

# EMC Test Report

**Project Number:** 3758116

**Report Number:** 3758116EMC03

**Revision Level:** 1

**Client:** Digital Dream Labs, LLC, Inc.

**Equipment Under Test:** Ludos Gameboard

**Model Name:** Puzzlets

**Model Number:** DDLPT001

**FCC ID:** 2ACUO-DDLPT001

**IC ID:** 12227A-DDLPT001

**Applicable Standards:** FCC Part 15 Subpart C, § 15.249

RSS-210, Issue 8, December 2010

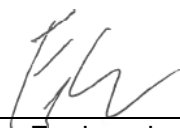
ANSI C63.10: 2013

RSS-GEN Issue 4, November 2014

**Report issued on:** 22 July 2015

**Test Result:** Compliant

**Tested by:**

  
Fendy Liauw, Engineering Technician

**Reviewed by:**

  
David Schramm, EMC/RF/SAR/HAC Manager

**Remarks:**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or Testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS international Electrical Approvals in writing.

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## 1 Summary of Test Results

Test Description	Test Specification		Test Result
Occupied Bandwidth	15.249(a) (1)	RSS-GEN 4.6.1	Compliant
Band Edge	15.249(d)	RSS-210 A8.5	Compliant
Field Strength of Spurious Radiation	15.249(d), 15.35(b), 15.209	RSS-210 A8.5	Compliant

(1) The device does not connect to the AC mains

### 1.1 Modifications Required for Compliance

None

## 2 General Information

### 2.1 Client Information

Name: Digital Dream Labs, LLC, Inc.  
Address: 6024 Broad Street, Suite 2R  
City, State, Zip, Country: Pittsburgh, PA 15206

### 2.1 Test Laboratory

Name: SGS North America, Inc.  
Address: 620 Old Peachtree Road NW, Suite 100  
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA  
Type of lab: Testing Laboratory  
Certificate Number: 3212.01

### 2.2 General Information of EUT

Type of Product: Ludos Gameboard  
Model Name: Puzzlets  
Model Number: DDLPT001  
FCC ID: 2ACUO-DDLPT001  
Frequency Range: 2402 to 2480 MHz  
Data Modes: Bluetooth LE  
Antenna: Integral / PCB

Rated Voltage: 3.7 VDC Internal Li-Ion Battery

Sample Received Date: 20 May 2015  
Dates of testing: 20 – 22 May 2015

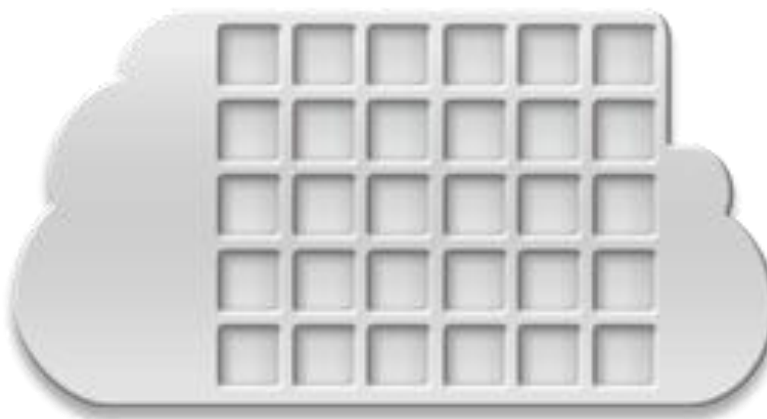
### **Operating Modes and Conditions**

The only mode of operation was Bluetooth LE. The software provided allowed control of the channel and packet type. The device always transmitted at max power and PRBS9 packet type was used for all measurements. The duty cycle was >98%.

As specified in Section 5.10.5 of ANSI C63.10:2009:

- The software allowed configuration and operation on all available unlicensed wireless device channels.
- The software allowed configuration and operation using all available modulations and data rates
- The software allowed configuration and operation on all available power out levels

### **2.3 EUT Connection Block Diagram**



### **2.4 System Configurations**

Device reference	Manufacturer	Description	Model Number	Serial Number
A	Digital Dream Labs, LLC	Ludos Gameboard	DDLPT001	Not Labeled

### 3 Field Strength of Fundamental

#### 3.1 Test Result

Test Description	Test Specification	Test Result
Field strength of fundamental	15.249(a)	Compliant

#### 3.2 Test Method

The test data was measured using a Quasi-Peak detector below 1GHz and a Peak detector above 1GHz. Average measurements were made by correcting the peak value with the duty cycle correction factor. The receivers resolution bandwidth was set to 120 kHz for measurements taken in the 30MHz to 1GHz frequency range and 1MHz for measurements for 1GHz and higher. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency. The radiated measurements were recorded and compared to the limits indicated in the table below.

Fundamental Frequency	Average Limits			Peak Limits dBuV/m
	Millivolts/meter	Microvolts/m	dBuV/m	
902 - 928 MHz	50	50000	94	114
2400 - 2483.5 MHz	50	50000	94	114
5725 - 5875 MHz	50	50000	94	114
24 - 24.25 GHz	250	250000	108	128

#### 3.3 Test Site

3m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

##### Environmental Conditions

Temperature: 23.5 °C  
Relative Humidity: 44.3 %  
Atmospheric Pressure: 97.5 kPa

### 3.4 Test Equipment

Test Start Date: 22-Jul-2015

Test End Date: 22-Jul-2015

Eng: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	28-Jul-2015
DRG HORN (MEDIUM)	3117	ETS-LINDGREN	B079699	14-Apr-2016
RF CABLE - 7000MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079712	4-Aug-2015
PREAMPLIFIER-ANTENNA SYS	TS-PR18	ROHDE & SCHWARZ	B094463	13-Feb-2016

Note: The calibration period equipment is 1 year.

### 3.5 Test Data

Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector PK/QP/AVG
Channel 0											
2402.20	99.5	V	41.0	400.0	32.1	2.0	33.0	100.5	114.0	-13.5	PK
2402.20	91.1	V	41.0	400.0	32.1	2.0	33.0	92.1	94.0	-1.9	AVG
2401.90	99.2	H	130.0	108.0	32.1	2.0	33.0	100.2	114.0	-13.8	PK
2401.90	90.8	H	130.0	108.0	32.1	2.0	33.0	91.8	94.0	-2.2	AVG
Channel 19											
2440.00	98.6	V	86.0	400.0	32.2	2.0	33.0	99.9	114.0	-14.1	PK
2440.00	90.5	V	86.0	400.0	32.2	2.0	33.0	91.8	94.0	-2.2	AVG
2440.30	98.2	H	131.0	134.0	32.2	2.0	33.0	99.5	114.0	-14.5	PK
2440.30	90.1	H	131.0	134.0	32.2	2.0	33.0	91.4	94.0	-2.6	AVG
Channel 39											
2480.20	99.5	V	64.0	381.0	32.4	2.0	33.0	101.0	114.0	-13.0	PK
2480.20	91.0	V	64.0	381.0	32.4	2.0	33.0	92.5	94.0	-1.5	AVG
2480.20	99.0	H	129.0	107.0	32.4	2.0	33.0	100.5	114.0	-13.5	PK
2480.20	90.4	H	129.0	107.0	32.4	2.0	33.0	91.9	94.0	-2.1	AVG
Avg Value = Level + AF + CL - Amp											
Margin = Avg Value - Limit											

## 4 Occupied Bandwidth

### 4.1 Test Result

Test Description	Basic Standards	Test Result
99% Bandwidth	RSS-GEN 4.6.1	Reported

### 4.2 Test Method

The 99% function of the spectrum analyzer was used to measure bandwidth.

### 4.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.1 °C

Relative Humidity: 49.9 %

### 4.4 Test Equipment

Test Date: 26-May-2015

Tech: FL

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	26-Jun-2015

Note: The calibration period equipment is 1 year.

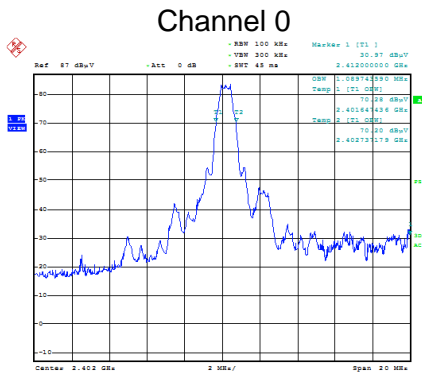
### 4.5 Test Setup Photographs

Test setup photographs are located in a separate exhibit.

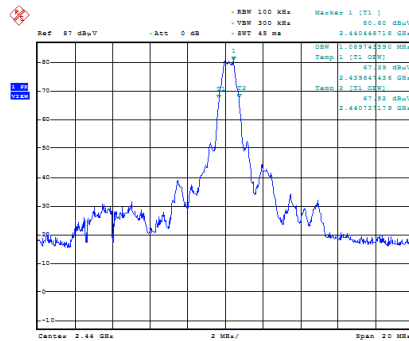
## 4.6 Test Data

Protocol	Channel	Occupied Bandwidth (99%) (MHz)
BT LE	0	1.09
BT LE	19	1.09
BT LE	39	1.09

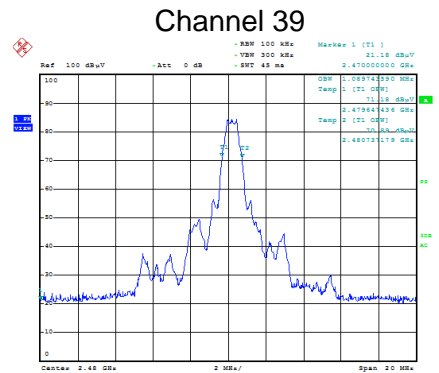
### 99% Bandwidth Plots Channel 19



Date: 27.MAY.2015 08:53:38



Date: 27.MAY.2015 08:49:13



Date: 27.MAY.2015 08:56:38



## 5 Field Strength of Spurious Radiation

### 5.1 Test Result

Test Description	Test Specification	Test Result
Field strength of spurious radiation	15.249 (d) and 15.209	Compliant

### 5.2 Test Method

Exploratory scans were performed over the frequency range as indicated in the tables below using the max hold function and incorporating a Peak detector and using TILE! software. The final test data was measured using a Quasi-Peak detector below 1GHz and a peak and average detector above 1GHz. For emissions other than harmonics of the fundamental, the Average measurements were made using the Average detector. The receivers resolution bandwidth was set to 120 kHz for measurements taken in the 30MHz to 1GHz frequency range and 1MHz for measurements for 1GHz and higher. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency. The radiated measurements were recorded and compared to the limits indicated in the table below.

Test distance:

30 MHz to 4 GHz - 3 meters

4 to 25 GHz - 1 meter

Fundamental:

Frequency	Limits		Peak Limits dBuV/m
	millivolts/m	dBuV/m	
902-928 MHz	50	94	114
2400-2483.5 MHz	50	94	114
5725-5875 MHz	50	94	114
24.0-24.25 GHz	250	108	128

Harmonics:

Frequency	Limits		Peak Limits dBuV/m
	microvolts/m	dBuV/m	
902-928 MHz	500	54	74
2400-2483.5 MHz	500	54	74
5725-5875 MHz	500	54	74
24.0-24.25 GHz	2500	68	88

All other emissions:

Frequency	Limits <sup>(1)</sup>		Peak Limits dBuV/m
	Microvolts/m	dBuV/m	
30 - 88 MHz	100	40 <sup>(2)</sup>	--
88 - 216 MHz	150	43.5 <sup>(2)</sup>	--
216 - 960 MHz	200	46 <sup>(2)</sup>	--
960 - 1000 MHz	500	54 <sup>(2)</sup>	--
1 - 40 GHz	500	54 <sup>(3)</sup>	74

### 5.3 Test Site

3m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions

Temperature: 23.3 °C

Relative Humidity: 48.7 %

### 5.4 Test Equipment

Test Start Date: 20-May-2015

Test End Date: 22-Jul-2015

Tester: FL/JOP

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	28-Jul-2015
ANTENNA, BILOG	JB6	SUNOL	B079690	7-Oct-2015
DRG HORN (MEDIUM)	3117	ETS-LINDGREN	B079699	14-Apr-2016
RF CABLE - 12000MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079714	4-Aug-2015
17 FT N TYPE COAX CABLE	HS 84133232	HUBER&SUHNER	B079661	4-Aug-2015
RF CABLE - 7000MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079712	4-Aug-2015
PREAMPLIFIER-ANTENNA SYS	TS-PR18	ROHDE & SCHWARZ	B094463	13-Feb-2016
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079822	6-Aug-2015
HIGH PASS FILTER	HPM50111	MICRO-TRONICS	B085747	7-Aug-2015
FIXED GAIN AMPLIFIER	NSP1840-HG	MITEQ	B087572	14-Oct-2015
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079823	6-Aug-2015
DRG HORN (SMALL)	3116B	ETS-LINDGREN	B079695	19-Mar-2016
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079822	6-Aug-2015
COAXIAL CABLE	SUCOFLEX 102	HUBER&SUHNER	B079823	6-Aug-2015

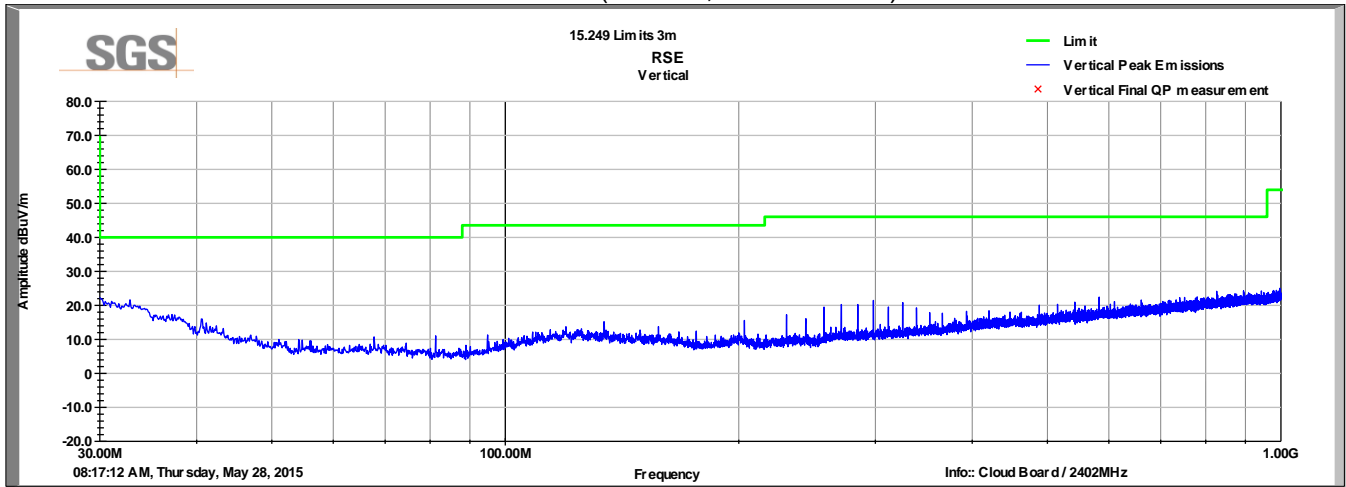
Note: The calibration period equipment is 1 year.

### 5.5 Test Setup Photographs

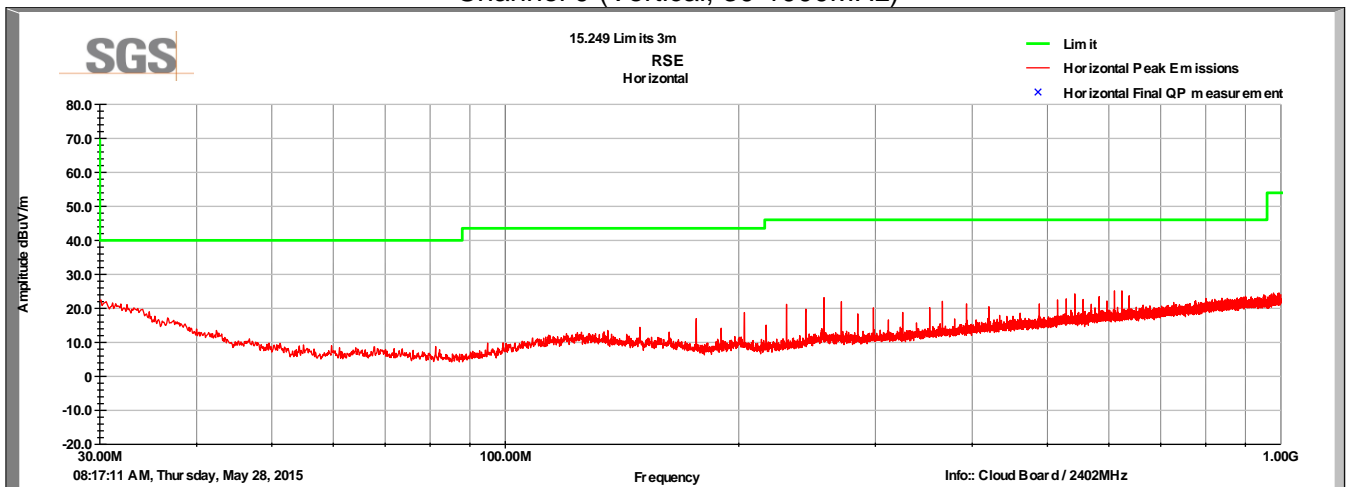
Test setup photographs are located in a separate exhibit.

## 5.6 Test Data

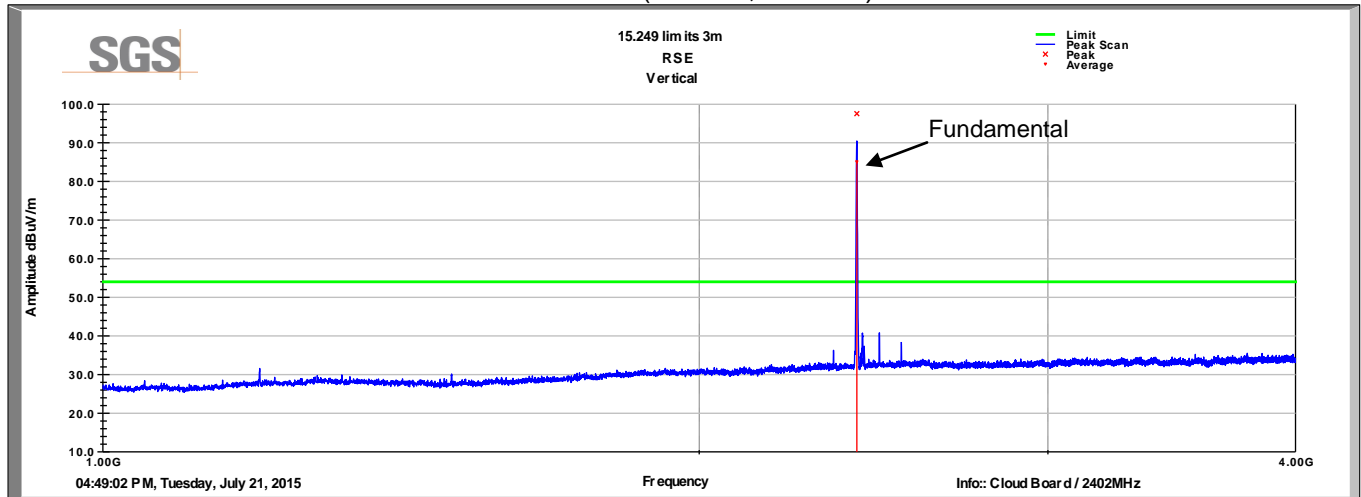
Channel 0 (Vertical, 30-1000MHz)



Channel 0 (Vertical, 30-1000MHz)

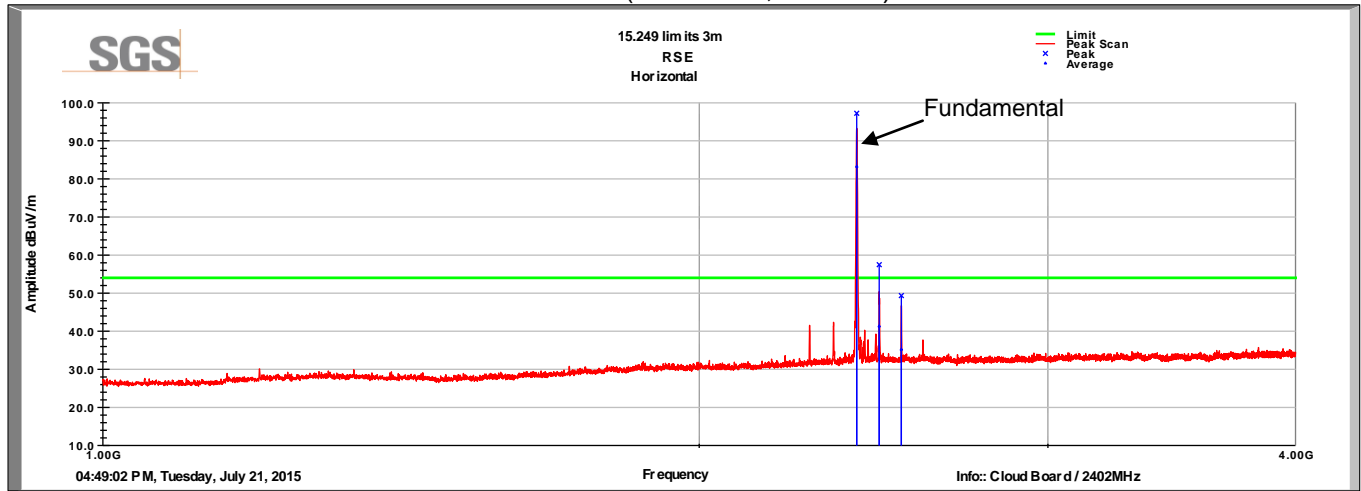


Channel 0 (Vertical, 1-4GHz)



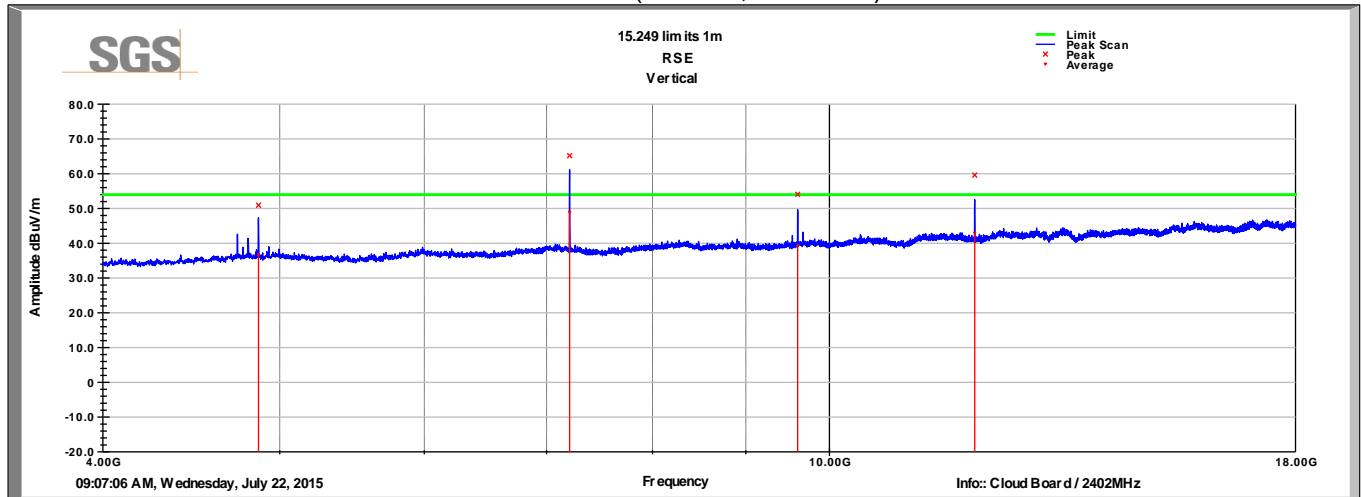
No peak spurs with 10dB of the average limit

## Channel 0 (Horizontal, 1-4GHz)



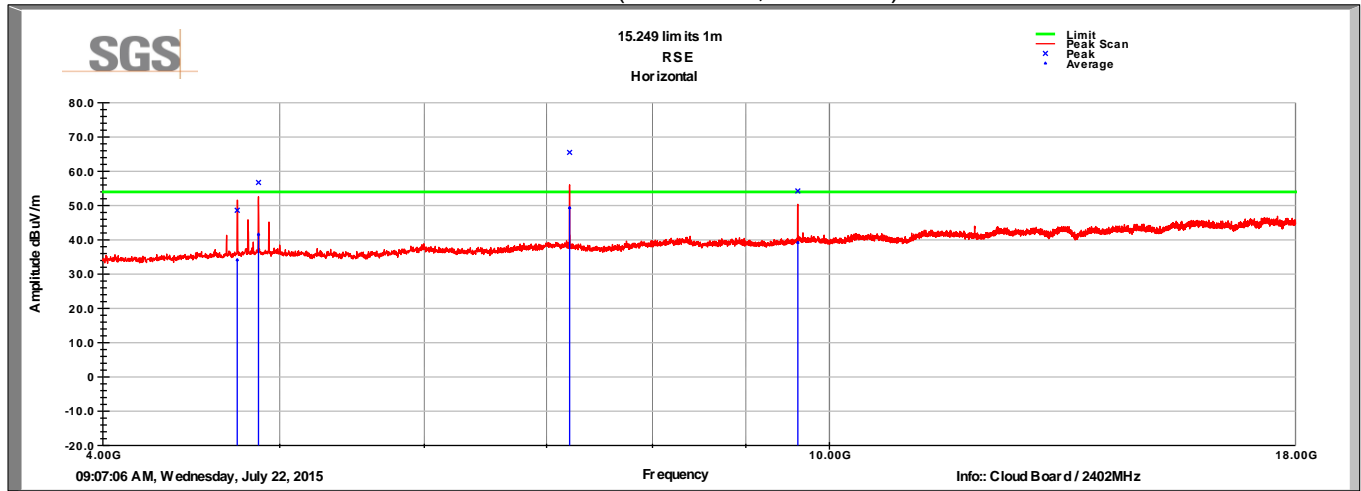
Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2465.80	40.0	H	141.0	134.0	32.3	2.0	33.0	41.4	54.0	-12.6
2530.00	33.7	H	117.0	229.0	32.5	2.1	33.0	35.2	54.0	-18.7
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

### Channel 0 (Vertical, 4-18GHz)



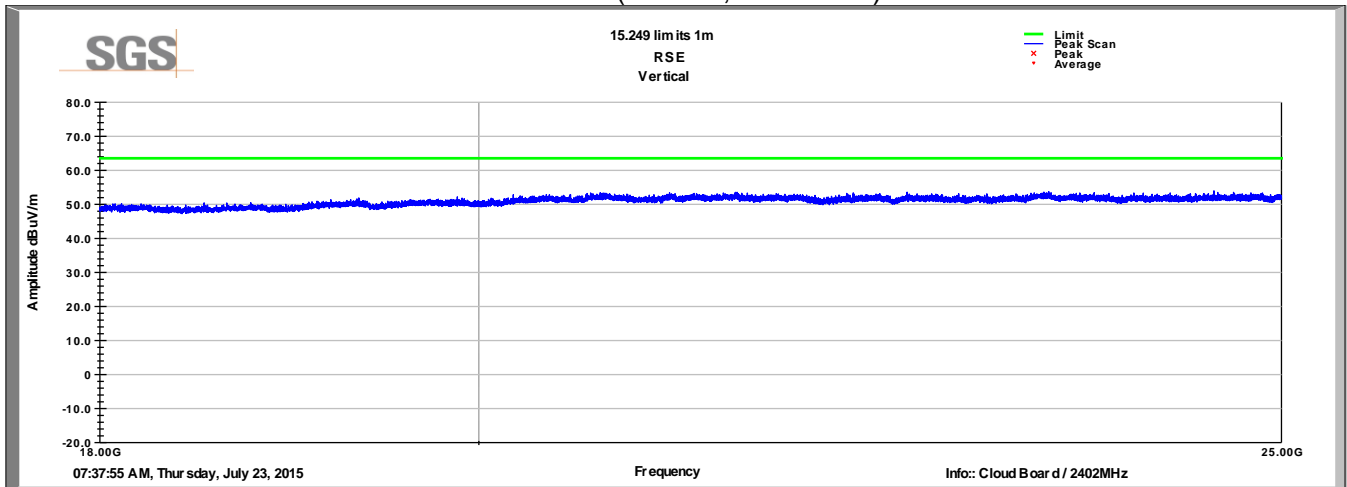
Frequency MHz	Raw Avg (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value dBuV/m	Limit (dBuV/m)	Margin (dB)
4868.00	32.1	V	78.0	116.0	34.6	3.0	33.1	36.6	54.0	-17.3
7206.00	42.5	V	60.0	134.0	35.8	3.8	33.2	48.9	54.0	-5.0
9608.40	30.0	V	41.0	380.0	36.8	4.5	32.1	39.2	54.0	-14.7
12012.20	31.7	V	278.0	125.0	38.8	5.0	32.5	42.9	54.0	-11.1
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

## Channel 0 (Horizontal, 4-18GHz)

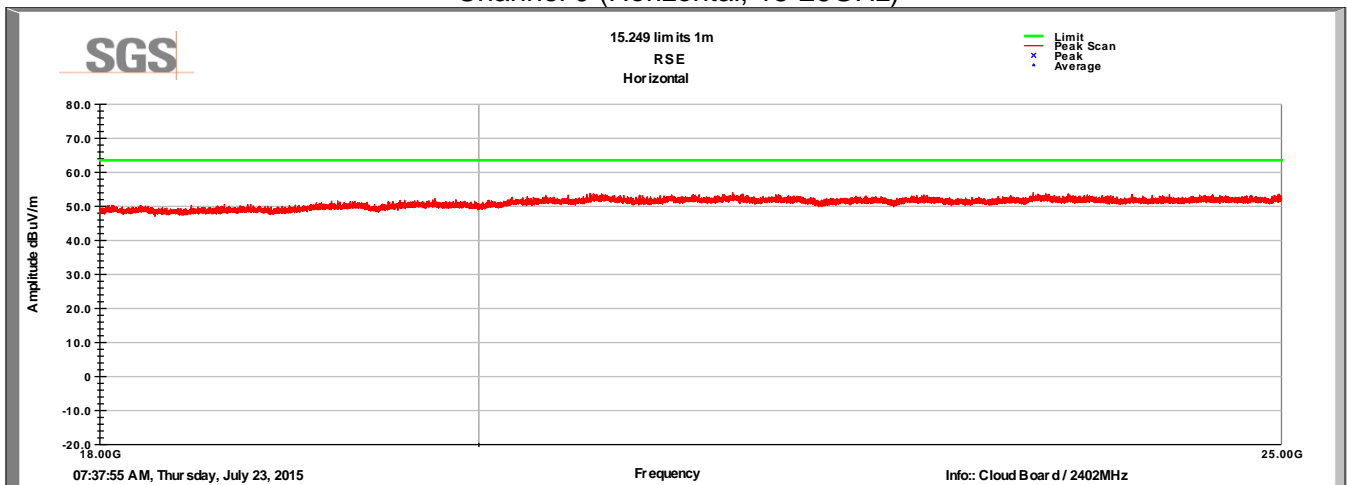


Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4739.20	29.7	H	148.0	153.0	34.6	2.9	33.1	34.2	54.0	-19.8
4868.00	37.1	H	184.0	324.0	34.6	3.0	33.1	41.6	54.0	-12.3
7206.00	42.9	H	299.0	305.0	35.8	3.8	33.2	49.4	54.0	-4.6
9609.80	30.0	H	265.0	221.0	36.8	4.5	32.1	39.2	54.0	-14.8
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

### Channel 0 (Vertical, 18-26GHz)

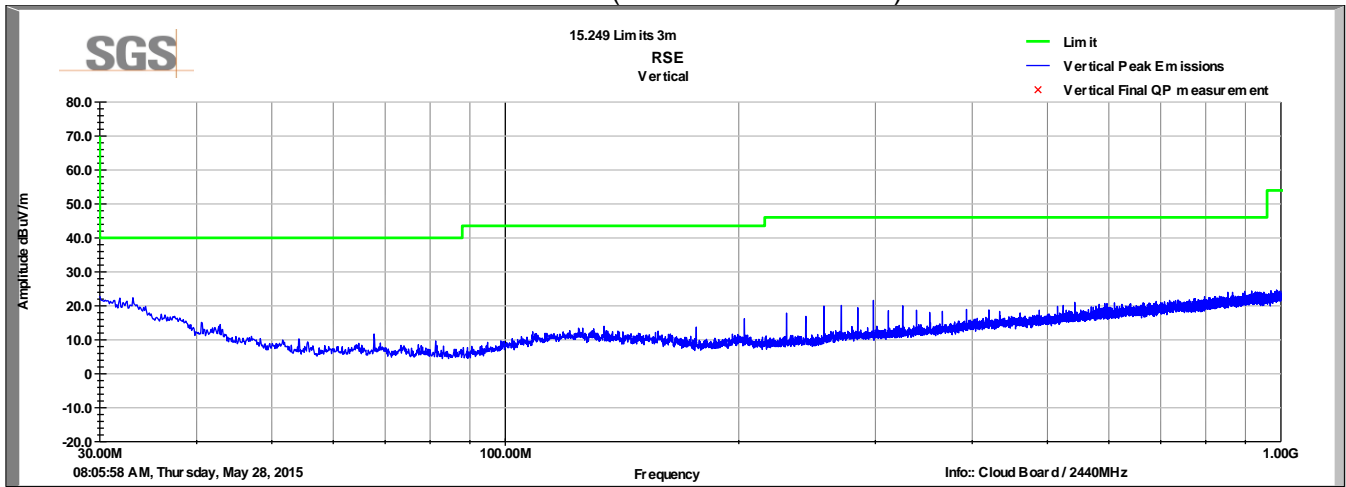


### Channel 0 (Horizontal, 18-26GHz)

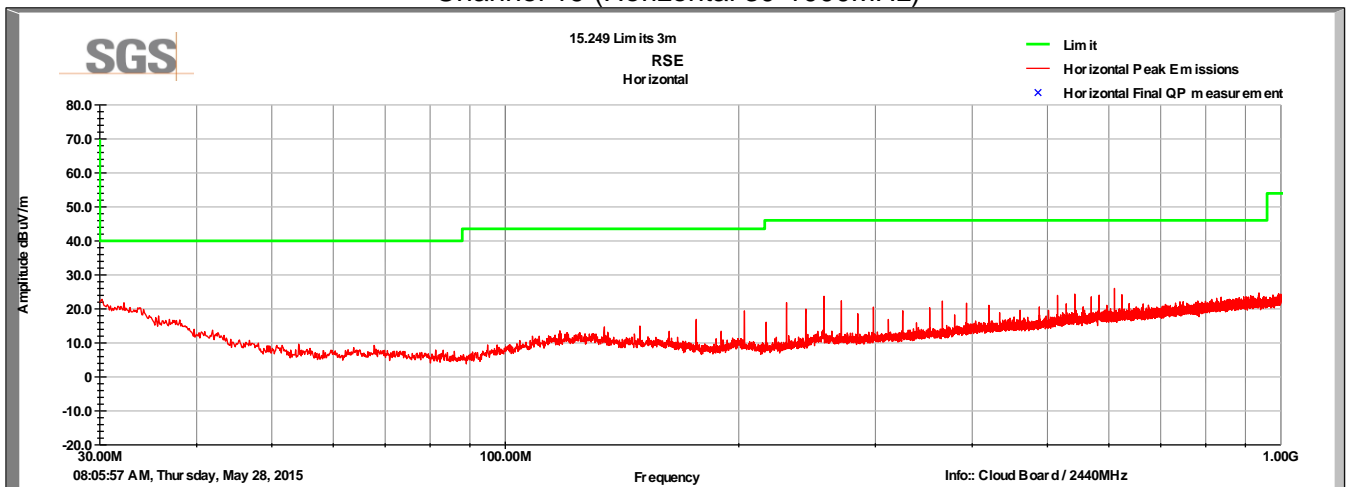




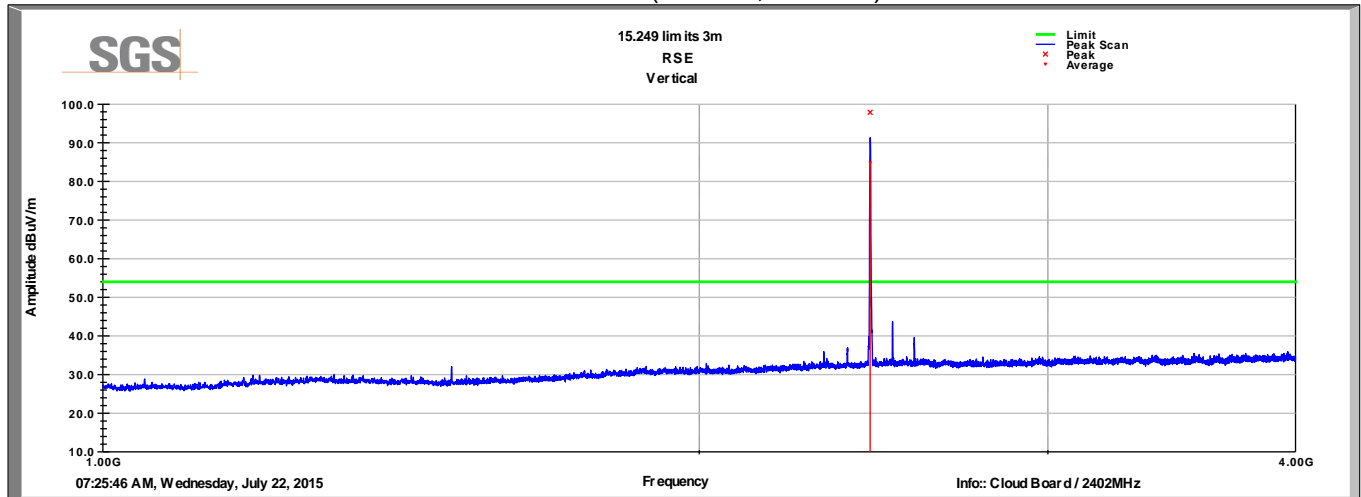
## Channel 19 (Vertical 30-1000MHz)



## Channel 19 (Horizontal 30-1000MHz)

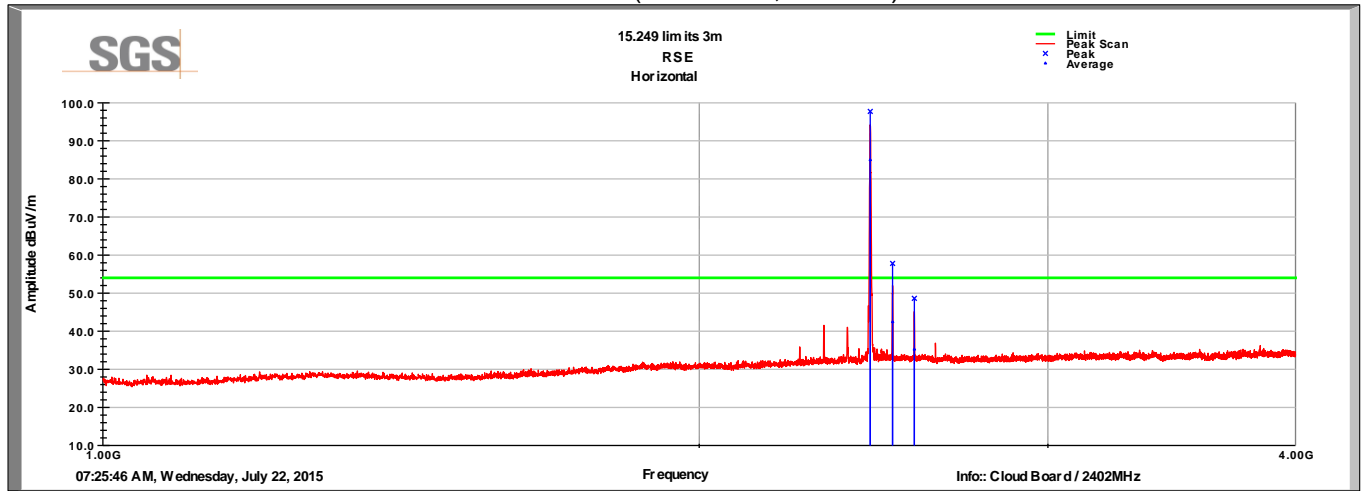


### Channel 19 (Vertical, 1-4GHz)



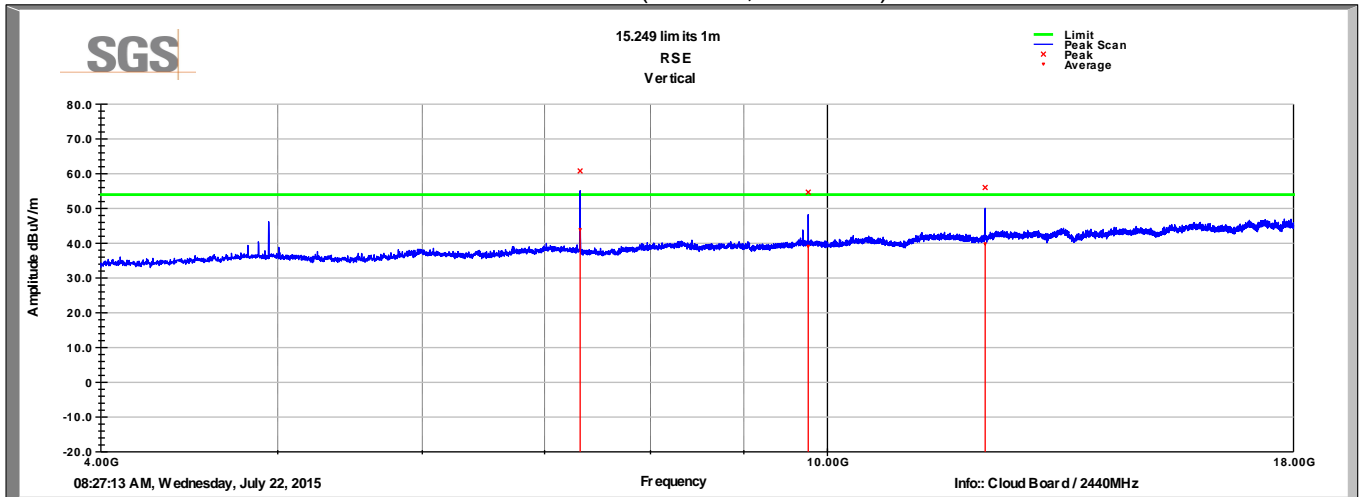
No peak spurs with 10dB of the average limit

### Channel 19 (Horizontal, 1-4GHz)



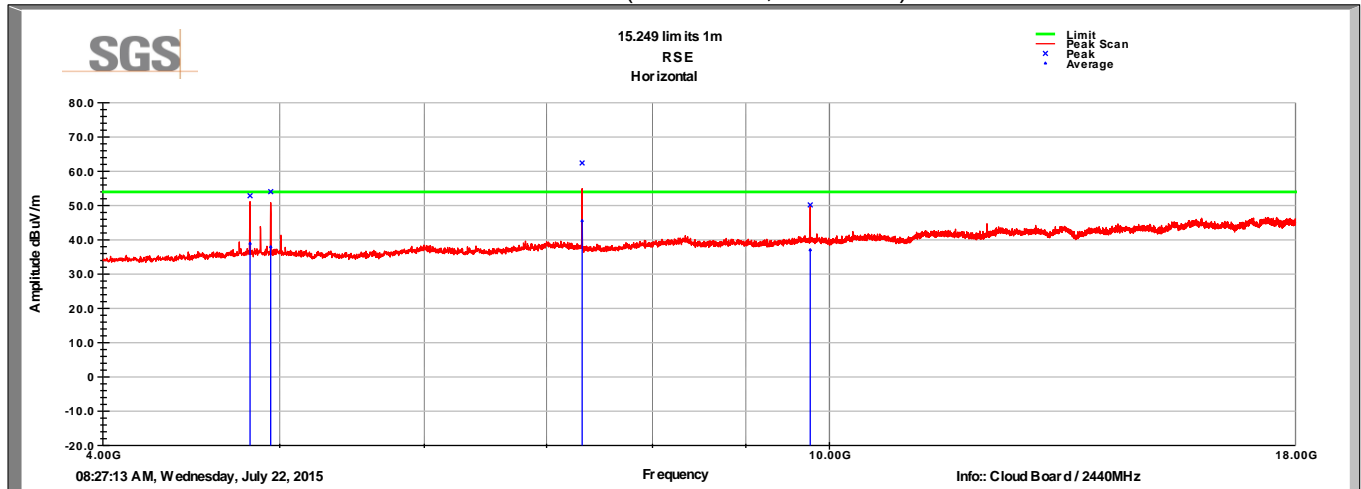
Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2504.20	40.9	H	137.0	100.0	32.5	2.1	33.0	42.5	54.0	-11.5
2568.40	33.6	H	103.0	250.0	32.5	2.1	33.0	35.3	54.0	-18.7
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

Channel 19 (Vertical, 4-18GHz)



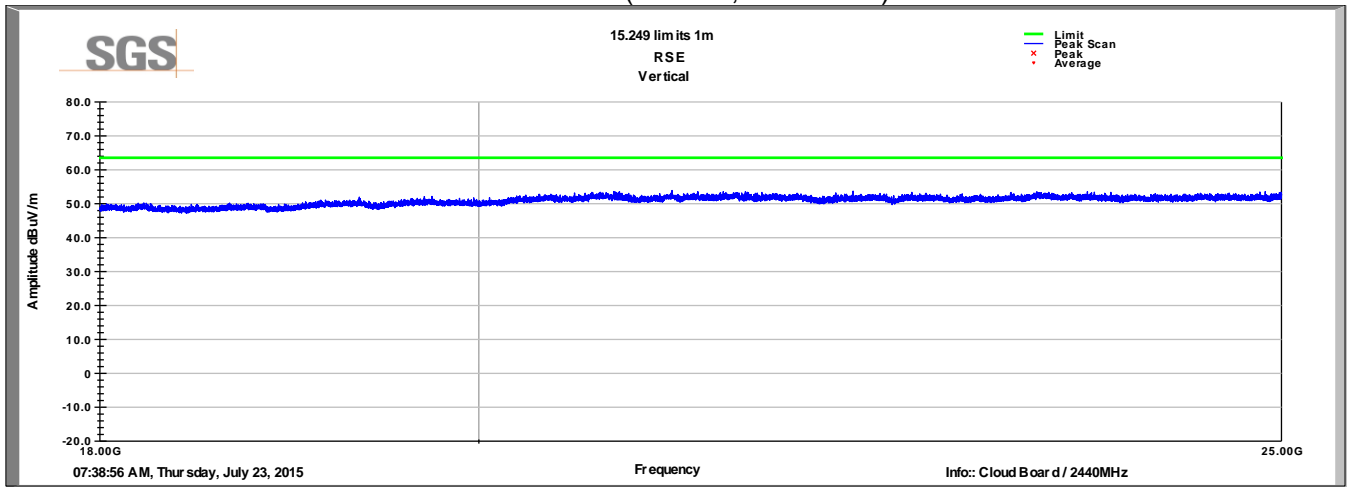
Frequency MHz	Raw Avg (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value dBuV/m	Limit (dBuV/m)	Margin (dB)
7320.80	37.3	V	61.0	136.0	35.9	3.9	33.1	44.0	54.0	-10.0
9761.00	29.7	V	67.0	342.0	36.9	4.5	32.0	39.1	54.0	-14.8
12201.20	28.5	V	272.0	100.0	39.0	5.0	32.7	39.8	54.0	-14.1
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

## Channel 19 (Horizontal, 4-18GHz)

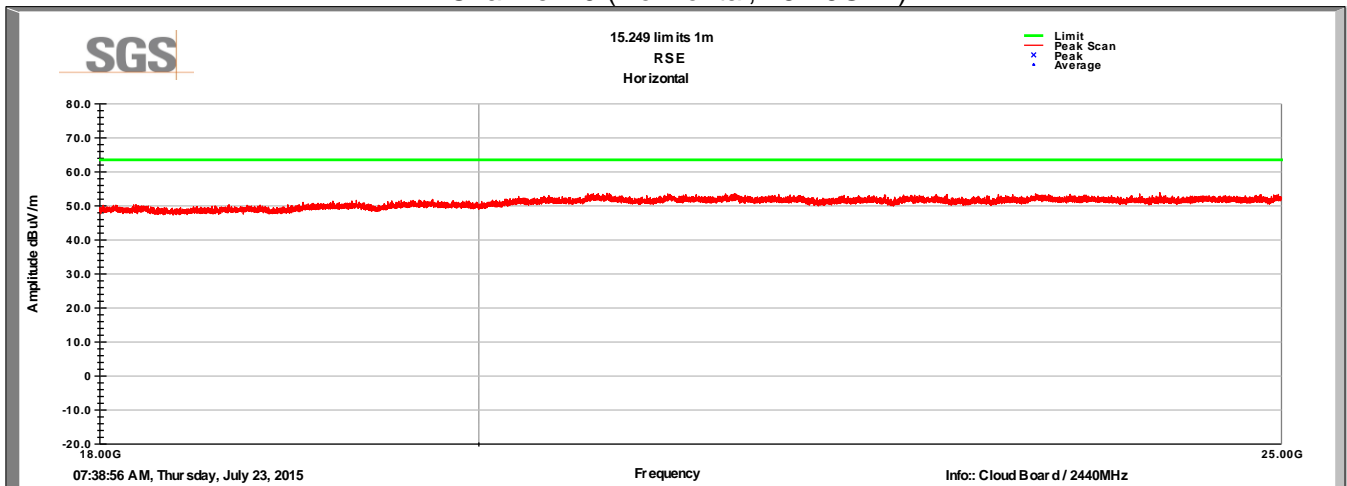


Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4816.20	34.4	H	162.0	172.0	34.7	2.9	33.1	39.0	54.0	-15.0
4943.60	33.4	H	195.0	116.0	34.6	3.0	33.1	38.0	54.0	-16.0
7320.80	38.9	H	291.0	333.0	35.9	3.9	33.1	45.6	54.0	-8.4
9761.00	27.6	H	253.0	153.0	36.9	4.5	32.0	37.1	54.0	-16.9
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

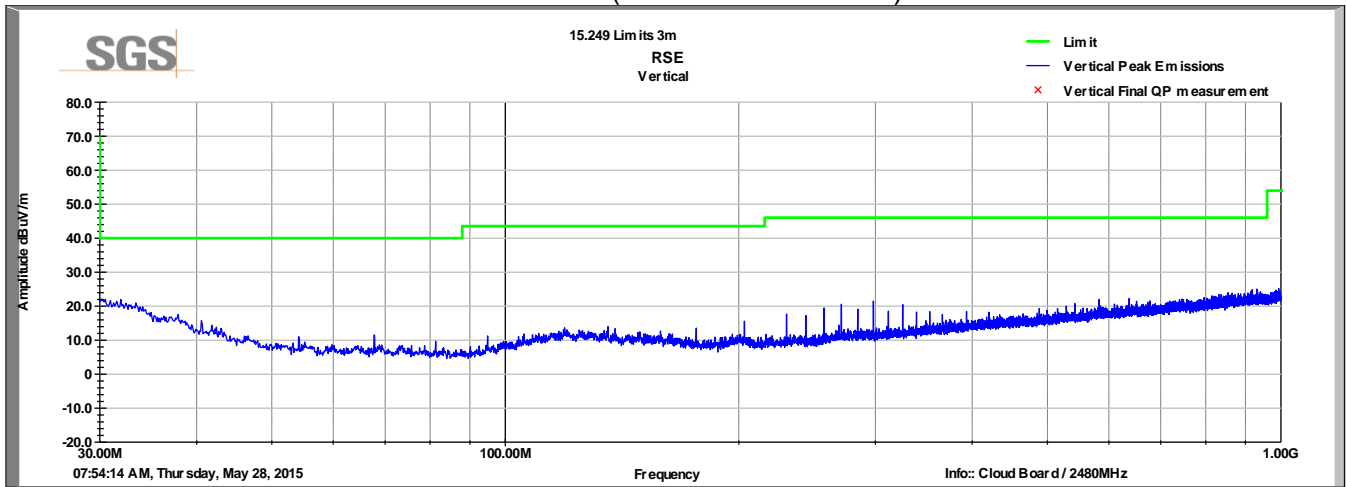
### Channel 19 (Vertical, 18-26GHz)



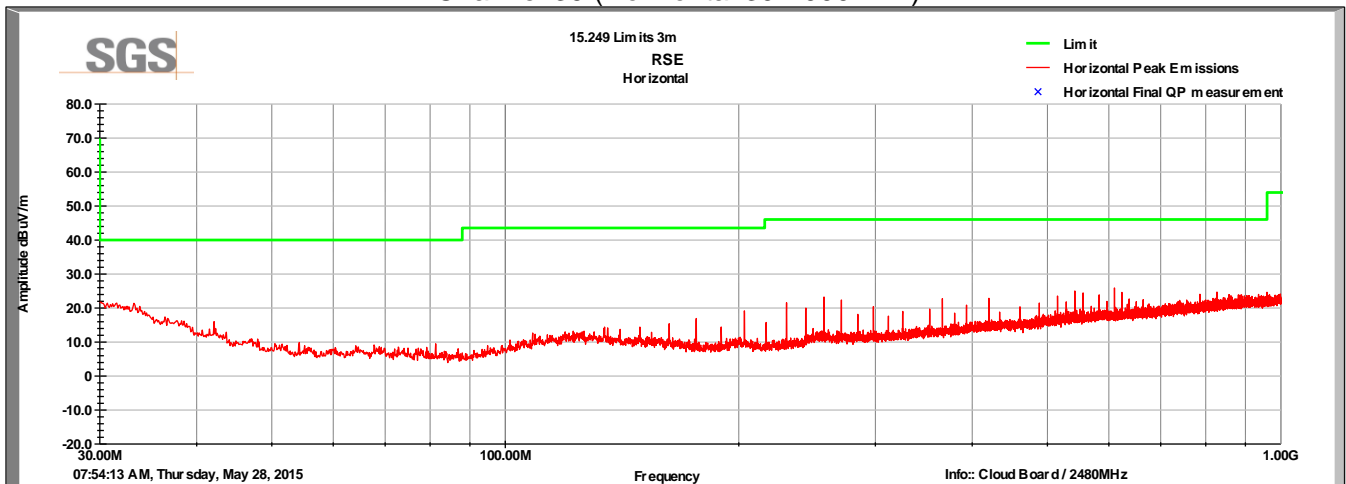
### Channel 19 (Horizontal, 18-26GHz)



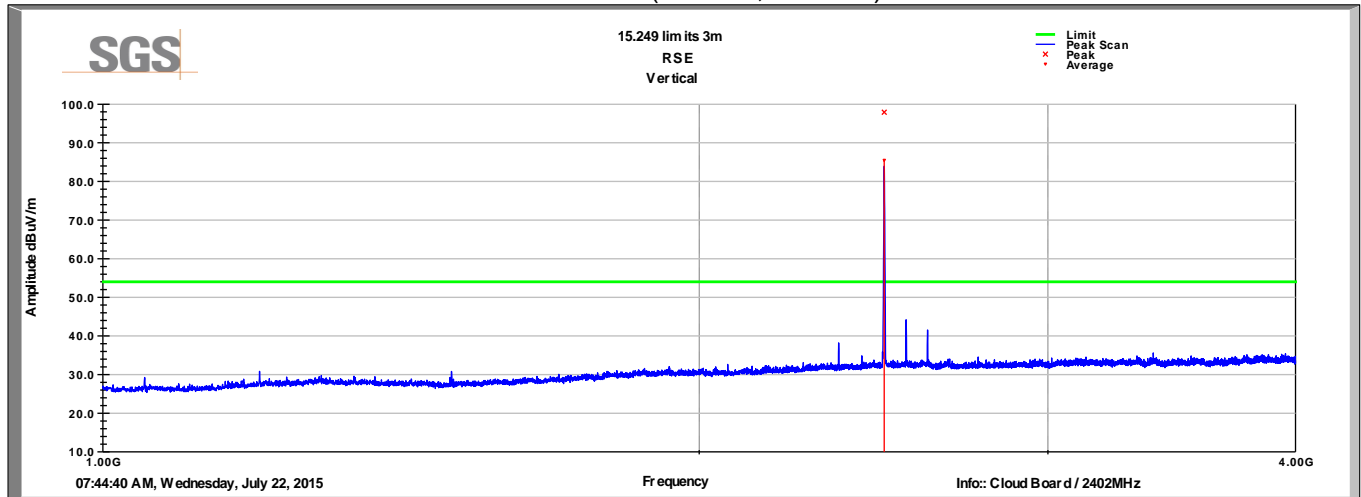
## Channel 39 (Vertical 30-1000MHz)



## Channel 39 (Horizontal 30-1000MHz)



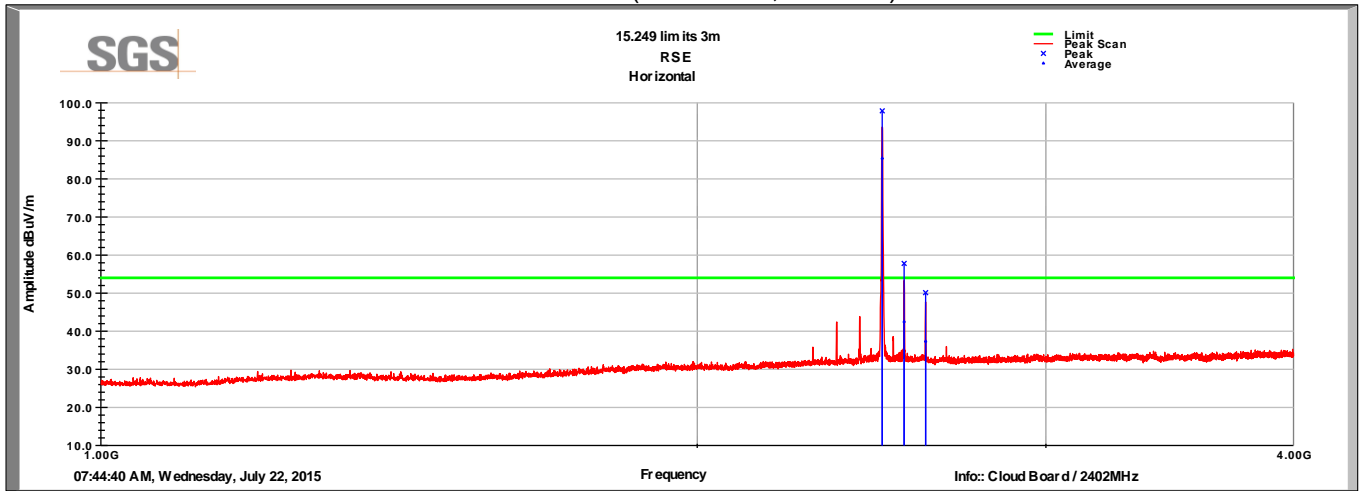
### Channel 39 (Vertical, 1-4GHz)



No peak spurs with 10dB of the average limit

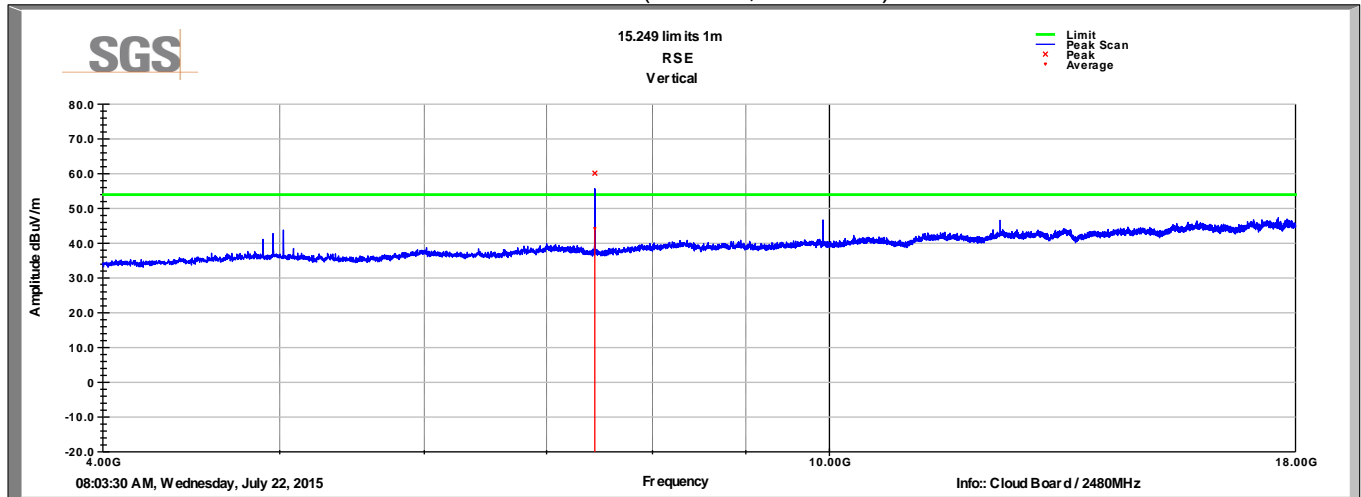


## Channel 39 (Horizontal, 1-4GHz)



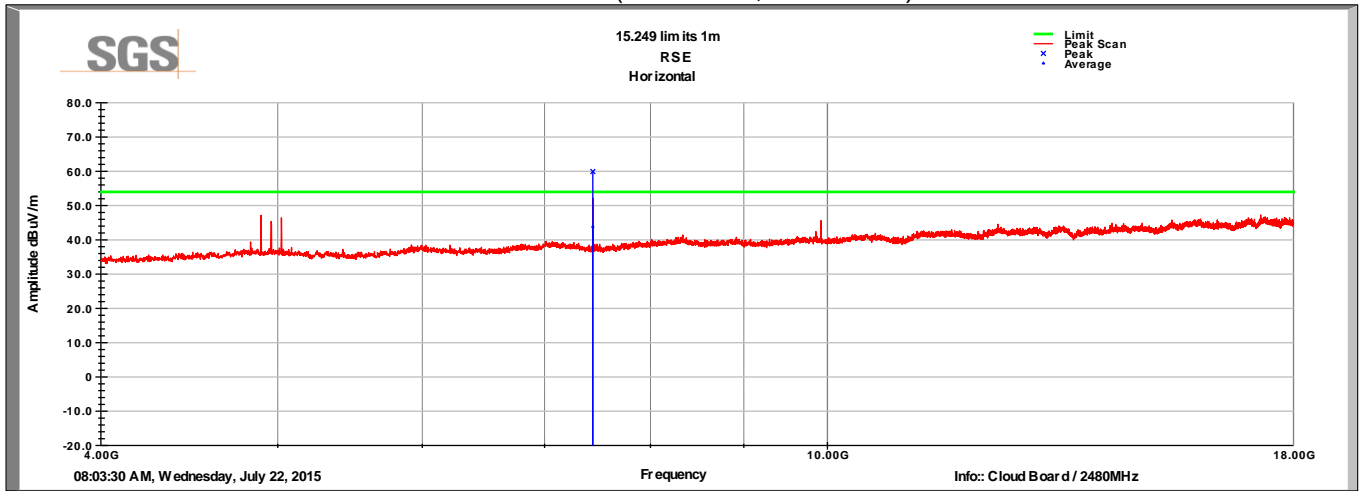
Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2544.10	41.0	H	136.0	106.0	32.5	2.1	33.0	42.6	54.0	-11.4
2608.30	35.8	H	142.0	126.0	32.5	2.1	33.0	37.4	54.0	-16.6
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

### Channel 39 (Vertical, 4-18GHz)



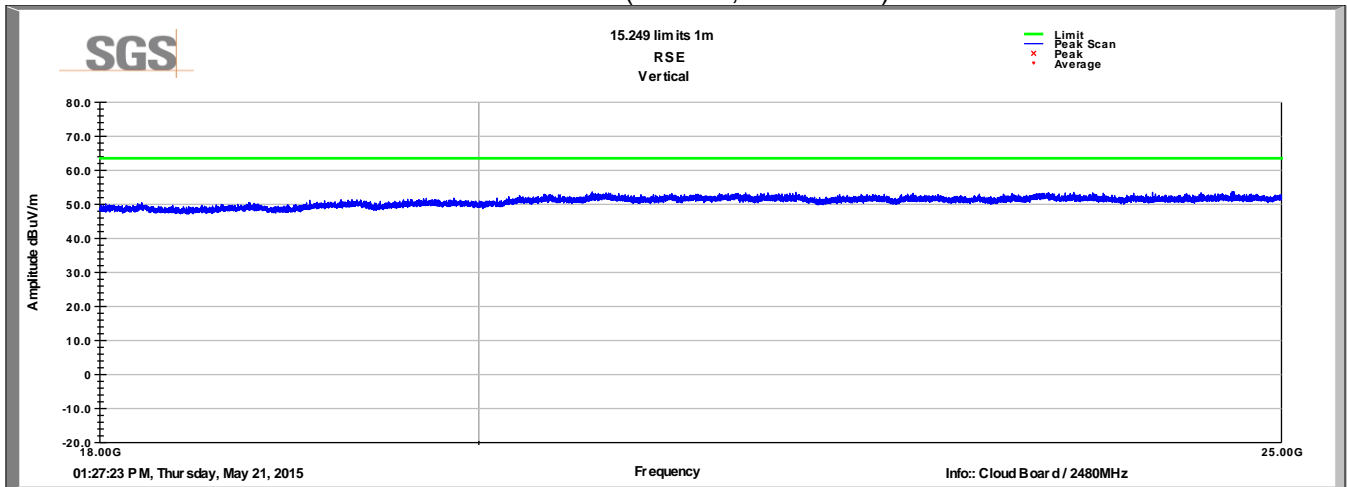
Frequency MHz	Raw Avg (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value dBuV/m	Limit (dBuV/m)	Margin (dB)
7439.80	37.6	V	66.0	116.0	35.8	4.0	33.1	44.3	54.0	-9.7
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

## Channel 39 (Horizontal, 4-186GHz)

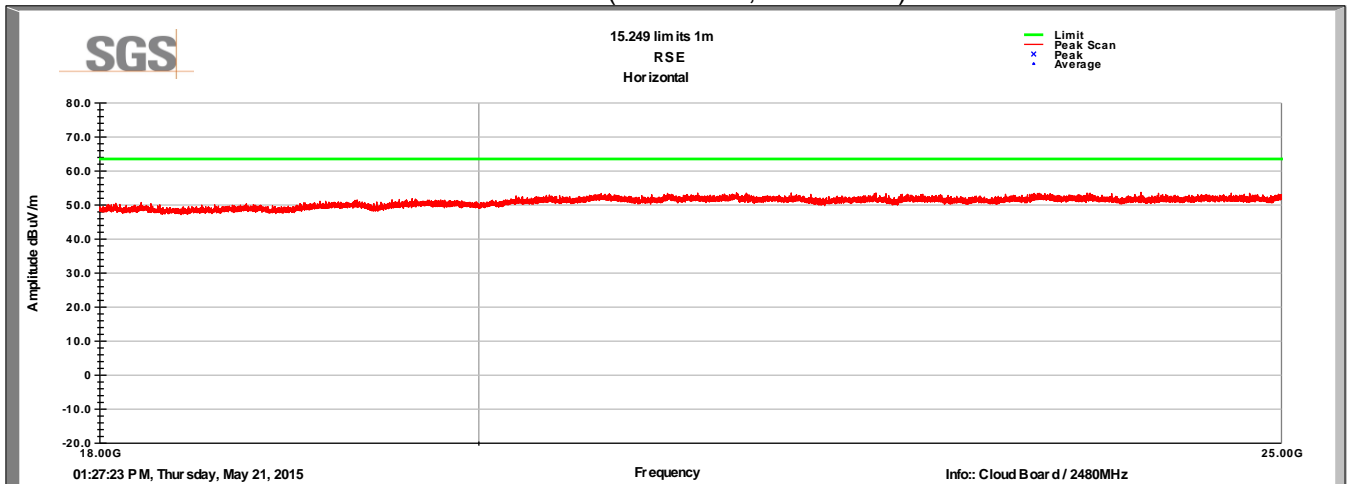


Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	CL (dB)	Amp (dB)	Avg Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
7439.80	37.2	H	307.0	248.0	35.8	4.0	33.1	43.9	54.0	-10.1
Avg Value = Level + AF + CL - Amp										
Margin = Avg Value - Limit										

### Channel 39 (Vertical, 18-26GHz)



### Channel 39 (Horizontal, 18-26GHz)



## 6 Radiated Emissions at Band Edge

### 6.1 Test Result

Test Description	Test Specification	Test Result
Field strength of spurious radiation	15.247 (d) and 15.249	Compliant

### 6.2 Test Method

Peak and average field strength measurements were performed at the restricted band edges of 2390MHz and 2483.5MHz. Measurements were completed using radiated test setups. Measurements at the 2390MHz band edge were performed using the standard emissions measurement methods of ANSI C63.10, Section 6.9.2. Measurements at the 2483.5MHz band edge were performed using the marker delta method as defined in ANSI C63.10, Section 6.9.3. The resultant data were compared to the average limit of 54 dB $\mu$ V/m and peak limit of 74 dB $\mu$ V/m.

### 6.3 Test Site

10m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions

Temperature: 22.4 °C

Relative Humidity: 48.7 %

### 6.4 Test Equipment

Test Date: 22-Jul-2015

Eng: JOP

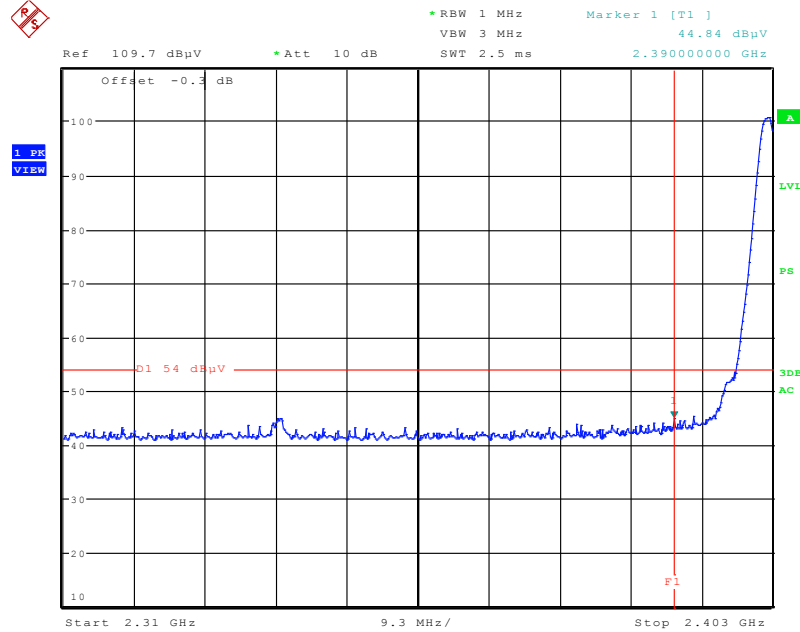
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	28-Jul-2015
DRG HORN (MEDIUM)	3117	ETS-LINDGREN	B079699	14-Apr-2016
RF CABLE - 7000MM (10KHZ - 18GHZ)	SF106	HUBER&SUHNER	B079712	4-Aug-2015
PREAMPLIFIER-ANTENNA SYS	TS-PR18	ROHDE & SCHWARZ	B094463	13-Feb-2016

Note: The calibration period equipment is 1 year.

## 6.5 Test Data

## 6.6 Test Data

BT LE, Ch0



Date: 22.JUL.2015 09:41:25

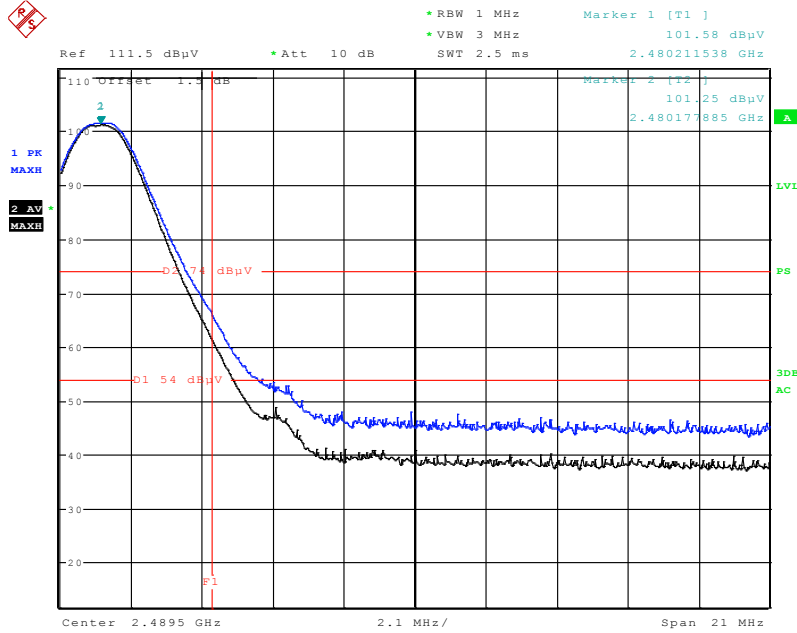
BT LE, Ch39

Marker Delta Calculations

Marker-Delta Method							
Detector	A 2480MHz 1MHz RBW (dBuV/m)	B 2480MHz 30kHz RBW (dBuV/m)	C 2483.5MHz 30kHz RBW (dBuV/m)	D Delta (dB)	E Corrected Measurement (dBuV/m)	F Limit (dBuV/m)	G Margin (dB)
Peak	101.58	96	36.24	59.76	41.82	74	-32.2
Average	101.25			59.76	41.49	54	-12.5

Formulas: D=B-C  
E=A-D  
G=E-F

## Channel 39 – 1MHz RBW

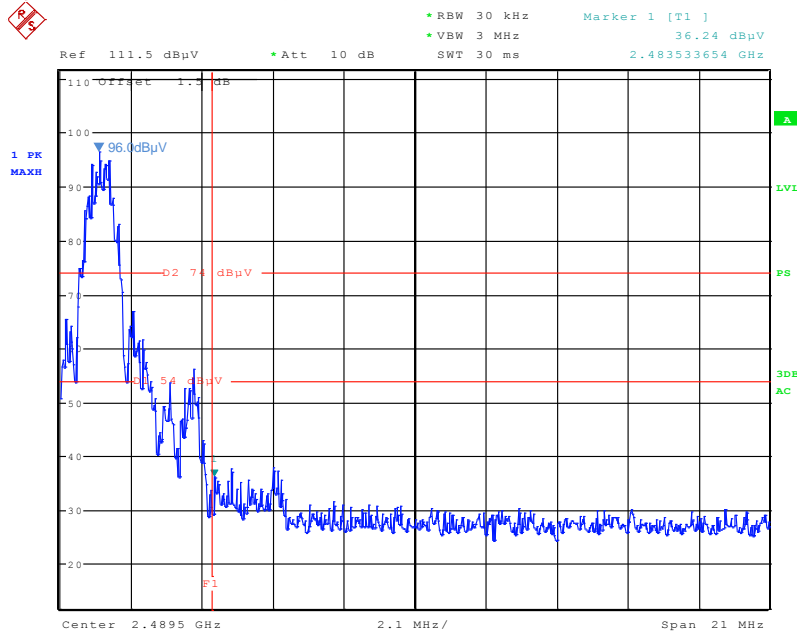


Date: 22.JUL.2015 10:58:10

Peak Fundamental = 101.58dBμV/m

Average Fundamental = 101.25 dBμV/m

## Peak @ 2483.5MHz (30kHz RBW)



Date: 22.JUL.2015 11:00:47

## 7 Conducted Emissions

### 7.1 Test Result

Test Description	Basic Standards	Test Result
Conducted Emissions, Class B	FCC Part 15, Subpart B ANSI C63.4:2009	Compliant

### 7.2 Test Method

With the receivers resolution bandwidth was set to 9 kHz the initial preliminary exploratory scans were performed over the measuring frequency range (0.15MHz to 30MHz) using a max hold mode incorporating a Peak detector and Average detector and using the TILE! software. The final test data was measured using a Quasi-Peak detector and Average detector and compared against the limits indicated in the table below.

Frequency Range	Class A Limits (dBuV)		Class B Limits (dBuV)	
	FCC	CISPR	FCC	CISPR
0.15 to 0.5 MHz	Avg 66 QP 79		Avg 56 to 46 QP 66 to 56	
0.5 to 5 MHz	Avg 60 QP 73		Avg 46 Pk 56	
5 to 30 MHz	Avg 60 QP 73		Avg 50 Pk 60	

### 7.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 22.4°C

Relative Humidity: 48.7%

Atmospheric Pressure: 97.67 kPa

### 7.4 Test Equipment

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
TWO-LINE V-NETWORK	NNB 51	TESEQ	B085882	23-Sep-2015
COAXIAL CABLE	CBL-25FT-NMNM	Mini-Circuit	B094941	5-Aug-2015
EMI TEST RECEIVER	ESU08	ROHDE & SCHWARZ	B085759	26-Jun-2015

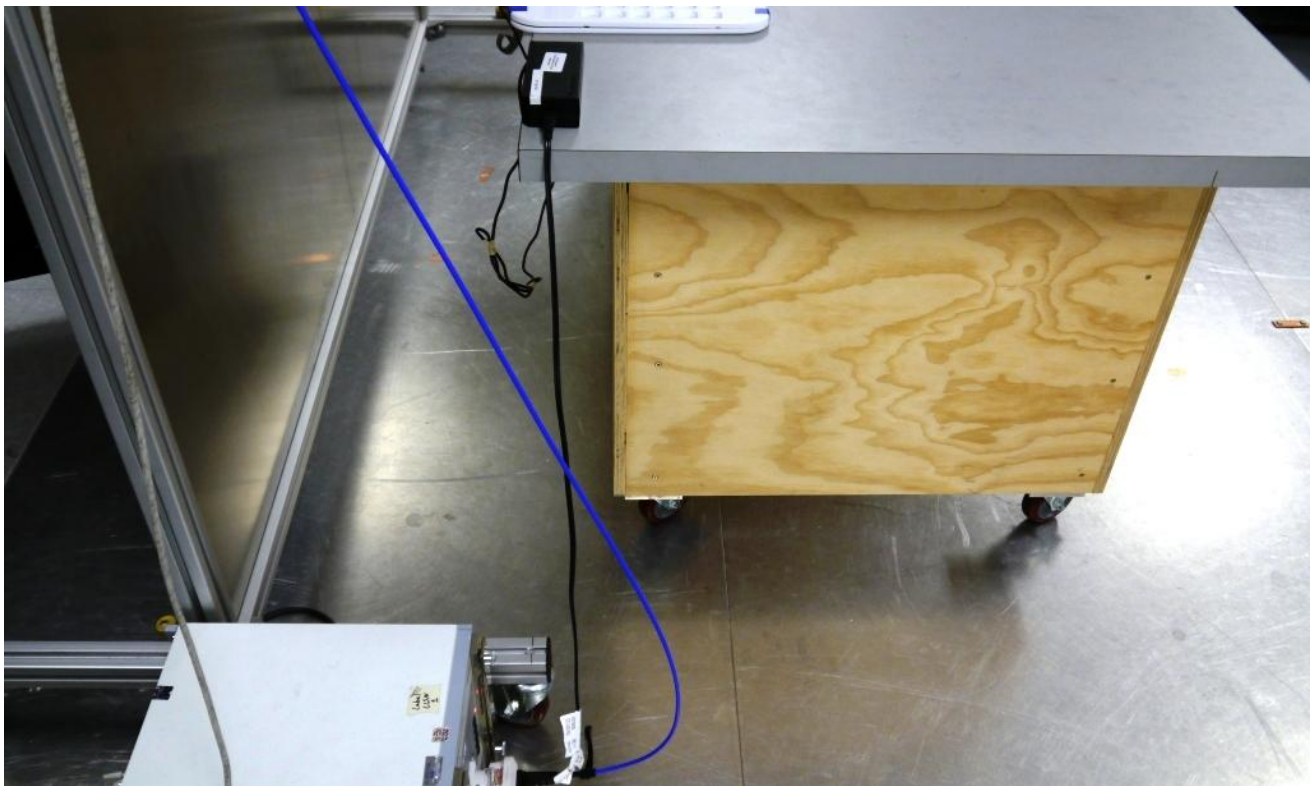
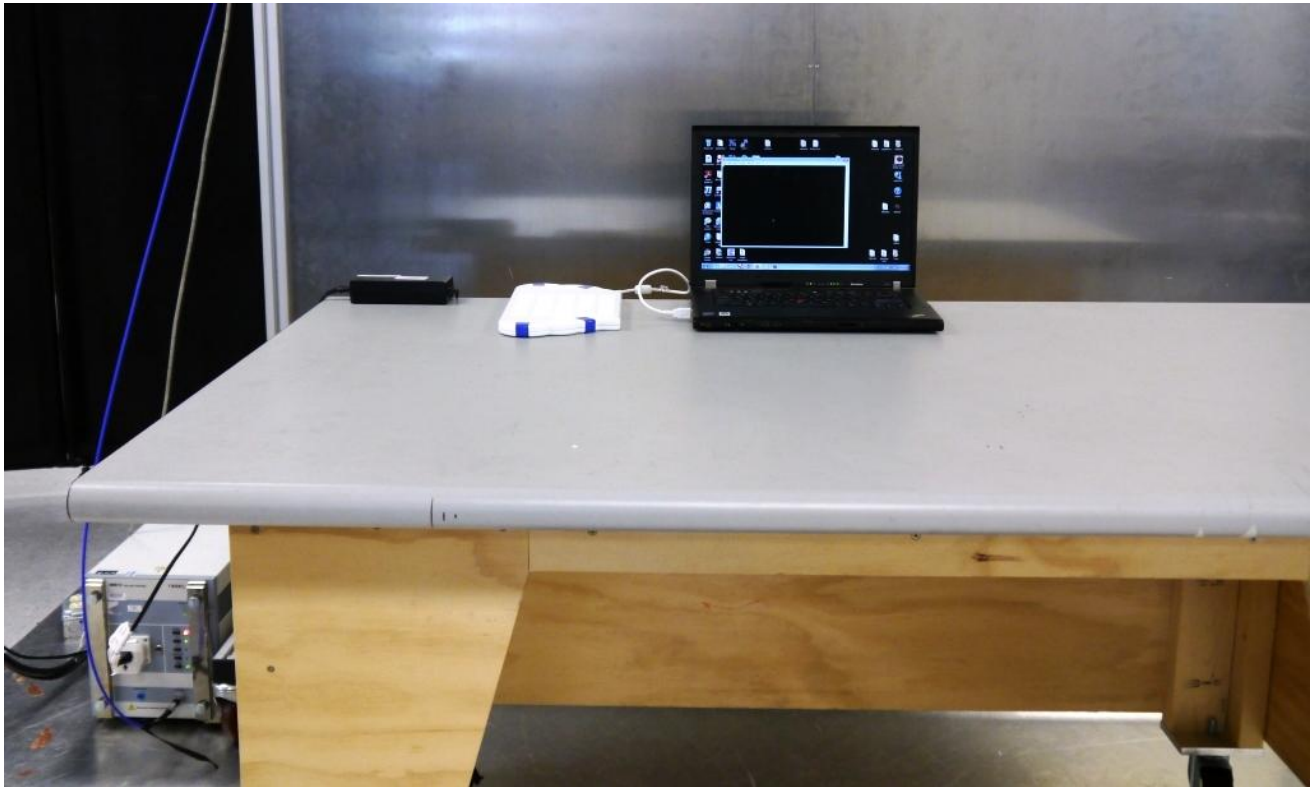
Note: The calibration period equipment is 1 year.

Software:

"Conducted Emissions" TILE! profile dated 6 Mar 2013



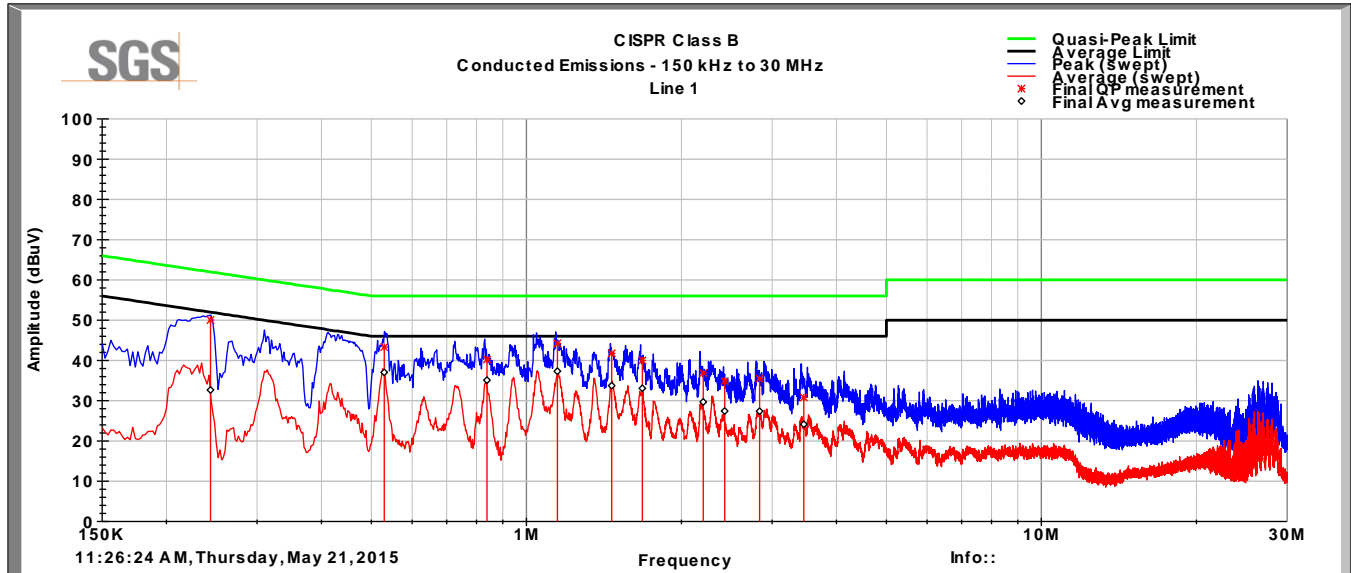
## 7.5 Test Setup Photographs



## 7.6 Test Data

### Conducted Emissions Plot 150-30MHz

Line 1

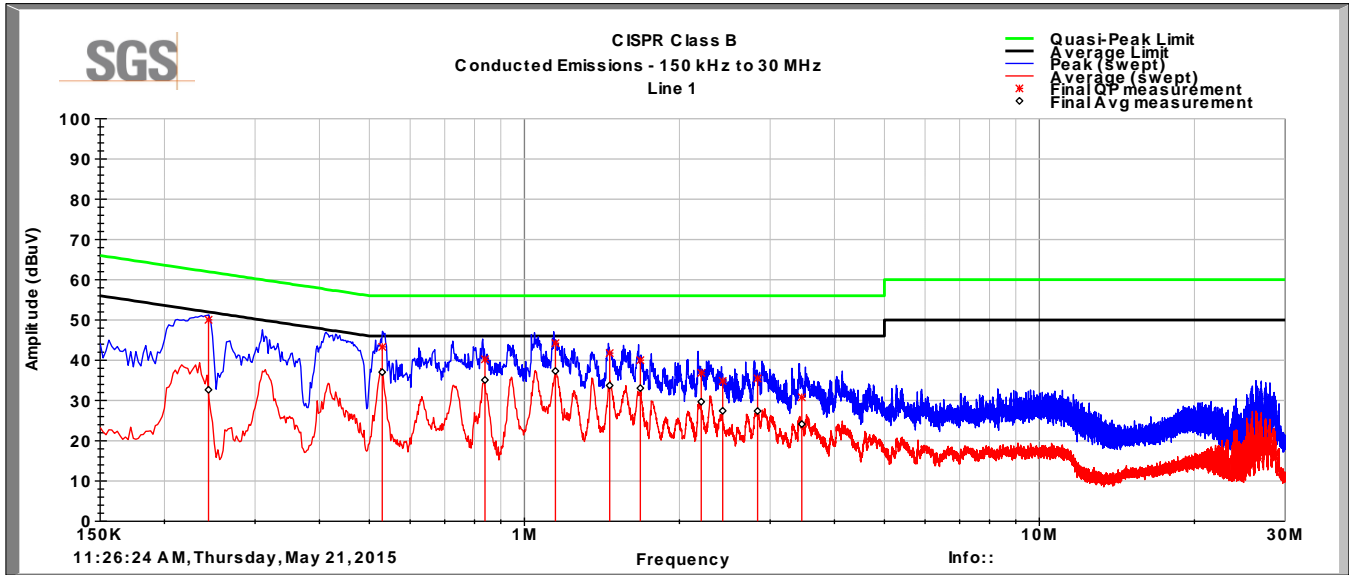


### Conducted Emissions Data 150-30MHz

Line 1

Frequency (MHz)	QP Value (dBuV)	QP Limit (dBuV)	Margin (dB)	Avg Value (dBuV)	Avg Limit (dBuV)	Avg Margin (dB)
0.243	50.0	62.0	-11.9	32.6	52.0	-19.3
0.529	43.3	56.0	-12.7	37.0	46.0	-9.0
0.839	40.2	56.0	-15.8	35.1	46.0	-10.9
1.149	44.2	56.0	-11.8	37.3	46.0	-8.7
1.464	41.7	56.0	-14.3	33.7	46.0	-12.3
1.679	40.0	56.0	-16.0	33.1	46.0	-12.9
2.205	36.9	56.0	-19.1	29.7	46.0	-16.3
2.427	34.8	56.0	-21.2	27.4	46.0	-18.6
2.837	35.5	56.0	-20.5	27.4	46.0	-18.6
3.457	30.8	56.0	-25.2	24.1	46.0	-21.9

### Conducted Emissions Plot 150-30MHz Neutral



### Conducted Emissions Data 150-30MHz Neutral

Frequency (MHz)	QP Value (dBuV)	QP Limit (dBuV)	QP Margin (dB)	Avg Value (dBuV)	Avg Limit (dBuV)	Avg Margin (dB)
0.243	49.3	62.0	-12.7	31.6	52.0	-20.3
0.443	43.2	57.0	-13.9	27.7	47.0	-19.3
0.639	37.1	56.0	-18.9	28.0	46.0	-18.0
0.958	41.0	56.0	-15.0	35.6	46.0	-10.4
1.323	34.6	56.0	-21.4	20.5	46.0	-25.5
1.602	37.8	56.0	-18.2	30.7	46.0	-15.3
1.829	36.0	56.0	-20.0	30.2	46.0	-15.8
2.146	33.8	56.0	-22.2	27.6	46.0	-18.4
2.704	31.2	56.0	-24.8	22.9	46.0	-23.1
3.354	26.9	56.0	-29.1	20.2	46.0	-25.8

## 8 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	9 June 2015
1	<ul style="list-style-type: none"> <li>- Added conducted emissions test results.</li> <li>- Added tabular data for fundamental measurement.</li> </ul>	21 July 2015