FCC and ISED Test Report

Apple Inc
Model: A3239

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)

TUV SUD Limited
Digitally signed by TUV SUD Limited
Date: 2024.10.07 10:53:47 +01'00'

Prepared for: Apple Inc
One Apple Park Way
Cupertino
California
95014
USA

FCC ID: BCGA3239 IC: 579C-A3239

COMMERCIAL-IN-CONFIDENCE

Document 75961400-74 Issue 01

SIGNATURE			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Steve Marshall	Senior Engineer	Authorised Signatory	07 October 2024

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	Rachael Watkins	07 October 2024	

FCC Accreditation
553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation
28798/UK0003 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15: 2023, ISED RSS-247: Issue 3 (2023-08), 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.

TÜV SÜD
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Registered in Scotland at East Kilbride,
Glasgow G75 0QF, United Kingdom
Registered number: SC215164

TUV SUD 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

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	07-October-2024

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15: 2023 ISED RSS-247: Issue 3 (2023-08) ISED RSS-248: Issue 2 (2022-12) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	15-August-2024
Finish of Test	09-September-2024
Name of Engineer(s)	Colin Brain, Manohar Thota, Morsalin Hossain, Akhil Rajendran Bhaskaran Nair, Ian Hart and Tony Baby.
Related Document(s)	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01

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: 5 GHz WLAN and 2.4 GHz Bluetooth							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01
Configuration and Mode: 6 GHz WLAN and 2.4 GHz Bluetooth							
2.1	15.209, 15.247(d) and 15.407(b)	5.5	4.6	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01
Configuration and Mode: 2.4 GHz WLAN and Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01
Configuration and Mode: 5 GHz WLAN and Thread							
2.1	15.209, 15.247(d) and 15.407(b)	5.5 and 6.2	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01
Configuration and Mode: 6 GHz WLAN and Thread							
2.1	15.209, 15.247(d) and 15.407(b)	5.5	4.6	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 789033 D02 v02r01 KDB 987594 D02 v01r01

Table 2

1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was a desktop computer.

1.5 Deviations from the Standard

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

1.6 Identification of the EUT

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

Model: A3239			
Serial Number	Hardware Version	Software Version	Firmware
JL2G9T9QK5	REV1.0	24A42521k	23.30.16
D4D3YLHFTQ	REV1.0	24A42521k	23.30.16
FH9KV30V6N	REV1.0	24A42521k	23.30.16
VF9GD7FYD1	REV1.0	24A42521k	23.30.16

Table 3

1.7 EUT Modification Record

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

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

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Model: A3239, Serial Number: FH9KV30V6N			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3239, Serial Number: VF9GD7FYD1			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3239, Serial Number: JL2G9T9QK5			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3239, Serial Number: D4D3YLHFTQ			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 4

1.8 Test Location

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

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 5 GHz WLAN and 2.4 GHz Bluetooth		
Radiated Spurious Emissions (Simultaneous Transmission)	Colin Brain, Manohar Thota and Morsalin Hossain	UKAS
Configuration and Mode: 6 GHz WLAN and 2.4 GHz Bluetooth		
Radiated Spurious Emissions (Simultaneous Transmission)	Akhil Rajendran Bhaskaran Nair, Ian Hart, Manohar Thota and Morsalin Hossain	UKAS
Configuration and Mode: 5 GHz WLAN and Thread		
Radiated Spurious Emissions (Simultaneous Transmission)	Akhil Rajendran Bhaskaran Nair, Manohar Thota and Tony Baby	UKAS
Configuration and Mode: 6 GHz WLAN and Thread		
Radiated Spurious Emissions (Simultaneous Transmission)	Akhil Rajendran Bhaskaran Nair and Tony Baby	UKAS
Configuration and Mode: 2.4 GHz WLAN and Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Manohar Thota and Morsalin Hossain	UKAS

Table 5

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

A3239, S/N: JL2G9T9QK5 - Modification State 0
A3239, S/N: D4D3YLHFTQ - Modification State 0
A3239, S/N: FH9KV30V6N - Modification State 0
A3239, S/N: VF9GD7FYD1 - Modification State 0

2.1.3 Date of Test

15-August-2024 to 09-September-2024

2.1.4 Test Method

Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations. The profiling produced a list of the worst-case emissions together with the EUT azimuth and antenna polarisation.

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

Ports on the EUT were terminated with loads as described in ANSI C63.4 clause 6.2.4 for each type of port on the EUT.

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

The plots shown are the characterisation of the EUT. The limits on the plots represent the most stringent case for restricted bands, (74/54 dBuV/m) when compared to non-restricted band limits. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10 dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

The following conversion can be applied to convert from dBµV/m to µV/m:
10^(Field Strength in dBµV/m/20).

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

At a measurement distance of 1 meter the limit line was increased by 20*LOG(3/1) = 9.54 dB.

2.1.5 Example Test Setup Diagram

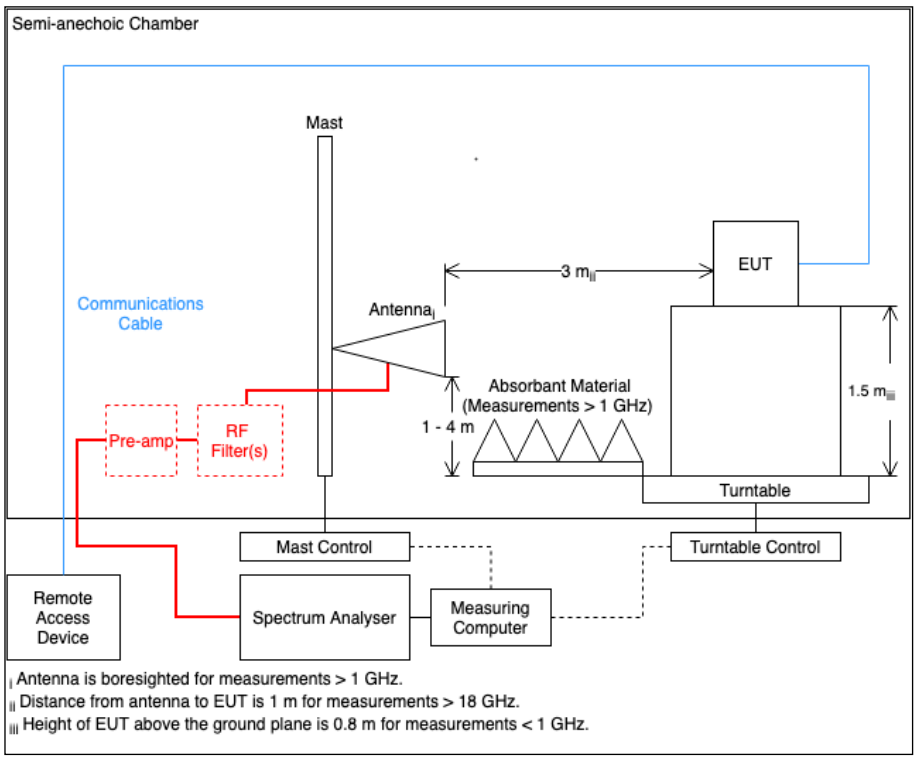

Figure 1

2.1.6 Environmental Conditions

Ambient Temperature	19.7 - 23.3 °C
Relative Humidity	39.5 - 54.3 %

2.1.7 Test Results

5 GHz WLAN and 2.4 GHz Bluetooth

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4868.453	36.91	54.00	-17.09	CISPR Avg	138	137	Vertical
5149.714	42.62	54.00	-11.38	RMS	247	196	Vertical
5149.854	37.03	54.00	-16.97	RMS	177	100	Horizontal
5353.054	43.73	54.00	-10.27	RMS	247	153	Vertical
5441.305	39.25	54.00	-14.75	RMS	224	100	Horizontal

Table 6 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

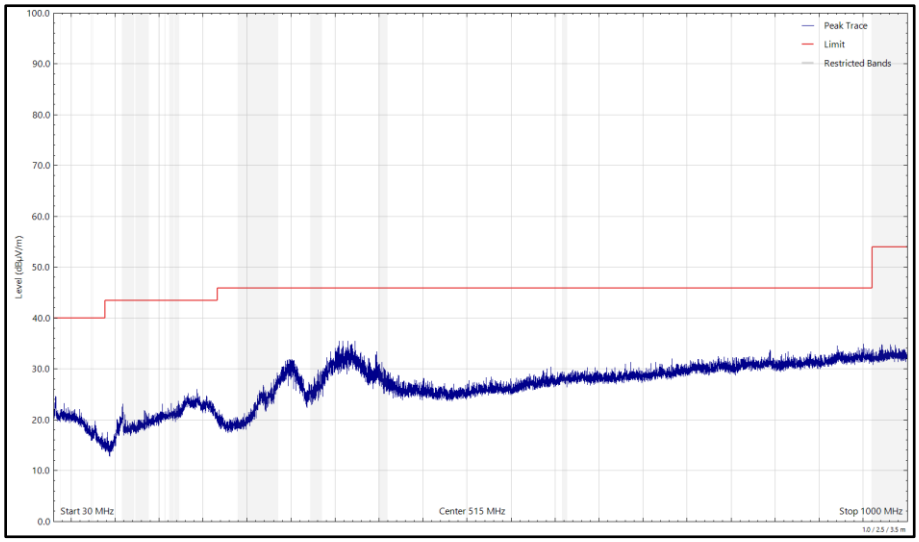

Figure 2 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

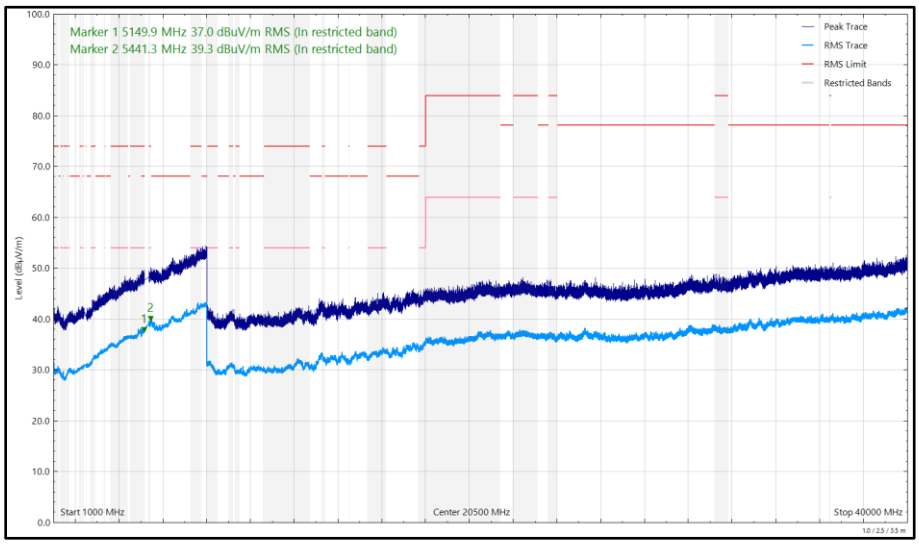

Figure 3 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Horizontal

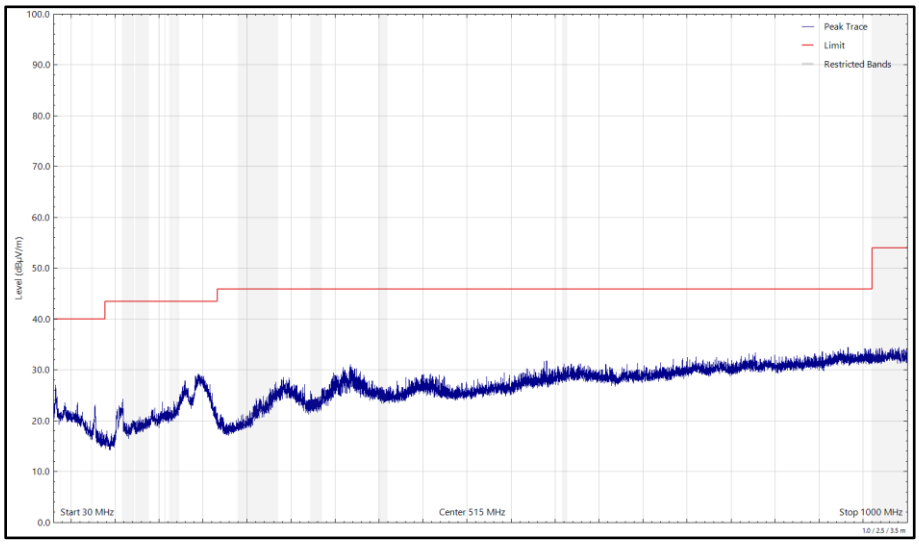

Figure 4 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

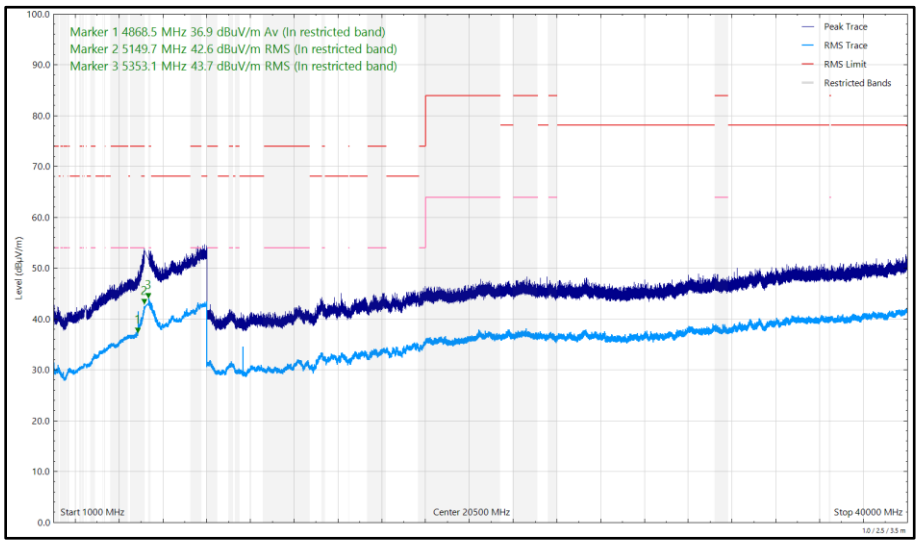

Figure 5 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4881.878	41.13	54.00	-12.87	CISPR Avg	102	102	Vertical
4882.947	33.24	54.00	-20.76	CISPR Avg	235	118	Horizontal
5455.072	43.08	54.00	-10.92	RMS	247	158	Vertical
5459.811	38.99	54.00	-15.01	RMS	224	109	Horizontal

Table 7 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

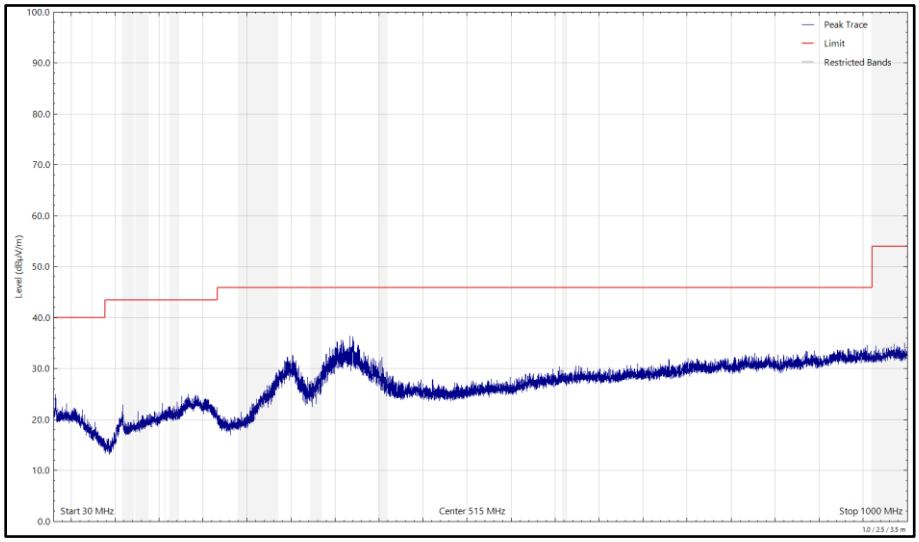

Figure 6 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

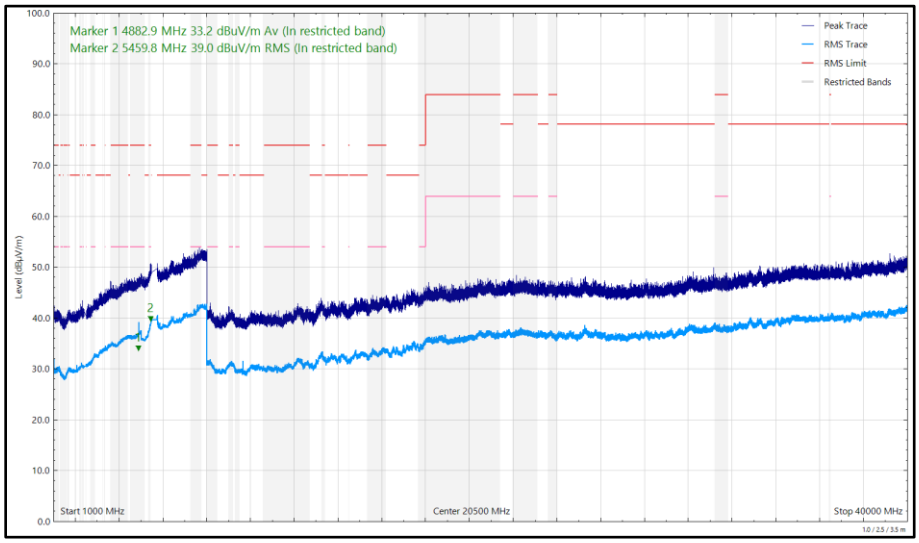

Figure 7 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Horizontal

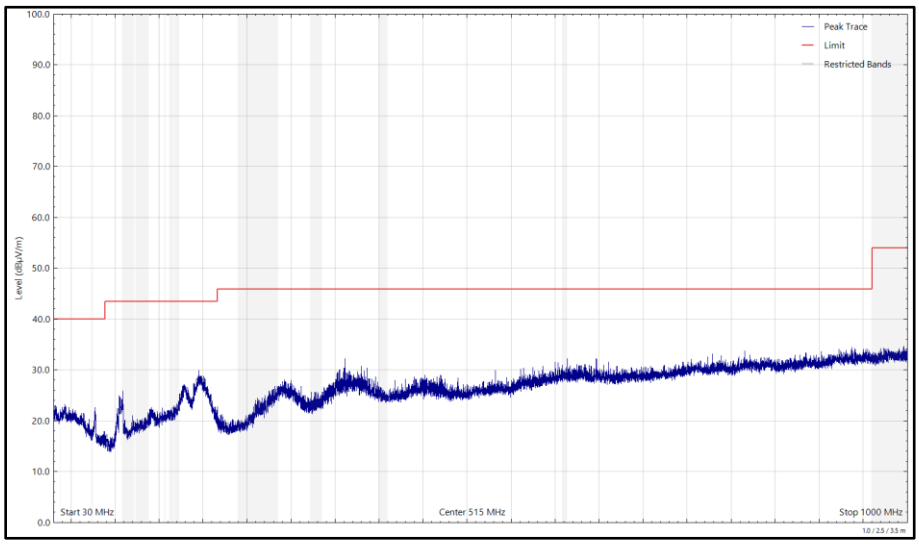

Figure 8 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

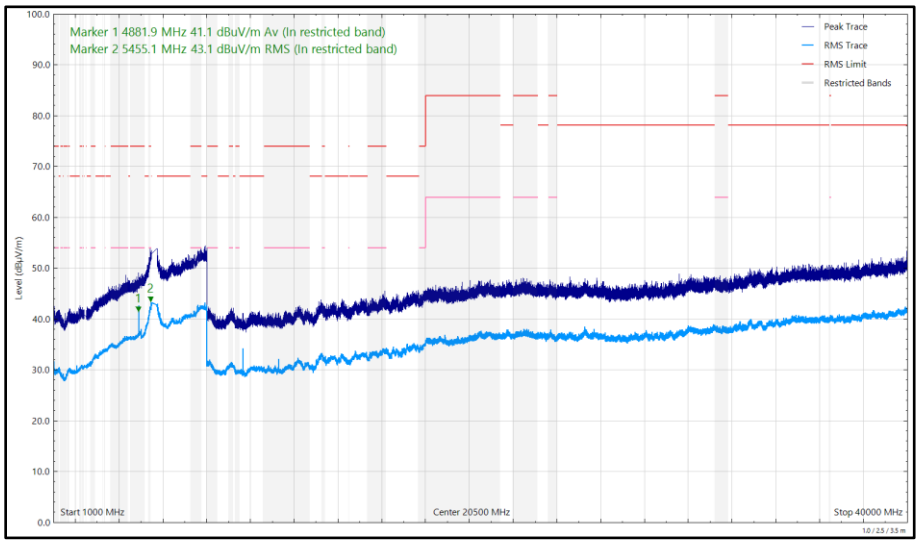

Figure 9 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
4062.824	36.78	54.00	-17.22	RMS	272	164	Vertical
4873.309	33.01	54.00	-20.99	CISPR Avg	242	101	Horizontal
4875.844	37.54	54.00	-16.46	CISPR Avg	103	132	Vertical
5455.304	38.43	54.00	-15.57	RMS	214	178	Horizontal
5459.912	40.77	54.00	-13.23	RMS	252	152	Vertical

Table 8 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

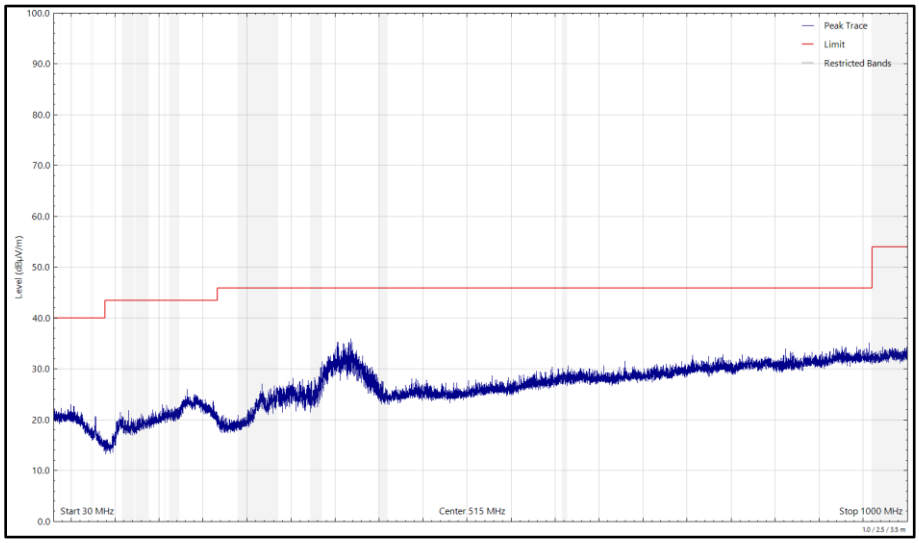

Figure 10 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

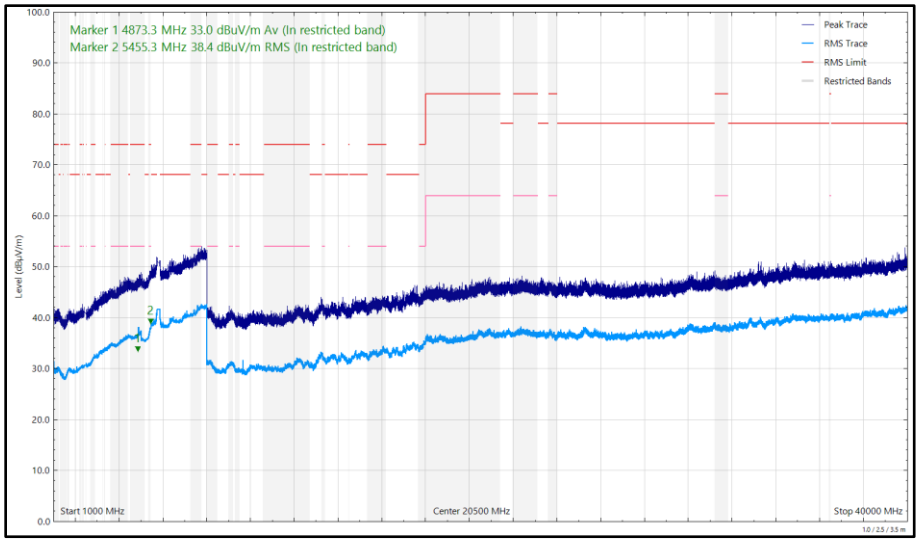

Figure 11 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Horizontal

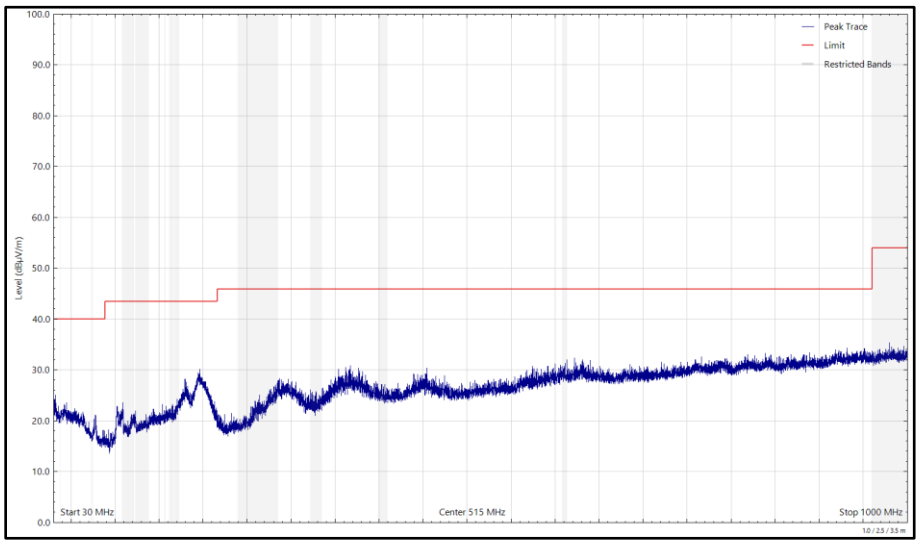

Figure 12 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

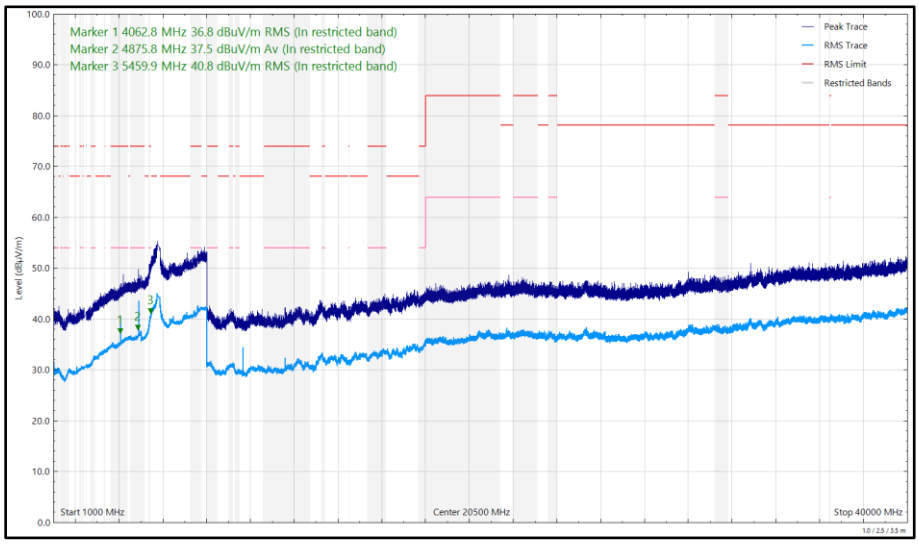

Figure 13 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2394.384	64.66	86.54	-21.88	Peak	99	157	Vertical
2492.844	27.22	54.00	-26.78	CISPR Avg	111	154	Vertical
2492.844	59.97	74.00	-14.03	Peak	111	154	Vertical
4869.594	33.91	54.00	-20.09	CISPR Avg	147	137	Vertical
5149.820	40.53	54.00	-13.47	RMS	217	209	Horizontal
5149.938	44.41	54.00	-9.59	RMS	279	139	Vertical
5353.940	41.90	54.00	-12.10	RMS	246	154	Vertical
5365.406	54.18	74.00	-19.82	Peak	249	103	Vertical

Table 9 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

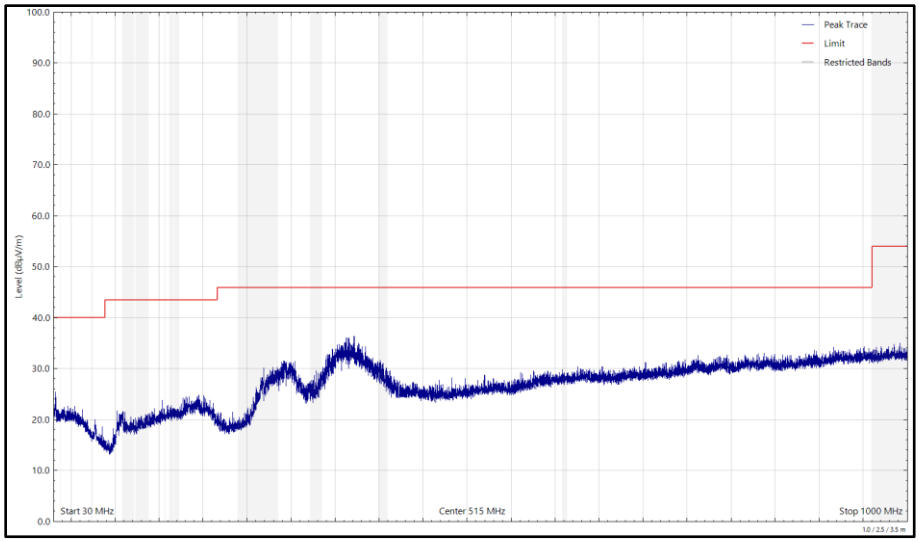

Figure 14 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

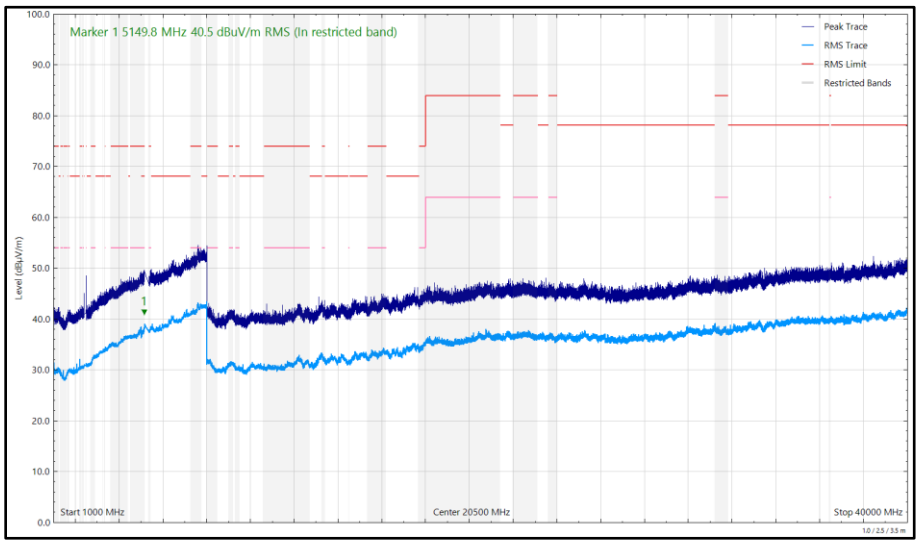

Figure 15 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

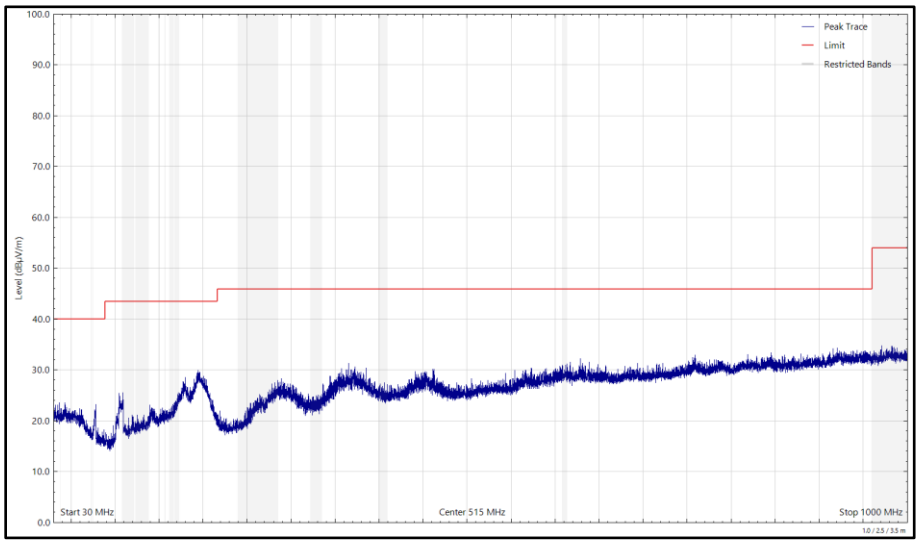

Figure 16 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

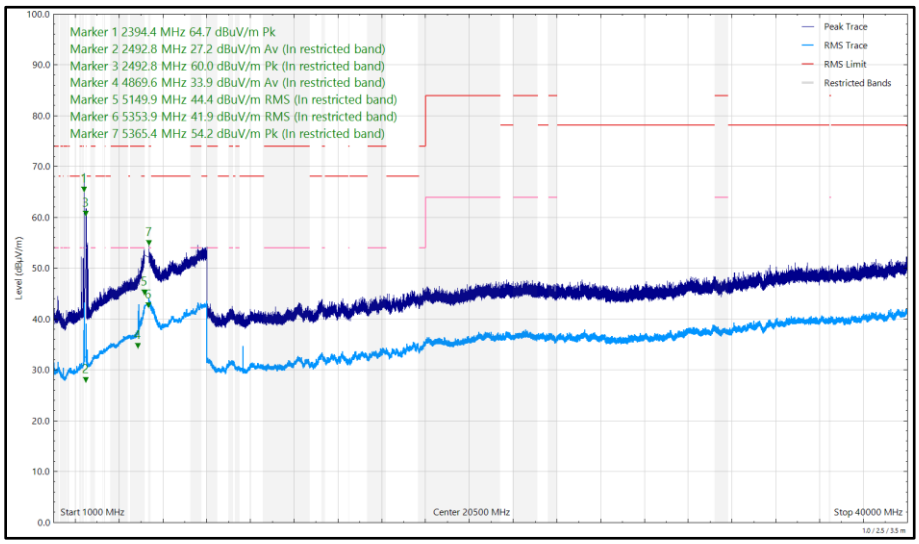

Figure 17 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2379.380	62.86	74.00	-11.14	Peak	83	102	Vertical
2398.128	68.28	86.54	-18.26	Peak	86	121	Vertical
5456.863	42.33	54.00	-11.67	RMS	248	138	Vertical
5459.855	39.87	54.00	-14.13	RMS	215	154	Horizontal

Table 10 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

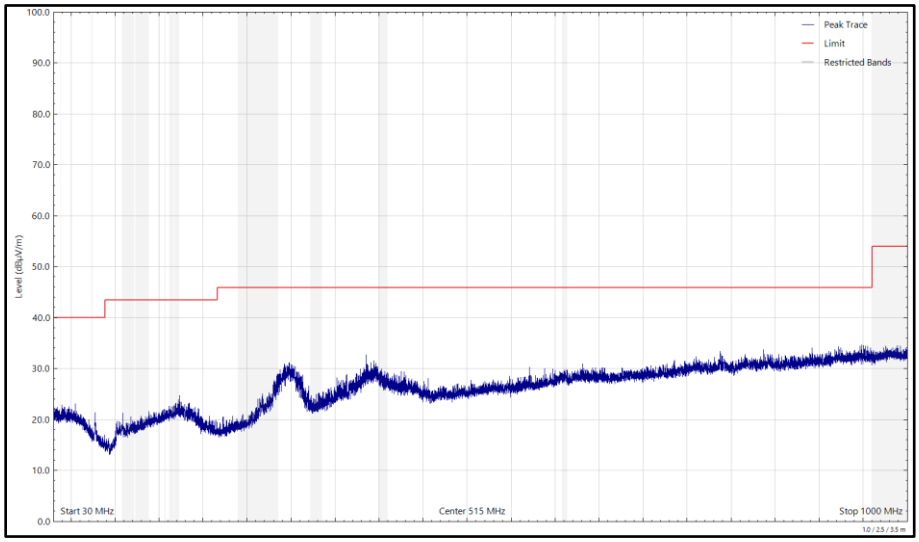

Figure 18 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

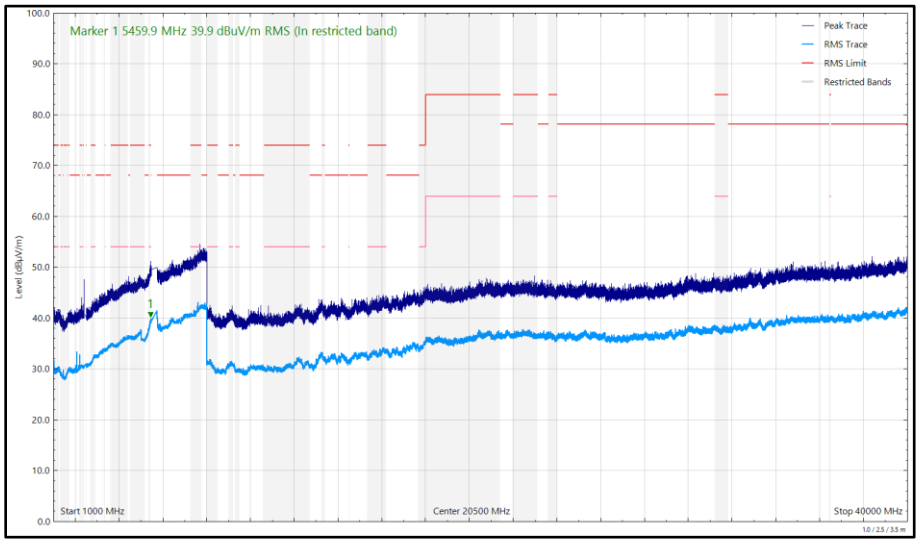

Figure 19 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

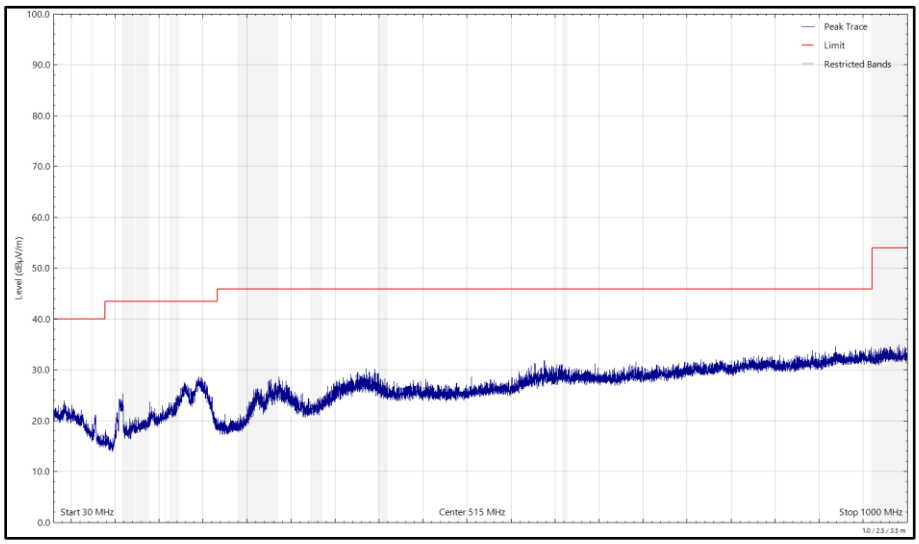

Figure 20 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

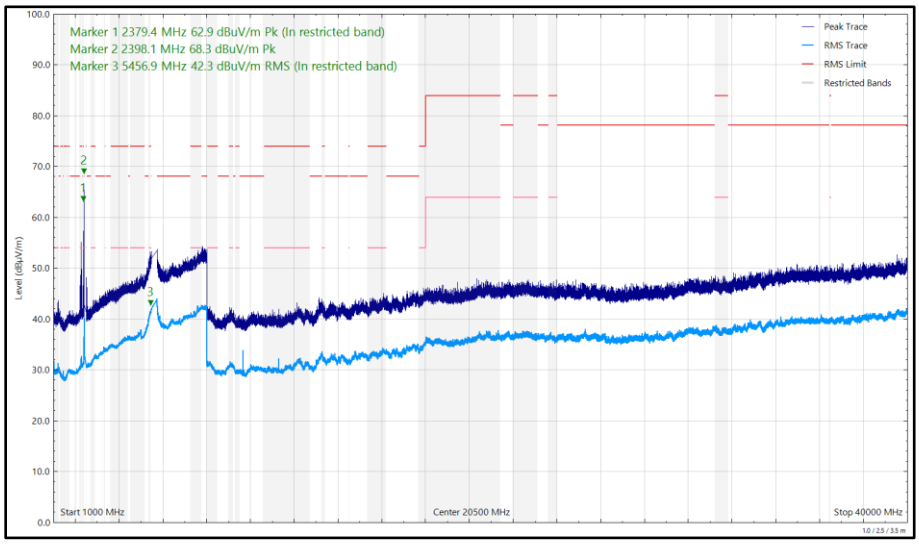

Figure 21 - U-NII-2C - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2388.257	61.72	74.00	-12.28	Peak	100	116	Vertical
2399.195	68.03	86.54	-18.51	Peak	87	100	Vertical
4881.053	32.80	54.00	-21.20	CISPR Avg	130	304	Vertical
5455.065	37.55	54.00	-16.45	RMS	360	146	Horizontal
5459.453	40.55	54.00	-13.45	RMS	245	143	Vertical

Table 11 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

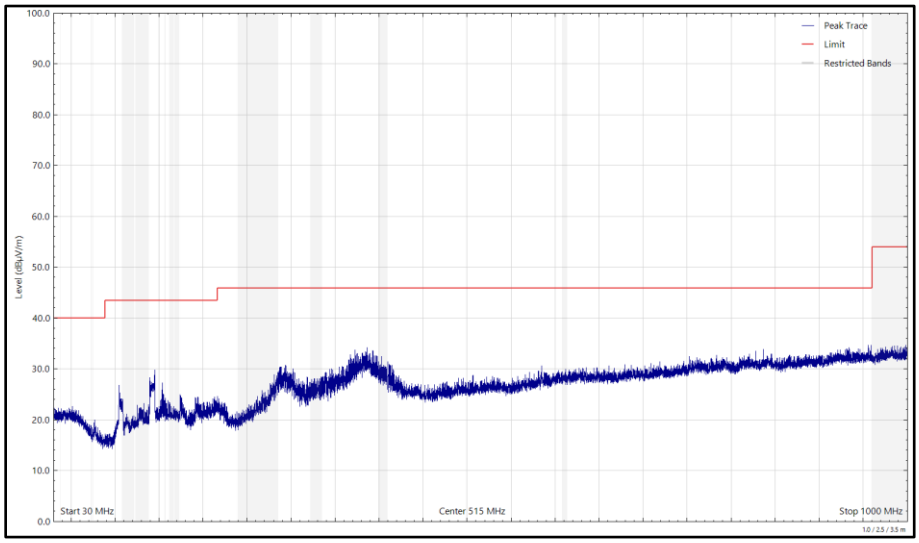

Figure 22 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

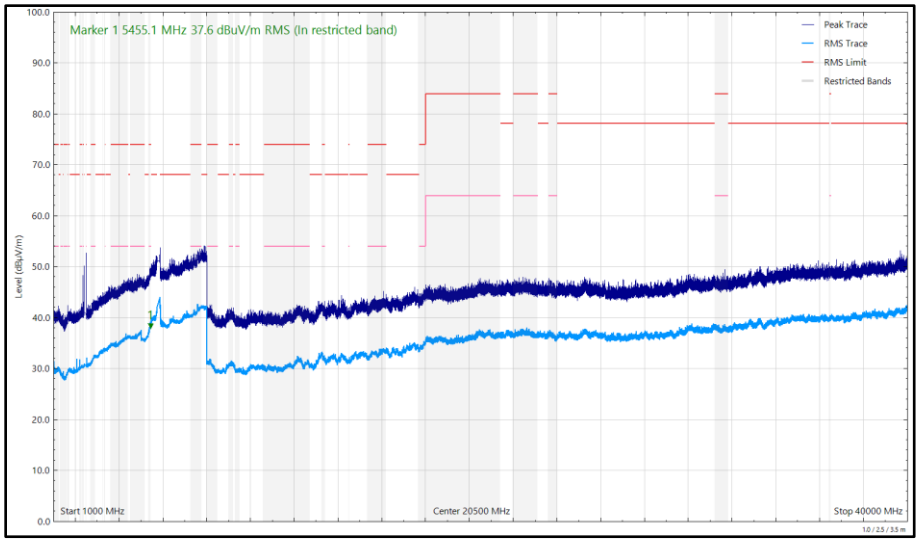

Figure 23 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

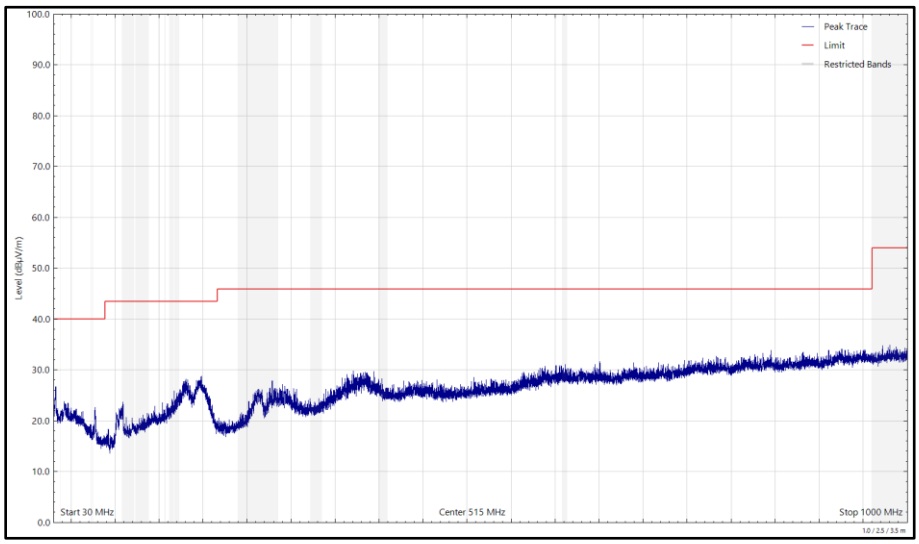

Figure 24 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

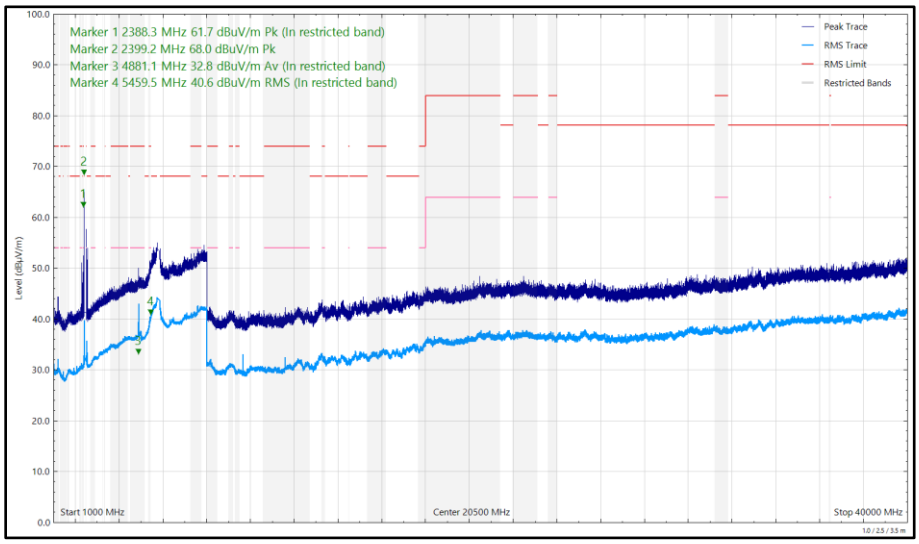

Figure 25 - U-NII-3 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

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 12

6 GHz WLAN and 2.4 GHz Bluetooth

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
2484.233	59.69	74.00	-14.31	Peak	88	202	Vertical
2484.233	27.14	54.00	-26.86	CISPR Avg	88	202	Vertical
18516.606	41.79	64.00	-22.21	RMS	167	100	Vertical

Table 13 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

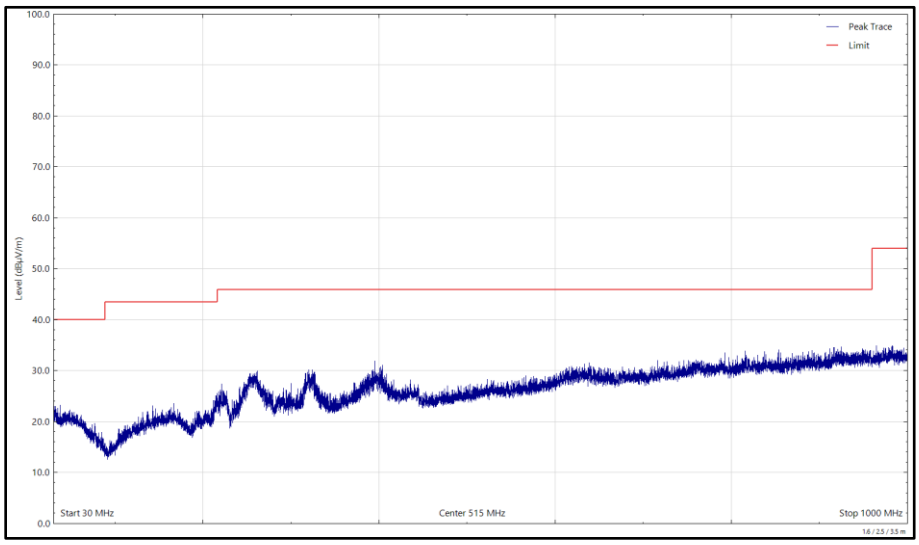

Figure 26 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

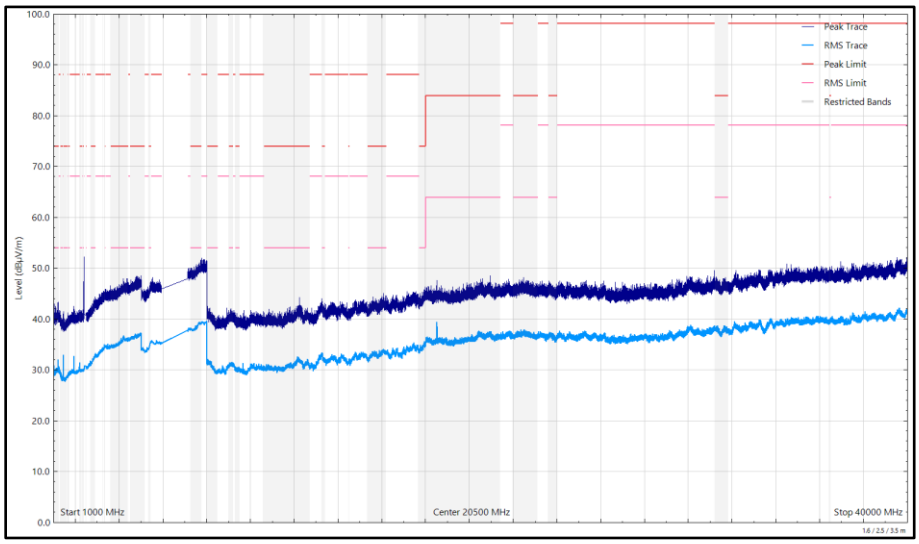

Figure 27 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

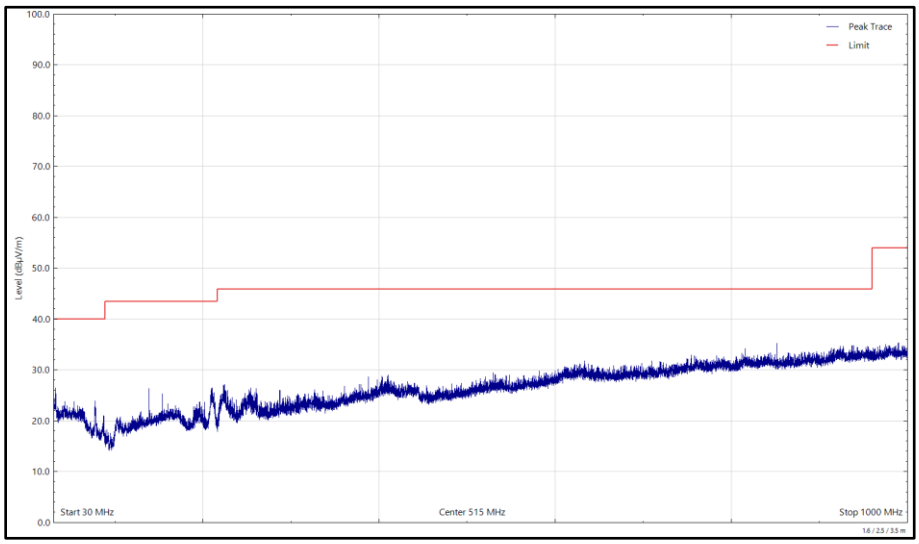

Figure 28 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

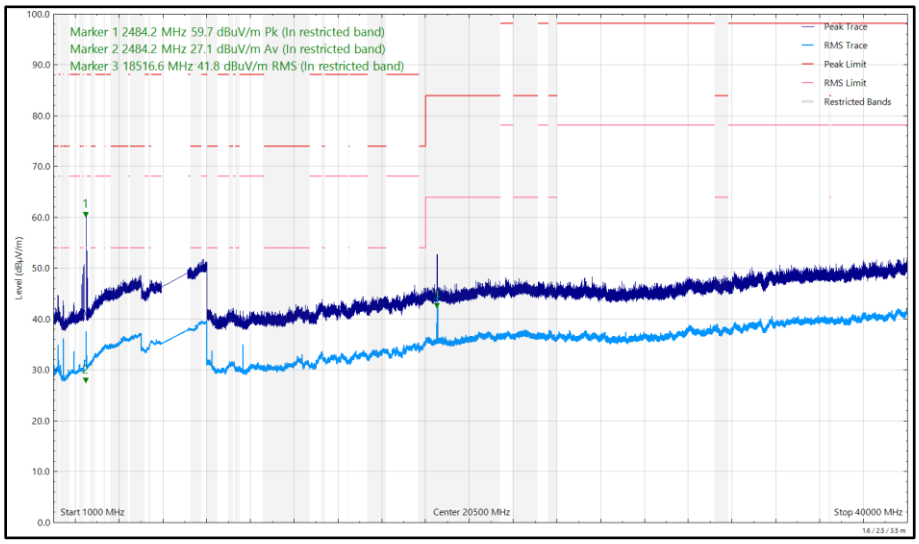

Figure 29 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
104.349	22.74	43.50	-20.76	Q-Peak	360	156	Horizontal
104.540	32.15	43.50	-11.35	Q-Peak	295	300	Vertical
405.307	26.38	46.00	-19.62	Q-Peak	51	100	Horizontal
5249.112	47.12	68.20	-21.08	RMS	244	121	Vertical

Table 14 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

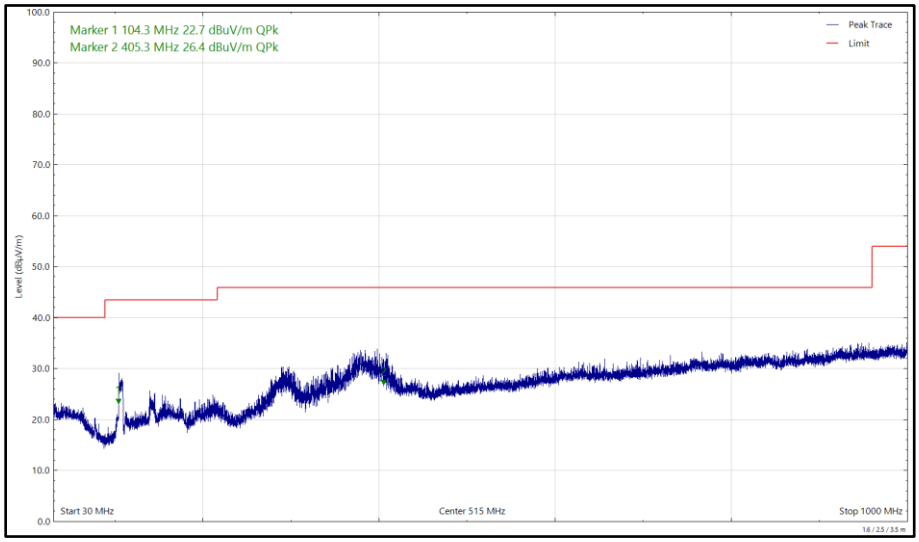

Figure 30 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

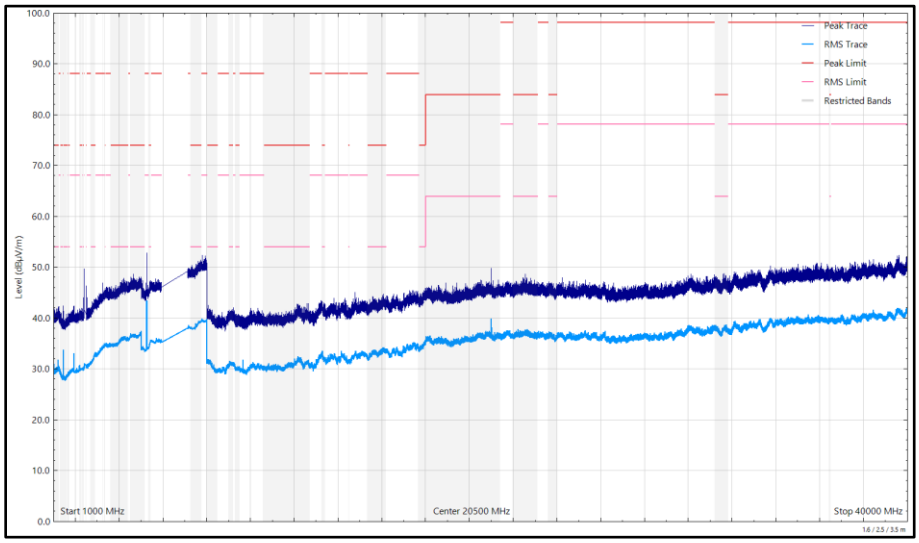

Figure 31 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

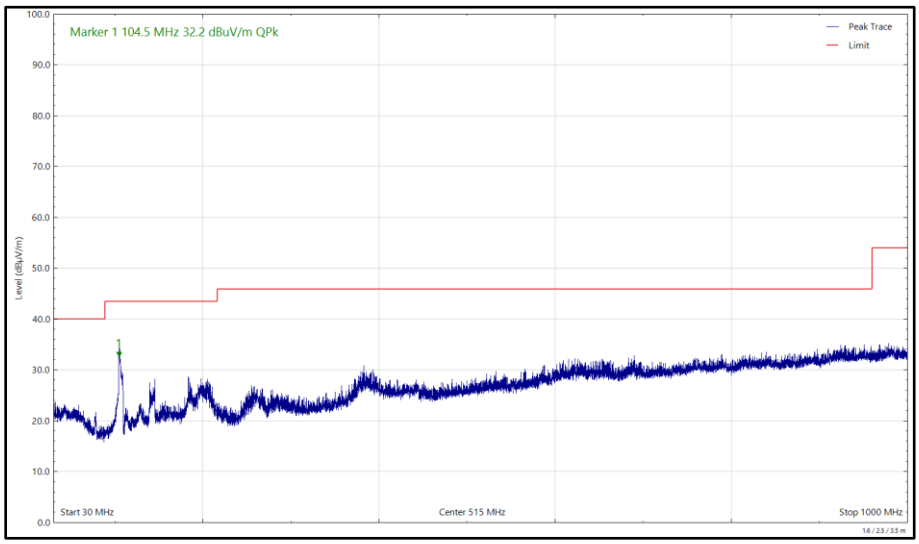

Figure 32 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

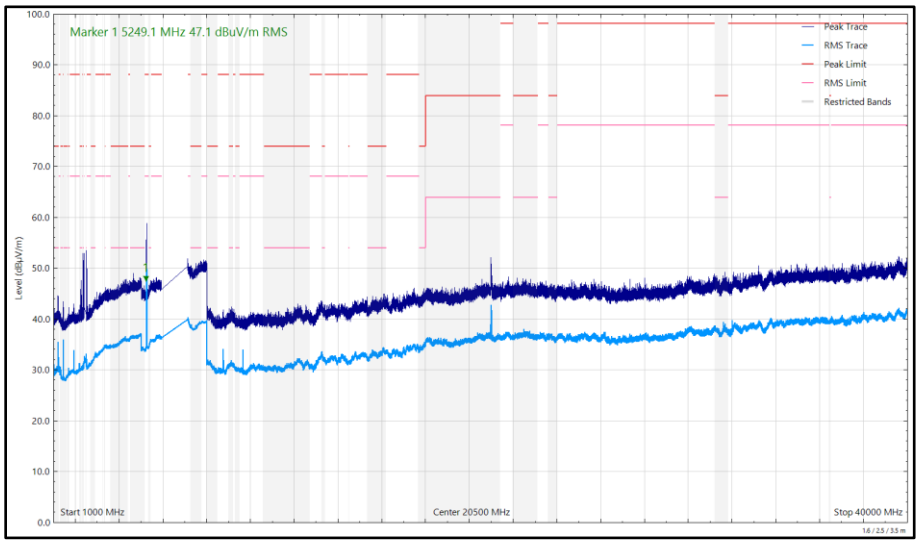

Figure 33 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), 2-DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
104.492	32.90	43.50	-10.60	Q-Peak	286	304	Vertical
404.156	25.94	46.00	-20.06	Q-Peak	64	104	Horizontal

Table 15 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

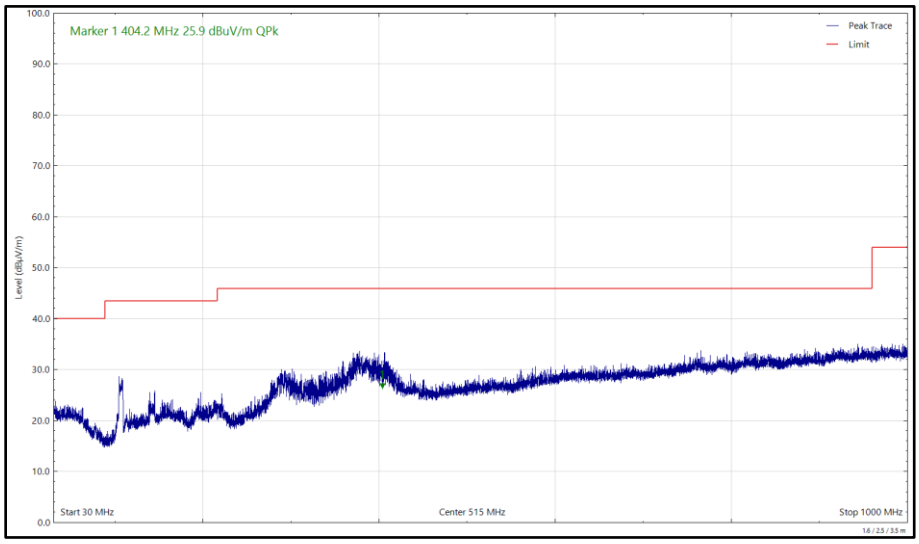

Figure 34 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

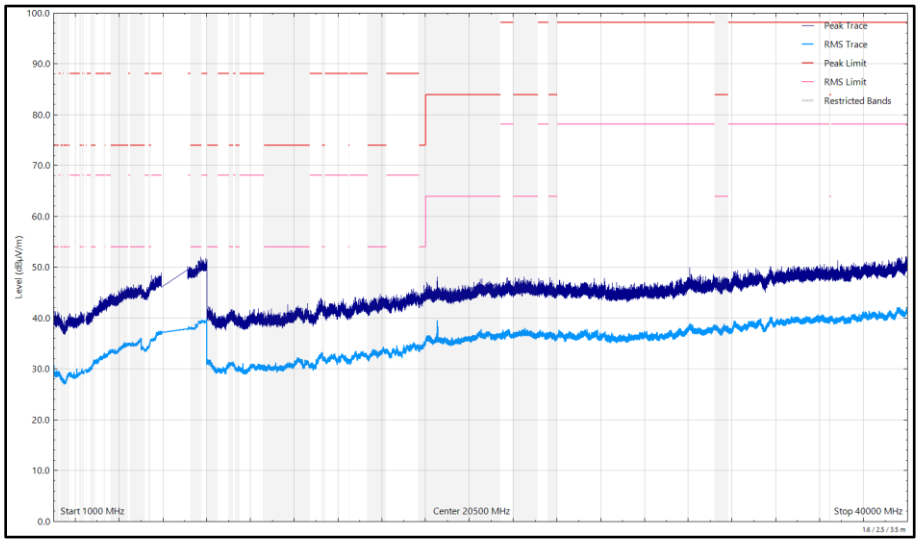

Figure 35 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Horizontal

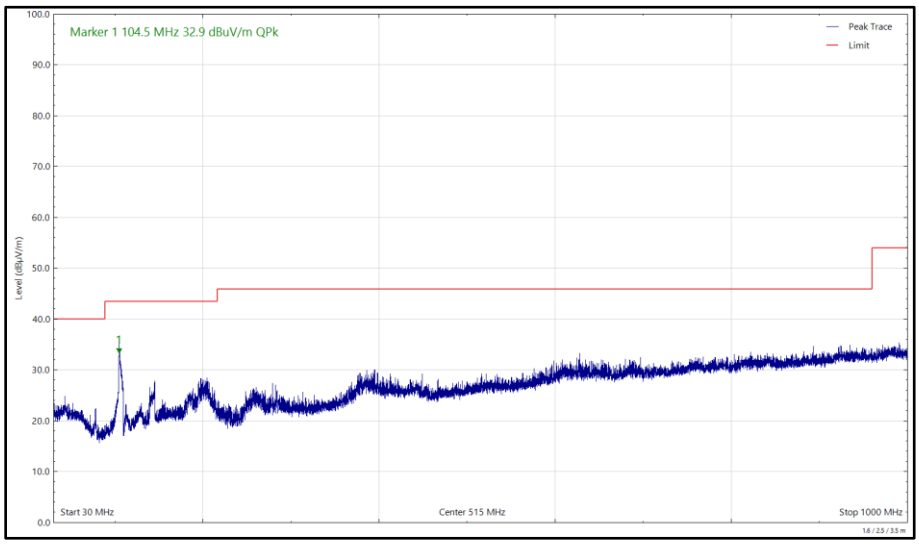

Figure 36 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

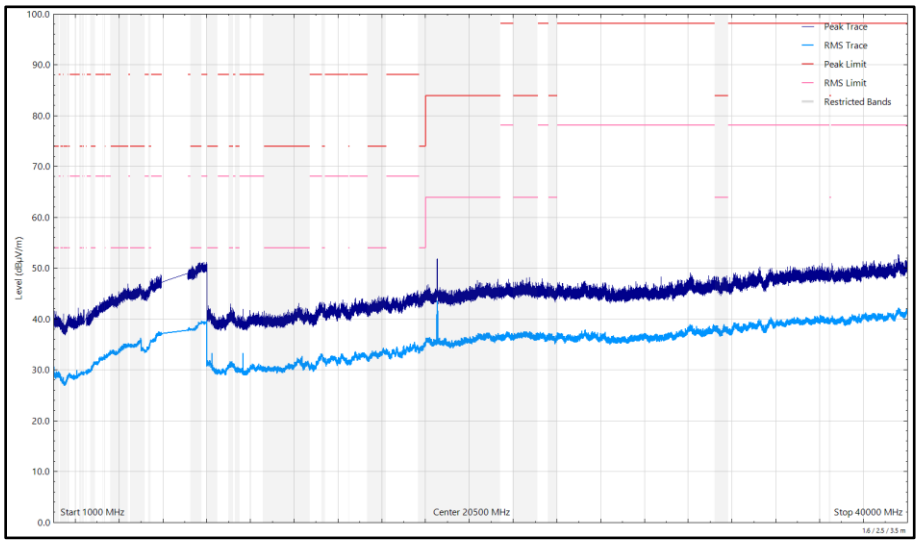

Figure 37 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
104.371	24.40	43.50	-19.10	Q-Peak	350	318	Horizontal
104.502	32.98	43.50	-10.52	Q-Peak	310	294	Vertical
402.155	26.66	46.00	-19.34	Q-Peak	57	100	Horizontal
4881.938	35.34	54.00	-18.66	CISPR Avg	70	100	Vertical
5249.478	47.91	68.20	-20.29	RMS	248	154	Vertical

Table 16 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

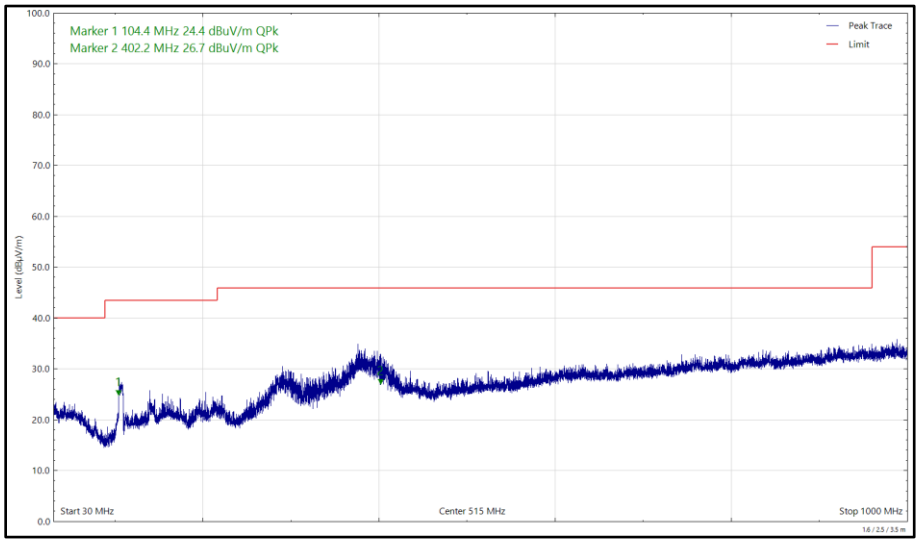

Figure 38 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Horizontal (Peak)

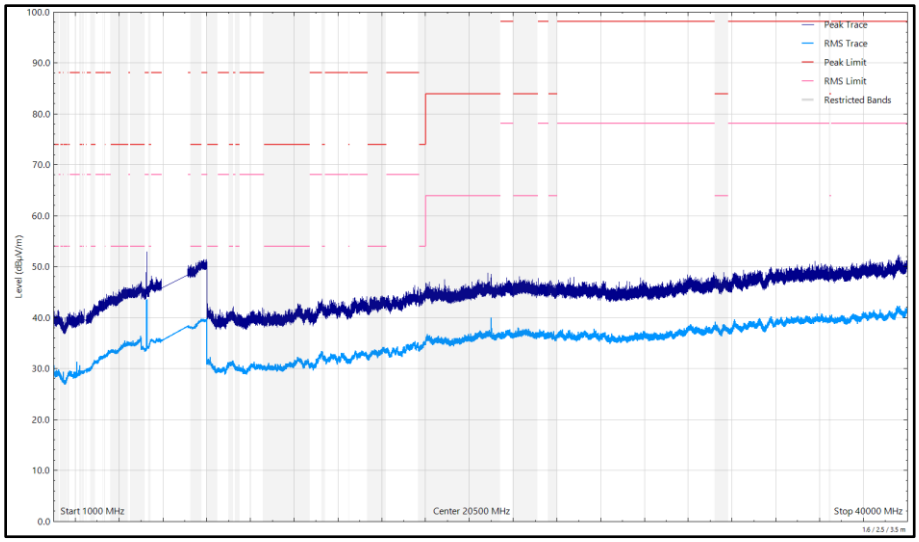

Figure 39 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Horizontal

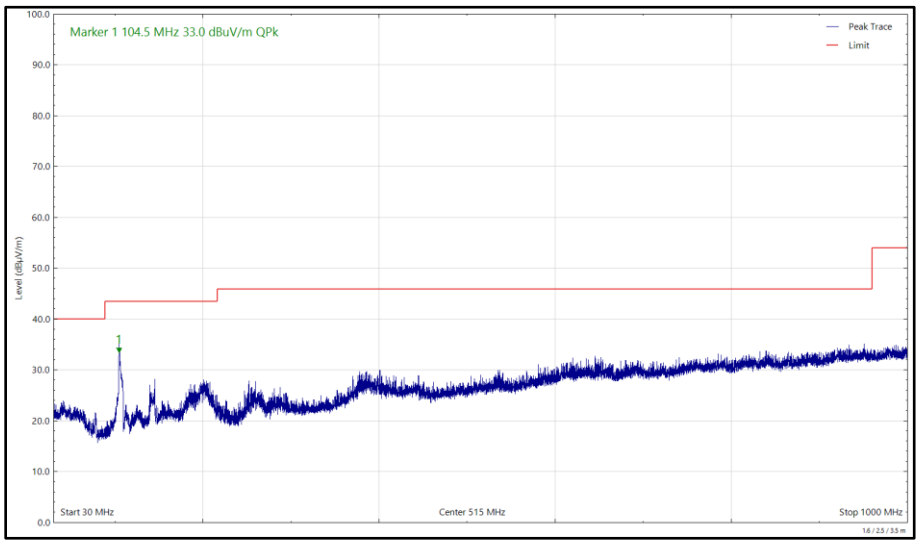

Figure 40 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 30 MHz to 1 GHz, Vertical (Peak)

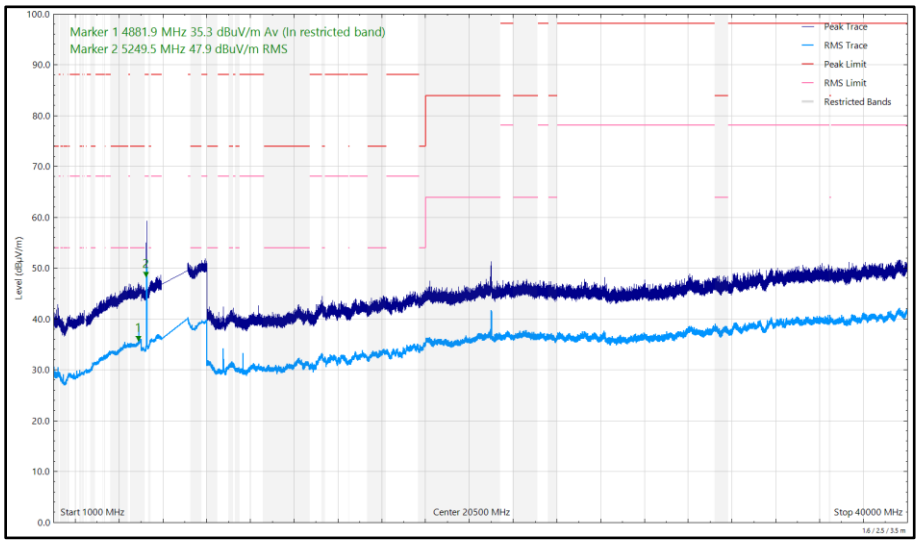

Figure 41 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, iPA, Core 2, 1 GHz to 40 GHz, Vertical

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

Table 17

2.4 GHz WLAN and Narrowband

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
261.034	18.01	46.00	-27.99	Q-Peak	86	100	Vertical
403.261	25.90	46.00	-20.10	Q-Peak	54	110	Horizontal
2389.994	36.01	54.00	-17.99	RMS	116	121	Vertical
2483.511	37.51	54.00	-16.49	RMS	50	145	Horizontal
2483.721	40.49	54.00	-13.51	RMS	290	227	Vertical
2483.754	57.53	74.00	-16.47	Peak	272	137	Vertical

Table 18 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR4, ePA, Core 1
30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

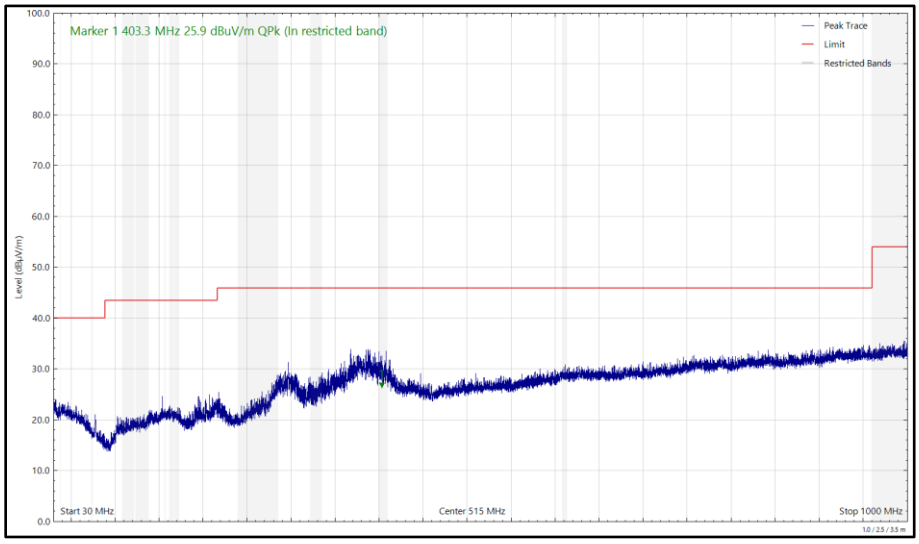

Figure 42 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR4, ePA, Core 1
30 MHz to 1 GHz, Horizontal (Peak)

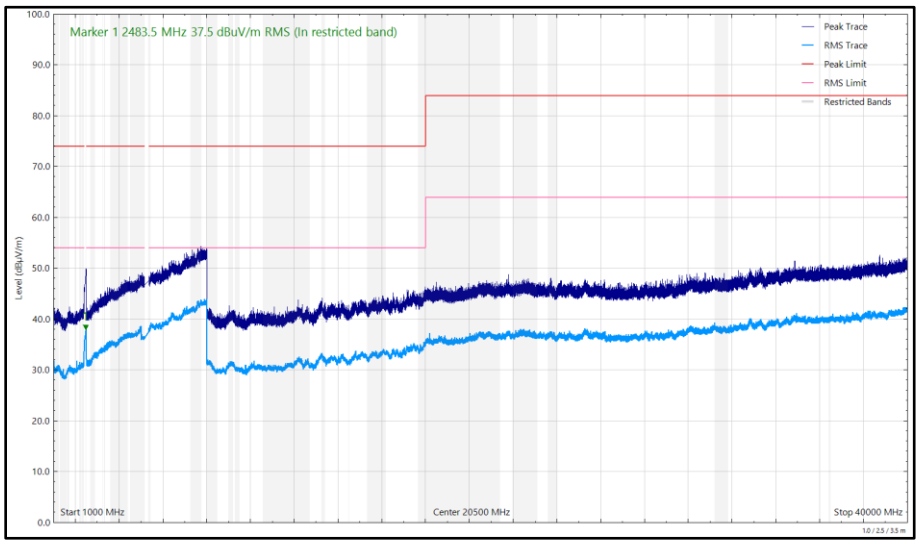

Figure 43 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR4, ePA, Core 1 1 GHz to 40 GHz, Horizontal

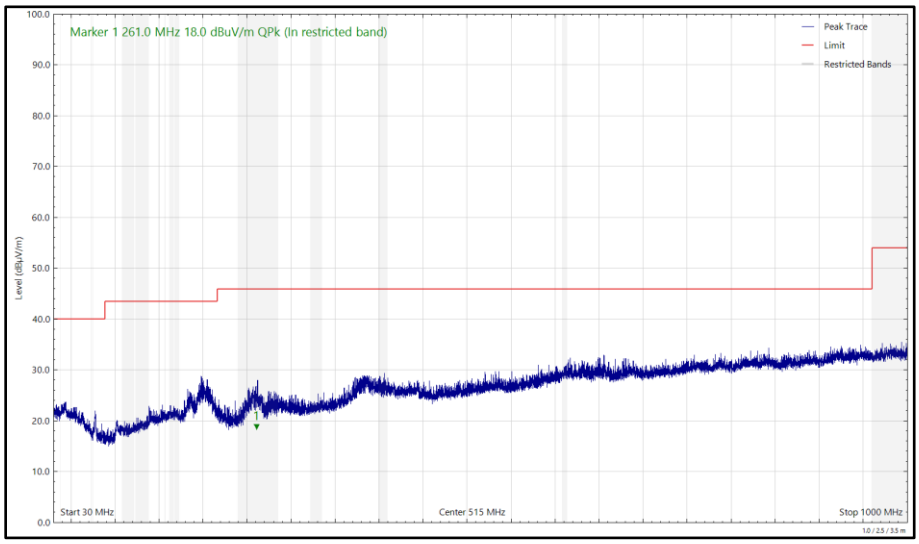

Figure 44 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR4, ePA, Core 1 30 MHz to 1 GHz, Vertical (Peak)

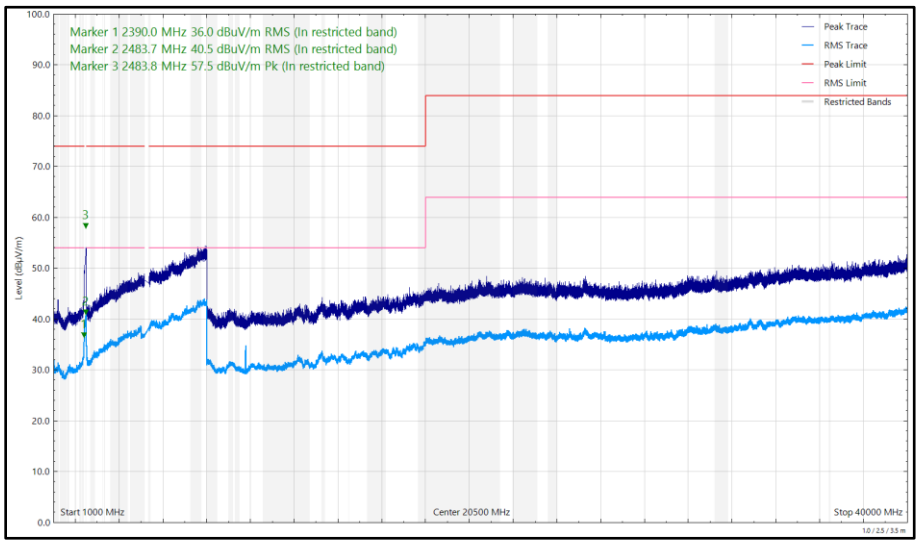

Figure 45 - 2442 MHz (CH7), HT20, Core 0 and 5204 MHz, HDR4, ePA, Core 1
1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
259.581	20.64	46.00	-25.36	Q-Peak	192	101	Vertical
401.499	26.83	46.00	-19.17	Q-Peak	53	100	Horizontal
2389.911	35.95	54.00	-18.05	RMS	114	120	Vertical
2483.536	41.00	54.00	-13.00	RMS	269	223	Vertical
2483.809	36.22	54.00	-17.78	RMS	62	209	Horizontal
2484.786	56.71	74.00	-17.29	Peak	304	121	Vertical
5374.521	40.88	54.00	-13.12	RMS	115	100	Vertical

Table 19 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1
30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

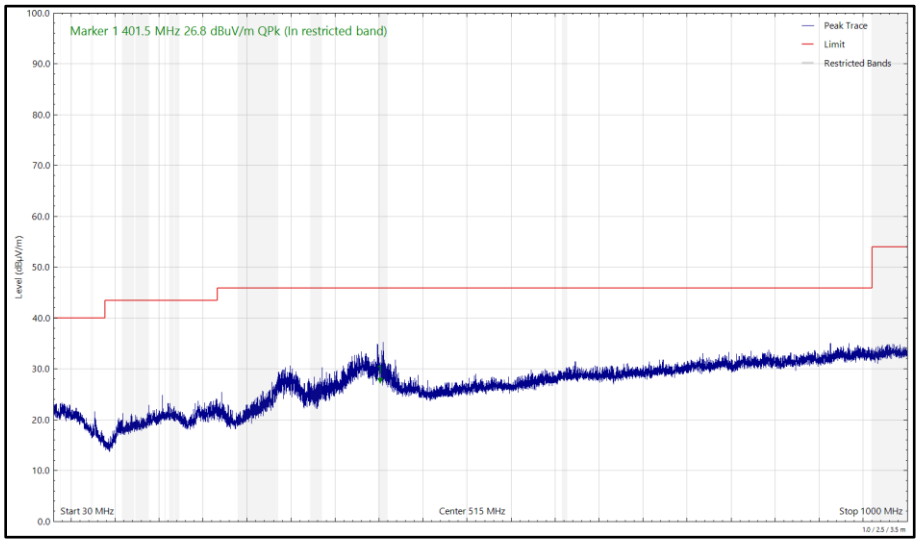

Figure 46 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1
30 MHz to 1 GHz, Horizontal (Peak)

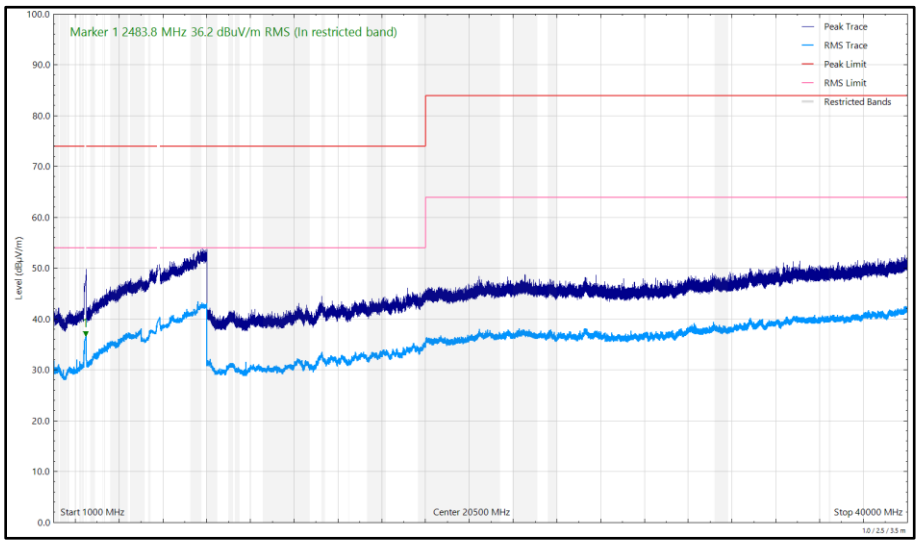

Figure 47 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1 1 GHz to 40 GHz, Horizontal

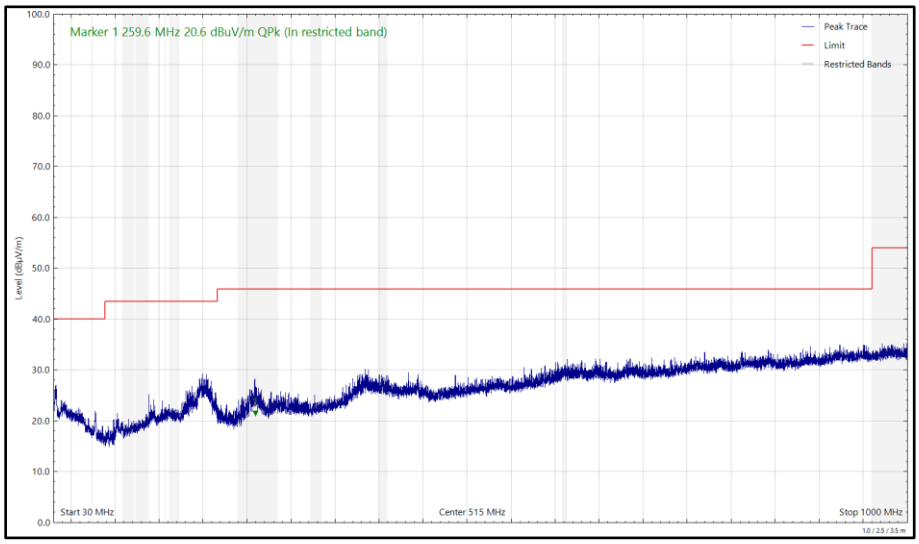

Figure 48 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1 30 MHz to 1 GHz, Vertical (Peak)

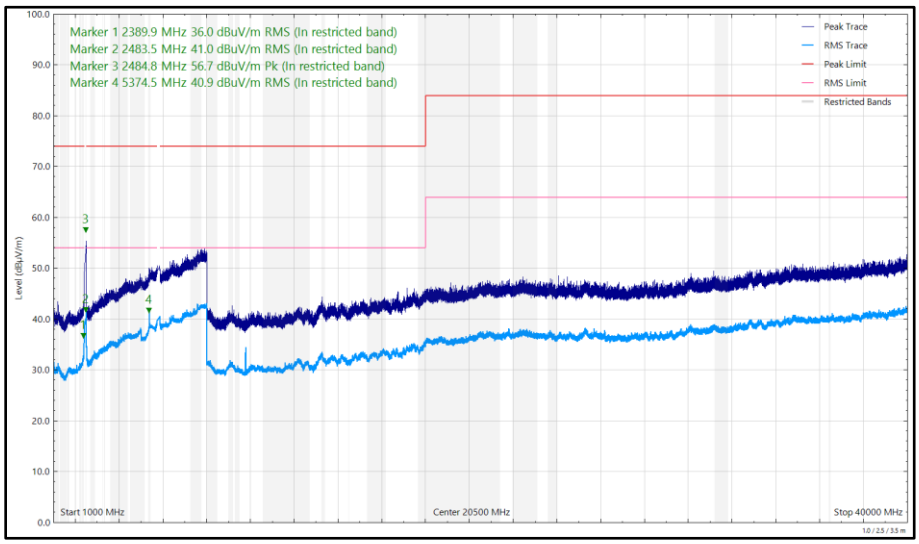

Figure 49 - 2442 MHz (CH7), HT20, Core 0 and 5788 MHz, HDR4, ePA, Core 1
1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
402.678	20.33	46.00	-25.67	Q-Peak	134	253	Vertical
402.942	26.78	46.00	-19.22	Q-Peak	50	100	Horizontal
2389.970	36.10	54.00	-17.90	RMS	268	133	Vertical
2483.521	40.71	54.00	-13.29	RMS	77	258	Vertical
2483.600	37.78	54.00	-16.22	RMS	297	249	Horizontal
4882.278	39.18	54.00	-14.82	RMS	219	226	Horizontal
4884.357	39.98	54.00	-14.02	RMS	276	100	Vertical
5456.167	37.57	54.00	-16.43	RMS	0	202	Horizontal

Table 20 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR4, ePA, Core 0
30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

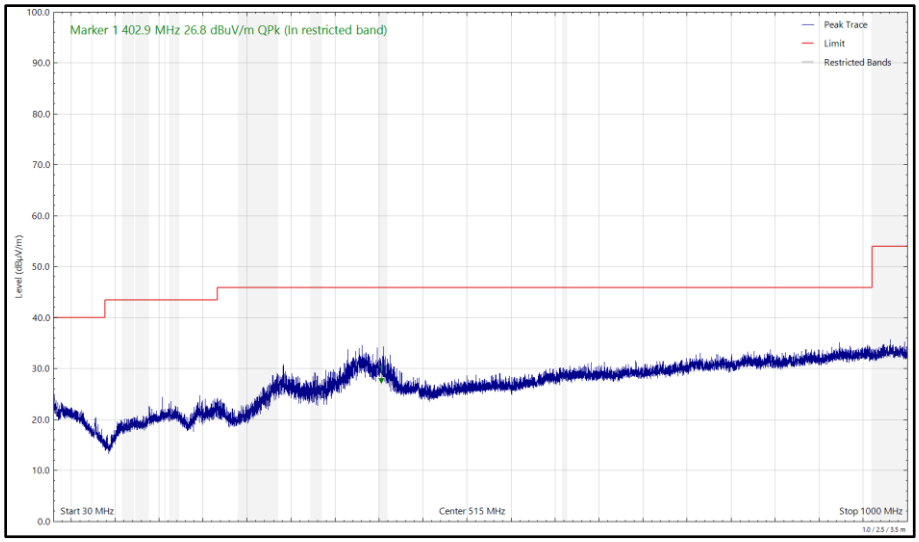

Figure 50 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR4, ePA, Core 0,
30 MHz to 1 GHz, Horizontal (Peak)

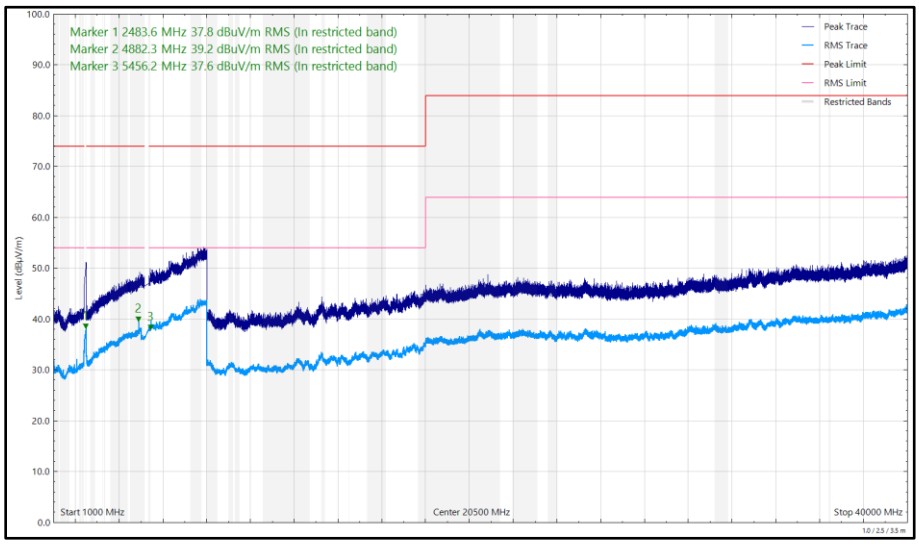

Figure 51 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR4, ePA, Core 0 1 GHz to 40 GHz, Horizontal

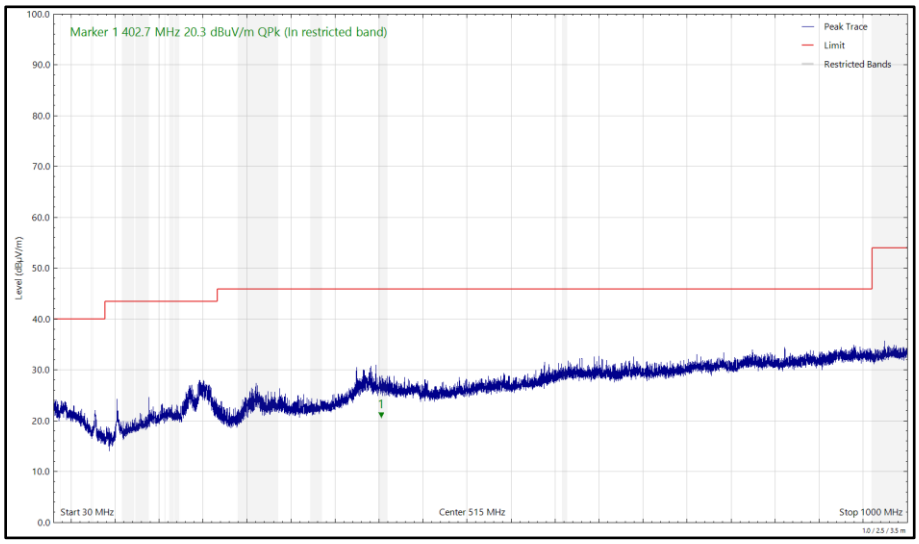

Figure 52 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR4, ePA, Core 0 30 MHz to 1 GHz, Vertical (Peak)

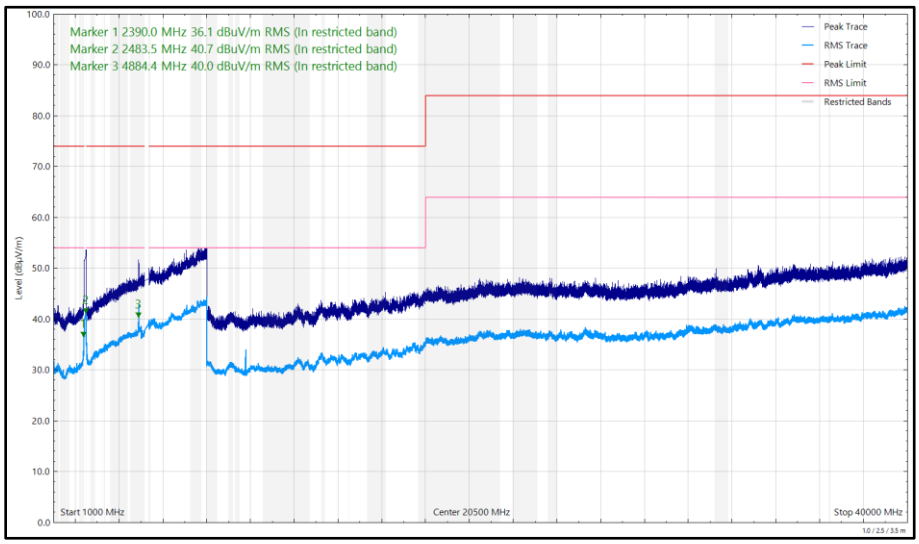

Figure 53 - 2442 MHz (CH7), HT20, Core 1 and 5204 MHz, HDR4, ePA, Core 0
1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
256.826	20.65	46.00	-25.35	Q-Peak	179	105	Vertical
401.124	25.57	46.00	-20.43	Q-Peak	52	100	Horizontal
2389.984	36.02	54.00	-17.98	RMS	262	159	Vertical
2483.555	40.93	54.00	-13.07	RMS	81	231	Vertical
2483.781	38.40	54.00	-15.60	RMS	296	249	Horizontal
4882.039	37.88	54.00	-16.12	RMS	287	236	Vertical
5374.583	41.29	54.00	-12.71	RMS	265	100	Vertical
5379.497	36.10	54.00	-17.90	RMS	350	389	Horizontal

Table 21 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0
30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

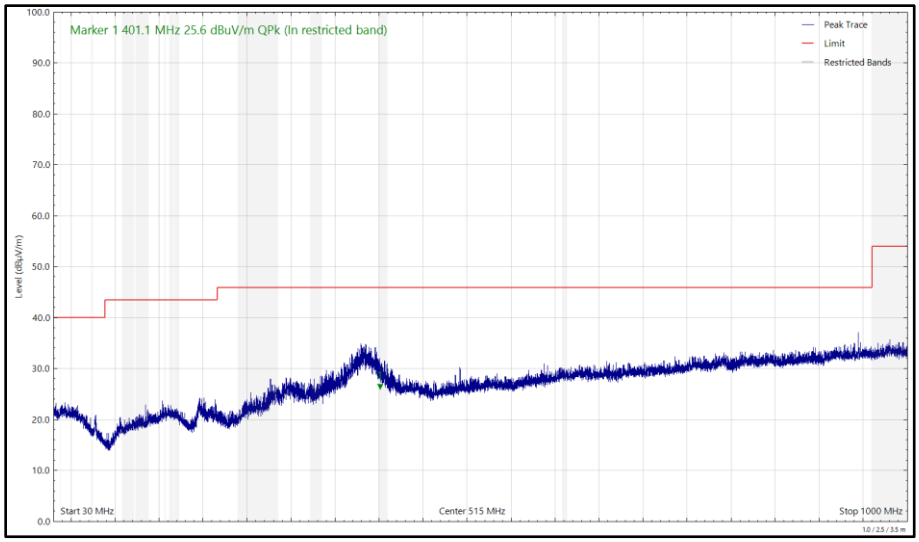

Figure 54 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0
30 MHz to 1 GHz, Horizontal (Peak)

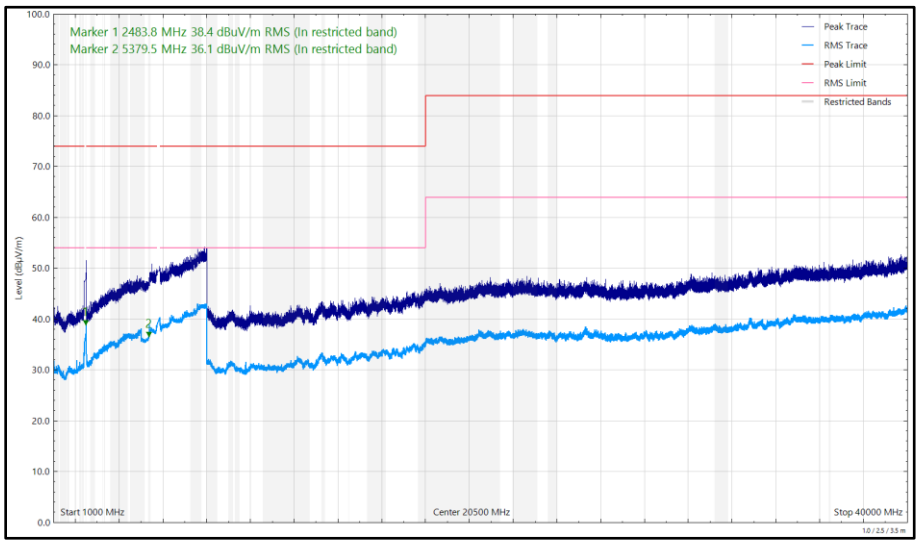

Figure 55 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0 1 GHz to 40 GHz, Horizontal

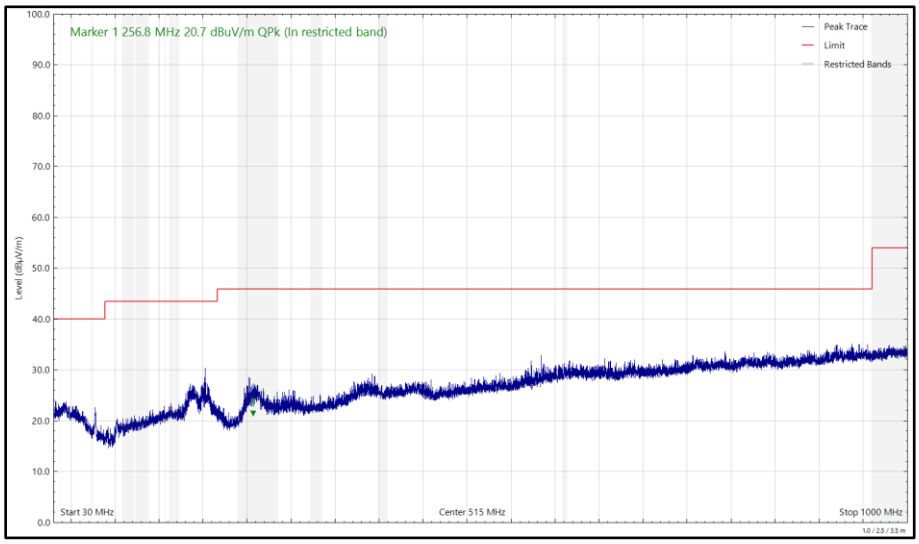

Figure 56 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0 30 MHz to 1 GHz, Vertical (Peak)

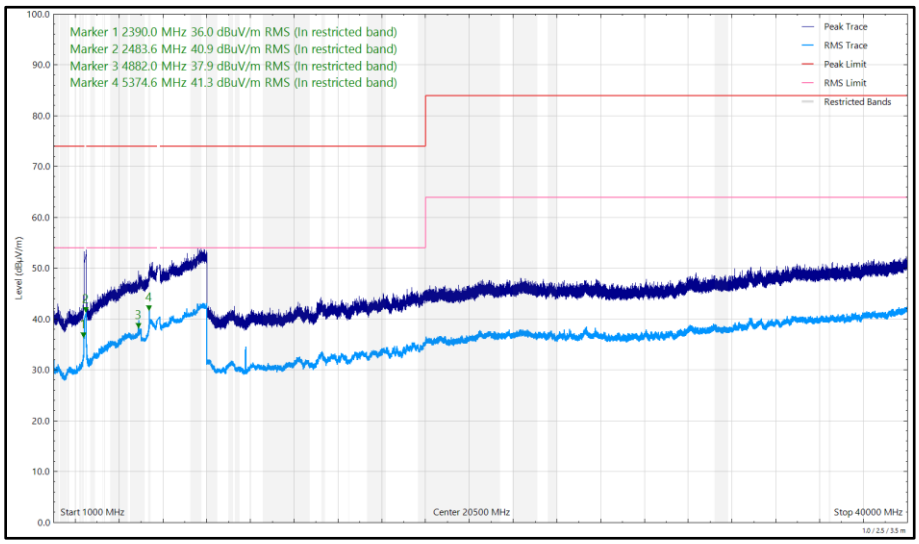

Figure 57 - 2442 MHz (CH7), HT20, Core 1 and 5788 MHz, HDR4, ePA, Core 0
1 GHz to 40 GHz, Vertical

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

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

The least stringent applicable limit was:

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

Table 22

5 GHz WLAN and Thread

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
386.102	29.30	46.00	-16.70	Q-Peak	143	100	Horizontal
2397.324	60.71	89.04	-28.33	Peak	285	244	Vertical
5111.922	38.88	54.00	-15.12	RMS	220	227	Horizontal
5119.272	40.89	54.00	-13.11	RMS	254	139	Vertical
5353.689	39.61	54.00	-14.39	RMS	216	208	Horizontal
5354.663	42.07	54.00	-11.93	RMS	259	100	Vertical

Table 23 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 0, ePA, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

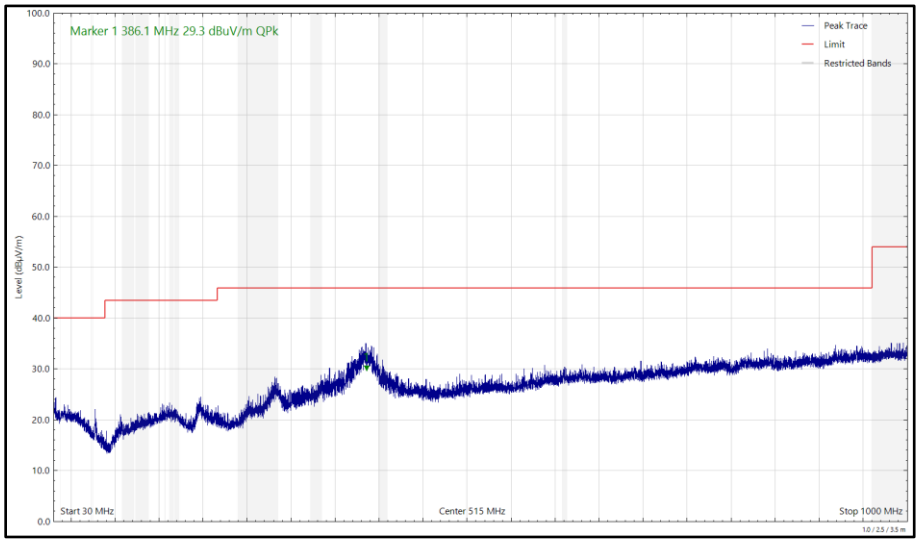

Figure 58 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 0, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

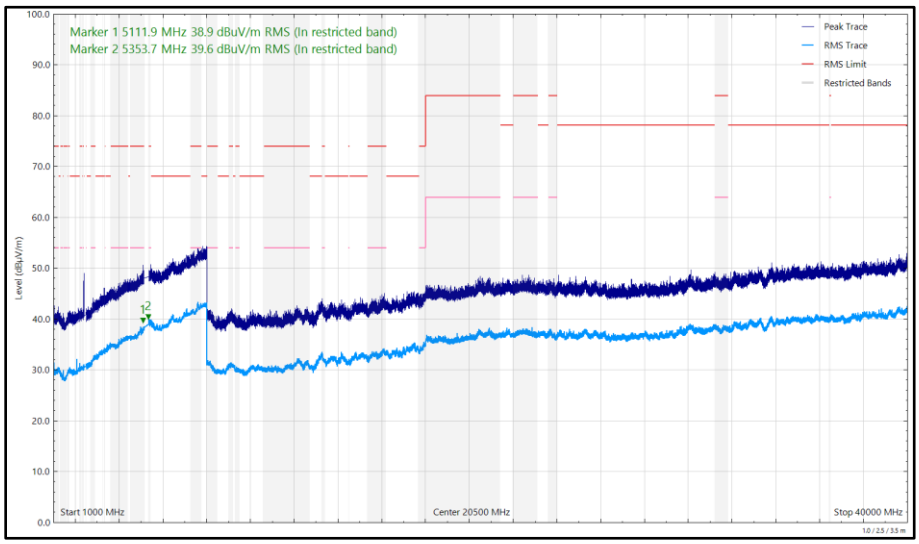

Figure 59 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 0, ePA, 1 GHz to 40 GHz, Horizontal

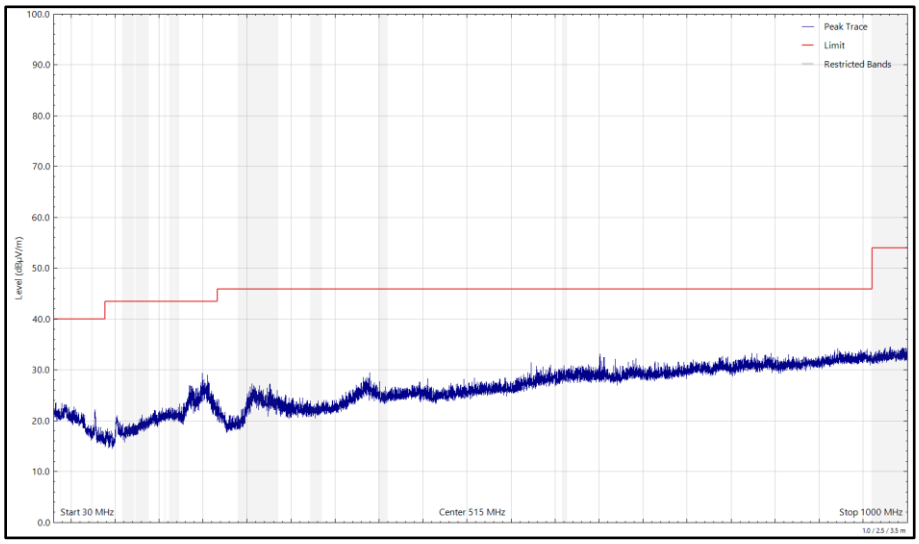

Figure 60 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 0, ePA, 30 MHz to 1 GHz, Vertical (Peak)

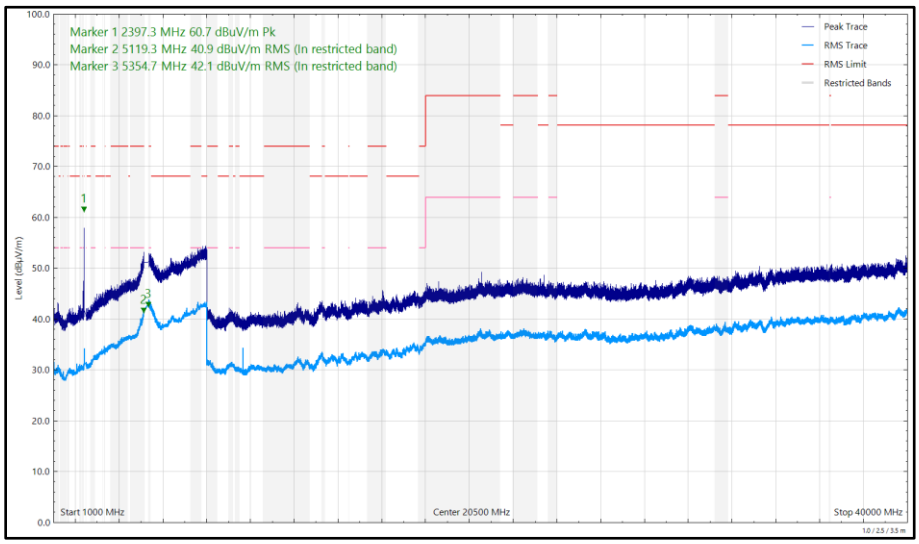

Figure 61 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 0, ePA, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
400.340	24.49	46.00	-21.51	Q-Peak	40	100	Horizontal
2388.554	58.73	74.00	-15.27	Peak	60	216	Vertical
2485.176	31.63	54.00	-22.37	RMS	56	150	Vertical
2486.035	60.36	74.00	-13.64	Peak	79	251	Vertical
5116.986	36.73	54.00	-17.27	RMS	202	273	Horizontal
5119.631	42.17	54.00	-11.83	RMS	246	147	Vertical
5350.584	42.54	54.00	-11.46	RMS	244	102	Vertical
5352.688	39.41	54.00	-14.59	RMS	215	165	Horizontal

Table 24 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 1, ePA, 30 MHz to 40 GHz

No other emissions found within 10 dB of the limit.

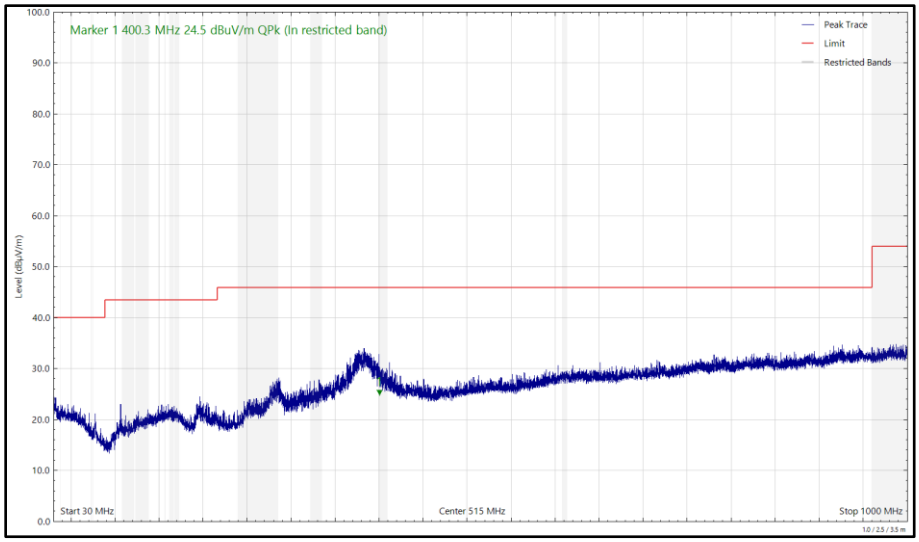

Figure 62 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 1, ePA, 30 MHz to 1 GHz, Horizontal (Peak)

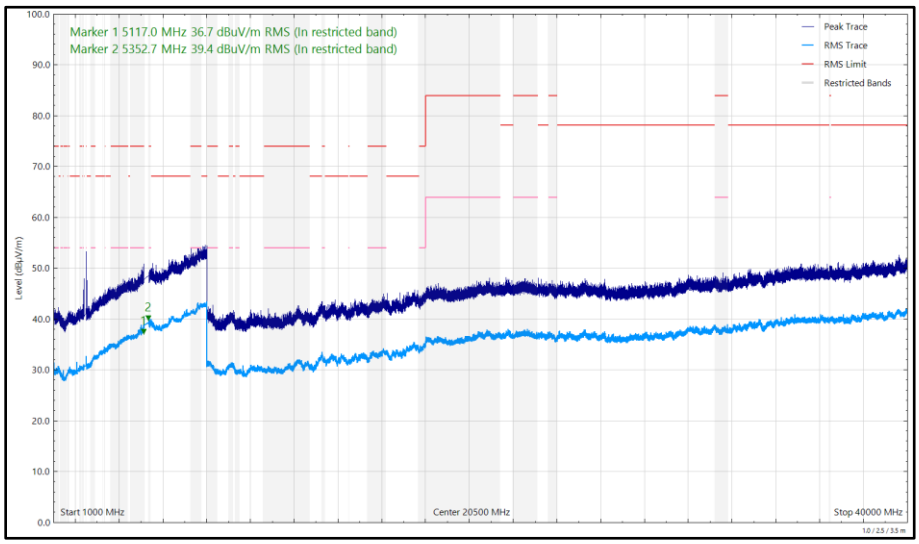

Figure 63 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 1, ePA, 1 GHz to 40 GHz, Horizontal

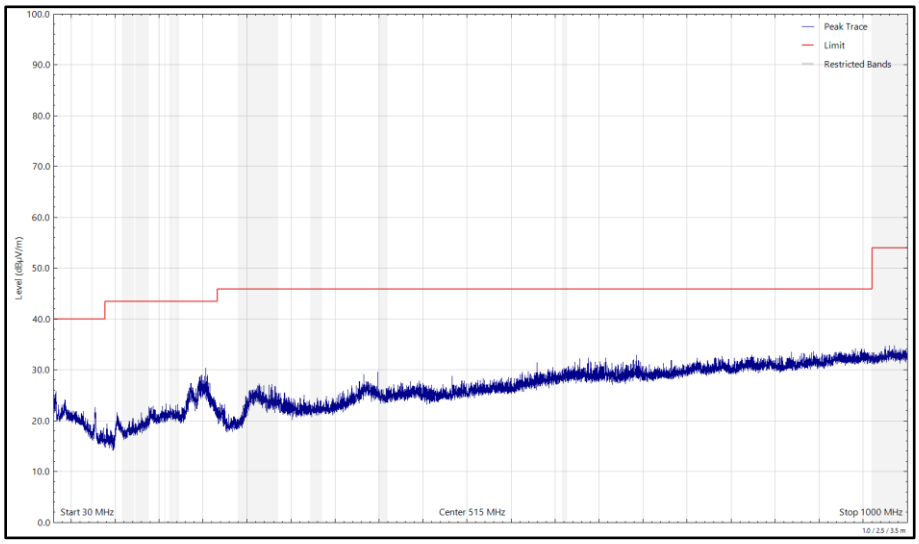

Figure 64 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 1, ePA, 30 MHz to 1 GHz, Vertical (Peak)

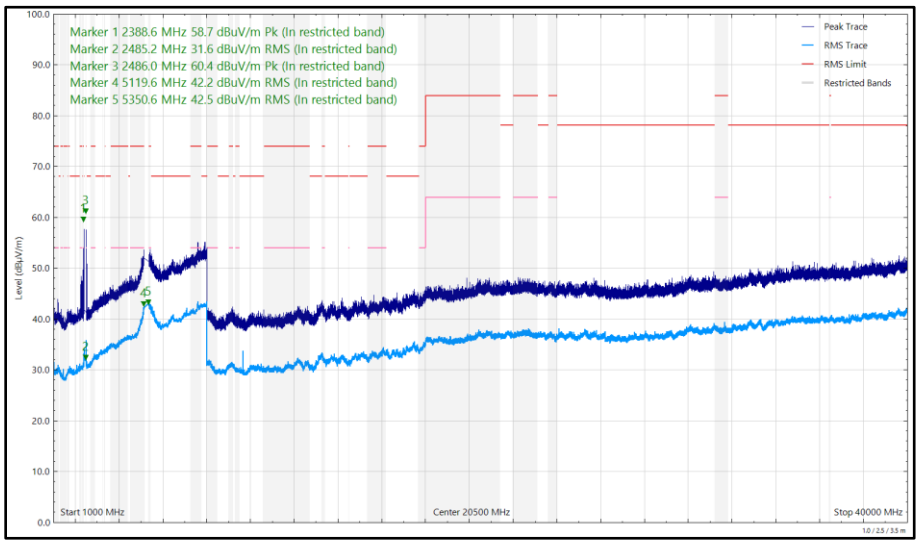

Figure 65 - U-NII-1 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Core 1, ePA, 1 GHz to 40 GHz, Vertical