TEST REPORT

Report Number: 14523771-E7V2

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

Model : A2849

Brand : APPLE

FCC ID : BCG-E8439A

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E

Date Of Issue:
August 26, 2023

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

ACCREDITED
CERT #0751.05

REPORT REVISION HISTORY

Rev.		Issue Date		Revisions		Revised By
V1		08/21/2023		Initial Issue		Chin Pang
V2		08/26/2023		Address TCB's questions section 9, 10		Chin Pang

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 6

2. TEST RESULT SUMMARY 8

3. TEST METHODOLOGY 8

4. FACILITIES AND ACCREDITATION 9

5. DECISION RULES AND MEASUREMENT UNCERTAINTY 9

5.1. METROLOGICAL TRACEABILITY 9

5.2. DECISION RULES 9

5.3 MEASUREMENT UNCERTAINTY 10

5.4 SAMPLE CALCULATION 10

6. EQUIPMENT UNDER TEST 11

6.1. EUT DESCRIPTION 11

6.2. MAXIMUM OUTPUT POWER 11

6.3 DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS 12

6.4 SOFTWARE AND FIRMWARE 12

6.5 WORST-CASE CONFIGURATION AND MODE 13

6.6 DESCRIPTION OF TEST SETUP 14

7. TEST AND MEASUREMENT EQUIPMENT 18

8. MEASUREMENT METHODS 20

9. ANTENNA PORT TEST RESULTS 21

9.1. ON TIME AND DUTY CYCLE 21

9.2. 26 dB AND 99% BANDWIDTH 22

9.2.1. HIGH POWER BDR, UNII-1 23
9.2.2. HIGH POWER BDR TXBF UNII-1 24
9.2.3. HIGH POWER HDR4, UNII-1 25
9.2.4. HIGH POWER HDR4 TXBF UNII-1 26
9.2.5 HIGH POWER HDR8, UNII-1 27
9.2.6 HIGH POWER HDR8 TXBF UNII-1 28
9.2.7 HIGH POWER BASIC DATA RATE, UNII-3 29
9.2.8 HIGH POWER BDR TXBF UNII-3 30
9.2.9 HIGH POWER HDR4, UNII-3 31
9.2.10 HIGH POWER HDR4 TXBF UNII-3 32
9.2.11 HIGH POWER HDR8, UNII-3 33
9.2.12 HIGH POWER HDR8 TXBF UNII-3 34

9.3 6 dB BANDWIDTH 35

9.3.1 HIGH OUTPUT BDR MODE IN THE UNII-3 BAND 36
9.3.2 HIGH OUTPUT HDR4 MODE IN THE UNII-3 BAND 38

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.3 HIGH OUTPUT HDR8 MODE IN THE UNII-3 BAND 40

9.4 OUTPUT POWER AND PSD 42
9.4.1 HIGH OUTPUT BDR MODE IN UNII-1 BAND.....44
9.4.2 LOW OUTPUT BDR MODE IN UNII-1 BAND 47
9.4.3 HIGH OUTPUT HDR4 MODE IN UNII-1 BAND 50
9.4.4 LOW OUTPUT HDR4 MODE IN UNII-1 BAND 53
9.4.5 HIGH OUTPUT HDR8 MODE IN UNII-1 BAND 56
9.4.6 LOW OUTPUT HDR8 MODE IN UNII-1 BAND 59
9.4.7 HIGH OUTPUT BDR MODE IN UNII-3 BAND.....62
9.4.8 LOW OUTPUT BDR MODE IN UNII-3 BAND 65
9.4.9 HIGH OUTPUT HDR4 MODE IN UNII-3 BAND 68
9.4.10 LOW OUTPUT HDR4 MODE IN UNII-3 BAND 71
9.4.11 HIGH OUTPUT HDR8 MODE IN UNII-3 BAND 74
9.4.12 LOW OUTPUT HDR8 MODE IN UNII-3 BAND 77

10. RADIATED TEST RESULTS 80

10.1. TRANSMITTER ABOVE 1 GHz.....82
10.1.1. BDR, High Power UNII-1 BANDEDGE 82
10.1.2. BDR, High Power, UNII-1, HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND 88
10.1.3 BDR, LOW POWER UNII-1 BANDEDGE.....94
10.1.4 BDR, Low Power, UNII-1, HARMONIC AND SPURIOUS TX ABOVE 1 GHz IN THE 5.2 GHz BAND.....100

10.1.5 HDR4, HIGH POWER UNII-1 BANDEDGE 106

10.1.6 HDR4, High Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND112

10.1.7 HDR4, LOW POWER UNII-1 BANDEDGE 118

10.1.8 HDR4, LOW Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND 124

10.1.9 HDR8, HIGH POWER UNII-1 BANDEDGE low fund 130

10.1.10 HDR8, High Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND 136

10.1.11 HDR8, LOW POWER UNII-1 BANDEDGE 142

10.1.12 HDR8, LOW Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND 148

10.1.13 BDR, HIGH POWER UNII-3 BANDEDGE.....154

10.1.14 BDR, High Power, UNII-3, HARMONIC AND SPURIOUS IN THE 5.8 GHz BAND 166

10.1.15 BDR, LOW POWER UNII-3 BANDEDGE.....172

10.1.16 BDR, Low Power, UNII-3, HARMONIC AND SPURIOUS TX ABOVE 1 GHz IN THE 5.8GHz BAND 184

10.1.17 HDR4, HIGH POWER UNII-3 BANDEDGE.....190

10.1.18 HDR4, High Power UNII-3 HARMONIC AND SPURIOUS IN THE 5.8 GHz BAND 202

10.1.19 HDR4, LOW POWER UNII-3 BANDEDGE 208

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.20 HDR4, LOW Power UNII-3 HARMONIC AND SPURIOUS IN THE 5.8 GHz BAND 220

10.1.21 HDR8, HIGH POWER UNII-3 BANDEDGE.....226

10.1.22 HDR8, High Power UNII-3 HARMONIC AND SPURIOUS IN THE 5.8 GHz BAND 238

10.1.23 HDR8, LOW POWER UNII-3 BANDEDGE 244

10.1.24 HDR8, LOW Power UNII-3 HARMONIC AND SPURIOUS IN THE 5.8 GHz BAND 256

10.2 WORST CASE BELOW 1 GHz.....262

10.3 WORST CASE 18-26 GHz.....264

10.4 WORST CASE 26-40 GHz.....266

11 AC POWERLINE CONDUCTED EMISSIONS 268

11.1 AC POWER LINE WITH LAPTOP 269

11.2 AC POWER LINE WITH AC/DC ADAPTER.....271

12 SETUP PHOTOS: 273

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: SMARTPHONE

MODEL : A2849

BRAND : APPLE

FCC ID : BCG-E8439A

SERIAL NUMBER: W9439GWH00, HG06RV4DY0

SAMPLE RECEIPT DATE MARCH 27, 2023

DATE TESTED: APRIL 05 – AUGUST 26, 2023

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	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 ensure 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 considered 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 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.

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Approved & Released For
UL Verification Services Inc. By:

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

Prepared By:

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2. TEST RESULT 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.

Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 6.3)
2. Cable loss (see section 6.3)

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 12.2.
See Comment	26dB BW/99% OBW	Reporting purposes only	Per ANSI C63.10 Sections 6.9.2 and 6.9.3
15.407 (e)	6 dB BW	Complies	None.
15.407 (a) (1 & 3)	Output Power	Complies	None.
15.407 (a) (1 & 3)	PSD	Complies	None.
15.209, 15.205, 15.407 (b)	Radiated Emissions	Complies	None.
15.207	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 15E
- FCC KDB 662911 D01 v02r01
- FCC KDB 789033 D02 v02r01
- FCC KDB 644545 D03 v01
- ANSI C63.10-2013
- KDB 414788 D01 Radiated Test Site v01r01

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

4. FACILITIES AND ACCREDITATION

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

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

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.3 MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{LAB}
Conducted Antenna Port Emission Measurement	1.94 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using Power Meter	0.450 dB (Peak), 1.3 dB (Ave)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, UMTS, LTE, 5GNR1, 5GNR2, IEEE 802.11a/b/g/n/ac/ax, Bluetooth (BT), Ultra-Wideband (UWB), GPS, NFC, NB UNII, 802.15.4, 802.15.4ab-NB and MSS technologies. The rechargeable battery is not user accessible.

6.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Antenna	Configuration	Output Power (dBm)	Output Power (mW)
5162 - 5245 (UNII-1)	BDR	ANT 6	High Power	9.95	9.89
			Low Power	4.97	3.14
		ANT 5	High Power	9.96	9.91
			Low Power	5.96	3.94
		BF, ANT 6 + ANT 5	High Power	9.94	9.86
			Low Power	8.50	7.08
	HDR 4	ANT 6	High Power	11.46	14.00
			Low Power	-1.51	0.71
		ANT 5	High Power	11.98	15.78
			Low Power	-0.55	0.88
		BF, ANT 6 + ANT 5	High Power	11.80	15.14
			Low Power	1.94	1.56
	HDR 8	ANT 6	High Power	13.92	24.66
			Low Power	-1.53	0.70
		ANT 5	High Power	13.97	24.95
			Low Power	-0.56	0.88
		BF, ANT 6 + ANT 5	High Power	13.93	24.72
			Low Power	1.83	1.52

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Frequency Range (MHz)	Mode	Antenna	Configuration	Output Power (dBm)	Output Power (mW)
5733 - 5844 (UNII-3)	BDR	ANT 6	High Power	19.97	99.31
			Low Power	4.97	3.14
		ANT 5	High Power	19.45	88.10
			Low Power	6.43	4.40
		BF, ANT 6 + ANT 5	High Power	22.73	187.50
			Low Power	8.71	7.43
	HDR 4	ANT 6	High Power	14.4	27.54
			Low Power	-1.54	0.70
		ANT 5	High Power	14.43	27.73
			Low Power	-0.01	1.00
		BF, ANT 6 + ANT 5	High Power	17.39	54.83
			Low Power	2.18	1.65
	HDR 8	ANT 6	High Power	14.46	27.93
			Low Power	-1.56	0.70
		ANT 5	High Power	14.45	27.86
			Low Power	-0.10	0.98
		BF, ANT 6 + ANT 5	High Power	17.44	55.46
			Low Power	2.27	1.69

6.3 DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
Cable loss is 2.7dB.

Frequency Range (GHz)	ANT 6 (dBi)	ANT 5 (dBi)
5162-5245	-3.2	-4.5
5733-5844	-2.0	-4.0

The cables loss of 2.7dB were used for RF antenna port tests that had been offset to the test equipment during testing.

6.4 SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 21.1.306.2344

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.5 WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X, Y and Z on ANT 6, ANT 5 and 2TX, it was determined that Z (Portrait) was the worst-case orientation for both ANT 6 and ANT 5. And Y (Landscape) orientation for 2TX.

2TX Beamforming modes were used to perform on radiated harmonic spurious final test to cover all SISO modes. Max power was tuned to maximum based on among all the modes. For testing purposes, radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-40GHz, and power line conducted emissions were performed with the EUT set at the 2TX Beamforming mode with power setting equal or higher than IC conducted SISO modes as worst-case scenario.

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. There were no emissions found below 30MHz within 20dB of the limit.

For simultaneous transmission of multiple channels in the 2.4GHz BT and NB UNII 5GHz bands, no noticeable emission was found.

NOTE: For radiated data, ANT0=ANT6, ANT1=ANT 5.

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

6.6 DESCRIPTION OF TEST SETUP

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

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

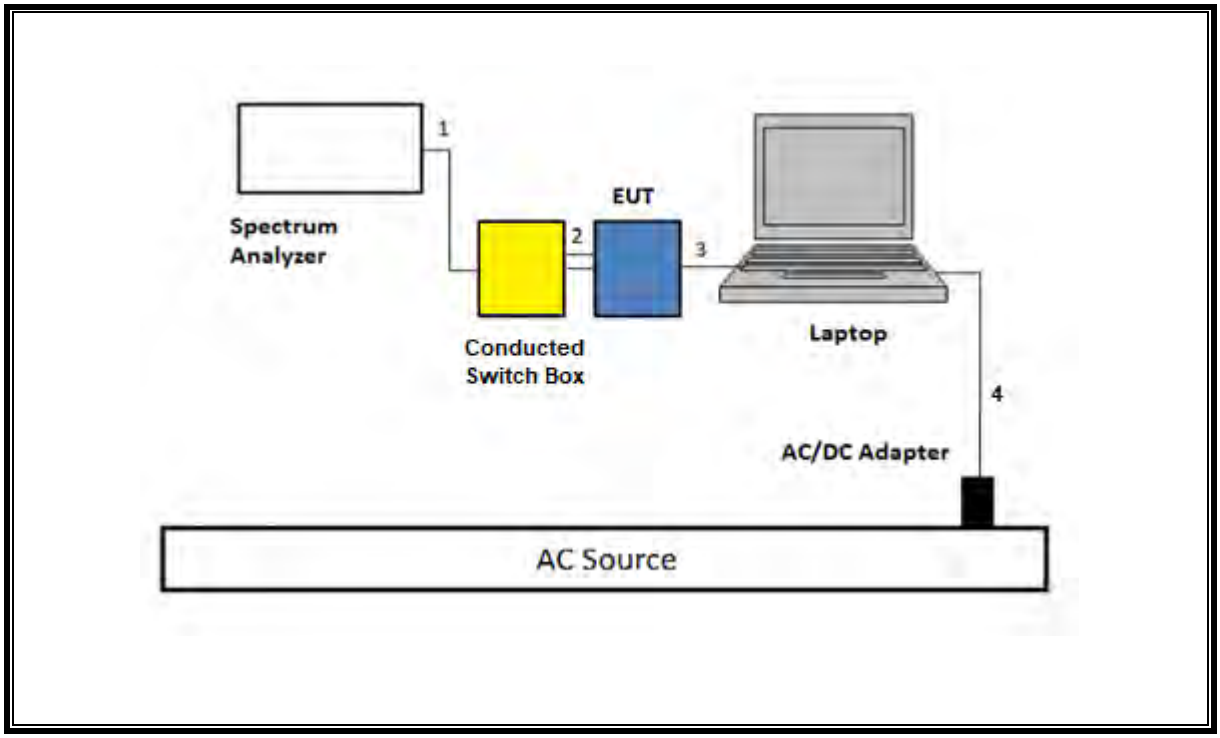
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1	N/A

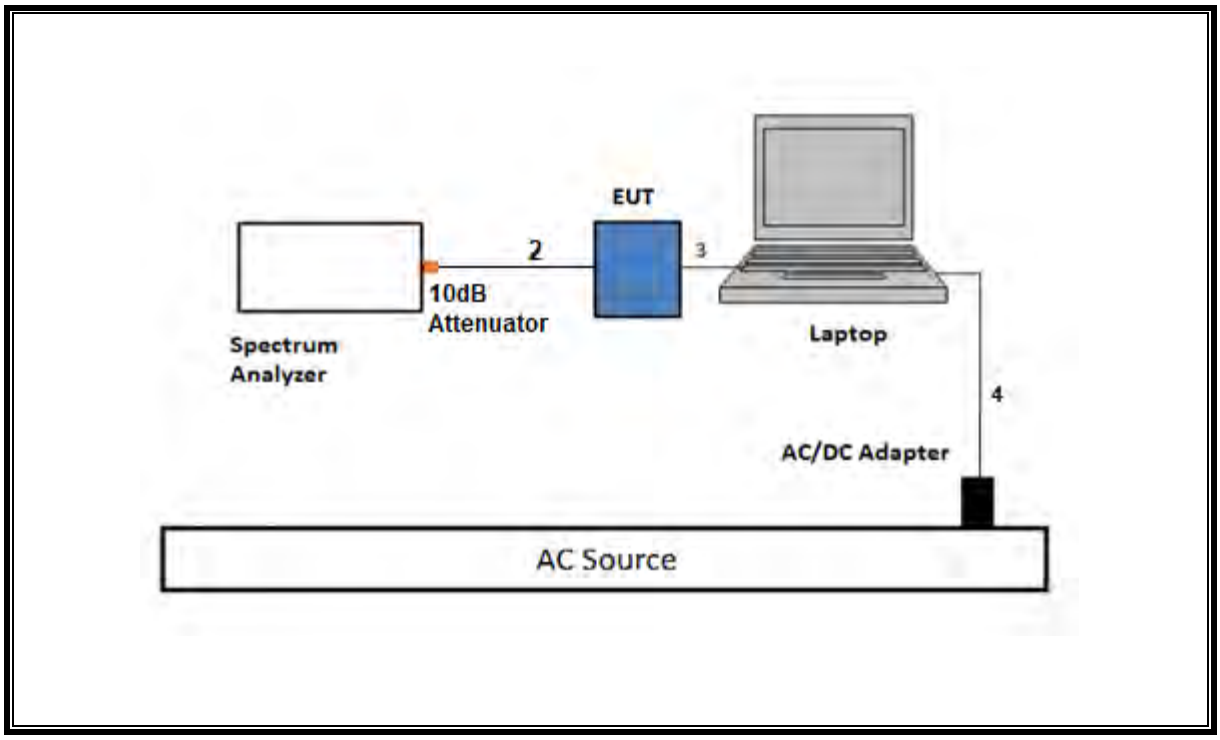
TEST SETUP

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

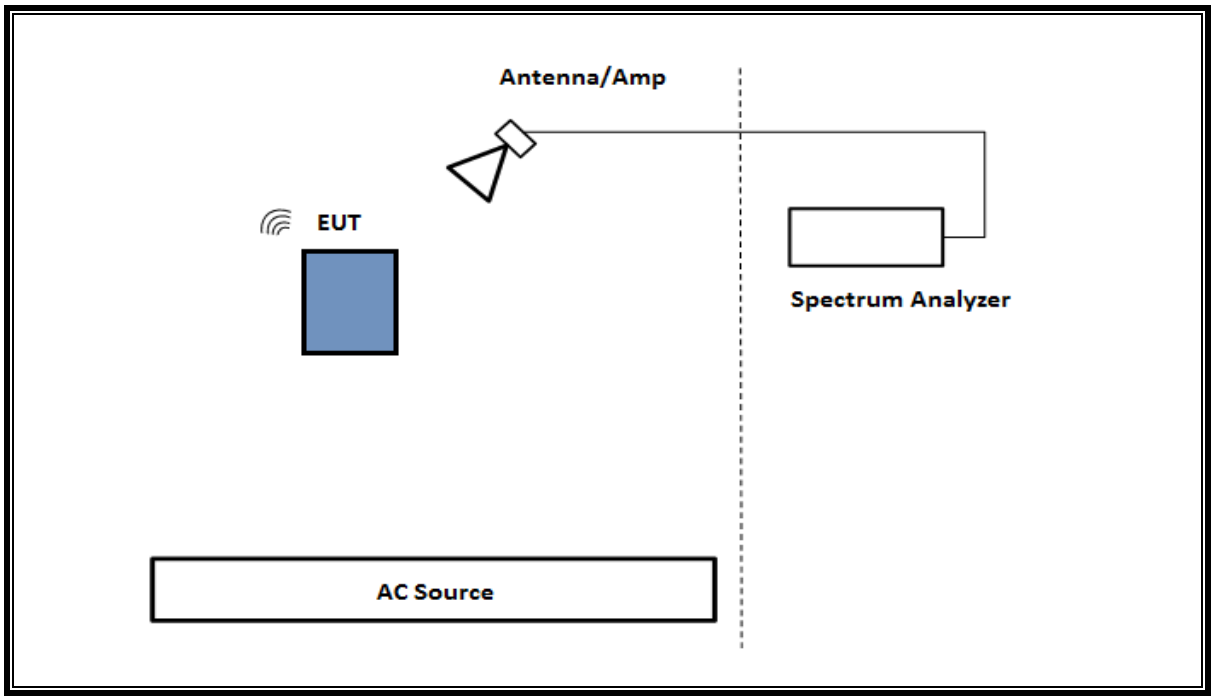
SETUP DIAGRAM FOR CONDUCTED TESTS





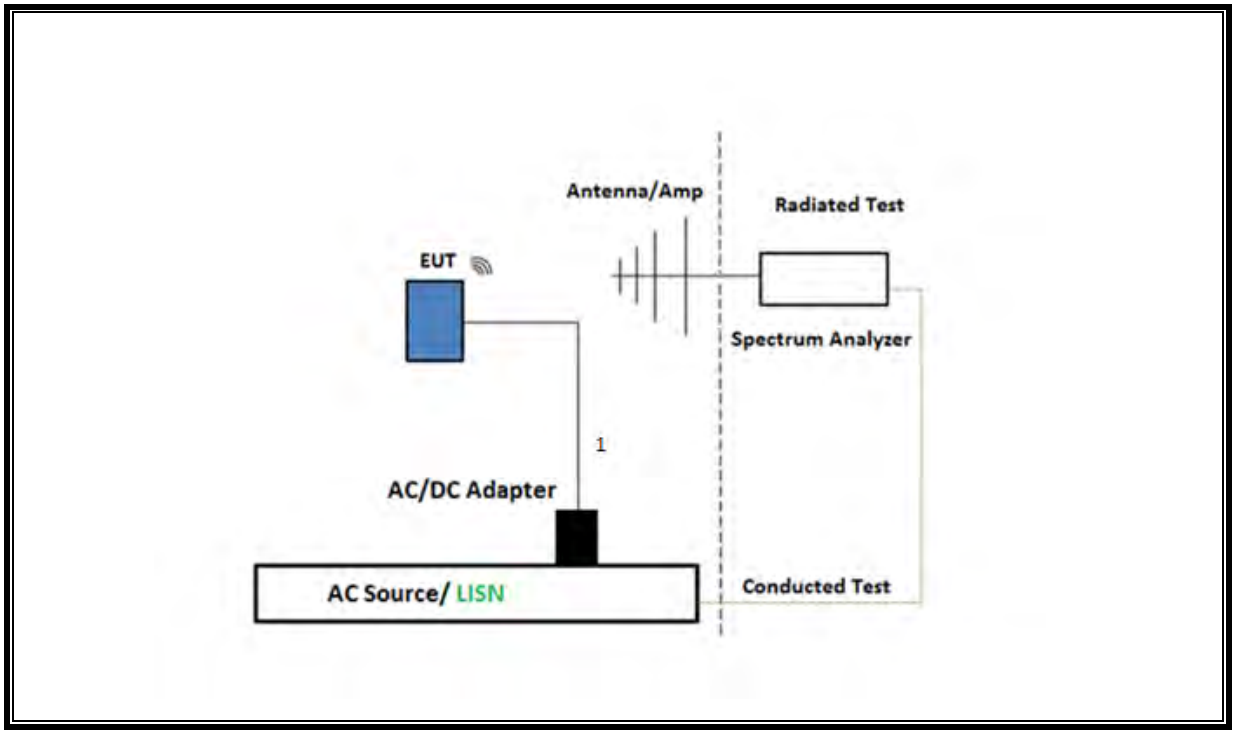
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz

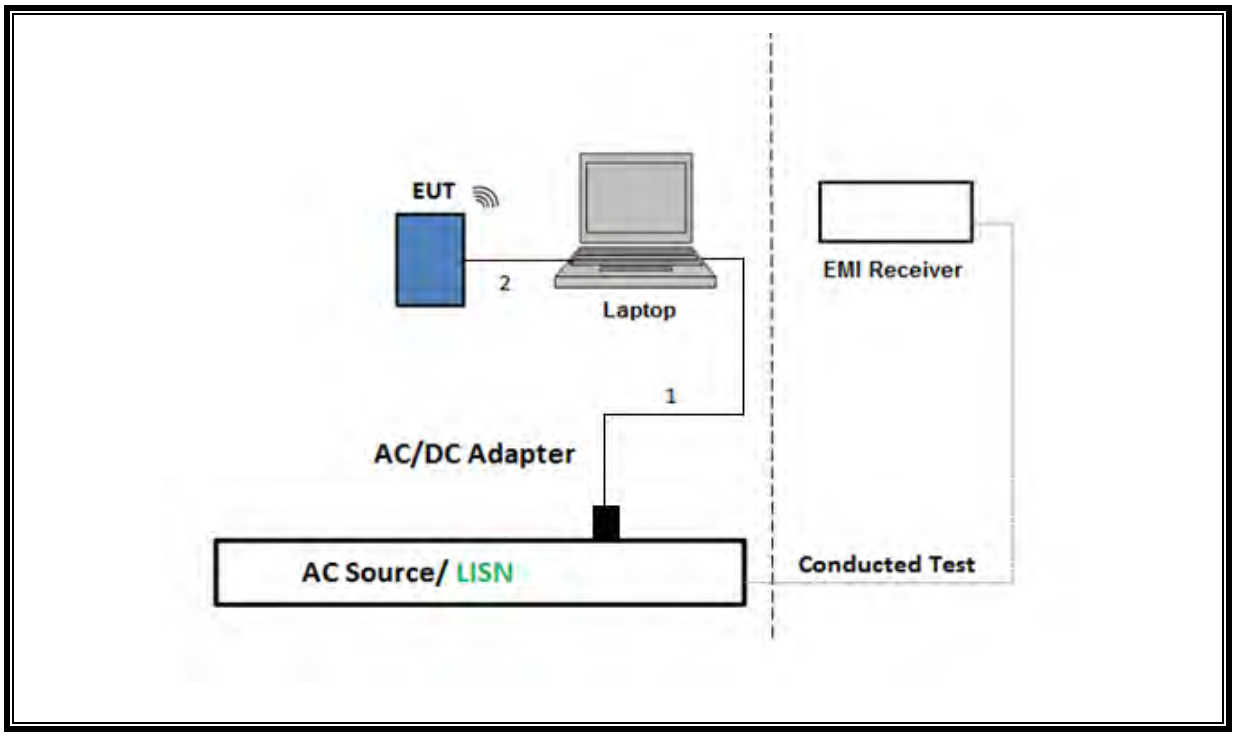


UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST



TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

7. TEST AND MEASUREMENT EQUIPMENT

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

Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	80404	08/08/2023	08/08/2022
RF Filter Box, 1-18GHz, 12 Port	UL-FR1	Frankenstein	216812	09/17/2023	09/17/2022
EMI Receiver	Rohde & Schwarz	ESW44	235670	04/30/2024	04/30/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	84797	09/20/2023	09/20/2022
RF Filter Box, 1-18GHz	UL-FR1	NA	173528	12/23/2023	12/23/2022
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	02/29/2024	02/29/2023
*RF Filter Box, 8 ports, 1-18GHz	UL-FR1	SAC 8 Port rf Bo 1	197920	04/19/2023	04/19/2022
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	230299	01/12/2024	01/12/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	226673	01/09/2024	01/09/2023
RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	Frankenstein	231874	04/19/2024	04/19/2023
EMI Test Receiver	Rohde & Schwarz	ESW44	201499	02/29/2024	02/29/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	206807	02/28/2024	02/28/2023
RF Filter Box 1-18GHz	UL-FR1	SAC 12 port rf box	217521	10/09/2023	10/09/2022
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	80714	10/06/2023	10/06/2022
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	204041	08/24/2023	08/24/2022
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	85214	02/28/2024	02/23/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A-544	87738	02/28/2024	02/28/2023
Conducted Switch Box	N/A	CSB	208281	04/30/2024	04/30/2023
*Conducted Switch Box	N/A	CSB	221008	06/21/2023	06/21/2022
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	Verified/Characterized before use	
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236355	Verified/Characterized before use	
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90756	01/31/2024	01/31/2023
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	01/31/2024	01/31/2023
Antenna, Horn 1-18GHz	ETS Lindgren	3117	222740	08/31/2023	08/31/2022
EMI Test Receiver	Rohde & Schwarz	ESW44	201500	02/29/2024	02/29/2023
Filter Box, 1-18GHz 12 Port	UL-FR1	Frankenstein	217255	08/23/2023	08/23/2022
*Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170013	07/28/2023	07/28/2022
*Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170015	07/28/2023	07/28/2022
AMP26G40-65	AMPLICAL	AMP26G40-65	172346	02/29/2024	02/29/2023
*Antenna Horn, 18 to 26.5GHz	ARA	MWH-1826/B	172353	06/01/2023	06/01/2022
RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	AMPLICAL	AMP18G26.5-60	171583	02/29/2024	02/29/2023
*Antenna, Horn 26.5 to 40GHz	ARA	MWH-2640/B	81105	07/11/2023	07/11/2022

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

*Testing was completed before equipment calibration date

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8. MEASUREMENT METHODS

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

6 dB Emission BW: KDB 789033 D02 v02r01, Section C.2

26 dB Emission BW: KDB 789033 D02 v02r01, Section C.1

99% Occupied BW: KDB 789033 D02 v02r01, Section D.

Conducted Output Power: KDB 789033 D02 v02r01

Power Spectral Density: KDB 789033 D02 v02r01, Section F

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, and G.5.

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

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

ANSI C63.10, Section 11.6: Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	Frequency (MHz)	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
UNII-1, BDR	5162	1.00	1.00	1.000	100.0%	0.00
UNII-1, HDR4	5162	1.00	1.00	1.000	100.0%	0.00
UNII-1, HDR8	5162	1.00	1.00	1.000	100.0%	0.00
UNII-3, BDR	5788	1.00	1.00	1.000	100.0%	0.00
UNII-3, HDR4	5788	1.00	1.00	1.000	100.0%	0.00
UNII-3, HDR8	5788	1.00	1.00	1.000	100.0%	0.00

DUTY CYCLE PLOTS

UNII-1 BDR

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2. 26 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ 3xRBW. The sweep time is coupled.

RESULTS

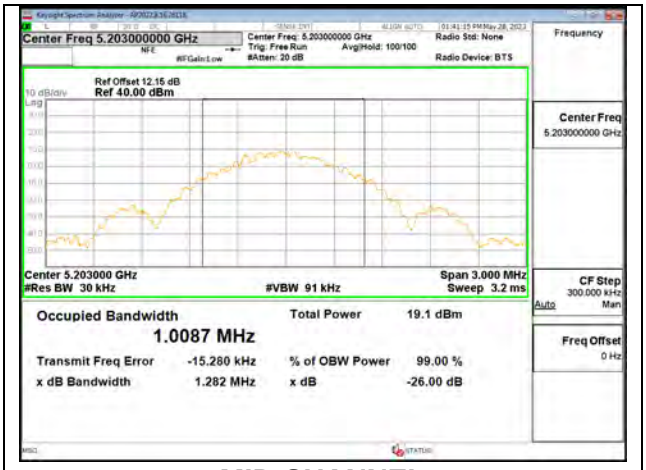
Only High-Power modes result is reported, it covers all Low Power modes. Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.1. HIGH POWER BDR, UNII-1

ANT 6

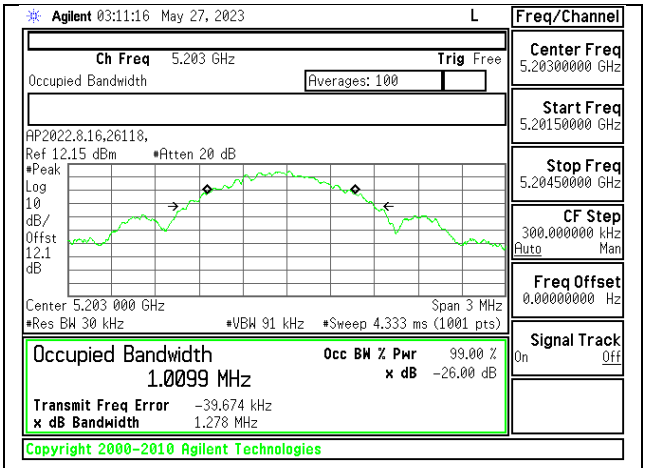
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	1.2790	1.0083
Mid	5203	1.2820	1.0087
High	5245	1.2820	1.0073



MID CHANNEL

ANT 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	1.2800	1.0083
Mid	5203	1.2780	1.0099
High	5245	1.2730	1.0158

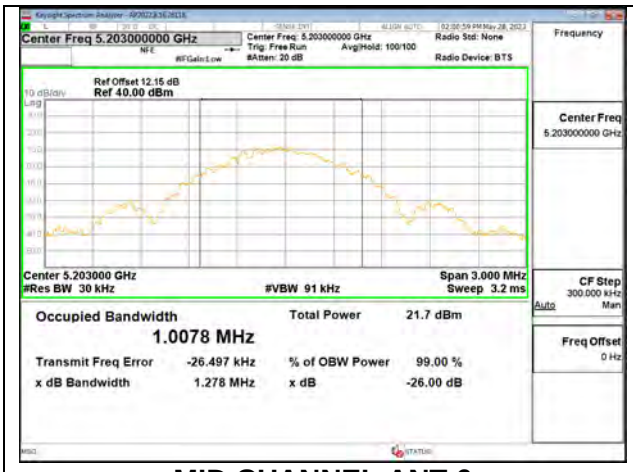


MID CHANNEL

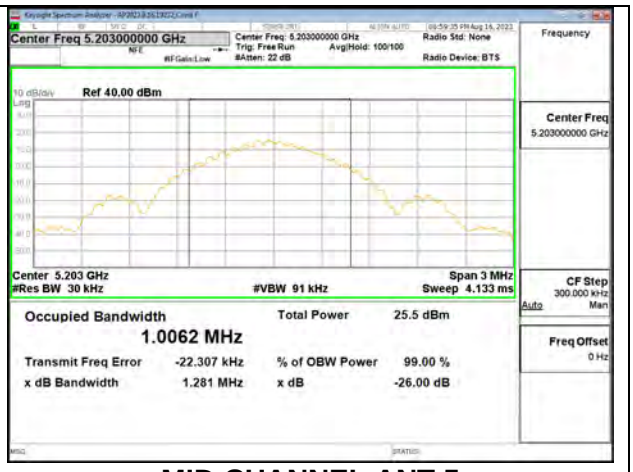
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.2. HIGH POWER BDR TXBF UNII-1

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5162	1.279	1.286	1.0129	1.0060
Mid	5203	1.278	1.281	1.0078	1.0062
High	5245	1.279	1.289	1.0096	1.0018



MID CHANNEL ANT 6



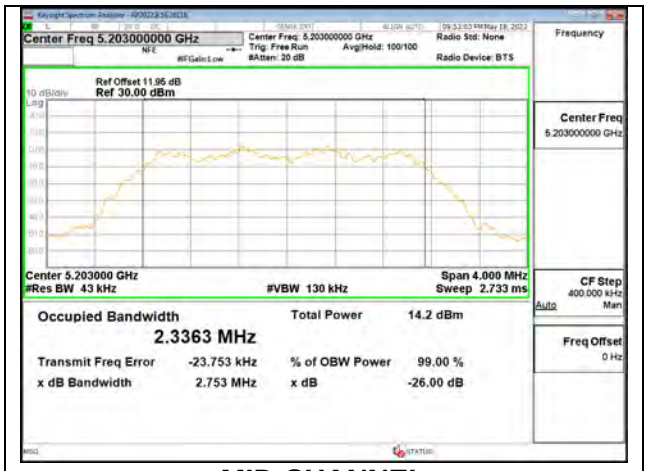
MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.3. HIGH POWER HDR4, UNII-1

ANT 6

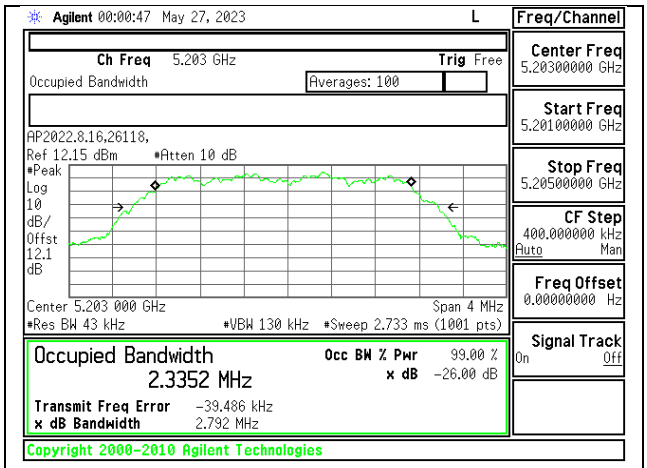
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	2.7650	2.3318
Mid	5203	2.7530	2.3363
High	5245	2.7730	2.3370



MID CHANNEL

ANT 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	2.7790	2.3300
Mid	5203	2.7920	2.3352
High	5245	2.7900	2.3337

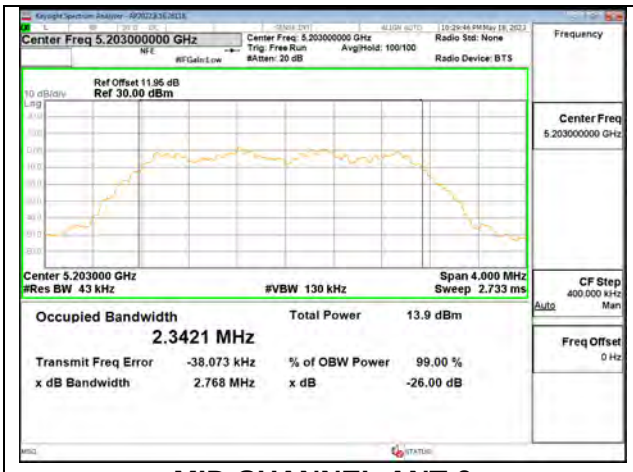


MID CHANNEL

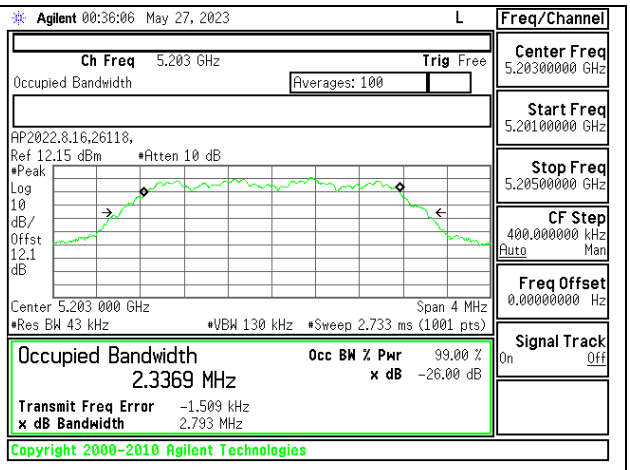
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.4. HIGH POWER HDR4 TXBF UNII-1

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5162	2.7760	2.7790	2.3338	2.3360
Mid	5203	2.7680	2.7930	2.3421	2.3369
High	5245	2.7600	2.7940	2.3368	2.3360



MID CHANNEL ANT 6



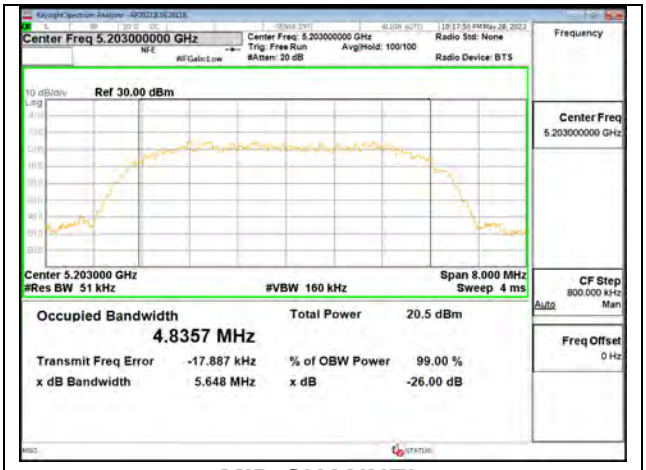
MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.5 HIGH POWER HDR8, UNII-1

ANT 6

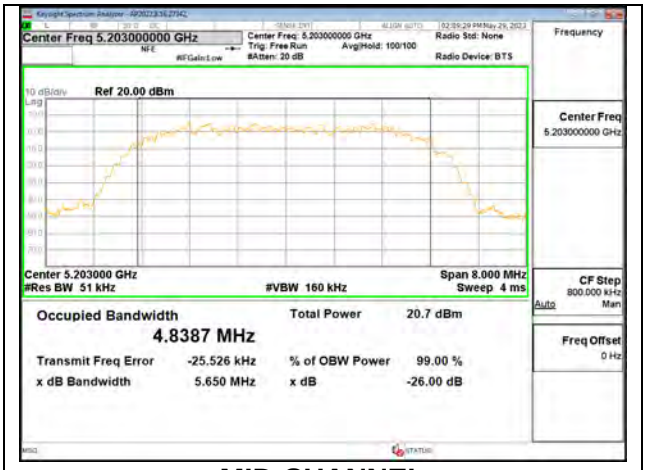
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	5.6490	4.8410
Mid	5203	5.6480	4.8357
High	5245	5.6490	4.8404



MID CHANNEL

ANT 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5162	5.6890	4.8440
Mid	5203	5.6500	4.8387
High	5245	5.6470	4.8379

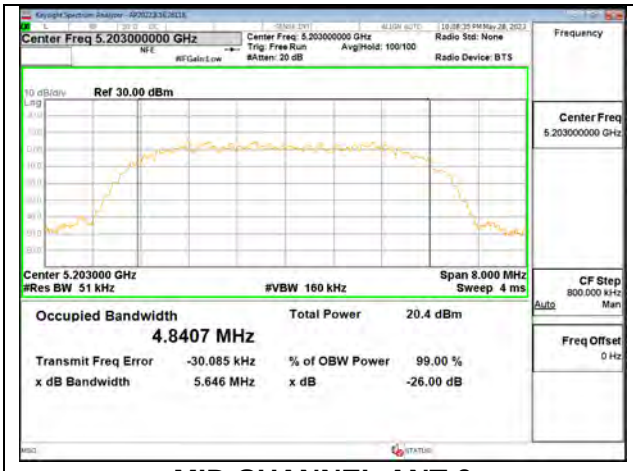


MID CHANNEL

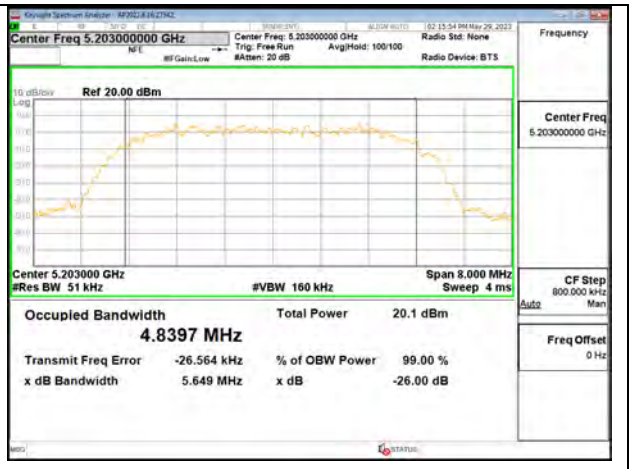
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.6 HIGH POWER HDR8 TXBF UNII-1

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5162	5.6510	5.6510	4.8411	4.8428
Mid	5203	5.6460	5.6490	4.8407	4.8397
High	5245	5.6430	5.6460	4.8415	4.8420



MID CHANNEL ANT 6



MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.7 HIGH POWER BASIC DATA RATE, UNII-3

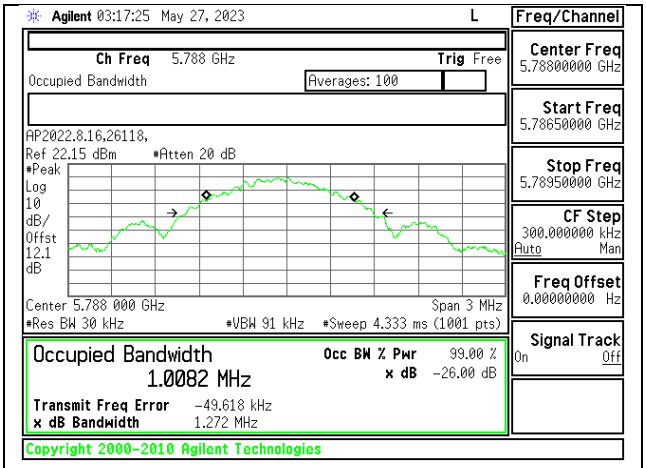
ANT 6

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	1.2780	1.0075
Mid	5788	1.2810	1.0029
High	5844	1.2780	1.0038

MID CHANNEL

ANT 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	1.280	1.0138
Mid	5788	1.272	1.0082
High	5844	1.277	1.0061

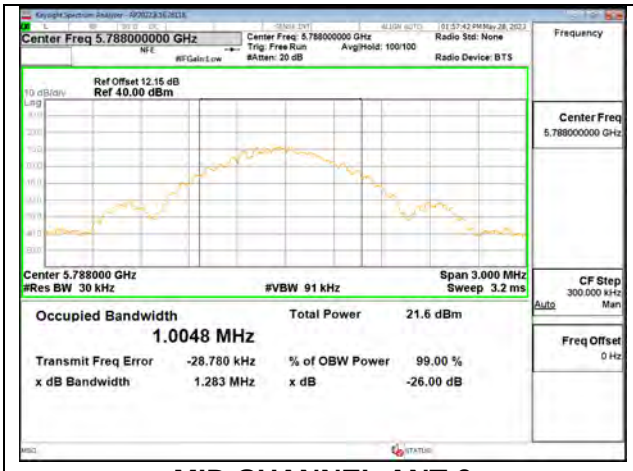


MID CHANNEL

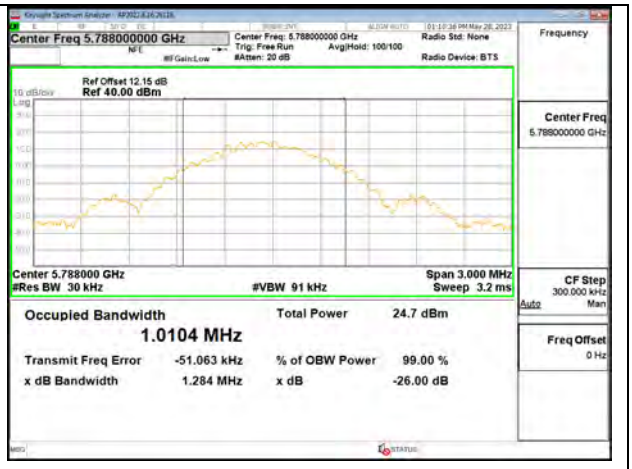
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.8 HIGH POWER BDR TXBF UNII-3

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5733	1.2840	1.2800	1.0101	1.0256
Mid	5788	1.2830	1.2840	1.0048	1.0104
High	5844	1.2790	1.2750	1.0101	1.0049



MID CHANNEL ANT 6



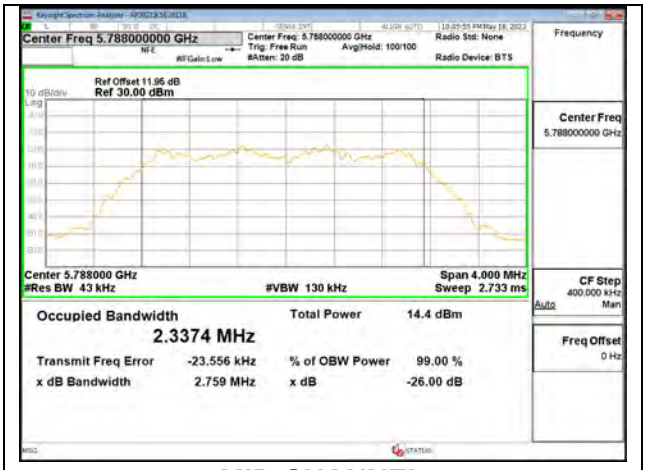
MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.9 HIGH POWER HDR4, UNII-3

ANT 6

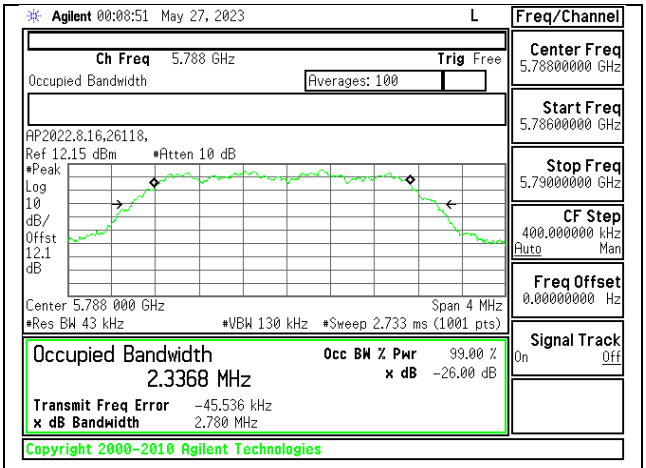
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	2.7860	2.3369
Mid	5788	2.7590	2.3374
High	5844	2.7670	2.3363



MID CHANNEL

ANT 5

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	2.7840	2.3282
Mid	5788	2.7800	2.3368
High	5844	2.7790	2.3297

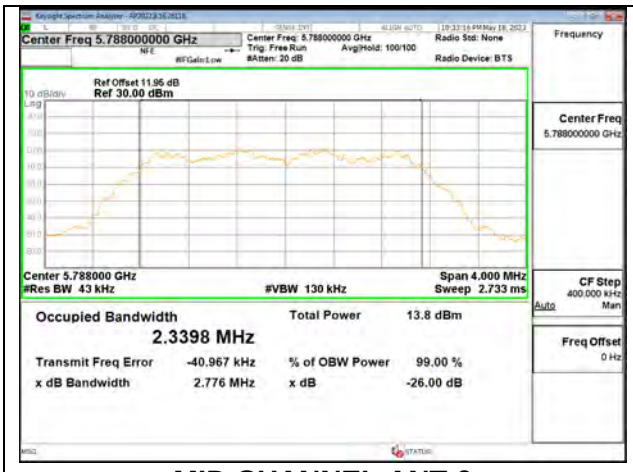


MID CHANNEL

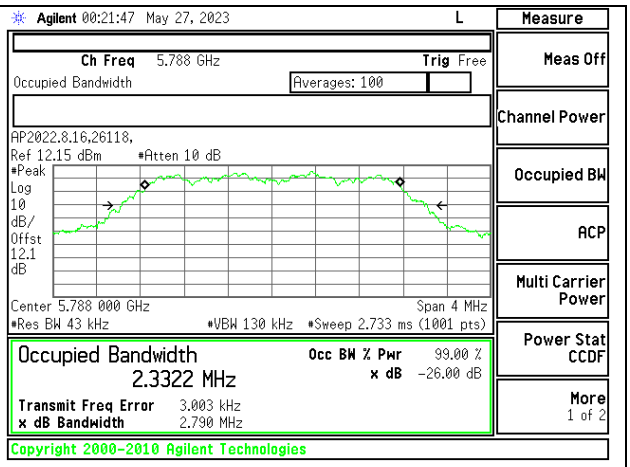
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.10 HIGH POWER HDR4 TXBF UNII-3

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5733	2.7600	2.7850	2.3368	2.3312
Mid	5788	2.7760	2.7900	2.3398	2.3322
High	5844	2.7830	2.7930	2.3338	2.3358



MID CHANNEL ANT 6



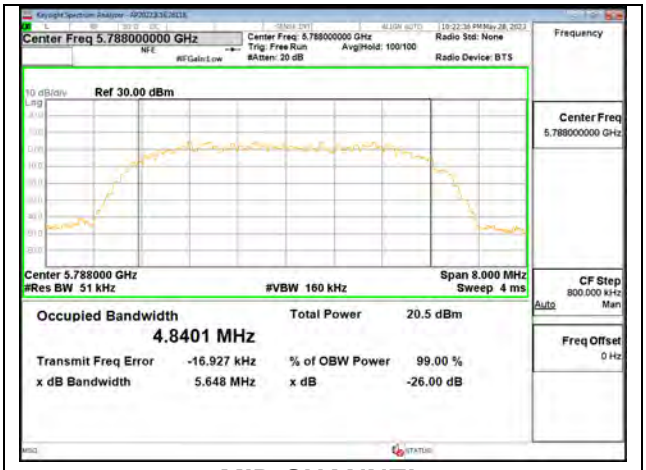
MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.11 HIGH POWER HDR8, UNII-3

ANT 6

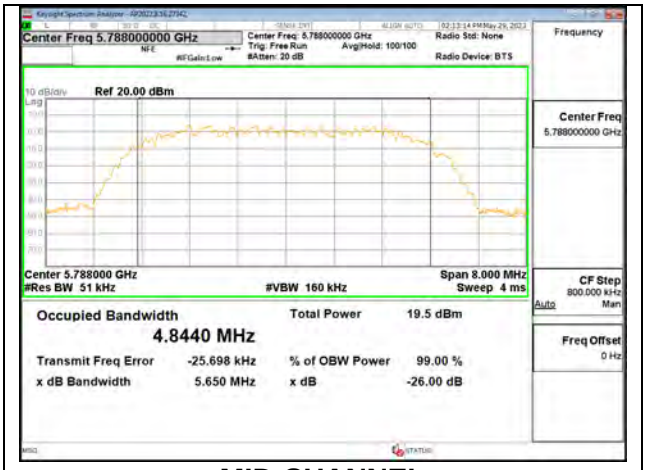
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	5.6460	4.8435
Mid	5788	5.6480	4.8401
High	5844	5.6490	4.8406



MID CHANNEL

ANT 5

	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5733	5.6500	4.8448
Mid	5788	5.6500	4.8440
High	5844	5.6550	4.8433

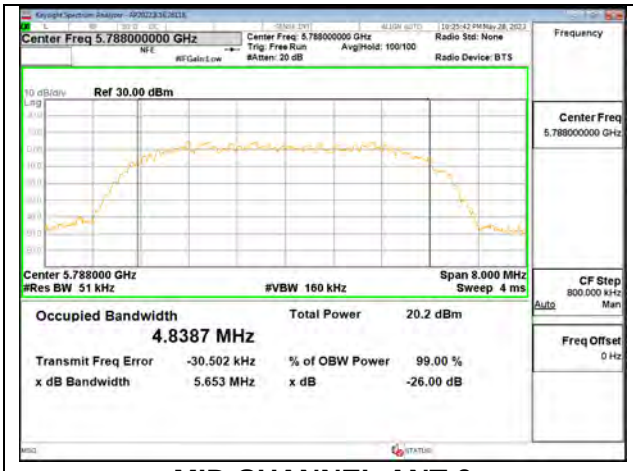


MID CHANNEL

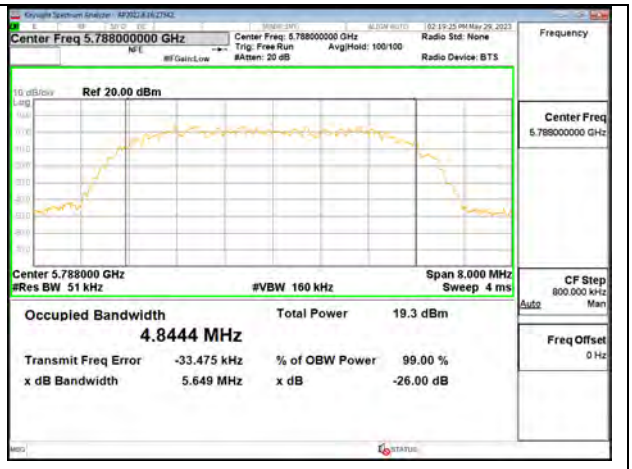
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.12 HIGH POWER HDR8 TXBF UNII-3

Channel	Frequency (MHz)	26dB Bandwidth ANT 6 (MHz)	26dB Bandwidth ANT 5 (MHz)	99% Bandwidth ANT 6 (MHz)	99% Bandwidth ANT 5 (MHz)
Low	5733	5.6490	5.6480	4.8437	4.8430
Mid	5788	5.6530	5.6490	4.8387	4.8444
High	5844	5.6490	5.6500	4.8429	4.8459



MID CHANNEL ANT 6



MID CHANNEL ANT 5

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

RESULTS

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.1 HIGH OUTPUT BDR MODE IN THE UNII-3 BAND

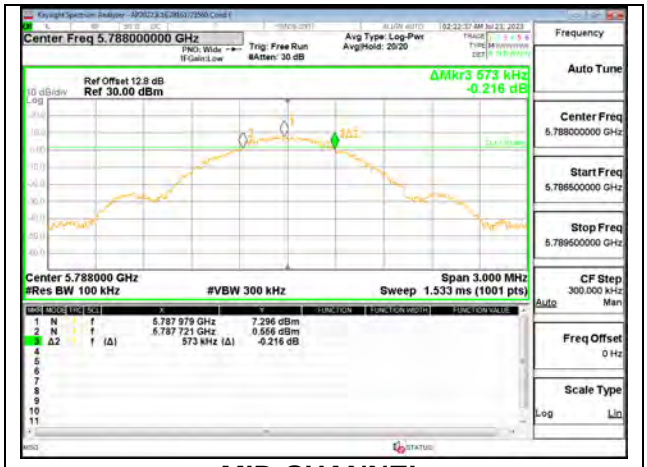
1TX Antenna 6

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	0.570	0.5
Mid	5788	0.561	0.5
High	5844	0.558	0.5

MID CHANNEL

1TX Antenna 5

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	0.570	0.5
Mid	5788	0.573	0.5
High	5844	0.588	0.5



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5733	0.585	0.603	0.5
Mid	5788	0.585	0.603	0.5
High	5844	0.576	0.561	0.5

MID CHANNEL [ANT 6]

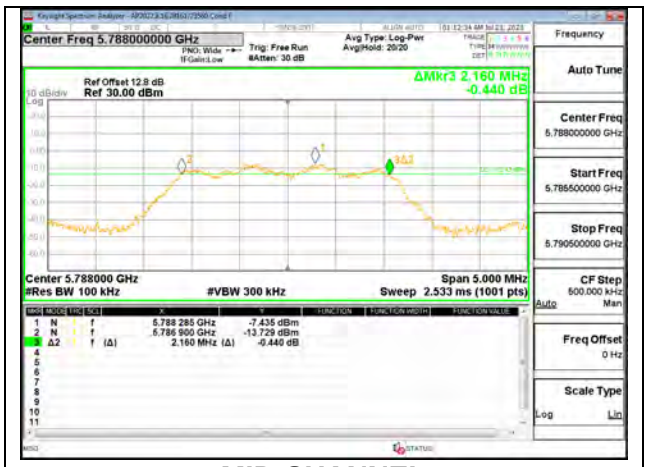
MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.2 HIGH OUTPUT HDR4 MODE IN THE UNII-3 BAND

1TX Antenna 6

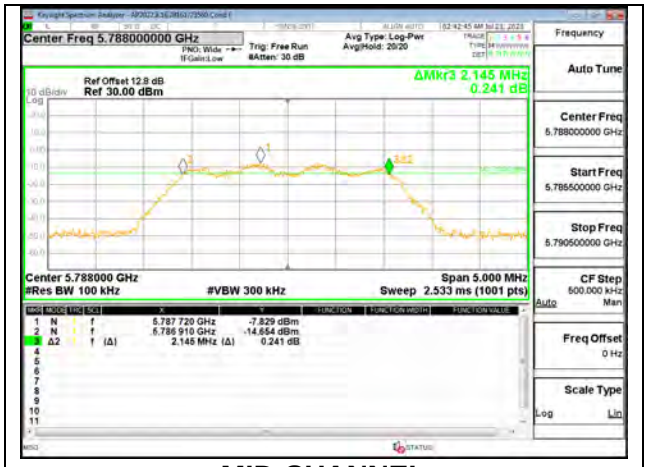
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	2.145	0.5
Mid	5788	2.160	0.5
High	5844	2.135	0.5



MID CHANNEL

1TX Antenna 5

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	2.135	0.5
Mid	5788	2.145	0.5
High	5844	2.150	0.5



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5733	2.145	2.150	0.5
Mid	5788	2.135	2.150	0.5
High	5844	2.140	2.110	0.5

MID CHANNEL [ANT 6]

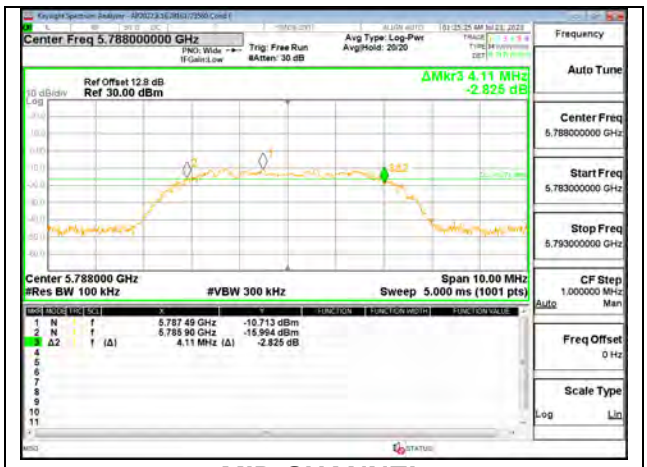
MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.3 HIGH OUTPUT HDR8 MODE IN THE UNII-3 BAND

1TX Antenna 6

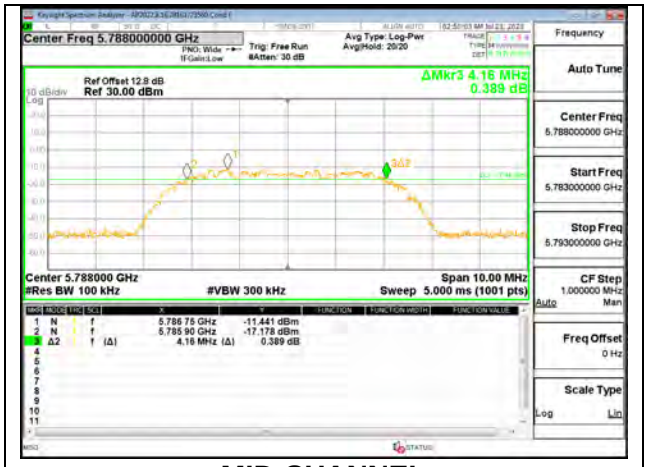
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	4.190	0.5
Mid	5788	4.110	0.5
High	5844	4.210	0.5



MID CHANNEL

1TX Antenna 5

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5733	4.180	0.5
Mid	5788	4.160	0.5
High	5844	4.210	0.5



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 CDD MODE

Channel	Frequency (MHz)	6 dB Bandwidth Antenna 6 (MHz)	6 dB Bandwidth Antenna 5 (MHz)	Minimum Limit (MHz)
Low	5733	4.20	4.21	0.5
Mid	5788	4.21	4.20	0.5
High	5844	4.17	4.21	0.5

MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4 OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1-megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

TEST PROCEDURE

The measurement method used for output power is KDB 789033 D02 v02r01, Section E.3.b (Method PM-G).
The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F.

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 TXBF in all MIMO modes. The directional gains are as follows:

Band (GHz)	ANT 6 Gain (dBi)	ANT 5 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
UNII-1, 5.2GHz	-3.20	-4.50	-3.80	-0.82
UNII-3, 5.8GHz	-2.00	-4.00	-2.89	0.07

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS:

DIRECTIONAL GAIN CALCULATION:

ANSI C63.10-2013 section 14.4.3

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

Sample Calculation:

Ant6=-3.2, Ant5=-4.5

Uncorrelated Antenna gain=10log [(10^ (-3.2/10) +10^ (-4.5/10))/2] =-3.80dBi

Correlated Antenna gain=10log [(10^ (-3.2/20) +10^ (-4.5/20)) ^2)/2] =-0.82dBi

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.1 HIGH OUTPUT BDR MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	19232
Test Date:	8/17/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

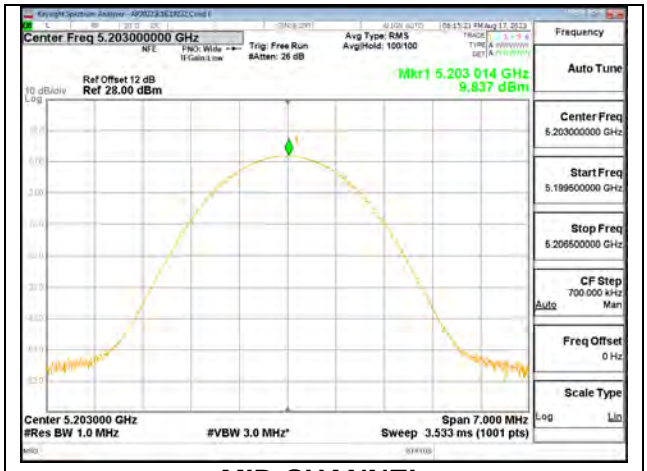
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	9.94	9.94	24.00	-14.06
Mid	5203	9.92	9.92	24.00	-14.08
High	5245	9.95	9.95	24.00	-14.05

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	9.880	9.880	11.00	-1.120
Mid	5203	9.837	9.837	11.00	-1.163
High	5245	10.078	10.078	11.00	-0.922



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	08/17/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

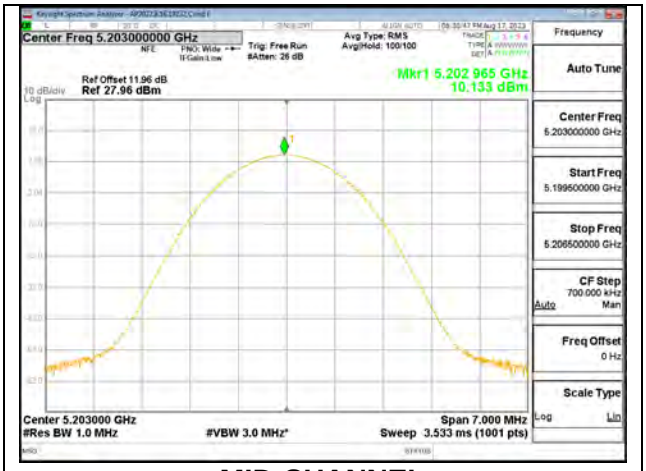
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	9.96	9.96	24.00	-14.04
Mid	5203	9.95	9.95	24.00	-14.05
High	5245	9.94	9.94	24.00	-14.06

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	10.132	10.132	11.00	-0.868
Mid	5203	10.133	10.133	11.00	-0.867
High	5245	10.043	10.043	11.00	-0.957



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	32181/23560, 26118
Test Date:	08/14/23, 5/27/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

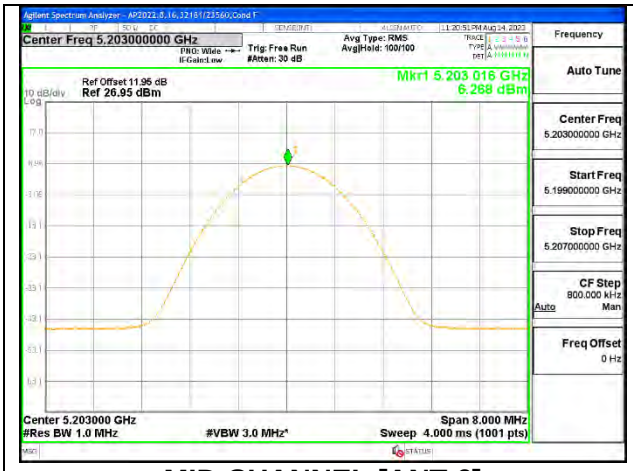
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

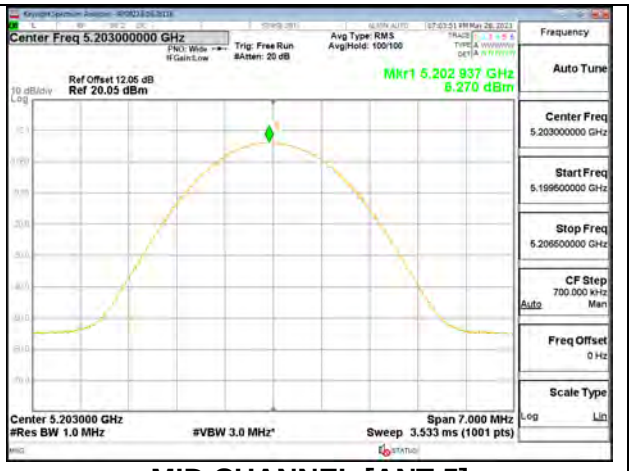
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	6.90	6.79	9.86	24.00	-14.14
Mid	5203	6.92	6.87	9.91	24.00	-14.09
High	5245	6.95	6.91	9.94	24.00	-14.06

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	6.147	5.921	9.046	11.00	-1.954
Mid	5203	6.268	6.270	9.279	11.00	-1.721
High	5245	6.074	6.372	9.236	11.00	-1.764



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.2 LOW OUTPUT BDR MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	19232
Test Date:	08/18/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

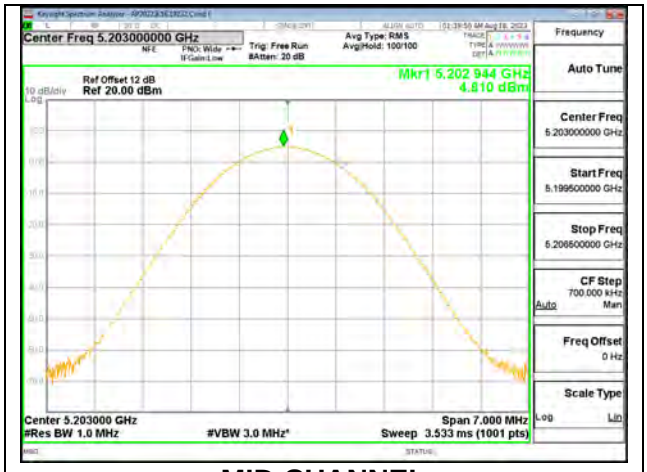
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	4.85	4.85	24.00	-19.15
Mid	5203	4.97	4.97	24.00	-19.03
High	5245	4.82	4.82	24.00	-19.18

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	4.785	4.785	11.00	-6.215
Mid	5203	4.810	4.810	11.00	-6.190
High	5245	4.891	4.891	11.00	-6.109



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	8/18/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

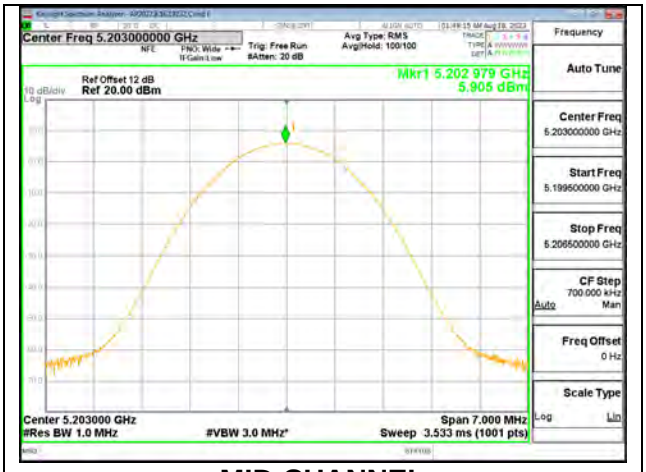
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	5.96	5.96	24.00	-18.04
Mid	5203	5.90	5.90	24.00	-18.10
High	5245	5.88	5.88	24.00	-18.12

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	5.853	5.853	11.00	-5.147
Mid	5203	5.905	5.905	11.00	-5.095
High	5245	5.773	5.773	11.00	-5.227



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	32181/23560
Test Date:	08/15/2023

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

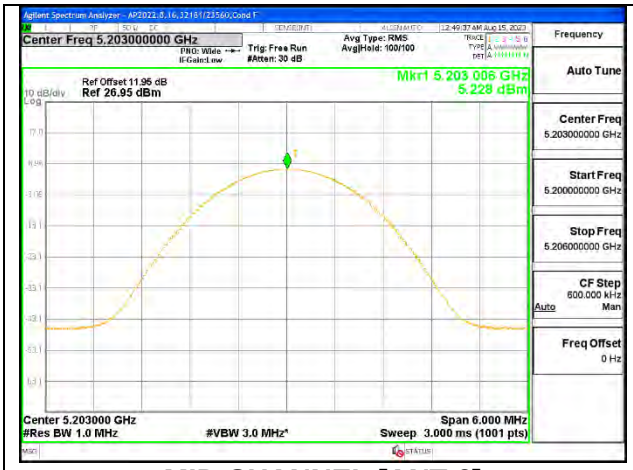
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	4.80	5.75	8.31	24.00	-15.69
Mid	5203	4.96	5.97	8.50	24.00	-15.50
High	5245	4.90	5.90	8.44	24.00	-15.56

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	4.906	6.119	8.565	11.00	-2.435
Mid	5203	5.228	5.886	8.580	11.00	-2.420
High	5245	5.184	6.032	8.639	11.00	-2.361



MID CHANNEL [ANT 6]

MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.3 HIGH OUTPUT HDR4 MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	24971
Test Date:	7/20/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

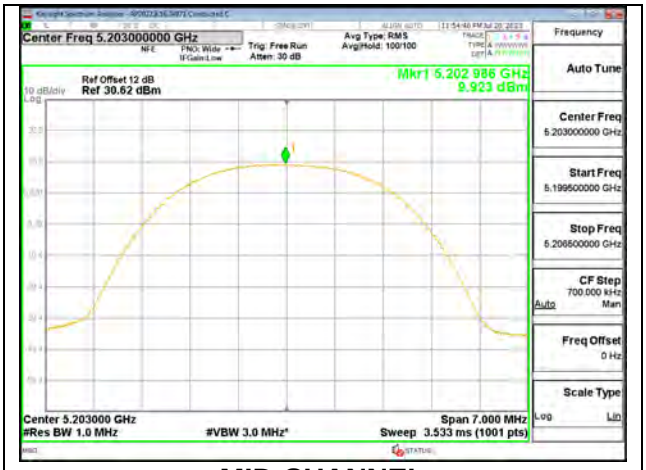
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	11.46	11.46	24.00	-12.54
Mid	5203	11.39	11.39	24.00	-12.61
High	5245	11.44	11.44	24.00	-12.56

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	10.109	10.109	11.00	-0.891
Mid	5203	9.923	9.923	11.00	-1.077
High	5245	10.186	10.186	11.00	-0.814



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	24971
Test Date:	7/21/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	11.94	11.94	24.00	-12.06
Mid	5203	11.98	11.98	24.00	-12.02
High	5245	11.95	11.95	24.00	-12.05

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	9.743	9.743	11.00	-1.257
Mid	5203	9.813	9.813	11.00	-1.187
High	5245	9.706	9.706	11.00	-1.294

MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	26118
Test Date:	5/28/2023

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

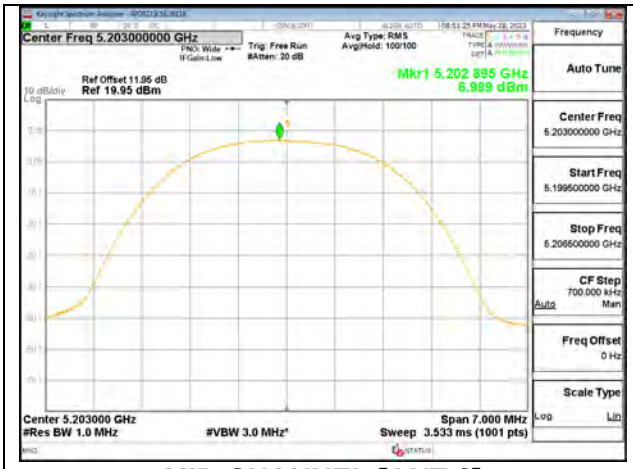
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

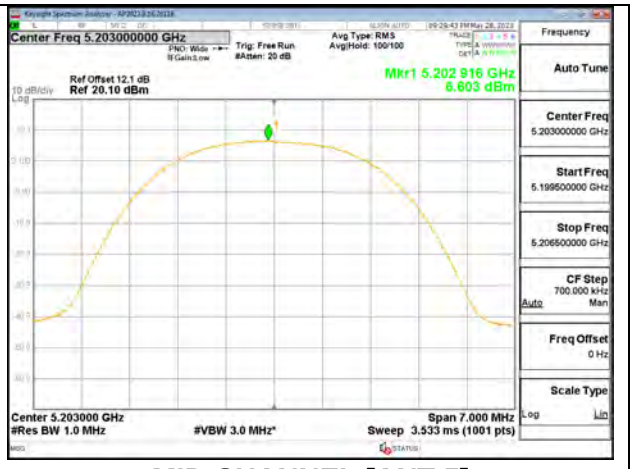
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	8.80	8.65	11.74	24.00	-12.26
Mid	5203	8.90	8.60	11.76	24.00	-12.24
High	5245	8.95	8.62	11.80	24.00	-12.20

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	6.807	6.648	9.739	11.00	-1.261
Mid	5203	6.989	6.603	9.811	11.00	-1.189
High	5245	7.058	6.600	9.845	11.00	-1.155



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.4 LOW OUTPUT HDR4 MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	26118
Test Date:	5/28/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

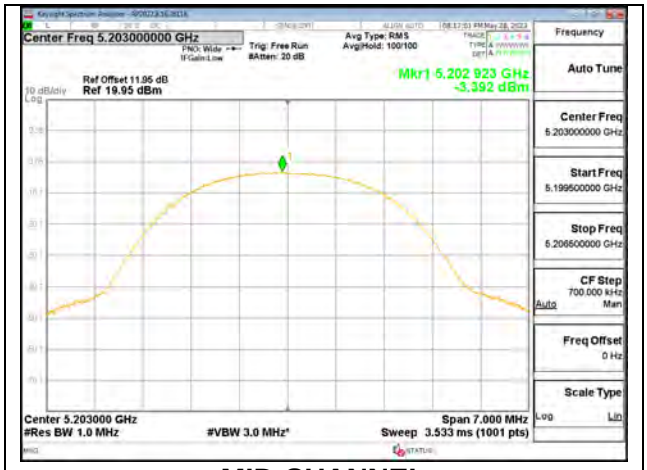
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-1.55	-1.55	24.00	-25.55
Mid	5203	-1.51	-1.51	24.00	-25.51
High	5245	-1.60	-1.60	24.00	-25.60

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-3.720	-3.720	11.00	-14.720
Mid	5203	-3.392	-3.392	11.00	-14.392
High	5245	-3.692	-3.692	11.00	-14.692



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	26118
Test Date:	5/28/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

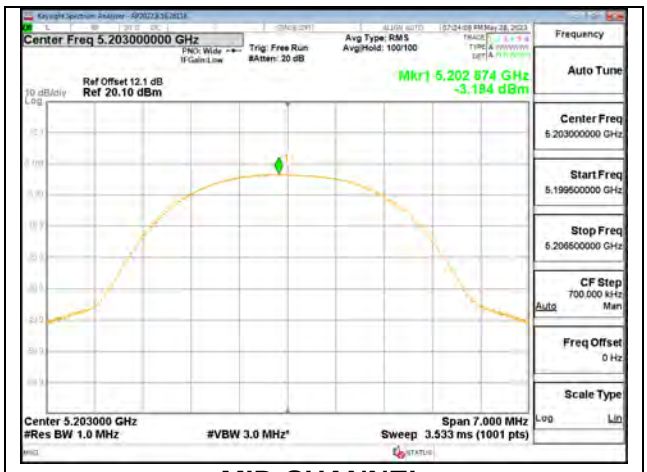
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-0.56	-0.56	24.00	-24.56
Mid	5203	-0.55	-0.55	24.00	-24.55
High	5245	-0.61	-0.61	24.00	-24.61

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-3.006	-3.006	11.00	-14.006
Mid	5203	-3.184	-3.184	11.00	-14.184
High	5245	-3.255	-3.255	11.00	-14.255



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	28641
Test Date:	07/18/2023

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

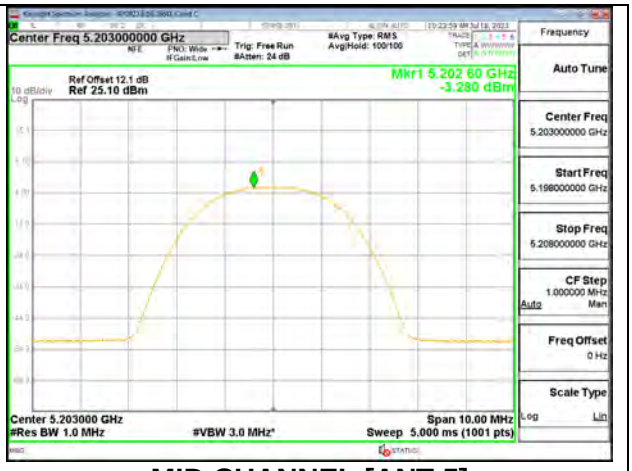
Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-1.55	-0.81	1.85	24.00	-22.15
Mid	5203	-1.58	-0.61	1.94	24.00	-22.06
High	5245	-1.72	-0.86	1.74	24.00	-22.26

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-4.817	-3.781	-1.258	11.00	-12.258
Mid	5203	-4.289	-3.280	-0.745	11.00	-11.745
High	5245	-4.962	-3.434	-1.121	11.00	-12.121

MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.5 HIGH OUTPUT HDR8 MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	24971
Test Date:	7/21/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

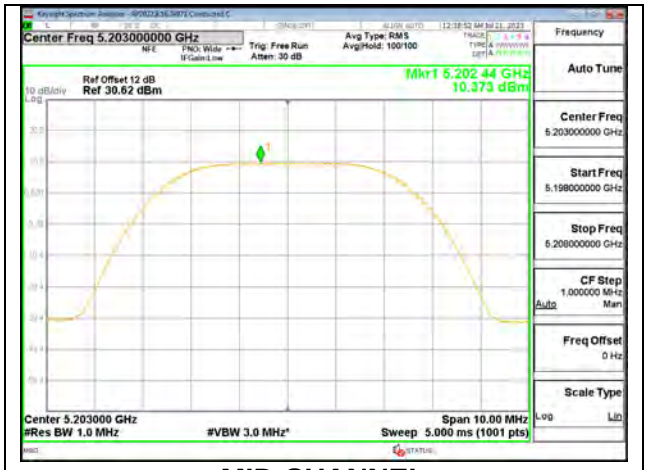
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	13.75	13.75	24.00	-10.25
Mid	5203	13.82	13.82	24.00	-10.18
High	5245	13.92	13.92	24.00	-10.08

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	9.964	9.964	11.00	-1.036
Mid	5203	10.373	10.373	11.00	-0.627
High	5245	10.506	10.506	11.00	-0.494



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	24971
Test Date:	7/21/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

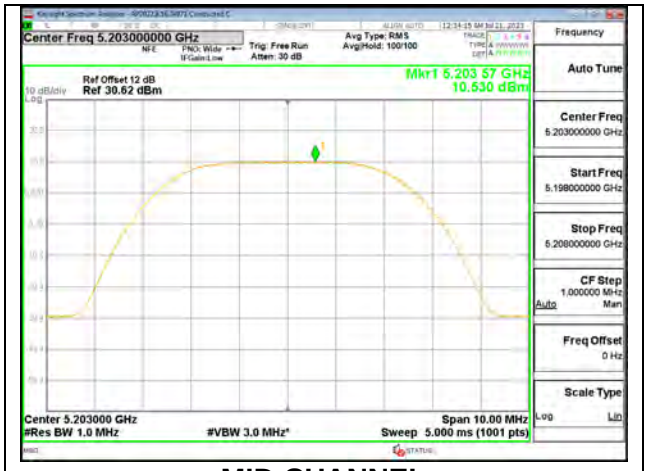
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	13.88	13.88	24.00	-10.12
Mid	5203	13.94	13.94	24.00	-10.06
High	5245	13.97	13.97	24.00	-10.03

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	10.031	10.031	11.00	-0.969
Mid	5203	10.530	10.530	11.00	-0.470
High	5245	10.591	10.591	11.00	-0.409



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	32181/23560
Test Date:	8/14/2023

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

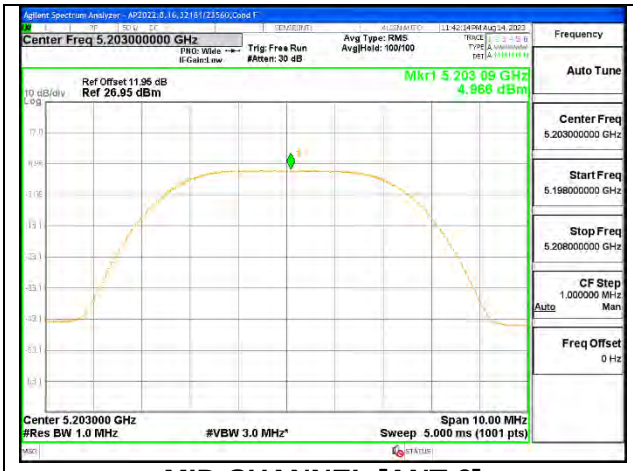
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

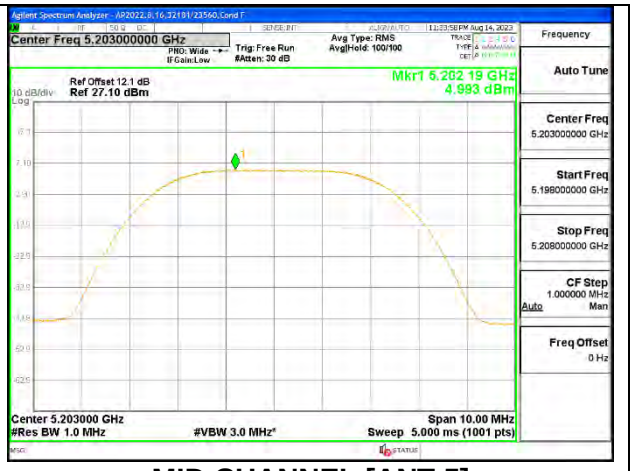
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	10.95	10.88	13.93	24.00	-10.07
Mid	5203	10.97	10.87	13.93	24.00	-10.07
High	5245	10.90	10.94	13.93	24.00	-10.07

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	4.993	5.264	8.141	11.00	-2.859
Mid	5203	4.966	4.993	7.990	11.00	-3.010
High	5245	4.926	4.960	7.953	11.00	-3.047



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.6 LOW OUTPUT HDR8 MODE IN UNII-1 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	27342
Test Date:	5/28/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-3.20	24.00	11.00
Mid	5203	-3.20	24.00	11.00
High	5245	-3.20	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-1.53	-1.53	24.00	-25.53
Mid	5203	-1.55	-1.55	24.00	-25.55
High	5245	-1.56	-1.56	24.00	-25.56

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-6.571	-6.571	11.00	-17.571
Mid	5203	-6.794	-6.794	11.00	-17.794
High	5245	-6.753	-6.753	11.00	-17.753

MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	27342
Test Date:	5/29/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-4.50	24.00	11.00
Mid	5203	-4.50	24.00	11.00
High	5245	-4.50	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-0.62	-0.62	24.00	-24.62
Mid	5203	-0.56	-0.56	24.00	-24.56
High	5245	-0.60	-0.60	24.00	-24.60

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-5.880	-5.880	11.00	-16.880
Mid	5203	-6.150	-6.150	11.00	-17.150
High	5245	-5.945	-5.945	11.00	-16.945

MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE MOBILE

Test Engineer:	28641
Test Date:	07/18/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 1MHz)
Low	5162	-0.82	-0.82	24.00	11.00
Mid	5203	-0.82	-0.82	24.00	11.00
High	5245	-0.82	-0.82	24.00	11.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

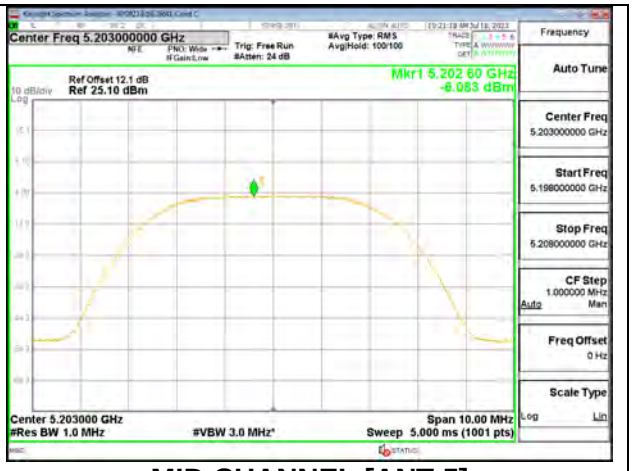
Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5162	-1.56	-0.84	1.83	24.00	-22.17
Mid	5203	-1.65	-0.88	1.76	24.00	-22.24
High	5245	-1.63	-0.89	1.77	24.00	-22.23

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/1MHz)	Antenna 5 Meas PSD (dBm/1MHz)	Total Corr'd PSD (dBm/1MHz)	PSD Limit (dBm/ 1MHz)	PSD Margin (dB)
Low	5162	-7.223	-6.097	-3.613	11.00	-14.613
Mid	5203	-6.822	-6.083	-3.427	11.00	-14.427
High	5245	-7.114	-5.816	-3.406	11.00	-14.406

MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.7 HIGH OUTPUT BDR MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

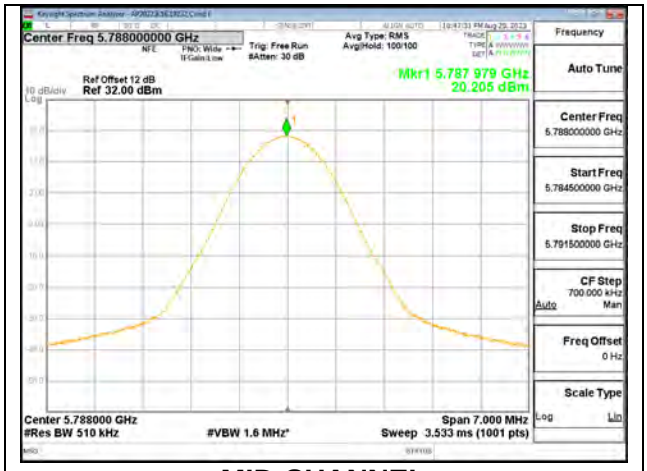
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	19.90	19.90	30.00	-10.10
Mid	5788	19.97	19.97	30.00	-10.03
High	5844	19.90	19.90	30.00	-10.10

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	20.372	20.372	30.00	-9.628
Mid	5788	20.205	20.205	30.00	-9.795
High	5844	20.271	20.271	30.00	-9.729



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

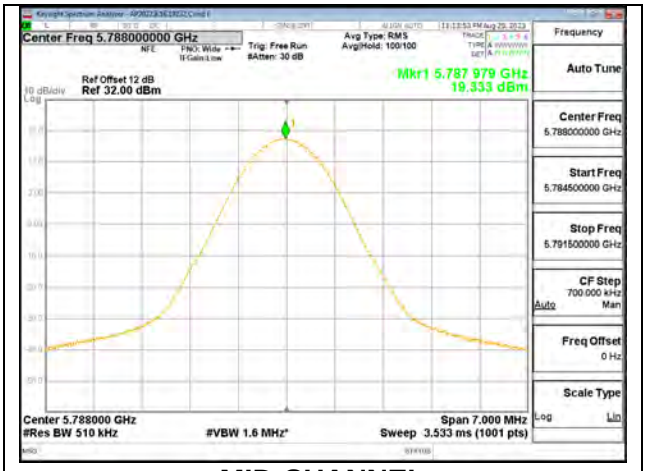
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	19.45	19.45	30.00	-10.55
Mid	5788	19.40	19.40	30.00	-10.60
High	5844	19.42	19.42	30.00	-10.58

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	19.136	19.136	30.00	-10.864
Mid	5788	19.333	19.333	30.00	-10.667
High	5844	19.373	19.373	30.00	-10.627



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	19232
Test Date:	08/25/2023

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

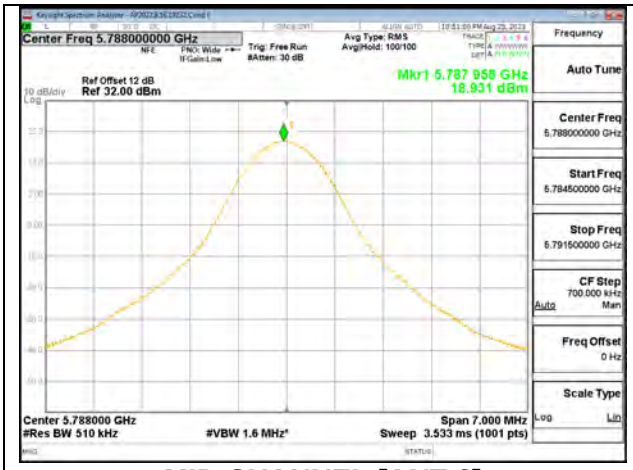
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

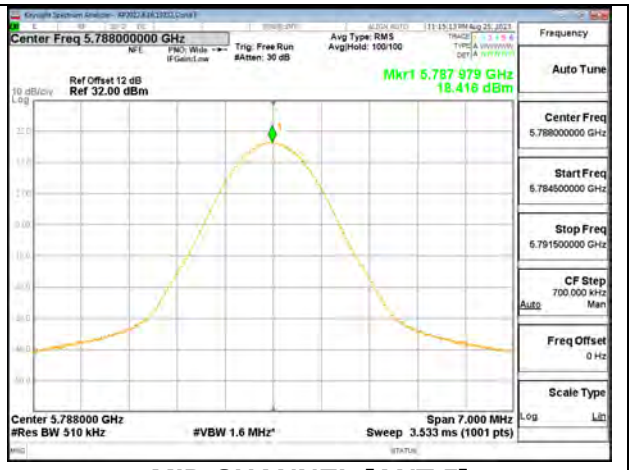
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	19.90	19.40	22.67	30.00	-7.33
Mid	5788	19.95	19.47	22.73	30.00	-7.27
High	5844	19.97	19.45	22.73	30.00	-7.27

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	19.111	18.416	21.788	30.00	-8.212
Mid	5788	18.931	18.416	21.691	30.00	-8.309
High	5844	18.600	18.230	21.429	30.00	-8.571



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.8 LOW OUTPUT BDR MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	18232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

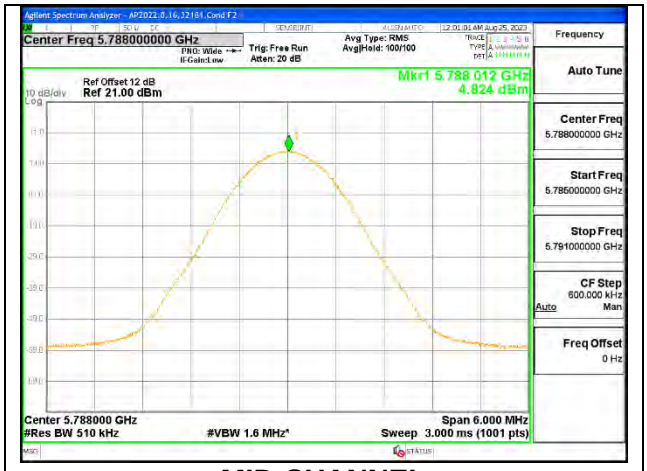
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	4.97	4.97	30.00	-25.03
Mid	5788	4.95	4.95	30.00	-25.05
High	5844	4.90	4.90	30.00	-25.10

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	4.677	4.677	30.00	-25.323
Mid	5788	4.824	4.824	30.00	-25.176
High	5844	4.699	4.699	30.00	-25.301



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

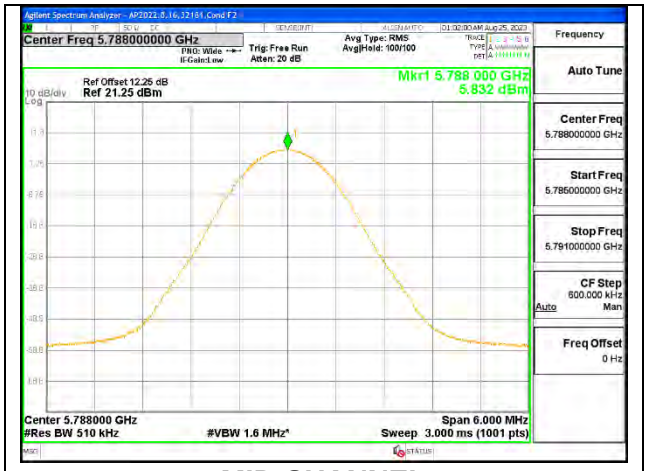
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	6.39	6.39	30.00	-23.61
Mid	5788	6.43	6.43	30.00	-23.57
High	5844	6.40	6.40	30.00	-23.60

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	5.981	5.981	30.00	-24.019
Mid	5788	5.832	5.832	30.00	-24.168
High	5844	5.810	5.810	30.00	-24.190



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	32181
Test Date:	08/25/23

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

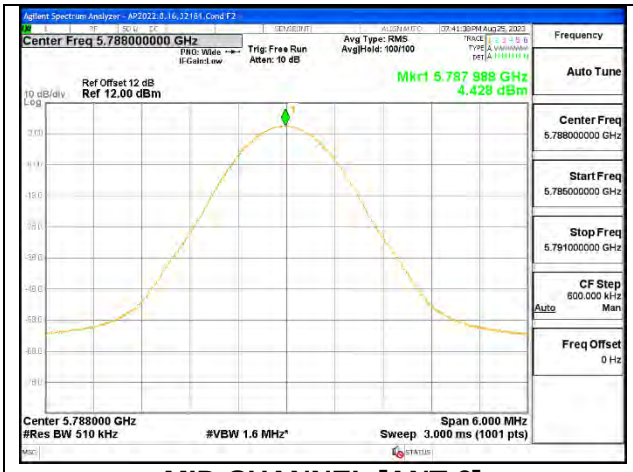
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

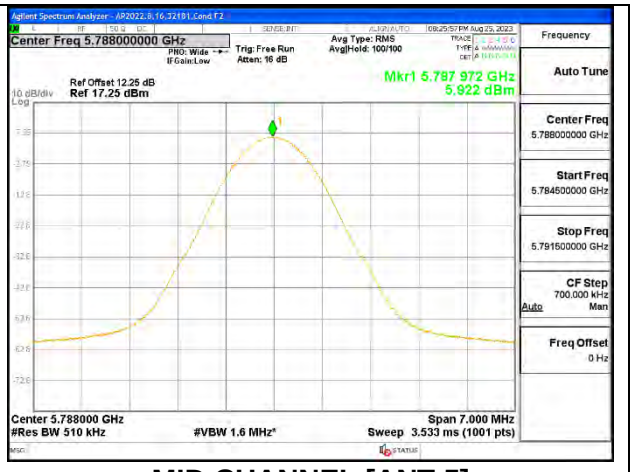
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	4.95	6.33	8.70	30.00	-21.30
Mid	5788	4.85	6.38	8.69	30.00	-21.31
High	5844	4.80	6.45	8.71	30.00	-21.29

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	4.405	5.941	8.251	30.00	-21.749
Mid	5788	4.428	5.922	8.249	30.00	-21.751
High	5844	4.495	6.124	8.396	30.00	-21.604



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.9 HIGH OUTPUT HDR4 MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

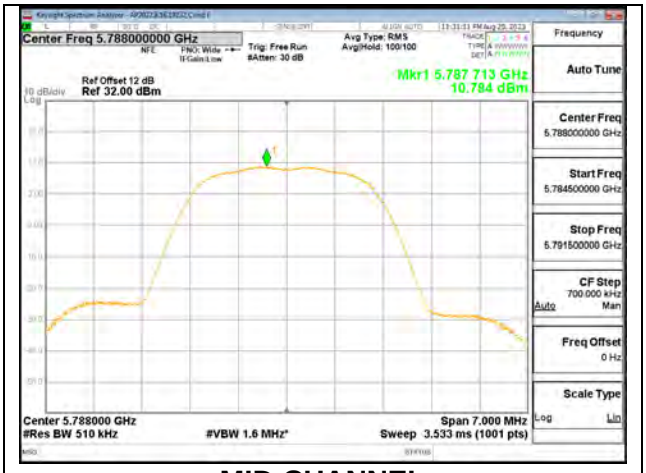
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.35	14.35	30.00	-15.65
Mid	5788	14.40	14.40	30.00	-15.60
High	5844	14.25	14.25	30.00	-15.75

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	10.607	10.607	30.00	-19.393
Mid	5788	10.784	10.784	30.00	-19.216
High	5844	10.779	10.779	30.00	-19.221



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

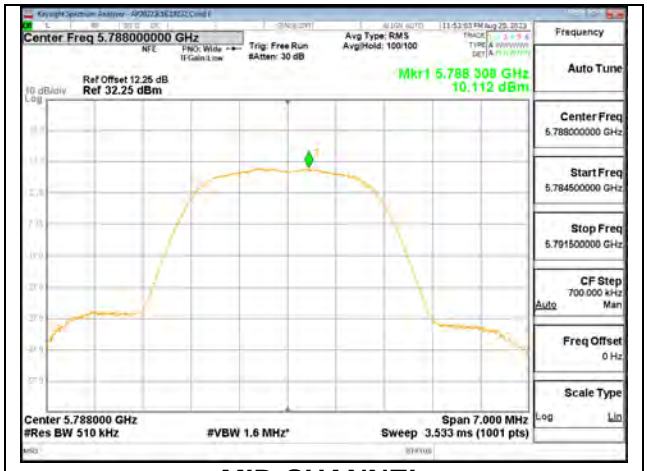
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.20	14.20	30.00	-15.80
Mid	5788	14.35	14.35	30.00	-15.65
High	5844	14.43	14.43	30.00	-15.57

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	10.211	10.211	30.00	-19.789
Mid	5788	10.112	10.112	30.00	-19.888
High	5844	10.327	10.327	30.00	-19.673



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	19232
Test Date:	08/25/23

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

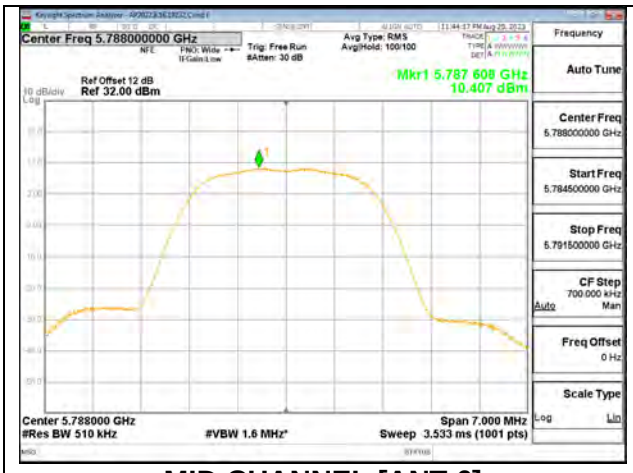
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

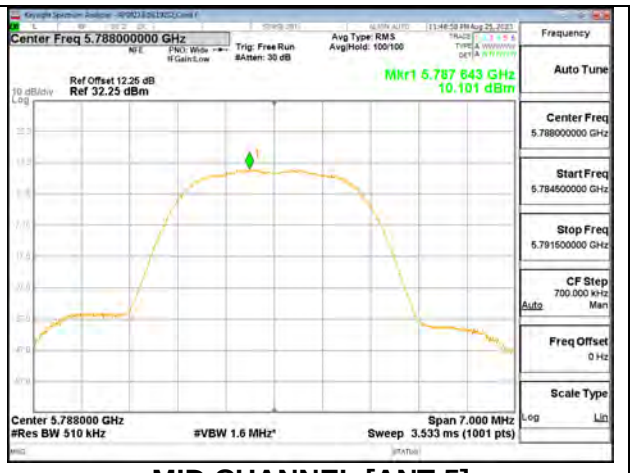
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.40	14.27	17.35	30.00	-12.65
Mid	5788	14.30	14.38	17.35	30.00	-12.65
High	5844	14.42	14.34	17.39	30.00	-12.61

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	10.484	10.326	13.416	30.00	-16.584
Mid	5788	10.407	10.101	13.267	30.00	-16.733
High	5844	10.695	10.344	13.533	30.00	-16.467



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.10 LOW OUTPUT HDR4 MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	32181
Test Date:	08/26/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-1.57	-1.57	30.00	-31.57
Mid	5788	-1.65	-1.65	30.00	-31.65
High	5844	-1.54	-1.54	30.00	-31.54

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-8.989	-8.989	30.00	-38.989
Mid	5788	-9.007	-9.007	30.00	-39.007
High	5844	-9.013	-9.013	30.00	-39.013

MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	26118
Test Date:	5/28/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

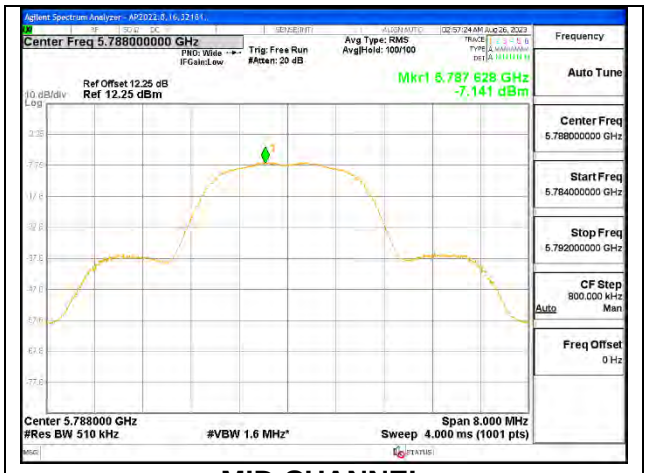
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-0.01	-0.01	30.00	-30.01
Mid	5788	-0.18	-0.18	30.00	-30.18
High	5844	-0.24	-0.24	30.00	-30.24

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-7.507	-7.507	30.00	-37.507
Mid	5788	-7.141	-7.141	30.00	-37.141
High	5844	-7.113	-7.113	30.00	-37.113



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	32181
Test Date:	08/25/23

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

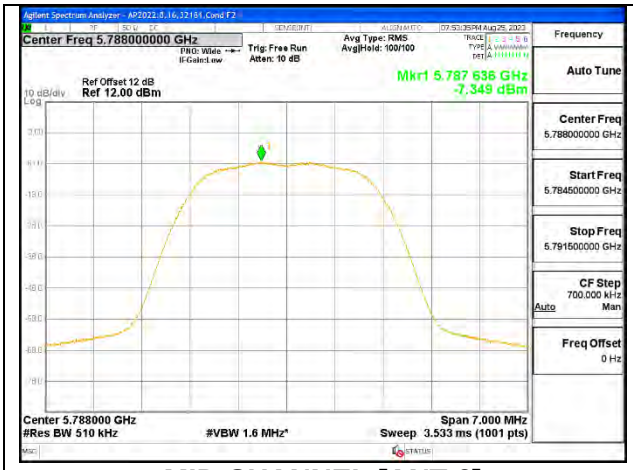
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

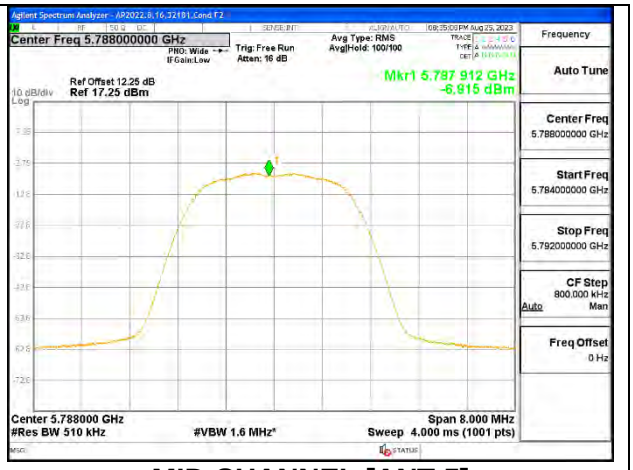
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-1.58	-0.19	2.18	30.00	-27.82
Mid	5788	-1.65	-0.21	2.14	30.00	-27.86
High	5844	-1.55	-0.26	2.15	30.00	-27.85

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-7.922	-6.903	-4.372	30.00	-34.372
Mid	5788	-7.349	-6.915	-4.116	30.00	-34.116
High	5844	-7.640	-7.004	-4.300	30.00	-34.300



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.11 HIGH OUTPUT HDR8 MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	19232
Test Date:	08/26/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

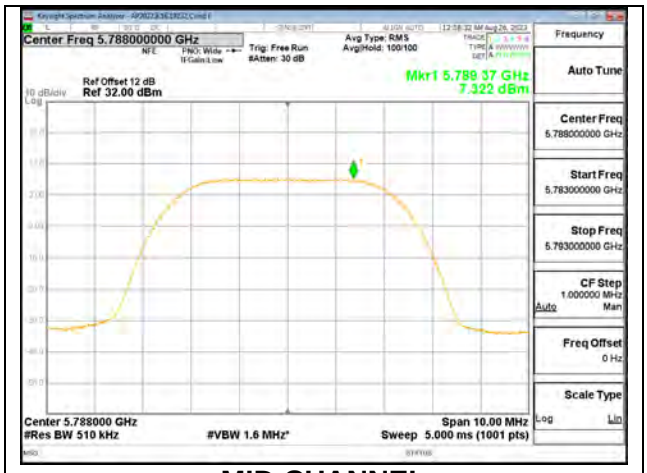
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.28	14.28	30.00	-15.72
Mid	5788	14.45	14.45	30.00	-15.55
High	5844	14.46	14.46	30.00	-15.54

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	6.813	6.813	30.00	-23.187
Mid	5788	7.322	7.322	30.00	-22.678
High	5844	7.244	7.244	30.00	-22.756



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	19232
Test Date:	08/26/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

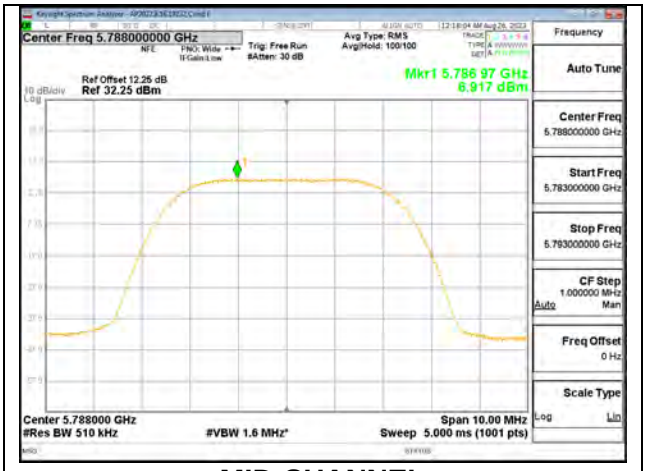
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.38	14.38	30.00	-15.62
Mid	5788	14.45	14.45	30.00	-15.55
High	5844	14.40	14.40	30.00	-15.60

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	6.882	6.882	30.00	-23.118
Mid	5788	6.917	6.917	30.00	-23.083
High	5844	6.896	6.896	30.00	-23.104



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	19232
Test Date:	08/26/23

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

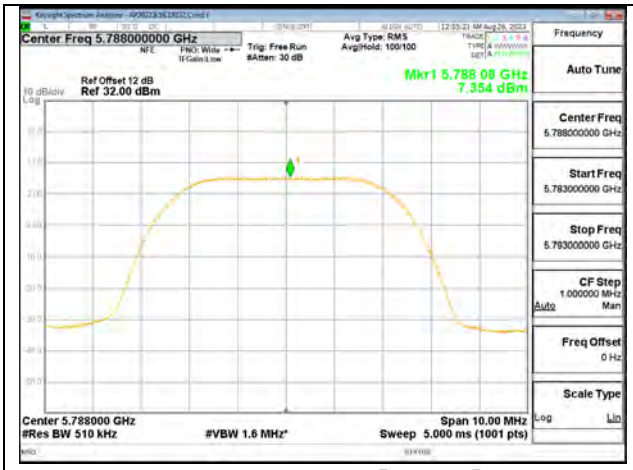
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

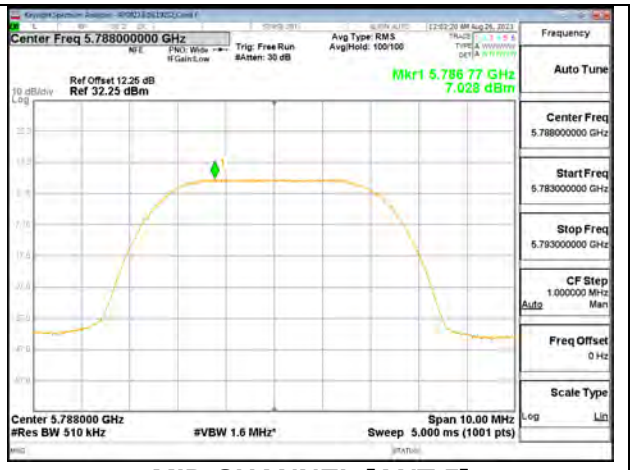
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	14.30	14.33	17.33	30.00	-12.67
Mid	5788	14.38	14.47	17.44	30.00	-12.56
High	5844	14.35	14.45	17.41	30.00	-12.59

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	7.128	6.873	10.013	30.00	-19.987
Mid	5788	7.354	7.028	10.204	30.00	-19.796
High	5844	6.950	6.938	9.954	30.00	-20.046



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.12 LOW OUTPUT HDR8 MODE IN UNII-3 BAND

1TX Antenna 6 MODE MOBILE

Test Engineer:	32181
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-2.00	30.00	30.00
Mid	5788	-2.00	30.00	30.00
High	5844	-2.00	30.00	30.00

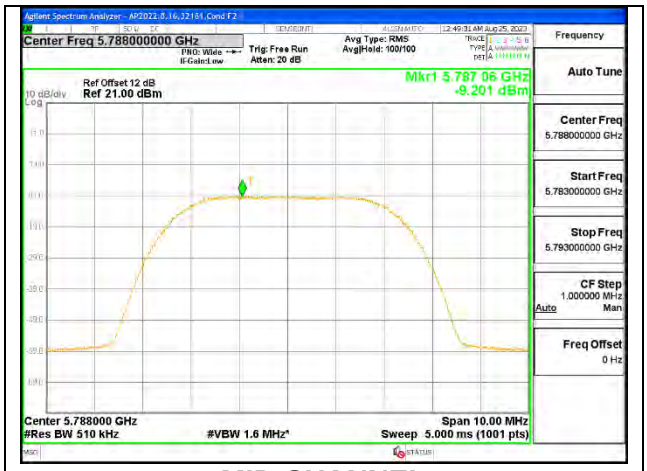
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-1.67	-1.67	30.00	-31.67
Mid	5788	-1.65	-1.65	30.00	-31.65
High	5844	-1.56	-1.56	30.00	-31.56

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-8.951	-8.951	30.00	-38.951
Mid	5788	-9.201	-9.201	30.00	-39.201
High	5844	-9.013	-9.013	30.00	-39.013



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1TX Antenna 5 MODE MOBILE

Test Engineer:	32181
Test Date:	08/25/23

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/ 500KHz)
Low	5733	-4.00	30.00	30.00
Mid	5788	-4.00	30.00	30.00
High	5844	-4.00	30.00	30.00

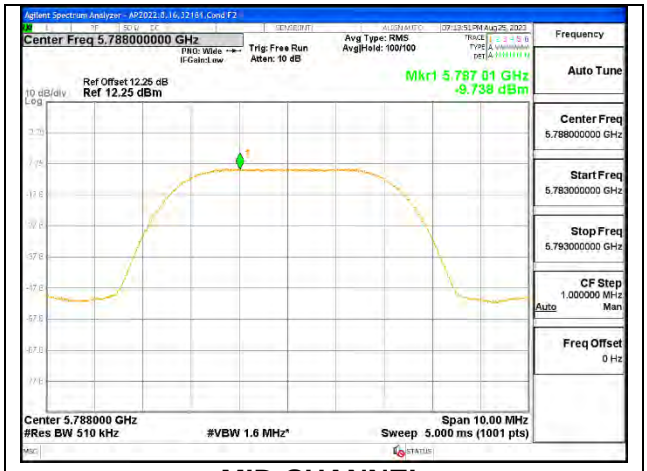
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-0.10	-0.10	30.00	-30.10
Mid	5788	-0.18	-0.18	30.00	-30.18
High	5844	-0.15	-0.15	30.00	-30.15

PSD Results

Channel	Frequency (MHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-9.426	-9.426	30.00	-39.426
Mid	5788	-9.738	-9.738	30.00	-39.738
High	5844	-9.362	-9.362	30.00	-39.362



MID CHANNEL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

Test Engineer:	32181
Test Date:	08/25/23

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5733	0.07	0.07	30.00	30.00
Mid	5788	0.07	0.07	30.00	30.00
High	5844	0.07	0.07	30.00	30.00

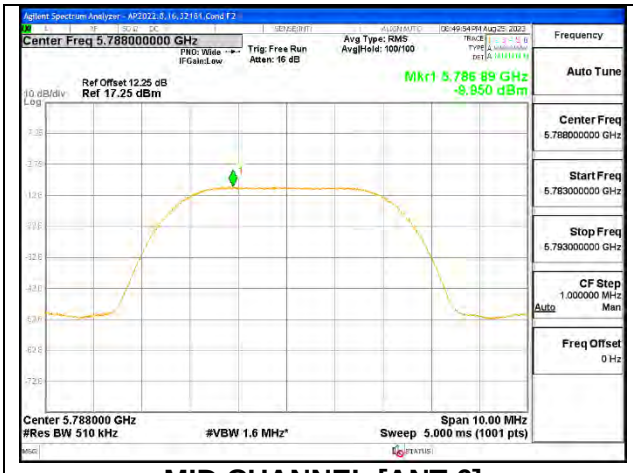
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

Output Power Results

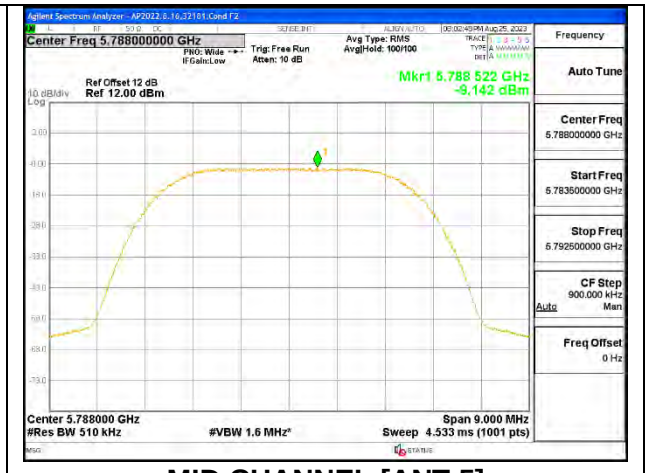
Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5733	-1.60	-0.03	2.27	30.00	-27.73
Mid	5788	-1.80	-0.12	2.13	30.00	-27.87
High	5844	-1.64	-0.03	2.25	30.00	-27.75

PSD Results

Channel	Frequency (MHz)	Antenna 6 Meas PSD (dBm/500KHz)	Antenna 5 Meas PSD (dBm/500KHz)	Total Corr'd PSD (dBm/500KHz)	PSD Limit (dBm/500KHz)	PSD Margin (dB)
Low	5733	-9.803	-9.380	-6.576	30.00	-36.576
Mid	5788	-9.950	-9.142	-6.517	30.00	-36.517
High	5844	-9.643	-9.404	-6.512	30.00	-36.512



MID CHANNEL [ANT 6]



MID CHANNEL [ANT 5]

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restricted bands
FCC §15.407(b) (1-3) -Un-Restricted bands

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
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 and 1.5 meters 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 in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

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 spectrum from 30 MHz to 1GHz and 18GHz to 40 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 5 GHz bands.

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.

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

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

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

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

RESULTS

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

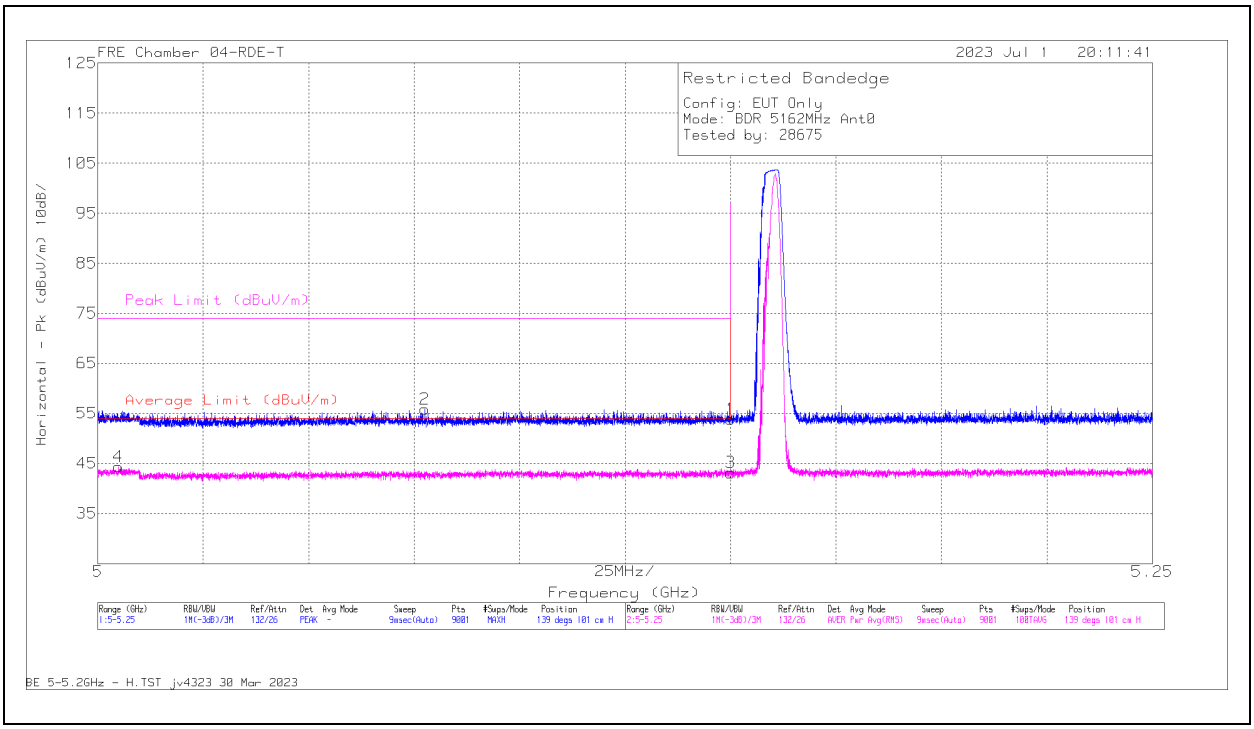
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BDR, High Power UNII-1 BANDEDGE

ANT 6

Low Channel

HORIZONTAL RESULT

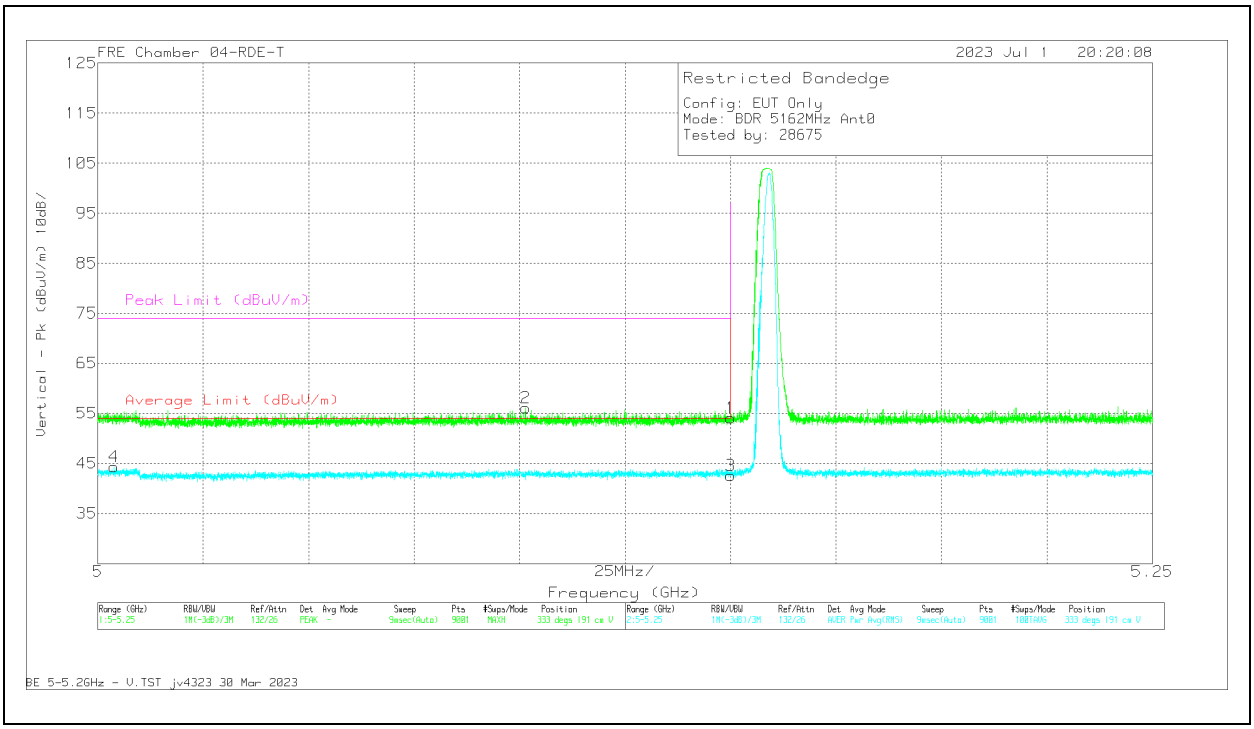


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	55.5	Pk	34.2	-35.9	53.8	-	-	74	-20.2	139	101	H
2	* 5.077501	57.97	Pk	34.1	-36.19	55.88	-	-	74	-18.12	139	101	H
3	* 5.15	44.86	RMS	34.2	-35.9	43.16	54	-10.84	-	-	139	101	H
4	* 5.004944	46.73	RMS	34	-36.38	44.35	54	-9.65	-	-	139	101	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	55.85	Pk	34.2	-35.9	54.15	-	-	74	-19.85	333	191	V
2	* 5.10139	58.03	Pk	34.1	-36.05	56.08	-	-	74	-17.92	333	191	V
3	* 5.15	44.3	RMS	34.2	-35.9	42.6	54	-11.4	-	-	333	191	V
4	* 5.003889	46.69	RMS	34	-36.4	44.29	54	-9.71	-	-	333	191	V

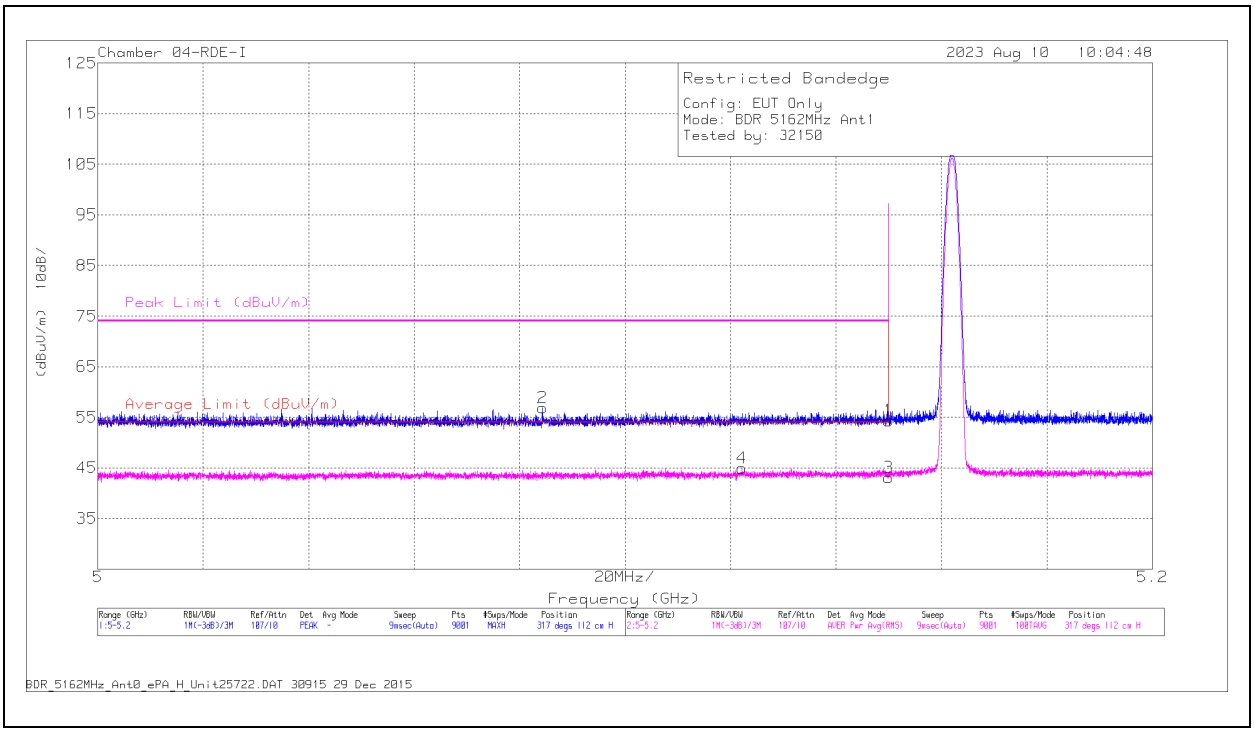
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

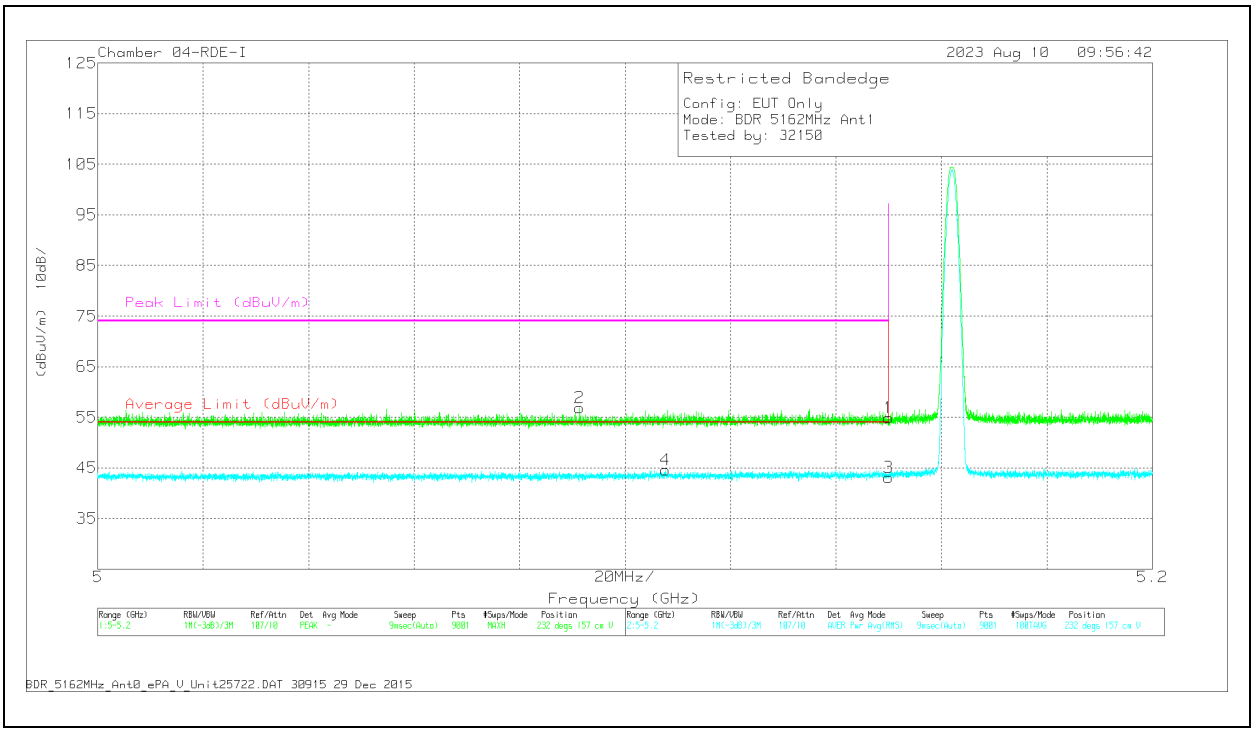


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	55.53	Pk	34.2	-35.9	53.83	-	-	74	-20.17	92	189	H
2	* 5.13039	57.46	Pk	34.2	-36.01	55.65	-	-	74	-18.35	92	189	H
3	* 5.15	43.78	RMS	34.2	-35.9	42.08	54	-11.92	-	-	92	189	H
4	* 5.001944	46.43	RMS	34	-36.43	44	54	-10	-	-	92	189	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.14	Pk	34.2	-17.4	54.94	-	-	74	-19.06	232	157	V
2	* 5.091355	40.05	Pk	34.1	-17.3	56.85	-	-	74	-17.15	232	157	V
3	* 5.15	26.34	RMS	34.2	-17.4	43.14	54	-10.86	-	-	232	157	V
4	* 5.10771	27.67	RMS	34.1	-17.2	44.57	54	-9.43	-	-	232	157	V

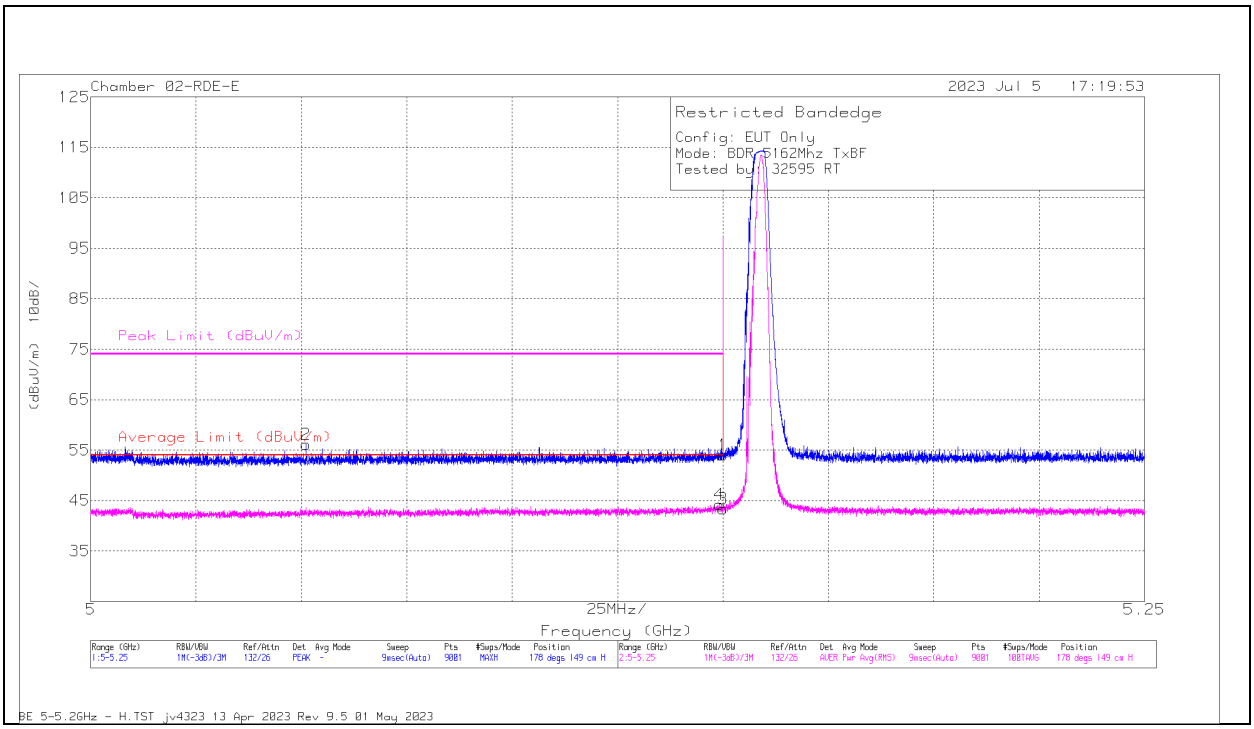
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

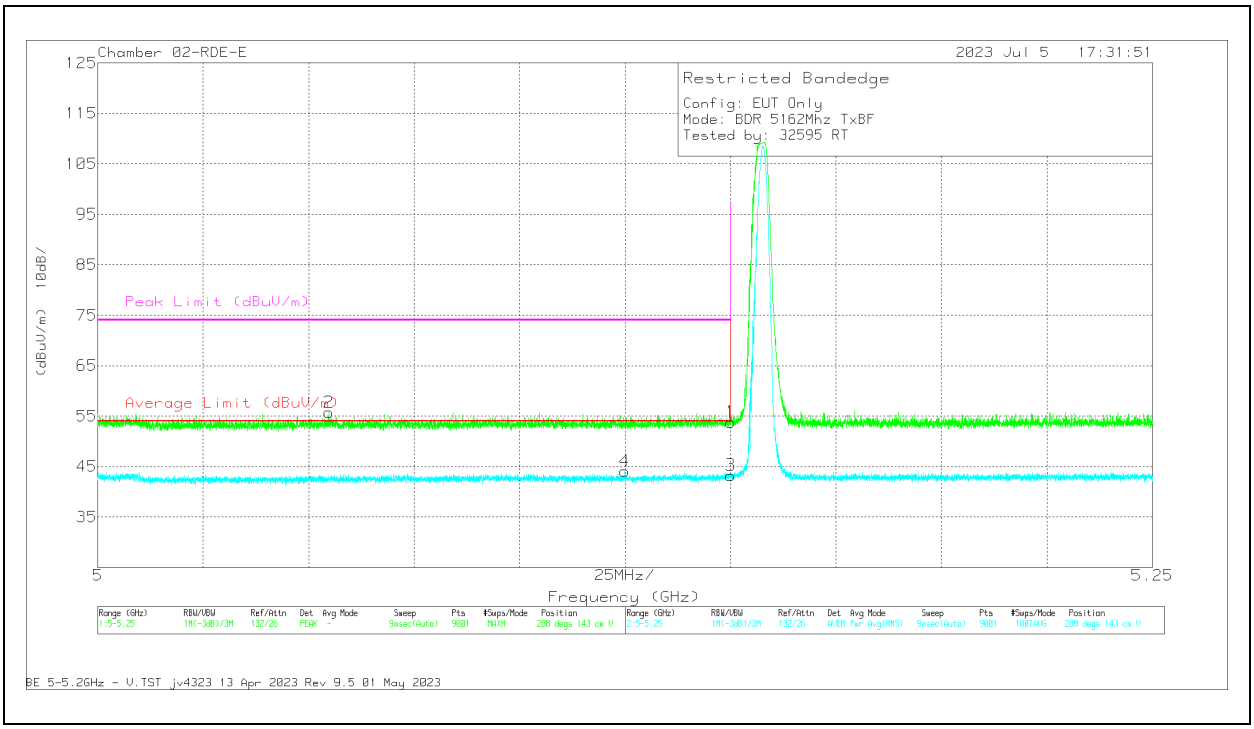


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	57.53	Pk	34.3	0	-37.8	54.03	-	-	74	-19.97	178	149	H
2	* 5.051112	59.88	Pk	34.1	0	-37.85	56.13	-	-	74	-17.87	178	149	H
3	* 5.15	46.81	RMS	34.3	0	-37.8	43.31	54	-10.69	-	-	178	149	H
4	* 5.149112	47.66	RMS	34.3	0	-37.8	44.16	54	-9.84	-	-	178	149	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



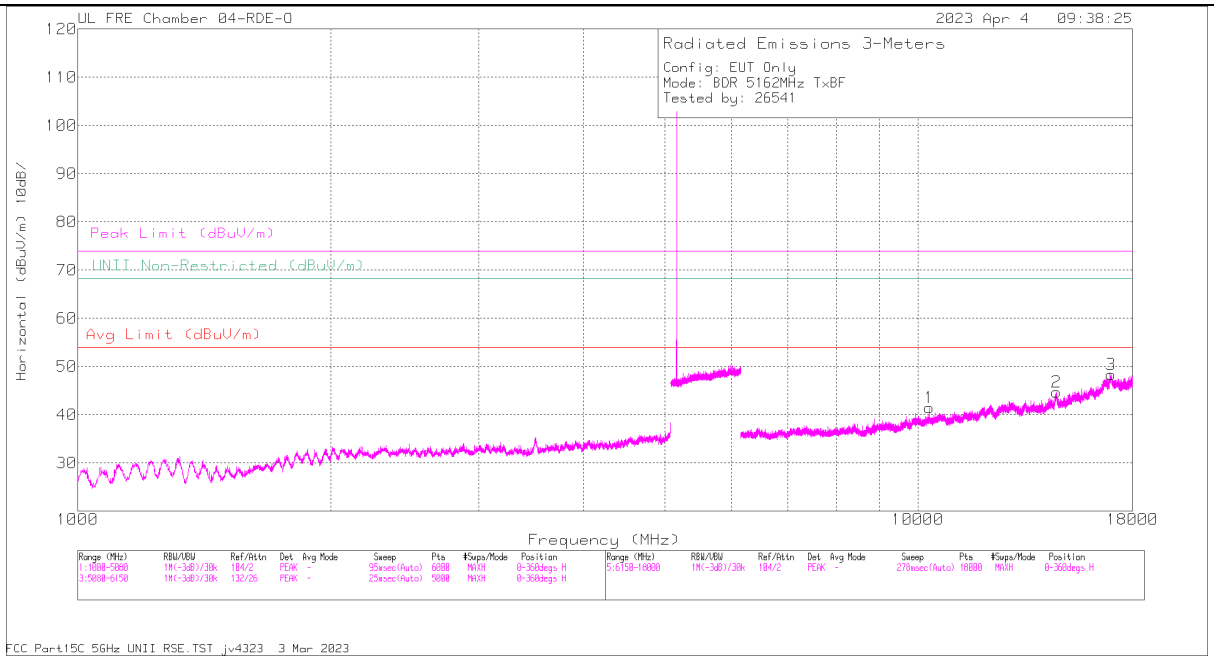
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	57.33	Pk	34.3	0	-37.8	53.83	-	-	74	-20.17	288	143	V
2	* 5.054862	59.46	Pk	34.1	0	-37.78	55.78	-	-	74	-18.22	288	143	V
3	* 5.15	46.78	RMS	34.3	0	-37.8	43.28	54	-10.72	-	-	288	143	V
4	* 5.124973	47.7	RMS	34.2	0	-37.86	44.04	54	-9.96	-	-	288	143	V

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

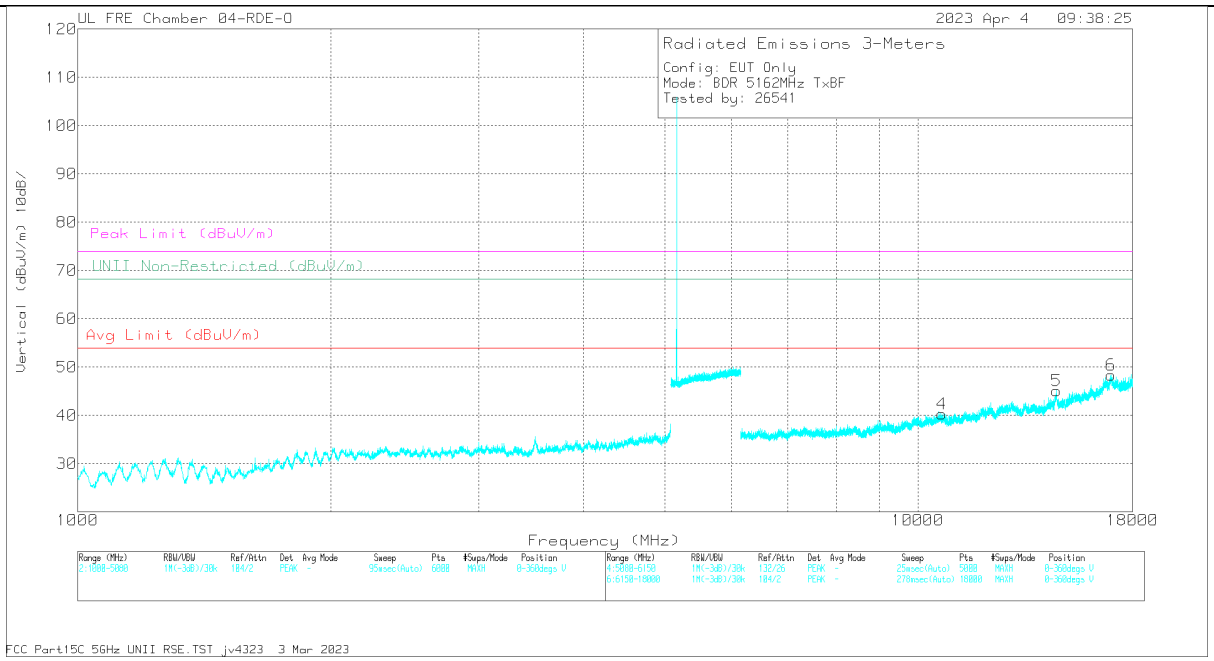
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.2. BDR, High Power, UNII-1, HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

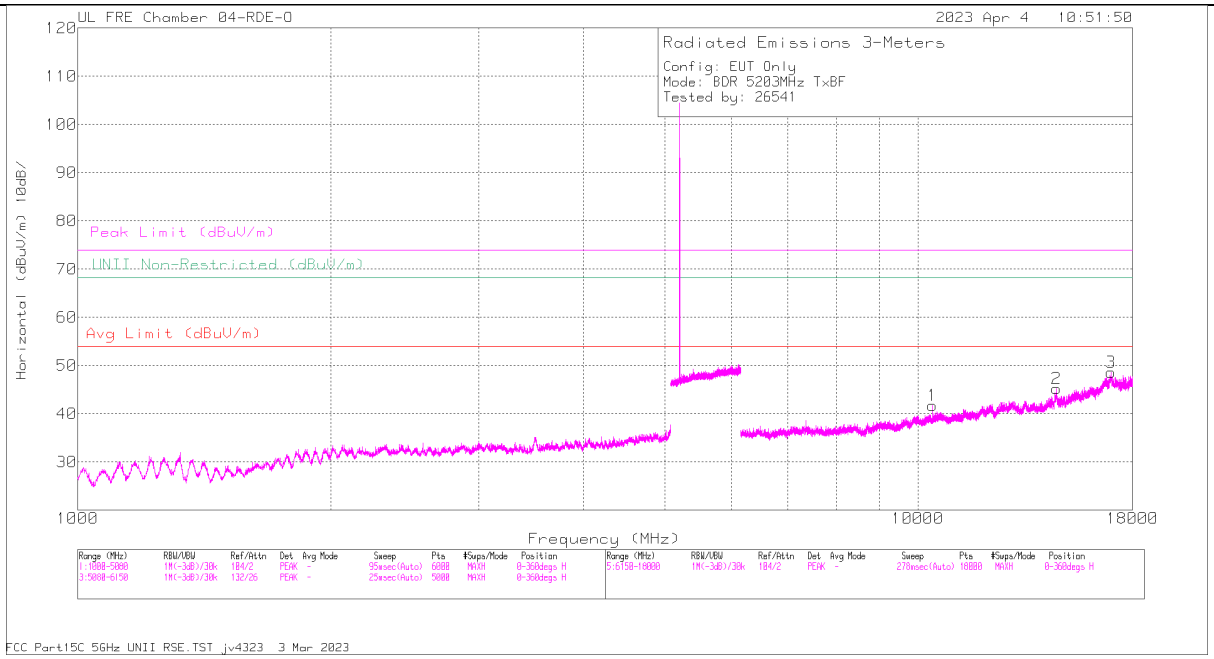
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	10324.206	53.09	PK-U	37.6	-40.74	49.95	-	-	-	-	68.2	-18.25	360	100	H
4	10680.295	41.64	ADR	37.6	-40.9	38.34	54	-15.66	-	-	-	-	360	201	V
	10680.497	54.24	PK-U	37.6	-40.9	50.94	-	-	74	-23.06	-	-	360	201	V
5	14616.518	53.14	PK-U	39.7	-38.03	54.81	-	-	-	-	68.2	-13.39	360	200	V
2	14627.314	53.02	PK-U	39.7	-38.43	54.29	-	-	-	-	68.2	-13.91	360	100	H
6	16978.439	53.1	PK-U	43	-38.25	57.85	-	-	-	-	68.2	-10.35	360	200	V
3	16984.904	53.03	PK-U	42.9	-38.23	57.7	-	-	-	-	68.2	-10.5	360	100	H

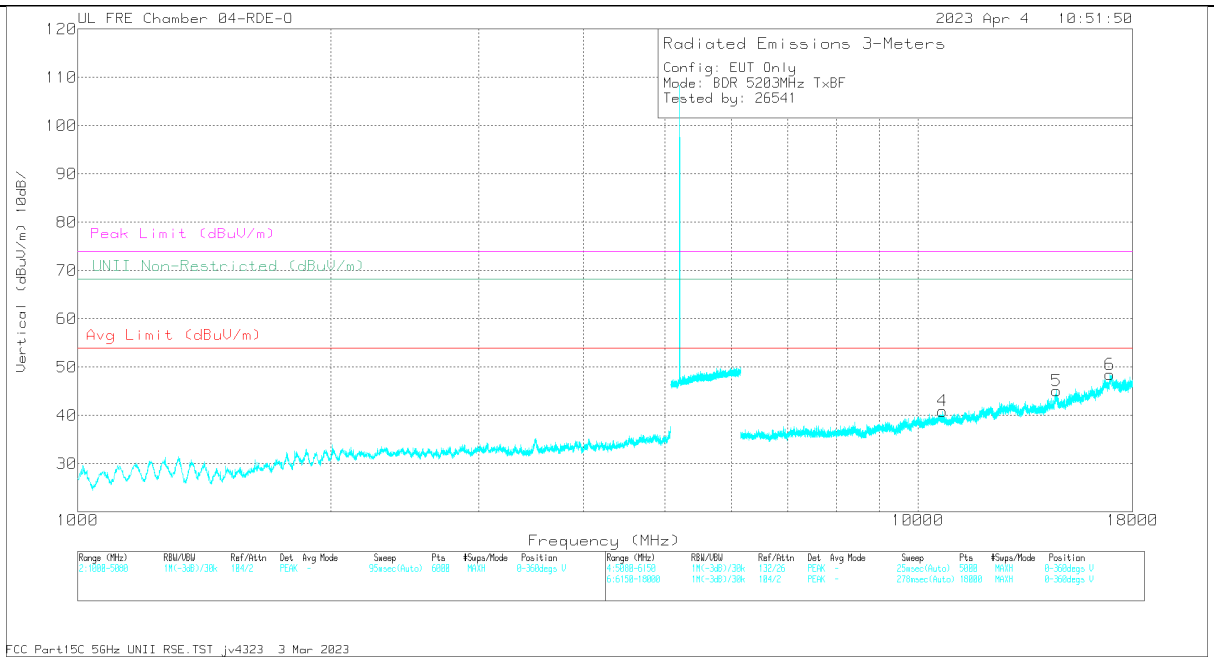
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL, 5203MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

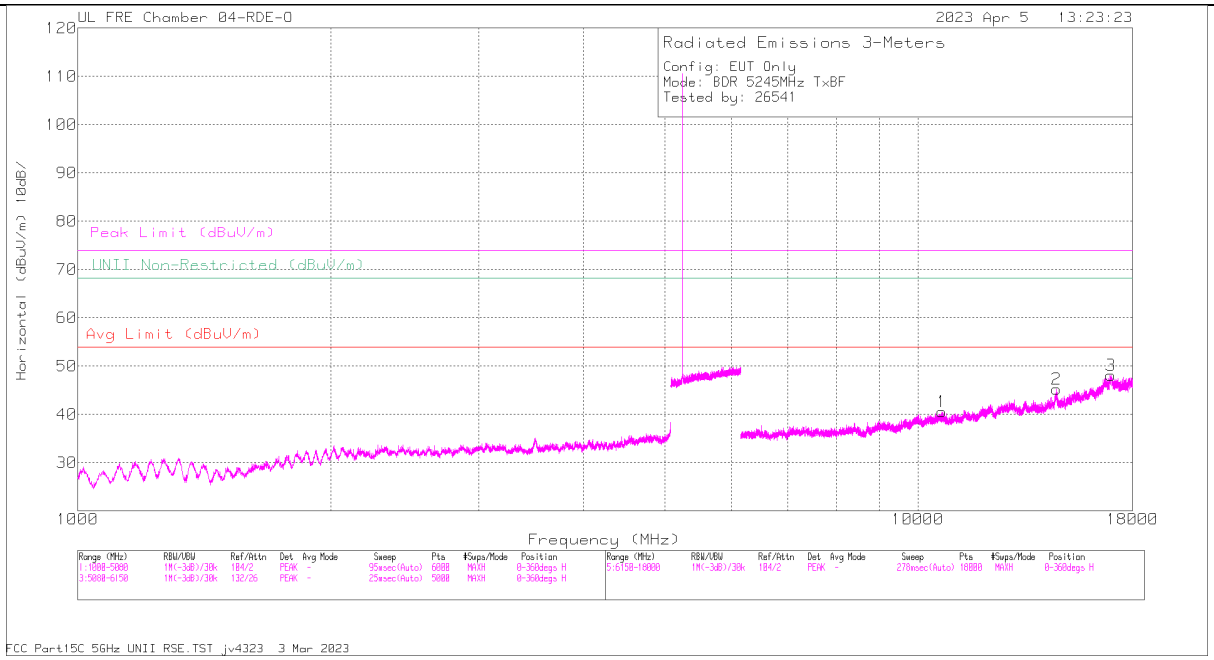
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ACF (dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	10405.166	53.04	PK-U	37.6	-41.44	49.2	-	-	-	-	68.2	-19	0	100	H
4	10699.529	41.47	ADR	38	-40.97	38.5	54	-15.5	-	-	-	-	0	201	V
	10700.57	52.81	PK-U	37.9	-40.99	49.72	-	-	74	-24.28	-	-	0	201	V
2	14615.163	53.19	PK-U	39.7	-38.03	54.86	-	-	-	-	68.2	-13.34	0	100	H
5	14629.034	52.9	PK-U	39.7	-38.52	54.08	-	-	-	-	68.2	-14.12	0	200	V
6	16931.703	53.46	PK-U	43.2	-38.93	57.73	-	-	-	-	68.2	-10.47	0	200	V
3	16982.451	53.92	PK-U	42.9	-38.18	58.64	-	-	-	-	68.2	-9.56	0	100	H

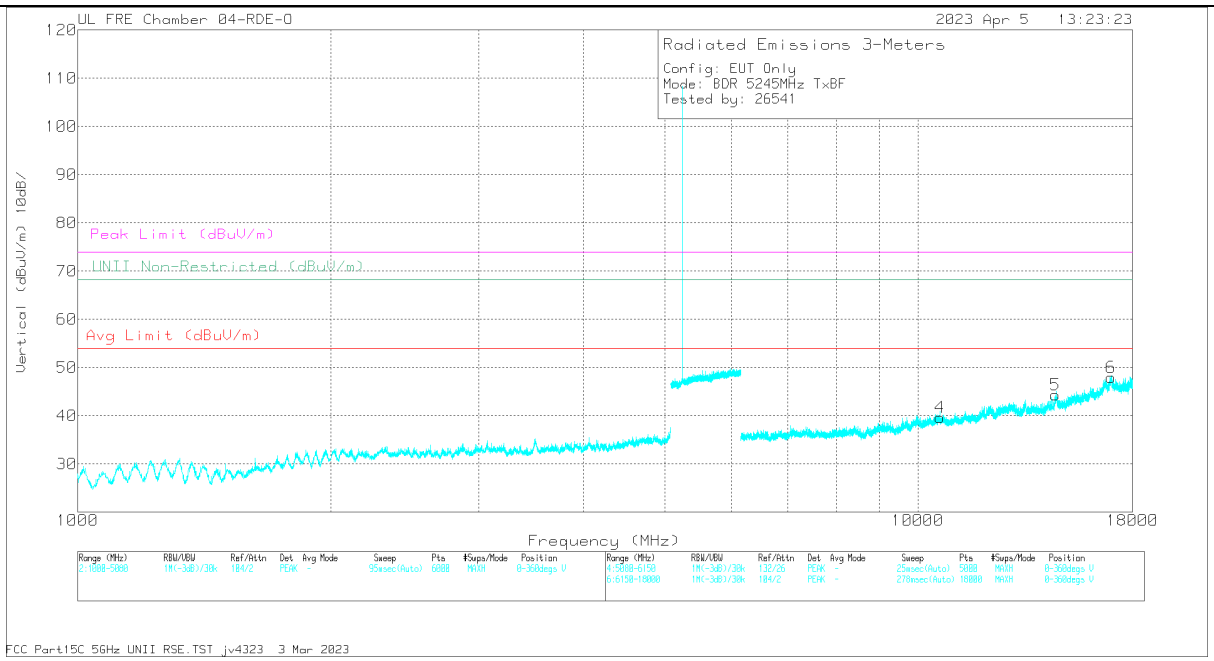
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 10681.33	53.39	PK-U	37.7	-40.89	50.2	-	-	74	-23.8	-	-	0	100	H
	* 10680.238	41.46	ADR	37.6	-40.91	38.15	54	-15.85	-	-	-	-	0	100	H
4	* 10632.982	52.92	PK-U	37.8	-40.79	49.93	-	-	74	-24.07	-	-	0	201	V
	* 10633.051	41.46	ADR	37.8	-40.79	38.47	54	-15.53	-	-	-	-	0	201	V
5	14581.985	53.98	PK-U	39.7	-39.64	54.04	-	-	-	-	68.2	-14.16	0	200	V
2	14617.614	52.76	PK-U	39.7	-38.04	54.42	-	-	-	-	68.2	-13.78	0	100	H
3	16962.642	52.92	PK-U	43	-38.86	57.06	-	-	-	-	68.2	-11.14	0	100	H
6	16970.905	53.24	PK-U	43	-38.46	57.78	-	-	-	-	68.2	-10.42	0	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

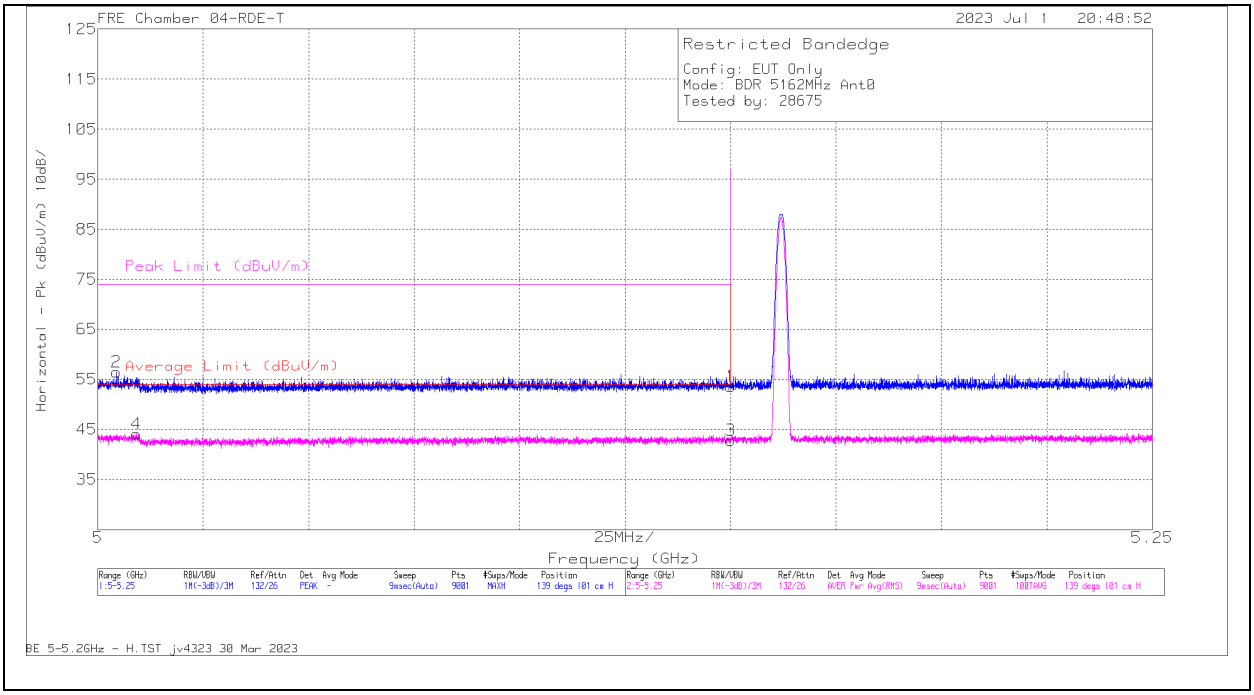
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.3 BDR, LOW POWER UNII-1 BANDEDGE

ANT 6

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

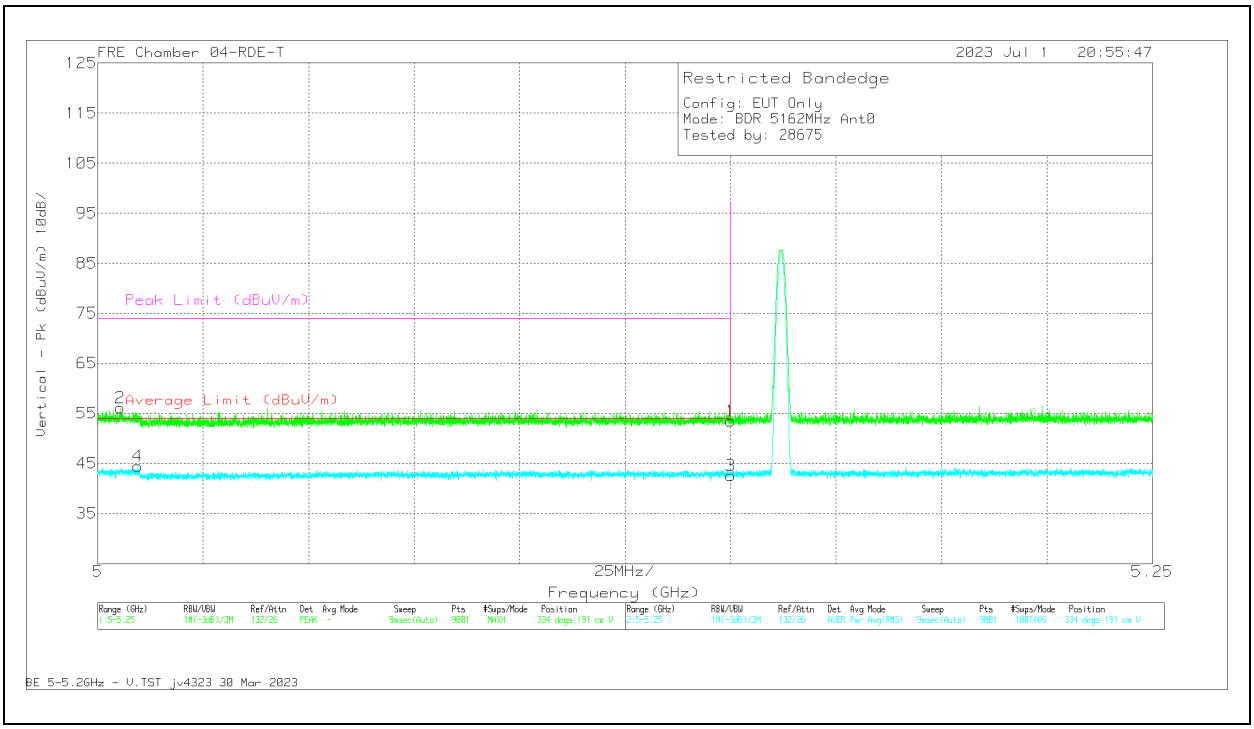


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	55.28	Pk	34.2	-35.9	53.58	-	-	74	-20.42	139	101	H
2	* 5.004444	58.9	Pk	34	-36.39	56.51	-	-	74	-17.49	139	101	H
3	* 5.15	44.53	RMS	34.2	-35.9	42.83	54	-11.17	-	-	139	101	H
4	* 5.009167	46.48	RMS	34	-36.39	44.09	54	-9.91	-	-	139	101	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	55.15	Pk	34.2	-35.9	53.45	-	-	74	-20.55	334	191	V
2	* 5.005361	58.46	Pk	34	-36.38	56.08	-	-	74	-17.92	334	191	V
3	* 5.15	44.34	RMS	34.2	-35.9	42.64	54	-11.36	-	-	334	191	V
4	* 5.009445	46.86	RMS	34	-36.39	44.47	54	-9.53	-	-	334	191	V

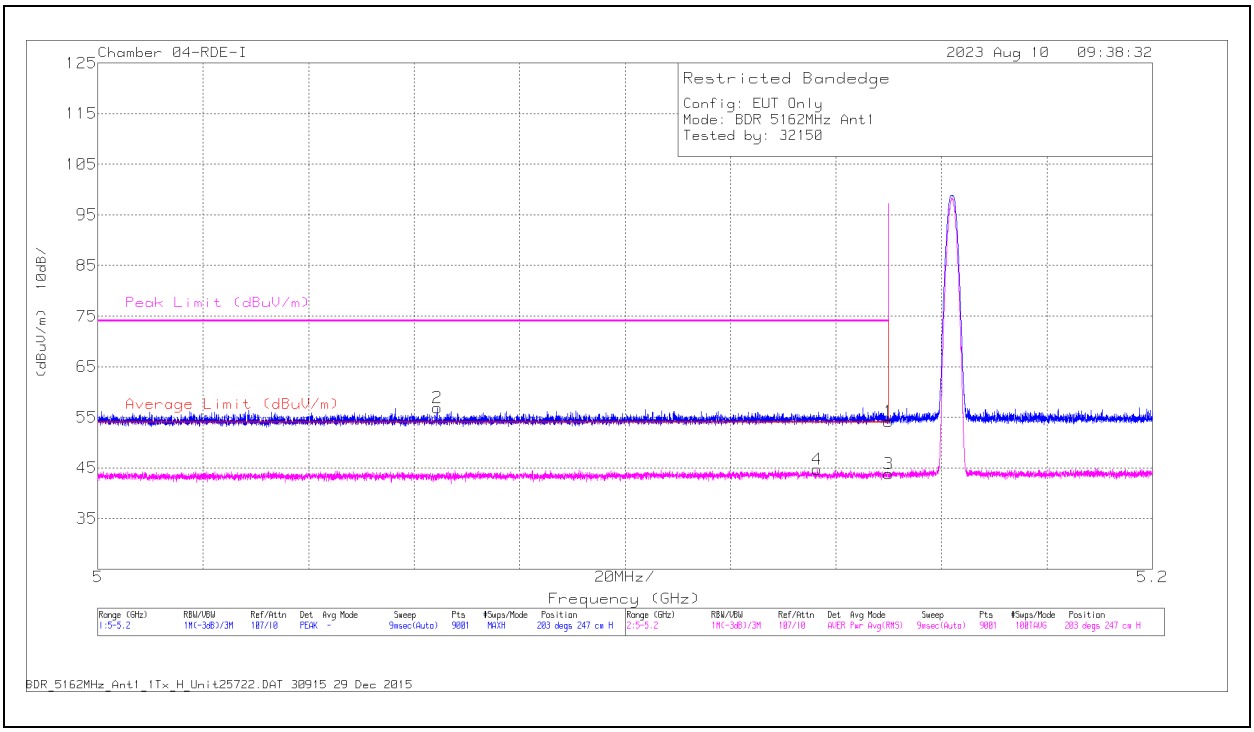
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

Low Channel

HORIZONTAL RESULT

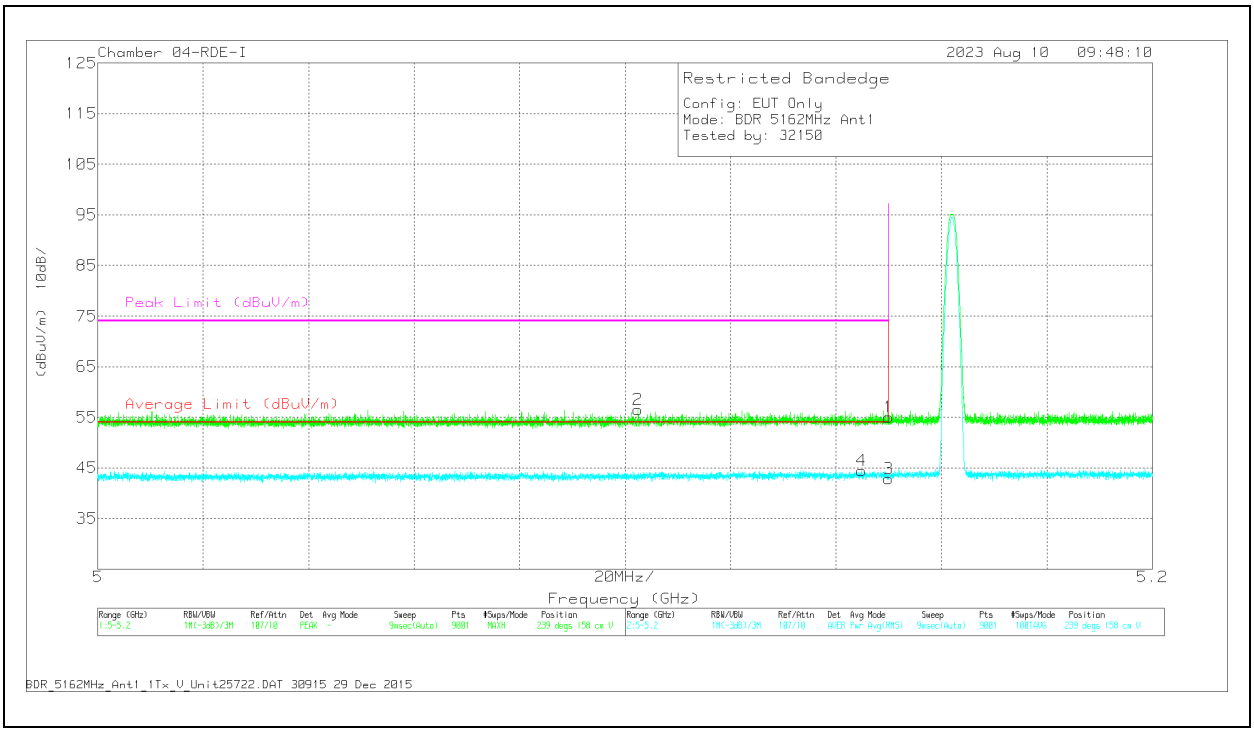


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.39	Pk	34.2	-17.4	54.19	-	-	74	-19.81	203	247	H
2	* 5.064355	39.97	Pk	34.1	-17.2	56.87	-	-	74	-17.13	203	247	H
3	* 5.15	27	RMS	34.2	-17.4	43.8	54	-10.2	-	-	203	247	H
4	* 5.136465	27.75	RMS	34.2	-17.3	44.65	54	-9.35	-	-	203	247	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.22	Pk	34.2	-17.4	55.02	-	-	74	-18.98	239	158	V
2	* 5.102466	39.65	Pk	34.1	-17.3	56.45	-	-	74	-17.55	239	158	V
3	* 5.15	26.02	RMS	34.2	-17.4	42.82	54	-11.18	-	-	239	158	V
4	* 5.144821	27.71	RMS	34.2	-17.4	44.51	54	-9.49	-	-	239	158	V

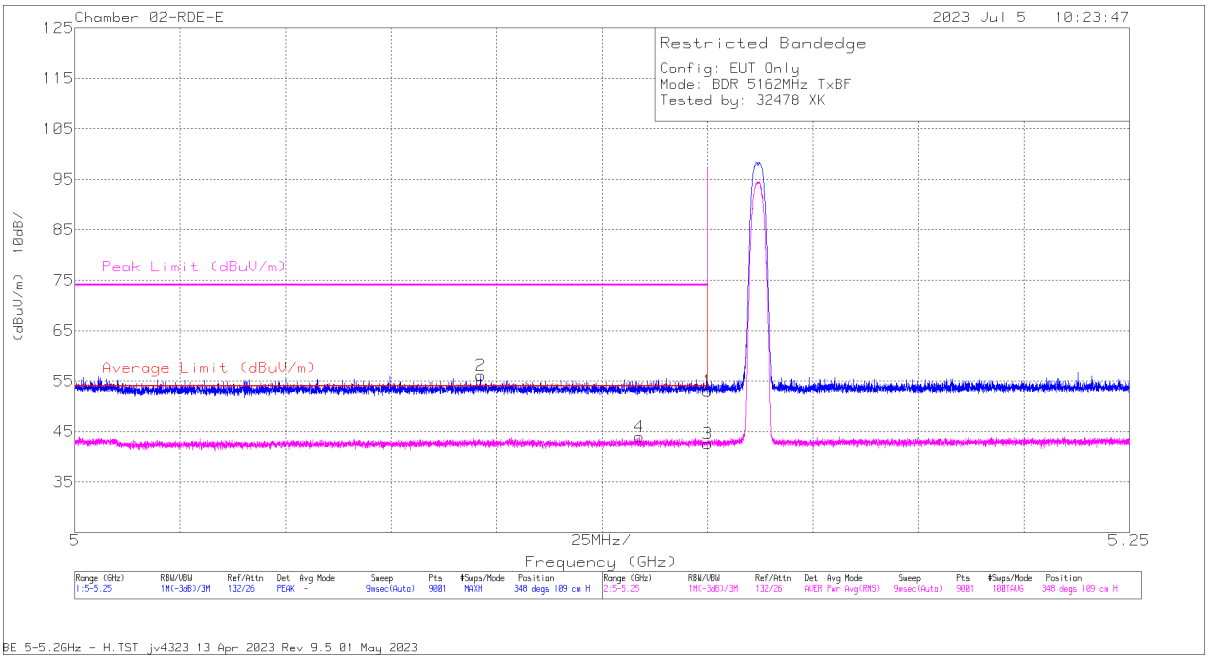
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

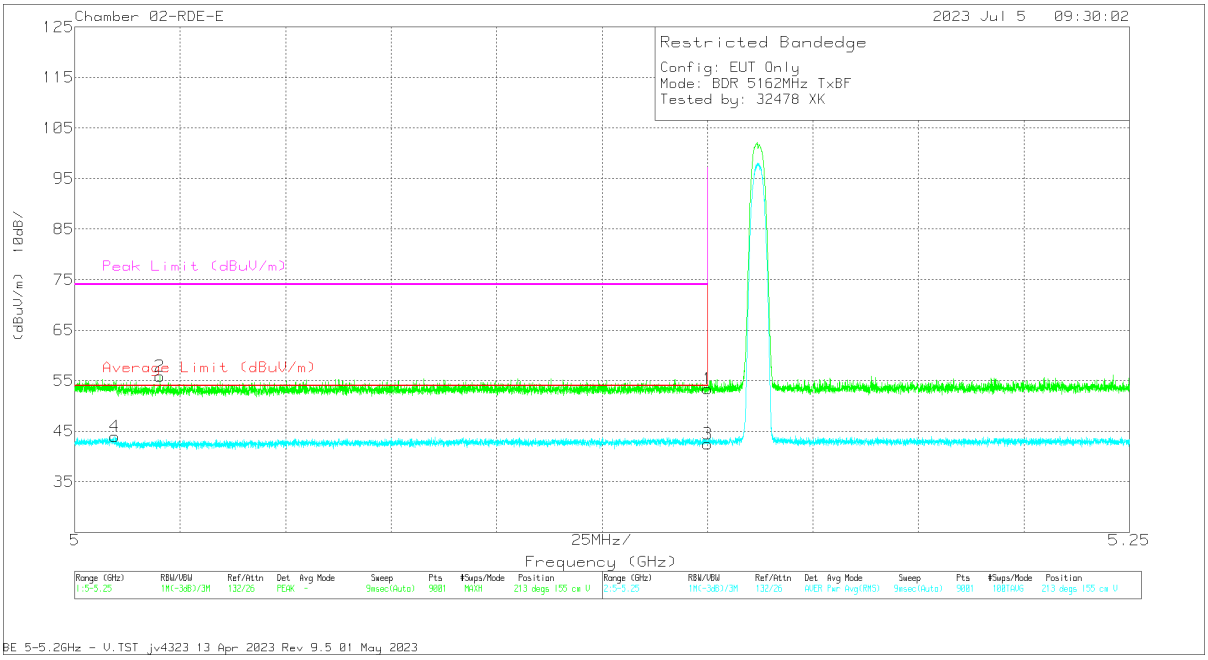


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	56.54	Pk	34.3	-37.8	53.04	-	-	74	-20.96	348	109	H
2	* 5.096223	59.66	Pk	34.2	-37.77	56.09	-	-	74	-17.91	348	109	H
3	* 5.15	46.1	RMS	34.3	-37.8	42.6	54	-11.4	-	-	348	109	H
4	* 5.13389	47.59	RMS	34.3	-37.89	44	54	-10	-	-	348	109	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



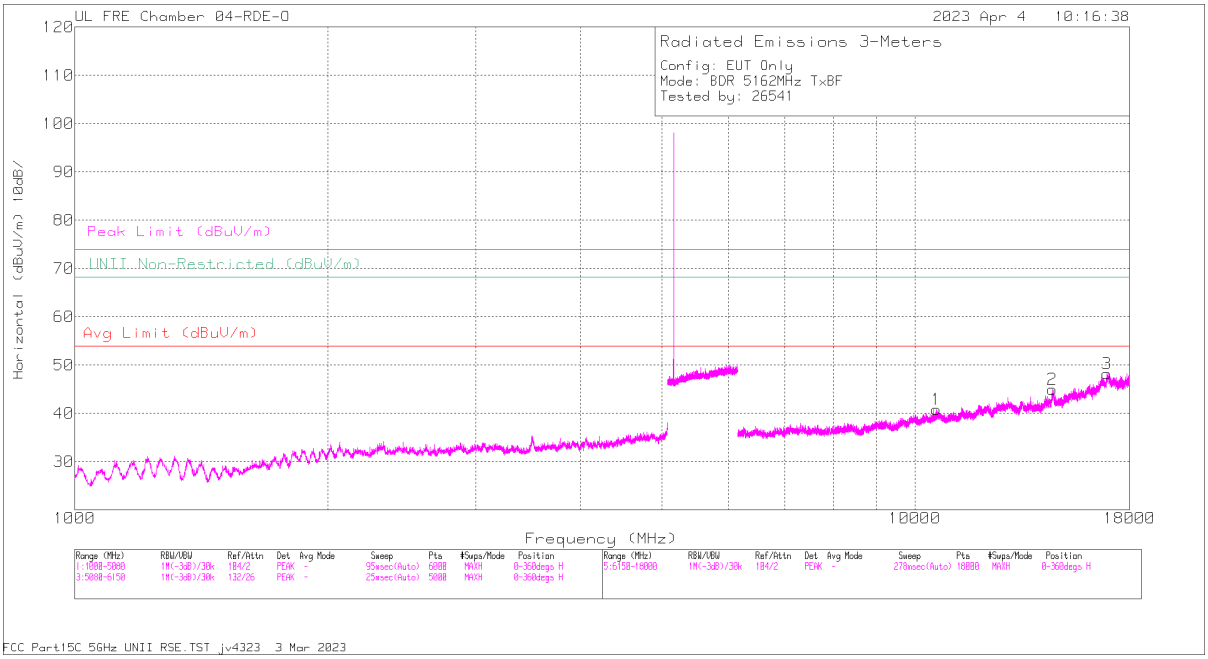
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	56.84	Pk	34.3	-37.8	53.34	-	-	74	-20.66	213	155	V
2	* 5.020139	59.62	Pk	34	-37.7	55.92	-	-	74	-18.08	213	155	V
3	* 5.15	45.97	RMS	34.3	-37.8	42.47	54	-11.53	-	-	213	155	V
4	* 5.009556	47.59	RMS	34	-37.62	43.97	54	-10.03	-	-	213	155	V

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

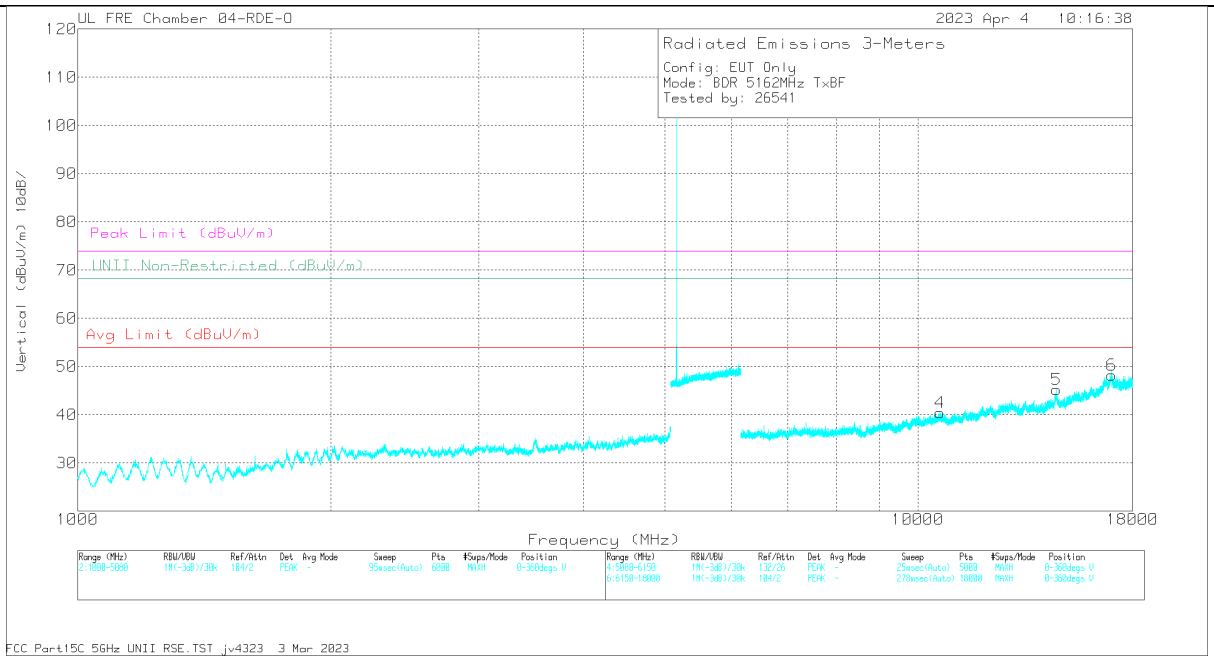
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.4 BDR, Low Power, UNII-1, HARMONIC AND SPURIOUS TX ABOVE 1 GHz IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

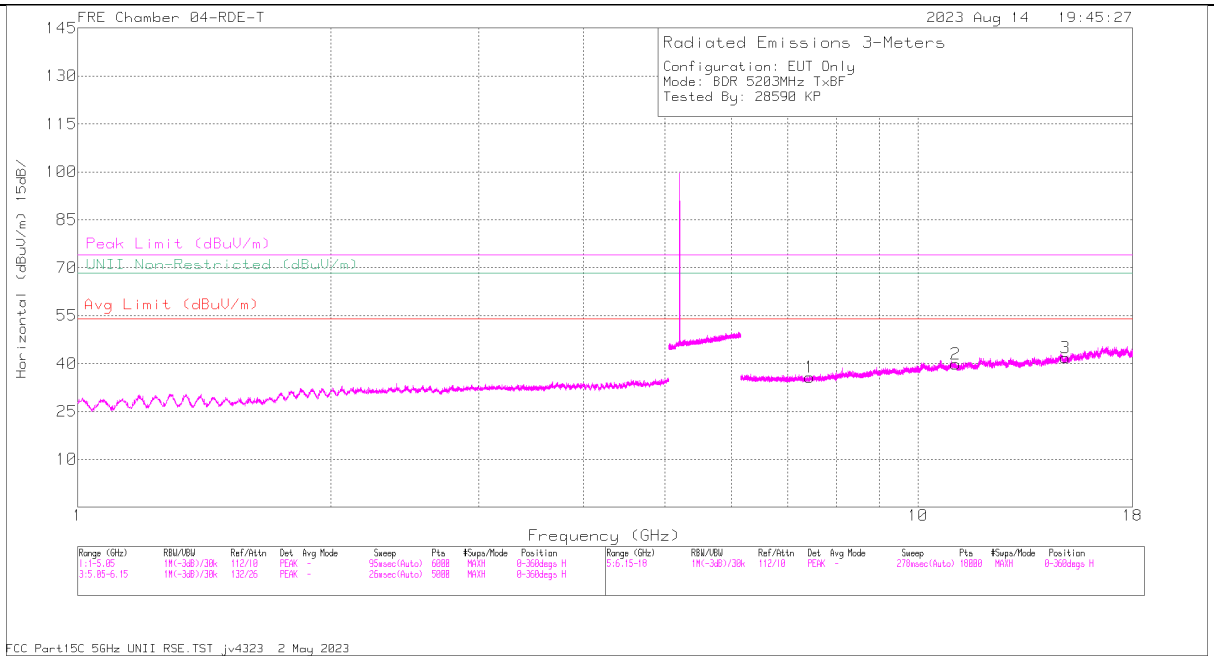
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	10603.196	41.38	ADR	37.7	-40.92	38.16	54	-15.84	-	-	-	-	360	100	H
	10604.022	53.19	PK-U	37.7	-40.93	49.96	-	-	74	-24.04	-	-	360	100	H
4	10620.913	41.52	ADR	37.5	-40.92	38.1	54	-15.9	-	-	-	-	150	199	V
	10621.942	52.77	PK-U	37.6	-40.9	49.47	-	-	74	-24.53	-	-	150	199	V
2	14567.012	53.48	PK-U	39.6	-39.58	53.5	-	-	-	-	68.2	-14.7	199	391	H
5	14620.176	53.08	PK-U	39.7	-38.1	54.68	-	-	-	-	68.2	-13.52	150	200	V
3	16926.337	53.92	PK-U	43.1	-38.78	58.24	-	-	-	-	68.2	-9.96	150	230	H
6	16994.714	53.54	PK-U	43.1	-38.81	57.83	-	-	-	-	68.2	-10.37	150	200	V

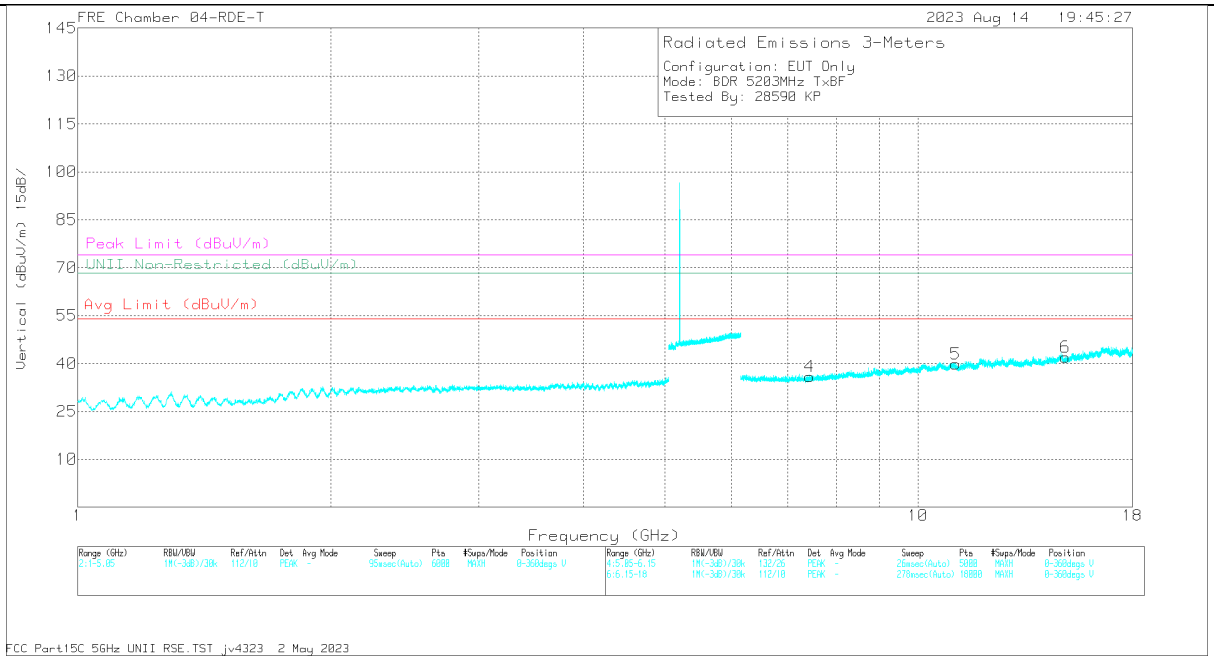
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL 5203MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

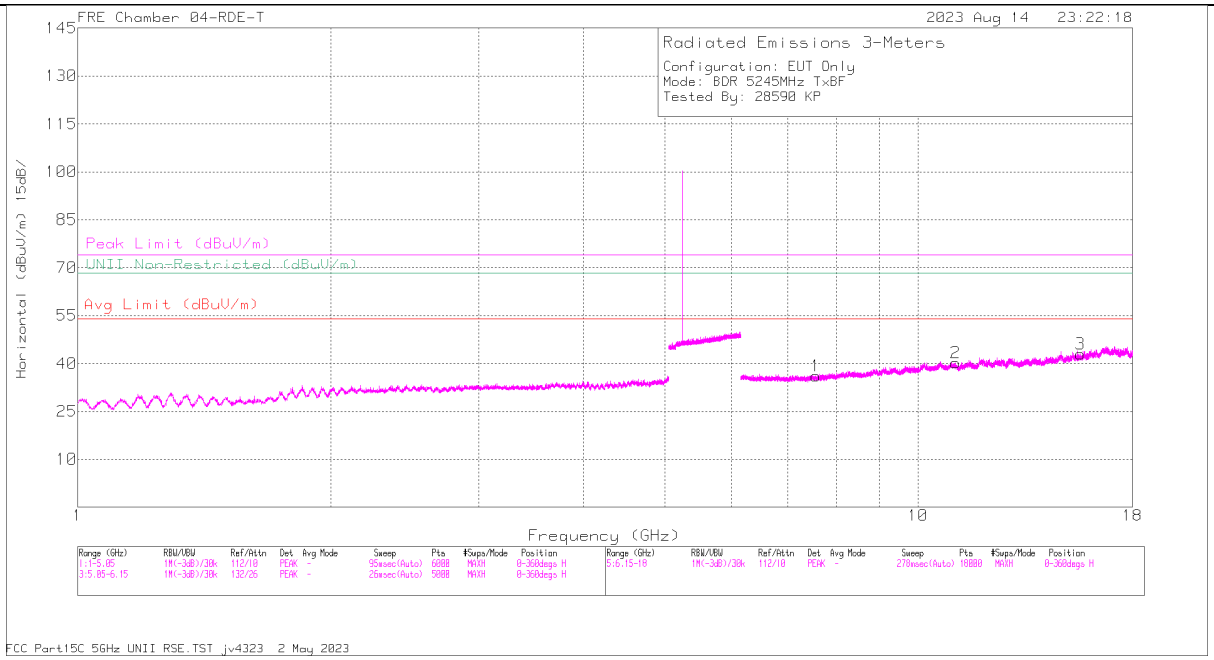
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.434022	53.21	PK-U	35.7	-43.16	45.75	-	-	74	-28.25	-	-	0	200	H
	* 7.433662	41.9	ADR	35.7	-43.18	34.42	54	-19.58	-	-	-	-	0	200	H
2	* 11.082625	52.96	PK-U	37.9	-41.36	49.5	-	-	74	-24.5	-	-	0	101	H
	* 11.083228	41.54	ADR	37.9	-41.34	38.1	54	-15.9	-	-	-	-	0	101	H
4	* 7.427866	53.42	PK-U	35.7	-43.26	45.86	-	-	74	-28.14	-	-	0	101	V
	* 7.426661	41.98	ADR	35.7	-43.24	34.44	54	-19.56	-	-	-	-	0	101	V
5	* 11.08488	52.99	PK-U	37.9	-41.32	49.57	-	-	74	-24.43	-	-	0	101	V
	* 11.085005	41.35	ADR	37.9	-41.32	37.93	54	-16.07	-	-	-	-	0	101	V
6	14.978074	54.21	PK-U	39.8	-42.15	51.86	-	-	-	-	68.2	-16.34	0	200	V
3	14.982469	54.05	PK-U	39.8	-42.17	51.68	-	-	-	-	68.2	-16.52	0	101	H

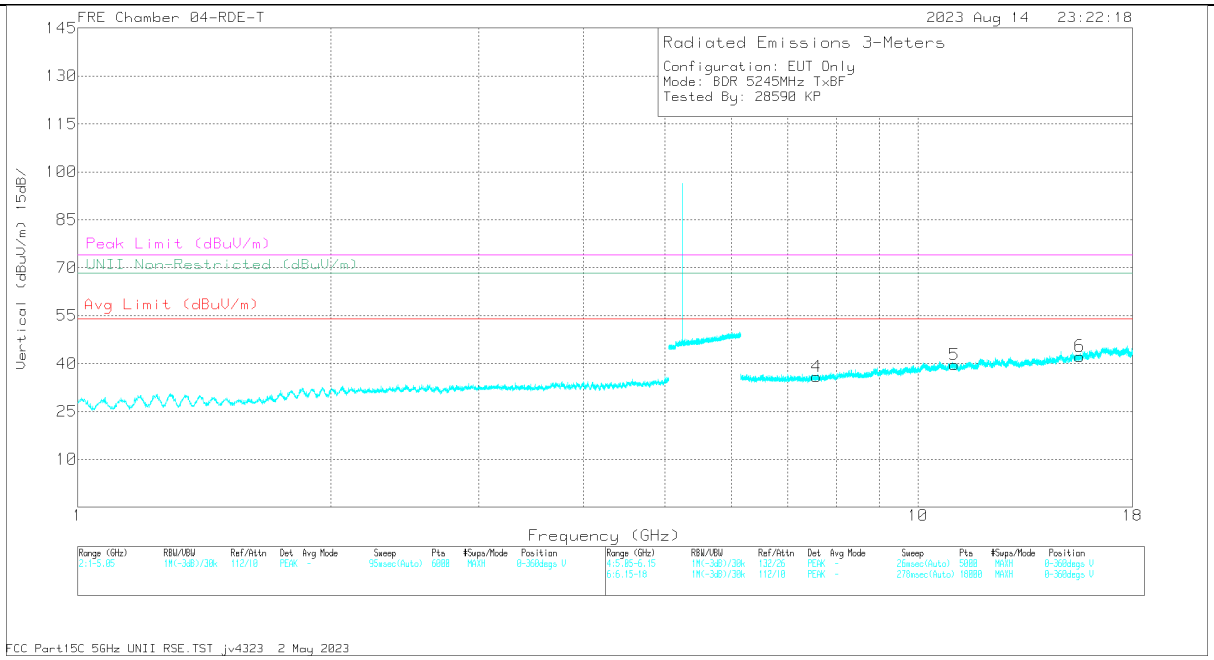
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	226673 ACF (dB) 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.558423	52.81	PK-U	35.8	-42.85	45.76	-	-	74	-28.24	1	200	H
	* 7.558384	41.3	ADR	35.8	-42.85	34.25	54	-19.75	-	-	1	200	H
2	* 11.089221	53.08	PK-U	37.9	-41.26	49.72	-	-	74	-24.28	1	101	H
	* 11.089762	41.4	ADR	37.9	-41.24	38.06	54	-15.94	-	-	1	101	H
3	* 15.609232	53.41	PK-U	40.5	-41.6	52.31	-	-	74	-21.69	1	101	H
	* 15.606768	41.49	ADR	40.5	-41.57	40.42	54	-13.58	-	-	1	101	H
4	* 7.569784	52.88	PK-U	35.8	-42.68	46	-	-	74	-28	1	200	V
	* 7.570781	41.35	ADR	35.8	-42.68	34.47	54	-19.53	-	-	1	200	V
5	* 11.050807	53.09	PK-U	37.9	-41.51	49.48	-	-	74	-24.52	1	200	V
	* 11.050658	41.39	ADR	37.9	-41.51	37.78	54	-16.22	-	-	1	200	V
6	* 15.576084	53.54	PK-U	40.4	-42.06	51.88	-	-	74	-22.12	1	200	V
	* 15.572941	41.4	ADR	40.4	-41.98	39.82	54	-14.18	-	-	1	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

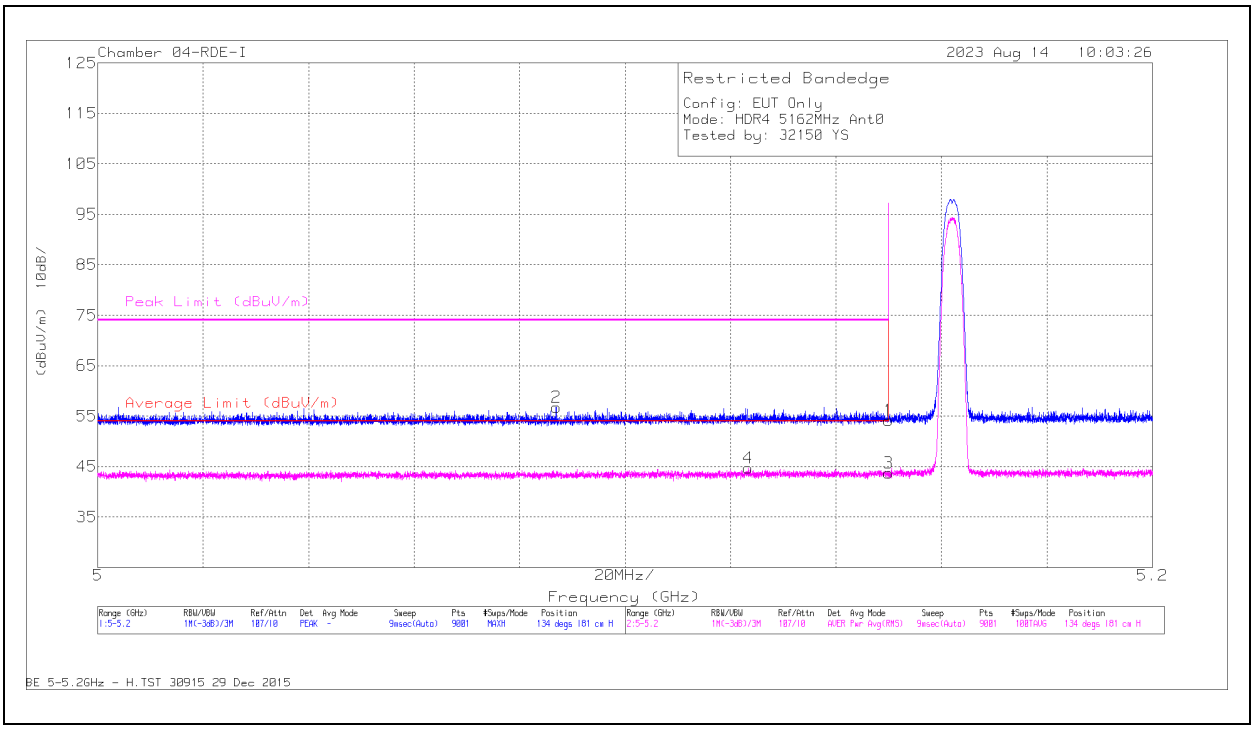
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.5 HDR4, HIGH POWER UNII-1 BANDEDGE

ANT 6

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

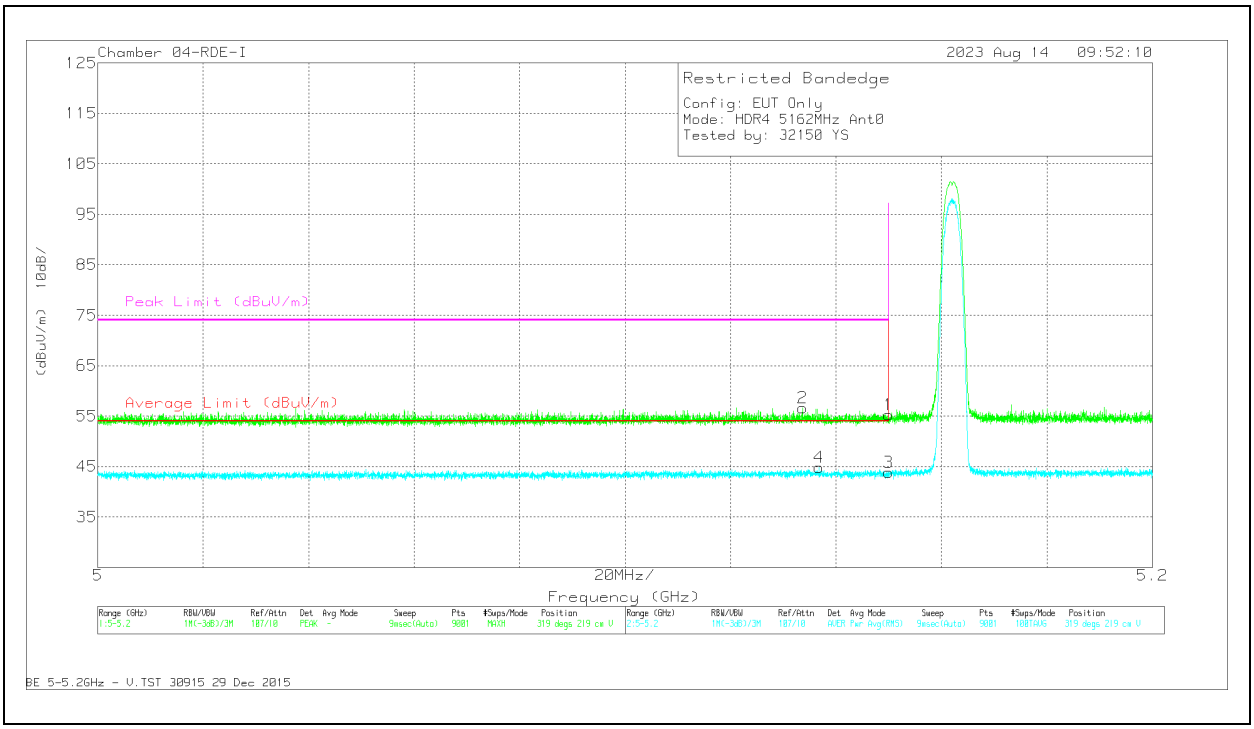


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.35	Pk	34.2	-17.4	54.15	-	-	74	-19.85	134	181	H
2	* 5.086932	39.99	Pk	34.1	-17.3	56.79	-	-	74	-17.21	134	181	H
3	* 5.15	26.96	RMS	34.2	-17.4	43.76	54	-10.24	-	-	134	181	H
4	* 5.123332	27.81	RMS	34.2	-17.3	44.71	54	-9.29	-	-	134	181	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.49	Pk	34.2	-17.4	55.29	-	-	74	-18.71	319	219	V
2	* 5.133643	39.72	Pk	34.2	-17.3	56.62	-	-	74	-17.38	319	219	V
3	* 5.15	27.07	RMS	34.2	-17.4	43.87	54	-10.13	-	-	319	219	V
4	* 5.136776	27.9	RMS	34.2	-17.3	44.8	54	-9.2	-	-	319	219	V

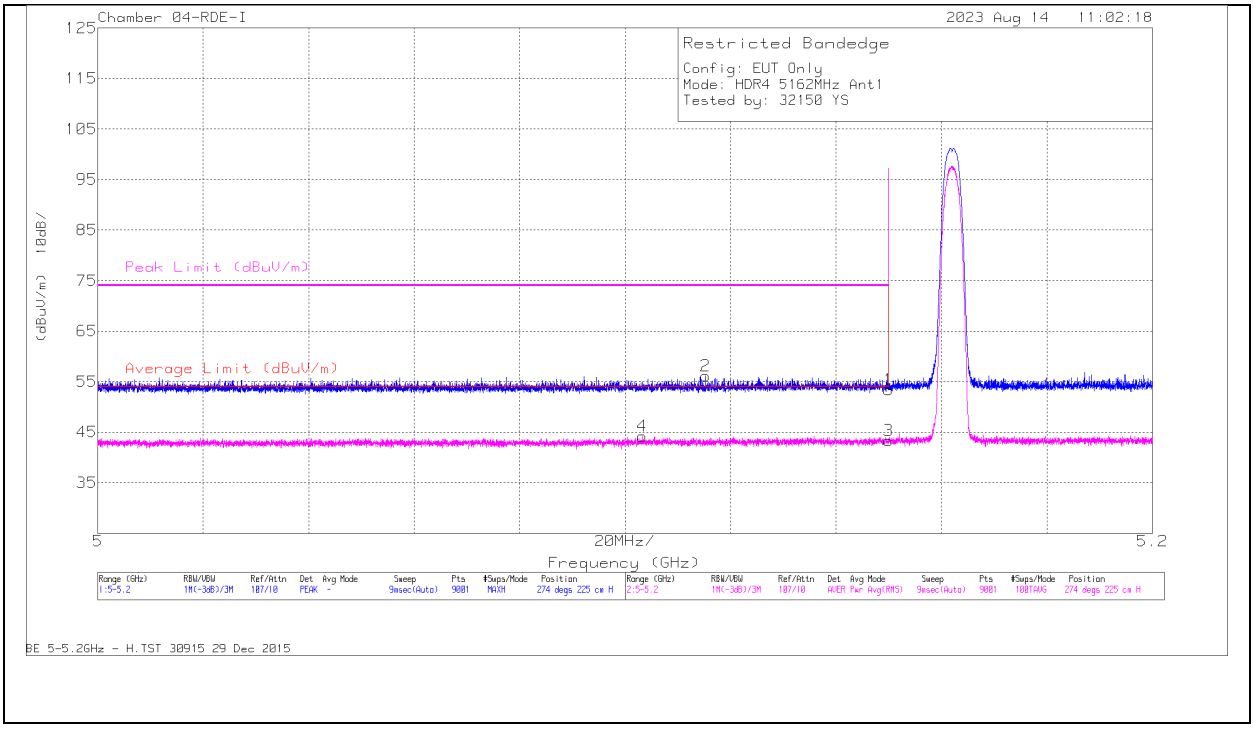
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

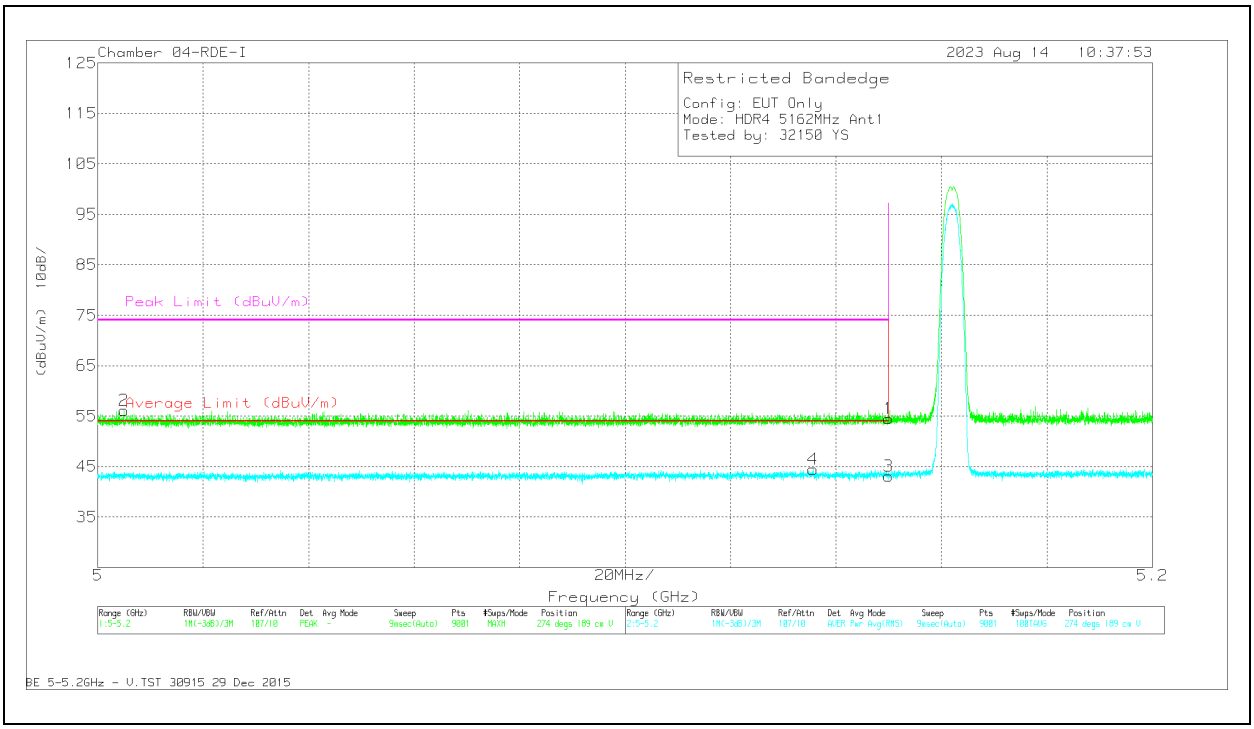


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.63	Pk	34.2	-17.4	53.43	-	-	74	-20.57	274	225	H
2	* 5.115288	39.41	Pk	34.1	-17.4	56.11	-	-	74	-17.89	274	225	H
3	* 5.15	26.56	RMS	34.2	-17.4	43.36	54	-10.64	-	-	274	225	H
4	* 5.103243	27.38	RMS	34.1	-17.3	44.18	54	-9.82	-	-	274	225	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.72	Pk	34.2	-17.4	54.52	-	-	74	-19.48	274	189	V
2	* 5.005	39.1	Pk	34	-17	56.1	-	-	74	-17.9	274	189	V
3	* 5.15	26.31	RMS	34.2	-17.4	43.11	54	-10.89	-	-	274	189	V
4	* 5.135643	27.51	RMS	34.2	-17.3	44.41	54	-9.59	-	-	274	189	V

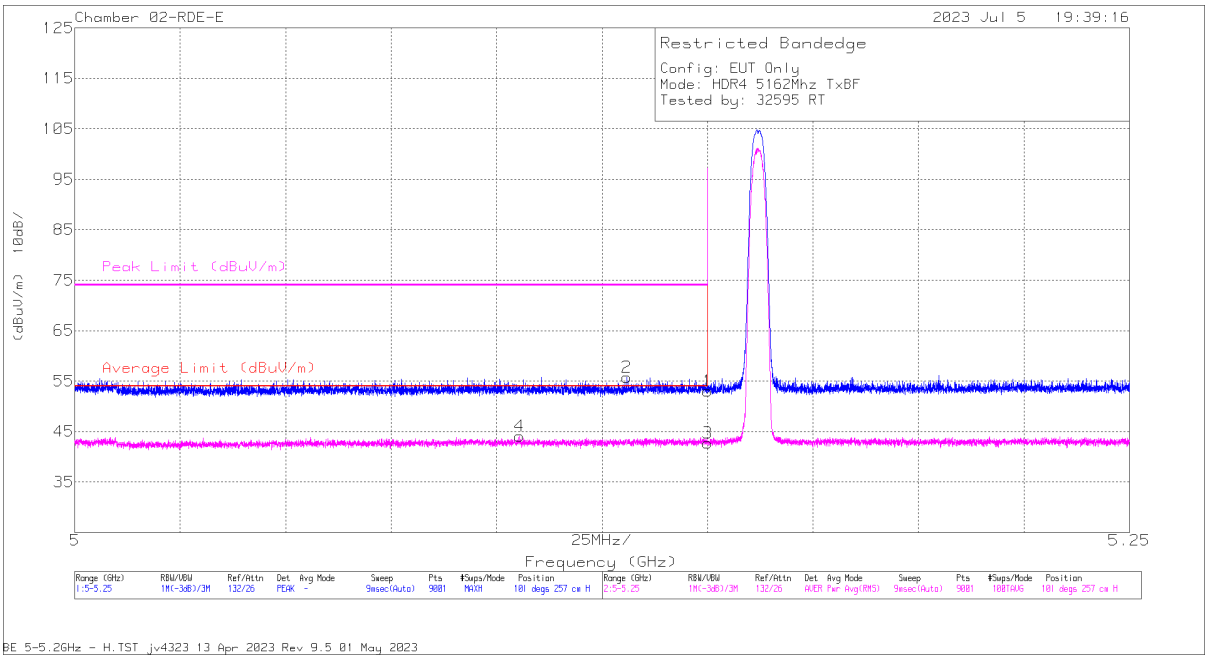
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

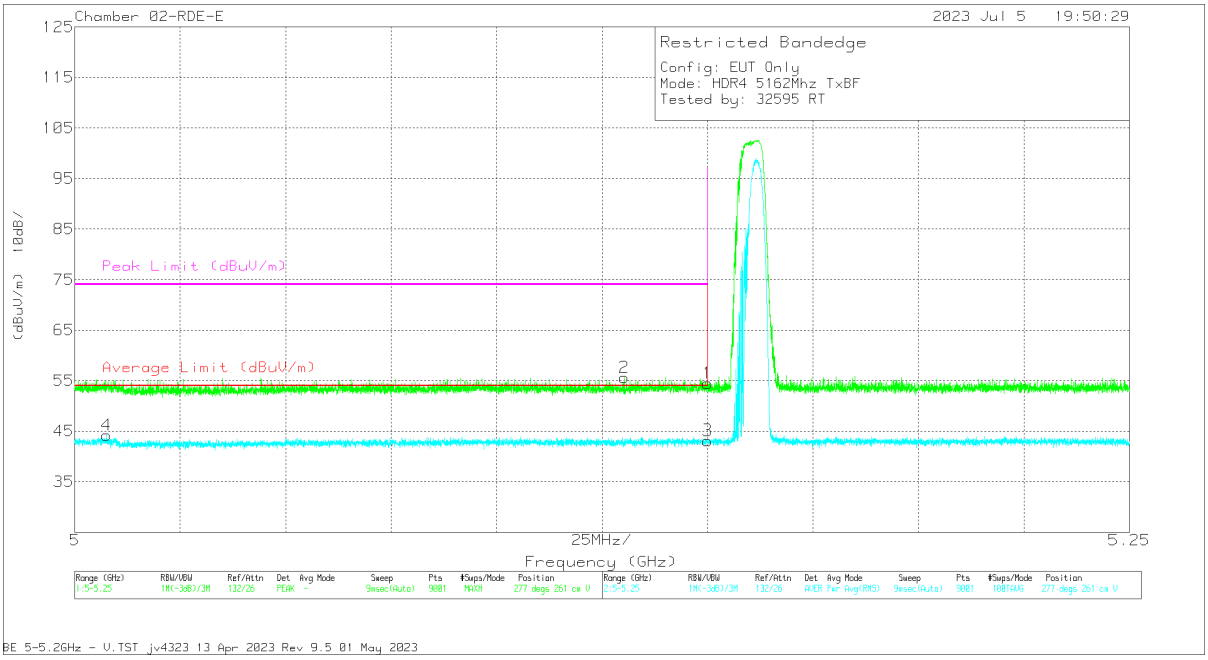


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	56.49	Pk	34.3	0	-37.8	52.99	-	-	74	-21.01	101	257	H
2	* 5.13089	59.35	Pk	34.3	0	-37.87	55.78	-	-	74	-18.22	101	257	H
3	* 5.15	46.21	RMS	34.3	0	-37.8	42.71	54	-11.29	-	-	101	257	H
4	* 5.105473	47.7	RMS	34.2	0	-37.83	44.07	54	-9.93	-	-	101	257	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



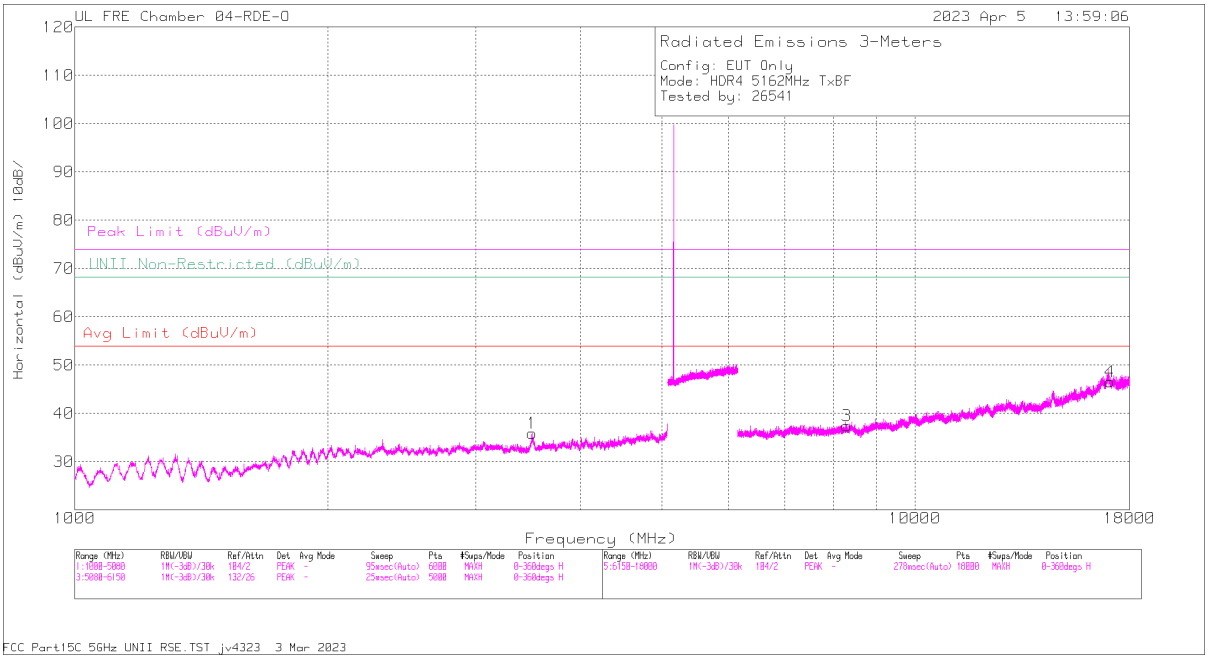
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	57.95	Pk	34.3	0	-37.8	54.45	-	-	74	-19.55	277	261	V
2	* 5.130279	59.32	Pk	34.2	0	-37.86	55.66	-	-	74	-18.34	277	261	V
3	* 5.15	46.65	RMS	34.3	0	-37.8	43.15	54	-10.85	-	-	277	261	V
4	* 5.007528	47.87	RMS	34	0	-37.61	44.26	54	-9.74	-	-	277	261	V

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

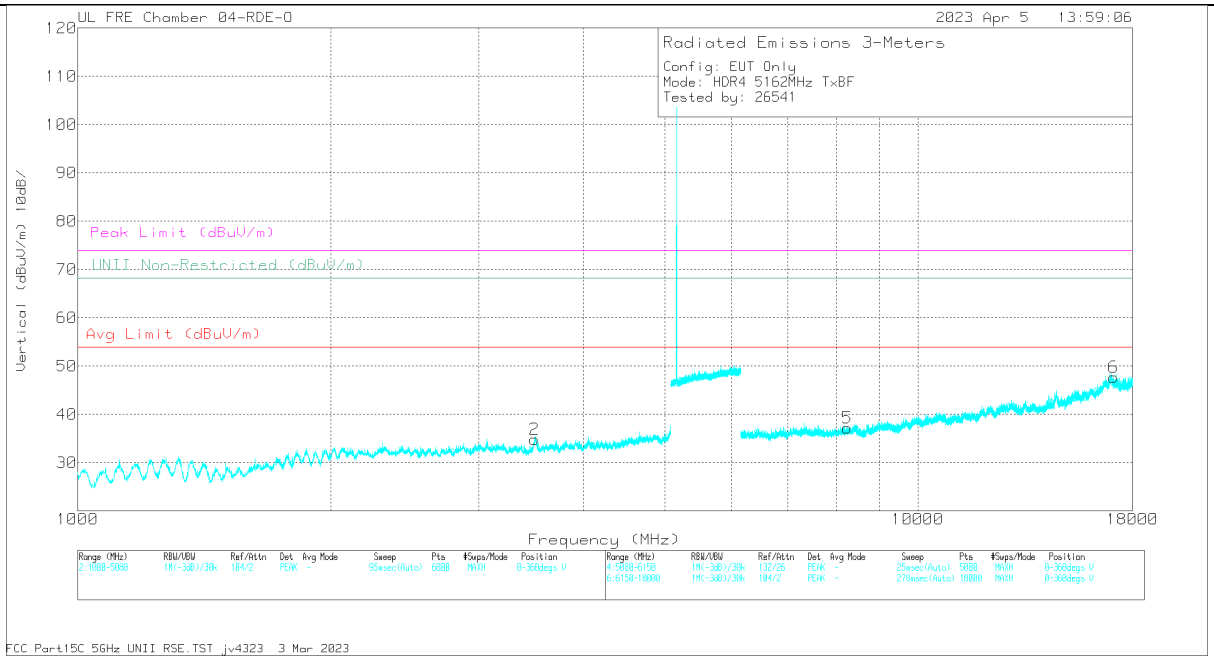
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.6 HDR4, High Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

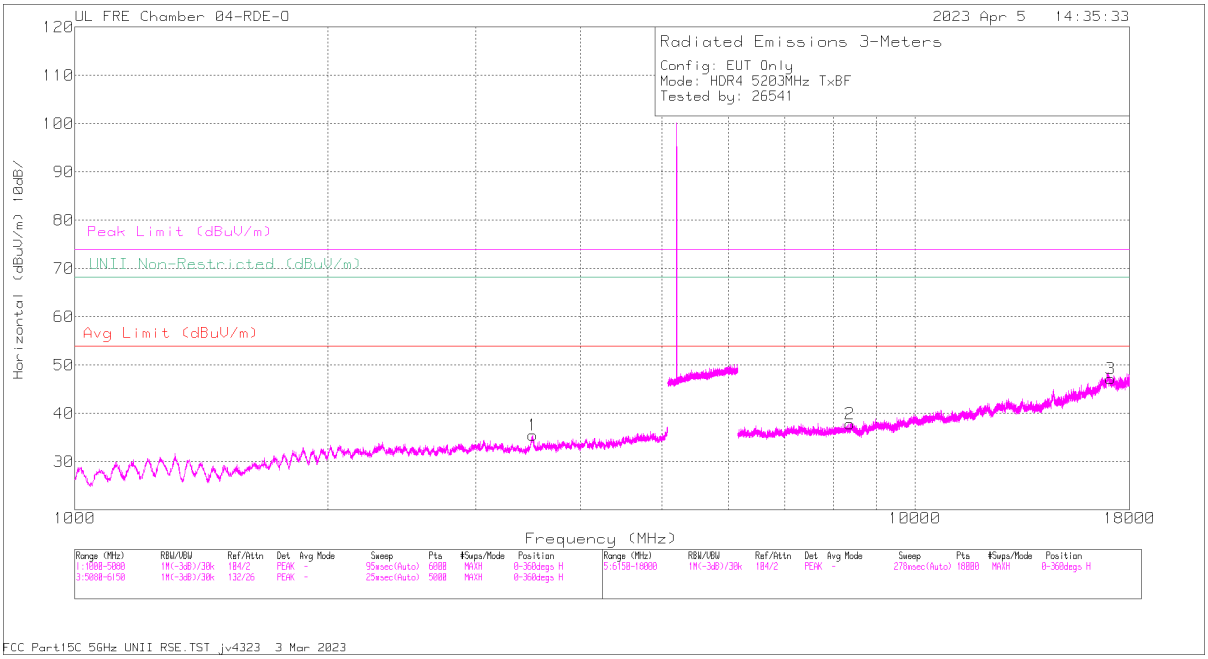
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4038.844	56.3	PK-U	33.7	-45.39	44.61	-	-	74	-29.39	-	-	0	100	H
	* 4056.656	44.39	ADR	33.9	-45.35	32.94	54	-21.06	-	-	-	-	0	100	H
3	* 8301.576	53.23	PK-U	36	-41.12	48.11	-	-	74	-25.89	-	-	0	100	H
	* 8300.594	40.92	ADR	36	-41.08	35.84	54	-18.16	-	-	-	-	0	100	H
5	* 8244.794	53.4	PK-U	35.8	-41.38	47.82	-	-	74	-26.18	-	-	0	201	V
2	3499.383	55.22	PK-U	34.9	-44.97	45.15	-	-	-	-	68.2	-23.05	0	201	V
4	17057.954	53.66	PK-U	42.8	-39.91	56.55	-	-	-	-	68.2	-11.65	0	100	H
6	17104.974	53.42	PK-U	42.9	-39.69	56.63	-	-	-	-	68.2	-11.57	0	200	V

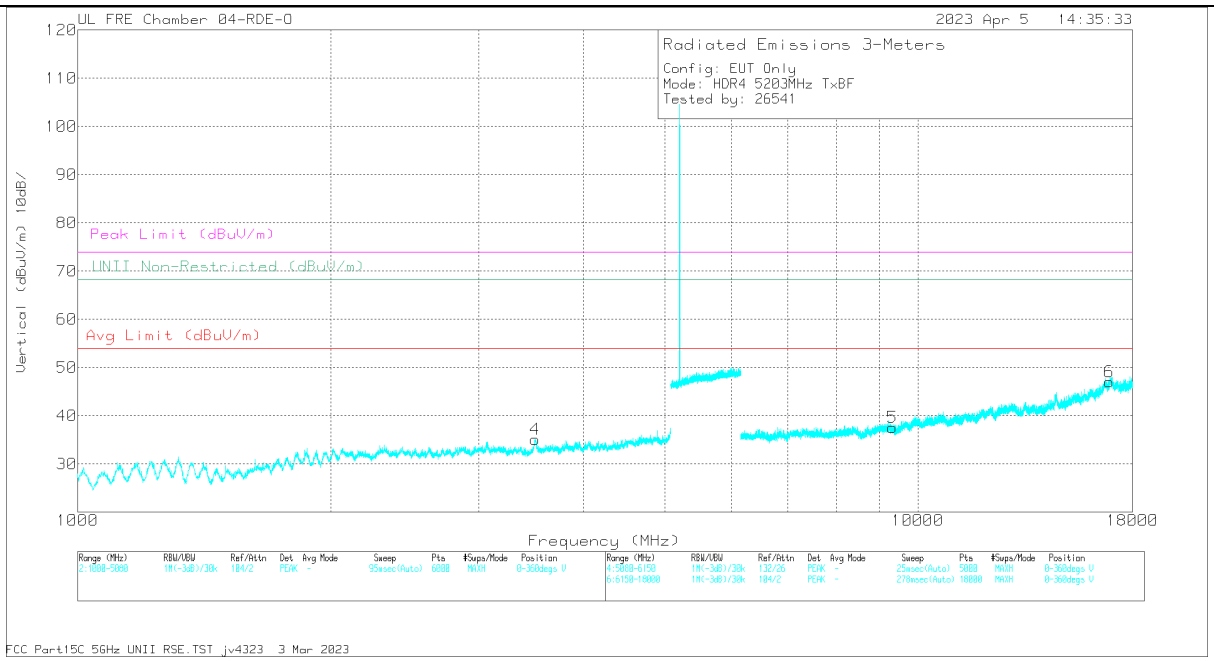
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL 5203MHz



HORIZONTAL



VERTICAL

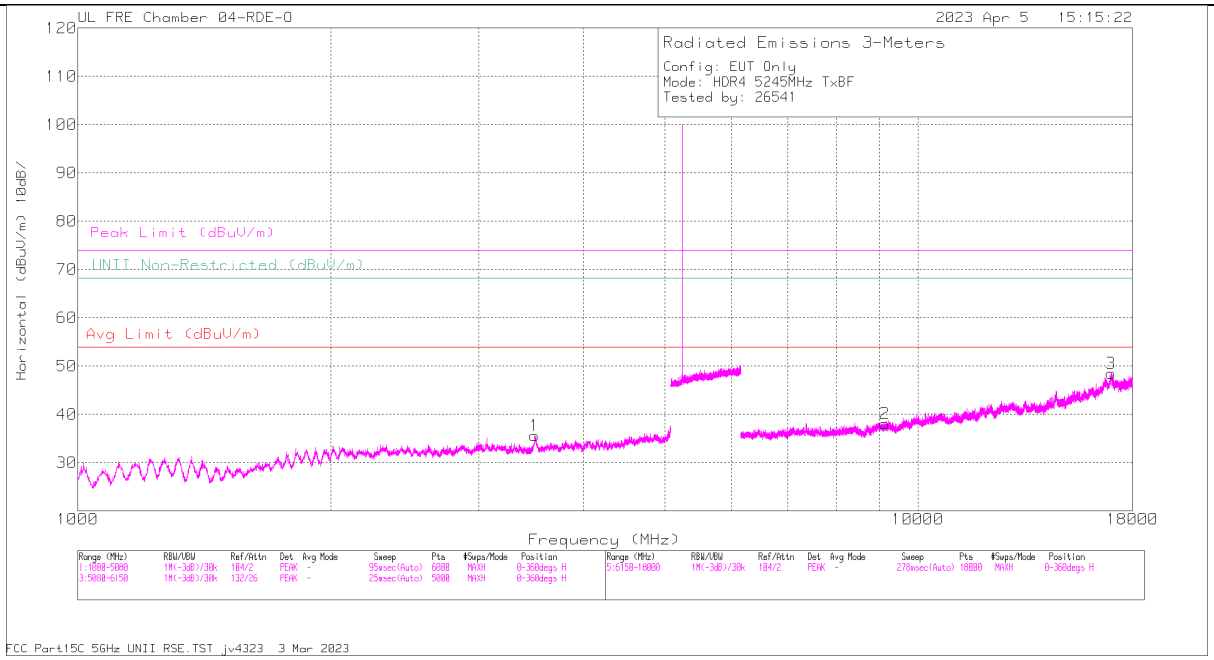
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

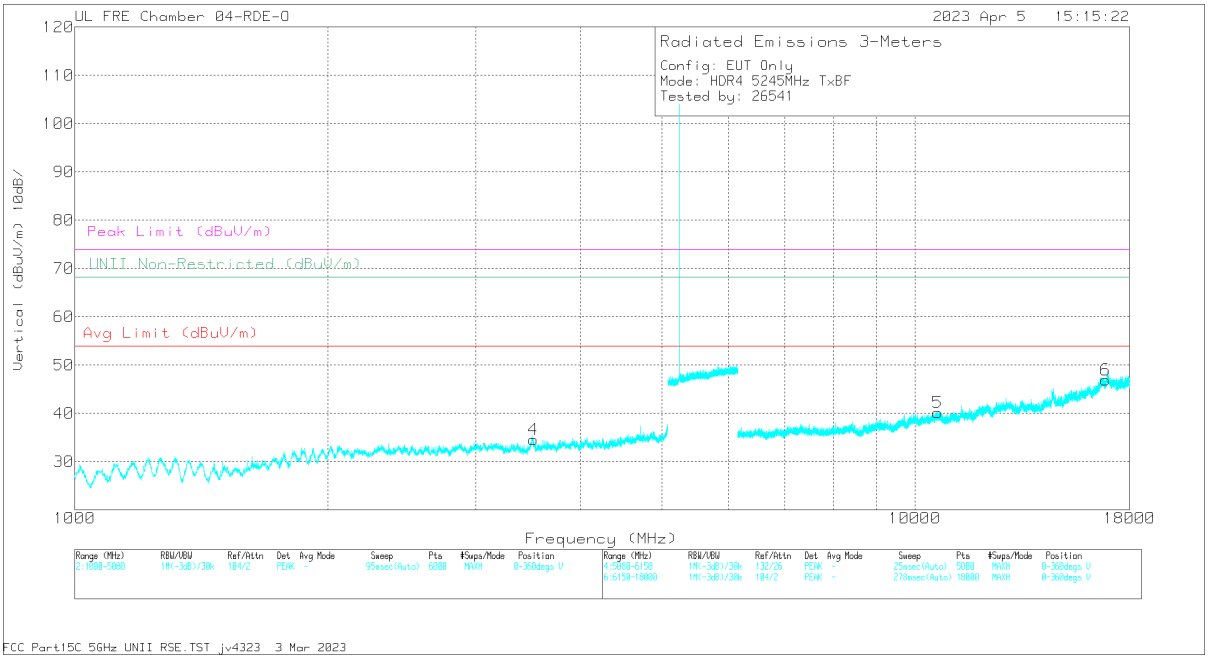
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3510.879	55.91	PK-U	33.9	-44.94	44.87	-	-	74	-29.13	-	-	0	100	H
	* 3511.379	44.17	ADR	33.8	-44.94	33.03	54	-20.97	-	-	-	-	0	100	H
4	* 3503.551	56.13	PK-U	34.9	-45.02	46.01	-	-	74	-27.99	-	-	0	201	V
	* 3503.511	44.14	ADR	34.9	-45.02	34.02	54	-19.98	-	-	-	-	0	201	V
2	* 8362.68	53.28	PK-U	36	-41.42	47.86	-	-	74	-26.14	-	-	0	100	H
	* 8364.558	41.07	ADR	36	-41.43	35.64	54	-18.36	-	-	-	-	0	100	H
5	* 9325.201	53.24	PK-U	36.5	-42.02	47.72	-	-	74	-26.28	-	-	0	201	V
	* 9323.579	41.62	ADR	36.5	-42.05	36.07	54	-17.93	-	-	-	-	0	201	V
6	16899.829	53.7	PK-U	43.1	-39.71	57.09	-	-	-	-	68.2	-11.11	0	200	V
3	17101.123	53.56	PK-U	42.9	-39.53	56.93	-	-	-	-	68.2	-11.27	0	100	H

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3512.684	55.85	PK-U	33.7	-44.95	44.6	-	-	74	-29.4	-	-	0	201	V
	* 3513.07	44.32	ADR	33.7	-44.95	33.07	54	-20.93	-	-	-	-	0	201	V
2	* 9126.93	53.24	PK-U	36.3	-41.46	48.08	-	-	74	-25.92	-	-	0	100	H
	* 9128.959	41.45	ADR	36.1	-41.5	36.05	54	-17.95	-	-	-	-	0	100	H
5	* 10639.533	53.21	PK-U	37.7	-40.79	50.12	-	-	74	-23.88	-	-	0	201	V
	* 10641.102	41.49	ADR	37.7	-40.8	38.39	54	-15.61	-	-	-	-	0	201	V
1	3498.051	55.94	PK-U	34.8	-44.99	45.75	-	-	-	-	68.2	-22.45	0	100	H
6	16864.072	54.35	PK-U	43	-40.08	57.27	-	-	-	-	68.2	-10.93	0	200	V
3	16979.083	53.25	PK-U	43	-38.23	58.02	-	-	-	-	68.2	-10.18	0	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

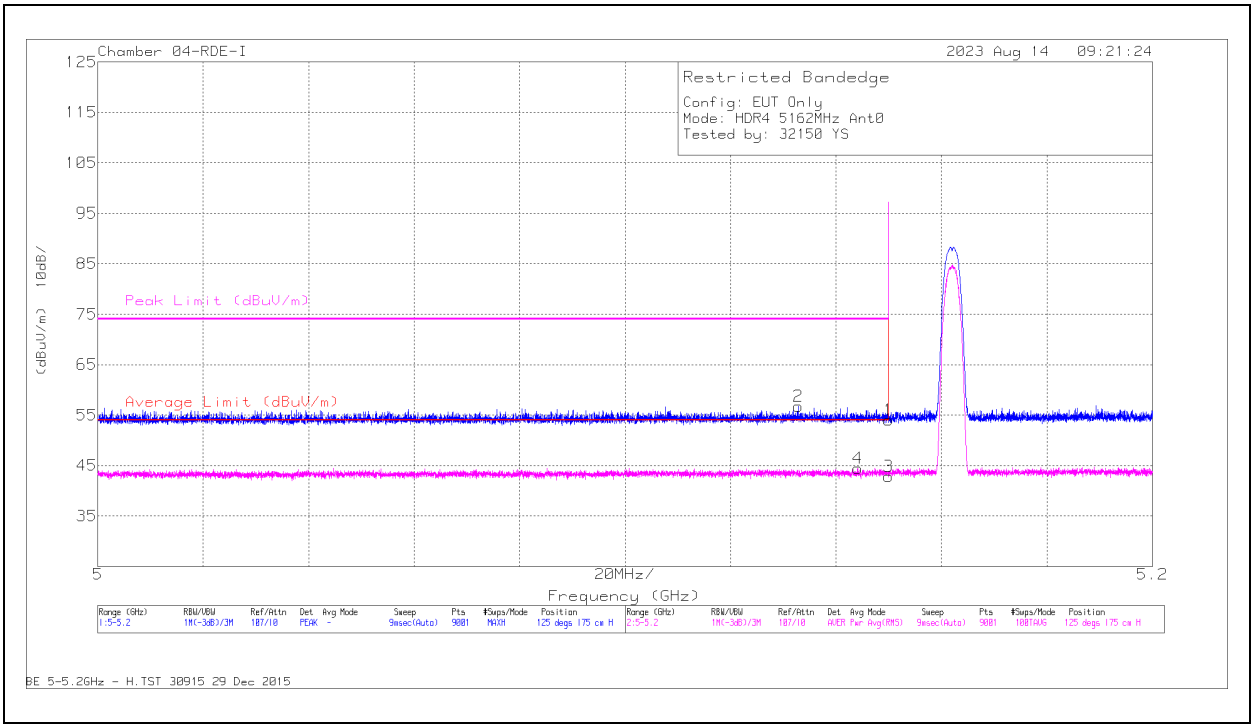
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.7 HDR4, LOW POWER UNII-1 BANDEDGE

ANT 6

Low Channel

HORIZONTAL RESULT

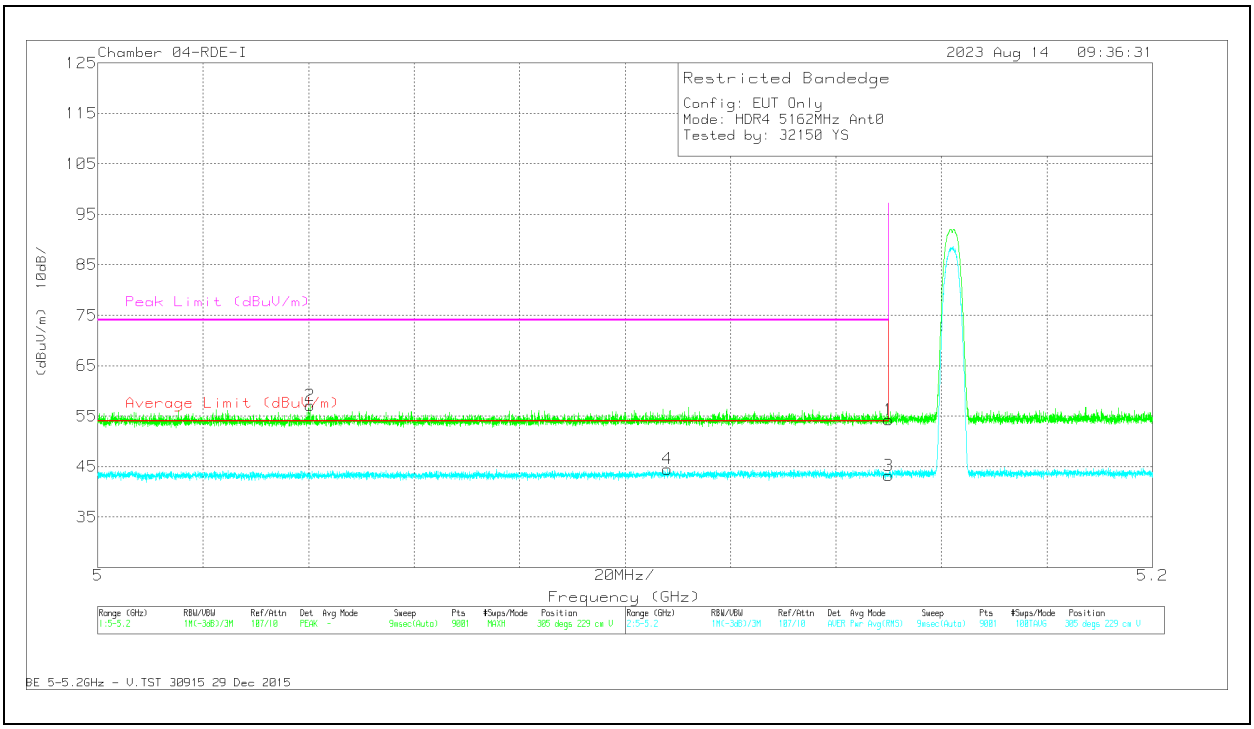


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.25	Pk	34.2	-17.4	54.05	-	-	74	-19.95	125	175	H
2	* 5.132799	39.86	Pk	34.2	-17.3	56.76	-	-	74	-17.24	125	175	H
3	* 5.15	25.99	RMS	34.2	-17.4	42.79	54	-11.21	-	-	125	175	H
4	* 5.144087	27.67	RMS	34.2	-17.4	44.47	54	-9.53	-	-	125	175	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.47	Pk	34.2	-17.4	54.27	-	-	74	-19.73	305	229	V
2	* 5.040288	40.11	Pk	34.1	-17.1	57.11	-	-	74	-16.89	305	229	V
3	* 5.15	26.38	RMS	34.2	-17.4	43.18	54	-10.82	-	-	305	229	V
4	* 5.107999	27.62	RMS	34.1	-17.2	44.52	54	-9.48	-	-	305	229	V

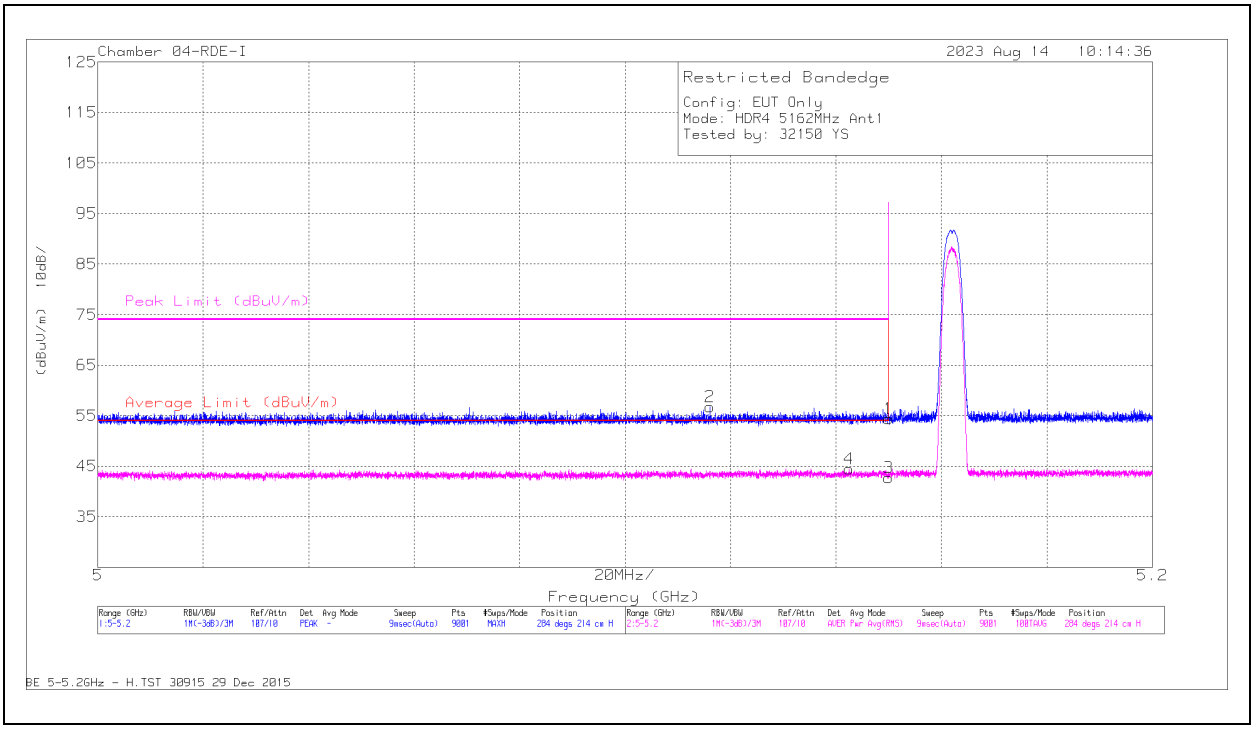
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

Low Channel

HORIZONTAL RESULT

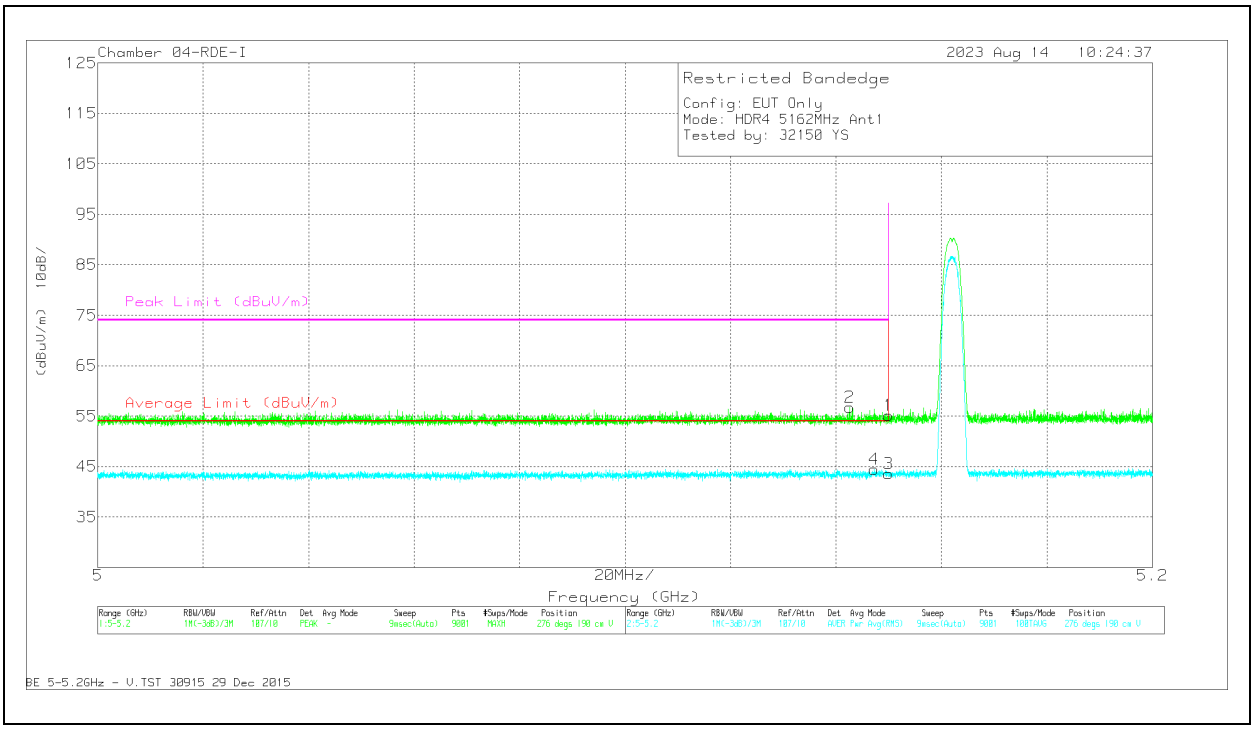


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.6	Pk	34.2	-17.4	54.4	-	-	74	-19.6	284	214	H
2	* 5.116066	39.93	Pk	34.1	-17.3	56.73	-	-	74	-17.27	284	214	H
3	* 5.15	25.91	RMS	34.2	-17.4	42.71	54	-11.29	-	-	284	214	H
4	* 5.142443	27.67	RMS	34.2	-17.4	44.47	54	-9.53	-	-	284	214	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.33	Pk	34.2	-17.4	55.13	-	-	74	-18.87	276	190	V
2	* 5.142554	39.95	Pk	34.2	-17.4	56.75	-	-	74	-17.25	276	190	V
3	* 5.15	26.83	RMS	34.2	-17.4	43.63	54	-10.37	-	-	276	190	V
4	* 5.147199	27.56	RMS	34.2	-17.3	44.46	54	-9.54	-	-	276	190	V

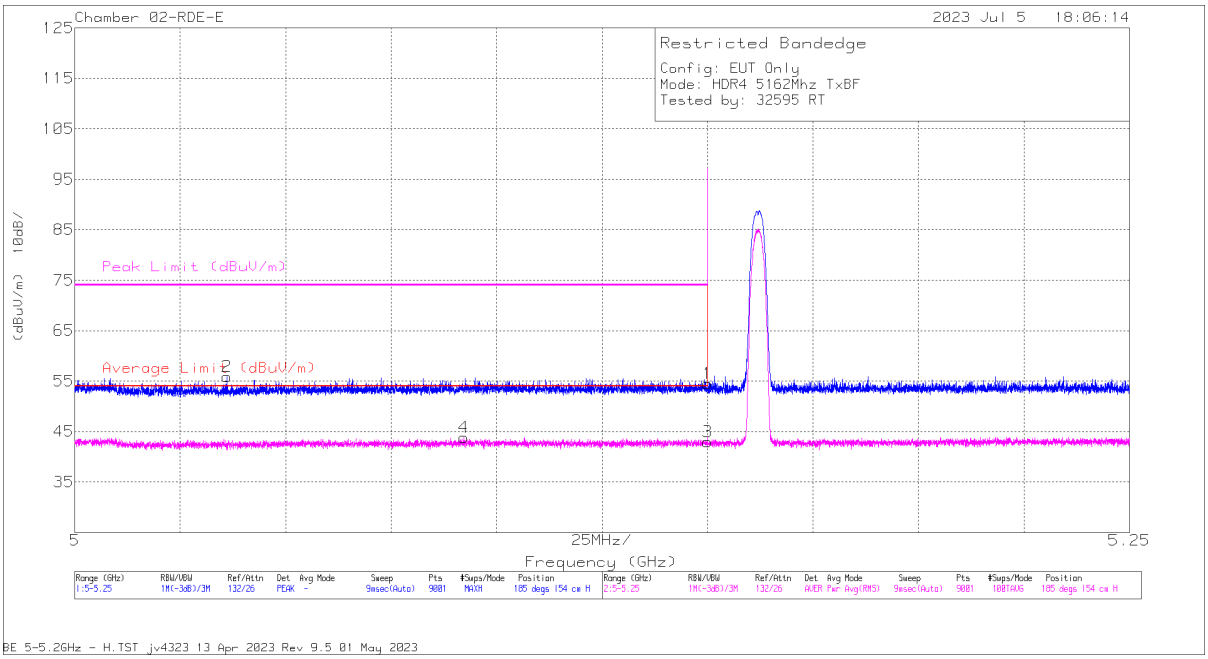
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

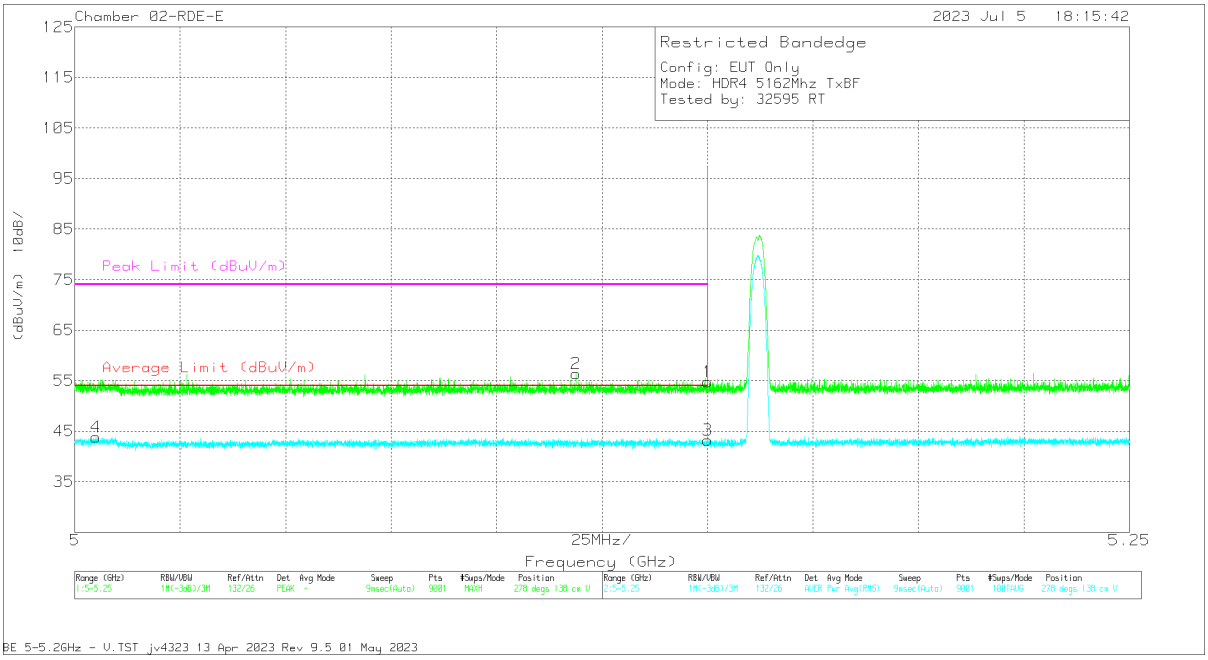


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	58.02	Pk	34.3	0	-37.8	54.52	-	-	74	-19.48	185	154	H
2	* 5.036056	59.61	Pk	34	0	-37.7	55.91	-	-	74	-18.09	185	154	H
3	* 5.15	46.46	RMS	34.3	0	-37.8	42.96	54	-11.04	-	-	185	154	H
4	* 5.092195	47.41	RMS	34.2	0	-37.74	43.87	54	-10.13	-	-	185	154	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



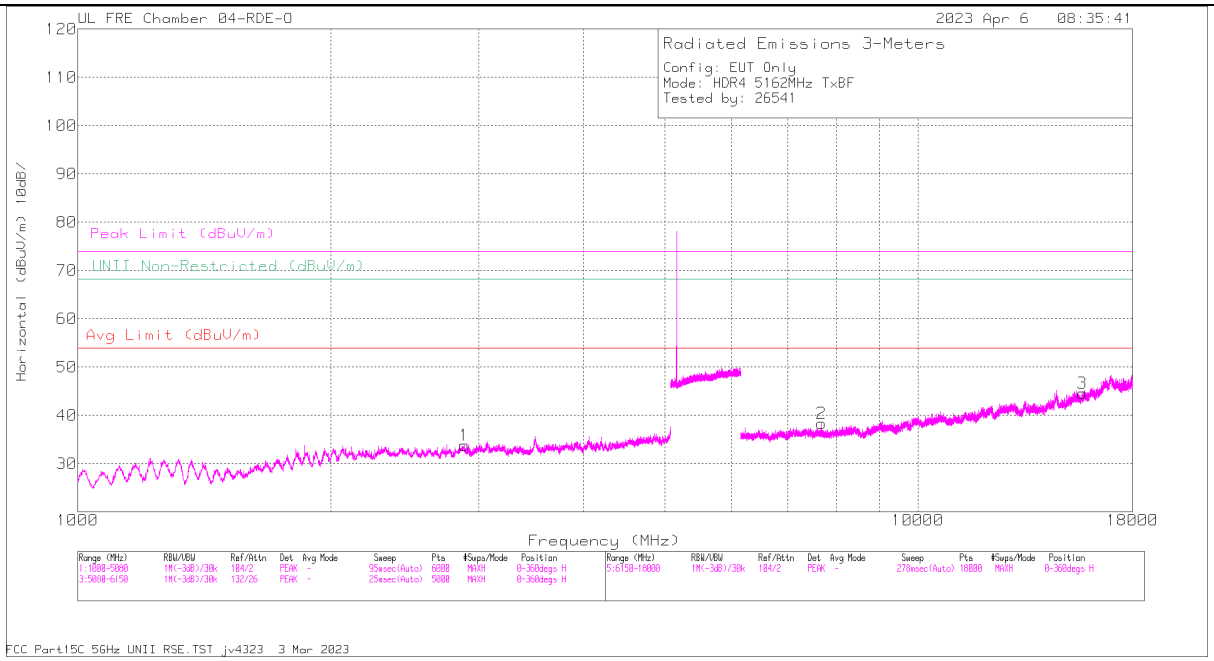
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	58.27	Pk	34.3	0	-37.8	54.77	-	-	74	-19.23	278	138	V
2	* 5.118779	60.05	Pk	34.2	0	-37.88	56.37	-	-	74	-17.63	278	138	V
3	* 5.15	46.73	RMS	34.3	0	-37.8	43.23	54	-10.77	-	-	278	138	V
4	* 5.005028	47.5	RMS	34	0	-37.69	43.81	54	-10.19	-	-	278	138	V

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

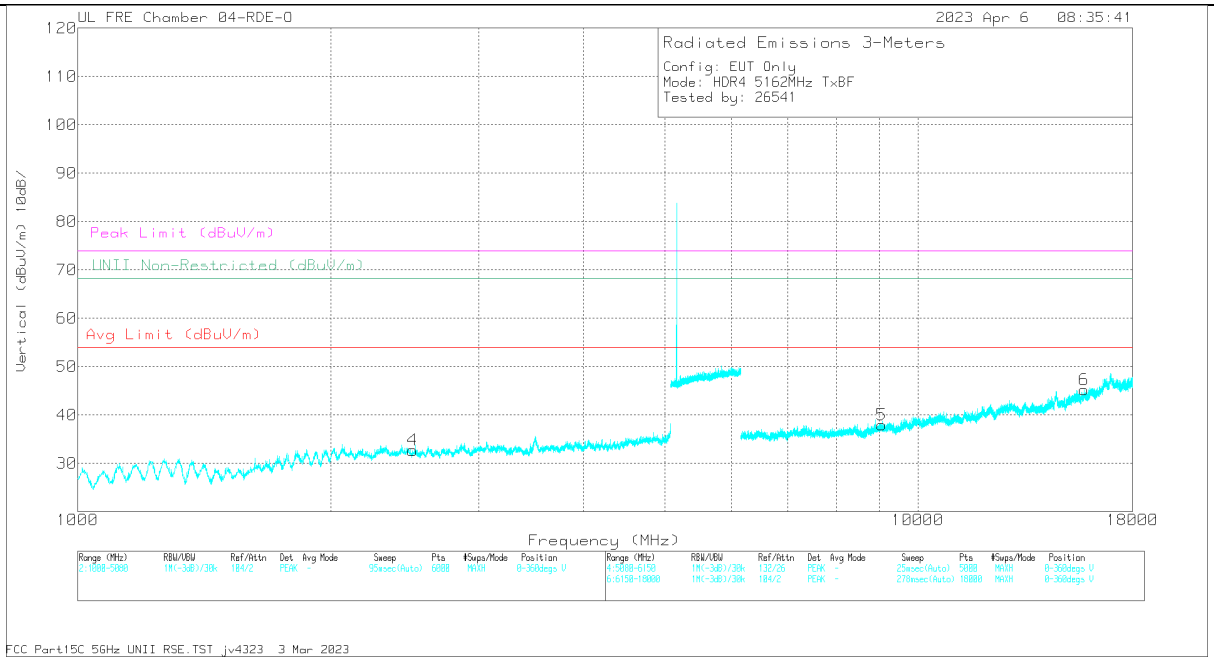
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.8 HDR4, LOW Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

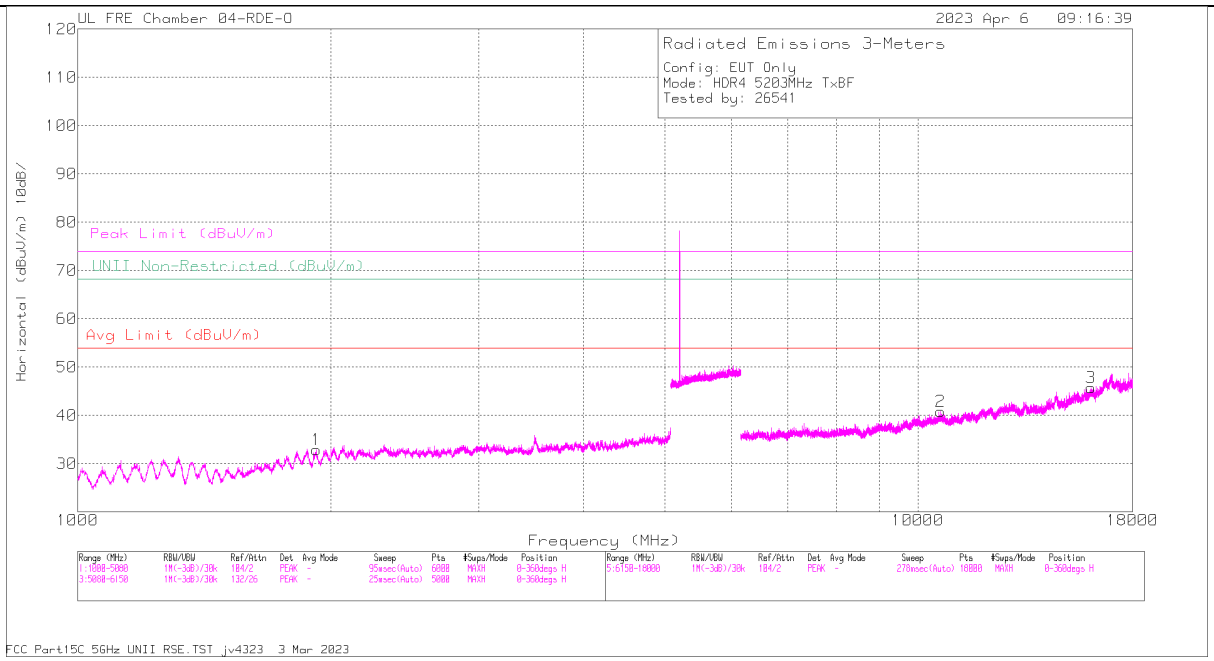
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2881.42	56.77	PK-U	33	-46.09	43.68	-	-	74	-30.32	-	-	360	100	H
	* 2881.252	45.04	ADR	33	-46.09	31.95	54	-22.05	-	-	-	-	360	100	H
2	* 7679.102	52.5	PK-U	35.9	-42.17	46.23	-	-	74	-27.77	-	-	360	100	H
	* 7676.173	41.34	ADR	36	-42.12	35.22	54	-18.78	-	-	-	-	360	100	H
3	* 15696.014	52.62	PK-U	40.9	-40.36	53.16	-	-	74	-20.84	-	-	360	100	H
	* 15696.88	41.49	ADR	40.9	-40.33	42.06	54	-11.94	-	-	-	-	360	100	H
5	* 9060.203	52.95	PK-U	36.3	-41.65	47.6	-	-	74	-26.4	-	-	360	201	V
	* 9059.038	41.23	ADR	36.3	-41.61	35.92	54	-18.08	-	-	-	-	360	201	V
6	* 15772.005	52.99	PK-U	40.9	-39.16	54.73	-	-	74	-19.27	-	-	360	200	V
	* 15772.024	41.49	ADR	40.9	-39.16	43.23	54	-10.77	-	-	-	-	360	200	V
4	2501.752	57.13	PK-U	32.2	-46.75	42.58	-	-	-	-	68.2	-25.62	360	201	V

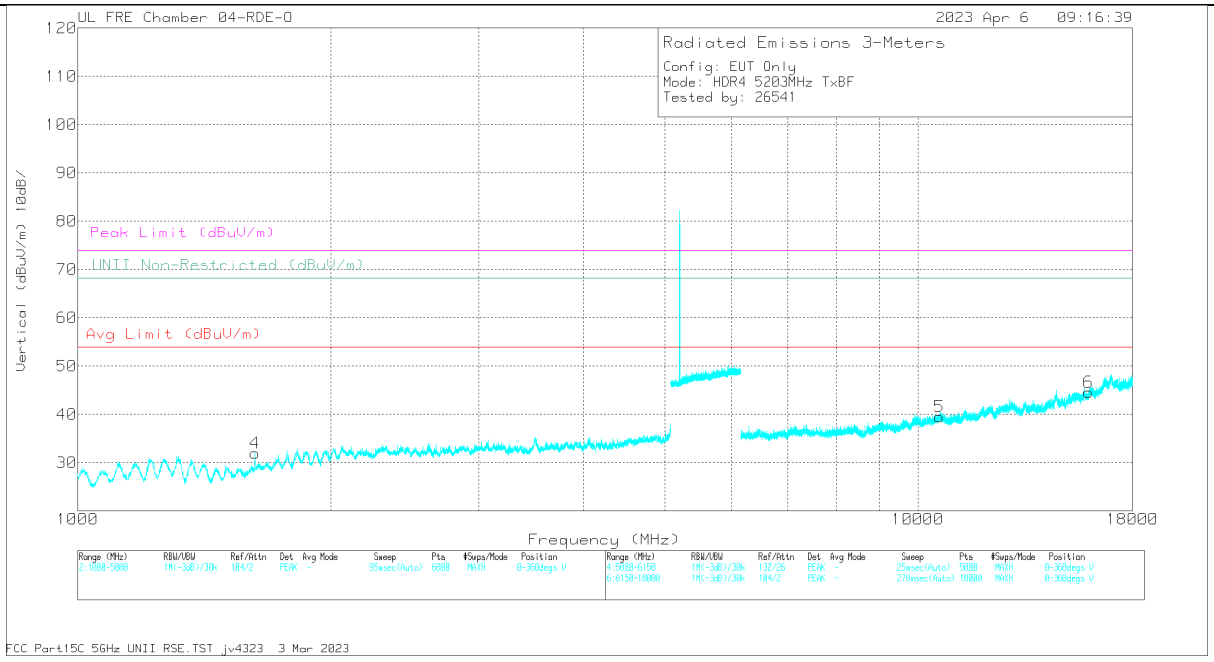
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL 5203MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

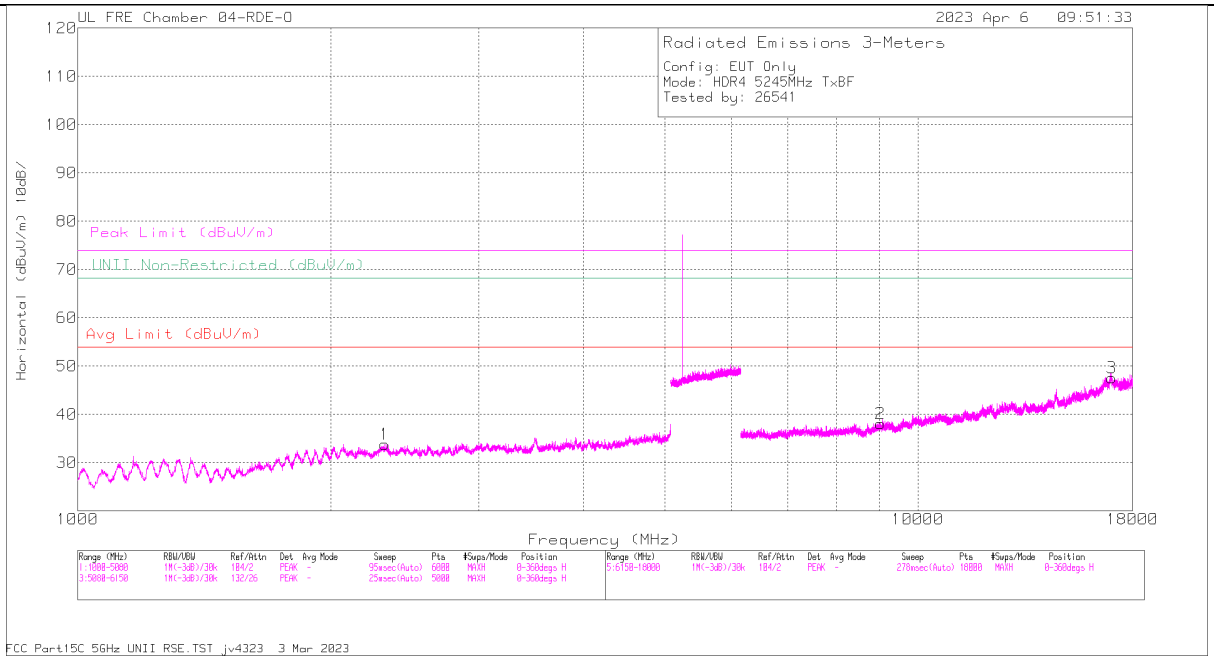
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1623.445	57.68	PK-U	28.8	-46.69	39.79	-	-	74	-34.21	-	-	360	201	V
	* 1625.553	45.62	ADR	28.8	-46.7	27.72	54	-26.28	-	-	-	-	360	201	V
2	* 10644.999	53.26	PK-U	37.6	-40.82	50.04	-	-	74	-23.96	-	-	360	100	H
	* 10643.572	41.45	ADR	37.6	-40.81	38.24	54	-15.76	-	-	-	-	360	100	H
3	* 16073.937	53.6	PK-U	41.3	-39.87	55.03	-	-	74	-18.97	-	-	360	100	H
	* 16075.119	41.85	ADR	41.3	-39.82	43.33	54	-10.67	-	-	-	-	360	100	H
5	* 10614.394	52.87	PK-U	37.5	-40.99	49.38	-	-	74	-24.62	-	-	360	201	V
	* 10613.236	41.54	ADR	37.5	-40.99	38.05	54	-15.95	-	-	-	-	360	201	V
6	* 15966.026	53.52	PK-U	41.1	-40	54.62	-	-	74	-19.38	-	-	360	200	V
	* 15967.109	41.79	ADR	41.1	-40.01	42.88	54	-11.12	-	-	-	-	360	200	V
1	1923.225	58.4	PK-U	31.1	-46.65	42.85	-	-	-	-	68.2	-25.35	360	100	H

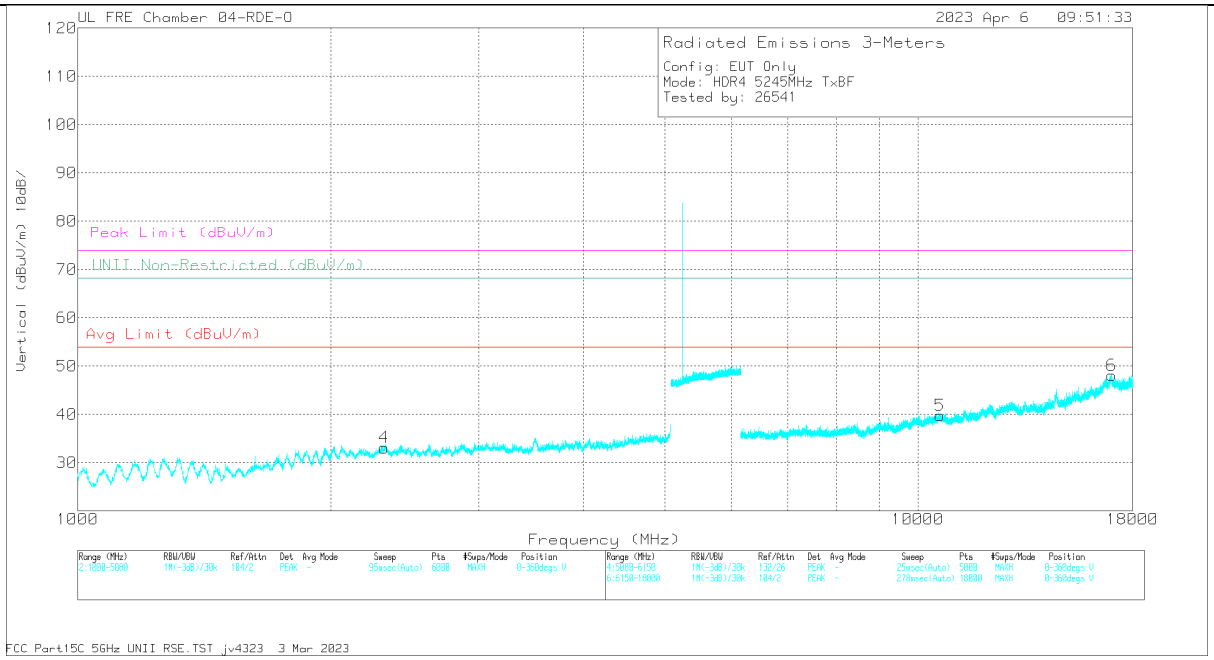
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2316.767	57.62	PK-U	32.7	-46.98	43.34	-	-	74	-30.66	-	-	360	100	H
	* 2318.03	46.18	ADR	32.7	-47	31.88	54	-22.12	-	-	-	-	360	100	H
4	* 2314.365	57.8	PK-U	32.7	-47.02	43.48	-	-	74	-30.52	-	-	360	201	V
	* 2312.929	46.12	ADR	32.7	-47.07	31.75	54	-22.25	-	-	-	-	360	201	V
2	* 9018.623	53.89	PK-U	36.3	-41.62	48.57	-	-	74	-25.43	-	-	360	100	H
	* 9020.047	41.54	ADR	36.3	-41.66	36.18	54	-17.82	-	-	-	-	360	100	H
5	* 10626.863	52.86	PK-U	37.7	-40.84	49.72	-	-	74	-24.28	-	-	360	201	V
	* 10624.894	41.5	ADR	37.7	-40.87	38.33	54	-15.67	-	-	-	-	360	201	V
3	17007.349	53.31	PK-U	43	-39.48	56.83	-	-	-	-	68.2	-11.37	360	100	H
6	17015.95	53.57	PK-U	42.9	-39.45	57.02	-	-	-	-	68.2	-11.18	360	200	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

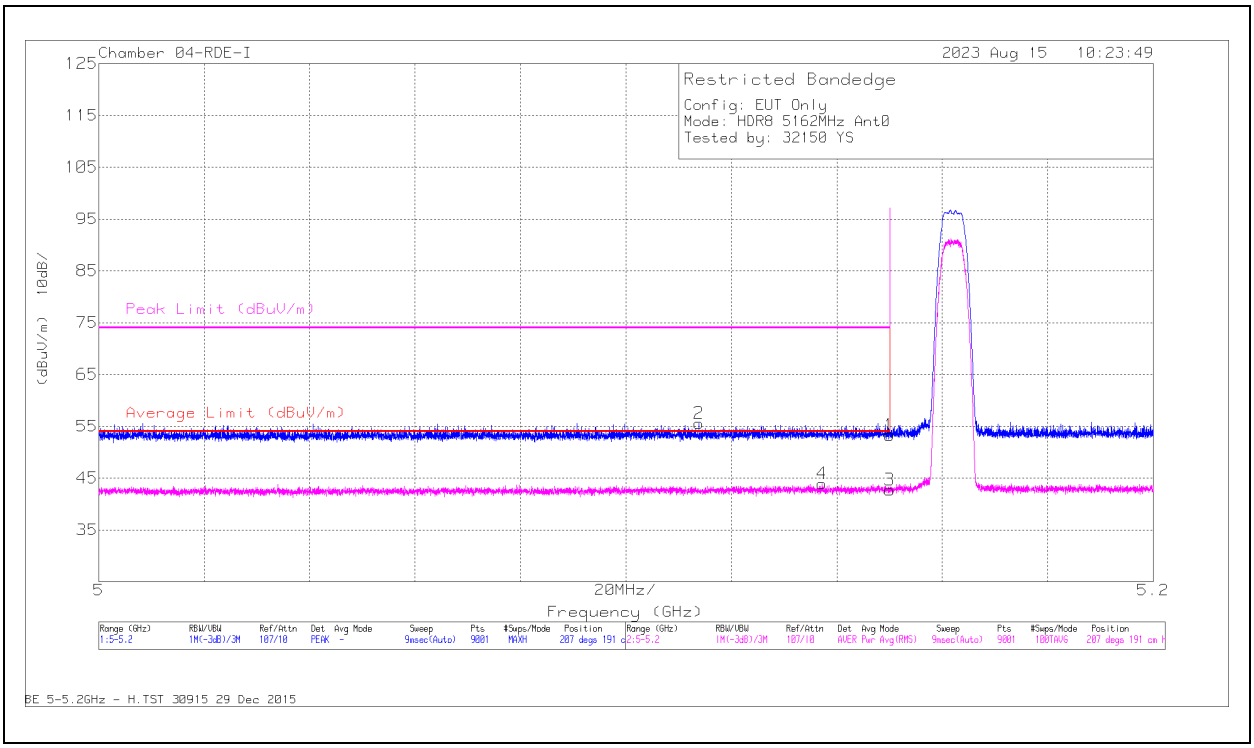
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.9 HDR8, HIGH POWER UNII-1 BANDEDGE low fund

ANT 6

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

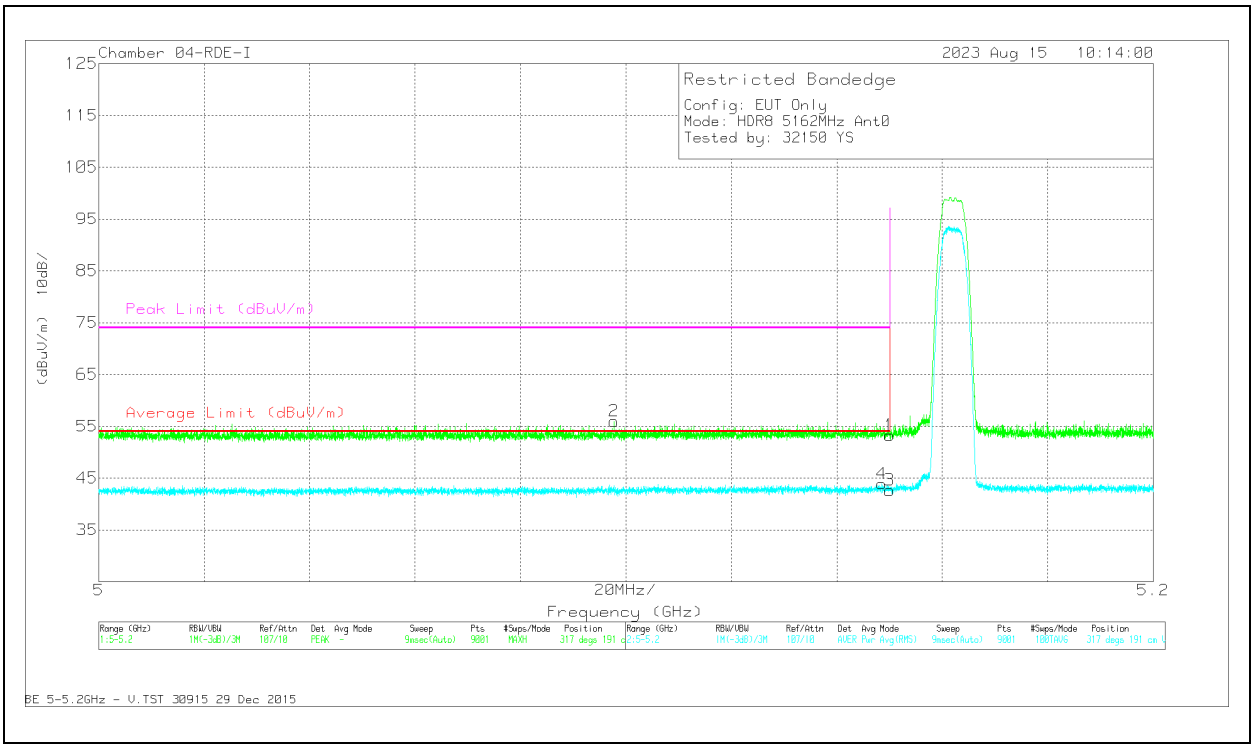


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.55	Pk	34.2	-17.4	53.35	-	-	74	-20.65	207	191	H
2	* 5.113799	38.86	Pk	34.1	-17.4	55.56	-	-	74	-18.44	207	191	H
3	* 5.15	25.93	RMS	34.2	-17.4	42.73	54	-11.27	-	-	207	191	H
4	* 5.137221	27.02	RMS	34.2	-17.3	43.92	54	-10.08	-	-	207	191	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.45	Pk	34.2	-17.4	53.25	-	-	74	-20.75	317	191	V
2	* 5.097732	39.19	Pk	34.1	-17.3	55.99	-	-	74	-18.01	317	191	V
3	* 5.15	25.87	RMS	34.2	-17.4	42.67	54	-11.33	-	-	317	191	V
4	* 5.148532	27	RMS	34.2	-17.3	43.9	54	-10.1	-	-	317	191	V

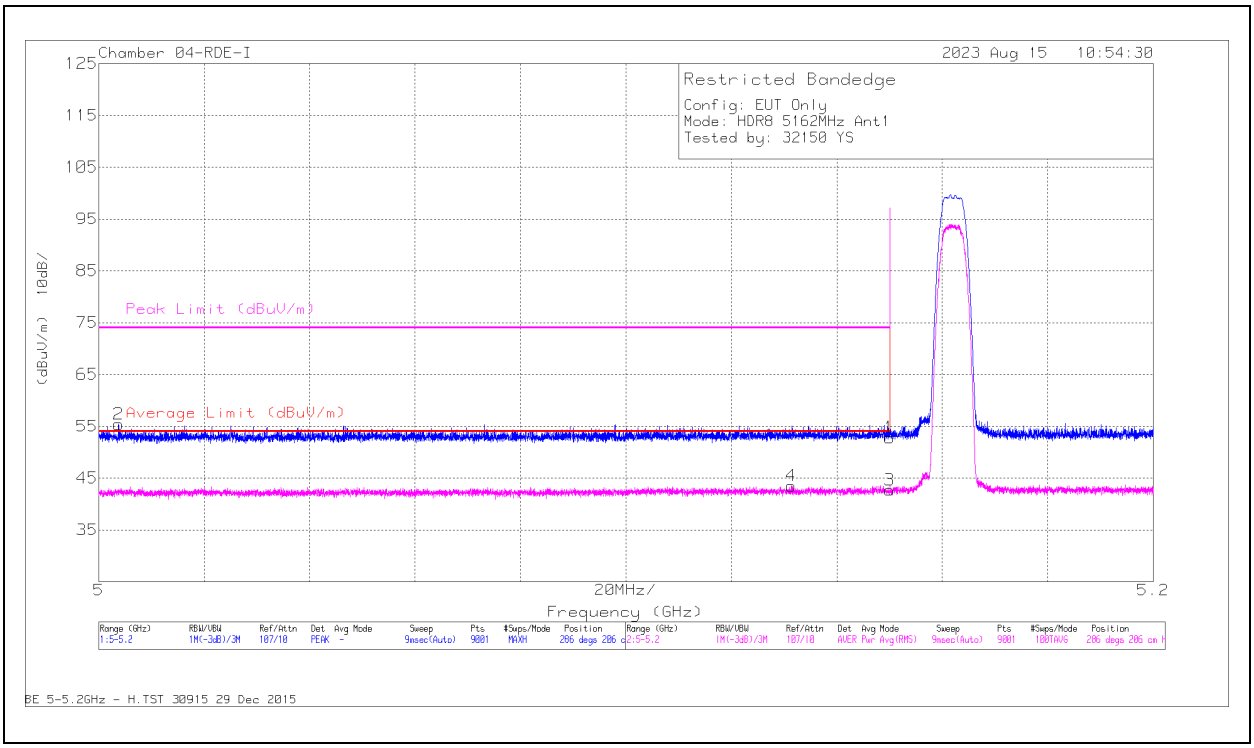
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

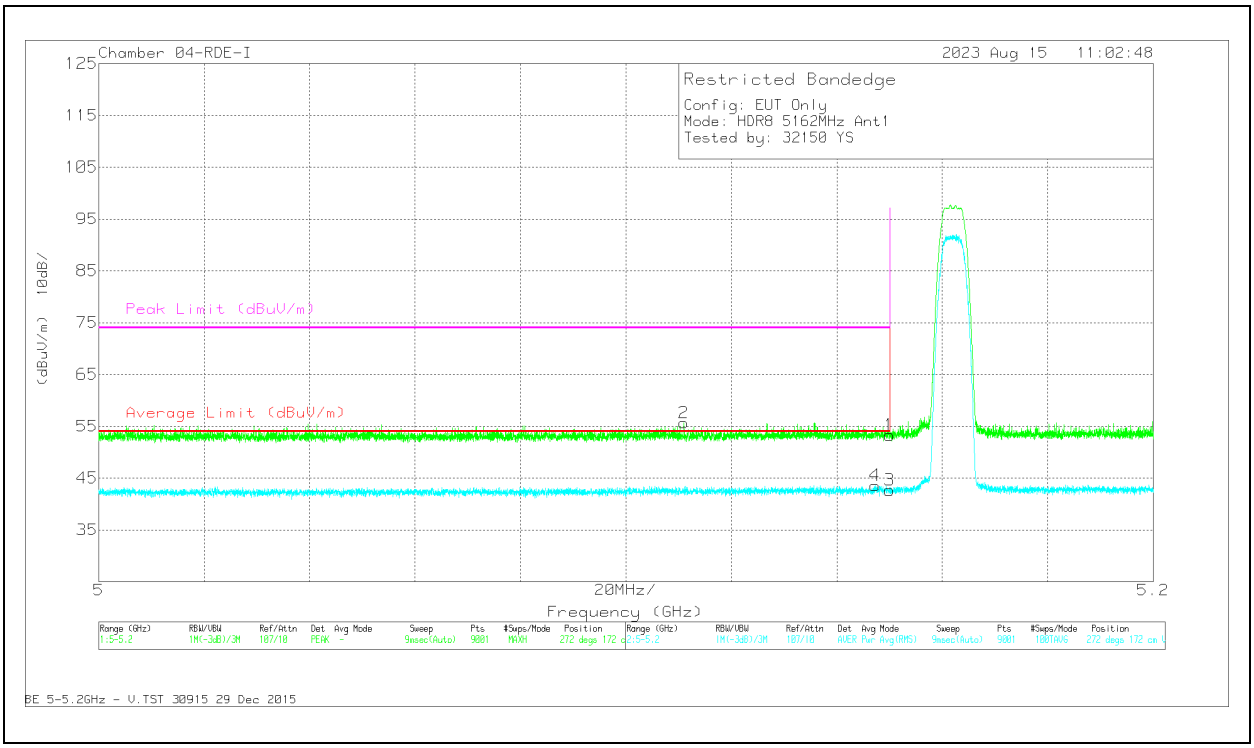


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36	Pk	34.2	-17.4	52.8	-	-	74	-21.2	286	206	H
2	* 5.003778	38.39	Pk	34	-17	55.39	-	-	74	-18.61	286	206	H
3	* 5.15	25.9	RMS	34.2	-17.4	42.7	54	-11.3	-	-	286	206	H
4	* 5.131376	26.63	RMS	34.2	-17.3	43.53	54	-10.47	-	-	286	206	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.52	Pk	34.2	-17.4	53.32	-	-	74	-20.68	272	172	V
2	* 5.110999	38.96	Pk	34.1	-17.4	55.66	-	-	74	-18.34	272	172	V
3	* 5.15	25.88	RMS	34.2	-17.4	42.68	54	-11.32	-	-	272	172	V
4	* 5.147265	26.68	RMS	34.2	-17.3	43.58	54	-10.42	-	-	272	172	V

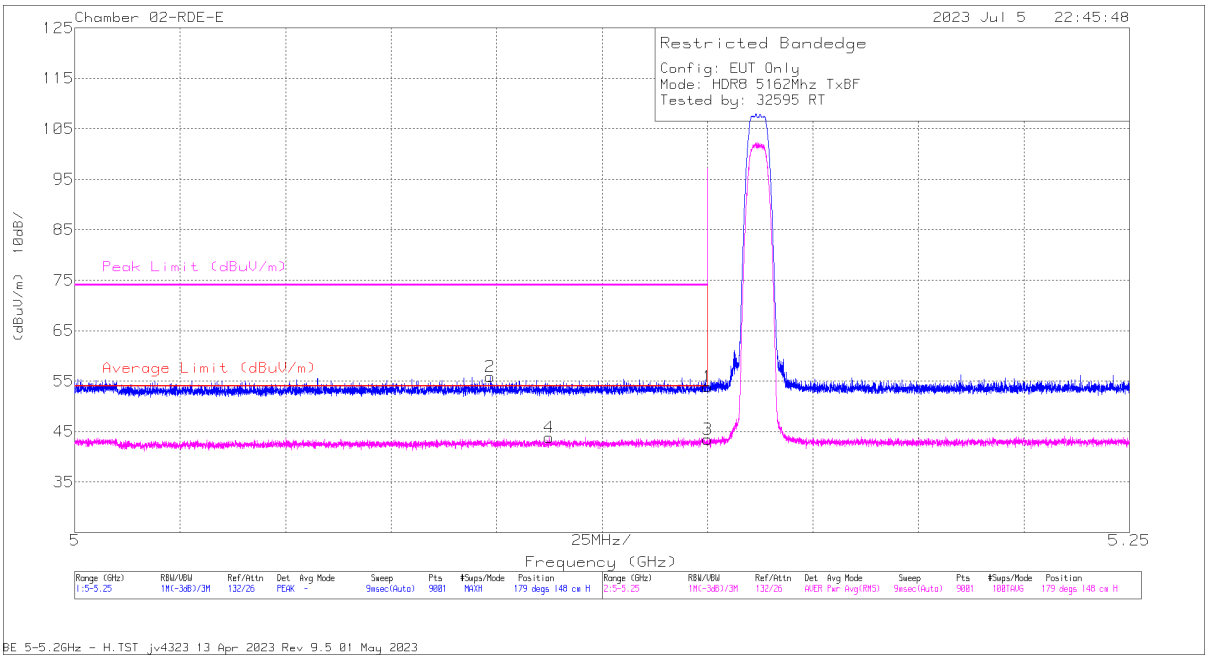
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

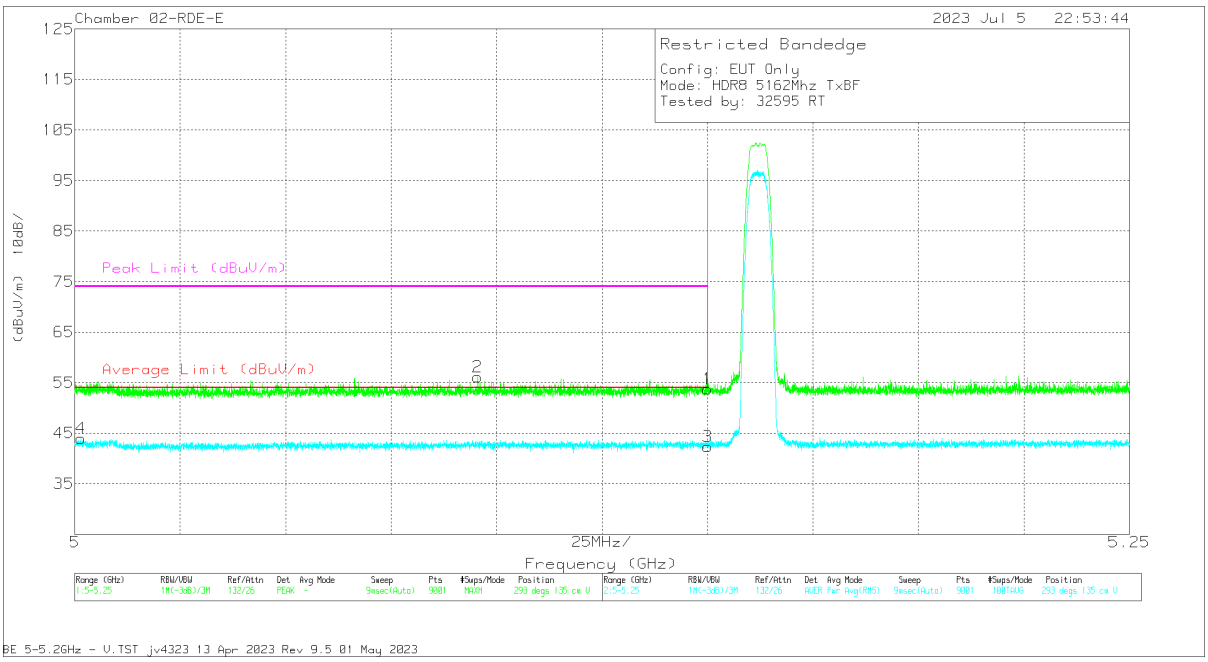


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	57.42	Pk	34.3	0	-37.8	53.92	-	-	74	-20.08	179	148	H
2	* 5.098501	59.5	Pk	34.2	0	-37.82	55.88	-	-	74	-18.12	179	148	H
3	* 5.15	46.95	RMS	34.3	0	-37.8	43.45	54	-10.55	-	-	179	148	H
4	* 5.112418	47.46	RMS	34.2	0	-37.8	43.86	54	-10.14	-	-	179	148	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



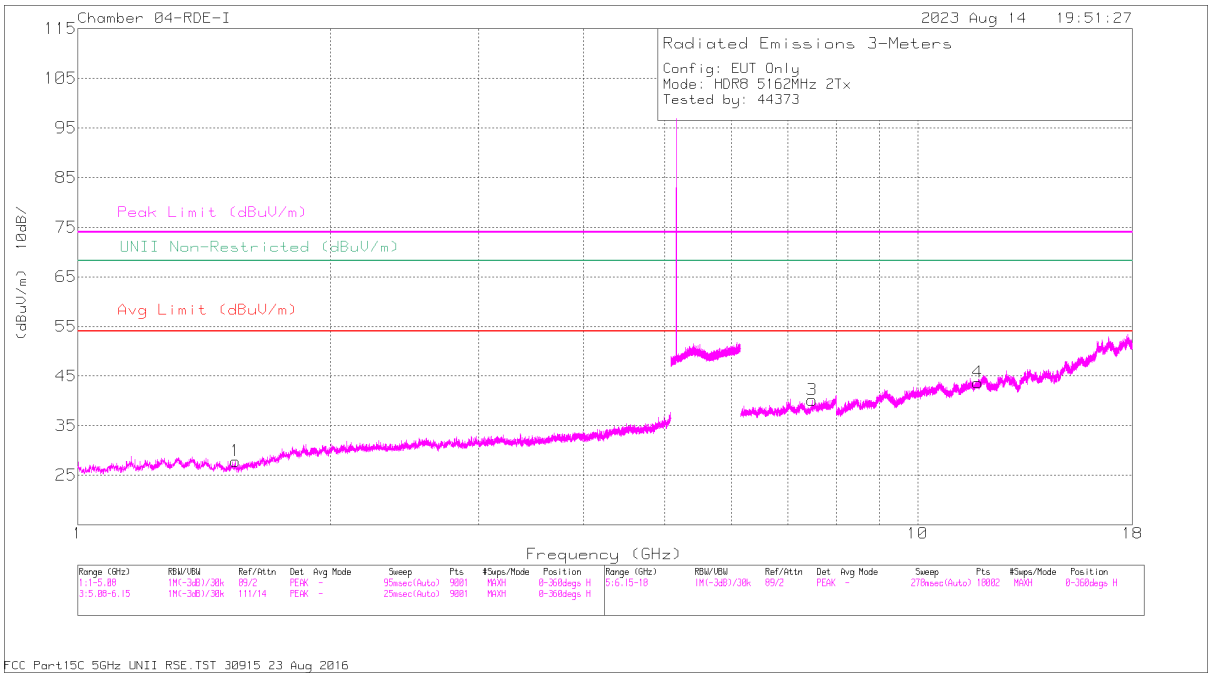
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	57.31	Pk	34.3	0	-37.8	53.81	-	-	74	-20.19	293	135	V
2	* 5.095501	59.69	Pk	34.2	0	-37.75	56.14	-	-	74	-17.86	293	135	V
3	* 5.15	45.88	RMS	34.3	0	-37.8	42.38	54	-11.62	-	-	293	135	V
4	* 5.001444	47.67	RMS	34	0	-37.69	43.98	54	-10.02	-	-	293	135	V

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

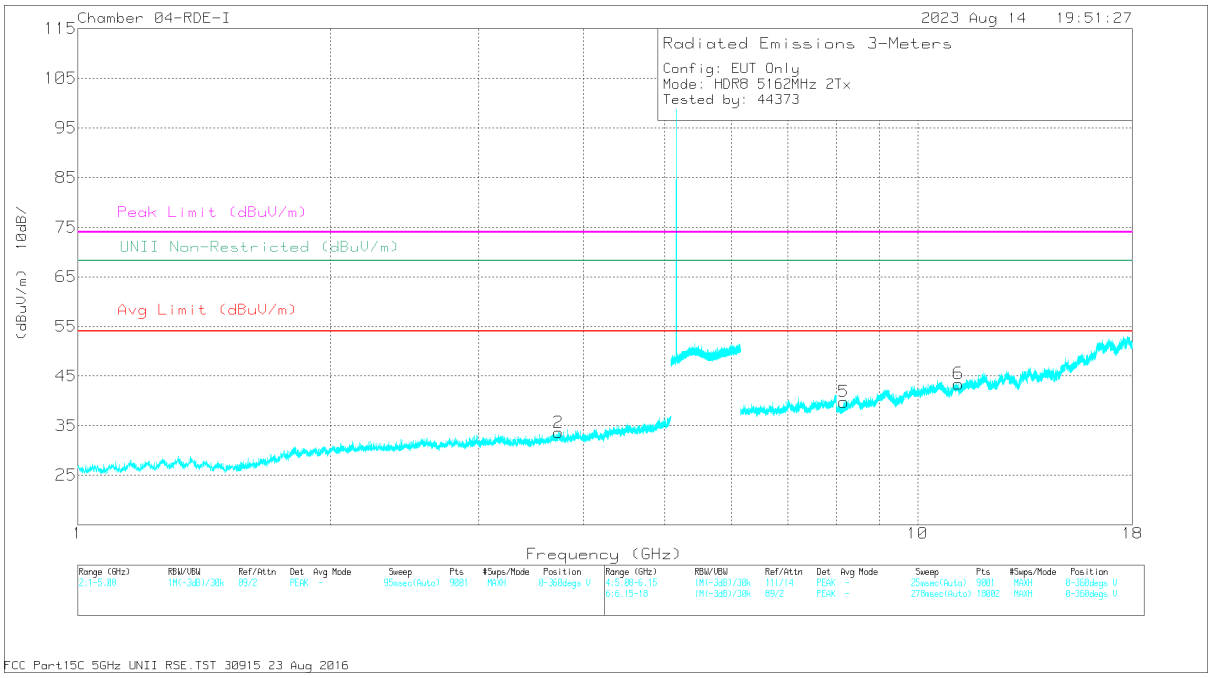
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.10 HDR8, High Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

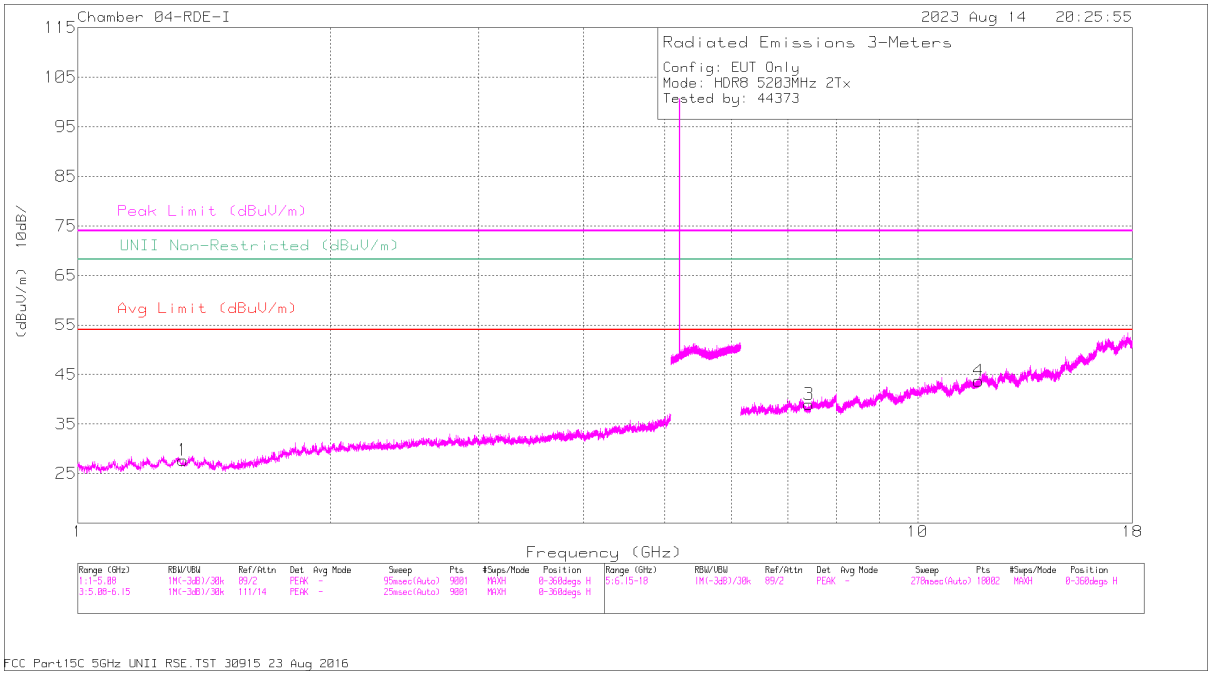
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.539642	41.5	PK-U	27.6	-31.8	37.3	-	-	74	-36.7	360	199	H
	* 1.541079	29.46	ADR	27.6	-31.6	25.46	54	-28.54	-	-	360	199	H
2	* 3.736499	38.09	PK-U	33.2	-27.7	43.59	-	-	74	-30.41	360	199	V
	* 3.738465	26.37	ADR	33.2	-27.7	31.87	54	-22.13	-	-	360	199	V
3	* 7.484208	32.63	PK-U	35.6	-19	49.23	-	-	74	-24.77	360	199	H
	* 7.483451	21.2	ADR	35.6	-19	37.8	54	-16.2	-	-	360	199	H
4	* 11.790702	31.87	PK-U	38.4	-16.8	53.47	-	-	74	-20.53	360	199	H
	* 11.791774	20.31	ADR	38.4	-16.9	41.81	54	-12.19	-	-	360	199	H
5	* 8.166311	31.72	PK-U	35.8	-18.8	48.72	-	-	74	-25.28	360	199	V
	* 8.167223	20.32	ADR	35.8	-18.7	37.42	54	-16.58	-	-	360	199	V
6	* 11.179047	31.94	PK-U	37.7	-17	52.64	-	-	74	-21.36	360	199	V
	* 11.178663	20.51	ADR	37.7	-17	41.21	54	-12.79	-	-	360	199	V

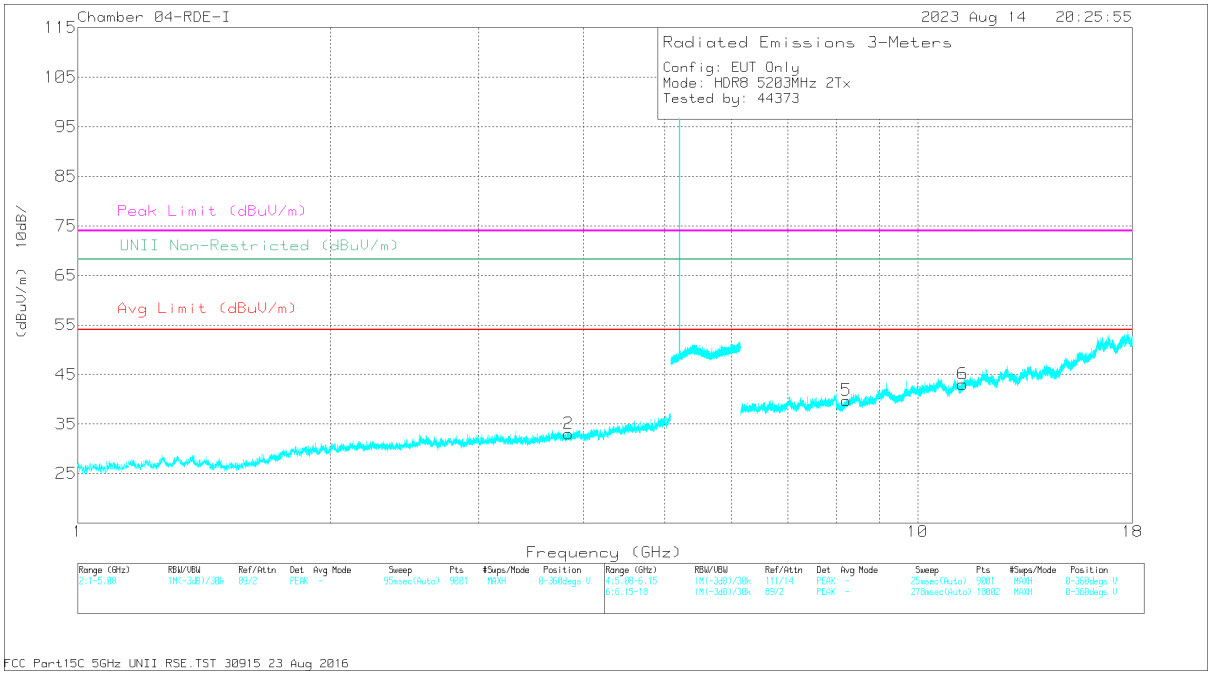
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL 5203MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

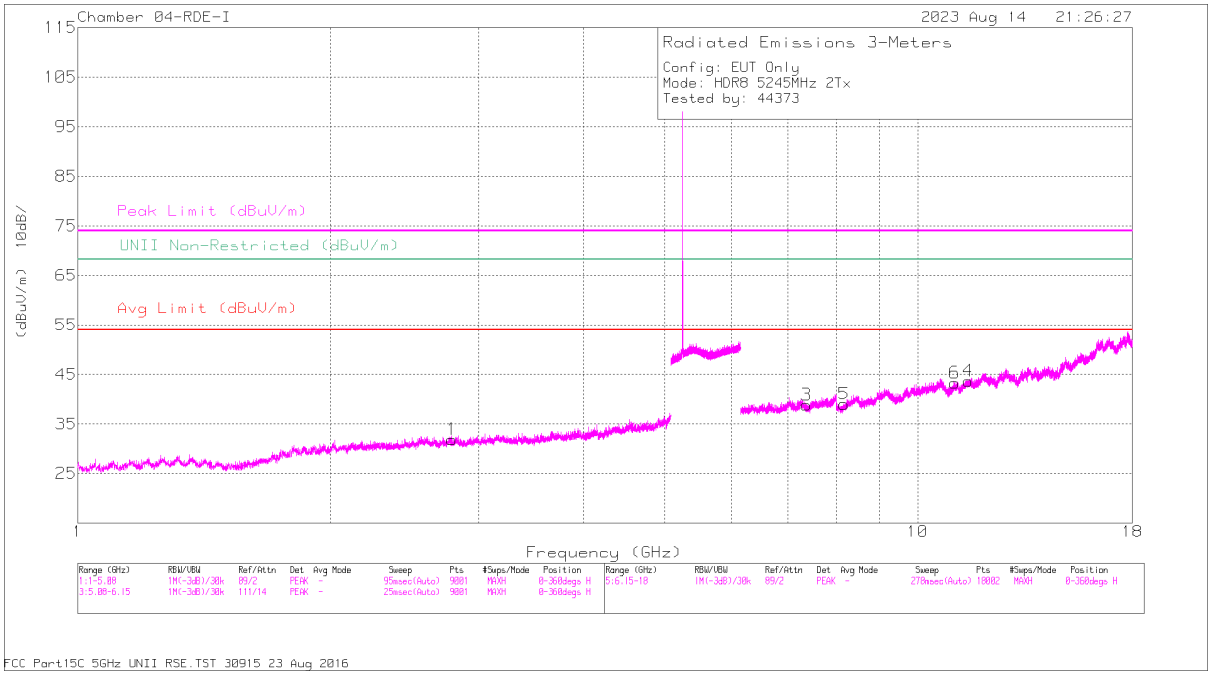
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.335666	40.97	PK-U	28.6	-32	37.57	-	-	74	-36.43	0	200	H
	* 1.333248	29.53	ADR	28.6	-32.2	25.93	54	-28.07	-	-	0	200	H
2	* 3.840202	37.91	PK-U	33.2	-28.4	42.71	-	-	74	-31.29	0	101	V
	* 3.836993	26.54	ADR	33.2	-28.4	31.34	54	-22.66	-	-	0	101	V
3	* 7.420298	33.03	PK-U	35.6	-20.1	48.53	-	-	74	-25.47	0	200	H
	* 7.420214	21.88	ADR	35.6	-20.1	37.38	54	-16.62	-	-	0	200	H
4	* 11.812318	32.37	PK-U	38.4	-17	53.77	-	-	74	-20.23	0	101	H
	* 11.811824	20.6	ADR	38.4	-16.9	42.1	54	-11.9	-	-	0	101	H
5	* 8.220857	32	PK-U	35.9	-18.9	49	-	-	74	-25	0	101	V
	* 8.223646	20.66	ADR	35.9	-18.9	37.66	54	-16.34	-	-	0	101	V
6	* 11.314208	31.98	PK-U	37.8	-16.8	52.98	-	-	74	-21.02	0	200	V
	* 11.313754	20.56	ADR	37.8	-16.8	41.56	54	-12.44	-	-	0	200	V

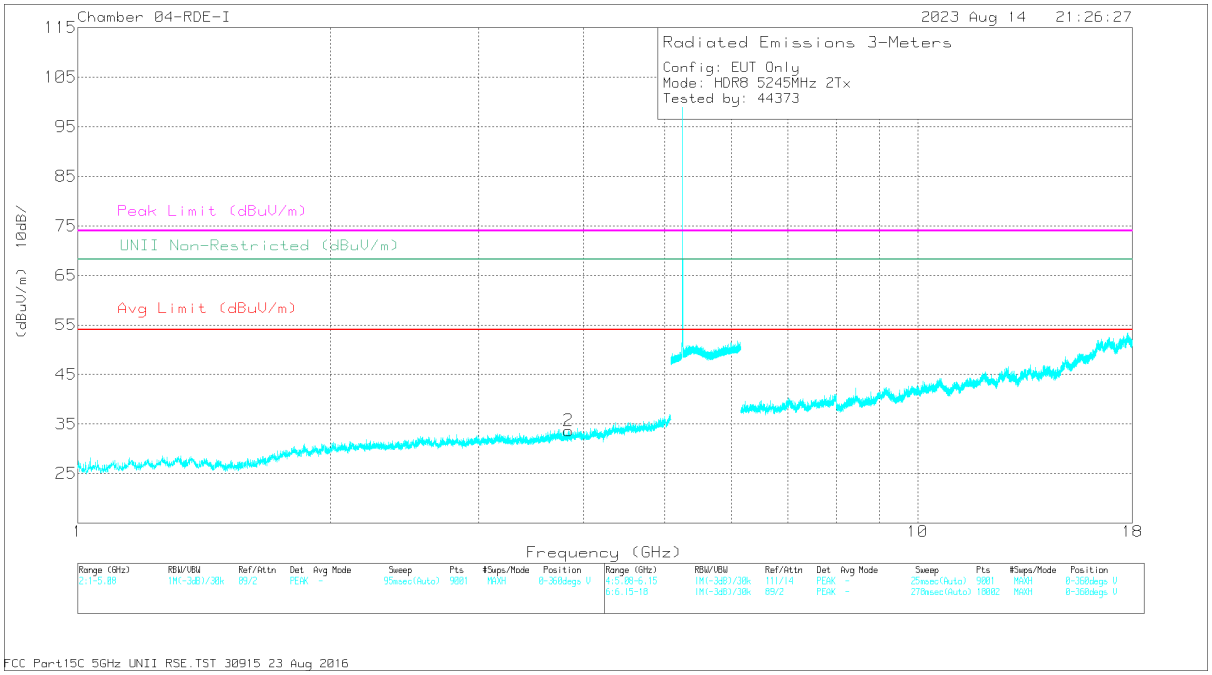
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.790533	38.95	PK-U	32.5	-29.3	42.15	-	-	74	-31.85	2	101	H
	* 2.788245	27.12	ADR	32.5	-29.4	30.22	54	-23.78	-	-	2	101	H
2	* 3.838448	38.2	PK-U	33.2	-28.4	43	-	-	74	-31	2	101	V
	* 3.838788	26.59	ADR	33.2	-28.5	31.29	54	-22.71	-	-	2	101	V
3	* 7.367176	33.81	PK-U	35.6	-20.5	48.91	-	-	74	-25.09	2	199	H
	* 7.368486	21.9	ADR	35.6	-20.5	37	54	-17	-	-	2	199	H
4	* 11.485683	32.44	PK-U	38	-17.2	53.24	-	-	74	-20.76	2	199	H
	* 11.487212	21	ADR	38	-17.3	41.7	54	-12.3	-	-	2	199	H
5	* 8.169815	32	PK-U	35.8	-18.8	49	-	-	74	-25	2	101	H
	* 8.171041	20.19	ADR	35.8	-18.8	37.19	54	-16.81	-	-	2	101	H
6	* 11.063563	32.75	PK-U	37.6	-17.1	53.25	-	-	74	-20.75	2	199	H
	* 11.062905	20.76	ADR	37.6	-17.1	41.26	54	-12.74	-	-	2	199	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

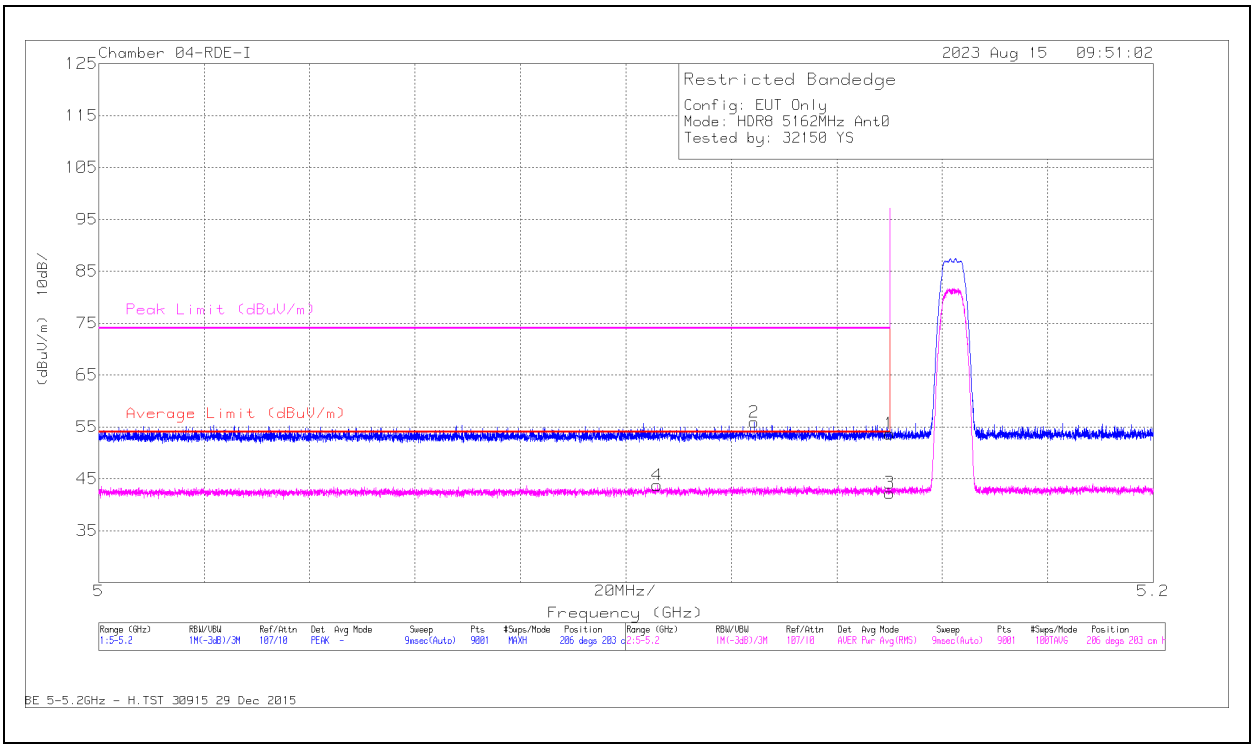
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.11 HDR8, LOW POWER UNII-1 BANDEDGE

ANT 6

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

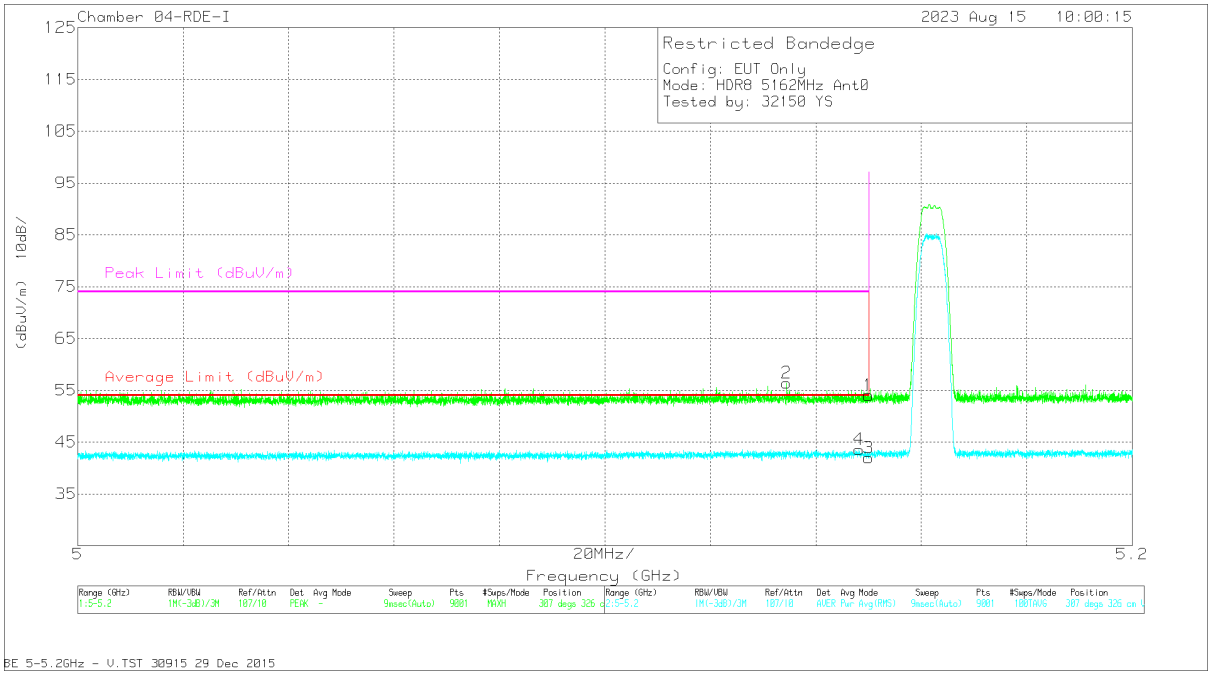


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.88	Pk	34.2	-17.4	53.68	-	-	74	-20.32	206	203	H
2	* 5.124288	39	Pk	34.2	-17.3	55.9	-	-	74	-18.1	206	203	H
3	* 5.15	25.44	RMS	34.2	-17.4	42.24	54	-11.76	-	-	206	203	H
4	* 5.10591	26.87	RMS	34.1	-17.2	43.77	54	-10.23	-	-	206	203	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.26	Pk	34.2	-17.4	54.06	-	-	74	-19.94	307	326	V
2	* 5.134488	39.5	Pk	34.2	-17.3	56.4	-	-	74	-17.6	307	326	V
3	* 5.15	25.17	RMS	34.2	-17.4	41.97	54	-12.03	-	-	307	326	V
4	* 5.148199	26.6	RMS	34.2	-17.2	43.6	54	-10.4	-	-	307	326	V

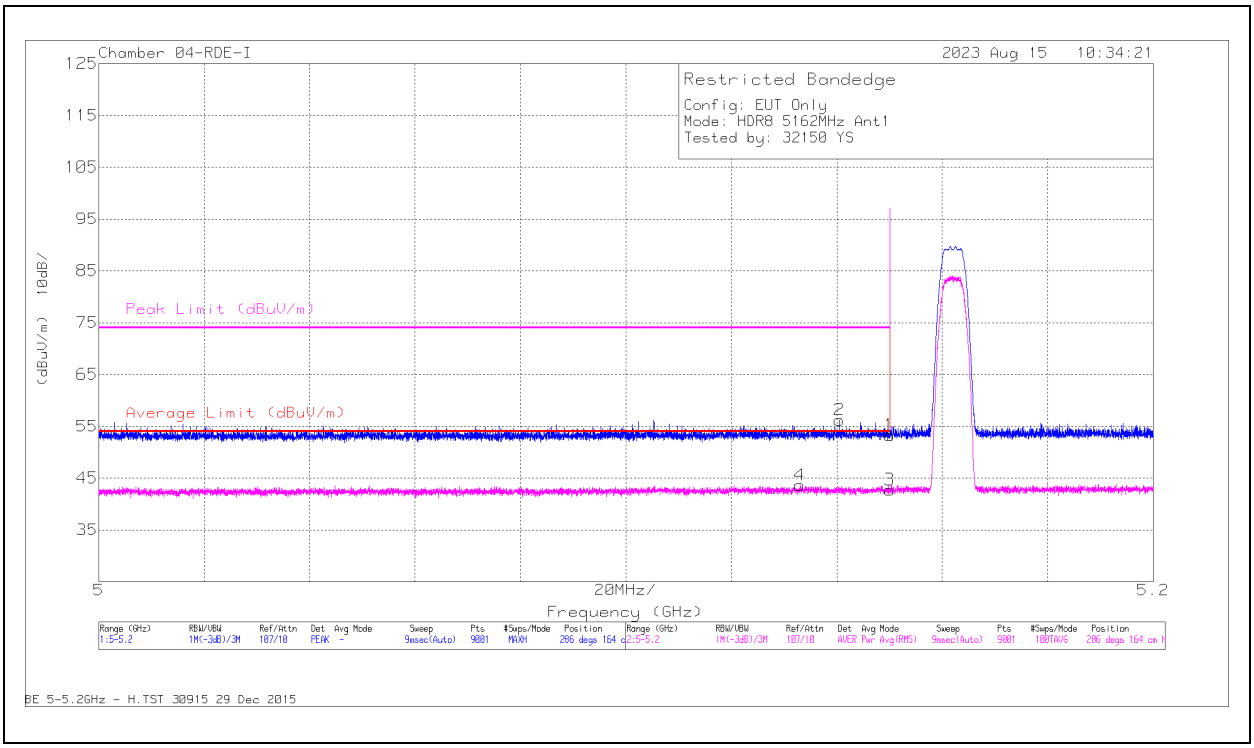
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

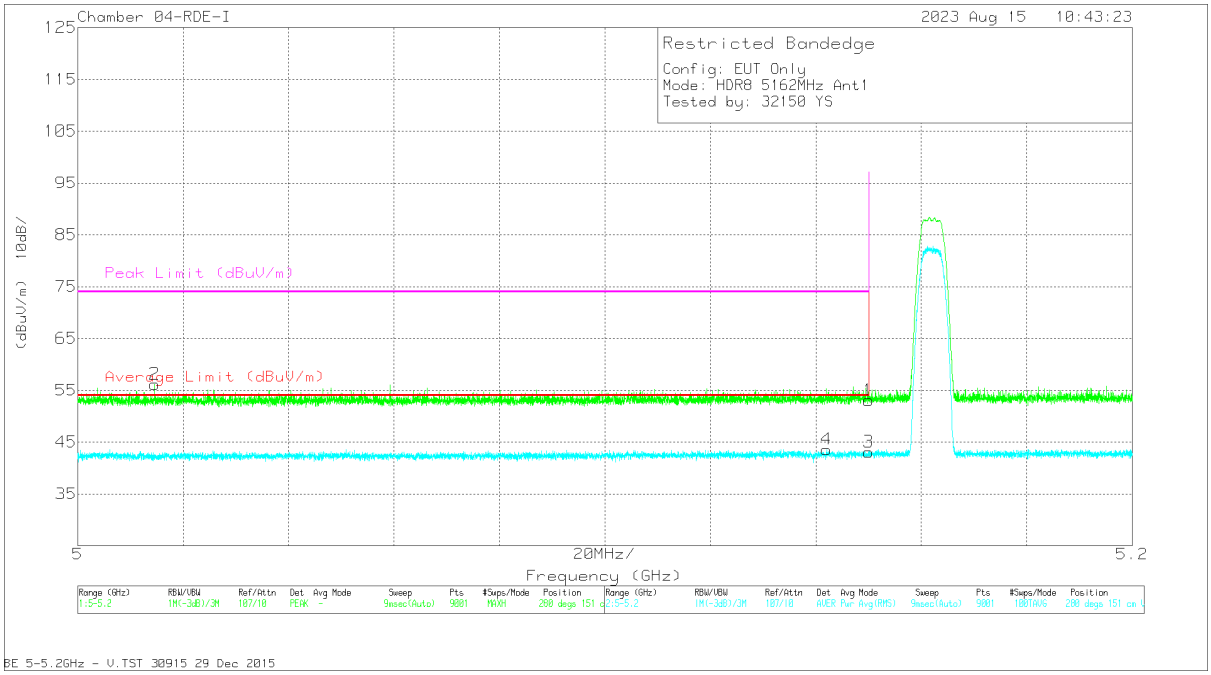


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.52	Pk	34.2	-17.4	53.32	-	-	74	-20.68	286	164	H
2	* 5.140487	39.33	Pk	34.2	-17.3	56.23	-	-	74	-17.77	286	164	H
3	* 5.15	25.94	RMS	34.2	-17.4	42.74	54	-11.26	-	-	286	164	H
4	* 5.132976	26.74	RMS	34.2	-17.3	43.64	54	-10.36	-	-	286	164	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.3	Pk	34.2	-17.4	53.1	-	-	74	-20.9	280	151	V
2	* 5.014622	39.19	Pk	34.1	-17.1	56.19	-	-	74	-17.81	280	151	V
3	* 5.15	26.32	RMS	34.2	-17.4	43.12	54	-10.88	-	-	280	151	V
4	* 5.142021	26.81	RMS	34.2	-17.4	43.61	54	-10.39	-	-	280	151	V

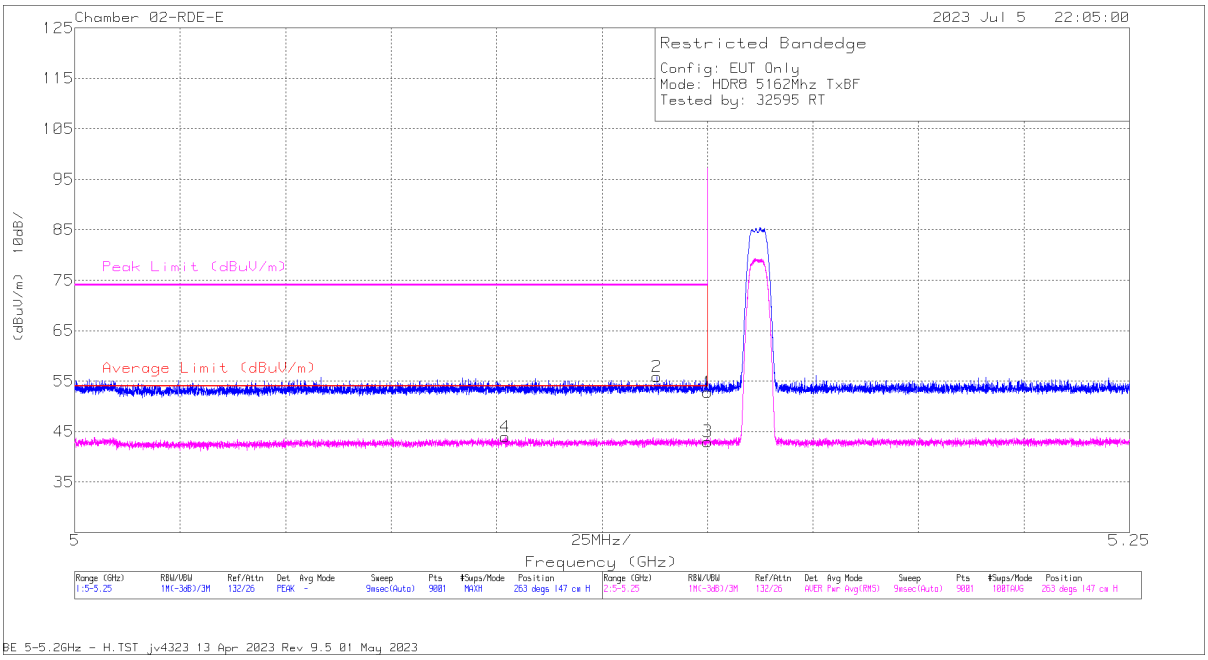
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

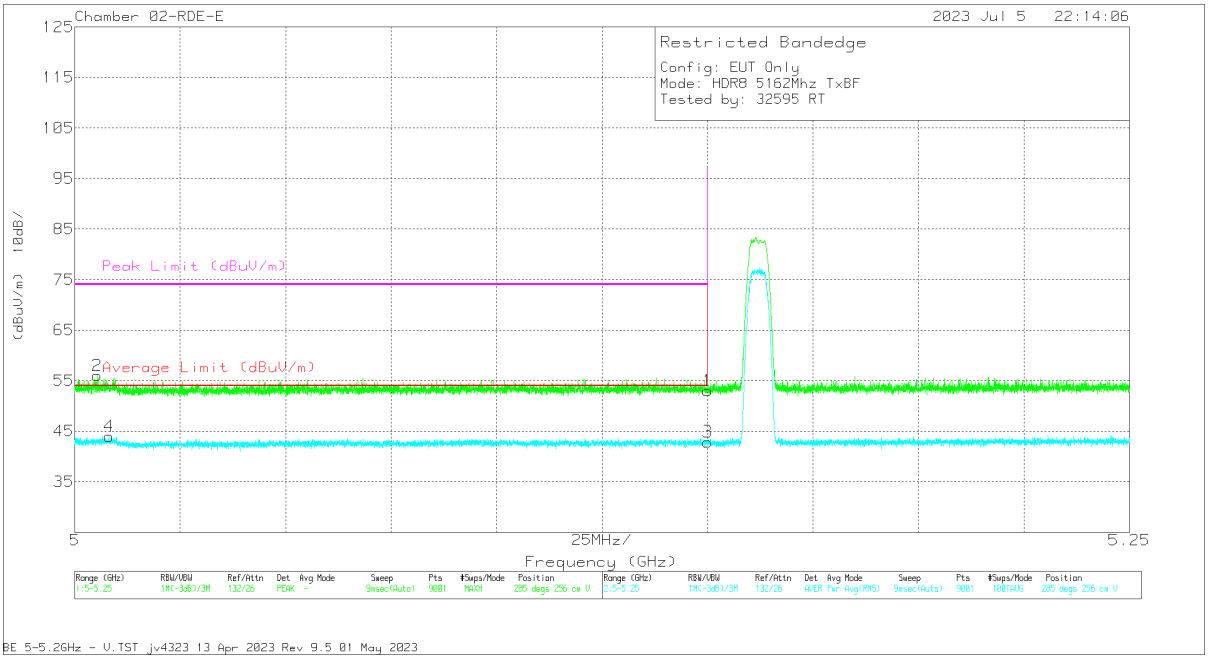


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	56.3	Pk	34.3	0	-37.8	52.8	-	-	74	-21.2	263	147	H
2	* 5.137946	59.46	Pk	34.3	0	-37.83	55.93	-	-	74	-18.07	263	147	H
3	* 5.15	46.53	RMS	34.3	0	-37.8	43.03	54	-10.97	-	-	263	147	H
4	* 5.101973	47.49	RMS	34.2	0	-37.77	43.92	54	-10.08	-	-	263	147	H

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

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



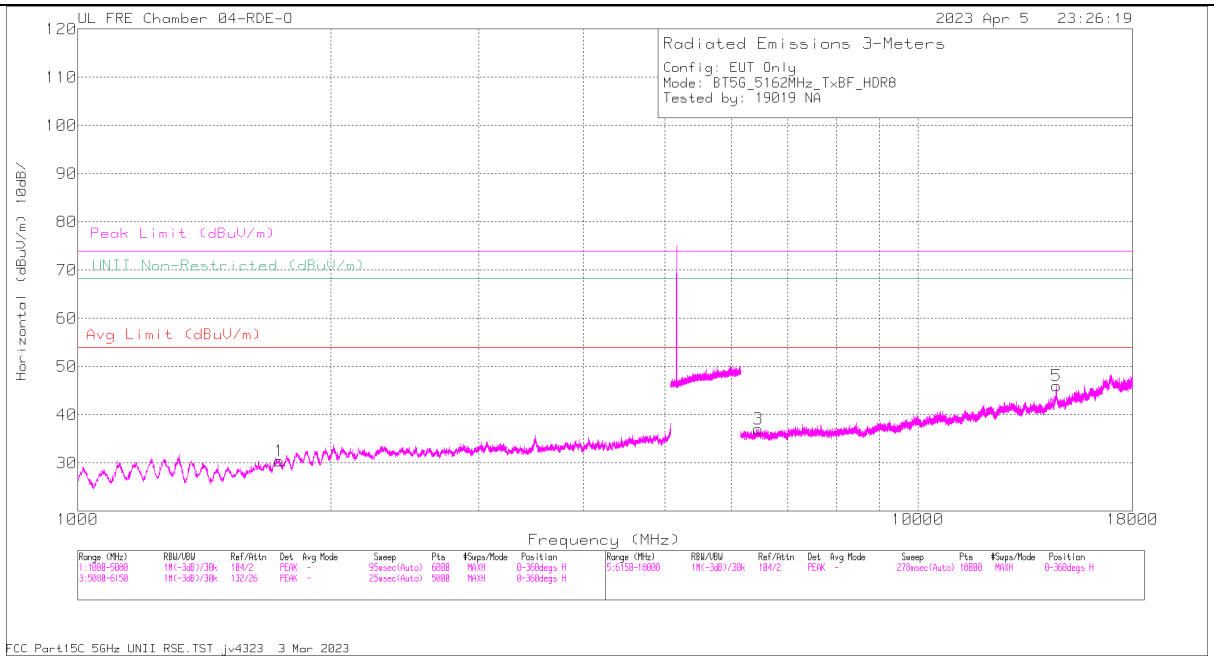
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	56.56	Pk	34.3	0	-37.8	53.06	-	-	74	-20.94	285	256	V
2	* 5.005333	59.69	Pk	34	0	-37.68	56.01	-	-	74	-17.99	285	256	V
3	* 5.15	46.4	RMS	34.3	0	-37.8	42.9	54	-11.1	-	-	285	256	V
4	* 5.008083	47.58	RMS	34	0	-37.6	43.98	54	-10.02	-	-	285	256	V

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

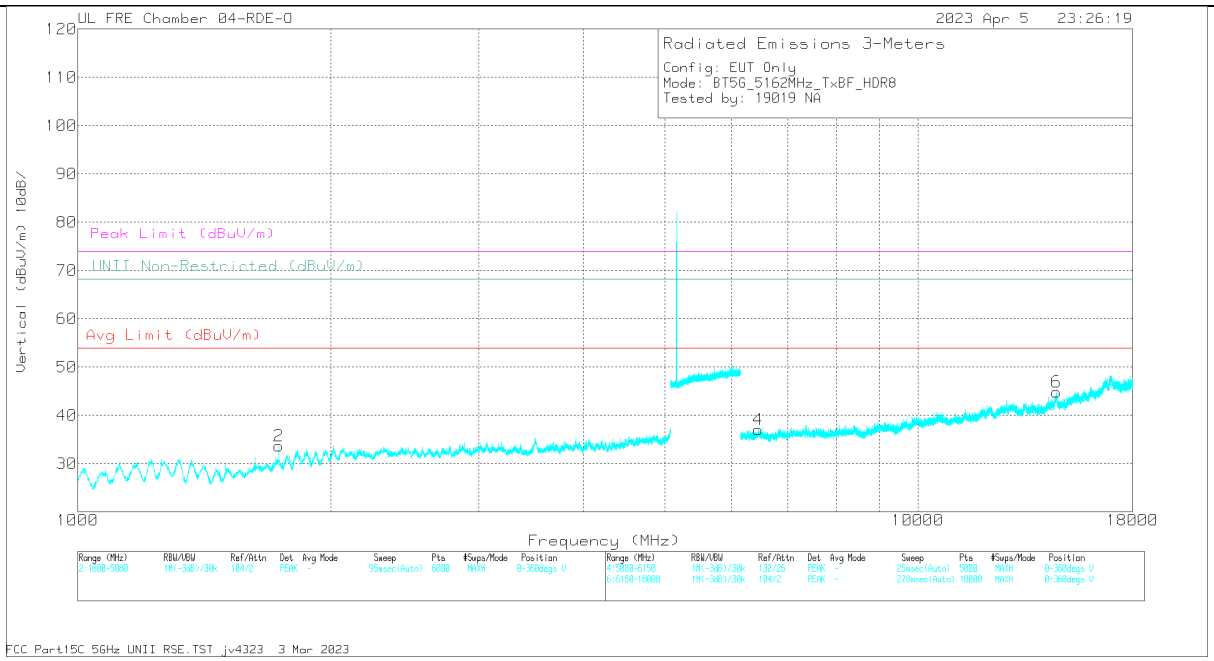
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.12 HDR8, LOW Power UNII-1 HARMONIC AND SPURIOUS IN THE 5.2 GHz BAND

LOW CHANNEL 5162MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

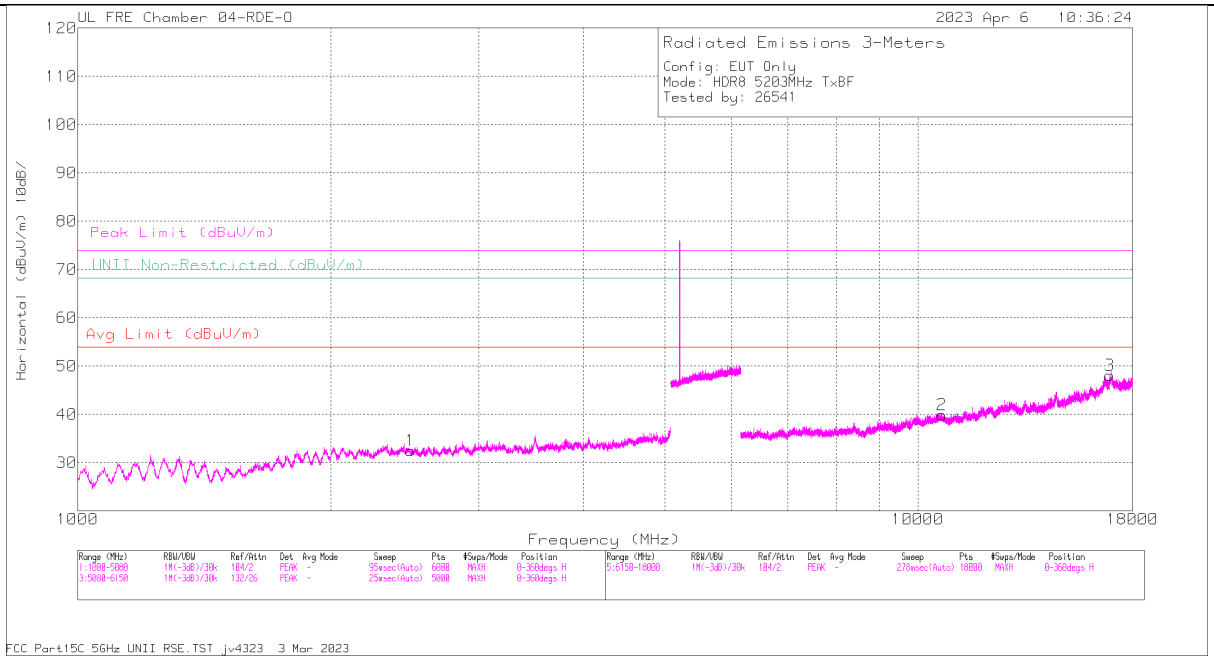
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1736.843	58.33	PK-U	30	-46.73	41.6	68.2	-26.6	145	172	H
1	1737.039	57.88	PK-U	30	-46.74	41.14	68.2	-27.06	217	226	V
3	6455.077	53.41	PK-U	35.5	-42.26	46.65	68.2	-21.55	144	155	H
4	6459.982	53.43	PK-U	35.6	-42.14	46.89	68.2	-21.31	131	176	V
5	14614.644	53.2	PK-U	39.7	-38.04	54.86	68.2	-13.34	100	194	H
6	14627.934	52.56	PK-U	39.7	-38.46	53.8	68.2	-14.4	276	106	V

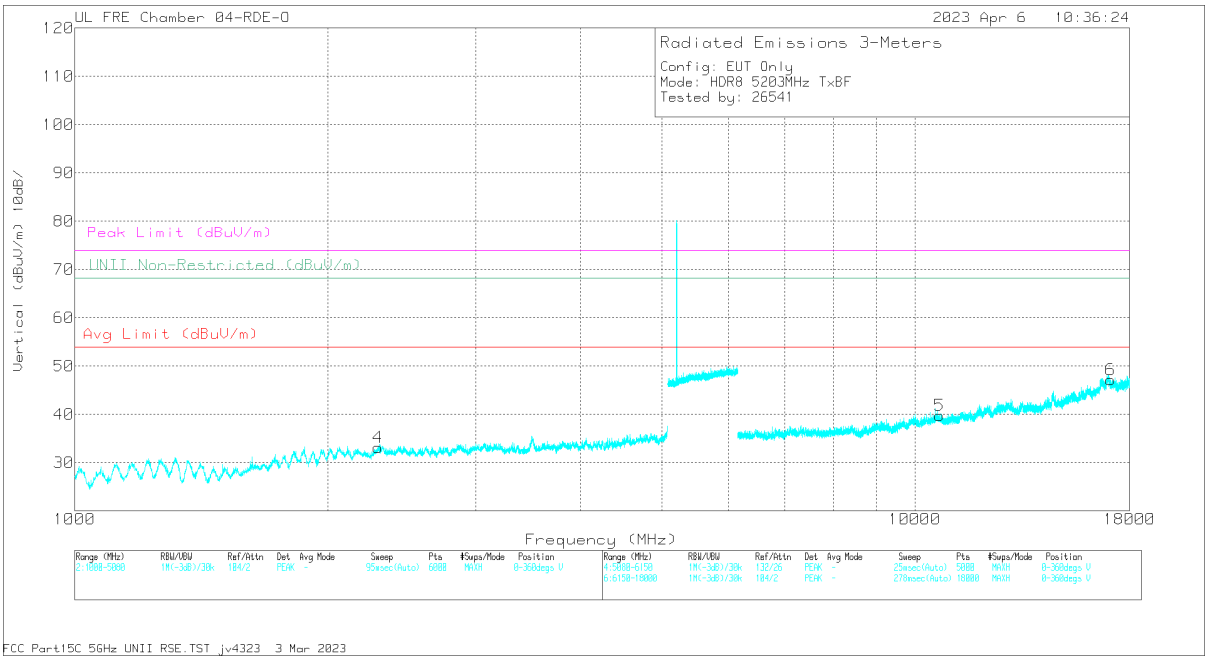
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL 5203MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

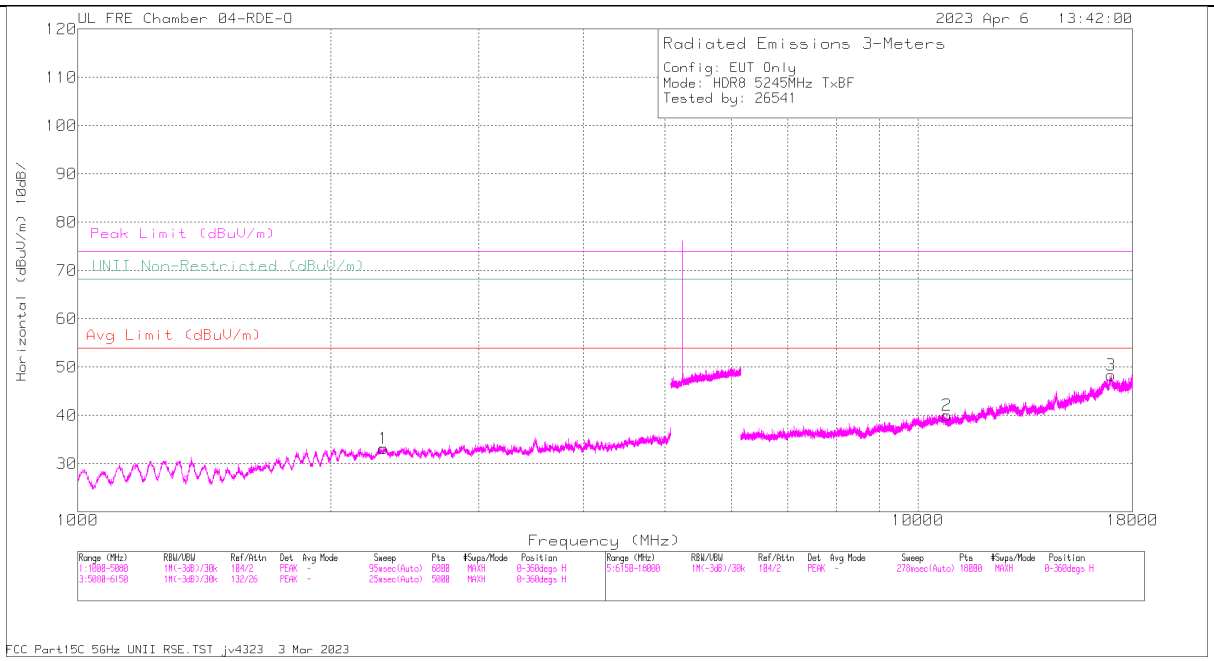
RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2488.925	57.7	PK-U	32.1	-46.78	43.02	-	-	74	-30.98	-	-	360	100	H
	* 2488.228	45.76	ADR	32.1	-46.77	31.09	54	-22.91	-	-	-	-	360	100	H
4	* 2294.368	57.83	PK-U	32.6	-47.01	43.42	-	-	74	-30.58	-	-	360	201	V
	* 2293.309	46.01	ADR	32.5	-47.01	31.5	54	-22.5	-	-	-	-	360	201	V
2	* 10680.591	52.67	PK-U	37.6	-40.9	49.37	-	-	74	-24.63	-	-	360	100	H
	* 10681.373	41.43	ADR	37.7	-40.89	38.24	54	-15.76	-	-	-	-	360	100	H
5	* 10696.733	52.72	PK-U	37.8	-40.92	49.6	-	-	74	-24.4	-	-	360	201	V
	* 10697.792	41.33	ADR	37.8	-40.94	38.19	54	-15.81	-	-	-	-	360	201	V
3	16924.699	53.65	PK-U	43.1	-38.79	57.96	-	-	-	-	68.2	-10.24	360	100	H
6	17102.255	53.54	PK-U	42.9	-39.57	56.87	-	-	-	-	68.2	-11.33	360	200	V

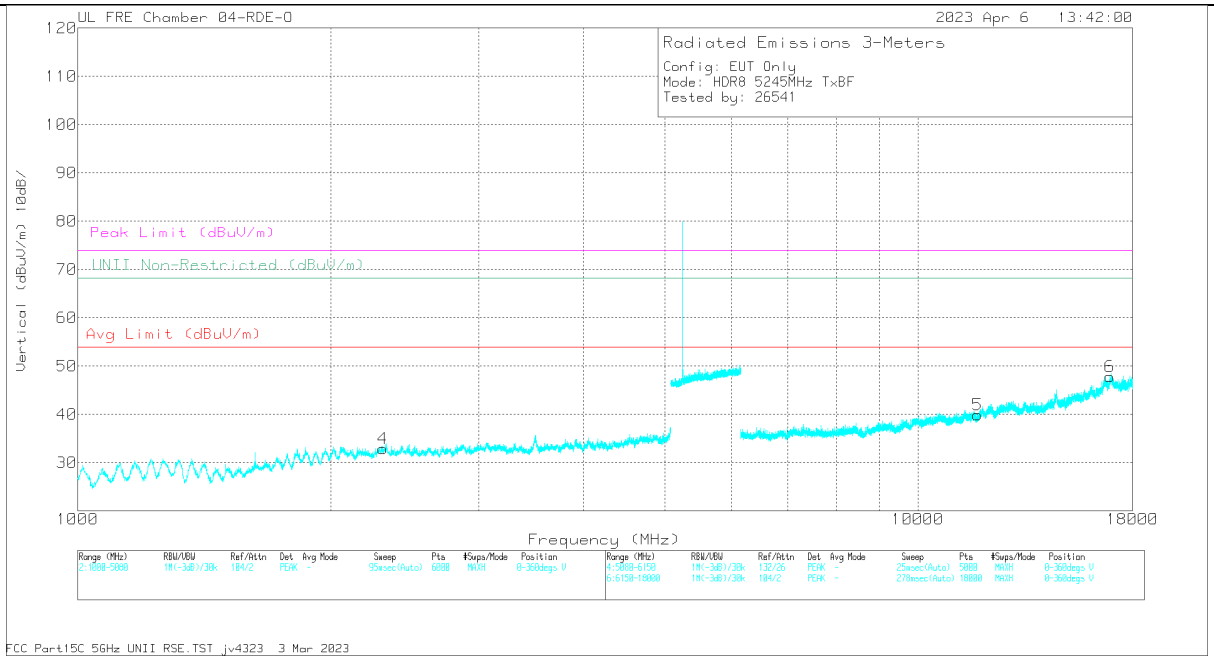
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL 5245MHz



HORIZONTAL



VERTICAL

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80404_ACF(dB) - 3mH	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2313.354	57.29	PK-U	32.7	-47.06	42.93	-	-	74	-31.07	-	-	360	100	H
	* 2313.68	46.29	ADR	32.7	-47.04	31.95	54	-22.05	-	-	-	-	360	100	H
2	* 10824.804	52.53	PK-U	37.7	-41.01	49.22	-	-	74	-24.78	-	-	360	100	H
	* 10828.077	40.88	ADR	37.7	-40.99	37.59	54	-16.41	-	-	-	-	360	100	H
5	* 11777.695	52.82	PK-U	38.5	-40.89	50.43	-	-	74	-23.57	-	-	360	201	V
	* 11778.516	40.79	ADR	38.6	-40.89	38.5	54	-15.5	-	-	-	-	360	201	V
4	2308.828	57.7	PK-U	32.6	-47	43.3	-	-	-	-	68.2	-24.9	360	201	V
6	16930.098	53.49	PK-U	43.1	-38.86	57.73	-	-	-	-	68.2	-10.47	360	200	V
3	16973.493	53.36	PK-U	43	-38.4	57.96	-	-	-	-	68.2	-10.24	360	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK-U - U-NII: Maximum Peak
ADR - U-NII AD primary method, RMS average

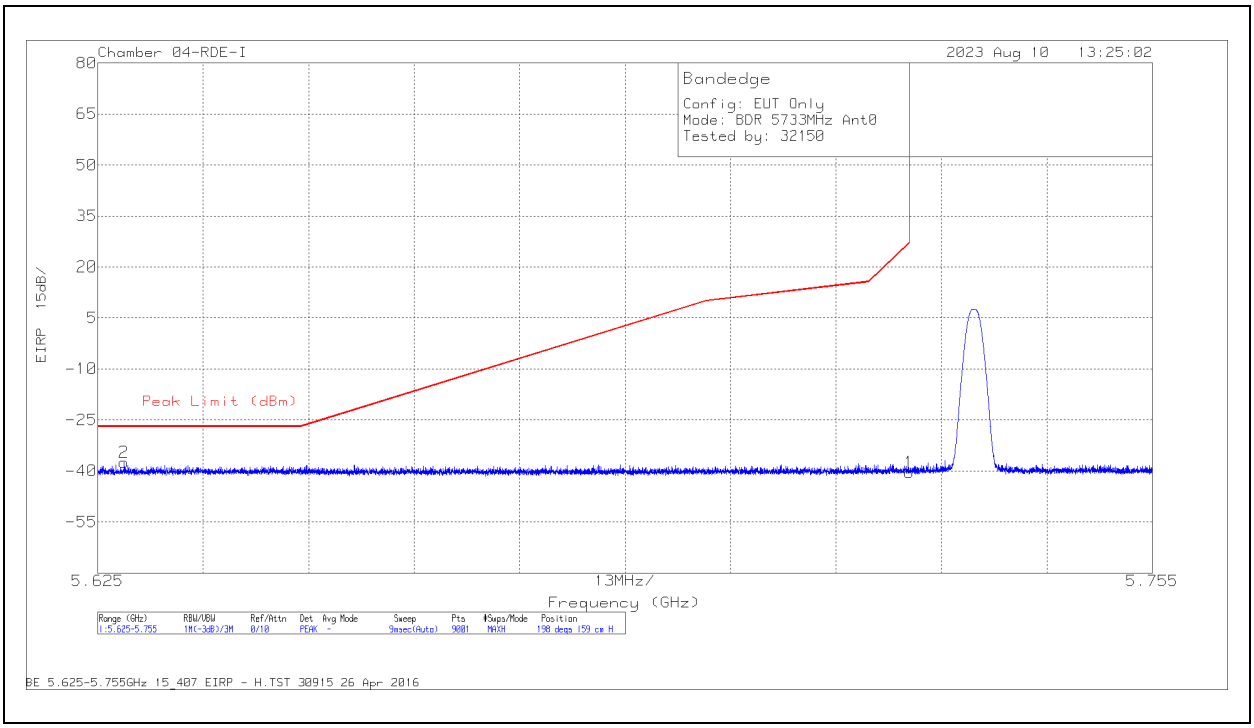
UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.13 BDR, HIGH POWER UNII-3 BANDEDGE

ANT 6

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

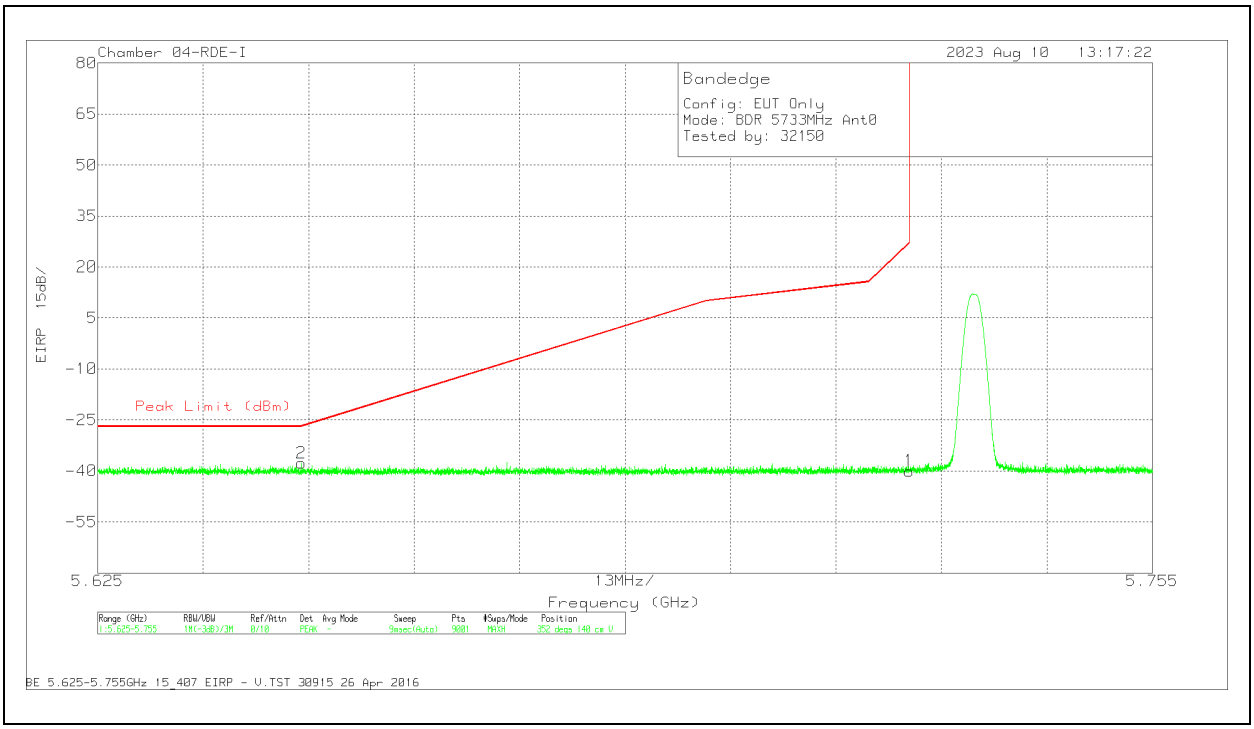


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-70.38	Pk	34.9	-16.7	11.8	-40.38	27	-67.38	198	159	H
2	5.628264	-67.32	Pk	34.9	-16.8	11.8	-37.42	-27	-10.42	198	159	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



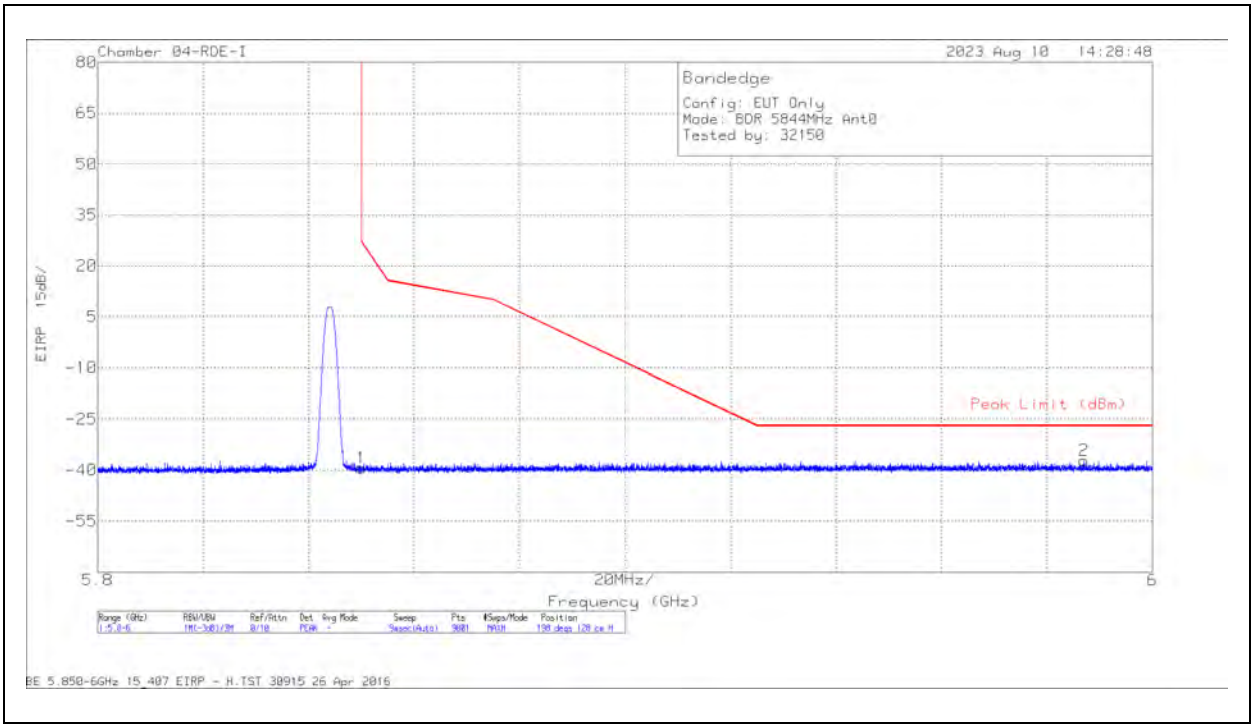
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-69.97	Pk	34.9	-16.7	11.8	-39.97	27	-66.97	352	140	V
2	5.650089	-67.57	Pk	34.9	-16.8	11.8	-37.67	-26.93	-10.74	352	140	V

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

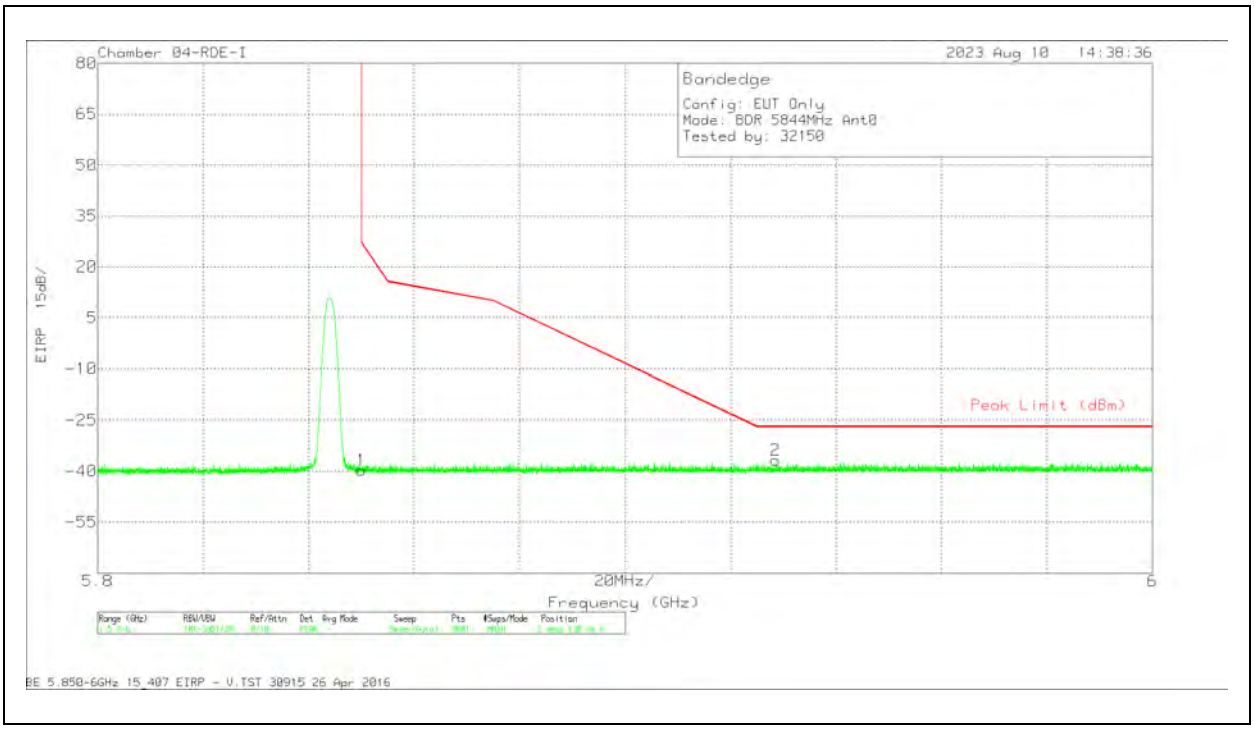


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.18	Pk	35	-15.9	11.8	-39.28	27	-66.28	198	128	H
2	5.987087	-68.63	Pk	35.4	-15.7	11.8	-37.13	-27	-10.13	198	128	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.66	Pk	35	-15.9	11.8	-39.76	27	-66.76	3	130	V
2	5.928621	-68.32	Pk	35.2	-15.5	11.8	-36.82	-27	-9.82	3	130	V

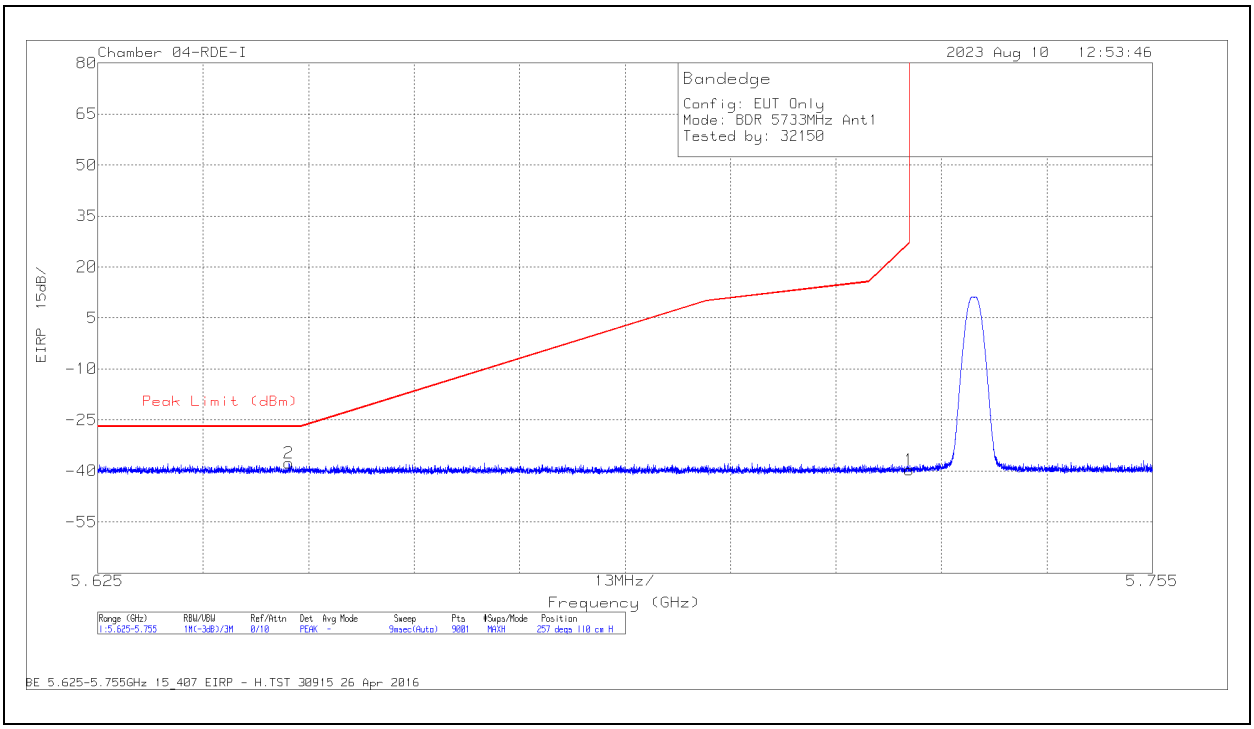
Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

ANT 5

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

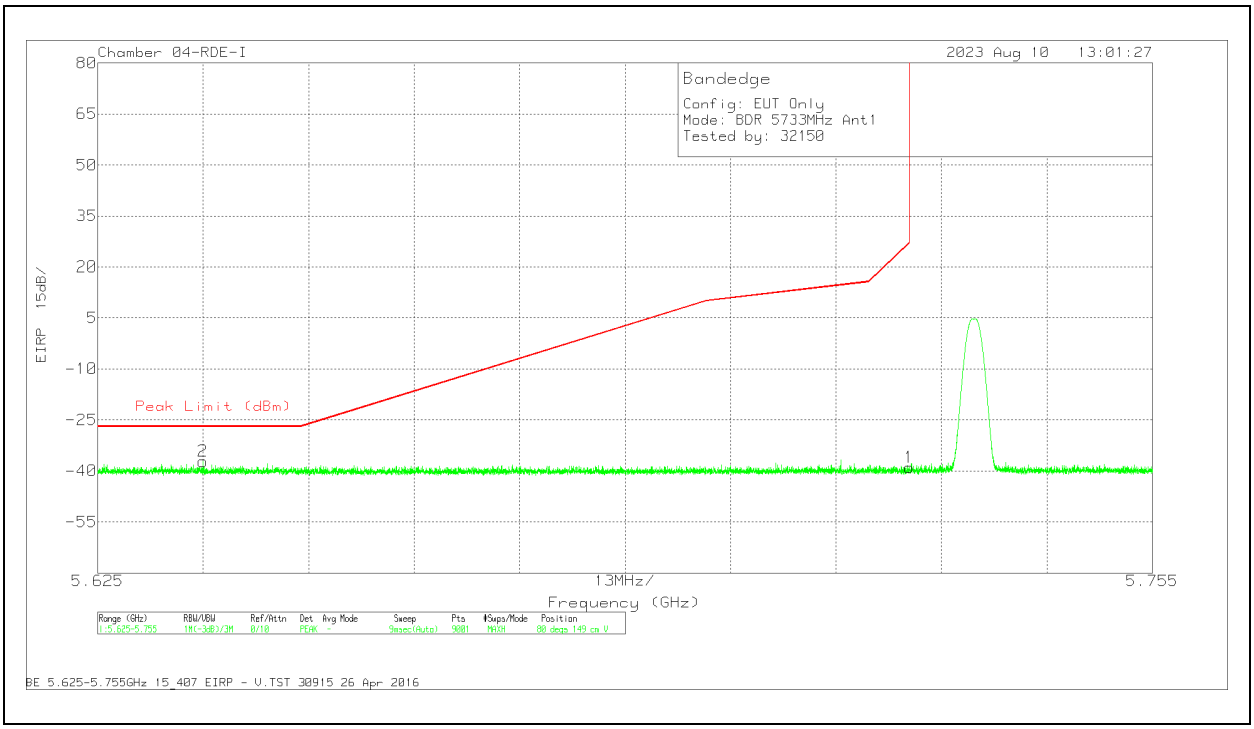


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-69.75	Pk	34.9	-16.7	11.8	-39.75	27	-66.75	257	110	H
2	5.648573	-67.6	Pk	34.9	-16.8	11.8	-37.7	-27	-10.7	257	110	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



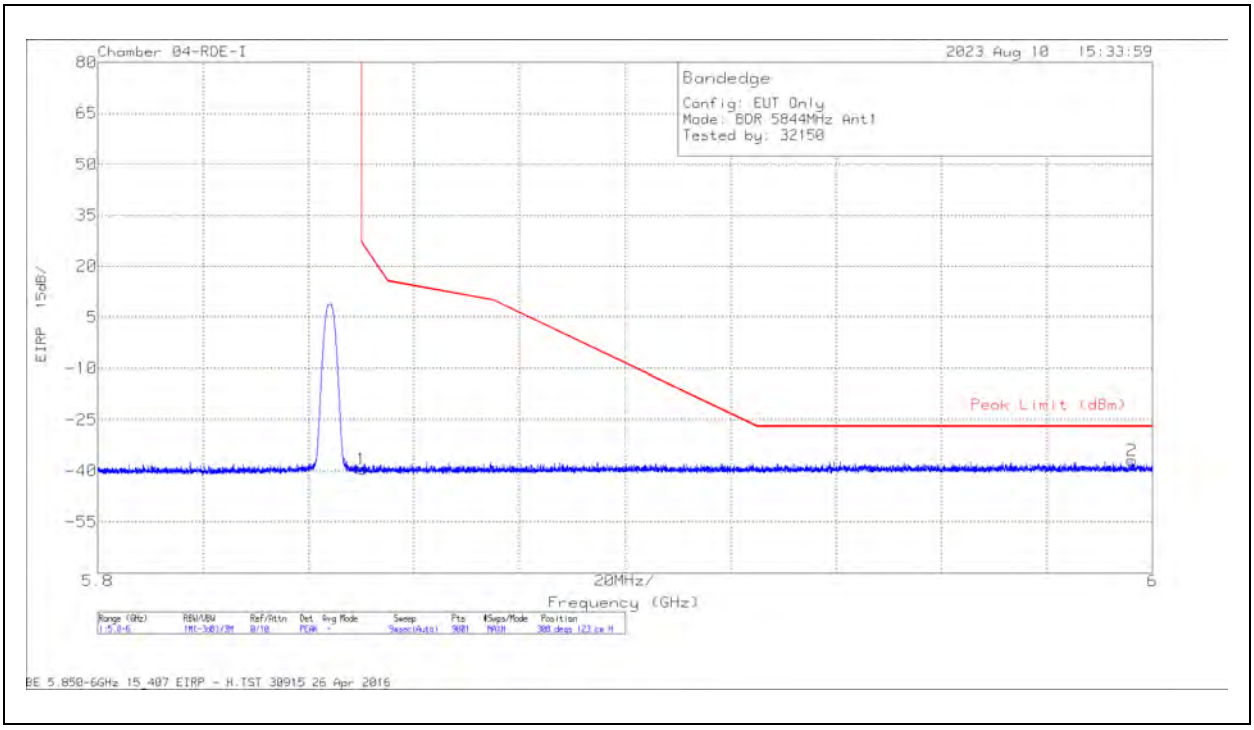
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-68.98	Pk	34.9	-16.7	11.8	-38.98	27	-65.98	80	149	V
2	5.637985	-67.1	Pk	34.9	-16.8	11.8	-37.2	-27	-10.2	80	149	V

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

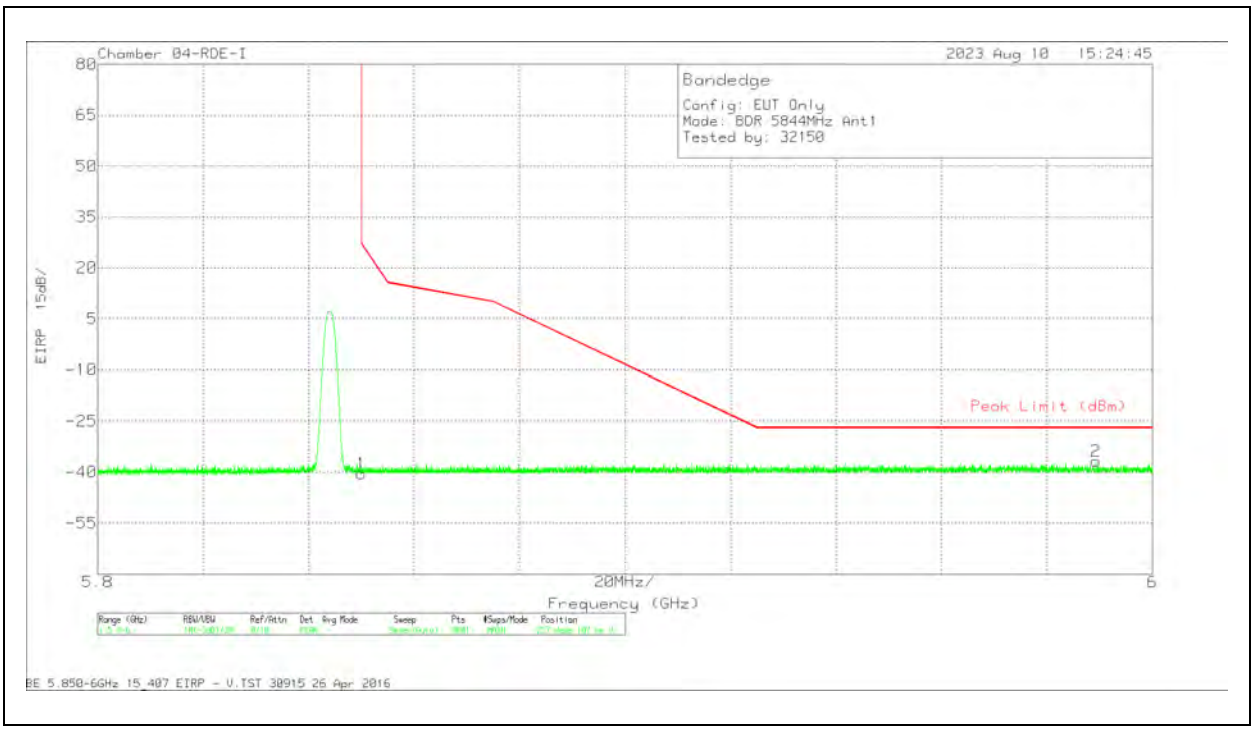


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.43	Pk	35	-15.9	11.8	-39.53	27	-66.53	308	123	H
2	5.996131	-68.35	Pk	35.4	-15.7	11.8	-36.85	-27	-9.85	308	123	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-71.31	Pk	35	-15.9	11.8	-40.41	27	-67.41	257	107	V
2	5.989265	-68.31	Pk	35.4	-15.7	11.8	-36.81	-27	-9.81	257	107	V

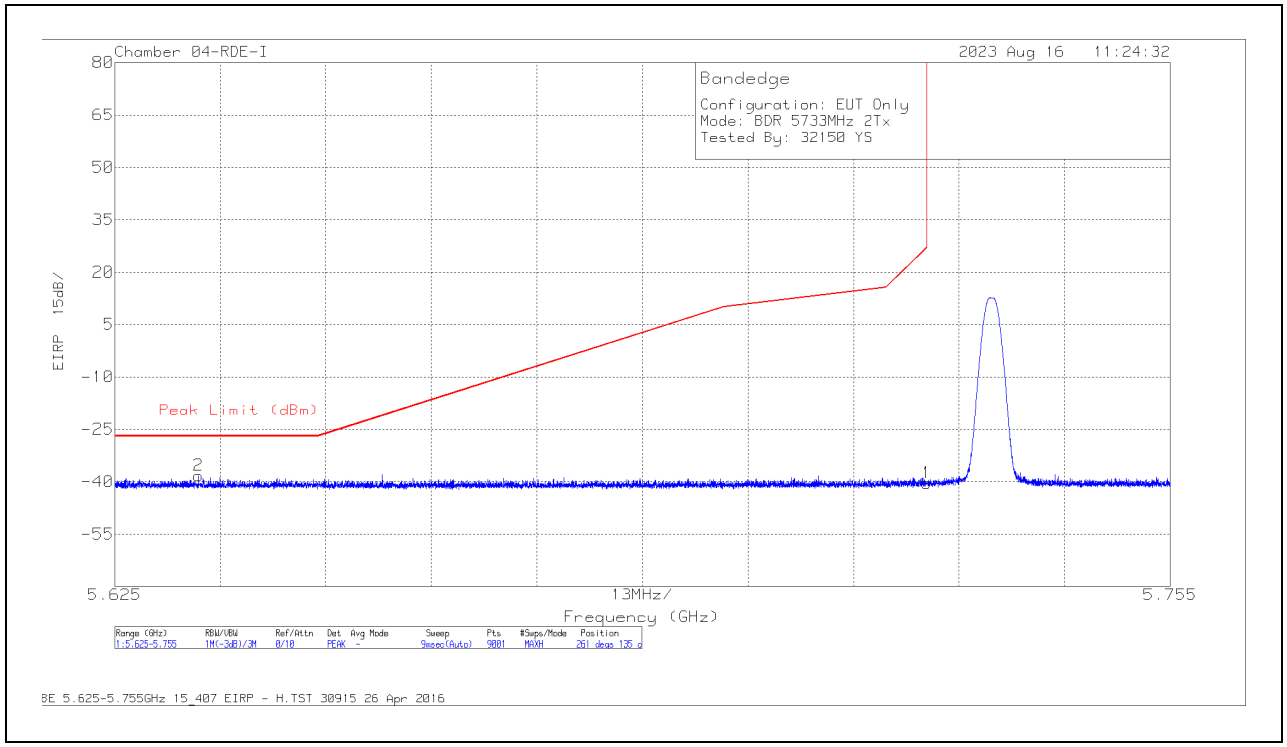
Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2TX Antenna 6 + Antenna 5 TXBF MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

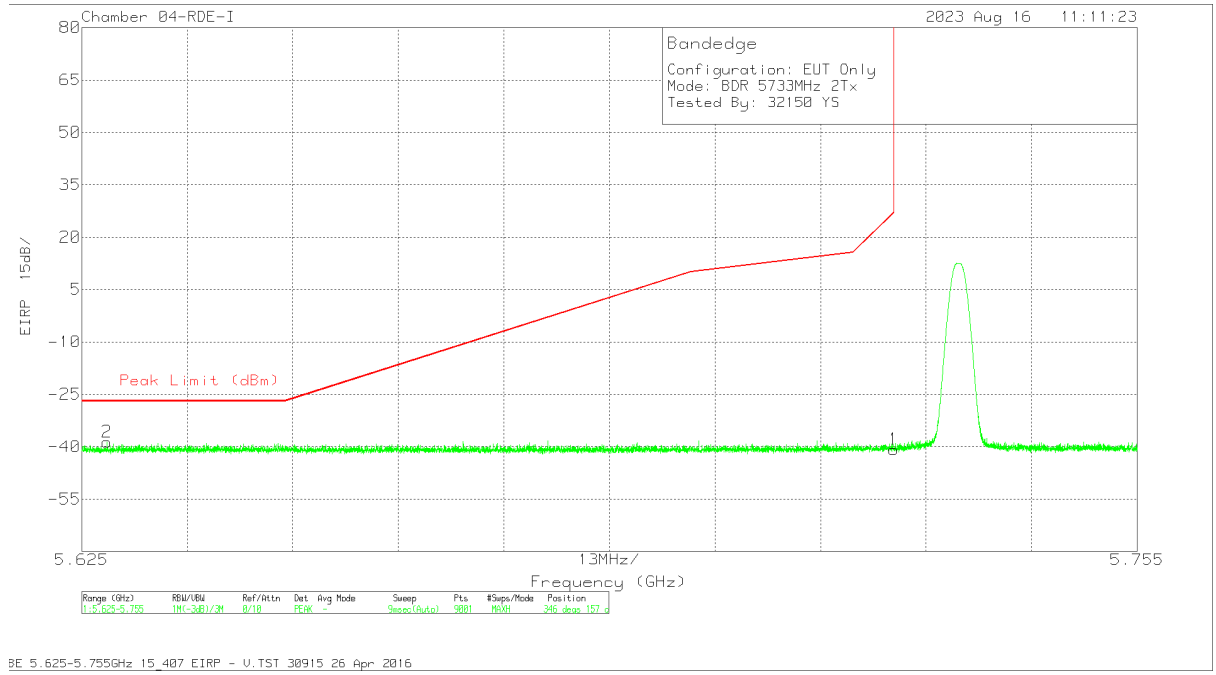


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-70.34	Pk	34.9	-16.7	11.8	-40.34	27	-67.34	261	135	H
2	5.635299	-68.14	Pk	34.9	-16.8	11.8	-38.24	-27	-11.24	261	135	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL RESULT



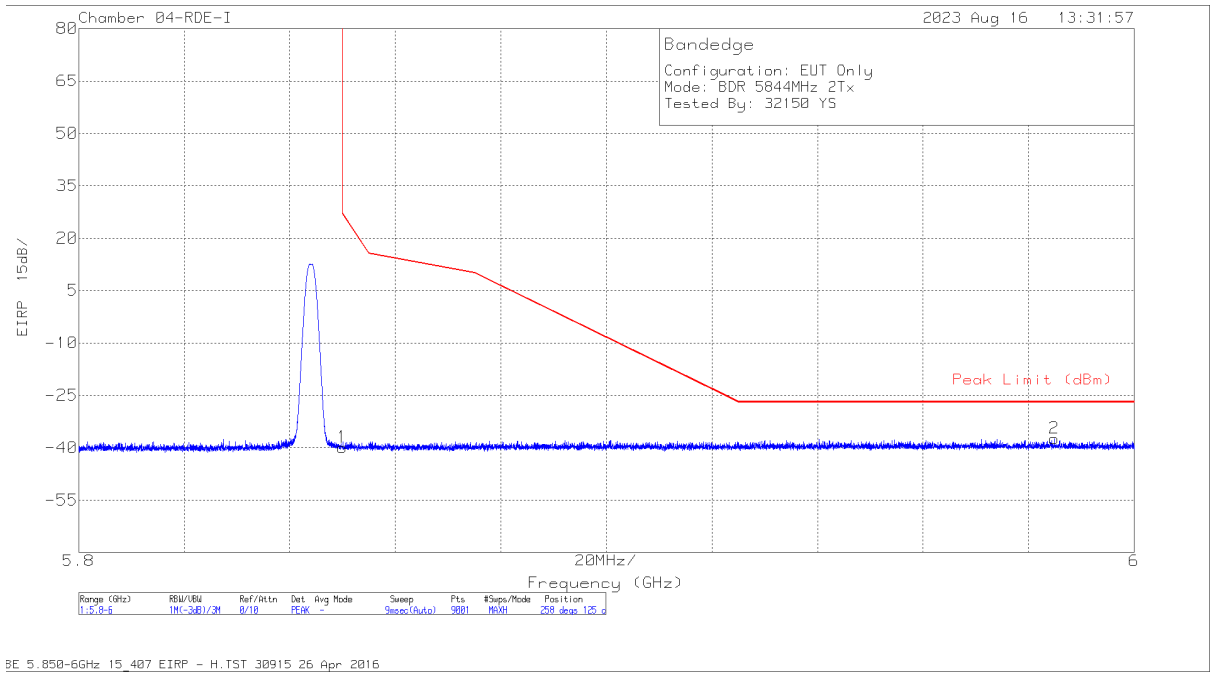
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-70.78	Pk	34.9	-16.7	11.8	-40.78	27	-67.78	346	157	V
2	5.628105	-68.58	Pk	34.9	-16.8	11.8	-38.68	-27	-11.68	346	157	V

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	84797 ACF (dB) - 3mH	Cbl/Amp (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.81	Pk	35	-15.9	11.8	-39.91	27	-66.91	258	125	H
2	5.984865	-68.85	Pk	35.4	-15.7	11.8	-37.35	-27	-10.35	258	125	H

Pk - Peak detector

UL VERIFICATION SERVICES INC.
47173 Benicia Street, Fremont, CA 94538; USA TEL:(510) 319-4000 FAX:(510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.