

TEST REPORT

Report Number. : 14615286-E3V2

Applicant : SRAM LLC
1000 W Fulton Market 4th Floor
Chicago, IL 60607, United States

Model : 55502

Brand : SRAM

FCC ID : C9O-PMB2

IC : 10161A-PMB2

EUT Description : Pressure Sensor

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:

2023-03-16

Prepared by:

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2023-03-06	Initial Issue	---
V2	2023-03-16	Updated Section Table of Content, 1,3 and 5.4	Kiya Kedida

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SRAM LLC
1000 W Fulton Market 4th Floor
Chicago, IL 60607, United States

EUT DESCRIPTION: Pressure Sensor

MODEL: 55502

BRAND: SRAM

SERIAL NUMBER: Conducted: 12345603
Radiated: 2345601

SAMPLE RECEIPT DATE: 2023-02-08

DATE TESTED: 2023-02-10 TO 2023-02-14

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
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.

Approved & Released For
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Consumer Technology Division
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		Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
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	NA	A.C. line conducted was not evaluated because the E.U.T. uses the battery

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
☐	Building 1: 47173 Benicia Street Fremont, CA 94538, U.S.A	US0104	2324A	550739
☐	Building 2: 47266 Benicia Street Fremont, CA 94538, U.S.A	US0104	22541	550739
☒	Building 4: 47658 Kato Rd Fremont, CA 94538, U.S.A	US0104	2324B	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 _{Lab}
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)

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

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a Pressure Sensor.

6.2. MAXIMUM FUNDAMENTAL FIELD STRENGTH

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

Frequency Range (MHz)	Mode	Peak E-field Strength (dBuV/m)	Avg E-field Strength (dBuV/m)	Distance (m)
2405 - 2475	ANT+	106.15	92.17	3.00

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

The radio utilizes a ceramic chip antenna, with a maximum gain of 0 dBi.

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version B-1.0.

The test utility software used during testing was nRF Connect version 4.26.0.

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz and above 18GHz 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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Phone	Apple	iPhone 8	F4GVG5FZJC67
DC Power Supply	Kenwood Corporation	PA36-3A	7060074
DC Power Supply	TDK.Lambda	ZUP36-6U	LOC-738A019-0007

I/O CABLES (CONDUCTED EMISSIONS)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Unshielded	1.5	AC Main to DC Supply, to Analyzer
2	DC	1	DC	Unshielded	0.5	Power Supply to EUT
3	Antenna Port	1	SMA	Unshielded	0.1	EUT to Analyzer

I/O CABLES (RADIATED EMISSIONS)

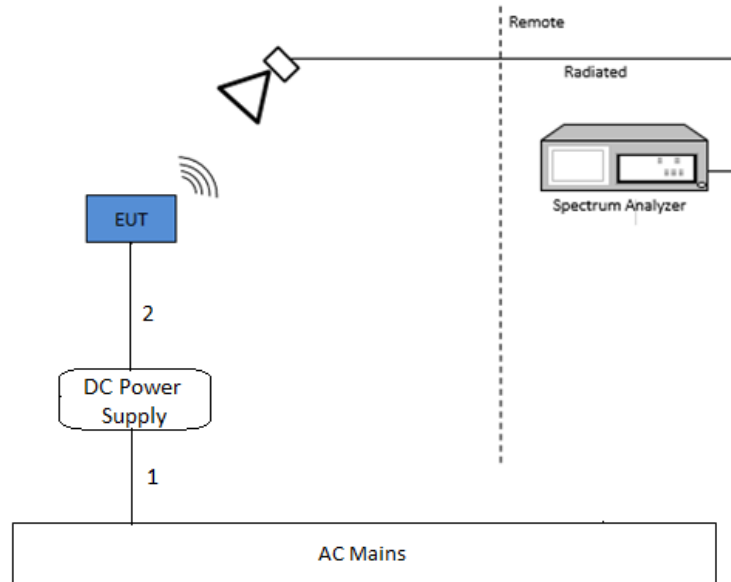
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Unshielded	1.5	AC Main to DC Supply
2	DC	1	DC	Unshielded	0.5	Power Supply to EUT

TEST SETUP

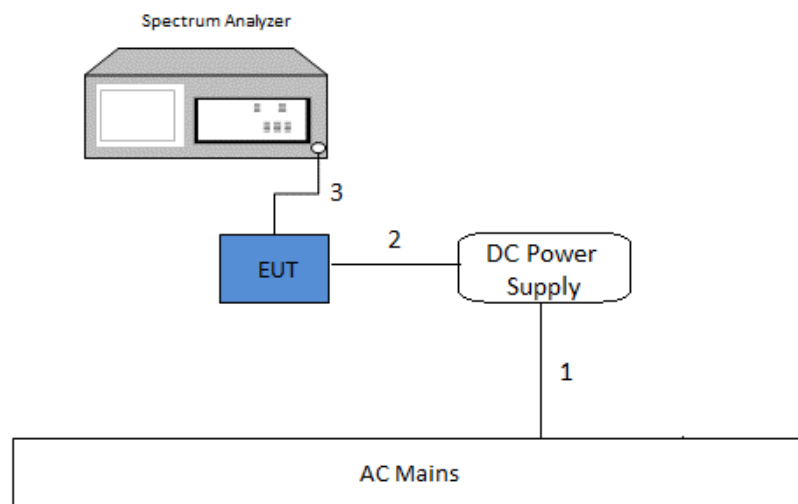
For the purposes of testing, the EUT is connected to a 3V DC Power supply for radiated emissions above 1GHz. The EUT is normally powered by a CR1632 battery at 3V. The phone is used for setting up purposes and was removed during testing.

SETUP DIAGRAM

Radiated Configuration



Conducted Configuration



7. MEASUREMENT METHOD

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

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.

***A.C. line conducted was not evaluated because the E.U.T. uses the battery.**

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 2000MHz	Sunol Sciences Corp.	JB1	80813	2023-06-08	2022-06-08
Amplifier, 10KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	175953	*2023-02-08	2022-02-08
Antenna, Horn 1-18GHz	ETS-Lindgren (Cedar Park, Texas)	3117	223083	2023-07-05	2022-07-05
RF Filter Box, 1-18GHz	UL-FR1	n/a	171875	2023-08-12	2022-08-12
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	172364	2023-03-08	2022-03-08
Amplifier 18-26.5GHz, +5Vdc, 60dB min	AMPLICAL	AMP18G26.5-60	215705	2023-02-26	2022-02-26
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	219909	2023-05-10	2022-05-10
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	219911	2023-05-10	2022-05-10
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent Technologies	N4440A	80386	2023-03-02	2022-03-02
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90719	2024-01-31	2023-01-25
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	81319	2024-01-31	2023-01-25
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	N/A	Verified	Verified
UL TEST SOFTWARE LIST					
Radiated Software	UL	UL EMC	Ver 2022-06-28, 2022-05-18, 2020-06-13, 2015-12-28, 2015-12-29, 2014-07-15		
Antenna Port Software	UL	UL RF	Ver 2022.8.16		

NOTES:

*- Calibration due date extended to 2023-02-28.

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

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

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2405	1.7616
Middle	2440	1.7622
High	2475	1.7807



9.3. 20 dB BANDWIDTH

LIMITS

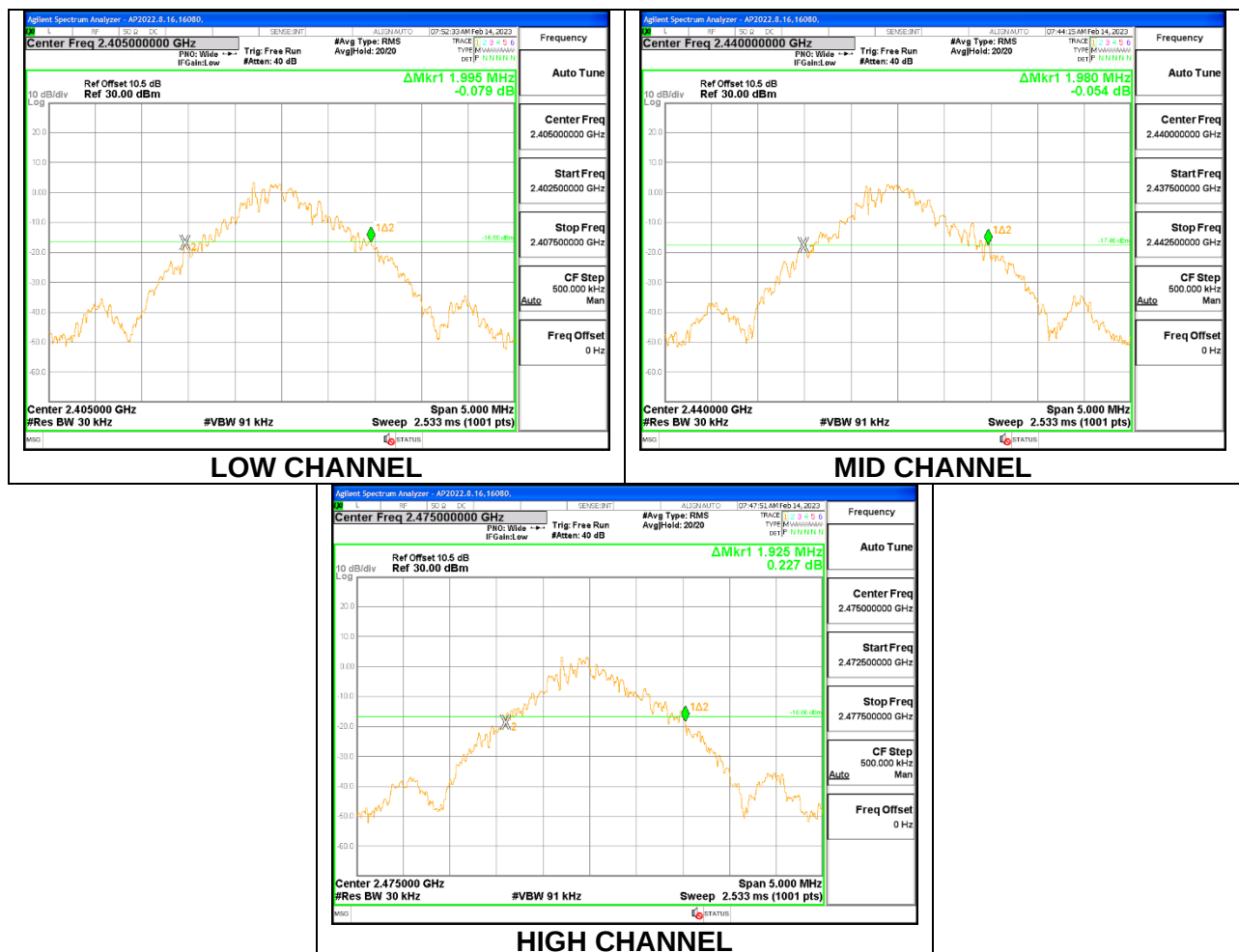
None; for reporting purposes only.

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

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	Frequency Edge (MHz)	Limit (MHz)	Margin (MHz)
Low	2405	1.995	2404.003	2400	-4.003
Middle	2440	1.980	N/A	N/A	N/A
High	2475	1.925	2475.963	2483.5	-7.537



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.

2D antenna use - 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.

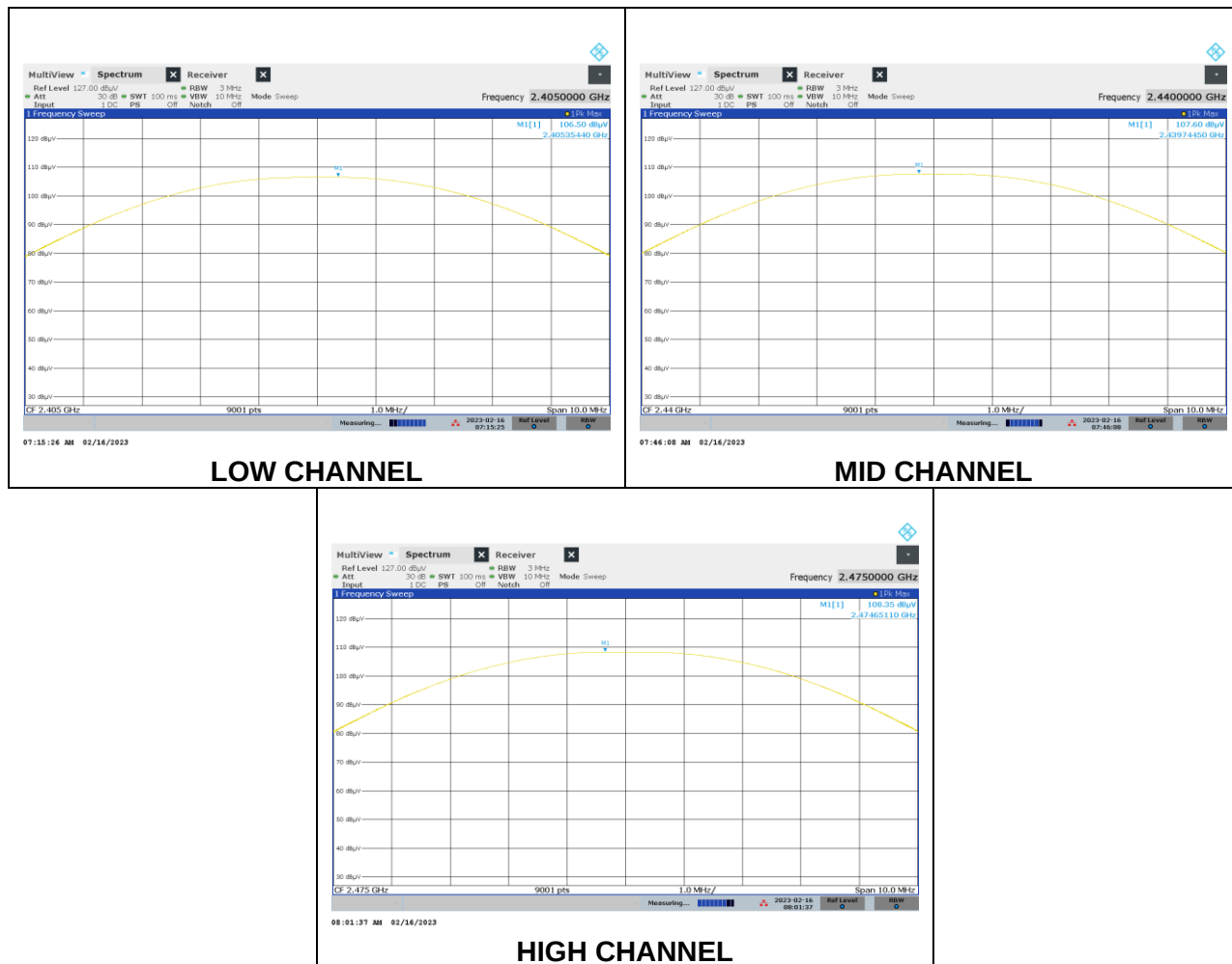
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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

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

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



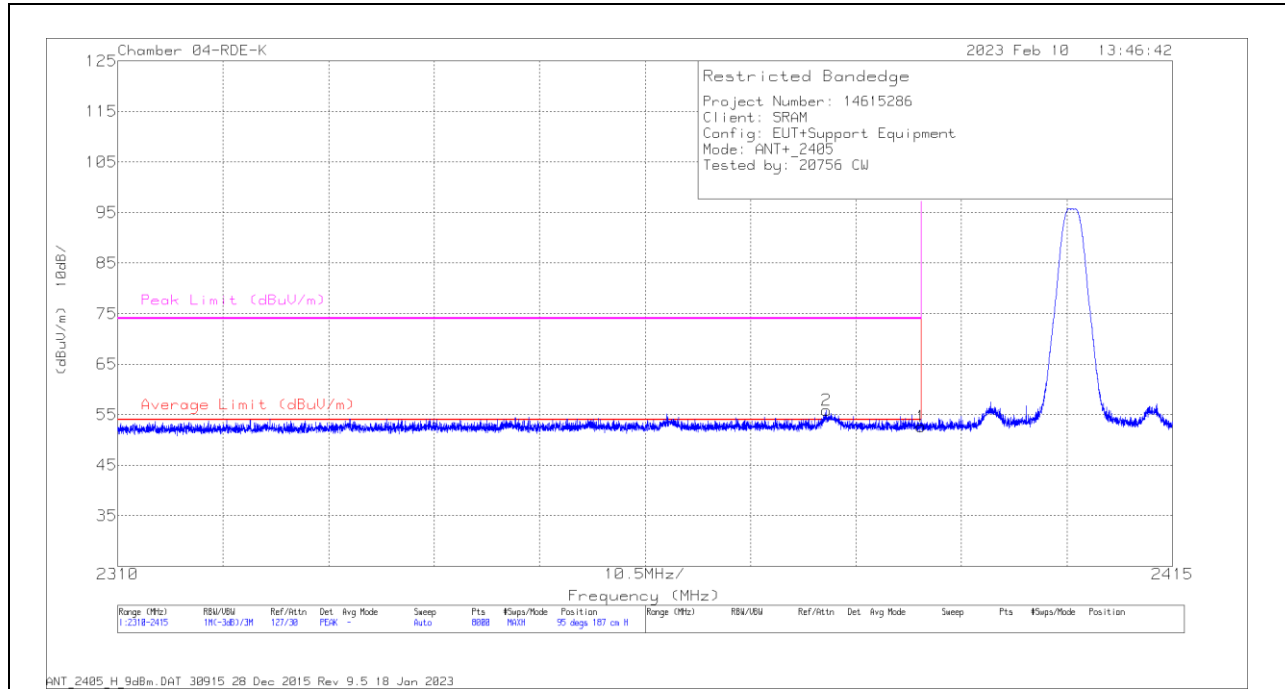
Frequency (GHz)	Meter Reading (dBuV)	Det	223083 ACF (dB) - 3mH	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.405	105.55	PK	31.9	-34.7	0	102.75	-	-	114	-11.25	340	232	H
	105.55	AVG	31.9	-34.7	-13.98	88.77	94	-5.23	-	-	340	232	H
	106.5	Pk	31.9	-34.7	0	103.7	-	-	114	-10.3	344	128	V
	106.5	AVG	31.9	-34.7	-13.98	89.72	94	-4.28	-	-	344	128	V
2.440	106.57	Pk	32	-34.7	0	103.87	-	-	114	-10.13	305	230	H
	106.57	AVG	32	-34.7	-13.98	89.89	94	-4.11	-	-	305	230	H
	107.6	Pk	32	-34.7	0	104.9	-	-	114	-9.1	347	118	V
	107.6	AVG	32	-34.7	-13.98	90.92	94	-3.08	-	-	347	118	V
2.475	105.19	Pk	32.2	-34.4	0	102.99	-	-	114	-11.01	244	217	H
	105.19	AVG	32.2	-34.4	-13.98	89.01	94	-4.99	-	-	244	217	H
	108.35	Pk	32.2	-34.4	0	106.15	-	-	114	-7.85	211	111	V
	108.35	AVG	32.2	-34.4	-13.98	92.17	94	-1.83	-	-	211	111	V

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

10.3. TRANSMITTER ABOVE 1 GHz

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF (dB) 3mH	Amp/Cbl/Pad (dB)	DC Corr (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	55.73	PK	31.8	-34.9	0	52.63	-	-	74	-21.37	95	187	H
	* 2390	55.73	AVG	31.8	-34.9	-13.98	38.65	54	-15.35	-	-	95	187	H
2	* 2380.558	59	PK	31.8	-34.9	0	55.9	-	-	74	-18.1	95	187	H
	* 2380.558	59	AVG	31.8	-34.9	-13.98	41.92	54	-12.08	-	-	95	187	H

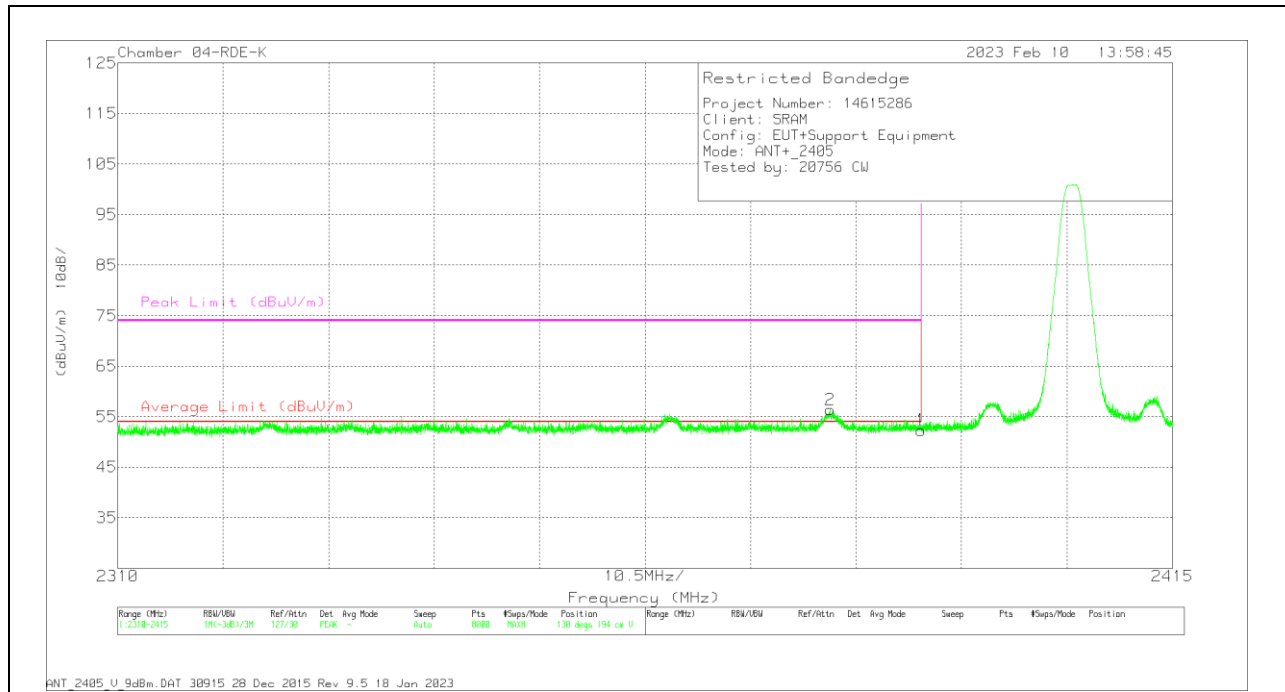
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - RB=1MHz VB=3 x RB, Peak

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 (dB) 3mH	Amp/Cbl/Pad (dB)	DC Corr (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	55.44	PK	31.8	-34.9	0	52.34	-	-	74	-21.66	130	194	V
	* 2390	55.44	AVG	31.8	-34.9	-13.98	38.36	54	-15.64	-	-	130	194	V
2	* 2380.925	59.45	PK	31.8	-34.9	0	56.35	-	-	74	-17.65	130	194	V
	* 2380.925	59.45	AVG	31.8	-34.9	-13.98	42.37	54	-11.63	-	-	130	194	V

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

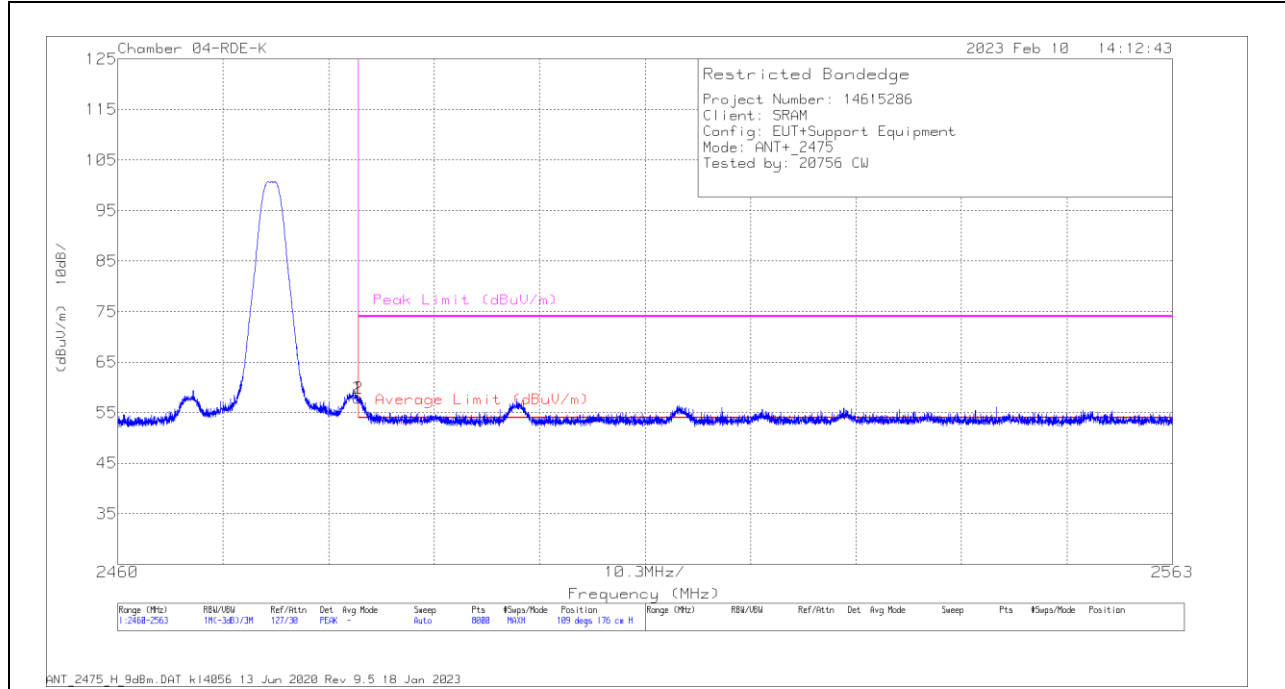
PK - RB=1MHz VB=3 x RB, Peak

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 (dB) 3mH	Amp/Cbl/Pad (dB)	DC Corr (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	60.16	PK	32.2	-34.5	0	57.86	-	-	74	-16.14	109	176	H
	* 2483.5	60.16	AVG	32.2	-34.5	-13.98	43.88	54	-10.12	-	-	109	176	H
2	* 2483.501	60.17	PK	32.2	-34.5	0	57.87	-	-	74	-16.13	109	176	H
	* 2483.501	60.17	AVG	32.2	-34.5	-13.98	43.89	54	-10.13	-	-	109	176	H

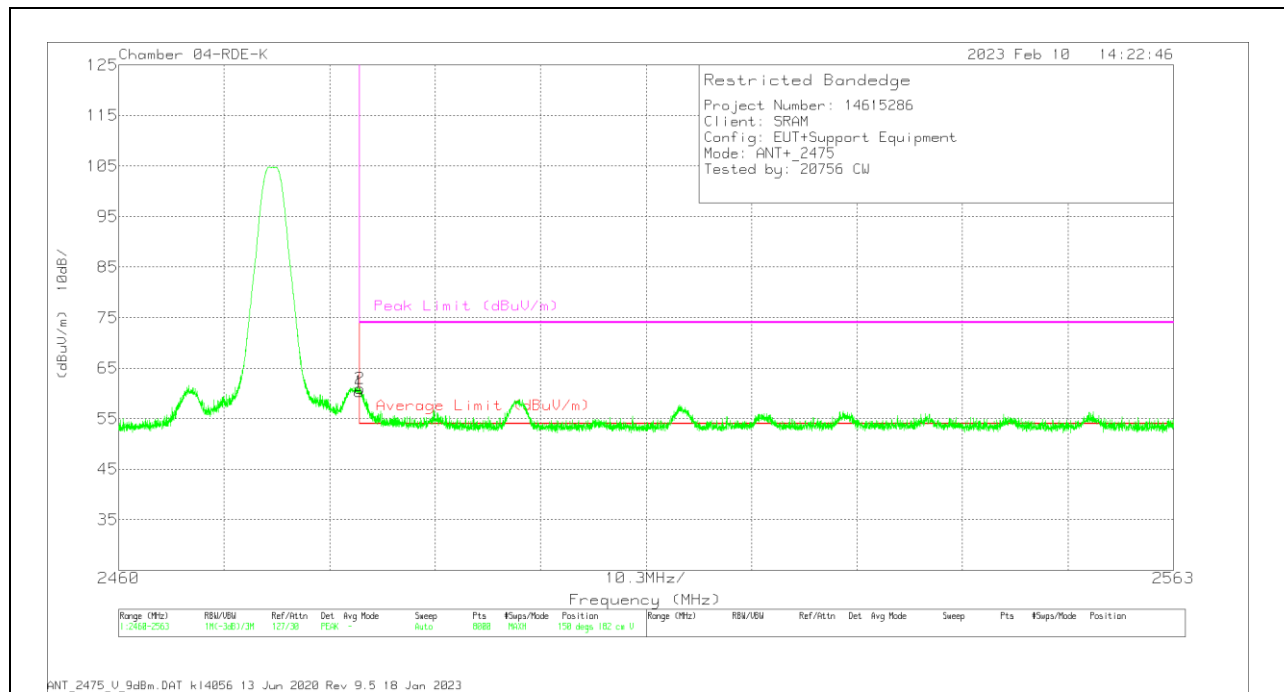
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - RB=1MHz VB=3 x RB, Peak

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 (dB) 3mH	Amp/Cbl/Pad (dB)	DC Corr (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	62.63	PK	32.2	-34.5	0	60.33	-	-	74	-13.67	150	182	V
	* 2483.5	62.63	AVG	32.2	-34.5	-13.98	46.35	54	-7.65	-	-	150	182	V
2	* 2483.552	63.23	PK	32.2	-34.5	0	60.93	-	-	74	-13.07	150	182	V
	* 2483.552	63.23	AVG	32.2	-34.5	-13.98	46.95	54	-7.05	-	-	150	182	V

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

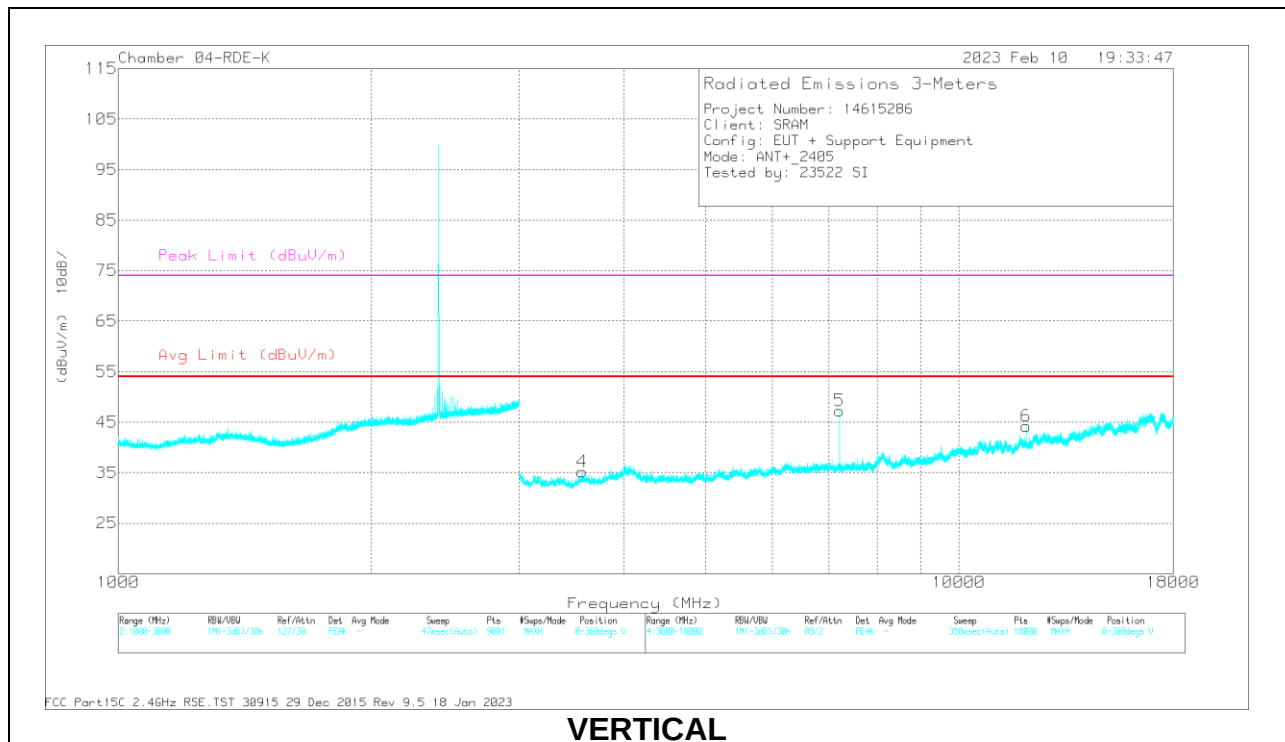
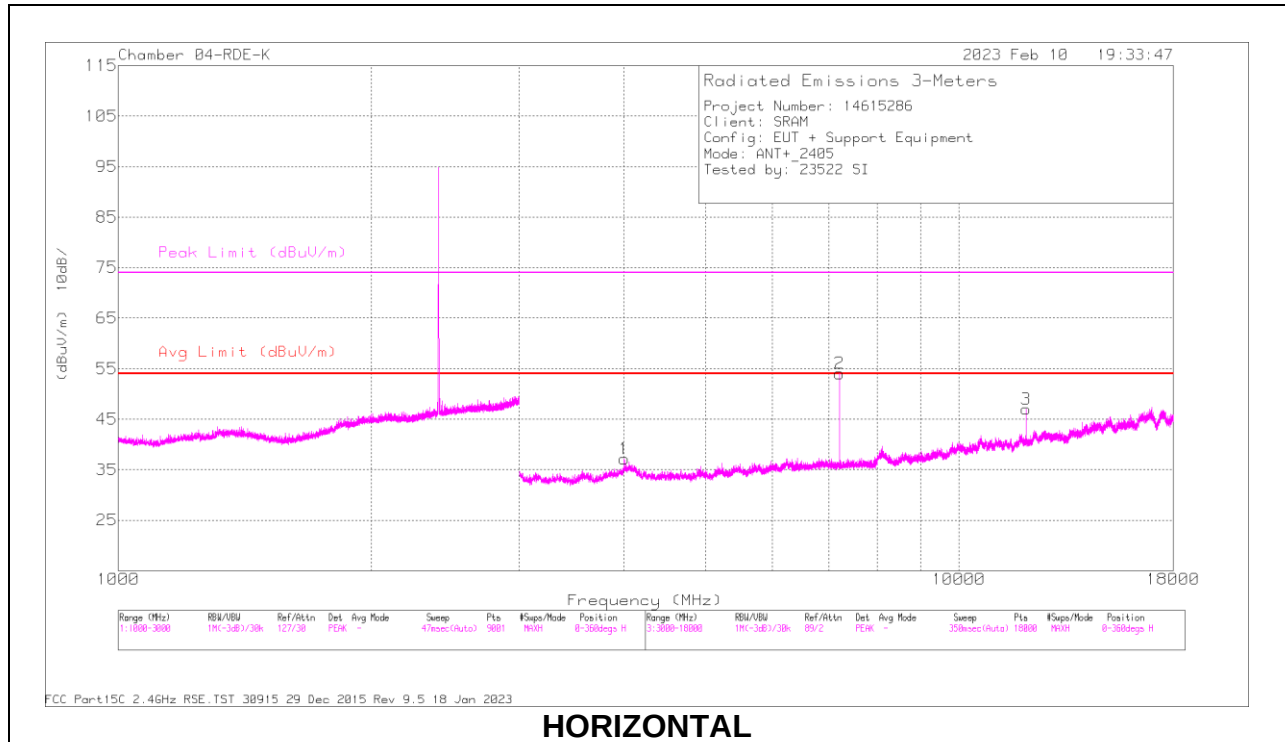
PK - RB=1MHz VB=3 x RB, Peak

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 (dB) 3mH	Amp/Cbl/Filtr (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
1	* 3998.07	52.3	PK	35.1	-41.6	0	45.8	-	-	74	-28.2	91	392	H
	* 3998.07	52.3	AVG	35.1	-41.6	-13.98	31.82	54	-22.18	-	-	91	392	H
2	7214.114	61.2	PK	35.7	-38.4	0	58.5	-	-	74	-15.5	142	202	H
	7214.114	61.2	AVG	35.7	-38.4	-13.98	44.52	54	-9.48	-	-	142	202	H
3	* 12023.708	51.01	PK	38.7	-34.5	0	55.21	-	-	74	-18.79	48	172	H
	* 12023.708	51.01	AVG	38.7	-34.5	-13.98	41.23	54	-12.77	-	-	48	172	H
4	* 3566.772	53.32	PK	33	-42.1	0	44.22	-	-	74	-29.78	160	102	V
	* 3566.772	53.32	AVG	33	-42	-13.98	30.24	54	-23.76	-	-	160	102	V
5	7216.007	56.39	PK	35.7	-38.3	0	53.79	-	-	74	-20.21	136	228	V
	7216.007	56.39	AVG	35.7	-38.4	-13.98	39.81	54	-14.19	-	-	136	228	V
6	* 12023.806	48.8	PK	38.7	-34.5	0	53	-	-	74	-21	187	208	V
	* 12023.806	48.8	AVG	38.7	-34.5	-13.98	39.02	54	-14.98	-	-	187	208	V

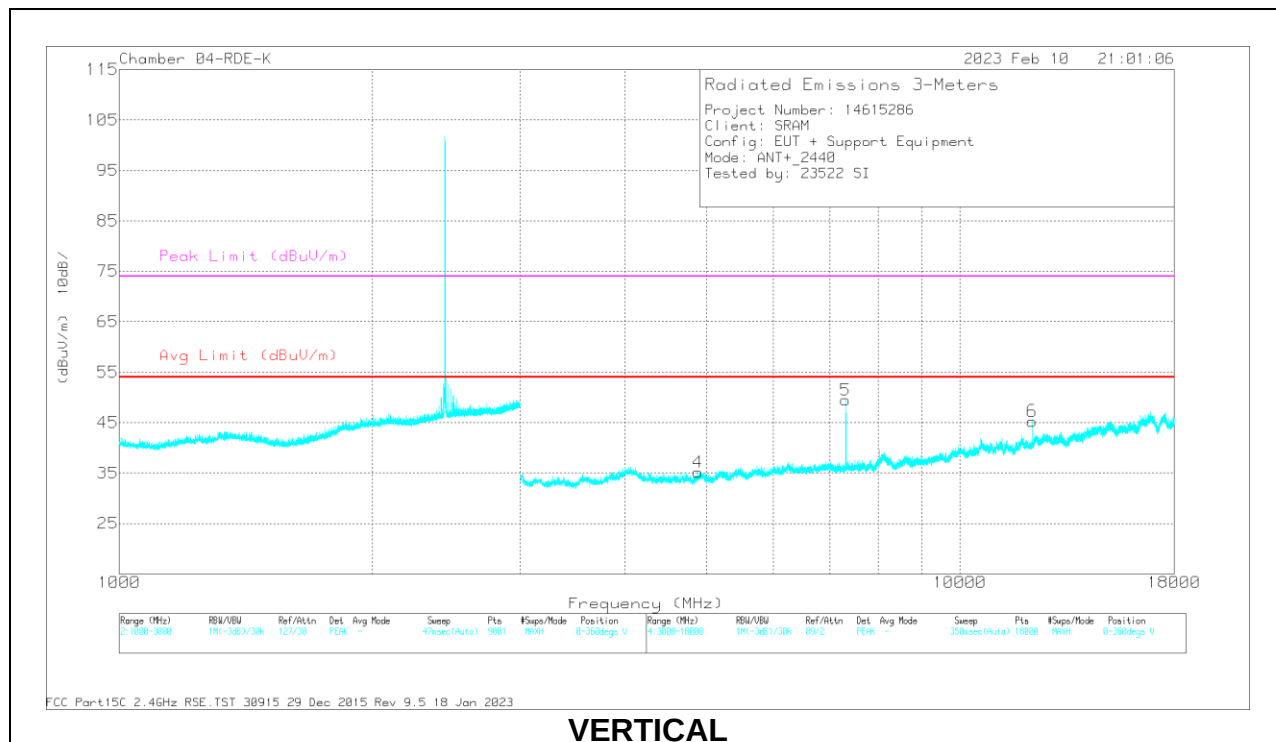
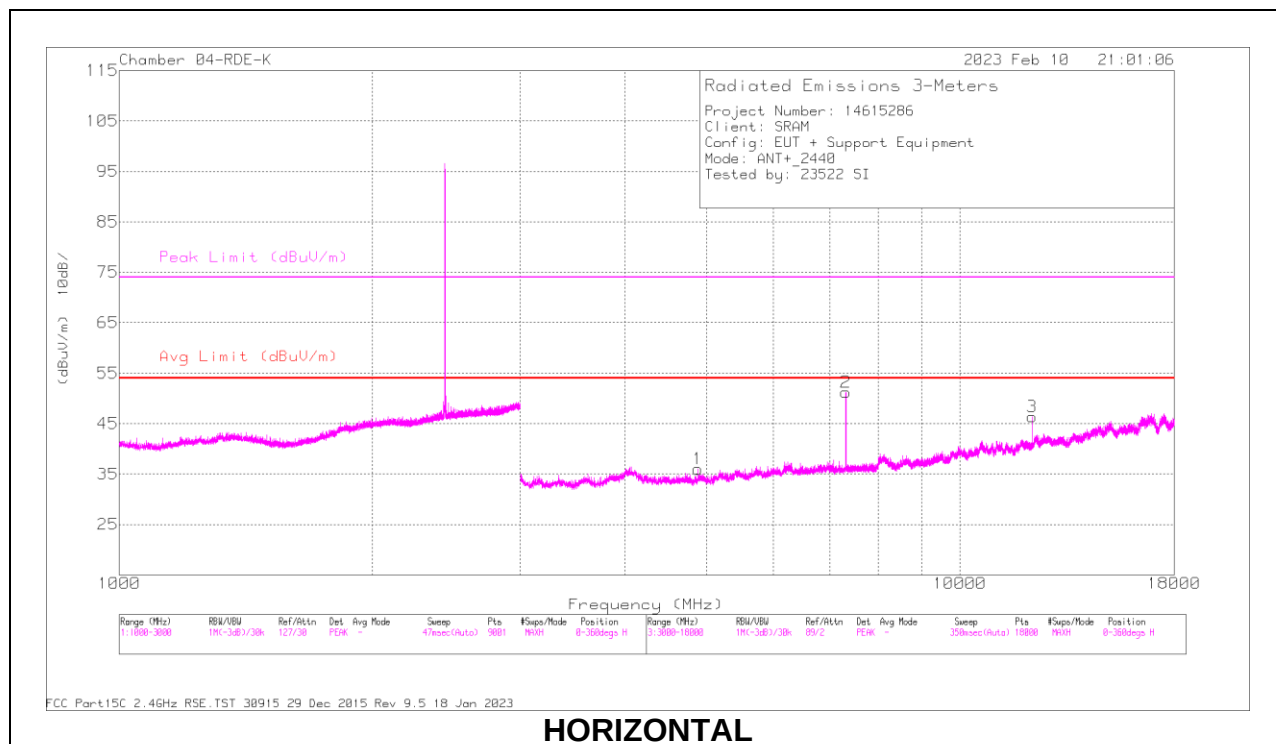
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - RB=1MHz VB=3 x RB, Peak

AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

MID CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF (dB) 3mH	Amp/Cbl/Filtr (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
1	* 4878.765	52.78	PK	33.7	-40.5	0	45.98	-	-	74	-28.02	175	124	H
	* 4878.765	52.78	AVG	33.7	-40.4	-13.98	32	54	-22	-	-	175	124	H
2	* 7318.997	60.02	PK	35.7	-38	0	57.72	-	-	74	-16.28	143	184	H
	* 7318.997	60.02	AVG	35.7	-38	-13.98	43.74	54	-10.26	-	-	143	184	H
3	* 12198.347	50.33	PK	38.9	-34.5	0	54.73	-	-	74	-19.27	55	104	H
	* 12198.347	50.33	AVG	38.9	-34.5	-13.98	40.75	54	-13.25	-	-	55	104	H
4	* 4879.671	52.15	PK	33.7	-40.4	0	45.45	-	-	74	-28.55	166	359	V
	* 4879.671	52.15	AVG	33.7	-40.4	-13.98	31.47	54	-22.53	-	-	166	359	V
5	* 7320.901	56.52	PK	35.7	-38	0	54.22	-	-	74	-19.78	138	209	V
	* 7320.901	56.52	AVG	35.7	-38	-13.98	40.24	54	-13.76	-	-	138	209	V
6	* 12198.794	49.62	PK	38.9	-34.5	0	54.02	-	-	74	-19.98	342	209	V
	* 12198.794	49.62	AVG	38.9	-34.5	-13.98	40.04	54	-13.96	-	-	342	209	V

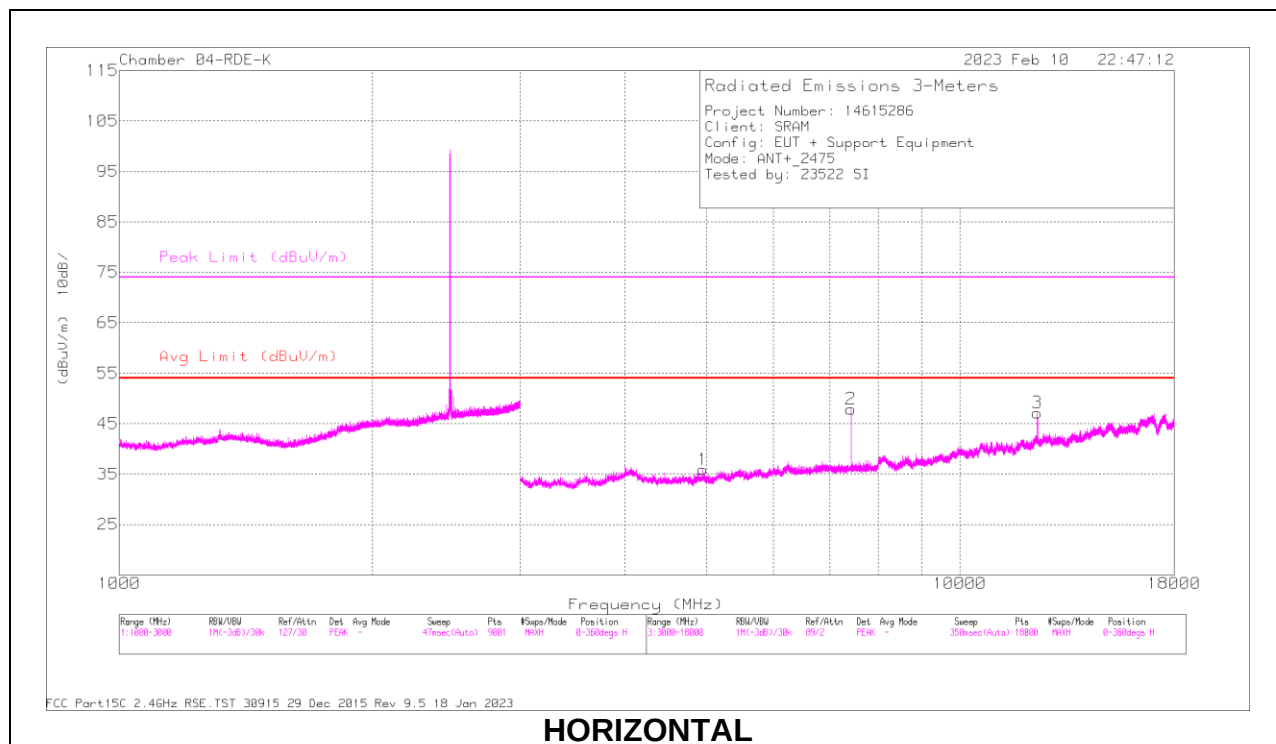
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - RB=1MHz VB=3 x RB, Peak

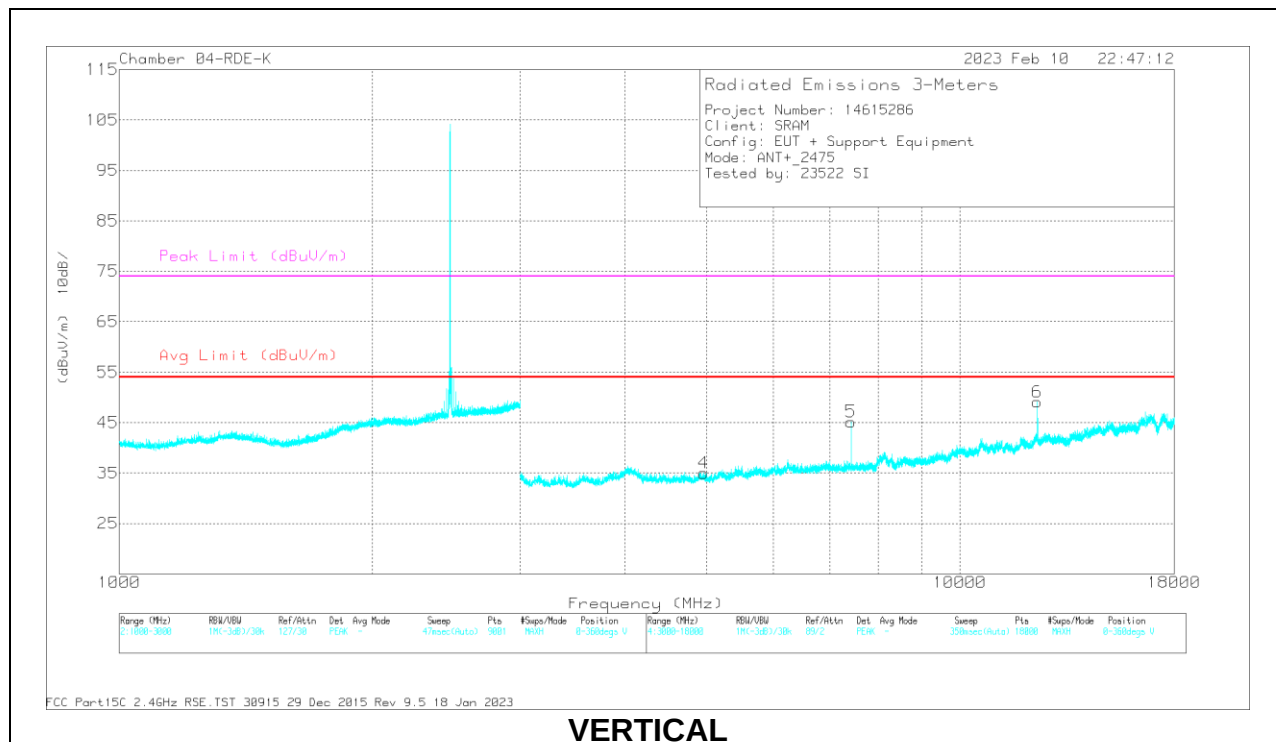
AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	223083 ACF (dB) 3mH	Amp/Cbl/Filtr (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
1	* 4949.663	52.81	PK	33.7	-40.4	0	46.11	-	-	74	-27.89	181	155	H
	* 4949.663	52.81	AVG	33.7	-40.4	-13.98	32.13	54	-21.87	-	-	181	155	H
2	* 7424.076	58.25	PK	35.7	-37.7	0	56.25	-	-	74	-17.75	144	200	H
	* 7424.076	58.25	AVG	35.7	-37.7	-13.98	42.27	54	-11.73	-	-	144	200	H
3	* 12373.688	50.48	PK	39	-34	0	55.48	-	-	74	-18.52	55	110	H
	* 12373.688	50.48	AVG	39	-34	-13.98	41.5	54	-12.5	-	-	55	110	H
4	* 4957.882	51.14	PK	33.7	-40.3	0	44.54	-	-	74	-29.46	341	230	V
	* 4957.882	51.14	AVG	33.7	-40.4	-13.98	30.56	54	-23.44	-	-	341	230	V
5	* 7424.061	53.85	PK	35.7	-37.7	0	51.85	-	-	74	-22.15	142	267	V
	* 7424.061	53.85	AVG	35.7	-37.7	-13.98	37.87	54	-16.13	-	-	142	267	V
6	* 12373.638	51.03	PK	39	-34	0	56.03	-	-	74	-17.97	341	231	V
	* 12373.638	51.03	AVG	39	-34	-13.98	42.05	54	-11.95	-	-	341	231	V

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

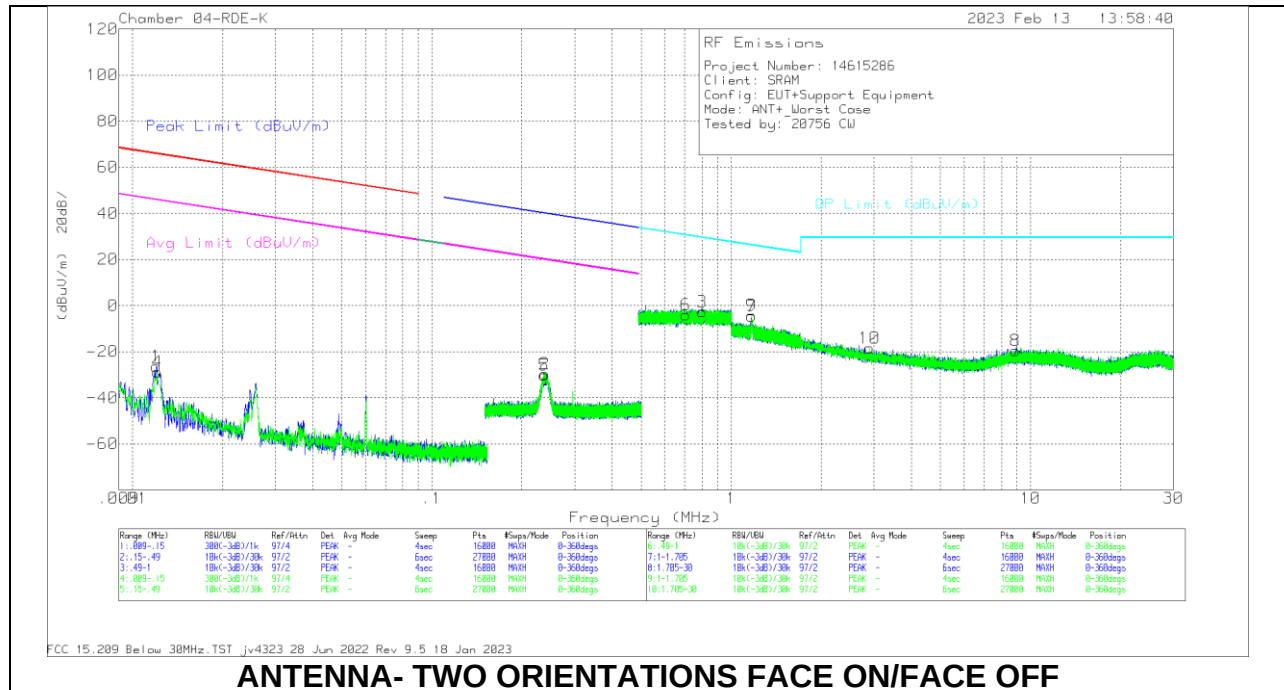
PK - RB=1MHz VB=3 x RB, Peak

AVG = Peak Reading + Duty Cycle Correction Factor

Duty Cycle Correction Factor = -13.98 dB

10.4. WORST CASE BELOW 30MHZ

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/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Antenna Polarity (deg)
1	.012	24.67	Pk	60.1	-31	-80	-26.23	65.98	-92.21	45.98	-72.21	0-360
2	.2388	26.3	Pk	56.3	-32.2	-80	-29.6	40.06	-69.66	20.06	-49.66	0-360
4	.0121	22.19	Pk	60.1	-31	-80	-28.71	65.91	-94.62	45.91	-74.62	0-360
5	.2371	25.84	Pk	56.3	-32.2	-80	-30.06	40.12	-70.18	20.12	-50.18	0-360

Pk - Peak detector

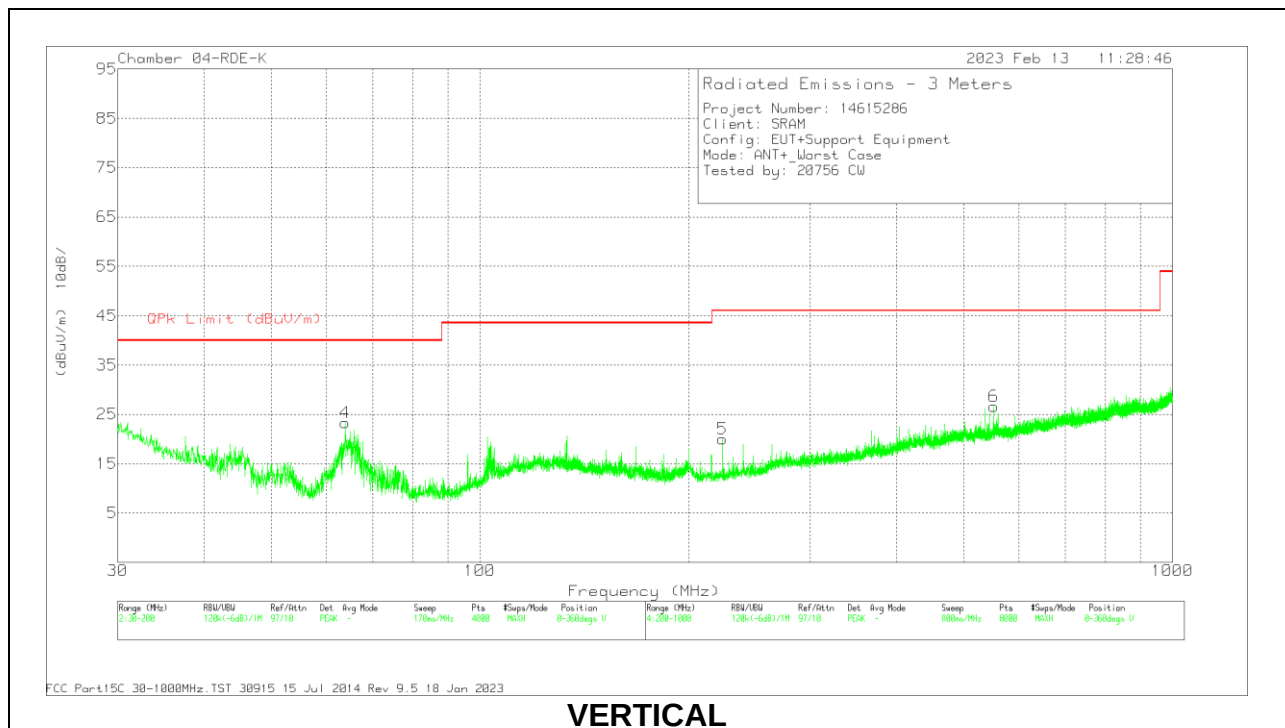
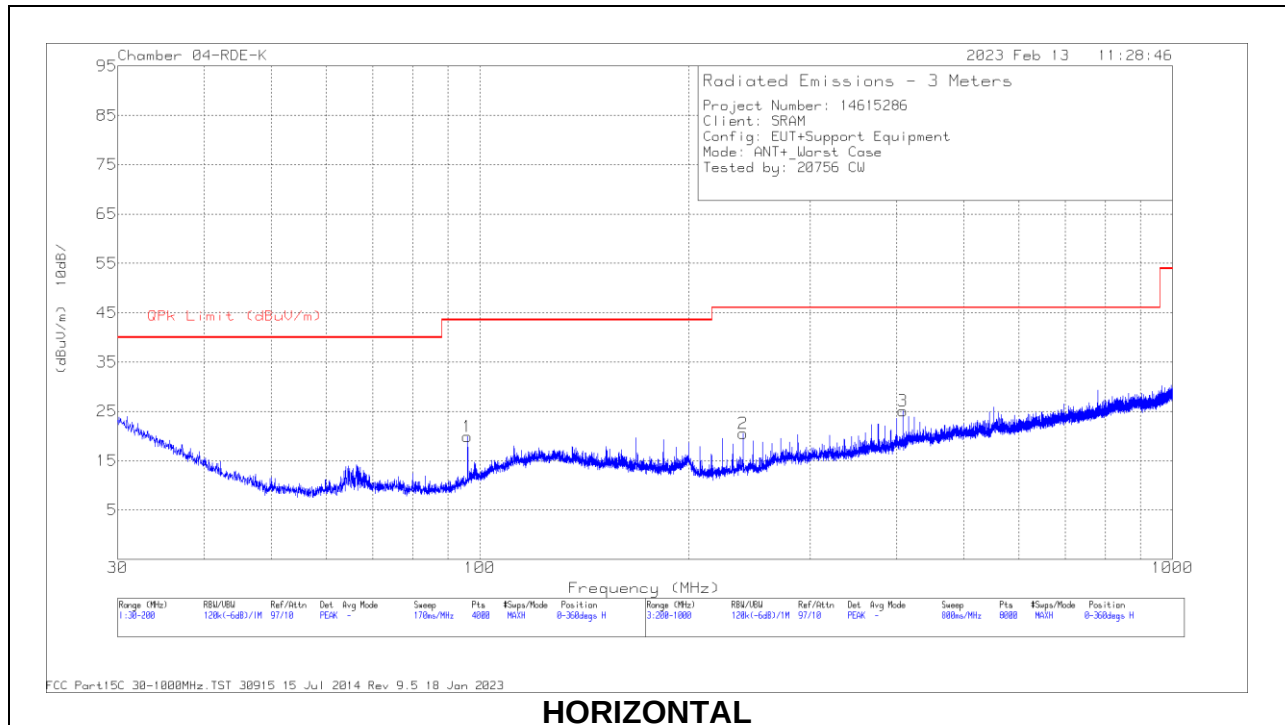
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna E(ACF)	Amp/Cbl (dB)	Dist Corr 30m 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Antenna Polarity (deg)
3	.7997	12.88	Pk	56.5	-32.1	-40	-2.72	29.56	-32.28	0-360
6	.7053	11.72	Pk	56.4	-32.1	-40	-3.98	30.65	-34.63	0-360
7	1.1687	21.64	Pk	45.8	-32.1	-40	-4.66	26.27	-30.93	0-360
8	8.8911	17.68	Pk	34.6	-31.8	-40	-19.52	29.5	-49.02	0-360
9	1.1705	21.88	Pk	45.8	-32.1	-40	-4.42	26.26	-30.68	0-360
10	2.8924	14.65	Pk	39	-32	-40	-18.35	29.5	-47.85	0-360

Pk - Peak detector

Note: The Limits in CRF 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.

10.5. WORST CASE BELOW 1 GHZ

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



Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	80813 ACF (dB)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	95.9771	35.71	Pk	15.1	-30.9	19.91	43.52	-23.61	0-360	199	H
4	64.0929	42.17	Pk	13.8	-31.2	24.77	40	-15.23	150	104	V
	64.0929	31.59	Qp	13.8	-31.2	14.19	40	-25.81	150	104	V
2	239.905	32.98	Pk	17.6	-30.1	20.48	46.02	-25.54	0-360	101	H
3	* 408.027	32.49	Pk	21.9	-29.3	25.09	46.02	-20.93	0-360	101	H
5	223.903	33.46	Pk	16.8	-30.2	20.06	46.02	-25.96	0-360	100	V
6	551.996	30.61	Pk	24.8	-28.8	26.61	46.02	-19.41	0-360	100	V

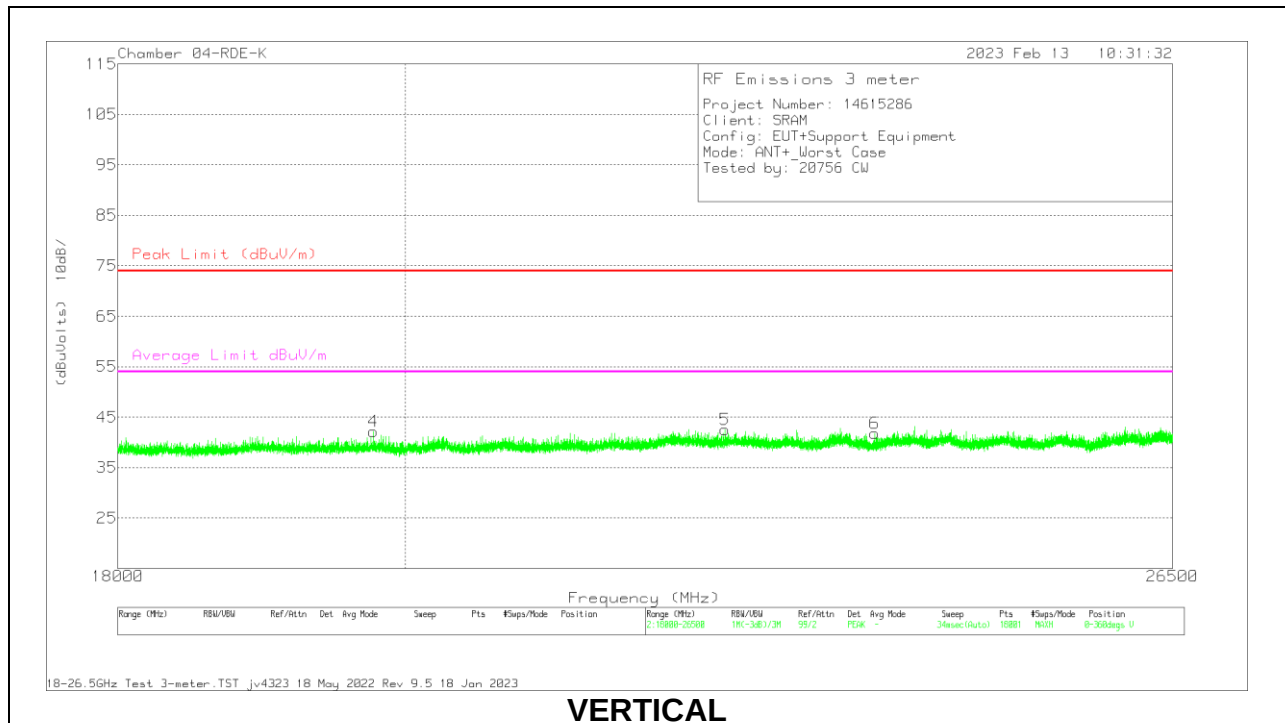
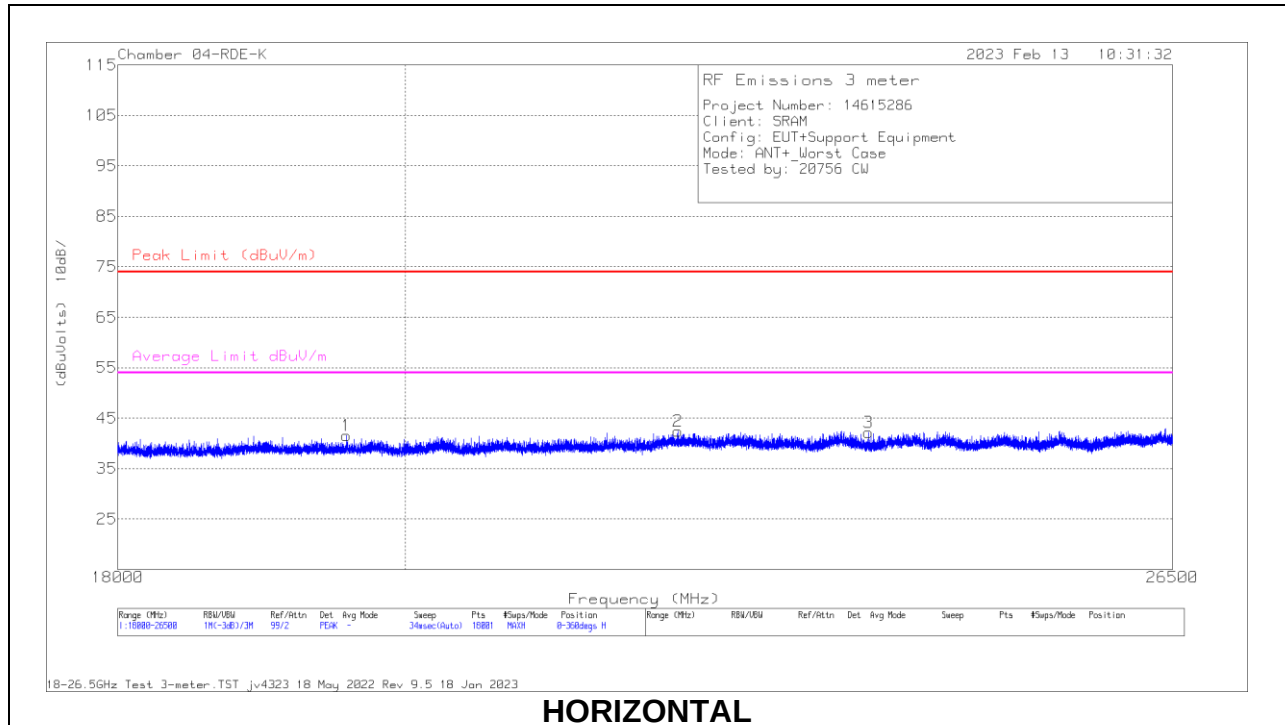
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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	172364 AF (dB)	215705 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	* 19574.86	51.46	Pk	32.8	-61	18.3	41.56	74	-32.44	54	-12.44	0-360	101	H
2	* 22103.137	50.31	Pk	33.5	-60.8	19.4	42.41	74	-31.59	54	-11.59	0-360	200	H
3	* 23702.553	49.2	Pk	34	-61.2	20.1	42.1	74	-31.9	54	-11.9	0-360	200	H
4	* 19770.833	52.01	Pk	32.8	-60.9	18.3	42.21	74	-31.79	54	-11.79	0-360	199	V
5	* 22490.359	50.28	Pk	33.7	-60.9	19.5	42.58	74	-31.42	54	-11.42	0-360	199	V
6	* 23761.108	48.88	Pk	34	-61.2	20.1	41.78	74	-32.22	54	-12.22	0-360	101	V

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