

TEST REPORT

Report Number: 14982436-E6V3

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

Model : A3083 (Parent Model)
A3292, A3293, A3294 (Variant Models)

Brand : APPLE

FCC ID : BCG-E8666A (Parent Model)
BCG-E8667A, BCG-E8668A, &
BCG-E8683A (Variant Models)

IC : 579C-E8666A (Parent Model)
579C-E8667A, 579C-E8668A, &
579C-E8683A (Variant Models)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART E
ISED RSS-247 ISSUE 3
ISED RSS-GEN ISSUE 5 + A1 + A2

Date Of Issue:
2024/07/11

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2024/06/29	Initial Issue	Tony Li
V2	2024/07/08	Addressed TCB Question on Section 2, 6.3, 6.5, and 10	Tony Li
V3	2024/07/11	Addressed TCB Question on Section 10	Tony Li

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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: A3083 (Parent Model)
A3292, A3293, A3294 (Variant Models)

BRAND: APPLE

SERIAL NUMBER: C07GYF0008T0000FDV, C07H4F0015B0000FDT,
QKPYHGC7L, XK3DWHQHQQW.

SAMPLE RECEIPT DATE: 2023/12/19.

DATE TESTED: 2023/12/20 – 2024/06/11.

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Complies
ISED RSS-247 Issue 3	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 can demonstrate 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 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.

Approved & Released For
UL Verification Services Inc. By:

Prepared By:



Francisco DeAnda
Staff Engineer
Consumer Technology Division
UL Verification Services Inc.

Tony Li
Lead 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 6.2.4.2	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 3.
- KDB 414788 D01 Radiated Test Site v01r01

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.)

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 cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB), Wireless Power Transfer (WPT) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

5.8 GHz BAND (FCC)

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5.8GHz Band 1TX, high power			
5728.75 – 5846.25	802.15.4ab	18.97	78.89
5.8GHz Band 1TX Low Power			
5728.75 – 5846.25	802.15.4ab	11.97	15.74

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

Type: IFA

Frequency Range (MHz)	ANT 6 (dBi)	ANT 5 (dBi)
5725-5850	-1.2	-1.0

The radio utilizes SMA Cable loss below:

Frequency Range (MHz)	ANT 6 (dB)	ANT 5 (dB)
5725-5850	2.80	2.98

Note ANT 6=Antenna 6, ANT5=Antenna 5

The cables 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 and software installed during testing was 27_20_111_38.

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 Y (Landscape) orientation was the worst-case orientation for Ant 6 and ANT 5.

There are 3 indexes on this 802.15.4ab technology with data rate on index 1, 250Kbps, index 2, 500Kbps and index 3, 1000Kbps. All data rates were investigated. The worst case was determined based on the highest power on PSD and Index 2, 500Kbps determined to be the worst case.

For 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 worst-case scenario.

Below 30MHz, 30-1000MHz emissions spurious tests were performed with EUT connected to AC power adapter and EUT set at X orientation 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 2.4GHz WIFI was investigated, and no noticeable emission was found.

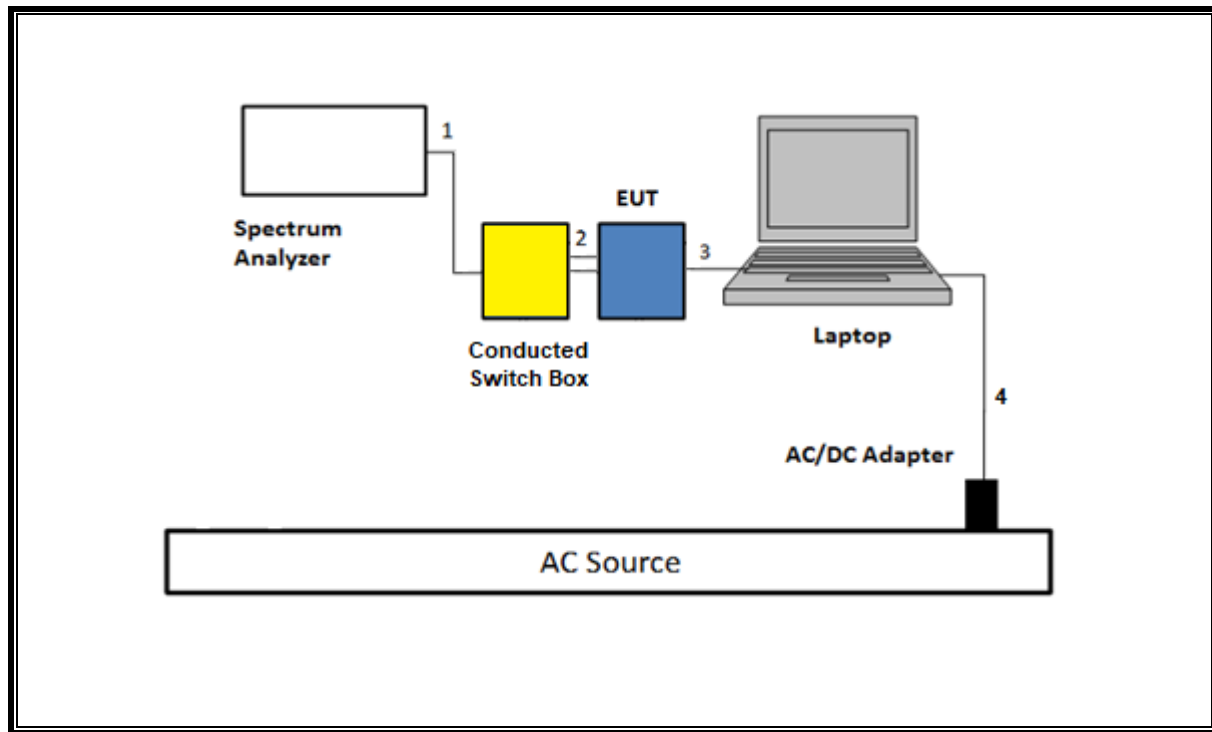
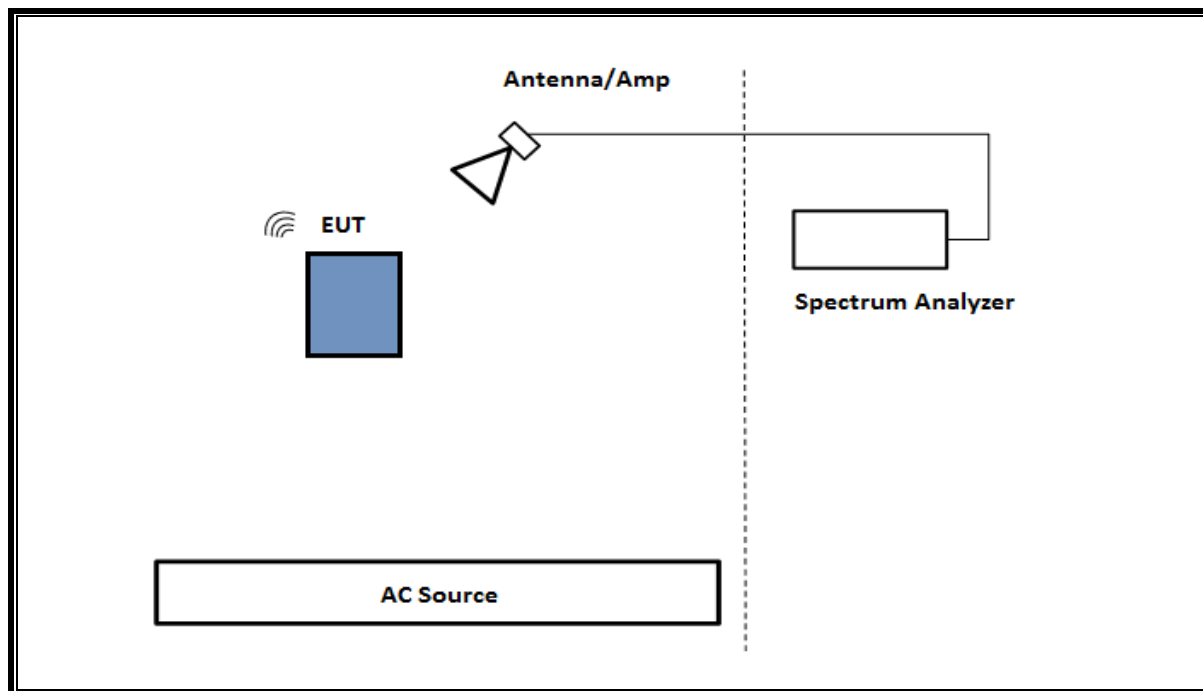
For radiated bandedge and emissions spurious, 500Kbps is set as the worst-case data rates for final test.

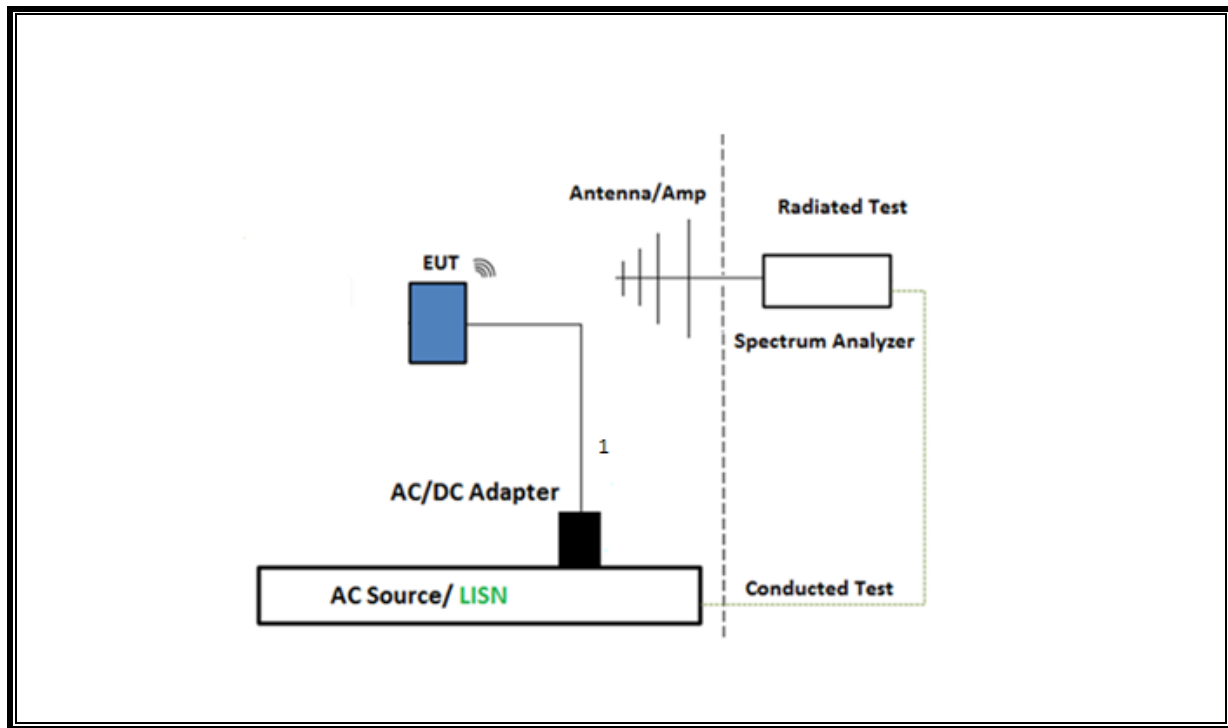
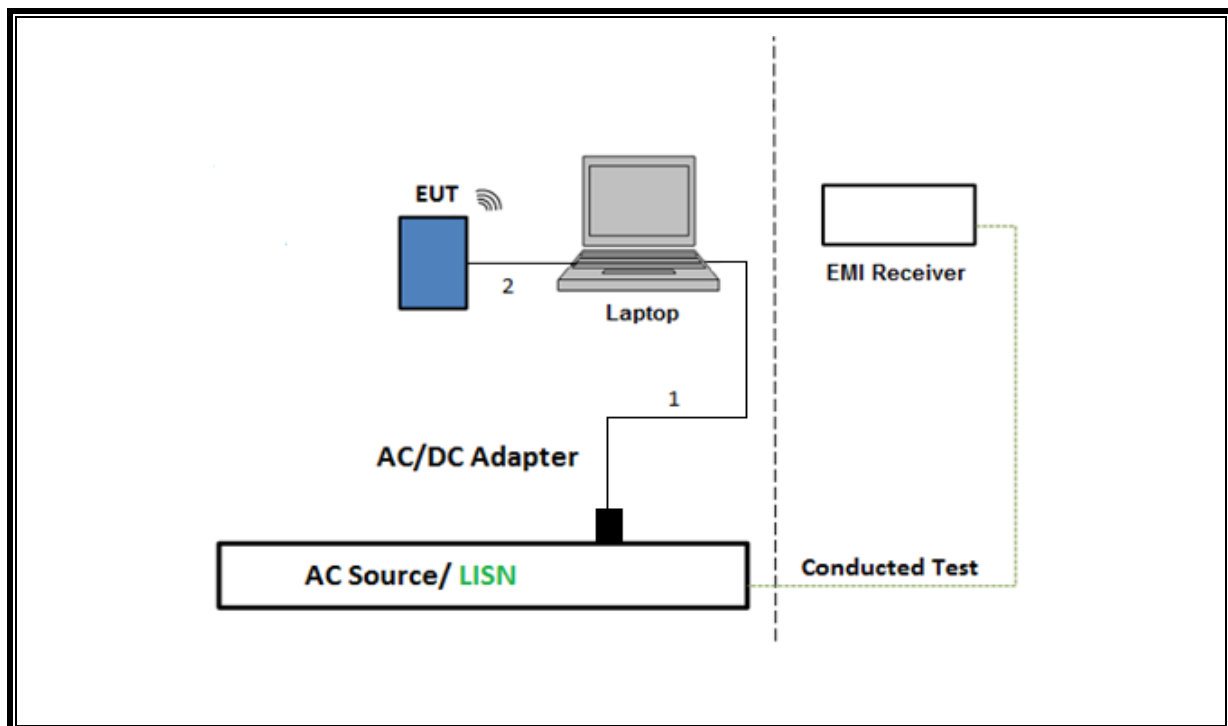
6.6. DESCRIPTION OF TEST SETUP

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
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	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	USB-C	1	USB-C	Shielded	1	DC/DATA

TEST SETUP

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

SETUP DIAGRAM FOR CONDUCTED TESTS**SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz (1GHz -40GHz)**

SETUP DIAGRAM FOR 30-1000MHz 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	226673	2025/01/31	2024/01/31
RF Filter Box, 1-18GHz, 8 Port	UL-FR1	SAC 8 port rf box 1	197920	2025/03/31	2024/03/31
EMI Test Receiver	Rohde & Schwarz	ESW44	170063	2024/11/30	2023/11/30
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80402	2024/07/31	2023/07/31
RF Filter Box, 1-18GHz, 12 Port.	UL-FR1	Frankenstein	231874	2024/08/30	2023/08/30
EMI Test Receiver	Rohde & Schwarz	ESW44	169935	2025/02/28	2024/02/28
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	222740	2024/08/31	2023/08/31
*RF Filter Box, 1-18GHz, 17 Ports	UL-FR1	RATS 2	225079	2024/04/30	2023/04/30
EMI Test Receiver	Rohde & Schwarz	ESW44	169936	2025/02/28	2024/02/28
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	224378	2024/10/31	2023/10/31
Link File, @3m, 9kHz-1000MHz Hybrid Path Loss	UL-FR1	Port 0 Factors	226862	2025/01/31	2024/01/31
EMI Test Receiver	Rohde & Schwarz	ESW44	191429	2025/02/28	2024/02/28
Antenna, Horn 18 to 26.5GHz	A.R.A	MWH-1826/B	81139	2024/08/31	2023/08/31
Antenna, Horn 26.5 to 40GHz	A.R.A	MWH-2640/B	172369	2024/10/31	2023/10/31
Link File, RF Amplifier Assembly, 26-40GHz, 65dB Gain	AMPLICAL	AMP26G40-65	221834	2025/03/11	2024/03/11
Antenna, Passive Loop 30Hz to 1MHz	Electro-Metrics	EM-6871	170014	2024/08/31	2023/08/31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170015	2024/07/31	2023/07/31
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90731	2025/01/31	2024/01/31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	80120	2025/01/31	2024/01/31
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90719	2025/01/31	2024/01/31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90389	2025/01/31	2024/01/31
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	178557	Verified Before Use	
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	178558	Verified Before Use	
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	80397	2025/01/31	2024/01/31
Spectrum Analyzer, PXA, 3Hz to 50GHz w/Ext. Mixer	Keysight Technologies Inc	N9030A	80400	2025/02/02	2024/02/02
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	125178	2025/01/31	2024/01/31
*Conducted Switch Box	N/A	CSB	208281	2024/04/30	2023/04/30
Conducted Switch Box	N/A	CSB	208281	2025/05/08	2024/05/08

Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	93091	2025/02/28	2024/02/28
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250- 25-2-01-480V	175765	2025/01/31	2024/01/31
*Transient Limiter	TE	TBFL1	207996	2024/08/31	2023/08/31
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, 2023, May 1		
Conducted Software	UL	UL EMC	2020.8.16		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, 2023, Mar 3		

*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.

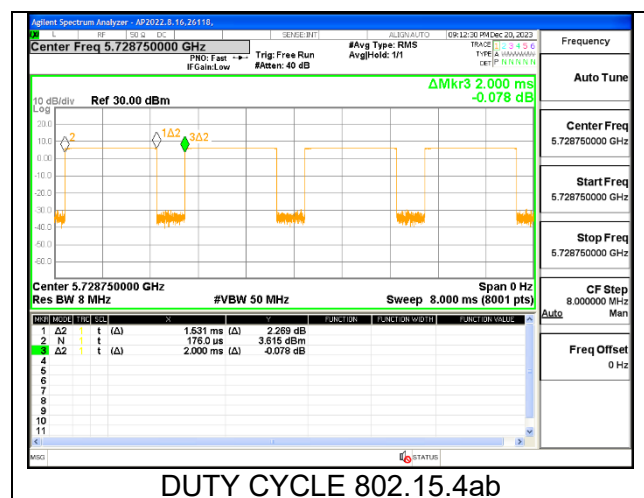
PROCEDURE

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	1.531	2.000	0.766	76.55%	1.16	0.653

DUTY CYCLE PLOTS



9.2. 99% AND 26dB BANDWIDTH

LIMITS

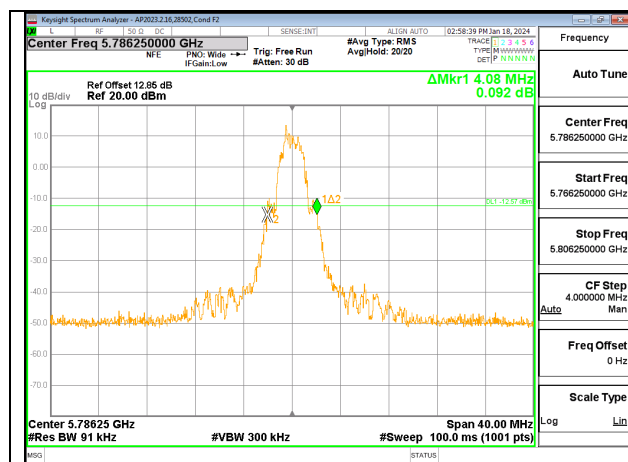
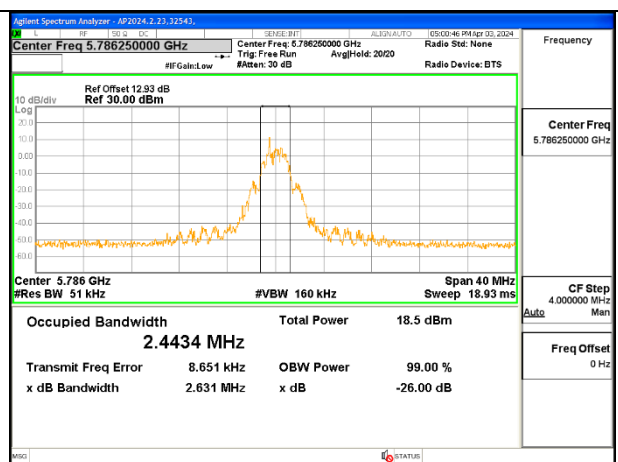
None; for reporting purposes only.

RESULTS

Only High-Power modes result are reported, to cover all Low Power modes. Only Mid channel plots are reported to show setting parameter complies with testing method/procedure.

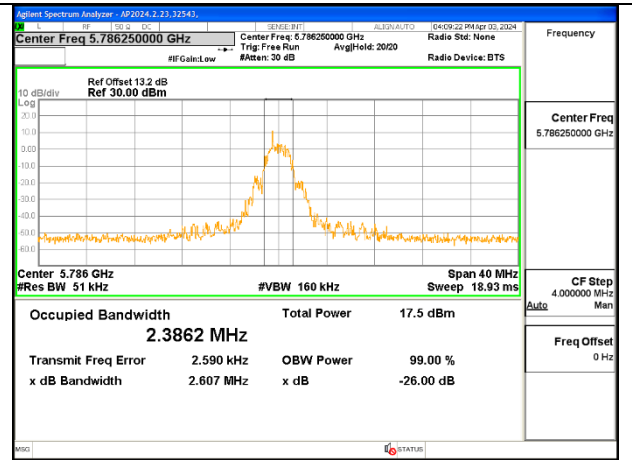
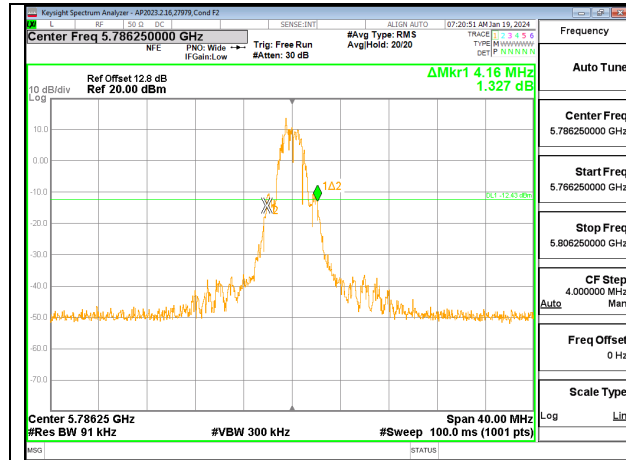
UNII-3, 1TX Antenna 6 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5728.75	4.12	2.4040
Mid	5786.25	4.08	2.4434
High	5846.25	4.24	2.4179

**MID CHANNEL 26dB****MID CHANNEL 99%**

UNII-3, 1TX Antenna 5 MODE

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	5728.75	3.88	2.3723
Mid	5786.25	4.16	2.3862
High	5846.25	4.20	2.3857



9.3. 6dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

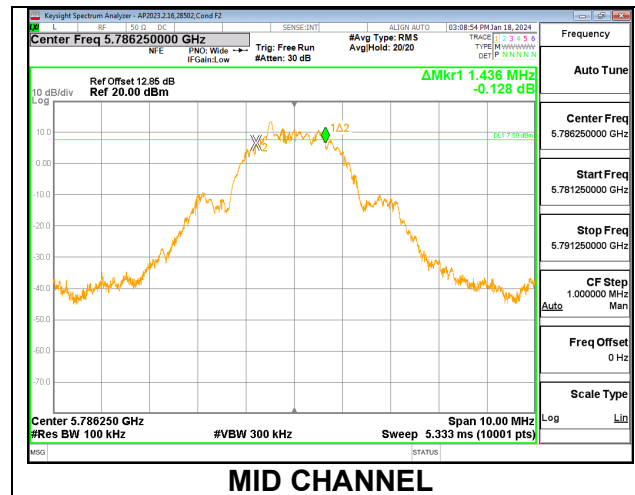
RESULTS

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

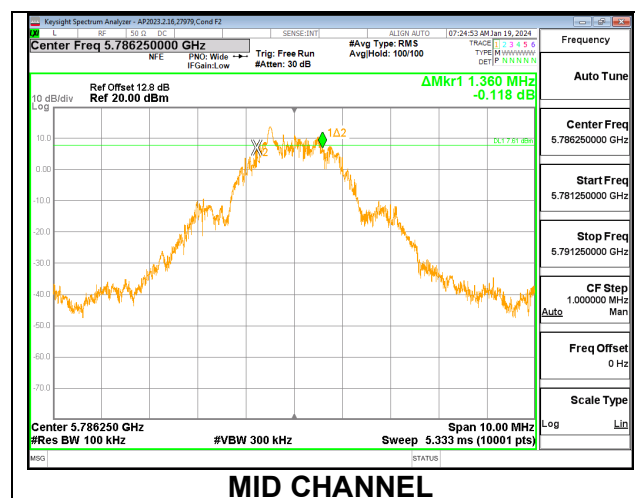
Only Mid channel plot is reported to show setting parameter complies with testing method/procedure.

UNII-3, 1TX Antenna 6 MODE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5728.75	1.423	0.5
Mid	5786.25	1.436	0.5
High	5846.25	1.429	0.5

**UNII-3, 1TX Antenna 5 MODE**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5728.75	1.396	0.5
Mid	5786.25	1.360	0.5
High	5846.25	1.317	0.5



9.4. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.725-5.85 GHz

(a)(3)(i) 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 (6.2.4.2)**

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 b. Method PM-G.

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

Only Mid channel plots are reported to show settings parameters complies with test method/procedure.

DIRECTIONAL ANTENNA GAIN

For 1 TX:

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

9.4.1. HIGH POWER

UNII-3, 1TX Antenna 6 MODE (FCC+IC)

Test Engineer:	27979
Test Date:	2024/06/07

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-1.20	30.00	30.00
Mid	5786.25	-1.20	30.00	30.00
High	5846.25	-1.20	30.00	30.00

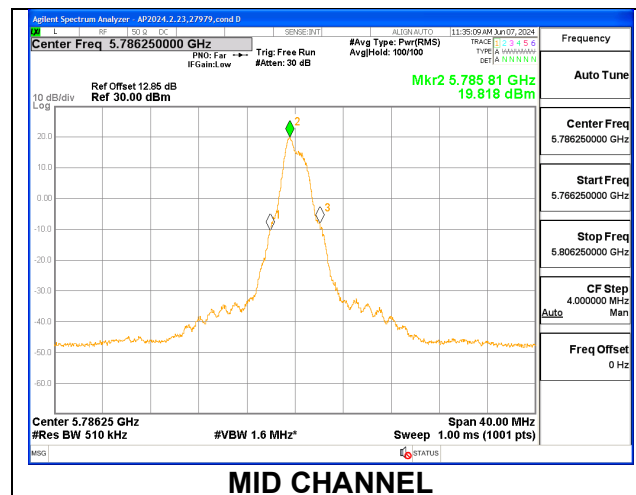
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd Power and PSD
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Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	18.95	18.95	30.00	-11.05
Mid	5786.25	18.90	18.90	30.00	-11.10
High	5846.25	18.97	18.97	30.00	-11.03

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	19.932	21.092	30.00	-8.91
Mid	5786.25	19.818	20.978	30.00	-9.02
High	5846.25	19.618	20.778	30.00	-9.22



UNII-3, 1TX Antenna 5 MODE (FCC+IC)

Test Engineer:	27979
Test Date:	2024/06/07

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-1.00	30.00	30.00
Mid	5786.25	-1.00	30.00	30.00
High	5846.25	-1.00	30.00	30.00

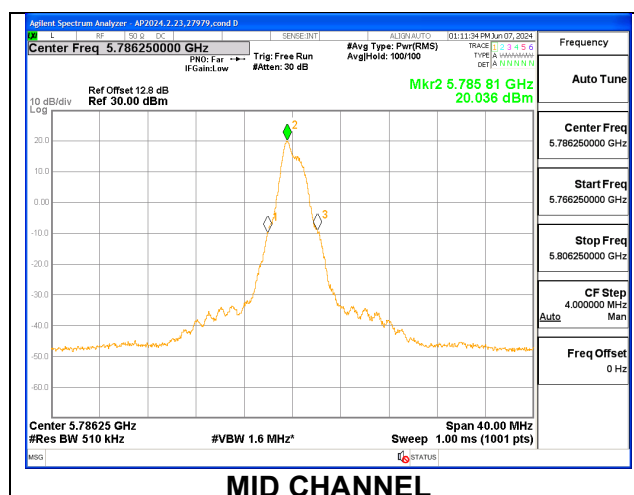
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd Power and PSD
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Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	18.95	18.95	30.00	-11.05
Mid	5786.25	18.94	18.94	30.00	-11.06
High	5846.25	18.91	18.91	30.00	-11.09

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	19.756	20.916	30.00	-9.08
Mid	5786.25	20.036	21.196	30.00	-8.80
High	5846.25	19.609	20.769	30.00	-9.23



9.4.2. LOW POWER**UNII-3, 1TX Antenna 6 MODE (FCC+IC)**

Test Engineer:	27979
Test Date:	2024/06/07

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-1.20	30.00	30.00
Mid	5786.25	-1.20	30.00	30.00
High	5846.25	-1.20	30.00	30.00

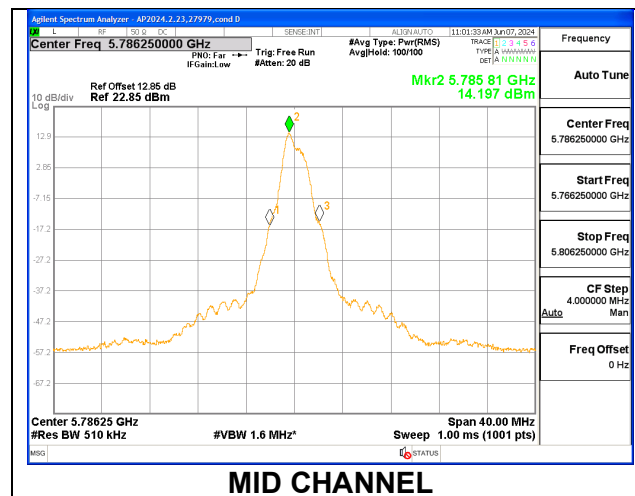
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd Power and PSD
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Output Power Results

Channel	Frequency (MHz)	Antenna 6 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	11.97	11.97	30.00	-18.03
Mid	5786.25	11.97	11.97	30.00	-18.03
High	5846.25	11.94	11.94	30.00	-18.06

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	14.510	15.670	30.00	-14.33
Mid	5786.25	14.197	15.357	30.00	-14.64
High	5846.25	14.181	15.341	30.00	-14.66



UNII-3, 1TX Antenna 5 MODE (FCC+IC)

Test Engineer:	27979
Test Date:	2024/06/07

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm/500KHz)
Low	5728.75	-1.00	30.00	30.00
Mid	5786.25	-1.00	30.00	30.00
High	5846.25	-1.00	30.00	30.00

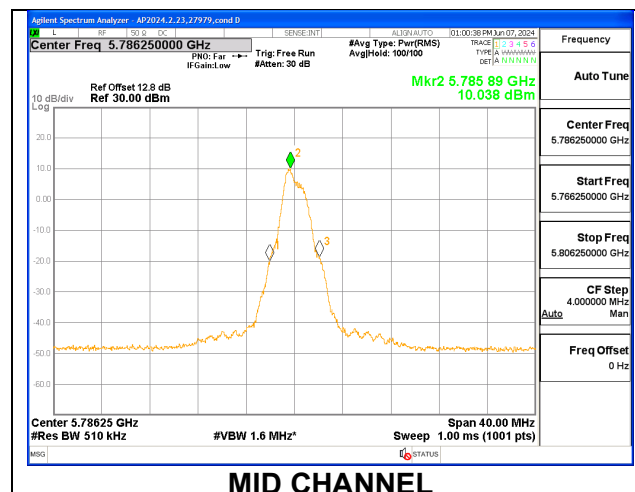
Duty Cycle CF (dB)	1.16	Included in Calculations of Corr'd Power and PSD
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Output Power Results

Channel	Frequency (MHz)	Antenna 5 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5728.75	8.94	8.94	30.00	-21.06
Mid	5786.25	8.89	8.89	30.00	-21.11
High	5846.25	8.93	8.93	30.00	-21.07

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	9.965	11.125	30.00	-18.88
Mid	5786.25	10.038	11.198	30.00	-18.80
High	5846.25	9.822	10.982	30.00	-19.02



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

6.2.3.2 (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

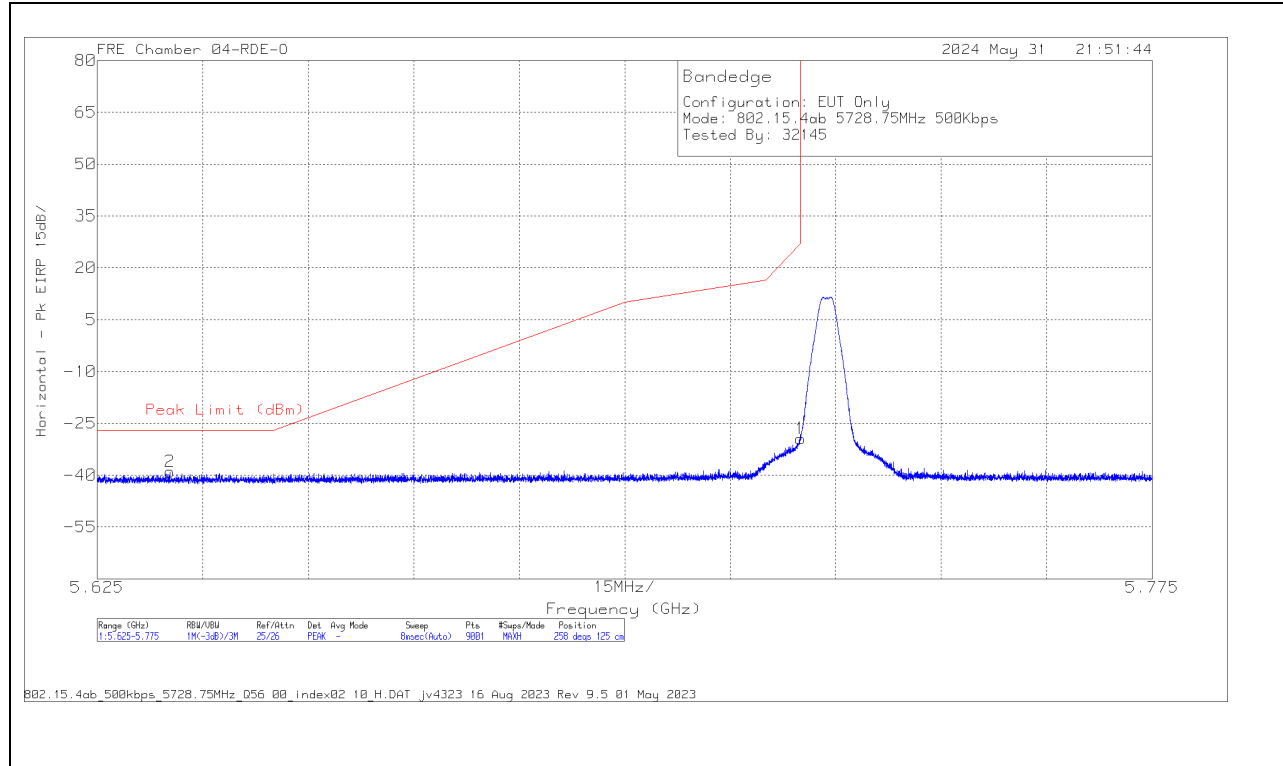
OFS and chamber correlation testing had been performed and chamber measured test result is the worst-case test result.

RESULTS

10.1. UNII-3, TRANSMITTER ABOVE 1 GHz

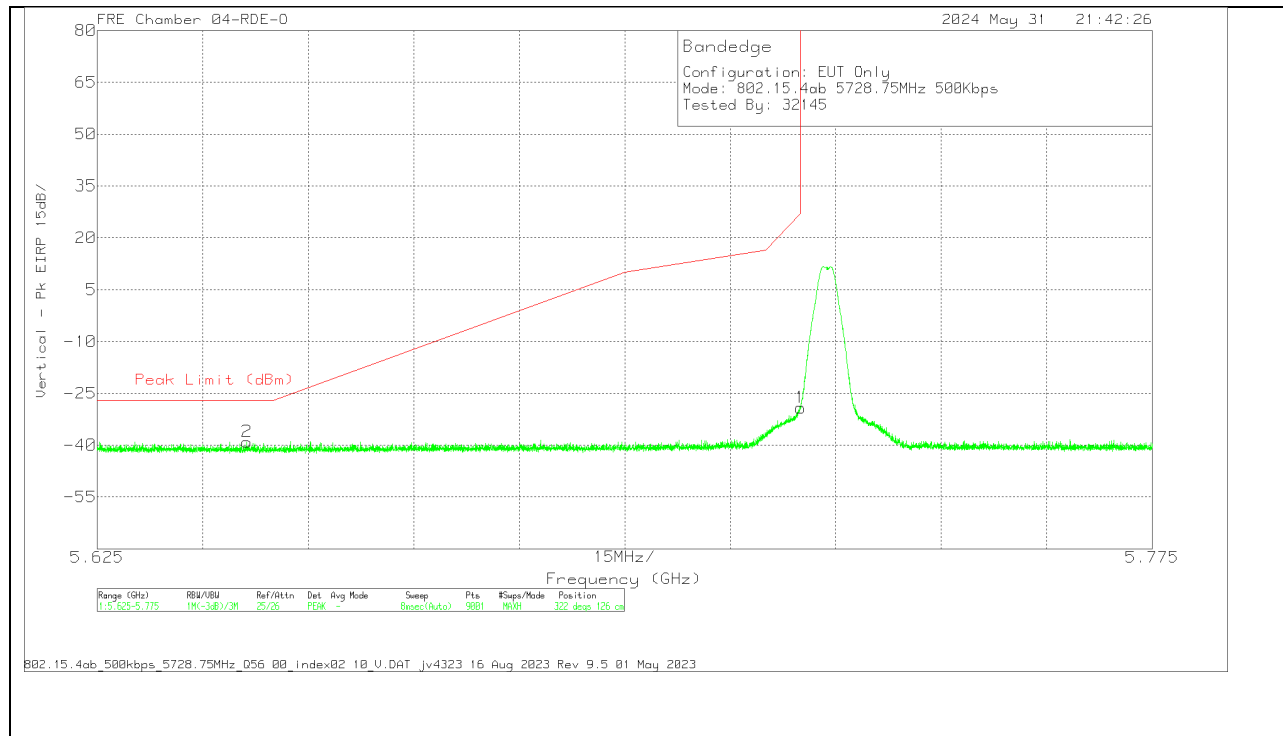
10.1.1. ANT 6, 500Kbps HIGH POWER BAND EDGE IN THE 5.8 GHz BAND BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	5.635317	-47.88	Pk	34.4	11.8	0	-34.2	-35.88	-27	-8.88	258	125	H
1	5.725	-38.7	Pk	34.6	11.8	0	-34.1	-26.4	27	-53.4	258	125	H

Pk - Peak detector

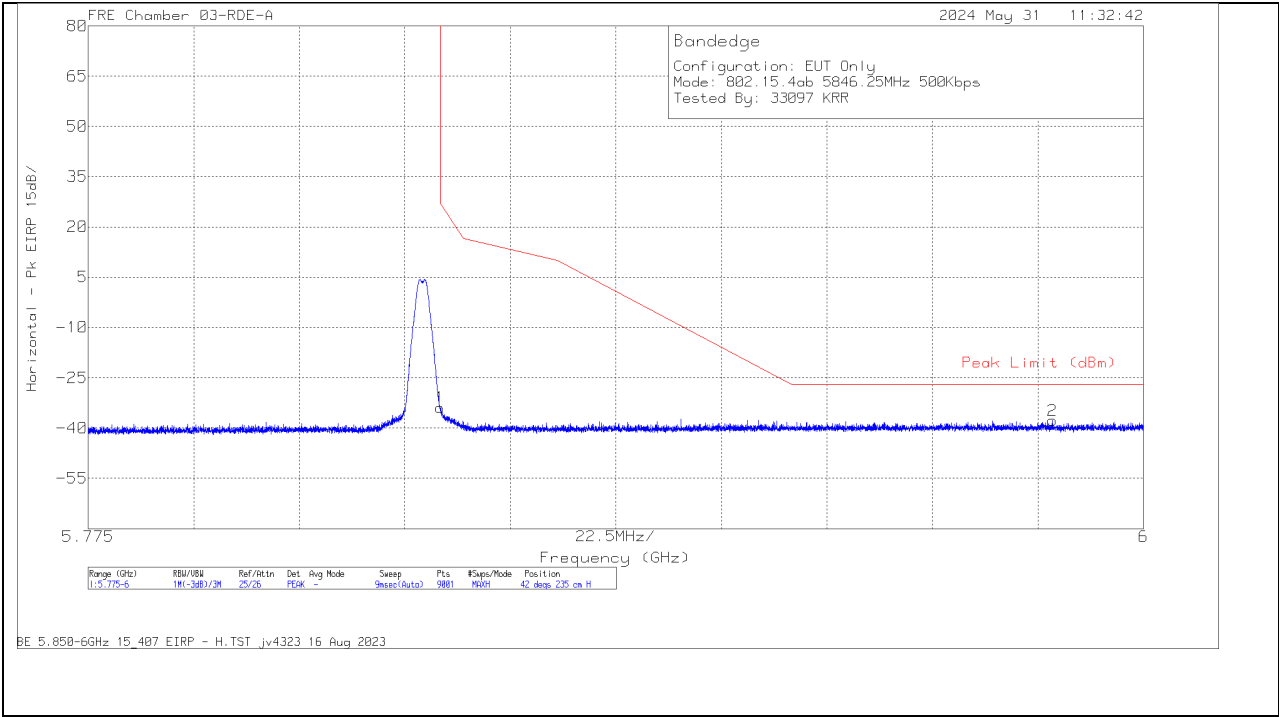
VERTICAL RESULT

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	5.646284	-47.87	PK	34.4	11.8	0	-37.35	-39.02	-27	-12.02	322	126	V
1	5.725	-38.43	PK	34.6	11.8	0	-37.13	-29.16	27	-56.16	322	126	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

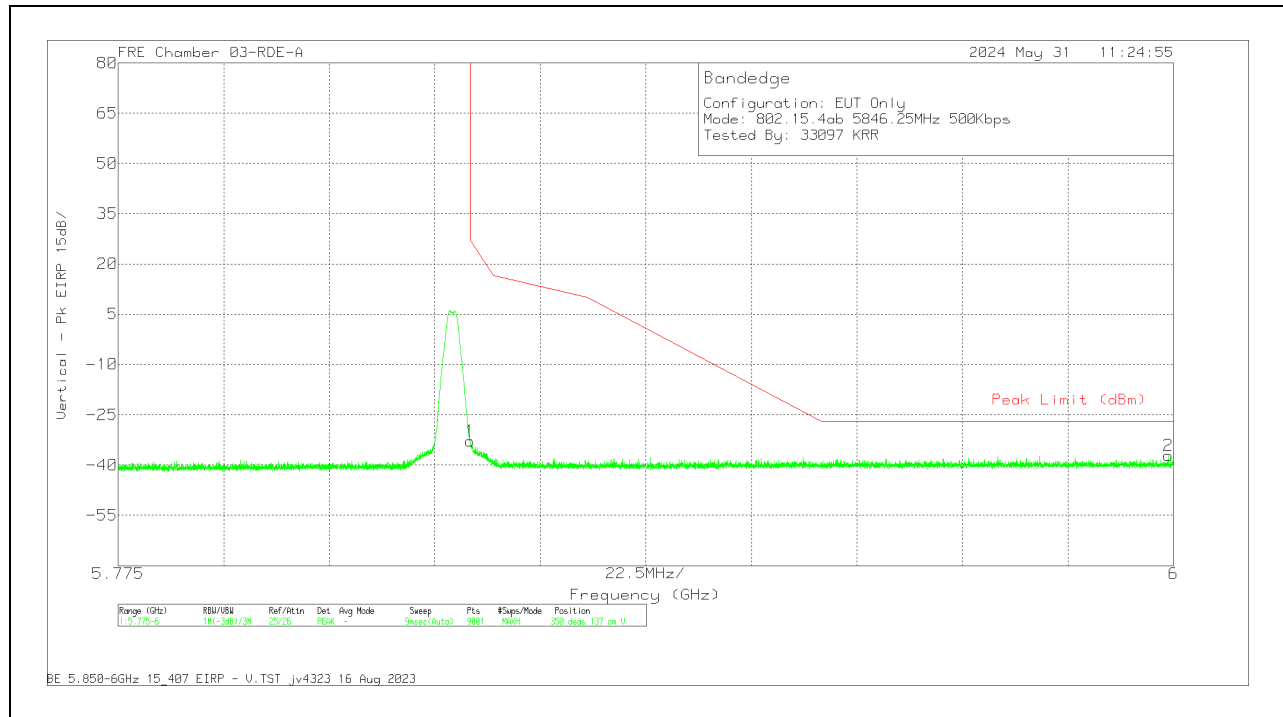
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
1	5.85	-43.81	Pk	35	11.8	0	-36.87	-33.88	27	-60.88	42	235	H
2	5.980675	-48.26	Pk	35.3	11.8	0	-36.63	-37.79	-27	-10.79	42	235	H

Pk - Peak detector

VERTICAL RESULT

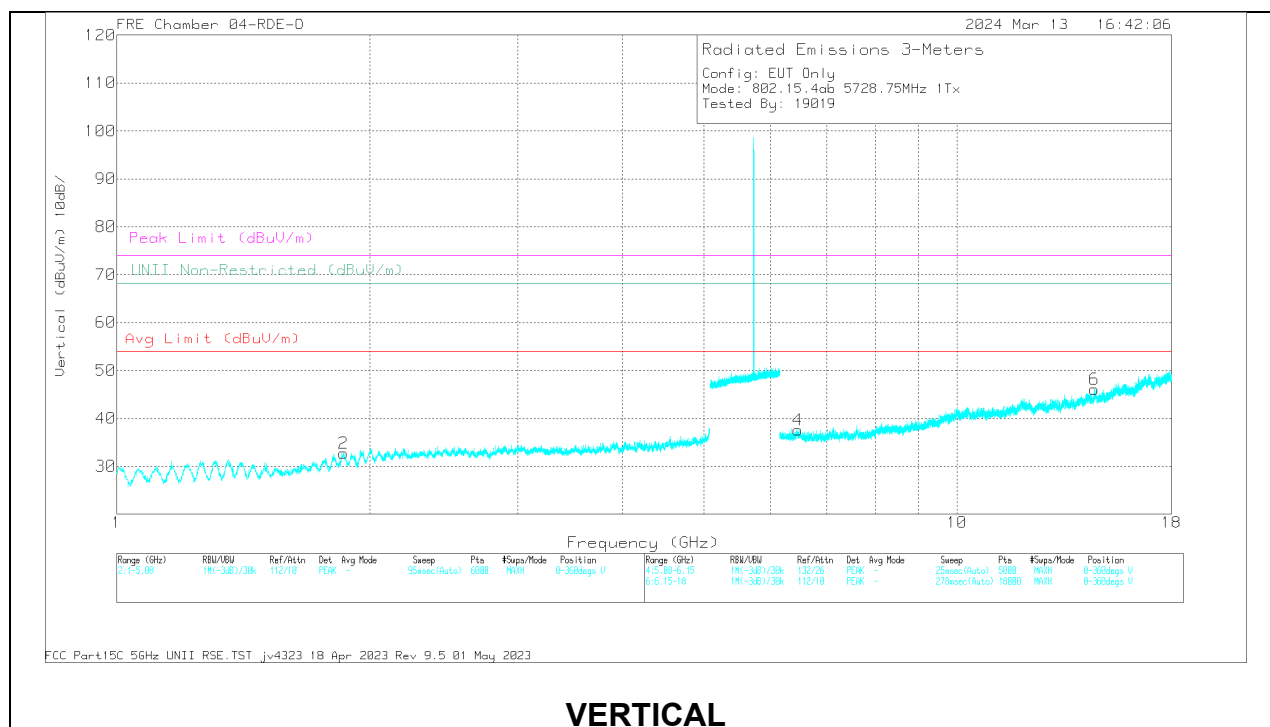
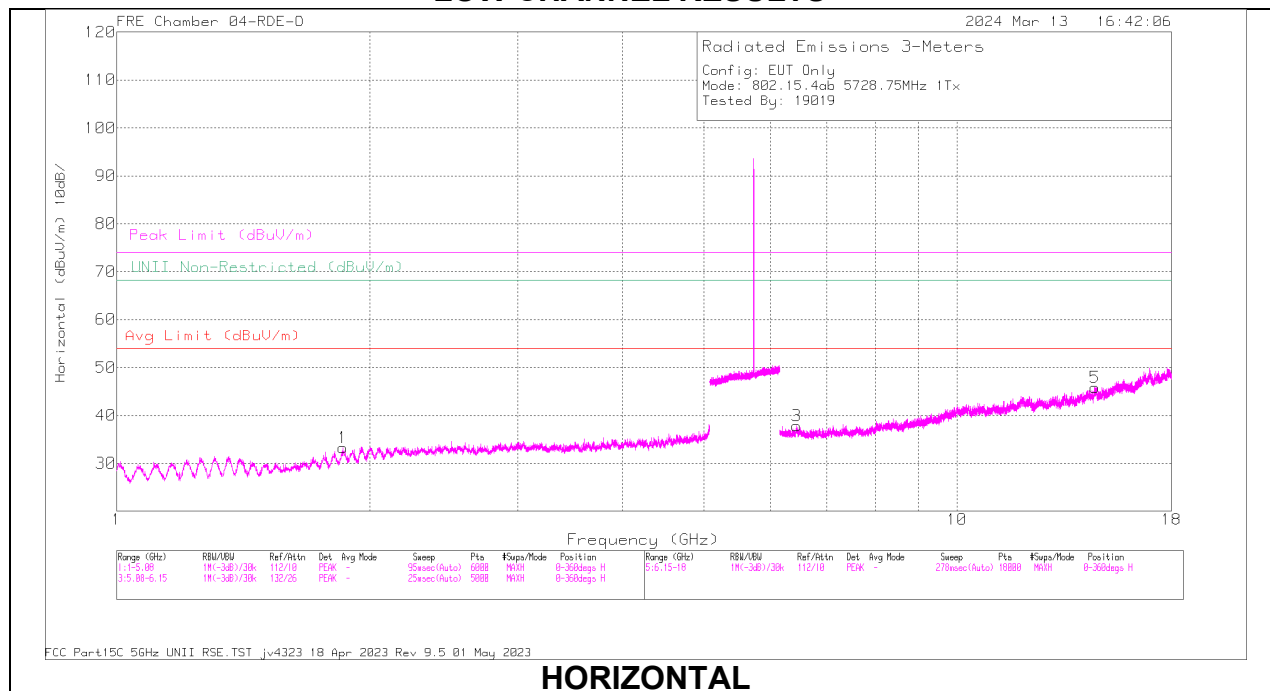


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-42.74	Pk	35	11.8	0	-36.87	-32.81	27	-59.81	350	137	V
2	5.998675	-47.63	Pk	35.3	11.8	0	-36.59	-37.12	-27	-10.12	350	137	V

Pk - Peak detector

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

LOW CHANNEL RESULTS



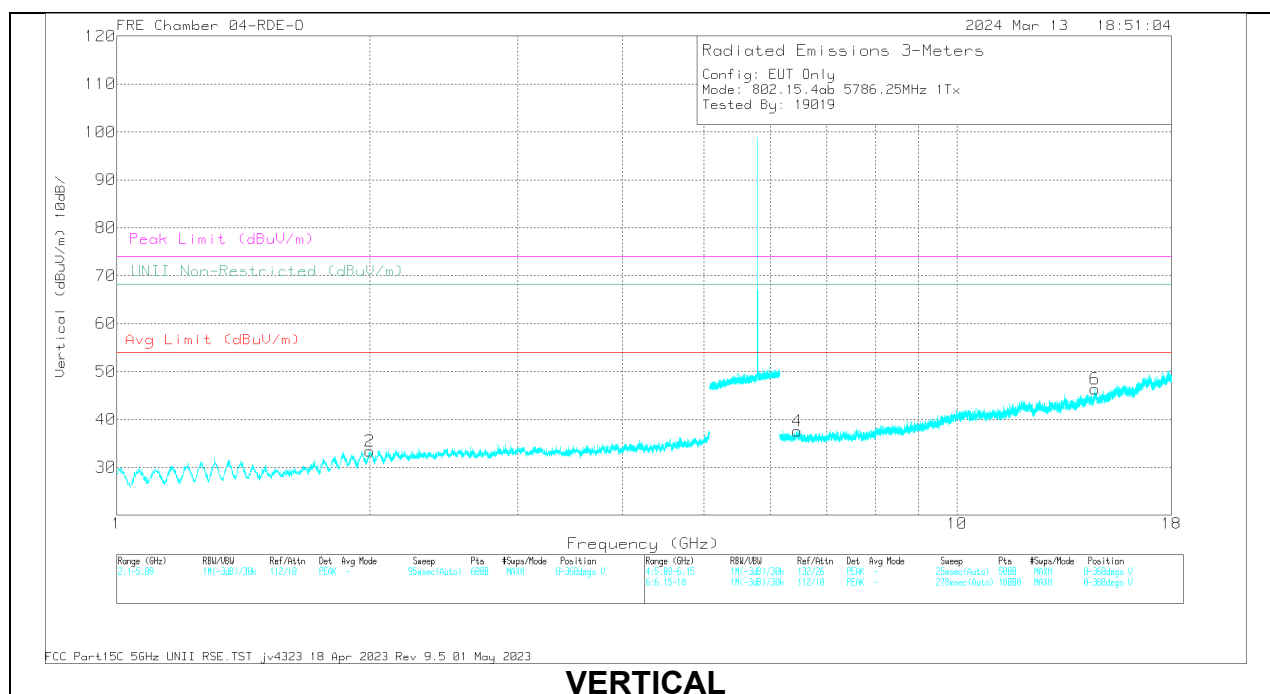
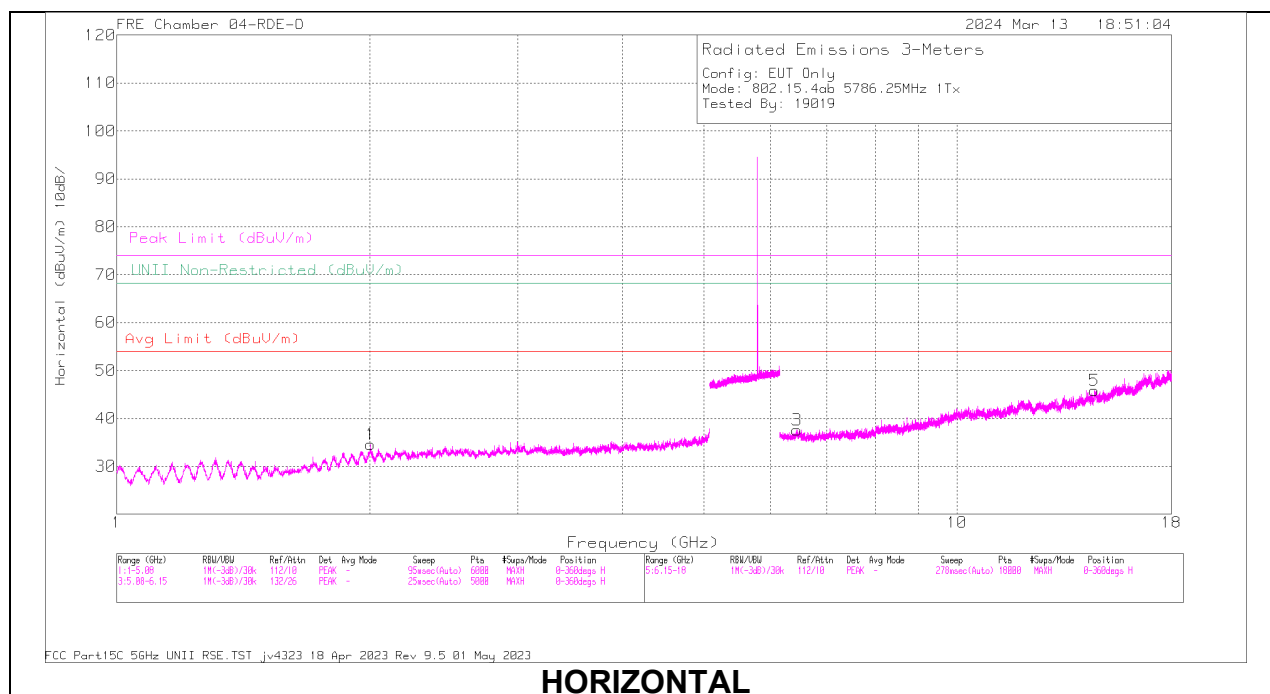
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.855646	58.56	PK-U	30.9	0	-46.7	42.76	68.2	-25.44	134	145	H
2	1.862124	58.59	PK-U	31	0	-46.69	42.9	68.2	-25.3	69	254	V
3	6.448111	53.33	PK-U	35.9	0	-41.91	47.32	68.2	-20.88	257	136	H
4	6.465559	53.47	PK-U	35.9	0	-42.11	47.26	68.2	-20.94	50	164	V
6	14.578318	53.22	PK-U	39.9	0	-37.87	55.25	68.2	-12.95	177	239	V
5	14.59155	53.51	PK-U	39.9	0	-37.75	55.66	68.2	-12.54	163	180	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



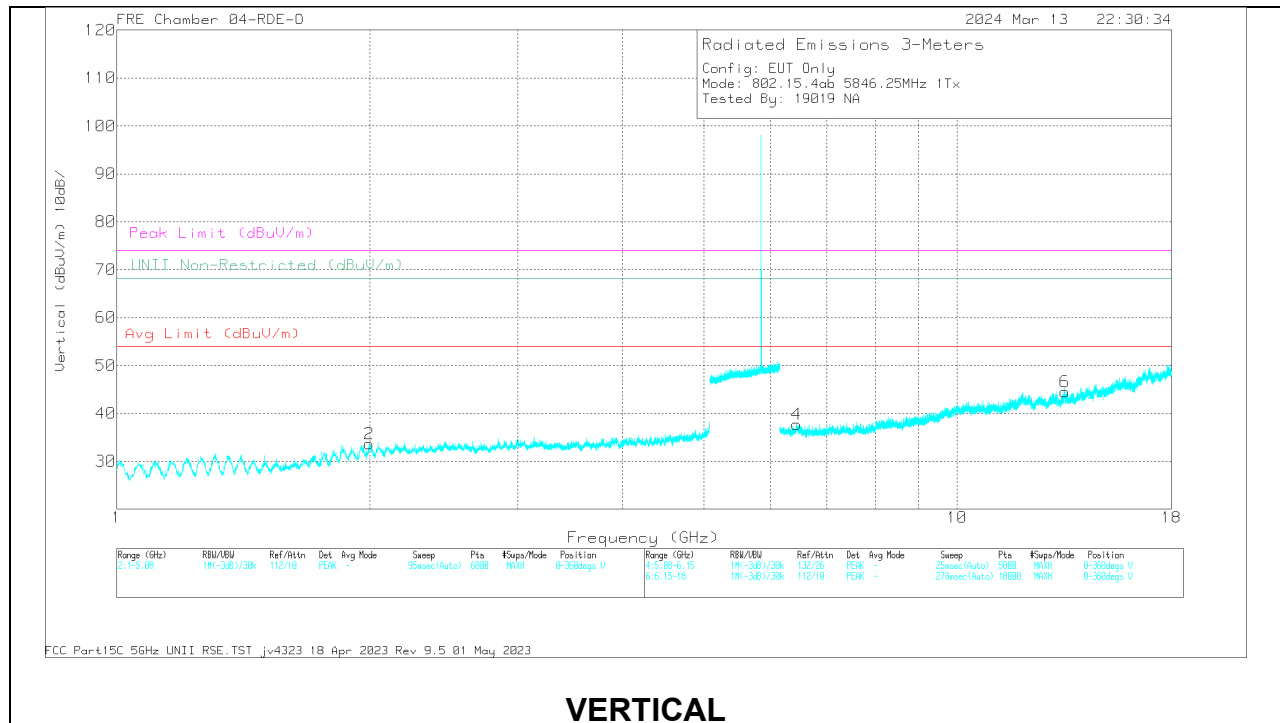
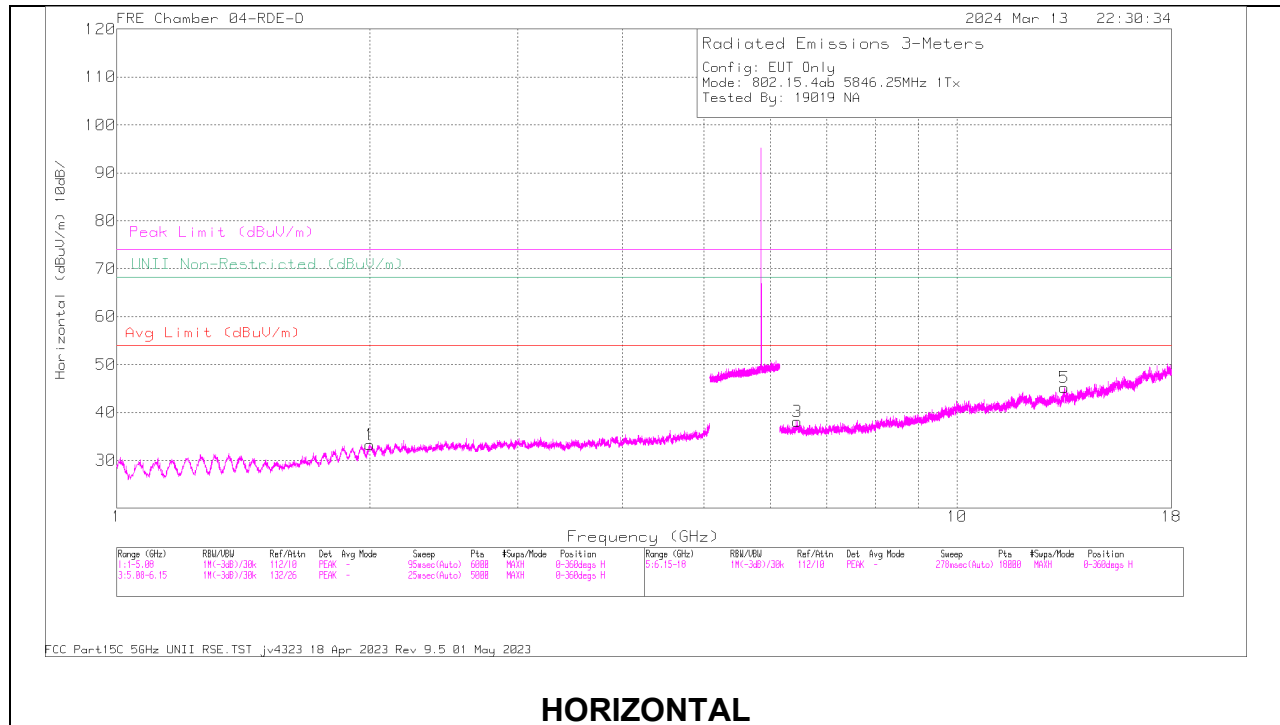
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.000576	59.56	PK-U	31.7	0	-46.64	44.62	68.2	-23.58	24	167	V
1	2.005298	58.43	PK-U	31.7	0	-46.7	43.43	68.2	-24.77	171	180	H
3	6.448972	53.69	PK-U	35.9	0	-42	47.59	68.2	-20.61	205	170	H
4	6.455355	53.49	PK-U	35.9	0	-42.06	47.33	68.2	-20.87	296	145	V
5	14.575897	53.7	PK-U	39.9	0	-37.91	55.69	68.2	-12.51	146	187	H
6	14.595098	53.23	PK-U	39.9	0	-37.89	55.24	68.2	-12.96	109	145	V

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.000128	58.4	PK-U	31.7	0	-46.69	43.41	68.2	-24.79	107	162	V
1	2.001407	58.61	PK-U	31.7	0	-46.6	43.71	68.2	-24.49	162	155	H
4	6.445598	53.97	PK-U	35.9	0	-41.9	47.97	68.2	-20.23	68	154	V
3	6.451602	53.55	PK-U	35.9	0	-41.86	47.59	68.2	-20.61	55	165	H
5	13.423555	52.51	PK-U	39.1	0	-37.5	54.11	68.2	-14.09	139	181	H
6	13.436565	53.09	PK-U	39.1	0	-38	54.19	68.2	-14.01	164	131	V

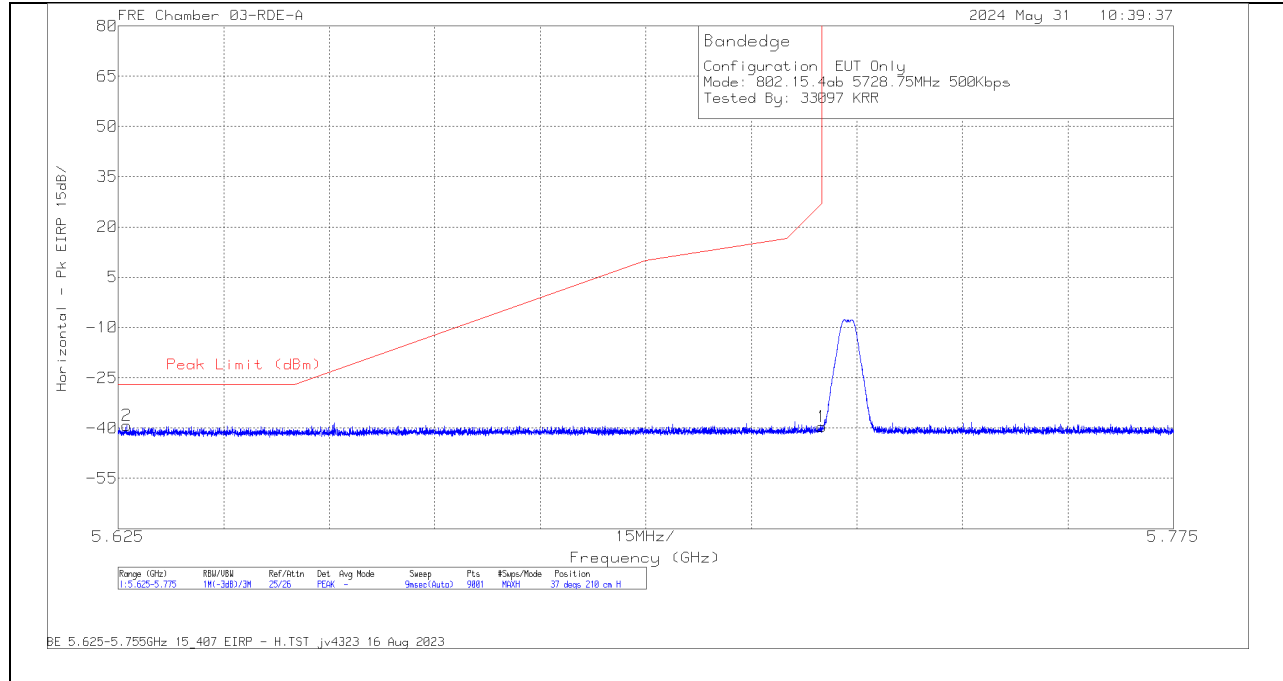
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

10.1.3. ANT 6, 500Kbps LOW POWER BAND EDGE IN THE 5.8 GHz BAND

BANDEDGE (LOW CHANNEL)

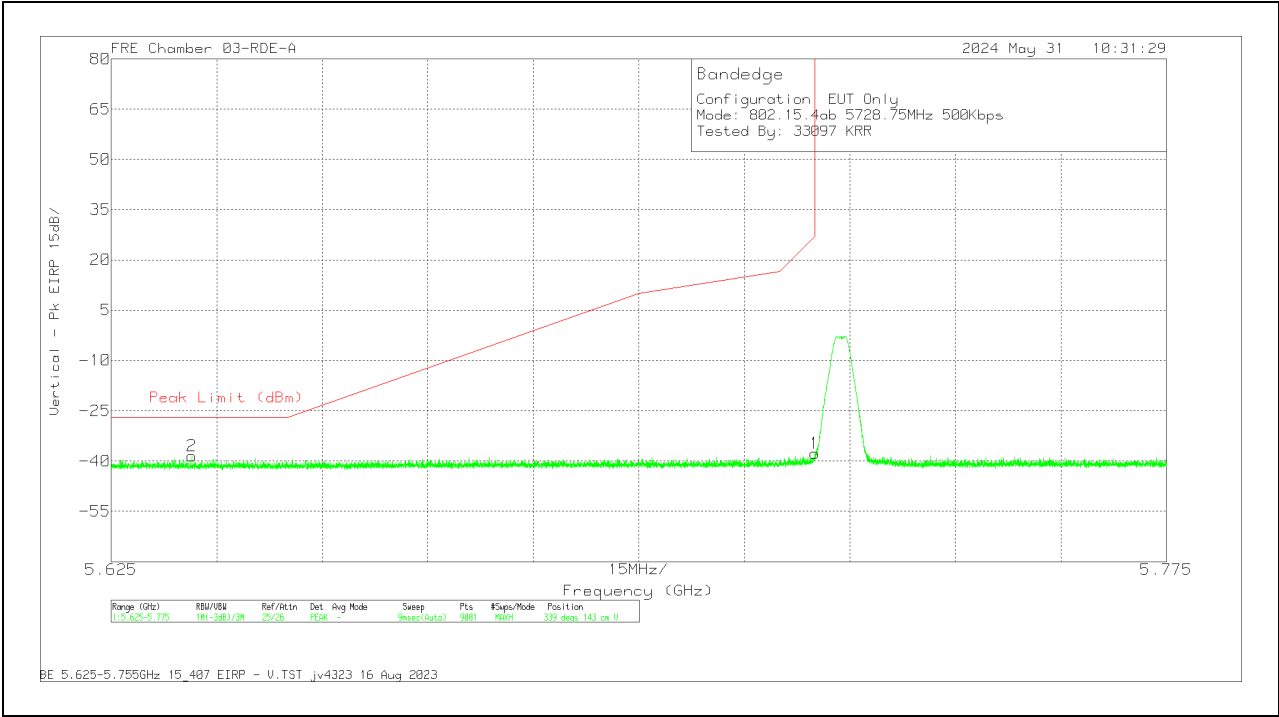
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	5.6262	-48.01	Pk	34.4	11.8	0	-37.38	-39.19	-27	-12.19	37	210	H
1	5.725	-48.79	Pk	34.6	11.8	0	-37.13	-39.52	27	-66.52	37	210	H

Pk - Peak detector

VERTICAL RESULT

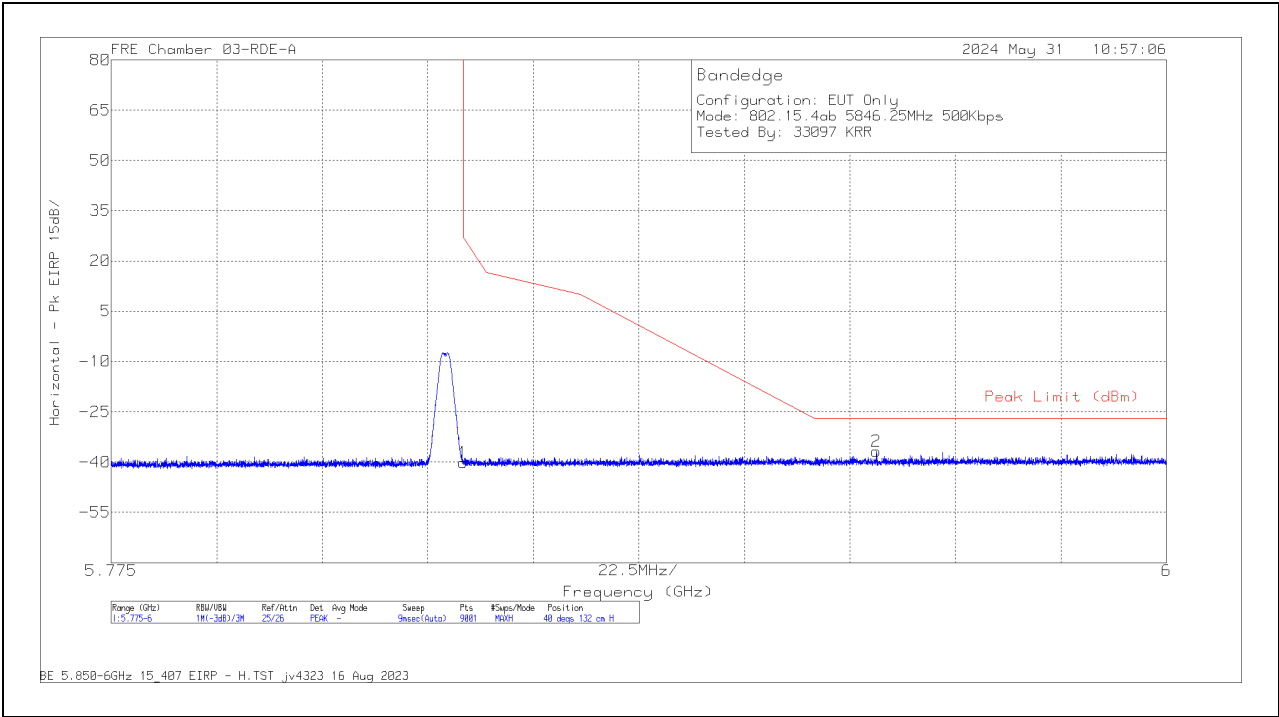


Marker	Frequen cy (GHz)	Meter Reading (dBm)	Det	226673 ACF (dB/m)	Conversi on Factor (dB)	DCCF (dB)	Gain/Los s (dB)	Correcte d Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.636467	-47.33	Pk	34.4	11.8	0	-37.33	-38.46	-27	-11.46	339	143	V
1	5.725	-47.04	Pk	34.6	11.8	0	-37.13	-37.77	27	-64.77	339	143	V

Pk - Peak detector

BANDEDGE (HIGH CHANNEL)

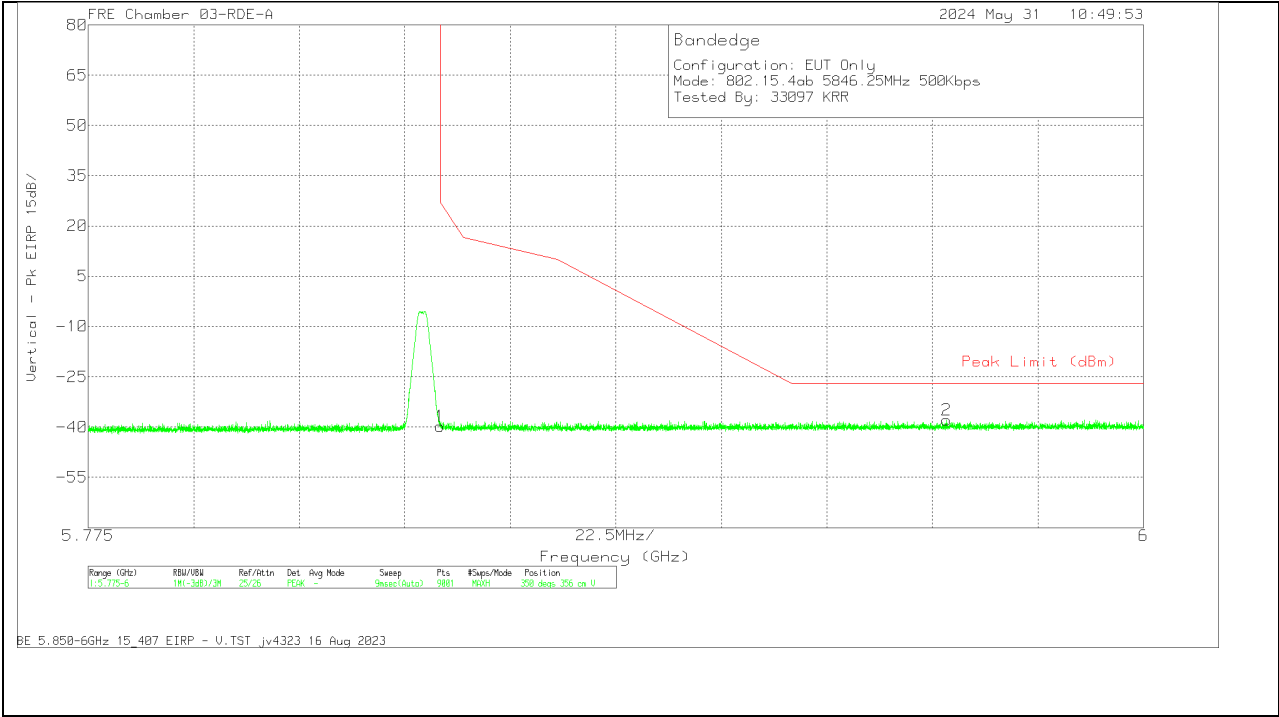
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	Z26673 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	-49.99	Pk	35	11.8	0	-36.87	-40.06	27	-67.06	40	132	H
2	5.938175	-47.02	Pk	35.2	11.8	0	-36.72	-36.74	-27	-9.74	40	132	H

Pk - Peak detector

VERTICAL RESULT

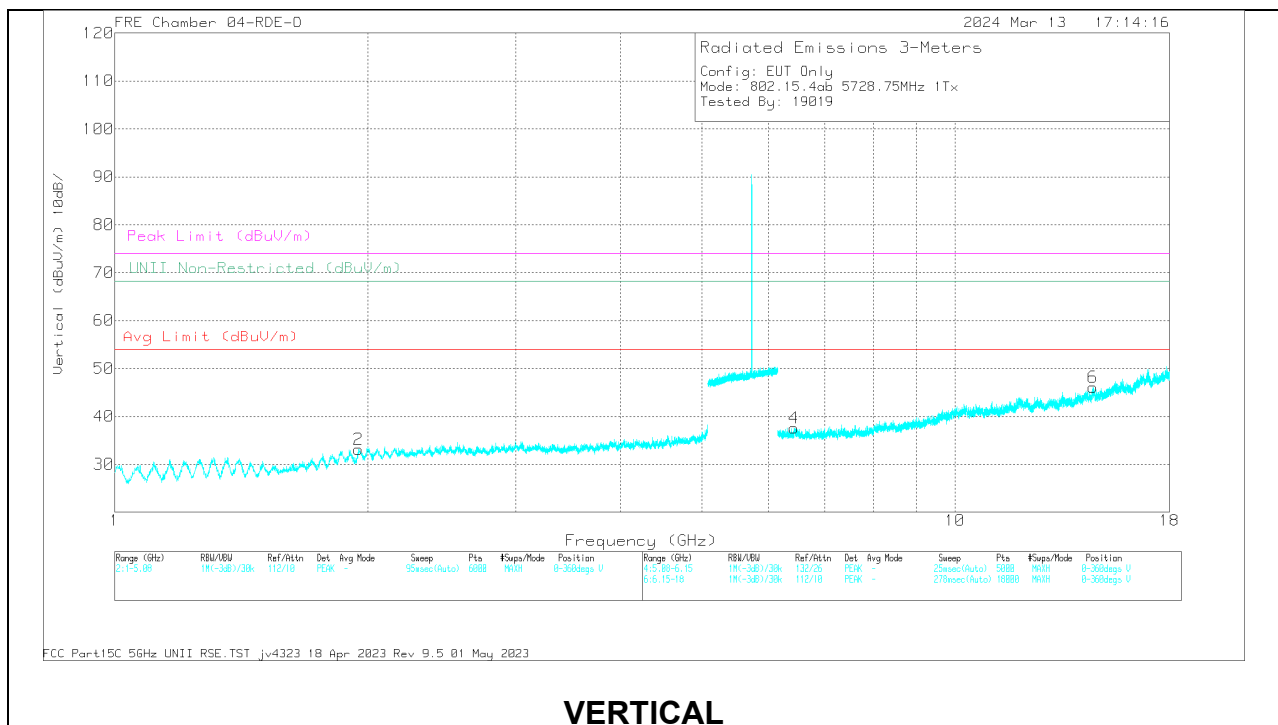
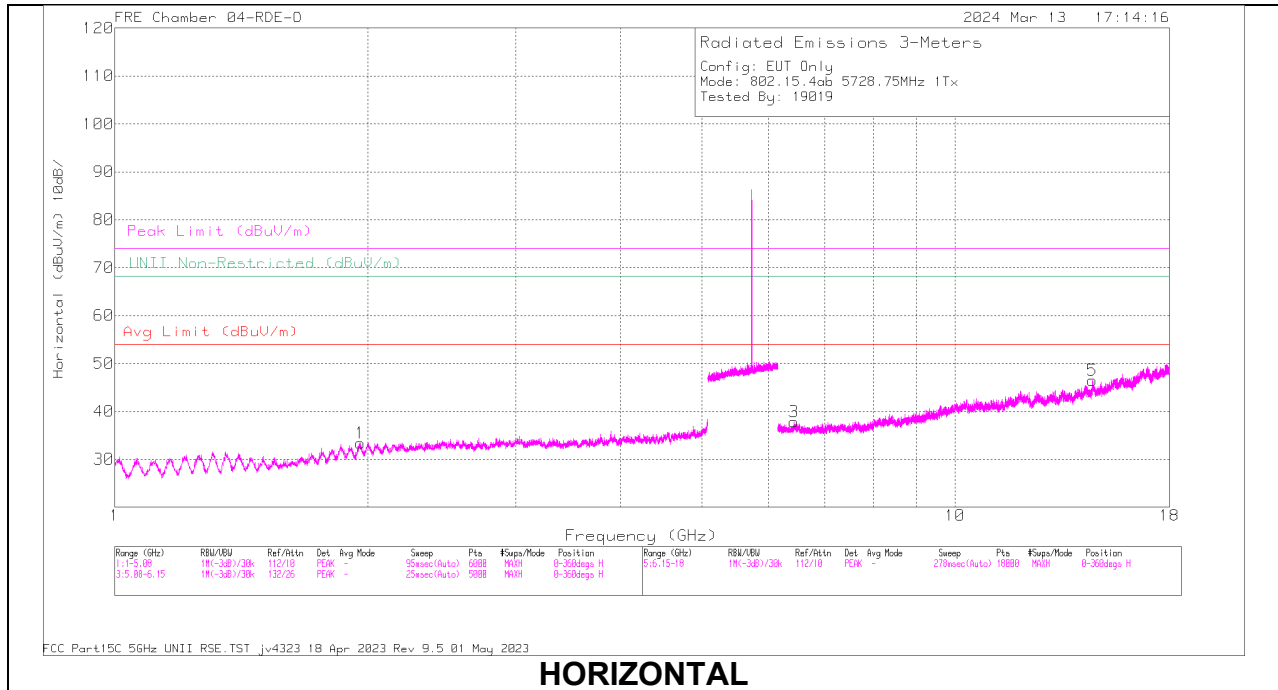


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-49.73	Pk	35	11.8	0	-36.87	-39.8	27	-66.8	350	356	V
2	5.957975	-48.31	Pk	35.3	11.8	0	-36.67	-37.88	-27	-10.88	350	356	V

Pk - Peak detector

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

LOW CHANNEL RESULTS



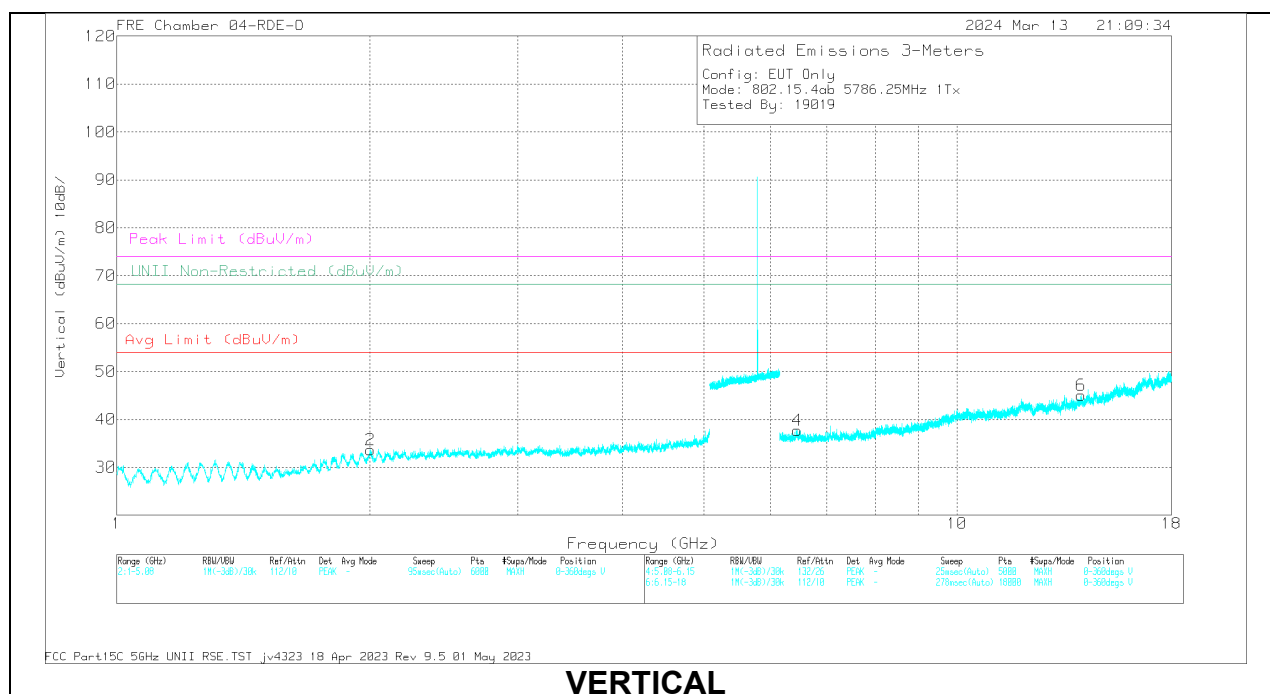
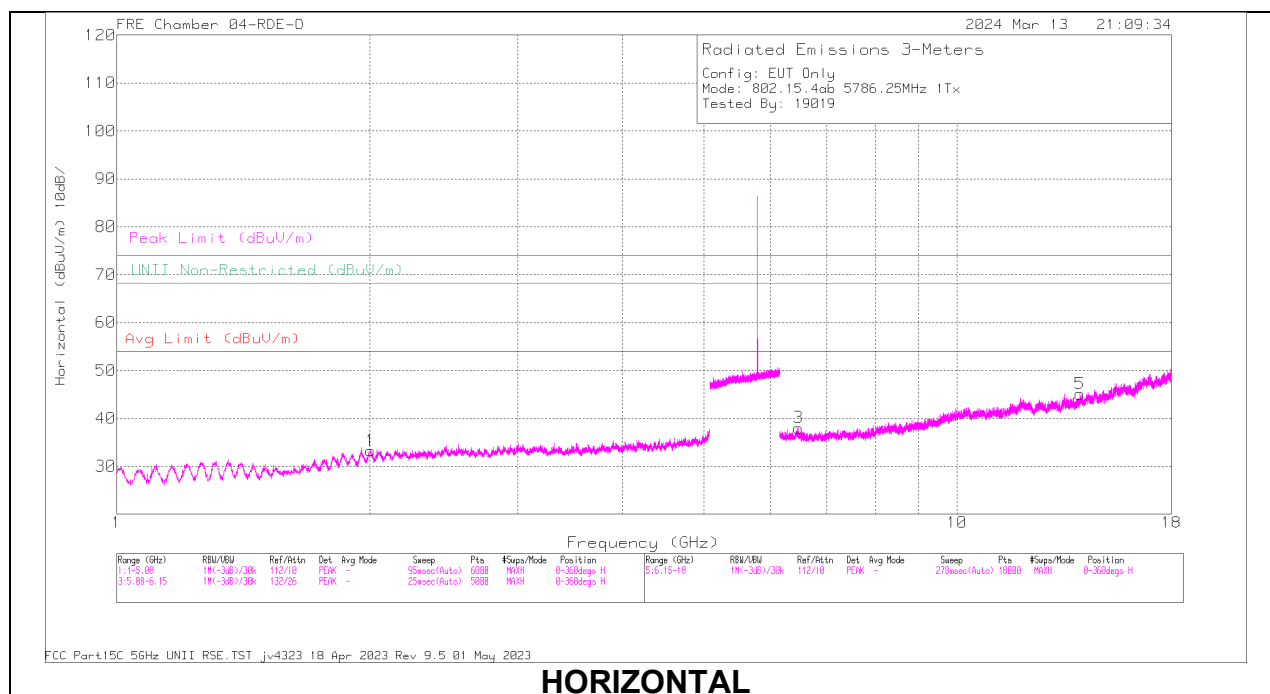
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.948591	58.37	PK-U	31.5	0	-46.6	43.27	68.2	-24.93	28	158	V
1	1.959027	58.09	PK-U	31.5	0	-46.6	42.99	68.2	-25.21	189	138	H
3	6.435057	53.55	PK-U	35.9	0	-41.9	47.55	68.2	-20.65	259	112	H
4	6.437849	53.53	PK-U	35.9	0	-41.9	47.53	68.2	-20.67	192	139	V
5	14.577199	53.14	PK-U	39.9	0	-37.9	55.14	68.2	-13.06	77	187	H
6	14.591453	53.2	PK-U	39.9	0	-37.75	55.35	68.2	-12.85	129	264	V

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



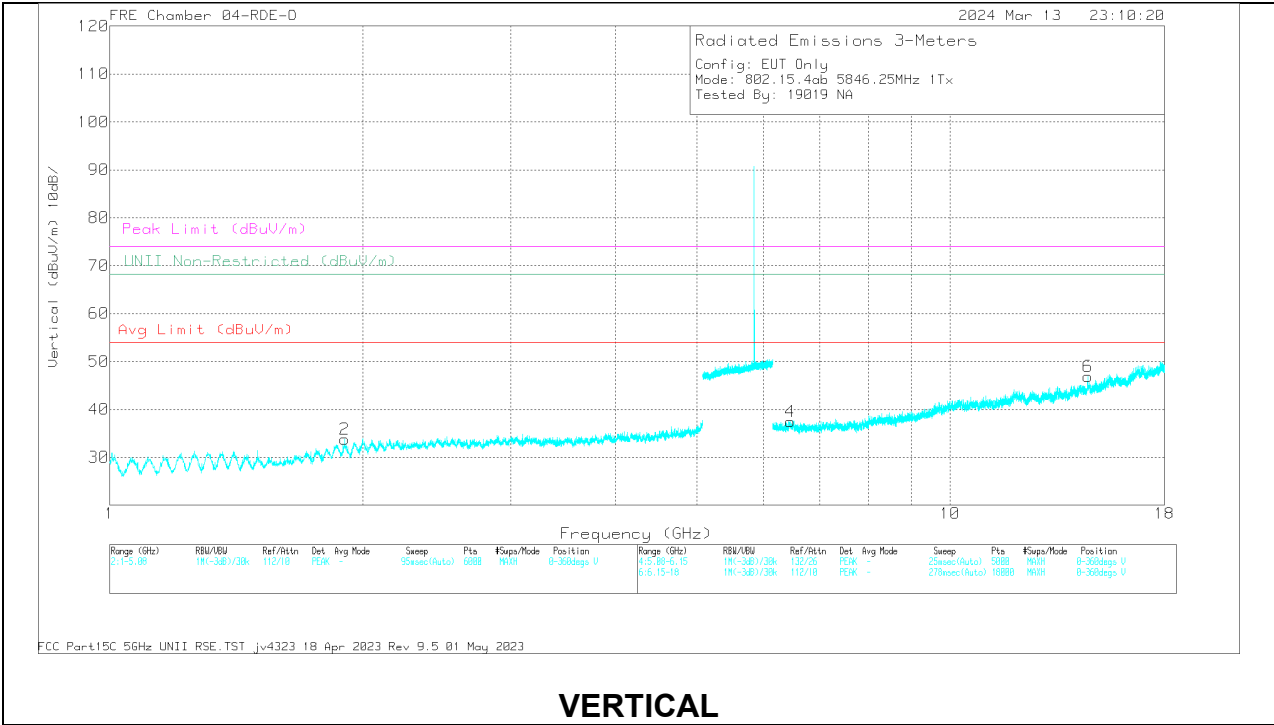
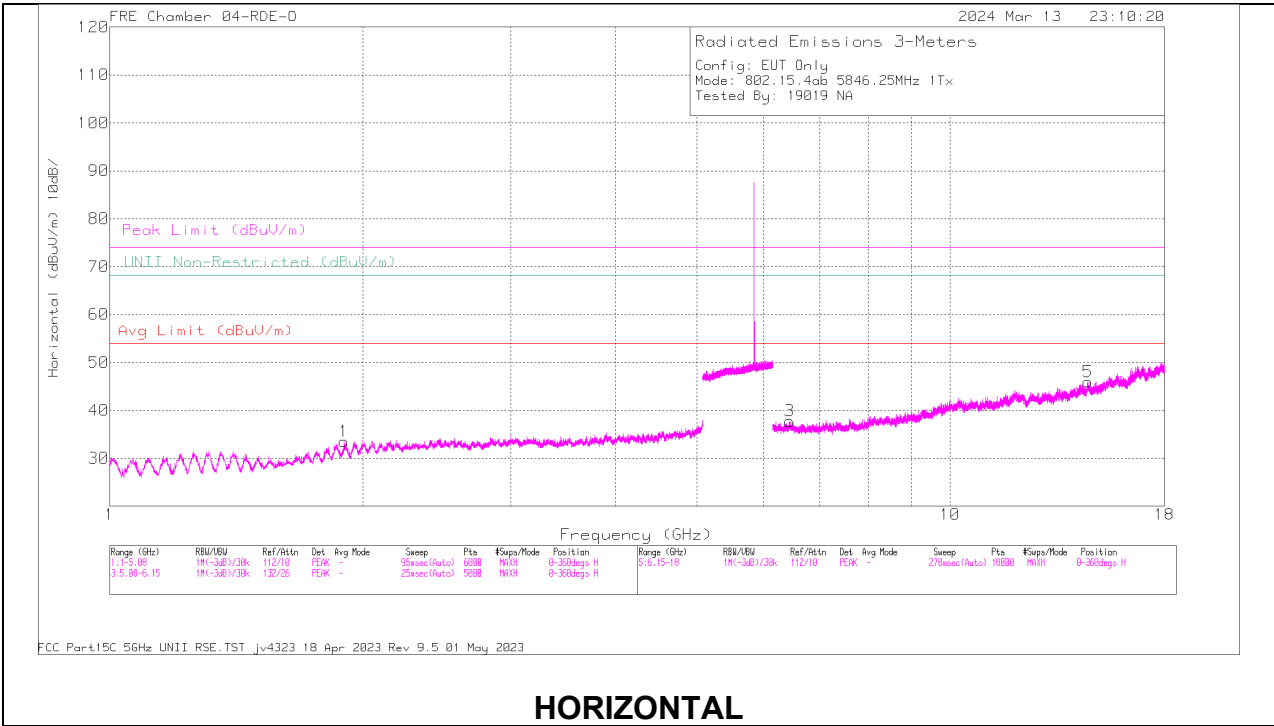
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.001335	58.7	PK-U	31.7	0	-46.6	43.8	68.2	-24.4	86	167	V
1	2.005739	58.46	PK-U	31.7	0	-46.7	43.46	68.2	-24.74	201	137	H
4	6.452821	53.73	PK-U	35.9	0	-41.98	47.65	68.2	-20.55	225	234	V
3	6.480936	53.61	PK-U	35.9	0	-42.49	47.02	68.2	-21.18	134	113	H
5	14.007294	53.36	PK-U	39.4	0	-38.9	53.86	68.2	-14.34	87	146	H
6	14.066186	53.05	PK-U	39.5	0	-38.78	53.77	68.2	-14.43	114	156	V

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

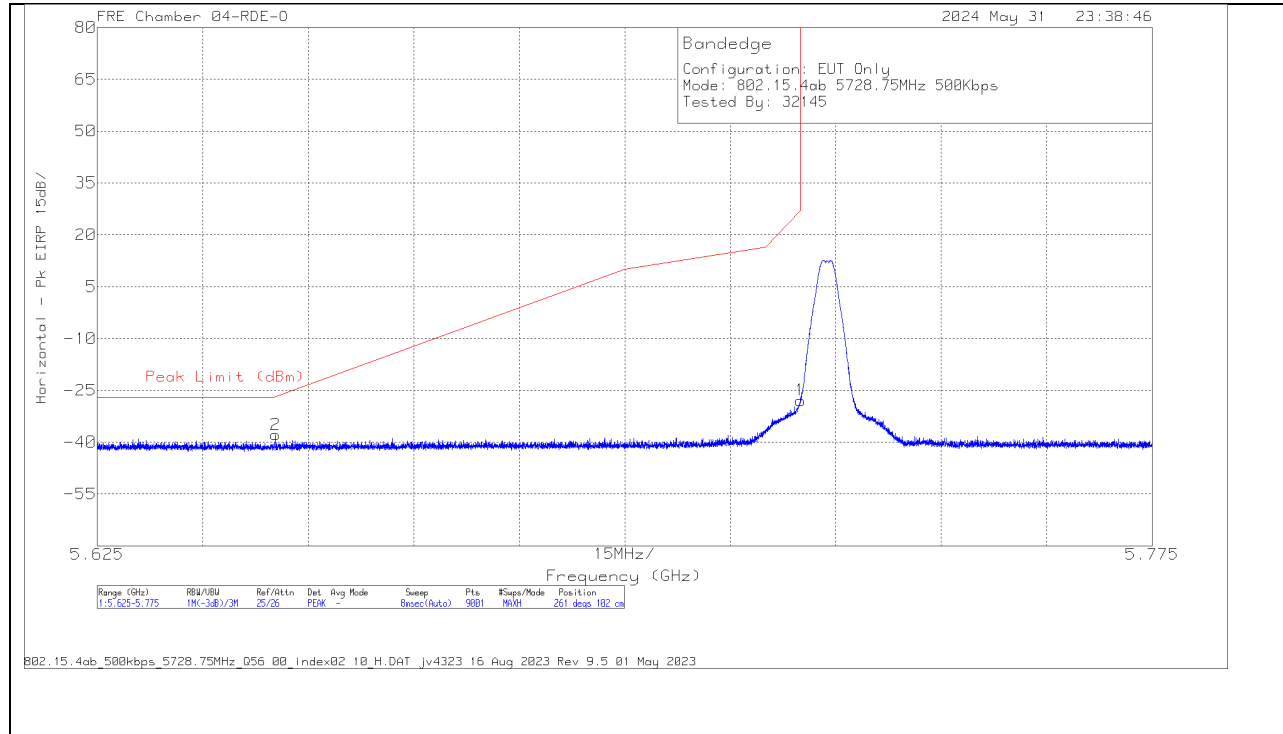
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80402 ACF (dB/m)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.900727	57.41	PK-U	31.2	0	-46.5	42.11	68.2	-26.09	192	115	H
2	1.905592	58	PK-U	31.3	0	-46.46	42.84	68.2	-25.36	157	142	V
3	6.442387	53.16	PK-U	35.9	0	-41.84	47.22	68.2	-20.98	273	186	H
4	6.45088	53.58	PK-U	35.9	0	-41.81	47.67	68.2	-20.53	266	201	V
5	14.587018	53.14	PK-U	39.9	0	-37.7	55.34	68.2	-12.86	335	137	H
6	14.604081	52.86	PK-U	39.9	0	-38.01	54.75	68.2	-13.45	353	120	V

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

10.1.5. ANT 5, 500Kbps, HIGH POWER BAND EDGE IN THE 5.8 GHz BAND **BANDEDGE (LOW CHANNEL)**

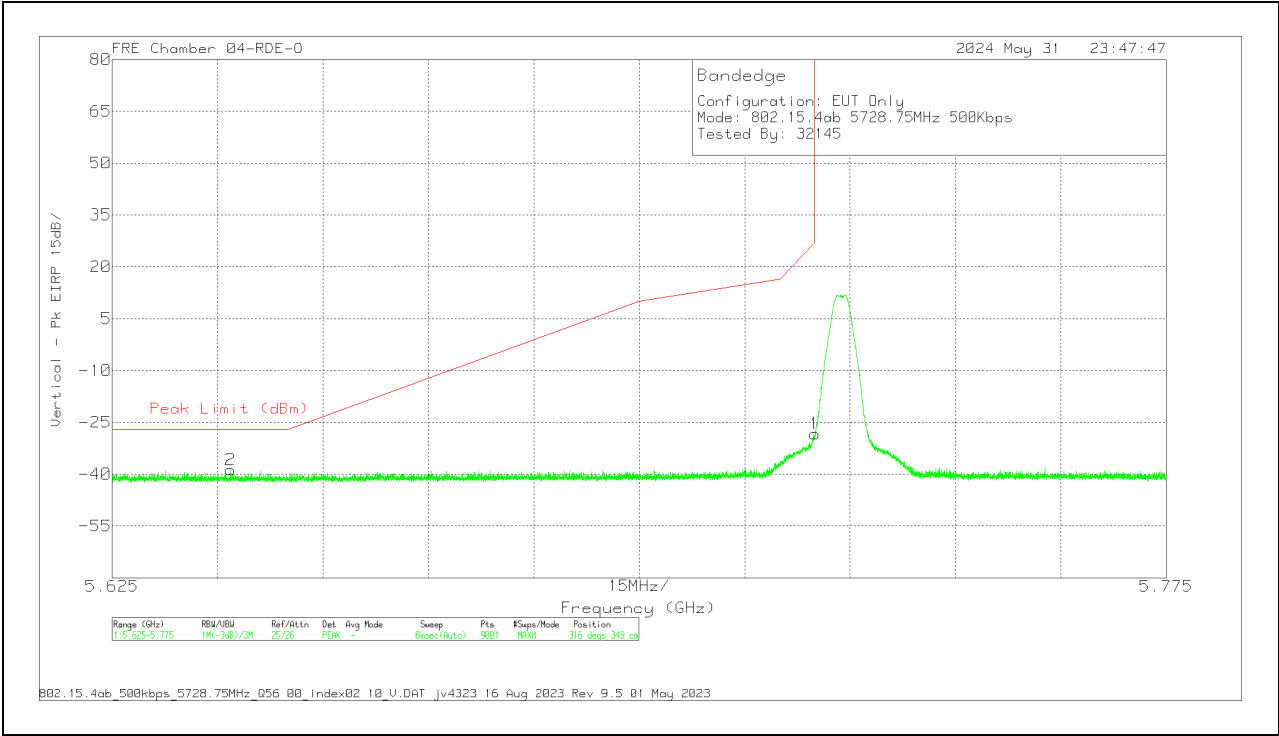
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	5.650334	-46.8	Pk	34.4	11.8	0	-37.25	-37.85	-26.75	-11.1	261	102	H
1	5.725	-37.17	Pk	34.6	11.8	0	-37.13	-27.9	27	-54.9	261	102	H

Pk - Peak detector

VERTICAL RESULT



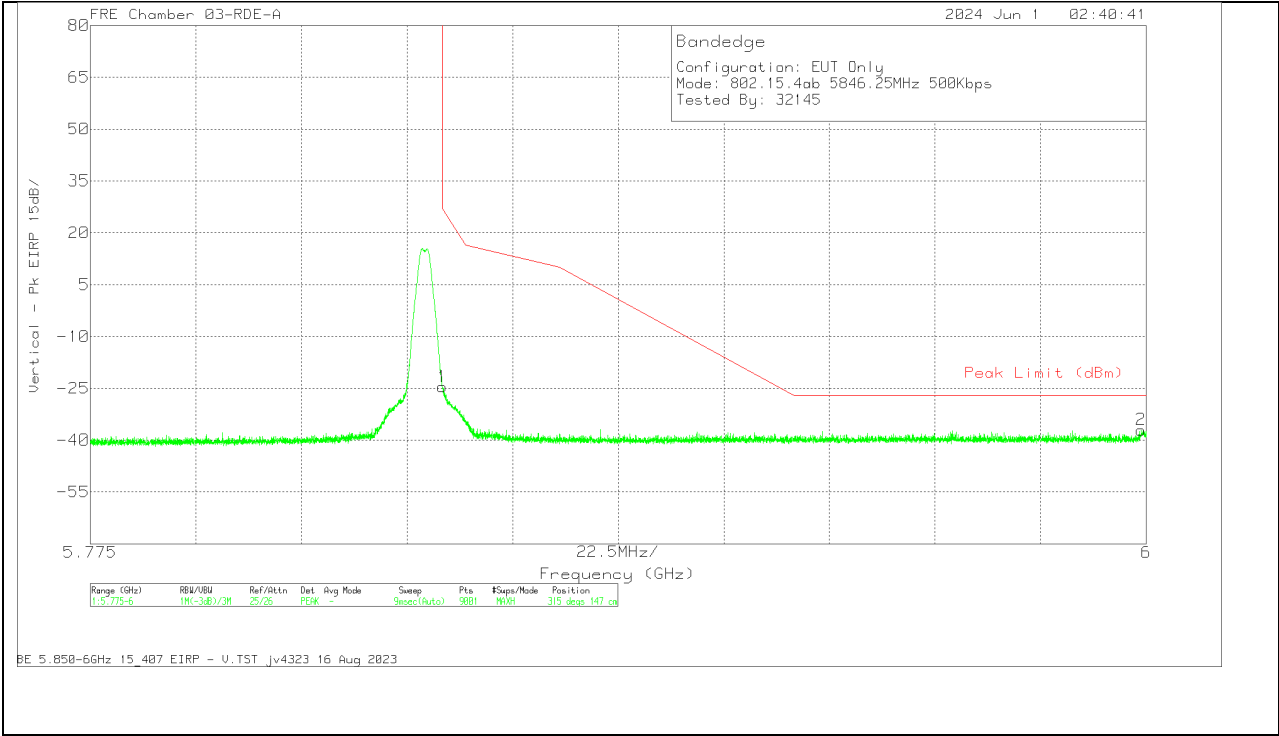
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.641817	-47.6	Pk	34.4	11.8	0	-37.33	-38.73	-27	-11.73	316	343	V
1	5.725	-37.61	Pk	34.6	11.8	0	-37.13	-28.34	27	-55.34	316	343	V

Pk - Peak detector

HORIZONTAL RESULT

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	-31.78	Pk	35	11.8	0	-36.87	-21.85	27	-48.85	259	132	H
2	5.958375	-45.91	Pk	35.3	11.8	0	-36.66	-35.47	-27	-8.47	259	132	H

VERTICAL RESULT

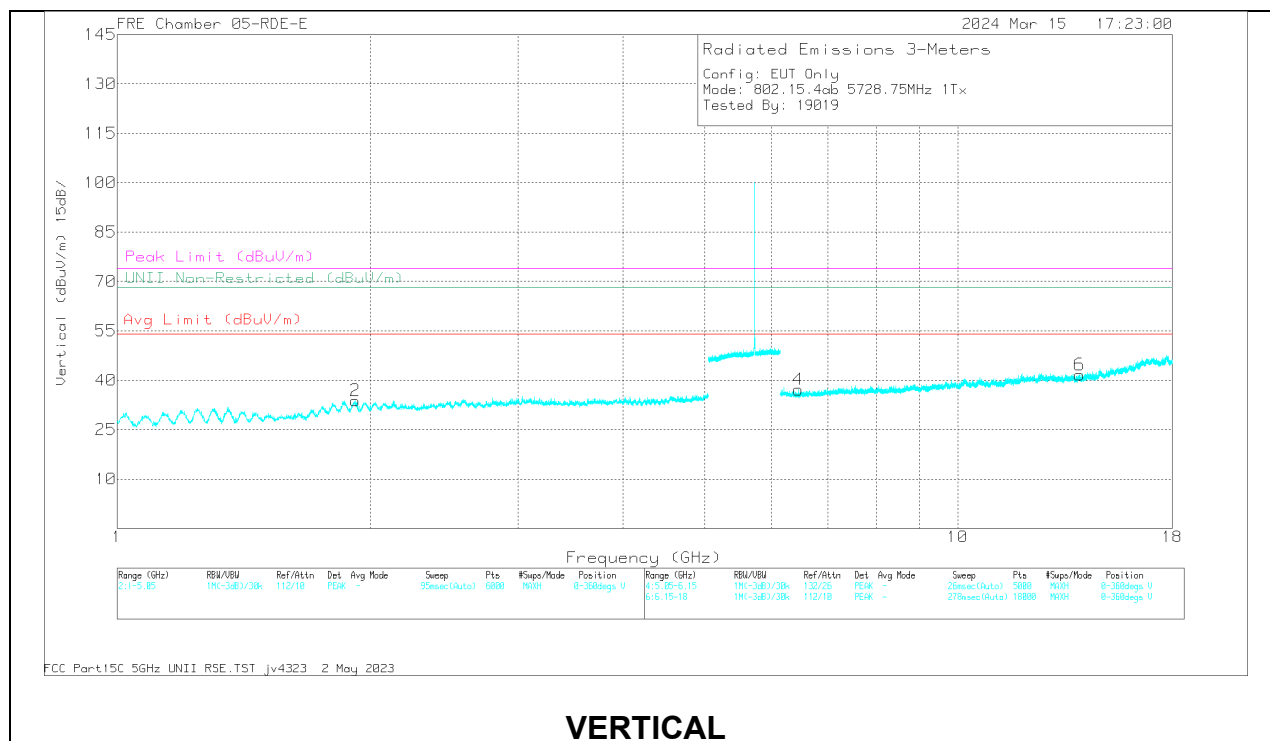
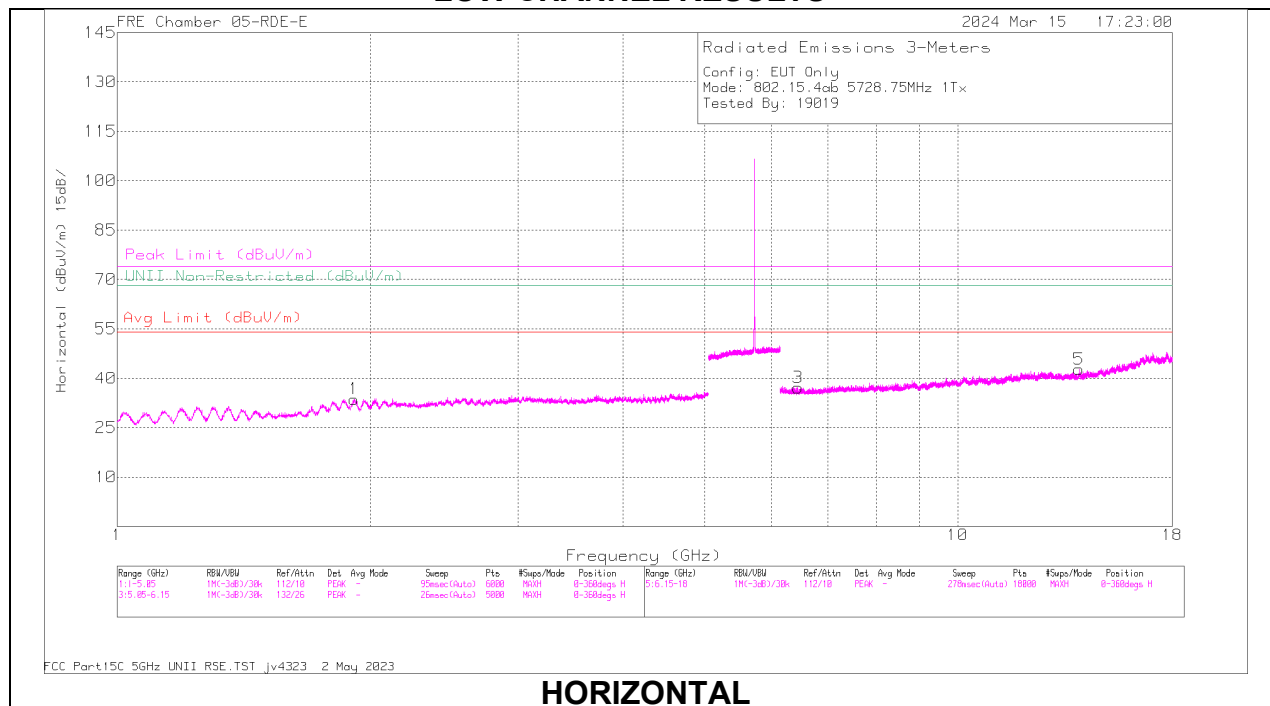


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-34.46	Pk	35	11.8	0	-36.87	-24.53	27	-51.53	315	147	V
2	5.9989	-47.53	Pk	35.3	11.8	0	-36.59	-37.02	-27	-10.02	315	147	V

Pk - Peak detector

10.1.6. ANT 5, 500Kbps HIGH POWER HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



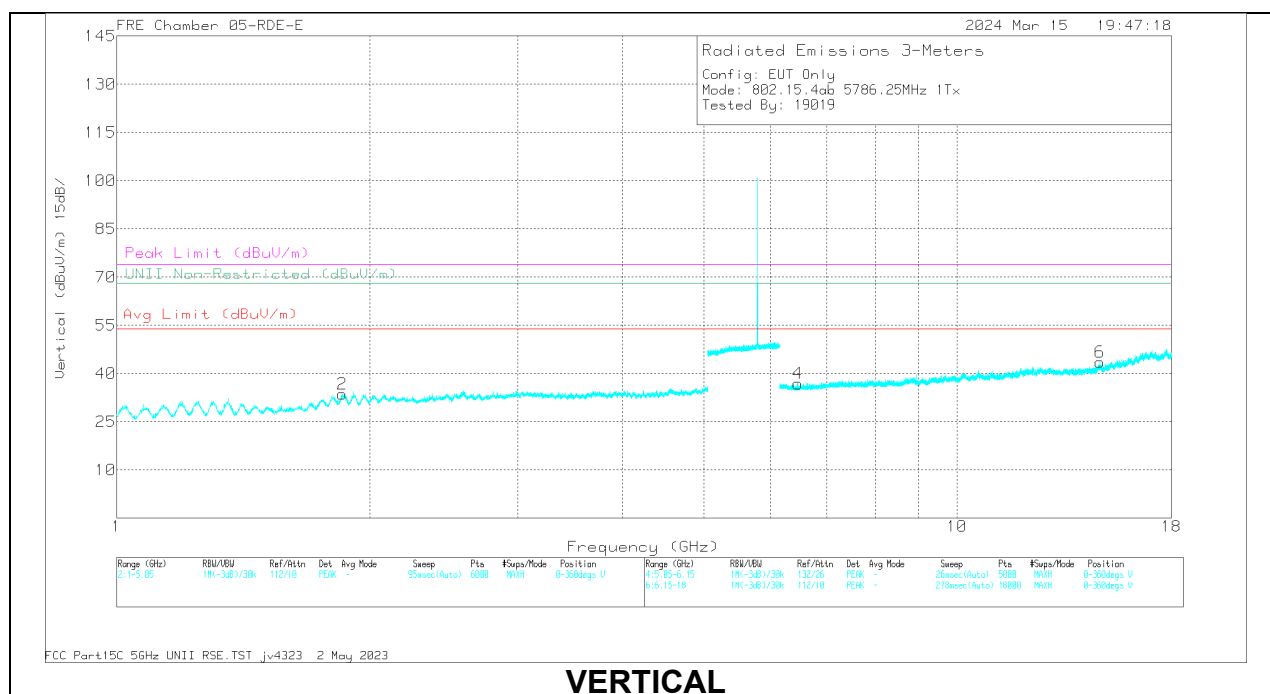
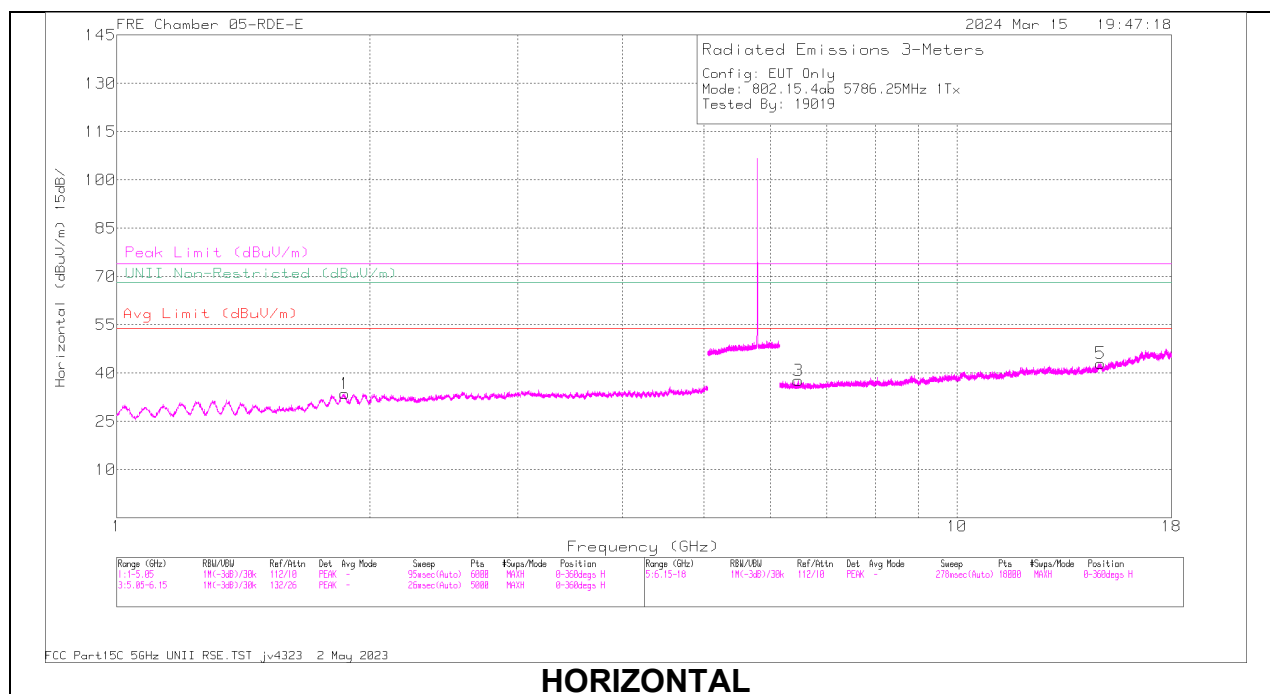
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.915309	59.2	PK-U	31.4	0	-46.8	43.8	68.2	-24.4	174	157	H
2	1.9205	58.92	PK-U	31.4	0	-46.8	43.52	68.2	-24.68	143	222	V
3	6.456421	55.09	PK-U	35.4	0	-44.16	46.33	68.2	-21.87	182	176	H
4	6.461952	54.92	PK-U	35.4	0	-44.2	46.12	68.2	-22.08	239	101	V
5	13.939805	55	PK-U	38.6	0	-42.2	51.4	68.2	-16.8	11	136	H
6	13.964416	54.49	PK-U	38.6	0	-41.86	51.23	68.2	-16.97	84	167	V

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



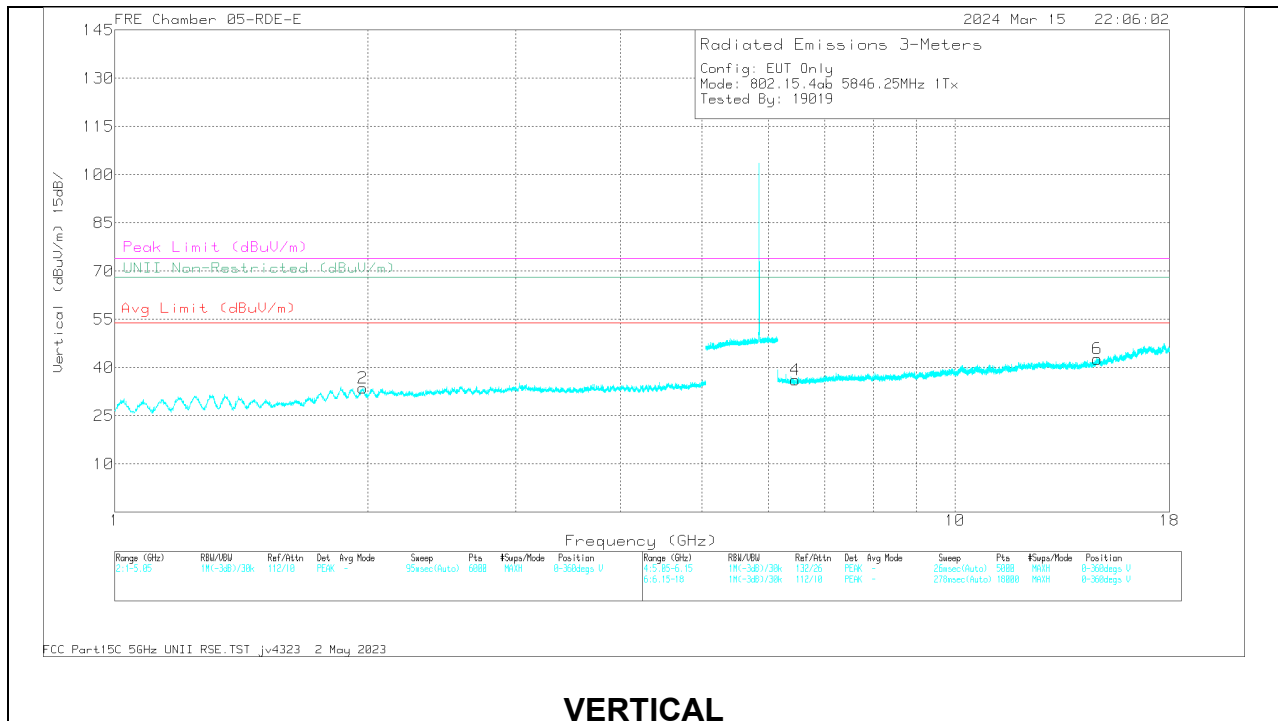
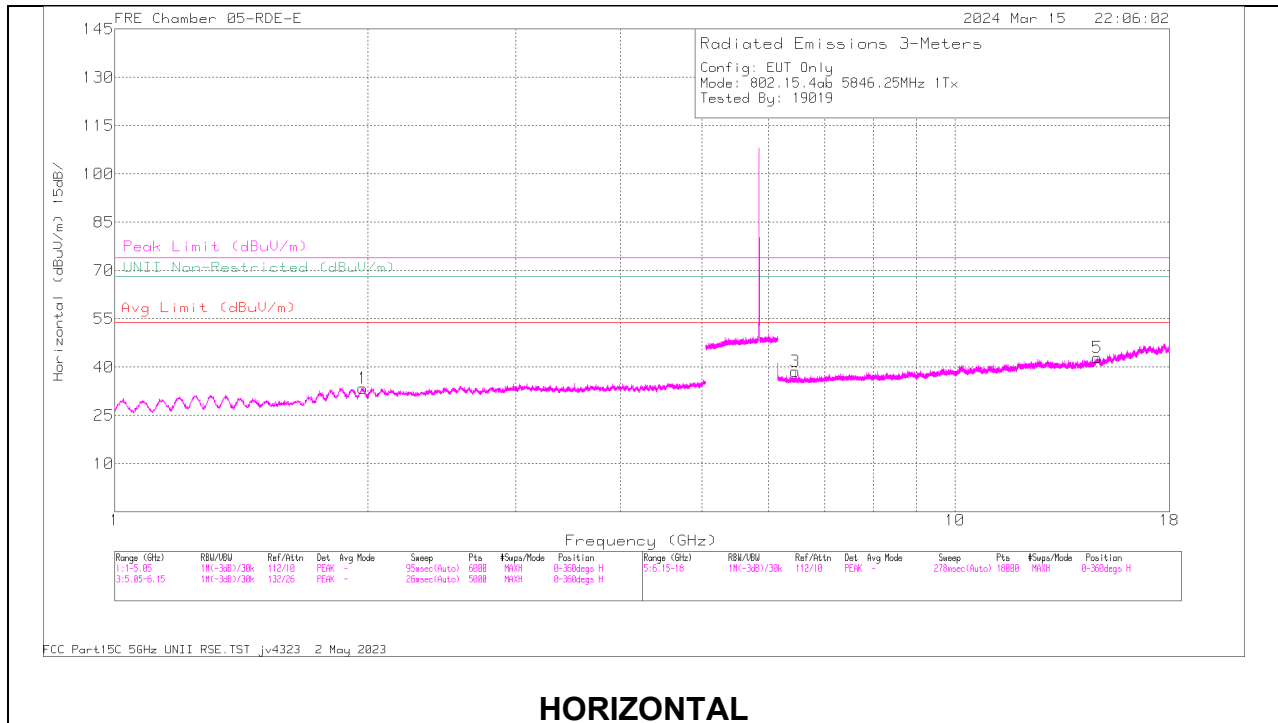
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.854474	60	PK-U	31.1	0	-47	44.1	68.2	-24.1	218	178	V
1	1.866487	59.72	PK-U	31.2	0	-46.85	44.07	68.2	-24.13	81	133	H
4	6.463866	54.81	PK-U	35.4	0	-44.2	46.01	68.2	-22.19	202	121	V
3	6.472563	54.94	PK-U	35.4	0	-44.2	46.14	68.2	-22.06	128	232	H
6	14.806758	54.07	PK-U	39.4	0	-41.7	51.77	68.2	-16.43	141	249	V
5	14.828898	54.01	PK-U	39.5	0	-41.9	51.61	68.2	-16.59	115	174	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

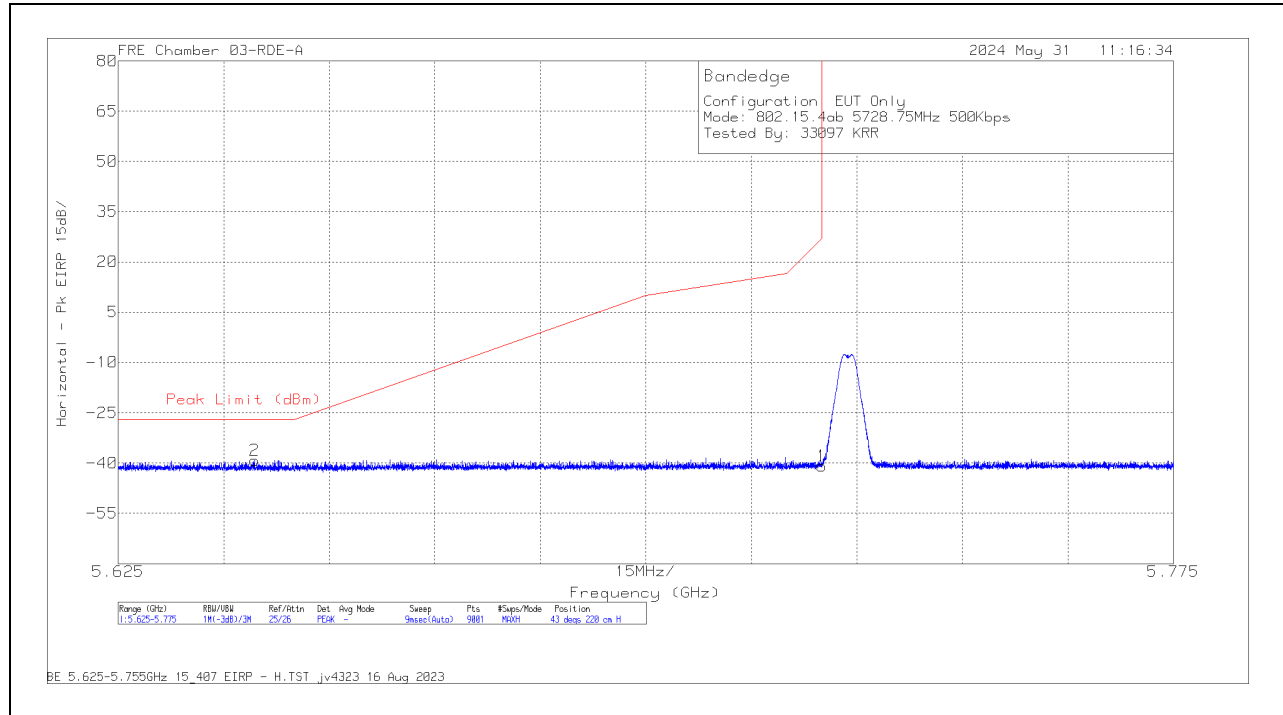
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.974597	58.73	PK-U	31.5	0	-47.1	43.13	68.2	-25.07	244	133	H
2	1.976693	59.19	PK-U	31.5	0	-47.13	43.56	68.2	-24.64	126	172	V
4	6.457102	56.21	PK-U	35.4	0	-44.11	47.5	68.2	-20.7	320	165	V
3	6.459961	56.59	PK-U	35.4	0	-44.3	47.69	68.2	-20.51	8	106	H
6	14.780834	54.98	PK-U	39.4	0	-41.52	52.86	68.2	-15.34	278	191	V
5	14.78616	54.24	PK-U	39.4	0	-41.5	52.14	68.2	-16.06	5	310	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

10.1.7. ANT 5, 500Kbps, LOW POWER BAND EDGE IN THE 5.8 GHz BAND **BANDEDGE (LOW CHANNEL)**

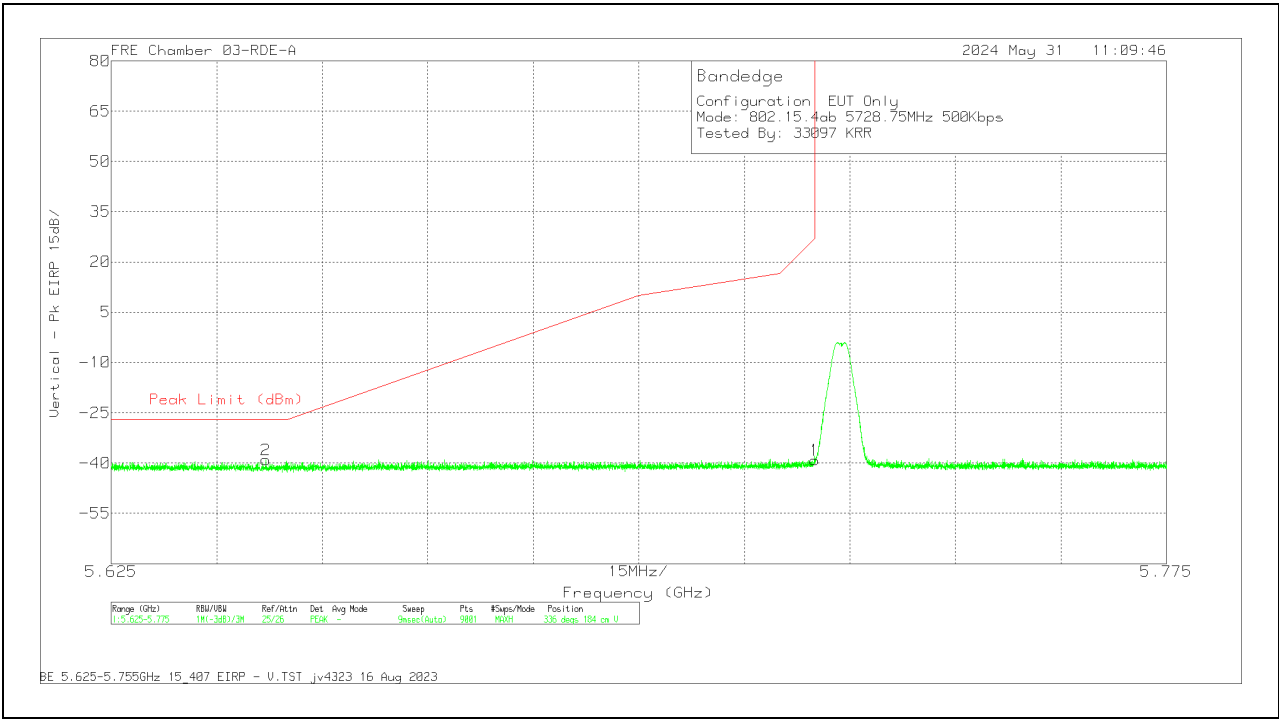
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	5.644417	-48.06	PK	34.4	11.8	0	-37.34	-39.2	-27	-12.2	43	220	H
1	5.725	-50.19	PK	34.6	11.8	0	-37.13	-40.92	27	-67.92	43	220	H

PK - Peak detector

VERTICAL RESULT

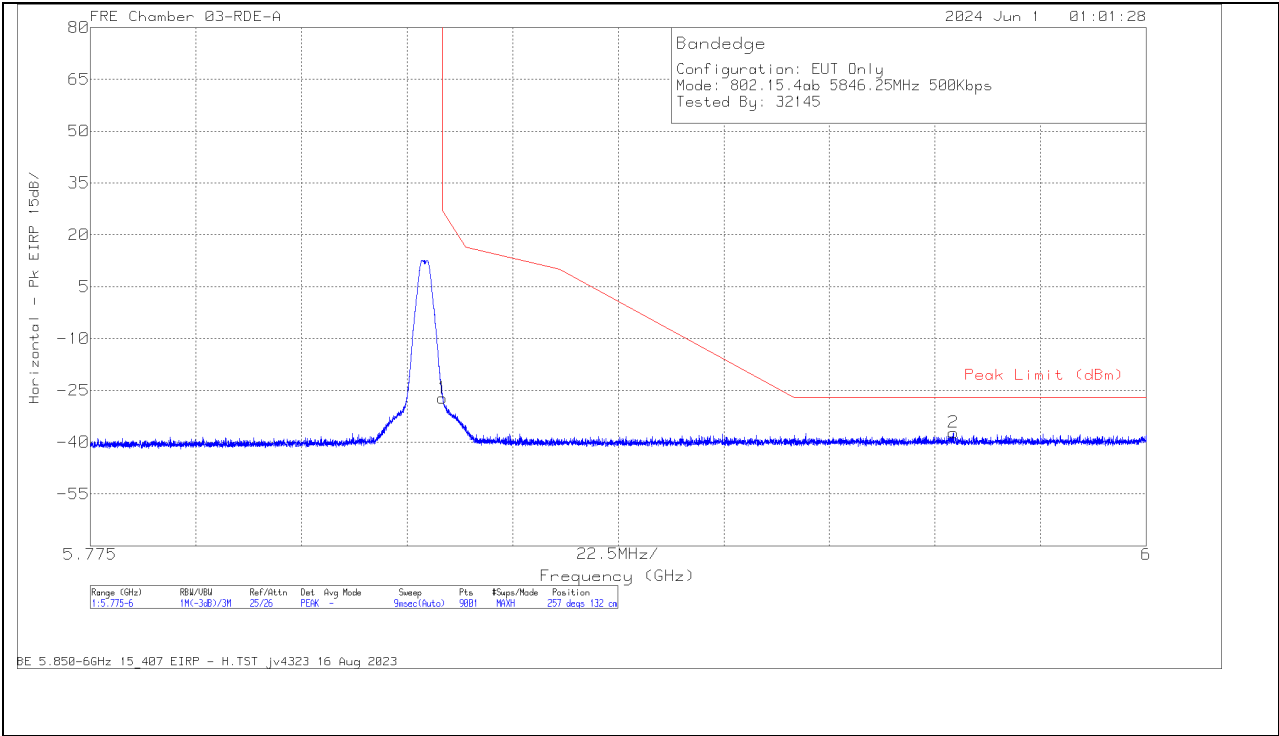


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dB/m)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.646984	-47.96	Pk	34.4	11.8	0	-37.34	-39.1	-27	-12.1	336	184	V
1	5.725	-48.39	Pk	34.6	11.8	0	-37.13	-39.12	27	-66.12	336	184	V

Pk - Peak detector

BANDEGE (HIGH CHANNEL)

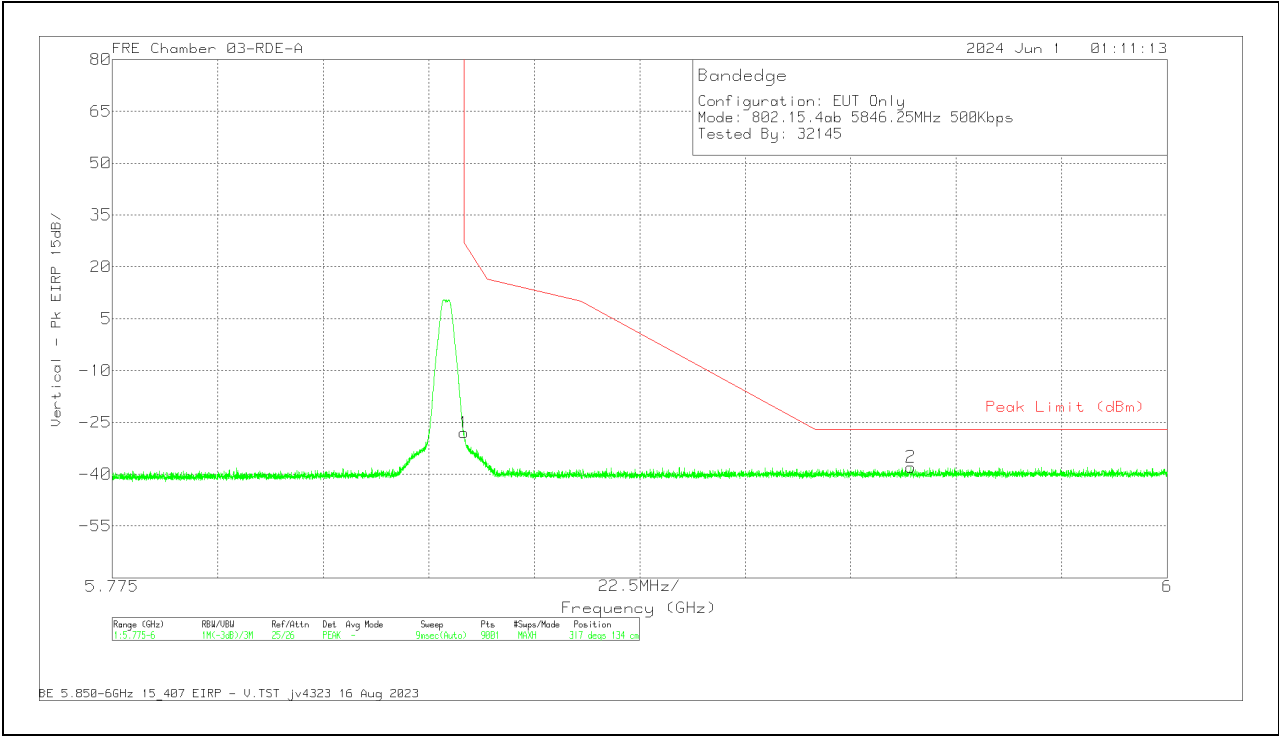
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 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	-37.12	Pk	35	11.8	0	-36.87	-27.19	27	-54.19	257	132	H
2	5.958925	-47.65	Pk	35.3	11.8	0	-36.65	-37.2	-27	-10.2	257	132	H

Pk - Peak detector

VERTICAL RESULT

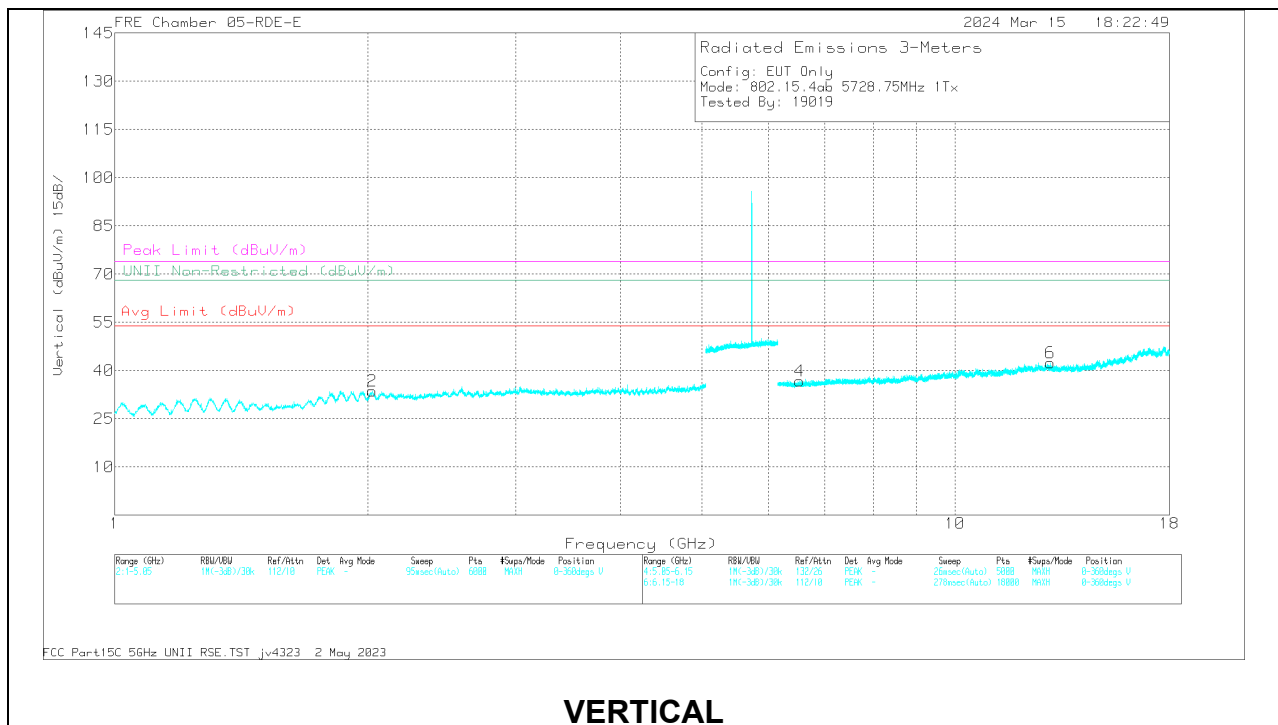
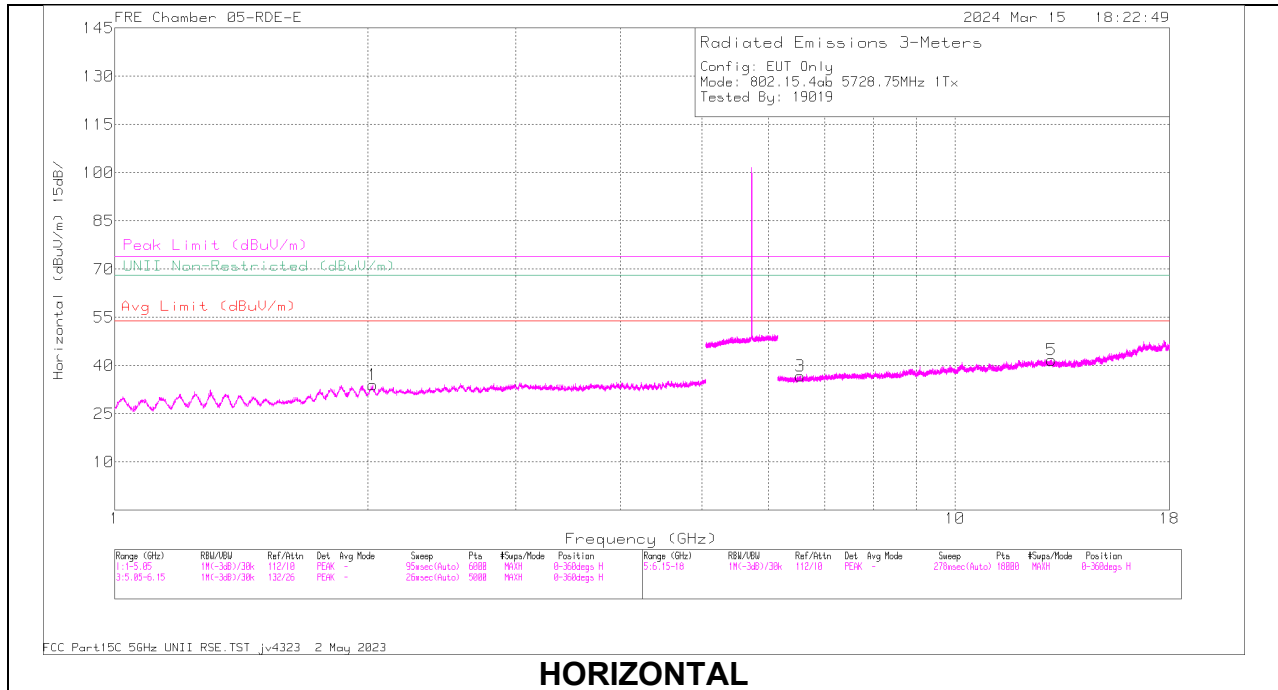


Marker	Frequency (GHz)	Meter Reading (dBm)	Det	226673 ACF (dBm)	Conversion Factor (dB)	DCCF (dB)	Gain/Loss (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-37.94	Pk	35	11.8	0	-36.87	-28.01	27	-55.01	317	134	V
2	5.945325	-48.25	Pk	35.2	11.8	0	-36.7	-37.95	-27	-10.95	317	134	V

Pk - Peak detector

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

LOW CHANNEL RESULTS



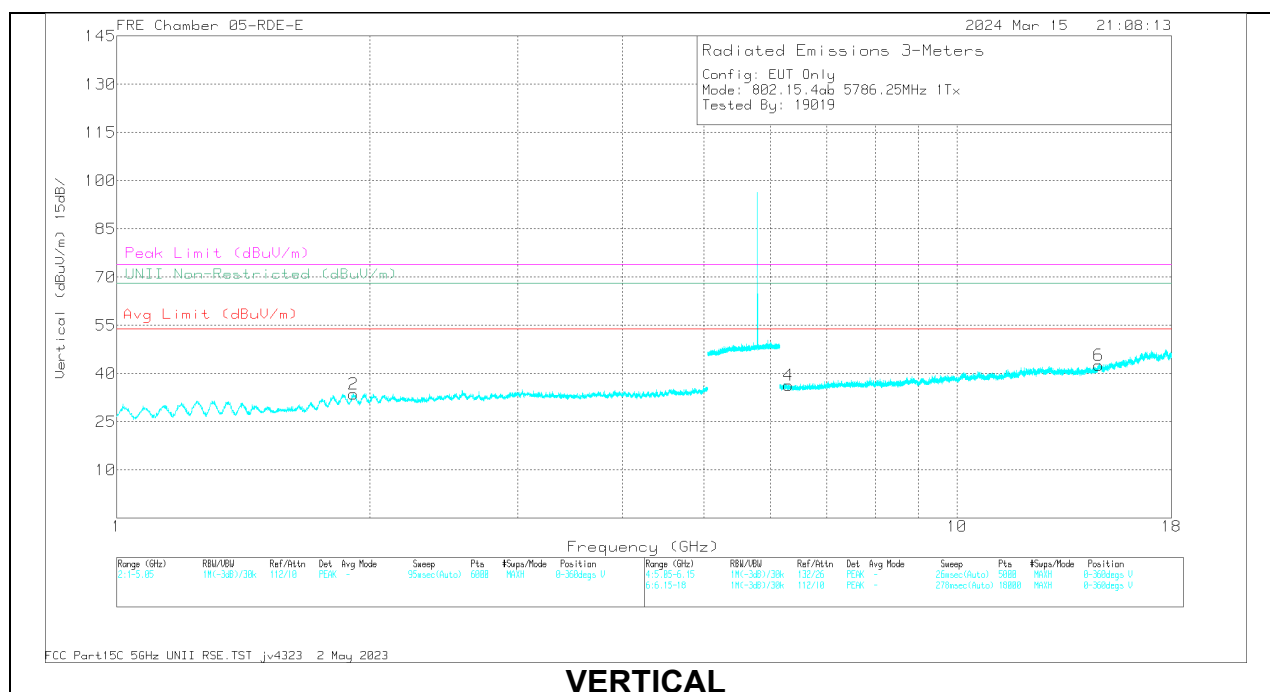
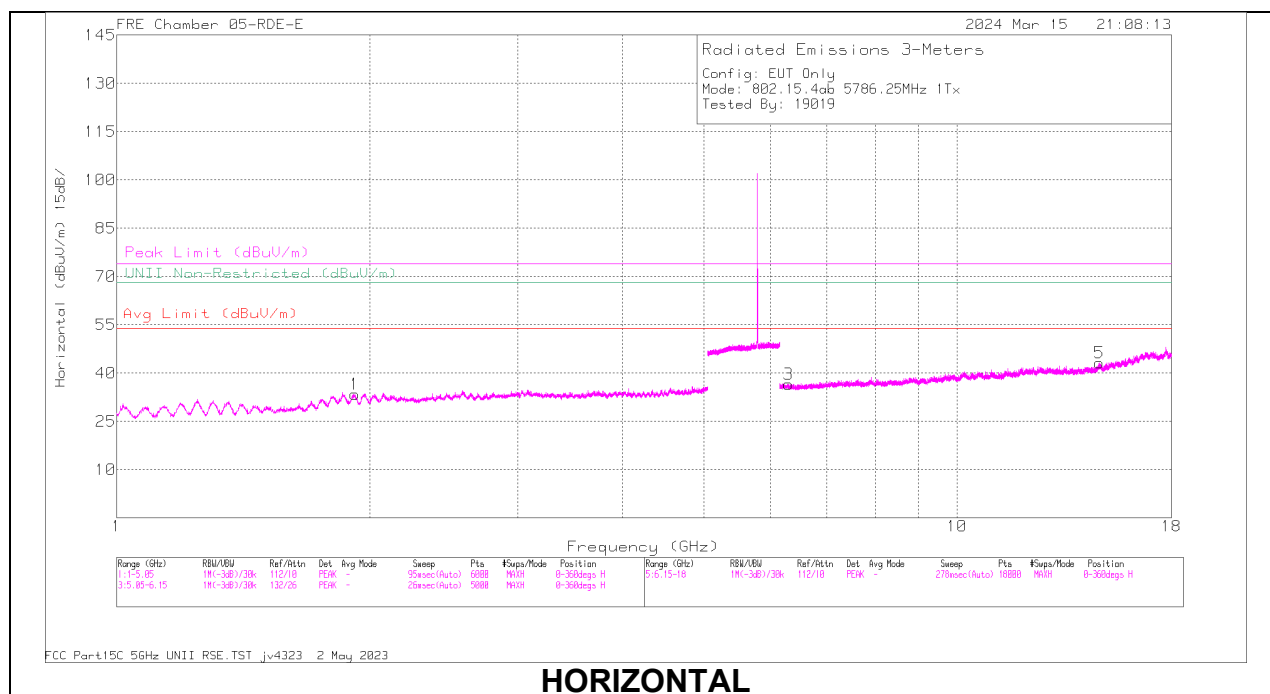
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.023206	58.72	PK-U	31.5	0	-47.2	43.02	68.2	-25.18	188	184	V
1	2.029858	58.7	PK-U	31.5	0	-47.1	43.1	68.2	-25.1	148	142	H
4	6.537391	55.52	PK-U	35.4	0	-44.04	46.88	68.2	-21.32	67	238	V
3	6.548359	55.38	PK-U	35.4	0	-44.1	46.68	68.2	-21.52	271	197	H
6	12.993006	54.49	PK-U	38.9	0	-42.3	51.09	68.2	-17.11	25	179	V
5	13.028316	54.01	PK-U	38.8	0	-42.3	50.51	68.2	-17.69	141	179	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL RESULTS



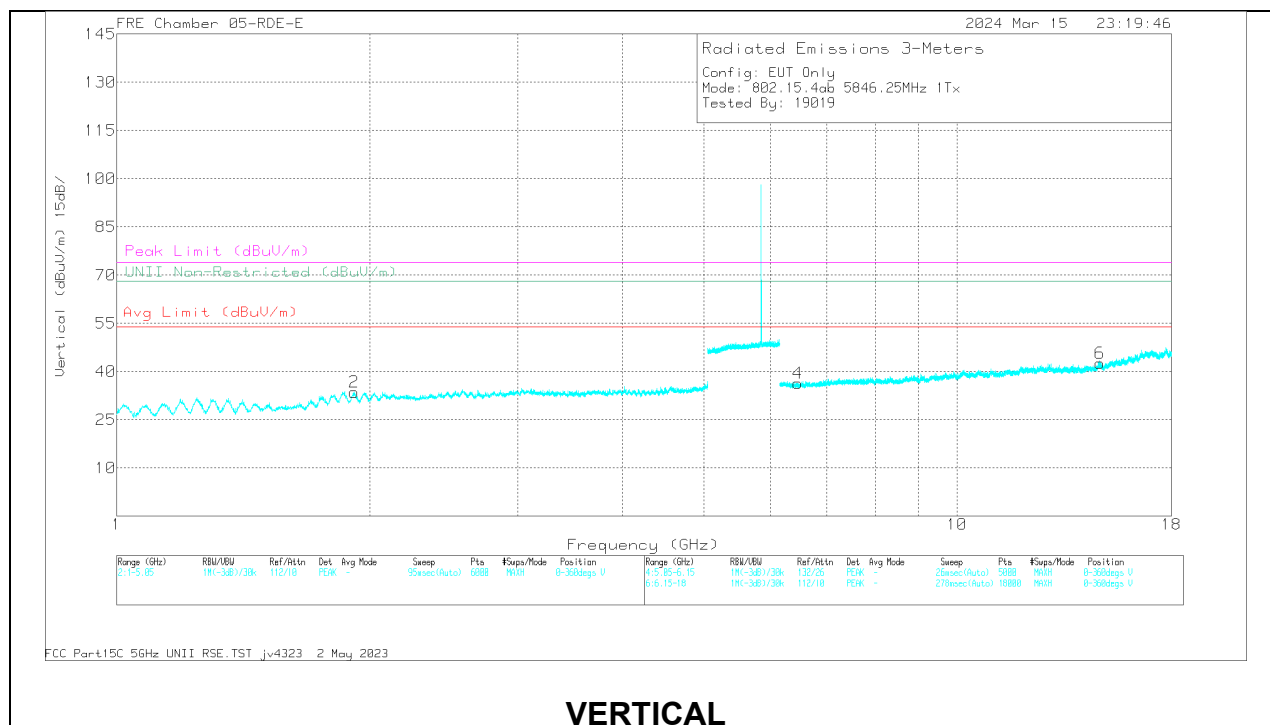
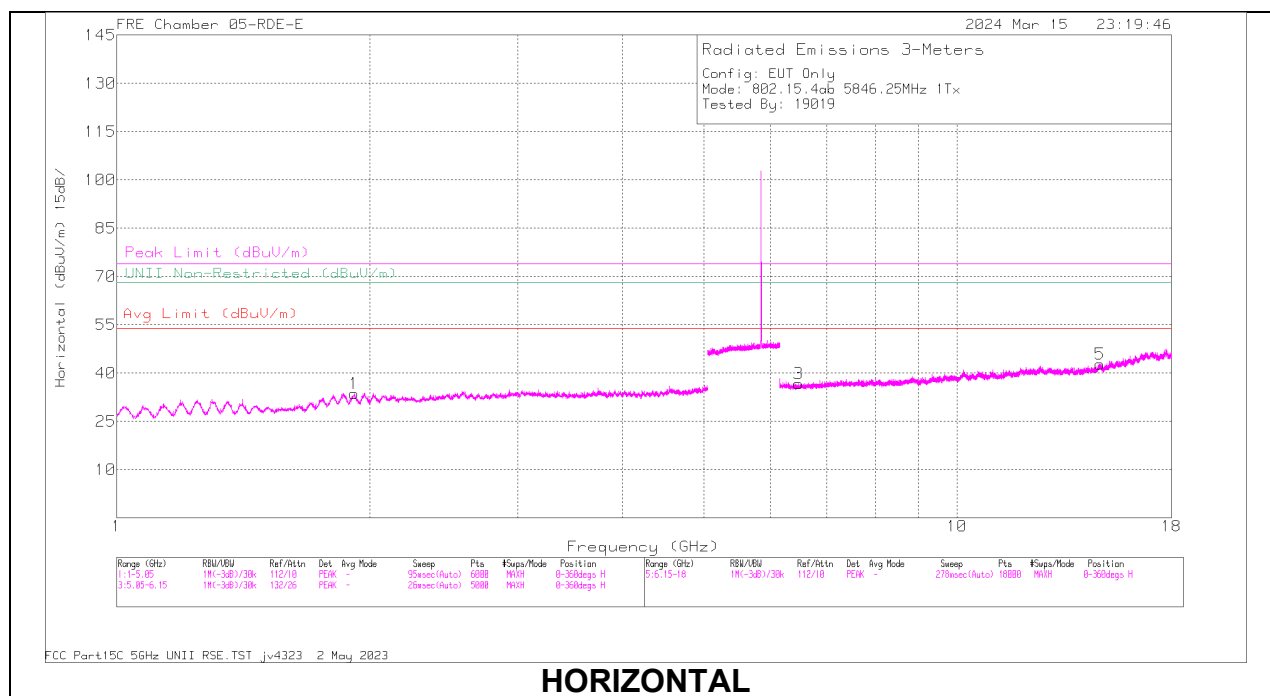
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Corrected Reading (dBuV/m)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.914435	59.09	PK-U	31.4	0	-46.86	43.63	68.2	-24.57	95	104	V
1	1.917546	59.14	PK-U	31.4	0	-46.85	43.69	68.2	-24.51	142	131	H
3	6.300888	55.34	PK-U	35.3	0	-44.08	46.56	68.2	-21.64	172	175	H
4	6.302739	55.38	PK-U	35.3	0	-43.9	46.78	68.2	-21.42	115	199	V
6	14.737873	54.85	PK-U	39.4	0	-41.9	52.35	68.2	-15.85	73	260	V
5	14.77645	54.04	PK-U	39.4	0	-41.7	51.74	68.2	-16.46	224	136	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL RESULTS



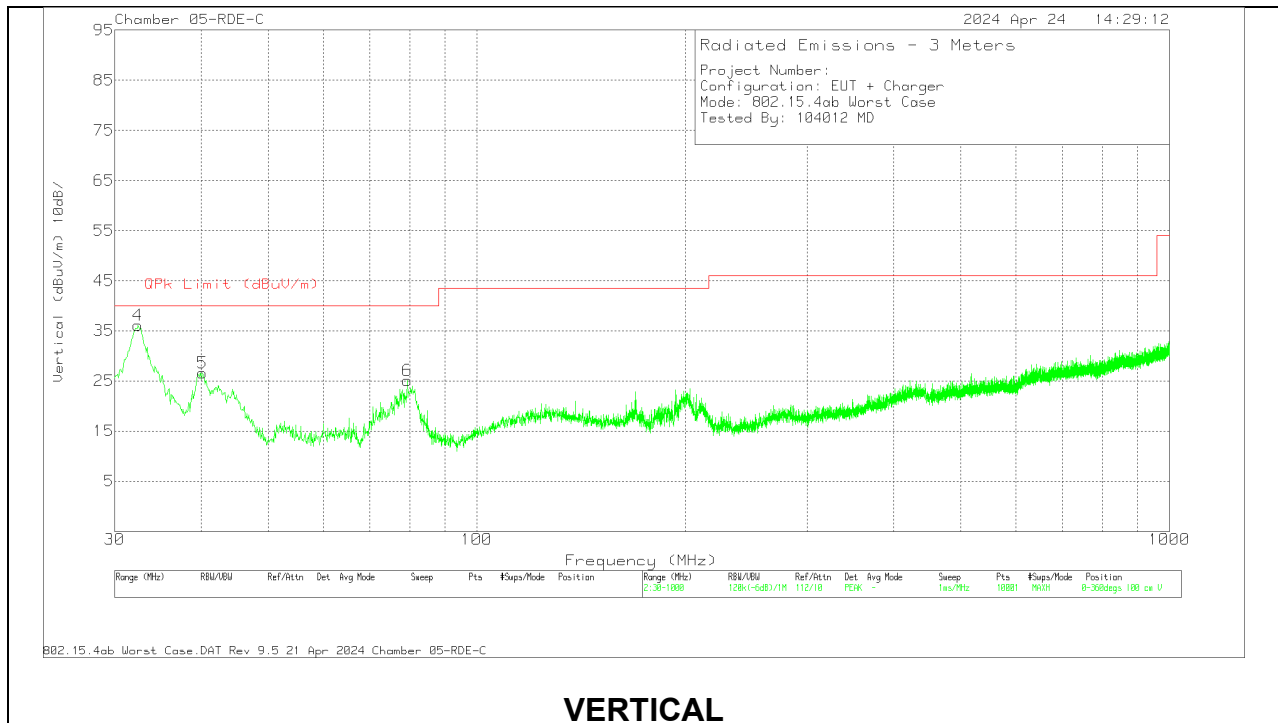
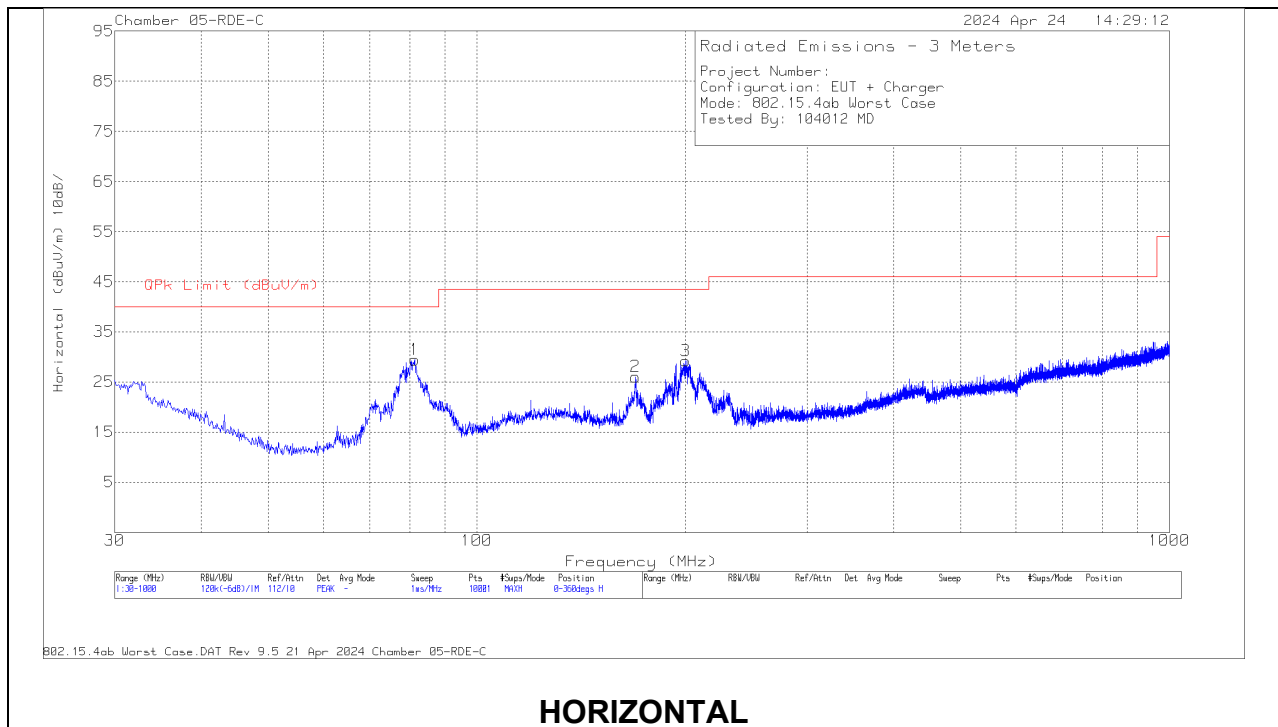
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Readin g (dBuV)	Det	222740 ACF (dB/m) 3m	DCCF (dB)	Gain/Loss (dB)	Correct ed Readin g (dBuV/ m)	UNII Non- Restrict ed (dBuV/ m)	PK Margin (dB)	Azimu t (Degs)	Height (cm)	Polarity
1	1.916169	59.28	PK-U	31.4	0	-46.8	43.88	68.2	-24.32	238	210	H
2	1.919309	59.2	PK-U	31.4	0	-46.8	43.8	68.2	-24.4	13	226	V
4	6.464411	55.2	PK-U	35.4	0	-44.2	46.4	68.2	-21.8	346	184	V
3	6.483431	54.81	PK-U	35.4	0	-44.24	45.97	68.2	-22.23	39	199	H
6	14.793447	53.77	PK-U	39.4	0	-41.5	51.67	68.2	-16.53	173	308	V
5	14.811348	53.9	PK-U	39.4	0	-41.73	51.57	68.2	-16.63	15	215	H

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

10.2. WORST CASE BELOW 1 GHz

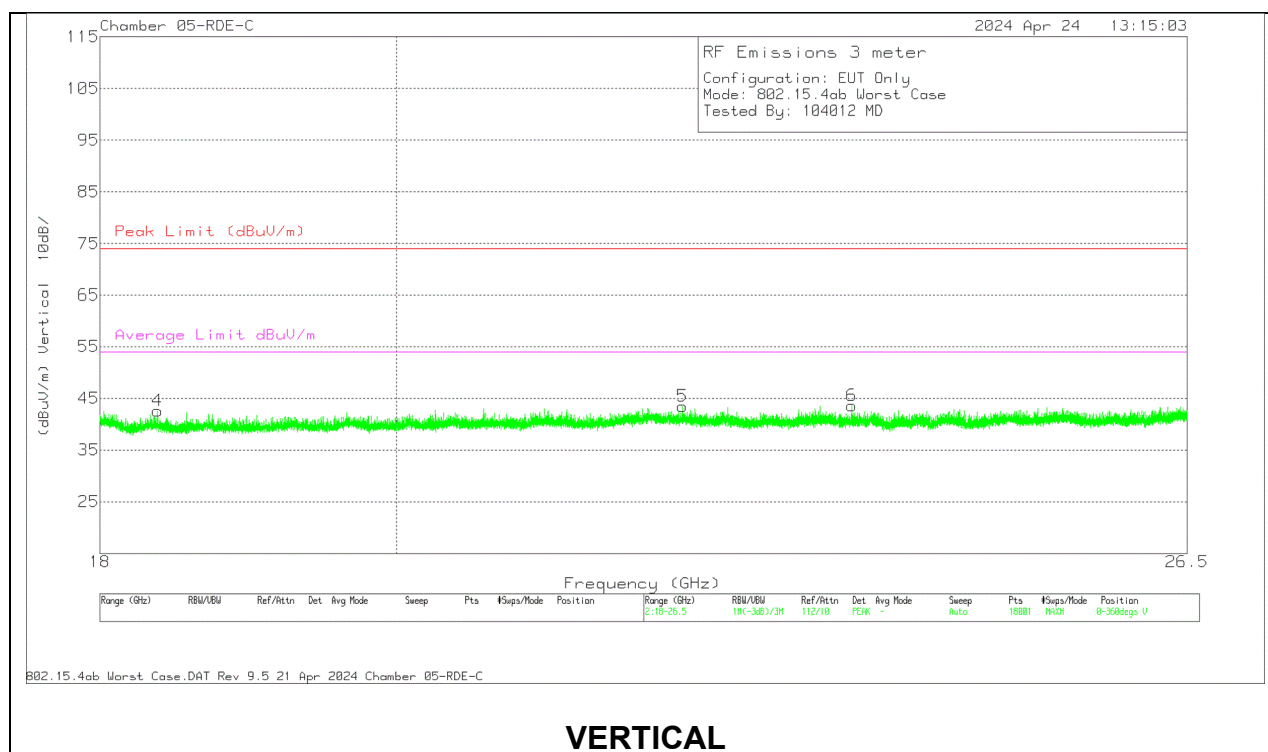
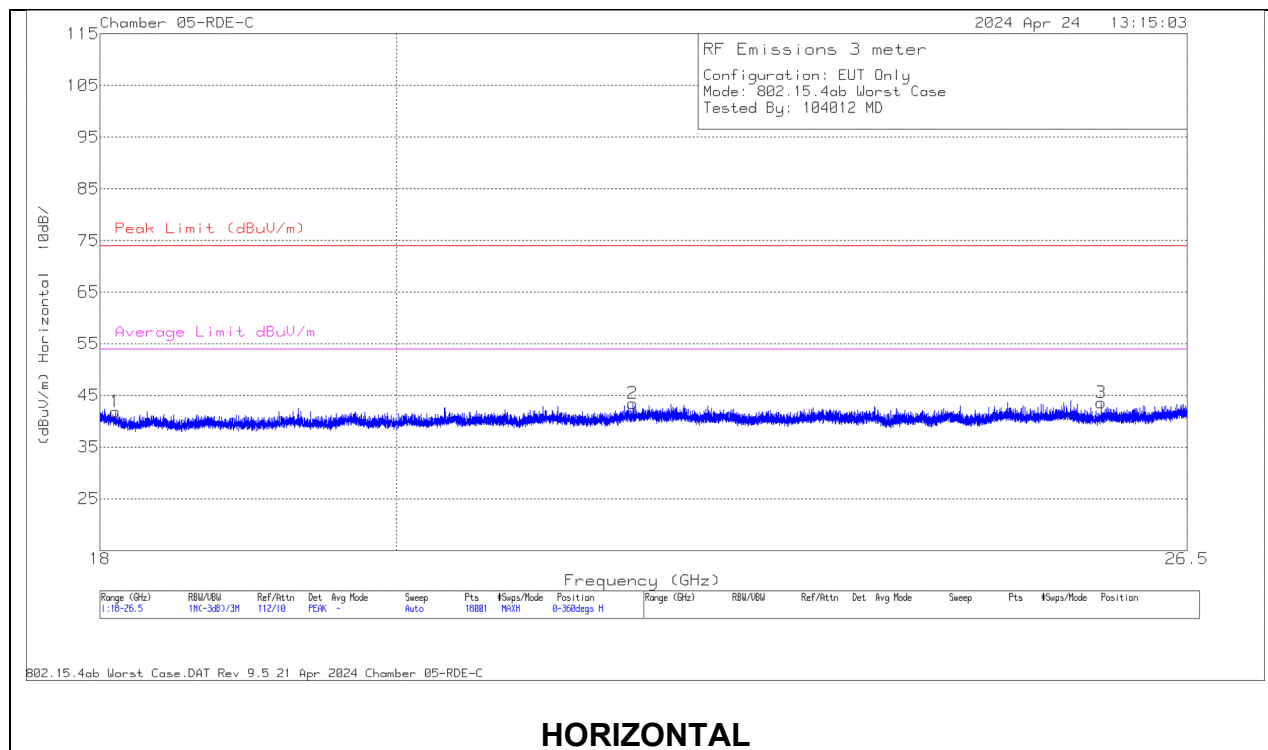


Below 1GHz DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	224378 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	32.425	42.13	Pk	25.1	-31.1	36.13	40	-3.87	38	100	V
	32.4136	39.27	Qp	25.1	-31.1	33.27	40	-6.73	38	100	V
5	40.185	38.21	Pk	19.4	-31	26.61	40	-13.39	0-360	100	V
6	79.373	42.2	Pk	13.5	-30.6	25.1	40	-14.9	0-360	198	V
1	81.313	46.72	Pk	13.4	-30.7	29.42	40	-10.58	0-360	199	H
2	169.486	38.34	Pk	17.9	-30.2	26.04	43.52	-17.48	0-360	101	H
3	200.138	41.12	Pk	18.1	-30	29.22	43.52	-14.3	0-360	101	H

Pk - Peak detector

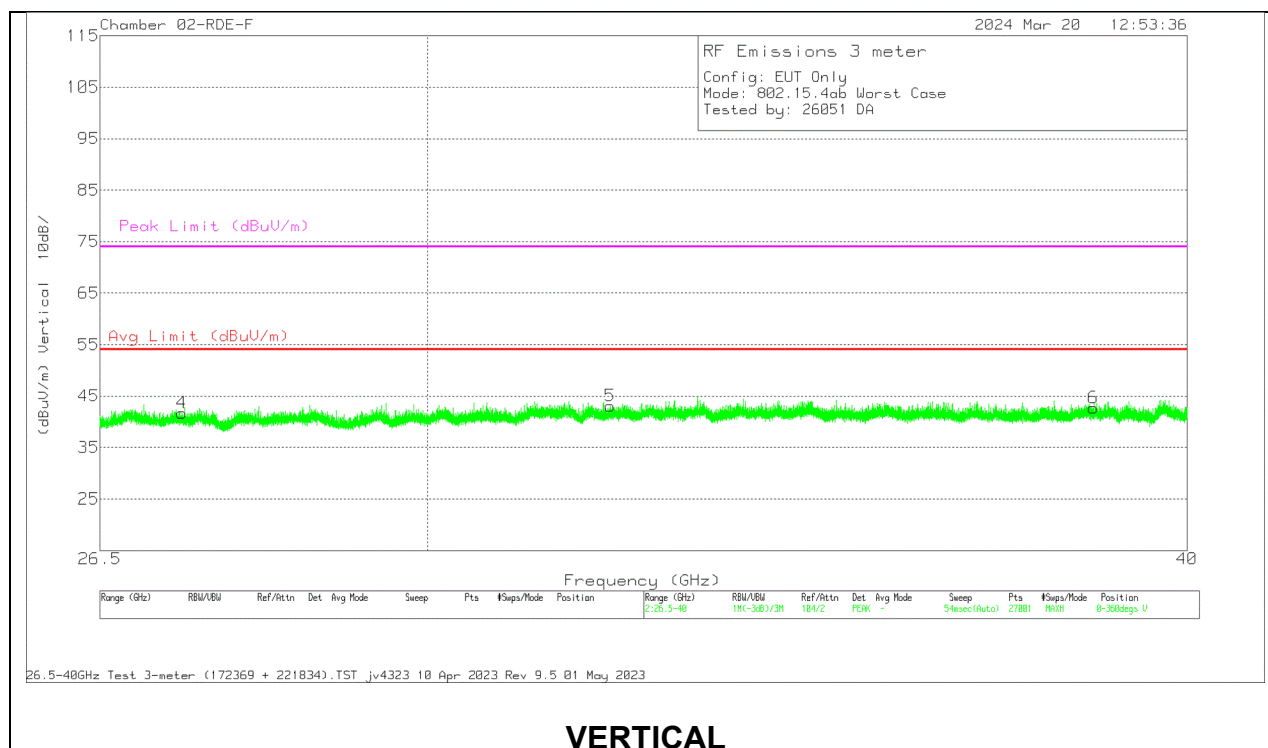
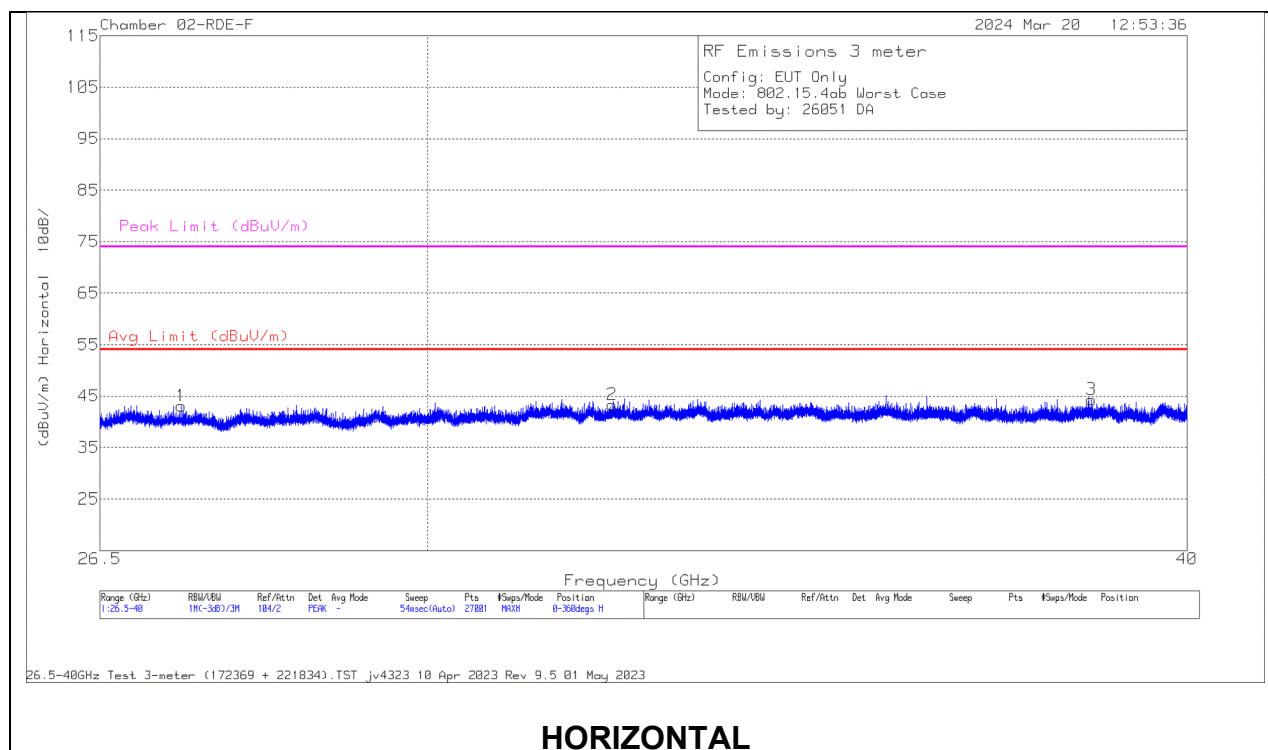
10.3. WORST CASE 18-26 GHz



18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	81139 ACF (dB/m)	Amp/Cbl (dB)	Cables (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit dBuV/m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	18.099639	58.63	Pk	32.6	-61.9	12.5	41.83	74	-32.17	54	-12.17	0-360	200	H
4	18.373528	59.52	Pk	32.4	-61.8	12.5	42.62	74	-31.38	54	-11.38	0-360	199	V
2	21.756054	57.62	Pk	33.4	-61.1	13.6	43.52	74	-30.48	54	-10.48	0-360	101	H
5	22.146109	57.46	Pk	33.5	-61.3	13.8	43.46	74	-30.54	54	-10.54	0-360	101	V
6	23.52122	58.44	Pk	34	-63	14.2	43.64	74	-30.36	54	-10.36	0-360	101	V
3	25.704302	55.67	Pk	34.2	-61.2	14.9	43.57	74	-30.43	54	-10.43	0-360	101	H

Pk - Peak detector

10.4. WORST CASE 26-40 GHz

26 – 40GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	172369 3m ACF (dB/m)	221834 amp/cbl (dB)	CBL (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 38.6075	48.04	Pk	38.2	-67	23.5	0	42.74	54	-11.26	74	-31.26	0-360	101	V
1	27.3315	51.33	Pk	35.7	-63.4	19.4	0	43.03	54	-10.97	74	-30.97	0-360	200	H
4	27.338	49.99	Pk	35.7	-63.4	19.4	0	41.69	54	-12.31	74	-32.31	0-360	101	V
5	32.1465	45.96	Pk	36.4	-60.5	21.2	0	43.06	54	-10.94	74	-30.94	0-360	200	V
2	32.174	46.32	Pk	36.4	-60.5	21.1	0	43.32	54	-10.8	74	-30.68	0-360	101	H
3	38.576	49.71	Pk	38.2	-67.1	23.5	0	44.31	54	-9.69	74	-29.69	0-360	101	H

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

Pk - Peak detector

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.

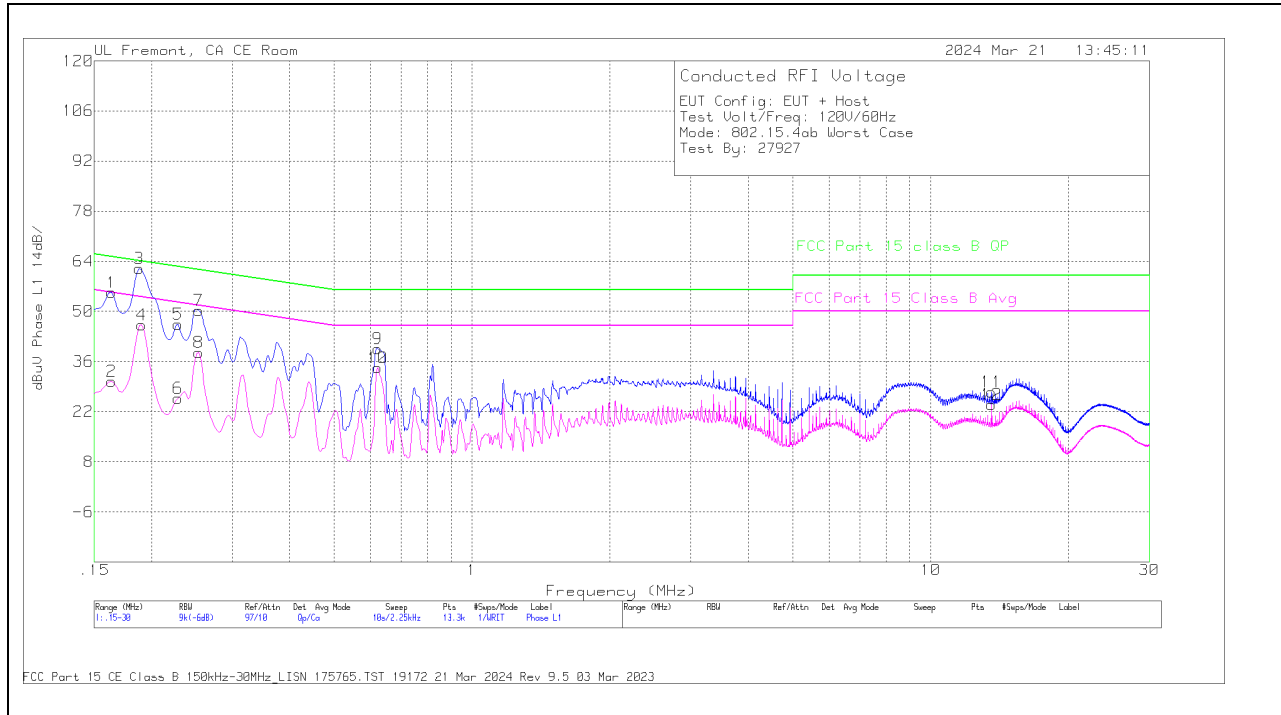
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

11.1. AC Power Line WITH LAPTOP

LINE 1 RESULTS

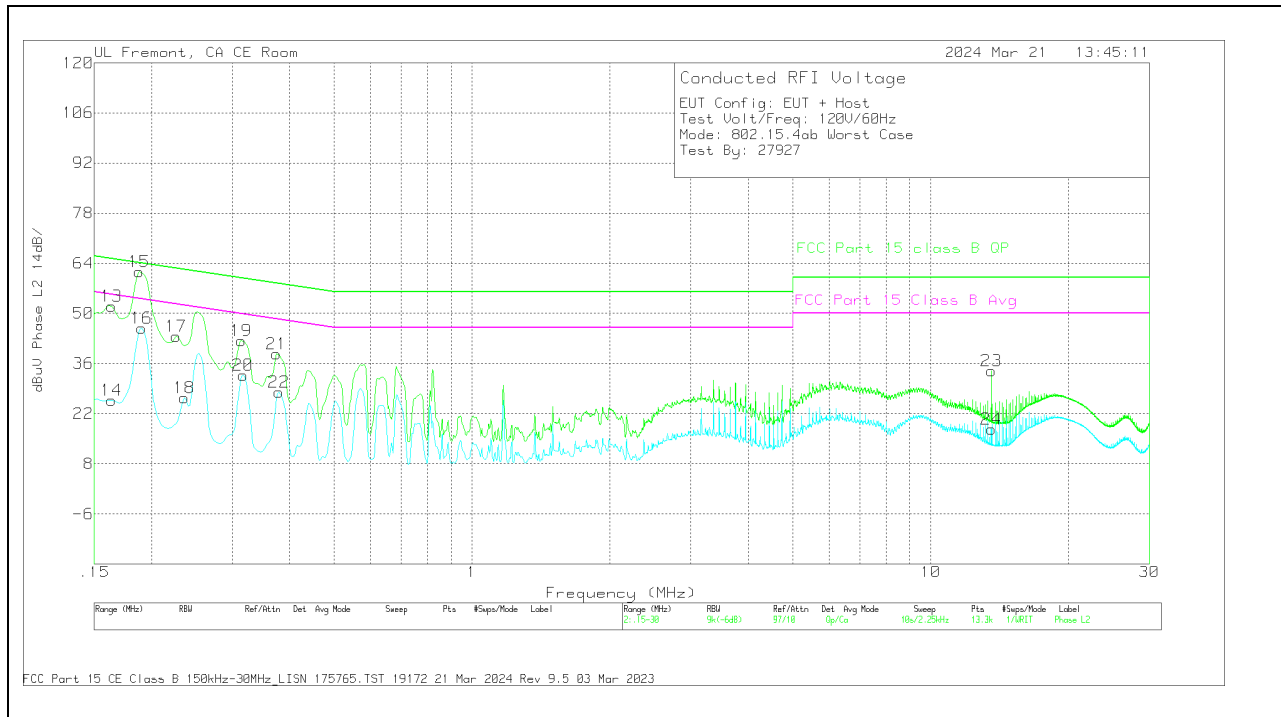


Range 1: Phase L1 .15 - 30MHz													
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trns Limiter (dB)	10 dB Pad	DCCF (dB)	Corrected Reading dBuV	FCC Part 15 Class B Avg	Margin (dB)	FCC Part 15 class B QP	Margin (dB)
2	.1635	8.48	Ca	0	.1	9.5	10	2.43	30.51	55.28	-24.77	-	-
4	.1905	24.21	Ca	.1	.1	9.4	10	2.43	46.24	54.01	-7.77	-	-
6	.2288	3.83	Ca	0	0	9.4	10	2.43	25.66	52.49	-26.83	-	-
8	.2535	16.65	Ca	0	0	9.4	10	2.43	38.48	51.64	-13.16	-	-
10	.6225	12.4	Ca	0	0	9.4	10	2.43	34.23	46	-11.77	-	-
12	13.56	1.58	Ca	.3	.1	9.5	10	2.43	23.91	50	-26.09	-	-
1	.1635	33.24	Qp	0	.1	9.5	10	2.43	55.27	-	-	65.28	-10.01
3	.1883	39.92	Qp	.1	.1	9.4	10	2.43	61.95	-	-	64.11	-2.16
5	.2288	24.55	Qp	0	0	9.4	10	2.43	46.38	-	-	62.49	-16.11
7	.2535	28.38	Qp	0	0	9.4	10	2.43	50.21	-	-	61.64	-11.43
9	.6225	17.81	Qp	0	0	9.4	10	2.43	39.64	-	-	56	-16.36
11	13.56	5.13	Qp	.3	.1	9.5	10	2.43	27.46	-	-	60	-32.54

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS

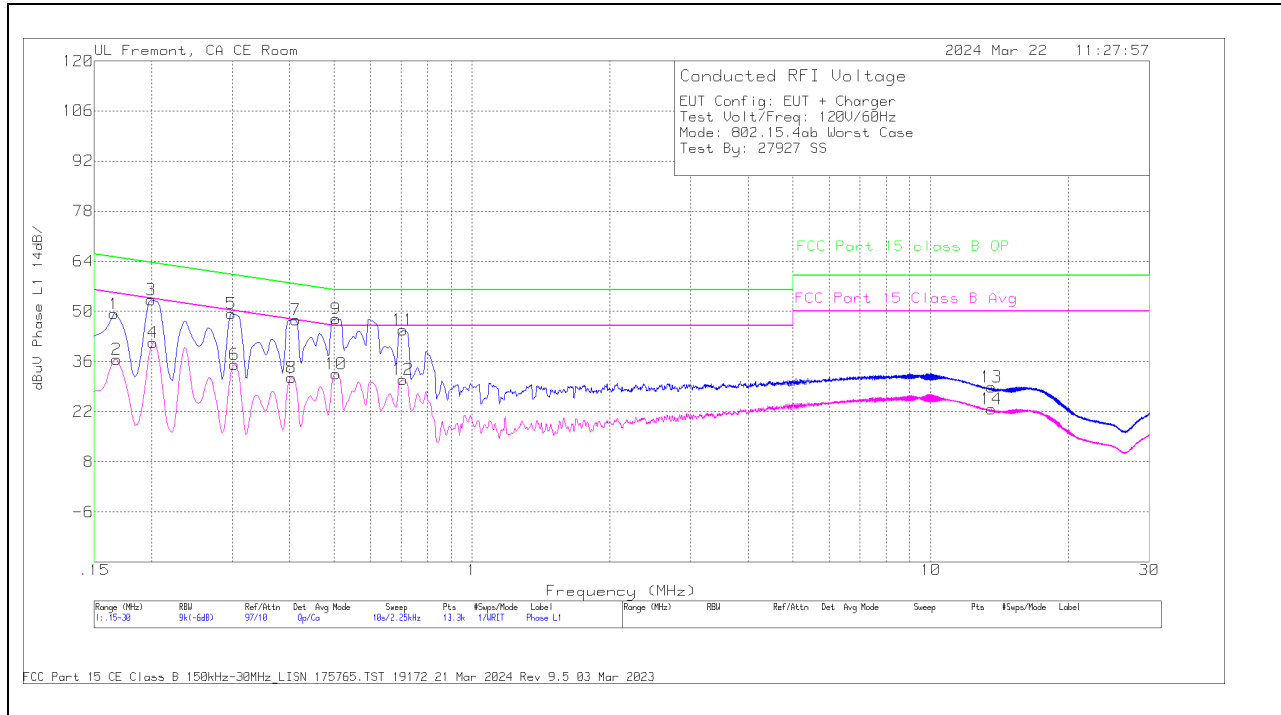


Range 2: Phase L2 .15 - 30MHz													
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trms Limiter (dB)	10 dB Pad	DCCF (dB)	Corrected Reading dBuV	FCC Part 15 Class B Avg	Margin (dB)	FCC Part 15 class B QP	Margin (dB)
14	.1635	3.67	Ca	0	.1	9.5	10	2.43	25.7	55.28	-29.58	-	-
16	.1905	23.98	Ca	.1	0	9.4	10	2.43	45.91	54.01	-8.1	-	-
18	.2355	4.67	Ca	0	0	9.4	10	2.43	26.5	52.25	-25.75	-	-
20	.3165	10.87	Ca	.1	0	9.4	10	2.43	32.8	49.8	-17	-	-
22	.3795	6.04	Ca	.1	0	9.4	10	2.43	27.97	48.29	-20.32	-	-
24	13.56	-4.58	Ca	.2	.1	9.5	10	2.43	17.65	50	-32.35	-	-
13	.1635	29.97	Qp	0	.1	9.5	10	2.43	52	-	-	65.28	-13.28
15	.1883	39.69	Qp	.1	0	9.4	10	2.43	61.62	-	-	64.11	-2.49
17	.2265	21.77	Qp	0	0	9.4	10	2.43	43.6	-	-	62.58	-18.98
19	.3143	20.41	Qp	.1	0	9.4	10	2.43	42.34	-	-	59.86	-17.52
21	.375	16.74	Qp	.1	0	9.4	10	2.43	38.67	-	-	58.39	-19.72
23	13.56	11.74	Qp	.2	.1	9.5	10	2.43	33.97	-	-	60	-26.03

Qp - Quasi-Peak detector
Ca - CISPR average detection

11.2. AC Power Line WITH AC/DC Adapter

LINE 1 RESULTS

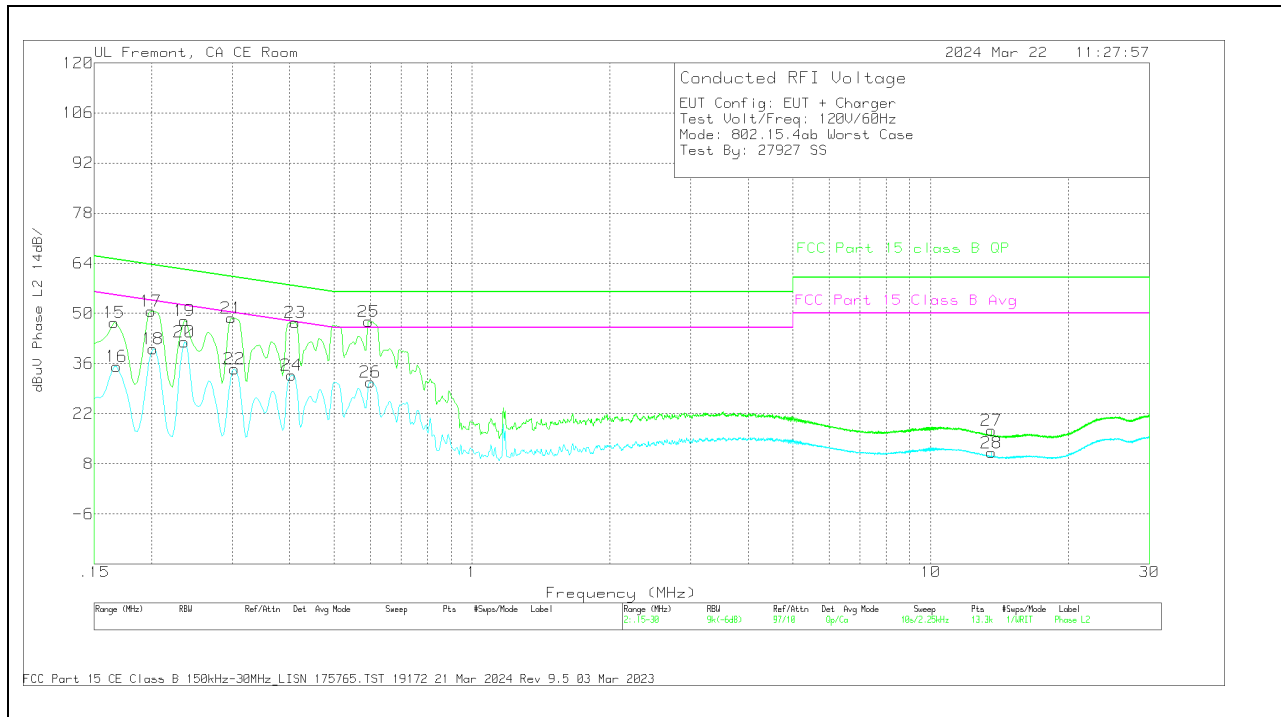


Range 1: Phase L1 .15 - 30MHz													
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Tms Limiter (dB)	10 dB Pad	DCCF (dB)	Corrected Reading dBuV	FCC Part 15 Class B Avg dBuV	Margin (dB)	FCC Part 15 class B QP dBuV	Margin (dB)
2	.168	14.59	Ca	0	.1	9.5	10	2.43	36.62	55.06	-18.44	-	-
4	.2018	19.39	Ca	.1	0	9.4	10	2.43	41.32	53.54	-12.22	-	-
6	.303	13.28	Ca	.1	0	9.4	10	2.43	35.21	50.16	-14.95	-	-
8	.4043	9.62	Ca	0	0	9.4	10	2.43	31.45	47.77	-16.32	-	-
10	.5055	10.8	Ca	0	0	9.3	10	2.43	32.53	46	-13.47	-	-
12	.708	9.1	Ca	.1	0	9.3	10	2.43	30.93	46	-15.07	-	-
14	13.56	.45	Ca	.3	.1	9.5	10	2.43	22.78	50	-27.22	-	-
1	.1658	27.27	Qp	0	.1	9.5	10	2.43	49.3	-	-	65.17	-15.87
3	.1995	31.18	Qp	.1	.1	9.4	10	2.43	53.21	-	-	63.63	-10.42
5	.2985	27.39	Qp	.1	0	9.4	10	2.43	49.32	-	-	60.28	-10.96
7	.4133	25.82	Qp	0	0	9.4	10	2.43	47.65	-	-	57.58	-9.93
9	.5055	26.18	Qp	0	0	9.3	10	2.43	47.91	-	-	56	-8.09
11	.708	22.97	Qp	.1	0	9.3	10	2.43	44.8	-	-	56	-11.2
13	13.56	6.6	Qp	.3	.1	9.5	10	2.43	28.93	-	-	60	-31.07

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Phase L2 .15 - 30MHz													
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	Trms Limiter (dB)	10 dB Pad	DCCF (dB)	Corrected Reading dBuV	FCC Part 15 Class B Avg dBuV	Margin (dB)	FCC Part 15 class B QP dBuV	Margin (dB)
16	.168	13.11	Ca	0	.1	9.5	10	2.43	35.14	55.06	-19.92	-	-
18	.2018	18.17	Ca	.1	0	9.4	10	2.43	40.1	53.54	-13.44	-	-
20	.2355	20.23	Ca	0	0	9.4	10	2.43	42.06	52.25	-10.19	-	-
22	.303	12.51	Ca	.1	0	9.4	10	2.43	34.44	50.16	-15.72	-	-
24	.4043	10.75	Ca	.1	0	9.4	10	2.43	32.68	47.77	-15.09	-	-
26	.6	8.92	Ca	.1	0	9.4	10	2.43	30.85	46	-15.15	-	-
28	13.56	-11.14	Ca	.2	.1	9.5	10	2.43	11.09	50	-38.91	-	-
15	.1658	25.5	Qp	0	.1	9.5	10	2.43	47.53	-	-	65.17	-17.64
17	.1995	28.7	Qp	.1	0	9.4	10	2.43	50.63	-	-	63.63	-13
19	.2355	26.21	Qp	0	0	9.4	10	2.43	48.04	-	-	62.25	-14.21
21	.2985	26.83	Qp	.1	0	9.4	10	2.43	48.76	-	-	60.28	-11.52
23	.411	25.49	Qp	.1	0	9.4	10	2.43	47.42	-	-	57.63	-10.21
25	.5955	25.8	Qp	.1	0	9.4	10	2.43	47.73	-	-	56	-8.27
27	13.56	-4.92	Qp	.2	.1	9.5	10	2.43	17.31	-	-	60	-42.69

Qp - Quasi-Peak detector

Ca - CISPR average detection

12. SETUP PHOTOS

Please refer to 14982436-EP1V1 FCC IC for setup photos.

END OF TEST REPORT