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Report On

Radio Testing of the
PHILIPS
Calgary Cellular

FCC Part 15 Subpart C §15.249
IC RSS-210 Issue 8 December 2010

Report No. SC1307653_A

August 2013



REPORT ON Radio Testing of the
Calgary Communicator

TEST REPORT NUMBER SC1307653_A

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DATED August 29, 2013



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SECTION 1

REPORT SUMMARY

Radio Testing of the
PHILIPS
Calgary Communicator



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Calgary Communicator to the requirements of FCC Part 15 Subpart C §15.249 and IC RSS-210 Issue 8 December 2010.

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	PHILIPS
Model Number(s)	7000C
FCC ID Number	BDZ7000C
IC Number	655C-7000C
Serial Number(s)	9040000217
Number of Samples Tested	1
Test Specification/Issue/Date	<ul style="list-style-type: none">• FCC Part 15 Subpart C §15.249 (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	July 29, 2013
Finish of Test	August 12, 2013
Name of Engineer(s)	Juan Manuel Gonzalez Kathy Mackenzie
Related Document(s)	None. 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 §15.249 with cross-reference to the corresponding IC RSS standard is shown below.

Section	Spec Clause	RSS	Test Description	Result	Comments/Base Standard
2.1	§15.207(a)	RSS-Gen 7.2.4	Conducted Emissions	Compliant	
2.2	§15.215(c)	RSS-Gen 4.6.3	20 dB Bandwidth	Compliant	
2.3		RSS-Gen 4.6.1	99% Emission Bandwidth	Compliant	
2.4	§15.249(a)	RSS-210 A2.9(a)	Field Strength Limits for Fundamental and Harmonics	Compliant	
2.5	§15.249(d)	RSS-210 A2.9(b)	Spurious Radiated Emissions	Compliant	
2.6		RSS-Gen 4.10	Receiver Spurious Emissions	Compliant	

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was a Calgary Communicator model: 7000C as shown in the photograph below. The EUT is intended for use by seniors with a wearable PERS device (including PHB, AHB, or MHB) to automatically signal for help when a fall is detected or allow them to manually signal for help while inside the home. The Calgary Communicator communicates with the Lifeline Call Center via a cellular network.



Equipment Under Test



1.3.2 EUT General Description

EUT Description	Calgary Communicator
Model Name	Calgary Cellular
Model Number(s)	7000C
Rated Voltage	120V/240V-50/60Hz -> 12VDC AC DC Adapter (4.8VDC from a internal rechargeable batterie)
Output Power	93.5dB μ V/m @ 3 meters (409.5 μ W ERP)
Frequency Range	917 MHz to 921 MHz in the 902 MHz to 928 MHz Band
Number of Operating Frequencies	3
Channels Verified	Low Channel 917 MHz Mid Channel 919MHz High Channel 921MHz
Antenna Type (used during evaluation)	Integral (Complies with Part 15.203 requirements). No external options
Modulation Used	ISM900 – GFSK

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
Default TX	EUT transmitting at Max Calibrated power. / Alternating between the three channels verified (Section 1.3.2)
RX Mode	EUT in idle mode.

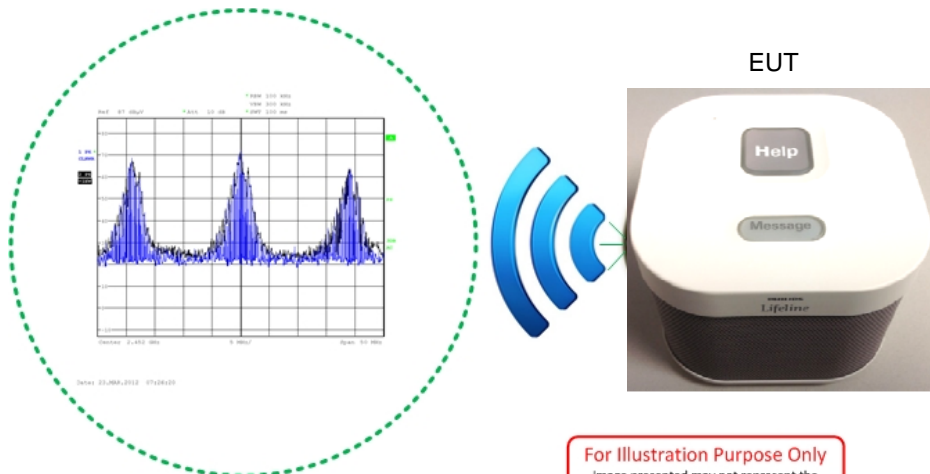
1.4.2 EUT Exercise Software

Max Calibrated power.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
N/A	N/A	N/A

1.4.4 Simplified Test Configuration Diagram



Signal transmission as seen from a Spectrum Analyzer.
 EUT is transmitting alternately between three channels.



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 9040000217		
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), a \$2.498 listed test firm operates the EMC Laboratory registered under Sony Electronics Inc. Product Quality Division EMC. This laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is US5281.

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
PHILIPS
Calgary Communicator



2.1 CONDUCTED EMISSIONS

2.1.1 Specification Reference

Part 15 Subpart C §15.207(a)

2.1.2 Standard Applicable

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

**Decreases with the logarithm of the frequency.*

2.1.3 Equipment Under Test and Modification State

Serial No: 9040000217/ RX Mode

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

August 1st, 2013/KAM

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 22.5°C
Relative Humidity 46.0%
ATM Pressure 100.1 kPa

2.1.7 Additional Observations

- To show general compliance to the present requirement, the EUT was verified while in charging mode using the supplied AC charger and transmitting at calibrated gain in the High Channel (Both test results are the same and only TX High Channel is presented in this report).



- 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 2.1.8 for sample computation.

2.1.8 Sample Computation (Conducted Emission – Quasi Peak)

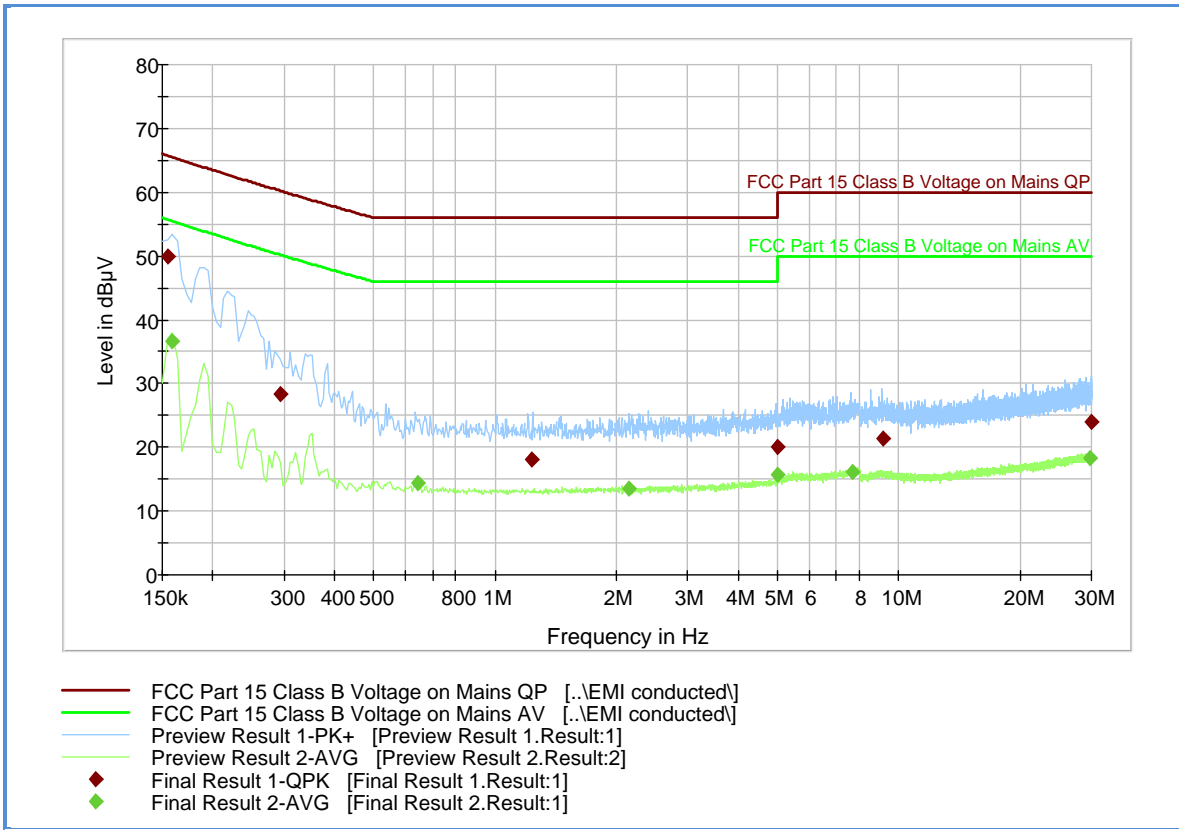
Measuring equipment raw measurement (db μ V) @ 150kHz		5.5
Correction Factor (dB)	Asset# 8607 (20 dB attenuator)	19.9
	Asset# 1177 (cable)	0.15
	Asset# 1176 (cable)	0.35
	Asset# 7568 (LISN)	0.30
Reported QuasiPeak Final Measurement (dbμV) @ 150kHz		26.2

2.1.9 Test Results

Compliant. See attached plots and tables.



2.1.10 Line 1 (120VAC 60Hz)



Quasi Peak

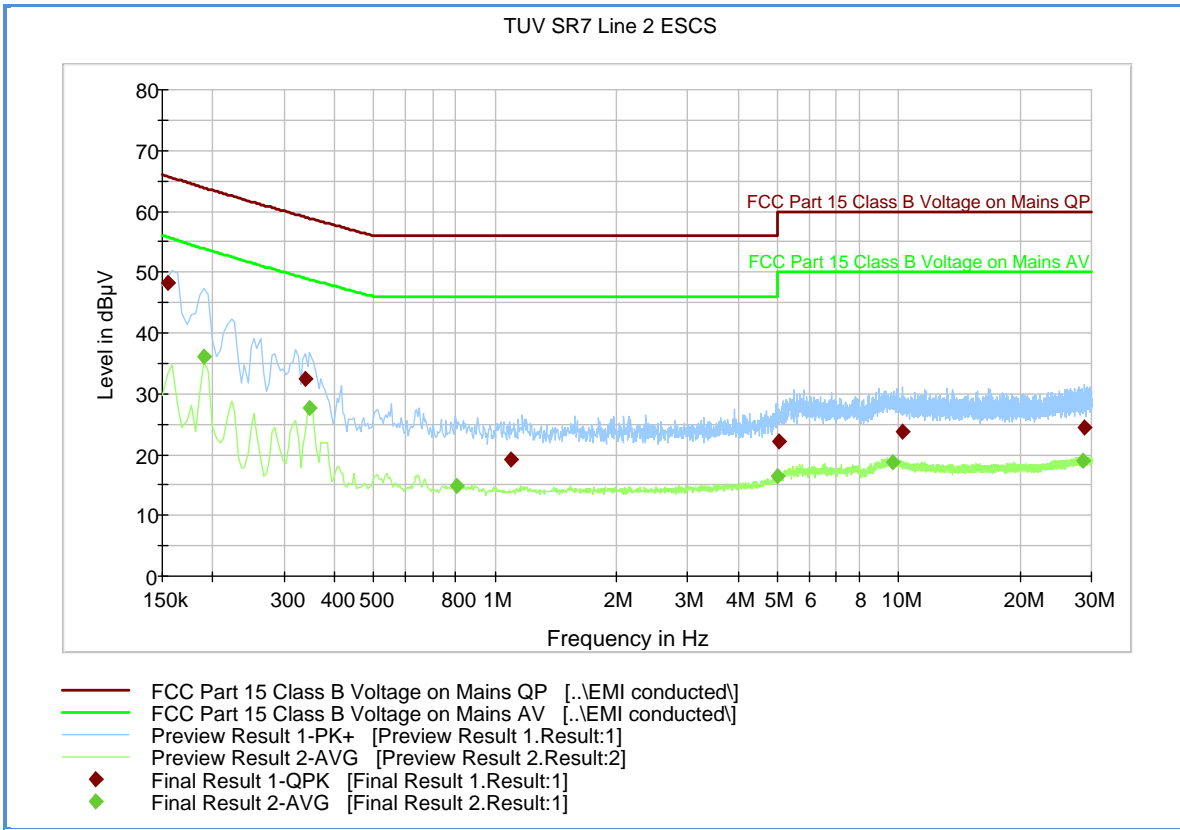
Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.154500	50.0	1000.0	9.000	Off	L1	20.4	15.8	65.7
0.294000	28.4	1000.0	9.000	Off	L1	20.3	31.8	60.2
1.230000	18.2	1000.0	9.000	Off	L1	20.3	37.8	56.0
5.023500	20.2	1000.0	9.000	Off	L1	20.4	39.8	60.0
9.168000	21.4	1000.0	9.000	Off	L1	20.4	38.6	60.0
29.913000	23.9	1000.0	9.000	Off	L1	21.6	36.1	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.159000	36.5	1000.0	9.000	Off	L1	20.4	18.9	55.5
0.645000	14.3	1000.0	9.000	Off	L1	20.2	31.7	46.0
2.139000	13.5	1000.0	9.000	Off	L1	20.3	32.5	46.0
5.010000	15.7	1000.0	9.000	Off	L1	20.4	34.3	50.0
7.669500	16.1	1000.0	9.000	Off	L1	20.4	33.9	50.0
29.787000	18.4	1000.0	9.000	Off	L1	21.6	31.6	50.0



2.1.11 Line 2 (120VAC 60Hz)



Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.154500	48.2	1000.0	9.000	Off	N	21.2	17.5	65.7
0.339000	32.5	1000.0	9.000	Off	N	21.1	26.5	59.0
1.095000	19.2	1000.0	9.000	Off	N	21.1	36.8	56.0
5.068500	22.1	1000.0	9.000	Off	N	21.2	37.9	60.0
10.243500	23.8	1000.0	9.000	Off	N	21.2	36.2	60.0
28.842000	24.4	1000.0	9.000	Off	N	22.2	35.6	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.190500	36.1	1000.0	9.000	Off	N	21.2	17.8	53.9
0.348000	27.7	1000.0	9.000	Off	N	21.1	21.2	48.8
0.802500	14.8	1000.0	9.000	Off	N	21.1	31.2	46.0
5.028000	16.4	1000.0	9.000	Off	N	21.2	33.6	50.0
9.636000	18.8	1000.0	9.000	Off	N	21.2	31.2	50.0
28.509000	19.0	1000.0	9.000	Off	N	22.2	31.0	50.0



2.2 20 dB BANDWIDTH

2.2.1 Specification Reference

Part 15 Subpart C §15.215(c)

2.2.2 Standard Applicable

(c) Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

2.2.3 Equipment Under Test and Modification State

Serial No: 9040000217/ Default Test Configuration

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

July 30, 2013/JMG

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	22.3°C
Relative Humidity	45.7%
ATM Pressure	100.1 kPa

2.2.7 Additional Observations

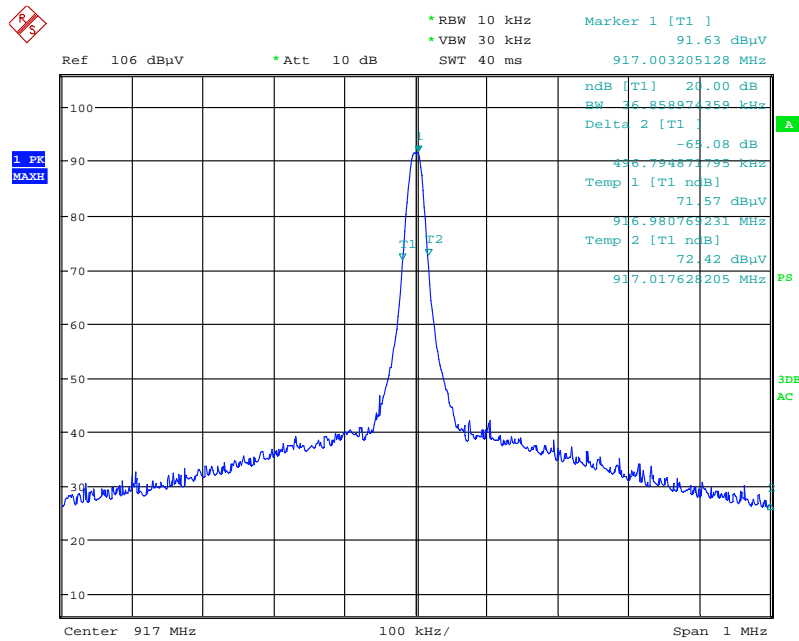
- This is a radiated test.
- OBW measurement function of the Spectrum Analyzer used (x dB function).
- Span is wide enough to capture the channel transmission.
- RBW is 1% of the span, VBW is 3X RBW.
- Sweep is auto.
- Detector is peak.
- Trace is max hold.



2.2.8 Test Results

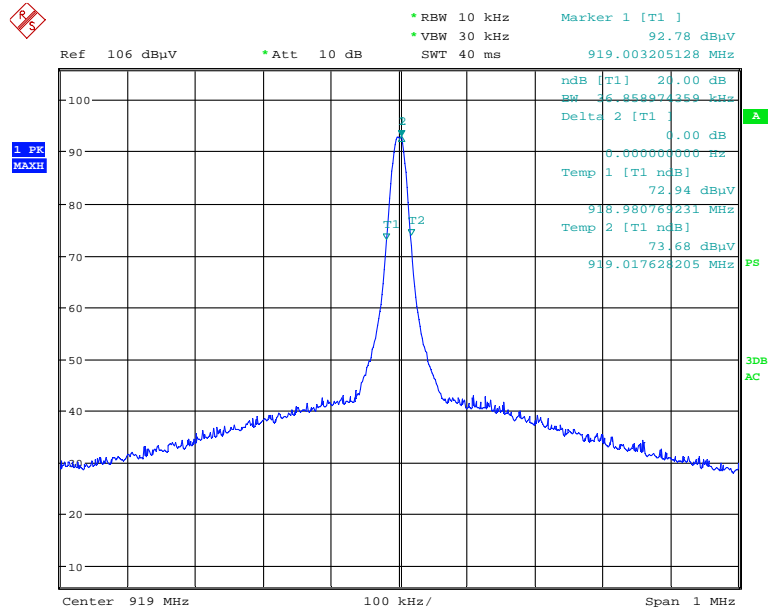
Low Channel (917 MHz)	Mid Channel (919MHz)	High Channel (921MHz)
36.85KHz	36.85KMHz	35.85 KHz

917.00 MHz – (20dB BW/2) = 916.981575MHz (within the frequency band - **Compliant**)
 921.00MHz + (20dB BW/2) = 921.018425MHz (within the frequency band - **Compliant**)



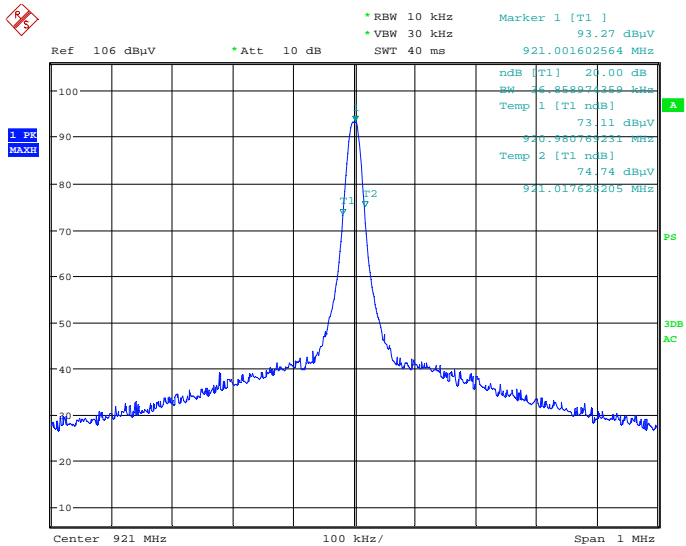
Date: 30.JUL.2013 12:43:16

Low Channel



Date: 30.JUL.2013 12:37:19

Mid Channel



Date: 30.JUL.2013 12:26:16

High Channel



2.3 99% EMISSION BANDWIDTH

2.3.1 Specification Reference

RSS-Gen Clause 4.6.1

2.3.2 Standard Applicable

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual.

The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

2.3.3 Equipment Under Test and Modification State

Serial No: 9040000217/ Default Test Configuration

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

July 30, 2013/JMG

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	22.3°C
Relative Humidity	45.7%
ATM Pressure	100.1 kPa

2.3.7 Additional Observations

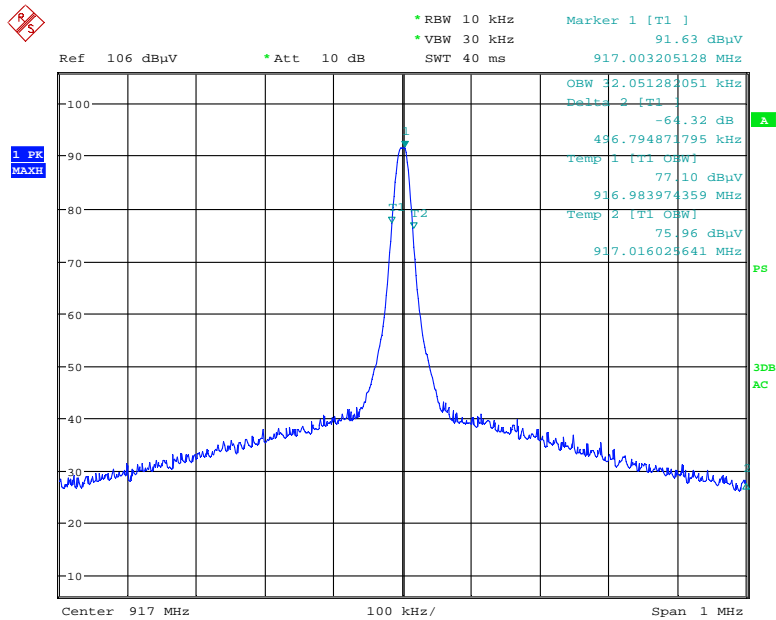
- This is a radiated test.
- Span is wide enough to capture the channel transmission.
- RBW is 1% of the span.
- VBW is 3X RBW.
- Sweep is auto.
- Detector is peak.



- The % Power Bandwidth setting in the spectrum analyzer was set to 99% (default).
- The Channel Bandwidth measurement function of the spectrum analyzer was used for this test.

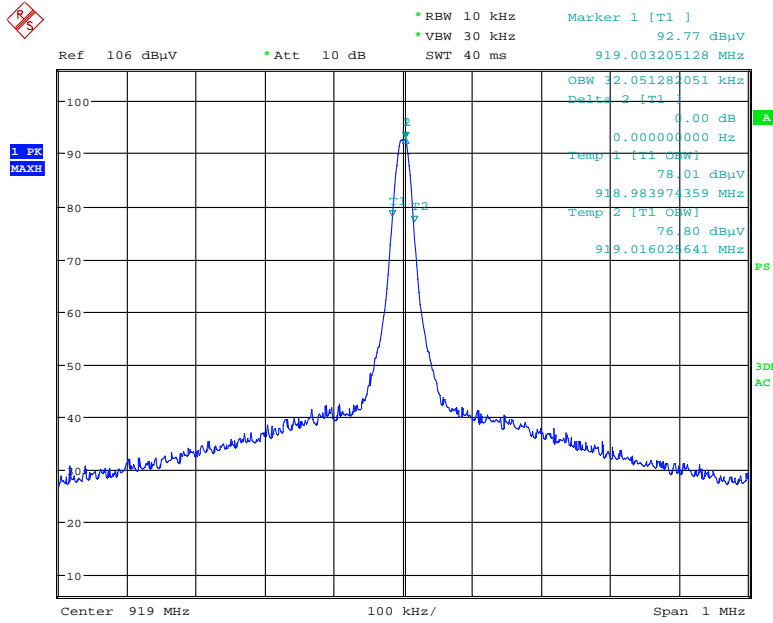
2.3.8 Test Results

Low Channel (2433 MHz)	Mid Channel (2452MHz)	High Channel (2471MHz)
32.051 KHz	32.051 KHz	32.051 KHz



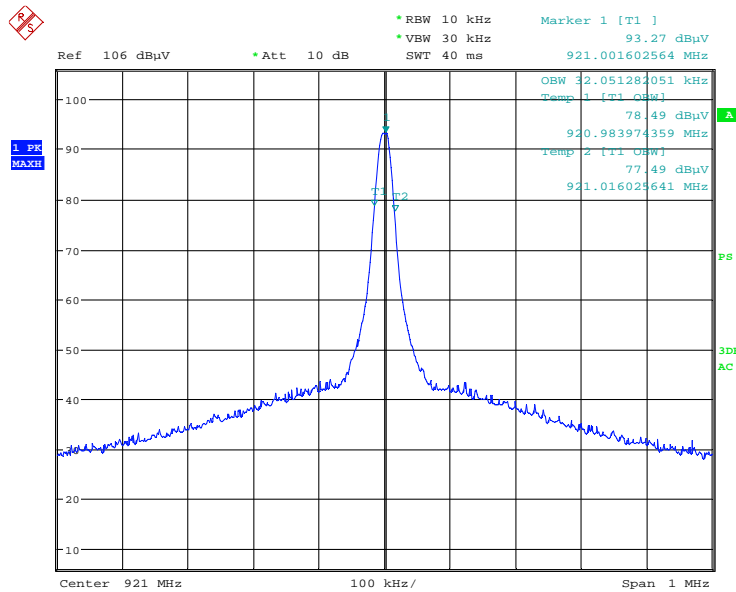
Date: 30.JUL.2013 12:42:18

Low Channel



Date: 30.JUL.2013 12:37:44

Mid Channel



Date: 30.JUL.2013 12:25:54

High Channel



2.4 FIELD STRENGTH LIMITS FOR FUNDAMENTAL AND HARMONICS

2.4.1 Specification Reference

Part 15 Subpart C §15.249(a)

2.4.2 Standard Applicable

(a) 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

2.4.3 Equipment Under Test and Modification State

Serial No:9040000217 / Default Test Configuration

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

July 30, 2013/JMG
July 31, 2013/JMG

2.4.5 Test Equipment Used

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

2.4.6 Environmental Conditions

Ambient Temperature 22.3°C
Relative Humidity 45.7%
ATM Pressure 100.1 kPa

2.4.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to 18GHz.
- Harmonics measurements were performed with a notch filter attenuating the fundamental frequencies.
- Measurement was done using EMC32 V8.52 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 2.3.8 for sample computation.



- EUT is a tabletop fixed device. For radiated measurements only standalone position was verified.

2.4.8 Sample Computation (Radiated Emission)

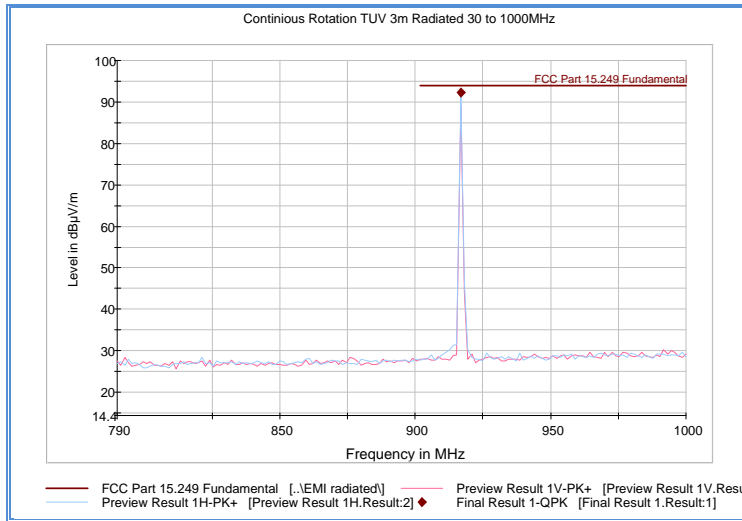
Measuring equipment raw measurement (db μ V) @ 2400 MHz		58.4
Correction Factor (dB)	Asset# 1153 (cable)	3.3
	Asset# 8628 (preamplifier)	-36.4
	Asset# 6669 (antenna)	28.3
Reported Peak Final Measurement (dbμV/m) @ 2400 MHz		53.6

2.4.9 Test Results

See attached plots.



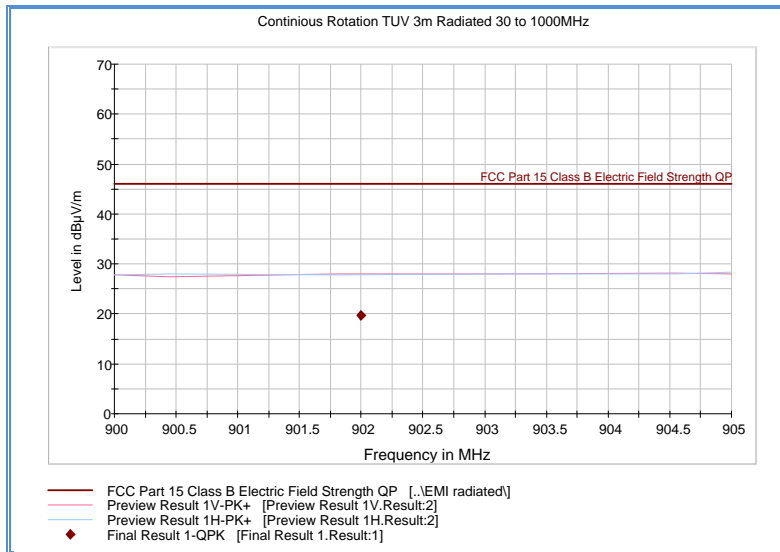
2.4.10 Test Results Fundamental (Low Channel)



QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
917.018182	92.3	1000.0	120.000	190.0	H	135.0	0.3	1.6	94.0

2.4.11 Lower Band Edge (Y axis configuration)

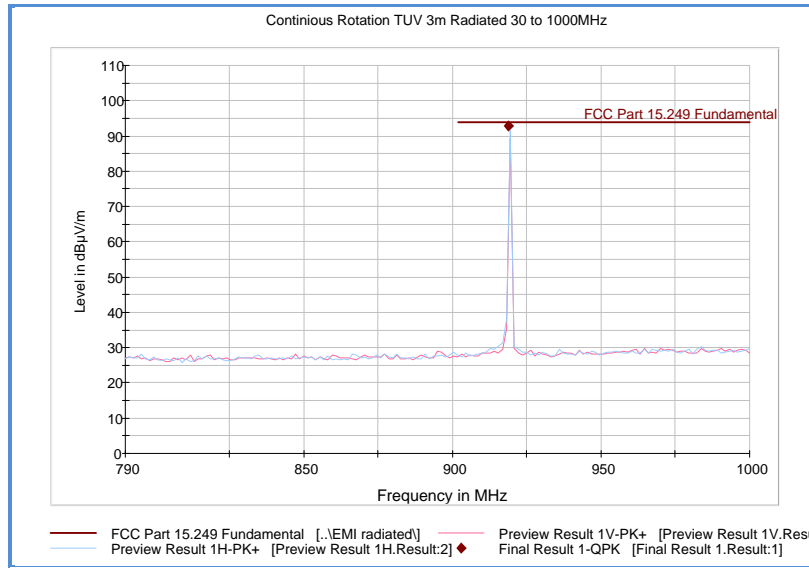


QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
902.000000	19.7	1000.0	120.000	205.0	V	248.0	0.0	26.3	46.0



2.4.12 Test Results Fundamental (Mid Channel)

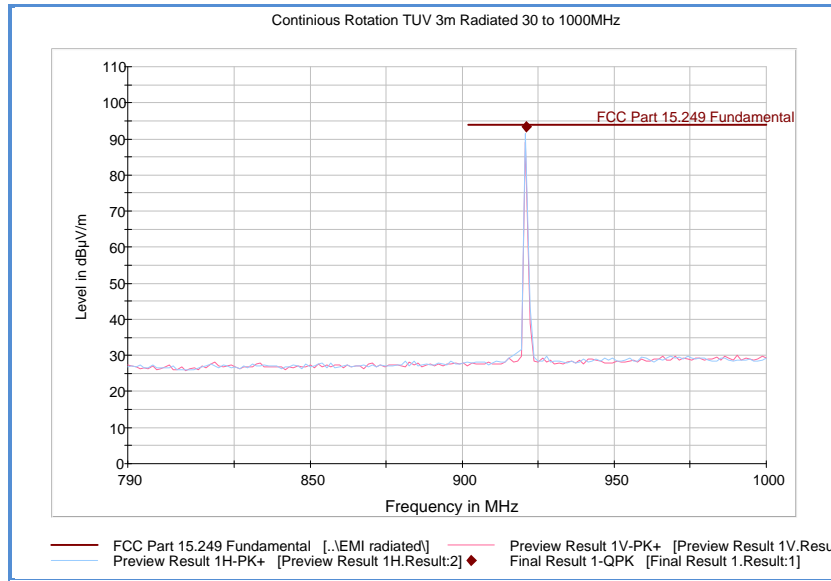


QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
918.985455	93.0	1000.0	120.000	189.0	H	154.0	0.4	1.0	94.0



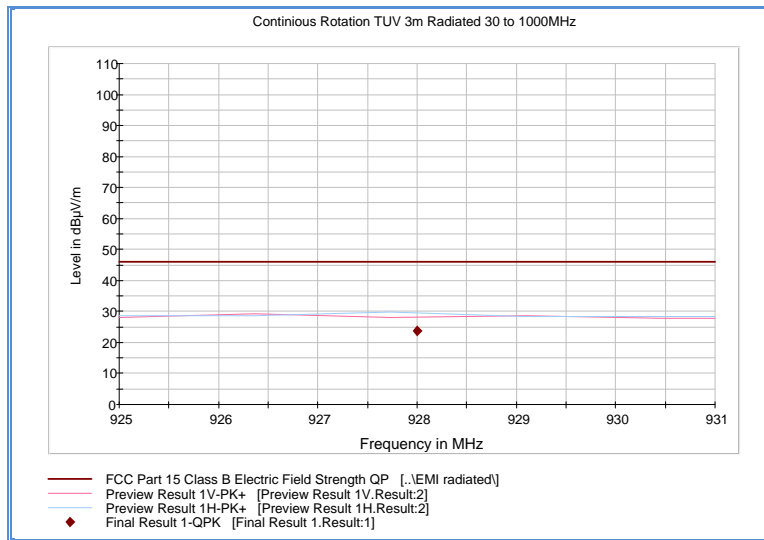
2.4.13 Test Results Fundamental (High Channel)



QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
920.989091	93.5	1000.0	120.000	191.0	H	135.0	0.3	0.5	94.0

2.4.14 HigherBand Edge (Y axis configuration)

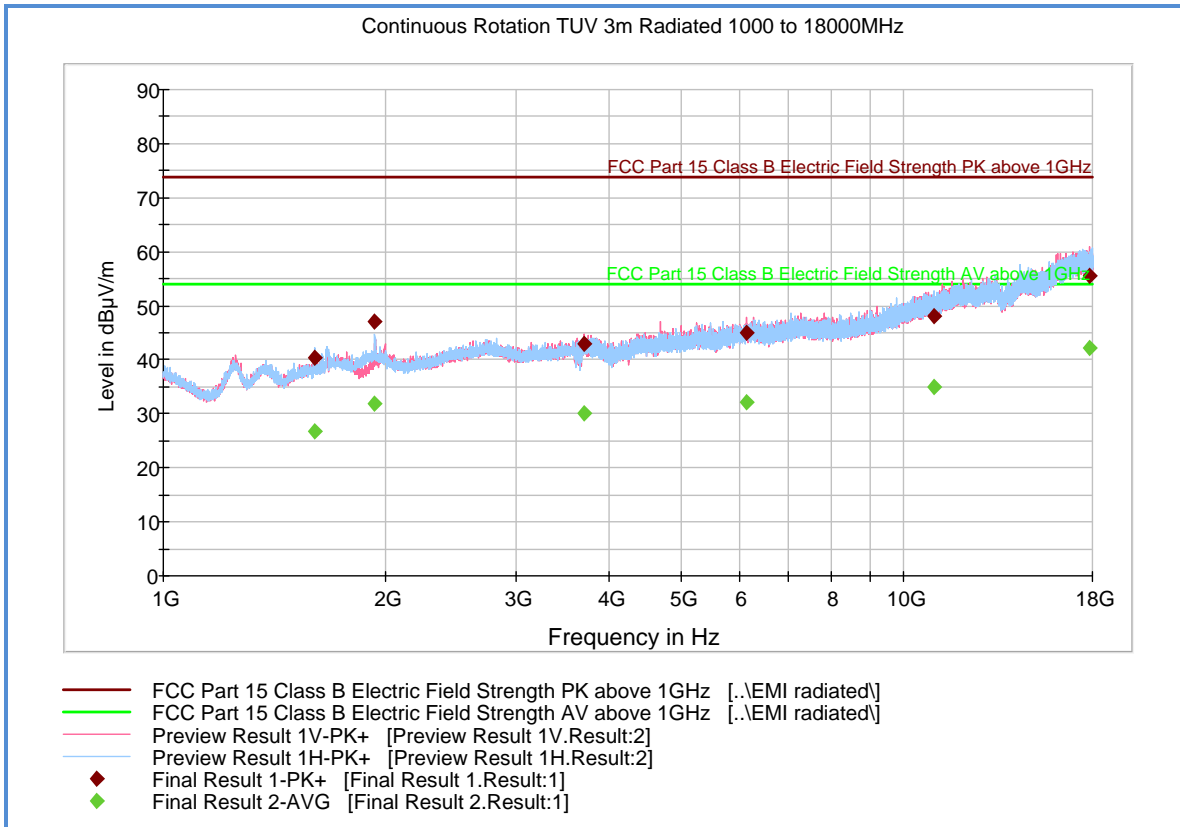


QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
928.000000	23.6	1000.0	120.000	200.0	H	126.0	0.2	22.4	46.0



2.4.15 Test Results Harmonics (Low Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1600.466667	40.4	1000.0	1000.000	344.1	H	112.0	-4.3	33.5	73.9
1932.366667	46.9	1000.0	1000.000	100.6	H	200.0	-2.0	27.0	73.9
3704.733333	42.9	1000.0	1000.000	294.2	V	229.0	2.9	31.0	73.9
6127.900000	45.1	1000.0	1000.000	384.1	V	96.0	8.2	28.8	73.9
10992.033333	48.2	1000.0	1000.000	99.6	H	122.0	14.5	25.7	73.9
17817.500000	55.4	1000.0	1000.000	103.6	V	139.0	22.3	18.5	73.9

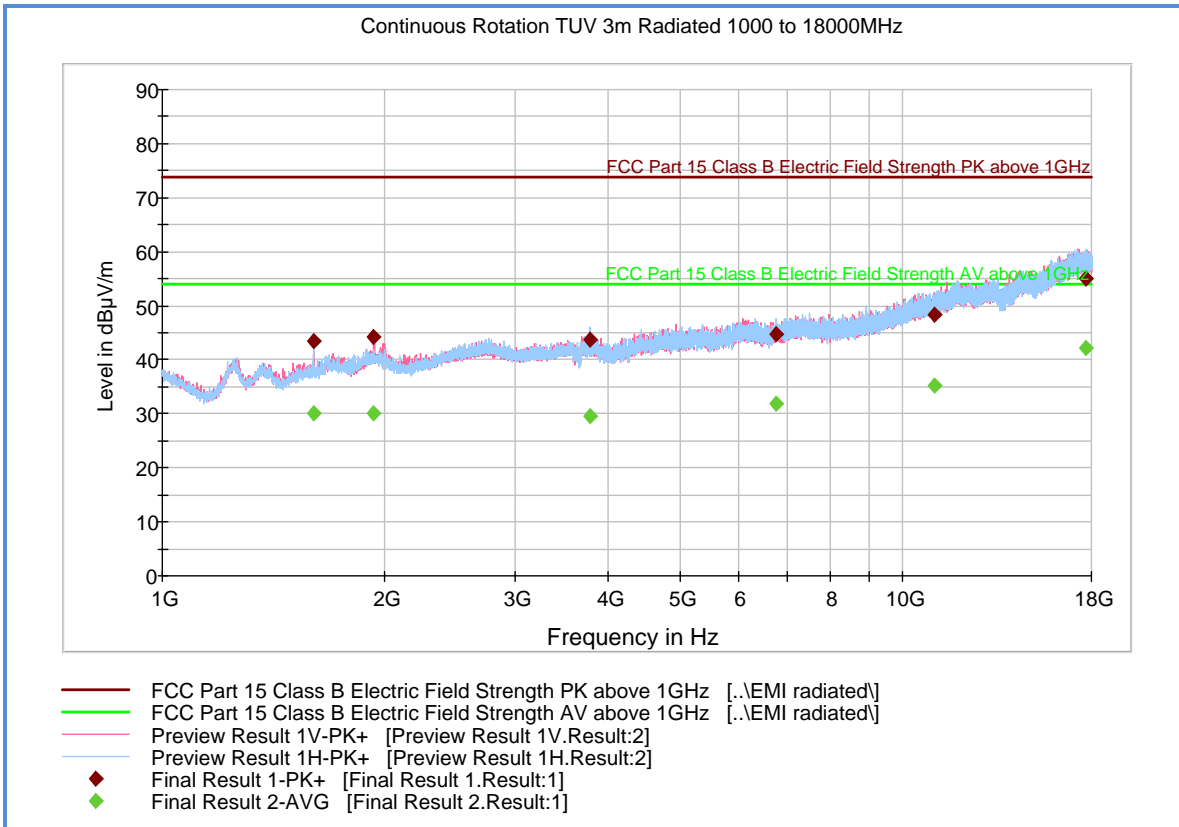
Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1600.466667	26.7	1000.0	1000.000	344.1	H	112.0	-4.3	27.2	53.9
1932.366667	31.9	1000.0	1000.000	100.6	H	200.0	-2.0	22.0	53.9
3704.733333	30.1	1000.0	1000.000	294.2	V	229.0	2.9	23.8	53.9
6127.900000	32.1	1000.0	1000.000	384.1	V	96.0	8.2	21.8	53.9
10992.033333	35.0	1000.0	1000.000	99.6	H	122.0	14.5	18.9	53.9
17817.500000	42.1	1000.0	1000.000	103.6	V	139.0	22.3	11.8	53.9

Test Notes 1: Measurement was performed with a 800M-1GHzGHz notch filter.



2.4.16 Test Results Harmonics (Mid Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1599.533333	43.5	1000.0	1000.000	401.1	H	206.0	-4.3	30.4	73.9
1932.400000	44.1	1000.0	1000.000	186.4	V	237.0	-2.0	29.8	73.9
3781.966667	43.7	1000.0	1000.000	300.6	H	341.0	2.8	30.2	73.9
6739.433333	44.8	1000.0	1000.000	368.1	H	240.0	8.6	29.1	73.9
11039.033333	48.4	1000.0	1000.000	187.4	V	34.0	14.6	25.5	73.9
17684.166667	55.2	1000.0	1000.000	256.3	H	343.0	22.1	18.7	73.9

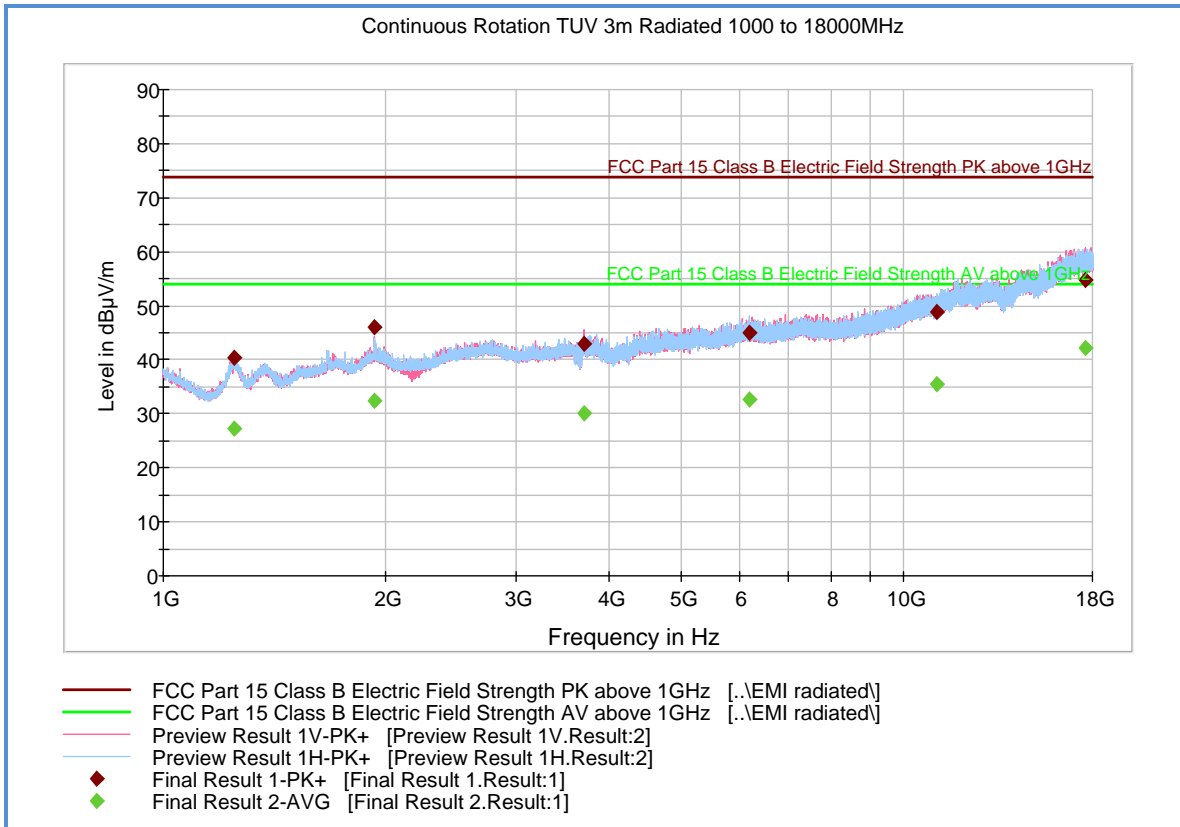
Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1599.533333	30.1	1000.0	1000.000	401.1	H	206.0	-4.3	23.8	53.9
1932.400000	30.2	1000.0	1000.000	186.4	V	237.0	-2.0	23.7	53.9
3781.966667	29.7	1000.0	1000.000	300.6	H	341.0	2.8	24.2	53.9
6739.433333	32.0	1000.0	1000.000	368.1	H	240.0	8.6	21.9	53.9
11039.033333	35.4	1000.0	1000.000	187.4	V	34.0	14.6	18.5	53.9
17684.166667	42.1	1000.0	1000.000	256.3	H	343.0	22.1	11.8	53.9

Test Notes 1: Measurement was performed with a 800M-1GHzGHz notch filter.



2.4.17 Test Results Harmonics (High Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1248.166667	40.3	1000.0	1000.000	201.4	V	104.0	-4.7	33.6	73.9
1932.600000	46.0	1000.0	1000.000	343.1	V	114.0	-2.0	27.9	73.9
3701.300000	42.9	1000.0	1000.000	261.2	V	188.0	2.8	31.0	73.9
6199.133333	45.0	1000.0	1000.000	401.1	H	95.0	8.4	28.9	73.9
11075.300000	48.8	1000.0	1000.000	371.1	H	104.0	14.6	25.1	73.9
17601.766667	54.9	1000.0	1000.000	270.2	V	227.0	22.1	19.0	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)
1248.166667	27.3	1000.0	1000.000	201.4	V	104.0	-4.7	26.6	53.9
1932.600000	32.3	1000.0	1000.000	343.1	V	114.0	-2.0	21.6	53.9
3701.300000	30.0	1000.0	1000.000	261.2	V	188.0	2.8	23.9	53.9
6199.133333	32.8	1000.0	1000.000	401.1	H	95.0	8.4	21.1	53.9
11075.300000	35.5	1000.0	1000.000	371.1	H	104.0	14.6	18.4	53.9
17601.766667	42.2	1000.0	1000.000	270.2	V	227.0	22.1	11.7	53.9

Test Notes 1: Measurement was performed with a 800M-1GHzGHz notch filter.



2.5 SPURIOUS RADIATED EMISSIONS

2.5.1 Specification Reference

Part 15 Subpart C §15.249(d)

2.5.2 Specification Reference

Part 15 Subpart C §15.249(d)

2.5.3 Standard Applicable

(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.

2.5.4 Equipment Under Test and Modification State

Serial No: 9040000217/ Default Test Configuration

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

July 30, 2013/JMG

2.5.6 Test Equipment Used

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

2.5.7 Environmental Conditions

Ambient Temperature	22.3°C
Relative Humidity	45.7%
ATM Pressure	100.1 kPa

2.5.8 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to 1GHz.
- No significant emission observed below 1GHz. Data presented is from worst case based from fundamental measurements (high Ch)
- Above 1GHz measurement results are identical to test results presented under Section 2.3.15 of this test report. No other spurious emissions observed other than harmonics of the fundamental frequency.
- Measurement was done using EMC32 V8.52 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 2.5.9 for sample computation.

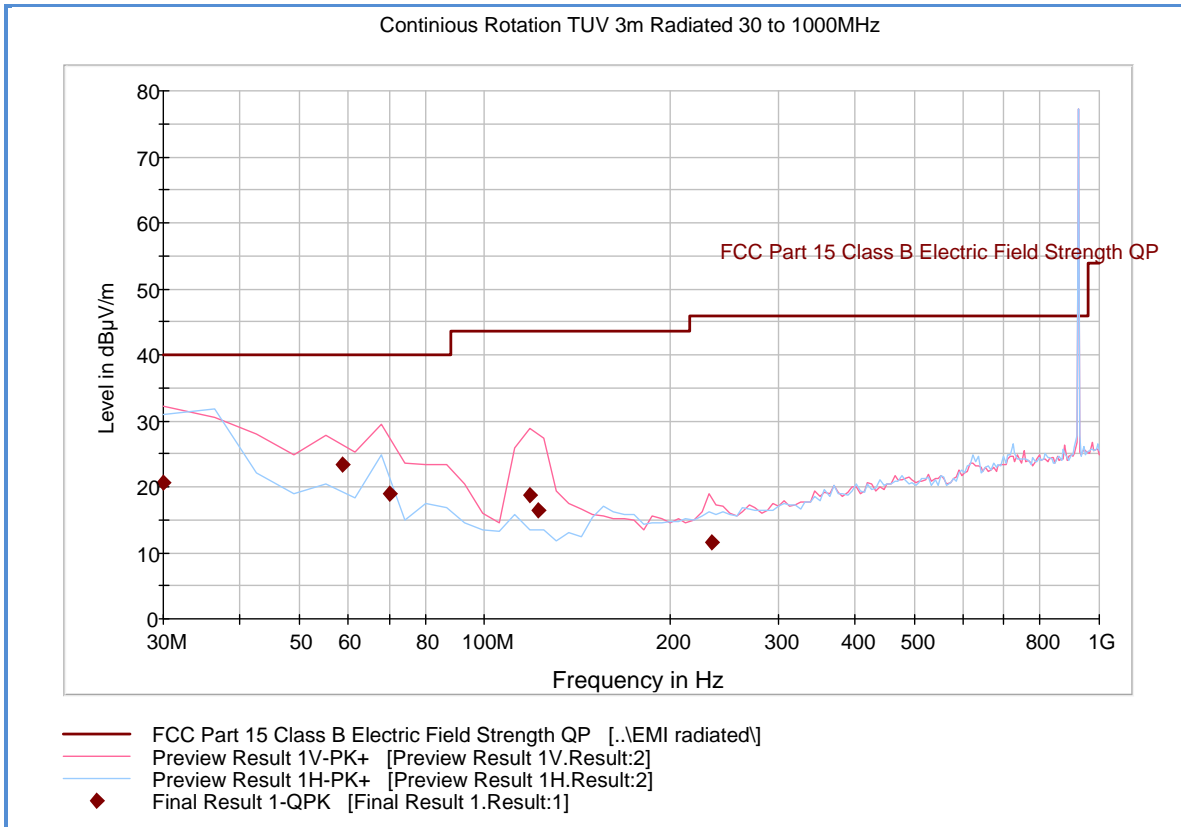


2.5.9 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (db μ V) @ 2400 MHz			58.4
Correction Factor (dB)	Asset# 1153 (cable)	3.3	-4.8
	Asset# 8628 (preamplifier)	-36.4	
	Asset# 6669 (antenna)	28.3	
Reported Peak Final Measurement (dbμV/m) @ 2400 MHz			53.6



2.5.10 Test Results Below 1GHz (Worst Case “High CH”)



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)
30.000000	20.6	1000.0	120.000	250.0	V	80.0	-10.7	19.4	40.0
58.714805	23.4	1000.0	120.000	100.0	V	236.0	-20.8	16.6	40.0
69.992208	19.0	1000.0	120.000	100.0	V	205.0	-21.7	21.0	40.0
118.181818	18.8	1000.0	120.000	150.0	V	344.0	-19.6	24.7	43.5
122.480519	16.4	1000.0	120.000	100.0	V	-14.0	-19.5	27.1	43.5
233.878442	11.6	1000.0	120.000	150.0	H	318.0	-13.3	34.4	46.0

Test Notes:

921MHz peak (Fundamental) was ignored since it is out of the scope of this test.



2.6 RECEIVER SPURIOUS EMISSIONS

2.6.1 Specification Reference

RSS-Gen 6.0

2.6.2 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.

2.6.3 Equipment Under Test and Modification State

Serial No: 9040000217/ RX Mode

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

July 30, 2013/JMG

2.6.5 Test Equipment Used

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

2.6.6 Environmental Conditions

Ambient Temperature 22.3°C
Relative Humidity 45.7%
ATM Pressure 100.1 kPa

2.6.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to 18GHz.
- EUT in RX (Receive) mode configuration.
- Limit used is from FCC §15.209 which is identical to RSS-Gen limits.



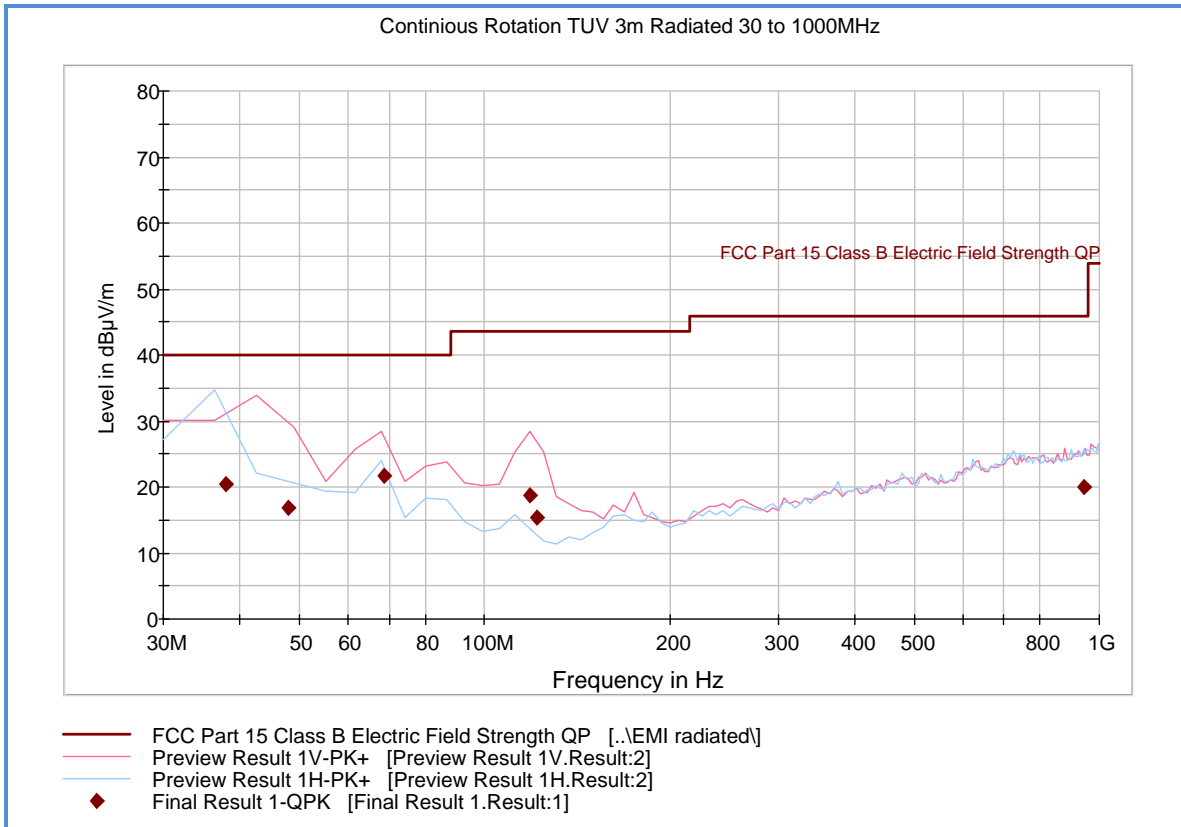
- Measurement was done using EMC32 V8.53 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.6.8 for sample computation.

2.6.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (db μ V) @ 2400 MHz			58.4
Correction Factor (dB)	Asset# 1153 (cable)	3.3	-4.8
	Asset# 8628 (preamplifier)	-36.4	
	Asset# 6669 (antenna)	28.3	
Reported Peak Final Measurement (dbμV/m) @ 2400 MHz			53.6



2.6.9 Test Results Below 1GHz (Receive Mode)

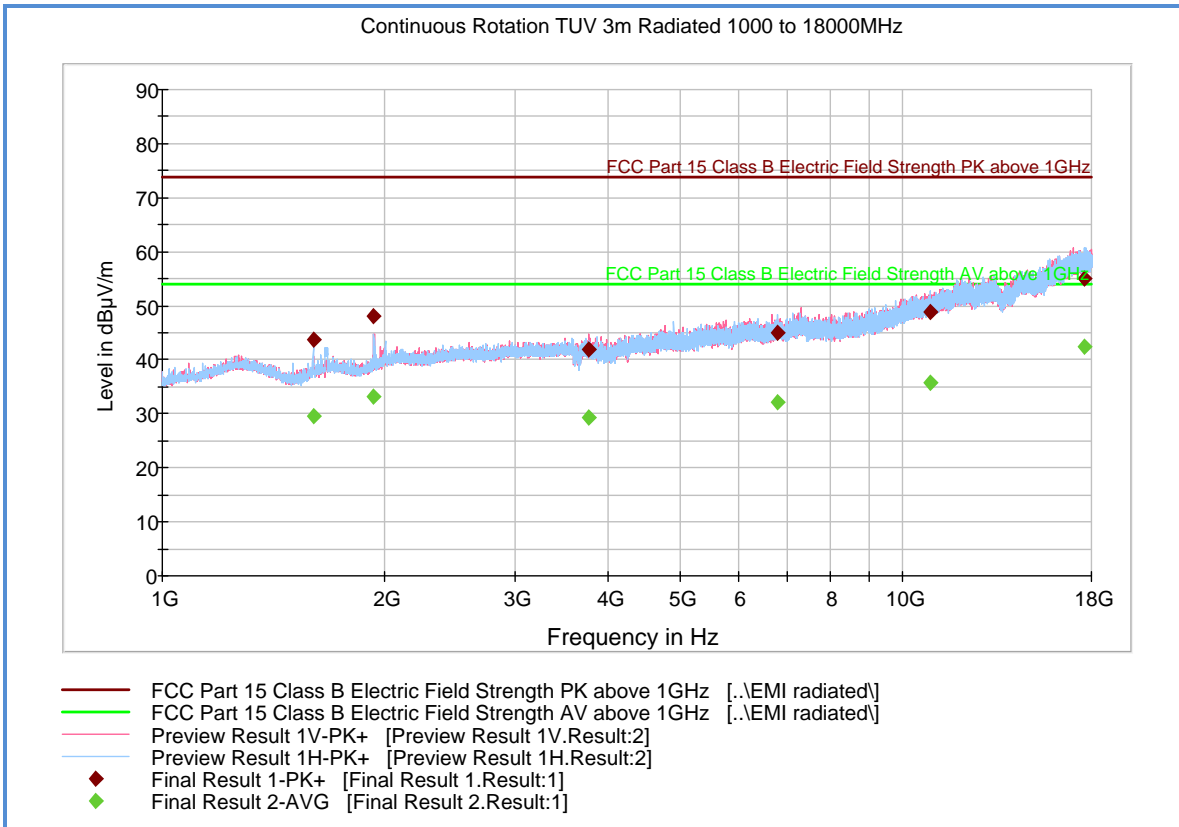


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.978701	20.5	1000.0	120.000	338.0	H	344.0	-15.2	19.5	40.0
48.016104	16.8	1000.0	120.000	100.0	V	305.0	-18.7	23.2	40.0
68.672208	21.7	1000.0	120.000	100.0	V	234.0	-21.6	18.3	40.0
118.381818	18.8	1000.0	120.000	155.0	V	346.0	-19.6	24.7	43.5
121.560519	15.4	1000.0	120.000	200.0	V	344.0	-19.5	28.1	43.5
946.450390	20.1	1000.0	120.000	110.0	V	39.0	0.8	25.9	46.0



2.6.10 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)
1600.33333	43.7	1000.0	1000.000	401.4	H	223.0	-4.3	30.2	73.9
1932.40000	48.1	1000.0	1000.000	99.6	H	164.0	-2.0	25.8	73.9
3767.23333	42.0	1000.0	1000.000	401.3	V	170.0	2.9	31.9	73.9
6783.23333	45.1	1000.0	1000.000	312.2	H	237.0	8.7	28.8	73.9
10889.7000	48.9	1000.0	1000.000	102.6	H	106.0	14.3	25.0	73.9
17650.6000	55.0	1000.0	1000.000	201.4	H	20.0	22.1	18.9	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)
1600.33333	29.5	1000.0	1000.000	401.4	H	223.0	-4.3	24.4	53.9
1932.40000	33.3	1000.0	1000.000	99.6	H	164.0	-2.0	20.6	53.9
3767.23333	29.2	1000.0	1000.000	401.3	V	170.0	2.9	24.7	53.9
6783.23333	32.2	1000.0	1000.000	312.2	H	237.0	8.7	21.7	53.9
10889.7000	35.7	1000.0	1000.000	102.6	H	106.0	14.3	18.2	53.9
17650.6000	42.3	1000.0	1000.000	201.4	H	20.0	22.1	11.6	53.9

FCC ID BDZ7000C
IC: 655C-7000C
Report No. SC1307653_A



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 Test Setup						
1002	Bilog Antenna	3142C	000058717	EMCO	01/21/13	01/21/14
7575	Double-ridged waveguide horn antenna	3117	00155511	EMCO	03/25/13	03/25/14
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	09/21/12	09/21/13
8543	High-frequency cable	Micropore 19057793	N/A	United Microwave Products	09/21/12	09/21/13
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	07/24/13	07/24/14
1016	Pre-amplifier	PAM-0202	187	PAM	09/24/12	09/24/13
-	800M-1GHz Band Notch Filter	BRM50706	019	Micro-Tronics	Verified by 1040	
Miscellaneous						
7560	Barometer/Temperature /Humidity Transmitter	iBTHX-W	1240476	Omega	08/12/12	08/12/13
	Test Software	EMC32	V8.52	Rhode & Schwarz	N/A	
Conducted Emissions Test Setup						
1024	EMI Test Receiver	ESCS30	847793/0001	Rhode & Schwarz	03/11/13	03/11/14
7567	LISN	FCC-LISN-50-25-2-10	120304	Fischer Custom Comm.	06/11/13	06/11/14
8607	20dB Attenuator	CAT-20	N/A	MCL HAT-20	08/21/12	08/21/13
8609	20dB Attenuator	CAT-20	N/A	MCL HAT-20	08/21/12	08/21/13



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	3.89	2.25	5.04
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					2.41
Coverage Factor (k):					2
Expanded Uncertainty:					4.82

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	3.89	2.25	5.04
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					2.40
Coverage Factor (k):					2
Expanded Uncertainty:					4.81



3.2.3 AC Mains Conducted Emissions Measurement

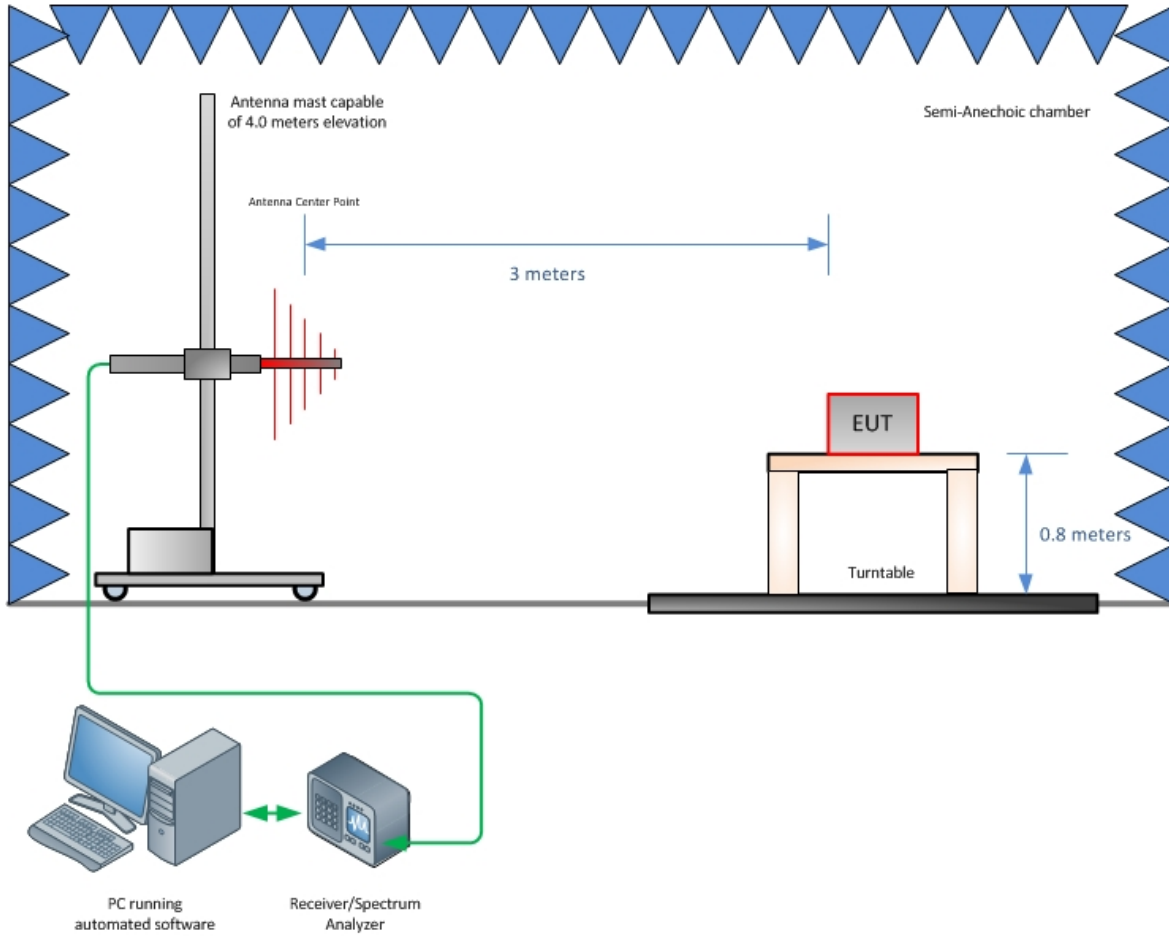
Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.36	0.21	0.04
2	Cables	Rectangular	0.50	0.29	0.08
3	LISN	Rectangular	0.66	0.38	0.15
4	Attenuator	Rectangular	0.30	0.17	0.03
5	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	0.80
				Coverage Factor (k):	2
				Expanded Uncertainty:	1.59



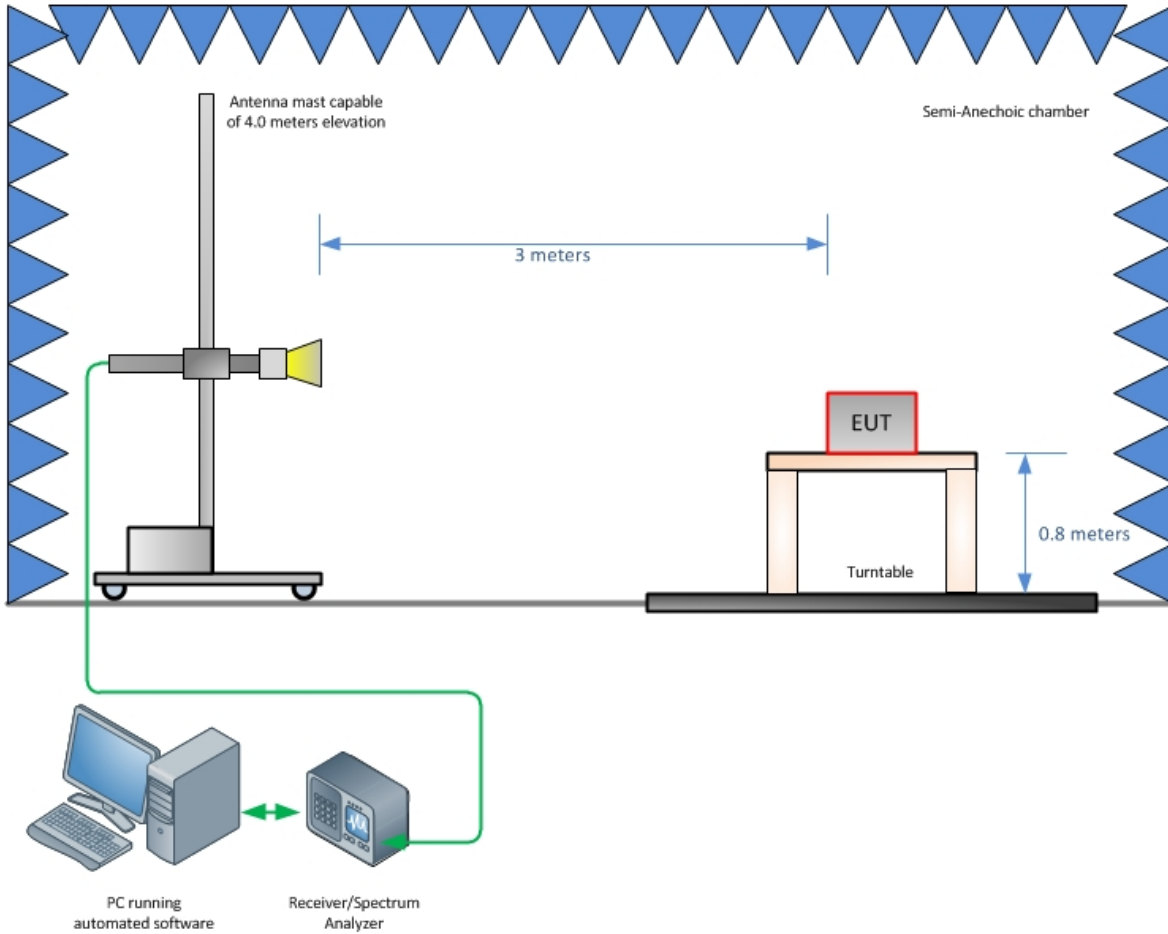
SECTION 4

DIAGRAM OF TEST SETUP

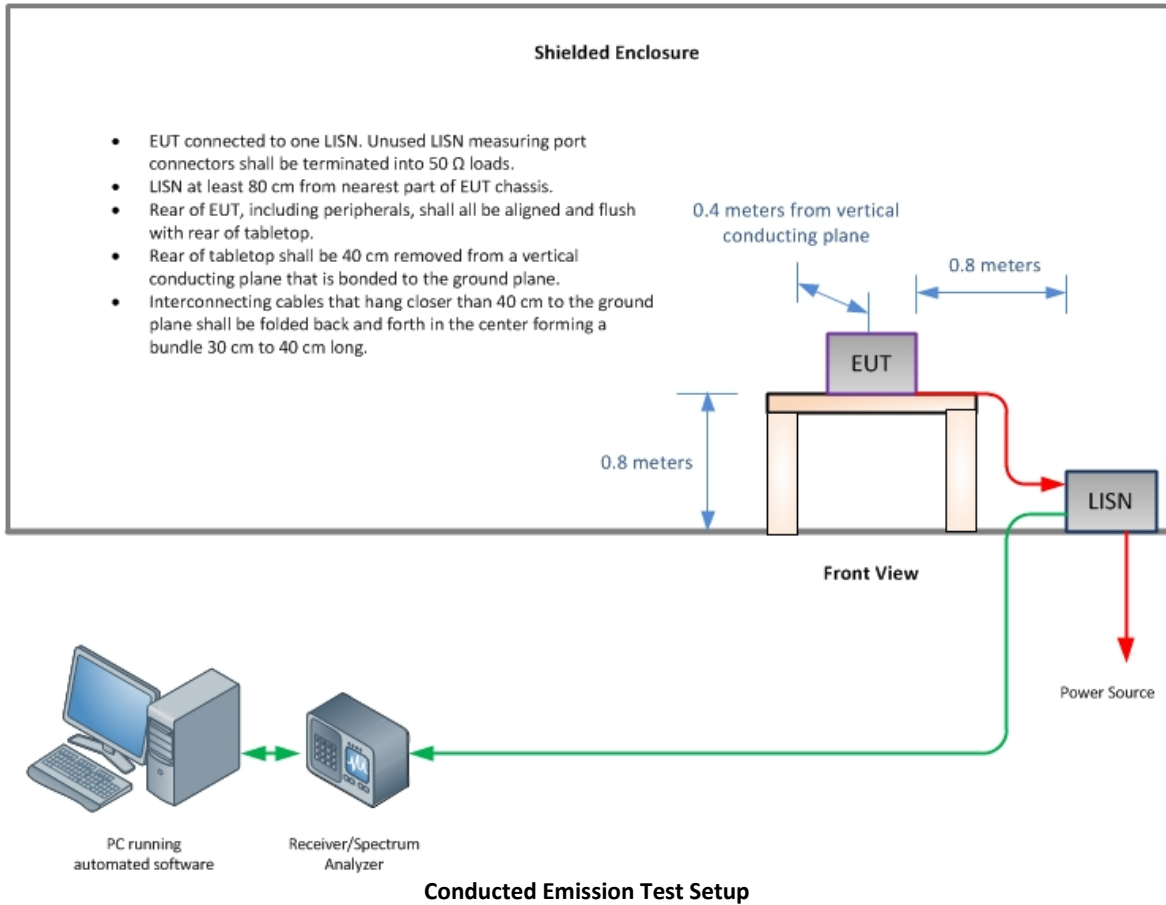
4.1 TEST SETUP DIAGRAM



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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