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Report On

Application for Grant of Equipment Authorization of the NantWorks
HBox Access Point for Medical Devices

FCC Part 15 Subpart C §15.247: 2014
IC RSS-210 Issue 8 December 2010

Report No.SD72106517-0515B Rev.1 **July 2015**

REPORT ON	Radio Testing of the NantWorks HBox Access Point for Medical Devices
TEST REPORT NUMBER	SD72106517-0515B Rev.1
PREPARED FOR	NantWorks 9920 Jefferson Blvd. Culver City, CA 90232
CONTACT PERSON	David Lu Principal Engineer (858) 735-6852 dlu@nantworks.com
PREPARED BY	Xiaoying Zhang **Name** Authorized Signatory Title: EMC/Wireless Test Engineer
APPROVED BY	Juan M. Gonzalez **Name** Authorized Signatory Title: Commercial Wireless EMC Lab Manager
DATED	July 15, 2015

TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

Revision History

SD72106517-0515B Rev.1 NantWorks 200-HBX-PDL rev 1 HBox Access Point for Medical Devices					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
06/24/2015	Initial Release				Juan M Gonzalez
07/15/2015		Rev.1	Model name correction	6 and 9	Alex Chang

CONTENTS

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SECTION 1

REPORT SUMMARY

Radio Testing of the
NantWorks
HBox Access Point for Medical Devices

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the NantWorks HBox Access Point for Medical Devices to the requirements of the following:
FCC Part 15 Subpart C §15.247
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	NantWorks
Model Number(s)	200-HBX-PDL rev 1
FCC ID Number	IFU1001012
IC Number	N/A (Manufacturer not seeking IC Certification at the time of verification)
Serial Number(s)	N/A (sample #2) Conducted antenna service port testing sample, serial number not available due to temporary addition of an antenna port for testing / (Sample #1) Radiated testing Sample
Number of Samples Tested	2
Test Specification/Issue/Date	• FCC Part 15 Subpart C §15.247 (October 1, 2014) • RSS-210 issue 8: December 2010; Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment • RSS-GEN issue 4 November 2014; (General Requirements for Compliance of Radio Apparatus)
Start of Test	April 29, 2015
Finish of Test	May 30, 2015
Name of Engineer(s)	Xiaoying Zhang
Related Document(s)	• Public Notice (DA 00-705 Released March 30, 2000) Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems.

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 and IC RSS-210 Issue 8 December 2010 with cross-reference to the corresponding IC RSS standard is shown below.

Section	§15.247 Spec Clause	RSS	Test Description	Result	Comments/ Base Standard
2.1	§15.207 (a)	RSS-Gen 7.2.4	Conducted Emissions	Compliant	
2.2	§15.247(b)(1)	RSS-210 A8.4(2)	Peak Output Power	Compliant	
2.3	§15.247(d)	RSS-210 A8.5	Band-edge Compliance of RF Conducted Emissions	Compliant	
2.4	§15.247(d)	RSS-210 A8.5	Conducted Spurious Emissions	Compliant	
2.5	§15.247(d)	RSS-210 A8.5	Radiated Spurious Emissions	Compliant	
2.6	§15.247(d)	RSS-210 2.2	Radiated Immediate Restricted Bands	Compliant	

Note: All verifications performed on model 200-HBV-PDL.The two models 200-HBV-PDL and HBox are identical except that 200-HBV-PDL has CDMA2000 and ISM900 RF modules and HBox unit does not have.

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1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was a NantWorks HBox Access Point for Medical Devices. The EUT can connect to a network through Ethernet port or Wi-Fi. In normal operation, the EUT collects user data via USB, Bluetooth or Wi-Fi and upload the information back to a data server. The NFC function is for quick Bluetooth pairing by obtaining the device info when within NFC range of the EUT. Only the Bluetooth V2.0 + EDR function verified in this test report.

1.3.2 EUT General Description

EUT Description	Access Point for Medical Devices
Model Name	HBox
Model Number(s)	200-HBX-PDL rev 1
Rated Voltage	Internal 3.7VDC Li-Ion Battery (GP Batteries 2501022), AC adapter/charger is Hon-Kwang Switching Power Supply Model: HK-AD-050A500-US, output is 5.0VDC 5.0A
Mode Verified	Bluetooth 2.0 + EDR
Capability	802.11 a/b/g/n WLAN (DTS/U-NII), Bluetooth 2.0 + EDR, Bluetooth 4.0 and NFC
Frequency Range	2400MHz - 2483.5MHz
Primary Unit (EUT)	☒ Production ☐ Pre-Production ☐ Engineering
Antenna Type	Integral PIFA type (Ant #1 and 2)
Antenna Gain Ant #1 (Main, WiFi +BT)	2400MHz = 2.9dBi 5000MHz = 2.3dBi (Not used for Bluetooth 2.0 + EDR)
Antenna Gain Ant #2 (MIMO 802.11 n ht20 2.4 GHz only)	2400MHz = 5.5dBi (Not used for Bluetooth 2.0 + EDR)

1.3.3 Maximum Conducted Output Power

Modulation	Frequency Range (MHz)	AverageOutput Power (dBm))	Peak Output Power (dBm)	Peak Output Power (mW)
GFSK	2402-2480	12.49	12.62	18.28
π/4-DQPSK	2402-2480	6.45	9.40	8.71
8DPSK	2402-2480	6.12	9.56	9.04

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
A	Antenna conducted port test configuration. All measurements were performed on the main antenna (Ant.#1). MIMO function is limited to 802.11 n ht20 2.4GHz only. Antenna #1 is for both Wi-Fi and Bluetooth functions while Antenna #2 is for MIMO function only. Radio commands are programmed using PuTTY SSH2 (Secure Shell) client software.
B	Radiated emissions test configuration. The EUT is programmed using PuTTY SSH2 (Secure Shell) client software. The EUT is connected to a support broadband router where the support laptop used to program the EUT is also connected. Client provided radio commands to modify modes, channel number and data rates. TX power is set to max power as a default setting.

1.4.2 EUT Exercise Software

HBOX Function Tester. This is built-in within the firmware. Radio commands are executed via Ethernet or USB using Putty from a support PC.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Model	Description
Sony	Personal Computer (Y Series Laptop)	PCG-31311L	-
Sony	AC Adapter	PCGA-AC19V9	S/N:147839091 0023259
HON-KWANG	Switching Power Supply (x2)	HK-AD-050A500-US	5VDC @ 5A
Trendnet	Broadband Router	TW100-S4W1CA,	S/N: RA1332S400789
Lorom	CAT5E Patch Cable (x2)	-	Unshielded, 1.5 meters Ethernet cables

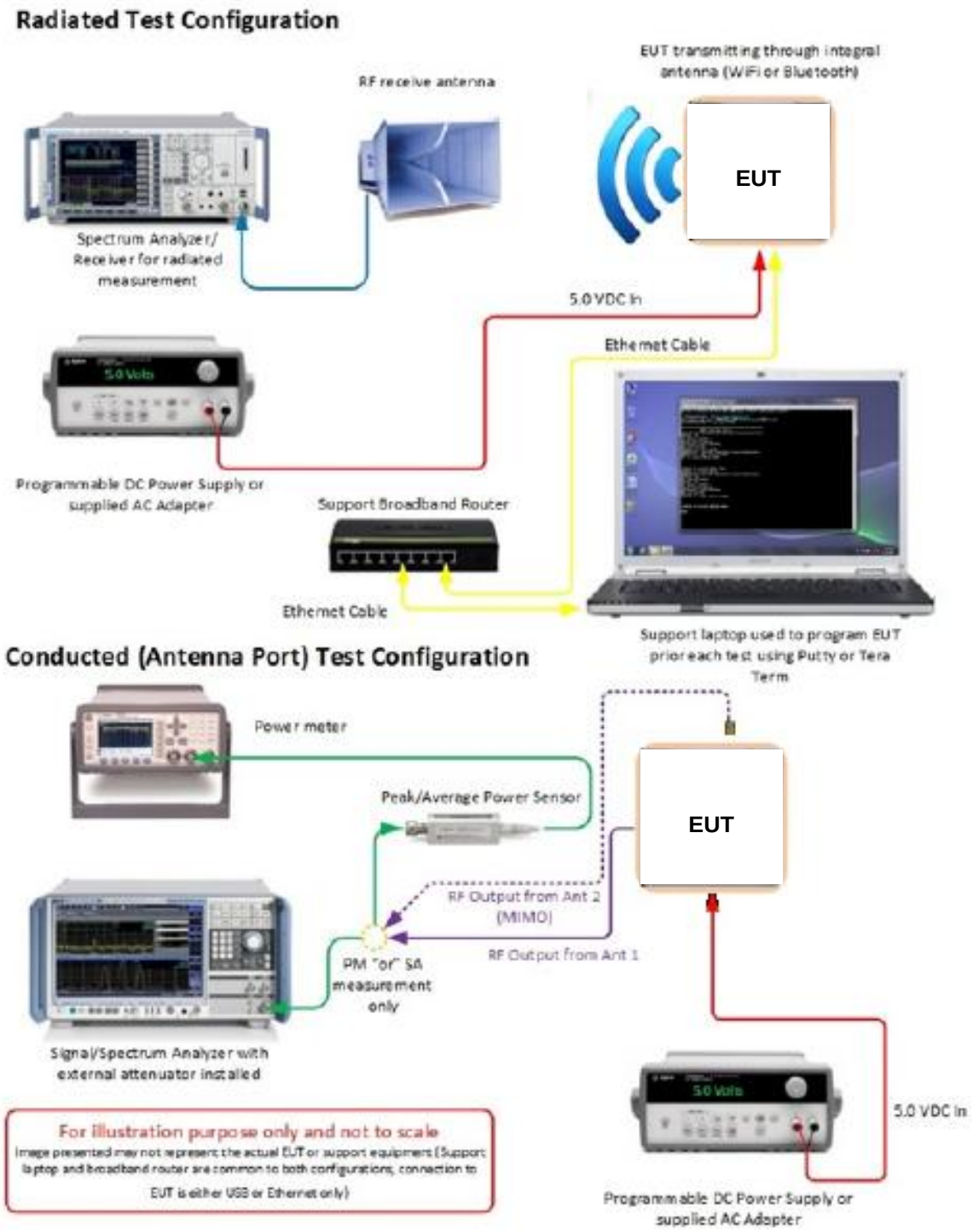
1.4.4 Worst Case Configuration

Worst-case configuration used in this test report as per maximum conducted output power measurements:

Modulation	Channel/Packet Type	Mode
GFSK	38 (Mid Channel)	Non-hopping
GFSK	-	Hopping

EUT is a mobile device. For radiated measurements X, Y and Z orientations were verified. Worst case position is “X”.

1.4.5 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 (Sample #1) and N/A (sample #2)		
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.: US1146

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 §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Registration is US1146.

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
NantWorks
HBox Access Point for Medical Devices

2.1 CONDUCTED EMISSIONS

2.1.1 Specification Reference

FCC CRF 47 Part 15, Clause 15.207(a)
RSS-GEN, Clause 7.2.4

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 µH/50 ohms line impedance stabilization network (LISN).

Frequency of emission (MHz)	Conducted limit (dBµV)	
	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: N/A (Sample #1) / Test Configuration B

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

April 28 and May 18, 2015/XYZ

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	22.9 - 23.8°C
Relative Humidity	45.2 - 47.1.%
ATM Pressure	99.2 - 99.9 kPa

2.1.7 Additional Observations

- The EUT was verified using AC adapter supplied by the manufacturer..
- EUT verified using input voltage of 120VAC 60Hz.
- There are no significant variations in test results between each operating modes. Only the worst case observed configuration is presented (See Section 1.4.4 of this test report for details).
- Receive mode is also presented for comparison.

- Measurement was done using EMC32 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 (dbµV) @ 150kHz			5.5
Correction Factor (dB)	Asset# 8607 (20 dB attenuator)	19.9	20.7
	Asset# 1177 (cable)	0.15	
	Asset# 1176 (cable)	0.35	
	Asset# 7567 (LISN)	0.30	
Reported QuasiPeak Final Measurement (dbµV) @ 150kHz			**26.2**

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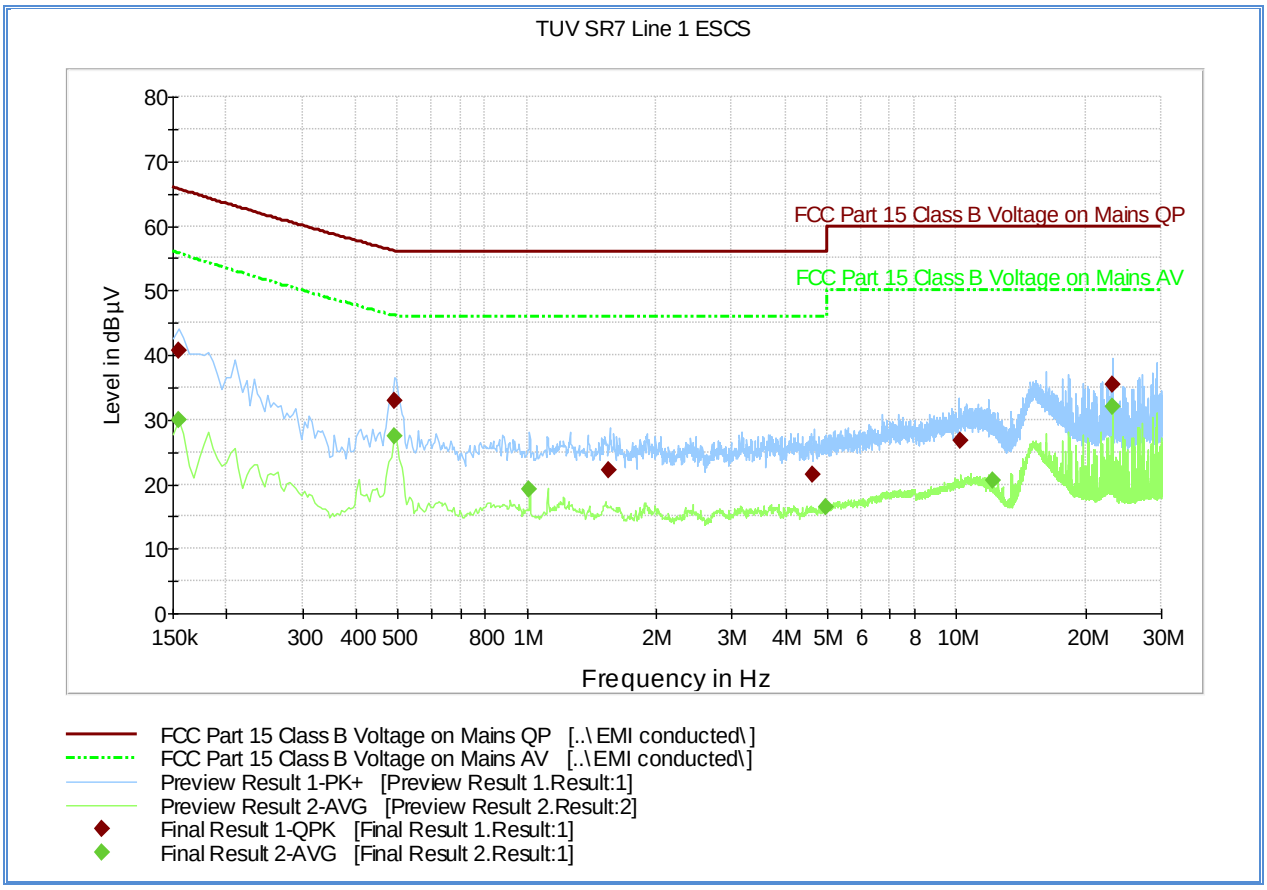
2.1.9 Test Results - FCC Conducted Emissions Line 1 – Hot (Worst Case Transmit Mode – BT GFSK M Ch)



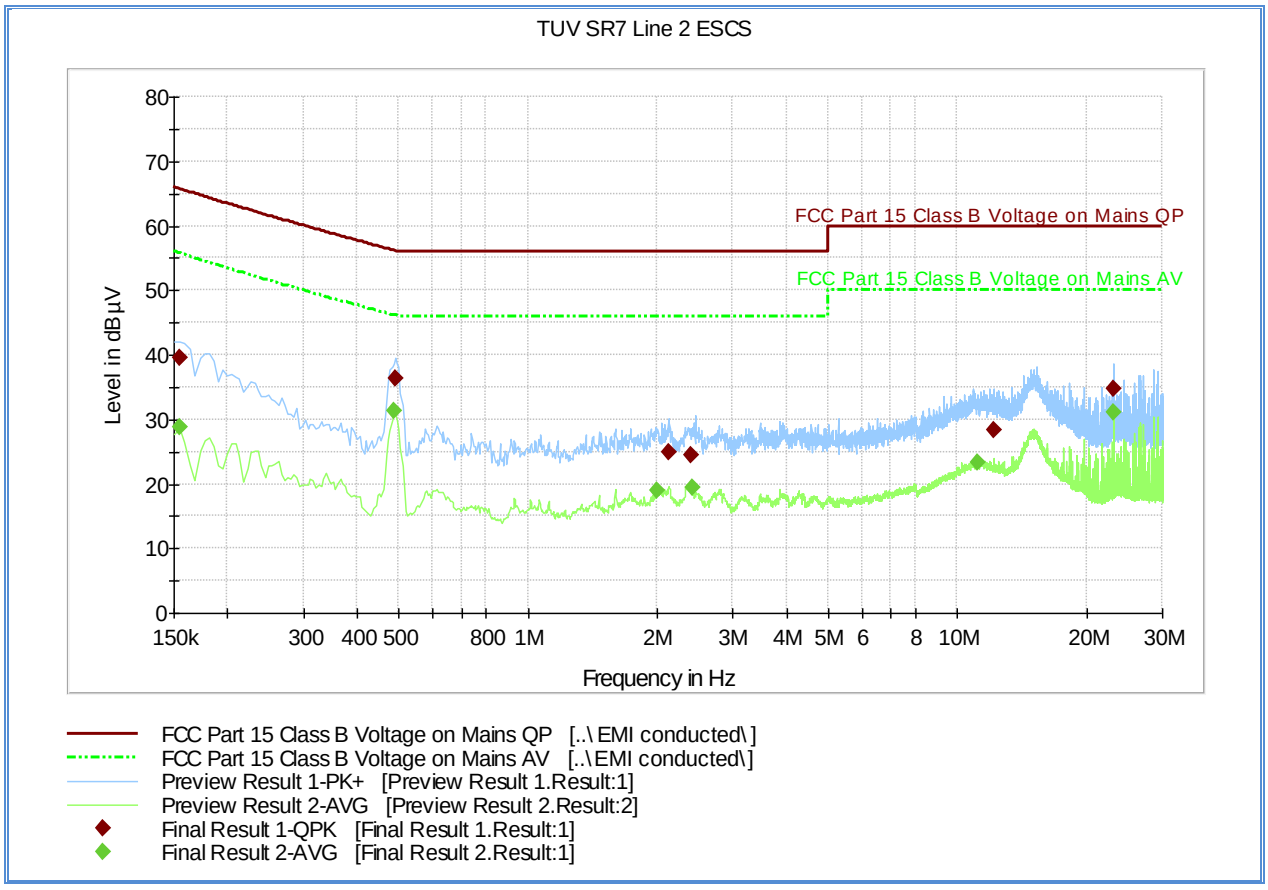
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.154500	40.6	1000.0	9.000	Off	L1	20.1	25.2	65.7
0.492000	32.8	1000.0	9.000	Off	L1	20.1	23.3	56.1
1.554000	22.2	1000.0	9.000	Off	L1	20.2	33.8	56.0
4.623000	21.4	1000.0	9.000	Off	L1	20.5	34.6	56.0
10.243500	26.8	1000.0	9.000	Off	L1	20.7	33.2	60.0
23.127000	35.5	1000.0	9.000	Off	L1	21.1	24.5	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.154500	30.0	1000.0	9.000	Off	L1	20.1	25.8	55.7
0.492000	27.5	1000.0	9.000	Off	L1	20.1	18.7	46.1
1.014000	19.3	1000.0	9.000	Off	L1	20.2	26.7	46.0
4.965000	16.6	1000.0	9.000	Off	L1	20.6	29.4	46.0
12.138000	20.6	1000.0	9.000	Off	L1	20.8	29.4	50.0
23.127000	31.9	1000.0	9.000	Off	L1	21.1	18.1	50.0

2.1.1 FCC Conducted Emissions Line 2 – Neutral (Worst Case Transmit Mode – BT GFSK M Ch)



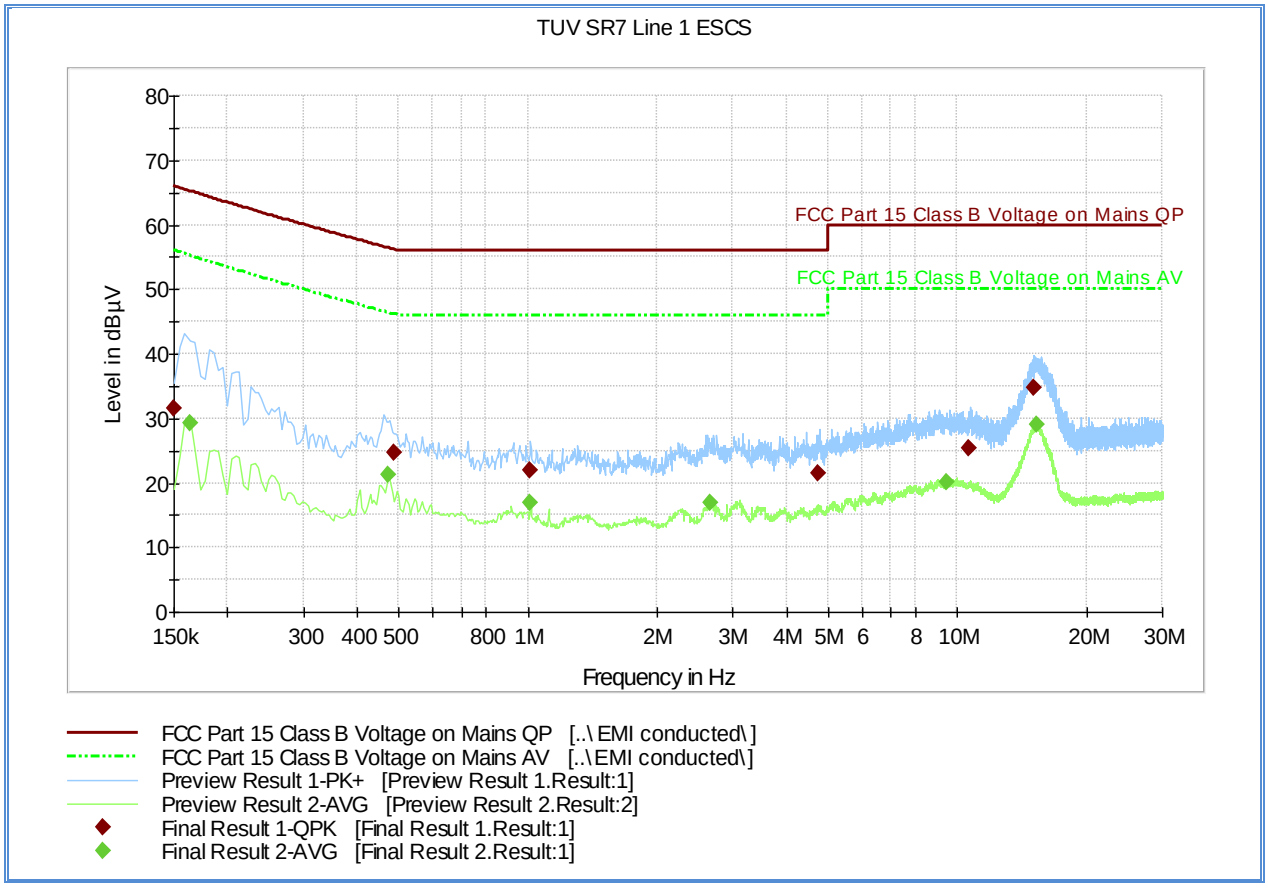
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.154500	39.5	1000.0	9.000	Off	N	20.0	26.2	65.7
0.492000	36.5	1000.0	9.000	Off	N	20.1	19.7	56.1
2.130000	24.9	1000.0	9.000	Off	N	20.4	31.1	56.0
2.404500	24.4	1000.0	9.000	Off	N	20.4	31.6	56.0
12.192000	28.2	1000.0	9.000	Off	N	20.7	31.8	60.0
23.127000	34.8	1000.0	9.000	Off	N	20.9	25.2	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.154500	28.7	1000.0	9.000	Off	N	20.0	27.0	55.7
0.487500	31.4	1000.0	9.000	Off	N	20.1	14.8	46.2
1.995000	19.0	1000.0	9.000	Off	N	20.2	27.0	46.0
2.413500	19.4	1000.0	9.000	Off	N	20.4	26.6	46.0
11.112000	23.3	1000.0	9.000	Off	N	20.7	26.7	50.0
23.127000	31.1	1000.0	9.000	Off	N	20.9	18.9	50.0

2.1.2 FCC Conducted Emissions Line 1 – Hot (Receive Mode)



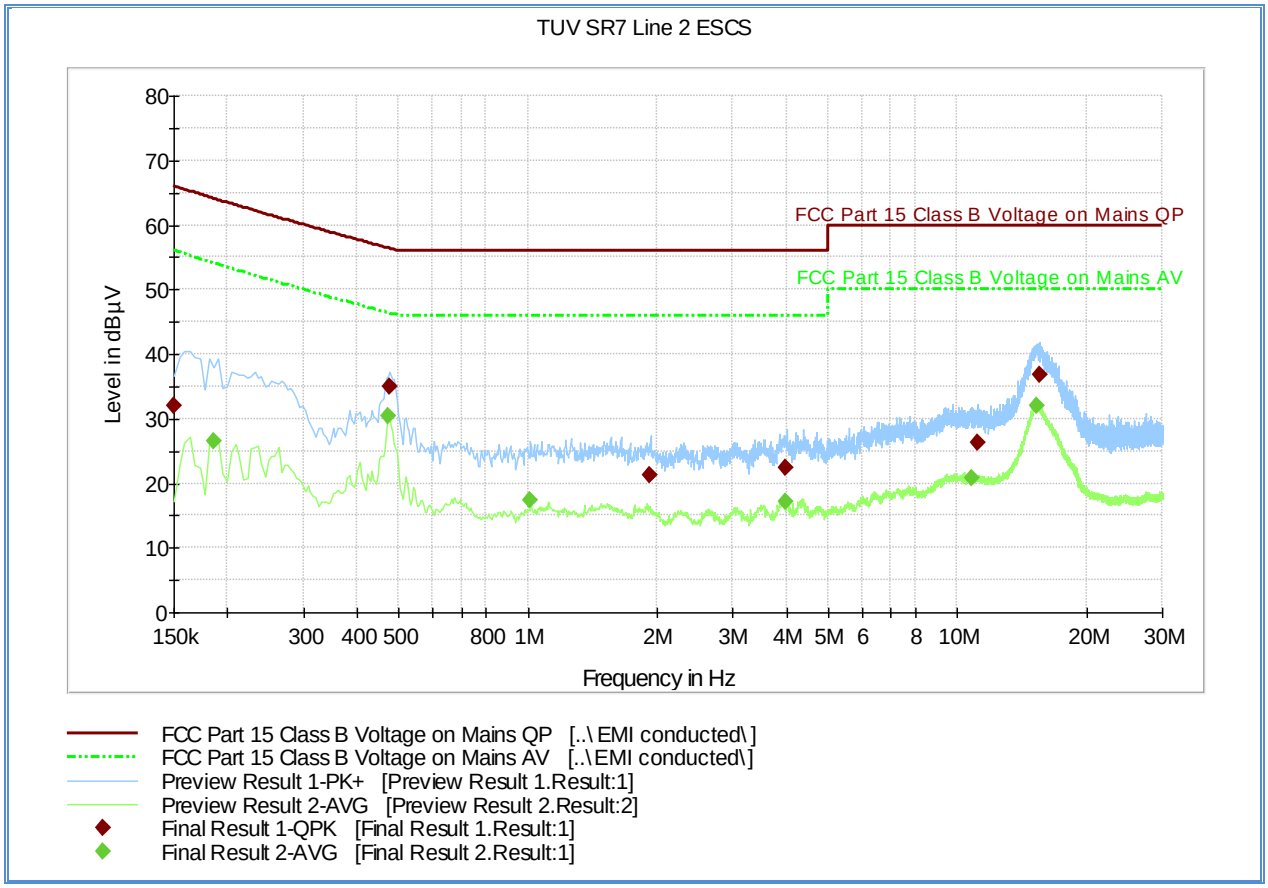
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.150000	31.6	1000.0	9.000	Off	L1	20.1	34.4	66.0
0.487500	24.7	1000.0	9.000	Off	L1	20.1	31.5	56.2
1.014000	21.9	1000.0	9.000	Off	L1	20.2	34.1	56.0
4.722000	21.6	1000.0	9.000	Off	L1	20.6	34.4	56.0
10.671000	25.4	1000.0	9.000	Off	L1	20.7	34.6	60.0
15.076500	34.8	1000.0	9.000	Off	L1	20.9	25.2	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.163500	29.3	1000.0	9.000	Off	L1	20.1	25.9	55.2
0.474000	21.2	1000.0	9.000	Off	L1	20.1	25.2	46.4
1.014000	17.0	1000.0	9.000	Off	L1	20.2	29.0	46.0
2.661000	16.9	1000.0	9.000	Off	L1	20.5	29.1	46.0
9.433500	20.1	1000.0	9.000	Off	L1	20.7	29.9	50.0
15.310500	28.9	1000.0	9.000	Off	L1	20.9	21.1	50.0

2.1.3 FCC Conducted Emissions Line 2 – Neutral (Receive Mode)



Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.150000	32.1	1000.0	9.000	Off	N	20.1	33.9	66.0
0.478500	35.0	1000.0	9.000	Off	N	20.1	21.4	56.3
1.927500	21.1	1000.0	9.000	Off	N	20.1	34.9	56.0
3.975000	22.3	1000.0	9.000	Off	N	20.5	33.7	56.0
11.134500	26.3	1000.0	9.000	Off	N	20.7	33.7	60.0
15.513000	36.9	1000.0	9.000	Off	N	20.7	23.1	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit - Ave (dBµV)
0.186000	26.4	1000.0	9.000	Off	N	20.1	27.6	54.1
0.474000	30.4	1000.0	9.000	Off	N	20.1	16.0	46.4
1.014000	17.3	1000.0	9.000	Off	N	20.2	28.7	46.0
3.966000	17.1	1000.0	9.000	Off	N	20.5	28.9	46.0
10.770000	20.8	1000.0	9.000	Off	N	20.6	29.2	50.0
15.310500	32.0	1000.0	9.000	Off	N	20.7	18.0	50.0

2.2 PEAK OUTPUT POWER

2.2.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(b)(1)
RSS-210, Clause A8.4 (2)

2.2.2 Standard Applicable

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.

2.2.3 Equipment Under Test and Modification State

Serial No: N/A (sample #2) / Test Configuration A

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

May 12, 2015/XYZ

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	22.0°C
Relative Humidity	46.5%
ATM Pressure	99.5 kPa

2.2.7 Additional Observations

This is a conducted test using a Peak Power Meter.

2.2.8 Test Results (Conducted)

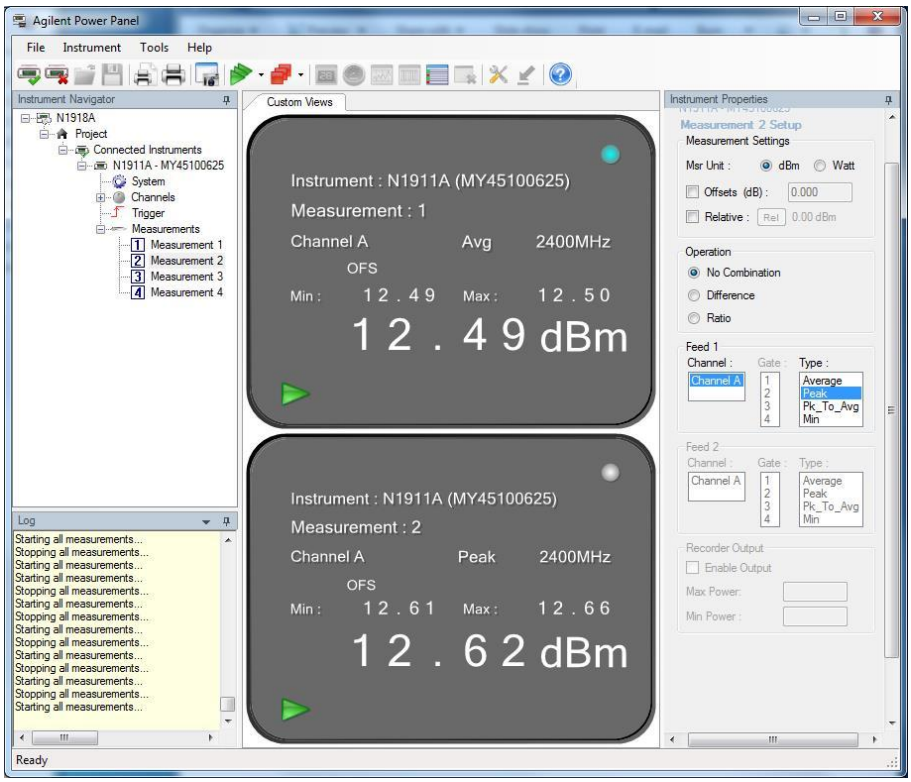
Modulation	Channel	Frequency (MHz)	Measured Average Output Power (dBm)	Measured Peak Output Power (dBm)	Measured Peak Output Power (mW)	Limit (mW)
GFSK	0	2402	11.56	11.75	11.61	1000.0
	38	**2440**	**12.49**	**12.62**	**16.94**	**1000.0**
	78	2480	11.96	12.09	14.86	1000.0
π/4-DQPSK	0	2402	4.43	7.54	14.52	1000.0
	38	**2440**	**6.45**	**9.40**	**5.02**	**1000.0**
	78	2480	5.62	8.47	11.72	1000.0
8DPSK	0	2402	4.33	8.07	10.19	1000.0
	38	**2440**	**6.12**	**9.56**	**13.15**	**1000.0**

	78	2480	5.51	8.95	9.48	1000.0

2.2.9 Test Results (*De Facto* EIRP Limit)

Modulation	Channel	Frequency (MHz)	Measured Peak Output Power (dBm))	Antenna Gain (dBi)	Calculated Peak Output Power EIRP (dBm))	Limit (dBm))
GFSK	38	2440	12.62	2.9	15.52	30
π/4-DQPSK	38	2440	9.40	2.9	12.30	30
8DPSK	38	2440	9.56	2.9	12.46	30

2.2.10 Sample Test Display



GFSK mid channel (Channel 38 2440 MHz)

2.3 BAND-EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS

2.3.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-210, Clause A8.5

2.3.2 Standard Applicable

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)).

2.3.3 Equipment Under Test and Modification State

Serial No: N/A (sample #2) / Test Configuration A

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

May 12 and 13, 2015/XYZ

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	22.0 - 24.3°C
Relative Humidity	38.8 - 46.5%
ATM Pressure	98.9 - 99.5 kPa

2.3.7 Additional Observations

- This is a conducted test.
- The path loss for was measured and entered as a level offset.
- Span is wide enough to capture the peak level of the emission operating on the channel closest to the band edge.
- RBW is ≥ 1% of the span, VBW is ≥ RBW.
- Sweep is auto, detector is peak, trace is max hold.
- Trace allowed to stabilize. Marker-delta function used to verify compliance.
- Limit is 20dBc.
- Both Hopping and Non-Hopping mode verified.

2.3.8 Test Results

Date: 12.MAY.2015 16:13:05

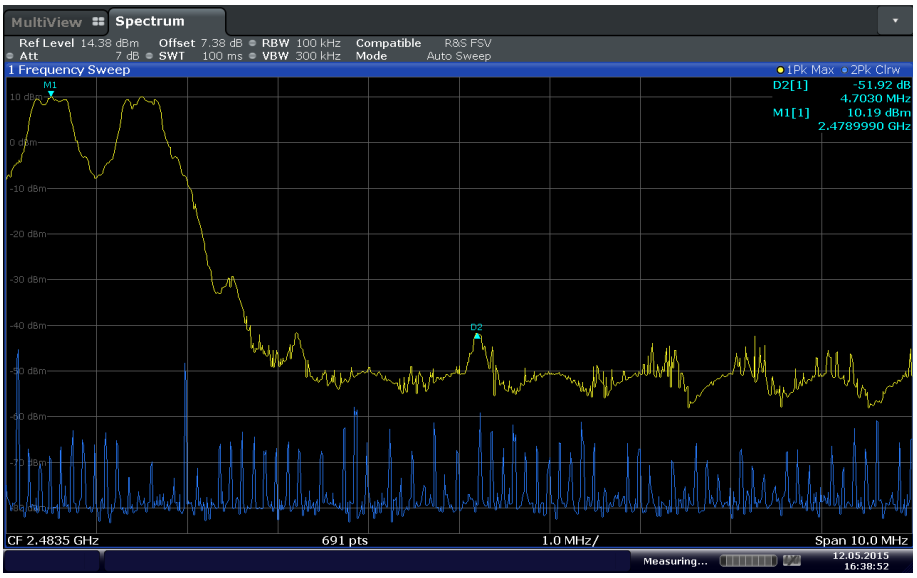
Hopping lower band edge (GFSK)

Date: 12.MAY.2015 16:19:32

Hopping lower band edge (π/4-DQPSK)

Date: 12.MAY.2015 16:25:40

Hopping lower band edge (8DPSK)



Date: 12.MAY.2015 16:38:52

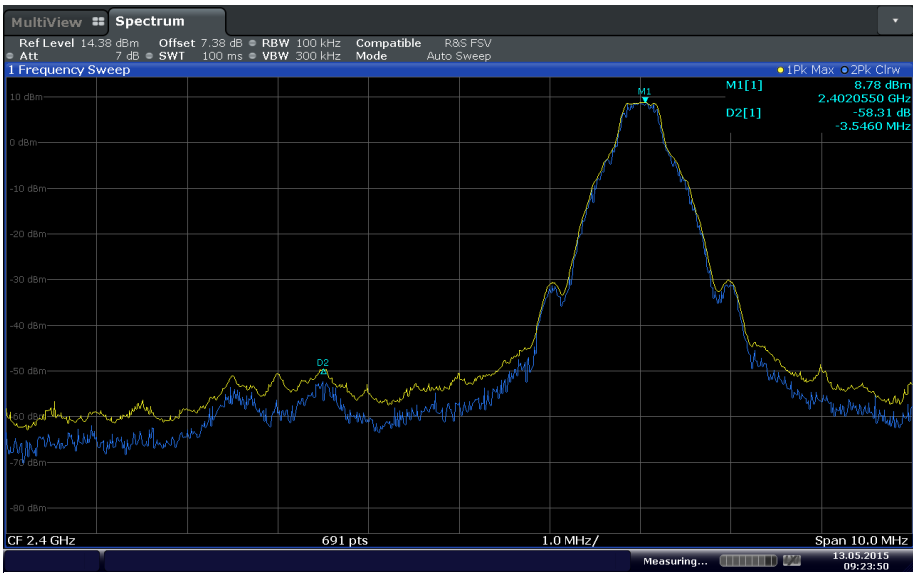
Hopping upper band edge (GFSK)

Date: 12.MAY.2015 16:34:15

Hopping upper band edge (π/4-DQPSK)

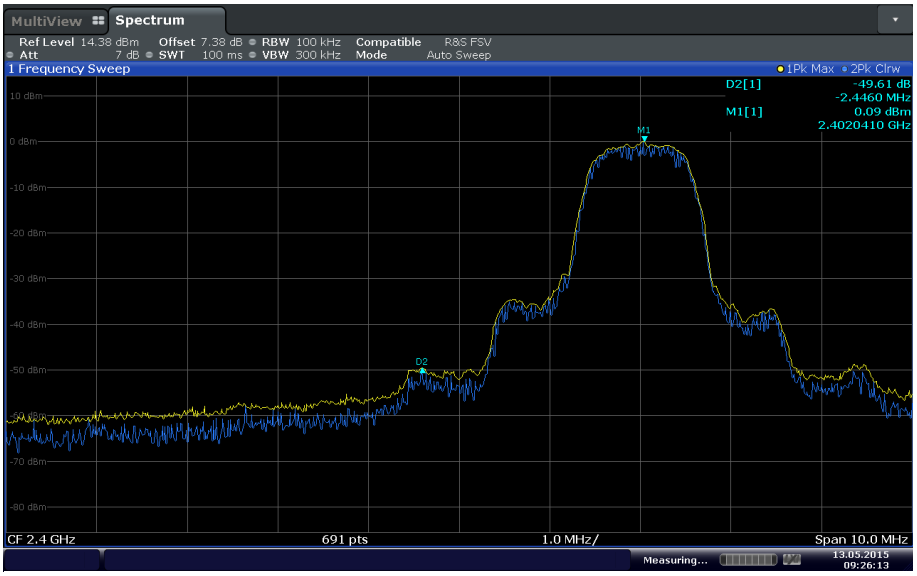
Date: 12.MAY.2015 16:28:57

Hopping upper band edge (8DPSK)



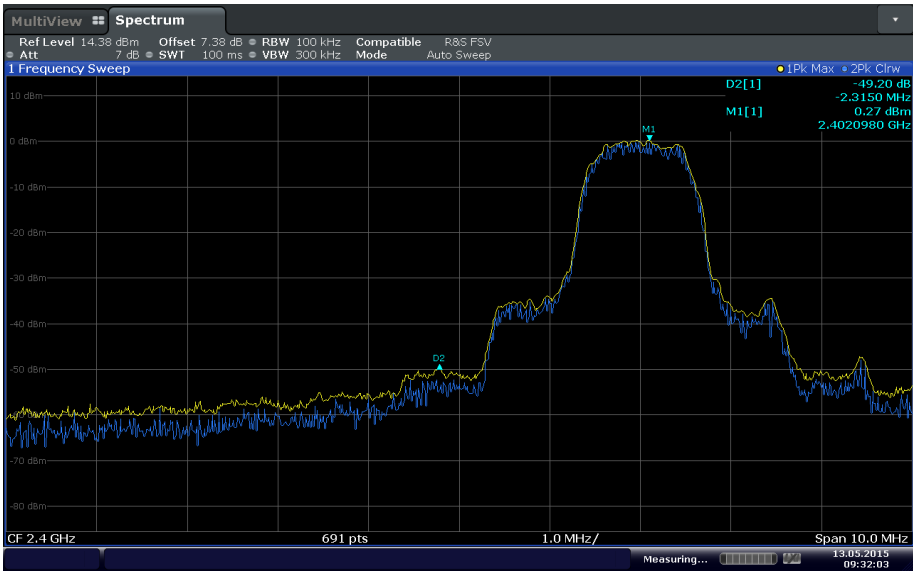
Date: 13.MAY.2015 09:23:51

Non-hopping lower band edge (GFSK)



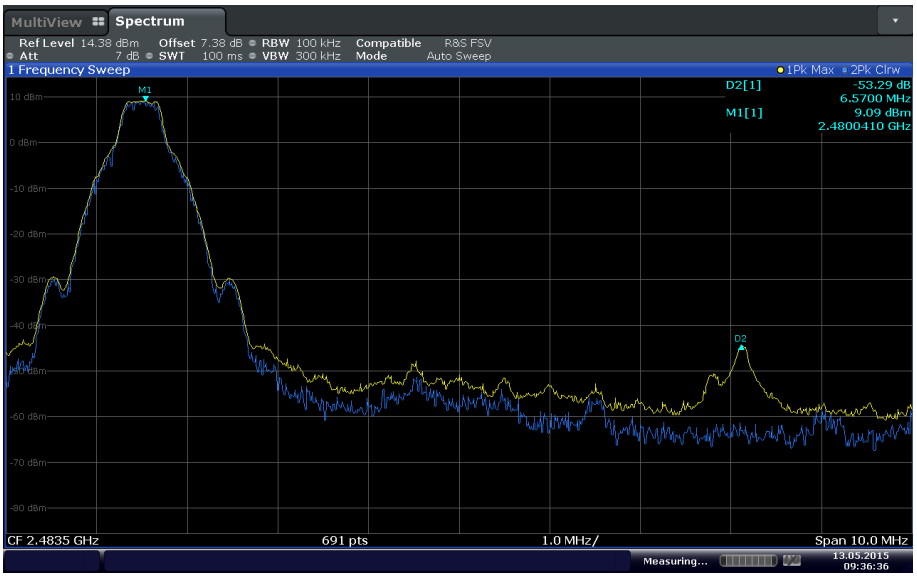
Date: 13.MAY.2015 09:26:13

Non-hopping lower band edge (π/4-DQPSK)



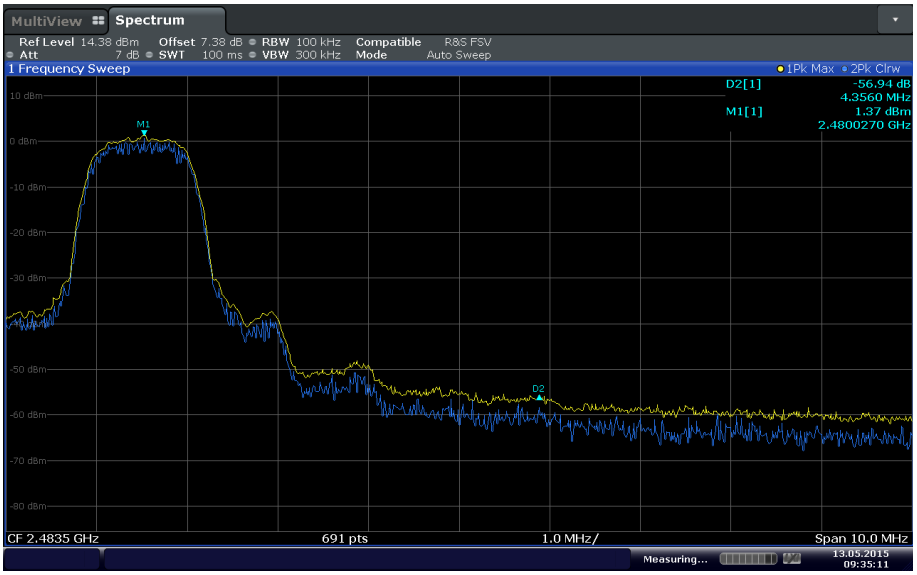
Date: 13.MAY.2015 09:32:03

Non-hopping lower band edge (8DPSK)



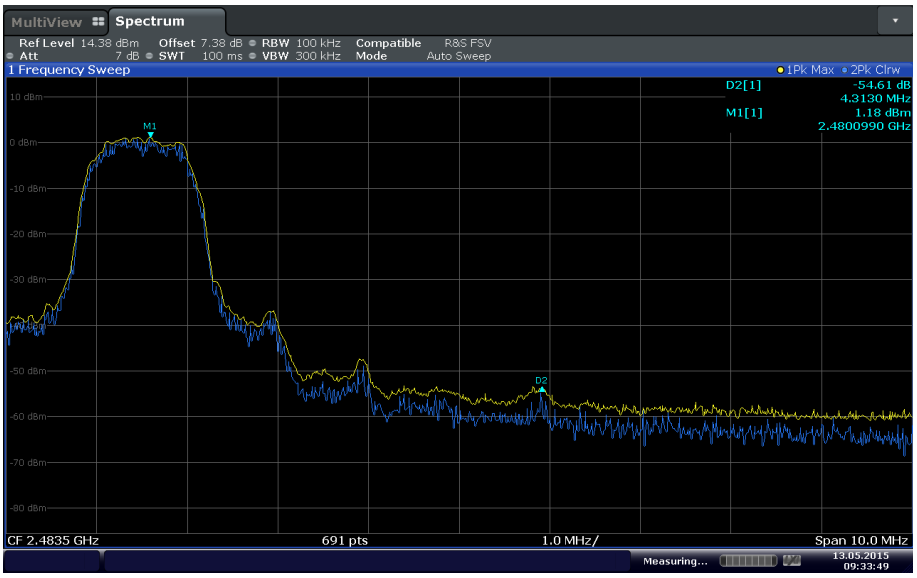
Date: 13.MAY.2015 09:36:36

Non-hopping upper band edge (GFSK)



Date: 13.MAY.2015 09:35:12

Non-hopping upper band edge (π/4-DQPSK)



Date: 13.MAY.2015 09:33:50

Non-hopping upper band edge (8DPSK)

2.4 CONDUCTED SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-210, Clause A8.5

2.4.2 Standard Applicable

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)).

2.4.3 Equipment Under Test and Modification State

Serial No: N/A (sample #2) / Test Configuration A

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

May 13, 2015/XYZ

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

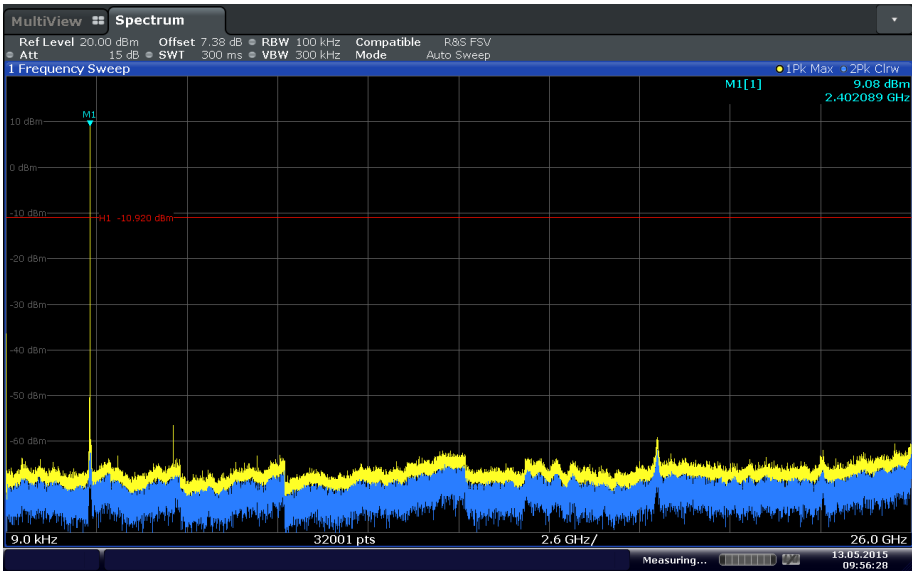
Ambient Temperature	24.3°C
Relative Humidity	38.8%
ATM Pressure	98.9kPa

2.4.7 Additional Observations

- This is a conducted test.
- The path loss was measured and entered as a level offset
- Span is from 9kHz up to 26GHz (to cover 10th harmonic of the High Channel).
- Sweep point setting of the spectrum analyzer is set to maximum (32001).
- RBW is 100 kHz, VBW is ≥ RBW.
- Sweep is auto, detector is peak.
- Trace is max hold.

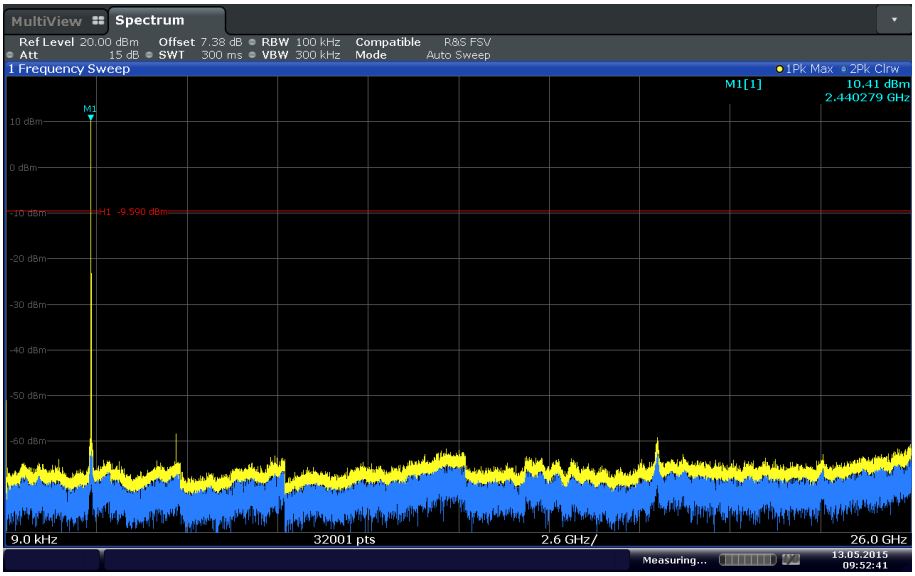
- Trace allowed to stabilize. Maximum spurious emission compared to limit.
- Limit is 20dBc.

2.4.8 Test Results Plots



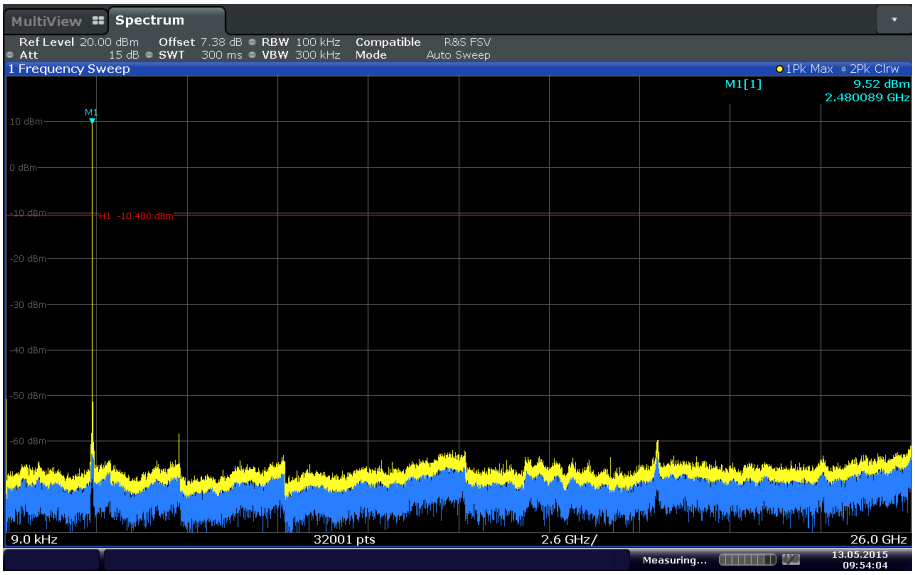
Date:13.MAY.2015 09:56:29

Low Channel (GFSK)



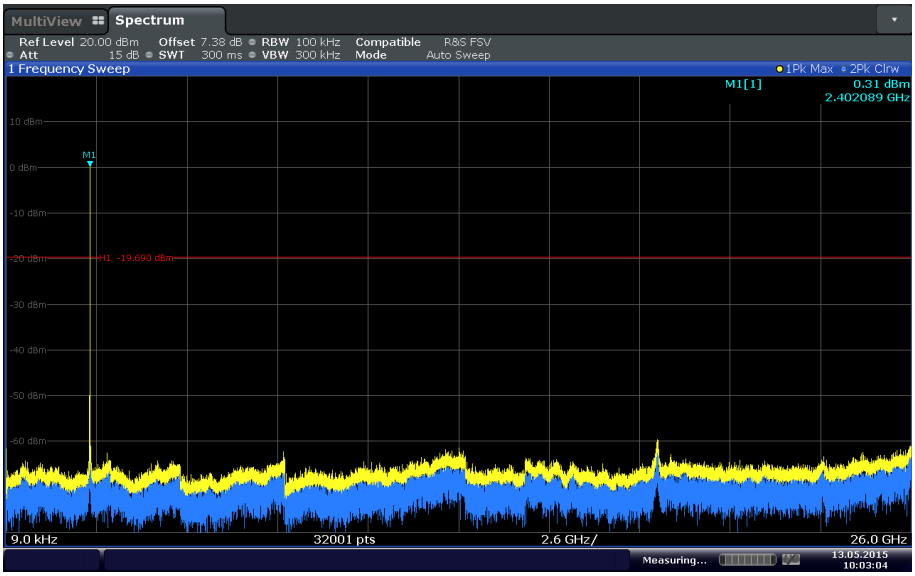
Date:13.MAY.2015 09:52:41

Mid Channel (GFSK)



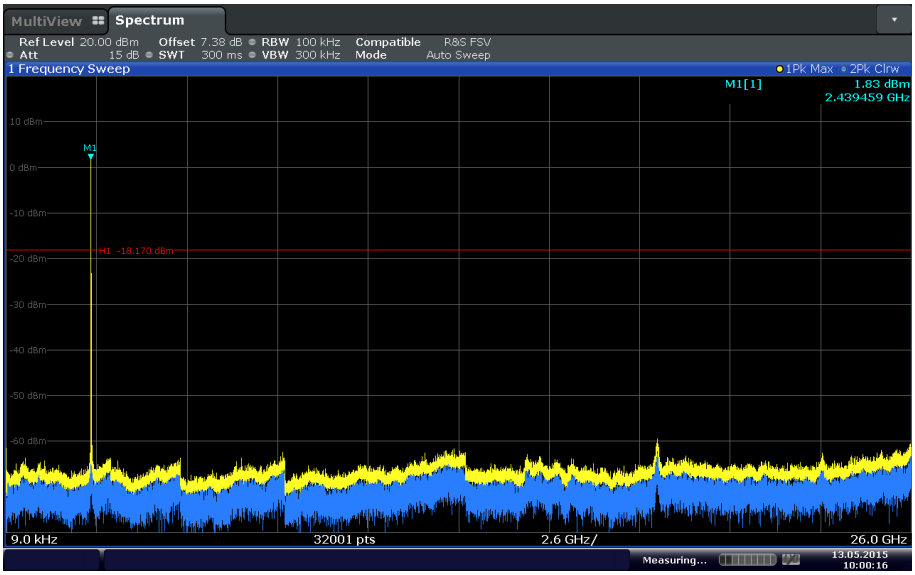
Date: 13.MAY.2015 09:54:04

High Channel (GFSK)



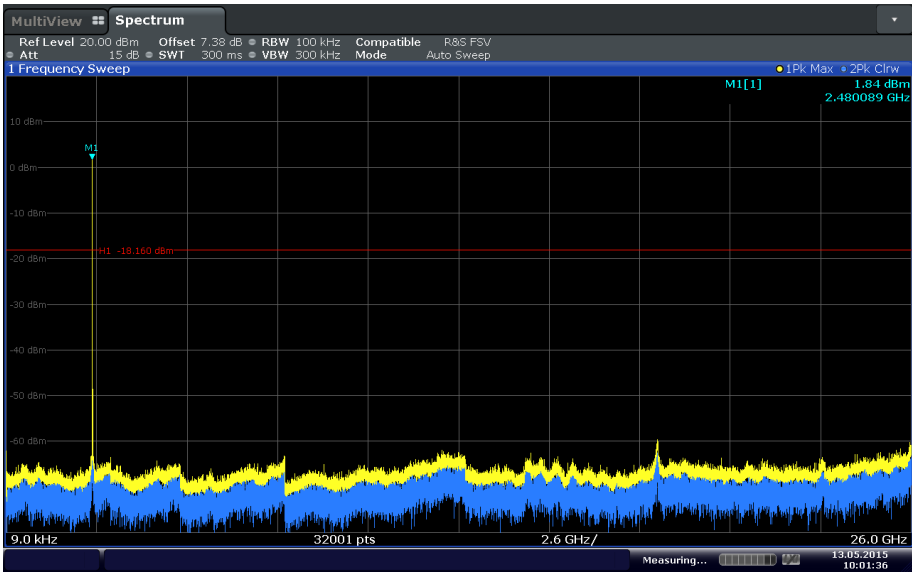
Date: 13.MAY.2015 10:03:04

Low Channel (π/4-DQPSK)



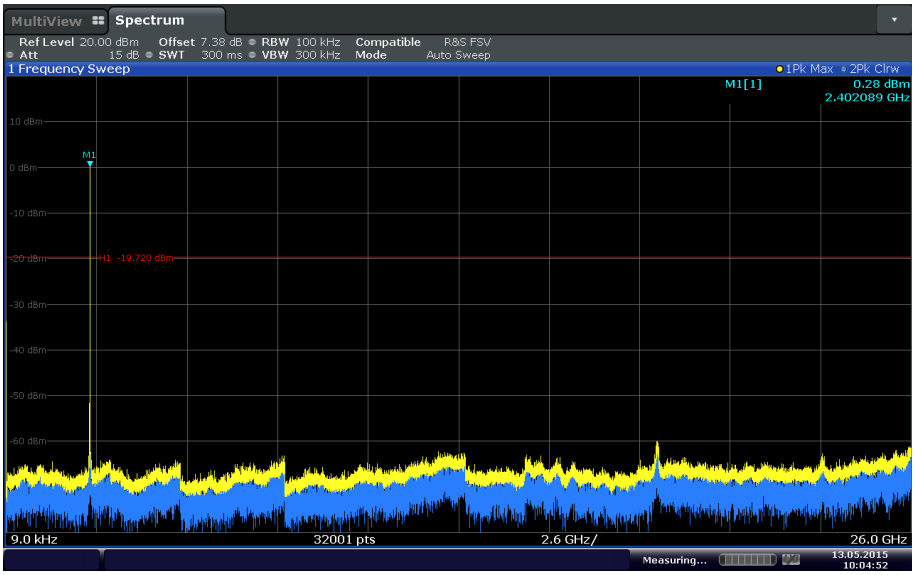
Date: 13.MAY.2015 10:00:16

Mid Channel (π/4-DQPSK)



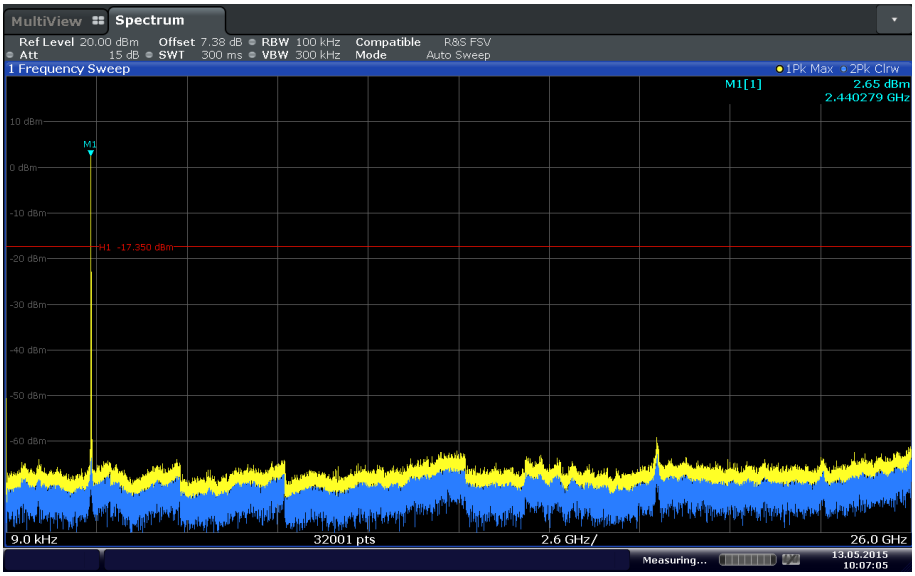
Date: 13.MAY.2015 10:01:37

High Channel (π/4-DQPSK)



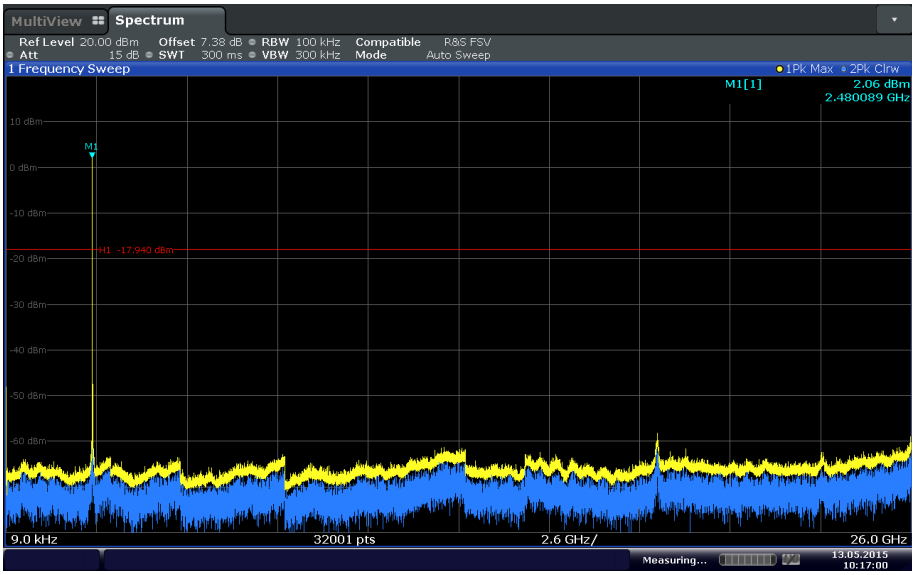
Date: 13.MAY.2015 10:04:52

Low Channel (8DPSK)



Date: 13.MAY.2015 10:07:05

Mid Channel (8DPSK)



High Channel (8DPSK)

2.5 RADIATED SPURIOUS EMISSIONS

2.5.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-210, Clause A8.5

2.5.2 Standard Applicable

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)).

2.5.3 Equipment Under Test and Modification State

Serial No: N/A(Sample #1)/ Test Configuration B

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

April 28 and 30, 2015/XYZ

2.5.5 Test Equipment Used

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

2.5.6 Environmental Conditions

Ambient Temperature	23.7° - 24.3C
Relative Humidity	31.2 - 45.2%
ATM Pressure	99.5 - 99.9 kPa

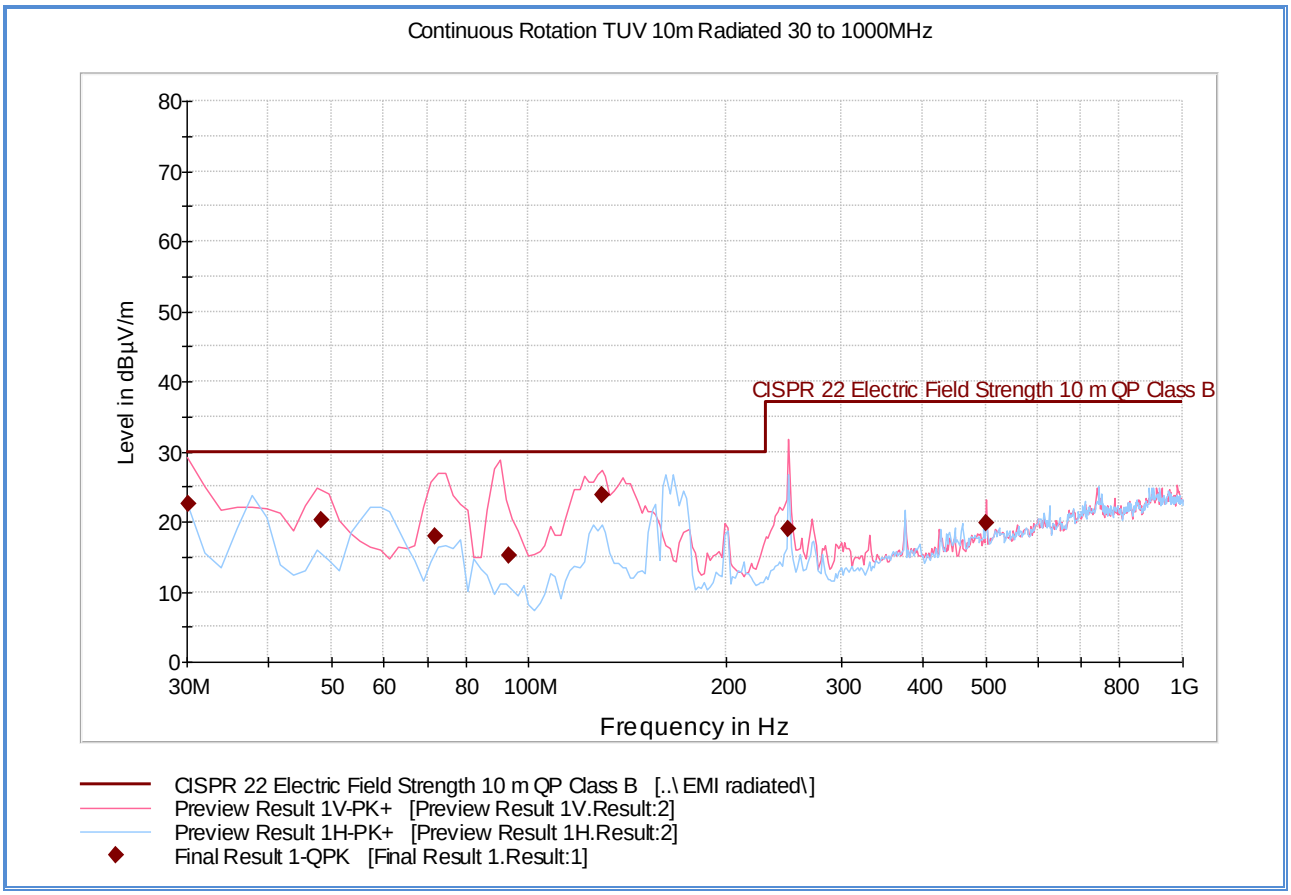
2.5.7 Additional Observations

- 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).
- Only the worst case configuration (BT Hopping) presented for radiated emissions below 1GHz.
- Only the worst case configuration (mid channel GFSK) presented for radiated emissions above 1GHz. There are no significant differences in radiated emissions between the three modulation types.
- Measurement was done using EMC32 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 2.5.8 for sample computation.

2.5.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 30 MHz			24.4
Correction Factor (dB)	Asset# 1066 (cable)	0.3	-12.6
	Asset# 1172 (cable)	0.3	
	Asset# 1016 (preamplifier)	-30.7	
	Asset# 1175(cable)	0.3	
	Asset# 1002 (antenna)	17.2	
Reported QuasiPeak Final Measurement (dbµV/m) @ 30MHz			**11.8**

2.5.9 Test Results Below 1GHz (Receive Mode)

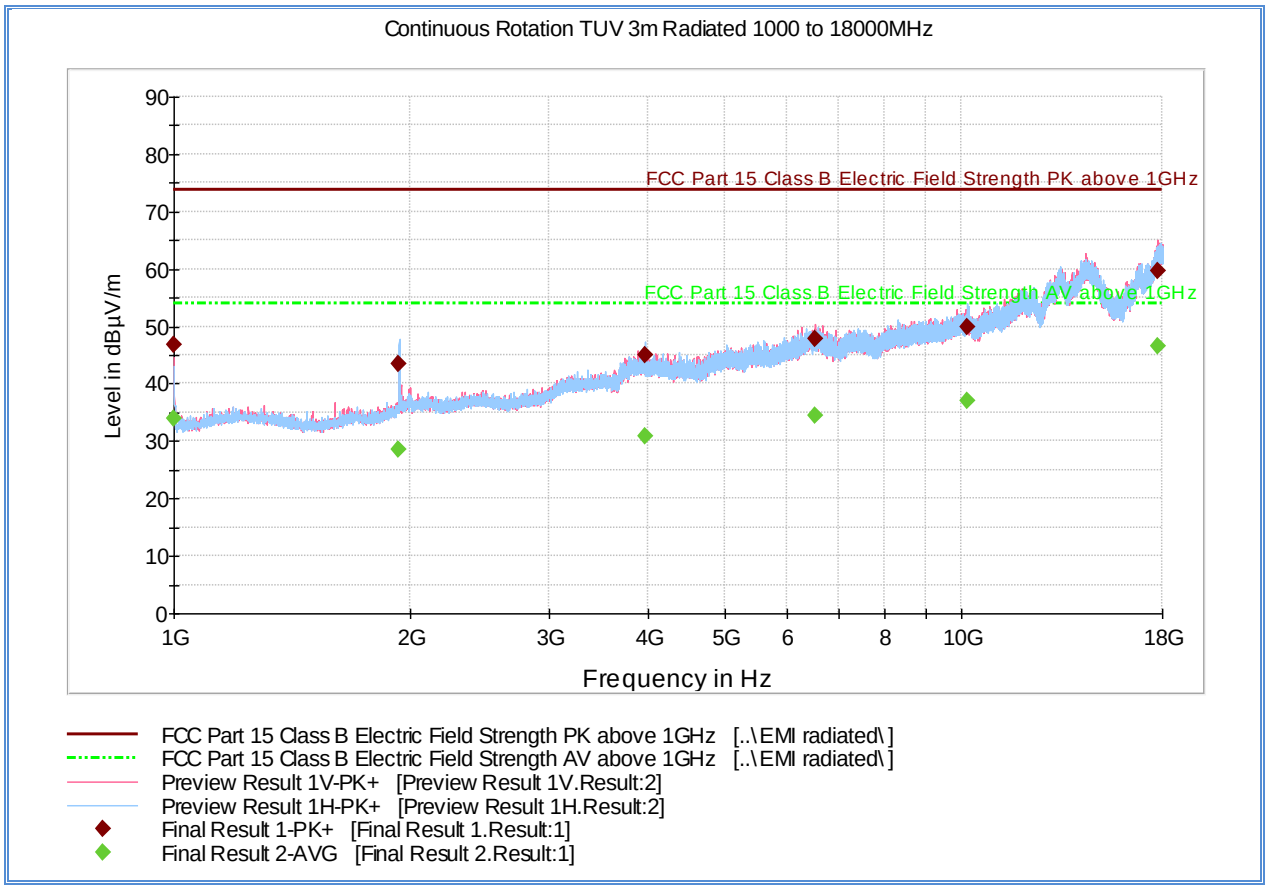


Note: FCC Accepts CISPR 22 by §15.38 Incorporation by reference.

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)
30.080000	22.5	1000.0	120.000	100.0	V	263.0	-13.1	7.5	30.0
48.134990	20.2	1000.0	120.000	105.0	V	104.0	-21.1	9.8	30.0
71.925531	18.0	1000.0	120.000	400.0	V	284.0	-23.1	12.0	30.0
93.460521	15.2	1000.0	120.000	109.0	V	-14.0	-21.5	14.8	30.0
129.298277	23.9	1000.0	120.000	128.0	V	87.0	-22.5	6.1	30.0
249.899319	18.9	1000.0	120.000	150.0	V	189.0	-15.5	18.1	37.0
500.020842	19.7	1000.0	120.000	100.0	V	296.0	-8.6	17.3	37.0

2.5.10 Test Results Above 1GHz (Receive Mode)



Peak Data

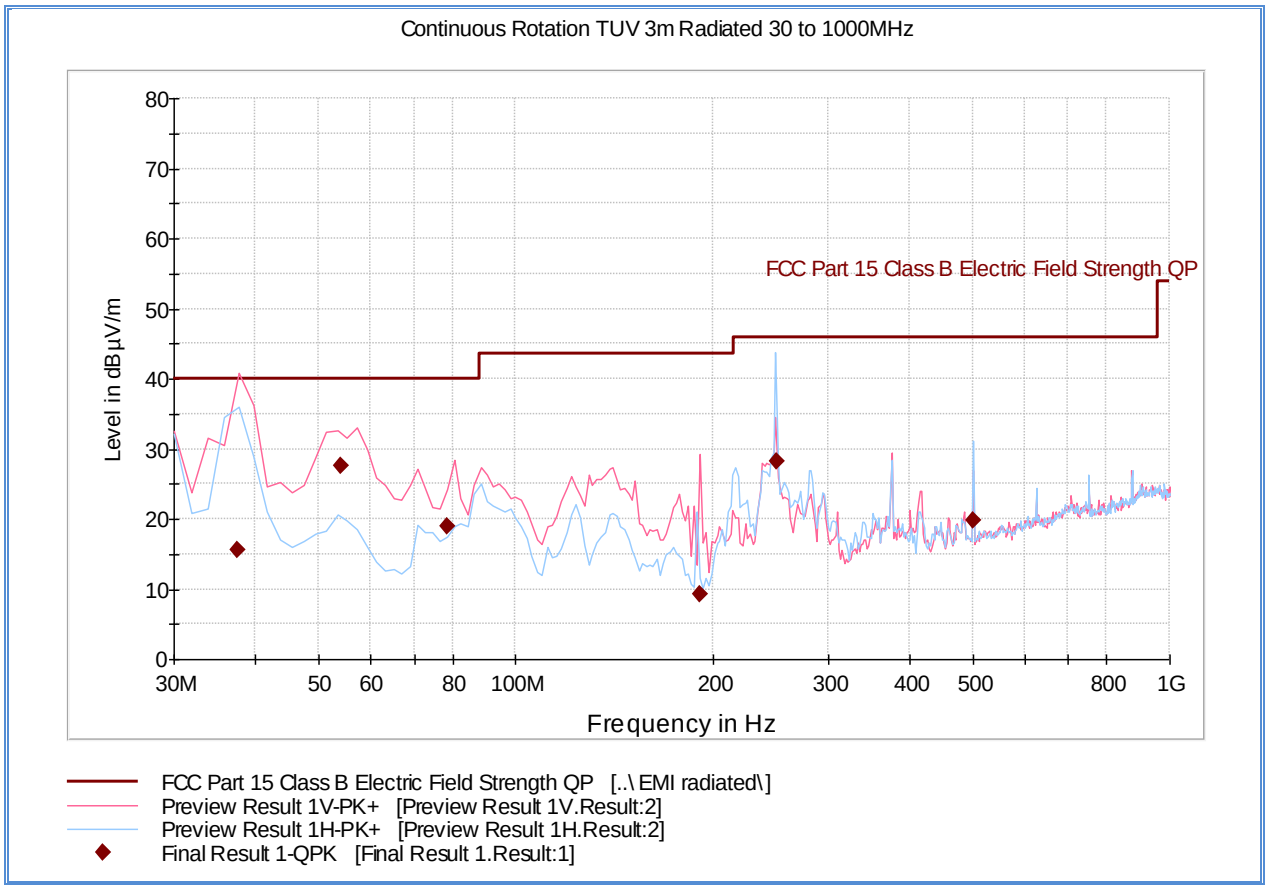
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1000.000000	46.9	1000.0	1000.000	256.4	V	211.0	-10.5	27.0	73.9
1932.533333	43.4	1000.0	1000.000	354.2	H	272.0	-5.9	30.5	73.9
3967.866667	44.9	1000.0	1000.000	403.6	H	211.0	3.8	29.0	73.9
6512.366667	47.8	1000.0	1000.000	279.3	V	200.0	9.7	26.1	73.9
10191.33333	49.9	1000.0	1000.000	201.3	H	3.0	13.5	24.0	73.9
17797.53333	59.7	1000.0	1000.000	303.5	V	192.0	26.1	14.2	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)
1000.000000	33.9	1000.0	1000.000	256.4	V	211.0	-10.5	20.0	53.9
1932.533333	28.6	1000.0	1000.000	354.2	H	272.0	-5.9	25.3	53.9
3967.866667	31.0	1000.0	1000.000	403.6	H	211.0	3.8	22.9	53.9
6512.366667	34.5	1000.0	1000.000	279.3	V	200.0	9.7	19.4	53.9
10191.33333	37.0	1000.0	1000.000	201.3	H	3.0	13.5	16.9	53.9
17797.53333	46.6	1000.0	1000.000	303.5	V	192.0	26.1	7.3	53.9

Test Notes: No significant emissions observed above 18GHz.

2.5.11 Test Results Below 1GHz (Bluetooth TX Worst Case – Hopping)

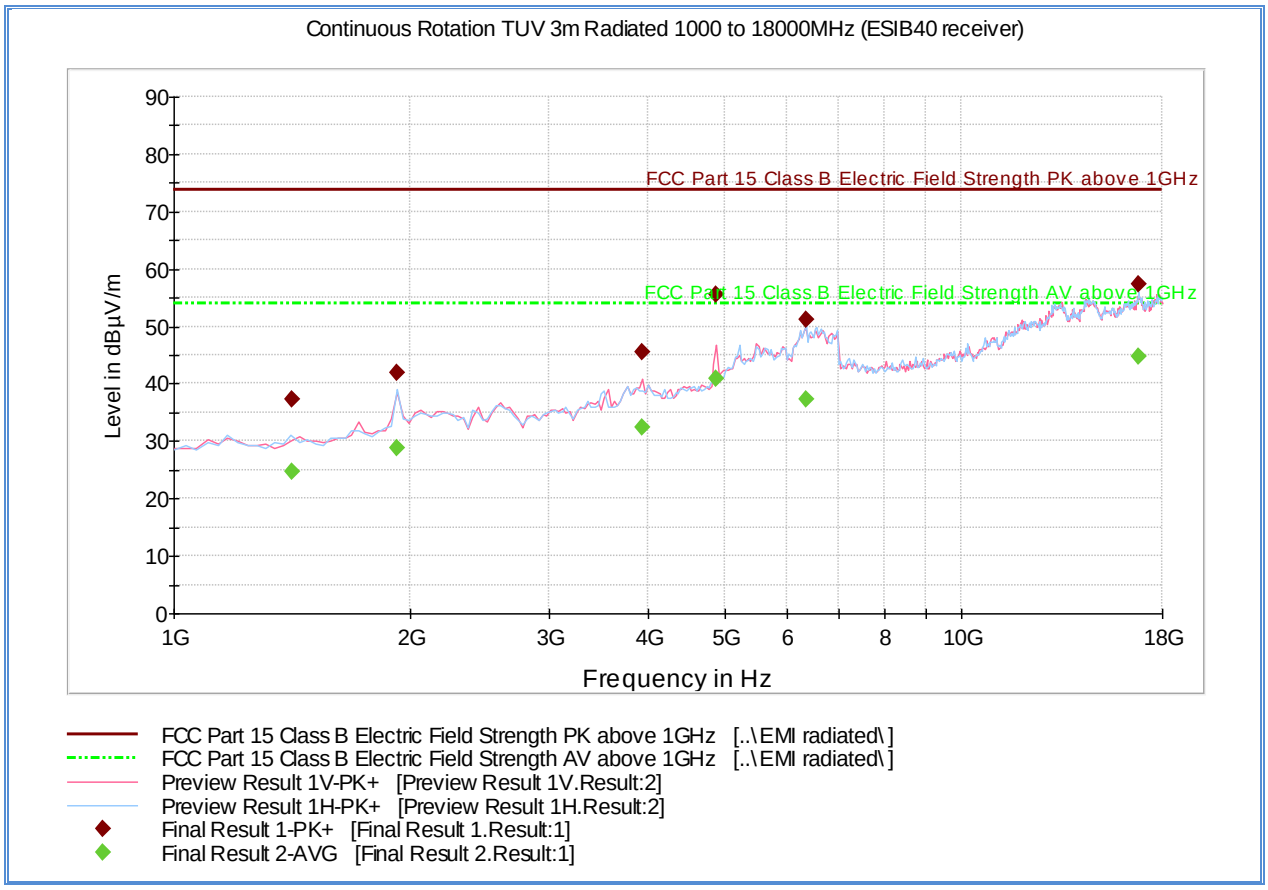


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.575551	15.7	1000.0	120.000	259.0	V	18.0	-15.5	24.3	40.0
53.894429	27.5	1000.0	120.000	100.0	V	219.0	-20.8	12.5	40.0
78.501082	18.9	1000.0	120.000	100.0	V	170.0	-22.2	21.1	40.0
190.902685	9.3	1000.0	120.000	100.0	V	25.0	-16.5	34.2	43.5
250.099319	28.1	1000.0	120.000	110.0	H	64.0	-14.5	17.9	46.0
500.060842	19.9	1000.0	120.000	184.0	H	266.0	-7.1	26.1	46.0

Test Notes:

2.5.12 Test Results Above 1GHz (Bluetooth TX Worst Case – Non Hopping 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)
1412.917635	37.4	1000.0	1000.000	290.2	H	128.0	-5.6	36.5	73.9
1916.739679	41.8	1000.0	1000.000	384.0	H	315.0	-2.0	32.1	73.9
3933.359719	45.6	1000.0	1000.000	103.7	V	-20.0	4.9	28.3	73.9
4880.267535	55.7	1000.0	1000.000	121.7	V	10.0	6.1	18.2	73.9
6351.997395	51.2	1000.0	1000.000	351.6	H	325.0	10.8	22.7	73.9
16776.047094	57.3	1000.0	1000.000	403.5	H	20.0	23.5	16.6	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)
1412.917635	24.6	1000.0	1000.000	290.2	H	128.0	-5.6	29.3	53.9
1916.739679	28.9	1000.0	1000.000	384.0	H	315.0	-2.0	25.0	53.9
3933.359719	32.5	1000.0	1000.000	103.7	V	-20.0	4.9	21.4	53.9
4880.267535	40.9	1000.0	1000.000	121.7	V	10.0	6.1	13.0	53.9
6351.997395	37.3	1000.0	1000.000	351.6	H	325.0	10.8	16.6	53.9
16776.047094	44.7	1000.0	1000.000	403.5	H	20.0	23.5	9.2	53.9

Test Notes: Measurement was performed with a 2.4GHz notch filter. No significant emissions observed above 18GHz. Measurements above 18GHz are noise floor figures.

2.6 RADIATED IMMEDIATE RESTRICTED BANDS

2.6.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-210, Clause A8.5

2.6.2 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)).

2.6.3 Equipment Under Test and Modification State

Serial No: N/AN/A (sample #2)/ Test Configuration B

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

May 18 and 22, 2015/XYZ

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	22.9-24.6°C
Relative Humidity	41.6-47.1%
ATM Pressure	98.9-99.2 kPa

2.6.7 Additional Observations

- This is a radiated test. The spectrum was searched from 2310MHz to 2390MHz for lower immediate restricted band and 2483.5MHz to 2500MHz for the upper immediate restricted band.
- There are no emissions found that do not comply with the restricted bands defined in FCC Part 15 Subpart C, 15.205.
- Both Non-hopping and Hopping modes presented.

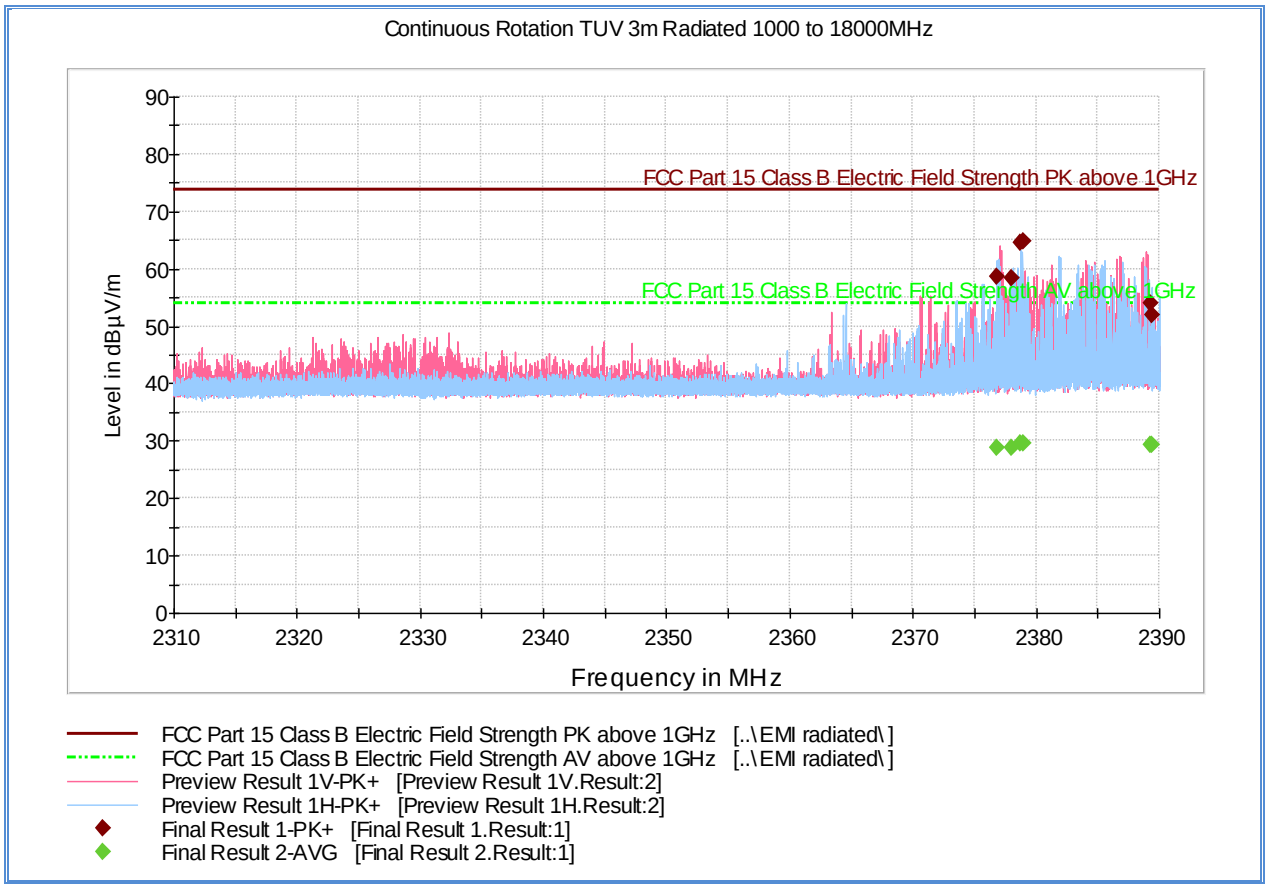
- Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.6.8 for sample computation.

2.6.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 2400 MHz			53.9
Correction Factor (dB)	Asset# 1153 (cable)	3.4	-0.4
	Asset# 8628(preamplifier)	-36.5	
	Asset#7575 (antenna)	32.7	
Reported Max Peak Final Measurement (dbµV/m) @ 2400 MHz			**53.5**

TÜV SÜD AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 FAX: 858 546 0364

2.6.9 Test Results Restricted Band 2310MHz to 2390MHz (Hopping)



Peak Data

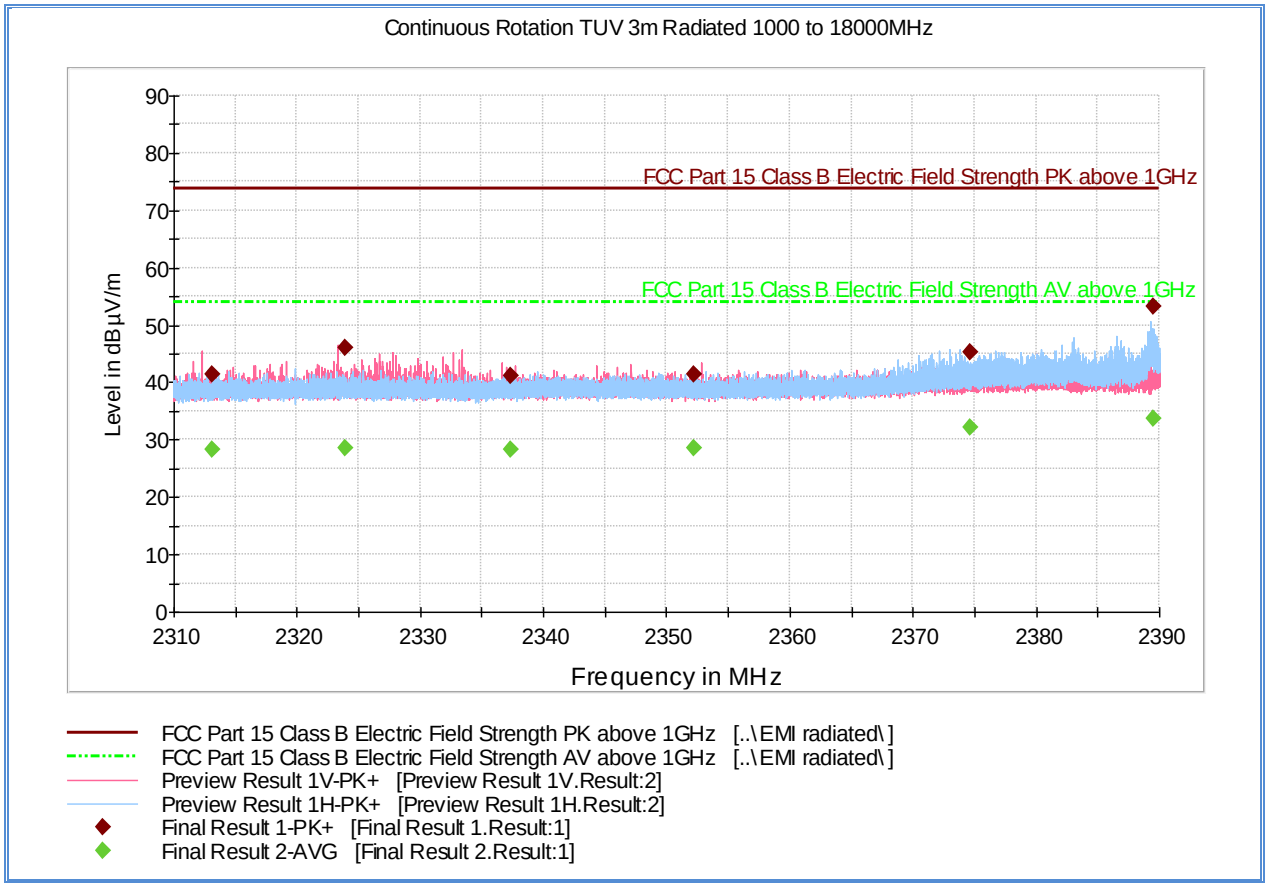
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2376.856000	58.5	1000.0	1000.000	177.0	V	83.0	-0.7	15.4	73.9
2377.997333	58.4	1000.0	1000.000	123.0	V	81.0	-0.7	15.5	73.9
2378.704000	64.6	1000.0	1000.000	100.0	H	172.0	-0.7	9.3	73.9
2378.962667	64.9	1000.0	1000.000	100.0	H	172.0	-0.7	9.0	73.9
2389.288000	54.0	1000.0	1000.000	124.0	V	32.0	-0.6	19.9	73.9
2389.429333	51.8	1000.0	1000.000	100.0	V	22.0	-0.6	22.1	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)
2376.856000	28.9	1000.0	1000.000	177.0	V	83.0	-0.7	25.0	53.9
2377.997333	28.9	1000.0	1000.000	123.0	V	81.0	-0.7	25.0	53.9
2378.704000	29.5	1000.0	1000.000	100.0	H	172.0	-0.7	24.4	53.9
2378.962667	29.6	1000.0	1000.000	100.0	H	172.0	-0.7	24.3	53.9
2389.288000	29.3	1000.0	1000.000	124.0	V	32.0	-0.6	24.6	53.9
2389.429333	29.3	1000.0	1000.000	100.0	V	22.0	-0.6	24.6	53.9

Test Notes: 2.4GHz notch filter removed for this test.

2.6.10 Test Results Restricted Band 2310MHz to 2390MHz (Non-Hopping)



Peak Data

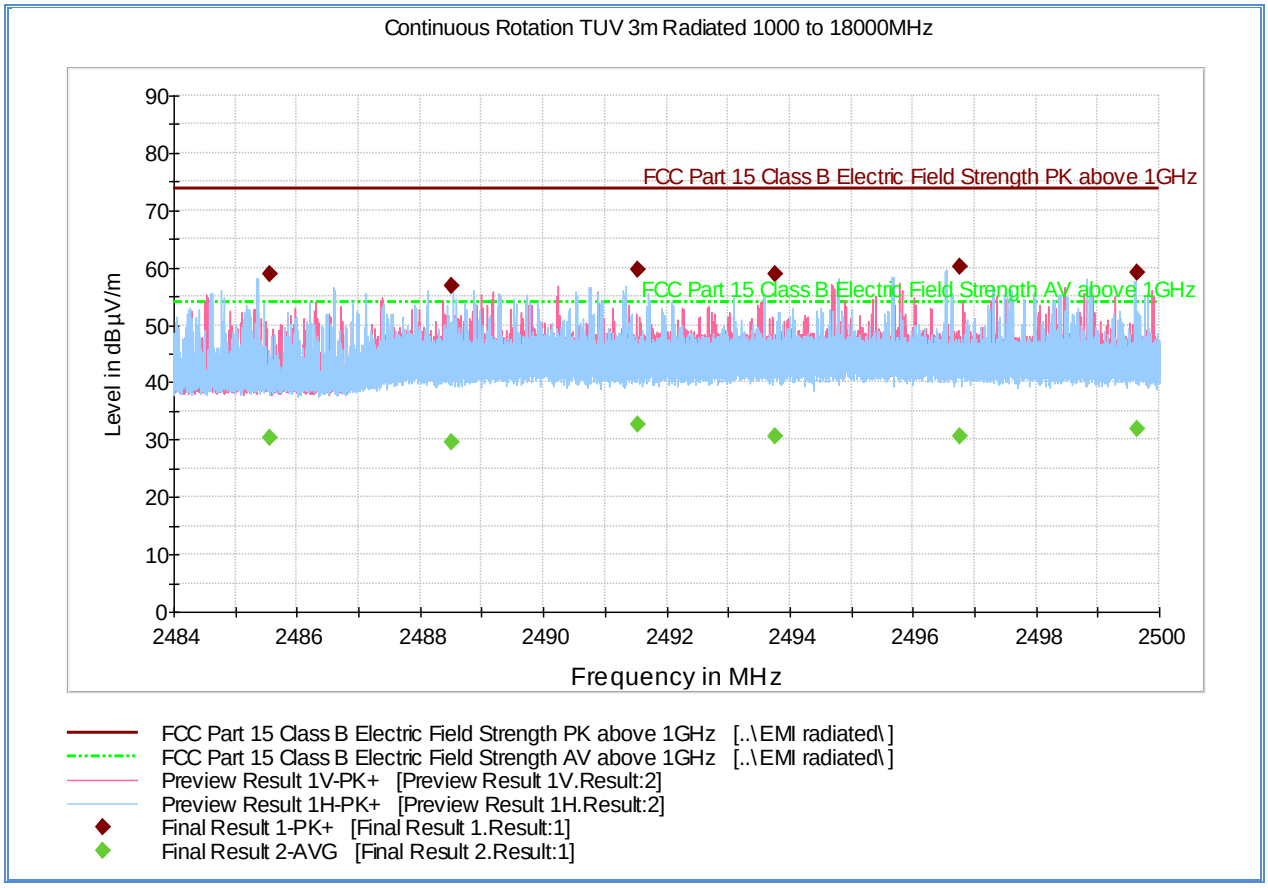
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2313.080000	41.3	1000.0	1000.000	202.3	V	135.0	-0.8	32.6	73.9
2323.914667	46.1	1000.0	1000.000	256.3	V	175.0	-0.7	27.8	73.9
2337.381333	41.1	1000.0	1000.000	256.3	V	157.0	-0.7	32.8	73.9
2352.176000	41.5	1000.0	1000.000	163.6	V	152.0	-0.8	32.4	73.9
2374.605333	45.2	1000.0	1000.000	116.7	H	224.0	-0.7	28.7	73.9
2389.509333	53.3	1000.0	1000.000	123.7	H	66.0	-0.6	20.6	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)
2313.080000	28.3	1000.0	1000.000	202.3	V	135.0	-0.8	25.6	53.9
2323.914667	28.6	1000.0	1000.000	256.3	V	175.0	-0.7	25.3	53.9
2337.381333	28.3	1000.0	1000.000	256.3	V	157.0	-0.7	25.6	53.9
2352.176000	28.4	1000.0	1000.000	163.6	V	152.0	-0.8	25.5	53.9
2374.605333	32.1	1000.0	1000.000	116.7	H	224.0	-0.7	21.8	53.9
2389.509333	33.7	1000.0	1000.000	123.7	H	66.0	-0.6	20.2	53.9

Test Notes: 2.4GHz notch filter removed for this test.

2.6.11 Test Results Restricted Band 2483.5MHz to 2500MHz (Hopping)



Peak Data

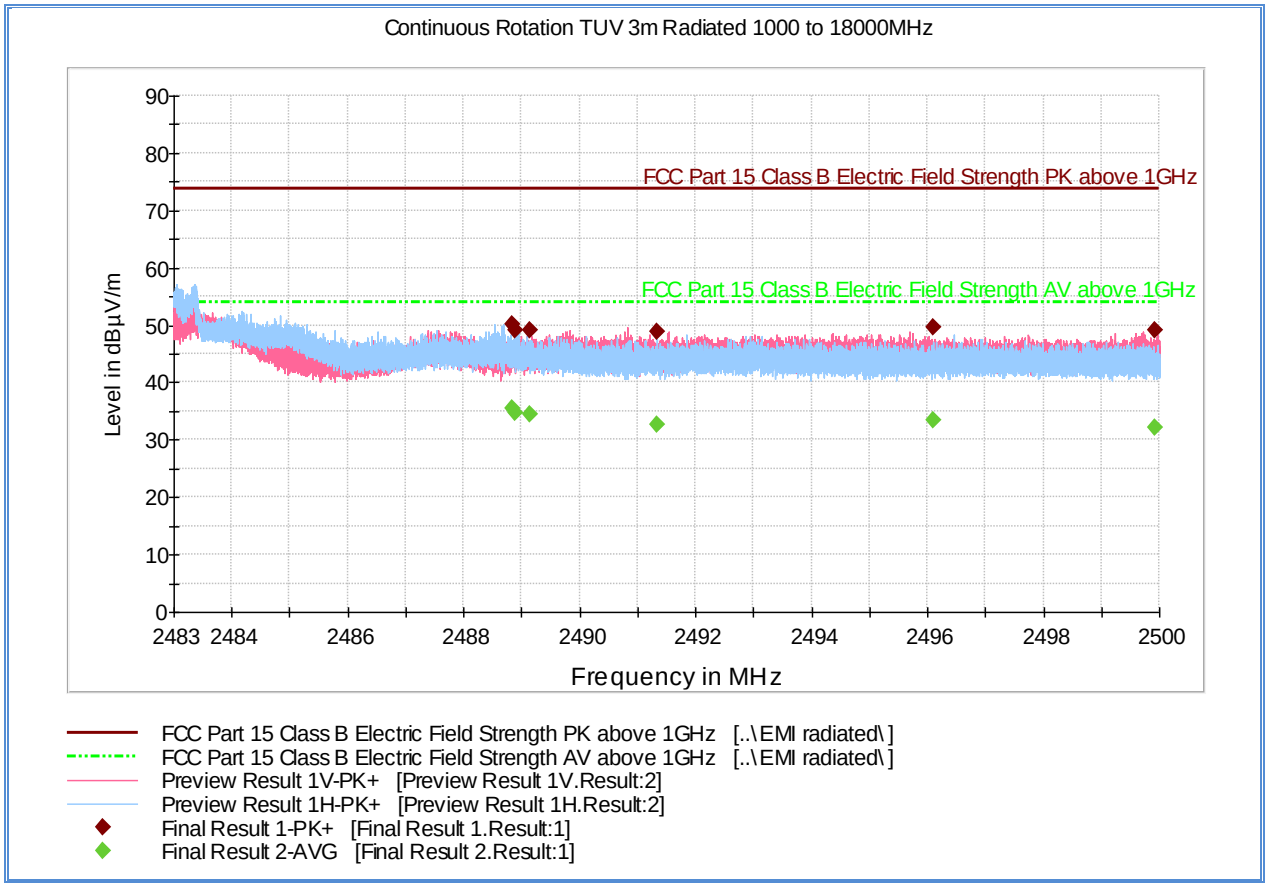
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2485.547733	58.8	1000.0	1000.000	103.7	H	218.0	-0.1	15.1	73.9
2488.521600	56.8	1000.0	1000.000	106.8	H	226.0	-0.1	17.1	73.9
2491.530667	59.6	1000.0	1000.000	102.8	H	132.0	-0.1	14.3	73.9
2493.774933	59.0	1000.0	1000.000	105.7	H	212.0	-0.1	14.9	73.9
2496.750933	60.2	1000.0	1000.000	104.8	H	214.0	-0.1	13.7	73.9
2499.636267	59.1	1000.0	1000.000	101.7	H	143.0	-0.1	14.8	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)
2485.547733	30.4	1000.0	1000.000	103.7	H	218.0	-0.1	23.5	53.9
2488.521600	29.6	1000.0	1000.000	106.8	H	226.0	-0.1	24.3	53.9
2491.530667	32.6	1000.0	1000.000	102.8	H	132.0	-0.1	21.3	53.9
2493.774933	30.5	1000.0	1000.000	105.7	H	212.0	-0.1	23.4	53.9
2496.750933	30.5	1000.0	1000.000	104.8	H	214.0	-0.1	23.4	53.9
2499.636267	32.0	1000.0	1000.000	101.7	H	143.0	-0.1	21.9	53.9

Test Notes: 2.4GHz notch filter removed for this test.

2.6.12 Test Results Restricted Band 2483.5MHz to 2500MHz (Non-Hopping)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2488.832367	50.1	1000.0	1000.000	101.7	H	132.0	-0.1	23.8	73.9
2488.894433	49.2	1000.0	1000.000	103.7	H	217.0	-0.1	24.7	73.9
2489.132367	49.1	1000.0	1000.000	102.8	H	217.0	-0.1	24.8	73.9
2491.341933	48.9	1000.0	1000.000	99.7	V	118.0	-0.1	25.1	73.9
2496.100133	49.5	1000.0	1000.000	100.7	V	112.0	-0.1	24.4	73.9
2499.924600	49.2	1000.0	1000.000	101.7	V	118.0	-0.1	24.7	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)
2488.832367	35.6	1000.0	1000.000	101.7	H	132.0	-0.1	18.3	53.9
2488.894433	34.8	1000.0	1000.000	103.7	H	217.0	-0.1	19.1	53.9
2489.132367	34.6	1000.0	1000.000	102.8	H	217.0	-0.1	19.3	53.9
2491.341933	32.7	1000.0	1000.000	99.7	V	118.0	-0.1	21.2	53.9
2496.100133	33.3	1000.0	1000.000	100.7	V	112.0	-0.1	20.6	53.9
2499.924600	32.2	1000.0	1000.000	101.7	V	118.0	-0.1	21.7	53.9

Test Notes: 2.4GHz notch filter removed for this test.

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
Conducted Port Setup						
7582	Signal/Spectrum Analyzer	FSW26	101614	Rhode & Schwarz	12/22/14	12/22/15
1003	Signal Generator	SMR 40	1104.0002.40	Rhode & Schwarz	04/29/15	04/29/16
7604	Series Power Meter	N1912A	SG45100273	Agilent	05/27/15	05/27/16
7605	50MHz-18GHz Wideband Power Sensor	N1921A	MY51100054	Agilent	04/10/15	04/10/16
-	6dB Attenuator	606-06-1F4/DR	-	MECA	Verified by 1003 and 7569	
Radiated Test Setup						
1002	Bilog Antenna	3142C	00058717	ETS-Lindgren	01/30/14	01/30/16
1051	Double-ridged waveguide horn antenna	3115	9408-4329	EMCO	02/28/14	02/28/16
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	08/29/14	09/29/15
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	03/11/15	03/11/16
1016	Pre-amplifier	PAM-0202	187	PAM	12/10/14	12/10/15
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	03/20/15	03/20/16
8816	2.4GHz to 2.5GHz Notch Filter	BRM50702	133	MICRO-TRONICS	N/A	
Conducted Emissions						
1024	EMI Test Receiver	ESCS 30	847793/001	Rhode & Schwarz	04/10/15	04/10/16
7567	LISN	FCC-LISN-50-25-2-10	120304	Fischer Custom Comm.	07/01/14	07/01/15
7568	LISN	FCC-LISN-50-25-2-10	120305	Fischer Custom Comm.	09/02/14	09/02/15
8822	20dB Attenuator	34-20-34	N/A	MCE / Weinschel	02/20/15	02/20/16
8824	20dB Attenuator	34-20-34	N/A	MCE / Weinschel	02/20/15	02/20/16
Miscellaneous						
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	
1072	DC Power Supply	E3610A	KR51311519	Hewlett Packard	Verified by 6792	
6792	Multimeter	3478A	2911A70964	Hewlett Packard	08/12/14	08/12/15
7579	Temperature Chamber	115	151617	TestQuity	07/21/14	07/21/15
7554	Barometer/Temperature/Humidity Transmitter	iBTHX-W	1240476	Omega	01/30/14	01/30/16

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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 Conducted Antenna Port Measurement

	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	0.50	0.29	0.08
3	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	0.72
				Coverage Factor (k):	2
				Expanded Uncertainty:	1.45

3.2.4 AC Conducted Emissions Measurements

	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

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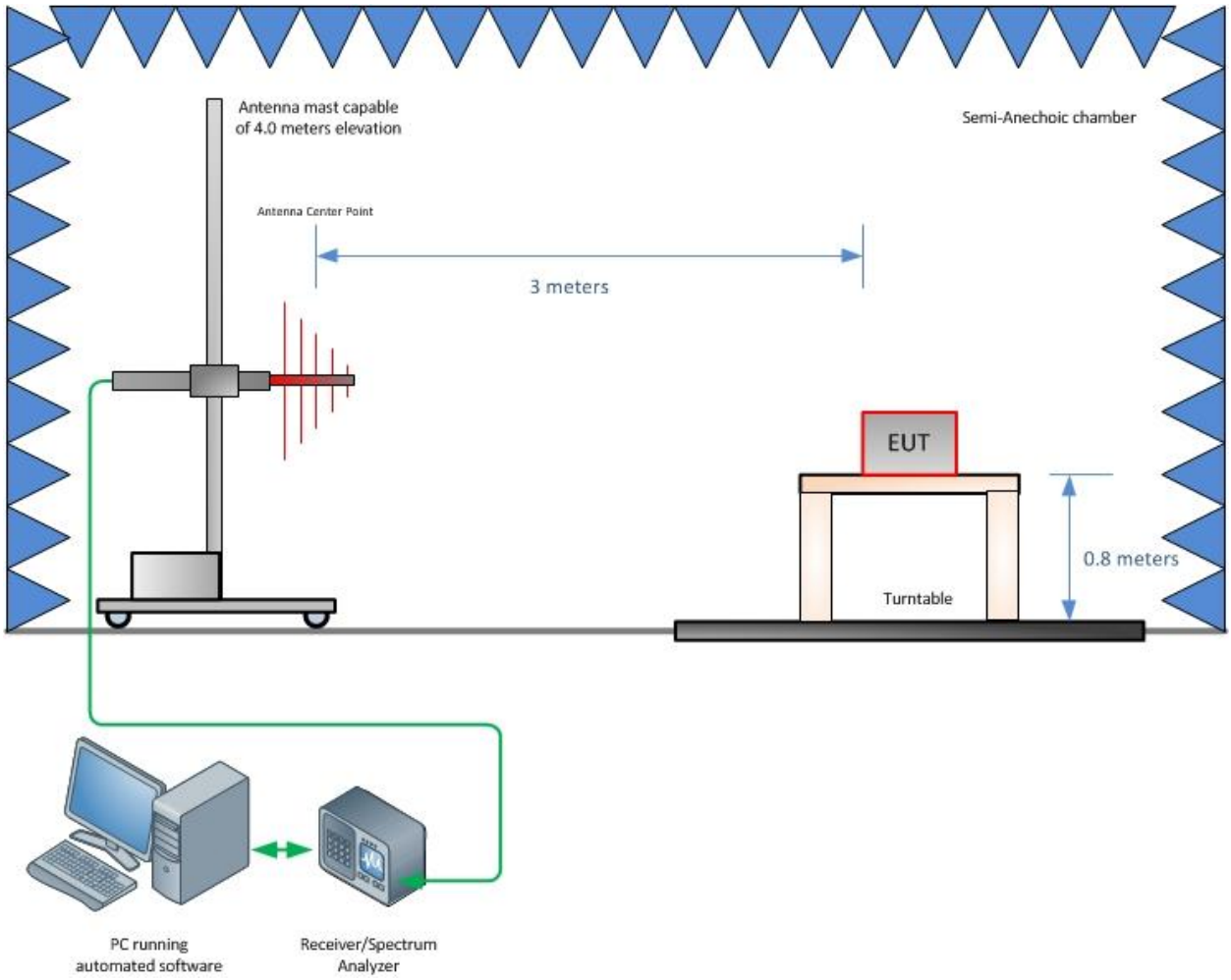
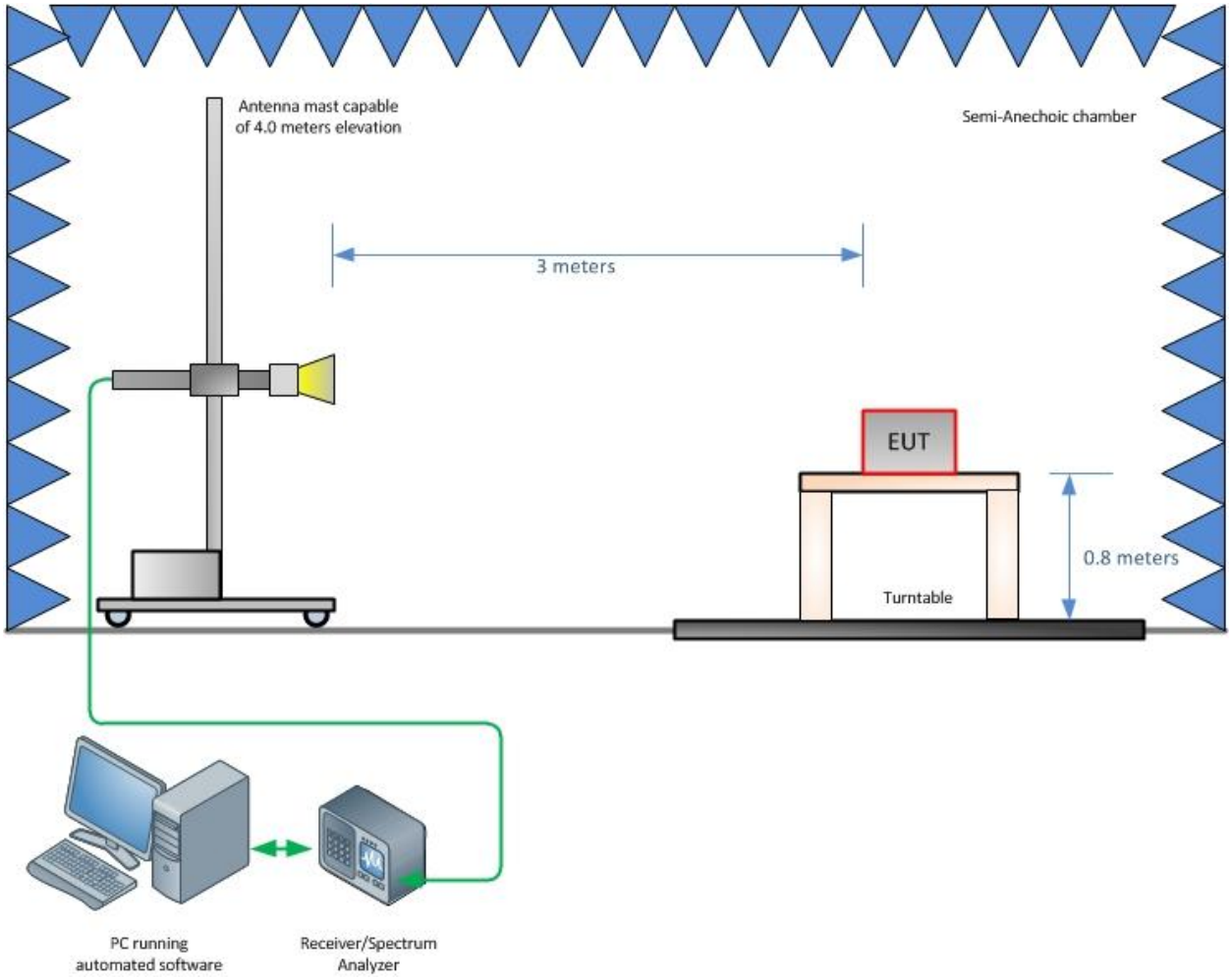
SECTION 4

DIAGRAM OF TEST SETUP

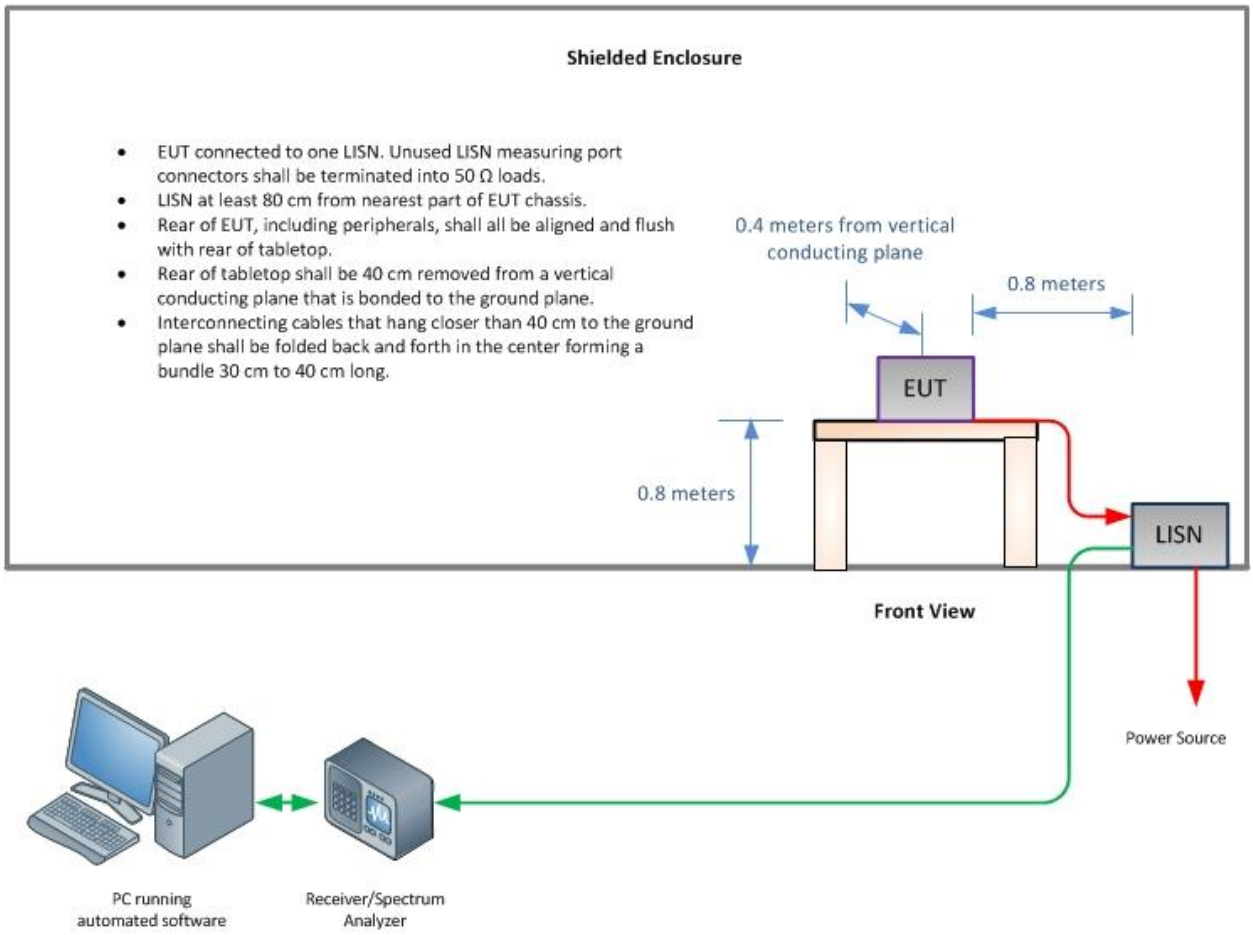
4.1 TEST SETUP DIAGRAM



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



Conducted Emission Test Setup

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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