FCC and ISED Test Report

Apple Inc
Model: A3247

In accordance with FCC 47 CFR Part 15E, ISED RSS-247 and ISED RSS-GEN (Narrowband)

TUV SUD Limited
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Date: 2024.10.14 14:47:19 +01'00'

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FCC ID: BCGA3247 IC: 579C-A3247

COMMERCIAL-IN-CONFIDENCE

Document 75960488-17 Issue 01

SIGNATURE			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Steve White	Senior Technical Specialist	Authorised Signatory	28 August 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 15E, 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	Lauren Walters	28 August 2024	

FCC Accreditation
553713/UK2026 Concorde Park, Fareham Test Laboratory

ISED Accreditation
28798/UK0003 Concorde Park, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15E: 2023, ISED RSS-247: Issue 3 (2023-08) and ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02) 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	28-Aug-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 15E: 2023 ISED RSS-247: Issue 3 (2023-08) ISED RSS-GEN: Issue 5 (2018-04) + A2 (2021-02)
Start of Test	15-May-2024
Finish of Test	08-August-2024
Name of Engineer(s)	Ahmed Al Derdiri, Elliot Callender, Ioan-Alexandru Bogatu, Manohar Thota, David Hill, Mahmud Bari Chowdhury, Mustafa Murad, Ian Hart, James Woods and Vineeth Nagaraj
Related Document(s)	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 15E and ISED RSS-247 and ISED RSS-GEN is shown below.

Section	Specification Clause			Test Description	Result	Comments/Base Standard
	Part 15E	RSS-247	RSS-GEN			
Configuration and Mode: Narrowband						
-	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	3.3	8.10	Restricted Band Edges	Pass	ANSI C63.10 (2020)
2.2	15.407 (a)	6.2	-	Emission Bandwidth	Pass	ANSI C63.10 (2020)
2.3	15.407 (a)	6.2	-	Maximum Conducted Output Power	Pass	ANSI C63.10 (2020) KDB 662911 D01 v02r01
2.4	15.407 (a)	6.2	-	Maximum Conducted Power Spectral Density	Pass	ANSI C63.10 (2020) KDB 662911 D01 v02r01
2.5	15.407 (b)	6.2	-	Authorised Band Edges	Pass	ANSI C63.10 (2020)
2.6	15.209 and 15.407 (b)	6.2	6.13 and 8.9	Spurious Radiated Emissions	Pass	ANSI C63.10 (2020)

Table 2

1.4 Product Information

1.4.1 Technical Description

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

1.4.2 Test Modes

Narrowband operation was supported in the following frequency bands:

US: 5162-5245 MHz (UNII-1)
US and Canada: 5733-5844 MHz (UNII-3)

It supports SISO (Single Input/Single Output) operation on two different cores (Core 0 and 1). It also supports MIMO (Multiple Input/Multiple Output) beamforming operation on Cores 0+1 simultaneously.

It operates at two power settings: low power “iPA” and high power “ePA” and uses different output powers per core dependent on how many cores are used.

Both power modes support HDR4 (4-DH5) and HDR8 (8-DH5). iPA mode additionally supports Basic Rate (DH5).

After preliminary investigations, conducted tests on the EUT were performed in the following modes:

SISO modes:

- DH5 - iPA - Core 1 (UNII-1) & Core 0 (UNII-3)
- HDR4 (4-DH5) - iPA - Core 1 (UNII-1) & Core 0 (UNII-3)
- HDR8 (8-DH5) - iPA - Core 1 (UNII-1) & Core 0 (UNII-3)
- HDR4 (4-DH5) - ePA - Core 1 (UNII-1) & Core 0 (UNII-3)
- HDR8 (8-DH5) - ePA - Core 1 (UNII-1) & Core 0 (UNII-3)

MIMO modes:

- DH5 - iPA - Core 0 + Core 1
- HDR4 (4-DH5) - iPA - Core 0 + Core 1
- HDR8 (8-DH5) - iPA - Core 0 + Core1
- HDR4 (4-DH5) - ePA - Core 0 + Core 1
- HDR8 (8-DH5) - ePA - Core 0 + Core1

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

MIMO modes:

- DH5 - iPA - Core 0 + Core 1
- HDR4 (4-DH5) - ePA - Core 0 + Core 1

1.4.3 Test Setup

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.

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.

1.4.4 Antenna Gain Table

Antenna Port	Frequency Range (MHz)	Peak Gain (dBi)	Conducted Cable Loss (dB)
Core 0	5150 to 5250	3.60	2.35
	5725 to 5850	4.30	2.26
Core 1	5150 to 5250	5.90	1.74
	5725 to 5850	4.10	2.10

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: A3247			
Serial Number	Hardware Version	Software Version	Firmware
KN47NTDQRY	REV1.0	24A81452a	22.1.65.459
CFK34L4W7N	REV1.0	24A81452a	22.1.65.459
CMVW5QCY3C	REV1.0	24A81452a	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: A3247, Serial Number: KN47NTDQRY			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3247, Serial Number: CFK34L4W7N			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3247, Serial Number: CMVW5QCY3C			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 5

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: Narrowband		
Restricted Band Edges	Ahmed Al Derdiri, Elliot Callender, Ioan-Alexandru Bogatu and Manohar Thota	UKAS
Emission Bandwidth	David Hill, Mahmud Bari Chowdhury and Mustafa Murad	UKAS
Maximum Conducted Output Power	David Hill, Mahmud Bari Chowdhury and Mustafa Murad	UKAS
Maximum Conducted Power Spectral Density	David Hill, Mahmud Bari Chowdhury and Mustafa Murad	UKAS
Authorised Band Edges	Ahmed Al Derdiri, Elliot Callender, Ioan-Alexandru Bogatu and Manohar Thota	UKAS
Spurious Radiated Emissions	Elliot Callender, Ian Hart, Ioan-Alexandru Bogatu, James Woods and Vineeth Nagaraj	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 15E, Clause 15.205
ISED RSS-247, Clause 3.3
ISED RSS-GEN, Clause 8.10

2.1.2 Equipment Under Test and Modification State

A3247, S/N: KN47NTDQRY - Modification State 0

2.1.3 Date of Test

15-May-2024 to 25-May-2024

2.1.4 Test Method

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

Restricted Band Edge measurements were performed with the device operating in SISO, MIMO and TxBF, across the various modes supported by the device.

The measurements displayed within this report have been limited to those modes which have been shown to be worst case.

Further measurements are held on file by TÜV SÜD and are available if required.

2.1.5 Environmental Conditions

Ambient Temperature	22.2 - 23.7 °C
Relative Humidity	42.7 - 52.1 %

2.1.6 Test Results

Narrowband

iPA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	DH5	5162	5150	53.75	42.18
Static	HDR4	5162	5150	54.05	41.64
Static	HDR8	5162	5150	53.49	42.12
Static	DH5	5245	5350	54.85	42.52
Static	HDR4	5245	5350	54.70	42.41
Static	HDR8	5245	5350	54.43	42.37

Table 7 - SISO Restricted Band Edge Results

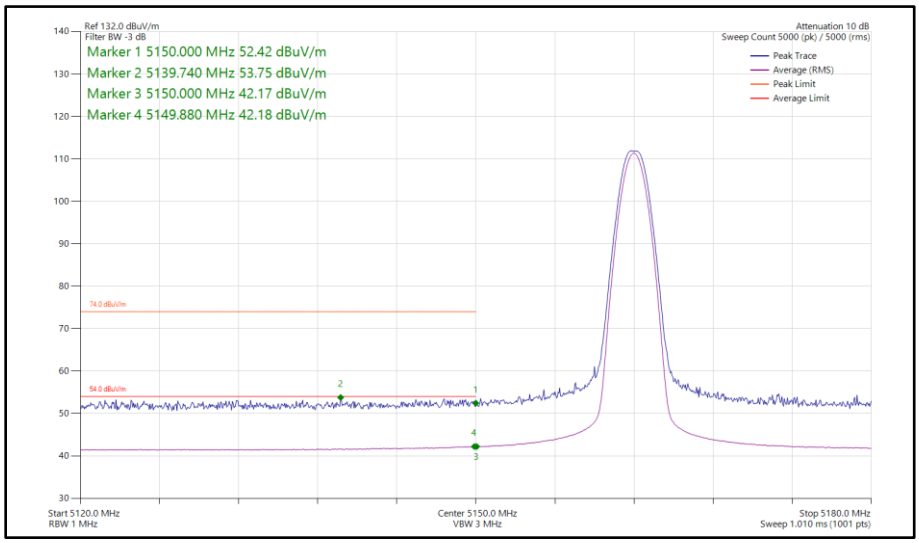

Figure 1 - DH5, SISO, Core 0 - 5162 MHz
Band Edge Frequency 5150 MHz

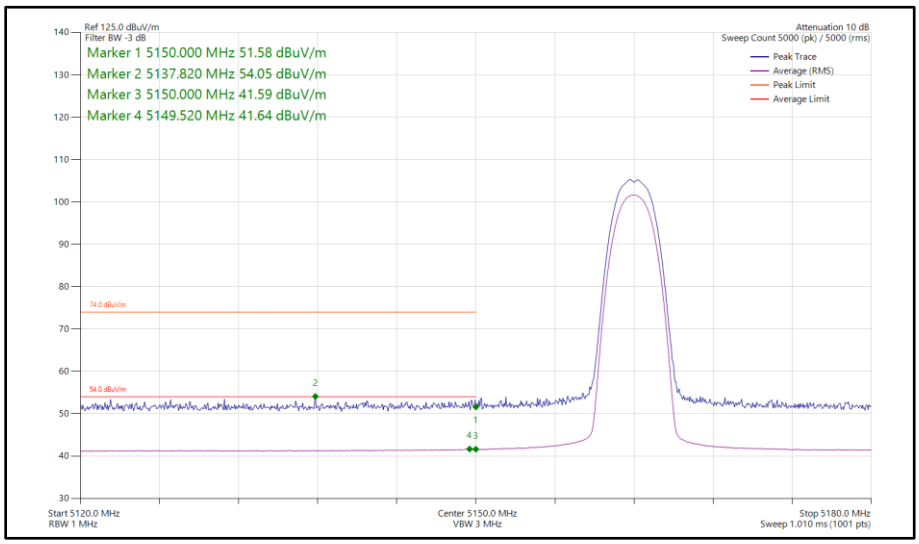

Figure 2 - HDR4, SISO, Core 0 - 5162 MHz
Band Edge Frequency 5150 MHz

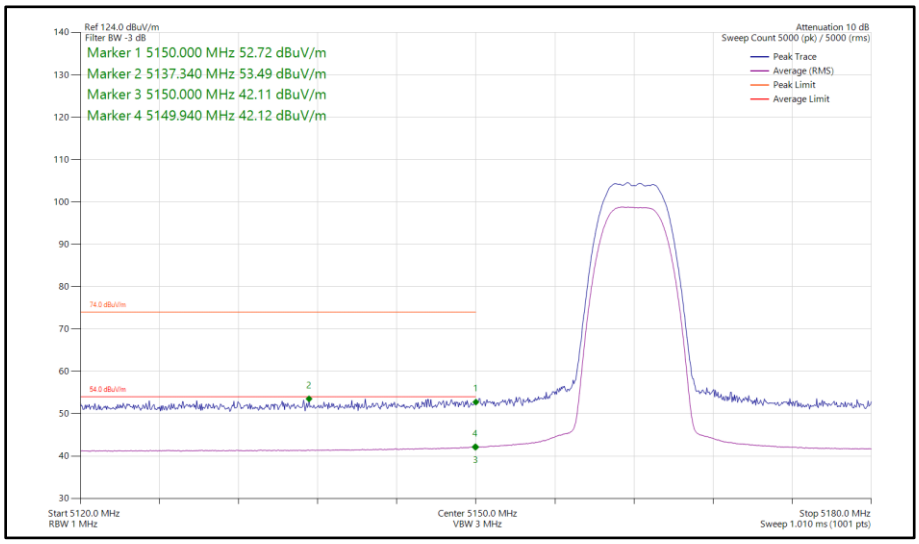

Figure 3 - HDR8, SISO, Core 0 - 5162 MHz
Band Edge Frequency 5150 MHz

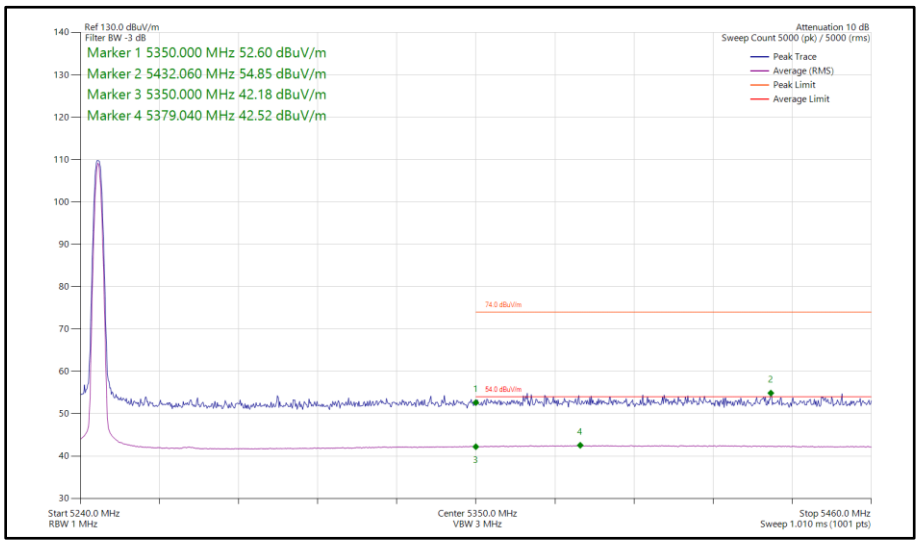

Figure 4 - DH5, SISO, Core 0 - 5245 MHz
Band Edge Frequency 5350 MHz

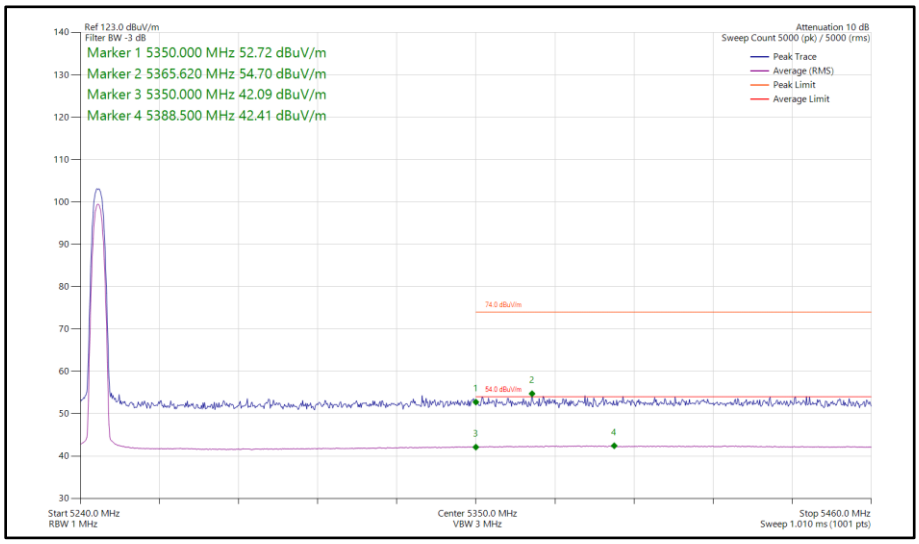

Figure 5 - HDR4, SISO, Core 0 - 5245 MHz
Band Edge Frequency 5350 MHz

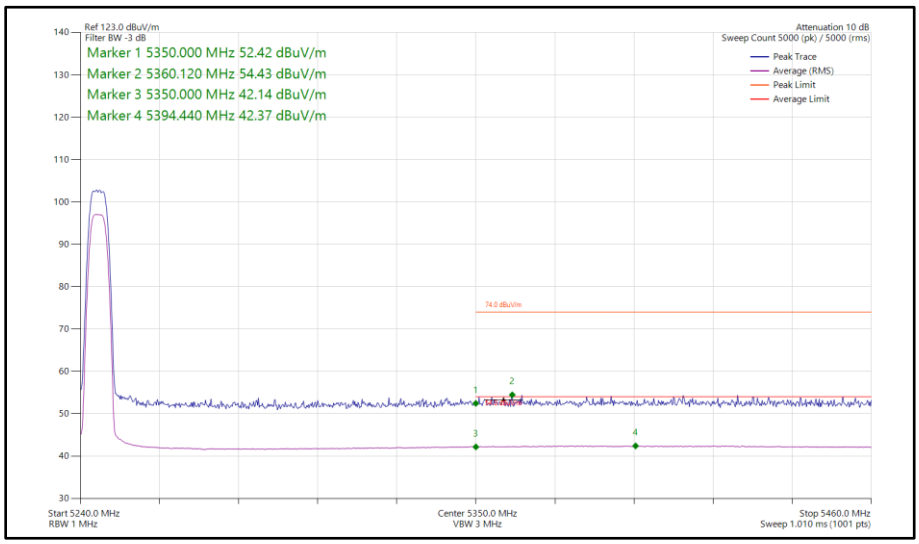

Figure 6 - HDR8, SISO, Core 0 - 5245 MHz
Band Edge Frequency 5350 MHz

iPA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	DH5	5162	5150	53.76	42.25
Static	HDR4	5162	5150	53.39	41.53
Static	HDR8	5162	5150	53.44	41.80
Static	DH5	5245	5350	54.44	42.54
Static	HDR4	5245	5350	54.89	42.41
Static	HDR8	5245	5350	54.90	42.35

Table 8 - SISO Restricted Band Edge Results

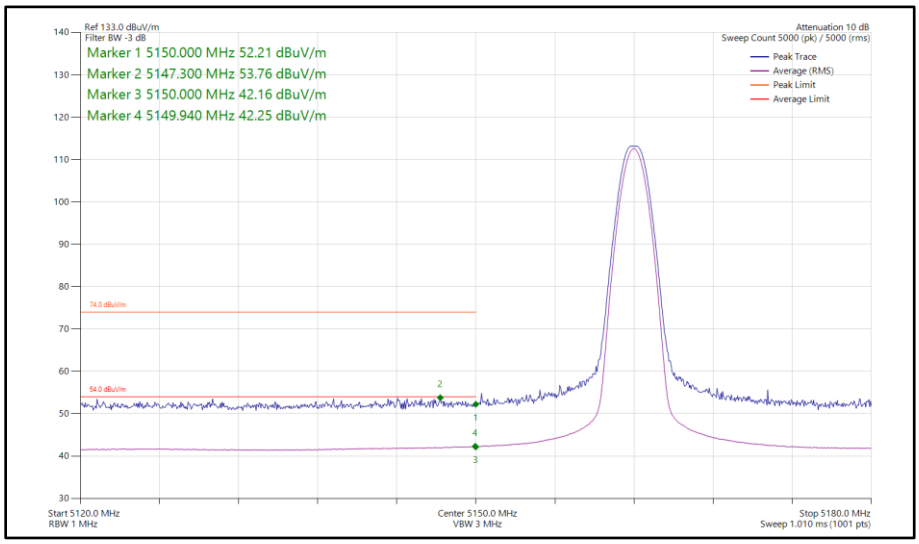

Figure 7 - DH5, SISO, Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

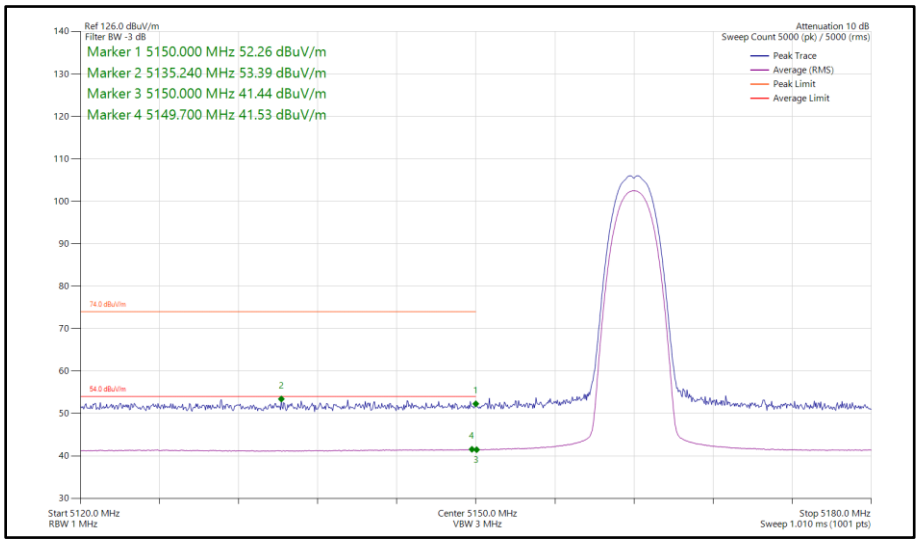

Figure 8 - HDR4, SISO, Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

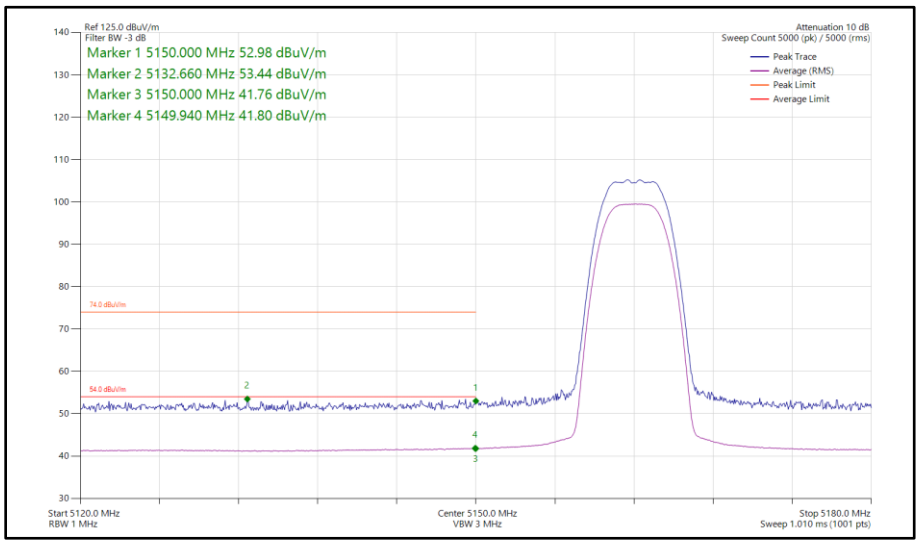

Figure 9 - HDR8, SISO, Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

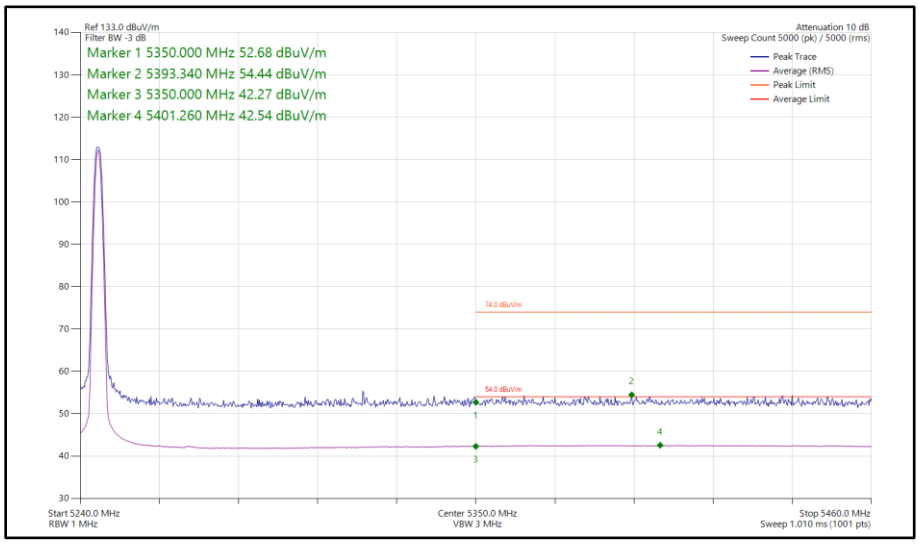

Figure 10 - DH5, SISO, Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

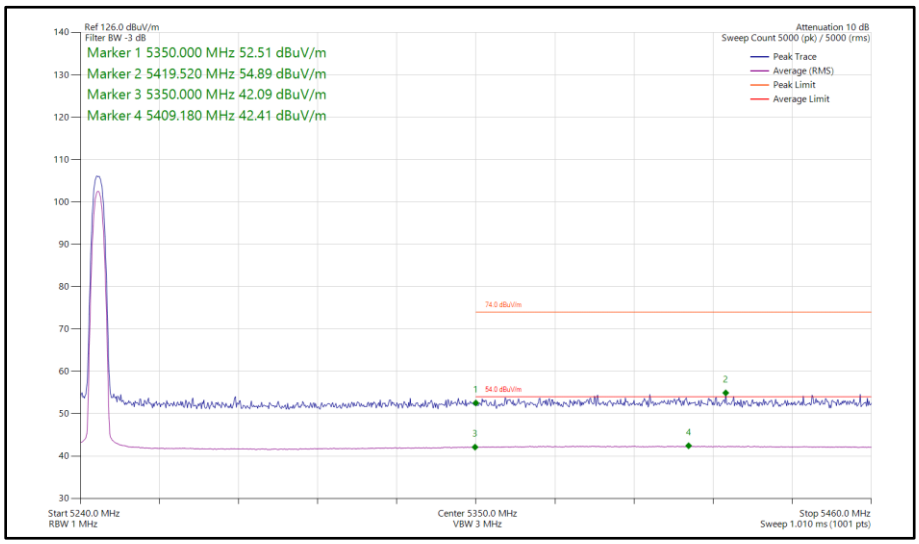

Figure 11 - HDR4, SISO, Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

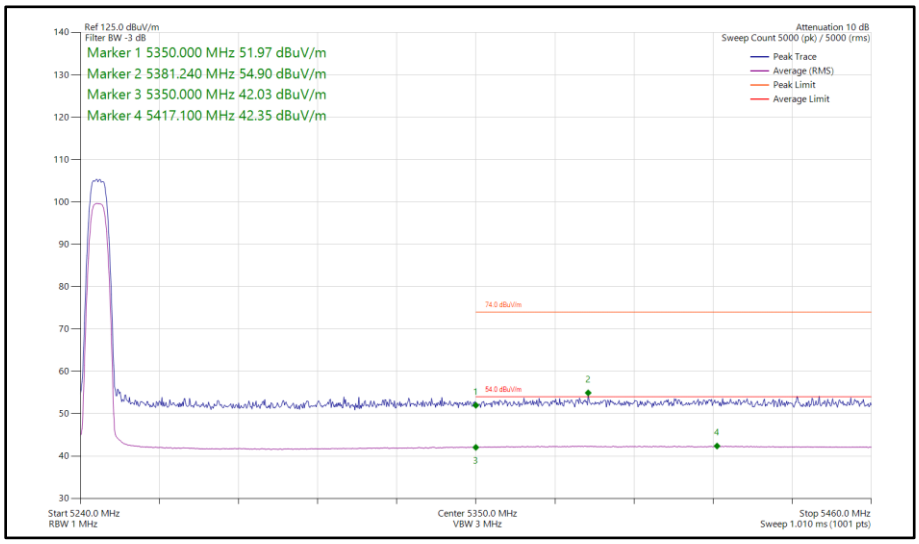

Figure 12 - HDR8, SISO, Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

iPA - Core 0 - Core 1 (MIMO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	DH5	5162	5150	56.76	45.93
Static	HDR4	5162	5150	56.05	44.48
Static	HDR8	5162	5150	57.43	46.25
Static	DH5	5245	5350	56.88	44.75
Static	HDR4	5245	5350	56.89	44.71
Static	HDR8	5245	5350	56.67	44.71

Table 9 - MIMO Restricted Band Edge Results

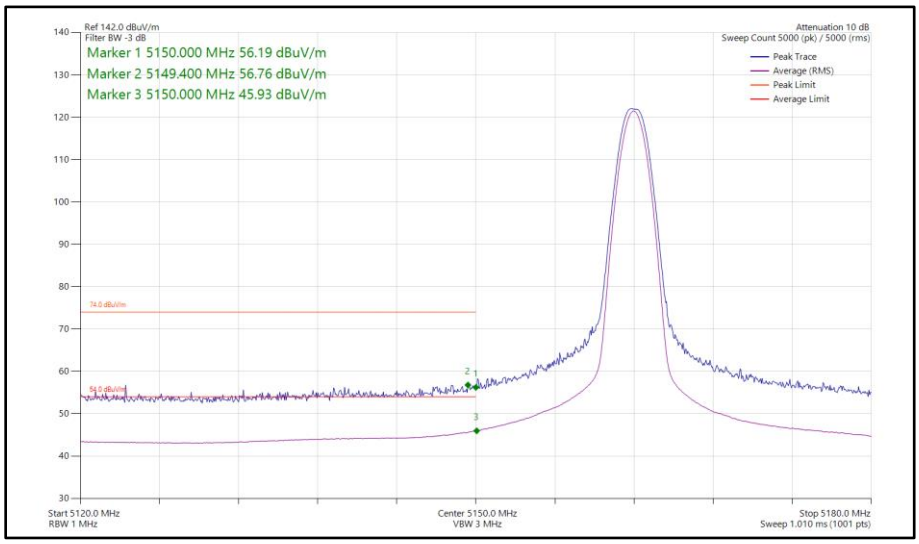

Figure 13 - DH5, MIMO, Core 0 - Core 1 - 5162 MHz Band Edge Frequency 5150 MHz

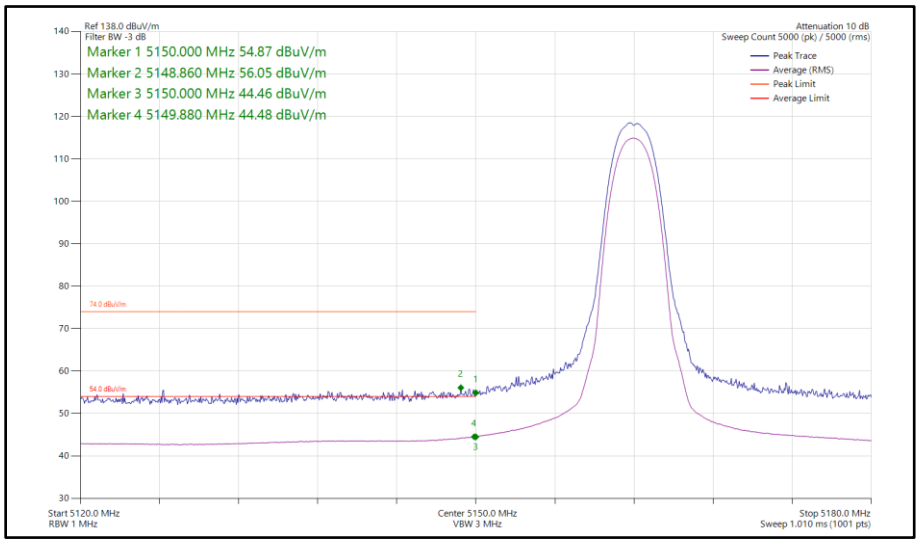

Figure 14 - HDR4, MIMO, Core 0 - Core 1 - 5162 MHz Band Edge Frequency 5150 MHz

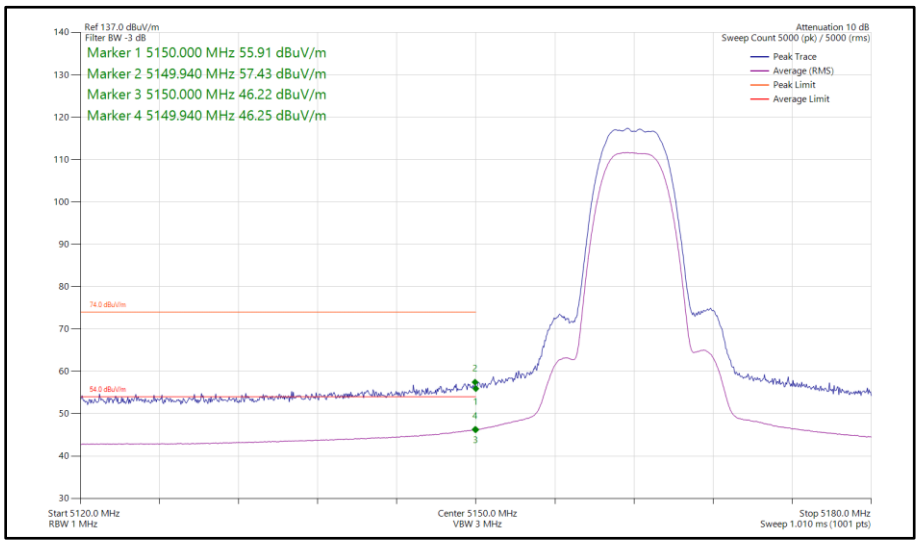

Figure 15 - HDR8, MIMO, Core 0 - Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

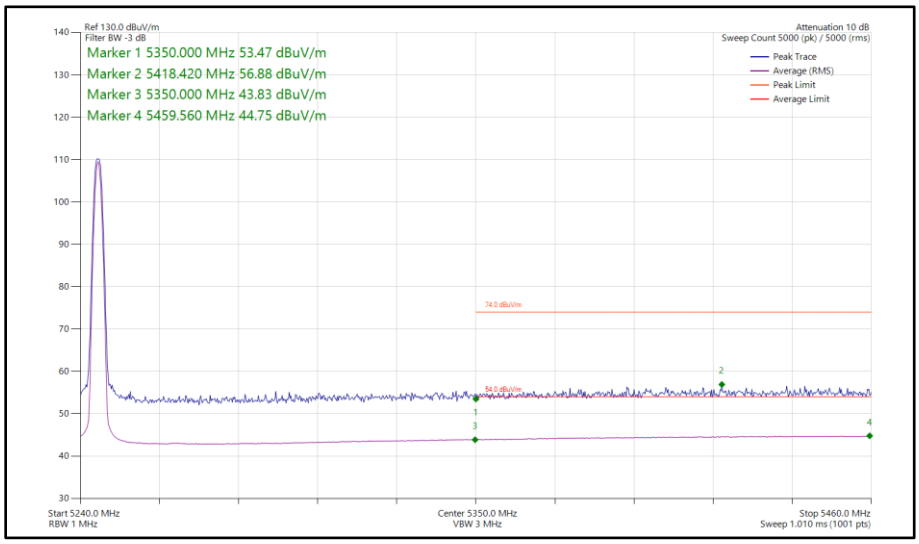

Figure 16 - DH5, MIMO, Core 0 - Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

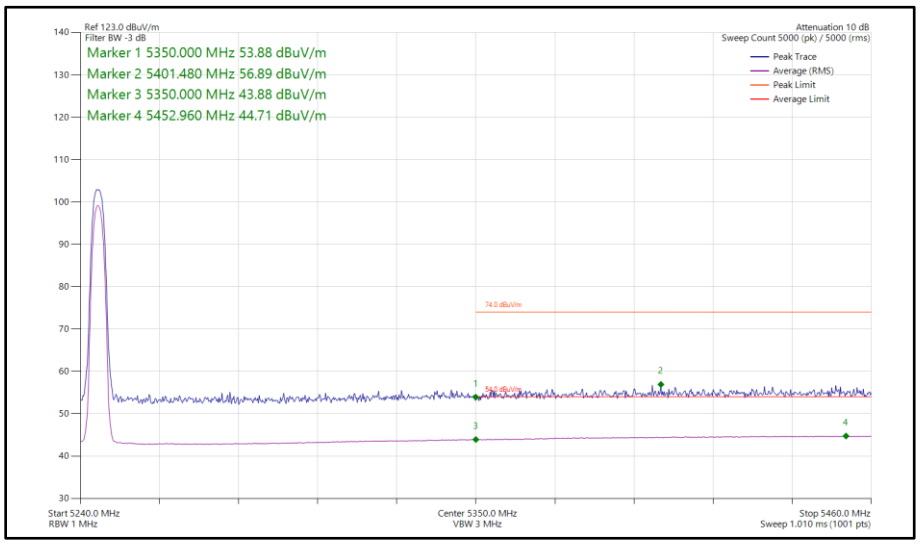

Figure 17 - HDR4, MIMO, Core 0 - Core 1 - 5245 MHz Band Edge Frequency 5350 MHz

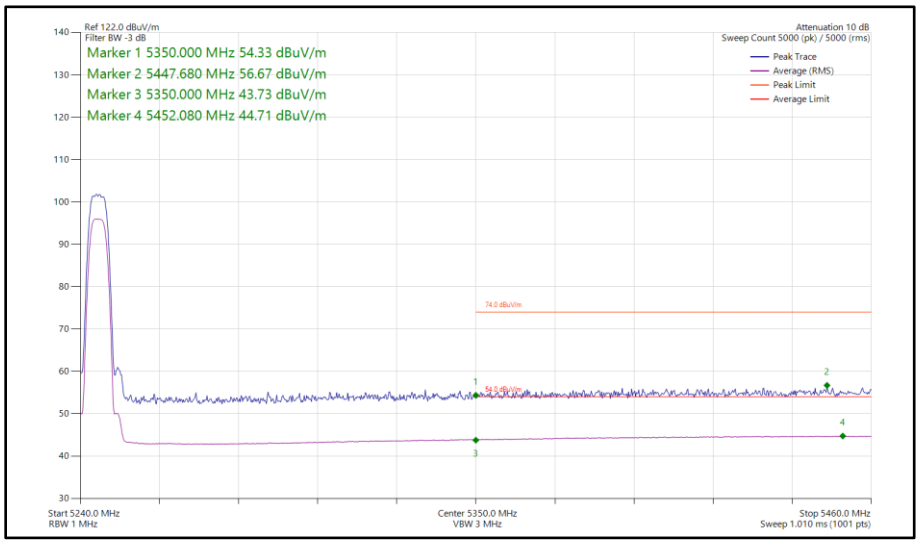

Figure 18 - HDR8, MIMO, Core 0 - Core 1 - 5245 MHz Band Edge Frequency 5350 MHz

ePA - Core 0 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	HDR4	5162	5150	56.01	44.96
Static	HDR8	5162	5150	59.63	48.09
Static	HDR4	5245	5350	54.60	42.98
Static	HDR8	5245	5350	54.78	42.93

Table 10 - SISO Restricted Band Edge Results

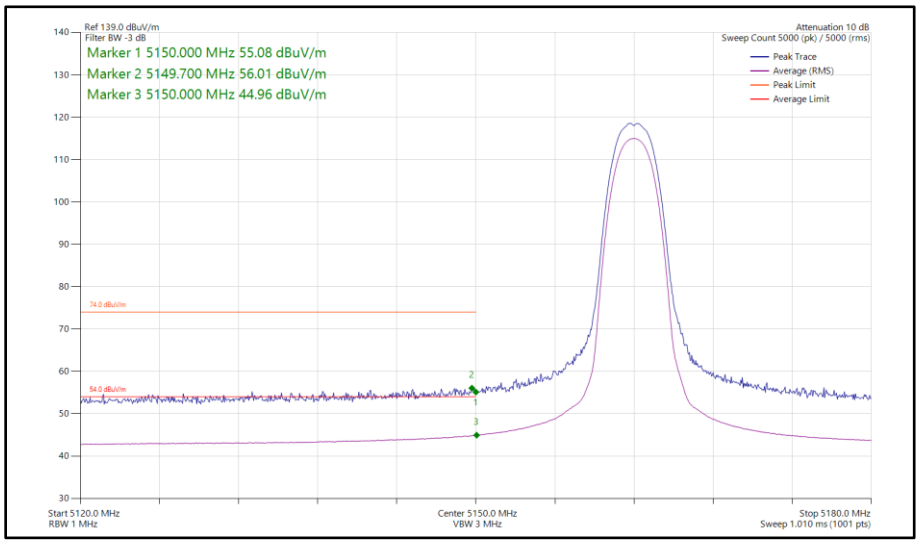

Figure 19 - HDR4, SISO, Core 0 - 5162 MHz
Band Edge Frequency 5150 MHz

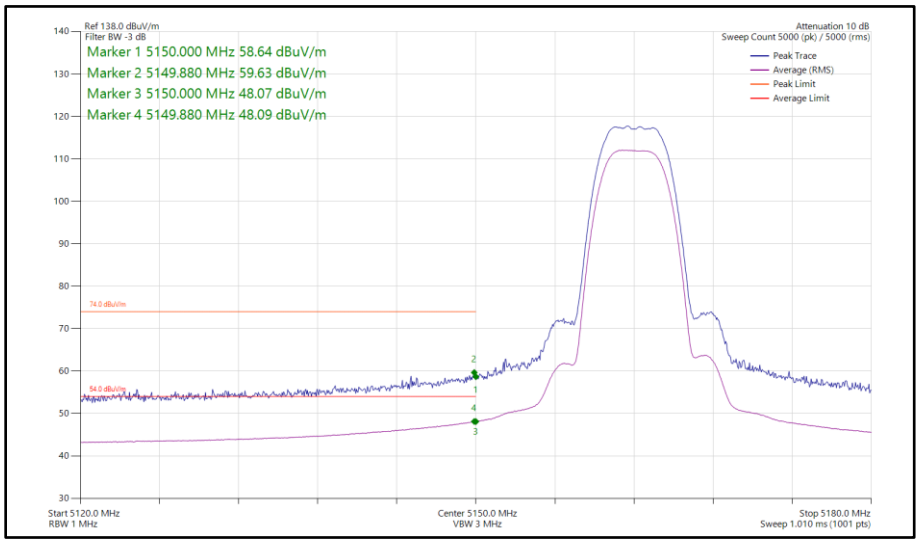

Figure 20 - HDR8, SISO, Core 0 - 5162 MHz
Band Edge Frequency 5150 MHz

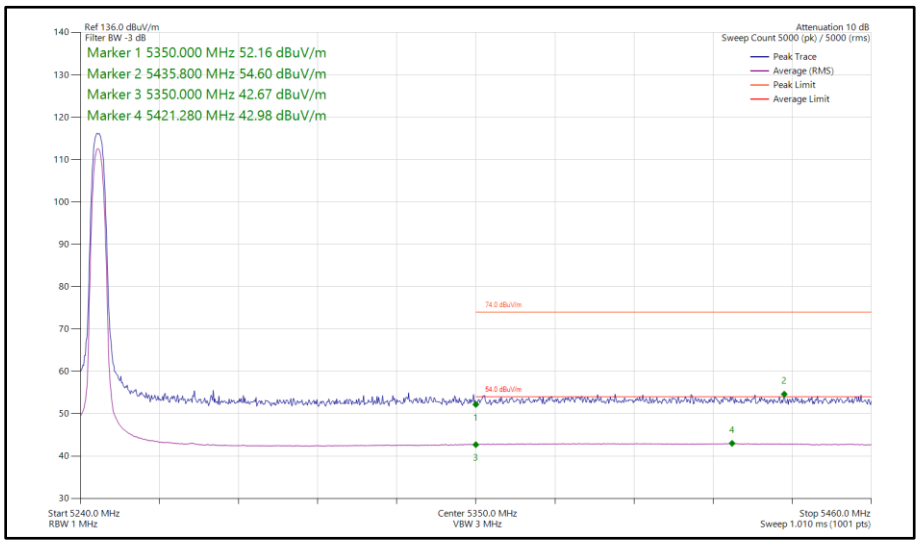

Figure 21 - HDR4, SISO, Core 0 - 5245 MHz
Band Edge Frequency 5350 MHz

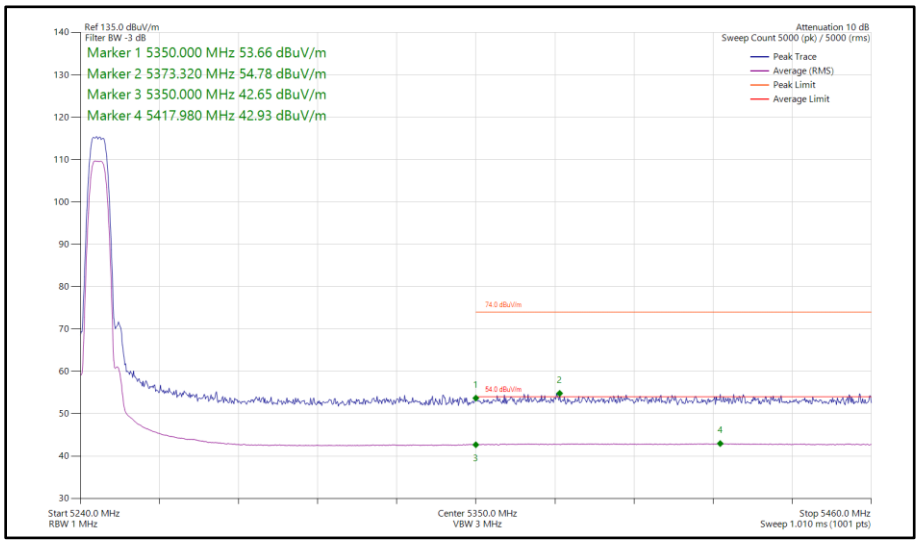

Figure 22 - HDR8, SISO, Core 0 - 5245 MHz
Band Edge Frequency 5350 MHz

ePA - Core 1 (SISO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	HDR4	5162	5150	56.46	44.39
Static	HDR8	5162	5150	57.57	46.63
Static	HDR4	5245	5350	55.47	43.26
Static	HDR8	5245	5350	55.85	43.31

Table 11 - SISO Restricted Band Edge Results

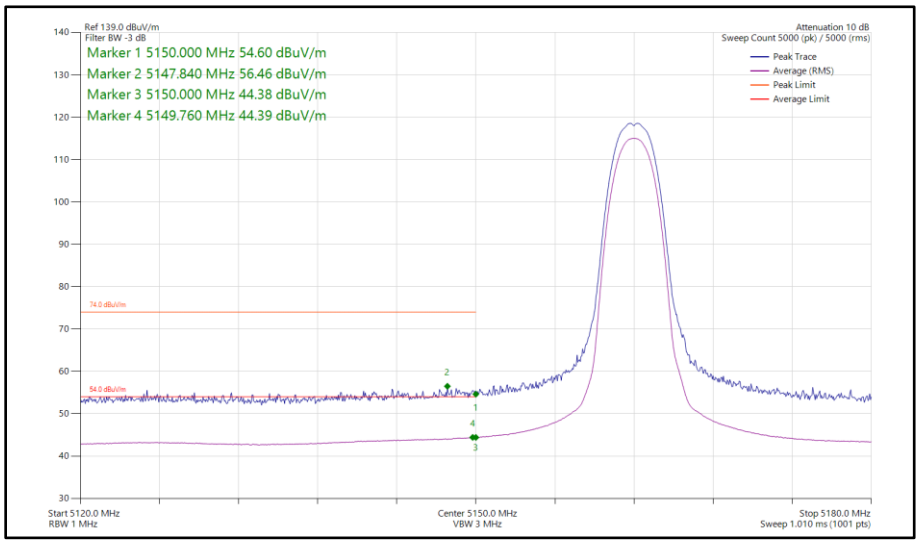

Figure 23 - HDR4, SISO, Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

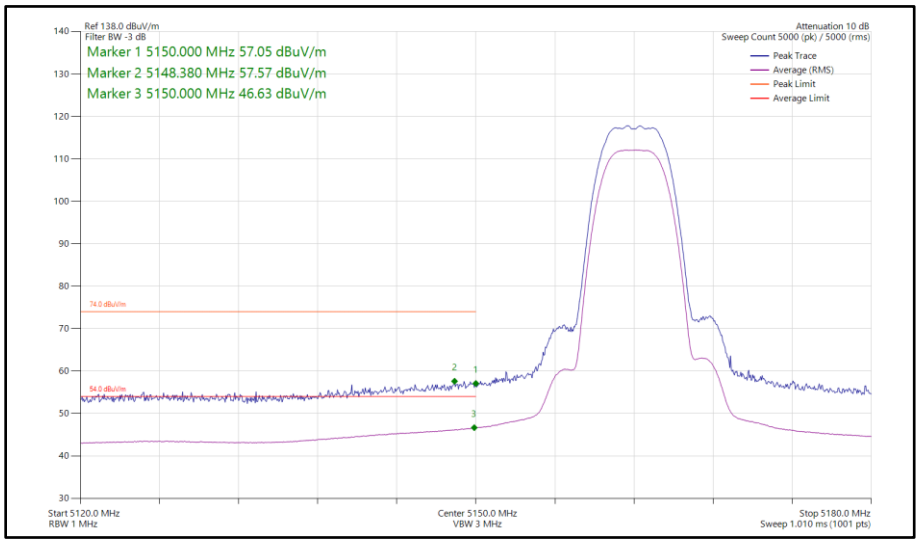

Figure 24 - HDR8, SISO, Core 1 - 5162 MHz
Band Edge Frequency 5150 MHz

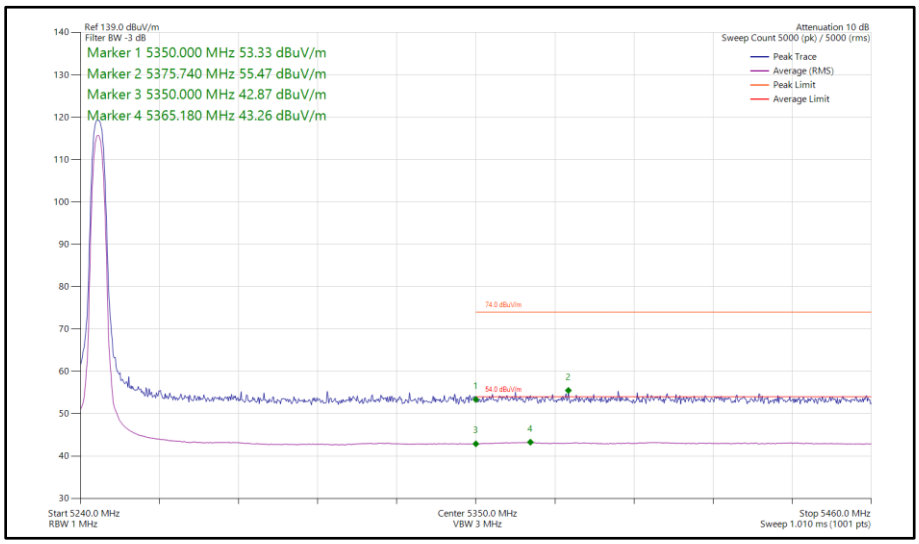

Figure 25 - HDR4, SISO, Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

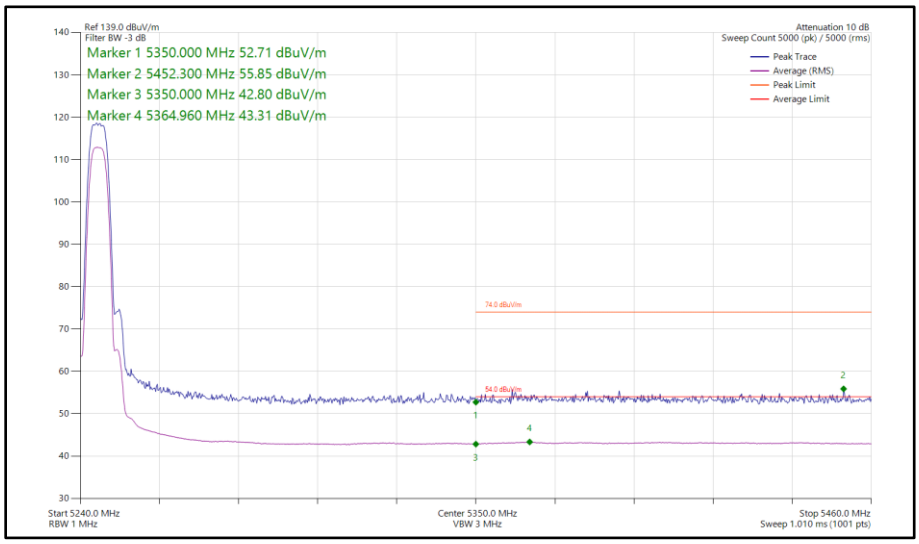

Figure 26 - HDR8, SISO, Core 1 - 5245 MHz
Band Edge Frequency 5350 MHz

ePA - Core 0 - Core 1 (MIMO)

Mode	Packet Type	TX Frequency (MHz)	Band Edge Frequency (MHz)	Peak Level (dBµV/m)	Average Level (dBuV/m)
Static	HDR4	5162	5150	56.65	45.09
Static	HDR8	5162	5150	60.51	48.40
Static	HDR4	5245	5350	57.07	45.18
Static	HDR8	5245	5350	56.93	45.18

Table 12 - MIMO Restricted Band Edge Results

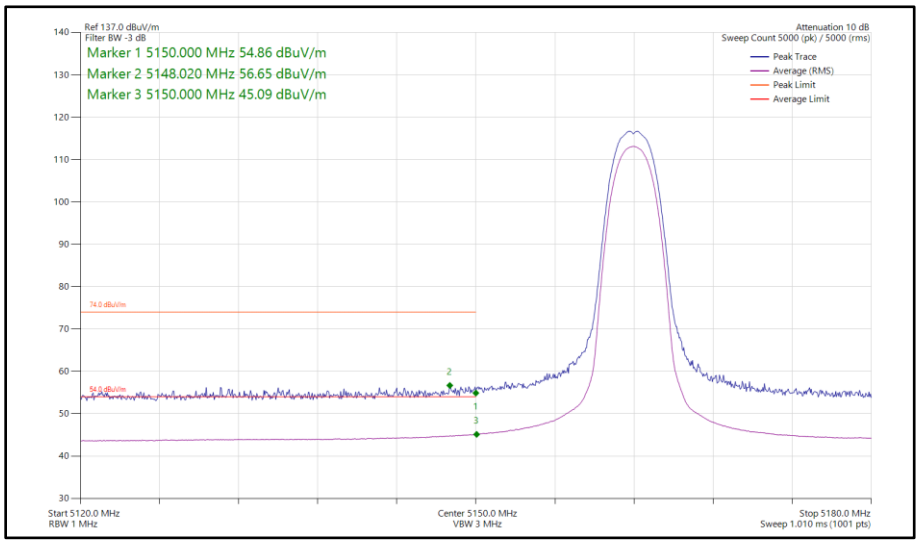

Figure 27 - HDR4, MIMO, Core 0 - Core 1 - 5162 MHz Band Edge Frequency 5150 MHz

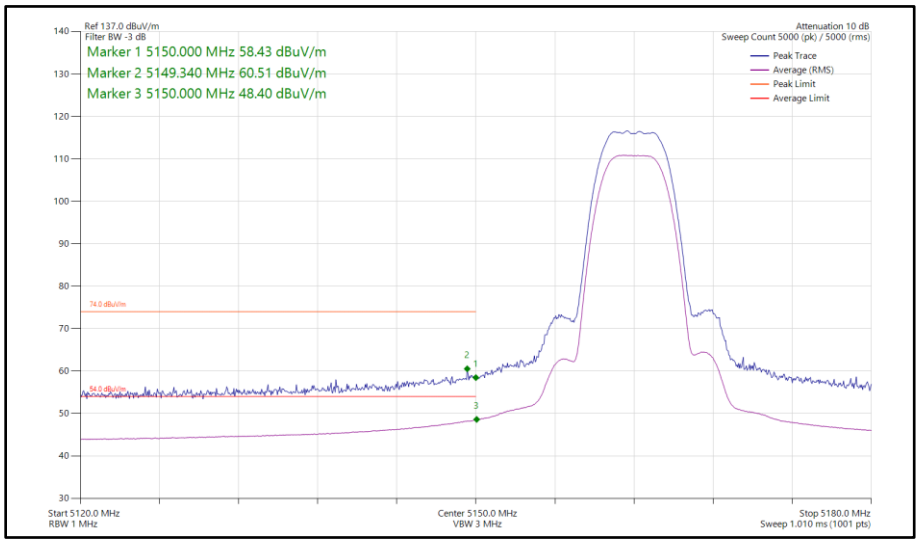

Figure 28 - HDR8, MIMO, Core 0 - Core 1 - 5162 MHz Band Edge Frequency 5150 MHz

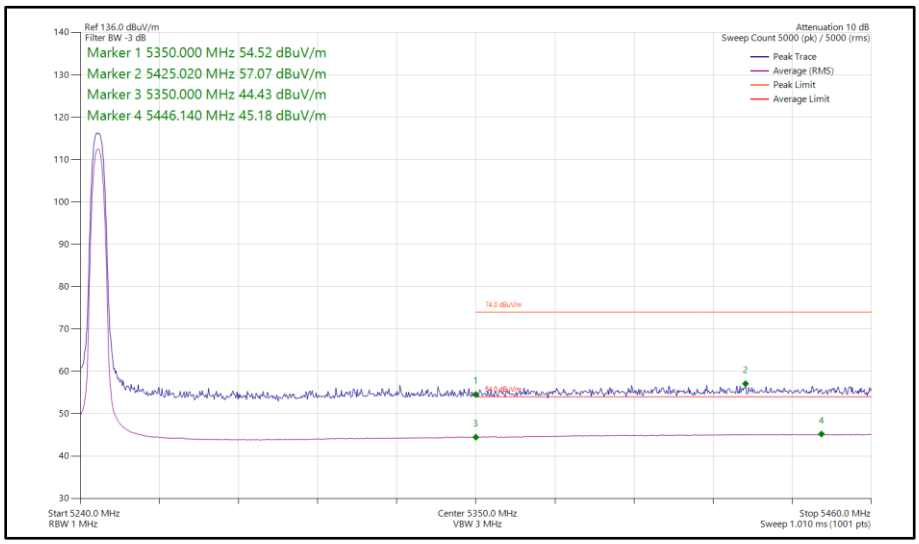

Figure 29 - HDR4, MIMO, Core 0 - Core 1 - 5245 MHz Band Edge Frequency 5350 MHz

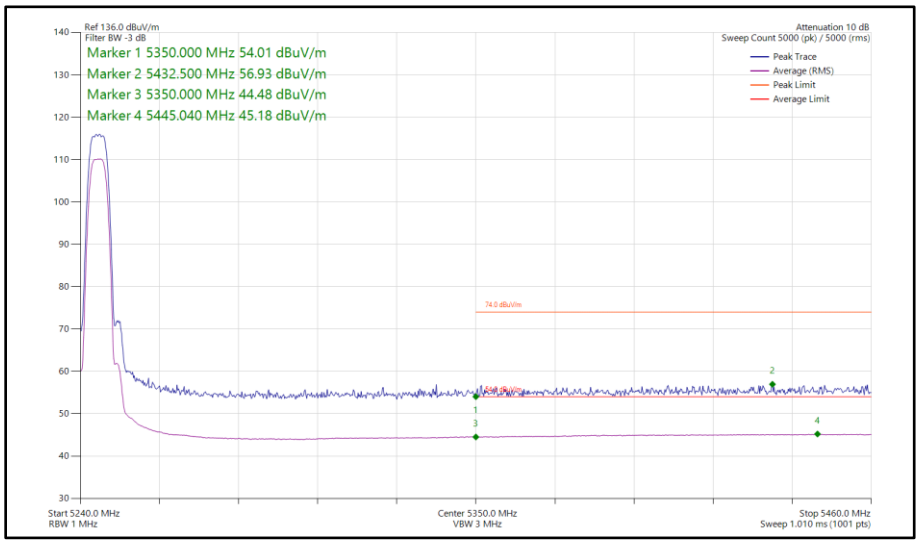

Figure 30 - HDR8, MIMO, Core 0 - Core 1 - 5245 MHz Band Edge Frequency 5350 MHz

FCC 47 CFR Part 15, Limit Clause 15.205 and ISED RSS-GEN Limit Clause 8.10

	Peak (dBµV/m)	Average (dBµV/m)
Restricted Bands of Operation	74	54

Table 13 - Restricted Band Edge Limit Table

2.1.7 Test Location and Test Equipment Used

This test was carried out in RF Chamber 14 and RF Chamber 15.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Emissions Software	TUV SUD	EmX V3.2.0	5125	-	Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5911	12	11-Sep-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5912	12	05-Jul-2024
1500W (300V 12A) AC Power Supply	iTech	IT7324	5955	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5956	-	O/P Mon
5m Semi-Anechoic Chamber (Dual-Axis)	Albatross Projects	RF Chamber 14	5958	36	26-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5959	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5960	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5961	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5962	-	TU
5m Semi-Anechoic Chamber (Dual-Axis), Chamber 15	Albatross Projects	RF Chamber 15	5963	36	28-Apr-2025
Compact Antenna Mast	Maturo Gmbh	CAM4.0-P	5964	-	TU
Mast & Turntable Controller	Maturo Gmbh	FCU3.0	5966	-	TU
Tilt Antenna Mast	Maturo Gmbh	BAM4.5-P	5967	-	TU
Turntable	Maturo Gmbh	TT1.5SI	5968	-	TU
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	5997	12	14-Sep-2024
Cable (SMA to SMA 4.5m)	Junkosha	MWX221-04500AMSAMS/A	6002	12	14-Sep-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	26-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6141	12	26-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	26-Aug-2024
Digital Multimeter	Fluke	115	6145	12	15-Jun-2024
Digital Multimeter	Fluke	115	6147	12	16-Jun-2024
Humidity & Temperature meter	R.S Components	1364	6149	12	07-Jul-2024
Cable (SMA to SMA 3m)	Junkosha	MWX221-03000AMSAMS/A	6316	12	04-Feb-2025
Humidity and Temperature Meter	R.S Components	1364	6149	12	07-Jul-2024
1m Cable	Junkosha	MWX241-01000AMSAMS/B	6740	12	01-Feb-2025
6.5m Cable	Junkosha	MWX221-06500AMSAMS/B	6744	12	01-Feb-2025

Table 14

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

2.2 Emission Bandwidth

2.2.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (a)
ISED RSS-247, Clause 6.2

2.2.2 Equipment Under Test and Modification State

A3247, S/N: CFK34L4W7N - Modification State 0

2.2.3 Date of Test

14-June-2024 to 12-July-2024

2.2.4 Test Method

The test was performed in accordance with ANSI C63.10 clause 6.9.2 for 6 dB & 26 dB bandwidth measurements and clause 6.9.3 for 99% occupied bandwidth.

For modes of operation using multiple cores, measurements were made on each core but only the worst-case results are reported. Worst case was considered as the narrowest results for 6 dB bandwidth and the widest result for 26 dB bandwidth and 99% occupied bandwidth.

2.2.5 Environmental Conditions

Ambient Temperature	21.6 - 23.4 °C
Relative Humidity	47.6 - 58.9 %

2.2.6 Test Results

Narrowband

Test Configuration			
Frequency Range:	5.150-5.250 GHz	Band:	U-NII-1
Limit Clause(s):	-	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
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 Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	1.252	-	-	≥500.0
5204	-	1.252	-	-	≥500.0
5245	-	1.252	-	-	≥500.0

Table 15 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	1.000	-	-	-
5204	-	1.000	-	-	-
5245	-	1.012	-	-	-

Table 16 - 99% Bandwidth Results

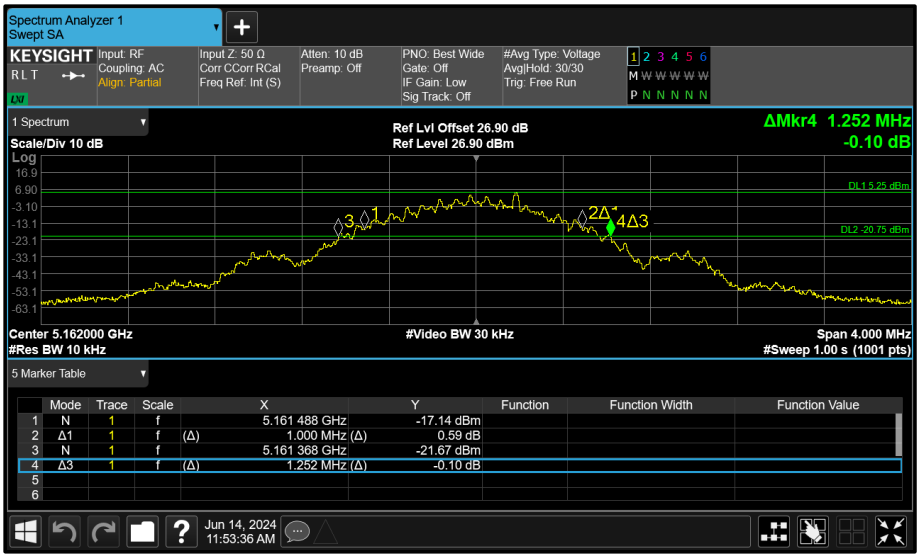

Figure 31 - Core 1 (B) 5162 MHz (CH12) 26 dB and 99% Bandwidth

Figure 32 - Core 1 (B) 5204 MHz (CH54) 26 dB and 99% Bandwidth

Figure 33 - Core 1 (B) 5245 MHz (CH95) 26 dB and 99% Bandwidth

Test Configuration			
Frequency Range:	5.150-5.250 GHz	Band:	U-NII-1
Limit Clause(s):	-	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

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

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	2.768	-	-	≥500.0
5204	-	2.792	-	-	≥500.0
5245	-	2.792	-	-	≥500.0

Table 17 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	2.344	-	-	-
5204	-	2.336	-	-	-
5245	-	2.336	-	-	-

Table 18 - 99% Bandwidth Results

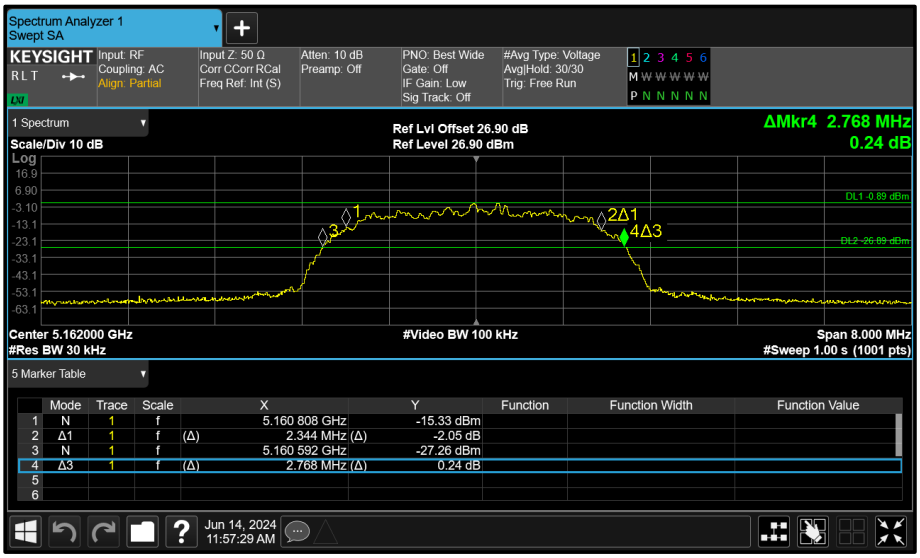

Figure 34 - Core 1 (B) 5162 MHz (CH12) 26 dB and 99% Bandwidth

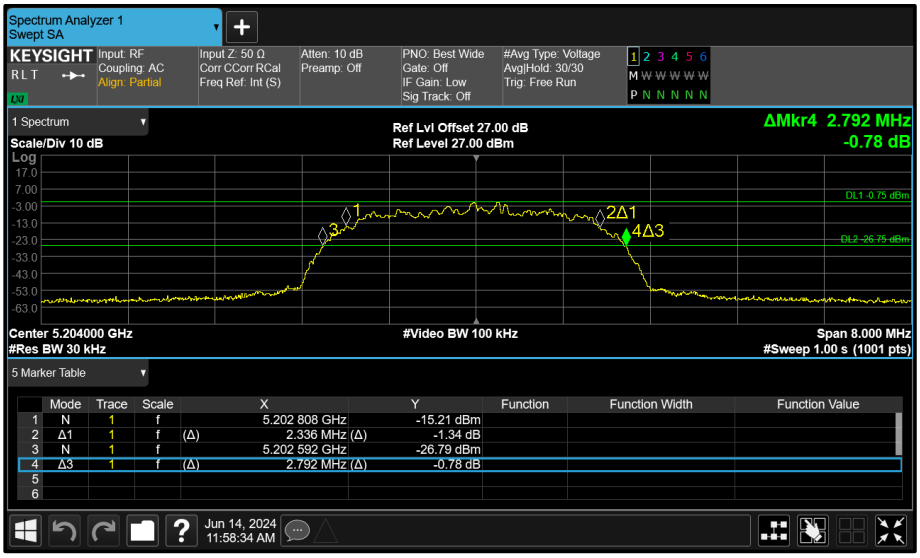

Figure 35 - Core 1 (B) 5204 MHz (CH54) 26 dB and 99% Bandwidth

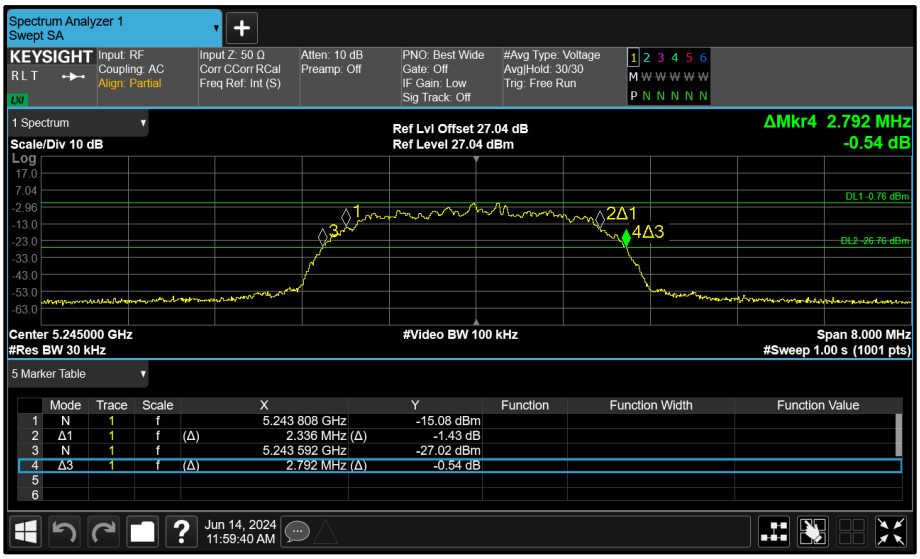

Figure 36 - Core 1 (B) 5245 MHz (CH95) 26 dB and 99% Bandwidth

Test Configuration			
Frequency Range:	5.150-5.250 GHz	Band:	U-NII-1
Limit Clause(s):	-	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

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

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	5.325	-	-	≥500.0
5204	-	5.310	-	-	≥500.0
5245	-	5.310	-	-	≥500.0

Table 19 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	4.635	-	-	-
5204	-	4.635	-	-	-
5245	-	4.620	-	-	-

Table 20 - 99% Bandwidth Results

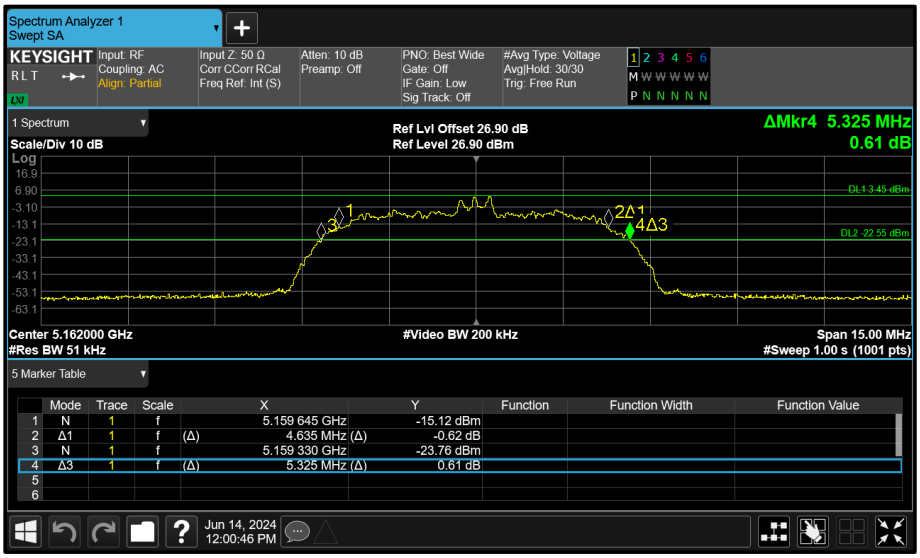

Figure 37 - Core 1 (B) 5162 MHz (CH12) 26 dB and 99% Bandwidth

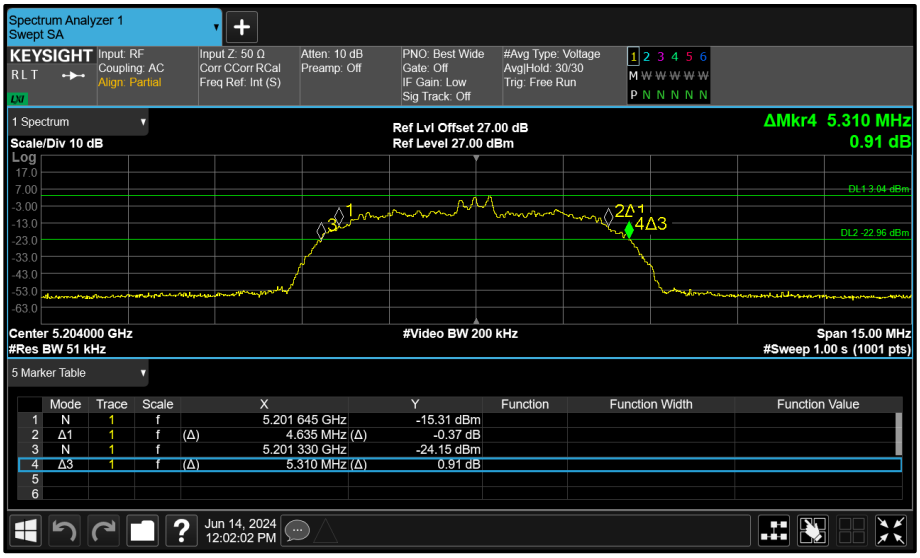

Figure 38 - Core 1 (B) 5204 MHz (CH54) 26 dB and 99% Bandwidth

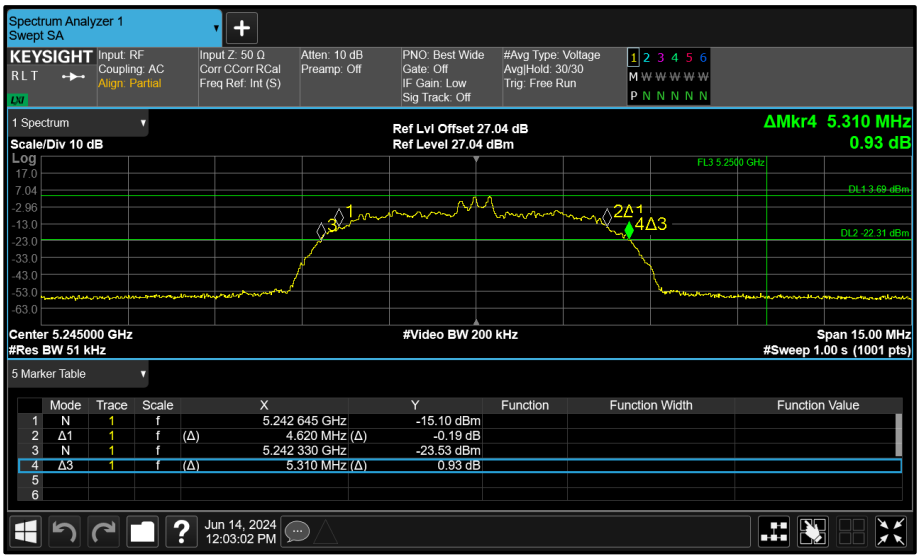

Figure 39 - Core 1 (B) 5245 MHz (CH95) 26 dB and 99% Bandwidth

Test Configuration			
Frequency Range:	5.725-5.850 GHz	Band:	U-NII-3
Limit Clause(s):	15.407(e) RSS-247 6.2.4.1	Test Method(s):	C63.10 6.9.3 789033 D02 v02r01 II.C.2.
Additional Reference(s):	-		

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

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	0.572	-	-	-	≥500.0
5789	0.564	-	-	-	≥500.0
5844	0.564	-	-	-	≥500.0

Table 21 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	0.988	-	-	-	-
5789	0.992	-	-	-	-
5844	0.984	-	-	-	-

Table 22 - 99% Bandwidth Results

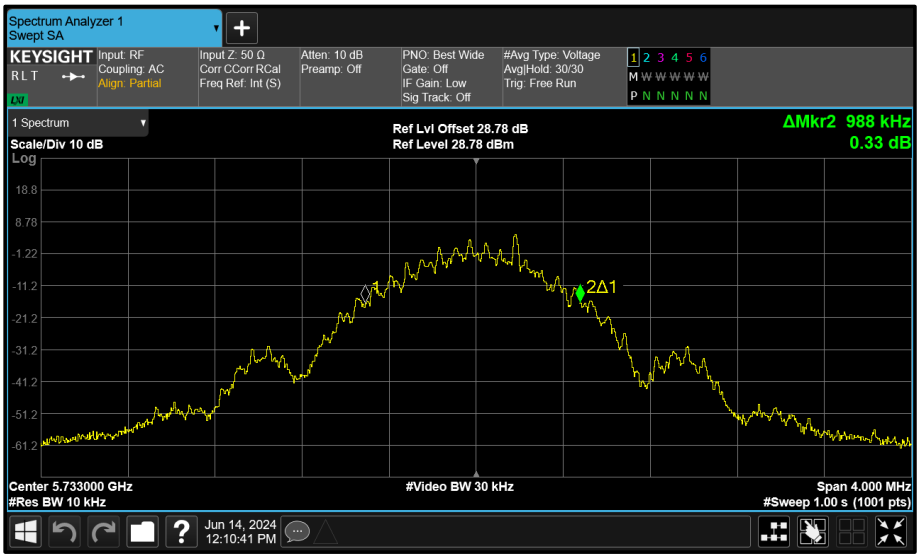

Figure 40 - Core 0 (A) 5733 MHz (CH8) 99% Bandwidth

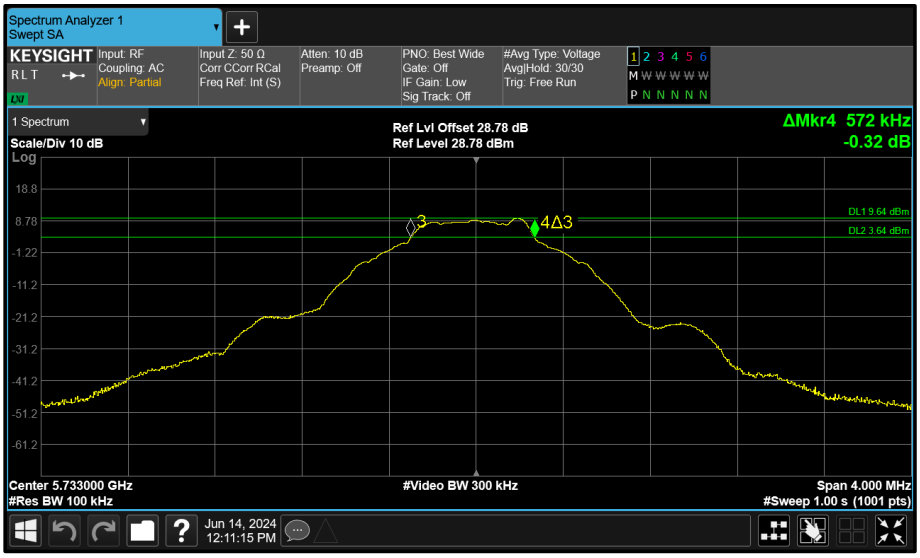

Figure 41 - Core 0 (A) 5733 MHz (CH8) 6 dB Bandwidth

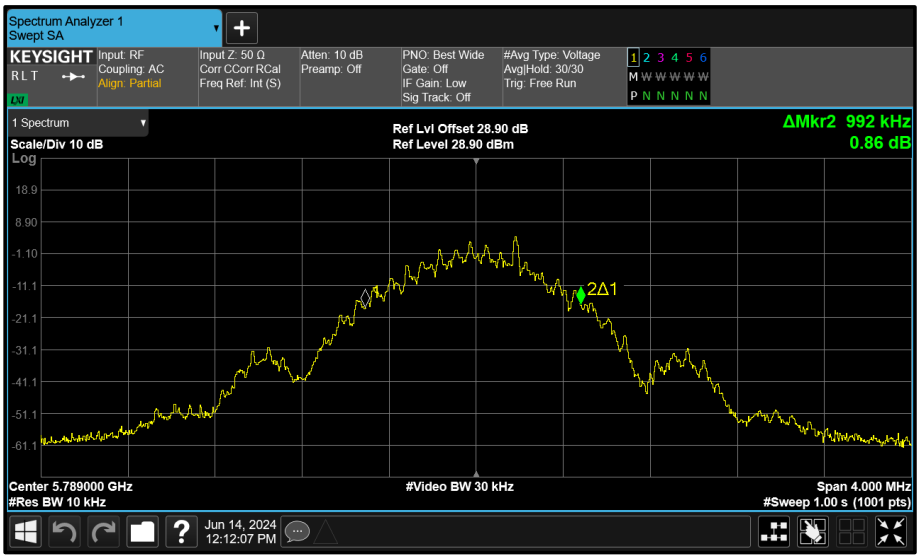

Figure 42 - Core 0 (A) 5789 MHz (CH64) 99% Bandwidth

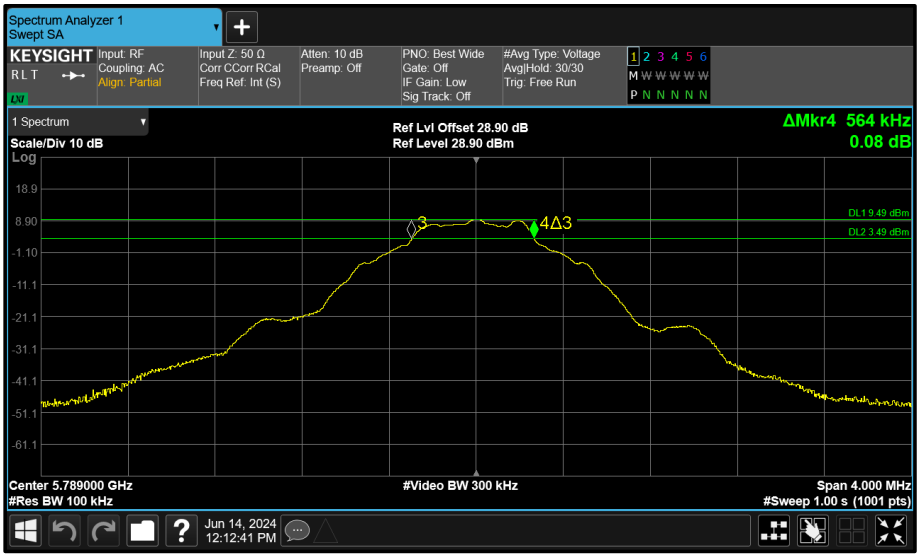

Figure 43 - Core 0 (A) 5789 MHz (CH64) 6 dB Bandwidth

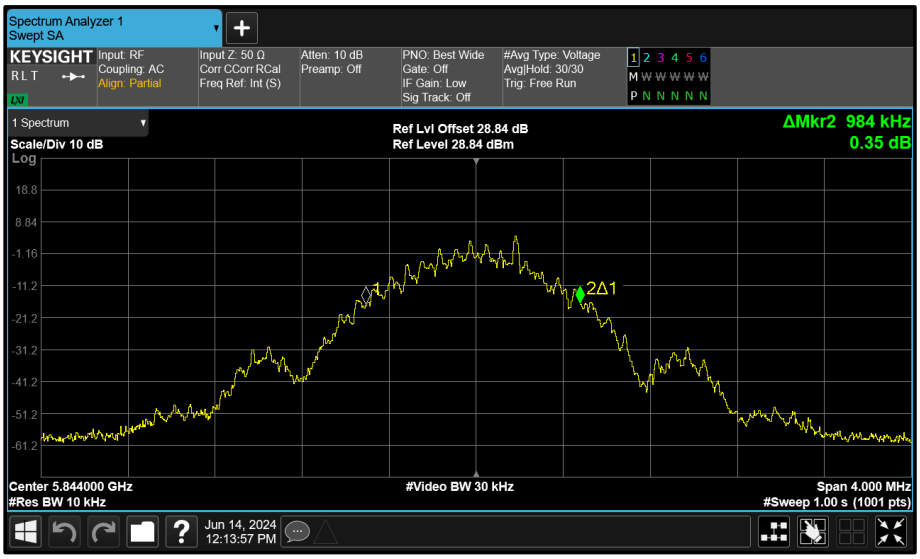

Figure 44 - Core 0 (A) 5844 MHz (CH119) 99% Bandwidth

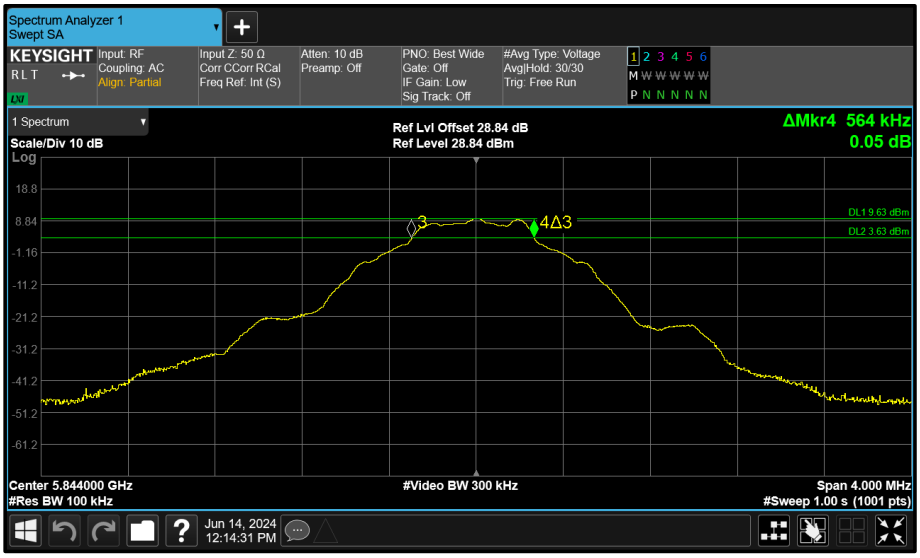

Figure 45 - Core 0 (A) 5844 MHz (CH119) 6 dB Bandwidth

Test Configuration			
Frequency Range:	5.725-5.850 GHz	Band:	U-NII-3
Limit Clause(s):	15.407(e) RSS-247 6.2.4.1	Test Method(s):	C63.10 6.9.3 789033 D02 v02r01 II.C.2.
Additional Reference(s):	-		

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

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	1.880	-	-	-	≥500.0
5789	1.584	-	-	-	≥500.0
5844	1.584	-	-	-	≥500.0

Table 23 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	2.344	-	-	-	-
5789	2.336	-	-	-	-
5844	2.328	-	-	-	-

Table 24 - 99% Bandwidth Results

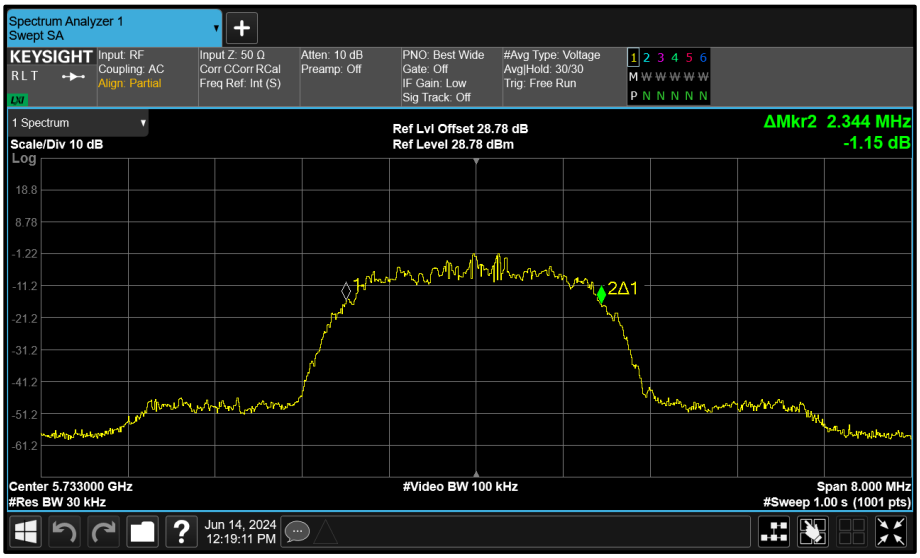

Figure 46 - Core 0 (A) 5733 MHz (CH8) 99% Bandwidth

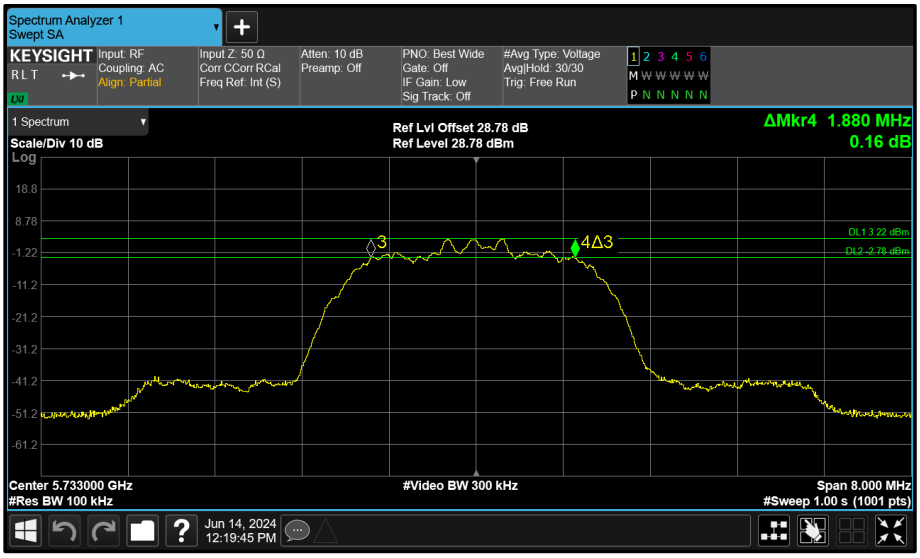

Figure 47 - Core 0 (A) 5733 MHz (CH8) 6 dB Bandwidth

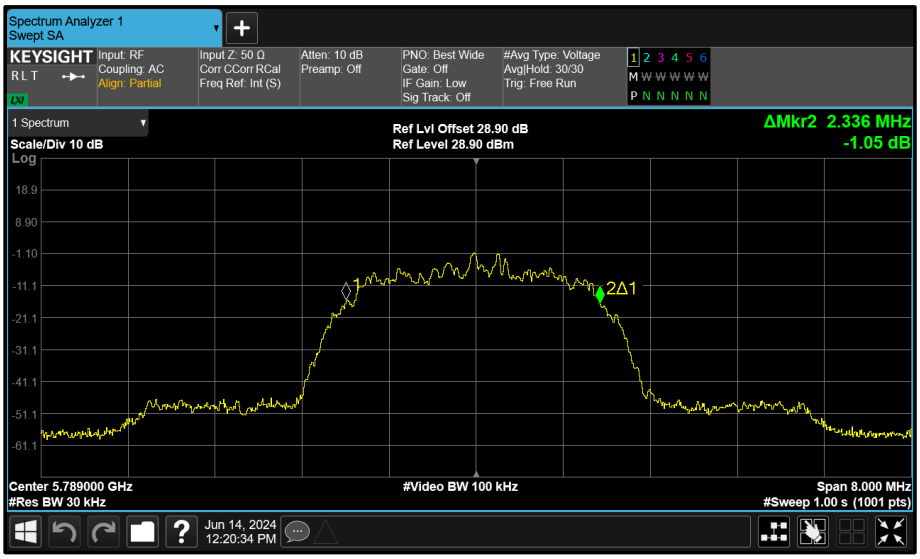

Figure 48 - Core 0 (A) 5789 MHz (CH64) 99% Bandwidth

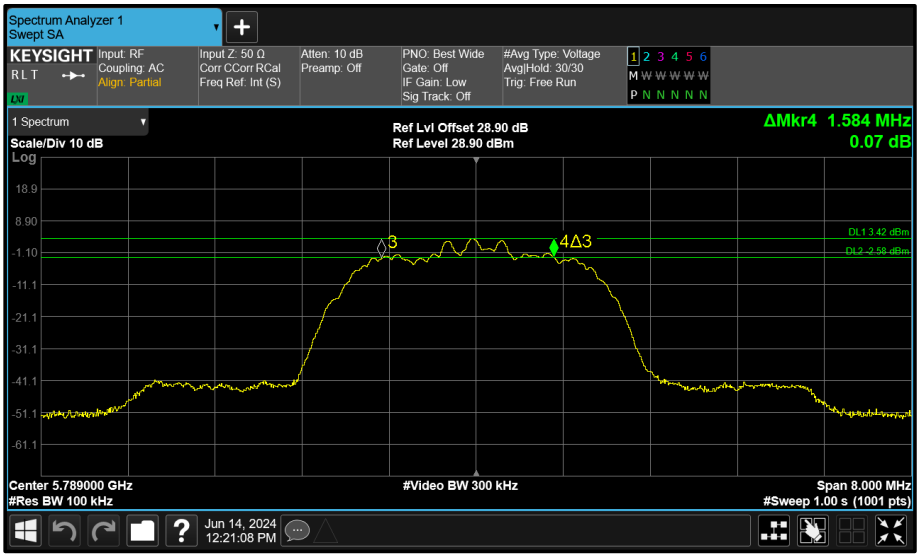

Figure 49 - Core 0 (A) 5789 MHz (CH64) 6 dB Bandwidth

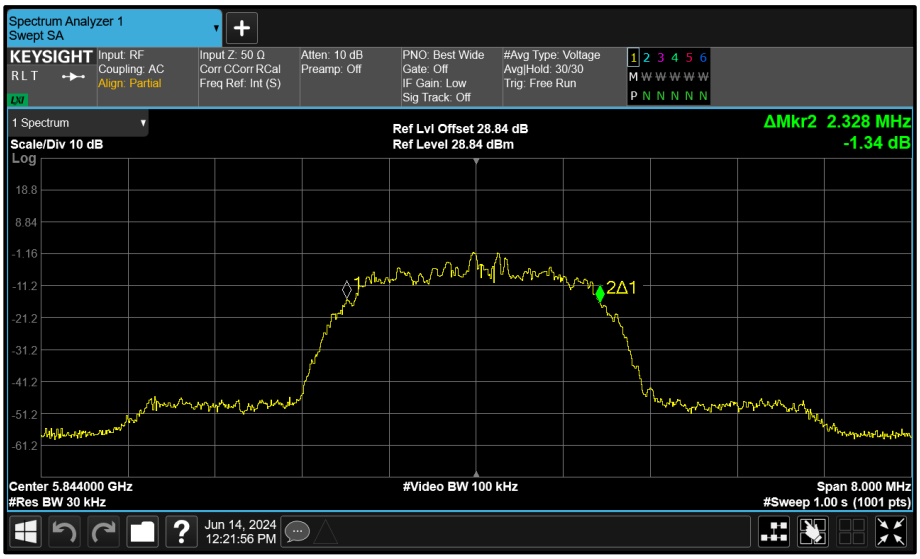

Figure 50 - Core 0 (A) 5844 MHz (CH119) 99% Bandwidth

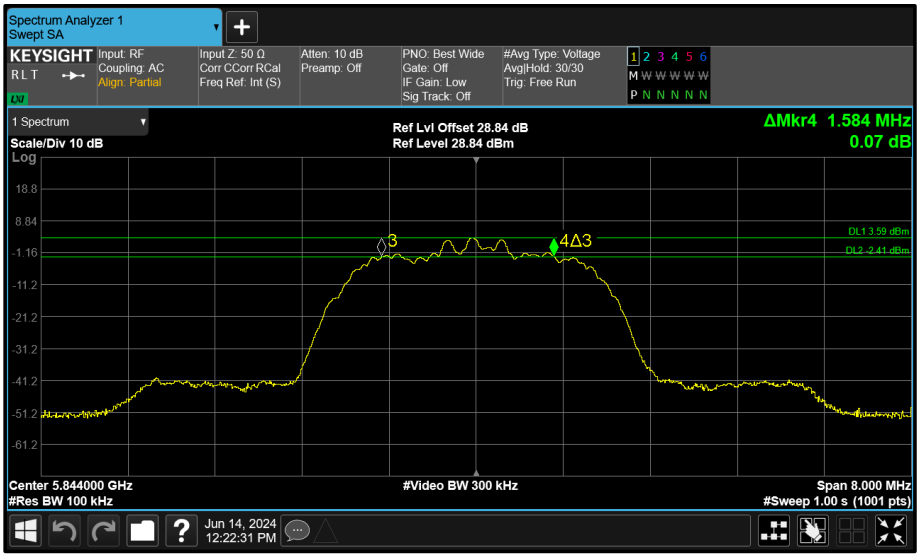

Figure 51 - Core 0 (A) 5844 MHz (CH119) 6 dB Bandwidth

Test Configuration			
Frequency Range:	5.725-5.850 GHz	Band:	U-NII-3
Limit Clause(s):	15.407(e) RSS-247 6.2.4.1	Test Method(s):	C63.10 6.9.3 789033 D02 v02r01 II.C.2.
Additional Reference(s):	-		

DUT Configuration			
Mode:	iPA π/4 DQPSK (8-DH5)	Duty Cycle (%):	-
Antenna Configuration:	SISO	DCCF (dB):	-
Active Port(s):	A (Core 0)	Peak Antenna Gain (dBi):	-

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	1.005	-	-	-	≥500.0
5789	0.660	-	-	-	≥500.0
5844	0.660	-	-	-	≥500.0

Table 25 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	4.635	-	-	-	-
5789	4.635	-	-	-	-
5844	4.680	-	-	-	-

Table 26 - 99% Bandwidth Results

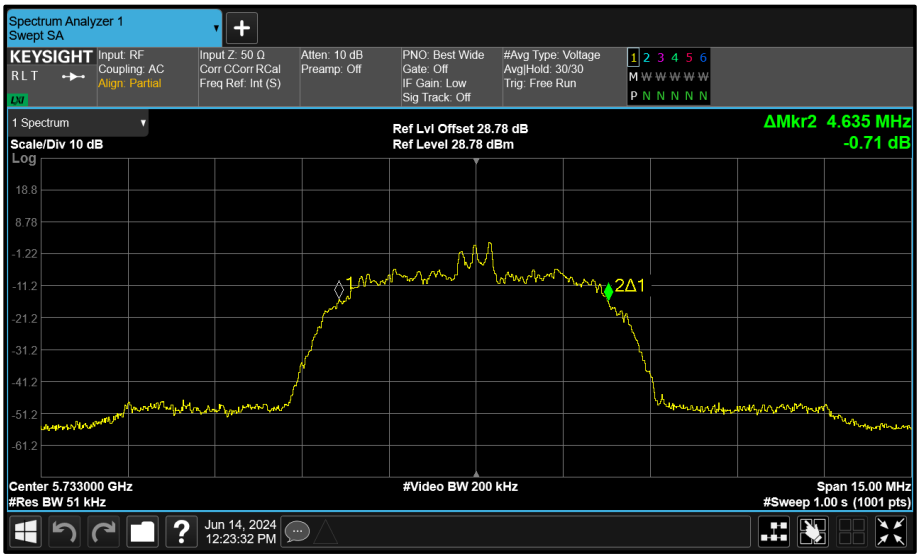

Figure 52 - Core 0 (A) 5733 MHz (CH8) 99% Bandwidth

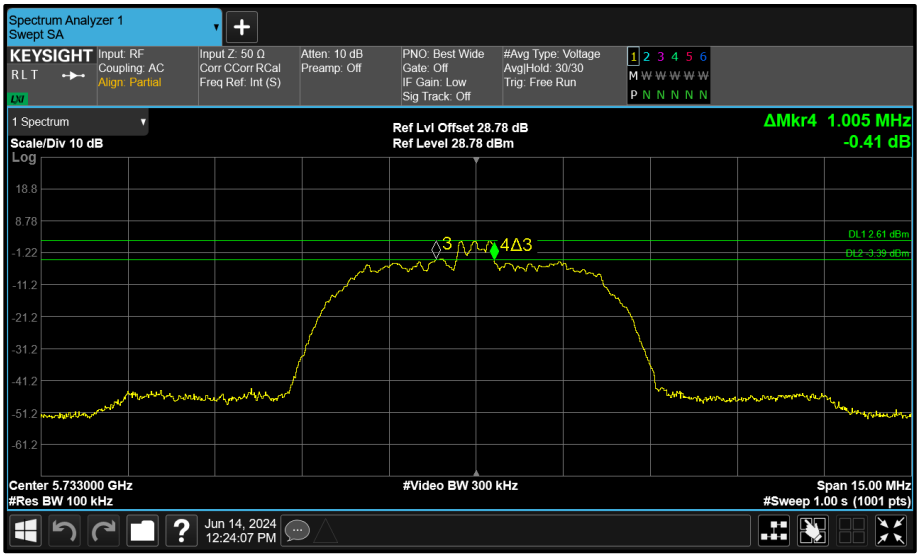

Figure 53 - Core 0 (A) 5733 MHz (CH8) 6 dB Bandwidth

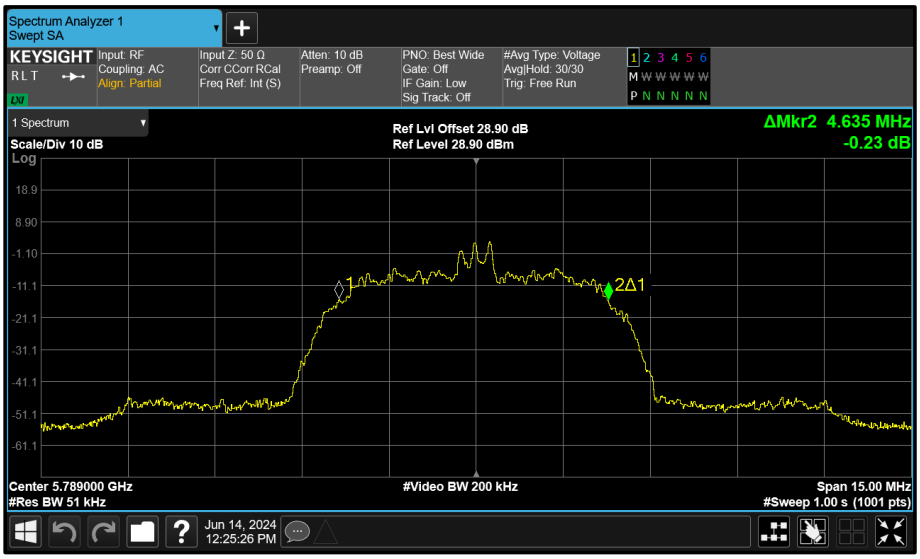

Figure 54 - Core 0 (A) 5789 MHz (CH64) 99% Bandwidth

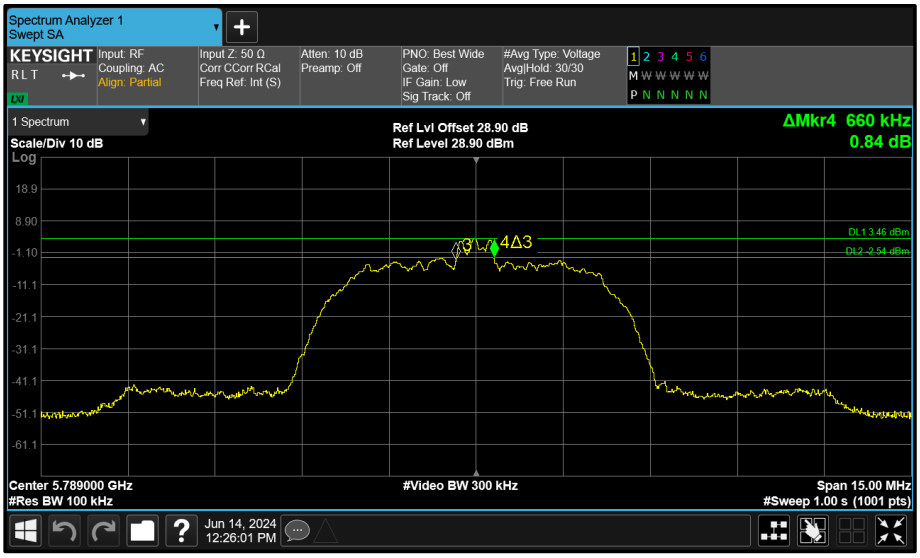

Figure 55 - Core 0 (A) 5789 MHz (CH64) 6 dB Bandwidth

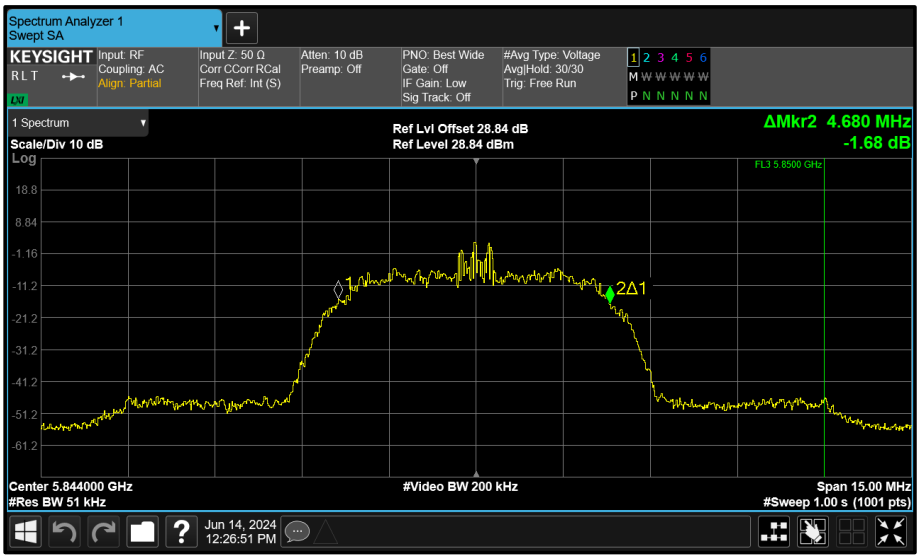

Figure 56 - Core 0 (A) 5844 MHz (CH119) 99% Bandwidth

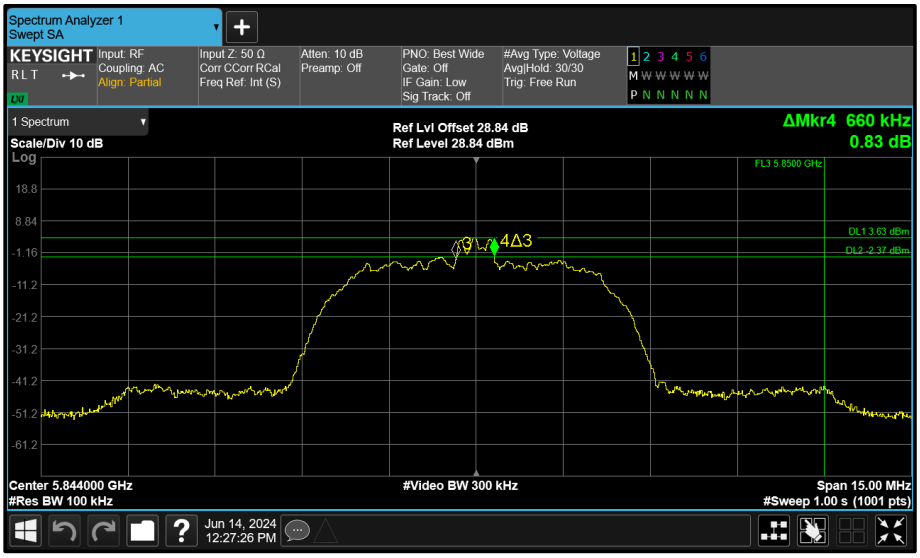

Figure 57 - Core 0 (A) 5844 MHz (CH119) 6 dB Bandwidth

Test Configuration			
Frequency Range:	5.150-5.250 GHz	Band:	U-NII-1
Limit Clause(s):	-	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

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

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	2.776	-	-	≥500.0
5204	-	2.776	-	-	≥500.0
5245	-	2.776	-	-	≥500.0

Table 27 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	2.336	-	-	-
5204	-	2.344	-	-	-
5245	-	2.344	-	-	-

Table 28 - 99% Bandwidth Results

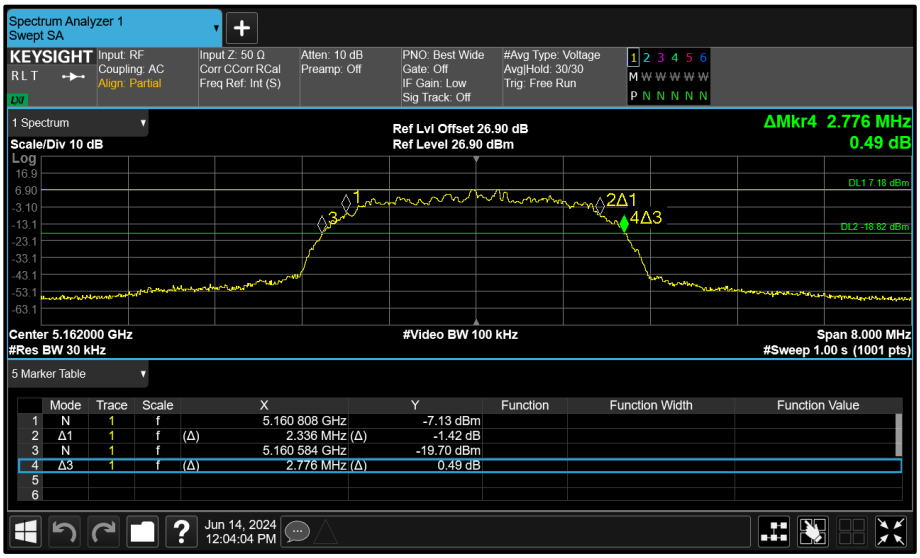

Figure 58 - Core 1 (B) 5162 MHz (CH12) 26 dB and 99% Bandwidth

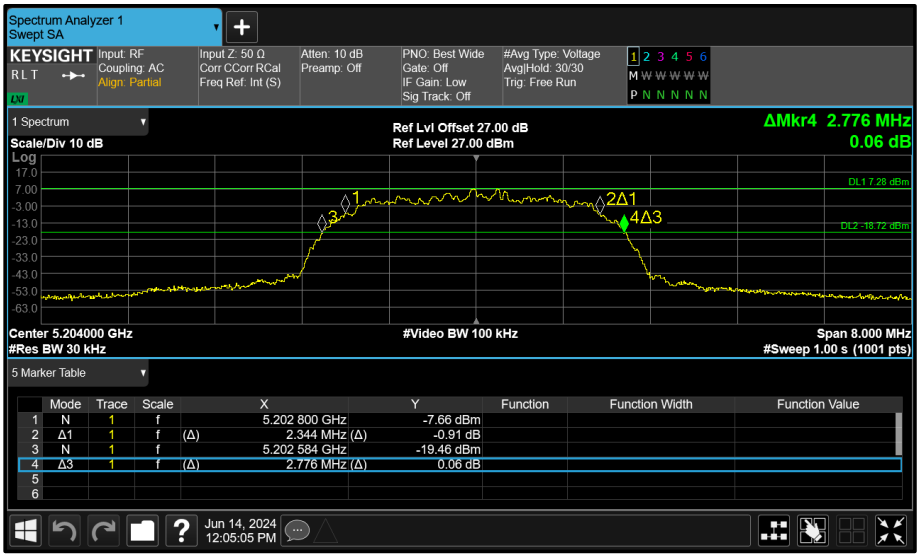

Figure 59 - Core 1 (B) 5204 MHz (CH54) 26 dB and 99% Bandwidth

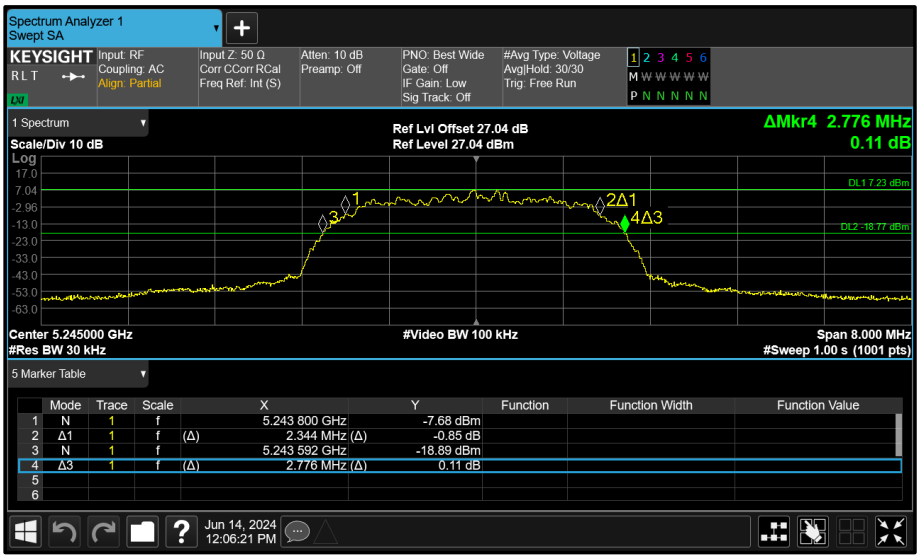

Figure 60 - Core 1 (B) 5245 MHz (CH95) 26 dB and 99% Bandwidth

Test Configuration			
Frequency Range:	5.150-5.250 GHz	Band:	U-NII-1
Limit Clause(s):	-	Test Method(s):	C63.10 6.9.3 C63.10 12.5.2
Additional Reference(s):	-		

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

Test Frequency (MHz)	26 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	5.310	-	-	≥500.0
5204	-	5.325	-	-	≥500.0
5245	-	5.325	-	-	≥500.0

Table 29 - 26 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5162	-	4.620	-	-	-
5204	-	4.620	-	-	-
5245	-	4.620	-	-	-

Table 30 - 99% Bandwidth Results

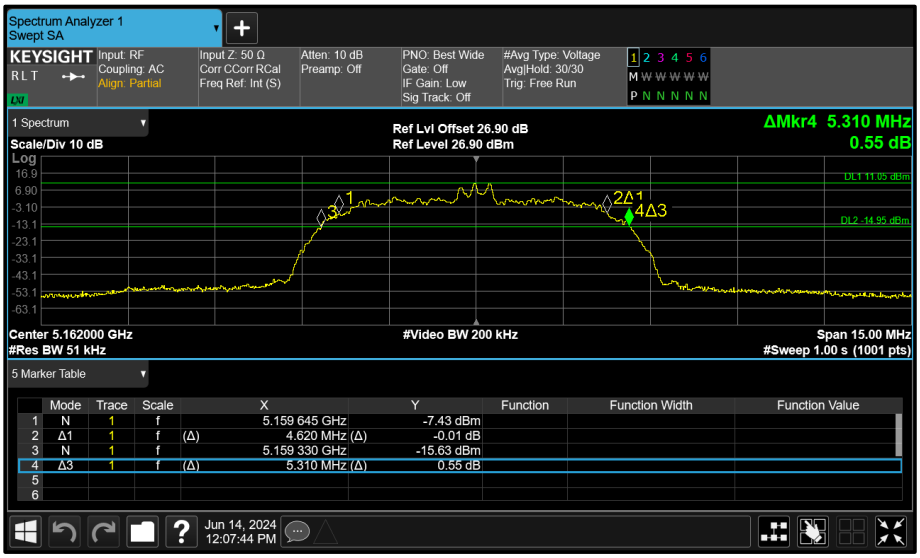

Figure 61 - Core 1 (B) 5162 MHz (CH12) 26 dB and 99% Bandwidth

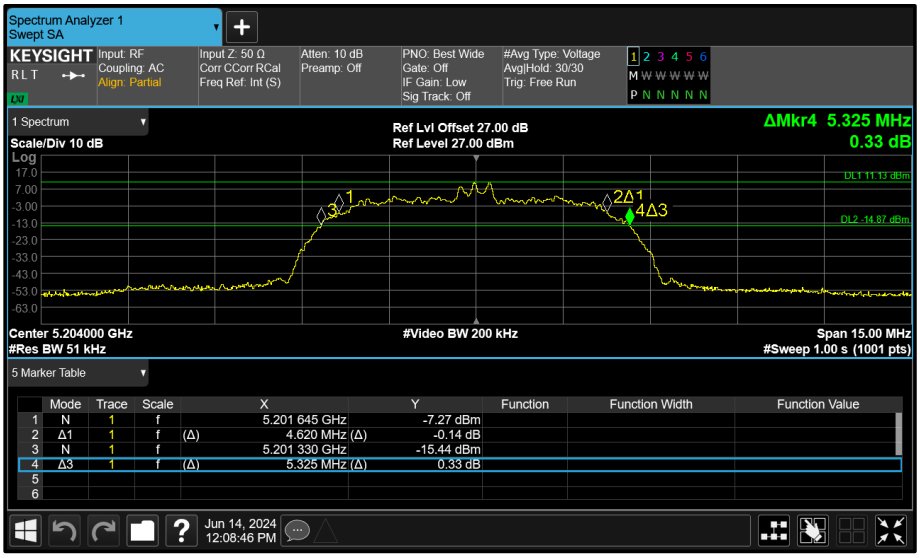

Figure 62 - Core 1 (B) 5204 MHz (CH54) 26 dB and 99% Bandwidth

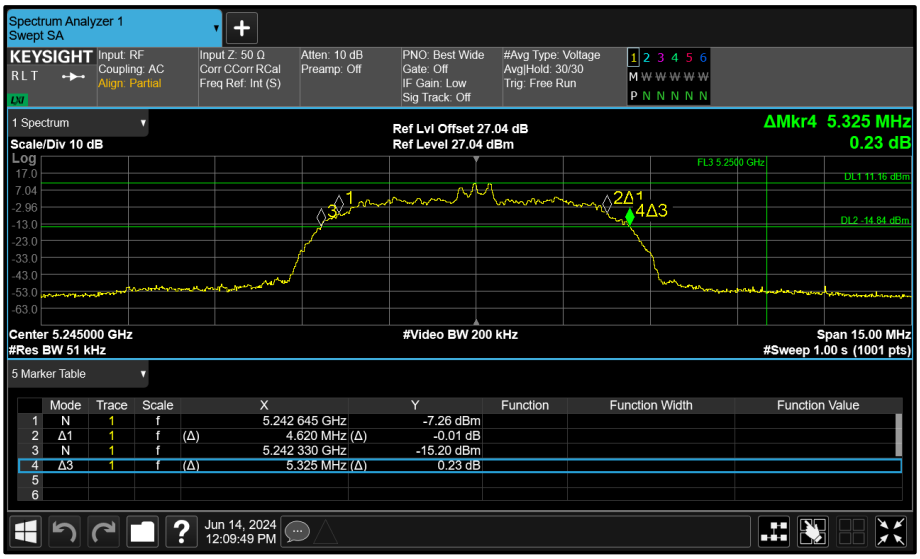

Figure 63 - Core 1 (B) 5245 MHz (CH95) 26 dB and 99% Bandwidth

Test Configuration			
Frequency Range:	5.725-5.850 GHz	Band:	U-NII-3
Limit Clause(s):	15.407(e) RSS-247 6.2.4.1	Test Method(s):	C63.10 6.9.3 789033 D02 v02r01 II.C.2.
Additional Reference(s):	-		

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

Test Frequency (MHz)	6 dB Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	1.912	-	-	-	≥500.0
5789	1.904	-	-	-	≥500.0
5844	1.904	-	-	-	≥500.0

Table 31 - 6 dB Bandwidth Results

Test Frequency (MHz)	99% Bandwidth (MHz)				Limit (kHz)
	A	B	C	D	
5733	2.376	-	-	-	-
5789	2.392	-	-	-	-
5844	2.376	-	-	-	-

Table 32 - 99% Bandwidth Results

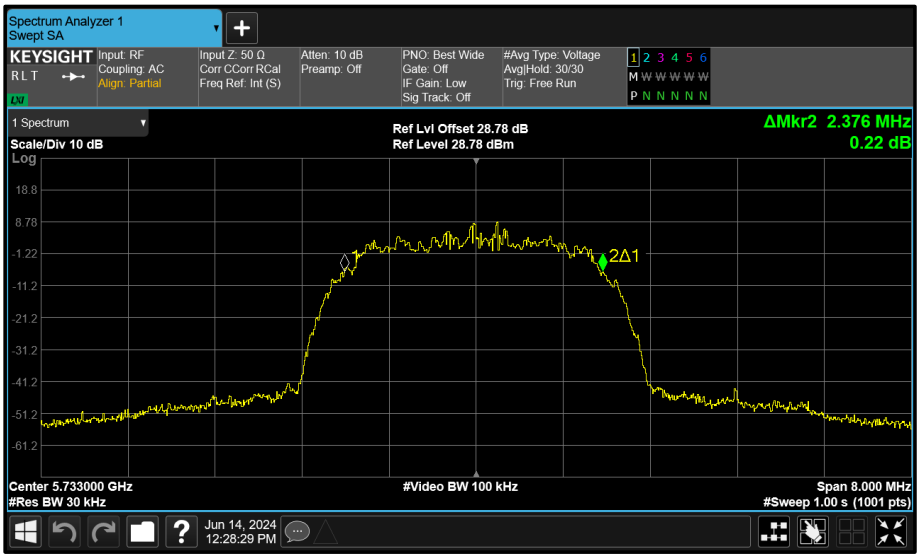

Figure 64 - Core 0 (A) 5733 MHz (CH8) 99% Bandwidth

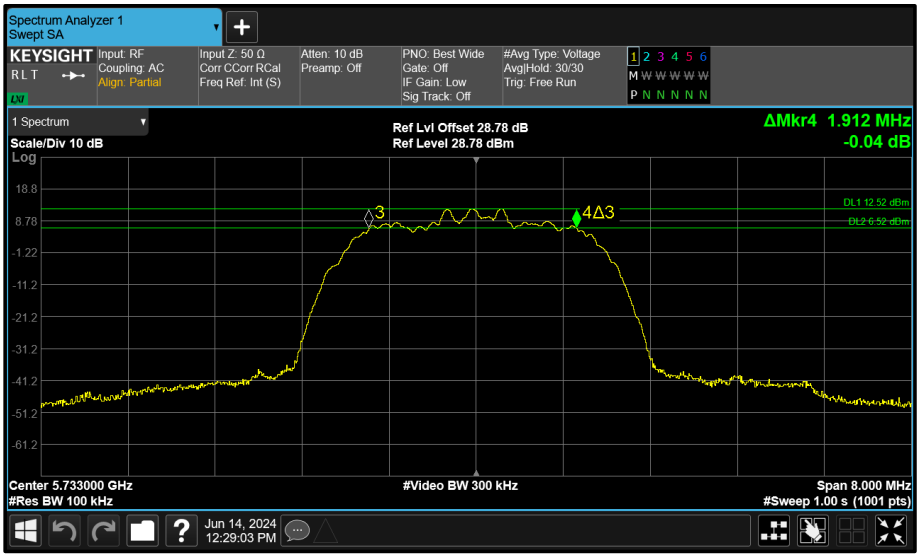

Figure 65 - Core 0 (A) 5733 MHz (CH8) 6 dB Bandwidth

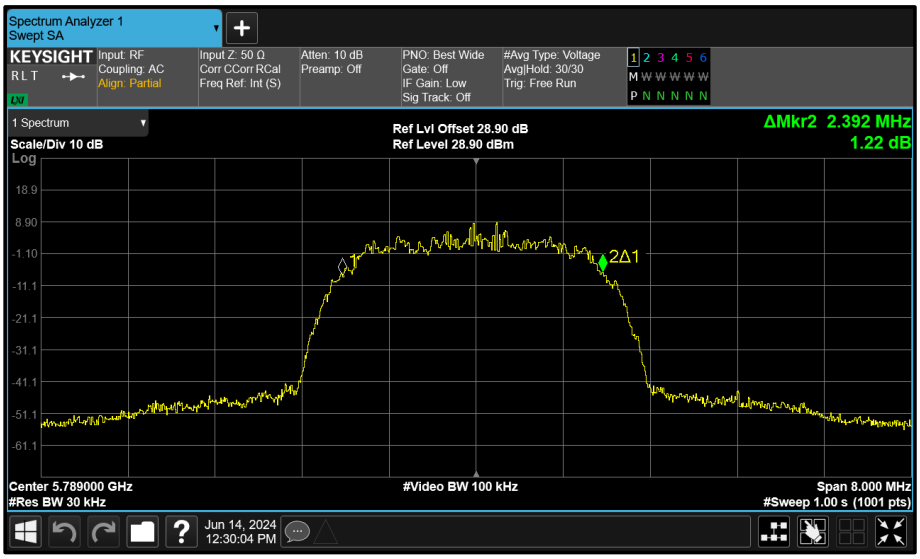

Figure 66 - Core 0 (A) 5789 MHz (CH64) 99% Bandwidth