FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

eTap System, Rear Derailleur

MODEL NUMBER: 12901

FCC ID: C9O-RDED
IC: 10161A-RDED

REPORT NUMBER: 15U21451-E2V4

ISSUE DATE: OCTOBER 16, 2015

Prepared for
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Prepared by
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/25/15	Initial Issue	C.S.OOI
V2	10/07/15	Revised radiated emission notes. Revised section 5.5. Added below 30MHz data. Added 20dB bandwidth data Added radiated emission test plot.	C.S.OOI
V3	10/09/15	Revised below 30MHz data. Revised RSS-247to RSS-210	C.S.OOI
V4	10/16/15	Revised calibration date of test equipment	C.S.OOI

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SRAM LLC

EUT DESCRIPTION: eTap System, Rear Derailleur

MODEL: 12901

SERIAL NUMBER: Radiated: 9902; Conducted: 10902

DATE TESTED: SEPTEMBER 4 – OCTOBER 09, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

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 any government.

Approved & Released For
UL Verification Services Inc. By:

CHOON SIAN OOI
PROJECT LEAD
UL Verification Services Inc.

Tested By:

JEFFREY WU
EMC 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, RSS-GEN Issue 4, RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, 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
☒ Chamber A	☐ Chamber D
☐ Chamber B	☐ Chamber E
☒ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.52 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an eTap System, Rear Derailleur with 802.15.4 SRAMLink and ANT+ technology.

5.2. MAXIMUM OUTPUT FUNDAMENTAL FIELD STRENGTH

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

Frequency Range (MHz)	Mode	Peak E-field Strength (dBuV/m)	Avg E-field Strength (dBuV/m)	Distance (m)
2402 - 2480	ANT +	77.23	77.14	3.00

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a ceramic antenna (P/N 2450AT42A100) by Johanson Technology, with a maximum gain of 0 dBi.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 1.0.0.

The test utility software used during testing was Bootloader, Rev. 0.7.0.0; Bootstick, Rev. 0.7.0.0

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with 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 Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Laptop	Lenovo	T410S	N/A	N/A
AC Adapter	Lenovo	135W	N/A	N/A
Laptop	ACER	P1EV6	LUSFT02292260C8E83400	N/A
AC Adapter	ACER	W10-040N1A	F13061332048621	N/A
Regulated DC Power Supply	Kenwood	PA36-3A	7060074	N/A

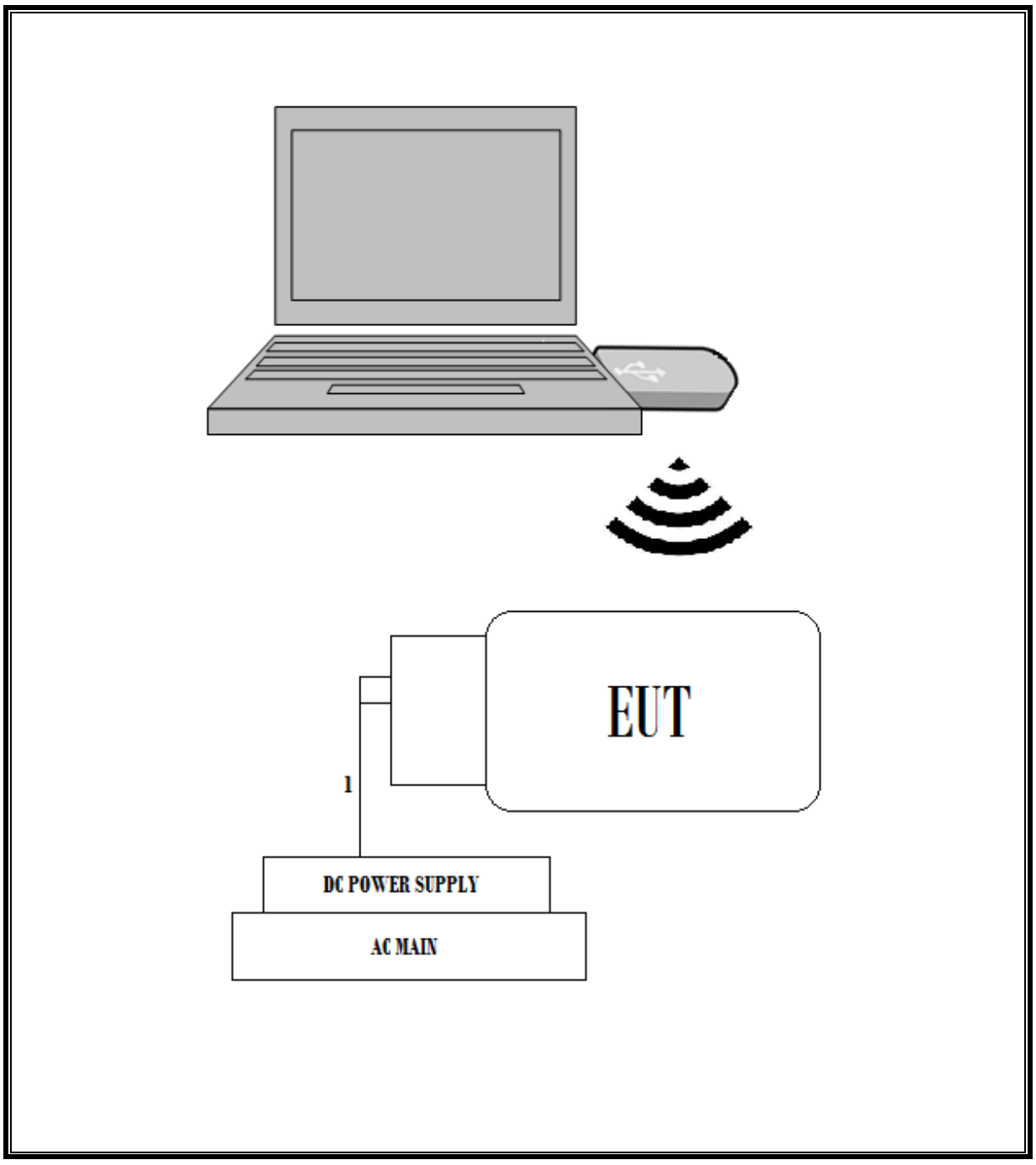
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Banand Plug	Shielded	0.5m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. 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**	**T No.**	**Cal Date**	**Cal Due**
Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014		
Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015		
Bilog Antenna 30-1000MHz	Sunol	JB1	477	06/10/15	06/10/16
Bilog Antenna 30-1000MHz	Sunol	JB1	185	02/18/15	02/18/16
Horn Antenna 1-18GHz	ETS	3117	119	01/15/15	01/15/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	39	01/29/15	01/29/16
Horn Antenna 1-18GHz	ETS	3117	136	03/03/15	03/03/16
Preamp 10kHz-1000MHz	Sonoma	310	300	11/01/14	11/18/15
Preamp 1-8GHz	Miteq	AMF-4D-01000800-30-29P	782	11/18/14	11/17/15
Preamp 1-18GHz	Miteq	AFS42-00101800-25-2-42	493	01/16/15	01/16/16
Preamp 1-26.5GHz	Agilent	8449B	404	04/06/15	05/26/16
Coaxial Switchbox	Agilent	SP6T	927	03/03/15	03/03/16
Spectrum Analzer 3Hz to 44GHz	Agilent	E4446A	99	06/10/15	06/10/16
3GHz HPF	Micro-Tronics	HPM17543	486	11/18/14	11/18/15
5GHz LPF	Micro-Tronics	LPS17541	481	11/18/14	11/18/15
6GHz HPF	Micro-Tronics	HPS17542	484	11/18/14	09/16/16
EMI Test Receiver	Rohde & Schwarz	ECSI 7	284	09/16/15	11/01/16
Power Meter	Agilent	N1911A	1264	11/01/15	03/09/16
Power Sensor	Agilent	E9327A	117	03/09/15	01/16/16
LISN for Conducted Emissions	FCC	50/250-25-2	24	01/16/15	01/16/16
Antenna, Loop, 30 MHz	EMCO	6502	C00593	02/20/15	02/21/16

7. ANTENNA PORT TEST RESULTS

7.1. ANT+ MODE IN THE 2.4 GHz BAND

7.1.1. ON TIME AND DUTY CYCLE

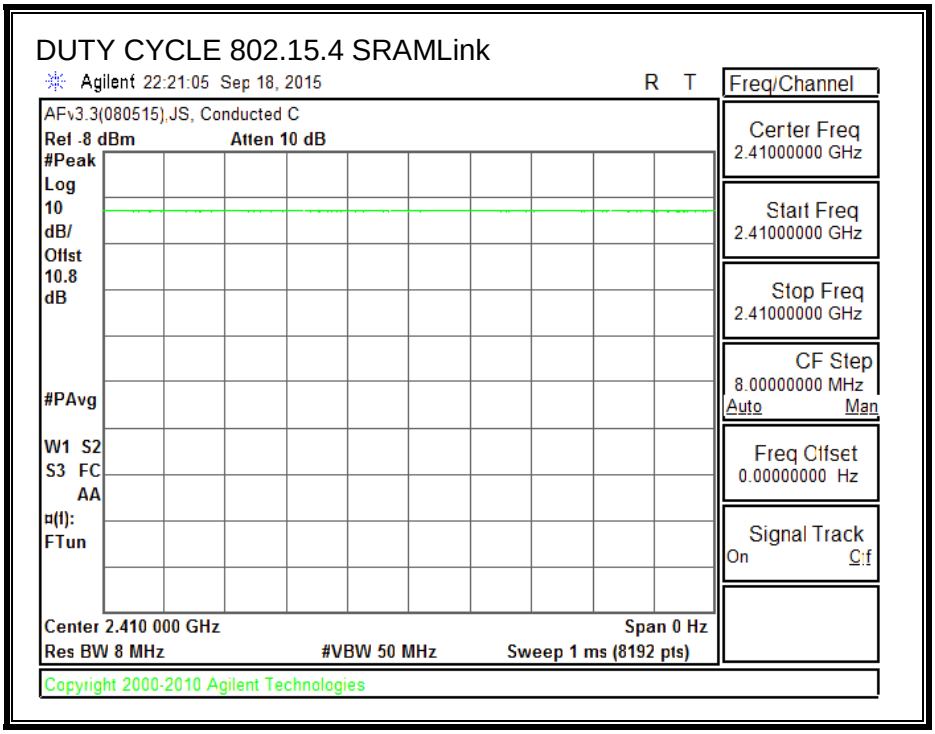
LIMITS

None; for reporting purposes only.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
ANT+	10.000	10.000	1.000	100.00%	0.00	0.010

7.1.2. DUTY CYCLE PLOT



7.1.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

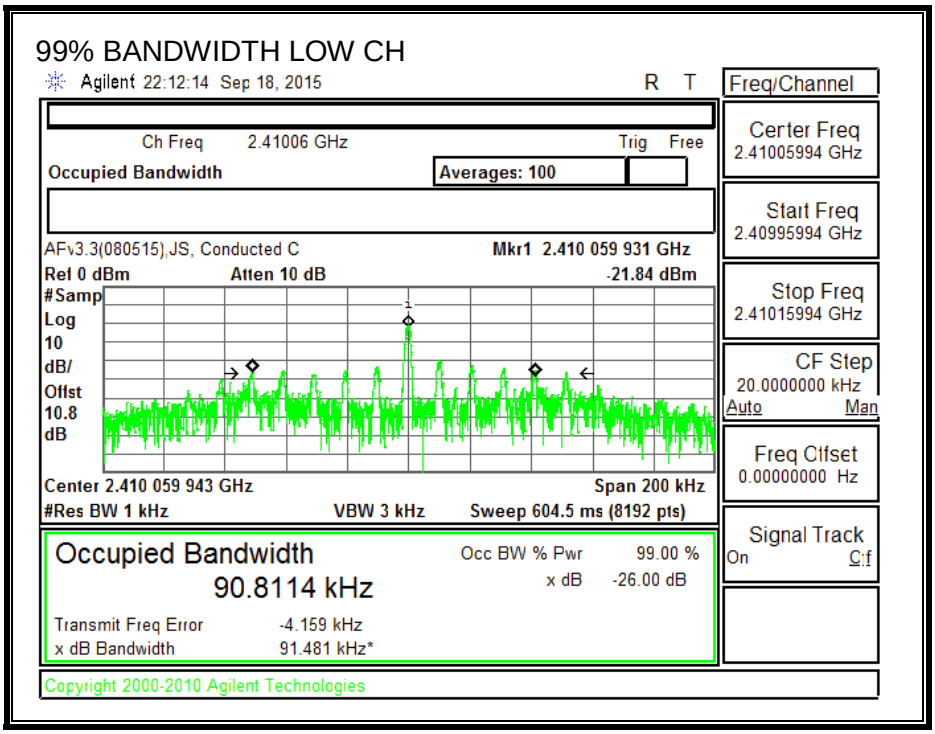
TEST PROCEDURE

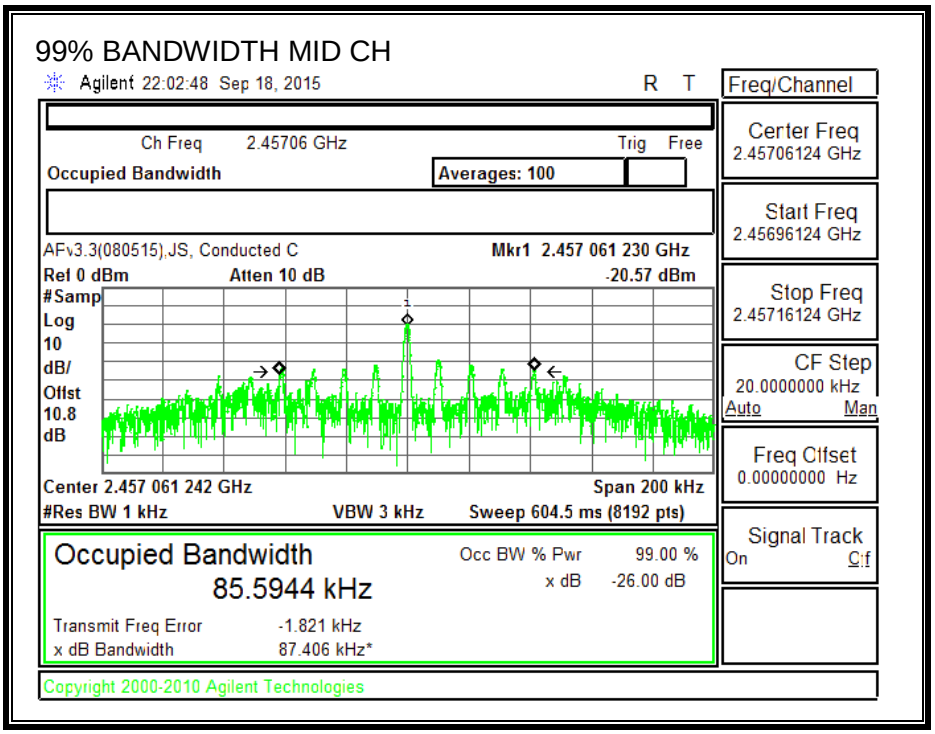
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

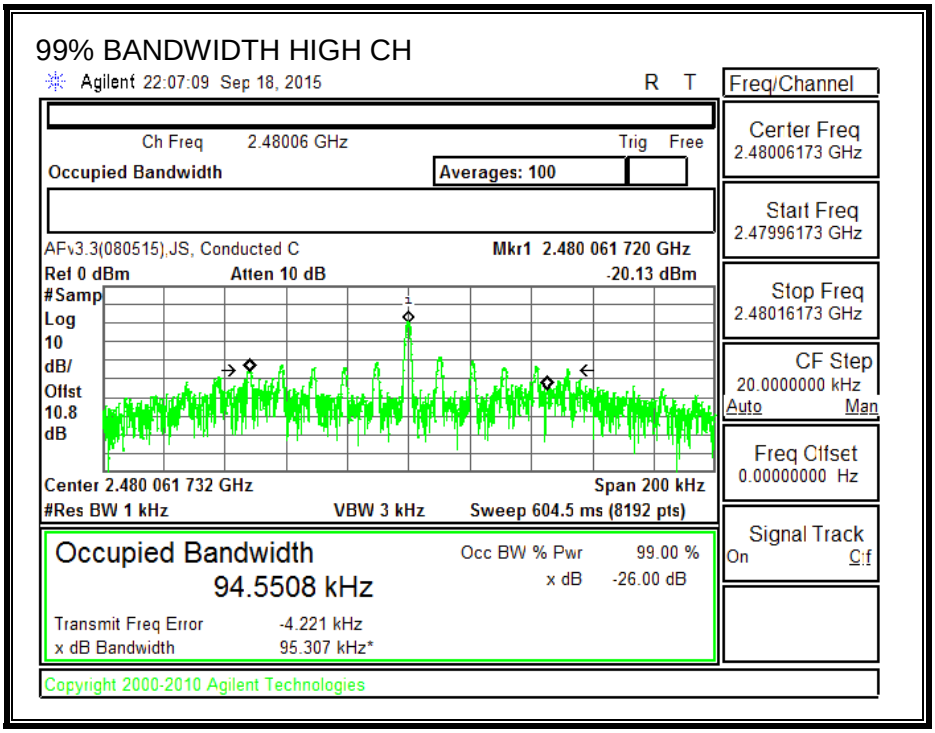
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)	20dB Bandwidth (KHz)
Low	2410	0.0908114	11.35
Middle	2457	0.0855944	11.35
High	2480	0.0945508	11.54

99% BANDWIDTH







7.1.4. 20dB BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

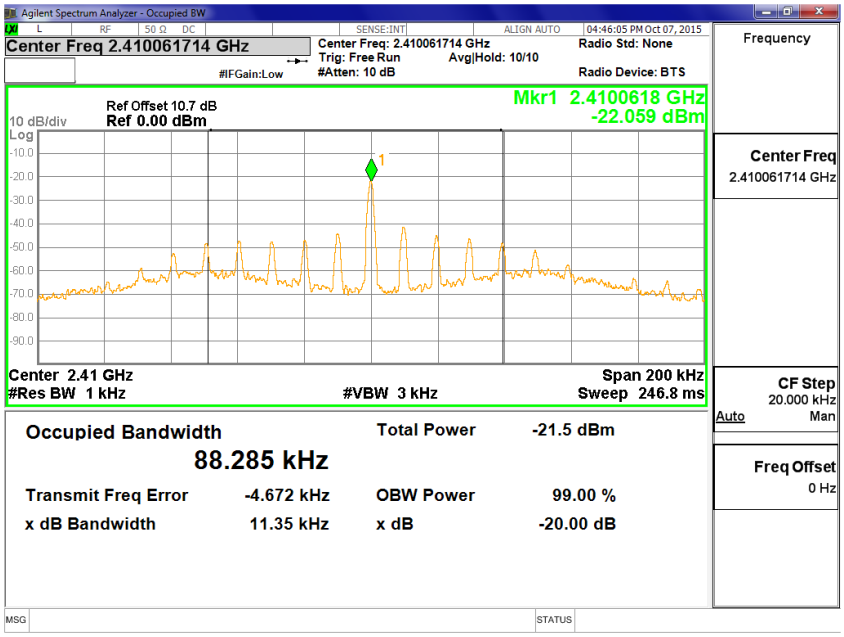
The transmitter output is connected to a spectrum analyzer. The RBW is set to ≥ 1% of the 20 dB bandwidth. The VBW is set to ≥ RBW. The sweep time is coupled

RESULTS

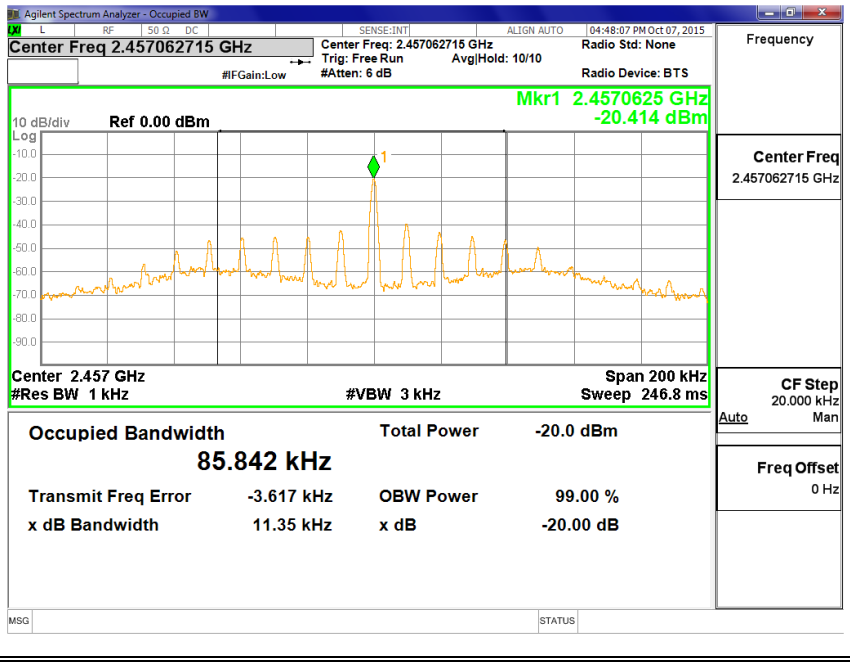
Channel	Frequency (MHz)	20dB Bandwidth (KHz)
Low	2410	11.35
Middle	2457	11.35
High	2480	11.54

20dB BANDWIDTH

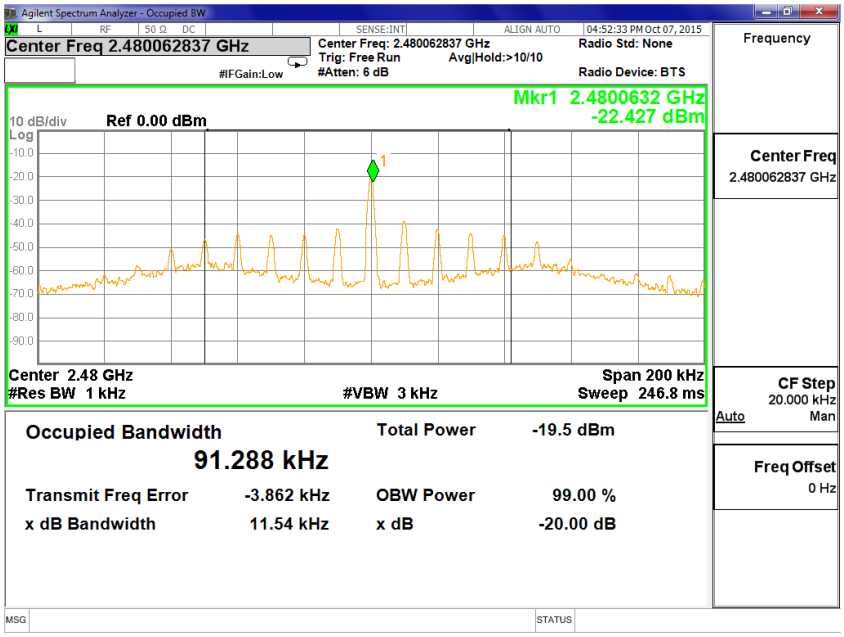
20dB BANDWIDTH LOW CH



20dB BANDWIDTH MID CH



20dB BANDWIDTH HIGH CH



8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC 15.249

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.

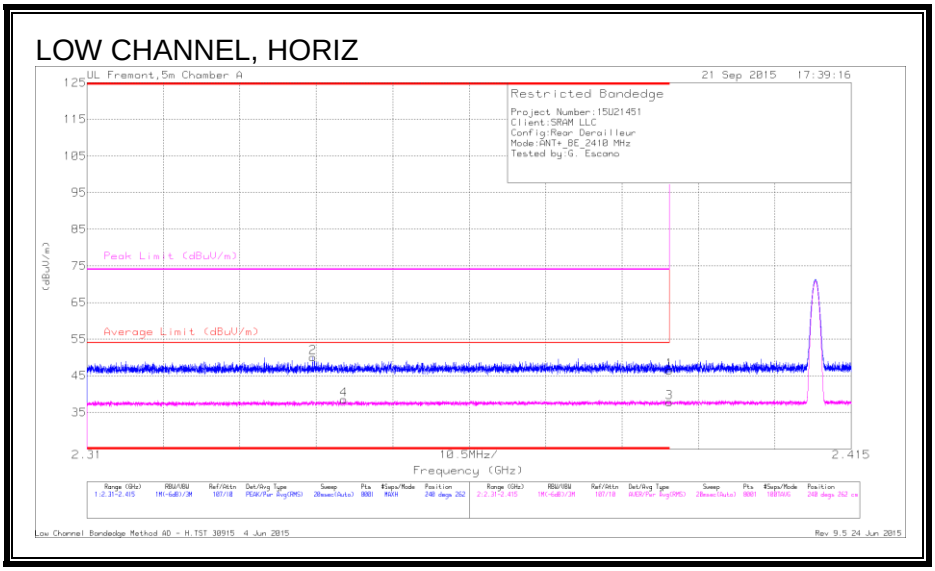
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100 **	3
88–216	150 **	3
216–960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

8.1. TRANSMITTER ABOVE 1 GHz

8.1.1. TX ABOVE 1 GHz FOR ANT+ MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

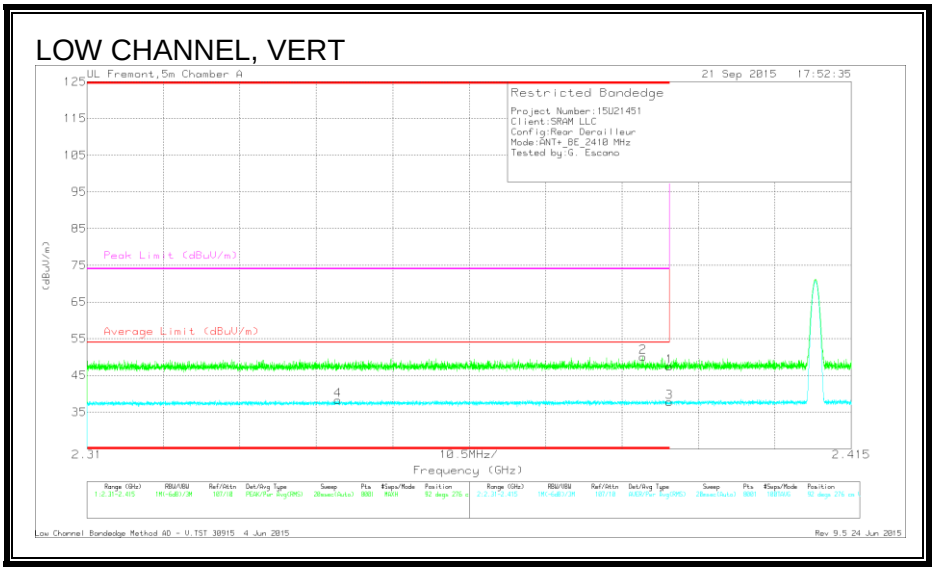


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Fixture 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	* 2.39	38.99	Pk	32	-24.6	0	46.39	-	-	74	-27.61	240	262	H
2	* 2.341	42.89	Pk	31.9	-24.7	0	50.09	-	-	74	-23.91	240	262	H
3	* 2.39	30.34	RMS	32	-24.6	0	37.74	54	-16.26	-	-	240	262	H
4	* 2.345	31.26	RMS	31.9	-24.7	0	38.46	54	-15.54	-	-	240	262	H

Pk - Peak detector
RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



Trace Markers

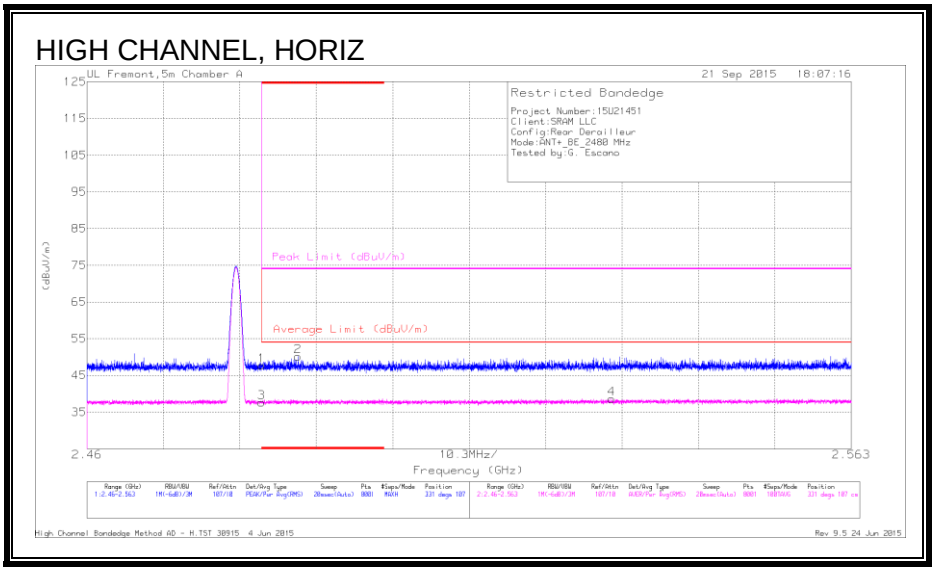
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.344	31.08	RMS	31.9	-24.7	38.28	54	-15.72	-	-	92	276	V
2	* 2.386	42.6	Pk	32	-24.6	50	-	-	74	-24	92	276	V
1	* 2.39	40.05	Pk	32	-24.6	47.45	-	-	74	-26.55	92	276	V
3	* 2.39	30.3	RMS	32	-24.6	37.7	54	-16.3	-	-	92	276	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



Trace Markers

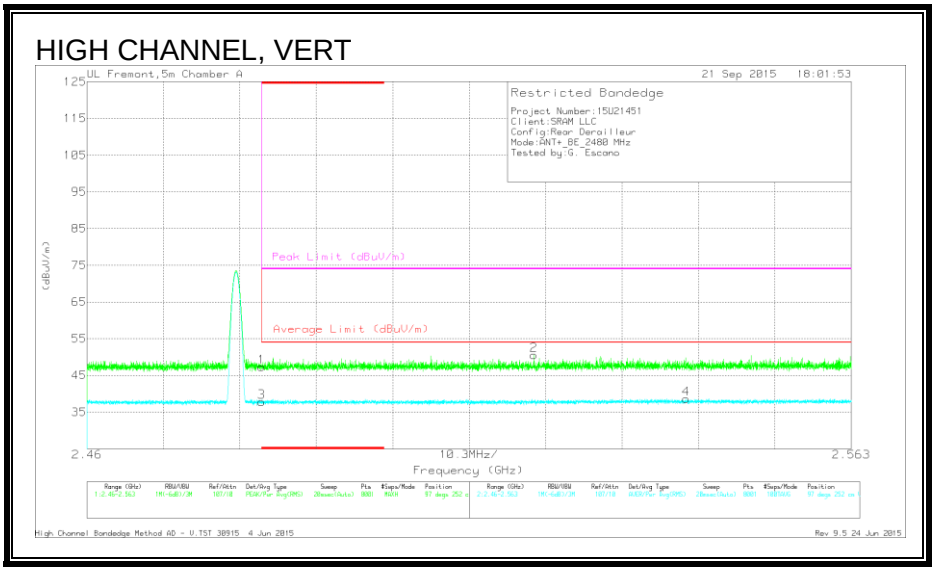
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.07	Pk	32.1	-24.5	47.67	-	-	74	-26.33	331	107	H
3	* 2.484	30.08	RMS	32.1	-24.5	37.68	54	-16.32	-	-	331	107	H
2	* 2.488	42.62	Pk	32.1	-24.5	50.22	-	-	74	-23.78	331	107	H
4	2.531	31.07	RMS	32.1	-24.5	38.67	54	-15.33	-	-	331	107	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ 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	* 2.484	39.74	Pk	32.1	-24.5	47.34	-	-	74	-26.66	97	252	V
3	* 2.484	30.21	RMS	32.1	-24.5	37.81	54	-16.19	-	-	97	252	V
2	2.52	42.91	Pk	32.1	-24.5	50.51	-	-	74	-23.49	97	252	V
4	2.541	30.82	RMS	32.2	-24.4	38.62	54	-15.38	-	-	97	252	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

8.1.2. FUNDAMENTAL FREQUENCY RADIATED EMISSION

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

47173 BENICIA STREET, FREMONT, CA 94538, USA

Project #:	15U21451
Report #:	15U21451
Date& Time:	09/21/15
Test Engr:	G. Escano

Company:	SRAM LLC
EUT Description:	Zigbee & ANT +
Test Configuration :	Y POSITION (eTap Rear Derailleur)
Type of Test:	FCC
Mode of Operation:	Transmitting : ANT+ mode

M% = ((t1+t2+t3+…)/T) * 66.83% = 100.00%

Av Reading = Pk Reading + 20*log(M%)
20 * log (M%) = 0.00

Freq.	Pk Rdg	Av Rdg	AF	Closs	Pre-amp	Pk Level	Av Level	Pk Limit	Av Limit	Pk Margin	Avg Margin	Pol	Az	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	FCC_B	FCC_B	(dB)	(dB)	(H/V)	(Deg)	(Meter)
Low channel														
2410.00	72.73	72.52	31.97	-34.48	0.00	70.22	70.00	114.00	94.00	-43.78	-24.00	3mV	92.00	276.00
2410.00	73.27	73.08	31.97	-34.48	0.00	70.76	70.57	114.00	94.00	-43.24	-23.44	3mH	240.00	262.00
Mid channel														
2457.00	76.87	76.82	32.08	-34.38	0.00	74.57	74.52	114.00	94.00	-39.43	-19.48	3mV	146.00	170.00
2457.00	75.17	75.04	32.08	-34.38	0.00	72.87	72.75	114.00	94.00	-41.13	-21.25	3mH	183.00	270.00
High channel														
2480.00	75.86	75.74	32.08	-34.33	0.00	73.61	73.49	114.00	94.00	-40.39	-20.51	3mV	97.00	252.00
2480.00	77.23	77.14	32.08	-34.33	0.00	74.98	74.89	114.00	94.00	-39.02	-19.11	3mH	331.00	106.00

AVG VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

8.1.3. HARMONIC RADIATED EMISSION

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

47173 BENICIA STREET, FREMONT, CA 94538, USA

Project #:	15U21451
Report #:	15U21451
Date& Time:	09/21/15
Test Engr:	G. Escano

Company:	SRAM LLC
EUT Description:	Zigbee & ANT +
Test Configuration :	Y POSITION (eTap Rear Derailleur)
Type of Test:	FCC
Mode of Operation:	Transmitting : ANT+ mode

M% = ((t1+t2+t3+…)/T) * 66.83% = 100.00%

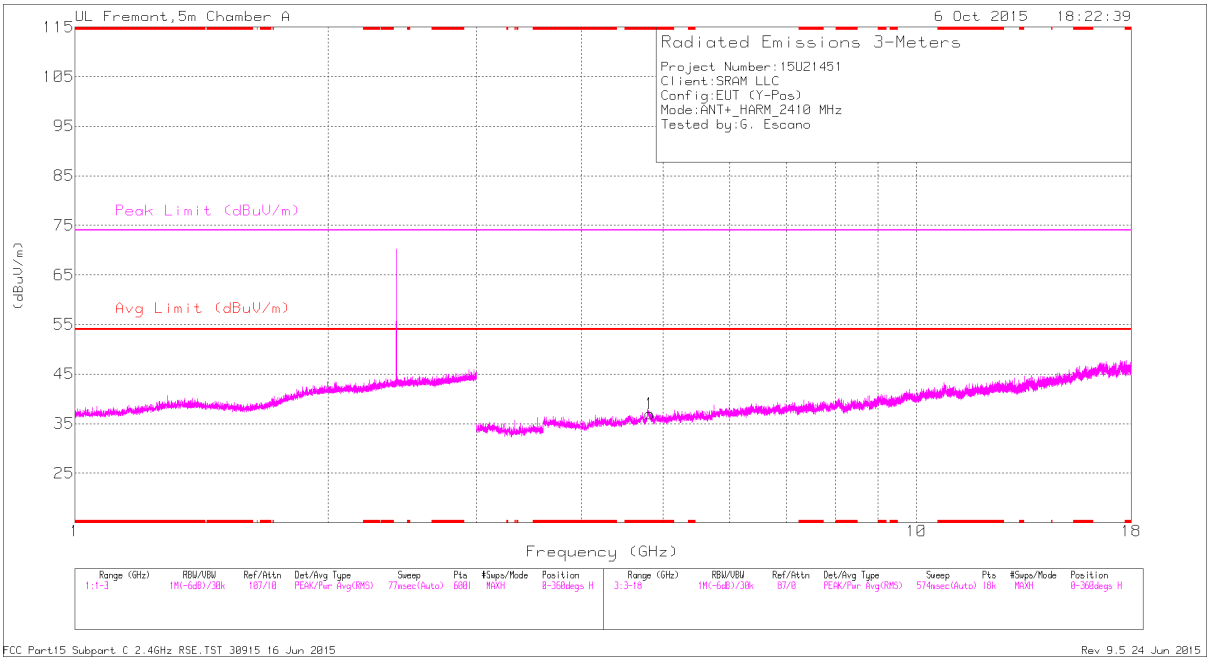
Av Reading = Pk Reading + 20*log(M%)	
20 * log (M%) =	0.00

Freq.	Pk Rdg	Av Rdg	AF	Closs	Pre-amp	Pk Level	Av Level	Pk Limit	Av Limit	Pk Margin	Avg Margin	Pol	Az	Height
(MHz)	(dBuV)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	FCC_B	FCC_B	(dB)	(dB)	(H/V)	(Deg)	(Meter)
Low channel														
4820.00	41.19	37.60	33.96	-30.67	0.00	44.48	40.89	74.00	54.00	-29.52	-13.11	3mV	92.00	276.00
4820.00	41.50	38.19	33.96	-30.67	0.00	44.79	41.48	74.00	54.00	-29.21	-12.52	3mH	240.00	262.00
Mid channel														
4914.00	41.50	38.19	33.85	-31.04	0.00	44.31	41.00	74.00	54.00	-29.69	-13.00	3mV	146.00	170.00
4914.00	40.34	38.26	33.85	-31.04	0.00	43.16	41.07	74.00	54.00	-30.84	-12.93	3mH	183.00	270.00
High channel														
4960.00	42.41	38.42	33.99	-31.00	0.00	45.40	41.41	74.00	54.00	-28.60	-12.59	3mV	97.00	252.00
4960.00	42.12	38.40	33.99	-31.00	0.00	45.11	41.39	74.00	54.00	-28.89	-12.61	3mH	331.00	106.00

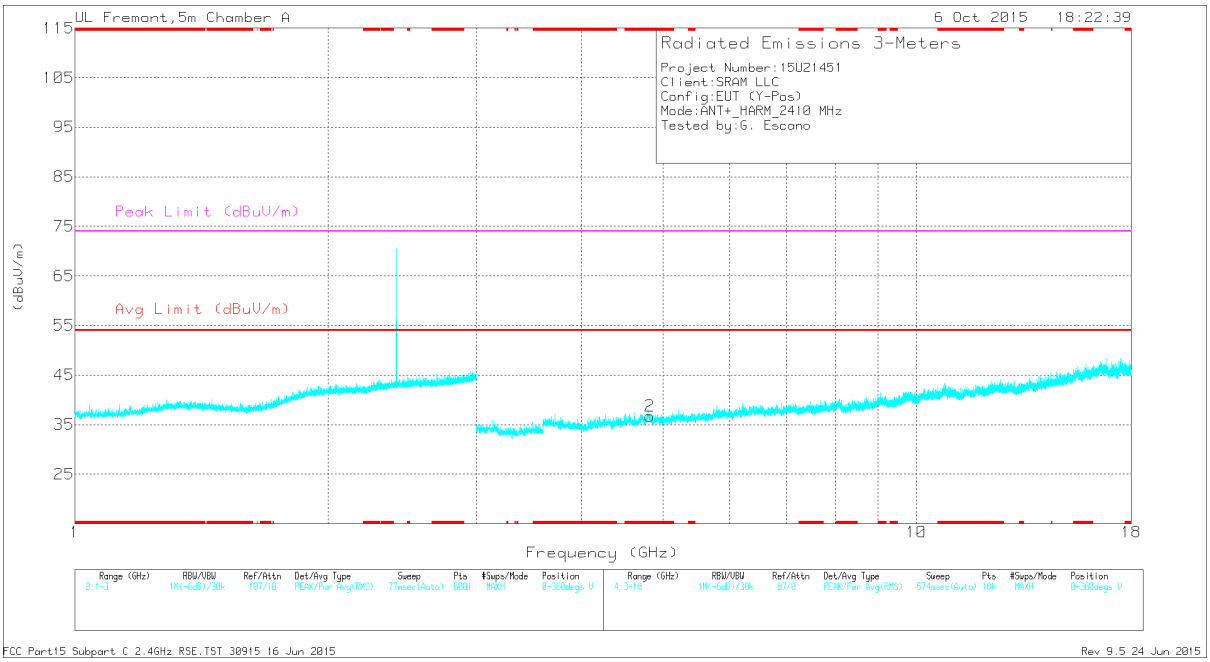
AVG VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

Fundamental and Harmonic Test Plot

Low Channel Horizontal

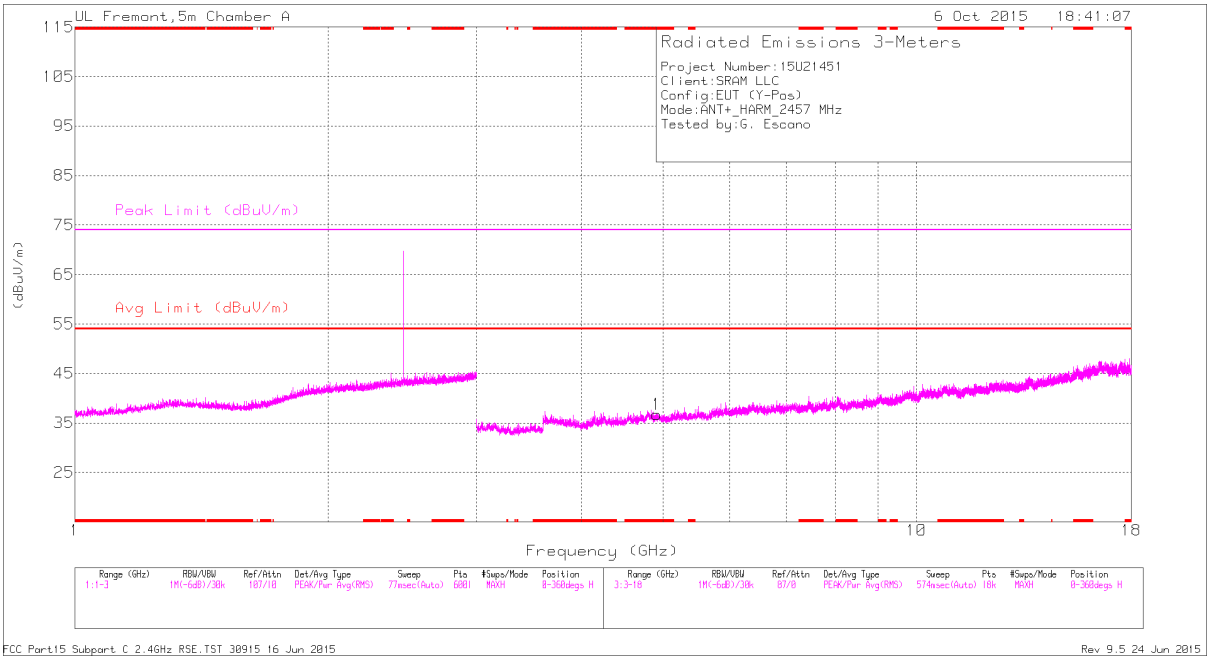


Low Channel Vertical

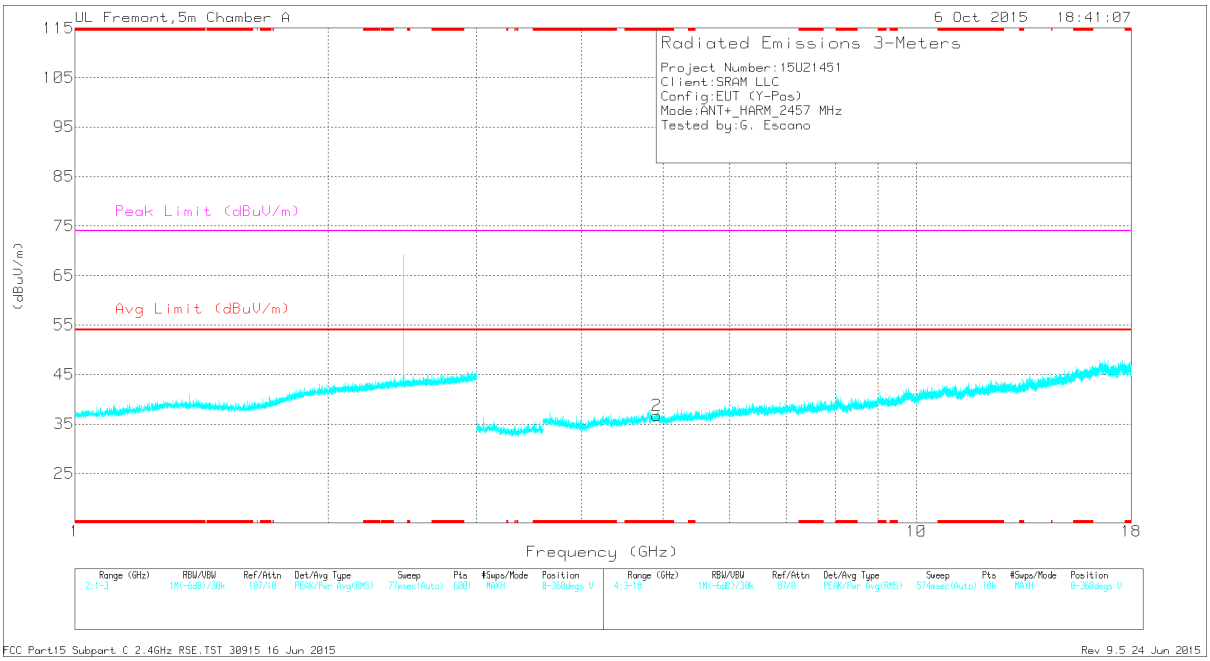


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Mid Channel Horizontal

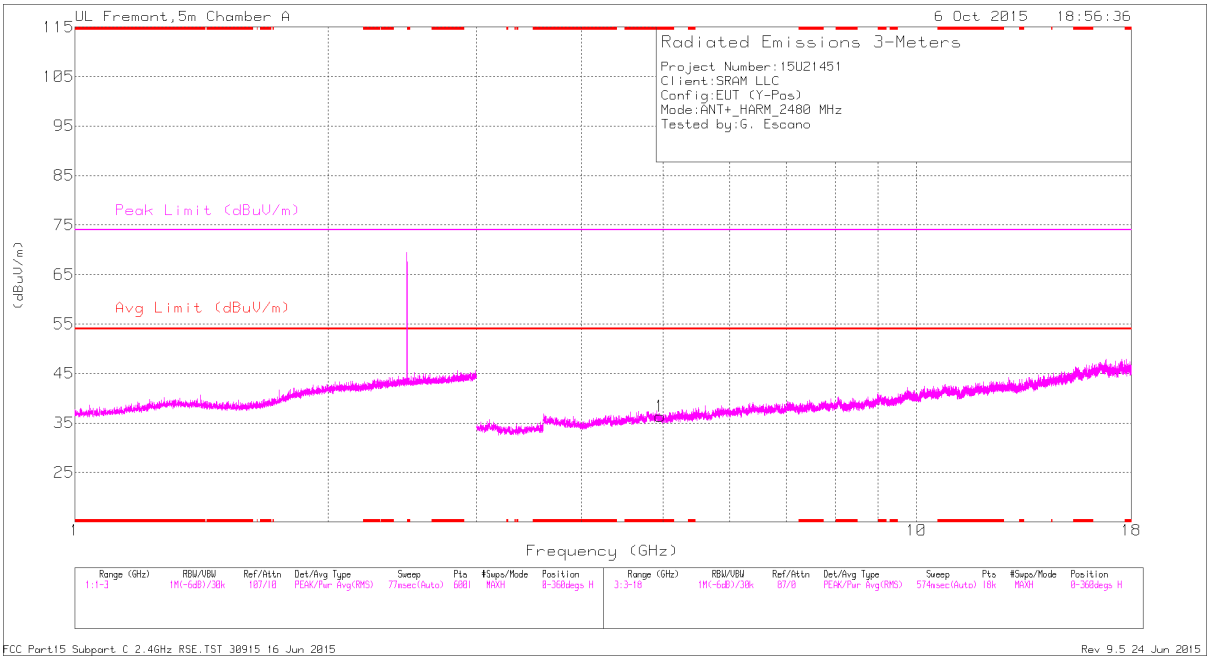


Mid Channel Vertical

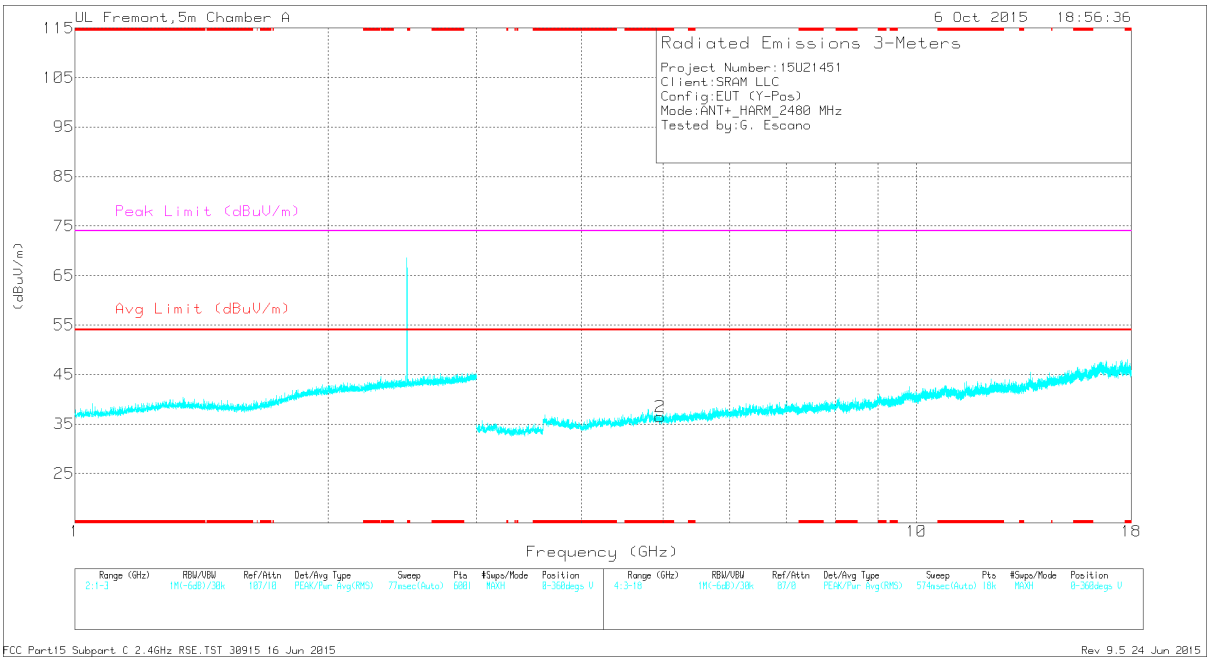


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

High Channel Horizontal



High Channel Vertical

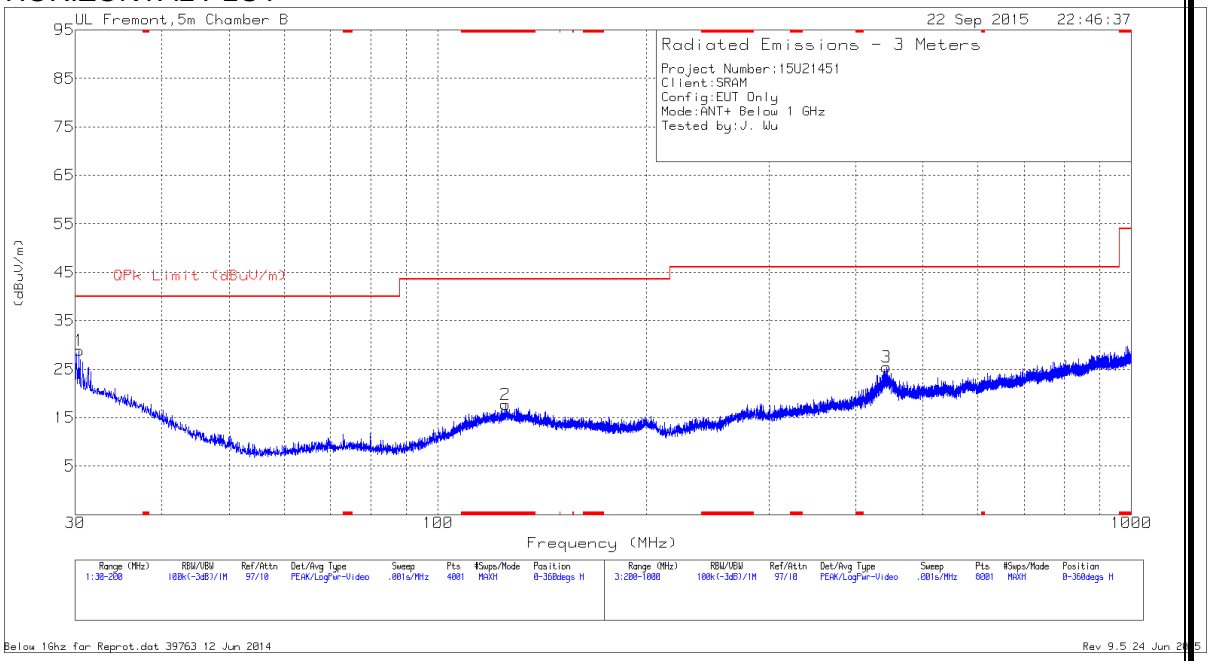


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

8.2. WORST-CASE BELOW 1 GHz

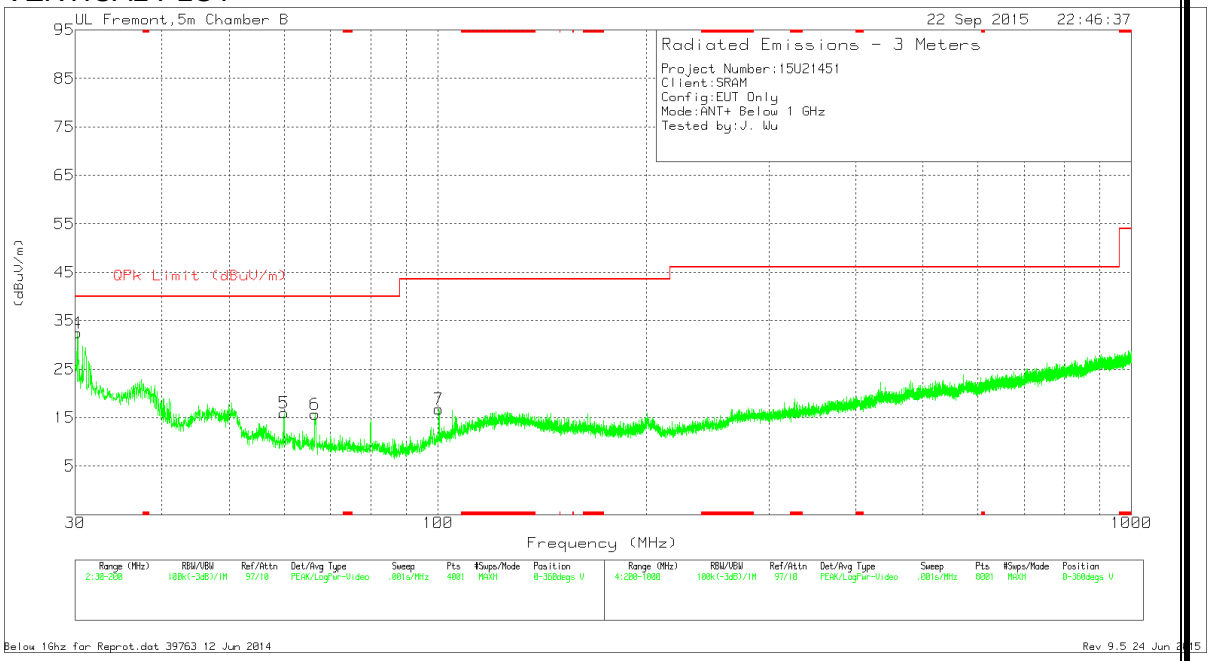
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



Trace Markers

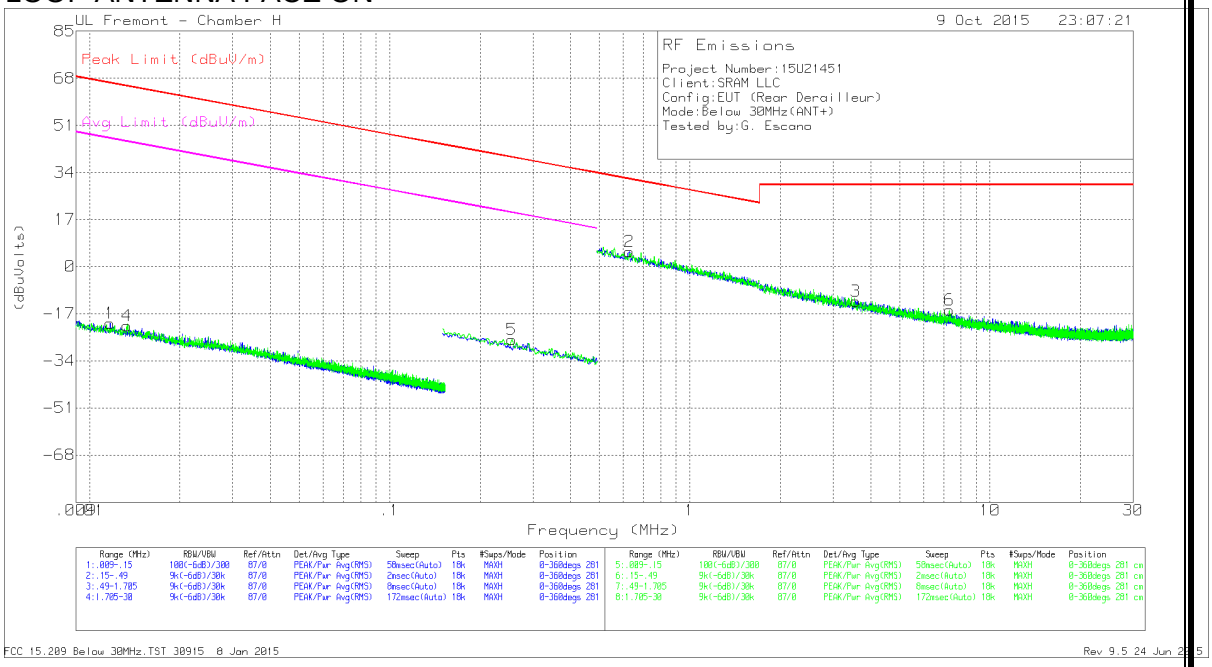
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 125.2425	29.73	Pk	14	-26	17.73	43.52	-25.79	0-360	400	H
4	30.17	38.11	Pk	21.6	-27.2	32.51	40	-7.49	0-360	100	V
1	30.3825	34.56	Pk	21.5	-27.2	28.86	40	-11.14	0-360	100	H
5	60.005	35.44	Pk	7.3	-26.8	15.94	40	-24.06	0-360	100	V
6	66.5075	34.31	Pk	8.1	-26.7	15.71	40	-24.29	0-360	100	V
7	100.295	33.26	Pk	9.8	-26.3	16.76	43.52	-26.76	0-360	100	V
3	443.5	33.55	Pk	16.8	-24.9	25.45	46.02	-20.57	0-360	200	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

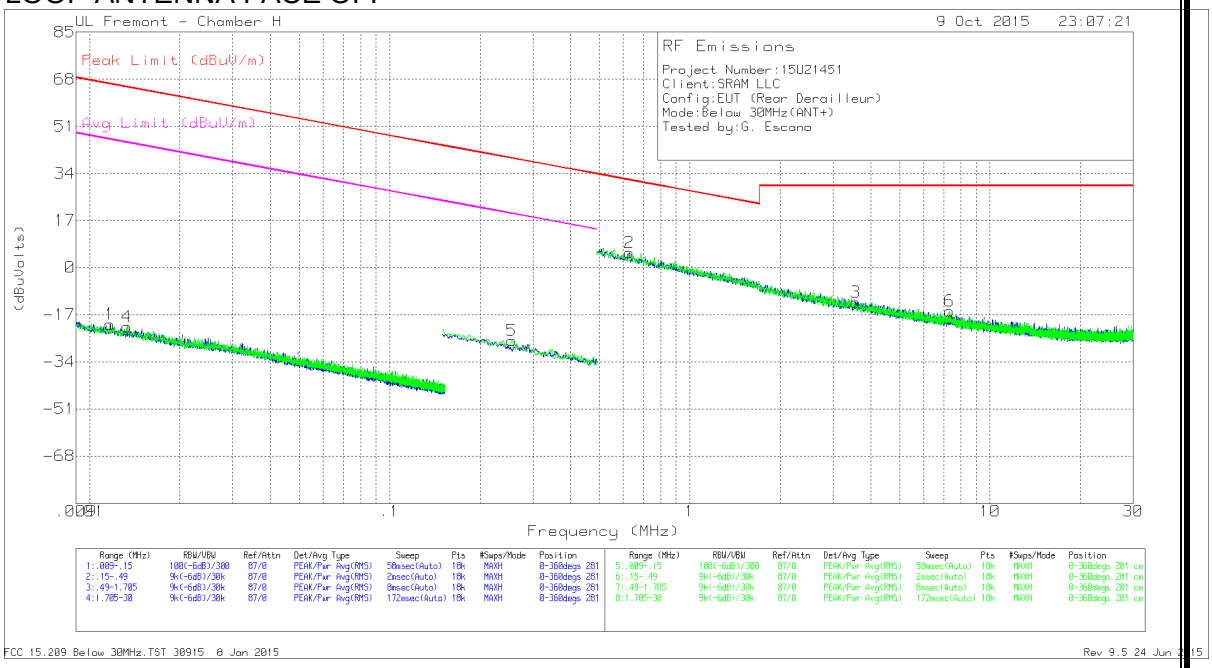
Pk - Peak detector

8.3. RADIATED EMISSION BELOW 30MHz

LOOP ANTENNA FACE ON



LOOP ANTENNA FACE OFF



Trace Markers

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)	Azimuth (Degs)
1	.01172	41.41	Pk	18.1	.1	-80	-20.39	66.23	-86.62	46.23	-66.62	0-360
4	.0133	40.97	Pk	17.5	.1	-80	-21.43	65.12	-86.55	45.12	-66.55	0-360
5	.25527	43.28	Pk	10.3	.1	-80	-26.32	39.46	-65.78	19.46	-45.78	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.62929	35.09	Pk	10.2	.1	-40	5.39	31.63	-26.24	-	-	0-360
3	3.56468	16.64	Pk	10.5	.3	-40	-12.56	29.54	-42.1	-	-	0-360
6	7.33905	13.52	Pk	10.5	.4	-40	-15.58	29.54	-45.12	-	-	0-360

Pk - Peak detector
FCC 15.209 Below 30MHz.TST 30915 8 Jan 2015
Rev 9.5 24 Jun 2015