

FCC and ISED Test Report

Apple Inc
Model: A3449



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
SERVICES
(UK) LIMITED

Digitally signed by
TUV SUD SERVICES
(UK) LIMITED
Date: 2026.01.23
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Document 75964010-20 Issue 01



SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Stephen Marshall	Senior Engineer	Authorised Signatory	23 January 2026

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

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 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	George Capps	23 January 2026	

FCC Accreditation

553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation

28798/UK0003 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15: 2024, ISED RSS-247: Issue 4 (2025-07), ISED RSS-248: Issue 3 (2024-10) and ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02) for the tests detailed in section 1.3.



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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

TÜV SÜD

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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	23 January 2026

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15: 2023 ISED RSS-247: Issue 4 (2025-07) ISED RSS-248: Issue 3 (2024-10) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	27-December-2025
Finish of Test	18-January-2026
Name of Engineer(s)	Nathan Ocom, Morsalin Hossain, Colin Brain, Tony Baby, Manohar Thota, , Zeeshan Zia, Ian Broomhall, Ahmed Al Derdiri, Gridi Bilali
Related Document(s)	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01 KDB 987594 D02 v03

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)	6.6 and 7.3	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01
Configuration and Mode: 6 GHz WLAN and 2.4 GHz Bluetooth							
2.1	15.209, 15.247(d) and 15.407(b)	6.6	4.6.2	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01 KDB 987594 D02 v03
Configuration and Mode: 5 GHz WLAN and Thread							
2.1	15.209, 15.247(d) and 15.407(b)	6.6 and 7.3	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01
Configuration and Mode: 6 GHz WLAN and Thread							
2.1	15.209, 15.247(d) and 15.407(b)	6.6	4.6.2	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01 KDB 987594 D02 v03
Configuration and Mode 2.4 GHz WLAN and 2.4 GHz Bluetooth and 5 GHz Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	6.6 and 7.3	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01



Section	Specification Clause				Test Description	Result	Comments/Base Standard
Configuration and Mode 2.4 GHz WLAN and 2.4 GHz Bluetooth and 6 GHz Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	6.6	4.6.2	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01 KDB 987594 D02 v03
Configuration and Mode 2.4 GHz WLAN and Thread and 5 GHz Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	6.6 and 7.3	-	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01
Configuration and Mode 2.4 GHz WLAN and Thread and 6 GHz Narrowband							
2.1	15.209, 15.247(d) and 15.407(b)	6.6	4.6.2	6.13 and 8.9	Radiated Spurious Emissions (Simultaneous Transmission)	Pass	ANSI C63.4 (2014) ANSI C63.10 (2020) +Cor.1-2023+C63.10a-2024 KDB 789033 D02 v02r01 KDB 987594 D02 v03

Table 2



1.4 Product Information

1.4.1 Technical Description

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

1.5 Deviations from the Standard

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

1.6 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: A3449		
Serial Number	Hardware Version	Software Version
CRW6MH595K	REV1.0	25D21

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: A3449, Serial Number: CRW6MH595K			
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)	Nathan Ocom, Morsalin Hossain, Colin Brain, Tony Baby	UKAS
Configuration and Mode: 6 GHz WLAN and 2.4 GHz Bluetooth		
Radiated Spurious Emissions (Simultaneous Transmission)	Morsalin Hossain, Manohar Thota, Tony Baby, Colin Brain	UKAS
Configuration and Mode: 5 GHz WLAN and Thread		
Radiated Spurious Emissions (Simultaneous Transmission)	Morsalin Hossain, Colin Brain, Tony Baby	UKAS
Configuration and Mode: 6 GHz WLAN and Thread		
Radiated Spurious Emissions (Simultaneous Transmission)	Colin Brain, Tony Baby, Manohar Thota	UKAS
Configuration and Mode: 2.4 GHz WLAN and 2.4 GHz Bluetooth and 5 GHz Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Colin Brain, Zeeshan Zia, Nathan Ocom, Ahmed Al Derdiri	UKAS
Configuration and Mode: 2.4 GHz WLAN and 2.4 GHz Bluetooth and 6 GHz Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Zeeshan Zia, Colin Brain, Nathan Ocom, Ahmed Al Derdiri	UKAS
Configuration and Mode: 2.4 GHz WLAN and Thread and 5 GHz Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Colin Brain, Zeeshan Zia, Nathan Ocom, Ian Broomhall, Ahmed Al Derdiri, Gridi Bilali	UKAS
Configuration and Mode: 2.4 GHz WLAN and Thread and 6 GHz Narrowband		
Radiated Spurious Emissions (Simultaneous Transmission)	Zeeshan Zia, Ian Broomhall, Nathan Ocom, Gridi Bilali	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 6.6 and 7.3
ISED RSS-248, Clause 4.6
ISED RSS-GEN, Clause 6.13 and 8.9

2.1.2 Equipment Under Test and Modification State

A3449, S/N: CRW6MH595K - Modification State 0

2.1.3 Date of Test

27-December-2025 to 18-January-2026

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

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

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

Radiated spurious emissions tests have been conducted in HDR4 (high power) mode for Narrowband technology as this represents the worst case with respect to Power and PSD.

2.1.5 Example Test Setup Diagram

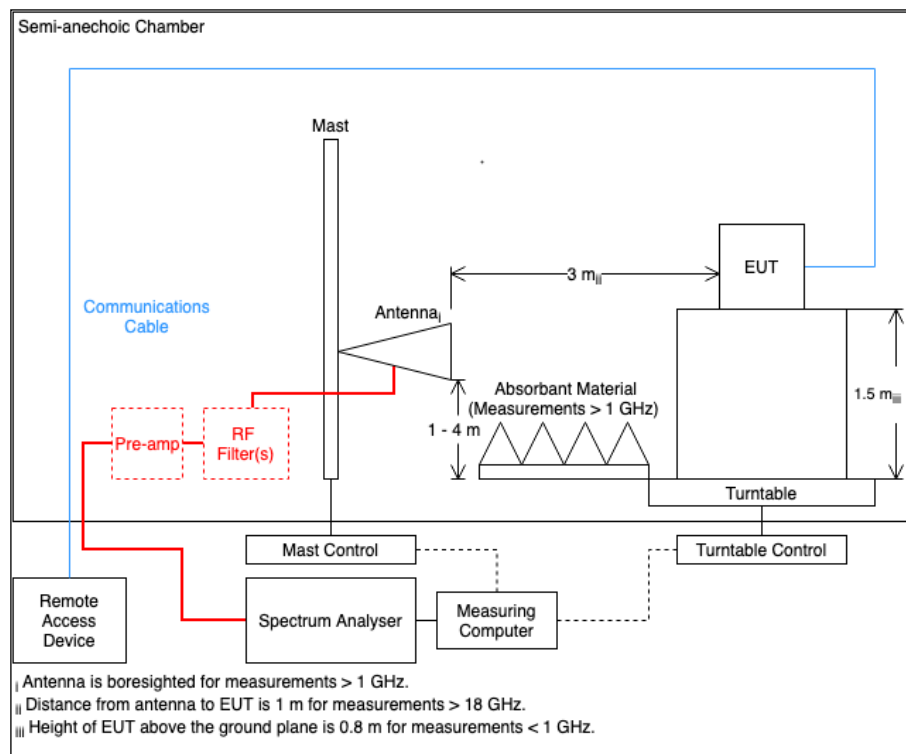


Figure 1

2.1.6 Environmental Conditions

Ambient Temperature	20.0 - 23.7 °C
Relative Humidity	30.0 - 47.2 %

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
38.217	24.91	40.00	-15.09	Q-Peak	123	105	Vertical
38.247	19.70	40.00	-20.30	Q-Peak	190	365	Horizontal
73.477	19.70	40.00	-20.30	Q-Peak	243	101	Vertical
137.791	19.46	43.50	-24.04	Q-Peak	194	319	Vertical
2384.513	33.06	54.00	-20.94	CISPR Avg	359	349	Vertical
2485.646	31.65	54.00	-22.35	CISPR Avg	350	354	Vertical
4882.093	44.59	54.00	-9.41	CISPR Avg	339	304	Vertical
5000.312	41.49	54.00	-12.51	CISPR Avg	341	290	Vertical
5132.538	55.21	74.00	-18.79	Peak	7	315	Vertical
5416.381	57.04	74.00	-16.96	Peak	19	314	Vertical

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

No other emissions found within 20 dB of the limit.

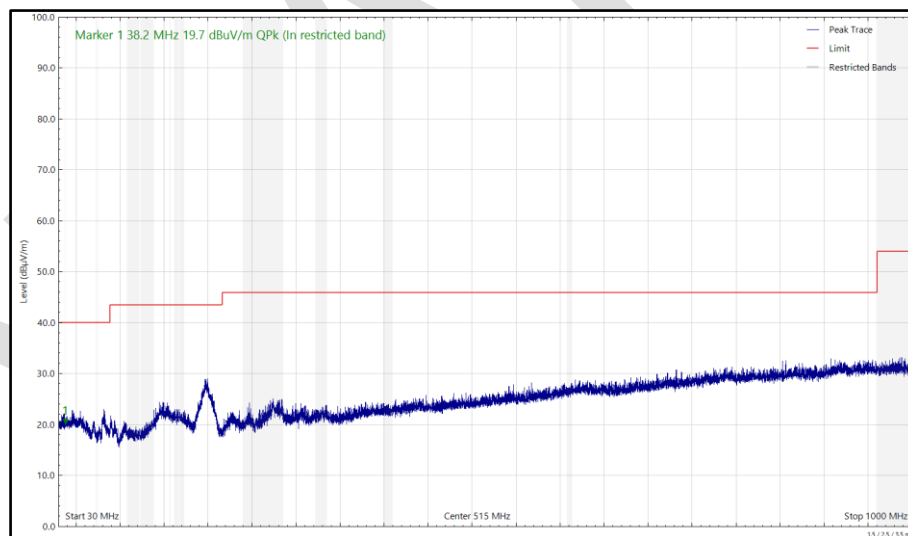


Figure 2 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

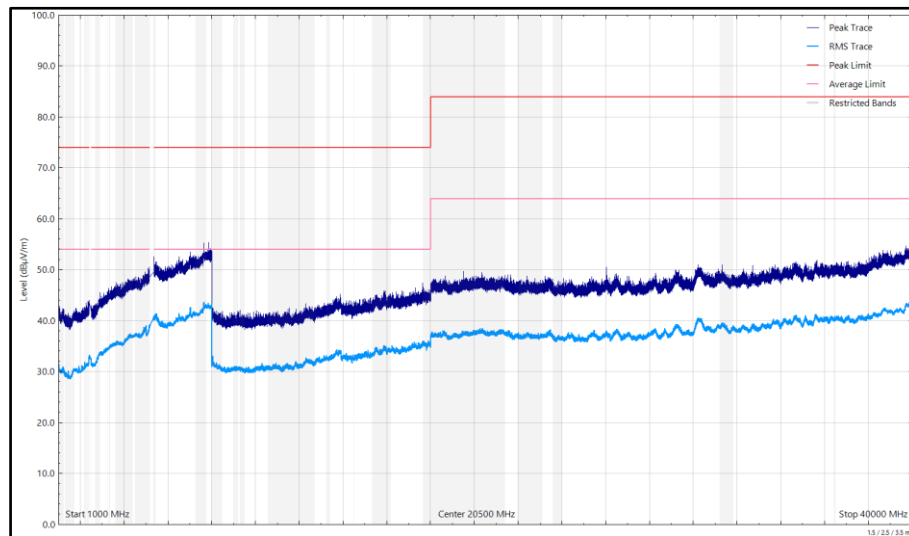


Figure 3 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

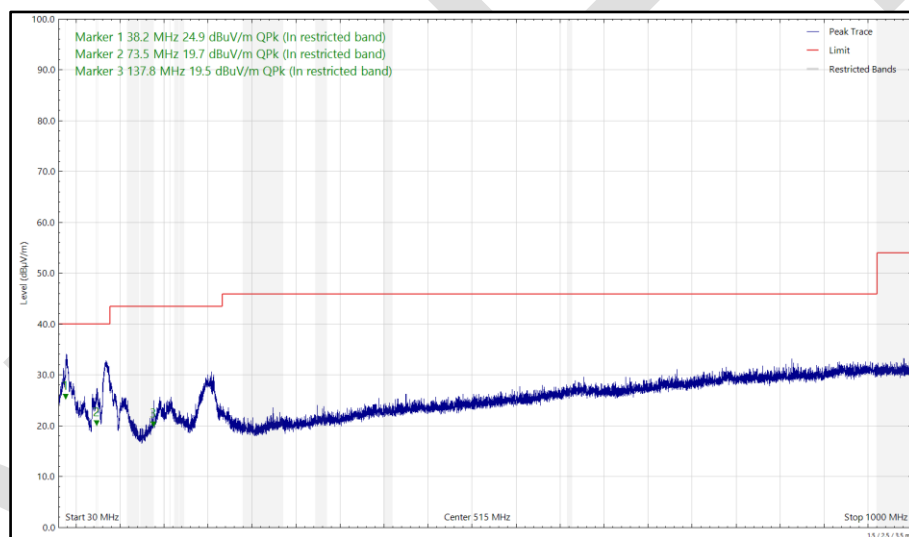


Figure 4 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

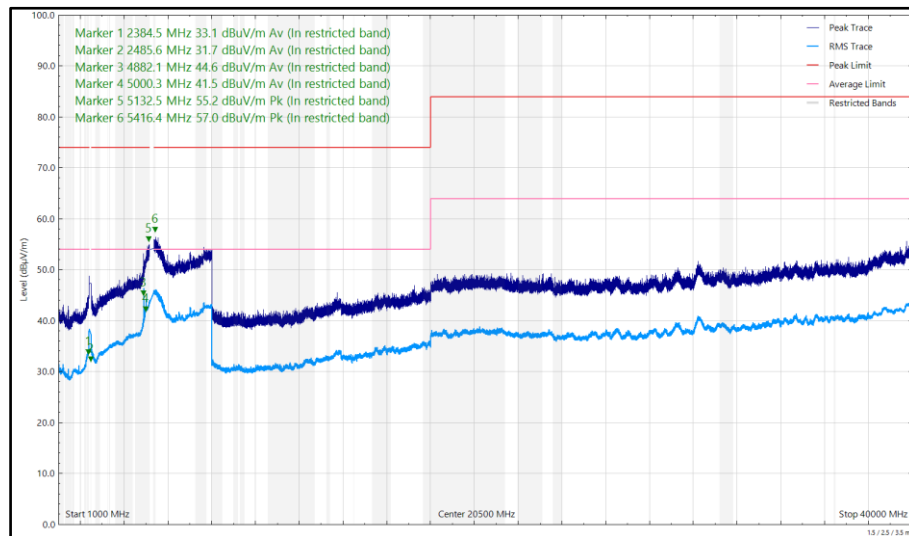


Figure 5 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.715	19.87	40.00	-20.13	Q-Peak	46	245	Horizontal
37.918	26.90	40.00	-13.10	Q-Peak	300	105	Vertical
75.058	17.90	40.00	-22.10	Q-Peak	37	165	Vertical
329.950	22.95	46.00	-23.05	Q-Peak	360	107	Horizontal
2387.739	33.28	54.00	-20.72	CISPR Avg	4	297	Vertical
2485.804	32.19	54.00	-21.81	CISPR Avg	353	314	Vertical
4882.178	42.81	54.00	-11.19	CISPR Avg	339	326	Vertical
5444.812	58.14	74.00	-15.86	Peak	327	287	Vertical

Table 7 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

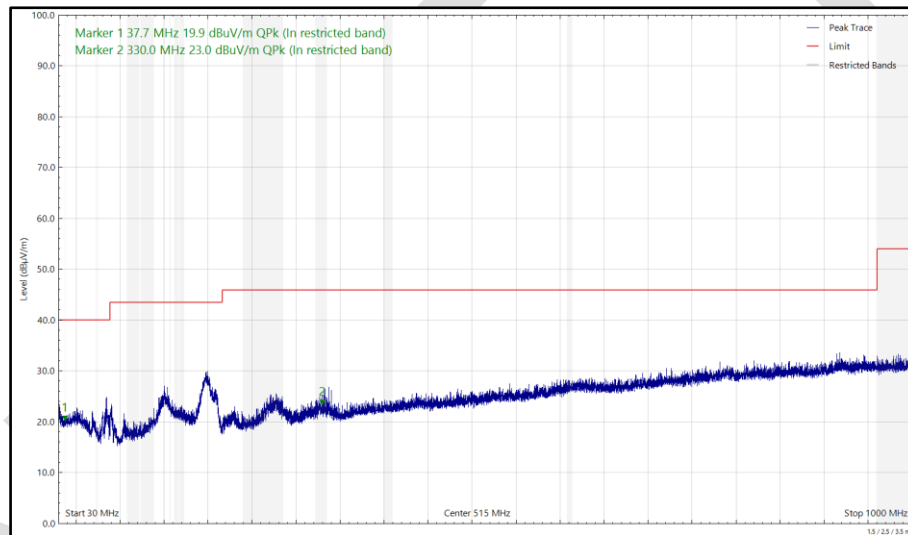


Figure 6 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

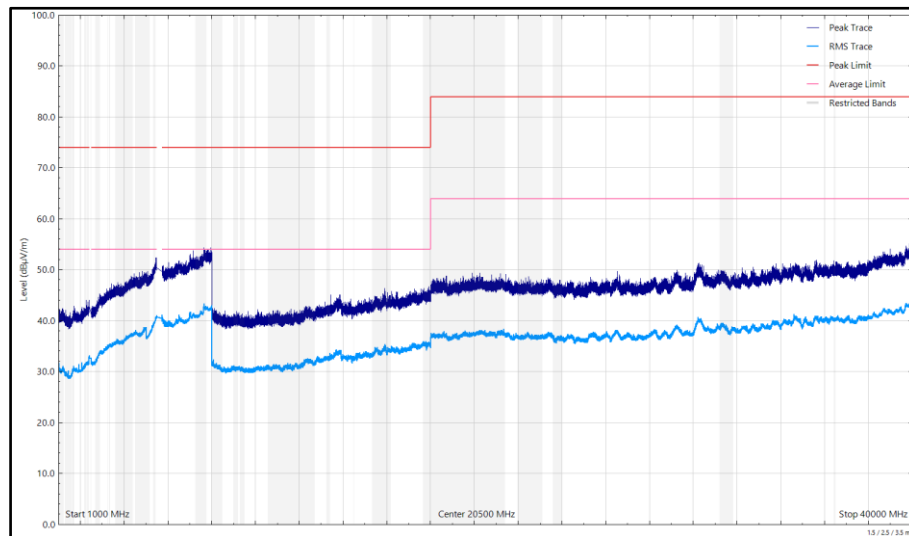


Figure 7 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

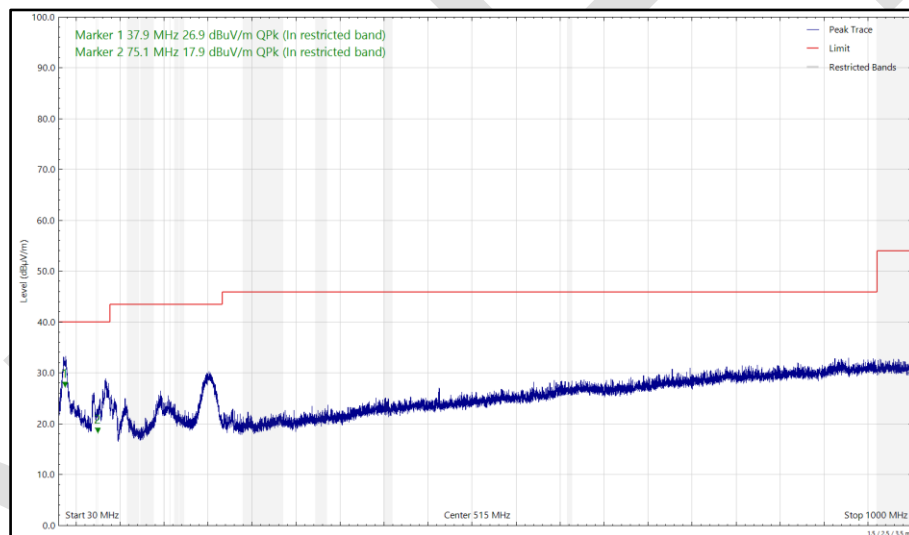


Figure 8 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

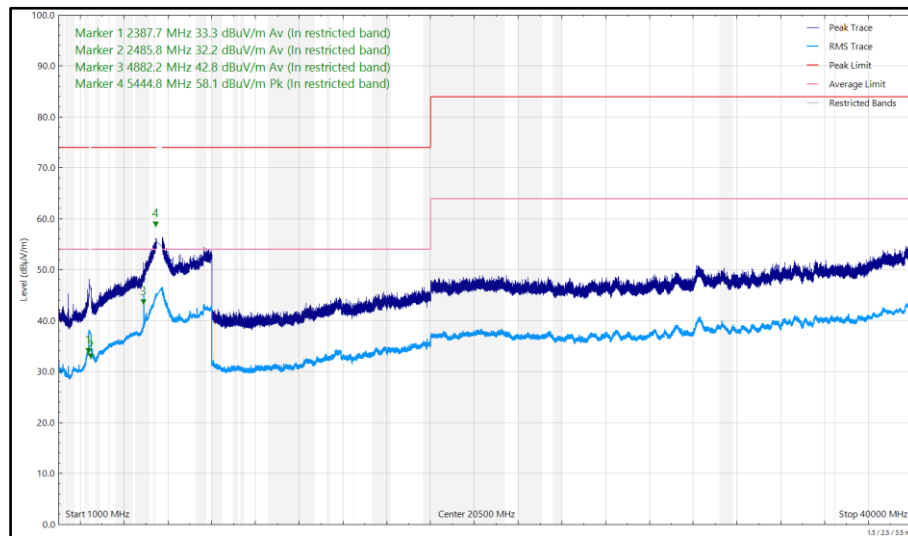


Figure 9 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
38.064	19.85	40.00	-20.15	Q-Peak	360	200	Horizontal
38.119	29.83	40.00	-10.17	Q-Peak	131	113	Vertical
73.517	21.19	40.00	-18.81	Q-Peak	39	116	Vertical
108.188	21.01	43.50	-22.49	Q-Peak	334	100	Vertical
156.710	20.75	43.50	-22.75	Q-Peak	113	217	Vertical
278.543	21.24	46.00	-24.76	Q-Peak	355	110	Horizontal
333.326	21.96	46.00	-24.04	Q-Peak	27	355	Horizontal
2387.892	33.02	54.00	-20.98	CISPR Avg	358	347	Vertical
2484.459	31.70	54.00	-22.30	CISPR Avg	0	389	Vertical
4882.397	41.02	54.00	-12.98	CISPR Avg	346	288	Vertical
5404.001	56.99	74.00	-17.01	Peak	32	329	Vertical
9123.110	31.59	54.00	-22.41	CISPR Avg	301	228	Vertical
9125.936	30.54	54.00	-23.46	CISPR Avg	286	367	Horizontal

Table 8 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

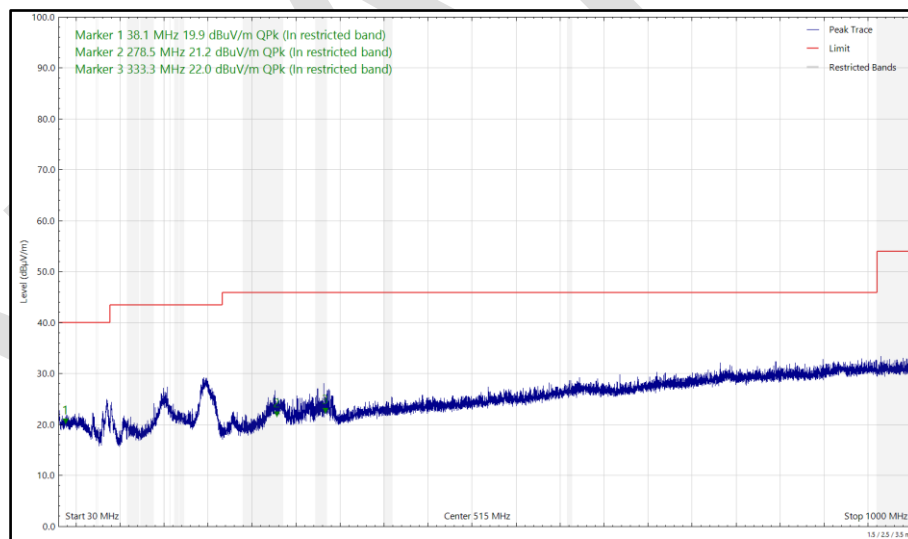


Figure 10 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

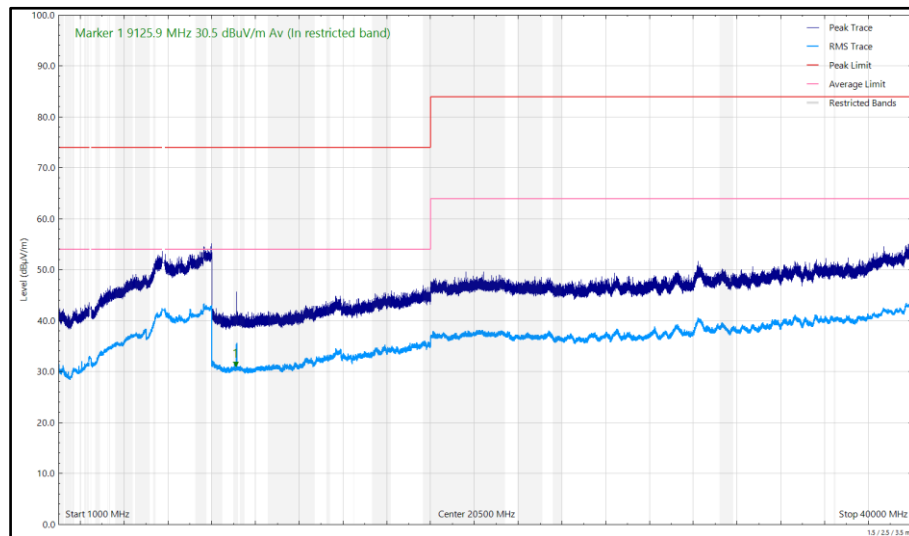


Figure 11 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

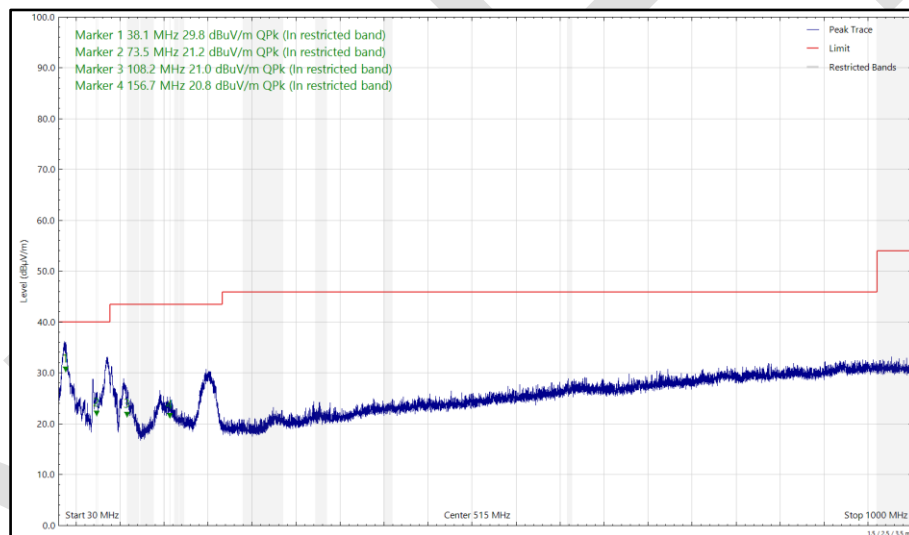


Figure 12 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

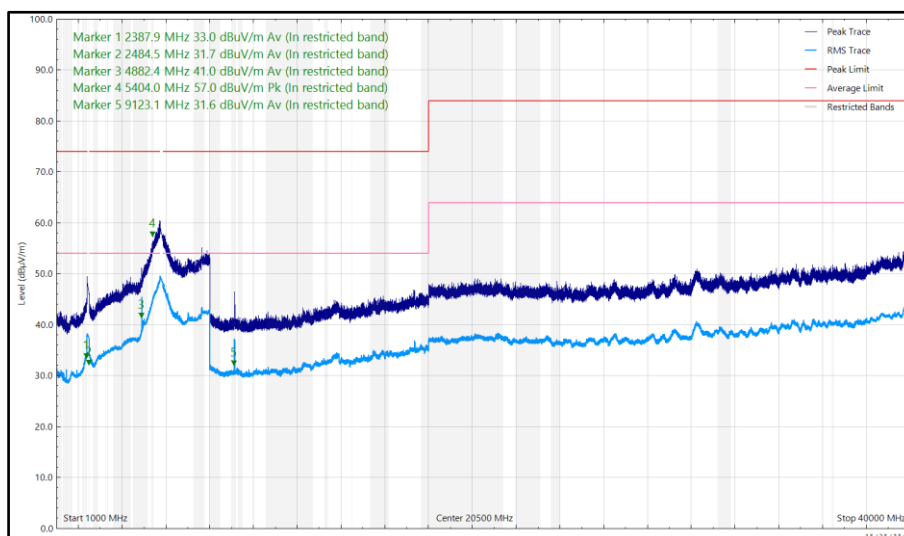


Figure 13 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

FCC 47 CFR Part 15, ISSED RSS-247 and ISSED 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 6.6	-20 dBc / -30 dBc
Part 15.407 (b) / RSS-247 Clause 6.6, 7.3.1.3, 7.3.2.3, 7.3.3.3, 7.3.4.4	-27 dBm e.i.r.p
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dBuV/m at 3m, Average 54 dBuV/m at 3m (Restricted bands > 1 GHz)
Part 15.407 (b) / RSS-247 Clause 7.3.2.3	-27 dBm e.i.r.p
Part 15.407 (b) / RSS-247 Clause 7.3.3.3	-27 dBm e.i.r.p
Part 15.407 (b) / RSS-247 Clause 7.3.4.4	-27 dBm e.i.r.p

Table 9

6 GHz WLAN and 2.4 GHz Bluetooth

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.553	29.90	40.00	-10.10	Q-Peak	109	101	Vertical
38.179	19.80	40.00	-20.20	Q-Peak	355	293	Horizontal
73.185	21.17	40.00	-18.83	Q-Peak	49	102	Vertical
108.639	21.57	43.50	-21.93	Q-Peak	131	100	Vertical
117.275	17.47	43.50	-26.03	Q-Peak	37	353	Horizontal
163.617	20.95	43.50	-22.55	Q-Peak	340	243	Horizontal
271.669	19.61	46.00	-26.39	Q-Peak	323	195	Horizontal
329.261	22.92	46.00	-23.08	Q-Peak	359	104	Horizontal
2384.904	33.23	54.00	-20.77	CISPR Avg	1	302	Vertical
2485.606	32.33	54.00	-21.67	CISPR Avg	2	322	Vertical
4881.453	39.45	54.00	-14.55	CISPR Avg	345	292	Vertical
7322.963	35.26	54.00	-18.74	CISPR Avg	8	140	Vertical

Table 10 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

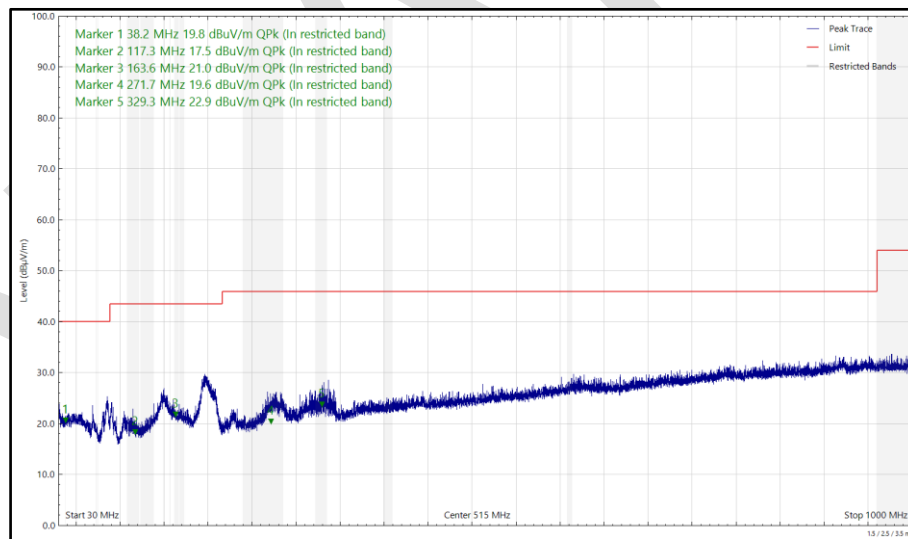


Figure 14 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

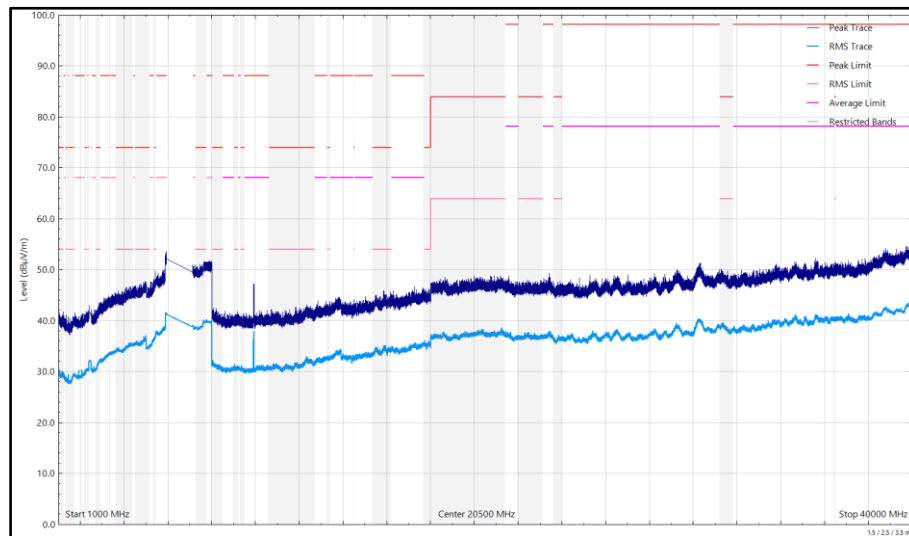


Figure 15 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

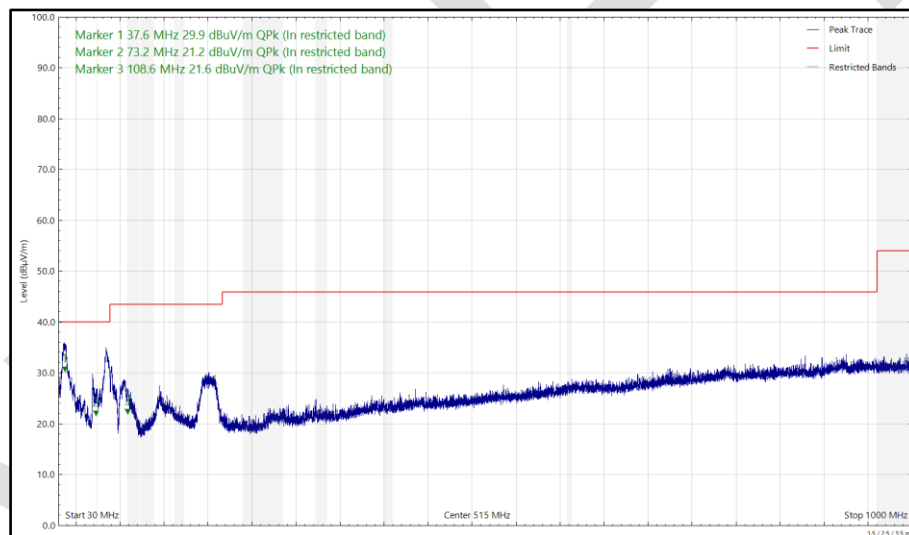


Figure 16 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

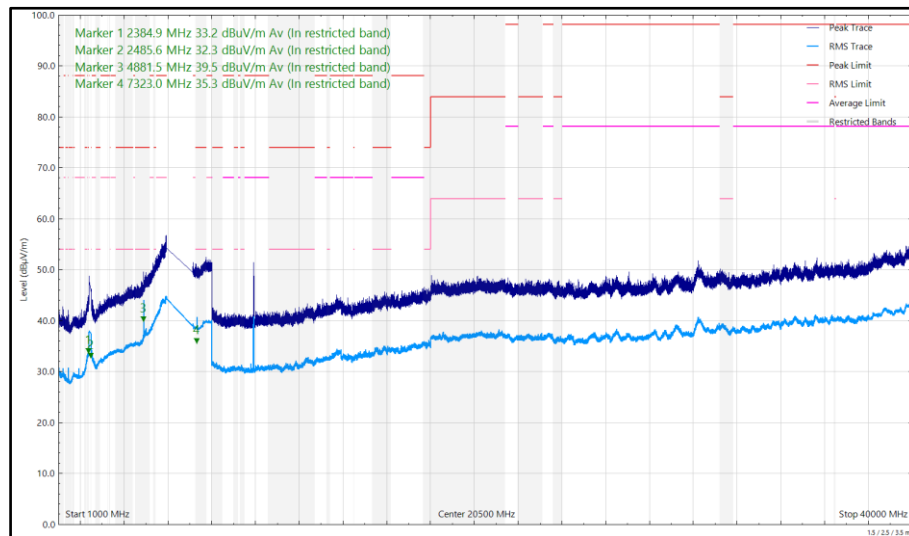


Figure 17 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
35.764	30.89	40.00	-9.11	Q-Peak	211	100	Vertical
37.731	19.71	40.00	-20.29	Q-Peak	1	391	Horizontal
73.495	20.41	40.00	-19.59	Q-Peak	187	100	Vertical
108.542	19.58	43.50	-23.92	Q-Peak	43	110	Vertical
160.834	20.84	43.50	-22.66	Q-Peak	233	100	Vertical
164.163	20.61	43.50	-22.89	Q-Peak	130	285	Horizontal
278.736	20.09	46.00	-25.91	Q-Peak	130	153	Horizontal
324.109	21.48	46.00	-24.52	Q-Peak	18	138	Horizontal
2388.542	33.19	54.00	-20.81	CISPR Avg	350	302	Vertical
2483.759	32.15	54.00	-21.85	CISPR Avg	356	375	Vertical
4881.358	37.93	54.00	-16.07	CISPR Avg	344	330	Vertical

Table 11 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

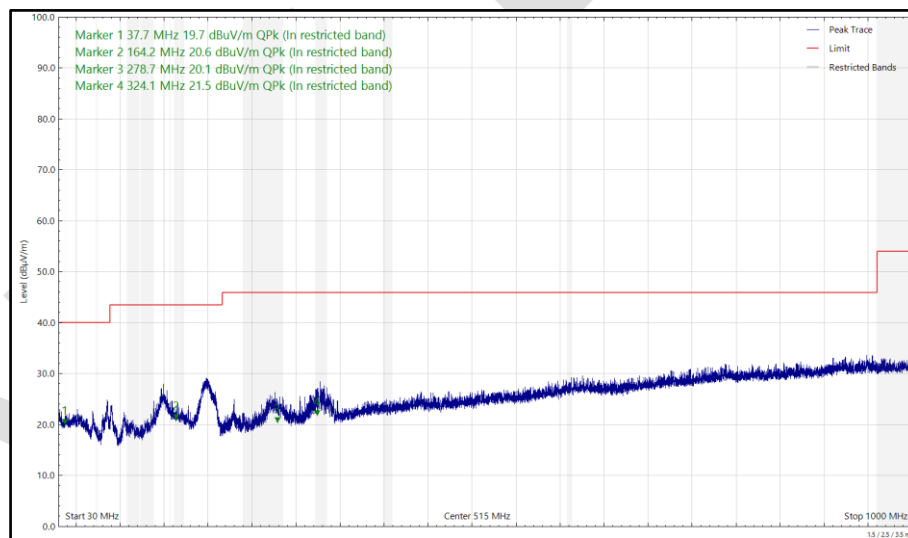


Figure 18 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

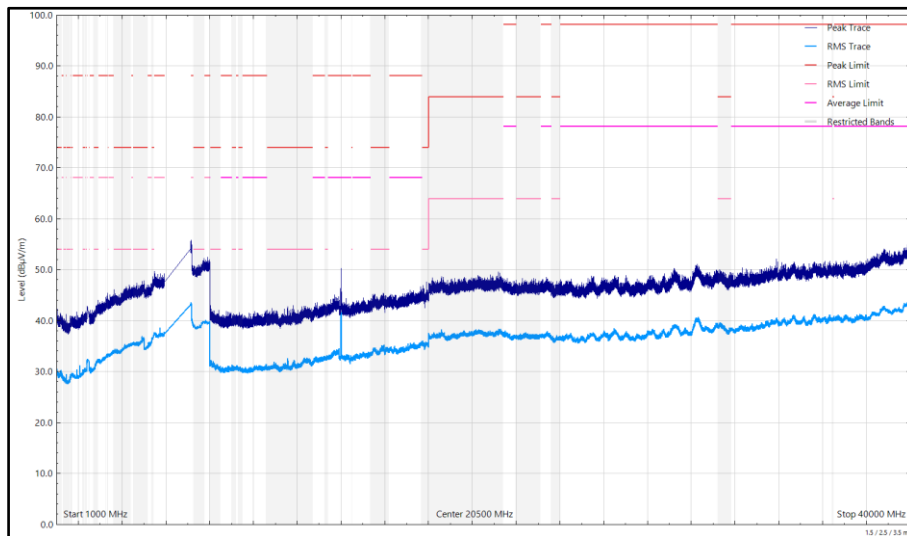


Figure 19 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

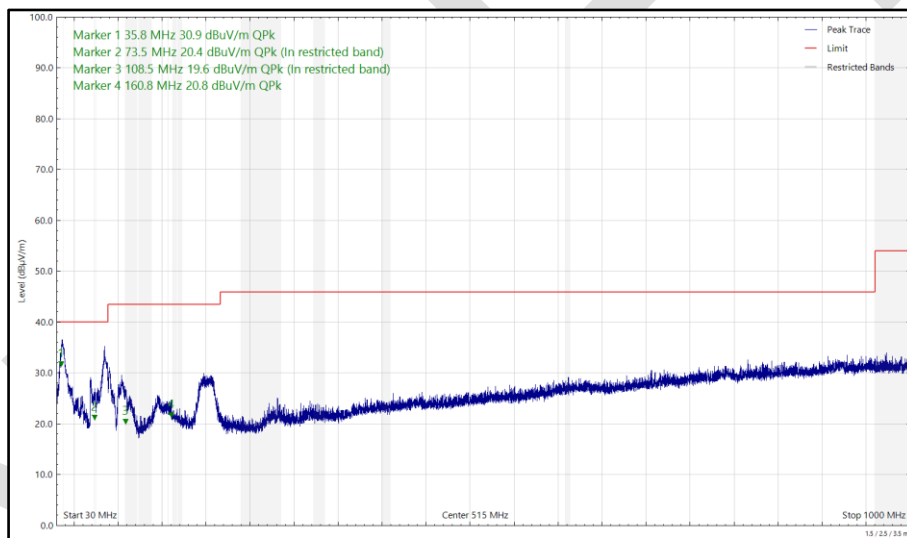


Figure 20 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

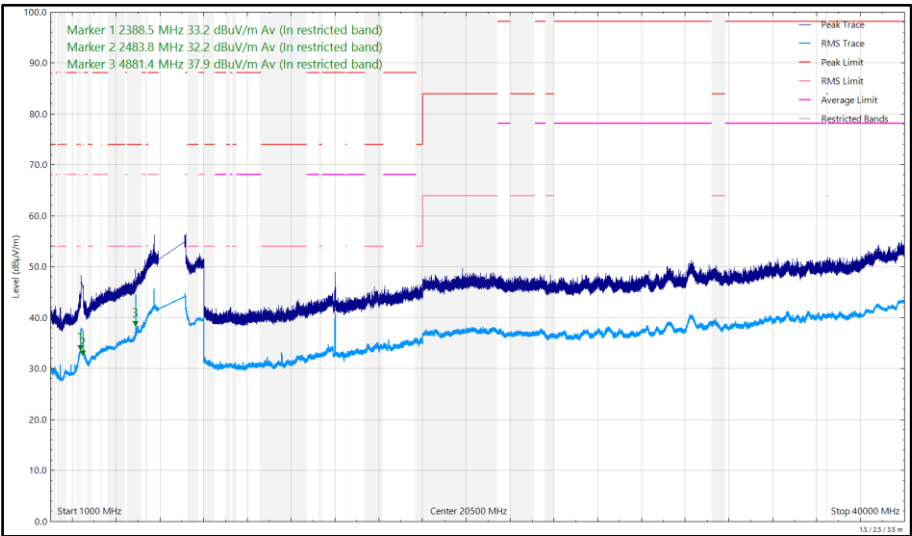


Figure 21 - 6995 MHz (CH209), HE20, SU, CDD, Core 0 + Core 1 and 2441 MHz (CH39), DH5, ePA, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

FCC 47 CFR Part 15, ISSED RSS-247, ISSED RSS-248 and ISSED 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 6.6	-20 dBc
Part 15.407 (b) / RSS-248 Clause 4.6.2	Peak: -7 dBm/MHz e.i.r.p, Average: -27 dBm/MHz e.i.r.p.
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dBuV/m at 3m, Average 54 dBuV/m at 3m (Restricted bands > 1 GHz)

Table 12

5 GHz WLAN and Thread

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.876	19.89	40.00	-20.11	Q-Peak	316	251	Horizontal
37.920	30.01	40.00	-9.99	Q-Peak	146	107	Vertical
73.331	20.90	40.00	-19.10	Q-Peak	39	125	Vertical
108.405	21.47	43.50	-22.03	Q-Peak	59	113	Vertical
149.918	20.86	43.50	-22.64	Q-Peak	134	105	Vertical
334.970	22.45	46.00	-23.55	Q-Peak	354	105	Horizontal
2389.792	34.64	54.00	-19.36	RMS	10	276	Vertical
2483.582	34.47	54.00	-19.53	RMS	26	285	Vertical
4999.994	45.14	54.00	-8.86	RMS	350	306	Vertical
5067.034	55.76	74.00	-18.24	Peak	346	307	Vertical
5146.157	38.46	54.00	-15.54	RMS	290	363	Horizontal
5149.102	45.13	54.00	-8.87	RMS	344	307	Vertical
5429.400	45.93	54.00	-8.07	RMS	28	313	Vertical
5433.360	56.36	74.00	-17.64	Peak	325	326	Vertical
5456.342	39.91	54.00	-14.09	RMS	38	348	Horizontal

Table 13 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

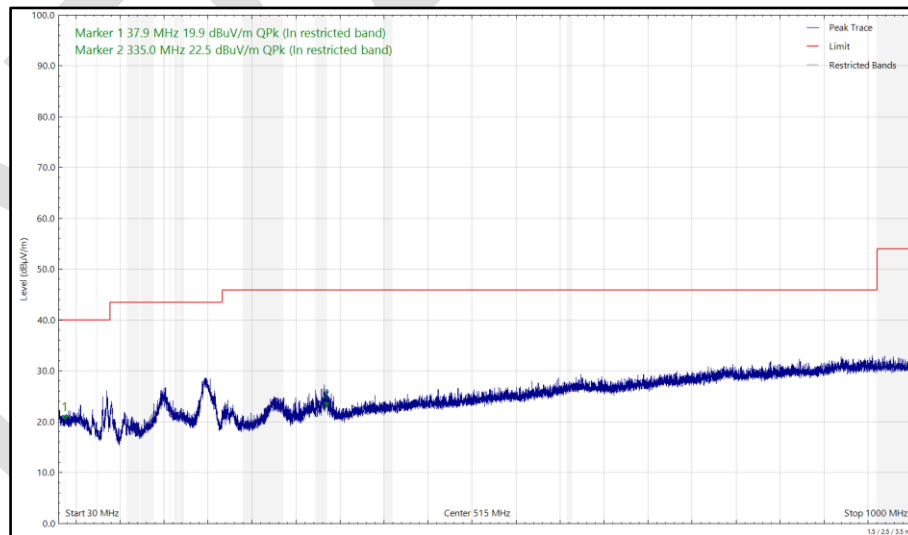


Figure 22 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

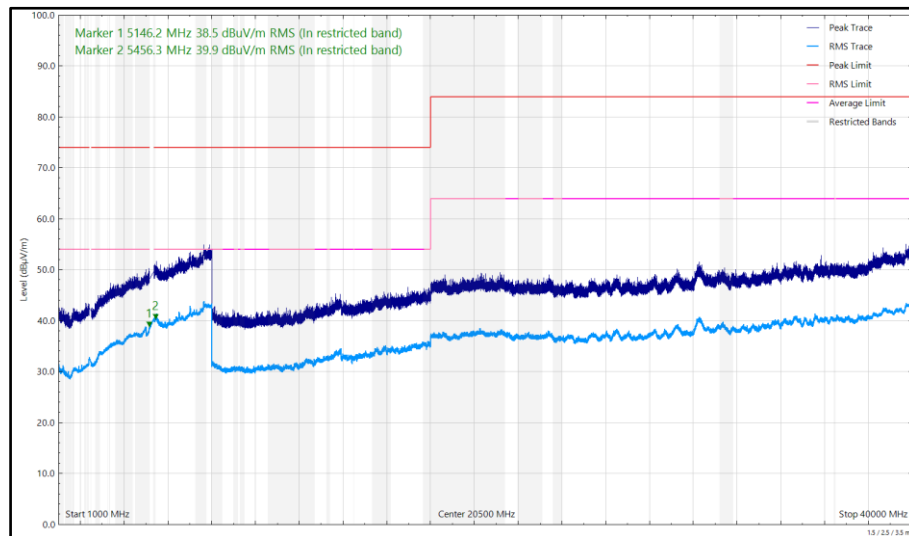


Figure 23 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

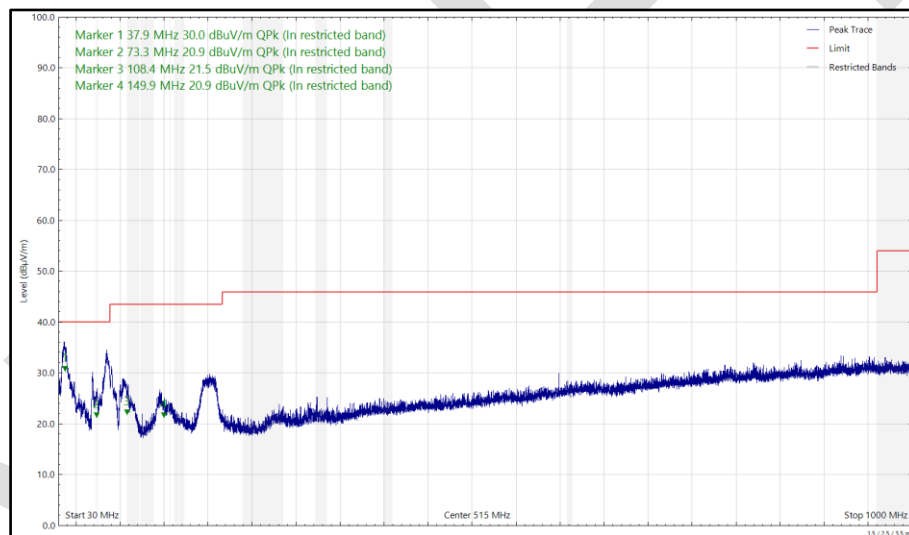


Figure 24 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

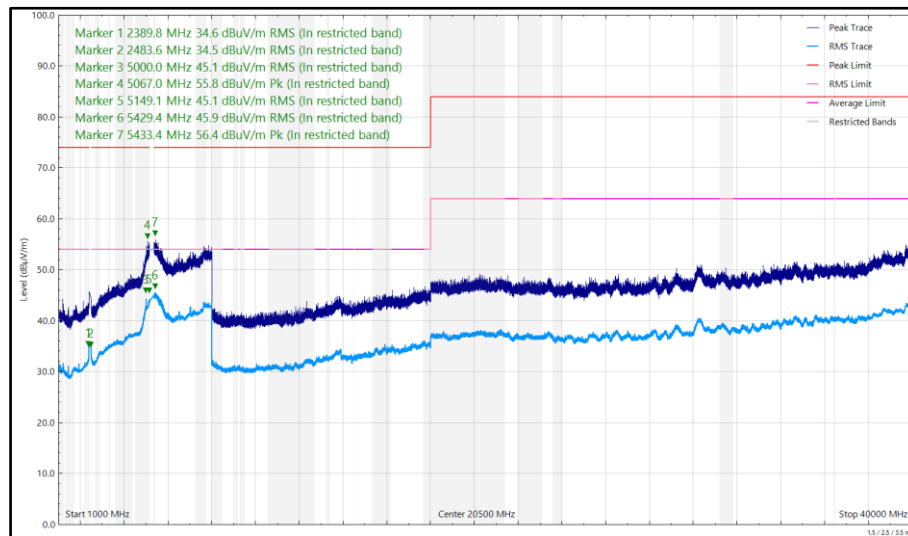


Figure 25 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.920	29.96	40.00	-10.04	Q-Peak	328	100	Vertical
37.959	19.80	40.00	-20.20	Q-Peak	148	271	Horizontal
73.435	21.02	40.00	-18.98	Q-Peak	24	117	Vertical
73.743	17.49	40.00	-22.51	Q-Peak	249	396	Horizontal
108.297	21.69	43.50	-21.81	Q-Peak	350	110	Vertical
163.200	20.77	43.50	-22.73	Q-Peak	163	400	Horizontal
278.193	19.51	46.00	-26.49	Q-Peak	166	313	Horizontal
334.460	22.02	46.00	-23.98	Q-Peak	7	390	Horizontal
2388.170	36.54	54.00	-17.46	RMS	350	276	Vertical
2483.690	35.59	54.00	-18.41	RMS	350	335	Vertical
4881.101	43.48	54.00	-10.52	RMS	343	331	Vertical
4999.894	44.78	54.00	-9.22	RMS	350	298	Vertical
5114.705	55.15	74.00	-18.85	Peak	337	304	Vertical
5135.931	44.82	54.00	-9.18	RMS	350	313	Vertical
5149.620	38.80	54.00	-15.20	RMS	292	391	Horizontal
5385.868	56.72	74.00	-17.28	Peak	29	258	Vertical
5411.537	45.12	54.00	-8.88	RMS	17	316	Vertical
5422.432	40.80	54.00	-13.20	RMS	63	400	Horizontal

Table 14 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

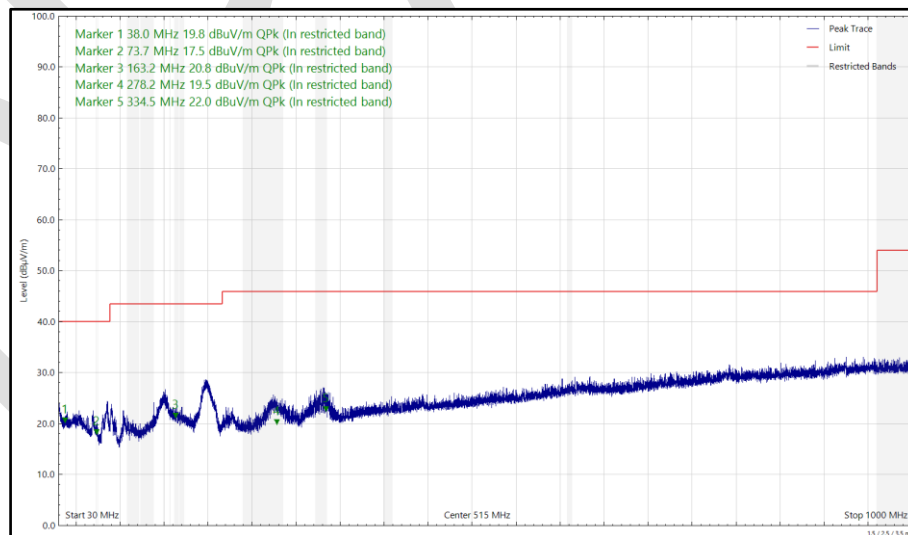


Figure 26 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

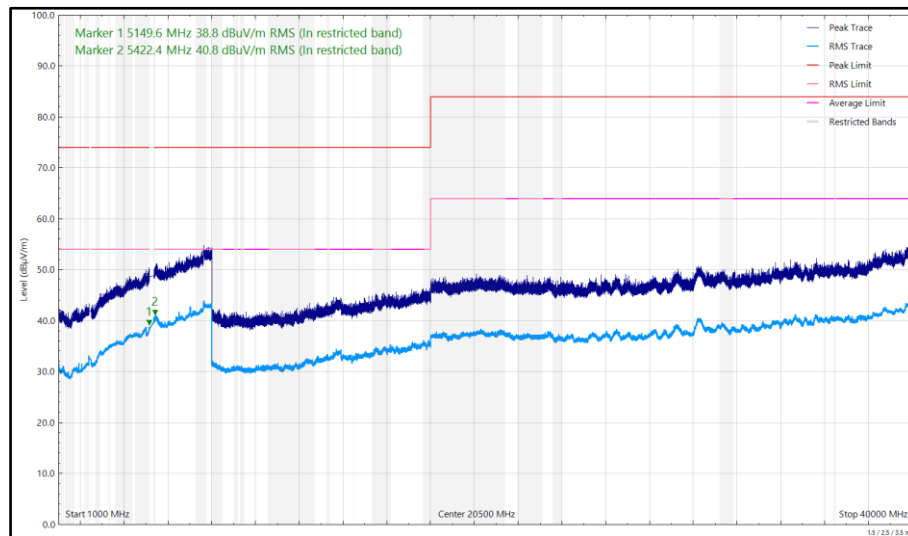


Figure 27 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

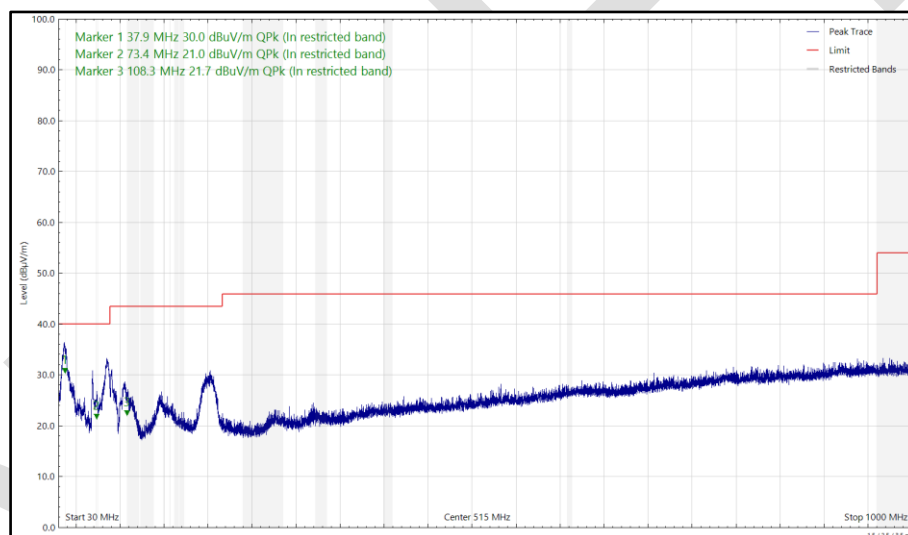


Figure 28 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

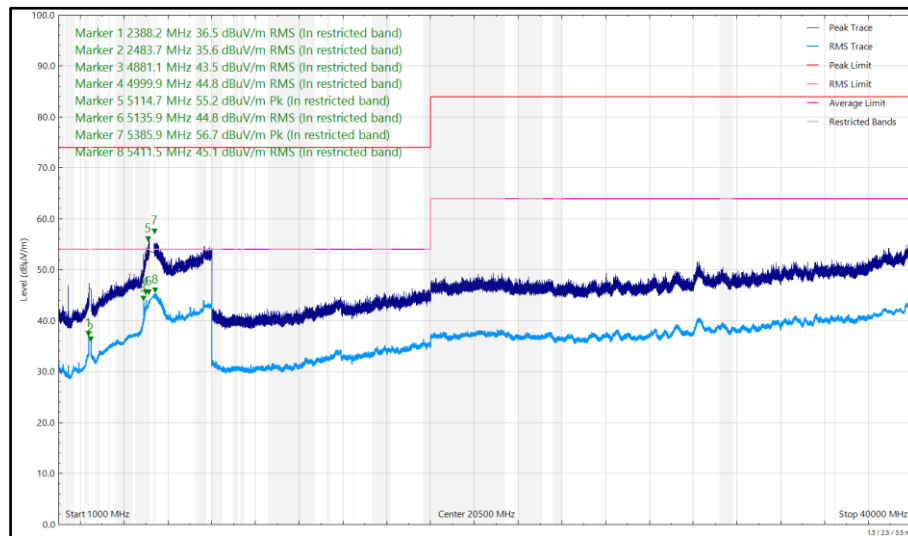


Figure 29 - 5240 MHz (CH48), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.558	30.32	40.00	-9.68	Q-Peak	245	107	Vertical
37.957	20.32	40.00	-19.68	Q-Peak	141	110	Horizontal
73.387	20.51	40.00	-19.49	Q-Peak	30	217	Vertical
108.464	21.21	43.50	-22.29	Q-Peak	81	142	Vertical
149.951	20.67	43.50	-22.83	Q-Peak	204	349	Vertical
167.929	20.92	43.50	-22.58	Q-Peak	0	189	Horizontal
273.799	21.75	46.00	-24.25	Q-Peak	334	107	Horizontal
331.818	22.34	46.00	-23.66	Q-Peak	350	147	Horizontal
2389.676	34.53	54.00	-19.47	RMS	10	263	Vertical
2483.507	34.18	54.00	-19.82	RMS	356	355	Vertical
5414.652	57.31	74.00	-16.69	Peak	34	289	Vertical
5427.900	39.99	54.00	-14.01	RMS	45	400	Horizontal
5454.858	45.64	54.00	-8.36	RMS	20	317	Vertical

Table 15 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

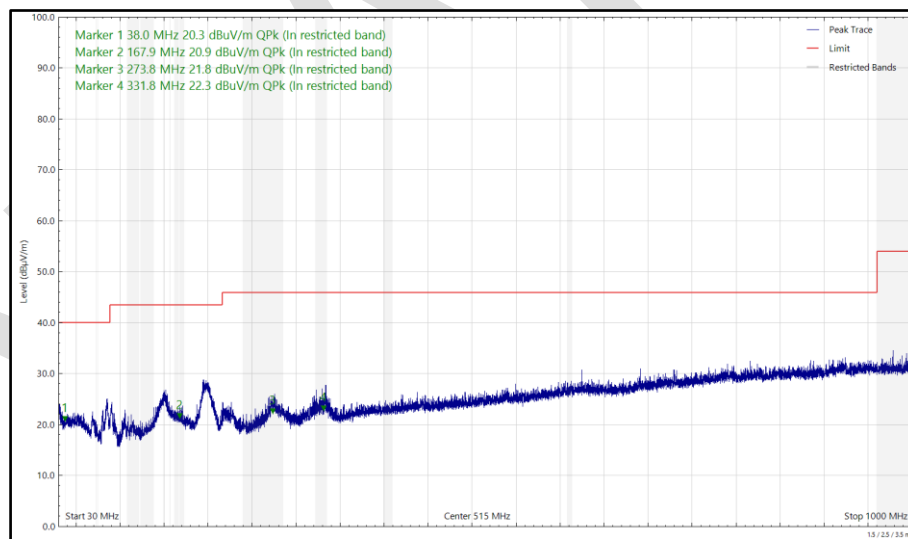


Figure 30 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

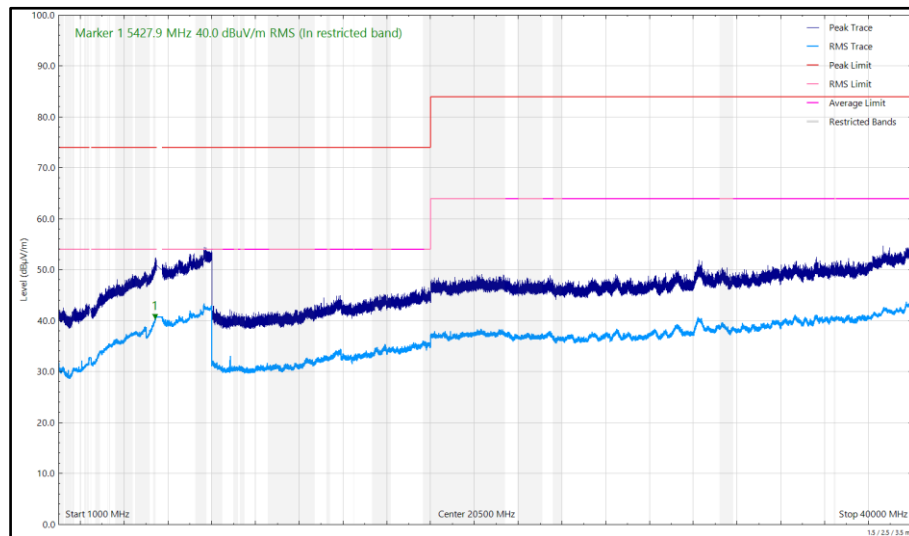


Figure 31 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

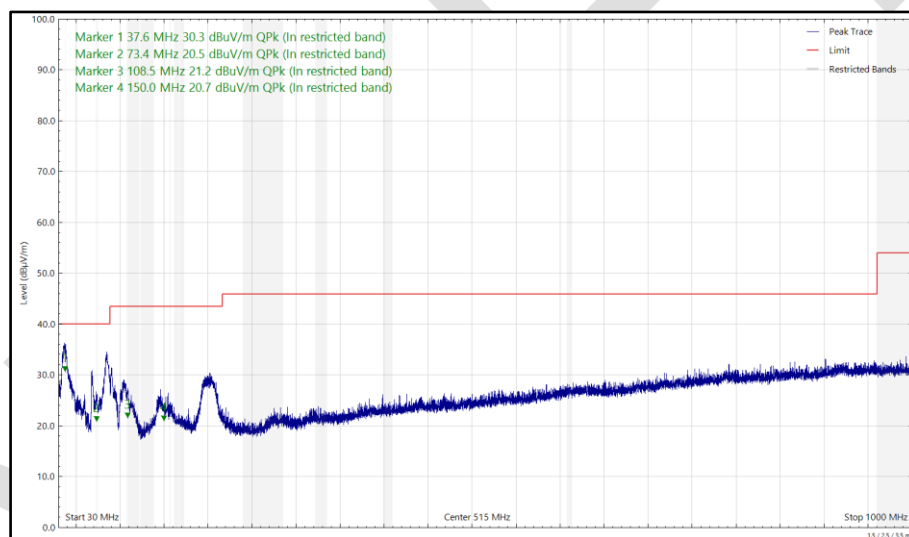


Figure 32 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

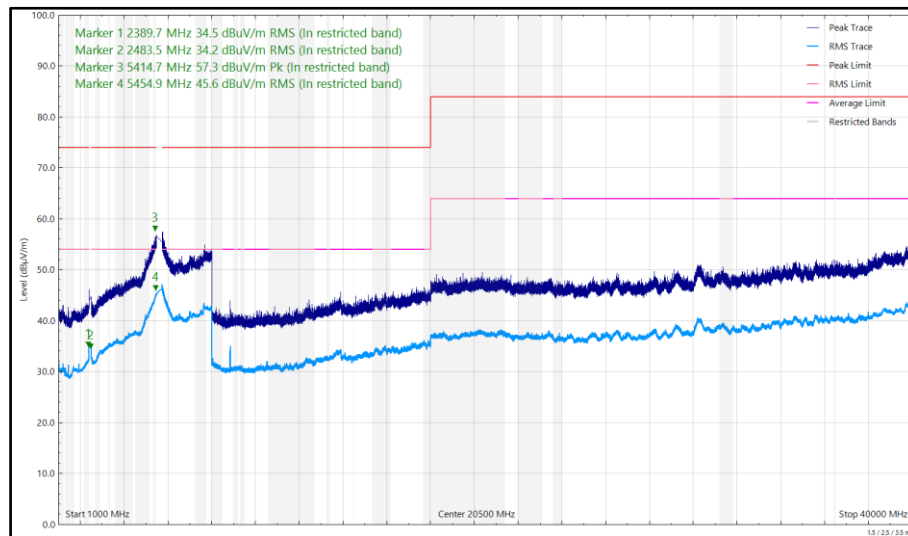


Figure 33 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.957	30.43	40.00	-9.57	Q-Peak	353	105	Vertical
73.761	20.61	40.00	-19.39	Q-Peak	312	100	Vertical
110.720	19.09	43.50	-24.41	Q-Peak	49	108	Vertical
156.871	20.87	43.50	-22.63	Q-Peak	43	345	Vertical
165.873	21.26	43.50	-22.24	Q-Peak	350	268	Horizontal
278.284	21.35	46.00	-24.65	Q-Peak	335	110	Horizontal
333.239	22.43	46.00	-23.57	Q-Peak	0	398	Horizontal
2385.119	36.56	54.00	-17.44	RMS	348	274	Vertical
2483.533	36.27	54.00	-17.73	RMS	357	324	Vertical
4880.897	42.75	54.00	-11.25	RMS	341	322	Vertical
5441.183	56.76	74.00	-17.24	Peak	324	273	Vertical
5456.641	41.58	54.00	-12.42	RMS	73	400	Horizontal
5456.873	46.28	54.00	-7.72	RMS	25	297	Vertical

Table 16 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

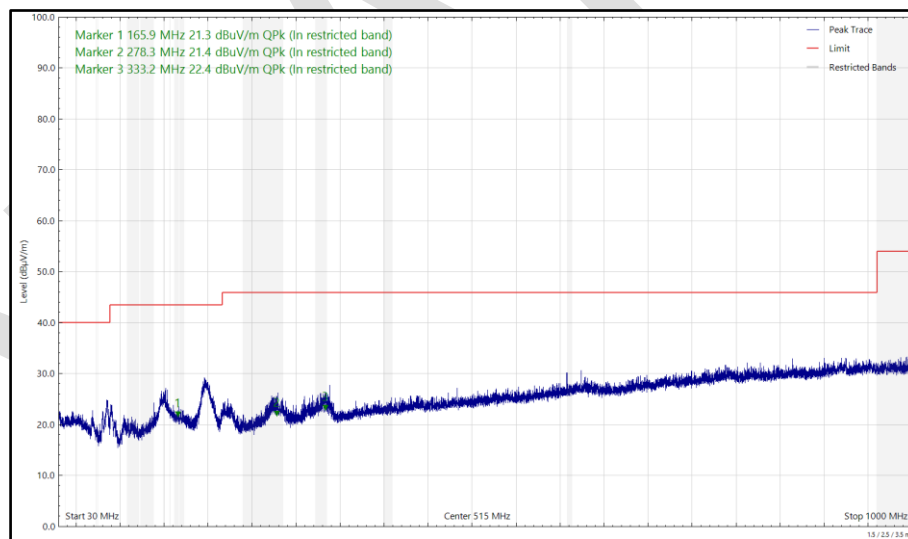


Figure 34 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

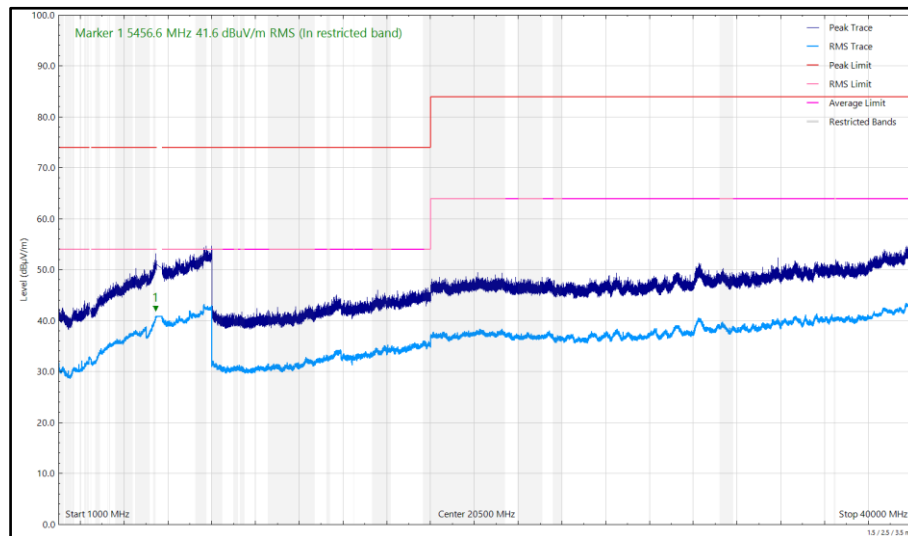


Figure 35 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

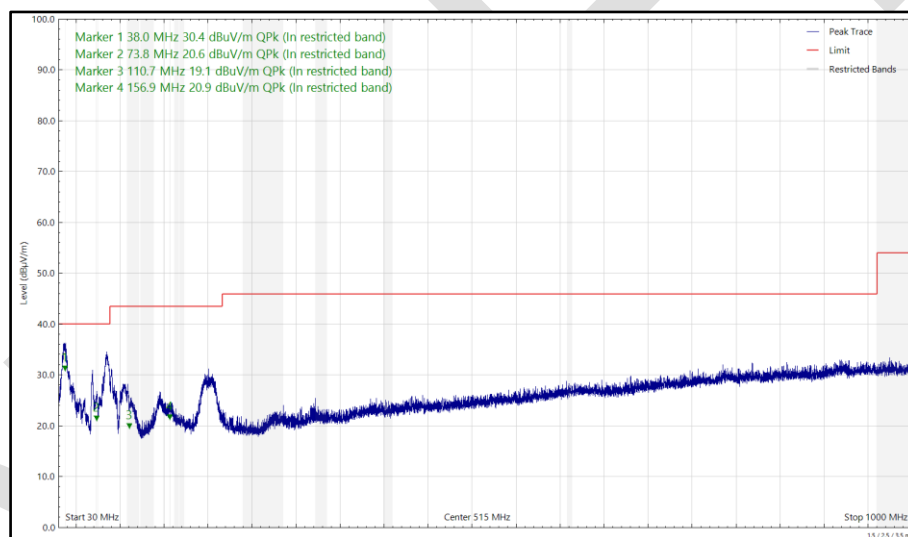


Figure 36 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

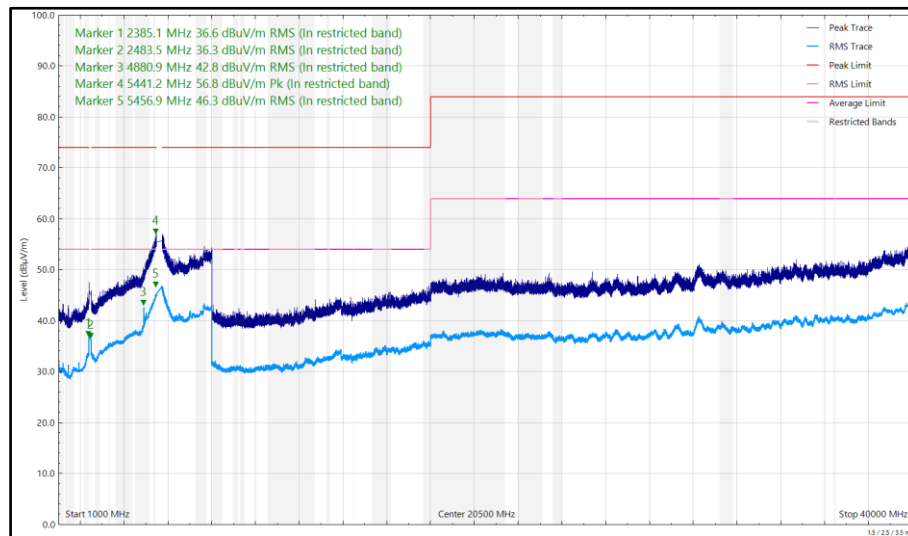


Figure 37 - 5640 MHz (CH128), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.518	30.67	40.00	-9.33	Q-Peak	188	100	Vertical
73.512	20.51	40.00	-19.49	Q-Peak	264	119	Vertical
108.900	22.07	43.50	-21.43	Q-Peak	331	109	Vertical
278.863	21.49	46.00	-24.51	Q-Peak	357	110	Horizontal
325.235	21.95	46.00	-24.05	Q-Peak	9	213	Horizontal
2384.535	34.63	54.00	-19.37	RMS	350	267	Vertical
2483.531	34.88	54.00	-19.12	RMS	359	322	Vertical
4982.626	40.53	54.00	-13.47	RMS	0	293	Vertical
5452.374	56.91	74.00	-17.09	Peak	18	328	Vertical
5456.831	45.91	54.00	-8.09	RMS	14	328	Vertical
5459.452	41.25	54.00	-12.75	RMS	60	400	Horizontal
9130.403	35.97	54.00	-18.03	RMS	290	321	Horizontal
9130.445	36.05	54.00	-17.95	RMS	299	219	Vertical

Table 17 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

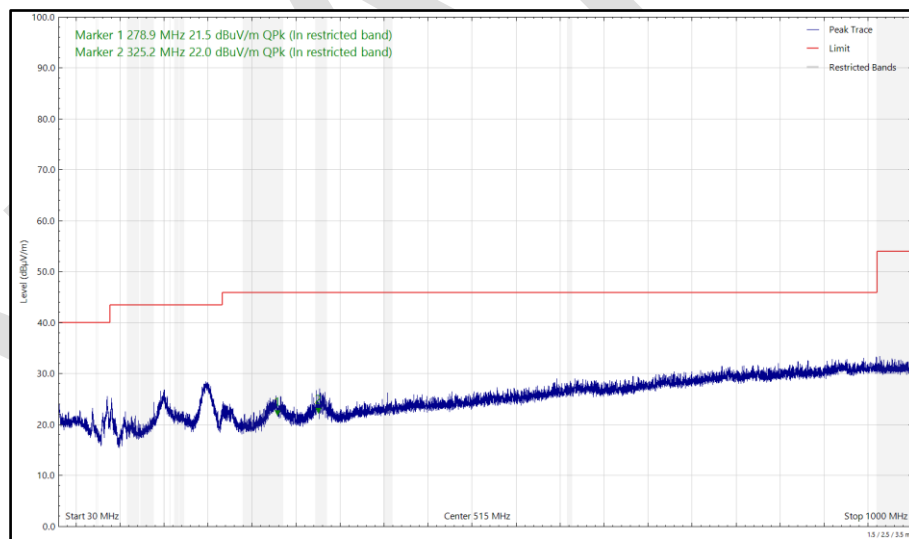


Figure 38 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

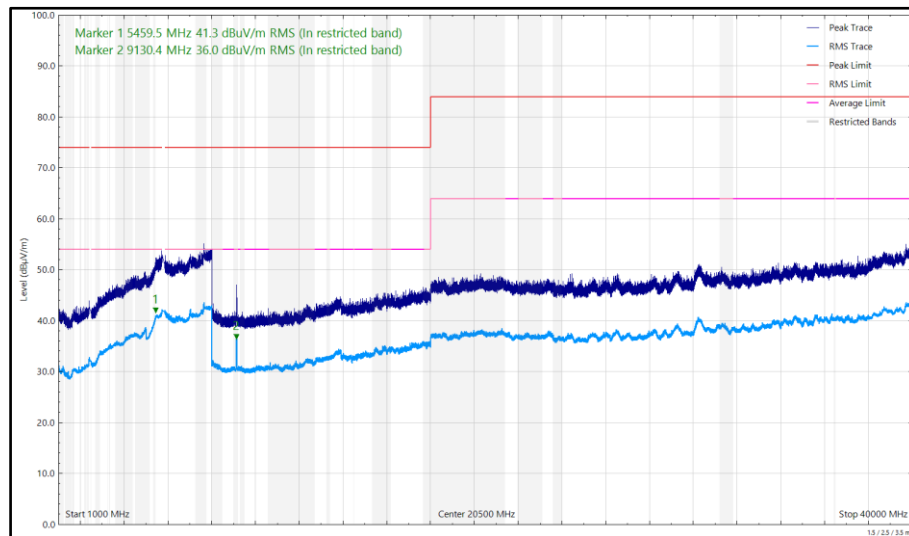


Figure 39 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

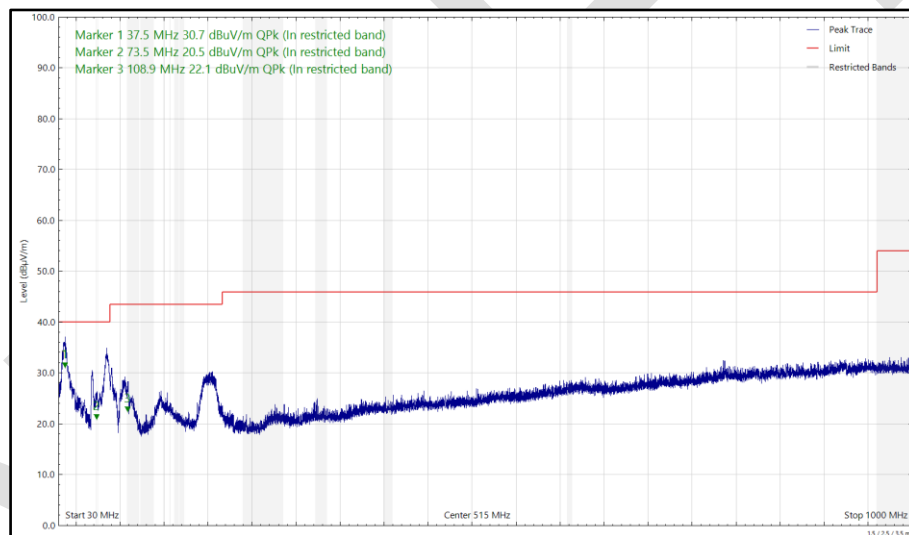


Figure 40 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

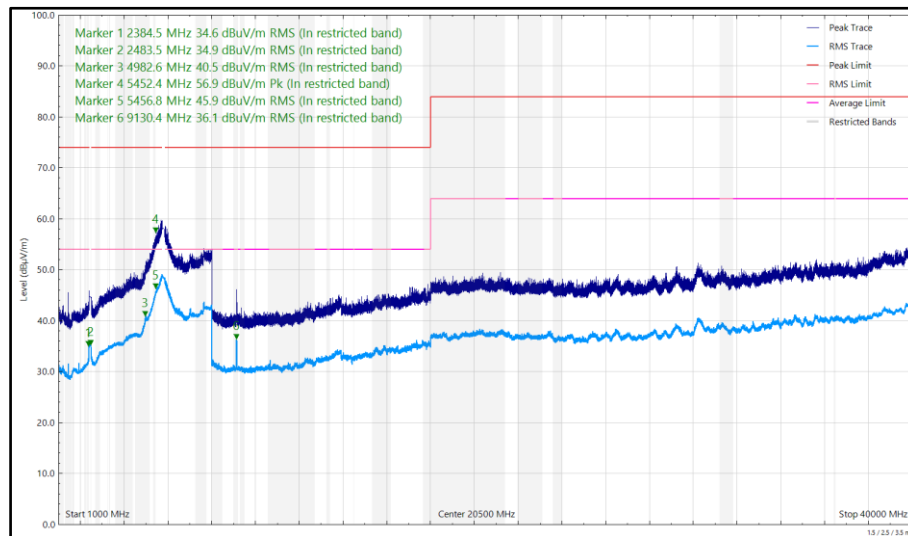


Figure 41 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.968	20.16	40.00	-19.84	Q-Peak	209	385	Horizontal
38.042	29.97	40.00	-10.03	Q-Peak	297	110	Vertical
73.441	18.03	40.00	-21.97	Q-Peak	273	384	Horizontal
73.773	20.51	40.00	-19.49	Q-Peak	240	107	Vertical
108.972	22.09	43.50	-21.41	Q-Peak	73	102	Vertical
279.641	20.50	46.00	-25.50	Q-Peak	301	113	Horizontal
330.774	22.42	46.00	-23.58	Q-Peak	351	400	Horizontal
2389.910	36.39	54.00	-17.61	RMS	0	355	Vertical
2483.733	36.17	54.00	-17.83	RMS	0	320	Vertical
4880.825	42.64	54.00	-11.36	RMS	347	327	Vertical
5427.732	56.92	74.00	-17.08	Peak	15	315	Vertical
5428.991	41.20	54.00	-12.80	RMS	61	400	Horizontal
5430.262	46.46	54.00	-7.54	RMS	26	318	Vertical

Table 18 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

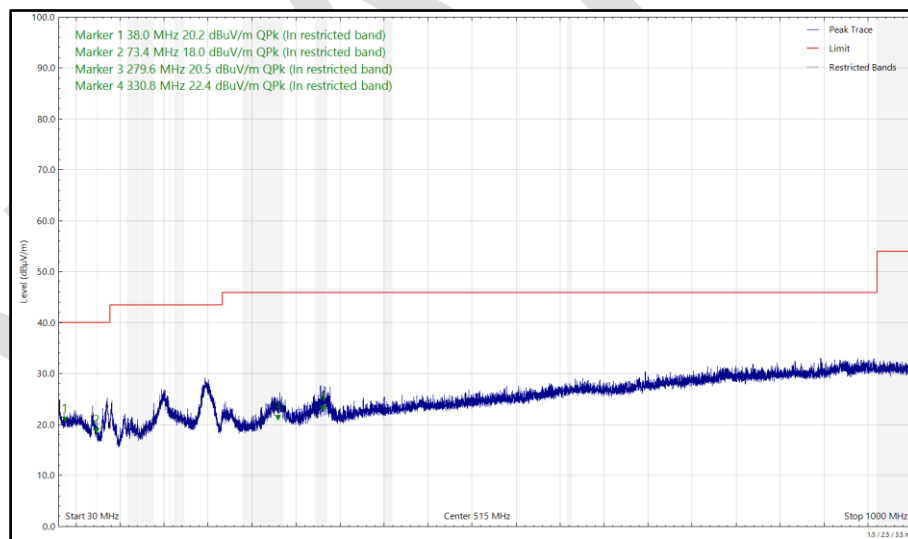


Figure 42 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

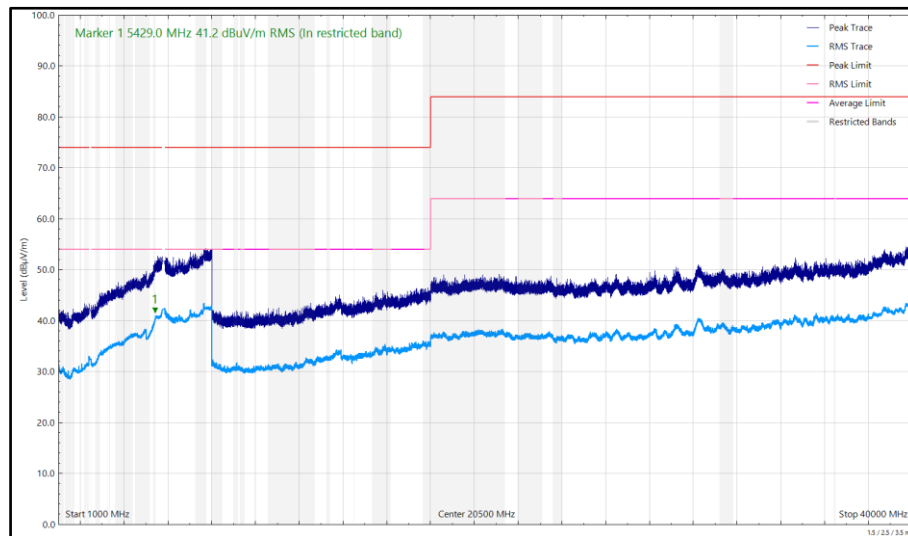


Figure 43 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

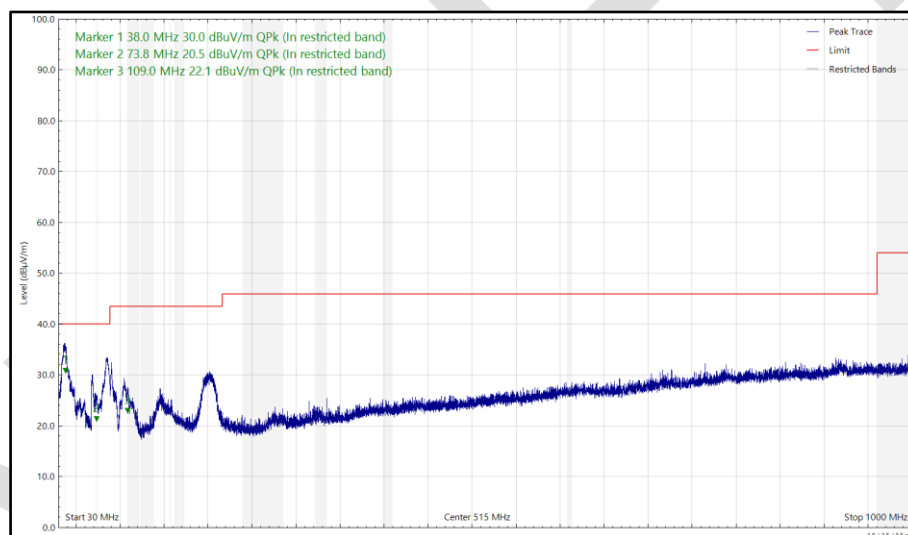


Figure 44 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)

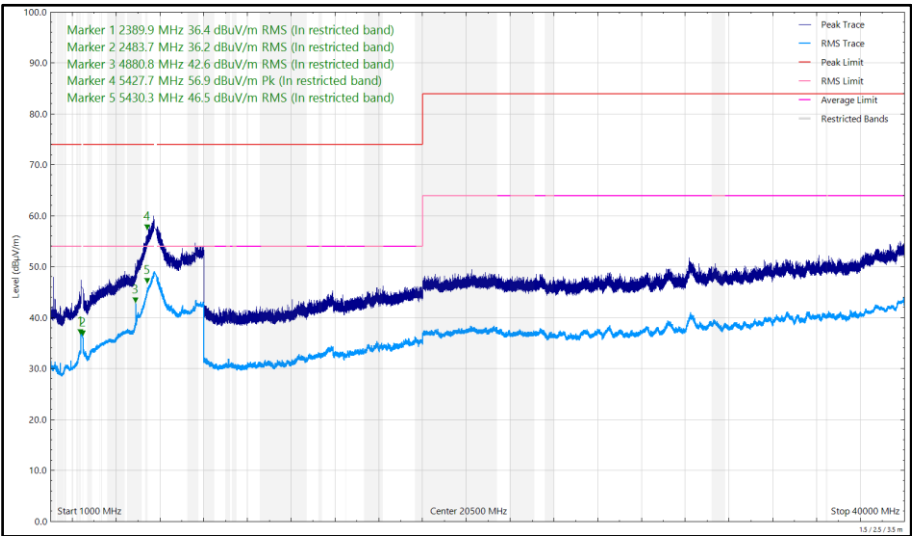


Figure 45 - 5785 MHz (CH157), HT20, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Vertical

FCC 47 CFR Part 15, ISSED RSS-247 and ISSED 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 6.6	-20 dBc / -30 dBc
Part 15.407 (b) / RSS-247 Clause 6.6, 7.3.1.3, 7.3.2.3, 7.3.3.3, 7.3.4.4	-27 dBm e.i.r.p
Part 15.209 / RSS-GEN Clause 8.9	Peak: 74 dBuV/m at 3m, Average 54 dBuV/m at 3m (Restricted bands > 1 GHz)
Part 15.407 (b) / RSS-247 Clause 7.3.2.3	-27 dBm e.i.r.p
Part 15.407 (b) / RSS-247 Clause 7.3.3.3	-27 dBm e.i.r.p
Part 15.407 (b) / RSS-247 Clause 7.3.4.4	-27 dBm e.i.r.p

Table 19

6 GHz WLAN and Thread

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
32.600	20.62	40.00	-19.38	Q-Peak	186	104	Horizontal
37.680	30.15	40.00	-9.85	Q-Peak	311	100	Vertical
73.704	20.88	40.00	-19.12	Q-Peak	351	107	Vertical
74.199	17.30	40.00	-22.70	Q-Peak	229	196	Horizontal
109.071	21.81	43.50	-21.69	Q-Peak	123	106	Vertical
162.560	21.27	43.50	-22.23	Q-Peak	179	310	Horizontal
165.398	20.91	43.50	-22.59	Q-Peak	90	395	Vertical
323.532	21.83	46.00	-24.17	Q-Peak	0	294	Horizontal
2389.839	34.19	54.00	-19.81	RMS	9	387	Vertical
2483.506	34.13	54.00	-19.87	RMS	0	357	Vertical
5455.022	40.70	54.00	-13.30	RMS	44	322	Vertical
5456.313	36.81	54.00	-17.19	RMS	326	295	Horizontal

Table 20 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

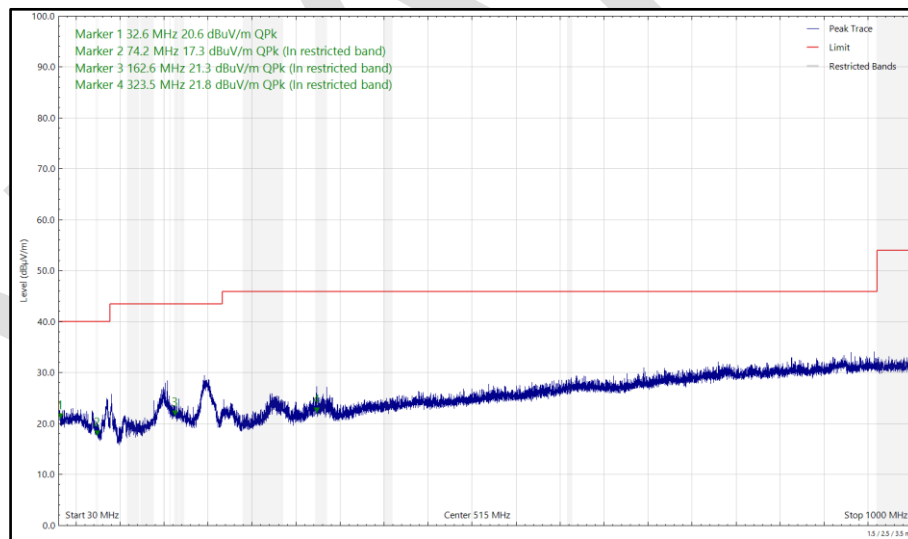


Figure 46 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Horizontal (Peak)

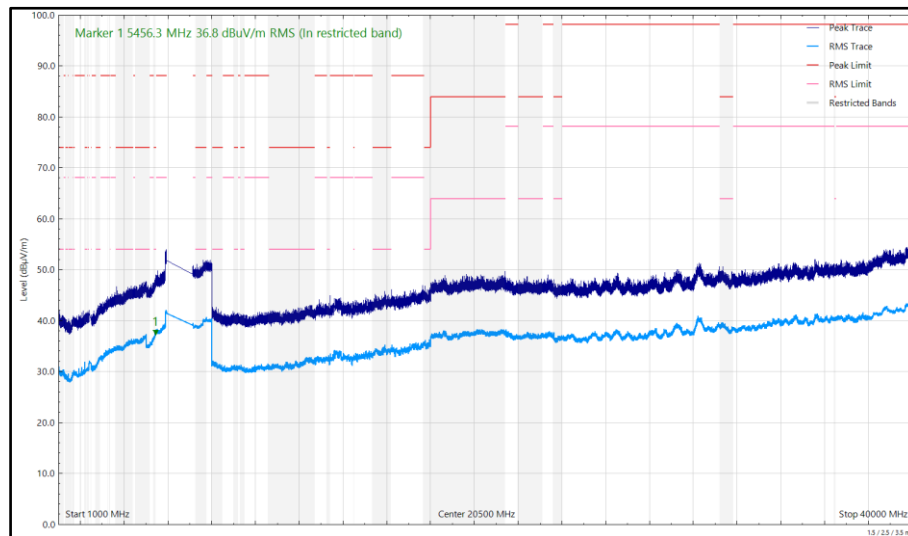


Figure 47 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Horizontal

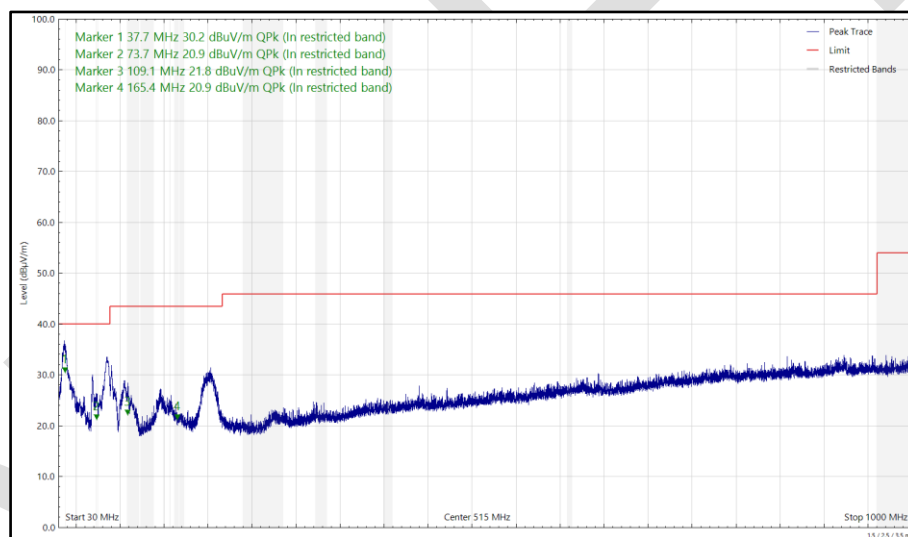


Figure 48 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 30 MHz to 1 GHz, Vertical (Peak)

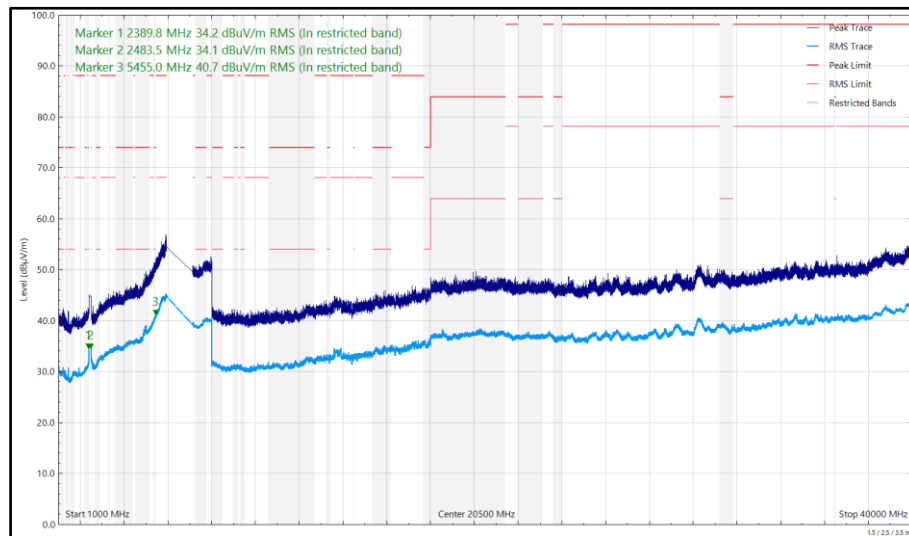


Figure 49 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 0, 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
37.840	29.80	40.00	-10.20	Q-Peak	268	112	Vertical
37.984	20.22	40.00	-19.78	Q-Peak	166	260	Horizontal
73.662	22.24	40.00	-17.76	Q-Peak	41	103	Vertical
108.786	22.32	43.50	-21.18	Q-Peak	337	110	Vertical
156.727	20.90	43.50	-22.60	Q-Peak	213	367	Horizontal
156.874	21.22	43.50	-22.28	Q-Peak	148	180	Vertical
281.490	21.15	46.00	-24.85	Q-Peak	340	109	Horizontal
333.763	22.33	46.00	-23.67	Q-Peak	2	385	Horizontal
2385.877	36.19	54.00	-17.81	RMS	348	273	Vertical
2483.575	35.43	54.00	-18.57	RMS	350	364	Vertical
4880.925	40.49	54.00	-13.51	RMS	352	289	Vertical
5436.405	37.35	54.00	-16.65	RMS	304	369	Horizontal
5454.819	41.29	54.00	-12.71	RMS	17	325	Vertical

Table 21 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 40 GHz

No other emissions found within 20 dB of the limit.

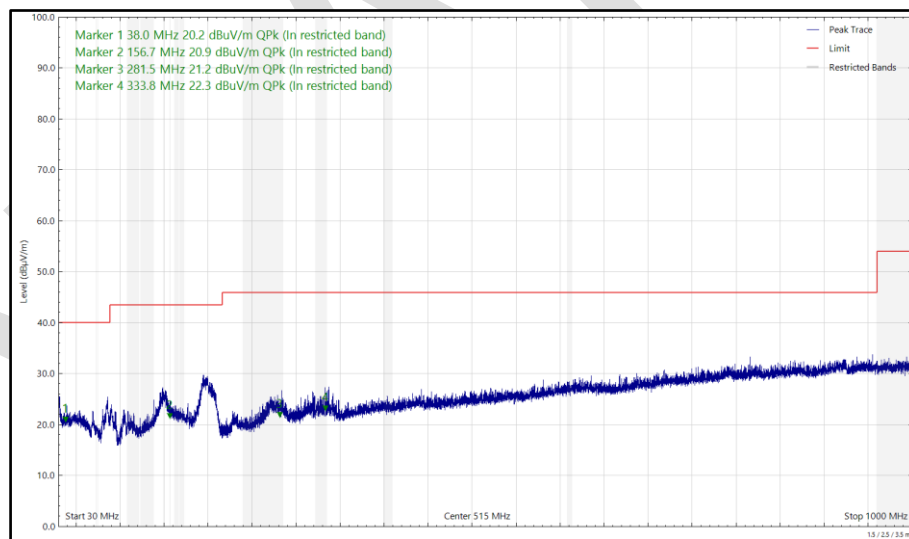


Figure 50 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Horizontal (Peak)

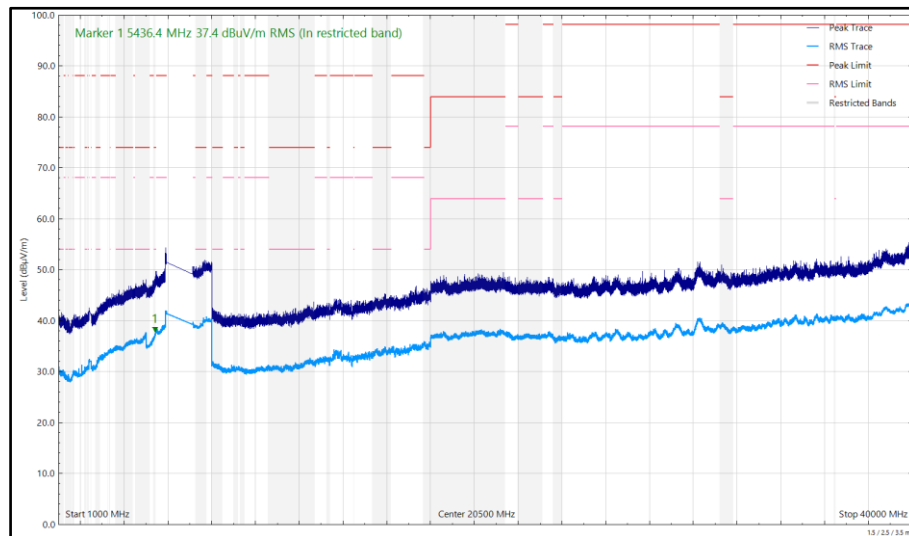


Figure 51 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 1 GHz to 40 GHz, Horizontal

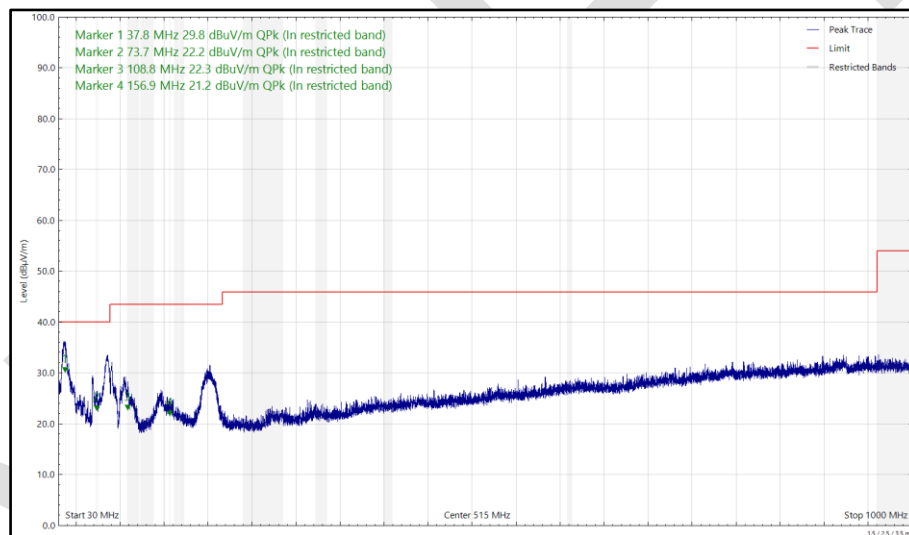


Figure 52 - 6175 MHz (CH45), HE20, SU, CDD, Core 0 + Core 1 and 2440 MHz (CH18), Thread, ePA, Core 1, 30 MHz to 1 GHz, Vertical (Peak)