FCC and ISED Test Report

Apple Inc
Model: A2843

In accordance with FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN (2.4 GHz Bluetooth Low Energy)

Add value.
Inspire trust.

Prepared for: Apple Inc
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California
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USA

TUV SUD Digitally signed by TUV SUD Date: 2022.10.04 08:06:29 +01'00'

FCC ID: BCGA2843 IC: 579C-A2843

COMMERCIAL-IN-CONFIDENCE

Document 75954422-26 Issue 01

SIGNATURE			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Steven White	Key Account Manager	Authorised Signatory	30 September 2022

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 15C, ISED RSS-247 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	Hollie Marshall	30 September 2022	

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 15C: 2020, ISED RSS-247: Issue 2 (02-2017) and ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021) for the tests detailed in section 1.3.

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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	28 September 2022

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
Model Number(s)	A2843
Serial Number(s)	CVP4VD6WJV and YWL2C4T4WY
Hardware Version(s)	REV 1.0
Software Version(s)	20J42560
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15C: 2020 ISED RSS-247: Issue 2 (02-2017) ISED RSS-GEN: Issue 5 (04-2018) + A2 (02-2021)
Order Number	540246998
Date of Receipt of EUT	01-July-2022
Start of Test	26-May-2022
Finish of Test	04-September-2022
Name of Engineer(s)	Faisal Malyar, Elliot Callender, Daniel Cameron, Ian Hart Thomas Randall, Danial Shafique, Mohammad Malik and Elliot Callender
Related Document(s)	KDB 662911 D01 v02r01 ANSI C63.10 (2013) ANSI C63.10 (2020)

1.3 Brief Summary of Results

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

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	FCC Part 15C	RSS-247	RSS-GEN			
Configuration and Mode: 2.4 GHz Bluetooth - DTS						
-	15.203	-	-	Antenna Requirement	N/T	The device complies with the provisions of this section, as it uses permanently attached integral antennas.
2.1	15.205	3.1	8.10	Restricted Band Edges	Pass	
2.2	15.247 (a)(2)	5.2	6.7	Emission Bandwidth	Pass	
2.3	15.247 (b)	5.4	6.12	Maximum Conducted Output Power	Pass	
2.4	15.247 (d) and 15.209	3.3 and 5.5	6.13 and 8.9	Spurious Radiated Emissions	Pass	
2.5	15.247 (d)	5.5	-	Authorised Band Edges	Pass	
2.6	15.247 (e)	5.2	6.12	Power Spectral Density	Pass	

Table 2

1.4 Product Information

1.4.1 Technical Description

The equipment under test was an Apple TV Set Top Box with Bluetooth®, Thread and IEEE 802.11 a/b/g/n/ac/ax Wi-Fi capabilities in the 2.4GHz and 5GHz bands.

1.4.2 Test Set-up

For conducted tests, a conducted test point was provided by the manufacturer via a UFL connector and cable. The loss of these test cables were known and compensated for in any conducted measurements.

During Spurious Radiated Emissions on Bluetooth, the worst-case modes from BDR/EDR/HDR & LE were selected for testing based on output power, channel bandwidth and spectral density. With BDR & LE1M deemed to be worst case.

With the spurious Radiated Emissions results for these Bluetooth modes being documented across the following two reports.

BDR: Document 75954422-25
LE1M: Document 75954422-26

For tests in SISO operation, conducted tests and Band Edge were performed on the BT Dedicated Core (BT Core 2) as well as the Core from the main radio with the highest antenna gain as Core 0 and Core 1 are identical but with unequal antenna gains. The EUT supports TxBF on Core 0 + Core 1 for BDR/EDR/HDR modes of operation.

Bluetooth LE/HDR was assessed as a DTS system. The EUT supports Bluetooth on the following mode of operations across its antenna ports:

BT Core 0 – SISO (iPA and ePA), TxBF (iPA and ePA)
BT Core 1 – SISO (iPA and ePA), TxBF (iPA and ePA)
BT Core 2 – SISO (iPA)

For all tests, the EUT was put into a continuous transmit test mode with the manufacturer's test commands via a script running in the EUTs terminal application. The EUT then transmitted the required type of modulation/packet type on a static channel selected within the test script.

All testing was performed with the EUT powered via a 120 V AC, 60 Hz source.

1.4.3 Antenna Gain Table

Antenna Port	Frequency Range (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
BT Core 0	2400 to 2480	-0.75	0.7
BT Core 1	2400 to 2480	0.10	0.7
BT Core 2	2400 to 2480	1.13	0.7

Table 3

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: A2843, Serial Number: CVP4VD6WJV			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A2843, Serial Number: YWL2C4T4WY			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 4

1.7 Test Location

TÜV SÜD conducted the following tests at our Fareham Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz Bluetooth - DTS		
Restricted Band Edges	Faisal Malyar and Elliot Callender	UKAS
Emission Bandwidth	Daniel Cameron	UKAS
Maximum Conducted Output Power	Daniel Cameron	UKAS
Authorised Band Edges	Faisal Malyar and Elliot Callender	UKAS
Power Spectral Density	Daniel Cameron	UKAS
Spurious Radiated Emissions	Ian Hart and Mohammad Malik	UKAS

Table 5

Office Address:

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

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

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz Bluetooth - DTS		
Spurious Radiated Emissions	Ian Hart Thomas Randall, Danial Shafique, Mohammad Malik and Elliot Callender	UKAS

Table 6

Office Address:

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

2 Test Details

2.1 Restricted Band Edges

2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.205
ISED RSS-247, Clause 3.1
ISED RSS-GEN, Clause 8.10

2.1.2 Equipment Under Test and Modification State

A2843, S/N: YWL2C4T4WY - Modification State 0

2.1.3 Date of Test

26-May-2022

2.1.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 6.10.5 and 11.12.1.

Plots for average measurements were taken in accordance with ANSI C63.10, clause 11.12.2.5.2.

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

2.1.5 Environmental Conditions

Ambient Temperature	20.1 - 23.0 °C
Relative Humidity	38.5 - 48.8 %

2.1.6 Test Results

2.4 GHz Bluetooth - DTS

Bluetooth LE - LE1M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 1	2390.0	53.22	41.11
GFSK/DH1	2480	Core 1	2483.5	56.21	42.97

Table 7 - Restricted Band Edge Results

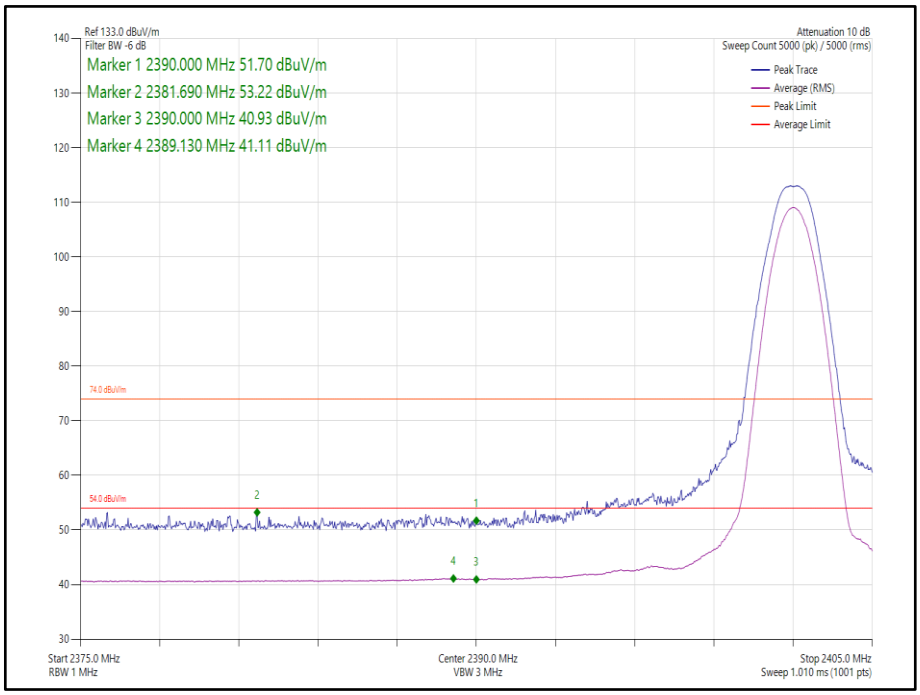

Figure 1 Core 1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

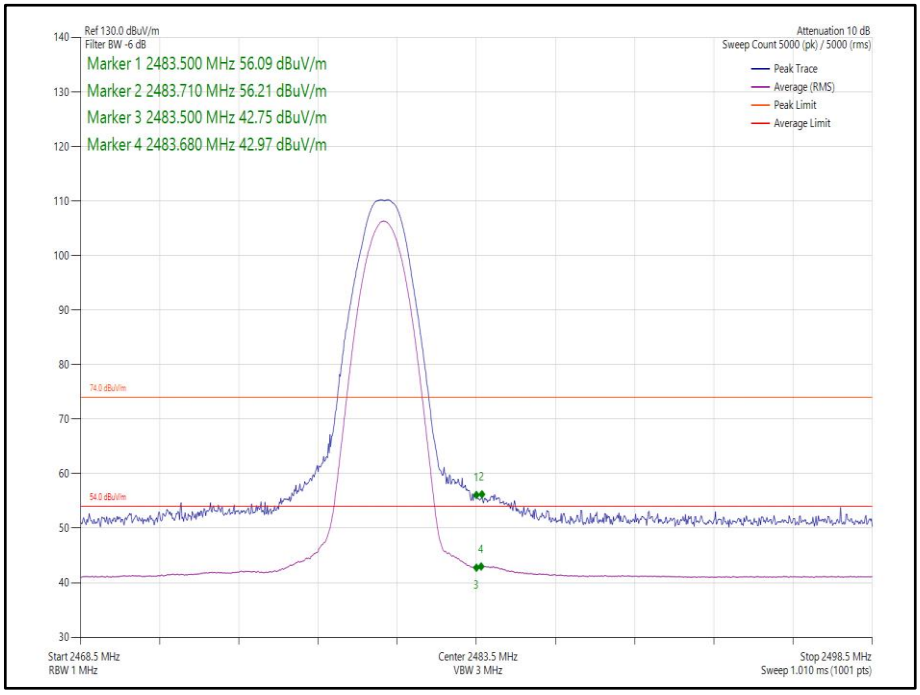

Figure 2 Core 1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE - LE1M ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 1	2390.0	53.83	41.50
GFSK/DH1	2480	Core 1	2483.5	61.14	46.76

Table 8 - Restricted Band Edge Results

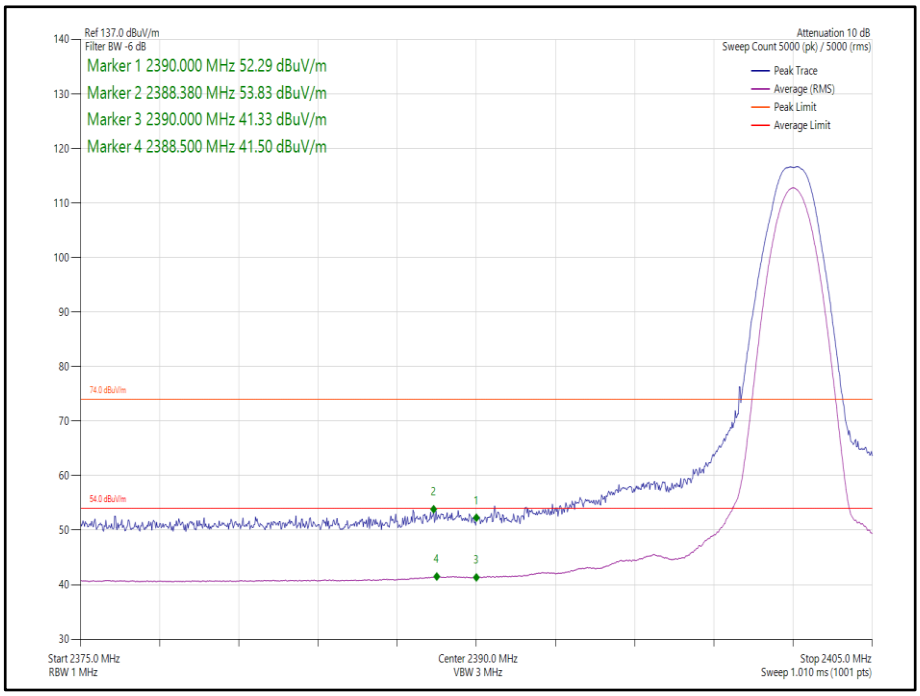

Figure 3 Core 1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

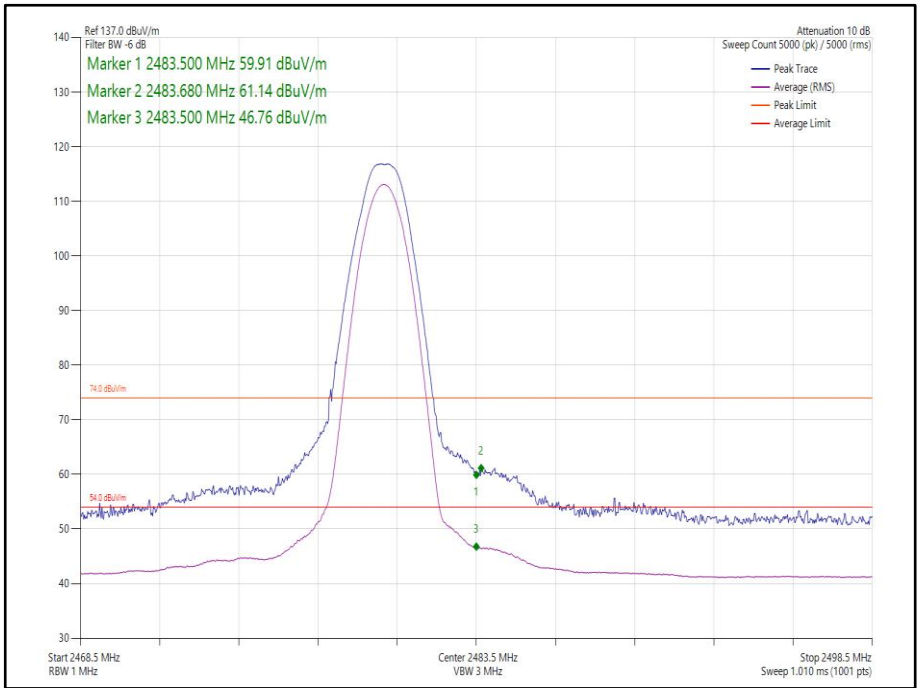

Figure 4 Core 1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE - LE1M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 2	2390.0	52.97	40.79
GFSK/DH1	2480	Core 2	2483.5	53.67	41.43

Table 9 - Restricted Band Edge Results

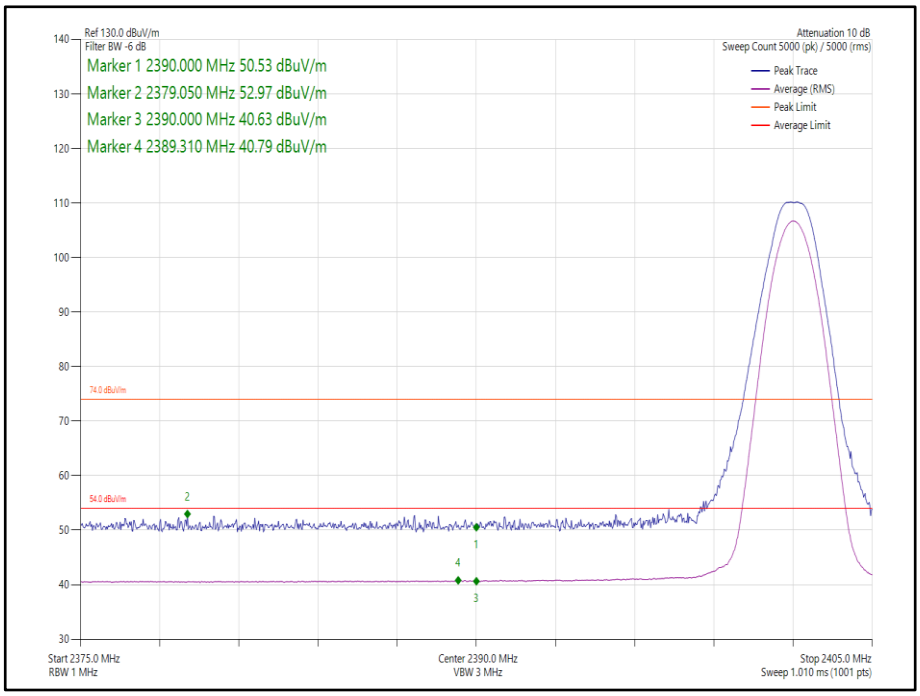

Figure 5 Core 2– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

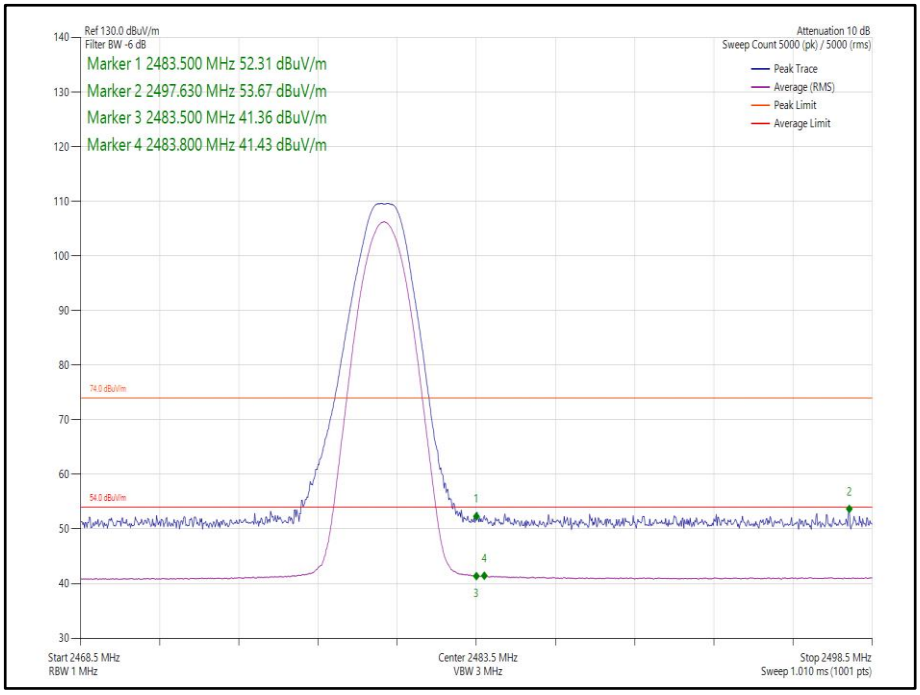

Figure 6 Core 2– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE - LE1M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 0-1	2390.0	52.79	40.98
GFSK/DH1	2480	Core 0-1	2483.5	56.55	43.95

Table 10 - Restricted Band Edge Results

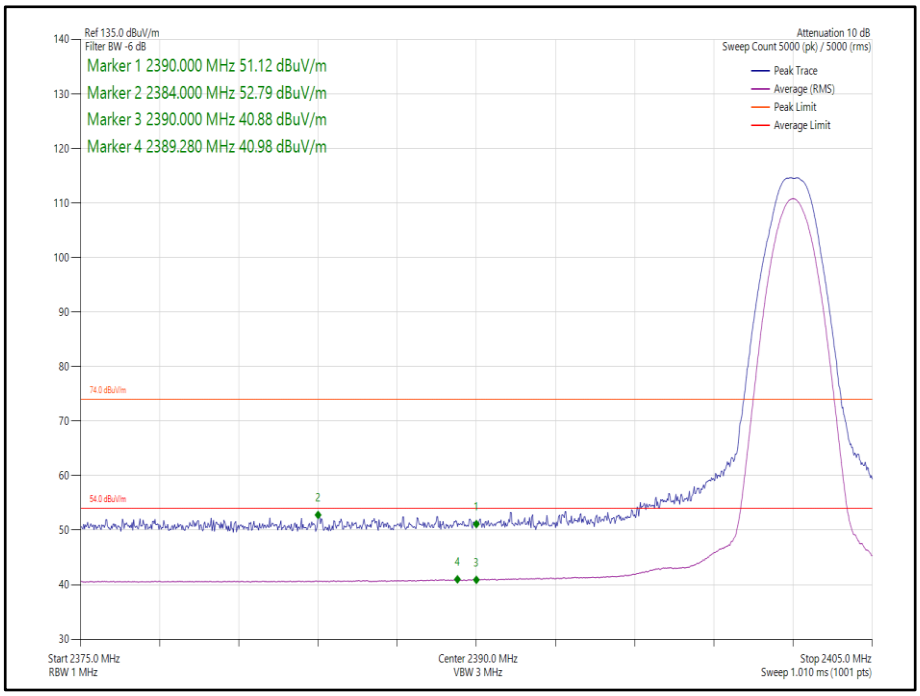

Figure 7 Core 0-1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

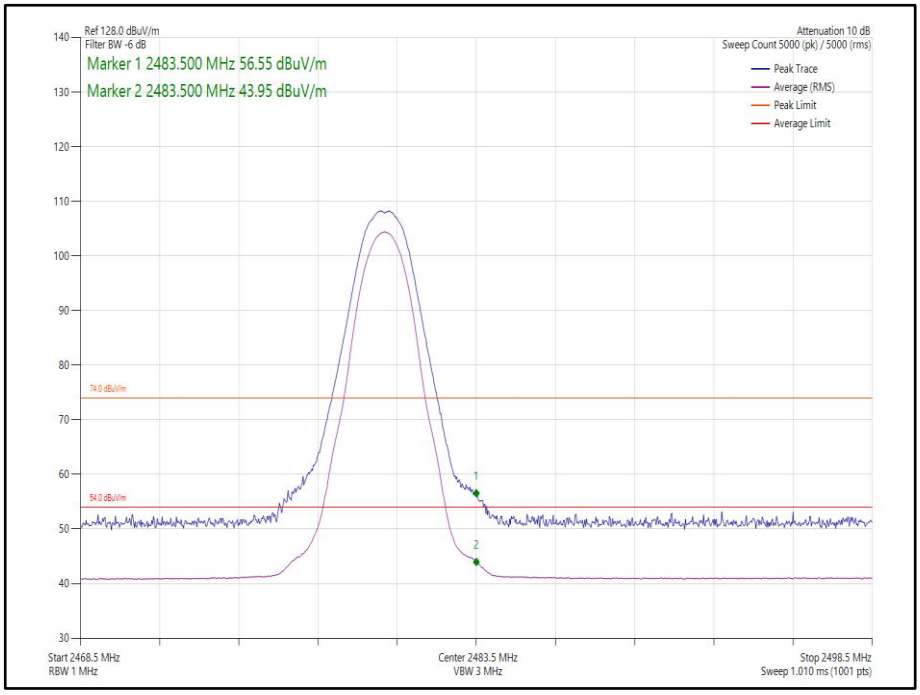

Figure 8 Core 0-1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE - LE1M ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 0-1	2390.0	53.64	42.09
GFSK/DH1	2480	Core 0-1	2483.5	58.54	45.53

Table 11 - Restricted Band Edge Results

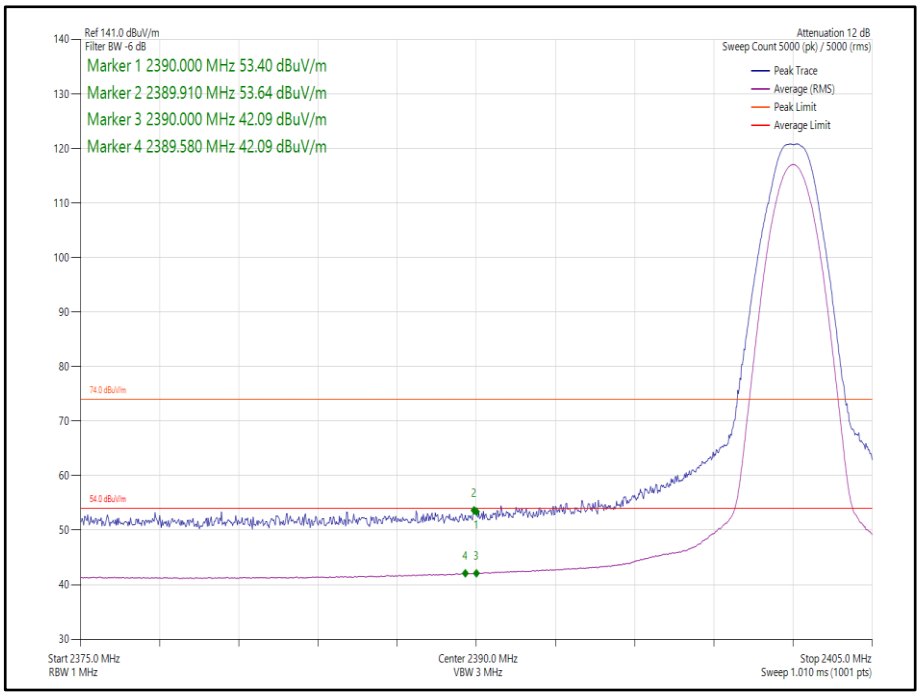

Figure 9 Core 0-1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

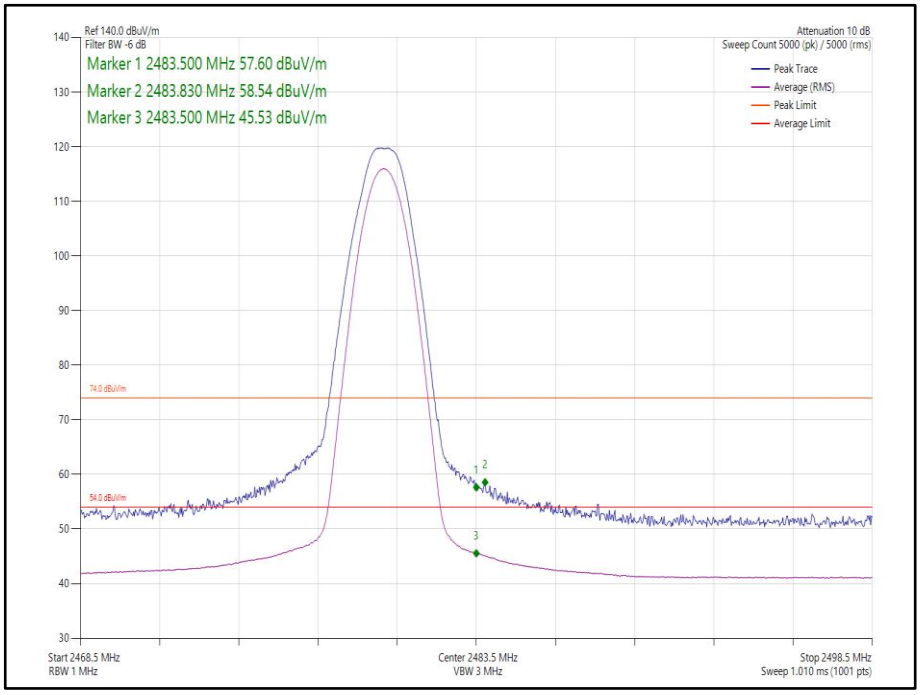

Figure 10 Core 0-1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE – LE2M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 1	2390.0	52.90	40.91
GFSK/DH1	2480	Core 1	2483.5	57.06	42.21

Table 12 - Restricted Band Edge Results

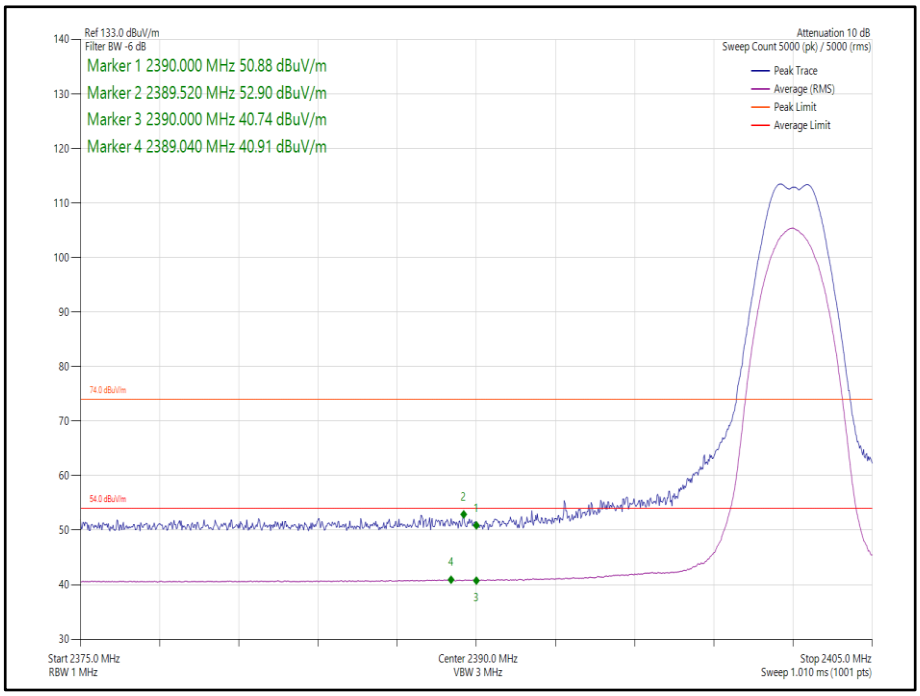

Figure 11 Core 1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

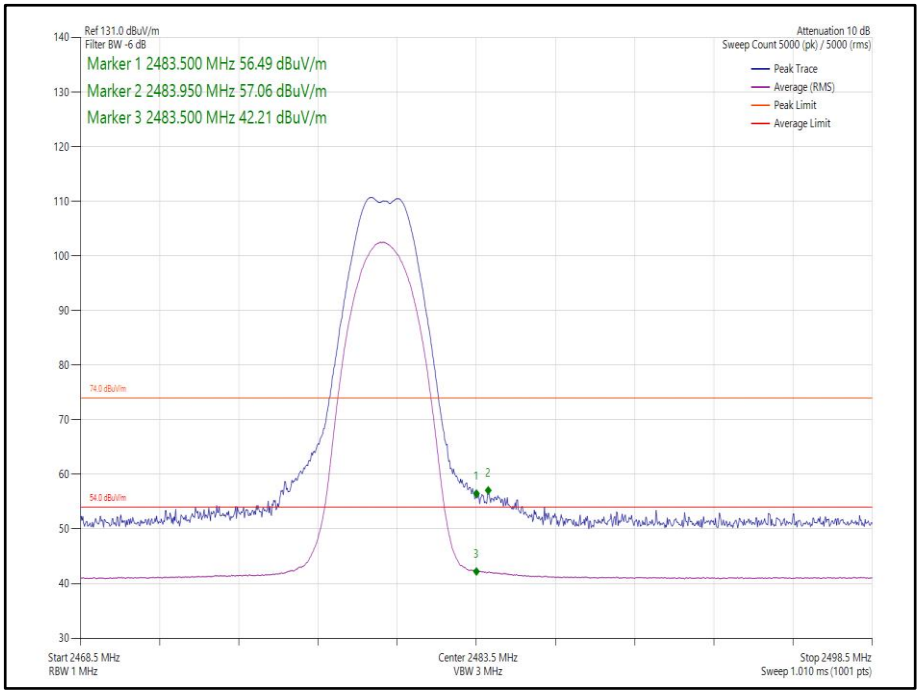

Figure 12 Core 1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE – LE2M ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 1	2390.0	54.03	41.16
GFSK/DH1	2480	Core 1	2483.5	61.96	45.54

Table 13 - Restricted Band Edge Results

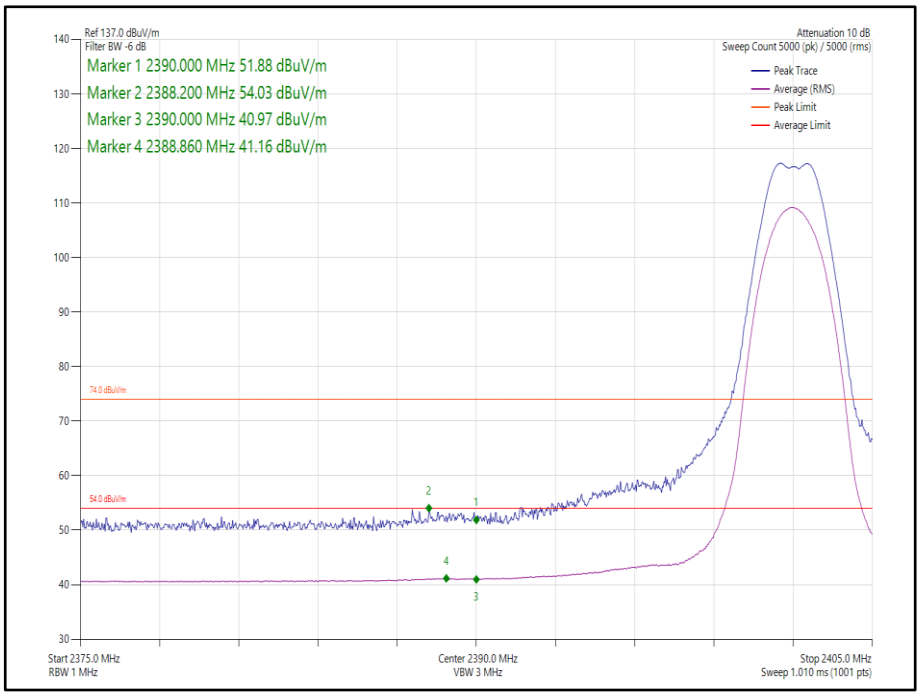

Figure 13 Core 1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

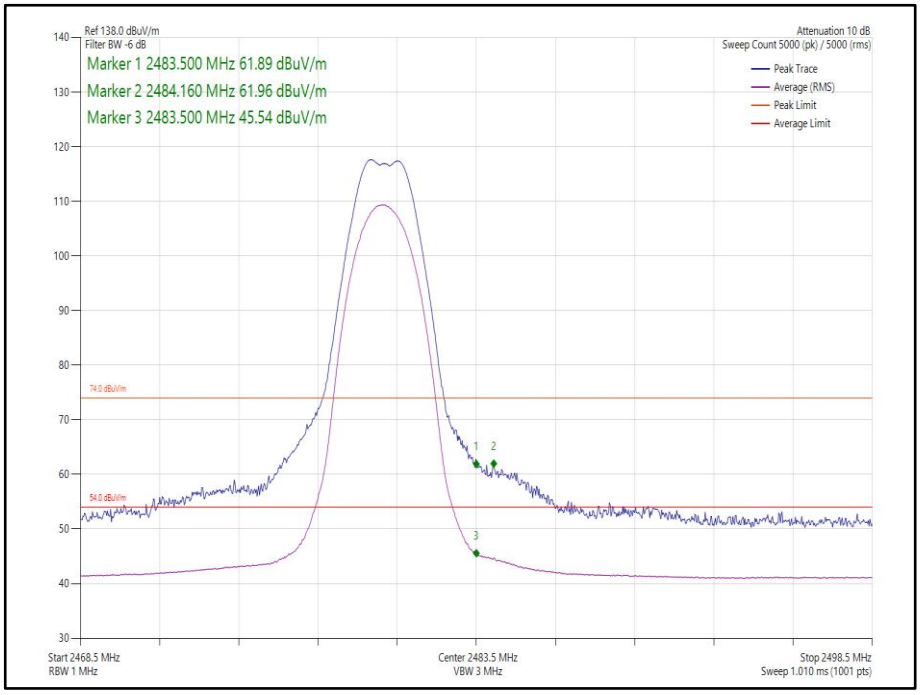

Figure 14 Core 1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE – LE2M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 2	2390.0	52.63	40.74
GFSK/DH1	2480	Core 2	2483.5	59.96	46.34

Table 14 - Restricted Band Edge Results

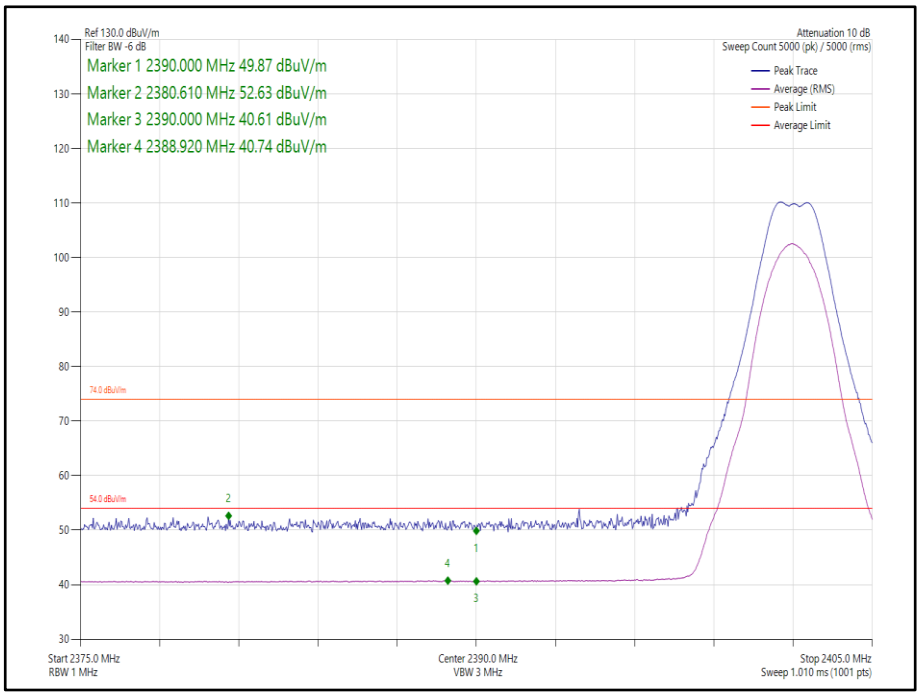

Figure 15 Core 2– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

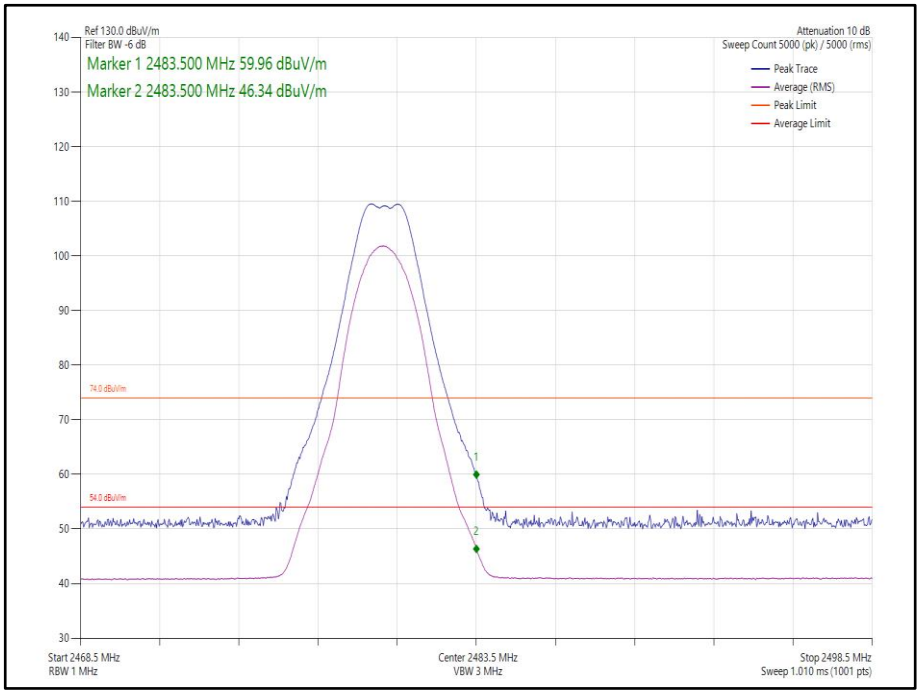

Figure 16 Core 2– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE – LE2M iPA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 0-1	2390.0	52.40	40.84
GFSK/DH1	2480	Core 0-1	2483.5	60.17	42.33

Table 15 - Restricted Band Edge Results

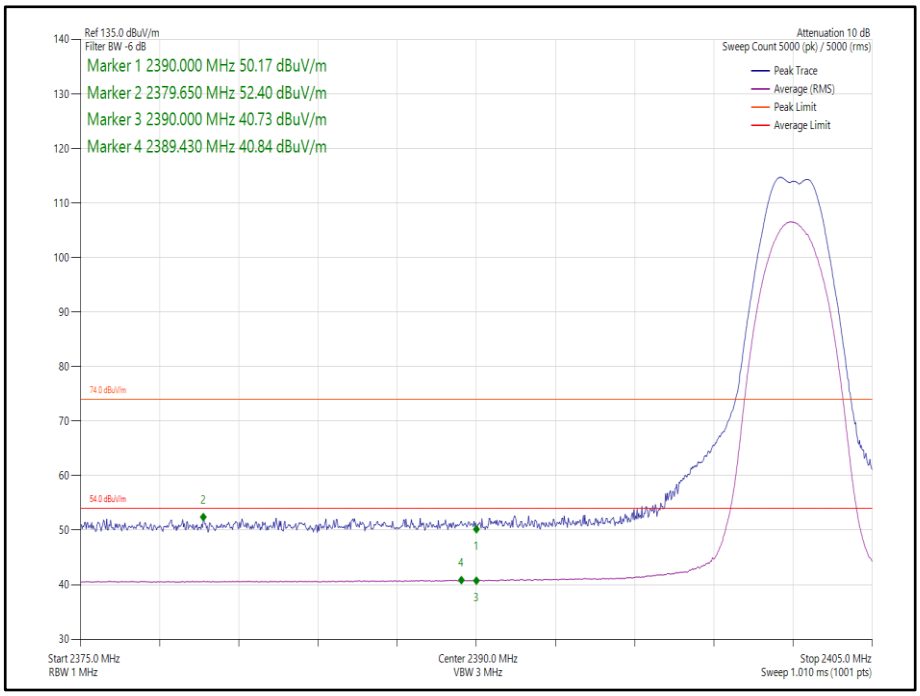

Figure 17 Core 0-1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

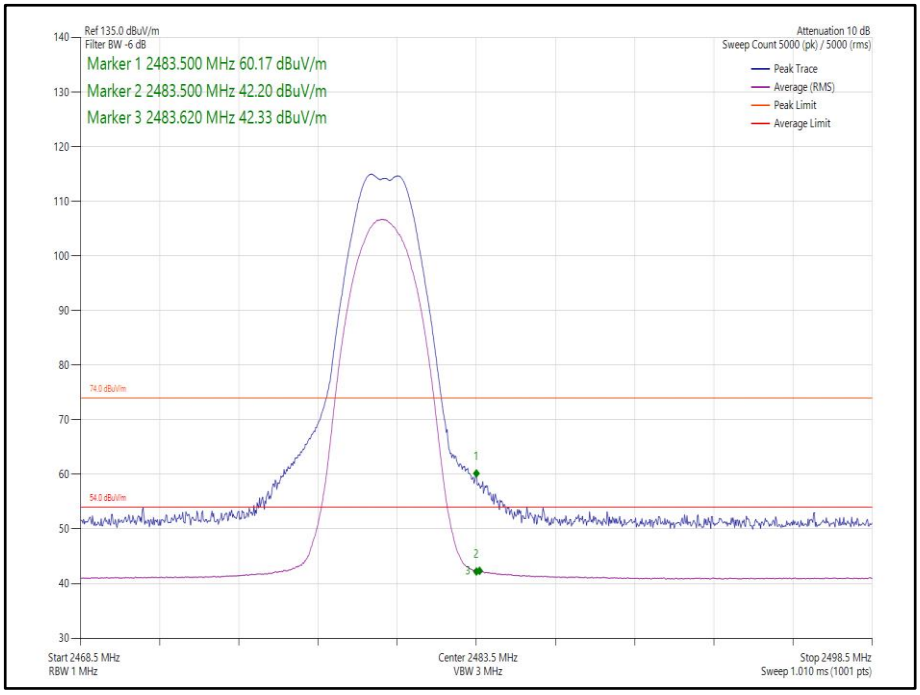

Figure 18 Core 0-1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

Bluetooth LE – LE2M ePA

Modulation	Tx Frequency (MHz)	Core	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
GFSK/DH1	2402	Core 0-1	2390.0	55.38	42.81
GFSK/DH1	2480	Core 0-1	2483.5	63.54	45.61

Table 16 - Restricted Band Edge Results

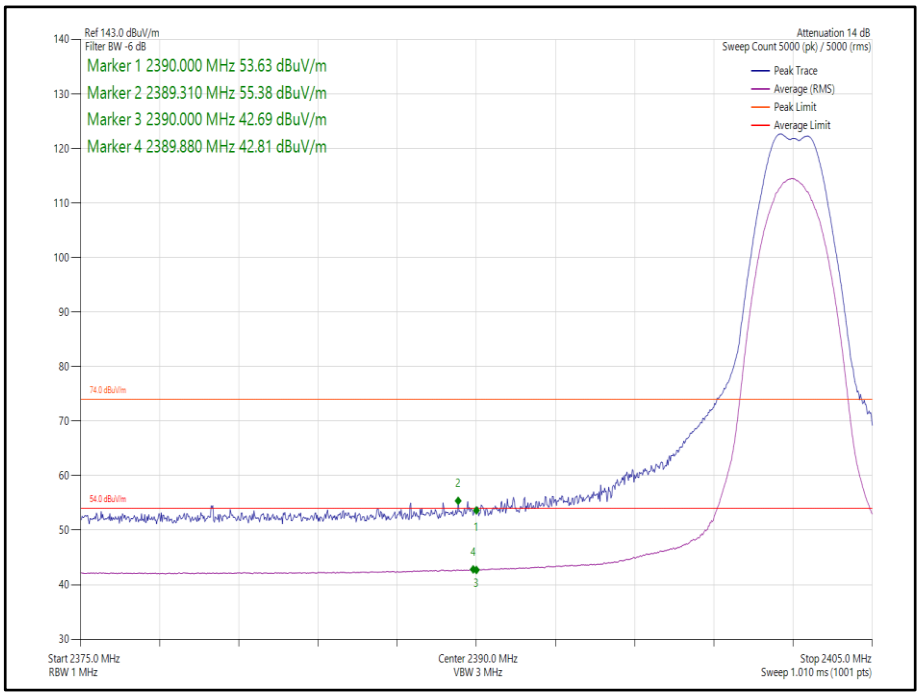

Figure 19 Core 0-1– GFSK/DH1 - 2402 MHz - Band Edge Frequency 2390.0 MHz

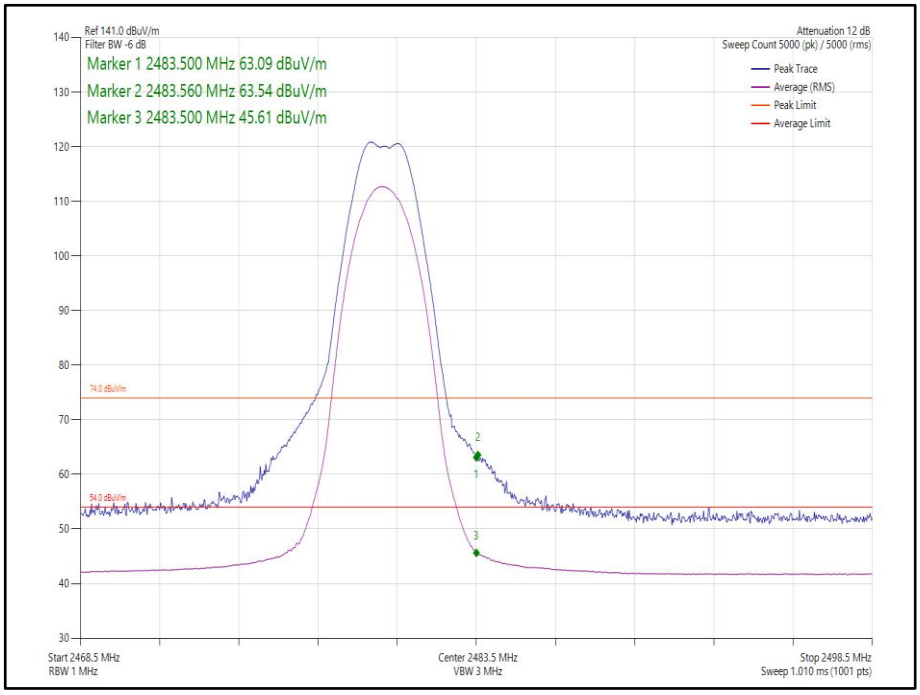

Figure 20 Core 0-1– GFSK/DH1 - 2480 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR4 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 1	4DH5	2404	2390.0	54.64	42.34
Static	GFSK	Core 1	4DH5	2476	2483.5	53.59	41.15

Table 17 - Restricted Band Edge Results

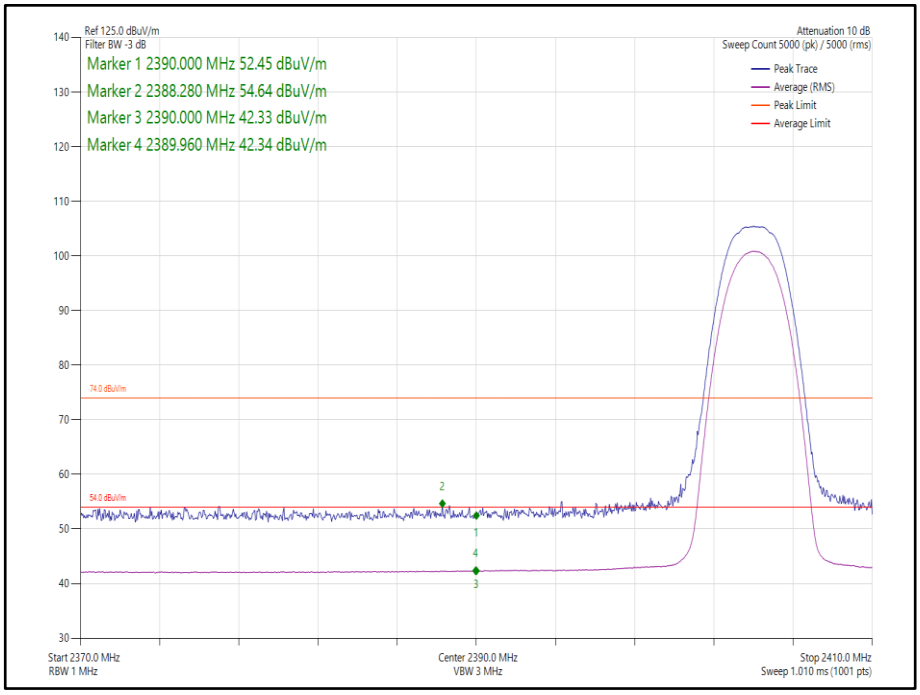

Figure 21 Core 1- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

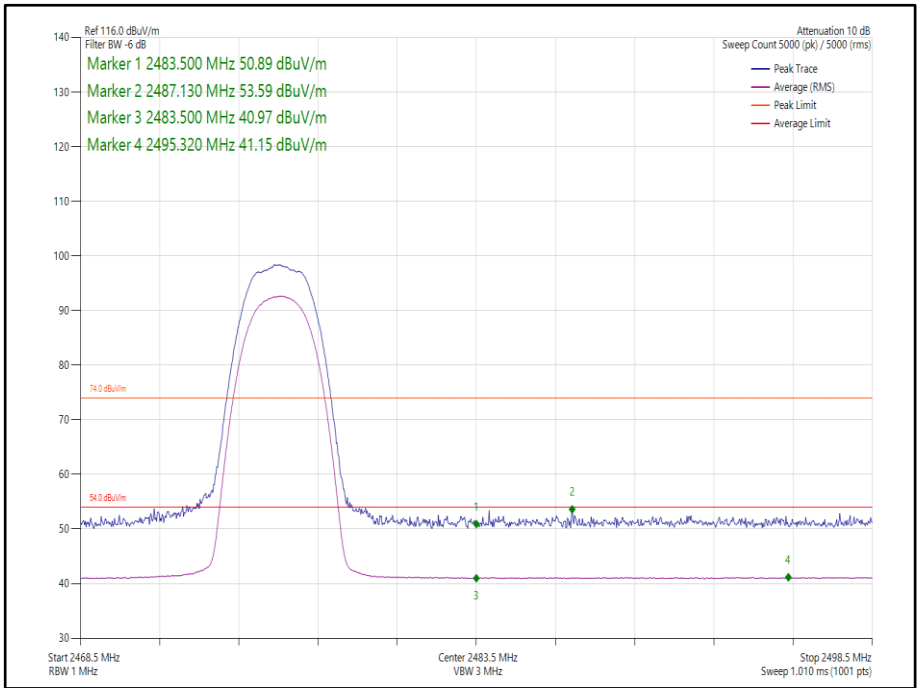

Figure 22 Core 1- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR4 ePA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 1	4DH5	2404	2390.0	54.21	42.52
Static	GFSK	Core 1	4DH5	2476	2483.5	58.32	41.42

Table 18 - Restricted Band Edge Results

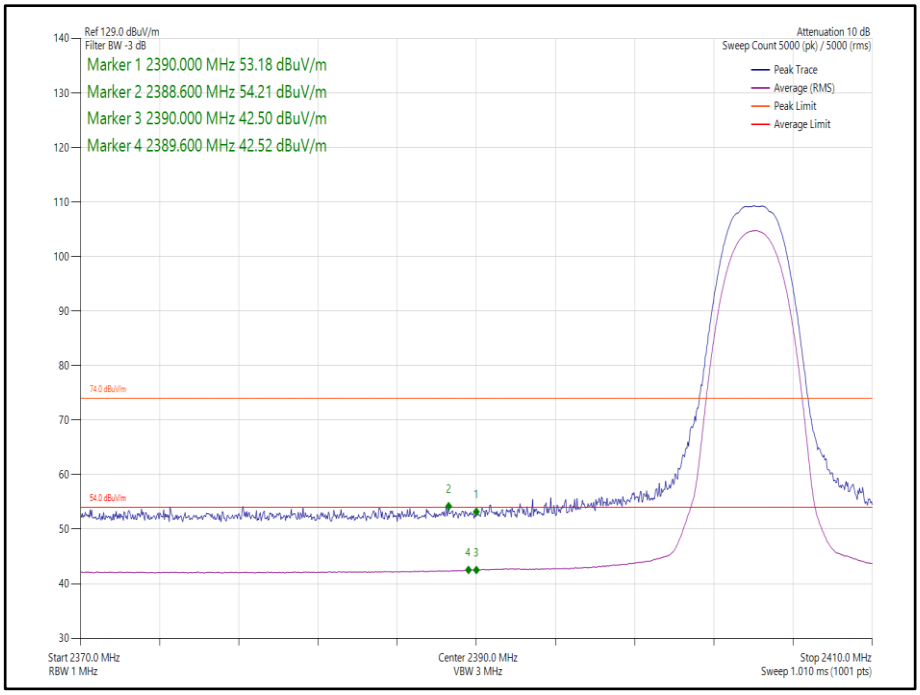

Figure 23 Core 1- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

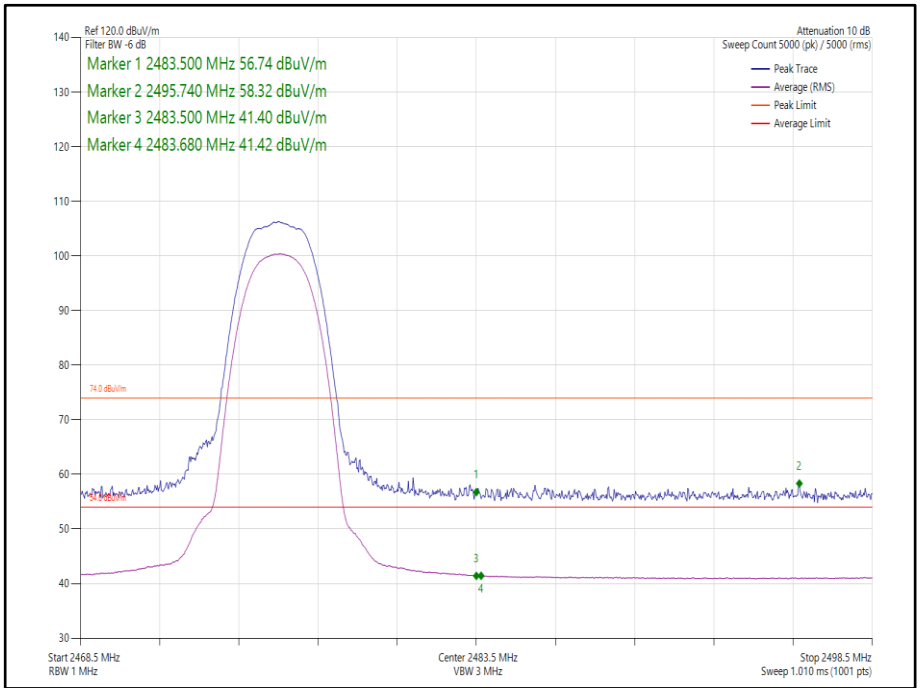

Figure 24 Core 1- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR4 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 2	4DH5	2404	2390.0	54.80	42.53
Static	GFSK	Core 2	4DH5	2476	2483.5	53.54	42.47

Table 19 - Restricted Band Edge Results

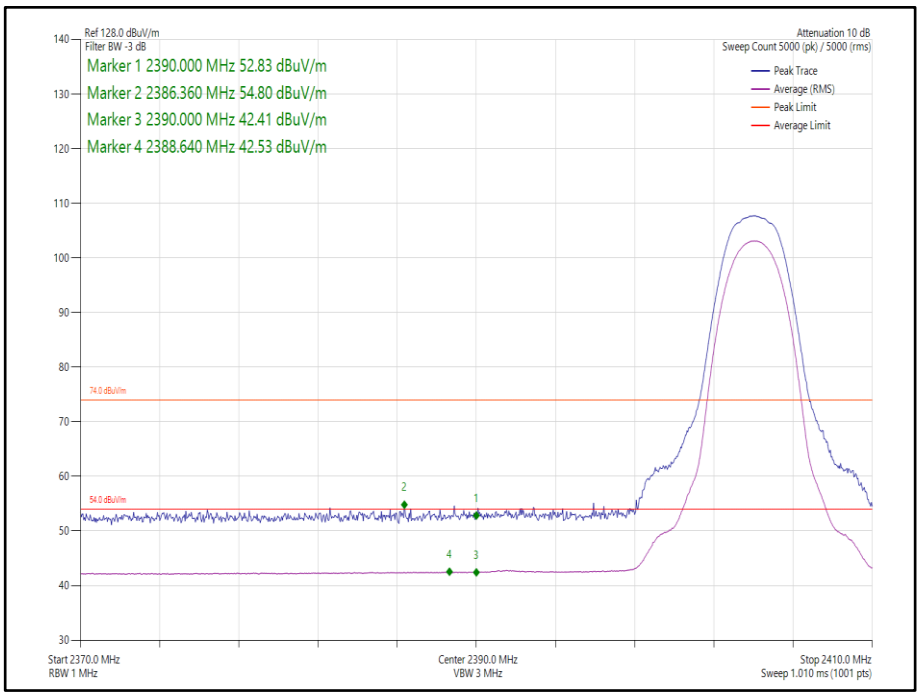

Figure 25 Core 2- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

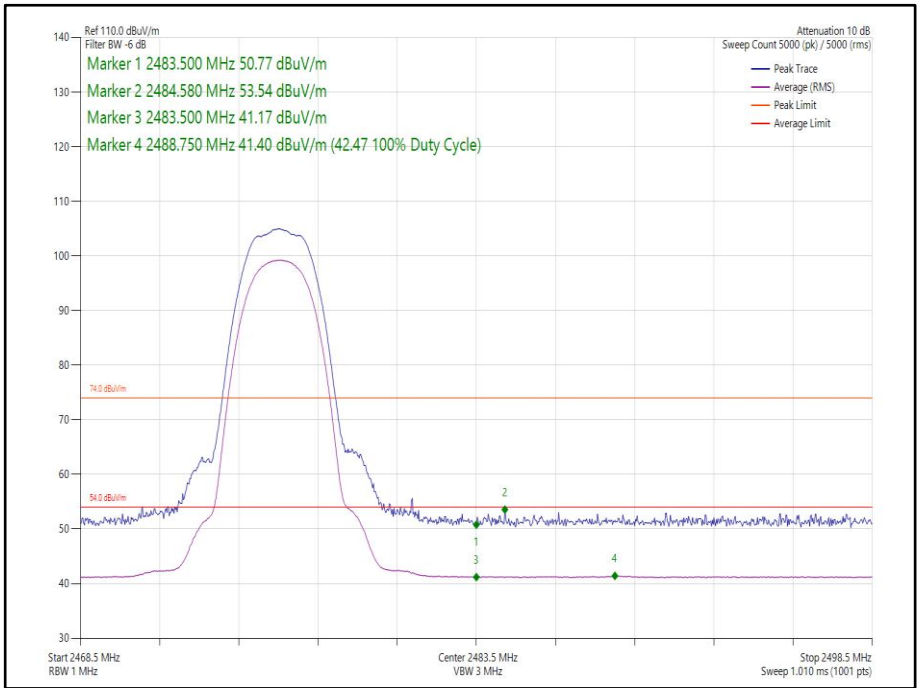

Figure 26 Core 2- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR4 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 0-1	4DH5	2404	2390.0	54.26	42.33
Static	GFSK	Core 0-1	4DH5	2476	2483.5	53.59	41.22

Table 20 - Restricted Band Edge Results

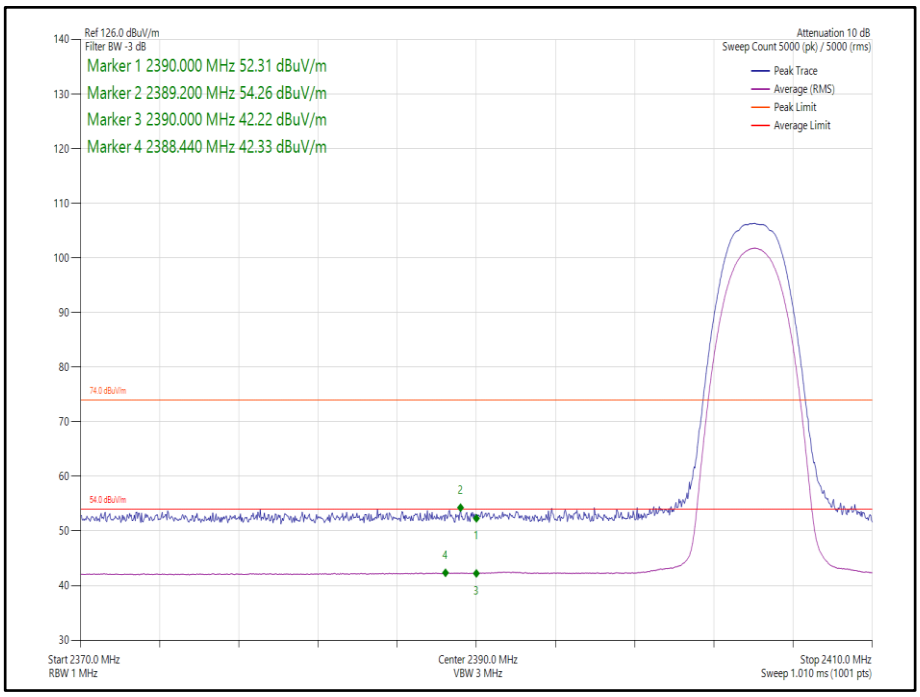

Figure 27 Core 0-1- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

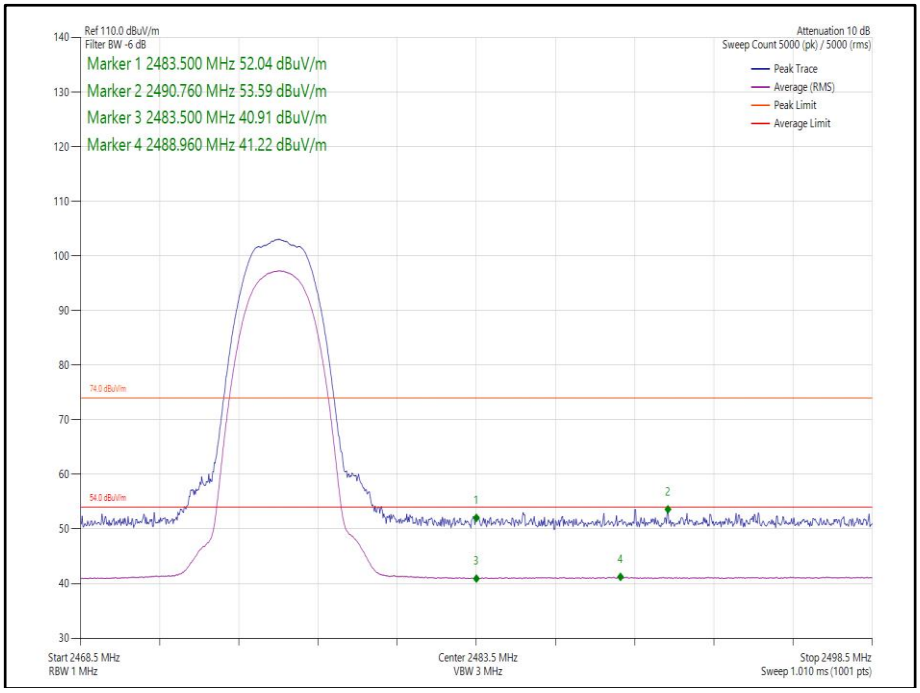

Figure 28 Core 0-1- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR4 ePA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 0-1	4DH5	2404	2390.0	56.89	42.77
Static	GFSK	Core 0-1	4DH5	2476	2483.5	54.94	41.77

Table 21 - Restricted Band Edge Results

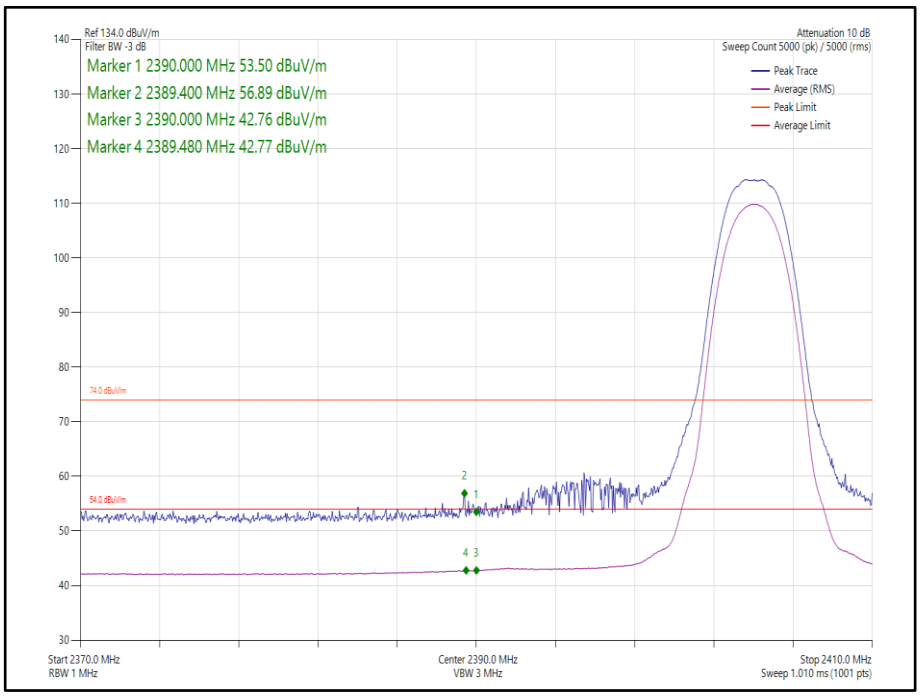

Figure 29 Core 0-1- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

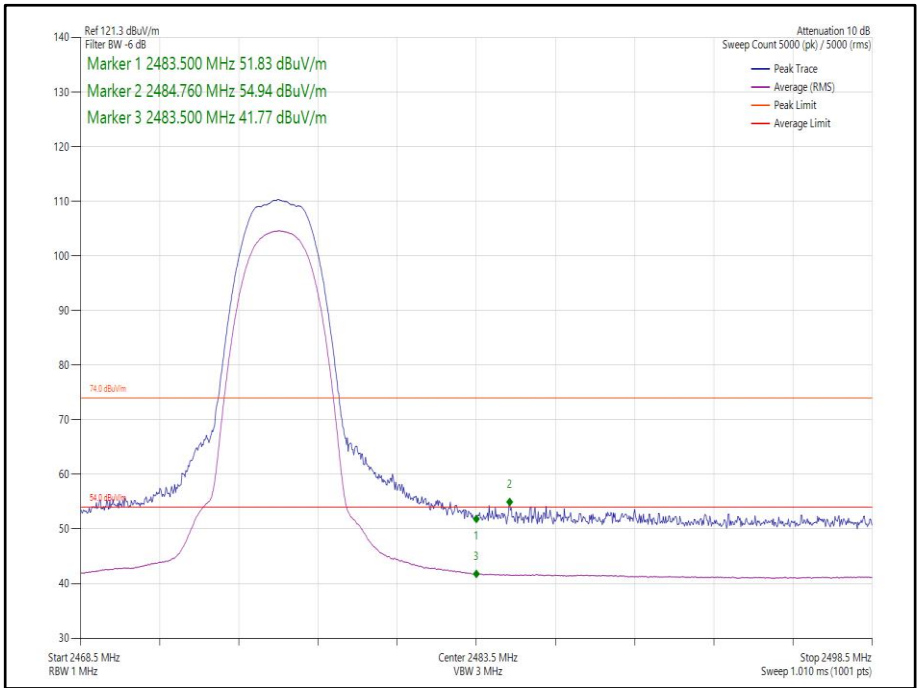

Figure 30 Core 0-1- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR8 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 1	4DH5	2404	2390.0	54.88	42.36
Static	GFSK	Core 1	4DH5	2476	2483.5	57.92	41.15

Table 22 - Restricted Band Edge Results

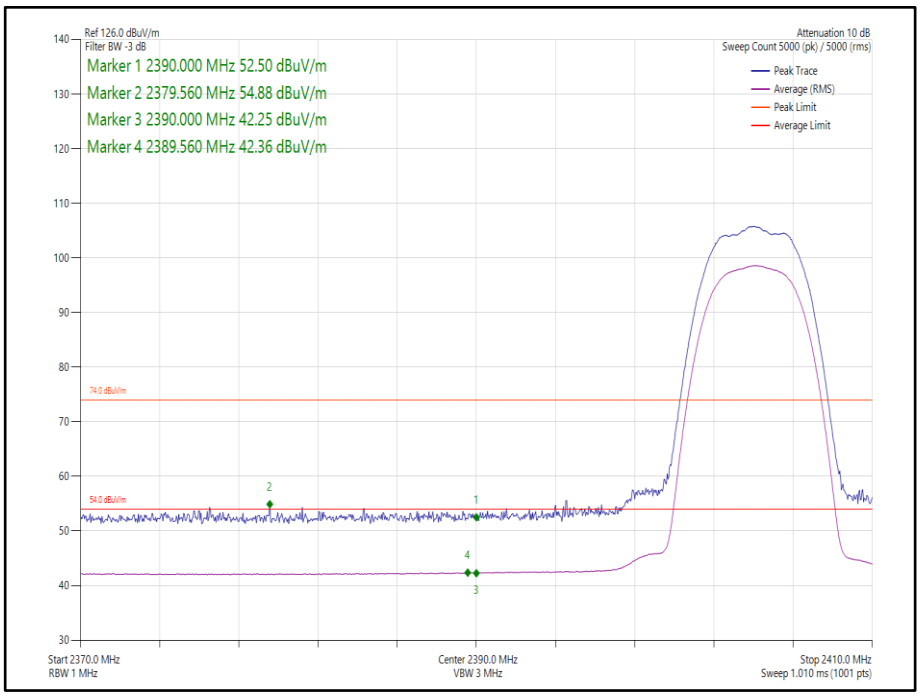

Figure 31 Core 1- Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

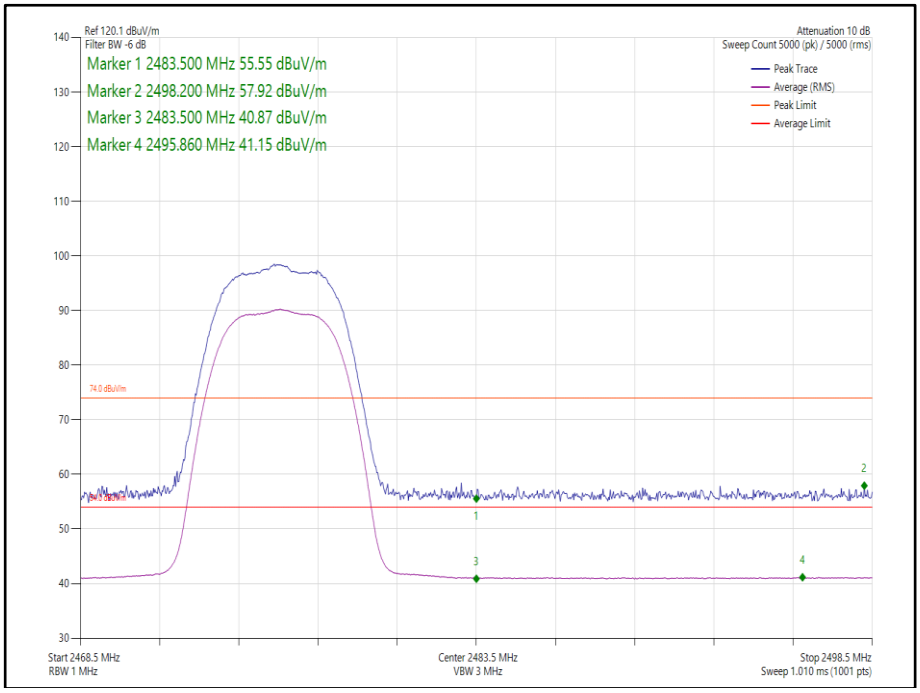

Figure 32 Core 1- Static - GFSK/8DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR8 ePA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 1	4DH5	2404	2390.0	54.77	42.60
Static	GFSK	Core 1	4DH5	2476	2483.5	54.39	42.07

Table 23 - Restricted Band Edge Results

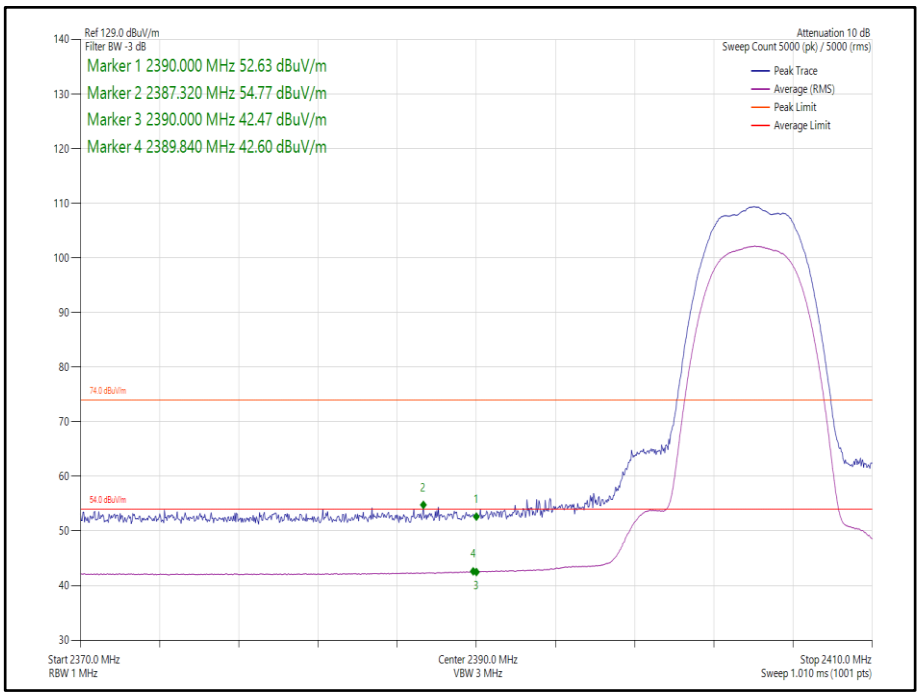

Figure 33 Core 1- Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

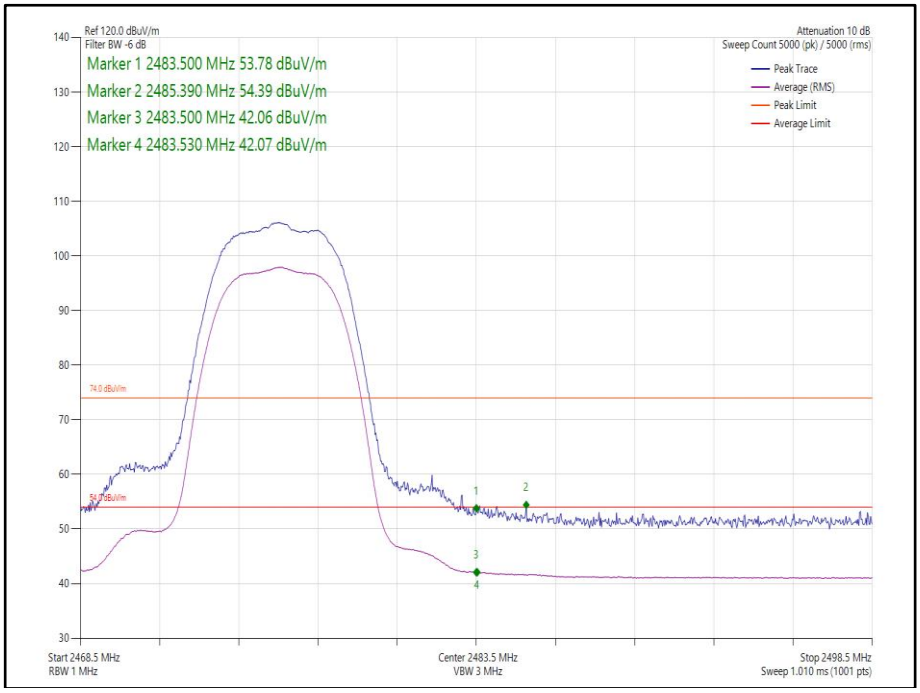

Figure 34 Core 1- Static - GFSK/8DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR8 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 2	4DH5	2404	2390.0	54.56	42.55
Static	GFSK	Core 2	4DH5	2476	2483.5	53.48	43.29

Table 24 - Restricted Band Edge Results

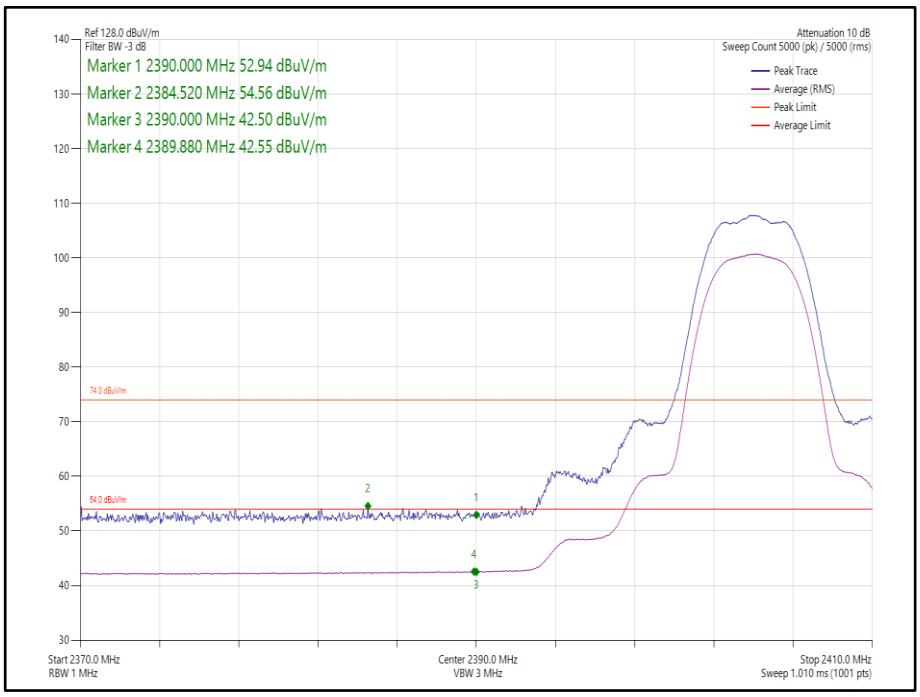

Figure 35 Core 2- Static - GFSK/4DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

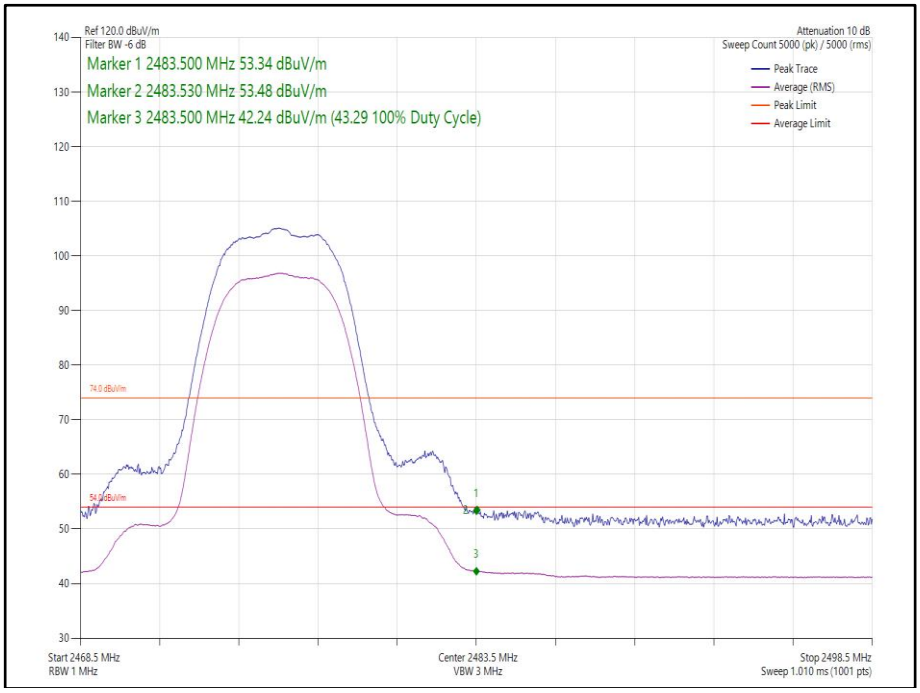

Figure 36 Core 2- Static - GFSK/4DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR8 iPA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 0-1	4DH5	2404	2390.0	53.98	42.36
Static	GFSK	Core 0-1	4DH5	2476	2483.5	53.19	41.32

Table 25 - Restricted Band Edge Results

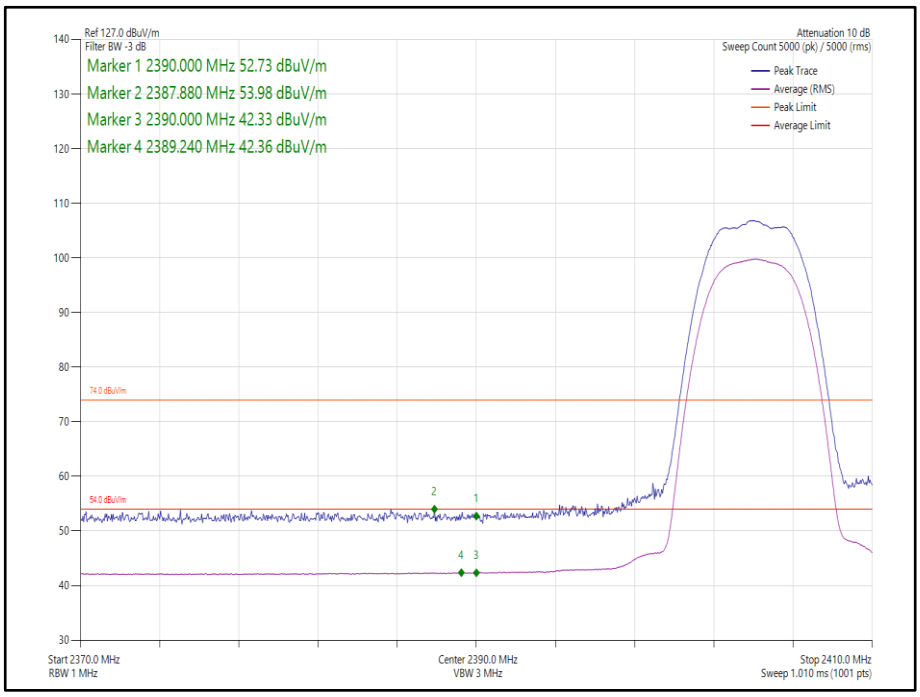

Figure 37 Core 0-1- Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

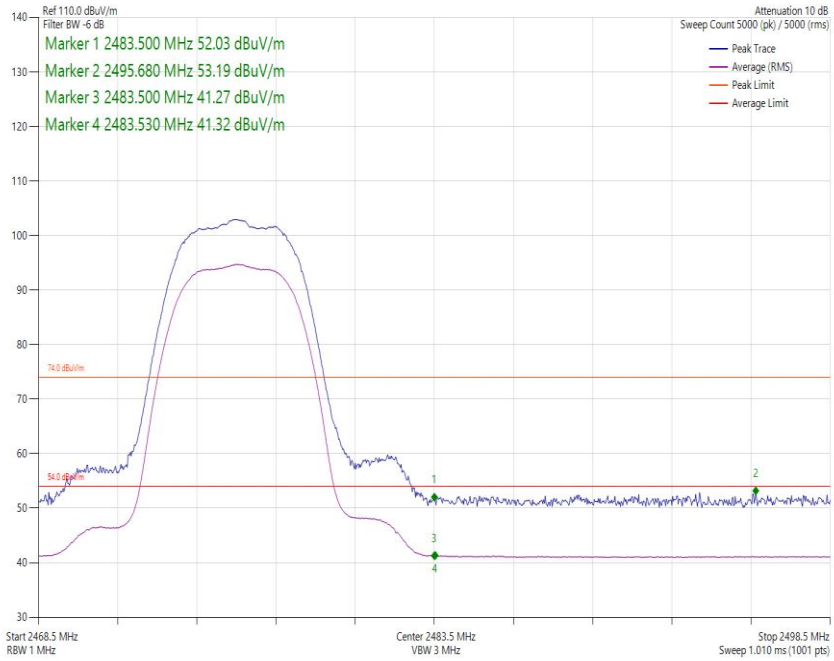

Figure 38 Core 0-1- Static - GFSK/8DH5 - 2476 MHz - Band Edge Frequency 2483.5 MHz

2.4 GHz Bluetooth – HDR8 ePA

Mode	Modulation	Core	Packet Type	Tx Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	GFSK	Core 0-1	4DH5	2404	2390.0	56.17	42.88
Static	GFSK	Core 0-1	4DH5	2476	2483.5	54.93	42.22

Table 26 - Restricted Band Edge Results

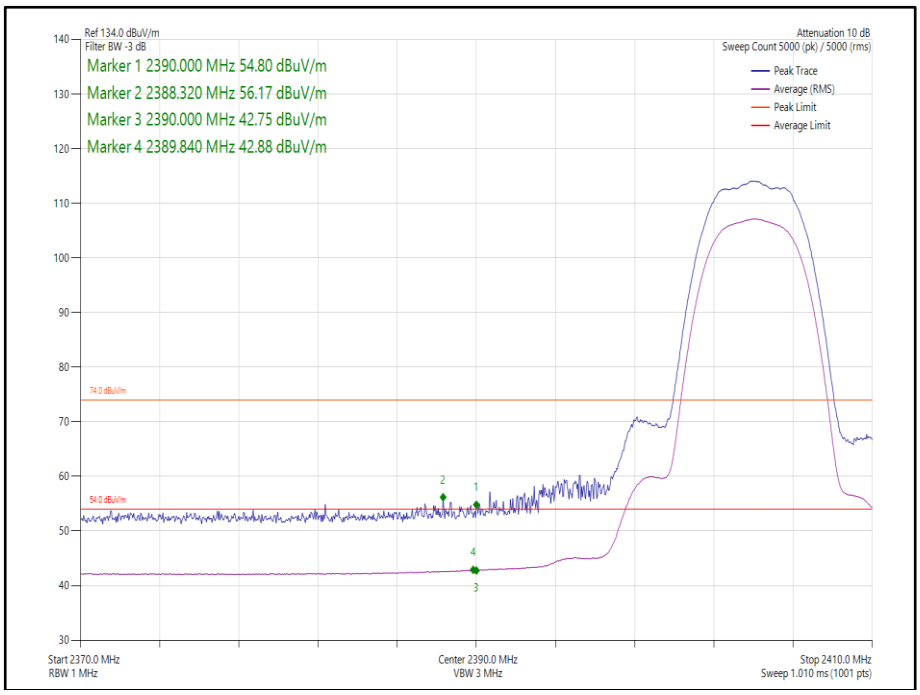

Figure 39 Core 0-1- Static - GFSK/8DH5 - 2404 MHz - Band Edge Frequency 2390.0 MHz

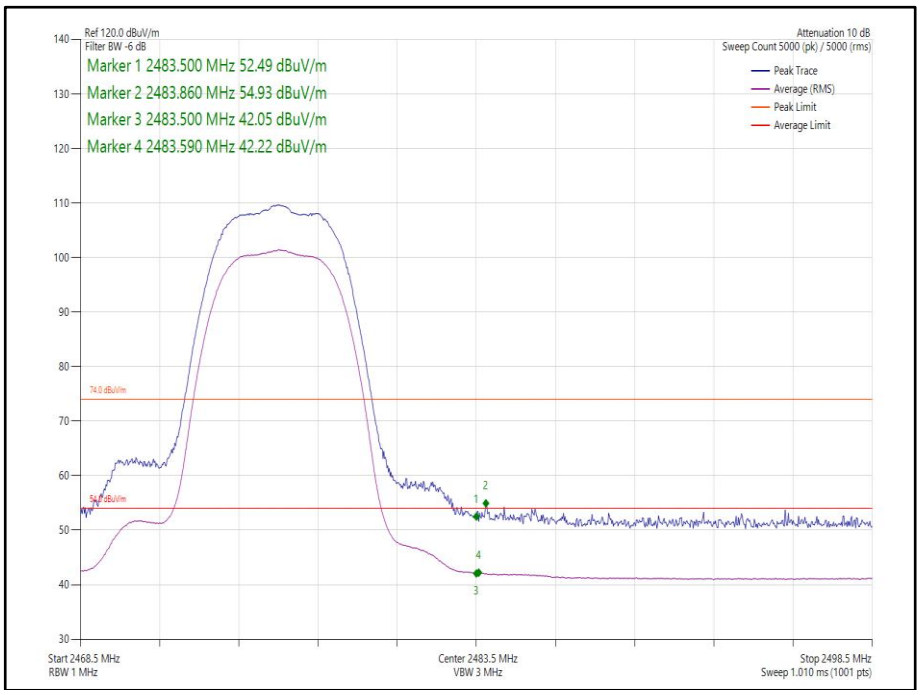

Figure 40 Core 0-1- Static - GFSK/8DH5 – 2476 MHz - Band Edge Frequency 2483.5 MHz

FCC 47 CFR Part 15, Limit Clause 15.209

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Table 27

ISED RSS-GEN, Limit Clause 8.9

Frequency (MHz)	Field Strength (µV/m at 3 m)
30 to 88	100
88 to 216	150
216 to 960	200
Above 960*	500

Table 28

*Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.

2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 11.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Antenna (DRG 1-10.5GHz)	Schwarzbeck	BBHA9120B	4848	12	28-May-2023*
EMI Test Receiver	Rohde & Schwarz	ESW44	5084	12	17-May-2023
Emissions Software	TUV SUD	EmX V3.1.4 V.3.1.4	5125	-	Software
Screened Room (11)	Rainford	Rainford	5136	36	24-Nov-2024
Mast	Maturo	TAM 4.0-P	5158	-	TU
Mast and Turntable Controller	Maturo	Maturo NCD	5159	-	TU
Turntable	Maturo	TT 15WF	5160	-	TU
Antenna (DRG 1-10.5GHz)	Schwarzbeck	BBHA9120B	5215	12	28-May-2022*
Pre Amp 1 - 26.5 GHz	Agilent Technologies	8449B	5445	12	12-May-2023
10dB/5W Attenuator	Aaren	AT40A-404-D18-10	5486	12	11-Apr-2023
1m -SMA Cable	Junkosha	MWX221-01000AMSAMS/A	5514	12	12-Apr-2023
Cable (SMA to SMA, 2 m)	Junkosha	MWX221-02000AMSAMS/A	5517	12	12-Apr-2023
2m SMA Cable	Junkosha	MWX221-02000AMSAMS/A	5518	12	12-Apr-2023
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221-08000NMSNMS/B	5520	12	24-Mar-2023
8m N Type Cable	Junkosha	MWX221-08000NMSNMS/B	5522	12	24-Mar-2023
Thermo-Hygro-Barometer	PCE Instruments	PCE-THB 40	5605	12	23-Sep-2022

Table 29

TU – Traceability Unscheduled

*Equipment was only employed whilst within its calibration period.

2.2 Emission Bandwidth

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(2)
ISED RSS-247, Clause 5.2
ISED RSS-GEN, Clause 6.7

2.2.2 Equipment Under Test and Modification State

A2843, S/N: CVP4VD6WJV - Modification State 0

2.2.3 Date of Test

08-August-2022 to 09-August-2022

2.2.4 Test Method

This test was performed in accordance with ANSI C63.10, clause 11.8.1 for 6 dB BW and 6.9.3 for 99% occupied bandwidth measurements.

2.2.5 Environmental Conditions

Ambient Temperature	23.4 - 23.6 °C
Relative Humidity	42.8 - 51.2 %

2.2.6 Test Results

2.4 GHz Bluetooth - DTS

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (4-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (BT Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2404	-	1.592	-	-	≥500.0
2441	-	1.592	-	-	≥500.0
2476	-	1.592	-	-	≥500.0

Table 30 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2404	-	2.352	-	-	-
2441	-	2.352	-	-	-
2476	-	2.352	-	-	-

Table 31 - 99% Bandwidth Results

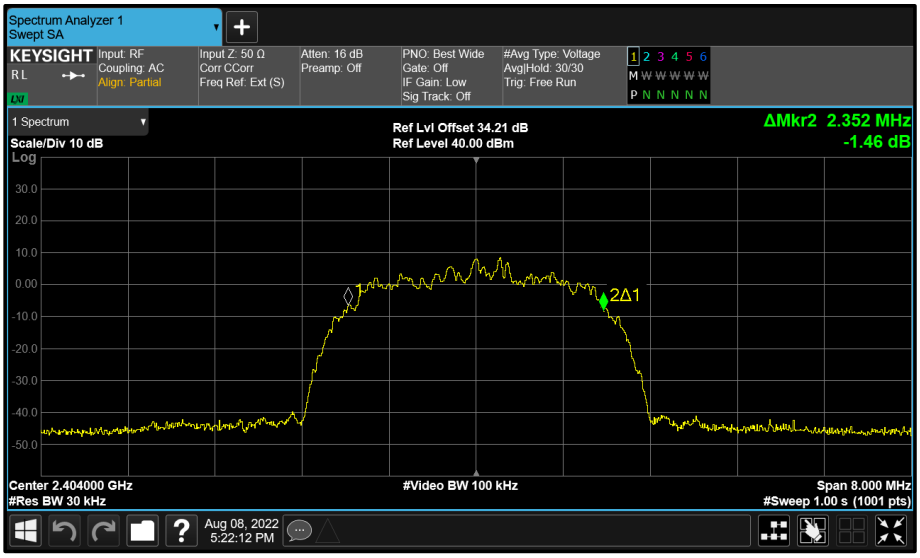

Figure 41 - BT Core 1 (B) 2404 MHz (CH2) 99% Bandwidth

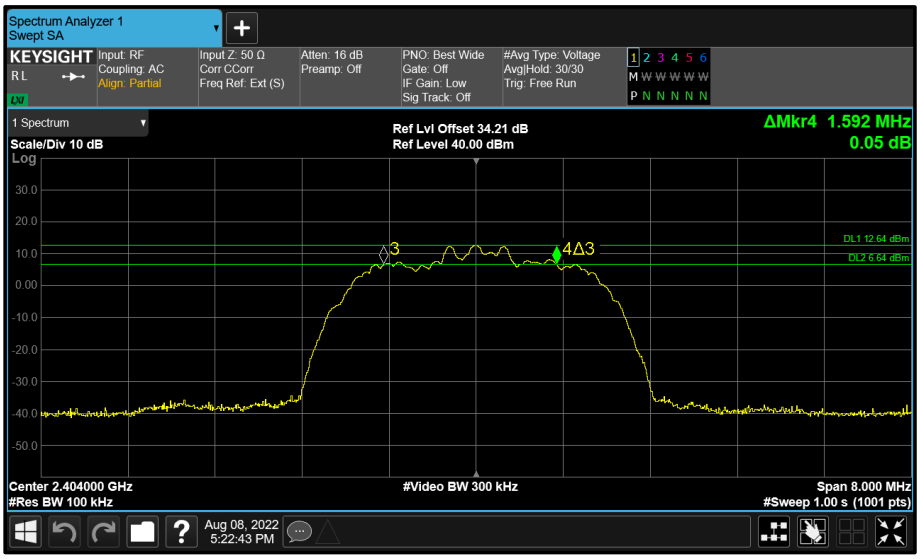

Figure 42 - BT Core 1 (B) 2404 MHz (CH2) 6 dB Bandwidth

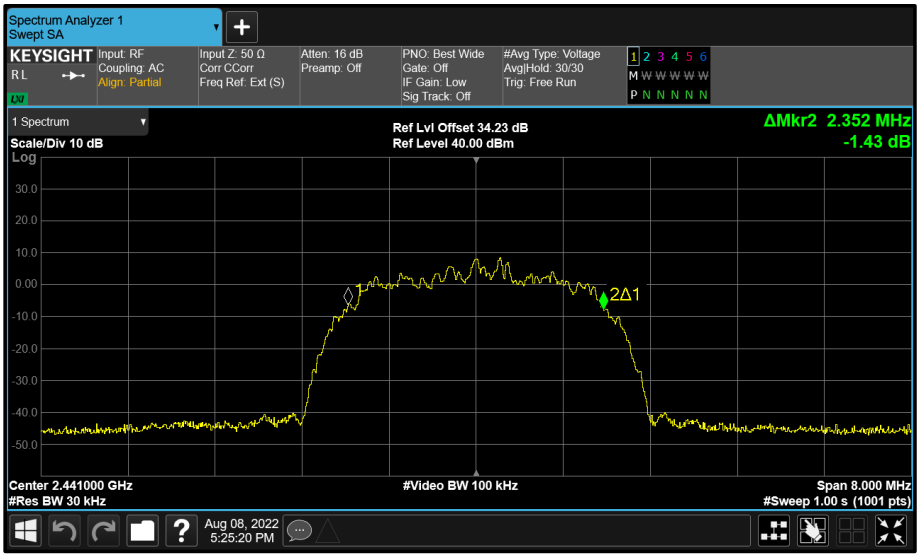

Figure 43 - BT Core 1 (B) 2441 MHz (CH39) 99% Bandwidth

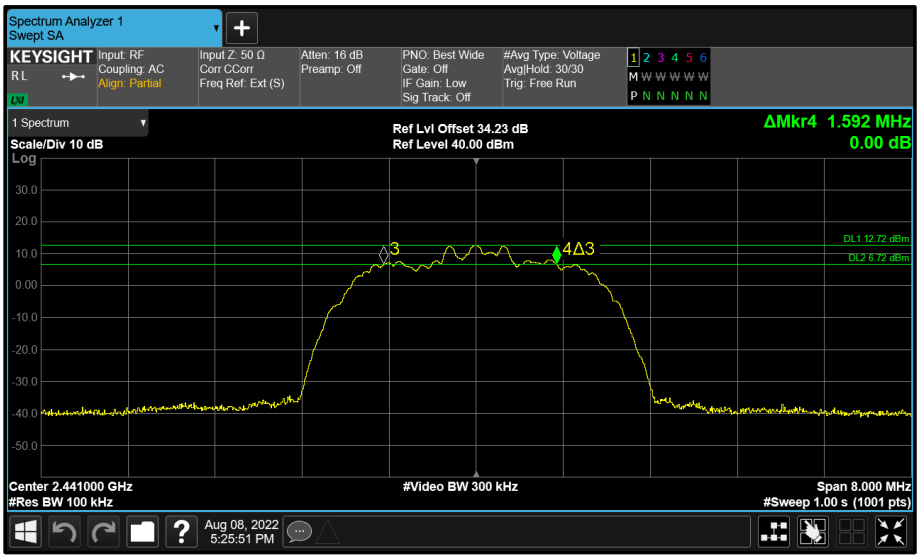

Figure 44 - BT Core 1 (B) 2441 MHz (CH39) 6 dB Bandwidth

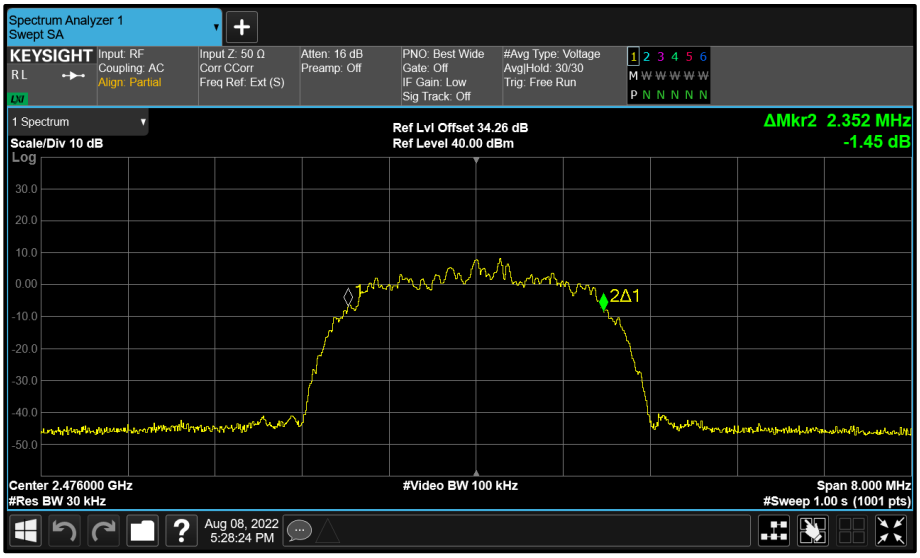

Figure 45 - BT Core 1 (B) 2476 MHz (CH74) 99% Bandwidth

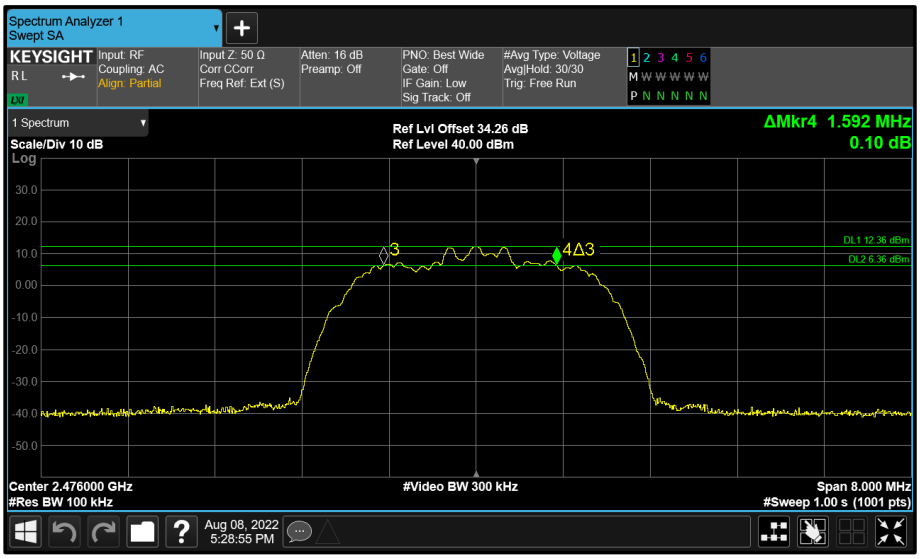

Figure 46 - BT Core 1 (B) 2476 MHz (CH74) 6 dB Bandwidth

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (8-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (BT Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2404	-	0.675	-	-	≥500.0
2441	-	0.945	-	-	≥500.0
2476	-	0.945	-	-	≥500.0

Table 32 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2404	-	4.500	-	-	-
2441	-	4.515	-	-	-
2476	-	4.515	-	-	-

Table 33 - 99% Bandwidth Results

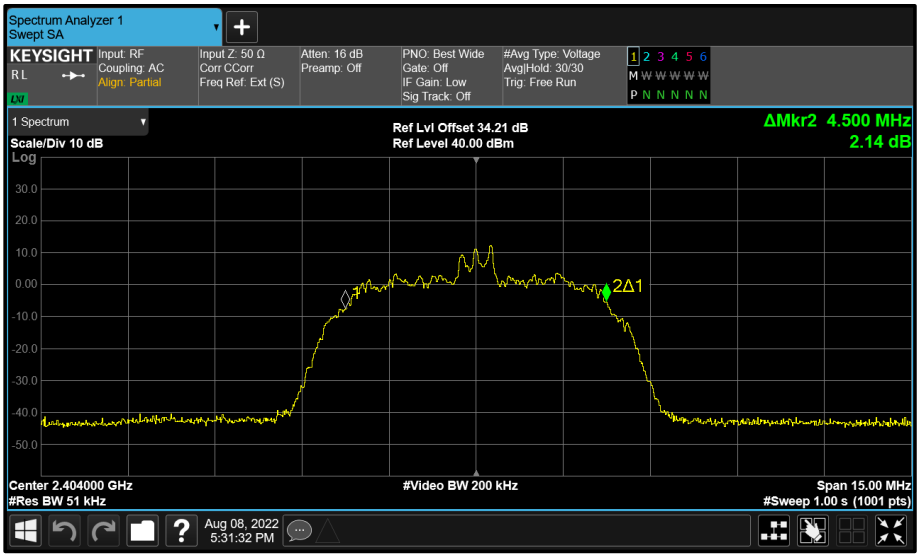

Figure 47 - BT Core 1 (B) 2404 MHz (CH2) 99% Bandwidth

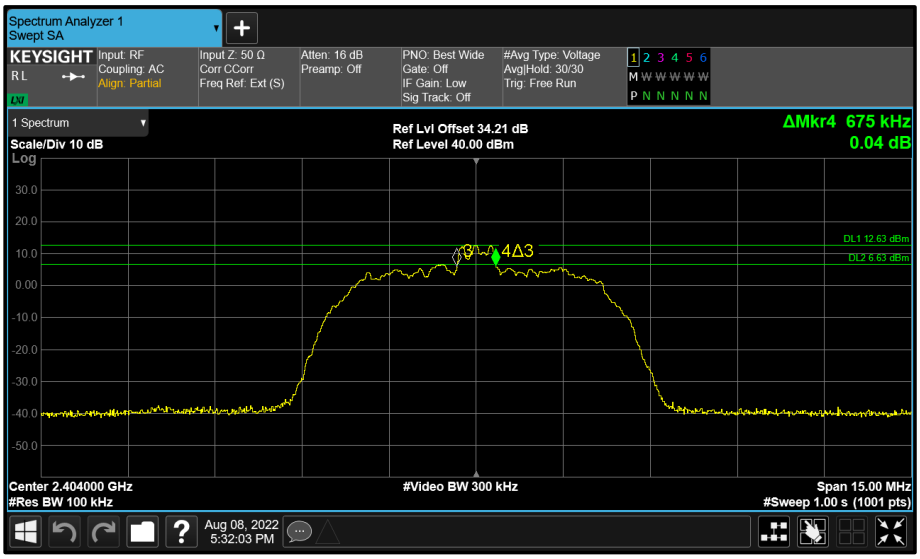

Figure 48 - BT Core 1 (B) 2404 MHz (CH2) 6 dB Bandwidth

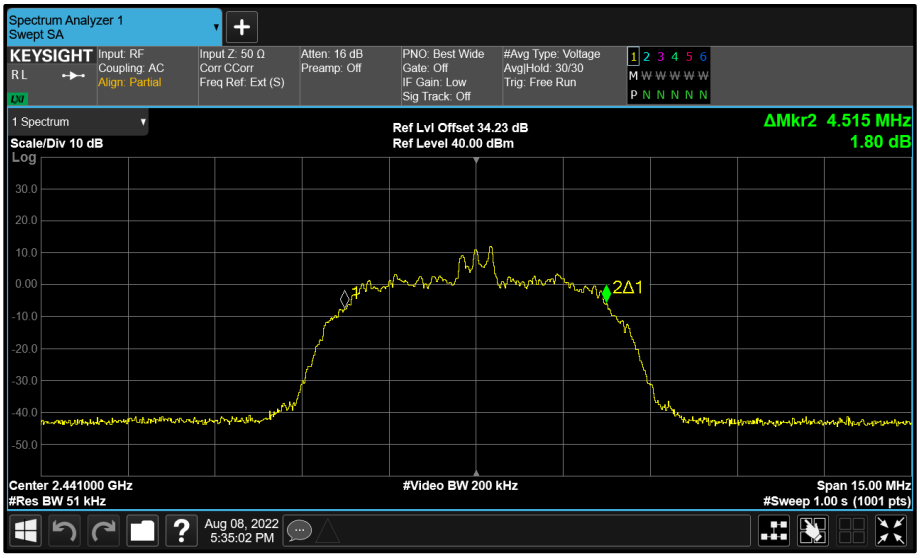

Figure 49 - BT Core 1 (B) 2441 MHz (CH39) 99% Bandwidth

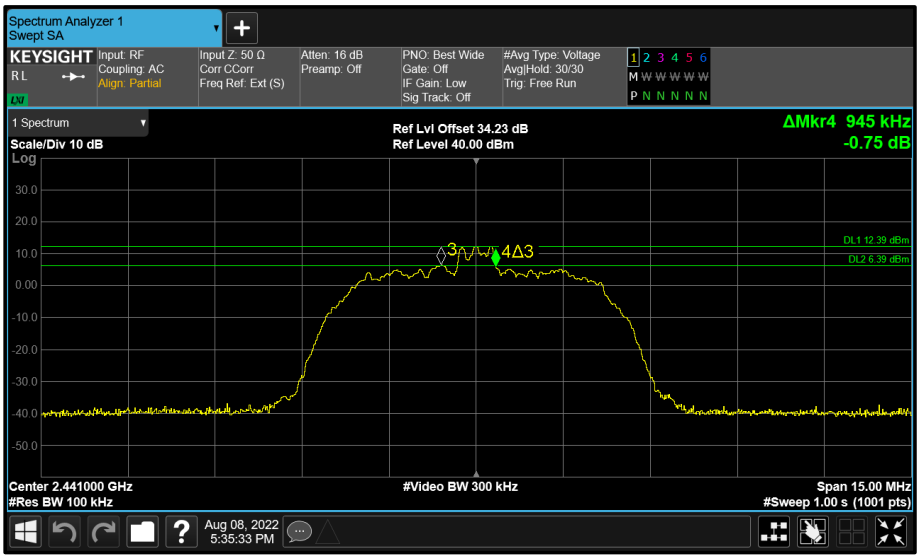

Figure 50 - BT Core 1 (B) 2441 MHz (CH39) 6 dB Bandwidth

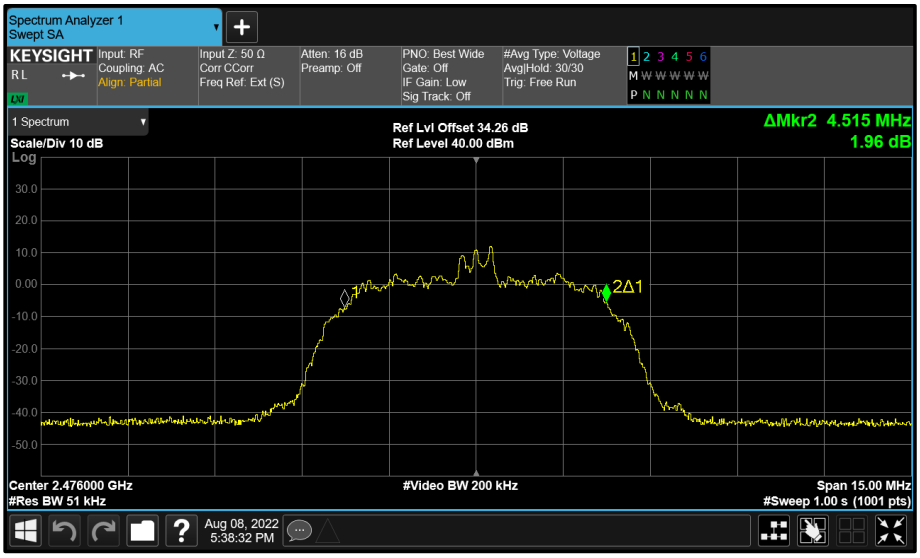

Figure 51 - BT Core 1 (B) 2476 MHz (CH74) 99% Bandwidth

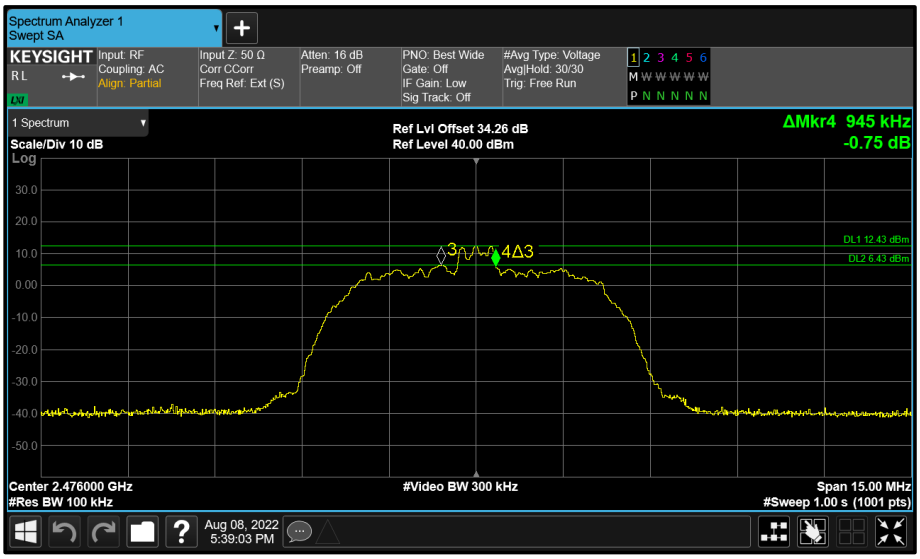

Figure 52 - BT Core 1 (B) 2476 MHz (CH74) 6 dB Bandwidth

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA GFSK (LE 1M)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (BT Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	-	0.664	-	-	≥500.0
2440	-	0.664	-	-	≥500.0
2480	-	0.664	-	-	≥500.0

Table 34 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	-	1.044	-	-	-
2440	-	1.044	-	-	-
2480	-	1.044	-	-	-

Table 35 - 99% Bandwidth Results

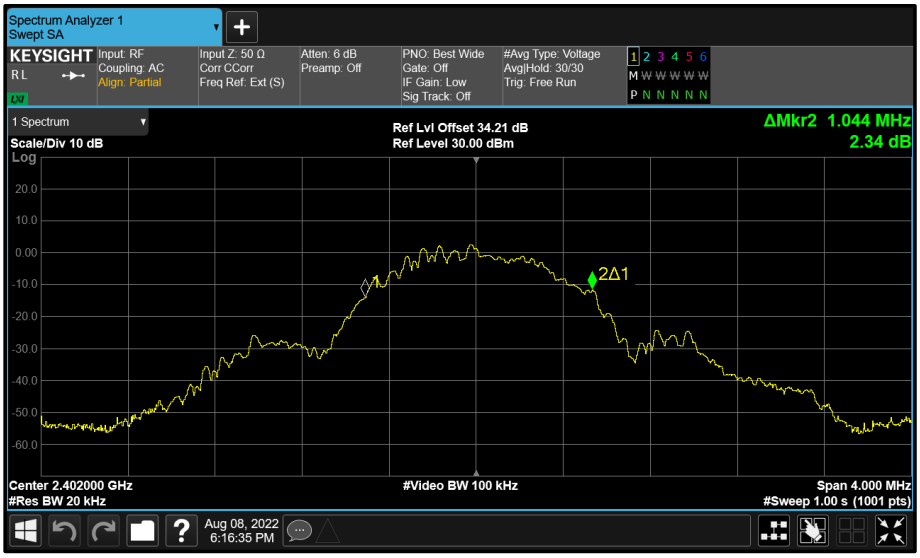

Figure 53 - BT Core 1 (B) 2402 MHz (CH37) 99% Bandwidth

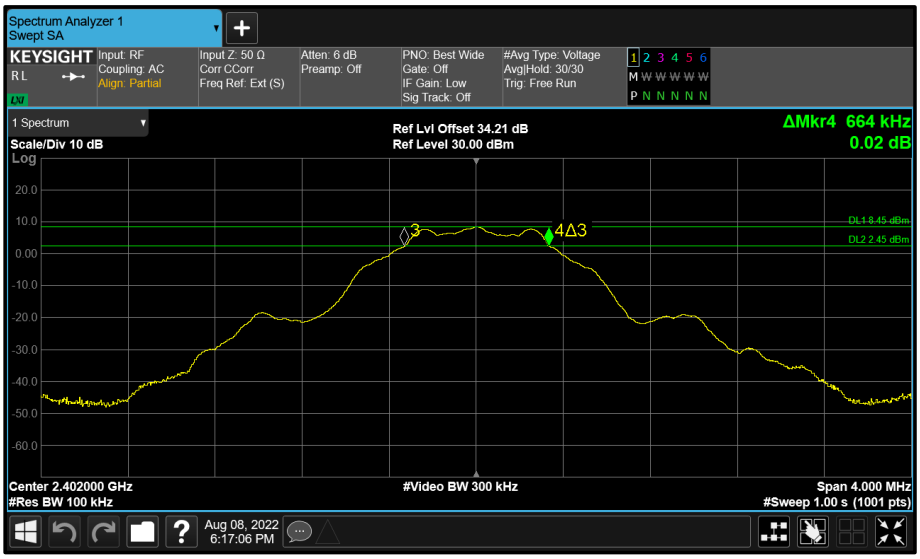

Figure 54 - BT Core 1 (B) 2402 MHz (CH37) 6 dB Bandwidth

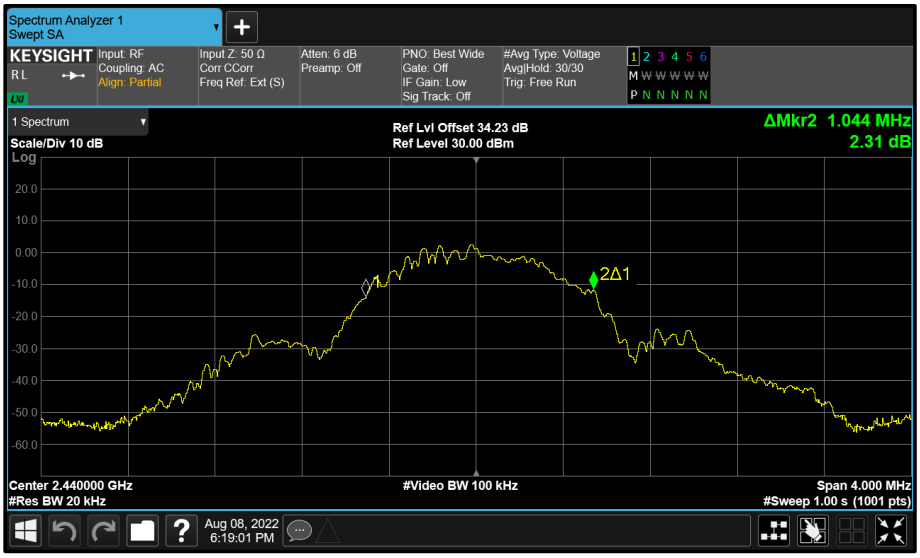

Figure 55 - BT Core 1 (B) 2440 MHz (CH17) 99% Bandwidth

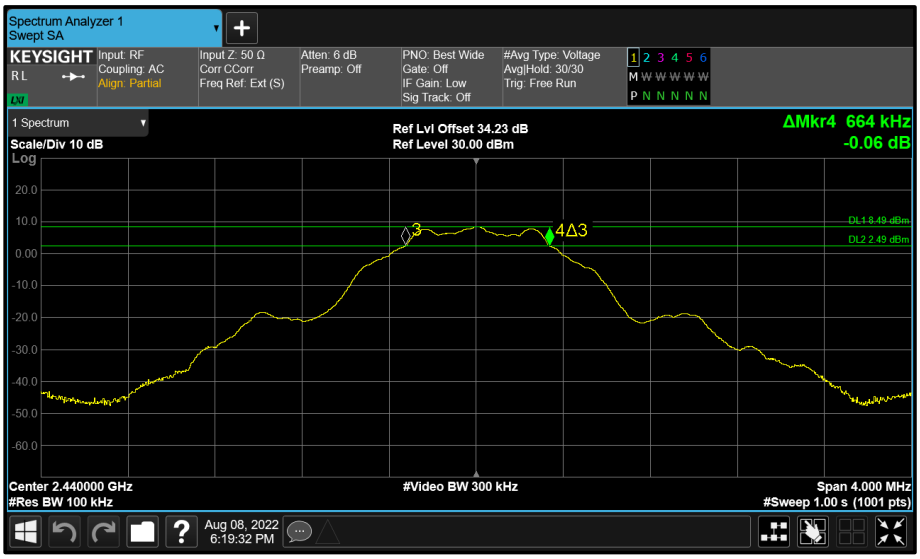

Figure 56 - BT Core 1 (B) 2440 MHz (CH17) 6 dB Bandwidth

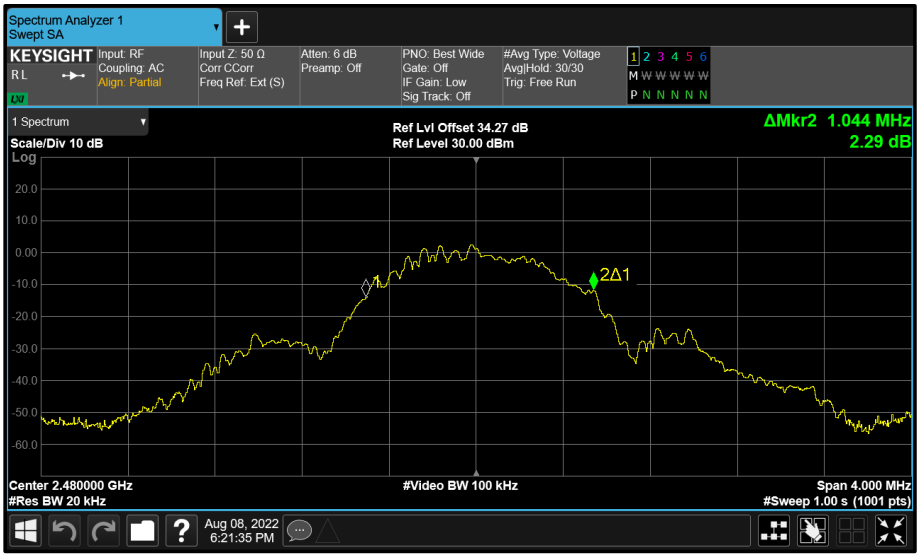

Figure 57 - BT Core 1 (B) 2480 MHz (CH39) 99% Bandwidth

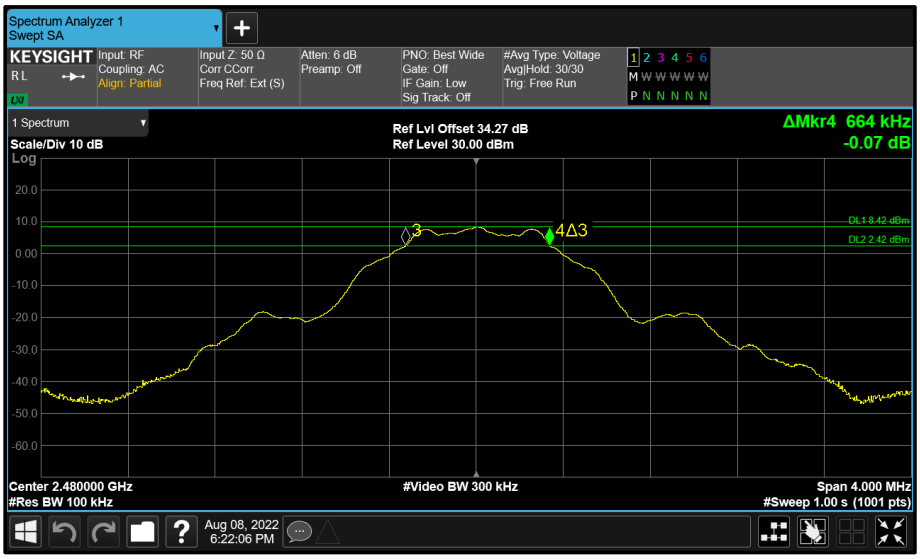

Figure 58 - BT Core 1 (B) 2480 MHz (CH39) 6 dB Bandwidth

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	15.247 (a)(2) RSS-247 5.2 a)	Test Method(s):	C63.10 6.9.3 C63.10 11.8.1
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA GFSK (LE 2M)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (BT Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	-	1.168	-	-	≥500.0
2440	-	1.168	-	-	≥500.0
2480	-	1.176	-	-	≥500.0

Table 36 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
2402	-	2.048	-	-	-
2440	-	2.048	-	-	-
2480	-	2.048	-	-	-

Table 37 - 99% Bandwidth Results

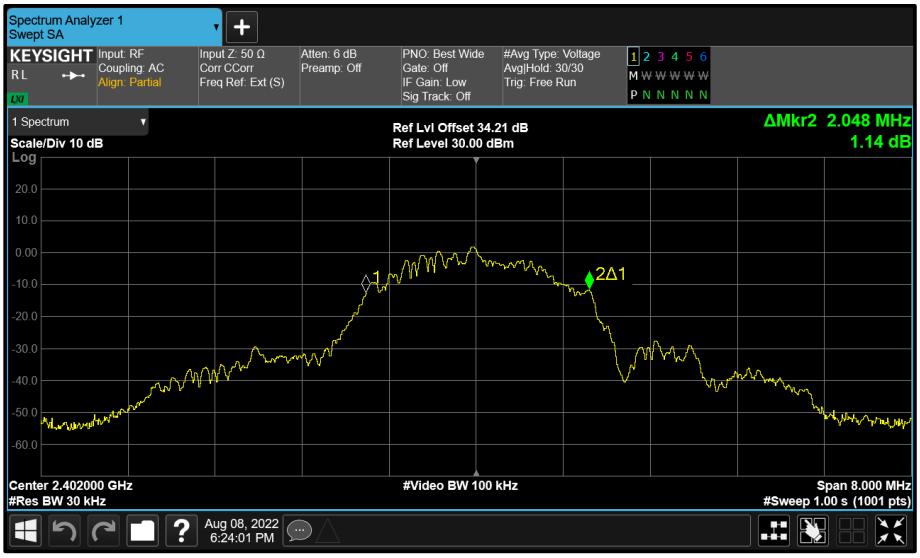

Figure 59 - BT Core 1 (B) 2402 MHz (CH37) 99% Bandwidth

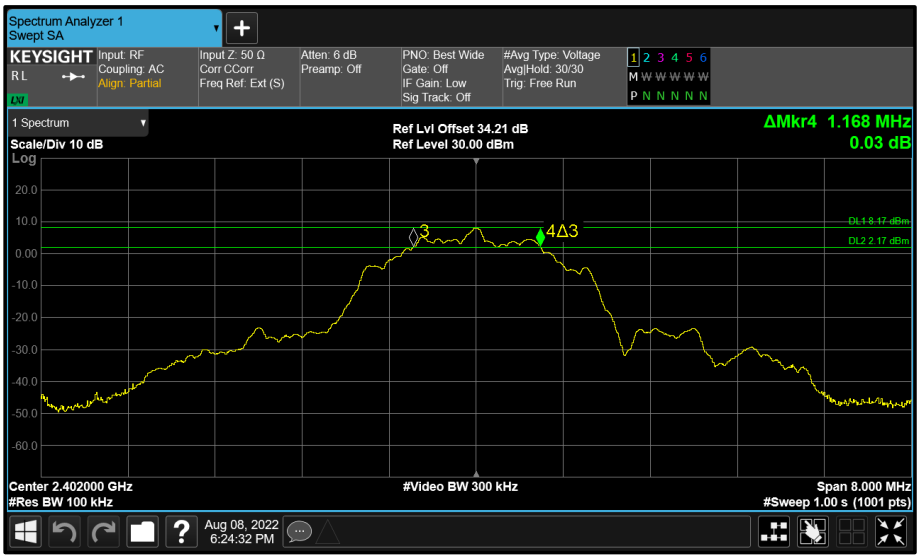

Figure 60 - BT Core 1 (B) 2402 MHz (CH37) 6 dB Bandwidth

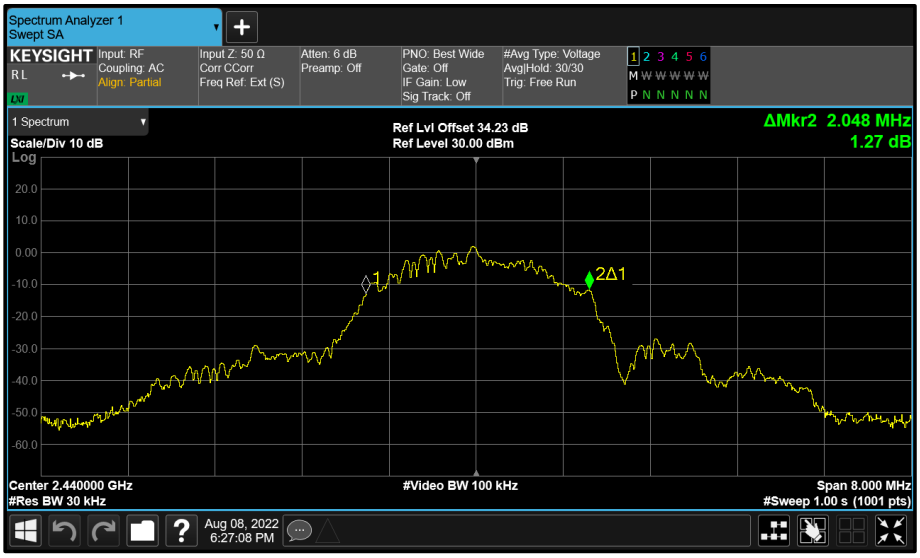

Figure 61 - BT Core 1 (B) 2440 MHz (CH17) 99% Bandwidth

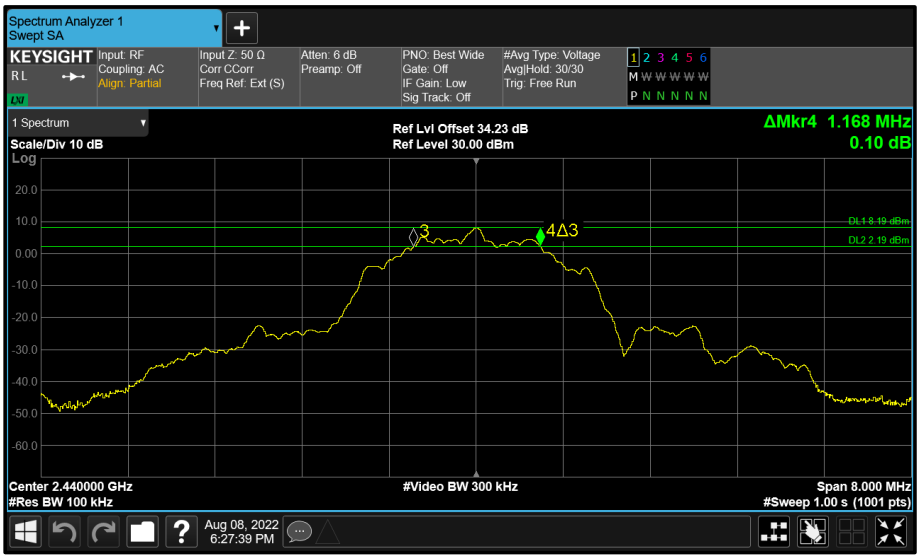

Figure 62 - BT Core 1 (B) 2440 MHz (CH17) 6 dB Bandwidth

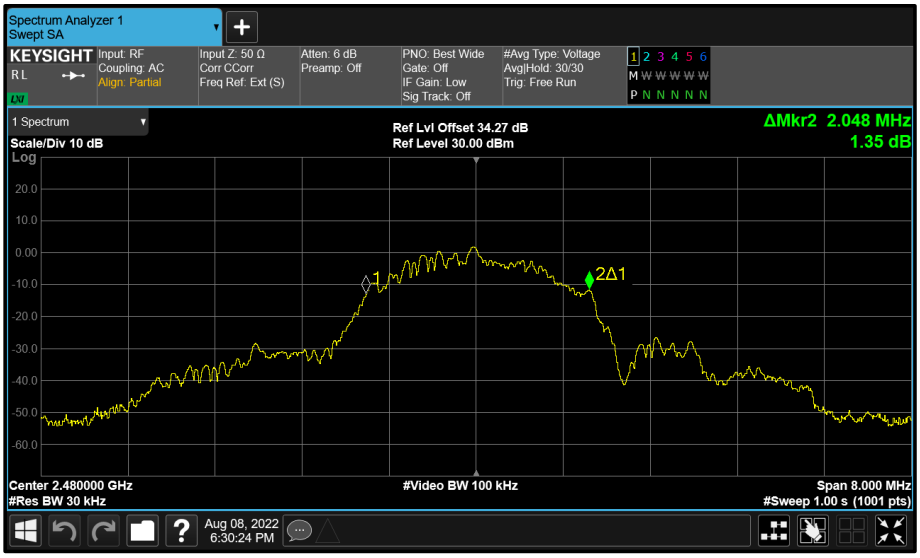

Figure 63 - BT Core 1 (B) 2480 MHz (CH39) 99% Bandwidth

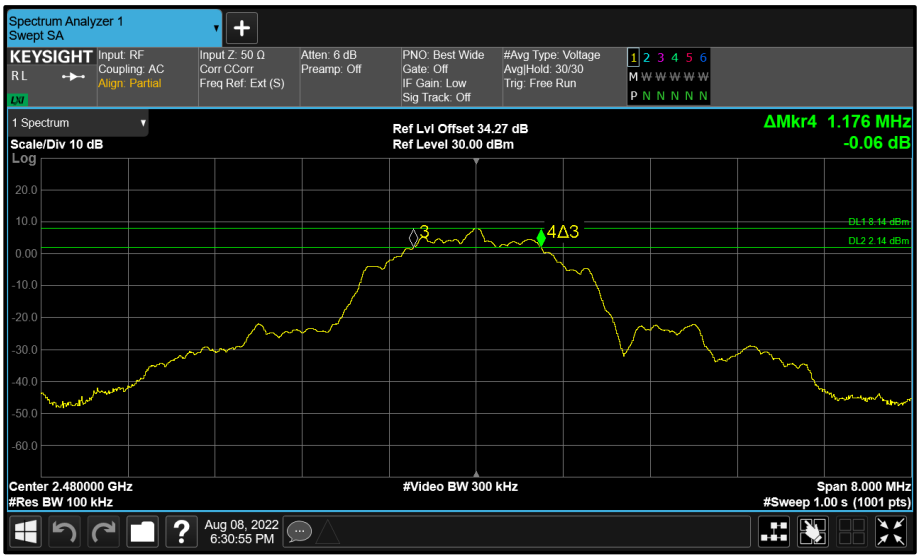

Figure 64 - BT Core 1 (B) 2480 MHz (CH39) 6 dB Bandwidth