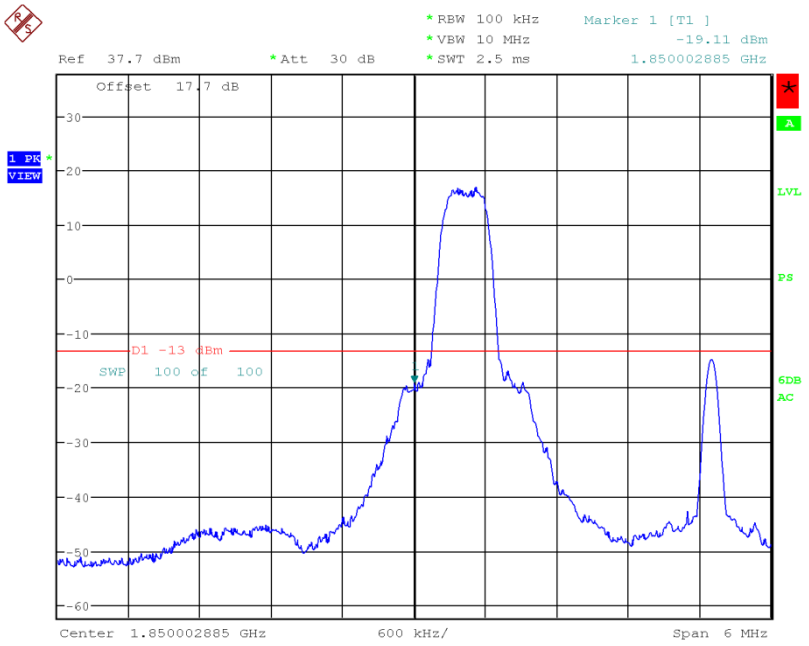
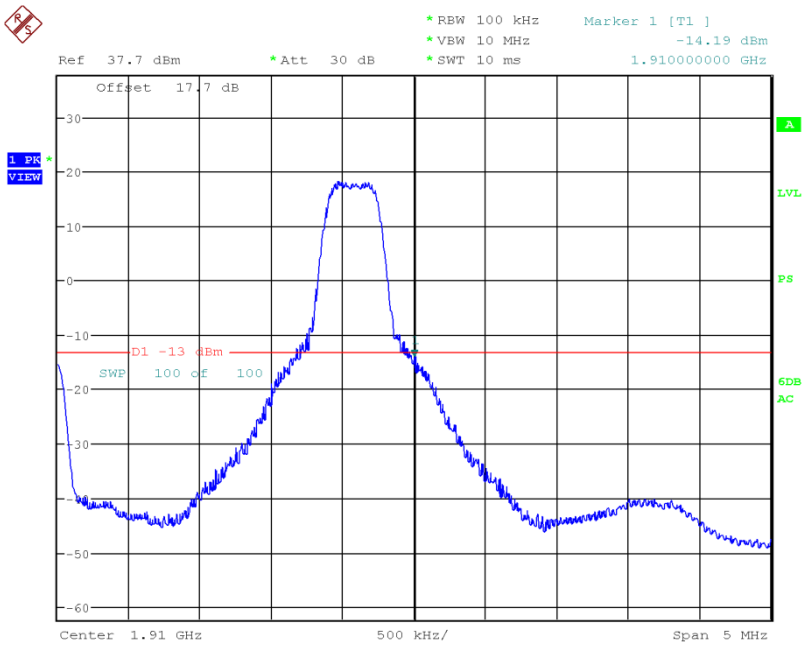
LTE 2 5MHz BW Mode QPSK RB 2/0 Lower Band Edge @ 1852.5MHz



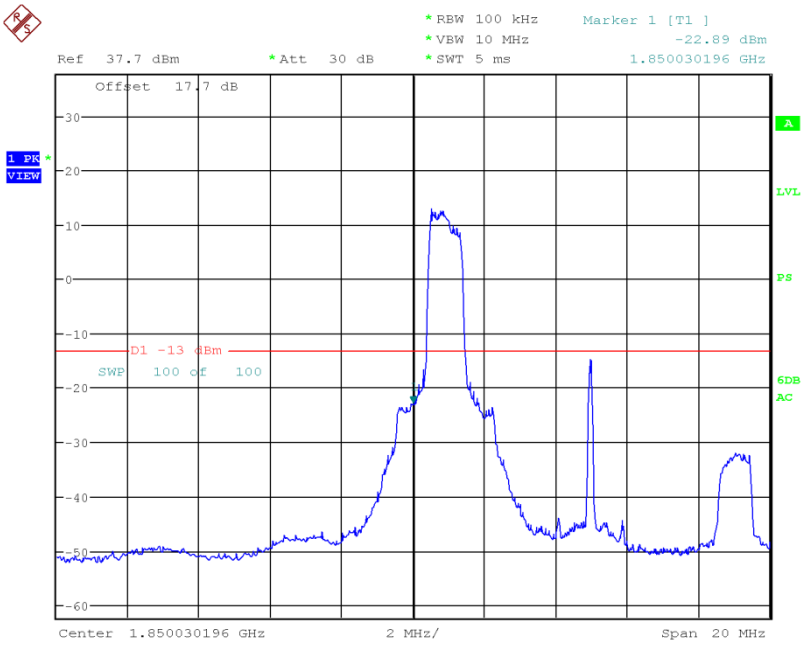
Date: 9.JUL.2012 19:45:26

LTE 2 5MHz BW Mode QPSK RB 2/23 Higher Band Edge @ 1907.5MHz



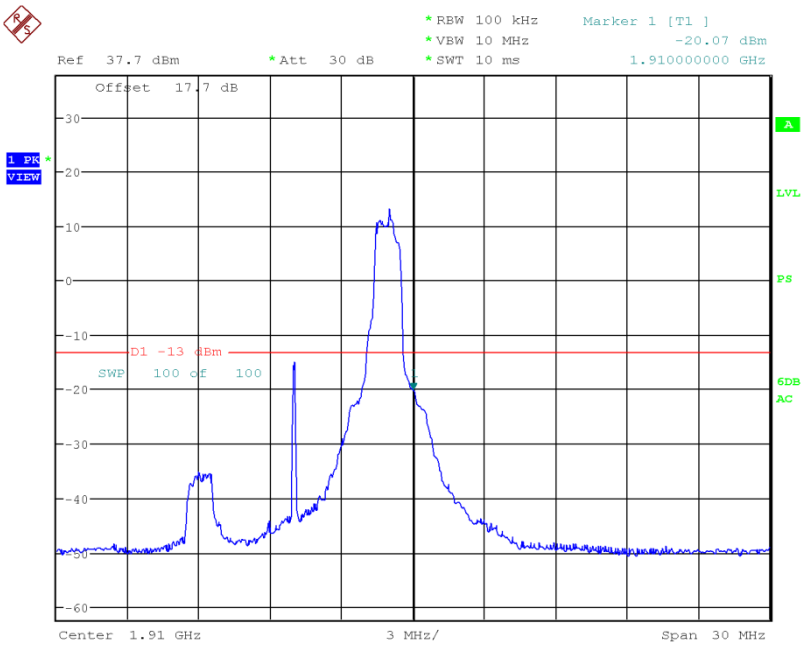
Date: 9.JUL.2012 20:31:44

LTE 2 10MHz BW Mode QPSK RB 3/0 Lower Band Edge @ 1855.0MHz



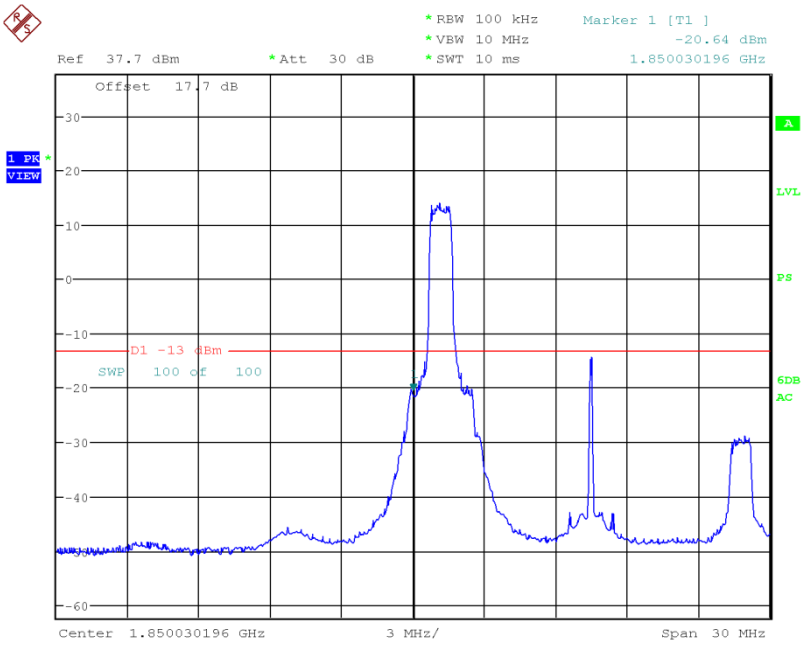
Date: 9.JUL.2012 19:52:02

LTE 2 10MHz BW Mode QPSK RB 3/22 Higher Band Edge @ 1905.0MHz



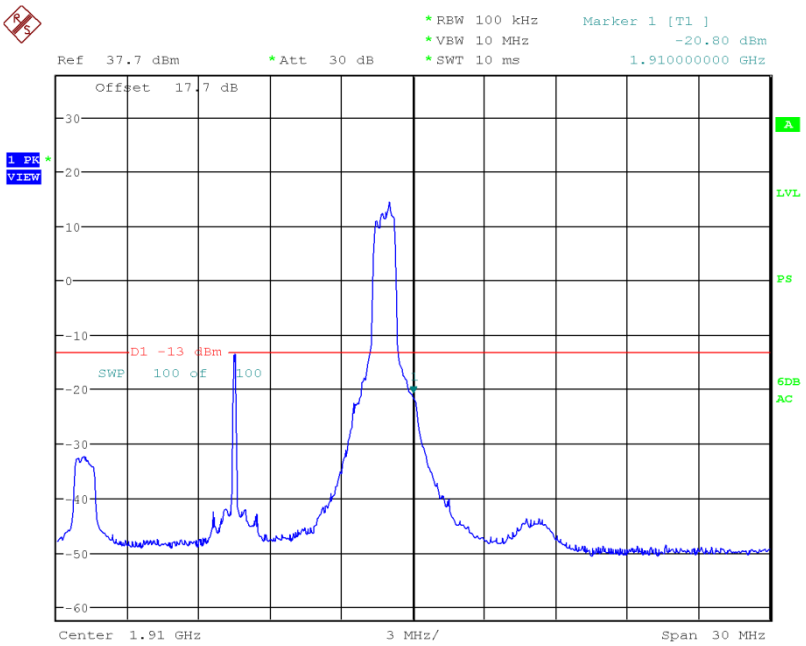
Date: 9.JUL.2012 20:26:29

LTE 2 15MHz BW Mode QPSK RB 3/0 Lower Band Edge @ 1857.5MHz



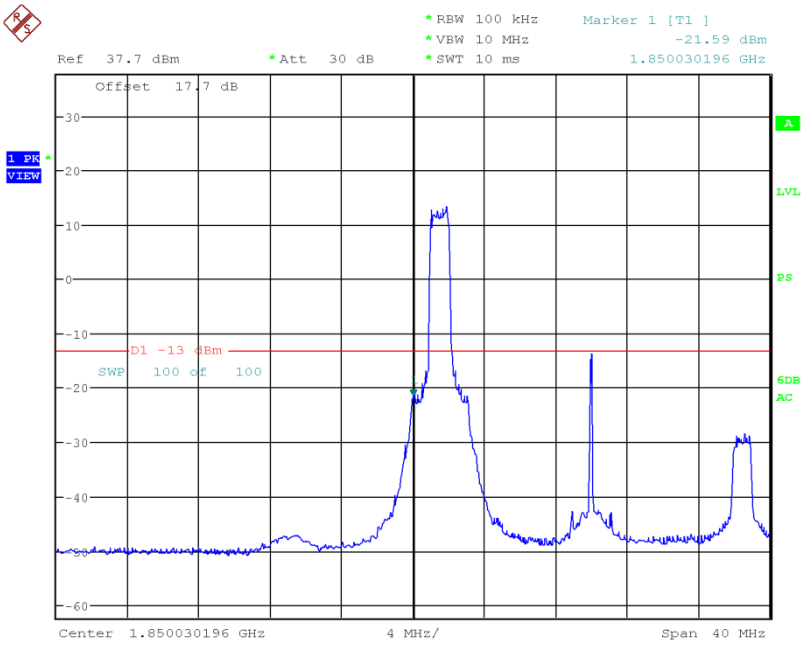
Date: 9.JUL.2012 19:56:52

LTE 2 15MHz BW Mode QPSK RB 5/70 Higher Band Edge @ 1902.5MHz



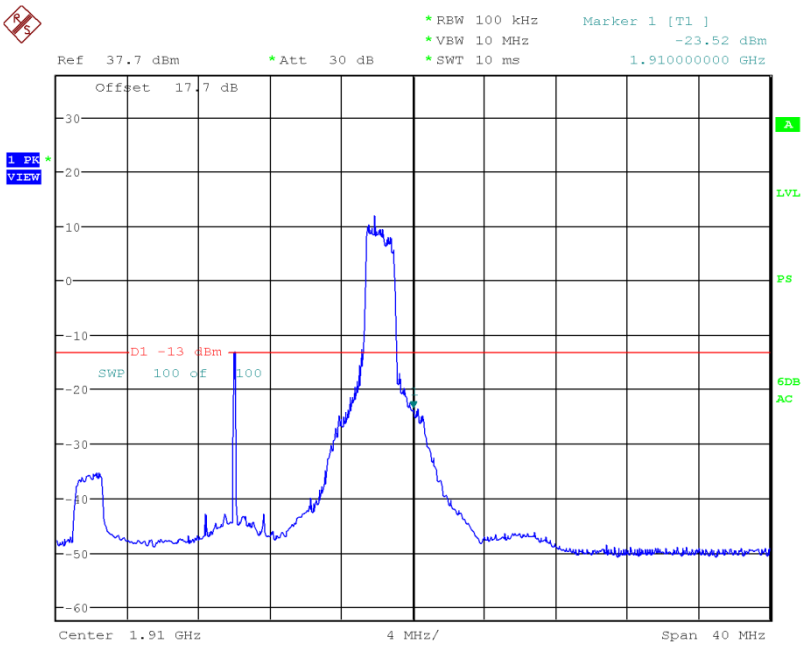
Date: 9.JUL.2012 20:23:19

LTE 2 20MHz BW Mode QPSK RB 6/0 Lower Band Edge @ 1852.5MHz



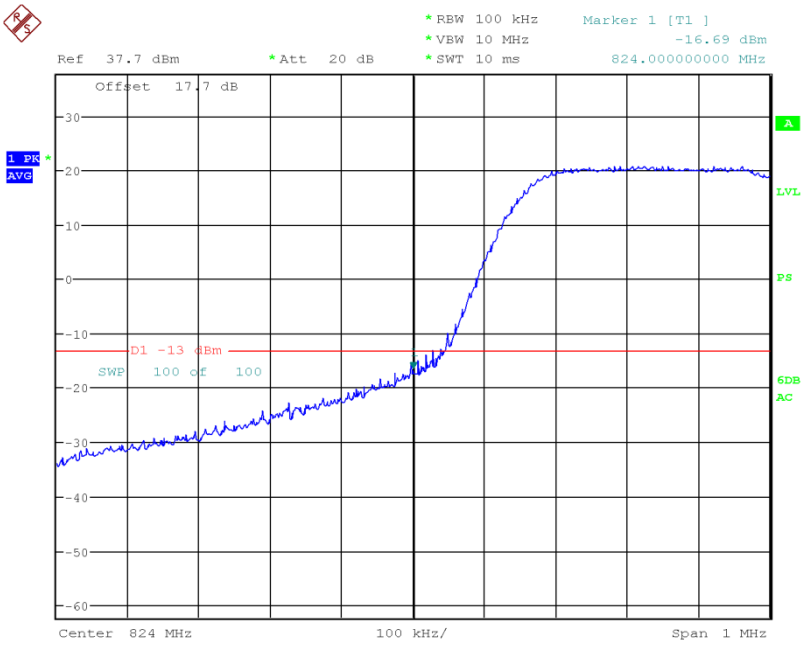
Date: 9.JUL.2012 20:02:10

LTE 2 20MHz BW Mode QPSK RB 9/91 Higher Band Edge @ 1907.5MHz



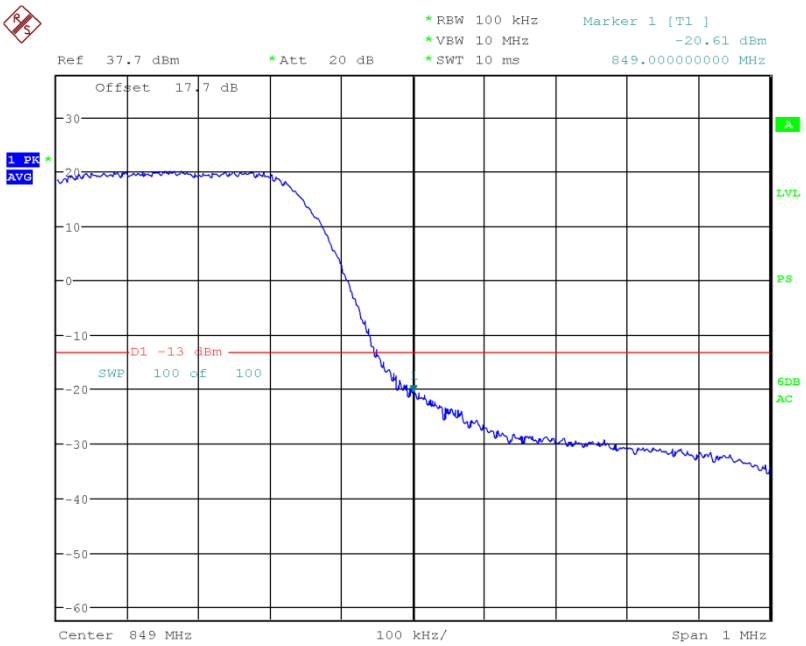
Date: 9.JUL.2012 20:14:39

LTE 5 1.4MHz BW Mode QPSK RB 1/0 Lower Band Edge @ 824.7MHz



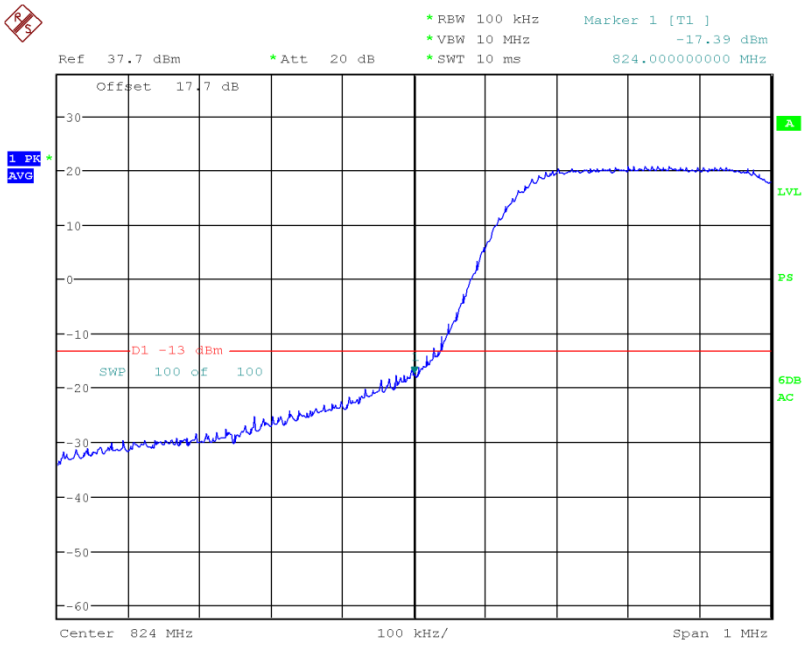
Date: 9.JUL.2012 20:47:35

LTE 5 1.4MHz BW Mode QPSK RB 1/5 Higher Band Edge @ 848.3MHz



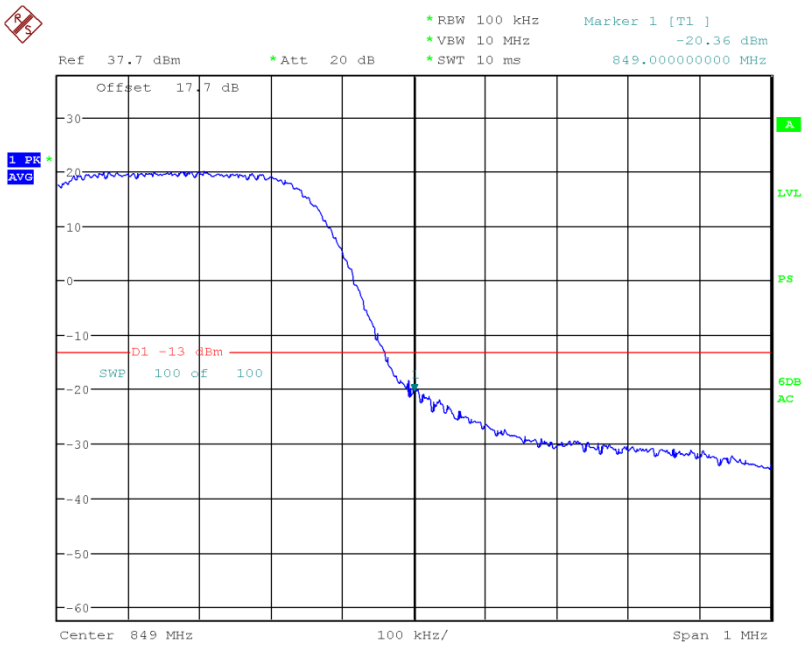
Date: 9.JUL.2012 21:06:22

LTE 5 3MHz BW Mode QPSK RB 2/0 Lower Band Edge @ 825.5MHz



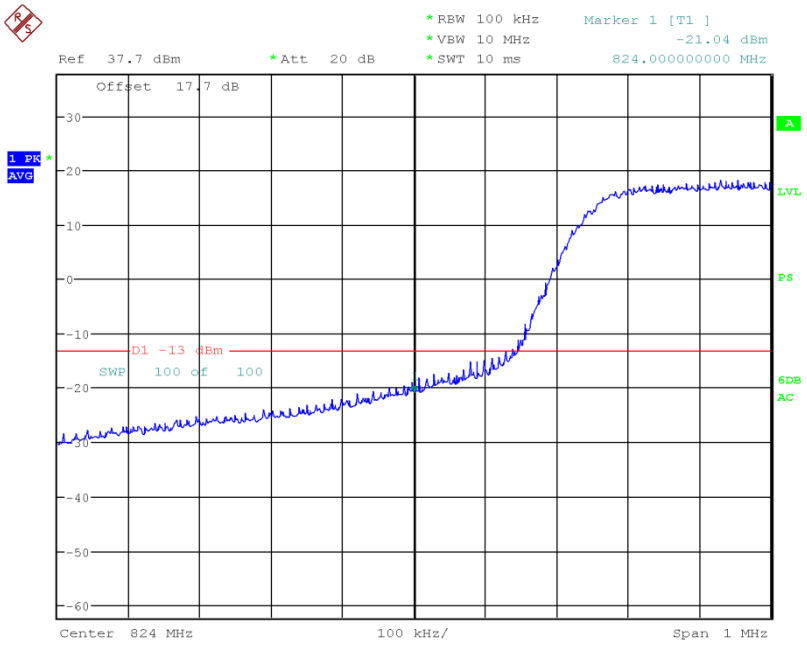
Date: 9.JUL.2012 20:50:08

LTE 5 3MHz BW Mode QPSK RB 2/13 Higher Band Edge @ 847.5MHz



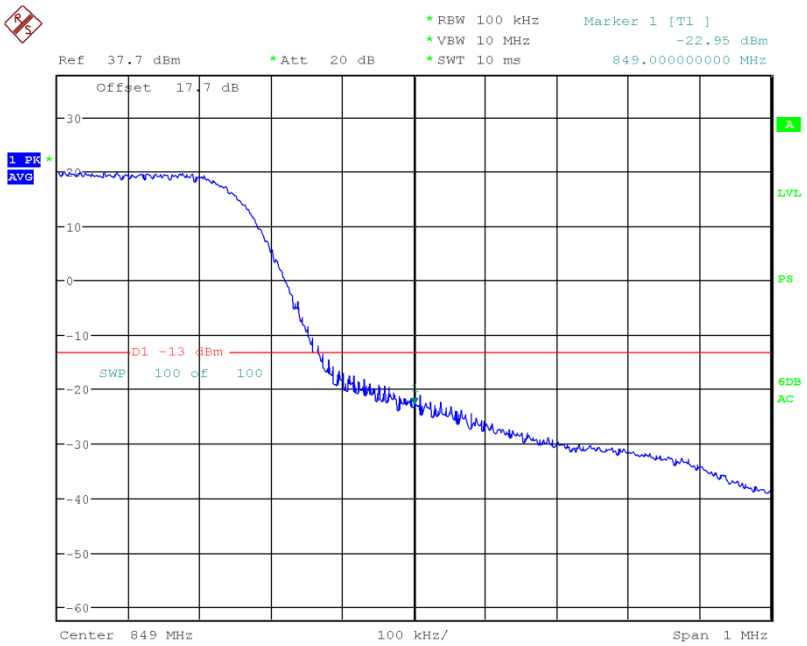
Date: 9.JUL.2012 21:05:04

LTE 2 5MHz BW Mode QPSK RB 2/0 Lower Band Edge @ 826.5MHz



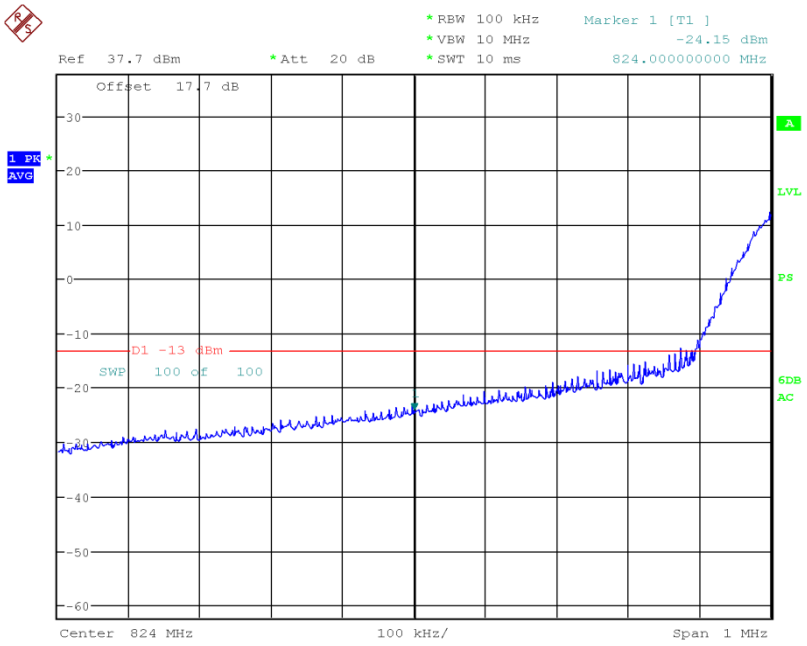
Date: 9.JUL.2012 20:51:56

LTE 2 5MHz BW Mode QPSK RB 2/23 Higher Band Edge @ 846.5MHz



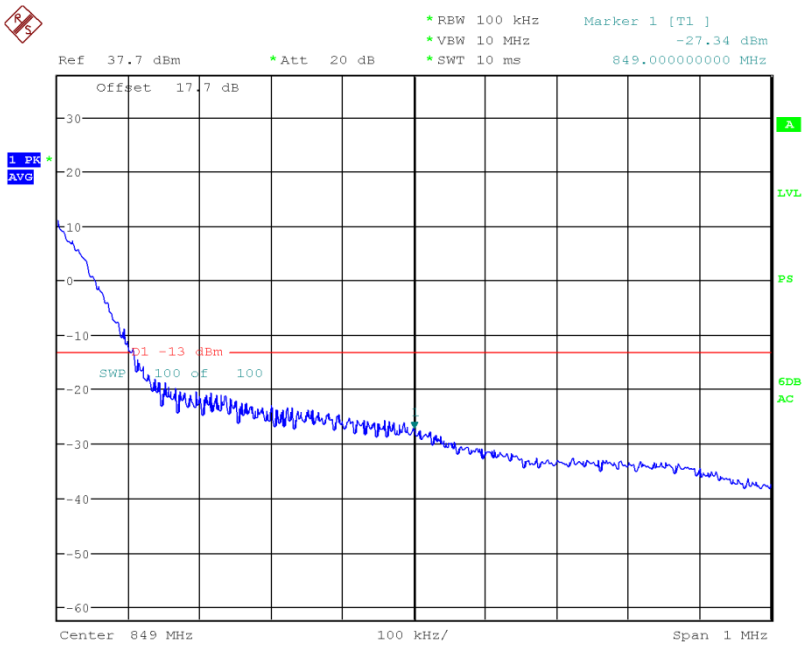
Date: 9.JUL.2012 21:03:50

LTE 5 10MHz BW Mode QPSK RB 2/0 Lower Band Edge @ 829.0MHz



Date: 9.JUL.2012 20:54:49

LTE 5 10MHz BW Mode QPSK RB 2/23 Higher Band Edge @ 844.0MHz



Date: 9.JUL.2012 20:59:37

2.7 FIELD STRENGTH OF SPURIOUS RADIATION

2.7.1 Specification Reference

Part 22 Subpart H §22.917(a) and Part 24 Subpart E §24.238(a)

2.7.2 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.

2.7.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Default Test Configuration

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

July 11, 2012/JMG

2.7.5 Test Equipment Used

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

2.7.6 Environmental Conditions

Ambient Temperature	24.1°C
Relative Humidity	42.6%
ATM Pressure	100.3 kPa

2.7.7 Additional Observations

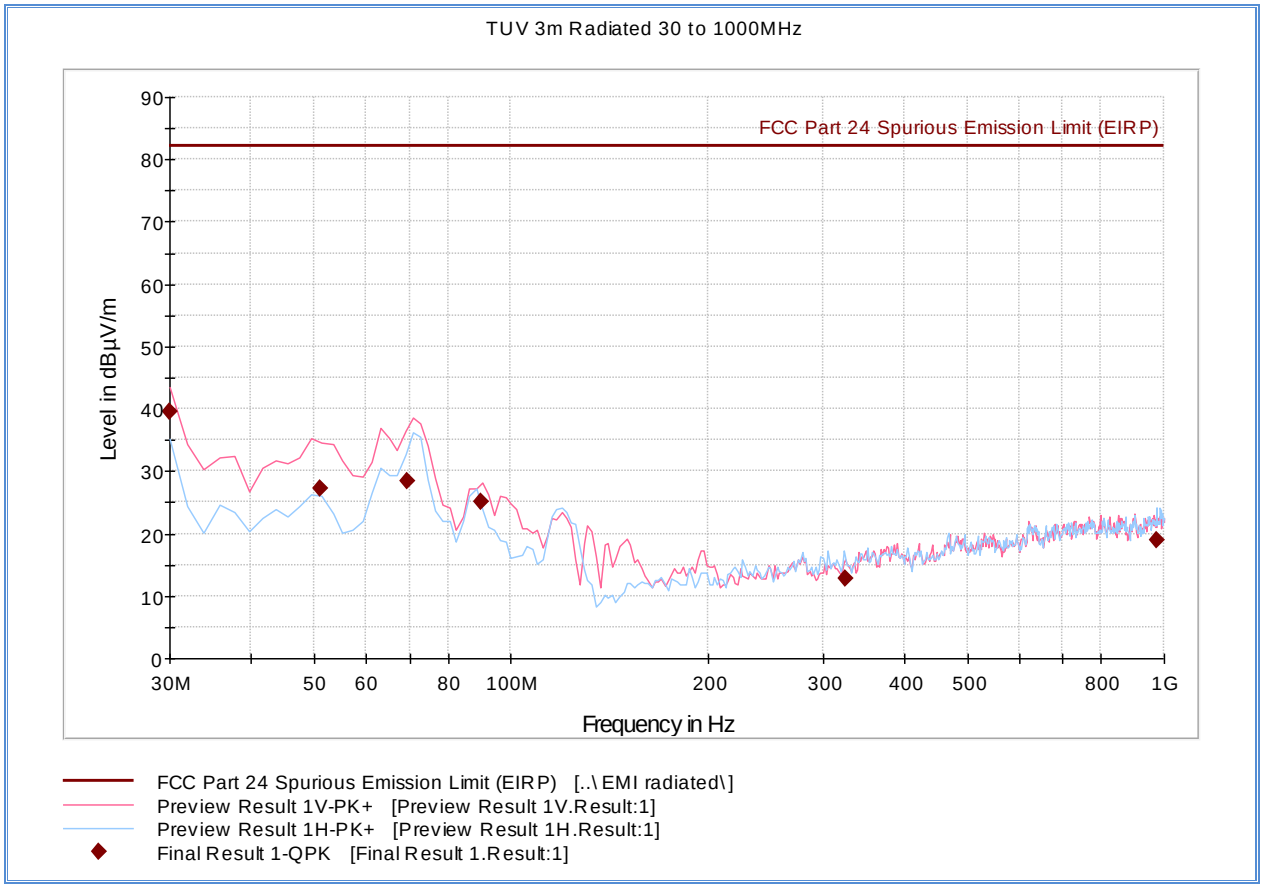
- This is a radiated test using substitution method as per Unwanted Emissions: Radiated Spurious method of measurement of ANSI/TIA/EIA-603-C 2004, August 17, 2004.
- Only the worst case configuration presented in this test report.
- Measurement was done using EMC32 V8.52 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only.

2.7.8 Test Results

See attached plots.

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

2.7.9 Test Results Below 1GHz (Worst Case Configuration)

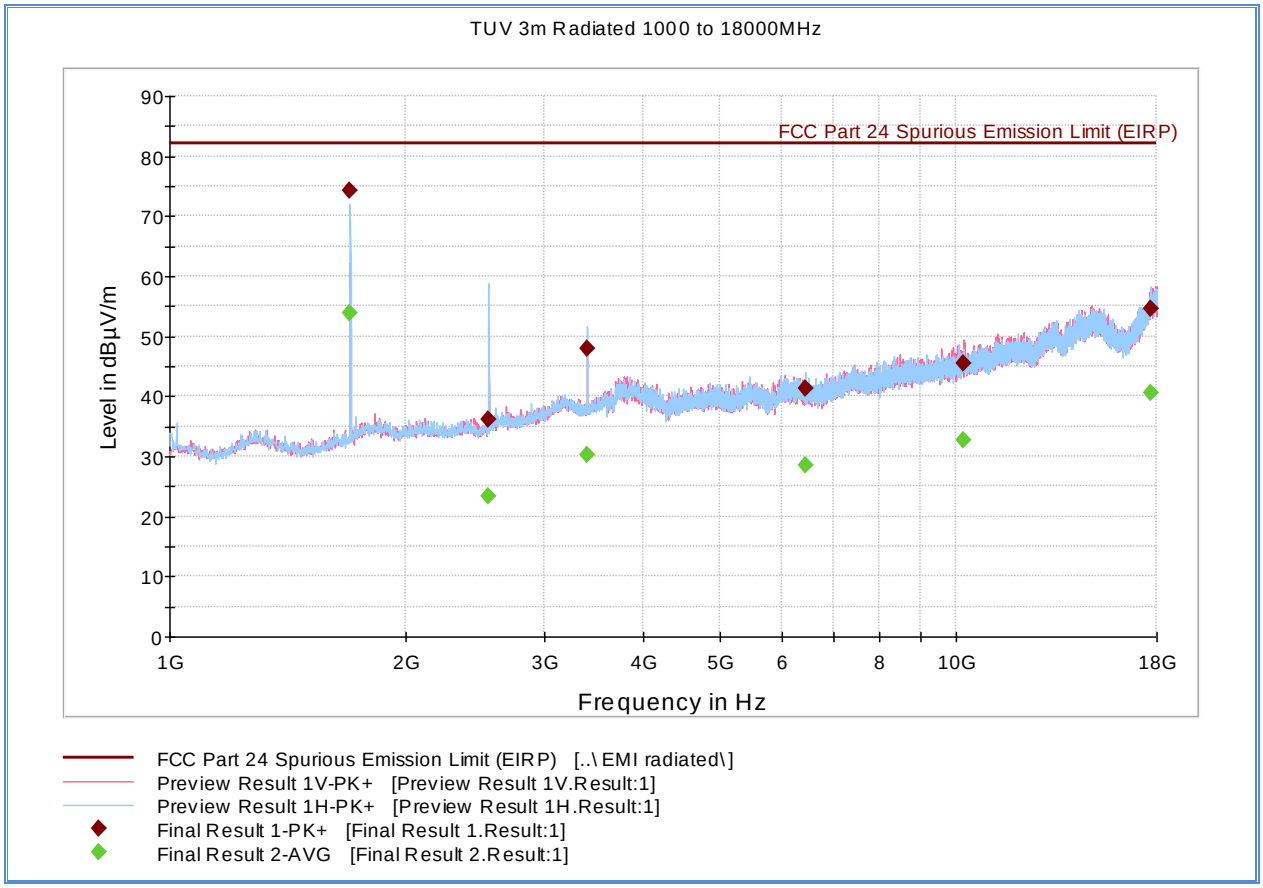


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.000000	39.6	1000.0	120.000	101.0	V	68.0	-12.2	42.7	82.2
51.078878	27.1	1000.0	120.000	249.0	V	89.0	-20.7	55.1	82.2
69.261643	28.3	1000.0	120.000	101.0	V	206.0	-22.2	53.9	82.2
89.780521	25.2	1000.0	120.000	101.0	V	304.0	-21.1	57.1	82.2
325.607054	12.8	1000.0	120.000	101.0	H	89.0	-12.1	69.4	82.2
975.329459	19.0	1000.0	120.000	329.0	H	207.0	0.1	63.3	82.2

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

2.7.10 Test Results Above 1GHz (GSM850 High Channel)



Peak Data

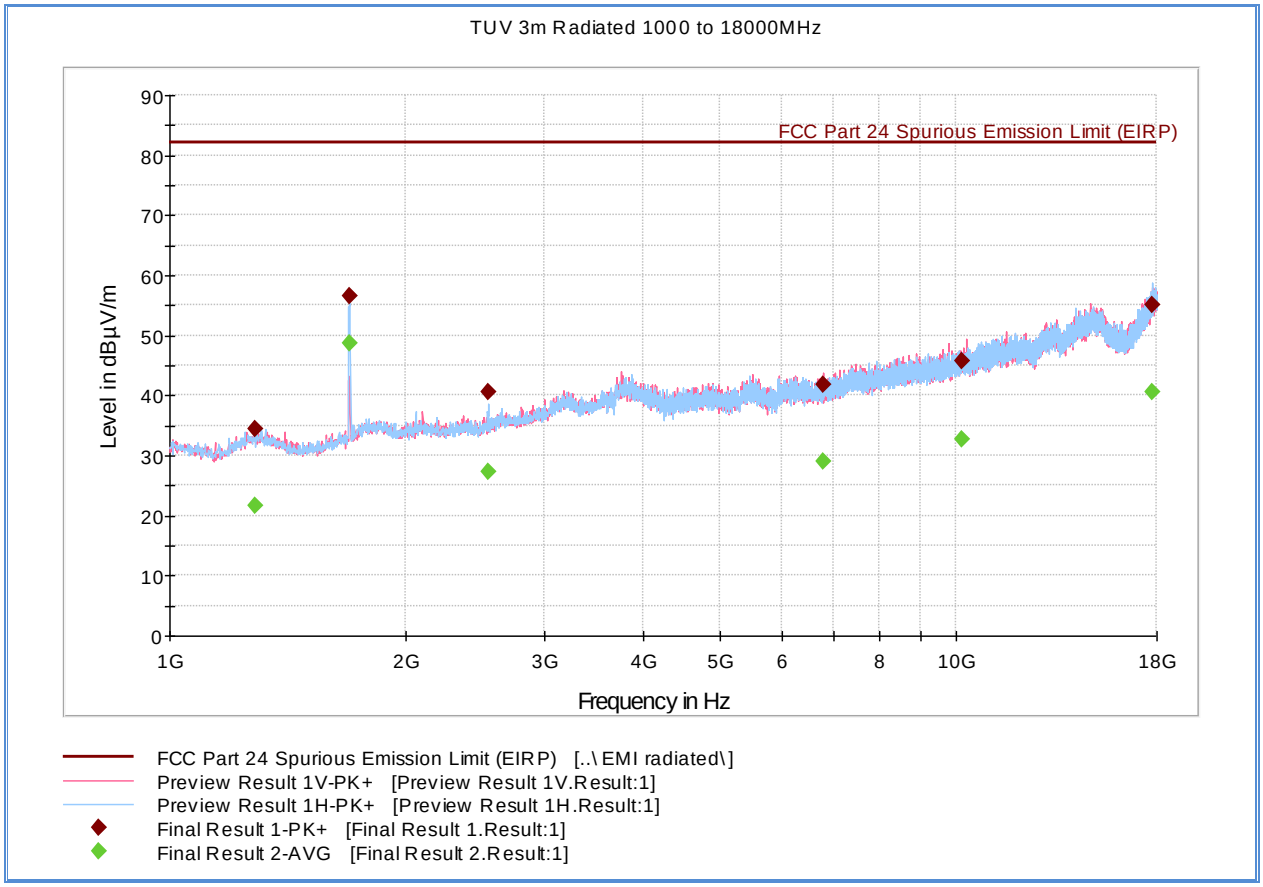
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1697.460000	74.2	1000.0	1000.000	100.0	H	187.0	-8.1	8.0	82.2
2545.520000	36.2	1000.0	1000.000	394.0	H	43.0	-4.4	46.0	82.2
3395.480000	48.1	1000.0	1000.000	130.0	H	176.0	-0.2	34.2	82.2
6425.160000	41.2	1000.0	1000.000	100.0	H	208.0	4.4	41.0	82.2
10204.300000	45.5	1000.0	1000.000	356.0	V	109.0	10.3	36.7	82.2
17723.200000	54.6	1000.0	1000.000	371.0	H	87.0	20.6	27.6	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
1697.46	74.2	8.2	8.5	-24.37	-24.07	-13	Complies

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

2.7.11 Test Results Above 1GHz (WCDMA850 High Channel)



Peak Data

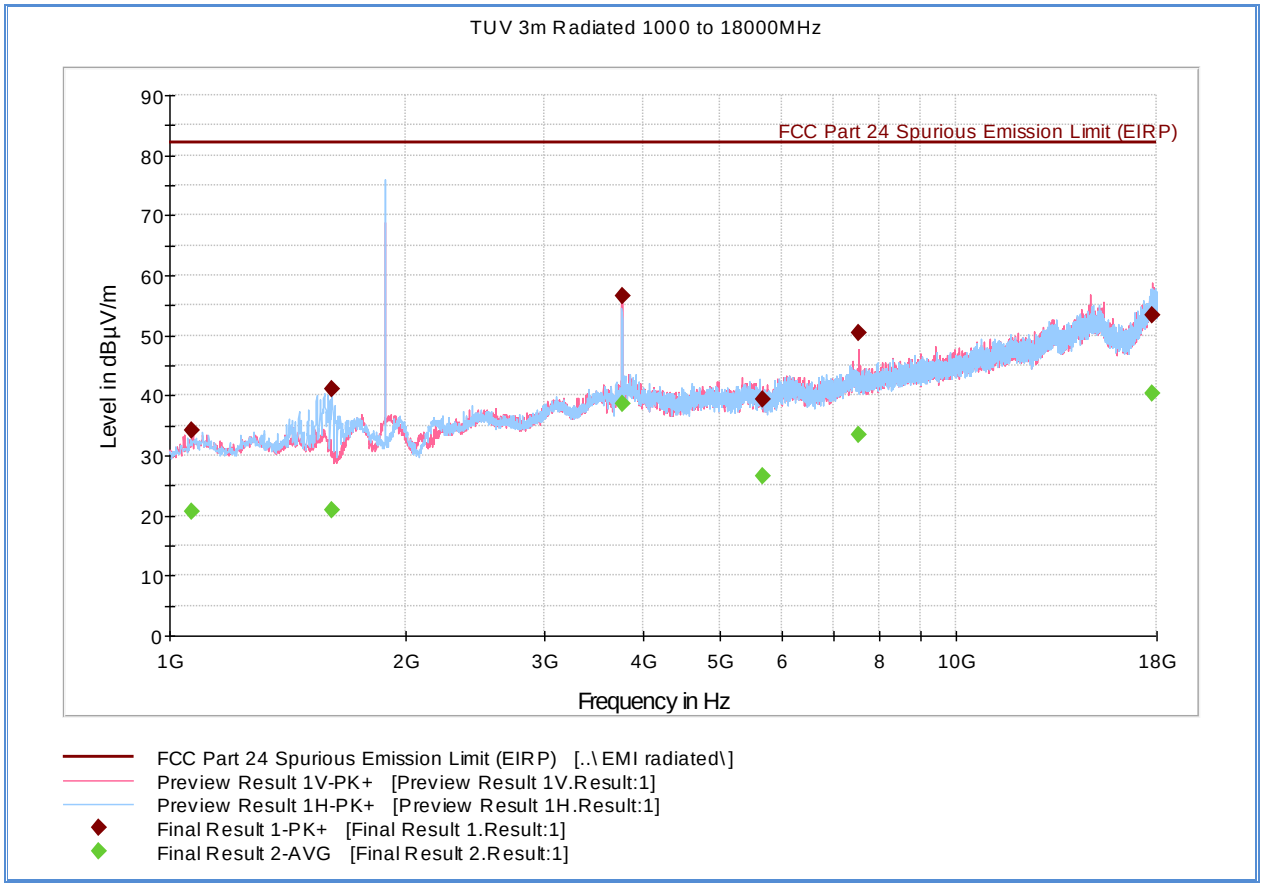
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1285.140000	34.5	1000.0	1000.000	130.0	H	63.0	-9.3	47.7	82.2
1694.460000	56.7	1000.0	1000.000	100.0	H	20.0	-8.2	25.6	82.2
2538.720000	40.6	1000.0	1000.000	100.0	H	41.0	-4.4	41.7	82.2
6785.800000	41.7	1000.0	1000.000	330.0	V	308.0	5.3	40.5	82.2
10158.320000	45.8	1000.0	1000.000	130.0	V	292.0	10.3	36.4	82.2
17768.260000	55.1	1000.0	1000.000	117.0	H	198.0	20.8	27.2	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.12 Test Results Above 1GHz (GSM1900 Mid Channel)



Peak Data

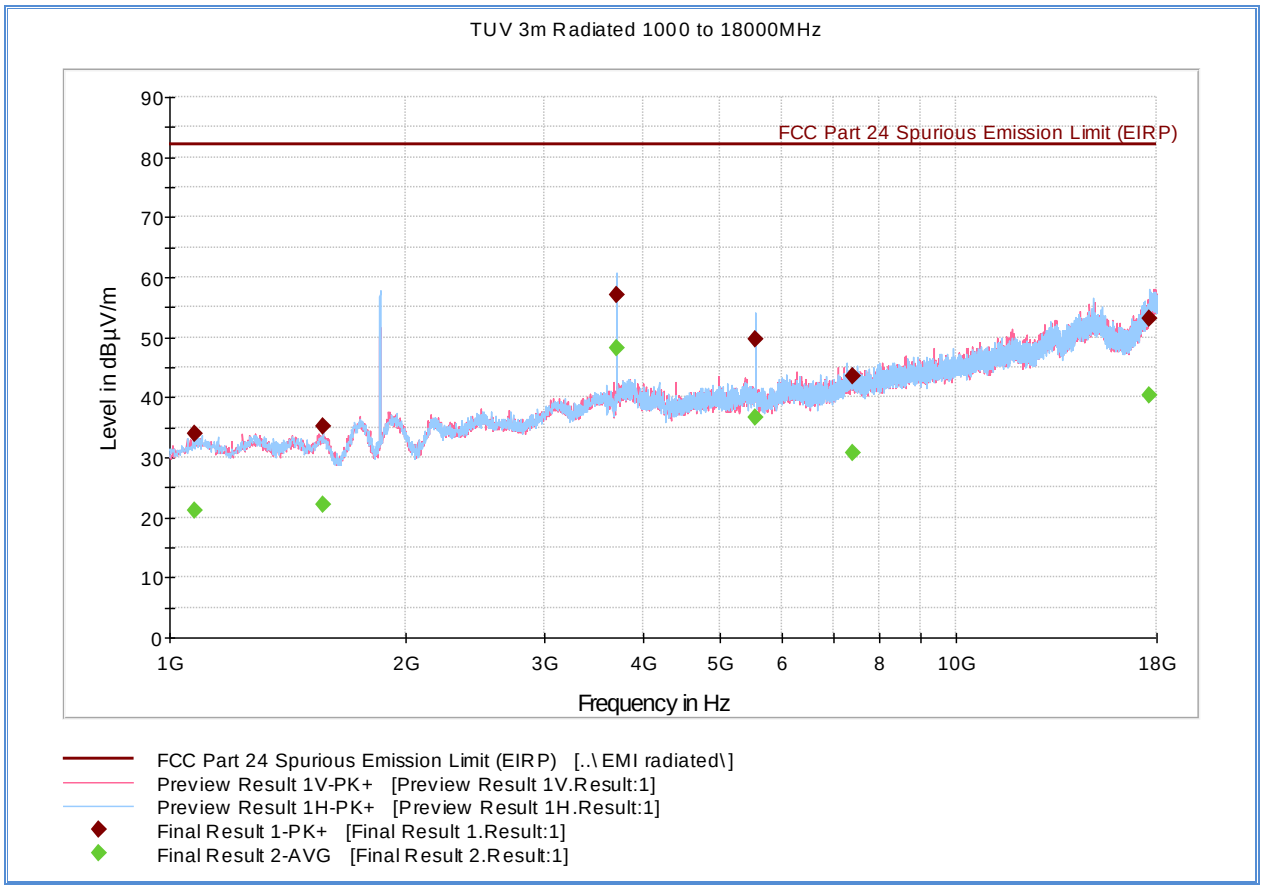
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1065.880000	34.2	1000.0	1000.000	377.0	V	318.0	-10.7	48.0	82.2
1605.740000	41.1	1000.0	1000.000	101.0	H	122.0	-8.8	41.1	82.2
3759.880000	56.5	1000.0	1000.000	101.0	V	314.0	2.8	25.7	82.2
5668.860000	39.5	1000.0	1000.000	182.0	V	30.0	3.9	42.8	82.2
7519.720000	50.3	1000.0	1000.000	121.0	V	223.0	7.1	31.9	82.2
17777.160000	53.3	1000.0	1000.000	368.0	V	294.0	20.8	29.0	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.13 Test Results Above 1GHz (WCDMA1900 Low Channel)



Peak Data

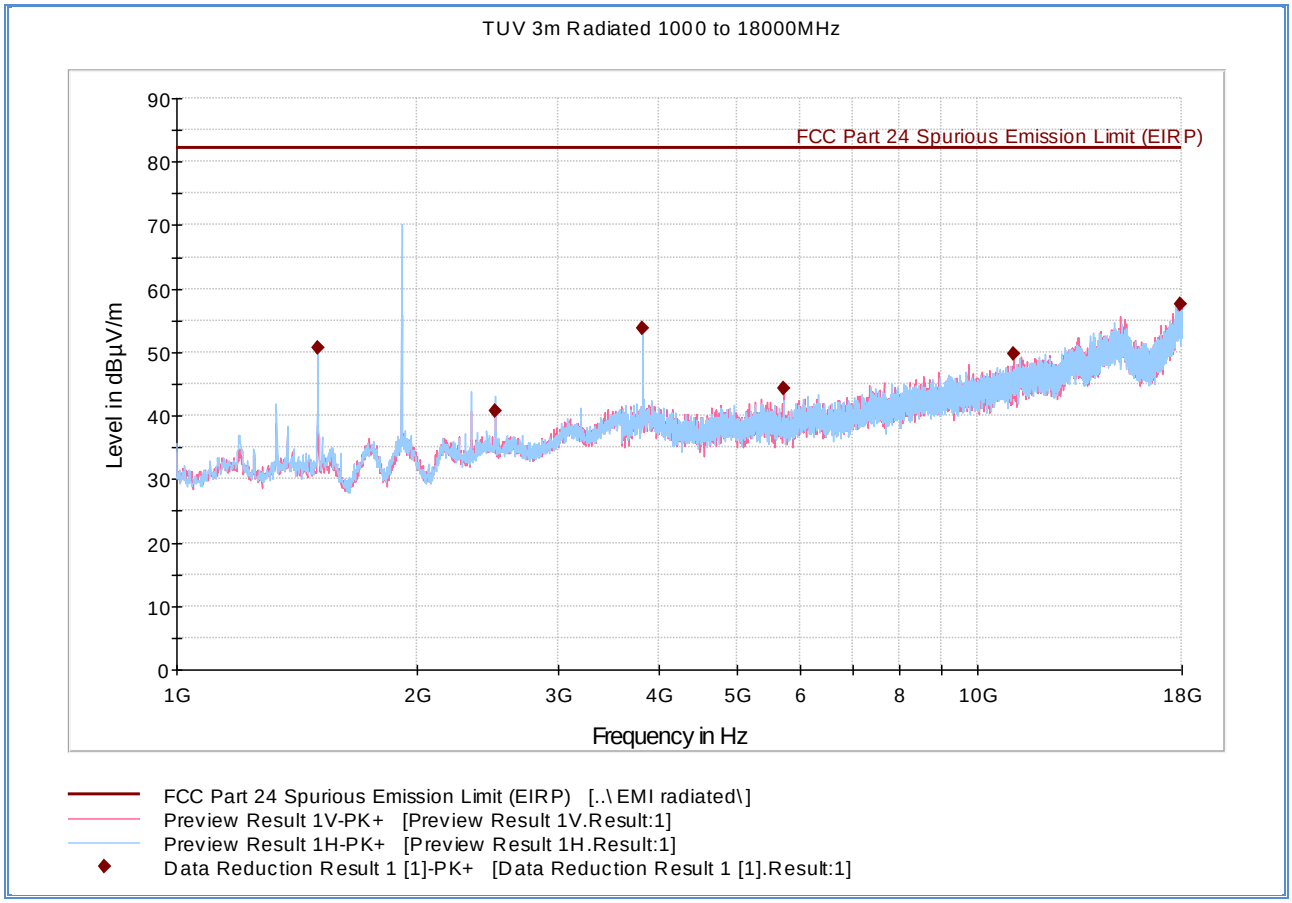
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1075.880000	33.8	1000.0	1000.000	155.0	V	51.0	-10.5	48.4	82.2
1566.400000	35.2	1000.0	1000.000	144.0	V	15.0	-8.9	47.0	82.2
3706.220000	57.1	1000.0	1000.000	118.0	H	288.0	2.5	25.1	82.2
5553.300000	49.8	1000.0	1000.000	118.0	H	283.0	4.0	32.4	82.2
7399.180000	43.5	1000.0	1000.000	255.0	H	170.0	7.2	38.7	82.2
17651.880000	53.0	1000.0	1000.000	381.0	H	219.0	20.0	29.2	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.14 Test Results Above 1GHz (LTE Band 2 BW1.4MHz F=1909.3 QPSK)



Peak Data

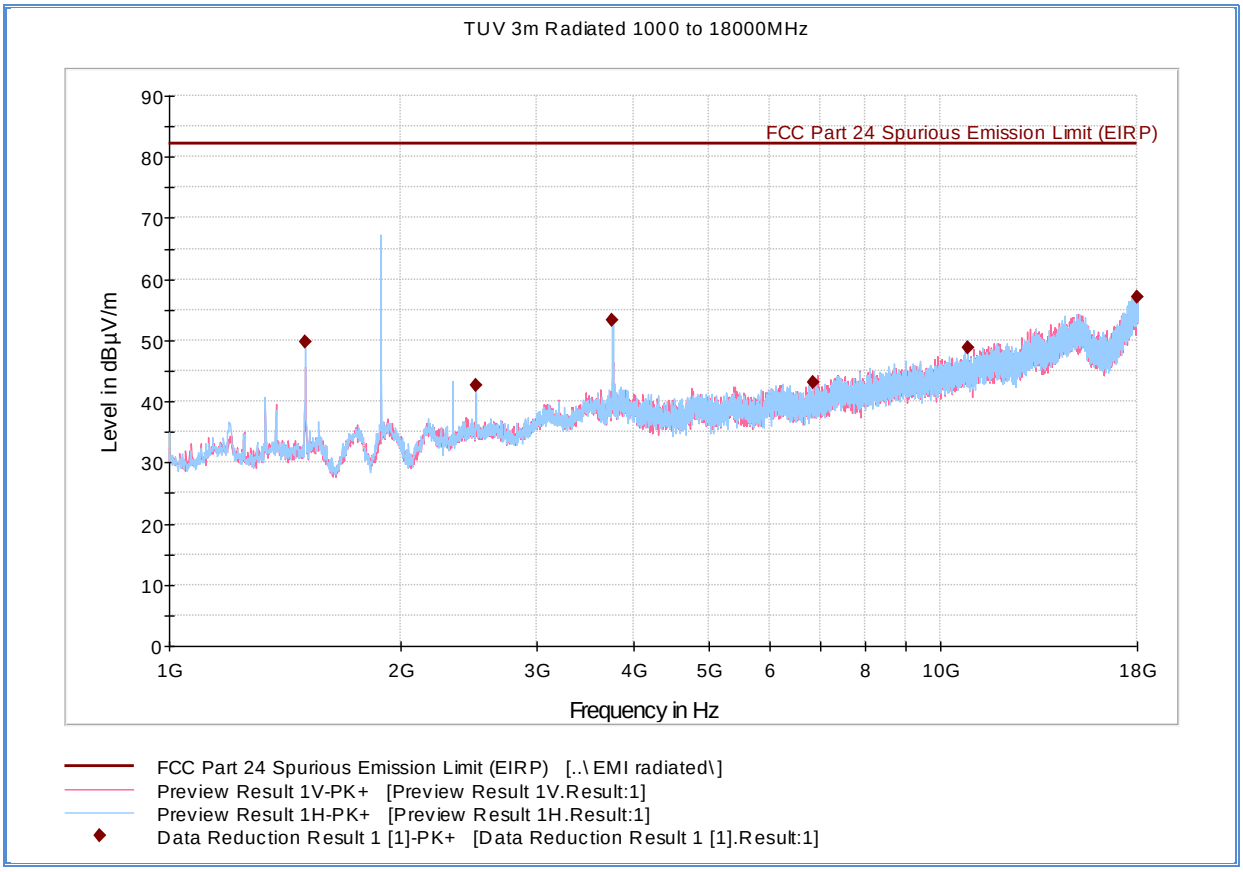
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	50.7	1000.0	1000.000	100.0	H	0.0	-9.0	31.6	82.2
2499.400000	40.6	1000.0	1000.000	100.0	V	22.0	-4.6	41.6	82.2
3818.600000	53.6	1000.0	1000.000	100.0	H	22.0	3.2	28.6	82.2
5727.700000	44.4	1000.0	1000.000	100.0	V	22.0	3.9	37.8	82.2
11081.000000	49.8	1000.0	1000.000	100.0	V	1.0	11.6	32.5	82.2
17923.500000	57.5	1000.0	1000.000	200.0	H	22.0	21.0	24.7	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.15 Test Results Above 1GHz (LTE Band 2 BW3MHz F=1880MHz QPSK)



Peak Data

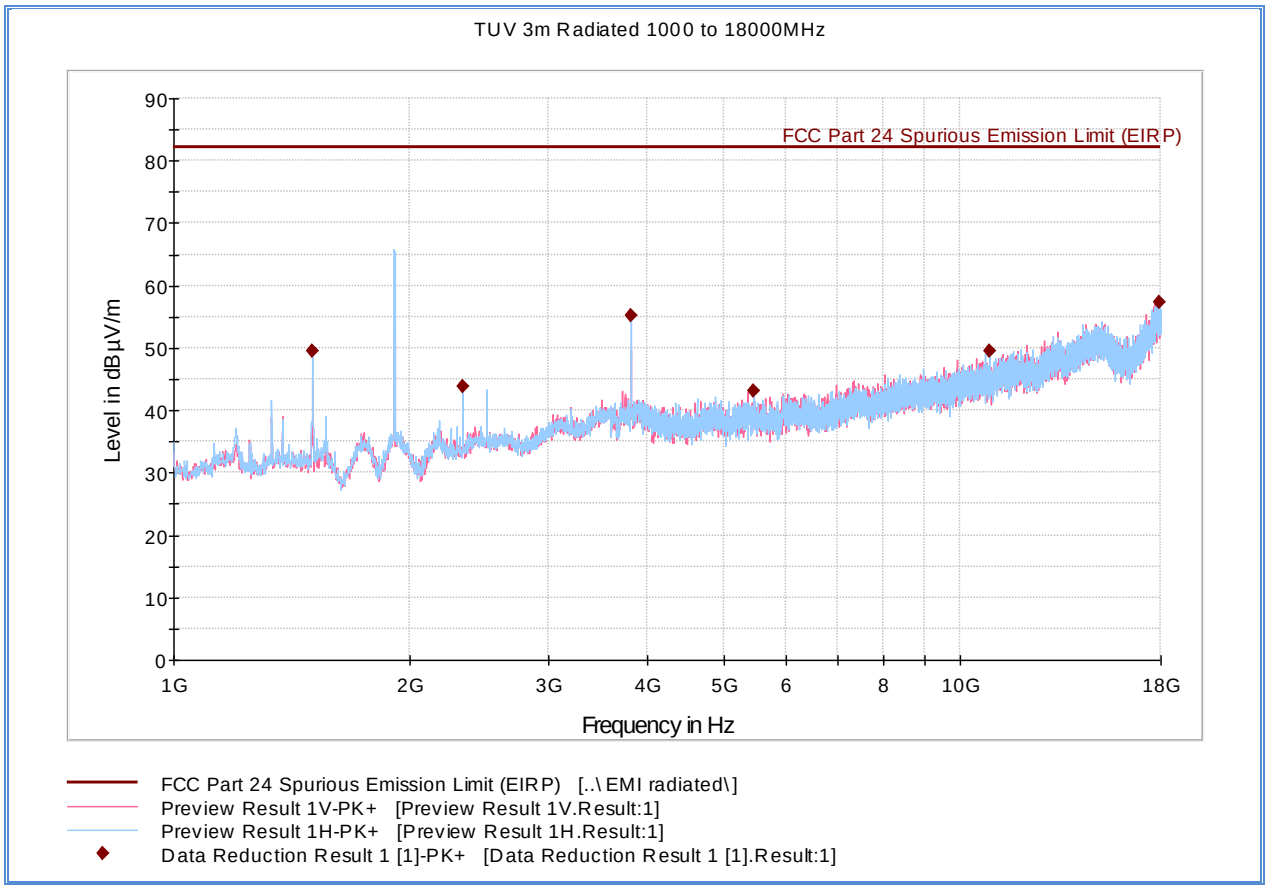
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	49.6	1000.0	1000.000	100.0	H	0.0	-9.0	32.6	82.2
2499.400000	42.7	1000.0	1000.000	100.0	H	0.0	-4.6	39.5	82.2
3759.100000	53.3	1000.0	1000.000	100.0	H	22.0	2.8	29.0	82.2
6853.100000	43.1	1000.0	1000.000	100.0	V	0.0	5.5	39.2	82.2
10863.400000	48.7	1000.0	1000.000	200.0	H	22.0	11.3	33.5	82.2
17981.300000	57.1	1000.0	1000.000	100.0	V	22.0	21.3	25.1	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.16 Test Results Above 1GHz (LTE Band 2 BW5MHz F=1907.5MHz 16QAM)



Peak Data

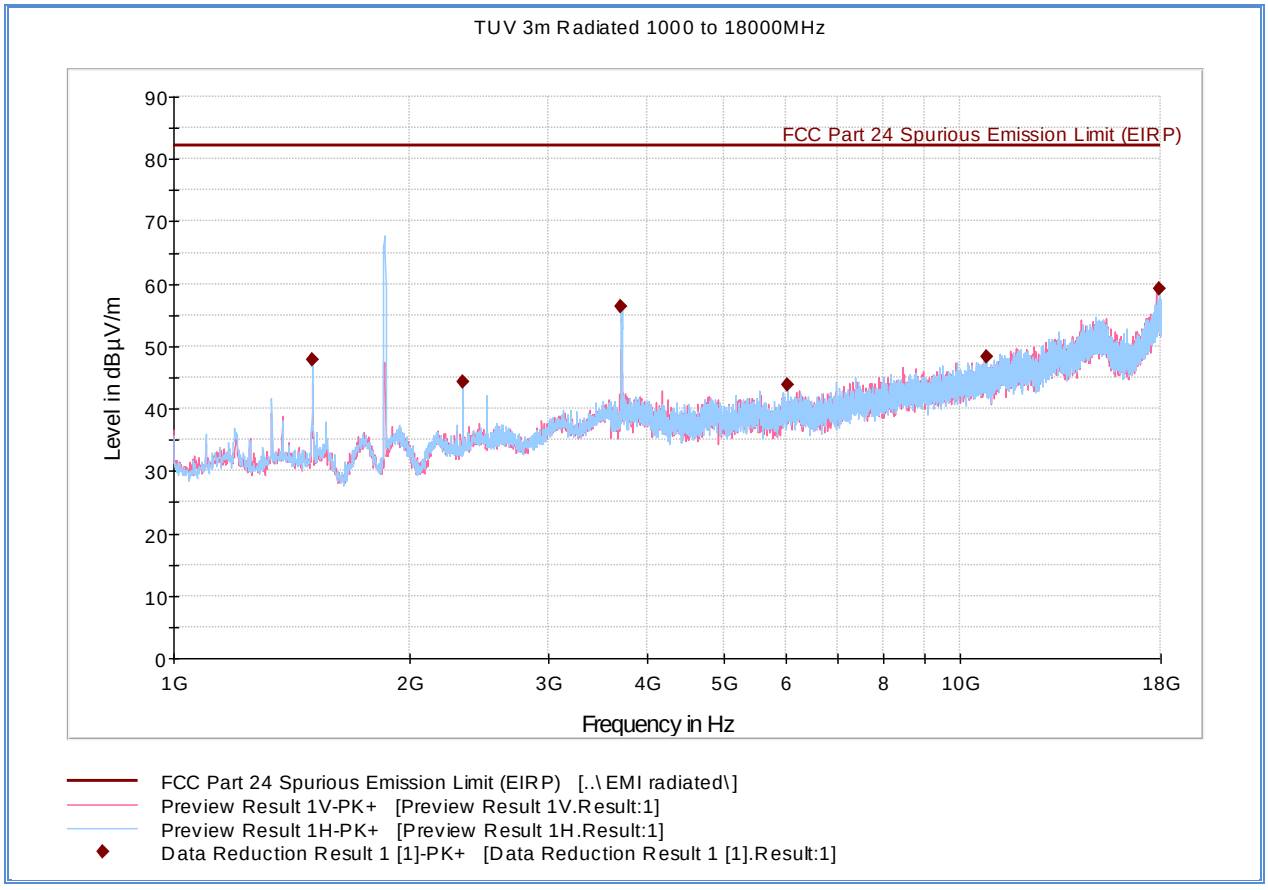
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	49.5	1000.0	1000.000	100.0	H	22.0	-9.0	32.7	82.2
2331.100000	43.9	1000.0	1000.000	100.0	H	22.0	-5.3	38.3	82.2
3813.500000	55.3	1000.0	1000.000	100.0	H	0.0	3.2	27.0	82.2
5460.800000	43.2	1000.0	1000.000	100.0	H	22.0	4.0	39.0	82.2
10919.500000	49.5	1000.0	1000.000	100.0	H	22.0	11.3	32.7	82.2
17911.600000	57.4	1000.0	1000.000	100.0	H	22.0	20.9	24.9	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.17 Test Results Above 1GHz (LTE Band 2 BW10MHz F=1855MHz QPSK)



Peak Data

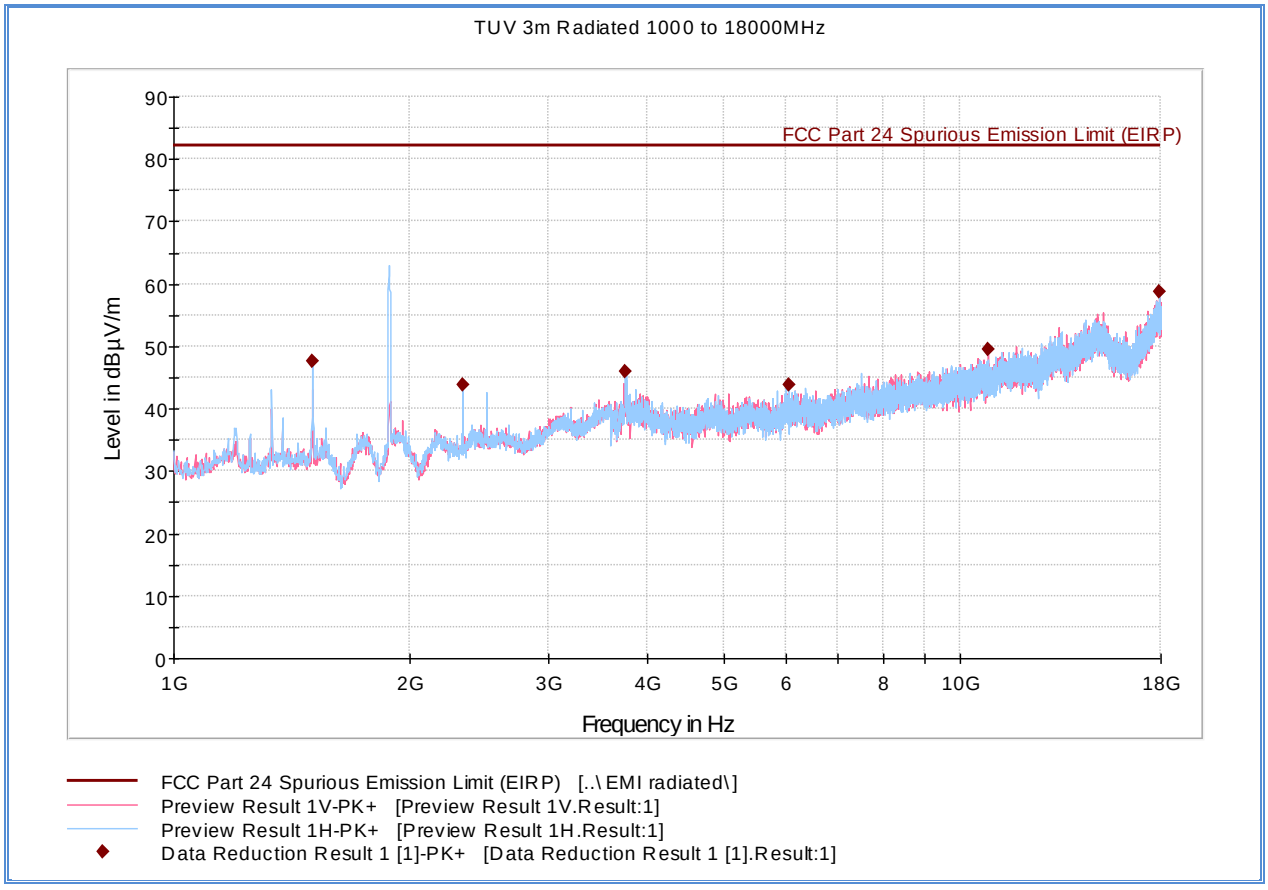
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	47.8	1000.0	1000.000	100.0	H	0.0	-9.0	34.4	82.2
2331.100000	44.3	1000.0	1000.000	100.0	H	22.0	-5.3	37.9	82.2
3709.800000	56.4	1000.0	1000.000	100.0	H	22.0	2.5	25.9	82.2
6028.600000	43.8	1000.0	1000.000	200.0	H	0.0	4.6	38.4	82.2
10824.300000	48.4	1000.0	1000.000	200.0	H	22.0	11.2	33.8	82.2
17899.700000	59.2	1000.0	1000.000	200.0	H	0.0	20.9	23.1	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.18 Test Results Above 1GHz (LTE Band 2 BW15MHz F=1880MHz 16QAM)



Peak Data

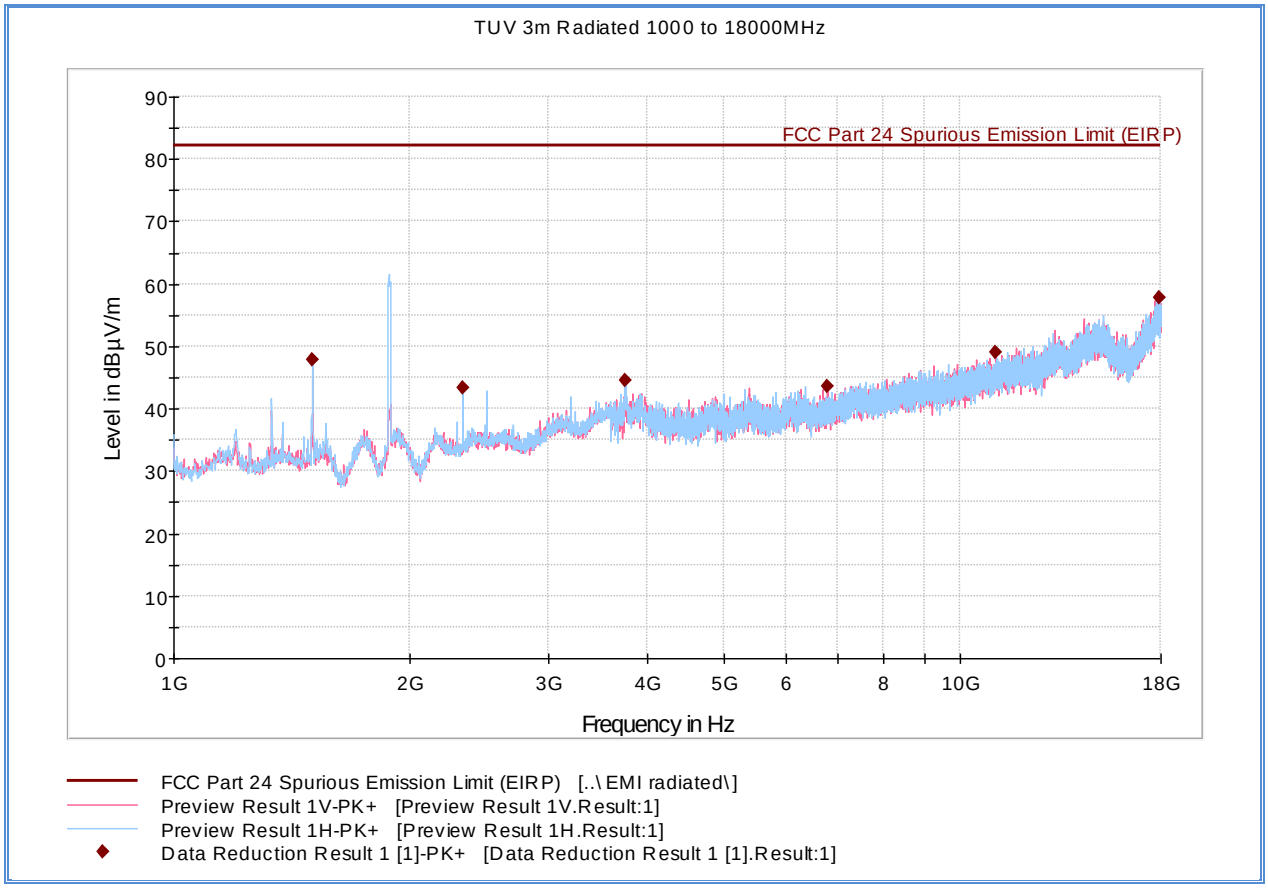
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	47.6	1000.0	1000.000	100.0	H	0.0	-9.0	34.7	82.2
2331.100000	43.7	1000.0	1000.000	100.0	H	22.0	-5.3	38.5	82.2
3759.100000	46.0	1000.0	1000.000	100.0	H	0.0	2.8	36.2	82.2
6054.100000	43.8	1000.0	1000.000	200.0	H	0.0	4.6	38.4	82.2
10860.000000	49.5	1000.0	1000.000	200.0	V	22.0	11.3	32.7	82.2
17908.200000	58.7	1000.0	1000.000	200.0	H	0.0	20.9	23.5	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.19 Test Results Above 1GHz (LTE Band 2 BW20MHz F=1880MHz QPSK)



Peak Data

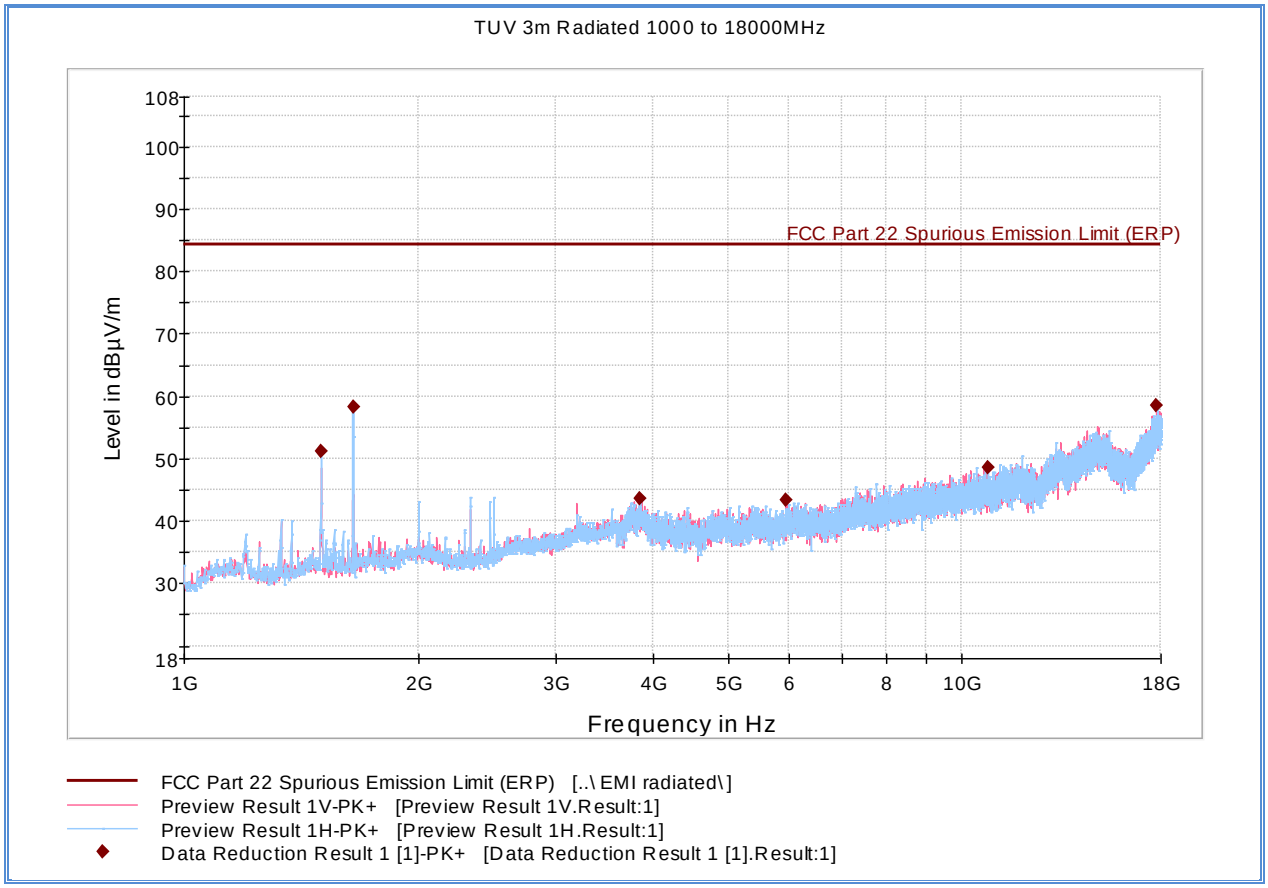
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	47.9	1000.0	1000.000	100.0	H	0.0	-9.0	34.3	82.2
2331.100000	43.3	1000.0	1000.000	100.0	H	22.0	-5.3	38.9	82.2
3743.800000	44.6	1000.0	1000.000	100.0	H	0.0	2.7	37.6	82.2
6788.500000	43.6	1000.0	1000.000	200.0	V	0.0	5.4	38.6	82.2
11103.100000	48.9	1000.0	1000.000	100.0	V	22.0	11.7	33.3	82.2
17925.200000	57.8	1000.0	1000.000	200.0	H	0.0	21.0	24.4	82.2

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.20 Test Results Above 1GHz (LTE Band 5 BW1.4MHz F824.7 QPSK)



Peak Data

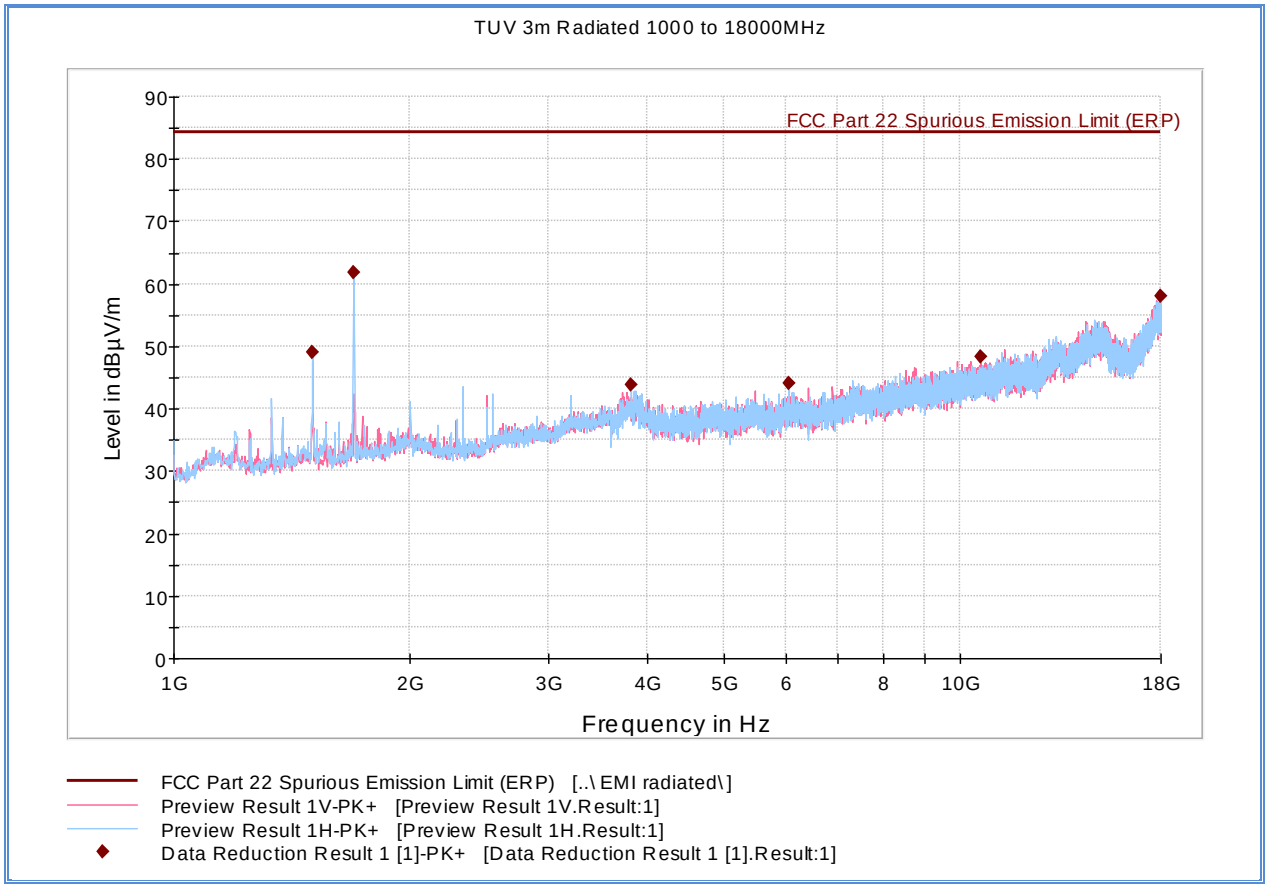
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	51.1	1000.0	1000.000	100.0	H	0.0	-9.0	33.3	84.4
1649.400000	58.2	1000.0	1000.000	100.0	H	0.0	-8.5	26.2	84.4
3850.900000	43.6	1000.0	1000.000	200.0	V	0.0	3.3	40.8	84.4
5933.400000	43.2	1000.0	1000.000	100.0	V	22.0	4.3	41.1	84.4
10798.800000	48.6	1000.0	1000.000	100.0	H	22.0	11.2	35.8	84.4
17738.200000	58.4	1000.0	1000.000	200.0	V	0.0	20.7	26.0	84.4

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.21 Test Results Above 1GHz (LTE Band 5 BW3MHz F=847.5MHz 16QAM)



Peak Data

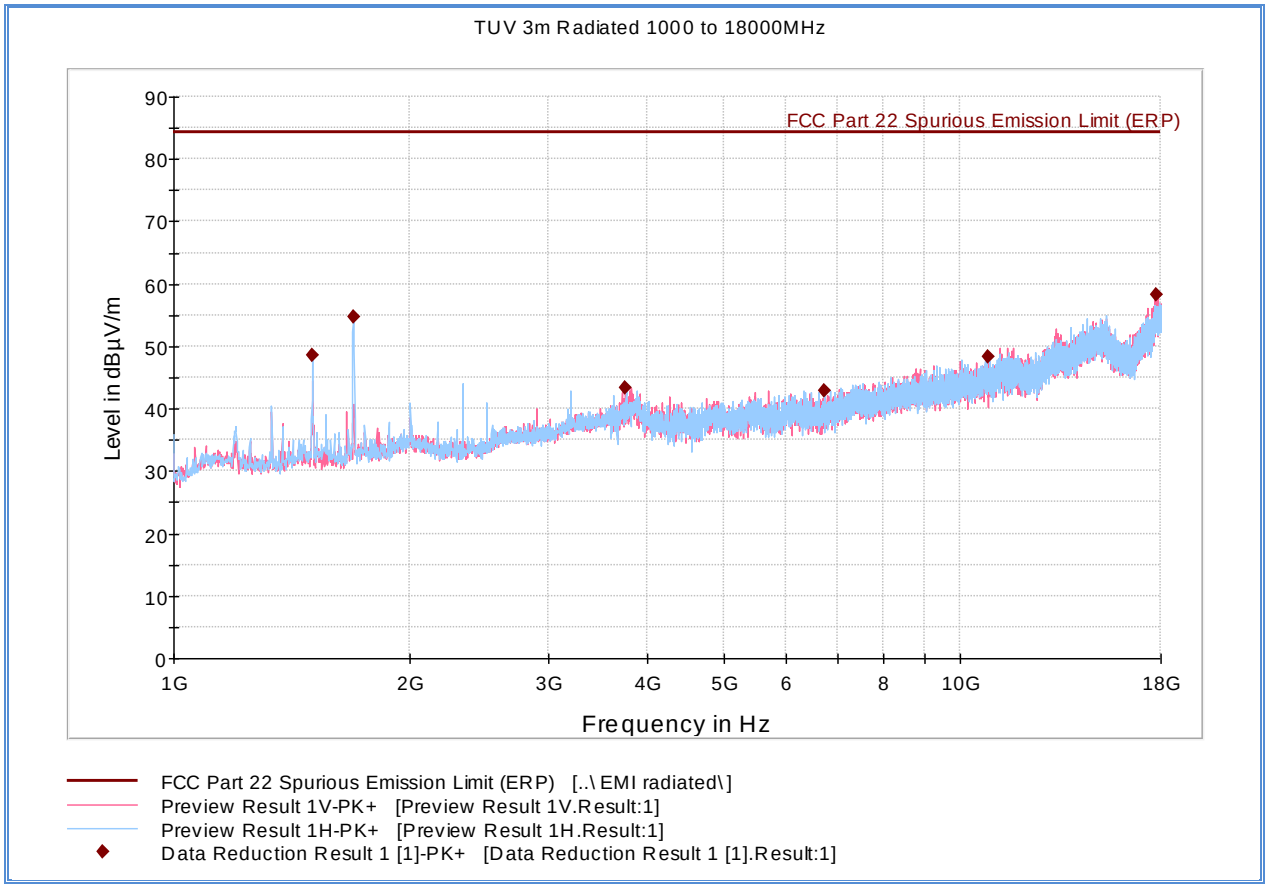
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	49.0	1000.0	1000.000	100.0	H	22.0	-9.0	35.4	84.4
1691.900000	61.9	1000.0	1000.000	100.0	H	0.0	-8.2	22.5	84.4
3816.900000	43.7	1000.0	1000.000	100.0	H	0.0	3.2	40.6	84.4
6062.600000	44.1	1000.0	1000.000	100.0	H	22.0	4.7	40.3	84.4
10623.700000	48.3	1000.0	1000.000	100.0	V	22.0	11.0	36.1	84.4
17983.000000	58.0	1000.0	1000.000	100.0	V	22.0	21.3	26.4	84.4

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.22 Test Results Above 1GHz (LTE Band 5 BW5MHz F=846.5MHz 16QAM)



Peak Data

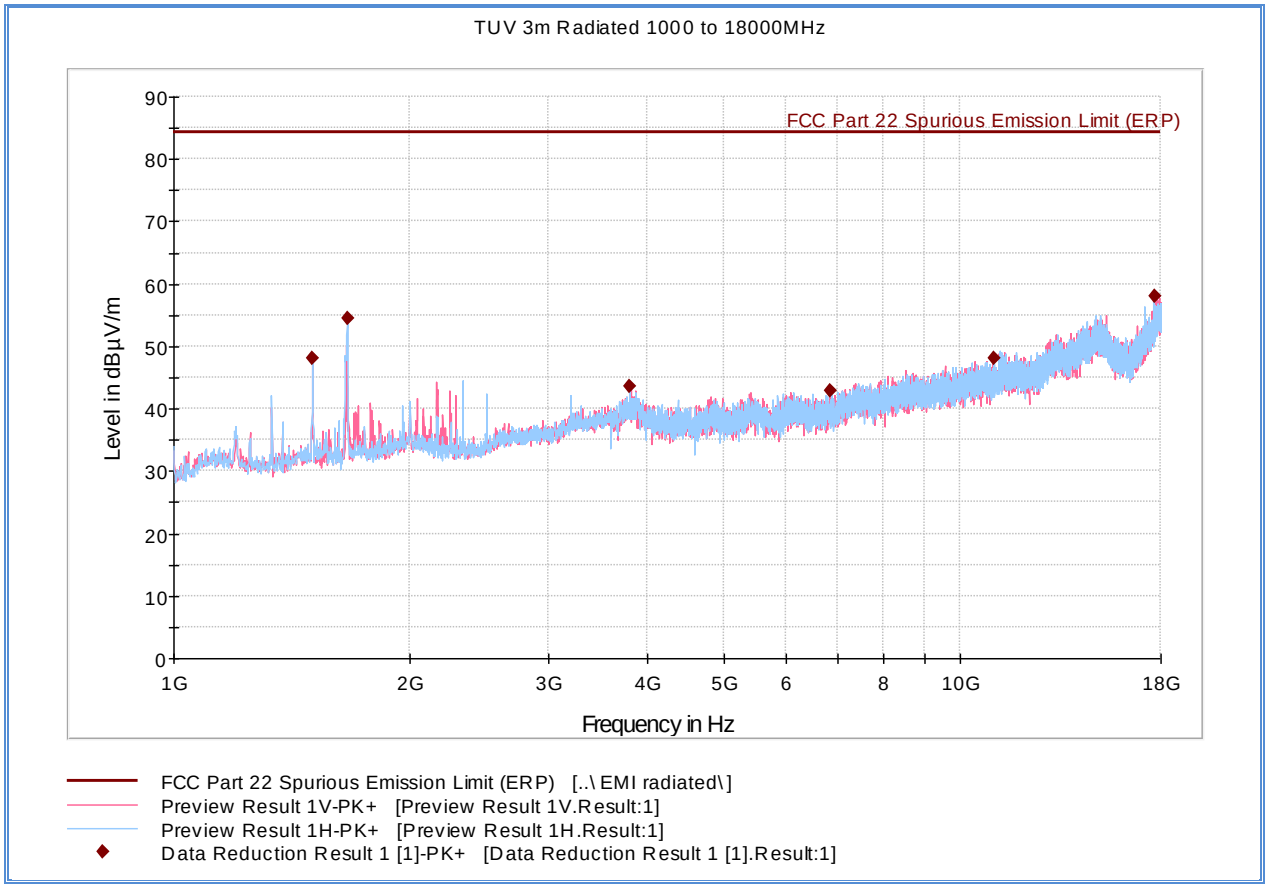
Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	48.7	1000.0	1000.000	100.0	H	22.0	-9.0	35.7	84.4
1691.900000	54.8	1000.0	1000.000	100.0	H	0.0	-8.2	29.6	84.4
3748.900000	43.4	1000.0	1000.000	100.0	V	22.0	2.7	41.0	84.4
6723.900000	42.8	1000.0	1000.000	100.0	H	22.0	5.1	41.6	84.4
10837.900000	48.3	1000.0	1000.000	100.0	V	22.0	11.2	36.1	84.4
17792.600000	58.2	1000.0	1000.000	200.0	V	22.0	20.9	26.2	84.4

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.7.23 Test Results Above 1GHz (LTE Band 5 BW10MHz F=829MHz 16QAM)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1499.800000	48.0	1000.0	1000.000	100.0	H	0.0	-9.0	36.4	84.4
1663.000000	54.5	1000.0	1000.000	100.0	H	0.0	-8.4	29.9	84.4
3799.900000	43.7	1000.0	1000.000	200.0	H	22.0	3.1	40.7	84.4
6824.200000	42.8	1000.0	1000.000	200.0	V	22.0	5.4	41.6	84.4
11055.500000	48.0	1000.0	1000.000	100.0	H	0.0	11.6	36.4	84.4
17728.000000	58.1	1000.0	1000.000	100.0	V	22.0	20.7	26.3	84.4

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Only worst case channel presented for spurious emissions above 1GHz. Substitution data not needed since Peak data > 20dB in all peaks.

2.8 FREQUENCY STABILITY

2.8.1 Specification Reference

Part 22 Subpart H §22.355 and Part 24 Subpart E §24.235

2.8.2 Standard Applicable

(§22.355) Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C–1 of this section.

Table C–1—Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Mobile ≤3 watts (ppm)
821 to 896	2.5

(§24.235) The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

2.8.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Default Test Configuration

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

July 10, 2012/JMG, CF

2.8.5 Test Equipment Used

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

2.8.6 Environmental Conditions

Ambient Temperature	24.1°C
Relative Humidity	42.6%
ATM Pressure	100.3 kPa

2.8.7 Additional Observations

- This is a conducted test. The spectrum was searched from 30MHz to the 10th harmonic (25GHz).
- Measurement was done using the Spectrum Analyzer's Complementary Cumulative Distribution Function (CCDF) measurement profile. The built-in function is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth (crest factor or peak-to-average ratio)

2.8.8 Test Results

See attached plots.

GSM850 mid channel Band 190 Worst Case Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	836.6	-54.18	2090
100		-20		-25.09	2090
100		-10		-26.76	2090
100		0		-21.66	2090
100		+10		-24.89	2090
100		+20		-7.07	2090
100		+30		-24.44	2090
100		+40		-26.73	2090
100		+50		-26.08	2090
115	5.0025	+20		-25.76	2090
85	3.697	+20		-17.27	2090

GSM1900 mid channel Band 661 Worst Case Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	1880	21.63	4720
100		-20		-17.08	4720
100		-10		-29.15	4720
100		0		19.11	4720
100		+10		-30.74	4720
100		+20		29.35	4720
100		+30		-31.55	4720
100		+40		-33.67	4720
100		+50		-33.81	4720
115	5.0025	+20		-26.99	4720
85	3.697	+20		-19.85	4720

WCDMA850 mid band 4183 Worst Case Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	836.6	2.52	2090
100		-20		-9.01	2090
100		-10		2.15	2090
100		0		-6.95	2090
100		+10		-7.02	2090
100		+20		-7.38	2090
100		+30		-7.09	2090
100		+40		-3.13	2090
100		+50		-9.39	2090
115	5.0025	+20		2.48	2090
85	3.697	+20		-3.13	2090

WCDMA1900 mid band 9400 Worst Case Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	1880.0	-9.04	4720
100		-20		-11.95	4720
100		-10		-14.68	4720
100		0		-14.68	4720
100		+10		-14.50	4720
100		+20		-11.52	4720
100		+30		-12.51	4720
100		+40		-12.85	4720
100		+50		-10.24	4720
115	5.0025	+20		-11.34	4720
85	3.697	+20		-10.46	4720

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LTE 2 18900 Band 2 Worst Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	1880.0	-25.21	4720
100		-20		-23.82	4720
100		-10		-22.16	4720
100		0		-23.0	4720
100		+10		-23.57	4720
100		+20		-24.89	4720
100		+30		-24.72	4720
100		+40		-24.70	4720
100		+50		-24.33	4720
115	5.0025	+20		-28.92	4720
85	3.697	+20		-30.77	4720

LTE 5 20525 Band 5 Worst Configuration					
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (MHz)	Frequency Deviation (Hz)	Deviation Limit (Hz)
100	4.35	-30	836.6	7.5	2090
100		-20		7.0	2090
100		-10		5.34	2090
100		0		11.33	2090
100		+10		8.81	2090
100		+20		5.81	2090
100		+30		5.28	2090
100		+40		5.01	2090
100		+50		5.50	2090
115	5.0025	+20		6.37	2090
85	3.697	+20		5.81	2090

2.9 RECEIVER SPURIOUS EMISSIONS

2.9.1 Specification Reference

RSS-132(4.6) and RSS-133(6.6)

2.9.2 Standard Applicable

Receiver spurious emissions shall comply with the limits specified in RSS-Gen.

2.9.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Default Test Configuration

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

July 5th, 2012/JMG

2.9.5 Test Equipment Used

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

2.9.6 Environmental Conditions

Ambient Temperature	24.1°C
Relative Humidity	42.6%
ATM Pressure	100.3 kPa

2.9.7 Additional Observations

- This is a radiated test. The spectrum was searched from 30MHz to the 18GHz (6GHz as per requirement).
- Limit used is from FCC §15.209 which is identical to RSS-Gen limits.
- All emissions observed above 1GHz are noise floor measurements.
- 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.

2.9.8 Test Results

See attached plots.

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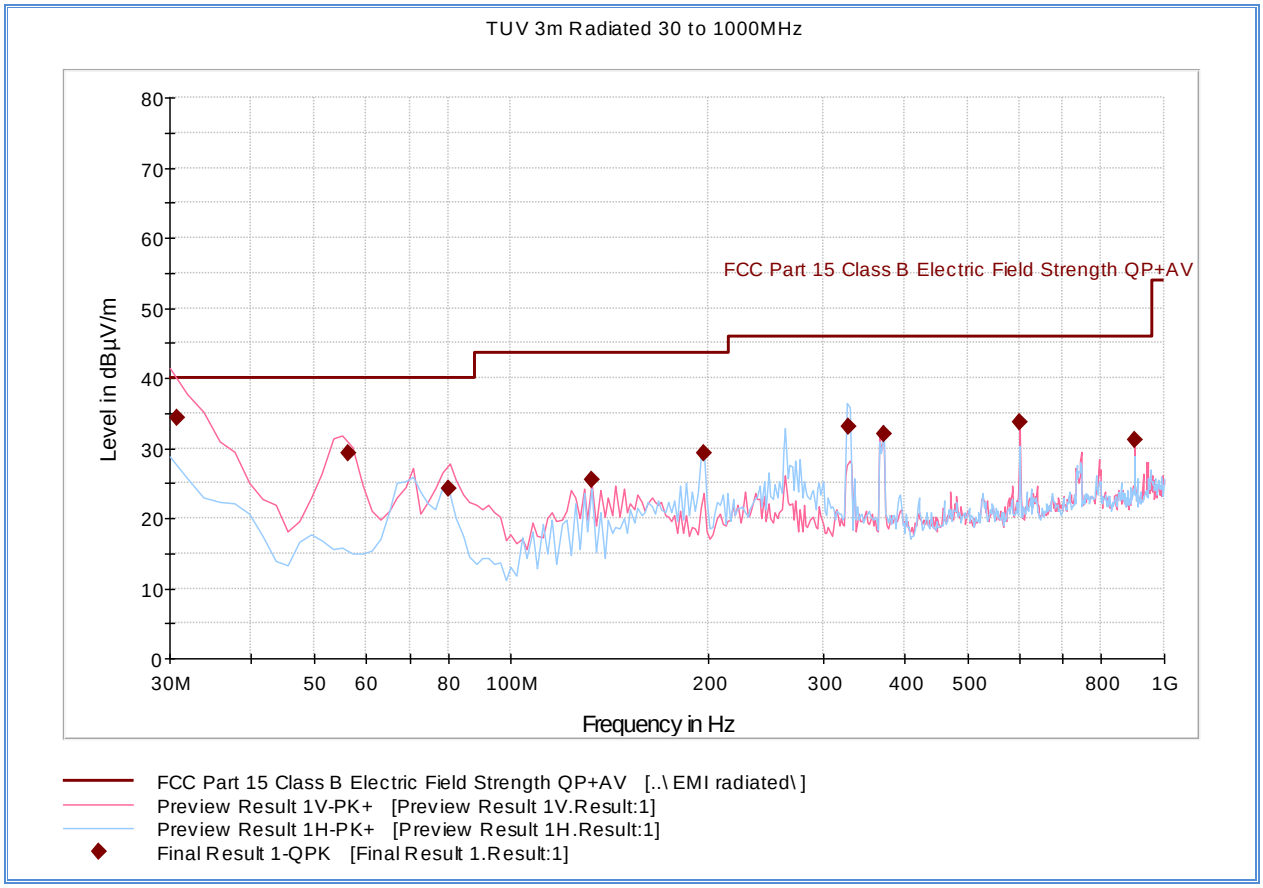
2.9.9 Test Results Below 1GHz (Worst Case Configuration)

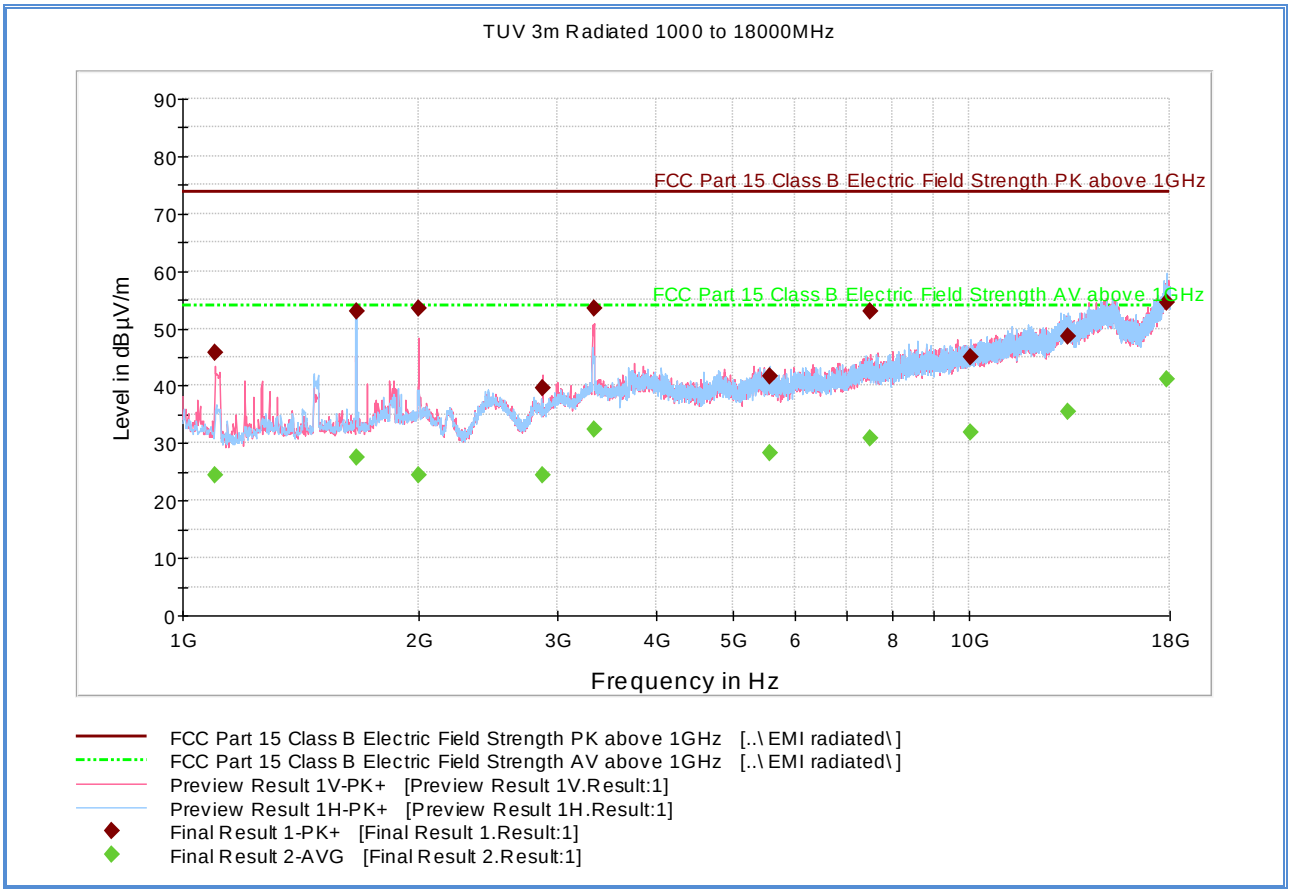


Quasi Peak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.720000	34.2	1000.0	120.000	103.0	V	66.0	-12.6	5.8	40.0
56.230541	29.2	1000.0	120.000	103.0	V	234.0	-21.6	10.8	40.0
80.381082	24.3	1000.0	120.000	100.0	V	315.0	-22.0	15.7	40.0
133.106052	25.5	1000.0	120.000	100.0	V	272.0	-20.8	18.0	43.5
196.934349	29.2	1000.0	120.000	136.0	H	240.0	-16.5	14.3	43.5
328.294830	33.1	1000.0	120.000	100.0	H	240.0	-12.1	12.9	46.0
371.924248	32.0	1000.0	120.000	199.0	H	220.0	-9.2	14.0	46.0
599.983006	33.7	1000.0	120.000	100.0	V	328.0	-5.8	12.3	46.0
899.981723	31.1	1000.0	120.000	106.0	V	222.0	-0.2	14.9	46.0

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

2.9.10 Test Results Above 1GHz (Worst Case Configuration)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1100.080000	45.7	1000.0	1000.000	104.0	V	151.0	-10.3	28.2	73.9
1663.580000	52.9	1000.0	1000.000	128.0	H	334.0	-8.4	21.0	73.9
1993.920000	53.6	1000.0	1000.000	131.0	V	141.0	-6.4	20.3	73.9
2873.180000	39.6	1000.0	1000.000	100.0	V	322.0	-3.2	34.3	73.9
3332.180000	53.5	1000.0	1000.000	100.0	V	18.0	-0.4	20.4	73.9
5586.620000	41.6	1000.0	1000.000	126.0	H	30.0	4.0	32.3	73.9
7478.840000	53.0	1000.0	1000.000	254.0	V	335.0	7.1	20.9	73.9
10046.780000	45.1	1000.0	1000.000	120.0	H	285.0	10.2	28.8	73.9
13344.500000	48.6	1000.0	1000.000	358.0	H	67.0	14.7	25.3	73.9
17871.460000	54.5	1000.0	1000.000	178.0	H	292.0	20.9	19.4	73.9

Substitution Data

Frequency (MHz)	Field Strength @ 3 meters (dbµV/m)	Cable Loss (dB)	Substitution Antenna Gain (dBi)	Signal Generator Level (dBm)	Substitution Data SGL+AG-CL (dBm)	Limit (dBm)	Compliance
							Complies

Test Notes: Measurement was performed with a 2.4GHz notch filter. Band edge measurements were performed with the notch filter removed.

2.10 POWER LINE CONDUCTED EMISSIONS

2.10.1 Specification Reference

RSS-Gen 7.2.4

2.10.2 Standard Applicable

Except when the requirements applicable to a given device state otherwise, for any radio apparatus equipped to operate from the public utility AC power supply, either directly or indirectly (such as with a battery charger), the radio frequency voltage of emissions conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in the table below. The more stringent limit applies at the frequency range boundaries.
The conducted emissions shall be measured with a 50 ohm/50 microhenry 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.*

2.10.3 Equipment Under Test and Modification State

Serial No: SA310512700012 / Test Configuration A,B and C

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

July 04, 2012/FSC

2.10.5 Test Equipment Used

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

2.10.6 Environmental Conditions

Ambient Temperature	23.4°C
Relative Humidity	49.6%
ATM Pressure	98.9 kPa

2.10.7 Additional Observations

- The EUT is a battery powered device however with provision to connect to public AC mains via supplied AC adapter/charger.

- The EUT was verified using worst case configuration (worst case channel/mode). The EUT was set to transmit max. power while plugged into the AC adapter.
- EUT verified using input voltage of 120VAC 60Hz.
- Limit used is from FCC §15.207 which is identical to RSS-Gen limits.
- 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 2.9.8 for sample computation.

2.10.8 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**

2.10.9 Test Results

Compliant. See attached plots and tables.

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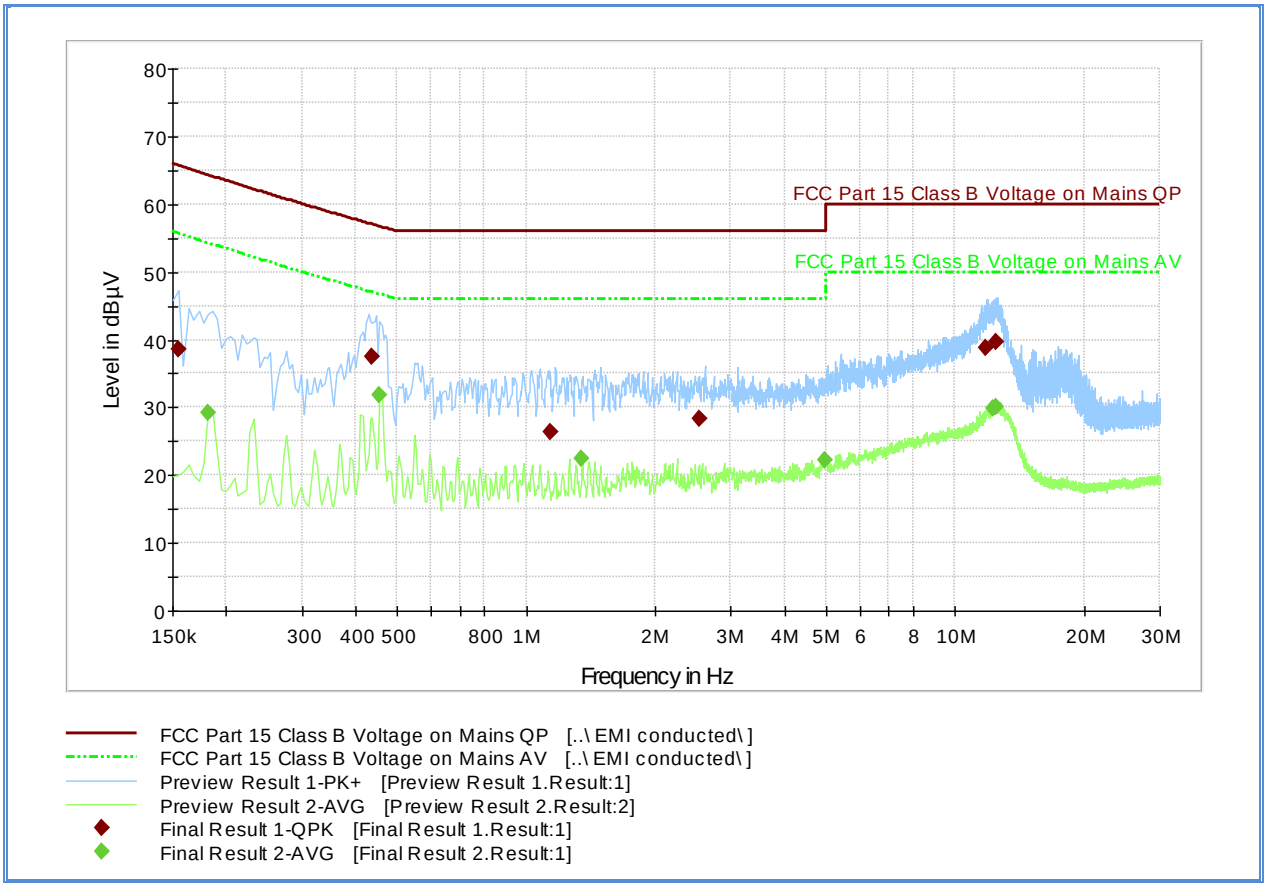
2.10.10 Line 1 (Hot) GSM850



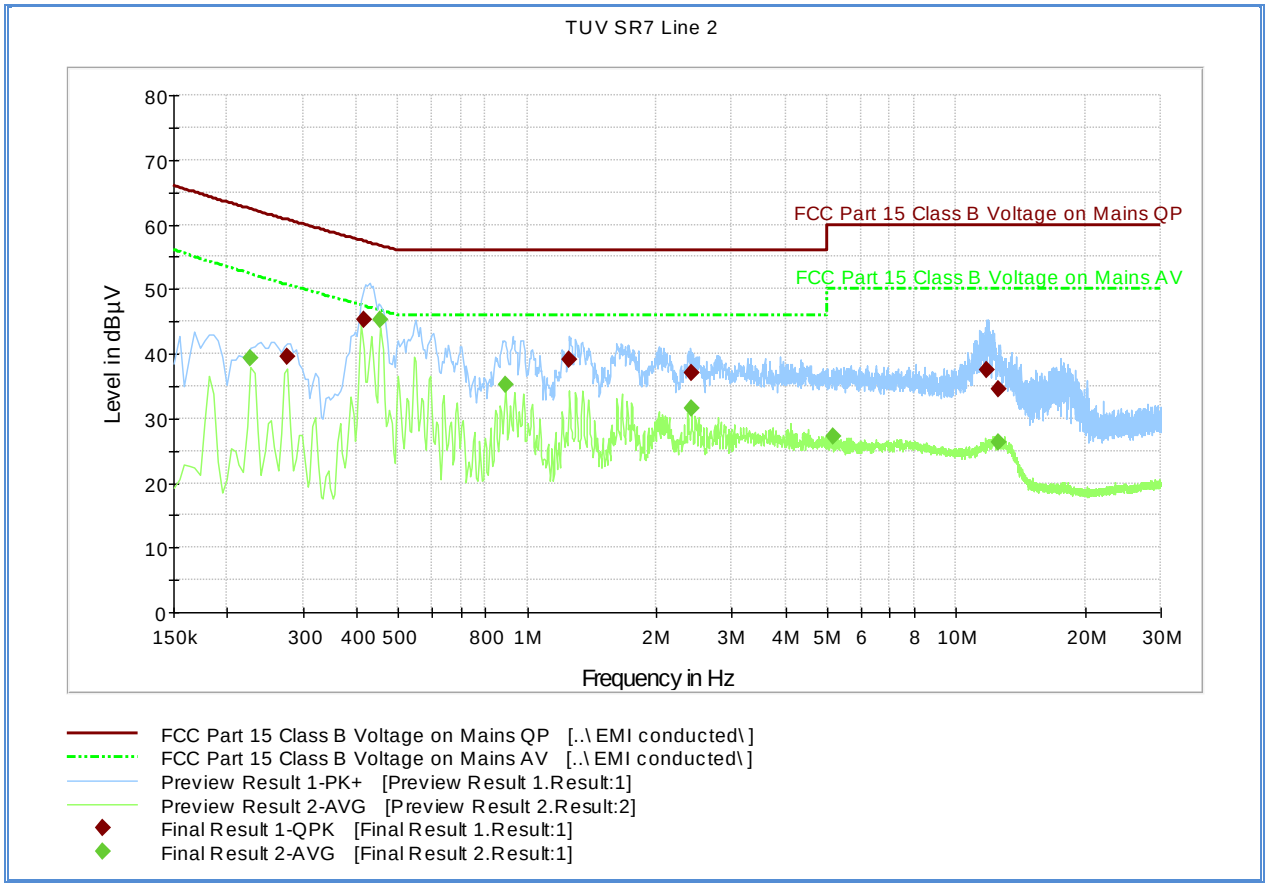
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.154500	38.7	1000.0	9.000	Off	L1	20.6	27.1	65.7
0.438000	37.5	1000.0	9.000	Off	L1	20.2	19.5	57.0
1.135500	26.5	1000.0	9.000	Off	L1	20.1	29.5	56.0
2.526000	28.4	1000.0	9.000	Off	L1	20.1	27.6	56.0
11.827500	38.8	1000.0	9.000	Off	L1	20.5	21.2	60.0
12.444000	39.6	1000.0	9.000	Off	L1	20.5	20.4	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.181500	29.1	1000.0	9.000	Off	L1	20.5	25.1	54.3
0.456000	31.7	1000.0	9.000	Off	L1	20.2	15.0	46.7
1.347000	22.4	1000.0	9.000	Off	L1	20.1	23.6	46.0
4.965000	22.2	1000.0	9.000	Off	L1	20.3	23.8	46.0
12.273000	29.9	1000.0	9.000	Off	L1	20.5	20.1	50.0
12.480000	30.1	1000.0	9.000	Off	L1	20.5	19.9	50.0

2.10.11 Line 2 (Neutral) GSM850



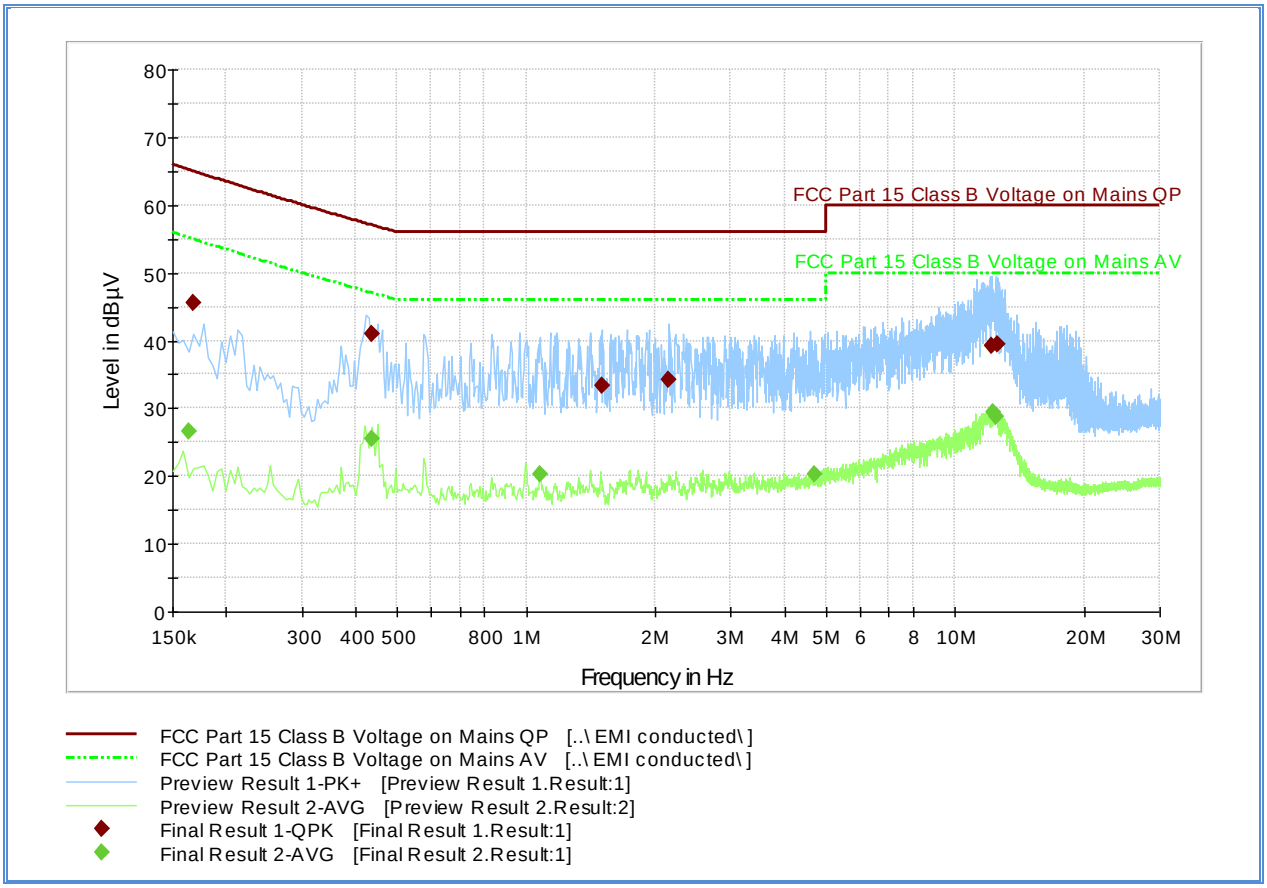
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.276000	39.5	1000.0	9.000	Off	N	20.8	21.3	60.7
0.415500	45.2	1000.0	9.000	Off	N	20.6	12.2	57.4
1.248000	39.1	1000.0	9.000	Off	N	20.5	16.9	56.0
2.413500	37.0	1000.0	9.000	Off	N	20.5	19.0	56.0
11.791500	37.4	1000.0	9.000	Off	N	20.9	22.6	60.0
12.556500	34.6	1000.0	9.000	Off	N	20.9	25.4	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.226500	39.3	1000.0	9.000	Off	N	20.8	13.1	52.4
0.456000	45.2	1000.0	9.000	Off	N	20.7	1.5	46.7
0.888000	35.1	1000.0	9.000	Off	N	20.6	10.9	46.0
2.413500	31.6	1000.0	9.000	Off	N	20.5	14.4	46.0
5.172000	27.3	1000.0	9.000	Off	N	20.7	22.7	50.0
12.601500	26.3	1000.0	9.000	Off	N	20.9	23.7	50.0

2.10.12 Line 1 (Hot) GSM1900



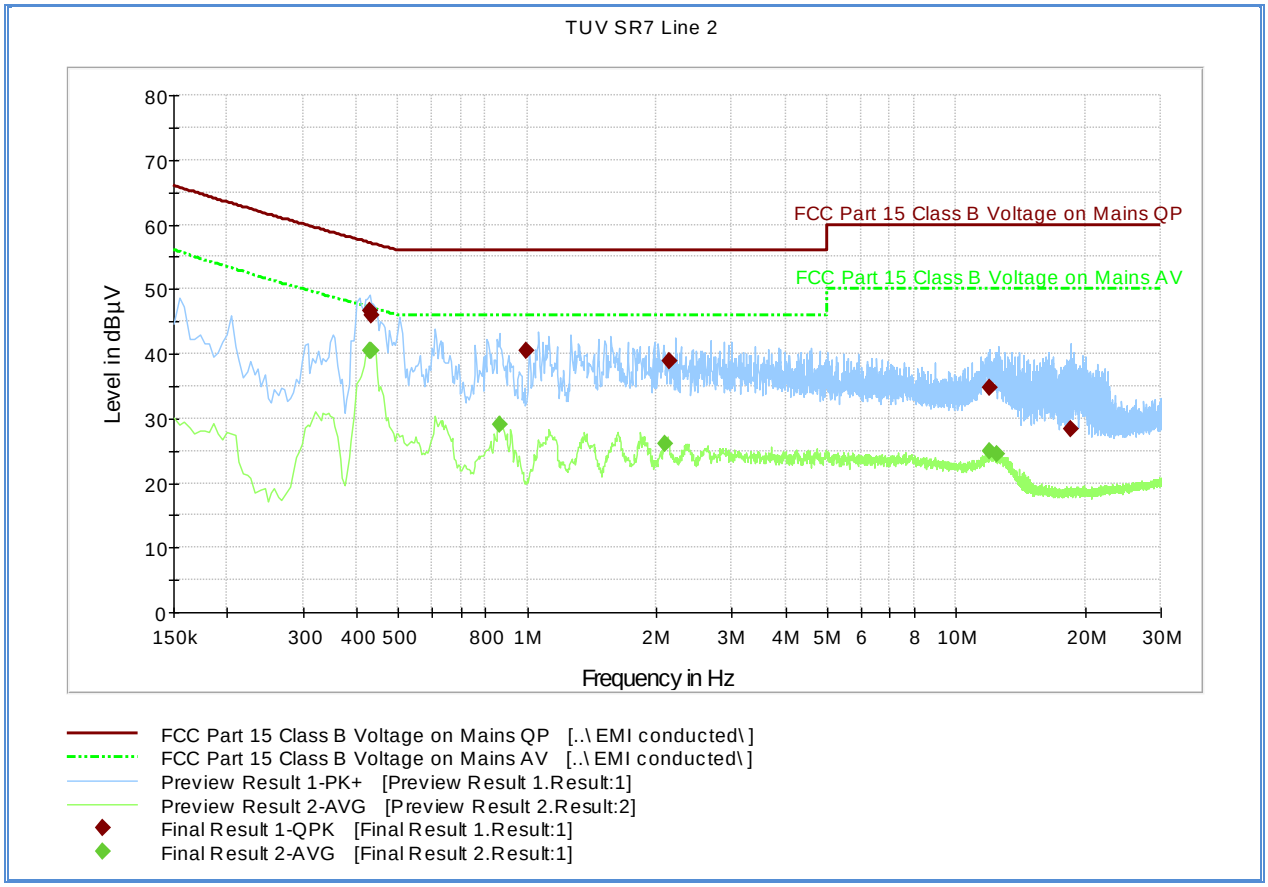
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.168000	45.6	1000.0	9.000	Off	L1	20.5	19.4	65.0
0.438000	41.0	1000.0	9.000	Off	L1	20.2	16.0	57.0
1.500000	33.4	1000.0	9.000	Off	L1	20.1	22.6	56.0
2.148000	34.3	1000.0	9.000	Off	L1	20.1	21.7	56.0
12.196500	39.3	1000.0	9.000	Off	L1	20.5	20.7	60.0
12.552000	39.6	1000.0	9.000	Off	L1	20.5	20.4	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.163500	26.6	1000.0	9.000	Off	L1	20.5	28.6	55.2
0.438000	25.6	1000.0	9.000	Off	L1	20.2	21.4	47.0
1.077000	20.3	1000.0	9.000	Off	L1	20.1	25.7	46.0
4.708500	20.3	1000.0	9.000	Off	L1	20.3	25.7	46.0
12.237000	29.3	1000.0	9.000	Off	L1	20.5	20.7	50.0
12.462000	28.9	1000.0	9.000	Off	L1	20.5	21.1	50.0

2.10.13 Line 2 (Neutral) GSM1900



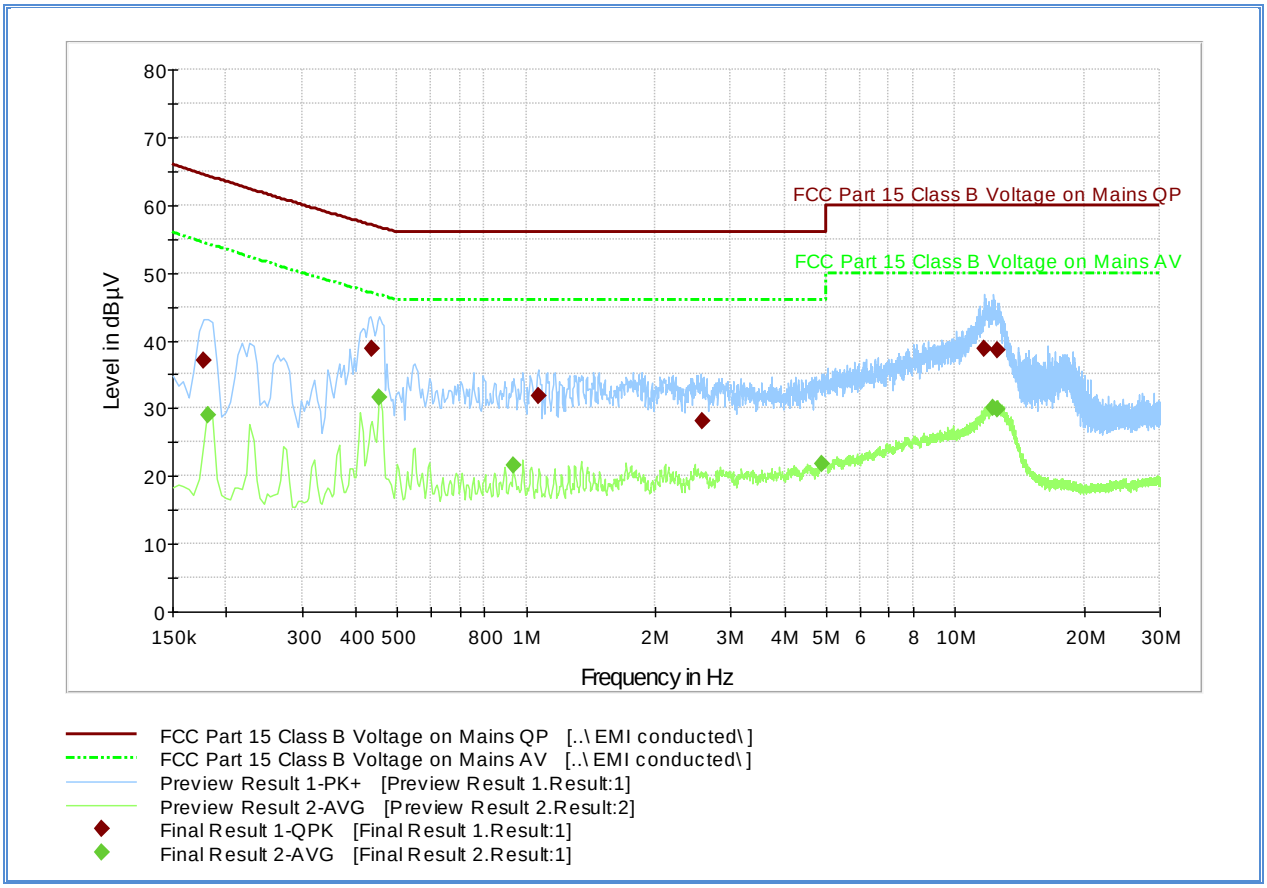
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.429000	46.6	1000.0	9.000	Off	N	20.6	10.5	57.2
0.433500	45.9	1000.0	9.000	Off	N	20.6	11.2	57.1
0.996000	40.3	1000.0	9.000	Off	N	20.5	15.7	56.0
2.143500	38.9	1000.0	9.000	Off	N	20.5	17.2	56.0
11.971500	34.8	1000.0	9.000	Off	N	20.9	25.2	60.0
18.519000	28.3	1000.0	9.000	Off	N	21.0	31.7	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.429000	40.4	1000.0	9.000	Off	N	20.6	6.8	47.2
0.433500	40.4	1000.0	9.000	Off	N	20.6	6.7	47.1
0.865500	29.1	1000.0	9.000	Off	N	20.6	16.9	46.0
2.098500	26.2	1000.0	9.000	Off	N	20.5	19.8	46.0
11.958000	24.8	1000.0	9.000	Off	N	20.9	25.2	50.0
12.498000	24.5	1000.0	9.000	Off	N	20.9	25.5	50.0

2.10.14 Line 1 (Hot) WCDMA850



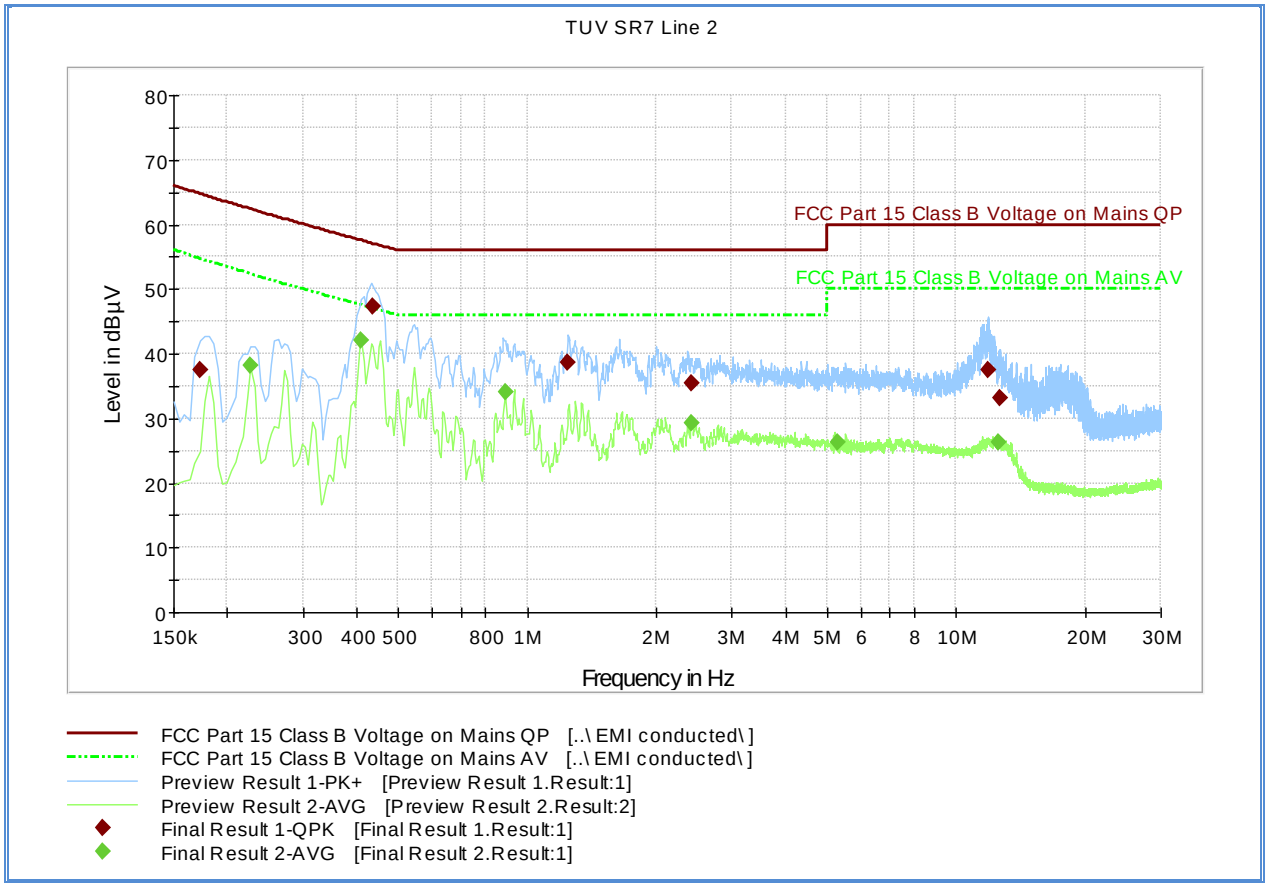
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.177000	37.1	1000.0	9.000	Off	L1	20.5	27.4	64.5
0.438000	38.8	1000.0	9.000	Off	L1	20.2	18.2	57.0
1.068000	31.8	1000.0	9.000	Off	L1	20.1	24.2	56.0
2.580000	28.2	1000.0	9.000	Off	L1	20.1	27.8	56.0
11.719500	38.8	1000.0	9.000	Off	L1	20.5	21.2	60.0
12.520500	38.6	1000.0	9.000	Off	L1	20.5	21.4	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.181500	29.0	1000.0	9.000	Off	L1	20.5	25.3	54.3
0.456000	31.5	1000.0	9.000	Off	L1	20.2	15.2	46.7
0.933000	21.6	1000.0	9.000	Off	L1	20.2	24.4	46.0
4.906500	21.8	1000.0	9.000	Off	L1	20.3	24.2	46.0
12.250500	30.0	1000.0	9.000	Off	L1	20.5	20.0	50.0
12.561000	29.8	1000.0	9.000	Off	L1	20.5	20.2	50.0

2.10.15 Line 2 (Neutral) WCDMA850



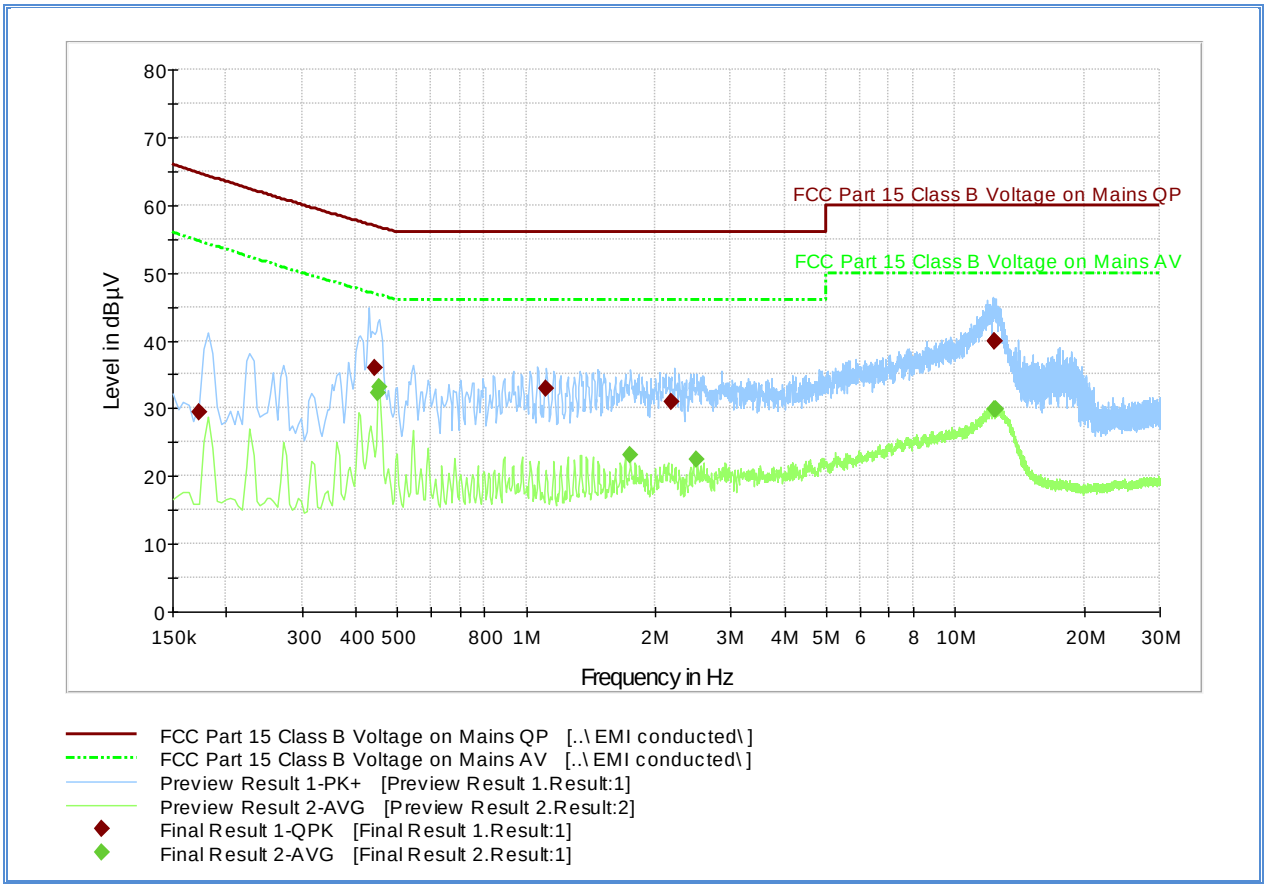
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.172500	37.5	1000.0	9.000	Off	N	20.9	27.3	64.8
0.438000	47.3	1000.0	9.000	Off	N	20.7	9.8	57.0
1.243500	38.7	1000.0	9.000	Off	N	20.5	17.3	56.0
2.413500	35.5	1000.0	9.000	Off	N	20.5	20.5	56.0
11.845500	37.5	1000.0	9.000	Off	N	20.9	22.5	60.0
12.651000	33.2	1000.0	9.000	Off	N	20.9	26.8	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.226500	38.2	1000.0	9.000	Off	N	20.8	14.2	52.4
0.411000	42.1	1000.0	9.000	Off	N	20.6	5.4	47.5
0.888000	34.0	1000.0	9.000	Off	N	20.6	12.0	46.0
2.413500	29.3	1000.0	9.000	Off	N	20.5	16.7	46.0
5.275500	26.3	1000.0	9.000	Off	N	20.7	23.7	50.0
12.570000	26.3	1000.0	9.000	Off	N	20.9	23.7	50.0

2.10.16 Line 1 (Hot) WCDMA1900



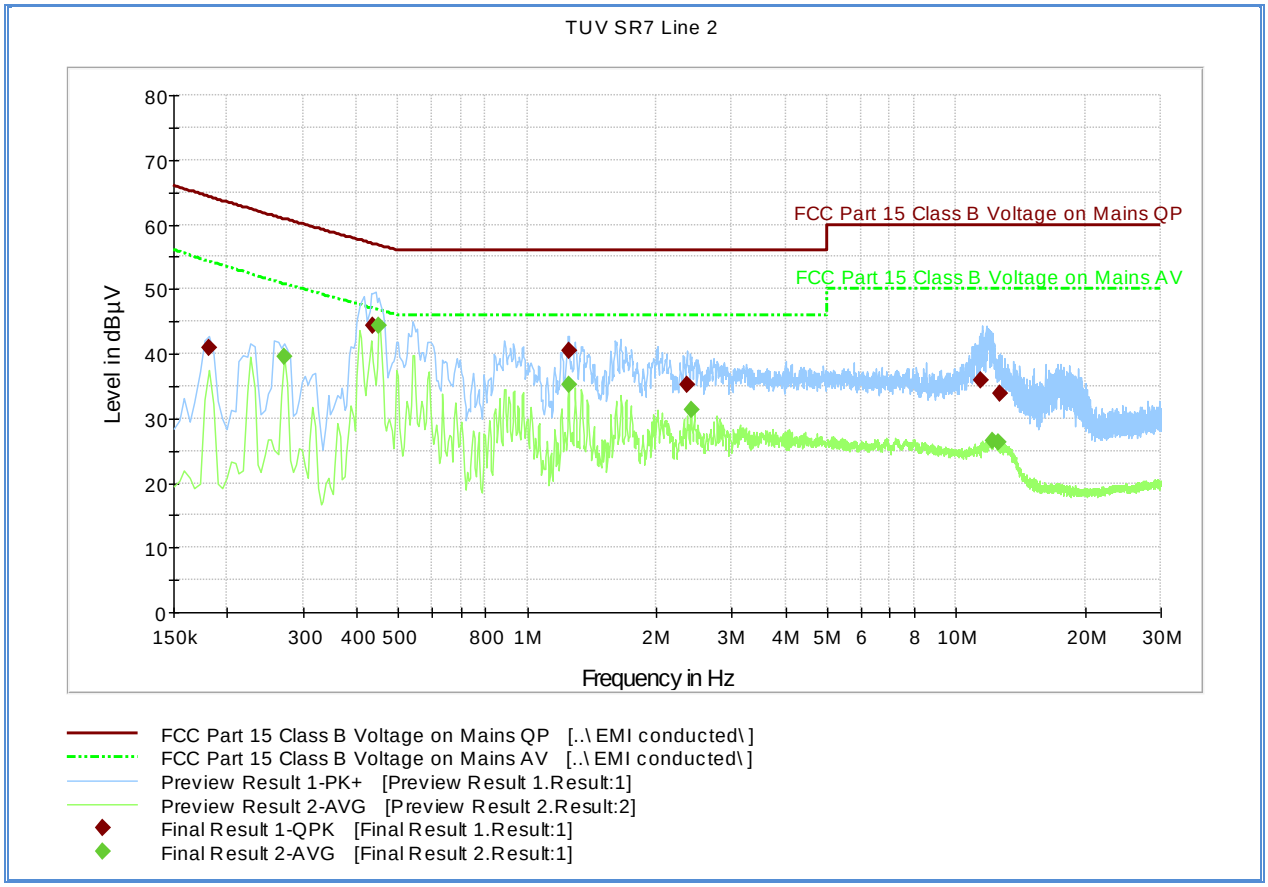
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.172500	29.4	1000.0	9.000	Off	L1	20.5	35.3	64.8
0.442500	35.9	1000.0	9.000	Off	L1	20.2	21.0	56.9
1.113000	33.0	1000.0	9.000	Off	L1	20.1	23.0	56.0
2.179500	30.9	1000.0	9.000	Off	L1	20.1	25.1	56.0
12.318000	39.8	1000.0	9.000	Off	L1	20.5	20.2	60.0
12.372000	39.8	1000.0	9.000	Off	L1	20.5	20.2	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.451500	32.3	1000.0	9.000	Off	L1	20.2	14.5	46.8
0.456000	33.1	1000.0	9.000	Off	L1	20.2	13.6	46.7
1.747500	23.0	1000.0	9.000	Off	L1	20.1	23.0	46.0
2.503500	22.4	1000.0	9.000	Off	L1	20.1	23.6	46.0
12.318000	29.8	1000.0	9.000	Off	L1	20.5	20.2	50.0
12.462000	29.8	1000.0	9.000	Off	L1	20.5	20.2	50.0

2.10.17 Line 2 (Neutral) WCDMA1900



Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV)
0.181500	40.9	1000.0	9.000	Off	N	20.9	23.4	64.3
0.438000	44.3	1000.0	9.000	Off	N	20.7	12.7	57.0
1.248000	40.5	1000.0	9.000	Off	N	20.5	15.5	56.0
2.368500	35.3	1000.0	9.000	Off	N	20.5	20.7	56.0
11.436000	35.8	1000.0	9.000	Off	N	20.9	24.2	60.0
12.606000	33.9	1000.0	9.000	Off	N	20.9	26.1	60.0

Average

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin - Ave (dB)	Limit – Ave (dBµV)
0.271500	39.5	1000.0	9.000	Off	N	20.8	11.3	50.8
0.451500	44.4	1000.0	9.000	Off	N	20.7	2.4	46.8
1.248000	35.3	1000.0	9.000	Off	N	20.5	10.7	46.0
2.409000	31.3	1000.0	9.000	Off	N	20.5	14.7	46.0
12.192000	26.6	1000.0	9.000	Off	N	20.9	23.4	50.0
12.529500	26.2	1000.0	9.000	Off	N	20.9	23.8	50.0

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						
1024	EMI Test Receiver	ESCS 30	847793/001	Rhode & Schwarz	02/29/12	02/28/13
7571	Wideband Radio Communication Tester	CMW 500	1201.0002k50/103829	Rhode & Schwarz	04/04/12	04/04/13
7569	Series Power Meter	N1911A P-	MY45100625	Agilent	02/24/12	02/24/14
7570	50MHz-18GHz Wideband Power Sensor	N1921A	MY45240588	Agilent	02/14/12	02/24/13
7567	LISN	FCC-LISN-50-25-2-10	120304	Fischer Custom Comm.	05/24/12	05/24/13
7568	LISN	FCC-LISN-50-25-2-10	120305	Fischer Custom Comm.	05/24/12	05/24/13
1027, 1028	EMI Test Receiver	ESMI	846517/0001	Rhode & Schwarz	03/20/12	03/20/13
8607	20dB Attenuator	CAT-20	N/A	MCL HAT-20	07/29/11	07/29/12
8609	20dB Attenuator	CAT-20	N/A	MCL HAT-20	07/29/11	07/29/12
6610	Temperature Chamber	SH-27C	EV03	Envirotronics	06/29/12	06/29/13
Radiated Test Setup						
1002	Bilog Antenna	3142C	00058717	ETS-Lindgren	12/06/11	12/06/12
6669	Double-ridged waveguide horn antenna	3115	94124364	EMCO	11/07/11	11/07/12
1051	Double-ridged waveguide horn antenna	3115	9408-4329	EMCO	01/04/12	01/04/13
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	08/17/11	08/17/12
8543	High-frequency cable	Micropore 19057793	N/A	United Microwave Products	08/17/11	08/17/12
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	08/10/11	08/10/12
1049	EMI Test Receiver	ESU	100133	Rhode & Schwarz	06/13/12	06/13/13
1016	Pre-amplifier	PAM-0202	187	PAM	08/17/11	08/17/12
1003	Signal Generator	SMR-40	1104.0002.40	Rhode & Schwarz	10/13/11	10/13/12
1151	Pre-amplifier	TS-PR26	100026	Rhode & Schwarz	Verified by 1003 and 1049	
	2.0GHz Band Notch Filter	BRM50707	005	Micro-Tronics	Verified by 1003 and 1049	
Miscellaneous						
7560	Barometer/Temperature /Humidity Transmitter	iBTHX-W	1240476	Omega	07/12/11	07/12/12
	Test Software	EMC32	V8.52	Rhode & Schwarz	N/A	
6610	Environmental Chamber	SHX7	09963481-5	Envirotronics	06/29/12	06/29/13

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	3.55	2.05	4.20
6	EUT Setup	Rectangular	1.00	0.58	0.33
				Combined Uncertainty (u_c):	2.23
				Coverage Factor (k):	2
				Expanded Uncertainty:	4.45

3.2.2 Radiated Emission Measurements (Above 1GHz)

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

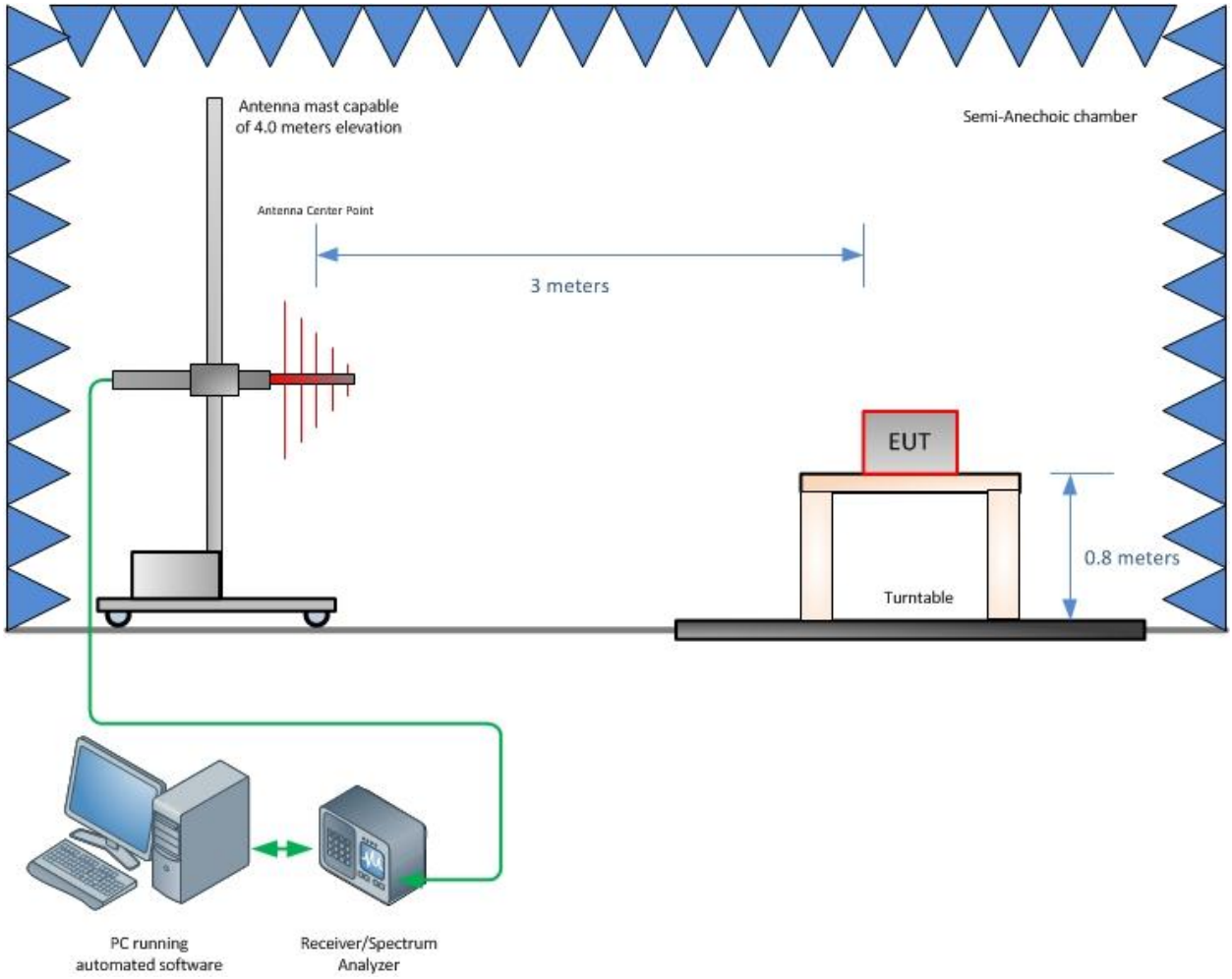
3.2.3 Conducted Antenna Port Measurement

	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

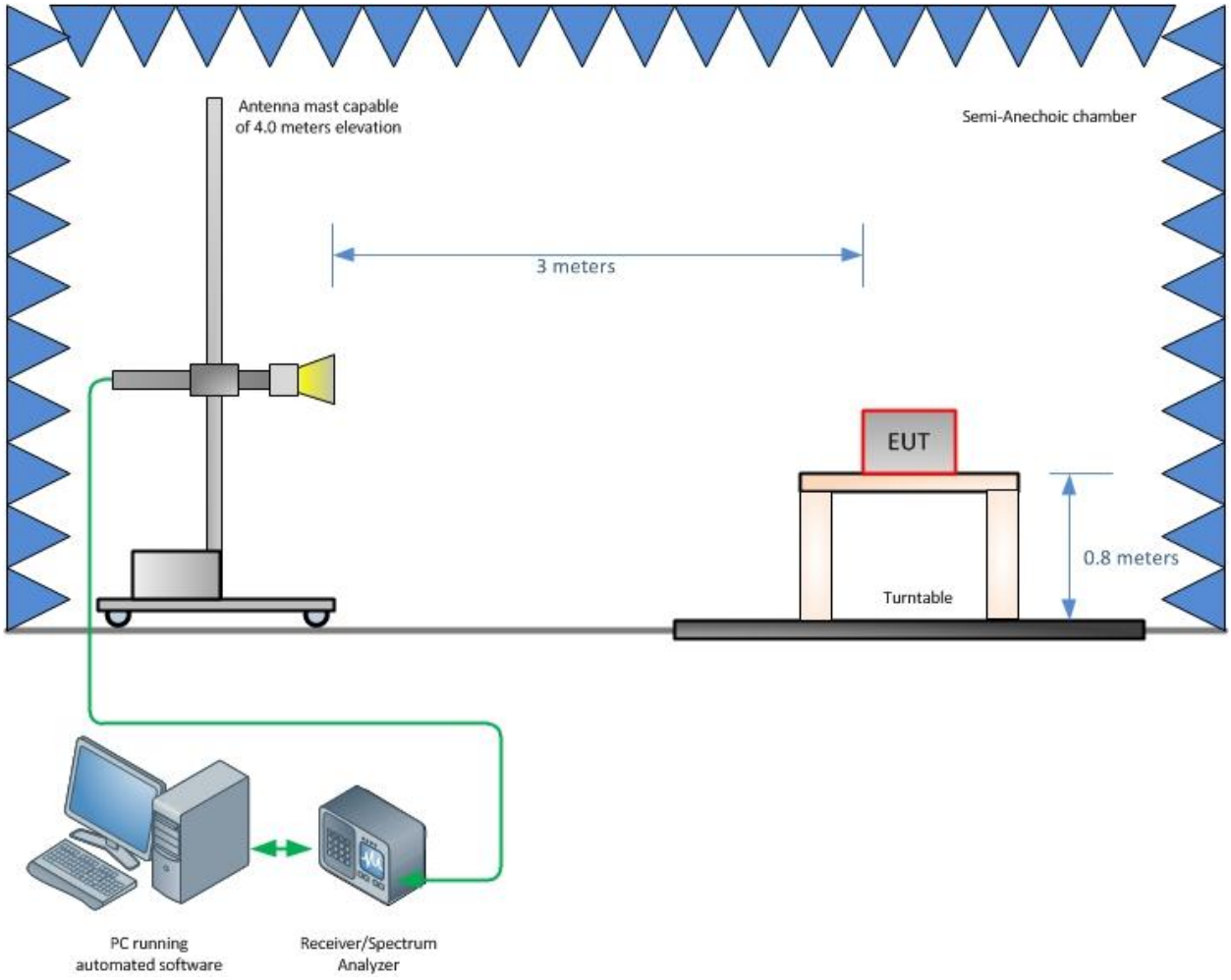
SECTION 4

DIAGRAM OF TEST SETUP

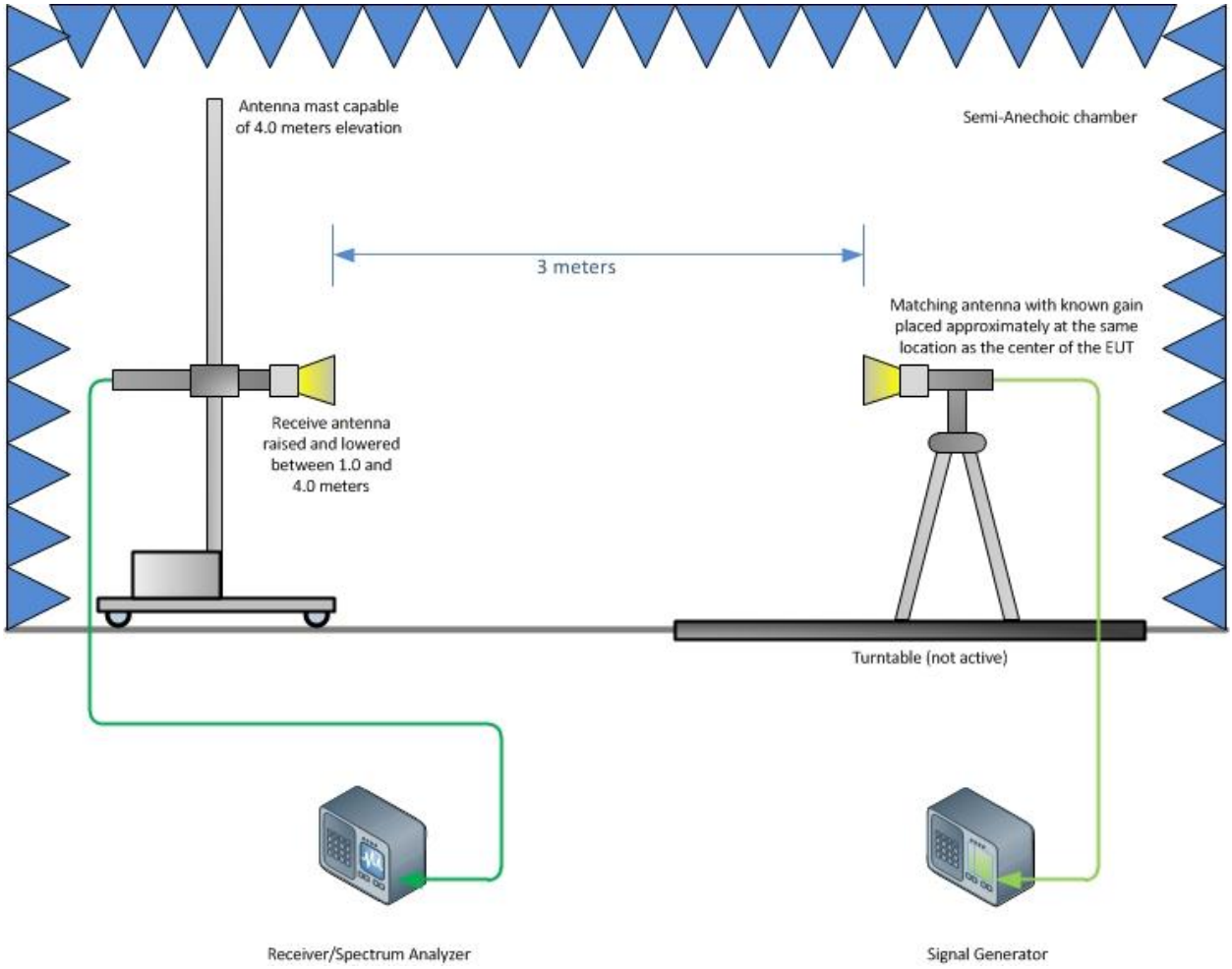
4.1 TEST SETUP DIAGRAM



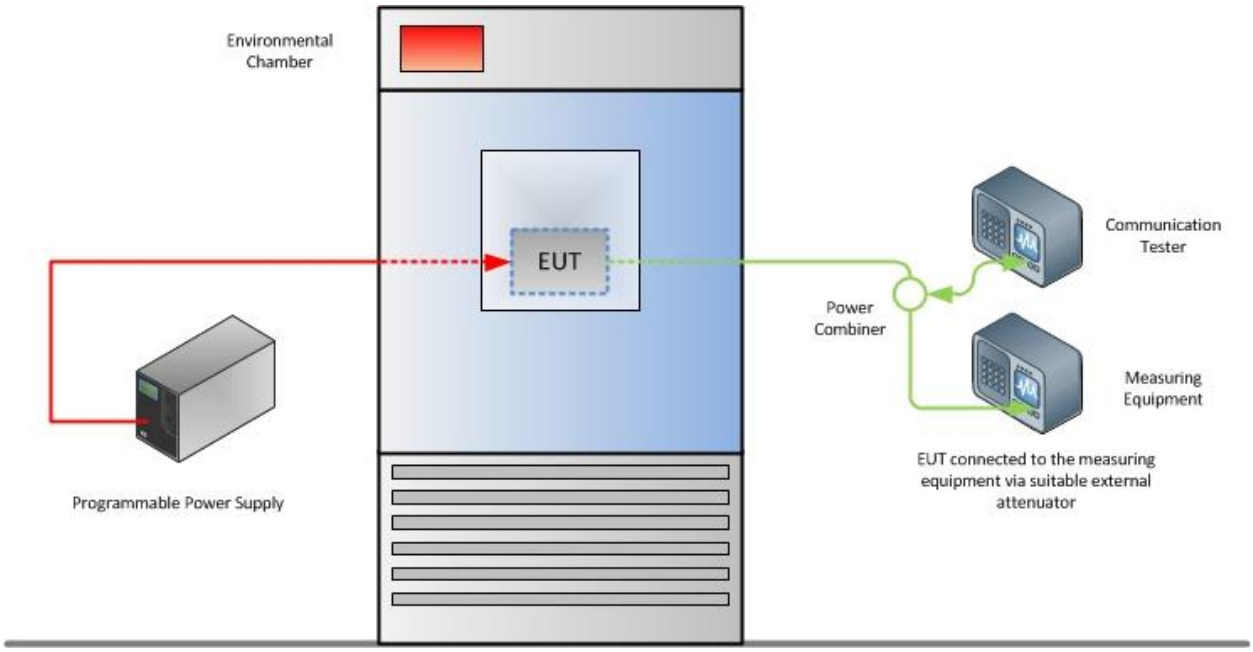
Radiated Emission Test Setup (Below 1GHz)



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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