



TEST REPORT

Report Number. : 12888721 -E6V2

Applicant : SRAM LLC
1000 W Fulton Market 4th Floor
Chicago, IL 60607 U.S.A

Model : 00130

FCC ID : C9O-RSBB1

IC : 10161A-RSBB1

EUT Description : Right Extension with BLE and AIREA Radios

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

Date Of Issue:
November 14, 2019

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	10/29/2019	Initial Issue	--
V2	11/14/2019	Updated Model Number and Section 7	Steven Tran

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT	7
5.2. MAXIMUM OUTPUT POWER	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.4. SOFTWARE AND FIRMWARE	7
5.5. DESCRIPTION OF CLASS II PERMISSIVE CHANGE	7
5.6. WORST-CASE CONFIGURATION AND MODE	8
5.7. DESCRIPTION OF TEST SETUP	9
6. MEASUREMENT METHOD	11
7. TEST AND MEASUREMENT EQUIPMENT	12
8. RADIATED TEST RESULTS	13
8.1. LIMITS AND PROCEDURE	13
8.2. TRANSMITTER ABOVE 1 GHz	14
8.3. Worst Case Below 30MHz	26
8.4. Worst Case Below 1 GHz	28
8.5. Worst Case 18-26 GHz	30
9. SETUP PHOTOS	31

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SRAM LLC
1000 W Fulton Market 4th Floor
Chicago, IL 60607 U.S.A

EUT DESCRIPTION: Right Extension with BLE and AIREA Radios

MODEL: 00130

SERIAL NUMBER: 3410934026 (Radiated)

DATE TESTED: August 9 – 13 , 2019

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. 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 NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

Reviewed By:



DAN CORONIA
CONSUMER TECHNOLOGY DIVISION
OPERATIONS LEADER
UL Verification Services Inc.

STEVEN TRAN
CONSUMER TECHNOLOGY DIVISION
PROJECT ENGINEER
UL Verification Services Inc

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, RSS-GEN Issue 5, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd
☐ Chamber A	☐ Chamber D	☒ Chamber I
☐ Chamber B	☐ Chamber E	☐ Chamber J
☐ Chamber C	☐ Chamber F	☒ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Right Extension with BLE and AIREA Radios, powered by CR2032 coin cell battery.

5.2. MAXIMUM OUTPUT POWER

Please refer to UL report # 12292049-E2V2.

The output powers were verified and measured at same or lower power setting compared to the original certification testing level.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a chip antenna type number W3008C, with a maximum gain of 2.2dBi.

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was A-1.0.

The test utility software used during testing was Lightblue v2.6.4

5.5. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under Class II Permissive Change application is: Changing enclosure and adding model 00130.

5.6. WORST-CASE CONFIGURATION AND MODE

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT was set to transmit at highest power on Low/Middle/High channels.

Radiated emissions below 30MHz, below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario.

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

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Ipod Touch	Apple	MKJ02LL/A	CCQVRHY2GGNL
DC Power Supply	ABM	8185D	D021366

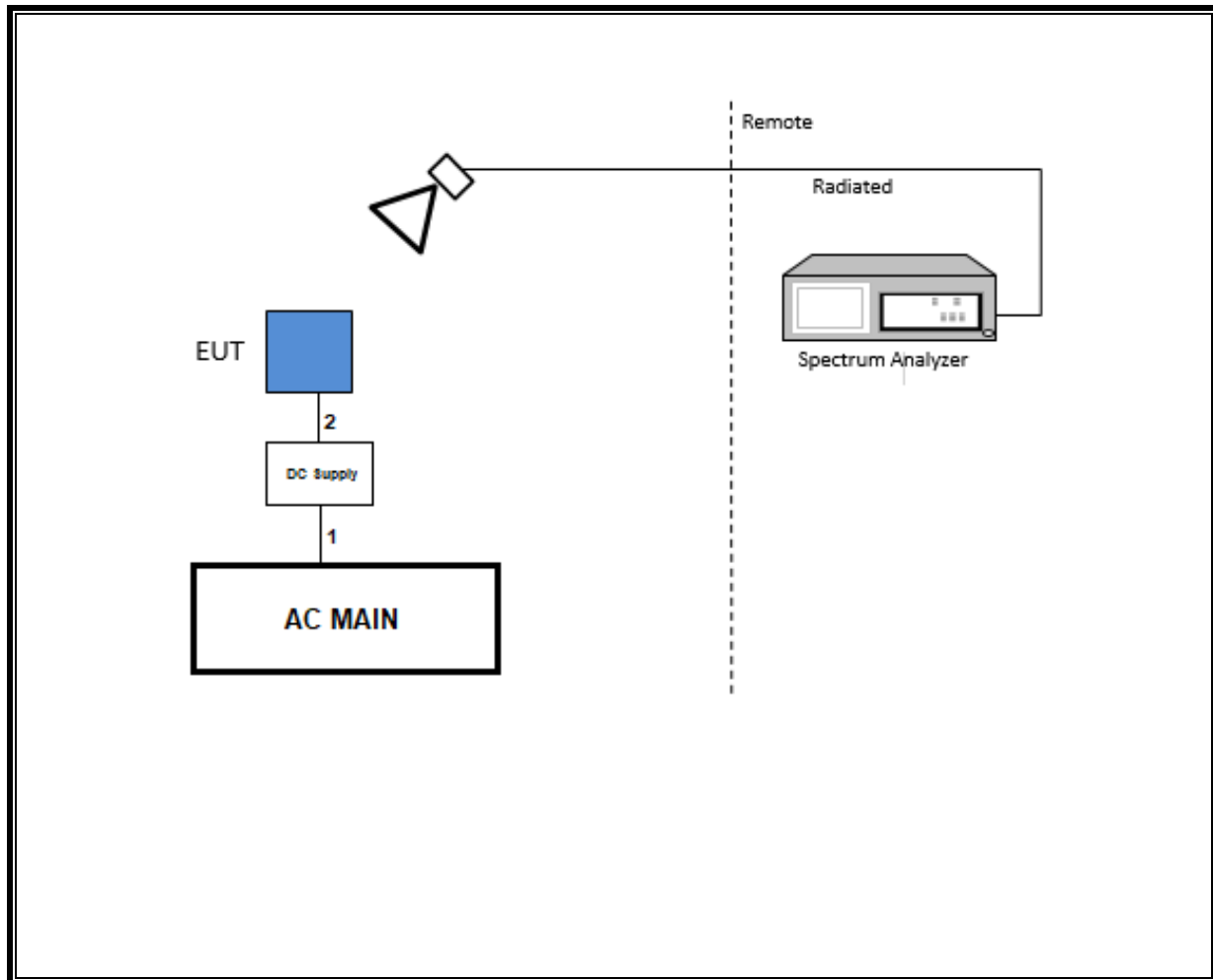
I/O CABLES (RADIATED EMISSIONS)

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 was powered by a 3V DC Power supply. The EUT is normally powered by a CR2032 coin cell battery. The iPod Touch wirelessly sends commands to the EUT.

SETUP DIAGRAM FOR RADIATED TESTS



6. MEASUREMENT METHOD

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 -11.13.3.4 Integration method -Trace averaging across
ON and OFF times DC correction

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

7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	Manufacturer	Model	ID No.	Cal Date	Cal Due
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T862	6/6/2019	6/5/2020
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	T449	08/13/2020	08/13/2019
Amplifier 1-8GHz 30dB gain	L3 Narda	AMF-4D-01000800-30-29P	167494	8/24/2019	8/24/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179376	2/14/2019	2/14/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180175	5/30/2019	5/29/2020
RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	171460	8/24/2019	8/24/2020
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	171903	8/24/2019	8/24/2020
Antenna,Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	PRE0184971	11/13/2018	11/13/2019
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	T897	5/5/2019	5/4/2020
Amplifier, 1 to 18GHz, 35dB	AMPLICAL	AMP1G18-35	T1569	5/5/2019	5/4/2020
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179372	2/16/2019	2/16/2020
Antenna,Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	PRE0184052	10/24/2018	10/24/2019
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	175953	12/13/2018	12/13/2019
Antenna, Passive Loop 30Hz to 1MHz	ELETRO METRICS	EM-6871	PRE0179466	05/31/2019	05/31/2020
Antenna, Passive Loop 100KHz to 30MHz	ELETRO METRICS	EM-6872	PRE0179468	05/31/2019	05/31/2020

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Dec 01, 2016

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

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. Peak detection is used unless otherwise noted as quasi-peak.

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

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

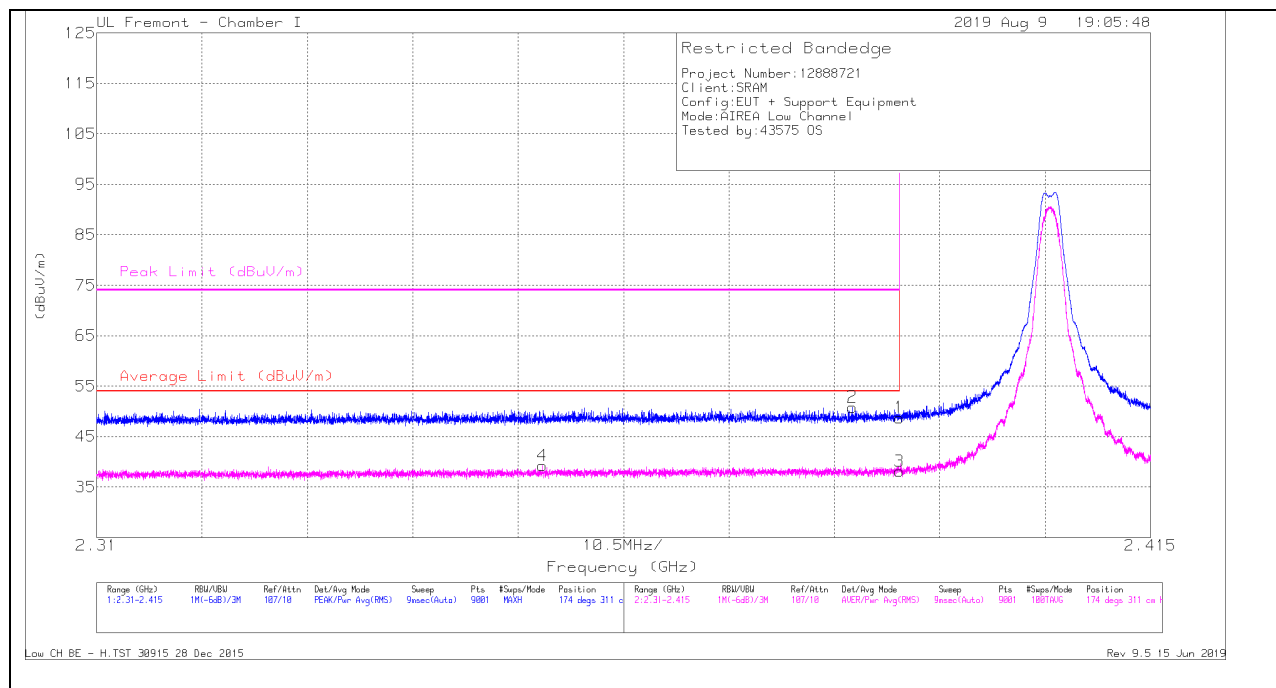
The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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.

8.2. TRANSMITTER ABOVE 1 GHz

BANDEDGE (LOW CHANNEL, CH 11)

HORIZONTAL RESULT



Trace Markers

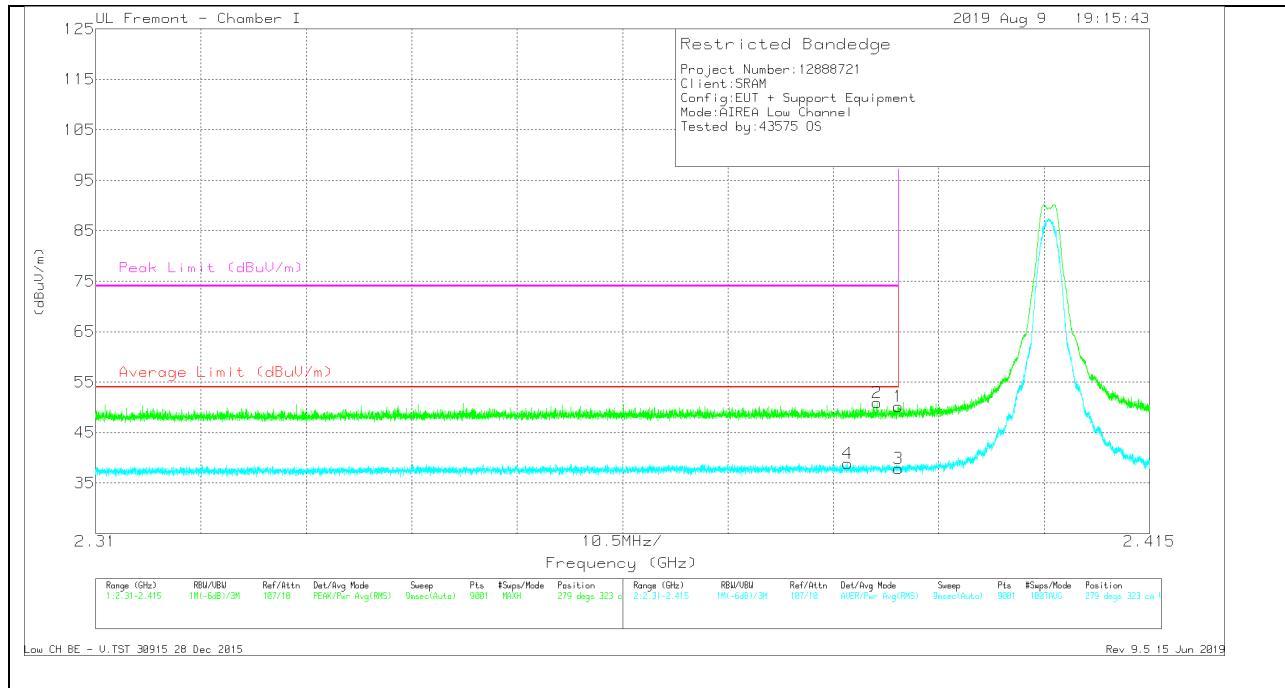
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	38.44	Pk	31.9	-21.6	48.74	-	-	74	-25.26	174	311	H
2	2.3853	40.55	Pk	31.9	-21.6	50.85	-	-	74	-23.15	174	311	H
3	2.38999	27.77	RMS	31.9	-21.6	38.07	54	-15.93	-	-	174	311	H
4	2.35443	29.07	RMS	31.7	-21.5	39.27	54	-14.73	-	-	174	311	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	AF TBS2 (dB/m)	Amp/Ch/Fltr/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	2.38999	39.87	Pk	31.9	-21.6	50.17	-	-	74	-23.83	279	323	V
2	2.38783	40.63	Pk	31.9	-21.6	50.93	-	-	74	-23.07	279	323	V
3	2.38999	27.55	RMS	31.9	-21.6	37.85	54	-16.15	-	-	279	323	V
4	2.38493	28.58	RMS	31.9	-21.6	38.88	54	-15.12	-	-	279	323	V

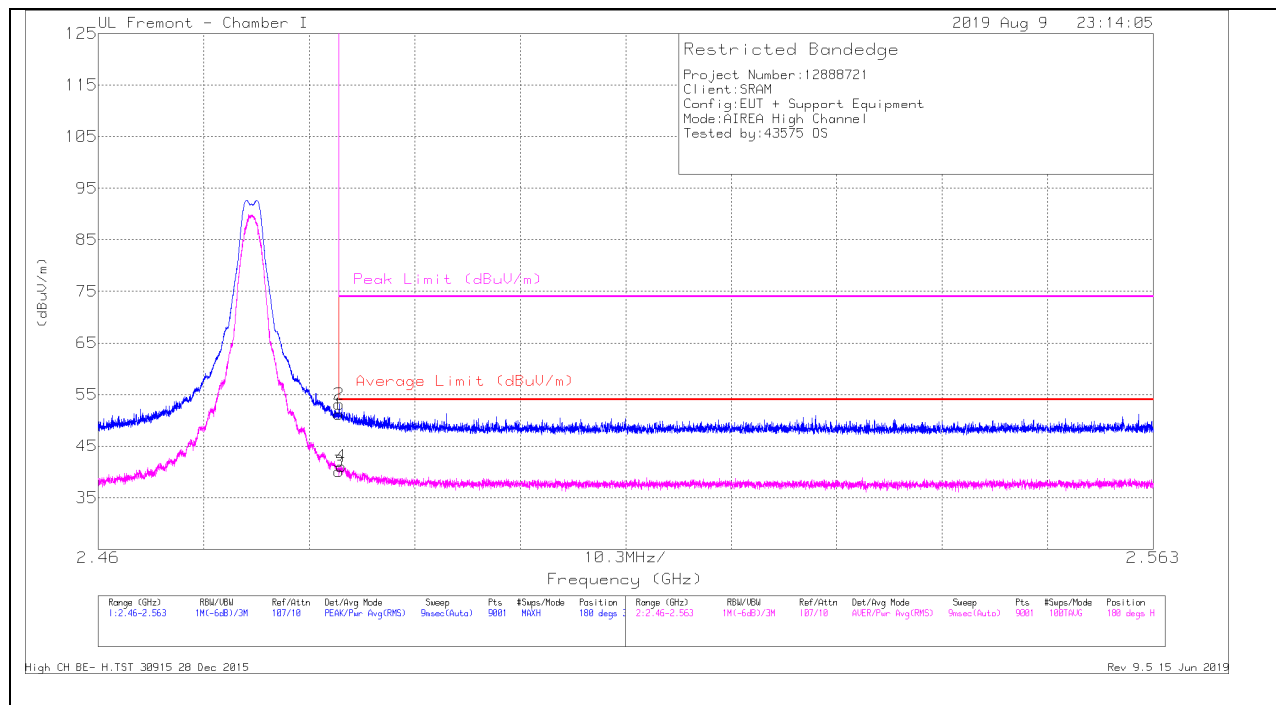
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL, CH 25)

HORIZONTAL RESULT



Trace Markers

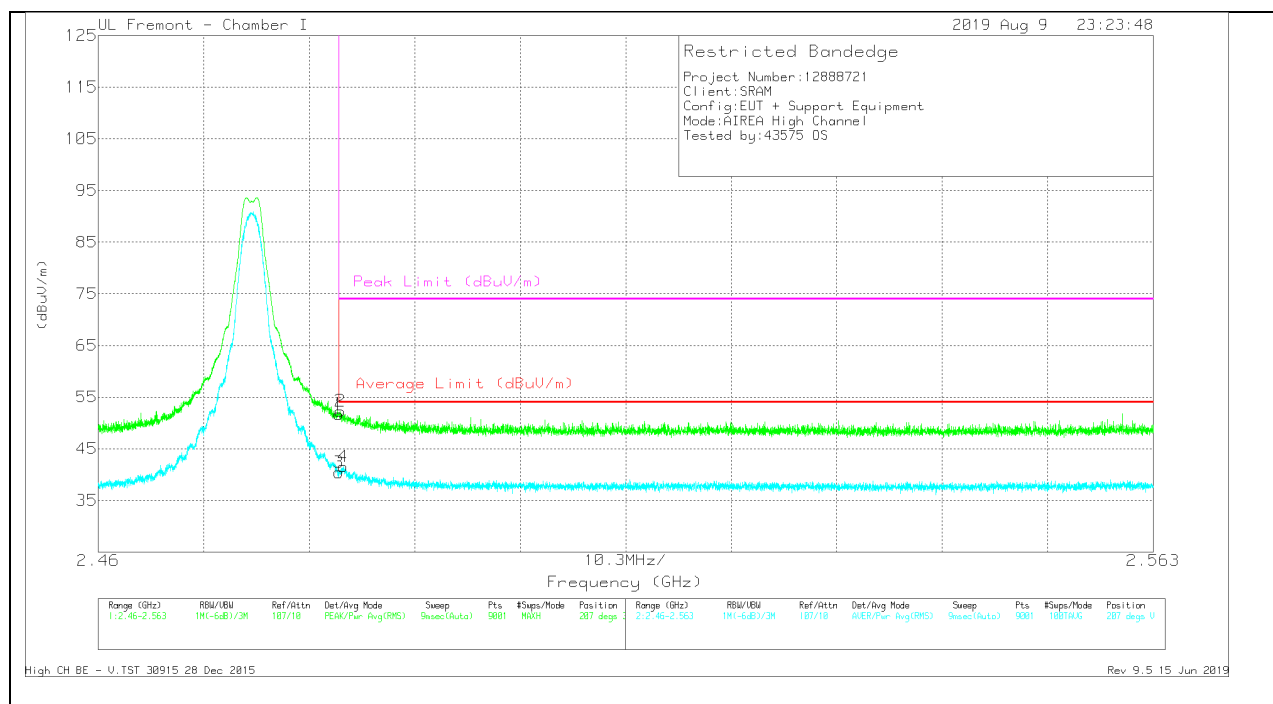
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF TBS2 (dB/m)	Amp/Ch/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	2.48351	40.46	Pk	32.4	-21.7	51.16	-	-	74	-22.84	180	319	H
2	2.48352	42.41	Pk	32.4	-21.7	53.11	-	-	74	-20.89	180	319	H
3	2.48351	29.38	RMS	32.4	-21.7	40.08	54	-13.92	-	-	180	319	H
4	2.48374	30.39	RMS	32.4	-21.7	41.09	54	-12.91	-	-	180	319	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	AF T862 (dB/m)	Amp/Ch/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	2.48351	40.97	PK	32.4	-21.7	51.67	-	-	74	-22.33	207	304	V
2	2.48363	41.59	PK	32.4	-21.7	52.29	-	-	74	-21.71	207	304	V
3	2.48351	29.72	RMS	32.4	-21.7	40.42	54	-13.58	-	-	207	304	V
4	2.48393	30.82	RMS	32.4	-21.7	41.52	54	-12.48	-	-	207	304	V

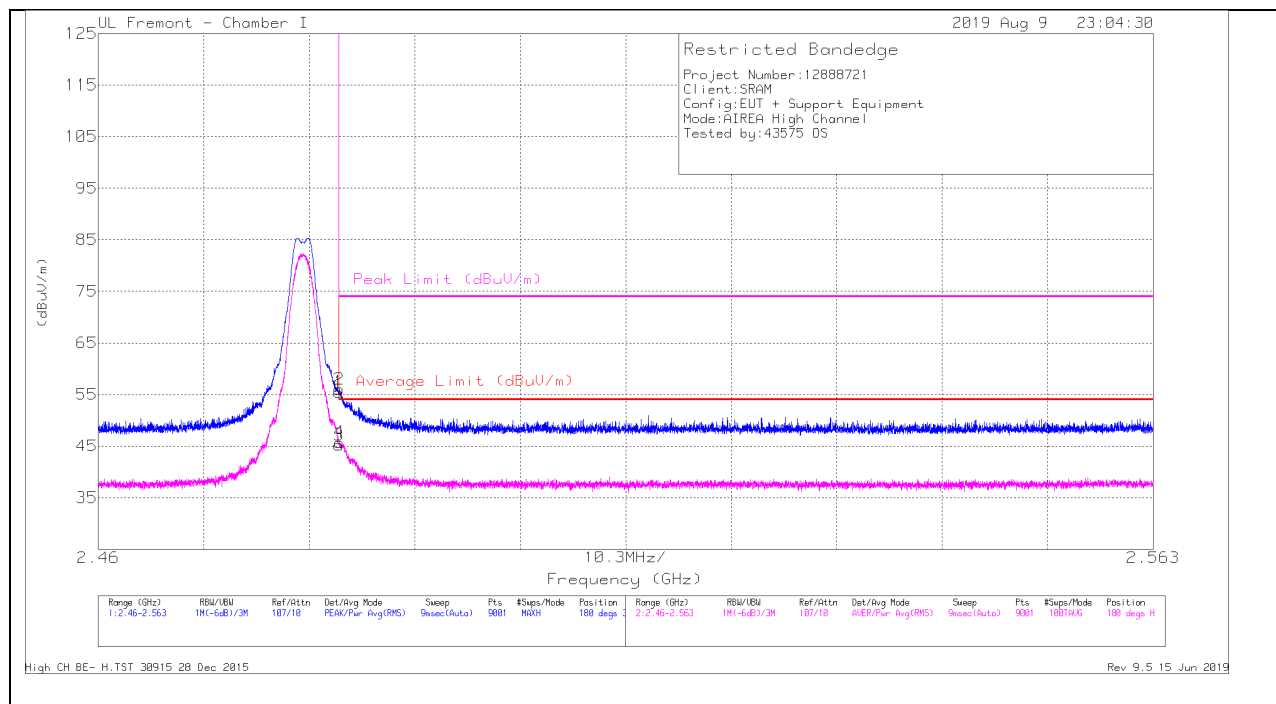
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL, CH 26)

HORIZONTAL RESULT



Trace Markers

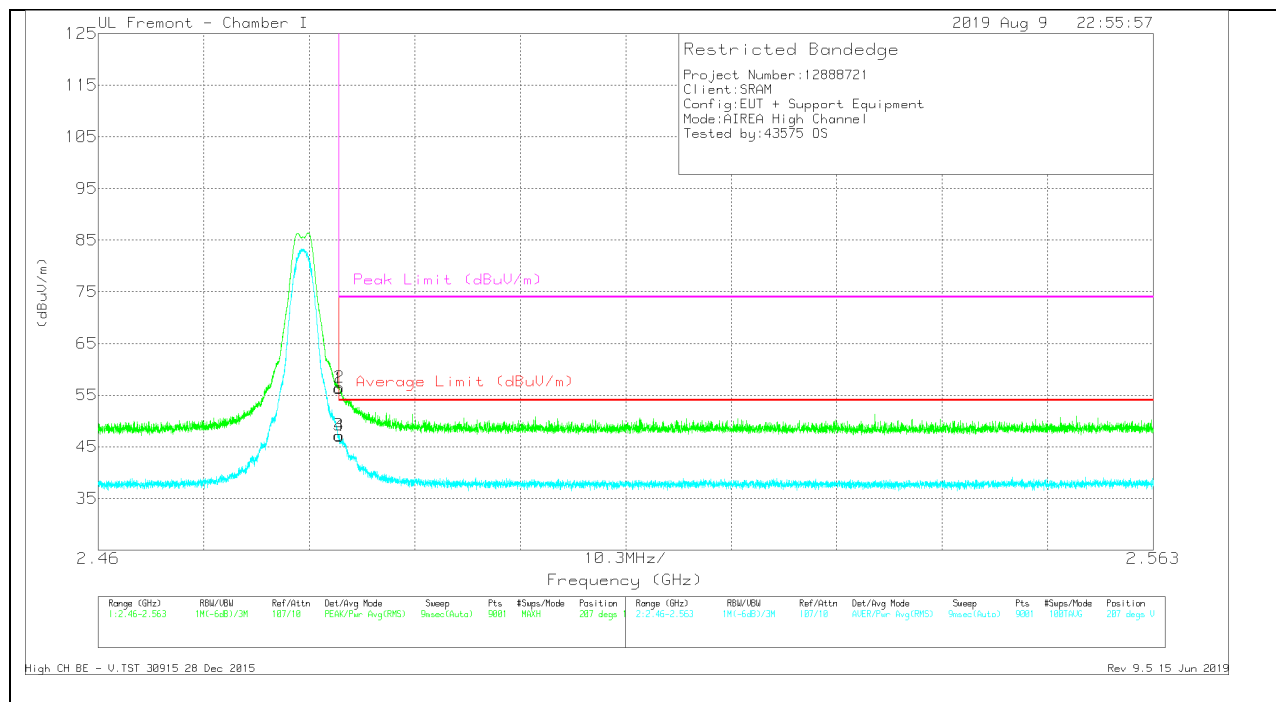
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AP TBSZ (dB/m)	Amp/Cbl/Rtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Deg)	Height (cm)	Polarity
1	2.48351	44.77	Pk	32.4	-21.7	55.47	-	-	74	-18.53	180	319	H
2	2.48352	45.32	Pk	32.4	-21.7	56.02	-	-	74	-17.98	180	319	H
3	2.48351	34.51	RMS	32.4	-21.7	45.21	54	-8.79	-	-	180	319	H
4	2.48355	35.03	RMS	32.4	-21.7	45.73	54	-8.27	-	-	180	319	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	AF T862 (dB/m)	Amp/Ch/Filter/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	2.48351	45.57	Pk	32.4	-21.7	56.27	-	-	74	-17.73	207	159	V
2	2.48355	45.78	Pk	32.4	-21.7	56.48	-	-	74	-17.52	207	159	V
3	2.48351	36.51	RMS	32.4	-21.7	47.21	54	-6.79	-	-	207	159	V
4	2.48356	36.41	RMS	32.4	-21.7	47.11	54	-6.89	-	-	207	159	V

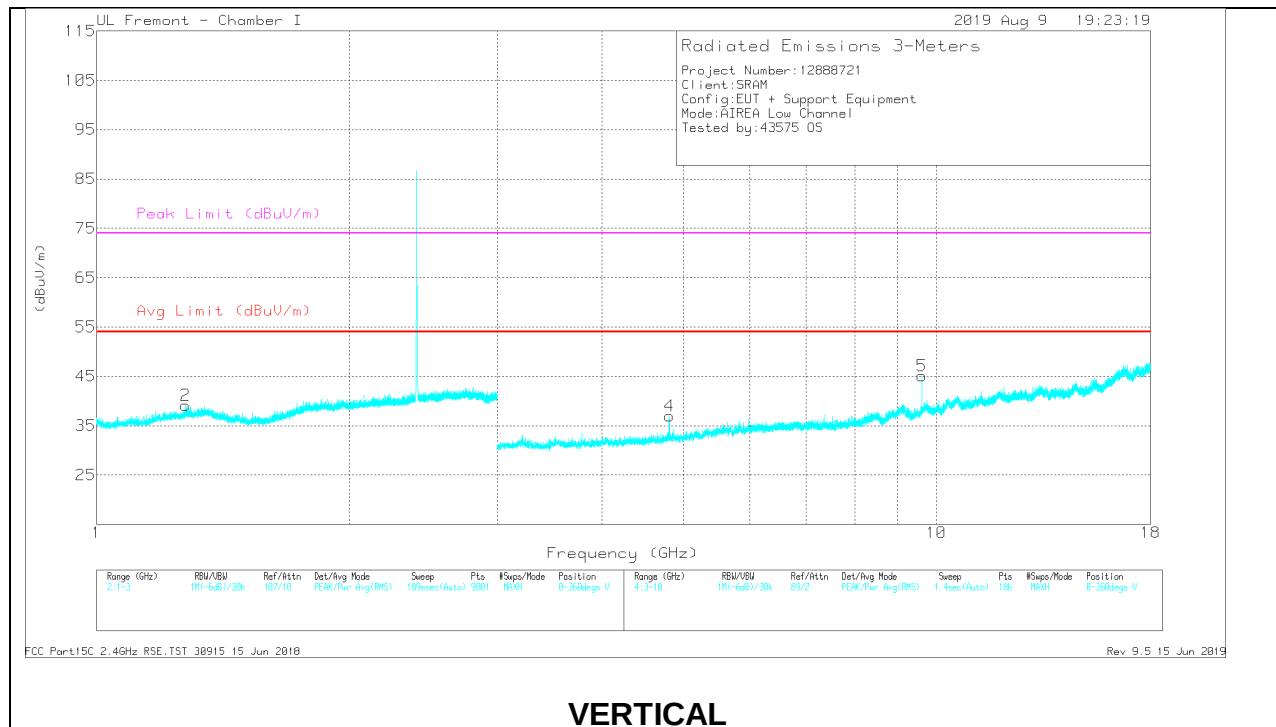
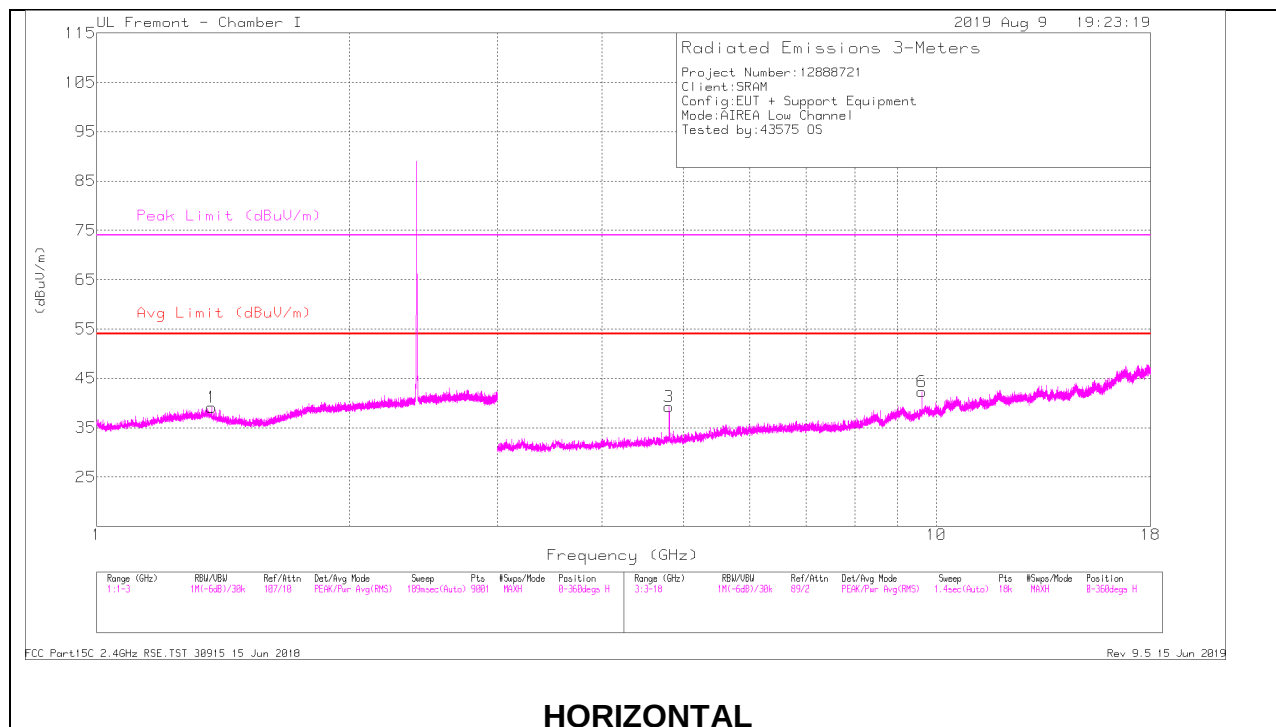
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL, CH 11 RESULTS



RADIATED EMISSIONS

Radiated Emissions

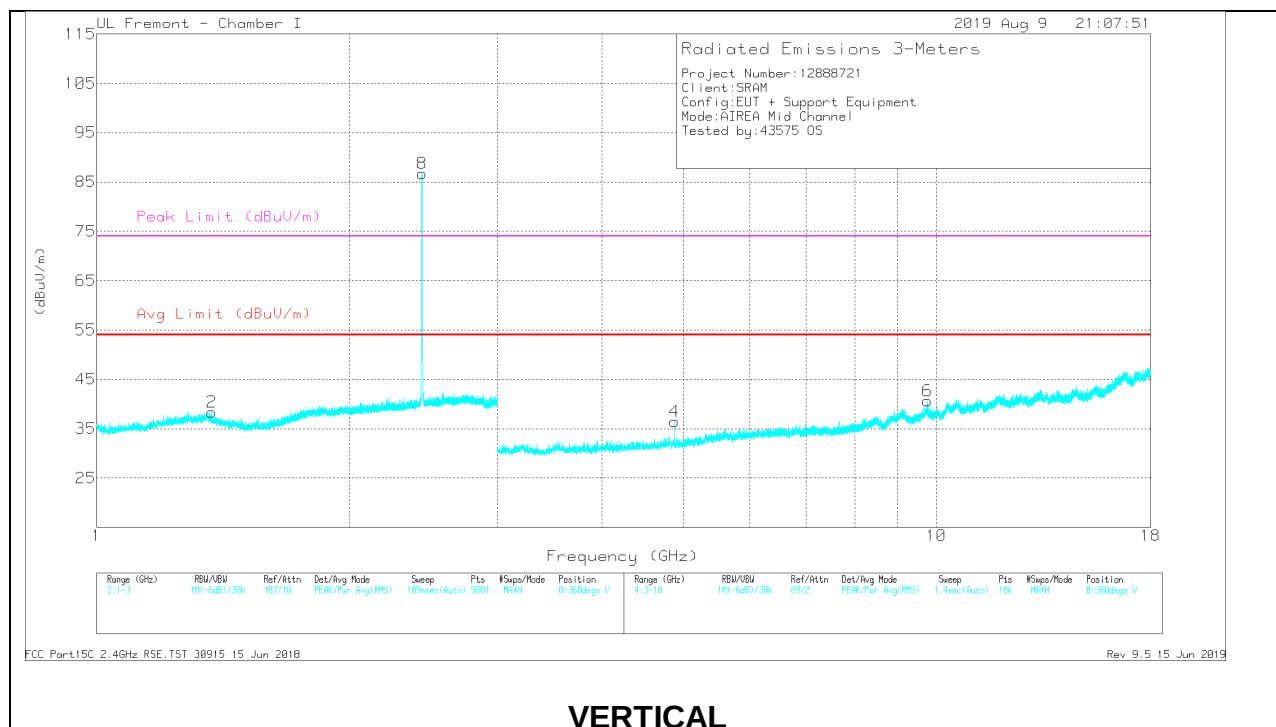
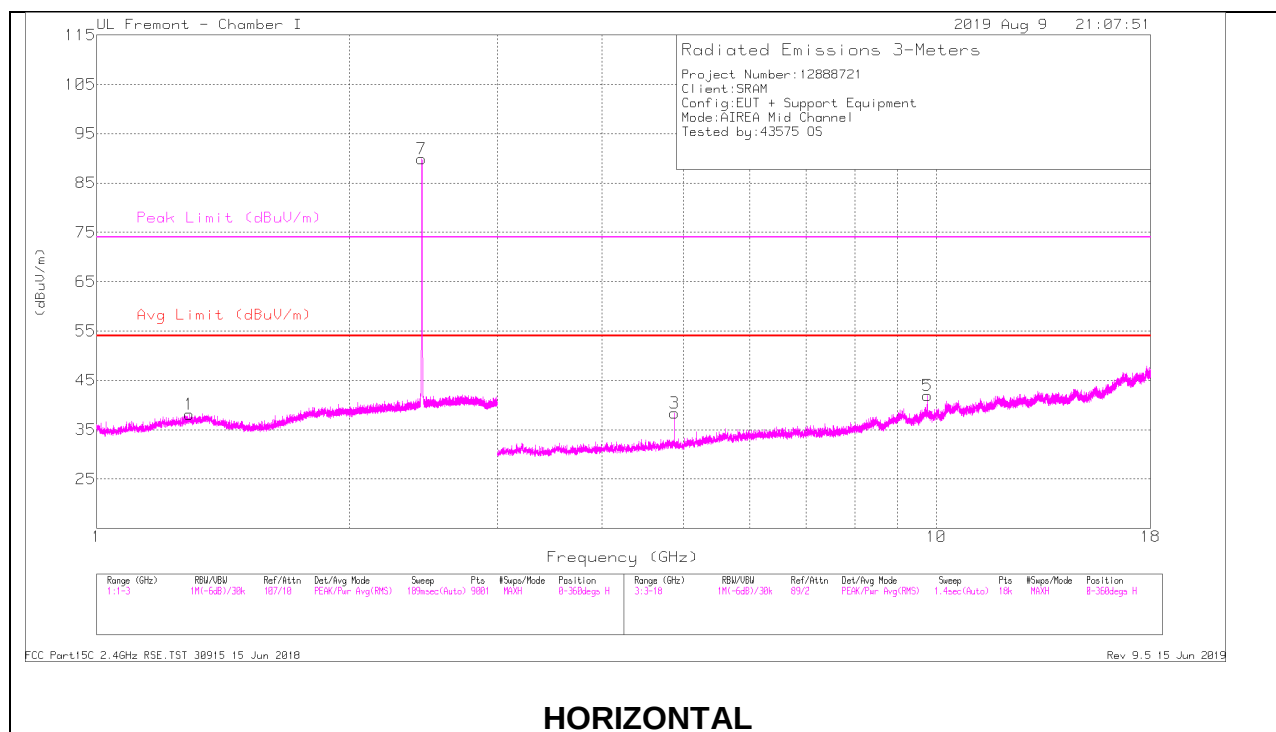
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.36842	38.99	PK2	29.7	-23.2	45.49	-	-	74	-28.51	220	209	H
	1.37152	28.76	MAv1	29.5	-23.2	35.06	54	-18.94	-	-	220	209	H
2	1.278	39.35	PK2	29.4	-22.9	45.85	-	-	74	-28.15	26	170	V
	1.2754	28.9	MAv1	29.3	-22.9	35.3	54	-18.7	-	-	26	170	V
3	4.80916	39.09	PK2	34.1	-28.1	45.09	-	-	74	-28.91	290	237	H
	4.80904	30.47	MAv1	34.1	-28.1	36.47	54	-17.53	-	-	290	237	H
6	9.62222	34.01	PK2	36.7	-22	48.71	-	-	-	-	165	108	H
	9.62185	25.78	MAv1	36.8	-22	40.58	-	-	-	-	165	108	H
4	4.81091	38.56	PK2	34.1	-28.2	44.46	-	-	74	-29.54	322	206	V
	4.80902	30.48	MAv1	34.1	-28.1	36.48	54	-17.52	-	-	322	206	V
5	9.62167	35.88	PK2	36.7	-22	50.58	-	-	-	-	157	197	V
	9.62188	28.05	MAv1	36.8	-22	42.85	-	-	-	-	157	197	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, CH 18 RESULTS



RADIATED EMISSIONS

Radiated Emissions

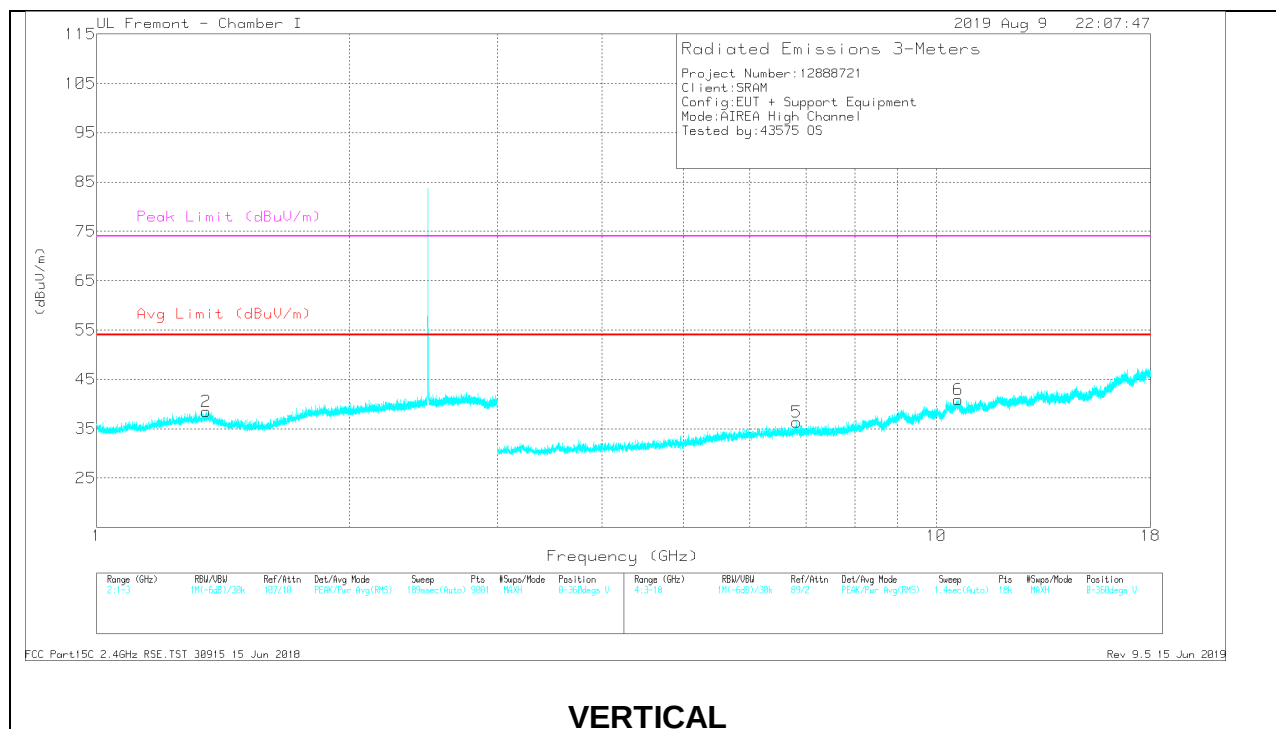
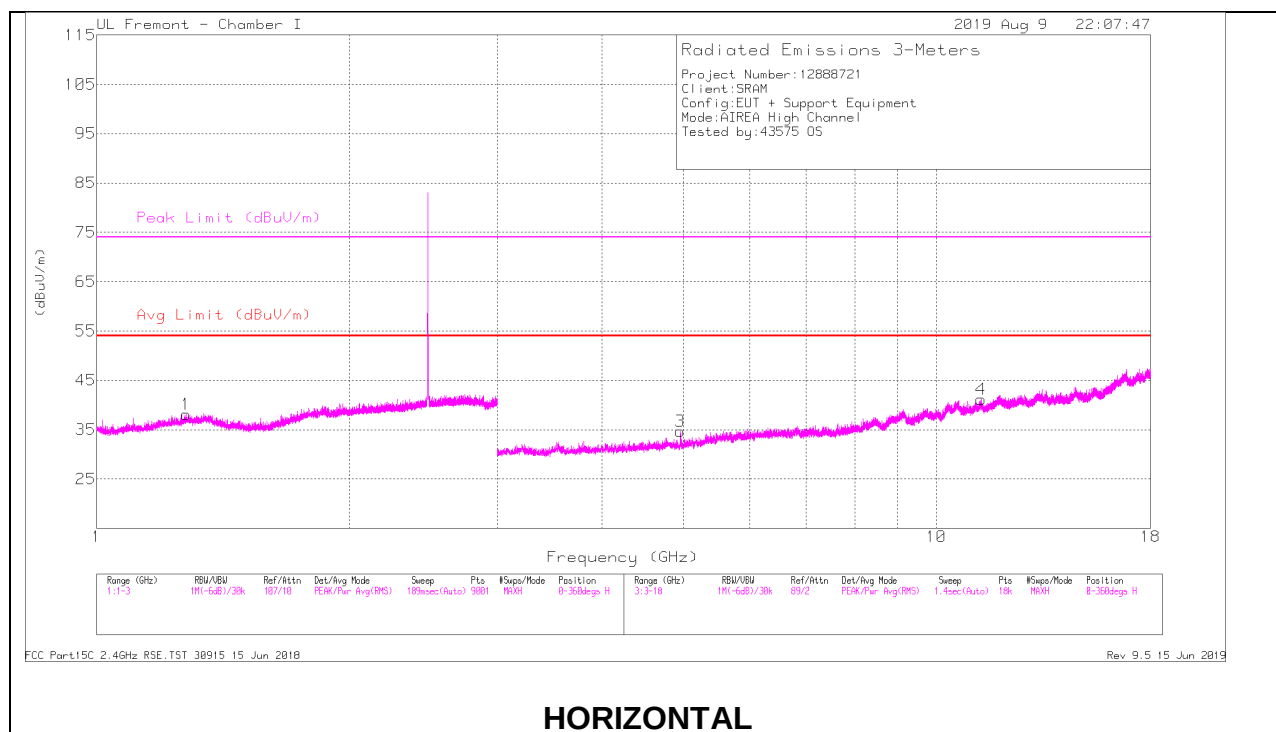
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Ftr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.29028	39.35	PK2	29.4	-23	45.75	-	-	74	-28.25	154	149	H
	1.28978	28.68	MAv1	29.4	-23	35.08	54	-18.92	-	-	154	149	H
7	2.44049	83.41	PK2	32.2	-21.7	93.91	-	-	-	-	184	289	H
	2.43993	79.3	MAv1	32.2	-21.7	89.8	-	-	-	-	184	289	H
2	1.36926	39.04	PK2	29.6	-23.2	45.44	-	-	74	-28.56	207	233	V
	1.36992	28.26	MAv1	29.6	-23.2	34.66	54	-19.34	-	-	207	233	V
8	2.43947	79.39	PK2	32.2	-21.7	89.89	-	-	-	-	102	162	V
	2.43997	75.05	MAv1	32.2	-21.7	85.55	-	-	-	-	102	162	V
3	4.87895	39.92	PK2	34.1	-28.8	45.22	-	-	74	-28.78	12	245	H
	4.87898	32.04	MAv1	34.1	-28.8	37.34	54	-16.66	-	-	12	245	H
5	9.75775	32.8	PK2	36.9	-20.4	49.3	-	-	-	-	2	210	H
	9.75794	23.47	MAv1	36.9	-20.4	39.97	-	-	-	-	2	210	H
4	4.88089	39.1	PK2	34.1	-28.8	44.4	-	-	74	-29.6	311	178	V
	4.87901	30.45	MAv1	34.1	-28.8	35.75	54	-18.25	-	-	311	178	V
6	9.75797	33.16	PK2	36.9	-20.4	49.66	-	-	-	-	160	182	V
	9.7579	25.12	MAv1	36.9	-20.4	41.62	-	-	-	-	160	182	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL, CH 26 RESULTS



RADIATED EMISSIONS

Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.27819	38.87	PK2	29.4	-22.9	45.37	-	-	74	-28.63	309	388	H
	1.27798	28.94	MAv1	29.4	-22.9	35.44	54	-18.56	-	-	309	388	H
2	1.35198	38.18	PK2	29.7	-23.1	44.78	-	-	74	-29.22	271	389	V
	1.34997	28.66	MAv1	29.6	-23.1	35.16	54	-18.84	-	-	271	389	V
3	4.95916	37.38	PK2	34.2	-29	42.58	-	-	74	-31.42	354	200	H
	4.95901	29.24	MAv1	34.2	-29	34.44	54	-19.56	-	-	354	200	H
4	11.30915	31.06	PK2	38	-20.3	48.76	-	-	74	-25.24	64	145	H
	11.31157	20.11	MAv1	38.1	-20.3	37.91	54	-16.09	-	-	64	145	H
5	6.82355	32.9	PK2	35.6	-25.6	42.9	-	-	-	-	102	152	V
	6.82203	22.99	MAv1	35.6	-25.7	32.89	-	-	-	-	102	152	V
6	10.62297	30.28	PK2	38	-19.9	48.38	-	-	74	-25.62	138	275	V
	10.6209	19.83	MAv1	37.9	-19.9	37.83	54	-16.17	-	-	138	275	V

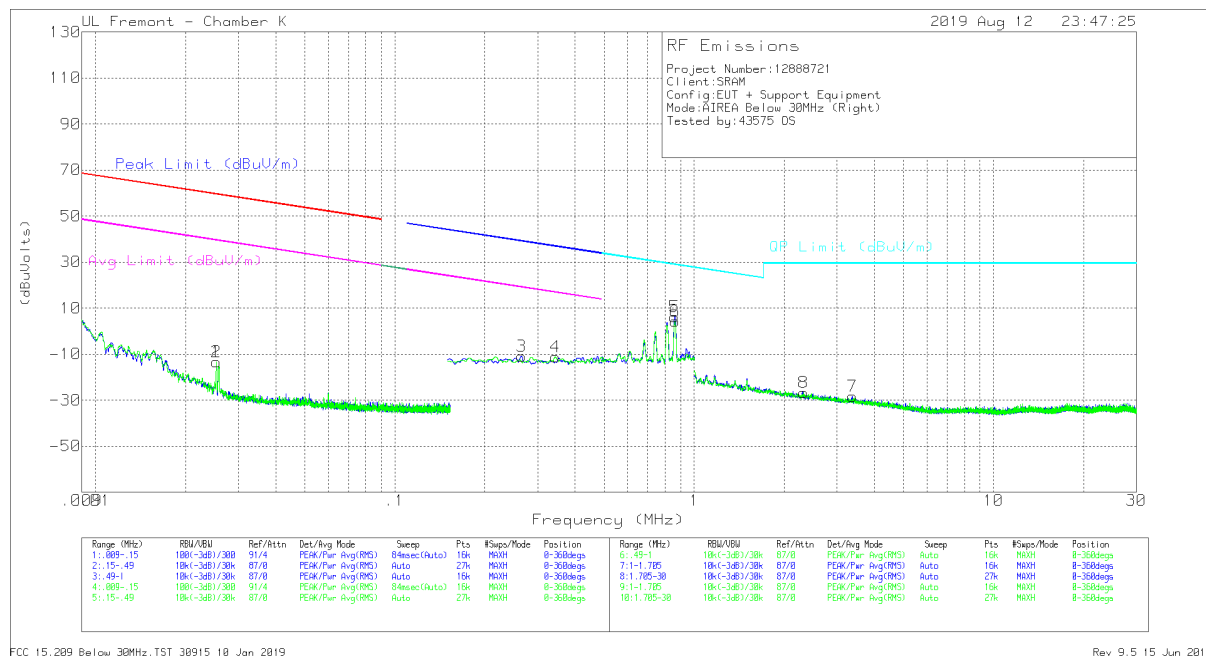
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

8.3. Worst Case Below 30MHz

FACE ON AND FACE OFF PLOTS



NOTE: KDB 414788 OATS 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.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Below 30MHz DATA

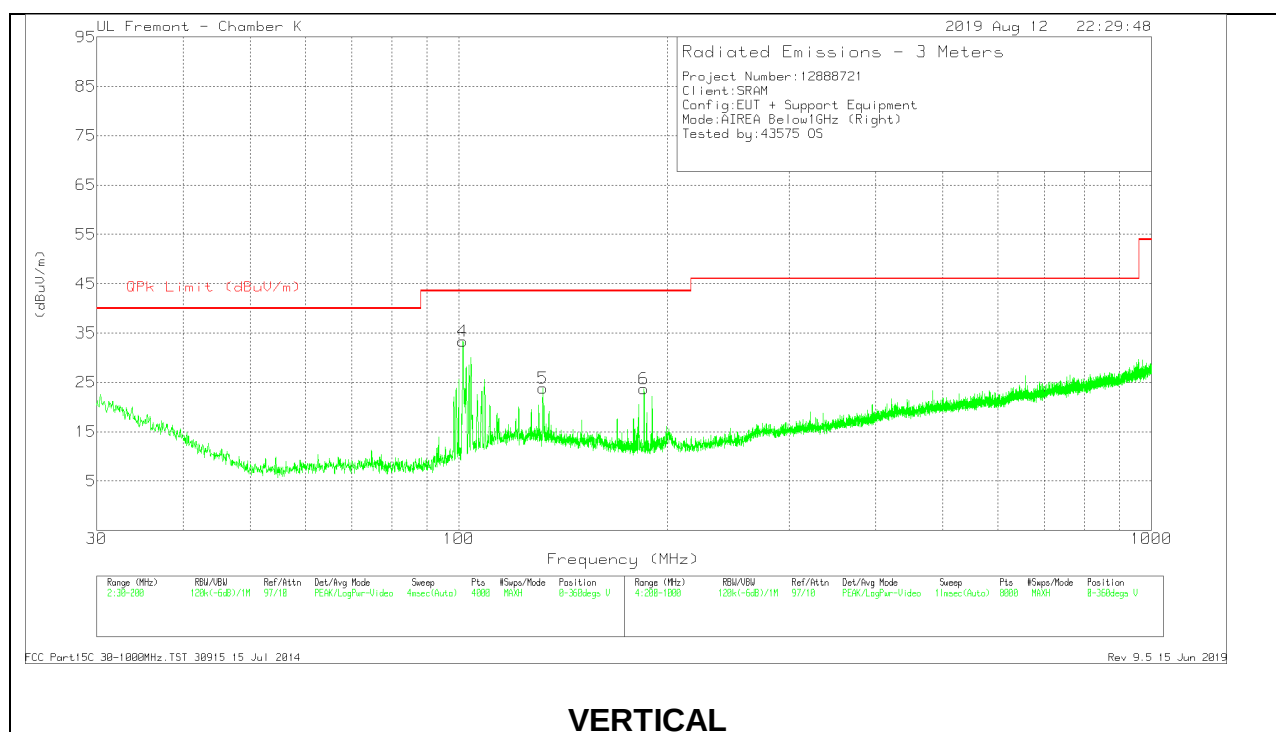
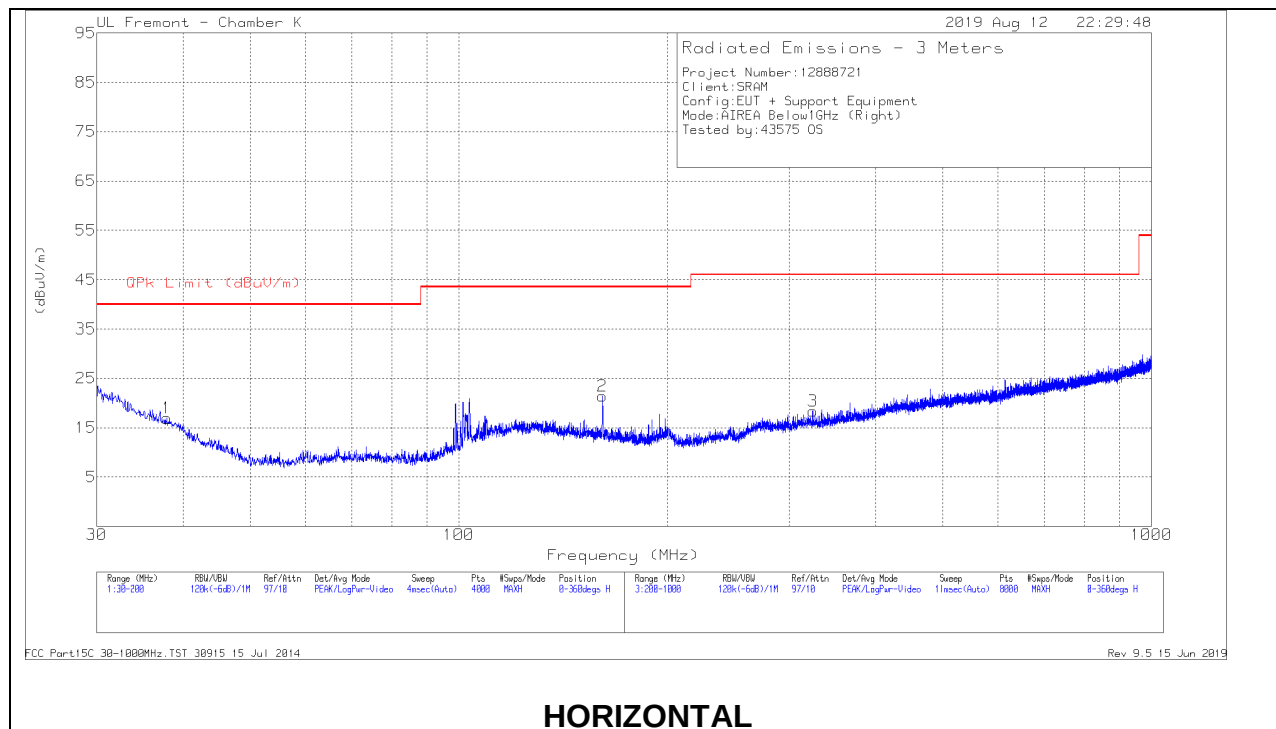
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.02536	.68	Pk	58.2	-32.2	-40	-13.32	59.5	-72.82	39.5	-52.82	-	-	-	-	0-360
3	.20621	4.55	Pk	56.1	-32.1	-40	-11.45	-	-	-	-	41.33	-52.78	21.33	-32.78	0-360
2	.02536	.52	Pk	58.2	-32.2	-40	-13.48	59.5	-72.98	39.5	-52.98	-	-	-	-	0-360
4	.22517	4.73	Pk	56.1	-32.1	-40	-11.27	-	-	-	-	40.57	-51.84	20.57	-31.84	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.85931	22.29	Pk	56.1	-32.1	-40	6.29	28.93	-22.64	-	-	-	-	0-360
6	.86258	20.25	Pk	56.1	-32.1	-40	4.25	28.9	-24.65	-	-	-	-	0-360
7	3.37656	5.54	Pk	38.2	-32	-40	-28.26	29.5	-57.76	-	-	-	-	0-360
8	2.32018	4.55	Pk	40.7	-32	-40	-26.75	29.5	-56.25	-	-	-	-	0-360

Pk - Peak detector

8.4. Worst Case Below 1 GHz



Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 37.8645	27.21	Pk	21.2	-31.5	16.91	40	-23.09	0-360	199	H
2	161.1889	33.95	Pk	18	-30.5	21.45	43.52	-22.07	0-360	199	H
4	101.3306	28.31	Pk	16.5	-30.9	13.91	43.52	-29.61	0	225	V
	101.3306	21.67	Qp	16.5	-30.9	7.27	43.52	-36.25	0	225	V
5	* 132.1964	35.1	Pk	19.4	-30.7	23.8	43.52	-19.72	0-360	100	V
6	185.0376	37.09	Pk	17	-30.4	23.69	43.52	-19.83	0-360	100	V
3	* 324.3162	28.36	Pk	19.9	-29.9	18.36	46.02	-27.66	0-360	100	H

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

Pk - Peak detector

Qp - Quasi-Peak detector

8.5. Worst Case 18-26 GHz



18 – 26GHz DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T449 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.03467	69.78	Pk	33.3	-57.3	-9.5	36.28	54	-17.72	74	-37.72
2	21.43645	69.63	Pk	33.7	-57	-9.5	36.83	54	-17.17	74	-37.17
3	23.13956	70.83	Pk	34.1	-57.4	-9.5	38.03	54	-15.97	74	-35.97
4	19.46222	69.95	Pk	33.4	-57.2	-9.5	36.65	54	-17.35	74	-37.35
5	20.85867	69.88	Pk	33.5	-57	-9.5	36.88	54	-17.12	74	-37.12
6	22.344	71.57	Pk	34.1	-57.8	-9.5	38.37	54	-15.63	74	-35.63

Pk - Peak detector