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Report On

Radio Testing of the
PHILIPS
Mobile Help Button

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

Report No. SC1306809

July 2013




REPORT ON Radio Testing of the
Philips Mobile Help Button


TEST REPORT NUMBER SC1306809

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July 03, 2013



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SECTION 1

REPORT SUMMARY

Radio Testing of the
PHILIPS
Philips Mobile Help Button



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Philips Mobile Help Button 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)	7000MHB
FCC ID Number	BDZ7000MHB
IC Number	655C-7000MHB
Serial Number(s)	1030000120 & 1030000124
Number of Samples Tested	2
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 01, 2013
Finish of Test	July 02, 2013
Name of Engineer(s)	Juan Manuel Gonzalez
Related Document(s)	None. Supporting documents for EUT certification are separate exhibits.

1.2 BRIEF SUMMARY OF RESULTS

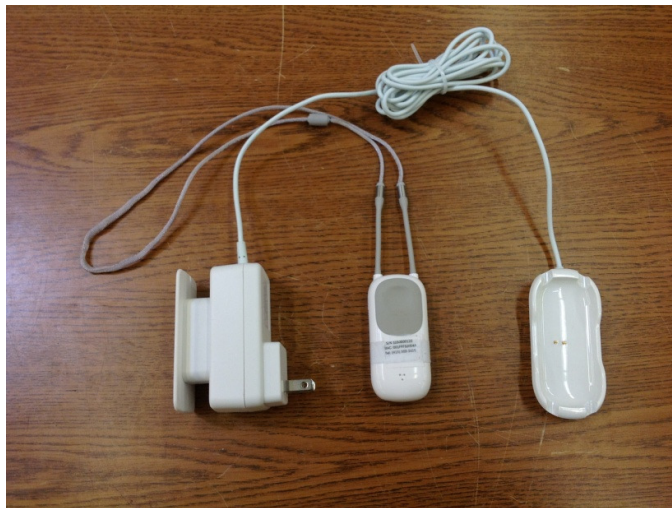
A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.249 with cross-reference to the corresponding IC RSS standard is shown below.

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 Philips Mobile Help Button model: 7000MHB as shown in the photograph below. The EUT is a PERS (personal emergency response system) mobile help button (MHB) device comprising ISM900MHz, GSM850, PCS1900, WCDMA band II and band V transceivers. In addition there is a GPS receiver and WiFi receiver.



Equipment Under Test



1.3.2 EUT General Description

EUT Description	Philips Mobile Help Button
Model Name	Mobile Help Button
Model Number(s)	7000MHB
Rated Voltage	3.7VDC from a rechargeable batterie
Output Power	91.54dB μ V/m @ 3 meters (260.7 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 Calibrated power ("IoSpeedTxPower"= -140) alternating between the three channels verified (Section 1.3.2)
RX Mode	EUT in idle mode in Charging station.

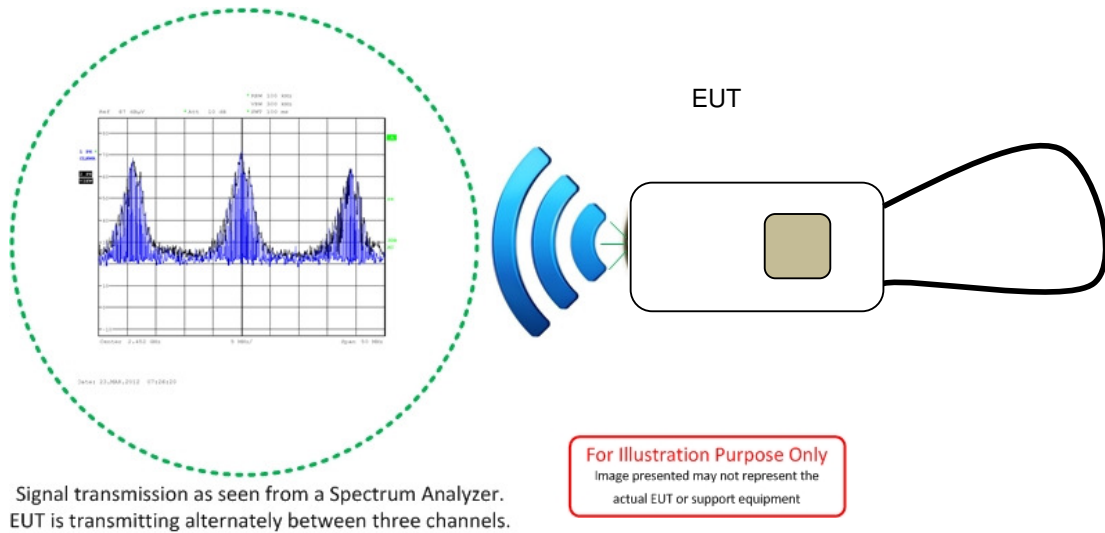
1.4.2 EUT Exercise Software

Standard Hyperterminal. The software sets the EUT in the continuous packet transmission mode in combination with button press.

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





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 1030000120 & 1030000124		
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
Philips Mobile Help Button



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: 1030000120/ RX Mode

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

July 1st, 2013/JMG

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 23.5°C
Relative Humidity 45.2%
ATM Pressure 99.3 kPa

2.1.7 Additional Observations

- The EUT is a battery operated device; however there is a provision to charge the EUT via the provided charging station.
- The EUT does not transmit when in charging mode in normal operation.
- To show general compliance to the present requirement, the EUT was verified while in charging mode using the supplied AC charger.



- 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)

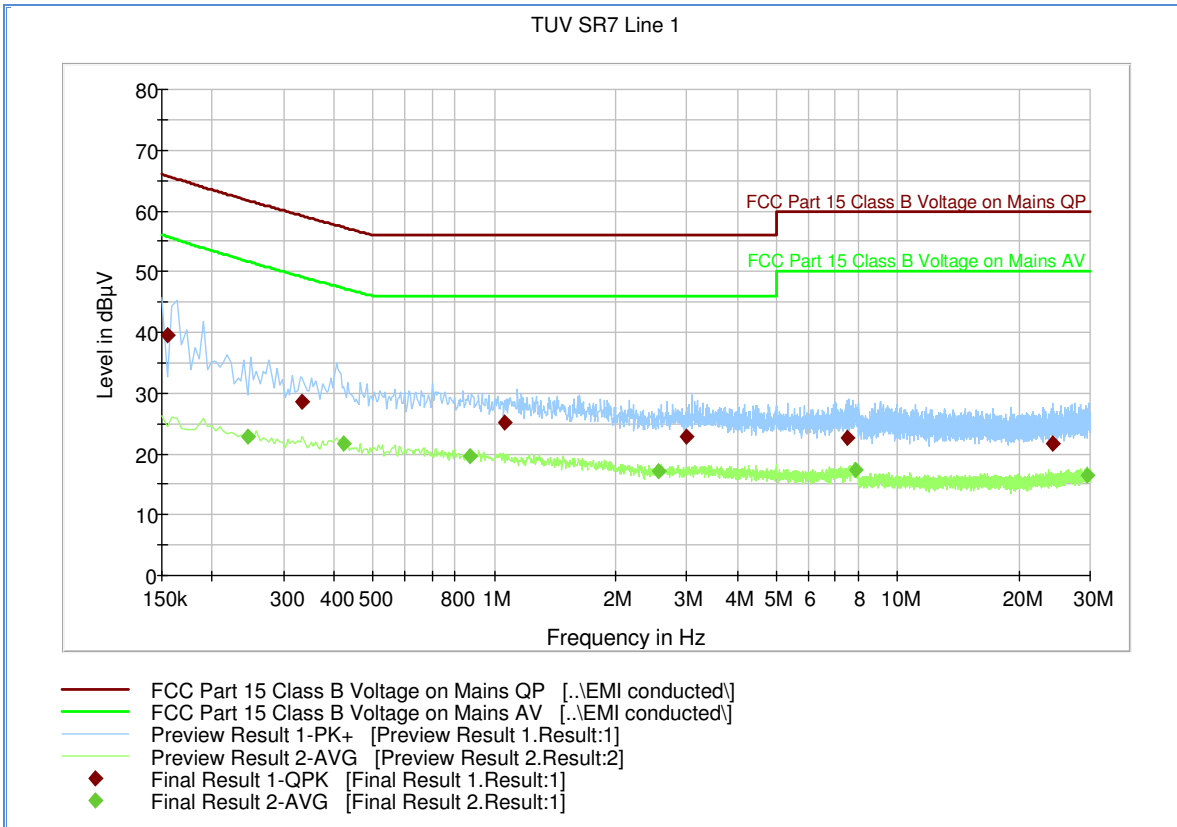
Measuring equipment raw measurement (db μ V) @ 150kHz		5.5
Correction Factor (dB)	Asset# 8607 (20 dB attenuator)	19.9
	Asset# 1177 (cable)	0.15
	Asset# 1176 (cable)	0.35
	Asset# 7568 (LISN)	0.30
Reported QuasiPeak Final Measurement (dbμV) @ 150kHz		26.2

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	39.4	1000.0	9.000	Off	L1	20.4	26.3	65.7
0.334500	28.7	1000.0	9.000	Off	L1	20.3	30.5	59.2
1.059000	25.1	1000.0	9.000	Off	L1	20.2	30.9	56.0
3.003000	22.8	1000.0	9.000	Off	L1	20.3	33.2	56.0
7.503000	22.6	1000.0	9.000	Off	L1	20.4	37.4	60.0
24.225000	21.6	1000.0	9.000	Off	L1	21.3	38.4	60.0

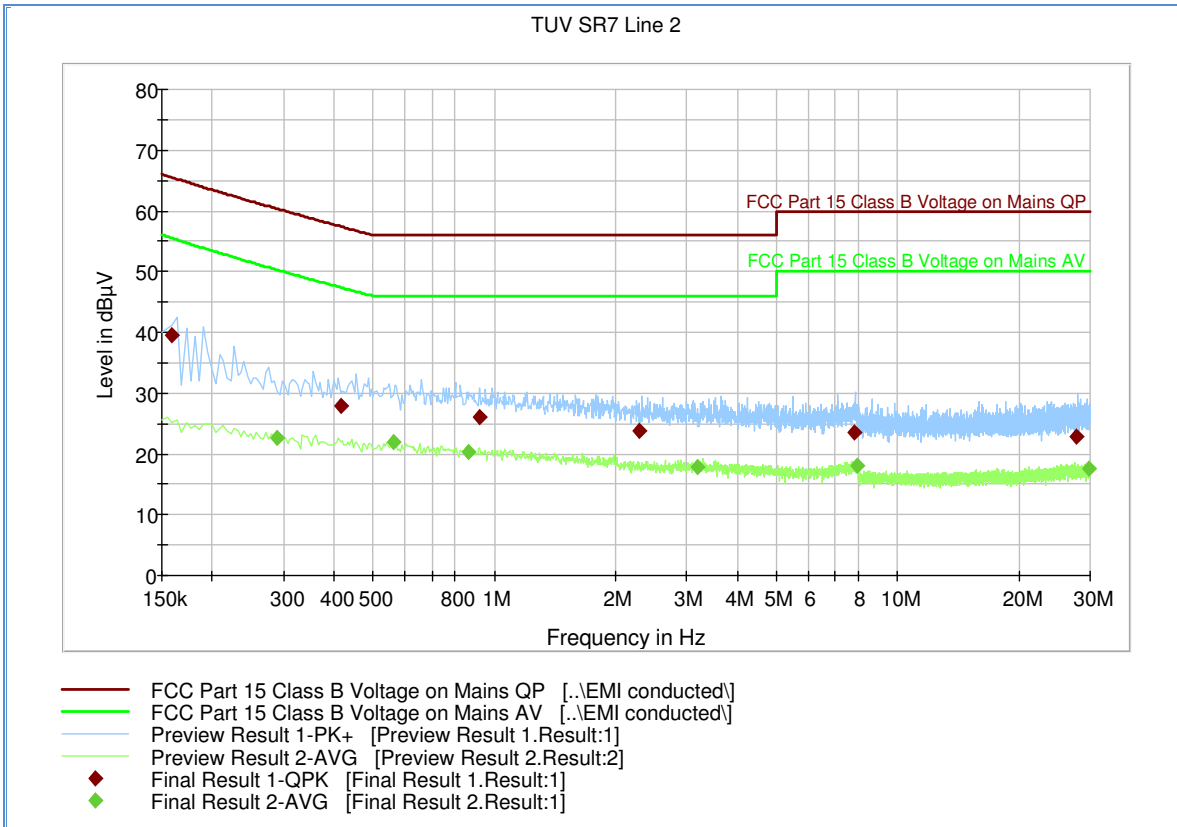
Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.244500	22.8	1000.0	9.000	Off	L1	20.3	28.9	51.7
0.424500	21.8	1000.0	9.000	Off	L1	20.2	25.5	47.2
0.870000	19.7	1000.0	9.000	Off	L1	20.2	26.3	46.0
2.557500	17.1	1000.0	9.000	Off	L1	20.3	28.9	46.0
7.849500	17.4	1000.0	9.000	Off	L1	20.4	32.6	50.0
29.575500	16.4	1000.0	9.000	Off	L1	21.6	33.6	50.0



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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)
0.159000	39.5	1000.0	9.000	Off	N	21.2	26.0	65.5
0.415500	27.9	1000.0	9.000	Off	N	21.1	29.5	57.4
0.919500	26.0	1000.0	9.000	Off	N	21.1	30.0	56.0
2.283000	23.8	1000.0	9.000	Off	N	21.1	32.2	56.0
7.791000	23.5	1000.0	9.000	Off	N	21.2	36.5	60.0
27.820500	22.9	1000.0	9.000	Off	N	22.2	37.1	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.289500	22.7	1000.0	9.000	Off	N	21.1	27.6	50.3
0.564000	21.9	1000.0	9.000	Off	N	21.1	24.1	46.0
0.865500	20.3	1000.0	9.000	Off	N	21.1	25.7	46.0
3.196500	17.9	1000.0	9.000	Off	N	21.2	28.1	46.0
7.921500	18.0	1000.0	9.000	Off	N	21.2	32.0	50.0
29.733000	17.5	1000.0	9.000	Off	N	22.3	32.5	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: 1030000124/ Default Test Configuration

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

July 2, 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	22.5°C
Relative Humidity	43.5%
ATM Pressure	100.5 kPa

2.2.7 Additional Observations

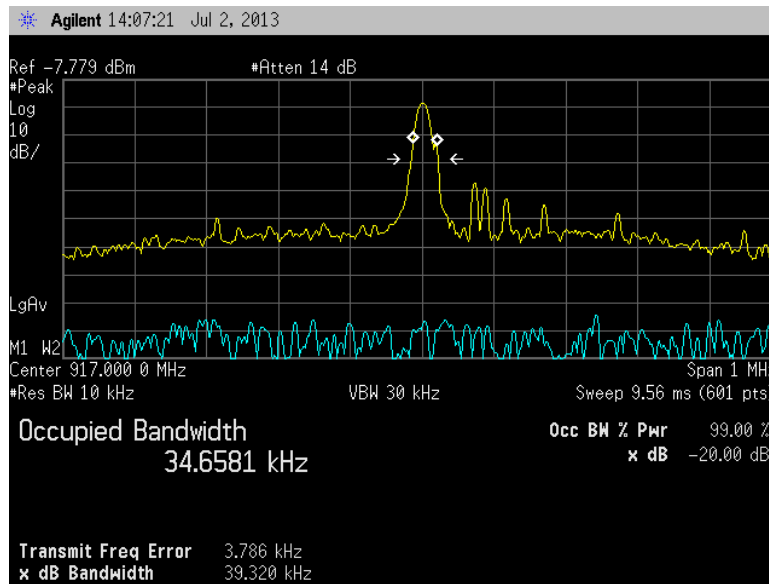
- This is a radiated test.
- OBW measurement function of the Spectrum Analyzer used (x dB function).
- Span is wide enough to capture the channel transmission.
- RBW is 1% of the span, VBW is 3X RBW.
- Sweep is auto.
- Detector is peak.
- Trace is max hold.



2.2.8 Test Results

Low Channel (917 MHz)	Mid Channel (919MHz)	High Channel (921MHz)
39.32KHz	47.581KMHz	35.27 KHz

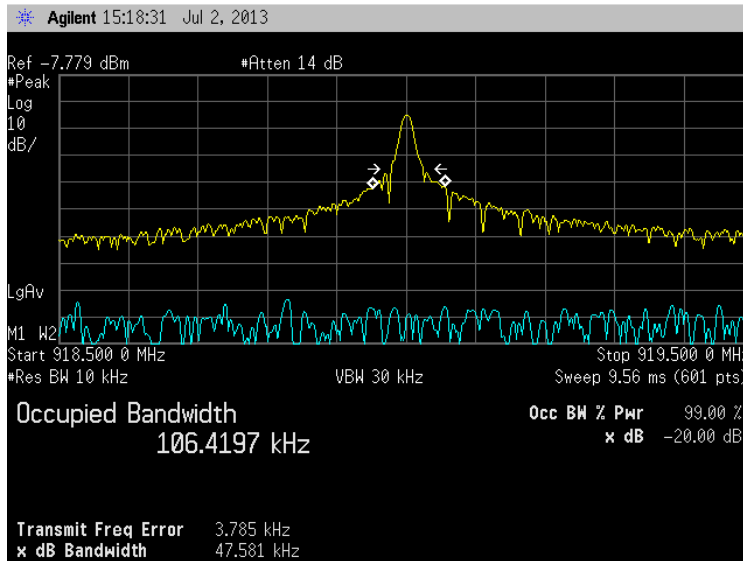
917.00 MHz – (20dB BW/2) = 916.98034MHz (within the frequency band - **Compliant**)
 921.00MHz + (20dB BW/2) = 921.017635MHz (within the frequency band - **Compliant**)



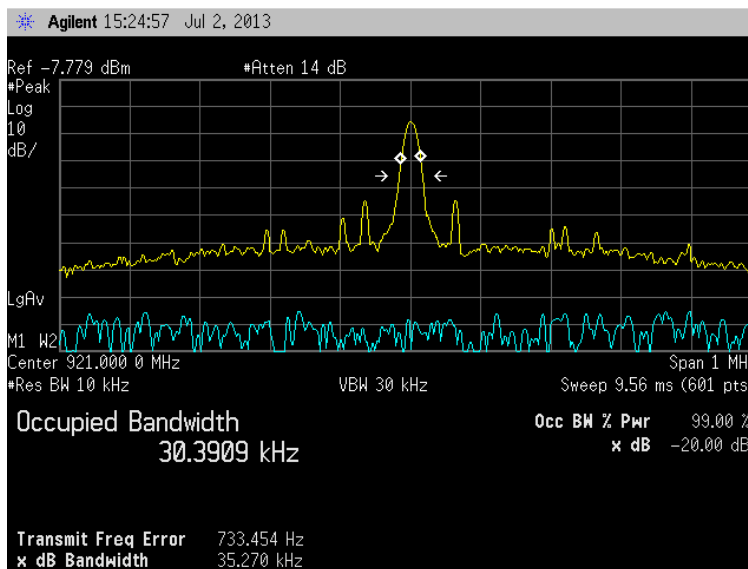
Low Channel



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Mid Channel



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: 1030000124/ Default Test Configuration

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

July 2, 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	22.5°C
Relative Humidity	43.5%
ATM Pressure	100.5 kPa

2.3.7 Additional Observations

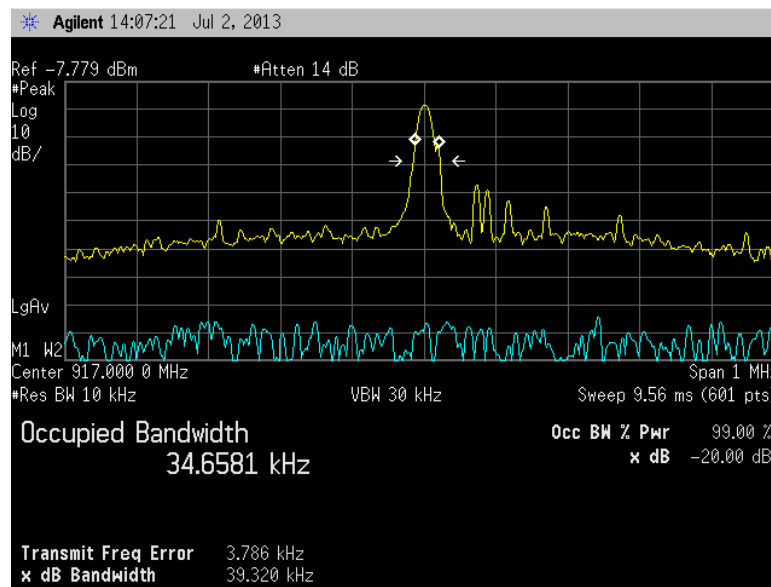
- This is a radiated test.
- Span is wide enough to capture the channel transmission.
- RBW is 1% of the span.
- VBW is 3X RBW.
- Sweep is auto.
- Detector is peak.



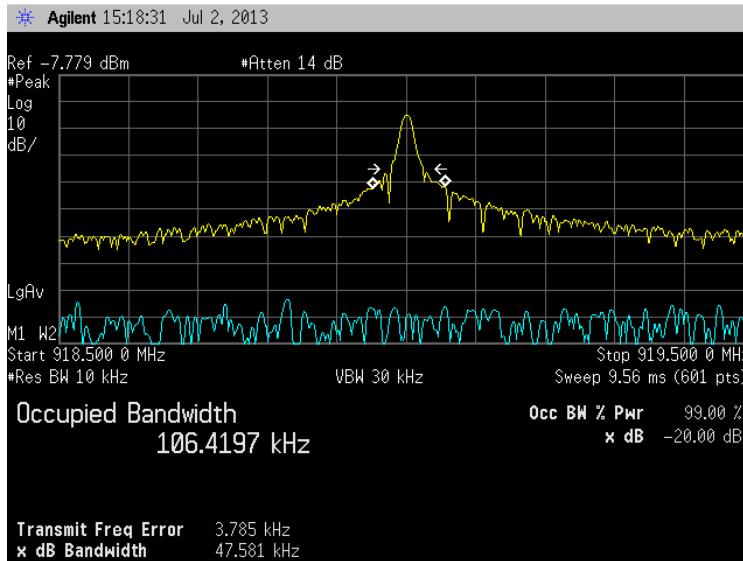
- The % Power Bandwidth setting in the spectrum analyzer was set to 99% (default).
- The Channel Bandwidth measurement function of the spectrum analyzer was used for this test.

2.3.8 Test Results

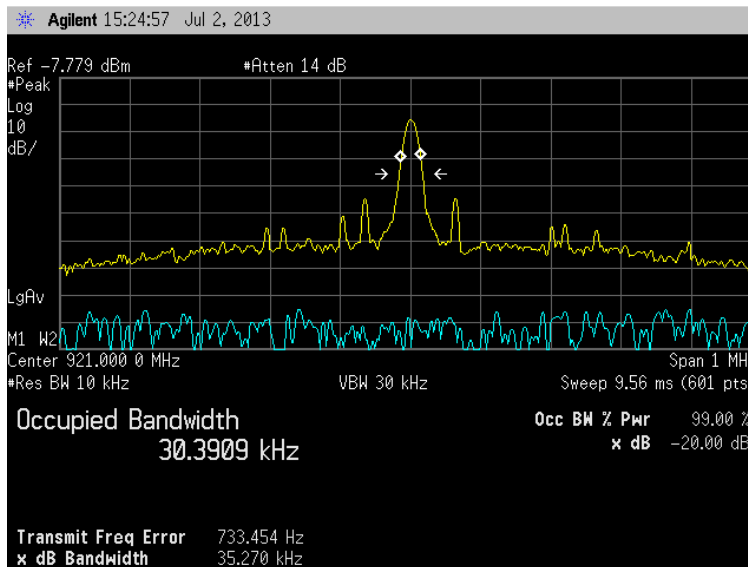
Low Channel (2433 MHz)	Mid Channel (2452MHz)	High Channel (2471MHz)
34.6581 KHz	106.4197 KHz	30.3909 KHz



Low Channel



Mid Channel



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: 1030000120/ Default Test Configuration

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

July 2, 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 22.5°C
Relative Humidity 43.5%
ATM Pressure 100.5 kPa

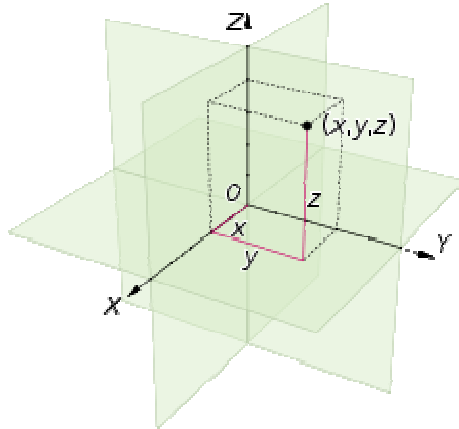
2.4.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to 18GHz.
- Fundamental measurements were performed without a preamp.
- Harmonics measurements were performed with a preamp and 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.



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- EUT is a portable device. For radiated measurements X, Y and Z orientations were verified. Worst case position was “y” and is presented in this report.



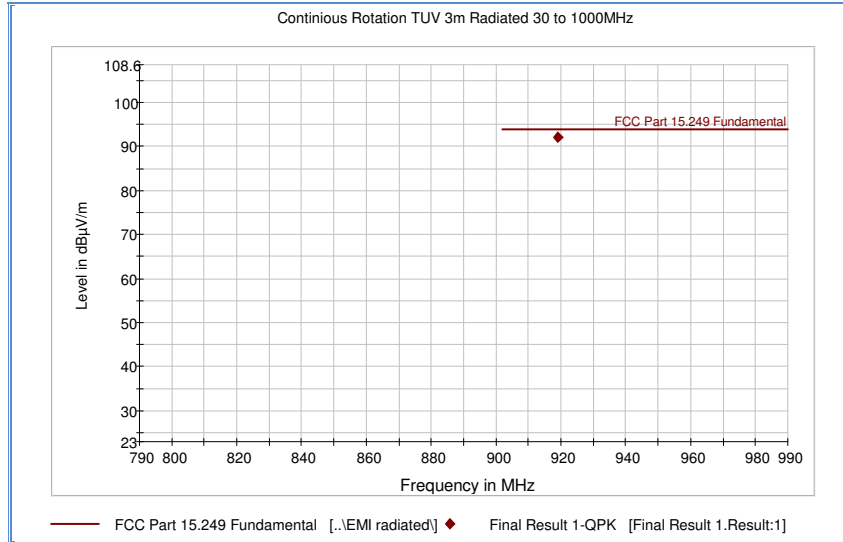
2.4.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 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

2.4.9 Test Results

See attached plots.

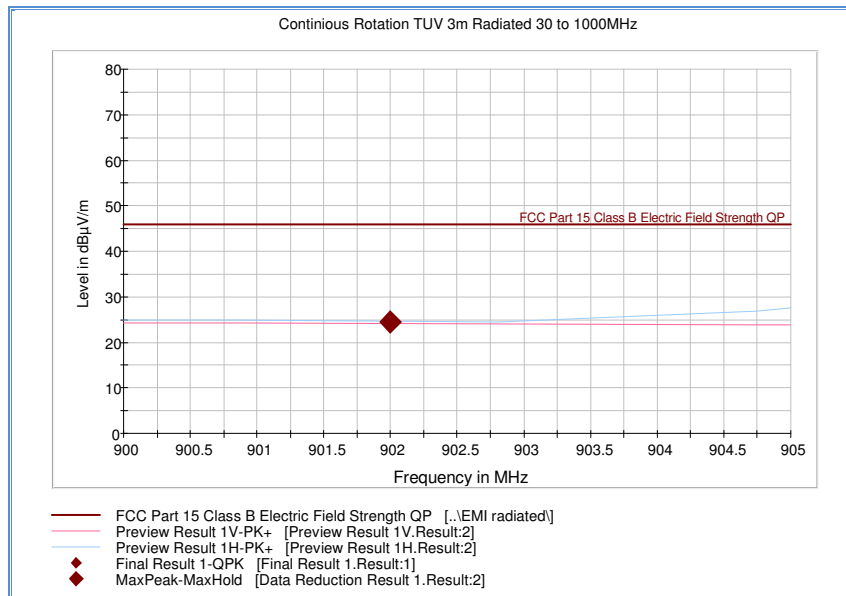
2.4.10 Test Results Fundamental (Y axis configuration Low Channel)



QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
917.000000	91.5	1000.0	120.000	250.0	V	260.0	0.4	2.5	94.0

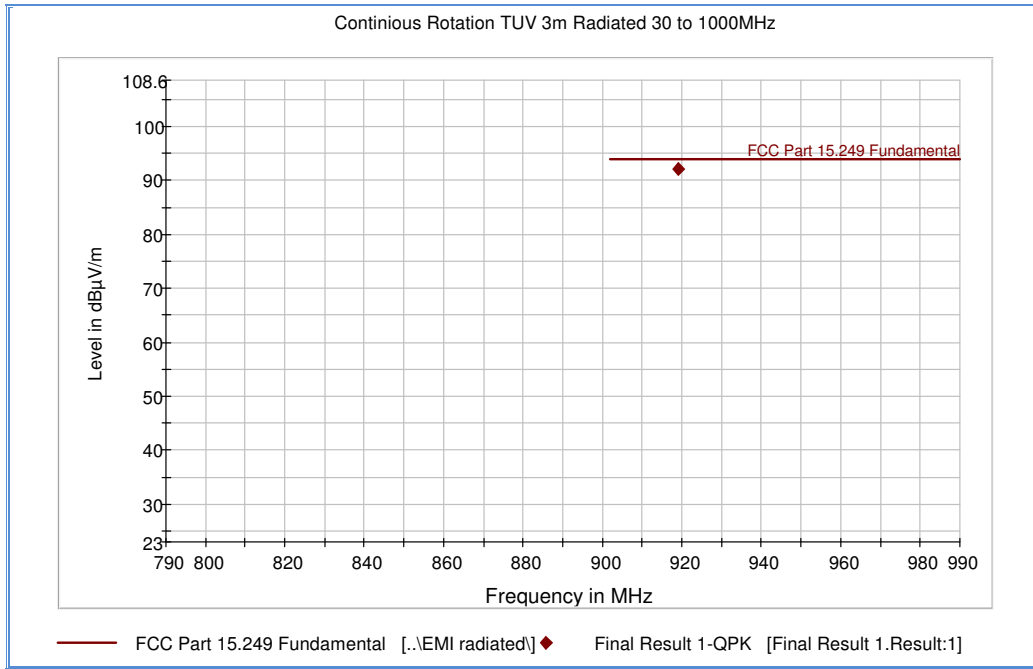
2.4.11 Lower Band Edge (Y axis configuration)



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	24.5	1000.0	120.000	100	H	1	0.1	21.5	46.0

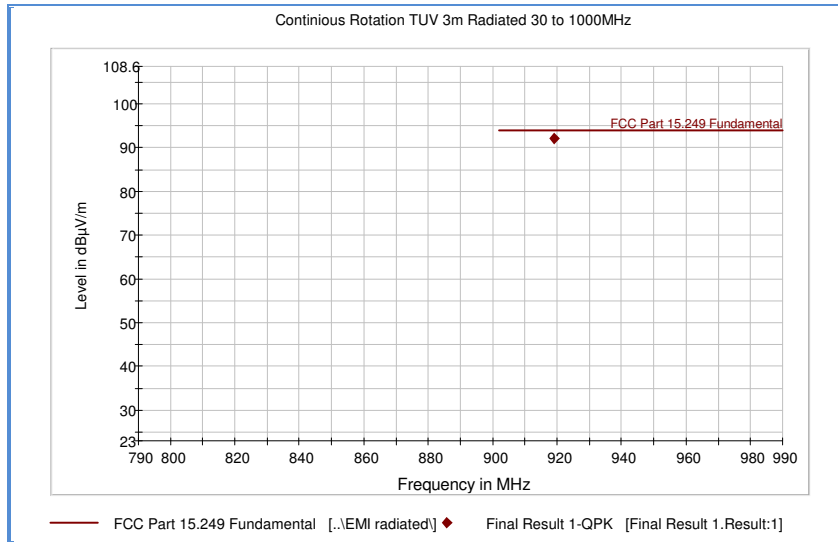
2.4.12 Test Results Fundamental (Y axis configuration Mid Channel)



QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
919.020601	91.3	1000.0	120.000	250.0	V	260.0	0.4	2.7	94.0

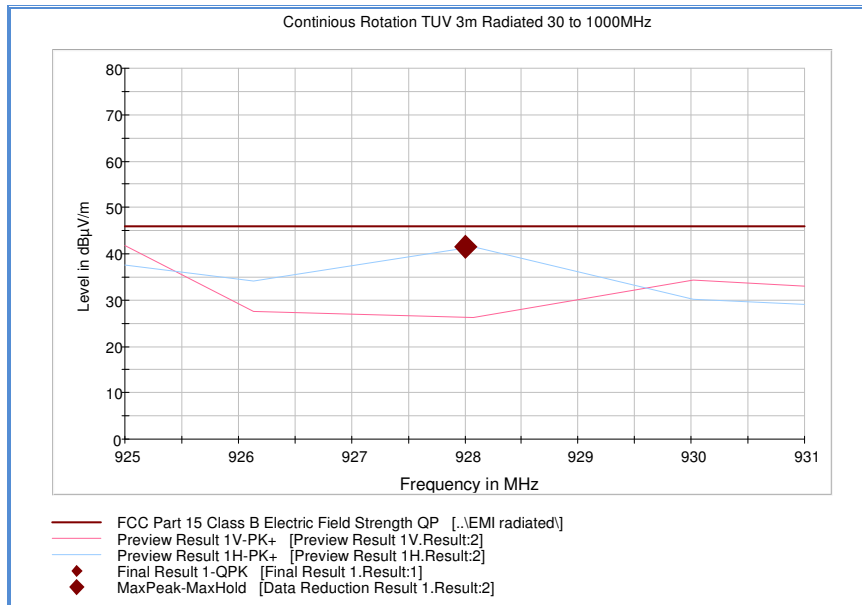
2.4.13 Test Results Fundamental (Y axis configuration High Channel)



QP Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
921.000000	91.1	1000.0	120.000	250.0	V	260.0	0.4	2.9	94.0

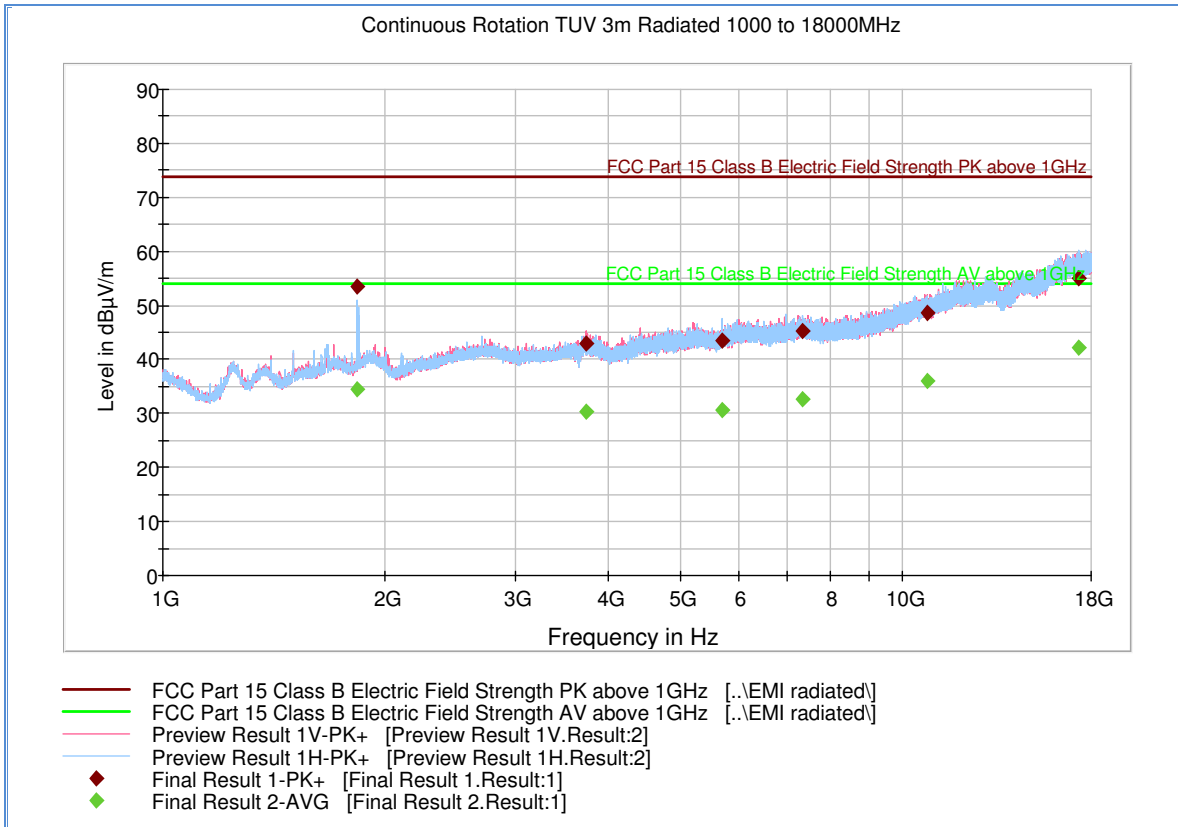
2.4.14 HigherBand Edge (Y axis configuration)



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	41.5	1000.0	120.000	100	H	25	0.4	4.5	46.0

2.4.15 Test Results Harmonics (Y axis configuration “Worst Case”)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1833.986667	53.6	1000.0	1000.000	99.6	H	159.0	-2.5	20.3	73.9
3730.786667	43.0	1000.0	1000.000	344.1	V	316.0	3.0	30.9	73.9
5710.360000	43.5	1000.0	1000.000	116.6	H	260.0	7.7	30.4	73.9
7319.693333	45.3	1000.0	1000.000	186.5	H	187.0	9.8	28.6	73.9
10818.253333	48.5	1000.0	1000.000	402.1	V	174.0	14.0	25.4	73.9
17280.193333	55.1	1000.0	1000.000	99.6	H	233.0	21.8	18.8	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)
1833.986667	34.3	1000.0	1000.000	99.6	H	159.0	-2.5	19.6	53.9
3730.786667	30.5	1000.0	1000.000	344.1	V	316.0	3.0	23.4	53.9
5710.360000	30.6	1000.0	1000.000	116.6	H	260.0	7.7	23.3	53.9
7319.693333	32.7	1000.0	1000.000	186.5	H	187.0	9.8	21.2	53.9
10818.253333	35.9	1000.0	1000.000	402.1	V	174.0	14.0	18.0	53.9
17280.193333	42.2	1000.0	1000.000	99.6	H	233.0	21.8	11.7	53.9

Test Notes 1: Measurement was performed with a 800M-1GHzGHz notch filter.
 3 Channels TX alternately.
 Only worst axis configuration presented (Y axis).



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: 1030000120/ Default Test Configuration

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

July 2, 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	22.5°C
Relative Humidity	43.5%
ATM Pressure	100.5 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 configuration based from fundamental/harmonics verification ("Y" axis configuration).
- 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.

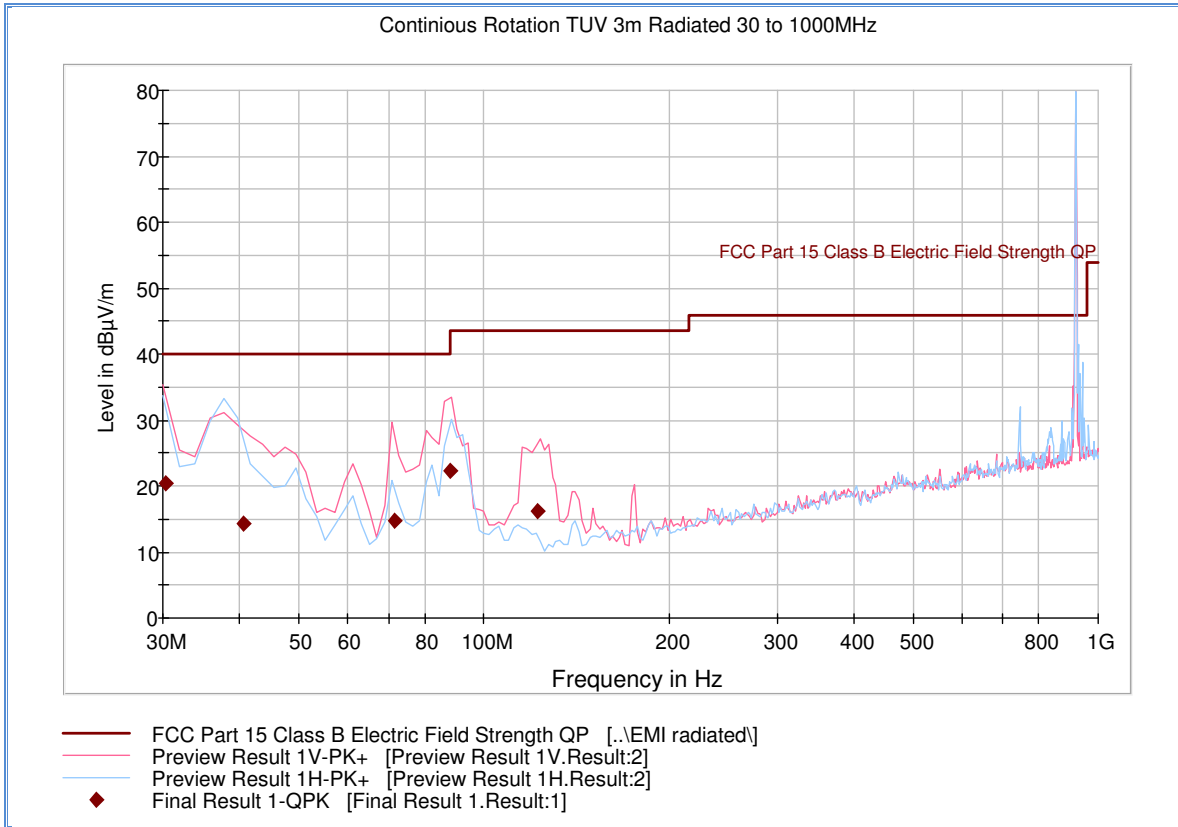


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2.5.9 Sample Computation (Radiated Emission)

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 ("Y" 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)
30.320000	20.5	1000.0	120.000	115.0	V	-12.0	-11.0	19.5	40.0
40.647214	14.4	1000.0	120.000	135.0	V	309.0	-16.4	25.6	40.0
71.461643	14.7	1000.0	120.000	109.0	V	222.0	-21.7	25.3	40.0
88.252745	22.2	1000.0	120.000	400.0	V	342.0	-20.3	21.3	43.5
122.386613	16.3	1000.0	120.000	200.0	V	7.0	-19.5	27.2	43.5

Test Notes:



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: 1030000120/ RX Mode

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

July 2, 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 22.5°C
Relative Humidity 43.5%
ATM Pressure 100.5 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.

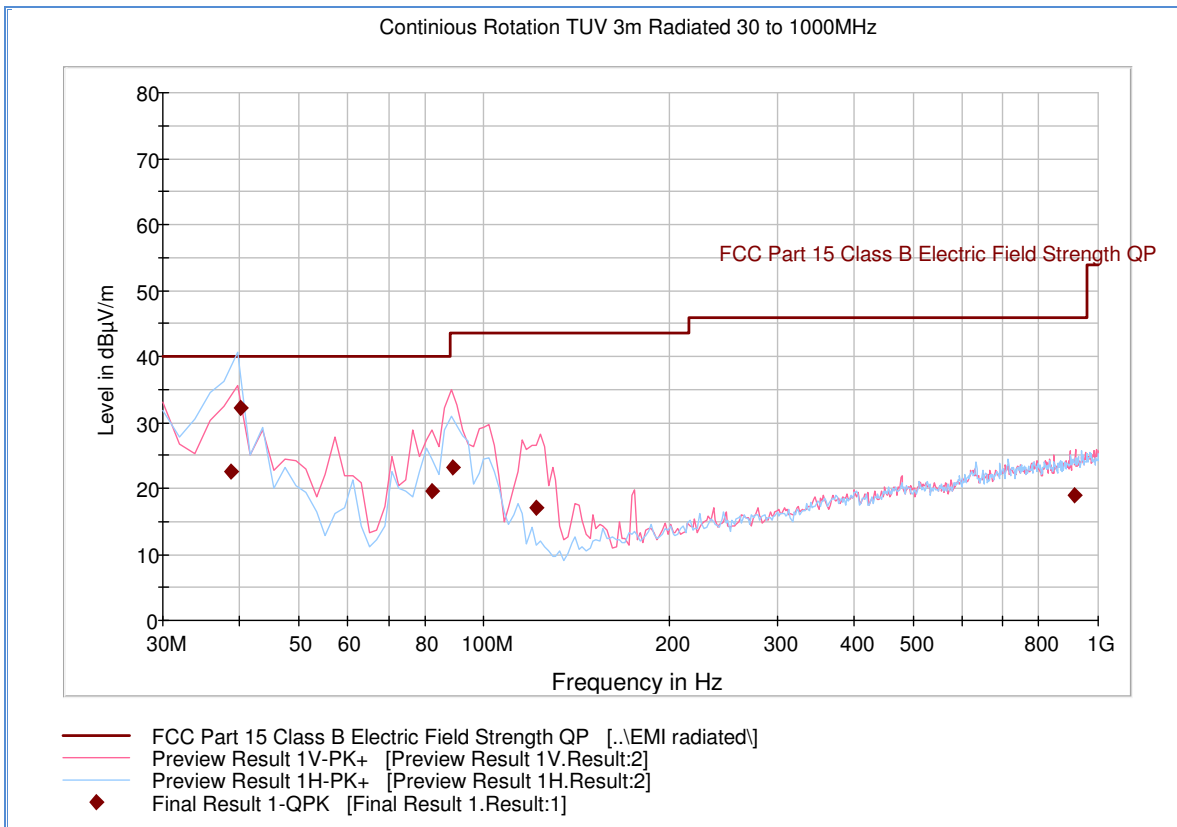
2.6.8 Sample Computation (Radiated Emission)

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 (db μ V/m) @ 2400 MHz			53.6



America

2.6.9 Test Results Below 1GHz (Receive Mode)

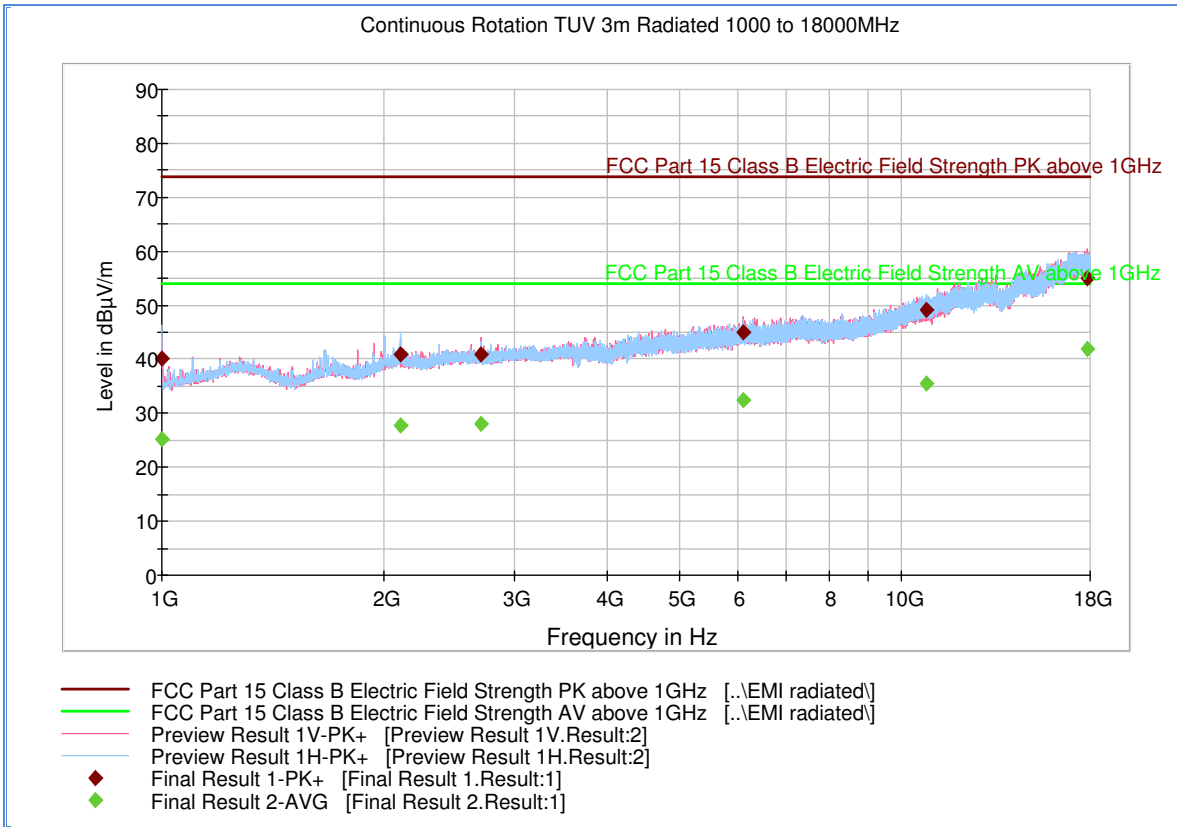


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
38.759439	22.5	1000.0	120.000	100.0	H	51.0	-15.7	17.5	40.0
40.047214	32.3	1000.0	120.000	100.0	H	35.0	-16.1	7.7	40.0
82.204970	19.7	1000.0	120.000	295.0	V	-12.0	-21.0	20.3	40.0
89.092745	23.1	1000.0	120.000	105.0	V	18.0	-20.2	20.4	43.5
121.786613	17.1	1000.0	120.000	100.0	V	-6.0	-19.5	26.4	43.5
917.276713	18.9	1000.0	120.000	109.0	V	207.0	0.3	27.1	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)
1000.34000	40.0	1000.0	1000.000	103.6	H	202.0	-6.3	33.9	73.9
2099.52000	40.9	1000.0	1000.000	236.3	H	76.0	-1.4	33.0	73.9
2699.93333	41.0	1000.0	1000.000	380.1	V	176.0	0.7	32.9	73.9
6119.12666	45.1	1000.0	1000.000	200.4	V	343.0	8.1	28.8	73.9
10821.7266	49.0	1000.0	1000.000	201.4	H	36.0	14.0	24.9	73.9
17856.6933	55.2	1000.0	1000.000	187.5	V	26.0	22.3	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)
1000.34000	25.2	1000.0	1000.000	103.6	H	202.0	-6.3	28.7	53.9
2099.52000	27.8	1000.0	1000.000	236.3	H	76.0	-1.4	26.1	53.9
2699.93333	27.9	1000.0	1000.000	380.1	V	176.0	0.7	26.0	53.9
6119.12666	32.4	1000.0	1000.000	200.4	V	343.0	8.1	21.5	53.9
10821.7266	35.4	1000.0	1000.000	201.4	H	36.0	14.0	18.5	53.9
17856.6933	41.9	1000.0	1000.000	187.5	V	26.0	22.3	12.0	53.9

FCC ID BDZ7000MHB
IC: 655C-7000MHB
Report No. SC1306809



America

SECTION 3

TEST EQUIPMENT USED



America

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
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	07/13/13
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
6452	Multimeter	3478A	2911A52177	Hewlett Packard	07/16/12	07/16/13
	Test Software	EMC32	V8.52	Rhode & Schwarz	N/A	
Conducted Emissions Test Setup						
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	06/13/12	07/13/13
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

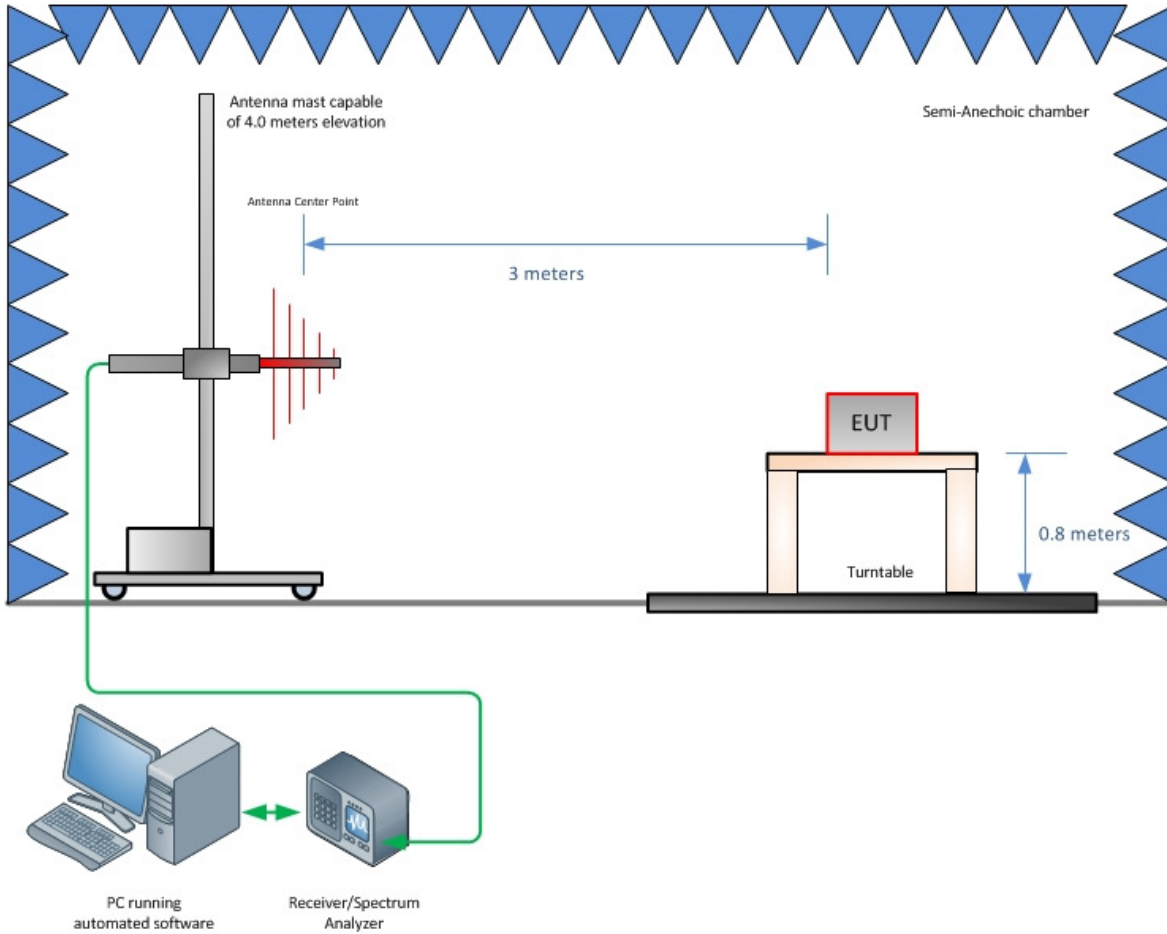
Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.36	0.21	0.04
2	Cables	Rectangular	0.50	0.29	0.08
3	LISN	Rectangular	0.66	0.38	0.15
4	Attenuator	Rectangular	0.30	0.17	0.03
5	EUT Setup	Rectangular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



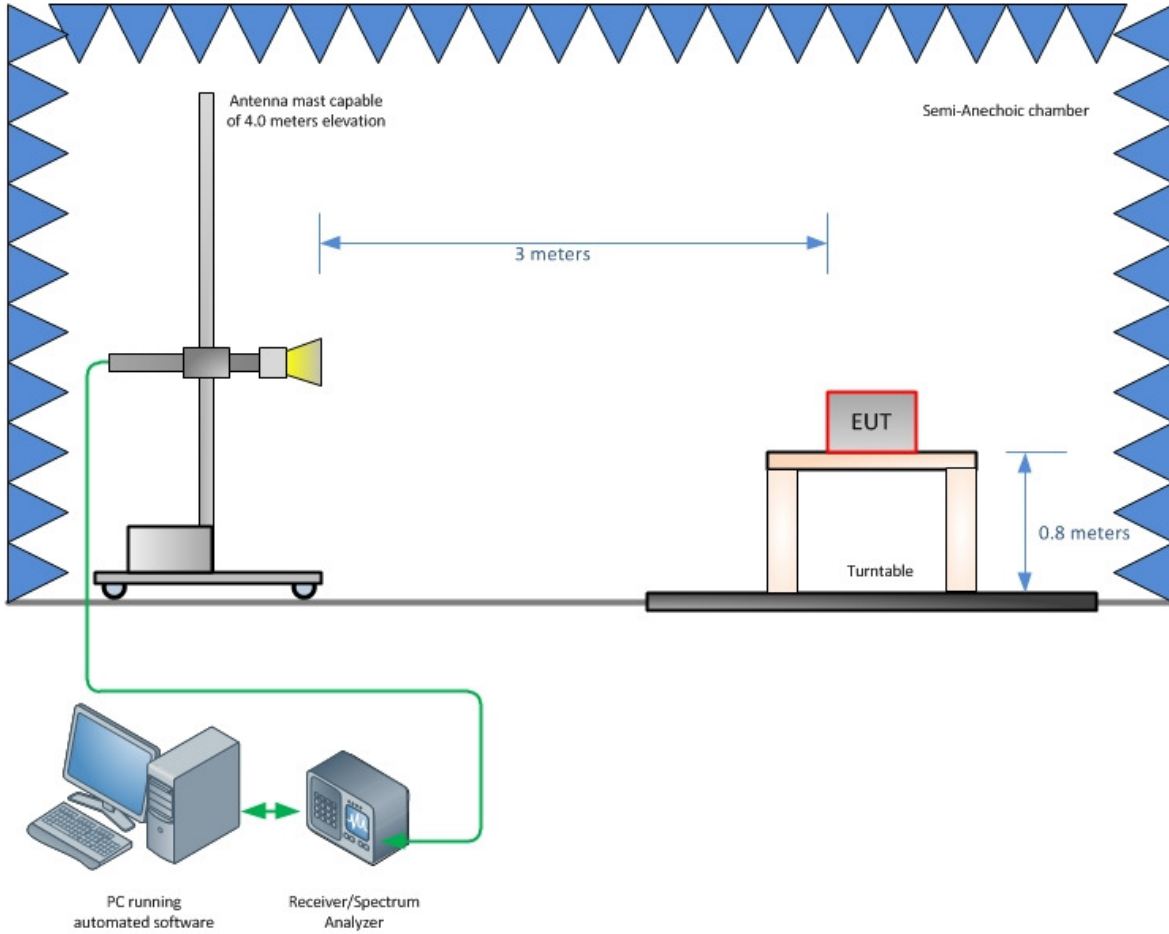
SECTION 4

DIAGRAM OF TEST SETUP

4.1 TEST SETUP DIAGRAM



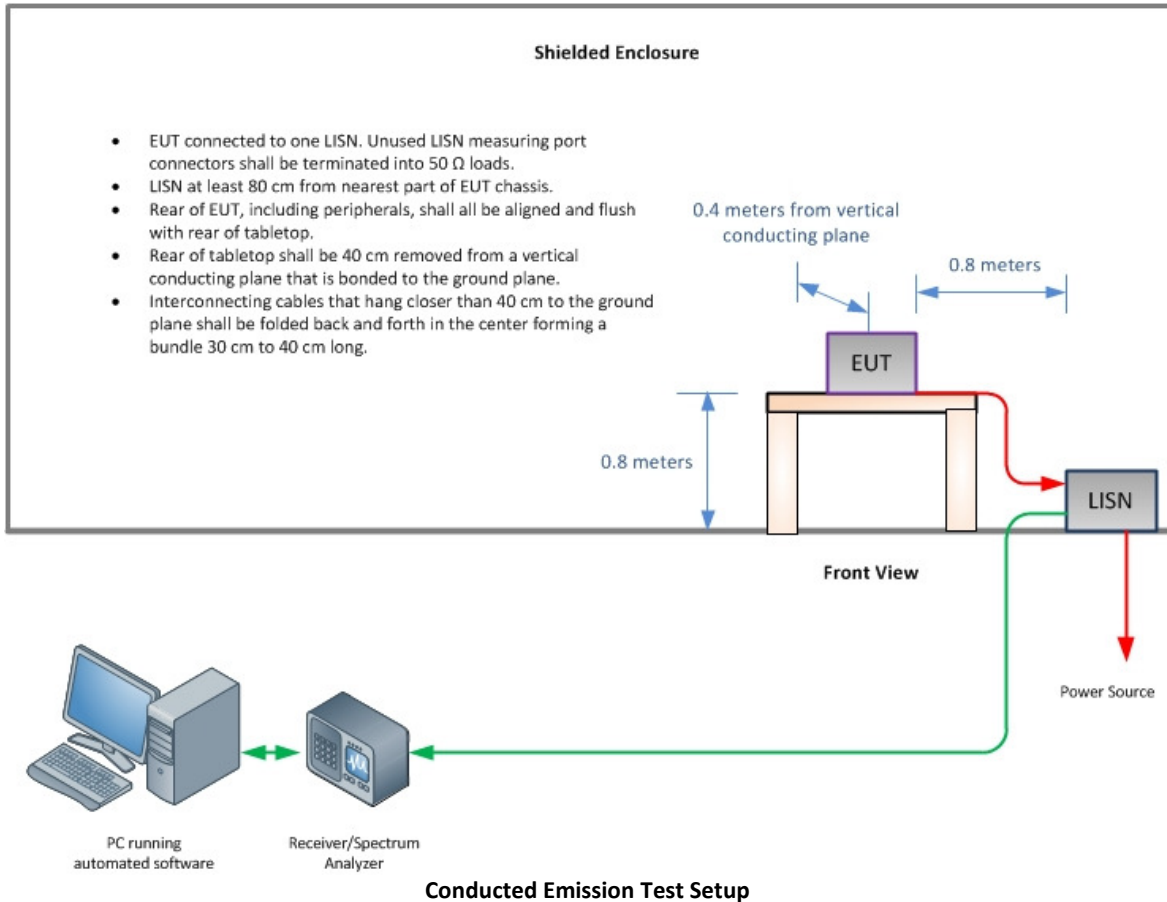
Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



America





SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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