

FCC and ISED Test Report

Apple Inc
Model: A2901

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



TUV SUD Digitally signed by TUV SUD Date: 2023.04.28 10:12:52 +01'00'

FCC ID: BCGA2901

IC: 579C-A2901

COMMERCIAL-IN-CONFIDENCE

Document 75958006-12 Issue 01

SIGNATURE			
NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steve Marshall	Senior Engineer	Authorised Signatory	28 April 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	28 April 2023	

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

ISED Accreditation
12669A Octagon House, 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 1 (2021-11) and ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.

		DISCLAIMER AND COPYRIGHT This non-binding report has been prepared by TÜV SÜD with all reasonable skill and care. The document is confidential to the potential Client and TÜV SÜD. No part of this document may be reproduced without the prior written approval of TÜV SÜD. © 2023 TÜV SÜD. This report relates only to the actual item/items tested.
ACCREDITATION Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).		

TÜV SÜD
is a trading name of TÜV SÜD Ltd
Registered in Scotland at East Kilbride,
Glasgow G75 0QF, United Kingdom
Registered number: SC215164

TÜV SÜD Ltd is a
TÜV SÜD Group Company

Phone: +44 (0) 1489 558100
Fax: +44 (0) 1489 558101
www.tuvsud.com/en

TÜV SÜD
Octagon House
Concorde Way
Fareham
Hampshire PO15 5RL
United Kingdom



Contents

1	Report Summary	2
1.1	Report Modification Record.....	2
1.2	Introduction.....	2
1.3	Brief Summary of Results	3
1.4	Product Information	4
1.5	Deviations from the Standard.....	4
1.6	EUT Modification Record	4
1.7	Test Location	5
2	Test Details	6
2.1	Radiated Spurious Emissions (Simultaneous Transmission)	6
3	Measurement Uncertainty	63



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	28-April-2023

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A2901
Serial Number(s)	QXM2RLKFW6
Hardware Version(s)	REV 1.0
Software Version(s)	22E62160j
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15: 2021 ISED RSS-247: Issue 2 (2017-02) ISED RSS-248: Issue 1 (2021-11) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	04-April-2023
Finish of Test	19-April-2023
Name of Engineer(s)	Elliot Callender, James Woods, Mohammad Malik, Colin Brain and Morsalin Hossain
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	-	8.9 and 6.13	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	4.7	8.9 and 6.13	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	-	8.9 and 6.13	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	-	8.9 and 6.13	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	4.7	8.9 and 6.13	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	

Table 2



1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was an Apple desktop computer with Bluetooth®, Bluetooth® Low Energy, Thread and IEEE 802.11 a/b/g/n/ac/ax Wi-Fi capabilities in the 2.4 GHz, 5 GHz and 6 GHz bands.

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: A2901, Serial Number: QXM2RLKFW6			
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 Bluetooth and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Elliot Callender and James Woods	UKAS
Configuration and Mode: CoTx - 2.4 GHz Bluetooth and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Elliot Callender and James Woods	UKAS
Configuration and Mode: CoTx - 2.4 GHz WLAN and Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Mohammad Malik, Colin Brain and James Woods	UKAS
Configuration and Mode: CoTx - Thread and 5 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	Mohammad Malik, Morsalin Hossain and Colin Brain	UKAS
Configuration and Mode: CoTx - Thread and 6 GHz WLAN		
Radiated Spurious Emissions (Simultaneous Transmission)	James Woods, Morsalin Hossain and Mohammed Malik	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 4.7
ISED RSS-GEN, Clause 8.9 and 6.13

2.1.2 Equipment Under Test and Modification State

A2901, S/N: QXM2RLKFW6 - Modification State 0

2.1.3 Date of Test

04-April-2023 to 19-April-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 dB μ V/m to μ V/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

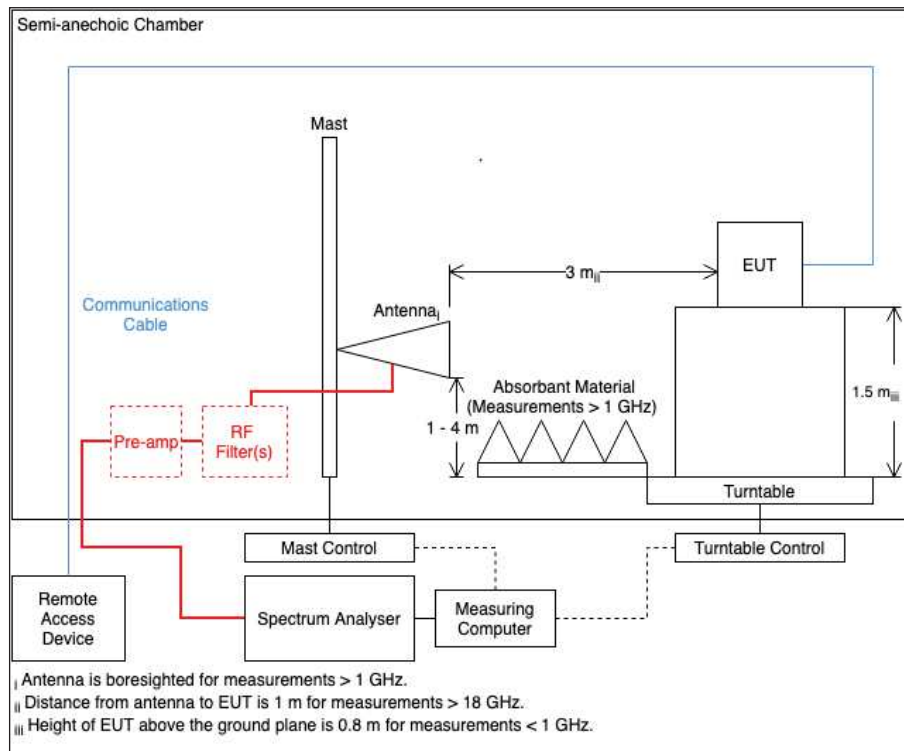


Figure 1

2.1.6 Environmental Conditions

Ambient Temperature	20.9 - 23.8 °C
Relative Humidity	37.6 - 51.9 %



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
4881.684	39.40	54.00	-14.60	CISPR Avg	120	108	Vertical

Table 5 - 2441 MHz (CH39), 2-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.

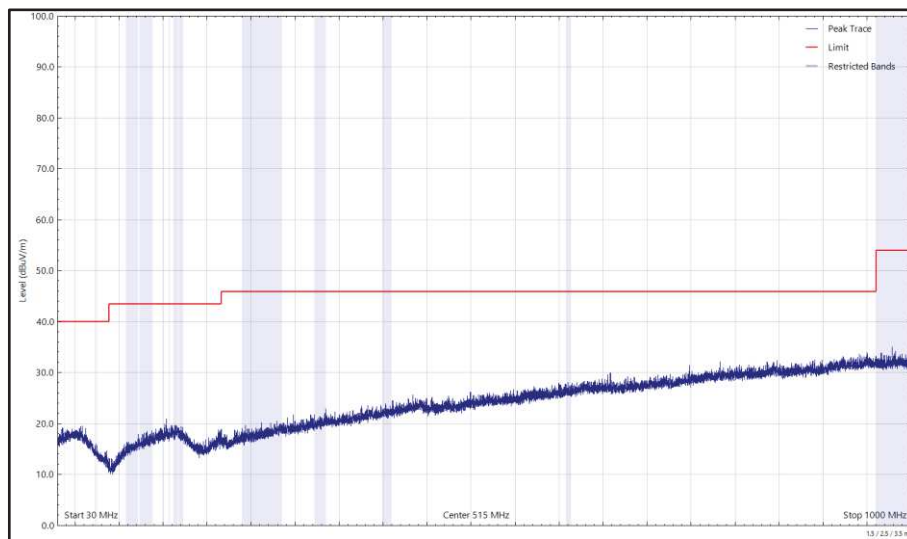


Figure 2 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

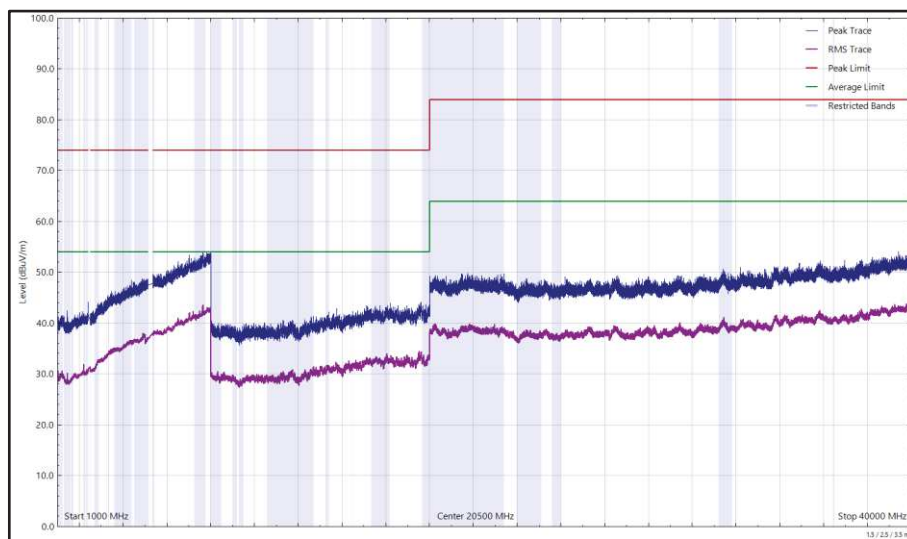


Figure 3 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

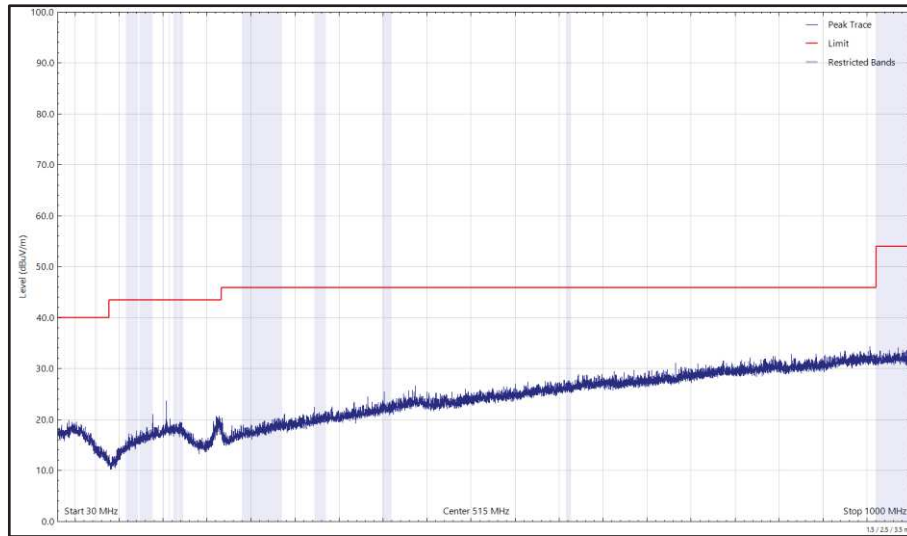


Figure 4 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

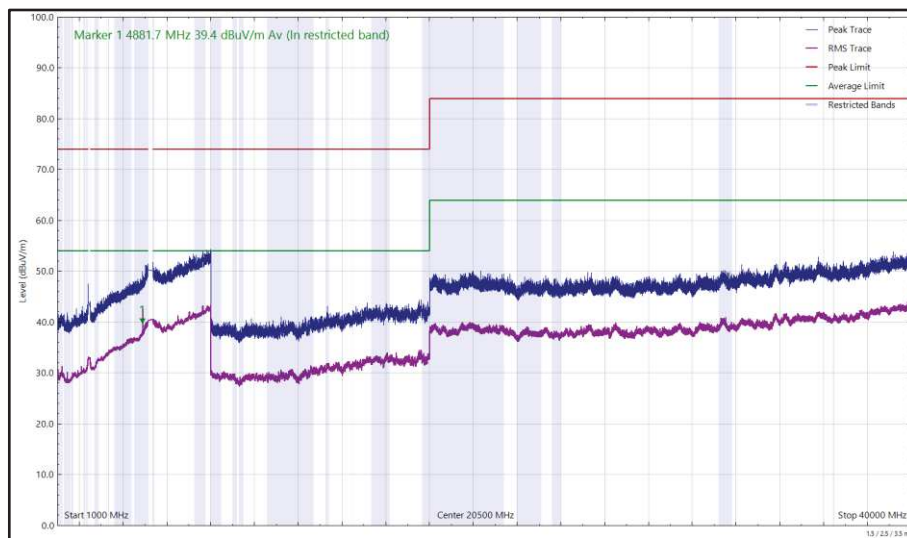


Figure 5 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4881.743	37.23	54.00	-16.77	CISPR Avg	131	105	Vertical

Table 6 - 2441 MHz (CH39), 2-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.

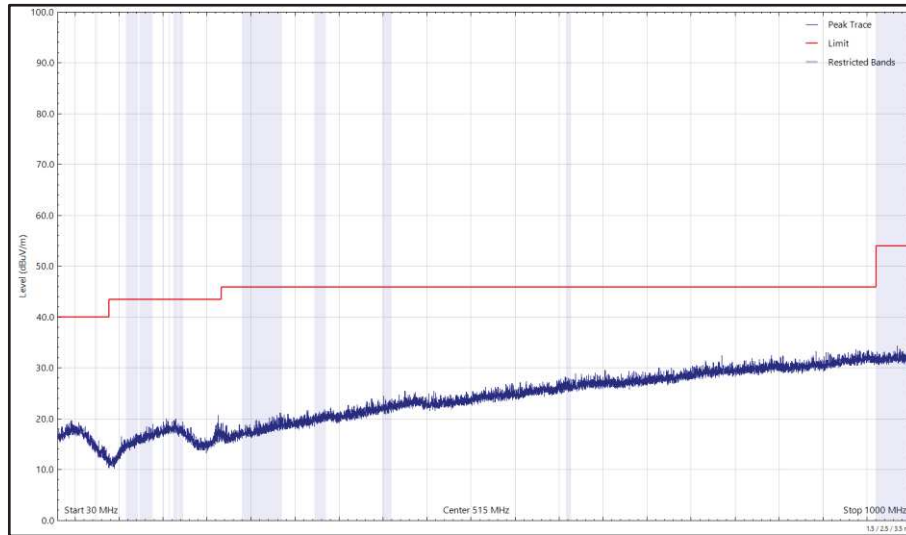


Figure 6 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

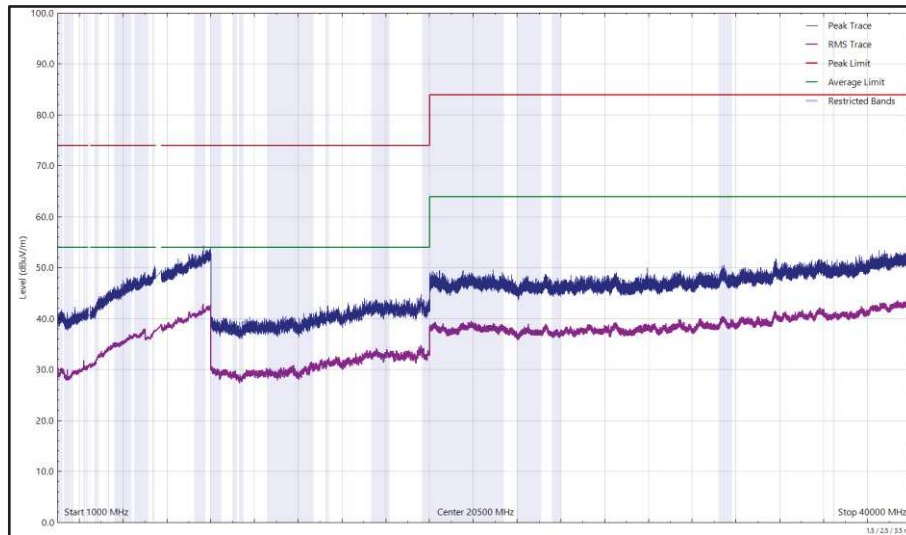


Figure 7 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

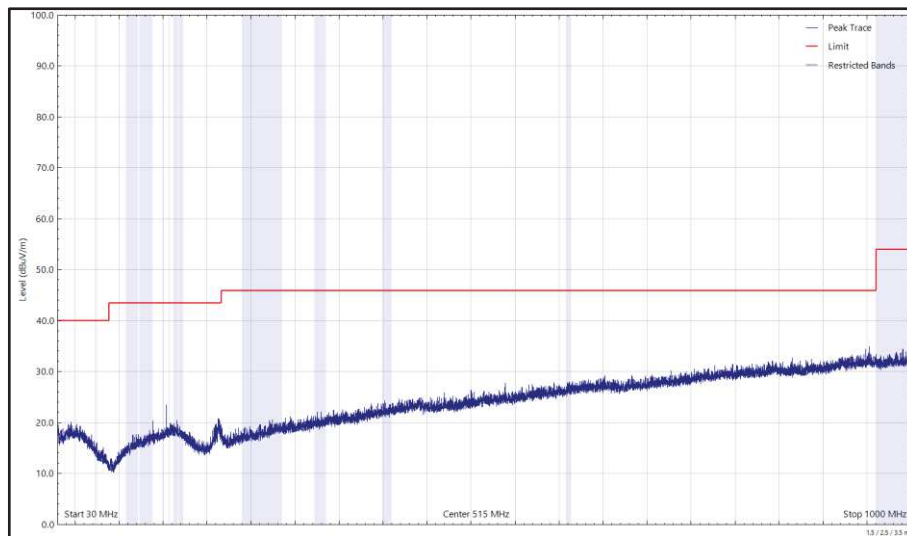


Figure 8 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

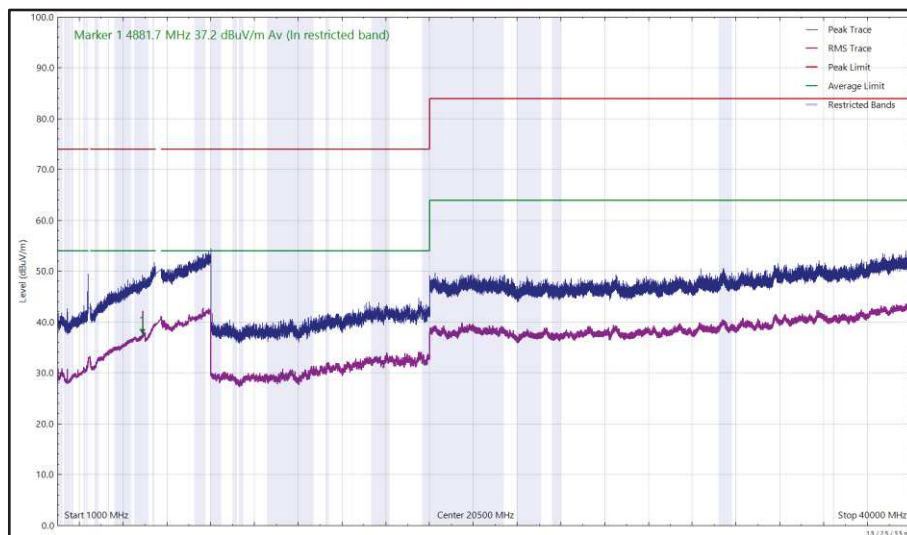


Figure 9 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4882.324	37.96	54.00	-16.04	CISPR Avg	118	106	Vertical

Table 7 - 2441 MHz (CH39), 2-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.

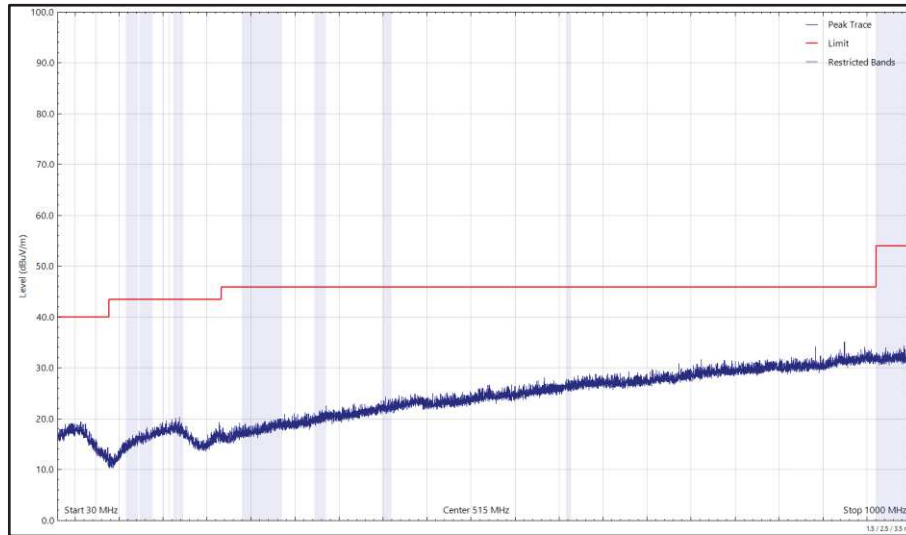


Figure 10 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

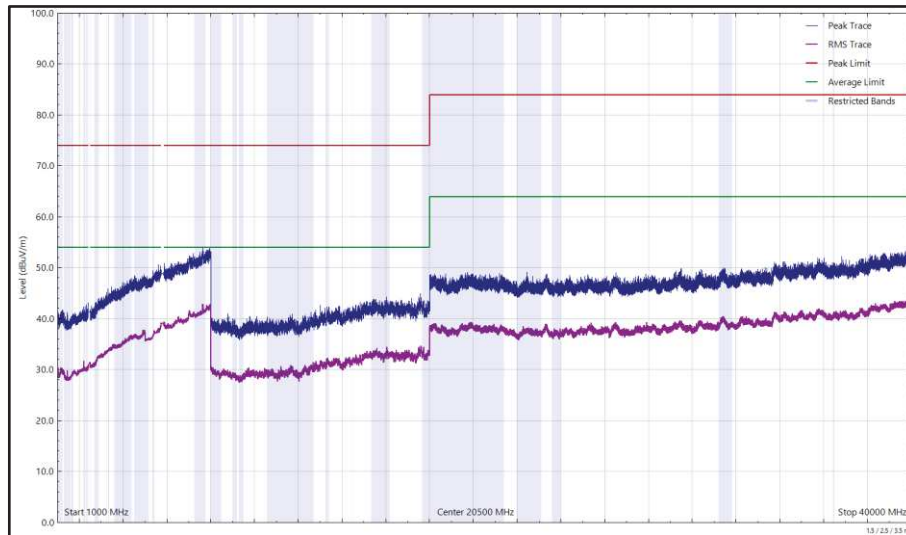


Figure 11 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

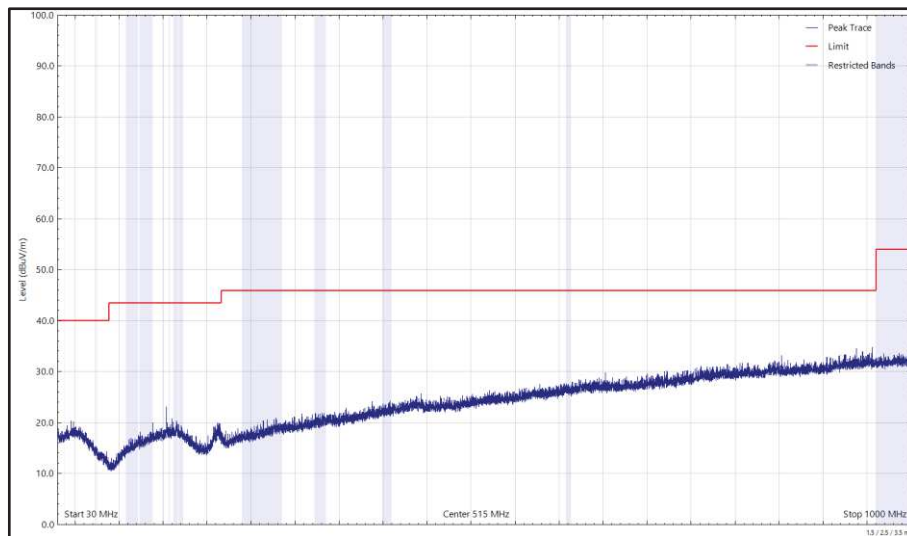


Figure 12 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

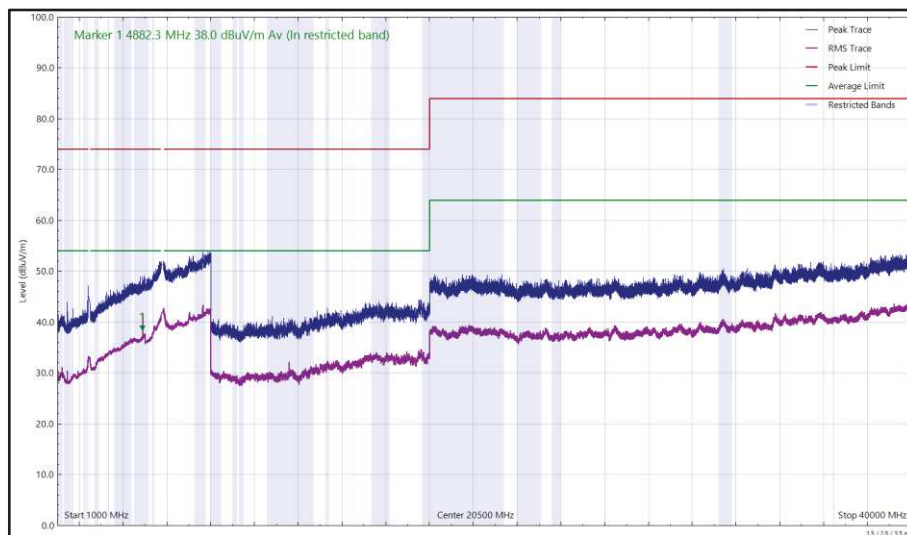


Figure 13 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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
7321.706	35.44	54.00	-18.56	CISPR Avg	102	400	Horizontal
7322.555	40.94	54.00	-13.06	CISPR Avg	354	152	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.

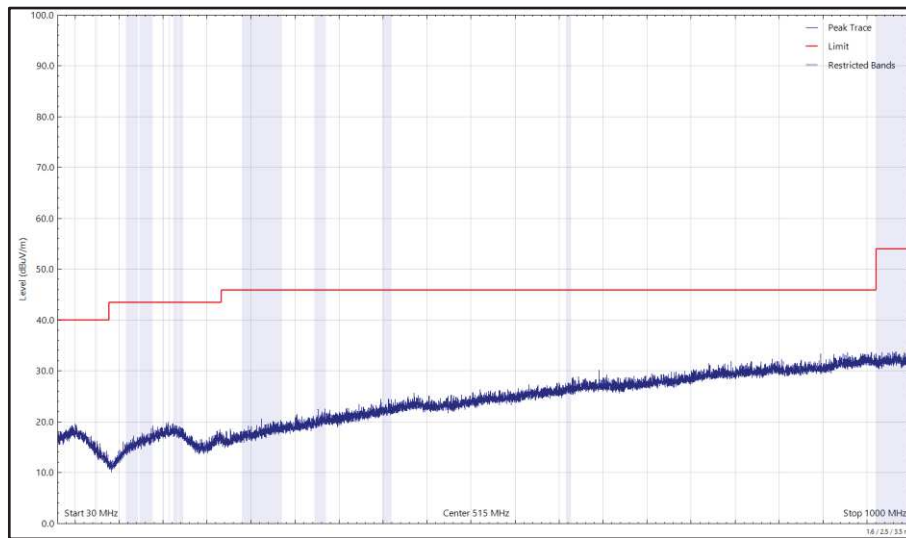


Figure 14 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

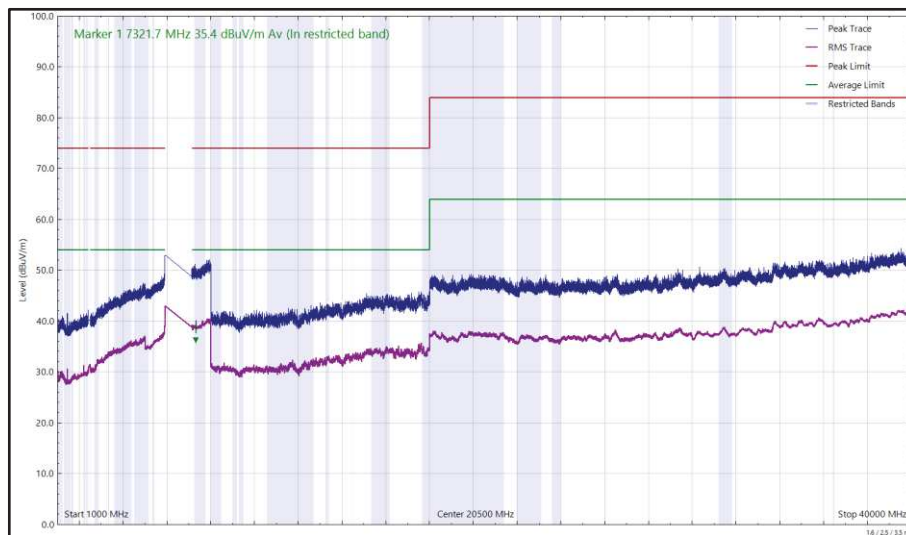


Figure 15 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

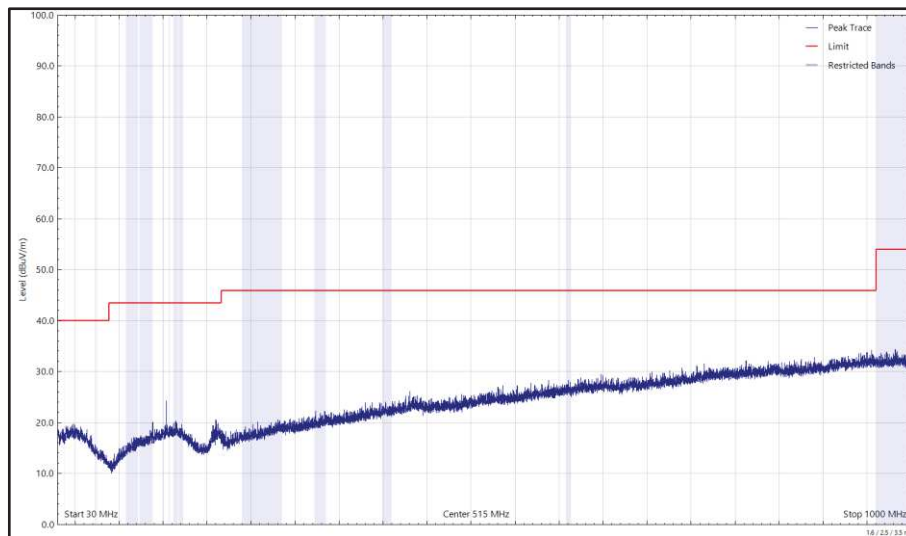


Figure 16 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

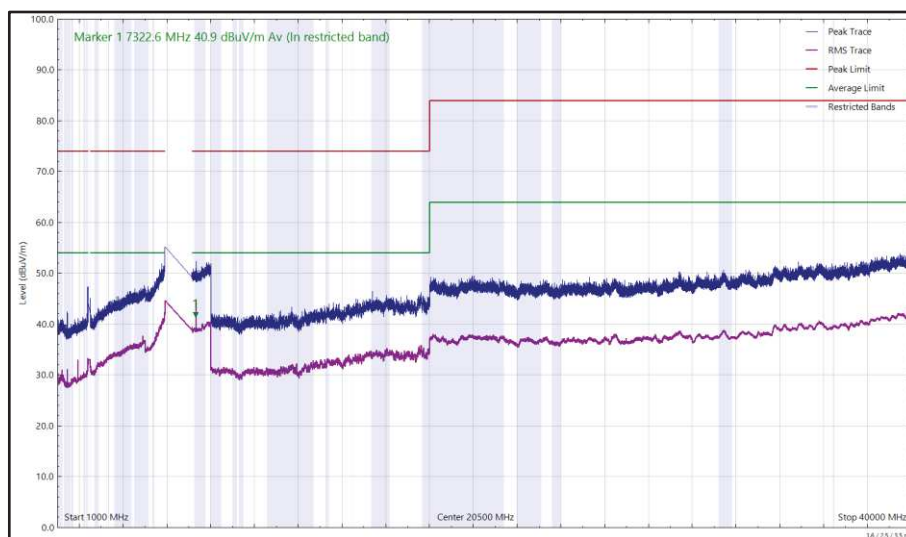


Figure 17 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
5342.602	55.32	88.2	-32.88	Peak	54	161	Vertical
7154.431	59.76	88.2	-28.44	Peak	125	331	Horizontal
7158.614	63.31	88.2	-24.89	Peak	357	119	Vertical
7323.417	56.10	74.00	-17.90	Peak	355	138	Vertical
7323.417	41.97	54.00	-12.03	CISPR Avg	355	138	Vertical
7324.603	35.19	54.00	-18.81	CISPR Avg	250	224	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.

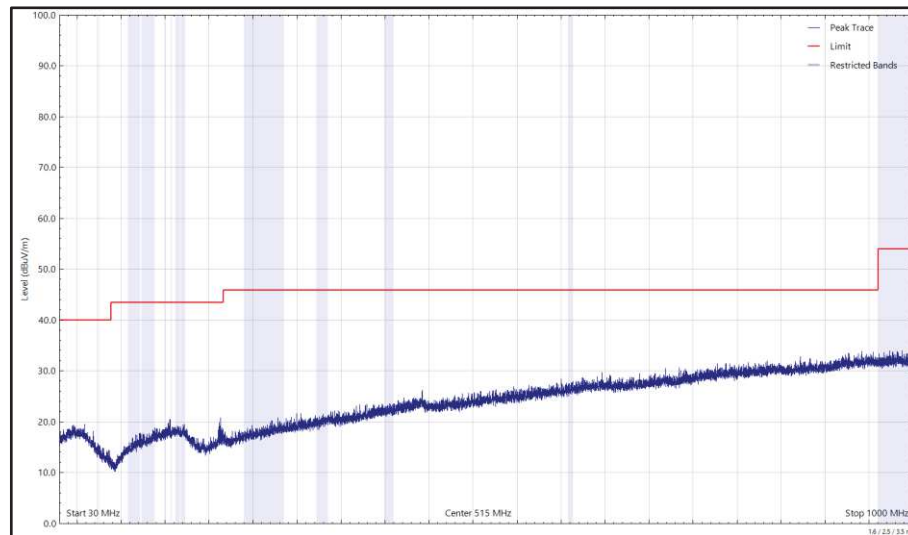


Figure 18 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

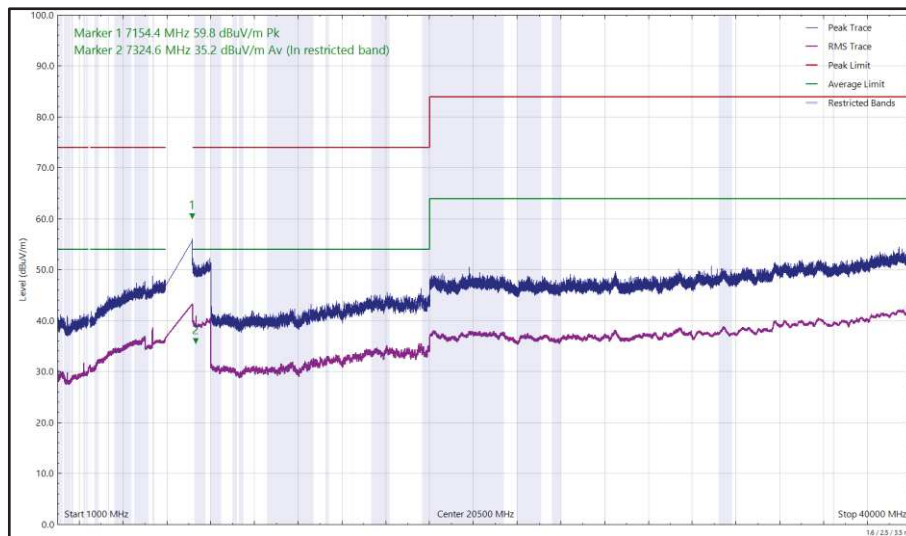


Figure 19 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

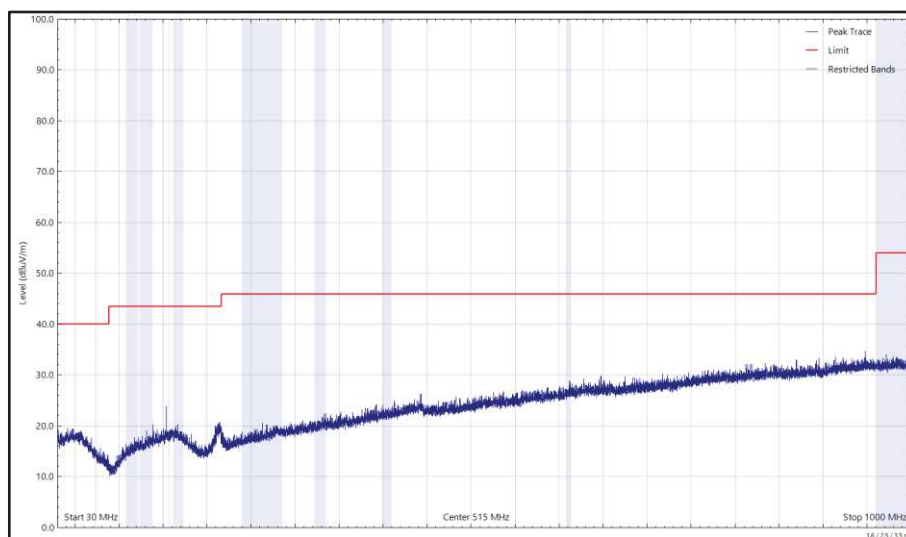


Figure 20 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

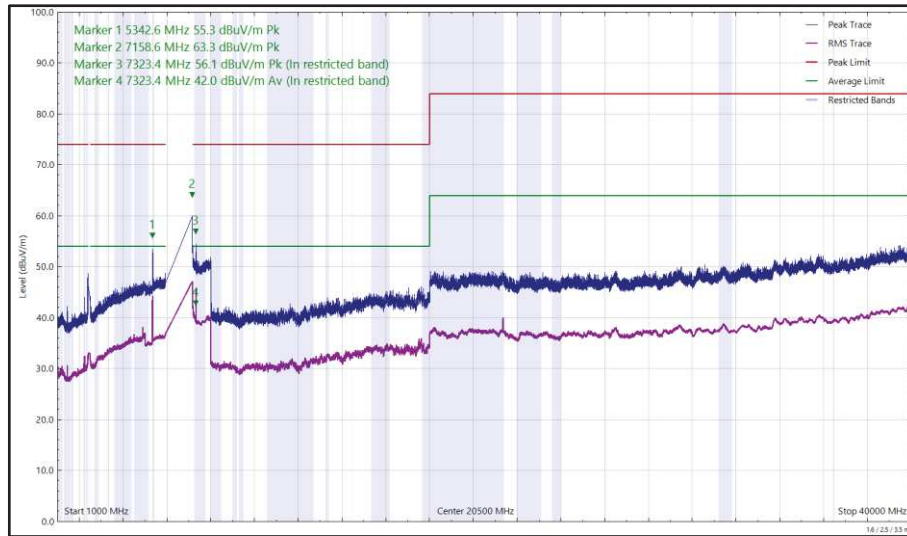


Figure 21 - 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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



CoTx - 2.4 GHz WLAN and Narrowband

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

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

*No emissions found within 10 dB of the limit.

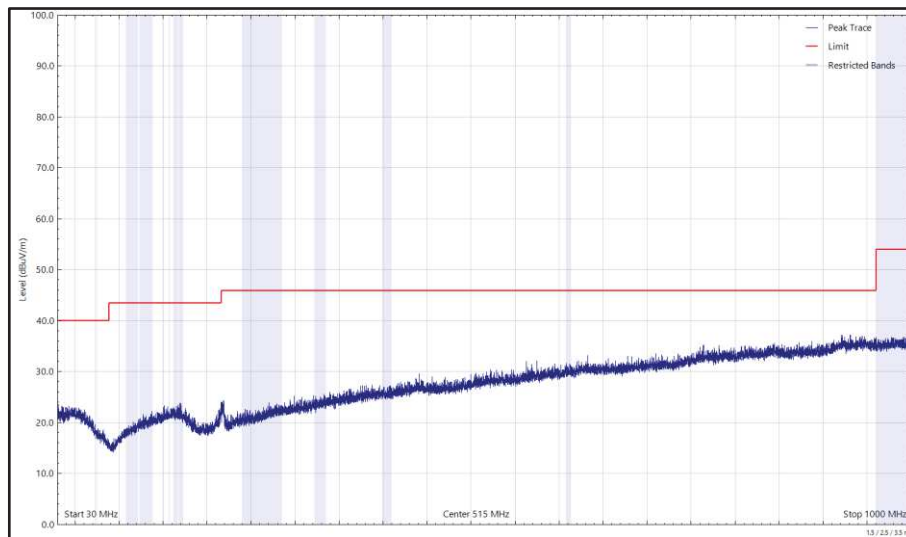


Figure 22 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, Core 1, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

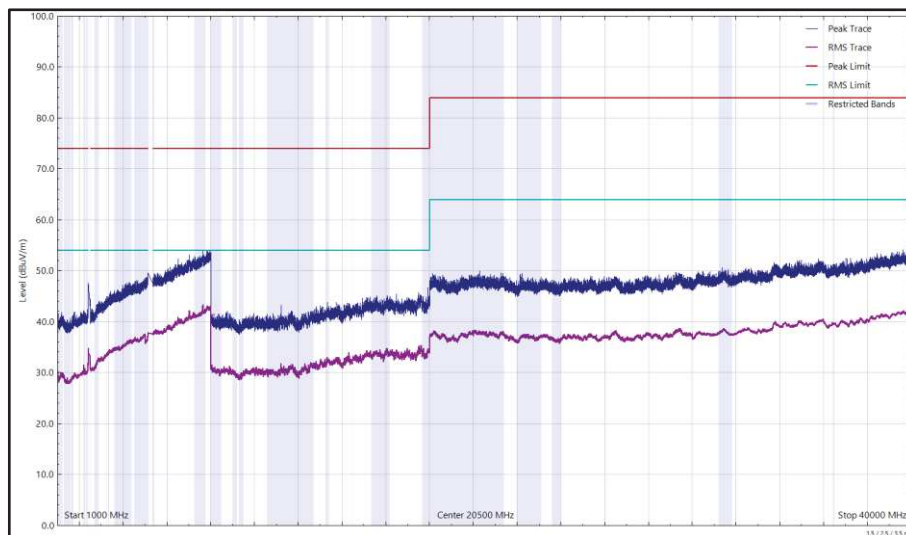


Figure 23 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, Core 1, ePA, 1 GHz to 40 GHz, Horizontal

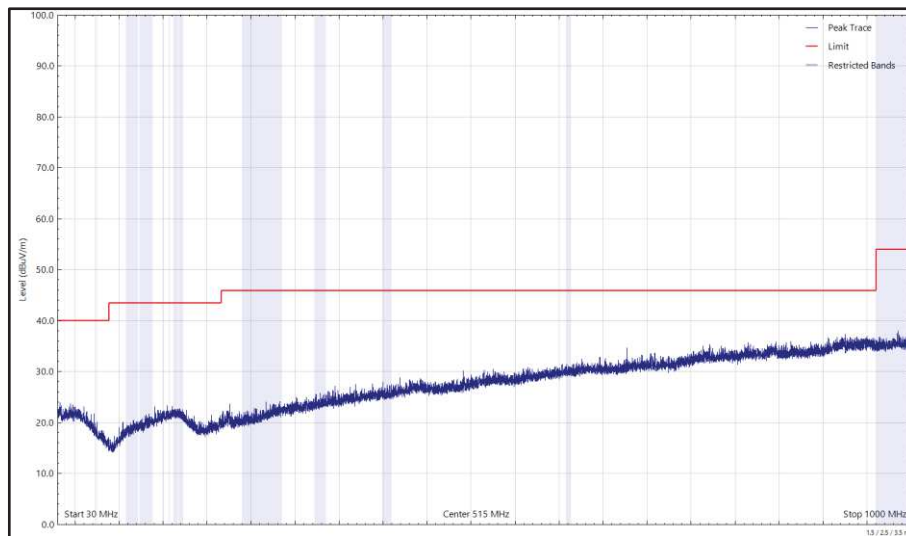


Figure 24 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, Core 1, ePA, 30 MHz to 1 GHz, Vertical (Peak)

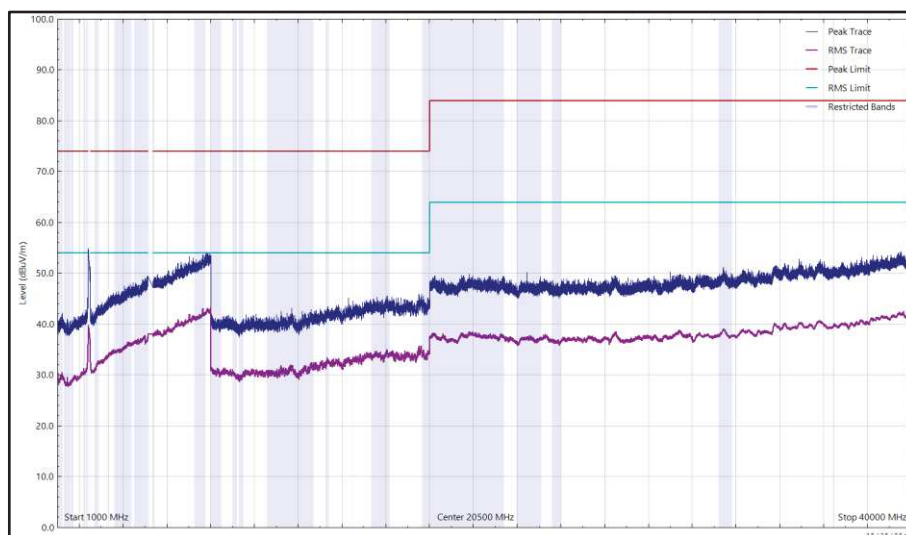


Figure 25 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR8, Core 1, ePA, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
5374.535	39.88	54.00	-14.12	RMS	43	150	Vertical

Table 13 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz (CH5788), HDR4, Core 1, ePA, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

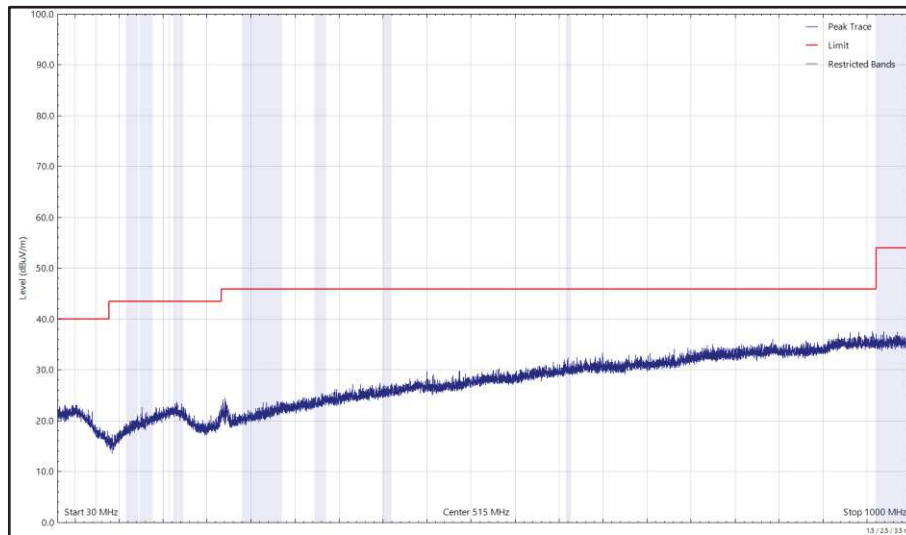


Figure 26 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz (CH5788), HDR4, Core 1, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

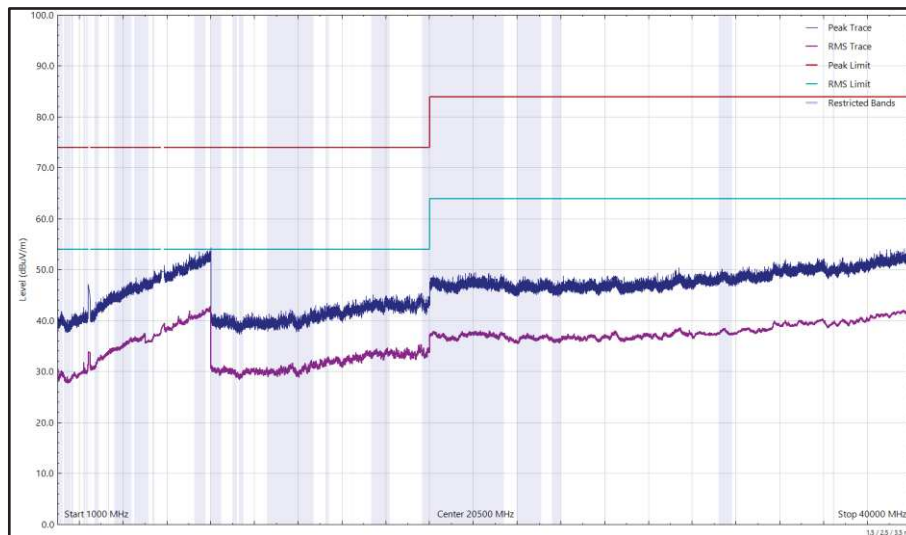


Figure 27 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz (CH5788), HDR4, Core 1, ePA, 1 GHz to 40 GHz, Horizontal

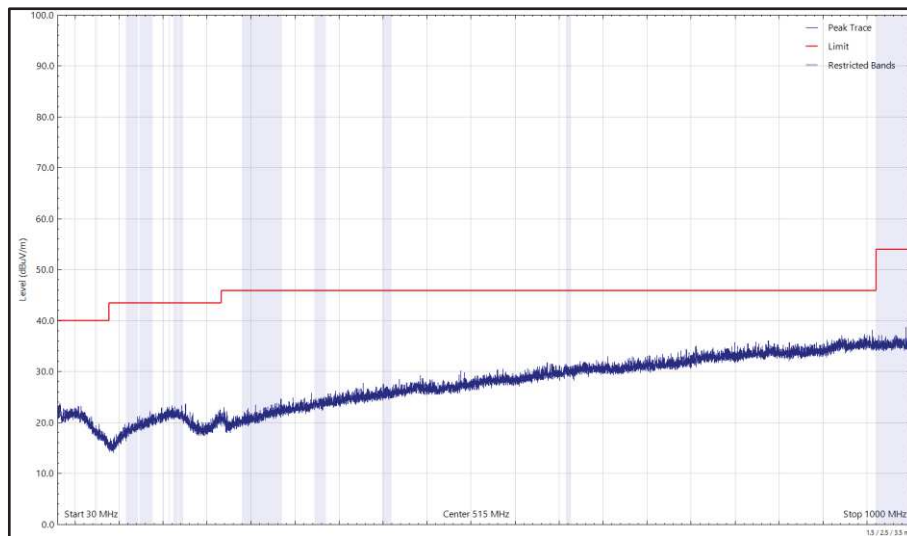


Figure 28 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz (CH5788), HDR4, Core 1, ePA, 30 MHz to 1 GHz, Vertical (Peak)

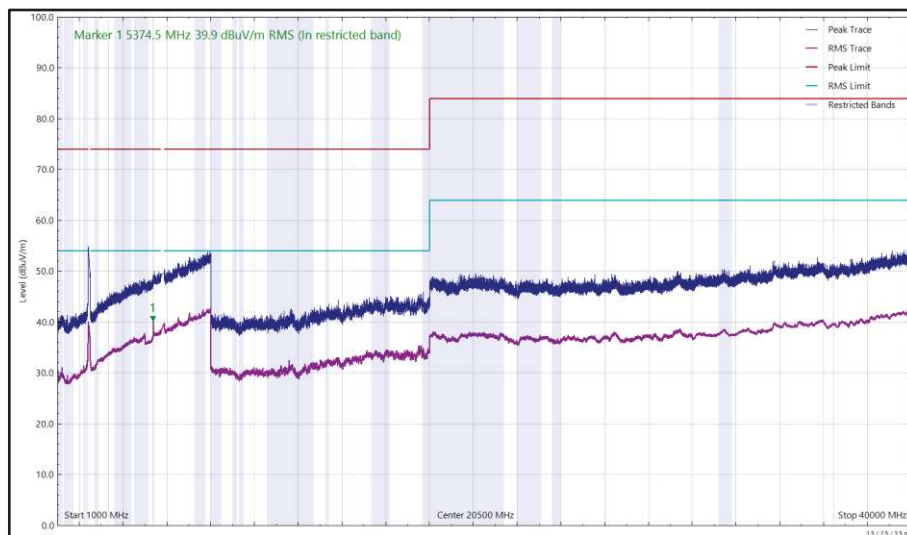


Figure 29 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz (CH5788), HDR4, Core 1, ePA, 1 GHz to 40 GHz, Vertical



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, Core 0, ePA, 30 MHz to 40 GHz

*No emissions found within 10 dB of the limit.

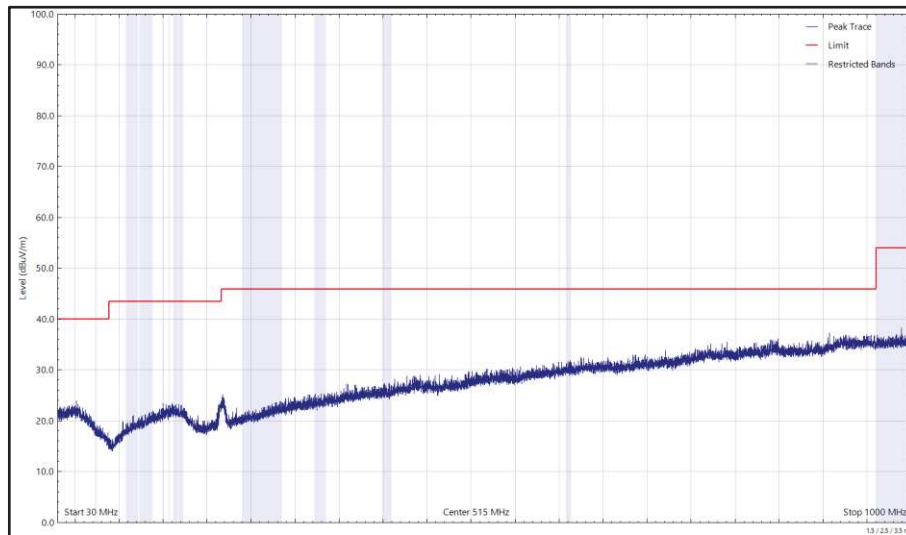


Figure 30 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, Core 0, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

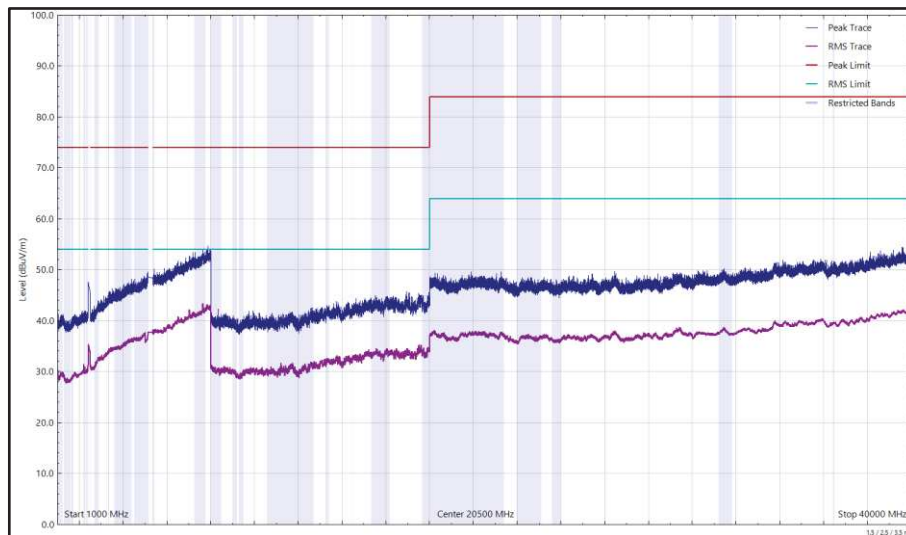


Figure 31 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, Core 0, ePA, 1 GHz to 40 GHz, Horizontal

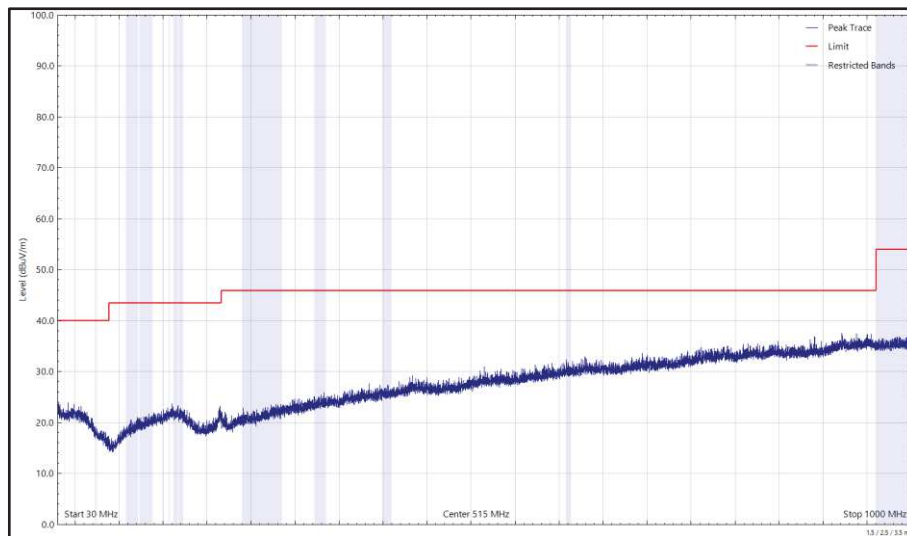


Figure 32 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, Core 0, ePA, 30 MHz to 1 GHz, Vertical (Peak)

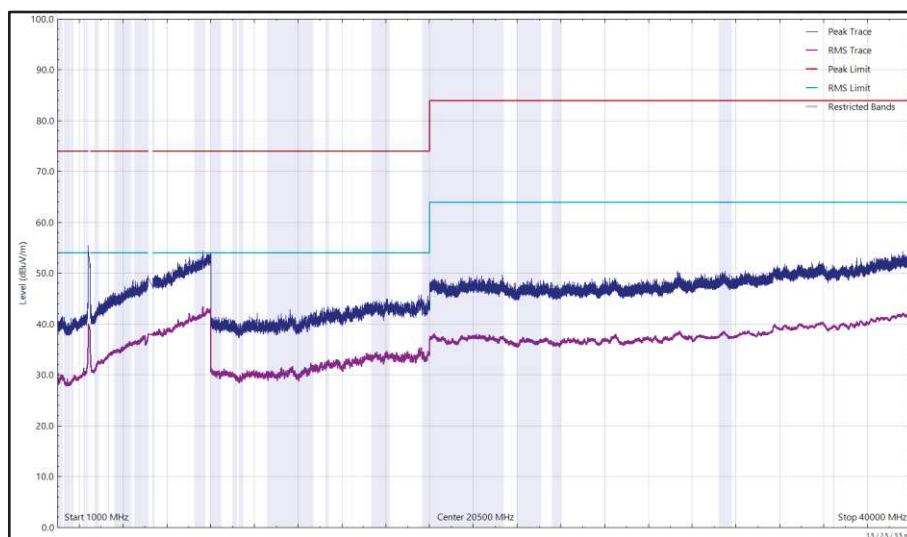


Figure 33 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR8, Core 0, ePA, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
5374.472	38.28	54.00	-15.72	RMS	292	131	Vertical

Table 15 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz (CH5788), HDR4, Core 0, ePA, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

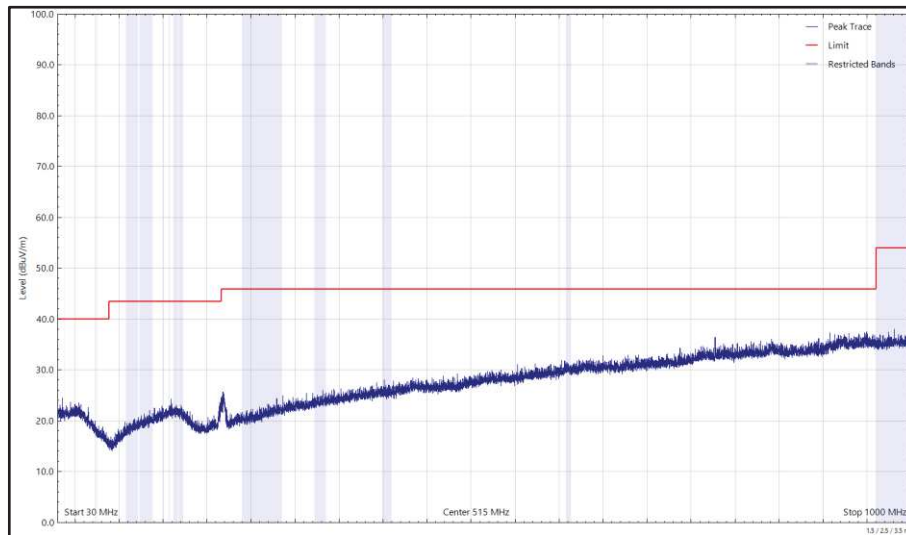


Figure 34 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz (CH5788), HDR4, Core 0, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

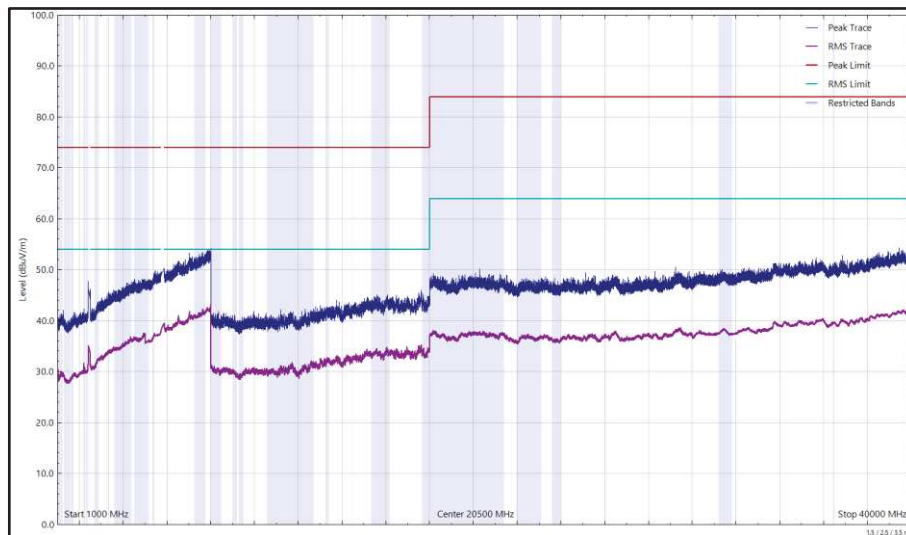


Figure 35 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz (CH5788), HDR4, Core 0, ePA, 1 GHz to 40 GHz, Horizontal

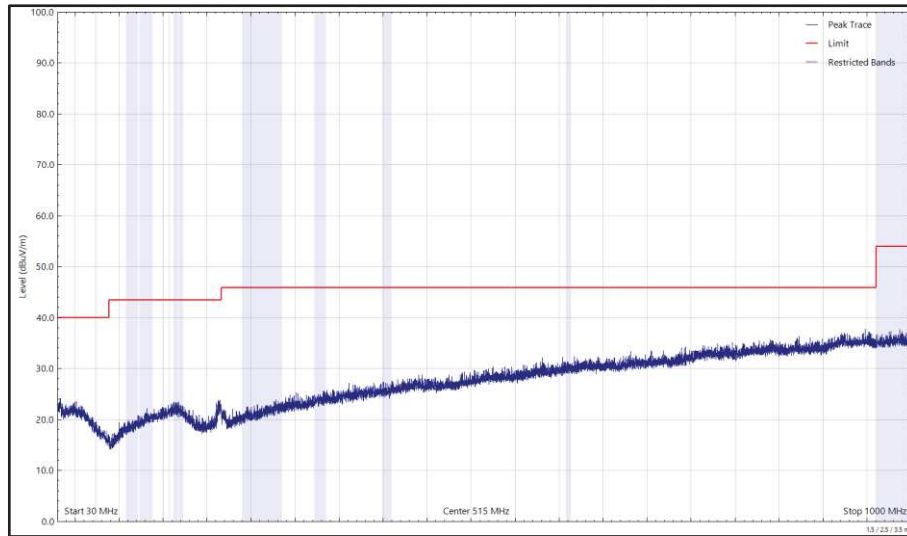


Figure 36 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz (CH5788), HDR4, Core 0, ePA, 30 MHz to 1 GHz, Vertical (Peak)

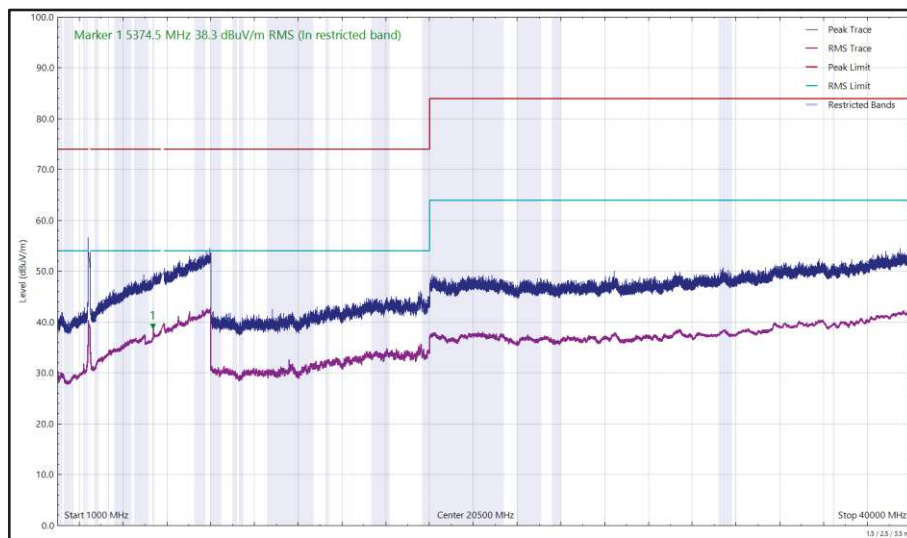


Figure 37 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz (CH5788), HDR4, Core 0, ePA, 1 GHz to 40 GHz, Vertical



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 dB μ V/m at 3m, Average 54 dB μ V/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
4879.030	42.77	54.00	-11.23	RMS	106	110	Vertical
4879.095	38.13	54.00	-15.87	RMS	272	106	Horizontal

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 other emissions found within 10 dB of the limit.

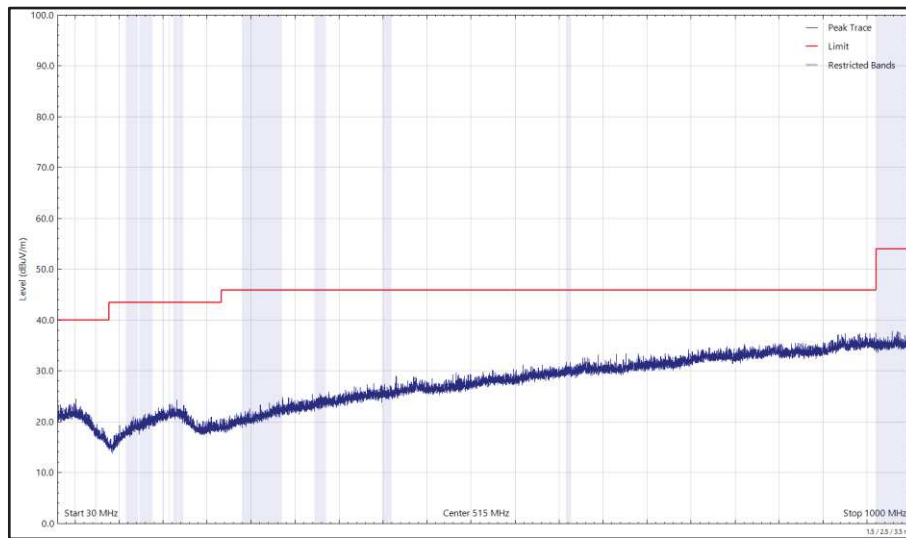


Figure 38 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 – 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

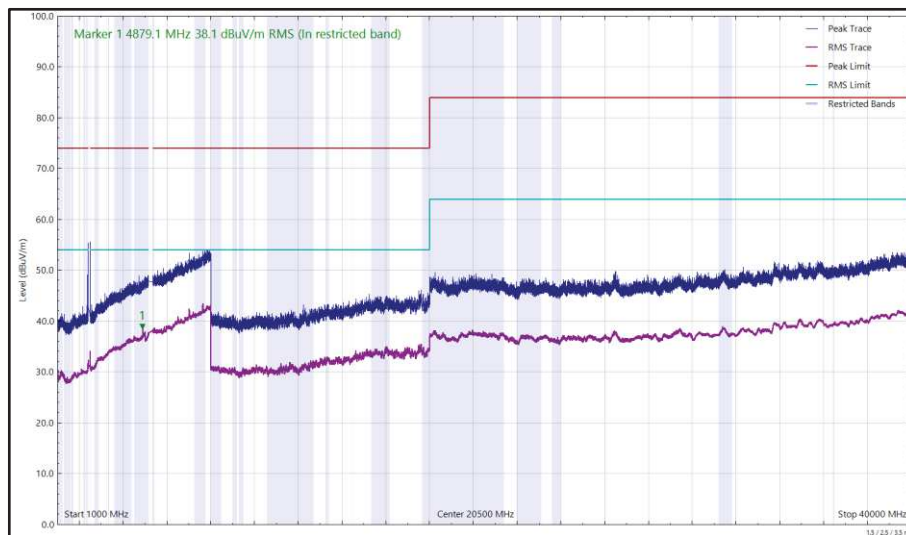


Figure 39 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

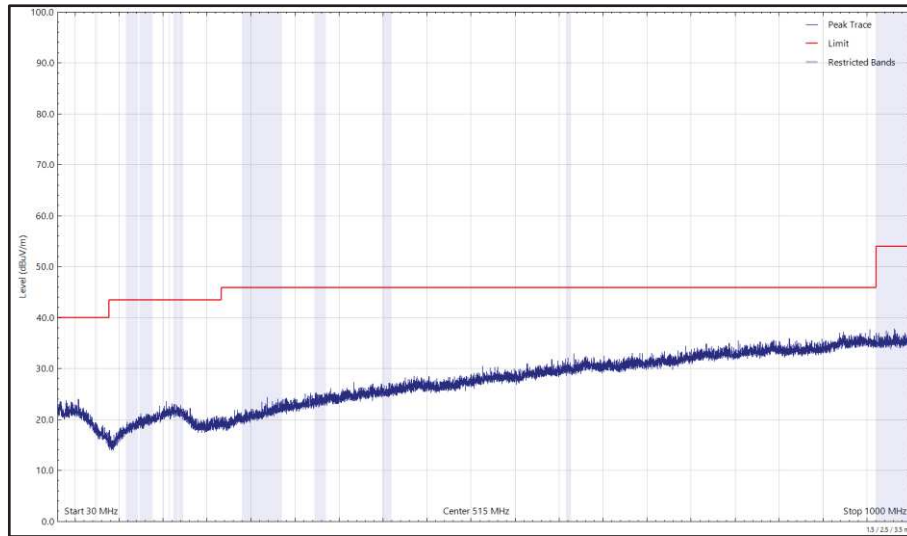


Figure 40 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

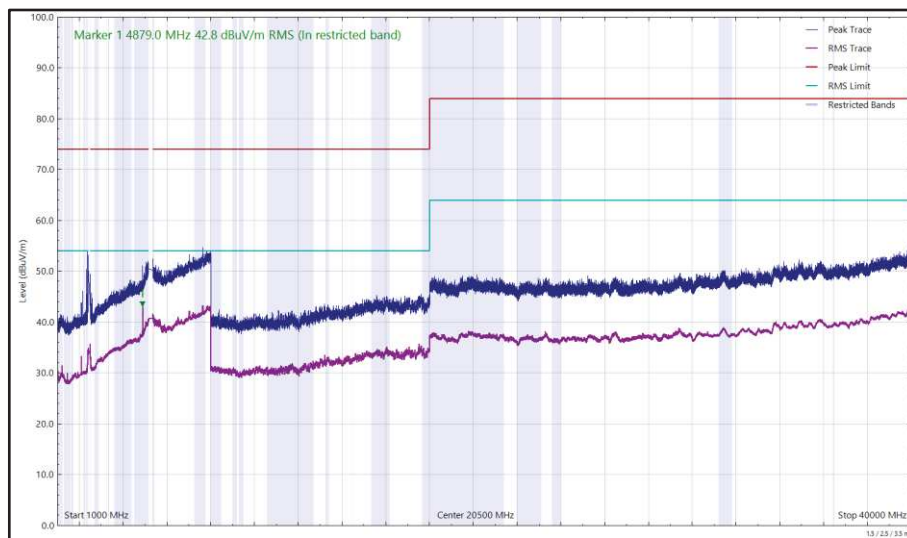


Figure 41 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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.

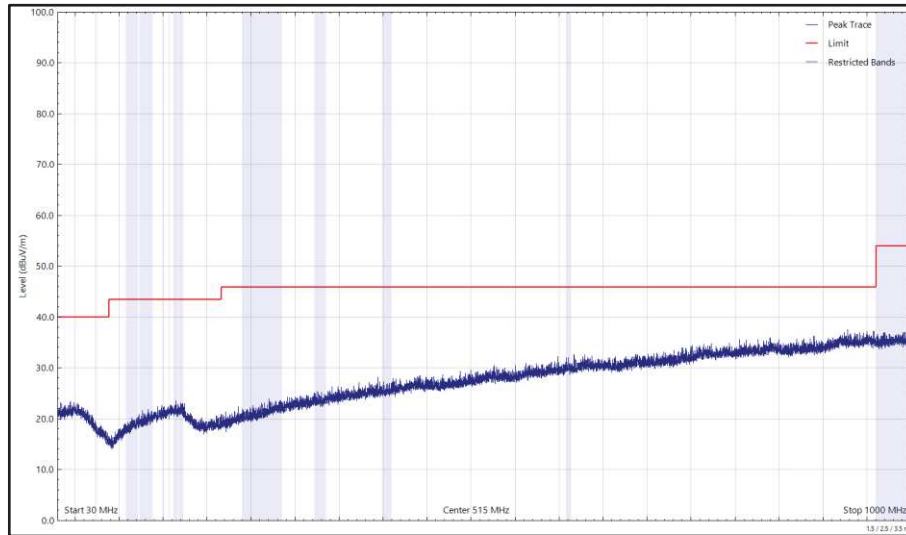


Figure 42 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

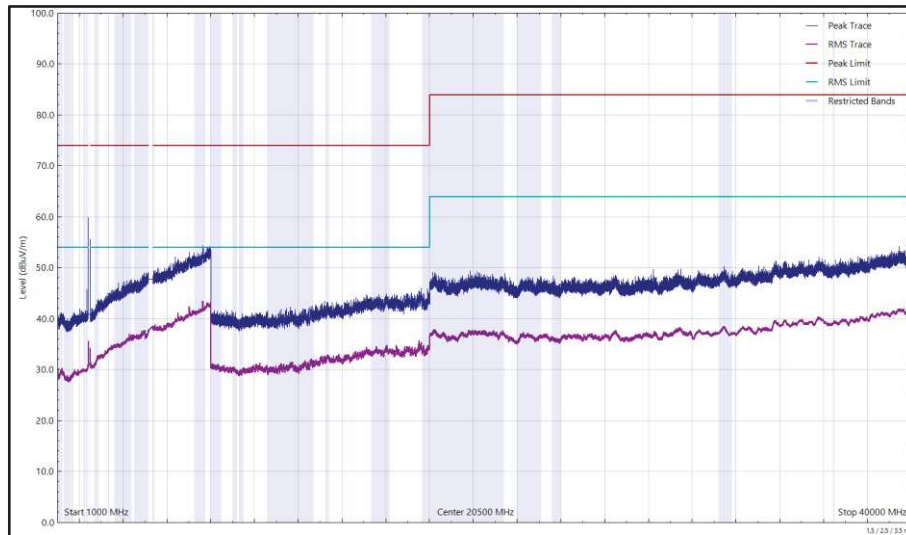


Figure 43 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

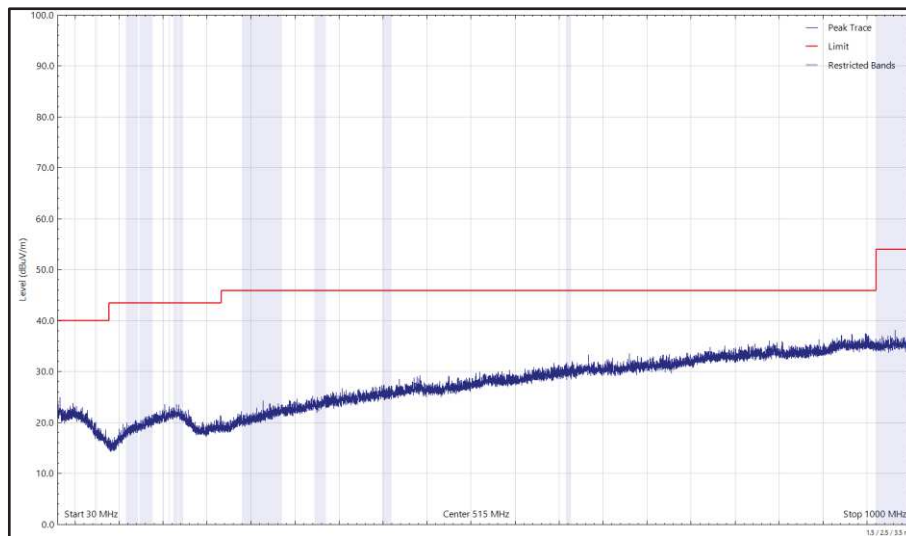


Figure 44 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

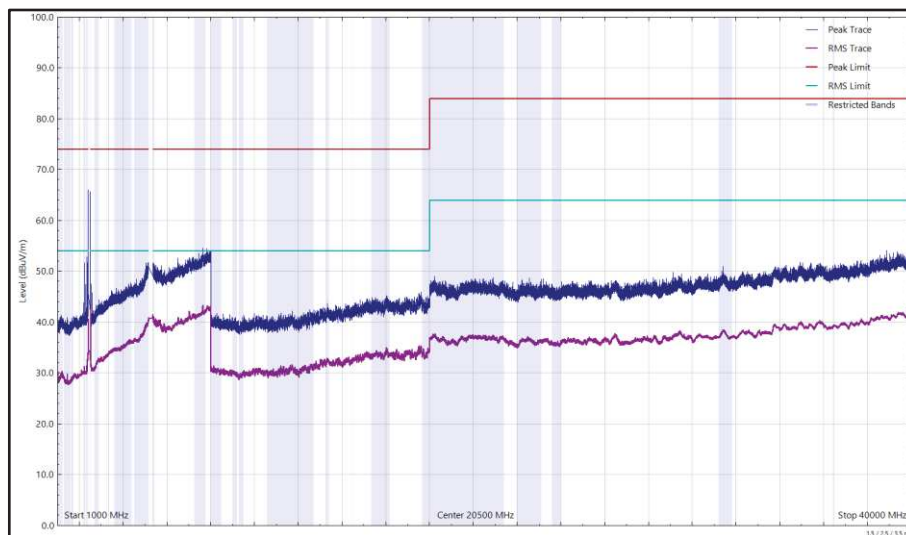


Figure 45 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4881.015	36.56	54.00	-17.44	RMS	97	250	Vertical

Table 19 - 2440 MHz (CH18), Thread, ePA, Core 2 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.

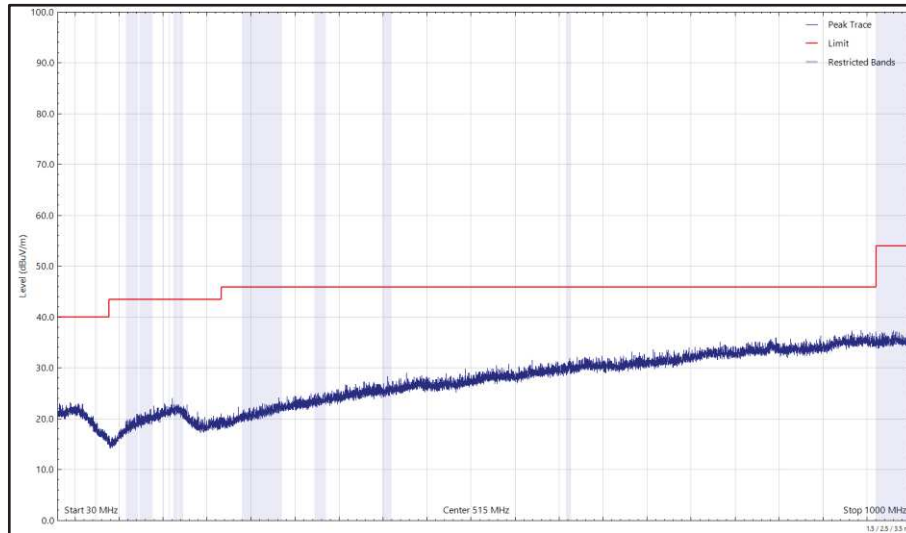


Figure 46 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-1 – 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

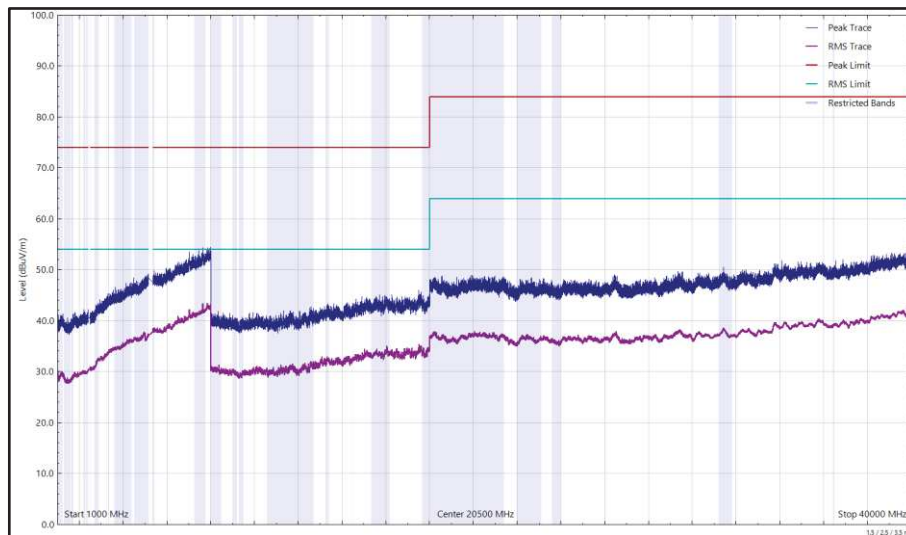


Figure 47 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

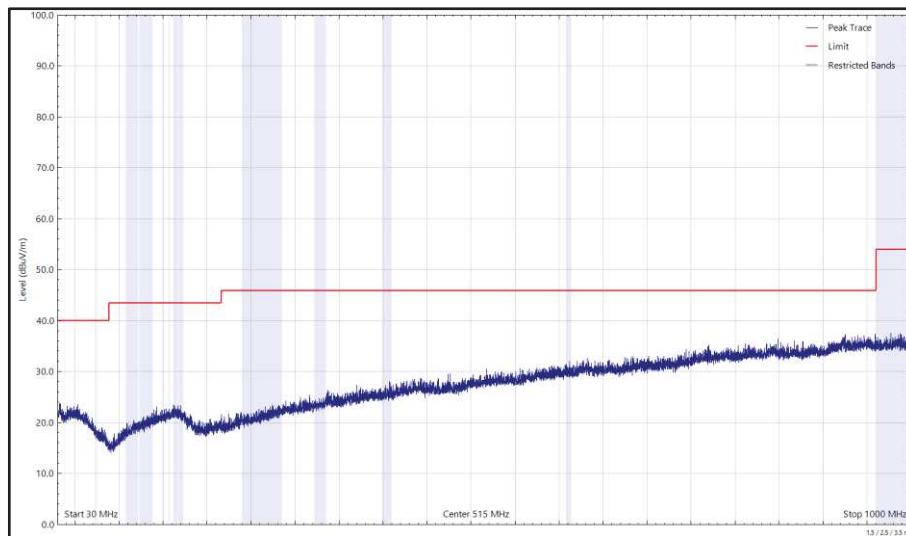


Figure 48 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-1 – 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

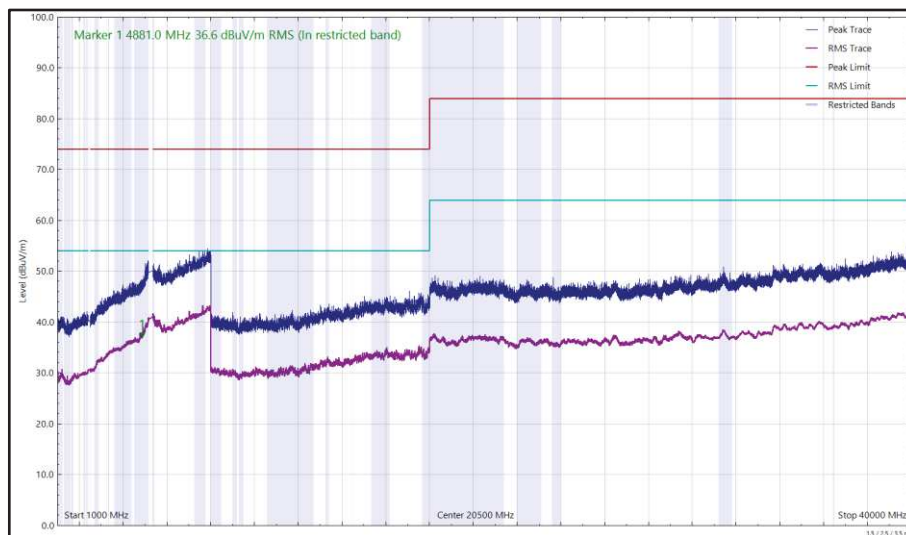


Figure 49 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-1 - 5240 MHz (CH48), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2382.221	66.29	74.00	-7.71	Peak	155	105	Vertical
4879.050	42.81	54.00	-11.19	RMS	153	109	Vertical

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 other emissions found within 10 dB of the limit.

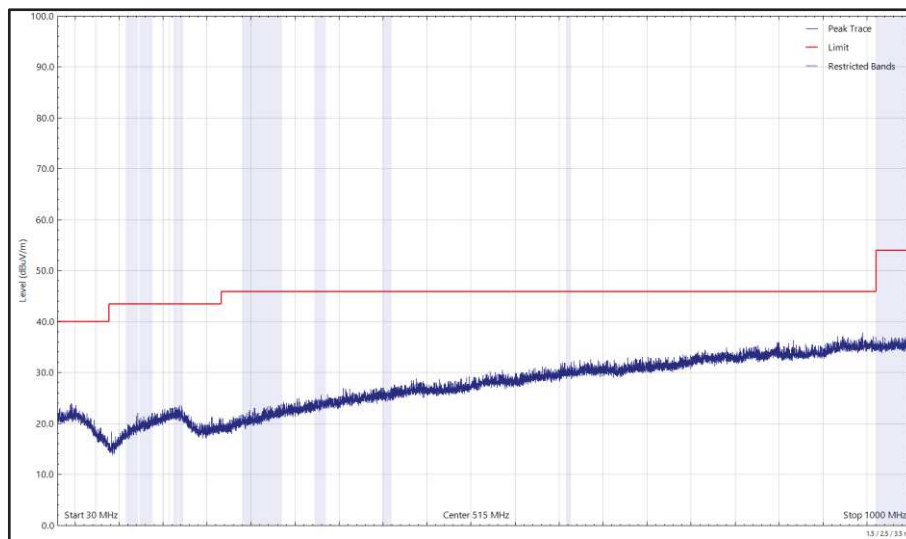


Figure 50 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

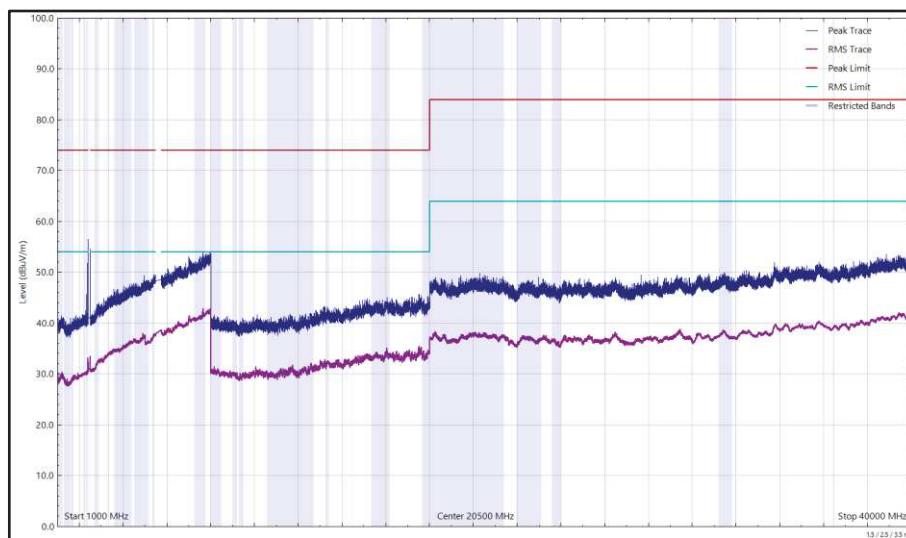


Figure 51 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

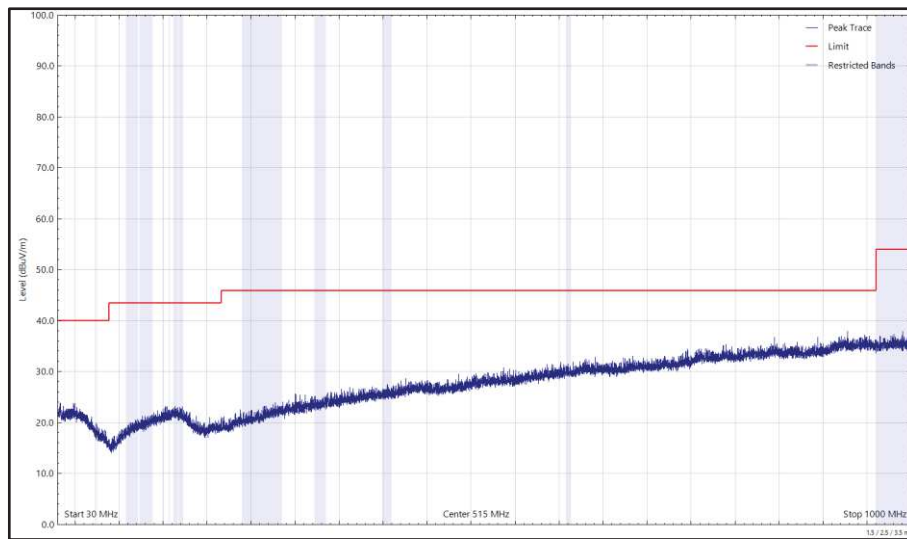


Figure 52 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

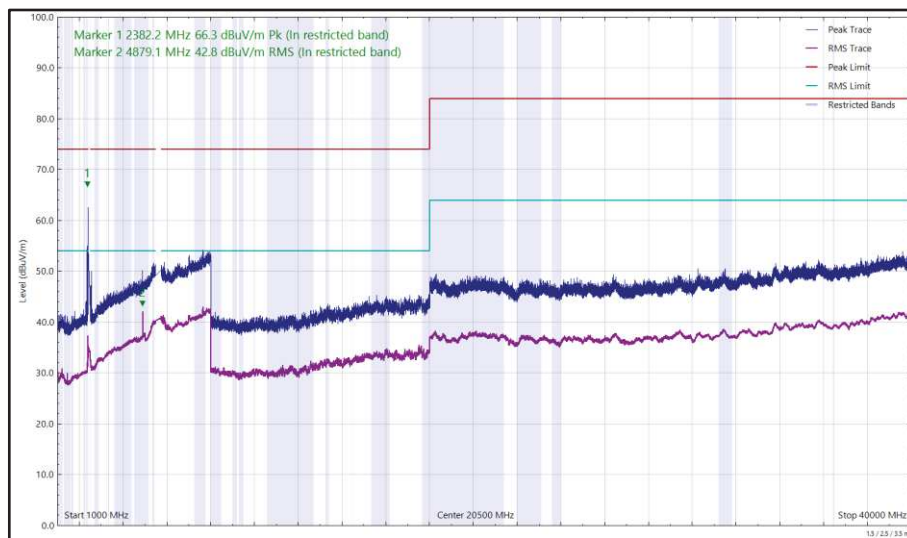


Figure 53 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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.

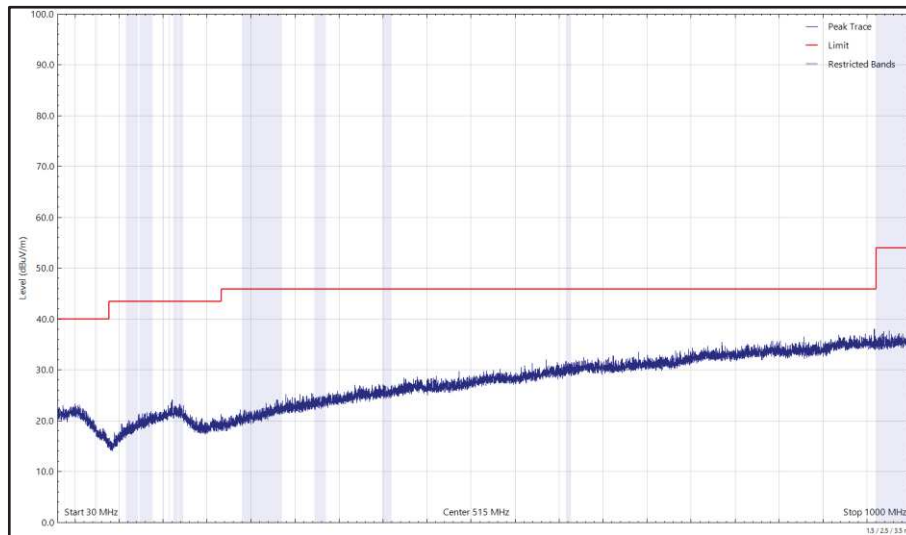


Figure 54 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

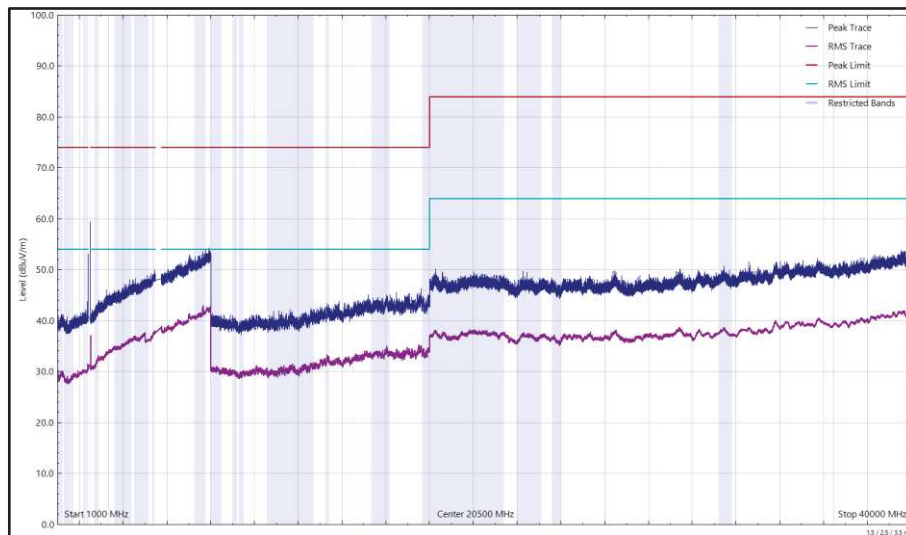


Figure 55 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

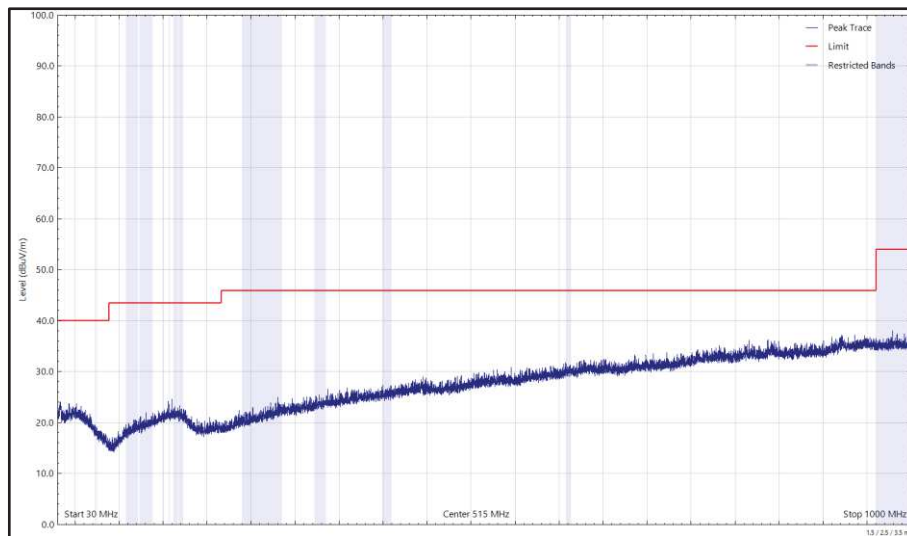


Figure 56 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

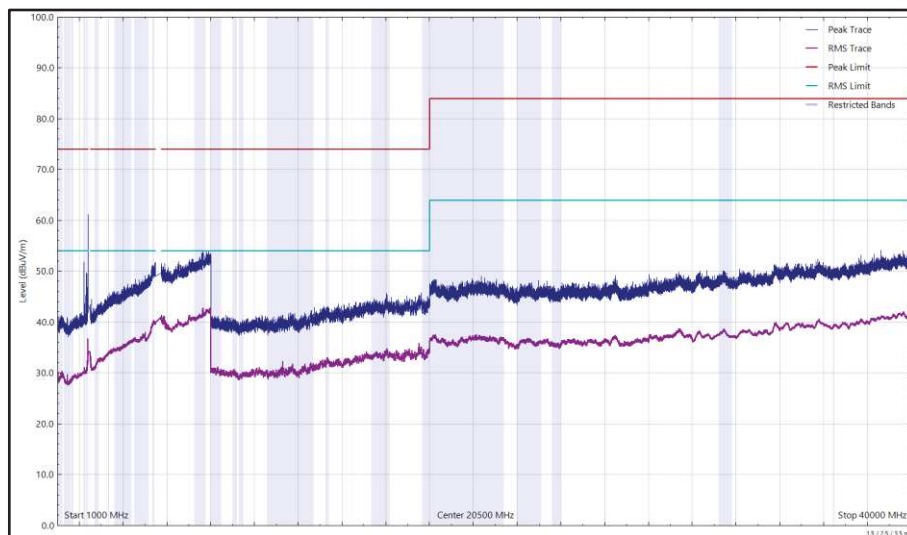


Figure 57 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
11280.117	33.42	54.00	-20.58	RMS	328	104	Vertical

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

No other emissions found within 10 dB of the limit.

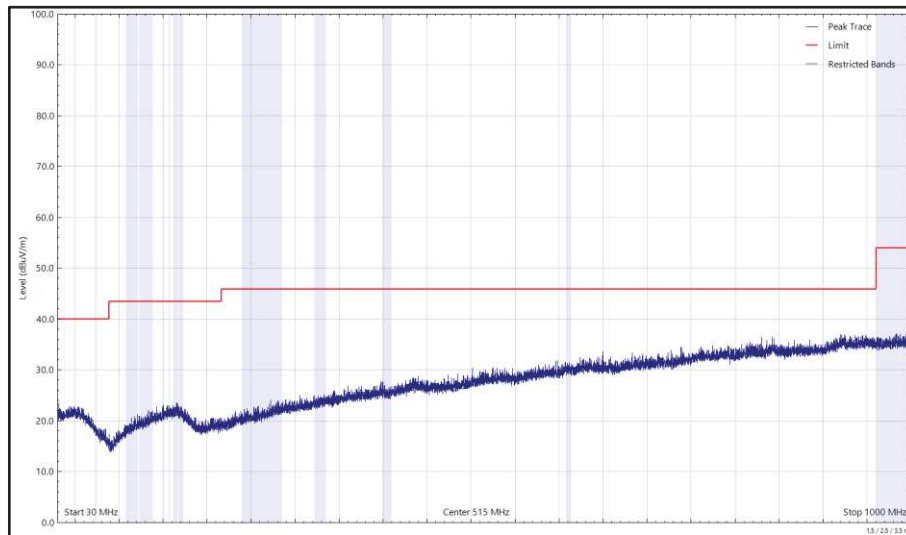


Figure 58 - 2440 MHz (CH18), Thread, ePA and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

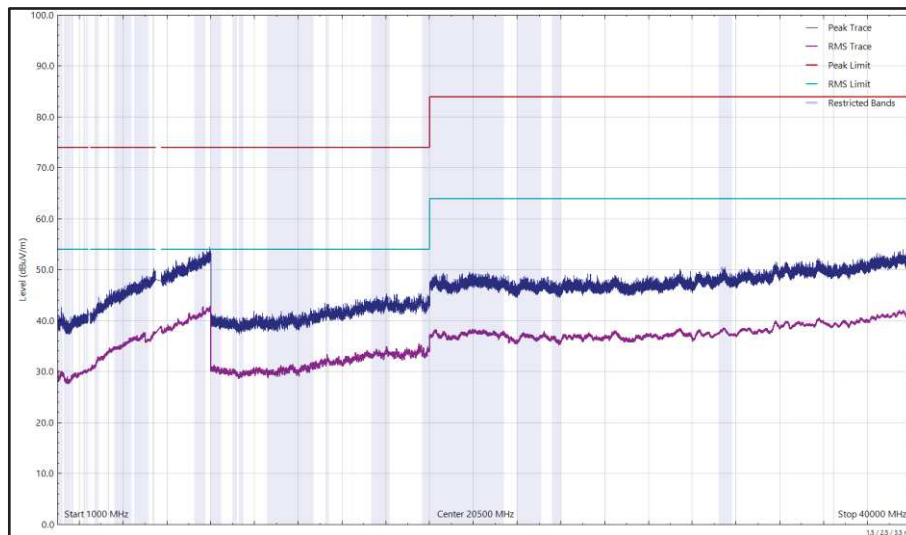


Figure 59 - 2440 MHz (CH18), Thread, ePA and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, Core 2, 1 GHz to 40 GHz, Horizontal

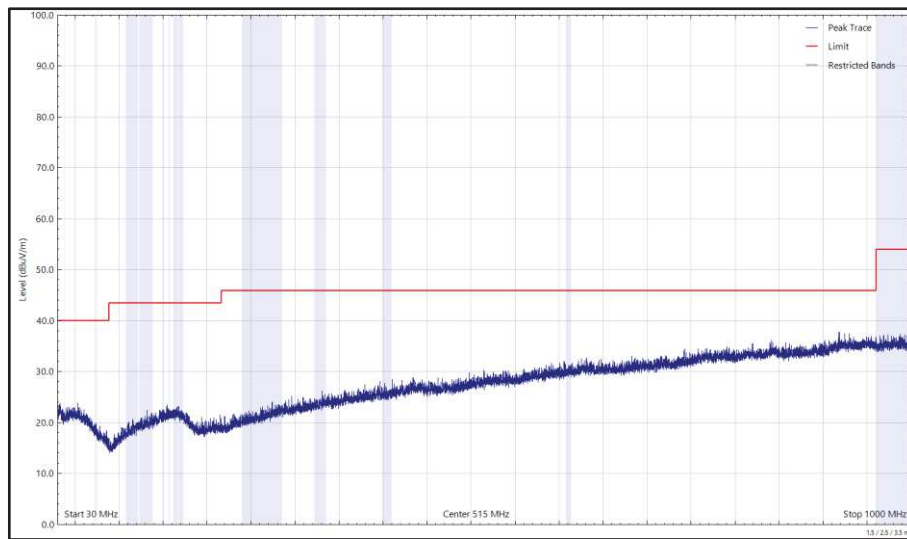


Figure 60 - 2440 MHz (CH18), Thread, ePA and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

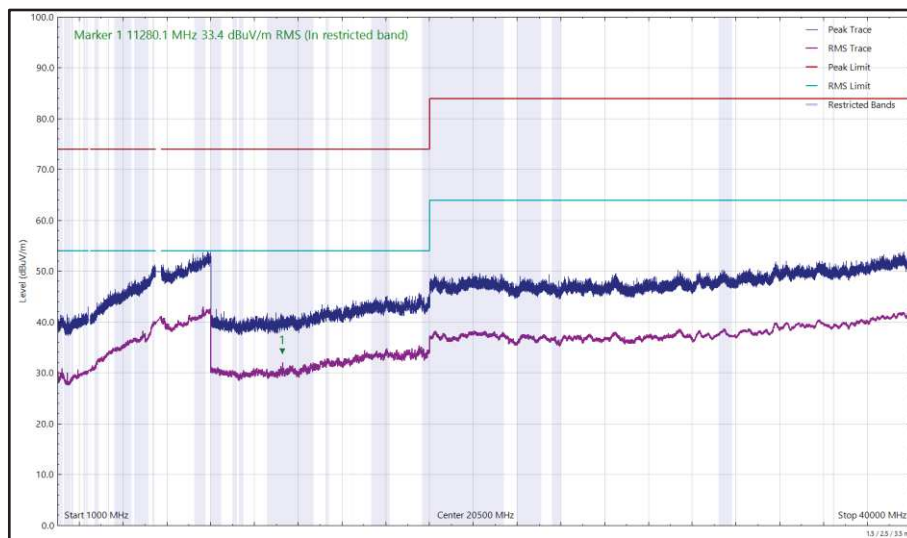


Figure 61 - 2440 MHz (CH18), Thread, ePA and U-NII-2C - 5640 MHz (CH128), VHT20, CDD, Core 0 + Core 1, Core 2, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2371.677	64.46	74.00	-9.54	Peak	293	109	Vertical
4880.935	43.92	54.00	-10.08	RMS	115	101	Vertical
4881.045	38.46	54.00	-15.54	RMS	286	133	Horizontal
11570.028	33.27	54.00	-20.73	RMS	325	158	Vertical

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 other emissions found within 10 dB of the limit.

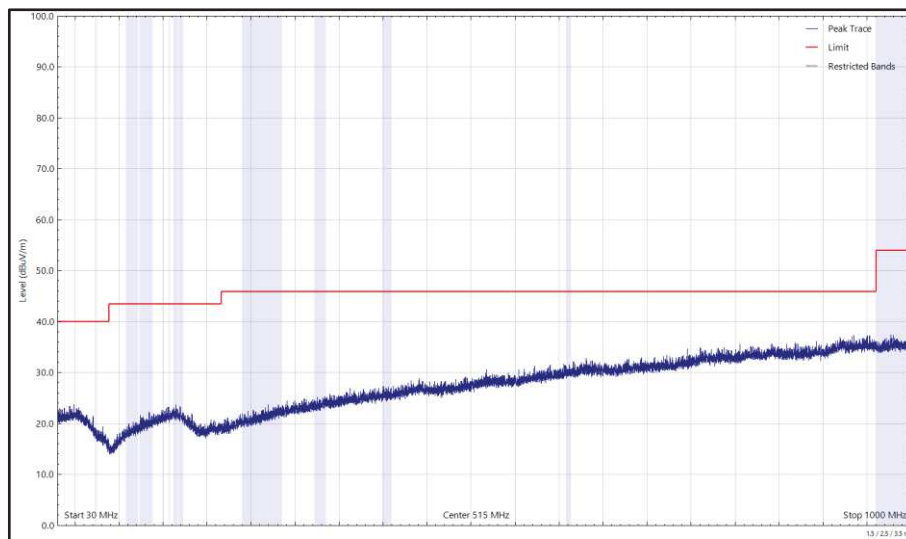


Figure 62 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

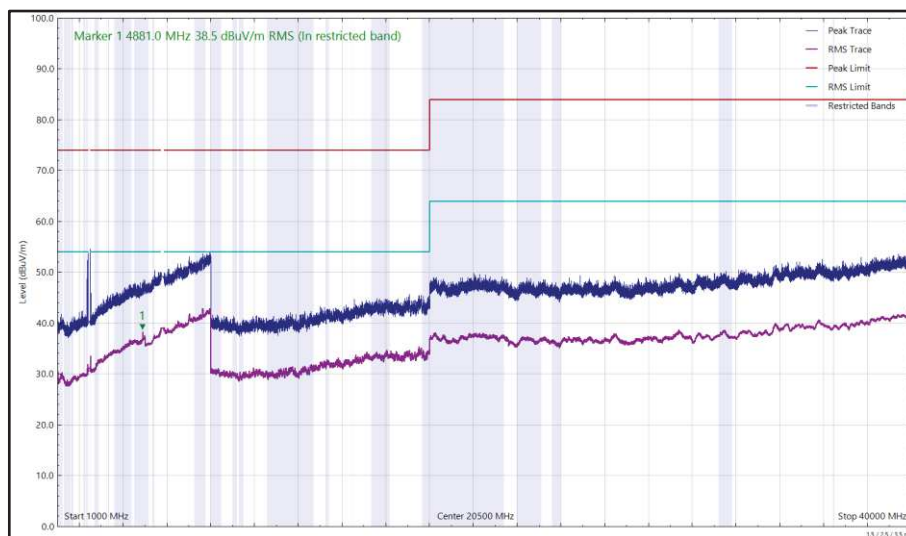


Figure 63 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

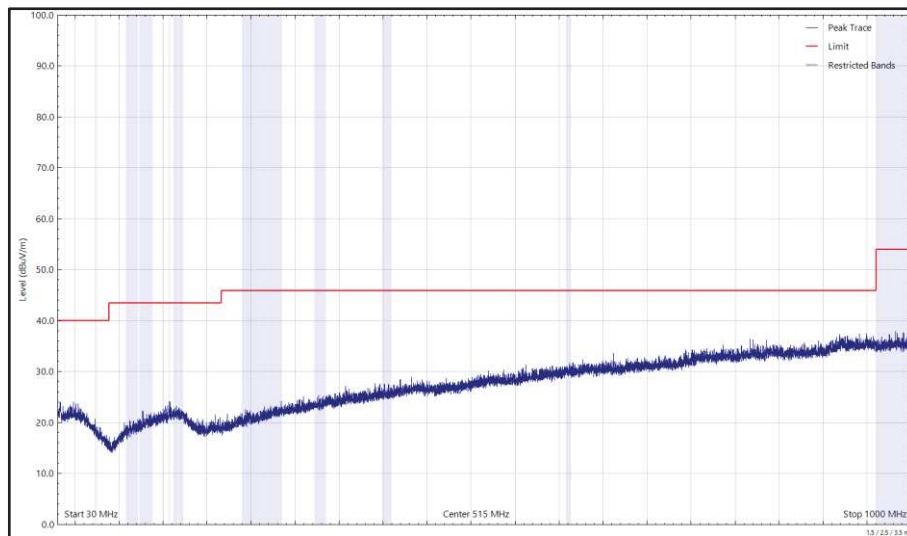


Figure 64 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

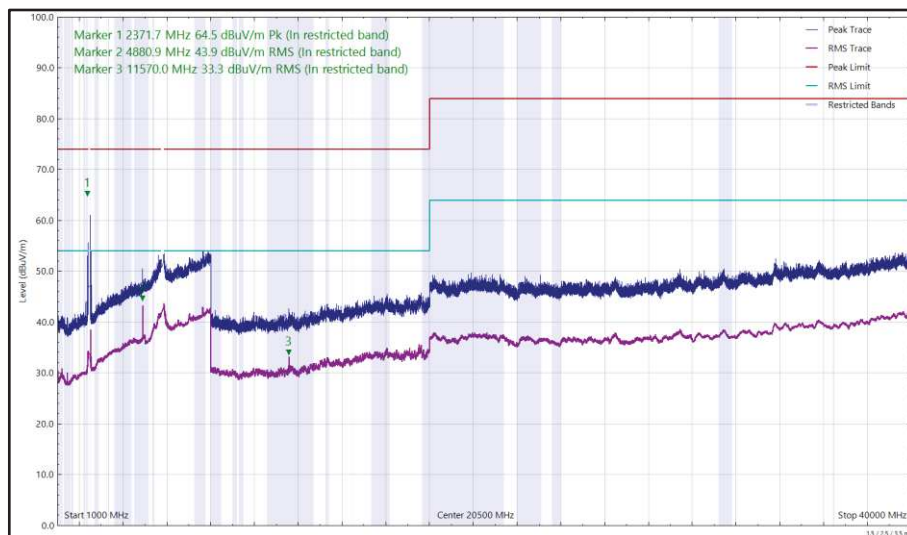


Figure 65 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2383.400	62.20	74.00	-11.80	Peak	176	107	Vertical
2390.572	66.22	90.76	-24.54	Peak	19	109	Vertical
11570.075	34.22	54.00	-19.78	RMS	326	108	Vertical

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 other emissions found within 10 dB of the limit.

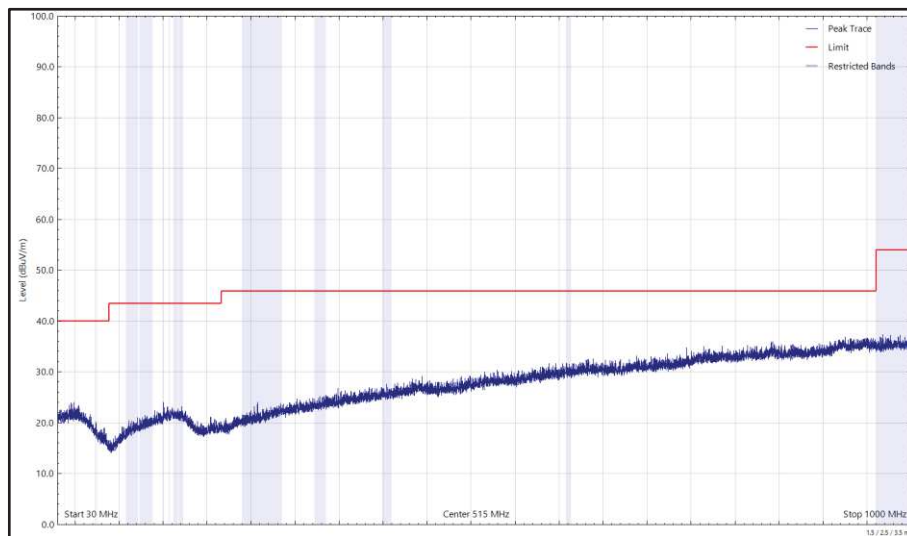


Figure 66 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

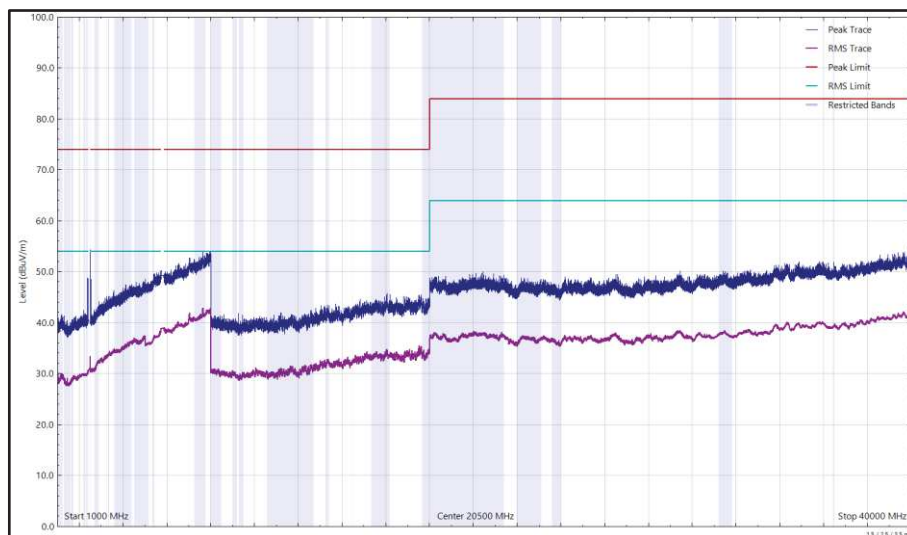


Figure 67 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

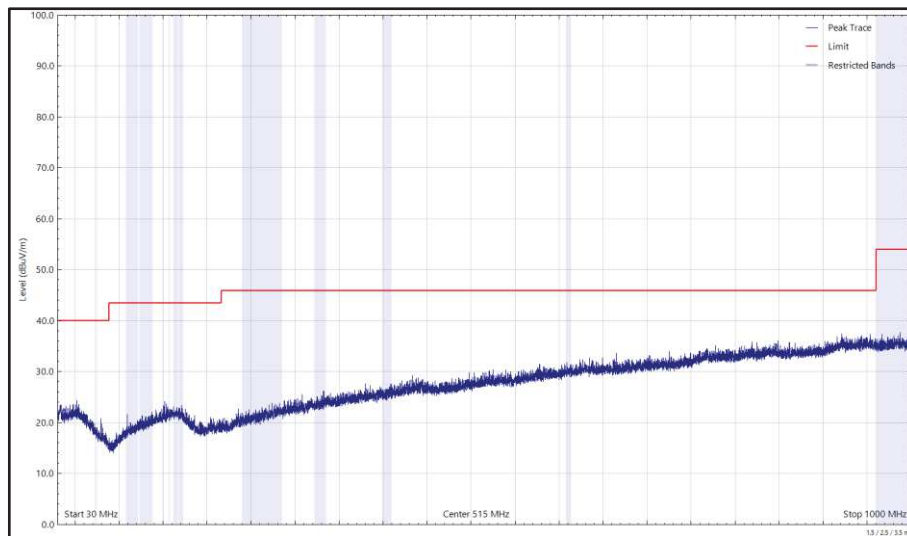


Figure 68 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

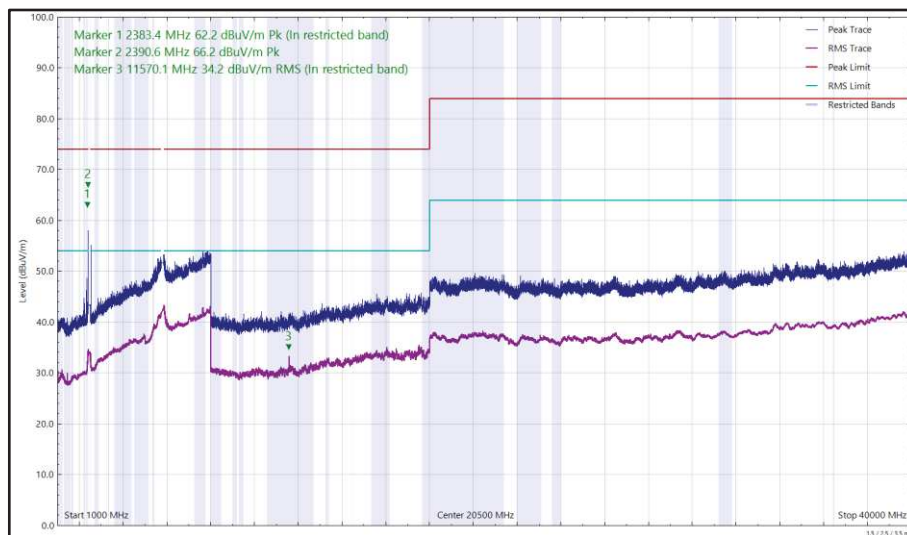


Figure 69 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
11570.146	34.99	54.00	-19.01	RMS	327	103	Vertical

Table 25 - 2440 MHz (CH18), Thread, ePA, Core 2 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.

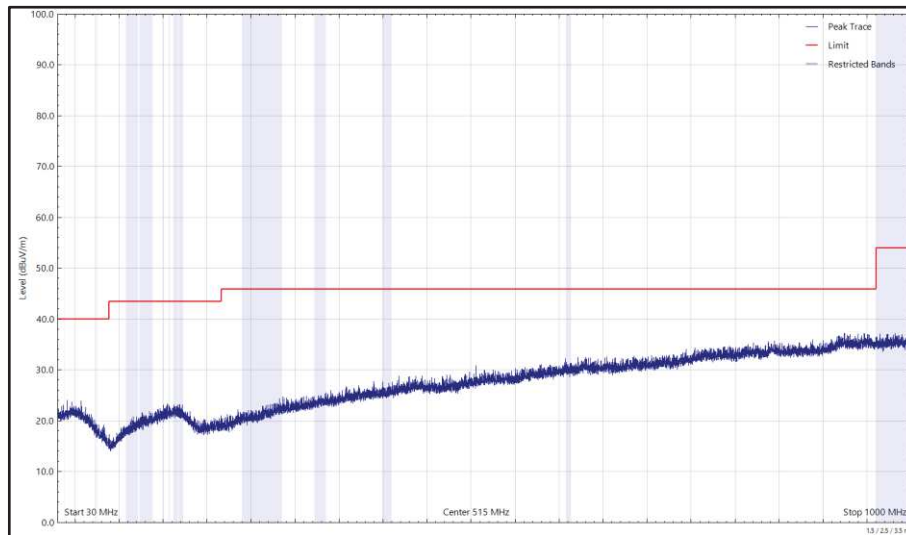


Figure 70 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

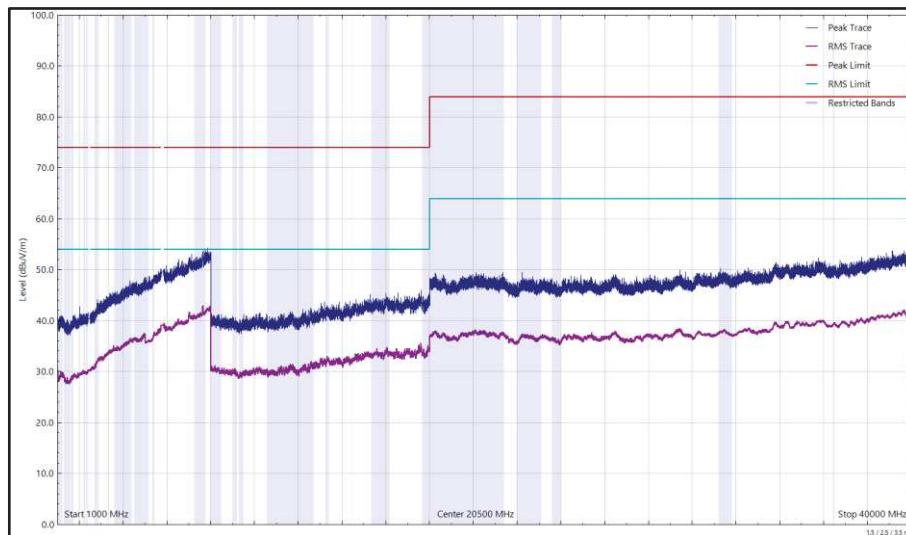


Figure 71 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

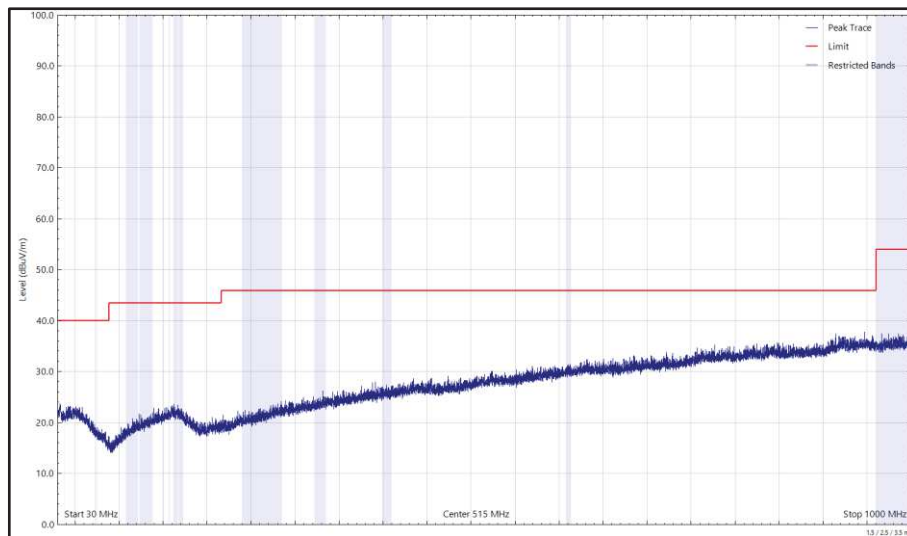


Figure 72 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

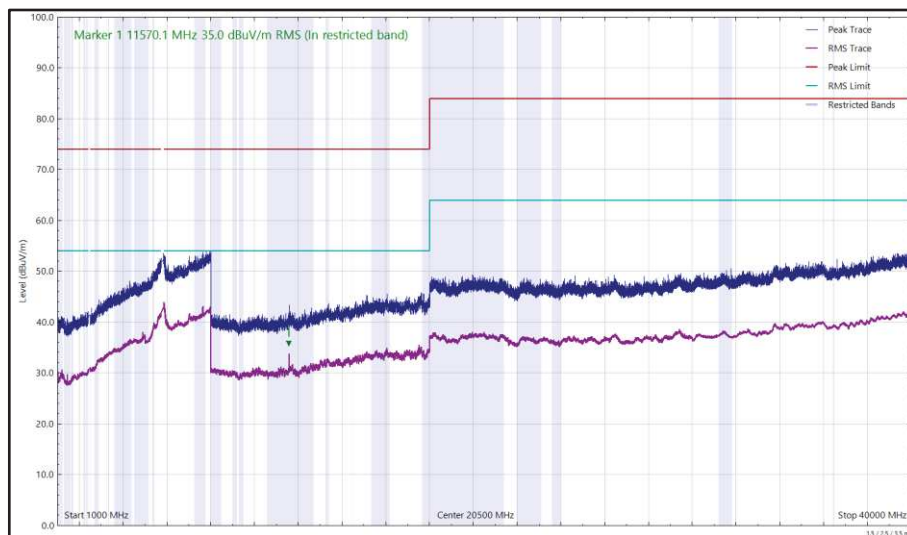


Figure 73 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-3 - 5785 MHz (CH157), VHT20, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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 dB μ V/m at 3m, Average 54 dB μ V/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
2345.882	59.14	74.00	-14.86	Peak	145	267	Vertical
2383.578	56.46	74.00	-17.54	Peak	21	100	Horizontal
2391.623	61.55	88.2	-26.65	Peak	294	144	Horizontal
2393.691	70.69	88.2	-17.51	Peak	125	160	Vertical
2398.048	69.53	88.2	-18.67	Peak	168	216	Vertical
2493.349	59.80	74.00	-14.20	Peak	279	221	Horizontal
7321.291	40.86	54.00	-13.14	RMS	263	205	Horizontal
7321.356	43.56	54.00	-10.44	RMS	283	148	Vertical

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 other emissions found within 10 dB of the limit.

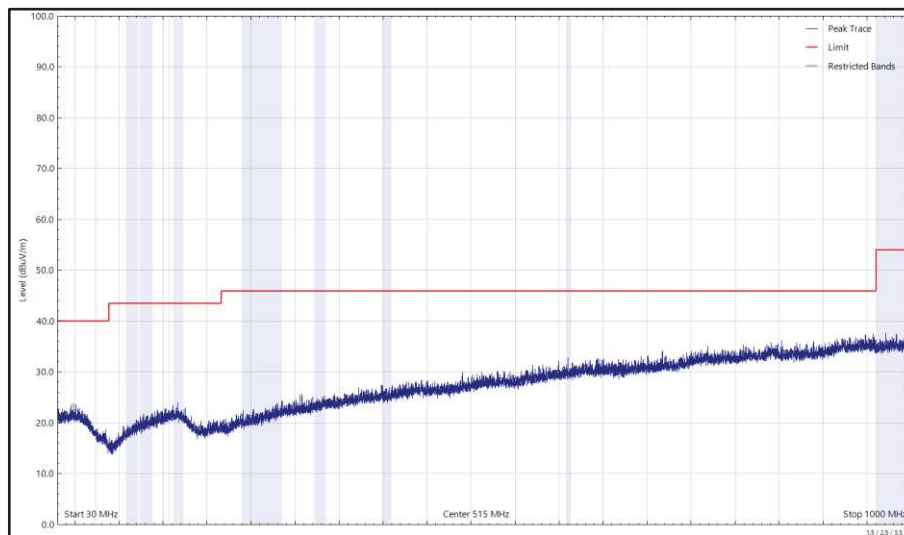


Figure 74 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

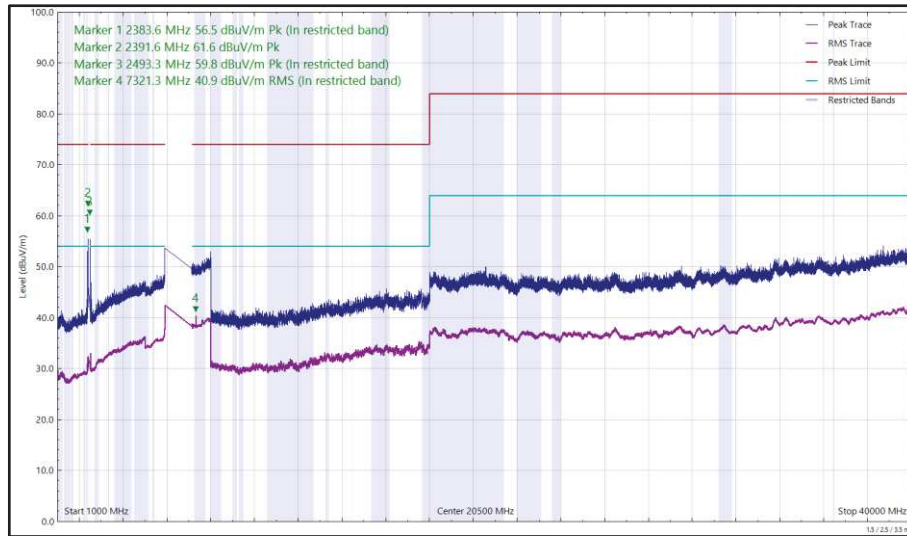


Figure 75 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

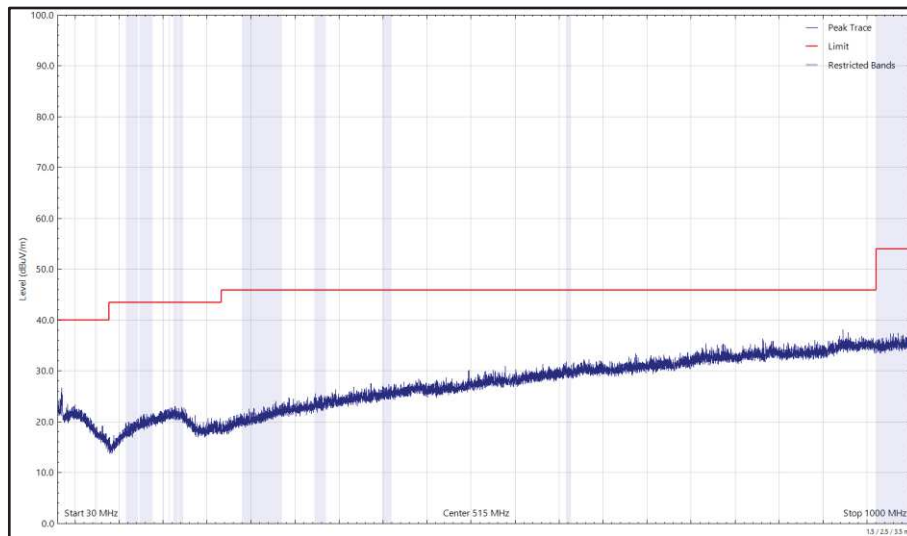


Figure 76 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

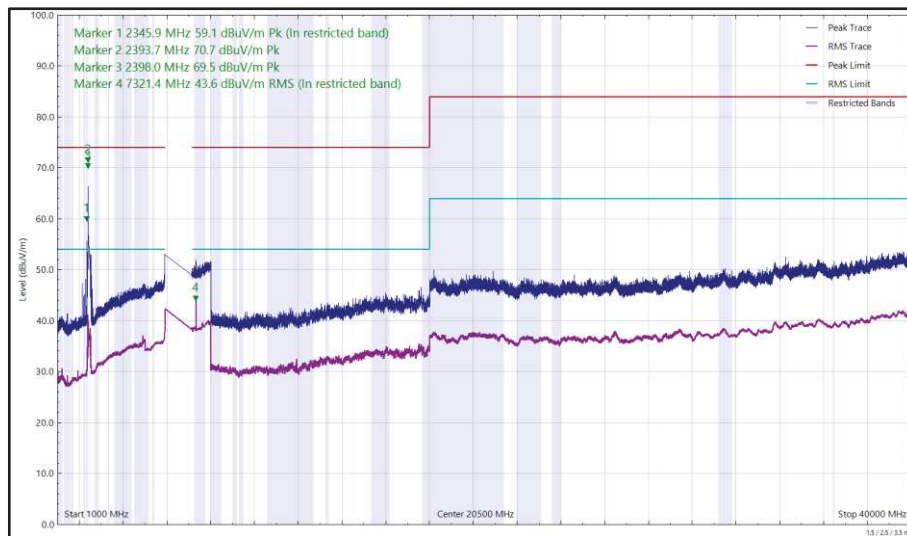


Figure 77 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2359.587	60.48	74.00	-13.52	Peak	53	128	Vertical
2385.132	66.48	74.00	-7.52	Peak	53	179	Vertical
2399.503	61.67	88.2	-26.53	Peak	242	148	Horizontal
2511.198	63.71	88.2	-24.49	Peak	10	138	Vertical

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 other emissions found within 10 dB of the limit.

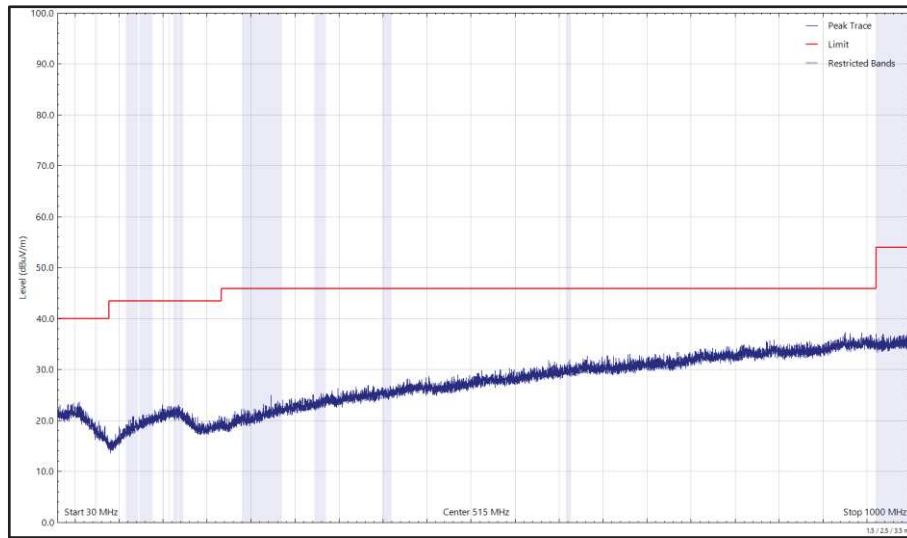


Figure 78 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

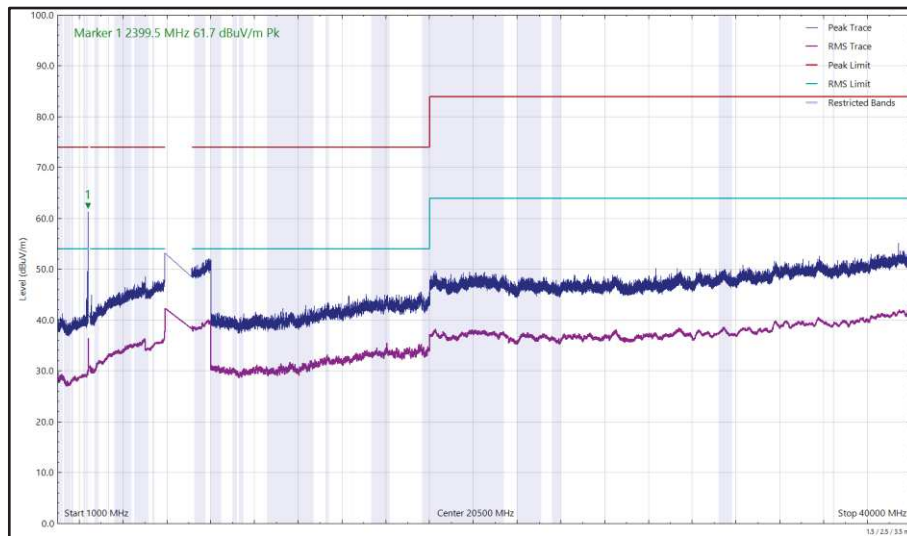


Figure 79 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

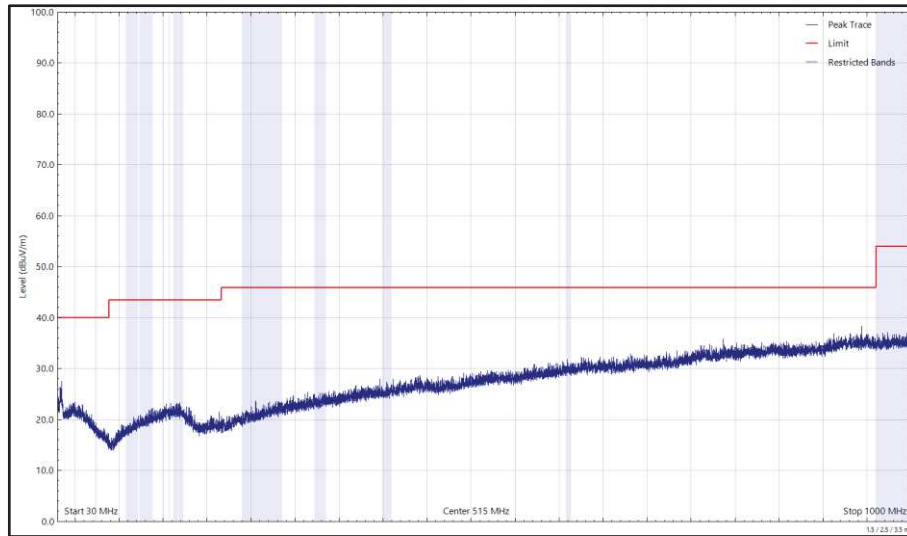


Figure 80 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

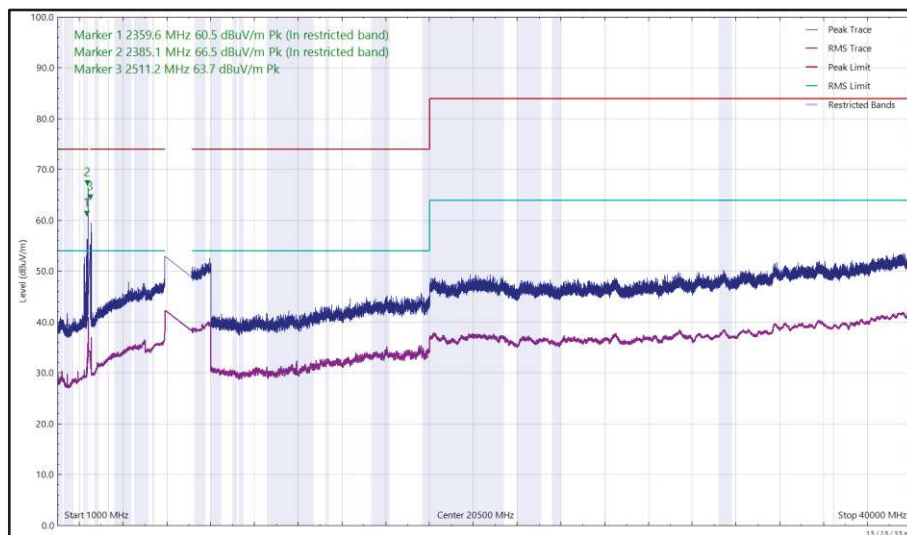


Figure 81 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
7321.457	38.97	54.00	-15.03	RMS	346	132	Vertical

Table 29 - 2440 MHz (CH18), Thread, ePA, Core 2 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.

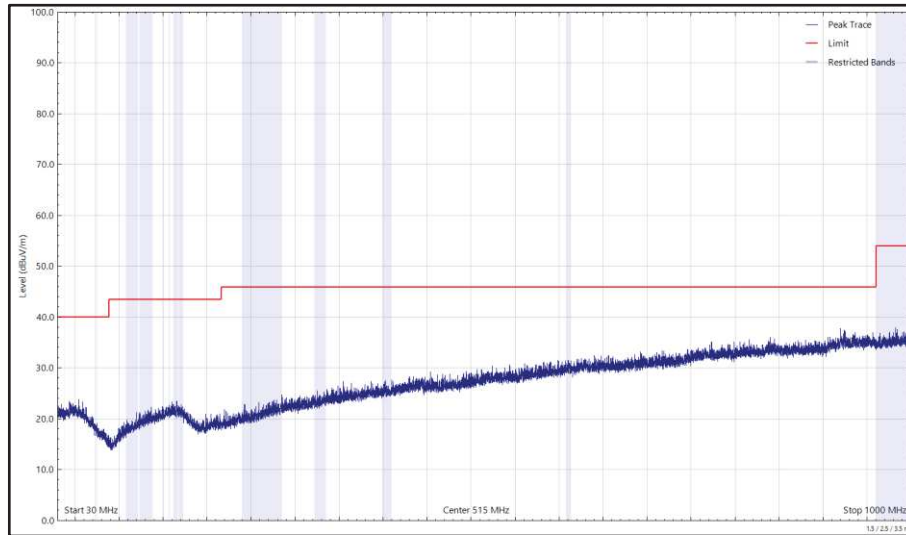


Figure 82 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

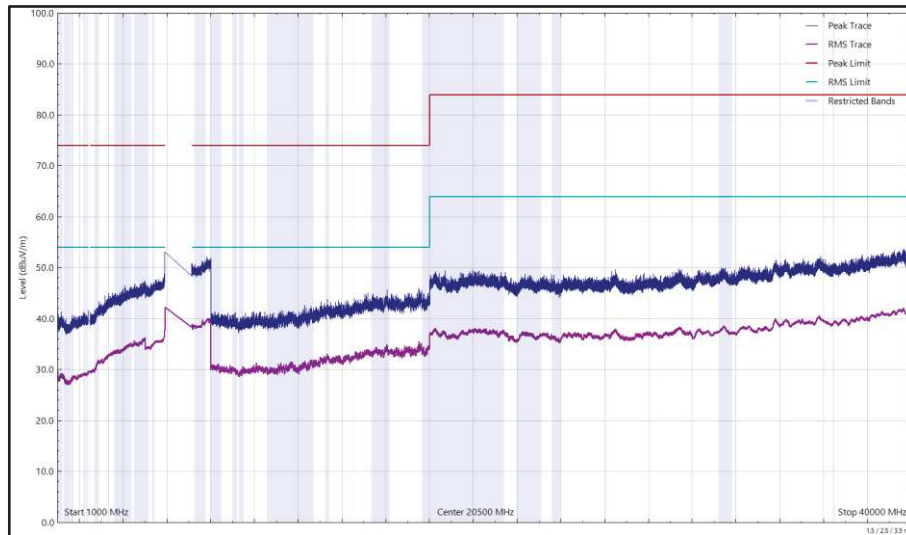


Figure 83 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

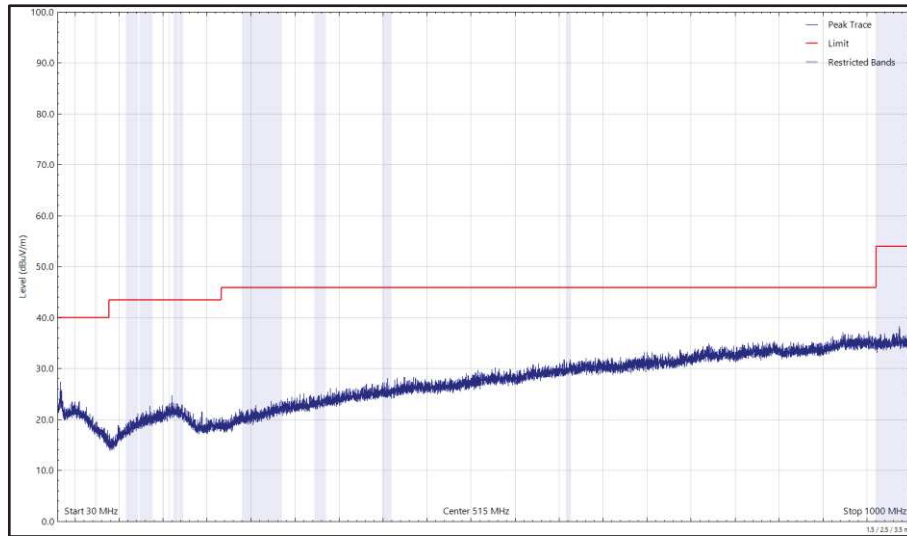


Figure 84 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

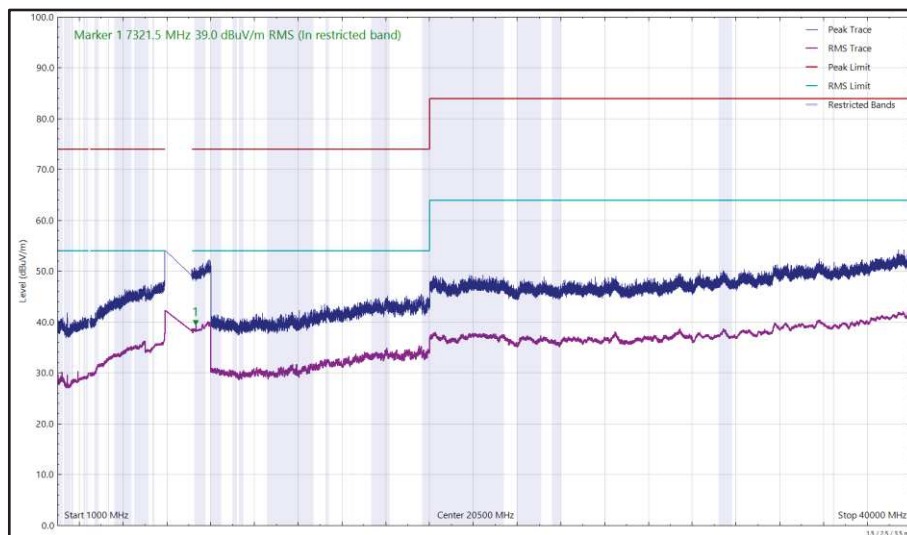


Figure 85 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-5 - 5955 MHz (CH1), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2394.868	71.37	88.2	-16.83	Peak	139	128	Vertical
2395.194	37.41	54.00	-16.59	RMS	139	128	Vertical
2399.332	62.86	88.2	-25.34	Peak	249	439	Horizontal
2504.676	66.76	88.2	-21.44	Peak	294	116	Vertical
7321.345	44.40	54.00	-9.60	RMS	284	149	Vertical

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 other emissions found within 10 dB of the limit.

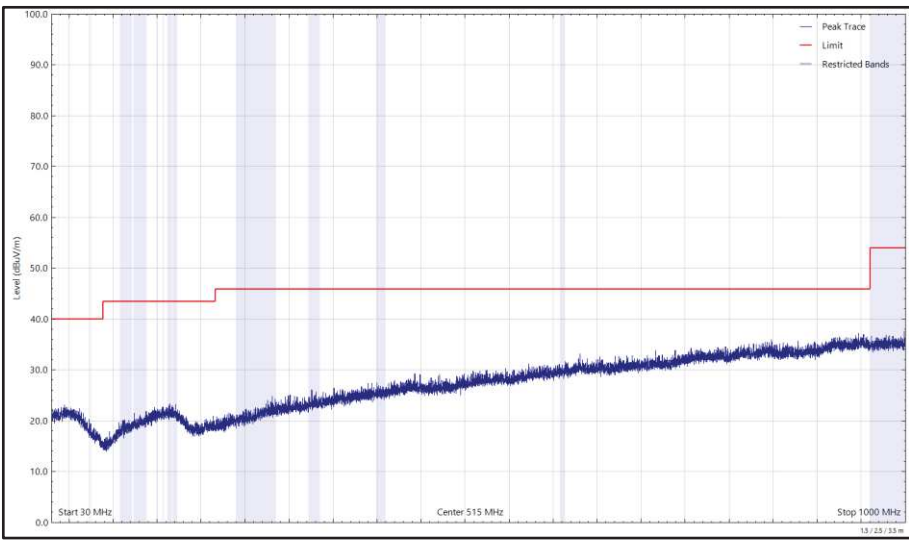


Figure 86 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

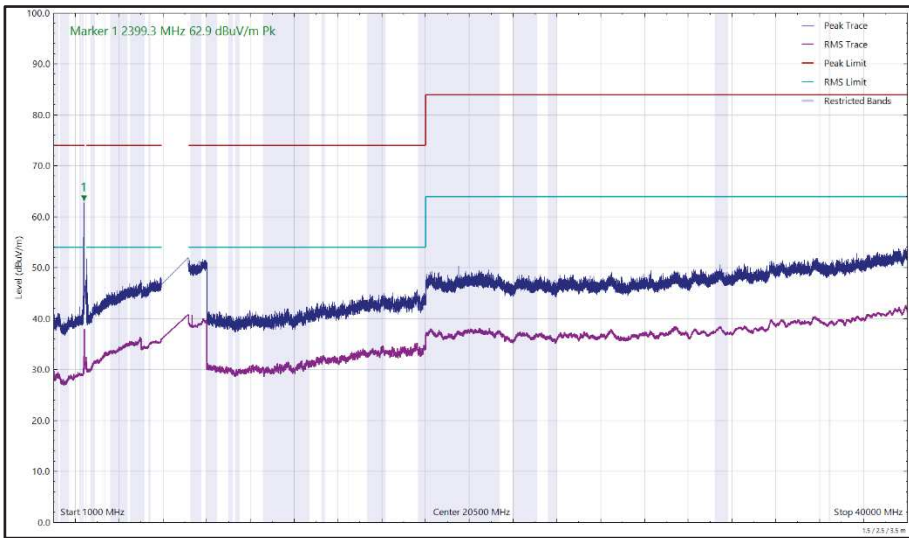


Figure 87 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

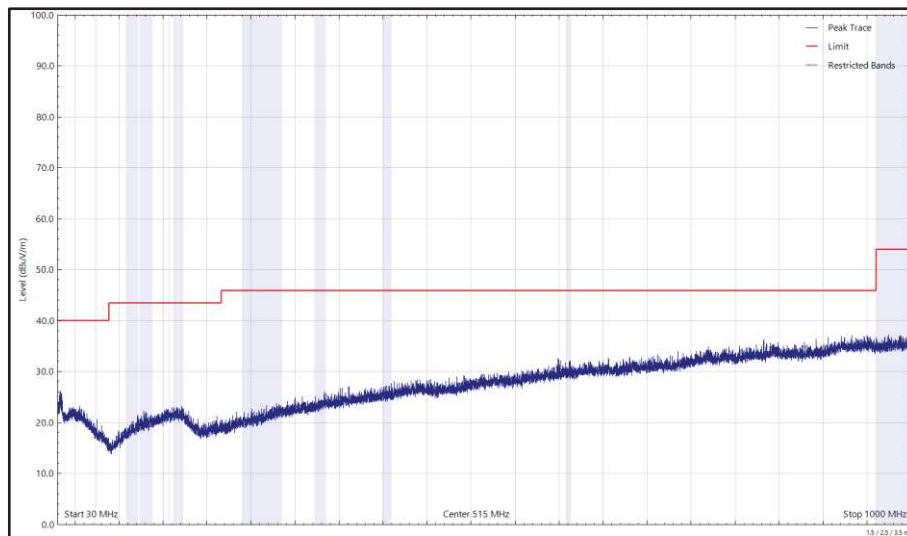


Figure 88 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

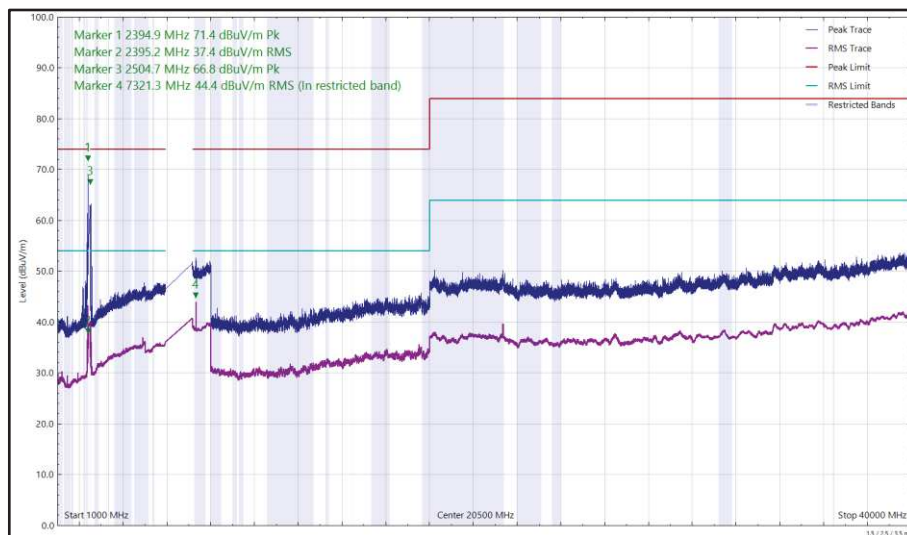


Figure 89 - 2440 MHz (CH18), Thread, ePA, Core 0 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2394.319	69.19	88.2	-19.01	Peak	30	377	Vertical
2394.805	55.94	88.2	-32.26	Peak	280	183	Horizontal
2396.328	36.18	68.2	-32.02	RMS	30	377	Vertical
2492.067	68.83	74.00	-5.17	Peak	59	165	Vertical

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 other emissions found within 10 dB of the limit.

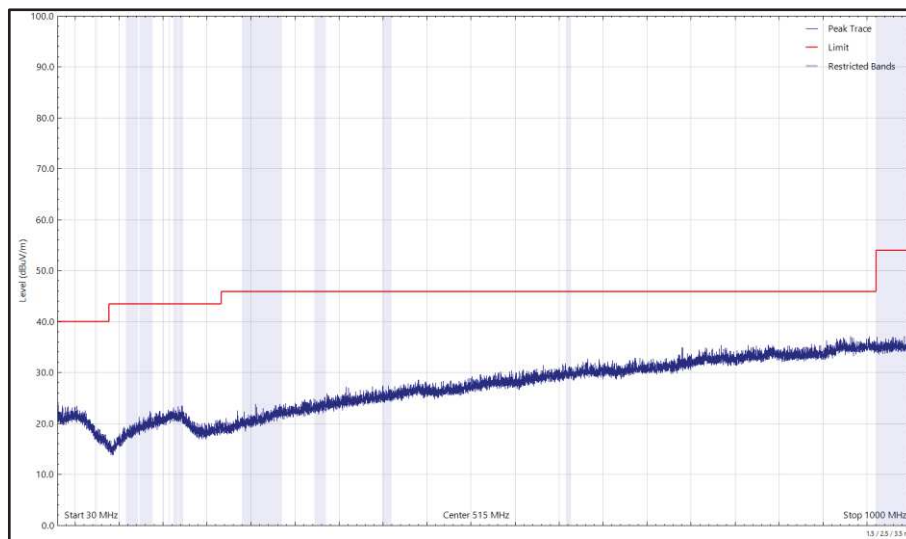


Figure 90 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

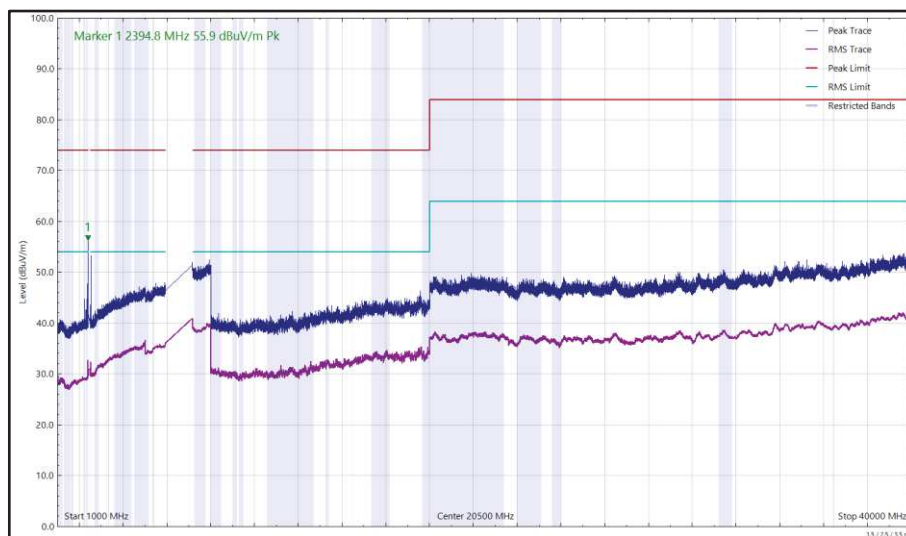


Figure 91 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

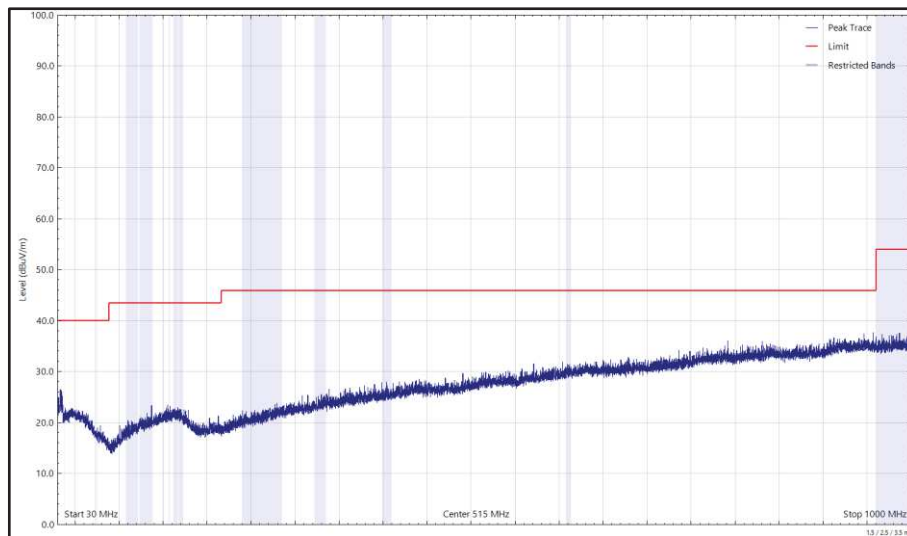


Figure 92 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

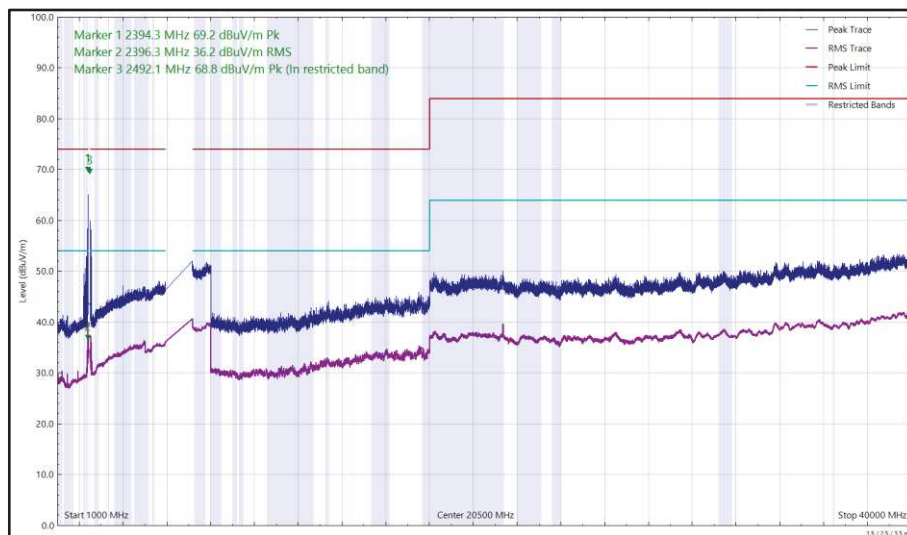


Figure 93 - 2440 MHz (CH18), Thread, ePA, Core 1 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



Frequency (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
7318.187	38.08	54.00	-15.92	RMS	201	329	Vertical

Table 32 - 2440 MHz (CH18), Thread, ePA, Core 2 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.

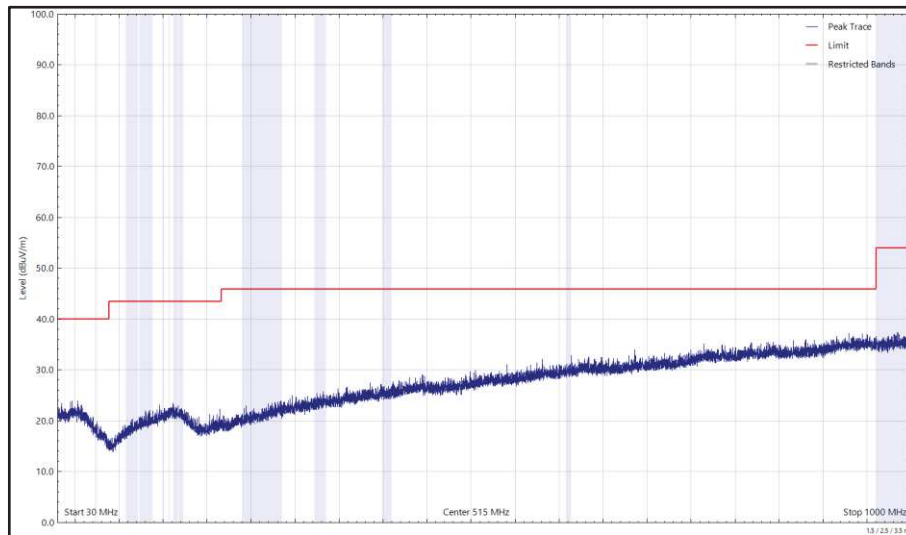


Figure 94 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

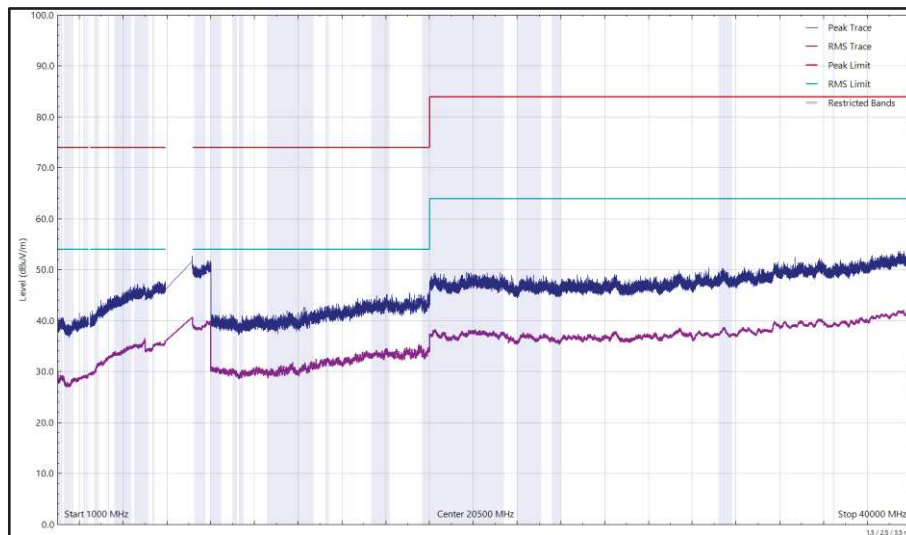


Figure 95 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

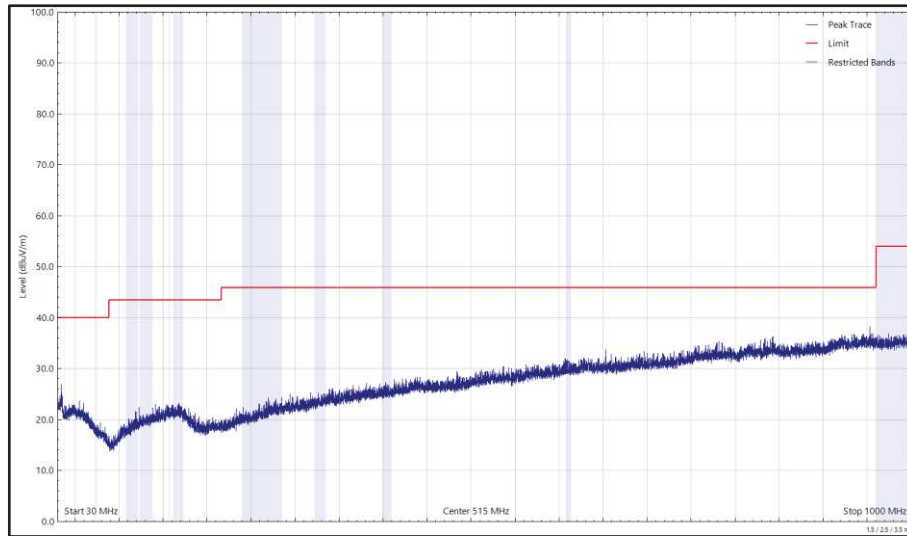


Figure 96 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

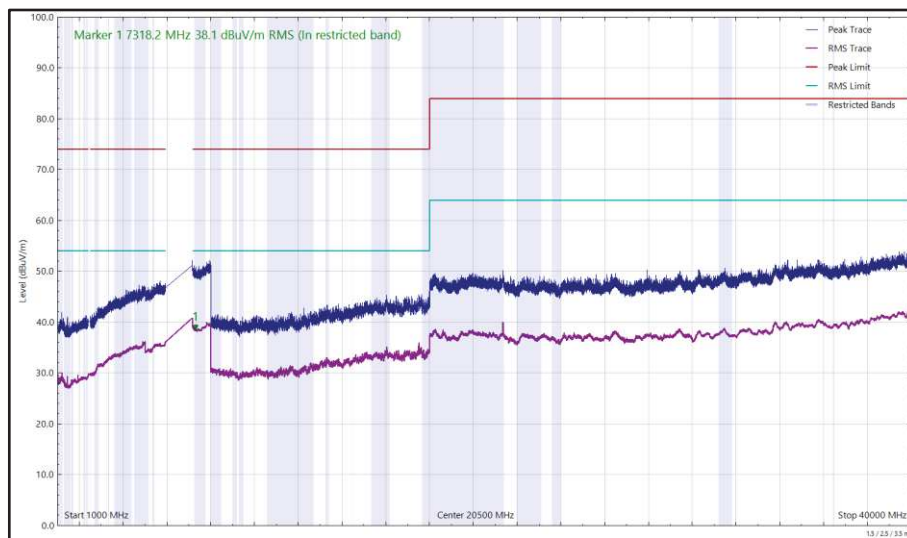


Figure 97 - 2440 MHz (CH18), Thread, ePA, Core 2 and U-NII-8 - 7115 MHz (CH233), HE20, SU, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical



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 4.7.2	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 33



2.1.8 Test Location and Test Equipment Used

This test was carried out in RF Chamber 15.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.1.10	5125	-	Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5911	12	24-Apr-2023
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	5937	12	14-May-2023
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5939	12	29-May-2023
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
5m Semi-Anechoic Chamber (Dual-Axis)	Albatross Projects	RF Chamber 15	5963	36	28-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5964	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5966	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5967	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5968	-	TU
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	5996	12	06-Jun-2023
Cable (N to N 1m)	Junkosha	MWX221-01000NMSNMS/B	5999	12	05-Jun-2023
Cable (N to N 7m)	Junkosha	MWX221-07000NMSNMS/B	6005	12	05-Jun-2023
Cable (N to N 8m)	Junkosha	MWX221-08000NMSNMS/A	6006	12	05-Jun-2023
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	06-Jun-2023
Cable (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6014	12	07-Jun-2023
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/B	6019	12	07-Jun-2023
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	21-Jun-2023
Digital Multimeter	Fluke	115	6147	12	16-Jun-2023
Humidity & Temperature meter	R.S Components	1364	6150	12	17-Jun-2023
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
8 GHz Highpass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6195	12	15-Jul-2023
Pre Amp 8 - 18 GHz	Wright Technologies	APS06 0061	6198	12	19-Jul-2023
Attenuator 4dB	Pasternack	PE7074-4	6203	24	16-Jul-2024
Cable (SMA to SMA 20cm)	TUV SUD	MH-FH 8-18	6214	12	25-Jul-2023

Table 34

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 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.