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Report On

Application for Grant of Equipment Authorization Class II
Permissive Change/Reassessment of the
Bluegiga Technologies
WT32 Bluetooth Audio Module Model WT32-N

FCC Part 15 Subpart C §15.247
IC RSS-210 Issue 8 December 2010

Report No. SC1210271D

August 2013

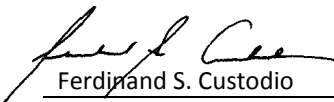


REPORT ON Class II Permissive Change Reassessment of the
Bluegiga Technologies
Bluetooth Audio Module

TEST REPORT NUMBER SC1210271D

PREPARED FOR Bluegiga Technologies
Sinikalliontie 5A, P.O.Box 120
02630 Espoo, Finland

CONTACT PERSON Pasi Rahikkala
BlueGiga Technologies Inc.
HW Compliance Engineer
+358 9 435 5060
pasi.rahikkala@bluegiga.com

PREPARED BY 
Ferdinand S. Custodio
Name
Authorized Signatory
Title: EMC/Wireless Test Engineer

APPROVED BY 
Chip R. Fleury
Name
Authorized Signatory

DATED August 23, 2013



Revision History

SC1210271D Bluegiga Technologies WT32 Bluetooth Audio Module					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
08/23/13	Initial Release				Ferdinand Custodio



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SECTION 1

REPORT SUMMARY

Radio Testing of the
Bluegiga Technologies
Bluetooth Audio Module



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Bluegiga Technologies Bluetooth Audio Module to the requirements of FCC Part 15 Subpart C §15.247 and IC RSS-210 Issue 8 December 2010 as requested by BlueGiga Technologies Inc. for Class II permissive change reassessment. Rationale for C2PC reassessment is detailed under Section 1.3 of this test report.

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Bluegiga Technologies
Model Number(s)	WT32-N
FCC ID Number	QOQWT32AE
IC Number	5132A-BGTWT32AE
Serial Number(s)	N/A
Number of Samples Tested	1
Test Specification/Issue/Date	<ul style="list-style-type: none">• FCC Part 15 Subpart C §15.247 (October 1, 2011).• RSS-210 - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment (Issue 8, December 2010).• RSS-Gen - General Requirements and Information for the Certification of Radio Apparatus (Issue 3, December 2010).
Start of Test	January 04, 2013
Finish of Test	January 07, 2013
Name of Engineer(s)	Ferdinand Custodio
Related Document(s)	SGS Report No.EF/2008/30002~3 Issue Date July 25, 2008. Supporting documents for EUT certification are separate exhibits.



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 with cross-reference to the corresponding IC RSS standard is shown below.

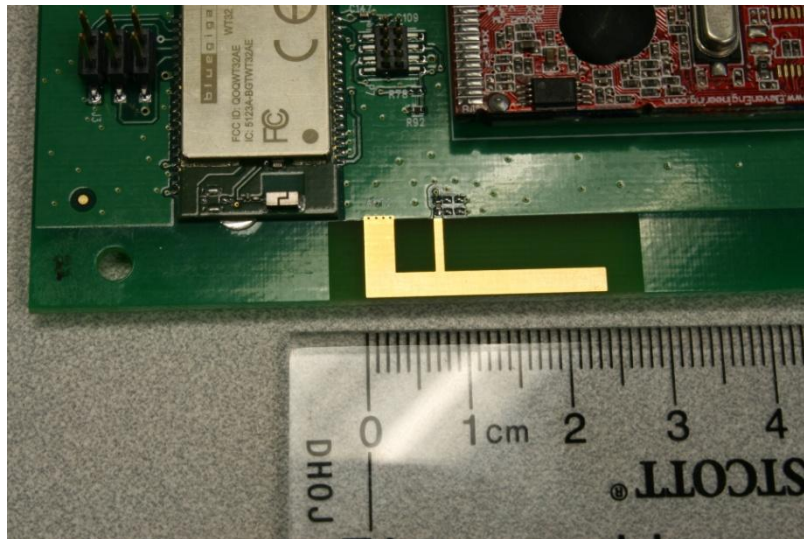
Section	§15.247 Spec Clause	RSS	Test Description	Result
-	§15.207 (a)	RSS-Gen 7.2.4	Conducted Emissions	NA*
-	§15.247(a)(1)	RSS-210 A8.1(b)	Carrier Frequency Separation	NA*
-	§15.247(a)(1)(iii)	RSS-210 A8.1(d)	Number of Hopping Frequencies	NA*
-	§15.247(a)(1)(iii)	RSS-210 A8.1(d)	Time of Occupancy (Dwell Time)	NA*
-	§15.215(c)	RSS-210 A8.1(a)	20 dB Bandwidth	NA*
2.1	§15.247(b)(1)	RSS-210 A8.4(2)	Peak Output Power	Compliant
-	§15.247(d)	RSS-210 A8.5	Band-edge Compliance of RF Conducted Emissions	NA*
-	§15.247(d)	RSS-210 A8.5	Spurious RF Conducted Emissions	NA*
2.2	§15.247(d)	RSS-210 2.2	Spurious Radiated Emissions	Compliant
2.3		RSS-Gen 6.0	Receiver Spurious Emissions	Compliant

NA* Not included in this permissive change. Antenna change would not change previous test results. Test results from Report Number SGS Report No.EF/2008/30002~3 Issue Date July 25, 2008 Issued by: SGS Taiwan Ltd. applies.

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was a BlueGiga Technologies Inc. Bluetooth Audio Module model WT32-N (FCC ID QQQWT32AE/IC Number 5132A-BGTWT32AE). The EUT is being verified with a custom printed antenna (PIFA) by Watkins Manufacturing Corporation located at 1280 Park Center Drive, Vista, CA 92083.



Equipment Under Test



1.3.2 EUT General Description

EUT Description	WT32 Bluetooth Audio Module
Model Number(s)	WT32-N
Rated Voltage	3.7VDC Nominal voltage.
Output Power	1.47 mW (Conducted)
Frequency Range	2402 MHz to 2480 MHz
Number of Operating Frequencies	79
Channels Verified	Channel 1 (Low Channel 2402 MHz) Channel 20 (Mid Channel 2441 MHz) Channel 38 (High Channel 2480 MHz)
Antenna Type (used during evaluation)	Planar Inverted-F Antenna (PIFA)
Antenna Gain	0 dBi
EUT Antenna Connector	N/A (custom printed antenna)
Modulation Used	FHSS (GFSK, 8DPSK and $\pi/4$ -DQPSK)

1.3.3 Test Antenna Details

Model	Wireless Audio Antenna
Manufacturer	Watkins Mfg. Corp.
Antenna Type	2.45 GHz Planar inverted F top loaded monopole
Antenna Gain (Peak)	0 dBi
EUT Antenna Connector	N/A (printed type - multiple wavelength ground plane/counterpoise).
Maximum Dimensions	8.5852mm x 23.876mm

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
Default	Radiated emissions test configuration. EUT configured to transmit on the PCB integral antenna.

1.4.2 EUT Exercise Software

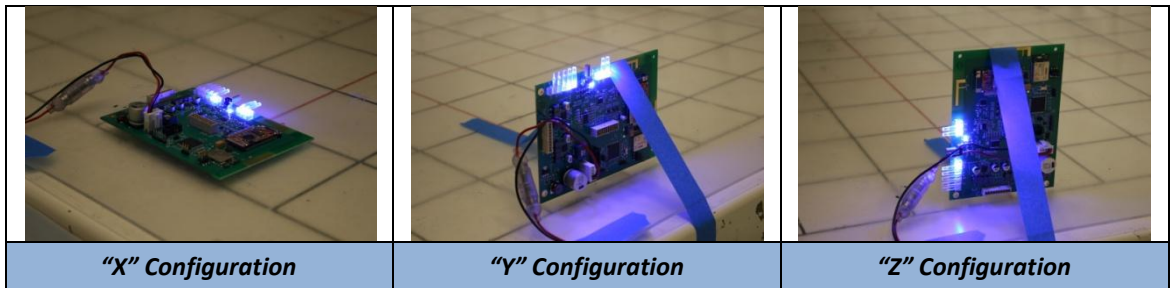
The client provided Bluetooth development software (CSR BlueSuite 2.4) to configure the Bluegiga Technologies WT32 Bluetooth Audio Module. The power level setting was adjusted as required before each test to verify maximum transmit power was achieved.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
CUI Inc.	Switching Power Supply	3A-621DA12 12VDC 5.0A AC Adapter
BlueGiga Technologies Inc.	Custom cable	Audio and power cable for the Wireless Music System Amplifier/Receiver (1327401-1)

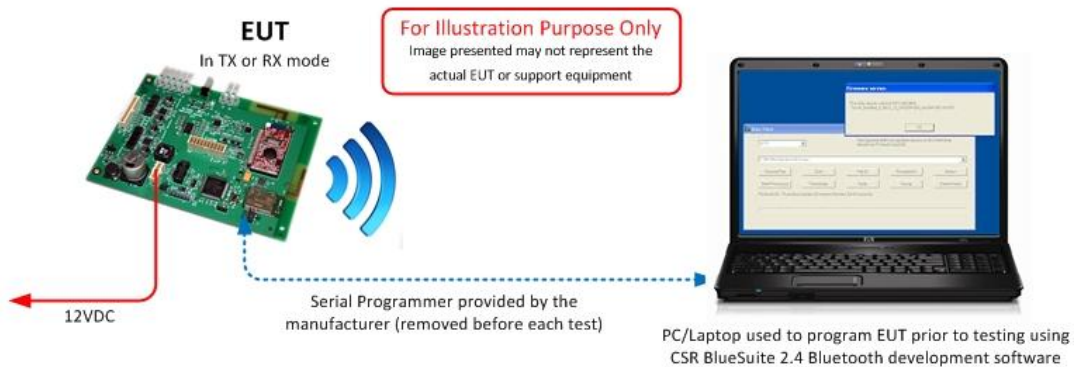
1.4.4 Worst Case Configuration

The EUT uses an integral PCB antenna. For radiated measurements X, Y and Z orientations were verified. Worst case position is "X".



1.4.5 Simplified Test Configuration Diagram

Radiated Test Configuration





1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

Description of Modification	Modification Fitted By	Date Modification Fitted
Serial Number N/A		
N/A		

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

For conducted and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.4-2009. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY

1.8.1 FCC – Registration No.: US5296

TUV SUD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.498 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Registration is US5296.

1.8.2 Industry Canada (IC) Registration No.: 3067A

The 10m Semi-anechoic chamber of TUV SUD America Inc. (San Diego), has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No. 3067A.



SECTION 2

TEST DETAILS

Radio Testing of the
BlueGiga Technologies Inc.
Bluetooth Audio Module



2.1 PEAK OUTPUT POWER

2.1.1 Specification Reference

Part 15 Subpart C §15.247(b)(1)

2.1.2 Standard Applicable

(1) For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

2.1.3 Equipment Under Test and Modification State

Serial No: N/A / Default Test Configuration

2.1.4 Date of Test/Initial of test personnel who performed the test

January 04, 2013/FSC

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions

Ambient Temperature	20.8°C
Relative Humidity	16.7%
ATM Pressure	99.8 kPa

2.1.7 Additional Observations

- This is a radiated test. Fundamental test results are from Spurious Radiated Emissions scans under Section 2.2 of this test report.
- The field strength measurement in dBμV/m is then converted to power in watts using the formula:

$$P = (E*d)^2/30G$$

Where: P = power in watts

E = measured maximum fundamental field strength in V/m

d = measurement distance in meters

G = numeric gain of the transmitting antenna with reference to an isotropic radiator



- Formula used to convert dBµV/m to V/m is: $V/m = 10^{((dB\mu V/m)-120)/20}$
- Formula used to convert antenna gain in dBi to numeric gain is: $Numeric\ gain = 10^{(dBi/10)}$
- Antenna gain used in calculation is 0dBi.

2.1.8 Test Results

See attached table:

Channel	Frequency (MHz)	Radiated Max Peak (dBµV/m)	Radiated Max Peak (V/m)	Calculated Peak Power (Watts)	Original Grant Output Power (Watts)
Low Channel	2402	91.3	0.0367	0.00040	0.00147
Mid Channel	2441	94.9	0.0556	0.00093	0.00147
High Channel	2480	94.7	0.0543	0.00088	0.00147
Test Note: Calculated peak power should be ≤ original grant output power					



2.2 SPURIOUS RADIATED EMISSIONS

2.2.1 Specification Reference

Part 15 Subpart C §15.247(d)

2.2.2 Standard Applicable

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.2.3 Equipment Under Test and Modification State

Serial No: N/A / Default Test Configuration

2.2.4 Date of Test/Initial of test personnel who performed the test

January 04 and 07, 2013/FSC

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Environmental Conditions

Ambient Temperature	20.8-21.0°C
Relative Humidity	16.7-16.9%
ATM Pressure	99.8-100.2 kPa

2.2.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to the 10th harmonic (25GHz).
- There are no emissions found that do not comply to the restricted bands defined in FCC Part 15 Subpart C, 15.205 or Part 15.247(d).
- Measurement was done using EMC32 V8.53 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.2.8 for sample computation.



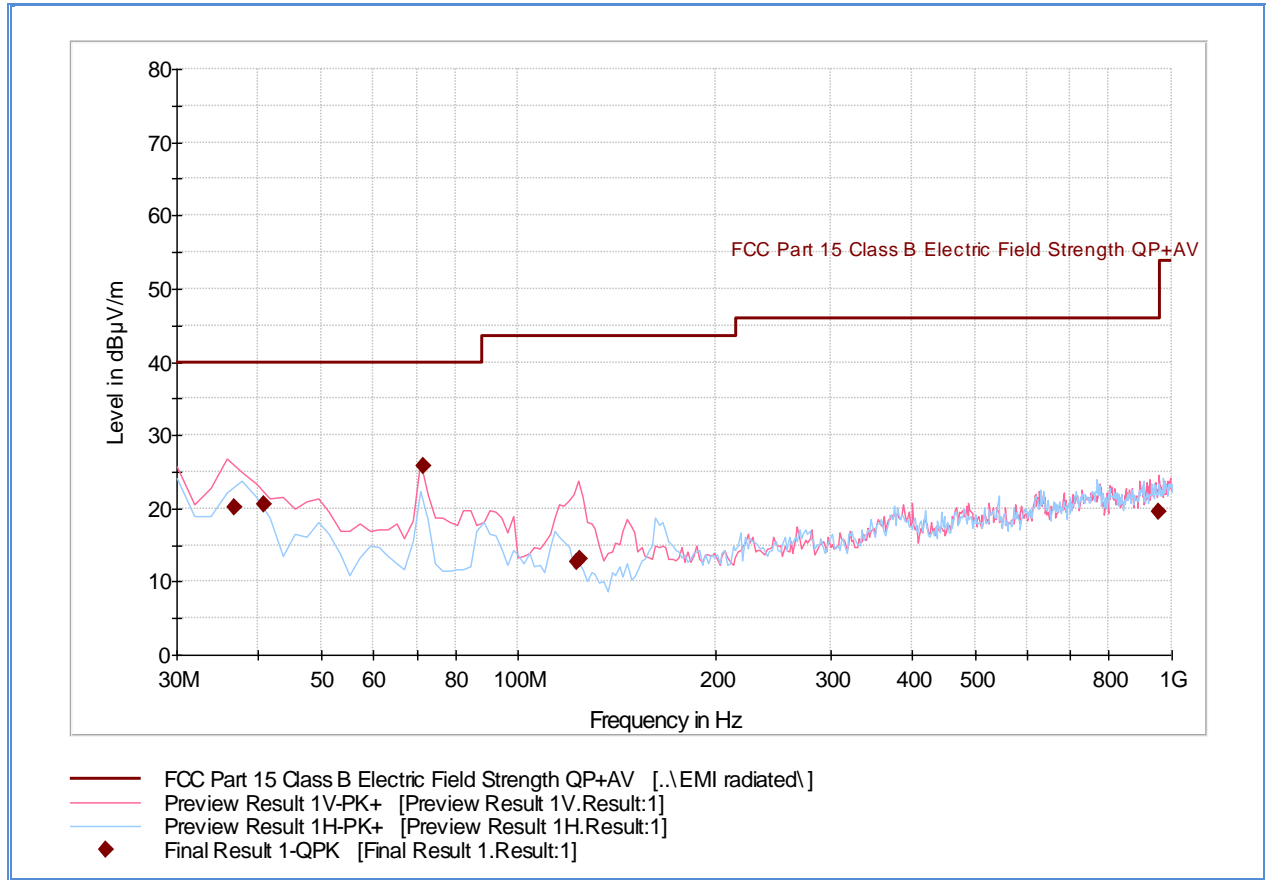
2.2.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (db μ V) @ 30 MHz		24.4
Correction Factor (dB)	Asset# 1066 (cable)	0.3
	Asset# 1172 (cable)	0.3
	Asset# 1016 (preamplifier)	-30.7
	Asset# 1175(cable)	0.3
	Asset# 1002 (antenna)	17.2
Reported QuasiPeak Final Measurement (db μ V/m) @ 30MHz		11.8

2.2.9 Test Results

See attached plots.

2.2.10 Test Results Below 1GHz (Receive Mode)

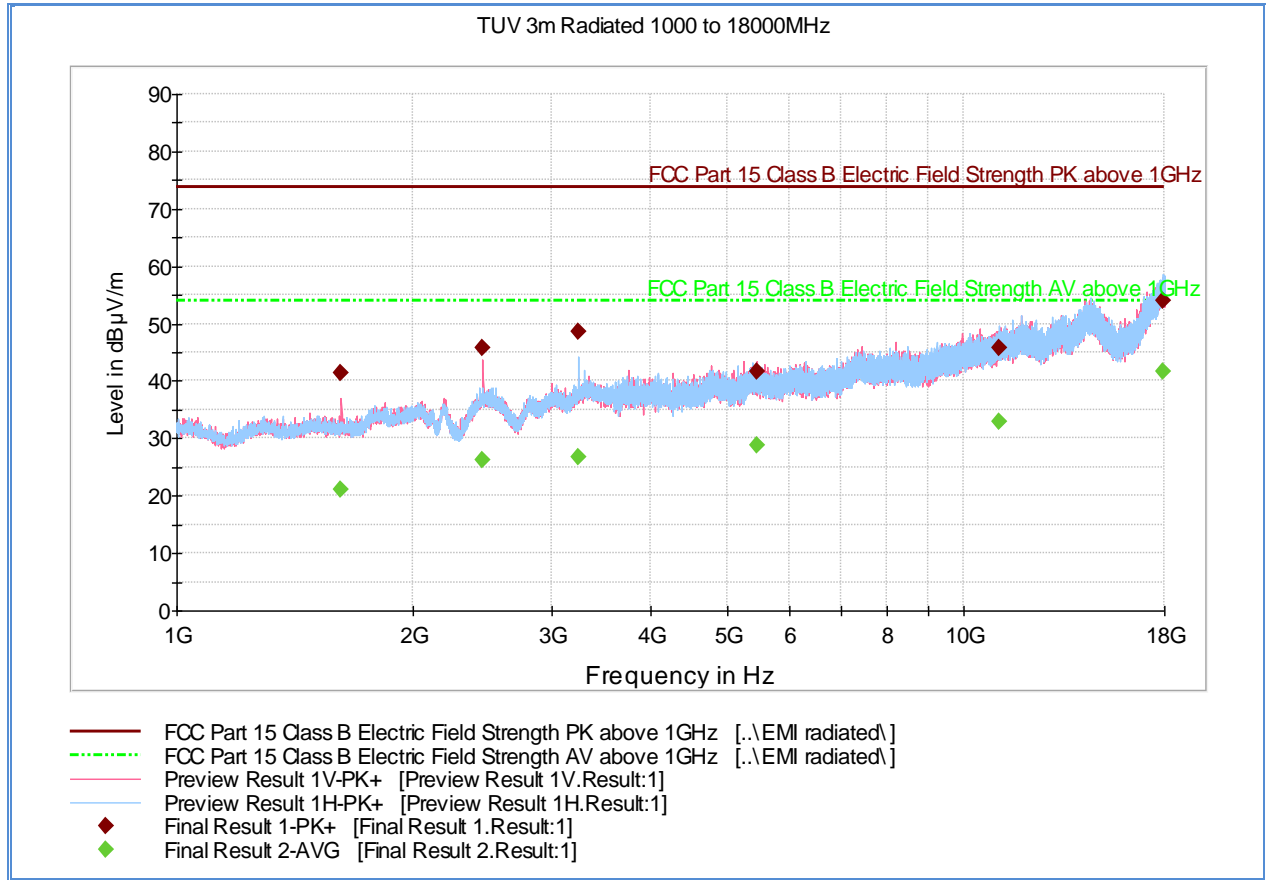


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
36.831663	20.1	1000.0	120.000	117.0	V	93.0	-15.5	19.9	40.0
40.847214	20.6	1000.0	120.000	146.0	V	268.0	-17.4	19.4	40.0
71.541643	25.8	1000.0	120.000	208.0	V	14.0	-21.9	14.2	40.0
122.562725	12.6	1000.0	120.000	100.0	V	220.0	-20.7	30.9	43.5
124.226613	13.1	1000.0	120.000	112.0	V	245.0	-20.7	30.4	43.5
954.530581	19.5	1000.0	120.000	160.0	V	51.0	0.2	26.5	46.0



2.2.11 Test Results Above 1GHz (Receive Mode)



Peak Data

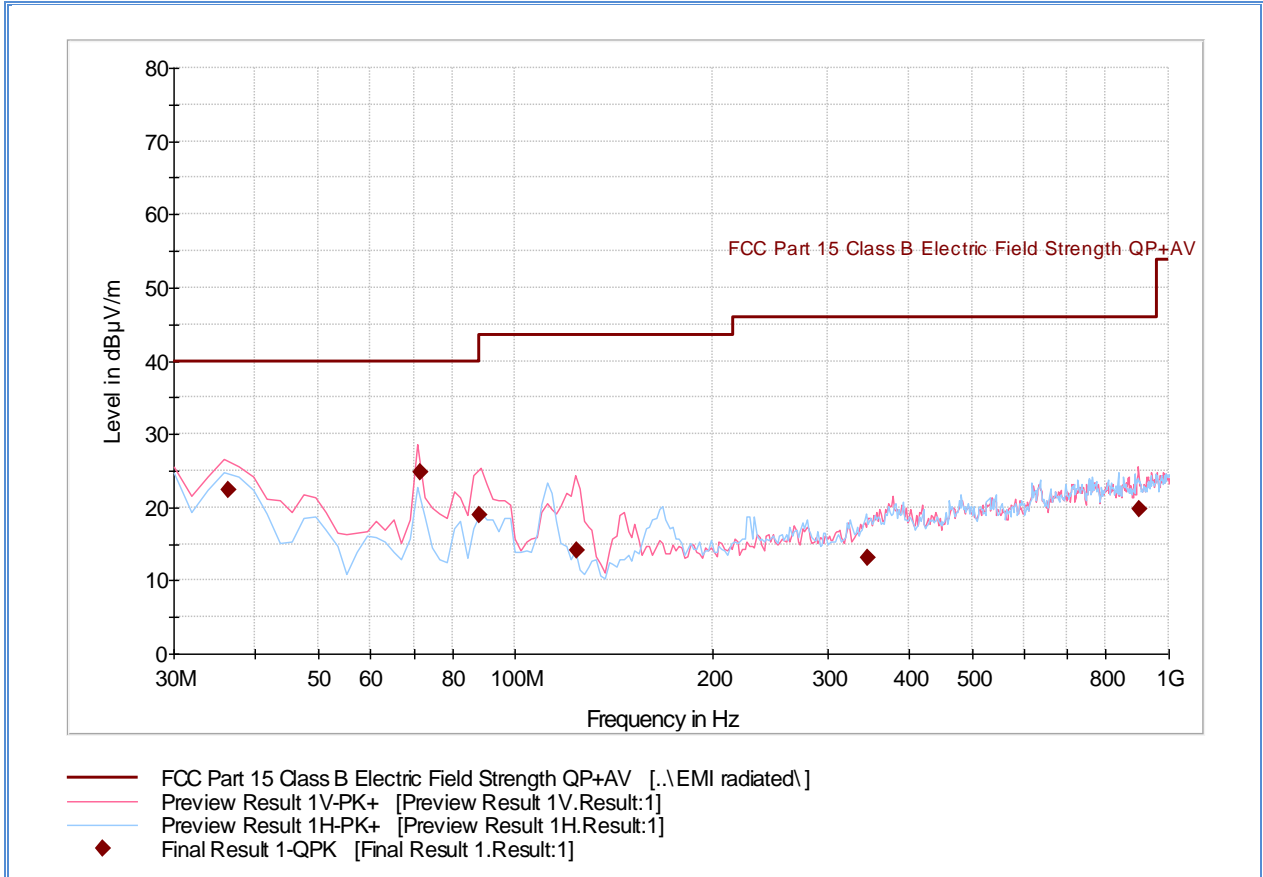
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1618.820000	41.5	1000.0	1000.000	154.0	V	142.0	-8.7	32.4	73.9
2450.400000	45.8	1000.0	1000.000	168.0	V	80.0	-4.7	28.1	73.9
3239.926667	48.7	1000.0	1000.000	181.0	H	160.0	-1.4	25.2	73.9
5465.793333	41.5	1000.0	1000.000	279.0	V	221.0	4.1	32.4	73.9
11109.34666	45.8	1000.0	1000.000	183.0	H	119.0	11.7	28.1	73.9
17956.22666	54.1	1000.0	1000.000	358.0	H	92.0	21.6	19.8	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1618.820000	21.2	1000.0	1000.000	154.0	V	142.0	-8.7	32.7	53.9
2450.400000	26.1	1000.0	1000.000	168.0	V	80.0	-4.7	27.8	53.9
3239.926667	26.6	1000.0	1000.000	181.0	H	160.0	-1.4	27.3	53.9
5465.793333	28.8	1000.0	1000.000	279.0	V	221.0	4.1	25.1	53.9
11109.34666	32.9	1000.0	1000.000	183.0	H	119.0	11.7	21.0	53.9
17956.22666	41.6	1000.0	1000.000	358.0	H	92.0	21.6	12.3	53.9



2.2.12 Test Results Below 1GHz (Mid Channel – Worst Case Configuration)



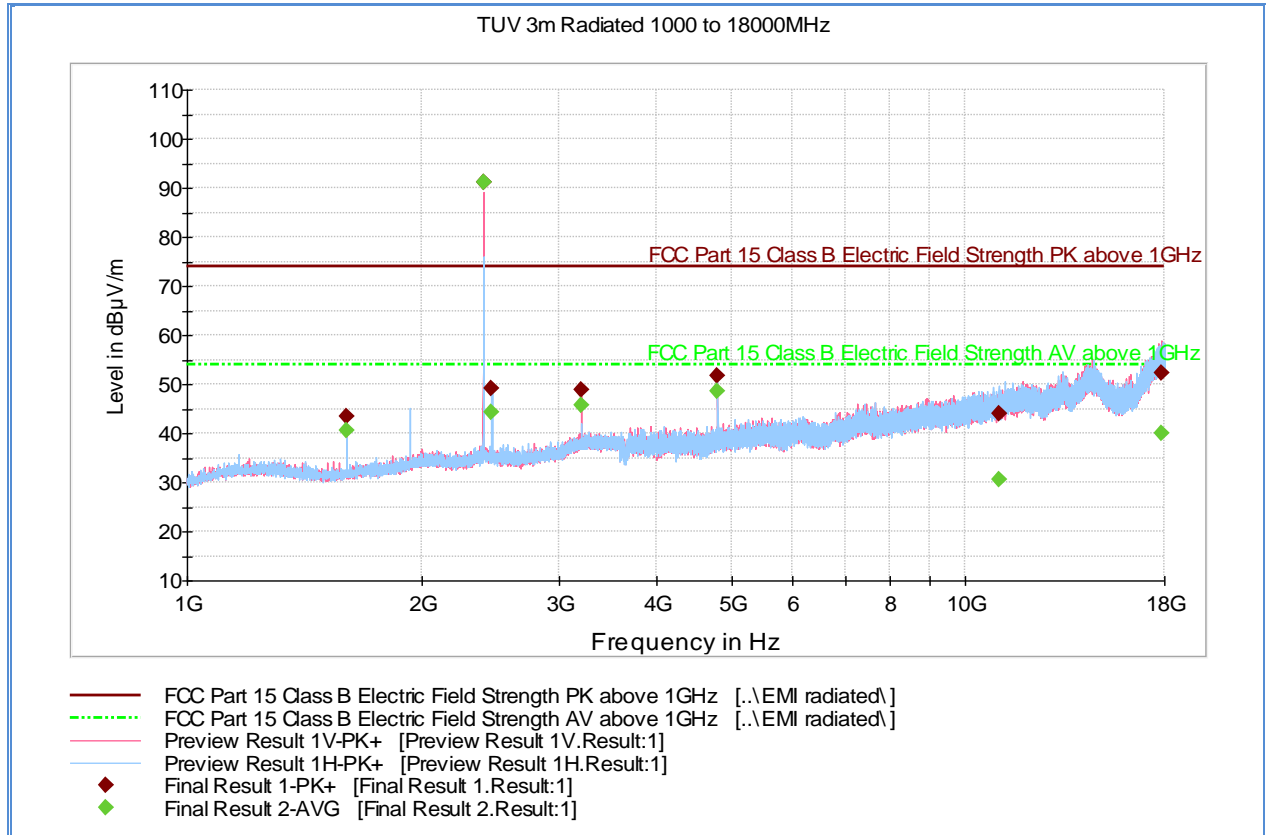
Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
36.351663	22.3	1000.0	120.000	112.0	V	22.0	-15.3	17.7	40.0
71.541643	24.7	1000.0	120.000	200.0	V	198.0	-21.9	15.3	40.0
87.972745	19.0	1000.0	120.000	400.0	V	44.0	-21.0	21.0	40.0
123.986613	14.0	1000.0	120.000	100.0	V	350.0	-20.7	29.5	43.5
345.909820	13.2	1000.0	120.000	257.0	H	342.0	-10.5	32.8	46.0
899.373948	19.7	1000.0	120.000	345.0	V	216.0	0.4	26.3	46.0

Test Notes: Only worst case channel presented for spurious emissions below 1GHz.



2.2.13 Test Results Above 1GHz (Low Channel including fundamental)



Peak Data

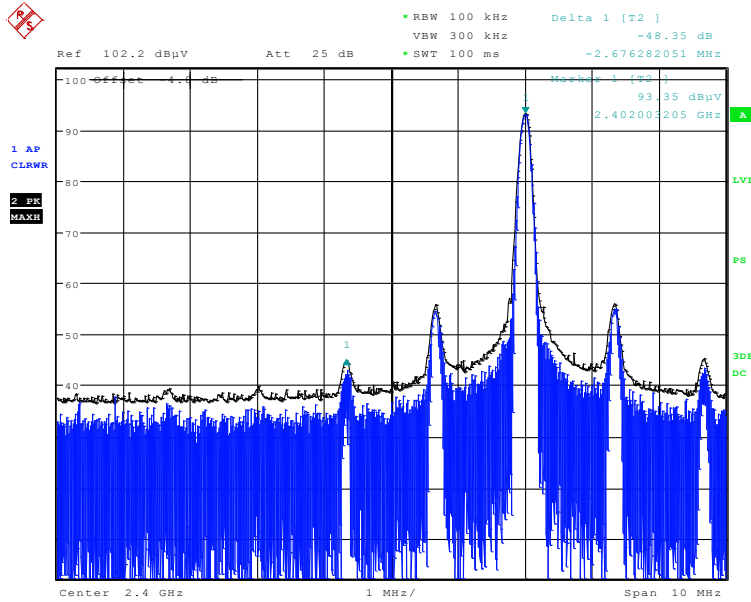
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1601.333333	43.5	1000.0	1000.000	139.0	V	250.0	-8.9	30.4	73.9
2401.993333	91.3	1000.0	1000.000	100.0	V	325.0	-4.8	Fundamental	
2463.193333	49.3	1000.0	1000.000	110.0	H	19.0	-4.7	36.6	73.9
3202.653333	49.0	1000.0	1000.000	100.0	V	269.0	-1.5	24.9	73.9
4804.006667	51.7	1000.0	1000.000	105.0	H	22.0	1.9	18.7	73.9
11014.440000	44.1	1000.0	1000.000	111.0	H	243.0	11.5	29.8	73.9
17862.206667	52.4	1000.0	1000.000	308.0	V	243.0	21.2	21.5	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1601.333333	40.5	1000.0	1000.000	139.0	V	250.0	-8.9	13.4	53.9
2401.993333	91.2	1000.0	1000.000	100.0	V	325.0	-4.8	Fundamental	
2463.193333	44.2	1000.0	1000.000	110.0	H	19.0	-4.7	29.7	53.9
3202.653333	45.7	1000.0	1000.000	100.0	V	269.0	-1.5	8.2	53.9
4804.006667	48.7	1000.0	1000.000	105.0	H	22.0	1.9	5.2	53.9
11014.440000	30.6	1000.0	1000.000	111.0	H	243.0	11.5	23.3	53.9
17862.206667	40.0	1000.0	1000.000	308.0	V	243.0	21.2	13.9	53.9

Test Notes: Measurement was performed without a 2.4GHz notch filter to accurately measure fundamental frequency. Lower band edge was verified manually using 100 kHz RBW (see attached plot Section 2.2.14).

2.2.14 Test Results Lower Band Edge (Radiated - Low Channel using 100 kHz RBW)

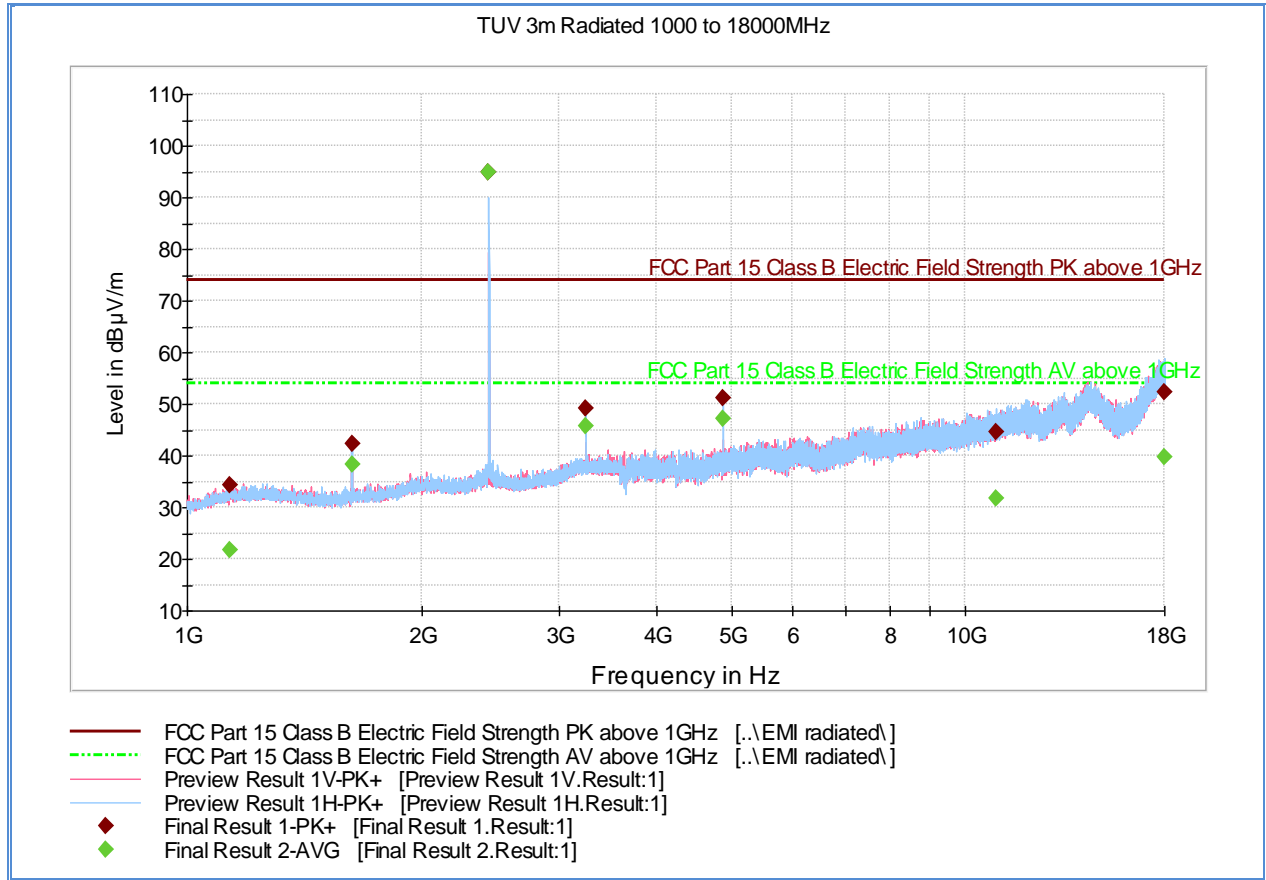


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Test Notes: Carrier frequency (Low Channel) was maximized for this test. Correction factor of -4.8dB is from the cable, antenna and preamp used. The limit for this test is -20dBc. The highest measured emission close to the lower band edge is -48.35dBc. EUT complies.



2.2.15 Test Results Above 1GHz (Mid Channel including fundamental)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1136.753333	34.3	1000.	1000.000	126.0	V	271.0	-10.1	39.6	73.9
1627.320000	42.2	1000.	1000.000	138.0	H	251.0	-8.7	31.7	73.9
2440.973333	94.9	1000.	1000.000	100.0	H	326.0	-4.7	Fundamental	
3254.666667	49.0	1000.	1000.000	123.0	H	292.0	-1.3	24.9	73.9
4881.966667	51.1	1000.	1000.000	107.0	H	322.0	1.9	22.8	73.9
10956.800000	44.6	1000.	1000.000	245.0	H	45.0	11.5	29.3	73.9
17983.460000	52.3	1000.	1000.000	400.0	H	337.0	21.8	21.6	73.9

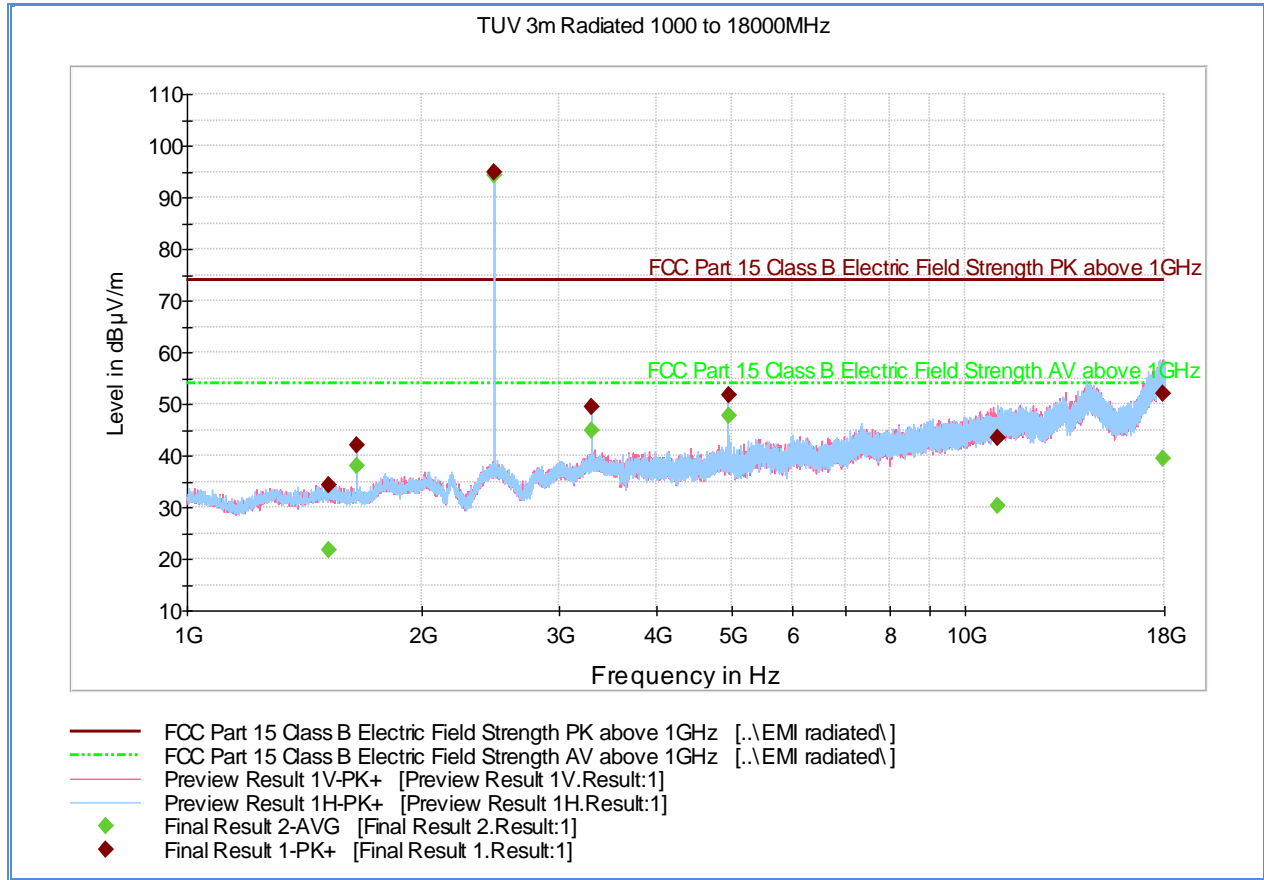
Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth h (kHz)	Height t (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1136.753333	21.6	1000.0	1000.000	126.0	V	271.0	-10.1	32.3	53.9
1627.320000	38.2	1000.0	1000.000	138.0	H	251.0	-8.7	15.7	53.9
2440.973333	94.9	1000.0	1000.000	100.0	H	326.0	-4.7	Fundamental	
3254.666667	45.7	1000.0	1000.000	123.0	H	292.0	-1.3	8.2	53.9
4881.966667	47.1	1000.0	1000.000	107.0	H	322.0	1.9	6.8	53.9
10956.800000	31.7	1000.0	1000.000	245.0	H	45.0	11.5	22.2	53.9
17983.460000	39.6	1000.0	1000.000	400.0	H	337.0	21.8	14.3	53.9

Test Notes: Measurement was performed without a 2.4GHz notch filter to accurately measure fundamental frequency.



2.2.16 Test Results Above 1GHz (High Channel including fundamental)



Peak Data

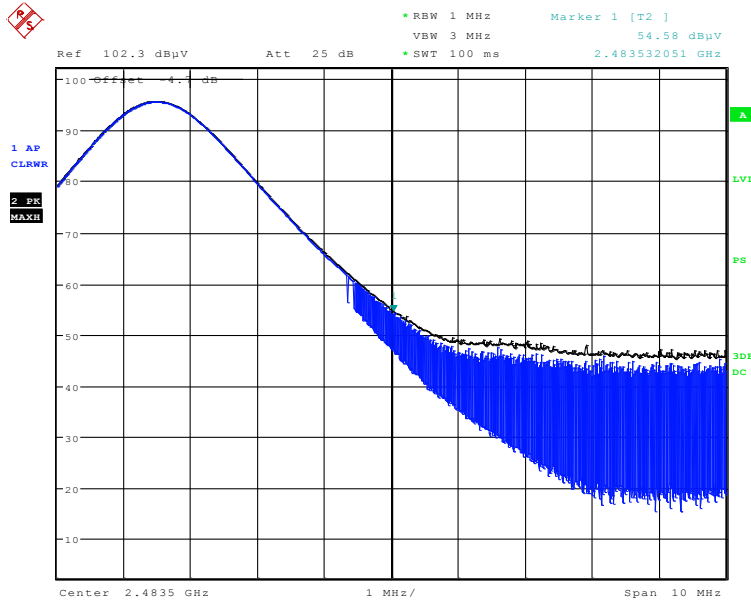
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1517.920000	34.3	1000.0	1000.000	280.0	H	45.0	-9.0	39.6	73.9
1653.340000	42.1	1000.0	1000.000	100.0	H	343.0	-8.5	31.8	73.9
2480.133333	94.7	1000.0	1000.000	100.0	H	327.0	-4.7	Fundamental	
3306.673333	49.3	1000.0	1000.000	100.0	H	345.0	-1.1	24.6	73.9
4960.006667	51.8	1000.0	1000.000	100.0	H	290.0	2.0	22.1	73.9
11008.640000	43.5	1000.0	1000.000	244.0	H	258.0	11.5	30.4	73.9
17942.380000	51.9	1000.0	1000.000	243.0	V	146.0	21.5	22.0	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1517.920000	21.6	1000.0	1000.000	280.0	H	45.0	-9.0	32.3	53.9
1653.340000	37.9	1000.0	1000.000	100.0	H	343.0	-8.5	16.0	53.9
2480.133333	94.2	1000.0	1000.000	100.0	H	327.0	-4.7	Fundamental	
3306.673333	44.8	1000.0	1000.000	100.0	H	345.0	-1.1	9.1	53.9
4960.006667	47.7	1000.0	1000.000	100.0	H	290.0	2.0	6.2	53.9
11008.640000	30.3	1000.0	1000.000	244.0	H	258.0	11.5	23.6	53.9
17942.380000	39.3	1000.0	1000.000	243.0	V	146.0	21.5	14.6	53.9

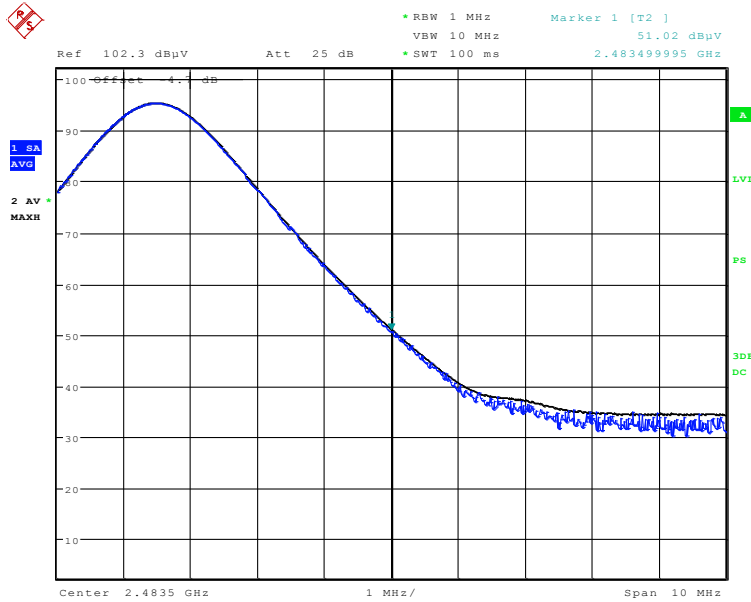
Test Notes: Measurement was performed without a 2.4GHz notch filter to accurately measure fundamental frequency. The fundamental was maximized for band edge measurement. See Section for 2.2.17 for test results.

2.2.17 Test Results Upper Band Edge in Restricted Band (Radiated - High Channel)



Date: 7.JAN.2013 08:32:22

54.58 dBµV @ 2483.5 MHz Peak Detector (1MHz RBW/3MHz VBW). Limit is 74 dBµV.



Date: 7.JAN.2013 08:34:16

51.02 dBµV @ 2483.5 MHz Average Detector (1MHz RBW/3MHz VBW). Limit is 54 dBµV.



2.3 RECEIVER SPURIOUS EMISSIONS

2.3.1 Specification Reference

RSS-Gen 6.0

2.3.2 Standard Applicable

Receivers shall comply with the limits of spurious emissions set out in this section, measured over the frequency range determined in accordance with Section 4.10 of RSS-Gen.

Table 2: Radiated Limits of Receiver Spurious Emissions

Frequency (MHz)	Field Strength (microvolts/m at 3 metres)*
30-88	100
88-216	150
216-960	200
Above 960	500

*Measurements for compliance with limits in the above table may be performed at distances other than 3 metres, in accordance with Section 7.2.7 of RSS-Gen.

2.3.3 Equipment Under Test and Modification State

Serial No: N/A / Default Test Configuration

2.3.4 Date of Test/Initial of test personnel who performed the test

January 04, 2013/FSC

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions

Ambient Temperature 20.8°C
 Relative Humidity 16.7%
 ATM Pressure 99.8 kPa

2.3.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to the 3rd harmonic (up to 10th performed).
- Result identical to Section 2.2.10 and 2.2.11 of this test report.
- EUT in RX (Receive) mode configuration.



SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Radiated Emissions						
1033	Bilog Antenna	3142C	00044556	EMCO	05/23/12	05/23/13
1051	Double-ridged waveguide horn antenna	3115	9408-4329	EMCO	01/04/12	01/04/13
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	09/21/12	09/21/13
1153	High-frequency cable	SucoFlex 100 SX	N/A	Suhner	09/21/12	09/21/13
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	08/10/12	08/10/13
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	06/13/12	06/13/13
1016	Pre-amplifier	PAM-0202	187	PAM	09/24/12	09/24/13
Miscellaneous						
6452	Multimeter	3478A	2911A52177	Hewlett Packard	07/16/12	07/16/13
7560	Barometer/Temperature /Humidity Transmitter	iBTHX-W	1240476	Omega	11/19/12	11/19/12
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

3.2.1 Radiated Emission Measurements (Below 1GHz)

Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.45	0.26	0.07
2	Cables	Rectangular	0.50	0.29	0.08
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.75	0.43	0.19
5	Site	Rectangular	3.55	2.05	4.20
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					2.23
Coverage Factor (k):					2
Expanded Uncertainty:					4.45

3.2.2 Radiated Emission Measurements (Above 1GHz)

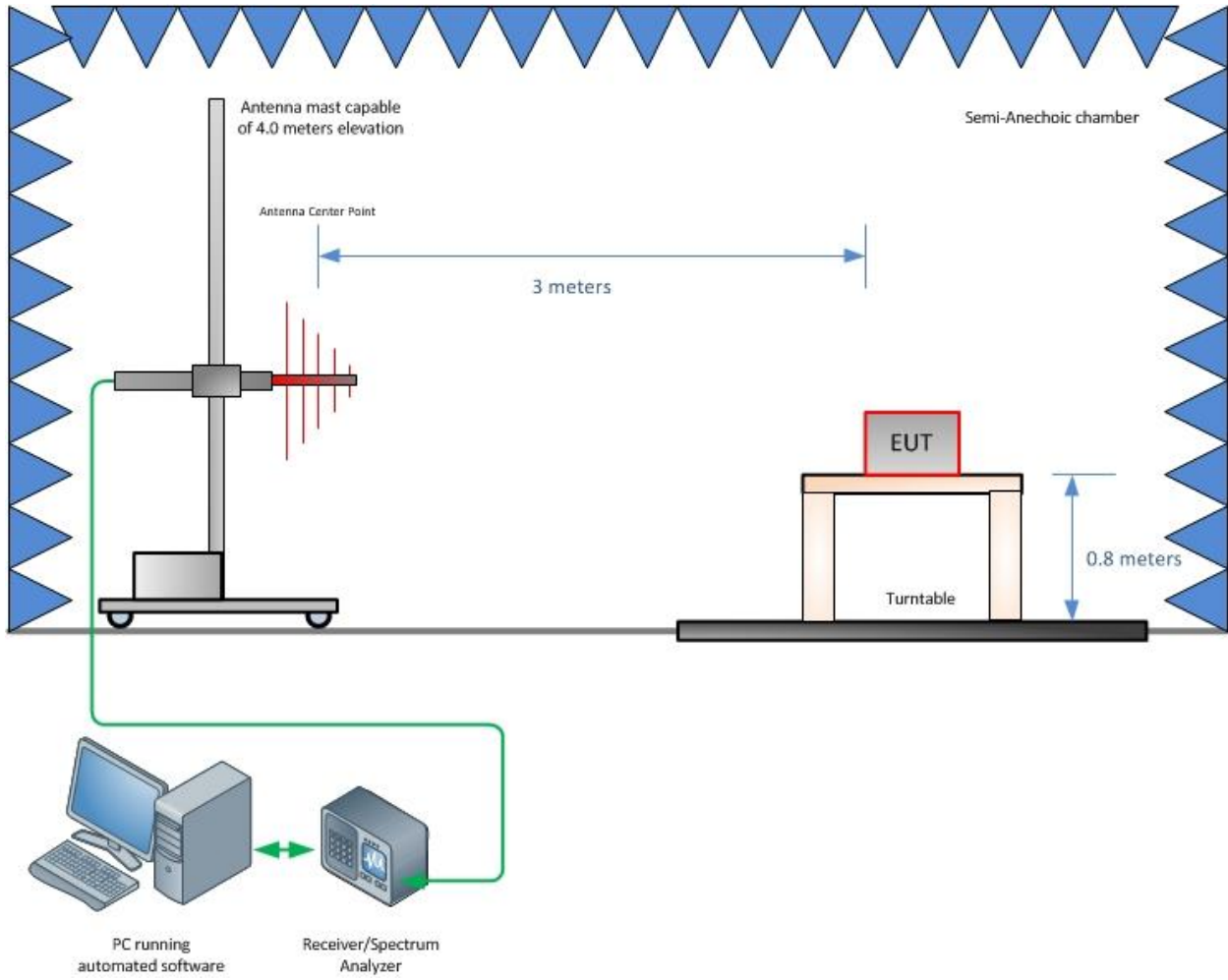
Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.57	0.33	0.11
2	Cables	Rectangular	0.70	0.40	0.16
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.37	0.21	0.05
5	Site	Rectangular	3.55	2.05	4.20
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					2.22
Coverage Factor (k):					2
Expanded Uncertainty:					4.44



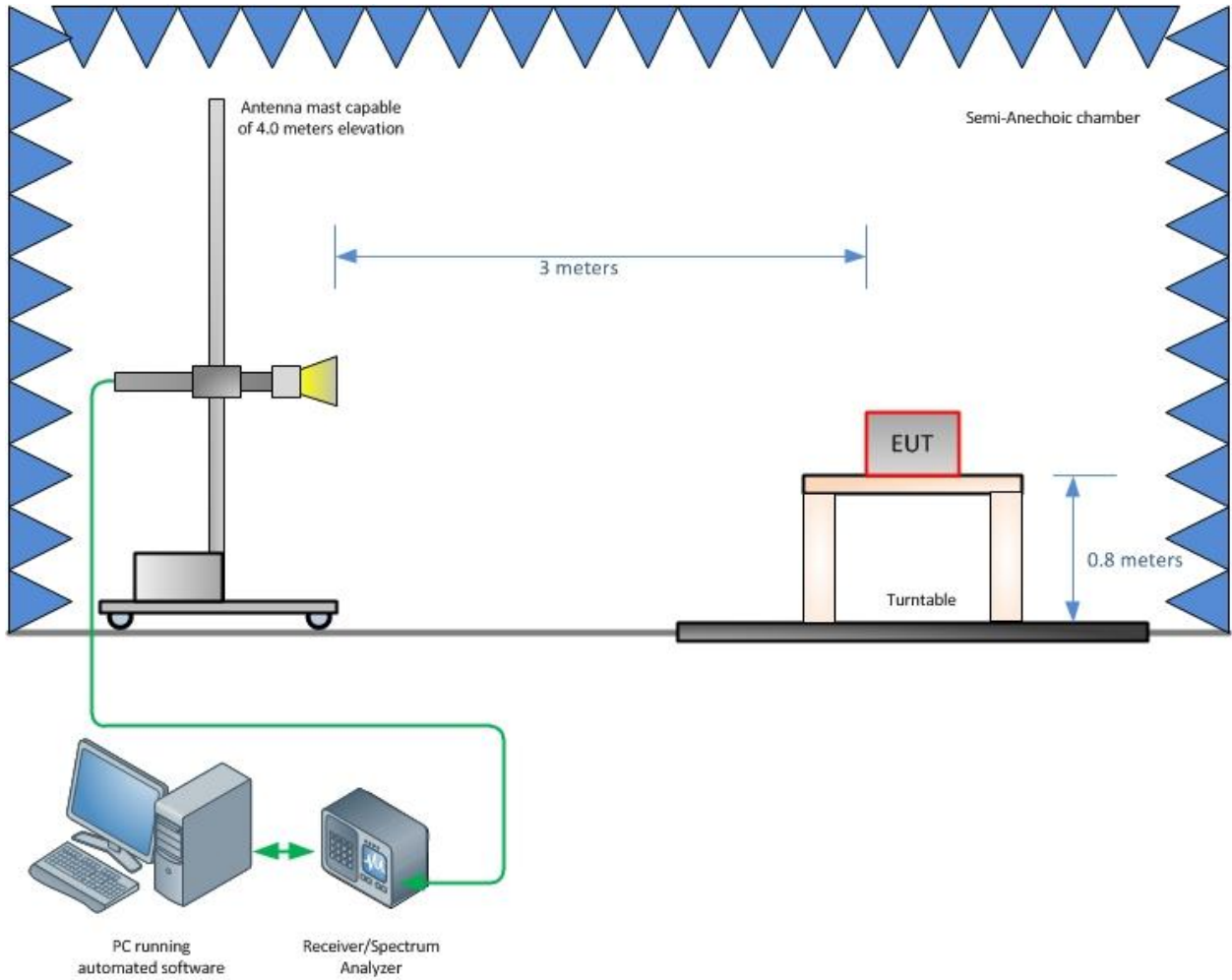
SECTION 4

DIAGRAM OF TEST SETUP

4.1 TEST SETUP DIAGRAM



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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