

FCC and ISED Test Report

Apple Inc
Model: A2992

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
One Apple Park Way
Cupertino
California
95014,
USA



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Document 75957632-51 Issue 01

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steve Marshall	Senior Engineer	Authorised Signatory	11 October 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	11 October 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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ACCREDITATION

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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	11-October-2023

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A2992
Serial Number(s)	Y349994YRC and C69CLQX700
Hardware Version(s)	REV 1.0
Software Version(s)	23A32391n
Number of Samples Tested	2
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	04-August-2023
Finish of Test	06-September-2023
Name of Engineer(s)	Ahmed Al Derdiri, Dale Hills, Ian Hart, James Woods, Manohar Thota, Michael Evans, Morsalin Hossain, Nicolae Mihailiuc, Tony Baby
Related Document(s)	ANSI C63.10: 2013 ANSI C63.10: 2020 ANSI C63.4 (2014) KDB 789033



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: CoTx - 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	
Configuration and Mode: CoTx - 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	
Configuration and Mode: CoTx - 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	
Configuration and Mode: CoTx - 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	
Configuration and Mode: CoTx - 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	

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: A2992, Serial Number: Y349994YRC			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A2992, Serial Number: C69CLQX700			
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: CoTx - 2.4 GHz WLAN and Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Ahmed Al Derdiri, Ian Hart, James Woods, Nicolae Mihailiuc and Tony Baby	UKAS
Configuration and Mode: CoTx - 2.4 GHz Bluetooth and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Ahmed Al Derdiri, Ian Hart, James Woods, Manohar Thota, Nicolae Mihailiuc and Tony Baby	UKAS
Configuration and Mode: CoTx - 2.4 GHz Bluetooth and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Dale Hills, Michael Evans and Morsalin Hossain	UKAS
Configuration and Mode: CoTx - Thread and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Dale Hills, James Woods, Michael Evans and Morsalin Hossain	UKAS
Configuration and Mode: CoTx - Thread and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	James Woods, Michael Evans and Morsalin Hossain	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

A2992, S/N: Y349994YRC - Modification State 0
A2992, S/N: C69CLQX700 - Modification State 0

2.1.3 Date of Test

04-August-2023 to 06-September-2023

2.1.4 Test Method

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

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

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 dBµV/m to µV/m:
 $10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$

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

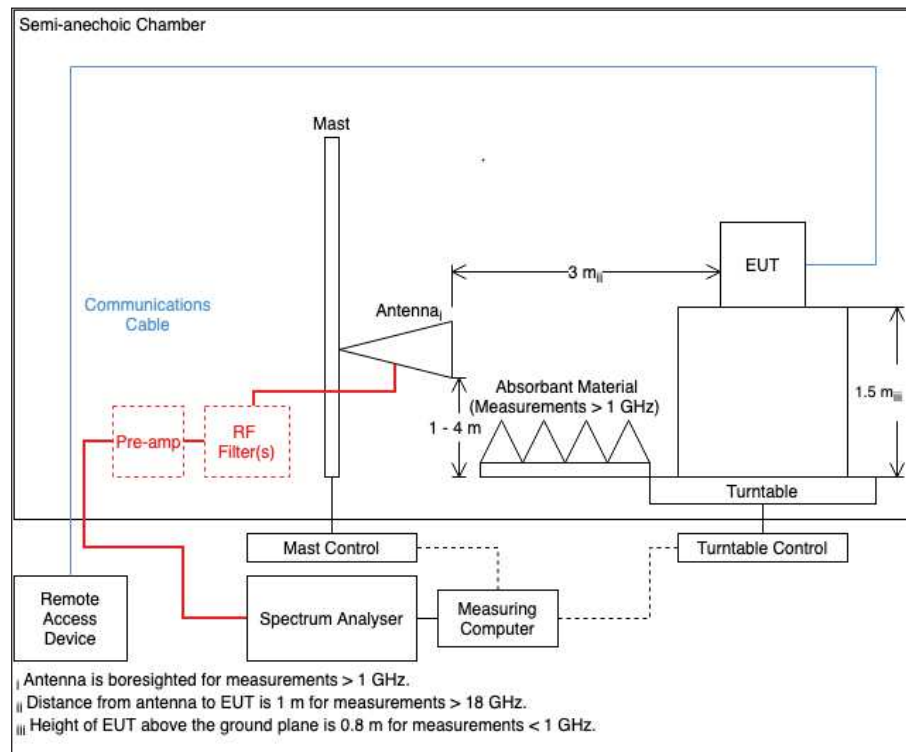


Figure 1

2.1.6 Environmental Conditions

Ambient Temperature	20.8 - 23.9 °C
Relative Humidity	36.8 - 62.3 %

2.1.7 Test Results

CoTx - 2.4 GHz Bluetooth and 5 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4881.945	57.53	74.00	-16.47	Peak	24	294	Vertical
4881.945	48.74	54.00	-5.26	CISPR Avg	24	294	Vertical

Table 5 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

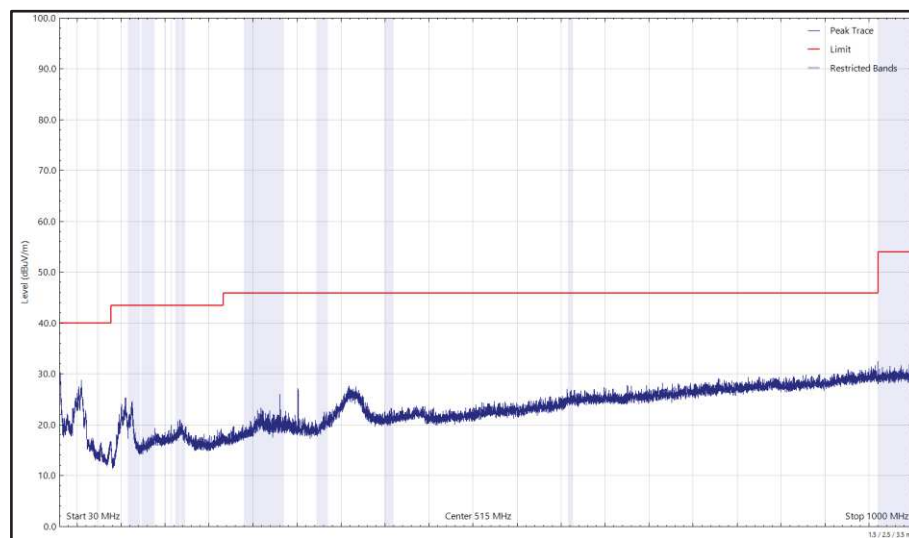


Figure 2 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

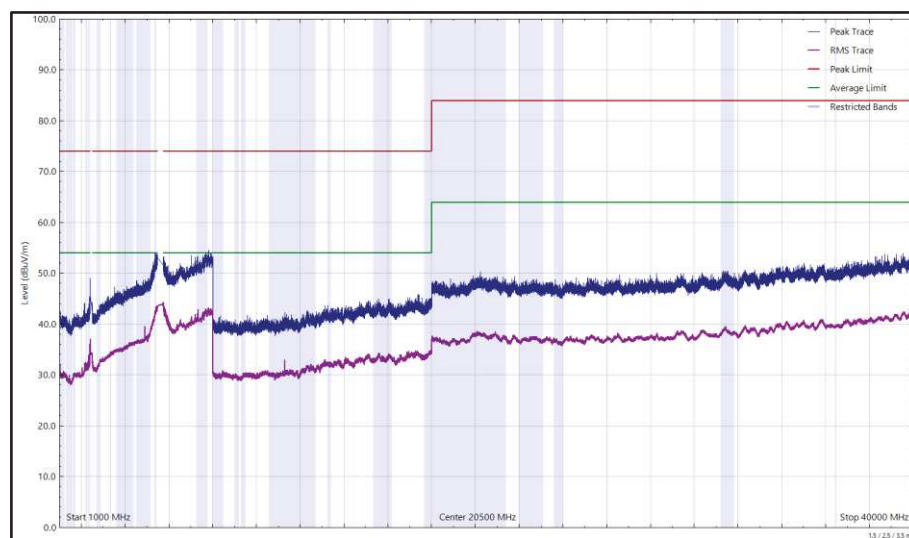


Figure 3 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

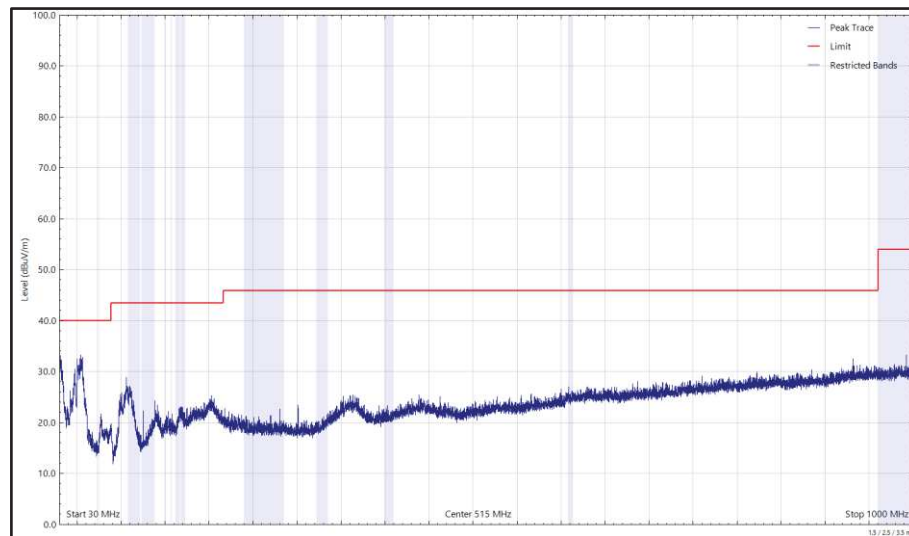


Figure 4 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

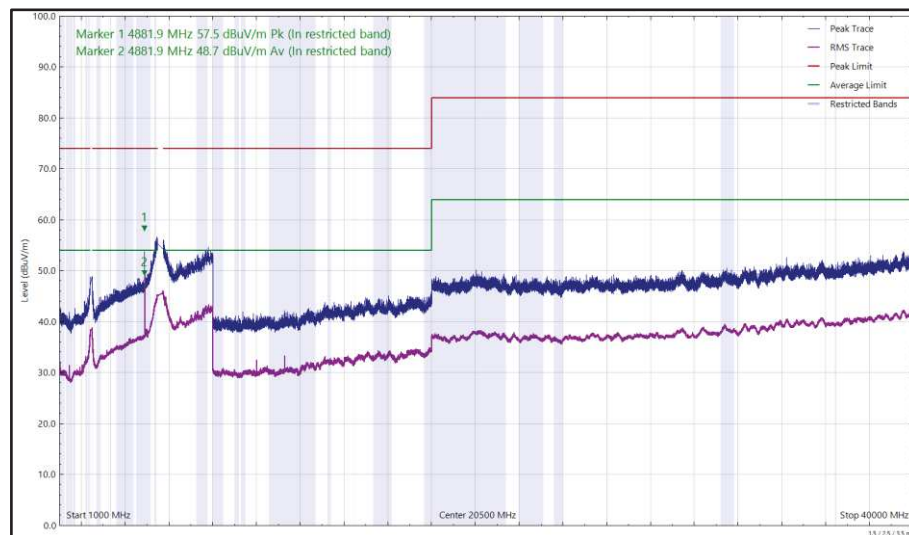


Figure 5 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4882.155	56.74	74.00	-17.26	Peak	24	291	Vertical
4882.155	47.48	54.00	-6.52	CISPR Avg	24	291	Vertical

Table 6 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

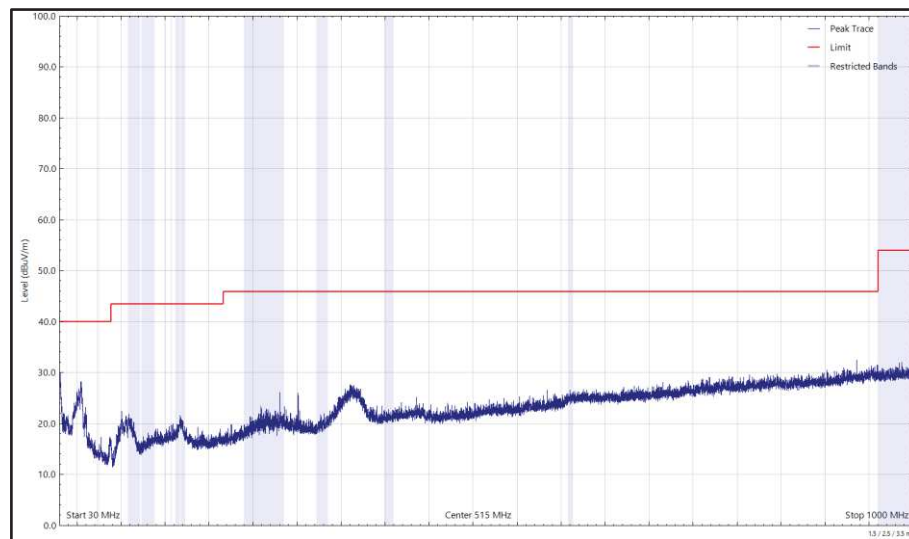


Figure 6 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

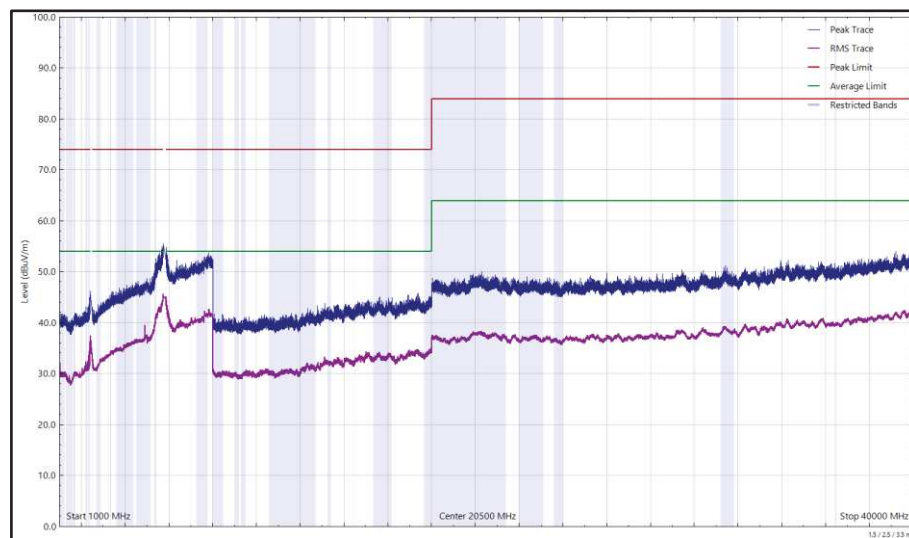


Figure 7 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

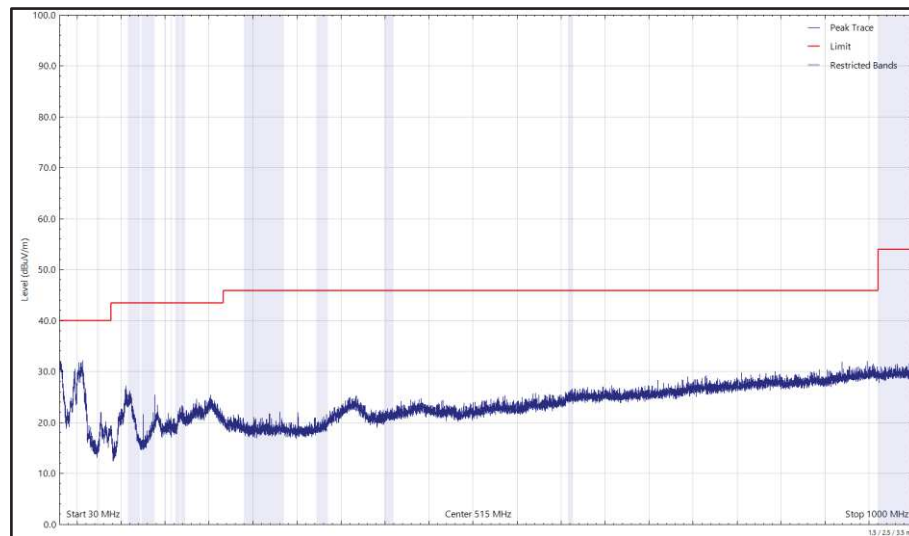


Figure 8 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

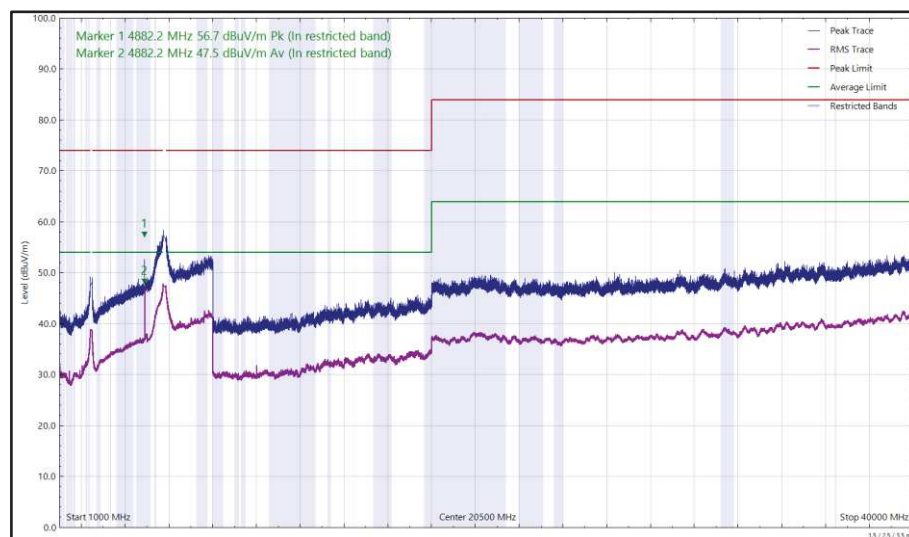


Figure 9 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2801.154	35.38	54.00	-18.62	RMS	2	377	Vertical
4881.555	56.18	74.00	-17.82	Peak	25	298	Vertical
4881.555	45.39	54.00	-8.61	CISPR Avg	25	298	Vertical

Table 7 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

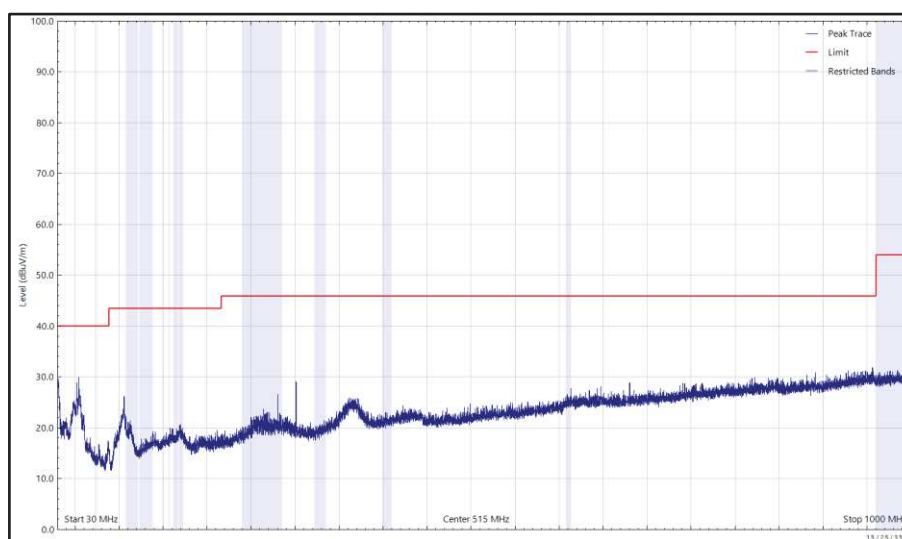


Figure 10 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

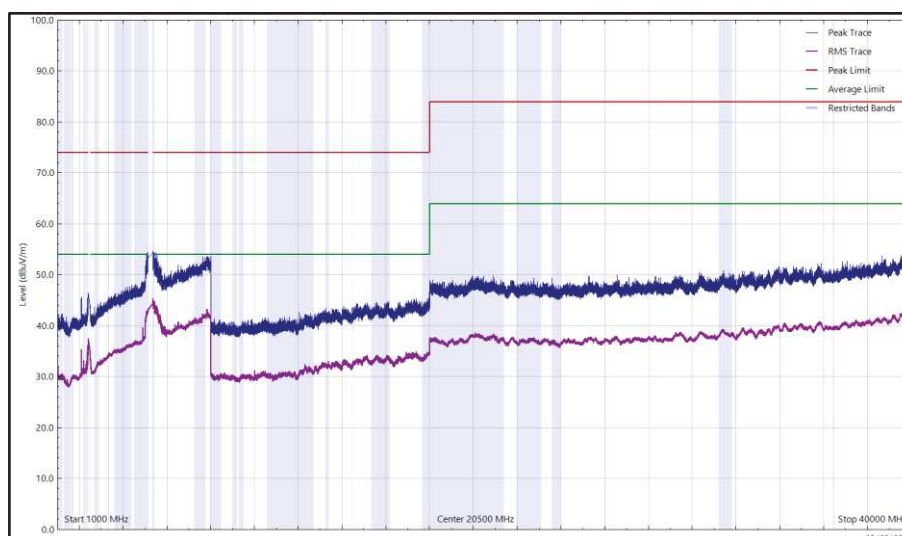


Figure 11 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

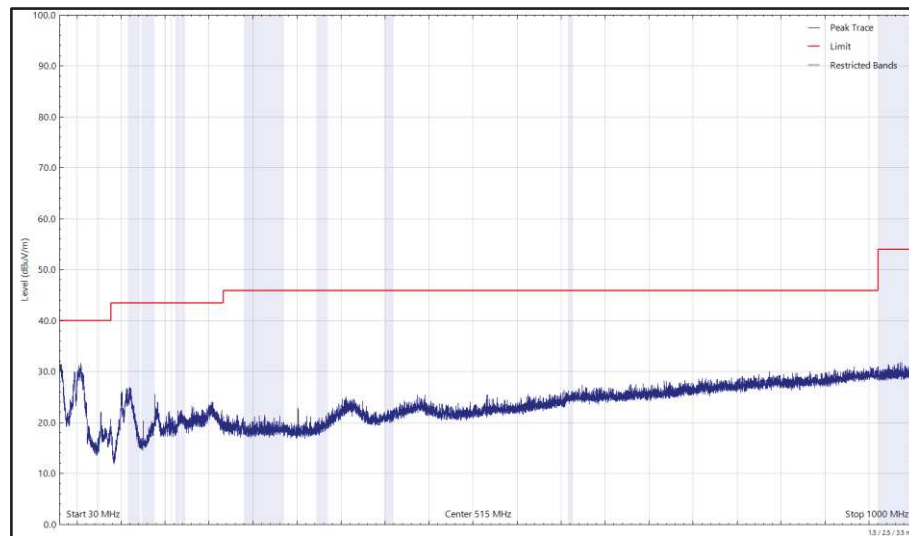


Figure 12 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

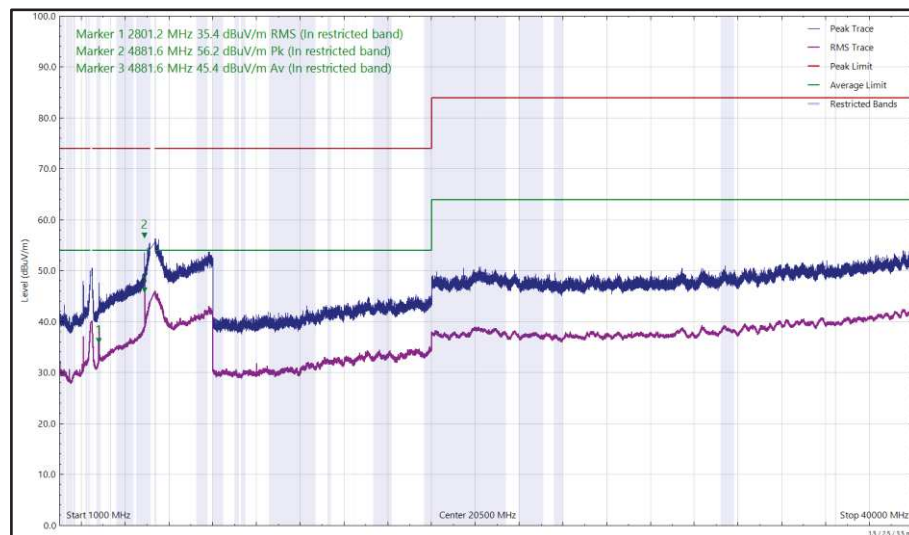


Figure 13 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

CoTx - 2.4 GHz Bluetooth and 6 GHz WLAN

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
54.389	28.62	40.00	-11.38	Q-Peak	350	107	Vertical
4881.738	39.05	54.00	-14.95	CISPR Avg	30	286	Vertical
7322.880	38.82	54.00	-15.18	RMS	233	339	Horizontal
7322.914	47.05	54.00	-6.95	RMS	342	258	Vertical
7323.023	42.75	54.00	-11.25	RMS	113	251	Vertical

Table 9 - 2441 MHz (CH39), 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.

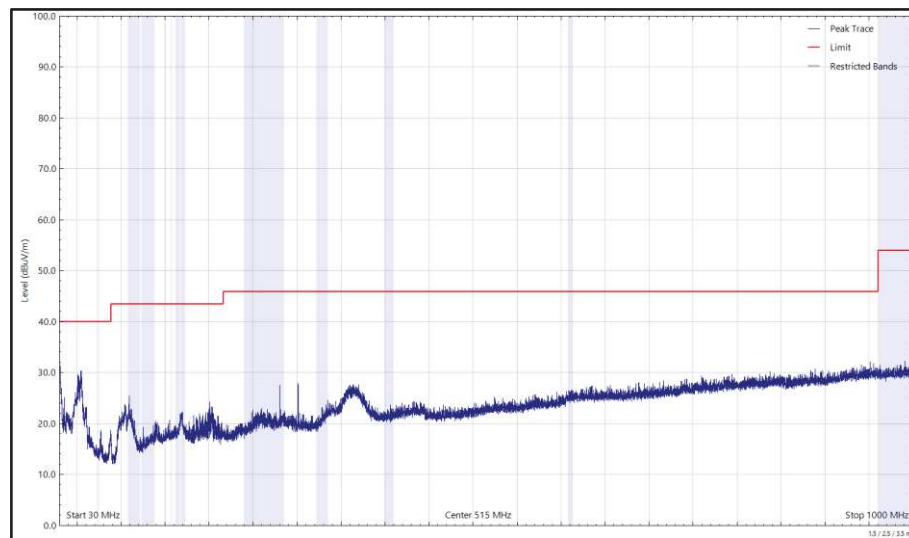


Figure 14 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

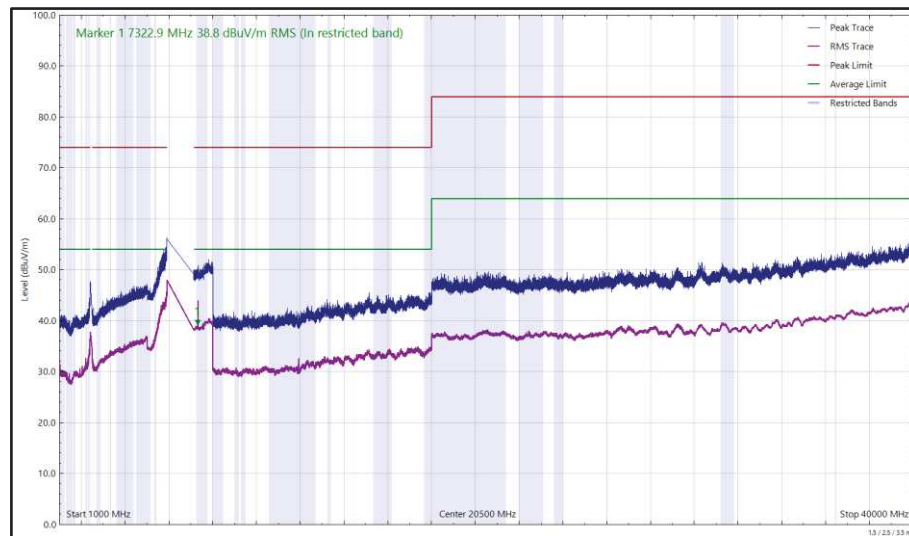


Figure 15 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

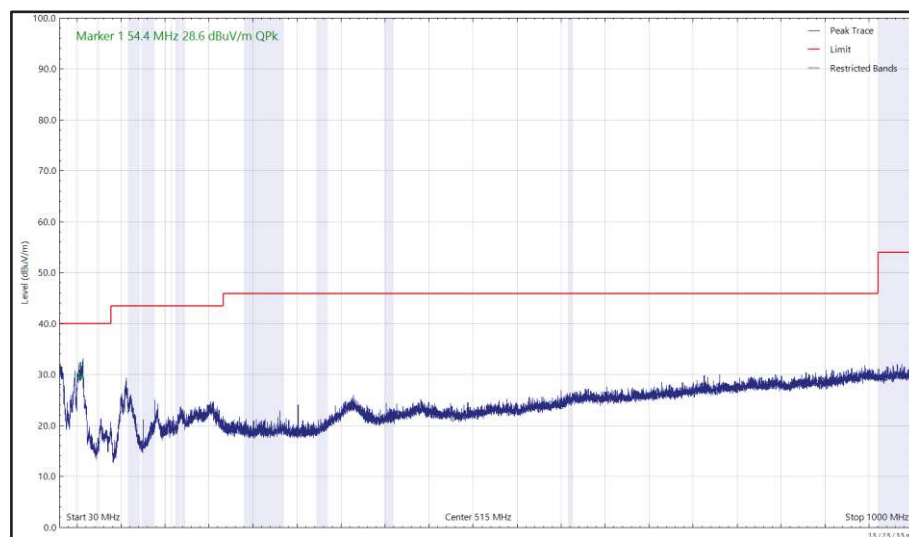


Figure 16 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

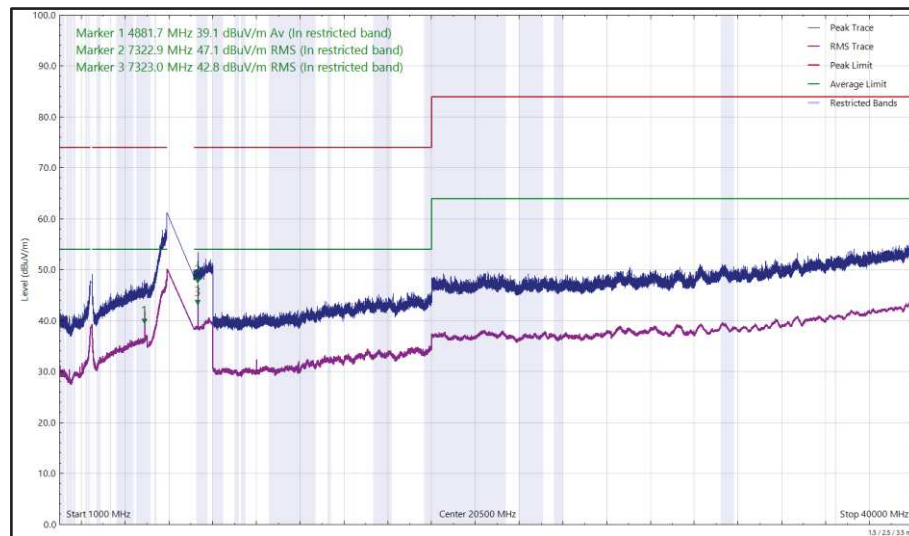


Figure 17 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
55.541	28.58	40.00	-11.42	Q-Peak	351	100	Vertical
5333.905	52.97	68.20	-15.23	RMS	350	257	Vertical
7322.432	54.21	74.00	-19.79	Peak	348	267	Vertical
7322.432	44.70	54.00	-9.30	RMS	348	267	Vertical
7328.612	37.87	54.00	-16.13	RMS	169	144	Horizontal

Table 10 - 2441 MHz (CH39), 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.

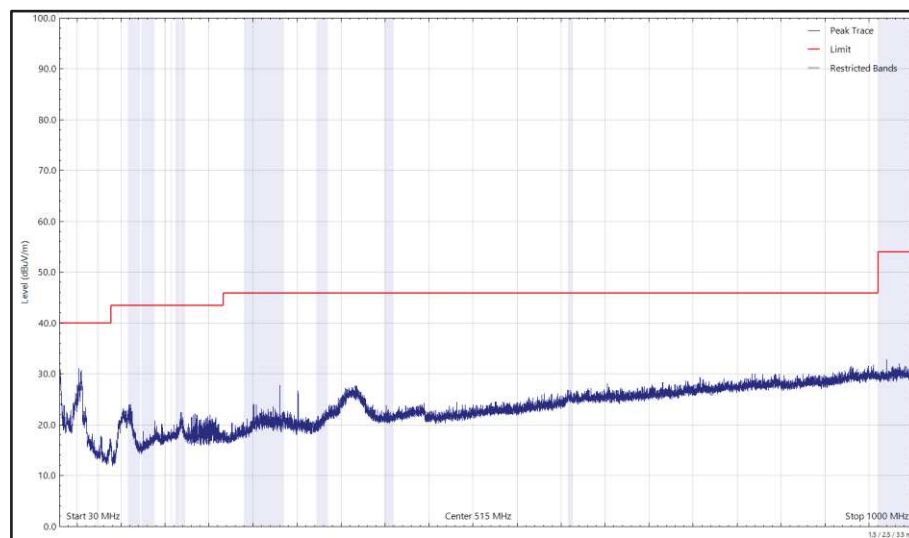


Figure 18 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

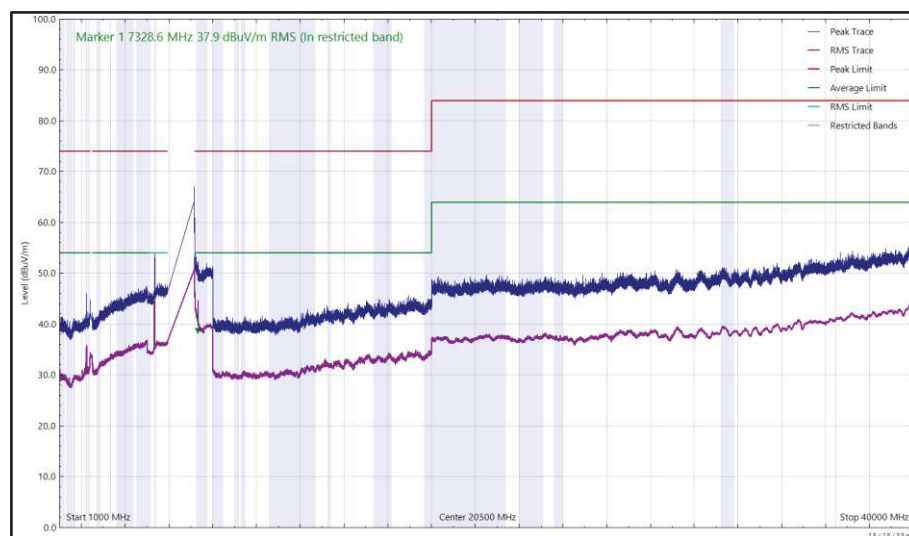


Figure 19 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

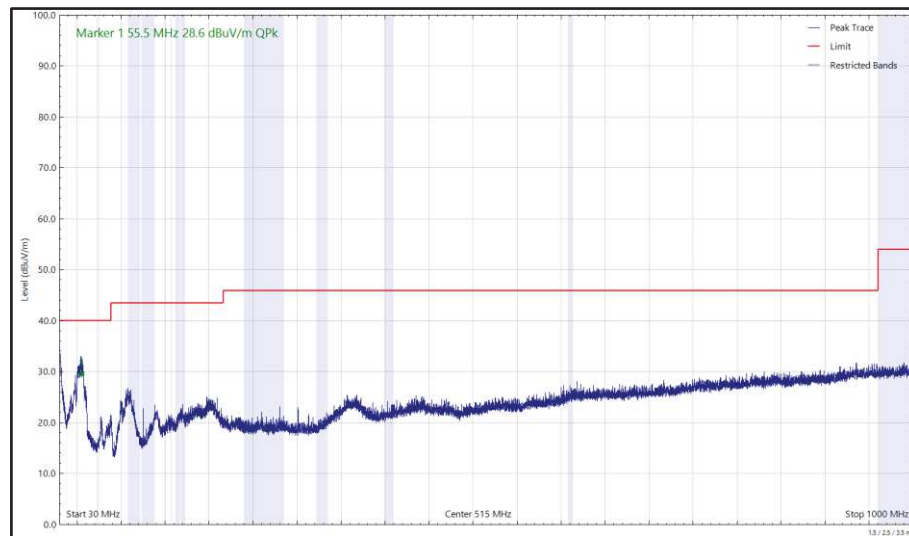


Figure 20 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

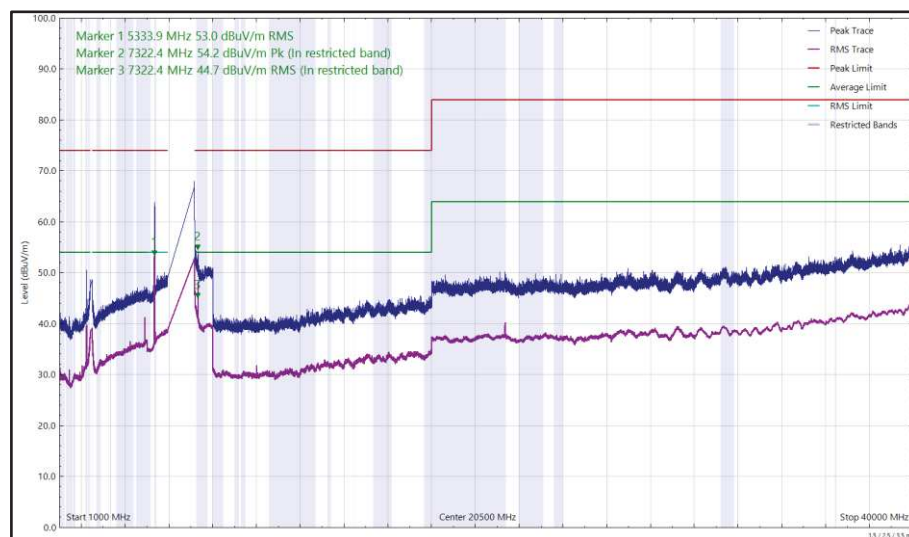


Figure 21 - 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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 4.6.2	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 dBμV/m at 3m, Average 54 dBμV/m at 3m (Restricted bands > 1 GHz)

Table 11

CoTx - 2.4 GHz WLAN and Narrowband

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

Table 12 - 2437 MHz (CH6), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

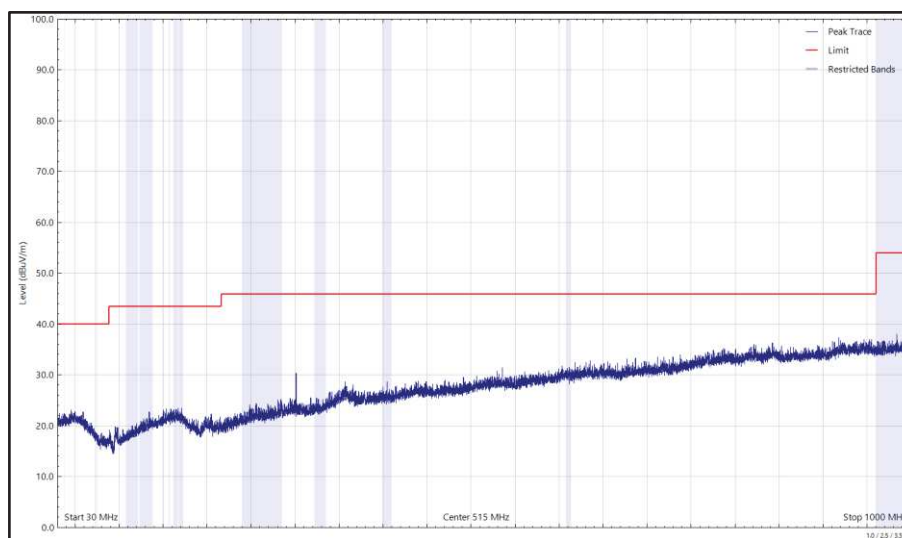


Figure 22 - 2437 MHz (CH6), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

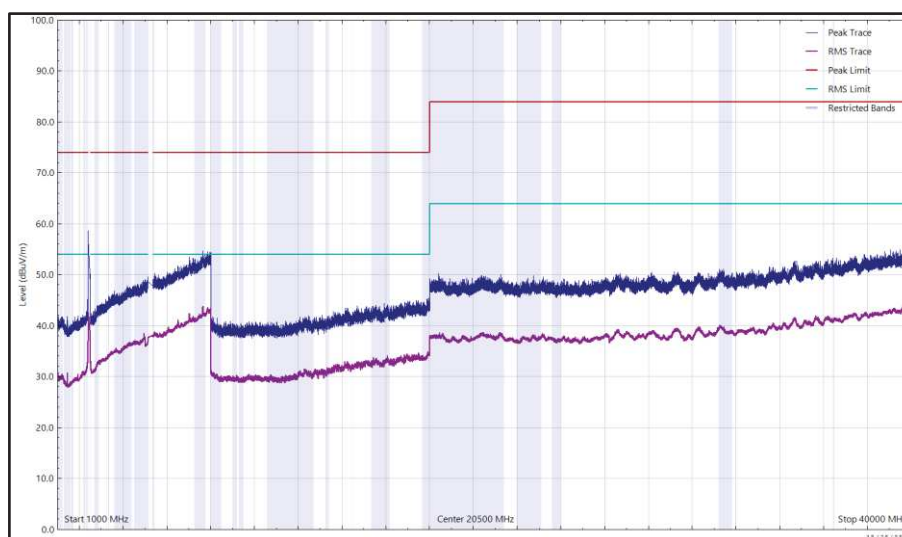


Figure 23 - 2437 MHz (CH6), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

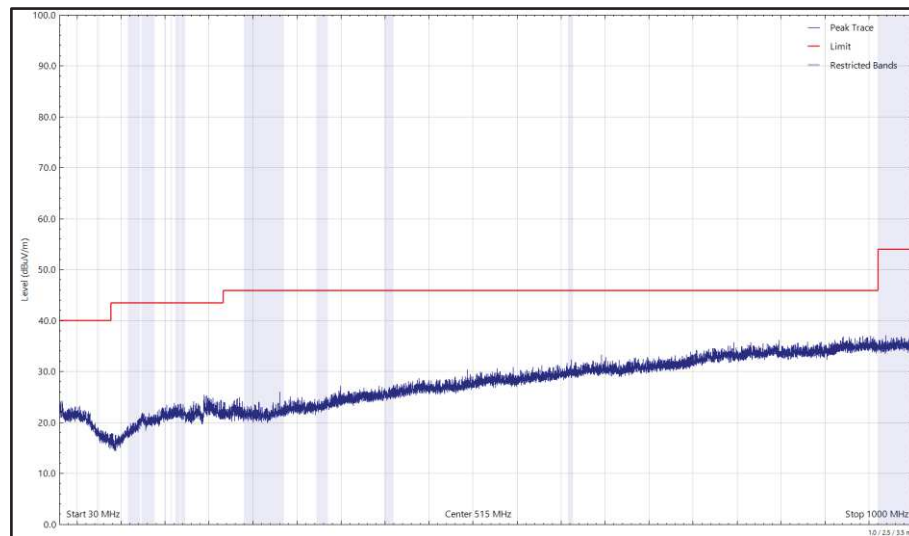


Figure 24 - 2437 MHz (CH6), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

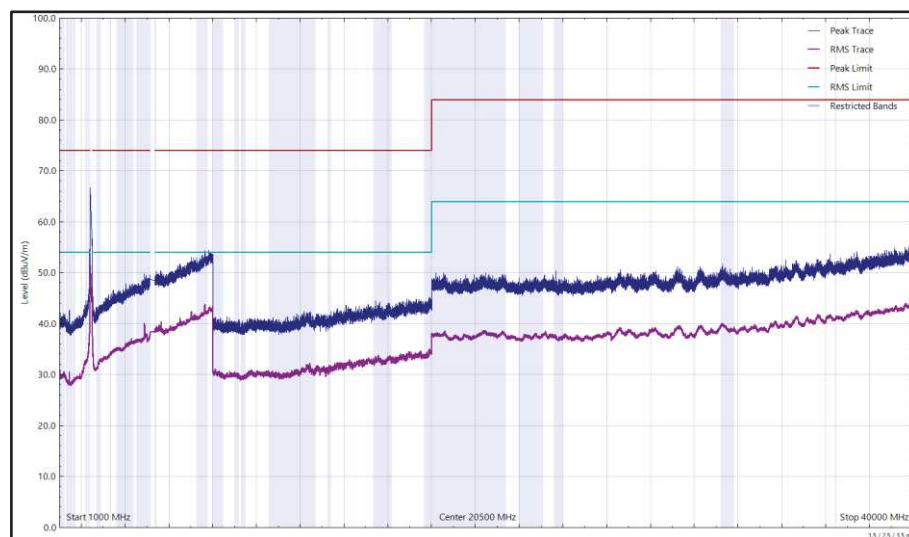


Figure 25 - 2437 MHz (CH6), HT20, Core 0 and 5204 MHz, HDR8, ePA, Core 1, 1 GHz to 40 GHz, Vertical



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

Table 13 - 2437 MHz (CH6), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

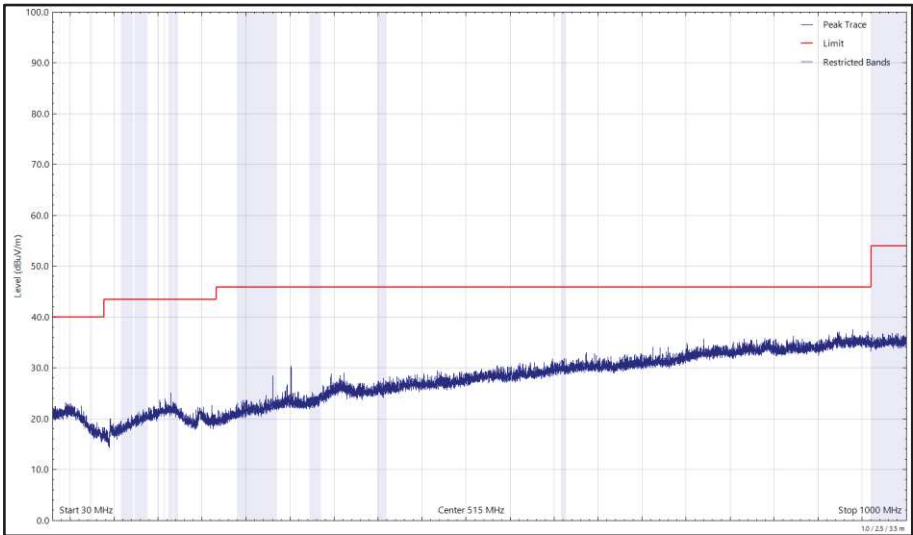


Figure 26 - 2437 MHz (CH6), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

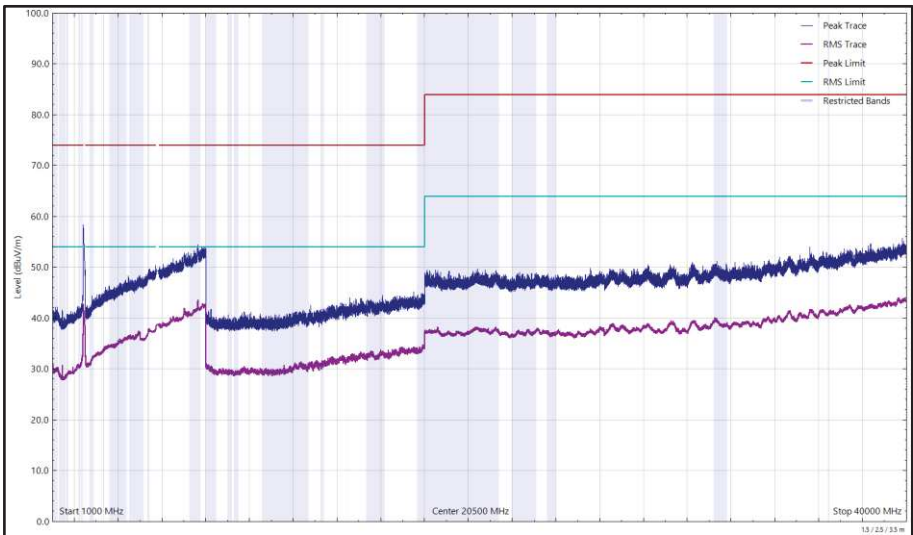


Figure 27 - 2437 MHz (CH6), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

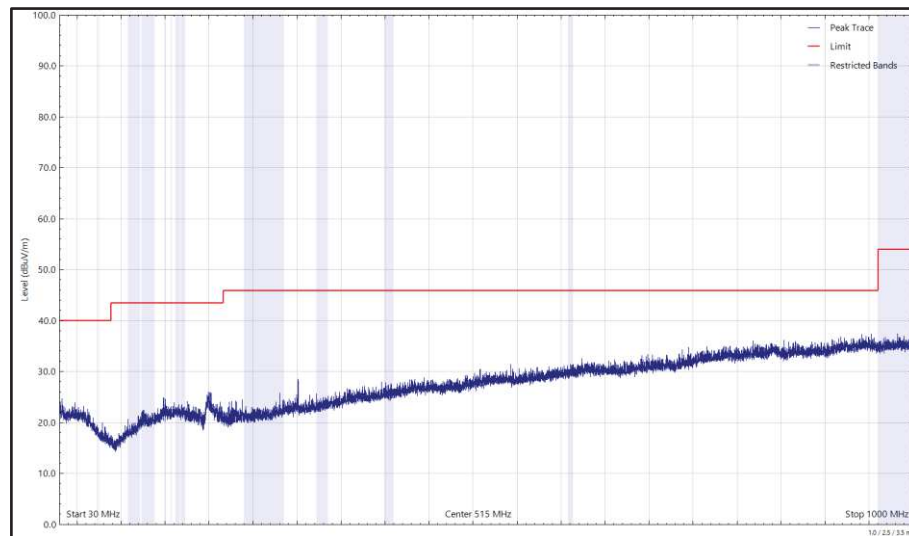


Figure 28 - 2437 MHz (CH6), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

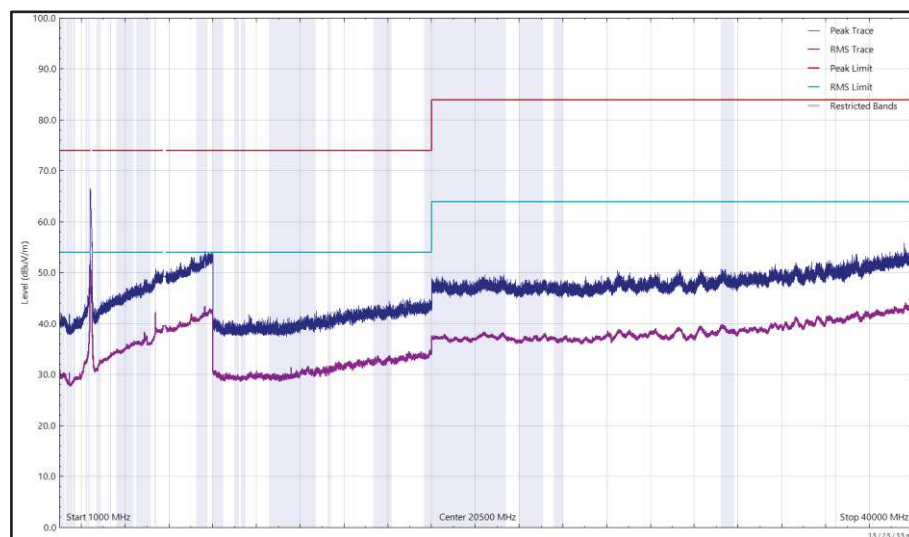


Figure 29 - 2437 MHz (CH6), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4873.235	46.07	54.00	-7.93	RMS	154	319	Vertical

Table 14 - 2437 MHz (CH6), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

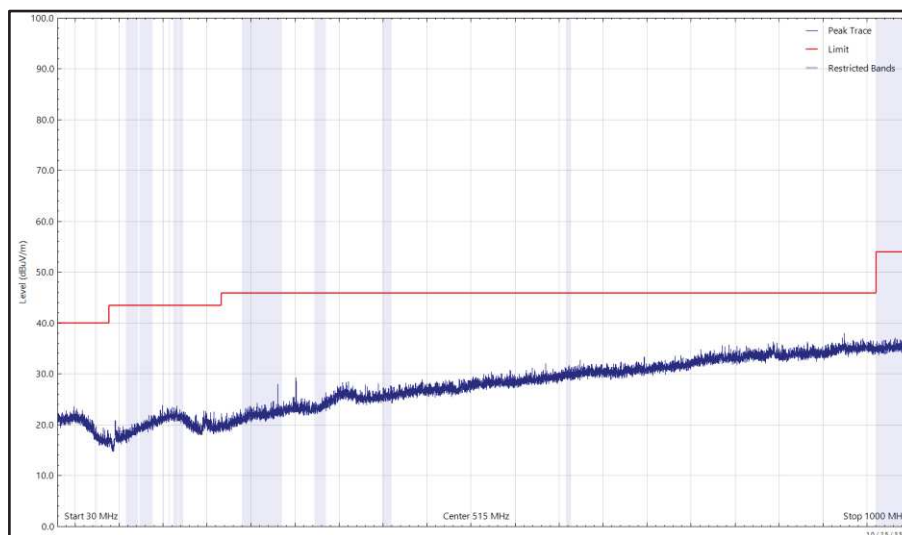


Figure 30 - 2437 MHz (CH6), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

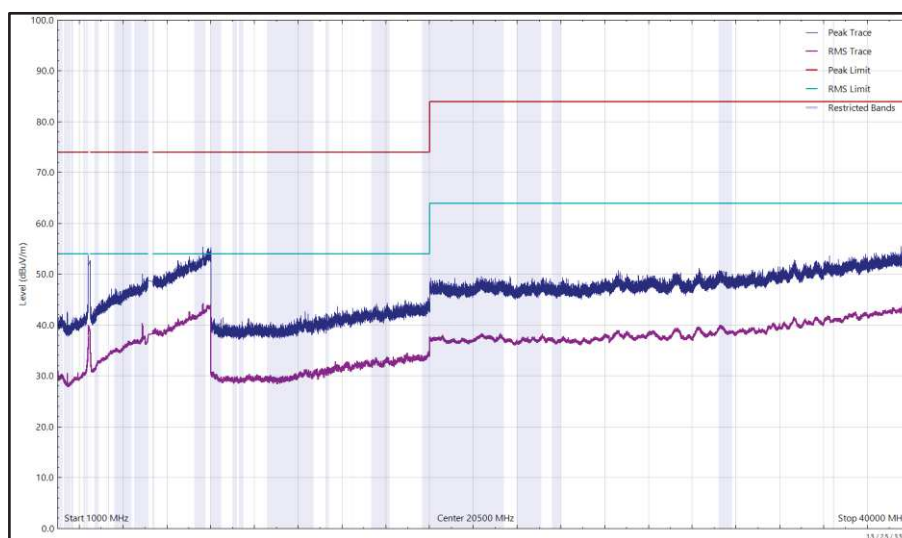


Figure 31 - 2437 MHz (CH6), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

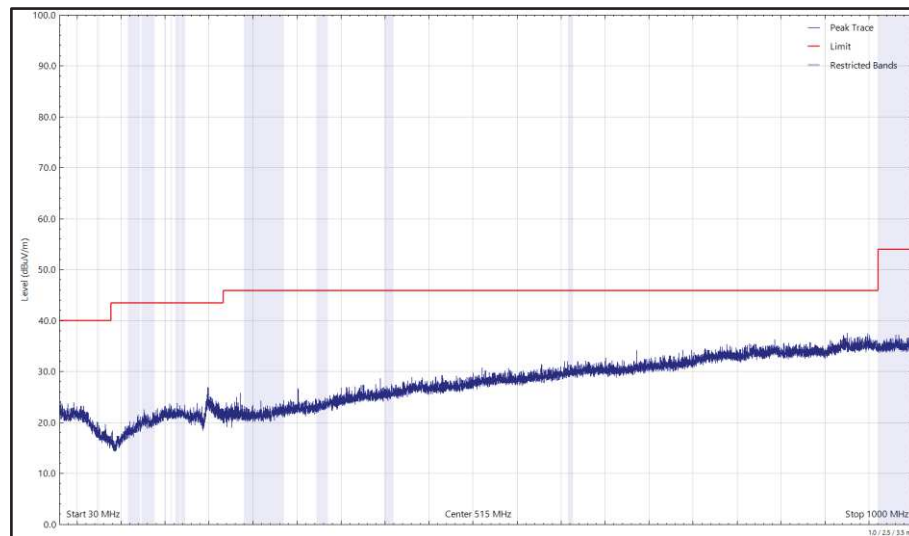


Figure 32 - 2437 MHz (CH6), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

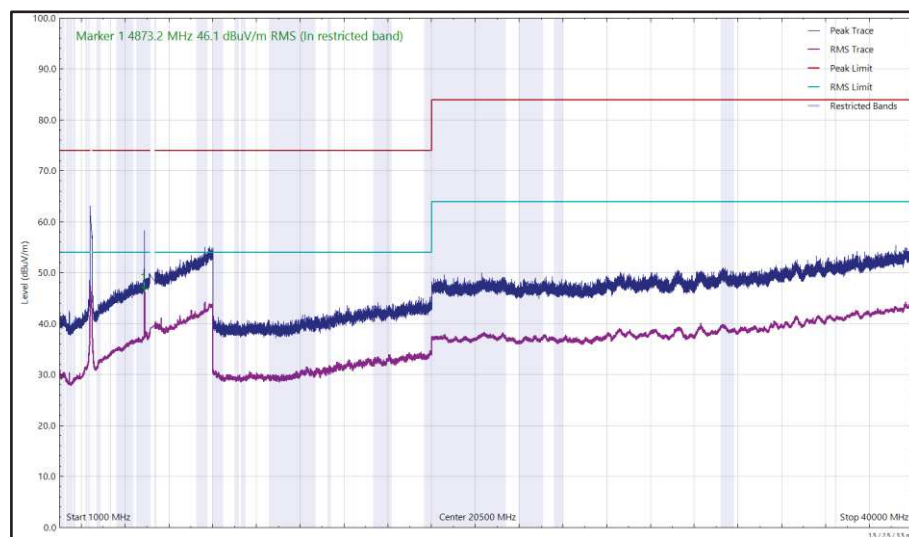


Figure 33 - 2437 MHz (CH6), HT20, Core 1 and 5204 MHz, HDR8, ePA, Core 0, 1 GHz to 40 GHz, Vertical

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

Table 15 - 2437 MHz (CH6), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

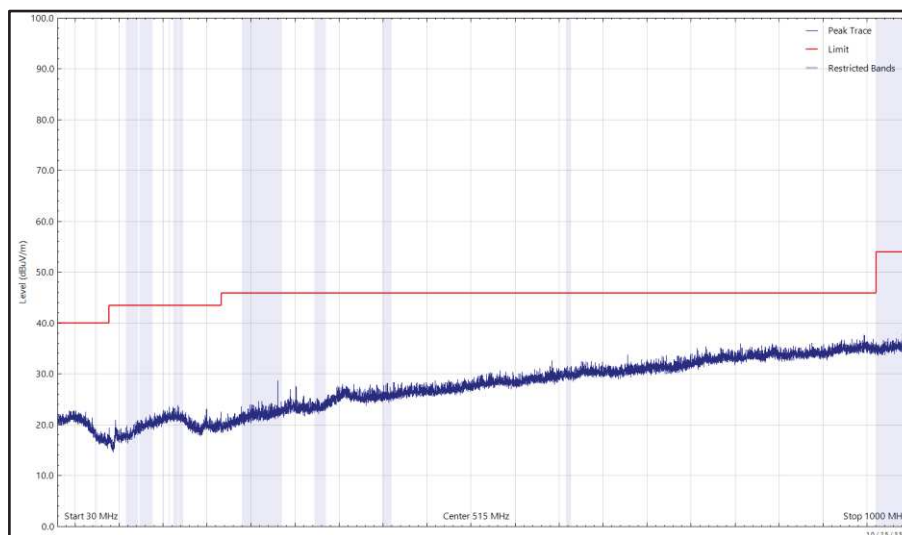


Figure 34 - 2437 MHz (CH6), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

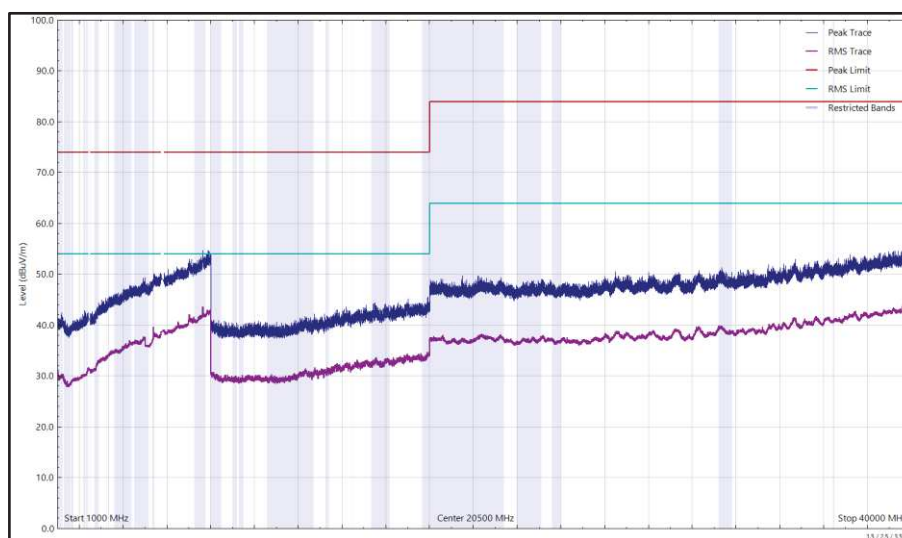


Figure 35 - 2437 MHz (CH6), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

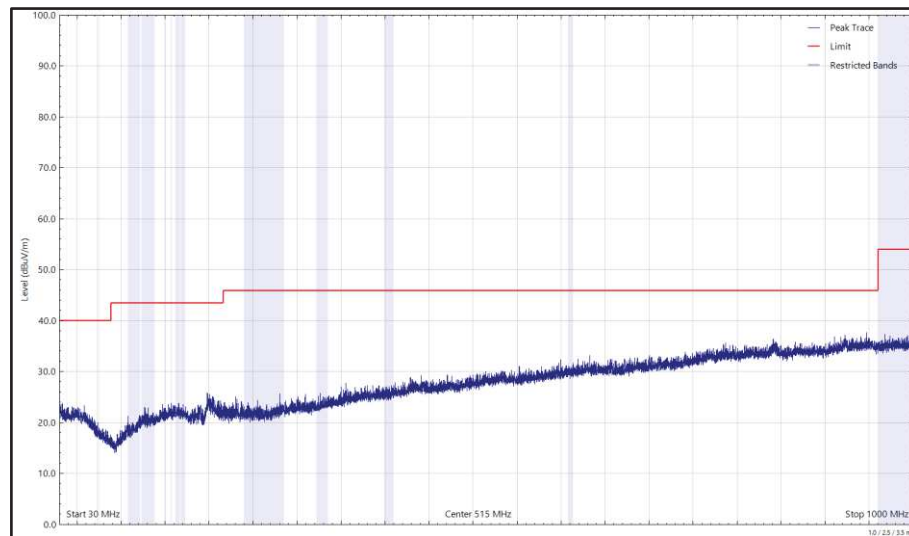


Figure 36 - 2437 MHz (CH6), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

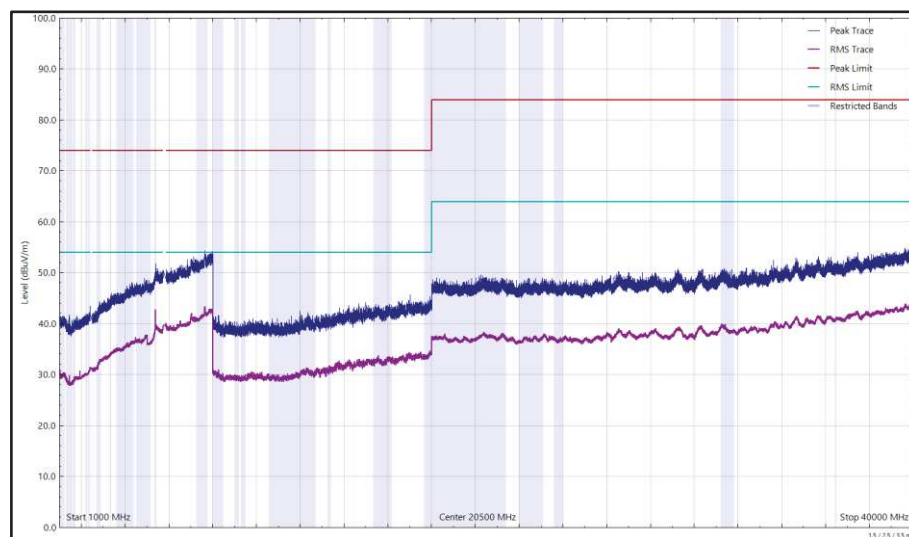


Figure 37 - 2437 MHz (CH6), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0, 1 GHz to 40 GHz, Vertical



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 6.2	-27 dBm e.i.r.p
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dBµV/m at 3m, Average 54 dBµV/m at 3m (Restricted bands > 1 GHz)

Table 16

CoTx - Thread and 5 GHz WLAN

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

Table 17 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

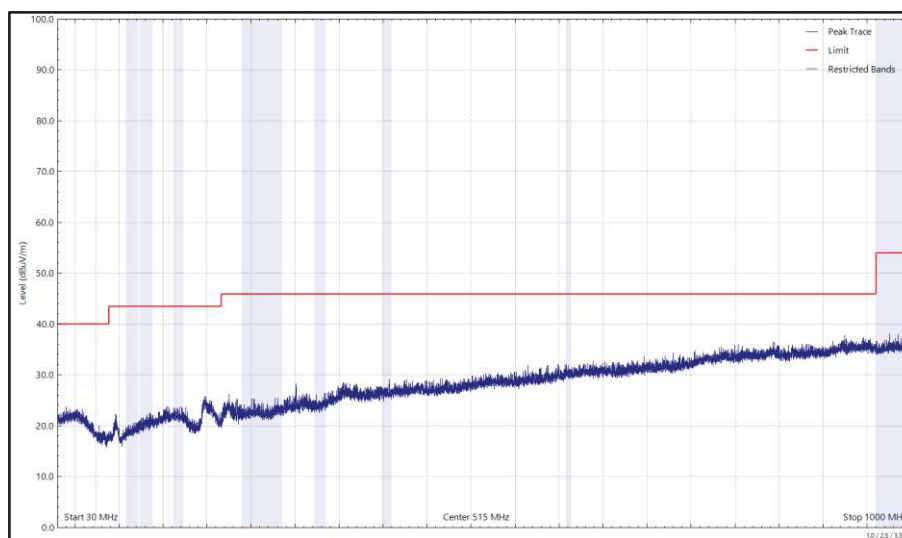


Figure 38 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

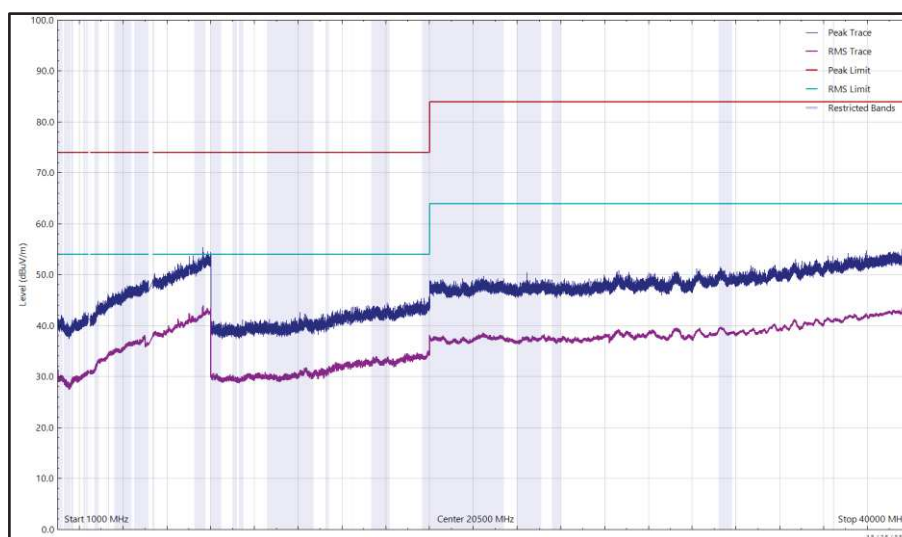


Figure 39 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

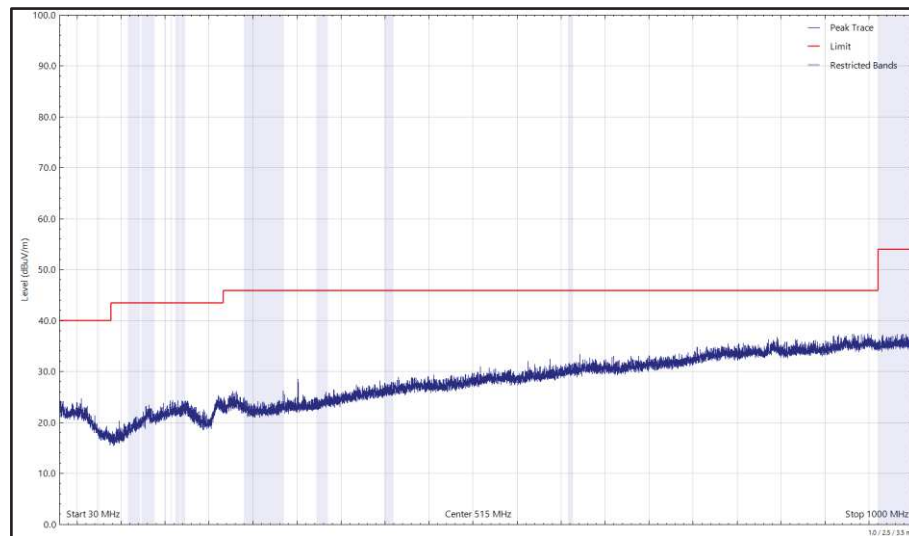


Figure 40 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

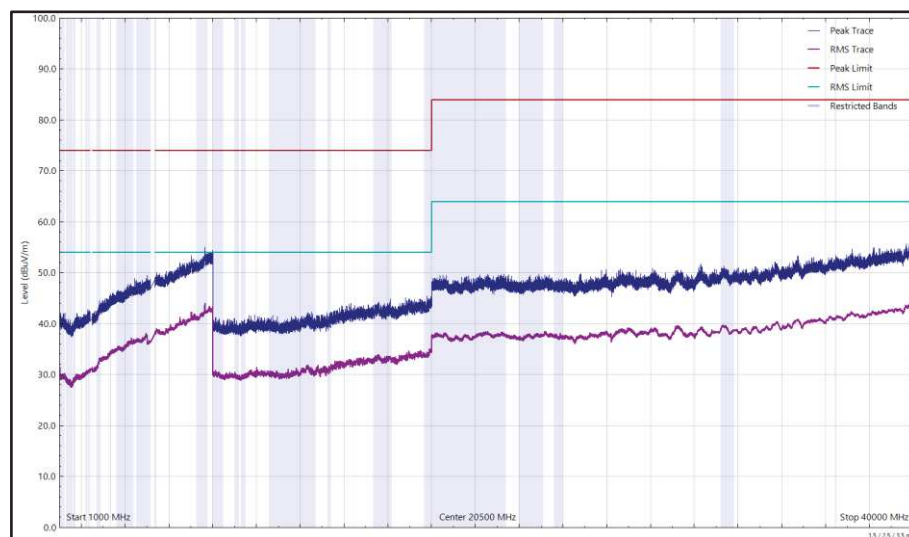


Figure 41 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 18 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

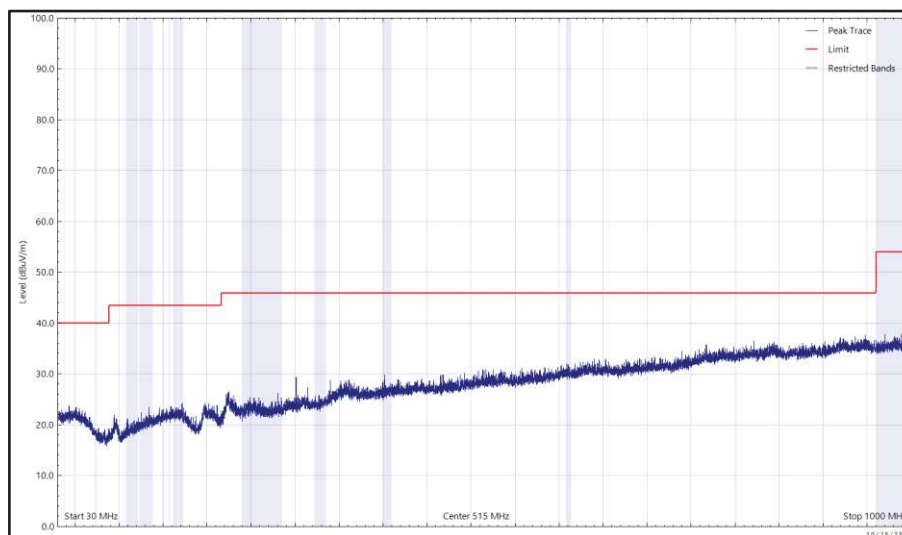


Figure 42 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

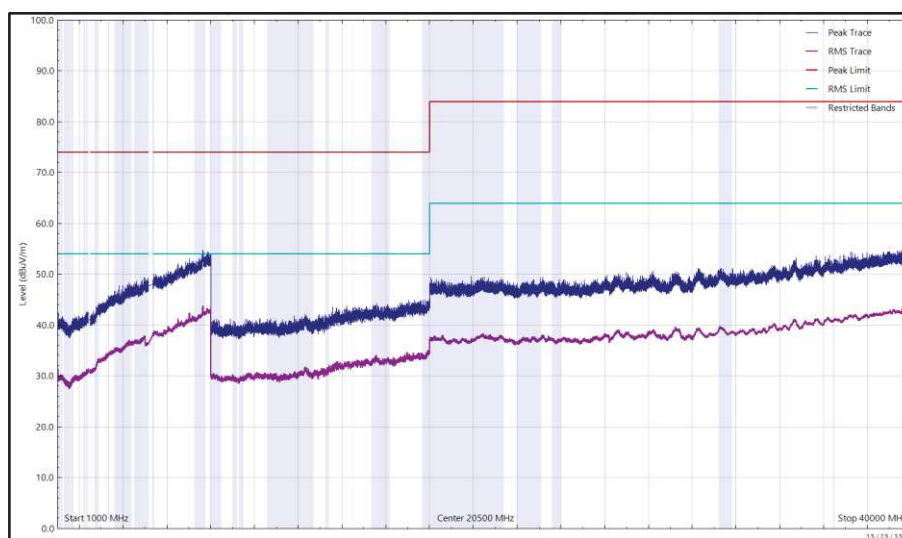


Figure 43 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

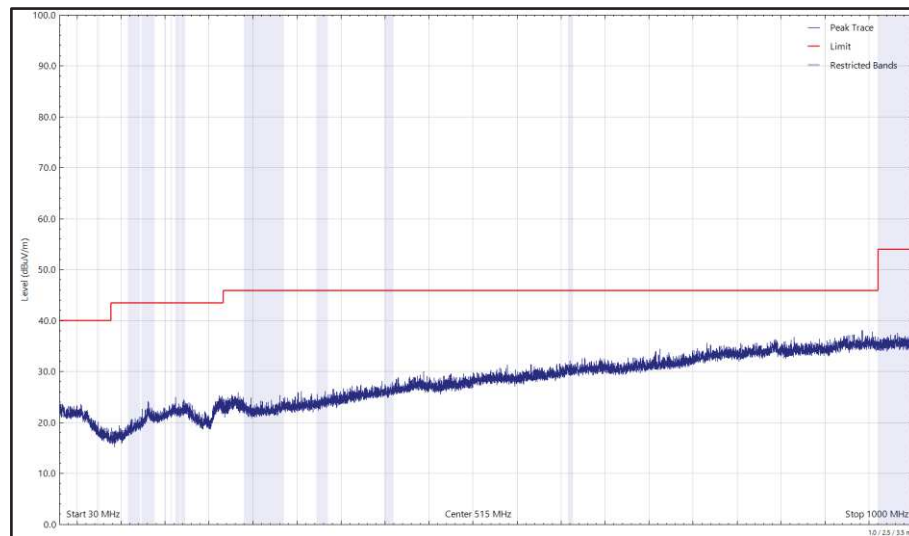


Figure 44 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

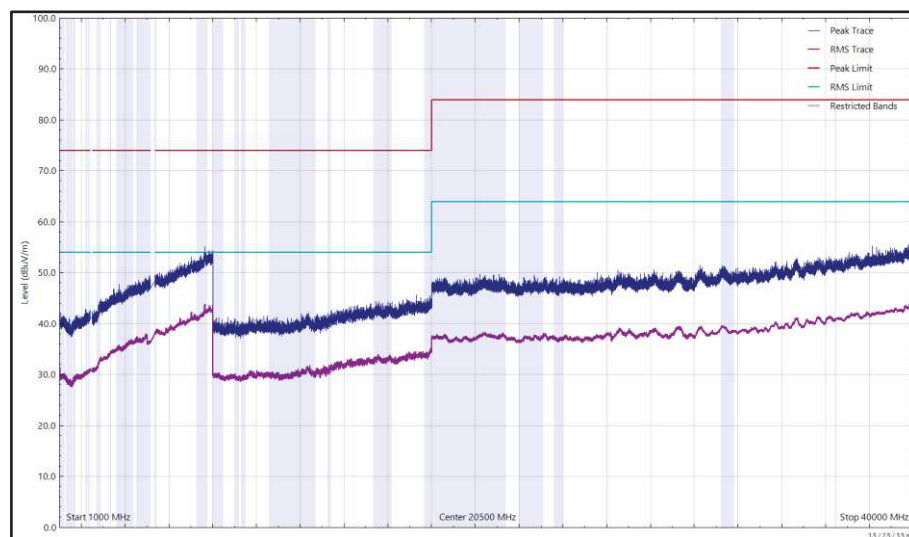


Figure 45 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 19 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

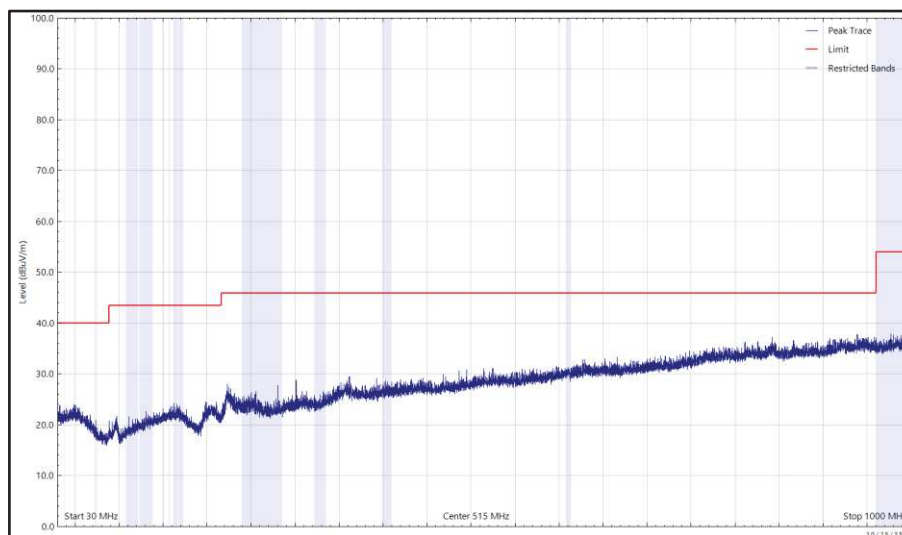


Figure 46 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

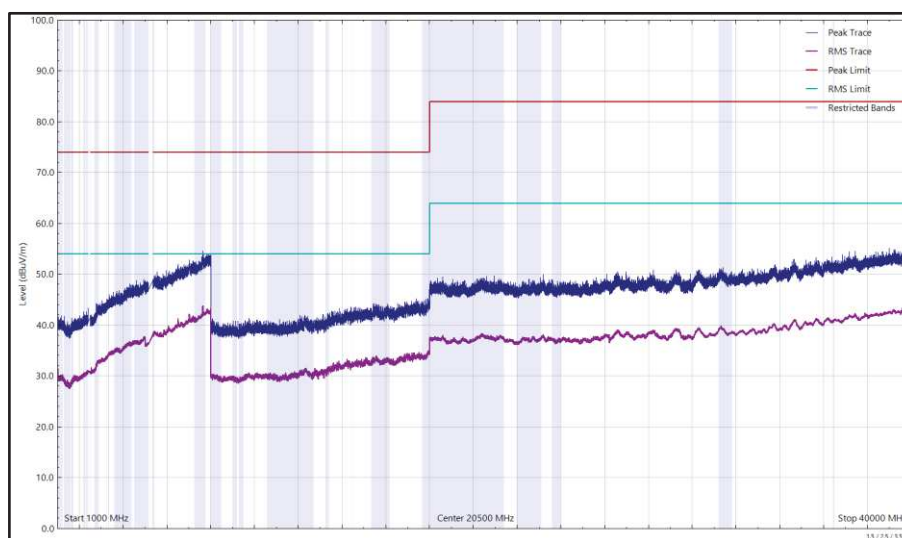


Figure 47 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

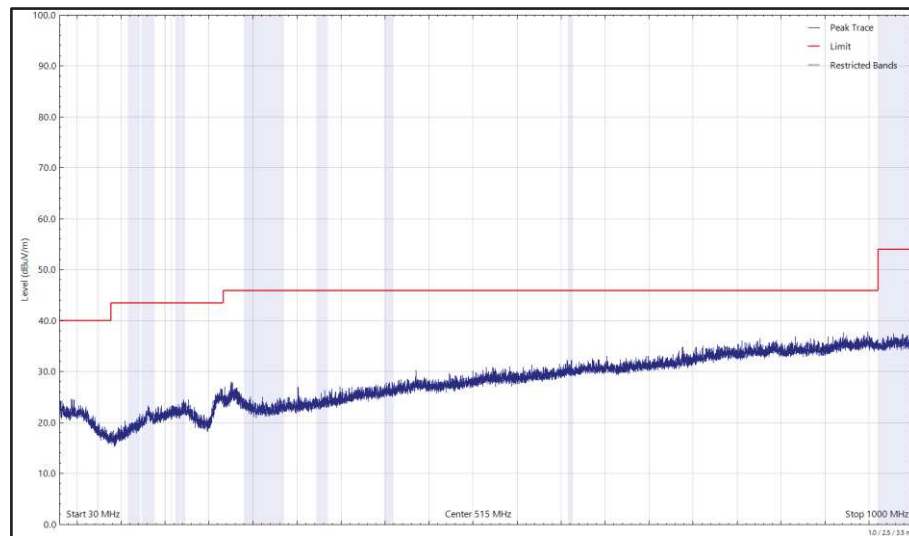


Figure 48 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

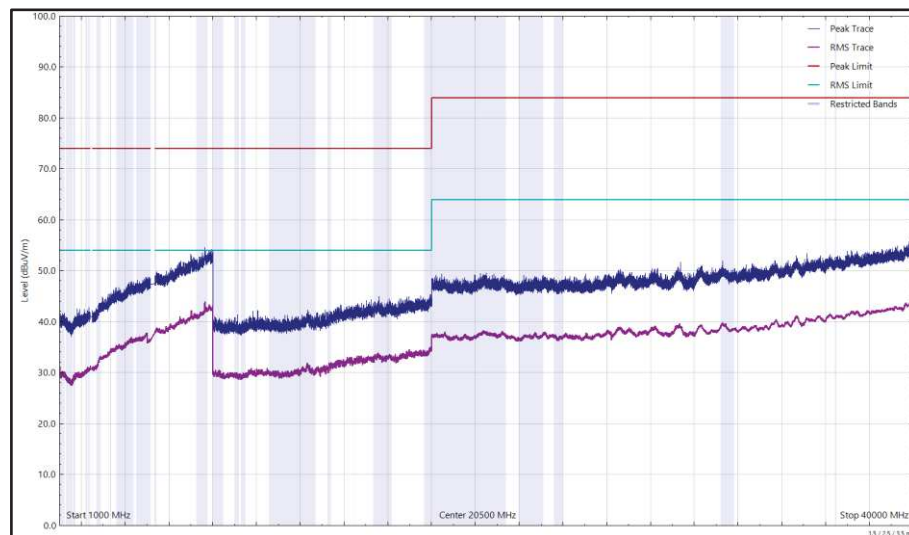


Figure 49 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 20 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

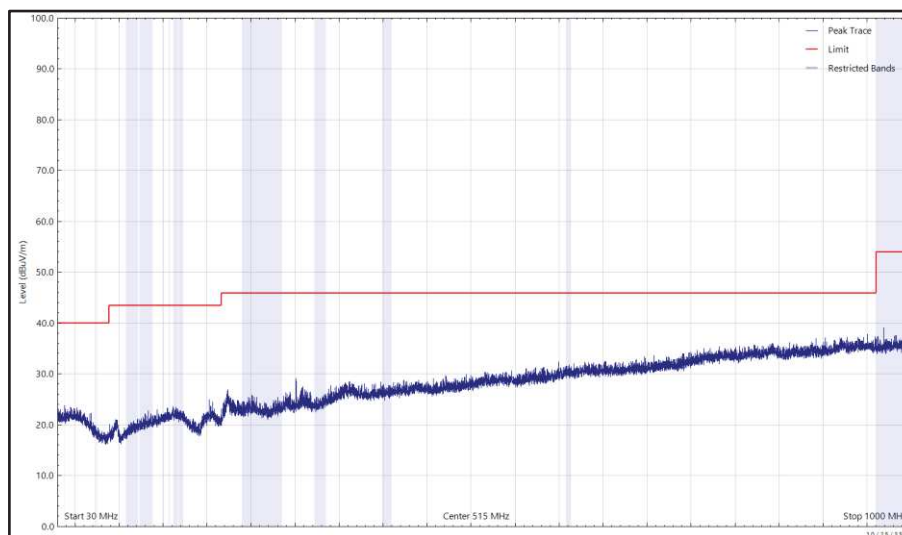


Figure 50 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

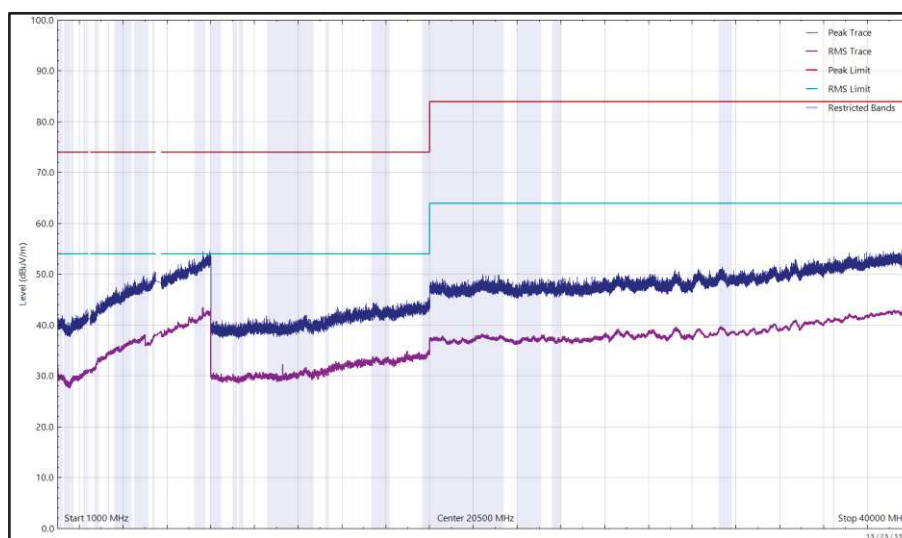


Figure 51 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

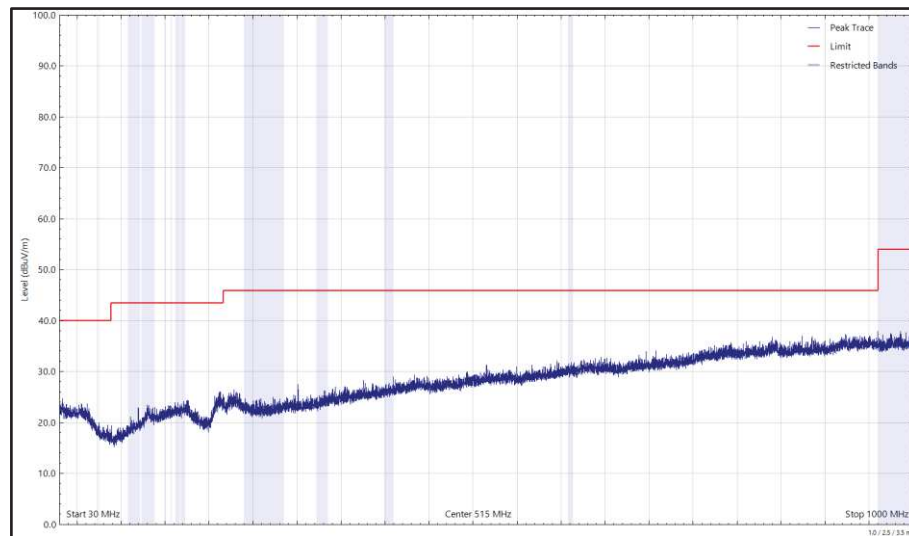


Figure 52 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

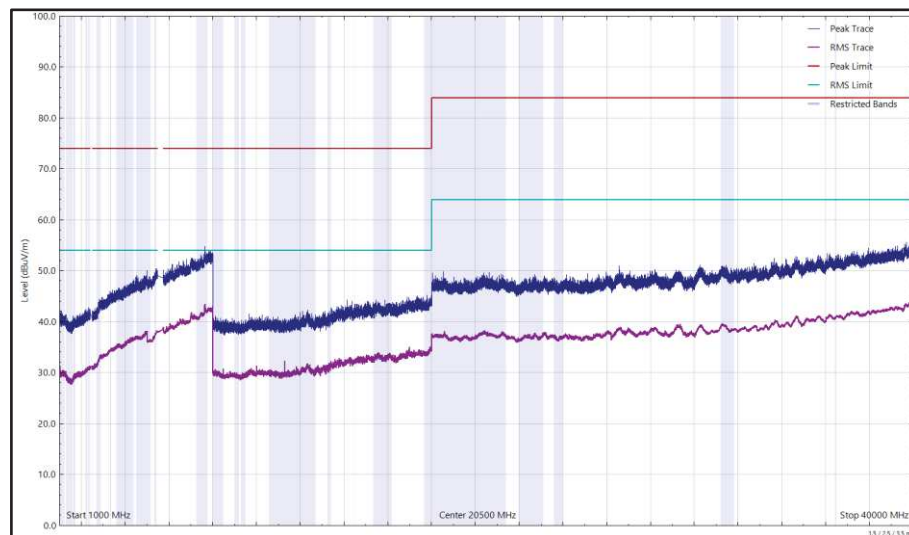


Figure 53 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 21 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

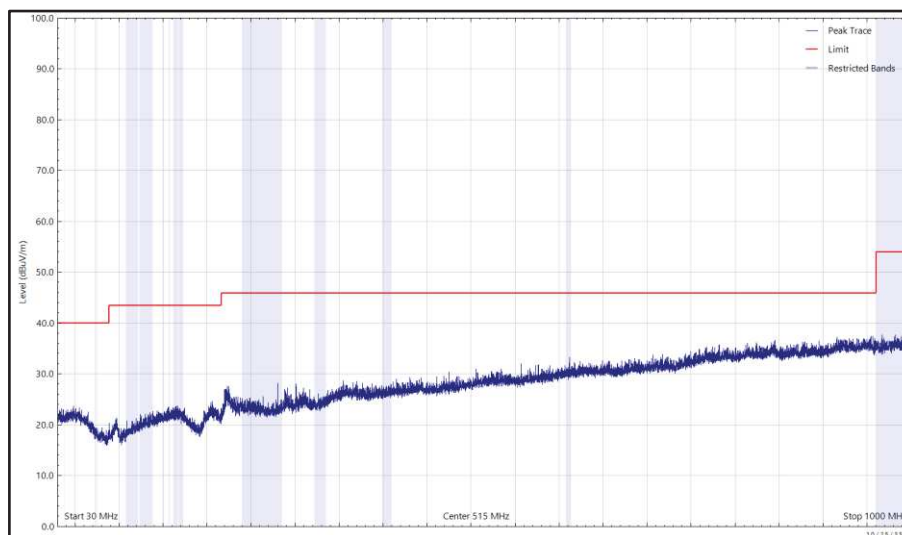


Figure 54 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

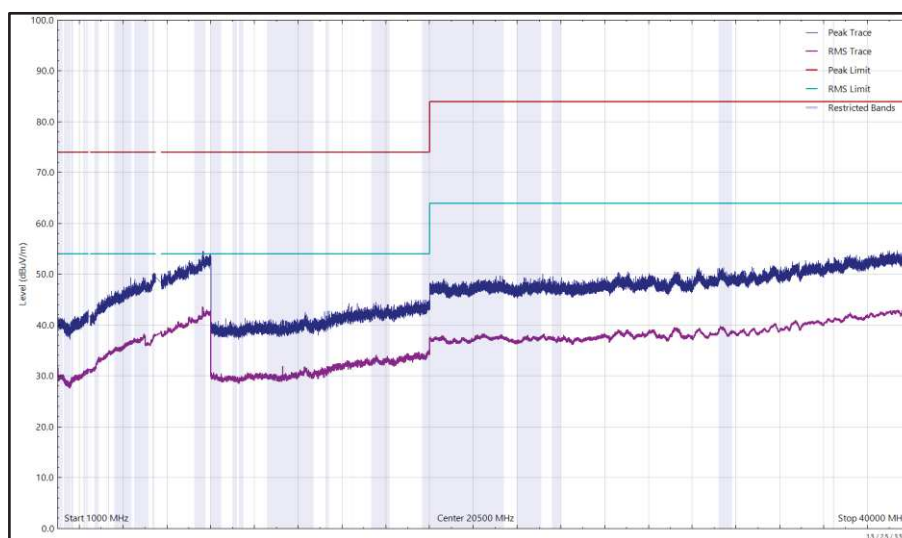


Figure 55 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

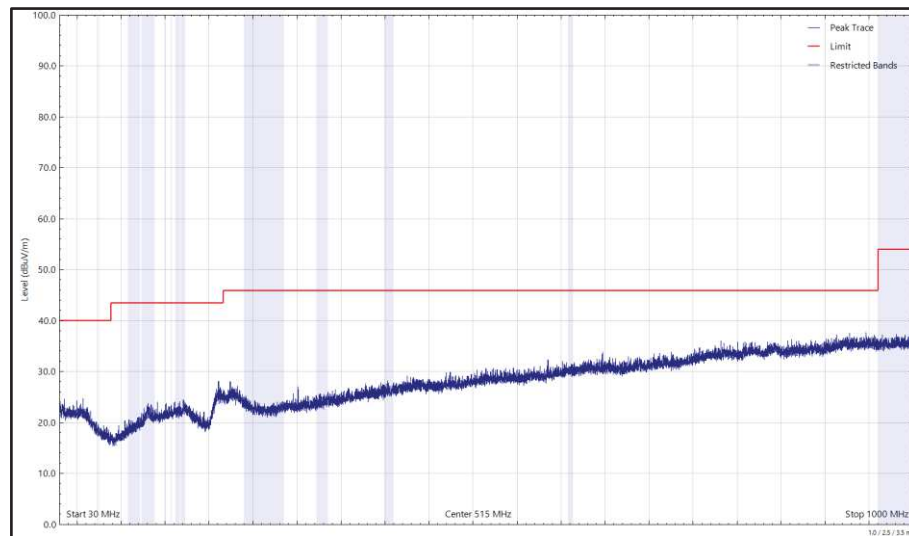


Figure 56 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

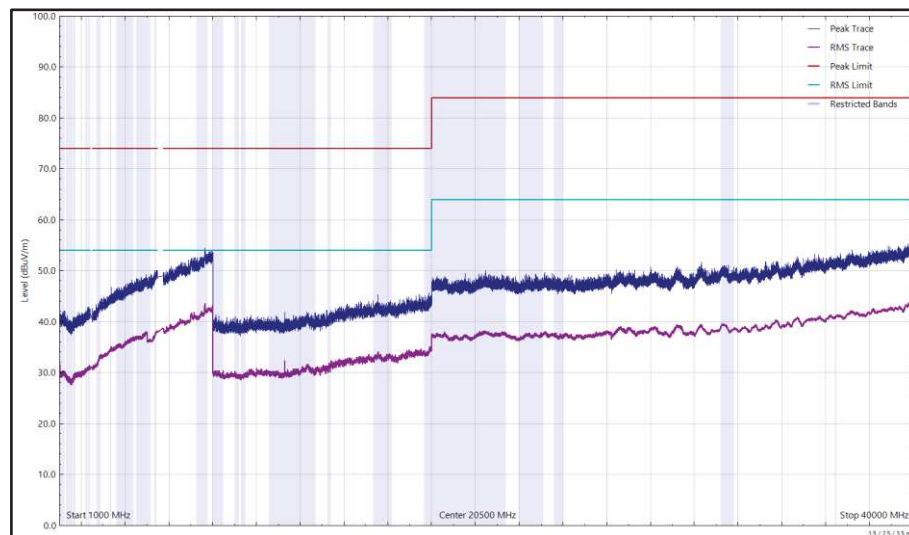


Figure 57 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

Table 22 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

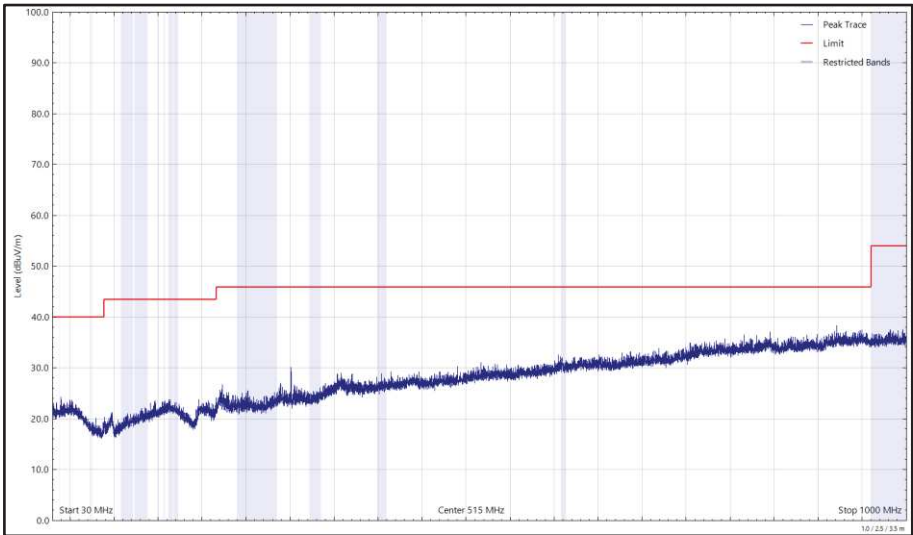


Figure 58 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

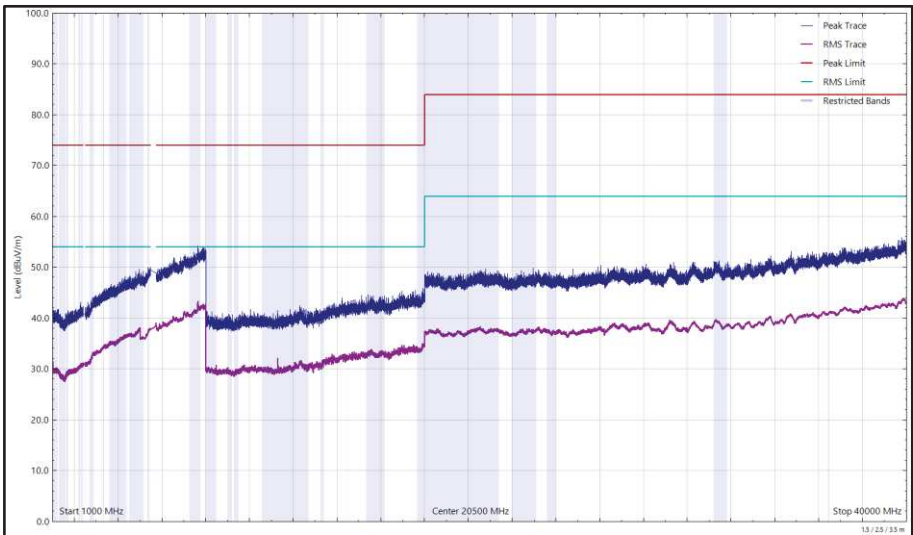


Figure 59 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

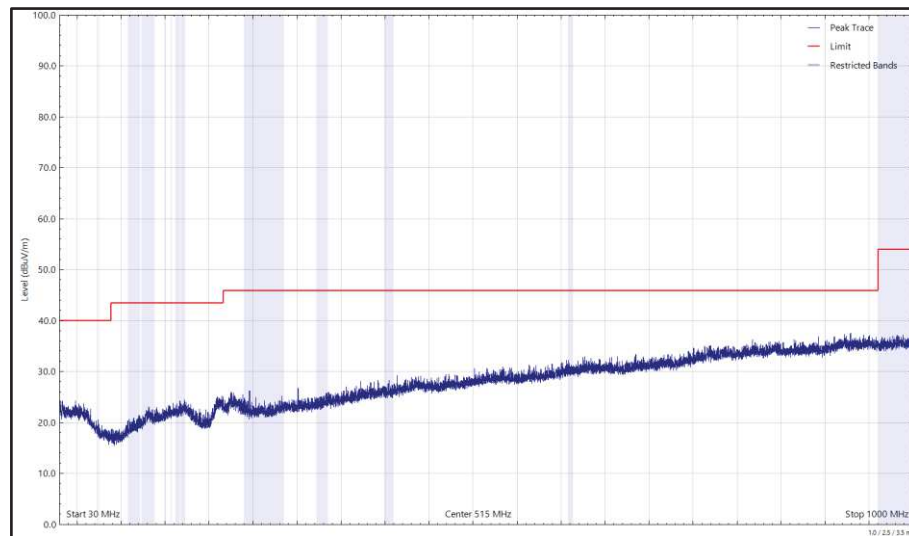


Figure 60 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

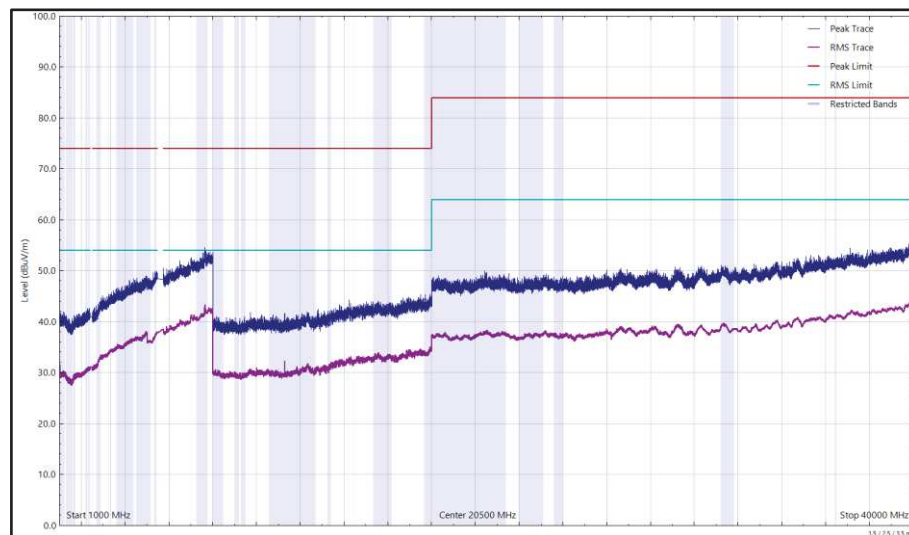


Figure 61 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 23 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

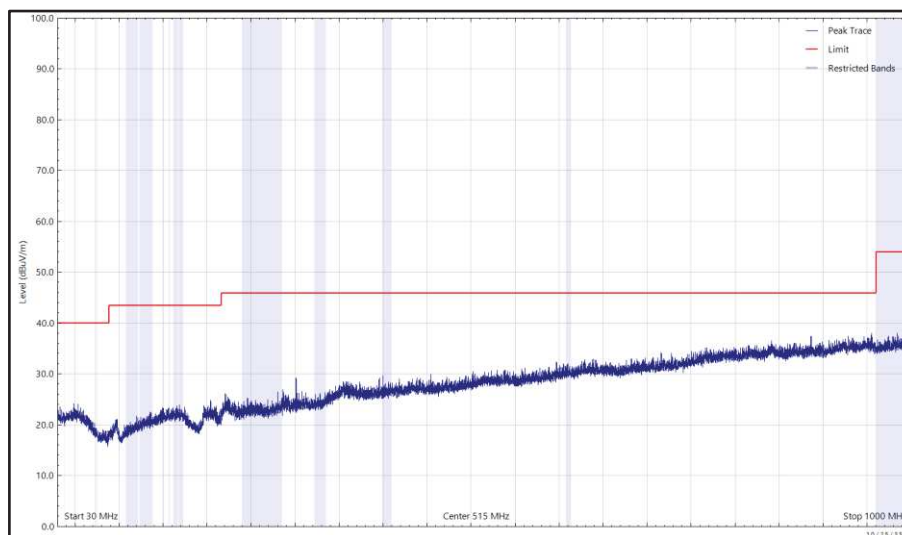


Figure 62 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

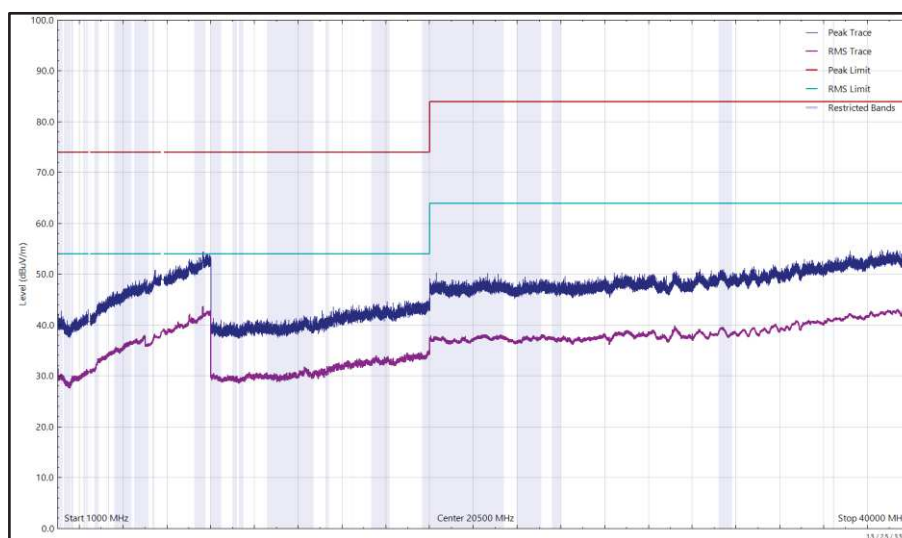


Figure 63 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

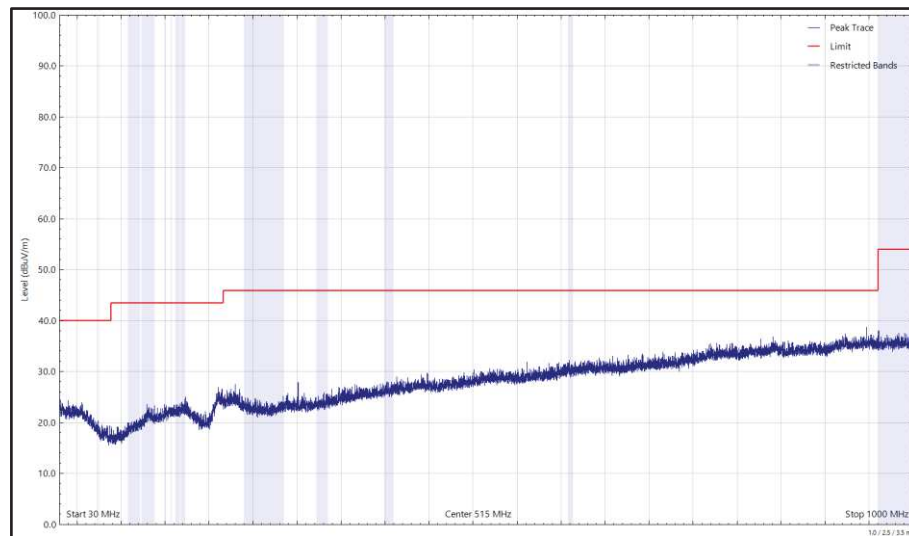


Figure 64 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

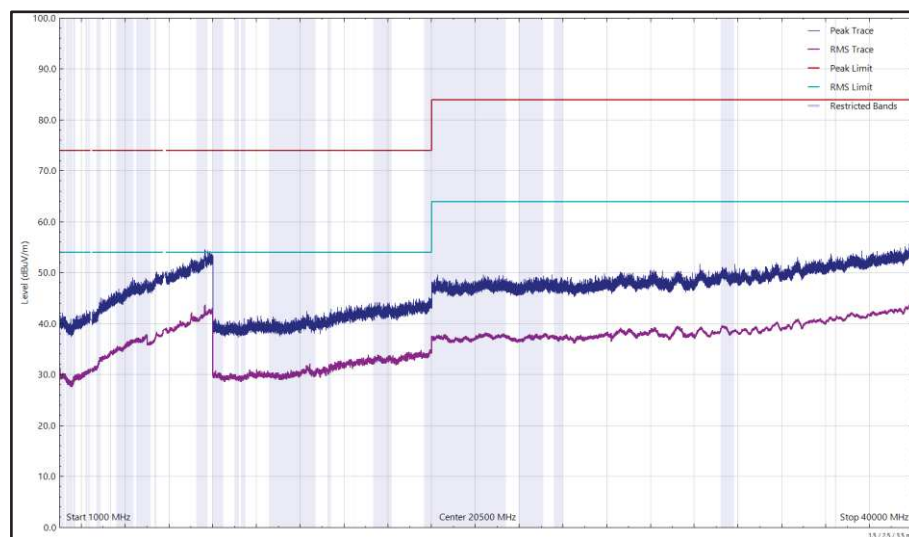


Figure 65 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

Table 24 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

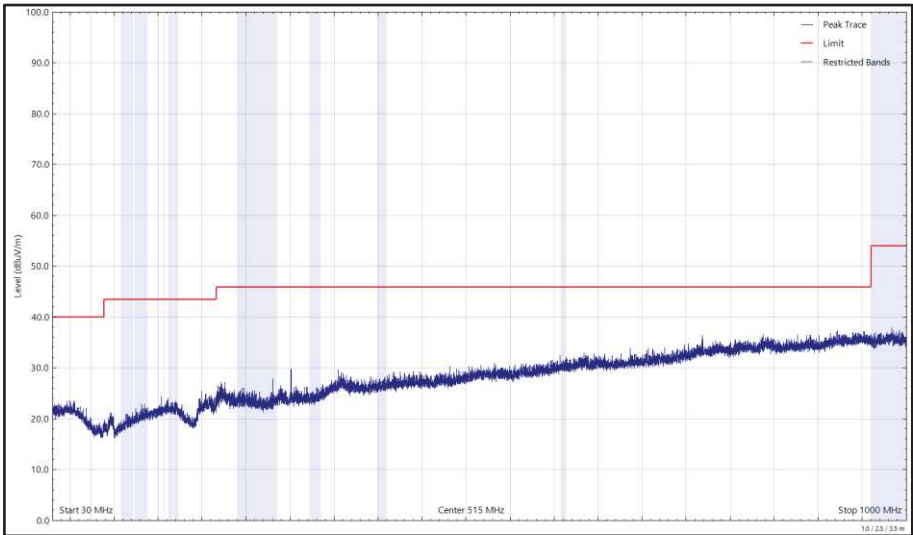


Figure 66 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

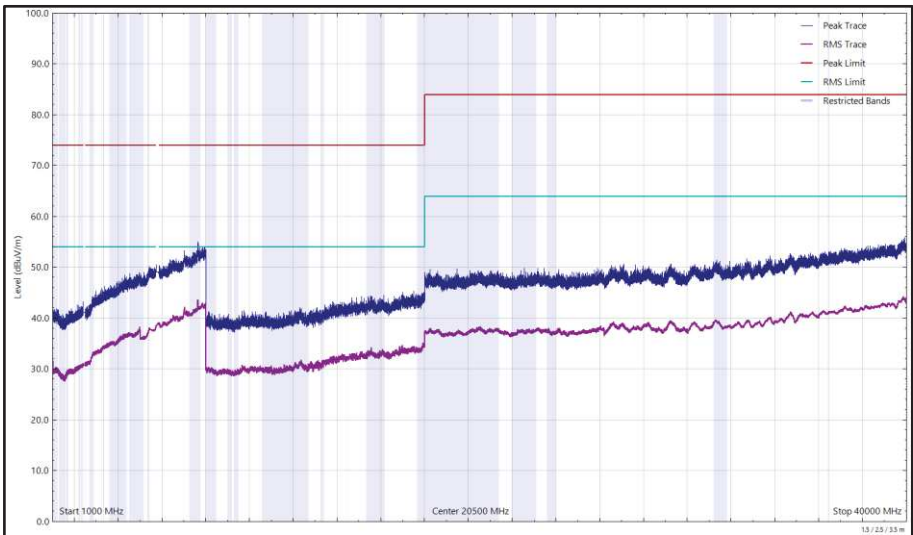


Figure 67 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

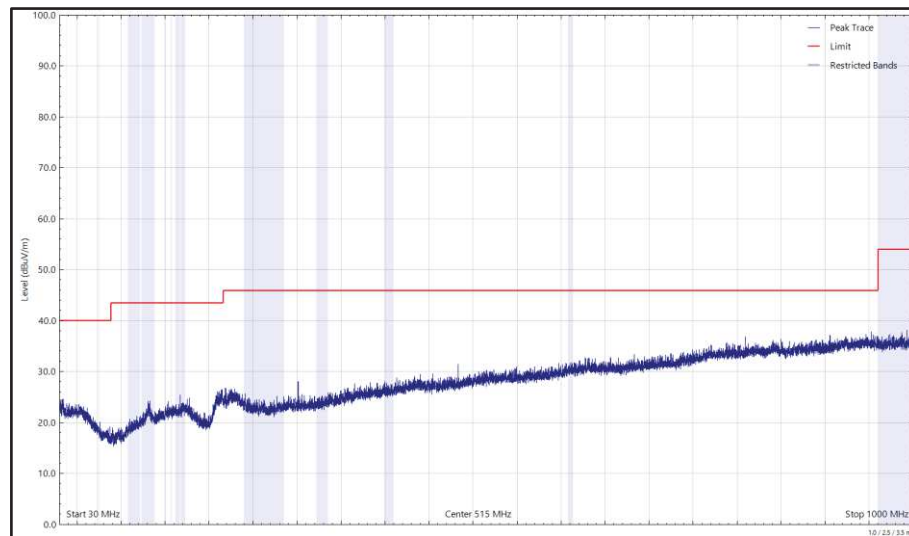


Figure 68 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

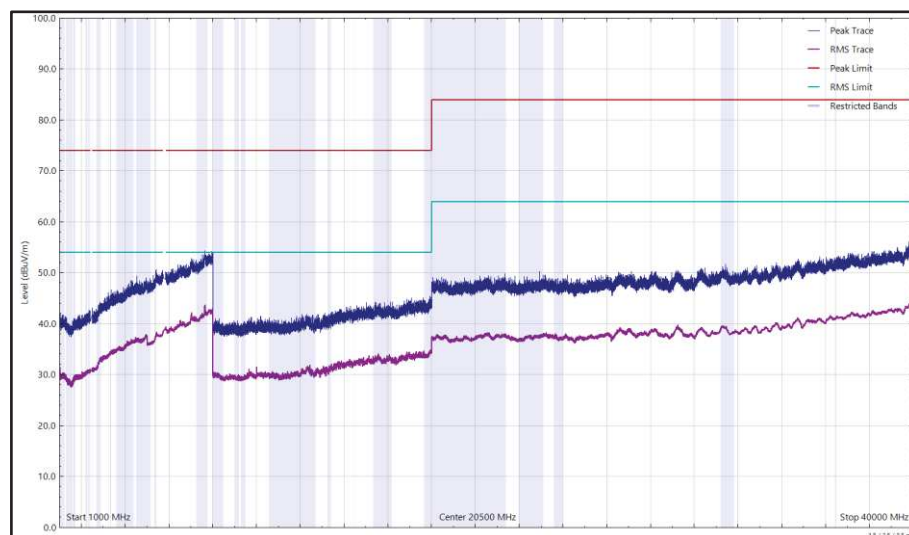


Figure 69 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 25 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

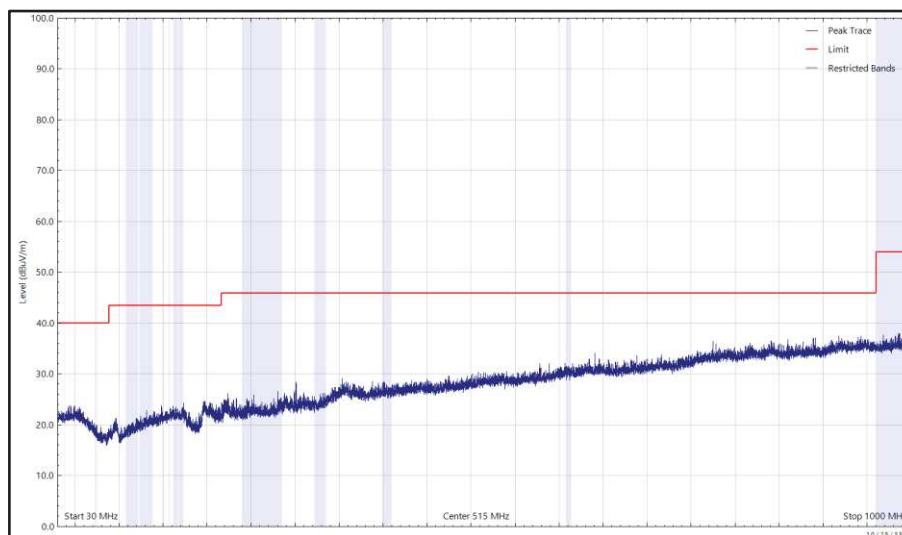


Figure 70 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

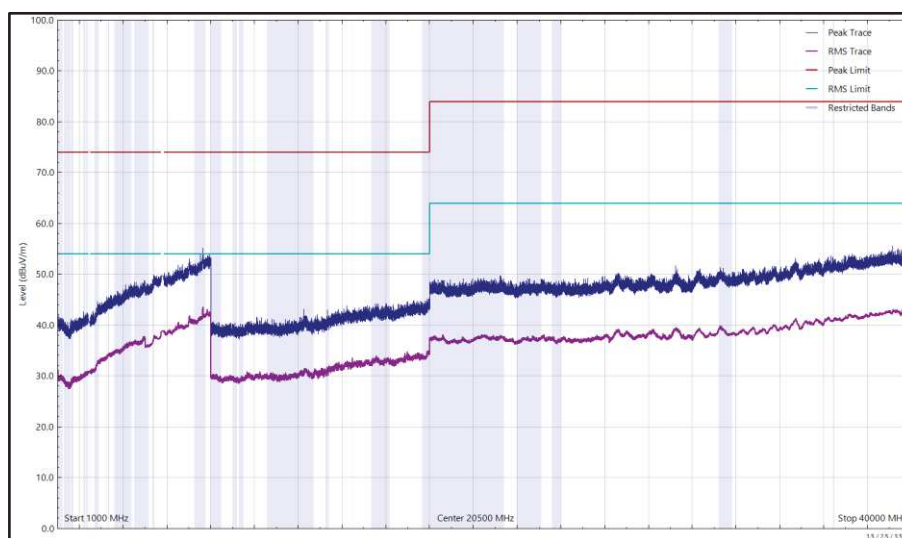


Figure 71 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

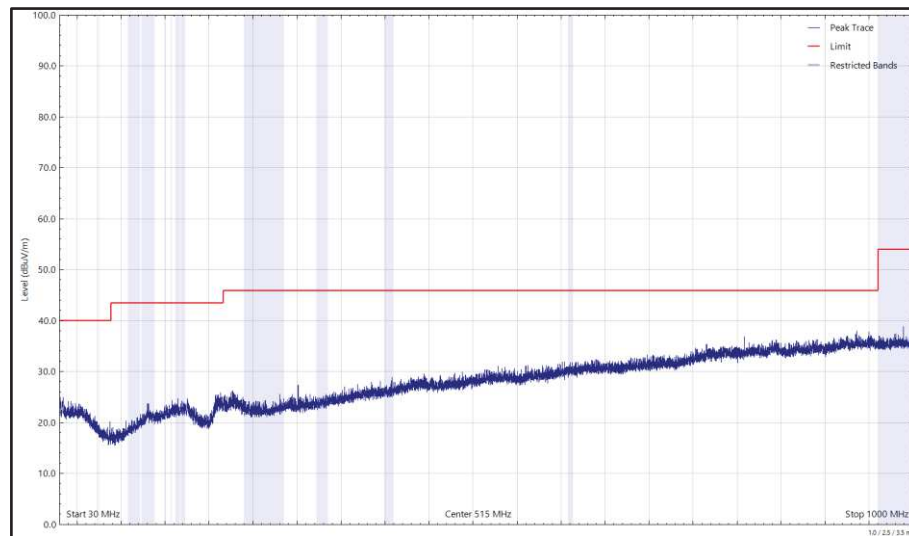


Figure 72 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

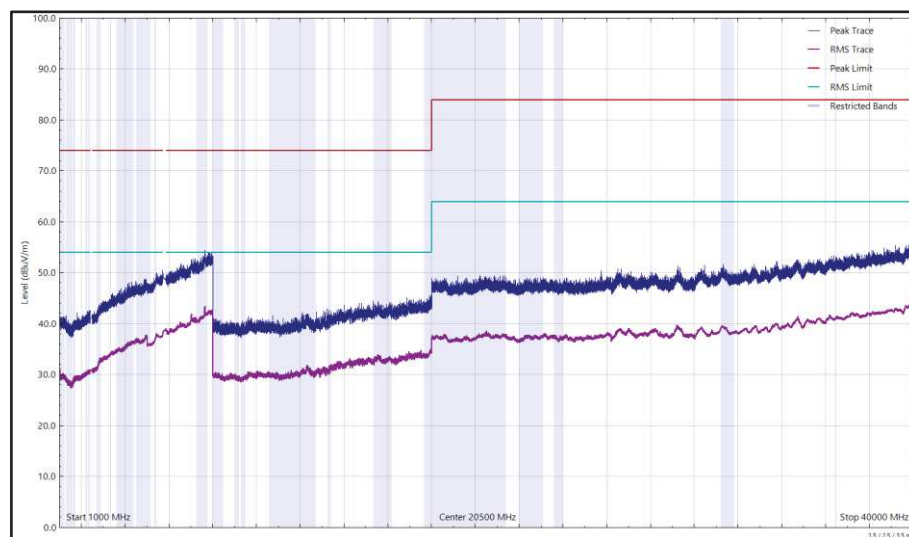


Figure 73 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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 dBµV/m at 3m, Average 54 dBµV/m at 3m (Restricted bands > 1 GHz)

Table 26

CoTx - Thread and 6 GHz WLAN

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

Table 27 - 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 emissions found within 10 dB of the limit.

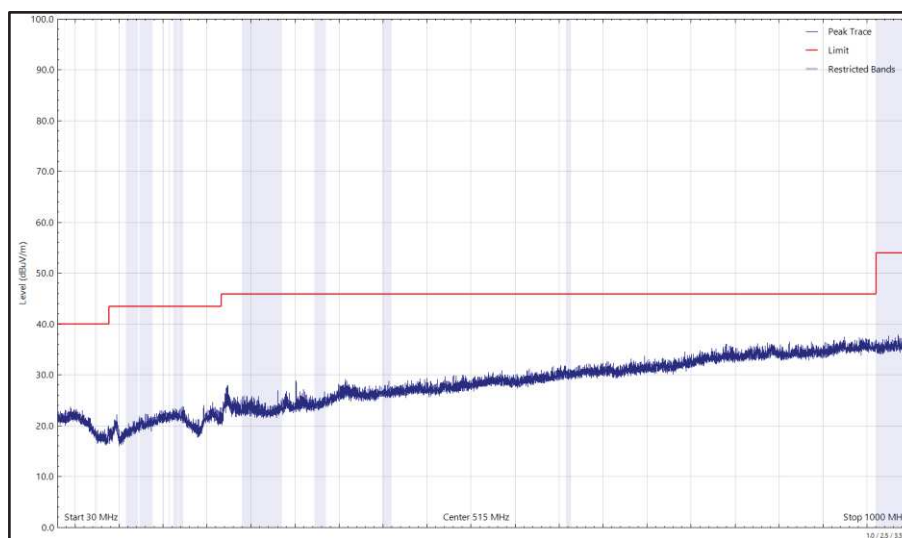


Figure 74 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

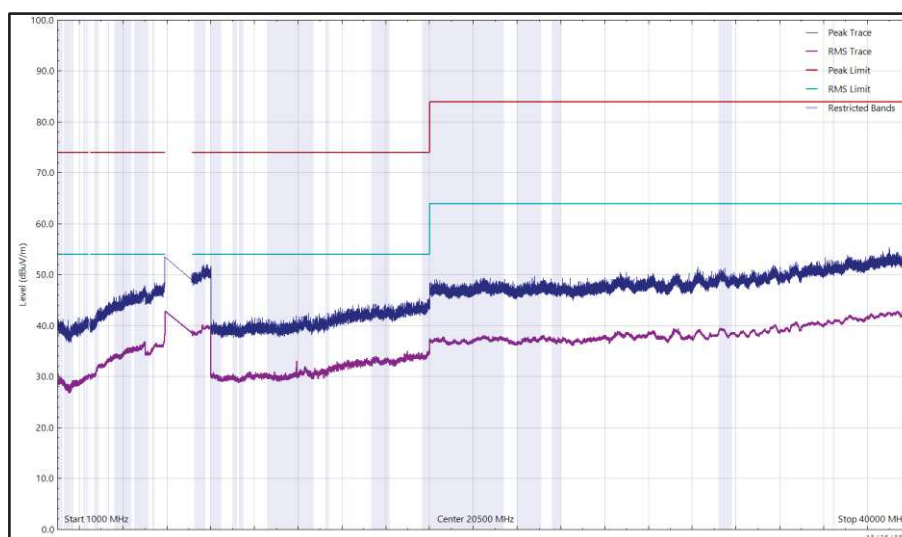


Figure 75 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

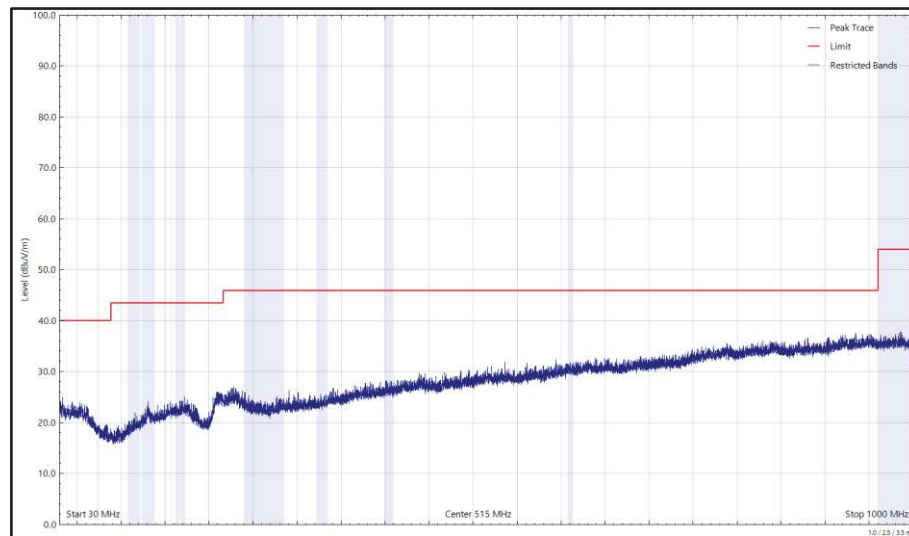


Figure 76 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

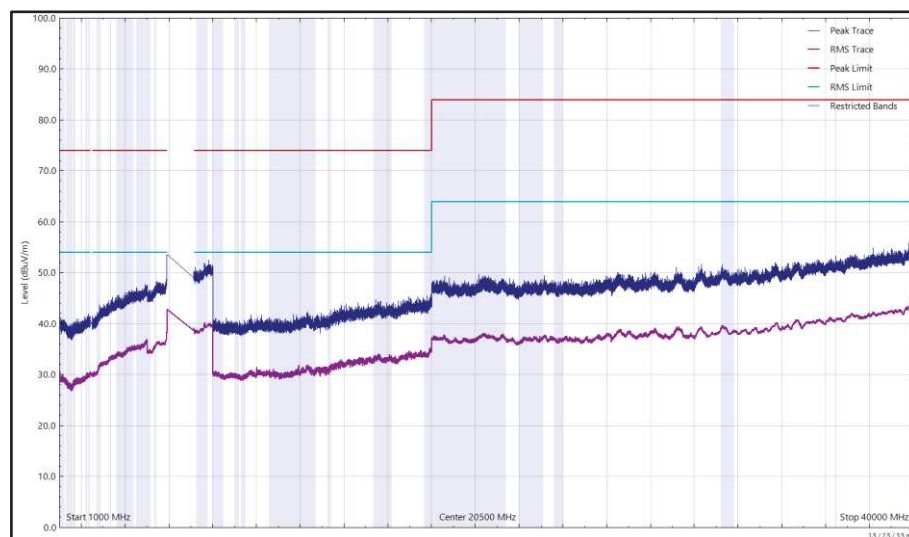


Figure 77 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 28 - 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 emissions found within 10 dB of the limit.

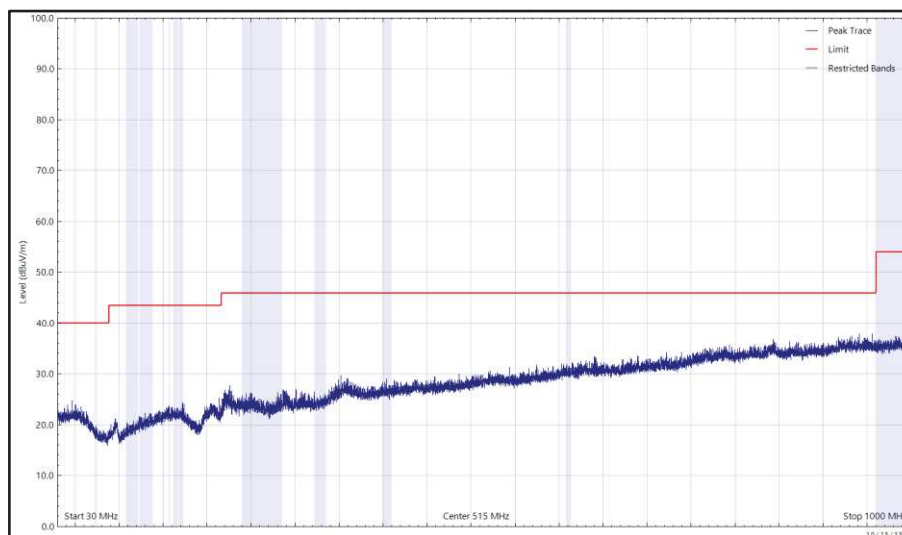


Figure 78 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

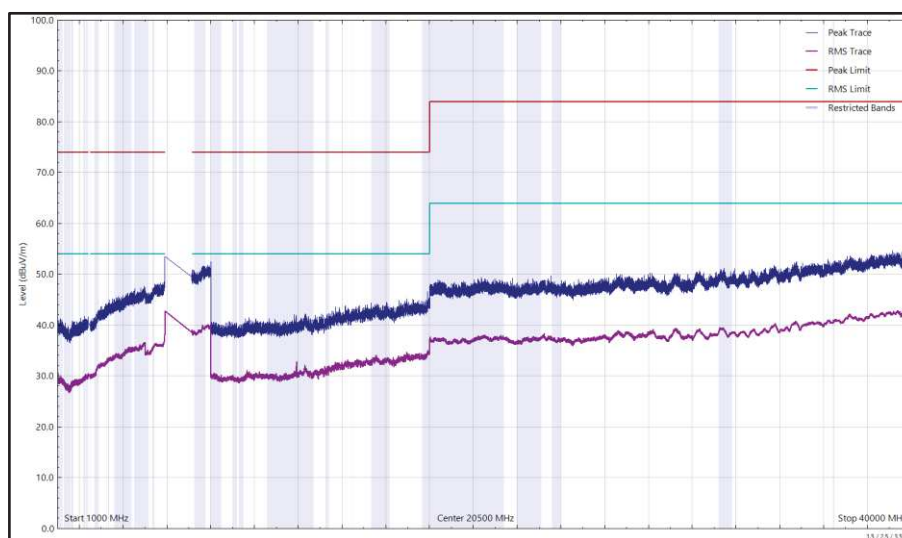


Figure 79 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

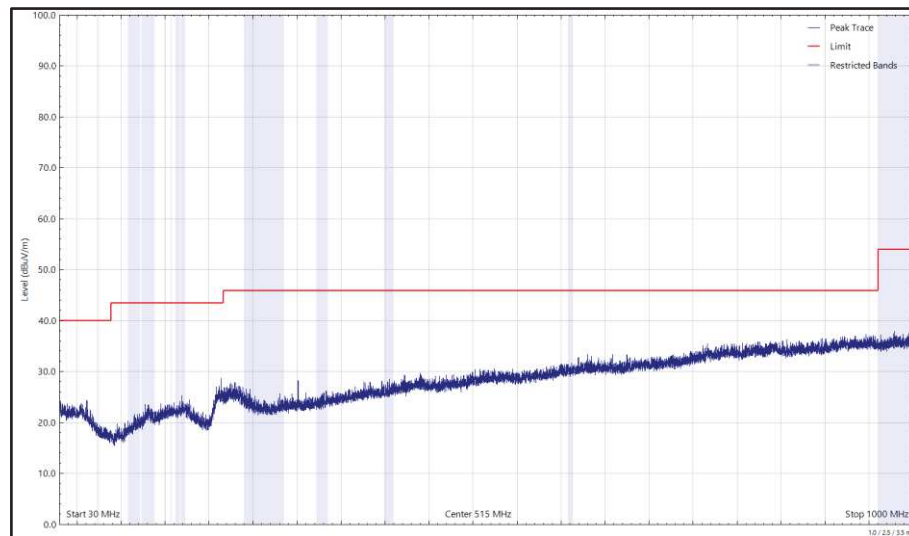


Figure 80 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

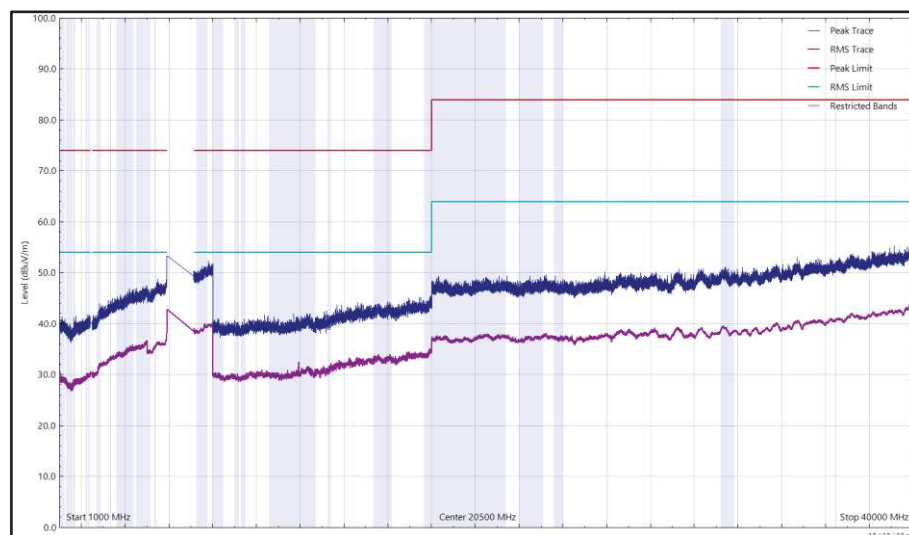


Figure 81 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

Table 29 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

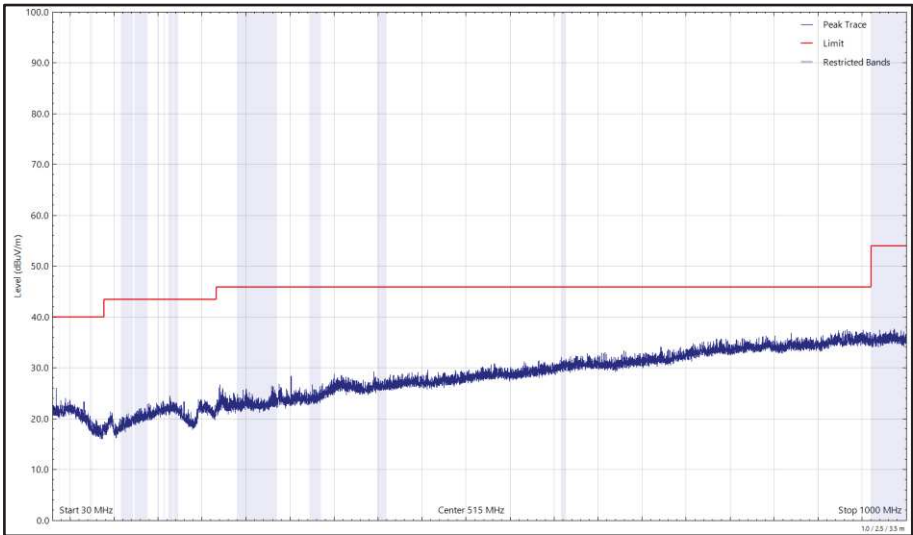


Figure 82 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

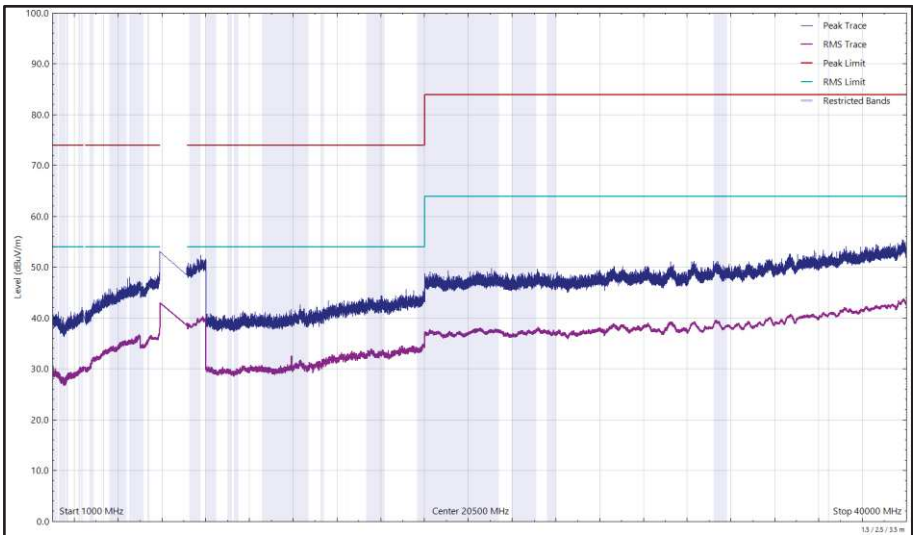


Figure 83 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

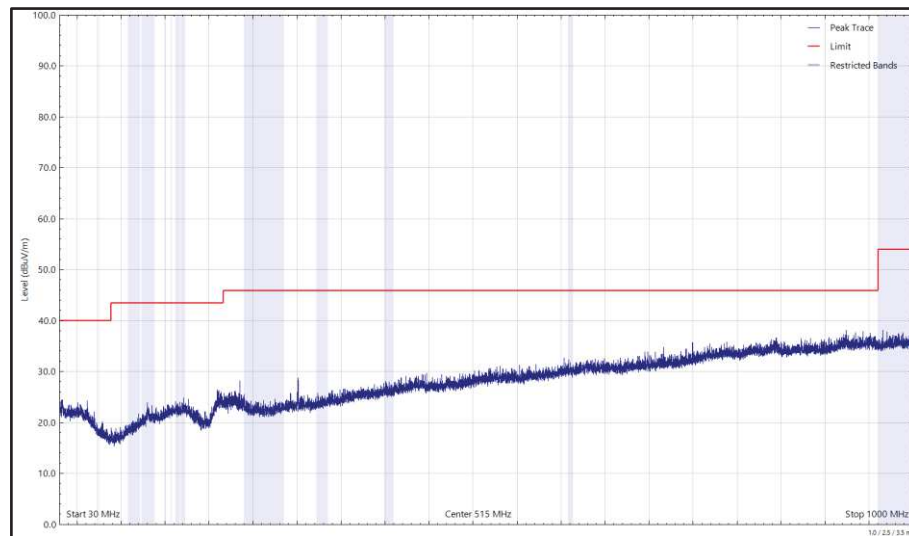


Figure 84 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

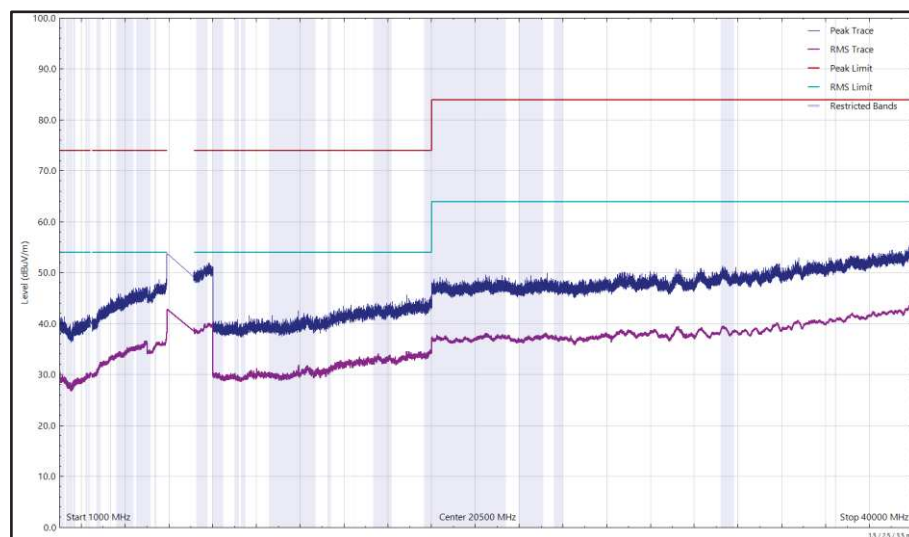


Figure 85 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

Table 30 - 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 emissions found within 10 dB of the limit.

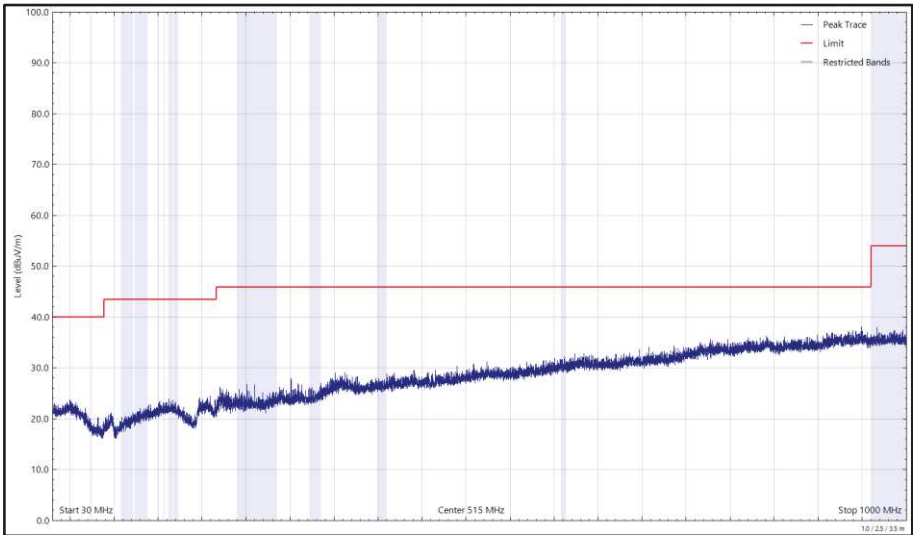


Figure 86 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

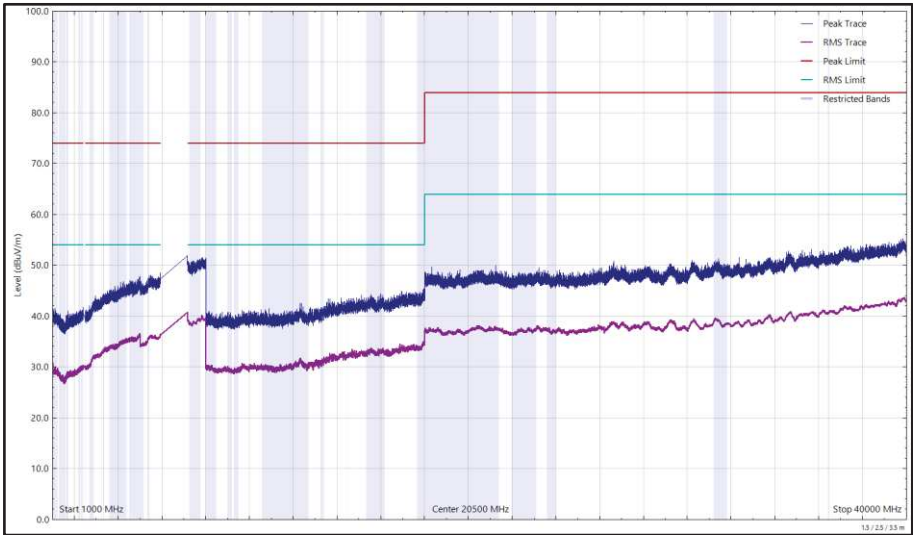


Figure 87 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

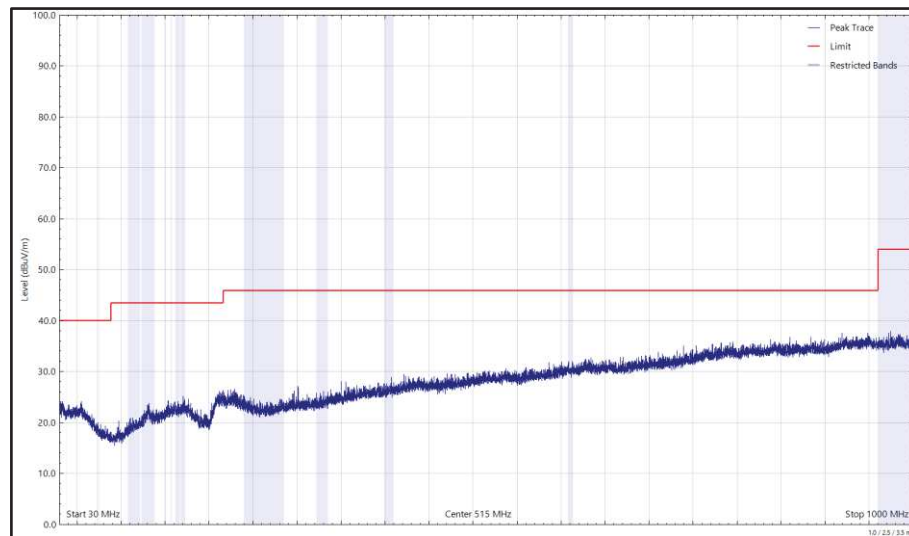


Figure 88 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

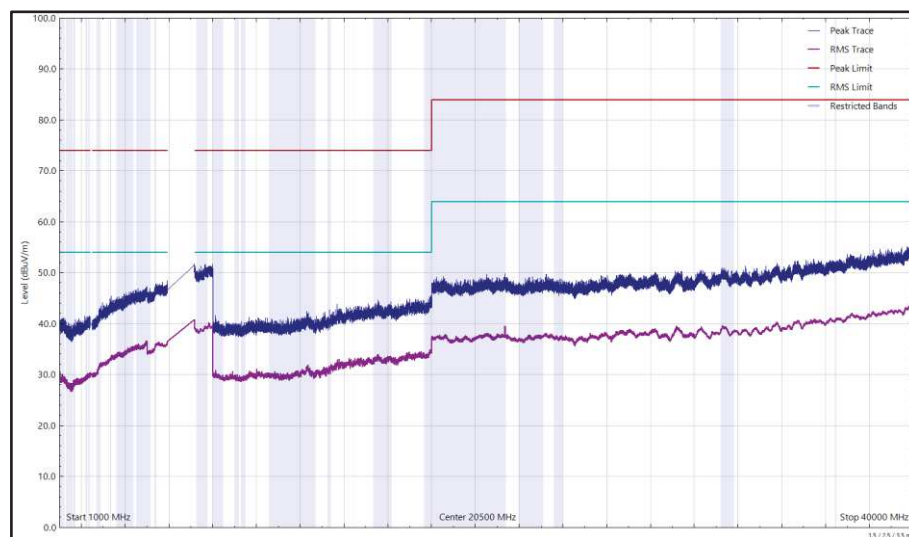


Figure 89 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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

Table 31 - 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 emissions found within 10 dB of the limit.

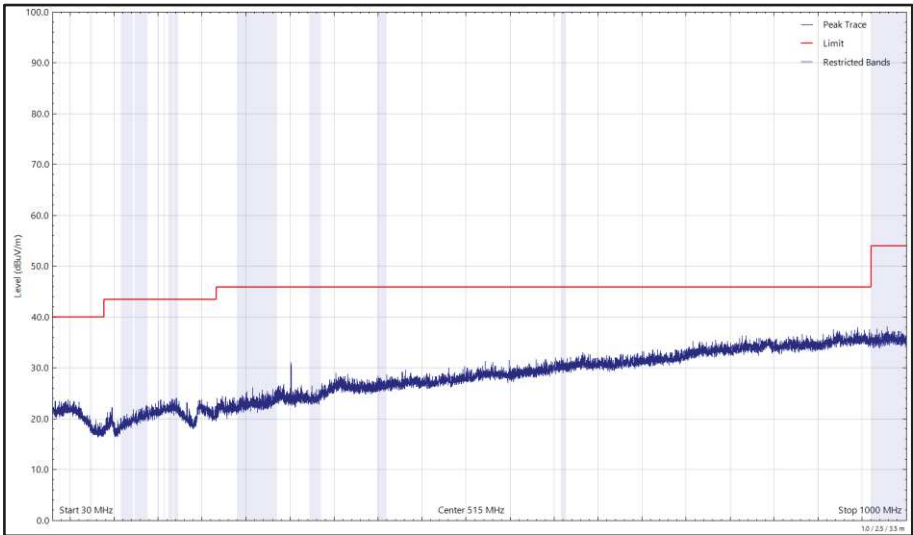


Figure 90 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

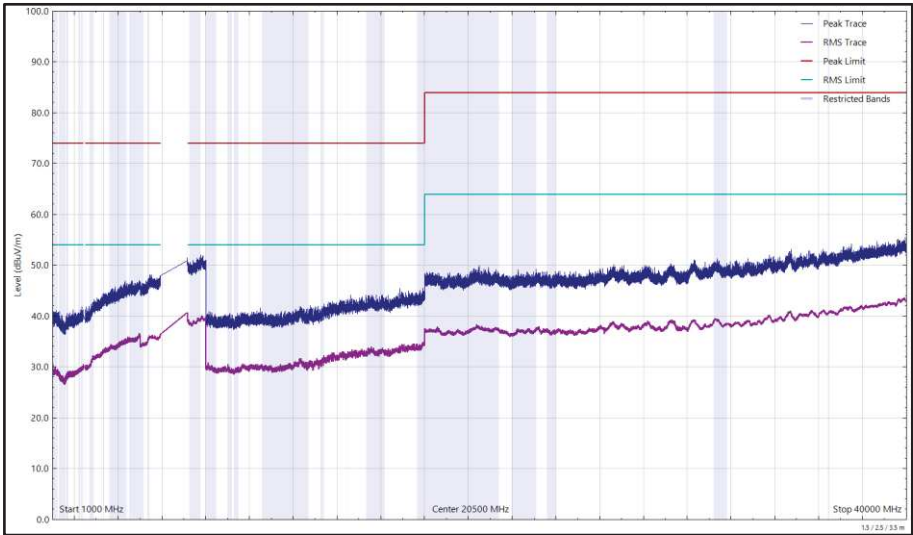


Figure 91 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

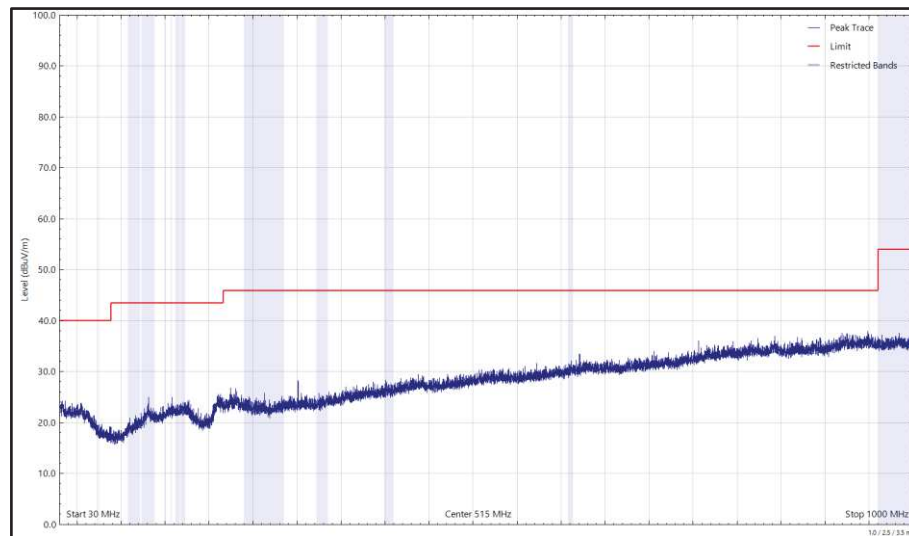


Figure 92 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

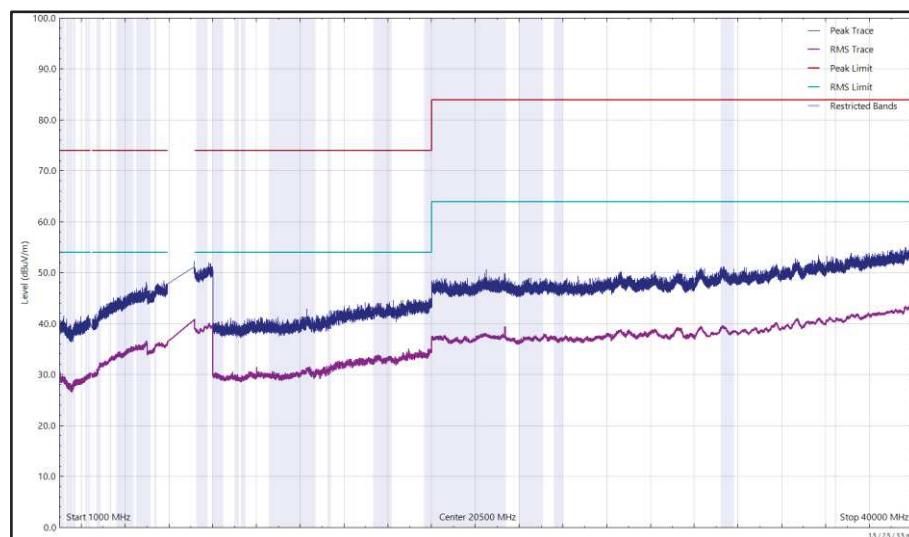


Figure 93 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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

Table 32 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

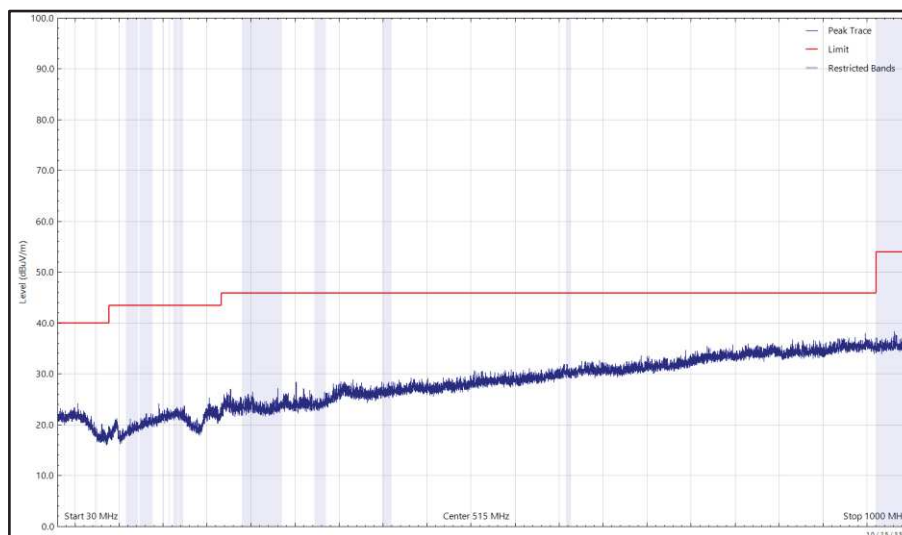


Figure 94 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

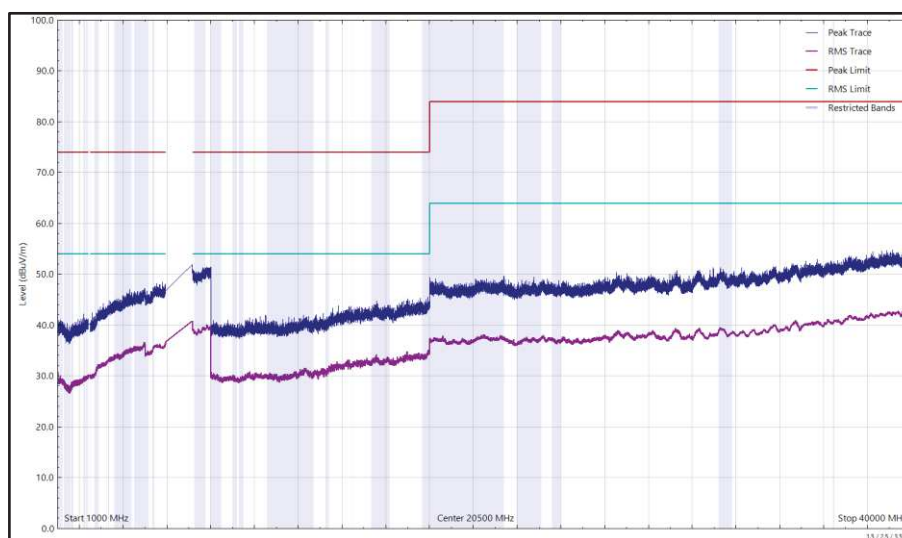


Figure 95 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

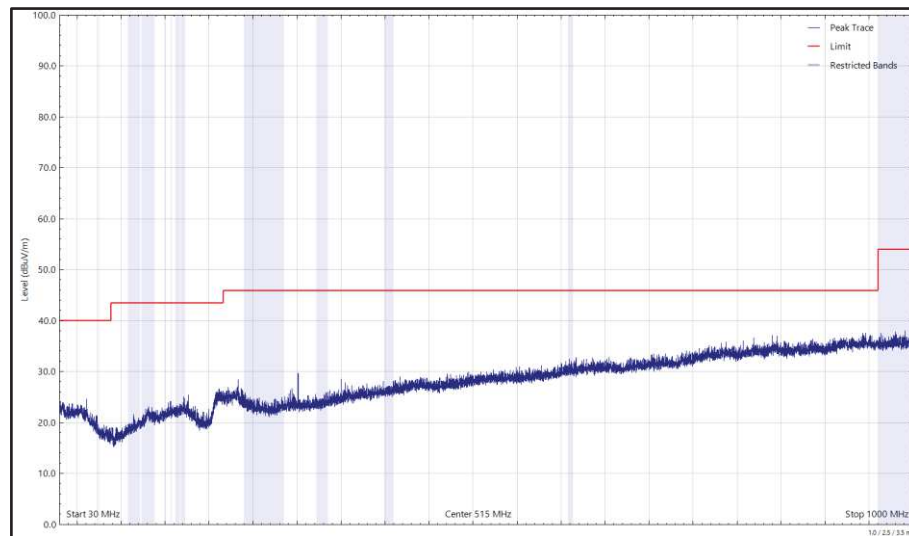


Figure 96 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

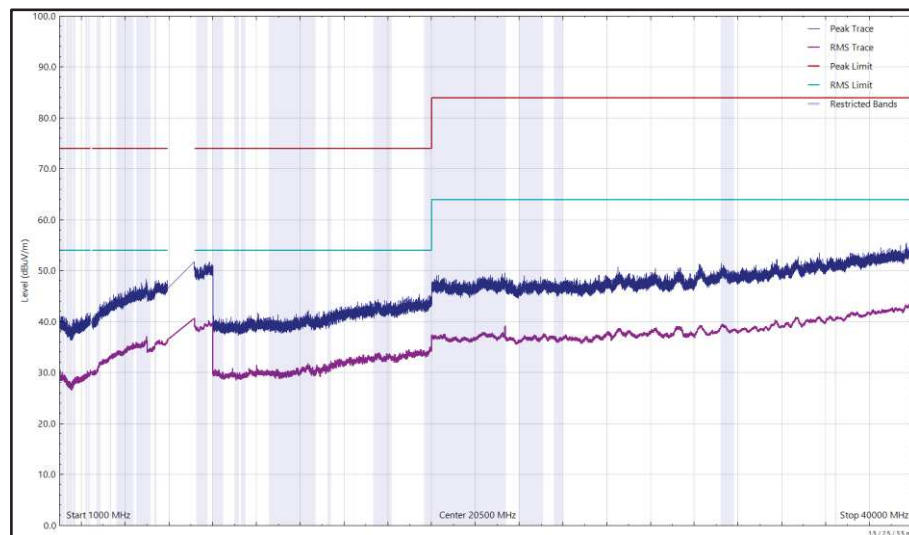


Figure 97 - 2440 MHz (CH18), Thread, iPA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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 dBµV/m at 3m, Average 54 dBµV/m at 3m (Restricted bands > 1 GHz)

Table 33



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	23-Oct-2023
Cable (18 GHz)	Rosenberger	LU7-071-1000	5100	12	23-Oct-2023
Emissions Software	TUV SUD	EmX V3.1.12	5125	-	Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5912	12	17-Apr-2024
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	5935	12	05-Jun-2024
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5940	12	09-Jul-2024
TRILOG Super Broadband Test Antenna	Schwarzbeck	VULB 9168	5943	24	03-Feb-2024
TRILOG Super Broadband Test Antenna	Schwarzbeck	VULB 9168	5944	24	03-Feb-2024
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), 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 (N to N 1m)	Junkosha	MWX221-01000NMSNMS/B	5999	12	05-Jun-2024
Cable (N to N 8m)	Junkosha	MWX221-08000NMSNMS/A	6006	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	05-Jun-2024
Cable (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6014	12	08-Aug-2023*
Cable (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6014	12	24-Aug-2024*
Cable (N to N 7m)	Junkosha	MWX221-07000NMSNMS/B	6016	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6018	12	05-Jun-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/B	6019	12	05-Jun-2024



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	28-Aug-2023*
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	26-Aug-2024*
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	28-Aug-2023*
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	26-Aug-2024*
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
Double Ridge Active Horn Antenna (18-40 GHz)	Com-Power	AHA-840	6188	24	02-Jun-2024
SAC Switch Unit	TUV SUD	TUV_SSU_001	6190	12	16-Dec-2023
SAC Switch Unit	TUV SUD	TUV_SSU_001	6191	12	12-Dec-2023
8 GHz Highpass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6194	12	24-Jul-2024
8 GHz Highpass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6196	12	24-Jul-2024
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6198	12	14-Jul-2024
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6200	12	14-Jul-2024
Attenuator (4 dB)	Pasternack	PE7074-4	6202	24	16-Jul-2024
Attenuator 4dB	Pasternack	PE7074-4	6203	24	16-Jul-2024
Cable (SMA to SMA 20cm)	TUV SUD	MH-FH 8-18	6215	12	24-Jul-2024
Cable (SMA to SMA 20cm)	TUV SUD	MH-FH 8-18	6220	12	24-Jul-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	03-Nov-2023
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
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	6323	12	04-Feb-2024
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	6324	12	04-Feb-2024
Humidity and Temperature Meter	R.S Components	1364	6346	12	28-Feb-2024

Table 34

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

*NOTE: Only used within its calibration period.



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 35

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.