

# TEST REPORT

**Report Number:** 14954500-E9V1

**Applicant :** SRAM LLC  
1000 W Fulton Market 4<sup>th</sup> Floor  
Chicago, IL 60607, United States

**Model :** 12300

**Brand :** SRAM

**FCC ID :** C9O-HKB1

**IC :** 10161A-HKB1

**EUT Description :** BICYCLE HEAD UNIT

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C  
ISED RSS-210 ISSUE 10  
ISED RSS-GEN ISSUE 5 + A1 + A2

**Date Of Issue:**  
2023-11-09

**Prepared by:**  
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## REPORT REVISION HISTORY

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	2023-11-09	Initial Issue	

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SRAM LLC  
1000 W Fulton Market 4<sup>th</sup> Floor  
Chicago, IL 60607, United States

**EUT DESCRIPTION:** Bicycle Head Unit

**MODEL:** 12300

**BRAND:** SRAM

**SERIAL NUMBER:** Radiated: 00416GA23270005 and 00416GA23270009  
Conducted: 00413PA232960044 and 00413PA232960035

**SAMPLE RECEIPT DATE:** 2023-09-22 and 2023-09-28

**DATE TESTED:** 2023-10-02 to 2023-10-31

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR Part 15 Subpart C	Complies
ISED RSS-210 Issue 10	Complies
ISED RSS-GEN Issue 5 + A1 + A2	Complies

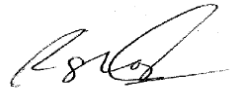
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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

Approved & Released For  
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UL Verification Services Inc.

## 2. TEST RESULTS SUMMARY

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

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

- 1) Antenna gain and type (see section 6.3)

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment	See Comment	Duty Cycle	Reporting purposes only	Based on the manufacturer's declaration
See Comment	RSS-GEN 6.7	20dB BW / 99% OBW	Reporting purposes only	ANSI C63.10 Sections 6.9.2 and 6.9.3.
15.249 (a) (c)	RSS-GEN 8.9, 8.10	Radiated Emissions	Compliant	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Compliant	None.

### 3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2013, KDB 414788 D01 Radiated Test Site v01r01, ISED RSS-GEN Issue 5 + A1 + A2 and ISED RSS-210 Issue 10.

### 4. FACILITIES AND ACCREDITATION

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

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building 1: 47173 Benicia Street Fremont, CA 94538, U.S.A	US0104	2324A	550739
<input type="checkbox"/>	Building 2: 47266 Benicia Street Fremont, CA 94538, U.S.A	US0104	2324A	550739
<input checked="" type="checkbox"/>	Building 4: 47658 Kato Rd Fremont, CA 94538, U.S.A	US0104	2324A	550739



## 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 <sub>Lab</sub>
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Power Spectral Density	2.47 dB
RF Power Measurement Direct Method Using Power Meter	1.3 dB (PK) / 0.45 dB (AV)
Unwanted Emissions, Conducted	1.94 dB
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
Time Domain Measurements	3.39%
Temperature	0.57°C
Humidity	3.39%
DC Supply Voltages	0.57%

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 EUT is a Bicycle Head Unit.

### 6.2. MAXIMUM FUNDAMENTAL FIELD STRENGTH

The transmitter has maximum fundamental peak and average E-field strength output powers as follows:

#### 6.2.1. LEFT NORDIC RADIO:

Frequency Range (MHz)	Mode	Peak E-field Strength (dBuV/m)	Avg E-field Strength (dBuV/m)	Distance (m)
2402 - 2480	ANT+ (1Mbps)	101.82	87.84	3.00
2402 - 2480	ANT+ (2Mbps)	100.25	86.27	3.00
2402 - 2480	ANT+ (250kbps)	101.01	87.03	3.00

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

The Left Nordic Radio utilizes a Monopole antenna, with a maximum gain of 0.66 dBi.

### 6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed, and the test utility software used during testing was FVIN: H-2.0.

## 6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as 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.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X(Flatbed) orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

The worst-case data rate provided by the client were:

### **Left Nordic Radio:**

- ANT + : 1Mbps
- ANT + : 2Mbps
- ANT + : 250kbps

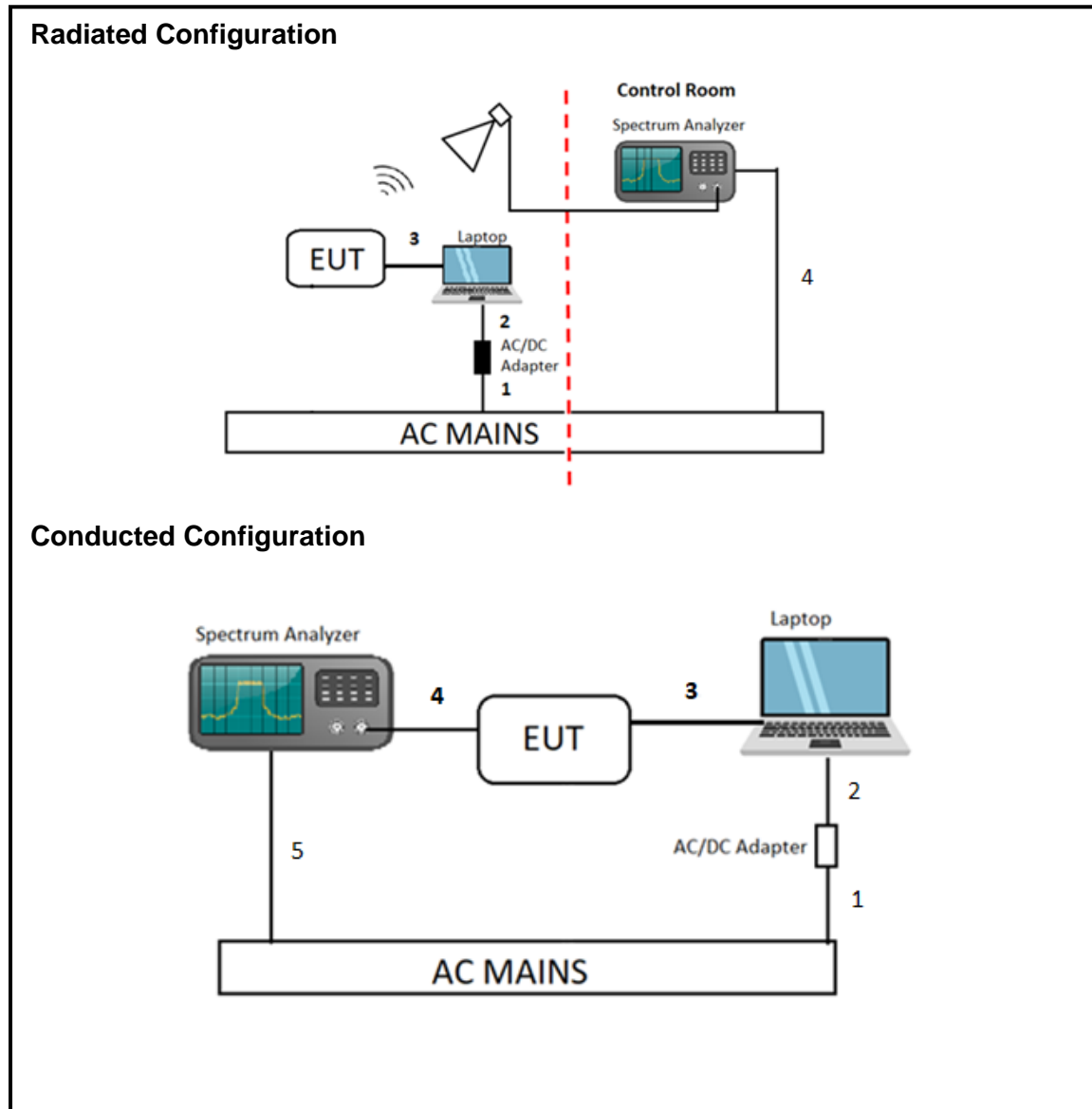
## 6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
Laptop	Lenovo	ThinkPad P15s Gen 2	PF-2YV2K6	DoC		
Laptop AC/DC Adapter	Lenovo	ADLX65Y	8SSA10R16875C1SG09PRSHT	DoC		
I/O CABLES (CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	2-Prong	Un-shielded	1	AC Mains to LT AC/DC Adapter
2	DC	1	DC	Un-shielded	1.5	AC/DC Adapter to Laptop
3	USB	1	USB A to USB C	Un-shielded	1	Laptop to EUT
4	SMA	1	SMA	Un-shielded	0.1	EUT to Spectrum Analyzer
5	AC	1	3-Prong	Un-shielded	1.5	AC Mains to Spectrum Analyzer
I/O CABLES (RADIATED TEST EMISSIONS)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	2-Prong	Un-shielded	1	AC Mains to LT AC/DC Adapter
2	DC	1	DC	Un-shielded	1.5	AC/DC Adapter to Laptop
3	USB	1	USB A to USB C	Un-shielded	1	Laptop to EUT
4	AC	1	3-Prong	Un-shielded	1.5	AC Mains to Spectrum Analyzer

### TEST SETUP

For the purposes of testing, the EUT is connected to a laptop via USB A to USB C for radiated emissions above 1GHz. The EUT is normally powered by a Li-Ion battery at 3.85V. The laptop is used for setting up purposes and was used during testing.

**SETUP DIAGRAMS**



## 7. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2013 Section 11.6

*\* The On-time and Duty Cycle was based on the manufacturer's declaration.*

Occupied BW (20dB): ANSI C63.10-2013 Section 6.9.2

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Radiated Spurious Emissions 30-1000MHz: ANSI C63.10-2013 Section 6.3 and 6.5

Radiated Spurious Emissions above 1GHz: ANSI C63.10-2013 Section 6.3 and 6.6

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

Radiated Band-edge: ANSI C63.10-2013 Section 6.10.5

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

## 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, Broadband Hybrid, 30MHz to 1GHz	Sunol Sciences Corp.	JB3	232075	2024-03-31	2023-03-13
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	223083	2023-10-31	2022-10-25
RF Filter Box, 1-18GHz	UL-FR1	n/a	197920	2024-05-31	2023-05-17
EMI TEST RECEIVER, with B8 option	Rohde & Schwarz	ESW44	191429	2024-02-29	2023-02-15
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	225688 (chamber K)	2024-02-29	2023-02-14
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	199659	2023-12-06	2022-12-06
Amplifier 18-26.5GHz, +5Vdc, -54dBm P1dB	AMPLICAL	AMP18G26.5-60	234683	2024-03-29	2023-03-18
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	170015	2024-07-31	2022-07-28
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	170013	2024-07-31	2022-07-28
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent Technologies	N9030A	80396	2024-01-31	2023-01-27
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90754	2024-01-31	2023-01-24
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	81319	2024-01-25	2023-01-25
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236193	Verified	Verified
AC Line Conducted					
LISN	Fischer Custom Communications, Inc	FCC-LISN-50/250-25-2-01-480V	175765	2024-01-31	2023-01-27
EMI TEST RECEIVER	Rohde & Schwarz	ESR	171646	2024-02-29	2023-02-20
Transient Limiter	TE	TBFL1	207996	2024-08-31	2023-08-10
UL TEST SOFTWARE LIST					
Radiated Software	UL	UL EMC	Ver 2023-01-18, 2023-03-03, 2023-05-01		
Antenna Port Software	UL	UL RF	Ver 2022-08-16		
AC Line Conducted Software	UL	UL EMC	Rev 9.5, 2022-02-17		

### NOTES:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the 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.

#### 9.1.1. LEFT NORDIC RADIO:

ANT + (1Mbps), ANT + (2Mbps) and ANT + (250kbps):

#### ON TIME AND DUTY CYCLE RESULTS

*Note: DCCF based on manufacturer's declared duty cycle of 20%,  $20\log(0.2) = -13.98\text{dB}$ .*

## 9.2. 99% BANDWIDTH

### LIMITS

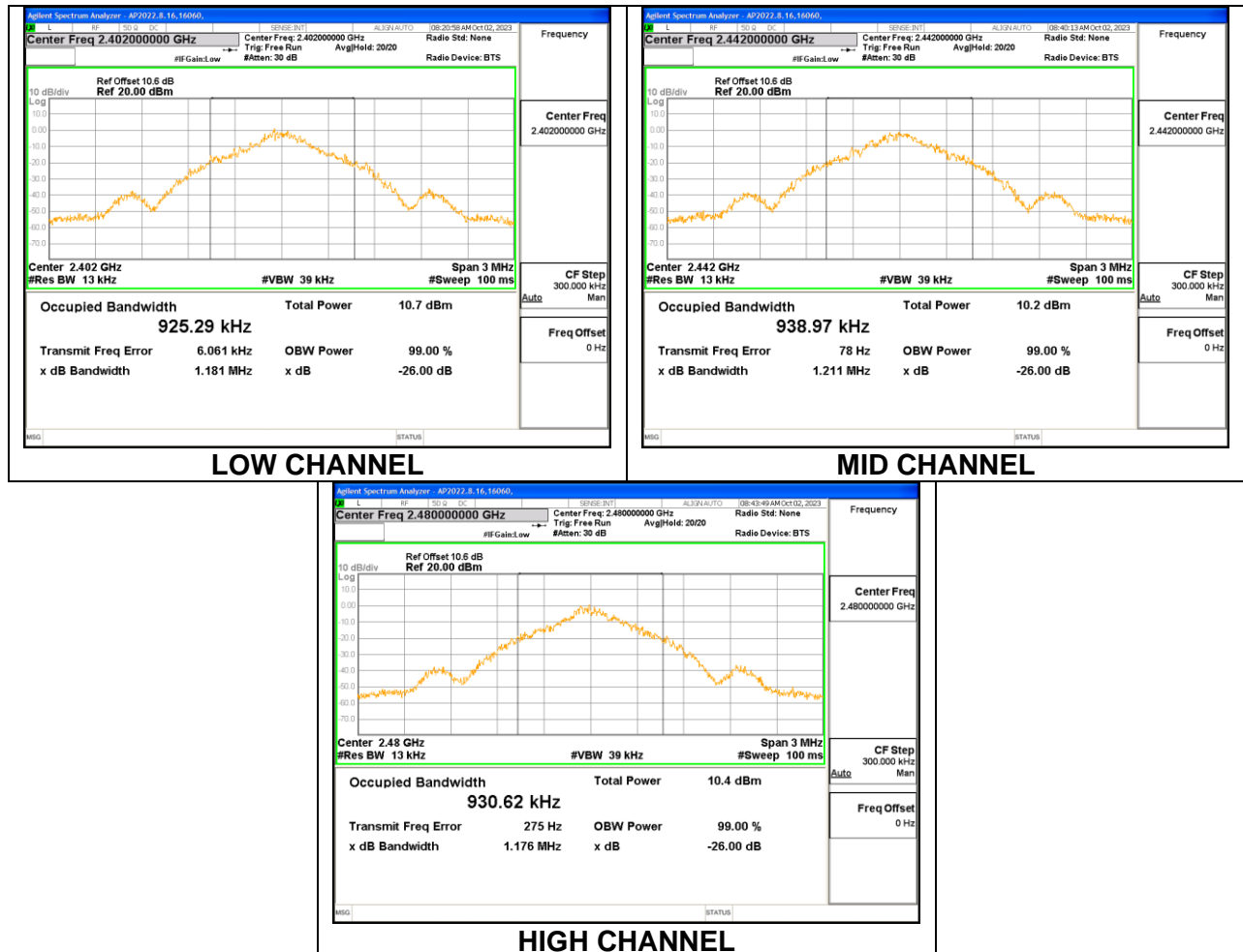
None; for reporting purposes only.

### RESULTS

#### 9.2.1. LEFT NORDIC RADIO:

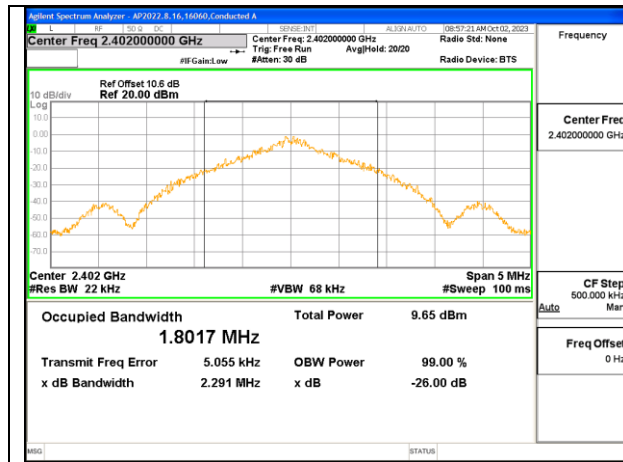
ANT + (1Mbps):

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	0.92529
Middle	2442	0.93897
High	2480	0.93062

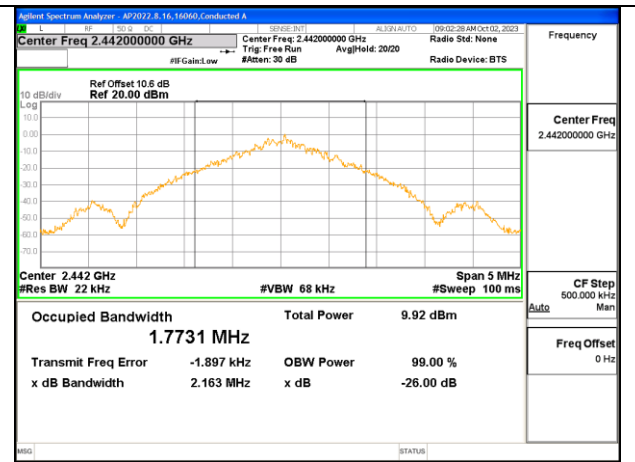


**ANT + (2Mbps):**

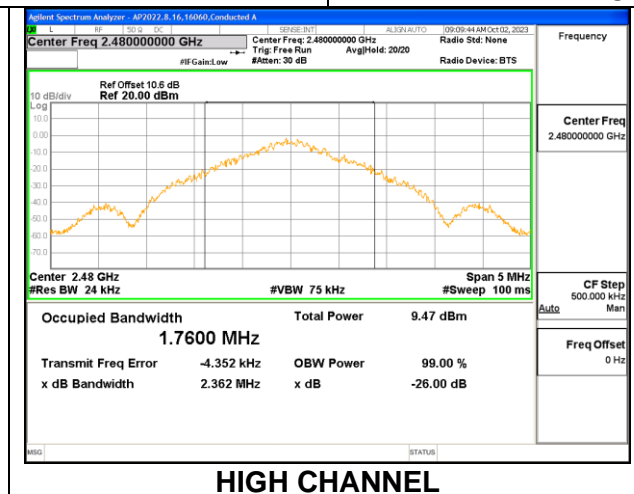
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.8017
Middle	2442	1.7731
High	2480	1.7600



**LOW CHANNEL**



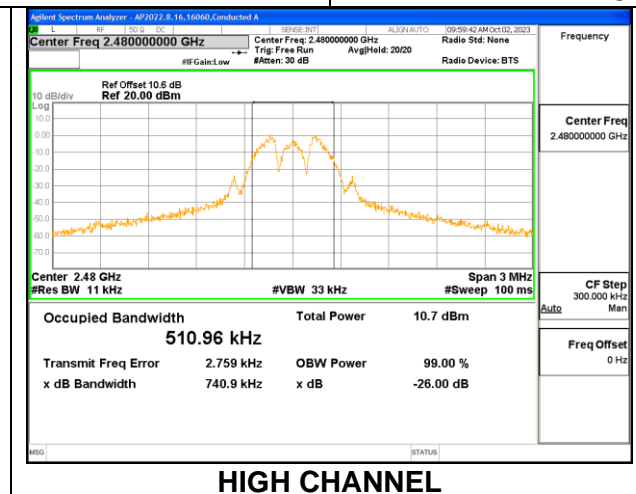
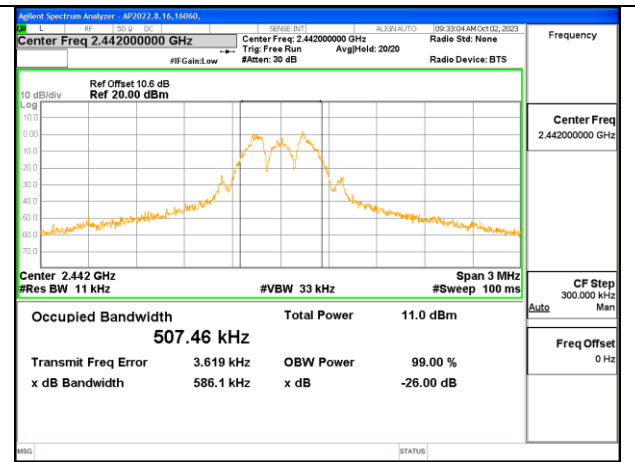
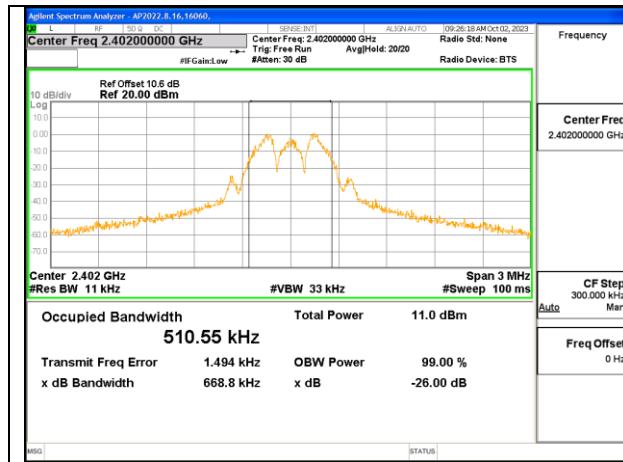
**MID CHANNEL**



**HIGH CHANNEL**

**ANT + (250kbps):**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	0.51055
Middle	2442	0.50746
High	2480	0.51096



### **9.3. 20 dB BANDWIDTH**

#### **LIMITS**

None; for reporting purposes only.

#### **TEST PROCEDURE**

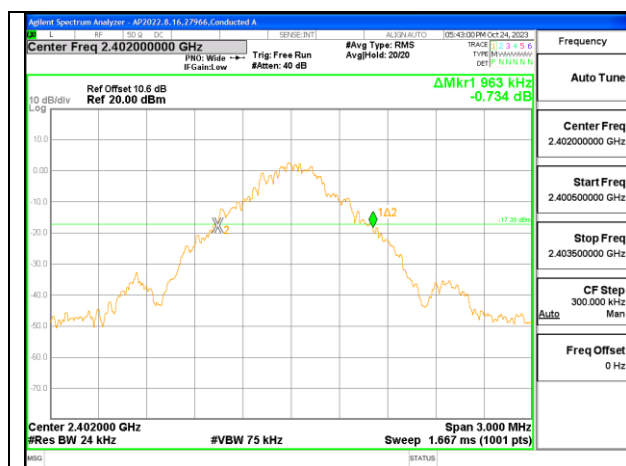
The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 5% of the 20 dB bandwidth. The VBW is set to approximately three times RBW. The sweep time is coupled.

#### **RESULTS**

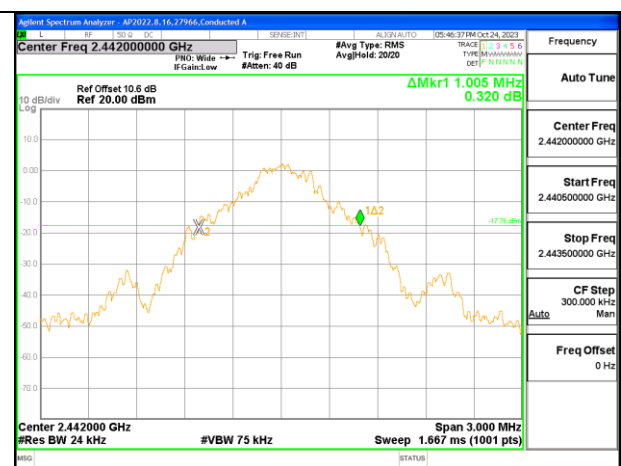
### 9.3.1. LEFT NORDIC RADIO:

**ANT + (1Mbps):**

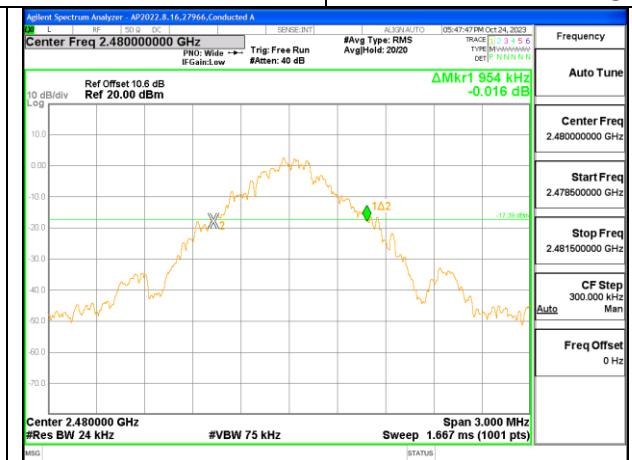
Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Frequency Edge (MHz)	Limit (MHz)	Margin (MHz)
Low	2402	0.963	2401.519	2400	-1.519
Middle	2442	1.005	N/A	N/A	N/A
High	2480	0.954	2480.477	2483.5	-3.023



**LOW CHANNEL**



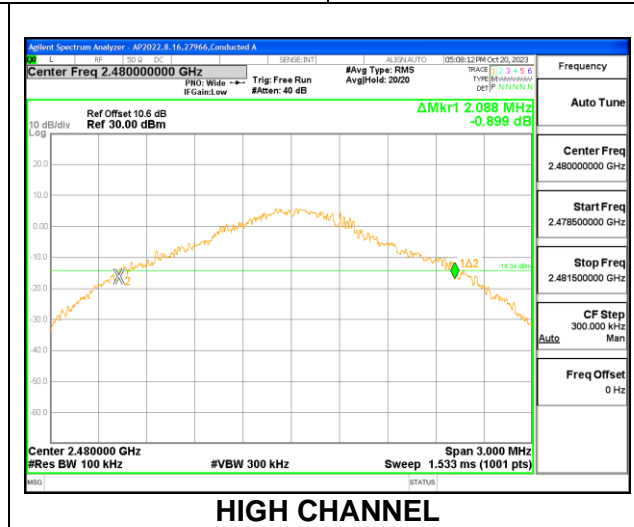
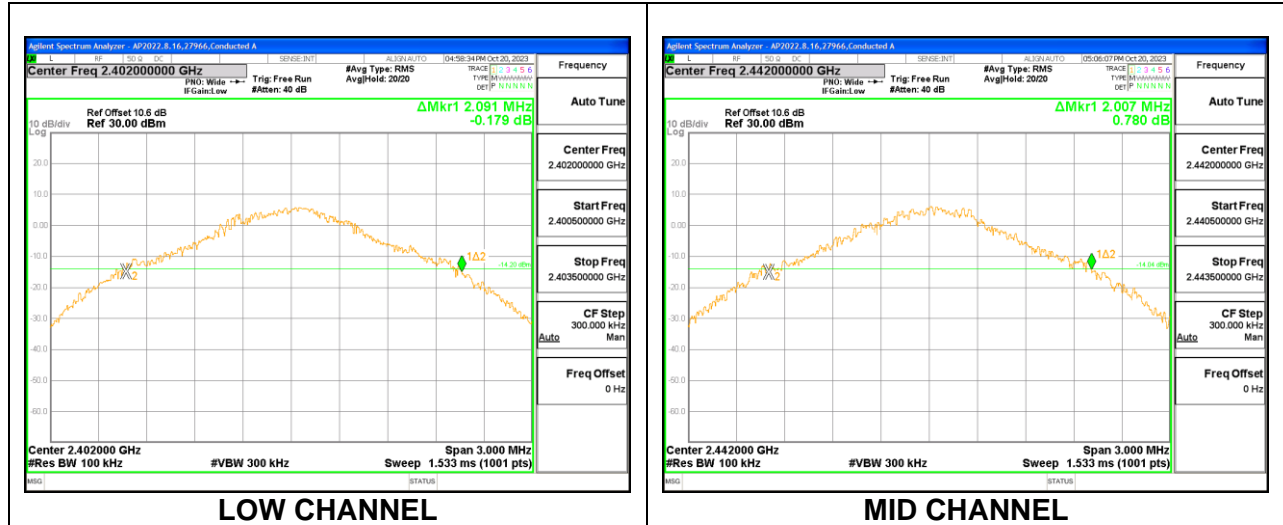
**MID CHANNEL**



**HIGH CHANNEL**

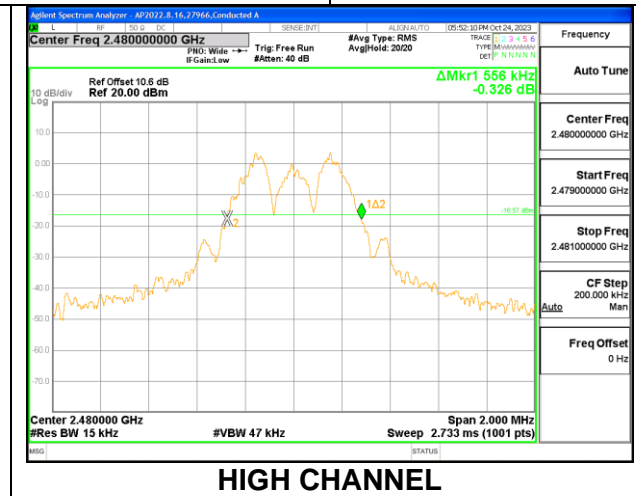
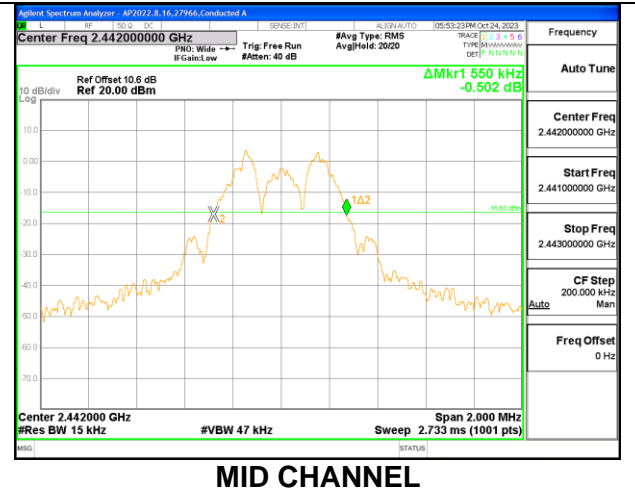
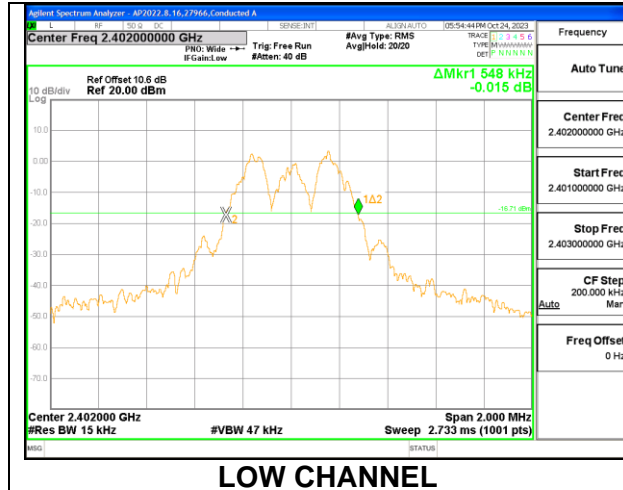
**ANT + (2Mbps):**

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Frequency Edge (MHz)	Limit (MHz)	Margin (MHz)
Low	2402	2.091	2400.955	2400	-0.954
Middle	2442	2.007	N/A	N/A	N/A
High	2480	2.088	2481.044	2483.5	-2.456



**ANT + (250kbps):**

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Frequency Edge (MHz)	Limit (MHz)	Margin (MHz)
Low	2402	0.548	2401.726	2400	-1.726
Middle	2442	0.550	N/A	N/A	N/A
High	2480	0.556	2480.278	2483.5	-3.222





## 10. RADIATED TEST RESULTS

### 10.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.249

FCC §15.205 and §15.209

RSS-210 Annex B.10.

ISED RSS-GEN, Section 8.9 and 8.10

Operation within the bands 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHz, and 24.0–24.25 GHz.

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz .....	50	500
2400–2483.5 MHz .....	50	500
5725–5875 MHz .....	50	500
24.0–24.25 GHz .....	250	2500

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

(e) As shown in Sec. 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

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

## **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

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

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

The spectrum from 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, 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.

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.

**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.

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 the free space impedance of 377 Ohms. For example, the measurement at frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to  $Y - 51.5 = Z$  dBuA/m, which has the same margin, W dB, to the corresponding RSS-Gen Table 6 limit as it has to 15.209(a) limit.

## 10.2. FUNDAMENTAL FREQUENCY RADIATED EMISSION

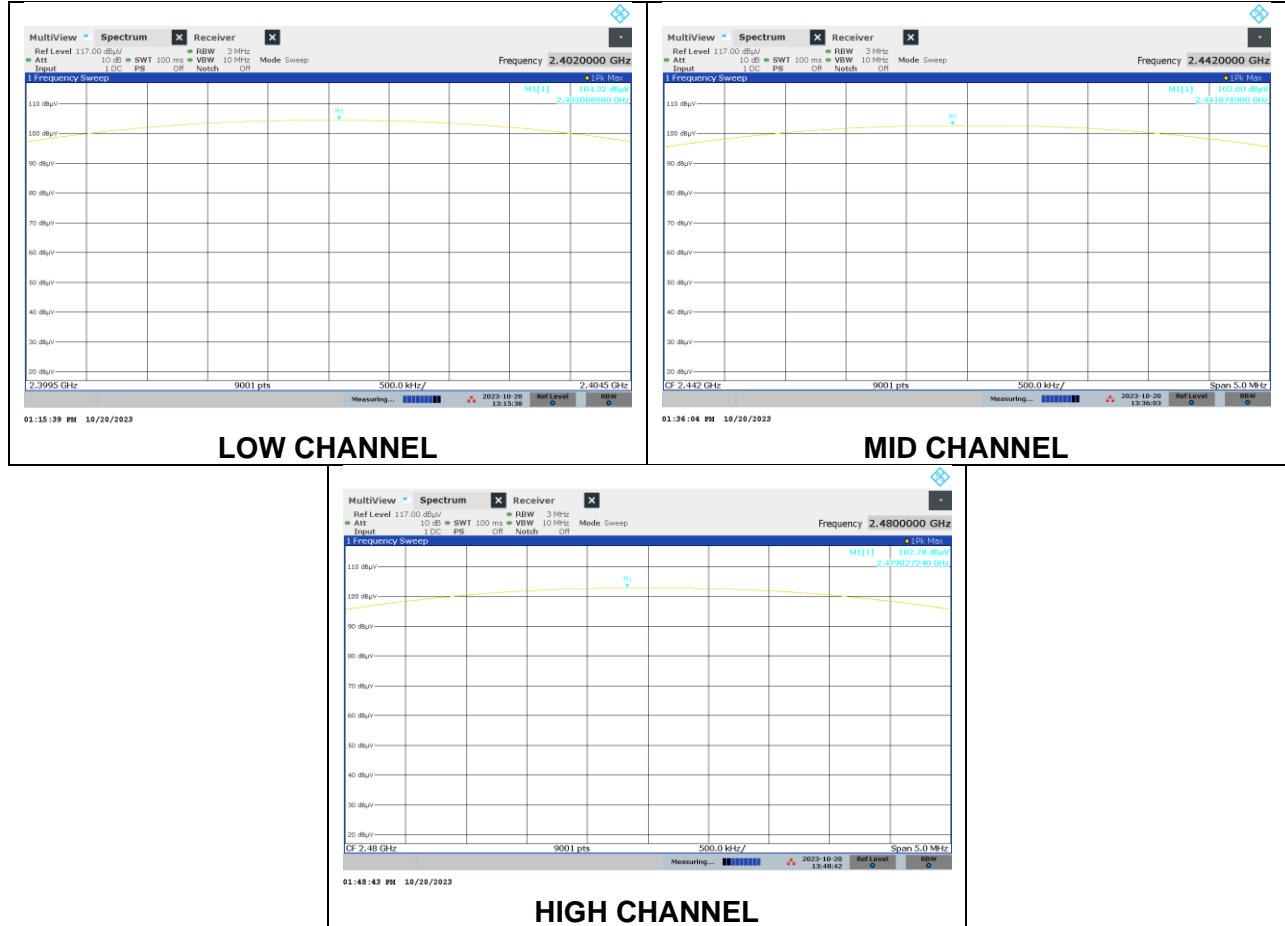
### TEST INFORMATION

Date: 2023-10-20

Tester: CW 20756

#### 10.2.1. LEFT NORDIC RADIO:

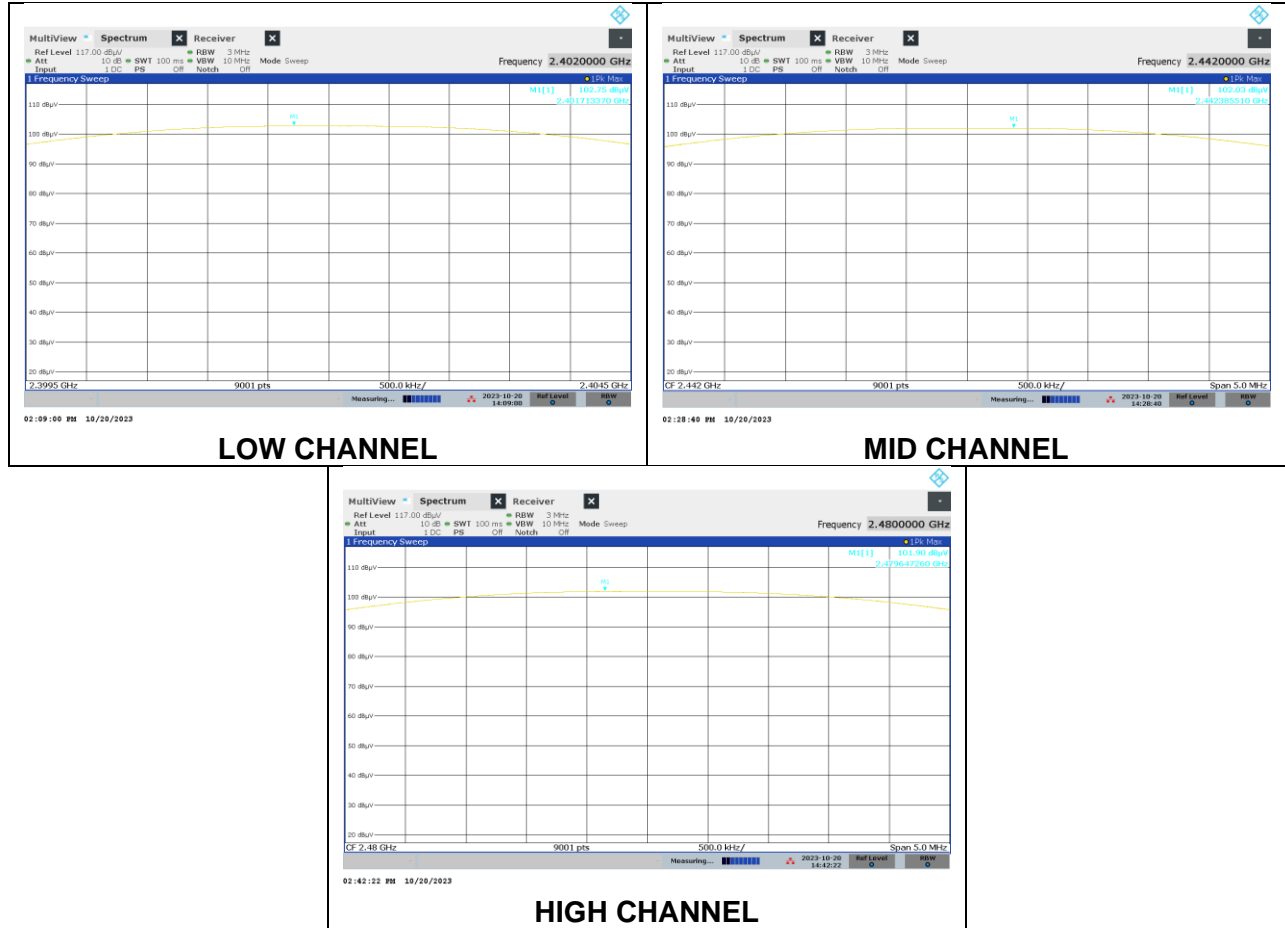
ANT + (1Mbps):



Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2402	104.32	PK	31.9	-34.4		<b>101.82</b>	-	-	114	-12.18	20	144	H
	104.32	AVG	31.9	-34.4	-13.98	<b>87.84</b>	94	-6.16	-	-	20	144	H
	100.14	PK	31.9	-34.4		97.64	-	-	114	-16.36	342	103	V
2442	100.14	AVG	31.9	-34.4	-13.98	83.66	94	-10.34	-	-	342	103	V
	102.6	PK	32	-34.3		100.3	-	-	114	-13.7	32	139	H
	102.6	AVG	32	-34.3	-13.98	86.32	94	-7.68	-	-	32	139	H
	99.12	PK	32	-34.3		96.82	-	-	114	-17.18	341	122	V
2480	99.12	AVG	32	-34.3	-13.98	82.84	94	-11.16	-	-	341	122	V
	102.78	PK	32.2	-34.1		100.88	-	-	114	-13.12	305	172	H
	102.78	AVG	32.2	-34.1	-13.98	86.9	94	-7.1	-	-	305	172	H
	97.25	PK	32.2	-34.1		95.35	-	-	114	-18.65	353	122	V
	97.25	AVG	32.2	-34.1	-13.98	81.37	94	-12.63	-	-	353	122	V

PK - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

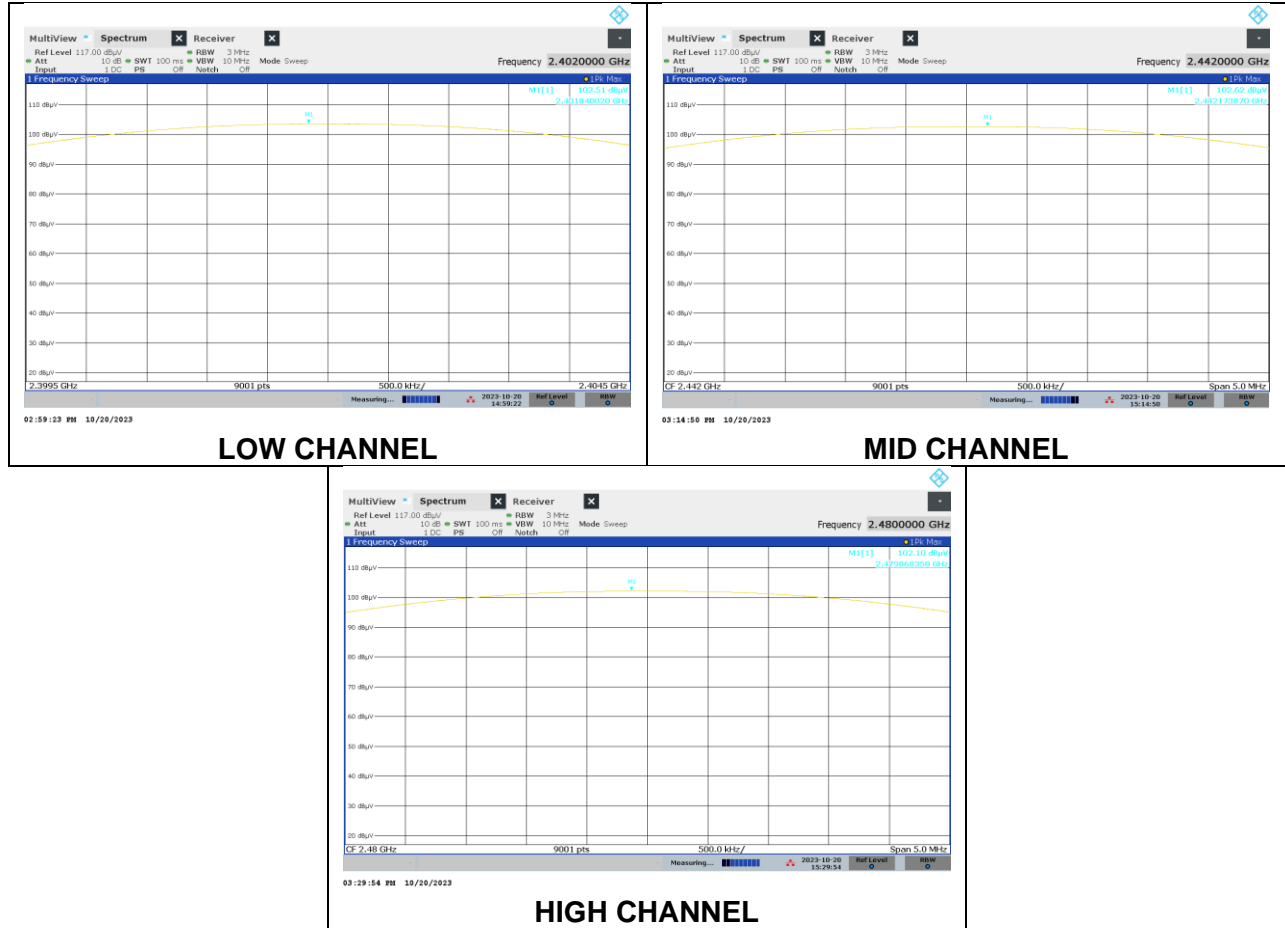
**ANT + (2Mbps):**



Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2402	102.75	PK	31.9	-34.4		<b>100.25</b>	-	-	114	-13.75	18	306	H
	102.75	AVG	31.9	-34.4	-13.98	<b>86.27</b>	94	-7.73	-		18	306	H
	102.46	PK	31.9	-34.4		99.96	-	-	114	-14.04	200	361	V
	102.46	AVG	31.9	-34.4	-13.98	85.98	94	-8.02	-		200	361	V
2442	102.03	PK	32	-34.3		99.73	-	-	114	-14.27	321	358	H
	102.03	AVG	32	-34.3	-13.98	85.75	94	-8.25	-		321	358	H
	101.04	PK	32	-34.3		98.74	-	-	114	-15.26	210	358	V
	101.04	AVG	32	-34.3	-13.98	84.76	94	-9.24	-		210	358	V
2480	101.9	PK	32.2	-34.1		100	-	-	114	-14	325	102	H
	101.9	AVG	32.2	-34.1	-13.98	86.02	94	-7.98	-		325	102	H
	98.66	PK	32.2	-34.1		96.76	-	-	114	-17.24	347	101	V
	98.66	AVG	32.2	-34.1	-13.98	82.7	94	-11.22	-		347	101	V

PK - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

**ANT + (250kbps):**





Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2402	103.51	PK	31.9	-34.4		<b>101.01</b>	-	-	114	-12.99	28	117	H
	103.51	AVG	31.9	-34.4	-13.98	<b>87.03</b>	94	-6.97	-		28	117	H
	99.9	PK	31.9	-34.4		97.4	-	-	114	-16.6	348	115	V
	99.9	AVG	31.9	-34.4	-13.98	83.42	94	-10.58	-		348	115	V
2442	102.62	PK	32	-34.3		<b>100.32</b>	-	-	114	-13.68	14	117	H
	102.62	AVG	32	-34.3	-13.98	86.34	94	-7.66	-		14	117	H
	99.48	PK	32	-34.3		97.18	-	-	114	-16.82	345	105	V
	99.48	AVG	32	-34.3	-13.98	83.2	94	-10.8	-		345	105	V
2480	102.1	PK	32.2	-34.1		<b>100.2</b>	-	-	114	-13.8	329	101	H
	102.1	AVG	32.2	-34.1	-13.98	86.22	94	-7.78	-		329	101	H
	98.96	PK	32.2	-34.1		97.06	-	-	114	-16.94	345	119	V
	98.96	AVG	32.2	-34.1	-13.98	83.08	94	-10.92	-		345	119	V

PK - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

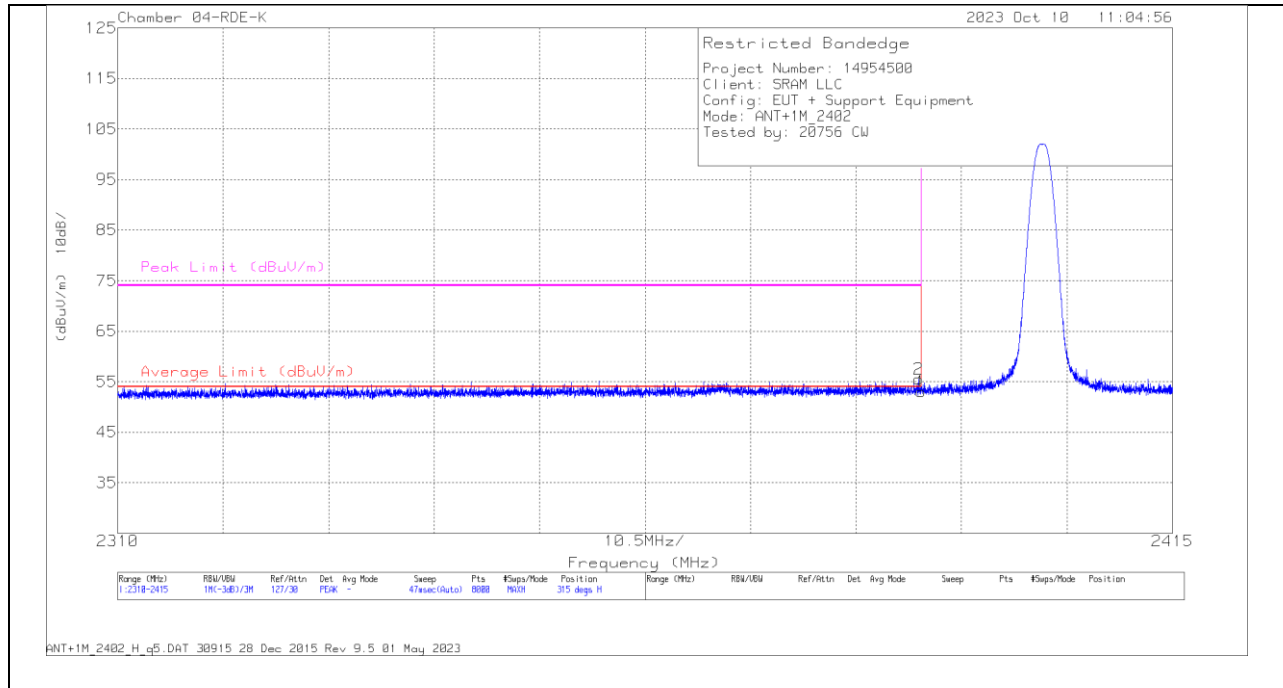
### 10.3. TRANSMITTER ABOVE 1 GHz

#### 10.3.1. LEFT NORDIC RADIO:

**ANT + (1Mbps):**

**BANDEDGE (LOW CHANNEL)**

#### HORIZONTAL RESULT

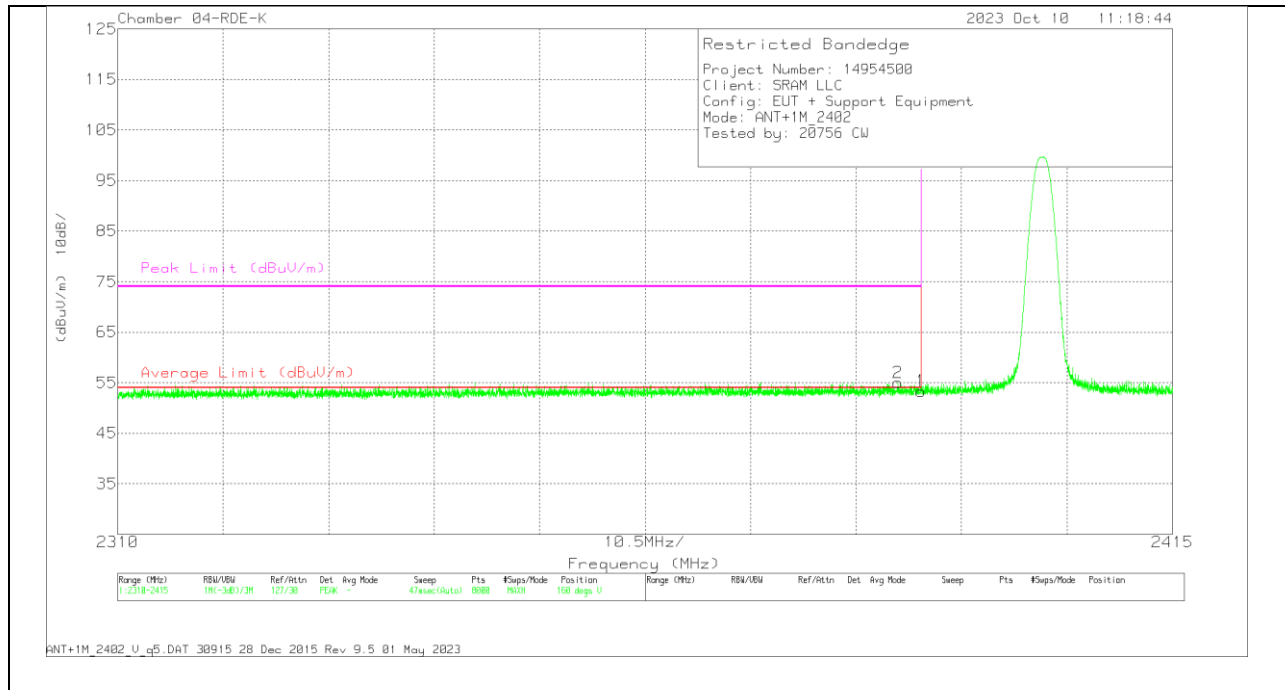


#### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2390	55.76	Pk	31.8	-34.5		53.06	-	-	74	-20.94	315	185	H
2	2389.707	58.23	Pk	31.8	-34.5		55.53	-	-	74	-18.47	315	185	H
3	2390	55.76	Avg	31.8	-34.5	-13.98	39.08	54	-14.92	-	-	315	185	H
4	2389.707	58.23	Avg	31.8	-34.5	-13.98	41.55	54	-12.45	-	-	315	185	H

Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### VERTICAL RESULT



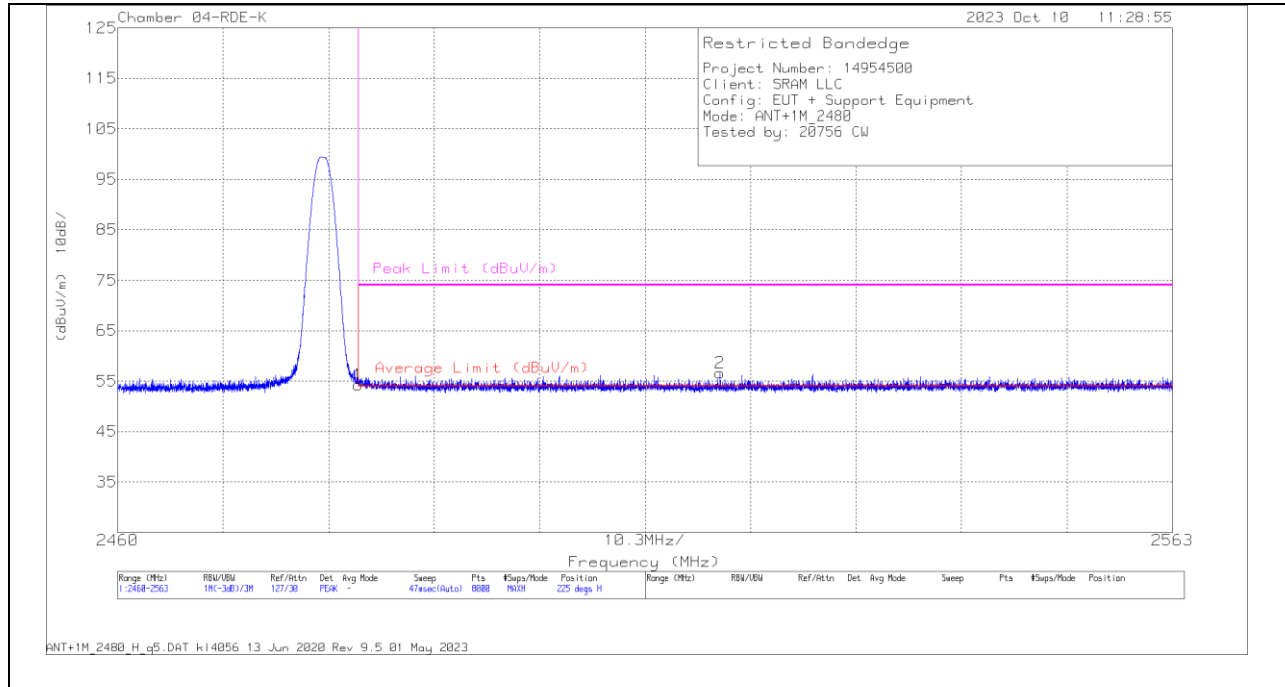
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2390	56.03	Pk	31.8	-34.5	0	53.33	-	-	74	-20.67	160	349	V
2	2387.699	57.75	Pk	31.8	-34.5	0	55.05	-	-	74	-18.95	160	349	V
3	2390	56.03	Avg	31.8	-34.5	-13.98	39.35	54	-14.65	-	-	160	349	V
4	2387.699	57.75	Avg	31.8	-34.5	-13.98	41.07	54	-12.93	-	-	160	349	V

Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**

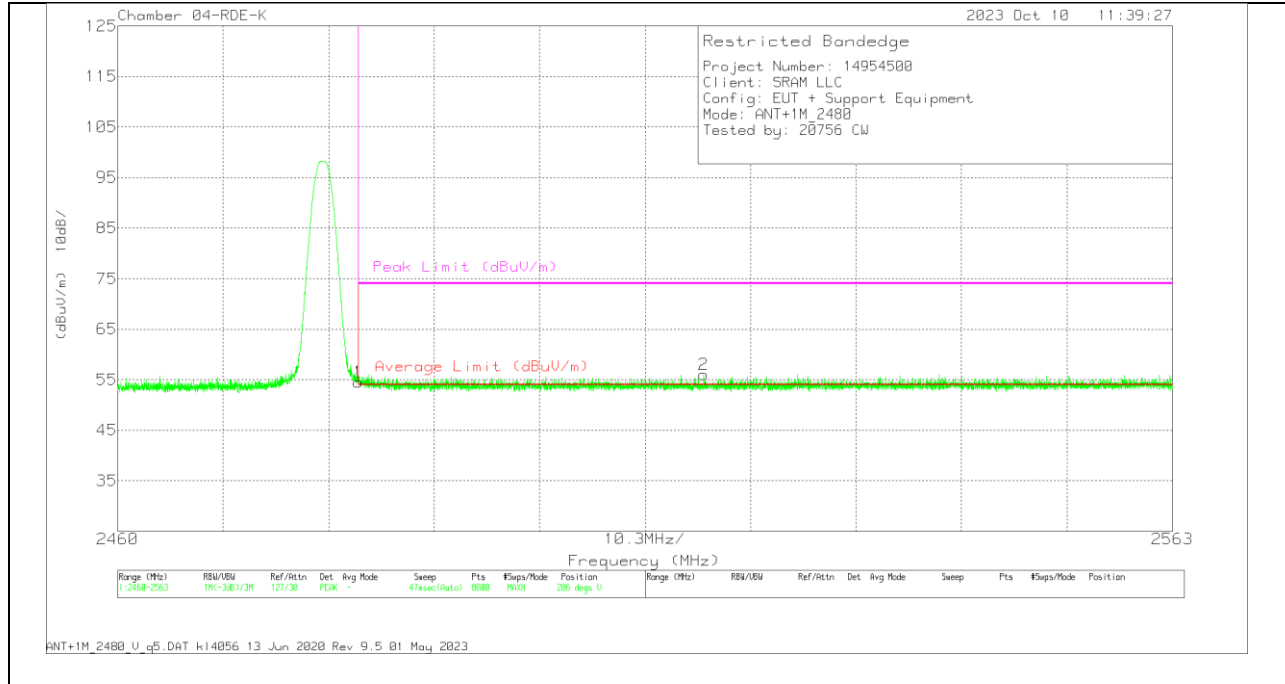


**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	56.12	Pk	32.2	-34.1	0	54.22	-	-	74	-19.78	225	314	H
2	* 2518.835	58.38	Pk	32.2	-33.9	0	56.68	-	-	74	-17.32	225	314	H
3	* 2483.5	56.12	Avg	32.2	-34.1	-13.98	40.24	54	-13.76	-	-	225	314	H
4	* 2518.835	58.38	Avg	32.2	-33.9	-13.98	42.7	54	-11.3	-	-	225	314	H

Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### VERTICAL RESULT



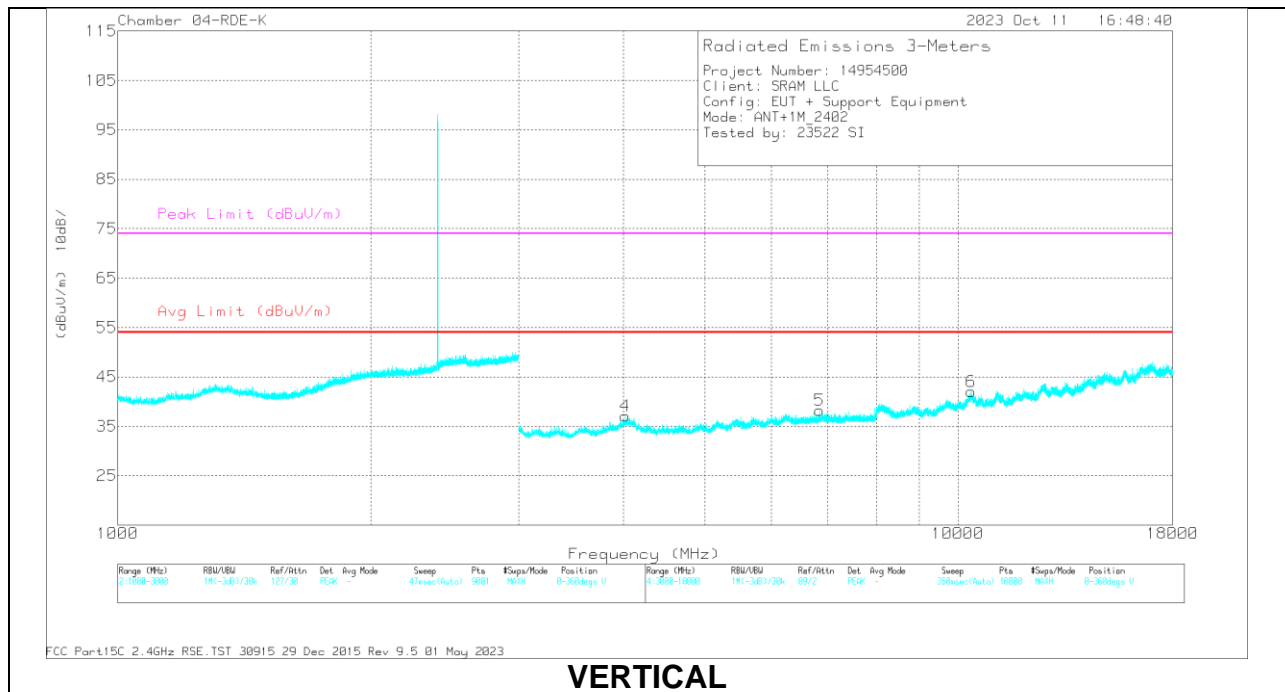
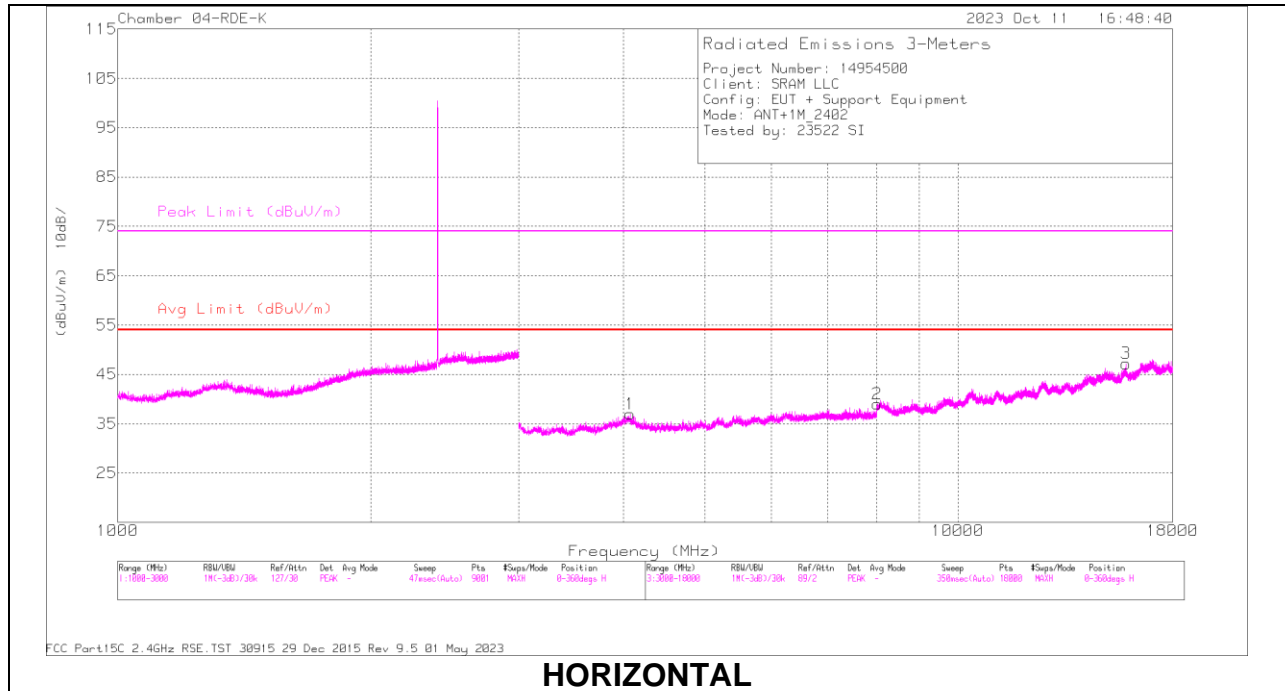
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	56.45	Pk	32.2	-34.1	0	54.55	-	-	74	-19.45	206	363	V
2	* 2517.238	57.84	Pk	32.2	-34	0	56.04	-	-	74	-17.96	206	363	V
3	* 2483.5	56.45	Avg	32.2	-34.1	-13.98	40.57	54	-13.43	-	-	206	363	V
4	* 2517.238	57.84	Avg	32.2	-34	-13.98	42.06	54	-11.94	-	-	206	363	V

Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



**RADIATED EMISSIONS**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (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
1	* 4071.881	53.06	PK2	35.2	-41.3	0	46.96	-	-	74	-27.04	82	338	H
	* 4071.881	53.06	Avg	35.2	-41.3	-13.98	32.98	54	-21.02	-	-	82	338	H
2	8011.231	49.64	PK2	35.9	-36.5	0	49.04	-	-	-	-	173	390	H
	* 15842.565	46.97	PK2	40.2	-31.6	0	55.57	-	-	74	-18.43	46	366	H
3	* 15842.565	46.97	Avg	40.2	-31.6	-13.98	41.59	54	-12.41	-	-	46	366	H
	* 4014.418	52.32	PK2	35.2	-41.3	0	46.22	-	-	74	-27.78	273	242	V
4	* 4014.418	52.32	Avg	35.2	-41.3	-13.98	32.24	54	-21.76	-	-	273	242	V
	6846.609	49.11	PK2	35.6	-37.4	0	47.31	-	-	-	-	285	110	V
6	10377.809	48.98	PK2	37.7	-35.4	0	51.28	-	-	-	-	203	137	V

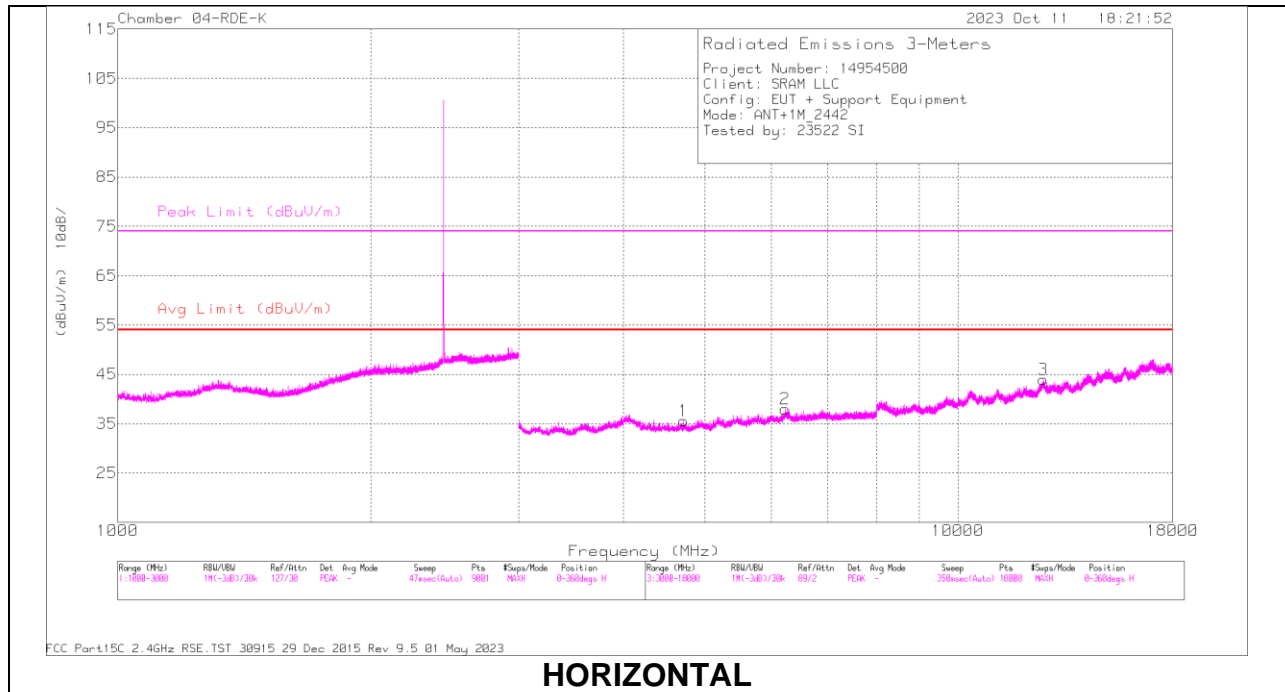
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

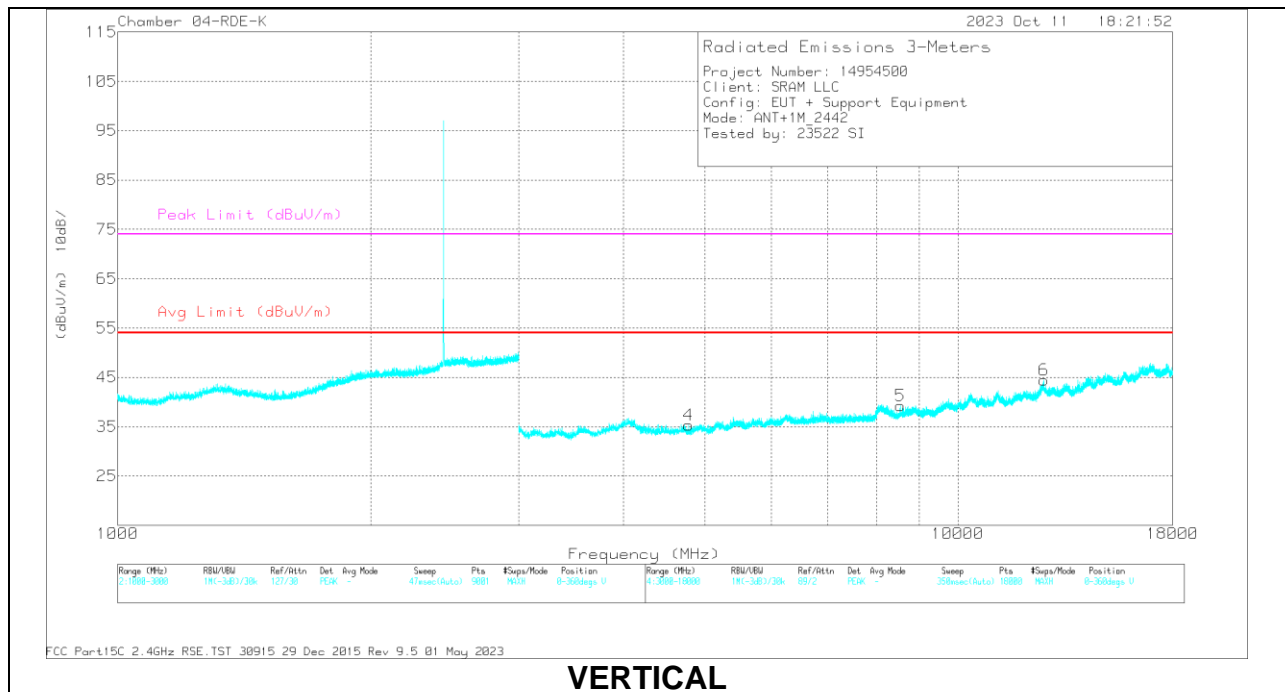
AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

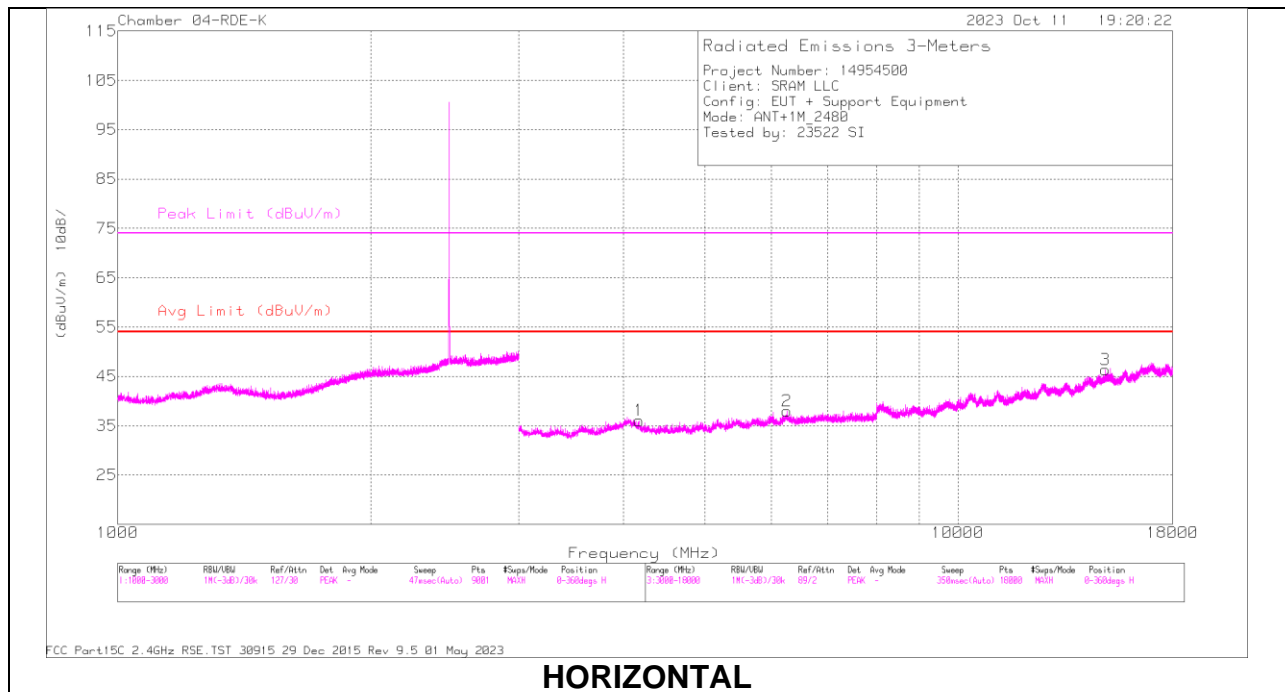


**RADIATED EMISSIONS**

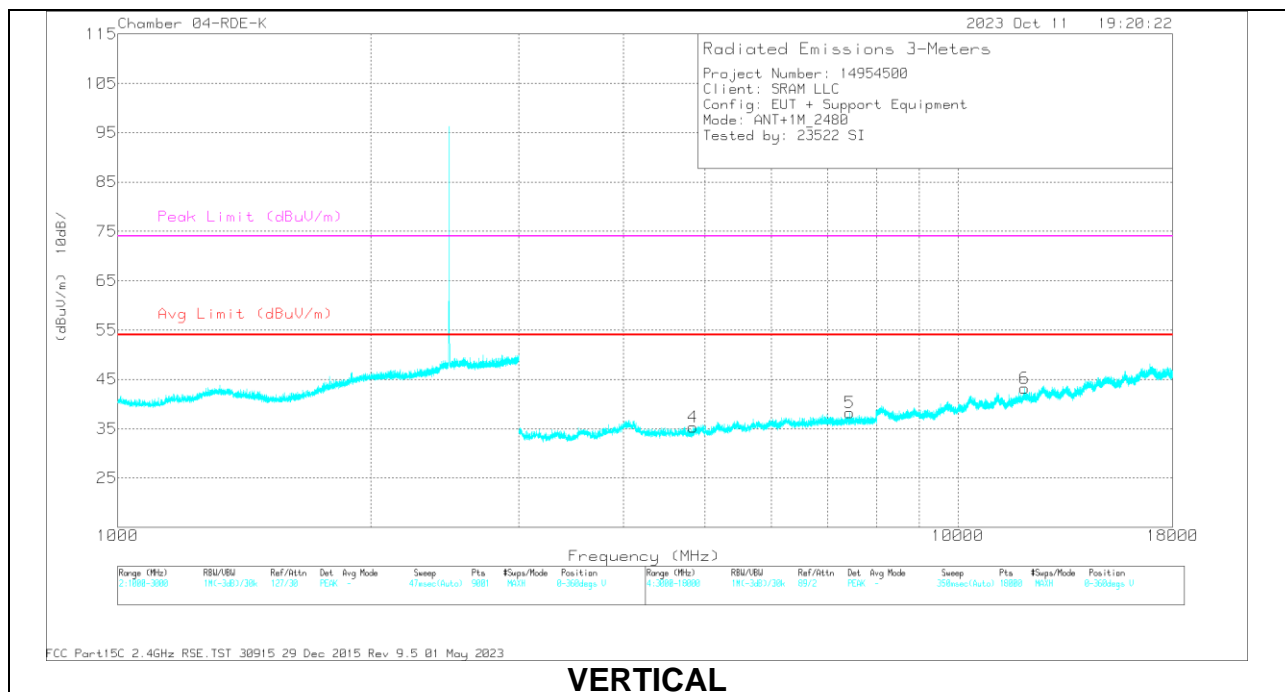
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4713.677	52.26	PK2	33.8	-40.5	0	45.56	-	-	74	-28.44	310	129	H
	* 4713.677	52.26	Avg	33.8	-40.5	-13.98	31.58	54	-22.42	-	-	310	129	H
2	6232.913	50.25	PK2	35.3	-37.6	0	47.95	-	-	-	-	312	283	H
	* 12641.302	46.71	PK2	39.4	-33.2	0	52.91	-	-	74	-21.09	134	195	H
3	* 12641.302	46.71	Avg	39.4	-33.2	-13.98	38.93	54	-15.07	-	-	134	195	H
	* 4780.062	61.97	PK2	33.7	-40	0	55.67	-	-	74	-18.33	320	359	V
4	* 4780.062	61.97	Avg	33.7	-40	-13.98	41.69	54	-12.31	-	-	320	359	V
	8542.366	48.03	PK2	35.8	-36	0	47.83	-	-	-	-	278	112	V
6	* 12650.554	46.95	PK2	39.4	-33.2	0	53.15	-	-	74	-20.85	82	190	V
	* 12650.554	46.95	Avg	39.4	-33.2	-13.98	39.17	54	-14.83	-	-	82	190	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

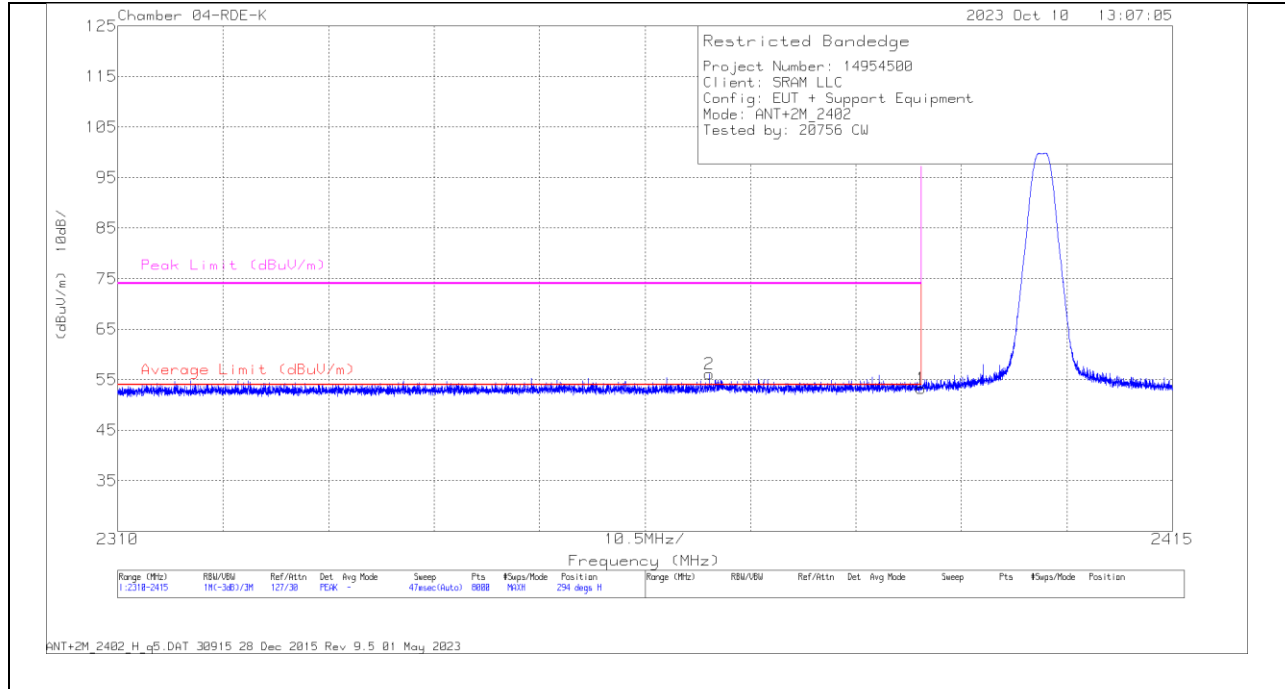
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4168.167	51.73	PK2	34.5	-41	0	45.23	-	-	74	-28.77	217	369	H
	* 4168.167	51.73	Avg	34.5	-41	-13.98	31.25	54	-22.75	-	-	217	369	H
2	6259.004	49.28	PK2	35.3	-37.8	0	46.78	-	-	-	-	147	152	H
3	14972.049	47.79	PK2	40.1	-32.4	0	55.49	-	-	-	-	345	182	H
4	* 4834.926	51.72	PK2	33.7	-39.9	0	45.52	-	-	74	-28.48	157	262	V
	* 4834.926	51.72	Avg	33.7	-39.9	-13.98	31.54	54	-22.46	-	-	157	262	V
5	* 7432.017	48.54	PK2	35.7	-37.1	0	47.14	-	-	74	-26.86	33	122	V
	* 7432.017	48.54	Avg	35.7	-37.1	-13.98	33.16	54	-20.84	-	-	33	122	V
6	* 11997.591	47.43	PK2	38.6	-33.9	0	52.13	-	-	74	-21.87	27	165	V
	* 11997.591	47.43	Avg	38.6	-33.9	-13.98	38.15	54	-15.85	-	-	27	165	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

**ANT + (2Mbps):**

**BANDEDGE (LOW CHANNEL)**

**HORIZONTAL RESULT**

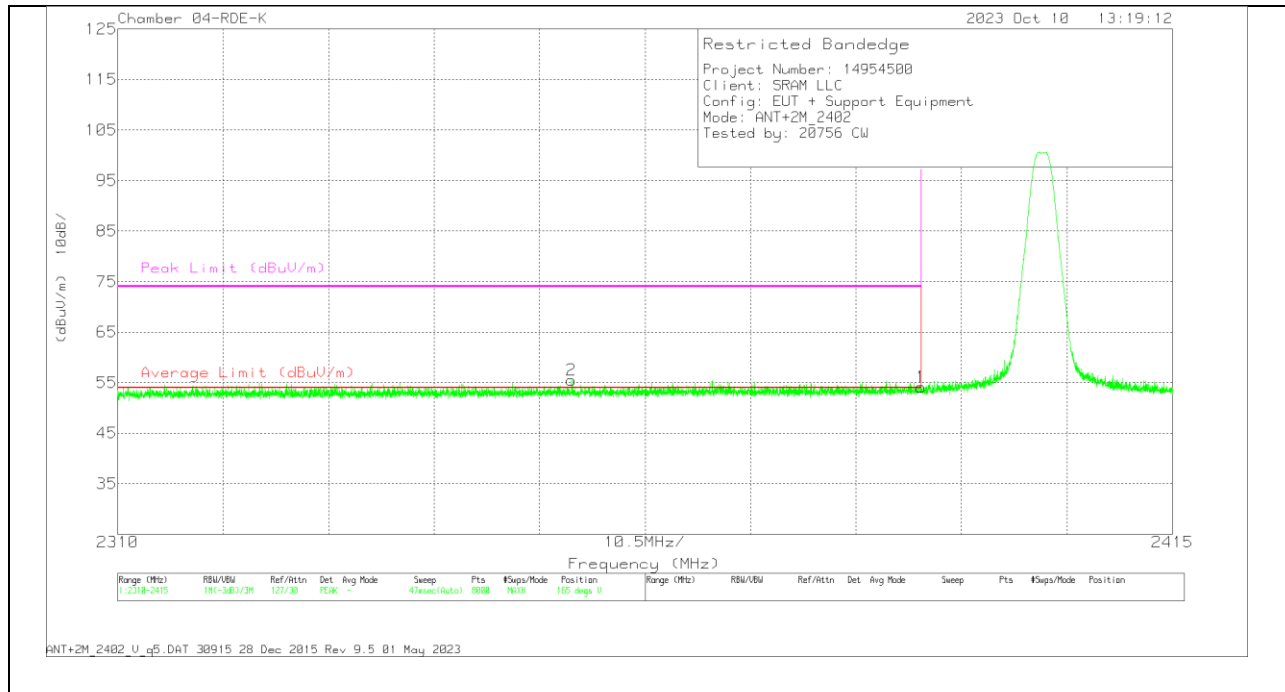


**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cb/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2390	56.01	Pk	31.8	-34.5	0	53.31	-	-	74	-20.69	294	344	H
2	* 2368.875	59.03	Pk	31.7	-34.6	0	56.13	-	-	74	-17.87	294	344	H
3	* 2390	56.01	Avg	31.8	-34.5	-13.98	39.33	54	-14.67	-	-	294	344	H
4	* 2368.875	59.03	Avg	31.7	-34.6	-13.98	42.15	54	-11.85	-	-	294	344	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### VERTICAL RESULT



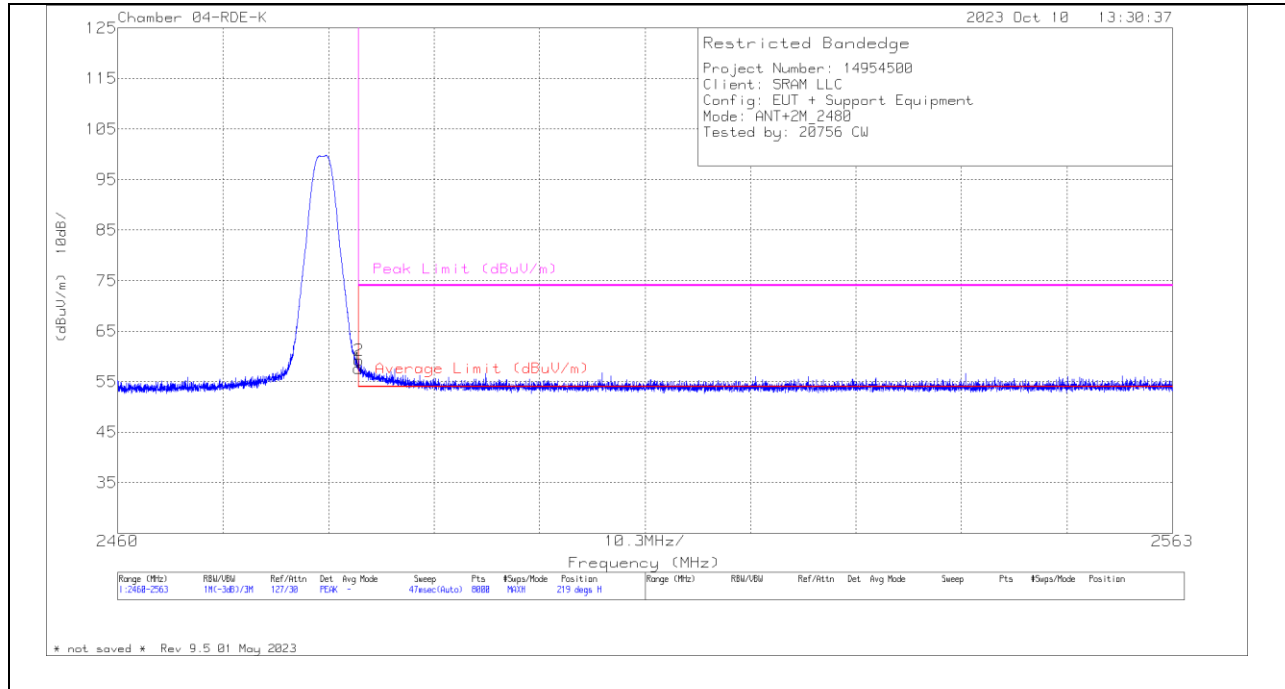
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cb/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2390	56.84	PK	31.8	-34.5	0	54.14	-	-	74	-19.86	165	348	V
2	* 2355.157	58.55	PK	31.6	-34.6	0	55.55	-	-	74	-18.45	165	348	V
3	* 2390	56.84	Avg	31.8	-34.5	-13.98	40.16	54	-13.84	-	-	165	348	V
4	* 2355.157	58.55	Avg	31.6	-34.6	-13.98	41.57	54	-12.43	-	-	165	348	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### BANDEDGE (HIGH CHANNEL)

### HORIZONTAL RESULT

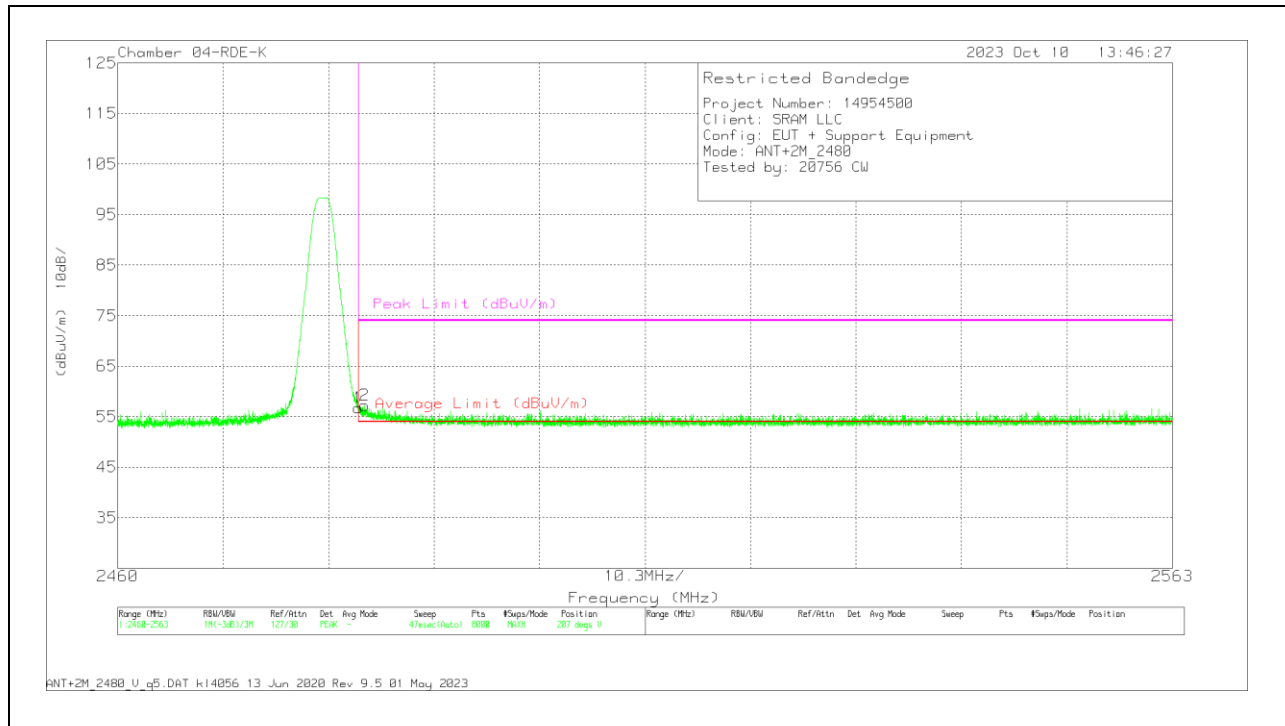


### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	59.46	Pk	32.2	-34.1	0	57.56	-	-	74	-16.44	219	356	H
2	* 2483.565	61.11	Pk	32.2	-34.1	0	59.21	-	-	74	-14.79	219	356	H
3	* 2483.5	59.46	Avg	32.2	-34.1	-13.98	43.58	54	-10.42	-	-	219	356	H
4	* 2483.565	61.11	Avg	32.2	-34.1	-13.98	45.23	54	-8.77	-	-	219	356	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### VERTICAL RESULT



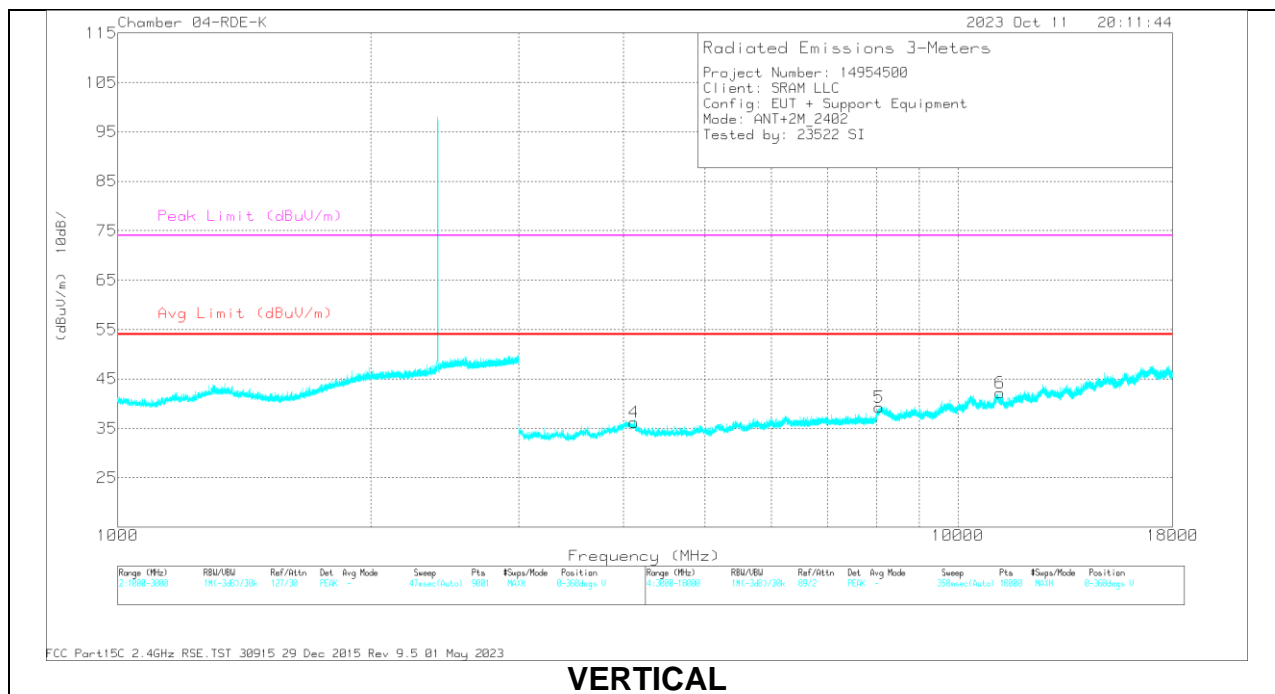
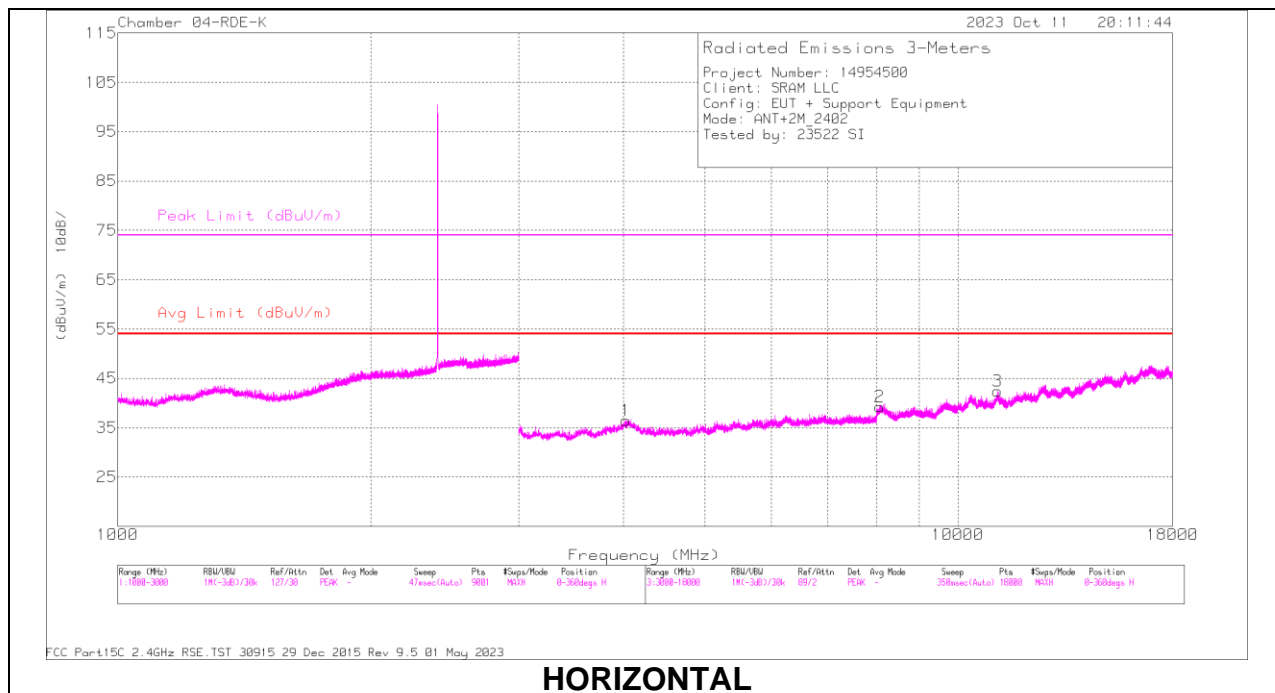
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Z23083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	58.63	Pk	32.2	-34.1	0	56.73	-	-	74	-17.27	207	364	V
2	* 2484.132	59.19	Pk	32.2	-34.1	0	57.29	-	-	74	-16.71	207	364	V
3	* 2483.5	58.63	Avg	32.2	-34.1	-13.98	42.75	54	-11.25	-	-	207	364	V
4	* 2484.132	59.19	Avg	32.2	-34.1	-13.98	43.31	54	-10.69	-	-	207	364	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



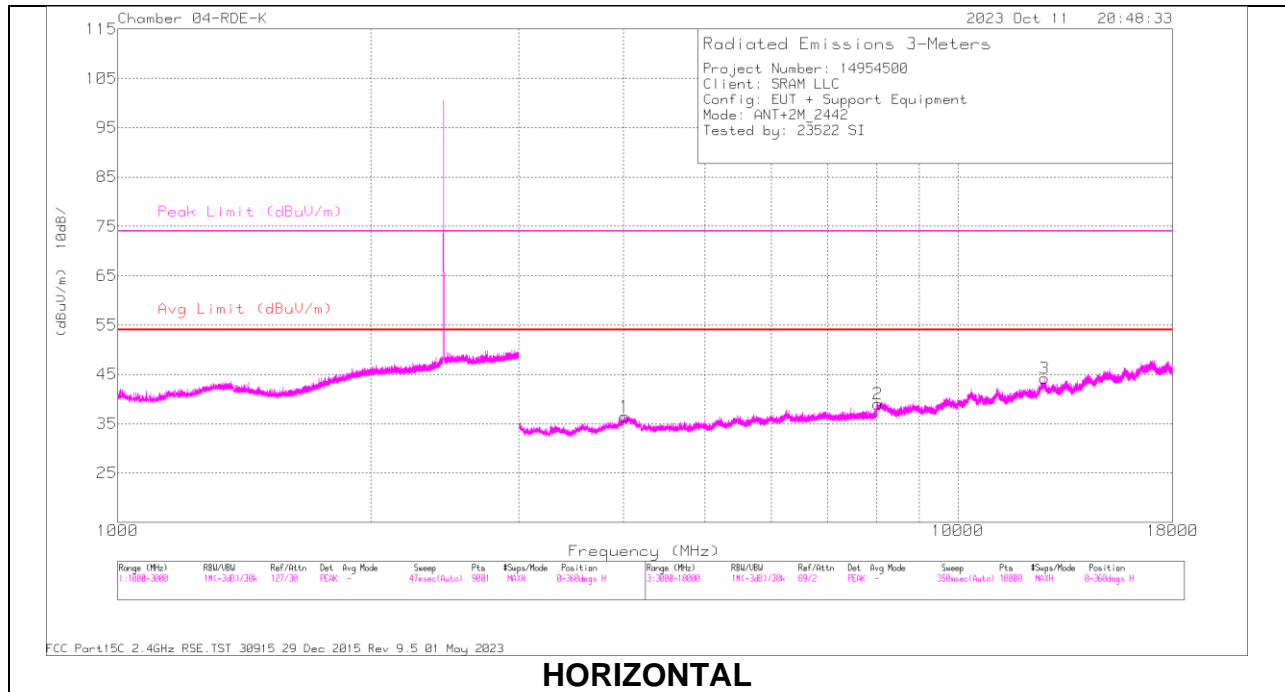


**RADIATED EMISSIONS**

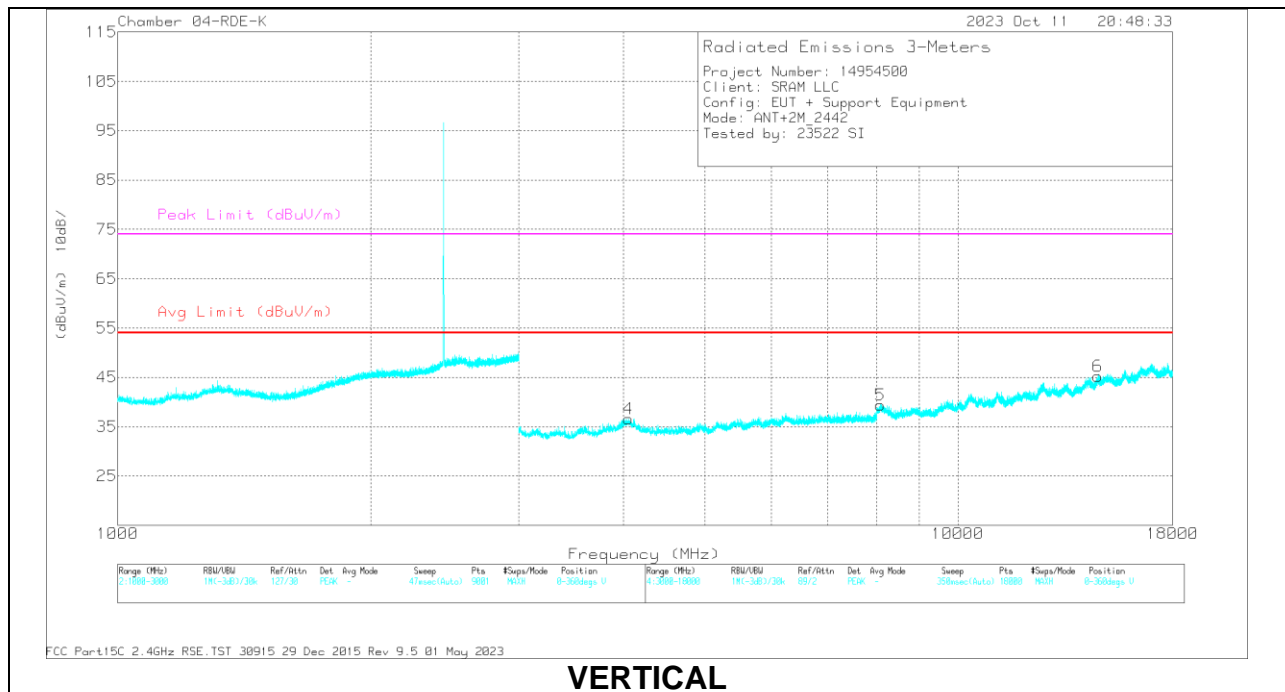
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4021.101	52.24	PK2	35.2	-41.4	0	46.04	-	-	74	-27.96	29	177	H
	* 4021.101	52.24	Avg	35.2	-41.4	-13.98	32.06	54	-21.94	-	-	29	177	H
2	* 8061.449	49.35	PK2	35.9	-36.4	0	48.85	-	-	74	-25.15	342	357	H
	* 8061.449	49.35	Avg	35.9	-36.4	-13.98	34.87	54	-19.13	-	-	342	357	H
3	* 11152.078	48.44	PK2	38	-35.2	0	51.24	-	-	74	-22.76	326	140	H
	* 11152.078	48.44	Avg	38	-35.2	-13.98	37.26	54	-16.74	-	-	326	140	H
4	* 4109.353	52.32	PK2	34.9	-41.1	0	46.12	-	-	74	-27.88	187	188	V
	* 4109.353	52.32	Avg	34.9	-41.1	-13.98	32.14	54	-21.86	-	-	187	188	V
5	* 8052.494	49.32	PK2	35.9	-36.6	0	48.62	-	-	74	-25.38	181	253	V
	* 8052.494	49.32	Avg	35.9	-36.6	-13.98	34.64	54	-19.36	-	-	181	253	V
6	* 11222.723	48.08	PK2	37.9	-35	0	50.98	-	-	74	-23.02	3	244	V
	* 11222.723	48.08	Avg	37.9	-35	-13.98	37	54	-17	-	-	3	244	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 MAV1 - KDB558074 Option 1 Maximum RMS Average

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (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
1	* 4014.196	52.35	PK2	35.2	-41.3	0	46.25	-	-	74	-27.75	29	371	H
	* 4014.196	52.35	Avg	35.2	-41.3	-13.98	32.27	54	-21.73	-	-	29	371	H
2	* 8029.434	50	PK2	35.9	-36.5	0	49.4	-	-	74	-24.6	96	342	H
	* 8029.434	50	Avg	35.9	-36.5	-13.98	35.42	54	-18.58	-	-	96	342	H
3	* 12673.205	47.52	PK2	39.4	-33.4	0	53.52	-	-	74	-20.48	303	389	H
	* 12673.205	47.52	Avg	39.4	-33.4	-13.98	39.54	54	-14.46	-	-	303	389	H
4	* 4055.564	52.67	PK2	35.2	-41.3	0	46.57	-	-	74	-27.43	69	109	V
	* 4055.564	52.67	Avg	35.2	-41.3	-13.98	32.59	54	-21.41	-	-	69	109	V
5	* 8079.188	50.05	PK2	35.9	-36.4	0	49.55	-	-	74	-24.45	161	285	V
	* 8079.188	50.05	Avg	35.9	-36.4	-13.98	35.57	54	-18.43	-	-	161	285	V
6	14665.424	46.18	PK2	39.8	-32.3	0	53.68	-	-	-	-	306	303	V

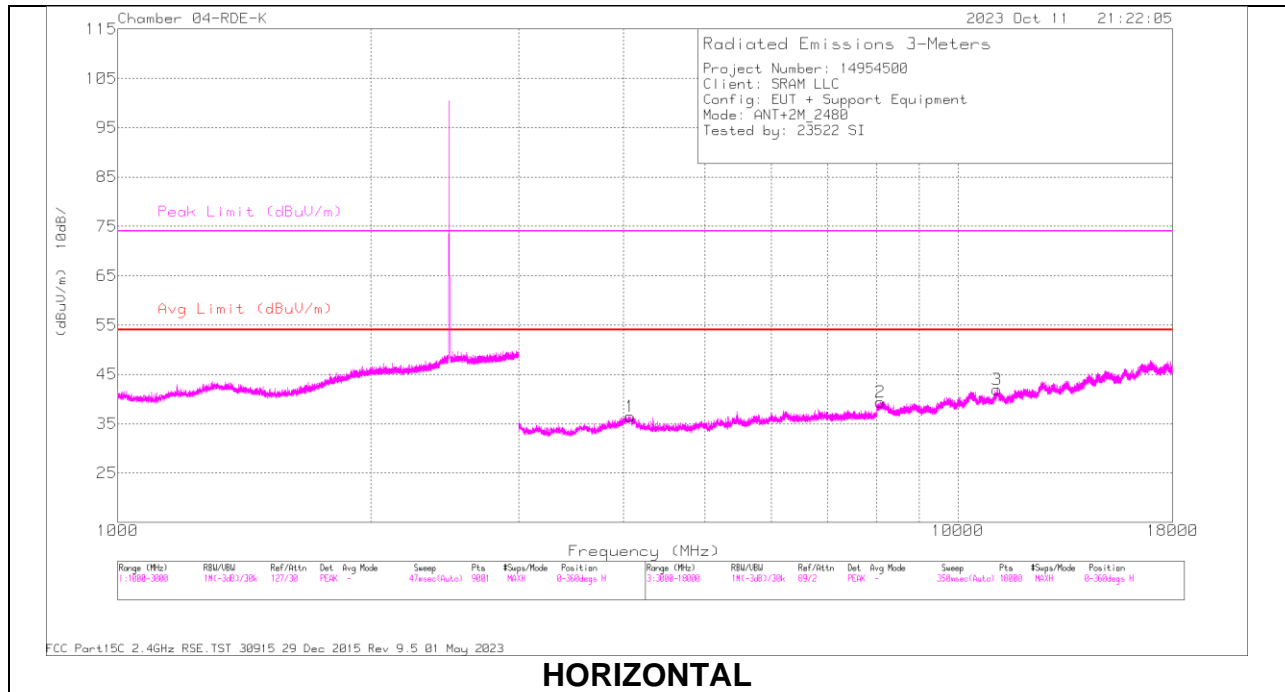
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

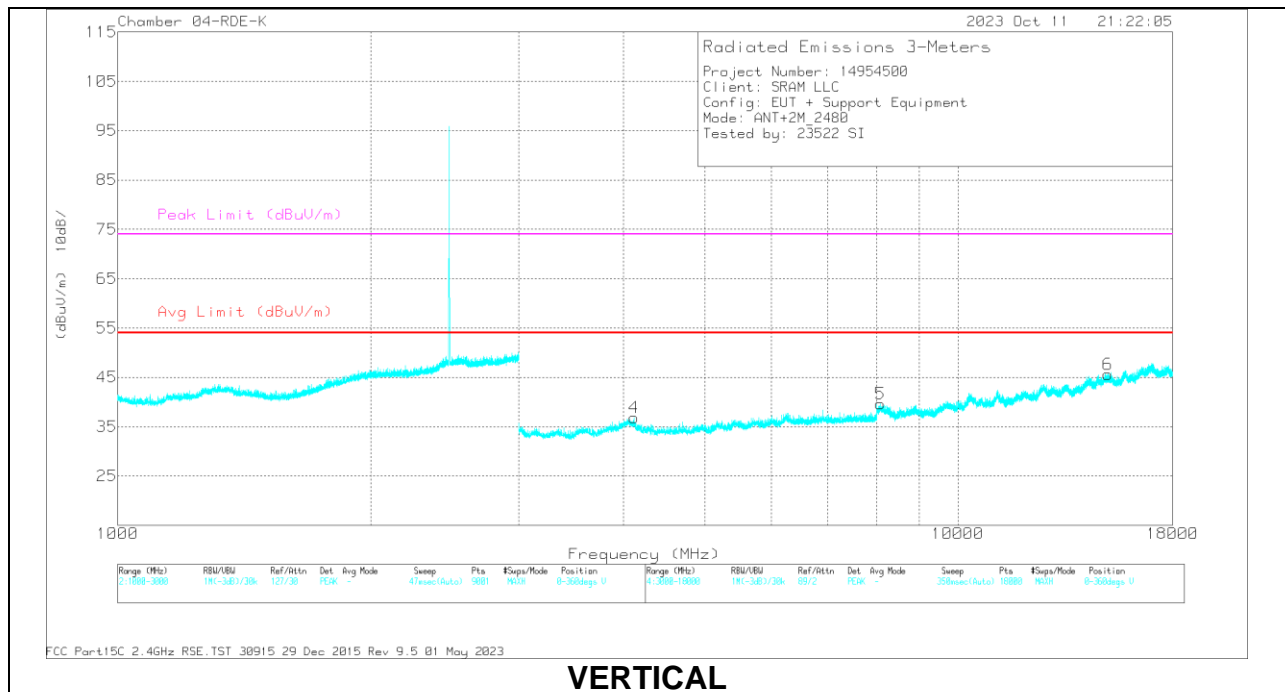
AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

**RADIATED EMISSIONS**

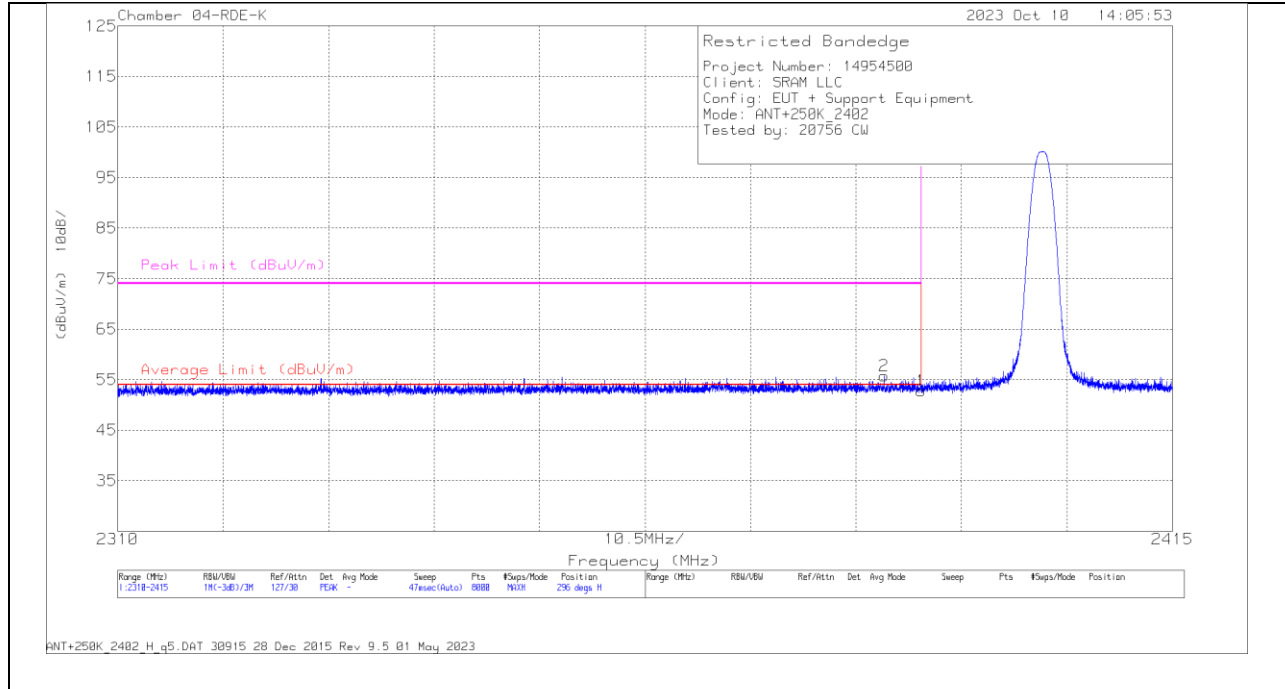
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4076.842	51.91	PK2	35.1	-41.2	0	45.81	-	-	74	-28.19	43	125	H
	* 4076.842	51.91	Avg	35.1	-41.2	-13.98	31.83	54	-22.17	-	-	43	125	H
2	* 8080.12	49.95	PK2	35.9	-36.5	0	49.35	-	-	74	-24.65	354	386	H
	* 8080.12	49.95	Avg	35.9	-36.5	-13.98	35.37	54	-18.63	-	-	354	386	H
3	* 11128.696	49.29	PK2	38	-35.4	0	51.89	-	-	74	-22.11	165	391	H
	* 11128.696	49.29	Avg	38	-35.4	-13.98	37.91	54	-16.09	-	-	165	391	H
4	* 4113.029	52.33	PK2	34.9	-41	0	46.23	-	-	74	-27.77	49	325	V
	* 4113.029	52.33	Avg	34.9	-41	-13.98	32.25	54	-21.75	-	-	49	325	V
5	* 8081.475	49.77	PK2	35.9	-36.5	0	49.17	-	-	74	-24.83	151	175	V
	* 8081.475	49.77	Avg	35.9	-36.5	-13.98	35.19	54	-18.81	-	-	151	175	V
6	15077.953	46.82	PK2	40.1	-33	0	53.92	-	-	-	-	88	205	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

**ANT + (250kbps):**

**BANDEDGE (LOW CHANNEL)**

**HORIZONTAL RESULT**

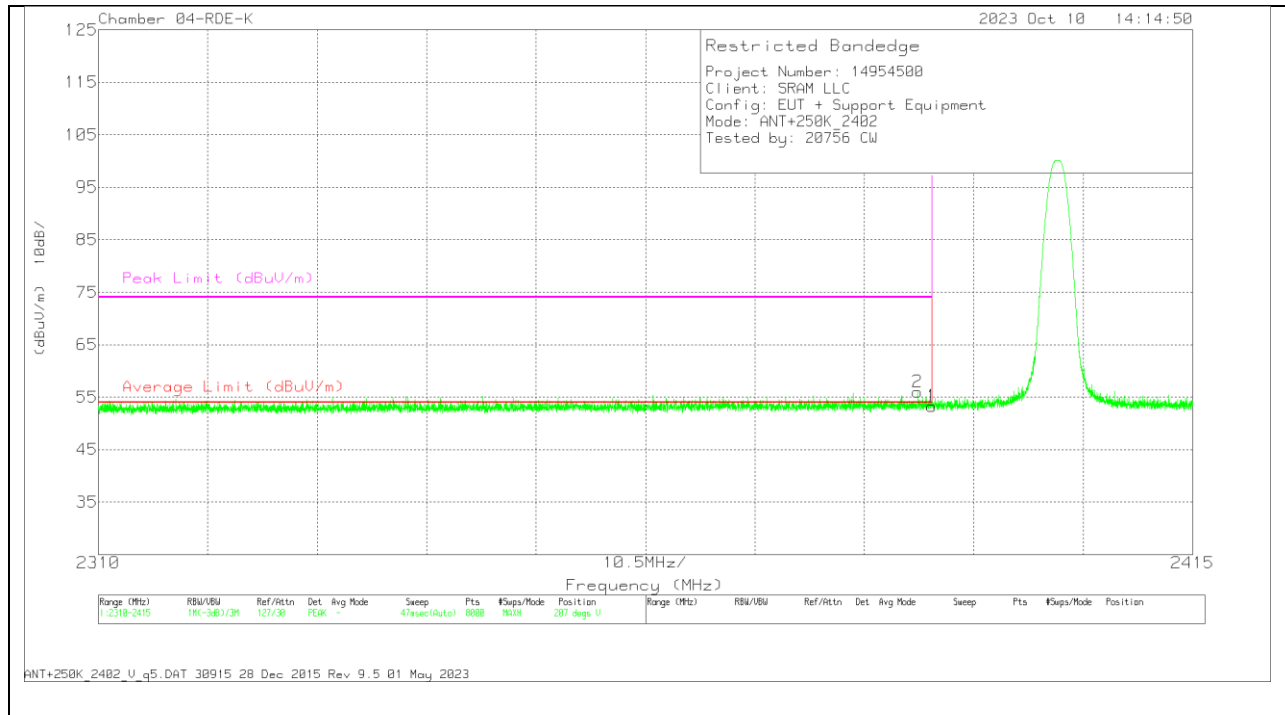


**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cb/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2390	55.52	Pk	31.8	-34.5	0	52.82	-	-	74	-21.18	296	338	H
2	* 2386.307	58.44	Pk	31.8	-34.5	0	55.74	-	-	74	-18.26	296	338	H
3	* 2390	55.52	Avg	31.8	-34.5	-13.98	38.84	54	-15.16	-	-	296	338	H
4	* 2386.307	58.44	Avg	31.8	-34.5	-13.98	41.76	54	-12.24	-	-	296	338	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### VERTICAL RESULT



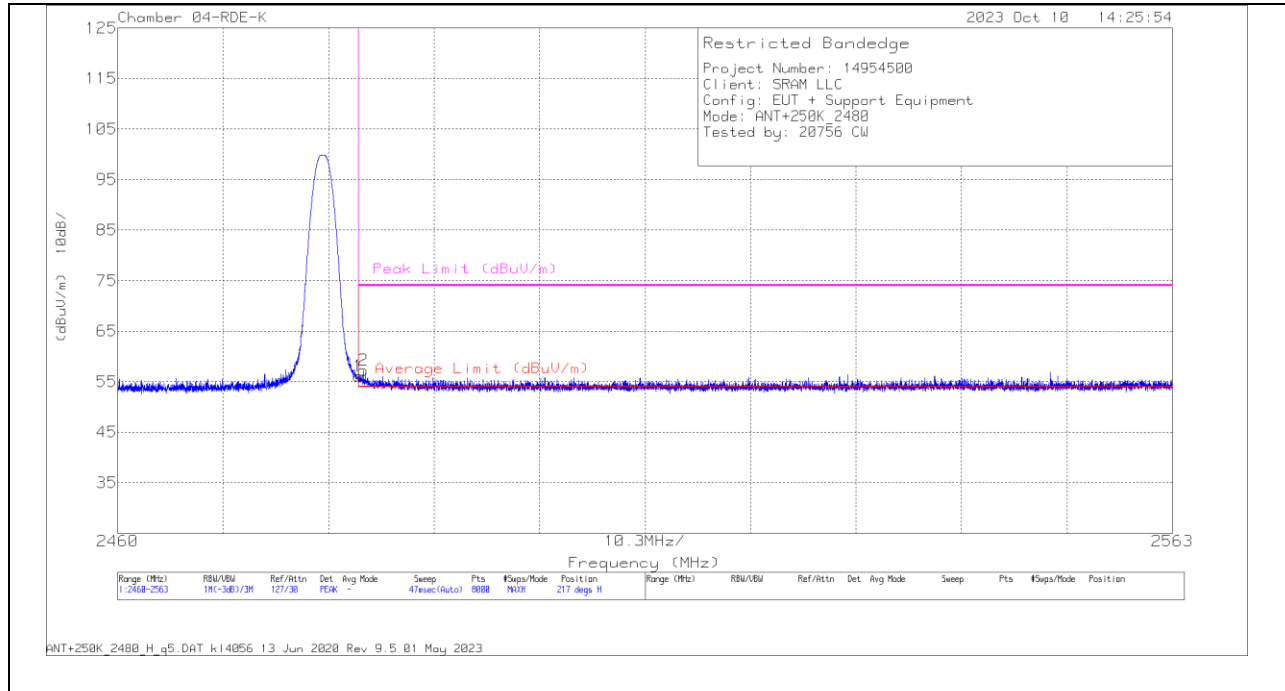
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cb/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2390	55.93	Pk	31.8	-34.5	0	53.23	-	-	74	-20.77	207	352	V
2	* 2388.604	58.74	Pk	31.8	-34.5	0	56.04	-	-	74	-17.96	207	352	V
3	* 2390	55.93	Avg	31.8	-34.5	-13.98	39.25	54	-14.75	-	-	207	352	V
4	* 2388.604	58.74	Avg	31.8	-34.5	-13.98	42.06	54	-11.94	-	-	207	352	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

**BANDEDGE (HIGH CHANNEL)**

**HORIZONTAL RESULT**



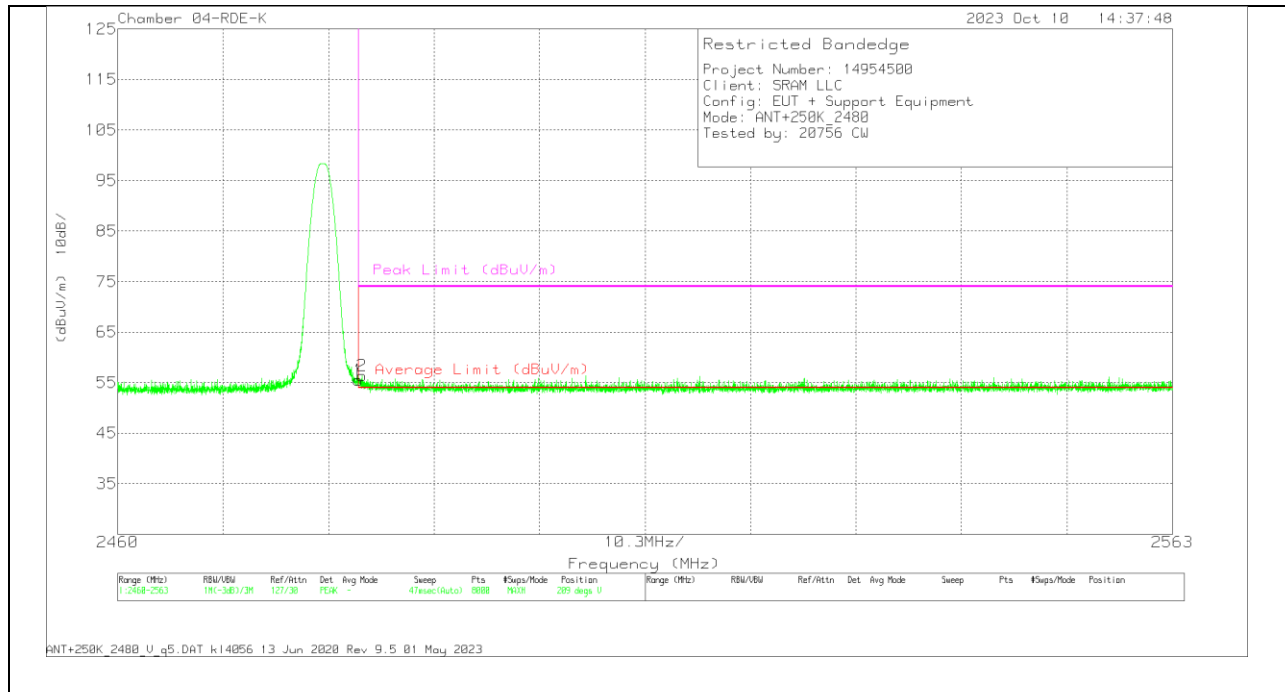
**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	58.03	Pk	32.2	-34.1	0	56.13	-	-	74	-17.87	217	354	H
2	* 2483.964	59.09	Pk	32.2	-34.1	0	57.19	-	-	74	-16.81	217	354	H
3	* 2483.5	58.03	Avg	32.2	-34.1	-13.98	42.15	54	-11.85	-	-	217	354	H
4	* 2483.964	59.09	Avg	32.2	-34.1	-13.98	43.21	54	-10.79	-	-	217	354	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB



### VERTICAL RESULT



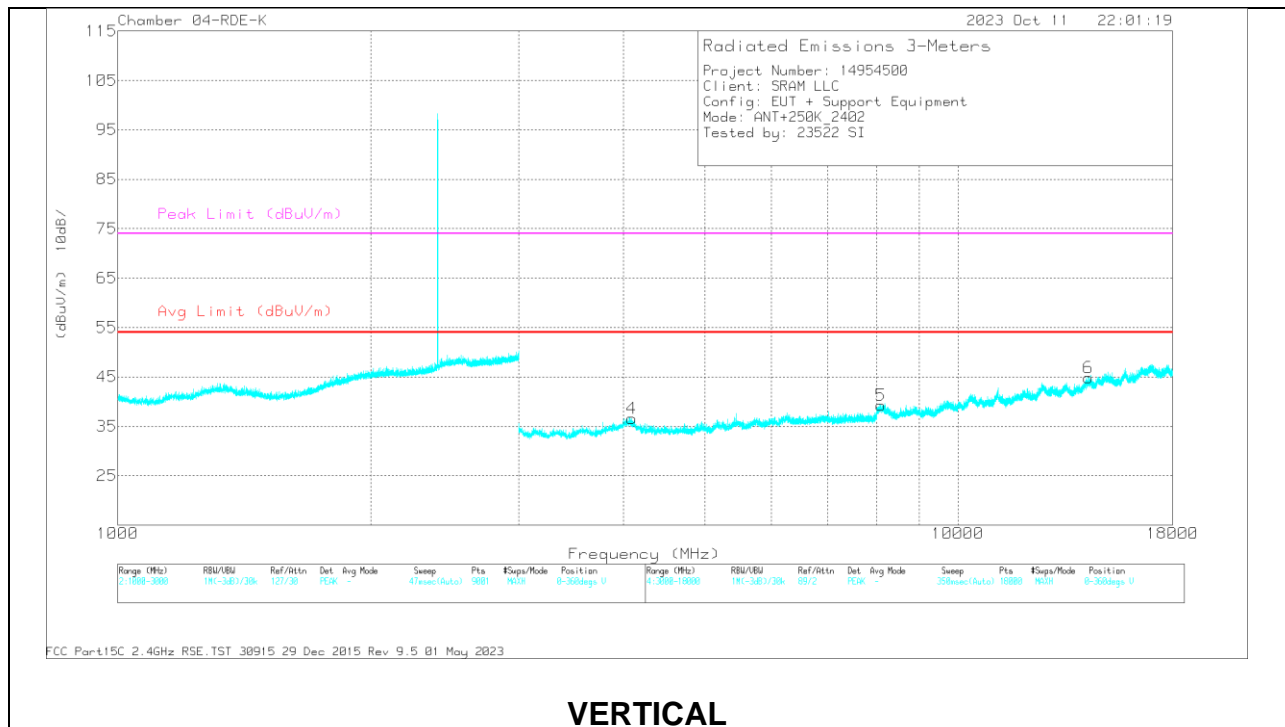
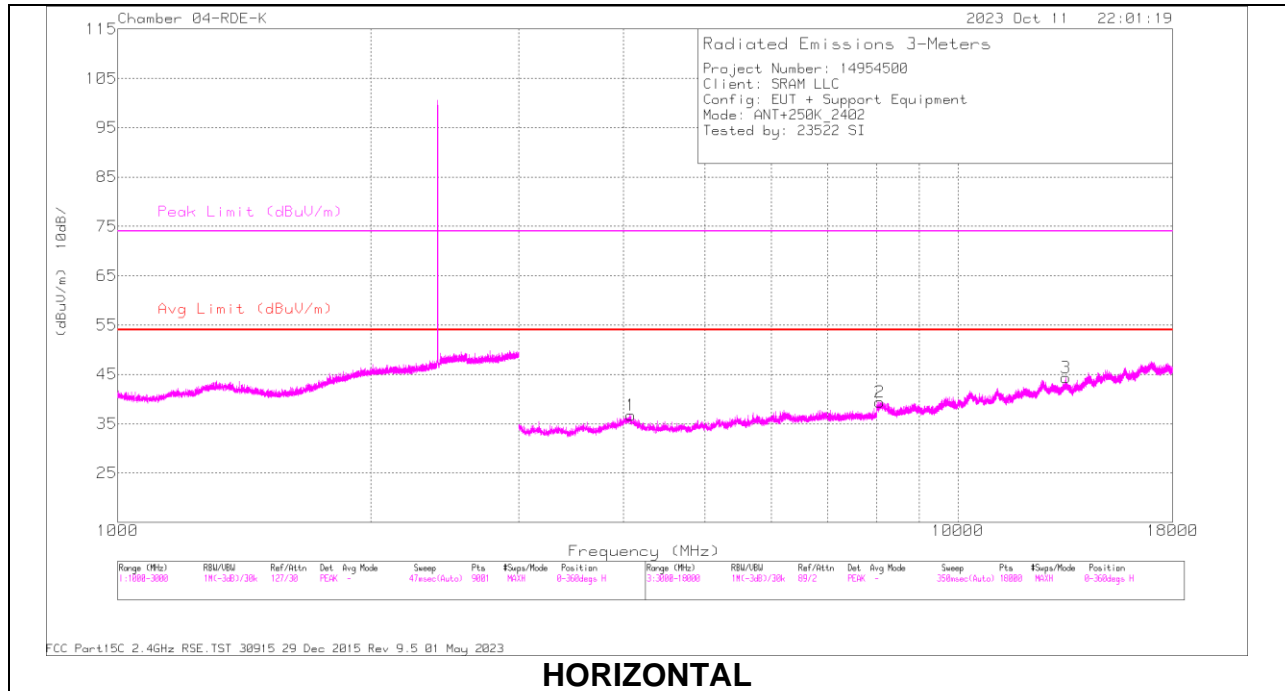
### Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (dB)	DCCF (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2483.5	57.44	Pk	32.2	-34.1		55.54	-	-	74	-18.46	209	364	V
2	* 2483.848	58.28	Pk	32.2	-34.1		56.38	-	-	74	-17.62	209	364	V
3	* 2483.5	57.44	Avg	32.2	-34.1	-13.98	41.56	54	-12.44	-	-	209	364	V
4	* 2483.848	58.28	Avg	32.2	-34.1	-13.98	42.4	54	-11.6	-	-	209	364	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



### RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (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
1	* 4081.819	52.04	PK2	35.1	-41.3	0	45.84	-	-	74	-28.16	20	144	H
	* 4081.819	52.04	Avg	35.1	-41.3	-13.98	31.86	54	-22.14	-	-	20	144	H
2	* 8068.589	49.36	PK2	35.9	-36.4	0	48.86	-	-	74	-25.14	278	211	H
	* 8068.589	49.36	Avg	35.9	-36.4	-13.98	34.88	54	-19.12	-	-	278	211	H
3	13438.657	47.12	PK2	39.1	-33.9	0	52.32	-	-	-	-	225	166	H
4	* 4087.937	52.42	PK2	35.1	-41.3	0	46.22	-	-	74	-27.78	345	234	V
	* 4087.937	52.42	Avg	35.1	-41.3	-13.98	32.24	54	-21.76	-	-	345	234	V
5	* 8093.616	49.78	PK2	35.9	-36.5	0	49.18	-	-	74	-24.82	160	189	V
	* 8093.616	49.78	Avg	35.9	-36.5	-13.98	35.2	54	-18.8	-	-	160	189	V
6	14306.305	47.67	PK2	39.4	-34.1	0	52.97	-	-	-	-	235	104	V

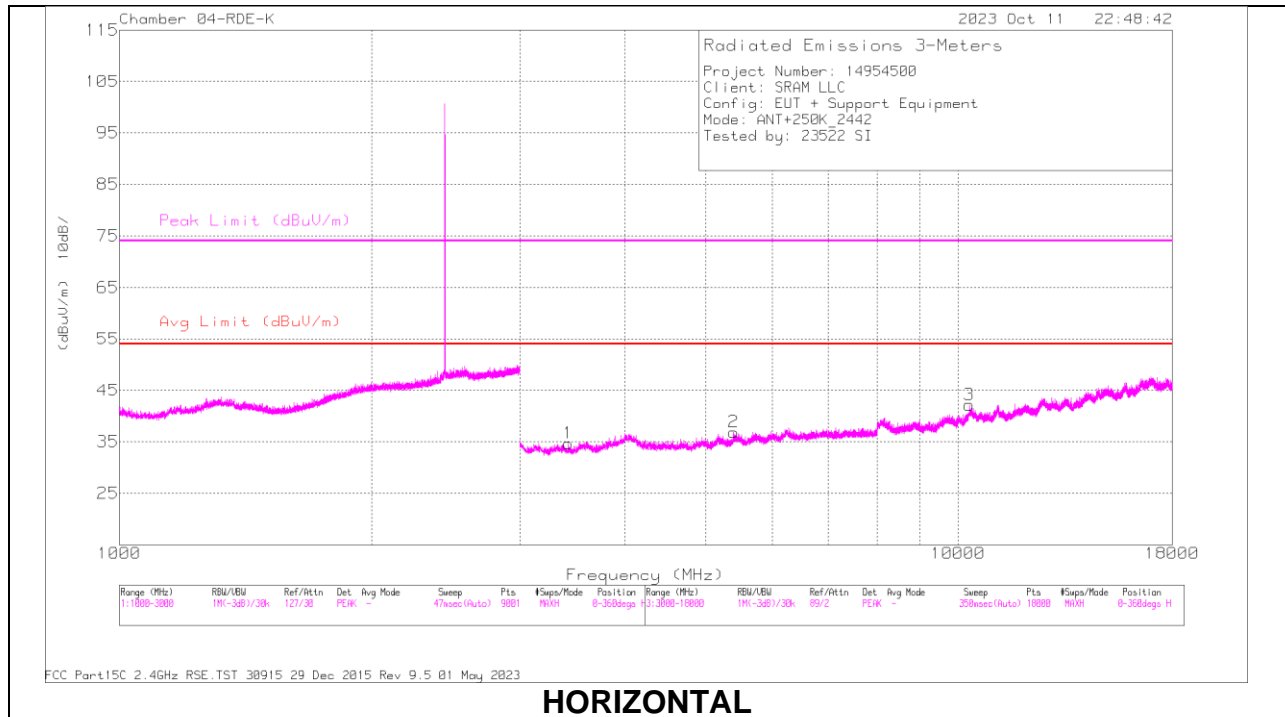
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

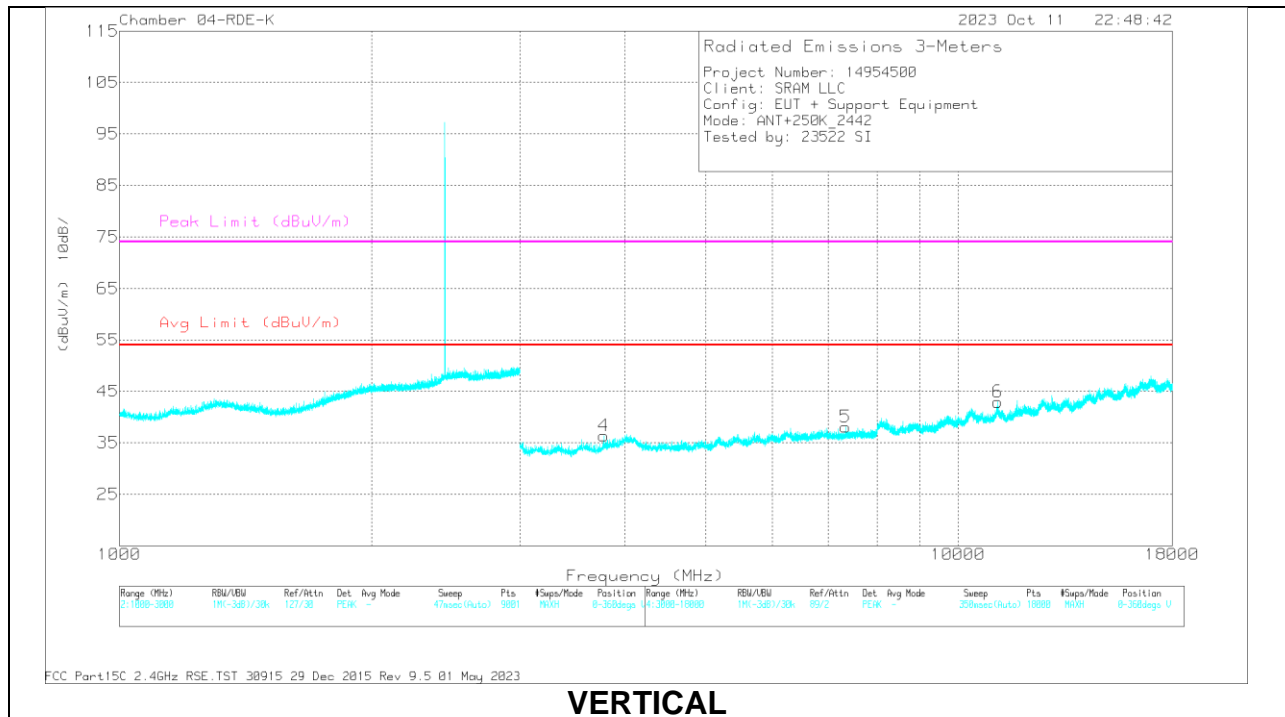
AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

### MID CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

**RADIATED EMISSIONS**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (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
1	3432.703	53.01	PK2	32.7	-41.3	0	44.41	-	-	-	-	218	363	H
2	* 5401.006	52.81	PK2	34.6	-39.1	0	48.31	-	-	74	-25.69	195	359	H
	* 5401.006	52.81	Avg	34.6	-39.1	-13.98	34.33	54	-19.67	-	-	195	359	H
3	10311.371	49.82	PK2	37.7	-35.7	0	51.82	-	-	-	-	72	278	H
4	* 3777.991	52.12	PK2	33.6	-41.3	0	44.42	-	-	74	-29.58	344	265	V
	* 3777.991	52.12	Avg	33.6	-41.3	-13.98	30.44	54	-23.56	-	-	344	265	V
5	* 7336.653	49.3	PK2	35.7	-37.4	0	47.6	-	-	74	-26.4	348	334	V
	* 7336.653	49.3	Avg	35.7	-37.4	-13.98	33.62	54	-20.38	-	-	348	334	V
6	* 11147.233	49.82	PK2	38	-35.2	0	52.62	-	-	74	-21.38	325	294	V
	* 11147.233	49.82	Avg	38	-35.2	-13.98	38.64	54	-15.36	-	-	325	294	V

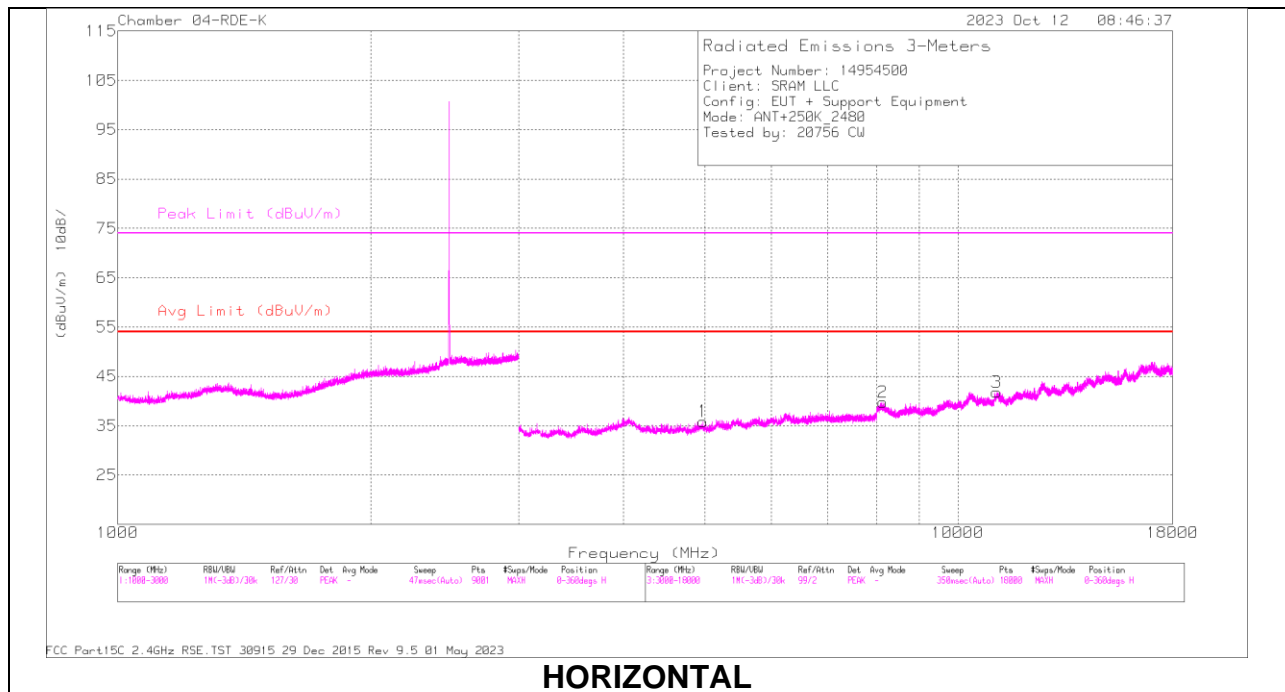
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

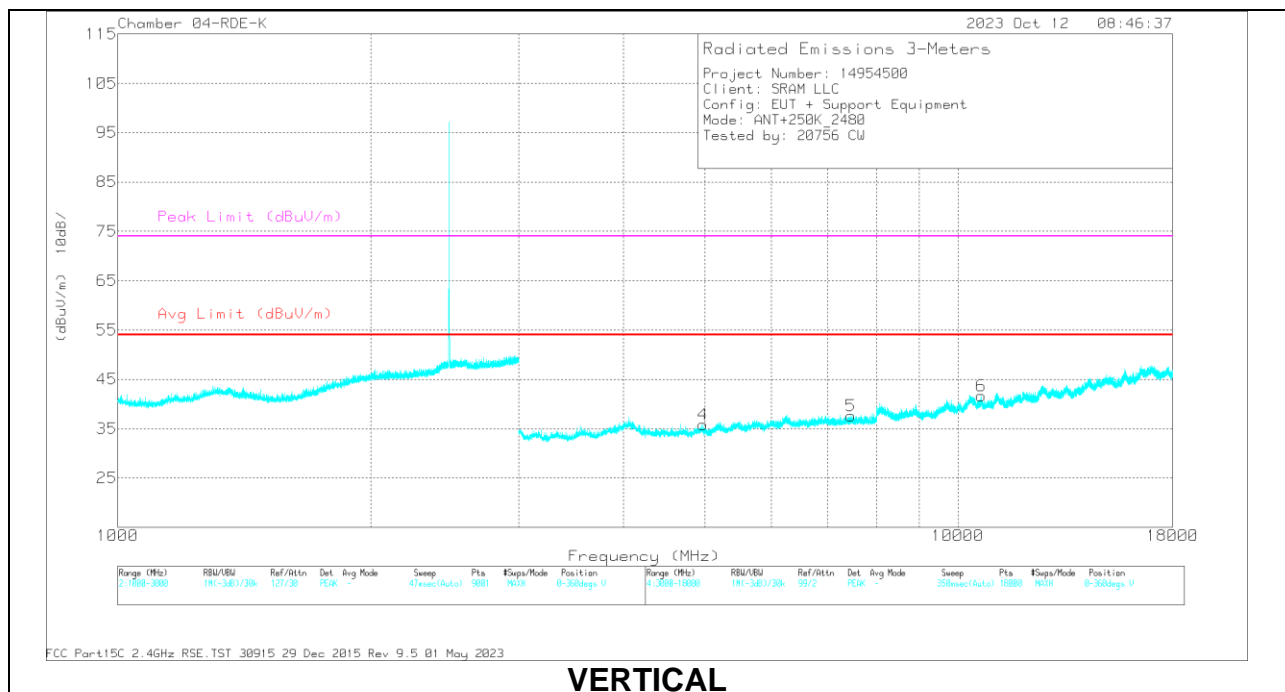
AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

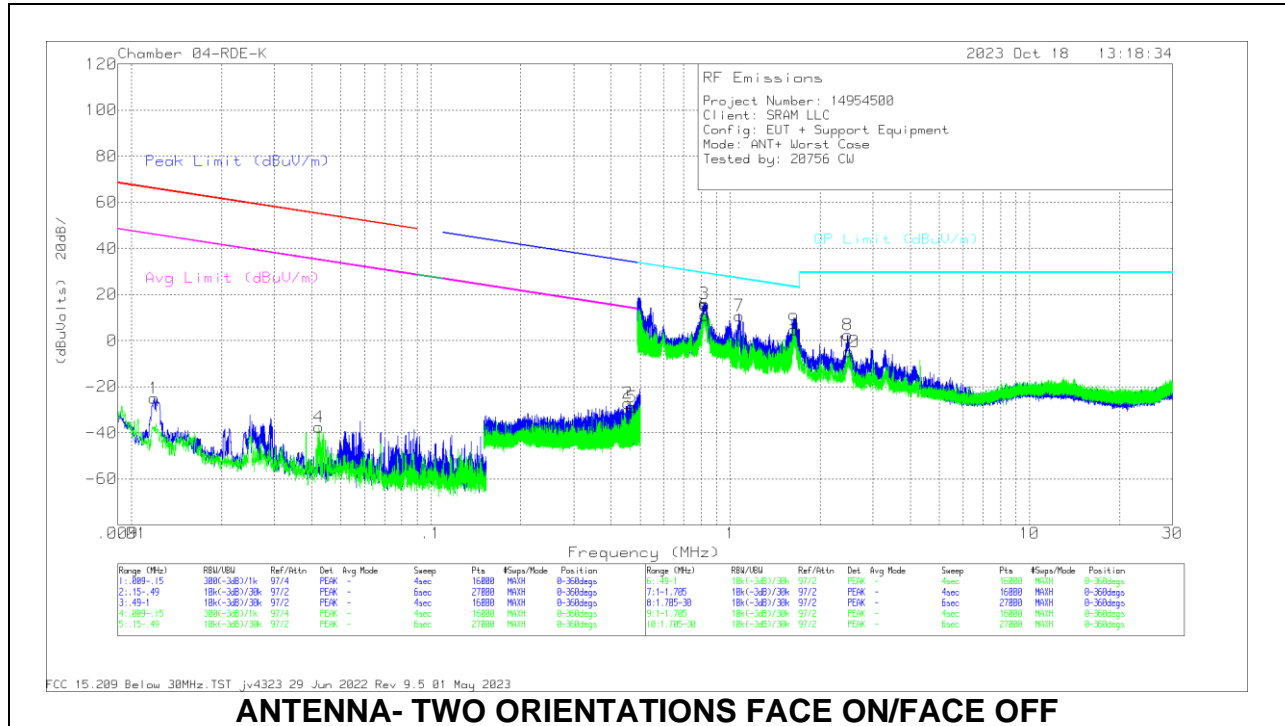
**RADIATED EMISSIONS**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF 3m (dB/m)	Cbl/Amp (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
1	* 4967.605	51.6	PK2	33.8	-39.8	0	45.6	-	-	74	-28.4	99	253	H
	* 4967.605	51.6	Avg	33.8	-39.8	-13.98	31.62	54	-22.38	-	-	99	253	H
2	* 8135.222	50.09	PK2	35.9	-36.9	0	49.09	-	-	74	-24.91	50	142	H
	* 8135.222	50.09	Avg	35.9	-36.9	-13.98	35.11	54	-18.89	-	-	50	142	H
3	* 11116.273	49.1	PK2	38	-35.5	0	51.6	-	-	74	-22.4	312	368	H
	* 11116.273	49.1	Avg	38	-35.5	-13.98	37.62	54	-16.38	-	-	312	368	H
4	* 4969.648	51.36	PK2	33.8	-39.8	0	45.36	-	-	74	-28.64	177	295	V
	* 4969.648	51.36	Avg	33.8	-39.8	-13.98	31.38	54	-22.62	-	-	177	295	V
5	* 7459.348	48.88	PK2	35.7	-37.3	0	47.28	-	-	74	-26.72	218	265	V
	* 7459.348	48.88	Avg	35.7	-37.3	-13.98	33.3	54	-20.7	-	-	218	265	V
6	* 10659.773	48.13	PK2	37.9	-35.7	0	50.33	-	-	74	-23.67	15	139	V
	* 10659.773	48.13	Avg	37.9	-35.7	-13.98	36.35	54	-17.65	-	-	15	139	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK2 - KDB558074 Method: Maximum Peak  
 AVG = Peak Reading + Duty Cycle Correction Factor  
 Duty Cycle Correction Factor = -13.98 dB

### 10.4. WORST CASE BELOW 30 MHz

#### SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



#### ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

#### Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Amp/CbI (dB)	Dist Corr 30m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.0119	26.05	Pk	60.1	-31.1	-80	-24.95	66.06	-91.01	46.06	-71.01	-	-	-	-	0-360
2	.4543	29.01	Pk	56.2	-32.3	-80	-27.09	-	-	-	-	34.46	-61.55	14.46	-41.55	0-360
4	.0423	17.55	Pk	57.3	-32.3	-80	-37.45	55.06	-92.51	35.06	-72.51	-	-	-	-	0-360
5	.4711	27.13	Pk	56.2	-32.2	-80	-28.87	-	-	-	-	34.14	-63.01	14.14	-43.01	0-360

Pk - Peak detector

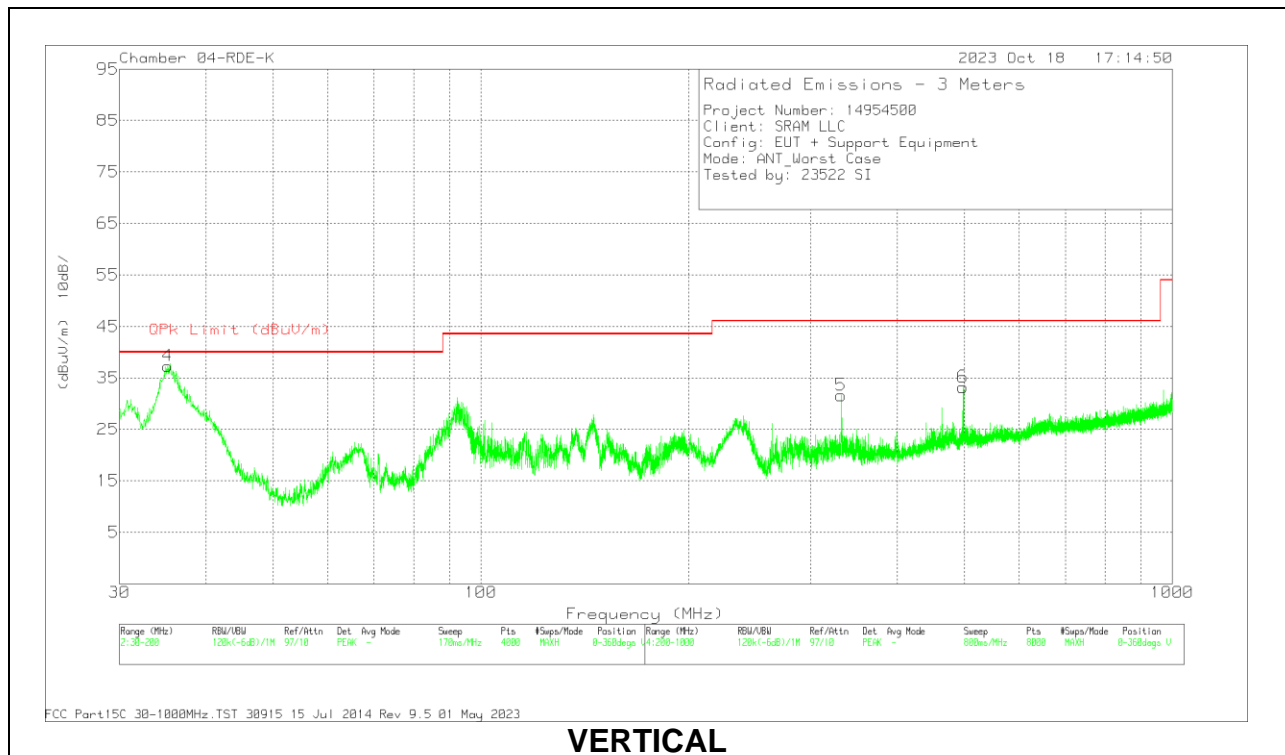
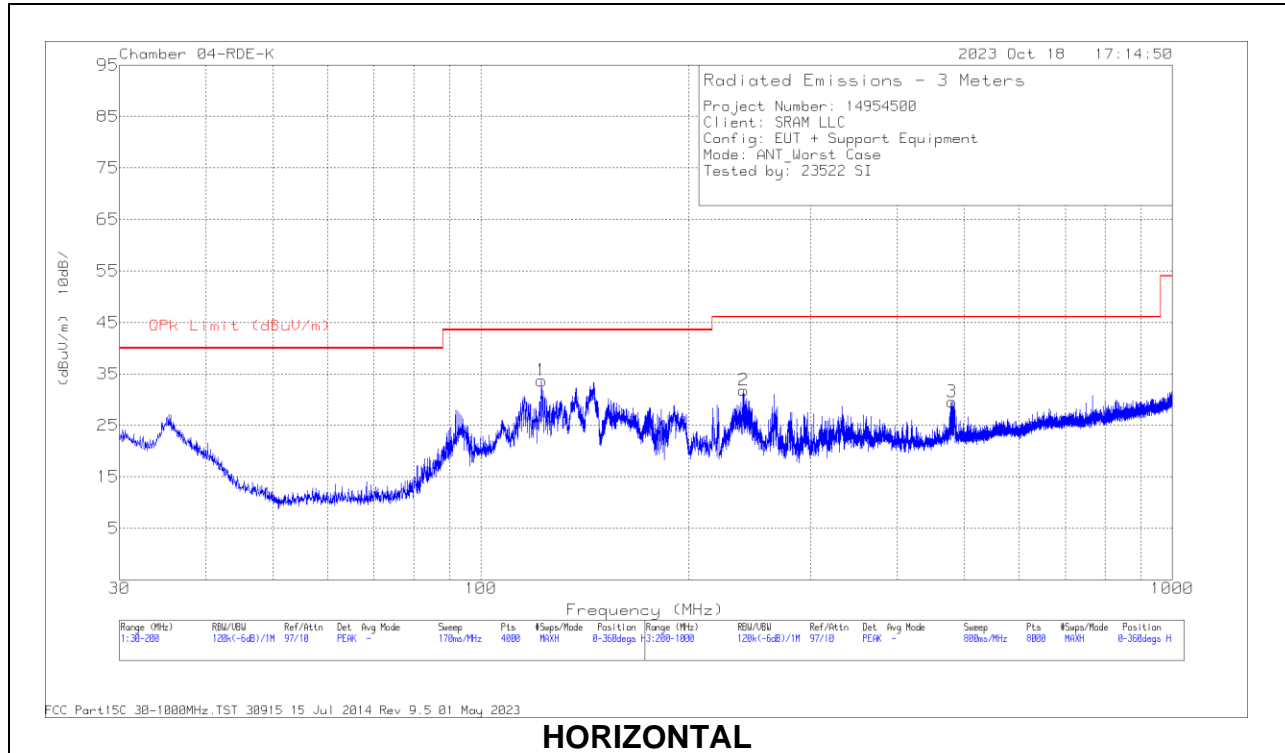
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Amp/CbI (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.8193	31.94	Pk	56.4	-32.2	-40	16.14	29.35	-13.21	0-360
6	.8232	26.88	Pk	56.4	-32.2	-40	11.08	29.31	-18.23	0-360
7	1.0741	36.51	Pk	46.4	-32.1	-40	10.81	27	-16.19	0-360
8	2.4721	34.22	Pk	40.2	-31.9	-40	2.52	29.5	-26.98	0-360
9	1.6351	33.27	Pk	43.5	-32	-40	4.77	23.36	-18.59	0-360
10	2.4879	26.87	Pk	40.2	-32	-40	-4.93	29.5	-34.43	0-360

Pk - Peak detector



### 10.5. WORST CASE BELOW 1 GHz

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



### Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	232075 ACF (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 122.334	44.29	Pk	19.9	-30.5	33.69	43.52	-9.83	0-360	299	H
4	35.2289	45.71	Pk	22.9	-31.3	37.31	40	-2.69	0-360	100	V
	35.4575	40.56	Qp	22.8	-31.3	32.06	40	-7.94	281	140	V
2	239.905	44.42	Pk	17.3	-29.9	31.82	46.02	-14.2	0-360	99	H
3	480.036	34.99	Pk	23.5	-28.9	29.59	46.02	-16.43	0-360	199	H
5	* 331.917	41.29	Pk	19.8	-29.5	31.59	46.02	-14.43	0-360	199	V
6	497.839	38.31	Pk	23.6	-28.7	33.21	46.02	-12.81	0-360	98	V

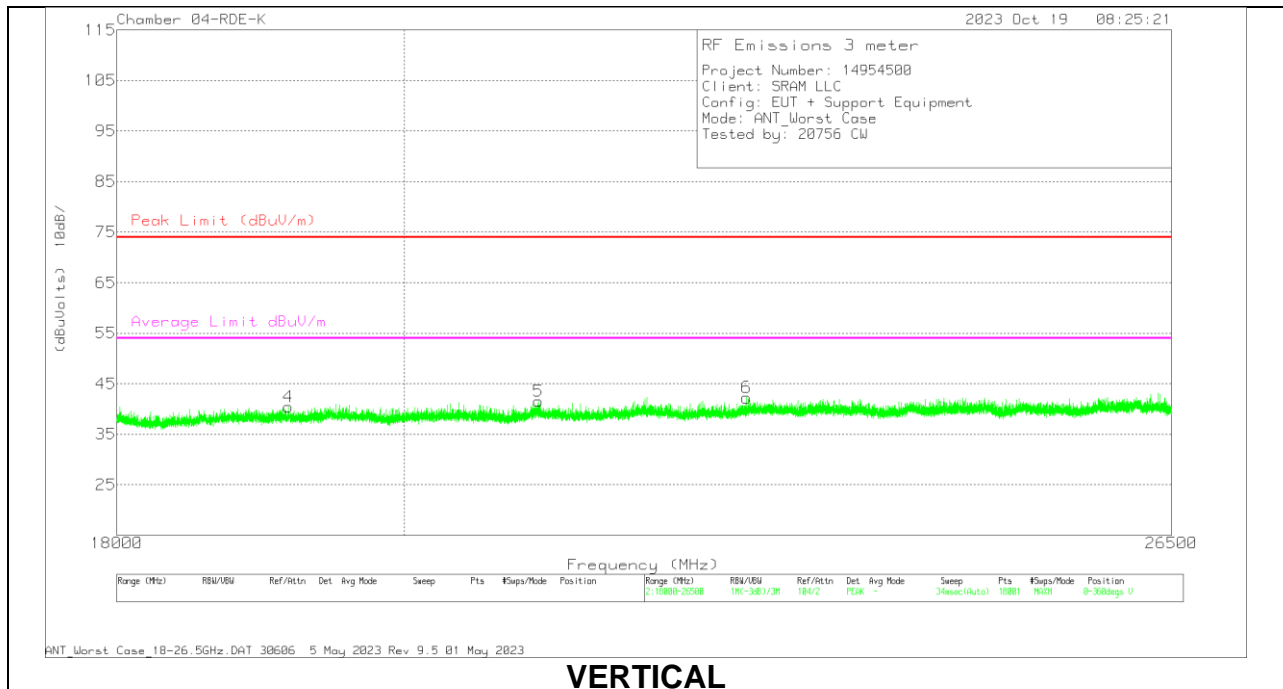
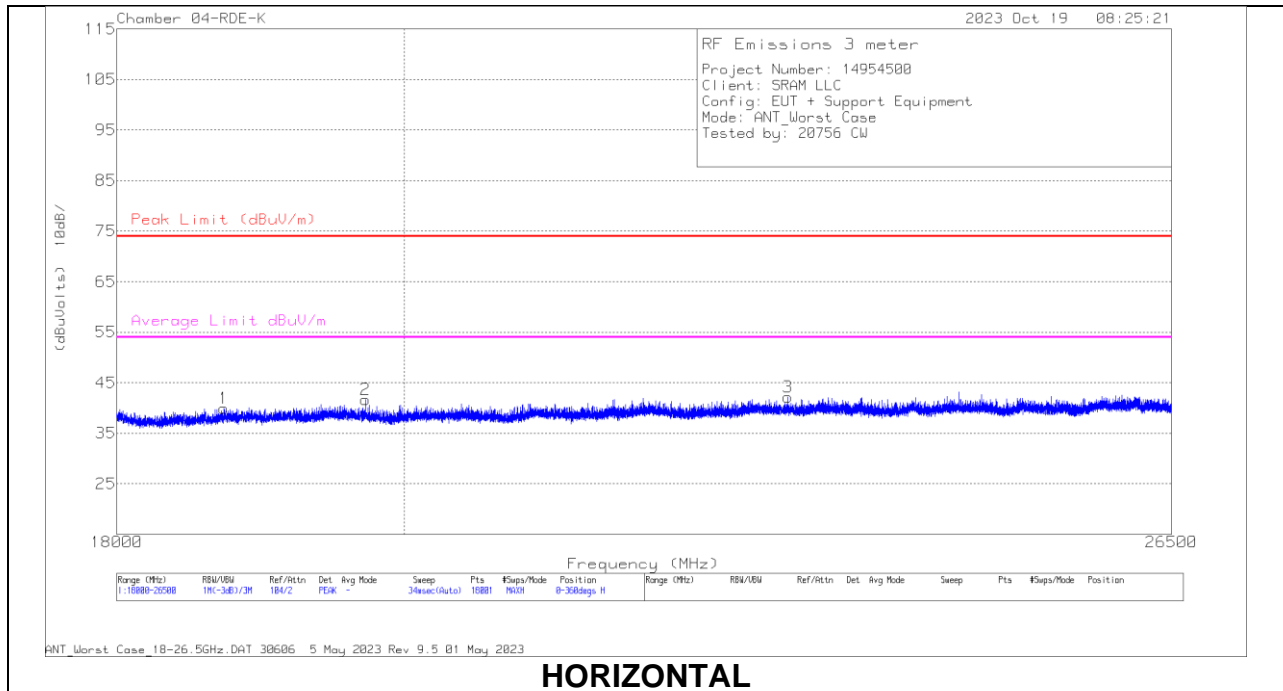
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

Qp - Quasi-Peak detector

## 10.6. WORST CASE 18-26 GHz

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



**18 – 26GHz Data**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Horn ACF (dB/m)	234683 Amp/Cbl (dB)	Cables (dB)	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	PK Margin (dB)	Average Limit dBuV/m	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 18722.027	52.34	Pk	32.3	-62.9	18.2	39.94	74	-34.06	54	-14.06	0-360	200	H
2	* 19718.416	52.91	Pk	32.7	-62.6	18.6	41.61	74	-32.39	54	-12.39	0-360	200	H
3	* 23023.498	51.02	Pk	33.5	-62.5	20.1	42.12	74	-31.88	54	-11.88	0-360	200	H
4	* 19169.222	51.94	Pk	32.6	-62.5	18.4	40.44	74	-33.56	54	-13.56	0-360	199	V
5	* 21012.304	50.38	Pk	33	-61.1	19.2	41.48	74	-32.52	54	-12.52	0-360	101	V
6	* 22676.414	51.52	Pk	33.3	-62.5	19.9	42.22	74	-31.78	54	-11.78	0-360	101	V

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

## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)  
ISED RSS-GEN, Section 8.8

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

\*Decreases with the logarithm of the frequency.

### TEST PROCEDURE

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

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

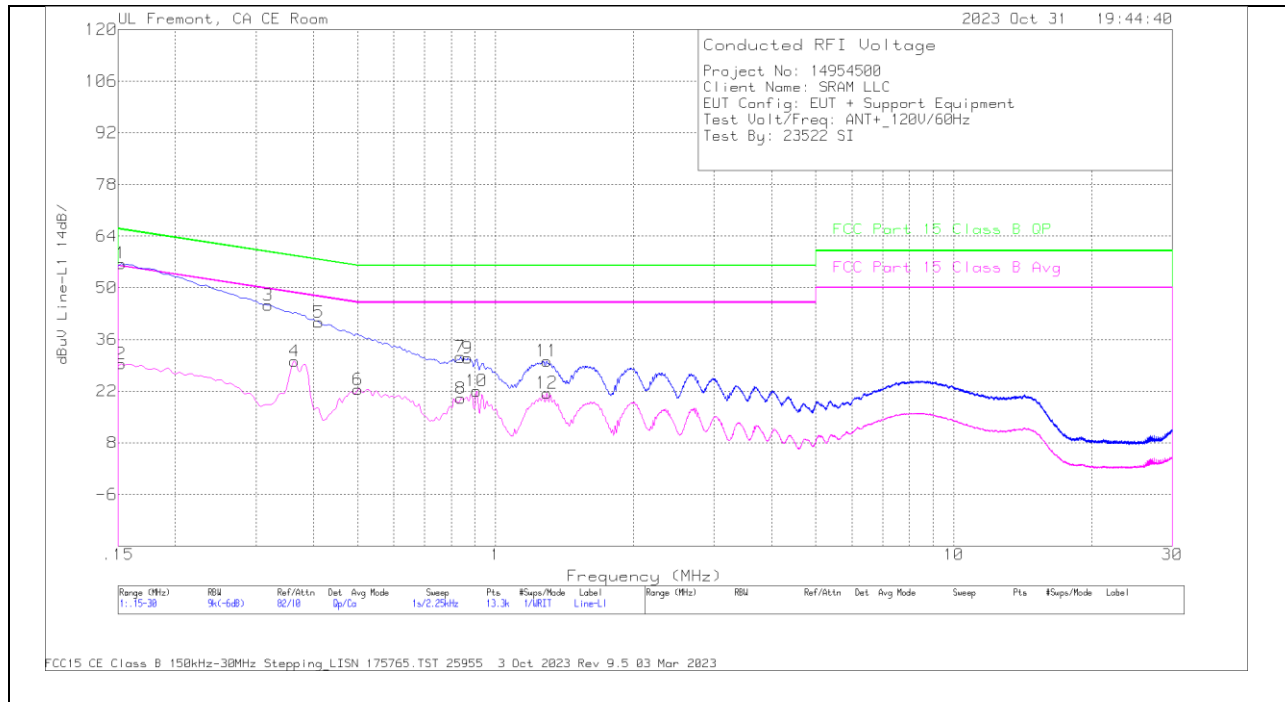
Line conducted data is recorded for both NEUTRAL and HOT lines.

### RESULTS

# 11.1. AC Power Line Norm

## 11.1.1. LEFT NORDIC RADIO:

### LINE 1 RESULTS

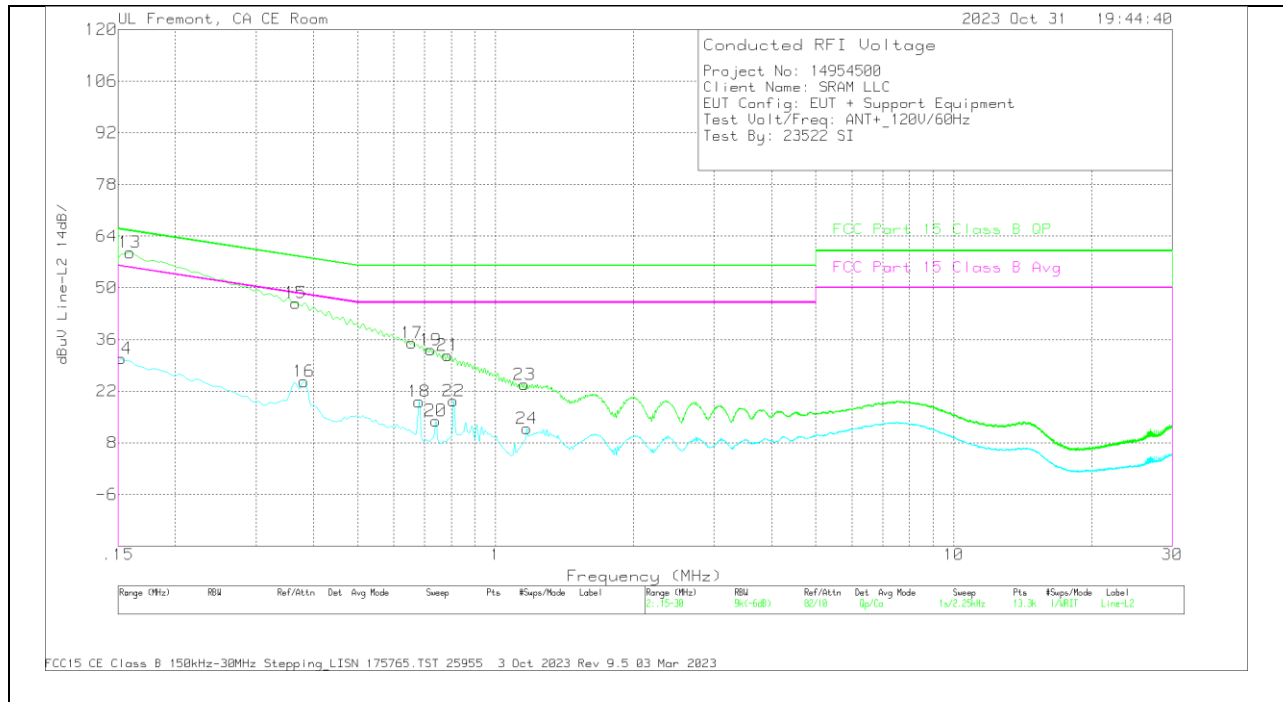


#### Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Tms Limiter (dB)	Corrected Reading (dBuV)	FCC Part 15 Class B QP	QP Margin (dB)	FCC Part 15 Class B Avg	Av(CISPR)M argin (dB)
1	.1523	47.12	Qp	0	0	9.5	56.62	65.88	-9.26	-	-
2	.1523	19.91	Ca	0	0	9.5	29.41	-	-	55.88	-26.47
3	.3188	35.78	Qp	0	.1	9.4	45.28	59.74	-14.46	-	-
4	.3638	20.7	Ca	0	0	9.4	30.1	-	-	48.64	-18.54
5	.411	31.27	Qp	0	0	9.4	40.67	57.63	-16.96	-	-
6	.501	13.13	Ca	0	0	9.3	22.43	-	-	46	-23.57
7	.8385	21.84	Qp	0	.1	9.3	31.24	56	-24.76	-	-
8	.8408	10.63	Ca	0	.1	9.3	20.03	-	-	46	-25.97
9	.87	21.55	Qp	0	.1	9.3	30.95	56	-25.05	-	-
10	.9083	12.52	Ca	0	.1	9.4	22.02	-	-	46	-23.98
11	1.293	20.75	Qp	0	0	9.4	30.15	56	-25.85	-	-
12	1.293	12.06	Ca	0	0	9.4	21.46	-	-	46	-24.54

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

### LINE 2 RESULTS



#### Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN (dB)	Cbl (dB)	Trns Limiter (dB)	Corrected Reading dBuV	FCC Part 15 Class B QP	QP Margin (dB)	FCC Part 15 Class B Avg	Av(CISPR)M argin (dB)
13	.159	50.05	Qp	0	0	9.5	59.55	65.52	-5.97	-	-
14	.1523	21.3	Ca	0	0	9.5	30.8	-	-	55.88	-25.08
15	.366	36.39	Qp	0	.1	9.4	45.89	58.59	-12.7	-	-
16	.3818	15.11	Ca	0	.1	9.4	24.61	-	-	48.24	-23.63
17	.6563	25.52	Qp	0	.1	9.4	35.02	56	-20.98	-	-
18	.681	9.84	Ca	0	0	9.3	19.14	-	-	46	-26.86
19	.7215	23.86	Qp	0	0	9.3	33.16	56	-22.84	-	-
20	.7395	4.53	Ca	0	0	9.4	13.93	-	-	46	-32.07
21	.7868	22.4	Qp	0	0	9.3	31.7	56	-24.3	-	-
22	.8093	10.07	Ca	0	0	9.3	19.37	-	-	46	-26.63
23	1.1558	14.16	Qp	0	.2	9.4	23.76	56	-32.24	-	-
24	1.1693	2.23	Ca	0	.2	9.4	11.83	-	-	46	-34.17

Qp - Quasi-Peak detector  
 Ca - CISPR average detection