

TEST REPORT

Report Number. : 14523758-E5V4

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

Model : A2846 (Parent Model)
A3089, A3090, A3092 (Variant Models)

Brand : APPLE

FCC ID : BCG-E8427A (Parent Model)
BCG-E8428A, BCG-E8429A, BCG-E8430A (variant Models)

IC : 579C-E8427A (Parent Model)
579C-E8428A, 579C-E8429A, 579C-E8430A (Variant Models)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
July 24, 2023

Prepared by:
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REPORT REVISION HISTORY

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	6/28/2023	Initial Issue	Chin Pang
V2	7/12/2023	Address TCB's question section 8 and 9 Measure power using PXA	Chin Pang
V3	7/15/2023	Measure Power using power meter without gated.	Chin Pang
V4	7/24/2023	On duty cycle, EUT on tested sample measured is 76.5%. and page 26 & 27 power was added in the duty cycle statement.	Chin Pang

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: SMARTPHONE

MODEL: A2846 (Parent Model)
A3089, A3090, A3092 (Variant Models)

BRAND: APPLE

SERIAL NUMBER: NVC62T26VW

SAMPLE RECEIPT DATE: JANUARY 30, 2023

DATE TESTED: APRIL 26, 2023 – JULY 15, 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 assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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

Approved & Released For
UL Verification Services Inc. By:

Prepared By:



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

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

2. TEST RESULT SUMMARY

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 12.2.
See Comment	RSS-GEN 6.7	26dB BW/99% OBW	Reporting purposes only	Per ANSI C63.10 Sections 6.9.2 and 6.9.3
15.407 (e)	RSS-247 6.2.4.1	6 dB BW	Complies	None.
15.407 (a) (1-4), (h) (1)	RSS-247 6.2	Output Power	Complies	None.
15.407 (a) (1-3, 5)	RSS-247 6.2	PSD	Complies	None.
15.209, 15.205, 15.407 (b)	RSS-GEN 8.9, 8.10, RSS-247 6.2	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC 15.407
- FCC CFR 47 Part 15
- FCC KDB 662911 D01 v02r01
- FCC KDB 789033 D02 v02r01
- ANSI C63.10-2013
- RSS-GEN Issue 5 + A1 +A2
- RSS-247 Issue 2.
- KDB 414788 D01 Radiated Test Site v01r01
- RSP-100 Issue 12

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
<input type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input checked="" type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
<input type="checkbox"/>	Building 3: 843 Auburn Court, Fremont, CA 94538 USA			
<input checked="" type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538 USA			
<input type="checkbox"/>	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.)

5.3. MEASUREMENT UNCERTAINTY

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

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

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

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

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

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

Parent Model: A2846, FCC ID: BCG-E8427A, IC ID: 579C-E8427A

Variant Models: A3089; FCC ID: BCG-E8428A, IC ID: 579C-E8428A
 A3090, FCC ID: BCG-E8429A, IC ID: 579C-E8429A
 A3092; FCC ID: BCG-E8430A, IC ID: 579C-E8430A

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.8 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8 GHz band, 1TX			
5725-5850	802.15.4ab	16.37	43.35

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna(s) gain and type, as provided by the manufacturer' are as follows:
 The radio utilizes. Cable loss is 3.15 dB.

Frequency Range (GHz)	Antenna 6 (dBi)	Antenna 5 (dBi)
5728.75 - 5846.25	-0.1	-2.3

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 1868.0.30.0.1~1432.4601.33

6.5. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z on Ant 6 and Ant 5. It was determined that Z (Portrait) orientation was the worst-case orientation for Ant 6; and Y (Landscape) orientation for ANT 5.

There are index 1, index 2 and index 3 corresponding to 250Kbps, 500Kpbs and 1000Kbps data rate. Baseline investigation on the different data rate, based on highest PSD 500Kbps is determined to be the worst case, therefore 500Kbps was used to perform all final test.

For radiated harmonics spurious below 1GHz, 1-18GHz L/M/H channels, 18-40GHz, and power line conducted emissions were performed with the EUT with power setting as worst-case scenario.

For Radiated band edge test all test modes have been investigated with power set at higher setting 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.

Simultaneous transmission with the Bluetooth was investigated, and no noticeable emission was found.

For radiated bandedge and emssions spurious, 500Kbps is set as the worst-case data rates for final test

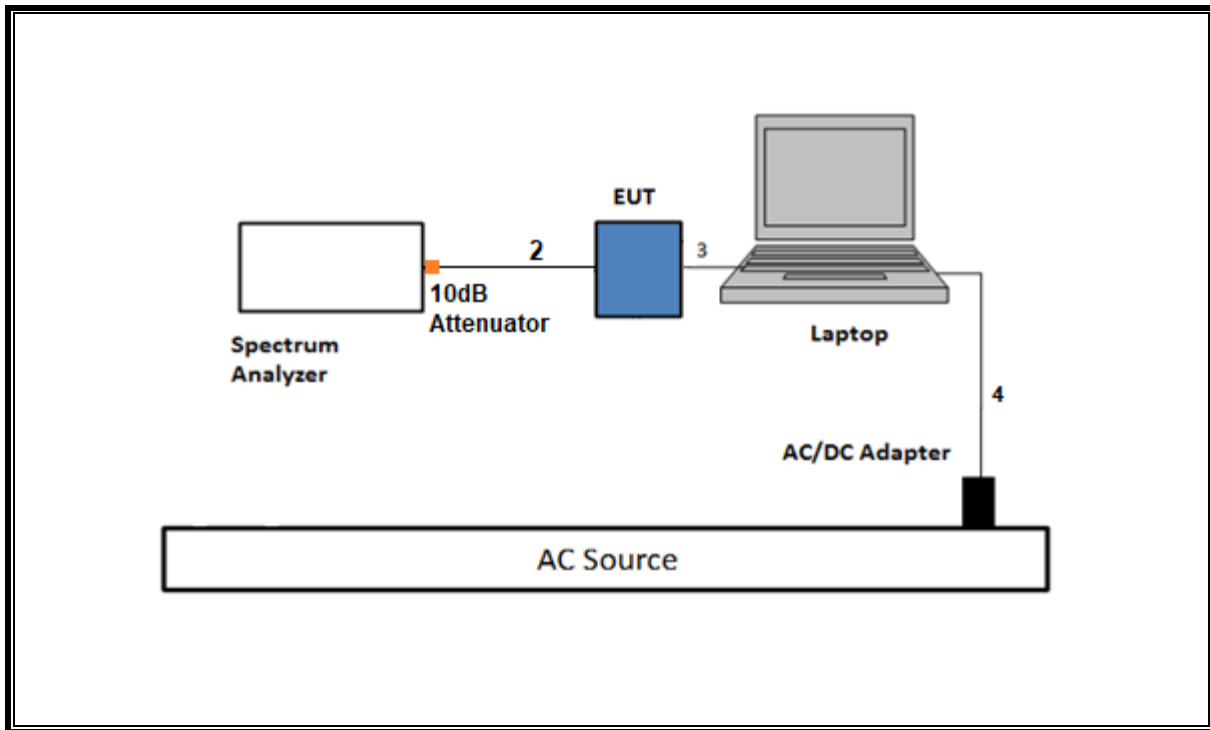
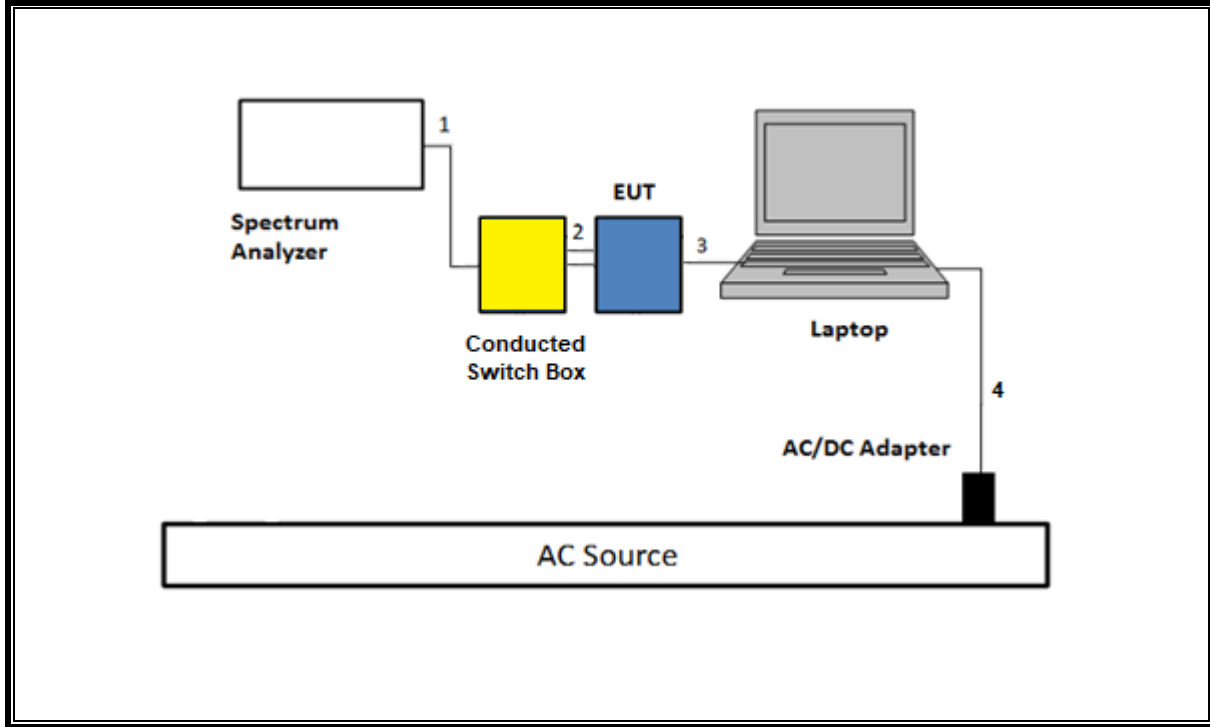
6.6 DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
Laptop	Apple	Macbook Pro	C02VD7SAHV22	BCGA1708		
Laptop AC/DC adapter	Liteon Technology	A1424	NSW25679	DoC		
EUT AC/DC adapter	Apple	A1720	C3D8417A7R93KVPA8	DoC		
Conducted Switch Box	UL	n/a	208281	N/A		
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	N/A		
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	SMA	1	SMA	Shielded	0.75	To spectrum Analyzer
2	Antenna	2	SMA	Un-shielded	0.2	To Conducted Switch Box
3	USB-C	1	USB-C	Shielded	1.0	N/A
4	AC	1	AC	Un-shielded	2	N/A
I/O CABLES (RF RADIATED AND AC LINE CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1	N/A

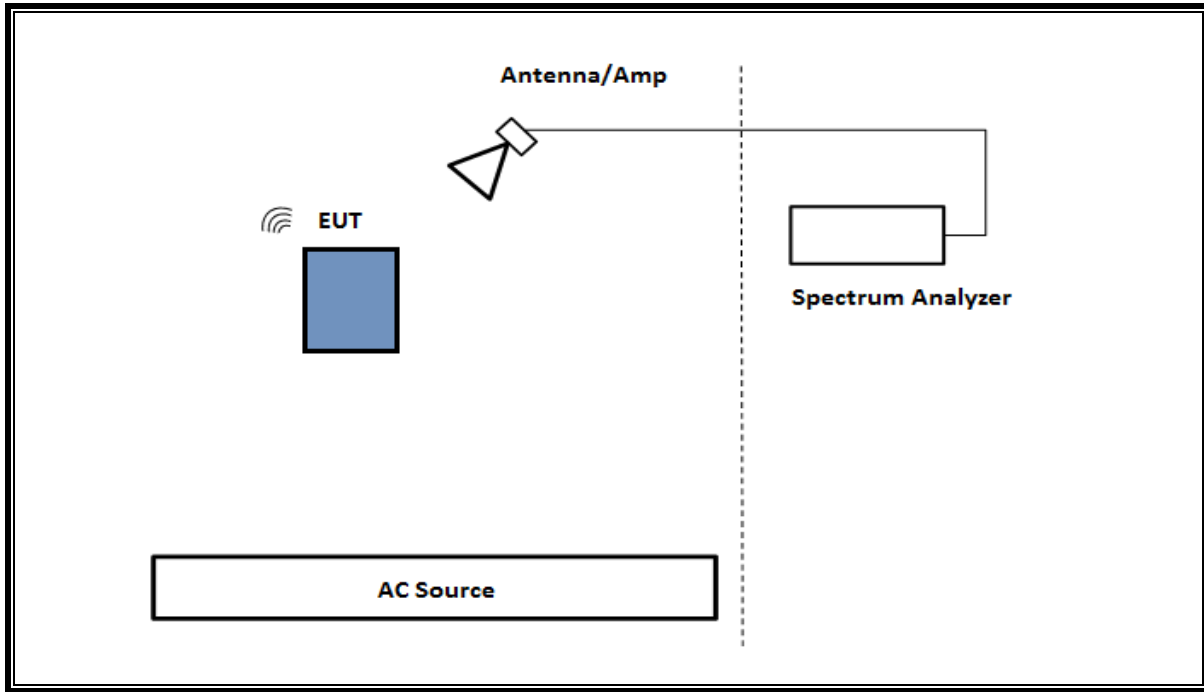
TEST SETUP

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

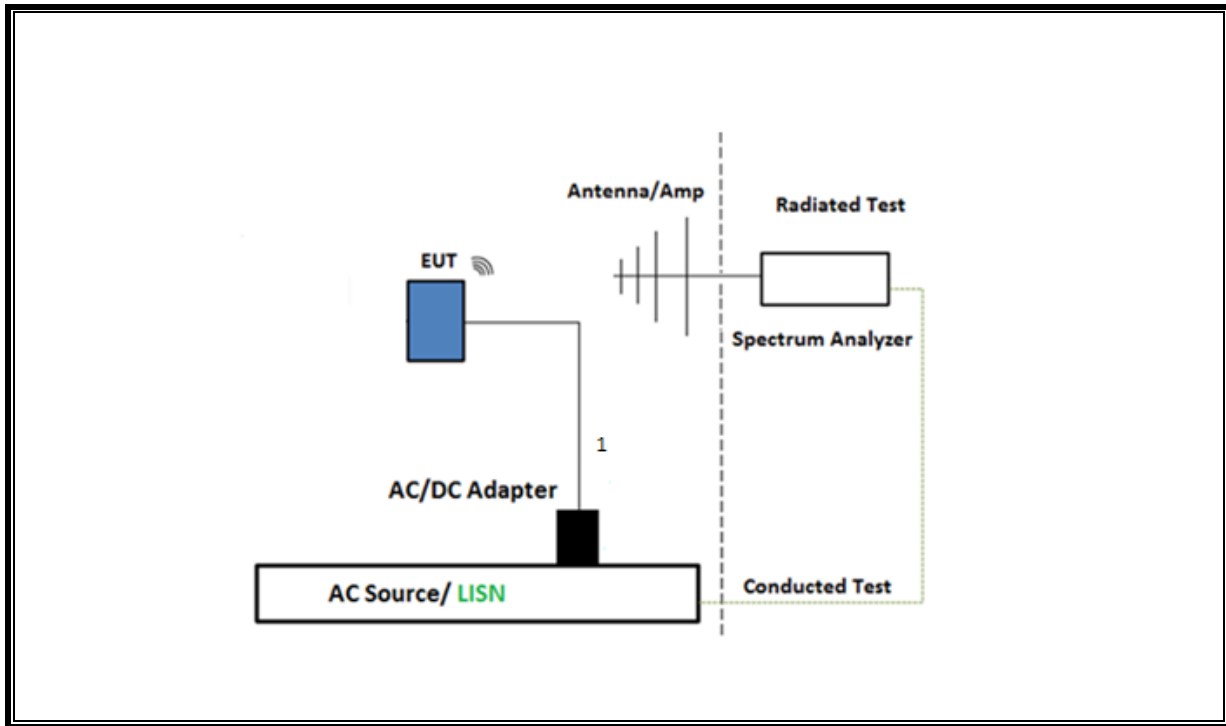
SETUP DIAGRAM FOR RF CONDUCTED TESTS



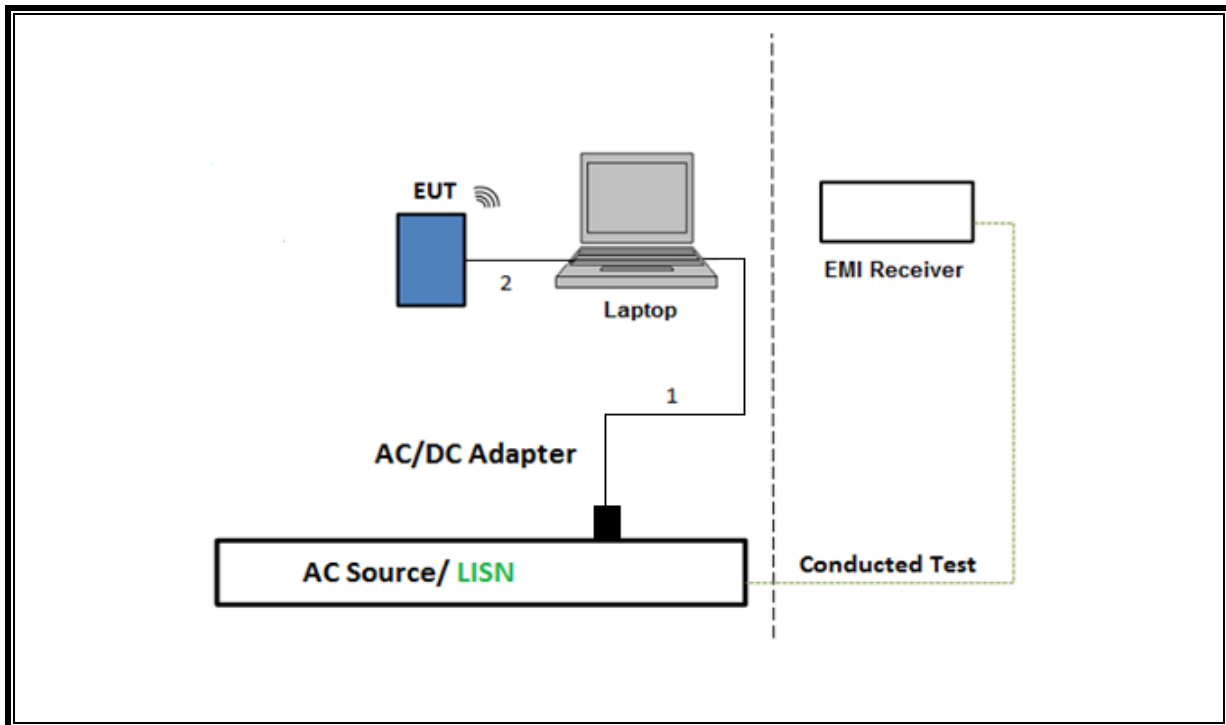
SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz



SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST



TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



7. MEASUREMENT METHOD

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

8. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	206807	02/28/2024	02/28/2023
RF Filter Box 1-18GHz	UL-FR	NA	206359	08/13/2023	08/13/2022
EMI Receiver	Rohde & Schwarz	ESW44	201500	02/29/2024	02/29/2023
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp	JB3	80714	10/06/2023	10/06/2022
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	175953	02/08/2024	02/08/2023
*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, Passive Loop 100KHz to 30MHz	ETS-Lindgren	EM-6872	170016	07/19/2023	07/19/2022
Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170014	07/19/2023	07/19/2022
Link File, RF Amplifier Assembly, 26-40GHz, 65dB Gain	AMPLICAL	AMP26G40-65	221834	02/29/2024	02/29/2023
RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	NA	230878	02/29/2024	02/29/2023
*Antenna Horn, 26.5 to 40GHz	ARA	MWH-2640/B	172367	06/01/2023	06/01/2022
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	87738	01/31/2024	01/31/2023
Conducted Switch Box	N/A	CSB	208281	04/30/2024	04/30/2023
10dB Fixed Attenuator, 2 Watts Up to 26.5 GHz	Pasternack Enterprises	PE7024-10	236358	Verified/Characterized before use	
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90756	01/31/2024	01/24/2023
Power Sensor, P- series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	01/31/2024	01/24/2023

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

*Testing is completed before equipment expiration date.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

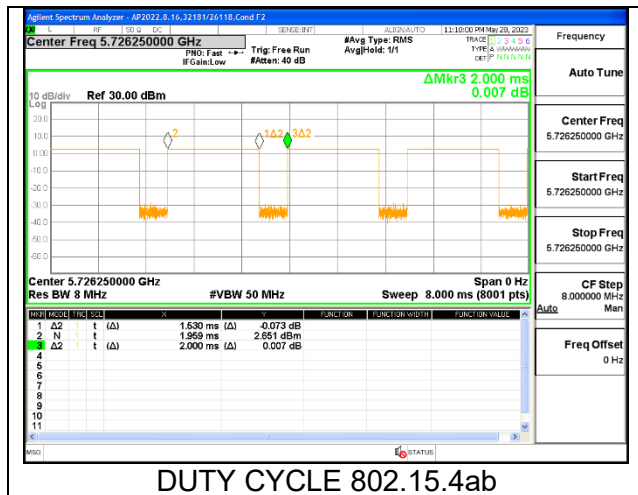
PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.15.4ab						
5786.25MHz	1.530	2.000	0.765	76.50%	1.16	0.654

DUTY CYCLE PLOTS



9.2. 26 dB BANDWIDTH

LIMITS

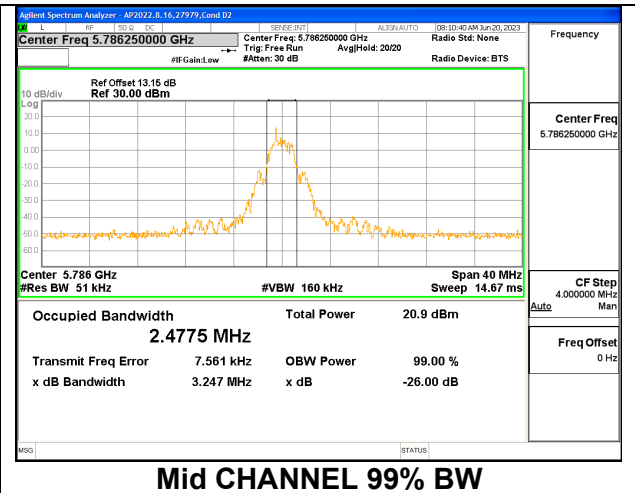
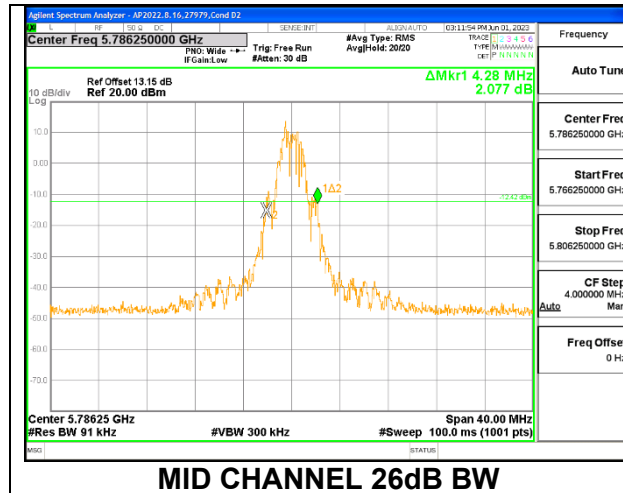
None; for reporting purposes only.

RESULTS

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

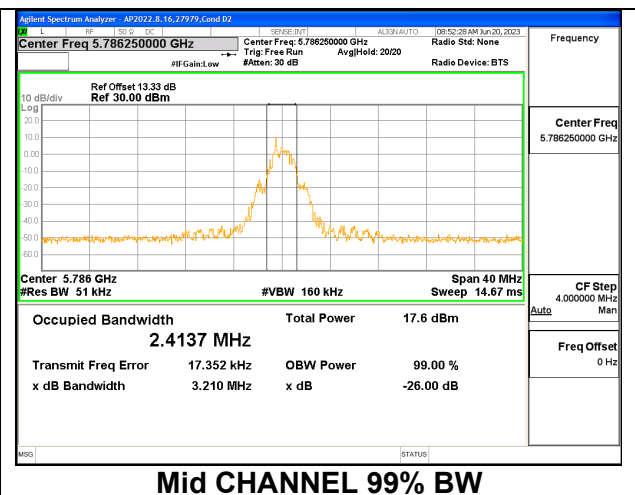
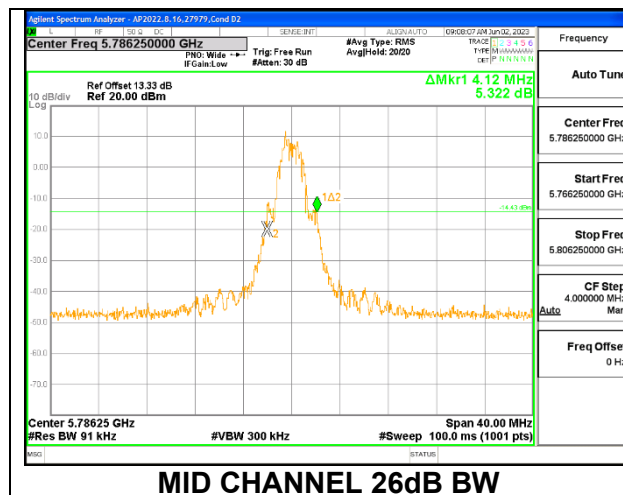
1TX Antenna 6 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5728.75	3.960	2.4653
Mid	5786.25	4.280	2.4775
High	5846.25	4.240	2.4652



1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5728.75	3.840	2.2122
Mid	5786.25	4.120	2.4137
High	5846.25	3.960	2.4620



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

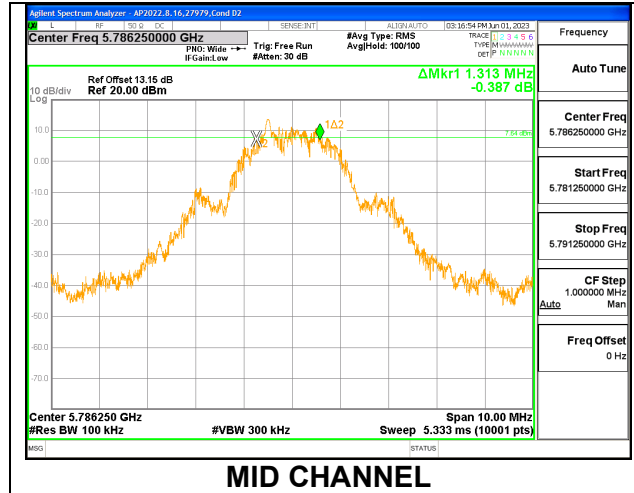
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

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

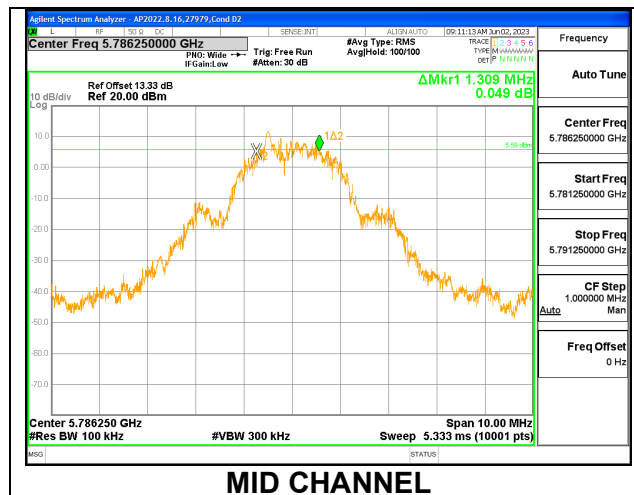
1TX Antenna 6 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5728.75	1.395	0.5
Mid	5786.25	1.313	0.5
High	5846.25	1.371	0.5



1TX Antenna 5 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5728.75	1.355	0.5
Mid	5786.25	1.309	0.5
High	5846.25	1.365	0.5



9.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

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.

RSS-247**Band 5.725-5.85 GHz**

The maximum conducted output power shall not exceed 1 W. The 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 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 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 a. Method PM.

The measurement method used for power spectral density is KDB 789033 D02 v02r01, Section F.

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

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

Low Power 1TX Antenna 6 MODE (FCC + IC)

Test Engineer:	27979
Test Date:	6/27-7/15, 2023

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-0.1	30.00	30.00
Mid	5786.25	-0.1	30.00	30.00
High	5846.25	-0.1	30.00	30.00

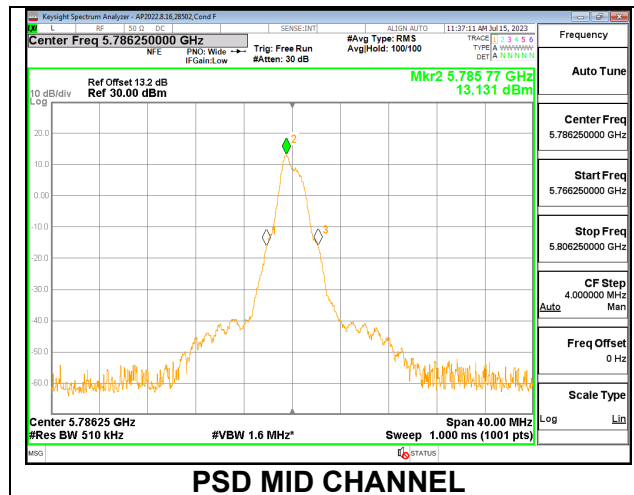
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd PSD and Power
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Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	14.99	16.15	30.00	-13.85
Mid	5786.25	15.11	16.27	30.00	-13.73
High	5846.25	15.21	16.37	30.00	-13.63

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	5728.75	13.014	14.174	30.00	-15.83
Mid	5786.25	13.131	14.291	30.00	-15.71
High	5846.25	13.079	14.239	30.00	-15.76



Low Power 1TX Antenna 5 MODE (FCC + IC)

Test Engineer:	27979
Test Date:	6/27-7/15, 2023

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-2.3	30.00	30.00
Mid	5786.25	-2.3	30.00	30.00
High	5846.25	-2.3	30.00	30.00

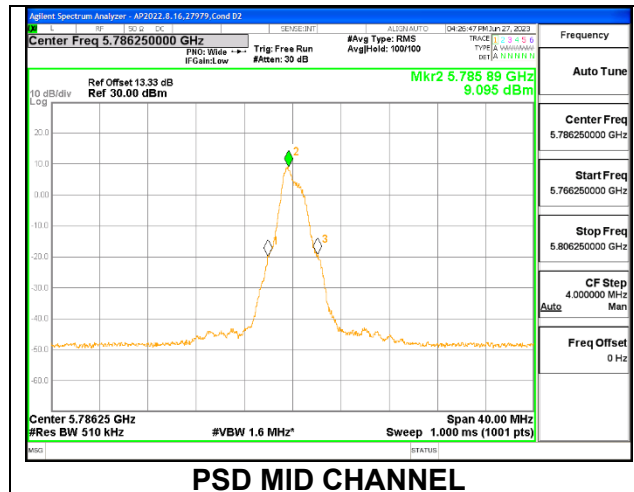
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd PSD and Power
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Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	11.25	12.41	30.00	-17.59
Mid	5786.25	11.20	12.36	30.00	-17.64
High	5846.25	11.15	12.31	30.00	-17.69

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	5728.75	9.735	10.895	30.00	-19.11
Mid	5786.25	9.095	10.255	30.00	-19.75
High	5846.25	8.405	9.565	30.00	-20.44



10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restricted bands
 FCC §15.407(b)(1-3) -Un-Restricted bands
 RSS 247 Issue 2 Sections
 6.2.1.2 (for 5150-5250 MHz band)
 6.2.2.2 (for 5250-5350 MHz band)
 6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)
 6.2.4.2 (for 5725-5850 MHz band)

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; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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

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

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The 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.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only. Blue color trace on plots: Parallel orientation. Green color trace on plots: Perpendicular orientation.

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

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

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

RESULTS

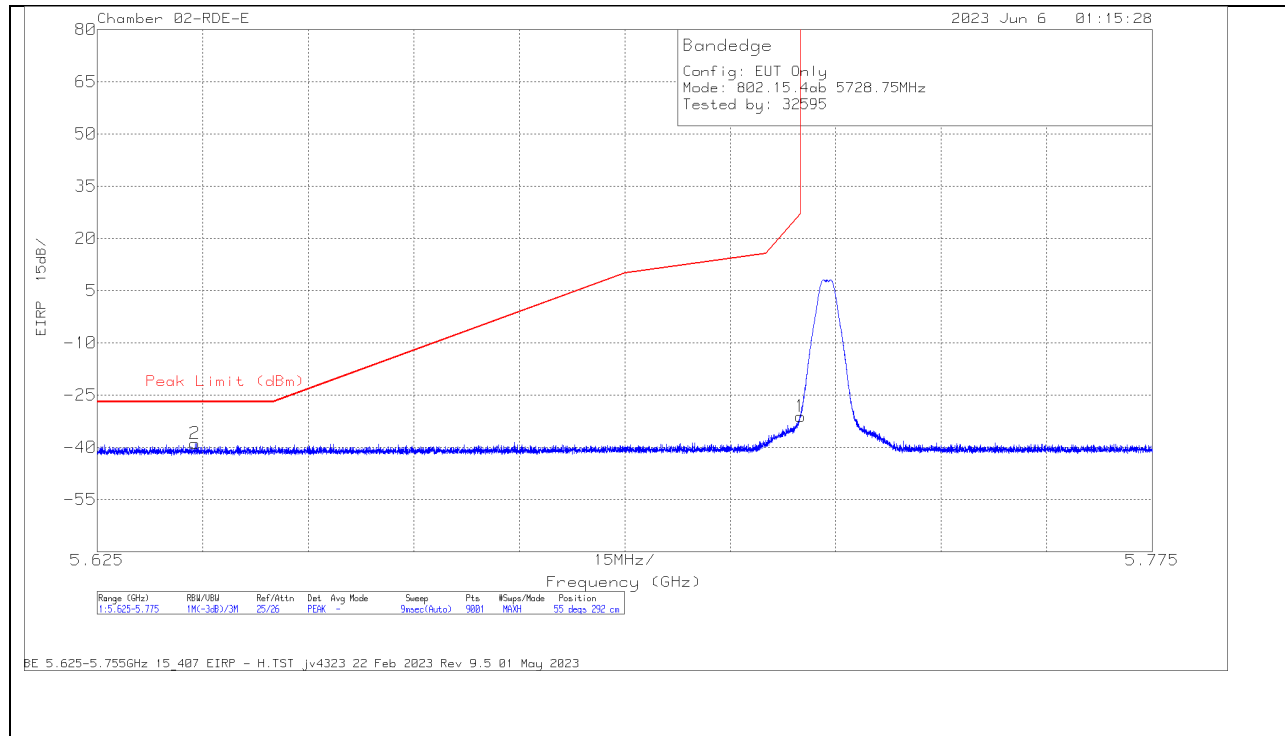
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. ANT 6, 500Kbps LOW POWER BAND EDGE

1TX Antenna 6

BANDEDGE (LOW CHANNEL)

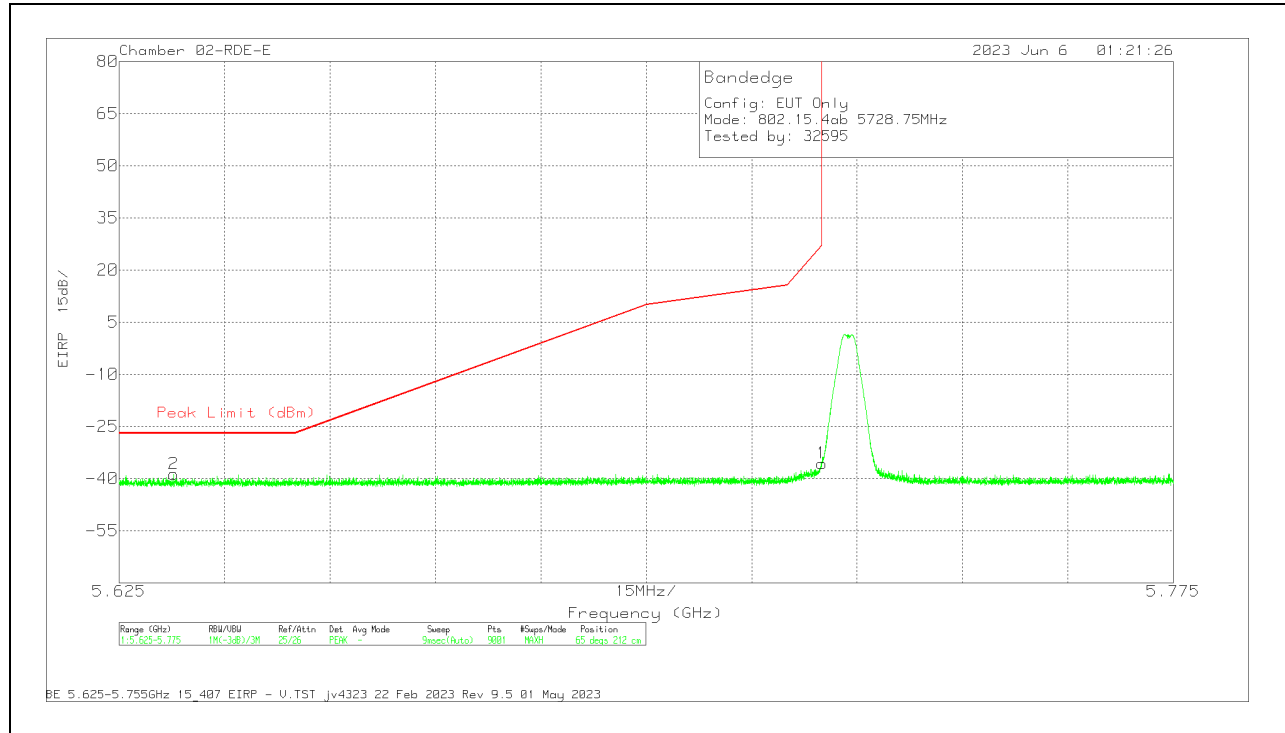
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.638884	-48.13	PK	34.5	11.8	0	-37.05	-38.88	-27	-11.88	55	292	H
1	5.725	-40.76	PK	34.6	11.8	0	-36.76	-31.12	27	-58.12	55	292	H

Pk - Peak detector

VERTICAL RESULT

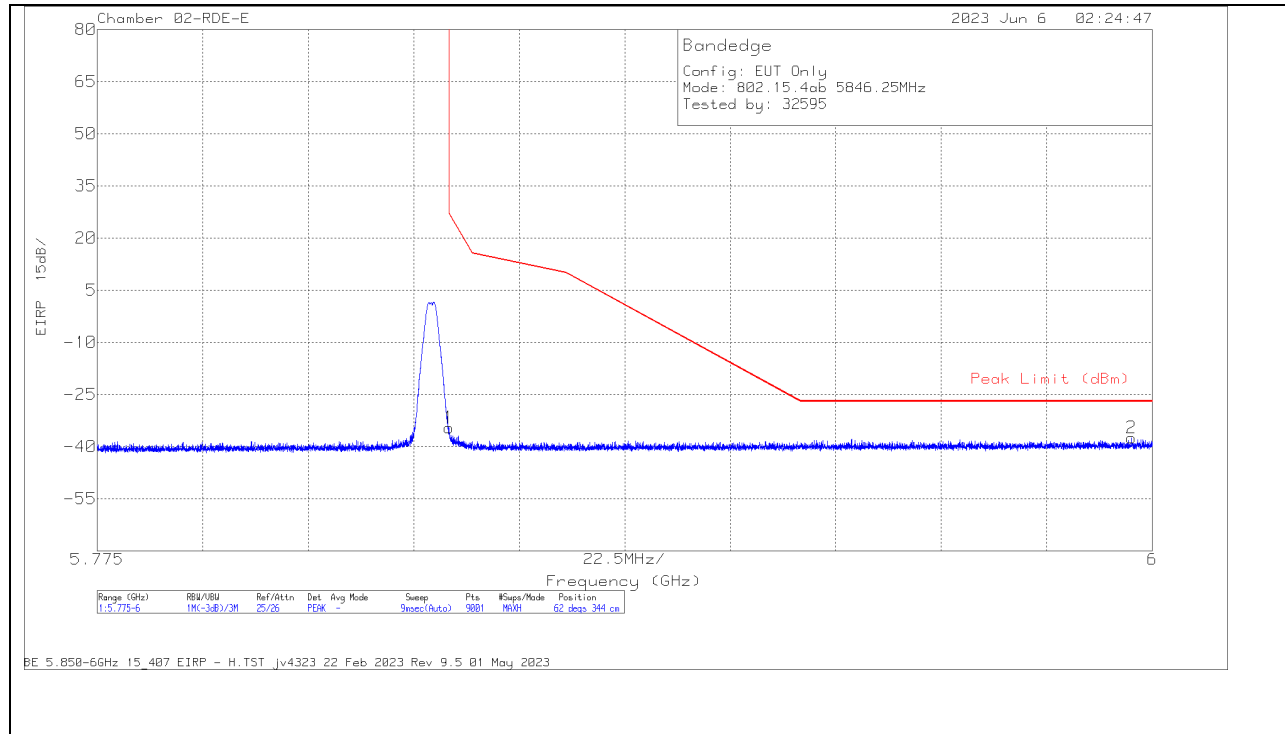


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.632767	-47.88	PK	34.5	11.8	0	-37.08	-38.66	-27	-11.66	65	212	V
1	5.725	-45.26	PK	34.6	11.8	0	-36.76	-35.62	27	-62.62	65	212	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

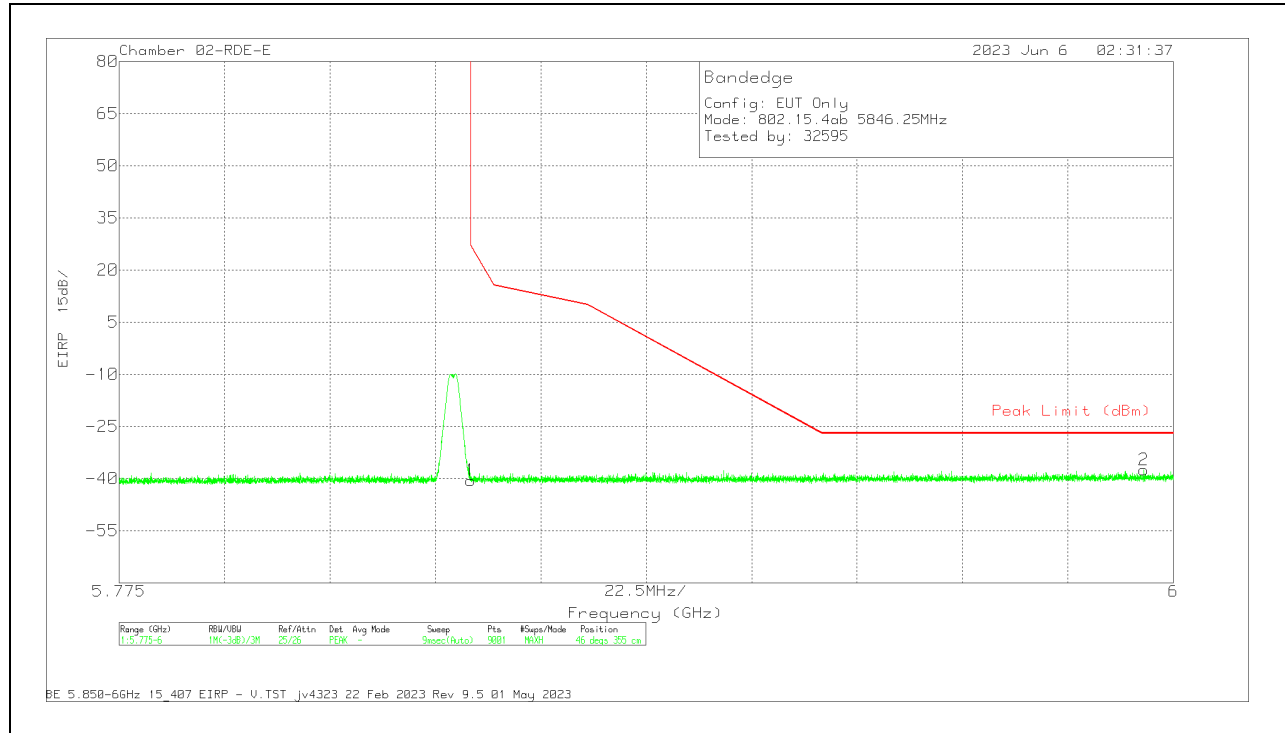
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-44.96	Pk	34.9	11.8	0	-36.3	-34.56	27	-61.56	62	344	H
2	5.995575	-48.68	Pk	35.2	11.8	0	-35.8	-37.48	-27	-10.48	62	344	H

Pk - Peak detector

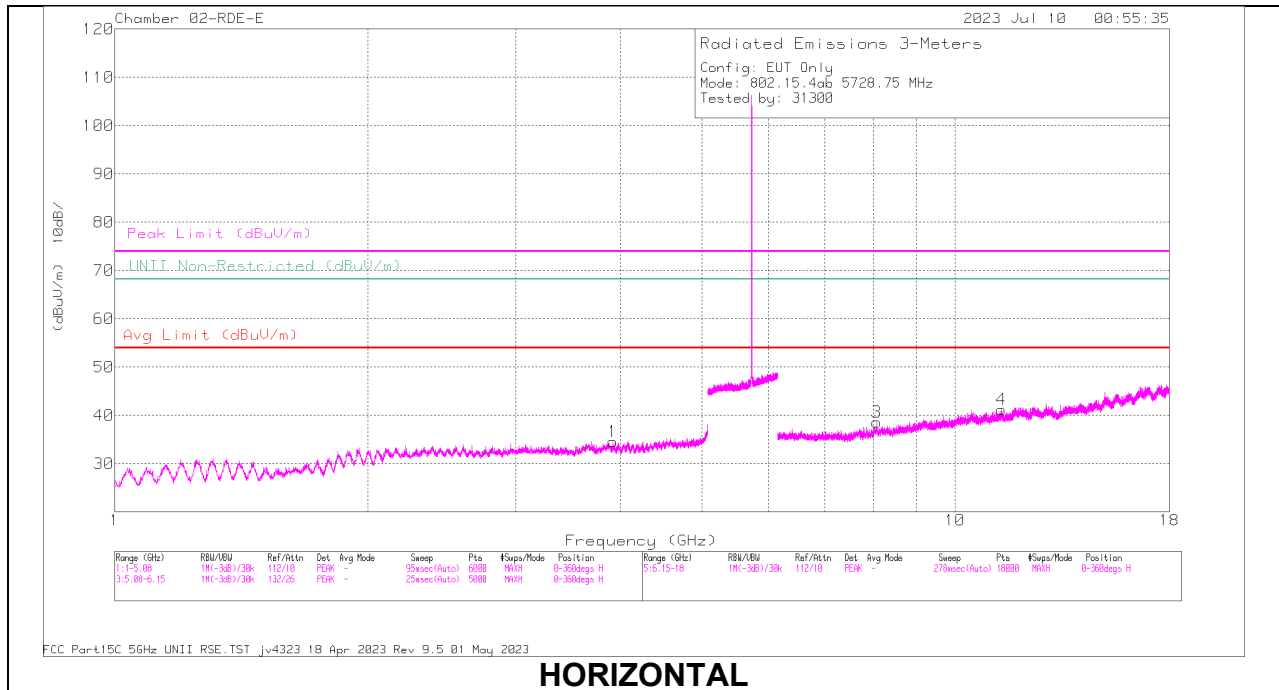
VERTICAL RESULT



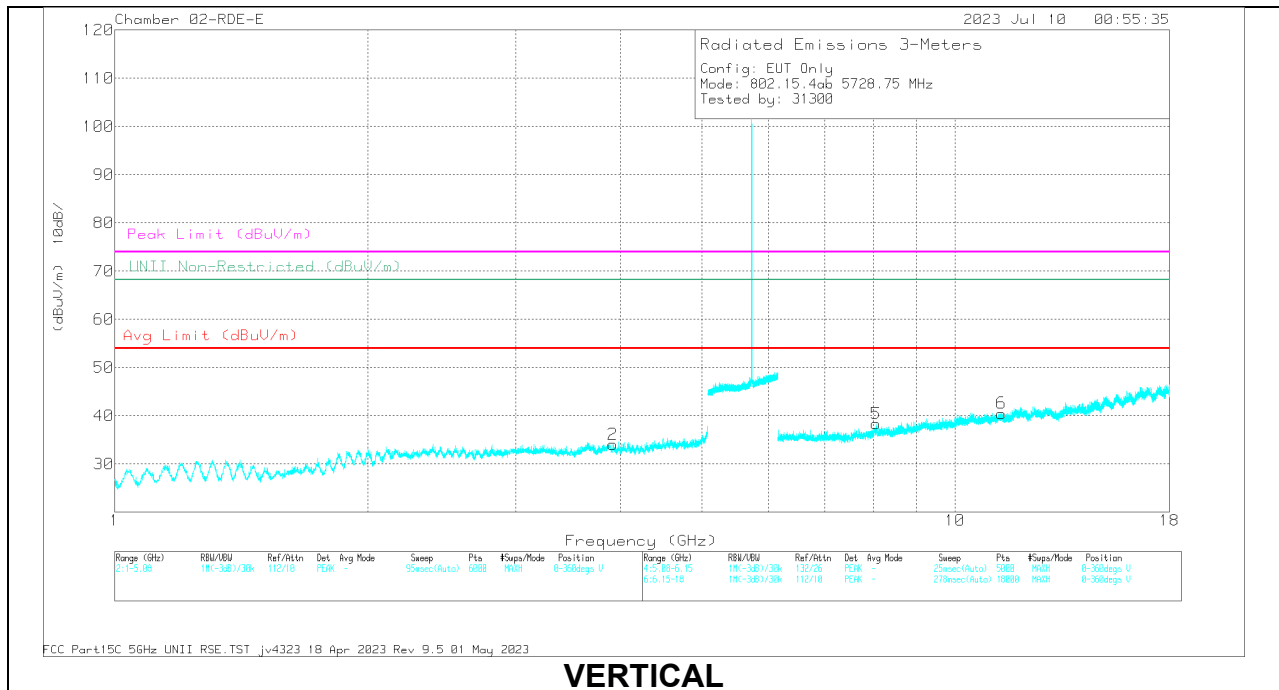
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-50.91	Pk	34.9	11.8	0	-36.3	-40.51	27	-67.51	46	355	V
2	5.99365	-48.71	Pk	35.2	11.8	0	-35.78	-37.49	-27	-10.49	46	355	V

Pk - Peak detector

10.1.2. ANT 6, 500Kbps LOW POWER HARMONICS AND SPURIOUS EMISSIONS



HORIZONTAL



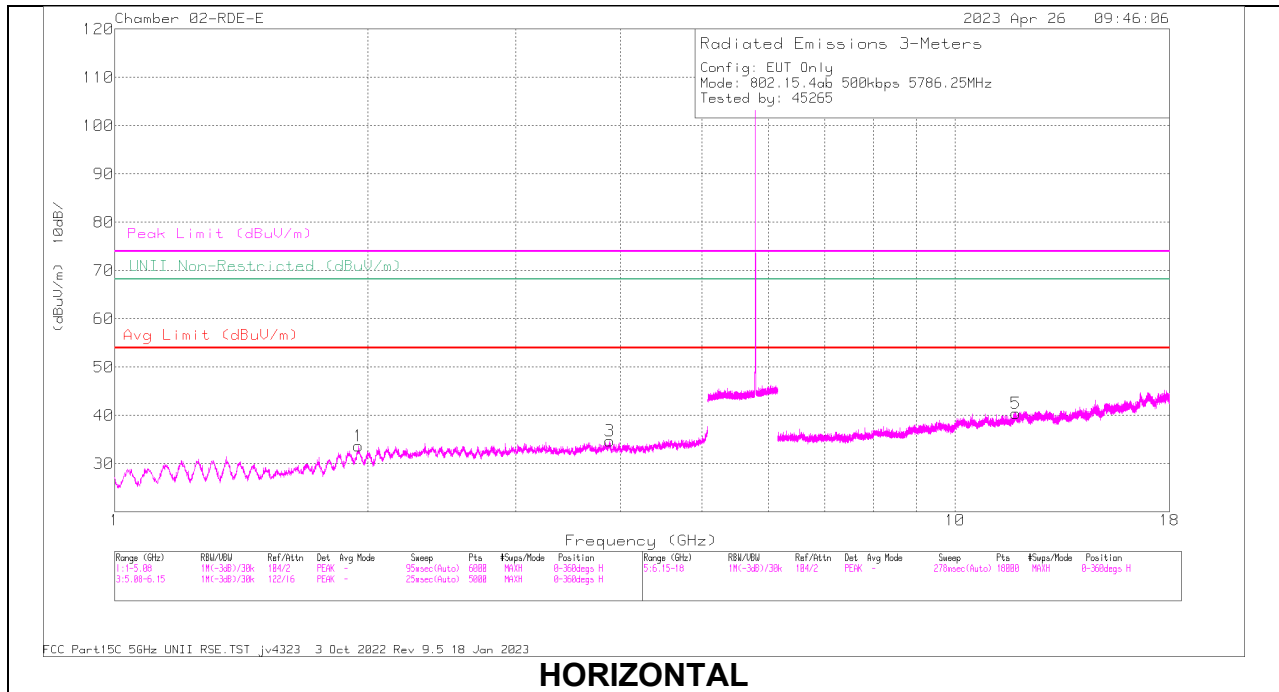
VERTICAL

RADIATED EMISSIONS

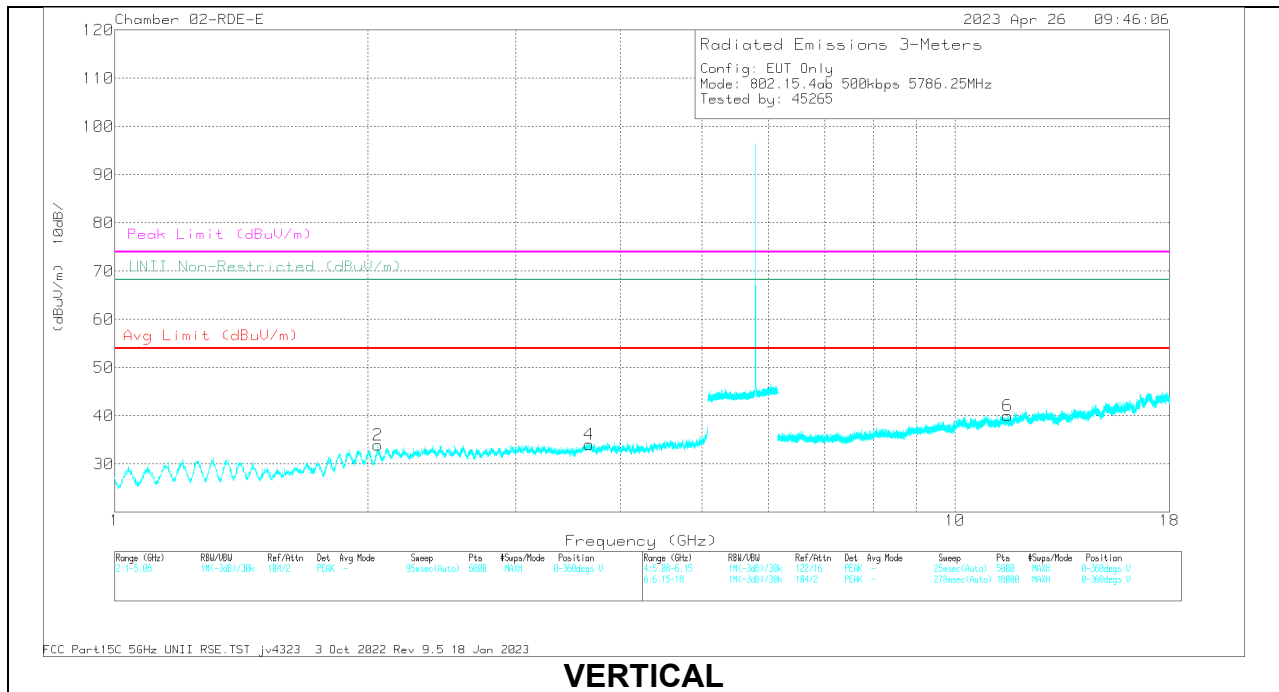
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.916977	56.11	PK-U	33.5	0	-45.6	44.01	-	-	74	-29.99	302	101	H
	* 3.917362	43.89	ADR	33.5	1.16	-45.61	32.94	54	-21.06	-	-	302	101	H
2	* 3.918645	56.1	PK-U	33.5	0	-45.65	43.95	-	-	74	-30.05	242	127	V
	* 3.921653	44.05	ADR	33.5	1.16	-45.7	33.01	54	-20.99	-	-	242	127	V
3	* 8.068735	55.87	PK-U	35.9	0	-44.45	47.32	-	-	74	-26.68	214	163	H
	* 8.069017	43.92	ADR	35.9	1.16	-44.45	36.53	54	-17.47	-	-	214	163	H
4	* 11.351763	54.32	PK-U	38.1	0	-42.29	50.13	-	-	74	-23.87	177	198	H
	* 11.351715	42.07	ADR	38.1	1.16	-42.29	39.04	54	-14.96	-	-	177	198	H
5	* 8.063219	56.24	PK-U	35.9	0	-44.34	47.8	-	-	74	-26.2	327	256	V
	* 8.063781	44.06	ADR	35.9	1.16	-44.36	36.76	54	-17.24	-	-	327	256	V
6	* 11.364761	53.8	PK-U	38.1	0	-42.26	49.64	-	-	74	-24.36	147	184	V
	* 11.365334	41.97	ADR	38.1	1.16	-42.26	38.97	54	-15.03	-	-	147	184	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

MID CHANNEL RESULTS



HORIZONTAL



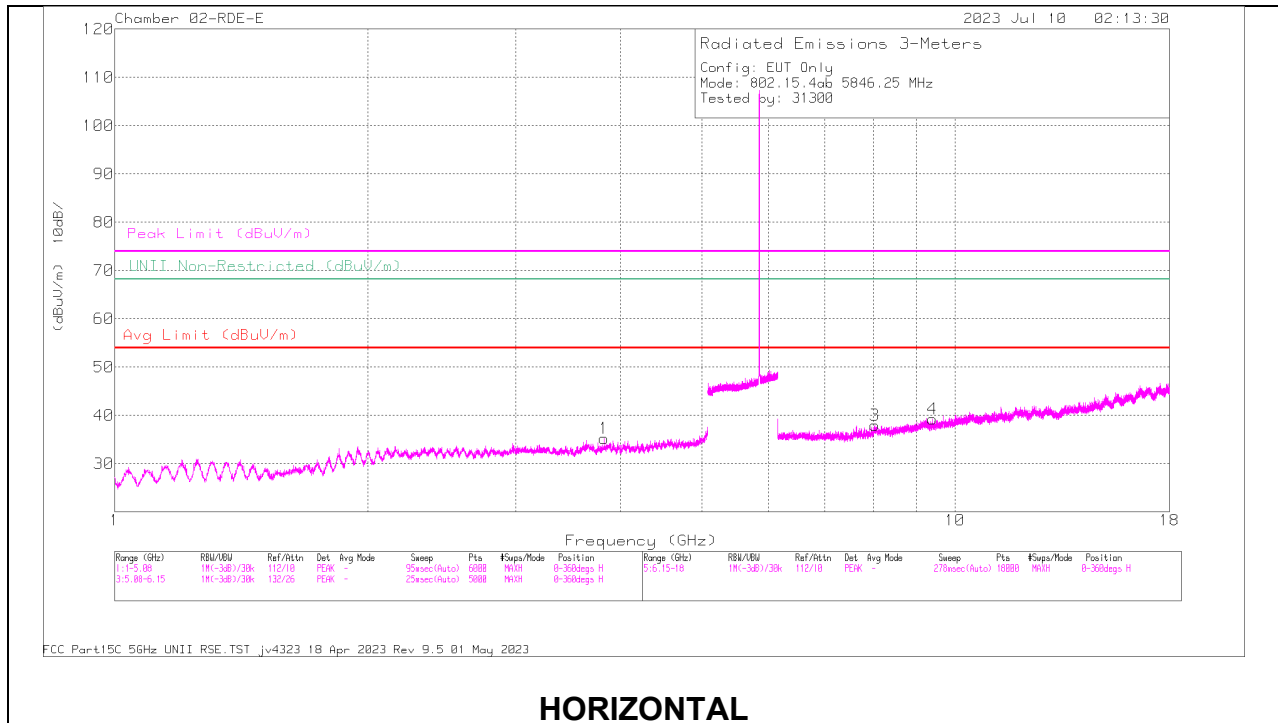
VERTICAL

RADIATED EMISSIONS

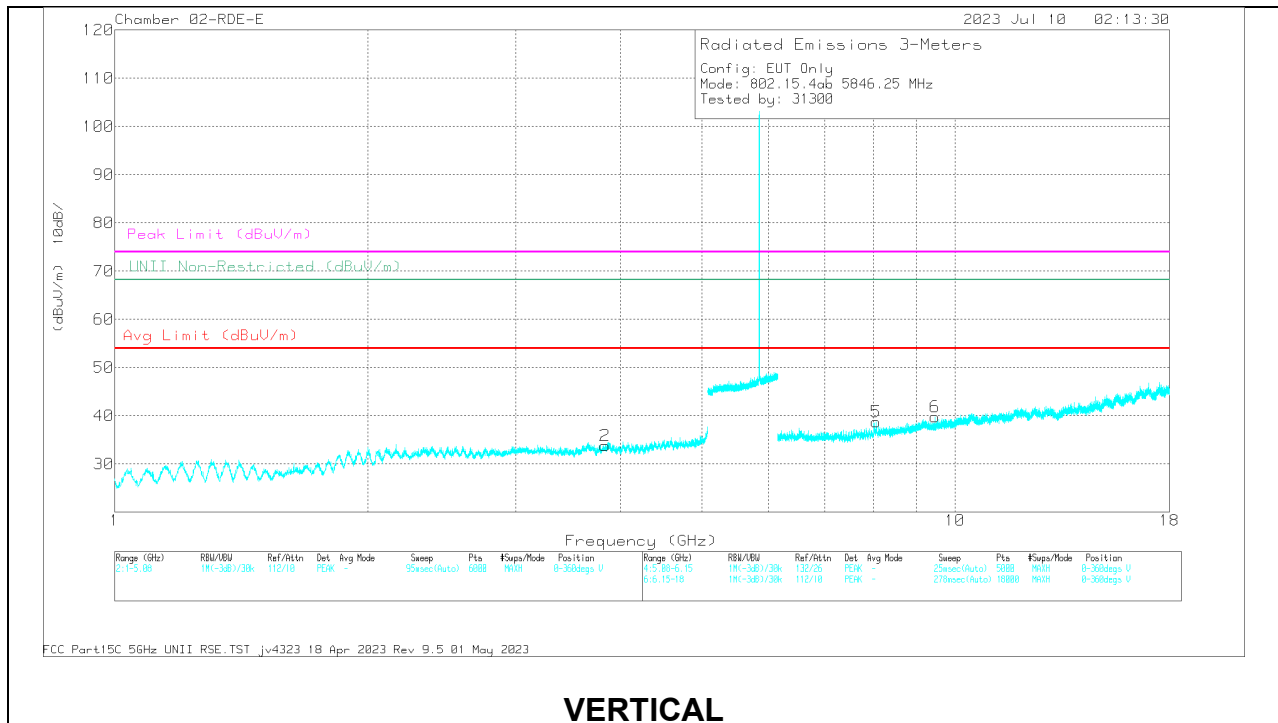
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB) 3mH	Gain/Loss (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.87982	56.19	PK-U	33.5	-45.76		43.93	-	-	74	-30.07	-	-	1	199	H
	* 3.879167	44.78	ADR	33.5	-45.77	1.16	33.67	54	-20.33	-	-	-	-	1	199	H
4	* 3.669437	57.1	PK-U	33.4	-46.02		44.48	-	-	74	-29.52	-	-	1	200	V
	* 3.667312	45.23	ADR	33.4	-46.05	1.16	33.74	54	-20.26	-	-	-	-	1	200	V
5	* 11.806495	52.35	PK-U	38.6	-42.84		48.11	-	-	74	-25.89	-	-	1	101	H
	* 11.807946	41.17	ADR	38.6	-42.8	1.16	38.13	54	-15.87	-	-	-	-	1	101	H
6	* 11.551043	53.53	PK-U	38.3	-42.44		49.39	-	-	74	-24.61	-	-	1	200	V
	* 11.55334	42.24	ADR	38.3	-42.51	1.16	39.19	54	-14.81	-	-	-	-	1	200	V
1	1.950284	61.4	PK-U	30.9	-48.87		43.43	-	-	-	-	68.2	-24.77	1	101	H
	2.057938	60.51	PK-U	31.5	-49.15		42.86	-	-	-	-	68.2	-25.34	1	101	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

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

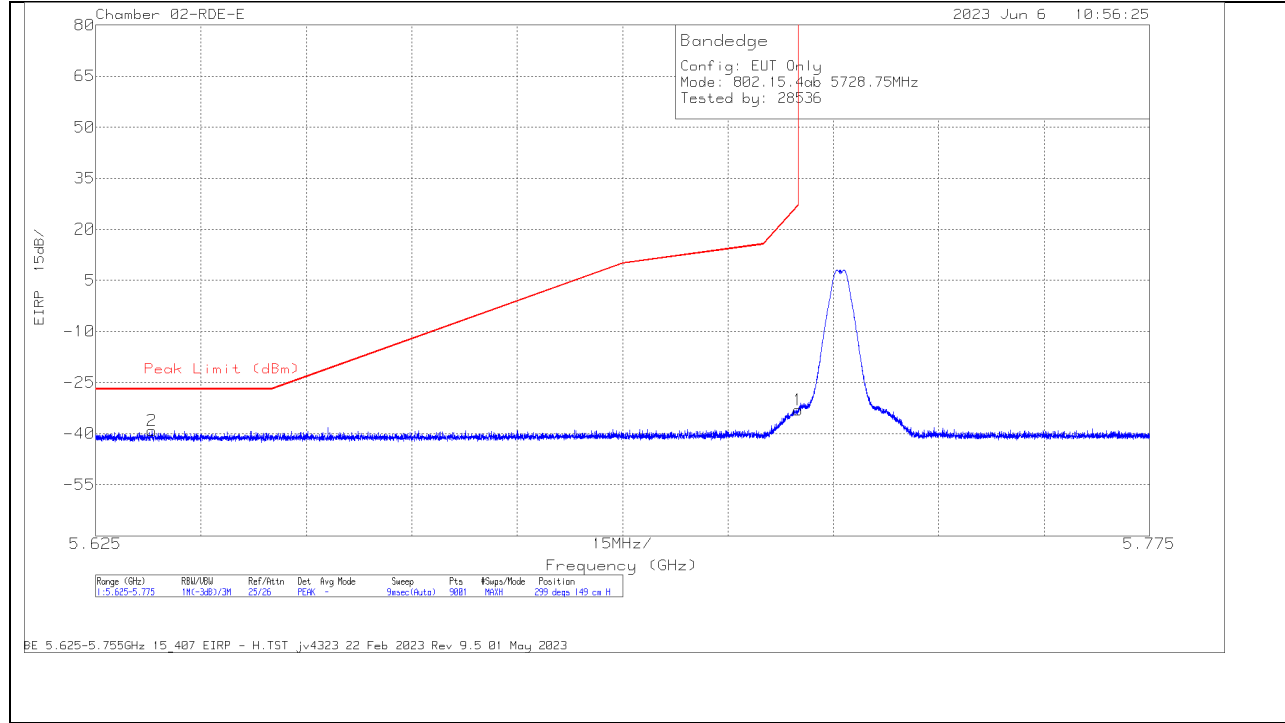
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.821289	56.82	PK-U	33.4	0	-46.19	44.03	-	-	74	-29.97	88	101	H
	* 3.822283	44.84	ADR	33.4	1.16	-46.2	33.2	54	-20.8	-	-	88	101	H
2	* 3.833056	56.56	PK-U	33.5	0	-46.09	43.97	-	-	74	-30.03	4	154	V
	* 3.832631	44.46	ADR	33.5	1.16	-46.08	33.04	54	-20.96	-	-	4	154	V
3	* 8.028051	55.3	PK-U	35.9	0	-44.2	47	-	-	74	-27	68	204	H
	* 8.02928	43.48	ADR	35.9	1.16	-44.18	36.36	54	-17.64	-	-	68	204	H
4	* 9.405824	56.21	PK-U	36.5	0	-43.9	48.81	-	-	74	-25.19	114	283	H
	* 9.406156	44.07	ADR	36.5	1.16	-43.92	37.81	54	-16.19	-	-	114	283	H
5	* 8.061703	56.75	PK-U	35.9	0	-44.35	48.3	-	-	74	-25.7	265	227	V
	* 8.062862	43.88	ADR	35.9	1.16	-44.34	36.6	54	-17.4	-	-	265	227	V
6	* 9.469812	56.75	PK-U	36.6	0	-44.33	49.02	-	-	74	-24.98	304	166	V
	* 9.471673	44.39	ADR	36.6	1.16	-44.42	37.73	54	-16.27	-	-	304	166	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

10.1.3. ANT 5, 500Kbps LOW POWER BAND EDGE

BANDEDGE (LOW CHANNEL)

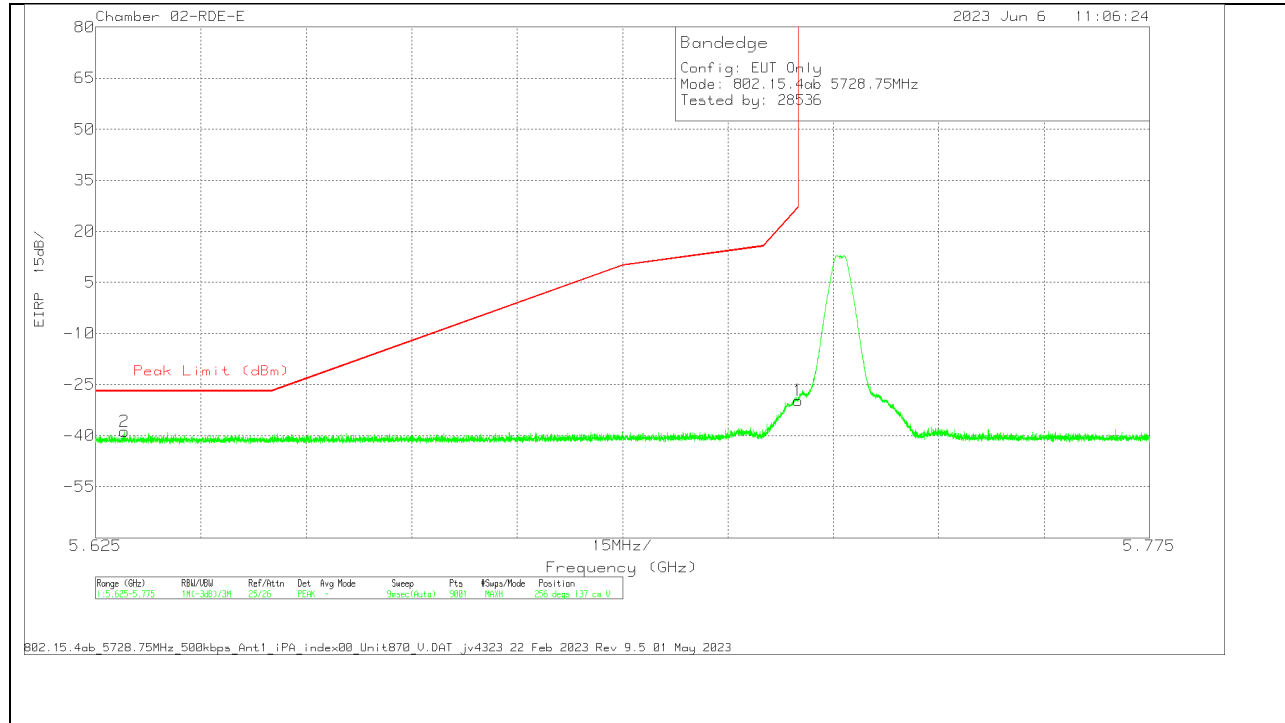
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.633033	-48.31	Pk	34.5	11.8	0	-37.08	-39.09	-27	-12.09	299	149	H
1	5.725	-42.64	Pk	34.6	11.8	0	-36.76	-33	27	-60	299	149	H

Pk - Peak detector

VERTICAL RESULT

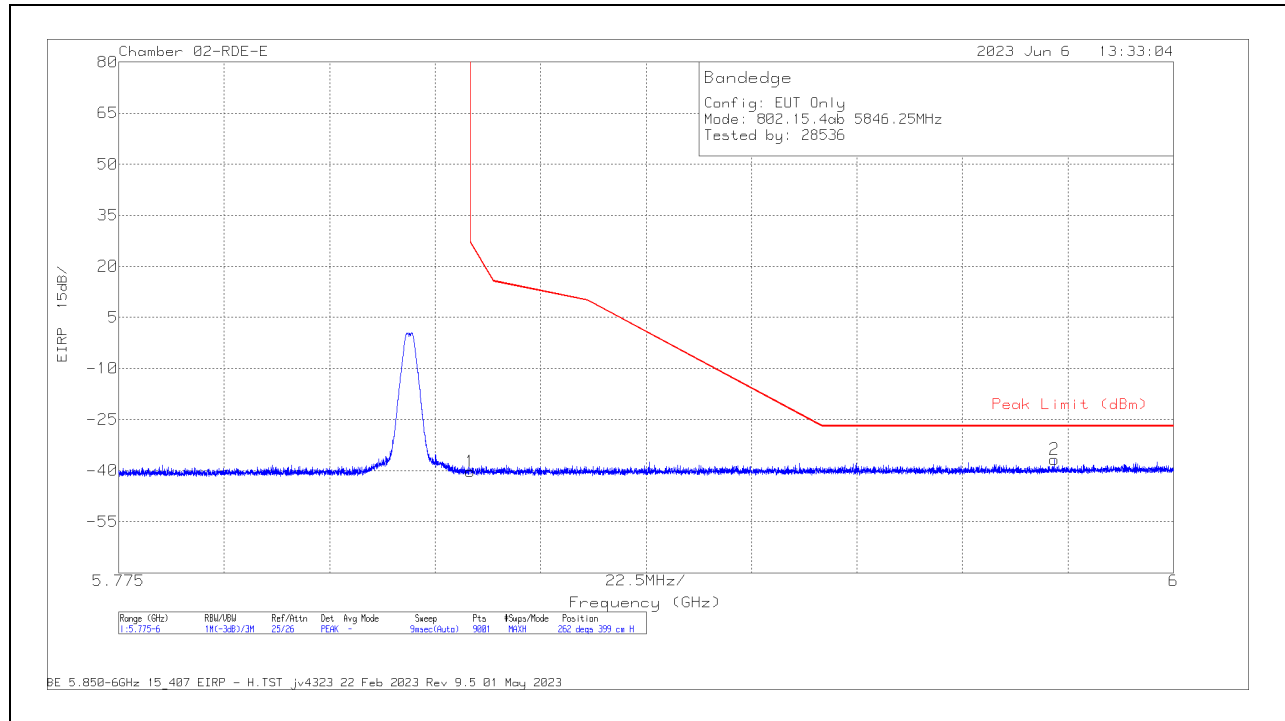


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.62905	-48.04	Pk	34.5	11.8	0	-37.09	-38.83	-27	-11.83	256	137	V
1	5.725	-39.3	Pk	34.6	11.8	0	-36.76	-29.66	27	-56.66	256	137	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

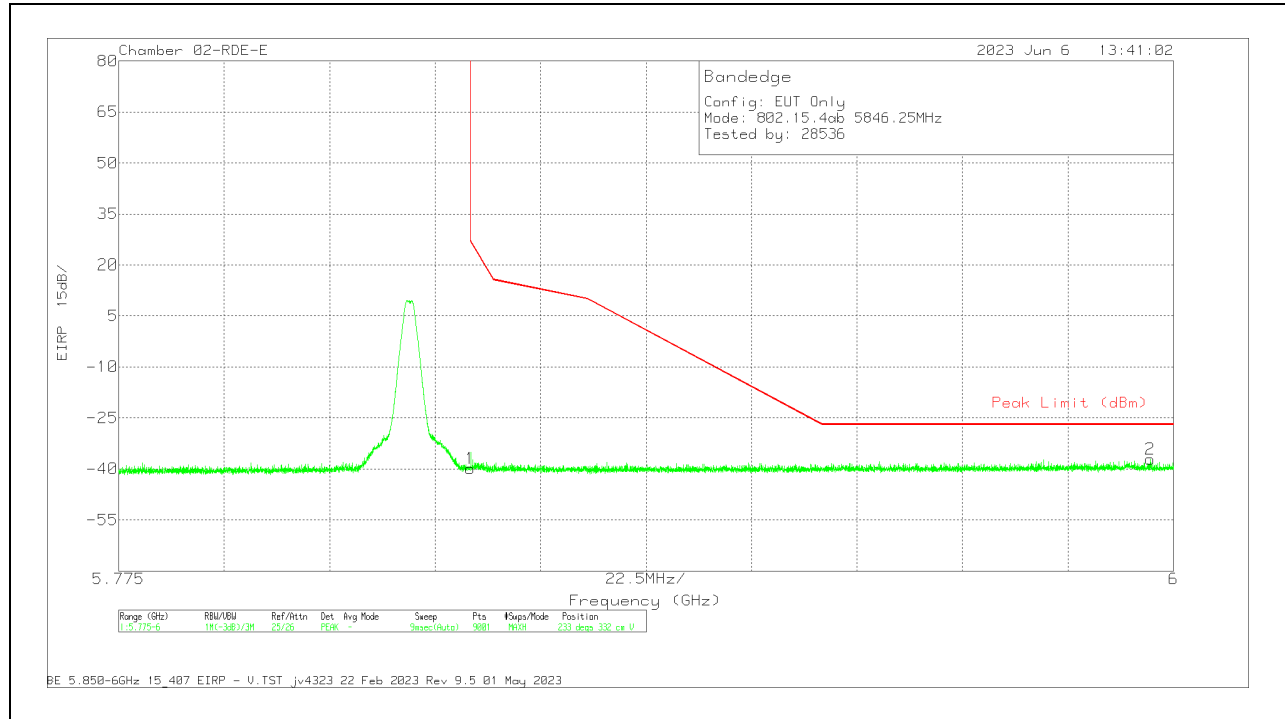
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	20dB BW ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-50.59	PK	34.9	11.8	0	-36.3	-40.19	27	-67.19	262	399	H
2	5.9746	-47.78	PK	35.2	11.8	0	-35.88	-36.66	-27	-9.66	262	399	H

Pk - Peak detector

VERTICAL RESULT

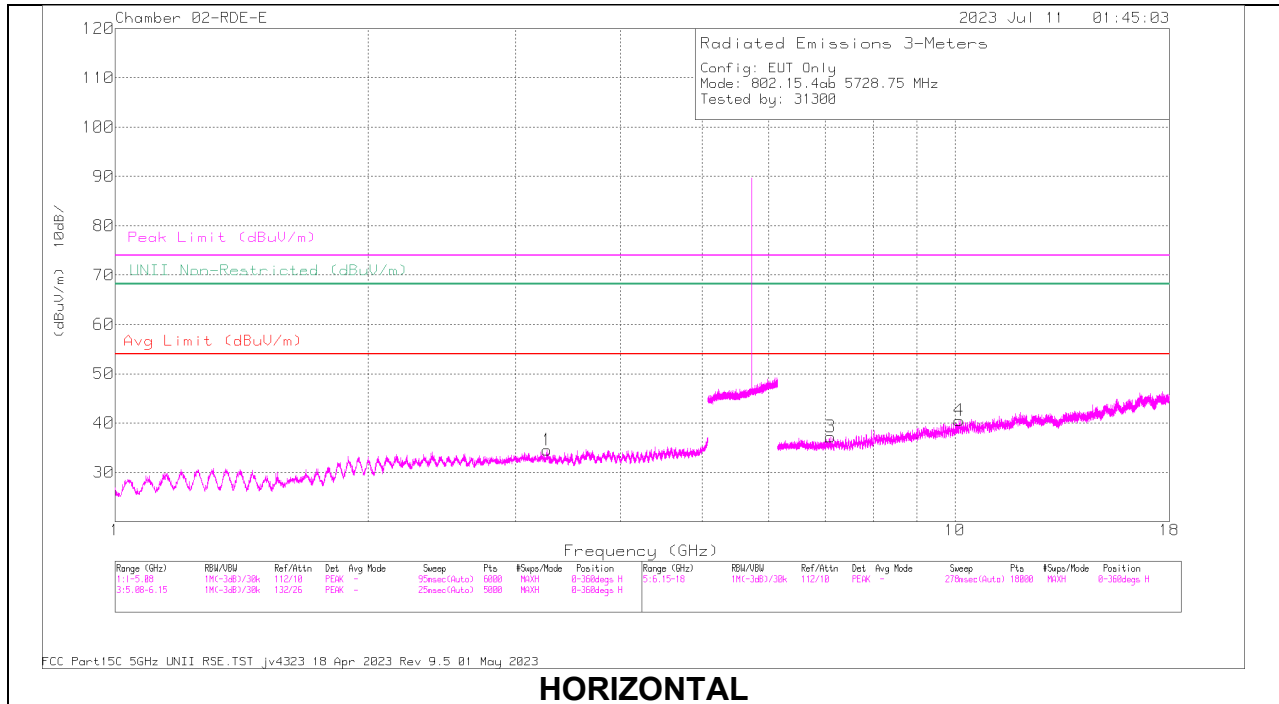


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206807 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-50.25	Pk	34.9	11.8	0	-36.3	-39.85	27	-66.85	233	332	V
2	5.9951	-48.37	Pk	35.2	11.8	0	-35.8	-37.17	-27	-10.17	233	332	V

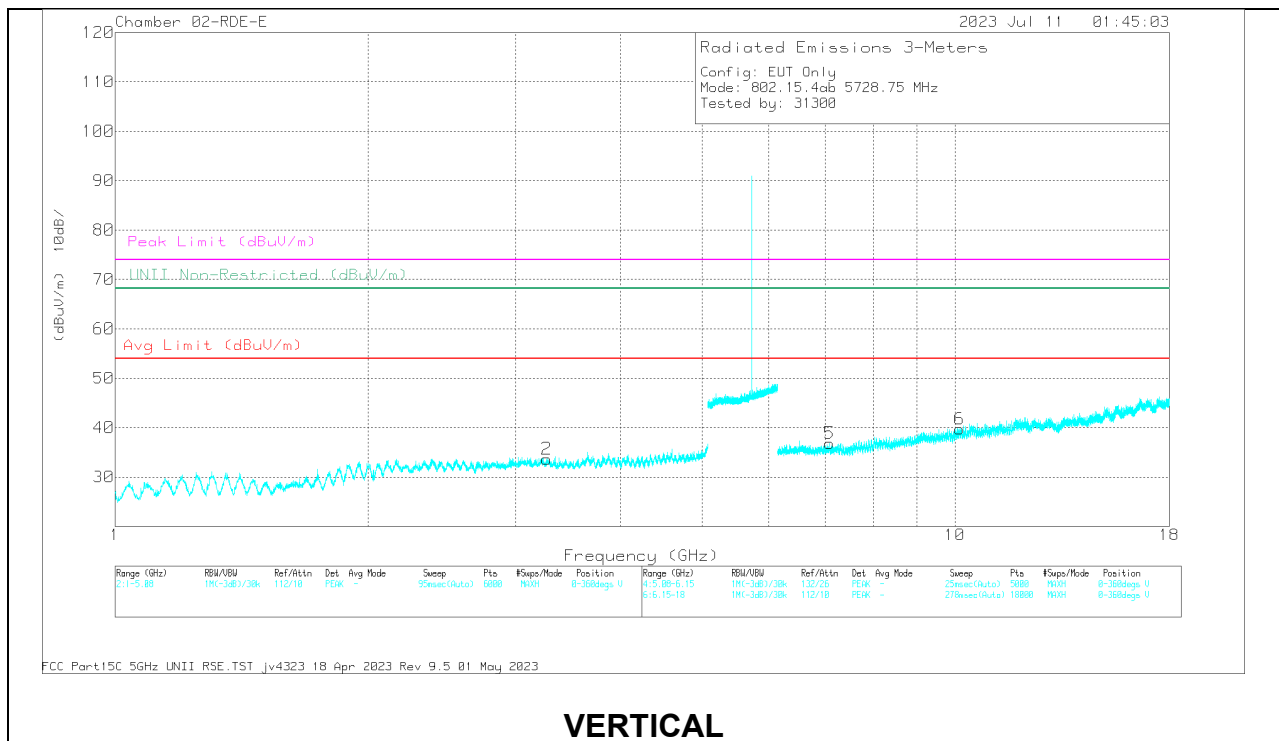
PK - Peak detector

10.1.4. ANT 5, 500Kbps LOW POWER HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



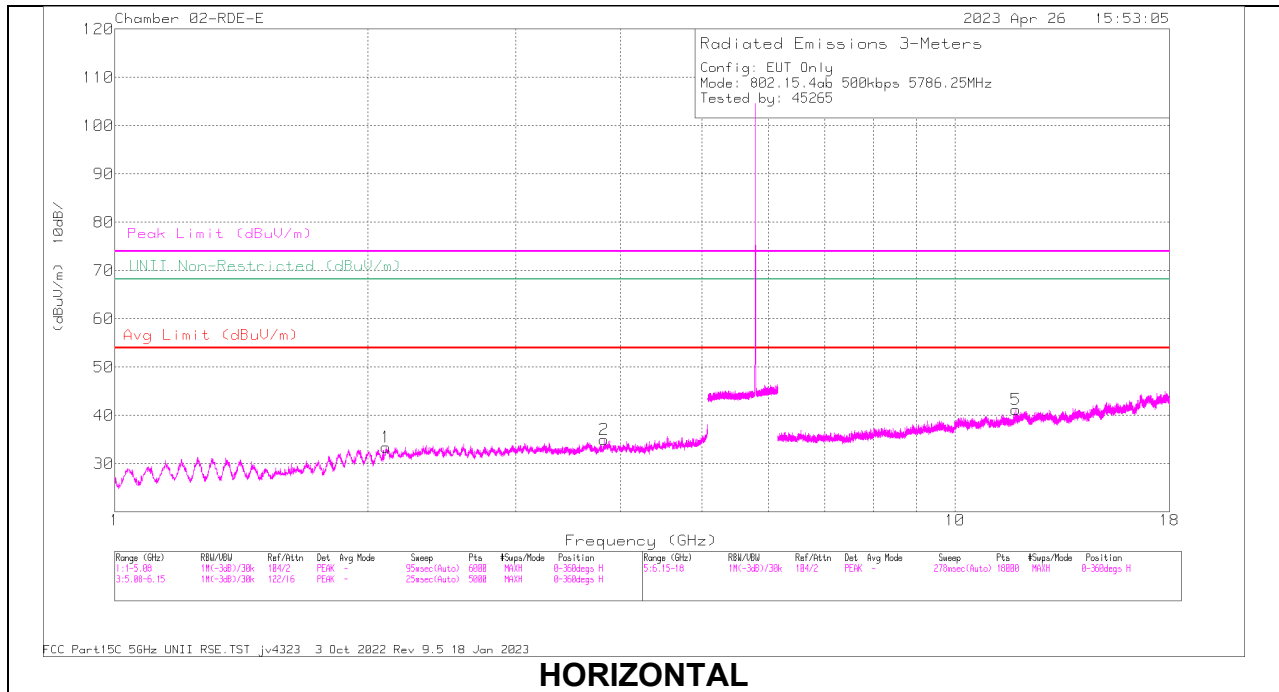
VERTICAL

RADIATED EMISSIONS

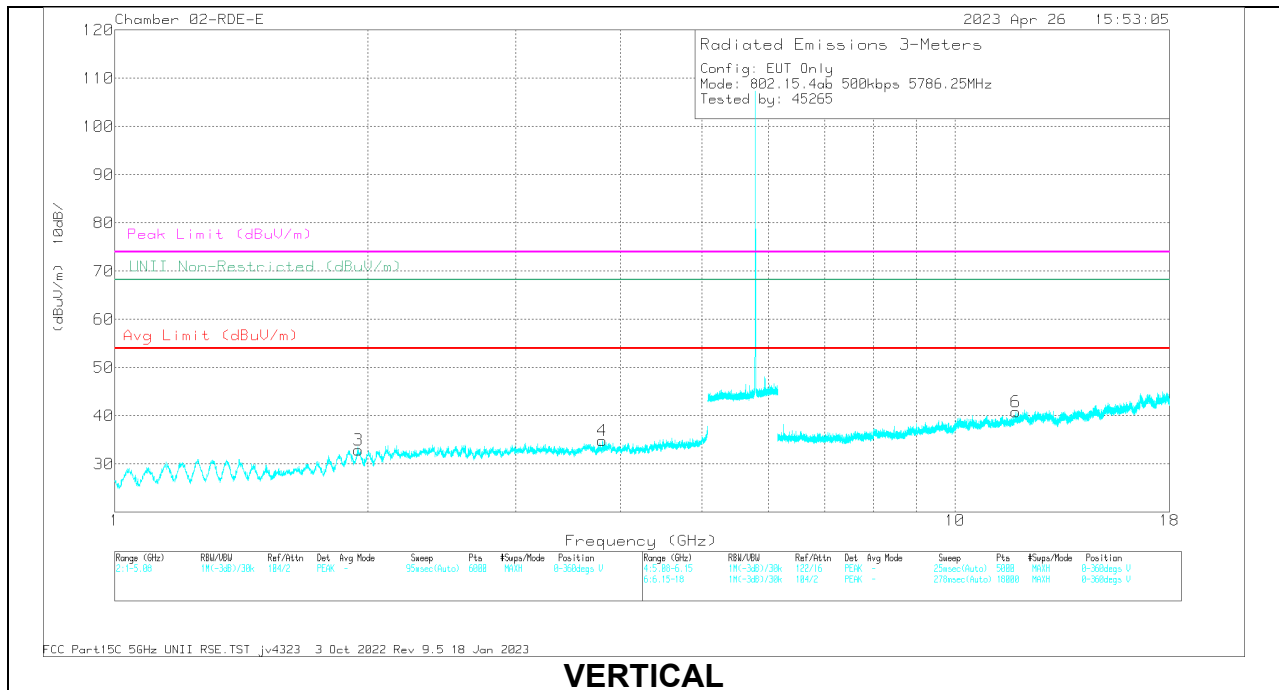
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.263276	58.05	PK-U	32.9	0	-46.82	44.13	-	-	74	-29.87	-	-	265	162	V
	* 3.26596	45.44	ADR	32.9	1.16	-46.74	32.76	54	-21.24	-	-	-	-	265	162	V
1	3.268907	57.47	PK-U	32.9	0	-46.7	43.67	-	-	-	-	68.2	-24.53	342	206	H
	7.092612	55.24	PK-U	35.7	0	-44.64	46.3	-	-	-	-	68.2	-21.9	70	108	V
3	7.108573	56.33	PK-U	35.7	0	-44.79	47.24	-	-	-	-	68.2	-20.96	175	192	H
4	10.116557	57.37	PK-U	37.5	0	-45.5	49.37	-	-	-	-	68.2	-18.83	82	173	H
6	10.125238	56.65	PK-U	37.5	0	-45.5	48.65	-	-	-	-	68.2	-19.55	82	173	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

MID CHANNEL RESULTS



HORIZONTAL



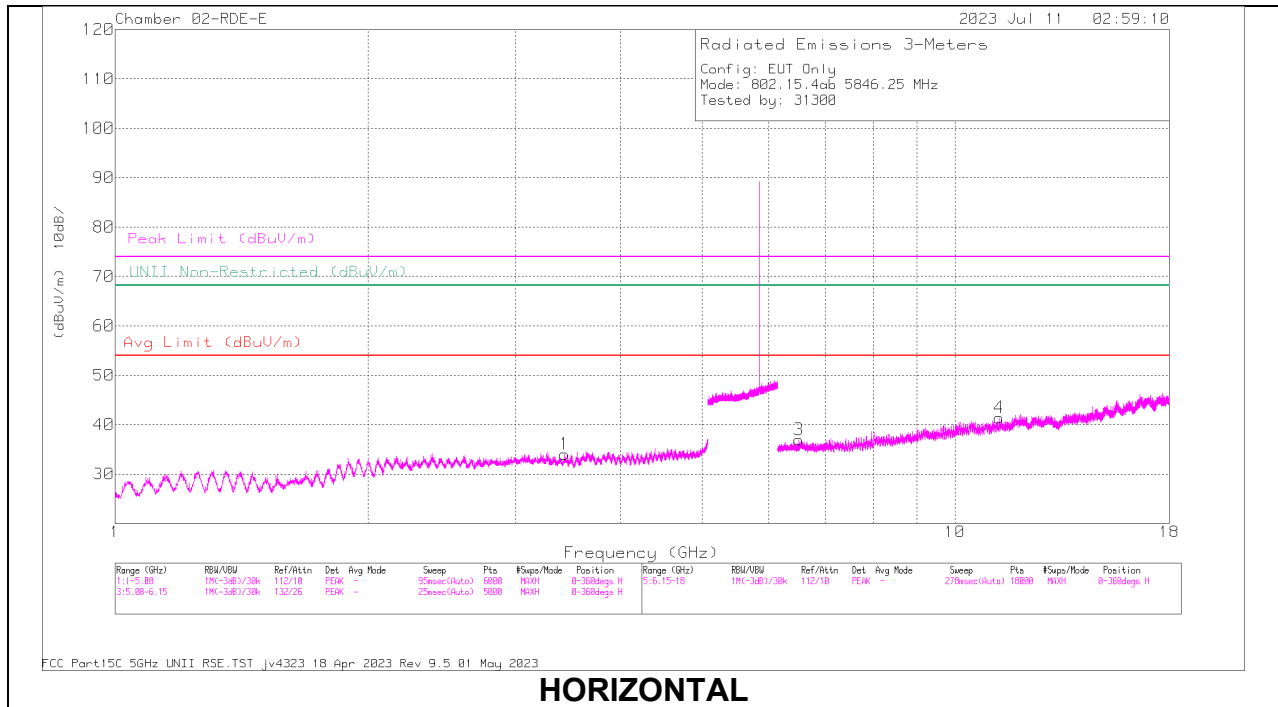
VERTICAL

RADIATED EMISSIONS

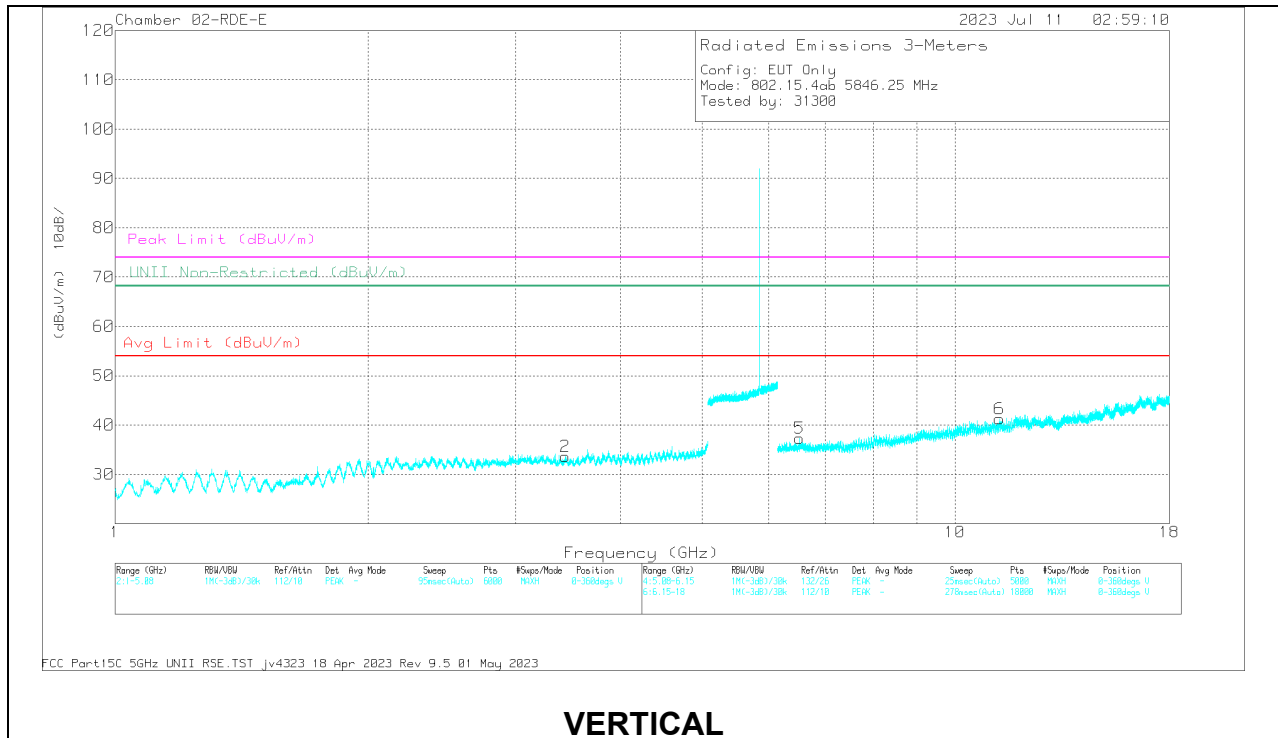
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB) 3mH	Gain/Loss (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.822993	57.82	PK-U	33.4	-46.2		45.02	-	-	74	-28.98	-	-	0	101	H
	* 3.822523	45.12	ADR	33.4	-46.2	1.16	33.48	54	-20.52	-	-	-	-	0	101	H
4	* 3.805437	56.88	PK-U	33.4	-46.14		44.14	-	-	74	-29.86	-	-	0	200	V
	* 3.805461	44.75	ADR	33.4	-46.14	1.16	33.17	54	-20.83	-	-	-	-	0	200	V
5	* 11.809215	52.62	PK-U	38.6	-42.75		48.47	-	-	74	-25.53	-	-	0	101	H
	* 11.81029	41.08	ADR	38.6	-42.7	1.16	38.14	54	-15.86	-	-	-	-	0	101	H
6	* 11.81445	52.95	PK-U	38.6	-42.7		48.85	-	-	74	-25.15	-	-	0	200	V
	* 11.813399	41.19	ADR	38.6	-42.68	1.16	38.27	54	-15.73	-	-	-	-	0	200	V
3	1.949769	60.79	PK-U	30.9	-48.87		42.82	-	-	-	-	68.2	-25.38	0	200	V
1	2.102871	61.19	PK-U	31.7	-49.21		43.68	-	-	-	-	68.2	-24.52	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

HIGH CHANNEL RESULTS



HORIZONTAL



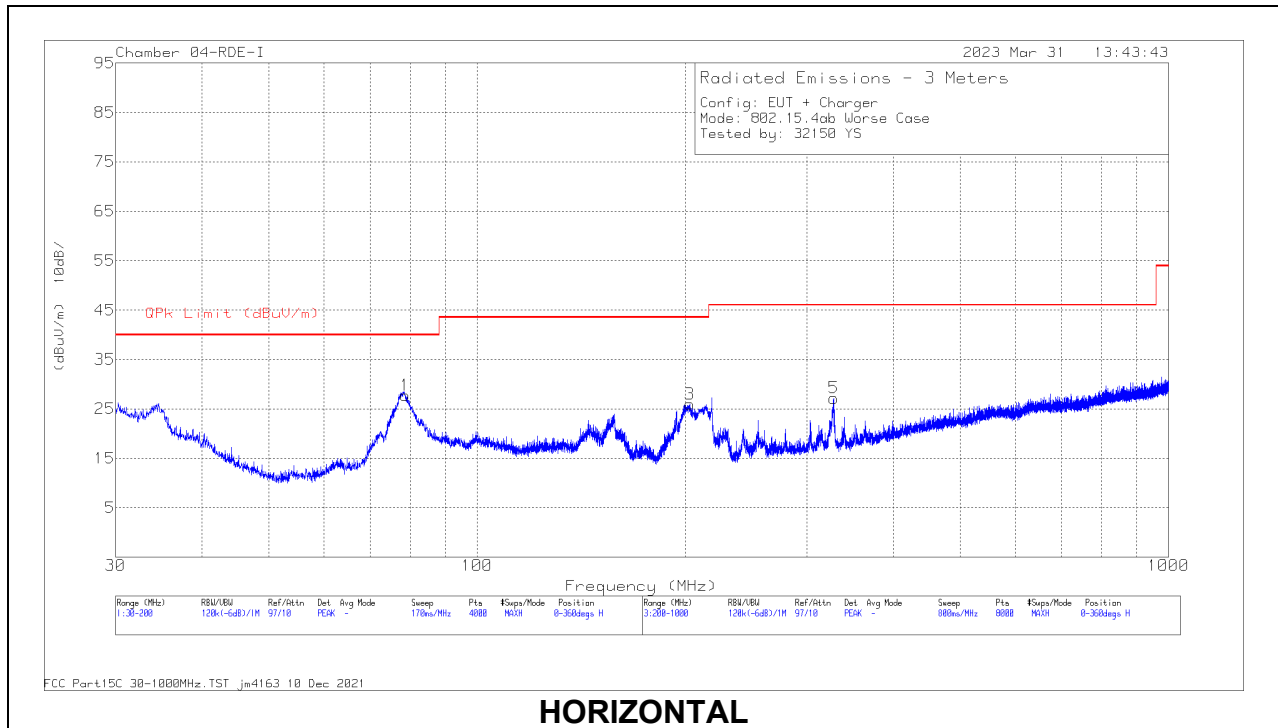
VERTICAL

RADIATED EMISSIONS

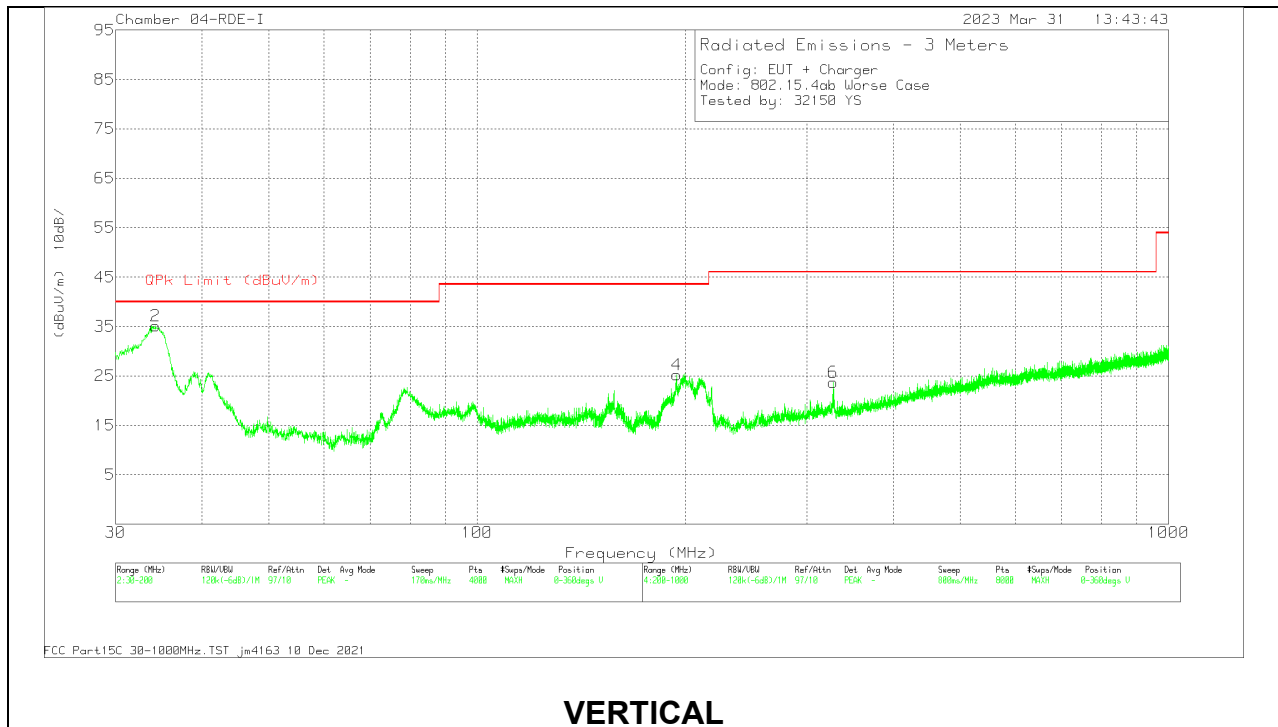
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	206807 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 11.29161	54.41	PK-U	38.1	0	-42.49	50.02	-	-	74	-23.98	-	-	271	153	H
	* 11.292273	42.43	ADR	38.1	1.16	-42.49	38.04	54	-15.96	-	-	-	-	271	153	H
2	* 11.298462	54.06	PK-U	38.1	0	-42.47	49.69	-	-	74	-24.31	-	-	338	148	V
	* 11.299254	42.31	ADR	38.1	1.16	-42.46	37.95	54	-16.05	-	-	-	-	338	148	V
3	3.427857	56.98	PK-U	32.8	0	-46.47	43.31	-	-	-	-	68.2	-24.89	355	114	H
5	3.435094	56.44	PK-U	32.8	0	-46.22	43.02	-	-	-	-	68.2	-25.18	297	136	V
4	6.521869	54.91	PK-U	35.5	0	-44.18	46.23	-	-	-	-	68.2	-21.97	317	150	H
6	6.529847	54.64	PK-U	35.5	0	-44.13	46.01	-	-	-	-	68.2	-22.19	261	119	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

10.2. WORST CASE BELOW 1 GHz



HORIZONTAL



VERTICAL

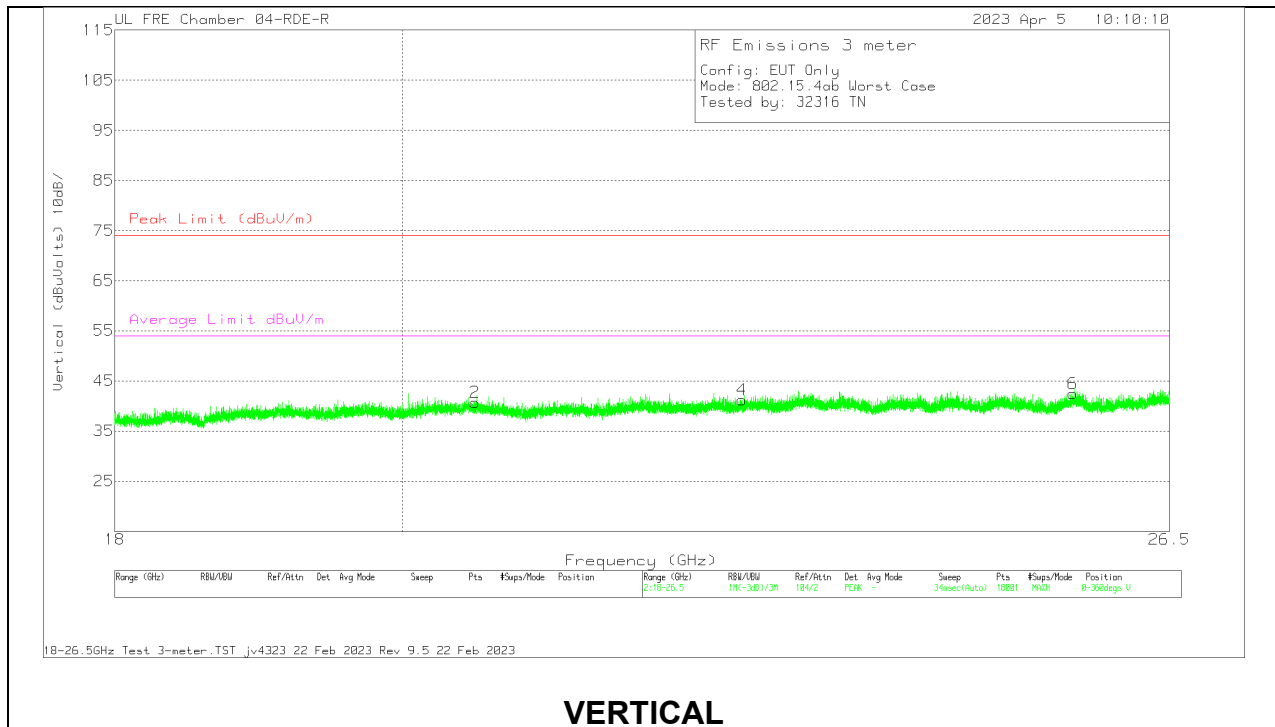
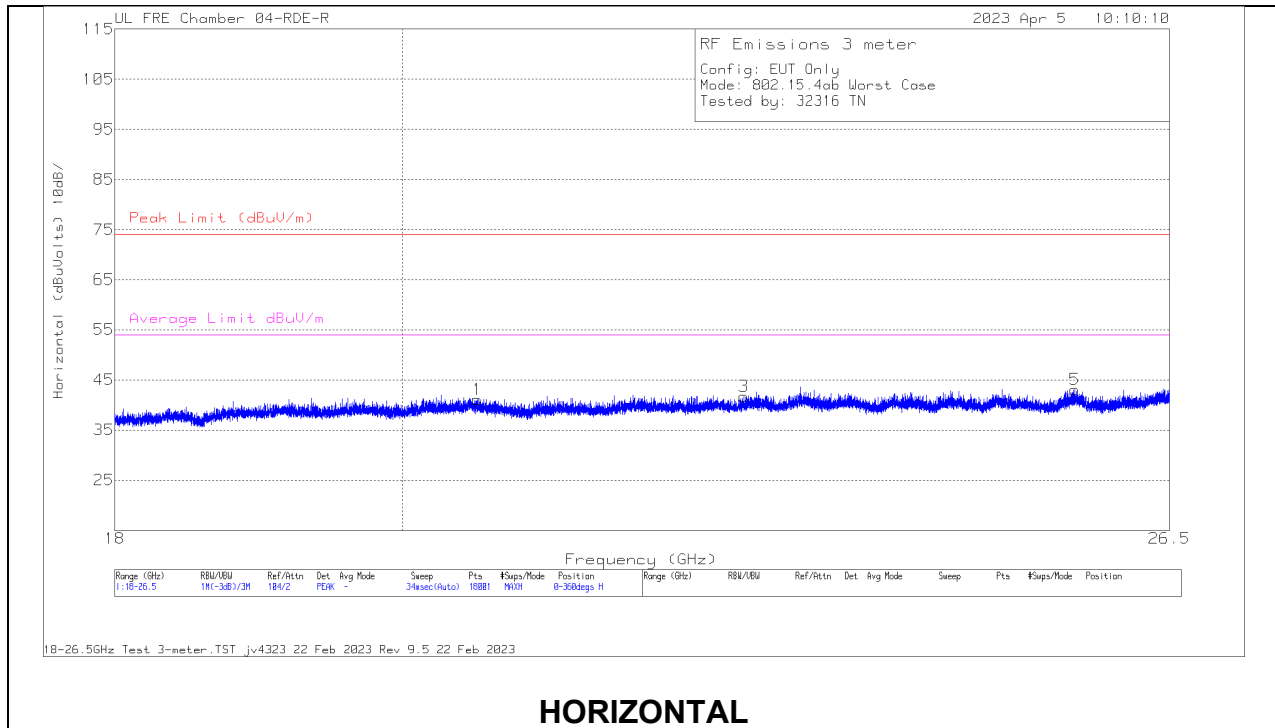
Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80714 ACF (dB) - 10mH	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	78.6751	44.21	Pk	14.3	-30.8	27.71	40	-12.29	0-360	298	H
2	34.2511	41.47	Pk	24.7	-31.1	35.07	40	-4.93	0-360	101	V
	34.6022	38.33	Qp	24.4	-31.2	31.53	40	-8.47	356	108	V
4	194.39	37.32	Pk	17.9	-30	25.22	43.52	-18.3	0-360	101	V
3	202.9	38.41	Pk	17.6	-30	26.01	43.52	-17.51	0-360	101	H
5	* 327.717	36.99	Pk	19.7	-29.5	27.19	46.02	-18.83	0-360	101	H
6	* 327.517	33.47	Pk	19.7	-29.5	23.67	46.02	-22.35	0-360	199	V

Pk - Peak detector

Qp - Quasi-Peak detector

10.3. WORST CASE 18-26 GHz

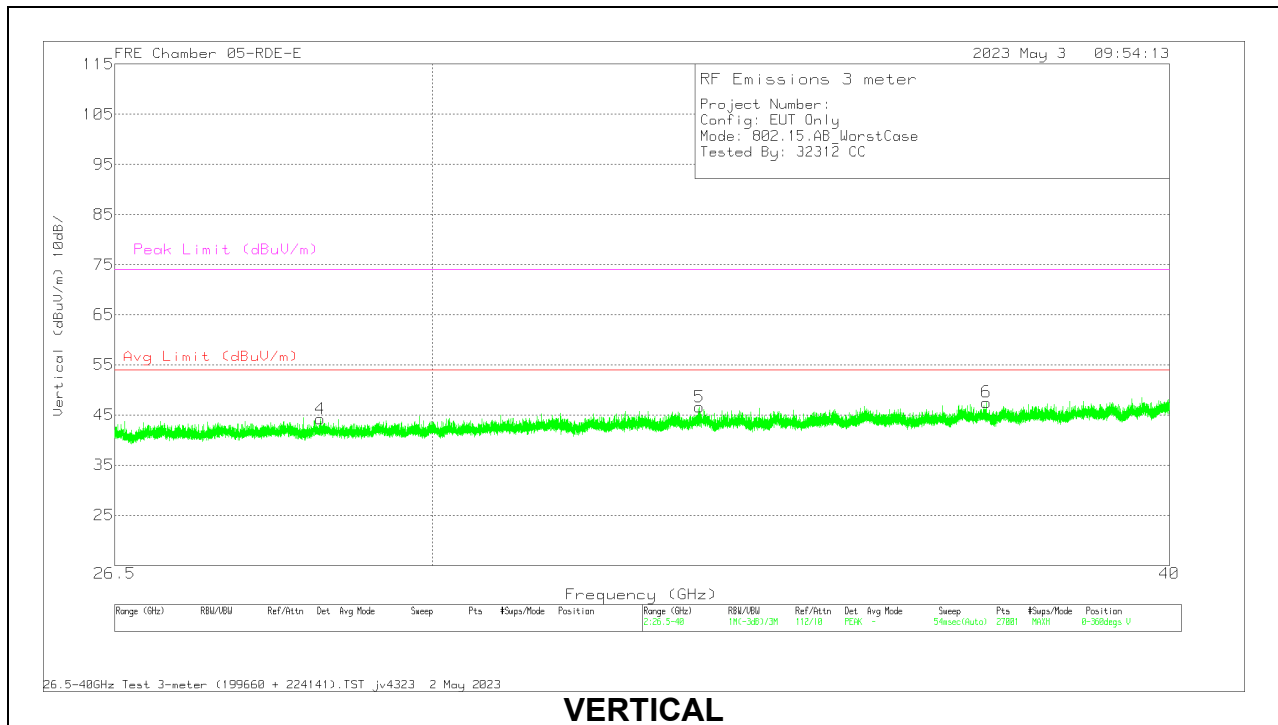
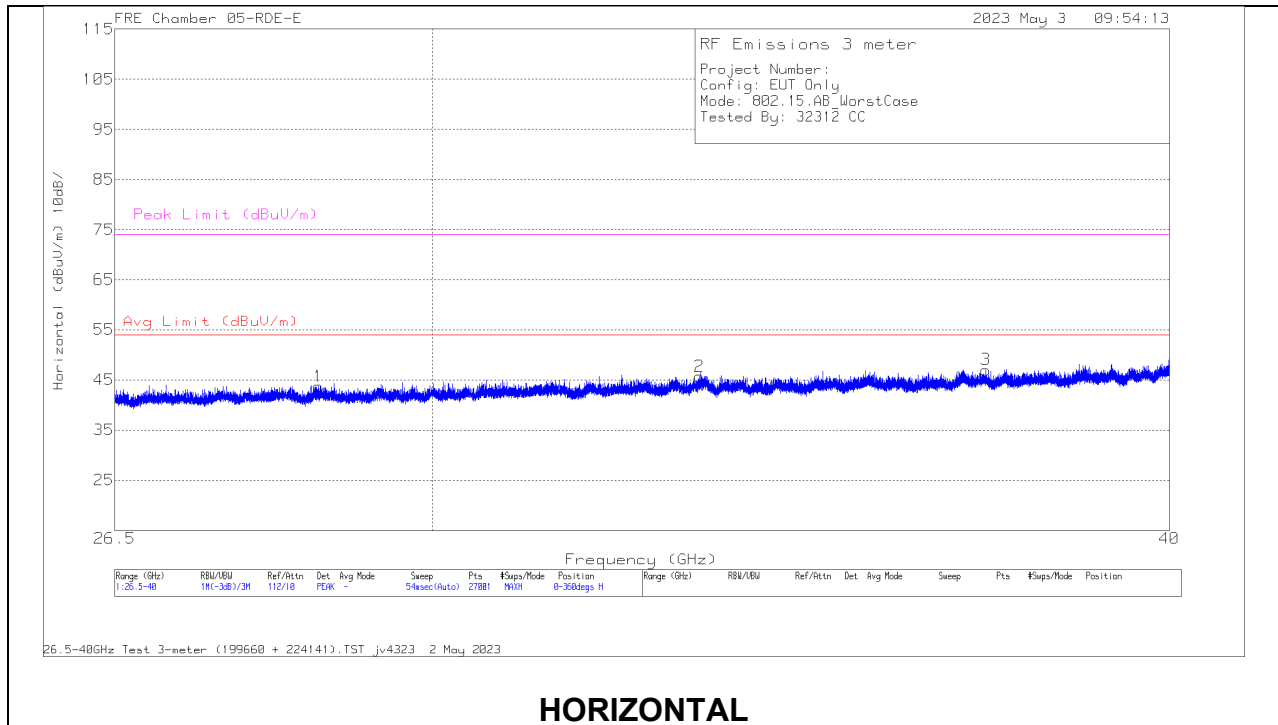


18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	17235 3 ACF (dB) - 3mH	17158 3 Amp Assembly (dB)	Cables (dB)	Corrected Reading (dBuV oIts)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit dBuV/m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	20.542443	55.06	Pk	33.4	-63.8	16.1	40.76	74	-33.24	54	-13.24	0-360	99	V
1	20.559443	55.34	Pk	33.4	-63.8	16.1	41.04	74	-32.96	54	-12.96	0-360	100	H
4	22.657053	56.28	Pk	33.8	-65.7	16.8	41.18	74	-32.82	54	-12.82	0-360	99	V
3	22.669331	56.86	Pk	33.8	-65.7	16.8	41.76	74	-32.24	54	-12.24	0-360	100	H
6	25.577746	53.4	Pk	34.7	-63.6	18	42.5	74	-31.5	54	-11.5	0-360	99	V
5	25.59333	54	Pk	34.7	-63.6	18	43.1	74	-30.9	54	-10.9	0-360	100	H

Pk - Peak detector

10.4. WORST CASE 26-40 GHz



26 – 40GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn ACF (dB/m)	amp/cbl (dB)	CBL/SWITCH (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	28.693	56.29	Pk	36.4	-65.5	16.5	43.69	54	-10.31	74	-30.31	0-360	101	H
4	28.7115	56.87	Pk	36.4	-65.5	16.5	44.27	54	-9.73	74	-29.73	0-360	200	V
2	33.294	55.84	Pk	37	-65	17.9	45.74	54	-8.26	74	-28.26	0-360	101	H
5	33.298	56.69	Pk	37	-65	17.9	46.59	54	-7.41	74	-27.41	0-360	101	V
3	37.235	55.64	Pk	37.8	-65.9	19.5	47.04	54	-6.96	74	-26.96	0-360	101	H
6	37.24	56.14	Pk	37.8	-65.9	19.5	47.54	54	-6.46	74	-26.46	0-360	101	V

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

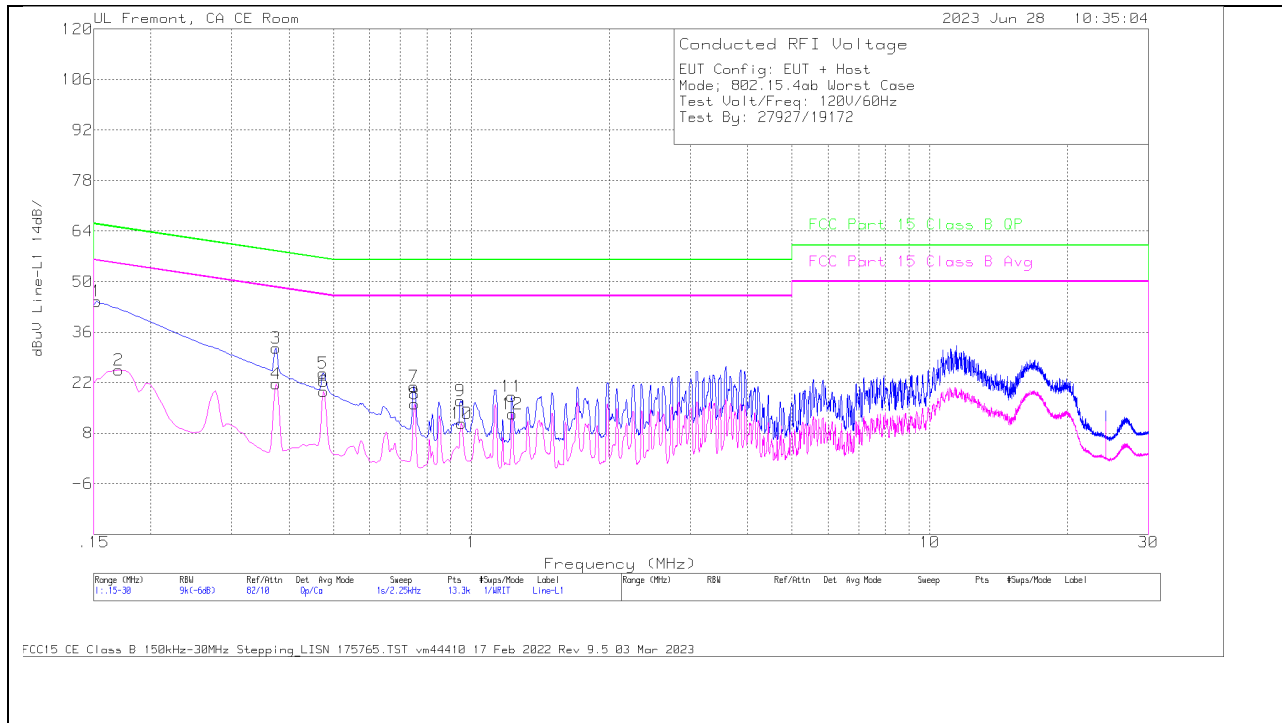
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1. AC Power Line WITH LAPTOP

LINE 1 RESULTS

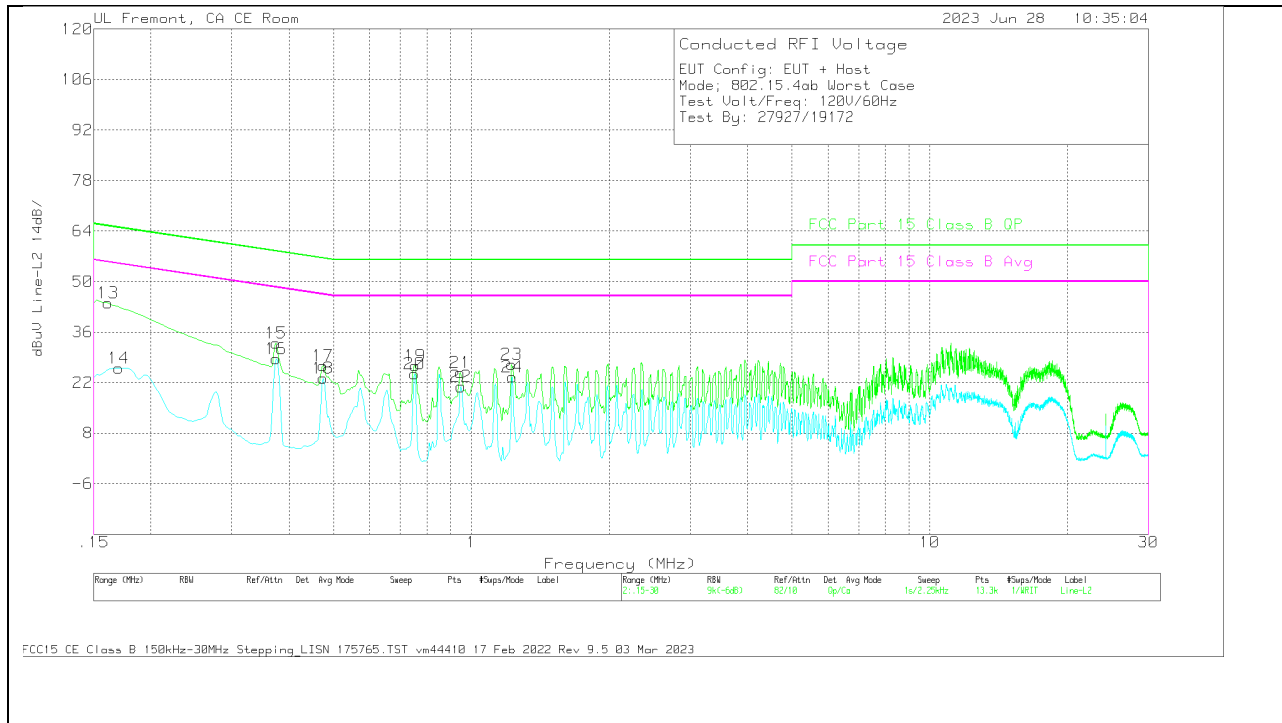


Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L1_LISN.csv dB	C1&C3 cable path loss dB	207996 Limiter with short cabl dB	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
2	.1703	16.02	Ca	0	0	9.4	25.42	-	-	54.95	-29.53
4	.375	12.24	Ca	0	.1	9.3	21.64	-	-	48.39	-26.75
6	.4763	10.1	Ca	0	.1	9.3	19.5	-	-	46.4	-26.9
8	.7508	6.71	Ca	0	.1	9.3	16.11	-	-	46	-29.89
10	.951	1.35	Ca	0	.1	9.3	10.75	-	-	46	-35.25
12	1.2278	3.97	Ca	0	.1	9.3	13.37	-	-	46	-32.63
1	.1523	35.13	Qp	0	0	9.4	44.53	65.88	-21.35	-	-
3	.375	22.22	Qp	0	.1	9.3	31.62	58.39	-26.77	-	-
5	.474	15.2	Qp	0	.1	9.3	24.6	56.44	-31.84	-	-
7	.7485	11.6	Qp	0	.1	9.3	21	56	-35	-	-
9	.9465	7.58	Qp	0	.1	9.3	16.98	56	-39.02	-	-
11	1.2233	8.77	Qp	0	.1	9.3	18.17	56	-37.83	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

LINE 2 RESULTS



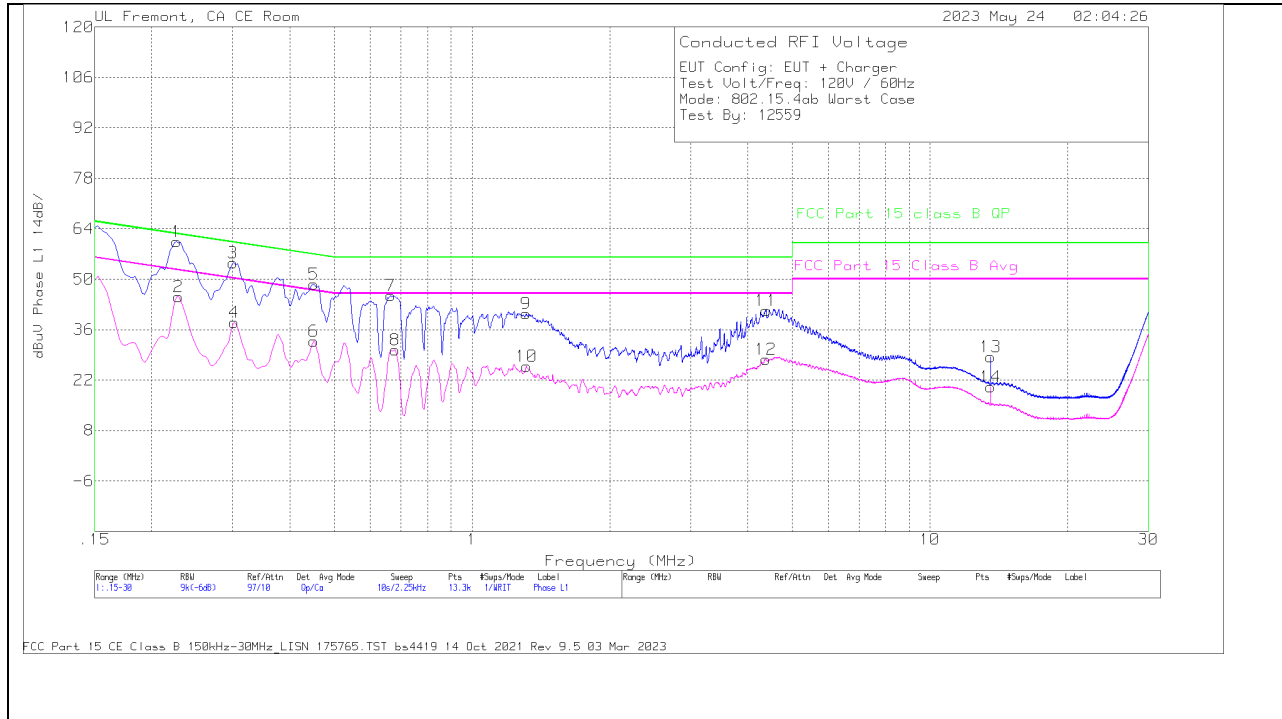
Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	L2_LISN (dB)	C2&C3 cable path loss (dB)	207996 Limiter with short cabl (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP dBuV	QP Margin (dB)	FCC Part 15 Class B Avg dBuV	Av(CISPR)M argin (dB)
14	.1703	16.65	Ca	0	0	9.4	26.05	-	-	54.95	-28.9
16	.375	19.21	Ca	0	.1	9.3	28.61	-	-	48.39	-19.78
18	.474	13.76	Ca	0	.1	9.3	23.16	-	-	46.44	-23.28
20	.7508	14.97	Ca	0	.1	9.3	24.37	-	-	46	-21.63
22	.9488	11.49	Ca	0	.1	9.3	20.89	-	-	46	-25.11
24	1.2278	14.22	Ca	0	.1	9.3	23.62	-	-	46	-22.38
13	.1613	34.69	Qp	0	0	9.4	44.09	65.4	-21.31	-	-
15	.375	23.57	Qp	0	.1	9.3	32.97	58.39	-25.42	-	-
17	.474	17.3	Qp	0	.1	9.3	26.7	56.44	-29.74	-	-
19	.753	17.34	Qp	0	.1	9.3	26.74	56	-29.26	-	-
21	.9465	15.43	Qp	0	.1	9.3	24.83	56	-31.17	-	-
23	1.2233	17.64	Qp	0	.1	9.3	27.04	56	-28.96	-	-

Qp - Quasi-Peak detector
 Ca - CISPR average detection

11.2. AC Power Line WITH AC/DC Adapter

LINE 1 RESULTS

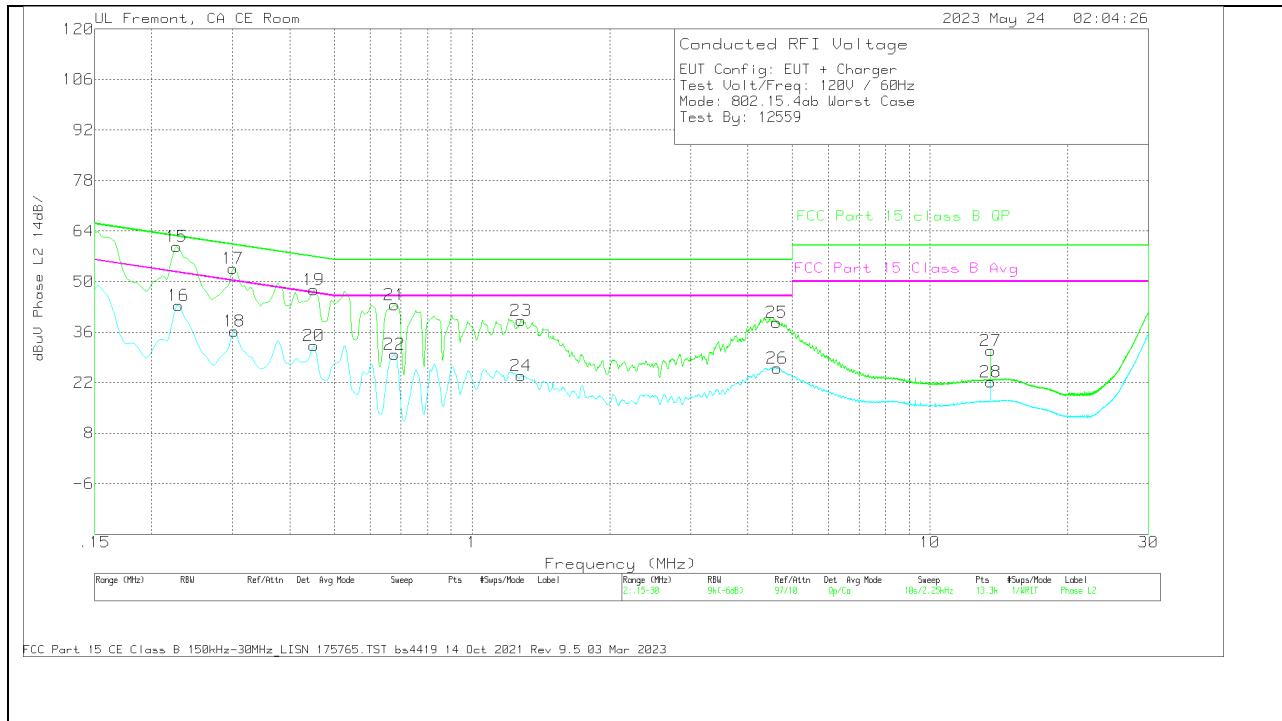


Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	C1&C3 cable path loss (dB)	PRE0186447 LISN L1 (dB)	207996 Limiter with short cabl (dB)	10 dB Pad	Corrected Reading dBuV	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
2	.2288	25.86	Ca	0	0	9.3	10	45.16	52.49	-7.33	-	-
4	.303	18.77	Ca	0	0	9.3	10	38.07	50.16	-12.09	-	-
6	.4515	13.42	Ca	.1	0	9.3	10	32.82	46.85	-14.03	-	-
8	.6788	10.99	Ca	.1	0	9.3	10	30.39	46	-15.61	-	-
10	1.3155	6.36	Ca	.1	0	9.3	10	25.76	46	-20.24	-	-
12	4.3868	8.32	Ca	.1	0	9.3	10	27.72	46	-18.28	-	-
14	13.56	.52	Ca	.2	.1	9.3	10	20.12	50	-29.88	-	-
1	.2265	41.16	Qp	0	0	9.3	10	60.46	-	-	62.58	-2.12
3	.3008	35.15	Qp	0	0	9.3	10	54.45	-	-	60.22	-5.77
5	.4515	29.27	Qp	.1	0	9.3	10	48.67	-	-	56.85	-8.18
7	.6653	26.13	Qp	.1	0	9.3	10	45.53	-	-	56	-10.47
9	1.3133	21.03	Qp	.1	0	9.3	10	40.43	-	-	56	-15.57
11	4.389	21.93	Qp	.1	0	9.3	10	41.33	-	-	56	-14.67
13	13.56	8.82	Qp	.2	.1	9.3	10	28.42	-	-	60	-31.58

Qp - Quasi-Peak detector
 Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Phase L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	C2&C3 cable path loss (dB)	PRE0186447 LISN L2 (dB)	207996 Limiter with short cabl (dB)	10 dB Pad	Corrected Reading dBuV	FCC Part 15 Class B Avg (dBuV)	Margin (dB)	FCC Part 15 class B QP (dBuV)	Margin (dB)
16	.2288	24.17	Ca	0	0	9.3	10	43.47	52.49	-9.02	-	-
18	.303	17.03	Ca	0	0	9.3	10	36.33	50.16	-13.83	-	-
20	.4515	12.87	Ca	.1	0	9.3	10	32.27	46.85	-14.58	-	-
22	.6765	10.4	Ca	.1	0	9.3	10	29.8	46	-16.2	-	-
24	1.2795	4.59	Ca	.1	0	9.3	10	23.99	46	-22.01	-	-
26	4.6433	6.57	Ca	.1	0	9.3	10	25.97	46	-20.03	-	-
28	13.56	2.61	Ca	.2	.1	9.3	10	22.21	50	-27.79	-	-
15	.2265	40.37	Qp	0	0	9.3	10	59.67	-	-	62.58	-2.91
17	.3008	34.28	Qp	0	0	9.3	10	53.58	-	-	60.22	-6.64
19	.4515	28.4	Qp	.1	0	9.3	10	47.8	-	-	56.85	-9.05
21	.6765	24.22	Qp	.1	0	9.3	10	43.62	-	-	56	-12.38
23	1.2795	19.86	Qp	.1	0	9.3	10	39.26	-	-	56	-16.74
25	4.6275	19.33	Qp	.1	0	9.3	10	38.73	-	-	56	-17.27
27	13.56	11.34	Qp	.2	.1	9.3	10	30.94	-	-	60	-29.06

Qp - Quasi-Peak detector
 Ca - CISPR average detection

END OF TEST REPORT

12. SETUP PHOTOS

Please refer to 14523758-EP1V1 FCC IC for setup photos