TEST REPORT

Report Number: 14523740-E3V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
Model	:	A2848
Brand	:	APPLE
FCC ID	:	BCG-E8435A
IC	:	579C-E8435A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C ISED RSS-247 ISSUE 2 ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
July 24, 2023

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538 U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

ACCREDITED
CERT #0751.05

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	07/17/2023	Initial Issue	Chin Pang
V2	07/24/2023	Address TCB's Questions section 6.5, 9	Chin Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

EUT DESCRIPTION: SMART PHONE

MODEL: A2848

BRAND: APPLE

SERIAL NUMBER: C07GQU0010S00003PJ (Conducted)
C07GTH0012C00003PJ (Conducted)
LVMPXQW46R (Radiated)

SAMPLE RECEIPT DATE: FEBRUARY 14, 2023

DATE TESTED: MARCH 03 – JUNE 23, 2023

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

Chin Pang
Senior Lab Engineer
Consumer Technology Division
UL Verification Services Inc.

Prepared By:

Tony Li
Senior Test Engineer
Consumer Technology Division
UL Verification Services Inc.

2. TEST SUMMARY

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	RSS-GEN 6.7	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	RSS-247 5.2 (a)	6dB BW	Complies	None.
15.247 (b) (3)	RSS-247 5.4 (d)	Output Power	Complies	None.
See Comment		Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	RSS-247 5.2 (b)	PSD	Complies	None.
15.247 (d)	RSS-247 5.5	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB662911, RSS-GEN Issue 5 +A1 +A2, and RSS-247 Issue 2.

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4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538 USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

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5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{LAB}
Conducted Antenna Port Emission Measurement	1.94
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	0.450 (Peak), 1.3 (Ave)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.2%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB

Uncertainty figures are valid to a confidence level of 95%.

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6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video),cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC, NB UNII, 802.15.4, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Antenna	Configuration	Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
ANT 4	High Power	2404 - 2476	HDR4	14.97	31.41
	Low Power			9.46	8.83
	High Power		HDR8	16.30	42.66
	Low Power			10.23	10.54
ANT 3	High Power	2404 - 2476	HDR4	16.47	44.36
	Low Power			9.94	9.86
	High Power		HDR8	16.80	47.86
	Low Power			10.28	10.67
BF, ANT 4+ ANT 3	High Power	2404 - 2476	HDR4	18.75	74.99
	Low Power			12.71	18.66
	High Power		HDR8	19.48	88.72
	Low Power			13.23	21.04

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:

Frequency Range (GHz)	ANT 4 (dBi)	ANT 3 (dBi)
2.4	-4.0	-1.5

6.4. SOFTWARE AND FIRMWARE

The EUT firmware version installed during testing was 21.1.304.2213

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X, Y and Z on ANT 4, ANT 3 and 2TX beamforming. It was determined that X (Flatbed) orientation was the worst-case orientation for ANT 3 and ANT 4 and Y (Landscape) for beamforming 2TX.

Radiated band edge, harmonic and spurious emissions from 1GHz to 18GHz were performed with the EUT set to transmit at highest power on Low/Middle/High channels.

High power HDR4 and HDR8 TXBF harmonic spurious 1-18GHz were investigated to determine the worst case and results showed HDR4 was the worst case. Therefore, High Power Beamforming HDR4 mode was set to maximum power based on SISO to cover both SISO and MIMO modes to complies with radiated spurious emissions limits in the restricted bands between 1GHz and 18GHz low/mid/high channel (except the band edge).

Radiated emissions below 30MHz, below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario. There were no emissions found below 30MHz within 20dB of the limit.

For below 1GHz tests were performed with EUT connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop.

Note: In the Radiated Plots and emissions data, ANT0=ANT4 and ANT1=ANT3.

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6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
Laptop	Apple	Macbook Pro	C02VD7SAHV22	BCGA1708
Laptop AC/DC adapter	Liteon Technology	A1424	NSW25679	DoC
EUT AC/DC adapter	Apple	A1720	C3D8417A7R93KVPA8	DoC
Conducted Switch Box	UL	n/a	208281	N/A
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	N/A

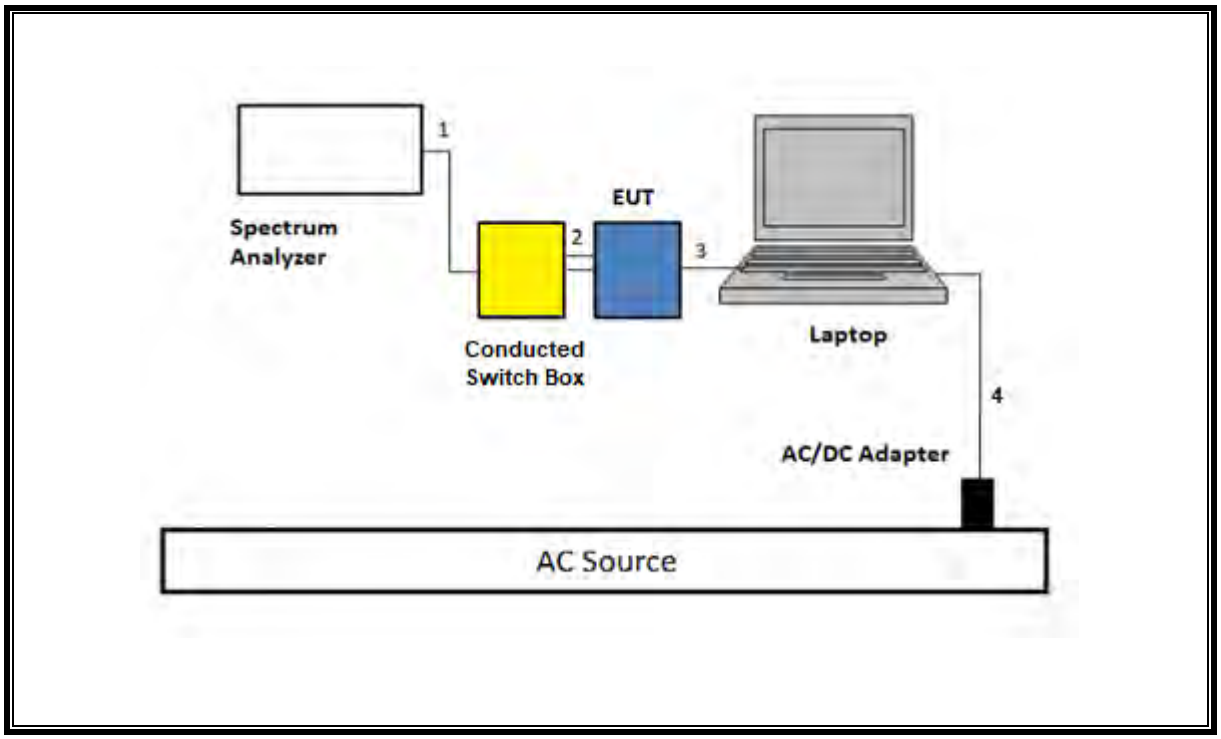
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	SMA	1	SMA	Shielded	0.75	To spectrum Analyzer
2	Antenna	2	SMA	Un-shielded	0.2	To Conducted Switch Box
3	USB-C	1	USB-C	Shielded	1.0	N/A
4	AC	1	AC	Un-shielded	2	N/A

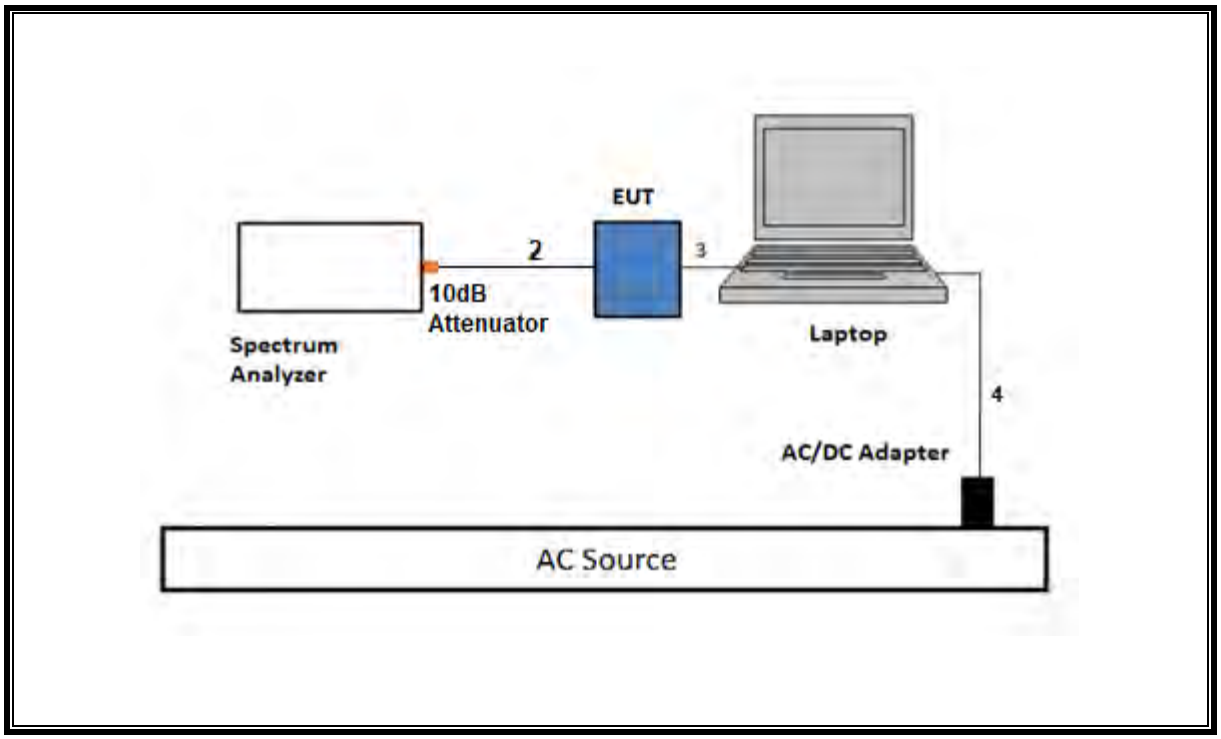
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1	N/A

TEST SETUP

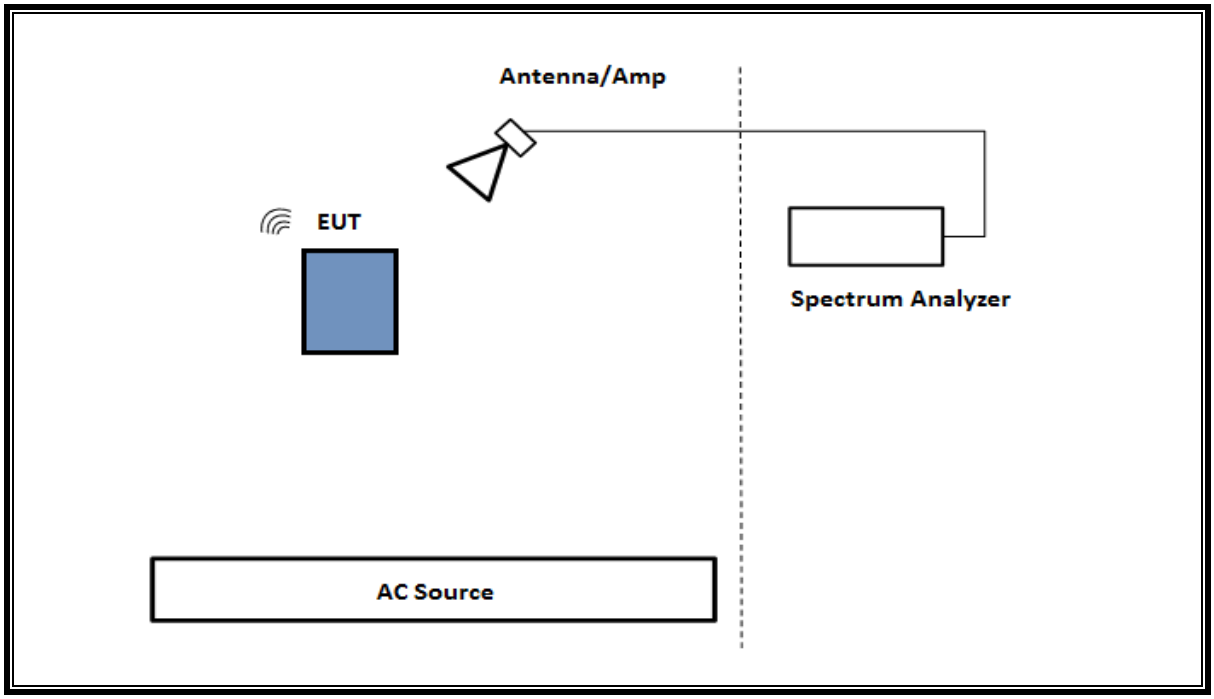
The EUT setup is shown as below. Test software exercised the radio card.

SETUP DIAGRAM FOR CONDUCTED TESTS

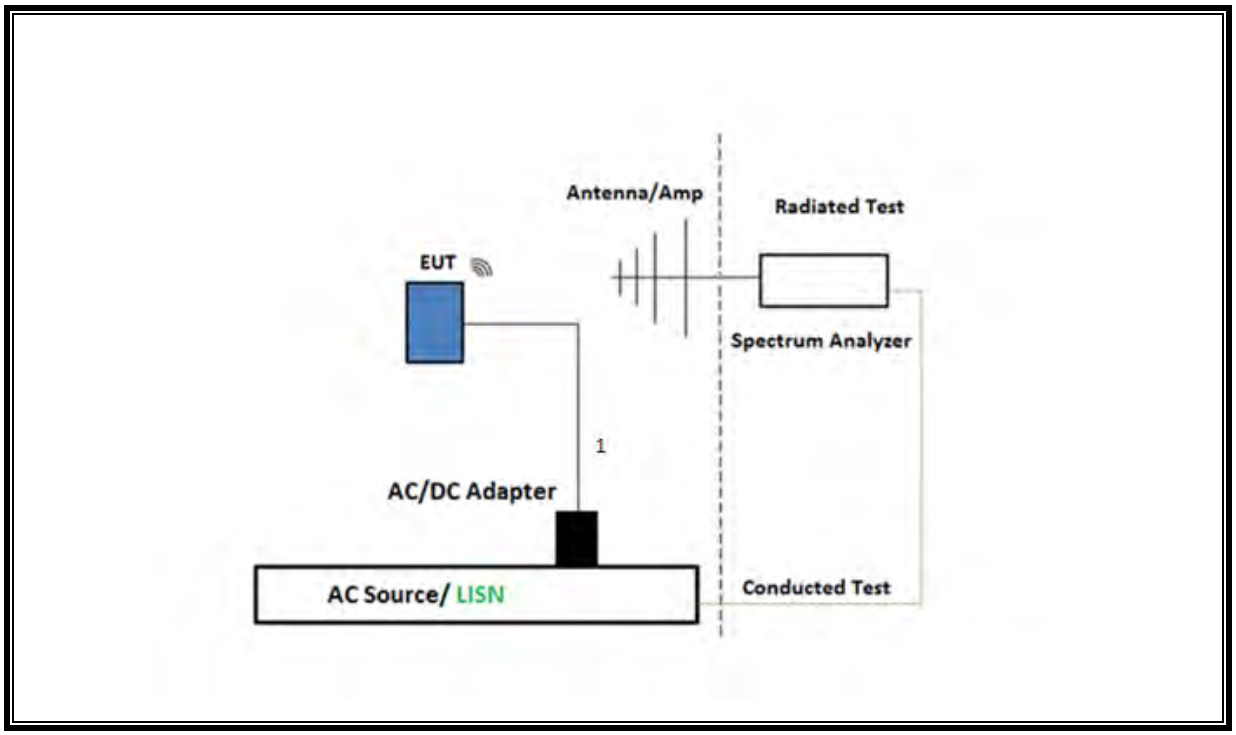




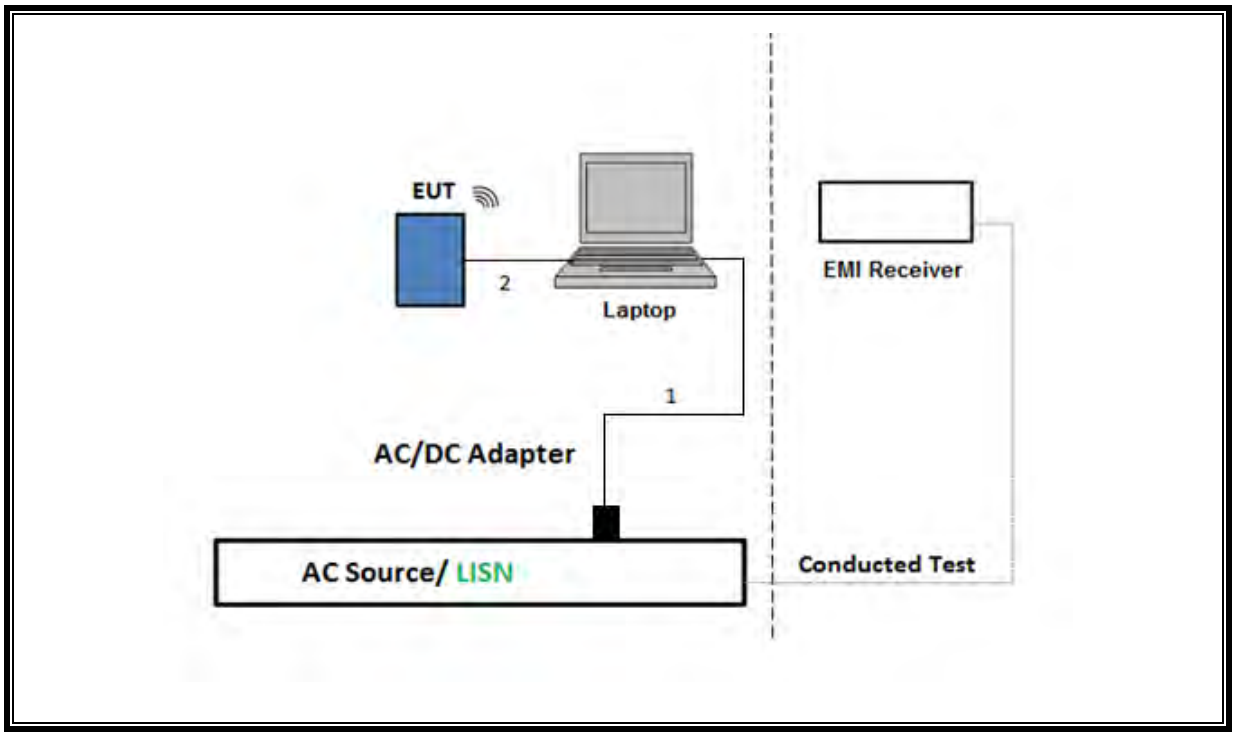
SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz



SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST



TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



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7. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v05r02, Section 6.

6 dB BW: ANSI C63.10 Subclause -11.8.1 RBW ≥ DTS BW

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Measurement using gated average power meter.

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1 & Clause 13

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

Band-edge: ANSI C63.10 Subclause -11.13.3.2 & Clause 13: Integration method -Peak detection

Band-edge: ANSI C63.10 Subclause -11.13.3.3 & Clause 13: Integration method -Trace averaging with continuous transmission at full power

Radiated Band-edge: ANSI C63.10-2013 Section 6.10.5 & 13

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated emissions non-restricted frequency bands ANSI C63.10 Subclause – 11.11 & Clause 13

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4 & 13

NOTE: All conducted antenna port tests for Beamforming applied the same test procedures as HDR normal modes.

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8. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Receiver	Rohde & Schwarz	ESW44	235670	04/30/2024	04/30/2023
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	222362	08/15/2023	08/15/2022
*Antenna Horn, 18 to 26.5GHz	ARA	MWH-1826/B	172353	06/01/2023	06/01/2022
Antenna, Broadband Hybrid,	Sunol Sciences Corp.	JB3	230634	07/28/2023	07/28/2022
RF Filter Box, 1-18GHz	UL-FR1	NA	171875	11/10/2023	11/10/2022
Antenna, Horn 1-18GHz	ETS Lindgren	3117	230300	01/12/2024	01/12/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	226672	01/09/2024	01/09/2023
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	80707	04/28/2023	04/28/2022
Filter Box, 1-18GHz 12 Port	UL-FR1	Frankenstein	216812	09/17/2023	09/17/2022
EMI Receiver	Rohde & Schwarz	ESW44	201502	02/29/2024	02/29/2023
RF Filter Box, 1-18GHz	UL-FR1	NA	171875	11/10/2023	11/10/2022
RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	Frankenstein	231874	04/19/2024	04/19/2023
RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	171583	02/29/2024	02/29/2023
Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170013	07/28/2023	07/28/2022
Antenna, Passive Loop 100KHz to 30MHz	ETS-Lindgren	EM-6872	PRE0179467(170015)	07/28/2023	07/28/2022
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	204041	08/24/2023	08/24/2022
Spectrum Analyzer, PSA, 3Hz to 26.5GHz	Keysight Technologies Inc	E4440A	81311	02/29/2024	02/29/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	80397	02/28/2024	02/28/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	85214	02/28/2024	02/28/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A-544	87738	02/28/2024	02/28/2023
*Conducted Switch Box	N/A	CSB	221008	06/21/2023	06/21/2022
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	Verified/Characterized before use	
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236355	Verified/Characterized before use	
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90756	01/31/2024	01/31/2023
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	01/31/2024	01/31/2023

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AC Line Conducted					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	93091	02/29/2024	02/29/2023
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01-480V	175764	01/31/2024	01/31/2023
Transient Limiter	TE	TBFL1	207996	07/15/2023	07/15/2022
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, May 1 , 2023		
Conducted Software	UL	UL EMC	2020.8.16		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Mar 3, 2023		

*Testing is completed before equipment expiration date.

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
HDR4	4.000	4.000	1.000	100.00%	0.00	0.010
HDR8	4.000	4.000	1.000	100.00%	0.00	0.010

Note: There are the same DC factor on 1TX and 2TX.

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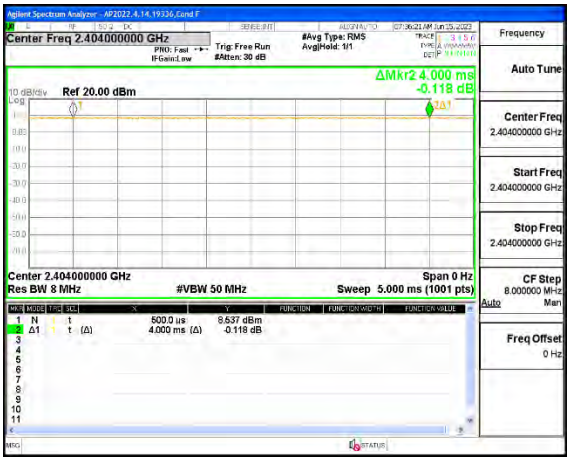
DUTY CYCLE PLOTS

DUTY CYCLE HDR4



DUTY CYCLE HDR8

9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Only High Power modes result is reported, it covers all Low Power modes. Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

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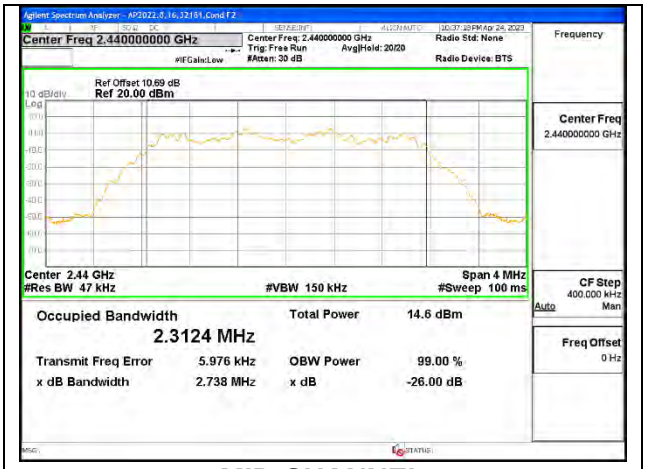
9.2.1. HIGH POWER HDR (HDR4)

ANT 4

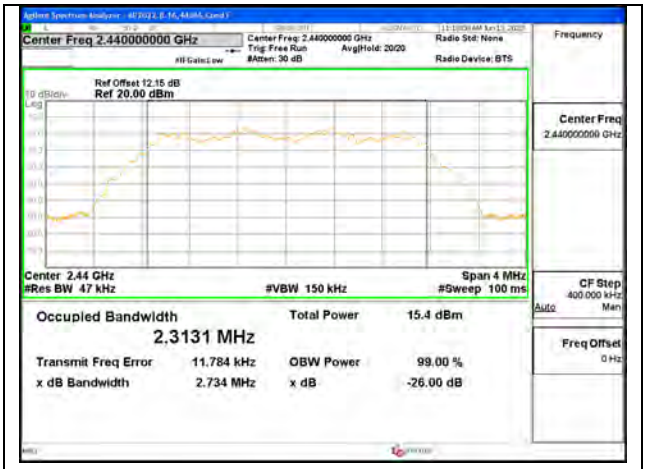
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.314
Middle	2440	2.314
High	2476	2.315



MID CHANNEL

ANT 3

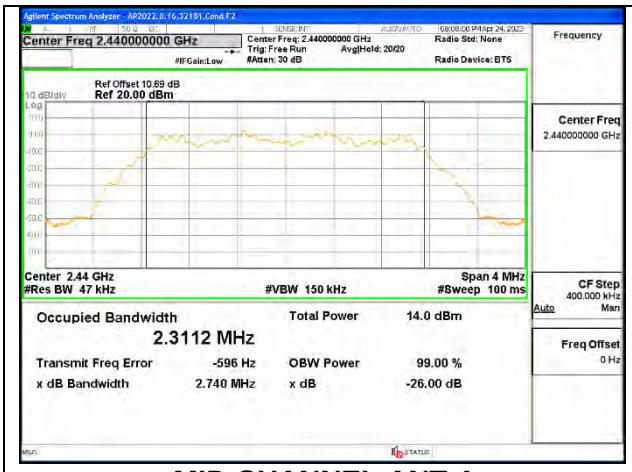
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.3125
Middle	2440	2.3131
High	2476	2.3122



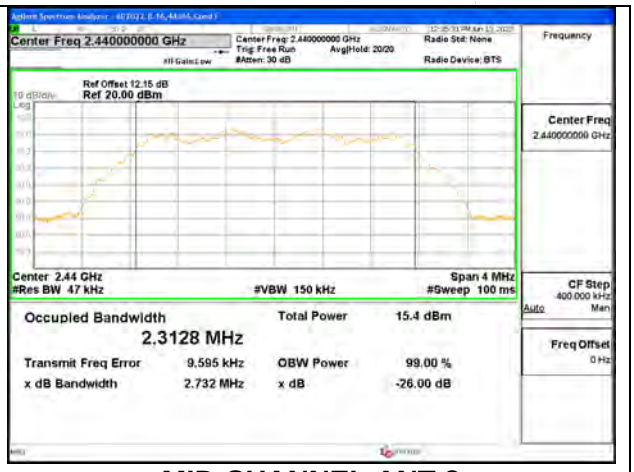
MID CHANNEL

9.2.2. HIGH POWER HDR TXBF (HDR4)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	2.3126	2.3127
Middle	2440	2.3112	2.3128
High	2476	2.3120	2.3127



MID CHANNEL ANT 4



MID CHANNEL ANT 3

9.2.3. HIGH POWER HDR (HDR8)

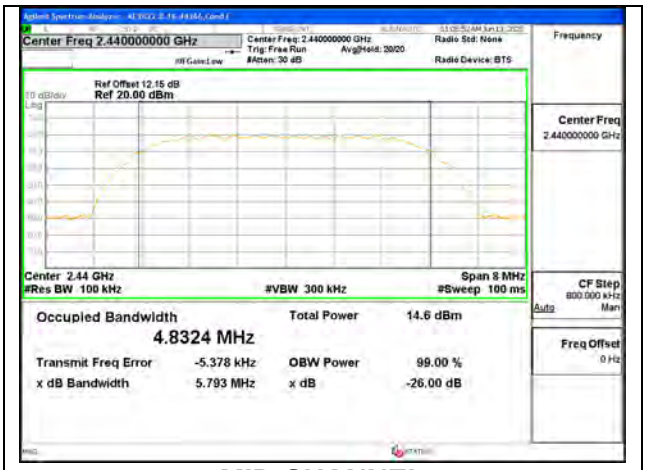
ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	4.8289
Middle	2440	4.8286
High	2476	4.8316

MID CHANNEL

ANT 3

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	4.8341
Middle	2440	4.8324
High	2476	4.8369

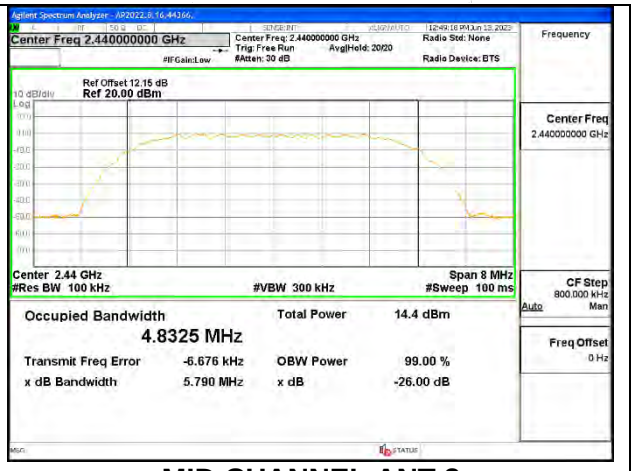


MID CHANNEL

9.2.4. HIGH POWER HDR TXBF (HDR8)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	4.8289	4.8341
Middle	2440	4.8308	4.8325
High	2476	4.8312	4.8297

MID CHANNEL ANT 4



MID CHANNEL ANT 3

9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 5.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

The 6dB bandwidth was measured for the narrowest bandwidth mode, HDR4, to demonstrate compliance with the minimum required bandwidth of 500 kHz. Other modes were not tested as their bandwidth is greater than the HDR4 mode, as demonstrated by the 99% bandwidth measurements performed on all modes.

Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

Only High Power modes result is reported, it covers all Low Power modes.

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9.3.1. HIGH POWER HDR (HDR4)

ANT 4

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	2.088	0.5
Middle	2440	2.072	0.5
High	2476	2.116	0.5

MID CHANNEL

ANT 3

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	2.112	0.5
Middle	2440	2.108	0.5
High	2476	2.092	0.5

MID CHANNEL

9.3.2. HIGH POWER HDR4 TXBF

Channel	Frequency (MHz)	6 dB Bandwidth ANT 4 (MHz)	6 dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low	2404	2.116	2.076	0.5
Mid	2440	2.104	2.120	0.5
High	2476	2.084	2.104	0.5

MID CHANNEL ANT 4

MID CHANNEL ANT 3

9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

Measurements perform using a wideband RF power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband peak power sensor. Peak output power was read directly from the power meter.

DIRECTIONAL ANTENNA GAIN

For 1 TX:
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2 TX:
Tx chains are correlated for power and PSD due to the device supporting Beamforming mode. The directional gains are as follows:

Band (GHz)	ANT 4 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	-4.00	-1.50	-2.57	0.35

Directional Gain Calculation:

ANSI C63.10-2013 section 14.4.3

Uncorrelated directional gain=10*LOG((10^(Ant1/10)+10^(Ant2/10))/2)
Correlated directional Gain=10*LOG(((10^(Ant1/20)+10^(Ant2/20))^2)/2)

Sample Calculation:

Ant4=-4.0, Ant3=-1.5

Uncorrelated Antenna gain=10log[(10^(-4.0/10)+10^(-1.5/10))/2]=-2.57dBi

Correlated Antenna gain=10log[(10^(-4.0/20)+10^(-1.5/20))^2)/2]=0.35dBi

RESULTS

9.4.1. HIGH POWER HDR (HDR4)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	14.75	30	-15.25
Middle	2440	14.97	30	-15.03
High	2476	14.77	30	-15.23

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.41	30	-13.59
Middle	2440	16.39	30	-13.61
High	2476	16.47	30	-13.53

9.4.2. HIGH POWER HDR TXBF (HDR4)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading ANT 4 (dBm)	Peak Power Reading ANT 3 (dBm)	Total Corr'd Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	14.79	16.44	18.70	30.00	-11.30
Middle	2440	14.97	16.39	18.75	30.00	-11.25
High	2476	14.80	16.39	18.68	30.00	-11.32

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9.4.3. HIGH POWER HDR (HDR8)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.30	30	-13.70
Middle	2440	16.22	30	-13.78
High	2476	16.21	30	-13.79

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.77	30	-13.23
Middle	2440	16.80	30	-13.20
High	2476	16.76	30	-13.24

9.4.4. HIGH POWER HDR TXBF (HDR8)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading ANT 4 (dBm)	Peak Power Reading ANT 3 (dBm)	Total Corr'd Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	16.02	16.77	19.42	30.00	-10.58
Middle	2440	16.24	16.69	19.48	30.00	-10.52
High	2476	16.05	16.79	19.45	30.00	-10.55

9.4.5. LOW POWER HDR (HDR4)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.44	30	-20.56
Middle	2440	9.46	30	-20.54
High	2476	9.35	30	-20.65

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.85	30	-20.15
Middle	2440	9.76	30	-20.24
High	2476	9.94	30	-20.06

9.4.6. LOW POWER HDR TXBF (HDR4)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading ANT 4 (dBm)	Peak Power Reading ANT 3 (dBm)	Total Corr'd Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.34	9.74	12.55	30.00	-17.45
Middle	2440	9.44	9.95	12.71	30.00	-17.29
High	2476	9.34	9.94	12.66	30.00	-17.34

9.4.7. LOW POWER HDR (HDR8)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	10.23	30	-19.77
Middle	2440	10.22	30	-19.78
High	2476	10.12	30	-19.88

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	10.19	30	-19.81
Middle	2440	10.28	30	-19.72
High	2476	10.23	30	-19.77

9.4.8. LOW POWER HDR TXBF (HDR8)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Peak Power Reading ANT 4 (dBm)	Peak Power Reading ANT 3 (dBm)	Total Corr'd Power (dBm)	Limit (dBm)	Margin (dB)
Low	2404	10.24	10.13	13.20	30.00	-16.80
Middle	2440	10.27	10.17	13.23	30.00	-16.77
High	2476	10.07	10.12	13.11	30.00	-16.89

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband RF power meter.

The power output was measured on the EUT antenna port using SMA cable with 10dB attenuator connected to a power meter via wideband average power sensor. Gated average output power was read directly from power meter.

RESULTS

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9.5.1. HIGH POWER HDR (HDR4)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	12.32
Middle	2440	12.48
High	2476	12.31

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.95
Middle	2440	13.92
High	2476	13.98

9.5.2. HIGH POWER HDR TXBF (HDR4)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	12.31	13.94	16.21
Middle	2440	12.48	13.98	16.30
High	2476	12.39	13.92	16.23

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9.5.3. HIGH POWER HDR (HDR8)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.42
Middle	2440	13.43
High	2476	13.33

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.96
Middle	2440	13.97
High	2476	13.94

9.5.4. HIGH POWER HDR TXBF (HDR8)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	13.32	13.91	16.64
Middle	2440	13.45	13.81	16.64
High	2476	13.29	13.91	16.62

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9.5.5. LOW POWER HDR (HDR4)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	6.92
Middle	2440	6.97
High	2476	6.91

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	7.42
Middle	2440	7.34
High	2476	7.36

9.5.6. LOW POWER HDR TXBF (HDR4)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	6.85	7.34	10.11
Middle	2440	6.96	7.42	10.21
High	2476	6.94	7.46	10.22

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9.5.7. LOW POWER HDR (HDR8)

ANT 4

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	7.48
Middle	2440	7.42
High	2476	7.40

ANT 3

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	7.45
Middle	2440	7.43
High	2476	7.41

9.5.8. LOW POWER HDR TXBF (HDR8)

Tested By:	44366
Date:	6/14/2023

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	7.41	7.35	10.39
Middle	2440	7.43	7.44	10.45
High	2476	7.32	7.40	10.37

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9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

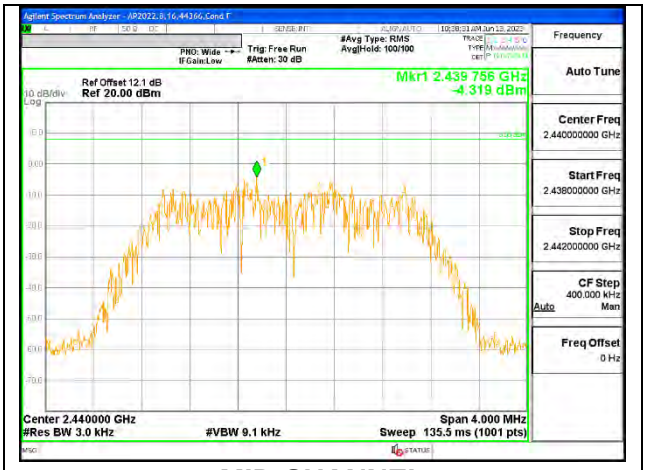
RESULTS

Only High-Power modes result is reported, it covers all Low Power modes

9.6.1. HIGH POWER HDR (HDR4)

ANT 4

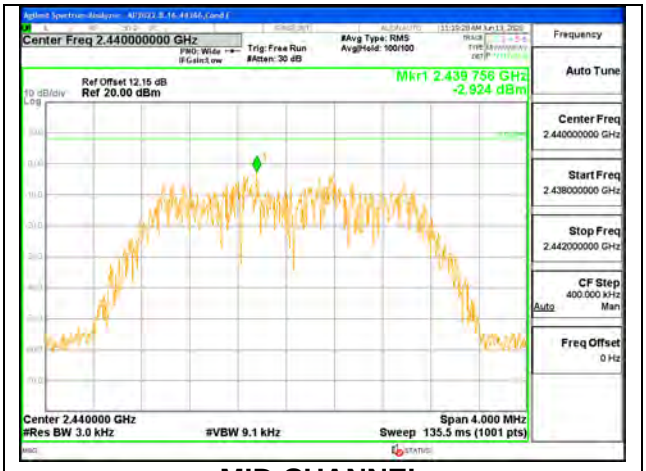
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-4.540	8	-12.54
Middle	2440	-4.319	8	-12.32
High	2476	-4.152	8	-12.15



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-2.866	8	-10.87
Middle	2440	-2.924	8	-10.92
High	2476	-2.885	8	-10.89



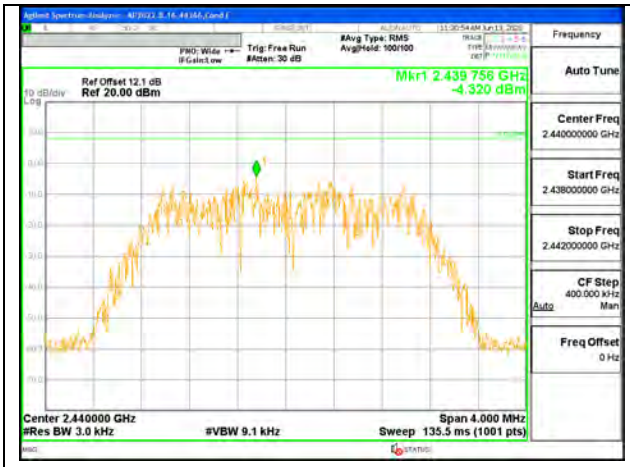
MID CHANNEL

9.6.2. HIGH POWER HDR TXBF (HDR4)

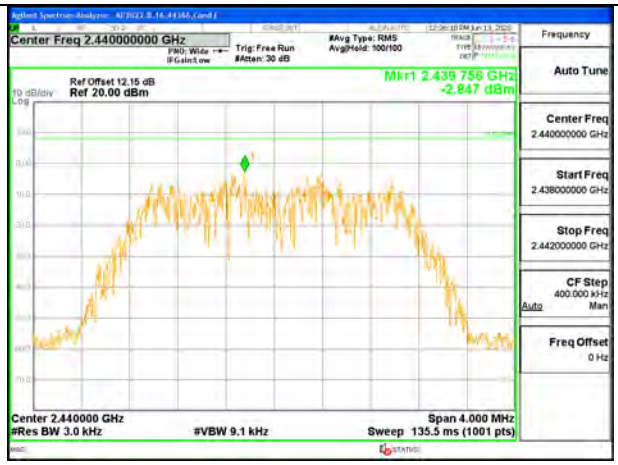
Note: Test procedures and setting are same as HDR normal mode.

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2404	-4.547	-2.926	-0.65	8.0	-8.7
Mid	2440	-4.320	-2.847	-0.51	8.0	-8.5
High	2476	-4.421	-2.919	-0.60	8.0	-8.6



MID CHANNEL ANT 4

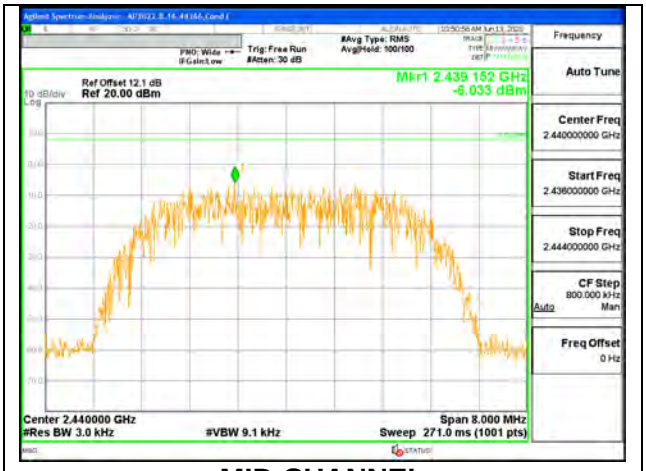


MID CHANNEL ANT 3

9.6.3. HIGH POWER HDR (HDR8)

ANT 4

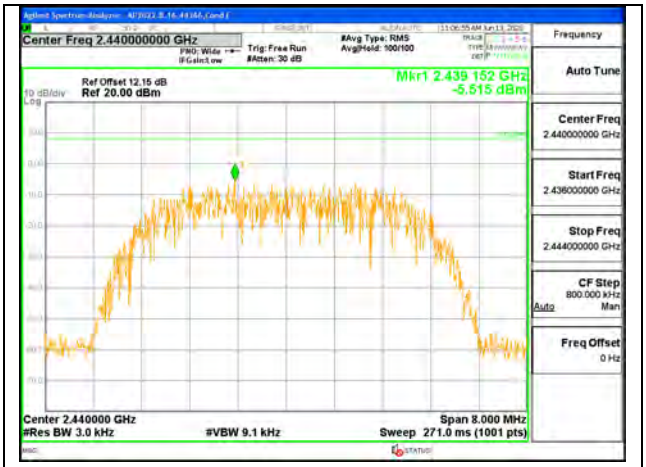
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-6.053	8	-14.05
Middle	2440	-6.033	8	-14.03
High	2476	-6.133	8	-14.13



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-5.526	8	-13.53
Middle	2440	-5.515	8	-13.52
High	2476	-5.553	8	-13.55



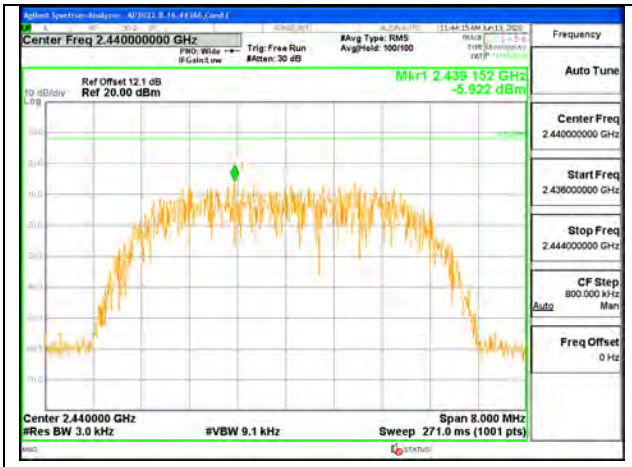
MID CHANNEL

9.6.4. HIGH POWER HDR TXBF (HDR8)

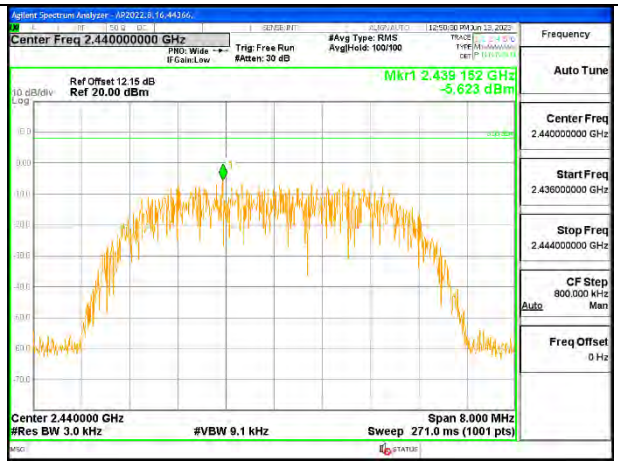
Note: Test procedures and setting are same as HDR normal mode.

PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2404	-6.196	-5.528	-2.84	8.0	-10.8
Mid	2441	-5.922	-5.623	-2.76	8.0	-10.8
High	2478	-6.177	-5.544	-2.84	8.0	-10.8



MID CHANNEL ANT 4



MID CHANNEL ANT 3

9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

RSS-247 5.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dBc.

RESULTS

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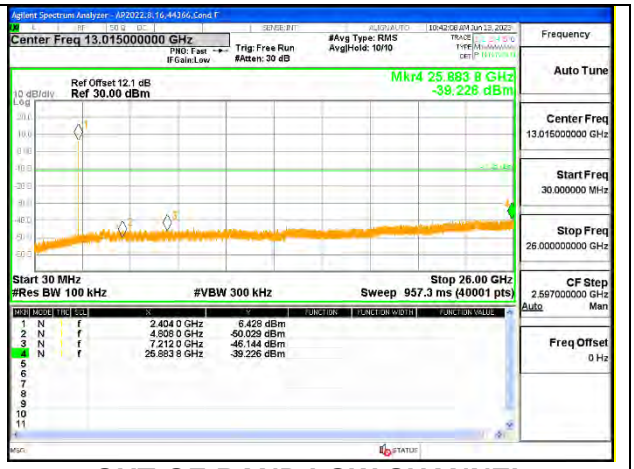
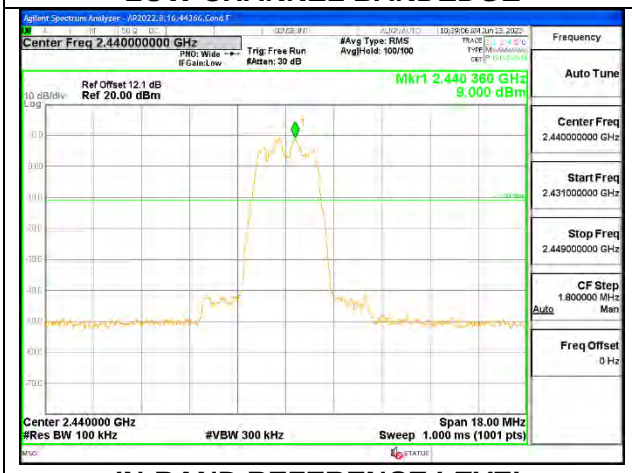
9.7.1. HIGH POWER HDR (HDR4)

ANT 4

LOW CHANNEL BANDEDGE



OUT-OF-BAND LOW CHANNEL



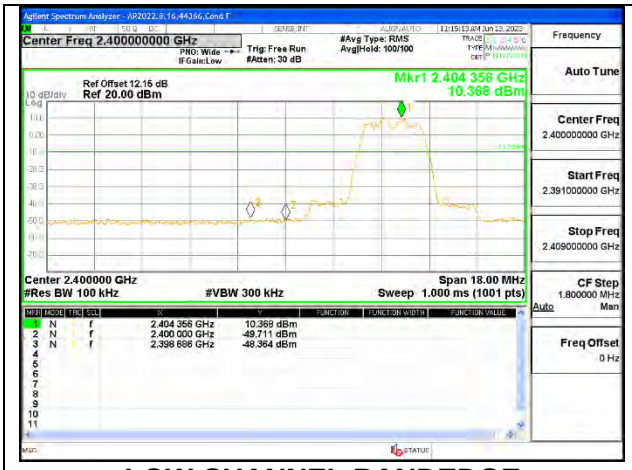
IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

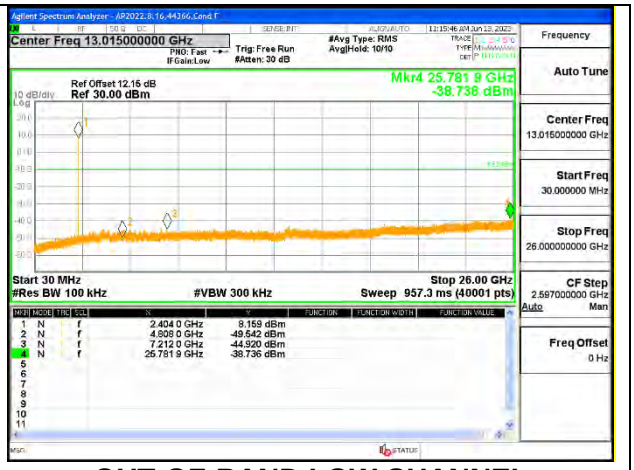
HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

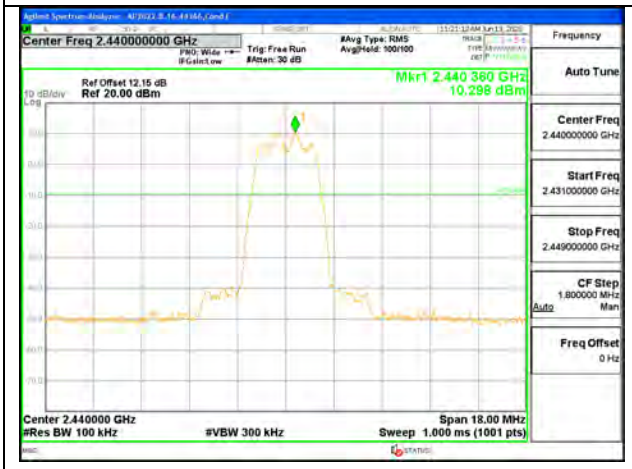
ANT 3



LOW CHANNEL BANDEDGE

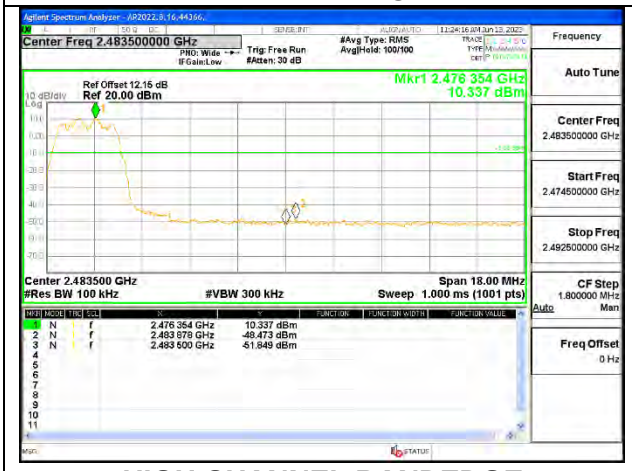


OUT-OF-BAND LOW CHANNEL

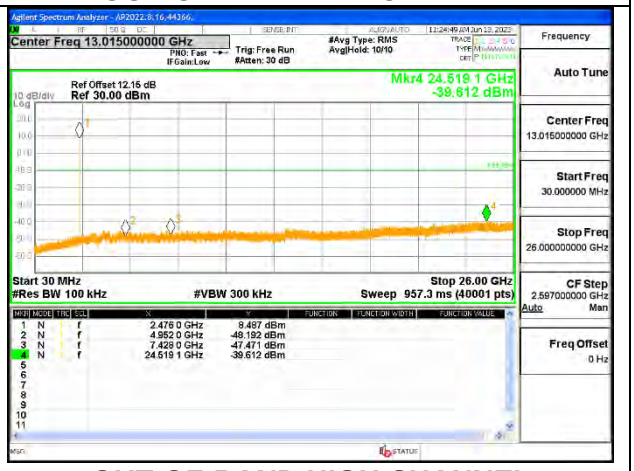


IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

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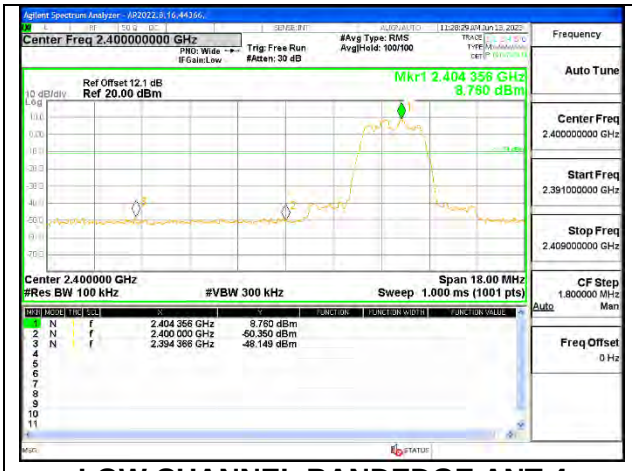
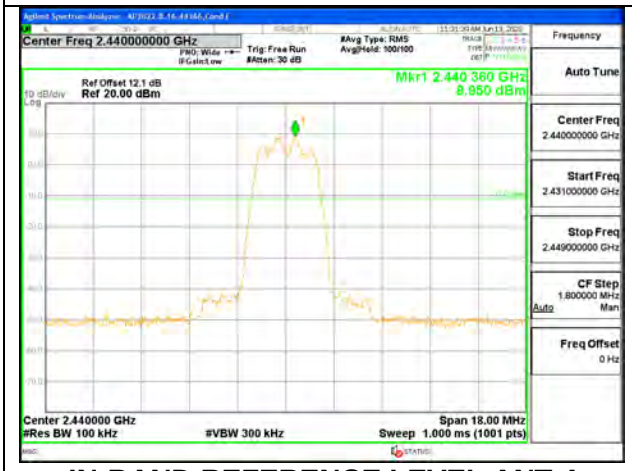
9.7.2. HIGH POWER HDR TXBF (HDR4)

ANT 4



LOW CHANNEL BANDEDGE ANT 4

OUT-OF-BAND LOW CHANNEL ANT 4



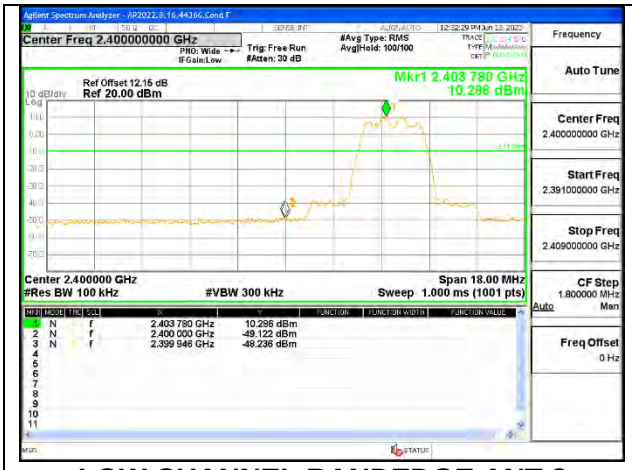
IN-BAND REFERENCE LEVEL ANT 4

OUT-OF-BAND MID CHANNEL ANT 4

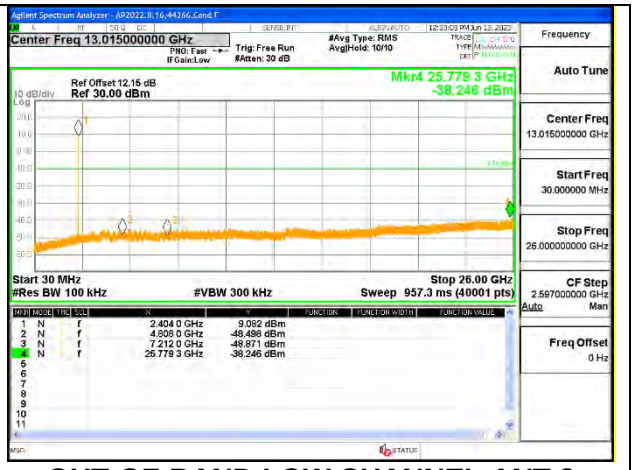
HIGH CHANNEL BANDEDGE ANT 4

OUT-OF-BAND HIGH CHANNEL ANT 4

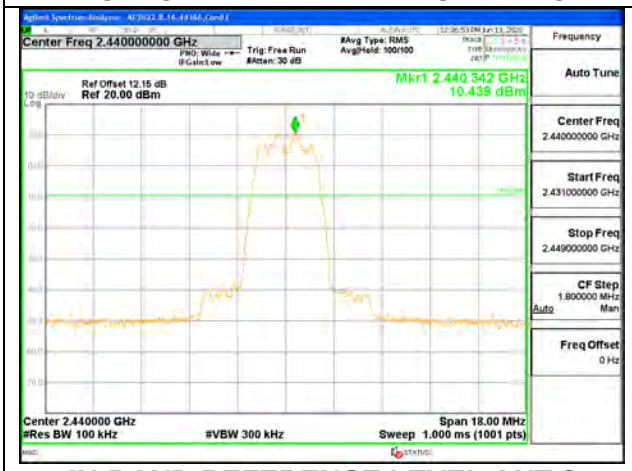
ANT 3



LOW CHANNEL BANDEDGE ANT 3



OUT-OF-BAND LOW CHANNEL ANT 3



IN-BAND REFERENCE LEVEL ANT 3

OUT-OF-BAND MID CHANNEL ANT 3

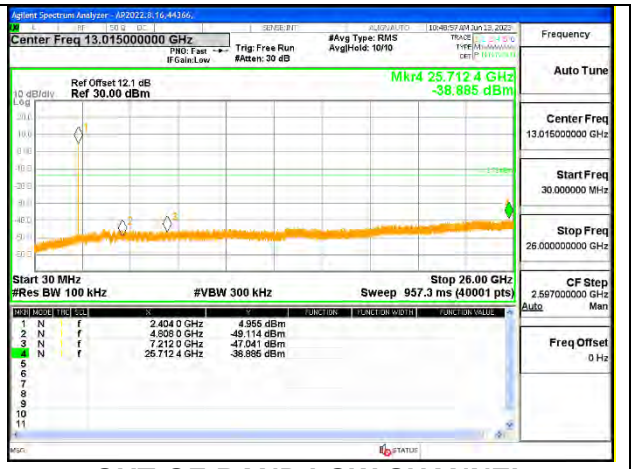
HIGH CHANNEL BANDEDGE ANT 3

OUT-OF-BAND HIGH CHANNEL ANT 3

9.7.3. HIGH POWER HDR (HDR8)

ANT 4

LOW CHANNEL BANDEDGE



OUT-OF-BAND LOW CHANNEL

IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

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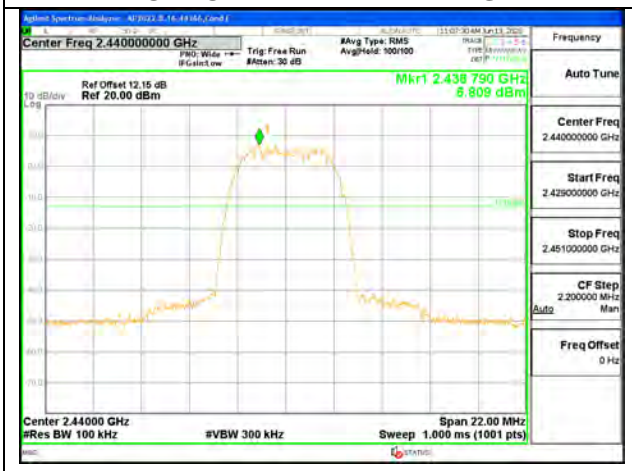
ANT 3

LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

9.7.4. HIGH POWER HDR TXBF (HDR8)

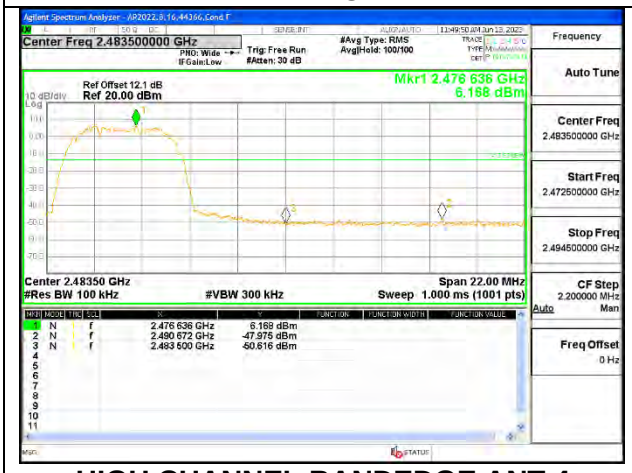
ANT 4

LOW CHANNEL BANDEDGE ANT 4

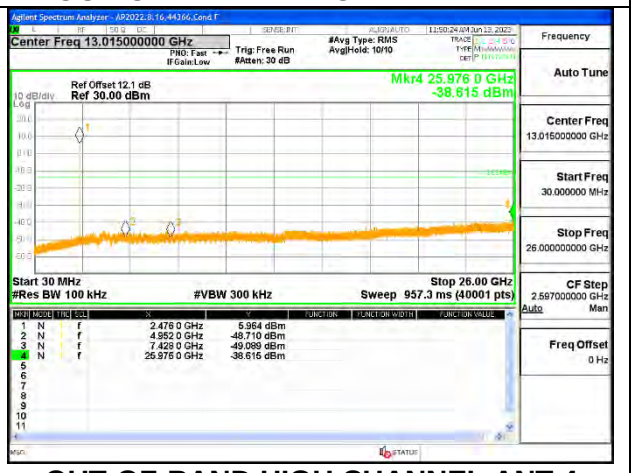
OUT-OF-BAND LOW CHANNEL ANT 4

IN-BAND REFERENCE LEVEL ANT 4

OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL BANDEDGE ANT 4

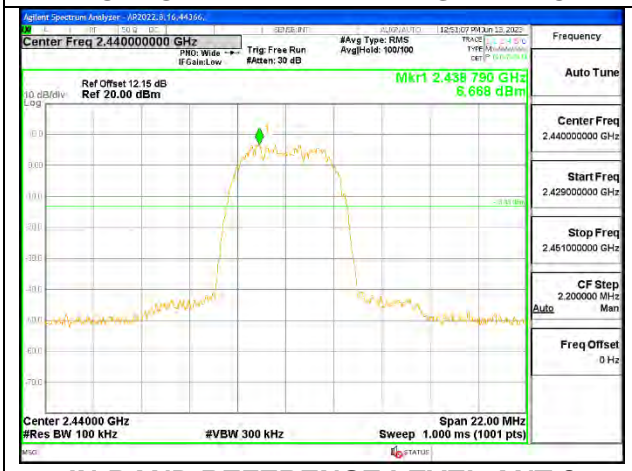


OUT-OF-BAND HIGH CHANNEL ANT 4

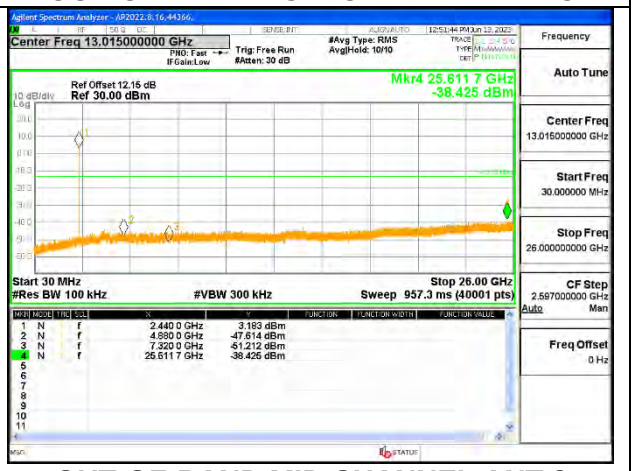
ANT 3

LOW CHANNEL BANDEDGE ANT 3

OUT-OF-BAND LOW CHANNEL ANT 3



IN-BAND REFERENCE LEVEL ANT 3



OUT-OF-BAND MID CHANNEL ANT 3

HIGH CHANNEL BANDEDGE ANT 3

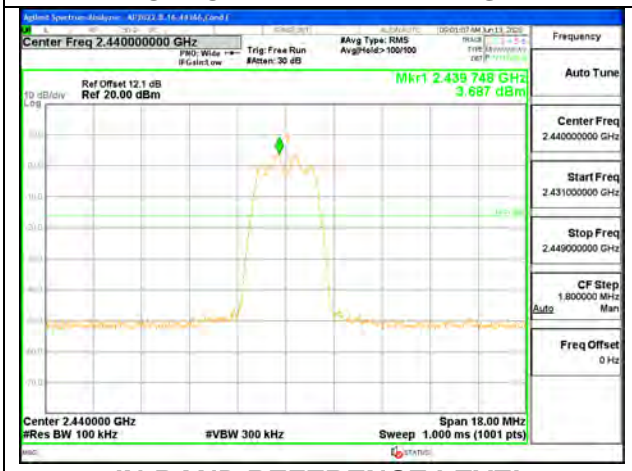
OUT-OF-BAND HIGH CHANNEL ANT 3

9.7.5. LOW POWER HDR (HDR4)

ANT 4

LOW CHANNEL BANDEDGE

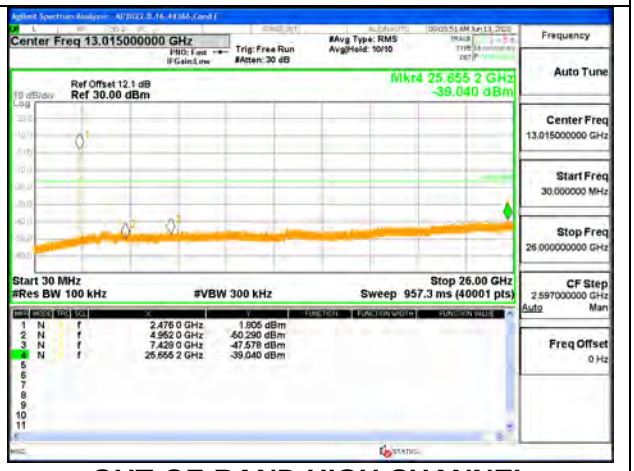
OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL

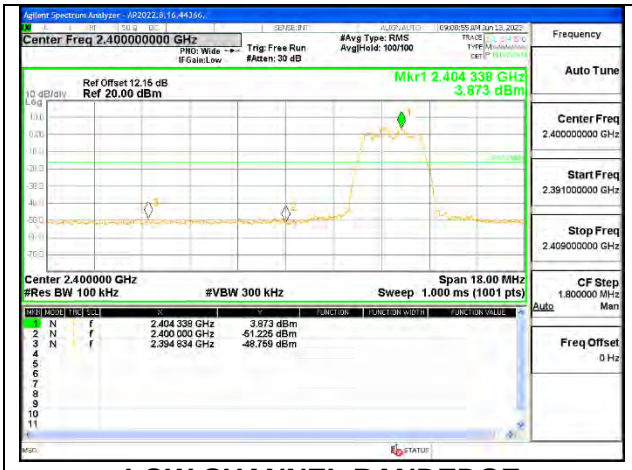
OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE



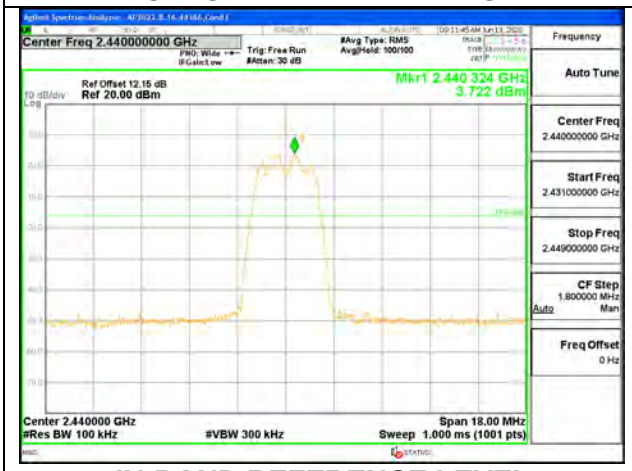
OUT-OF-BAND HIGH CHANNEL

ANT 3



LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

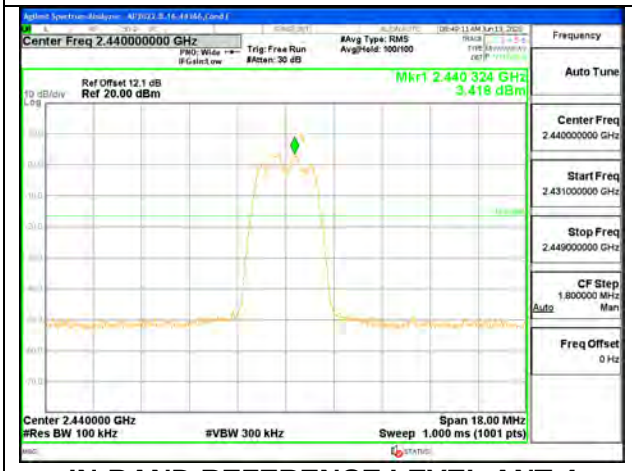
OUT-OF-BAND HIGH CHANNEL

9.7.6. LOW POWER HDR TXBF (HDR4)

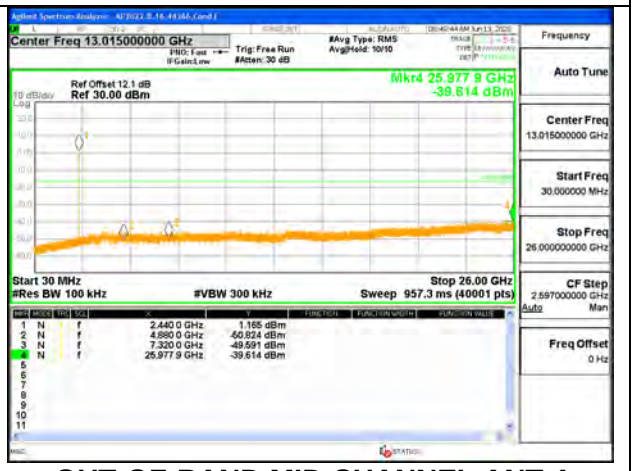
ANT 4

LOW CHANNEL BANDEDGE ANT 4

OUT-OF-BAND LOW CHANNEL ANT 4



IN-BAND REFERENCE LEVEL ANT 4



OUT-OF-BAND MID CHANNEL ANT 4

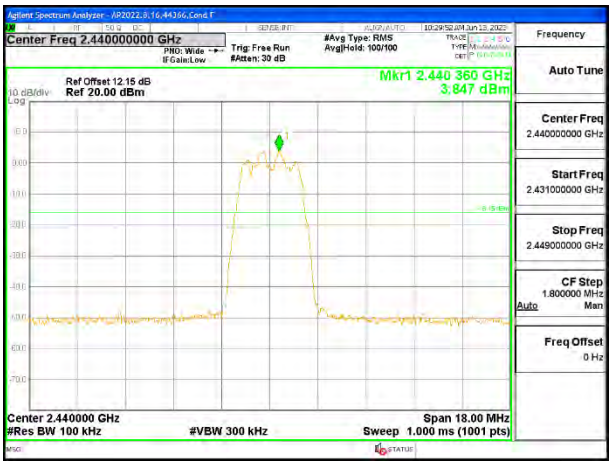
HIGH CHANNEL BANDEDGE ANT 4

OUT-OF-BAND HIGH CHANNEL ANT 4

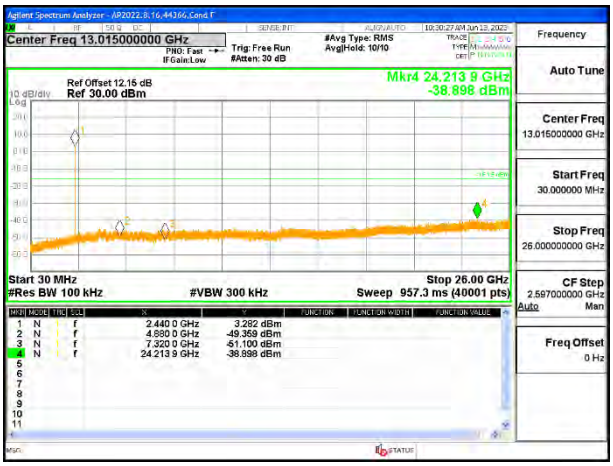
ANT 3

LOW CHANNEL BANDEDGE ANT 3

OUT-OF-BAND LOW CHANNEL ANT 3



IN-BAND REFERENCE LEVEL ANT 3



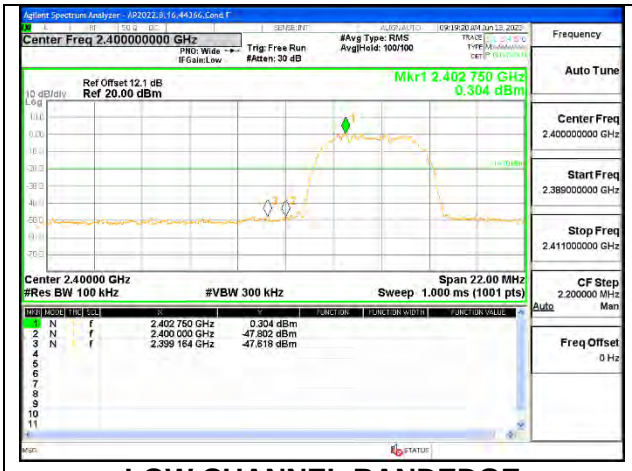
OUT-OF-BAND MID CHANNEL ANT 3

HIGH CHANNEL BANDEDGE ANT 3

OUT-OF-BAND HIGH CHANNEL ANT 3

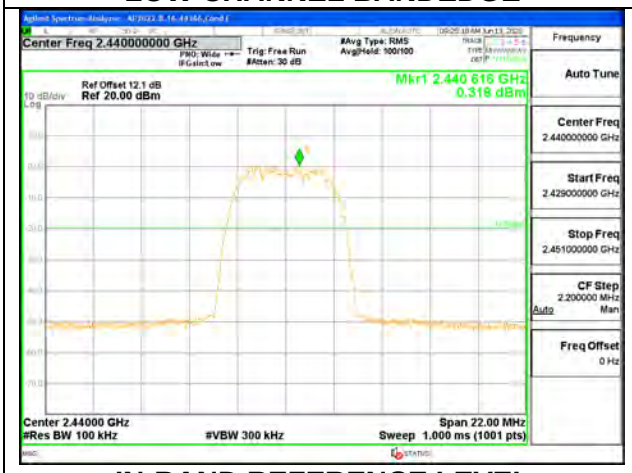
9.7.7. LOW POWER HDR (HDR8)

ANT 4



LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

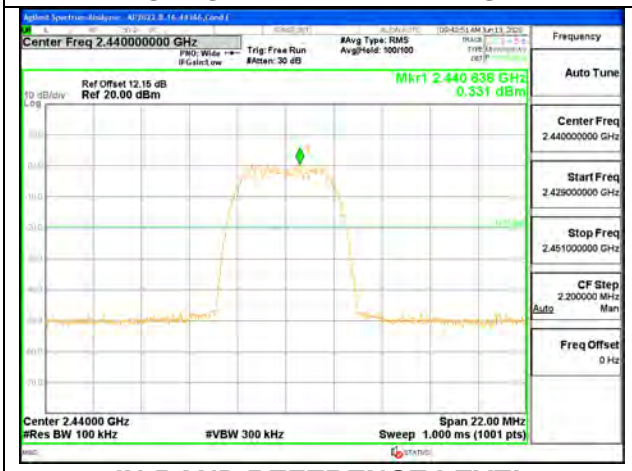
HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

ANT 3

LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

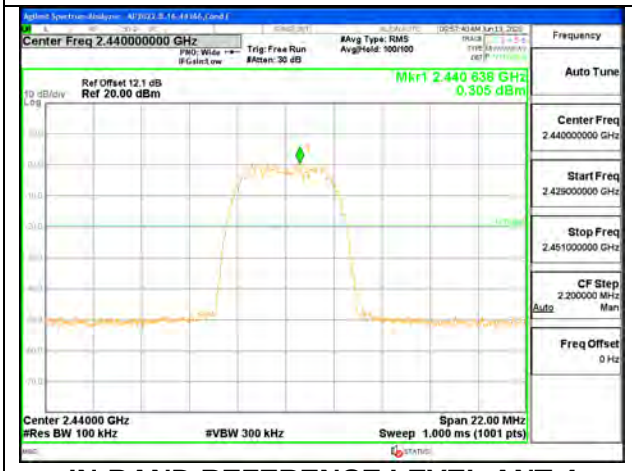
OUT-OF-BAND HIGH CHANNEL

9.7.8. LOW POWER HDR TXBF (HDR8)

ANT 4

LOW CHANNEL BANDEDGE ANT 4

OUT-OF-BAND LOW CHANNEL ANT 4



IN-BAND REFERENCE LEVEL ANT 4

OUT-OF-BAND MID CHANNEL ANT 4

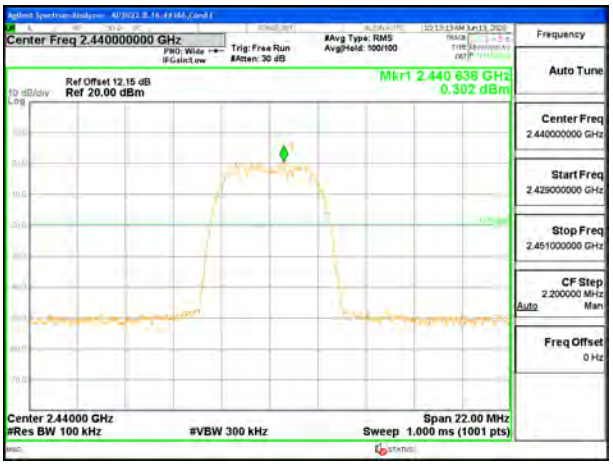
HIGH CHANNEL BANDEDGE ANT 4

OUT-OF-BAND HIGH CHANNEL ANT 4

ANT 3

LOW CHANNEL BANDEDGE ANT 3

OUT-OF-BAND LOW CHANNEL ANT 3



IN-BAND REFERENCE LEVEL ANT 3

OUT-OF-BAND MID CHANNEL ANT 3

HIGH CHANNEL BANDEDGE ANT 3

OUT-OF-BAND HIGH CHANNEL ANT 3

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209
RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final scans above 1 GHz test, two methods are used: the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T (10 Hz) video bandwidth with peak detector for average measurements; and other method with resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

Note: The limits in CFR 47, Part 15, Subpart C, paragraph 15.209(a), are identical to those in RSS-Gen section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as report in the table) using free space impedance of 377 Ohms. For example, the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.
In addition:

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

RESULTS:

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

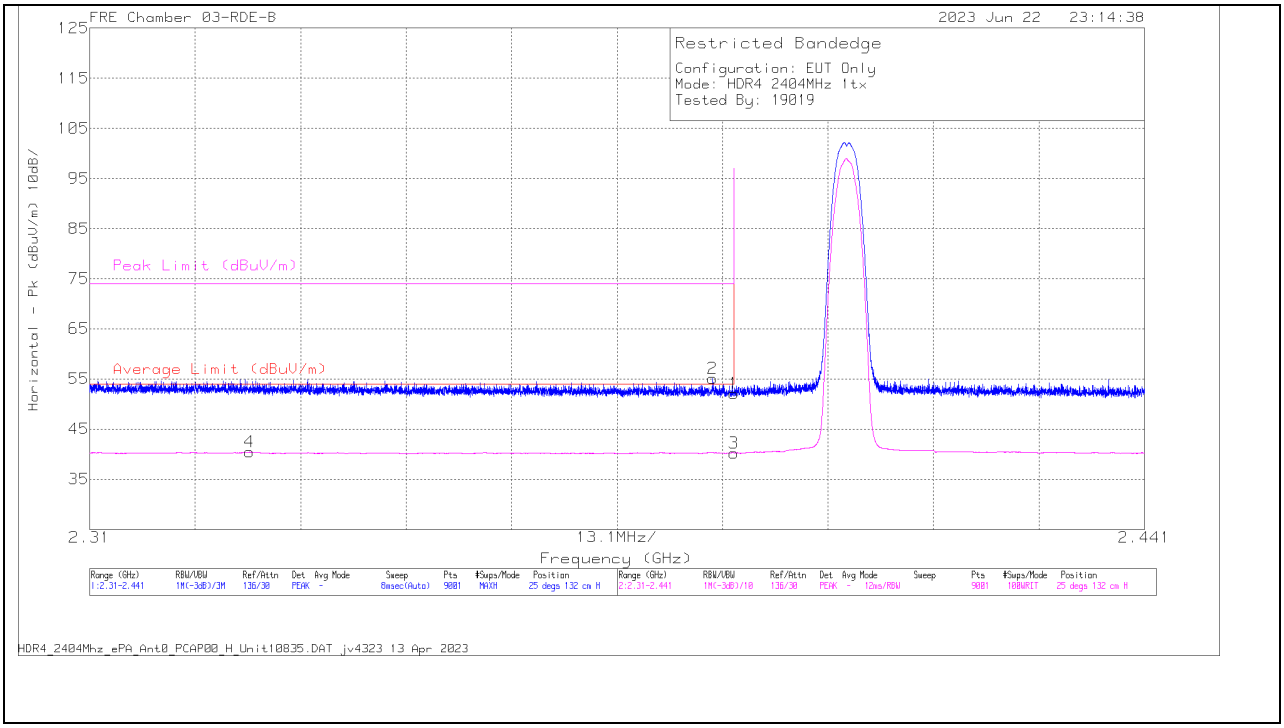
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. HIGH POWER HDR (HDR4)

ANT 4

BANDEDGE (LOW CHANNEL)

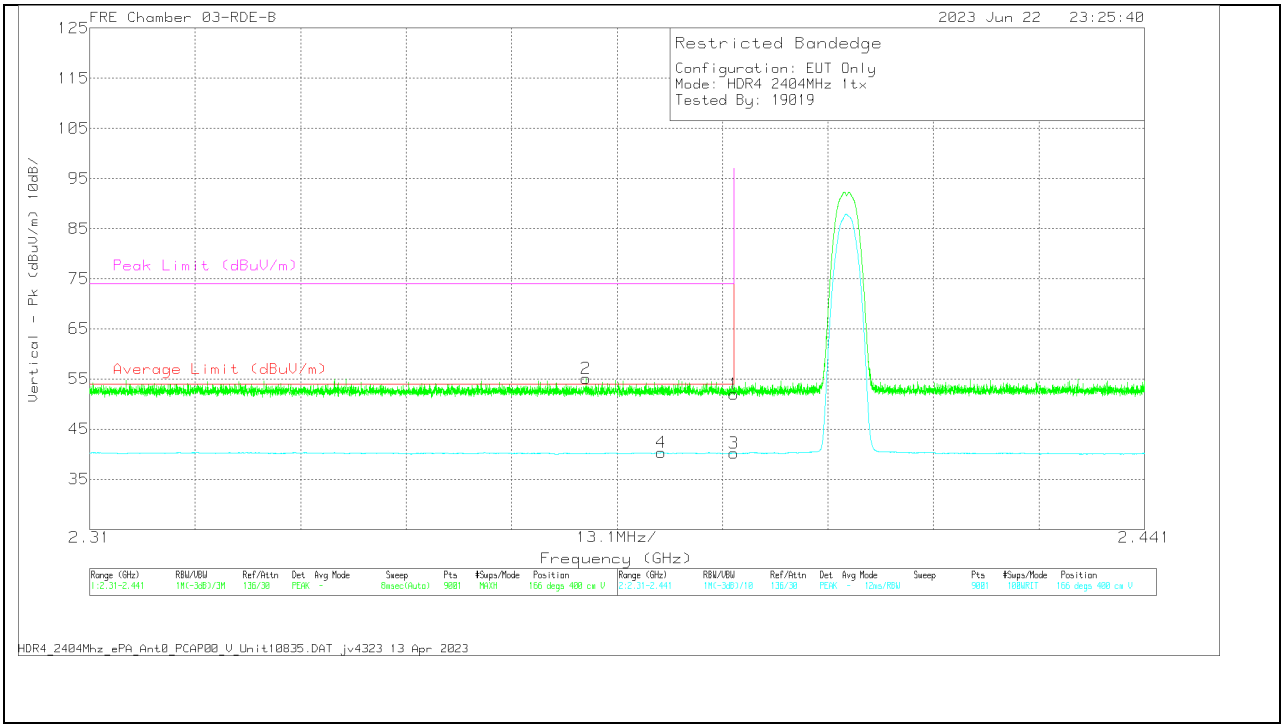
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.11	Pk	32.2	-41.2	52.11	-	-	74	-21.89	25	132	H
2	* 2.387394	64.06	Pk	32.2	-41.14	55.12	-	-	74	-18.88	25	132	H
3	* 2.39	49.26	VA1T	32.2	-41.2	40.26	54	-13.74	-	-	25	132	H
4	* 2.329869	49.53	VA1T	32.1	-41.2	40.43	54	-13.57	-	-	25	132	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

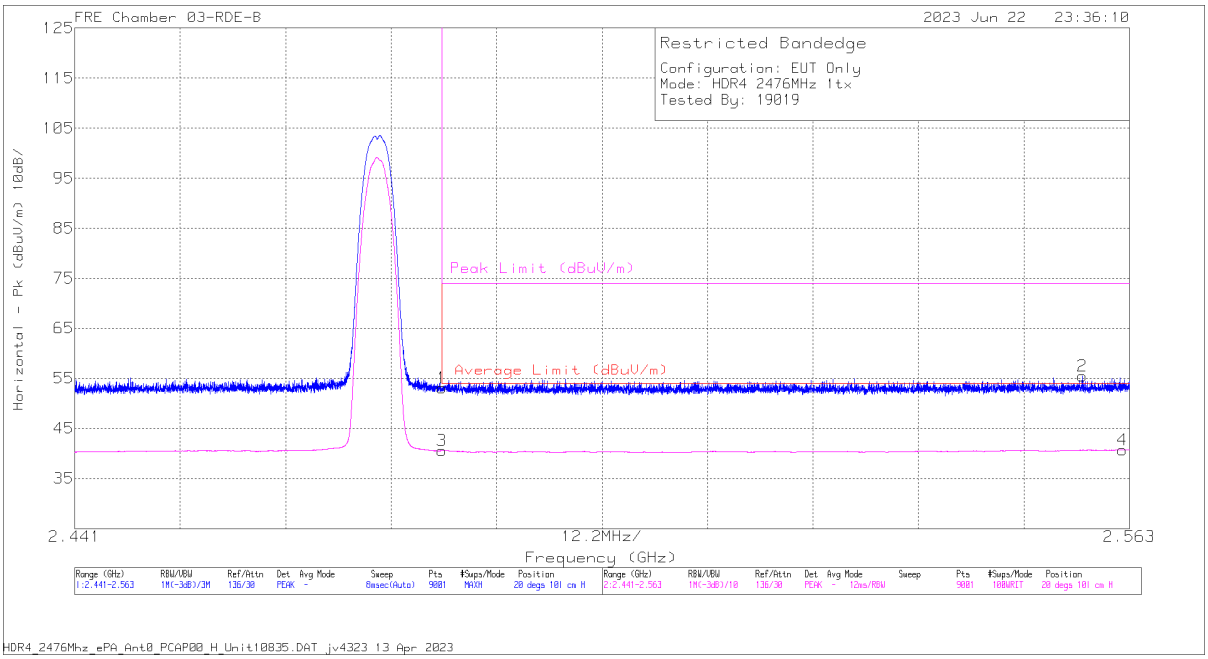


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.97	Pk	32.2	-41.2	51.97	-	-	74	-22.03	166	400	V
2	* 2.371659	64.23	Pk	32.1	-41.2	55.13	-	-	74	-18.87	166	400	V
3	* 2.39	49.18	VA1T	32.2	-41.2	40.18	54	-13.82	-	-	166	400	V
4	* 2.380975	49.32	VA1T	32.1	-41.1	40.32	54	-13.68	-	-	166	400	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

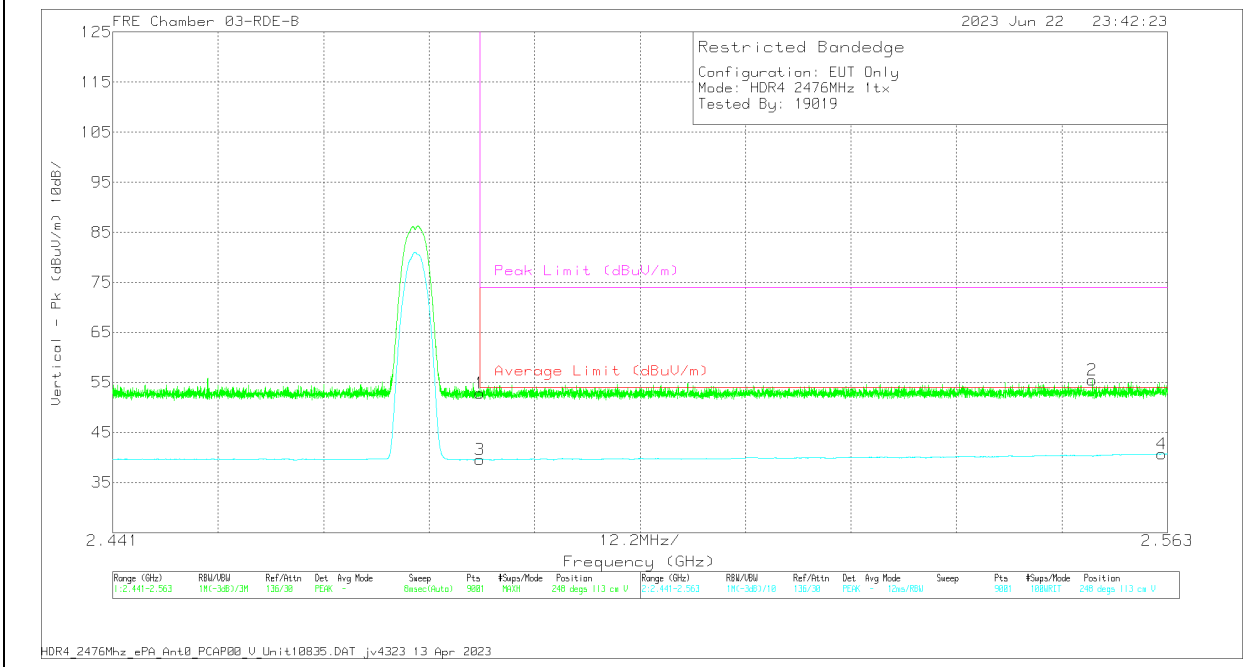
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.01	Pk	32.2	-41.15	53.06	-	-	74	-20.94	20	101	H
3	* 2.4835	49.5	VA1T	32.2	-41.15	40.55	54	-13.45	-	-	20	101	H
2	2.557568	64.09	Pk	32.3	-40.9	55.49	-	-	74	-18.51	20	101	H
4	2.562191	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	20	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



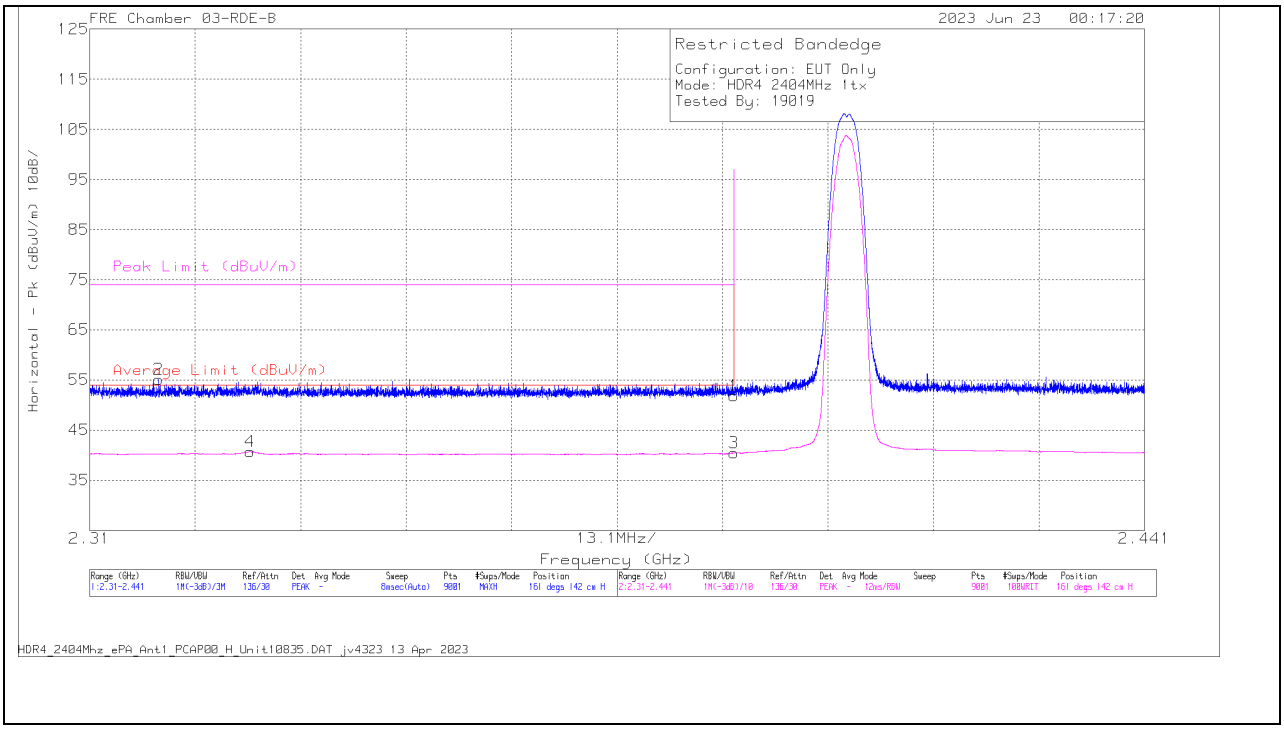
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.82	Pk	32.2	-41.15	52.87	-	-	74	-21.13	248	113	V
3	* 2.4835	48.56	VA1T	32.2	-41.15	39.61	54	-14.39	-	-	248	113	V
2	2.554315	64.14	Pk	32.3	-41	55.44	-	-	74	-18.56	248	113	V
4	2.56234	49.22	VA1T	32.3	-40.8	40.72	54	-13.28	-	-	248	113	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

ANT 3

BANDEDGE (LOW CHANNEL)

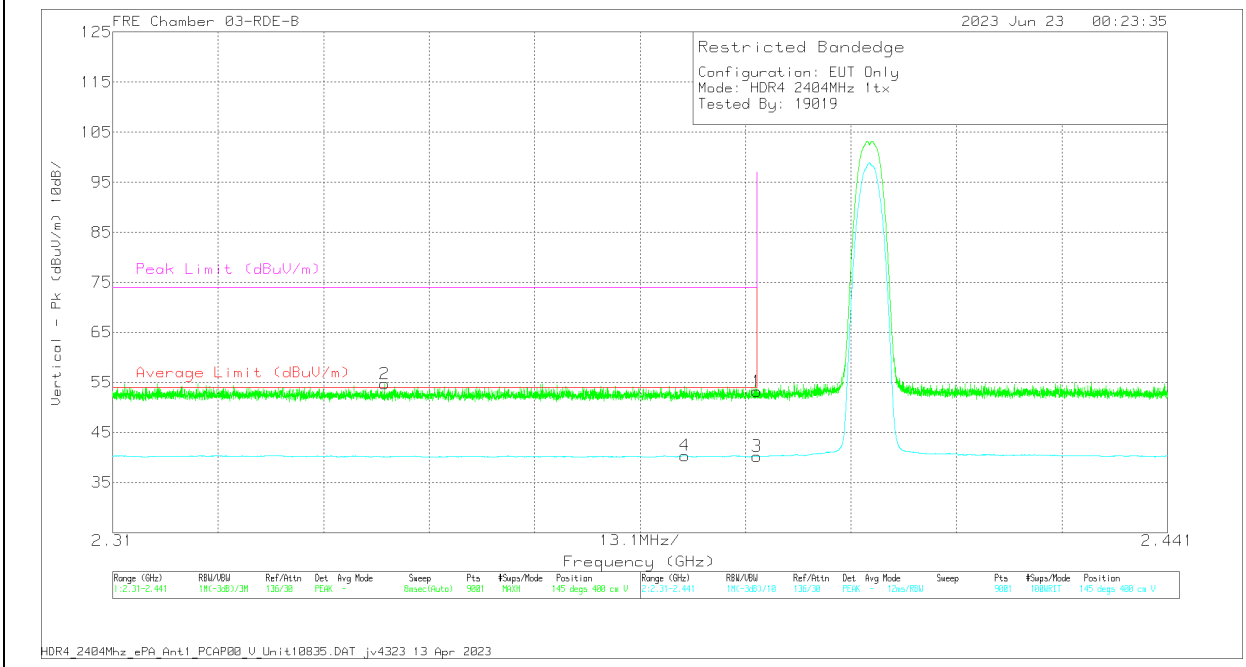
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.86	Pk	32.2	-41.2	51.86	-	-	74	-22.14	161	142	H
2	* 2.318559	64.2	Pk	32.1	-41.2	55.1	-	-	74	-18.9	161	142	H
3	* 2.39	49.44	VA1T	32.2	-41.2	40.44	54	-13.56	-	-	161	142	H
4	* 2.329913	49.79	VA1T	32.1	-41.2	40.69	54	-13.31	-	-	161	142	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

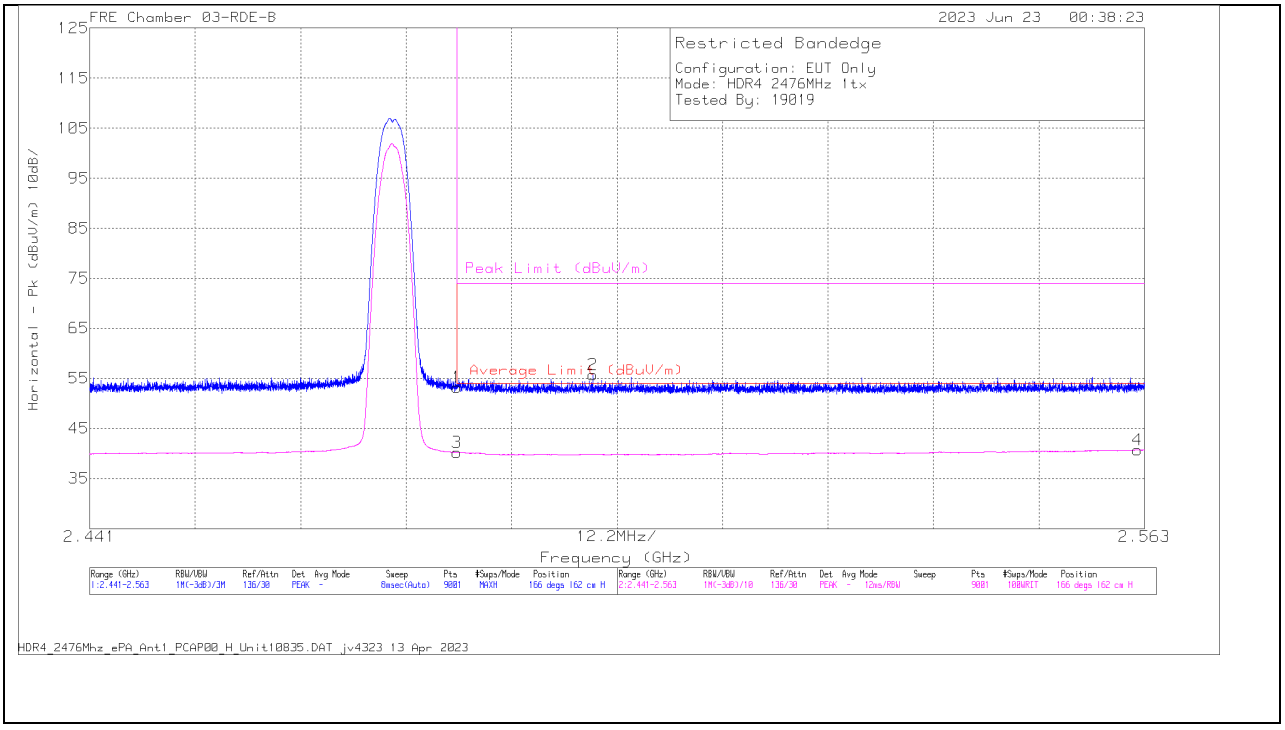


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	62.2	Pk	32.2	-41.2	53.2	-	-	74	-20.8	145	400	V
2	* 2.34377	63.93	Pk	32.1	-41.28	54.75	-	-	74	-19.25	145	400	V
3	* 2.39	49.27	VA1T	32.2	-41.2	40.27	54	-13.73	-	-	145	400	V
4	* 2.381062	49.41	VA1T	32.1	-41.11	40.4	54	-13.6	-	-	145	400	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

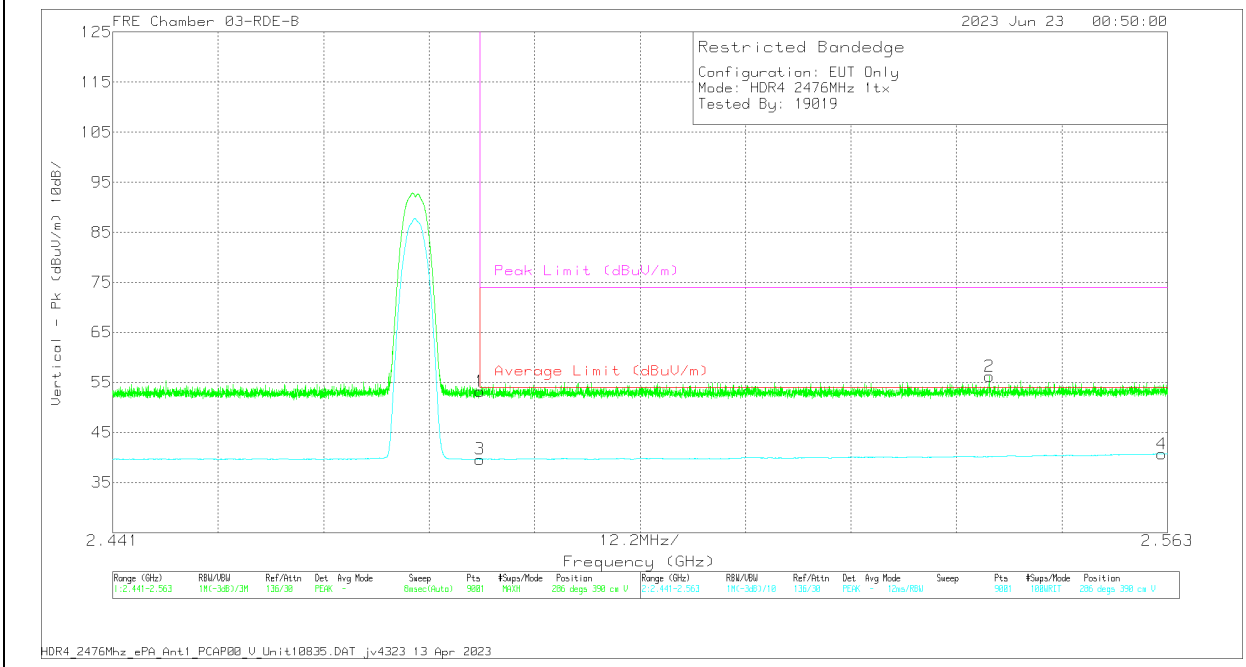
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.14	Pk	32.2	-41.15	53.19	-	-	74	-20.81	166	162	H
2	* 2.499209	64.55	Pk	32.2	-41.08	55.67	-	-	74	-18.33	166	162	H
3	* 2.4835	49.14	VA1T	32.2	-41.15	40.19	54	-13.81	-	-	166	162	H
4	2.562218	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	166	162	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



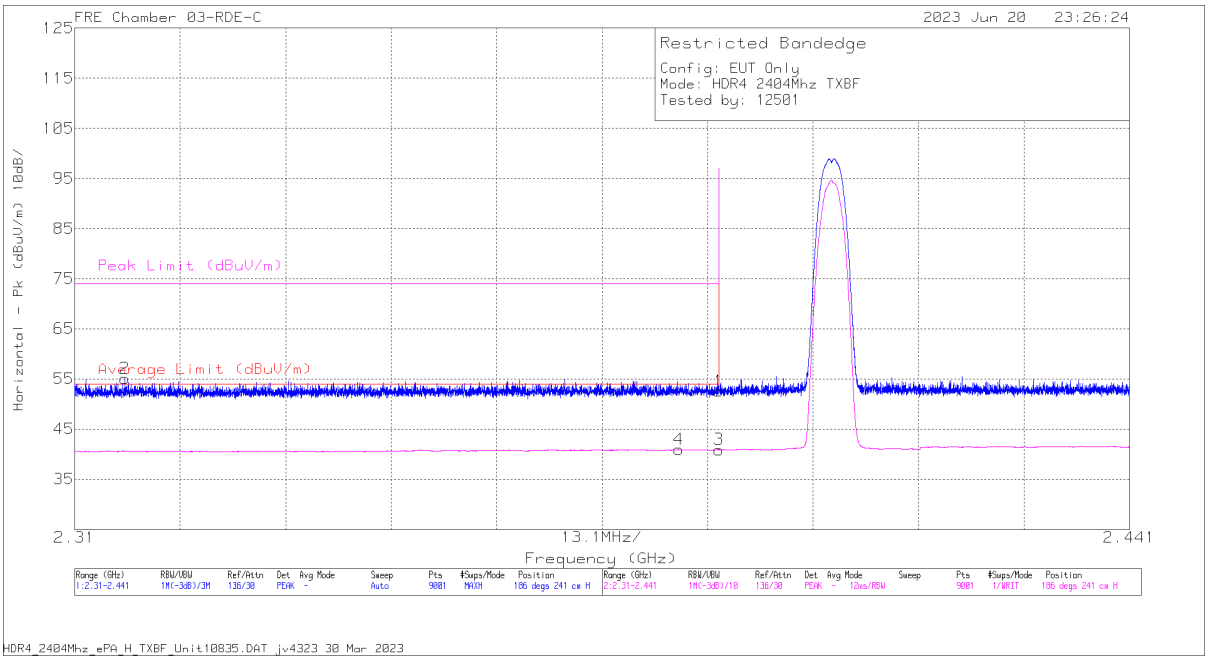
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.22	Pk	32.2	-41.15	53.27	-	-	74	-20.73	286	390	V
3	* 2.4835	48.6	VA1T	32.2	-41.15	39.65	54	-14.35	-	-	286	390	V
2	2.542385	64.96	Pk	32.3	-41	56.26	-	-	74	-17.74	286	390	V
4	2.562367	49.22	VA1T	32.3	-40.8	40.72	54	-13.28	-	-	286	390	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.2.2. HIGH POWER HDR TXBF (HDR4)

BANDEDGE (LOW CHANNEL)

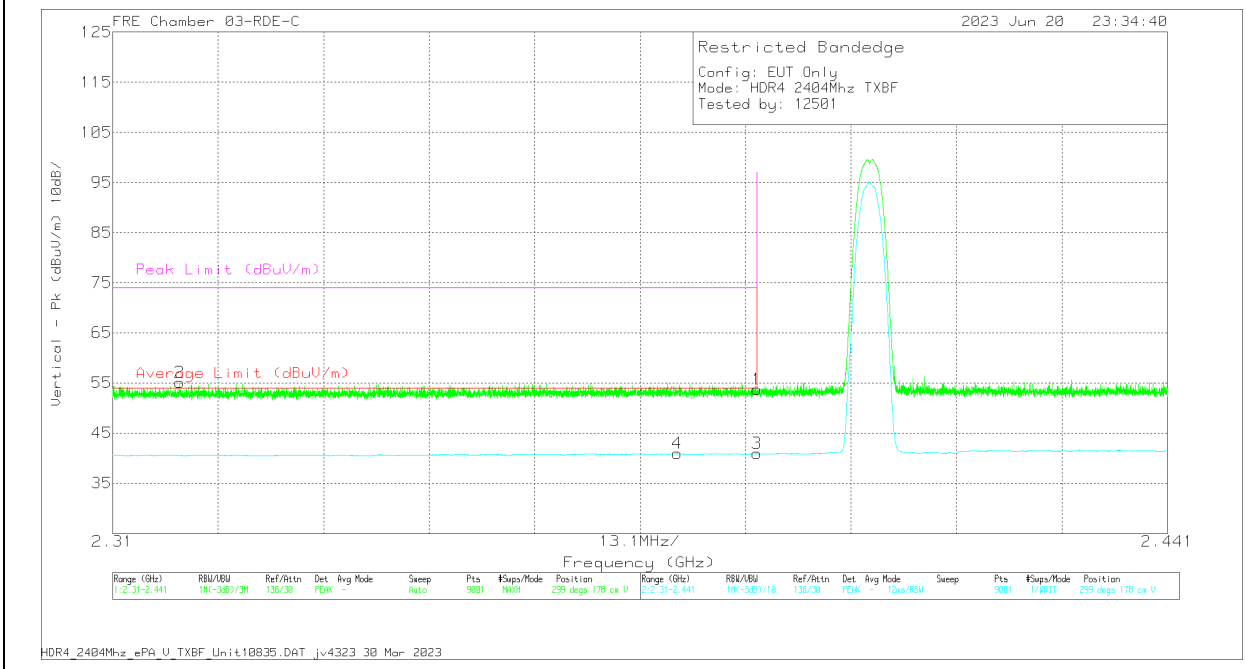
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.35	Pk	32.1	-39.8	52.65	-	-	74	-21.35	186	241	H
2	* 2.316215	63.15	Pk	31.8	-39.9	55.05	-	-	74	-18.95	186	241	H
3	* 2.39	48.6	VA1T	32.1	-39.8	40.9	54	-13.1	-	-	186	241	H
4	* 2.384993	48.62	VA1T	32.1	-39.8	40.92	54	-13.08	-	-	186	241	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

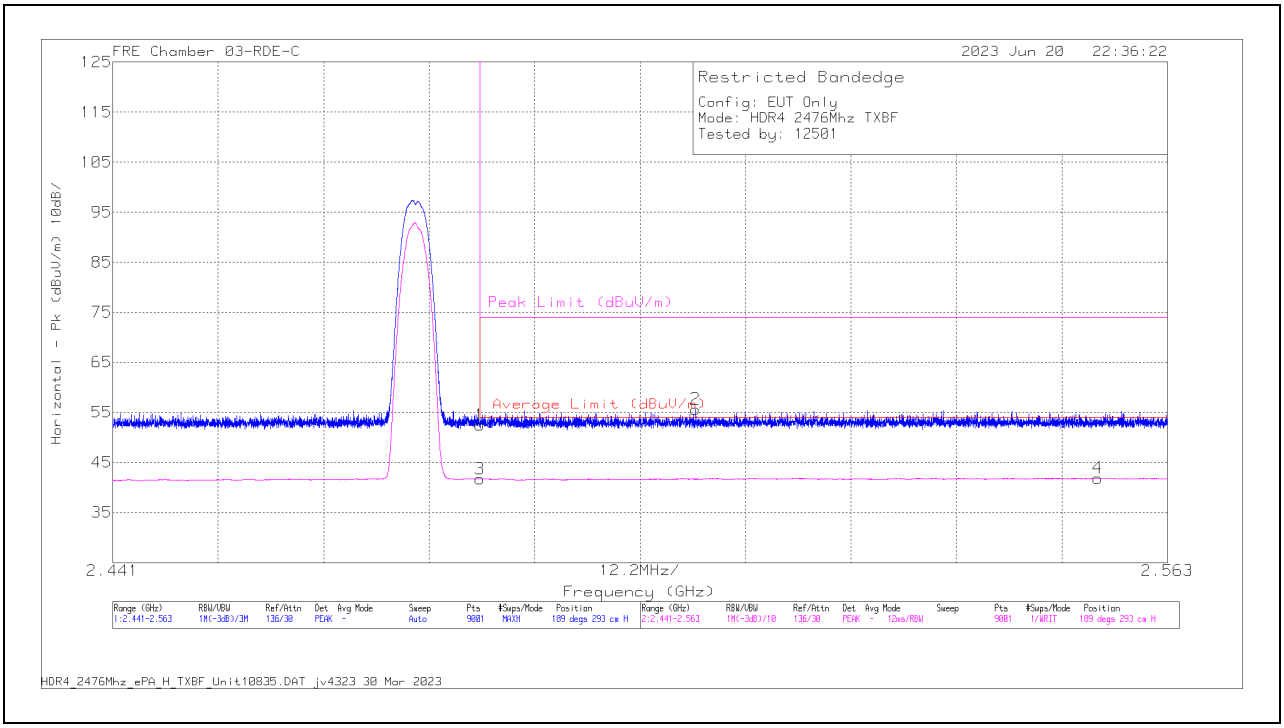


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.37	Pk	32.1	-39.8	53.67	-	-	74	-20.33	299	178	V
2	* 2.318311	63.28	Pk	31.8	-39.93	55.15	-	-	74	-18.85	299	178	V
3	* 2.39	48.62	VA1T	32.1	-39.8	40.92	54	-13.08	-	-	299	178	V
4	* 2.380145	48.64	VA1T	32.1	-39.81	40.93	54	-13.07	-	-	299	178	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

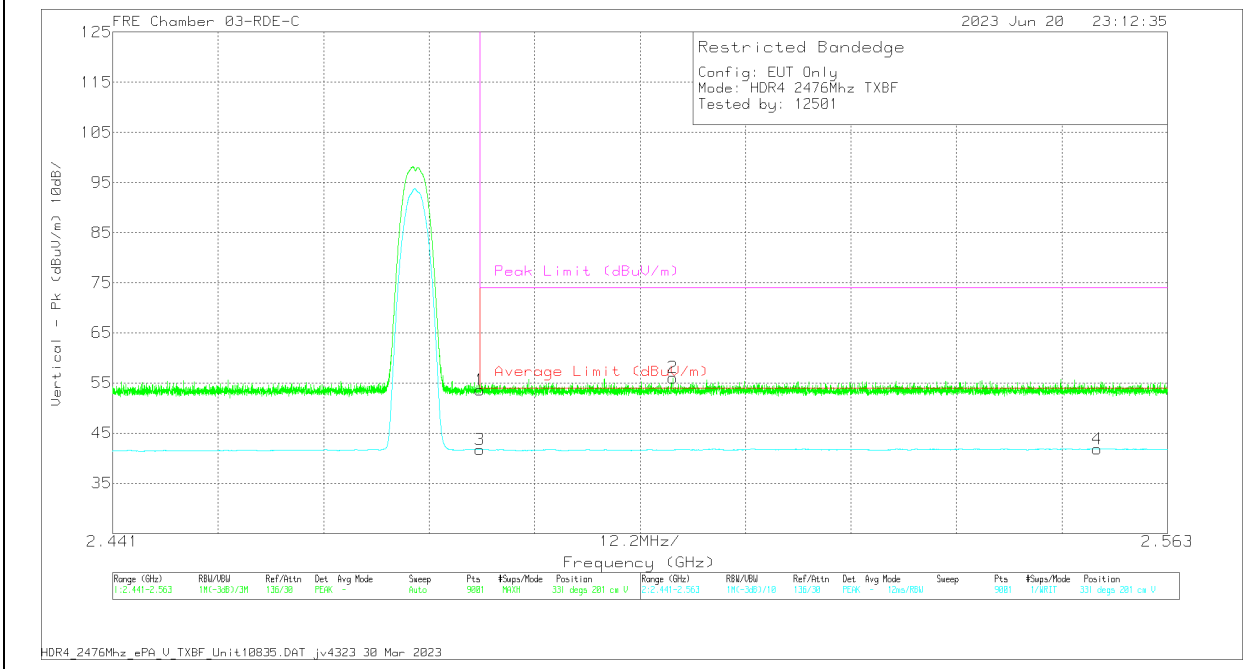
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	59.9	Pk	32.2	-39.6	52.5	-	-	74	-21.5	189	293	H
3	* 2.4835	49.13	VA1T	32.2	-39.6	41.73	54	-12.27	-	-	189	293	H
2	2.508428	62.96	Pk	32.3	-39.6	55.66	-	-	74	-18.34	189	293	H
4	2.554952	49	VA1T	32.3	-39.4	41.9	54	-12.1	-	-	189	293	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61	Pk	32.2	-39.6	53.6	-	-	74	-20.4	331	201	V
3	* 2.4835	49.13	VA1T	32.2	-39.6	41.73	54	-12.27	-	-	331	201	V
2	2.505811	63.36	Pk	32.3	-39.62	56.04	-	-	74	-17.96	331	201	V
4	2.554898	48.99	VA1T	32.3	-39.41	41.88	54	-12.12	-	-	331	201	V

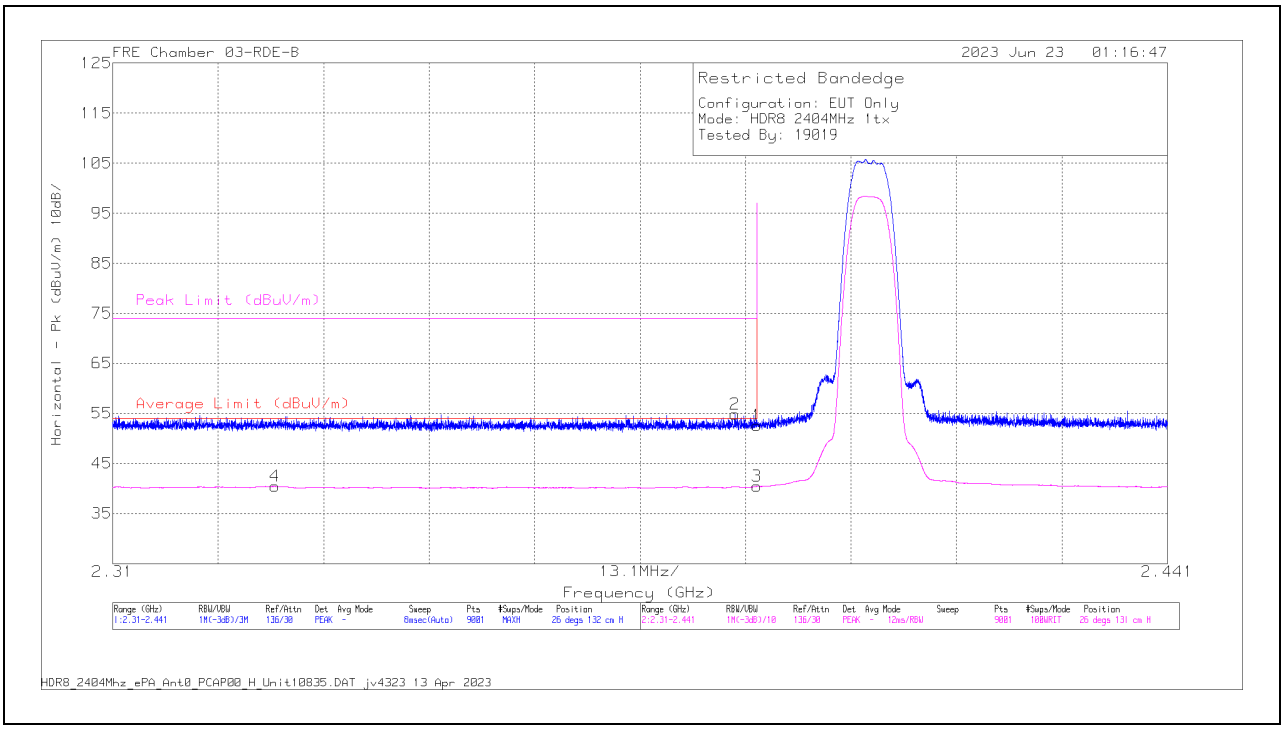
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.2.3. HIGH POWER HDR (HDR8)

ANT 4

BANDEDGE (LOW CHANNEL)

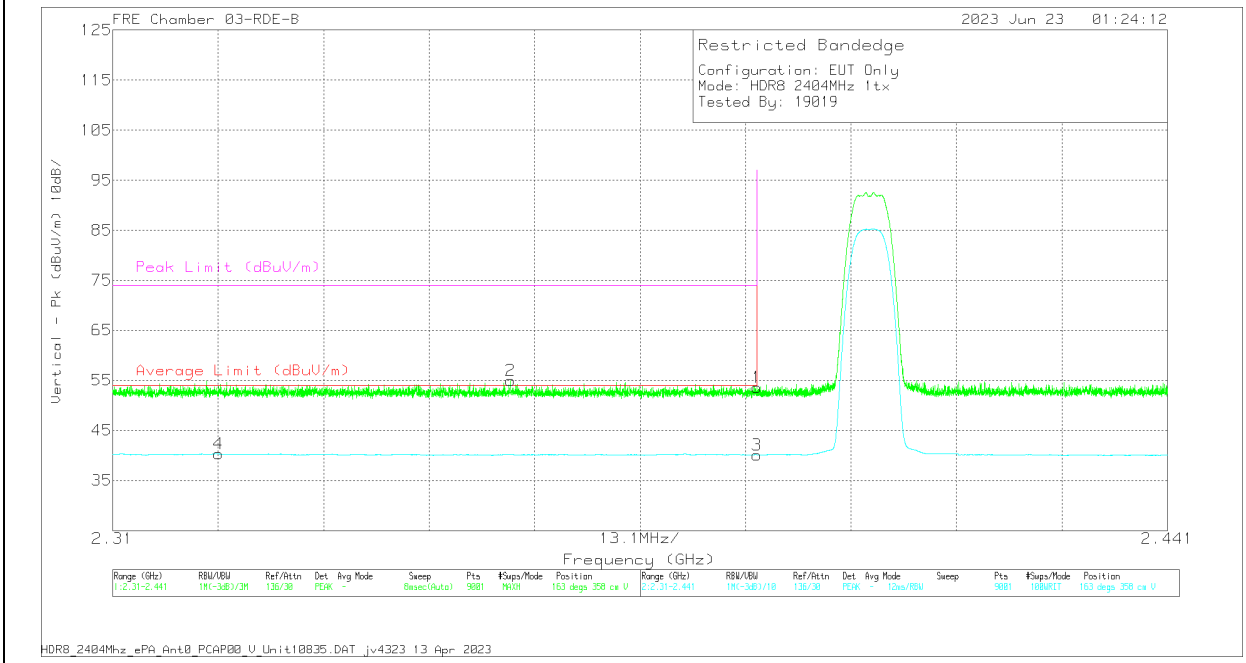
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.55	Pk	32.2	-41.2	52.55	-	-	74	-21.45	26	132	H
2	* 2.387307	63.83	Pk	32.2	-41.13	54.9	-	-	74	-19.1	26	132	H
3	* 2.39	49.41	VA1T	32.2	-41.2	40.41	54	-13.59	-	-	26	131	H
4	* 2.330131	49.53	VA1T	32.1	-41.2	40.43	54	-13.57	-	-	26	131	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

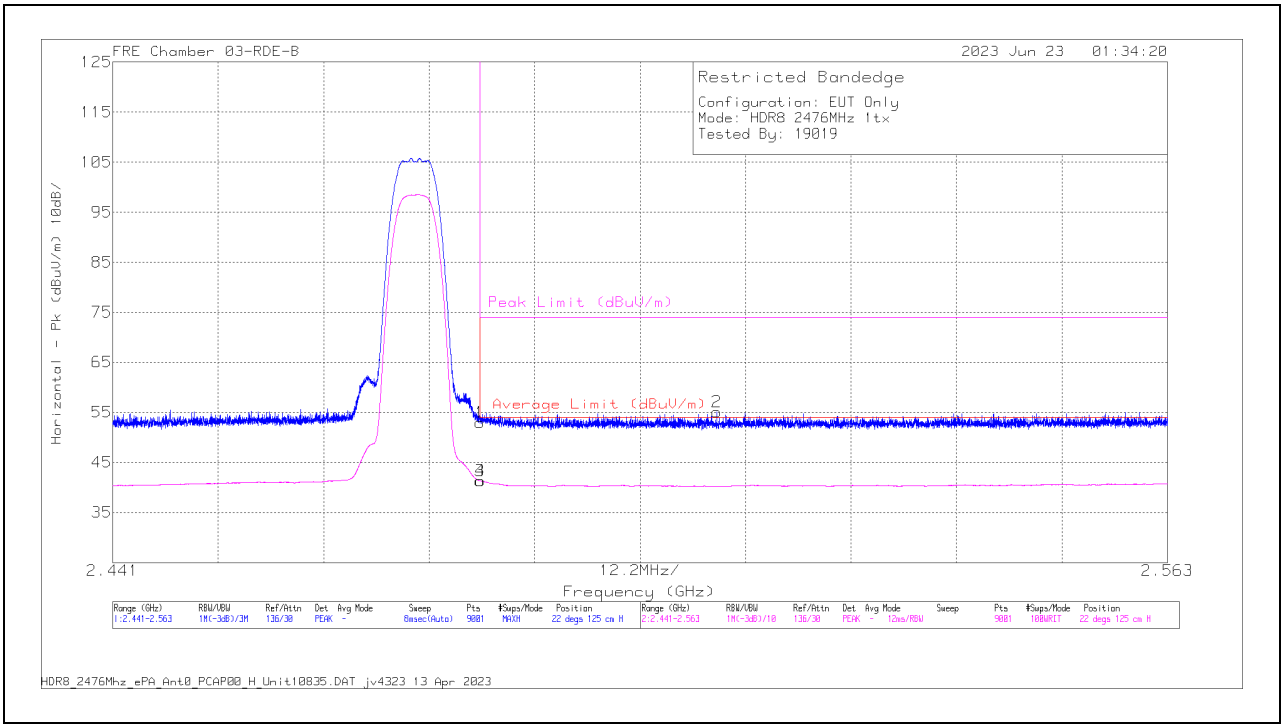


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	62.54	Pk	32.2	-41.2	53.54	-	-	74	-20.46	163	358	V
2	* 2.359418	63.99	Pk	32.1	-41.14	54.95	-	-	74	-19.05	163	358	V
3	* 2.39	49.13	VA1T	32.2	-41.2	40.13	54	-13.87	-	-	163	358	V
4	* 2.323144	49.34	VA1T	32.1	-41.11	40.33	54	-13.67	-	-	163	358	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

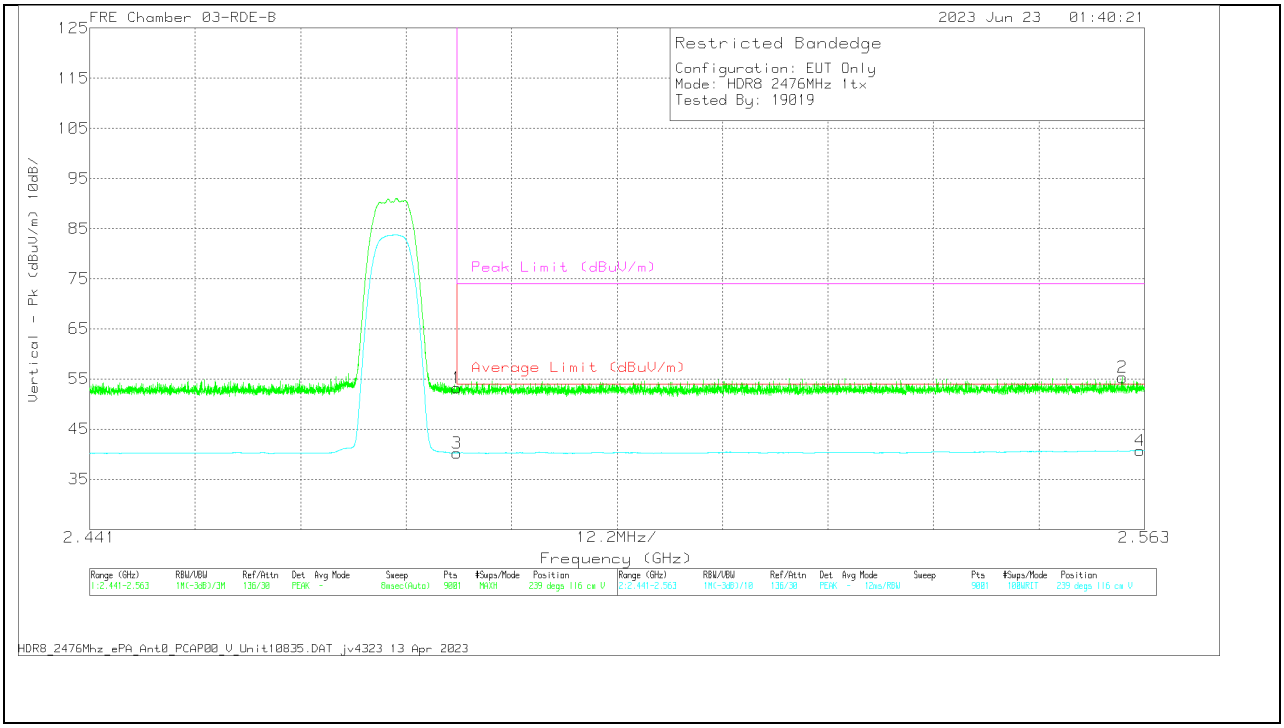
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.88	Pk	32.2	-41.15	52.93	-	-	74	-21.07	22	125	H
3	* 2.4835	50.28	VA1T	32.2	-41.15	41.33	54	-12.67	-	-	22	125	H
4	* 2.483512	50.27	VA1T	32.2	-41.15	41.32	54	-12.68	-	-	22	125	H
2	2.510868	64.02	Pk	32.2	-41.1	55.12	-	-	74	-18.88	22	125	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



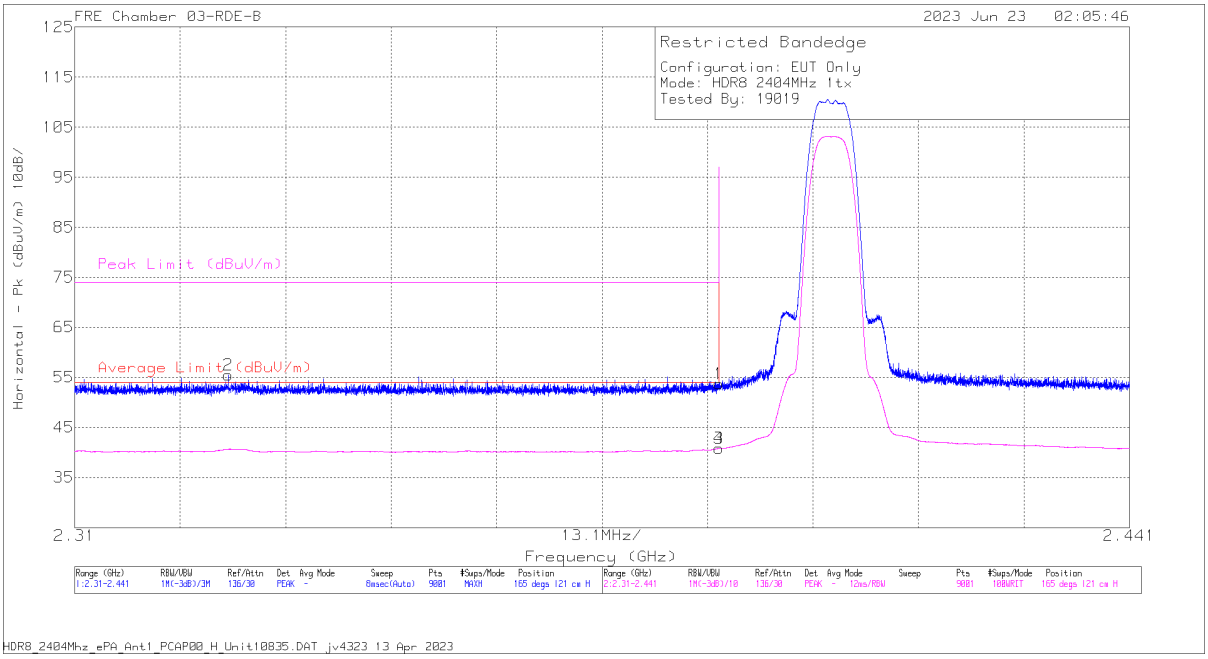
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.15	Pk	32.2	-41.15	53.2	-	-	74	-20.8	239	116	V
3	* 2.4835	49.22	VA1T	32.2	-41.15	40.27	54	-13.73	-	-	239	116	V
2	2.560428	63.89	Pk	32.3	-40.9	55.29	-	-	74	-18.71	239	116	V
4	2.562462	49.25	VA1T	32.3	-40.8	40.75	54	-13.25	-	-	239	116	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

ANT 3

BANDEDGE (LOW CHANNEL)

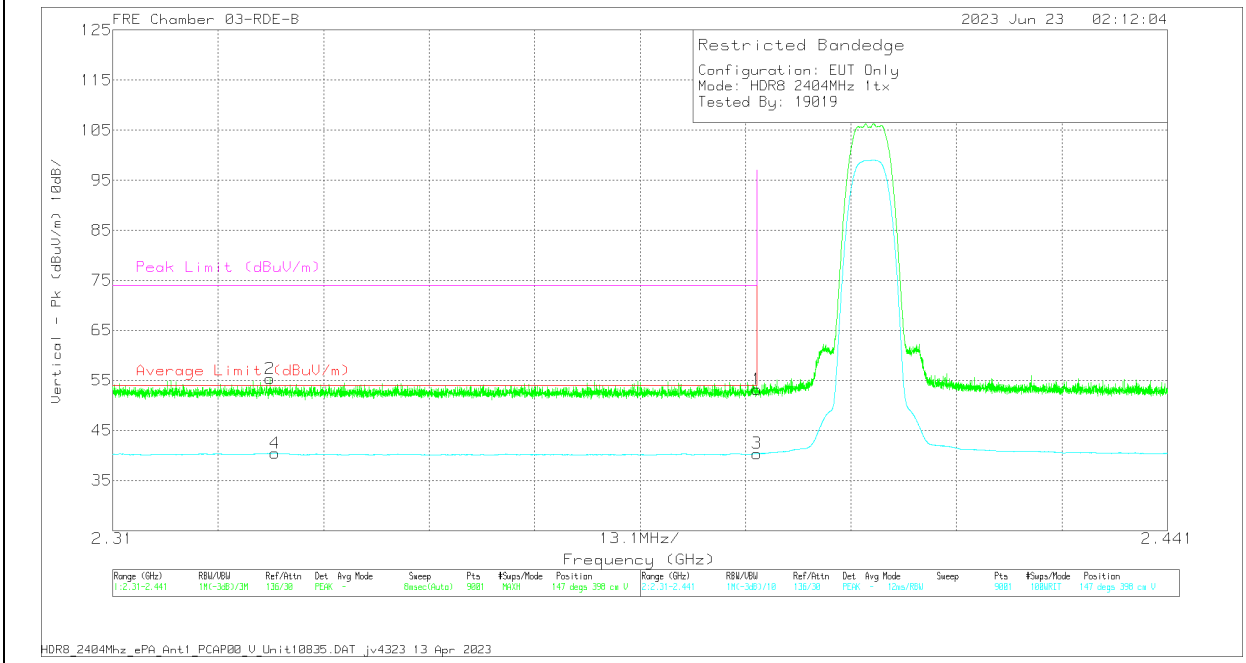
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	62.69	Pk	32.2	-41.2	53.69	-	-	74	-20.31	165	121	H
2	* 2.329054	64.55	Pk	32.1	-41.2	55.45	-	-	74	-18.55	165	121	H
3	* 2.39	49.83	VA1T	32.2	-41.2	40.83	54	-13.17	-	-	165	121	H
4	* 2.39	49.83	VA1T	32.2	-41.2	40.83	54	-13.17	-	-	165	121	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

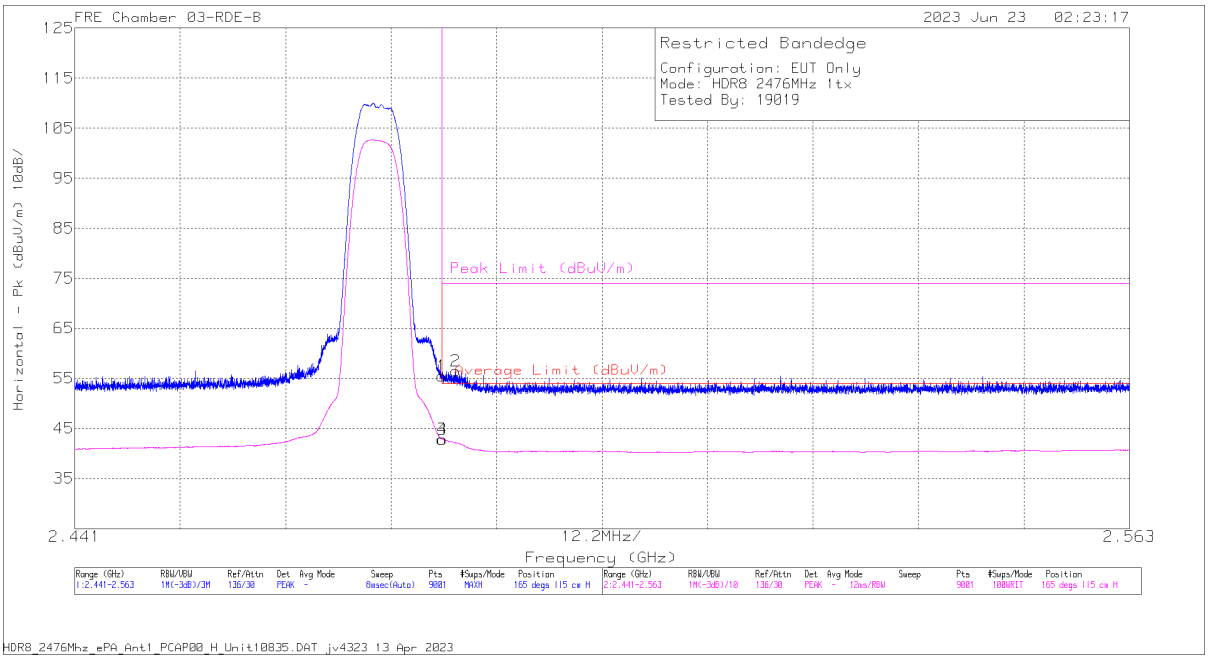


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	62.18	Pk	32.2	-41.2	53.18	-	-	74	-20.82	147	398	V
2	* 2.329549	64.47	Pk	32.1	-41.2	55.37	-	-	74	-18.63	147	398	V
3	* 2.39	49.4	VA1T	32.2	-41.2	40.4	54	-13.6	-	-	147	398	V
4	* 2.330146	49.54	VA1T	32.1	-41.2	40.44	54	-13.56	-	-	147	398	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

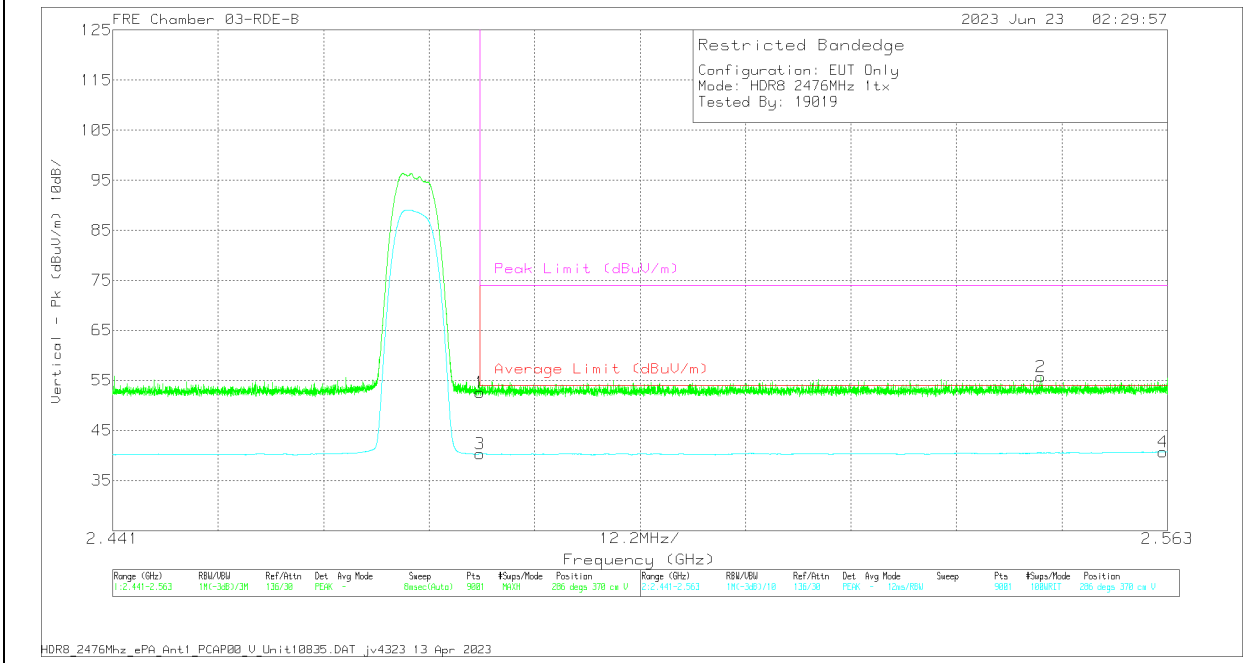
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	64.48	Pk	32.2	-41.15	55.53	-	-	74	-18.47	165	115	H
2	* 2.485098	65.44	Pk	32.2	-41.19	56.45	-	-	74	-17.55	165	115	H
3	* 2.4835	51.82	VA1T	32.2	-41.15	42.87	54	-11.13	-	-	165	115	H
4	* 2.483512	51.81	VA1T	32.2	-41.15	42.86	54	-11.14	-	-	165	115	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



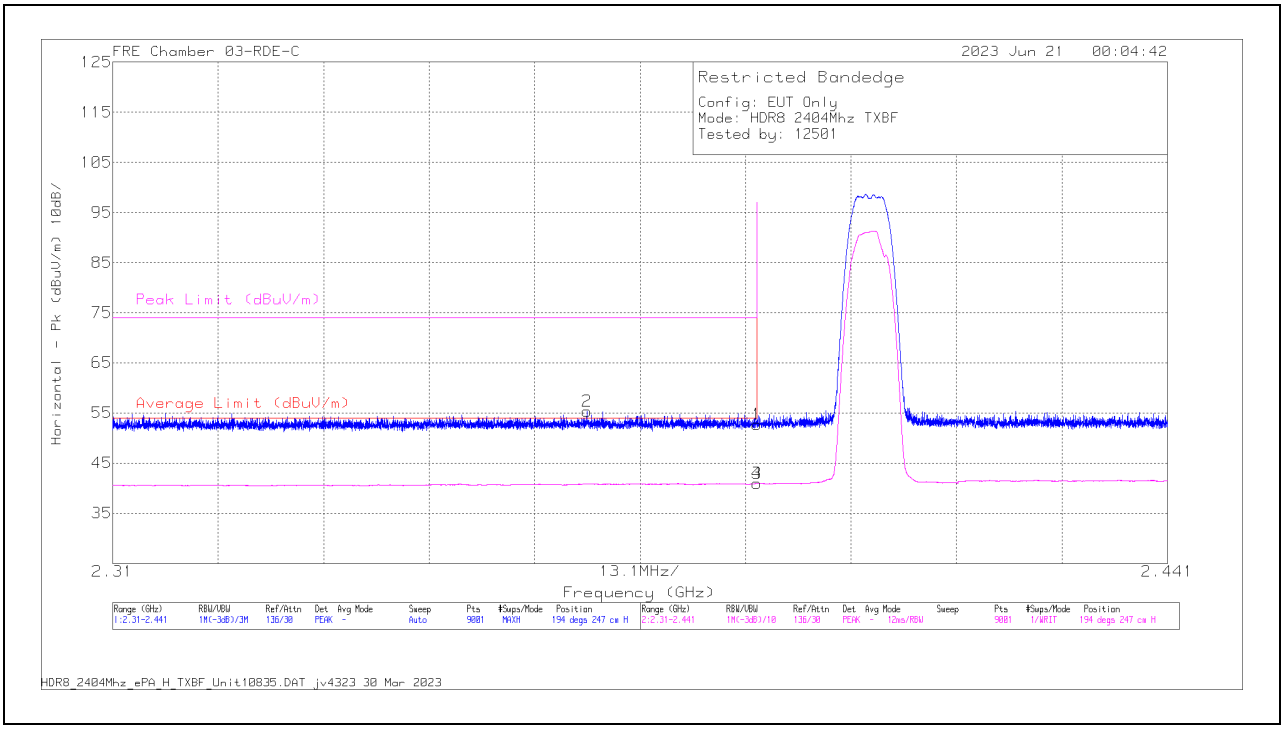
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.55	Pk	32.2	-41.15	52.6	-	-	74	-21.4	286	370	V
3	* 2.4835	49.27	VA1T	32.2	-41.15	40.32	54	-13.68	-	-	286	370	V
2	2.548364	64.28	Pk	32.3	-40.9	55.68	-	-	74	-18.32	286	370	V
4	2.562462	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	286	370	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.2.4. HIGH POWER HDR TXBF (HDR8)

BANDEDGE (LOW CHANNEL)

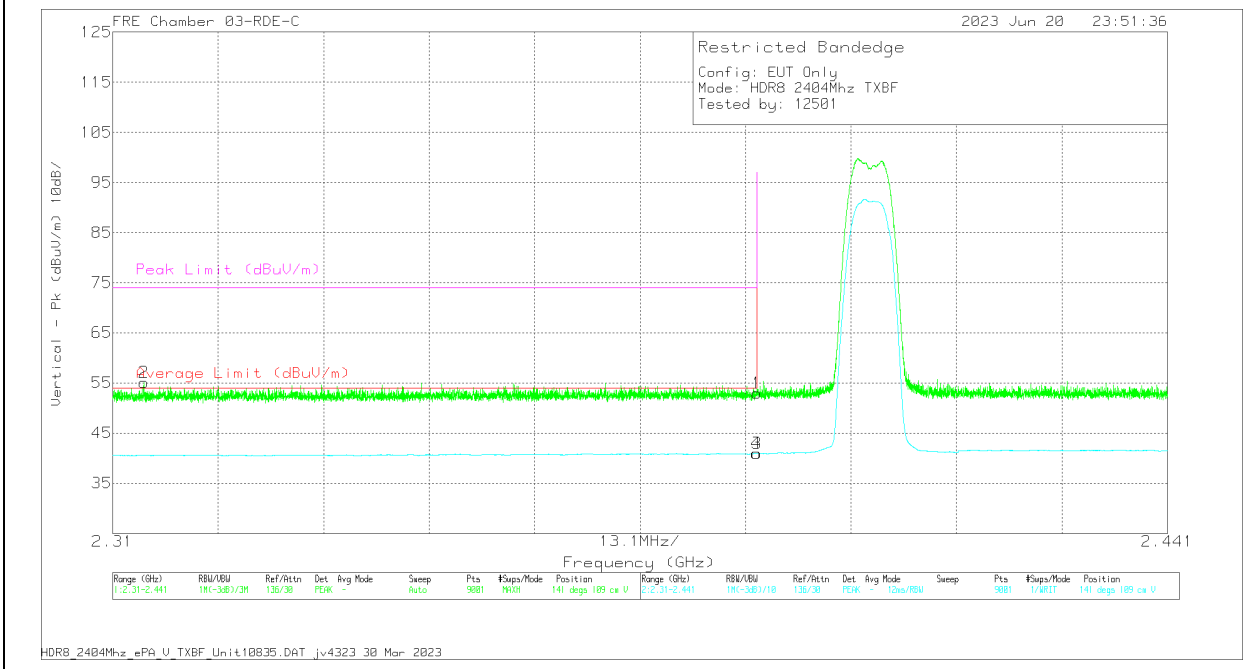
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.46	Pk	32.1	-39.8	52.76	-	-	74	-21.24	194	247	H
2	* 2.368937	63.17	Pk	32	-39.81	55.36	-	-	74	-18.64	194	247	H
3	* 2.39	48.67	VA1T	32.1	-39.8	40.97	54	-13.03	-	-	194	247	H
4	* 2.39	48.67	VA1T	32.1	-39.8	40.97	54	-13.03	-	-	194	247	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

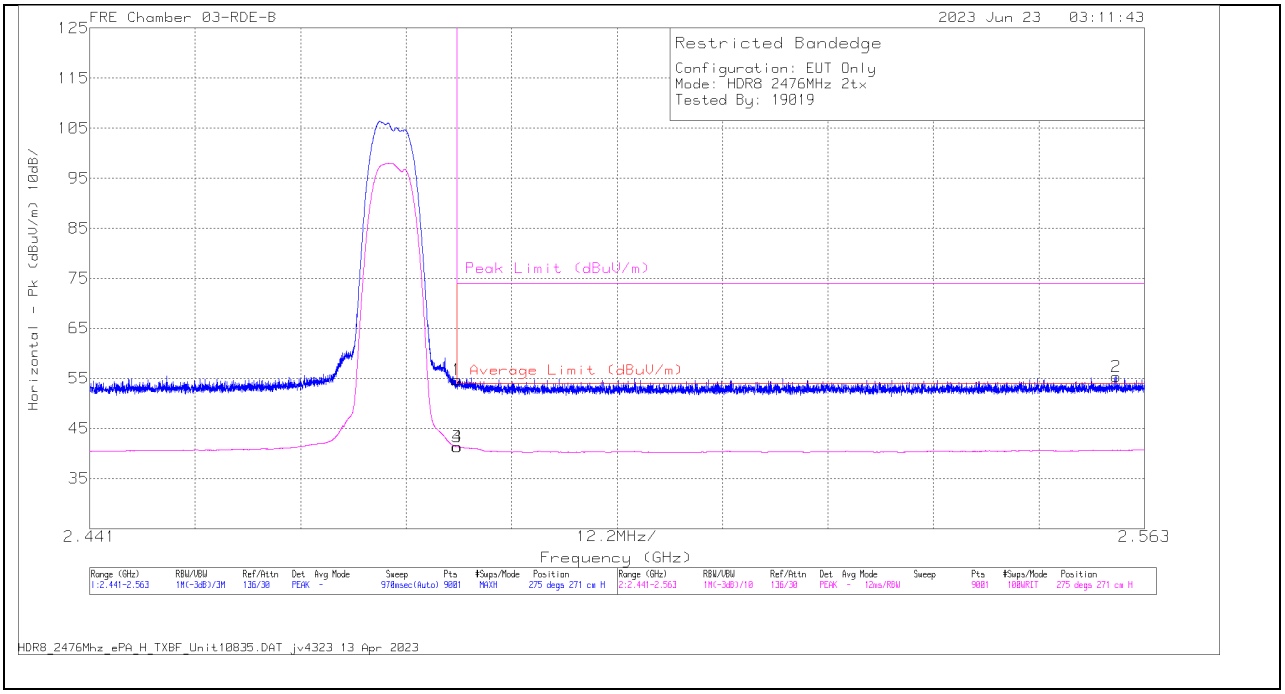


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226672 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.67	Pk	32.1	-39.8	52.97	-	-	74	-21.03	141	109	V
2	* 2.313857	63.16	Pk	31.8	-39.91	55.05	-	-	74	-18.95	141	109	V
3	* 2.39	48.68	VA1T	32.1	-39.8	40.98	54	-13.02	-	-	141	109	V
4	* 2.389956	48.71	VA1T	32.1	-39.81	41	54	-13	-	-	141	109	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

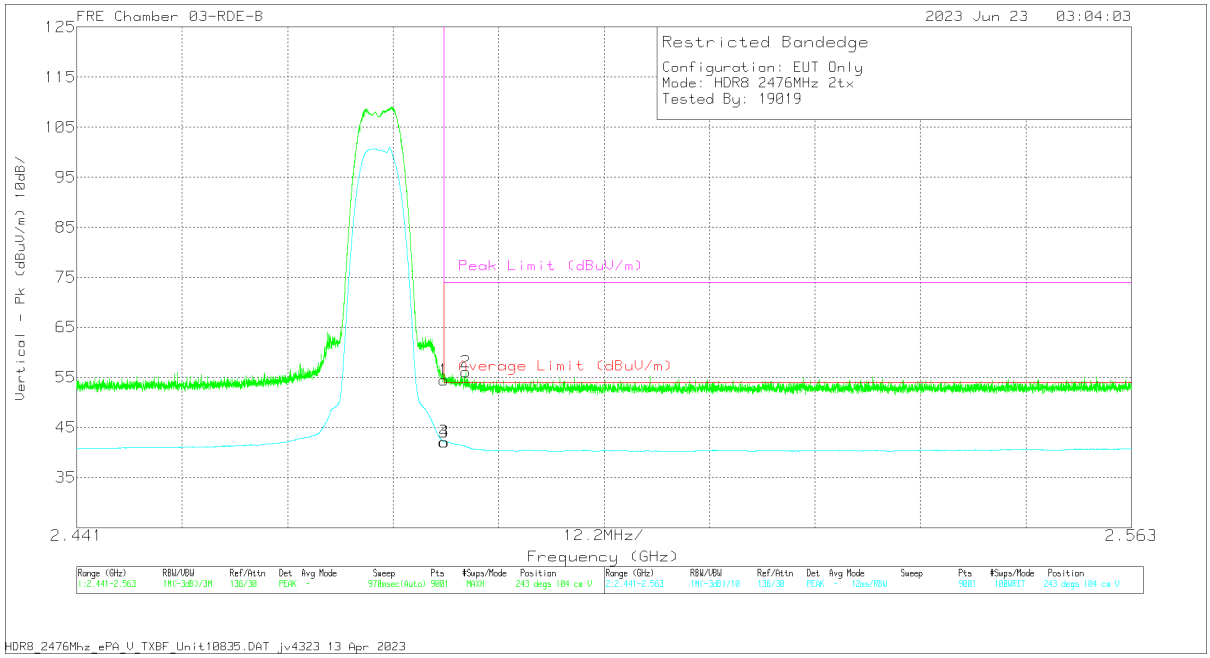
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	63.7	Pk	32.2	-41.15	54.75	-	-	74	-19.25	275	271	H
3	* 2.4835	50.26	VA1T	32.2	-41.15	41.31	54	-12.69	-	-	275	271	H
4	* 2.483512	50.27	VA1T	32.2	-41.15	41.32	54	-12.68	-	-	275	271	H
2	2.55971	63.97	Pk	32.3	-40.9	55.37	-	-	74	-18.63	275	271	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	63.38	Pk	32.2	-41.15	54.43	-	-	74	-19.57	243	104	V
2	* 2.486033	64.95	Pk	32.2	-41.1	56.05	-	-	74	-17.95	243	104	V
3	* 2.4835	51.1	VA1T	32.2	-41.15	42.15	54	-11.85	-	-	243	104	V
4	* 2.483512	51.09	VA1T	32.2	-41.15	42.14	54	-11.86	-	-	243	104	V

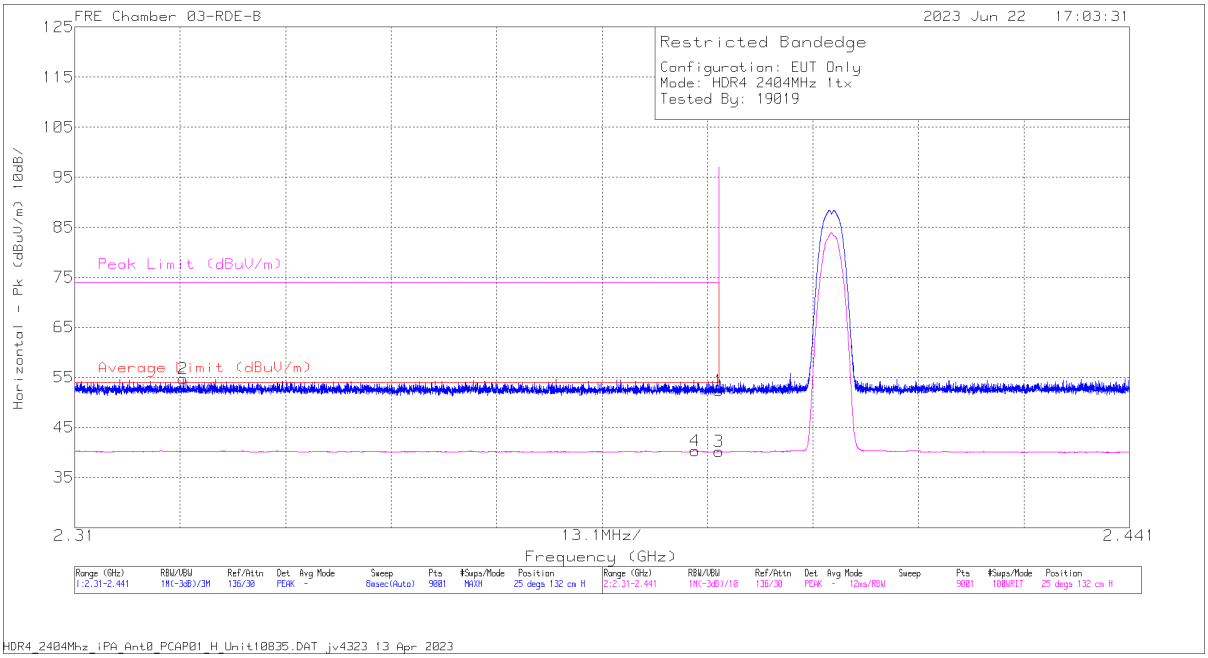
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.2.5. LOW POWER HDR (HDR4)

ANT 4

BANDEDGE (LOW CHANNEL)

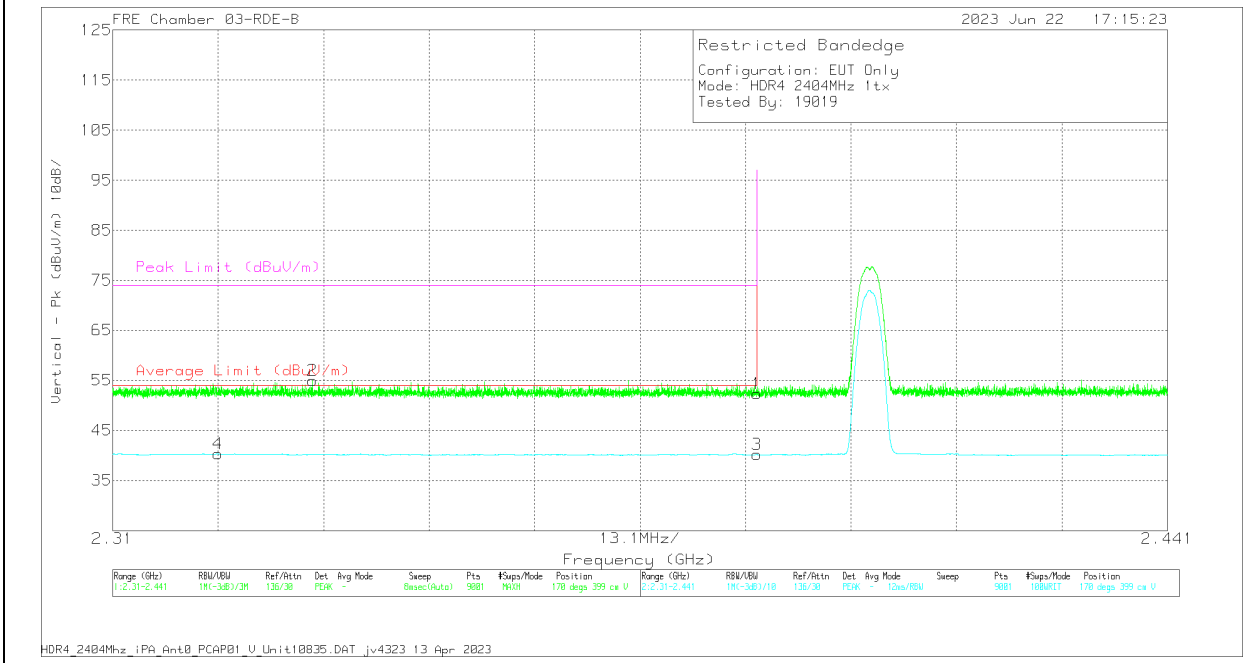
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.4	Pk	32.2	-41.2	52.4	-	-	74	-21.6	25	132	H
2	* 2.323435	63.81	Pk	32.1	-41.14	54.77	-	-	74	-19.23	25	132	H
3	* 2.39	49.17	VA1T	32.2	-41.2	40.17	54	-13.83	-	-	25	132	H
4	* 2.387045	49.22	VA1T	32.2	-41.1	40.32	54	-13.68	-	-	25	132	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.33	Pk	32.2	-41.2	52.33	-	-	74	-21.67	170	399	V
2	* 2.334833	64.12	Pk	32.1	-41.22	55	-	-	74	-19	170	399	V
3	* 2.39	49.21	VA1T	32.2	-41.2	40.21	54	-13.79	-	-	170	399	V
4	* 2.323042	49.33	VA1T	32.1	-41.1	40.33	54	-13.67	-	-	170	399	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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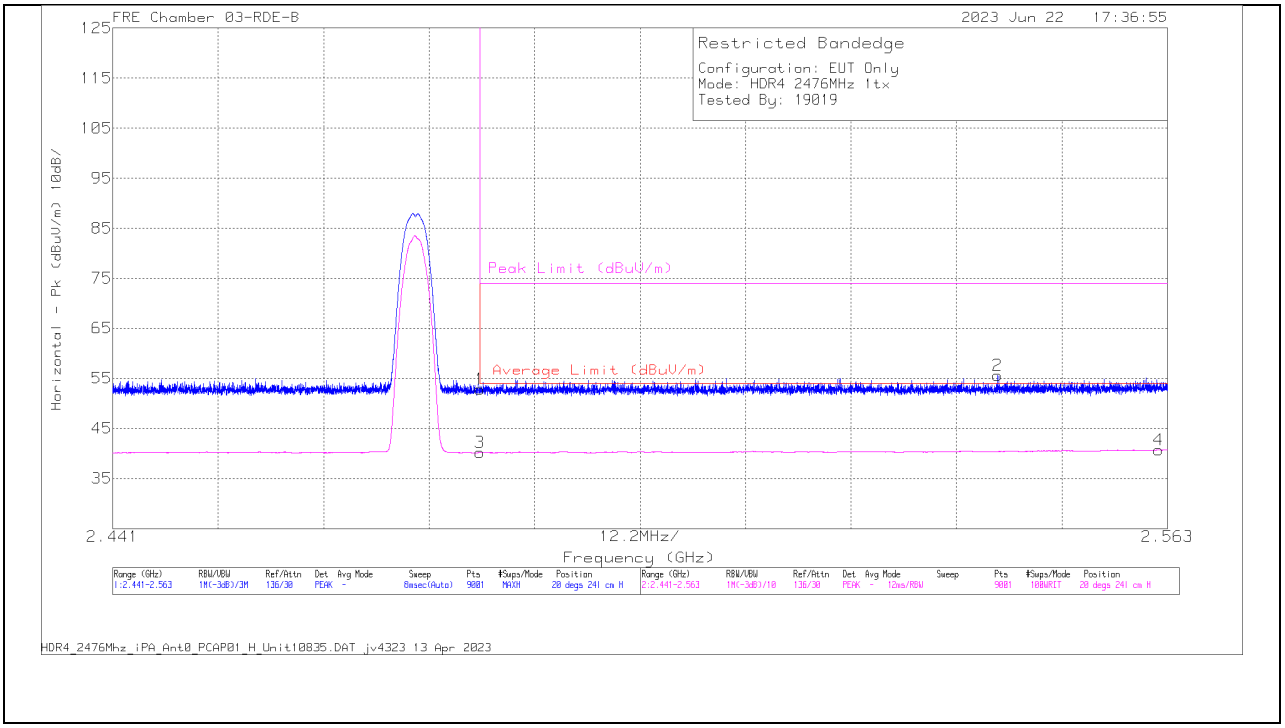
BANDEDGE (HIGH CHANNEL)

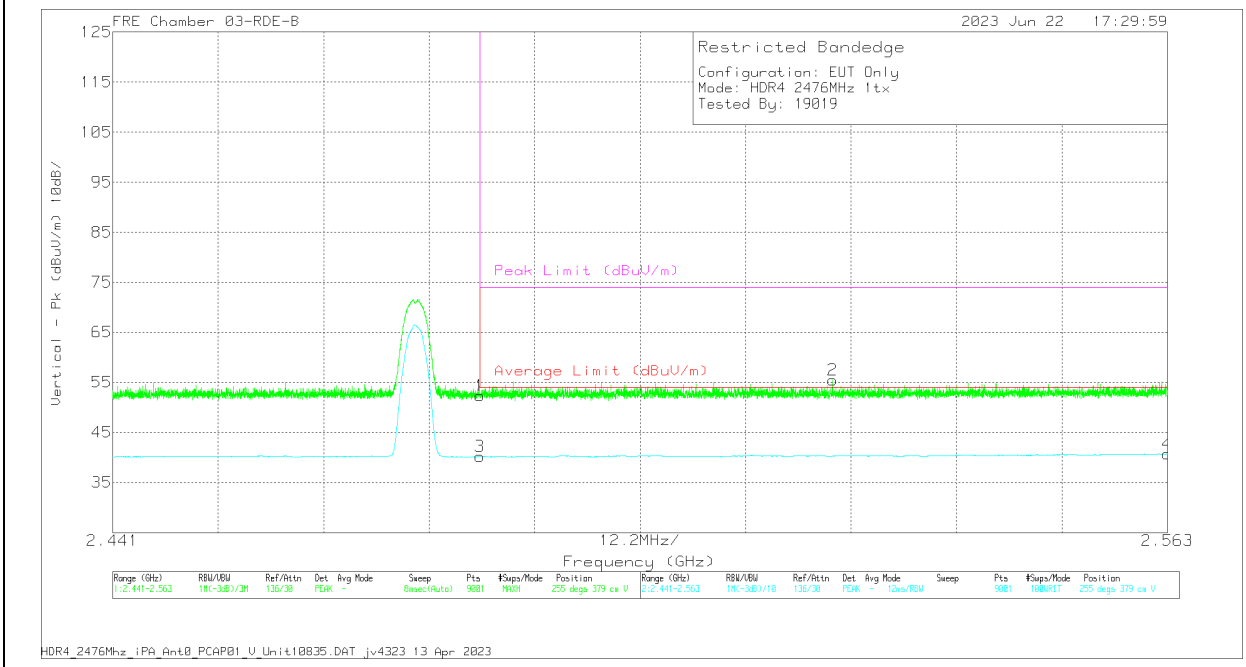
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.81	Pk	32.2	-41.15	52.86	-	-	74	-21.14	20	241	H
3	* 2.4835	49.15	VA1T	32.2	-41.15	40.2	54	-13.8	-	-	20	241	H
2	2.543334	64.3	Pk	32.3	-41	55.6	-	-	74	-18.4	20	241	H
4	2.562014	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	20	241	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



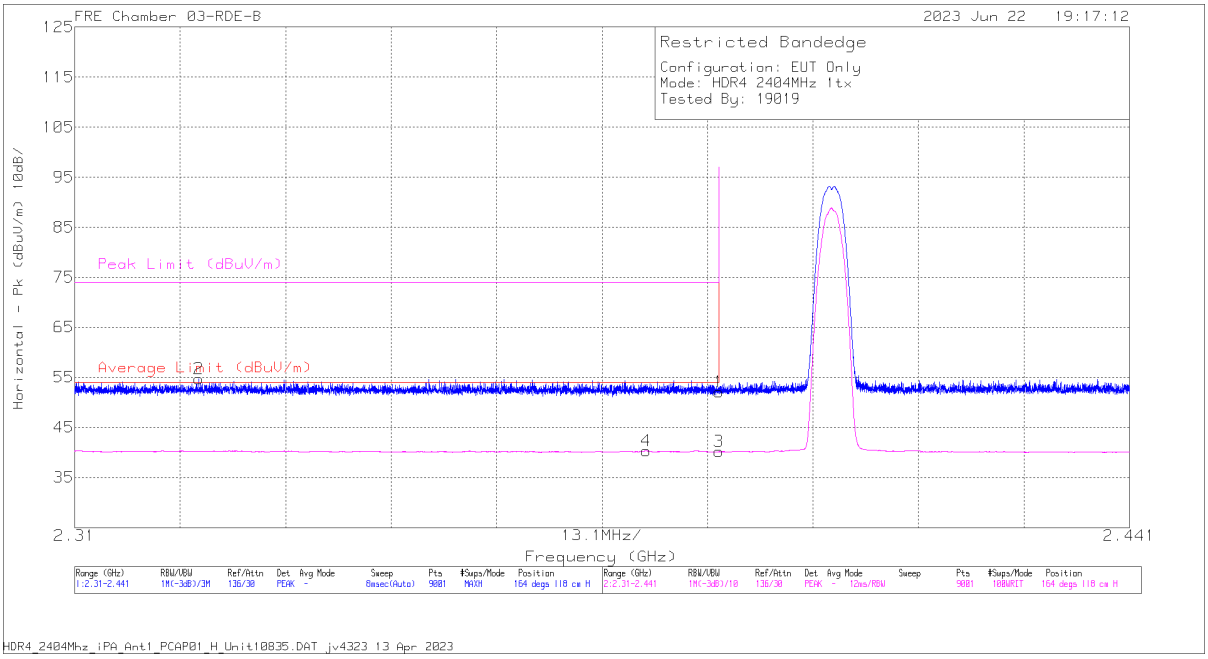
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.29	Pk	32.2	-41.15	52.34	-	-	74	-21.66	255	379	V
3	* 2.4835	49.13	VA1T	32.2	-41.15	40.18	54	-13.82	-	-	255	379	V
2	2.524261	64.24	Pk	32.3	-41.07	55.47	-	-	74	-18.53	255	379	V
4	2.562977	49.22	VA1T	32.3	-40.8	40.72	54	-13.28	-	-	255	379	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

ANT 3

BANDEDGE (LOW CHANNEL)

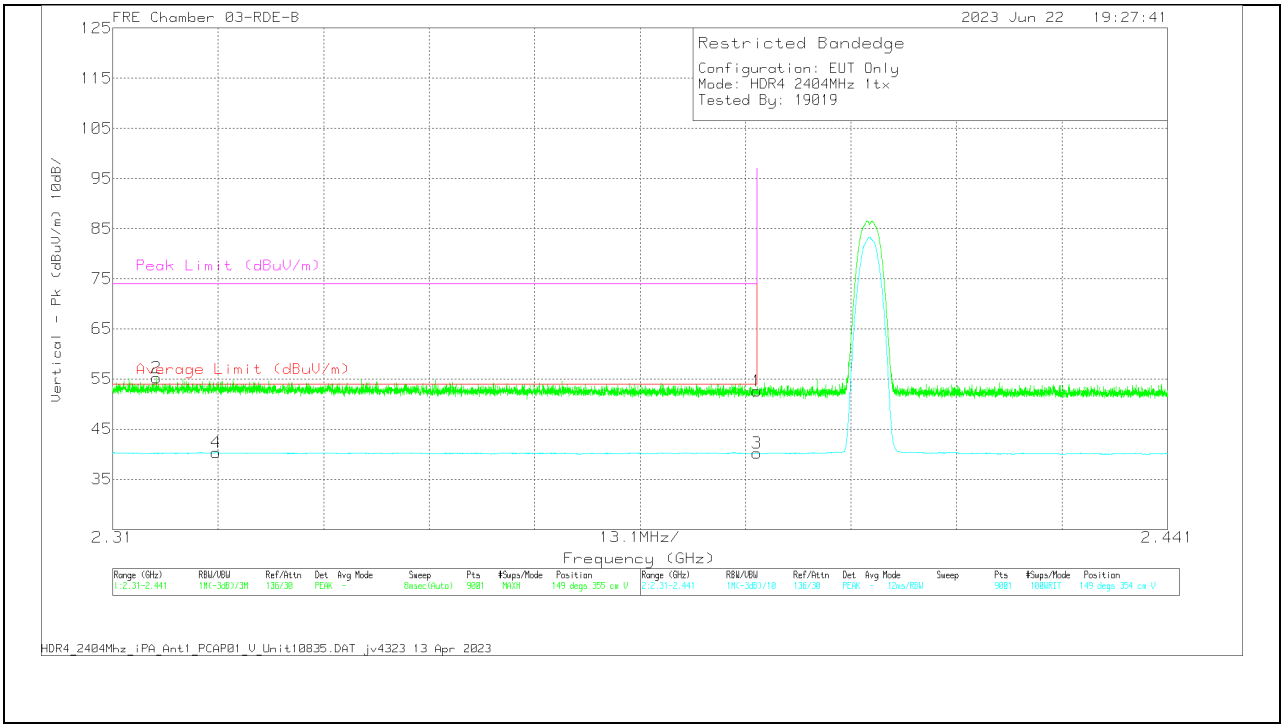
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.08	Pk	32.2	-41.2	52.08	-	-	74	-21.92	164	118	H
2	* 2.325386	63.87	Pk	32.1	-41.2	54.77	-	-	74	-19.23	164	118	H
3	* 2.39	49.16	VA1T	32.2	-41.2	40.16	54	-13.84	-	-	164	118	H
4	* 2.381019	49.33	VA1T	32.1	-41.1	40.33	54	-13.67	-	-	164	118	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

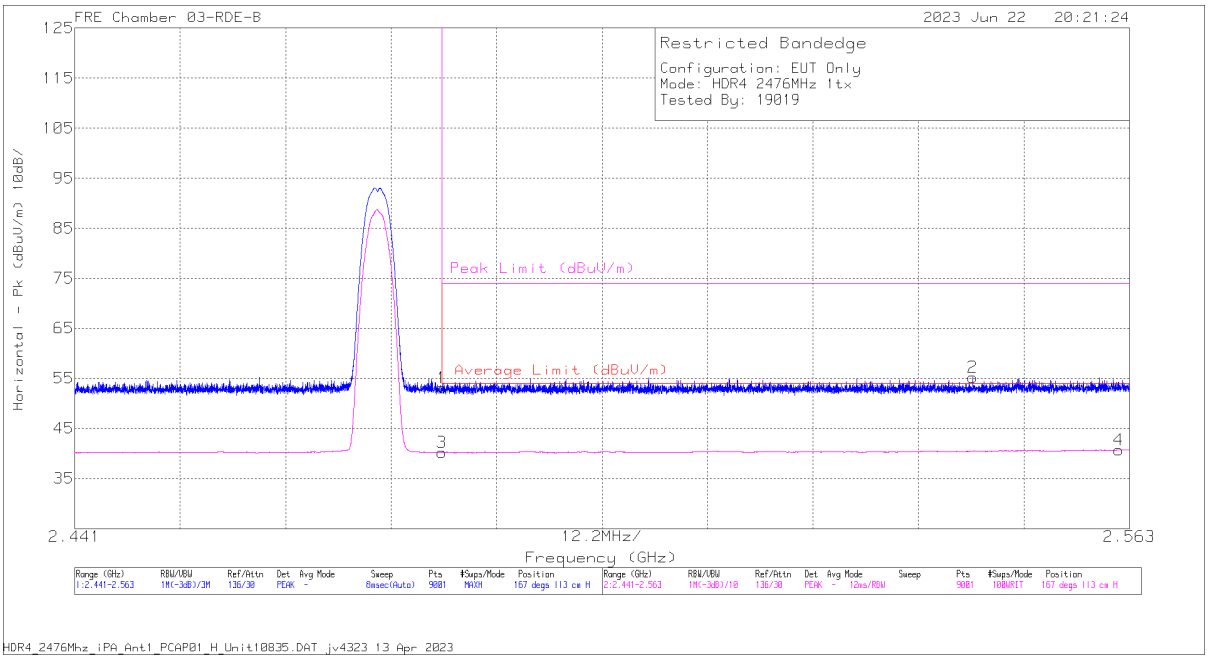


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.56	Pk	32.2	-41.2	52.56	-	-	74	-21.44	149	355	V
2	* 2.315415	64.37	Pk	32.1	-41.2	55.27	-	-	74	-18.73	149	355	V
3	* 2.39	49.18	VA1T	32.2	-41.2	40.18	54	-13.82	-	-	149	354	V
4	* 2.322853	49.33	VA1T	32.1	-41.11	40.32	54	-13.68	-	-	149	354	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

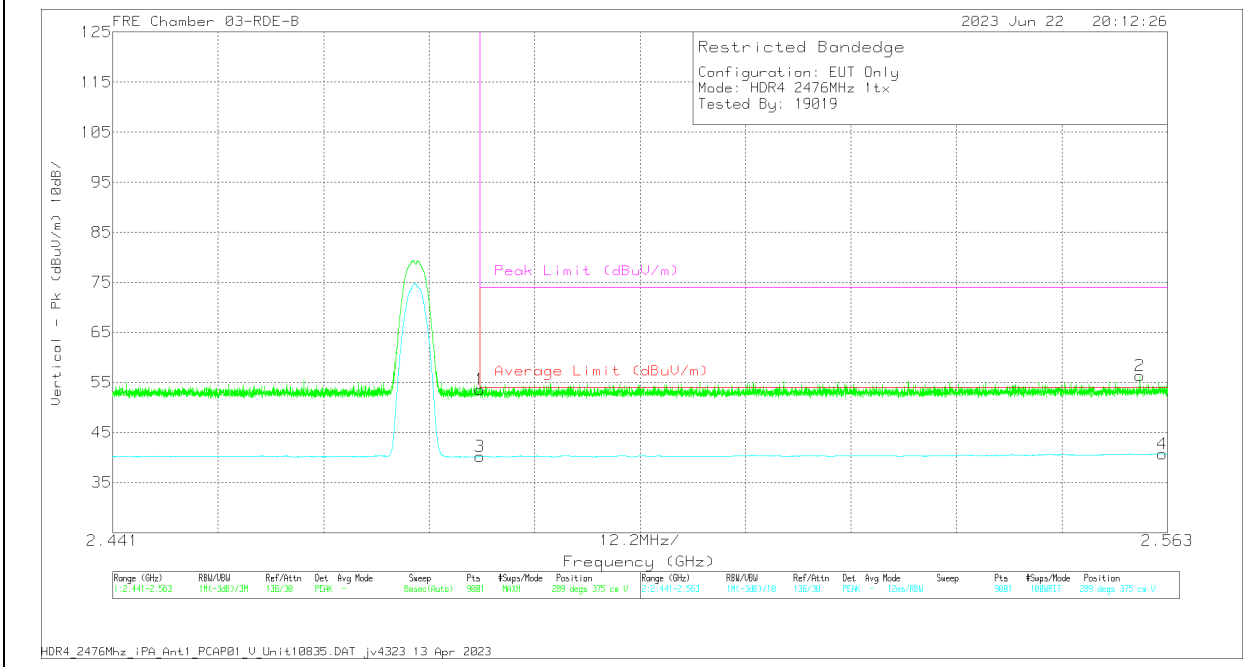
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.08	Pk	32.2	-41.15	53.13	-	-	74	-20.87	167	113	H
3	* 2.4835	49.2	VA1T	32.2	-41.15	40.25	54	-13.75	-	-	167	113	H
2	2.544866	63.82	Pk	32.3	-40.91	55.21	-	-	74	-18.79	167	113	H
4	2.561757	49.27	VA1T	32.3	-40.82	40.75	54	-13.25	-	-	167	113	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.55	Pk	32.2	-41.15	53.6	-	-	74	-20.4	289	375	V
3	* 2.4835	49.12	VA1T	32.2	-41.15	40.17	54	-13.83	-	-	289	375	V
2	2.559805	64.94	Pk	32.3	-40.9	56.34	-	-	74	-17.66	289	375	V
4	2.562435	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	289	375	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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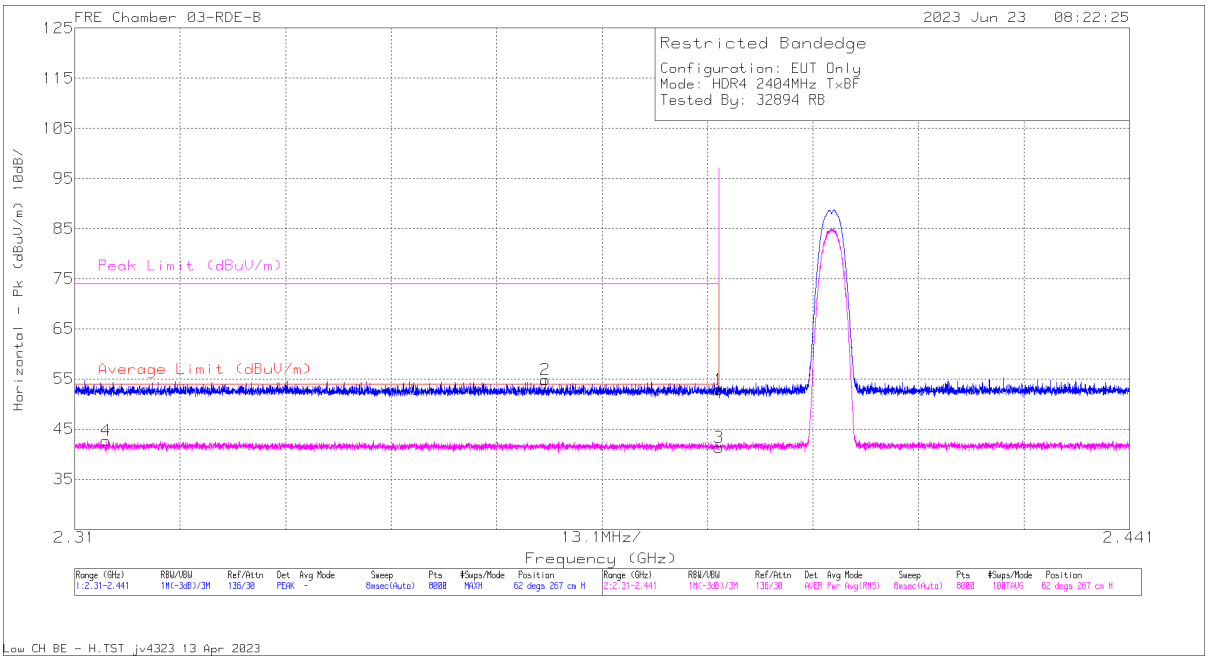
10.2.6. LOW POWER HDR TXBF (HDR4)

BANDEDGE (LOW CHANNEL)

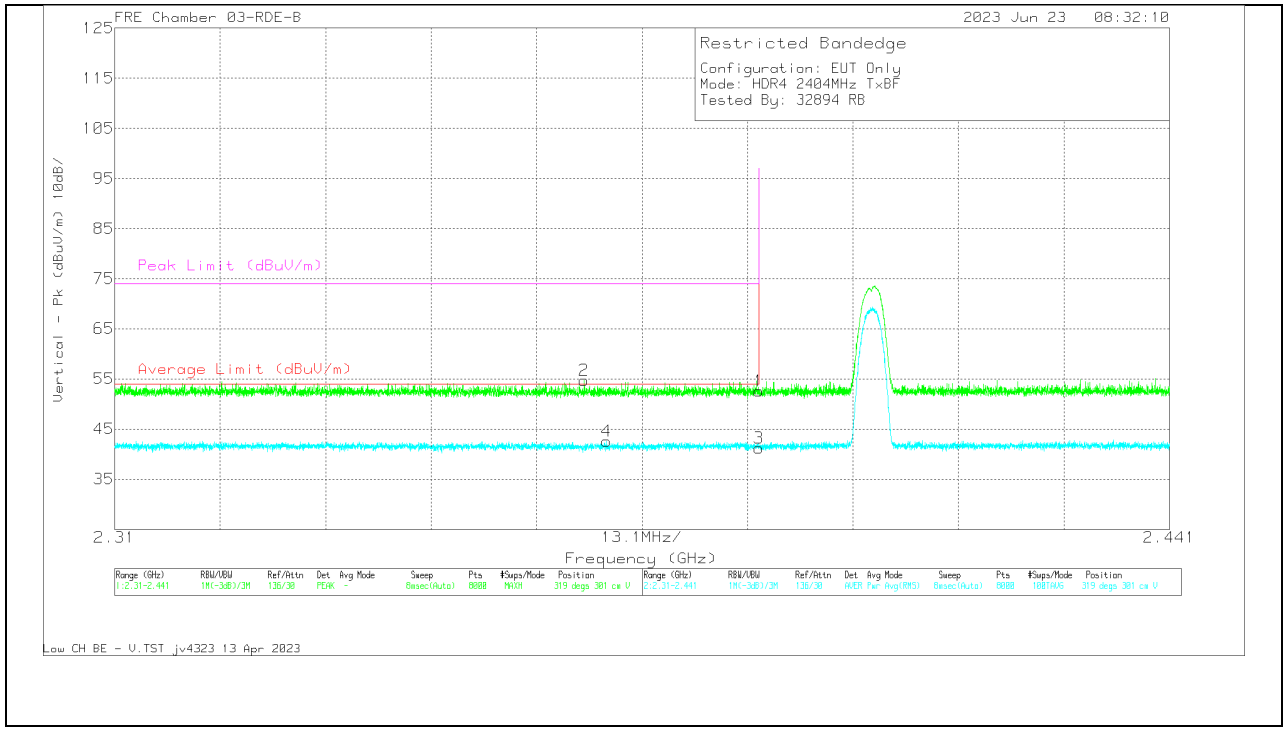
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.88	Pk	32.2	-41.2	52.88	-	-	74	-21.12	62	267	H
2	* 2.368433	63.96	Pk	32.1	-41.26	54.8	-	-	74	-19.2	62	267	H
3	* 2.39	50.31	RMS	32.2	-41.2	41.31	54	-12.69	-	-	62	267	H
4	* 2.313881	51.96	RMS	32.1	-41.29	42.77	54	-11.23	-	-	62	267	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT

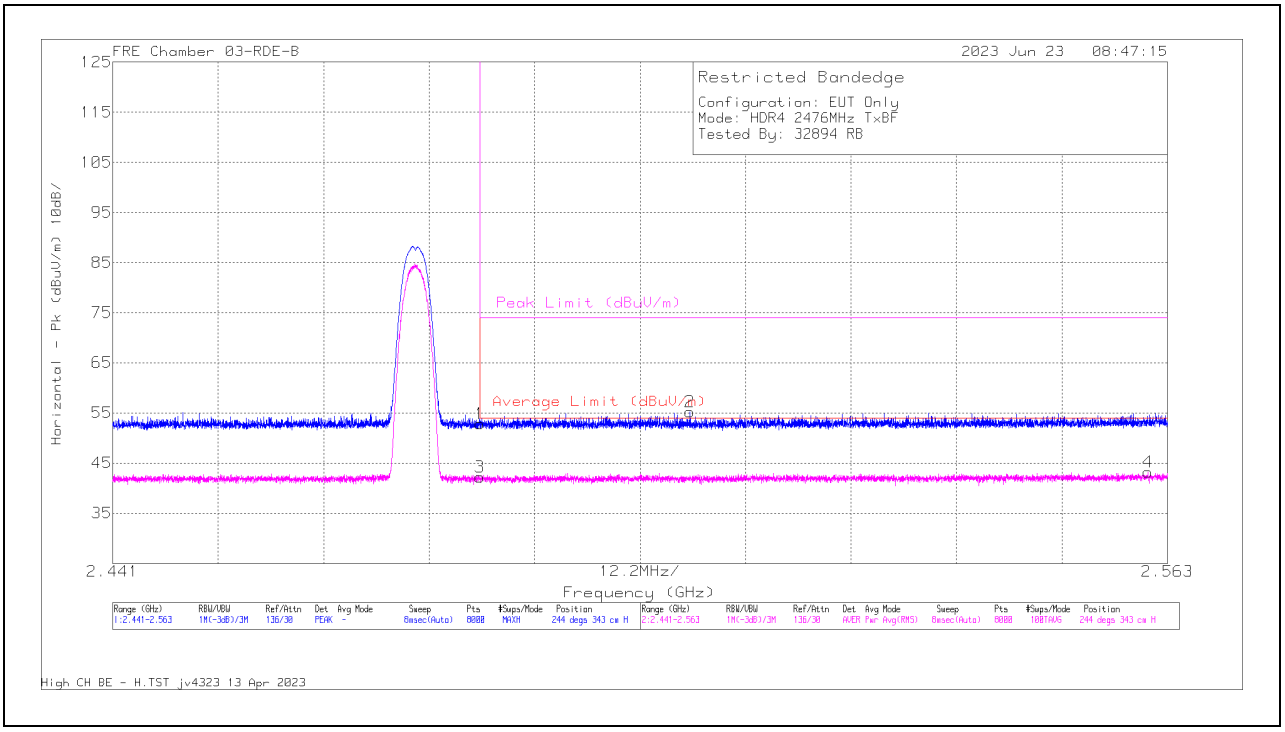


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.65	Pk	32.2	-41.2	52.65	-	-	74	-21.35	319	301	V
2	* 2.368319	63.92	Pk	32.1	-41.27	54.75	-	-	74	-19.25	319	301	V
3	* 2.39	50.26	RMS	32.2	-41.2	41.26	54	-12.74	-	-	319	301	V
4	* 2.371086	51.7	RMS	32.1	-41.2	42.6	54	-11.4	-	-	319	301	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

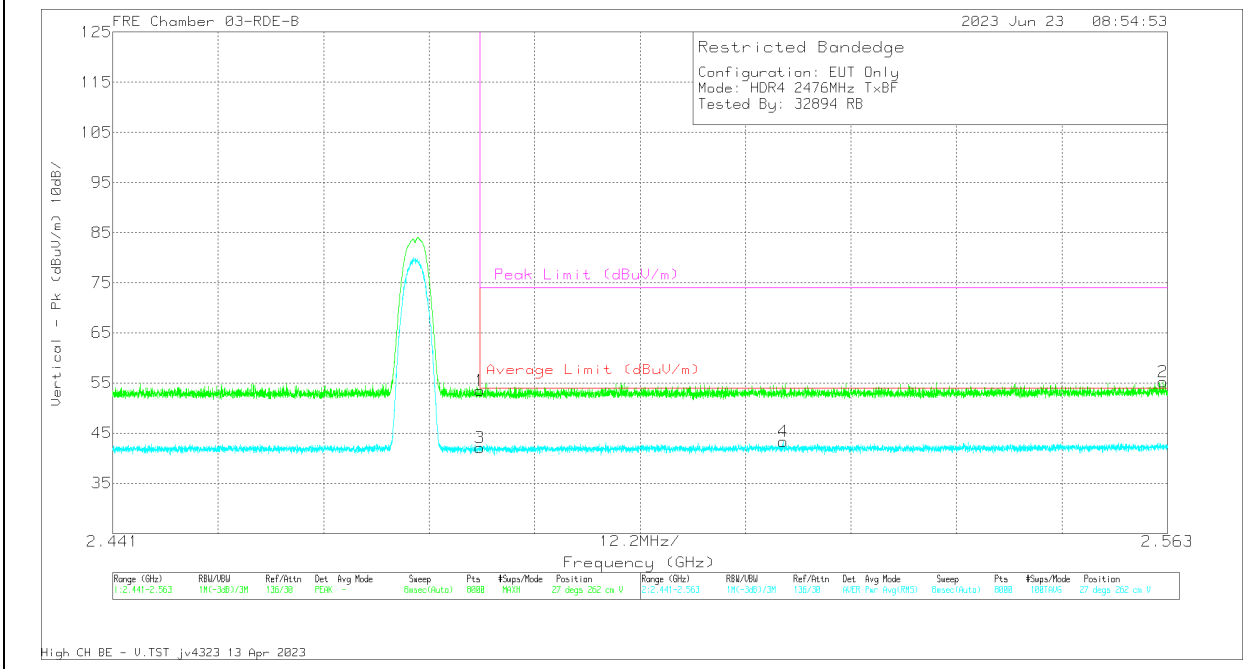
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.83	Pk	32.2	-41.15	52.88	-	-	74	-21.12	244	343	H
3	* 2.4835	51.18	RMS	32.2	-41.15	42.23	54	-11.77	-	-	244	343	H
2	2.507789	64.11	Pk	32.2	-41.1	55.21	-	-	74	-18.79	244	343	H
4	2.560759	51.83	RMS	32.3	-40.9	43.23	54	-10.77	-	-	244	343	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.47	Pk	32.2	-41.15	53.52	-	-	74	-20.48	27	262	V
3	* 2.4835	51.03	RMS	32.2	-41.15	42.08	54	-11.92	-	-	27	262	V
4	2.518526	52.07	RMS	32.3	-41.05	43.32	54	-10.68	-	-	27	262	V
2	2.562482	63.74	Pk	32.3	-40.8	55.24	-	-	74	-18.76	27	262	V

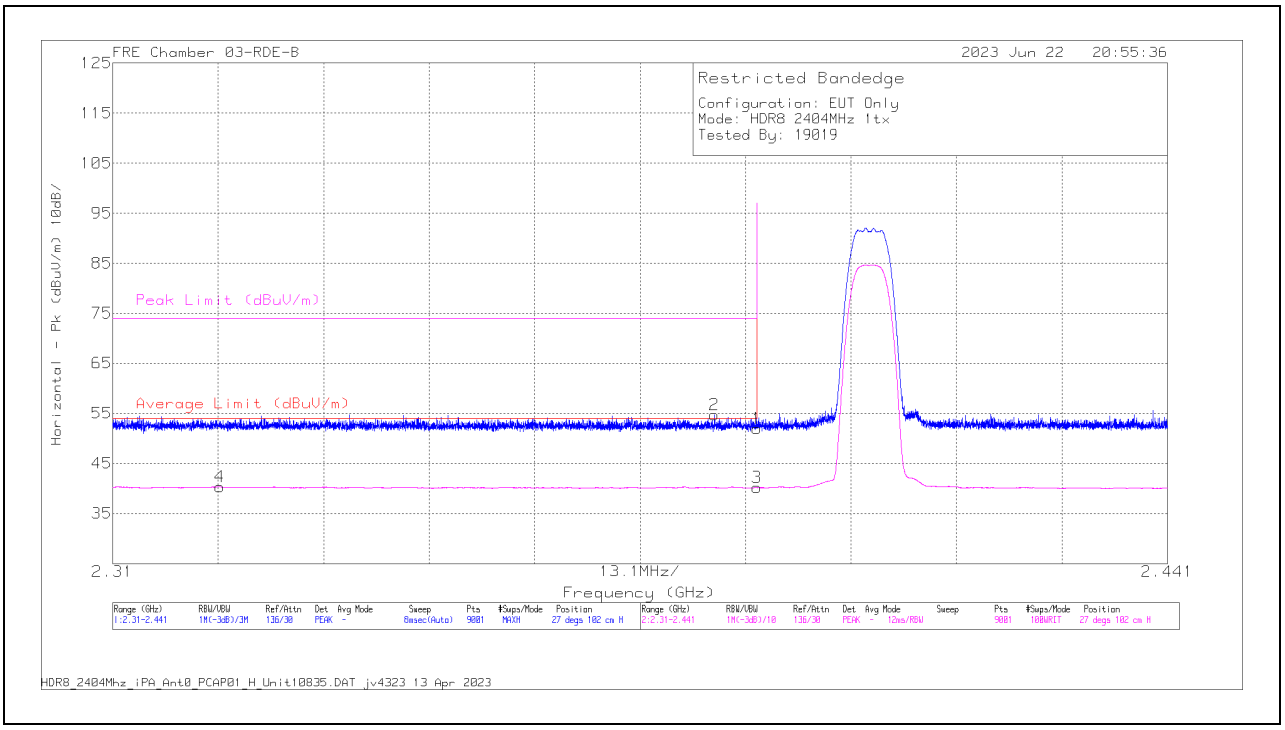
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

10.2.7. LOW POWER HDR (HDR8)

ANT 4

BANDEDGE (LOW CHANNEL)

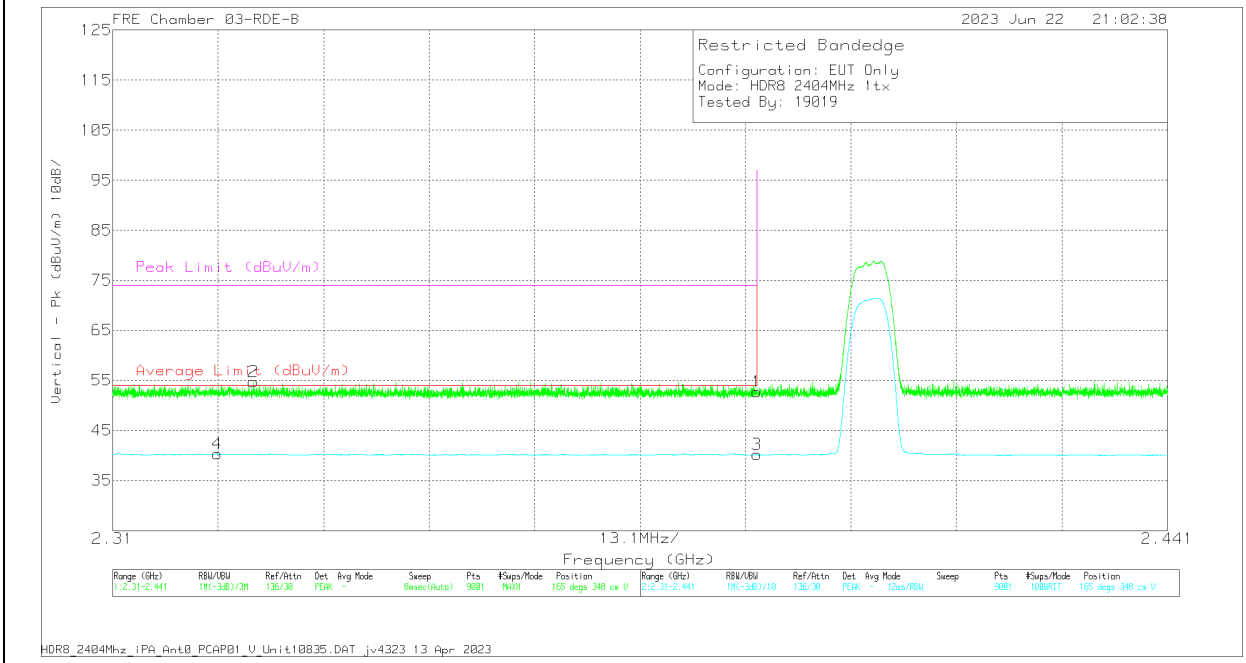
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.02	Pk	32.2	-41.2	52.02	-	-	74	-21.98	27	102	H
2	* 2.384745	63.73	Pk	32.2	-41.2	54.73	-	-	74	-19.27	27	102	H
3	* 2.39	49.17	VA1T	32.2	-41.2	40.17	54	-13.83	-	-	27	102	H
4	* 2.323304	49.37	VA1T	32.1	-41.13	40.34	54	-13.66	-	-	27	102	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

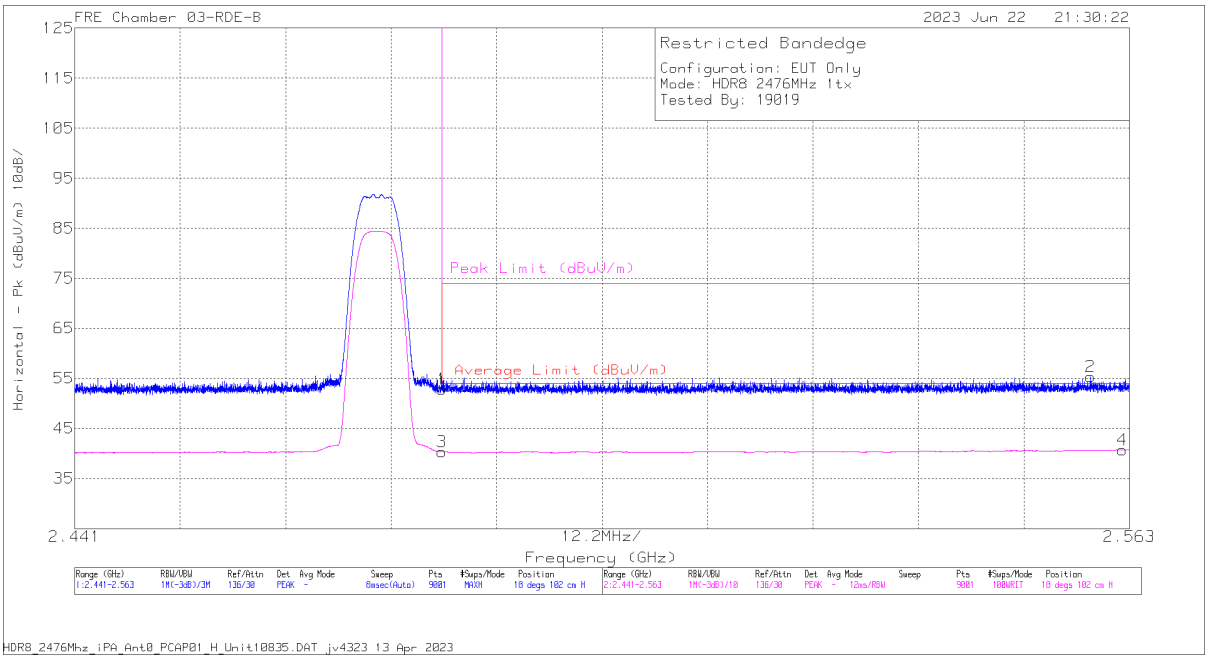


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.67	Pk	32.2	-41.2	52.67	-	-	74	-21.33	165	348	V
2	* 2.327467	63.86	Pk	32.1	-41.2	54.76	-	-	74	-19.24	165	348	V
3	* 2.39	49.17	VA1T	32.2	-41.2	40.17	54	-13.83	-	-	165	348	V
4	* 2.323013	49.34	VA1T	32.1	-41.1	40.34	54	-13.66	-	-	165	348	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

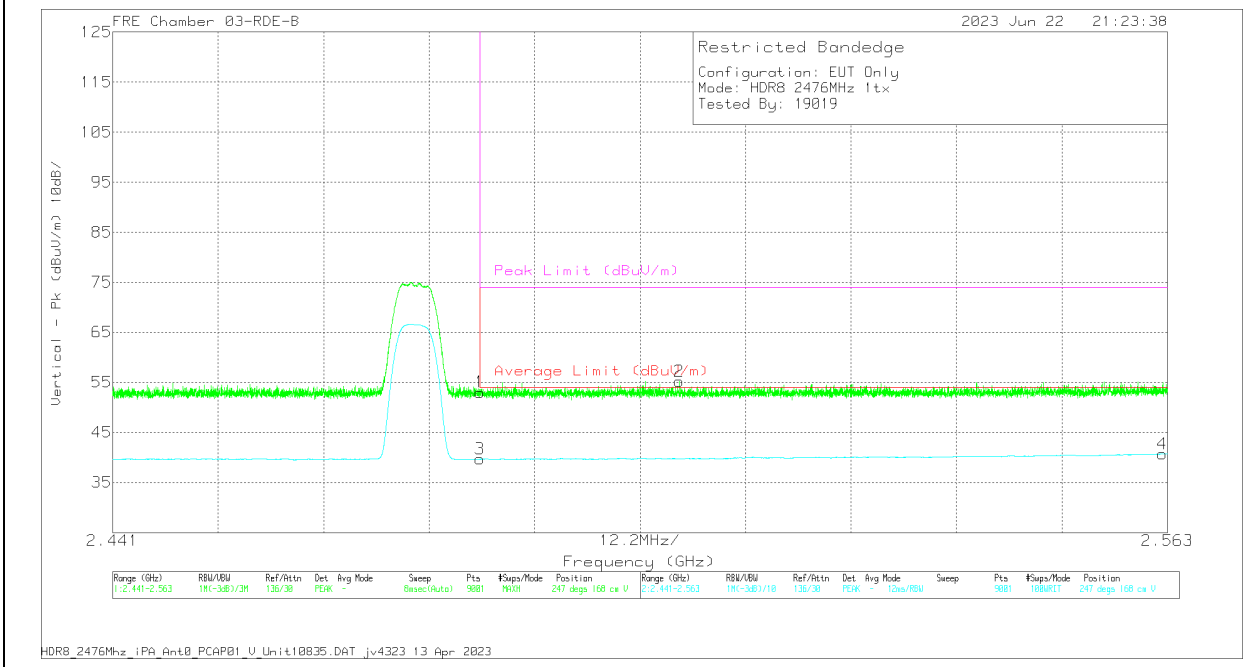
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.83	Pk	32.2	-41.15	52.88	-	-	74	-21.12	18	102	H
3	* 2.4835	49.28	VA1T	32.2	-41.15	40.33	54	-13.67	-	-	18	102	H
2	2.558531	63.92	Pk	32.3	-40.9	55.32	-	-	74	-18.68	18	102	H
4	2.562204	49.26	VA1T	32.3	-40.8	40.76	54	-13.24	-	-	18	102	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



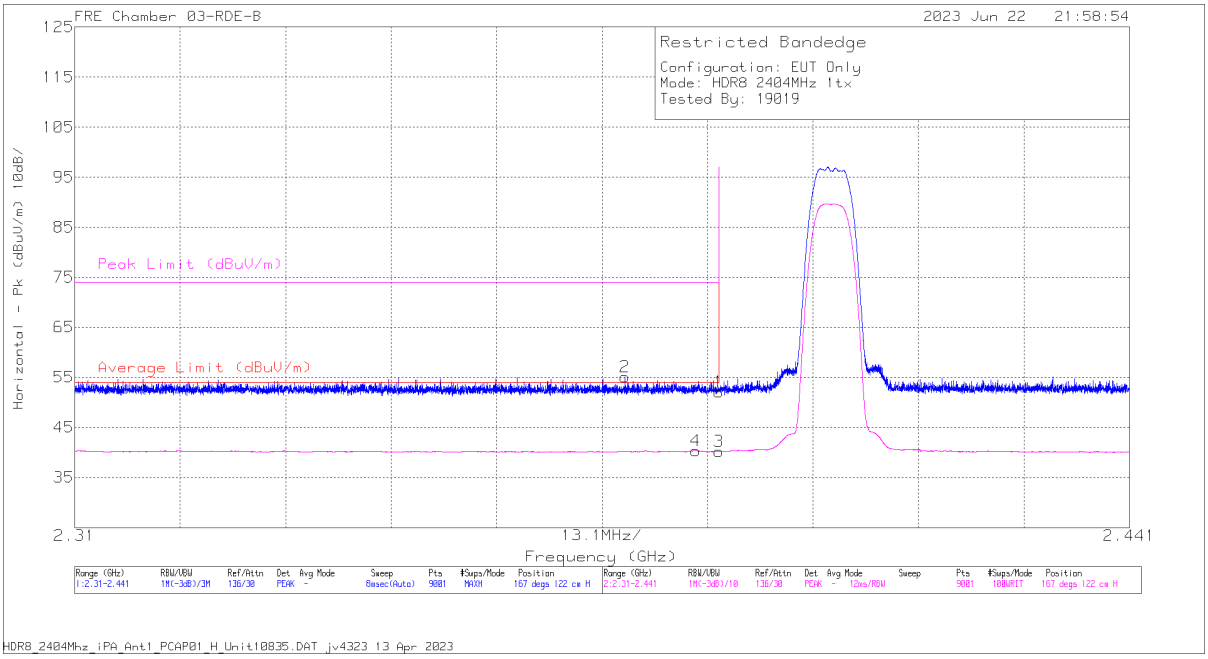
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.99	Pk	32.2	-41.15	53.04	-	-	74	-20.96	247	168	V
3	* 2.4835	48.61	VA1T	32.2	-41.15	39.66	54	-14.34	-	-	247	168	V
2	2.506503	64.16	Pk	32.2	-41.1	55.26	-	-	74	-18.74	247	168	V
4	2.562408	49.19	VA1T	32.3	-40.8	40.69	54	-13.31	-	-	247	168	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

ANT 3

BANDEDGE (LOW CHANNEL)

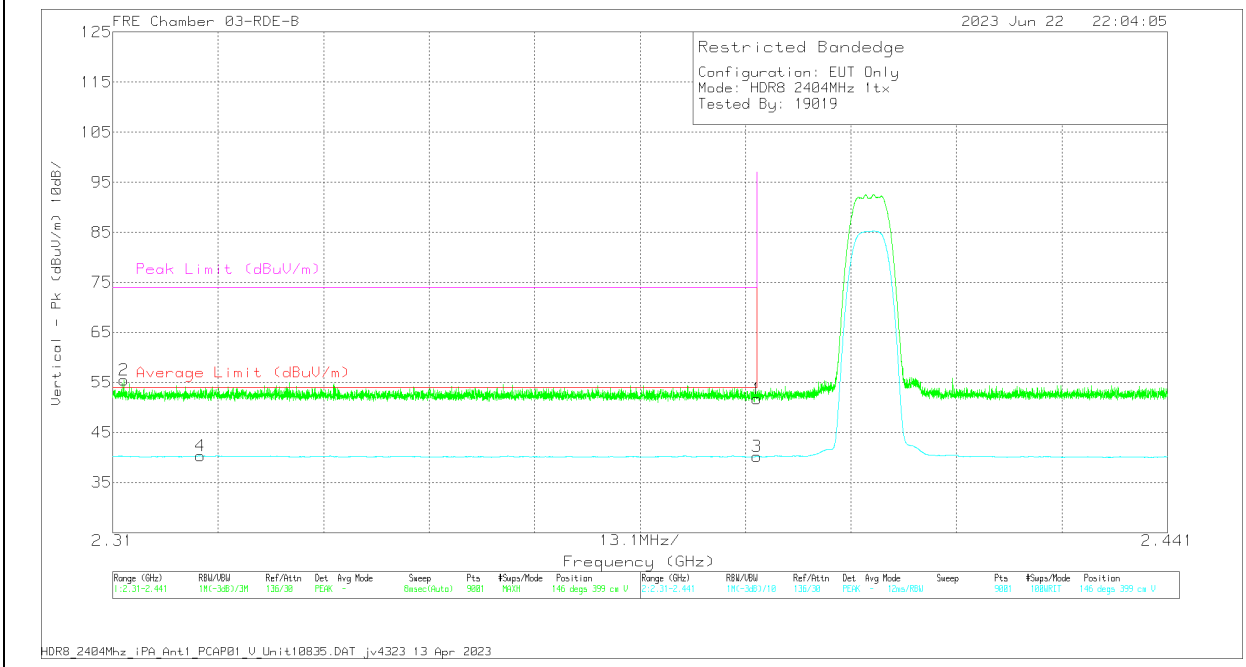
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.1	Pk	32.2	-41.2	52.1	-	-	74	-21.9	167	122	H
2	* 2.378326	64.18	Pk	32.1	-41.2	55.08	-	-	74	-18.92	167	122	H
3	* 2.39	49.23	VA1T	32.2	-41.2	40.23	54	-13.77	-	-	167	122	H
4	* 2.387147	49.26	VA1T	32.2	-41.11	40.35	54	-13.65	-	-	167	122	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

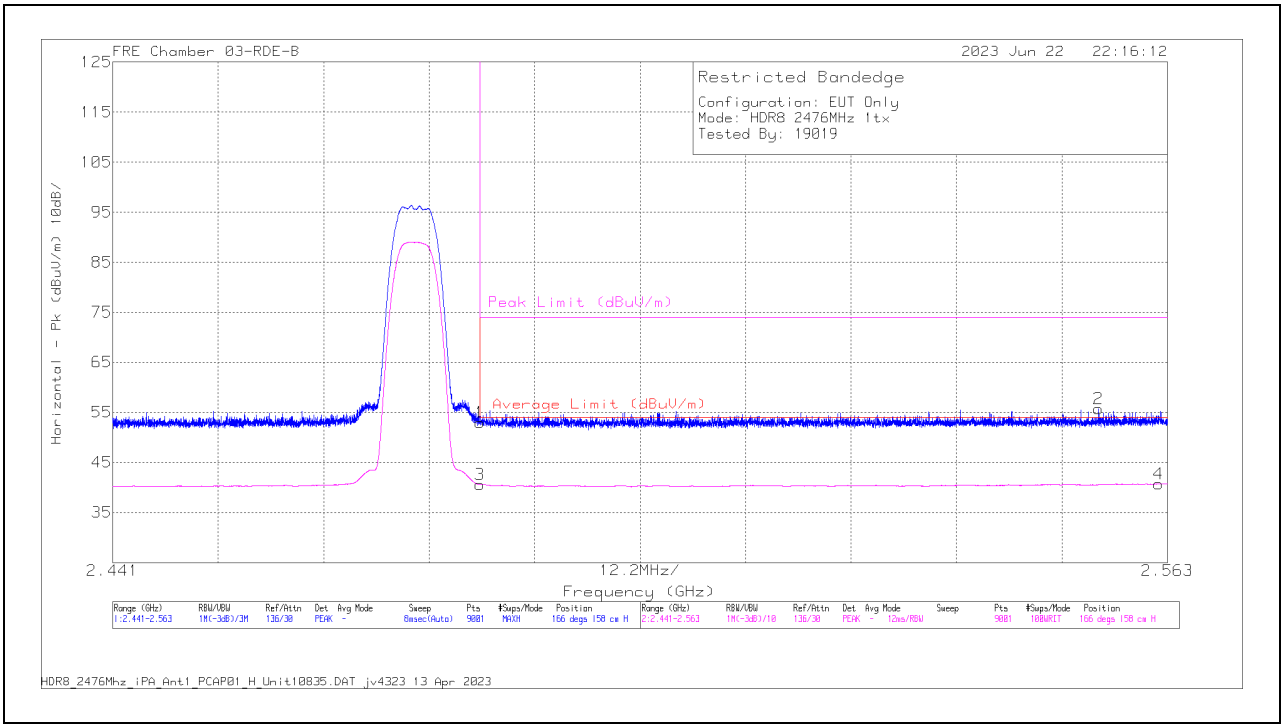


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	60.76	Pk	32.2	-41.2	51.76	-	-	74	-22.24	146	399	V
2	* 2.311368	64.59	Pk	32	-41.14	55.45	-	-	74	-18.55	146	399	V
3	* 2.39	49.19	VA1T	32.2	-41.2	40.19	54	-13.81	-	-	146	399	V
4	* 2.320917	49.34	VA1T	32.1	-41.11	40.33	54	-13.67	-	-	146	399	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

BANDEDGE (HIGH CHANNEL)

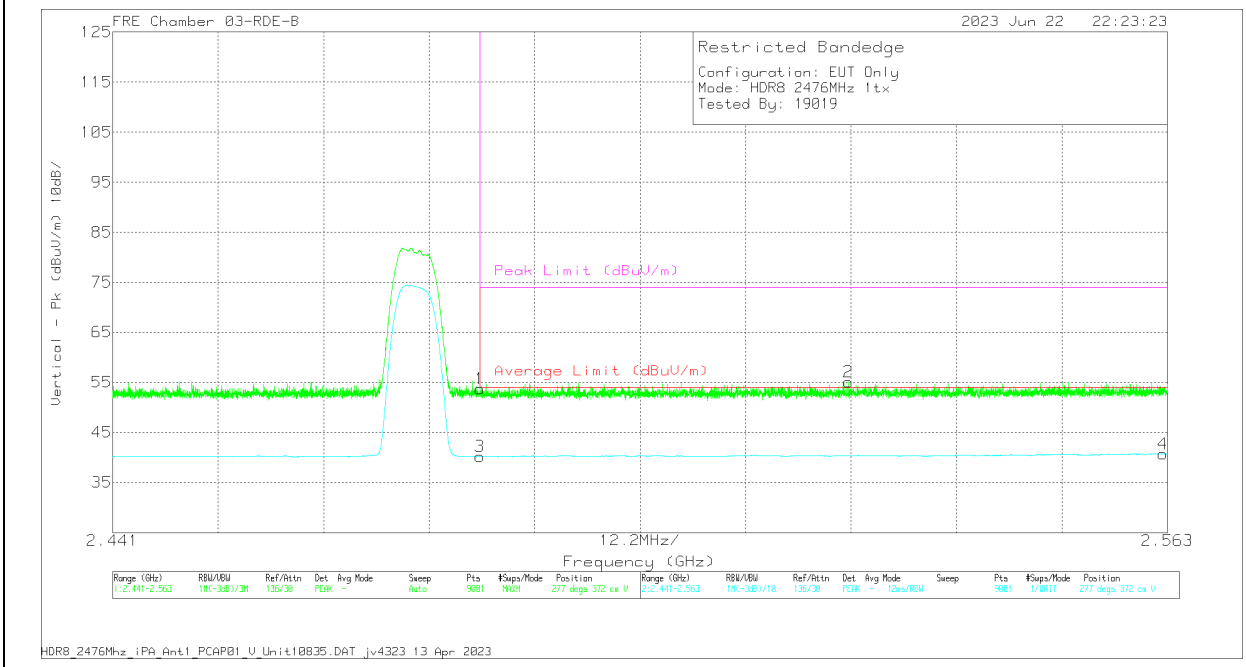
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.89	Pk	32.2	-41.15	52.94	-	-	74	-21.06	166	158	H
3	* 2.4835	49.51	VA1T	32.2	-41.15	40.56	54	-13.44	-	-	166	158	H
2	2.555047	64.38	Pk	32.3	-41	55.68	-	-	74	-18.32	166	158	H
4	2.562014	49.25	VA1T	32.3	-40.8	40.75	54	-13.25	-	-	166	158	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT



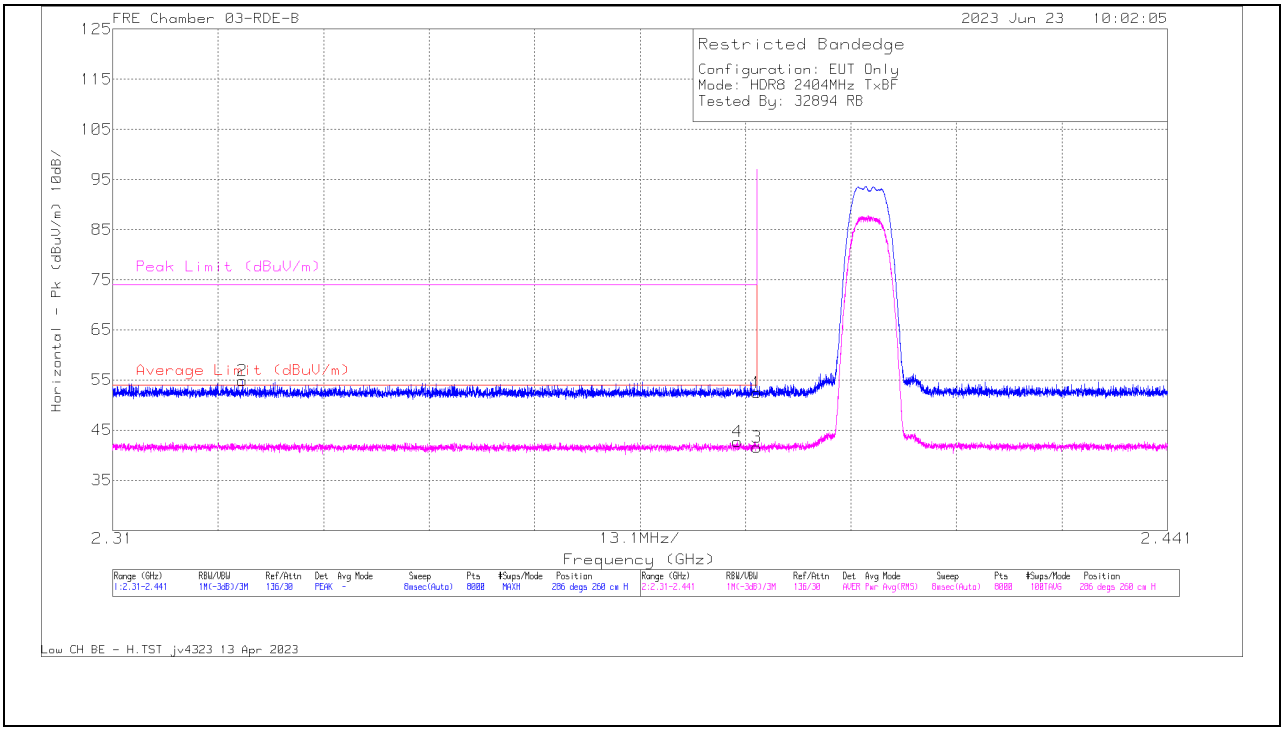
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	62.72	Pk	32.2	-41.15	53.77	-	-	74	-20.23	277	372	V
3	* 2.4835	49.16	VA1T	32.2	-41.15	40.21	54	-13.79	-	-	277	372	V
2	2.526118	63.83	Pk	32.3	-41	55.13	-	-	74	-18.87	277	372	V
4	2.562462	49.24	VA1T	32.3	-40.8	40.74	54	-13.26	-	-	277	372	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.2.8. LOW POWER HDR TXBF (HDR8)

BANDEDGE (LOW CHANNEL)

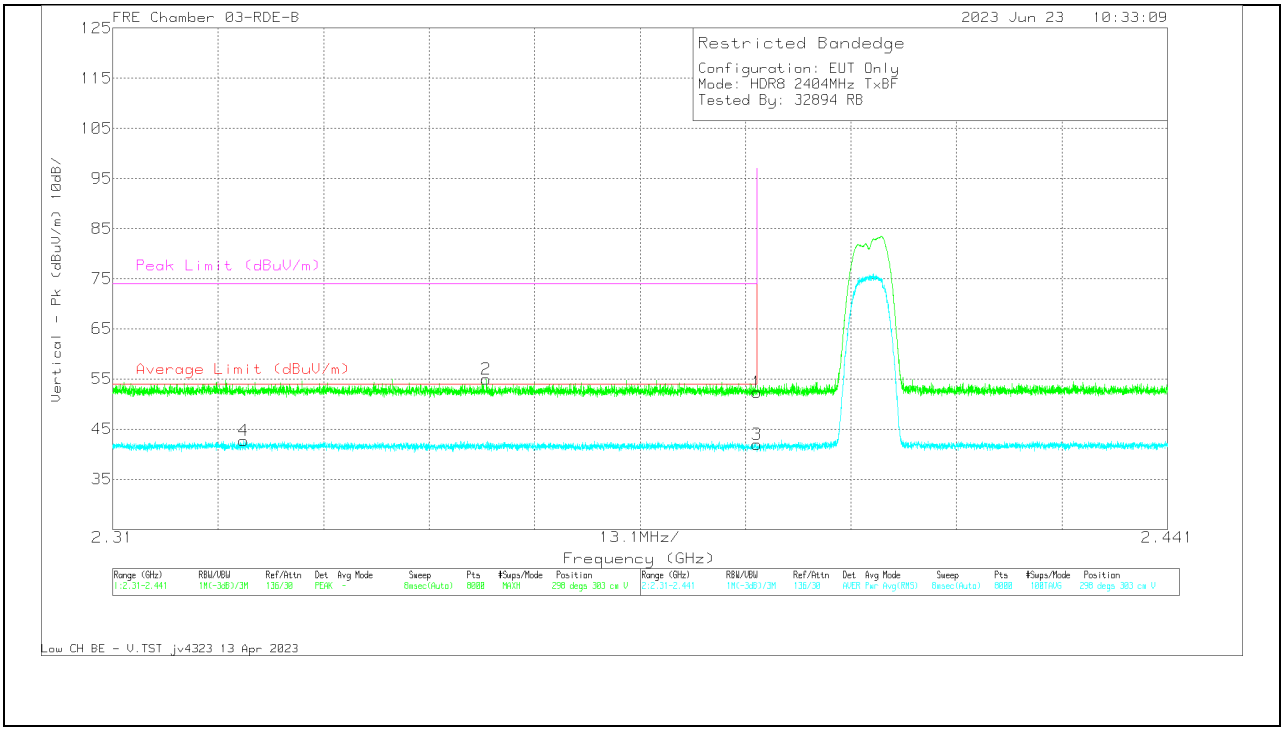
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.53	Pk	32.2	-41.2	52.53	-	-	74	-21.47	286	260	H
2	* 2.326115	63.93	Pk	32.1	-41.2	54.83	-	-	74	-19.17	286	260	H
3	* 2.39	50.64	RMS	32.2	-41.2	41.64	54	-12.36	-	-	286	260	H
4	* 2.387611	51.7	RMS	32.2	-41.16	42.74	54	-11.26	-	-	286	260	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT

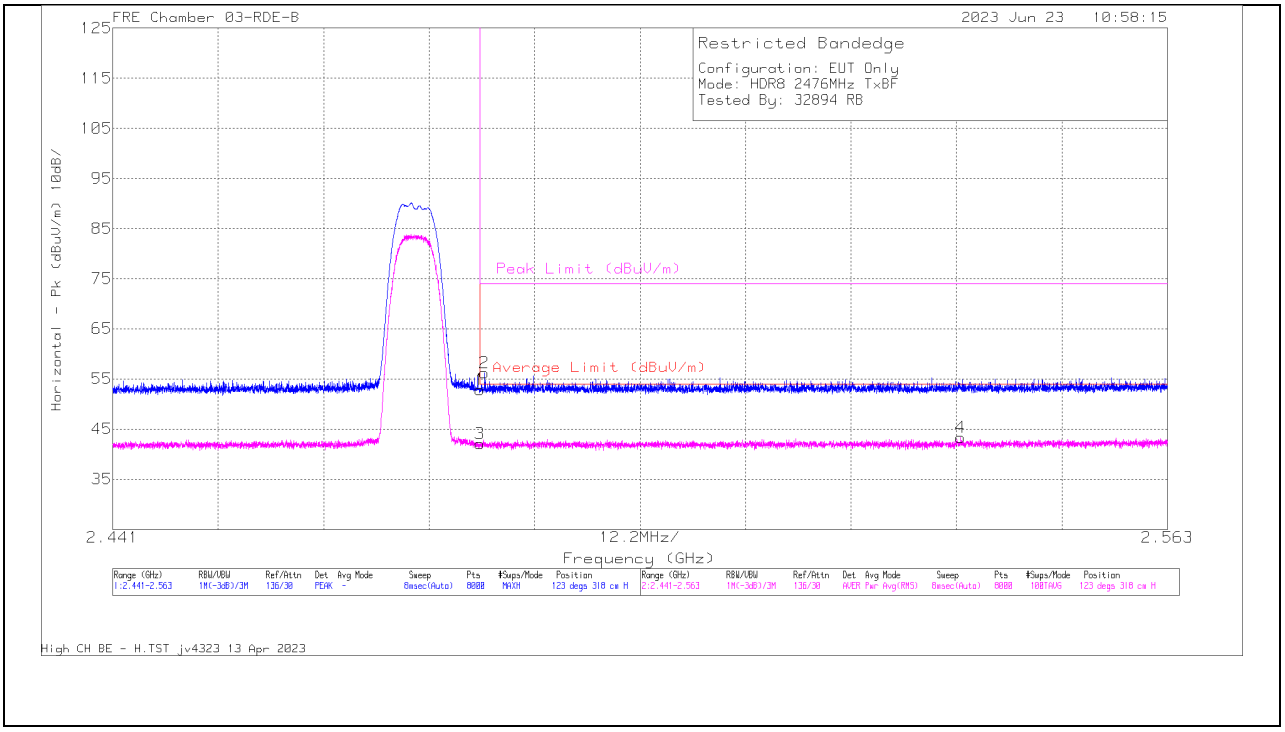


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	61.38	Pk	32.2	-41.2	52.38	-	-	74	-21.62	298	303	V
2	* 2.35638	64.12	Pk	32.1	-41.24	54.98	-	-	74	-19.02	298	303	V
3	* 2.39	50.96	RMS	32.2	-41.2	41.96	54	-12.04	-	-	298	303	V
4	* 2.326279	51.8	RMS	32.1	-41.2	42.7	54	-11.3	-	-	298	303	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

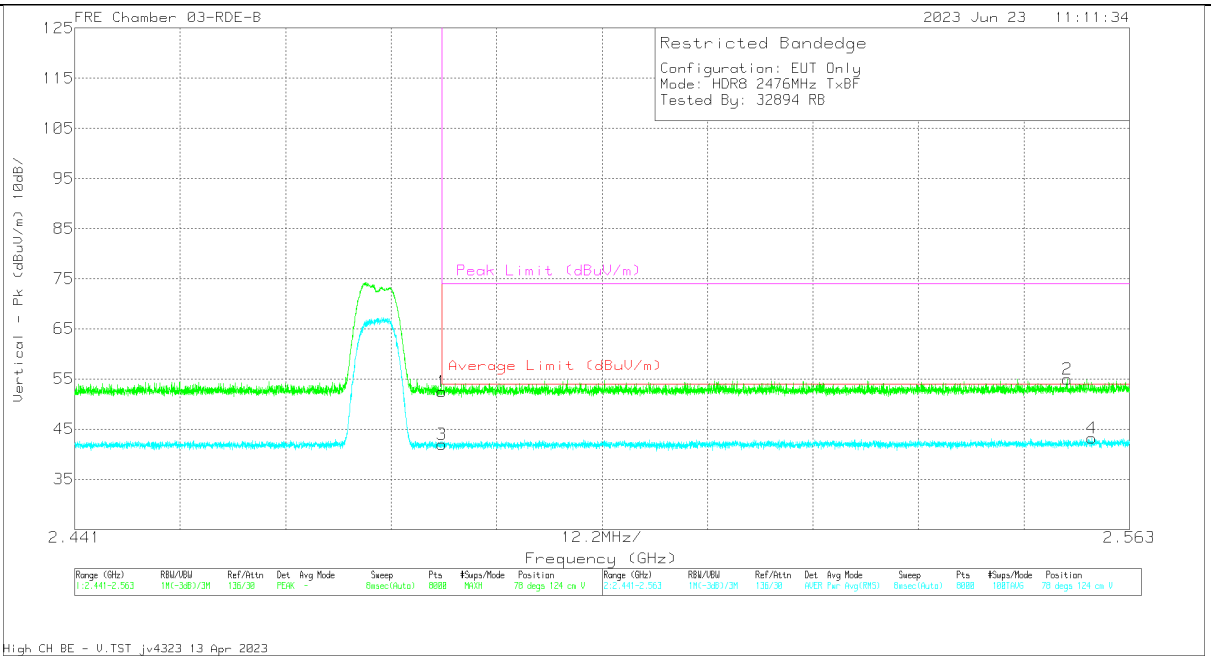
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.85	Pk	32.2	-41.15	52.9	-	-	74	-21.1	123	318	H
2	* 2.483995	65.13	Pk	32.2	-41.1	56.23	-	-	74	-17.77	123	318	H
3	* 2.4835	50.98	RMS	32.2	-41.15	42.03	54	-11.97	-	-	123	318	H
4	2.539101	51.91	RMS	32.3	-40.9	43.31	54	-10.69	-	-	123	318	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT

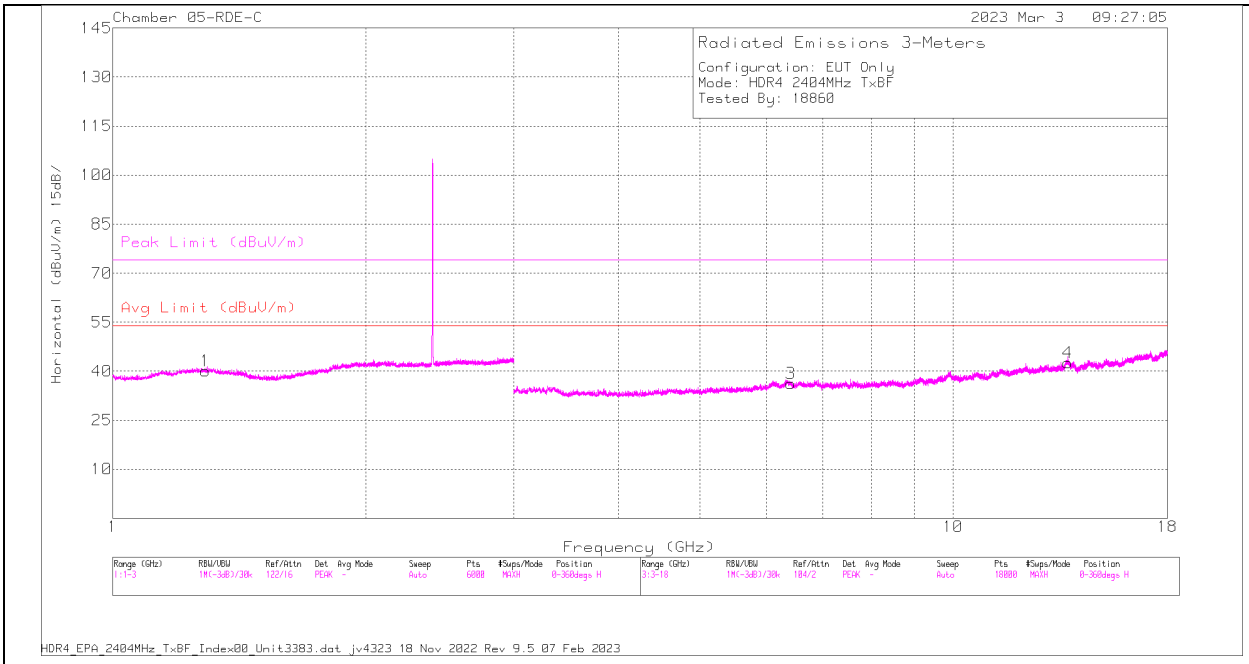


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	61.45	Pk	32.2	-41.15	52.5	-	-	74	-21.5	78	124	V
3	* 2.4835	50.9	RMS	32.2	-41.15	41.95	54	-12.05	-	-	78	124	V
2	2.555787	63.62	Pk	32.3	-40.92	55	-	-	74	-19	78	124	V
4	2.558654	51.78	RMS	32.3	-40.9	43.18	54	-10.82	-	-	78	124	V

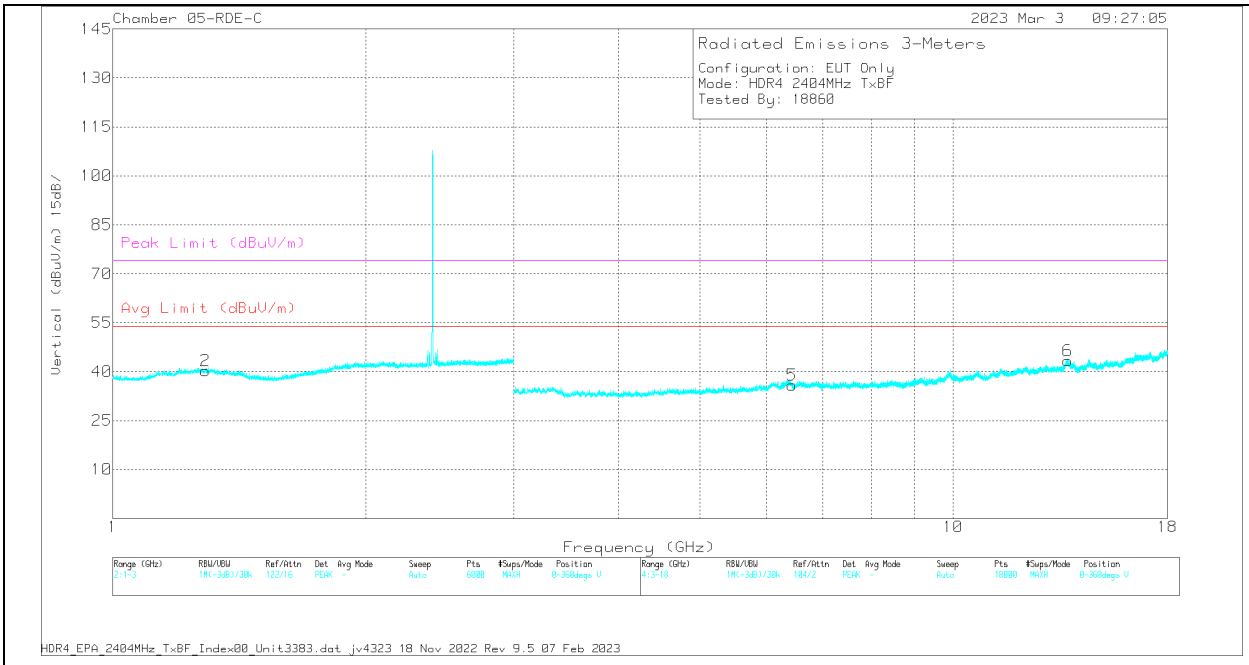
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

10.2.9. HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.288952	61.98	PK2	30	-40.99	50.99			74	-23.01	0	101	H
	1.287902	50	MAv1	30	-40.99	39.01	54	-14.99	-	-	0	101	H
2	1.288983	62.62	PK2	30	-40.99	51.63			74	-22.37	0	198	V
	1.288178	49.8	MAv1	30	-40.99	38.81	54	-15.19	-	-	0	198	V
3	6.413193	56.57	PK2	35.9	-45.78	46.69			74	-27.31	0	101	H
	6.410646	45.02	MAv1	35.9	-45.74	35.18	54	-18.82	-	-	0	101	H
5	6.431969	56.34	PK2	35.9	-46.19	46.05			74	-27.95	0	199	V
	6.43471	44.91	MAv1	36	-46.28	34.63	54	-19.37	-	-	0	199	V
6	13.696917	57.41	PK2	39.1	-43.36	53.15			74	-20.85	0	199	V
	13.697892	45.72	MAv1	39.1	-43.37	41.45	54	-12.55	-	-	0	199	V
	13.697254	57.33	PK2	39.1	-43.36	53.07			74	-20.93	0	199	H
4	13.697042	45.64	MAv1	39.1	-43.36	41.38	54	-12.62	-	-	0	199	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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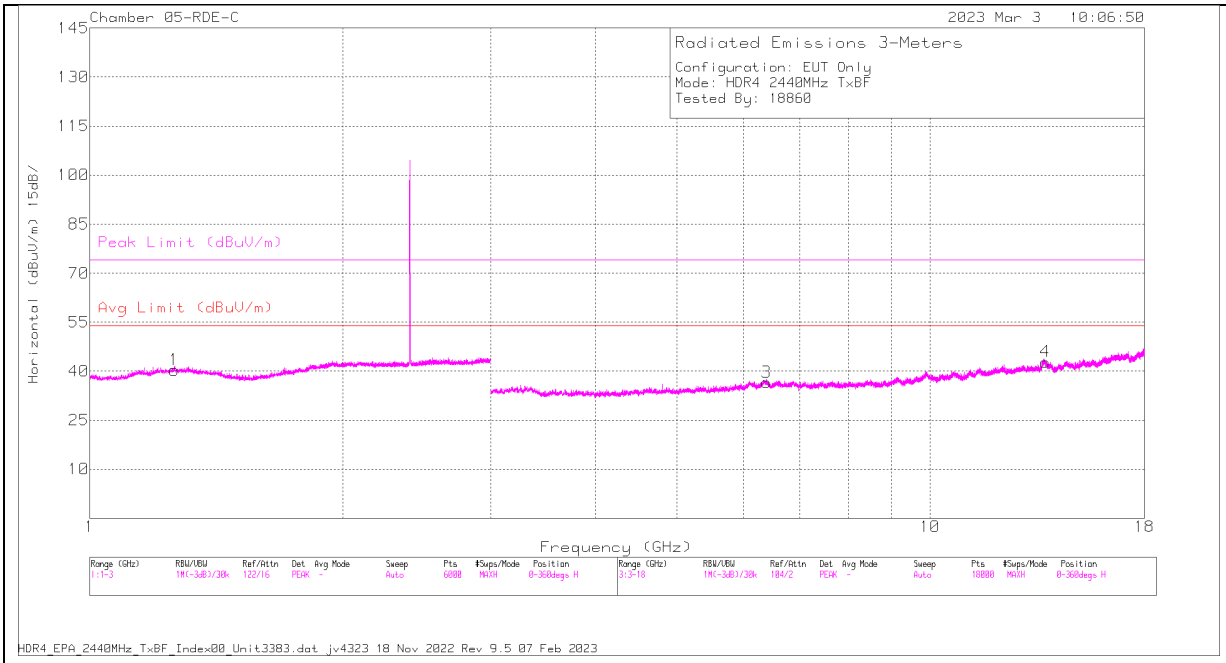
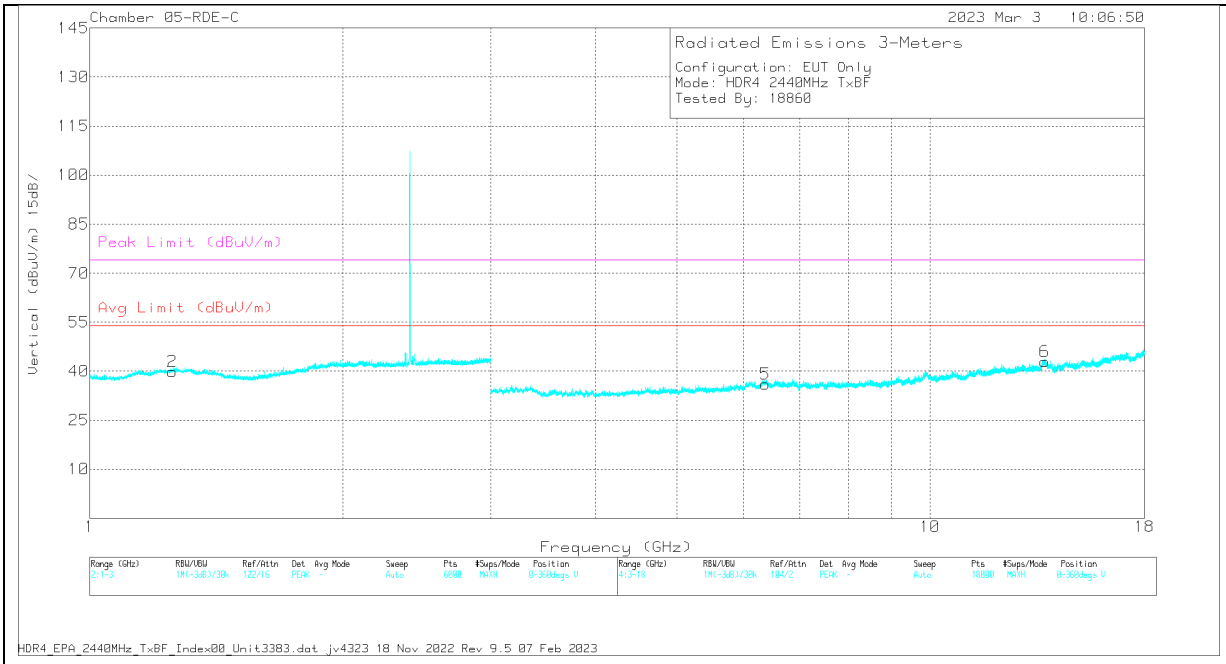
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.255742	61.47	PK2	29.8	-41.03	50.24			74	-23.76	1	101	V
	1.252883	50.3	MAv1	29.9	-41.04	39.16	54	-14.84	-	-	1	101	V
2	1.259805	61.89	PK2	29.8	-41.02	50.67			74	-23.33	1	101	H
	1.261218	50.29	MAv1	29.8	-41.03	39.06	54	-14.94	-	-	1	101	H
5	6.369172	56.67	PK2	35.8	-45.72	46.75			74	-27.25	1	200	V
	6.365884	45.31	MAv1	35.9	-45.7	35.51	54	-18.49	-	-	1	200	V
3	6.390454	56.86	PK2	35.9	-45.69	47.07			74	-26.93	1	101	H
	6.391156	45.28	MAv1	35.9	-45.68	35.5	54	-18.5	-	-	1	101	H
6	13.703731	57.3	PK2	39.1	-43.43	52.97			74	-21.03	1	101	V
	13.704566	45.47	MAv1	39.1	-43.44	41.13	54	-12.87	-	-	1	101	V
4	13.722331	57.17	PK2	39.1	-43.79	52.48			74	-21.52	1	101	H
	13.719716	45.21	MAv1	39.1	-43.73	40.58	54	-13.42	-	-	1	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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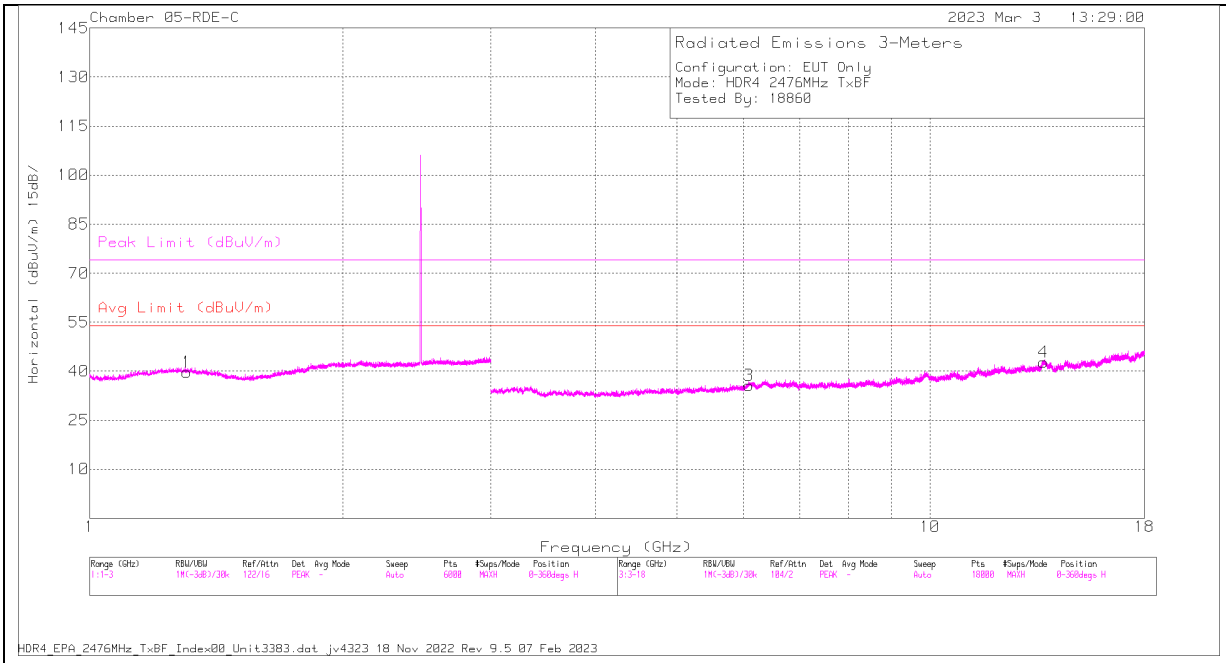
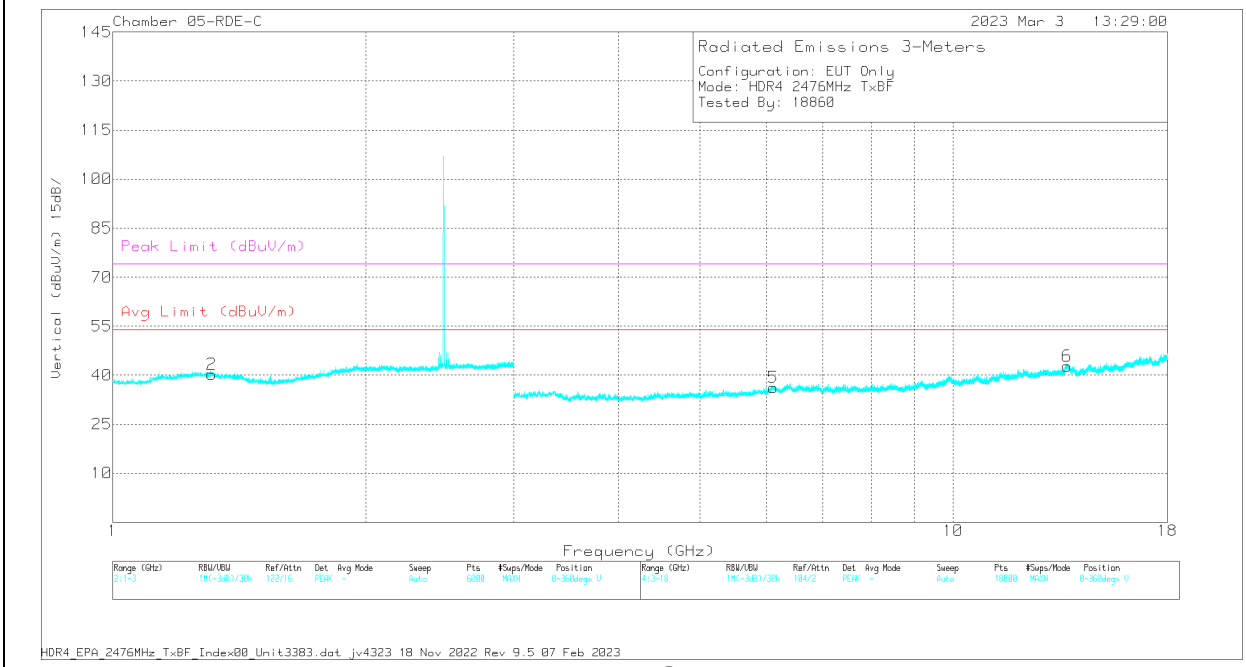
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	*1.303603	61.66	PK2	29.8	-40.98	50.48			74	-23.52	360	199	H
	*1.303139	50.31	MAv1	29.8	-40.97	39.14	54	-14.86	-	-	360	199	H
2	*1.311138	62.3	PK2	29.8	-40.97	51.13			74	-22.87	360	199	V
	*1.313023	50.26	MAv1	29.7	-40.96	39	54	-15.00	-	-	360	199	V
3	6.089854	57.09	PK2	35.5	-46.09	46.5			74	-27.5	360	101	H
	6.090816	45.46	MAv1	35.5	-46.07	34.89			-	-	360	101	H
5	6.112575	56.64	PK2	35.5	-45.84	46.3			74	-27.7	360	198	V
	6.109487	45.39	MAv1	35.5	-45.82	35.07			-	-	360	198	V
4	13.650941	57.86	PK2	39.1	-43.88	53.08			74	-20.92	360	198	H
	13.649332	45.96	MAv1	39.1	-43.88	41.18			-	-	360	198	H
6	13.675695	57.28	PK2	39.2	-43.44	53.04			74	-20.96	360	101	V
	13.673189	45.77	MAv1	39.2	-43.51	41.46			-	-	360	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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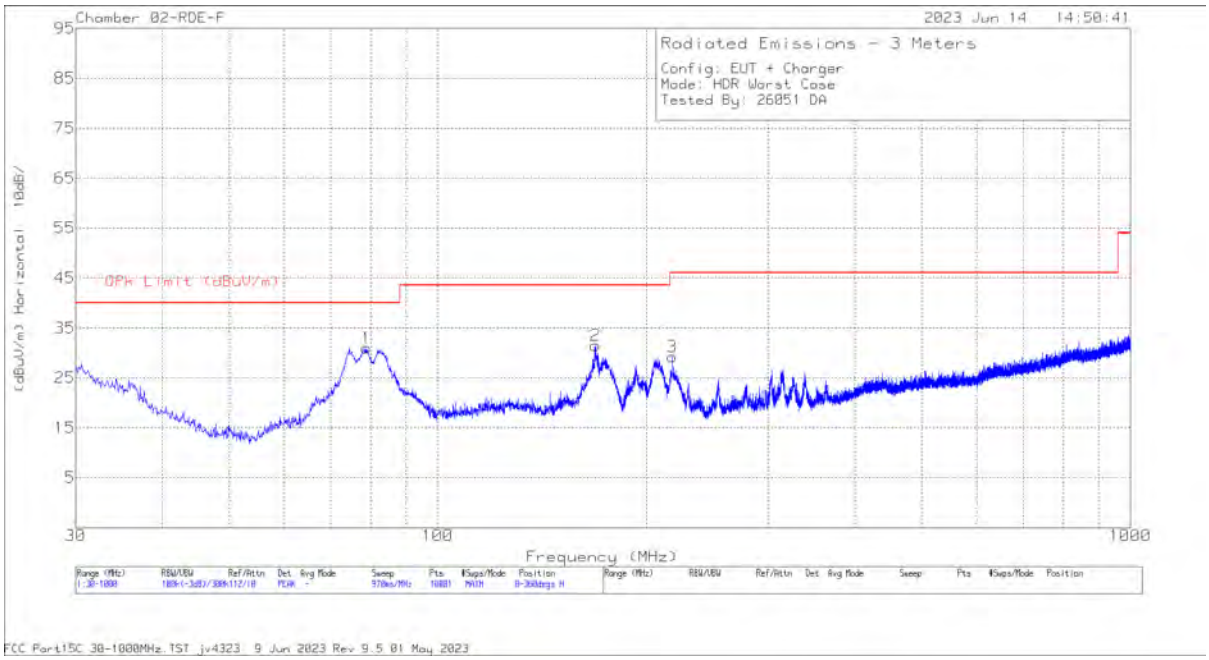
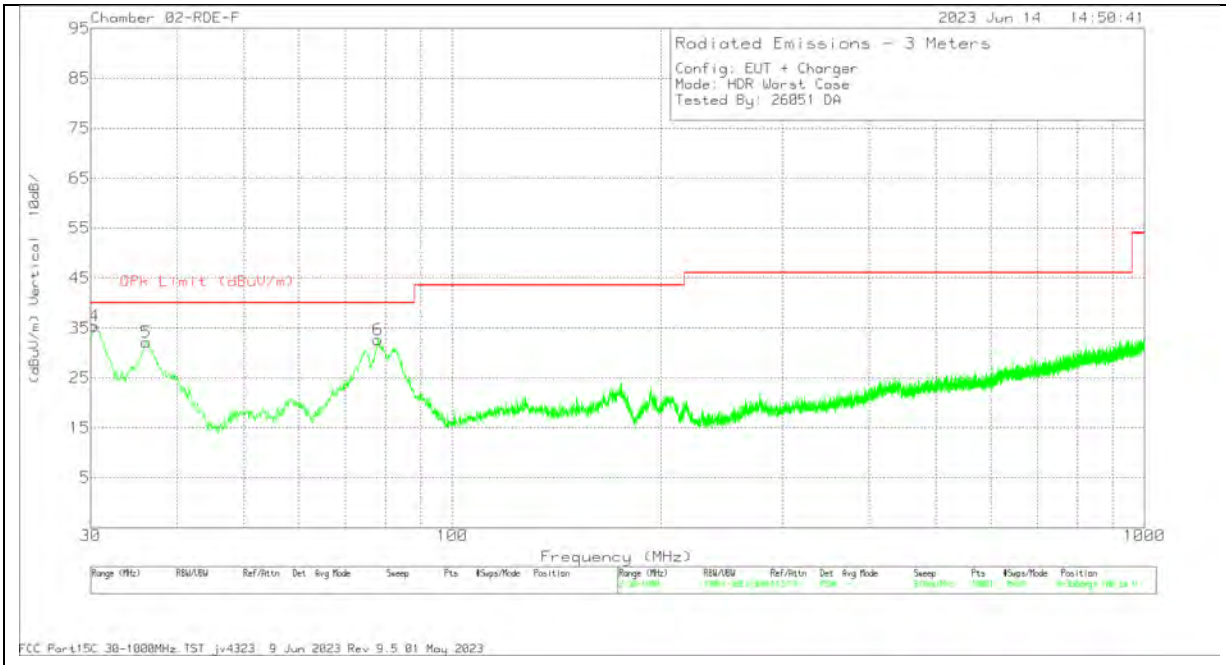
10.3. WORST CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



HORIZONTAL



VERTICAL

Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	230634 ACF (dB) 10m H	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	78.791	48.48	Pk	13.5	-31	30.98	40	-9.02	0-360	298	H
2	* 168.904	44.43	Pk	17.5	-30.5	31.43	43.52	-12.09	0-360	198	H
3	217.889	43.23	Pk	16.3	-30.3	29.23	46.02	-16.79	0-360	99	H
4	30.388	40.13	Pk	26.6	-31.3	35.43	40	-4.57	0-360	100	V
	30.6857	35.77	Qp	26.4	-31.3	30.87	40	-9.13	71	113	V
5	36.111	41.15	Pk	22.3	-31.3	32.15	40	-7.85	0-360	100	V
6	78.112	50.13	Pk	13.5	-31	32.63	40	-7.37	0-360	100	V
	78.3858	44.06	Qp	13.5	-31	26.56	40	-13.44	121	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

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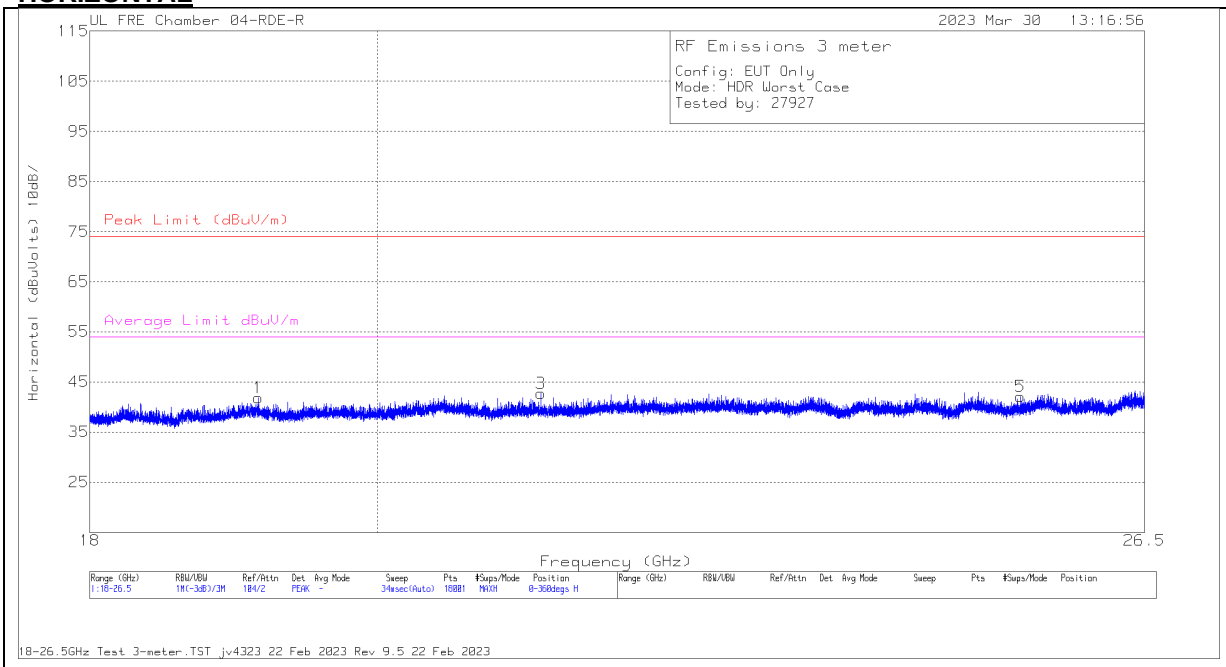
10.4. WORST CASE 18-26 GHz

HORIZONTAL



VERTICAL

18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	172353 ACF (dB) - 3mH	171583 Amp Assembly (dB)	Cables (dB)	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit dBuV/m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	19.146555	58.9	Pk	33.1	-65.6	15.5	41.9	74	-32.1	-	-	0-360	99	H
2	19.247138	58.89	Pk	33	-65.6	15.5	41.79	74	-32.21	-	-	0-360	99	V
3	21.23661	57.38	Pk	33.3	-64.4	16.4	42.68	74	-31.32	-	-	0-360	99	H
4	21.312165	56.95	Pk	33.3	-64.5	16.4	42.15	74	-31.85	-	-	0-360	99	V
5	25.323691	53.69	Pk	34.6	-64.1	17.9	42.09	74	-31.91	-	-	0-360	99	H
6	25.561691	54.54	Pk	34.7	-63.6	18	43.64	74	-30.36	-	-	0-360	99	V

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	172353 ACF (dB) - 3mH	171583 Amp Assembly (dB)	Cables (dB)	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit dBuV/m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
19.150445	60.25	PK2	33.1	-65.6	15.5	43.25	74	-30.75	-	-	110	149	H
19.151904	48.06	MAv1	33.1	-65.6	15.5	31.06	-	-	54	-22.94	110	149	H
19.244588	59.11	PK2	33.1	-65.6	15.5	42.11	74	-31.89	-	-	138	149	V
19.245296	47.51	MAv1	33.1	-65.6	15.5	30.51	-	-	54	-23.49	138	149	V
21.235351	57.58	PK2	33.3	-64.4	16.4	42.88	74	-31.12	-	-	35	142	H
21.237198	45.83	MAv1	33.3	-64.4	16.4	31.13	-	-	54	-22.87	35	142	H
21.31531	58.37	PK2	33.3	-64.5	16.4	43.57	74	-30.43	-	-	5	157	V
21.317421	45.81	MAv1	33.3	-64.5	16.4	31.01	-	-	54	-22.99	5	157	V
25.326603	54.19	PK2	34.6	-64.1	17.9	42.59	74	-31.41	-	-	298	205	H
25.326879	42.32	MAv1	34.6	-64.1	17.9	30.72	-	-	54	-23.28	298	205	H
25.564221	54.58	PK2	34.7	-63.6	18	43.68	74	-30.32	-	-	293	131	V
25.564637	43.16	MAv1	34.7	-63.6	18	32.26	-	-	54	-21.74	293	131	V

PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

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11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888

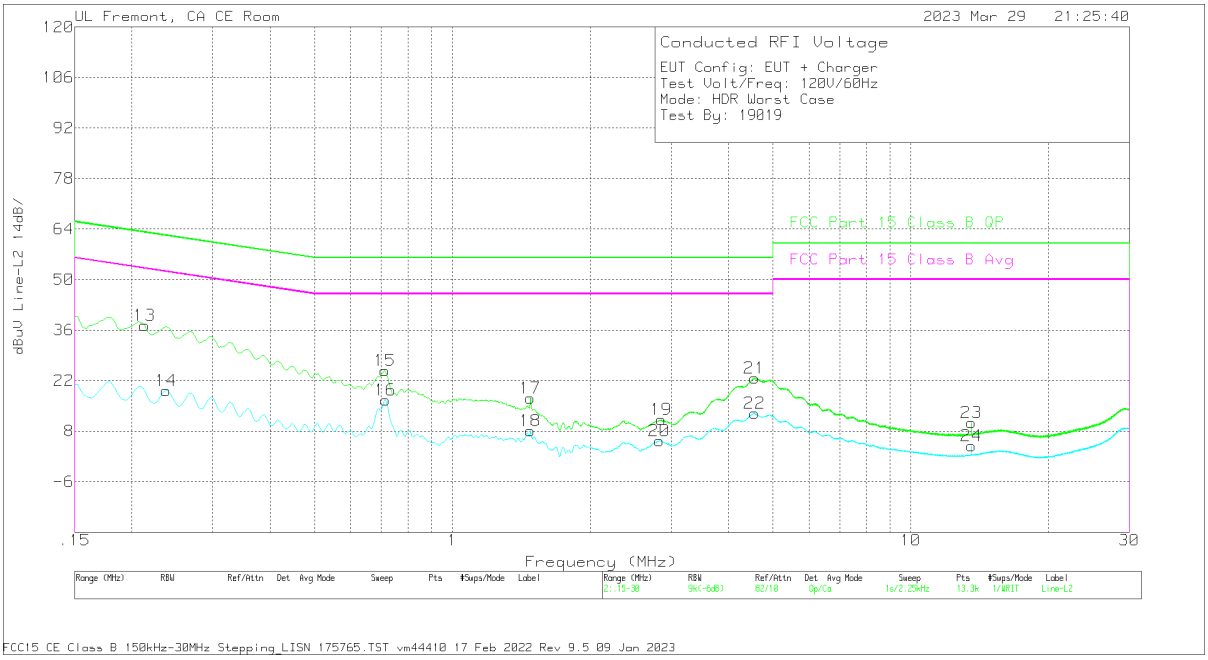
11.1. AC Power Line With AC/DC Adapter

LINE 1 RESULTS

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)Margin (dB)
2	.2378	11.08	Ca	0	0	9.3	20.38	-	-	52.17	-31.79
4	.7148	7.88	Ca	0	.1	9.3	17.28	-	-	46	-28.72
6	1.482	-1.63	Ca	0	.1	9.3	7.77	-	-	46	-38.23
8	2.8253	-3.26	Ca	0	.1	9.3	6.14	-	-	46	-39.86
10	4.578	2.98	Ca	0	.1	9.3	12.38	-	-	46	-33.62
12	13.56	-4.02	Ca	.1	.2	9.3	5.58	-	-	50	-44.42
1	.24	27.82	Qp	0	0	9.3	37.12	62.1	-24.98	-	-
3	.7103	13.6	Qp	0	.1	9.3	23	56	-33	-	-
5	1.482	5.46	Qp	0	.1	9.3	14.86	56	-41.14	-	-
7	2.8613	3.04	Qp	0	.1	9.3	12.44	56	-43.56	-	-
9	4.6005	12.68	Qp	0	.1	9.3	22.08	56	-33.92	-	-
11	13.56	1.99	Qp	.1	.2	9.3	11.59	60	-48.41	-	-

LINE 2 RESULTS



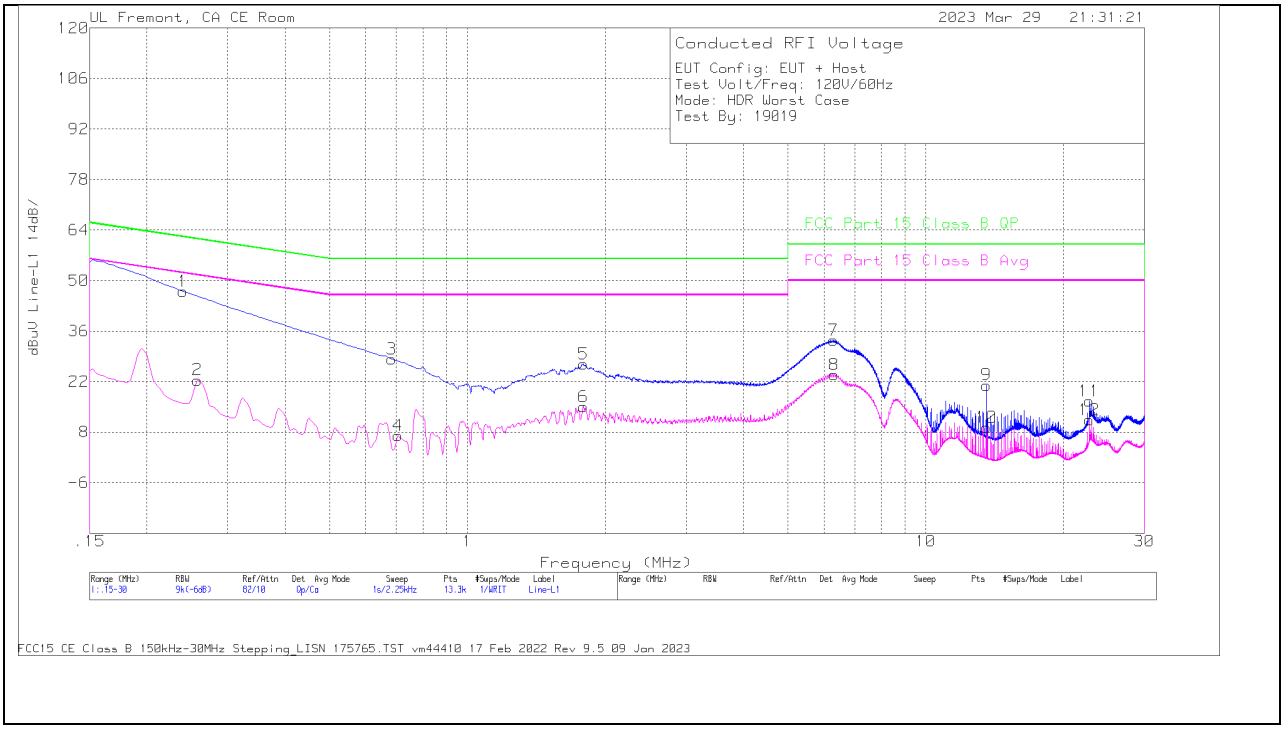
Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)Margin (dB)
14	.2378	9.99	Ca	0	0	9.3	19.29	-	-	52.17	-32.88
16	.7148	7.18	Ca	0	.1	9.3	16.58	-	-	46	-29.42
18	1.4798	-1.32	Ca	0	.1	9.3	8.08	-	-	46	-37.92
20	2.8264	-4	Ca	0	.1	9.3	5.4	-	-	46	-40.6
22	4.5645	3.52	Ca	0	.1	9.3	12.92	-	-	46	-33.08
24	13.56	-5.74	Ca	.1	.2	9.3	3.86	-	-	50	-46.14
13	.213	27.87	Qp	0	0	9.4	37.27	63.09	-25.82	-	-
15	.7125	15.33	Qp	0	.1	9.3	24.73	56	-31.27	-	-
17	1.4809	7.69	Qp	0	.1	9.3	17.09	56	-38.91	-	-
19	2.8568	1.82	Qp	0	.1	9.3	11.22	56	-44.78	-	-
21	4.5668	13.31	Qp	0	.1	9.3	22.71	56	-33.29	-	-
23	13.56	.79	Qp	.1	.2	9.3	10.39	60	-49.61	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

11.2. AC Power Line With Laptop

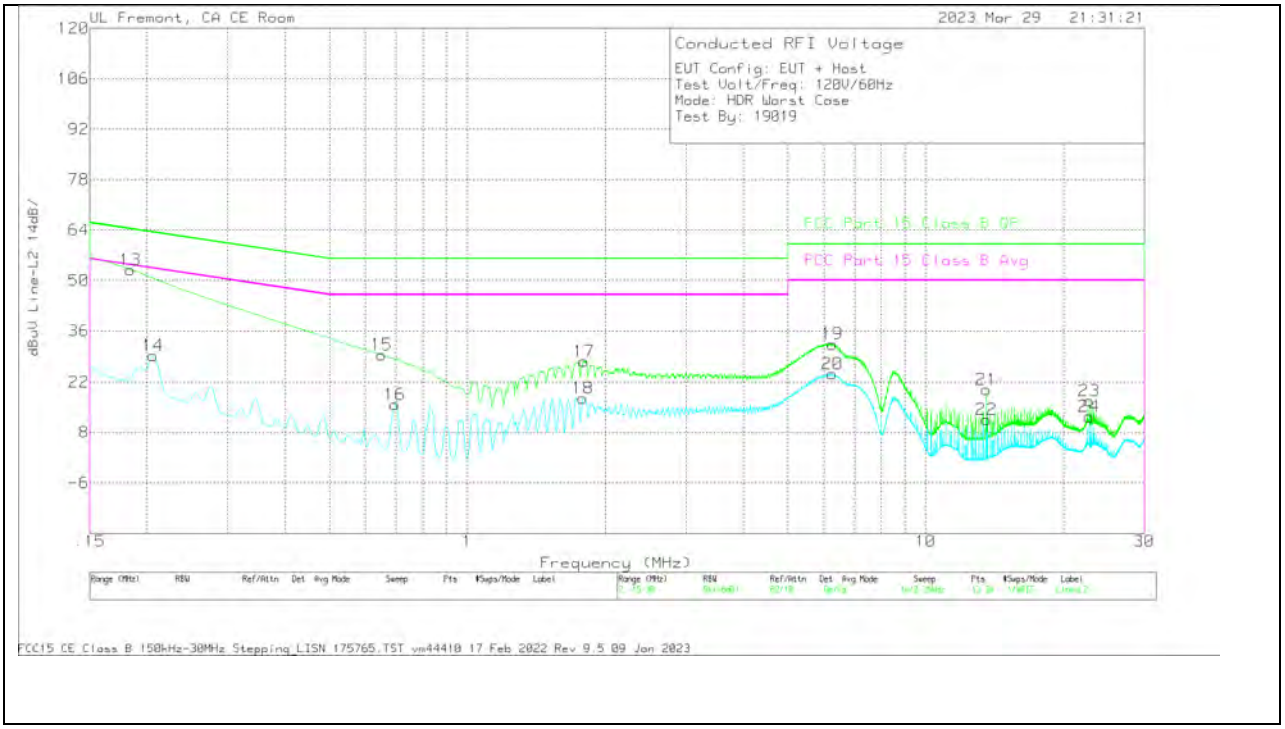
LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)Margin (dB)
2	.258	13.15	Ca	0	0	9.3	22.45	-	-	51.5	-29.05
4	.7058	-2.36	Ca	0	.1	9.3	7.04	-	-	46	-38.96
6	1.7925	5.66	Ca	0	.1	9.3	15.06	-	-	46	-30.94
8	6.3195	14.59	Ca	0	.1	9.3	23.99	-	-	50	-26.01
10	13.56	-.21	Ca	.1	.2	9.3	9.39	-	-	50	-40.61
12	22.7153	1.54	Ca	.2	.3	9.4	11.44	-	-	50	-38.56
1	.24	37.74	Qp	0	0	9.3	47.04	62.1	-15.06	-	-
3	.6833	18.85	Qp	0	.1	9.3	28.25	56	-27.75	-	-
5	1.7925	17.41	Qp	0	.1	9.3	26.81	56	-29.19	-	-
7	6.297	24.05	Qp	0	.1	9.3	33.45	60	-26.55	-	-
9	13.56	11.46	Qp	.1	.2	9.3	21.06	60	-38.94	-	-
11	22.7153	6.68	Qp	.2	.3	9.4	16.58	60	-43.42	-	-

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN dB	C2&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)Margin (dB)
14	.2063	19.97	Ca	0	0	9.4	29.37	-	-	53.35	-23.98
16	.6945	6.28	Ca	0	.1	9.3	15.68	-	-	46	-30.32
18	1.7858	8.09	Ca	0	.1	9.3	17.49	-	-	46	-28.51
20	6.2565	14.94	Ca	0	.1	9.3	24.34	-	-	50	-25.66
22	13.56	2.05	Ca	.1	.2	9.3	11.65	-	-	50	-38.35
24	22.7153	2.47	Ca	.2	.3	9.4	12.37	-	-	50	-37.63
13	.1838	43.61	Qp	0	0	9.4	53.01	64.31	-11.3	-	-
15	.6495	20.14	Qp	0	.1	9.3	29.54	56	-26.46	-	-
17	1.797	18.33	Qp	0	.1	9.3	27.73	56	-28.27	-	-
19	6.252	23.12	Qp	0	.1	9.3	32.52	60	-27.48	-	-
21	13.56	10.33	Qp	.1	.2	9.3	19.93	60	-40.07	-	-
23	22.7153	6.97	Qp	.2	.3	9.4	16.87	60	-43.13	-	-

Qp - Quasi-Peak detector
Ca - CISPR average detection

12. SETUP PHOTOS

Please refer to setup photos 14523740-EP1V1

END OF TEST REPORT

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