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Report On

Application for Grant of Equipment Authorization of the
Novatel Wireless Inc.
Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module

FCC CFR 47 Part 2, Part 22 and Part 24: 2014
RSS-132 issue 3: 2013 and RSS-133 issue 6: 2013

Report No. SD72115463-0316 **March 2016**

REPORT ON	Limited Radio Testing of the Novatel Wireless Inc. Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module
TEST REPORT NUMBER	SD72115463-0316
PREPARED FOR	Novatel Wireless Inc. 9645 Scranton Road, Suite 205 San Diego, CA 92121
CONTACT PERSON	Roman Olmos Sr. Regulatory Engineer (858) 812-3400 rolmos@nvtl.com
PREPARED BY	Xiaoying Zhang **Name** Authorized Signatory Title: EMC/Wireless Test Engineer
APPROVED BY	Chip Fleury **Name** Authorized Signatory Title: West Coast EMC Manager
DATED	March 25, 2016

Revision History

SD72115463-0316 Novatel Wireless Inc. Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
03/25/2016	Initial Release				Chip Fleury

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SECTION 1

REPORT SUMMARY

Radio Testing of the
Novatel Wireless Inc.
Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Novatel Wireless Inc. Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module to the requirements of the following:

FCC CFR 47 Part 2, Part 22 and Part 24: 2014
RSS-132 issue 3: 2013 and RSS-133 issue 6: 2013

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.
Applicant	Novatel Wireless Inc.
Manufacturer	Enfora Inc.
Brand Name	Enabler HS 3001
Model Number(s)	CNN0301-10
FCC ID Number	MIVCNN0301
IC Number	4106A-CNN0301
Serial Number(s)	IMEI: A1000013E98F81
Number of Samples Tested	1
Test Specification/Issue/Date	• FCC CFR 47 Part 2, Part 22 and Part 24: 2014 • RSS-132 issue 3: 2013; (Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz) • RSS-133 issue 6: 2013; (2 GHz Personal Communications Services) • RSS-GEN issue 4 November 2014; (General Requirements for Compliance of Radio Apparatus)
Start of Test	March 17, 2016
Finish of Test	March 20, 2016
Name of Engineer(s)	Xiaoying Zhang
Related Document(s)	• 971168 D01 Power Meas License Digital Systems v02r02: October 17 2014; (Measurement guidance for certification of licensed digital transmitters • Test Report No. RFI-RPT-RP86318JD02A V4.0.

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC CFR 47 Part 2, Part 22 and Part 24: 2014 and RSS-132 issue 3: 2013 and RSS-133 issue 6: 2013 standard is shown below.

Section	FCC Part Sections(s)	Industry Canada Sections	Test Description	Result
-	2.1046	RSS-132: 5.4, RSS-133: 6.4	Transmitter Conducted Output Power	N/T*
-	2.1046, 22.913(a)(2)	-	Effective Radiated Power	N/T*
-	2.1046, 24.232(c)	RSS-132: 5.4 RSS-133: 6.4	Equivalent Isotropic Radiated Power	N/T*
-	24.232(d)	RSS-132: 5.4, RSS-133: 6.4	Peak-Average Ratio	N/T*
	-	RSS-GEN 4.6.1	Occupied Bandwidth	N/T*
2.1	2.1049, 22.917(b), 24.238(b)	-	26dB Bandwidth	Compliant
-	2.1051, 22.917(a), 24.238(a)	RSS-132: 5.5, RSS-133: 6.5	Band Edge	N/T*
-	2.1051, 22.917(a), 24.238(a)	RSS-132: 5.5, RSS-133: 6.5	Conducted Spurious Emissions	N/T*
2.2	2.1053, 22.917(a), 24.238(a)	RSS-132: 5.5, RSS-133: 6.5	Field Strength Of Spurious Radiation	Compliant
-	2.1055, 22.355, 24.235	RSS-132: 5.3, RSS-133: 6.3	Frequency Stability	N/T*

Note *: N/T: Not Test. Test Data for the case refers to testing report No. RFI-RPT-RP86318JD02A V4.0

1.3 PRODUCT INFORMATION

1.3.1 EUT General Description

The Equipment Under Test (EUT) was a Novatel Wireless Inc. CDMA2000 1xRTT Dual-Band Radio Module. The EUT does not support EV-DO.

1.3.2 EUT General Description

EUT Description	CDMA2000 1xRTT Dual-Band Radio Module
Band Name	Enabler HS 3001
Model Number(s)	CNN0301-10
Rated Voltage	3.7VDC
Mode Verified	CDMA2000 Cell Band and PCS Band
Primary Unit (EUT)	☒ Production ☐ Pre-Production ☐ Engineering
Internal Antennas Details	**Antenna – CDMA** Antenna Gain: • 850MHz Band: Low Ch = -1.67 dBi Mid Ch = -1.42 dBi High Ch = -1.36 dBi • 1900MHz Band: Low Ch = -2.37 dBi Mid Ch = -2.23 dBi High Ch = -2.04 dBi

1.3.3 Transmit Frequency Table

Technology / Mode	Tx Frequency (MHz)	Emission Designator
CDMA2000 – 1xRTT Cell Band (BC0)	824-849	1M31F9W
CDMA2000 – 1xRTT PCS Band (BC1)	1850-1910	1M31F9W

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

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
Default	The modue was tested together with a host with the antenna connector connected to call box and transmit at a max. power

1.4.2 EUT Exercise Software

EUT is controlled by a CMW 500 Wideband Radio Communication Tester. There are no other test software used during verification.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
CUI INC	Power Supply for the host equipment	Model: 3A-181WP05 IP: 100-240VAC, 50-60Hz, 0.6A OP: 5VDC, 3.2A

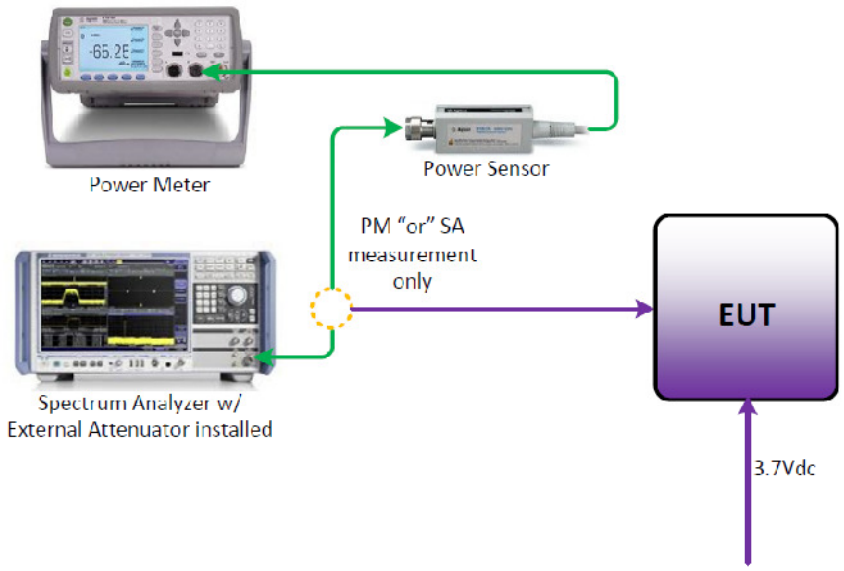
1.4.4 Worst Case Configuration

Worst-case configuration used in this test report:

Technology	Band
CDMA 2000 – 1xRTT	Cell (BC0)
CDMA 2000 – 1xRTT	PCS (BC1)

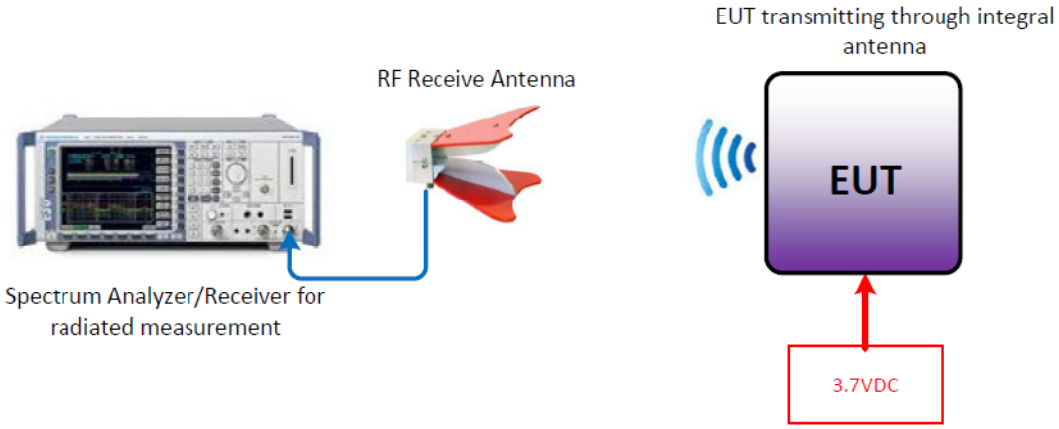
1.4.5 Simplified Test Configuration Diagram

Conducted (Antenna Port) Test Configuration



Not To Scale – Illustration Purpose Only
Objects may not represent actual image of original equipment/s or set-up.

Radiated Test Configuration



Not To Scale – Illustration Purpose Only
Objects may not represent actual image of original equipment/s or set-up.

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

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 IMEI: A1000013E98F81		
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 C63.4-2014, 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.
Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements by Substitution method were conducted according to ANSI/TIA/EIA-603-C-2004, August 17,2004. Land Mobile FM or PM -Communications Equipment -Measurement and Performance Standards.
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 C63.4-2014. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY LOCATION

1.8.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: 858 678 1400 FAX: 858-546 0364

1.8.2 TÜV SÜD America Inc. (Rancho Bernardo)

16530 Via Esprillo, San Diego, CA 92127-1708 (33.018644,-117.092409). Phone: 858 678 1400 Fax: 858 546 0364.

1.9 TEST FACILITY REGISTRATION

1.9.1 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 §2.498 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Registration is US1146.

1.9.2 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.

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

1.10 SAMPLE CALCULATIONS

1.10.1 CDMA Emission Designator

Emission Designator = 1M30F9W
F = Frequency Modulation
9= Composite Digital Info
W = Combination (Audio/Data)

1.10.2 Spurious Radiated Emission (below 1GHz)

Measuring equipment raw measurement (dBµV/m) @ 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**

1.10.3 Spurious Radiated Emission – Substitution Method

Example = 84dBµV/m @ 1413 MHz (numerical sample only)

The field strength reading of 84dBµV/m @ 1413 MHz (2nd Harmonic of 706.5 MHz) is the maximized measurement when the EUT is on the turntable measured at 3 meters. The gain of the substituted antenna is 7.8dBi while the transmit cable loss is 1.0 dB (cable between signal generator and the substituted antenna). The signal generator level is adjusted until the 84dBµV/m level at the receiving end is replicated (identical test setup, i.e. same antenna, cable/s and preamp). If the adjusted signal generator level is -18dBm, then we have the following for both EIRP and ERP as required:

P_{EIRP} = -18 dBm + 7.8 dBi – 1dB
= 11.2 dBm
P_{ERP} = P_{EIRP} – 2.15 dB
= 11.2 dBm – 2.15 dB
= 9.05 dBm

SECTION 2

TEST DETAILS

Radio Testing of the
Novatel Wireless Inc.
Enabler HS 3001 CDMA2000 1xRTT Dual-Band Radio Module

2.1 26DB BANDWIDTH

2.1.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1049
FCC 47 CFR Part 22, Clause 22.917(b)
FCC 47 CFR Part 24, Clause 24.238(b)

2.1.2 Standard Applicable

26dB Bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated by at least 26 dB below the transmitter power.

2.1.3 Equipment Under Test and Modification State

Serial No: IMEI: A1000013E98F81 / Test Configuration Default

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

March 17, 2016 / 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/ Test Location

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	26.0°C
Relative Humidity	38.1%
ATM Pressure	98.9kPa

2.1.7 Additional Observations

- This is a conducted test. 26dB bandwidth presented.
- The 26dB bandwidth was measured in accorance with FCC KDB 971168 D01 V0202 Clause 4.1 using the ndB measurement function in the spectrum analyzer.
- 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 (RBW) shall be in the range of 1% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be at least 3x RBW.
- Low, Mid and High channels for all bandwidths and modulations were verified. Only Mid channel plots presented as representative.

2.1.8 Test Results

CDMA 2000 – SO 1 Voice			
Band	**Channel**	**Frequency**	**26dB BW (MHz)**
Cell (BC0)	Bottom 1013	824.7	1.42
	Middle 384	836.52	1.44
	High 777	848.31	1.44

CDMA 2000 – SO 55 Data			
Band	**Channel**	**Frequency**	**26dB BW (MHz)**
Cell (BC0)	Bottom 1013	824.7	1.42
	Middle 384	836.52	1.44
	High 777	848.31	1.44

CDMA 2000 – SO 1 Voice			
Band	**Channel**	**Frequency**	**26dB BW (MHz)**
PCS (BC1)	Bottom 25	1851.25	1.45
	Middle 600	1880.00	1.48
	High 1175	1908.75	1.46

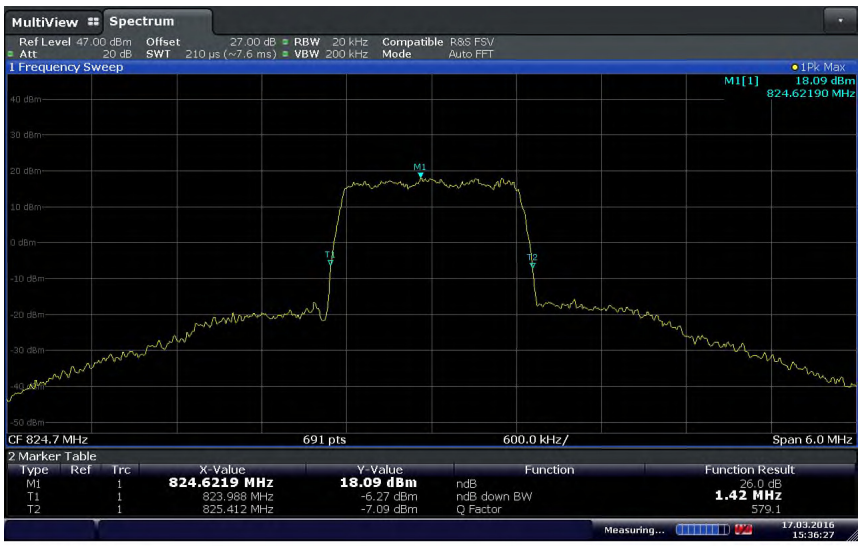
CDMA 2000 – SO 55 Data			
Band	**Channel**	**Frequency**	**26dB BW (MHz)**
PCS (BC1)	Bottom 25	1851.25	1.48
	Middle 600	1880.00	1.47
	High 1175	1908.75	1.45

2.1.9 Example Test Plots

CDMA 2000 Cell BC0 – SO 1 Channel 1013

Date: 17.MAR.2016 15:37:10

CDMA 2000 Cell BC0 – SO 55 Channel 1013



Date: 17.MAR.2016 15:36:27

CDMA 2000 Cell BC0 – SO 1 Channel 384


Date: 17.MAR.2016 14:00:05

CDMA 2000 Cell BC0 – SO 55 Channel 384


Date: 17.MAR.2016 13:49:05

CDMA 2000 Cell BC0 – SO 1 Channel 777

Date: 17.MAR.2016 15:34:16

CDMA 2000 Cell BC0 – SO 55 Channel 777

Date: 17.MAR.2016 15:35:23

CDMA 2000 Cell BC1 – SO 1 Channel 25

Date: 17.MAR.2016 15:38:00

CDMA 2000 Cell BC1 – SO 55 Channel 25

Date: 17.MAR.2016 15:38:38

CDMA 2000 Cell BC1 – SO 1 Channel 600

Date: 17.MAR.2016 15:40:08

CDMA 2000 Cell BC1 – SO 55 Channel 600

Date: 17.MAR.2016 15:39:17

CDMA 2000 Cell BC1 – SO 1 Channel 1175

Date: 17.MAR.2016 15:40:54

CDMA 2000 Cell BC1 – SO 55 Channel 1175

Date: 17.MAR.2016 15:41:49

2.2 FIELD STRENGTH OF SPURIOUS RADIATION

2.2.1 Specification Reference

FCC 47 CFR Part 2, Clause 2.1053
FCC 47 CFR Part 22, Clause 22.917(a)
FCC 47 CFR Part 24, Clause 24.238(a)
RSS-132, Clause 5.5
RSS-133, Clause 6.5

2.2.2 Standard Applicable

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

2.2.3 Equipment Under Test and Modification State

Serial No: IMEI: A1000013E98F81 / Test Configuration B

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

March 20, 2016 / 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/ Test Location

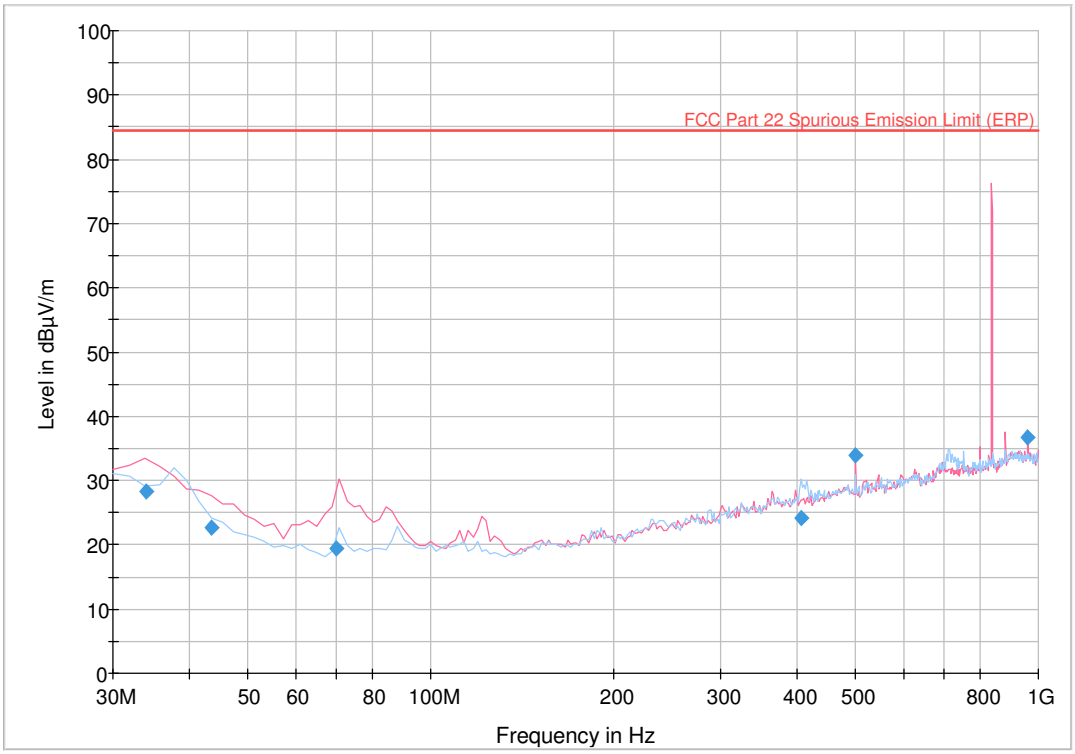
Test performed at TÜV SÜD America Inc. Rancho Bernardo facility

Ambient Temperature	23.8°C
Relative Humidity	45.2%
ATM Pressure	99.5kPa

2.2.7 Additional Observations

- This is a radiated test using substitution method as per Unwanted Emissions: Radiated Spurious method of measurement of ANSI/TIA/EIA-603-C 2004, August 17, 2004.
- Only the worst case configuration presented in this test report.
- Only noise floor measurements observed above 18GHz.
- 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.

2.2.8 Test Results Below 1GHz_Worst Case Configuration_CDMA 2000 BC0_Mid Channel (384)

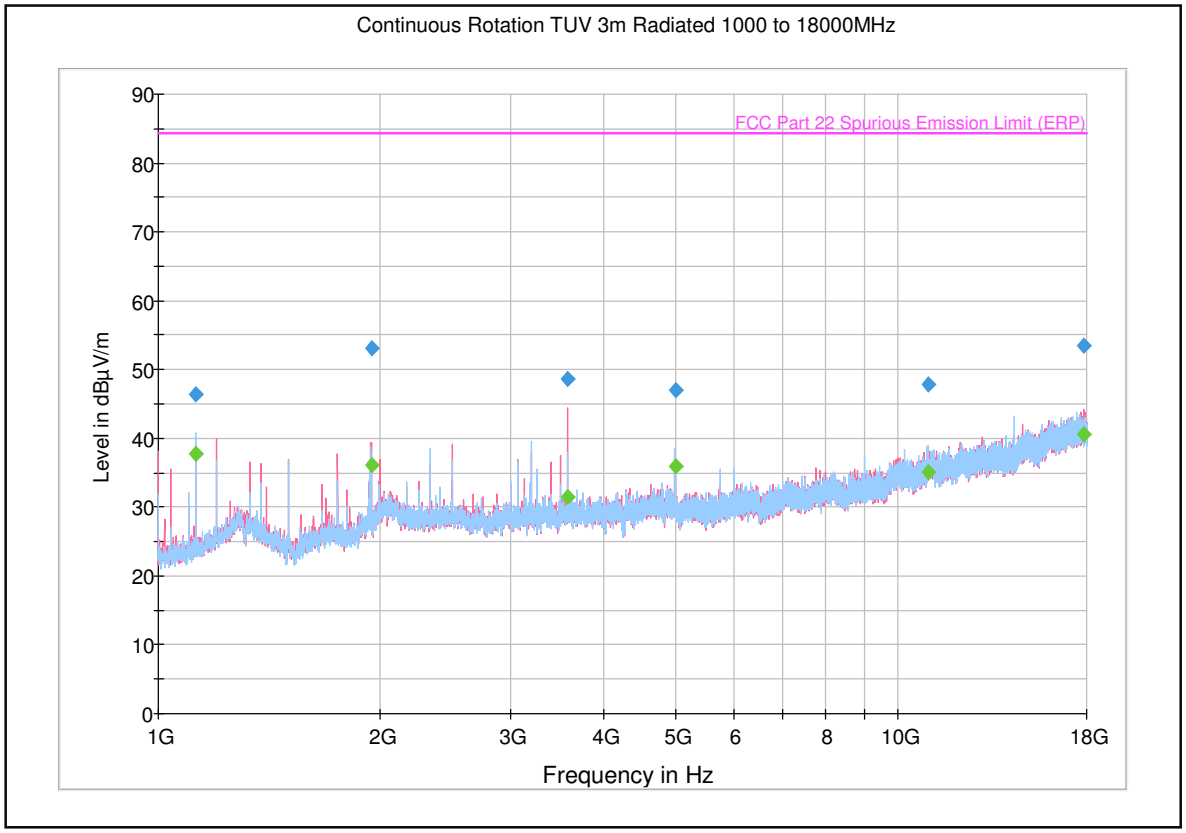


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
34.087776	28.3	1000.0	120.000	100.0	V	267.0	-8.0	56.1	84.4
43.567214	22.6	1000.0	120.000	115.0	V	297.0	-12.4	61.7	84.4
70.061643	19.5	1000.0	120.000	140.0	V	18.0	-16.9	64.8	84.4
406.794228	24.3	1000.0	120.000	100.0	H	94.0	-4.0	60.1	84.4
500.020842	34.0	1000.0	120.000	100.0	V	22.0	-1.8	50.4	84.4
960.082244	36.7	1000.0	120.000	155.0	V	196.0	6.2	47.6	84.4

Test Notes: Only worst case for CDMA200 BC0 presented for spurious emissions below 1GHz. The emission that is close to the limit is the carrier.

2.2.9 Test Results Above 1GHz_Worst Case Configuration_CDMA 2000 BC0_High Channel (777)



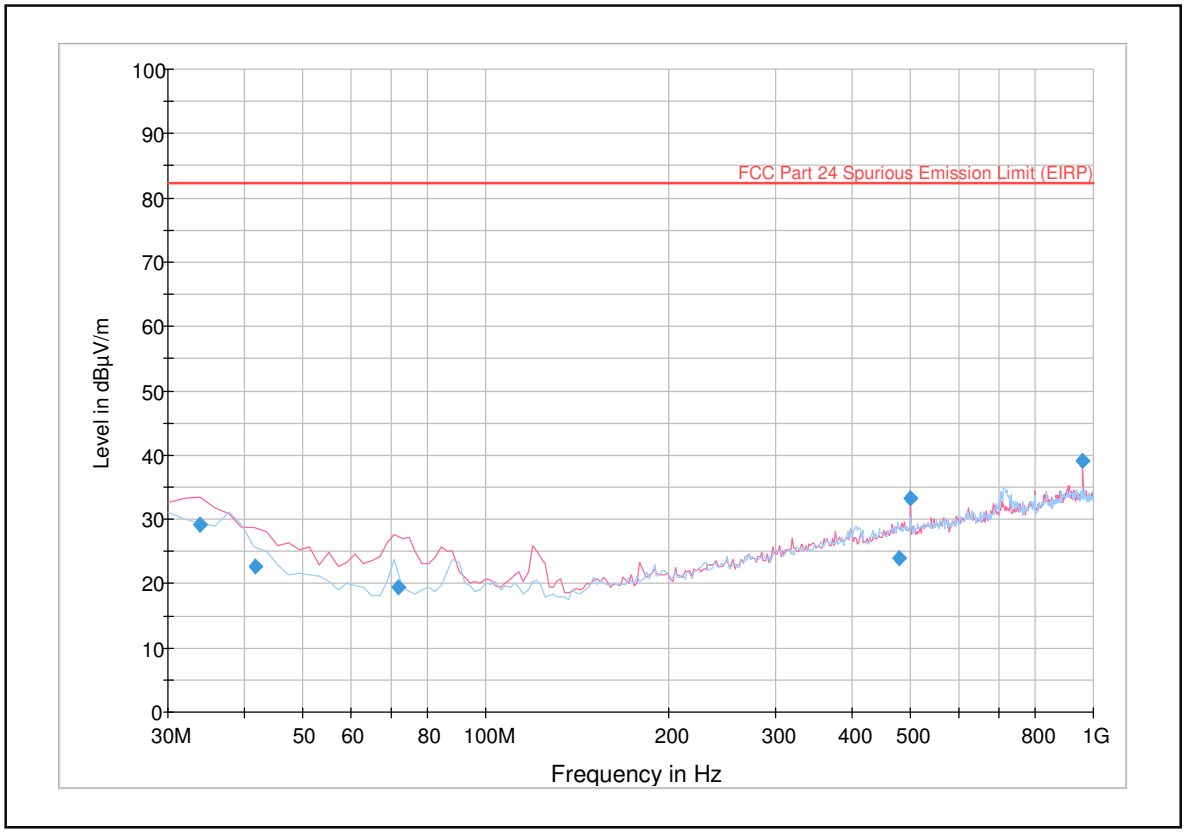
Peak/Average Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1124.866667	46.5	1000.0	1000.000	116.7	H	157.0	-7.6	37.9	84.4
1941.033333	53.1	1000.0	1000.000	192.5	V	-20.0	-1.1	31.3	84.4
3573.433333	48.6	1000.0	1000.000	183.5	V	67.0	1.3	35.8	84.4
5000.133333	47.1	1000.0	1000.000	151.2	H	16.0	3.3	37.3	84.4
10980.666667	47.9	1000.0	1000.000	229.4	H	194.0	12.8	36.5	84.4
17877.566667	53.5	1000.0	1000.000	152.2	V	10.0	20.4	30.9	84.4

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1124.866667	37.8	1000.0	1000.000	116.7	H	157.0	-7.6	46.6	84.4
1941.033333	36.1	1000.0	1000.000	192.5	V	-20.0	-1.1	48.3	84.4
3573.433333	31.5	1000.0	1000.000	183.5	V	67.0	1.3	52.9	84.4
5000.133333	35.9	1000.0	1000.000	151.2	H	16.0	3.3	48.5	84.4
10980.666667	35.1	1000.0	1000.000	229.4	H	194.0	12.8	49.3	84.4
17877.566667	40.6	1000.0	1000.000	152.2	V	10.0	20.4	43.8	84.4

Test Notes: Only worst case for CDMA200 BC0 presented for spurious emissions above 1GHz.

Test Results Below 1GHz_Worst Case Configuration_CDMA 2000 BC1_Mid Channel (600)

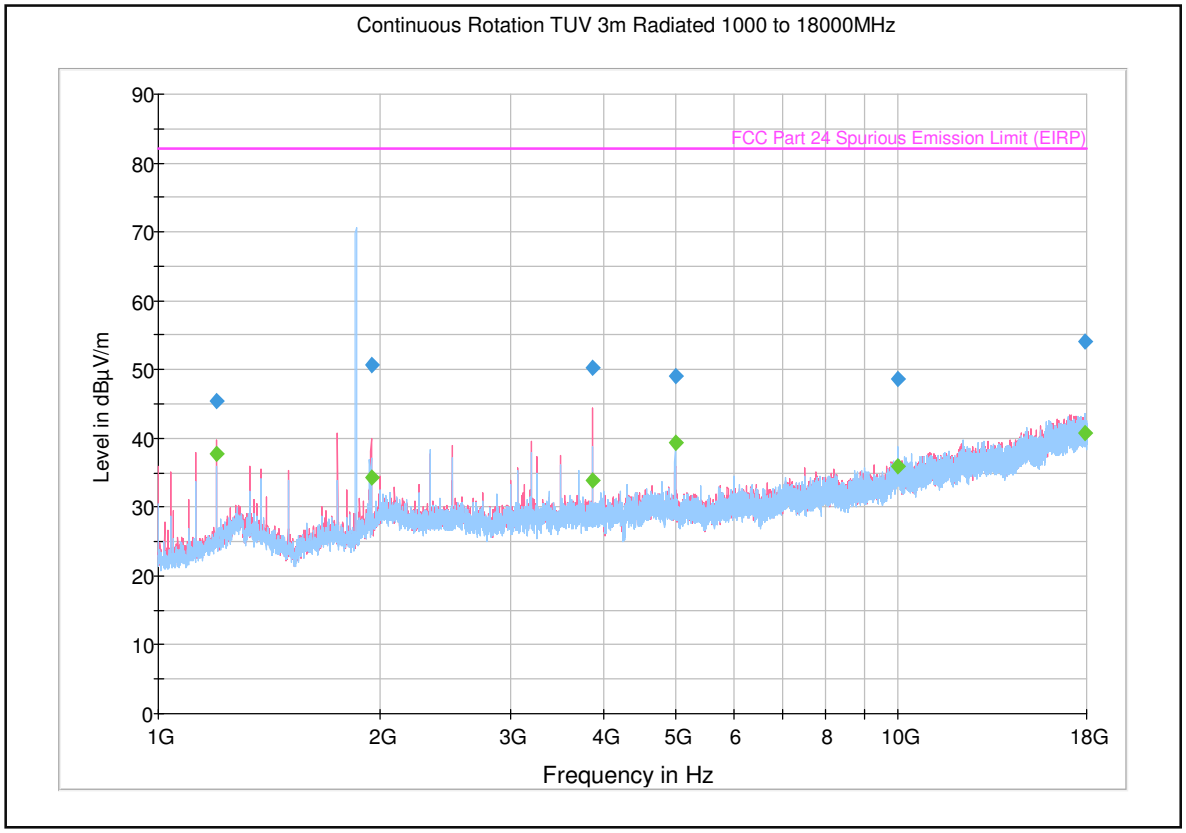


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.927776	29.2	1000.0	120.000	100.0	V	3.0	-7.9	53.0	82.2
41.767214	22.8	1000.0	120.000	100.0	V	333.0	-11.8	59.5	82.2
71.861643	19.4	1000.0	120.000	100.0	V	333.0	-16.8	62.8	82.2
478.094188	23.9	1000.0	120.000	250.0	H	141.0	-1.7	58.3	82.2
499.980842	33.3	1000.0	120.000	100.0	V	16.0	-1.8	49.0	82.2
960.082244	39.2	1000.0	120.000	150.0	V	161.0	6.2	43.1	82.2

Test Notes: Only worst case for CDMA200 BC1 presented for spurious emissions below 1GHz.

2.2.10 Test Results Above 1GHz_Worst Case Configuration_CDMA 2000 BC1_Low Channel (25)



Peak/Average Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1199.866667	45.4	1000.0	1000.000	192.5	V	208.0	-6.4	36.8	82.2
1941.633333	50.7	1000.0	1000.000	200.5	V	250.0	-1.1	31.6	82.2
3862.433333	50.3	1000.0	1000.000	165.6	V	13.0	2.0	31.9	82.2
4999.900000	49.0	1000.0	1000.000	102.7	H	-16.0	3.3	33.3	82.2
10000.000000	48.7	1000.0	1000.000	200.5	H	58.0	10.7	33.5	82.2
17952.766667	54.1	1000.0	1000.000	140.7	H	10.0	20.5	28.1	82.2

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1199.866667	37.7	1000.0	1000.000	192.5	V	208.0	-6.4	44.5	82.2
1941.633333	34.3	1000.0	1000.000	200.5	V	250.0	-1.1	47.9	82.2
3862.433333	33.9	1000.0	1000.000	165.6	V	13.0	2.0	48.3	82.2
4999.900000	39.4	1000.0	1000.000	102.7	H	-16.0	3.3	42.9	82.2
10000.000000	36.0	1000.0	1000.000	200.5	H	58.0	10.7	46.2	82.2
17952.766667	40.8	1000.0	1000.000	140.7	H	10.0	20.5	41.4	82.2

Test Notes: Only worst case for CDMA200 BC0 presented for spurious emissions above 1GHz. The emission that is close to the limit is the carrier.

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	10/05/15	10/05/16
7608	Vector Signal Generator	SMBV100A	259021	Rhode & Schwarz	07/29/15	07/29/16
7562	Wideband Radio Communication Tester	CMW 500	1201.0002k50 /103829	Rhode & Schwarz	For signalling only	
-	Power Divider/Splitter	1506A	RR003	Weinschel	Verified by 7608 and 7582	
8869	20dB Attenuator	34-20-34	BP8140	MCE/Weischel	Verified by 7608 and 7582	
Radiated Test Setup						
1033	Bilog Antenna	3142C	00044556	EMCO	09/25/15	09/25/16
7575	Double-ridged waveguide horn antenna	3117	00155511	EMCO	04/27/15	04/27/16
1151	Pre-amplifier	TS-PR26	100026	Rhode & Schwarz	05/03/15	05/03/16
1016	Pre-amplifier	PAM-0202	187	PAM	12/15/15	12/15/16
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	09/29/15	09/29/16
7620	EMI Test Receiver	ESU	100399	Rhode & Schwarz	09/03/15	09/03/16
7562	Wideband Radio Communication Tester	CMW 500	1201.0002k50 /103829	Rhode & Schwarz	For signalling only	
Miscellaneous						
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	
7560	Barometer/Temperature/Humidity Transmitter	iBTHX-W	1240476	Omega	10/19/15	10/19/16

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 (uc):	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

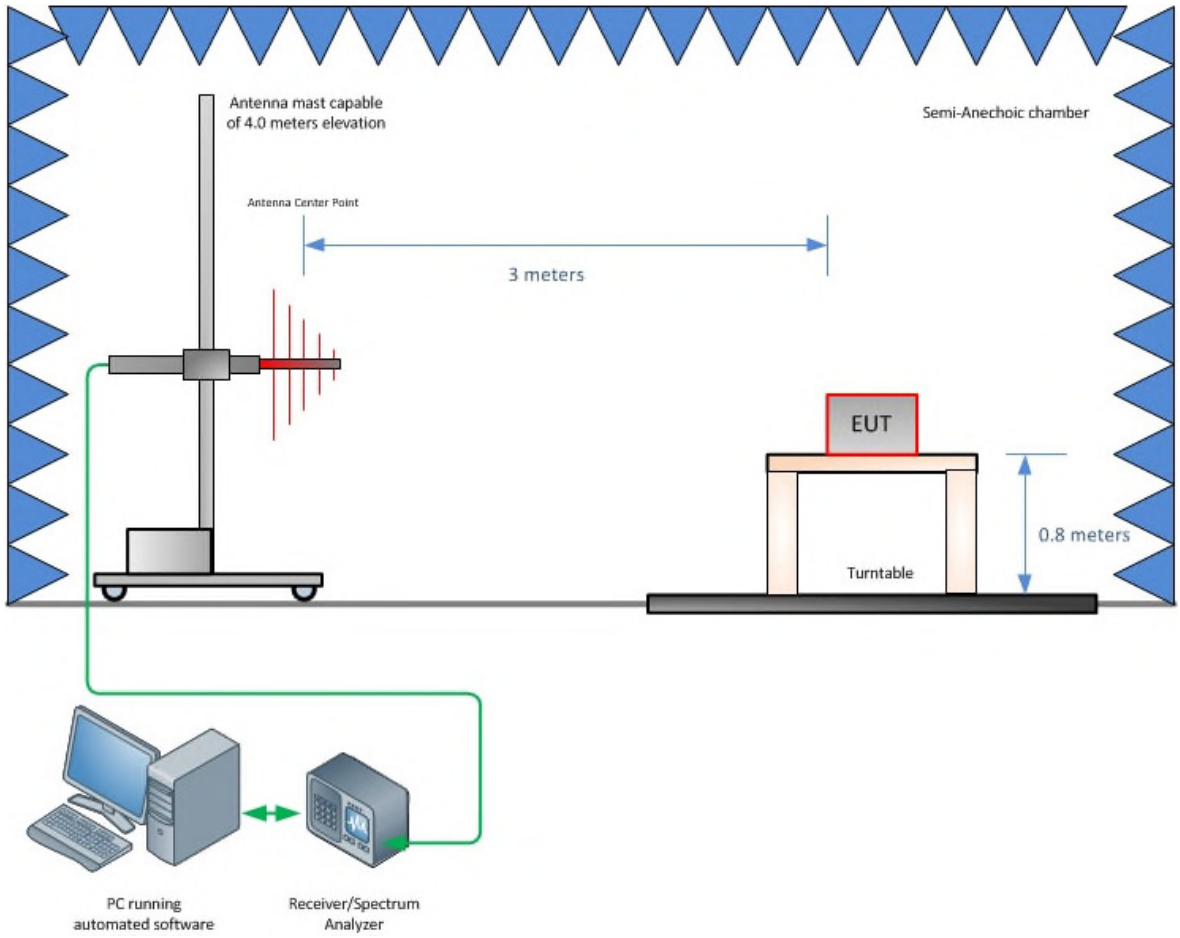
3.2.3 Conducted Antenna Port Measurement

	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

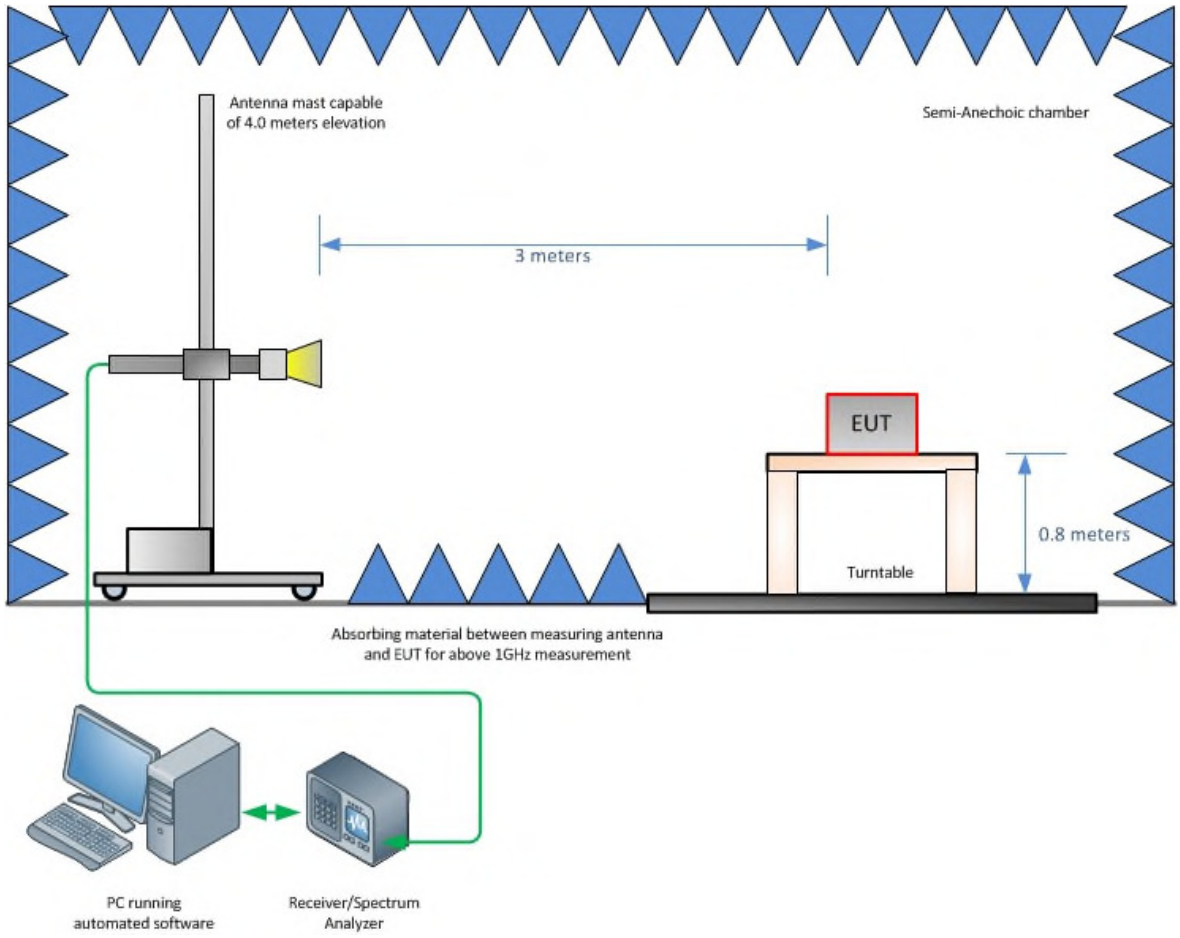
SECTION 4

DIAGRAM OF TEST SETUP

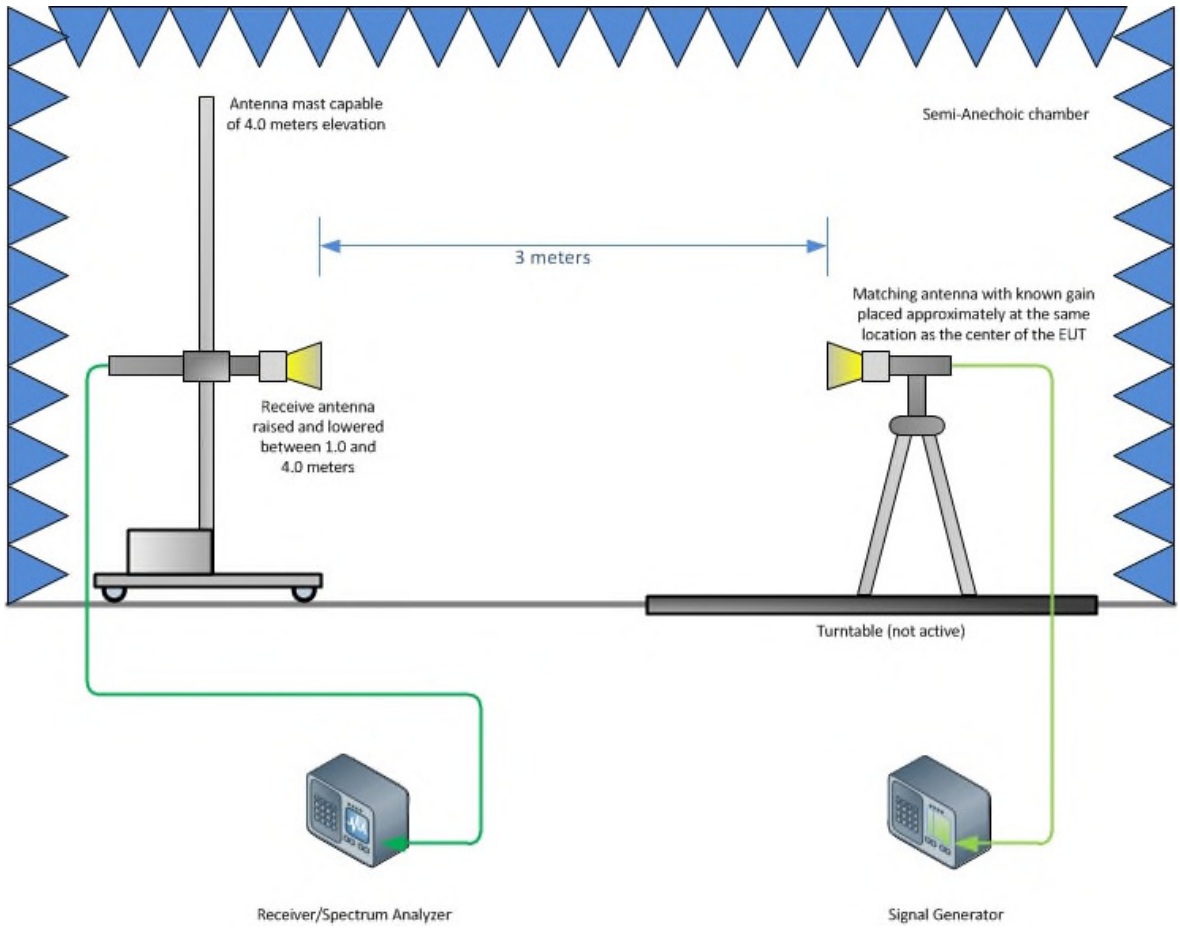
4.1 TEST SETUP DIAGRAM



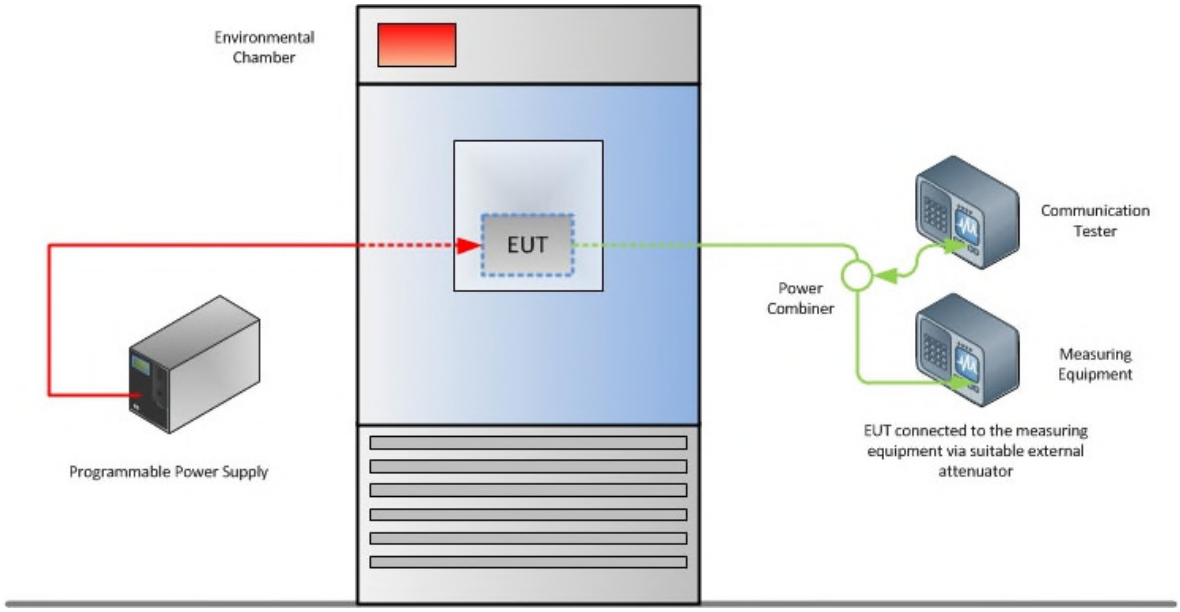
Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



Substitution Test Method (Above 1GHz)



Frequency Stability Test Comfiguration

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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