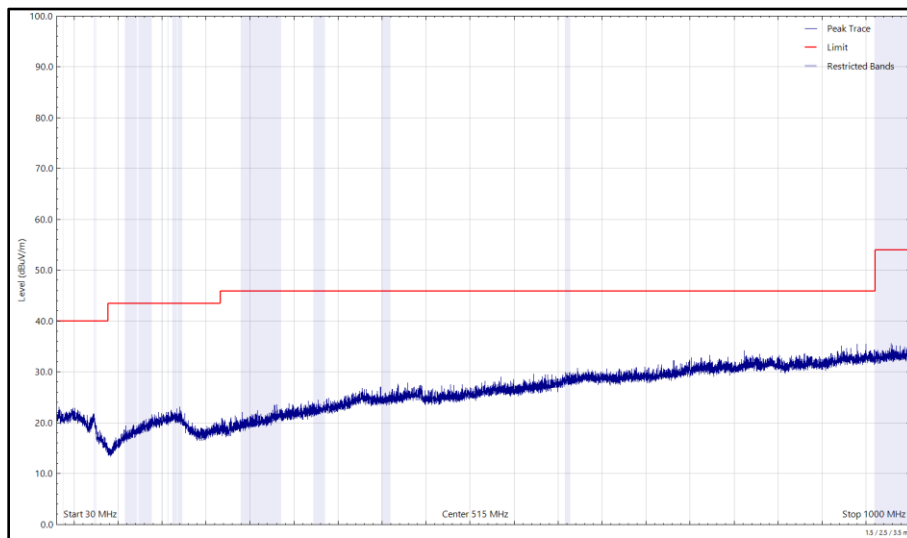


Figure 34 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

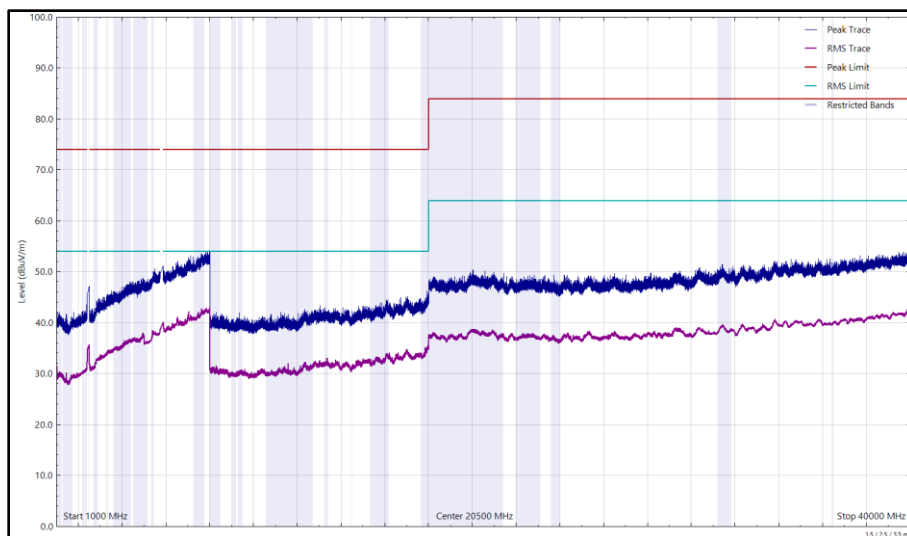


Figure 35 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

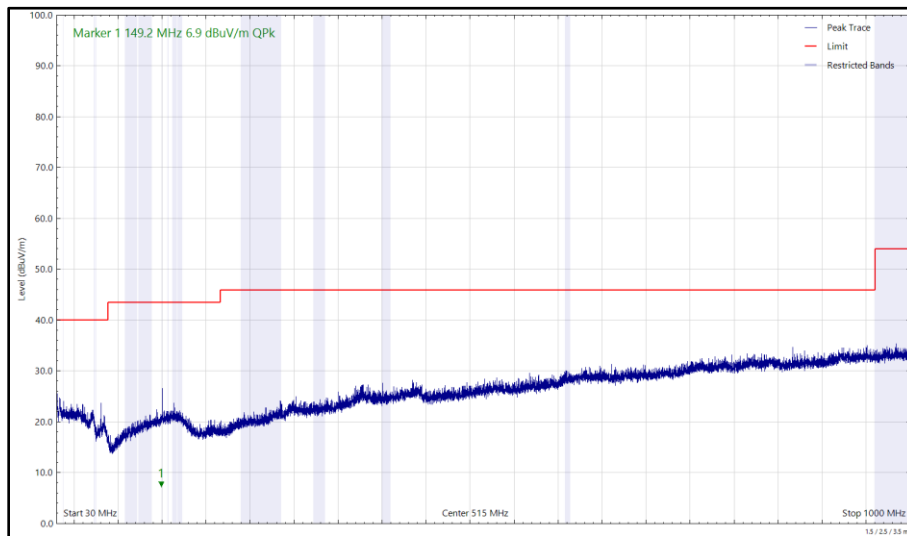


Figure 36 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

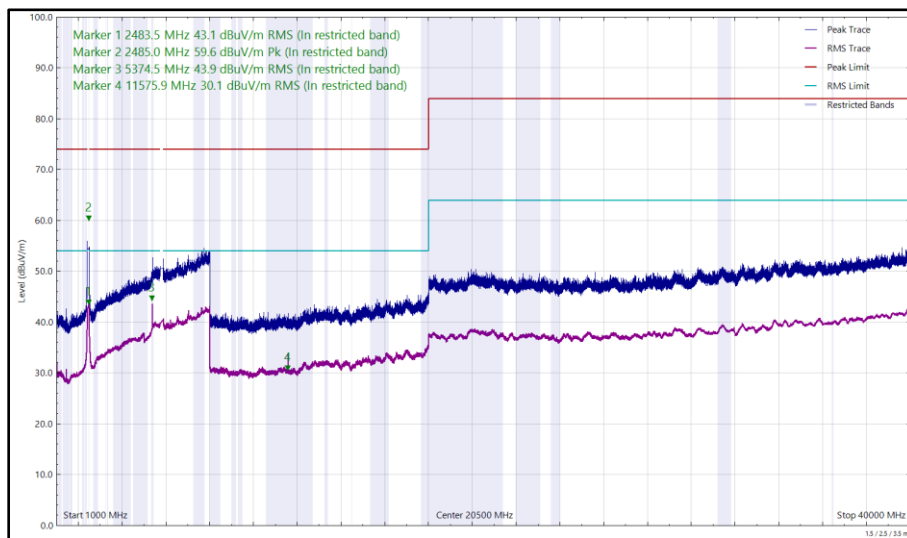


Figure 37 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 1 GHz to 40 GHz, Vertical



FCC 47 CFR Part 15, ISED RSS-247 and ISED RSS-GEN

The least stringent limit from the applicable rule parts was used to determine compliance for Radiated Emissions testing of multiple transmission sources.

The least stringent applicable limit was:

Clause	Limit
Part 15 247 (d) / RSS-247 Clause 5.5	30 dBc
Part 15.407 (b) / RSS-247 Clause 4.6.1.2	-27 dBm/MHz e.i.r.p.
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dB μ V/m at 3m, Average 54 dB μ V/m at 3m (Restricted bands > 1 GHz)

Table 16



Thread and 5 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2332.320	60.73	74.00	-13.27	Peak	344	100	Vertical
4879.015	55.33	74.00	-18.67	Peak	351	100	Vertical
4880.876	46.74	54.00	-7.26	RMS	351	100	Vertical

Table 17 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

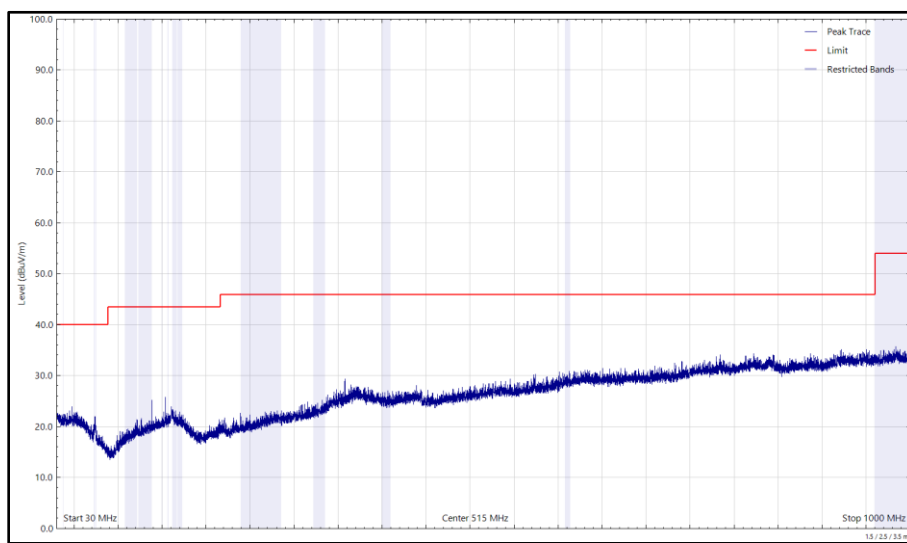


Figure 38 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

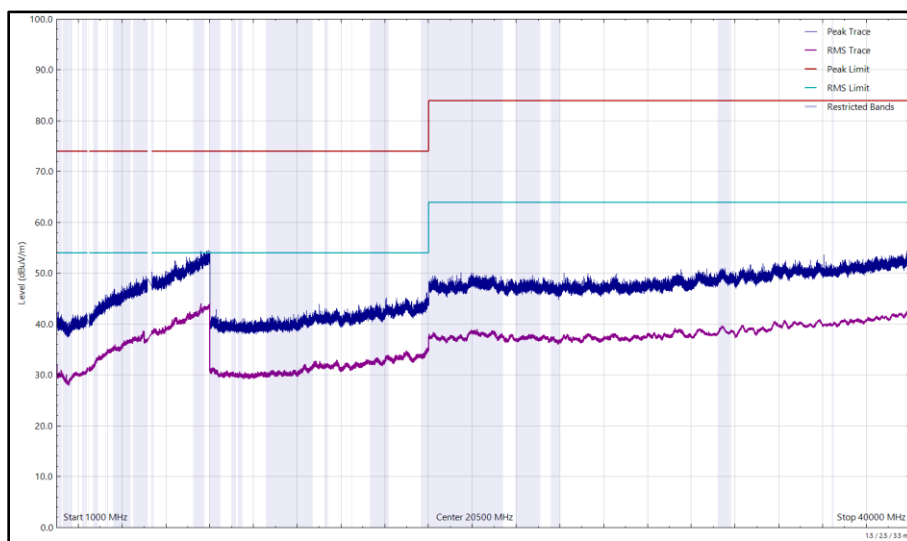


Figure 39 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

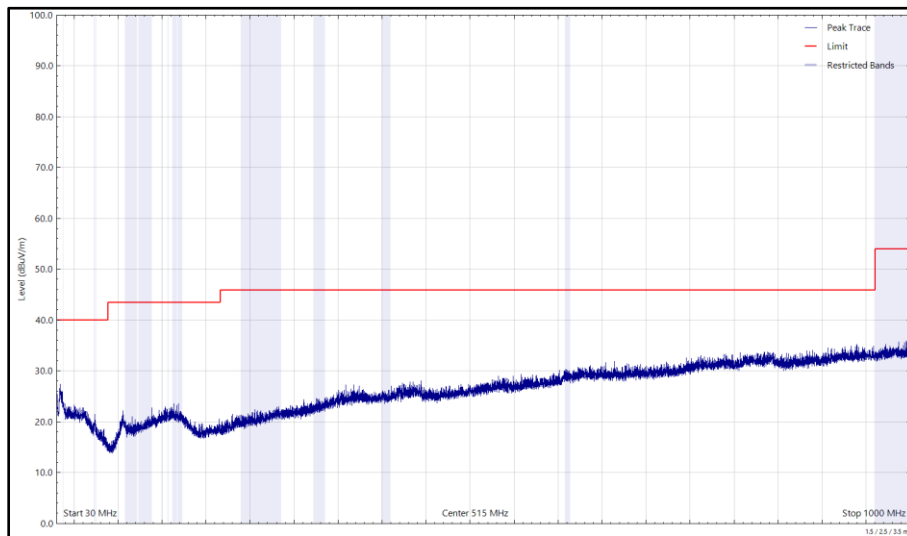


Figure 40 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

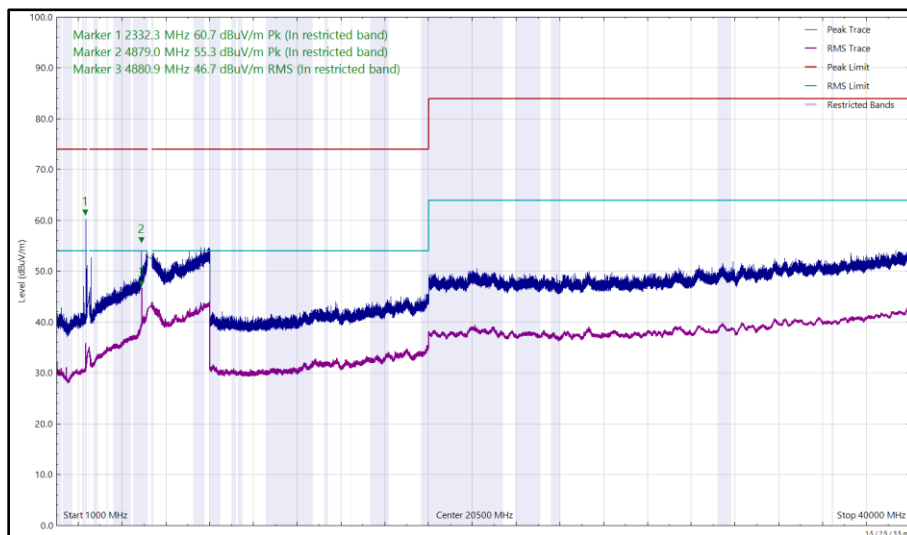


Figure 41 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2496.404	63.98	74.00	-10.02	Peak	305	100	Vertical
4879.065	46.39	54.00	-7.61	RMS	21	100	Vertical

Table 18 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

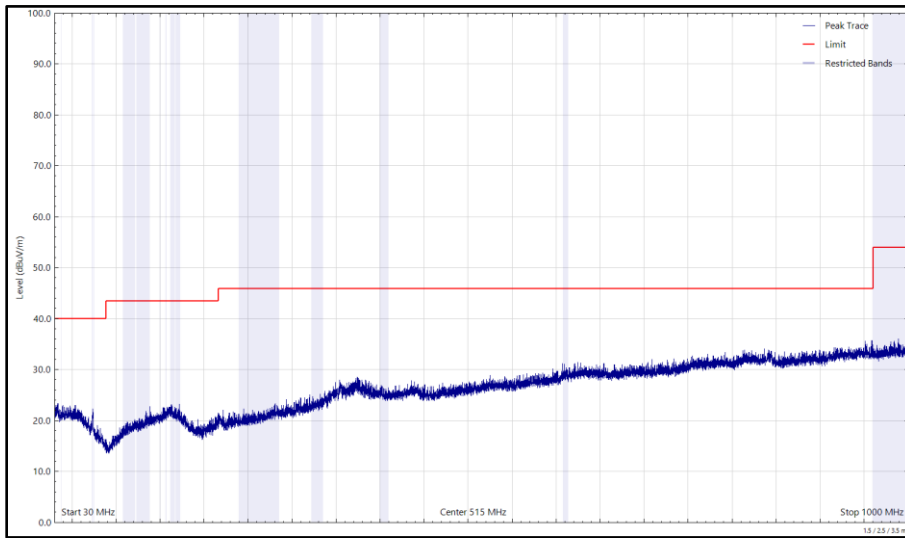


Figure 42 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

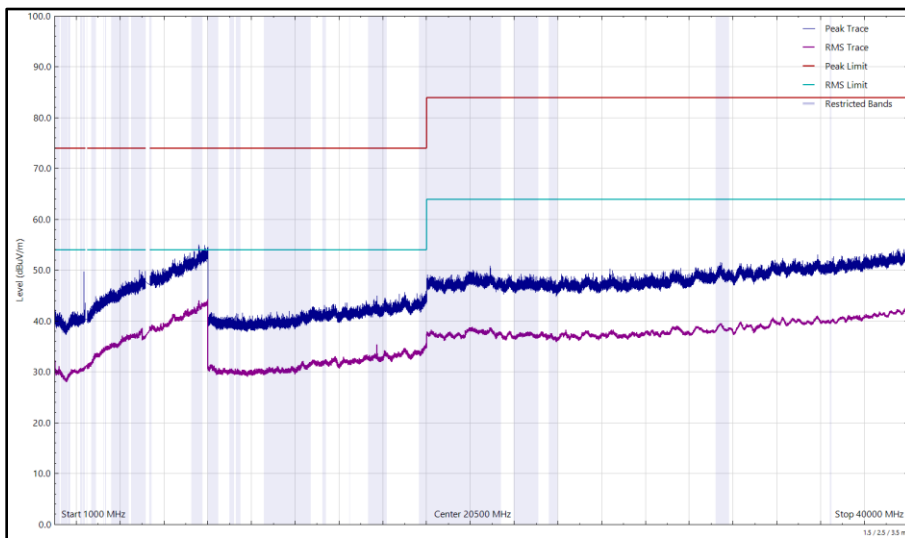


Figure 43 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

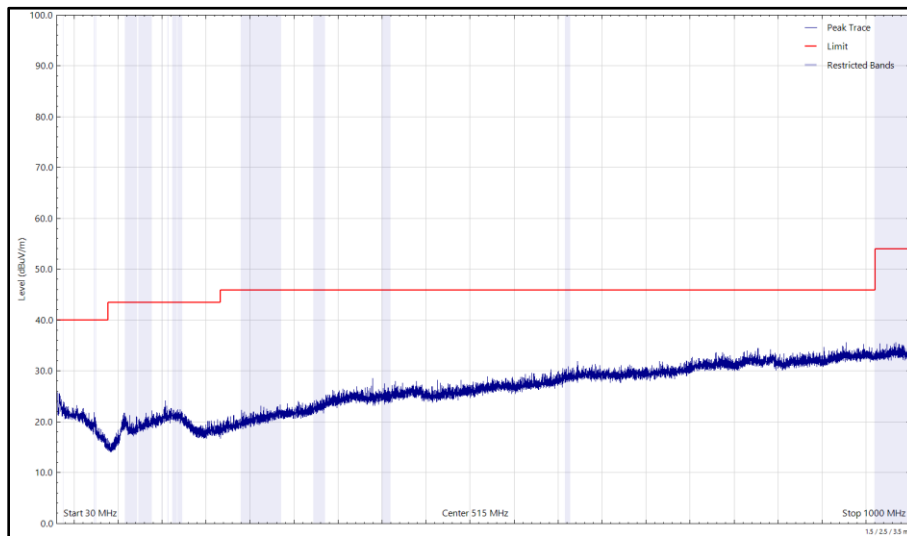


Figure 44 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

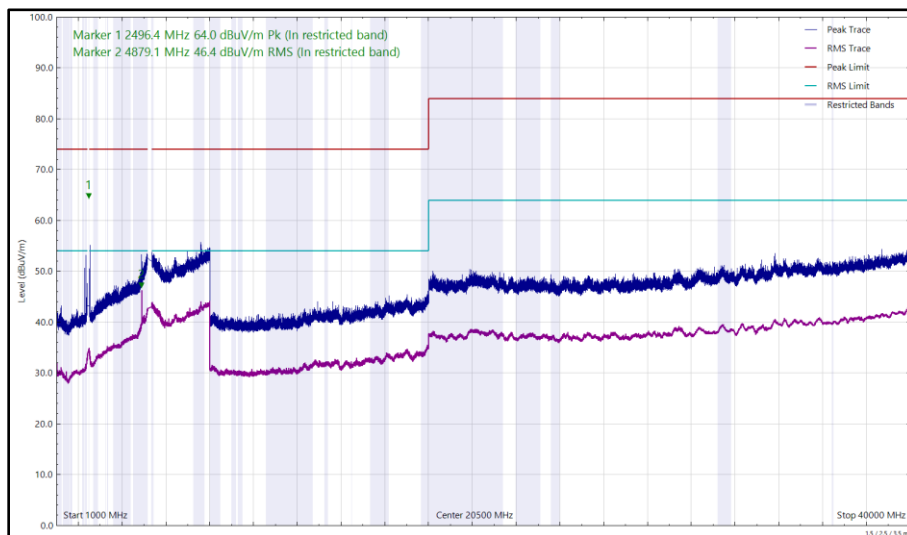


Figure 45 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2387.358	62.65	74.00	-11.35	Peak	304	100	Vertical
2492.089	57.77	74.00	-16.23	Peak	64	100	Horizontal
4879.011	45.66	54.00	-8.34	RMS	17	100	Vertical

Table 19 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

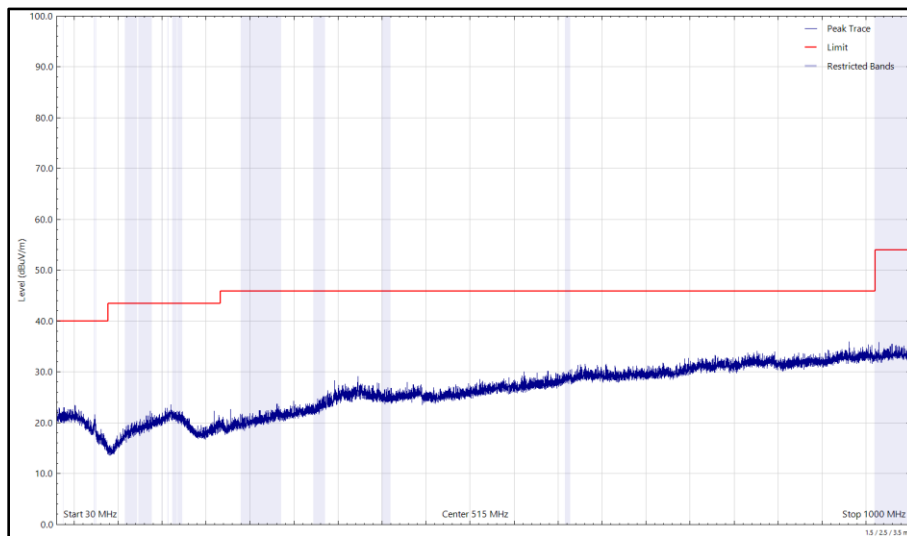


Figure 46 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

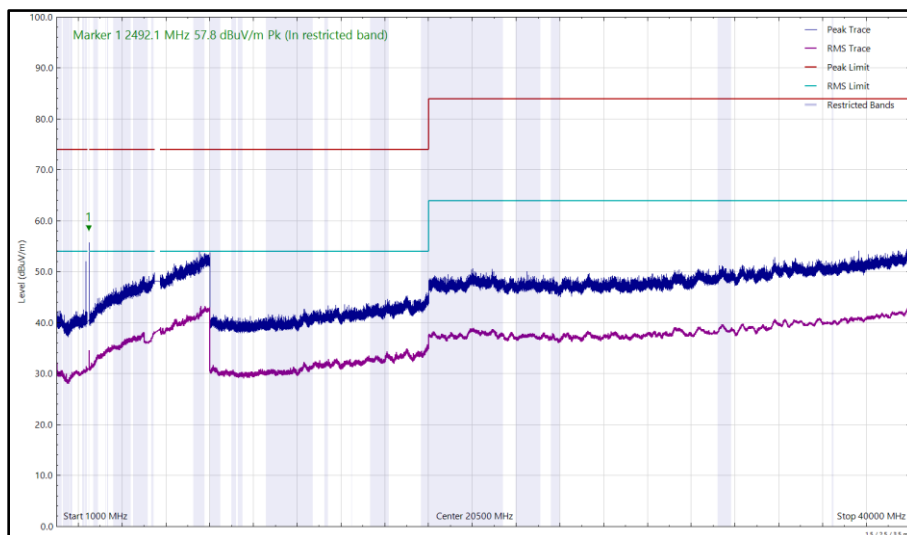


Figure 47 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

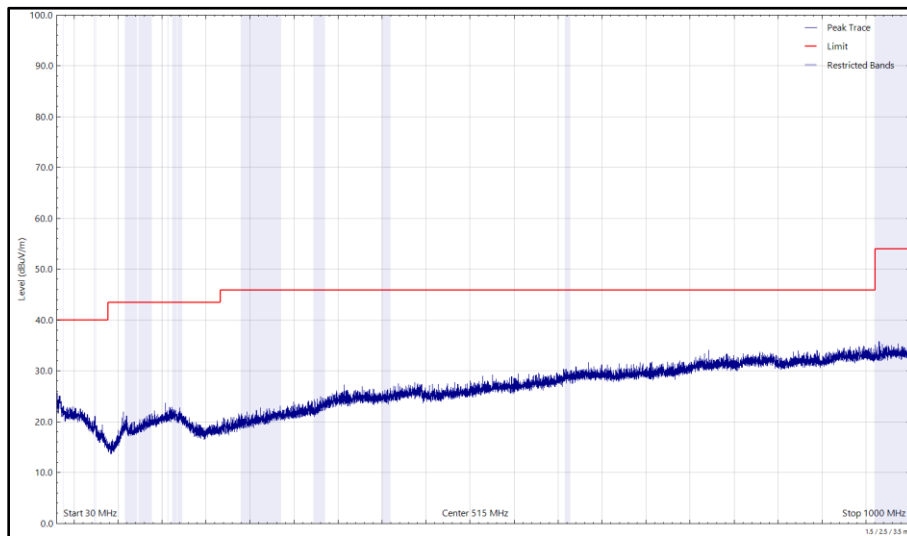


Figure 48 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

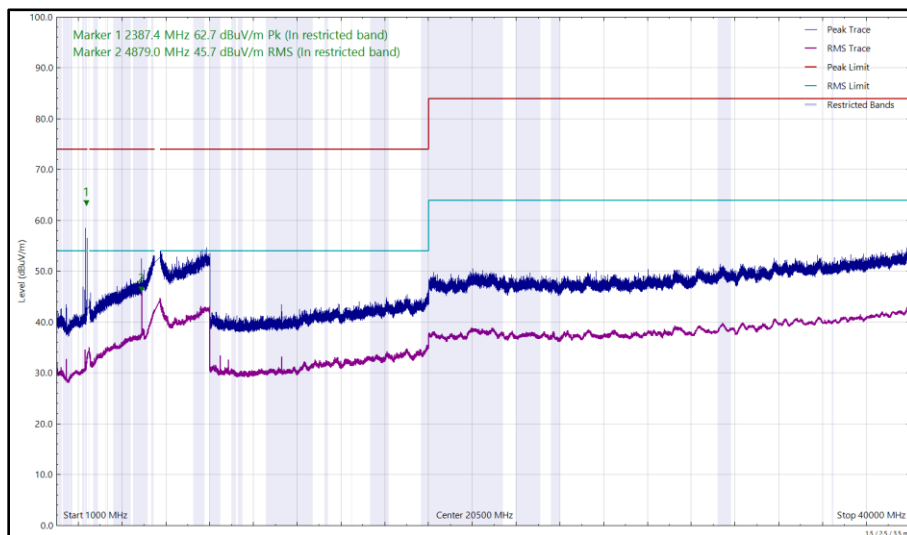


Figure 49 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2323.736	60.20	74.00	-13.80	Peak	331	100	Vertical
4880.881	45.48	54.00	-8.52	RMS	352	100	Vertical

Table 20 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

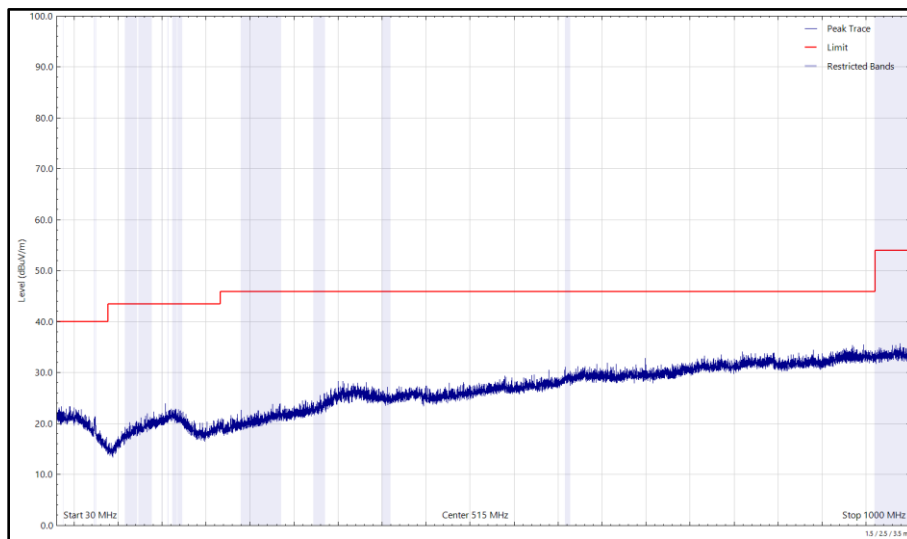


Figure 50 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

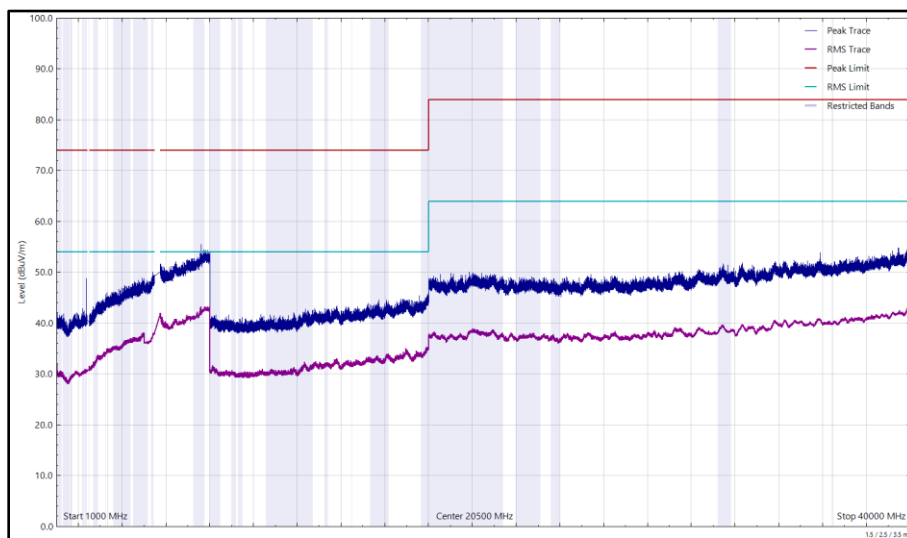


Figure 51 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

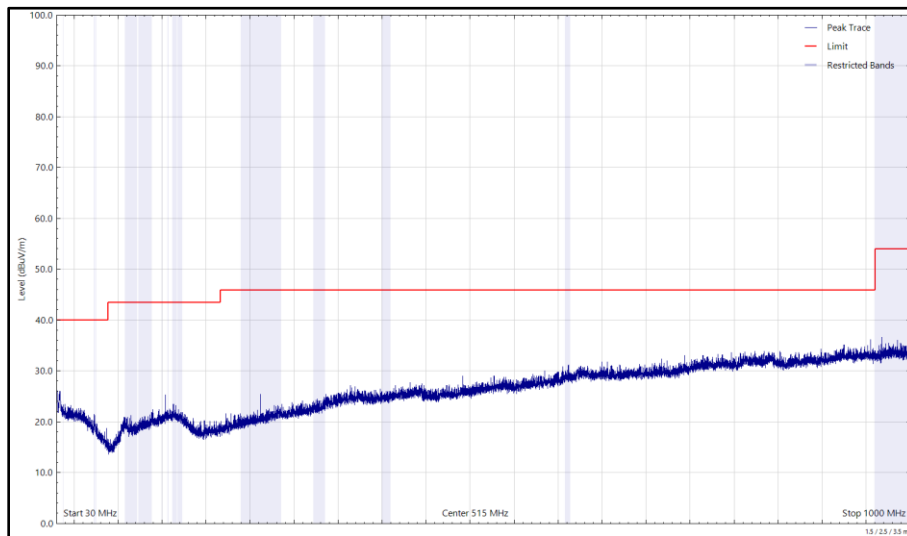


Figure 52 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

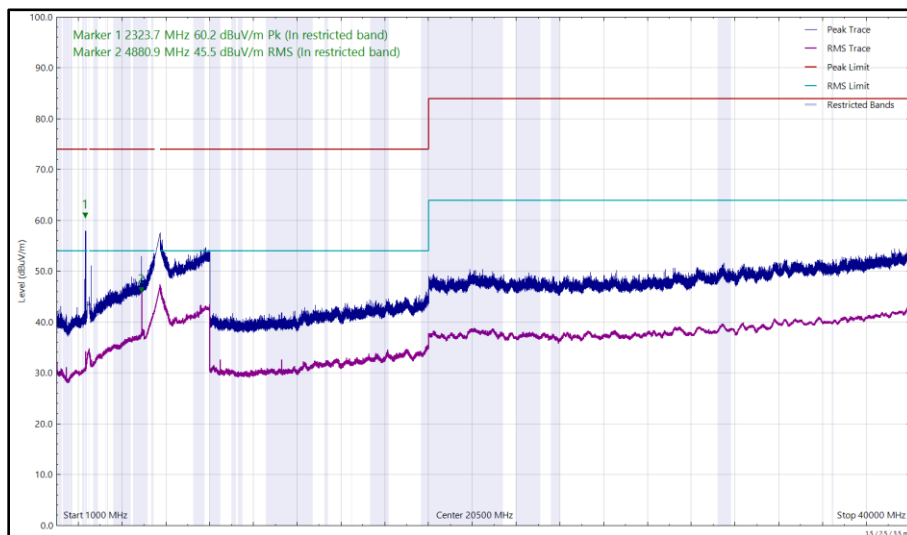


Figure 53 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2367.889	60.52	74.00	-13.48	Peak	202	208	Vertical
4879.049	40.97	54.00	-13.03	RMS	259	393	Vertical

Table 21 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

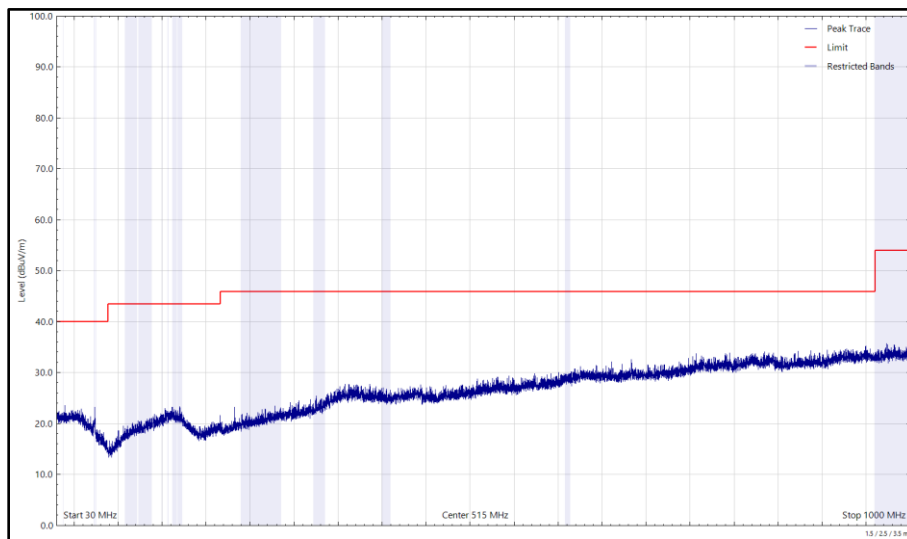


Figure 54 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

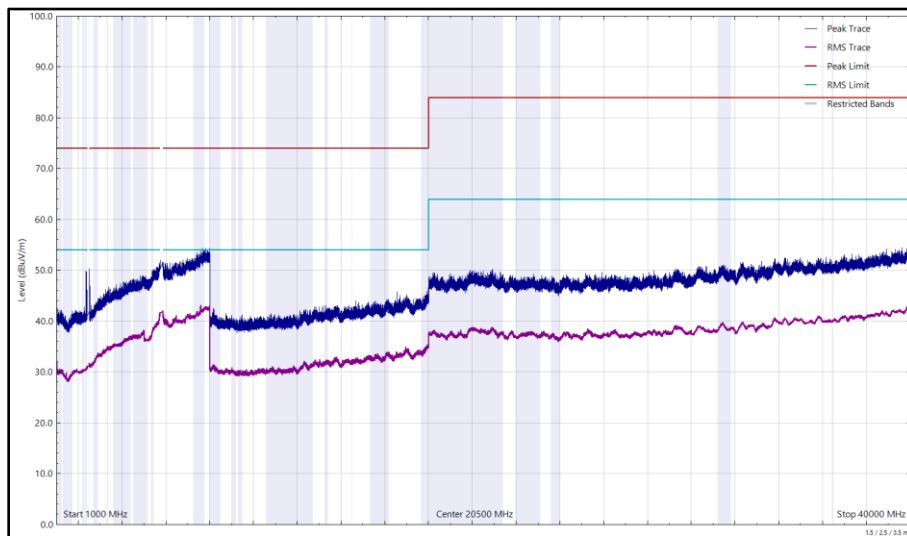


Figure 55 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

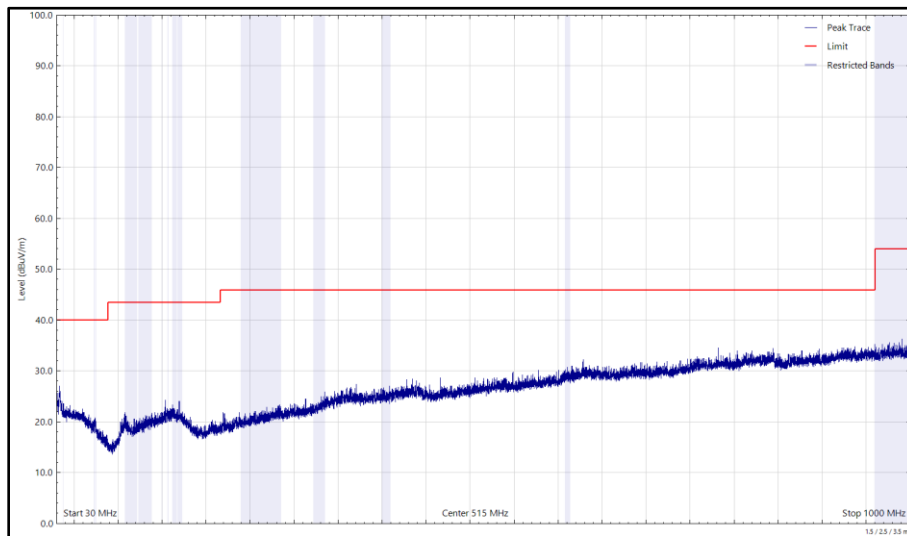


Figure 56 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

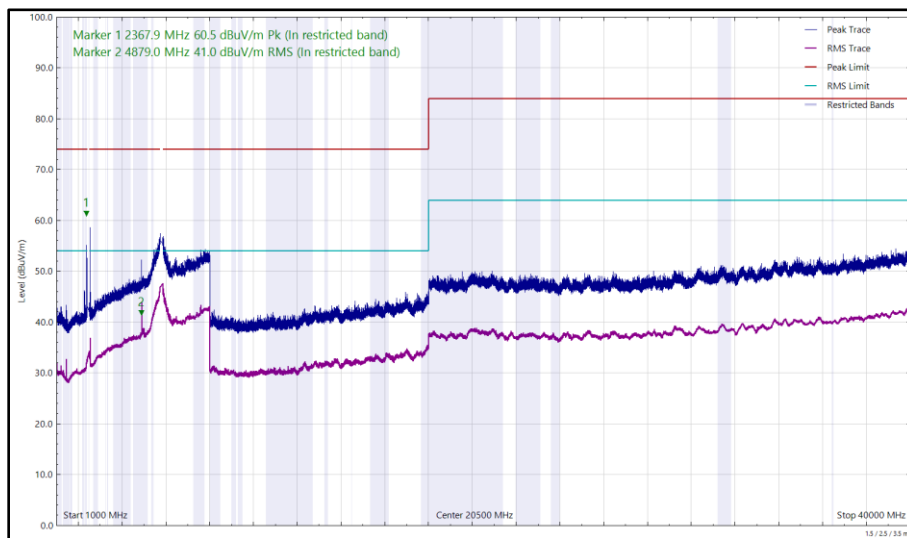


Figure 57 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2364.564	59.41	74.00	-14.59	Peak	261	399	Vertical
2486.960	56.49	74.00	-17.51	Peak	112	440	Horizontal
4880.895	40.93	54.00	-13.07	RMS	262	304	Vertical

Table 22 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

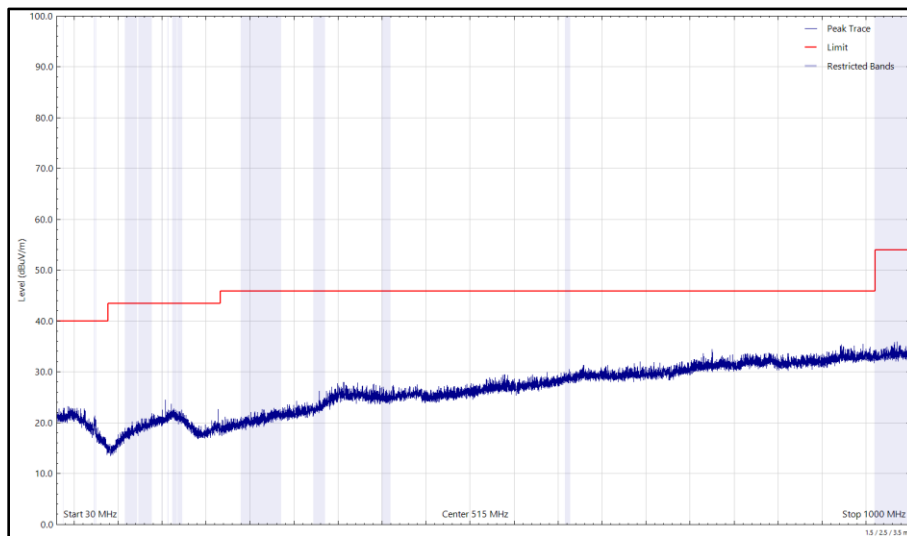


Figure 58 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

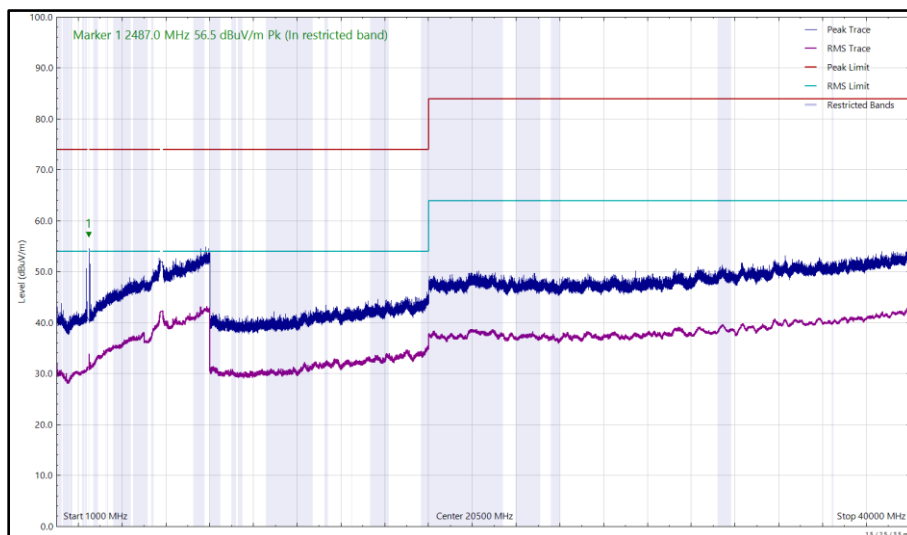


Figure 59 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

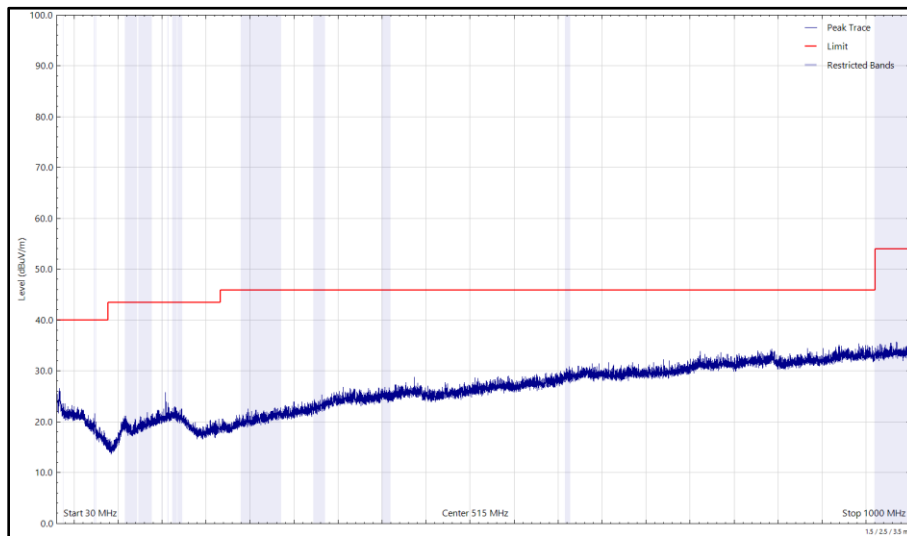


Figure 60 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

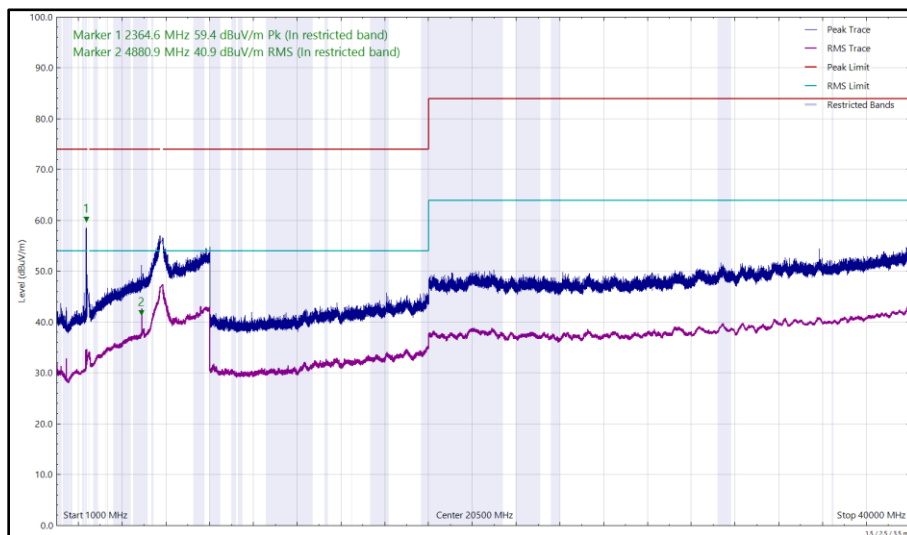


Figure 61 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



FCC 47 CFR Part 15, ISED RSS-247 and ISED RSS-GEN

The least stringent limit from the applicable rule parts was used to determine compliance for Radiated Emissions testing of multiple transmission sources.

The least stringent applicable limit was:

Clause	Limit
Part 15 247 (d) / RSS-247 Clause 5.5	-20 dBc
Part 15.407 (b) / RSS-247 Clause 6.2	-27 dBm e.i.r.p
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dB μ V/m at 3m, Average 54 dB μ V/m at 3m (Restricted bands > 1 GHz)

Table 23



Thread and 6 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2366.046	60.99	74.00	-13.01	Peak	202	352	Vertical
2485.445	69.14	74.00	-4.86	Peak	230	322	Vertical
7320.435	38.01	54.00	-15.99	RMS	344	111	Horizontal
7321.297	42.45	54.00	-11.55	RMS	176	257	Vertical
11909.875	35.39	54.00	-18.61	RMS	332	234	Vertical

Table 24 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

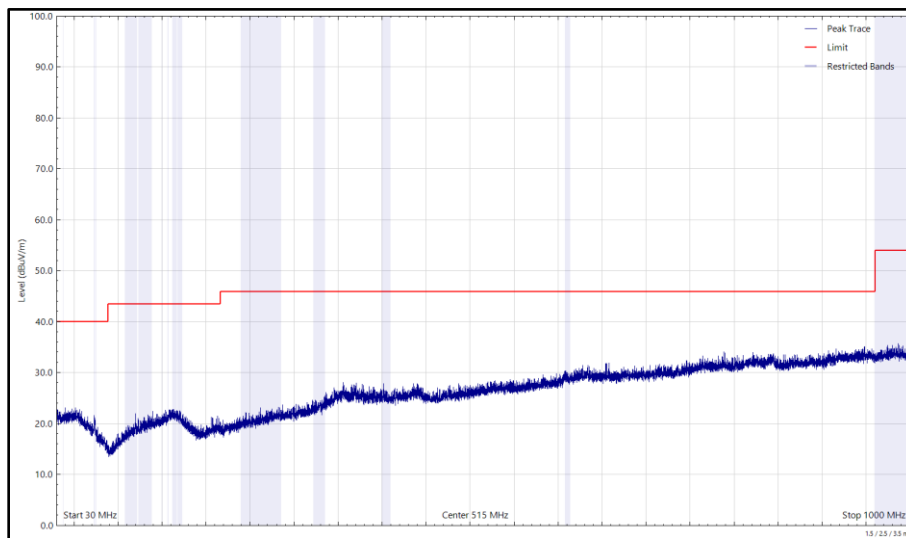


Figure 62 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

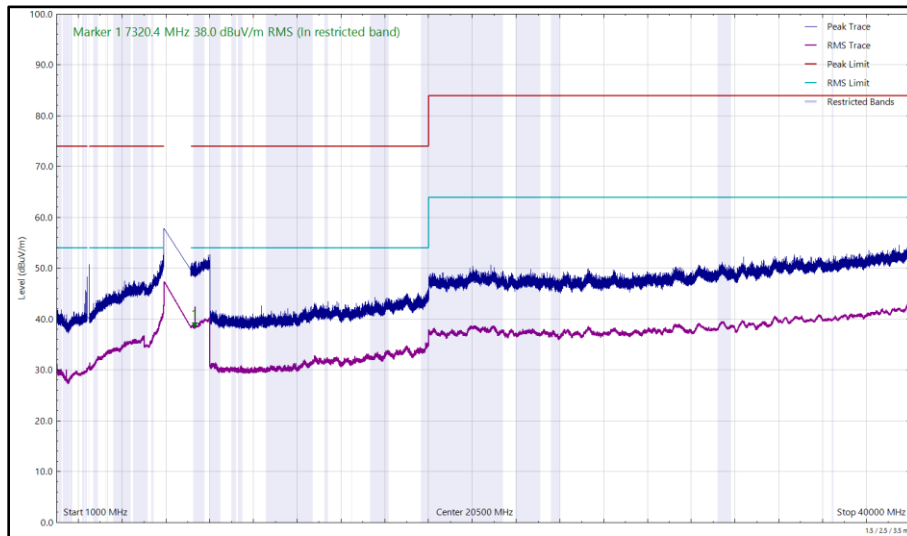


Figure 63 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

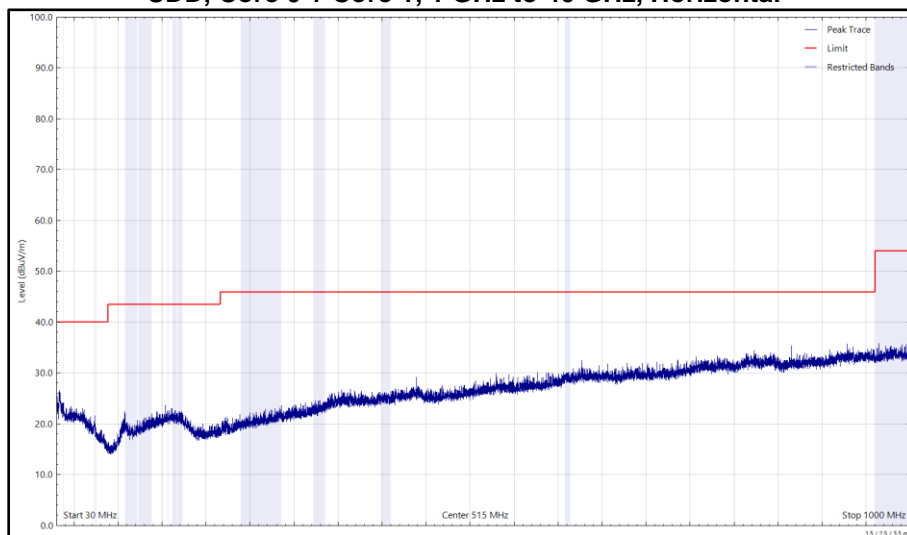


Figure 64 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

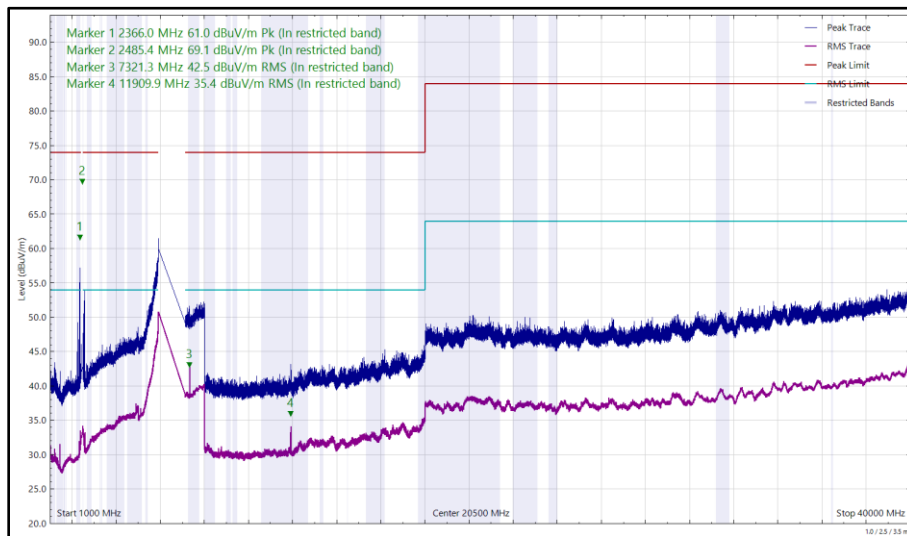


Figure 65 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2485.092	68.79	74.00	-5.21	Peak	225	345	Vertical
2503.808	54.46	88.20	-33.74	Peak	108	438	Horizontal
5904.902	50.65	68.20	-17.55	RMS	205	272	Vertical
7318.470	41.56	54.00	-12.44	RMS	168	310	Vertical
7321.035	38.10	54.00	-15.90	RMS	108	392	Horizontal
11909.830	35.81	54.00	-18.19	RMS	333	217	Vertical

Table 25 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

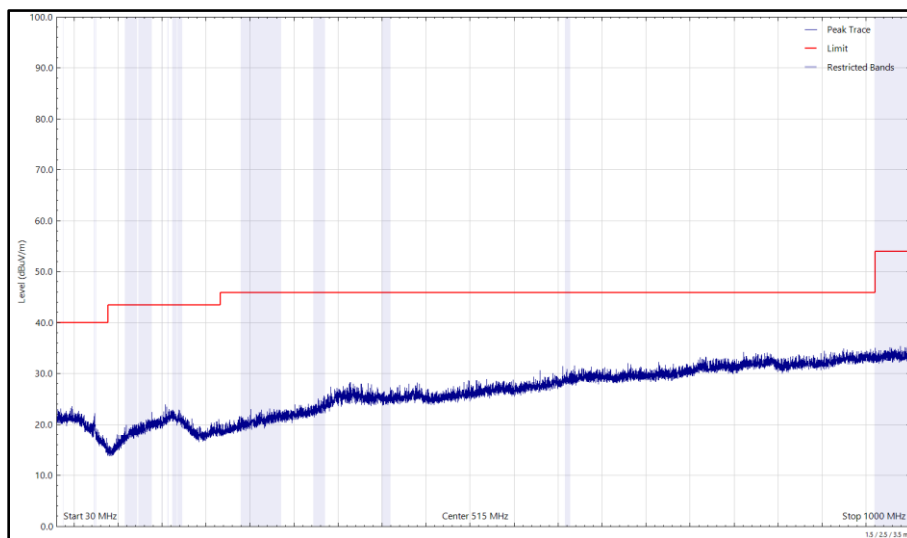


Figure 66 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

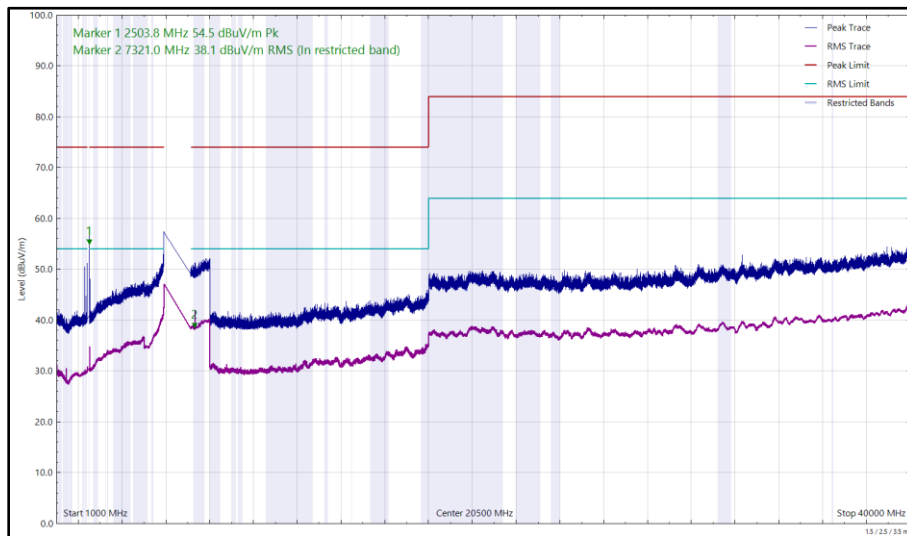


Figure 67 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

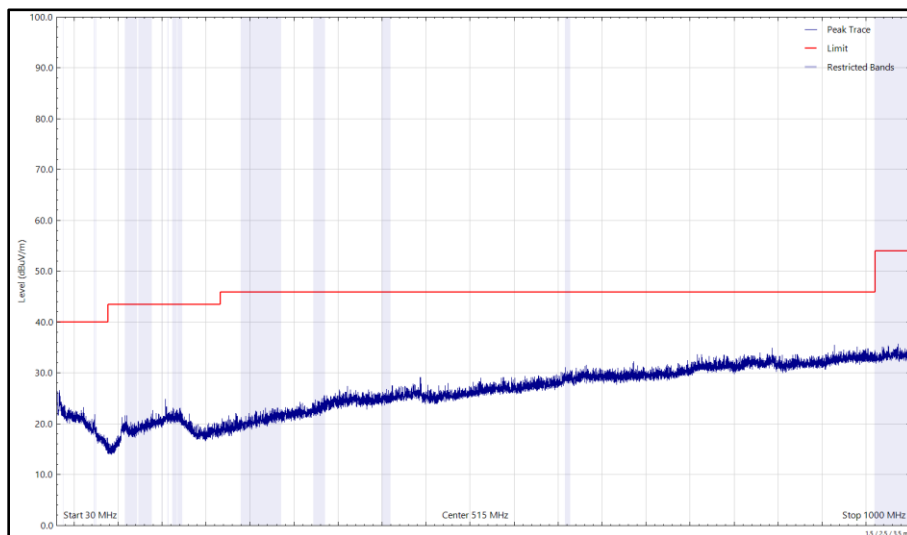


Figure 68 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

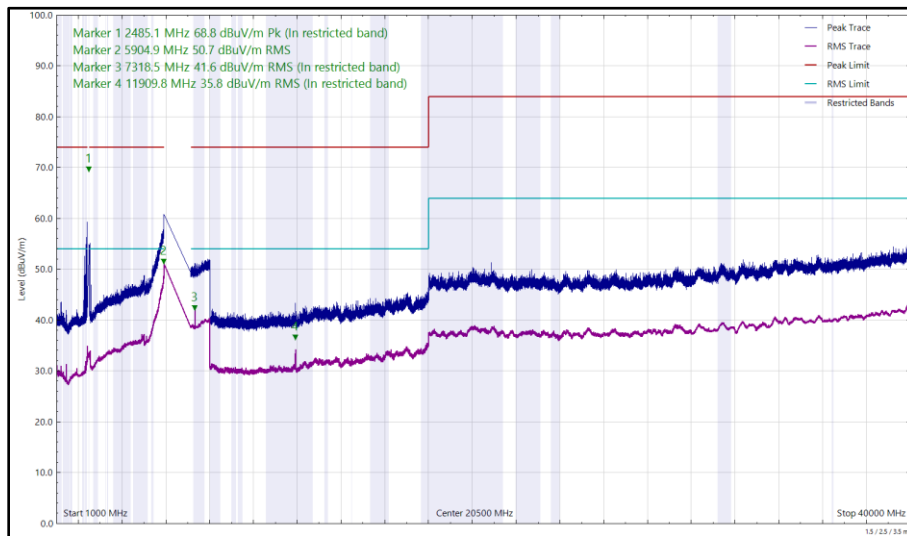


Figure 69 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2360.560	59.85	74.00	-14.15	Peak	235	393	Vertical
2486.662	67.63	74.00	-6.37	Peak	218	400	Vertical
5335.222	49.22	68.20	-18.98	RMS	268	290	Vertical
7155.067	44.84	68.20	-23.36	RMS	184	371	Horizontal
7155.080	53.96	68.20	-14.24	RMS	285	249	Vertical
7156.510	72.96	88.20	-15.24	Peak	283	255	Vertical
7157.957	57.45	88.20	-30.75	Peak	113	421	Horizontal
7318.510	44.48	54.00	-9.52	RMS	285	247	Vertical
7318.581	39.53	54.00	-14.47	RMS	171	407	Horizontal

Table 26 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

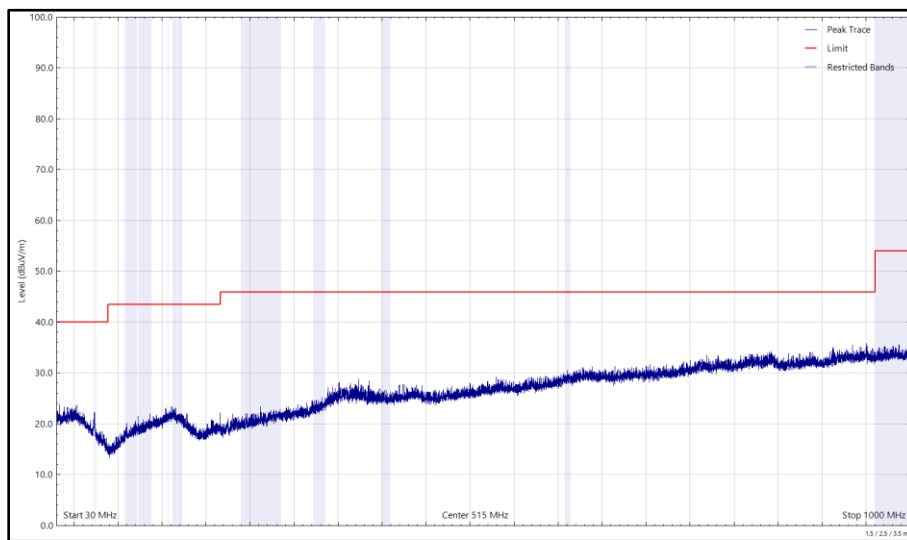


Figure 70 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

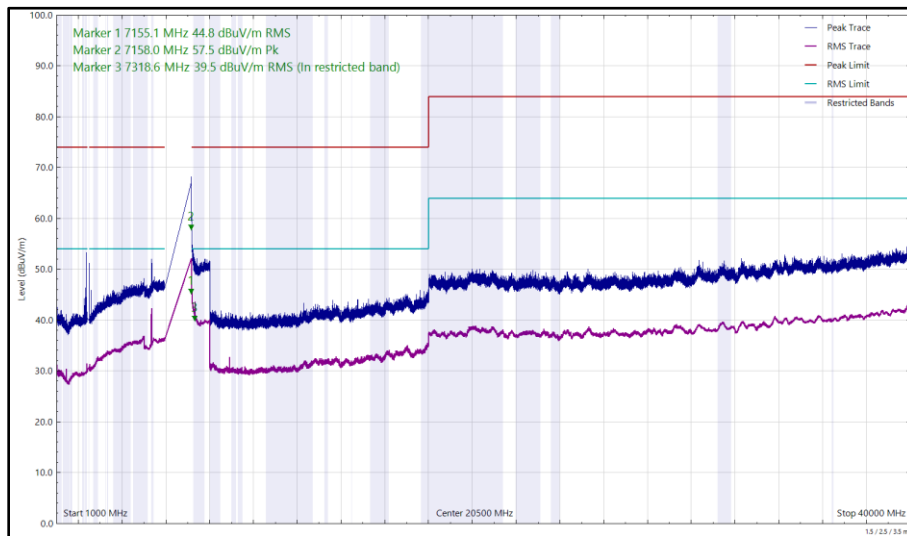


Figure 71 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

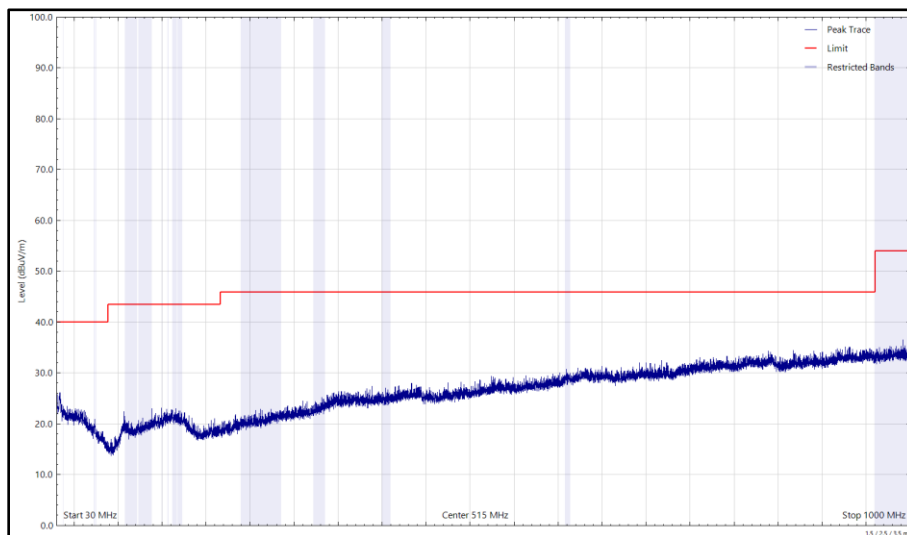


Figure 72 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

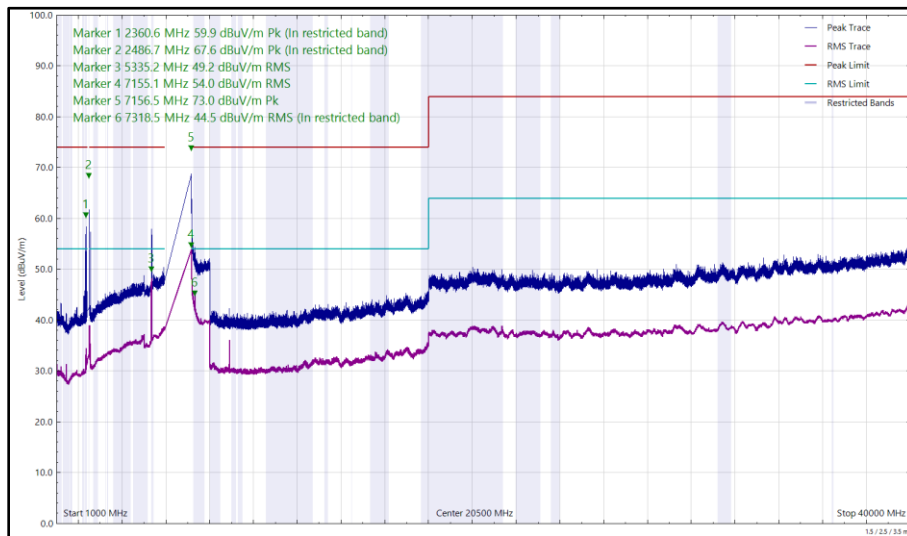


Figure 73 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2363.408	59.21	74.00	-14.79	Peak	235	384	Vertical
2487.645	35.28	54.00	-18.72	RMS	230	315	Vertical
2488.395	68.00	74.00	-6.00	Peak	228	397	Vertical
5340.136	49.60	68.20	-18.60	RMS	267	289	Vertical
7155.018	54.86	68.20	-13.34	RMS	288	254	Vertical
7155.070	73.34	88.20	-14.86	Peak	288	254	Vertical
7155.277	56.70	88.20	-31.50	Peak	112	395	Horizontal
7155.723	49.32	68.20	-18.88	RMS	163	425	Horizontal

Table 27 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

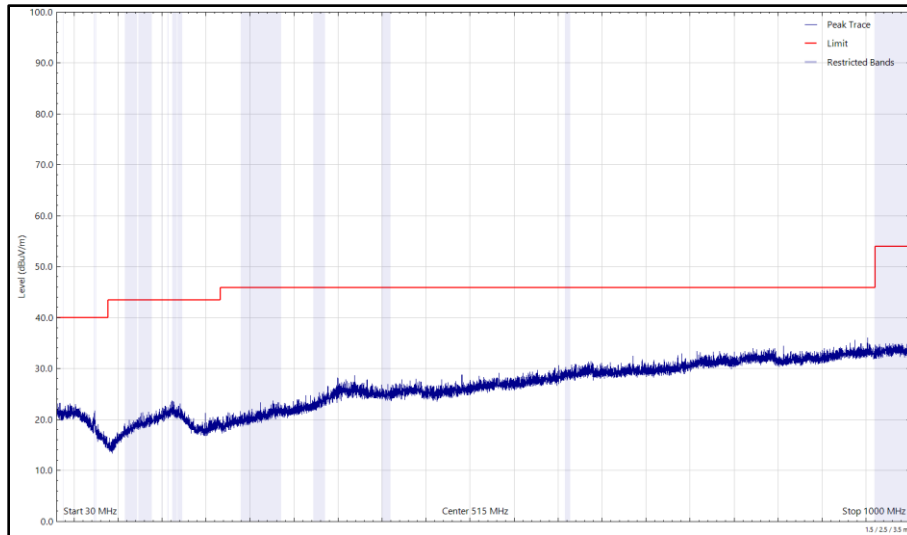


Figure 74 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

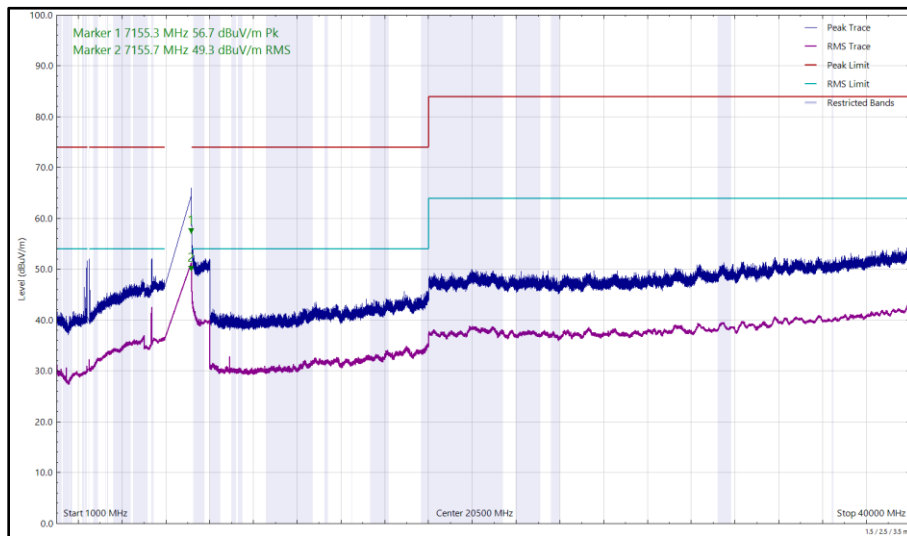


Figure 75 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

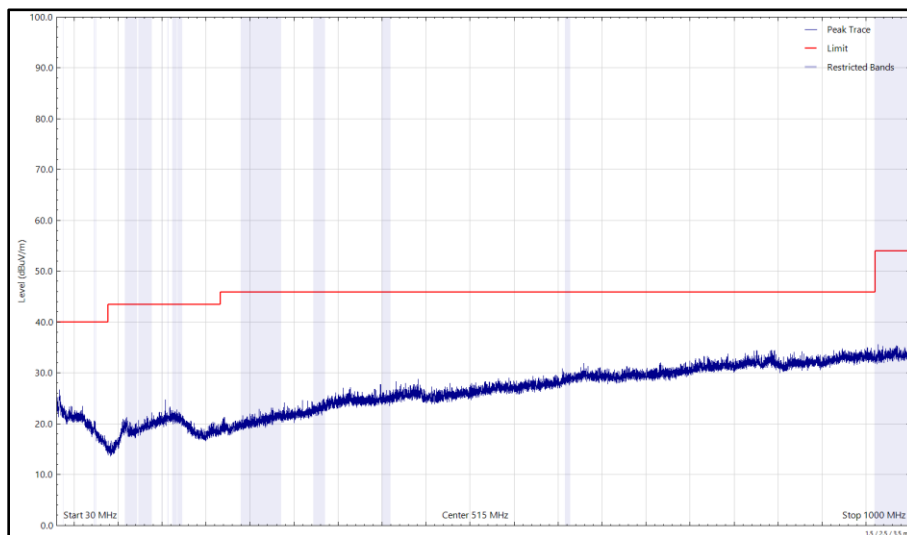


Figure 76 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

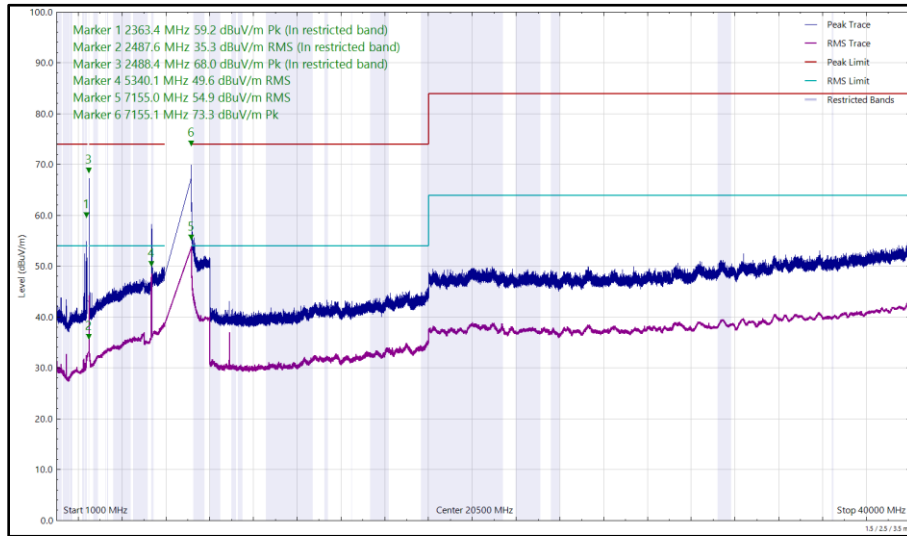


Figure 77 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

FCC 47 CFR Part 15, ISED RSS-247, ISED RSS-248 and ISED RSS-GEN

The least stringent limit from the applicable rule parts was used to determine compliance for Radiated Emissions testing of multiple transmission sources.

The least stringent applicable limit was:

Clause	Limit
Part 15 247 (d) / RSS-247 Clause 5.5	-20 dBc
Part 15.407 (b) / RSS-248 Clause 4.6.2	Peak: -7 dBm/MHz e.i.r.p, Average: -27 dBm/MHz e.i.r.p.
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dB μ V/m at 3m, Average 54 dB μ V/m at 3m (Restricted bands > 1 GHz)

Table 28



2.1.8 Test Location and Test Equipment Used

This test was carried out in RF Chamber 14, RF Chamber 15 and RF Chamber 16.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Cable (18 GHz)	Rosenberger	LU7-071-1000	5096	12	24-Oct-2024
Emissions Software	TUV SUD	EmX V3.1.12 V.	5125	-	Software
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	5516	12	24-Oct-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5912	12	17-Apr-2024
Test Receiver	Rohde & Schwarz	ESW44	5914	12	24-Feb-2024
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	5935	12	05-Jun-2024
TRILOG Super Broadband Test Antenna	Schwarzbeck	VULB 9168	5944	24	03-Feb-2024
1500W (300V 12A) AC Power Supply	iTech	IT7324	5955	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5956	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5957	-	O/P Mon
5m Semi-Anechoic Chamber (Dual-Axis)	Albatross Projects	RF Chamber 14	5958	36	26-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5959	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5960	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5961	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5962	-	TU
5m Semi-Anechoic Chamber (Dual-Axis), Chamber 15	Albatross Projects	RF Chamber 15	5963	36	28-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5964	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5966	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5967	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5968	-	TU
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 (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6003	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	05-Jun-2024
Cable (N to N 7m)	Junkosha	MWX221-07000NMSNMS/B	6016	12	05-Jun-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	26-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6141	12	26-Aug-2024



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Digital Multimeter	Fluke	115	6146	12	15-Jun-2024
Digital Multimeter	Fluke	115	6147	12	16-Jun-2024
Humidity & Temperature meter	R.S Components	1364	6148	12	21-Jul-2024
Humidity & Temperature meter	R.S Components	1364	6149	12	07-Jul-2024
Double Ridge Active Horn Antenna (18-40 GHz)	Com-Power	AHA-840	6187	24	02-Jun-2024
SAC Switch Unit	TUV SUD	TUV_SSU_001	6191	12	12-Dec-2023
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6200	12	14-Jul-2024
Attenuator 4dB	Pasternack	PE7074-4	6203	24	16-Jul-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	03-Nov-2023
USB Spectrum Analyser	Signal Hound	SA124B	6297	-	TU
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6315	12	04-Feb-2024
Cable (SMA to SMA 8m)	Junkosha	MWX221-08000AMSAMS/B	6318	12	04-Feb-2024
Humidity and Temperature Meter	R.S Components	1364	6346	12	28-Feb-2024
SAC Switch Unit	TUV SUD	TUV_SSU_001	6349	12	31-Mar-2024
8 GHz High Pass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6427	12	24-Jul-2024
DRG Horn Antenna	Schwarzbeck	HWRD750	6458	12	09-Jul-2024
Coax cable sma to sma with N-Type adapter	TUV SUD	N/A	6637	12	24-Jul-2024

Table 29

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
Radiated Spurious Emissions (Simultaneous Transmission)	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB

Table 30

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.