FCC Test Report

Apple Inc
Model: A3403

In accordance with FCC 47 CFR Part 15C (2.4 GHz Bluetooth BDR/EDR)

TUV SUD Limited
Digitally signed by TUV SUD Limited
Date: 2024.10.14 16:06:54 +01'00'

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FCC ID: BCGA3403

COMMERCIAL-IN-CONFIDENCE

Document 75961394-86 Issue 01

SIGNATURE			
NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Steve Marshall	Senior Engineer	Authorised Signatory	14 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 15C. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Report Generation	Rachael Watkins	14 October 2024	

FCC Accreditation
492497/UK2010 Octagon House, Fareham Test Laboratory
553713/UK2026 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY
A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C: 2023 for the tests detailed in section 1.3.

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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	14-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 15C: 2023
Start of Test	26-August-2024
Finish of Test	07-October-2024
Name of Engineer(s)	Tom Biddlecombe, Manohar Thota, Colin Brain, Ioan-Alexandru Bogatu, Ian Hart, Morsalin Hossain and Ahmed Al Derdiri
Related Document(s)	ANSI C63.4 (2014) ANSI C63.10 (2020) KDB 662911 D01 v02r01

1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: 2.4 GHz Bluetooth BDR/EDR				
	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	Restricted Band Edges	Pass	ANSI C63.10 (2020)
2.2	15.247 (a)(1)	Frequency Hopping Systems - Average Time of Occupancy	Pass	ANSI C63.10 (2020)
2.3	15.247 (a)(1)	Frequency Hopping Systems - Channel Separation	Pass	ANSI C63.10 (2020)
2.4	15.247 (a)(1)	Frequency Hopping Systems - Number of Hopping Channels	Pass	ANSI C63.10 (2020)
2.5	15.247 (a)(1)	Frequency Hopping Systems - 99% & 20 dB Bandwidth	Pass	ANSI C63.10 (2020)
2.6	15.247 (b)	Maximum Conducted Output Power	Pass	ANSI C63.10 (2020) KDB 662911 D01 v02r01
2.7	15.247 (d)	Authorised Band Edges	Pass	ANSI C63.10 (2020)
2.8	15.209 and 15.247 (d)	Spurious Radiated Emissions	Pass	ANSI C63.10 (2020) ANSI C63.4 (2014)

Table 2

1.4 Product Information

1.4.1 Technical Description

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

1.4.2 Test Modes

The EUT's 2.4 GHz Bluetooth radio supports SISO (Single Input/Single Output) operation on three different cores (Core 0, 1, and 2). It also supports MIMO (Multiple Input/Multiple Output) beamforming operation on Cores 0+1. The EUT supports Basic Rate and Enhanced Data Rate modes for FHSS operation.

Core 0 and core 1 also operate at two power settings: low power "iPA" and high power "ePA", with dedicated core 2 only supporting the lower power mode. The EUT uses different output powers per core dependent on how many cores are used.

After preliminary investigations, conducted tests on the EUT and Radiated Band Edge were performed in the following modes:

SISO modes:

- DH5 - iPA - Core 1
- 2-DH5 - iPA - Core 1
- 3-DH5 - iPA - Core 1
- DH5 - iPA - Core 2
- 2-DH5 - iPA - Core 2
- 3-DH5 - iPA - Core 2
- 2-DH5 - ePA - Core 1
- 3-DH5 - ePA - Core 1

MIMO modes:

- DH5 - iPA - Core 0 + Core 1
- 2-DH5 - iPA - Core 0 + Core 1
- 3-DH5 - iPA - Core 0 + Core 1
- 2-DH5 - ePA - Core 0 + Core 1
- 3-DH5 - ePA - Core 0 + Core 1

Spurious Radiated Emissions tests were limited to the modes shown below, with the device configured to operate at maximum output power. As this was deemed to be worst case.

SISO mode:

- DH5 - iPA - Core 2

MIMO modes:

- 2-DH5 - ePA - Core 0 + Core 1
- DH5 - iPA - Core 0 + Core 1

1.4.3 Test Setup

For conducted tests the EUT antennas were disconnected and replaced with U.FL to SMA test cables to enable conducted testing on each core. The loss of these test cables were known and compensated for in any conducted measurements.

For all tests the EUT was put into a continuous transmit/receive test mode with the chipset manufacturer's test commands. These ran the specified modulation types on either a fixed single channel or in Hopping mode, to ensure the measured signals were representative.

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

1.4.4 Antenna Gain Table

Antenna Port	Frequency Range (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
Core 0	2400 to 2480	3.3	0.71
Core 1	2400 to 2480	6.3	0.71
Dedicated Core 2	2400 to 2480	5.2	0.71

Table 3

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: A3403			
Serial Number	Hardware Version	Software Version	Firmware
LJHNW3N9XQ	REV1.0	24A32190v	22.1.65.459
JF4T7PYJ66	REV1.0	24A32191s	22.1.65.459
M7J9X1XPGD	REV1.0	24A32190v	22.1.65.459

Table 4

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: A3403, Serial Number: LJHNW3N9XQ			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3403, Serial Number: JF4T7PYJ66			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3403, Serial Number: M7J9X1XPGD			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5

1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: 2.4 GHz Bluetooth BDR/EDR		
Frequency Hopping Systems - Average Time of Occupancy	Tom Biddlecombe	UKAS
Frequency Hopping Systems - Channel Separation	Tom Biddlecombe	UKAS
Frequency Hopping Systems - Number of Hopping Channels	Tom Biddlecombe	UKAS
Frequency Hopping Systems - 99% & 20 dB Bandwidth	Tom Biddlecombe	UKAS
Maximum Conducted Output Power	Tom Biddlecombe	UKAS

Table 6

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 BDR/EDR		
Restricted Band Edges	Manohar Thota and Colin Brain	UKAS
Authorised Band Edges	Manohar Thota and Colin Brain	UKAS
Spurious Radiated Emissions	Ioan-Alexandru Bogatu, Ian Hart, Morsalin Hossain, Ahmed Al Derdiri and Manohar Thota	UKAS

Table 7

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

2.1.2 Equipment Under Test and Modification State

A3403, S/N: JF4T7PYJ66 - Modification State 0

2.1.3 Date of Test

04-September-2024 to 24-September-2024

2.1.4 Test Method

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

Plots for average measurements were taken in accordance with ANSI C63.10, clause 4.1.5.2.6.

These are shown for information purposes and were used to determine the worst-case measurement point. Final average measurements were then taken in accordance with ANSI C63.10, clause 4.1.4.2.2 to obtain the measurement result recorded in the test results tables.

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	21.4 - 23.0 °C
Relative Humidity	46.3 - 50.0 %

2.1.6 Test Results

2.4 GHz Bluetooth BDR/EDR

iPA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	DH5	2402	2390	53.87	39.09
Static	2-DH5	2402	2390	53.48	39.21
Static	3-DH5	2402	2390	53.87	39.20
Static	DH5	2480	2483.5	52.60	41.03
Static	2-DH5	2480	2483.5	52.90	41.09
Static	3-DH5	2480	2483.5	53.32	41.11

Table 8 - SISO Restricted Band Edge Results

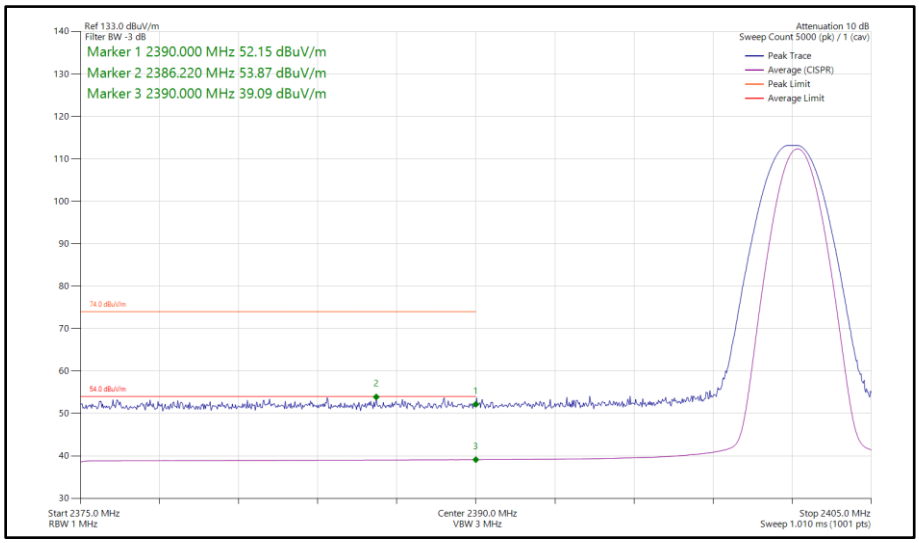

Figure 1 - Bluetooth DH5, SISO, Core 0 - 2402 MHz Band Edge Frequency 2390 MHz

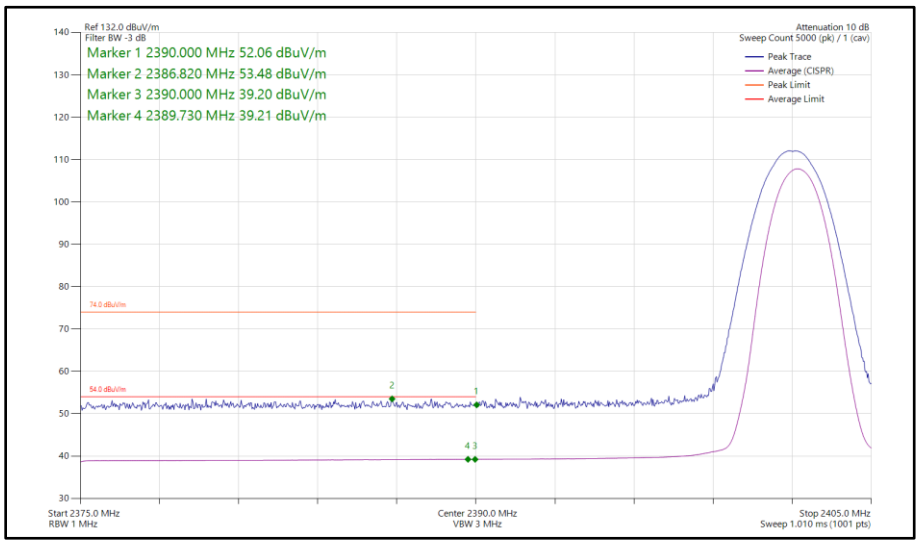

Figure 2 - Bluetooth 2-DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2390 MHz

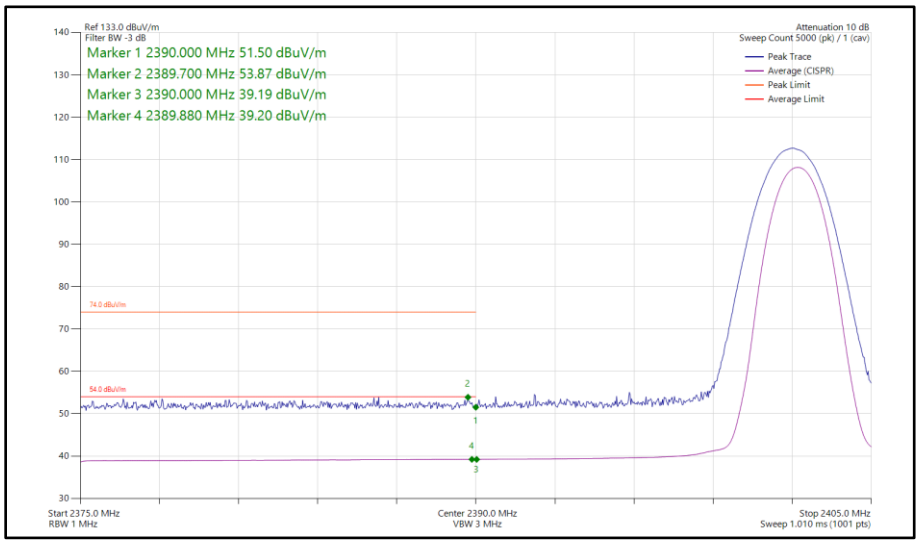

Figure 3 - Bluetooth 3-DH5, SISO, Core 0 - 2402 MHz
Band Edge Frequency 2390 MHz

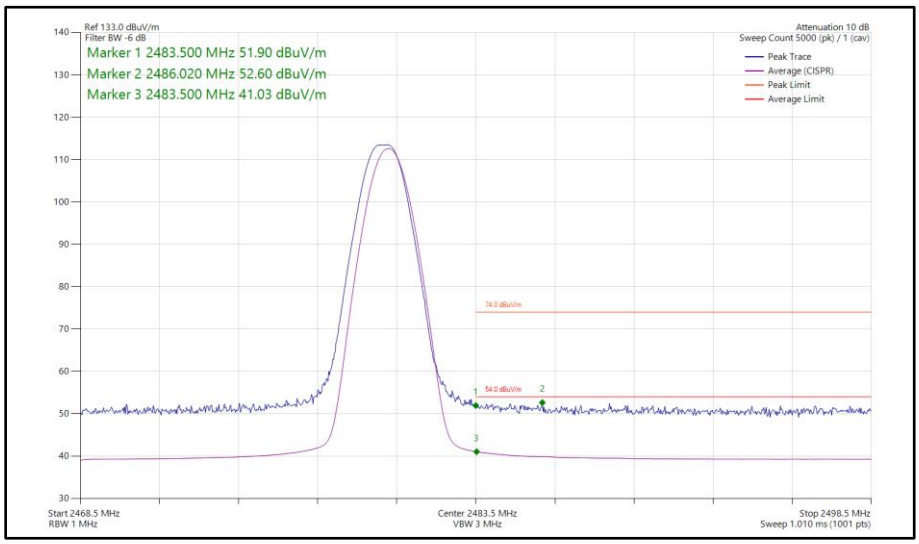

Figure 4 - Bluetooth DH5, SISO, Core 0 - 2480 MHz
Band Edge Frequency 2483.5 MHz

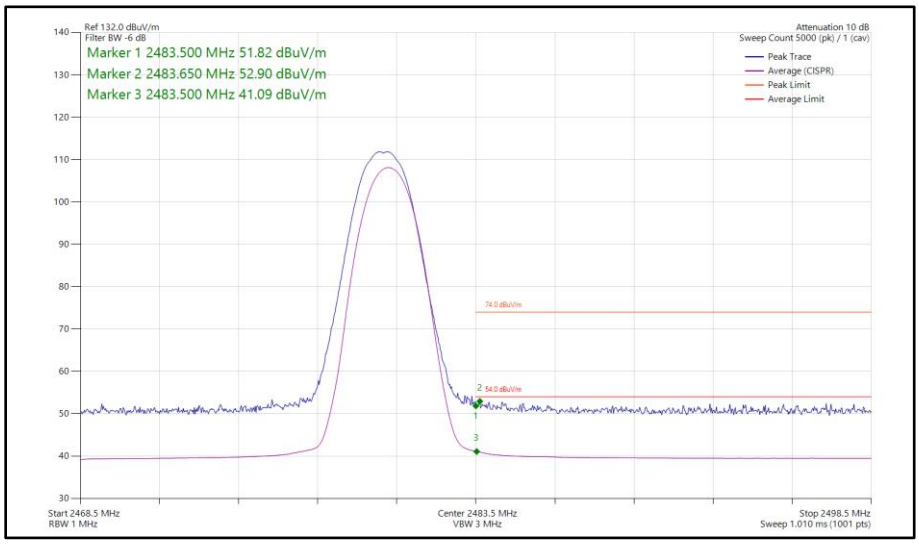

Figure 5 - Bluetooth 2-DH5, SISO, Core 0 - 2480 MHz
Band Edge Frequency 2483.5 MHz

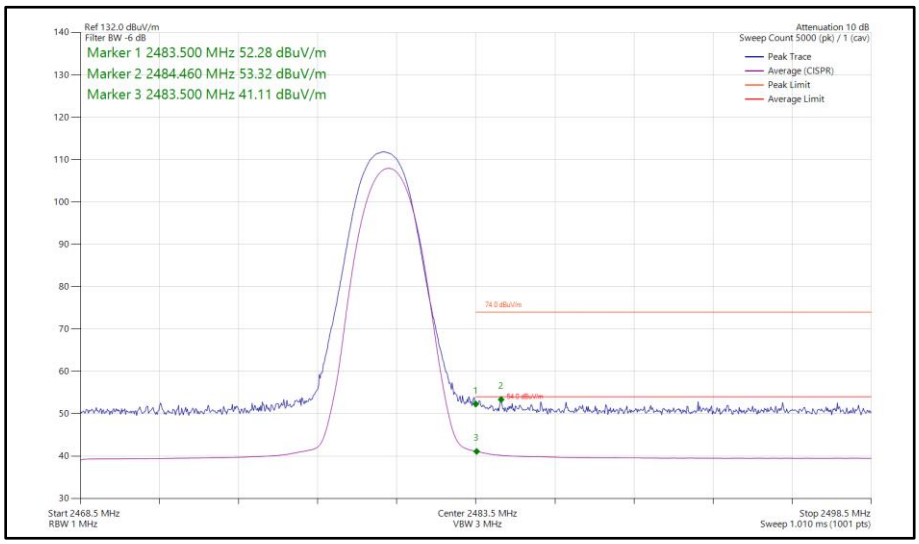

Figure 6 - Bluetooth 3-DH5, SISO, Core 0 - 2480 MHz Band Edge Frequency 2483.5 MHz

iPA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	DH5	2402	2390	53.21	39.05
Static	2-DH5	2402	2390	54.35	39.17
Static	3-DH5	2402	2390	53.94	39.11
Static	DH5	2480	2483.5	53.03	40.78
Static	2-DH5	2480	2483.5	53.19	40.85
Static	3-DH5	2480	2483.5	52.87	40.97

Table 9 - SISO Restricted Band Edge Results

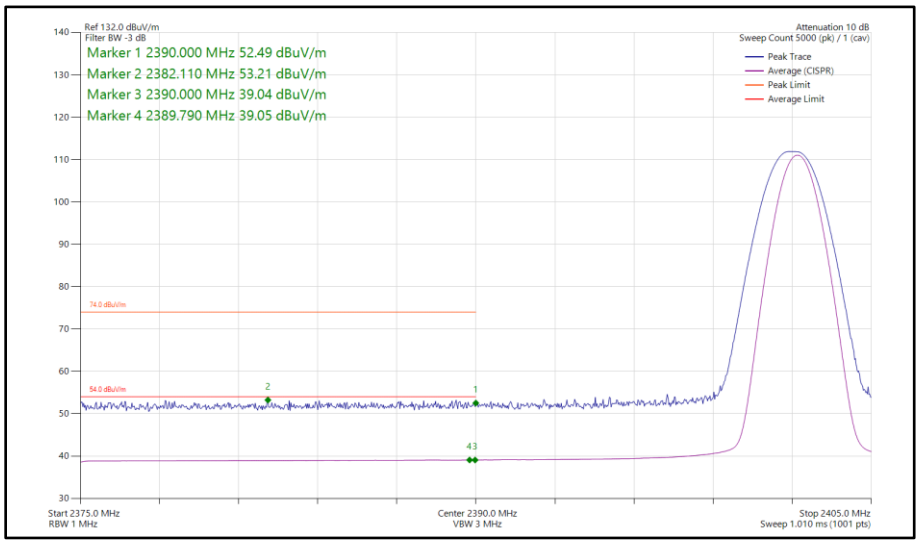

Figure 7 - Bluetooth DH5, SISO, Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

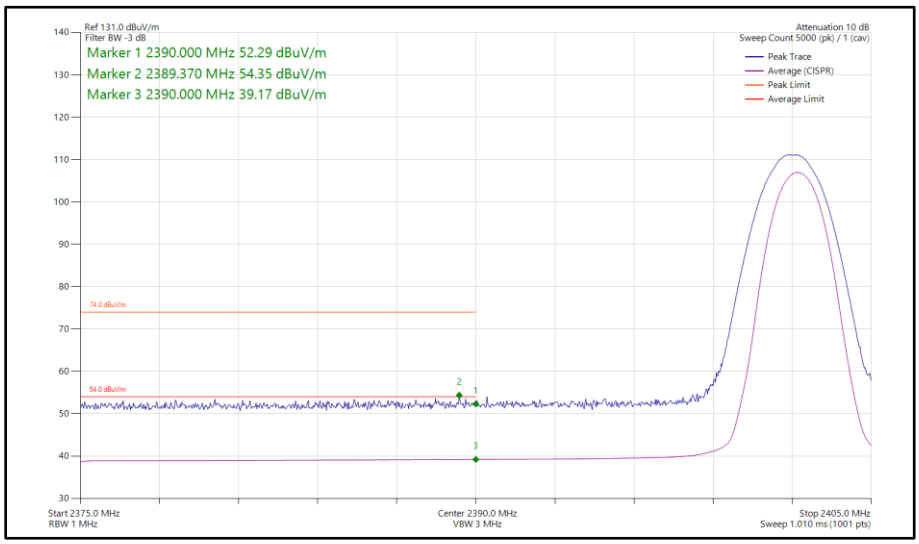

Figure 8 - Bluetooth 2-DH5, SISO, Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

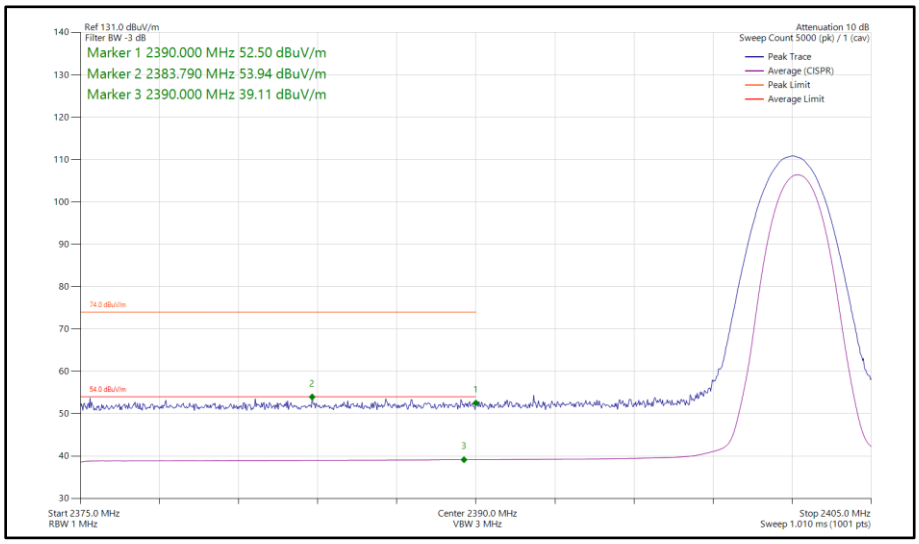

Figure 9 - Bluetooth 3-DH5, SISO, Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

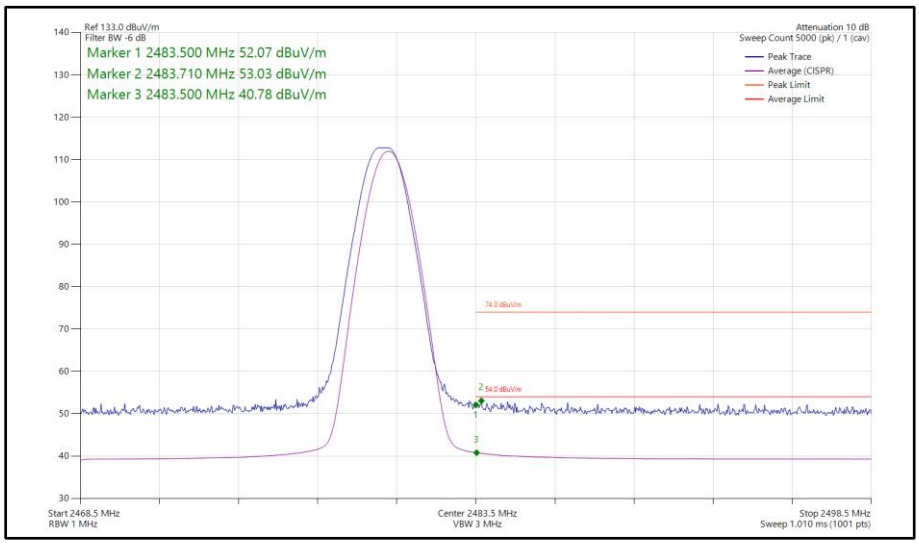

Figure 10 - Bluetooth DH5, SISO, Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

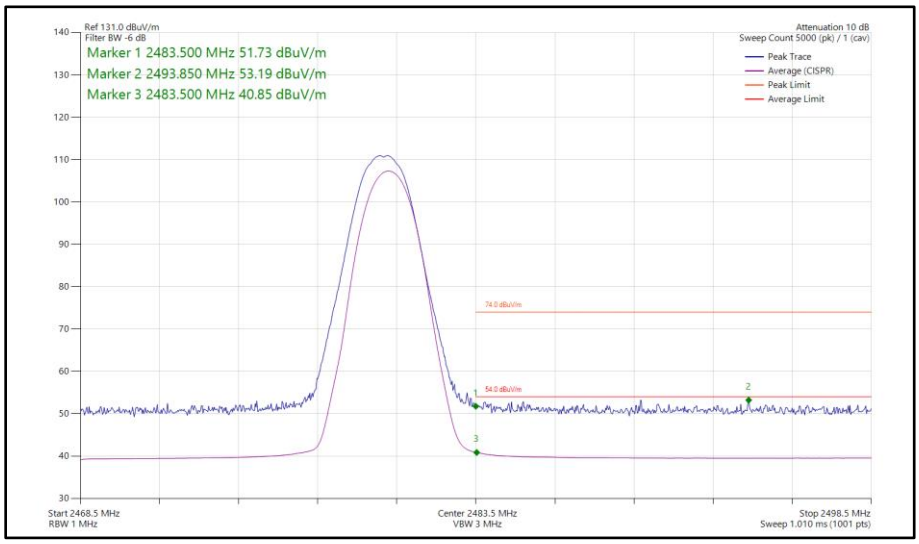

Figure 11 - Bluetooth 2-DH5, SISO, Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

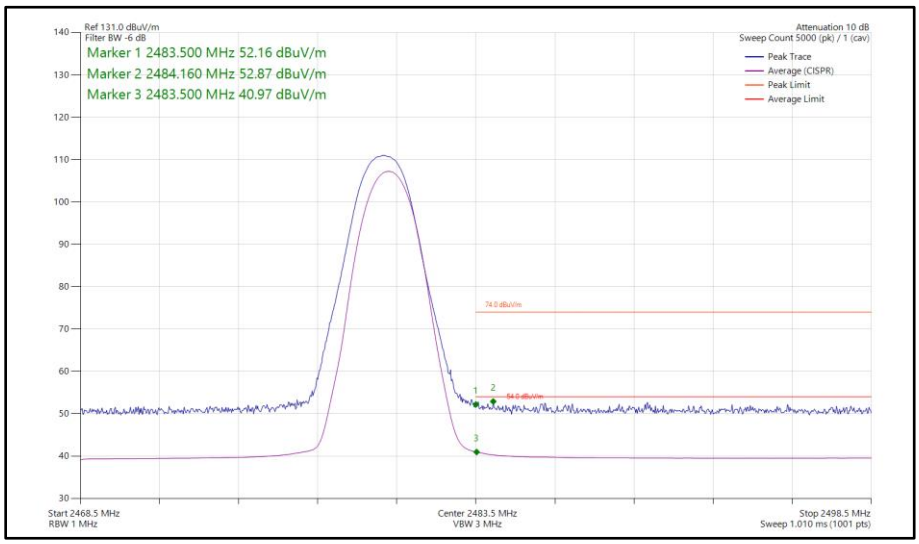

Figure 12 - Bluetooth 3-DH5, SISO, Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

iPA - Core 2 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	DH5	2402	2390	53.61	38.79
Static	2-DH5	2402	2390	53.39	39.17
Static	3-DH5	2402	2390	53.25	38.85
Static	DH5	2480	2483.5	52.59	40.78
Static	2-DH5	2480	2483.5	53.02	40.88
Static	3-DH5	2480	2483.5	52.75	40.76

Table 10 - SISO Restricted Band Edge Results

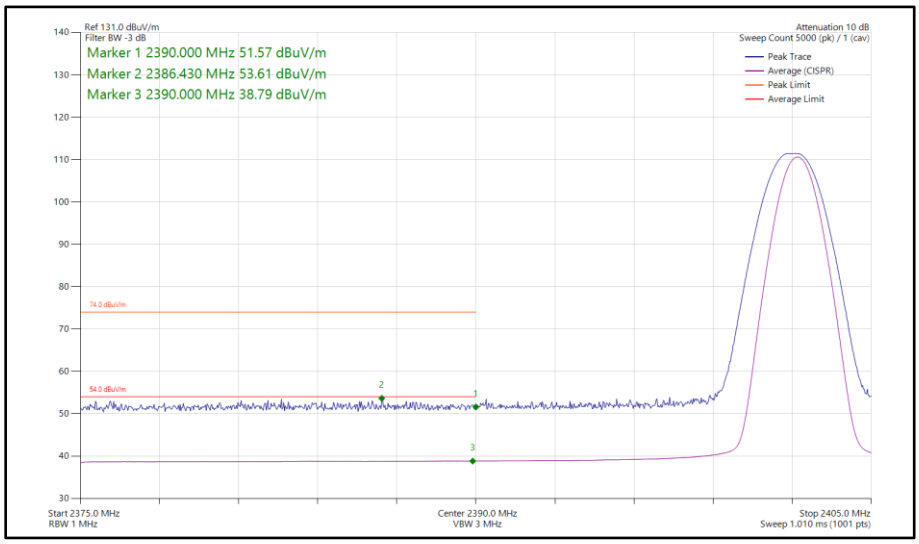

Figure 13 - Bluetooth DH5, SISO, Core 2 - 2402 MHz
Band Edge Frequency 2390 MHz

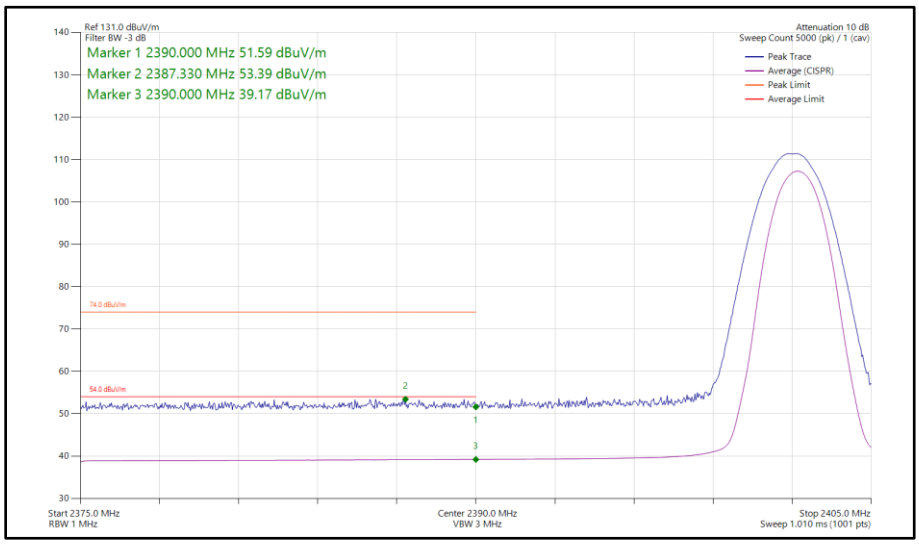

Figure 14 - Bluetooth 2-DH5, SISO, Core 2 - 2402 MHz Band Edge Frequency 2390 MHz

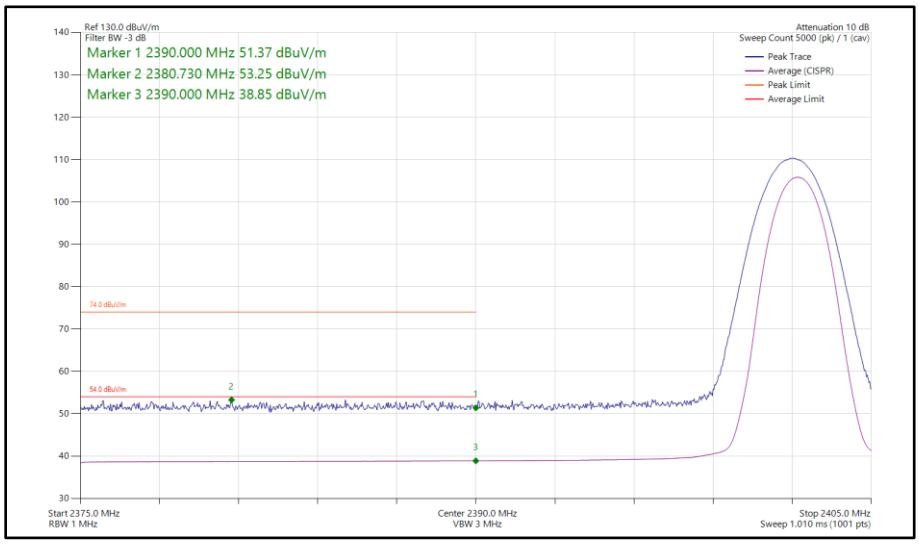

Figure 15 - Bluetooth 3-DH5, SISO, Core 2 - 2402 MHz Band Edge Frequency 2390 MHz

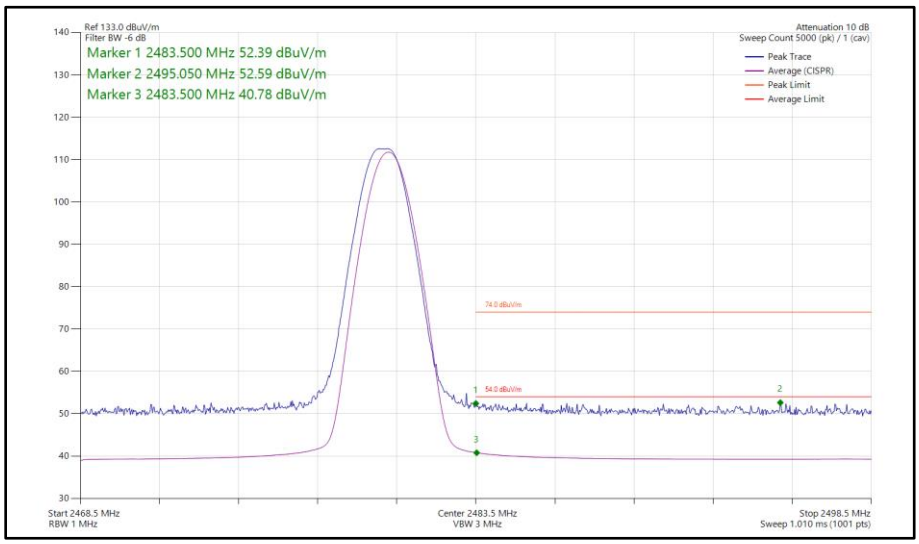

Figure 16 - Bluetooth DH5, SISO, Core 2 - 2480 MHz
Band Edge Frequency 2483.5 MHz

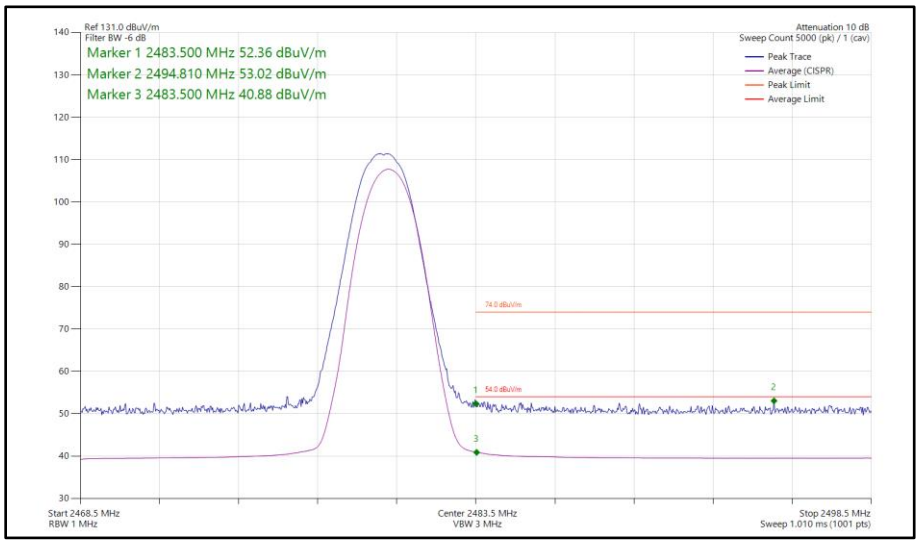

Figure 17 - Bluetooth 2-DH5, SISO, Core 2 - 2480 MHz
Band Edge Frequency 2483.5 MHz

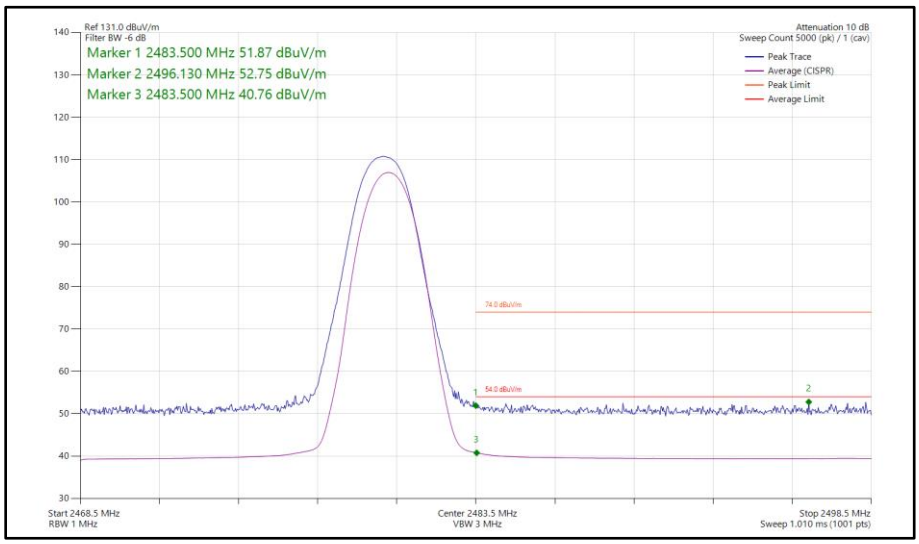

Figure 18 - Bluetooth 3-DH5, SISO, Core 2 - 2480 MHz Band Edge Frequency 2483.5 MHz

iPA - Core 0 - Core 1 (MIMO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	DH5	2402	2390	54.94	40.03
Static	2-DH5	2402	2390	53.99	39.52
Static	3-DH5	2402	2390	53.94	39.52
Static	DH5	2480	2483.5	55.43	43.43
Static	2-DH5	2480	2483.5	55.35	43.26
Static	3-DH5	2480	2483.5	55.46	43.11

Table 11 - MIMO Restricted Band Edge Results

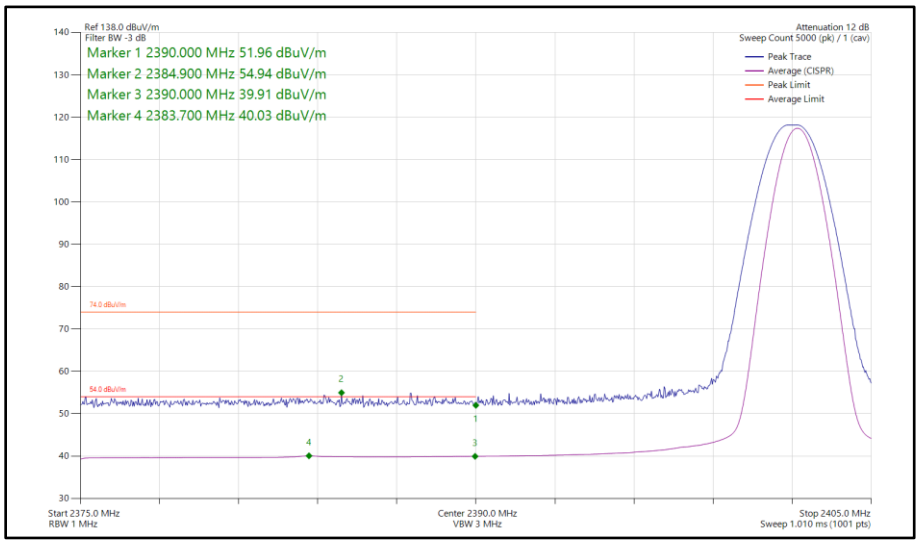

Figure 19 - Bluetooth DH5, MIMO, Core 0 - Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

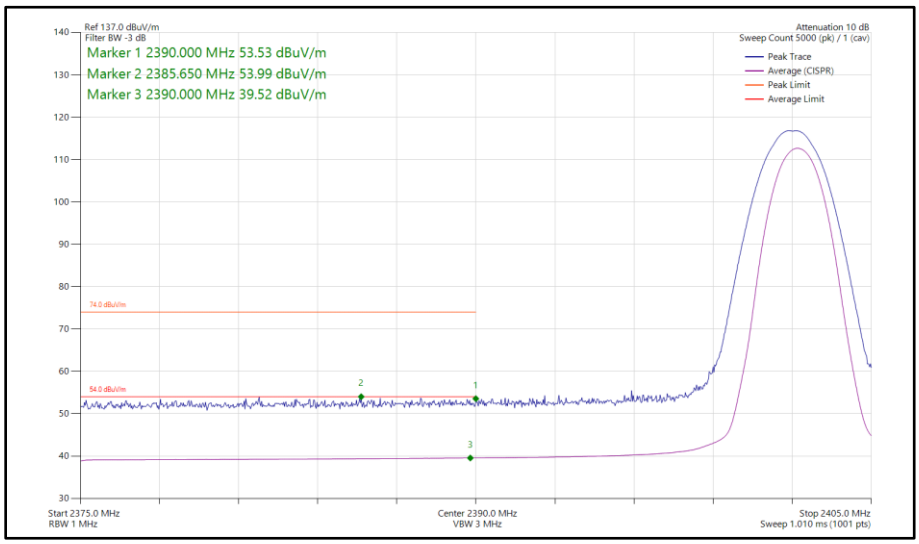

Figure 20 - Bluetooth 2-DH5, MIMO, Core 0 - Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

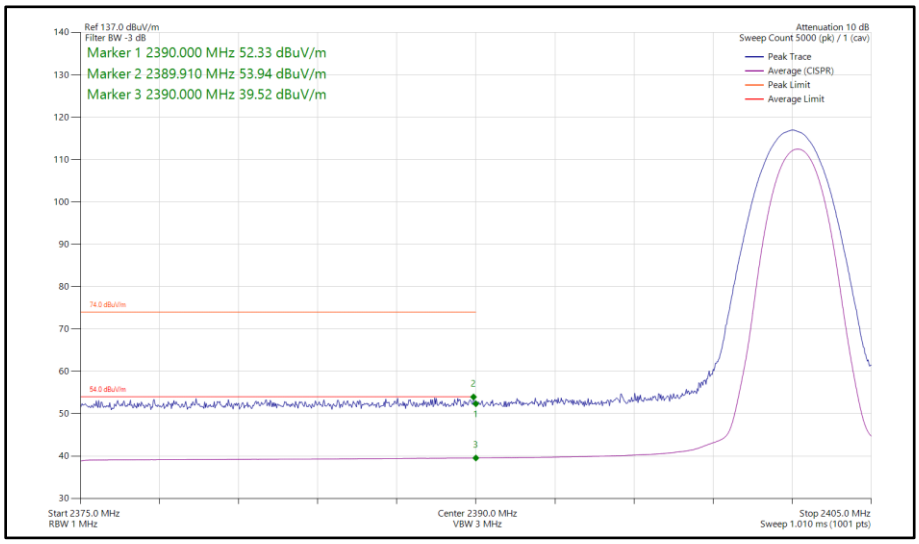

Figure 21 - Bluetooth 3-DH5, MIMO, Core 0 - Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

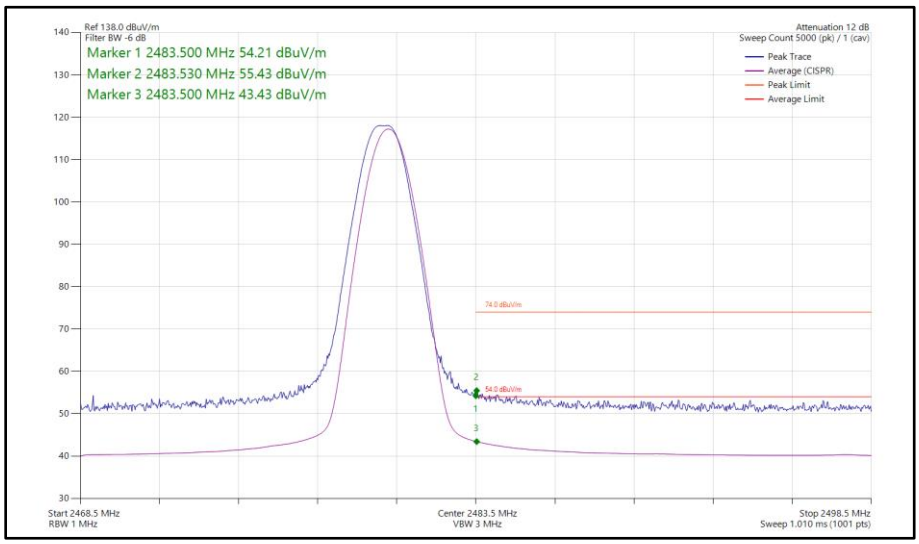

Figure 22 - Bluetooth DH5, MIMO, Core 0 - Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

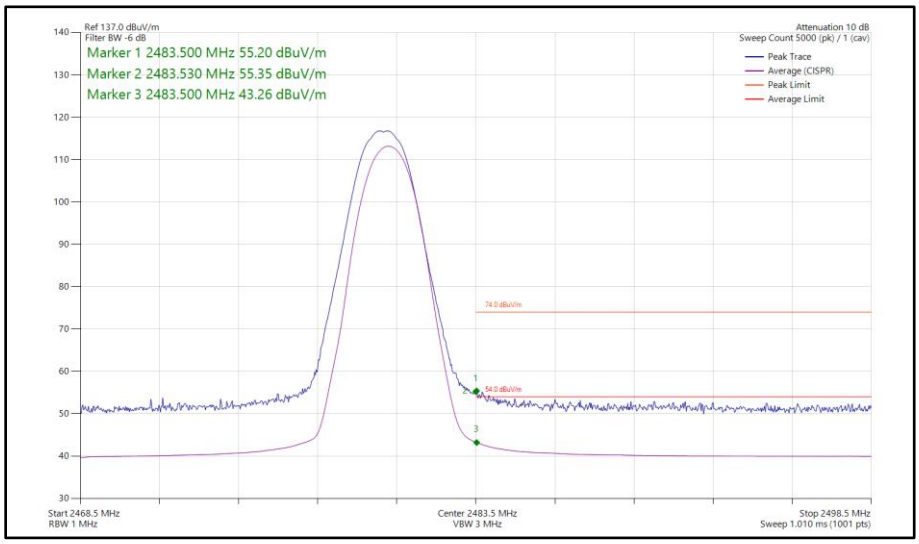

Figure 23 - Bluetooth 2-DH5, MIMO, Core 0 - Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

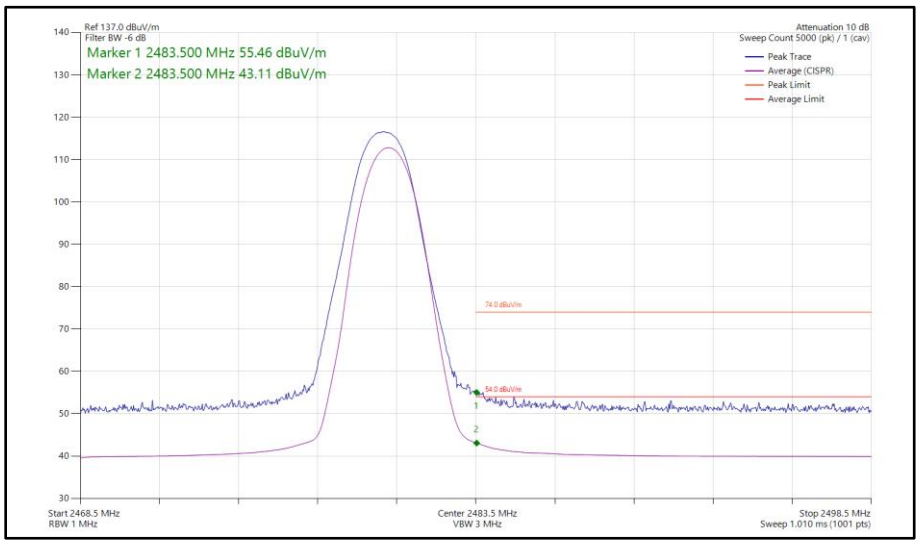

Figure 24 - Bluetooth 3-DH5, MIMO, Core 0 - Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

ePA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	2-DH5	2402	2390	55.98	40.61
Static	3-DH5	2402	2390	56.10	41.62
Static	2-DH5	2480	2483.5	56.62	44.87
Static	3-DH5	2480	2483.5	57.01	45.50

Table 12 - SISO Restricted Band Edge Results

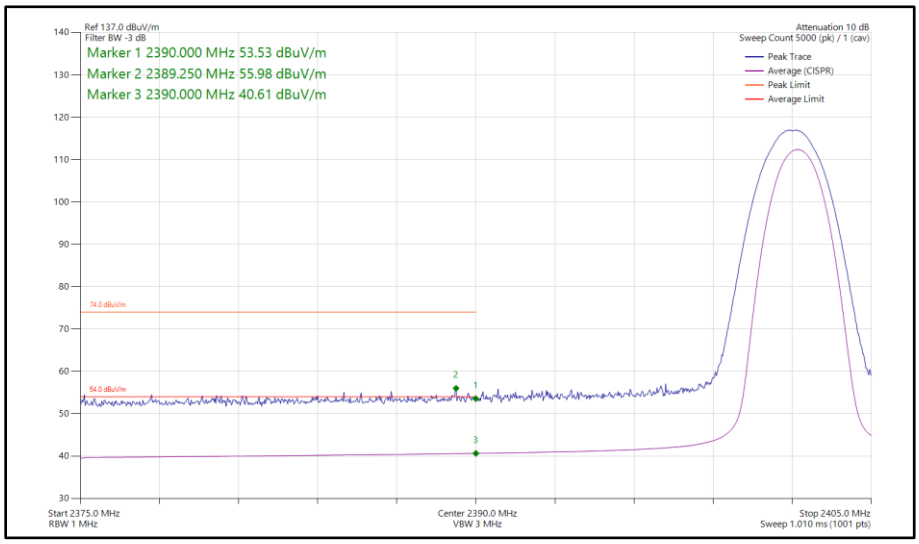

Figure 25 - Bluetooth 2-DH5, SISO, Core 0 - 2402 MHz Band Edge Frequency 2390 MHz

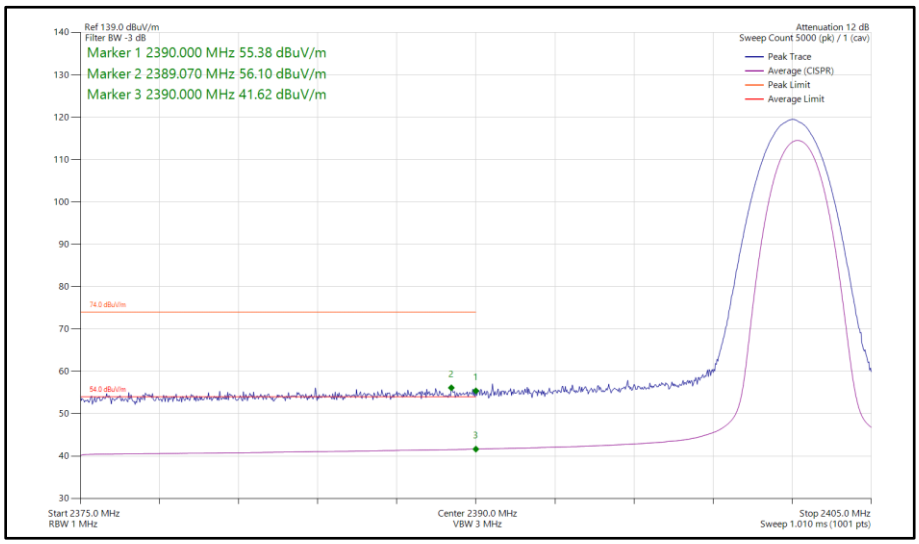

Figure 26 - Bluetooth 3-DH5, SISO, Core 0 - 2402 MHz Band Edge Frequency 2390 MHz

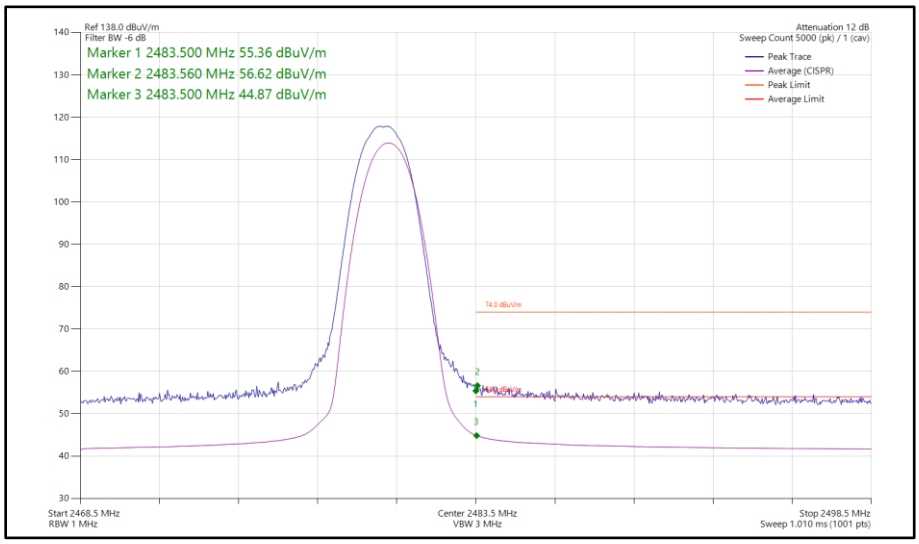

Figure 27 - Bluetooth 2-DH5, SISO, Core 0 - 2480 MHz Band Edge Frequency 2483.5 MHz

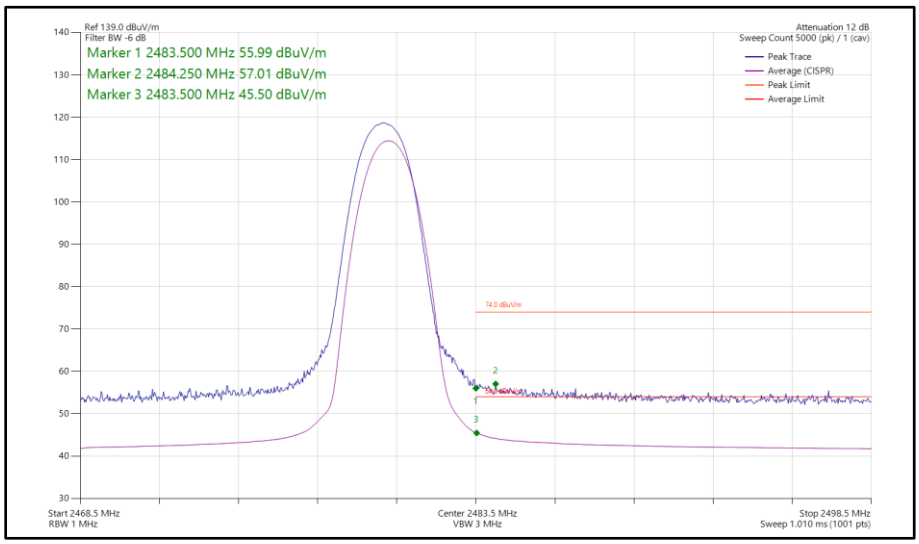

Figure 28 - Bluetooth 3-DH5, SISO, Core 0 - 2480 MHz Band Edge Frequency 2483.5 MHz

ePA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	2-DH5	2402	2390	56.21	41.69
Static	3-DH5	2402	2390	56.40	41.34
Static	2-DH5	2480	2483.5	56.54	44.63
Static	3-DH5	2480	2483.5	57.44	45.39

Table 13 - SISO Restricted Band Edge Results

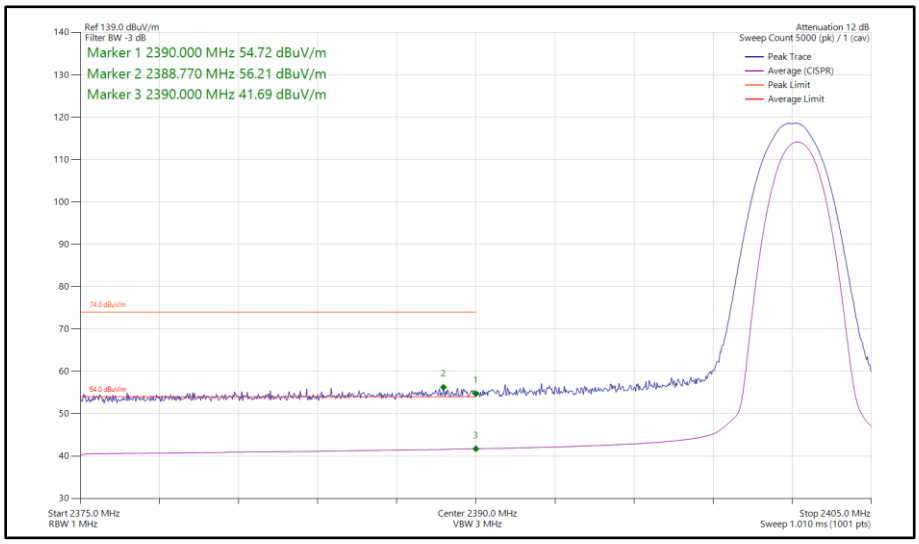

Figure 29 - Bluetooth 2-DH5, SISO, Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

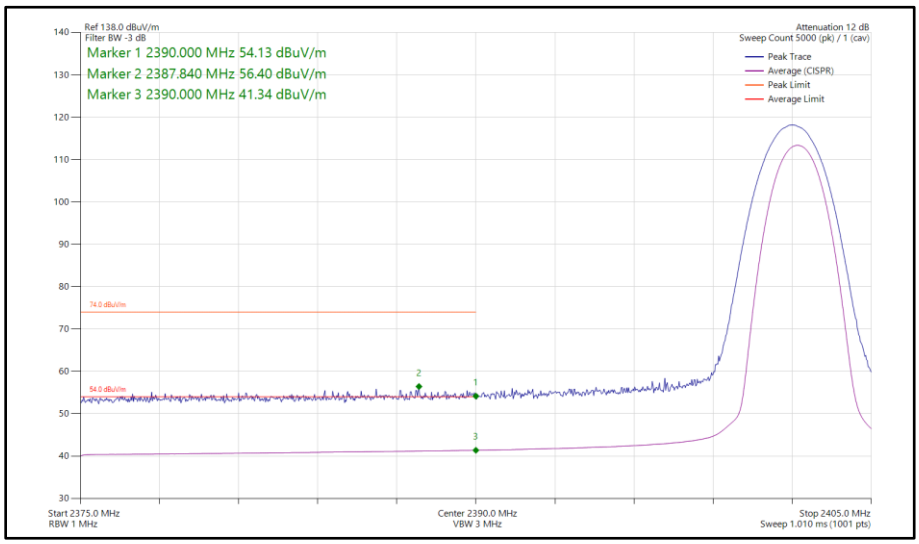

Figure 30 - Bluetooth 3-DH5, SISO, Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

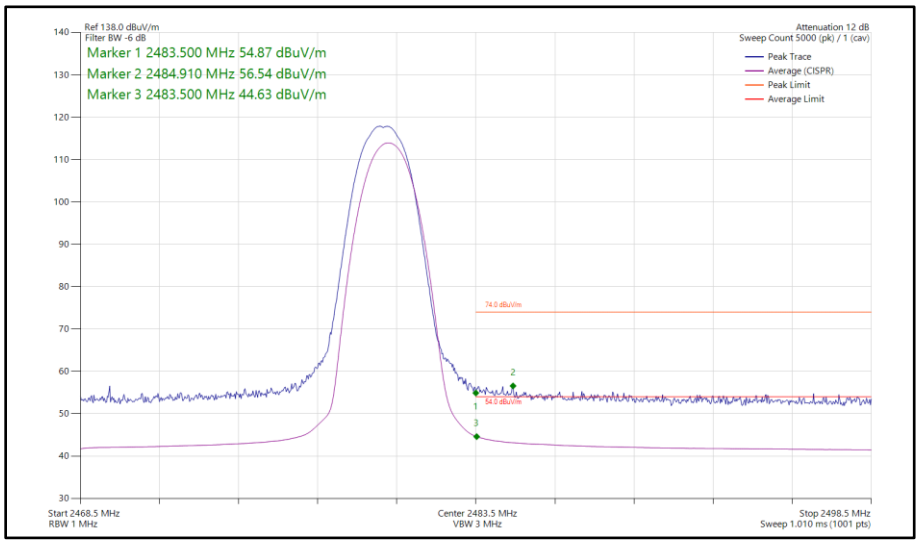

Figure 31 - Bluetooth 2-DH5, SISO, Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

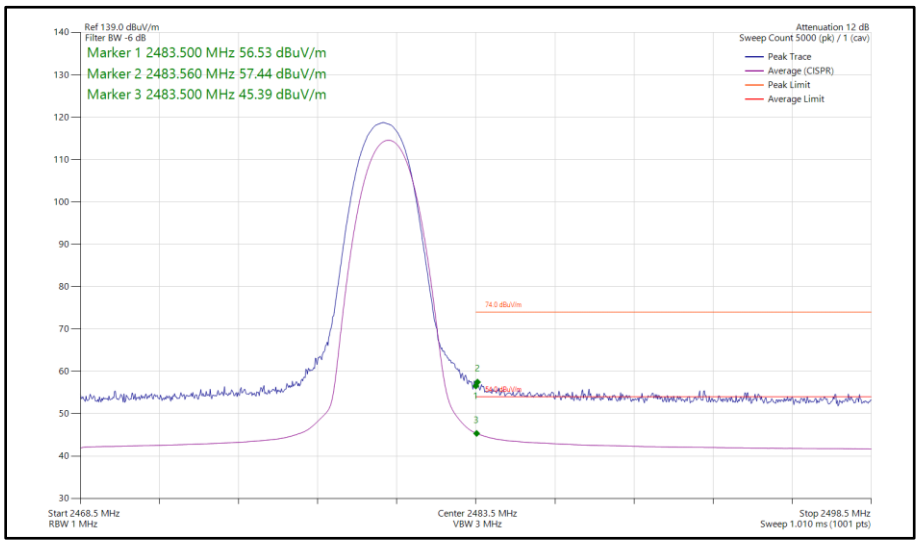

Figure 32 - Bluetooth 3-DH5, SISO, Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

ePA - Core 0 - Core 1 (MIMO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBµV/m)
Static	2-DH5	2402	2390	57.61	41.92
Static	3-DH5	2402	2390	59.38	44.75
Static	2-DH5	2480	2483.5	57.08	44.85
Static	3-DH5	2480	2483.5	56.69	44.20

Table 14 - MIMO Restricted Band Edge Results

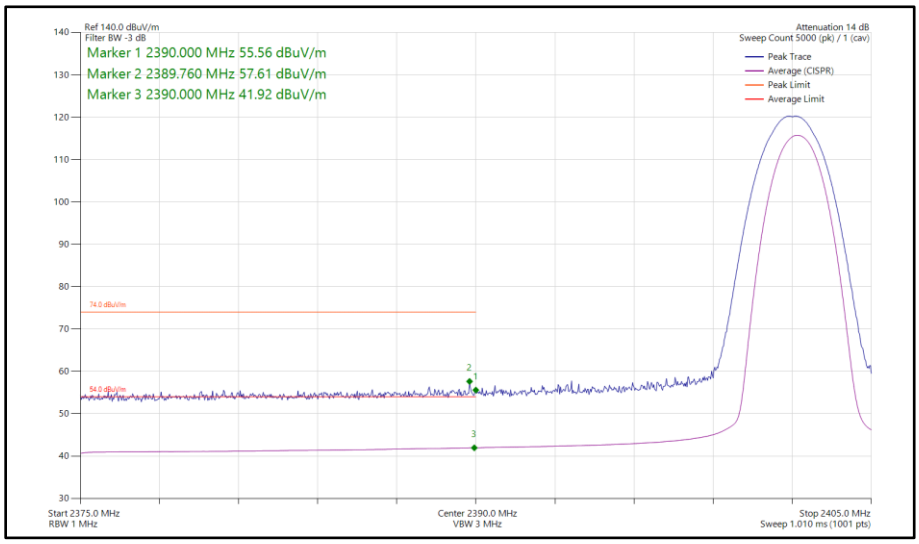

Figure 33 - Bluetooth 2-DH5, MIMO, Core 0 - Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

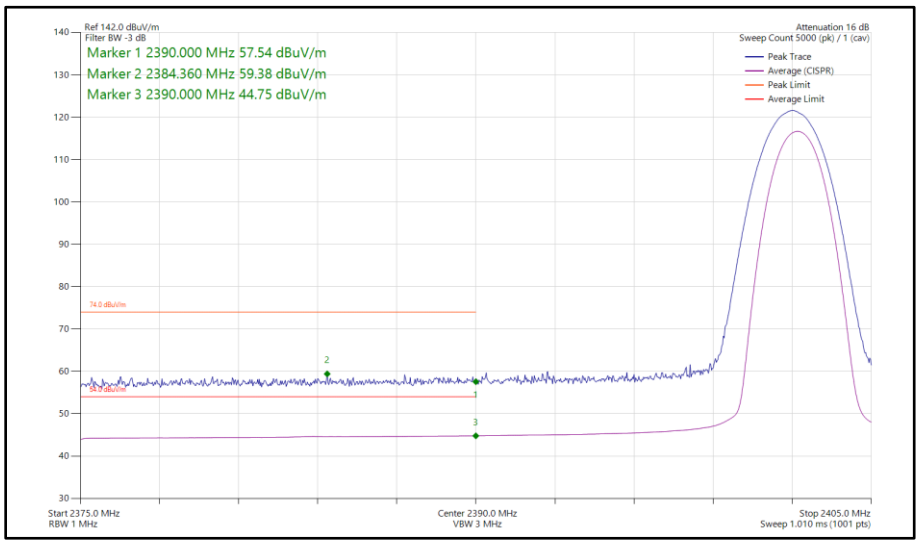

Figure 34 - Bluetooth 3-DH5, MIMO, Core 0 - Core 1 - 2402 MHz Band Edge Frequency 2390 MHz

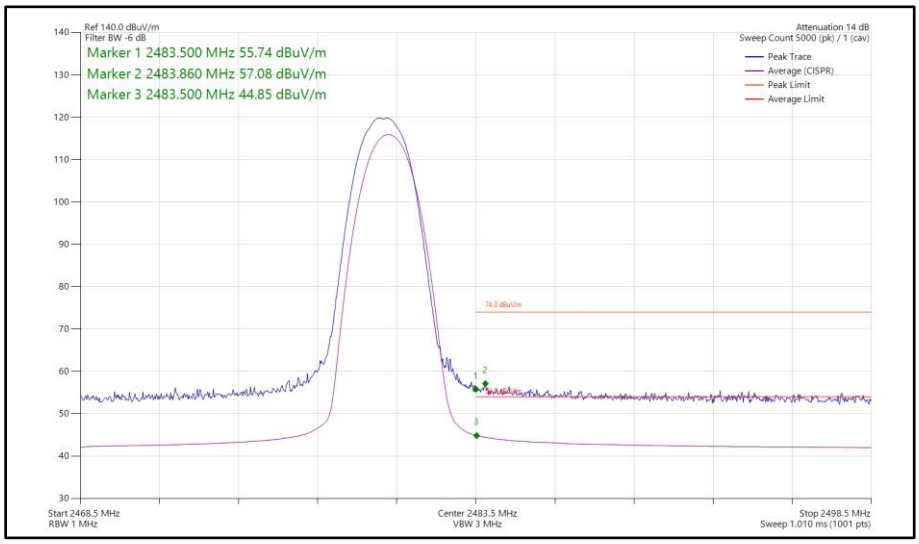

Figure 35 - Bluetooth 2-DH5, MIMO, Core 0 - Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

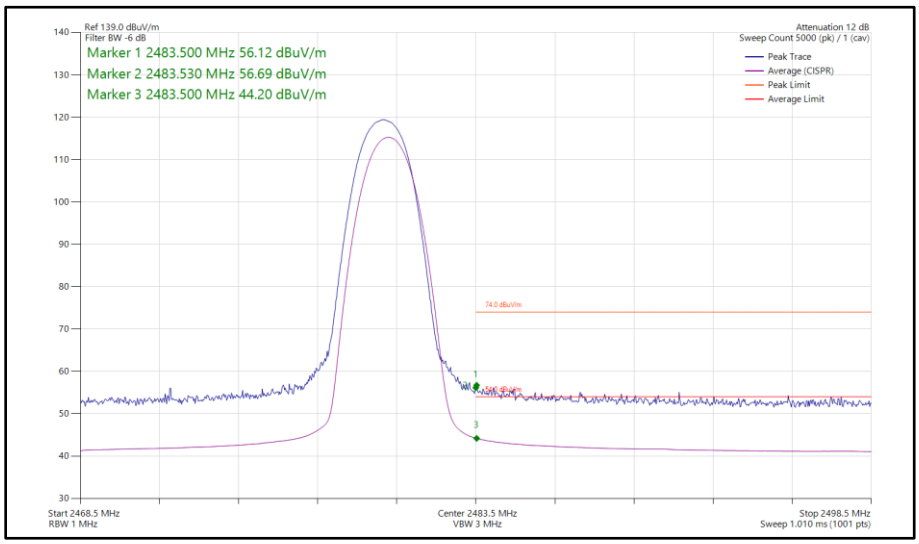

Figure 36 - Bluetooth 3-DH5, MIMO, Core 0 - Core 1 - 2480 MHz Band Edge Frequency 2483.5 MHz

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 15

2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 17.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Power Supply Unit	Hewlett Packard	6253A	441	-	O/P Mon
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Test Receiver	Rohde & Schwarz	ESW44	5379	12	12-Dec-2024
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5973	-	TU
SAC Switch Unit	TUV SUD	TUV_SSU_001	6144	12	11-Dec-2024
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6315	12	04-Feb-2025
Cable (SMA to SMA 3m)	Junkosha	MWX221-03000AMSAMS/A	6316	12	04-Feb-2025
Horn Antenna (1–10.5 GHz)	Schwarzbeck	BBHA 9120 B	6457	12	05-May-2025
AC Power Supply	iTech	IT7324	6657	-	O/P Mon
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	28-Jan-2026
Mast and Turntable Controller	Maturo Gmbh	FCU3.0	6659	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	6660	-	TU
Turntable	Maturo Gmbh	TT1.5SI	6661	-	TU
8m Cable	Junkosha	MWX221-08000AMSAMS/B	6748	12	01-Feb-2025

Table 16

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

2.2 Frequency Hopping Systems - Average Time of Occupancy

2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)

2.2.2 Equipment Under Test and Modification State

A3403, S/N: M7J9X1XPGD - Modification State 0

2.2.3 Date of Test

01-October-2024 to 03-October-2024

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.4.

2.2.5 Environmental Conditions

Ambient Temperature	20.4 - 21.8 °C
Relative Humidity	45.4 - 48.5 %

2.2.6 Test Results

2.4 GHz Bluetooth BDR/EDR

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	76.9
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.896	108	312.8	400.0

Table 17 - Time of Occupancy Results

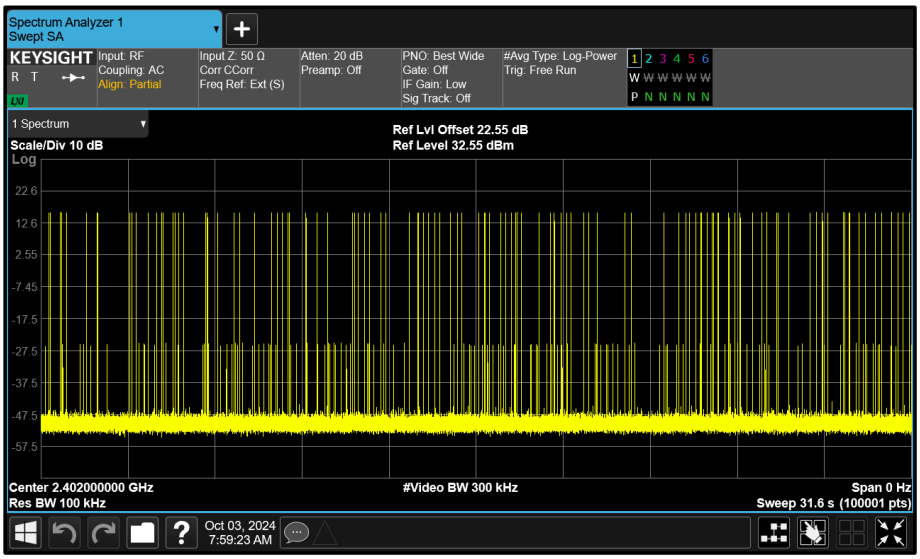

Figure 37 - π/4 DQPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	77.2
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.900	105	304.5	400.0

Table 18 - Time of Occupancy Results

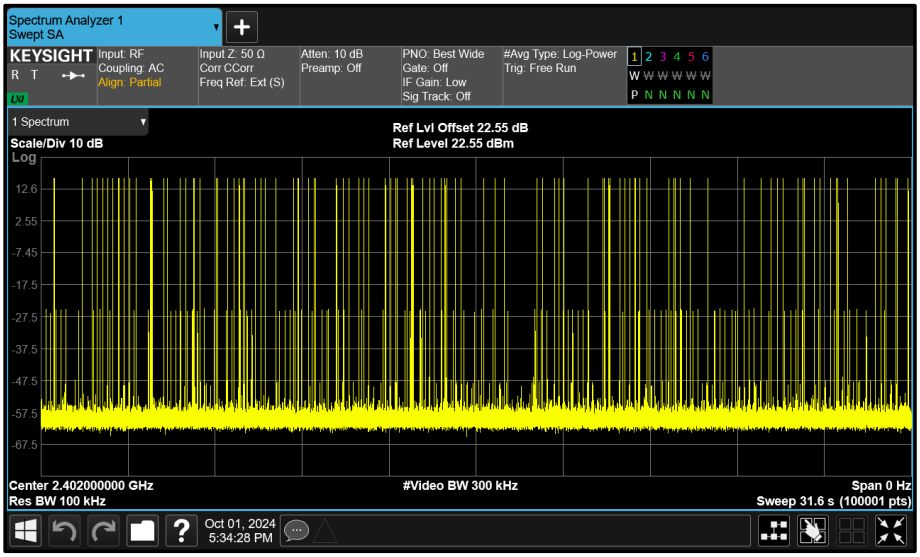

Figure 38 - 8-DPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	77.1
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.898	107	310.1	400.0

Table 19 - Time of Occupancy Results

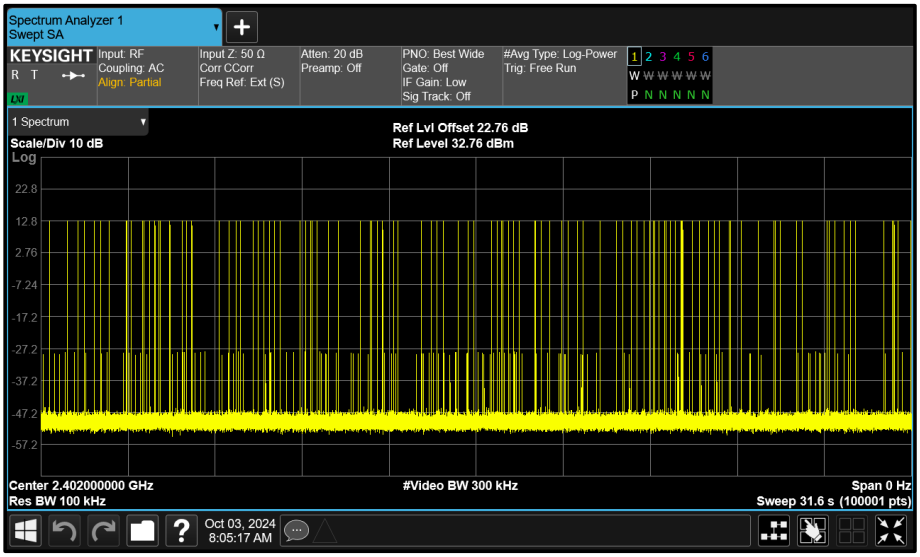

Figure 39 - π/4 DQPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	77.2
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.899	110	318.9	400.0

Table 20 - Time of Occupancy Results

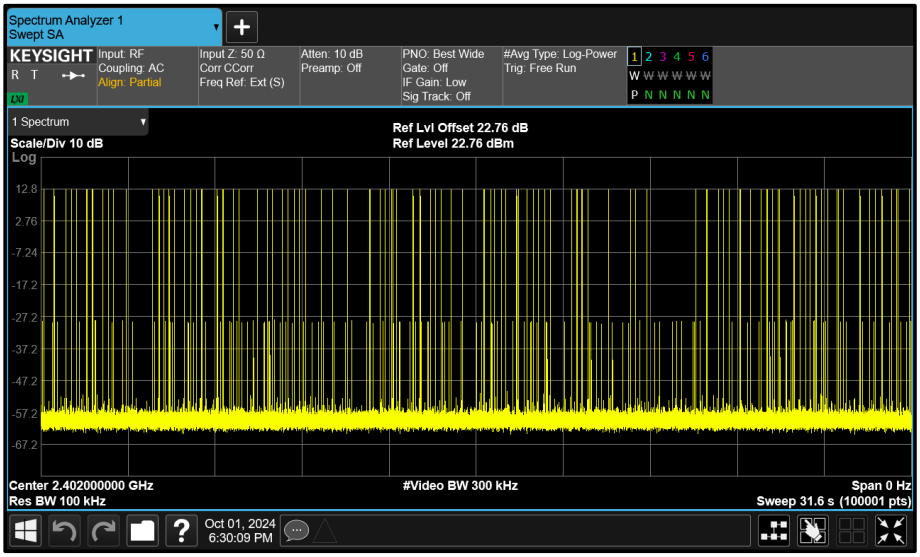

Figure 40 - 8-DPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	76.7
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.891	114	329.6	400.0

Table 21 - Time of Occupancy Results

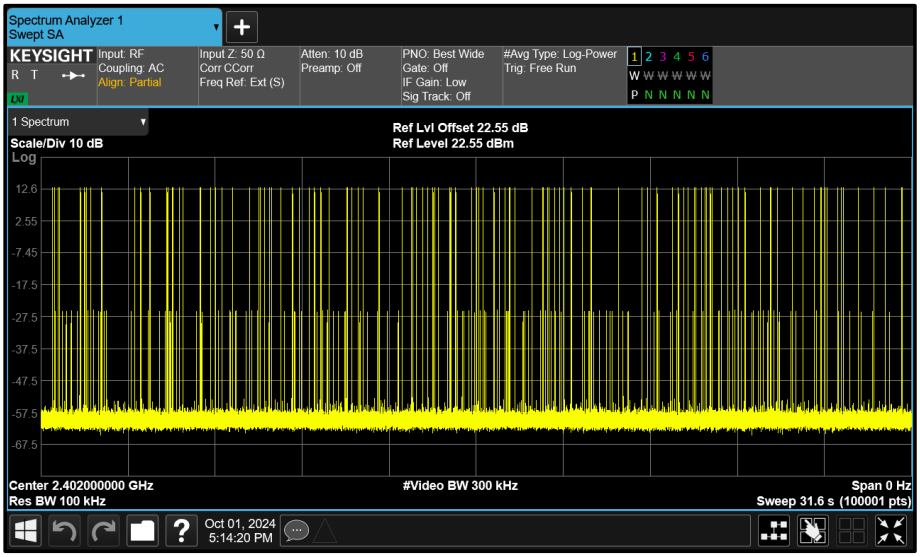

Figure 41 - GFSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	77.1
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.894	114	329.9	400.0

Table 22 - Time of Occupancy Results

Figure 42 - π/4 DQPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	77.2
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.897	103	298.4	400.0

Table 23 - Time of Occupancy Results

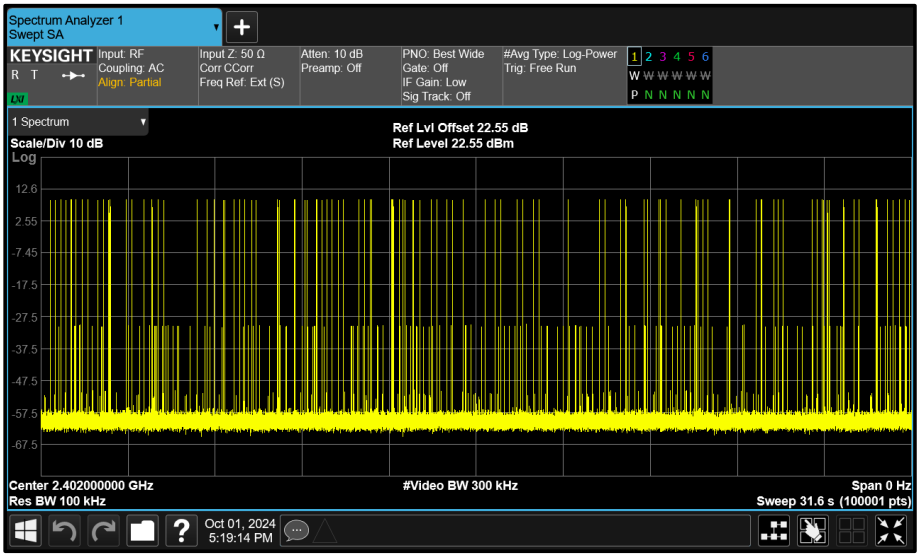

Figure 43 - 8-DPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	76.7
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.893	113	326.9	400.0

Table 24 - Time of Occupancy Results

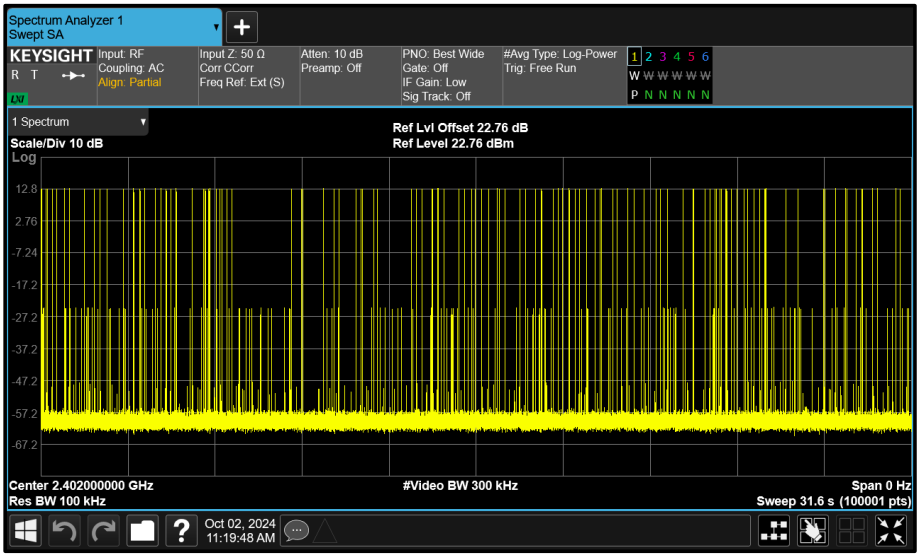

Figure 44 - GFSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	77.1
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.895	108	312.7	400.0

Table 25 - Time of Occupancy Results

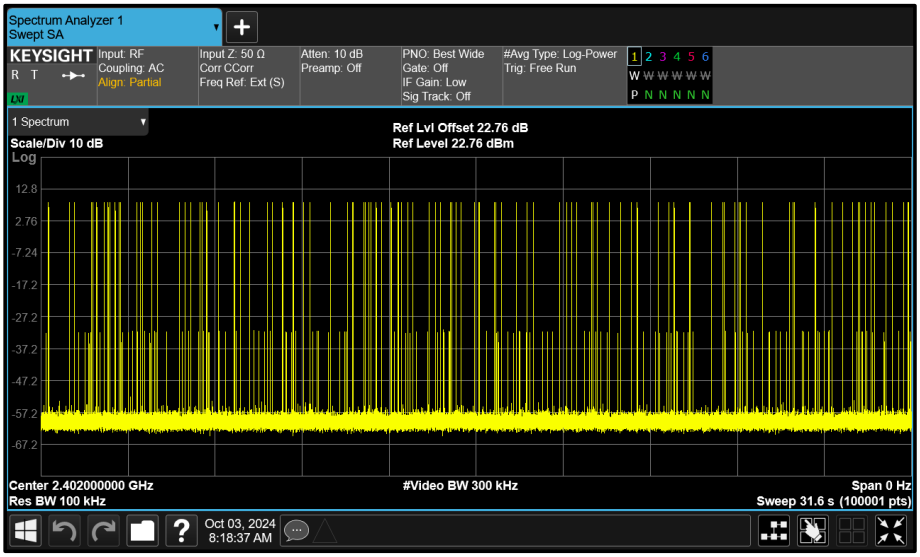

Figure 45 - π/4 DQPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	77.2
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.898	106	307.2	400.0

Table 26 - Time of Occupancy Results

Figure 46 - 8-DPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	76.7
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.892	113	326.8	400.0

Table 27 - Time of Occupancy Results

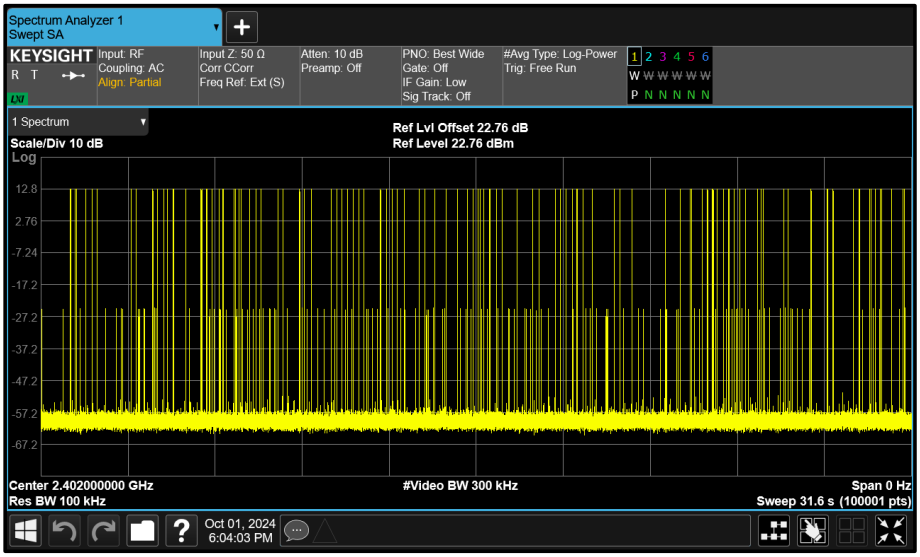

Figure 47 - GFSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	77.1
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.895	112	324.3	400.0

Table 28 - Time of Occupancy Results

Figure 48 - π/4 DQPSK - 2402 MHz Accumulated Transmit Time

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247 (a)(1)(iii)	Test Method(s):	C63.10 7.8.4
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	76.9
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	Time of Occupancy			Limit (ms)
	Dwell Time (ms)	Number of Transmissions	Time of Occupancy (ms)	
2402	2.897	96	278.1	400.0

Table 29 - Time of Occupancy Results

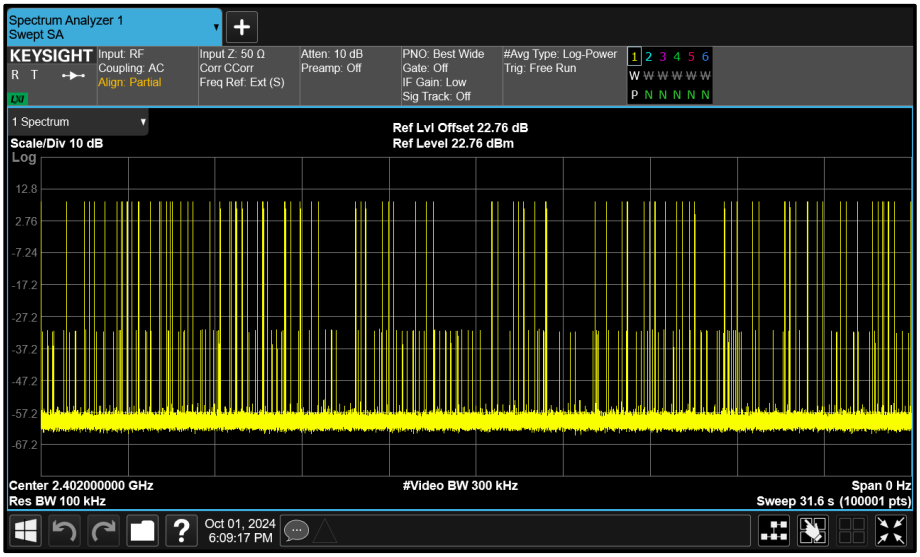

Figure 49 - 8-DPSK - 2402 MHz Accumulated Transmit Time

FCC 47 CFR Part 15, Limit Clause 15.247 (a)(1)(iii)

Frequency hopping systems operating in the band 2400-2483.5 MHz shall use at least 15 hopping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Transmissions on particular hopping frequencies may be avoided or suppressed provided that a minimum of 15 hopping channels are used.

2.2.7 Test Location and Test Equipment Used

This test was carried out in SAR Chamber 2.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
True RMS Multimeter	Fluke	79 Series III	411	12	12-Jan-2025
Hygrometer	Rotronic	Hygropalm 0	3028	12	12-Aug-2025
1 MHz / 10 MHz reference	Quartzlock	E10-X	4973	12	03-Sep-2025
AC Programmable Power Supply	iTech	IT7324	5226	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	18-Sep-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6350	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6638	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6639	12	02-Aug-2025

Table 30

O/P Mon - Output Monitored using calibrated equipment

2.3 Frequency Hopping Systems - Channel Separation

2.3.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)

2.3.2 Equipment Under Test and Modification State

A3403, S/N: M7J9X1XPGD - Modification State 0

2.3.3 Date of Test

01-October-2024 to 03-October-2024

2.3.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.2.

2.3.5 Environmental Conditions

Ambient Temperature	20.4 - 21.8 °C
Relative Humidity	45.4 - 53.1 %

2.3.6 Test Results

2.4 GHz Bluetooth BDR/EDR

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.357	2440.987	2441.987	1.000	≥904.8

Table 31 - Carrier Frequency Separation Results

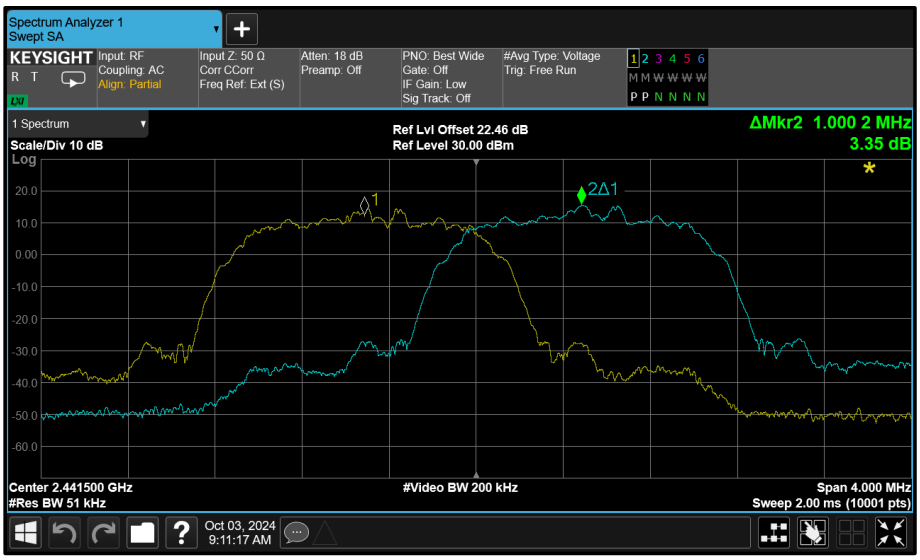

Figure 50 - π/4 DQPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.320	2440.995	2441.995	1.000	≥880.3

Table 32 - Carrier Frequency Separation Results

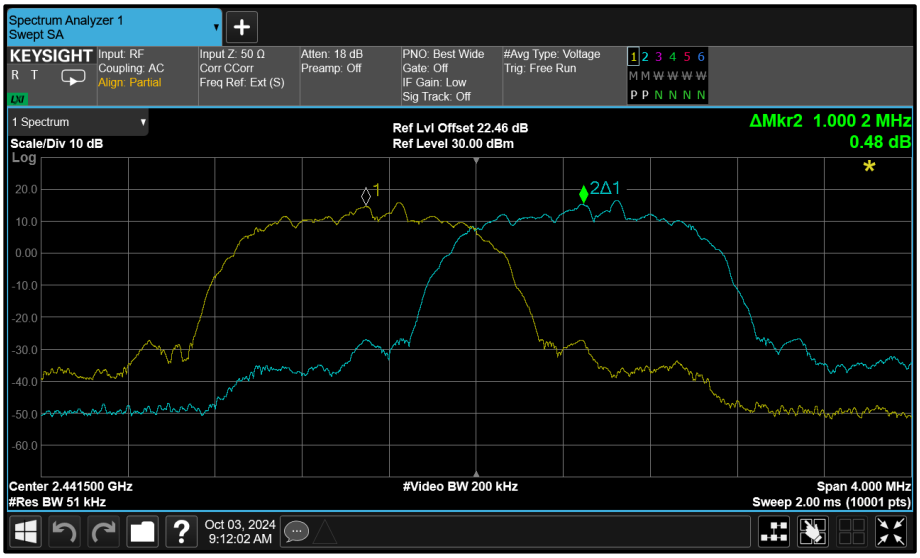

Figure 51 - 8-DPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.354	2440.985	2441.985	1.000	≥902.7

Table 33 - Carrier Frequency Separation Results

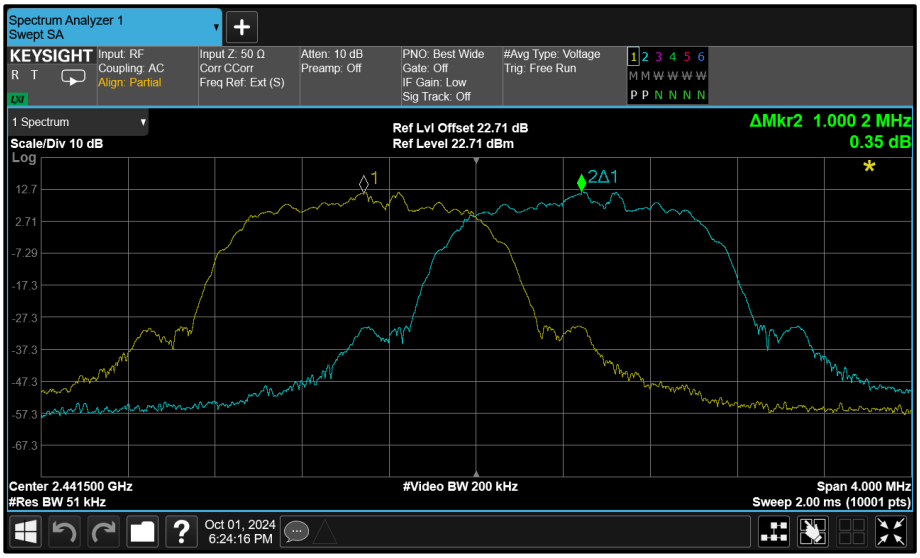

Figure 52 - π/4 DQPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.322	2440.992	2441.992	1.000	≥881.1

Table 34 - Carrier Frequency Separation Results

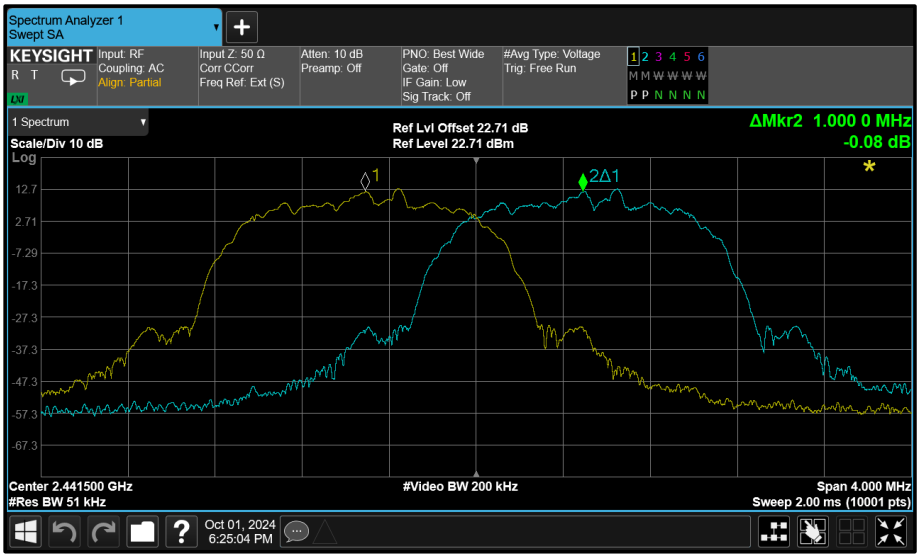

Figure 53 - 8-DPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	0.926	2441.004	2442.004	1.000	≥617.0

Table 35 - Carrier Frequency Separation Results

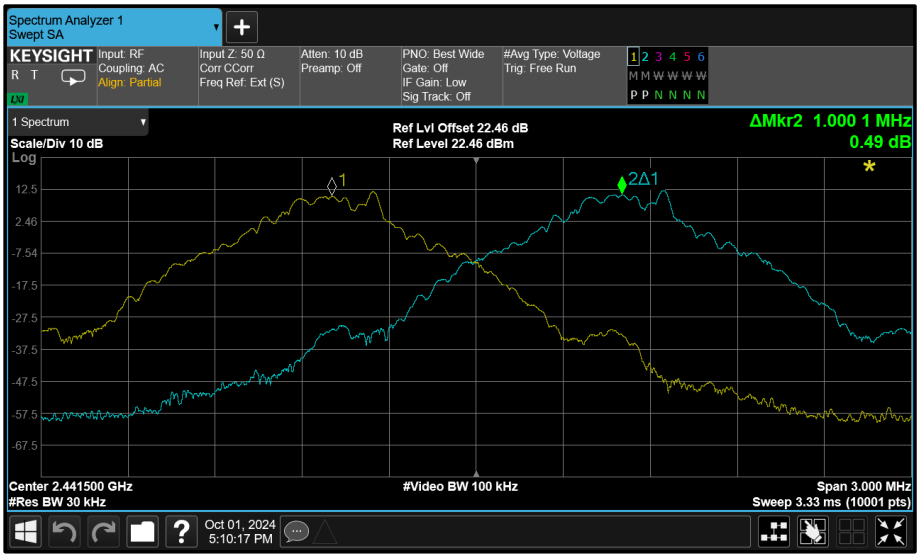

Figure 54 - GFSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.351	2440.988	2441.988	1.000	≥900.8

Table 36 - Carrier Frequency Separation Results

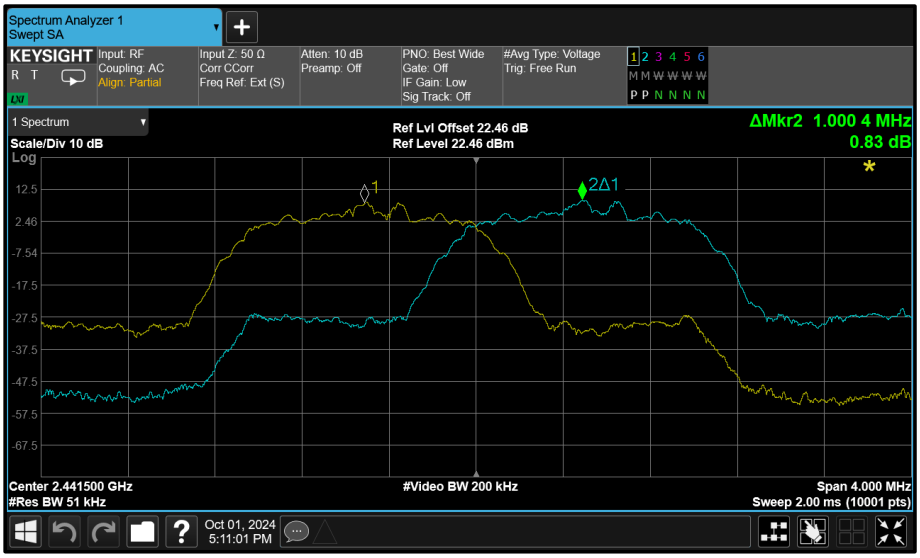

Figure 55 - π/4 DQPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.323	2440.994	2441.995	1.001	≥882.1

Table 37 - Carrier Frequency Separation Results

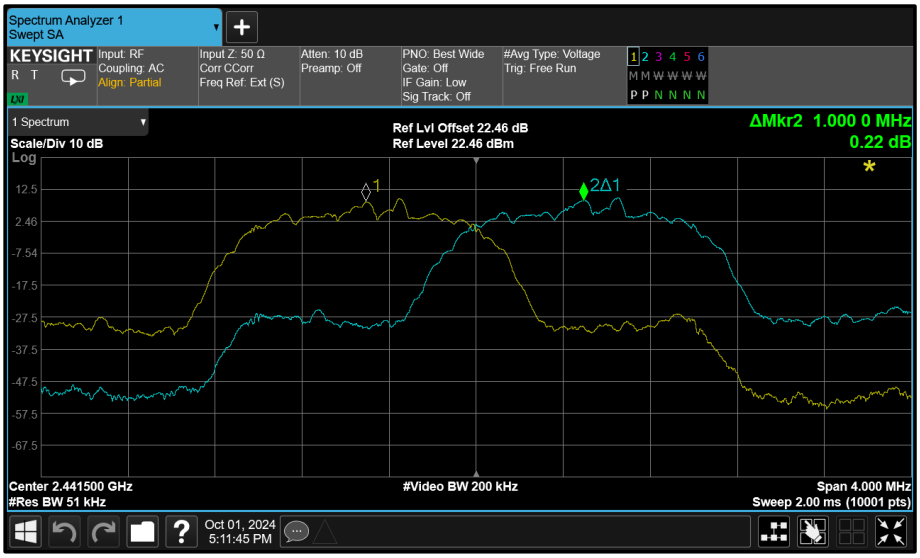

Figure 56 - 8-DPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	0.929	2441.008	2442.007	0.999	≥619.4

Table 38 - Carrier Frequency Separation Results

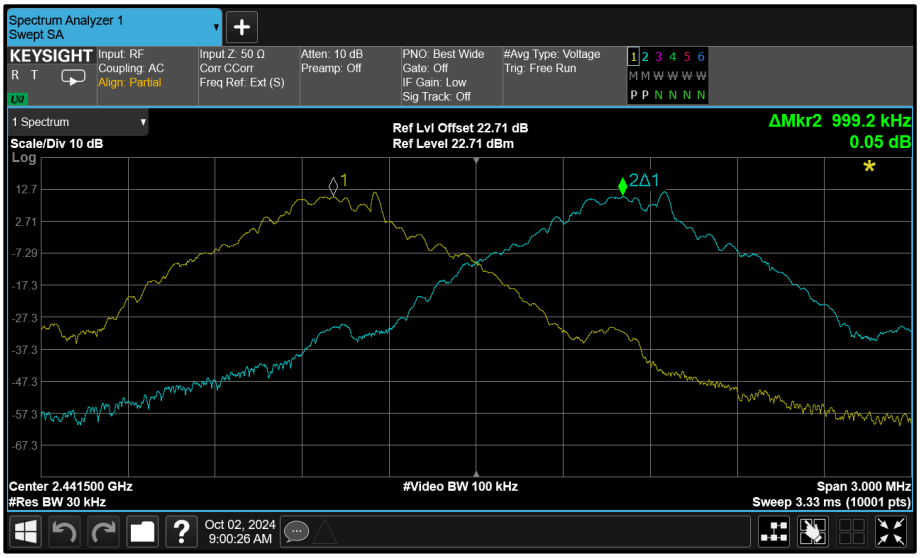

Figure 57 - GFSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.351	2440.989	2441.990	1.001	≥900.8

Table 39 - Carrier Frequency Separation Results

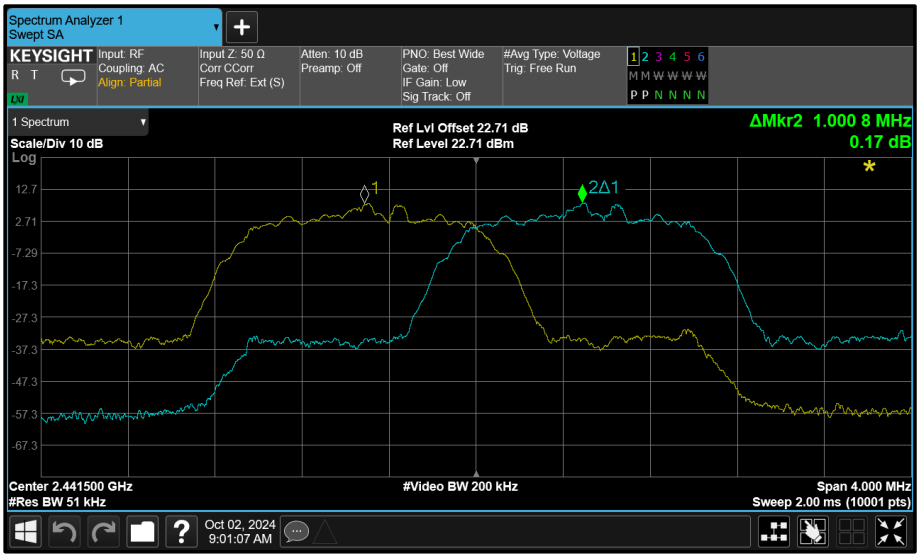

Figure 58 - π/4 DQPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 2)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.322	2440.996	2441.996	1.000	≥881.6

Table 40 - Carrier Frequency Separation Results

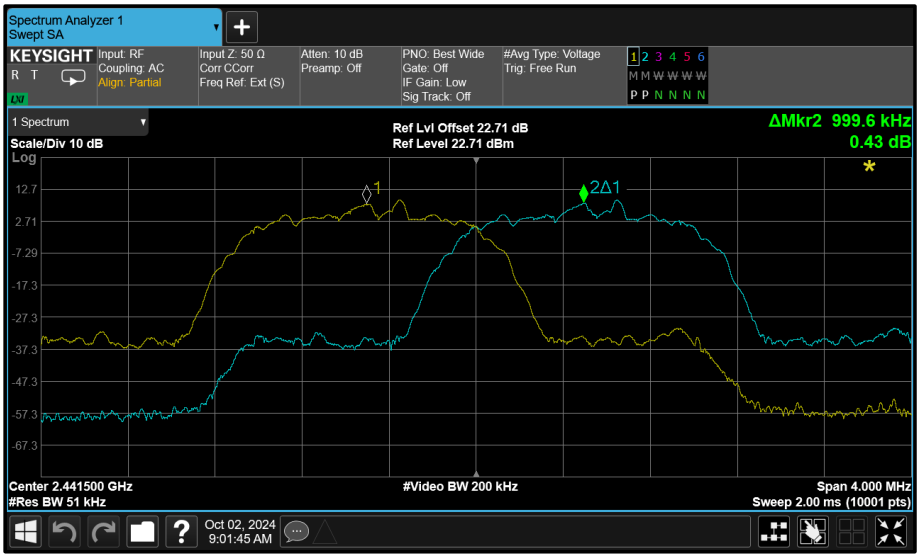

Figure 59 - 8-DPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA GFSK (DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	0.928	2441.006	2442.007	1.001	≥618.8

Table 41 - Carrier Frequency Separation Results

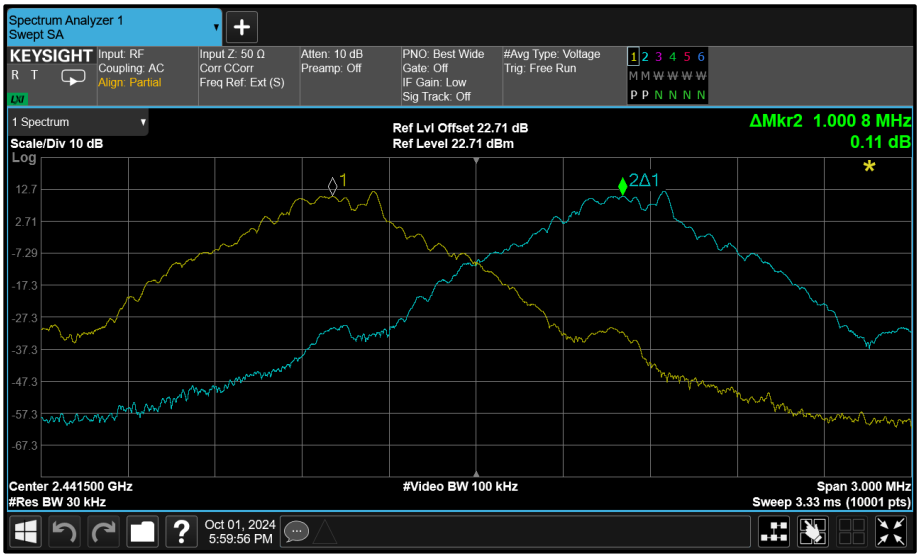

Figure 60 - GFSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.348	2440.988	2441.988	1.000	≥898.9

Table 42 - Carrier Frequency Separation Results

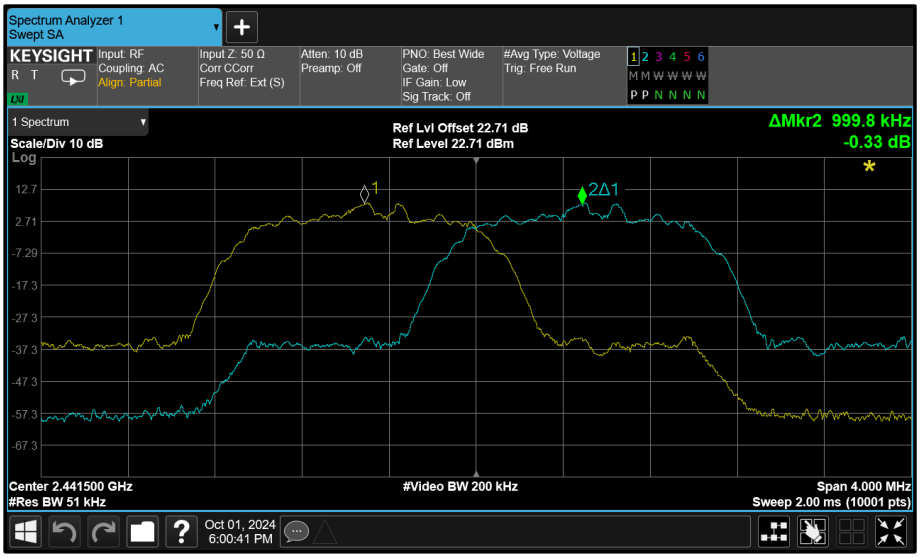

Figure 61 - π/4 DQPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)	Test Method(s):	C63.10 7.8.2
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Test Frequencies (MHz)	20 dB Bandwidth (MHz)	Carrier Frequency Separation (MHz)			Limit (kHz)
		F1C	F2C	FHS	
2441 & 2442	1.321	2440.995	2441.996	1.001	≥880.8

Table 43 - Carrier Frequency Separation Results

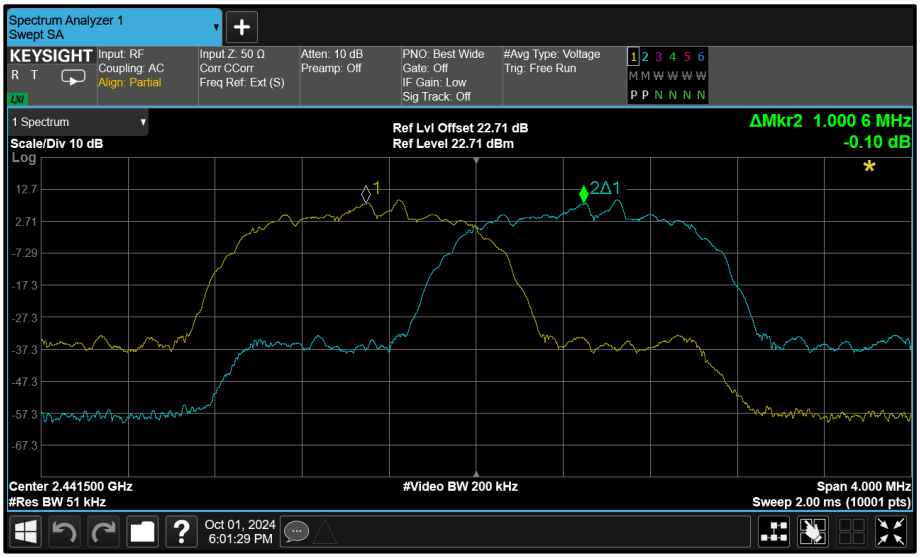

Figure 62 - 8-DPSK - 2441 MHz (CH39) & 2442 MHz (CH40)

FCC 47 CFR Part 15, Limit Clause 15.247 (a)(1)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the band 2400-2483.5 MHz may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 0.125 W.

2.3.7 Test Location and Test Equipment Used

This test was carried out in SAR Chamber 2.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
True RMS Multimeter	Fluke	79 Series III	411	12	12-Jan-2025
Hygrometer	Rotronic	Hygropalm 0	3028	12	12-Aug-2025
1 MHz / 10 MHz reference	Quartzlock	E10-X	4973	12	03-Sep-2025
AC Programmable Power Supply	iTech	IT7324	5226	-	O/P Mon
MXA Signal Analyser	Keysight Technologies	N9020B	5528	24	18-Sep-2025
Signal Conditioning Unit	TUV SUD	SPECTRUM_SCU001	6350	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6638	12	02-Aug-2025
SCU Cable Assembly	TUV SUD	SPECTRUM_SCU_CA	6639	12	02-Aug-2025

Table 44

O/P Mon - Output Monitored using calibrated equipment

2.4 Frequency Hopping Systems - Number of Hopping Channels

2.4.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.247 (a)(1)

2.4.2 Equipment Under Test and Modification State

A3403, S/N: M7J9X1XPGD - Modification State 0

2.4.3 Date of Test

01-October-2024 to 03-October-2024

2.4.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 7.8.3.

2.4.5 Environmental Conditions

Ambient Temperature	20.4 - 21.8 °C
Relative Humidity	45.4 - 53.1 %

2.4.6 Test Results

2.4 GHz Bluetooth BDR/EDR

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)(iii)	Test Method(s):	C63.10 7.8.3
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Number of Hopping Frequencies	Limit
79	≥15.0

Table 45 - Number of Hopping Frequencies Results

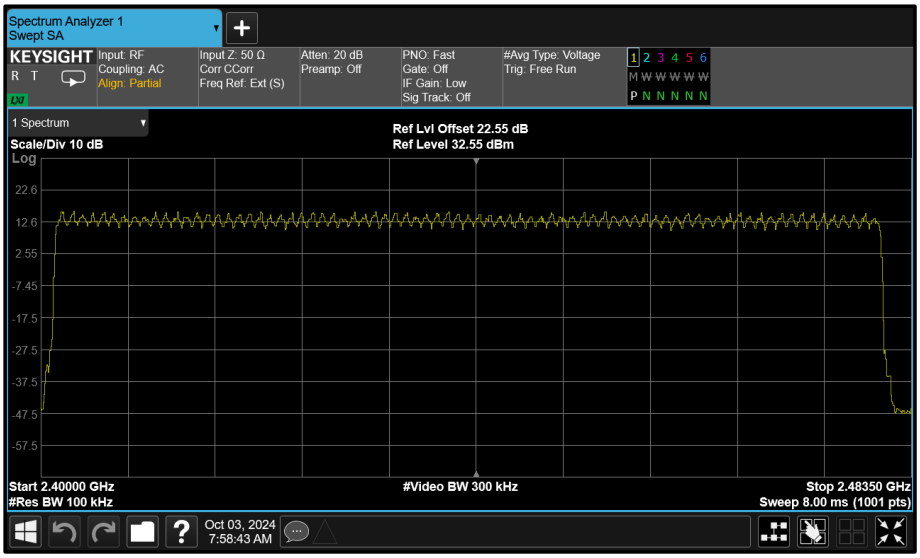

Figure 63 - π/4 DQPSK (2-DH5) - Number of Hopping Channels

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)(iii)	Test Method(s):	C63.10 7.8.3
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA 8-DPSK (3-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	B (Core 1)	Peak Antenna Gain (dBi):	-

Number of Hopping Frequencies	Limit
79	≥15.0

Table 46 - Number of Hopping Frequencies Results

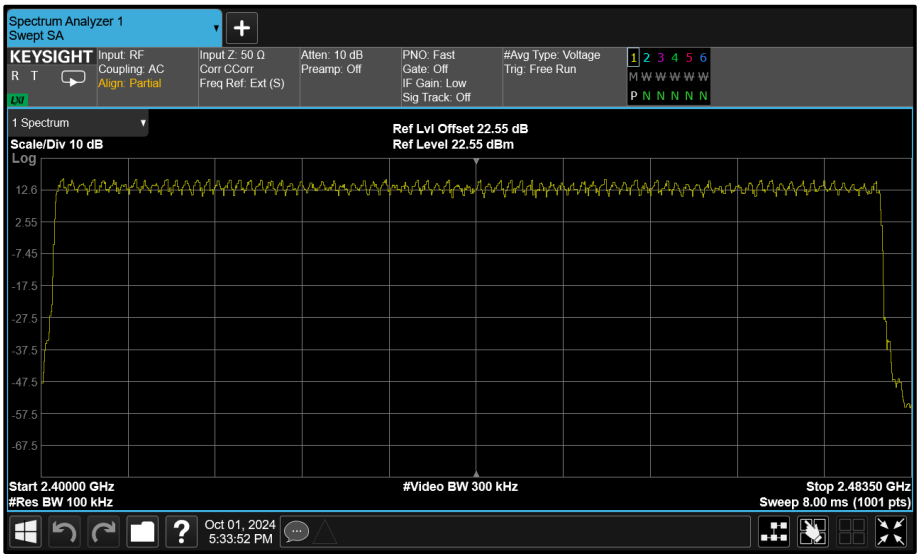

Figure 64 - 8-DPSK (3-DH5) - Number of Hopping Channels

Test Configuration			
Frequency Range:	2400-2483.5 MHz	Band:	2.4 GHz
Limit Clause(s):	FCC 15.247(a)(1)(iii)	Test Method(s):	C63.10 7.8.3
Additional Reference(s):	-		

DUT Configuration			
Mode:	ePA π/4 DQPSK (2-DH5)	Duty Cycle (%):	-
Antenna Configuration:	Beamforming	DCCF (dB):	-
Active Port(s):	A+B (Core 0 + Core 1)	Peak Antenna Gain (dBi):	-

Number of Hopping Frequencies	Limit
79	≥15.0

Table 47 - Number of Hopping Frequencies Results

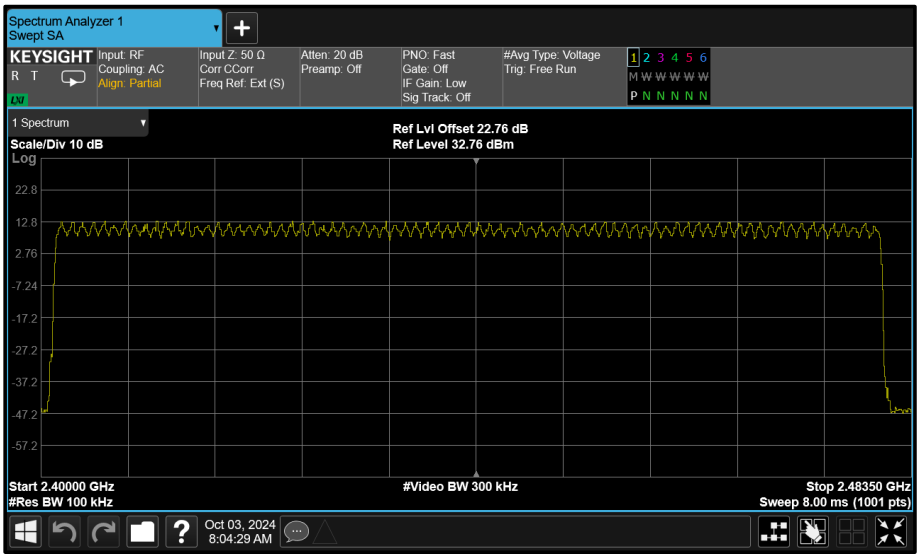

Figure 65 - π/4 DQPSK (2-DH5) - Number of Hopping Channels