TEST REPORT

Report Number: 13571601-E3V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
Model	:	A2483 (Parent Model, Full Test) A2640, A2636, A2638, A2639 (Variant Models)
FCC ID	:	BCG-E4000A (Parent Model) BCG-E4034A, BCG-E4002A, BCG-E4033A (Variant Models)
IC	:	579C-E4000A (Parent Model) 579C-E4034A, 579C-E4002A, 579C-E4033A (Variant Models)
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 12, 2021

Prepared by:
UL Verification Services Inc.
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ACCREDITED
CERT #0751.05

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	6/30/2021	Initial Issue	Chin Pang
V2	7/12/2021	Address TCB's questions	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:	SMARTPHONE
MODEL:	A2483 (PARENT MODEL) A2640, A2636, A2638, A2639 (VARIANT MODELS)
BRAND:	APPLE
FCC IC:	BCG-E4000A (PARENT MODEL) BCG-E4034A, BCG-E4002A, BCG-E4033A (VARIANT MODELS)
IC ID:	579C-E4000A (PRIMARY MODEL) 579C-E4034A, 579C-E4002A, 579C-E4033A (VARIANT MODELS)
SERIAL NUMBER:	G6TD800R0GLG, HXKPFXHXK2
SAMPLE RECEIPT DATE:	10/23/2020, 06/11/2021
DATE TESTED:	NOVEMBER 12, 2020 – JUNE 18, 2021

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:

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2. TEST SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer

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, KDB 662911, RSS-GEN Issue 5 + A1 + A2, and RSS-247 Issue 2.

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	US0104	2324A	208313
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538	US0104	2324B	208313

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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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.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
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
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:
Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:
Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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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, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS and NFC. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

The Model and FCC/IC ID covered by this report includes:

Parent Model: A2483, FCC ID: BCG-E4000A, IC ID: 579C-E4000A

Variant Models: A2640; FCC ID: BCG-E4034A, IC ID: 579C-E4034A
A2636; FCC ID: BCG-E4002A, IC ID: 579C-E4002A
A2638; FCC ID: BCG-E4033A, IC ID: 579C-E4033A
A2639; FCC ID: BCG-E4034A, IC ID: 579C-E4034A

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	14.83	30.41
	Low Power			9.30	8.51
	High Power		HDR8	15.82	38.19
	Low Power			9.88	9.73
ANT 3	High Power	2404 - 2476	HDR4	14.77	29.99
	Low Power			9.35	8.61
	High Power		HDR8	15.88	38.73
	Low Power			9.92	9.82
BF, ANT 4 + ANT 3	High Power	2404 - 2476	HDR4	17.75	59.57
	Low Power			12.20	16.60
	High Power		HDR8	18.74	74.82
	Low Power			12.98	19.86

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antennas gain and IFA Type as provided by the manufacturer' are as follows:

Frequency Range (GHz)	ANT 4 (dBi)	ANT 3 (dBi)
2.4	-0.2	-0.2

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6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was FW Version: 19.1.309.2612

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 Y (Landscape) was the worst-case orientation for ANT 4 and X (Flatbed) orientation was the worst case for both ANT 3 and 2TX beamforming.

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 Beamforming HDR8 mode is set to maximum power per chain 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 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.

99%, 6dB and PSD on high power mode are tested to cover Low power mode since 99%, 6dB results are no different on low power mode and for PSD high power mode is the worst case.

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

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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	C02YL3ZMJHC8		BCGA1989
Laptop AC/DC adapter	Liteon Technology	A1424	NSW25679		DoC
EUT AC/DC adapter	Apple	A1720	C3D8417A7R93KVPA8		DoC
I/O CABLES (RF 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	1.0	N/A
3	Antenna	1	SMA	Un-shielded	0.2	To spectrum Analyzer
I/O CABLES (RF RADIATED 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	Un-shielded	1	N/A

TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

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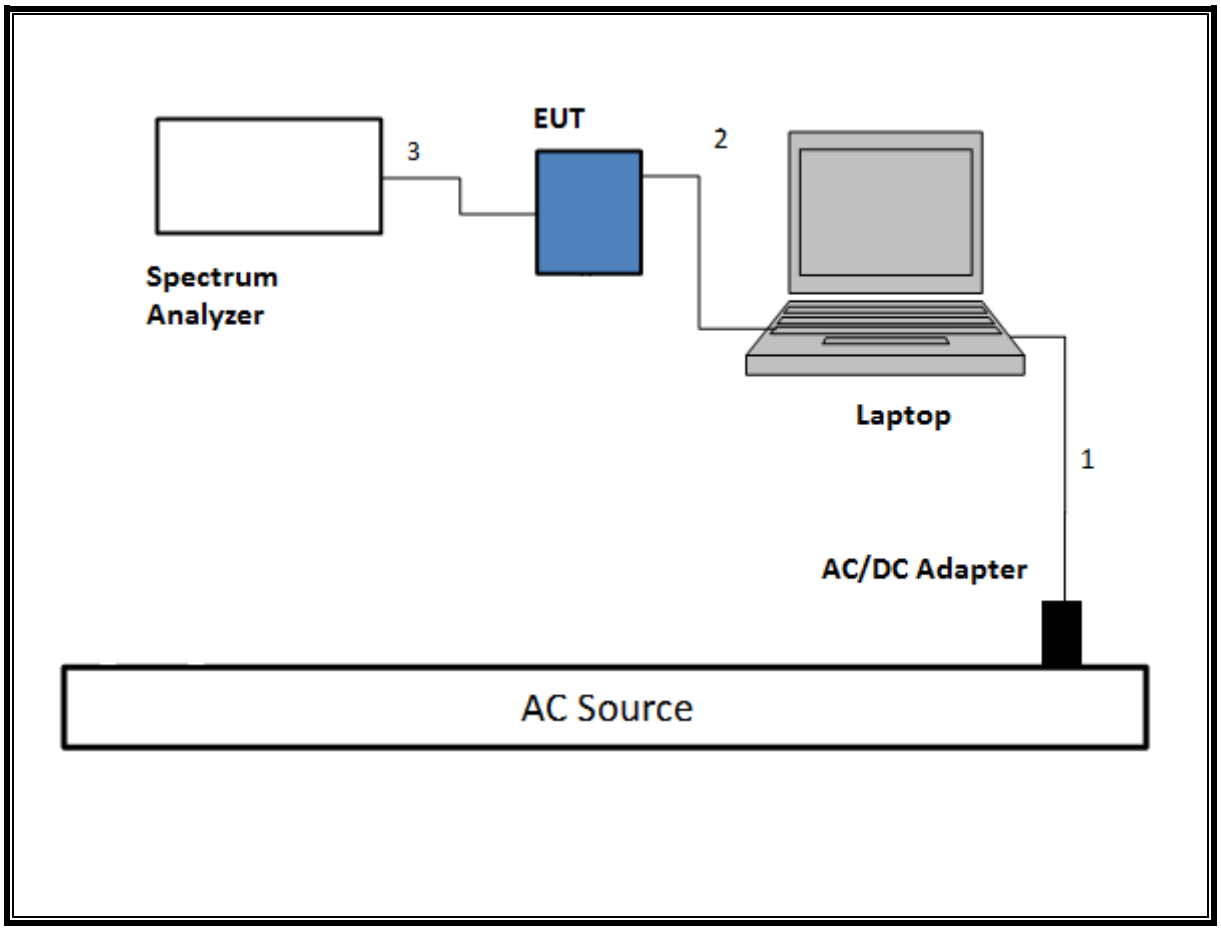
SETUP DIAGRAM FOR CONDUCTED TESTS



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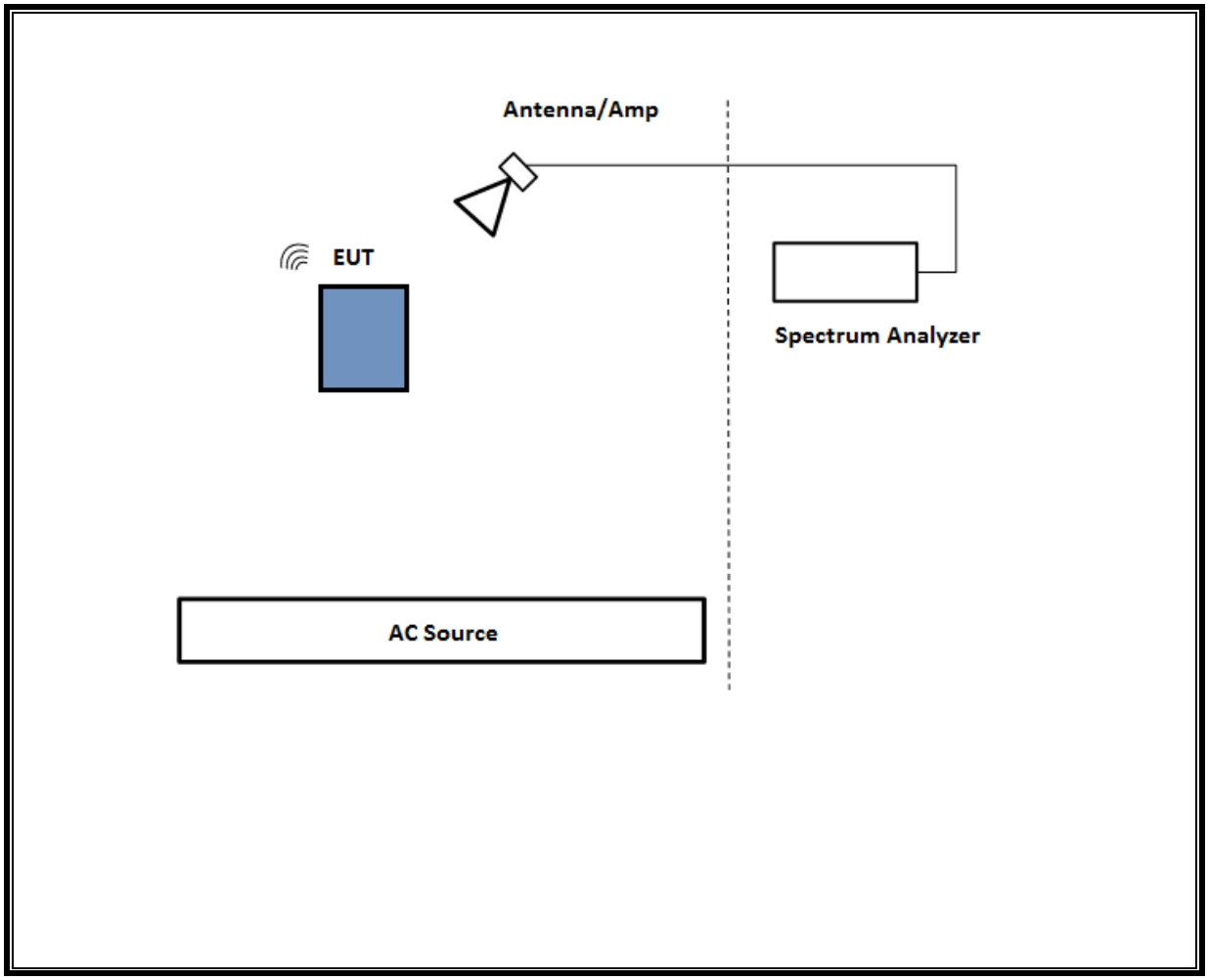
SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz



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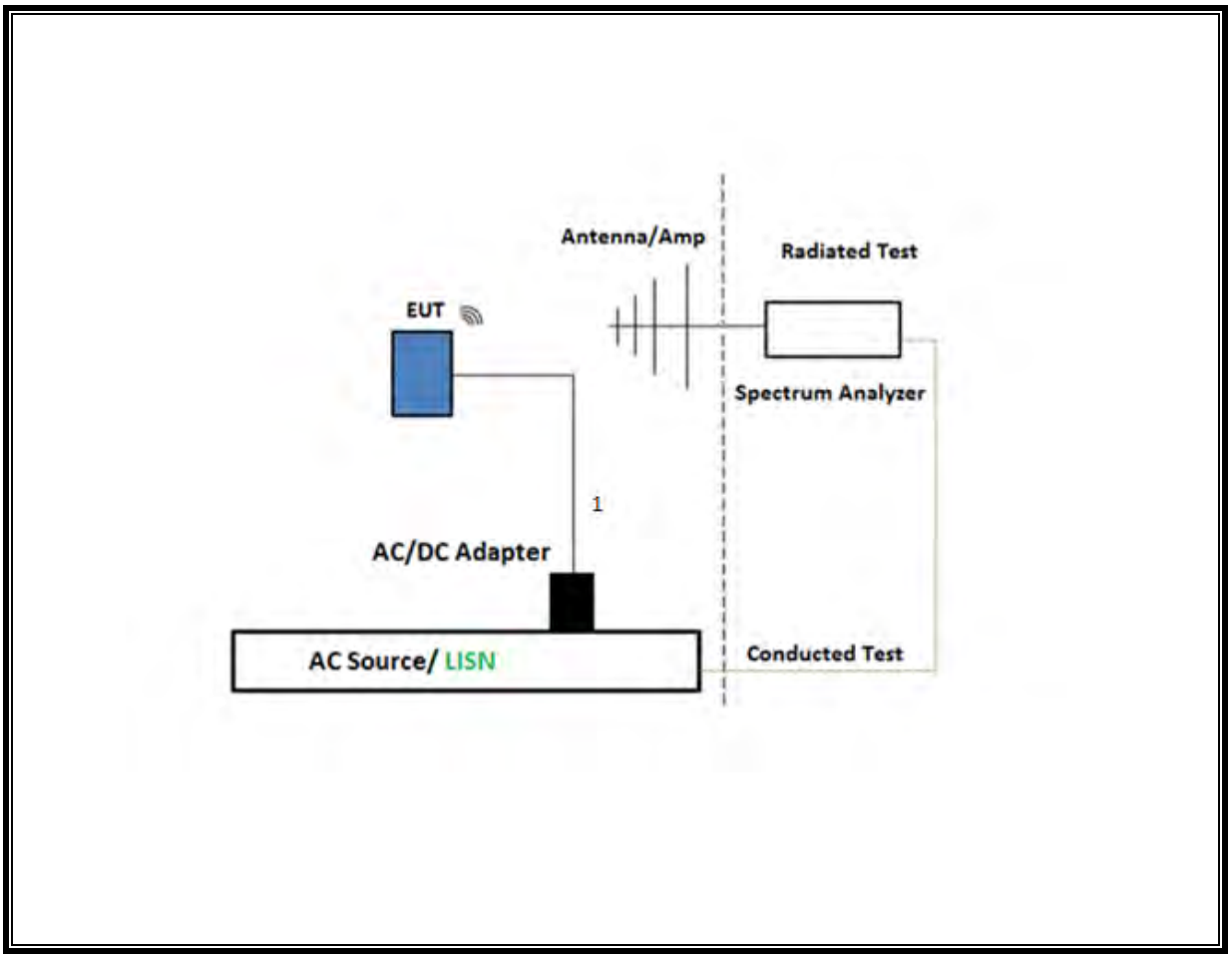
SETUP DIAGRAM FOR BELOW 1GHZ AND AC LINE CONDUCTED TEST



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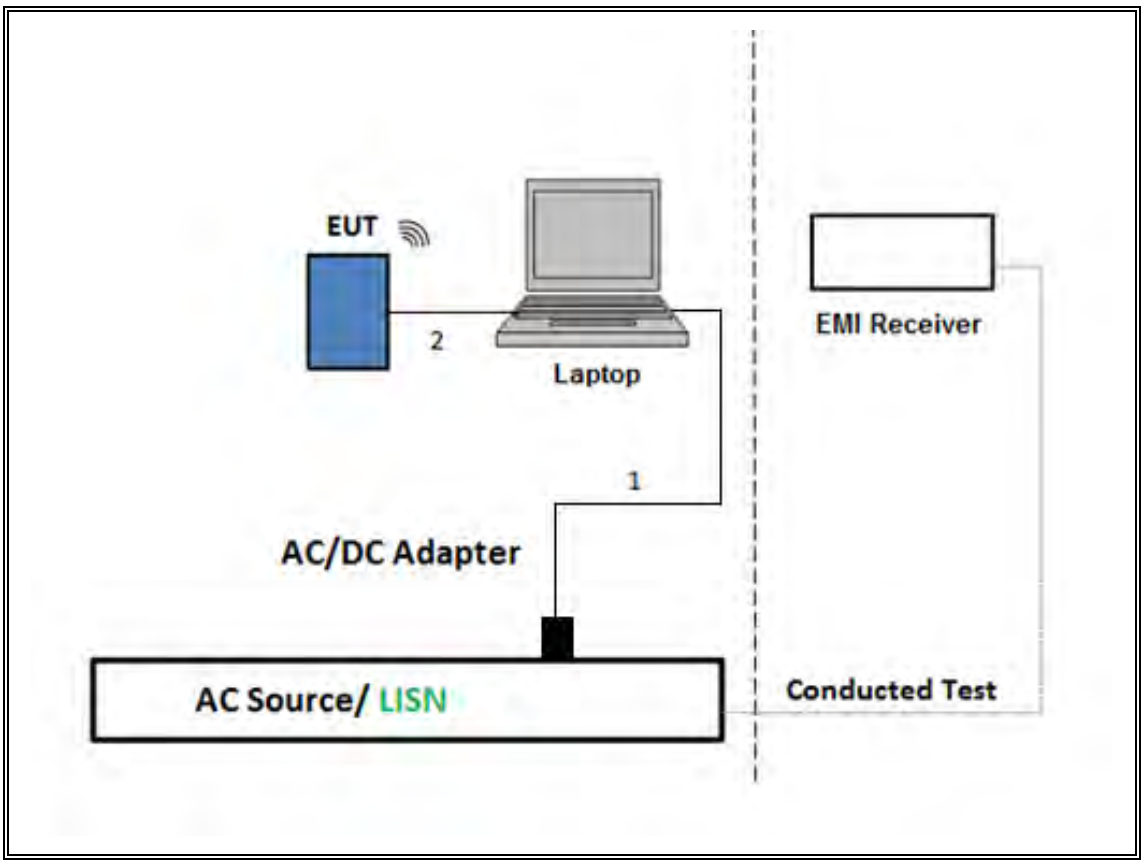
TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



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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

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:

TEST EQUIPMENT LIST					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T862	08/19/2021	08/19/2020
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	171460	09/29/2021	09/29/2020
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T1466	01/25/2022	01/25/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	PRE0100034	09/15/2021	09/15/2020
Amplifier, 1 to 18GHz, 35dB	AMPLICAL	AMP1G18-35	T1569	03/31/2022	03/31/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0078107	03/01/2022	03/01/2021
Amplifier, 1 to 18GHz	Amplical	AMP1G18-35	138301	03/30/2022	03/30/2021
Antenna, BroadBand Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	PRE0184052	11/12/2021	11/12/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180174	12/29/2021	12/29/2020
EMI Test Receiver	Rohde & Schwarz	ESW44	201500	11/19/2021	11/19/2020
Antenna, Double Ridge Guide Horn Antenna	A.H. Systems, Inc.	SAS-571	PRE0213833	02/16/2022	02/16/2021
Amplifier, 1 to 18GHz	Amplical	AMP0.1G18-47-20	206055	03/10/2022	03/10/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	PRE0213973	08/20/2021	08/20/2020
RF Amplifier, 1-18GHz	AMPLICAL	AMP1G7-24-27	205876	03/14/2022	03/14/2021
EMI Test Receiver	Rohde & Schwarz	ESW44	201499	11/19/2021	11/19/2020
Power Meter, P-series single channel	Keysight	N1912A	T1244	01/25/2022	01/25/2021
Power Sensor	Keysight	N19**2**1A	T1224	01/25/2022	01/25/2021
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T35	11/23/2021	11/23/2020
*Antenna Horn, 18 to 26GHz	ARA	SWH-28	T125	04/17/2021	04/17/2020
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	04/08/2021	04/08/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1454	01/27/2022	01/27/2021
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T906	07/20/2021	07/20/2020
EMI Receiver	Rohde & Schwarz	ESW44	201501	09/23/2021	09/23/2020
EMI Receiver	Rohde & Schwarz	ESW44	201502	09/17/2021	09/17/2020

AC Line Conducted					
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**	**Last Cal**
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	02/19/2022	02/19/2021
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2021	10/27/2020
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	PRE0186446	01/20/2022	01/20/2021
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
Conducted Software	UL	UL EMC	2020.2.26		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, February 21, 2020		

Note: *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	1.000	1.000	1.000	100.00%	0.00	0.010
HDR8	1.000	1.000	1.000	100.00%	0.00	0.010
HDR4, TXBF	1.000	1.000	1.000	100.00%	0.00	0.010
HDR8, TXBF	1.000	1.000	1.000	100.00%	0.00	0.010

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DUTY CYCLE PLOTS

DUTY CYCLE HDR4

DUTY CYCLE HDR8

DUTY CYCLE HDR4 TXBF

DUTY CYCLE HDR8 TXBF

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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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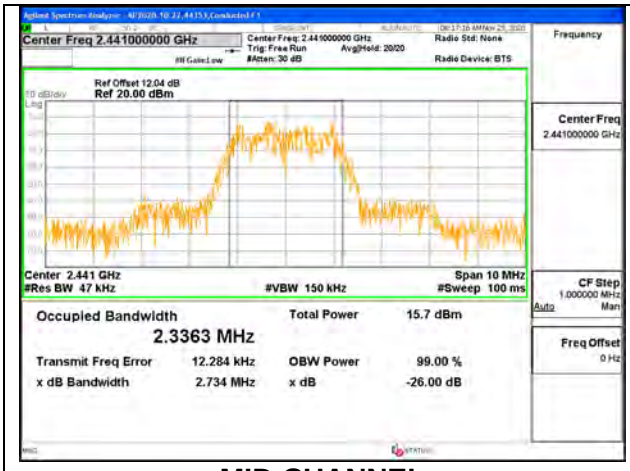
9.2.1. HIGH POWER HDR (HDR4)

ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.313
Middle	2441	2.336
High	2476	2.357



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.311
Middle	2441	2.306
High	2476	2.365

MID CHANNEL

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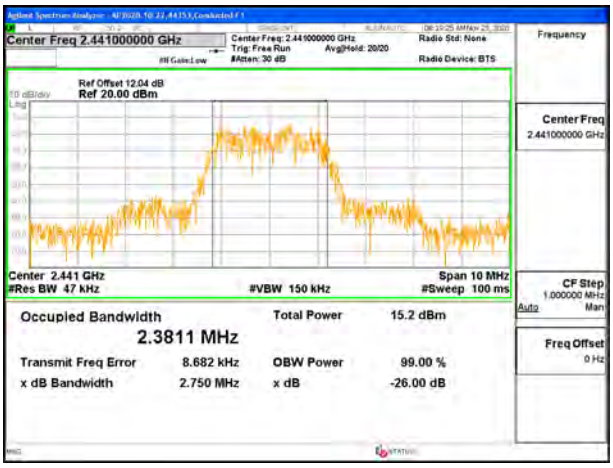
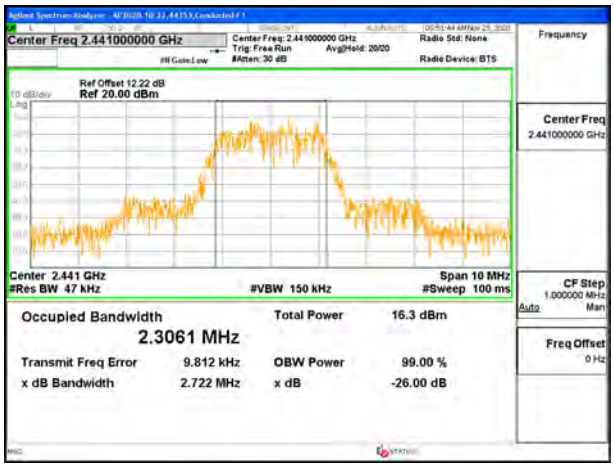
9.2.2. HIGH POWER HDR TXBF (HDR4)

Channel	Frequency (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2404	2.313	2.307
Middle	2441	2.381	2.306
High	2476	2.333	2.319



MID CHANNEL ANT 4



MID CHANNEL ANT 3

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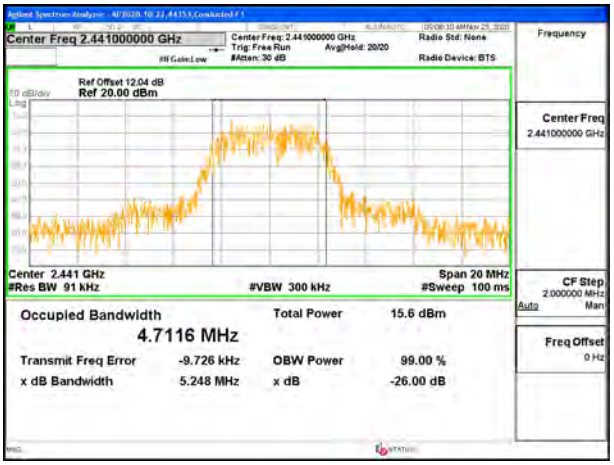
9.2.3. HIGH POWER HDR (HDR8)

ANT 4

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	4.696
Middle	2441	4.711
High	2476	4.581



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	4.713
Middle	2441	4.612
High	2476	4.704

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	4.712	4.642
Middle	2441	4.687	4.593
High	2476	4.540	4.636

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	2.091	0.5
Middle	2441	2.109	0.5
High	2476	2.091	0.5

MID CHANNEL

ANT 3

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	2.073	0.5
Middle	2441	2.097	0.5
High	2476	2.091	0.5

MID CHANNEL

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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

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 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	-0.20	-0.20	-0.20	2.81

RESULTS

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9.4.1. HIGH POWER HDR (HDR4)

ANT 4

Tested By:	44353
Date:	6/4/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	14.76	30	-15.24
Middle	2441	14.83	30	-15.17
High	2476	14.64	30	-15.36

ANT 3

Tested By:	44353
Date:	6/4/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	14.72	30	-15.28
Middle	2441	14.77	30	-15.23
High	2476	14.49	30	-15.51

9.4.2. HIGH POWER HDR TXBF (HDR4)

Tested By:	44353
Date:	6/4/2021

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	14.57	14.65	17.62	30.00	-12.38
Middle	2441	14.60	14.80	17.71	30.00	-12.29
High	2476	14.80	14.68	17.75	30.00	-12.25

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9.4.3. HIGH POWER HDR (HDR8)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	15.68	30	-14.32
Middle	2441	15.82	30	-14.18
High	2476	15.66	30	-14.34

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	15.81	30	-14.19
Middle	2441	15.88	30	-14.12
High	2476	15.56	30	-14.44

9.4.4. HIGH POWER HDR TXBF (HDR8)

Tested By:	44353
Date:	6/18/2021

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	15.68	15.30	18.50	30.00	-11.50
Middle	2441	15.66	15.79	18.74	30.00	-11.26
High	2476	15.80	15.58	18.70	30.00	-11.30

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9.4.5. LOW POWER HDR (HDR4)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.28	30	-20.72
Middle	2441	9.30	30	-20.70
High	2476	9.25	30	-20.75

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.26	30	-20.74
Middle	2441	9.35	30	-20.65
High	2476	9.22	30	-20.78

9.4.6. LOW POWER HDR TXBF (HDR4)

Tested By:	44353
Date:	6/18/2021

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	9.18	9.20	12.20	30.00	-17.80
Middle	2441	9.16	9.21	12.20	30.00	-17.80
High	2476	9.08	9.12	12.11	30.00	-17.89

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9.4.7. LOW POWER HDR (HDR8)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.87	30	-20.13
Middle	2441	9.88	30	-20.12
High	2476	9.84	30	-20.16

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	9.87	30	-20.13
Middle	2441	9.92	30	-20.08
High	2476	9.79	30	-20.21

9.4.8. LOW POWER HDR TXBF (HDR8)

Tested By:	44353
Date:	6/18/2021

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	9.88	9.94	12.92	30.00	-17.08
Middle	2441	9.96	9.97	12.98	30.00	-17.02
High	2476	9.83	9.78	12.82	30.00	-17.18

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9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

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:	44353
Date:	6/4/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	12.35
Middle	2441	12.44
High	2476	12.32

ANT 3

Tested By:	44353
Date:	6/4/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	12.41
Middle	2441	12.46
High	2476	12.18

9.5.2. HIGH POWER HDR TXBF (HDR4)

Tested By:	44353
Date:	6/4/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	12.25	12.33	15.30
Middle	2441	12.30	12.49	15.41
High	2476	12.48	12.35	15.43

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9.5.3. HIGH POWER HDR (HDR8)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.33
Middle	2441	13.32
High	2476	13.43

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	13.42
Middle	2441	13.45
High	2476	13.27

9.5.4. HIGH POWER HDR TXBF (HDR8)

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	13.33	13.28	16.32
Middle	2441	13.30	13.43	16.38
High	2476	13.44	13.25	16.36

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9.5.5. LOW POWER HDR (HDR4)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	6.92
Middle	2441	6.95
High	2476	6.87

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	6.92
Middle	2441	6.98
High	2476	6.81

9.5.6. LOW POWER HDR TXBF (HDR4)

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	6.86	6.85	9.87
Middle	2441	6.80	6.87	9.85
High	2476	6.77	6.81	9.80

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9.5.7. LOW POWER HDR (HDR8)

ANT 4

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	7.37
Middle	2441	7.41
High	2476	7.32

ANT 3

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	7.37
Middle	2441	7.42
High	2476	7.38

9.5.8. LOW POWER HDR TXBF (HDR8)

Tested By:	44353
Date:	6/18/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2404	7.38	7.44	10.42
Middle	2441	7.46	7.47	10.48
High	2476	7.43	7.35	10.40

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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

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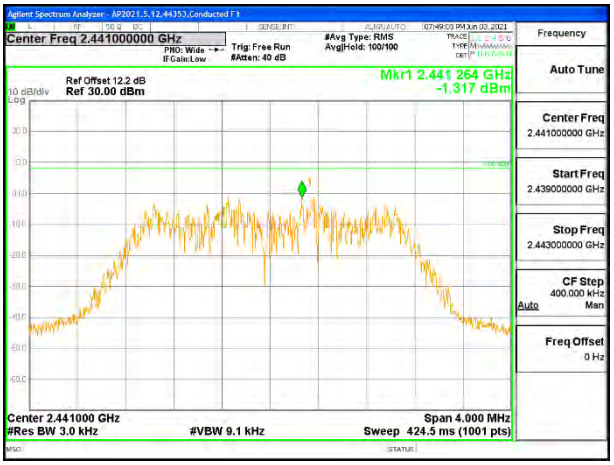
9.6.1. HIGH POWER HDR (HDR4)

ANT 4

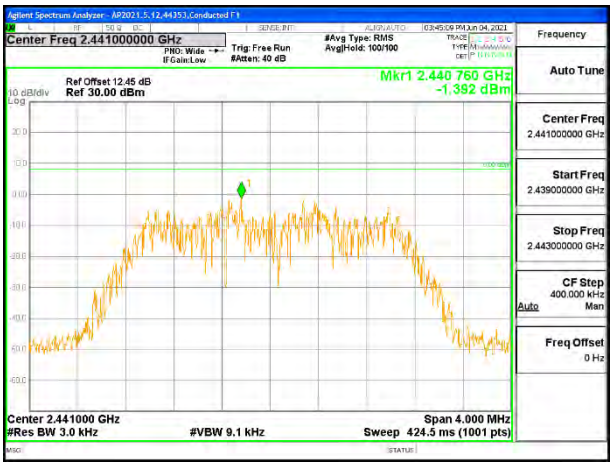
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-1.382	8	-9.38
Middle	2441	-1.317	8	-9.32
High	2476	-1.378	8	-9.38



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-1.323	8	-9.32
Middle	2441	-1.392	8	-9.39
High	2476	-1.794	8	-9.79



MID CHANNEL

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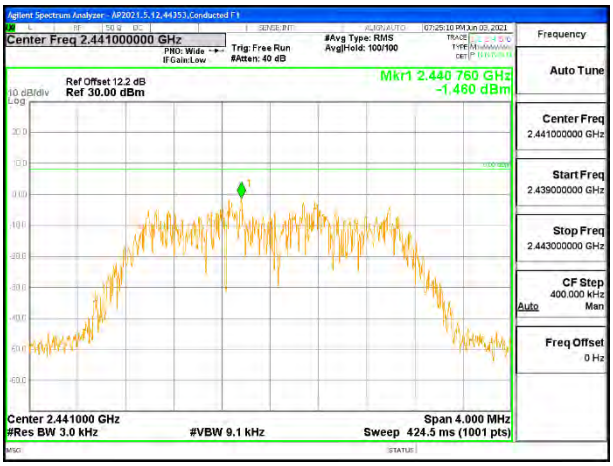
9.6.2. HIGH POWER HDR TXBF (HDR4)

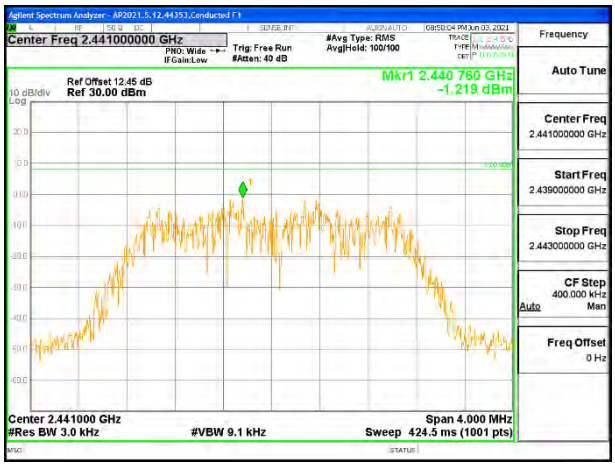
Note: Test procedures and setting are same as HDR normal mode.

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	-1.500	-1.431	1.54	8.0	-6.5
Mid	2441	-1.460	-1.219	1.67	8.0	-6.3
High	2476	-1.225	-1.440	1.68	8.0	-6.3



MID CHANNEL ANT 4

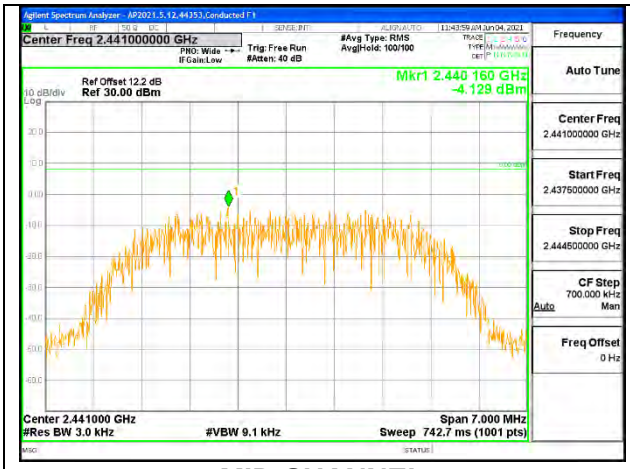


MID CHANNEL ANT 3

9.6.3. HIGH POWER HDR (HDR8)

ANT 4

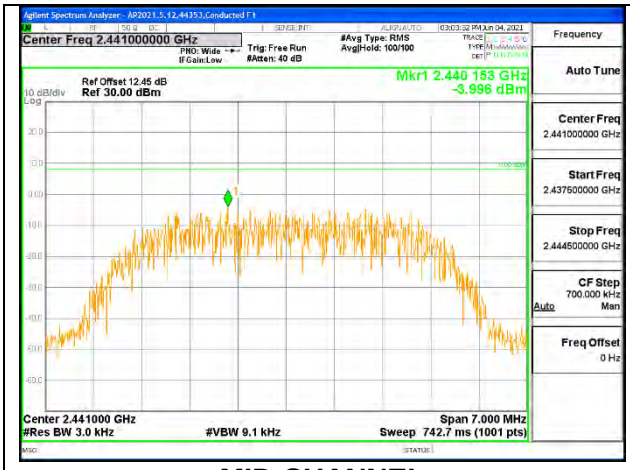
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-4.120	8	-12.12
Middle	2441	-4.129	8	-12.13
High	2476	-4.005	8	-12.01



MID CHANNEL

ANT 3

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-4.020	8	-12.02
Middle	2441	-3.996	8	-12.00
High	2476	-4.550	8	-12.55



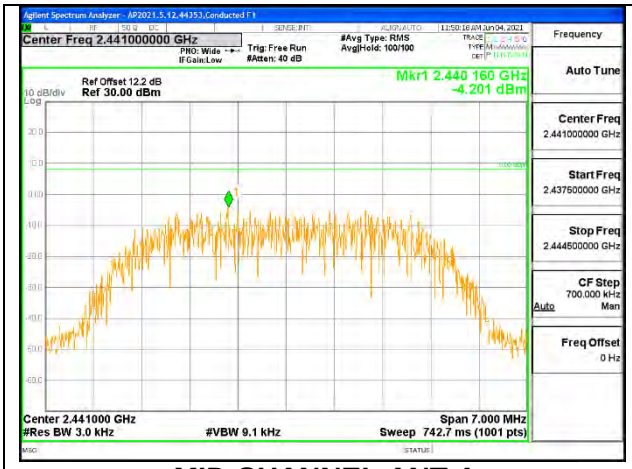
MID CHANNEL

9.6.4. HIGH POWER HDR TXBF (HDR8)

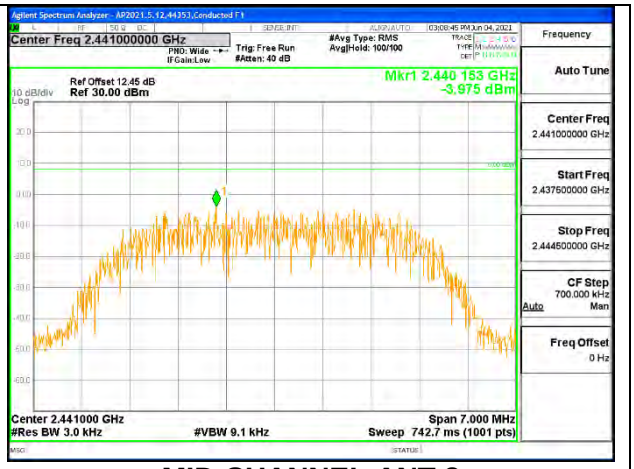
Note: Test procedures and setting are same as HDR normal mode.

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	-4.133	-4.333	-1.22	8.0	-9.2
Mid	2441	-4.201	-3.975	-1.08	8.0	-9.1
High	2476	-3.987	-4.520	-1.24	8.0	-9.2



MID CHANNEL ANT 4



MID CHANNEL ANT 3

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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 dB.

RESULTS

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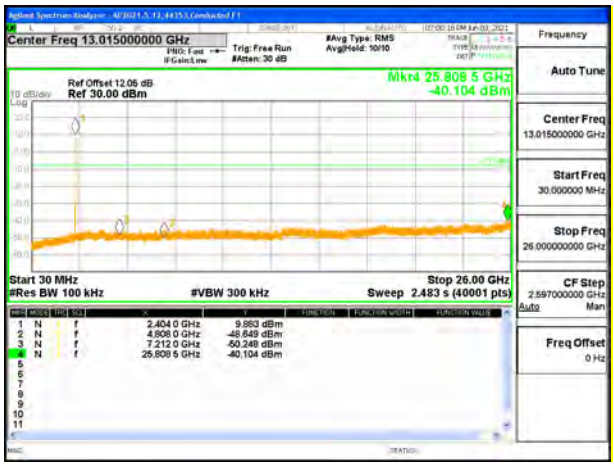
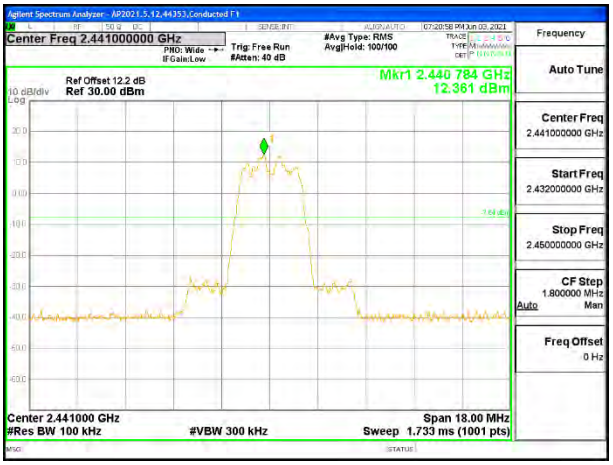
9.7.1. HIGH POWER HDR (HDR4)

ANT 4

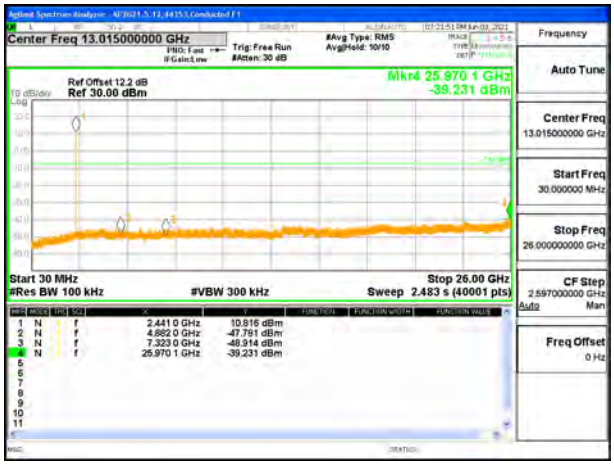
LOW CHANNEL BANDEDGE



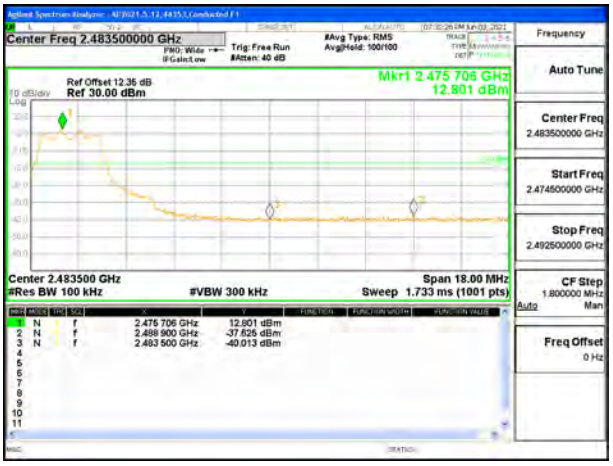
OUT-OF-BAND LOW CHANNEL



MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

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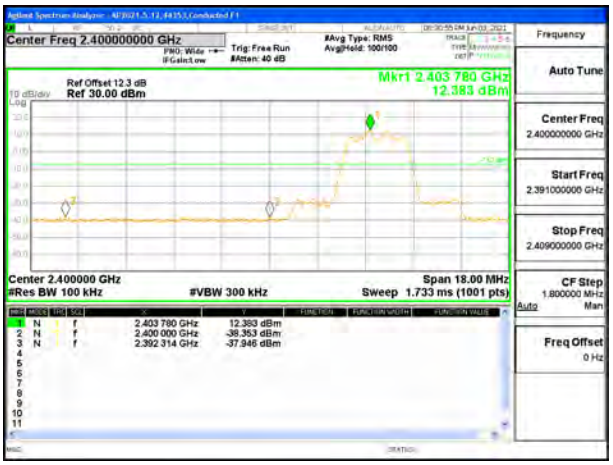
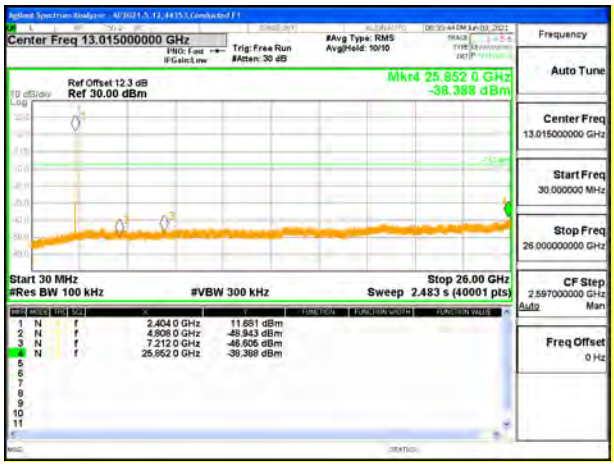
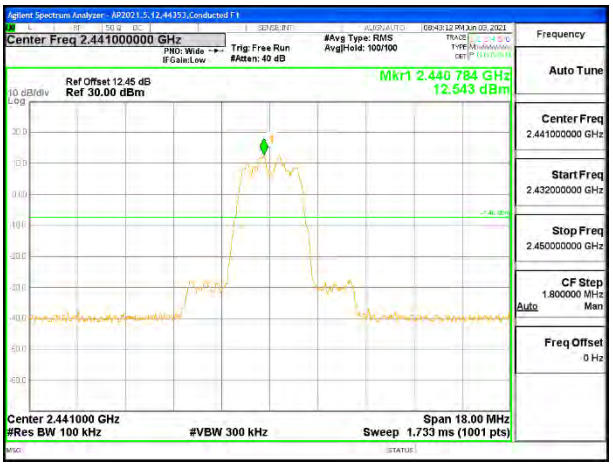
ANT 3



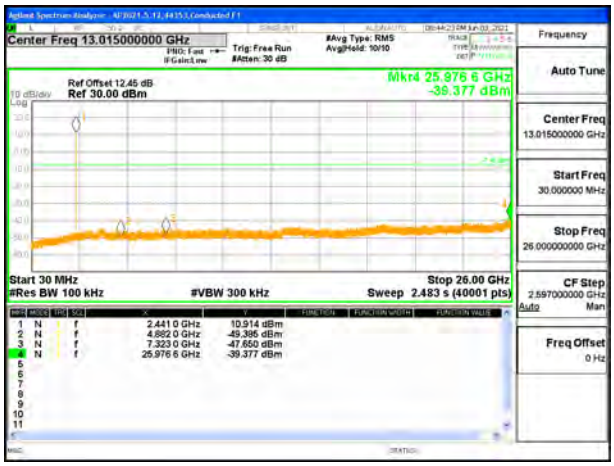
LOW CHANNEL BANDEDGE



OUT-OF-BAND LOW CHANNEL



MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

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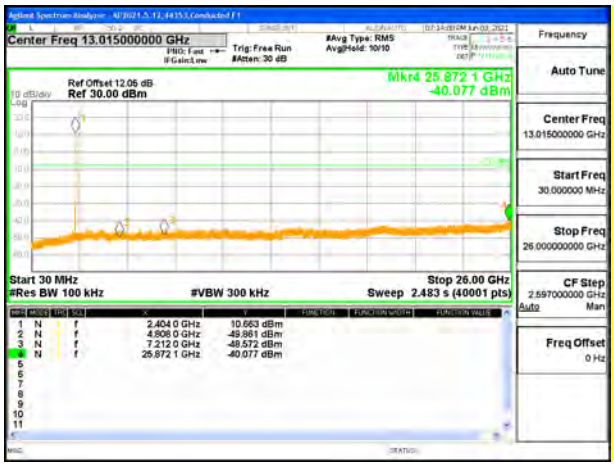
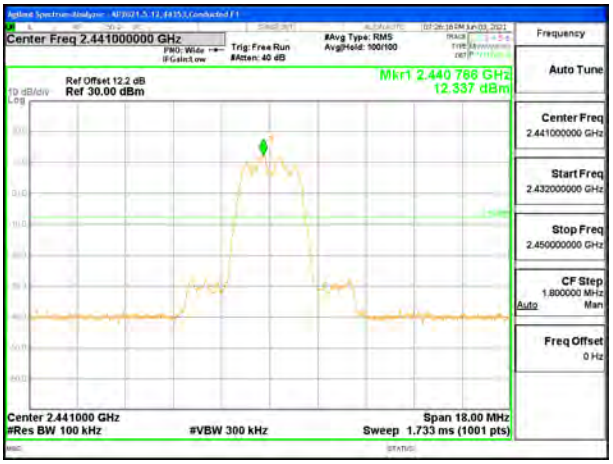
9.7.2. HIGH POWER HDR TXBF (HDR4)

ANT 4

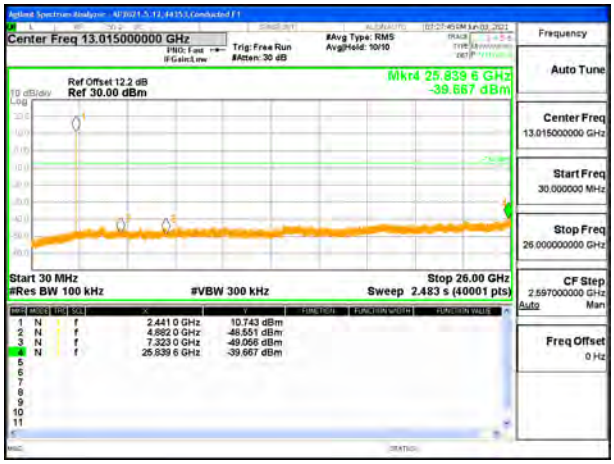
LOW CHANNEL BANDEDGE ANT 4



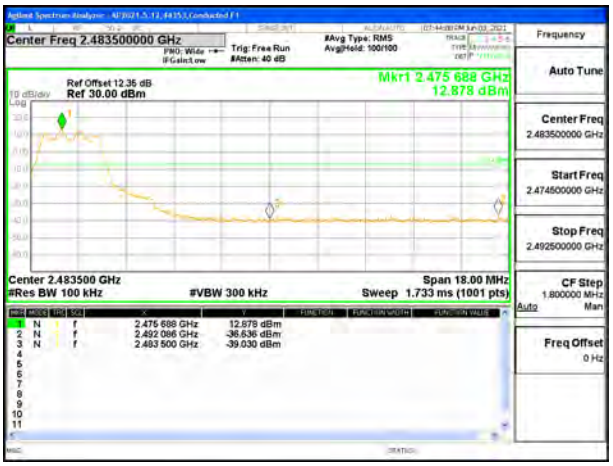
OUT-OF-BAND LOW CHANNEL ANT 4



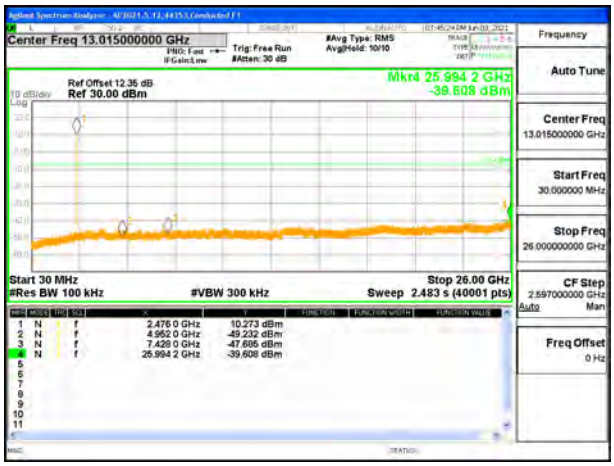
MID CHANNEL BANDEDGE ANT 4



OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL BANDEDGE ANT 4

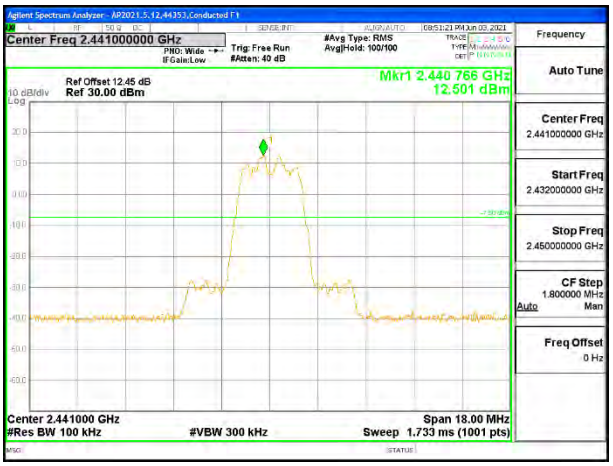


OUT-OF-BAND HIGH CHANNEL ANT 4

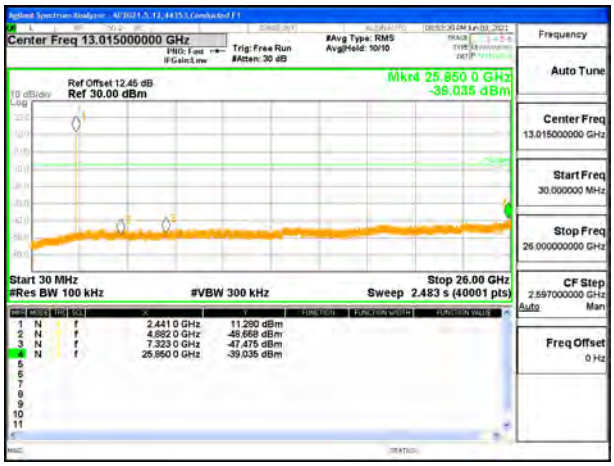
ANT 3

LOW CHANNEL BANDEDGE ANT 3

OUT-OF-BAND LOW CHANNEL ANT 3

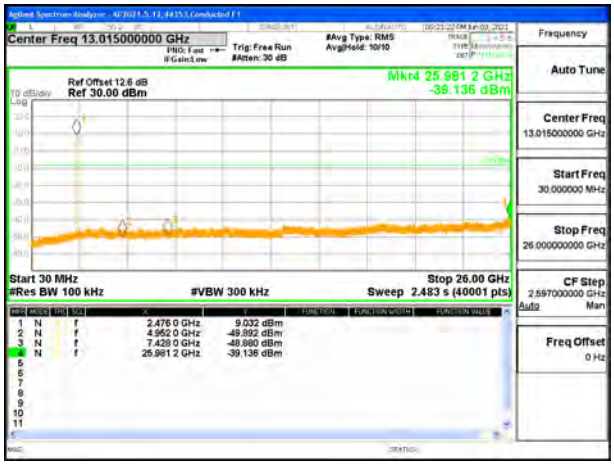


MID CHANNEL BANDEDGE ANT 3



OUT-OF-BAND MID CHANNEL ANT 3

HIGH CHANNEL BANDEDGE ANT 3

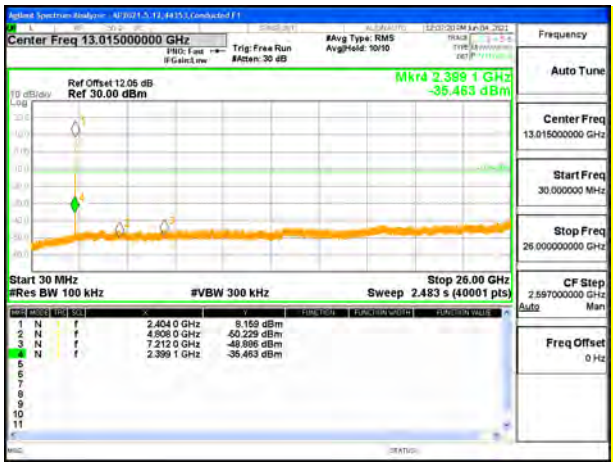


OUT-OF-BAND HIGH CHANNEL ANT 3

9.7.3. HIGH POWER HDR (HDR8)

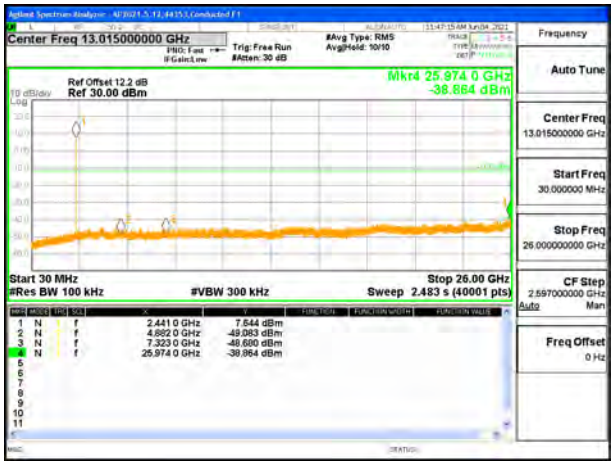
ANT 4

LOW CHANNEL BANDEDGE

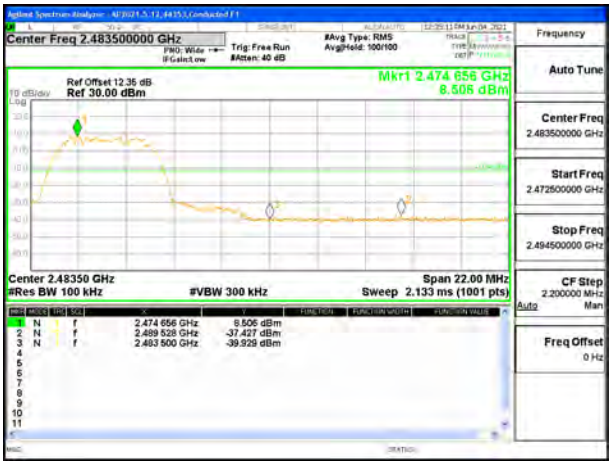


OUT-OF-BAND LOW CHANNEL

MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

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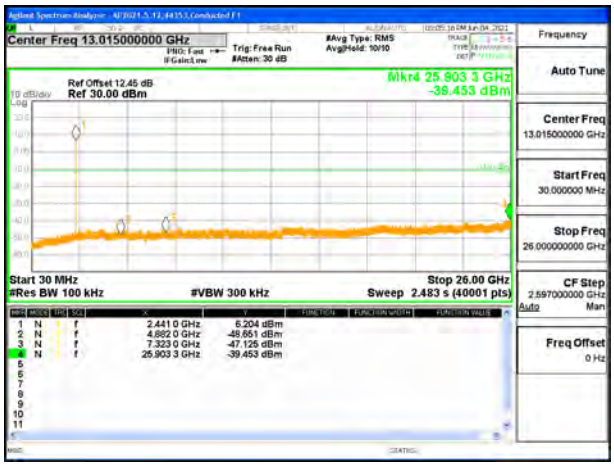
ANT 3

LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL

MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL

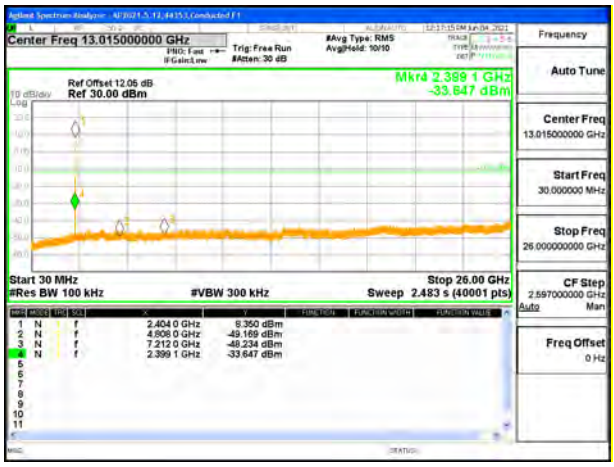
HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

9.7.4. HIGH POWER HDR TXBF (HDR8)

ANT 4

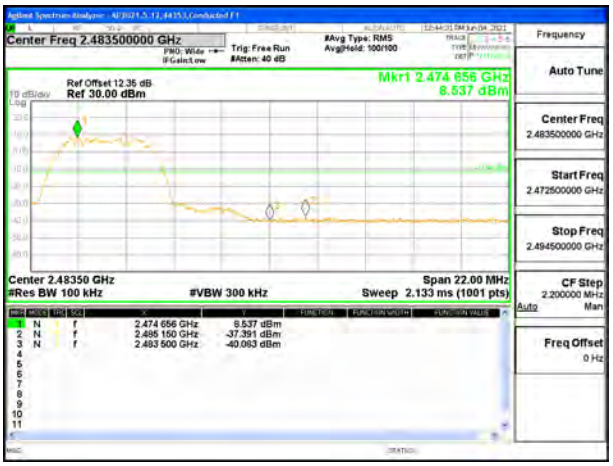
LOW CHANNEL BANDEDGE ANT 4



OUT-OF-BAND LOW CHANNEL ANT 4

MID CHANNEL BANDEDGE ANT 4

OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL BANDEDGE ANT 4

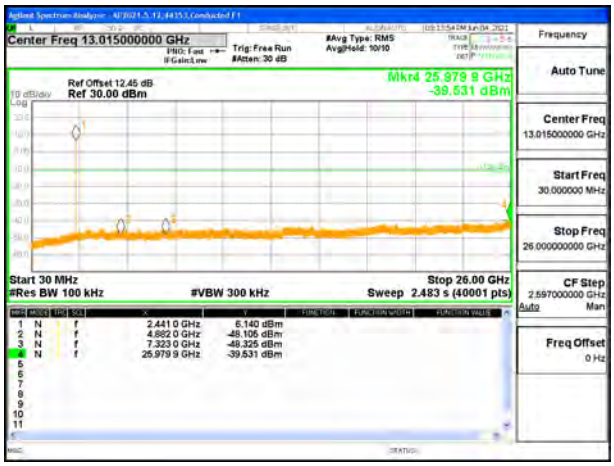
OUT-OF-BAND HIGH CHANNEL ANT 4

ANT 3

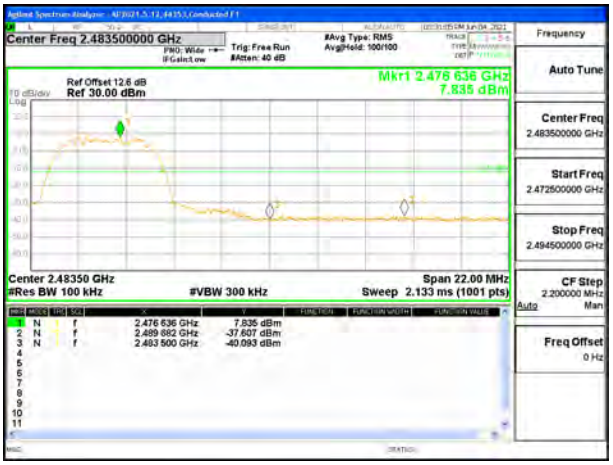
LOW CHANNEL BANDEDGE ANT 3

OUT-OF-BAND LOW CHANNEL ANT 3

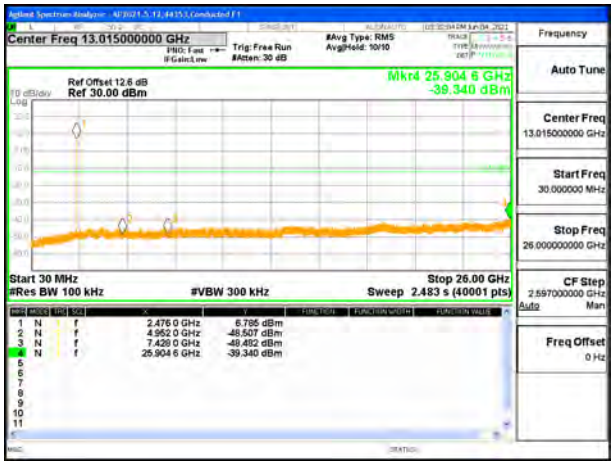
MID CHANNEL BANDEDGE ANT 3



OUT-OF-BAND MID CHANNEL ANT 3



HIGH CHANNEL BANDEDGE ANT 3

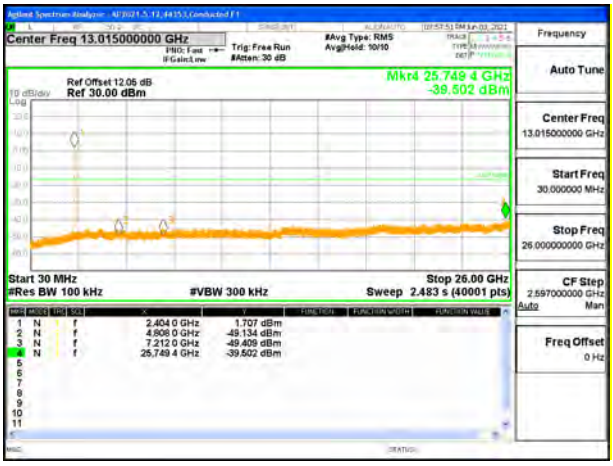


OUT-OF-BAND HIGH CHANNEL ANT 3

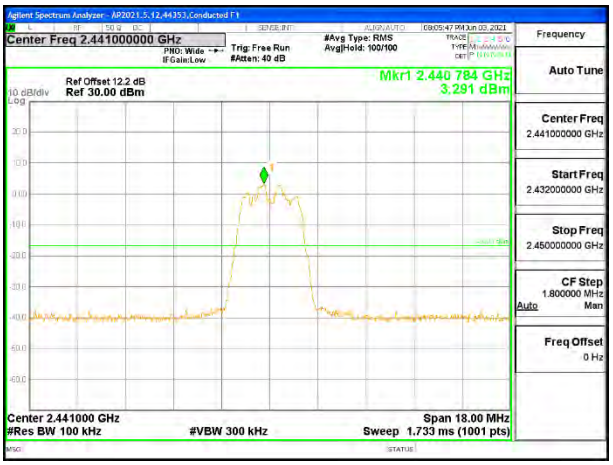
9.7.5. LOW POWER HDR (HDR4)

ANT 4

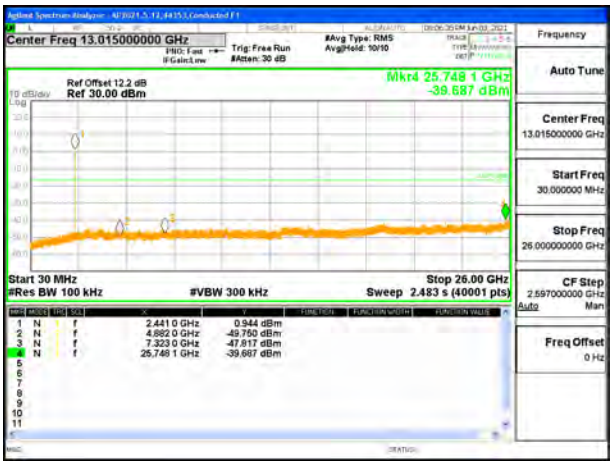
LOW CHANNEL BANDEDGE



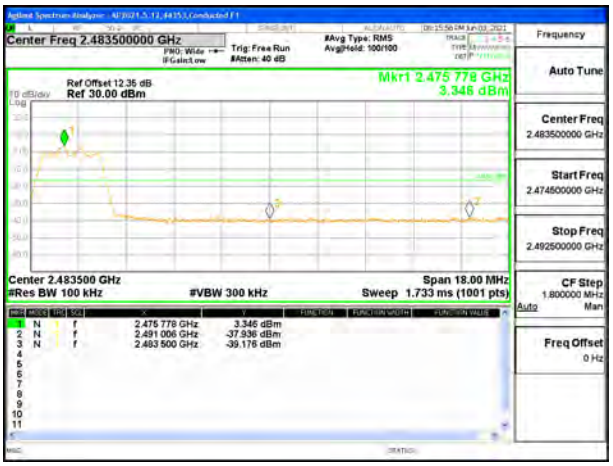
OUT-OF-BAND LOW CHANNEL



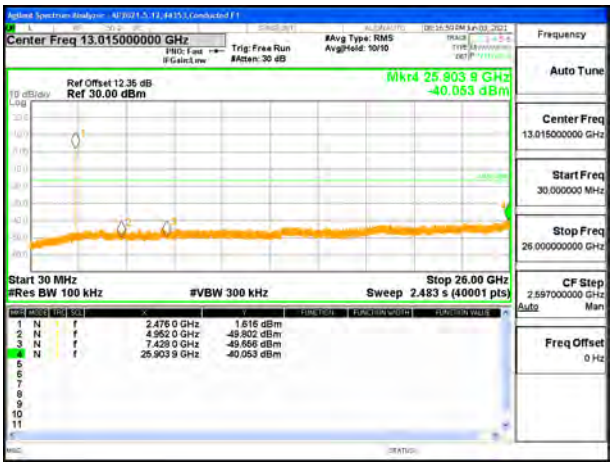
MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL



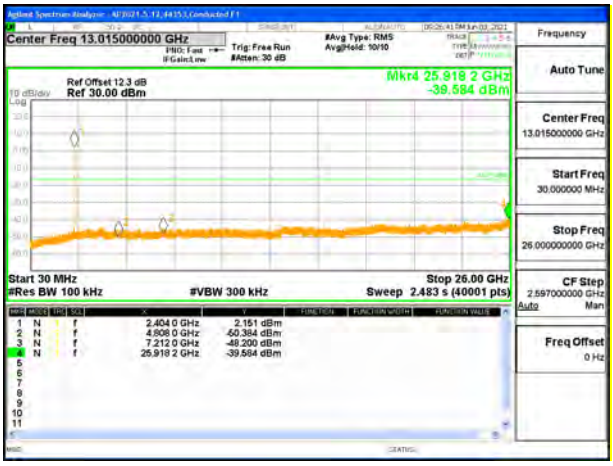
HIGH CHANNEL BANDEDGE



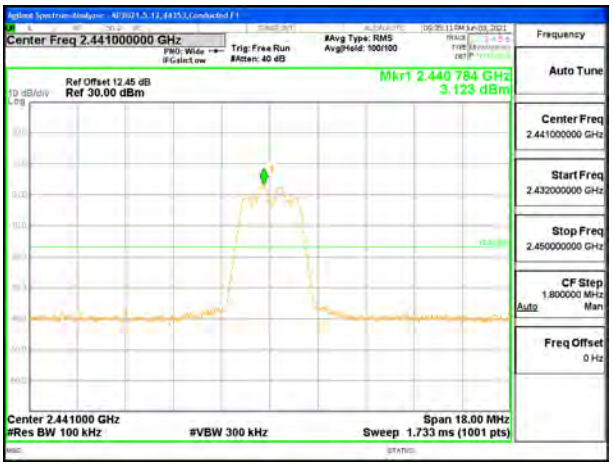
OUT-OF-BAND HIGH CHANNEL

ANT 3

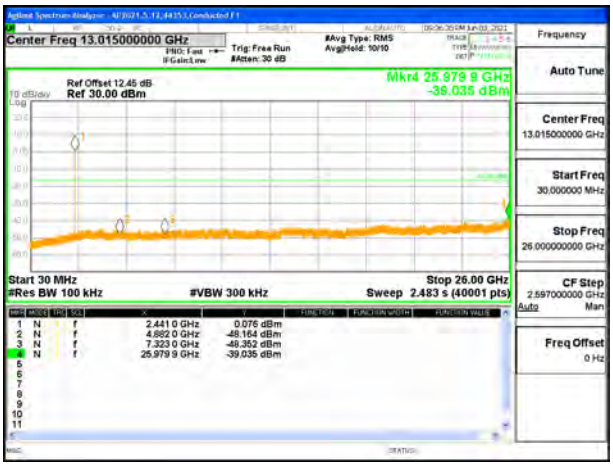
LOW CHANNEL BANDEDGE



OUT-OF-BAND LOW CHANNEL



MID CHANNEL BANDEDGE



OUT-OF-BAND MID CHANNEL

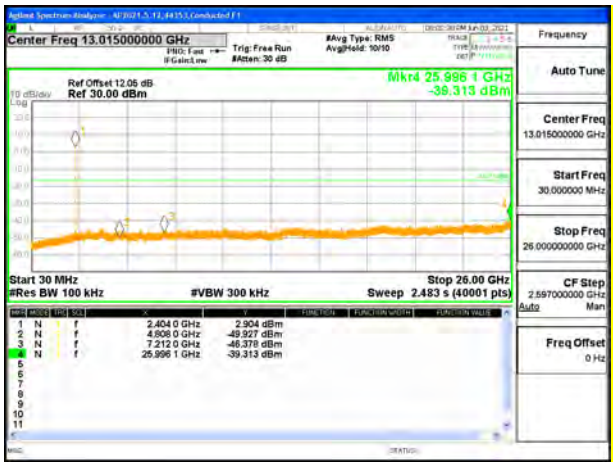
HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

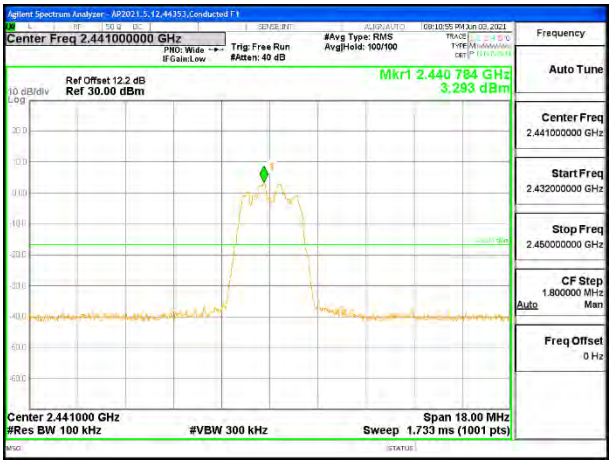
9.7.6. LOW POWER HDR TXBF (HDR4)

ANT 4

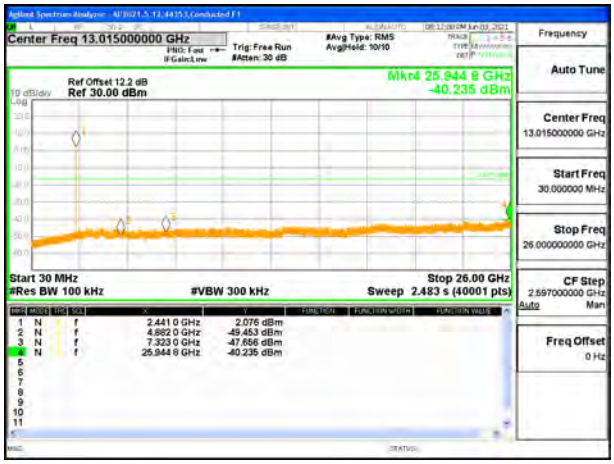
LOW CHANNEL BANDEDGE ANT 4



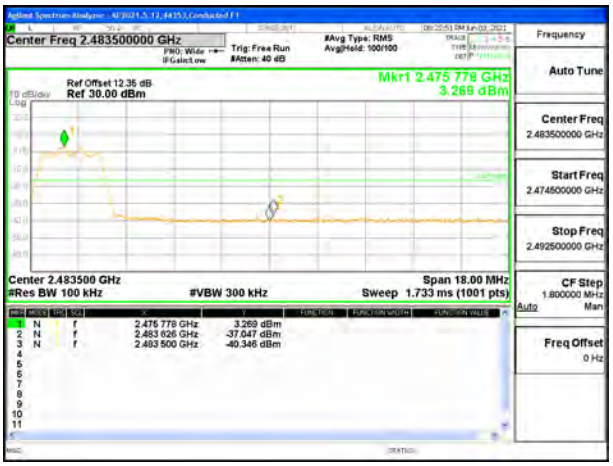
OUT-OF-BAND LOW CHANNEL ANT 4



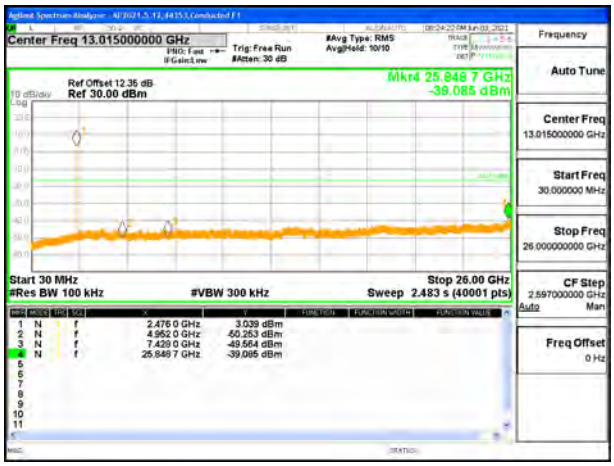
MID CHANNEL BANDEDGE ANT 4



OUT-OF-BAND MID CHANNEL ANT 4



HIGH CHANNEL BANDEDGE ANT 4



OUT-OF-BAND HIGH CHANNEL ANT 4

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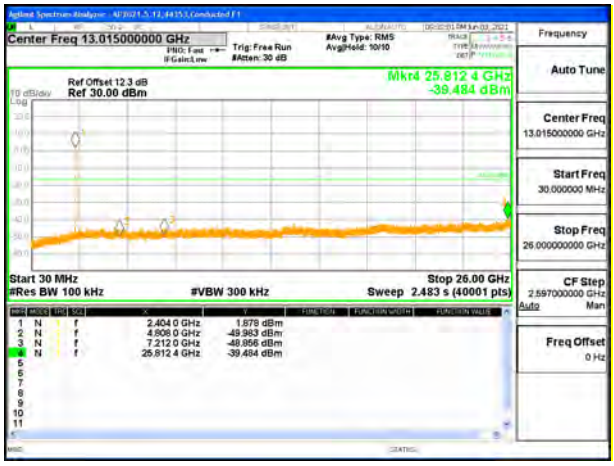
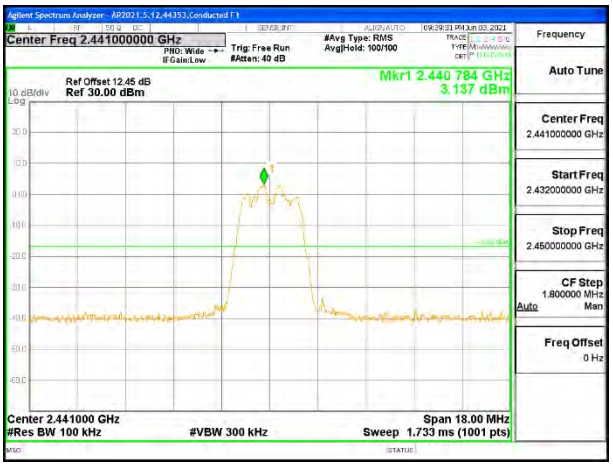
ANT 3

LOW CHANNEL BANDEDGE ANT 3



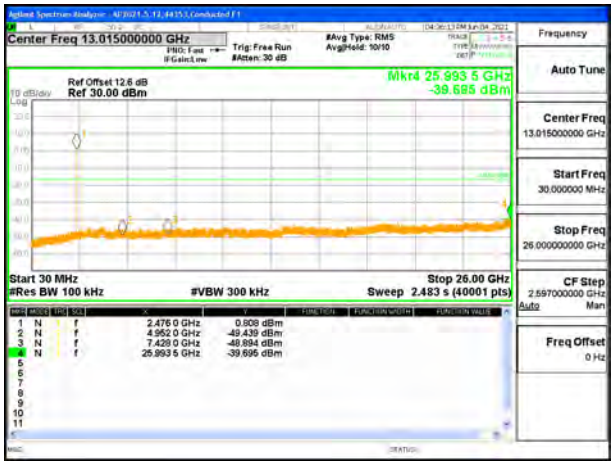
OUT-OF-BAND LOW CHANNEL ANT 3



MID CHANNEL BANDEDGE ANT 3

OUT-OF-BAND MID CHANNEL ANT 3

HIGH CHANNEL BANDEDGE ANT 3



OUT-OF-BAND HIGH CHANNEL ANT 3

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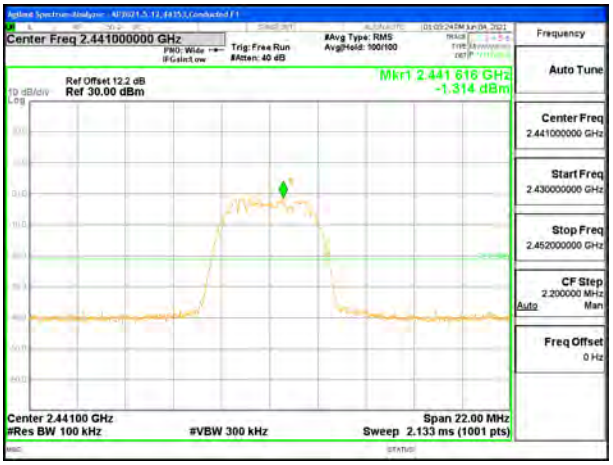
9.7.7. LOW POWER HDR (HDR8)

ANT 4

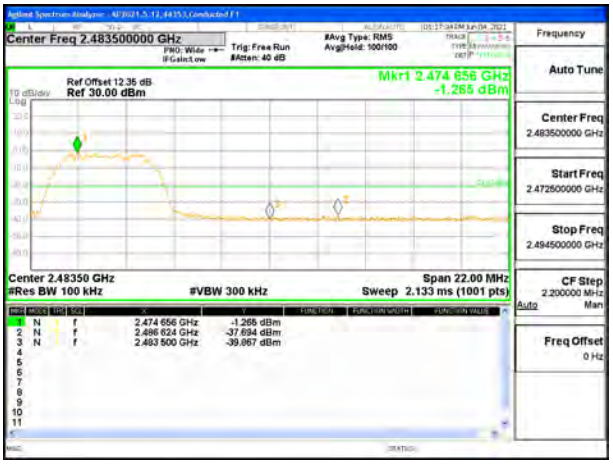
LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



MID CHANNEL BANDEDGE

OUT-OF-BAND MID CHANNEL



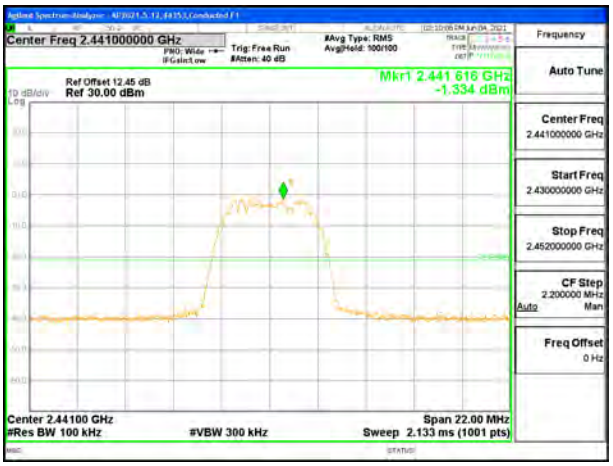
HIGH CHANNEL BANDEDGE

OUT-OF-BAND HIGH CHANNEL

ANT 3

LOW CHANNEL BANDEDGE

OUT-OF-BAND LOW CHANNEL



MID CHANNEL BANDEDGE

OUT-OF-BAND MID CHANNEL

HIGH CHANNEL BANDEDGE

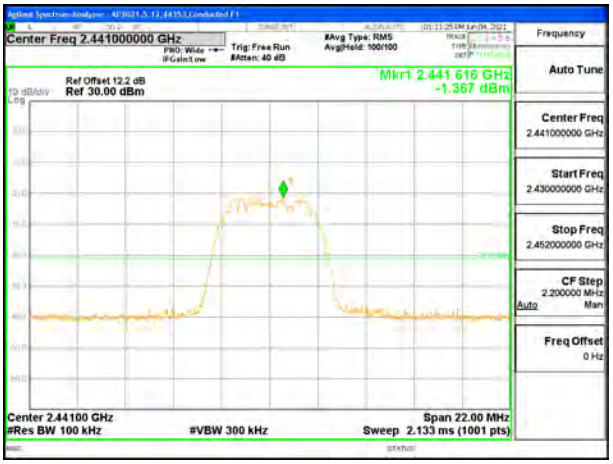
OUT-OF-BAND HIGH CHANNEL

9.7.8. LOW POWER HDR TXBF (HDR8)

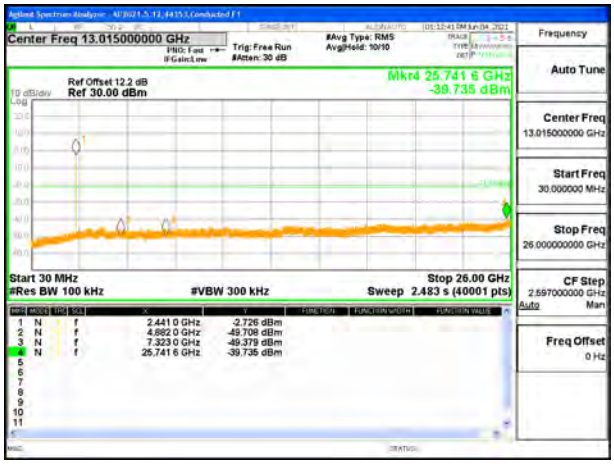
ANT 4

LOW CHANNEL BANDEDGE ANT 4

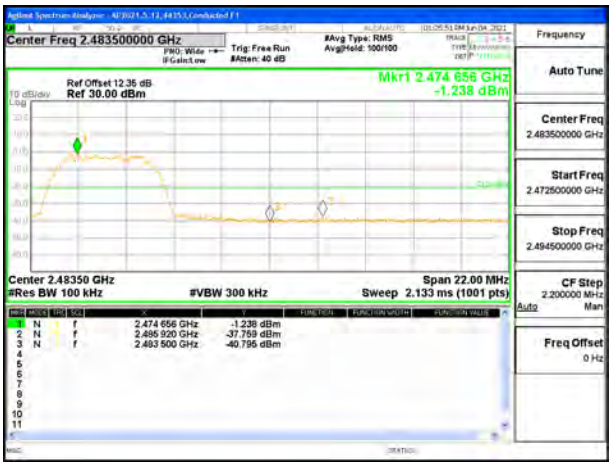
OUT-OF-BAND LOW CHANNEL ANT 4



IN-BAND REFERENCE LEVEL ANT 4



OUT-OF-BAND MID CHANNEL ANT 4



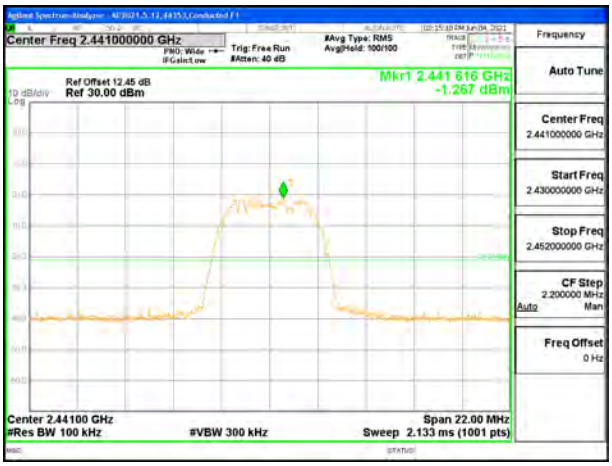
HIGH CHANNEL BANDEDGE ANT 4

OUT-OF-BAND HIGH CHANNEL ANT 4

ANT 3

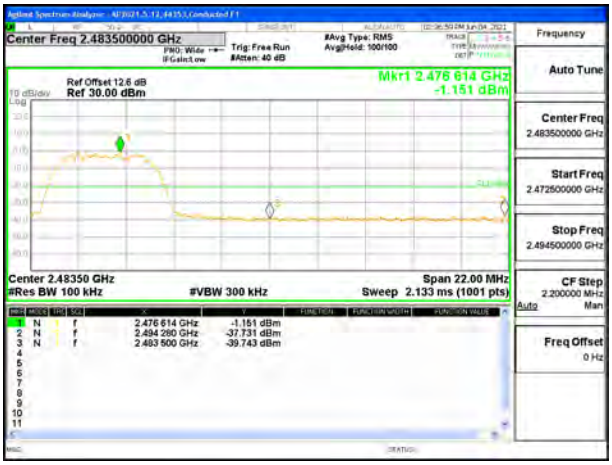
LOW CHANNEL BANDEDGE ANT 3

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 measurements above 1 GHz the 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 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.

RESULTS:

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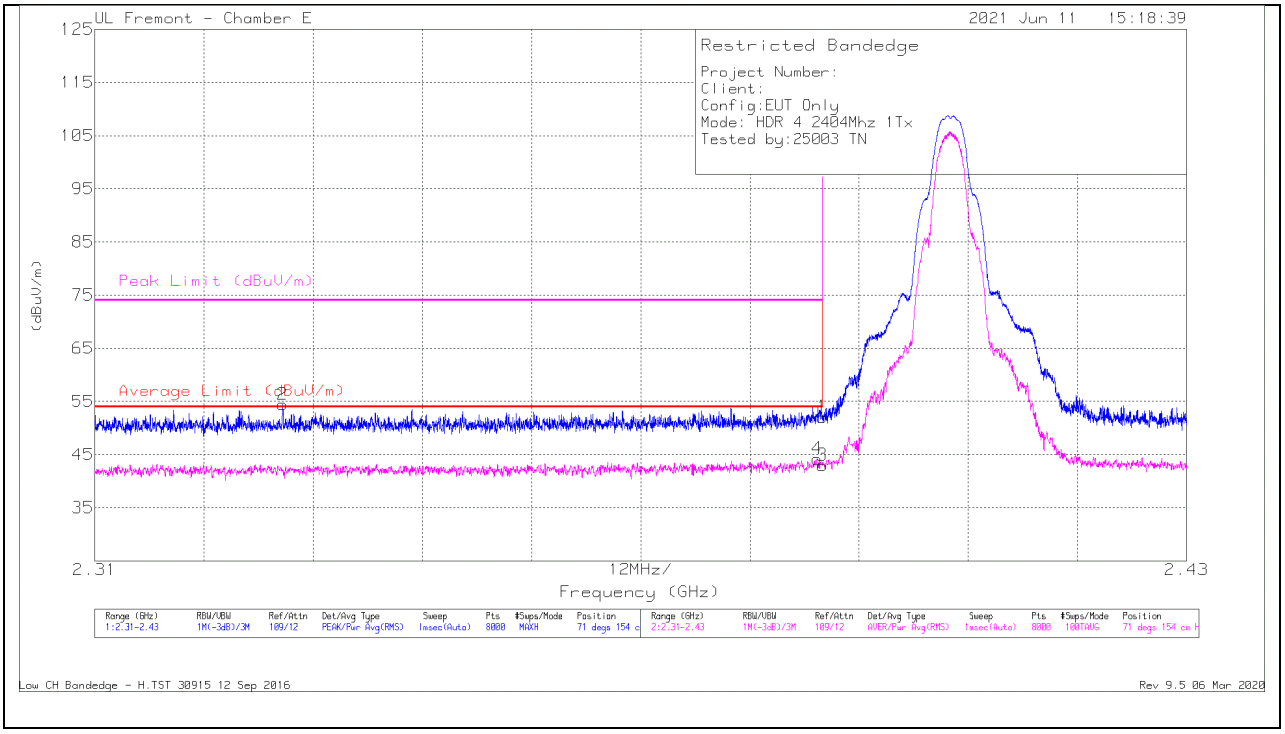
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. HIGH POWER HDR (HDR4)

ANT 4

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

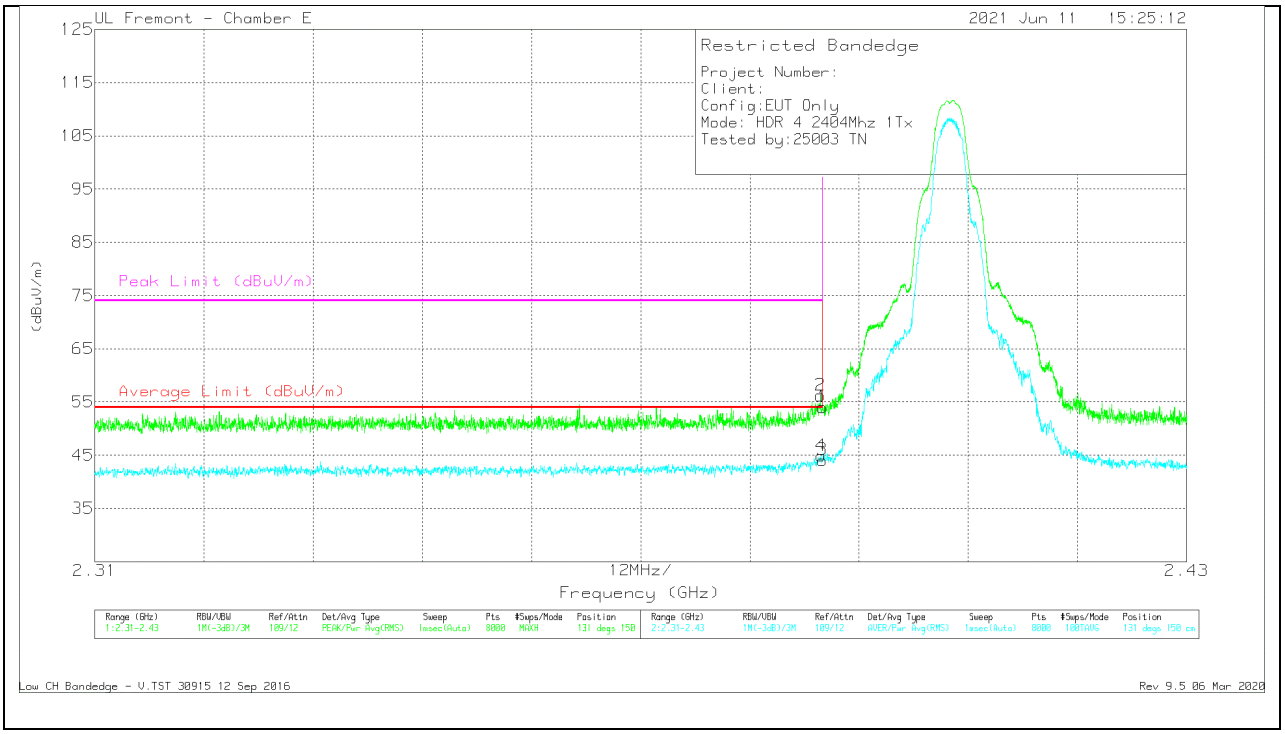


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.33064	40.11	Pk	32	-17.7	54.41	-	-	74	-19.59	71	154	H
4	* 2.38938	29.58	RMS	32.2	-17.6	44.18	54	-9.82	-	-	71	154	H
1	* 2.38999	37.44	Pk	32.2	-17.6	52.04	-	-	74	-21.96	71	154	H
3	* 2.38999	28.38	RMS	32.2	-17.6	42.98	54	-11.02	-	-	71	154	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	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.38974	41.63	Pk	32.2	-17.6	56.23	-	-	74	-17.77	131	150	V
4	* 2.38981	30.28	RMS	32.2	-17.6	44.88	54	-9.12	-	-	131	150	V
1	* 2.38999	39.43	Pk	32.2	-17.6	54.03	-	-	74	-19.97	131	150	V
3	* 2.38999	29.51	RMS	32.2	-17.6	44.11	54	-9.89	-	-	131	150	V

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

Pk - Peak detector
RMS - RMS detection

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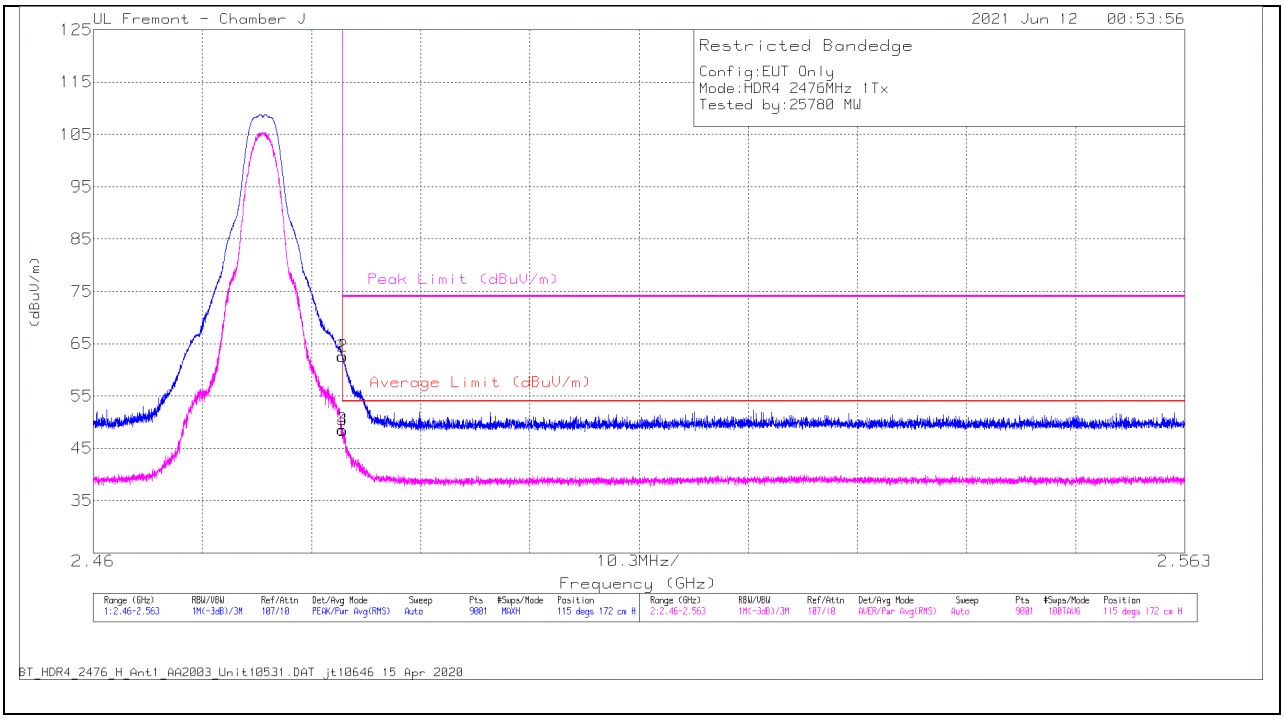
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	55.29	Pk	32.5	-25.2	62.59	-	-	74	-11.41	115	172	H
2	* 2.48355	55.23	Pk	32.5	-25.2	62.53	-	-	74	-11.47	115	172	H
3	* 2.48351	41.21	RMS	32.5	-25.2	48.51	54	-5.49	-	-	115	172	H
4	* 2.48357	41.14	RMS	32.5	-25.2	48.44	54	-5.56	-	-	115	172	H

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

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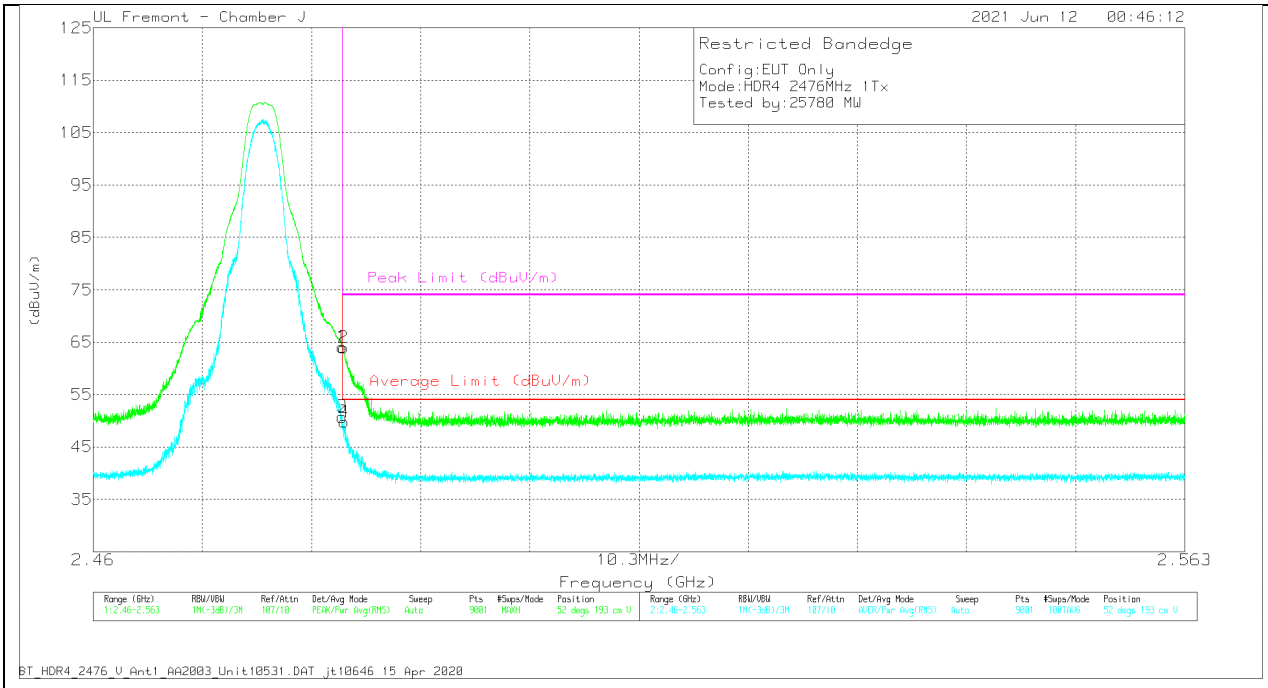
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	56.75	Pk	32.5	-25.2	64.05	-	-	74	-9.95	52	193	V
2	* 2.4836	56.67	Pk	32.5	-25.2	63.97	-	-	74	-10.03	52	193	V
3	* 2.48351	43.43	RMS	32.5	-25.2	50.73	54	-3.27	-	-	52	193	V
4	* 2.48365	42.5	RMS	32.5	-25.2	49.8	54	-4.2	-	-	52	193	V

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

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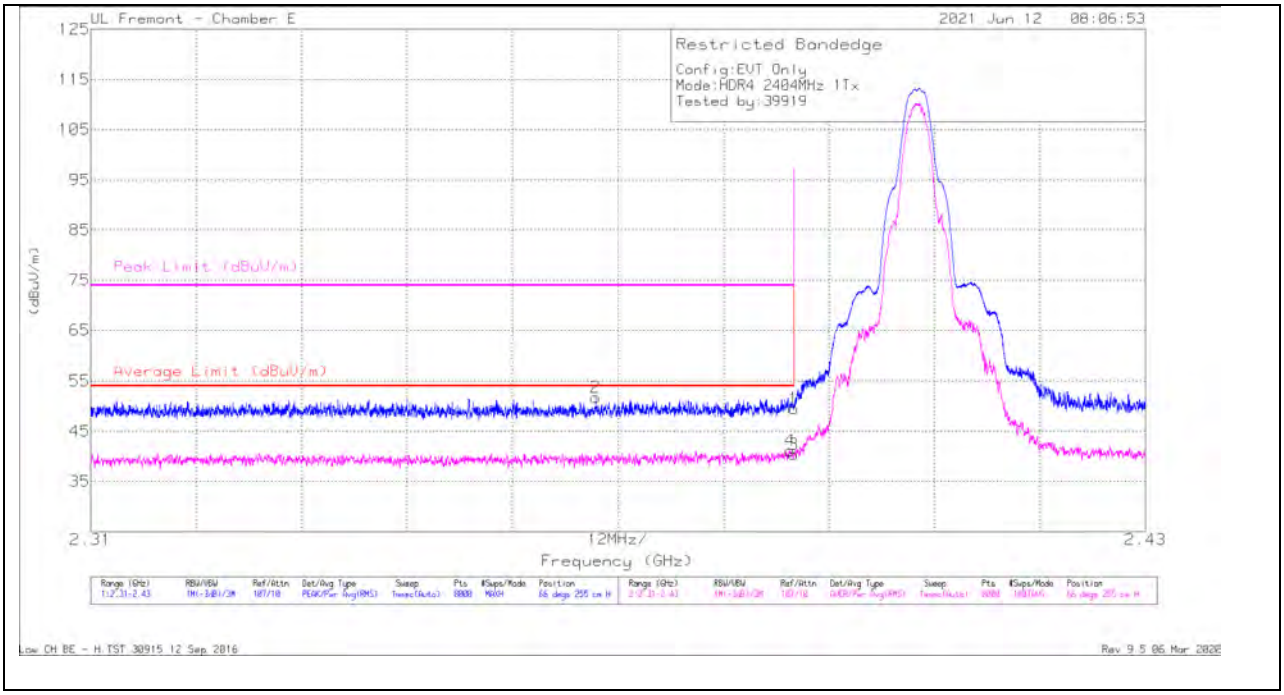
ANT 3

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	42.67	Pk	32.2	-25.4	49.47	-	-	74	-24.53	66	255	H
2	* 2.36746	45.17	Pk	32.1	-25.5	51.77	-	-	74	-22.23	66	255	H
3	* 2.38999	33.61	RMS	32.2	-25.4	40.41	54	-13.59	-	-	66	255	H
4	* 2.38957	34.3	RMS	32.2	-25.4	41.1	54	-12.9	-	-	66	255	H

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

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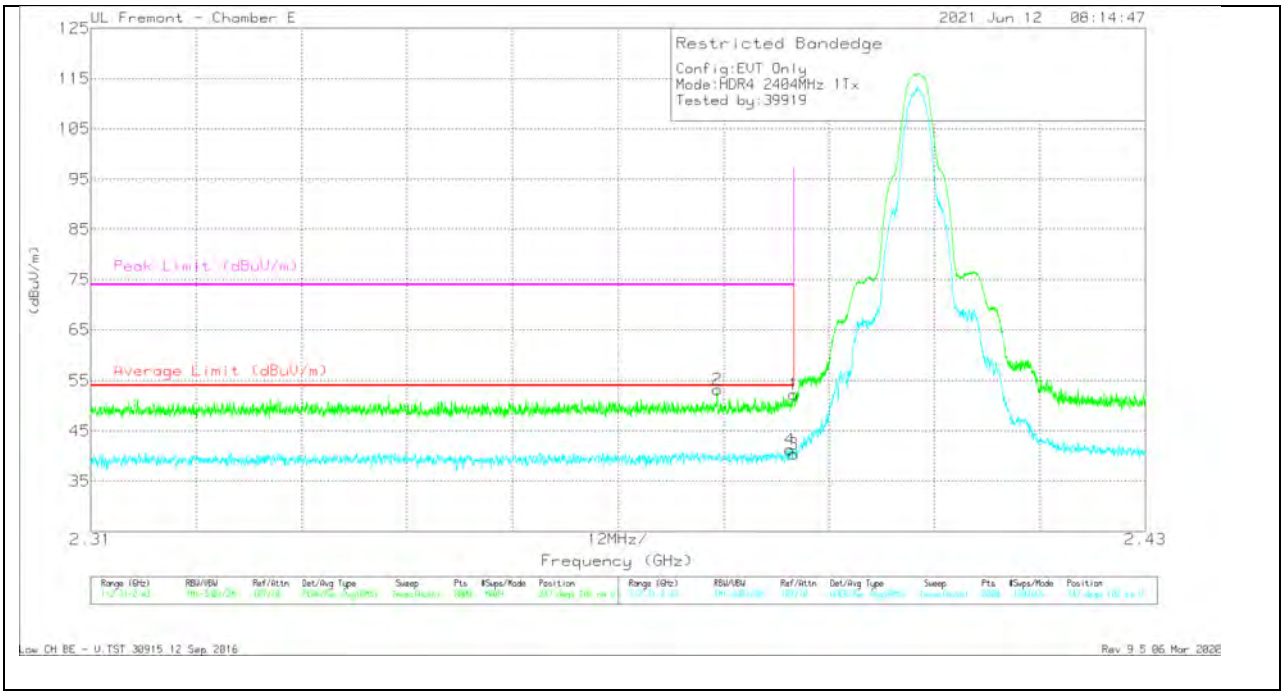
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE007 8107 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.38129	46.45	Pk	32.2	-25.4	53.25	-	-	74	-20.75	347	102	V
4	* 2.3896	34.46	RMS	32.2	-25.4	41.26	54	-12.74	-	-	347	102	V
1	* 2.38999	45.49	Pk	32.2	-25.4	52.29	-	-	74	-21.71	347	102	V
3	* 2.38999	33.61	RMS	32.2	-25.4	40.41	54	-13.59	-	-	347	102	V

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

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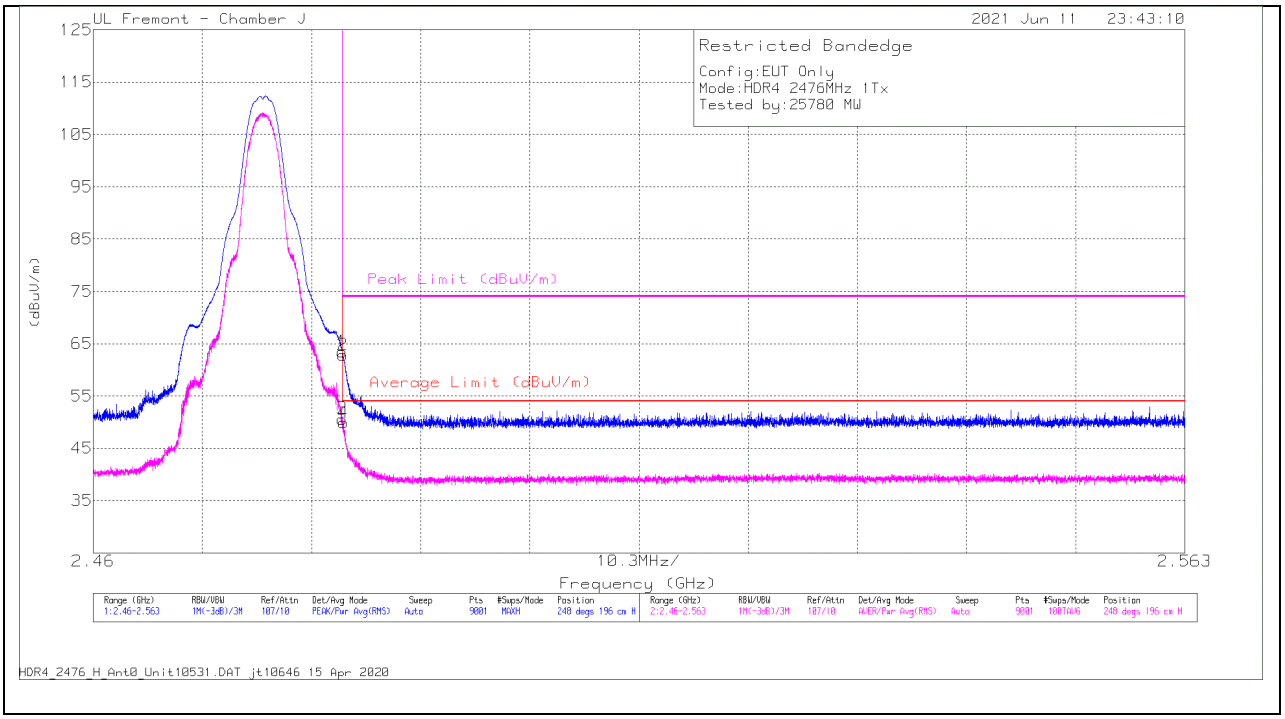
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	56.16	Pk	32.5	-25.2	63.46	-	-	74	-10.54	248	196	H
2	* 2.48355	55.55	Pk	32.5	-25.2	62.85	-	-	74	-11.15	248	196	H
3	* 2.48351	43.3	RMS	32.5	-25.2	50.6	54	-3.4	-	-	248	196	H
4	* 2.48362	42.59	RMS	32.5	-25.2	49.89	54	-4.11	-	-	248	196	H

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

Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
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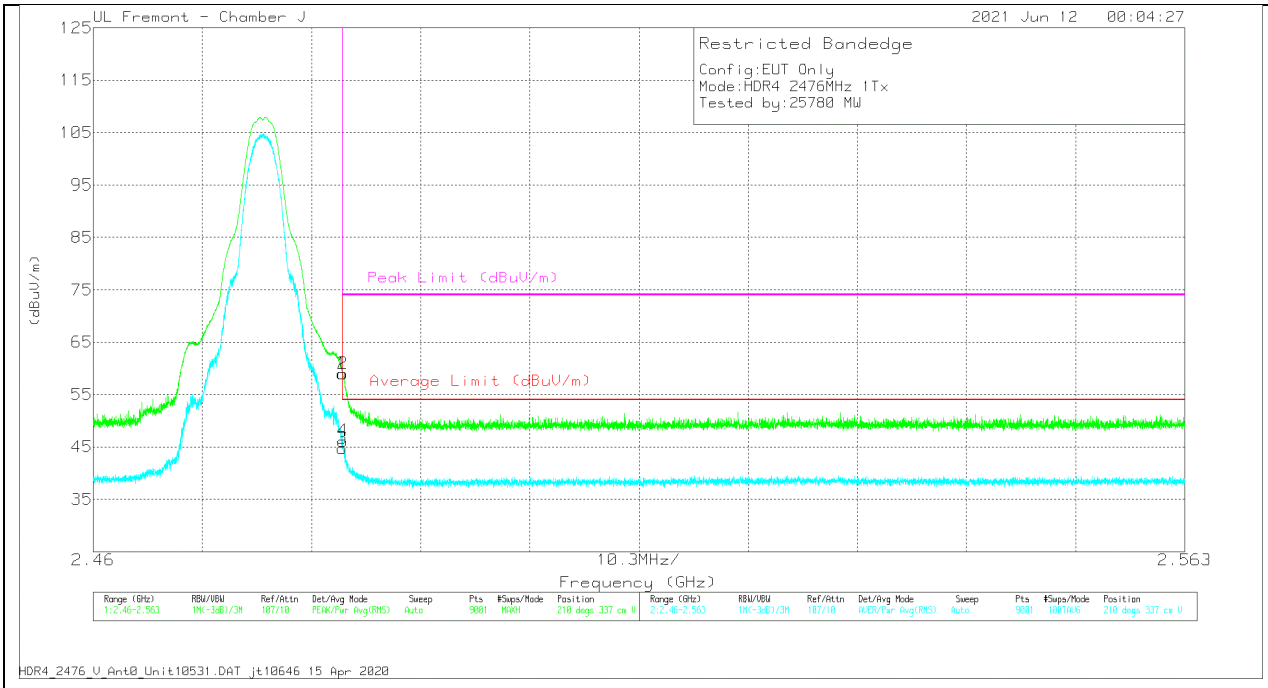
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0100034 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	51.64	Pk	32.5	-25.2	58.94	-	-	74	-15.06	210	337	V
2	* 2.48354	51.72	Pk	32.5	-25.2	59.02	-	-	74	-14.98	210	337	V
3	* 2.48351	37.37	RMS	32.5	-25.2	44.67	54	-9.33	-	-	210	337	V
4	* 2.48355	38.83	RMS	32.5	-25.2	46.13	54	-7.87	-	-	210	337	V

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

Pk - Peak detector
RMS - RMS detection

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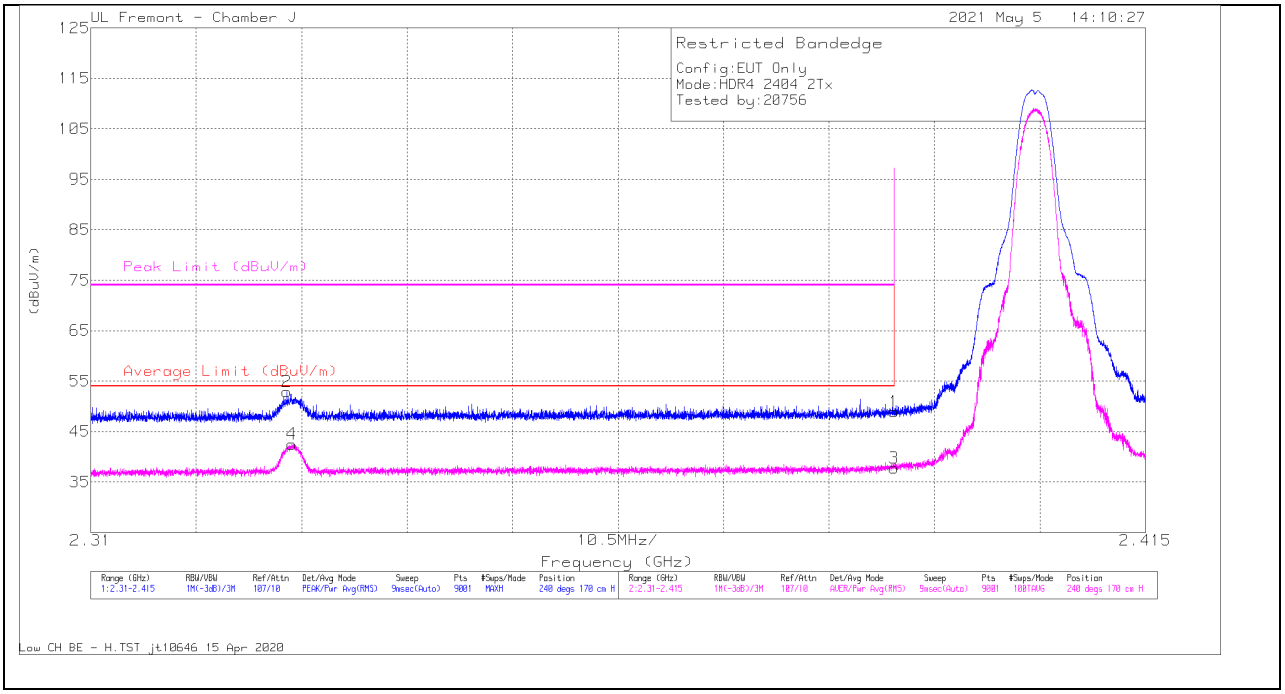
10.2.2. HIGH POWER HDR TXBF (HDR4)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE010 0034 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	42.07	Pk	32.1	-25.2	48.97	-	-	74	-25.03	240	170	H
2	* 2.32953	46.44	Pk	31.8	-25.3	52.94	-	-	74	-21.06	240	170	H
3	* 2.38999	30.84	RMS	32.1	-25.2	37.74	54	-16.26	-	-	240	170	H
4	* 2.33003	36.03	RMS	31.8	-25.3	42.53	54	-11.47	-	-	240	170	H

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

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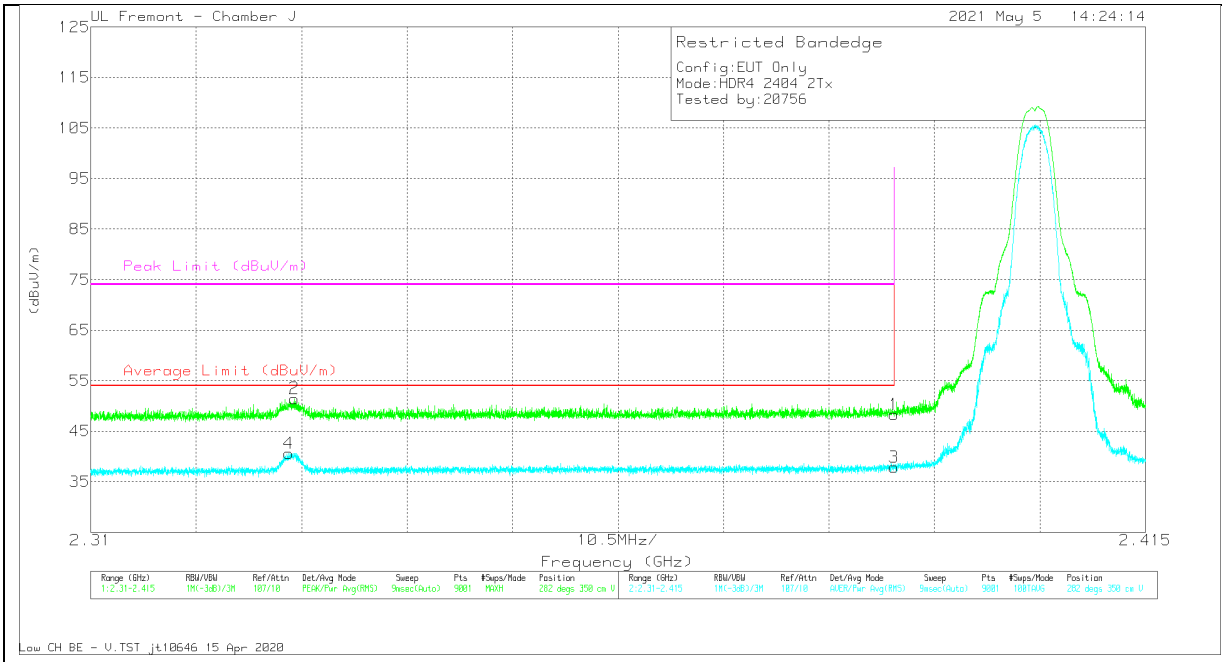
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE010 0034 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	41.41	Pk	32.1	-25.2	48.31	-	-	74	-25.69	282	350	V
2	* 2.33028	44.97	Pk	31.8	-25.3	51.47	-	-	74	-22.53	282	350	V
3	* 2.38999	30.95	RMS	32.1	-25.2	37.85	54	-16.15	-	-	282	350	V
4	* 2.32973	34.16	RMS	31.8	-25.3	40.66	54	-13.34	-	-	282	350	V

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

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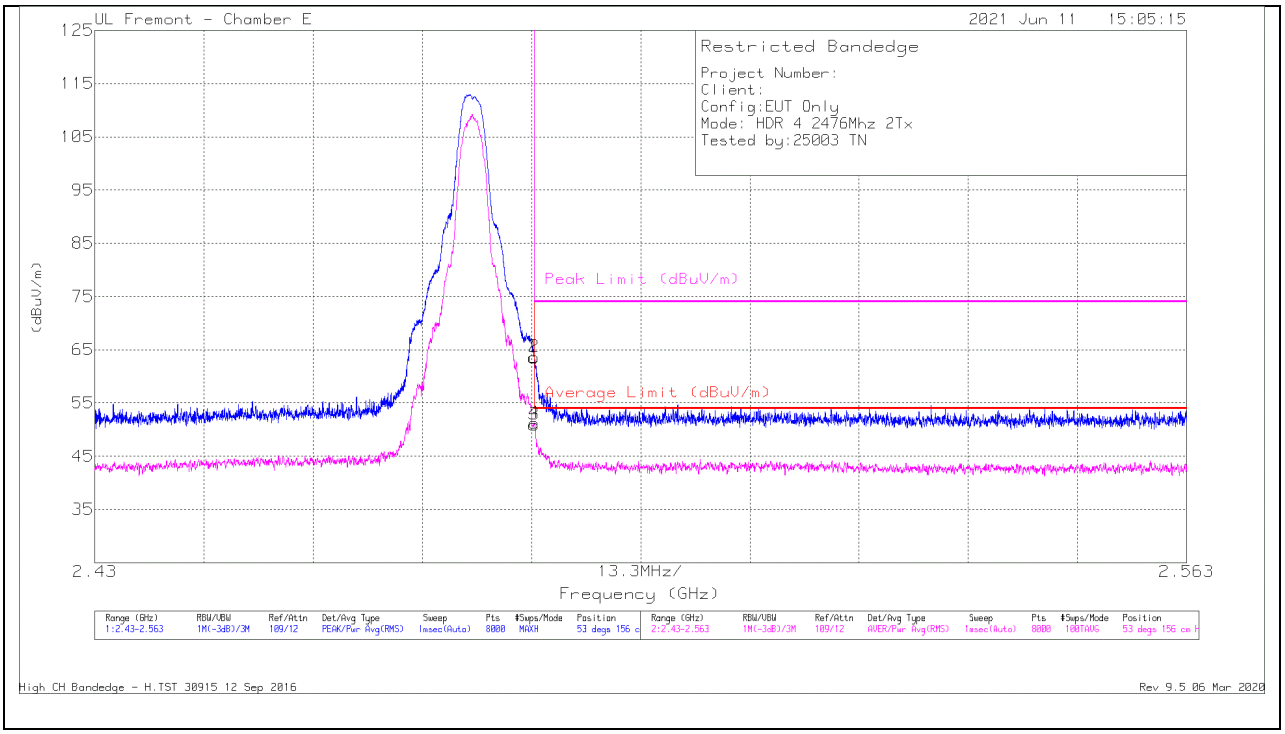
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE007810 7 (dB/m)	Amp/Cbl/Fl tr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	48.66	Pk	32.6	-17.7	63.56	-	-	74	-10.44	53	156	H
3	* 2.48351	36.05	RMS	32.6	-17.7	50.95	54	-3.05	-	-	53	156	H
2	* 2.48352	48.77	Pk	32.6	-17.7	63.67	-	-	74	-10.33	53	156	H
4	* 2.48356	36.36	RMS	32.6	-17.7	51.26	54	-2.74	-	-	53	156	H

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

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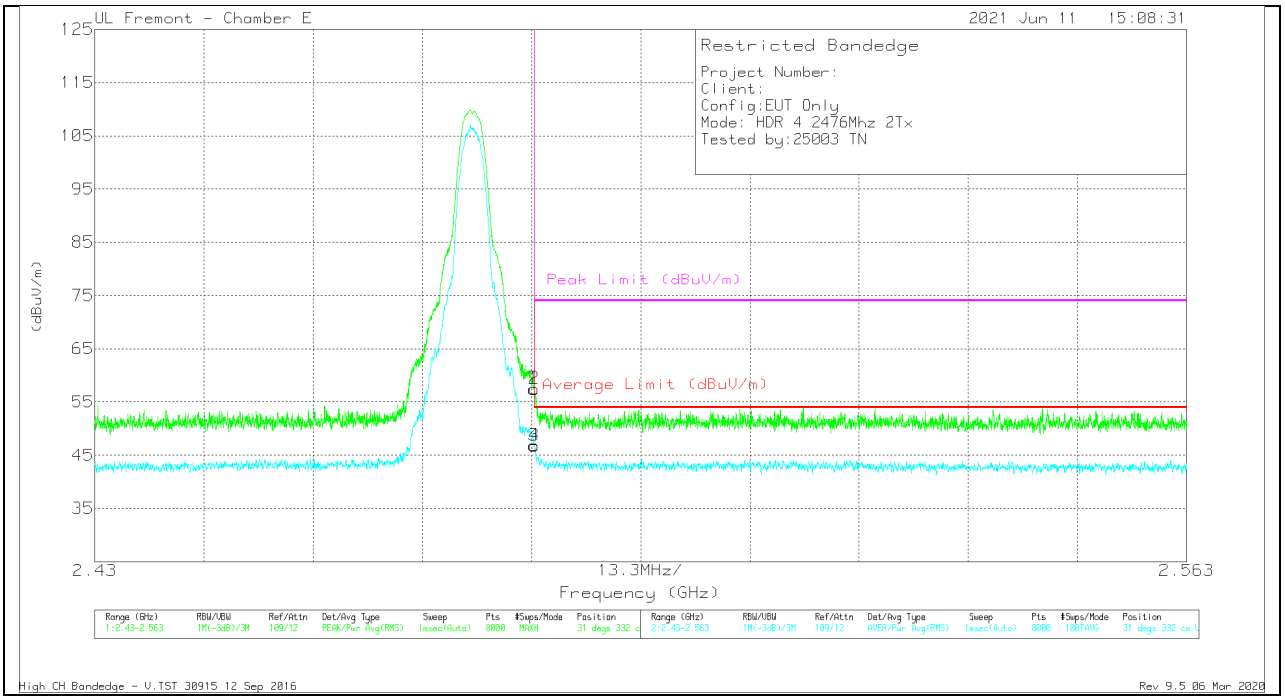
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	42.55	Pk	32.6	-17.7	57.45	-	-	74	-16.55	31	332	V
3	* 2.48351	31.93	RMS	32.6	-17.7	46.83	54	-7.17	-	-	31	332	V
2	* 2.48352	42.61	Pk	32.6	-17.7	57.51	-	-	74	-16.49	31	332	V
4	* 2.48354	31.9	RMS	32.6	-17.7	46.8	54	-7.2	-	-	31	332	V

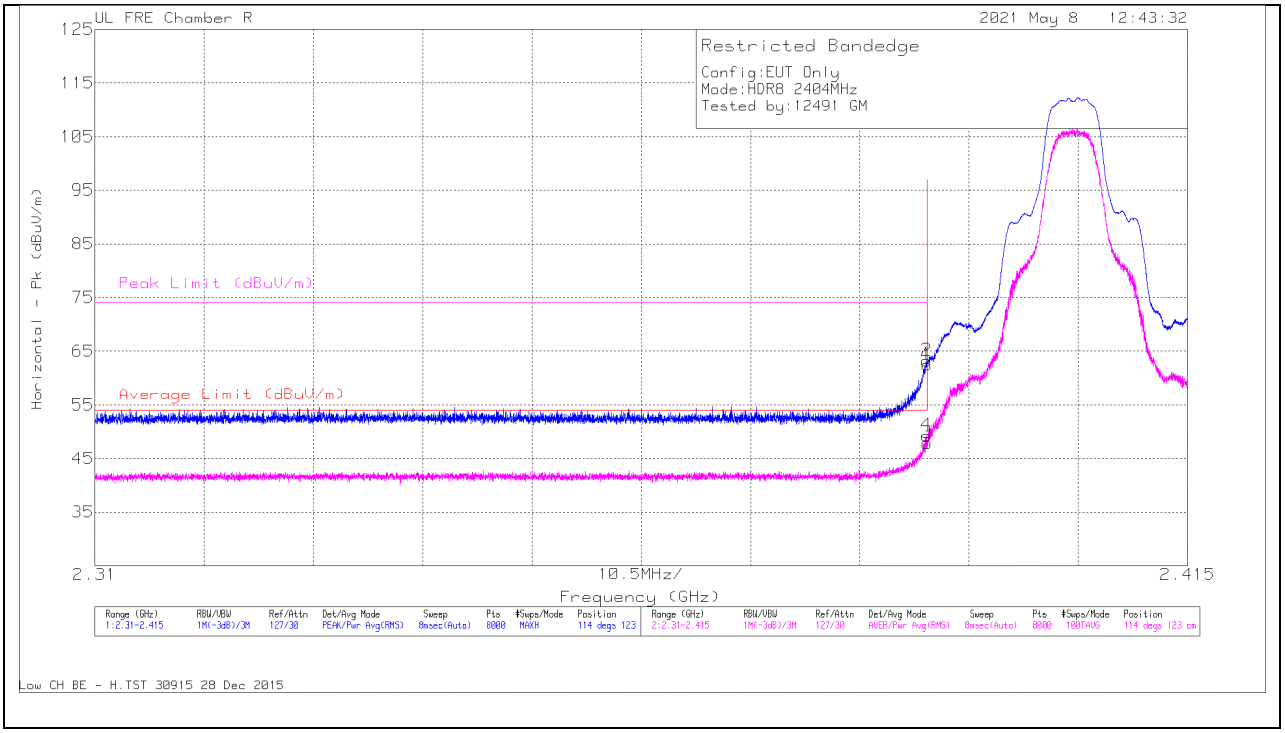
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

10.2.3. HIGH POWER HDR (HDR8)

ANT 4

BANDEDGE (LOW CHANNEL)

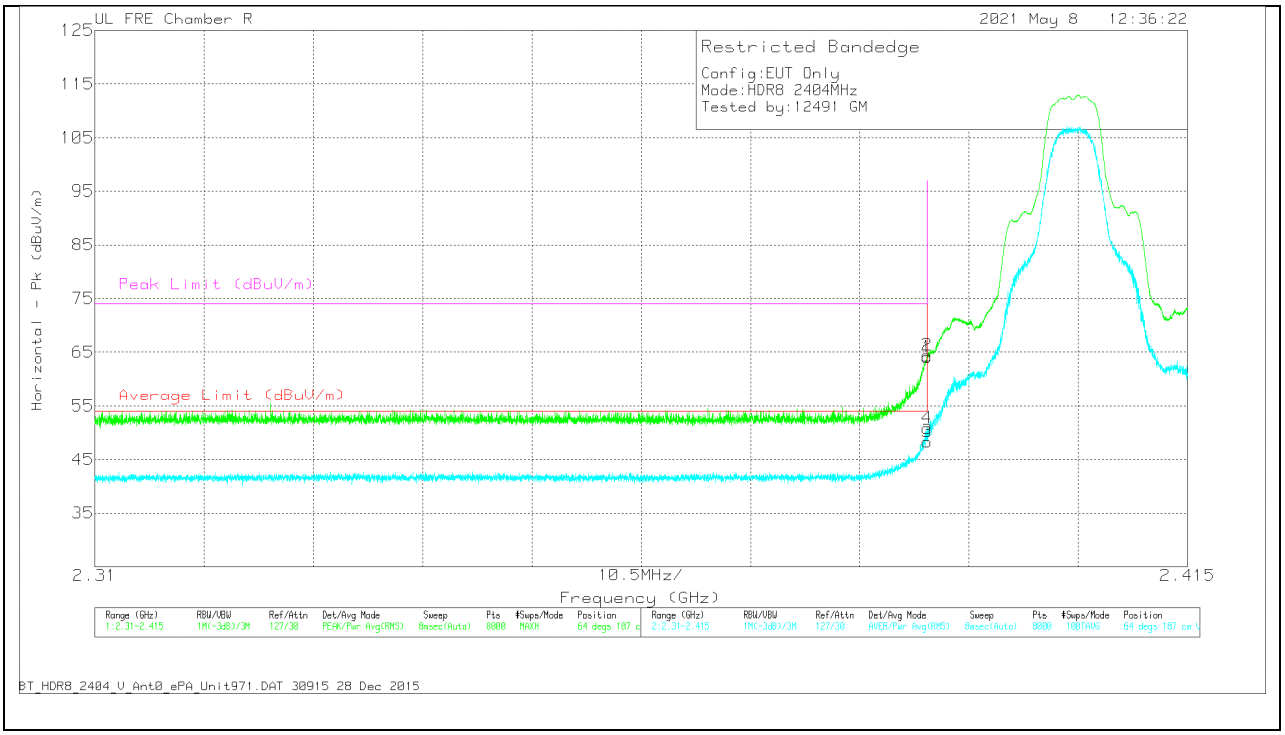
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.3899	66.63	Pk	32.1	-35.5	63.23	-	-	74	-10.77	114	123	H
4	2.38992	52.71	RMS	32.1	-35.5	49.31	54	-4.69	-	-	114	123	H
1	2.39	65.93	Pk	32.1	-35.5	62.53	-	-	74	-11.47	114	123	H
3	2.39	51.28	RMS	32.1	-35.5	47.88	54	-6.12	-	-	114	123	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.38997	54.21	RMS	32.1	-35.5	50.81	54	-3.19	-	-	64	187	V
2	2.38998	67.78	Pk	32.1	-35.5	64.38	-	-	74	-9.62	64	187	V
1	2.39	67.45	Pk	32.1	-35.5	64.05	-	-	74	-9.95	64	187	V
3	2.39	51.72	RMS	32.1	-35.5	48.32	54	-5.68	-	-	64	187	V

Pk - Peak detector
RMS - RMS detection

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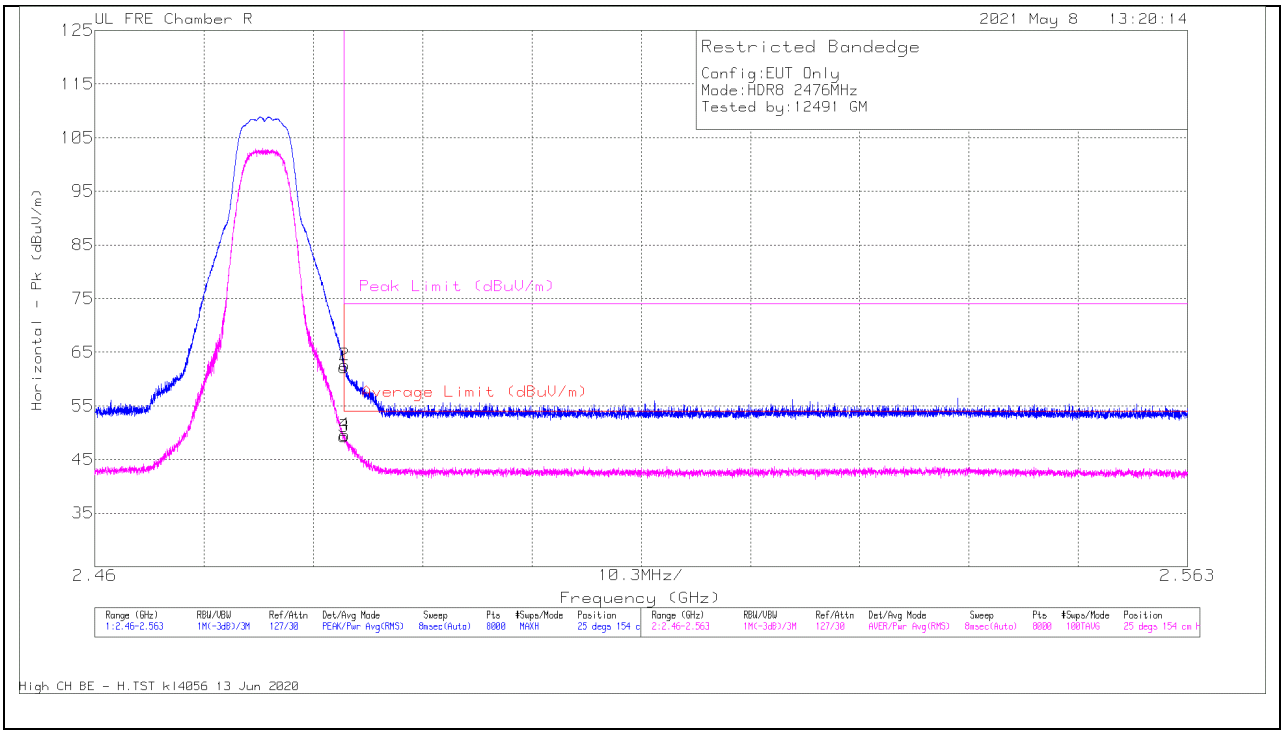
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr/Pad (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	64.92	Pk	32.5	-35.3	62.12	-	-	74	-11.88	25	154	H
3	2.4835	52.04	RMS	32.5	-35.3	49.24	54	-4.76	-	-	25	154	H
4	2.48353	52.38	RMS	32.5	-35.3	49.58	54	-4.42	-	-	25	154	H
2	2.48354	65.38	Pk	32.5	-35.3	62.58	-	-	74	-11.42	25	154	H

Pk - Peak detector
RMS - RMS detection

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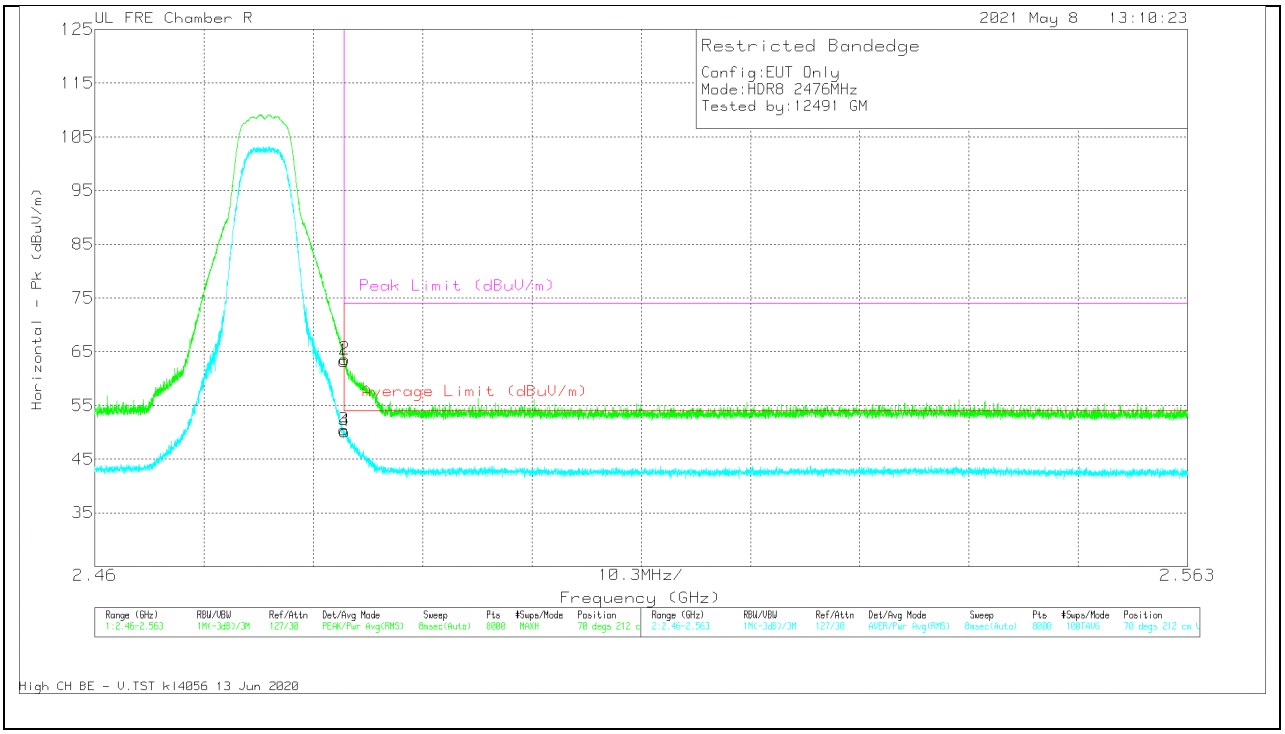
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr/Pad (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	66.1	Pk	32.5	-35.3	63.3	-	-	74	-10.7	70	212	V
3	2.4835	53.26	RMS	32.5	-35.3	50.46	54	-3.54	-	-	70	212	V
4	2.48353	52.98	RMS	32.5	-35.3	50.18	54	-3.82	-	-	70	212	V
2	2.48355	66.4	Pk	32.5	-35.3	63.6	-	-	74	-10.4	70	212	V

Pk - Peak detector
RMS - RMS detection

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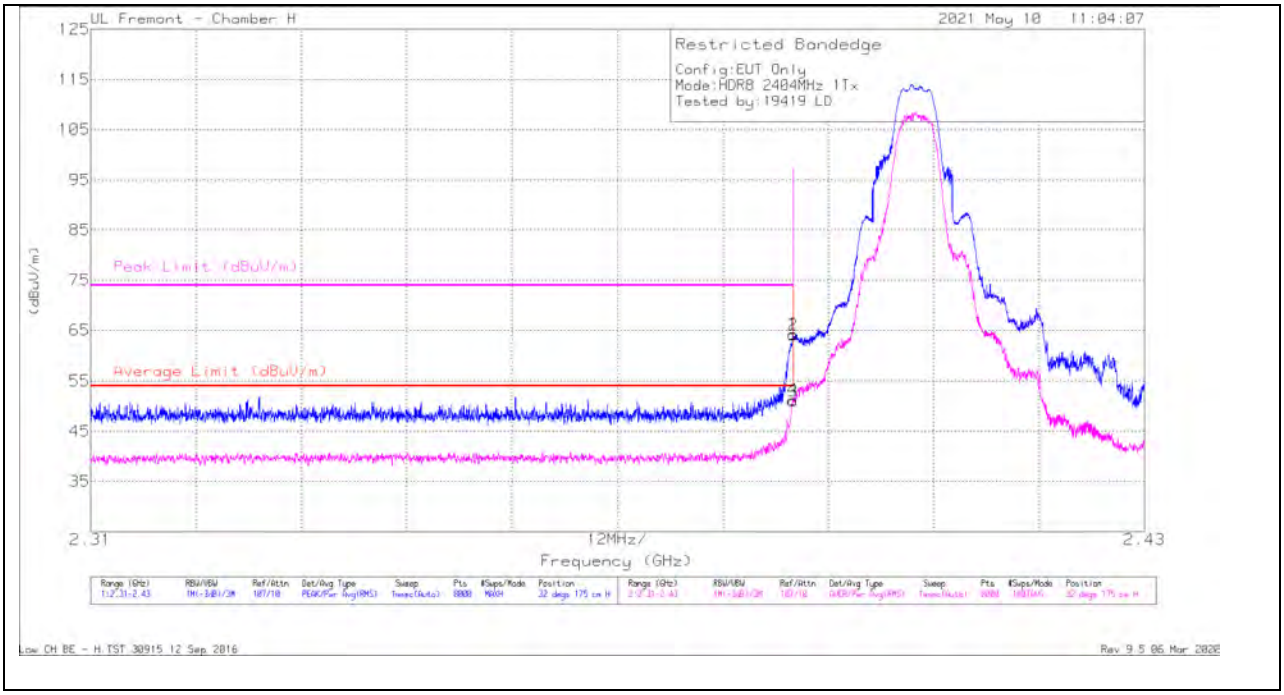
ANT 3

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

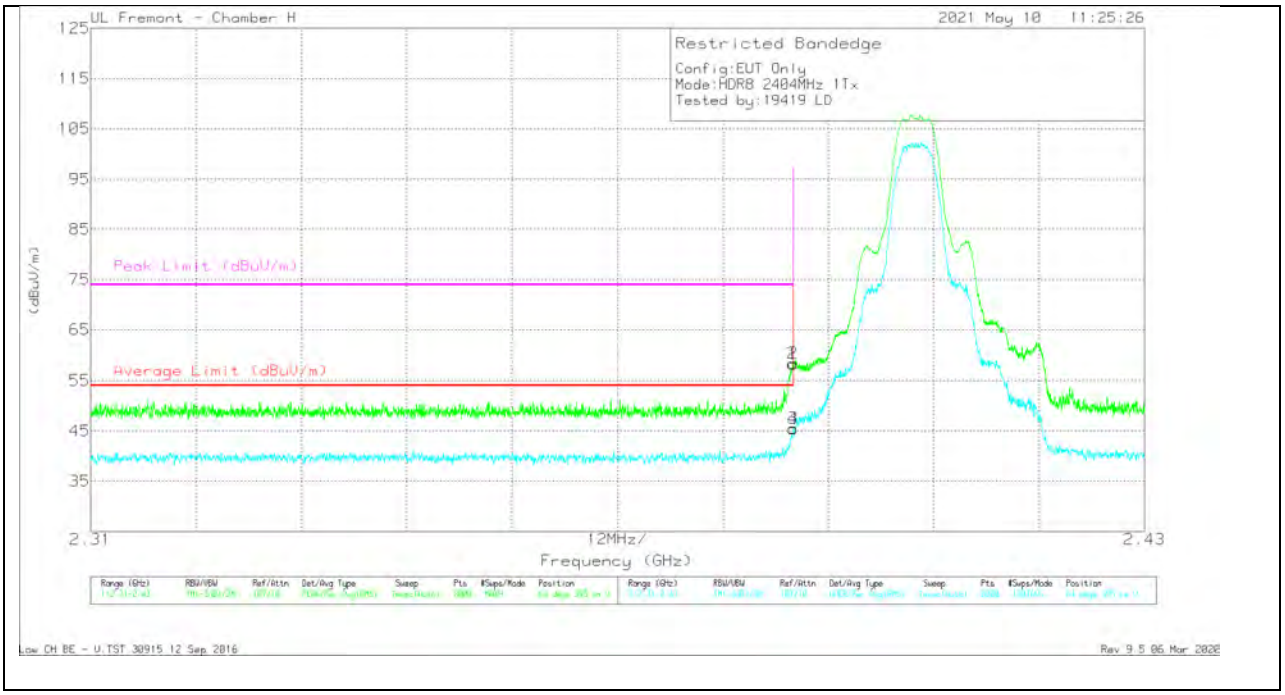


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	60.09	Pk	31.8	-27.7	64.19	-	-	74	-9.81	32	175	H
2	* 2.38998	59.99	Pk	31.8	-27.7	64.09	-	-	74	-9.91	32	175	H
3	* 2.38999	46.92	RMS	31.8	-27.7	51.02	54	-2.98	-	-	32	175	H
4	* 2.38996	47.11	RMS	31.8	-27.7	51.21	54	-2.79	-	-	32	175	H

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

Low CH BE - H.TST 30915 12 Sep 2016
Rev 9.5 06 Mar 2020

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	54.09	Pk	31.8	-27.7	58.19	-	-	74	-15.81	64	395	V
2	* 2.38996	54.35	Pk	31.8	-27.7	58.45	-	-	74	-15.55	64	395	V
3	* 2.38999	41.44	RMS	31.8	-27.7	45.54	54	-8.46	-	-	64	395	V
4	* 2.38998	41.27	RMS	31.8	-27.7	45.37	54	-8.63	-	-	64	395	V

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

Low CH BE - V.TST 30915 12 Sep 2016
Rev 9.5 06 Mar 2020

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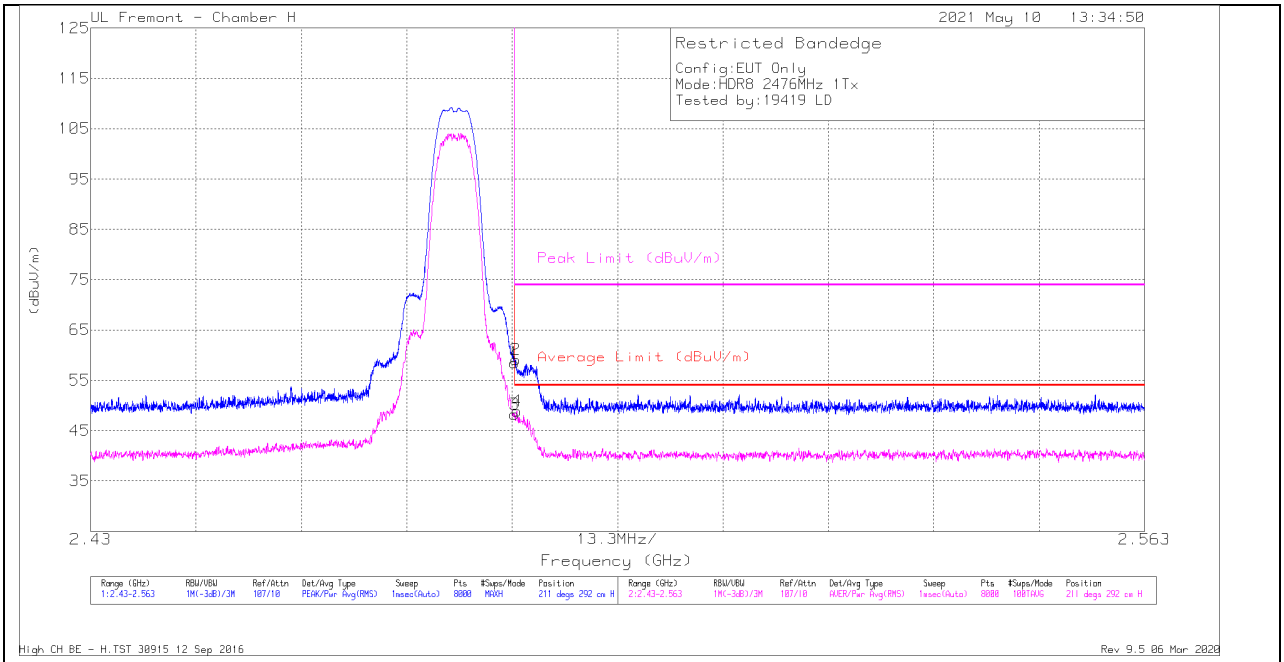
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

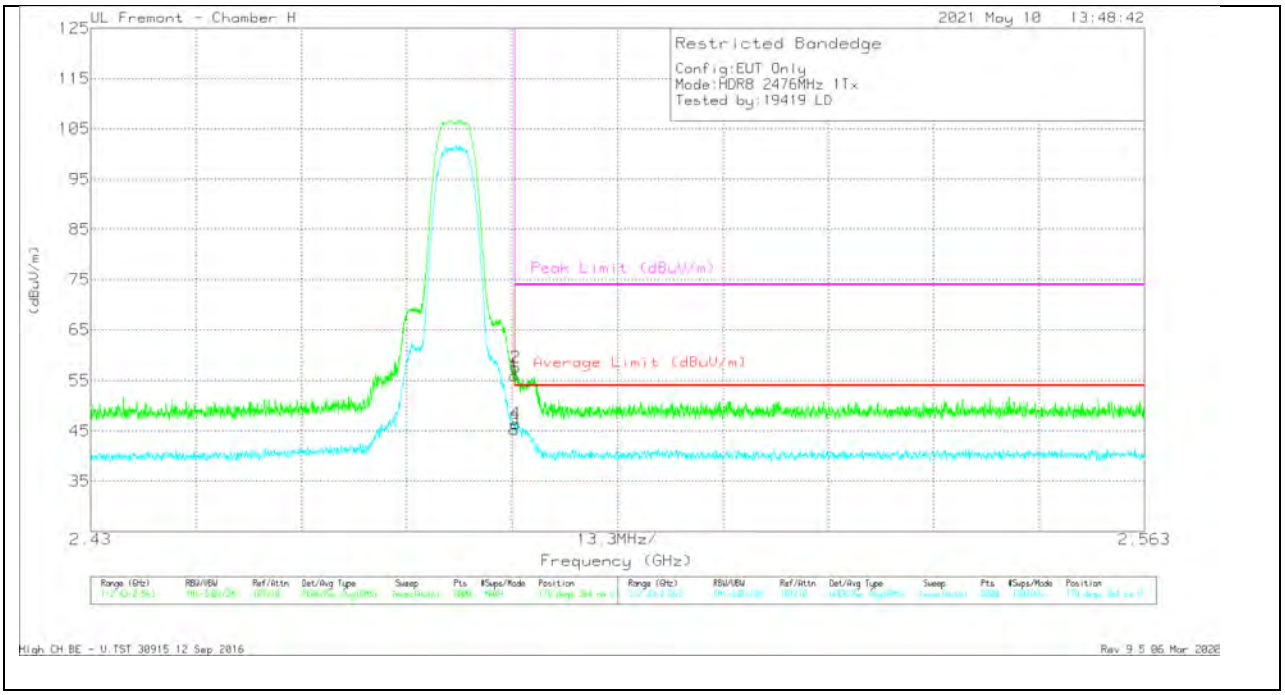


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	54.03	Pk	32.3	-27.8	58.53	-	-	74	-15.47	211	292	H
2	* 2.48362	54.63	Pk	32.3	-27.8	59.13	-	-	74	-14.87	211	292	H
3	* 2.48351	43.79	RMS	32.3	-27.8	48.29	54	-5.71	-	-	211	292	H
4	* 2.48377	44.44	RMS	32.3	-27.8	48.94	54	-5.06	-	-	211	292	H

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

High CH BE - H.TST 30915 12 Sep 2016
Rev 9.5 06 Mar 2020

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	51.51	Pk	32.3	-27.8	56.01	-	-	74	-17.99	179	364	V
2	* 2.48362	53.16	Pk	32.3	-27.8	57.66	-	-	74	-16.34	179	364	V
3	* 2.48351	40.83	RMS	32.3	-27.8	45.33	54	-8.67	-	-	179	364	V
4	* 2.48362	41.95	RMS	32.3	-27.8	46.45	54	-7.55	-	-	179	364	V

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

High CH BE - V.TST 30915 12 Sep 2016
Rev 9.5 06 Mar 2020

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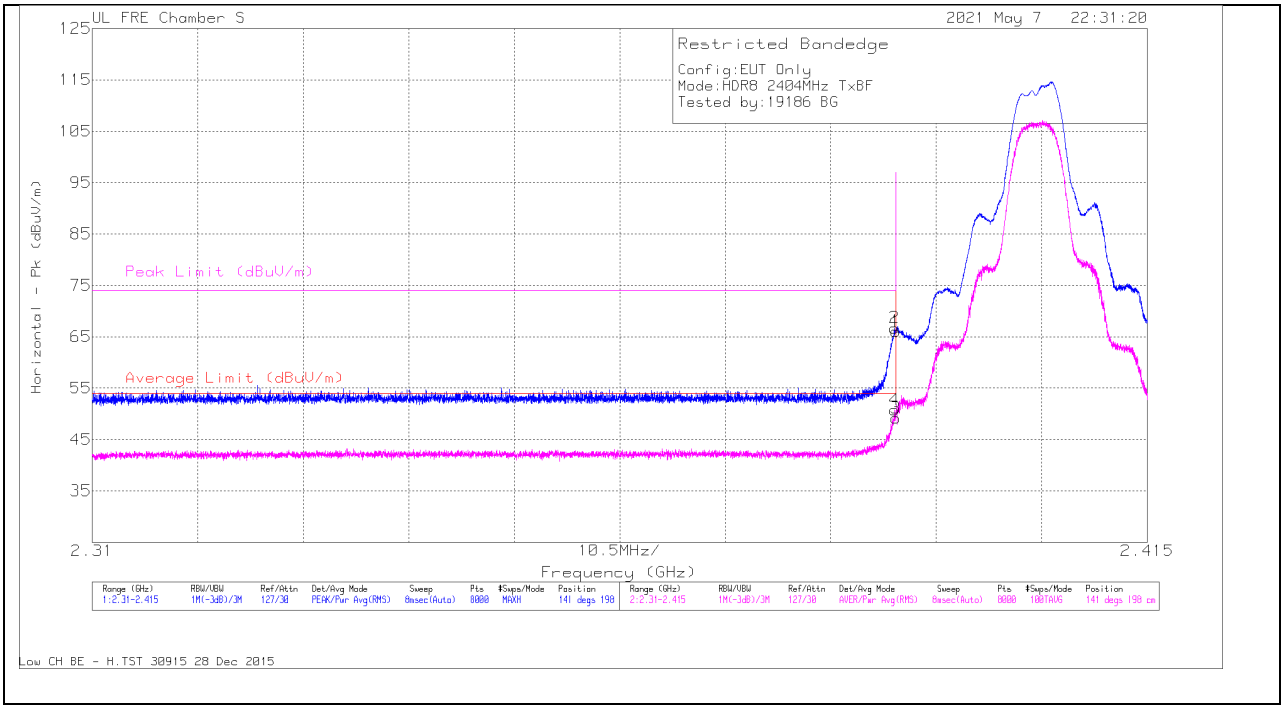
10.2.4. HIGH POWER HDR TXBF (HDR8)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.38985	69.52	Pk	32.3	-35.1	66.72	-	-	74	-7.28	141	198	H
4	2.38986	53.55	RMS	32.3	-35.1	50.75	54	-3.25	-	-	141	198	H
1	2.39	68.86	Pk	32.3	-35.1	66.06	-	-	74	-7.94	141	198	H
3	2.39	51.96	RMS	32.3	-35.1	49.16	54	-4.84	-	-	141	198	H

Pk - Peak detector
RMS - RMS detection

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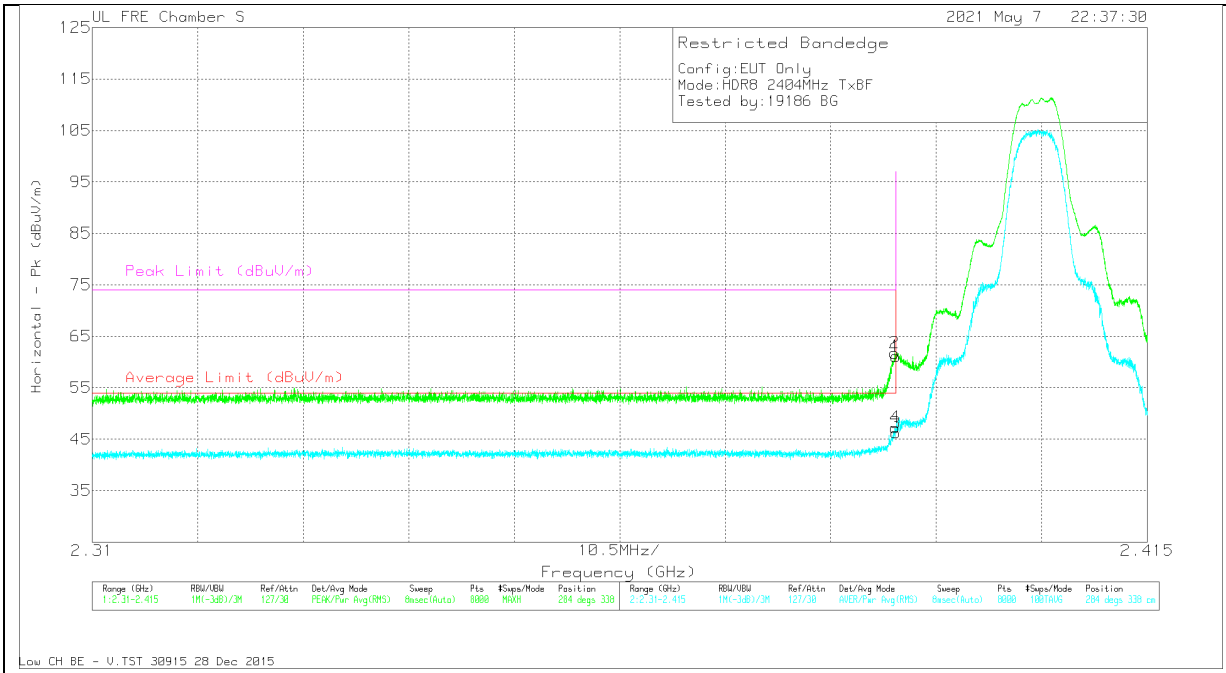
VERTICAL RESULT

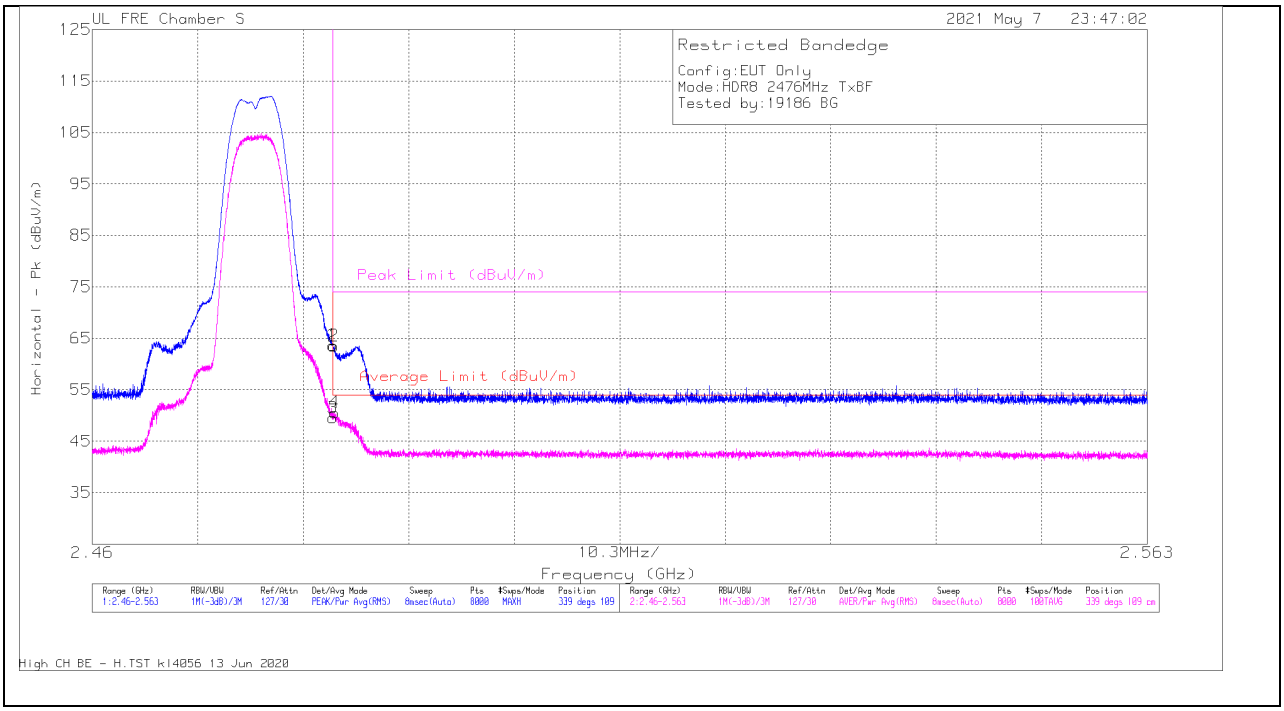


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.38985	64.54	Pk	32.3	-35.1	61.74	-	-	74	-12.26	284	338	V
4	2.38992	50.04	RMS	32.3	-35.1	47.24	54	-6.76	-	-	284	338	V
1	2.39	63.91	Pk	32.3	-35.1	61.11	-	-	74	-12.89	284	338	V
3	2.39	49.05	RMS	32.3	-35.1	46.25	54	-7.75	-	-	284	338	V

Pk - Peak detector
RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr /Pad (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	66.34	Pk	32.2	-34.9	63.64	-	-	74	-10.36	339	109	H
3	2.4835	52.25	RMS	32.2	-34.9	49.55	54	-4.45	-	-	339	109	H
2	2.48358	66.22	Pk	32.2	-34.9	63.52	-	-	74	-10.48	339	109	H
4	2.48367	53.26	RMS	32.2	-34.9	50.56	54	-3.44	-	-	339	109	H

Pk - Peak detector
RMS - RMS detection

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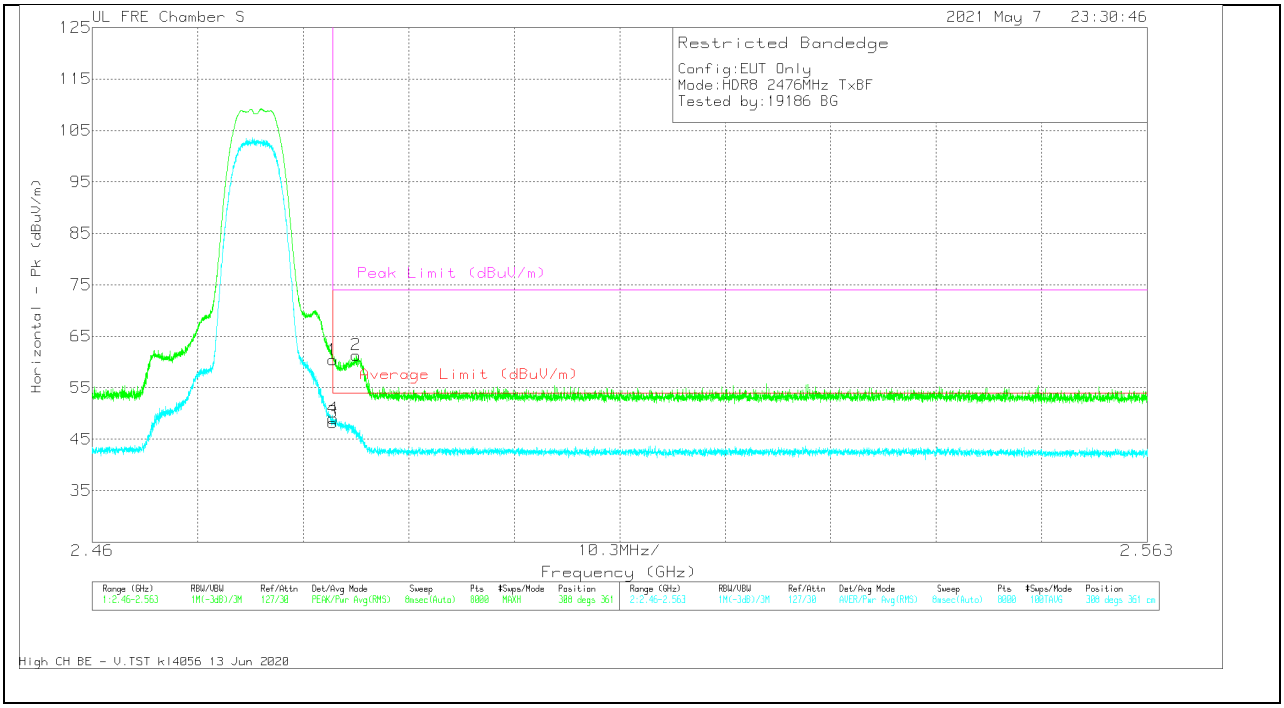
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr /Pad (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	63.12	Pk	32.2	-34.9	60.42	-	-	74	-13.58	308	361	V
3	2.4835	50.96	RMS	32.2	-34.9	48.26	54	-5.74	-	-	308	361	V
4	2.48351	51.74	RMS	32.2	-34.9	49.04	54	-4.96	-	-	308	361	V
2	2.48575	64.05	Pk	32.2	-34.9	61.35	-	-	74	-12.65	308	361	V

Pk - Peak detector
RMS - RMS detection

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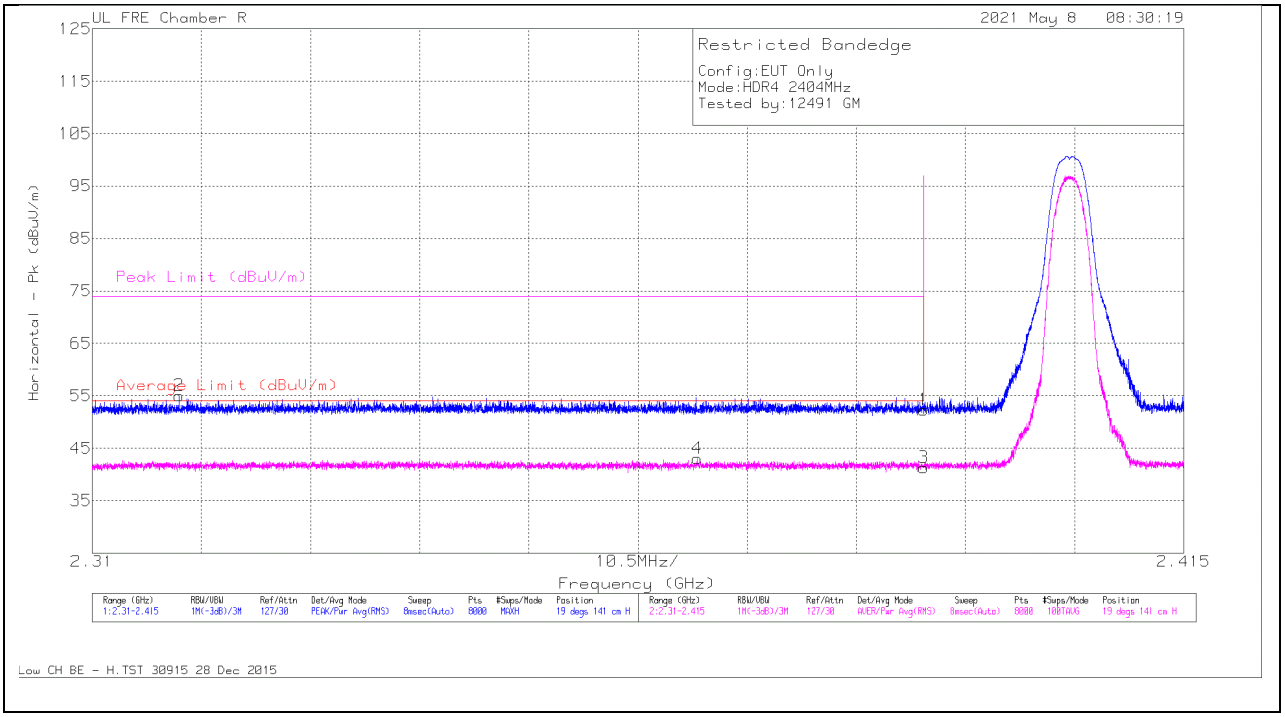
10.2.5. LOW POWER HDR (HDR4)

ANT 4

BANDEDGE (LOW CHANNEL)

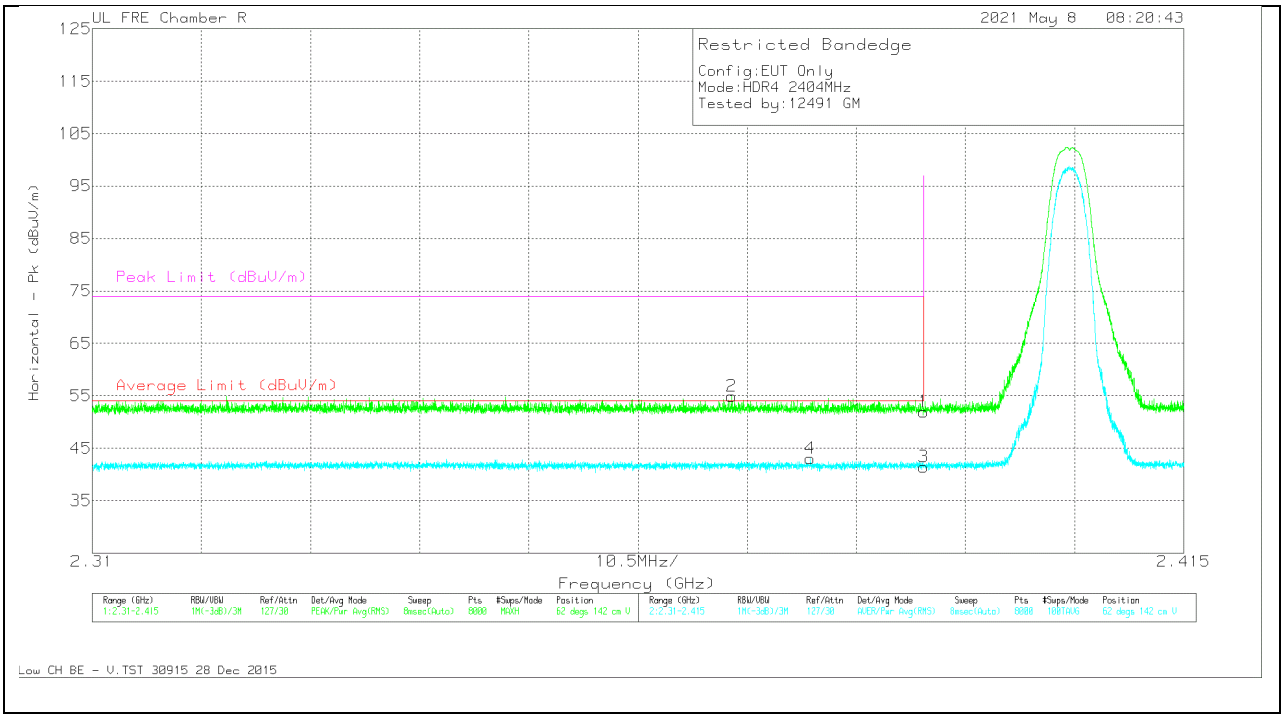
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.31836	58.38	Pk	32.2	-35.6	54.98	-	-	74	-19.02	19	141	H
4	2.36819	46.5	RMS	32.1	-35.6	43	54	-11	-	-	19	141	H
1	2.39	55.69	Pk	32.1	-35.5	52.29	-	-	74	-21.71	19	141	H
3	2.39	44.75	RMS	32.1	-35.5	41.35	54	-12.65	-	-	19	141	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.37153	58.43	Pk	32.1	-35.6	54.93	-	-	74	-19.07	62	142	V
4	2.37907	46.4	RMS	32.1	-35.5	43	54	-11	-	-	62	142	V
1	2.39	55.33	Pk	32.1	-35.5	51.93	-	-	74	-22.07	62	142	V
3	2.39	44.81	RMS	32.1	-35.5	41.41	54	-12.59	-	-	62	142	V

Pk - Peak detector
RMS - RMS detection

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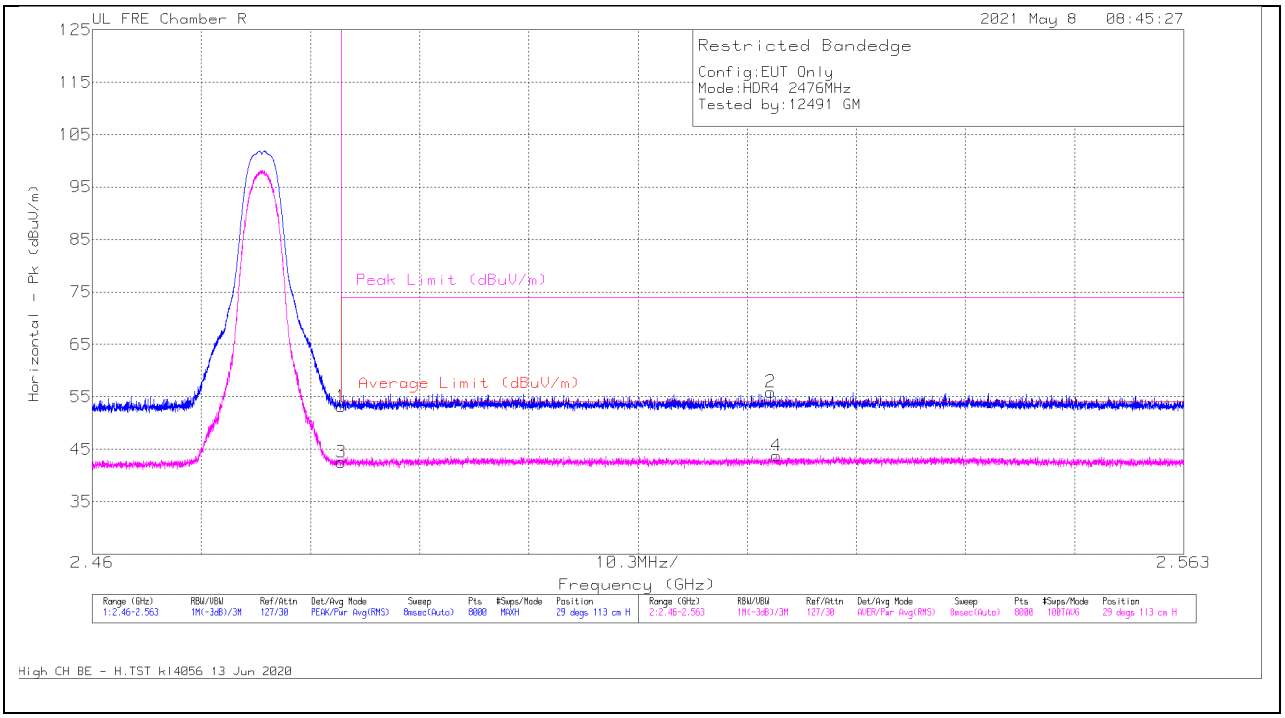
BANDEDGE (HIGH CHANNEL)

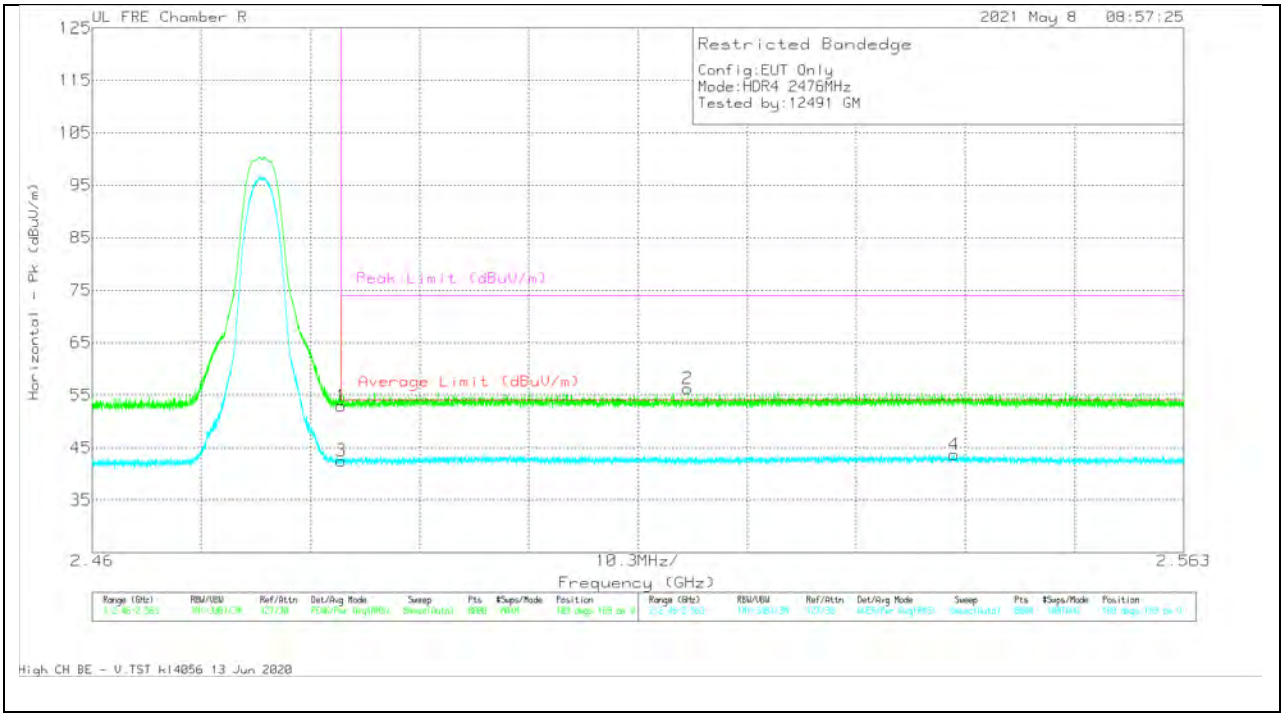
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (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	56	Pk	32.5	-35.3	53.2	-	-	74	-20.8	29	113	H
3	2.4835	45.28	RMS	32.5	-35.3	42.48	54	-11.52	-	-	29	113	H
2	2.52402	58.45	Pk	32.7	-35.2	55.95	-	-	74	-18.05	29	113	H
4	2.52458	46.17	RMS	32.7	-35.1	43.77	54	-10.23	-	-	29	113	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Filter/Pad (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	55.78	Pk	32.5	-35.3	52.98	-	-	74	-21.02	109	169	V
3	2.4835	45.27	RMS	32.5	-35.3	42.47	54	-11.53	-	-	109	169	V
2	2.51618	58.86	Pk	32.6	-35.2	56.26	-	-	74	-17.74	109	169	V
4	2.54131	46.05	RMS	32.6	-35	43.65	54	-10.35	-	-	109	169	V

Pk - Peak detector
RMS - RMS detection

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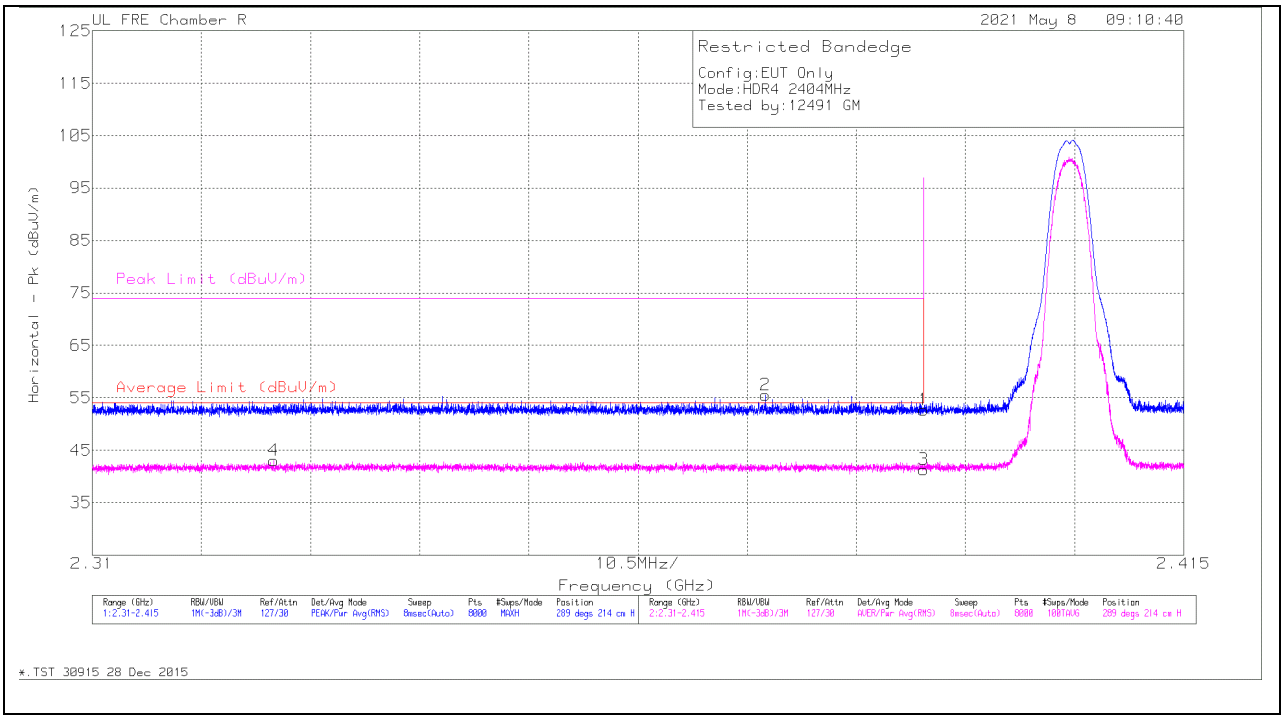
ANT 3

BANDEDGE (LOW CHANNEL)

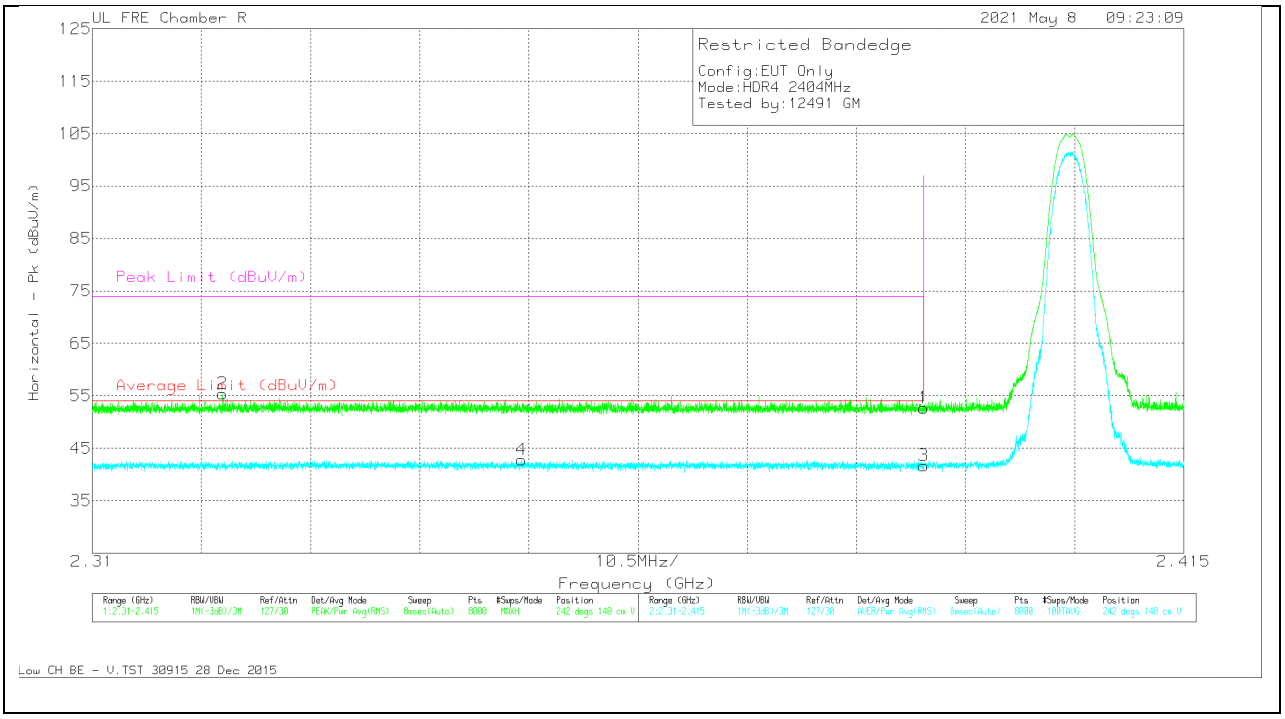
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.32745	46.39	RMS	32.2	-35.6	42.99	54	-11.01	-	-	289	214	H
2	2.37477	58.87	Pk	32.1	-35.5	55.47	-	-	74	-18.53	289	214	H
1	2.39	56.08	Pk	32.1	-35.5	52.68	-	-	74	-21.32	289	214	H
3	2.39	44.72	RMS	32.1	-35.5	41.32	54	-12.68	-	-	289	214	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.32256	58.84	Pk	32.2	-35.6	55.44	-	-	74	-18.56	242	140	V
4	2.35132	46.28	RMS	32.1	-35.6	42.78	54	-11.22	-	-	242	140	V
1	2.39	56.03	Pk	32.1	-35.5	52.63	-	-	74	-21.37	242	140	V
3	2.39	45.06	RMS	32.1	-35.5	41.66	54	-12.34	-	-	242	140	V

Pk - Peak detector
RMS - RMS detection

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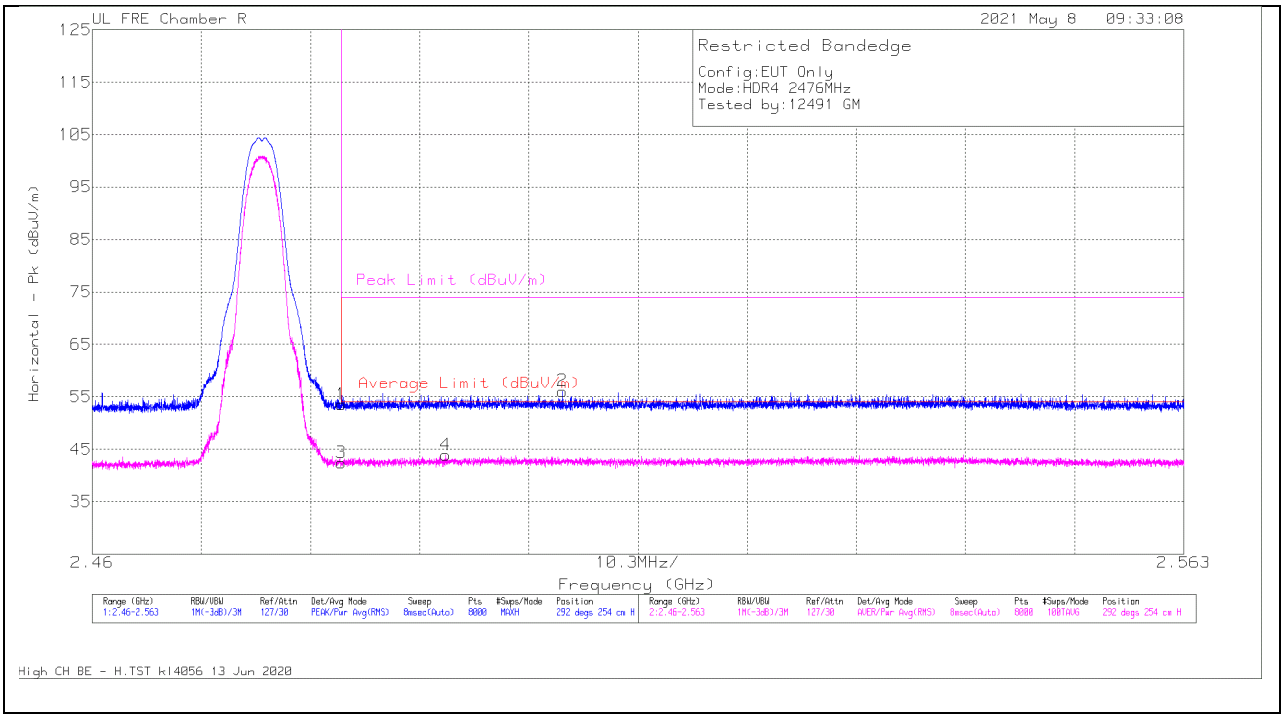
BANDEDGE (HIGH CHANNEL)

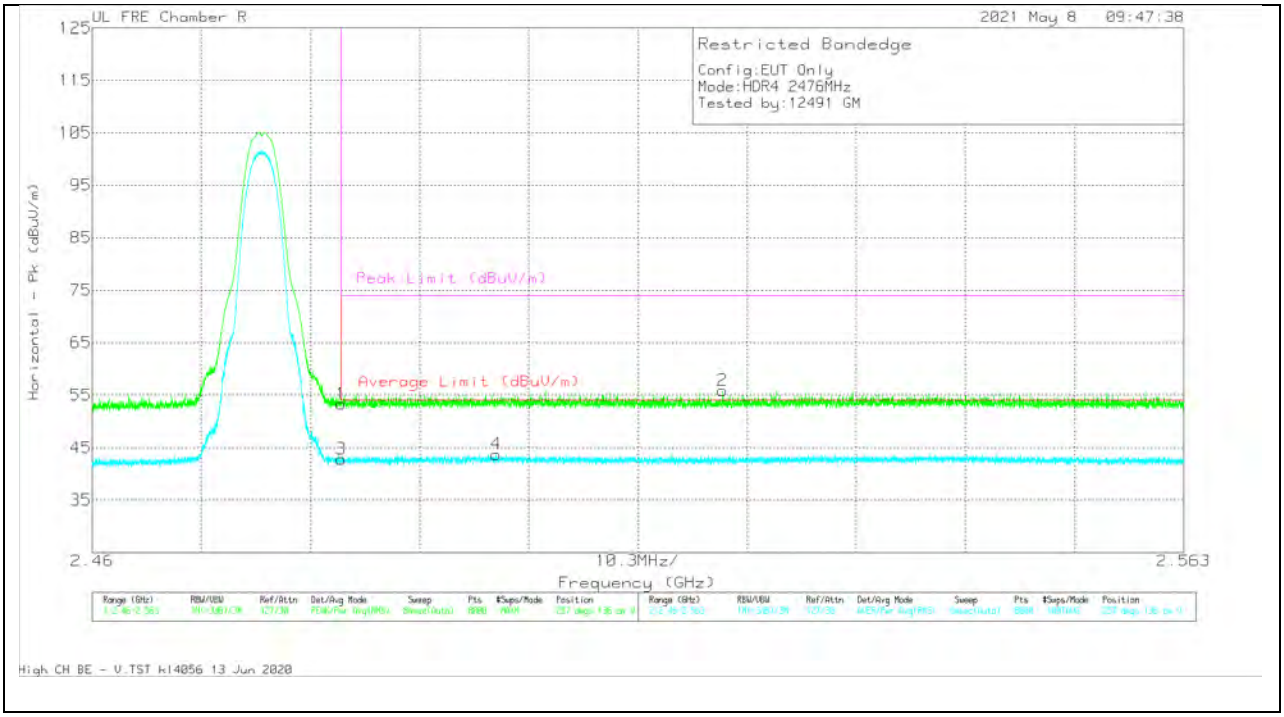
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Flt r/Pad (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	56.37	Pk	32.5	-35.3	53.57	-	-	74	-20.43	292	254	H
3	2.4835	45.21	RMS	32.5	-35.3	42.41	54	-11.59	-	-	292	254	H
4	2.49336	46.54	RMS	32.6	-35.2	43.94	54	-10.06	-	-	292	254	H
2	2.50435	58.68	Pk	32.6	-35.2	56.08	-	-	74	-17.92	292	254	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (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	56.13	Pk	32.5	-35.3	53.33	-	-	74	-20.67	257	136	V
3	2.4835	45.54	RMS	32.5	-35.3	42.74	54	-11.26	-	-	257	136	V
4	2.4981	46.31	RMS	32.6	-35.2	43.71	54	-10.29	-	-	257	136	V
2	2.51949	58.34	Pk	32.7	-35.2	55.84	-	-	74	-18.16	257	136	V

Pk - Peak detector
RMS - RMS detection

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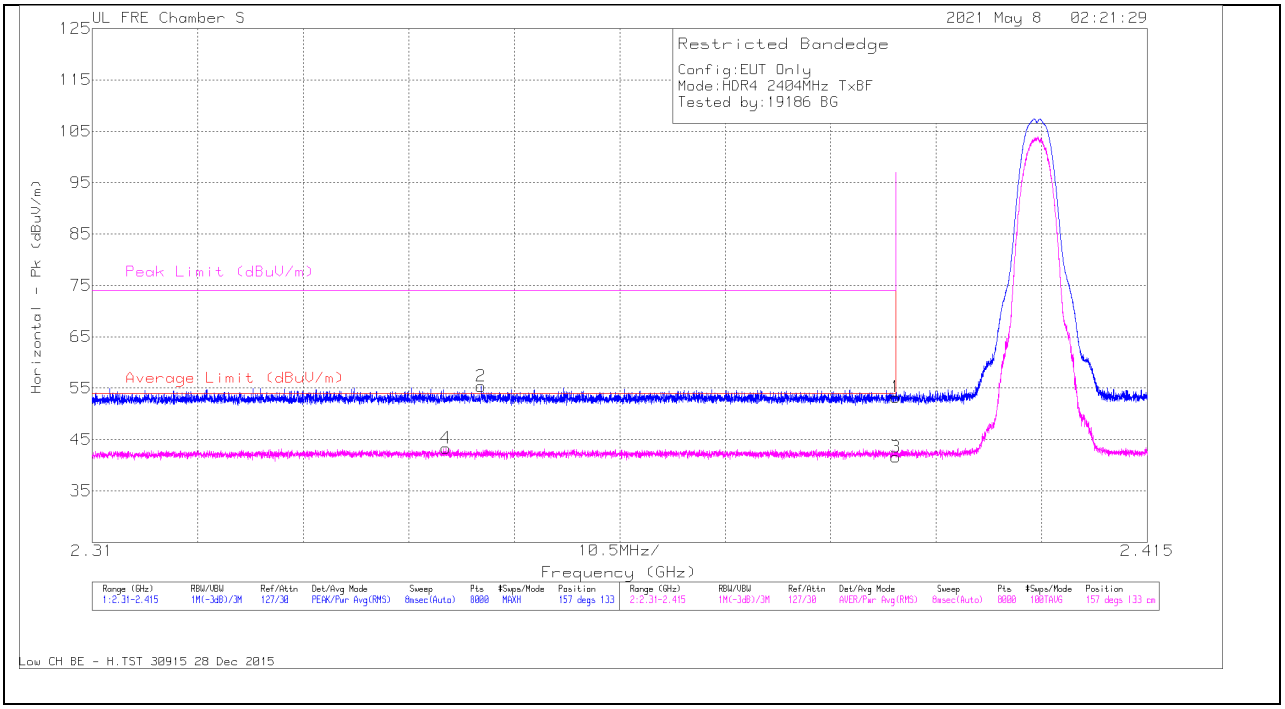
10.2.6. LOW POWER HDR TXBF (HDR4)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.34518	46.03	RMS	32.4	-35.1	43.33	54	-10.67	-	-	157	133	H
2	2.3487	58.17	Pk	32.3	-35.1	55.37	-	-	74	-18.63	157	133	H
1	2.39	56.07	Pk	32.3	-35.1	53.27	-	-	74	-20.73	157	133	H
3	2.39	44.38	RMS	32.3	-35.1	41.58	54	-12.42	-	-	157	133	H

Pk - Peak detector
RMS - RMS detection

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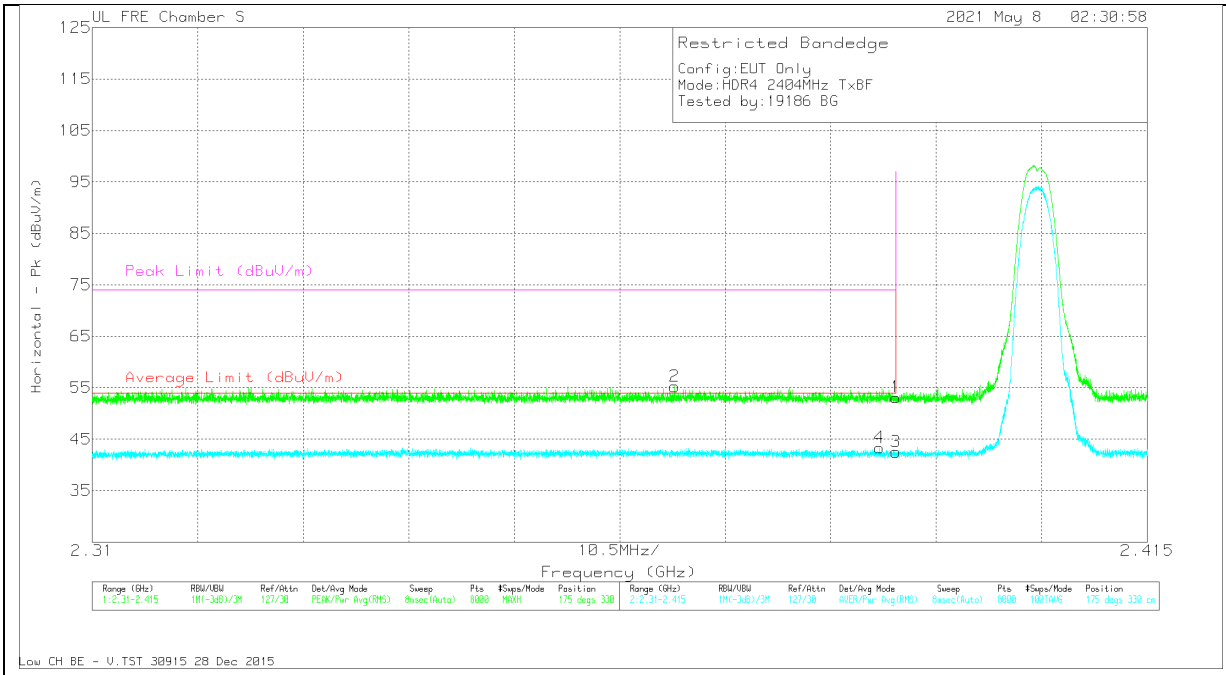
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.36794	58.05	Pk	32.3	-35.1	55.25	-	-	74	-18.75	175	330	V
4	2.38834	46.15	RMS	32.3	-35.1	43.35	54	-10.65	-	-	175	330	V
1	2.39	55.96	Pk	32.3	-35.1	53.16	-	-	74	-20.84	175	330	V
3	2.39	45.34	RMS	32.3	-35.1	42.54	54	-11.46	-	-	175	330	V

Pk - Peak detector
RMS - RMS detection

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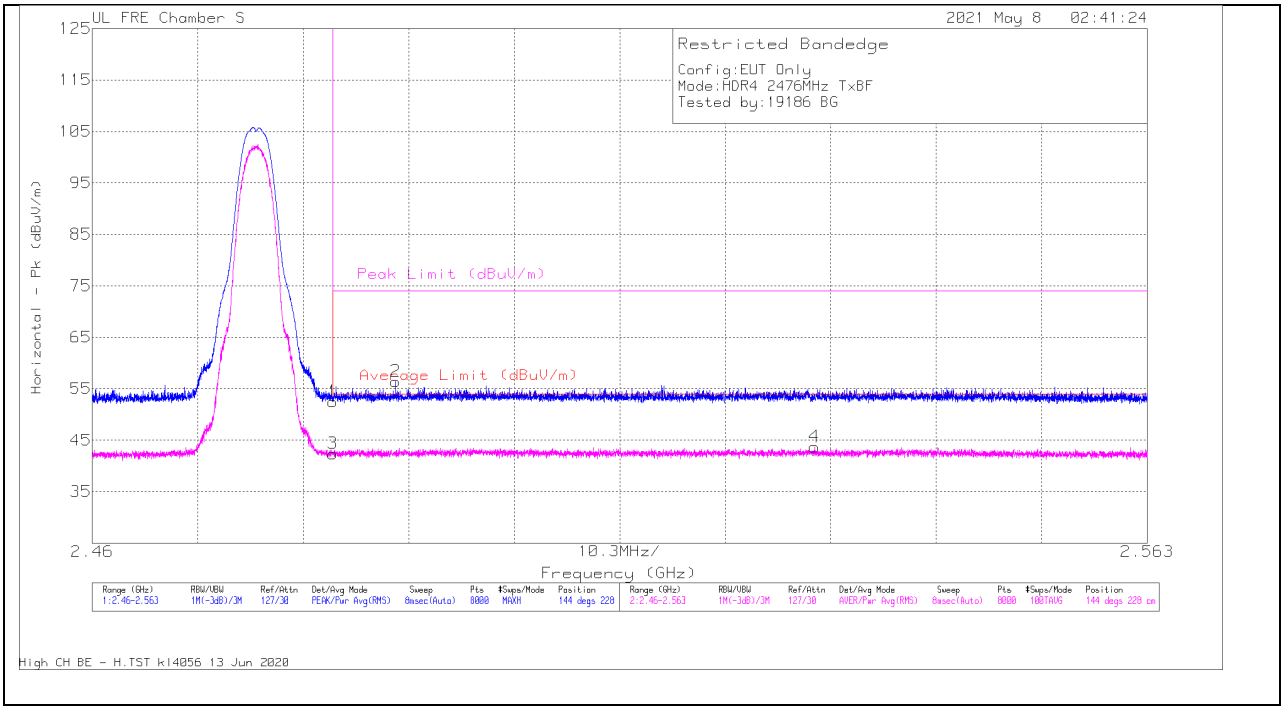
BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Flt r/Pad (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	55.19	Pk	32.2	-34.9	52.49	-	-	74	-21.51	144	228	H
3	2.4835	45.09	RMS	32.2	-34.9	42.39	54	-11.61	-	-	144	228	H
2	2.48962	58.91	Pk	32.3	-34.8	56.41	-	-	74	-17.59	144	228	H
4	2.53051	46.13	RMS	32.3	-34.7	43.73	54	-10.27	-	-	144	228	H

Pk - Peak detector
RMS - RMS detection

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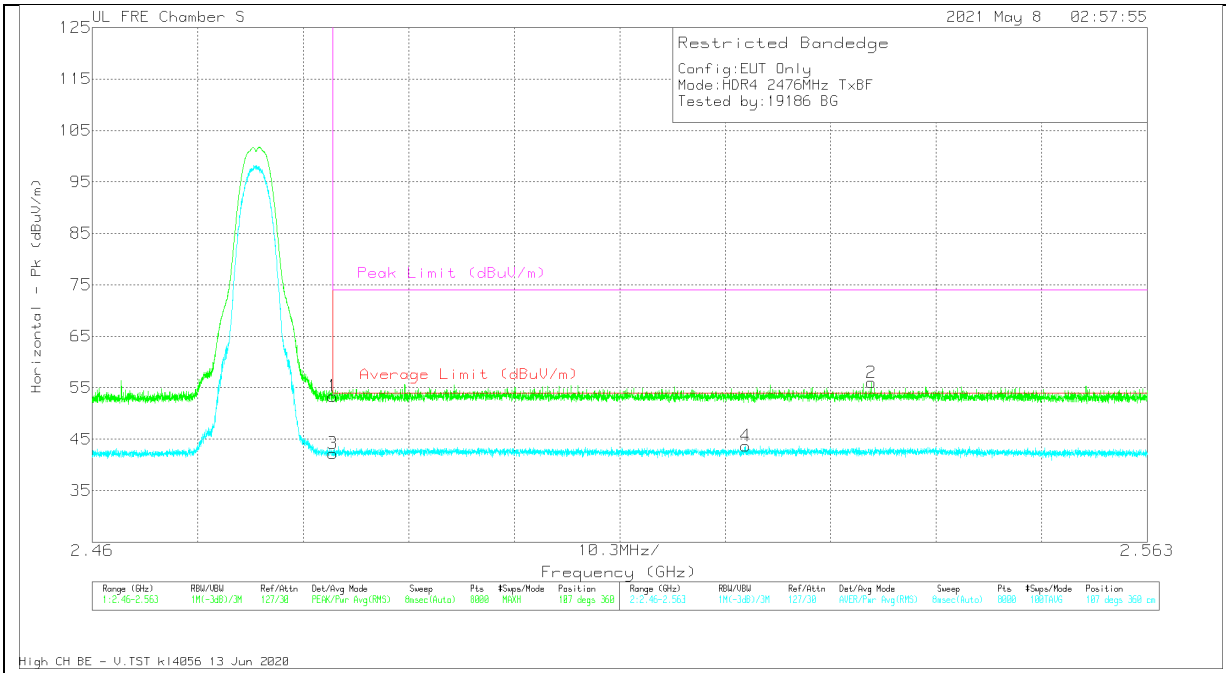
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE02138 33 (dB/m)	Amp/Cbl/Fltr/Pad (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	56.08	Pk	32.2	-34.9	53.38	-	-	74	-20.62	107	360	V
3	2.4835	44.92	RMS	32.2	-34.9	42.22	54	-11.78	-	-	107	360	V
4	2.52379	46.21	RMS	32.3	-34.8	43.71	54	-10.29	-	-	107	360	V
2	2.53605	58.42	Pk	32.3	-34.7	56.02	-	-	74	-17.98	107	360	V

Pk - Peak detector
RMS - RMS detection

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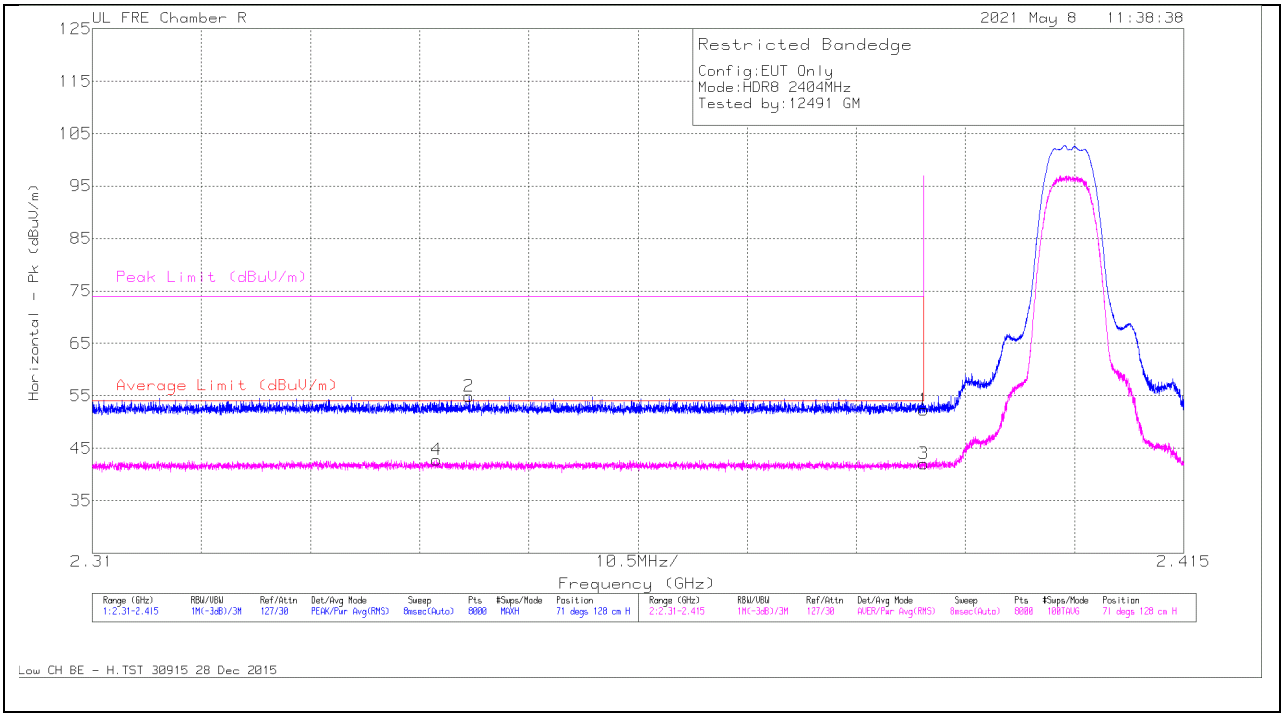
10.2.7. LOW POWER HDR (HDR8)

ANT 4

BANDEDGE (LOW CHANNEL)

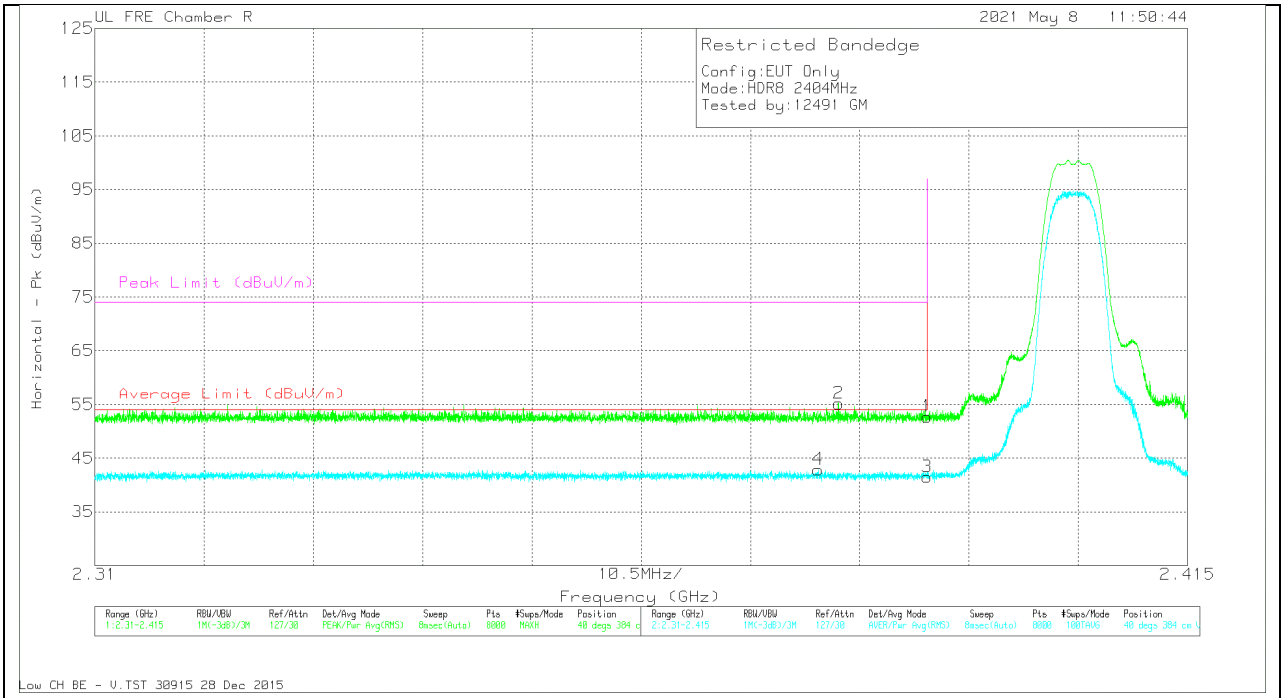
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.34315	46.17	RMS	32.2	-35.6	42.77	54	-11.23	-	-	71	128	H
2	2.34623	58.26	Pk	32.2	-35.6	54.86	-	-	74	-19.14	71	128	H
1	2.39	55.67	Pk	32.1	-35.5	52.27	-	-	74	-21.73	71	128	H
3	2.39	45.46	RMS	32.1	-35.5	42.06	54	-11.94	-	-	71	128	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.37951	46.27	RMS	32.1	-35.5	42.87	54	-11.13	-	-	40	384	V
2	2.38145	58.56	Pk	32.1	-35.5	55.16	-	-	74	-18.84	40	384	V
1	2.39	56.11	Pk	32.1	-35.5	52.71	-	-	74	-21.29	40	384	V
3	2.39	44.87	RMS	32.1	-35.5	41.47	54	-12.53	-	-	40	384	V

Pk - Peak detector
RMS - RMS detection

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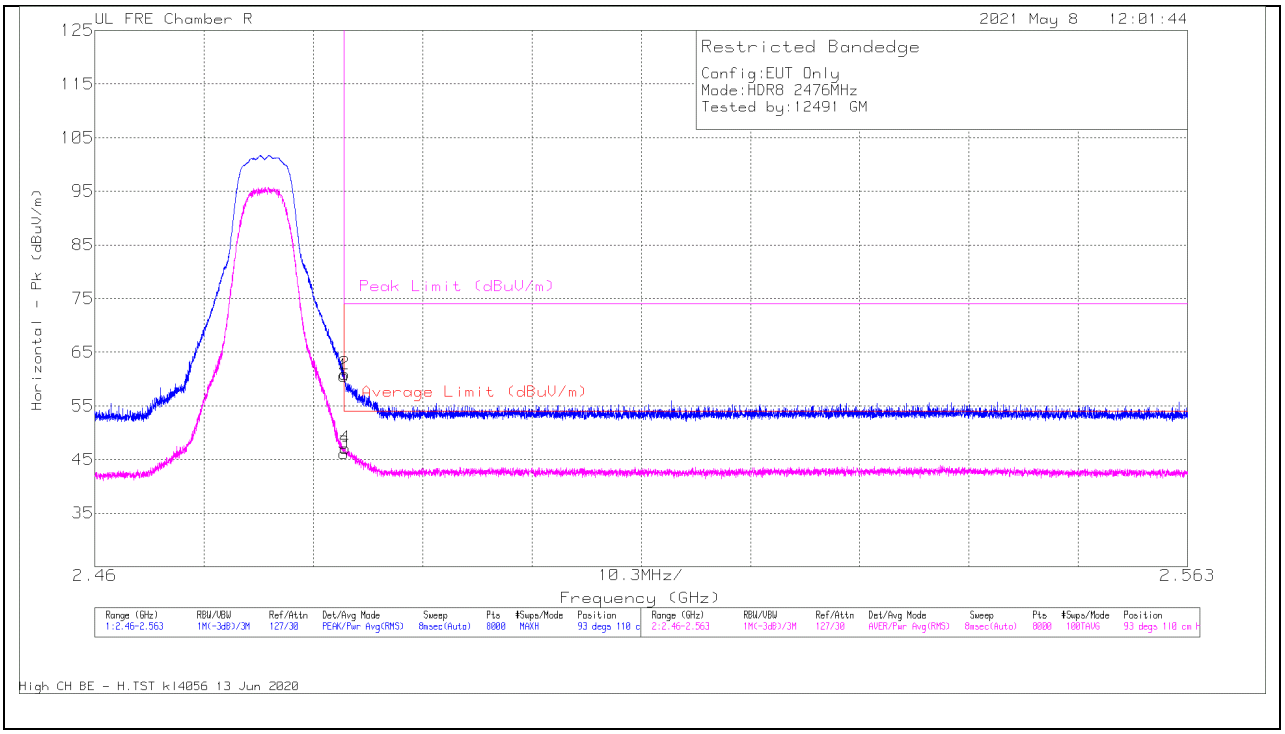
BANDEDGE (HIGH CHANNEL)

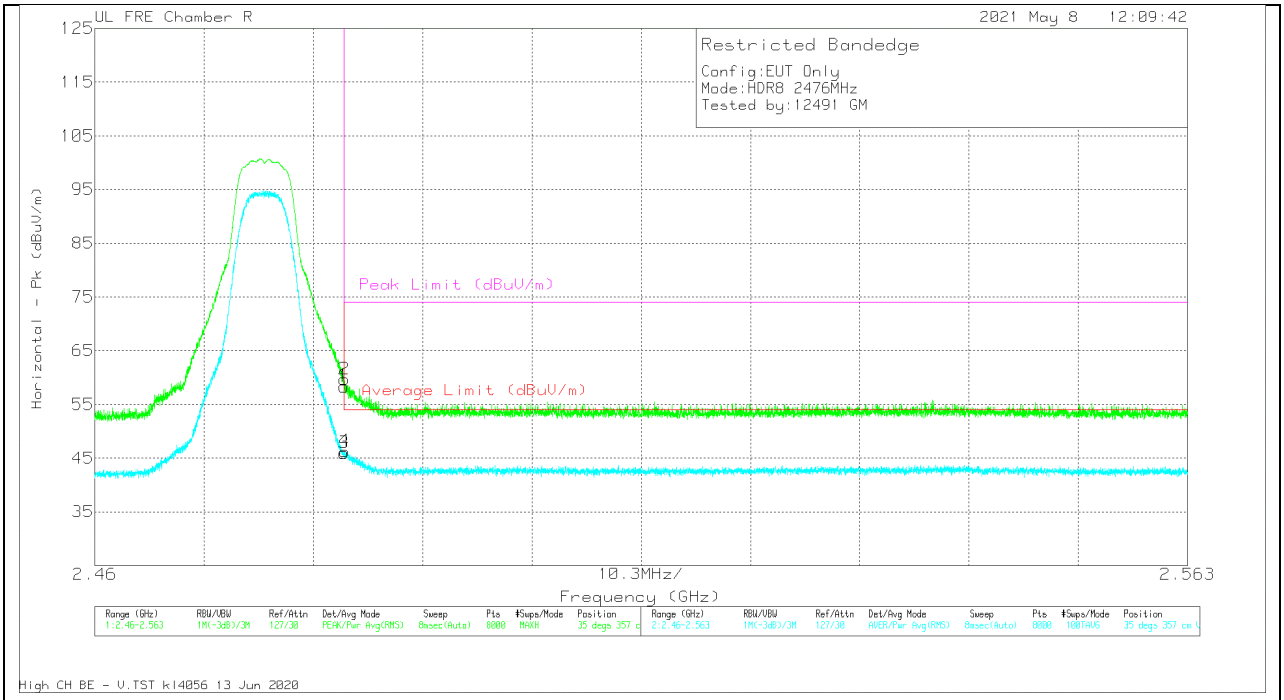
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr /Pad (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	63.43	Pk	32.5	-35.3	60.63	-	-	74	-13.37	93	110	H
3	2.4835	48.94	RMS	32.5	-35.3	46.14	54	-7.86	-	-	93	110	H
2	2.48353	63.75	Pk	32.5	-35.3	60.95	-	-	74	-13.05	93	110	H
4	2.48362	49.9	RMS	32.5	-35.3	47.1	54	-6.9	-	-	93	110	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr /Pad (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	61.13	Pk	32.5	-35.3	58.33	-	-	74	-15.67	35	357	V
3	2.4835	48.75	RMS	32.5	-35.3	45.95	54	-8.05	-	-	35	357	V
2	2.48351	62.47	Pk	32.5	-35.3	59.67	-	-	74	-14.33	35	357	V
4	2.48354	49.06	RMS	32.5	-35.3	46.26	54	-7.74	-	-	35	357	V

Pk - Peak detector
RMS - RMS detection

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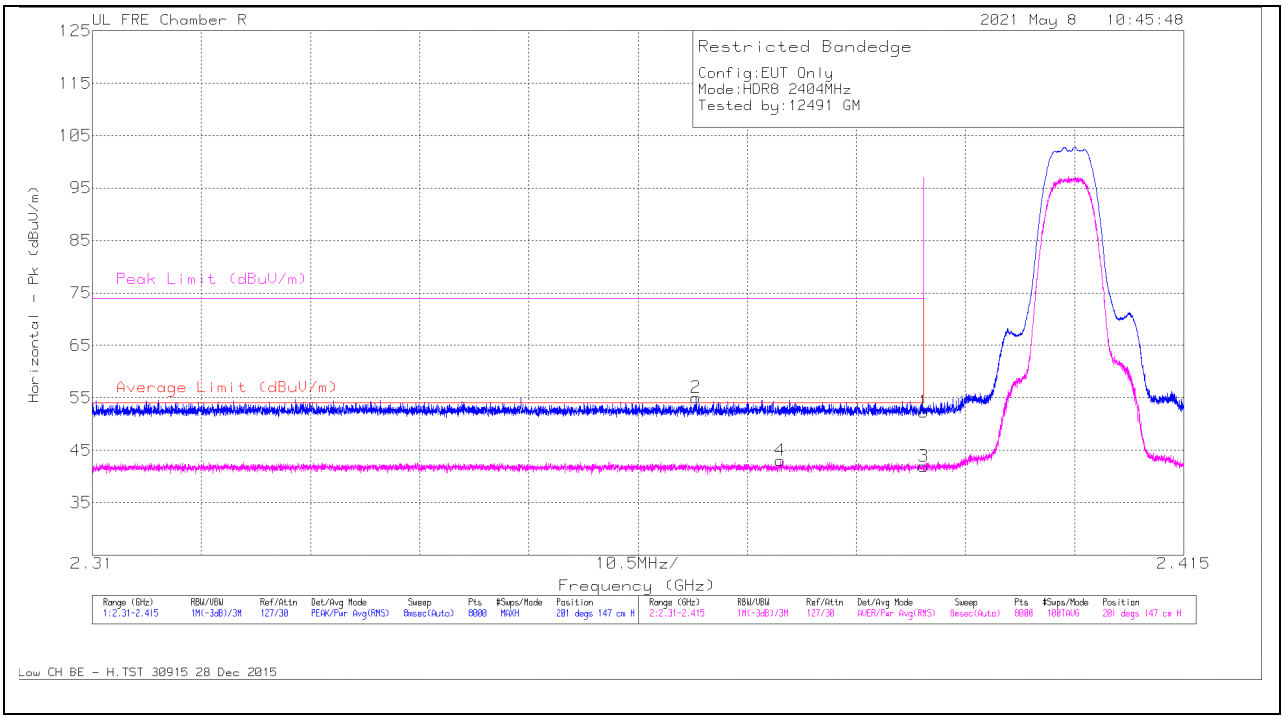
ANT 3

BANDEDGE (LOW CHANNEL)

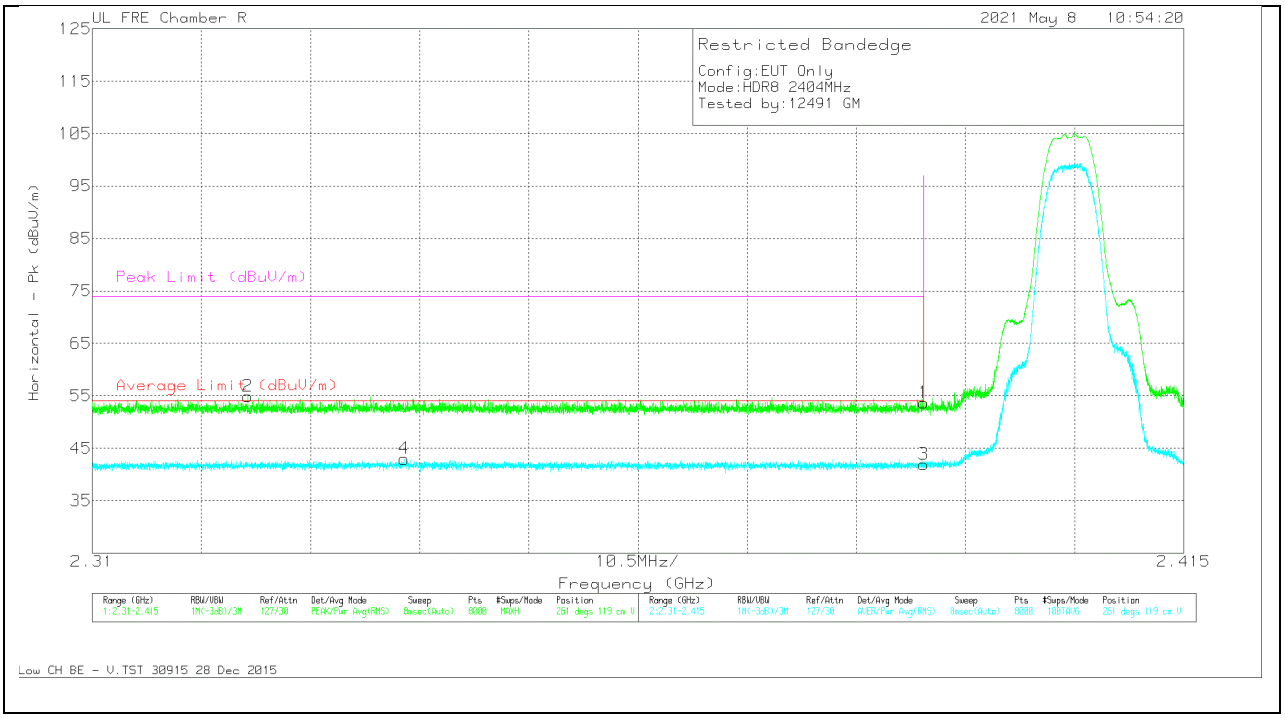
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.36809	58.49	Pk	32.1	-35.6	54.99	-	-	74	-19.01	201	147	H
4	2.37621	46.38	RMS	32.1	-35.5	42.98	54	-11.02	-	-	201	147	H
1	2.39	55.74	Pk	32.1	-35.5	52.34	-	-	74	-21.66	201	147	H
3	2.39	45.29	RMS	32.1	-35.5	41.89	54	-12.11	-	-	201	147	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE021397 3 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.32496	58.3	Pk	32.2	-35.6	54.9	-	-	74	-19.1	261	119	V
4	2.33998	46.37	RMS	32.2	-35.6	42.97	54	-11.03	-	-	261	119	V
1	2.39	57.1	Pk	32.1	-35.5	53.7	-	-	74	-20.3	261	119	V
3	2.39	45.29	RMS	32.1	-35.5	41.89	54	-12.11	-	-	261	119	V

Pk - Peak detector
RMS - RMS detection

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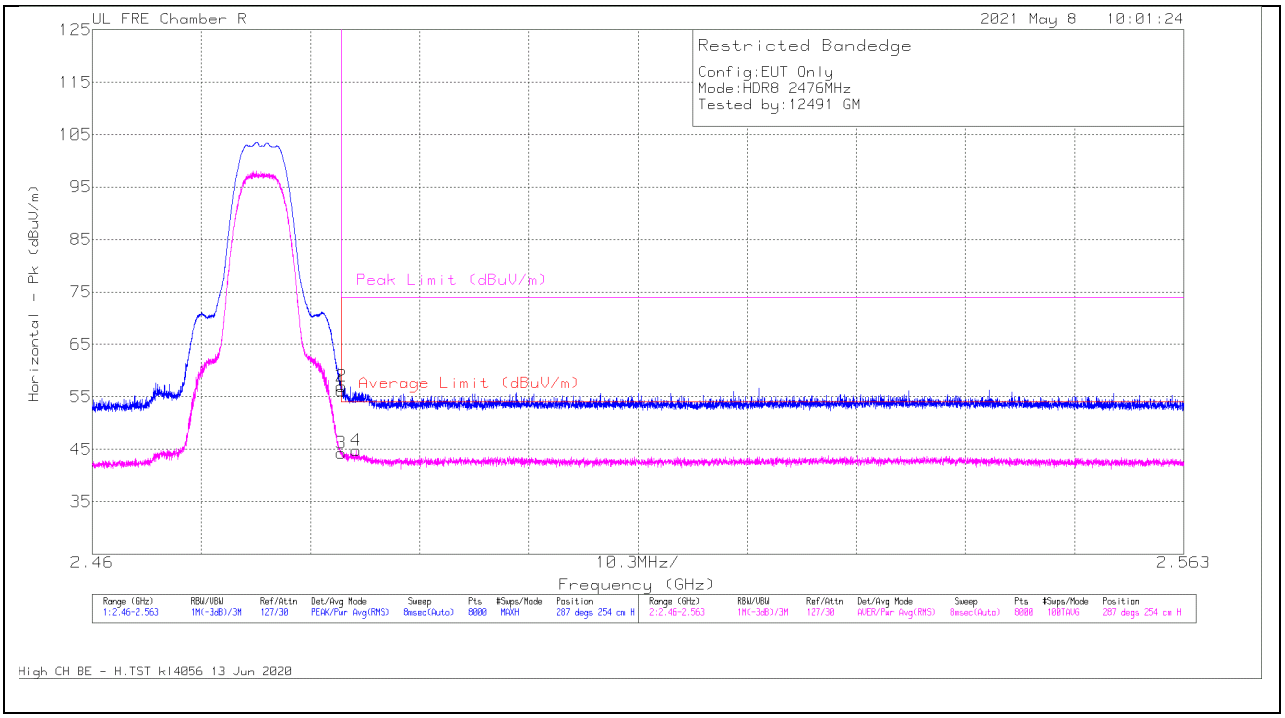
BANDEDGE (HIGH CHANNEL)

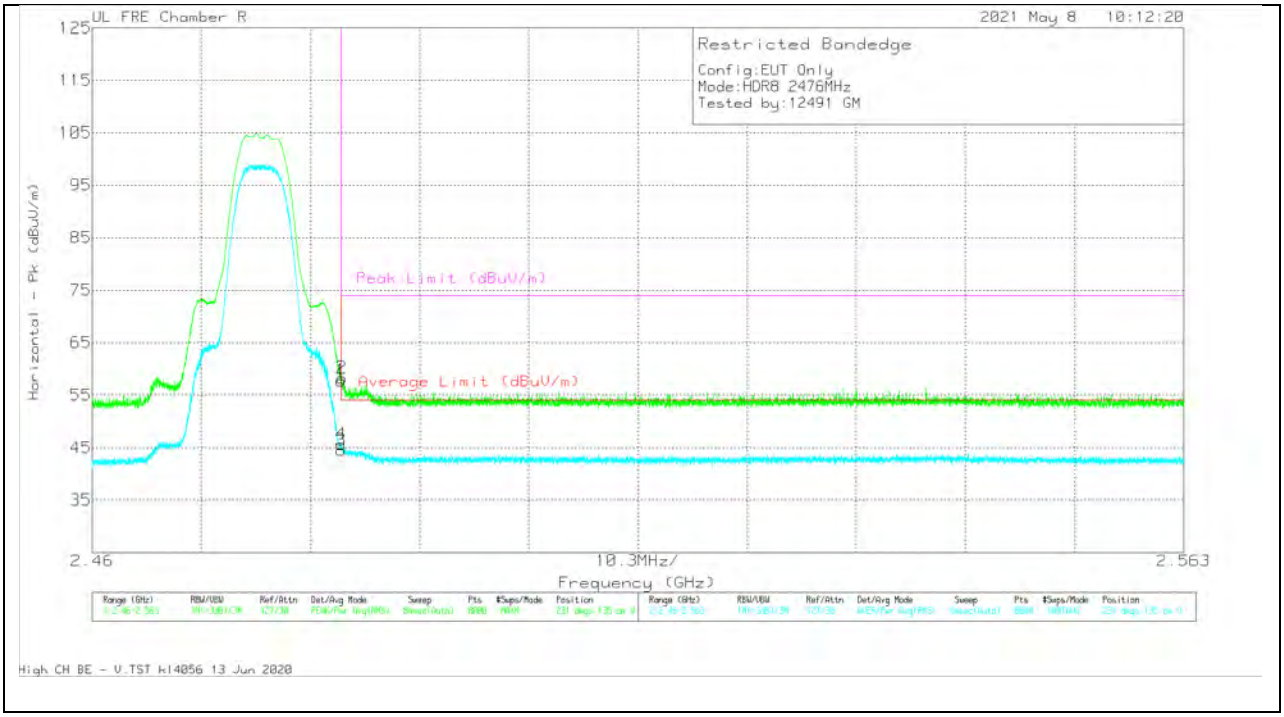
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr /Pad (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	58.9	Pk	32.5	-35.3	56.1	-	-	74	-17.9	287	254	H
3	2.4835	47.04	RMS	32.5	-35.3	44.24	54	-9.76	-	-	287	254	H
2	2.48353	59.85	Pk	32.5	-35.3	57.05	-	-	74	-16.95	287	254	H
4	2.48488	47.51	RMS	32.5	-35.3	44.71	54	-9.29	-	-	287	254	H

Pk - Peak detector
RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Fltr /Pad (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	60.54	Pk	32.5	-35.3	57.74	-	-	74	-16.26	231	135	V
3	2.4835	47.27	RMS	32.5	-35.3	44.47	54	-9.53	-	-	231	135	V
4	2.48351	48.41	RMS	32.5	-35.3	45.61	54	-8.39	-	-	231	135	V
2	2.48355	61.02	Pk	32.5	-35.3	58.22	-	-	74	-15.78	231	135	V

Pk - Peak detector
RMS - RMS detection

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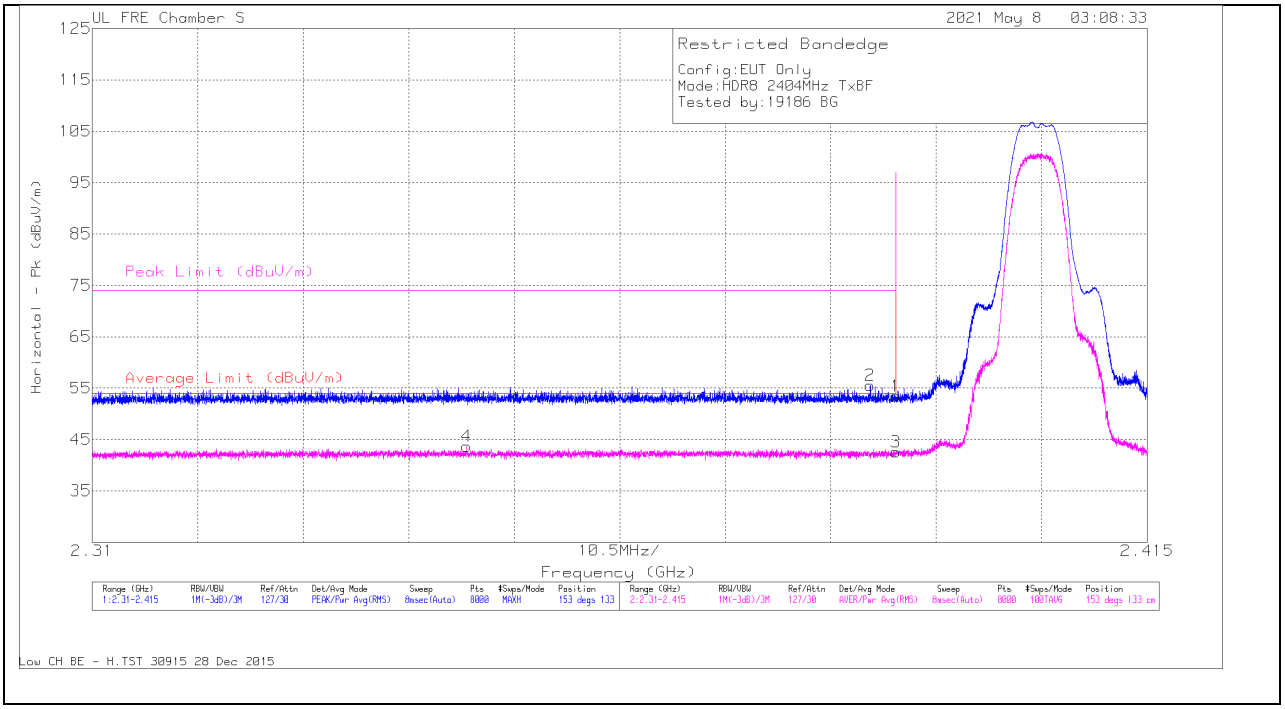
10.2.8. LOW POWER HDR TXBF (HDR8)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.34727	46.37	RMS	32.4	-35.1	43.67	54	-10.33	-	-	153	133	H
2	2.38744	58.32	Pk	32.3	-35.1	55.52	-	-	74	-18.48	153	133	H
1	2.39	56.25	Pk	32.3	-35.1	53.45	-	-	74	-20.55	153	133	H
3	2.39	45.38	RMS	32.3	-35.1	42.58	54	-11.42	-	-	153	133	H

Pk - Peak detector
RMS - RMS detection

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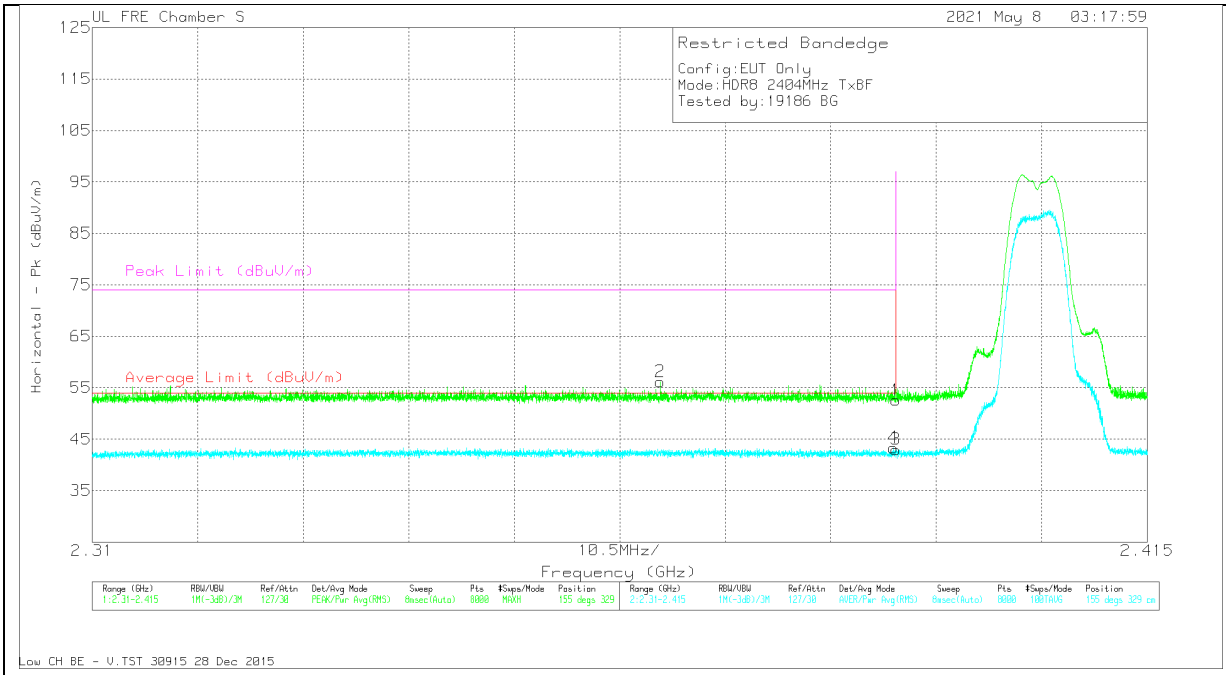
VERTICAL RESULT

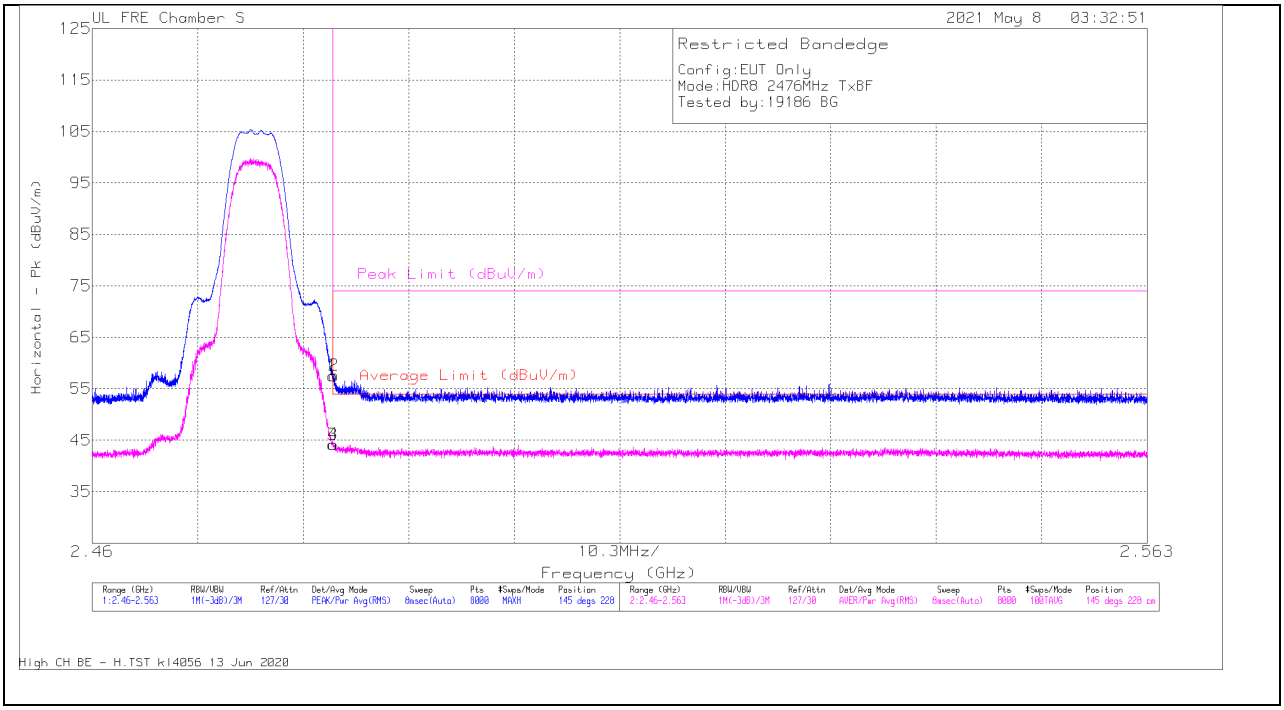


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.36654	58.97	Pk	32.3	-35.1	56.17	-	-	74	-17.83	155	329	V
4	2.38975	46.12	RMS	32.3	-35.1	43.32	54	-10.68	-	-	155	329	V
1	2.39	55.39	Pk	32.3	-35.1	52.59	-	-	74	-21.41	155	329	V
3	2.39	45.81	RMS	32.3	-35.1	43.01	54	-10.99	-	-	155	329	V

Pk - Peak detector
RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr /Pad (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	60.19	Pk	32.2	-34.9	57.49	-	-	74	-16.51	145	228	H
3	2.4835	46.85	RMS	32.2	-34.9	44.15	54	-9.85	-	-	145	228	H
4	2.48356	46.89	RMS	32.2	-34.9	44.19	54	-9.81	-	-	145	228	H
2	2.4836	60.28	Pk	32.2	-34.9	57.58	-	-	74	-16.42	145	228	H

Pk - Peak detector
RMS - RMS detection

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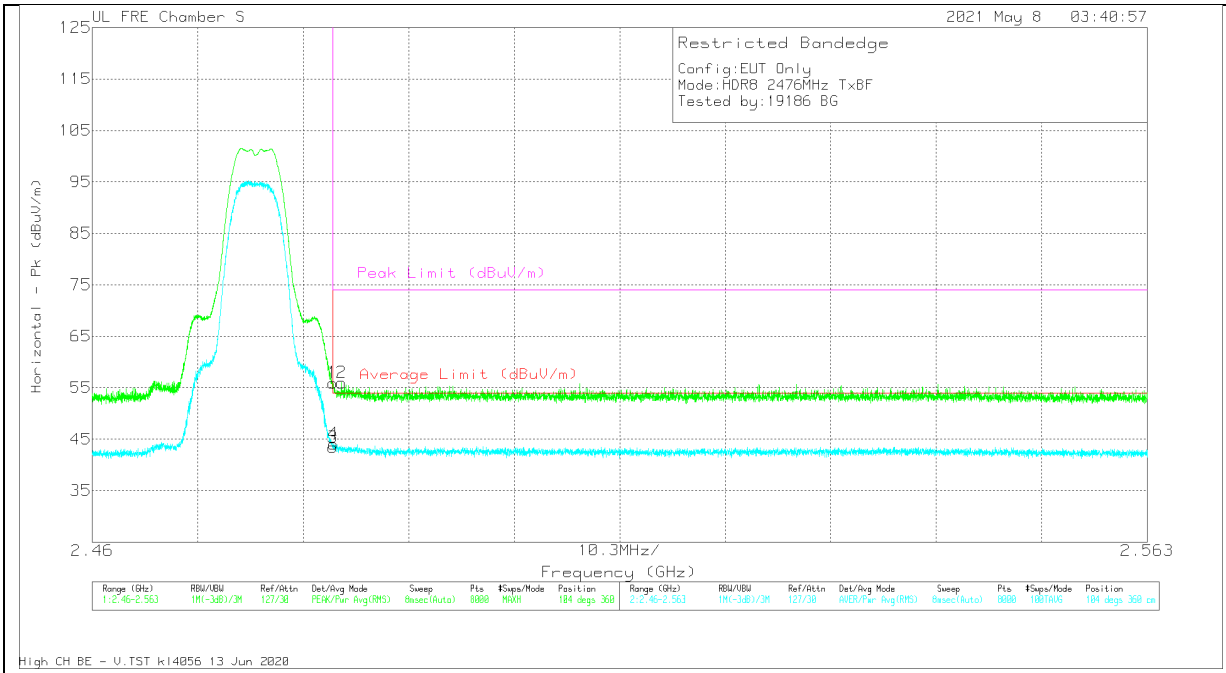
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213833 (dB/m)	Amp/Cbl/Fltr/Pad (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	58.65	Pk	32.2	-34.9	55.95	-	-	74	-18.05	104	360	V
3	2.4835	46.12	RMS	32.2	-34.9	43.42	54	-10.58	-	-	104	360	V
4	2.48354	46.76	RMS	32.2	-34.9	44.06	54	-9.94	-	-	104	360	V
2	2.48432	58.68	Pk	32.2	-34.9	55.98	-	-	74	-18.02	104	360	V

Pk - Peak detector
RMS - RMS detection

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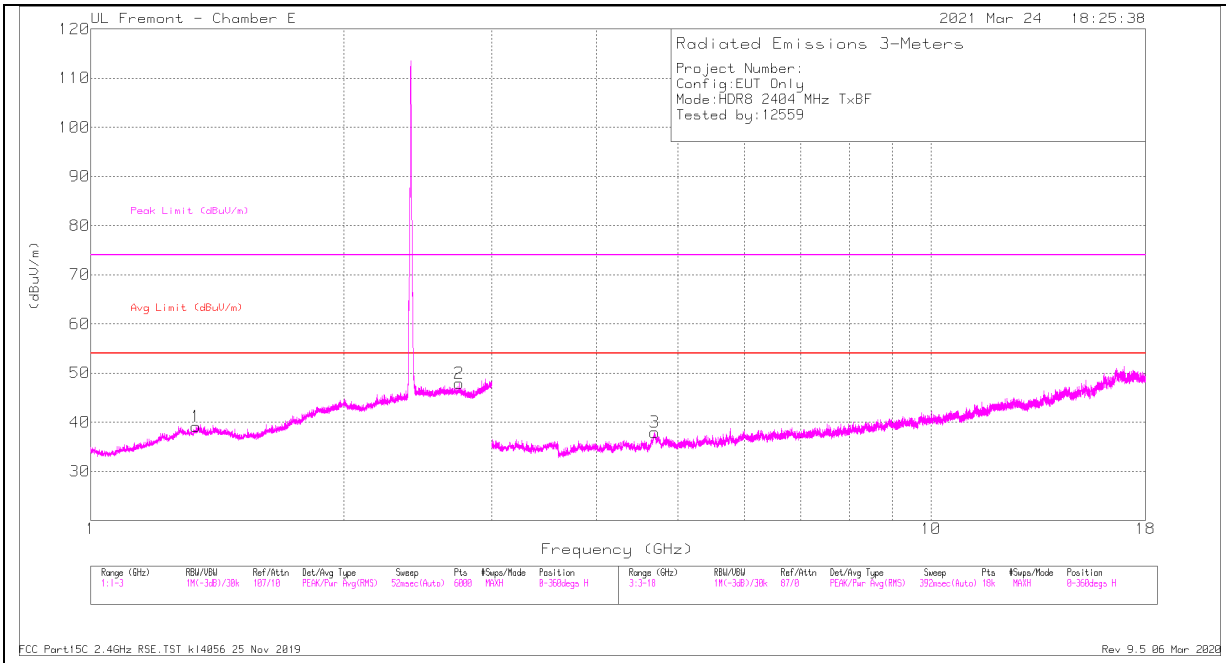
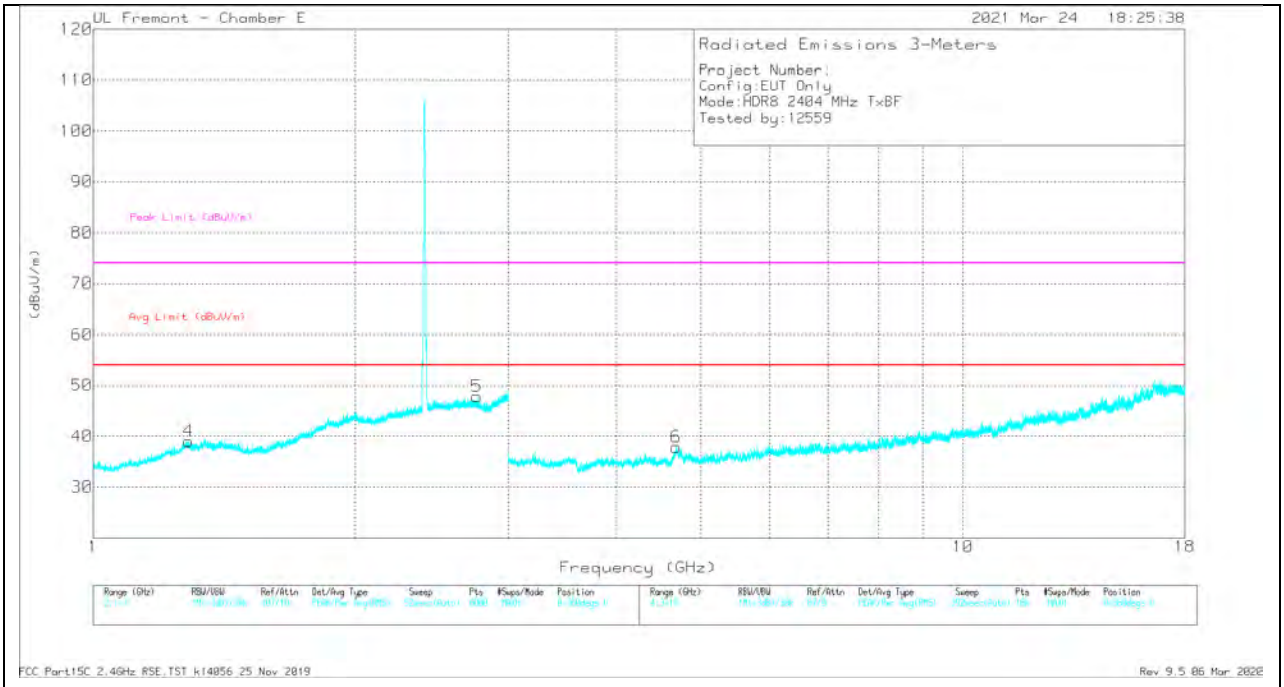
10.2.9. HARMONICS AND SPURIOUS EMISSIONS(Worst Case)

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.33353	36.91	PK2	29.3	-20.7	45.51	-	-	74	-28.49	155	350	H
	* 1.33486	25.32	MAv1	29.3	-20.7	33.92	54	-20.08	-	-	155	350	H
2	* 2.74637	38.5	PK2	32.6	-18.1	53	-	-	74	-21	315	275	H
	* 2.74681	26.8	MAv1	32.6	-18.1	41.3	54	-12.7	-	-	315	2751	H
4	* 1.28768	36.72	PK2	29.7	-20.8	45.62	-	-	74	-28.38	78	170	V
	* 1.28729	25.09	MAv1	29.7	-20.8	33.99	54	-20.01	-	-	78	170	V
5	* 2.76118	38.34	PK2	32.5	-18.1	52.74	-	-	74	-21.26	175	250	V
	* 2.76071	26.87	MAv1	32.5	-18.1	41.27	54	-12.73	-	-	175	250	V
3	* 4.68873	39.87	PK2	34.4	-32	42.27	-	-	74	-31.73	245	160	H
	* 4.6899	29.21	MAv1	34.4	-32	31.61	54	-22.39	-	-	245	160	H
6	* 4.68166	40.42	PK2	34.4	-31.8	43.02	-	-	74	-30.98	15	125	V
	* 4.68282	29.33	MAv1	34.4	-31.9	31.83	54	-22.17	-	-	15	125	V

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

FCC Part15C 2.4GHz RSE.TST kl4056 25 Nov 2019
Rev 9.5 06 Mar 2020

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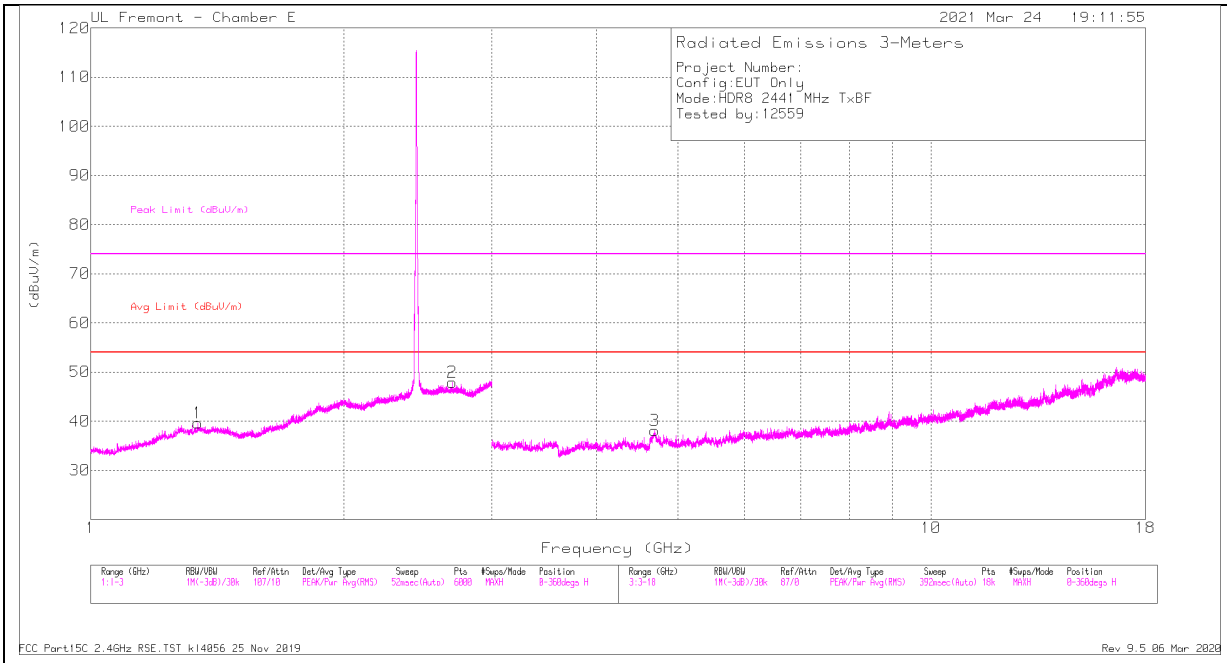
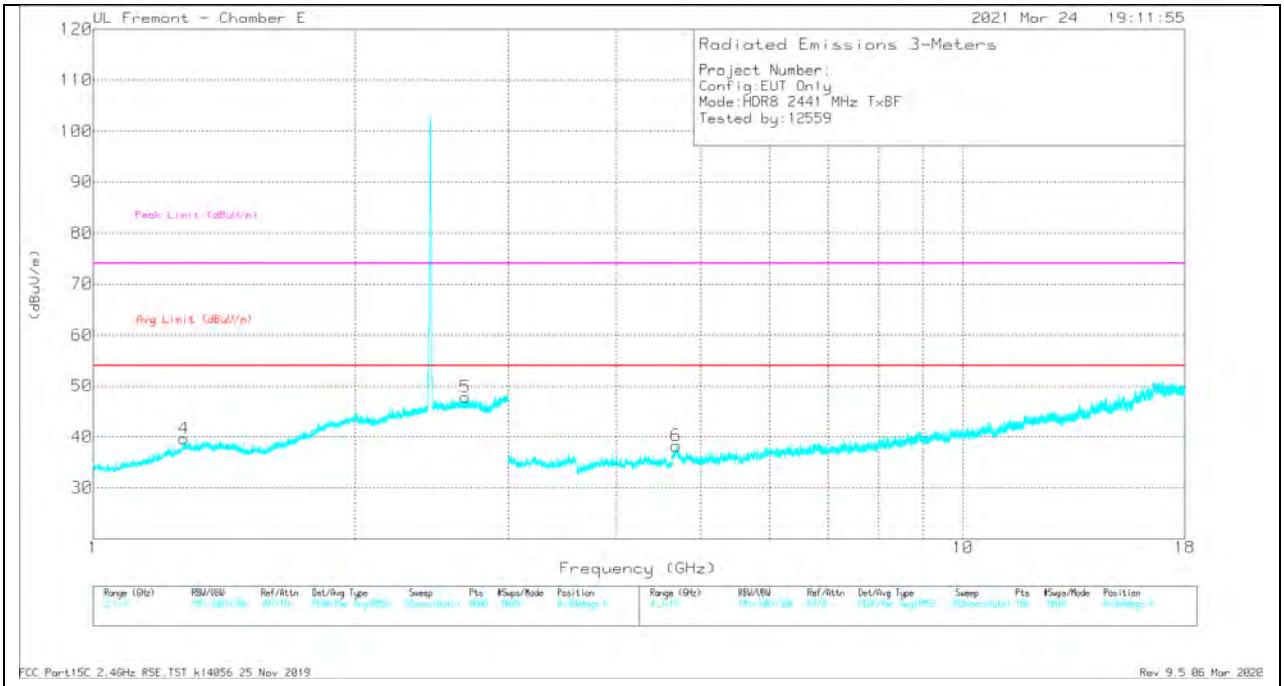
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

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RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.34245	37.07	PK2	29.7	-20.6	46.17	-	-	74	-27.83	57	340	H
	* 1.3409	25.4	MAv1	29.7	-20.7	34.4	54	-19.6	-	-	57	340	H
2	* 2.69655	38.27	PK2	32.6	-18.1	52.77	-	-	74	-21.23	325	345	H
	* 2.69508	26.97	MAv1	32.6	-18.1	41.47	54	-12.53	-	-	325	345	H
4	* 1.27363	36.66	PK2	29.7	-20.9	45.46	-	-	74	-28.54	280	150	V
	* 1.27377	25.19	MAv1	29.7	-20.9	33.99	54	-20.01	-	-	280	150	V
5	* 2.68136	38.55	PK2	32.6	-18.2	52.95	-	-	74	-21.05	18	210	V
	* 2.6799	26.85	MAv1	32.5	-18.2	41.15	54	-12.85	-	-	18	210	V
3	* 4.69117	40.13	PK2	34.4	-32	42.53	-	-	74	-31.47	260	330	H
	* 4.69016	29.32	MAv1	34.4	-32	31.72	54	-22.28	-	-	260	330	H
6	* 4.68413	40.83	PK2	34.4	-31.9	43.33	-	-	74	-30.67	115	115	V
	* 4.68437	29.58	MAv1	34.4	-31.9	32.08	54	-21.92	-	-	115	115	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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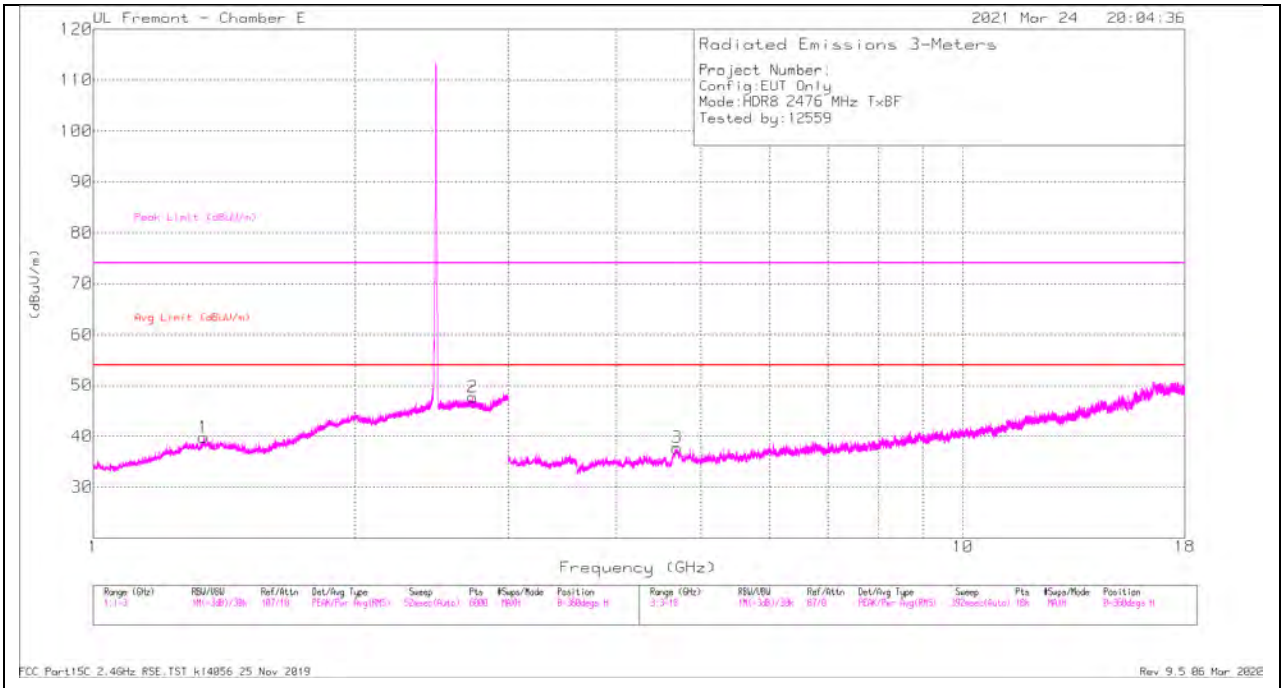
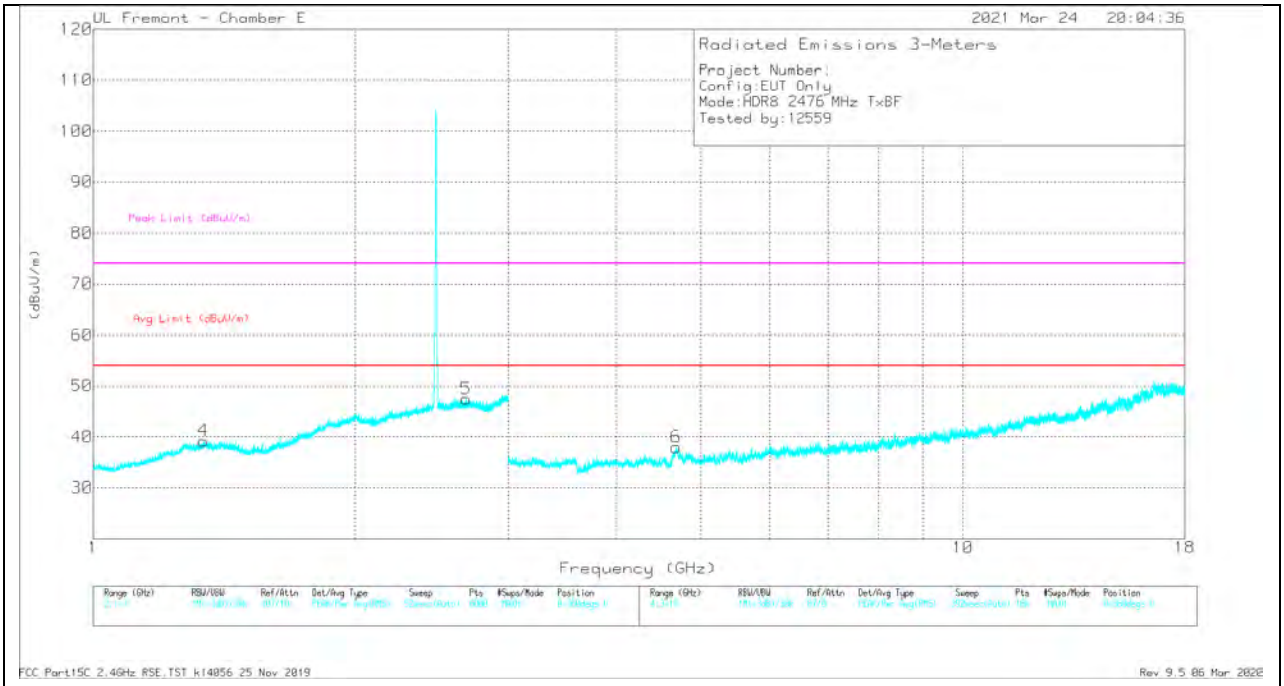
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.33868	37.08	PK2	29.6	-20.7	45.98	-	-	74	-28.02	150	175	H
	* 1.33862	25.4	MAv1	29.6	-20.7	34.3	54	-19.7	-	-	150	175	H
2	* 2.73039	38.77	PK2	32.6	-18.2	53.17	-	-	74	-20.83	210	125	H
	* 2.72952	26.86	MAv1	32.6	-18.2	41.26	54	-12.74	-	-	210	125	H
4	* 1.33994	37.31	PK2	29.7	-20.6	46.41	-	-	74	-27.59	300	200	V
	* 1.3392	25.42	MAv1	29.6	-20.6	34.42	54	-19.58	-	-	300	200	V
5	* 2.68583	38.73	PK2	32.6	-18.1	53.23	-	-	74	-20.77	75	120	V
	* 2.6854	26.87	MAv1	32.6	-18.2	41.27	54	-12.73	-	-	75	120	V
3	* 4.6873	40.46	PK2	34.4	-32	42.86	-	-	74	-31.14	125	265	H
	* 4.68825	29.35	MAv1	34.4	-32	31.75	54	-22.25	-	-	125	265	H
6	* 4.67813	40.79	PK2	34.4	-31.8	43.39	-	-	74	-30.61	75	230	V
	* 4.67906	29.88	MAv1	34.4	-31.8	32.48	54	-21.52	-	-	75	230	V

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

FCC Part15C 2.4GHz RSE.TST kl4056 25 Nov 2019
Rev 9.5 06 Mar 2020

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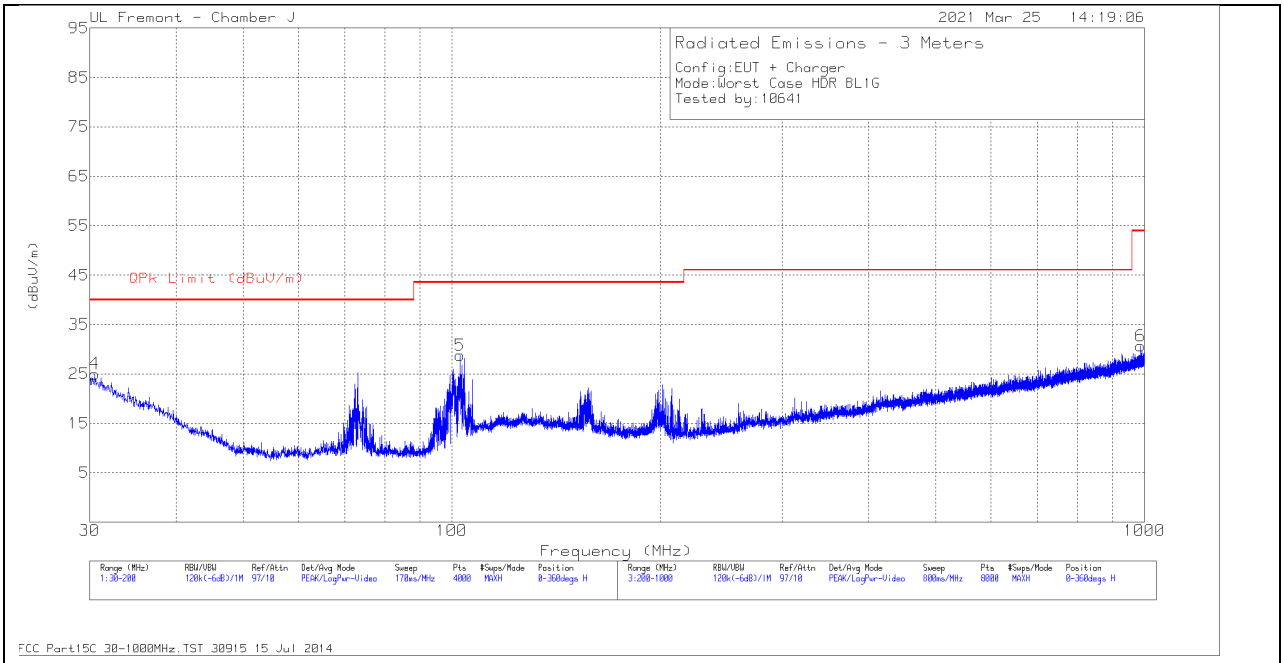
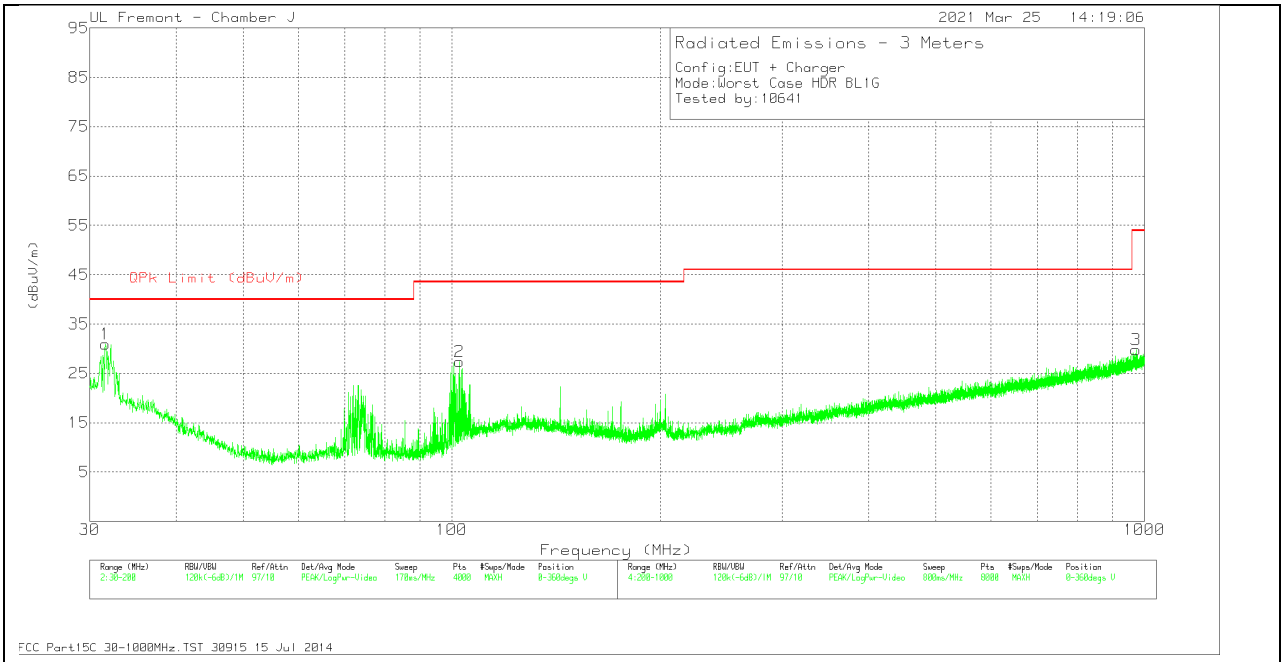
10.3. WORST CASE BELOW 1 GHz

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



HORIZONTAL



VERTICAL

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Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF PRE0184052 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	30.5101	29.03	Pk	27.6	-31.6	25.03	40	-14.97	0-360	100	H
5	102.6938	42.87	Pk	16.9	-31	28.77	43.52	-14.75	0-360	293	H
1	31.6154	35.77	Pk	26.8	-31.6	30.97	40	-9.03	0-360	100	V
2	102.6088	41.48	Pk	16.9	-31	27.38	43.52	-16.14	0-360	100	V
6	* 988.2025	27.34	Pk	29.5	-26.2	30.64	53.97	-23.33	0-360	388	H
3	* 972.2004	26.65	Pk	29.4	-26.3	29.75	53.97	-24.22	0-360	99	V

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

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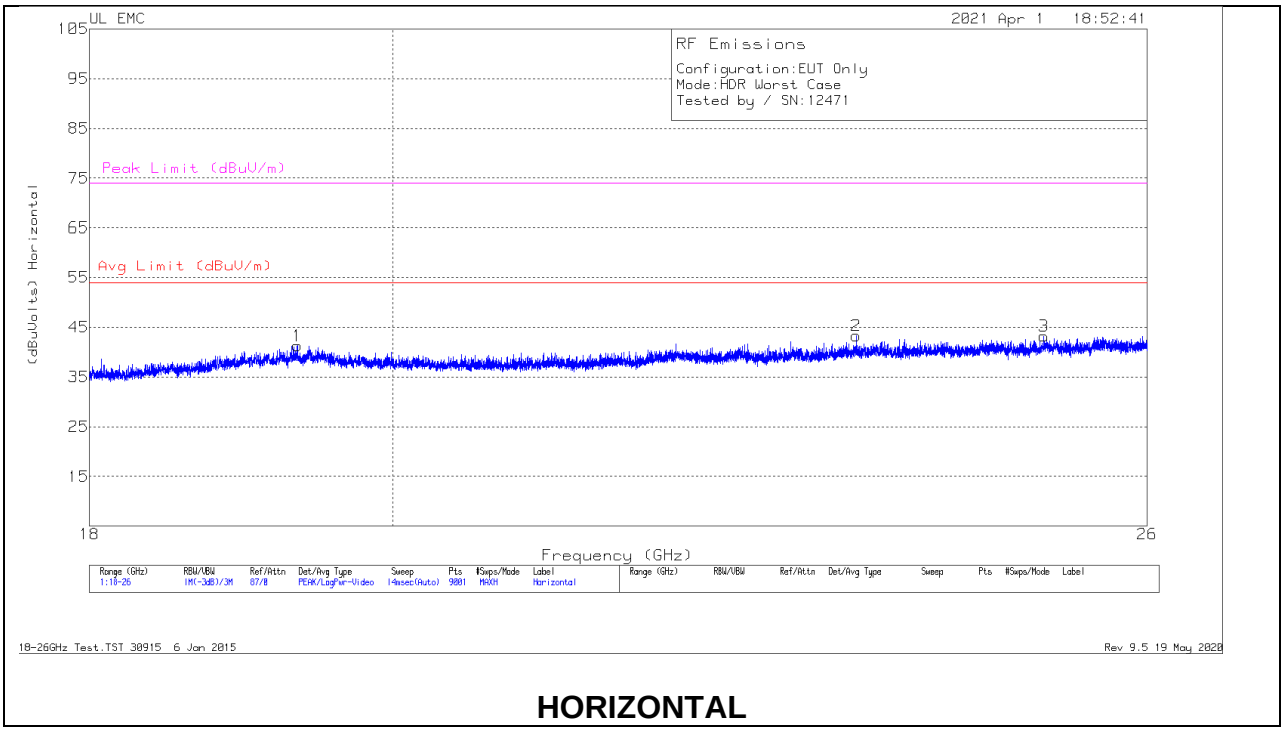
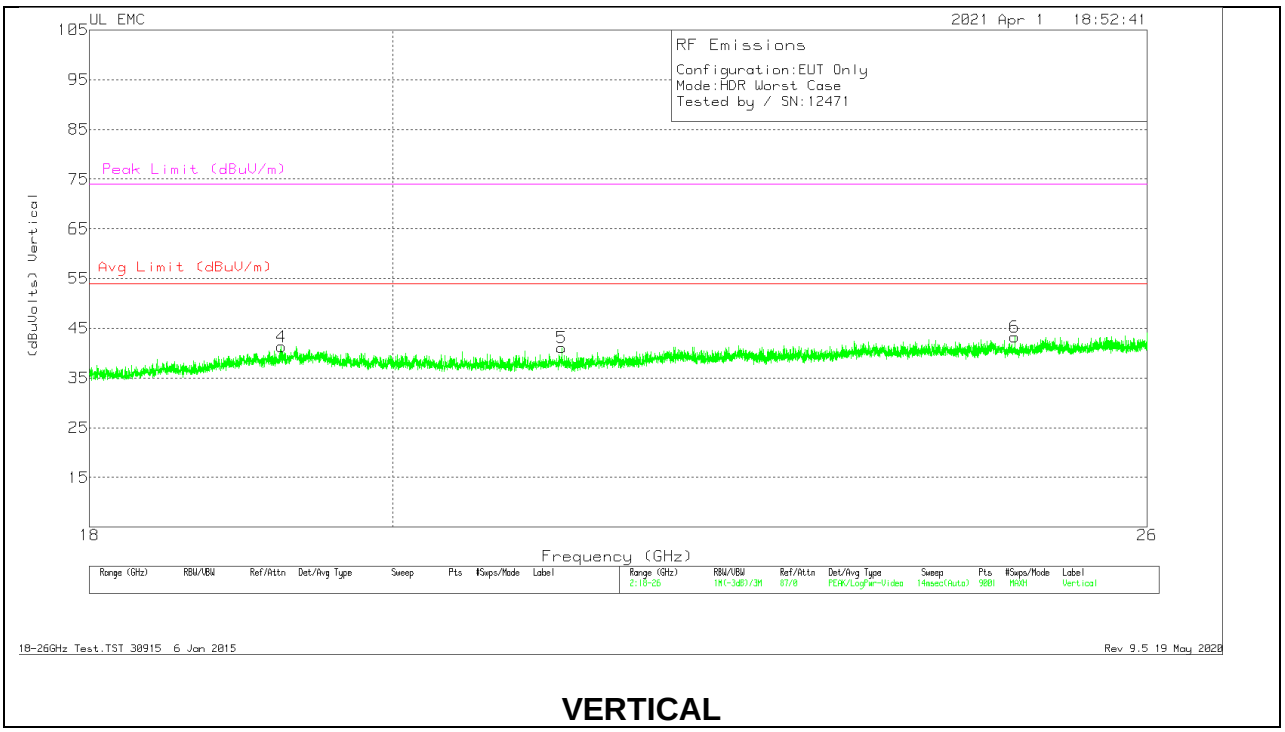
10.4. WORST CASE 18-26 GHz

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



HORIZONTAL



VERTICAL

18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T125 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.34844	36.9	Pk	32.6	-18.7	-9.5	41.3	54	-12.7	74	-32.7
2	23.49689	39	Pk	33.9	-20.1	-9.5	43.3	54	-10.7	74	-30.7
3	25.08089	37.62	Pk	34.3	-19.2	-9.5	43.22	54	-10.78	74	-30.78
4	19.24178	37.12	Pk	32.7	-19	-9.5	41.32	54	-12.68	74	-32.68
5	21.21067	38.5	Pk	33	-20.9	-9.5	41.1	54	-12.9	74	-32.9
6	24.82845	38.09	Pk	34.1	-19.4	-9.5	43.29	54	-10.71	74	-30.71

Pk - Peak detector

18-26GHz Test.TST 30915 6 Jan 2015
Rev 9.5 19 May 2020

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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 (dBuV)	
	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.
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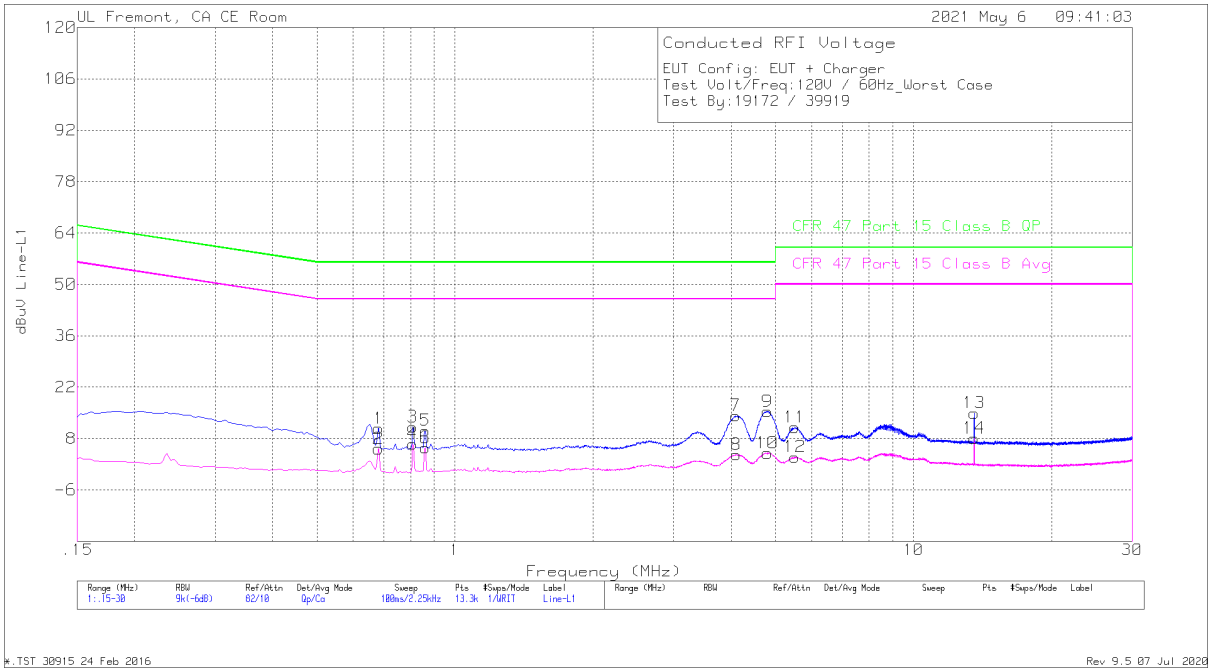
11.1. AC POWER LINE WITH AC/DC ADAPTER

LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 L1	LC Cables C1&C3 dB	Limiter	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.681	.67	Qp	0	0	10.1	10.77	56	-45.23	-	-
2	.681	-4.85	Ca	0	0	10.1	5.25	-	-	46	-40.75
3	.80925	.97	Qp	0	.1	10.1	11.17	56	-44.83	-	-
4	.80925	-3.63	Ca	0	.1	10.1	6.57	-	-	46	-39.43
5	.861	-.02	Qp	0	.1	10.1	10.18	56	-45.82	-	-
6	.861	-4.68	Ca	0	.1	10.1	5.52	-	-	46	-40.48
7	4.0965	3.92	Qp	0	.1	10.2	14.22	56	-41.78	-	-
8	4.10775	-6.7	Ca	0	.1	10.2	3.6	-	-	46	-42.4
9	4.80075	5.08	Qp	0	.1	10.2	15.38	56	-40.62	-	-
10	4.80075	-6.27	Ca	0	.1	10.2	4.03	-	-	46	-41.97
11	5.5095	.77	Qp	0	.1	10.2	11.07	60	-48.93	-	-
12	5.51175	-7.32	Ca	0	.1	10.2	2.98	-	-	50	-47.02
*13	13.56	4.46	Qp	.1	.2	10.2	14.96	60	-45.04	-	-
*14	13.56	-2.4	Ca	.1	.2	10.2	8.1	-	-	50	-41.9

Qp - Quasi-Peak detector
Ca - CISPR average detection
*Indicates UL RFID Signal. Not from device.

*.TST 30915 24 Feb 2016
Rev 9.5 07 Jul 2020

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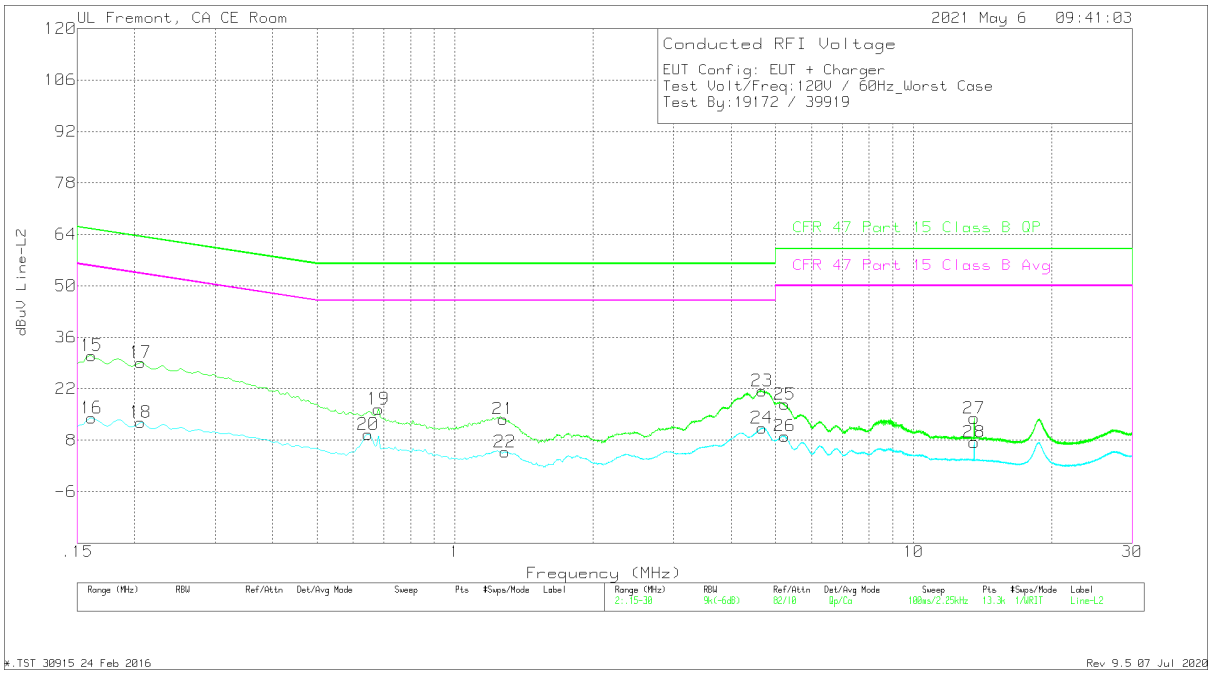
LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 L2	LC Cables C2&C3 dB	Limiter	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
15	.16125	20.93	Qp	0	0	10.1	31.03	65.4	-34.37	-	-
16	.16125	3.94	Ca	0	0	10.1	14.04	-	-	55.4	-41.36
17	.20625	19.04	Qp	0	0	10.1	29.14	63.35	-34.21	-	-
18	.20625	2.76	Ca	0	0	10.1	12.86	-	-	53.35	-40.49
19	.681	6.39	Qp	0	0	10.1	16.49	56	-39.51	-	-
20	.64613	-.51	Ca	0	0	10.1	9.59	-	-	46	-36.41
21	1.27388	3.57	Qp	0	.1	10.1	13.77	56	-42.23	-	-
22	1.28513	-5.39	Ca	0	.1	10.1	4.81	-	-	46	-41.19
23	4.6725	11.15	Qp	0	.1	10.2	21.45	56	-34.55	-	-
24	4.67138	1.04	Ca	0	.1	10.2	11.34	-	-	46	-34.66
25	5.235	7.47	Qp	0	.1	10.2	17.77	60	-42.23	-	-
26	5.235	-1.15	Ca	0	.1	10.2	9.15	-	-	50	-40.85
*27	13.56	3.48	Qp	.1	.2	10.2	13.98	60	-46.02	-	-
*28	13.56	-3.03	Ca	.1	.2	10.2	7.47	-	-	50	-42.53

Qp - Quasi-Peak detector
Ca - CISPR average detection
*Indicates UL RFID Signal. Not from device.

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Rev 9.5 07 Jul 2020

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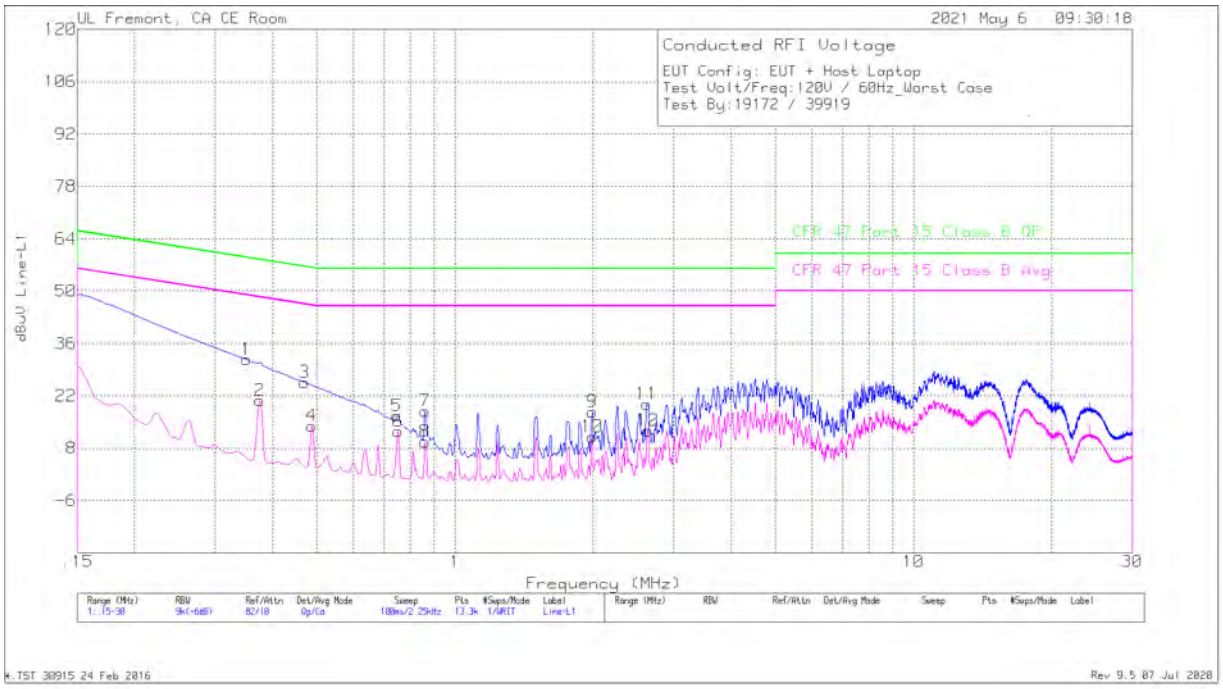
11.2. AC POWER LINE WITH LAPTOP

LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 L1	LC Cables C1&C3 dB	Limiter	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.35025	21.64	Qp	0	0	10.1	31.74	58.96	-27.22	-	-
2	.375	10.65	Ca	0	0	10.1	20.75	-	-	48.39	-27.64
3	.4695	15.48	Qp	0	0	10.1	25.58	56.52	-30.94	-	-
4	.4875	3.89	Ca	0	0	10.1	13.99	-	-	46.21	-32.22
5	.74625	6.54	Qp	0	0	10.1	16.64	56	-39.36	-	-
6	.75075	2.33	Ca	0	.1	10.1	12.53	-	-	46	-33.47
7	.861	7.75	Qp	0	.1	10.1	17.95	56	-38.05	-	-
8	.861	-.45	Ca	0	.1	10.1	9.75	-	-	46	-36.25
9	1.995	7.53	Qp	0	.1	10.1	17.73	56	-38.27	-	-
10	1.9905	.85	Ca	0	.1	10.1	11.05	-	-	46	-34.95
11	2.616	9.57	Qp	0	.1	10.1	19.77	56	-36.23	-	-
12	2.634	2.47	Ca	0	.1	10.1	12.67	-	-	46	-33.33

Qp - Quasi-Peak detector
Ca - CISPR average detection

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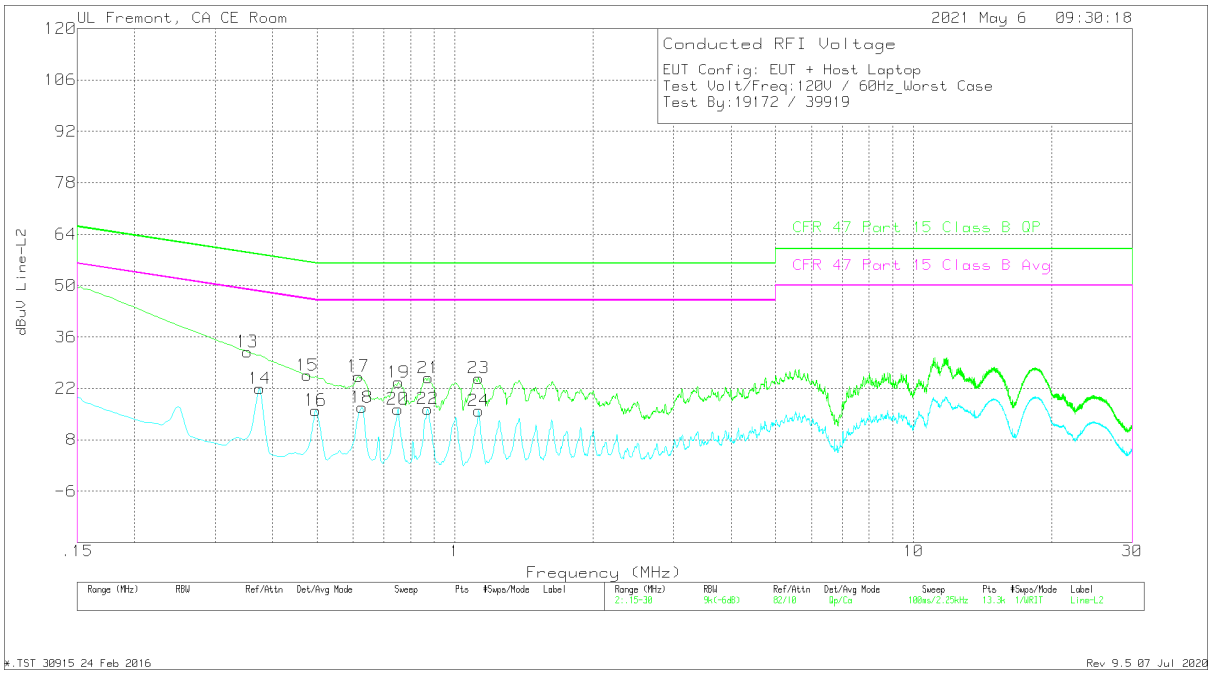
LINE 2 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE0186446 L1	LC Cables C1&C3 dB	Limiter	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.35025	21.64	Qp	0	0	10.1	31.74	58.96	-27.22	-	-
2	.375	10.65	Ca	0	0	10.1	20.75	-	-	48.39	-27.64
3	.4695	15.48	Qp	0	0	10.1	25.58	56.52	-30.94	-	-
4	.4875	3.89	Ca	0	0	10.1	13.99	-	-	46.21	-32.22
5	.74625	6.54	Qp	0	0	10.1	16.64	56	-39.36	-	-
6	.75075	2.33	Ca	0	.1	10.1	12.53	-	-	46	-33.47
7	.861	7.75	Qp	0	.1	10.1	17.95	56	-38.05	-	-
8	.861	-.45	Ca	0	.1	10.1	9.75	-	-	46	-36.25
9	1.995	7.53	Qp	0	.1	10.1	17.73	56	-38.27	-	-
10	1.9905	.85	Ca	0	.1	10.1	11.05	-	-	46	-34.95
11	2.616	9.57	Qp	0	.1	10.1	19.77	56	-36.23	-	-
12	2.634	2.47	Ca	0	.1	10.1	12.67	-	-	46	-33.33

Qp - Quasi-Peak detector
Ca - CISPR average detection

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12. SETUP PHOTOS

Please refer to 13571601-EP1V1 for setup photos

END OF TEST REPORT

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