

TEST REPORT

Report Number: 16221909-E1V2

Applicant : Ring LLC
12515 Cerise Ave.
Hawthorne, CA 90250

Model : 7MNXAB

Brand : Ring

FCC ID : 2AEUP-7MNXAB

EUT Description : Monitor Unit

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

Date Of Issue:
2026-06-04

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



REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2026-05-29	Initial Issue	---
V2	2026-06-04	Updated Page 21 and page 44 to address TCB's questions	Tina Chu

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST RESULTS SUMMARY	6
3. TEST METHODOLOGY	6
4. FACILITIES AND ACCREDITATION	6
5. DECISION RULES AND MEASUREMENT UNCERTAINTY	7
5.1. METROLOGICAL TRACEABILITY	7
5.2. DECISION RULES	7
5.3. MEASUREMENT UNCERTAINTY	7
5.4. SAMPLE CALCULATION	7
6. EQUIPMENT UNDER TEST	8
6.1. EUT DESCRIPTION	8
6.2. MAXIMUM OUTPUT POWER	8
6.3. DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS	8
6.4. SOFTWARE AND FIRMWARE	8
6.5. WORST-CASE CONFIGURATION AND MODE	8
6.6. DESCRIPTION OF TEST SETUP	9
7. TEST AND MEASUREMENT EQUIPMENT	11
8. ANTENNA PORT TEST RESULTS	12
8.1. ON TIME AND DUTY CYCLE	12
8.2. 99% BANDWIDTH	13
8.3. 6dB BANDWIDTH	14
8.4. OUTPUT POWER AND POWER SPECTRAL DENSITY	15
8.5. AVERAGE POWER	17
8.6. CONDUCTED SPURIOUS EMISSIONS	18
9. RADIATED TEST RESULTS	21
9.1. TRANSMITTER ABOVE 1 GHz	23
9.1.1. LOW BANDEDGE	23
9.1.2. HIGH BANDEDGE	28
9.1.3. HARMONICS AND SPURIOUS EMISSIONS	33
9.2. TRANSMITTER WORST CASE BELOW 30MHz	39
9.3. TRANSMITTER WORST CASE BELOW 1 GHz	40
9.4. TRANSMITTER WORST CASE 18-26 GHz	42
10. AC POWER LINE CONDUCTED EMISSIONS	44

11. SETUP PHOTOS.....47

1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	Ring LLC 12515 Cerise Ave. Hawthorne, CA 90250	
Model	7MNXAB	
Brand	Ring LLC	
FCC ID	2AEUP-7MNXAB	
EUT Description	Monitor Unit	
Serial Number	Conducted and Radiated: 9474115	
Sample Receipt Date	2026-04-15	
Date Tested	2026-04-16 to 2026-04-20	
Applicable Standards	FCC 47 CFR Part 15 Subpart C	
Test Results	COMPLIES	
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to ensure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not 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.		
Approved & Released By:	Reviewed By:	Prepared By:
		
Francisco de Anda Staff Engineer UL Verification Services, Inc.	Vien Tran Senior Laboratory Engineer, UL Verification Services, Inc.	Zachary D. Sutton Laboratory Engineer UL Verification Services, Inc.

2. TEST RESULTS SUMMARY

This report contains data provided by the customer, which can impact the validity of the results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

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

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

Requirement Description	Requirement Clause Number (FCC)	Result
Duty Cycle	-	Reporting purposes only
99% OBW	-	Complies
6dB BW	15.247 (a) (2)	Complies
Output Power	15.247 (b) (3)	Complies
PSD	15.247 (e)	Complies
Conducted Spurious Emissions	15.247 (d)	Complies
Radiated Emissions	15.209, 15.205	Complies
AC Mains Conducted Emissions	15.207	Complies

3. TEST METHODOLOGY

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

- ANSI/USEMCSC C63.10-2020/Cor 1-2023 (FCC)
- FCC 47 CFR Part 2
- FCC 47 CFR Part 15C
- KDB 558074 D01 15.247 Meas Guidance
- KDB 414788 D01 Radiated Test Site

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 regularly, with a maximum time between calibrations of one year or the manufacturer's 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 dB
Power Spectral Density	2.466 dB
Time Domain Measurements Using SA	3.39 %
RF Power Measurement Direct Method Using a Power Meter	0.45 dB (Ave), 1.30 dB Peak)
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22 %
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
 36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
 36.5 dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a Monitor Unit that includes a BLE radio.

6.2. MAXIMUM OUTPUT POWER

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

BLE Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	1Mbps	7.71	5.90
2402 - 2480	2Mbps	6.59	4.56

6.3. DESCRIPTION OF AVAILABLE ANTENNAS AND CABLE LOSS

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

The radio utilizes a PCB antenna with a maximum gain of 4 dBi and 0.70dB of cable loss.

The cables were used for RF antenna port tests that had been offset to the test equipment.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware and software installed during testing were versions ESP32-S3_RFTTest_V112

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, were performed with the EUT set to transmit at the channel with the highest output power as a worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle, and high channels.

EUT was set at its natural orientation, Z (Portrait). The full tests of the EUT have been made upon the Z (Portrait) orientation.

Data rates provided by the client were:

BLE mode: 1Mbps

BLE mode: 2Mbps

Plots included in the report are representative of the method and settings parameters used for the test.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Laptop		HP	14-dq0052dx	5CD412HSSY		DoC
Laptop AC/DC Adapter		HP	TPN-LA15	N/A		DoC
ESP32 board		N/A	N/A	N/A		DoC
Dual-Band Wireless Router		ASUS	TM-AC1900	000000660511908		MSQ-RTAC68U
Router AC/DC Adapter		ASUS	AD890326	N/A		DoC
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	1.0	AC Mains to AC/DC Adapter
2	DC	1	DC	Shielded	1.5	AC/DC Adapter to laptop
3	USB	1	USB-micro	Shielded	0.5	Laptop to ESP32 board
4	JTAG	1	JTAG	Jumper wire	0.5	ESP32 board to EUT
5	Antenna	1	SMA	Shielded	0.3	EUT to Spectrum Analyzer/Power Meter
6	AC	1	AC	Un-shielded	1.8	AC Mains to Spectrum Analyzer/Power Meter
I/O CABLES (RF RADIATED TEST AND AC POWER LINE CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	1.0	AC Mains to AC/DC Adapter
2	DC	1	DC	Shielded	0.5	AC/DC Adapter to Laptop
3	USB	1	USB-micro	Shielded	0.5	Laptop to ESP32 board
4	JTAG	1	JTAG	Jumper wire	0.5	ESP32 board to EUTs
5	Ethernet	1	RJ45	Unshielded	1	EUT to Router
6	DC	1	DC	Shielded	1.5	AC/DC Adapter to Router

TEST SETUP

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

The diagram illustrates the experimental setup for EMI testing. It features a 'Support Laptop' connected to an 'ESP32 Board' via a line labeled '3'. The 'ESP32 Board' is connected to an 'EUT' (Equipment Under Test) via a line labeled '4'. The 'EUT' is connected to a 'Spectrum Analyzer Power Meter' via a line labeled '5'. All three components (ESP32 Board, EUT, and Spectrum Analyzer Power Meter) are connected to the 'AC Mains' via lines labeled '1', '2', and '6' respectively. A small rectangular component is connected to the 'AC Mains' via line '1' and to the 'Support Laptop' via line '2'.

The diagram illustrates the experimental setup for the ESP32-based system. It features a central 'Support Laptop' connected to an 'ESP32 Board' via a cable labeled '3'. The 'ESP32 Board' is connected to an 'EUT' (Equipment Under Test) via a cable labeled '4'. The 'EUT' is connected to a 'Support Router' via a cable labeled '5'. The 'Support Router' is connected to the 'AC Mains' via a cable labeled '6'. The 'AC Mains' is connected to the 'Support Laptop' via a cable labeled '1'. The 'Support Laptop' is also connected to the 'AC Mains' via a cable labeled '2'. The 'Support Router' is also connected to the 'AC Mains' via a cable labeled '7'. The 'AC Mains' is represented by a large rectangular block at the bottom of the diagram.

7. 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
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	81140	2027-05-31
Link File, RF Amplifier Assembly, 18-26.5GHz, 60dB Gain	UL-FR1	AMP18G26.5-60	215705	2026-10-31
EMI Test Receiver	Rohde & Schwarz	ESW44	245268	2027-02-28
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80707	2027-08-31
RF Filter Box, 1-18GHz	UL-FR1	RATS 1.0, 2 Amp, 6 Port	171875	2027-03-31
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170014	2027-09-30
Antenna, Passive Loop 100kHz to 30MHz	ELECTRO-METRICS	EM-6872	219910	2026-08-31
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	203089	2027-04-30
Link File, 9KHz-1GHz Port 0 Factors	UL-FR1	Port 0 Factors	213877	2027-03-31
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	252765	Verified
P-Series Power Meter	Keysight Technologies Inc	N1912A-CFG003	90756	2027-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	257704	2027-01-31
Spectrum Analyzer, PXA, 3Hz to 44GHz	N9030A	Keysight Technologies Inc	81188	2027-01-31

AC Line Conducted				
Description	Manufacturer	Model	ID Num	Cal Due
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	171646	2027-03-31
LISN for Conducted Emissions CISPR-16	Fischer Custom Communications	FCC-LISN-50/250-25-2-01-480V	175765	2027-01-31
Transient Limiter	TE	TBFL1	207996	2026-12-31
UL AUTOMATION SOFTWARE				
Conducted Software	UL	Antenna Port	2024-02-23	
Radiated Software	UL	UL EMC	Ver 9.5, Dec 15, 2025	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, Aug 5, 2025	

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE LIMITS

None; for reporting purposes only.

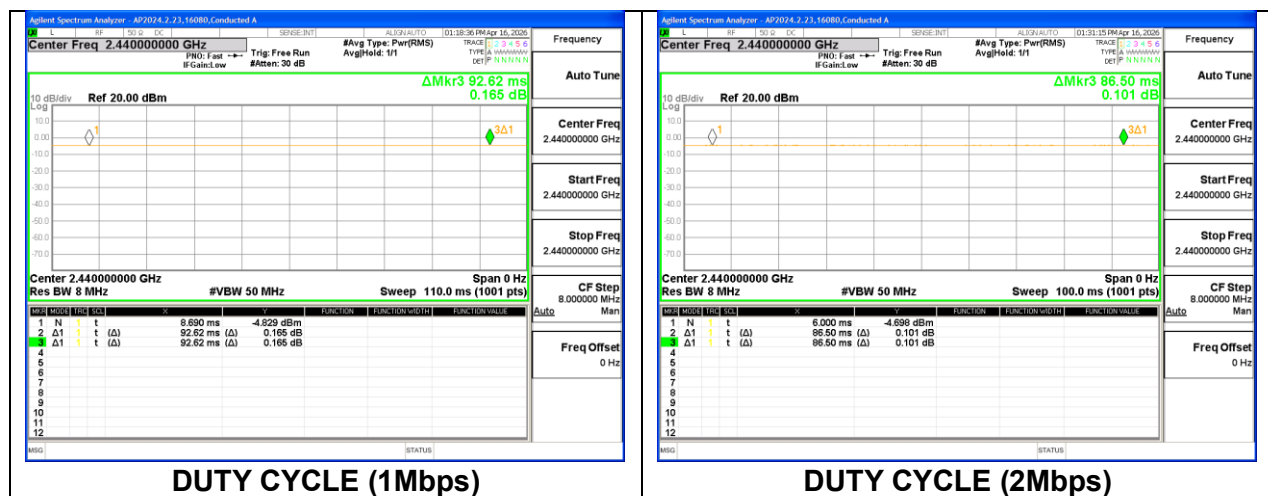
TEST PROCEDURE

ANSI C63.10, Subclause 11.6.

ON TIME AND DUTY CYCLE RESULTS

Worst-Case Mode	ON Time T (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
BLE 1Mbps	92.62	92.62	1.000	100.00	0.00	0.010
BLE 2Mbps	86.50	86.50	1.000	100.00	0.00	0.010

DUTY CYCLE PLOTS



8.2. 99% BANDWIDTH LIMITS

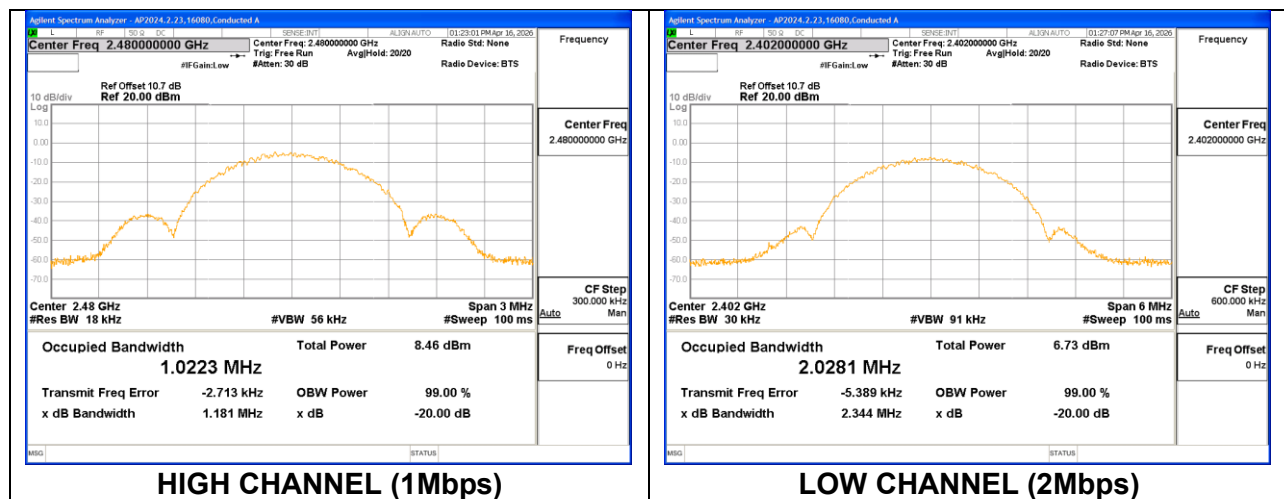
None; for reporting purposes only.

TEST PROCEDURE

ANSI C63.10, Subclause - 6.9.3

RESULTS

Channel	Frequency (MHz)	Data Rate	99% Bandwidth (MHz)
Low	2402	1Mbps	1.0205
Middle	2440		1.0203
High	2480		1.0223
Low	2402	2Mbps	2.0281
Middle	2440		2.0264
High	2480		2.0260



8.3. 6dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

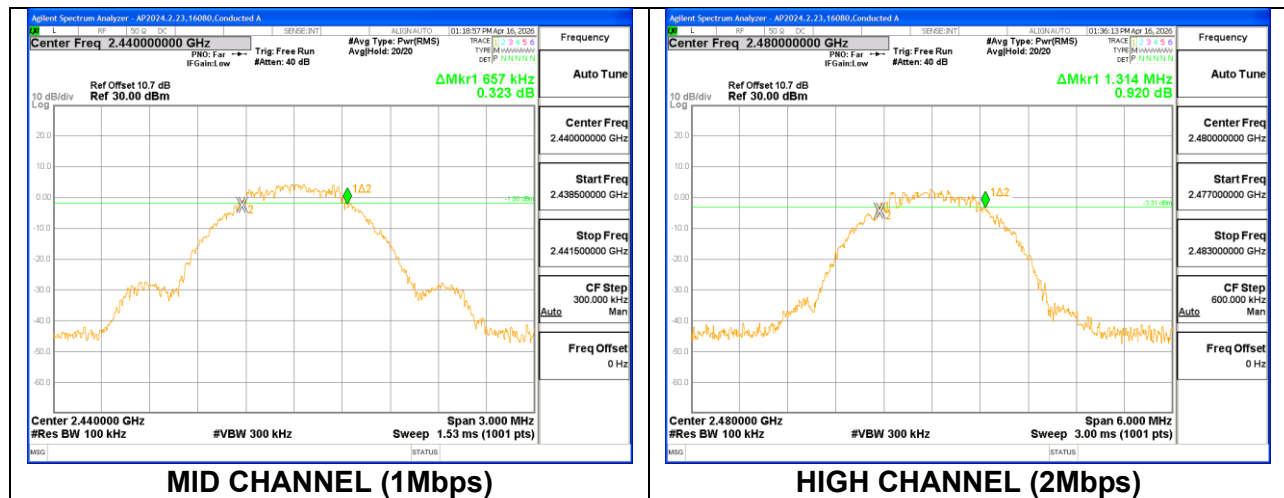
The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

ANSI C63.10 Subclause - 11.8.1 Option 1

RESULTS

Channel	Frequency (MHz)	Data Rate	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	1Mbps	0.669	0.5
Middle	2440		0.657	0.5
High	2480		0.669	0.5
Low	2402	2Mbps	1.356	0.5
Middle	2440		1.350	0.5
High	2480		1.314	0.5



8.4. OUTPUT POWER AND POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (b) (3) & (e)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of directional antennas with gains not exceeding 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

TEST PROCEDURE

Conducted Output Power:

ANSI C63.10 Subclause - 11.9.1.2 Method PKPM1 (Peak-reading power meter)

ANSI C63.10 Subclause - 11.9.2.3.2 Method AVGPM G (Measurement using an RF average-reading power meter)

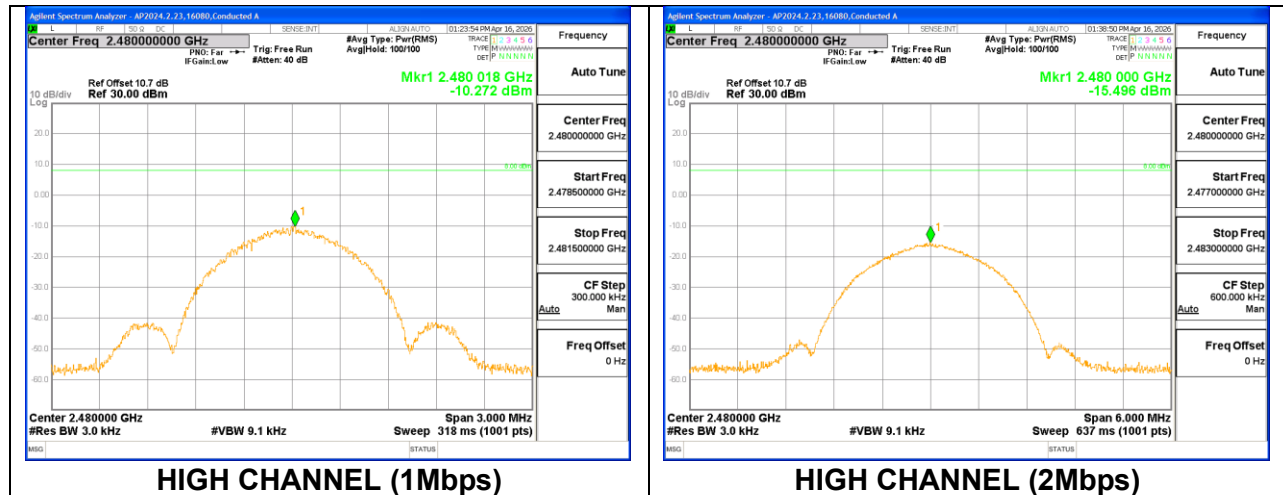
Power Spectral Density: ANSI C63.10 Subclause - 11.10.2 Method PKPSD (peak PSD)

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Mode	No. of Tx	Channel	Freq (MHz)	Measured Conducted Peak Power (dBm)	Output Power Limit (dBm)	Output Power Margin (dB)	Measured PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	PSD Margin (dB)
BLE 1Mbps	1Tx	0	2402	7.19	30.00	-22.81	-10.905	8.00	-18.91
		19	2440	6.51	30.00	-23.49	-10.535	8.00	-18.54
		39	2480	7.71	30.00	-22.29	-10.272	8.00	-18.27
BLE 2Mbps	1Tx	0	2402	5.77	30.00	-24.23	-16.157	8.00	-24.16
		19	2440	6.59	30.00	-23.41	-15.950	8.00	-23.95
		39	2480	6.56	30.00	-23.44	-15.496	8.00	-23.50

PSD Plots

8.5. AVERAGE POWER

TEST PROCEDURE

ANSI C63.10 Subclause - 11.9.2.3.2 Method AVGPM G (Measurement using an RF average-reading power meter)

RESULTS

Mode	No. of Tx	Channel	Freq (MHz)	Measured Conducted Avg Power (dBm)
BLE 1Mbps	1Tx	0	2402	5.13
		19	2440	5.63
		39	2480	5.61
BLE 2Mbps	1Tx	0	2402	4.91
		19	2440	5.57
		39	2480	5.70

8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

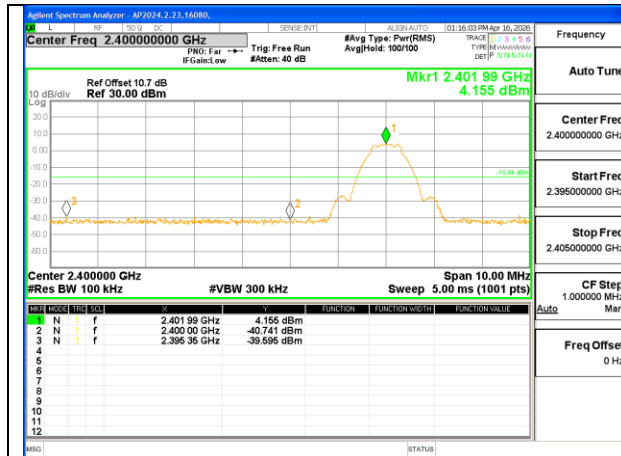
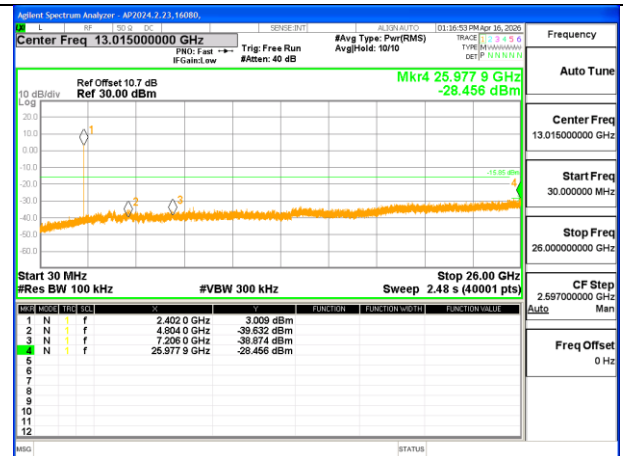
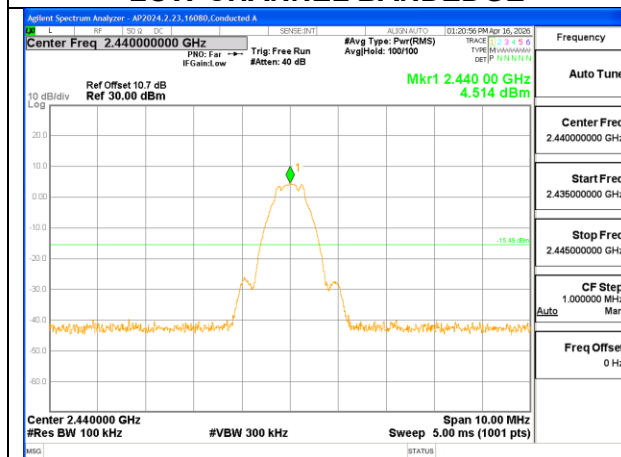
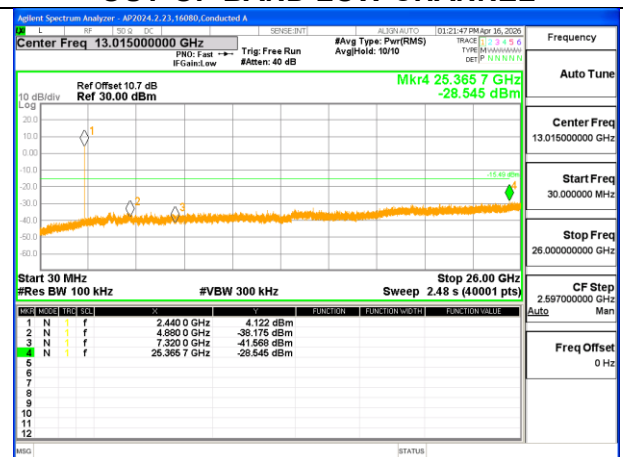
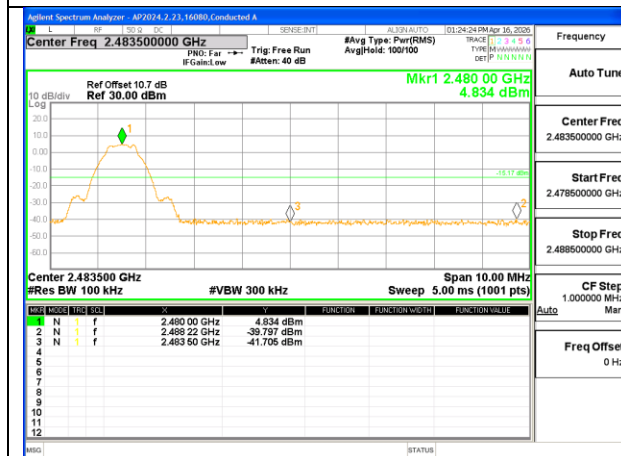
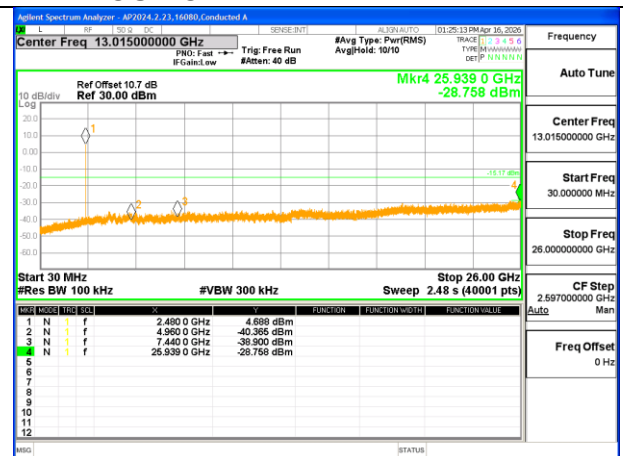
FCC §15.247 (d)

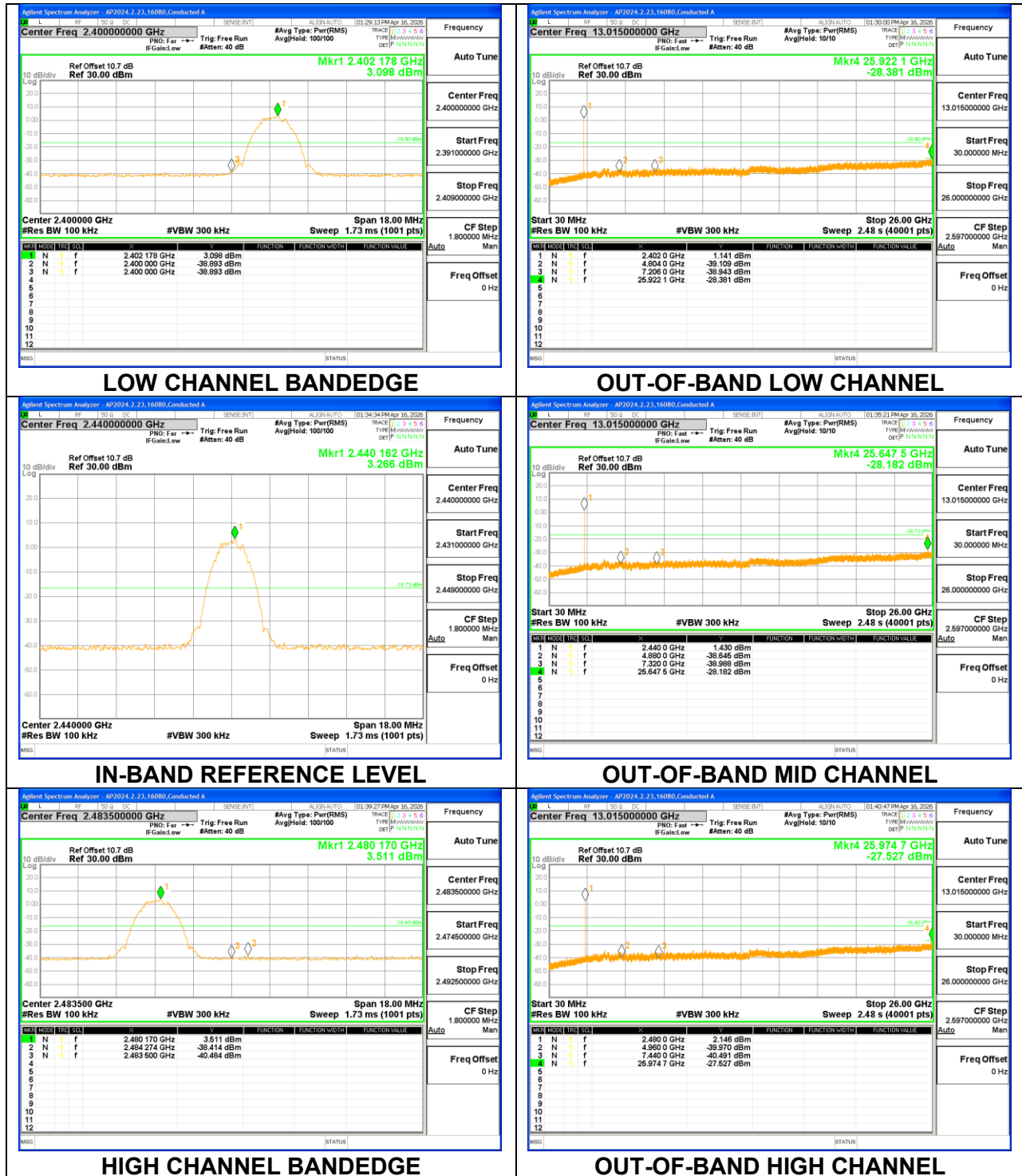
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

ANSI C63.10 Subclause - 11.12.2

RESULTS

BLE 1Mbps**LOW CHANNEL BANDEDGE****OUT-OF-BAND LOW CHANNEL****IN-BAND REFERENCE LEVEL****OUT-OF-BAND MID CHANNEL****HIGH CHANNEL BANDEDGE****OUT-OF-BAND HIGH CHANNEL**

BLE 2Mbps

9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

Radiated emissions non-restricted frequency bands	ANSI C63.10 Subclause -11.11
Radiated emissions restricted frequency bands	ANSI C63.10 Subclause -11.12.1
Band-edge	ANSI C63.10 Subclause -11.12.2.4: Peak Measurement
Band-edge	ANSI C63.10 Subclause -11.12.2.5: Average Measurement
Radiated Spurious Emissions Below 30MHz	ANSI C63.10 Subclause 6.

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 a quasi-peak.

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

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

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

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

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

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

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

RESULTS

The plots in these sections are for reference settings only.

9.1. TRANSMITTER ABOVE 1 GHz

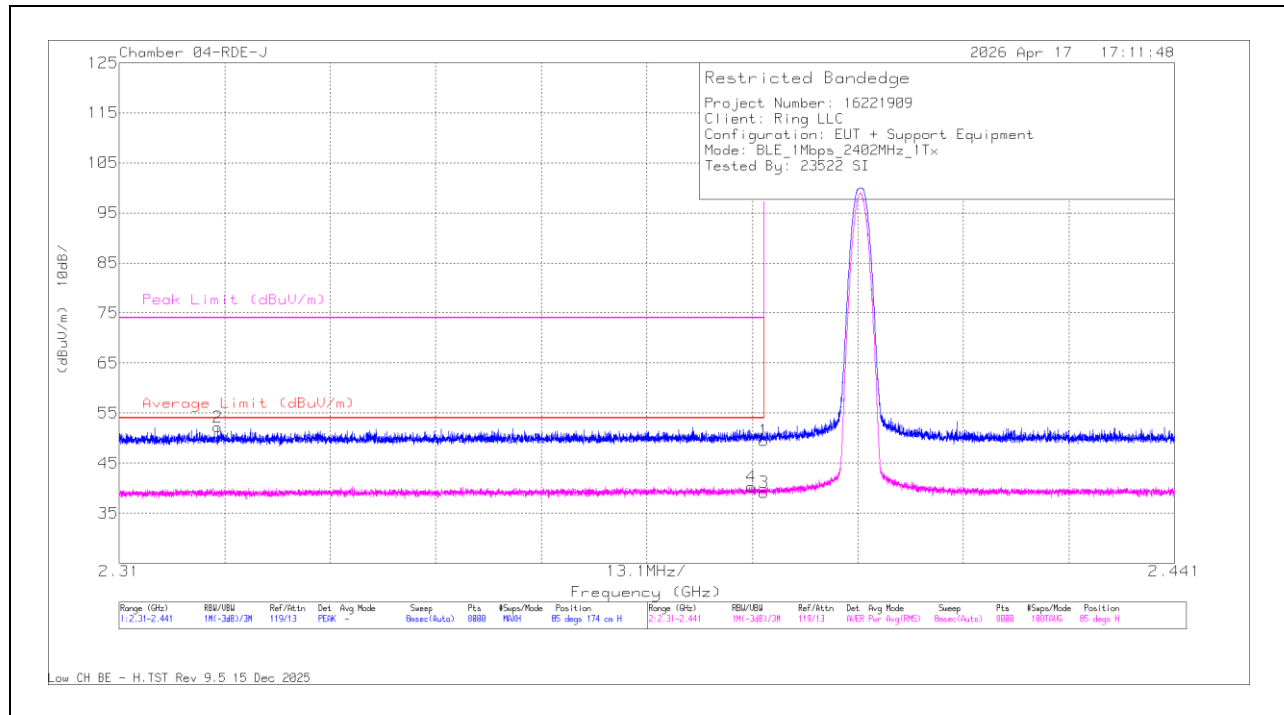
9.1.1. LOW BANDEDGE

2.4GHz (SIISO)	Channel Frequency (MHz)	Frequency (GHz)	Meter Reading (dBuV)	Det	ACF (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Correct Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Pk Limit (dBuV/m)	Pk Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1Mbps	2402	* 2.39	53.86	Pk	32.2	-36.5	49.56	-	-	74	-24.44	85	174	H
		* 2.322234	56.91	Pk	31.9	-36.6	52.21	-	-	74	-21.79	85	174	H
		* 2.39	43.42	RMS	32.2	-36.5	39.12	54	-14.88	-	-	85	174	H
		* 2.388446	44.56	RMS	32.2	-36.5	40.26	54	-13.74	-	-	85	174	H
		* 2.39	55.41	Pk	32.2	-36.5	51.11	-	-	74	-22.89	285	101	V
		* 2.352449	57.21	Pk	32.1	-36.6	52.71	-	-	74	-21.29	285	101	V
		* 2.39	44.53	RMS	32.2	-36.5	40.23	54	-13.77	-	-	285	101	V
2Mbps	2402	* 2.389117	45.27	RMS	32.2	-36.5	40.97	54	-13.03	-	-	285	101	V
		* 2.39	54.42	Pk	32.2	-36.5	50.12	-	-	74	-23.88	209	308	H
		* 2.320006	57.35	Pk	31.9	-36.6	52.65	-	-	74	-21.35	209	308	H
		* 2.39	44	RMS	32.2	-36.5	39.7	54	-14.3	-	-	209	308	H
		* 2.384892	45.16	RMS	32.2	-36.5	40.86	54	-13.14	-	-	209	308	H
		* 2.39	54.24	Pk	32.2	-36.5	49.94	-	-	74	-24.06	172	303	V
		* 2.356429	57.36	Pk	32.1	-36.6	52.86	-	-	74	-21.14	172	303	V
		* 2.39	44.48	RMS	32.2	-36.5	40.18	54	-13.82	-	-	172	303	V
		* 2.371921	44.86	RMS	32.2	-36.5	40.56	54	-13.44	-	-	172	303	V

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

Pk - Peak detector

RMS - RMS detection

BANDEDGE (LOW CHANNEL), 1Mbps**HORIZONTAL RESULT****Trace Markers**

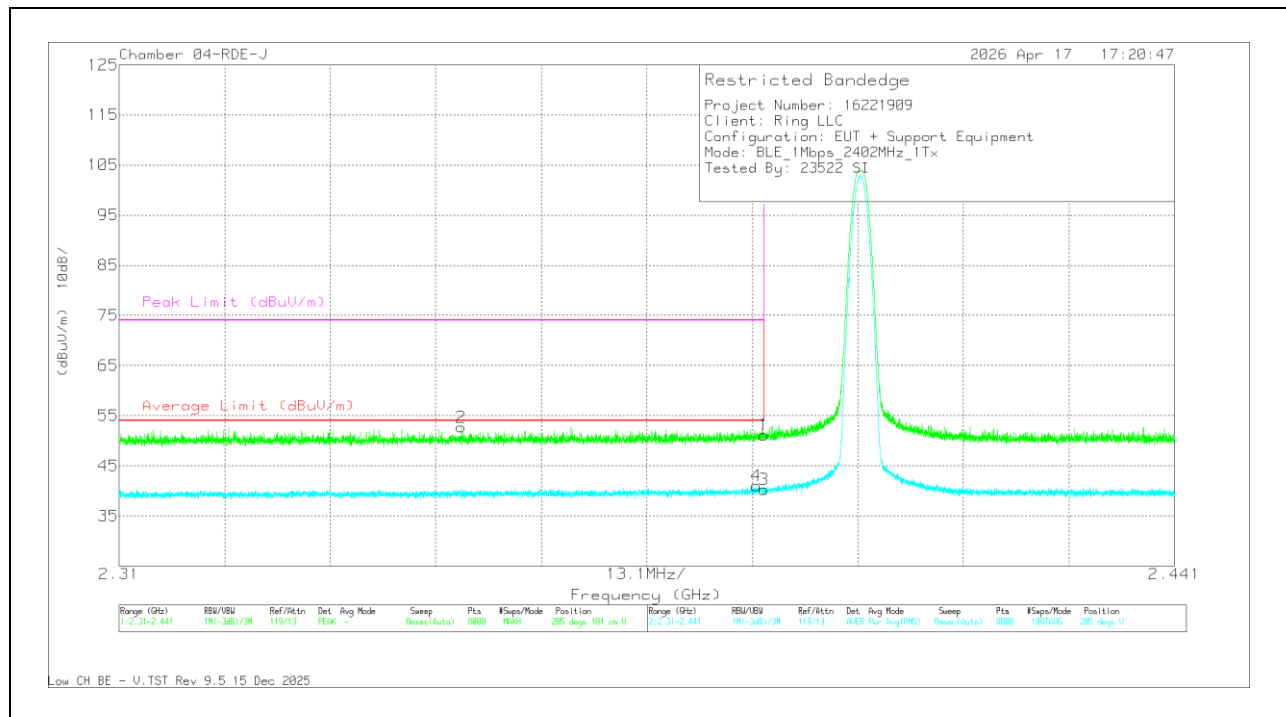
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	53.86	PK	32.2	-36.5	49.56	-	-	74	-24.44	85	174	H
2	* 2.322234	56.91	PK	31.9	-36.6	52.21	-	-	74	-21.79	85	174	H
3	* 2.39	43.42	RMS	32.2	-36.5	39.12	54	-14.88	-	-	85	174	H
4	* 2.388446	44.56	RMS	32.2	-36.5	40.26	54	-13.74	-	-	85	174	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL RESULT



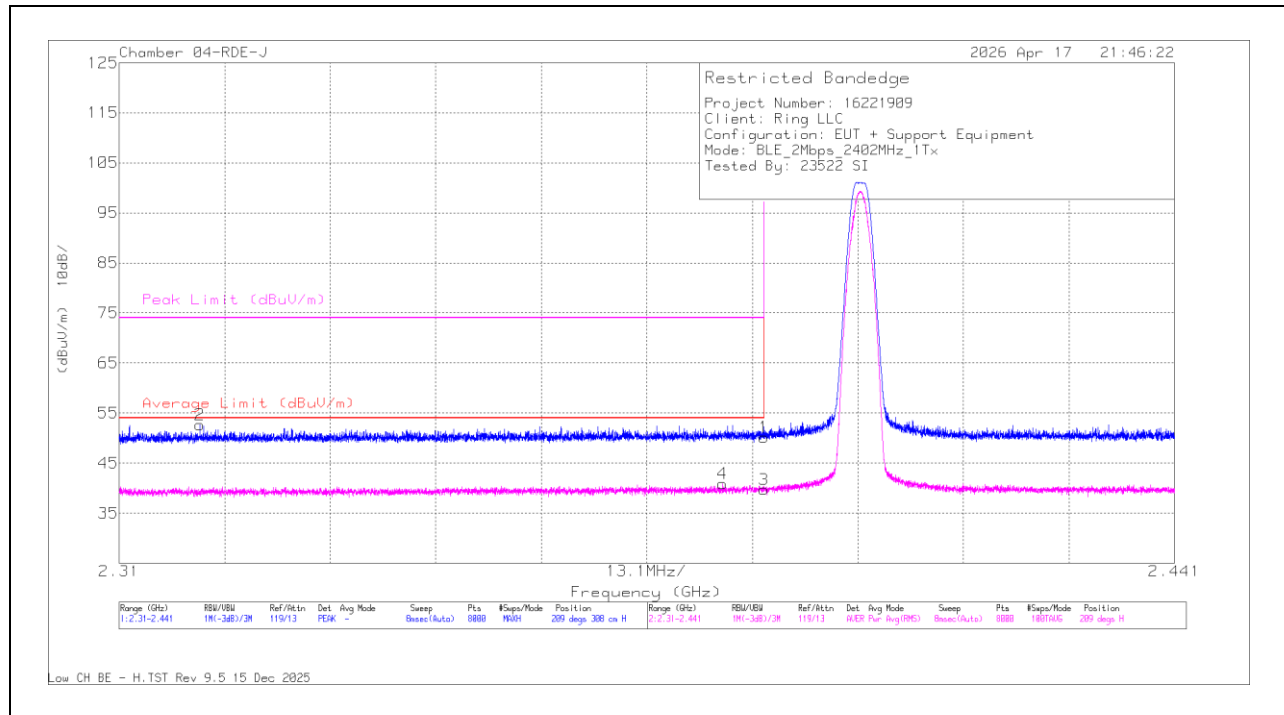
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	55.41	PK	32.2	-36.5	51.11	-	-	74	-22.89	285	101	V
2	* 2.352449	57.21	PK	32.1	-36.6	52.71	-	-	74	-21.29	285	101	V
3	* 2.39	44.53	RMS	32.2	-36.5	40.23	54	-13.77	-	-	285	101	V
4	* 2.389117	45.27	RMS	32.2	-36.5	40.97	54	-13.03	-	-	285	101	V

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

PK - Peak detector

RMS - RMS detection

BANDEDGE (LOW CHANNEL), 2Mbps**HORIZONTAL RESULT****Trace Markers**

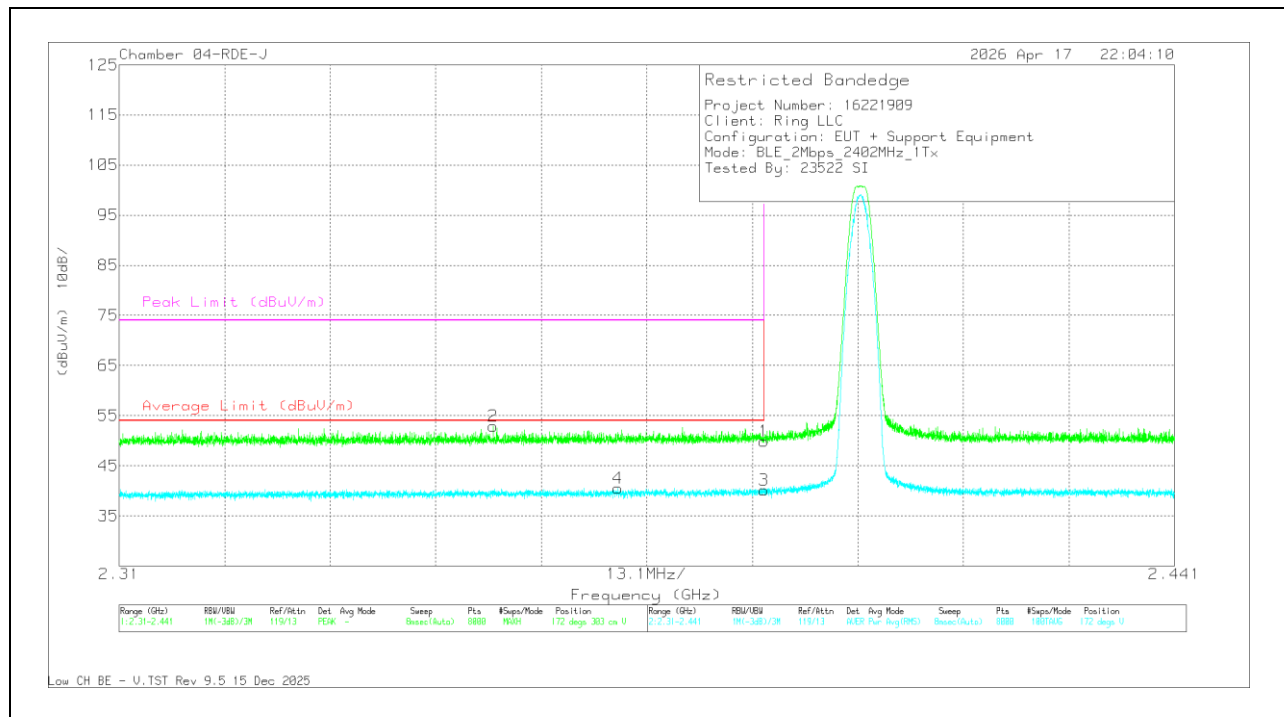
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	54.42	Pk	32.2	-36.5	50.12	-	-	74	-23.88	209	308	H
2	* 2.320006	57.35	Pk	31.9	-36.6	52.65	-	-	74	-21.35	209	308	H
3	* 2.39	44	RMS	32.2	-36.5	39.7	54	-14.3	-	-	209	308	H
4	* 2.384892	45.16	RMS	32.2	-36.5	40.86	54	-13.14	-	-	209	308	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	54.24	PK	32.2	-36.5	49.94	-	-	74	-24.06	172	303	V
2	* 2.356429	57.36	PK	32.1	-36.6	52.86	-	-	74	-21.14	172	303	V
3	* 2.39	44.48	RMS	32.2	-36.5	40.18	54	-13.82	-	-	172	303	V
4	* 2.371921	44.86	RMS	32.2	-36.5	40.56	54	-13.44	-	-	172	303	V

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

PK - Peak detector

RMS - RMS detection

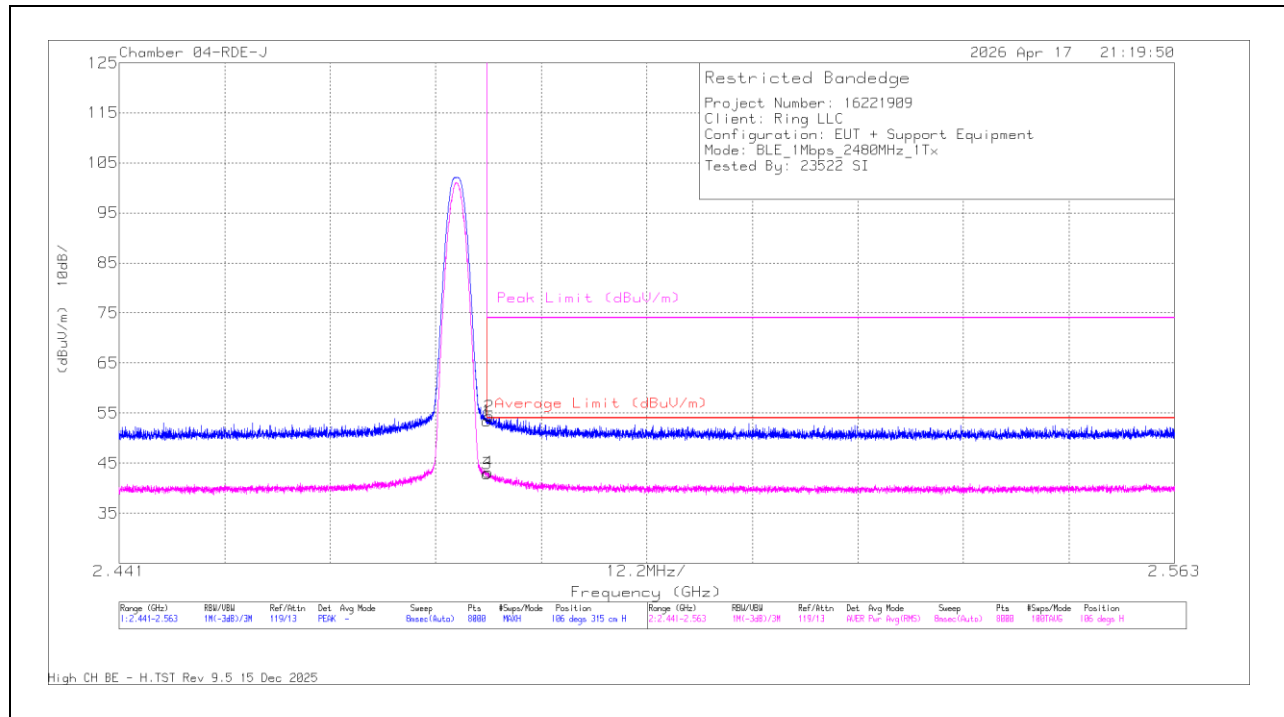
9.1.2. HIGH BANDEDGE

2.4GHz (SISO)	Channel Frequency (MHz)	Frequency (GHz)	Meter Reading (dBuV)	Det	ACF (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Correct Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Pk Limit (dBuV/m)	Pk Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1Mbps	2480	* 2.4835	57.42	Pk	32.4	-36.4	53.42	-	-	74	-20.58	106	315	H
		* 2.483828	58.35	Pk	32.4	-36.4	54.35	-	-	74	-19.65	106	315	H
		* 2.4835	46.86	RMS	32.4	-36.4	42.86	54	-11.14	-	-	106	315	H
		* 2.48366	47.1	RMS	32.4	-36.4	43.1	54	-10.9	-	-	106	315	H
		* 2.4835	57.81	Pk	32.4	-36.4	53.81	-	-	74	-20.19	145	308	V
		* 2.483721	58.88	Pk	32.4	-36.4	54.88	-	-	74	-19.12	145	308	V
		* 2.4835	46.85	RMS	32.4	-36.4	42.85	54	-11.15	-	-	145	308	V
2Mbps	2480	* 2.483553	47.8	RMS	32.4	-36.4	43.8	54	-10.2	-	-	145	308	V
		* 2.4835	57.01	Pk	32.4	-36.4	53.01	-	-	74	-20.99	108	125	H
		* 2.488068	57.86	Pk	32.5	-36.3	54.06	-	-	74	-19.94	108	125	H
		* 2.4835	46.67	RMS	32.4	-36.4	42.67	54	-11.33	-	-	108	125	H
		* 2.483553	46.9	RMS	32.4	-36.4	42.9	54	-11.1	-	-	108	125	H
		* 2.4835	59.96	Pk	32.4	-36.4	55.96	-	-	74	-18.04	288	104	V
		* 2.483507	60.41	Pk	32.4	-36.4	56.41	-	-	74	-17.59	288	104	V
		* 2.4835	48.49	RMS	32.4	-36.4	44.49	54	-9.51	-	-	288	104	V
		* 2.483736	48.96	RMS	32.4	-36.4	44.96	54	-9.04	-	-	288	104	V

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

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL), 1Mbps**HORIZONTAL RESULT****Trace Markers**

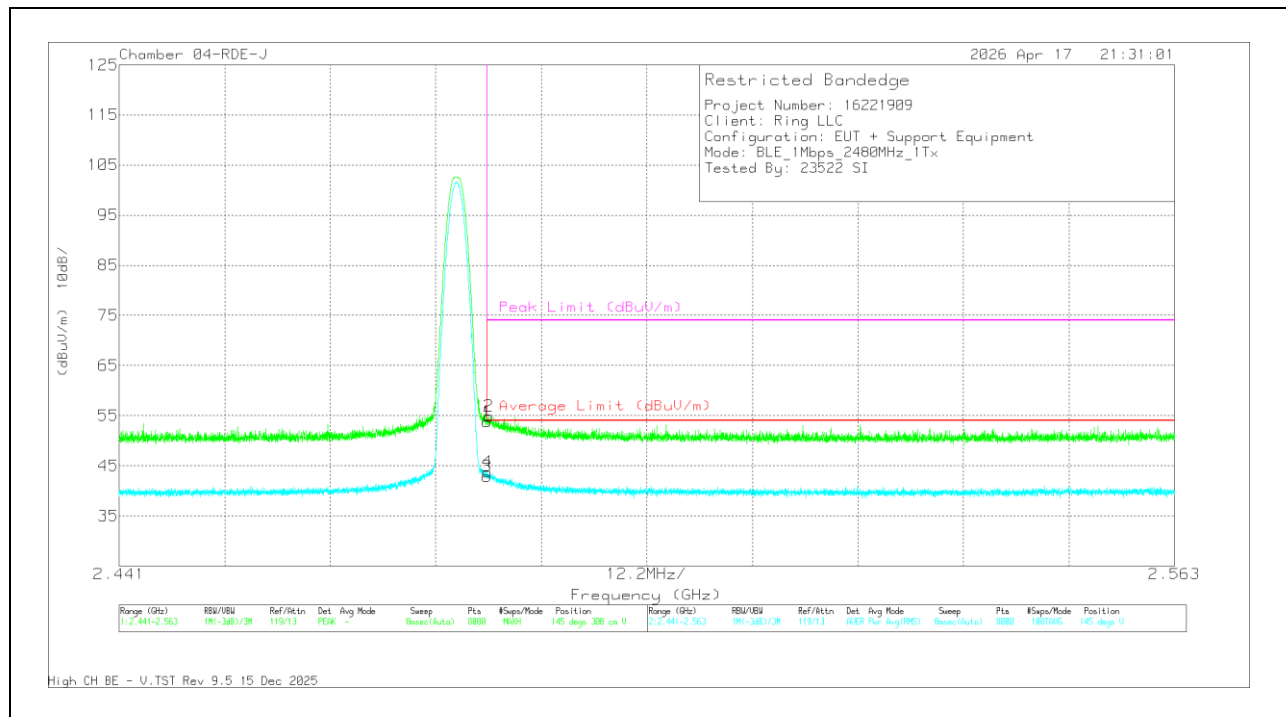
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.42	Pk	32.4	-36.4	53.42	-	-	74	-20.58	106	315	H
2	* 2.483828	58.35	Pk	32.4	-36.4	54.35	-	-	74	-19.65	106	315	H
3	* 2.4835	46.86	RMS	32.4	-36.4	42.86	54	-11.14	-	-	106	315	H
4	* 2.48366	47.1	RMS	32.4	-36.4	43.1	54	-10.9	-	-	106	315	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



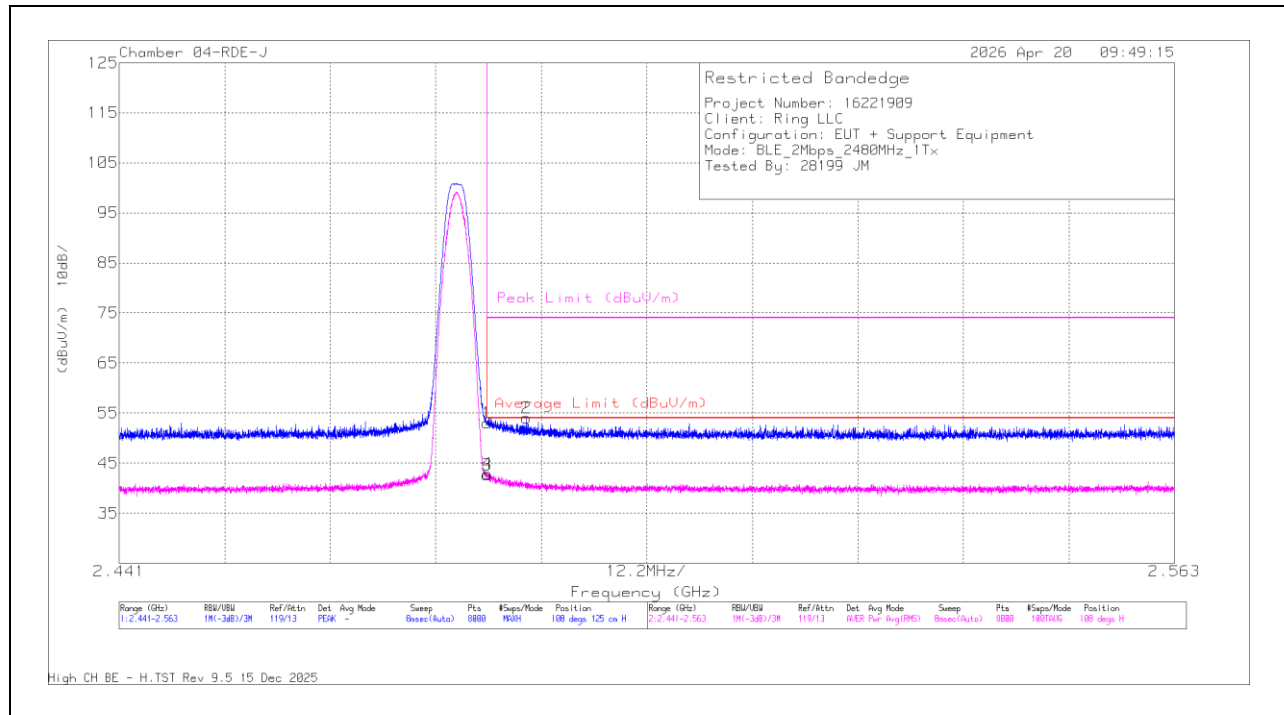
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.81	PK	32.4	-36.4	53.81	-	-	74	-20.19	145	308	V
2	* 2.483721	58.88	PK	32.4	-36.4	54.88	-	-	74	-19.12	145	308	V
3	* 2.4835	46.85	RMS	32.4	-36.4	42.85	54	-11.15	-	-	145	308	V
4	* 2.483553	47.8	RMS	32.4	-36.4	43.8	54	-10.2	-	-	145	308	V

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

PK - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL), 2Mbps**HORIZONTAL RESULT****Trace Markers**

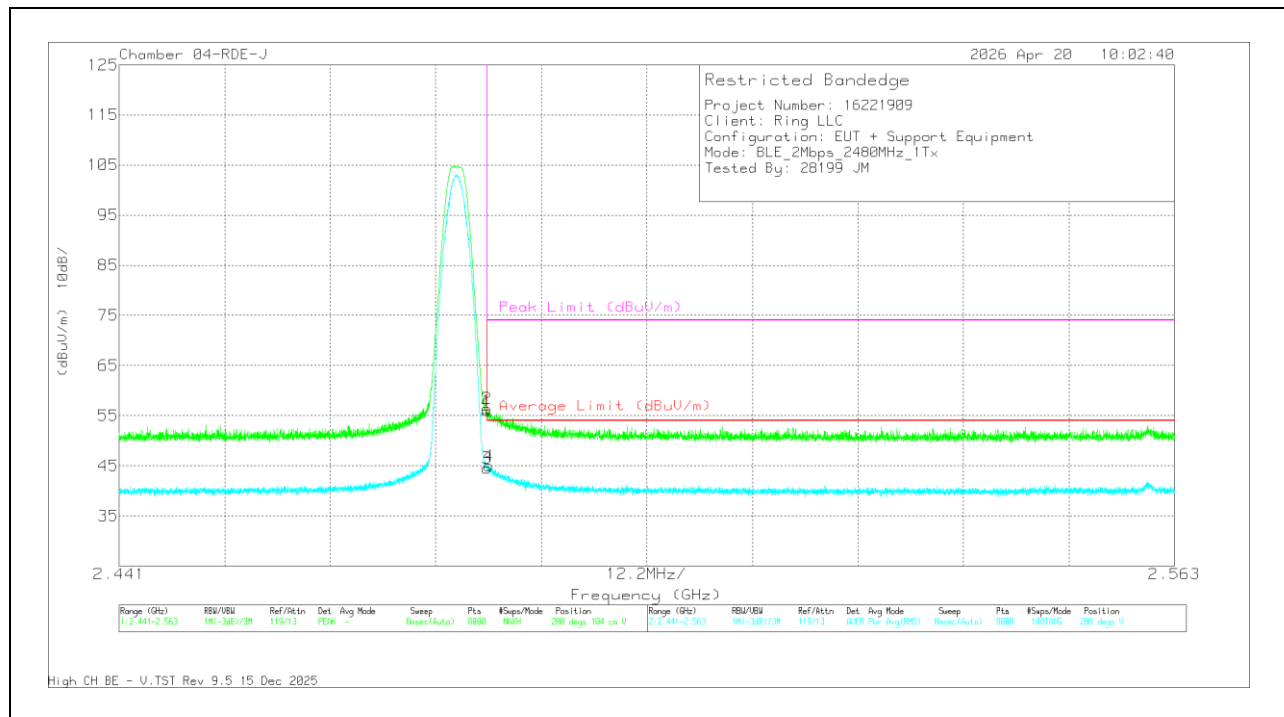
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	57.01	Pk	32.4	-36.4	53.01	-	-	74	-20.99	108	125	H
2	* 2.488068	57.86	Pk	32.5	-36.3	54.06	-	-	74	-19.94	108	125	H
3	* 2.4835	46.67	RMS	32.4	-36.4	42.67	54	-11.33	-	-	108	125	H
4	* 2.483553	46.9	RMS	32.4	-36.4	42.9	54	-11.1	-	-	108	125	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	59.96	PK	32.4	-36.4	55.96	-	-	74	-18.04	288	104	V
2	* 2.483507	60.41	PK	32.4	-36.4	56.41	-	-	74	-17.59	288	104	V
3	* 2.4835	48.49	RMS	32.4	-36.4	44.49	54	-9.51	-	-	288	104	V
4	* 2.483736	48.96	RMS	32.4	-36.4	44.96	54	-9.04	-	-	288	104	V

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

PK - Peak detector

RMS - RMS detection

9.1.3. HARMONICS AND SPURIOUS EMISSIONS

1Mbps

2.4 GHz (SISO)	Channel Frequency (MHz)	Frequency (GHz)	Meter Reading (dBuV)	Det	ACF (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Pk Limit (dBuV/m)	Pk Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1Mbps	2402	* 3.562705	54.71	PK2	35.1	-43.6	46.21	-	-	74	-27.79	266	314	H
		* 3.562314	42.71	MAv1	35.1	-43.6	34.21	54	-19.79	-	-	266	314	H
		* 4.999934	59.58	PK2	34.3	-44.2	49.68	-	-	74	-24.32	188	103	H
		* 4.999988	55.4	MAv1	34.3	-44.2	45.5	54	-8.5	-	-	188	103	H
		* 12.045309	52.06	PK2	39.8	-38	53.86	-	-	74	-20.14	220	386	H
		* 12.011972	40.18	MAv1	39.8	-38.7	41.28	54	-12.72	-	-	220	386	H
		* 3.593438	58.53	PK2	34.9	-43.5	49.93	-	-	74	-24.07	340	105	V
		* 3.588784	42.82	MAv1	35	-43.5	34.32	54	-19.68	-	-	340	105	V
		* 5.000238	58.21	PK2	34.3	-44.2	48.31	-	-	74	-25.69	217	364	V
		* 4.999869	52.66	MAv1	34.3	-44.2	42.76	54	-11.24	-	-	217	364	V
		* 12.030227	51.57	PK2	39.8	-37.9	53.47	-	-	74	-20.53	266	214	V
		* 12.026009	39.89	MAv1	39.8	-38.1	41.59	54	-12.41	-	-	266	214	V
	2440	* 3.588799	57.61	PK2	35	-43.5	49.11	-	-	74	-24.89	53	113	H
		* 3.586333	42.64	MAv1	35	-43.5	34.14	54	-19.86	-	-	53	113	H
		* 4.99996	60.27	PK2	34.3	-44.2	50.37	-	-	74	-23.63	177	102	H
		* 4.999889	56.02	MAv1	34.3	-44.2	46.12	54	-7.88	-	-	177	102	H
		* 11.959465	52.19	PK2	39.7	-39.2	52.69	-	-	74	-21.31	17	101	H
		* 11.977078	40.37	MAv1	39.7	-38.7	41.37	54	-12.63	-	-	17	101	H
		* 4.999885	58.21	PK2	34.3	-44.2	48.31	-	-	74	-25.69	205	310	V
		* 4.999899	52.99	MAv1	34.3	-44.2	43.09	54	-10.91	-	-	205	310	V
		* 5.400261	53.7	PK2	34.6	-42.9	45.4	-	-	74	-28.6	67	111	V
		* 5.399949	42.85	MAv1	34.6	-42.9	34.55	54	-19.45	-	-	67	111	V
		* 11.506404	52.32	PK2	38.5	-38.3	52.52	-	-	74	-21.48	312	337	V
		* 11.513044	40.5	MAv1	38.5	-38.6	40.4	54	-13.6	-	-	312	337	V
	2480	* 5.000142	60.09	PK2	34.3	-44.2	50.19	-	-	74	-23.81	178	101	H
		* 4.999947	55.77	MAv1	34.3	-44.2	45.87	54	-8.13	-	-	178	101	H
		* 8.441328	51.2	PK2	36	-39.5	47.7	-	-	74	-26.3	341	145	H
		* 8.439159	39.51	MAv1	36	-39.5	36.01	54	-17.99	-	-	341	145	H
		* 10.645308	52.02	PK2	37.6	-38	51.62	-	-	74	-22.38	319	341	H
		* 10.615375	40.16	MAv1	37.6	-38.6	39.16	54	-14.84	-	-	319	341	H
		* 4.192995	56.43	PK2	33.8	-44.4	45.83	-	-	74	-28.17	5	251	V
		* 4.199173	42.48	MAv1	33.8	-44.4	31.88	54	-22.12	-	-	5	251	V
		* 5.000036	57.6	PK2	34.3	-44.2	47.7	-	-	74	-26.3	178	101	V
		* 4.999996	51.86	MAv1	34.3	-44.2	41.96	54	-12.04	-	-	178	101	V
		* 12.028747	52.7	PK2	39.8	-37.9	54.6	-	-	74	-19.4	60	317	V
		* 12.046991	40.35	MAv1	39.8	-38	42.15	54	-11.85	-	-	60	317	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

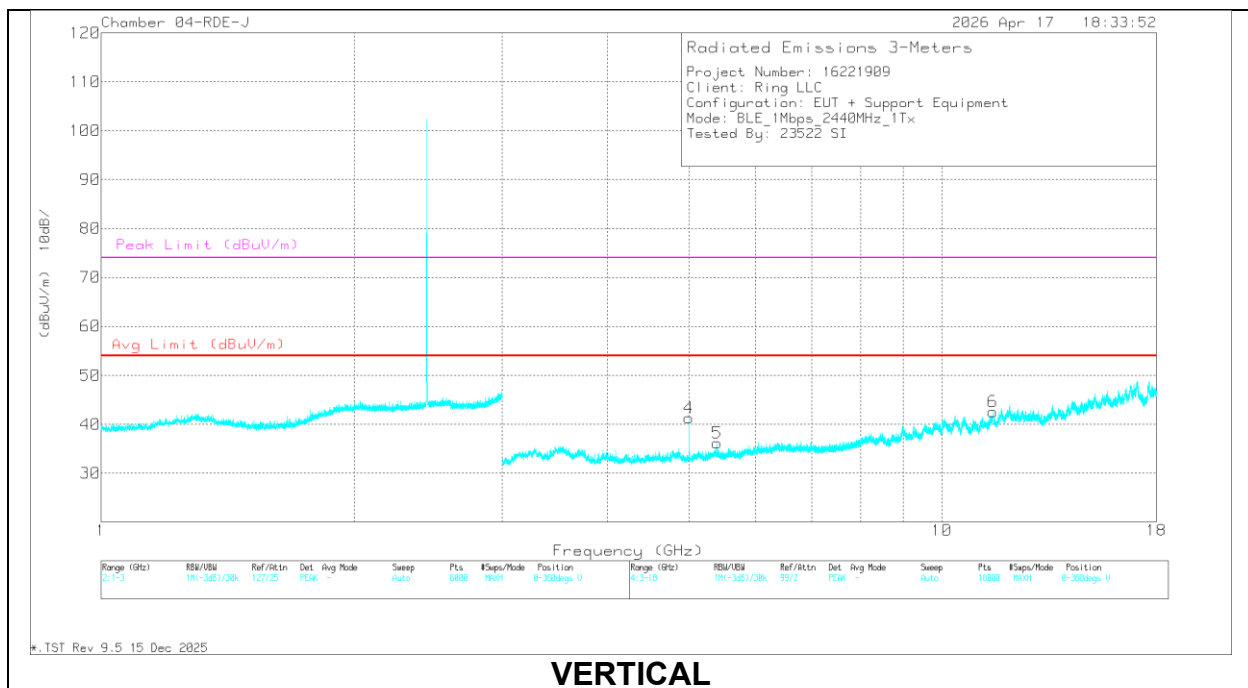
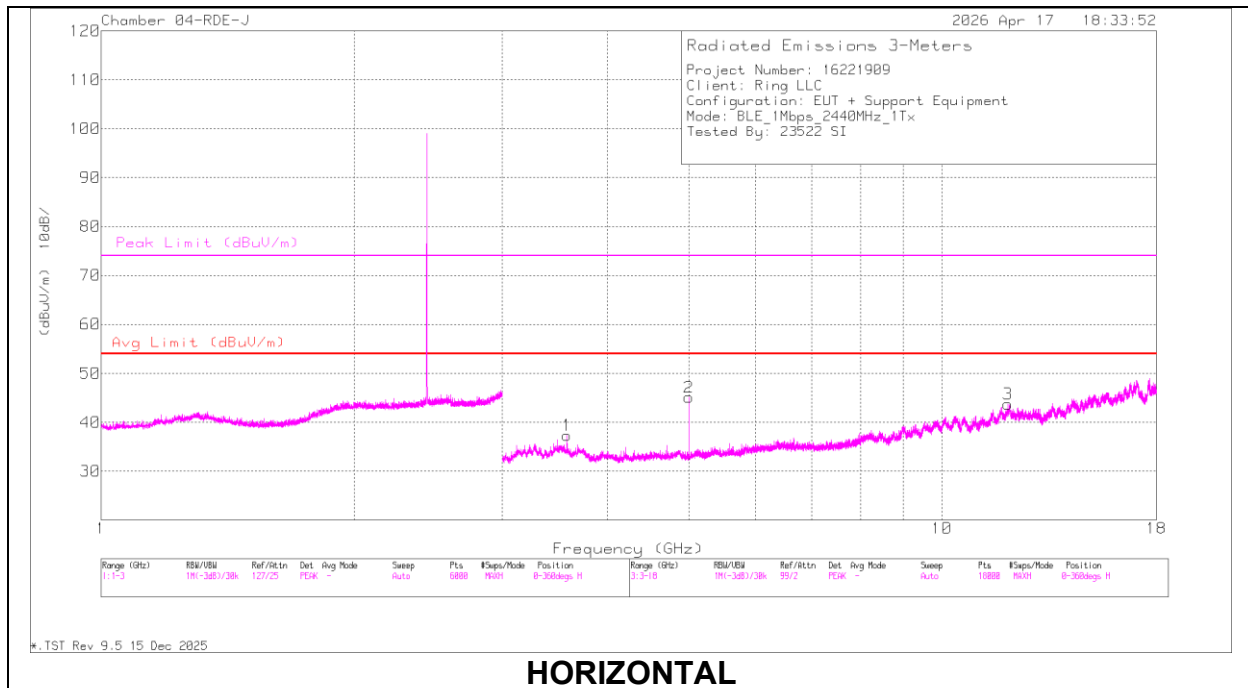
2Mbps

2.4 GHz (SISO)	Channel Frequency (MHz)	Frequency (GHz)	Meter Reading (dBuV)	Det	ACF (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Avg Margin (dB)	Pk Limit (dBuV/m)	Pk Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2Mbps	2402	* 4.999995	59.97	PK2	34.3	-44.2	50.07	-	-	74	-23.93	188	101	H
		* 4.999955	55.5	MAv1	34.3	-44.2	45.6	54	-8.4	-	-	188	101	H
		8.980977	52.38	PK2	36.1	-39.5	48.98	-	-	74	-25.02	258	388	H
		* 11.765468	51.4	PK2	39.3	-37.6	53.1	-	-	74	-20.9	131	274	H
		* 11.747432	39.6	MAv1	39.2	-38.4	40.4	54	-13.6	-	-	131	274	H
		* 3.586289	57.79	PK2	35	-43.5	49.29	-	-	74	-24.71	49	222	V
		* 3.588591	42.58	MAv1	35	-43.5	34.08	54	-19.92	-	-	49	222	V
		* 4.99979	57.16	PK2	34.3	-44.2	47.26	-	-	74	-26.74	203	234	V
		* 4.99999	51.99	MAv1	34.3	-44.2	42.09	54	-11.91	-	-	203	234	V
		* 12.053014	51.72	PK2	39.8	-38.3	53.22	-	-	74	-20.78	285	219	V
		* 12.037481	39.6	MAv1	39.8	-37.8	41.6	54	-12.4	-	-	285	219	V
	2440	* 3.594301	56.84	PK2	34.9	-43.4	48.34	-	-	74	-25.66	62	101	H
		* 3.561759	42.52	MAv1	35.1	-43.6	34.02	54	-19.98	-	-	62	101	H
		* 4.999945	59.58	PK2	34.3	-44.2	49.68	-	-	74	-24.32	178	101	H
		* 4.999887	55.36	MAv1	34.3	-44.2	45.46	54	-8.54	-	-	178	101	H
		* 12.051711	51.69	PK2	39.8	-38.2	53.29	-	-	74	-20.71	6	144	H
		* 12.045831	39.91	MAv1	39.8	-38	41.71	54	-12.29	-	-	6	144	H
		* 3.814197	56.91	PK2	33.9	-43.6	47.21	-	-	74	-26.79	40	209	V
		* 3.801397	41.82	MAv1	33.9	-43.5	32.22	54	-21.78	-	-	40	209	V
		* 4.999972	57.11	PK2	34.3	-44.2	47.21	-	-	74	-26.79	176	141	V
		* 4.999985	51.44	MAv1	34.3	-44.2	41.54	54	-12.46	-	-	176	141	V
		* 5.400104	54.28	PK2	34.6	-42.9	45.98	-	-	74	-28.02	353	235	V
		* 5.400002	45.58	MAv1	34.6	-42.9	37.28	54	-16.72	-	-	353	235	V
	2480	* 4.99995	59.86	PK2	34.3	-44.2	49.96	-	-	74	-24.04	177	101	H
		* 4.999883	55.63	MAv1	34.3	-44.2	45.73	54	-8.27	-	-	177	101	H
		* 11.866433	51.58	PK2	39.5	-39.6	51.48	-	-	74	-22.52	43	166	H
		* 11.842909	39.72	MAv1	39.5	-39.4	39.82	54	-14.18	-	-	43	166	H
		17.05959	52.44	PK2	41.9	-35.6	58.74	-	-	-	-	96	282	H
		3.413452	56.59	PK2	34.7	-44.3	46.99	-	-	-	-	30	211	V
		* 4.999721	57.91	PK2	34.3	-44.2	48.01	-	-	74	-25.99	206	239	V
		* 4.999886	53.05	MAv1	34.3	-44.2	43.15	54	-10.85	-	-	206	239	V
		* 12.308336	51.4	PK2	39.3	-37.7	53	-	-	74	-21	337	318	V
		* 12.298718	39.46	MAv1	39.4	-37.8	41.06	54	-12.94	-	-	337	318	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL), 1Mbps

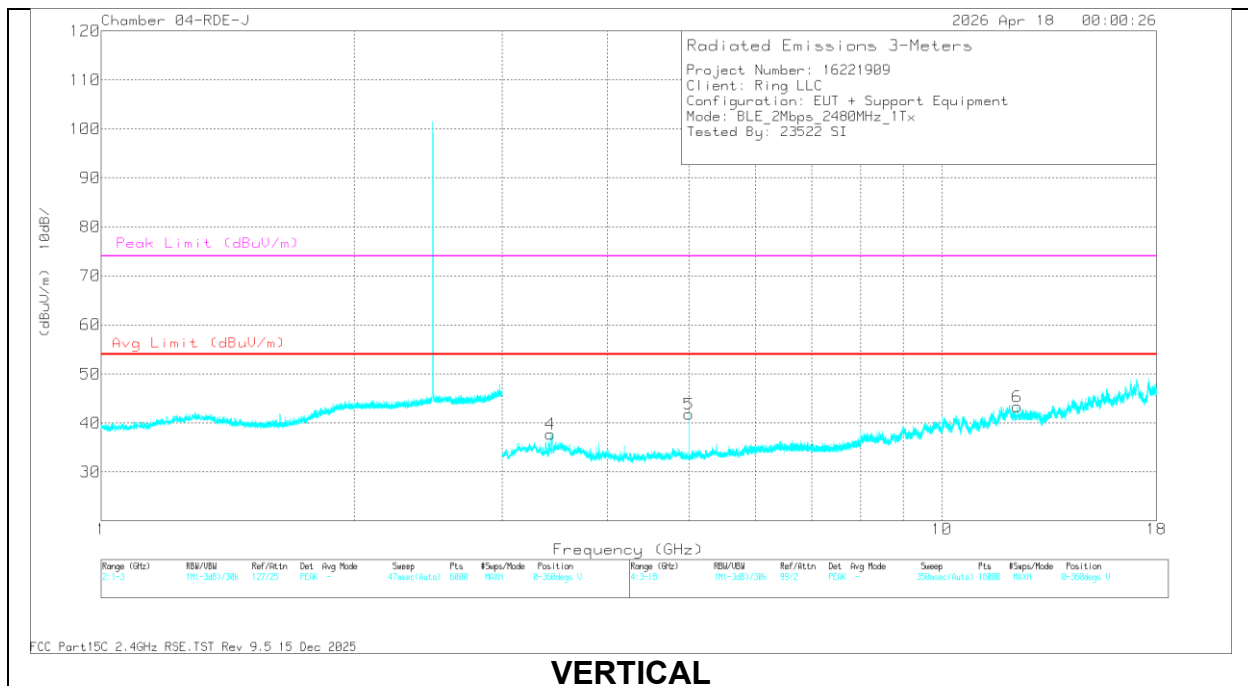
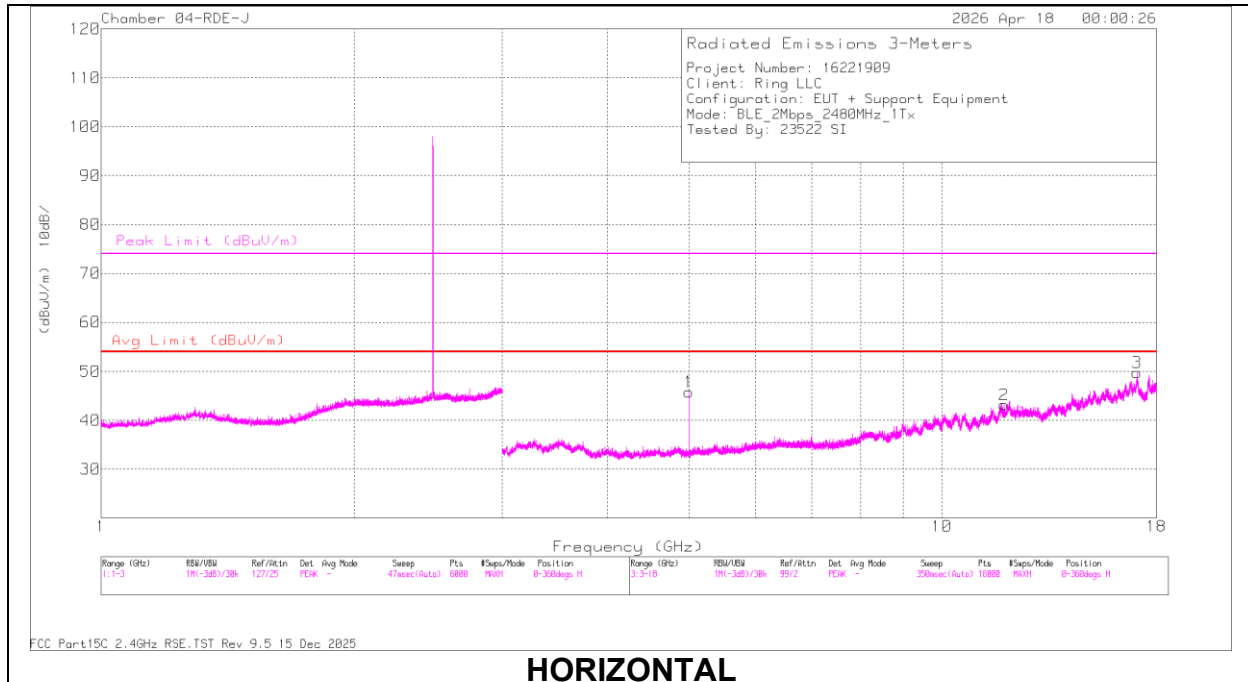
Radiate Emissions Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.588799	57.61	PK2	35	-43.5	49.11	-	-	74	-24.89	53	113	H
	* 3.586333	42.64	MAv1	35	-43.5	34.14	54	-19.86	-	-	53	113	H
2	* 4.99996	60.27	PK2	34.3	-44.2	50.37	-	-	74	-23.63	177	102	H
	* 4.999889	56.02	MAv1	34.3	-44.2	46.12	54	-7.88	-	-	177	102	H
3	* 11.959465	52.19	PK2	39.7	-39.2	52.69	-	-	74	-21.31	17	101	H
	* 11.977078	40.37	MAv1	39.7	-38.7	41.37	54	-12.63	-	-	17	101	H
4	* 4.999885	58.21	PK2	34.3	-44.2	48.31	-	-	74	-25.69	205	310	V
	* 4.999899	52.99	MAv1	34.3	-44.2	43.09	54	-10.91	-	-	205	310	V
5	* 5.400261	53.7	PK2	34.6	-42.9	45.4	-	-	74	-28.6	67	111	V
	* 5.399949	42.85	MAv1	34.6	-42.9	34.55	54	-19.45	-	-	67	111	V
6	* 11.506404	52.32	PK2	38.5	-38.3	52.52	-	-	74	-21.48	312	337	V
	* 11.513044	40.5	MAv1	38.5	-38.6	40.4	54	-13.6	-	-	312	337	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL), 2Mbps

Radiate Emissions Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	80707 ACF (dB/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.99995	59.86	PK2	34.3	-44.2	49.96	-	-	74	-24.04	177	101	H
	* 4.999883	55.63	MAv1	34.3	-44.2	45.73	54	-8.27	-	-	177	101	H
2	* 11.866433	51.58	PK2	39.5	-39.6	51.48	-	-	74	-22.52	43	166	H
	* 11.842909	39.72	MAv1	39.5	-39.4	39.82	54	-14.18	-	-	43	166	H
3	17.05959	52.44	PK2	41.9	-35.6	58.74	-	-	-	-	96	282	H
4	3.413452	56.59	PK2	34.7	-44.3	46.99	-	-	-	-	30	211	V
5	* 4.999721	57.91	PK2	34.3	-44.2	48.01	-	-	74	-25.99	206	239	V
	* 4.999886	53.05	MAv1	34.3	-44.2	43.15	54	-10.85	-	-	206	239	V
6	* 12.308336	51.4	PK2	39.3	-37.7	53	-	-	74	-21	337	318	V
	* 12.298718	39.46	MAv1	39.4	-37.8	41.06	54	-12.94	-	-	337	318	V

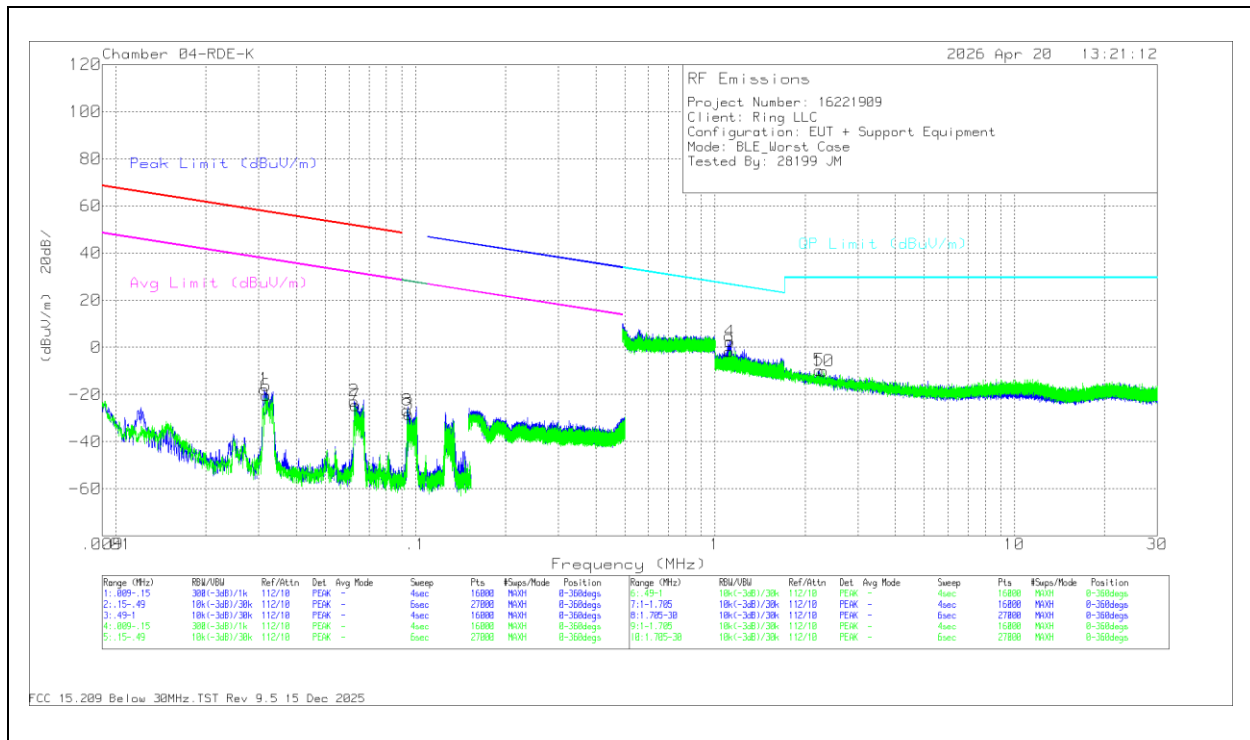
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

9.2. TRANSMITTER WORST CASE BELOW 30MHz

SPURIOUS EMISSIONS BELOW 30MHz (WORST-CASE CONFIGURATION)



Below 30MHz Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	Amp/Cbils (dB)	Dist Corr 300m (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0313	36.61	Pk	57.9	-32.2	-80	-17.69	57.67	-75.36	37.67	-55.36	-	-	0-360
2	.0624	33.28	Pk	56.2	-32.2	-80	-22.72	51.68	-74.4	31.68	-54.4	-	-	0-360
3	.0952	28.19	Pk	55.7	-32.2	-80	-28.31	-	-	-	-	28.02	-56.33	0-360
6	.0317	33.89	Pk	57.9	-32.2	-80	-20.41	57.57	-77.98	37.57	-57.98	-	-	0-360
7	.063	31.45	Pk	56.2	-32.2	-80	-24.55	51.6	-76.15	31.6	-56.15	-	-	0-360
8	.0939	29.71	Pk	55.8	-32.2	-80	-26.69	-	-	-	-	28.14	-54.83	0-360

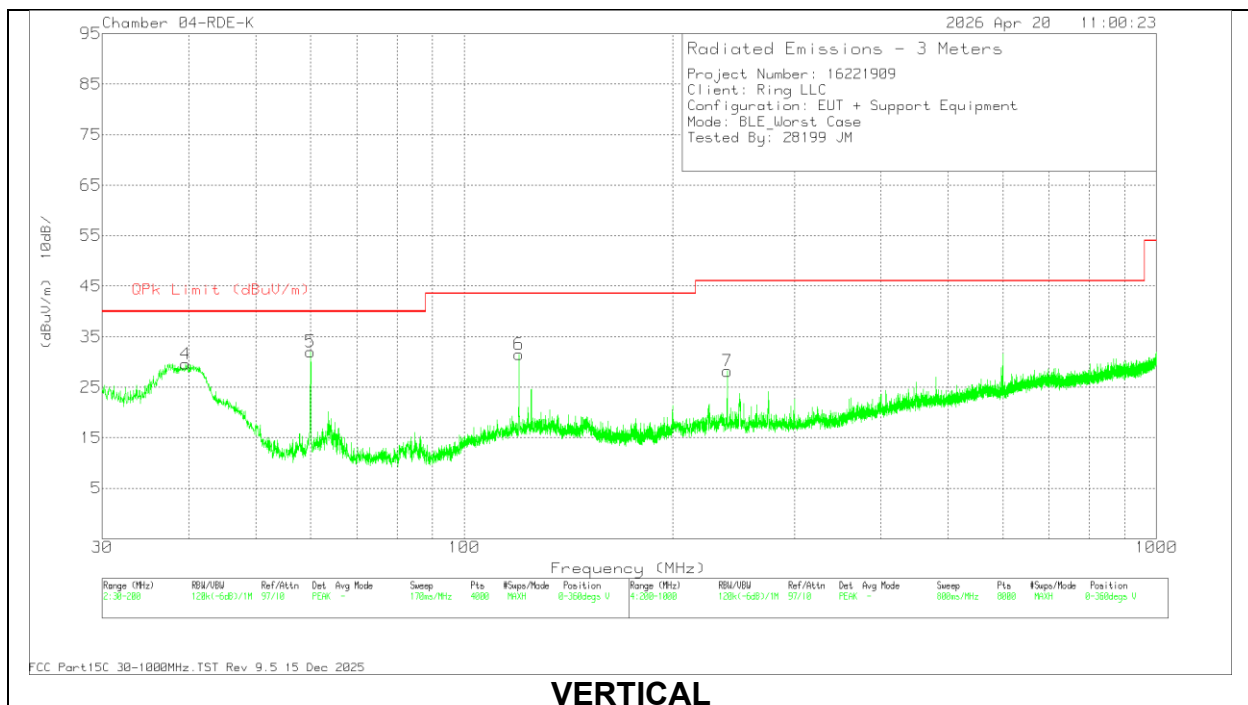
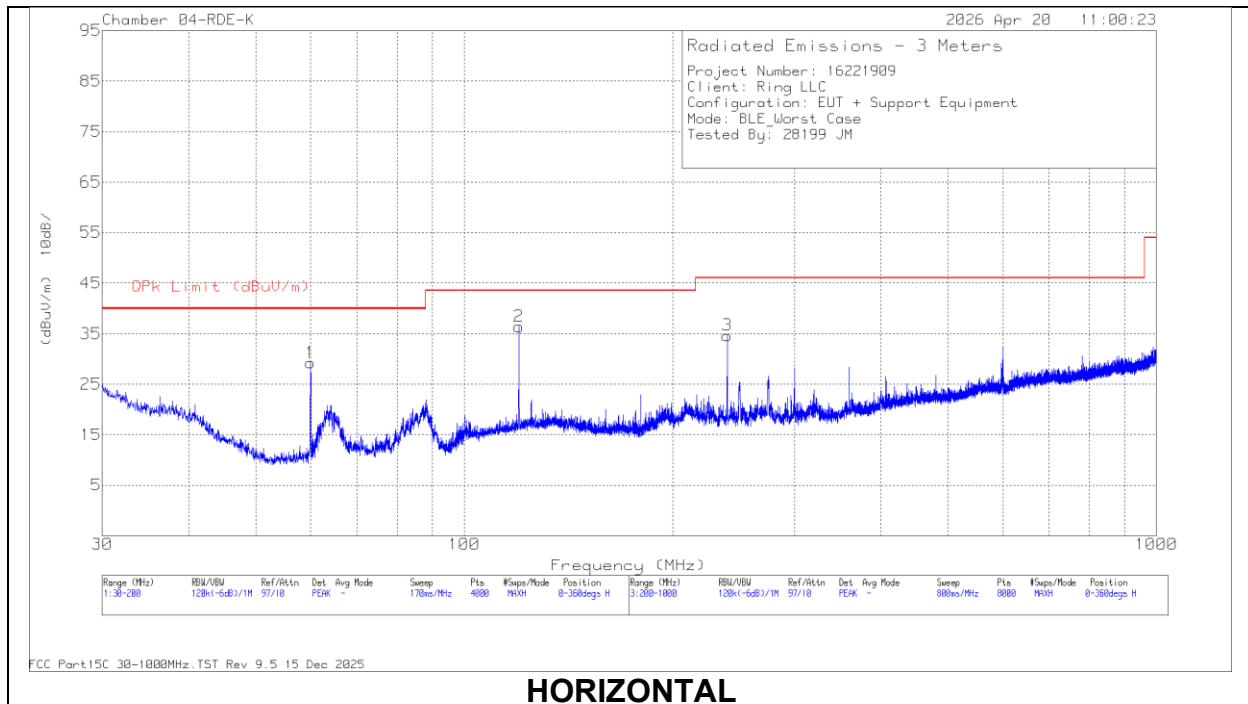
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E (dB/m)	Amp/Cbils (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
4	1.1204	28.36	Pk	46.2	-32.1	-40	2.46	26.64	-24.18	0-360
5	2.228	21.42	Pk	40.9	-32	-40	-9.68	29.5	-39.18	0-360
9	1.1177	24.2	Pk	46.2	-32.1	-40	-1.7	26.66	-28.36	0-360
10	2.3055	21.3	Pk	40.6	-32	-40	-10.1	29.5	-39.6	0-360

Pk - Peak detector

9.3. TRANSMITTER WORST CASE BELOW 1 GHz

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



Below 1GHz Data**Radiated Emissions**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	203089 ACF (dB/m)	Amp/CbIs (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	59.9703	46.92	Pk	13.3	-31	29.22	40	-10.78	0-360	399	H
2	* 120.003	47.46	Pk	19.9	-30.5	36.86	43.52	-6.66	224	203	H
	* 120.003	46.8	Qp	19.9	-30.5	36.2	43.52	-7.32	224	203	H
3	239.905	47.14	Pk	17.3	-29.8	34.64	46.02	-11.38	0-360	100	H
4	39.6075	40.38	Pk	20.4	-31.2	29.58	40	-10.42	0-360	100	V
5	59.9703	49.7	Pk	13.3	-31	32	40	-8	0-360	100	V
6	* 119.996	42.21	Pk	19.9	-30.6	31.51	43.52	-12.01	0-360	100	V
7	* 240.005	40.7	Pk	17.3	-29.8	28.2	46.02	-17.82	0-360	99	V

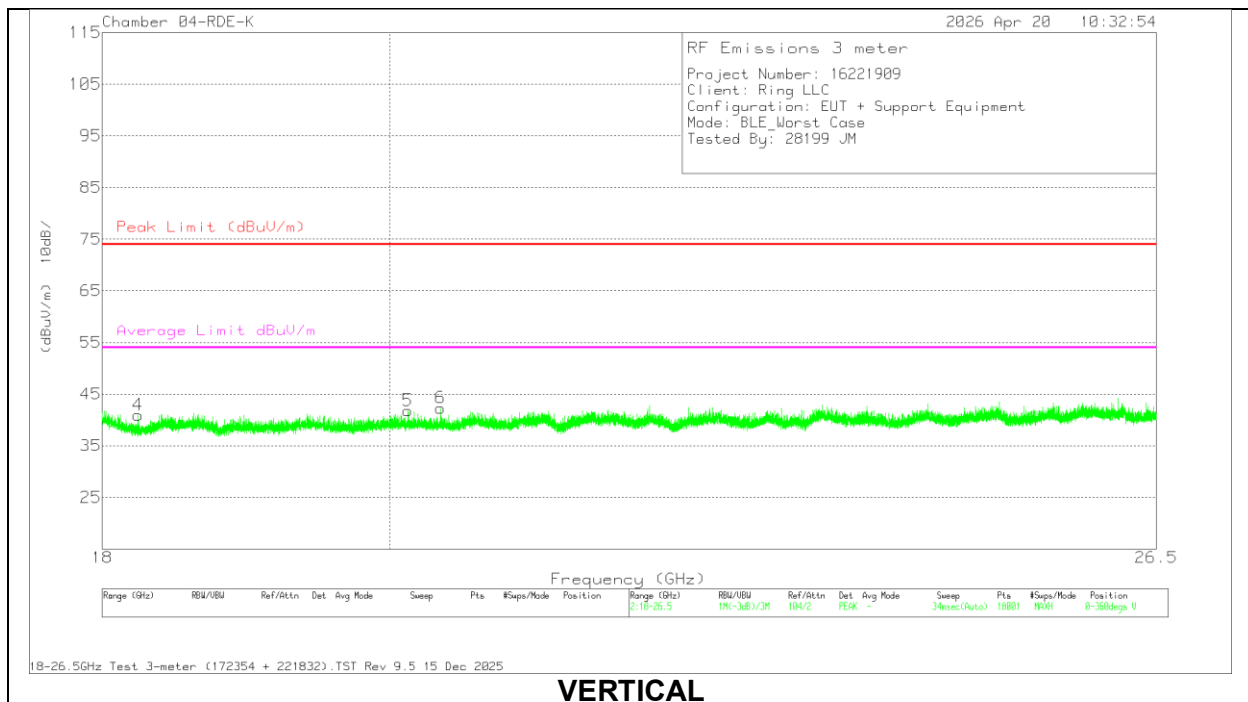
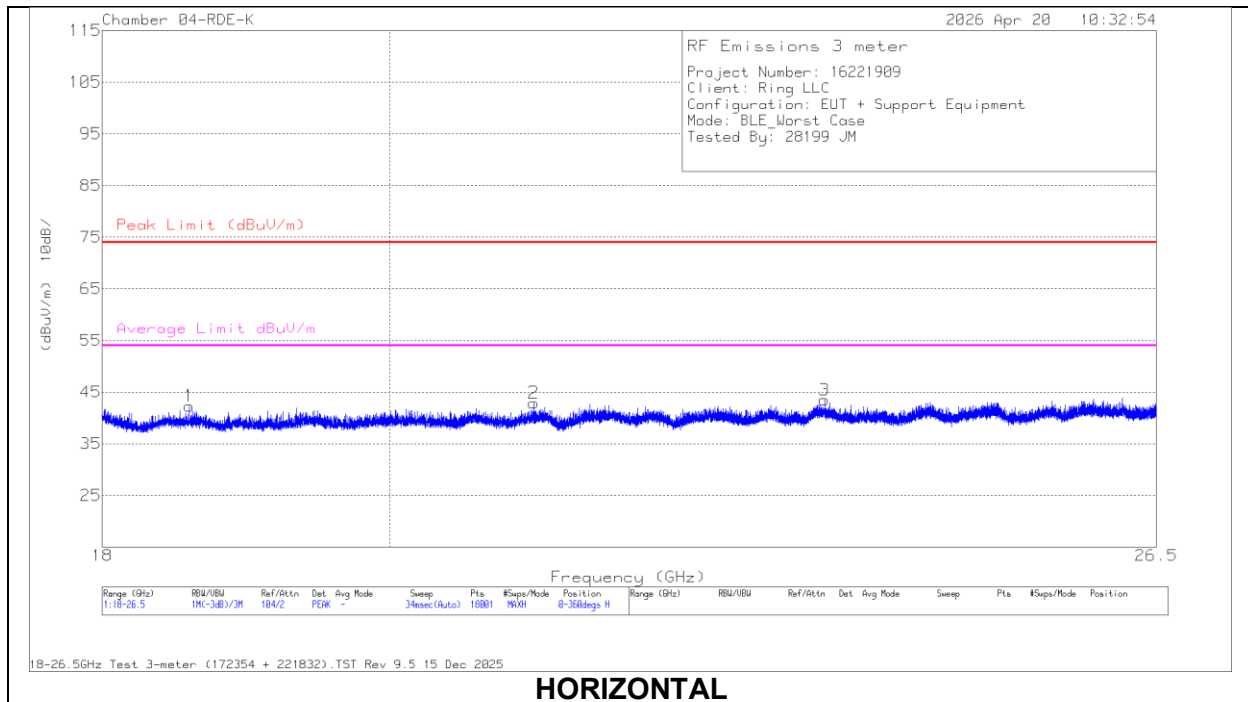
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

9.4. TRANSMITTER WORST CASE 18-26 GHz

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



18 – 26GHz Data**Trace Markers**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	81140 ACF (dB/m)	Coupler (dB)	CBL (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* ** 18.586028	53.09	Pk	32.3	-62.6	19.5	42.29	74	-31.71	0-360	101	H
2	* ** 21.088332	50.7	Pk	32.7	-61.1	20.6	42.9	74	-31.1	0-360	199	H
3	23.462192	50.46	Pk	33.5	-62.1	21.6	43.46	74	-30.54	0-360	199	H
4	* ** 18.238944	52.95	Pk	32.1	-63.4	19.3	40.95	74	-33.05	0-360	199	V
5	* ** 20.13586	50.89	Pk	32.5	-61.8	20.2	41.79	74	-32.21	0-360	199	V
6	* ** 20.379527	50.52	Pk	32.8	-61.3	20.3	42.32	74	-31.68	0-360	199	V

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

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.10, Subclause 6.2

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.

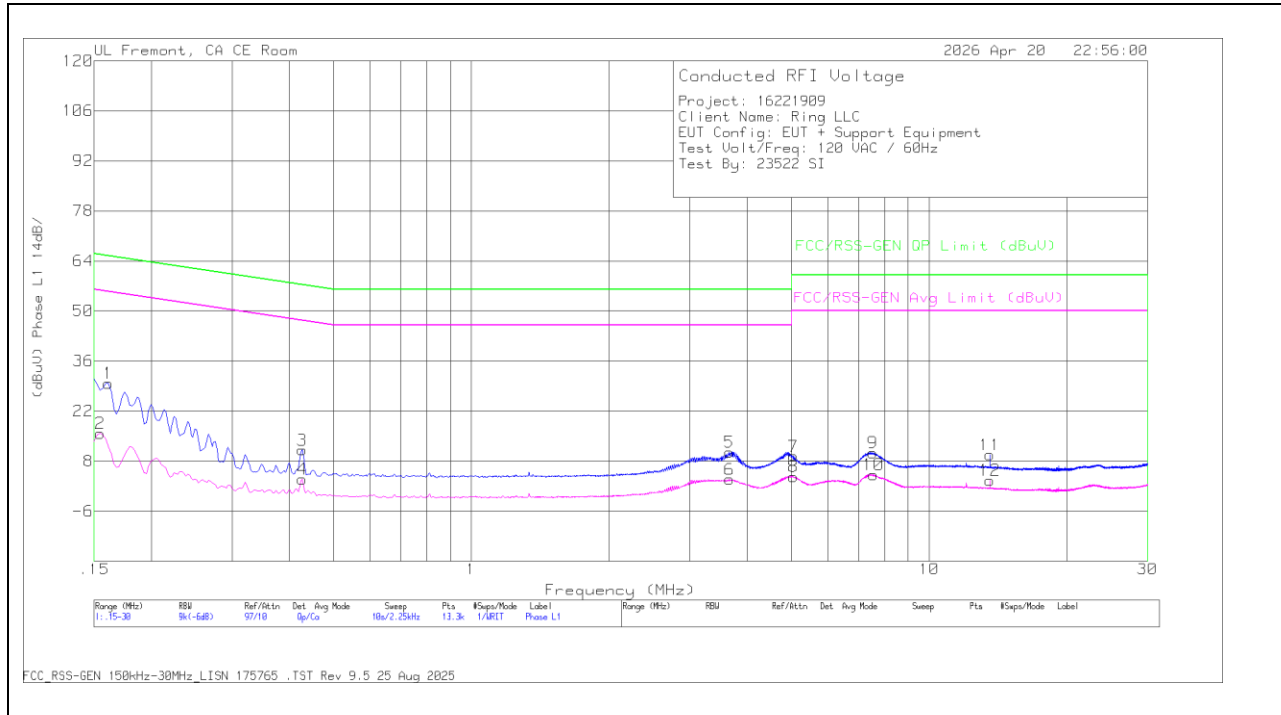
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

Note: L1: HOT and L2: NEUTRAL

LINE 1 RESULTS



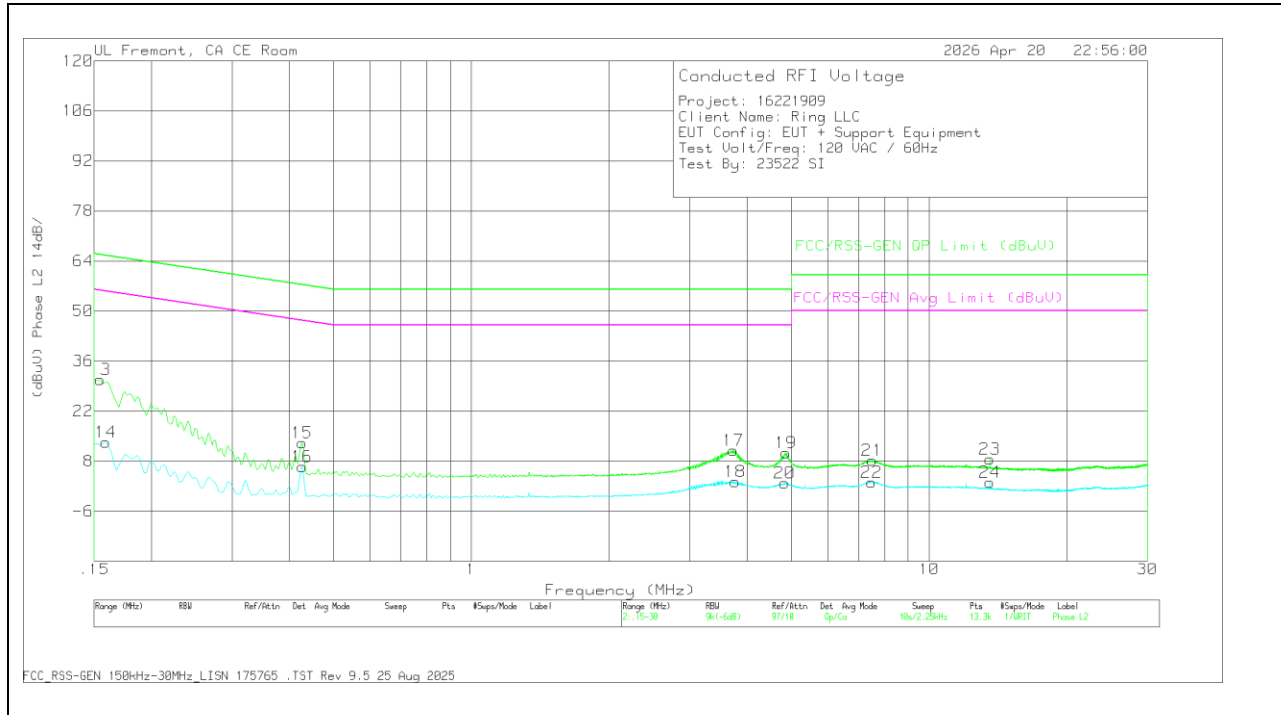
Trace Markers

Range 1: Phase L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC/RSS-GEN Avg Limit (dBuV)	Av (CISPR) Margin (dB)	FCC/RS S-GEN QP Limit (dBuV)	QP Margin (dB)
2	.1545	5.58	Ca	0	.1	10	15.68	55.75	-40.07	-	-
4	.4268	-7.03	Ca	0	0	10	2.97	47.32	-44.35	-	-
6	3.6645	-7.24	Ca	.1	0	10	2.86	46	-43.14	-	-
8	5.0471	-6.53	Ca	.2	0	10	3.67	50	-46.33	-	-
10	7.557	-6.04	Ca	.2	0	10	4.16	50	-45.84	-	-
12	13.56	-7.7	Ca	.2	.1	10	2.6	50	-47.4	-	-
1	.1613	19.73	Qp	0	.1	10	29.83	-	-	65.4	-35.57
3	.4268	1.09	Qp	0	0	10	11.09	-	-	57.32	-46.23
5	3.66	.39	Qp	.1	0	10	10.49	-	-	56	-45.51
7	5.046	-.86	Qp	.2	0	10	9.34	-	-	60	-50.66
9	7.5323	.08	Qp	.2	0	10	10.28	-	-	60	-49.72
11	13.56	-.59	Qp	.2	.1	10	9.71	-	-	60	-50.29

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Trace Markers

Range 2: Phase L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Cbl (dB)	LISN (dB)	10dB Atten (dB)	Corrected Reading (dBuV)	FCC/RSS-GEN Avg Limit (dBuV)	Av(CISPR) Margin (dB)	FCC/RSS-GEN QP Limit (dBuV)	QP Margin (dB)
14	.159	3.16	Ca	0	.1	10	13.26	55.52	-42.26	-	-
16	.4268	-3.52	Ca	0	0	10	6.48	47.32	-40.84	-	-
18	3.7703	-7.85	Ca	.1	0	10	2.25	46	-43.75	-	-
20	4.8368	-8.28	Ca	.2	0	10	1.92	46	-44.08	-	-
22	7.4918	-8.06	Ca	.2	0	10	2.14	50	-47.86	-	-
24	13.56	-8.21	Ca	.2	.1	10	2.09	50	-47.91	-	-
13	.1545	20.69	Qp	0	.1	10	30.79	-	-	65.75	-34.96
15	.4268	3.14	Qp	0	0	10	13.14	-	-	57.32	-44.18
17	3.741	.9	Qp	.1	0	10	11	-	-	56	-45
19	4.866	.12	Qp	.2	0	10	10.32	-	-	56	-45.68
21	7.503	-1.99	Qp	.2	0	10	8.21	-	-	60	-51.79
23	13.5623	-1.78	Qp	.2	.1	10	8.52	-	-	60	-51.48

Qp - Quasi-Peak detector

Ca - CISPR average detection

11. SETUP PHOTOS

Please refer to 16221909-EP1 for setup photos.

END OF REPORT