FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola Mobility, LLC
MODEL NAME	:	4079
FCC ID	:	IHDT56PK2
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Aug. 26, 2014 and testing was completed on Sep. 16, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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APPENDIX A. ORIGINAL REPORT

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG462024-03A	Rev. 01	This is a variant report by adding WCDMA Band IV. The other test cases were performed on original report which can be referred to Sporton Report Number FG462024A as appendix A.	Sep. 23, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.2	N/A	Peak-to-Average Ratio	Reporting Only	PASS	-
3.3	§27.50(d)(4)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.4	§2.1049 §27.53(h)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §27.53(h)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.6	§2.1051 §27.53(h)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.7	§2.1053 §27.53(h)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 28.11 dB at 6930.000 MHz
3.8	§2.1055 §27.54	Frequency Stability for Temperature & Voltage	Emission must remain In-band for 27.54	PASS	-

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola Mobility, LLC
Model Name	4079
FCC ID	IHDT56PK2
IMEI Code	990005280005985 990005280013526
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz: WLAN 11b/g/n HT20, WLAN 11ac VHT20 5GHz: WLAN 11a/n HT20/HT40, WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 EDR Bluetooth v4.0 LE
HW Version	P3
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Accessory List	
AC Adapter	Brand Name : Motorola
	Model Name : SPN5864A
USB Cable	Brand Name : Motorola
	Model Name : SKN6461A
Earphone	Brand Name : Motorola
	Model Name : SJYN1305A
Battery	Brand Name : Motorola
	Model Name : EQ40

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	WCDMA Band IV : 23.75 dBm
99% Occupied Bandwidth	WCDMA Band IV: 4.18MHz
Antenna Type	Fixed Internal Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.28	0.004 ppm	4M18F9W

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH02-HY	03CH07-HY

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2, 22(H), 24(E), 27(L)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

30 MHz to 18000 MHz for WCDMA Band IV.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

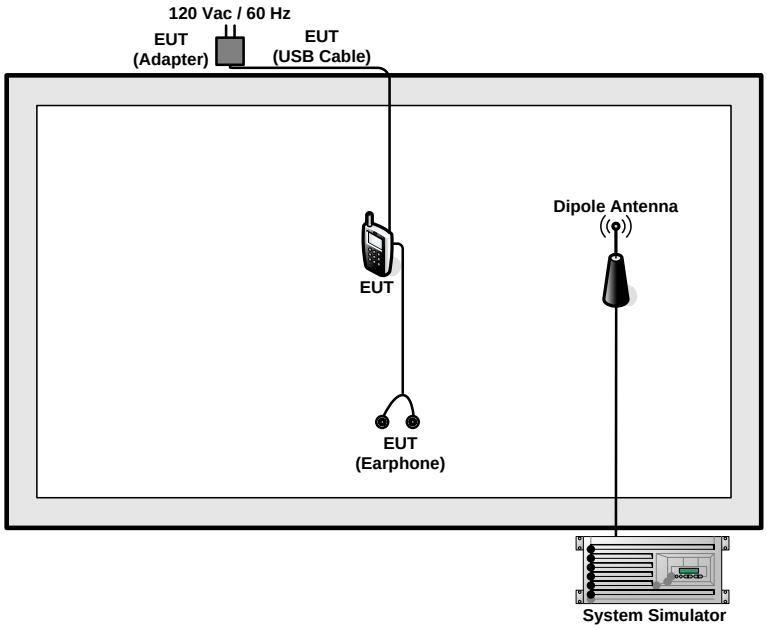
Note:

1. The maximum power levels are chosen to test as the worst case configuration as follows: RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.
2. This report only assessed WCDMA Band IV, other frequency band exposure evaluation which refer to the Sporton FCC Report, FCC ID: IHDT56PK1, Report No: FG462024A, and Appendix A.

Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)			
Band	**WCDMA Band IV**		
Channel	**1312**	**1413**	**1513**
Frequency	**1712.4**	**1732.6**	**1752.6**
RMC 12.2K	23.63	23.60	**23.75**
HSDPA Subtest-1	22.55	22.62	22.66
HSDPA Subtest-2	22.61	22.63	22.66
HSDPA Subtest-3	22.09	22.13	22.16
HSDPA Subtest-4	22.08	22.12	22.15
HSUPA Subtest-1	22.41	22.68	22.70
HSUPA Subtest-2	21.40	21.52	21.58
HSUPA Subtest-3	21.45	21.70	21.61
HSUPA Subtest-4	21.38	21.73	21.64
HSUPA Subtest-5	22.70	22.60	22.68

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

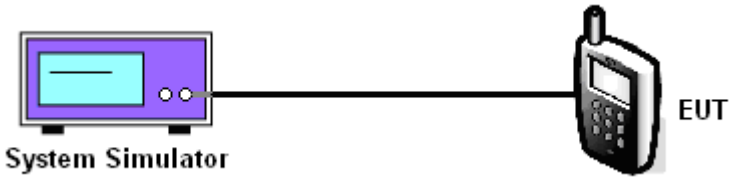
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

AWS Band			
Modes	**WCDMA Band IV (RMC 12.2Kbps)**		
Channel	**1312(Low)**	**1413 (Mid)**	**1513 (High)**
Frequency (MHz)	**1712.4**	**1732.6**	**1752.6**
Conducted Power (dBm)	23.63	23.60	23.75
Conducted Power (Watts)	0.23	0.23	0.24

Note: maximum average power for WCDMA.

3.2 Peak-to-Average Ratio

3.2.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

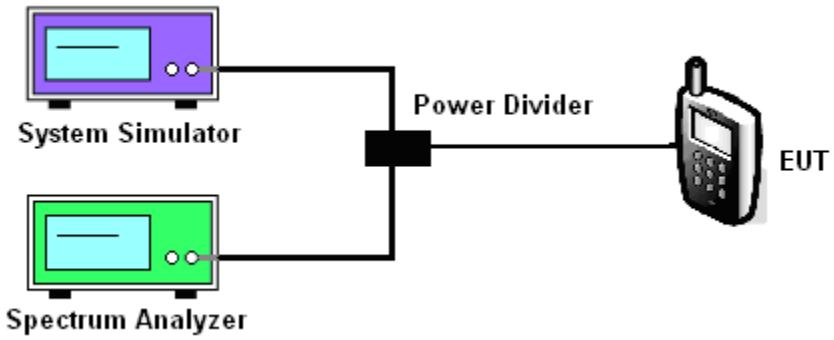
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.7.1.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. For UMTS operating modes:
   a. Set the CCDF (Complementary Cumulative Distribution Function) option on the spectrum analyzer.
   b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
4. Record the deviation as Peak to Average Ratio.

3.2.4 Test Setup



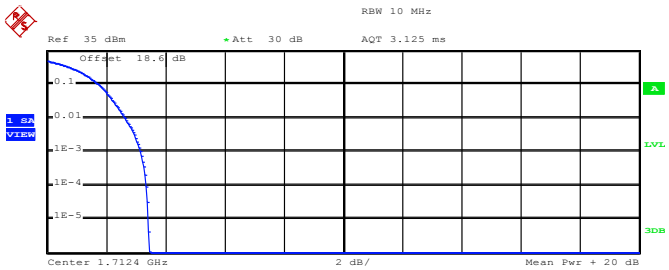
3.2.5 Test Result of Peak-to-Average Ratio

AWS Band			
Modes	WCDMA Band IV (RMC 12.2Kbps)		
Channel	1312(Low)	1413 (Mid)	1513 (High)
Frequency (MHz)	1712.4	1732.6	1752.6
Peak-to-Average Ratio (dB)	3.16	3.16	3.12

3.2.6 Test Result (Plots) of Peak-to-Average Ratio

Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

Peak-to-Average Ratio on Channel 1312 (1712.4 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.19 dBm
Peak	27.63 dBm
Crest	3.44 dB
10 %	1.76 dB
1 %	2.64 dB
.1 %	3.16 dB
.01 %	3.36 dB

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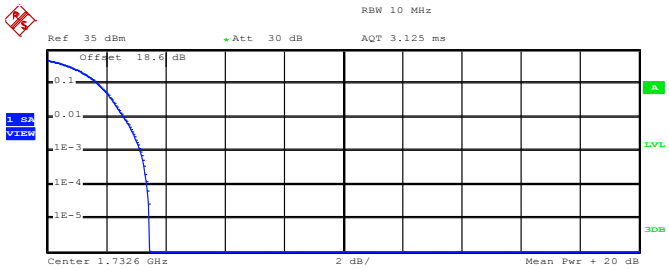
Peak-to-Average Ratio On Channel 1413 (1732.6 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.17 dBm
Peak	27.63 dBm
Crest	3.46 dB
10 %	1.72 dB
1 %	2.60 dB
.1 %	3.16 dB
.01 %	3.36 dB

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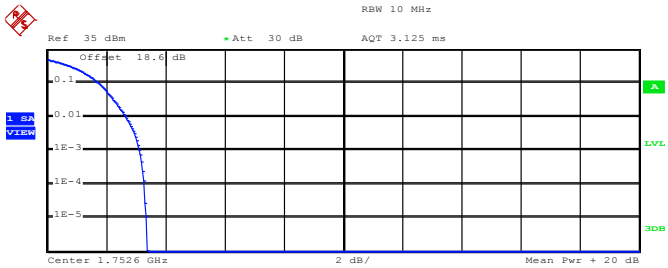
Peak-to-Average Ratio on Channel 1513 (1752.6 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.90 dBm
Peak	27.28 dBm
Crest	3.38 dB
10 %	1.76 dB
1 %	2.68 dB
.1 %	3.12 dB
.01 %	3.28 dB

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3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. The ERP of mobile transmitters must not exceed 1 Watts (AWS Band).

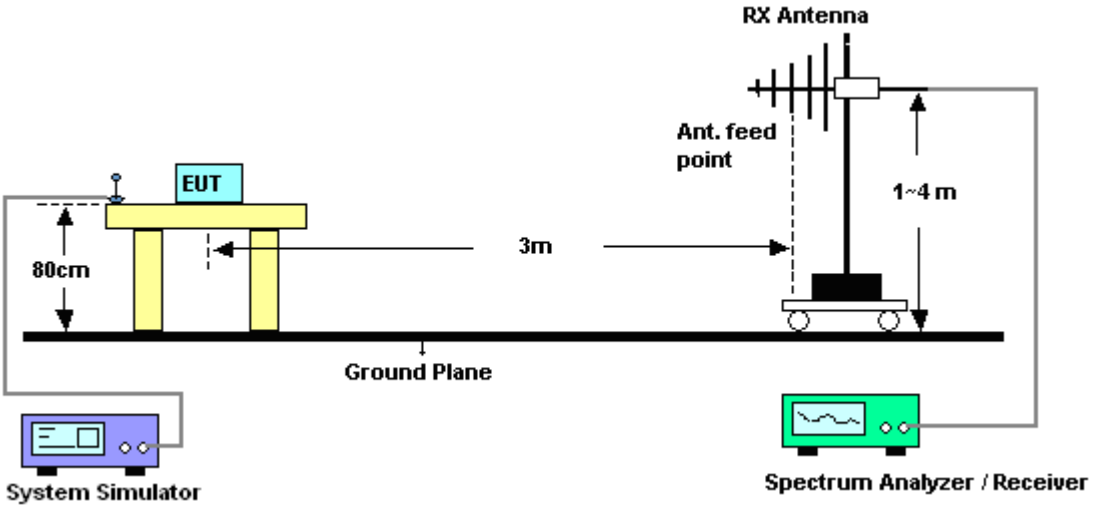
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
2. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at the same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP= LVL + Correction factor and ERP = EIRP – 2.15 .

3.3.4 Test Setup



3.3.5 Test Result of EIRP

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.40	-24.31	42.79	18.48	0.07
1732.60	-24.63	43.00	18.37	0.07
1752.60	-24.61	42.92	18.31	0.07
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1712.40	-22.64	46.10	23.46	0.22
1732.60	-21.50	45.94	24.44	0.28
1752.60	-23.00	47.43	24.43	0.28

* EIRP = LVL (dBm) + Correction Factor (dB)

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.4.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

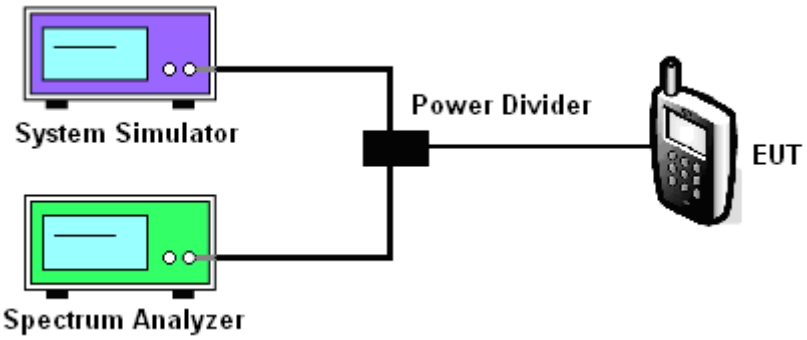
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 4.2.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.
5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.

3.4.4 Test Setup



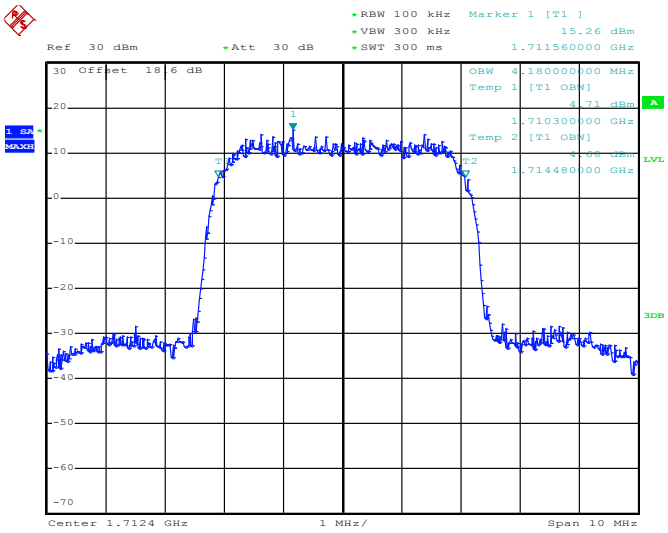
3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

AWS Band			
Modes	**WCDMA Band IV (RMC 12.2Kbps)**		
Channel	**1312(Low)**	**1413 (Mid)**	**1513 (High)**
Frequency (MHz)	**1712.4**	**1732.6**	**1752.6**
99% OBW (MHz)	4.18	4.18	4.18
26dB BW (MHz)	4.68	4.68	4.68

3.4.6 Test Result (Plots) of Occupied Bandwidth and 26dB Bandwidth

Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 1312 (1712.4 MHz)



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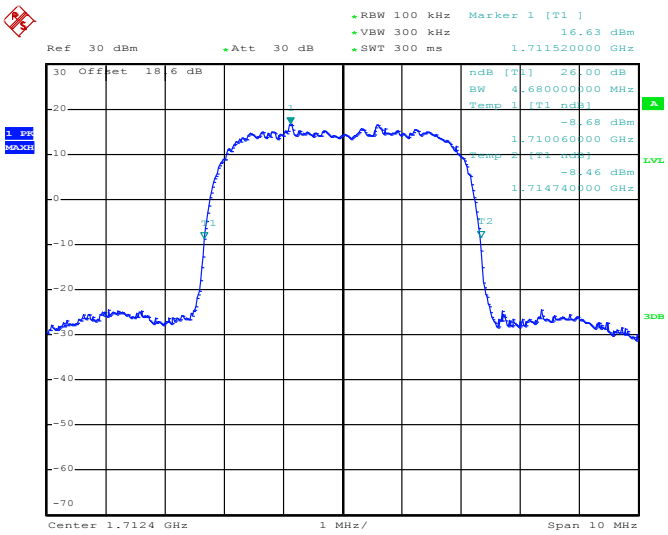
26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



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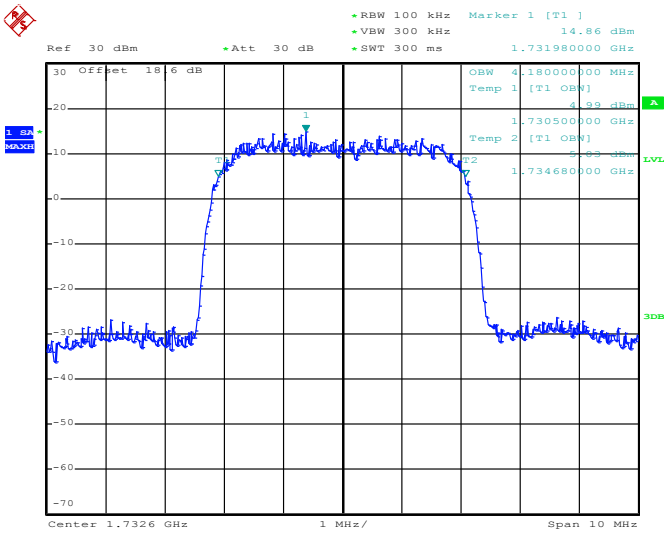
99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



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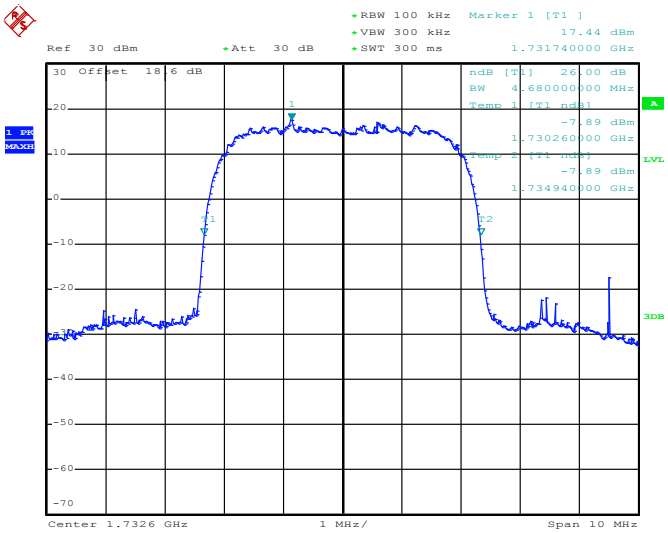
26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)



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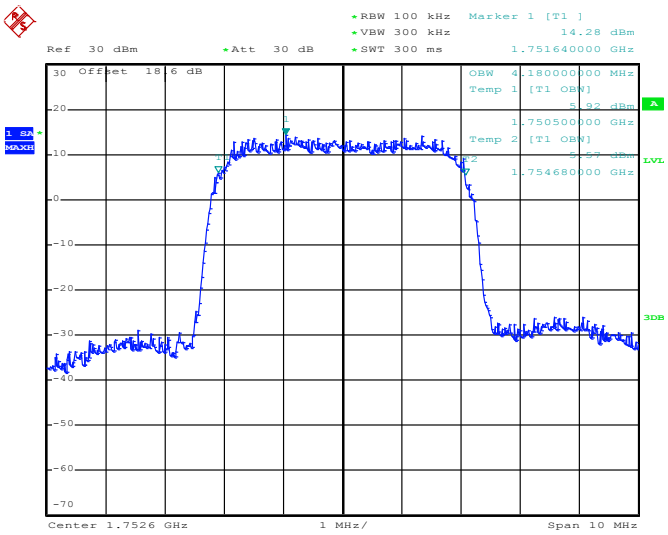
99% Occupied Bandwidth Plot on Channel 1513 (1752.6 MHz)



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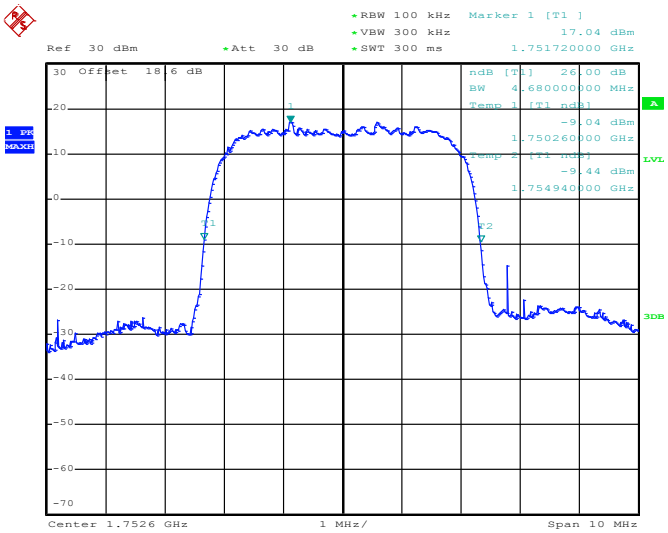
26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)



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3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

3.5.2 Measuring Instruments

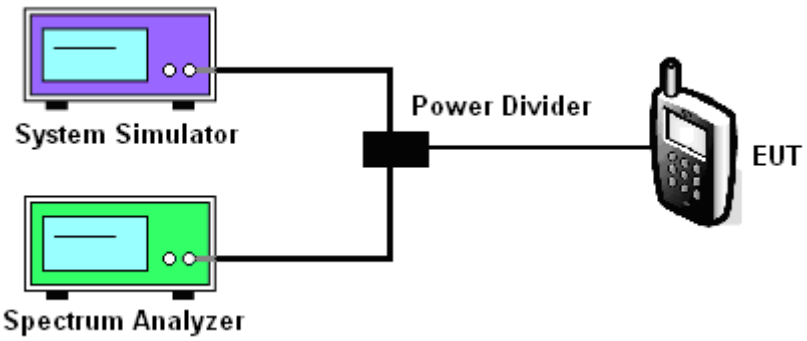
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.5.4 Test Setup

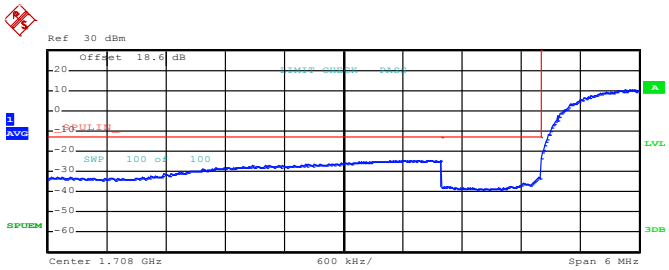
<Conducted Band Edge >



3.5.5 Test Result (Plots) of Conducted Band Edge

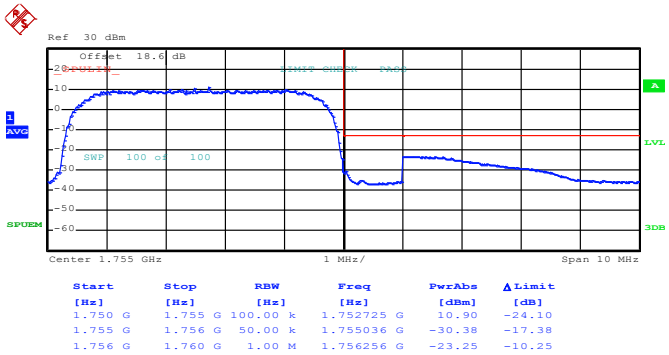
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



Date: 31.AUG.2014 10:06:23

Higher Band Edge Plot on Channel 1513 (1752.6 MHz)



Date: 31.AUG.2014 09:45:19

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

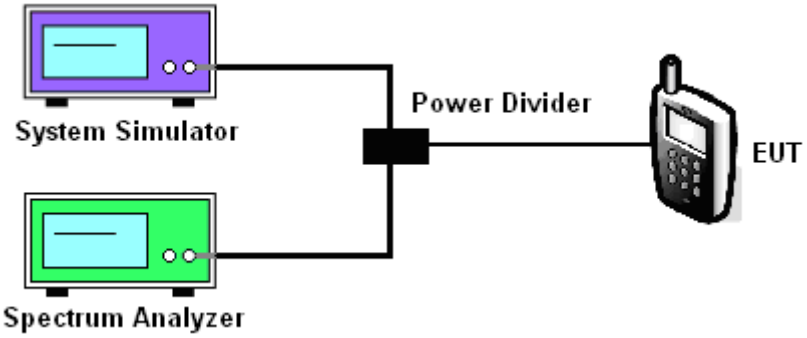
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

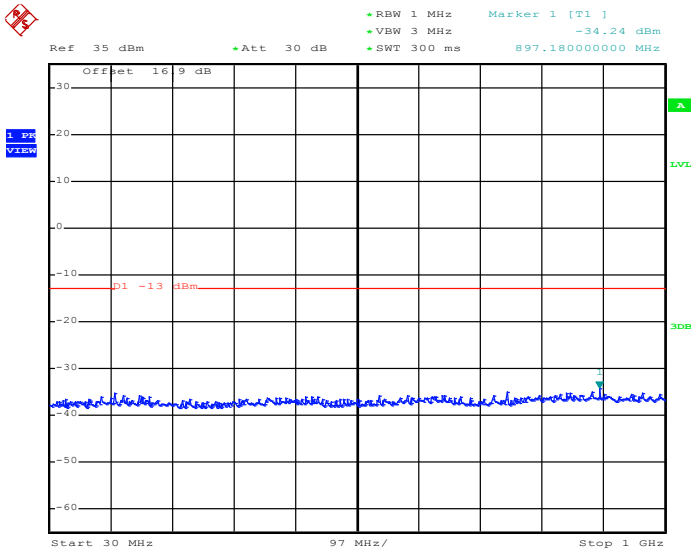
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

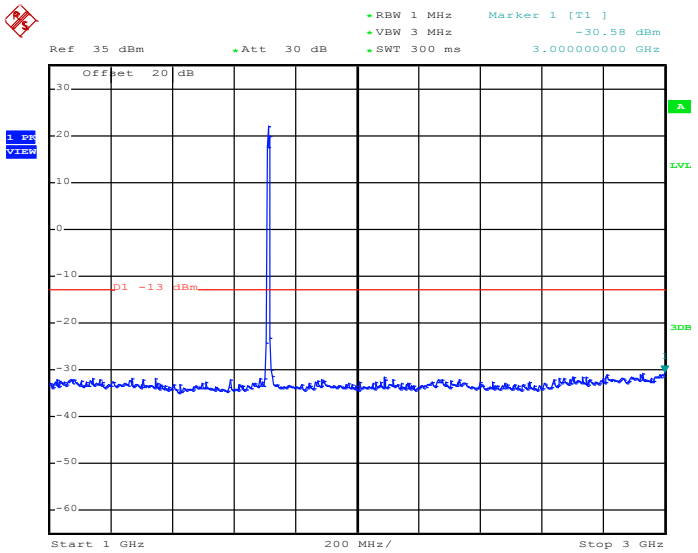
Band :	WCDMA Band IV	Channel :	CH1312
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1712.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



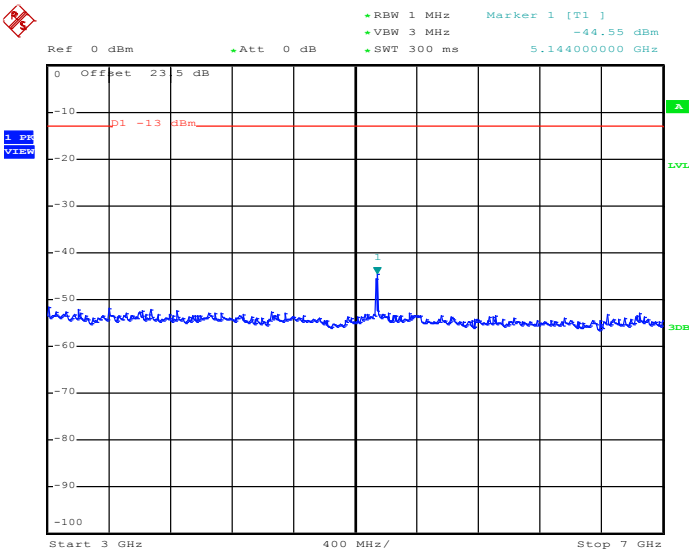
Date: 31.AUG.2014 10:47:25

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



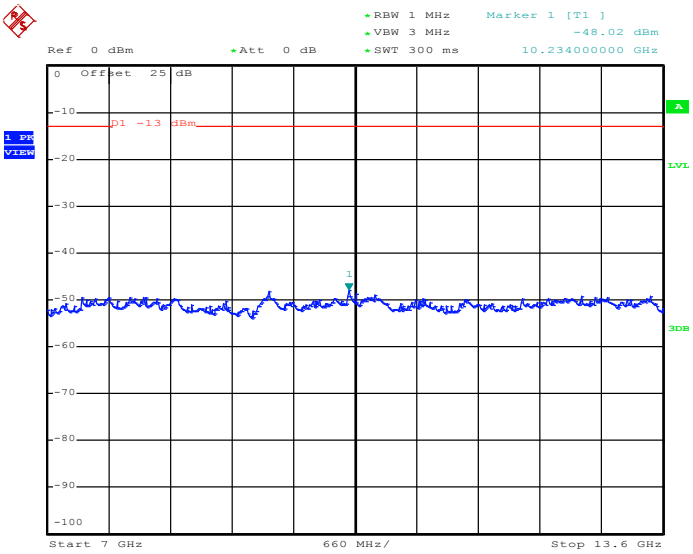
Date: 31.AUG.2014 10:47:33

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



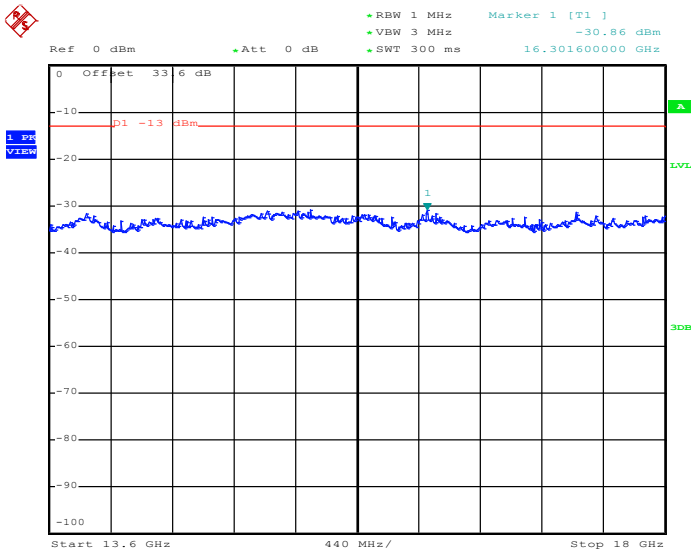
Date: 31.AUG.2014 10:47:54

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 31.AUG.2014 10:48:02

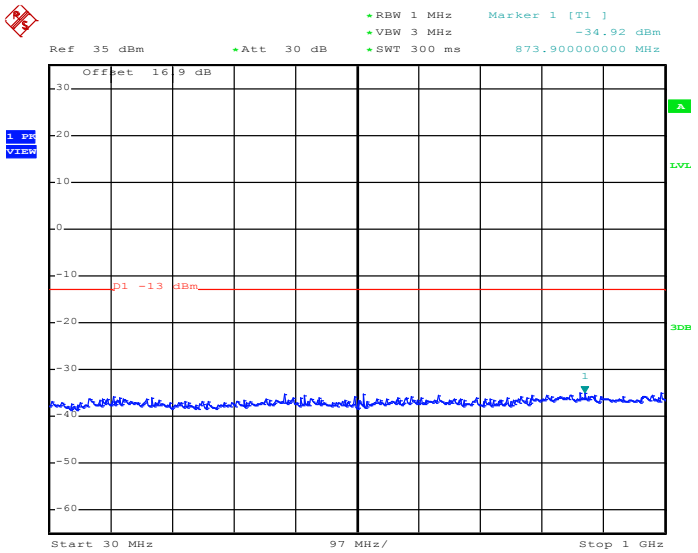
Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



Date: 31.AUG.2014 10:48:11

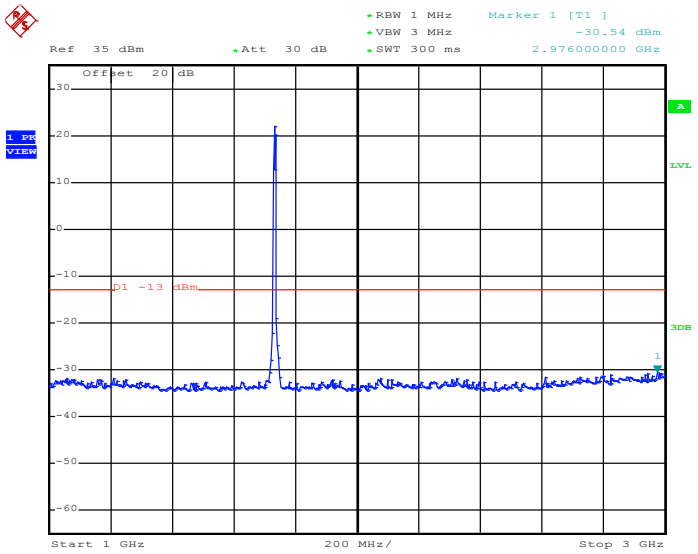
Band :	WCDMA Band IV	Channel :	CH1413
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1732.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



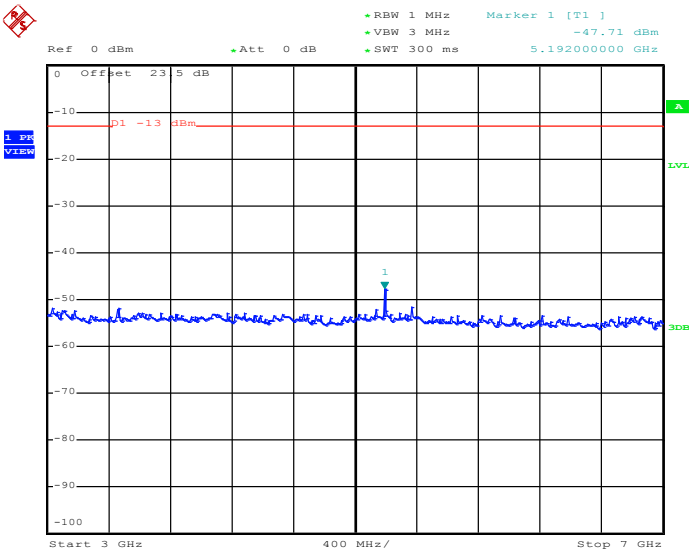
Date: 31.AUG.2014 10:45:13

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



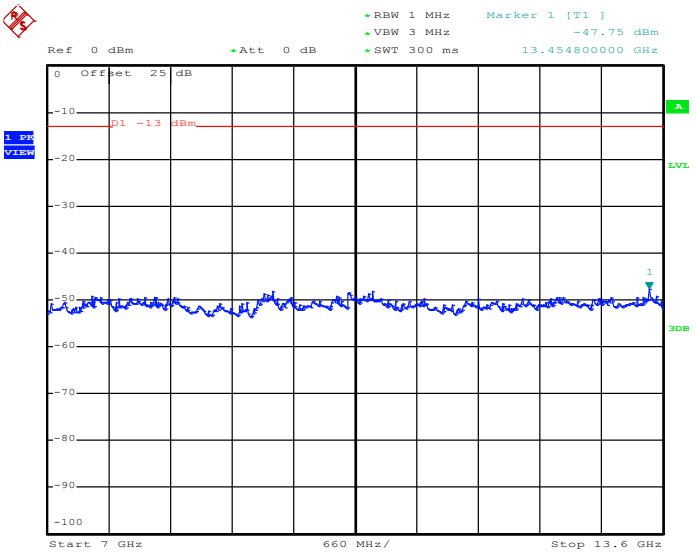
Date: 31.AUG.2014 10:45:22

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



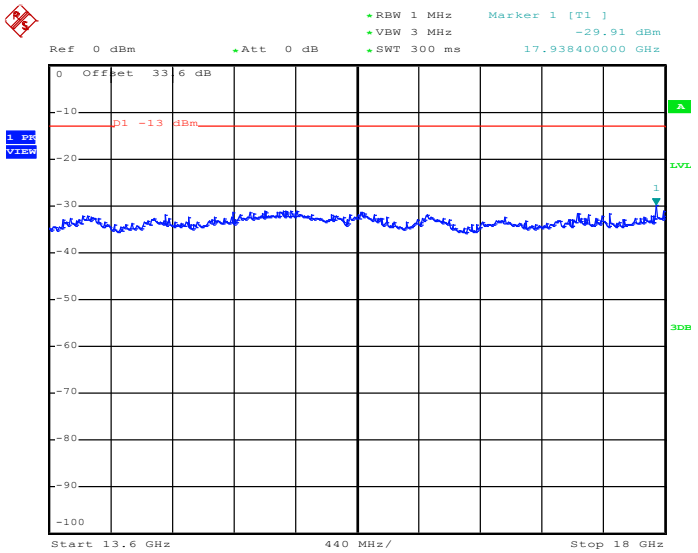
Date: 31.AUG.2014 10:45:40

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 31.AUG.2014 10:45:48

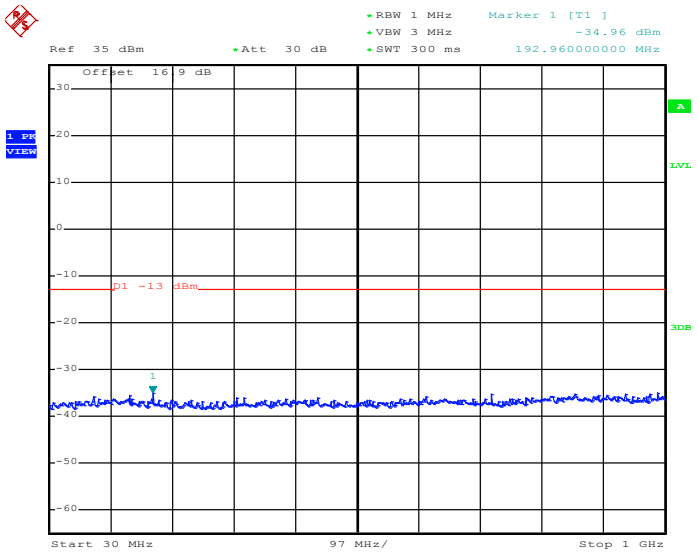
Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



Date: 31.AUG.2014 10:45:57

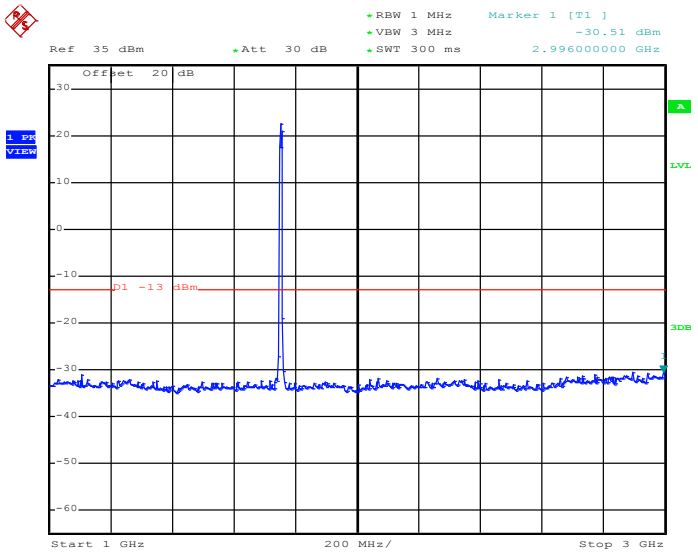
Band :	WCDMA Band IV	Channel :	CH1513
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1752.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



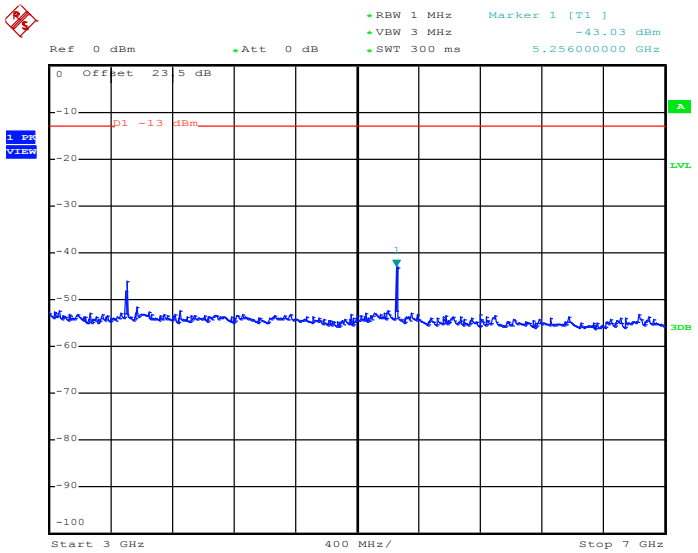
Date: 31.AUG.2014 10:50:08

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



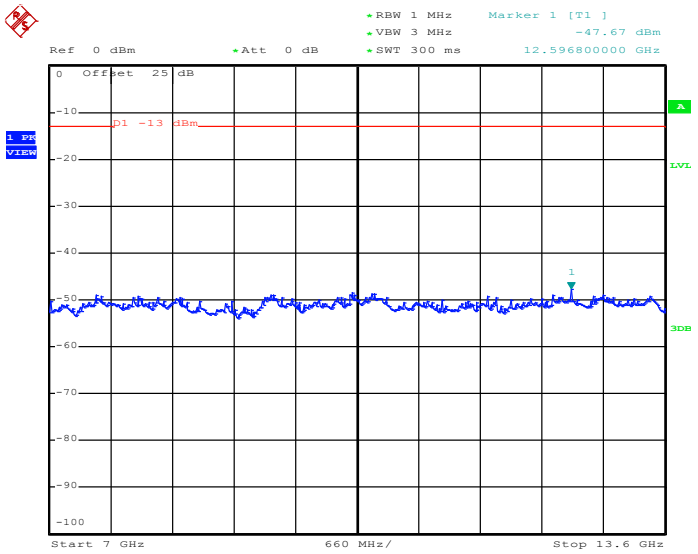
Date: 31.AUG.2014 10:50:16

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



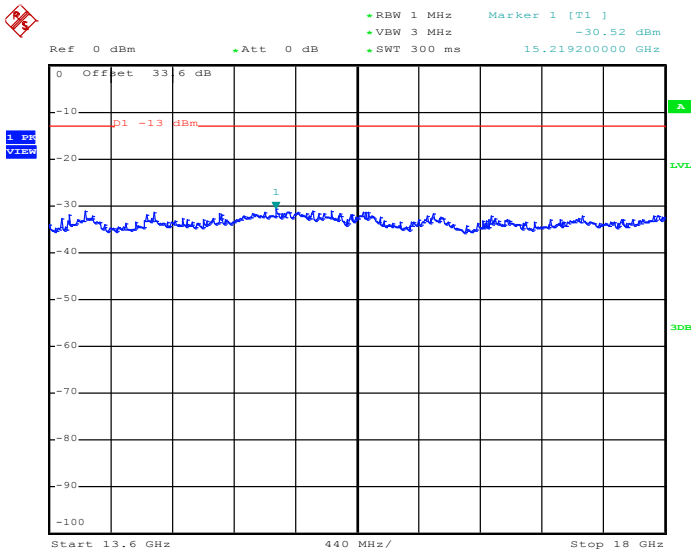
Date: 31.AUG.2014 10:50:32

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 31.AUG.2014 10:50:41

Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



Date: 31.AUG.2014 10:50:49

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

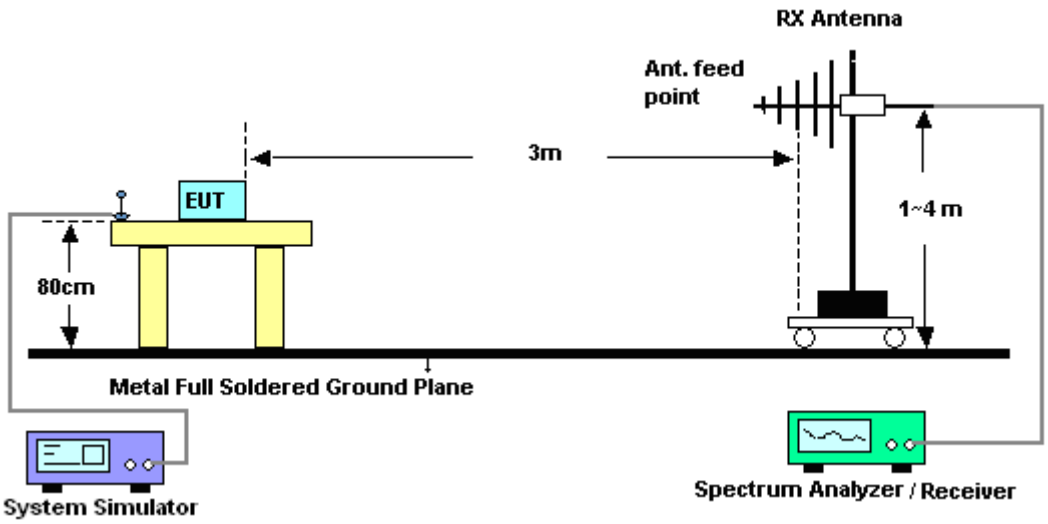
    = P(W) - [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

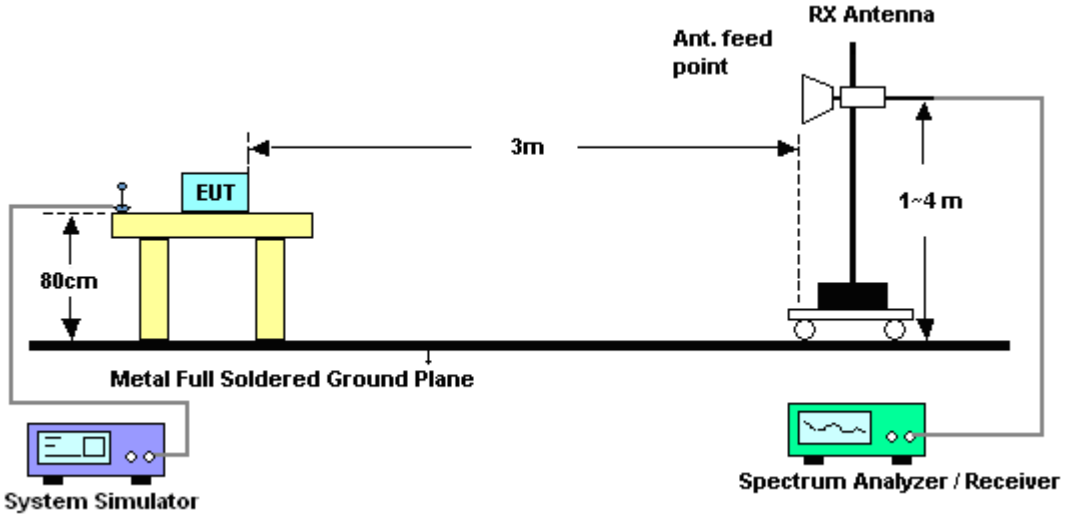
    = -13dBm.

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3427	-51.83	-13	-38.83	-65.66	-57.93	1.58	7.68	H	Pass
5137	-48.79	-13	-35.79	-67.16	-56.07	2.42	9.70	H	Pass
6849	-41.83	-13	-28.83	-66.84	-49.81	2.64	10.62	H	Pass

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3427	-51.19	-13	-38.19	-66.47	-57.29	1.58	7.68	V	Pass
5137	-48.94	-13	-35.94	-67.2	-56.22	2.42	9.70	V	Pass
6849	-42.35	-13	-29.35	-66.75	-50.33	2.64	10.62	V	Pass

<Middle Channel>

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3462	-51.88	-13	-38.88	-65.55	-58.12	1.59	7.83	H	Pass
5197	-48.38	-13	-35.38	-66.71	-55.63	2.45	9.70	H	Pass
6930	-41.11	-13	-28.11	-66.78	-49.21	2.61	10.72	H	Pass

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3462	-51.98	-13	-38.98	-66.85	-58.22	1.59	7.83	V	Pass
5197	-48.18	-13	-35.18	-66.77	-55.43	2.45	9.70	V	Pass
6930	-42.01	-13	-29.01	-66.74	-50.11	2.61	10.72	V	Pass

<High Channel>

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3504	-51.72	-13	-38.72	-66.07	-58.12	1.61	8.00	H	Pass
5257	-48.80	-13	-35.80	-67.28	-56.01	2.49	9.70	H	Pass
7010	-41.60	-13	-28.60	-67.54	-49.83	2.59	10.82	H	Pass

Band :	WCDMA Band IV	**Temperature :**	23~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	46~48%
Test Engineer :	Derreck Chen	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3504	-50.81	-13	-37.81	-66.18	-57.21	1.61	8.00	V	Pass
5257	-48.08	-13	-35.08	-66.84	-55.29	2.49	9.70	V	Pass
7010	-41.95	-13	-28.95	-66.89	-50.18	2.59	10.82	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

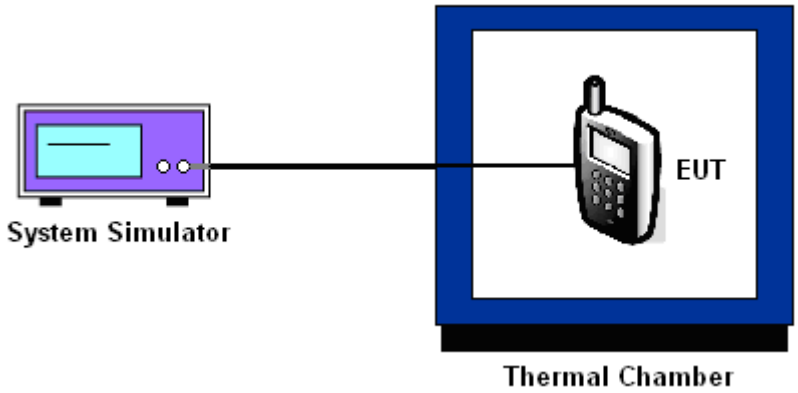
3.8.3 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r01 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.4 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r01 Section 9.0.
2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Band :	WCDMA Band IV	Channel :	1413
Limit (ppm) :	within authorized band	Frequency :	1732.6 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	-10	0.0023	PASS
40	-9	0.0017	
30	-7	0.0006	
20(Ref.)	-6	0.0000	
10	-8	0.0012	
0	-9	0.0017	
-10	-11	0.0029	
-20	-10	0.0023	
-30	-12	0.0035	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
WCDMA Band IV CH1413	RMC 12.2Kbps	4.35	-7	0.0006	Note 3.	PASS
		3.90	-6	0.0000		
		BEP	-9	0.0017		

Note:

1. Normal Voltage = 3.90V.
2. Battery End Point (BEP) = 3.40 V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Aug. 31, 2014	Jun. 08, 2015	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 17, 2014	Aug. 31, 2014	Jul. 16, 2015	Conducted (TH02-HY)
LTE Base Station	Anritsu	MT8820C	6201026480	30MHz~2.7GHz SISO (FDD Band 1~26)	Jan. 07, 2014	Aug. 31, 2014	Jan. 06, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Sep. 16, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Sep. 16, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 19, 2014	Sep. 16, 2014	Aug. 18, 2015	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Sep. 16, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Sep. 16, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Sep. 16, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Sep. 16, 2014	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Sep. 16, 2014	Oct. 02, 2014	Radiation (03CH07-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 23, 2014	Sep. 16, 2014	May 22, 2015	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00066583	1GHz~18GHz	Jul. 24, 2014	Sep. 16, 2014	Jul. 23, 2015	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.50**

Appendix A. Original Report

Please refer to Sporton report number FG462024A as below.

FCC RF Test Report

APPLICANT	:	Motorola Mobility, LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola Mobility, LLC
MODEL NAME	:	3584
FCC ID	:	IHDT56PK1
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 20, 2014 and testing was completed on Sep. 07, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG462024A	Rev. 01	Initial issue of report	Aug. 08, 2014
FG462024A	Rev. 02	HW changes made to increase network link performance. Updated test results to reflect new performance characteristics.	Sep. 11, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	N/A	PASS	-
3.2	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
3.3	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b)	Occupied Bandwidth	N/A	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a)	Conducted Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 26.49 dB at 3817.000 MHz
3.8	§2.1055 §22.355 §24.235	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22.355 Emission must remain In-band for 24.235	PASS	-

1 General Description

1.1 Applicant

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.2 Manufacturer

Motorola Mobility, LLC
222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola Mobility, LLC
Model Name	3584
FCC ID	IHDT56PK1
IMEI Code	1. 990005110019875 2. 990005280013831
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/NFC 2.4GHz WLAN 11b/g/n HT20 WLAN 11ac VHT20 5GHz WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 EDR Bluetooth v4.0 - LE
HW Version	P2
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Accessory List		
AC Adapter	Brand Name :	Turbo Charger (Motorola)
	Model Name :	SPN5864A
USB Cable	Brand Name :	Motorola (shielded)
	Model Name :	SKN6461A
Battery	Brand Name :	Motorola
	Model Name :	EQ40

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz CDMA2000 BC0: 824.70 MHz ~ 848.31 MHz CDMA2000 BC1: 1851.25 MHz ~ 1908.75 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz CDMA2000 BC0: 869.70 MHz ~ 893.31 MHz CDMA2000 BC1: 1931.25 MHz ~ 1988.75 MHz
Maximum Output Power to Antenna	GSM850 : 32.42 dBm GSM1900 : 29.38 dBm WCDMA Band V : 22.44 dBm WCDMA Band II : 22.65 dBm CDMA2000 BC0 : 24.11 dBm CDMA2000 BC1 : 24.34 dBm
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) CDMA2000 : QPSK CDMA2000 1xEV-DO : QPSK/8PSK

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GPRS class 8	GMSK	0.428	0.0108 ppm	246KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.138	0.0084 ppm	246KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.042	0.0060 ppm	4M18F9W
Part 22	CDMA2000 BC0 1xEV-DO Rev. A	QPSK	0.075	0.0299 ppm	1M28F9W
Part 22	CDMA2000 BC0 1xRTT	QPSK	0.084	-	1M28F9W
Part 24	GSM1900 GSM	GMSK	0.897	0.0053 ppm	248KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.406	0.0027 ppm	246KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.180	0.0048 ppm	4M18F9W
Part 24	CDMA2000 BC1 1xEV-DO Rev. A	QPSK	0.317	0.0053 ppm	1M28F9W
Part 24	CDMA2000 BC1 1xRTT	QPSK	0.317	-	1M28F9W

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	**Sporton Site No.**	
	TH02-HY	03CH07-HY

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR Part 2, 22(H), 24(E)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01
- KDB 648474 D03 Handset Wireless Chargers Battery Covers v01r02

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850, WCDMA Band V, and CDMA2000 BC0.
2. 30 MHz to 19000 MHz for GSM1900, WCDMA Band II, and CDMA2000 BC1.

All modes and data rates and positions were investigated, and found that EUT without the wireless power charger as the worst case test configuration.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 Link ■ EDGE class 8 Link
GSM 1900	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
CDMA2000 BC0	■ 1xEV-DO Rev. A Link Mode ■ 1xRTT Link Mode	■ 1xEV-DO Rev. A Link Mode ■ 1xRTT Link Mode
CDMA2000 BC1	■ 1xEV-DO Rev. A Link Mode ■ 1xRTT Link Mode	■ 1xEV-DO Rev. A Link Mode ■ 1xRTT Link Mode

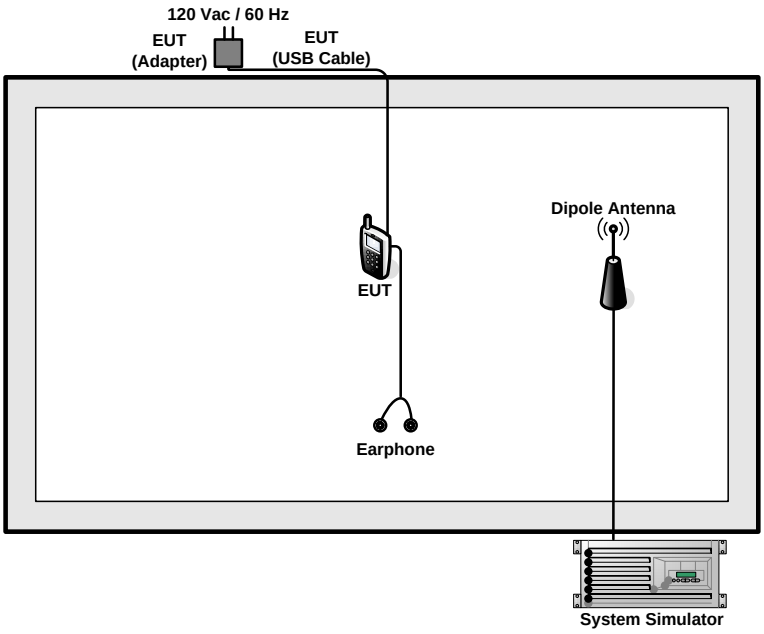
Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	32.40	32.41	32.37	29.34	29.38	29.34
GPRS class 8	32.40	32.42	32.40	29.35	29.37	29.36
GPRS class 10	29.27	29.18	29.34	26.62	26.65	26.56
GPRS class 11	27.54	27.56	27.60	24.86	24.94	24.81
GPRS class 12	26.31	26.33	26.34	23.36	23.55	23.43
EGPRS class 8	26.61	26.56	26.58	25.71	25.70	25.58
EGPRS class 10	23.71	23.71	23.62	22.85	22.84	22.74
EGPRS class 11	21.94	21.94	21.91	21.31	21.29	21.22
EGPRS class 12	20.95	20.93	20.81	20.35	20.27	20.01

Conducted Power (*Unit: dBm)						
Band	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538
Frequency	826.4	836.4	846.6	1852.4	1880.0	1907.6
RMC 12.2K	22.19	22.44	22.31	22.42	22.65	22.36
HSDPA Subtest-1	21.03	21.24	21.18	21.34	21.65	21.36
HSDPA Subtest-2	21.00	21.20	21.17	21.43	21.67	21.45
HSDPA Subtest-3	21.00	21.23	21.14	20.93	21.16	20.88
HSDPA Subtest-4	20.99	21.09	21.19	20.92	21.17	20.88
HSUPA Subtest-1	21.28	21.34	21.39	21.22	21.40	21.17
HSUPA Subtest-2	20.56	20.73	20.77	20.03	20.14	20.34
HSUPA Subtest-3	20.38	20.53	20.57	20.42	20.66	20.34
HSUPA Subtest-4	20.97	21.27	21.26	20.62	20.10	20.27
HSUPA Subtest-5	21.55	21.71	21.69	21.03	21.14	21.08

Conducted Power (*Unit: dBm)						
Band	CDMA2000 BC0			CDMA2000 BC1		
Channel	1013	384	777	25	600	1175
Frequency	824.7	836.52	848.31	1851.25	1880	1908.75
1xRTT RC1 SO55	23.96	24.01	24.04	24.24	24.27	23.98
1xRTT RC3 SO55	23.93	23.96	24.03	24.19	24.23	23.99
1xRTT RC3 SO32(+ F-SCH)	23.95	23.96	24.01	24.17	24.21	23.98
1xRTT RC3 SO32(+SCH)	23.95	23.97	24.02	24.13	24.22	23.97
1xEV-DO RTAP 153.6kbps	24.01	24.04	24.09	24.30	24.33	24.03
1xEV-DO RETAP 4096Bits	24.04	24.09	24.11	24.32	24.34	24.08

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	CHARGER PAD	SAMSUNG	EP-P100IEWE	A3LEPP100IJWU	N/A	shielded, 1.5 m
3.	Earphone	Motorola	SJYN1181B	Verification	Unshielded, 1.25 m	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 4.2 dB and a 10dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

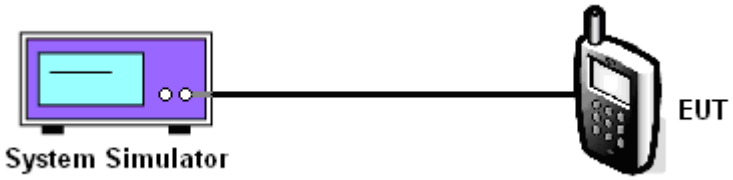
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

3.1.4 Test Setup



3.1.5 Test Result of Conducted Output Power

Cellular Band						
Modes	GSM850 (GPRS class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	826.4	836.4	846.6
Conducted Power (dBm)	32.40	32.42	32.40	22.19	22.44	22.31

PCS Band						
Modes	GSM1900 (GSM)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1852.4	1880	1907.6
Conducted Power (dBm)	29.34	29.38	29.34	22.42	22.65	22.36

CDMA2000 BC0			
Test Mode	CDMA 2000 1xEV-DO Rev. A		
Test Status	RETAP 4096K		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Conducted Power (dBm)	24.04	24.09	24.11

CDMA2000 BC0			
Modes	CDMA 2000 1xRTT		
Test Status	RC1+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Conducted Power (dBm)	23.96	24.01	24.04

CDMA2000 BC1			
Test Mode	**CDMA 2000 1xEV-DO Rev. A**		
Test Status	**RETAP 4096K**		
Channel	**25 (Low)**	**600 (Mid)**	**1175 (High)**
Frequency (MHz)	**1851.25**	**1880.00**	**1908.75**
Conducted Power (dBm)	24.32	24.34	24.08

CDMA2000 BC1			
Modes	**CDMA 2000 1xRTT**		
Test Status	**RC1+SO55**		
Channel	**25 (Low)**	**600 (Mid)**	**1175 (High)**
Frequency (MHz)	**1851.25**	**1880.00**	**1908.75**
Conducted Power (dBm)	24.24	24.27	23.98

Note: maximum burst average power for GSM, and maximum average power for WCDMA and CDMA2000.

3.2 Peak-to-Average Ratio

3.2.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

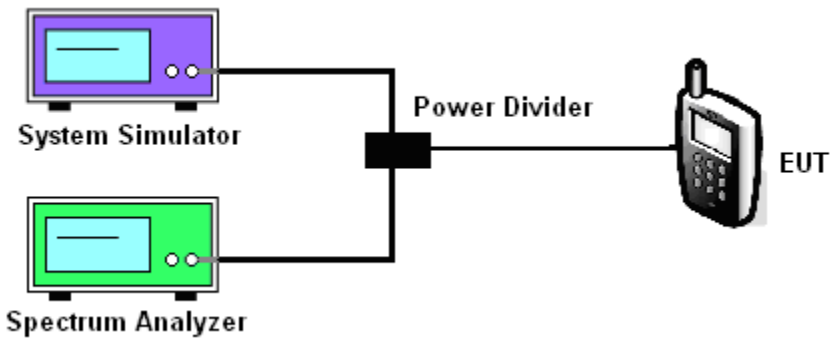
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.7.1.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. Set EUT to transmit at maximum output power.
4. For GSM/EGPRS operating modes, signal gating is implemented on the spectrum analyzer by triggering from the system simulator.
5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

Cellular Band									
Modes	GSM850 (GPRS class 8)			GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)		
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6
Peak-to-Average Ratio (dB)	0.28	0.24	0.24	3.24	3.20	3.16	3.12	3.20	3.28

PCS Band									
Modes	GSM1900 (GSM)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.32	0.24	0.28	3.24	3.04	3.12	3.20	3.16	3.24

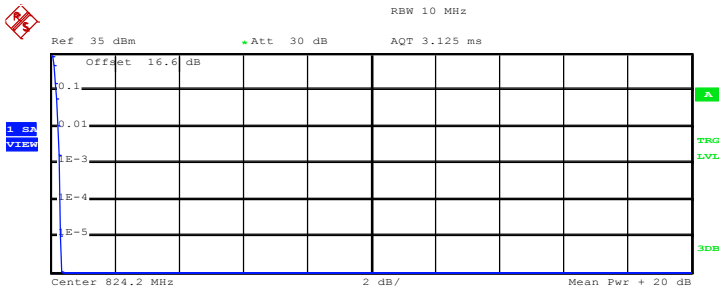
CDMA2000 BC0			
Modes	CDMA 2000 1xEV-DO Rev. A		
Test Status	RETAP 4096K		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Peak-to-Average Ratio (dB)	4.56	3.88	3.88
Modes	CDMA 2000 1xRTT		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
Peak-to-Average Ratio (dB)	4.52	3.96	3.96

CDMA2000 BC1			
Modes	CDMA 2000 1xEV-DO Rev. A		
Test Status	RETAP 4096K		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
Peak-to-Average Ratio (dB)	4.60	4.52	3.40
Modes	CDMA 2000 1xRTT		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880	1908.75
Peak-to-Average Ratio (dB)	4.64	4.48	4.20

3.2.6 Test Result (Plots) of Peak-to-Average Ratio

Band :	GSM 850	Test Mode :	GPRS class 8 Link (GMSK)

Peak-to-Average Ratio on Channel 128 (824.2 MHz)

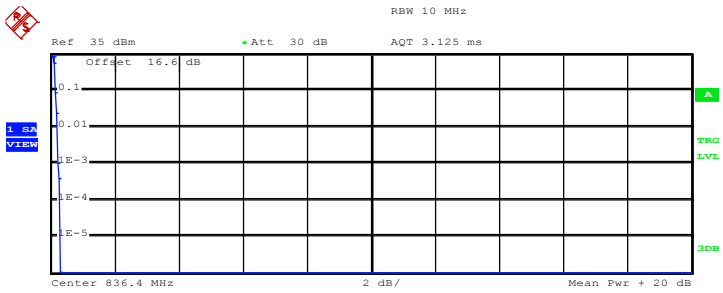


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	32.00 dBm
Peak	32.36 dBm
Crest	0.36 dB
10 %	0.20 dB
1 %	0.24 dB
.1 %	0.28 dB
.01 %	0.32 dB

Date: 18.JUL.2014 09:20:27

Peak-to-Average Ratio on Channel 189 (836.4 MHz)

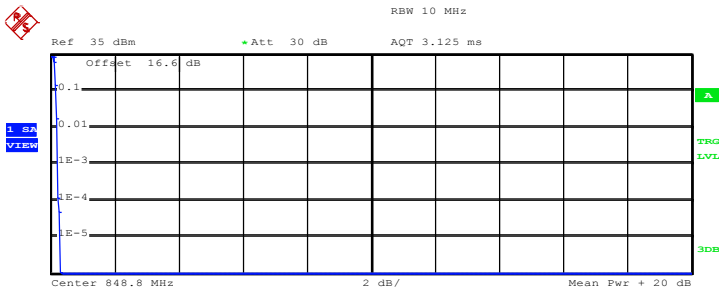


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	32.13 dBm
Peak	32.43 dBm
Crest	0.30 dB
10 %	0.16 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.32 dB

Date: 18.JUL.2014 09:20:55

Peak-to-Average Ratio on Channel 251 (848.8 MHz)



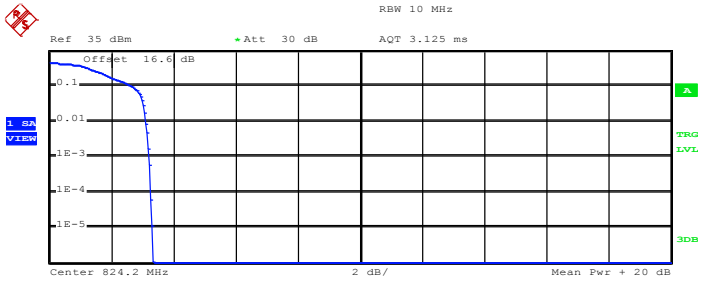
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	31.98 dBm
Peak	32.29 dBm
Crest	0.31 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 18.JUL.2014 09:21:26

Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)

Peak-to-Average Ratio on Channel 128 (824.2 MHz)

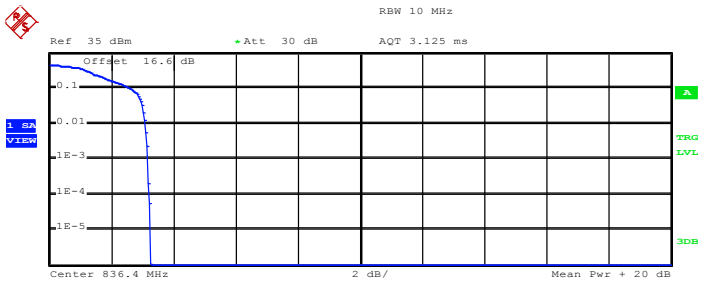


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.00 dBm
Peak	29.33 dBm
Crest	3.32 dB
10 %	2.68 dB
1 %	3.12 dB
.1 %	3.24 dB
.01 %	3.28 dB

Date: 18.JUL.2014 09:54:30

Peak-to-Average Ratio on Channel 189 (836.4 MHz)

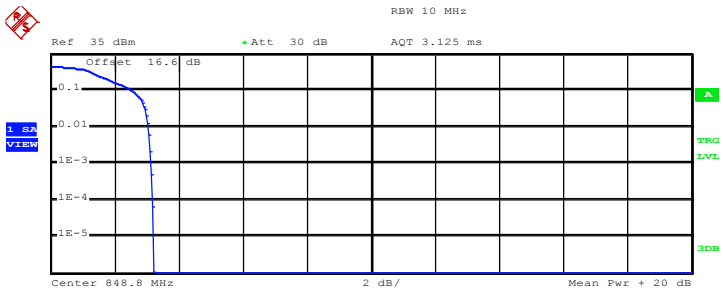


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.36 dBm
Peak	29.61 dBm
Crest	3.25 dB
10 %	2.64 dB
1 %	3.08 dB
.1 %	3.20 dB
.01 %	3.24 dB

Date: 18.JUL.2014 09:55:13

Peak-to-Average Ratio on Channel 251 (848.8 MHz)



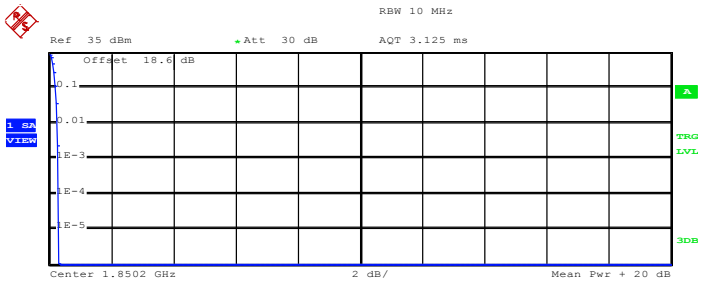
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	26.52 dBm
Peak	29.75 dBm
Crest	3.23 dB
10 %	2.56 dB
1 %	3.04 dB
.1 %	3.16 dB
.01 %	3.20 dB

Date: 18.JUL.2014 09:56:06

Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

Peak-to-Average Ratio on Channel 512 (1850.2 MHz)

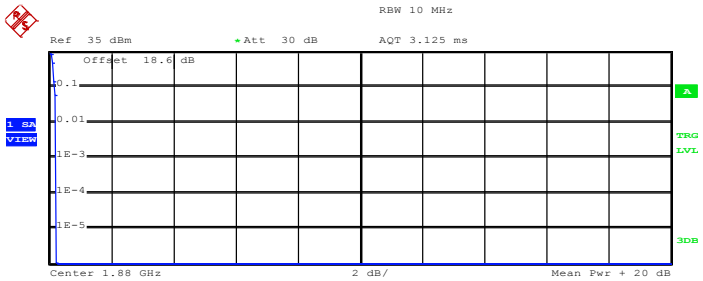


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	29.26 dBm
Peak	29.54 dBm
Crest	0.28 dB
10 %	0.20 dB
1 %	0.28 dB
.1 %	0.32 dB
.01 %	0.32 dB

Date: 18.JUL.2014 11:02:25

Peak-to-Average Ratio on Channel 661 (1880.0 MHz)

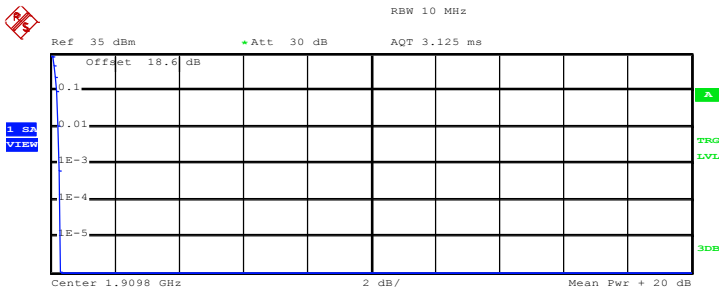


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	29.59 dBm
Peak	29.82 dBm
Crest	0.23 dB
10 %	0.20 dB
1 %	0.24 dB
.1 %	0.24 dB
.01 %	0.24 dB

Date: 18.JUL.2014 11:02:51

Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



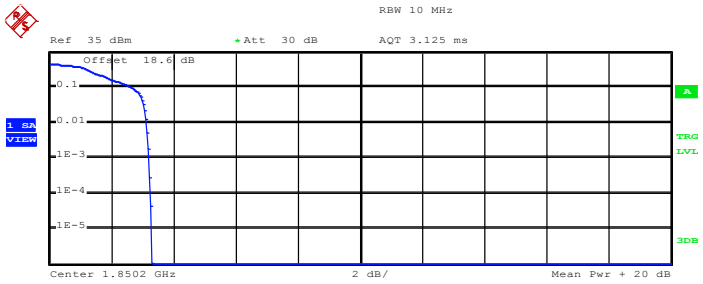
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	29.22 dBm
Peak	29.54 dBm
Crest	0.31 dB
10 %	0.20 dB
1 %	0.24 dB
.1 %	0.28 dB
.01 %	0.32 dB

Date: 18.JUL.2014 11:03:16

Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)

Peak-to-Average Ratio on Channel 512 (1850.2 MHz)

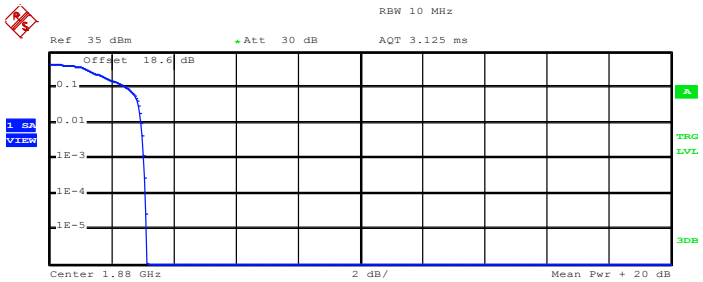


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.27 dBm
Peak	28.55 dBm
Crest	3.28 dB
10 %	2.68 dB
1 %	3.12 dB
.1 %	3.24 dB
.01 %	3.28 dB

Date: 18.JUL.2014 11:36:32

Peak-to-Average Ratio on Channel 661 (1880.0 MHz)

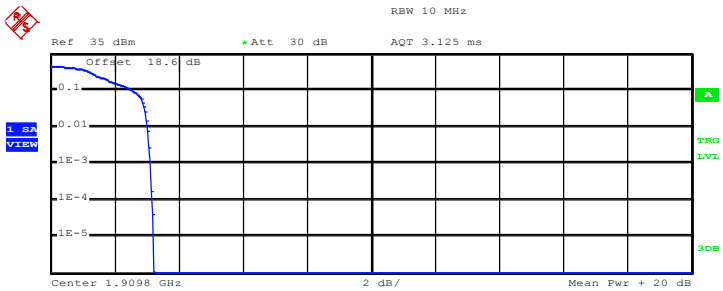


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.89 dBm
Peak	29.04 dBm
Crest	3.15 dB
10 %	2.52 dB
1 %	2.96 dB
.1 %	3.04 dB
.01 %	3.12 dB

Date: 18.JUL.2014 11:37:18

Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



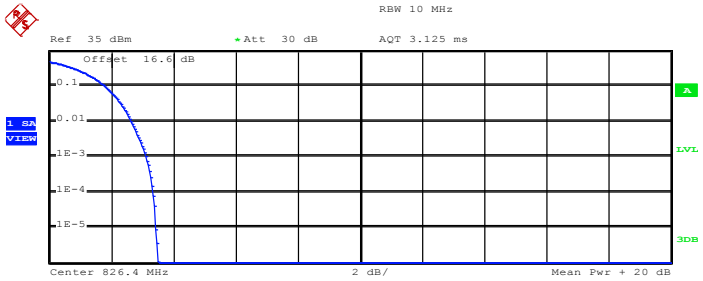
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	25.27 dBm
Peak	28.48 dBm
Crest	3.21 dB
10 %	2.60 dB
1 %	3.04 dB
.1 %	3.12 dB
.01 %	3.20 dB

Date: 18.JUL.2014 11:37:52

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

Peak-to-Average Ratio on Channel 4132 (826.4 MHz)

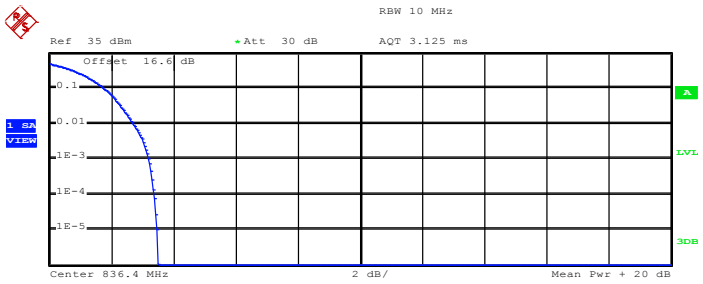


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.02 dBm
Peak	25.52 dBm
Crest	3.50 dB
10 %	1.80 dB
1 %	2.64 dB
.1 %	3.12 dB
.01 %	3.36 dB

Date: 18.JUL.2014 13:27:38

Peak-to-Average Ratio on Channel 4182 (836.4 MHz)

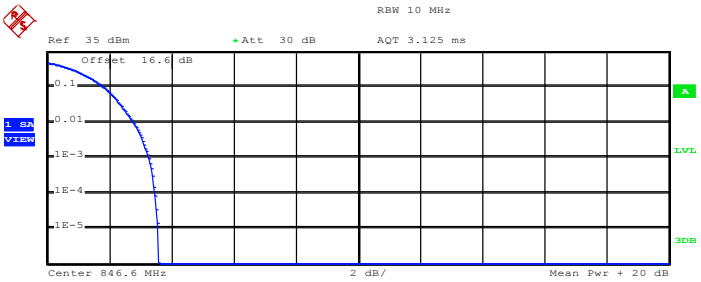


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.09 dBm
Peak	25.59 dBm
Crest	3.50 dB
10 %	1.76 dB
1 %	2.72 dB
.1 %	3.20 dB
.01 %	3.40 dB

Date: 18.JUL.2014 13:28:10

Peak-to-Average Ratio on Channel 4233 (846.6 MHz)



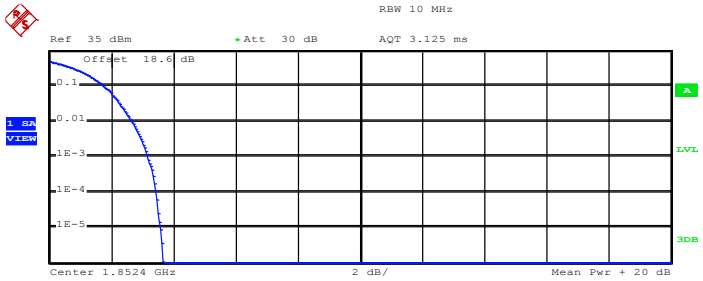
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.08 dBm
Peak	25.66 dBm
Crest	3.58 dB
10 %	1.84 dB
1 %	2.80 dB
.1 %	3.28 dB
.01 %	3.48 dB

Date: 18.JUL.2014 13:28:41

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)

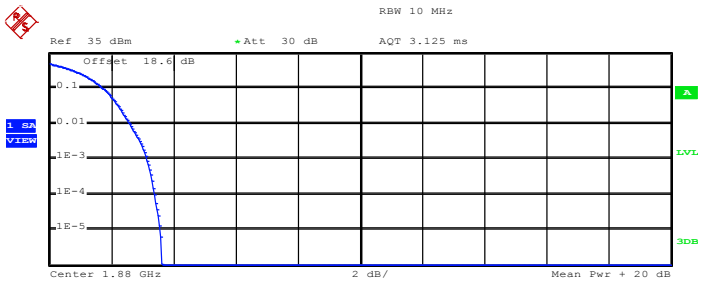


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.42 dBm
Peak	26.08 dBm
Crest	3.66 dB
10 %	1.76 dB
1 %	2.68 dB
.1 %	3.20 dB
.01 %	3.44 dB

Date: 18.JUL.2014 12:58:24

Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)

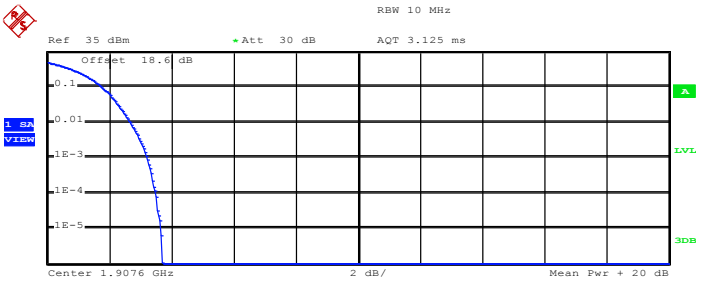


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.01 dBm
Peak	26.65 dBm
Crest	3.64 dB
10 %	1.76 dB
1 %	2.60 dB
.1 %	3.16 dB
.01 %	3.40 dB

Date: 18.JUL.2014 12:58:50

Peak-to-Average Ratio on Channel 9538 (1907.6 MHz)



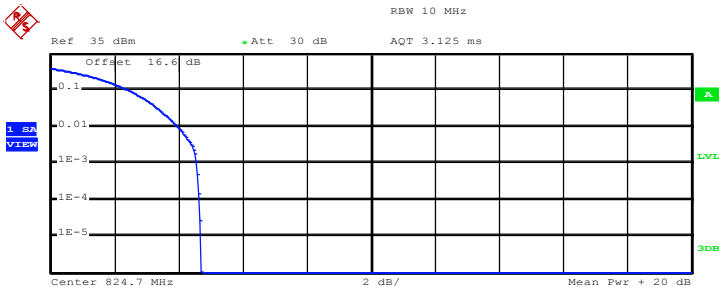
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	22.38 dBm
Peak	26.08 dBm
Crest	3.70 dB
10 %	1.76 dB
1 %	2.68 dB
.1 %	3.24 dB
.01 %	3.48 dB

Date: 18.JUL.2014 12:59:31

Band :	CDMA2000 BC0	Test Mode :	1xEV-DO Rev. A Link (QPSK)

Peak-to-Average Ratio on Channel 1013 (824.70 MHz)

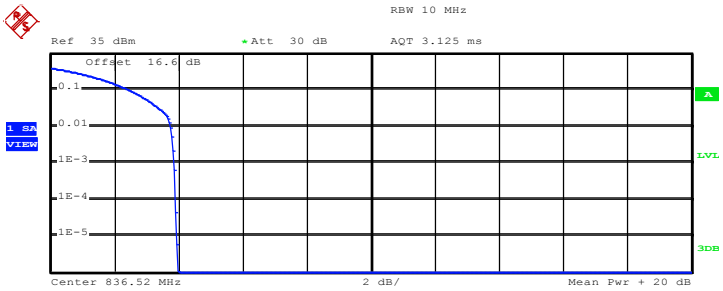


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.80 dBm
Peak	28.48 dBm
Crest	4.68 dB
10 %	2.48 dB
1 %	3.96 dB
.1 %	4.56 dB
.01 %	4.64 dB

Date: 18.JUL.2014 18:10:30

Peak-to-Average Ratio on Channel 384 (836.52 MHz)

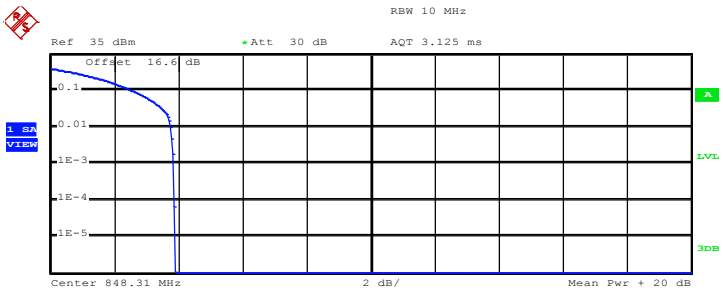


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.75 dBm
Peak	27.70 dBm
Crest	3.96 dB
10 %	2.48 dB
1 %	3.76 dB
.1 %	3.88 dB
.01 %	3.92 dB

Date: 18.JUL.2014 18:11:10

Peak-to-Average Ratio on Channel 777 (848.31 MHz)



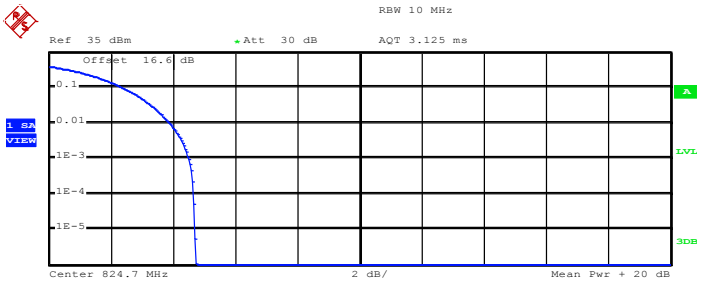
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.76 dBm
Peak	27.63 dBm
Crest	3.87 dB
10 %	2.60 dB
1 %	3.76 dB
.1 %	3.88 dB
.01 %	3.88 dB

Date: 18.JUL.2014 18:12:30

Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC1+SO55 (QPSK)

Peak-to-Average Ratio on Channel 1013 (824.70 MHz)

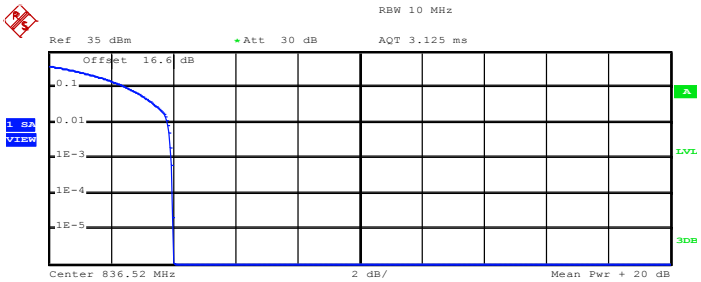


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.80 dBm
Peak	28.55 dBm
Crest	4.75 dB
10 %	2.44 dB
1 %	3.88 dB
.1 %	4.52 dB
.01 %	4.68 dB

Date: 19.JUL.2014 09:34:15

Peak-to-Average Ratio on Channel 384 (836.52 MHz)

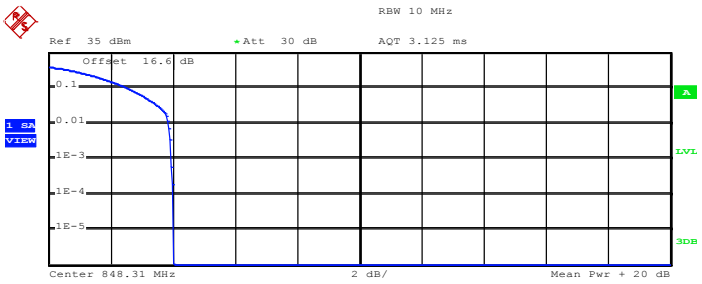


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.78 dBm
Peak	27.77 dBm
Crest	3.99 dB
10 %	2.56 dB
1 %	3.84 dB
.1 %	3.96 dB
.01 %	4.00 dB

Date: 19.JUL.2014 09:34:57

Peak-to-Average Ratio on Channel 777 (848.31 MHz)



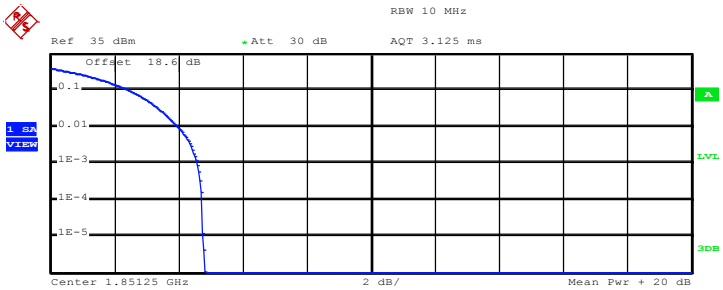
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.83 dBm
Peak	27.84 dBm
Crest	4.01 dB
10 %	2.60 dB
1 %	3.88 dB
.1 %	3.96 dB
.01 %	4.00 dB

Date: 19.JUL.2014 09:35:41

Band :	CDMA2000 BC1	Test Mode :	1xEV-DO Rev. A Link (QPSK)

Peak-to-Average Ratio on Channel 25 (1851.25 MHz)

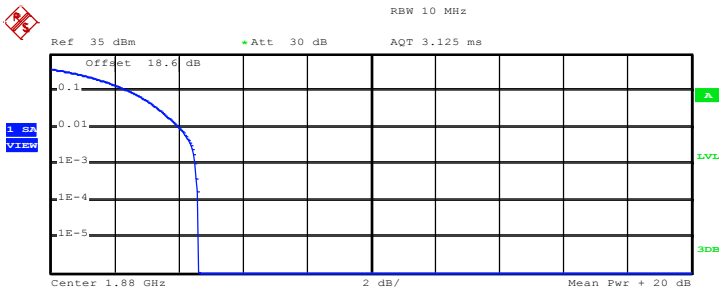


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.36 dBm
Peak	29.19 dBm
Crest	4.82 dB
10 %	2.48 dB
1 %	4.00 dB
.1 %	4.60 dB
.01 %	4.72 dB

Date: 19.JUL.2014 10:28:38

Peak-to-Average Ratio on Channel 600 (1880 MHz)

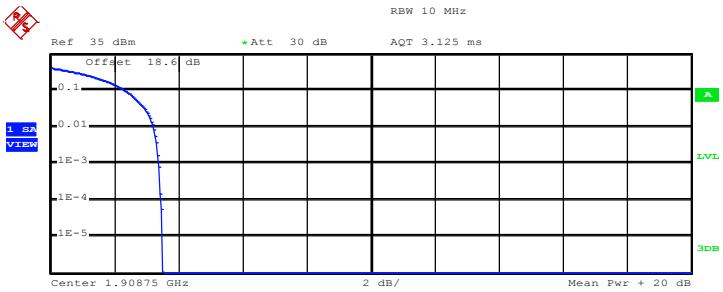


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.77 dBm
Peak	29.40 dBm
Crest	4.62 dB
10 %	2.52 dB
1 %	4.04 dB
.1 %	4.52 dB
.01 %	4.60 dB

Date: 19.JUL.2014 10:29:44

Peak-to-Average Ratio on Channel 1175 (1908.75 MHz)



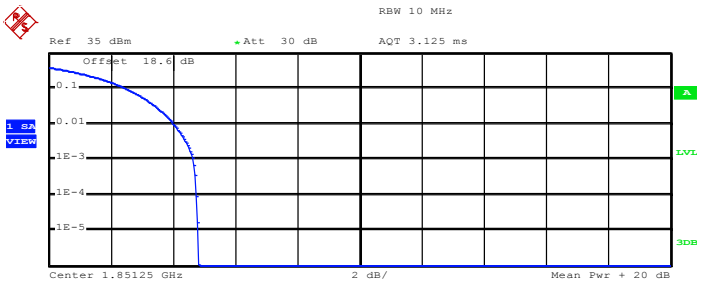
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.13 dBm
Peak	27.63 dBm
Crest	3.50 dB
10 %	2.36 dB
1 %	3.24 dB
.1 %	3.40 dB
.01 %	3.48 dB

Date: 19.JUL.2014 10:30:42

Band :	CDMA2000 BC1	Test Mode :	1xRTT_RC1+SO55 (QPSK)

Peak-to-Average Ratio on Channel 25 (1851.25 MHz)

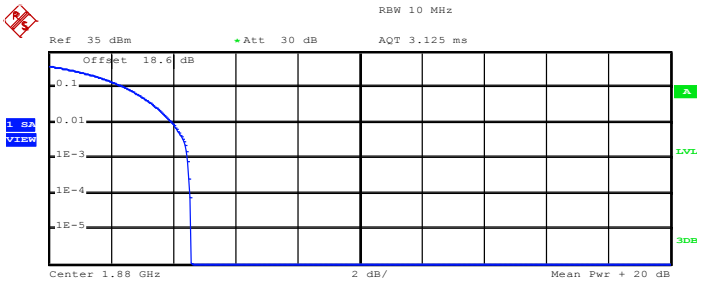


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.42 dBm
Peak	29.26 dBm
Crest	4.83 dB
10 %	2.56 dB
1 %	4.04 dB
.1 %	4.64 dB
.01 %	4.76 dB

Date: 19.JUL.2014 10:57:00

Peak-to-Average Ratio on Channel 600 (1880 MHz)

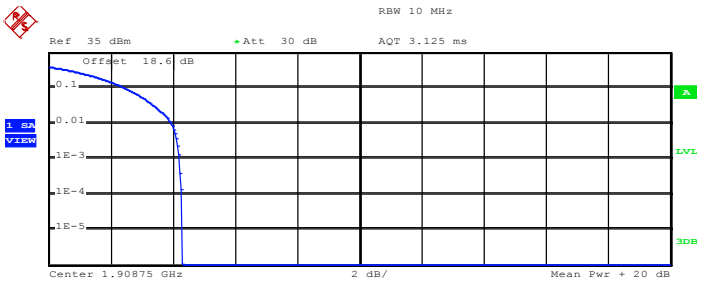


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.83 dBm
Peak	29.40 dBm
Crest	4.57 dB
10 %	2.48 dB
1 %	4.00 dB
.1 %	4.48 dB
.01 %	4.56 dB

Date: 19.JUL.2014 10:57:31

Peak-to-Average Ratio on Channel 1175 (1908.75 MHz)



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.19 dBm
Peak	28.48 dBm
Crest	4.29 dB
10 %	2.52 dB
1 %	3.96 dB
.1 %	4.20 dB
.01 %	4.28 dB

Date: 19.JUL.2014 10:59:06

3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

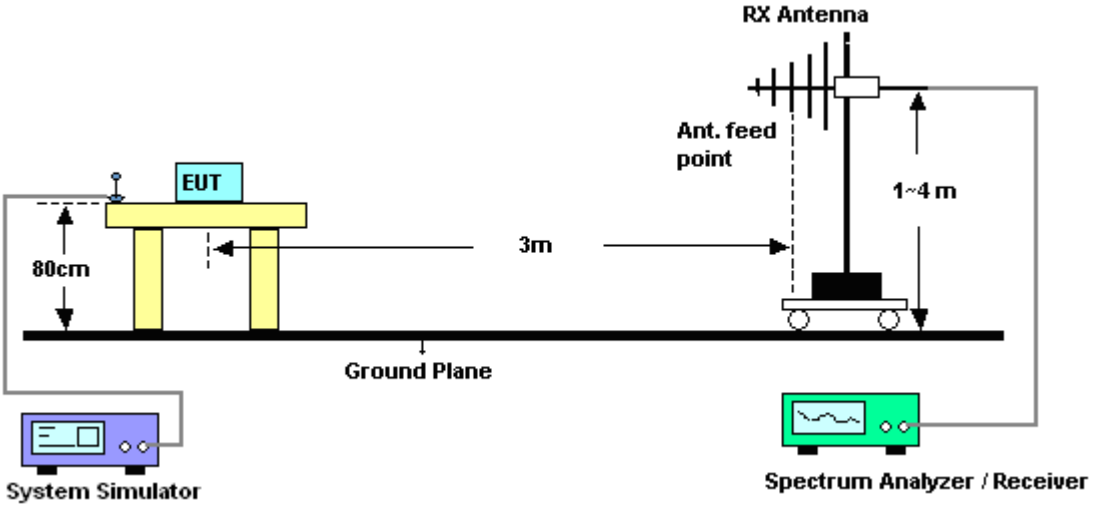
3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-C-2004 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at the same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, EIRP= LVL + Correction factor and ERP = EIRP – 2.15 .

3.3.4 Test Setup



3.3.5 Test Result of ERP

GSM850 (GPRS class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-17.13	31.54	12.26	0.017
836.4	-18.01	32.04	11.88	0.015
848.8	-18.17	32.59	12.27	0.017
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-4.47	32.93	26.31	0.428
836.4	-4.50	32.82	26.17	0.414
848.8	-5.31	33.62	26.16	0.413

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

GSM850 (EDGE class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-22.11	31.54	7.28	0.005
836.4	-22.91	32.04	6.98	0.005
848.8	-23.50	32.59	6.94	0.005
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-9.38	32.93	21.40	0.138
836.4	-9.87	32.82	20.80	0.120
848.8	-11.01	33.62	20.46	0.111

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-26.66	31.44	2.63	0.002
836.40	-27.47	32.04	2.42	0.002
846.60	-28.35	32.63	2.13	0.002
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-15.73	32.78	14.90	0.031
836.40	-15.11	32.82	15.56	0.036
846.60	-15.03	33.4	16.22	0.042

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

CDMA2000 BC0 1xEV-DO Rev. A_RETAP 4096K Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.70	-24.23	31.35	4.97	0.003
836.52	-26.29	32.13	3.69	0.002
848.31	-25.38	32.64	5.11	0.003
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.70	-11.95	32.83	18.73	0.075
836.52	-12.16	32.81	18.50	0.071
848.31	-12.80	33.52	18.57	0.072

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

CDMA2000 BC0 1xRTT_RC1+SO55 Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.70	-23.93	31.35	5.27	0.003
836.52	-24.42	32.13	5.56	0.004
848.31	-24.21	32.64	6.28	0.004
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.70	-11.45	32.83	19.23	0.084
836.52	-11.52	32.81	19.14	0.082
848.31	-12.24	33.52	19.13	0.082

* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

3.3.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-21.07	44.62	23.55	0.227
1880.0	-21.47	45.32	23.85	0.243
1909.8	-20.80	44.89	24.09	0.256
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-19.10	48.50	29.40	0.871
1880.0	-20.28	49.73	29.45	0.881
1909.8	-18.55	48.08	29.53	0.897

* EIRP = LVL (dBm) + Correction Factor (dB)

GSM1900 (EDGE class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-24.68	44.62	19.94	0.099
1880.0	-25.52	45.32	19.80	0.096
1909.8	-24.11	44.89	20.78	0.120
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-23.09	48.50	25.41	0.348
1880.0	-24.13	49.73	25.60	0.363
1909.8	-22.00	48.08	26.08	0.406

* EIRP = LVL (dBm) + Correction Factor (dB)

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-27.84	44.65	16.81	0.048
1880.00	-28.83	45.32	16.49	0.045
1907.60	-28.72	44.93	16.21	0.042
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-25.95	48.51	22.56	0.180
1880.00	-27.68	49.73	22.05	0.160
1907.60	-26.60	48.12	21.52	0.142

* EIRP = LVL (dBm) + Correction Factor (dB)

CDMA2000 BC1 1xEV-DO Rev. A_RETAP 4096K Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1851.25	-27.37	45.74	18.37	0.069
1880.00	-27.47	46.01	18.54	0.071
1908.75	-27.32	45.76	18.44	0.070
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1851.25	-26.87	51.07	24.20	0.263
1880.00	-26.72	50.42	23.70	0.234
1908.75	-25.66	48.99	23.33	0.215

* EIRP = LVL (dBm) + Correction Factor (dB)

CDMA2000 BC1 1xRTT_RC1+SO55 Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1851.25	-26.33	45.74	19.41	0.087
1880.00	-26.23	46.01	19.78	0.095
1908.75	-26.62	45.76	19.14	0.082
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1851.25	-26.06	51.07	25.01	0.317
1880.00	-25.62	50.42	24.80	0.302
1908.75	-25.25	48.99	23.74	0.237

* EIRP = LVL (dBm) + Correction Factor (dB)

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

3.4.1 Description of 99% Occupied Bandwidth and 26dB Bandwidth Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

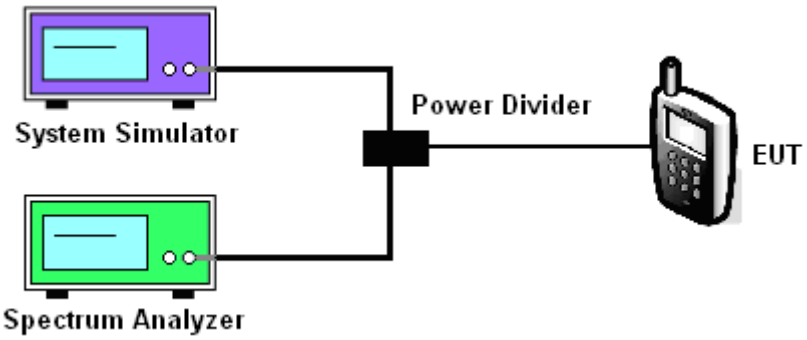
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 4.2.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.
5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.

3.4.4 Test Setup



3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	**GSM850 (GPRS class 8)**			**GSM850 (EDGE class 8)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**128 (Low)**	**189 (Mid)**	**251 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**824.2**	**836.4**	**848.8**
99% OBW (kHz)	244.00	244.00	246.00	246.00	244.00	246.00
26dB BW (kHz)	310.00	314.00	314.00	302.00	308.00	306.00

PCS Band						
Modes	**GSM1900 (GSM)**			**GSM1900 (EDGE class 8)**		
Channel	**512 (Low)**	**661 (Mid)**	**810 (High)**	**512 (Low)**	**661 (Mid)**	**810 (High)**
Frequency (MHz)	**1850.2**	**1880**	**1909.8**	**1850.2**	**1880**	**1909.8**
99% OBW (kHz)	248.00	246.00	246.00	246.00	242.00	246.00
26dB BW (kHz)	306.00	314.00	316.00	306.00	304.00	312.00

Cellular Band			
Modes	**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**826.4**	**836.4**	**846.6**
99% OBW (MHz)	4.18	4.16	4.18
26dB BW (MHz)	4.68	4.68	4.68

PCS Band			
Modes	**WCDMA Band II (RMC 12.2Kbps)**		
Channel	**9262 (Low)**	**9400 (Mid)**	**9538 (High)**
Frequency (MHz)	**1852.4**	**1880**	**1907.6**
99% OBW (MHz)	4.18	4.18	4.16
26dB BW (MHz)	4.68	4.68	4.68

CDMA2000 BC0			
Test Mode	CDMA 2000 1xEV-DO Rev. A		
Test Status	RETAP 4096K		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
99% OBW (MHz)	1.28	1.28	1.28
26dB BW (MHz)	1.42	1.41	1.42

CDMA2000 BC0			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC1+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
99% OBW (MHz)	1.28	1.28	1.28
26dB BW (MHz)	1.41	1.42	1.42

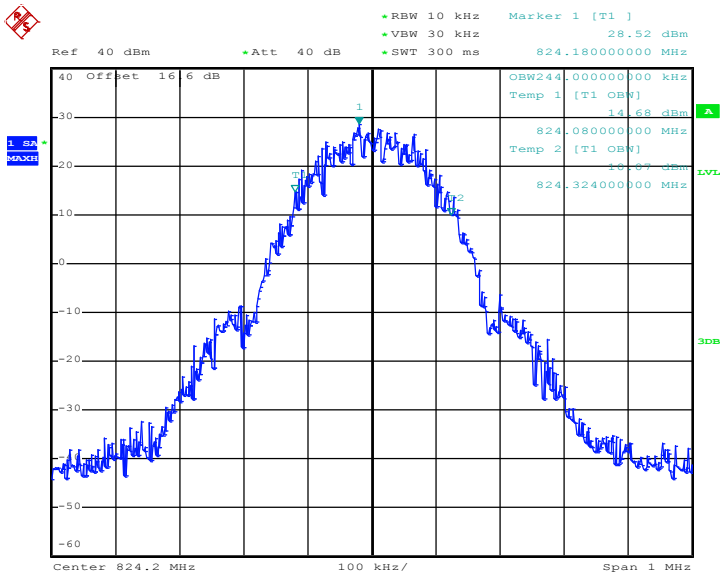
CDMA2000 BC1			
Test Mode	CDMA 2000 1xEV-DO Rev. A		
Test Status	RETAP 4096K		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
99% OBW (MHz)	1.27	1.28	1.28
26dB BW (MHz)	1.42	1.42	1.41

CDMA2000 BC1			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC1+SO55		
Channel	25 (Low)	600 (Mid)	1175 (High)
Frequency (MHz)	1851.25	1880.00	1908.75
99% OBW (MHz)	1.28	1.27	1.28
26dB BW (MHz)	1.41	1.42	1.42

3.4.6 Test Result (Plots) of Occupied Bandwidth and 26dB Bandwidth

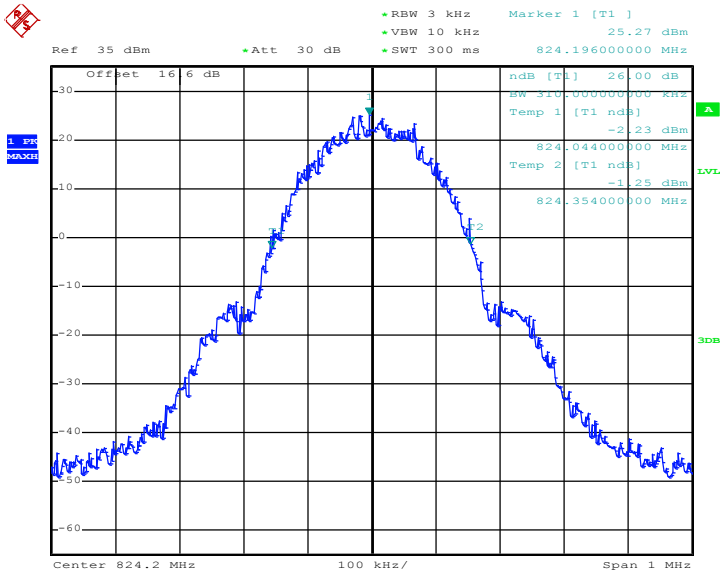
Band :	GSM 850	Test Mode :	GPRS class 8 Link (GMSK)

99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



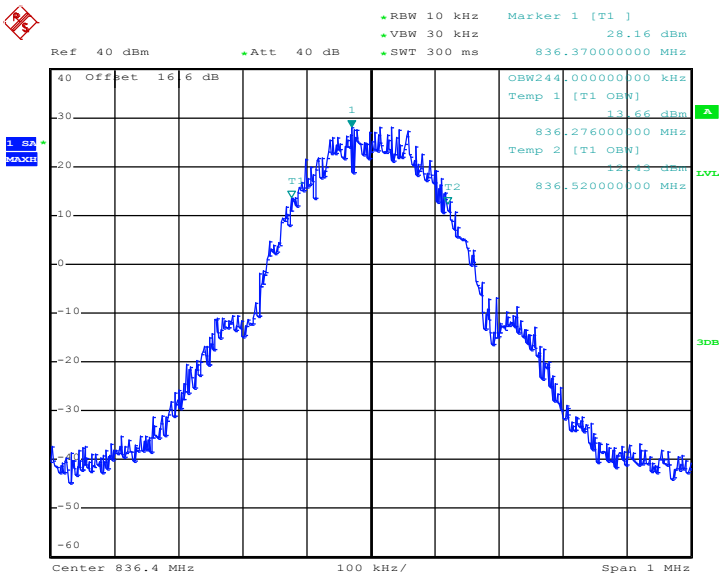
Date: 18.JUL.2014 09:33:28

26dB Bandwidth Plot on Channel 128 (824.2 MHz)



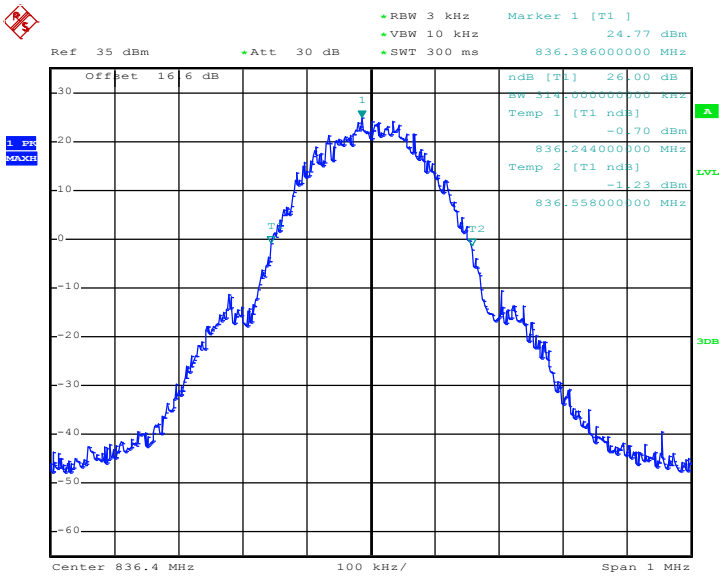
Date: 18.JUL.2014 09:30:03

99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



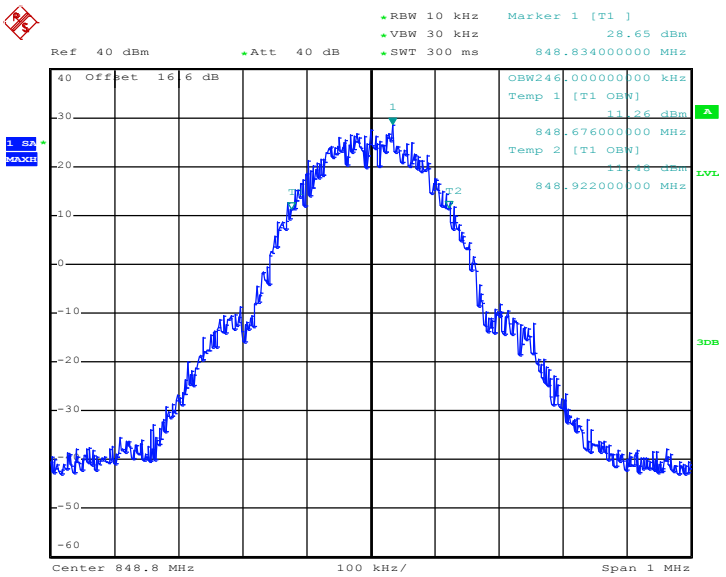
Date: 18.JUL.2014 09:34:04

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



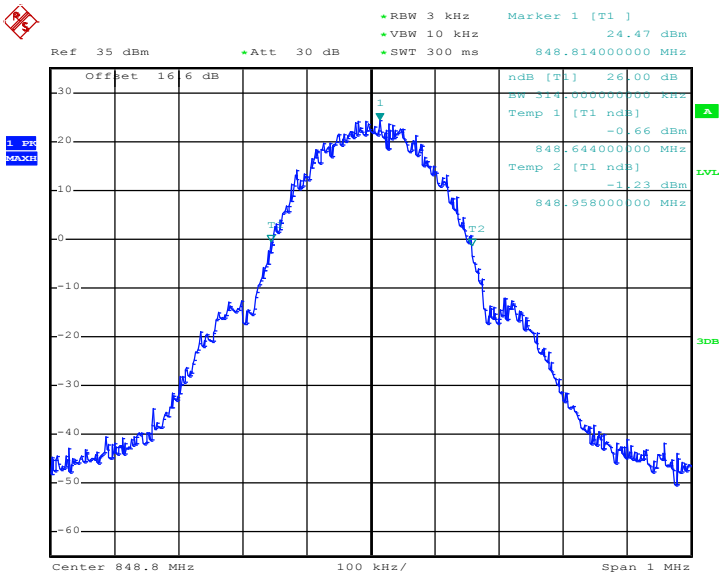
Date: 18.JUL.2014 09:30:38

99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 18.JUL.2014 09:34:37

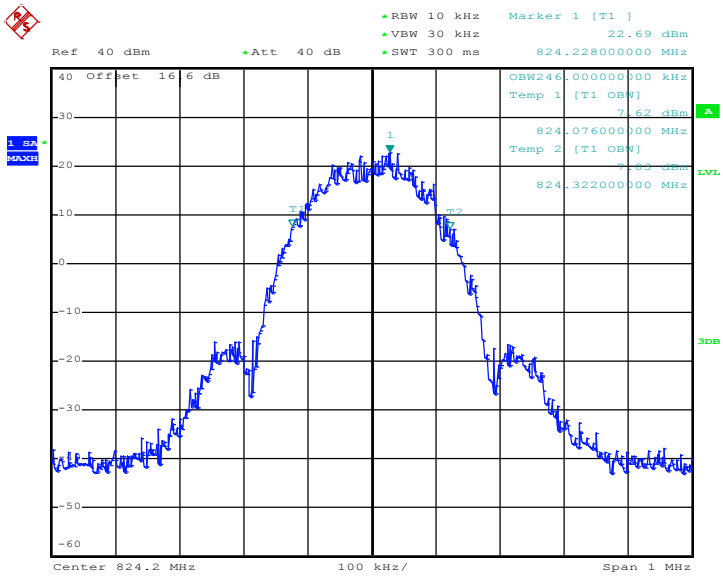
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 18.JUL.2014 09:32:38

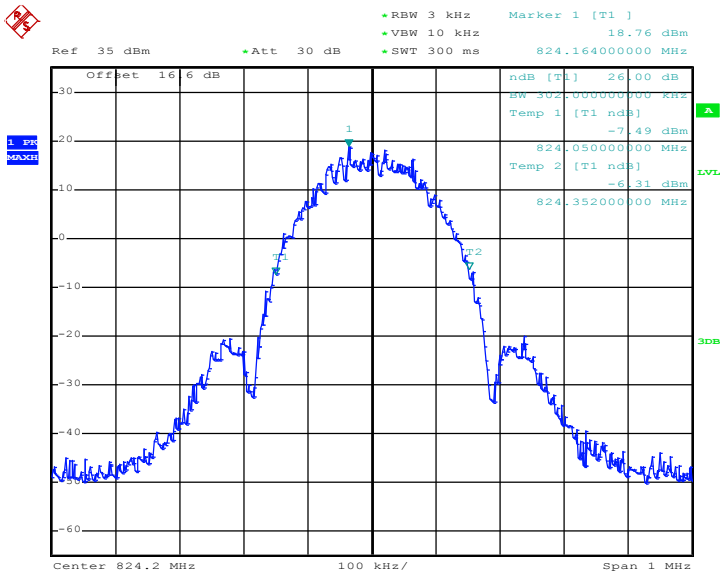
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)

99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



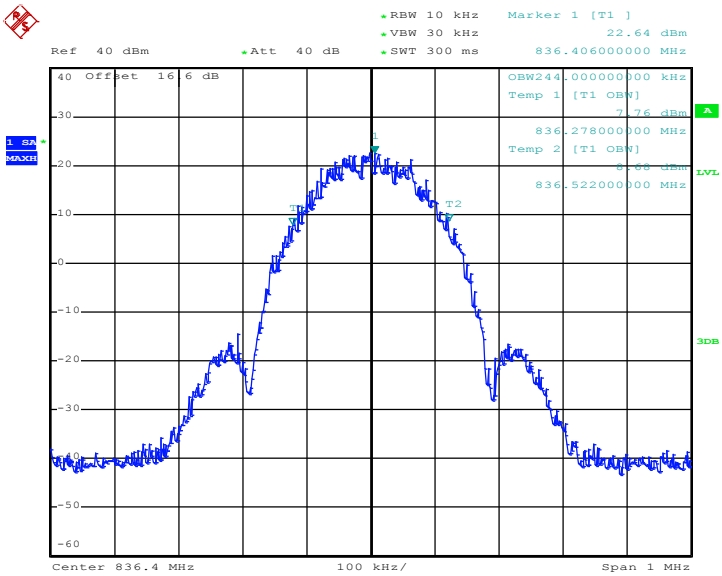
Date: 18.JUL.2014 10:37:10

26dB Bandwidth Plot on Channel 128 (824.2 MHz)



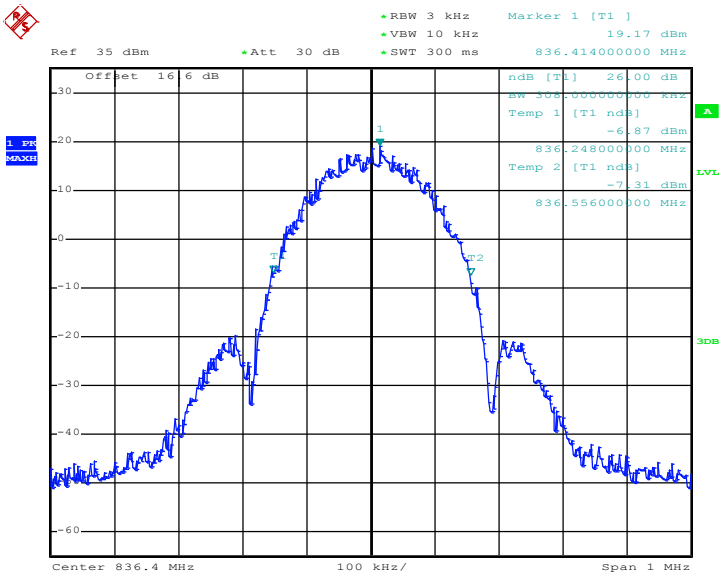
Date: 18.JUL.2014 10:29:56

99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



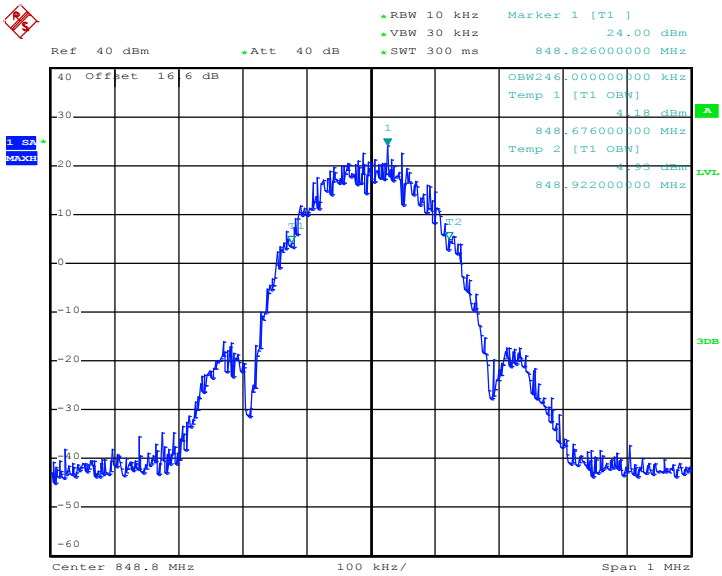
Date: 18.JUL.2014 10:35:57

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



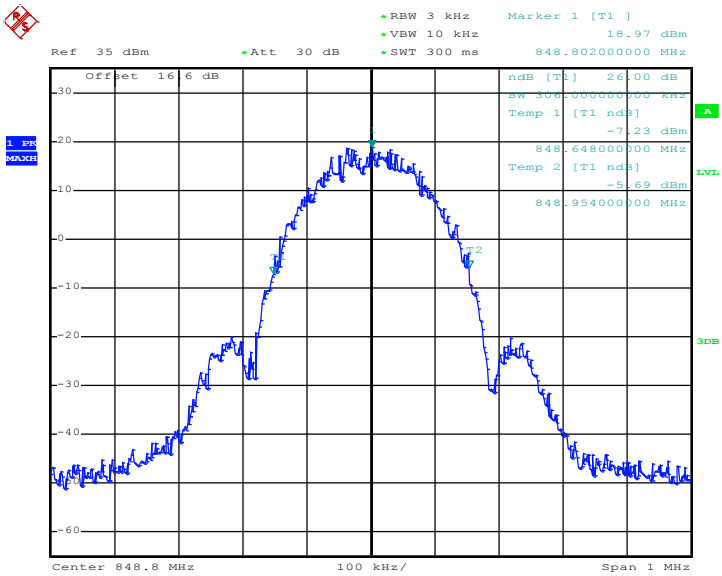
Date: 18.JUL.2014 10:30:32

99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 18.JUL.2014 10:33:17

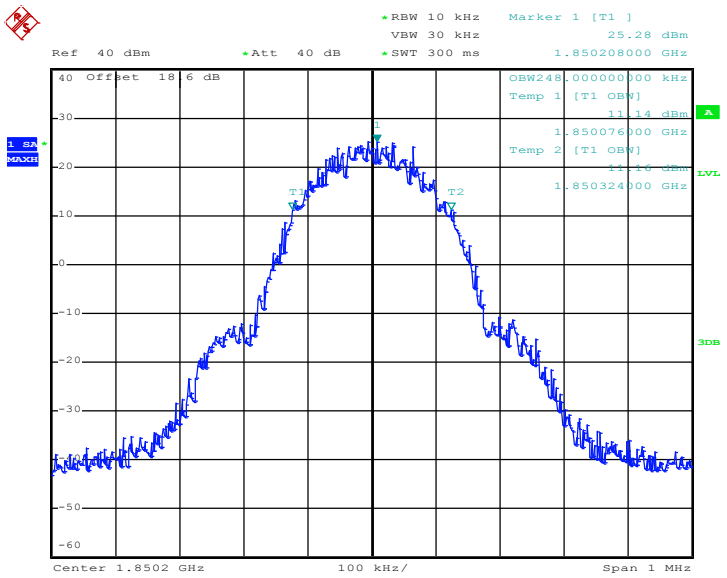
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 18.JUL.2014 10:31:07

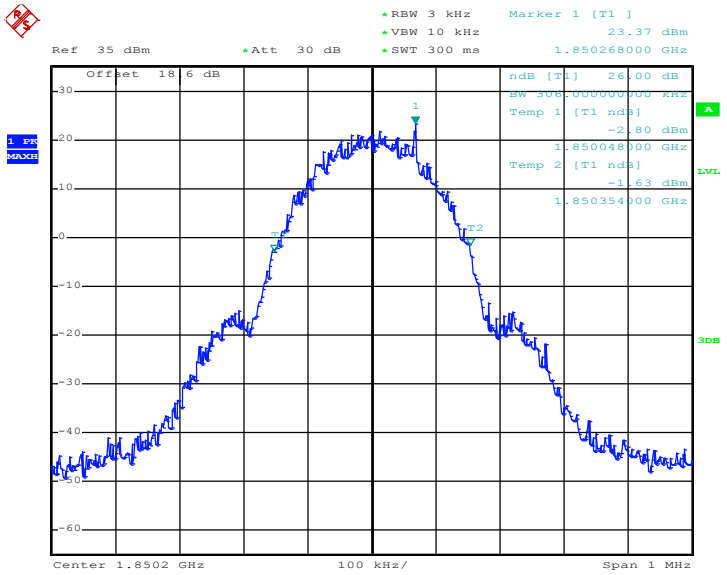
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



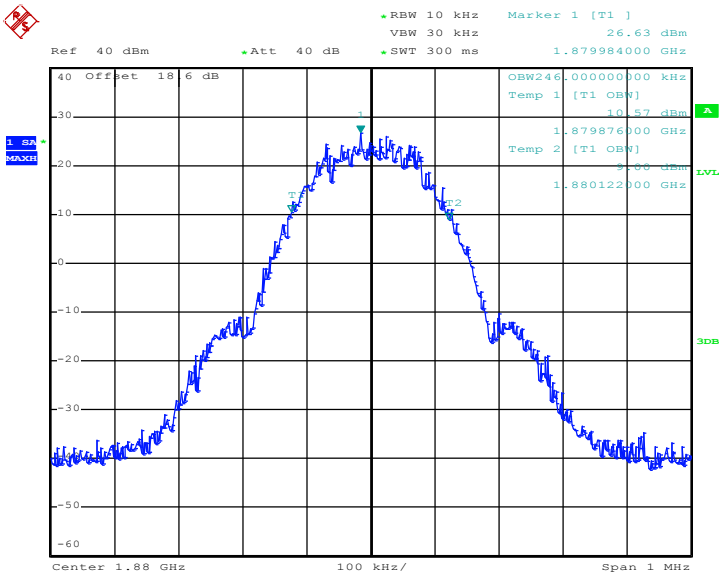
Date: 18.JUL.2014 11:23:50

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 18.JUL.2014 11:15:53

99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



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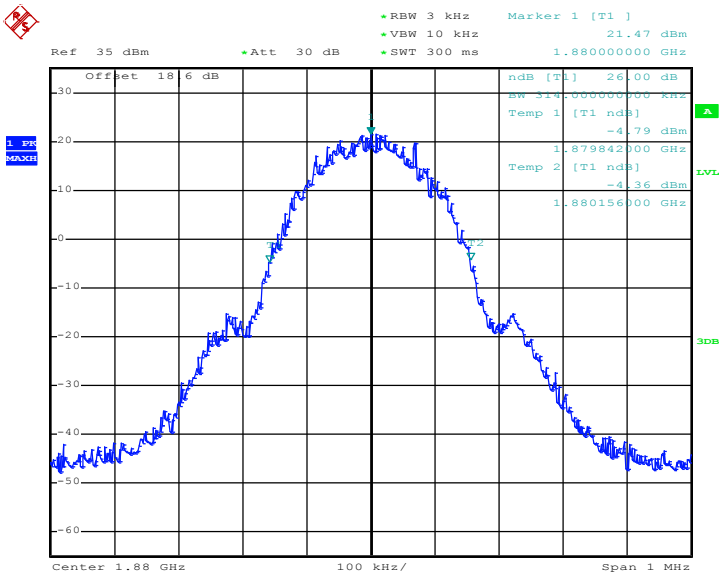
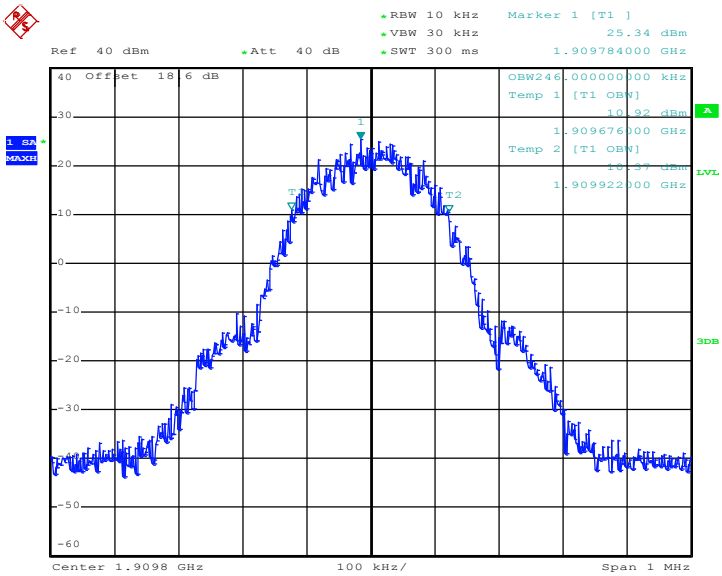
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



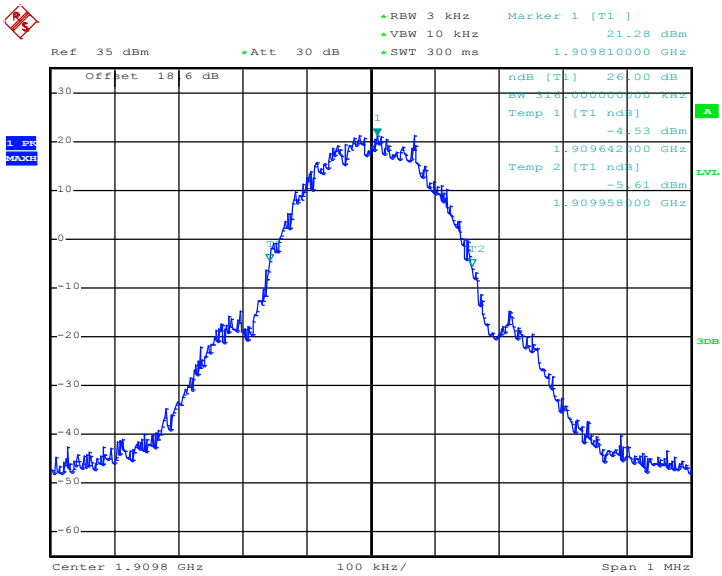
Date: 18.JUL.2014 11:14:13

99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 18.JUL.2014 11:21:09

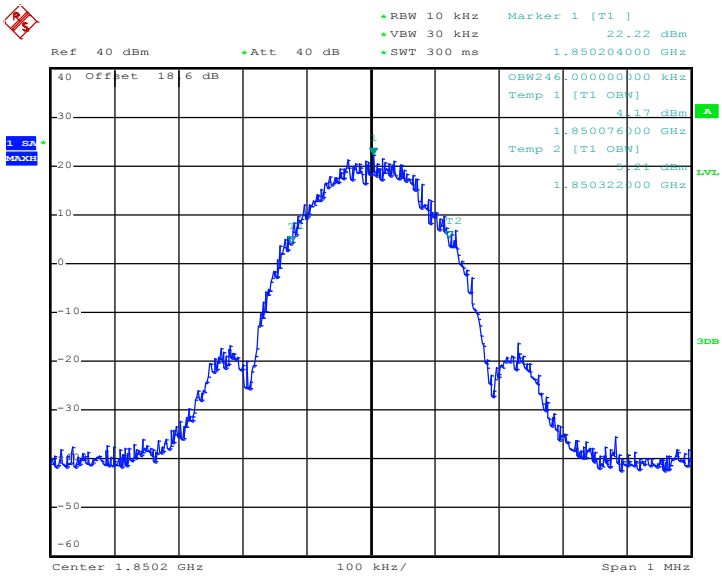
26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 18.JUL.2014 11:14:46

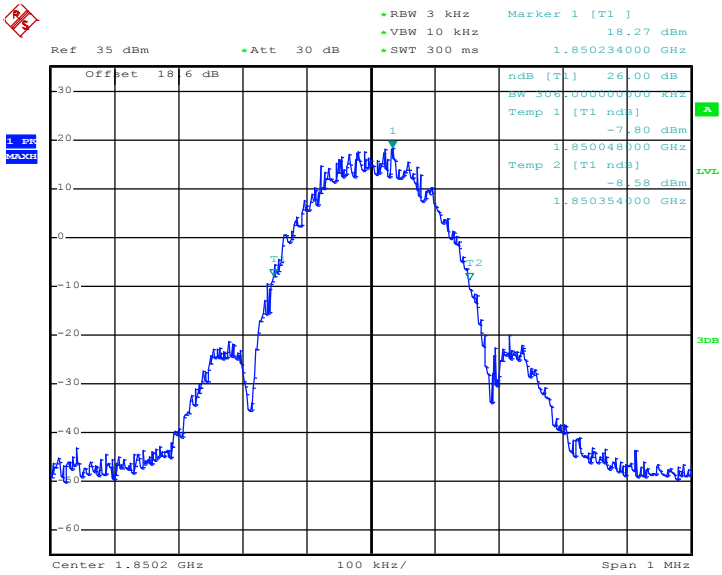
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)

99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



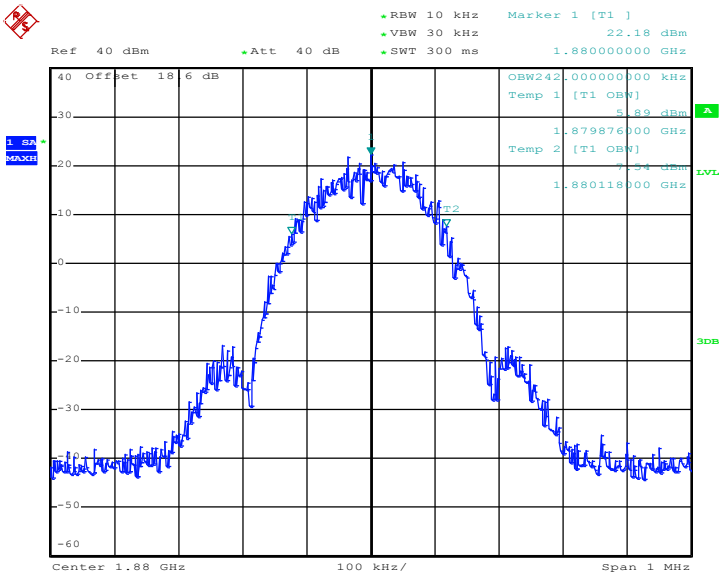
Date: 18.JUL.2014 11:52:40

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



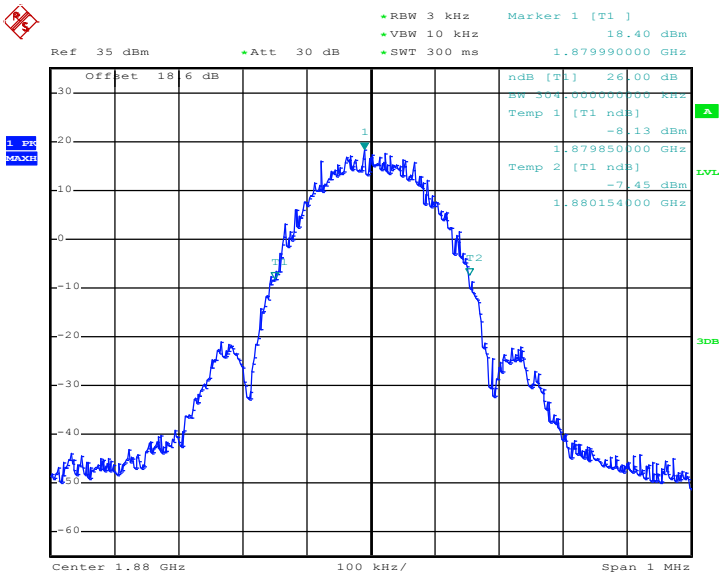
Date: 18.JUL.2014 11:47:26

99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



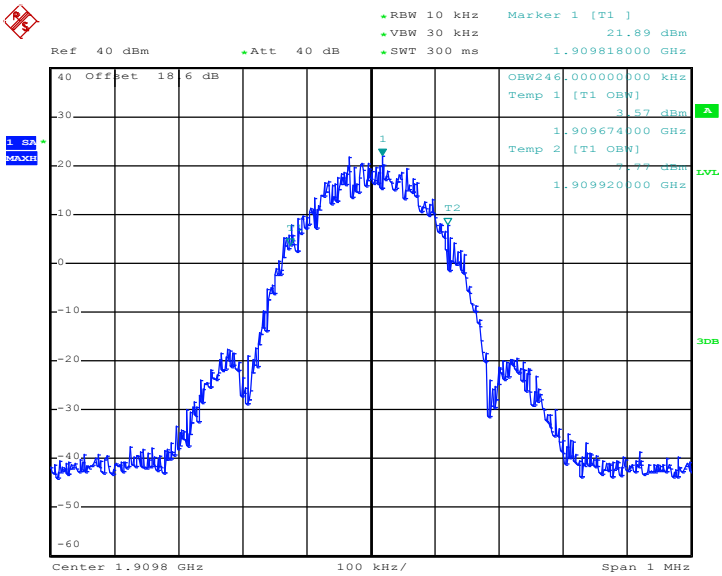
Date: 18.JUL.2014 11:50:06

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



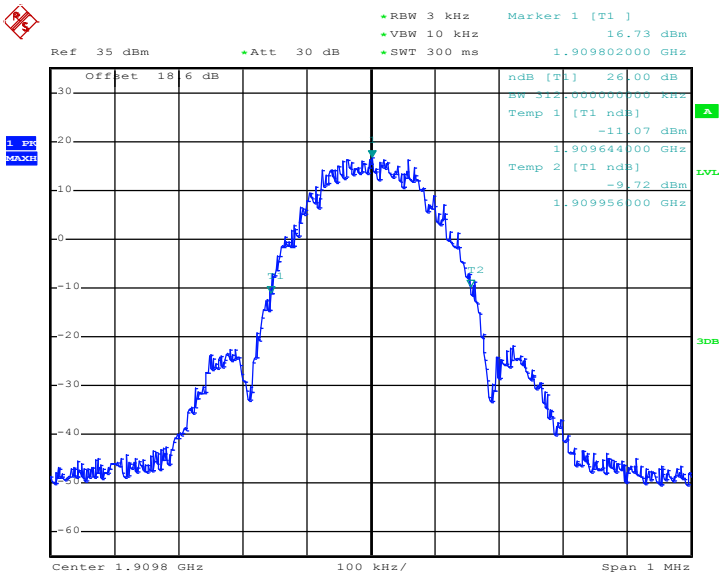
Date: 18.JUL.2014 11:48:01

99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 18.JUL.2014 11:50:51

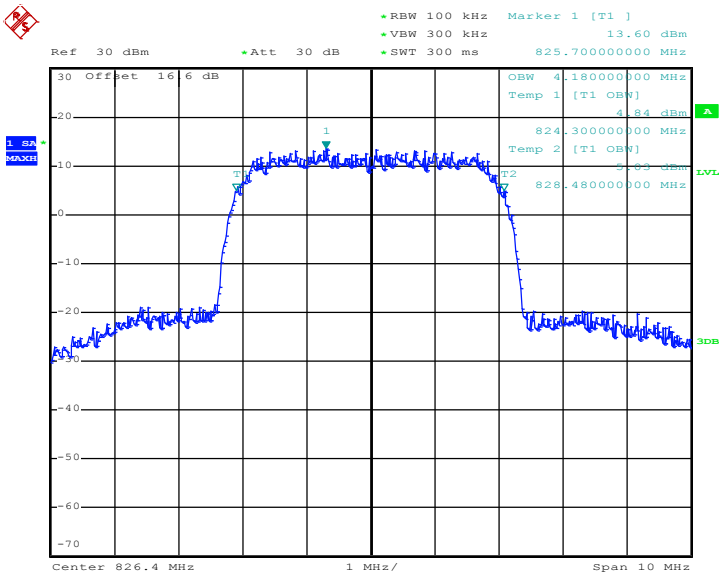
26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 18.JUL.2014 11:48:38

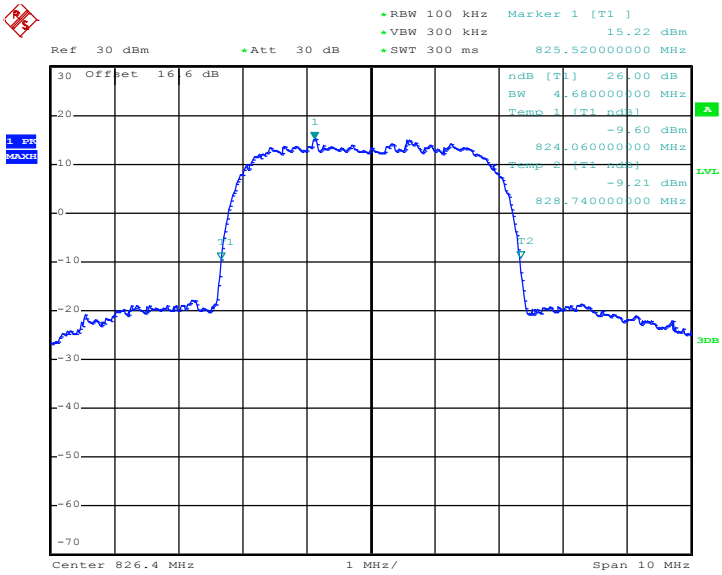
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



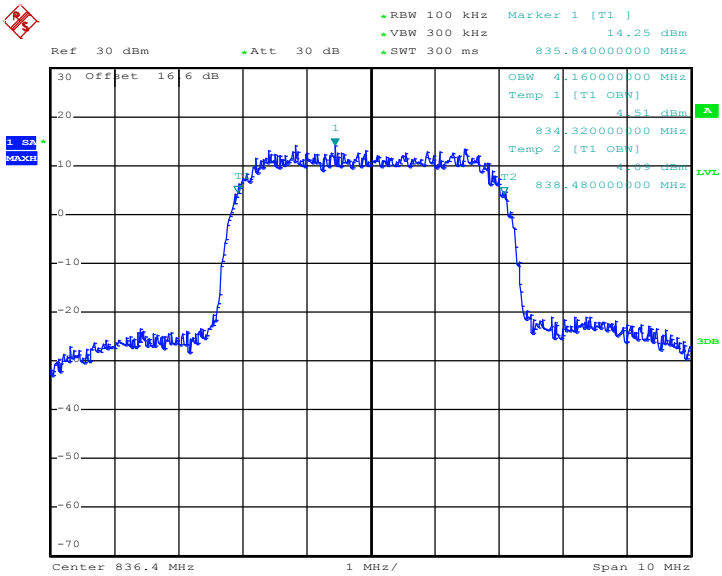
Date: 18.JUL.2014 13:47:44

26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



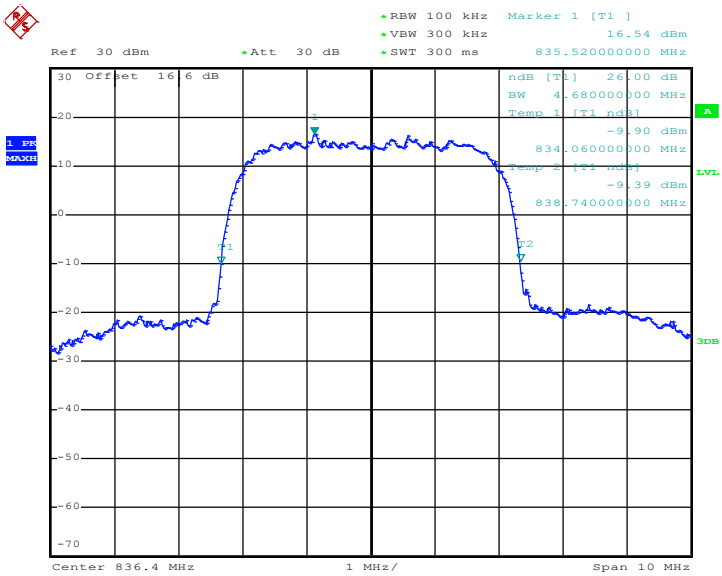
Date: 18.JUL.2014 13:45:07

99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



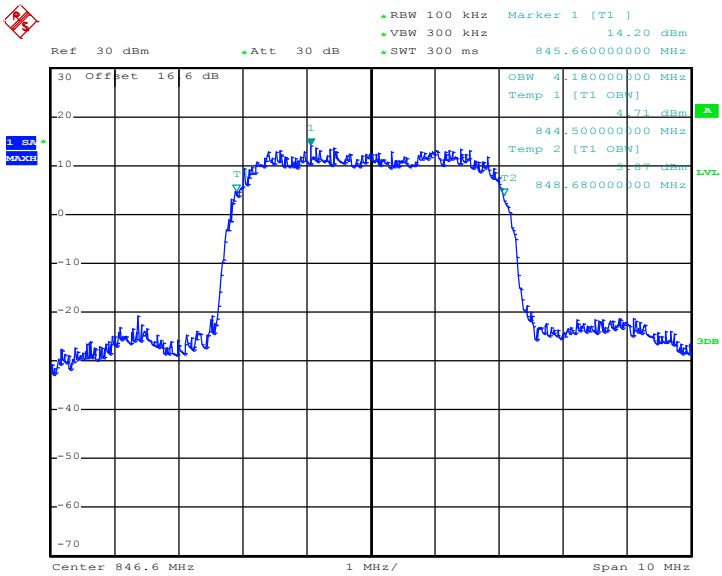
Date: 18.JUL.2014 13:48:13

26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



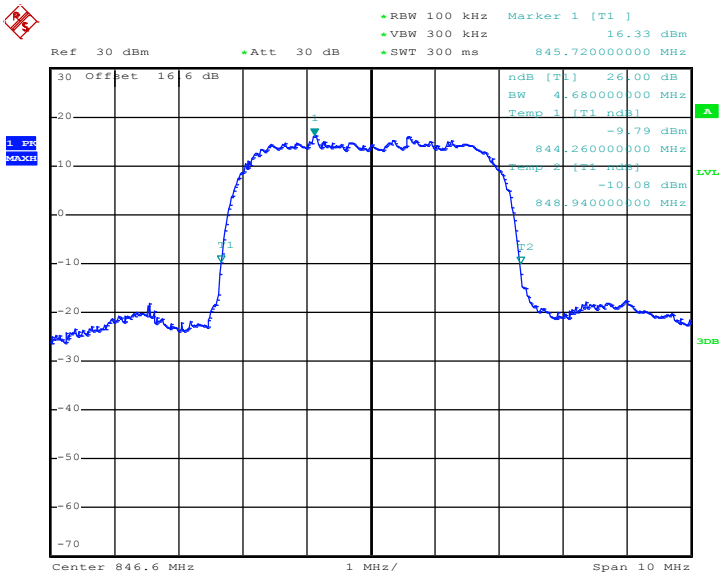
Date: 18.JUL.2014 13:45:35

99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 18.JUL.2014 13:48:41

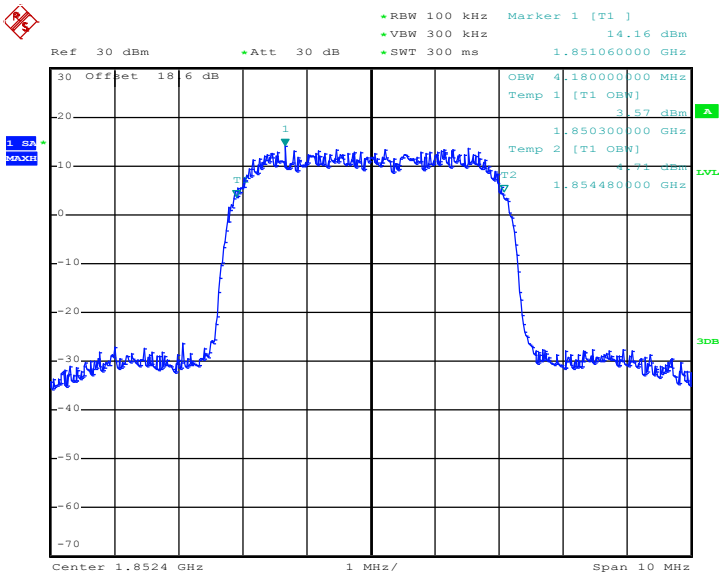
26dB Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 18.JUL.2014 13:46:04

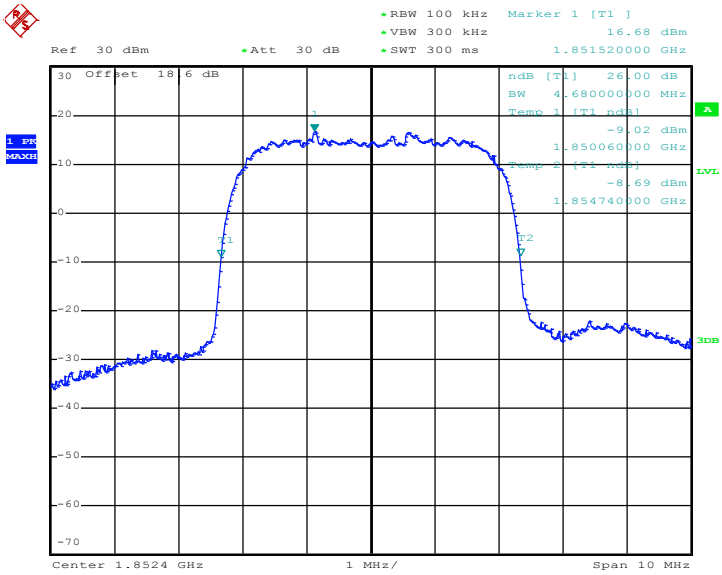
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)



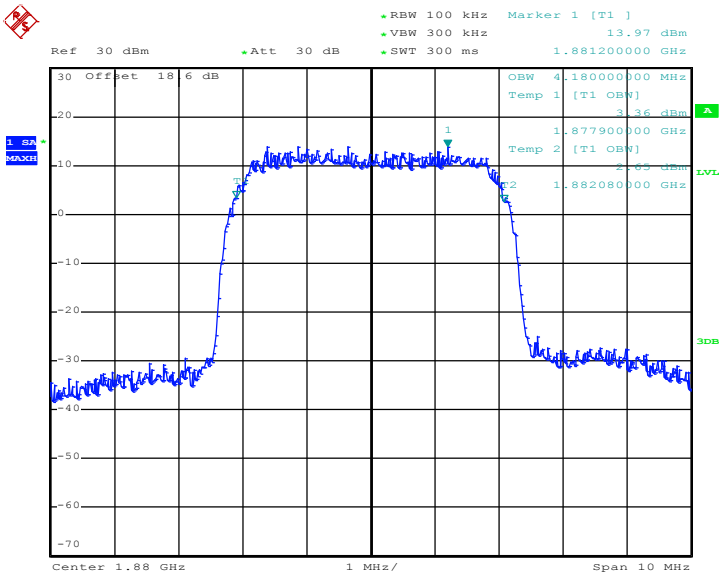
Date: 18.JUL.2014 13:09:48

26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



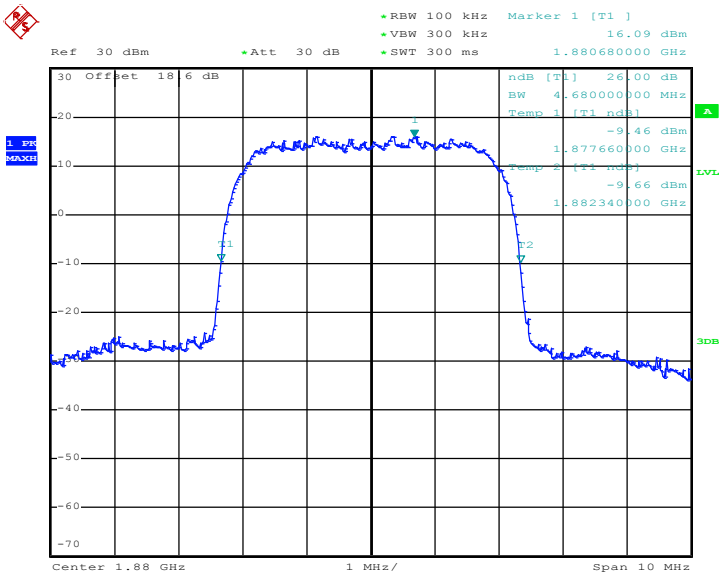
Date: 18.JUL.2014 13:08:04

99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



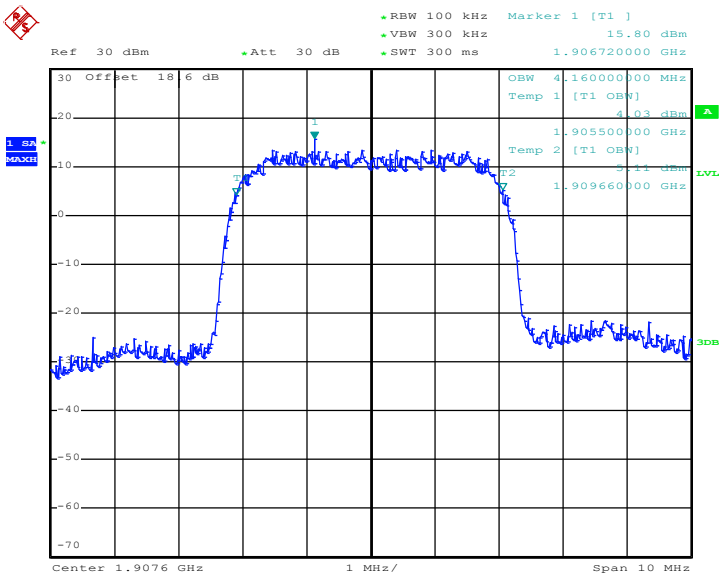
Date: 18.JUL.2014 13:10:16

26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



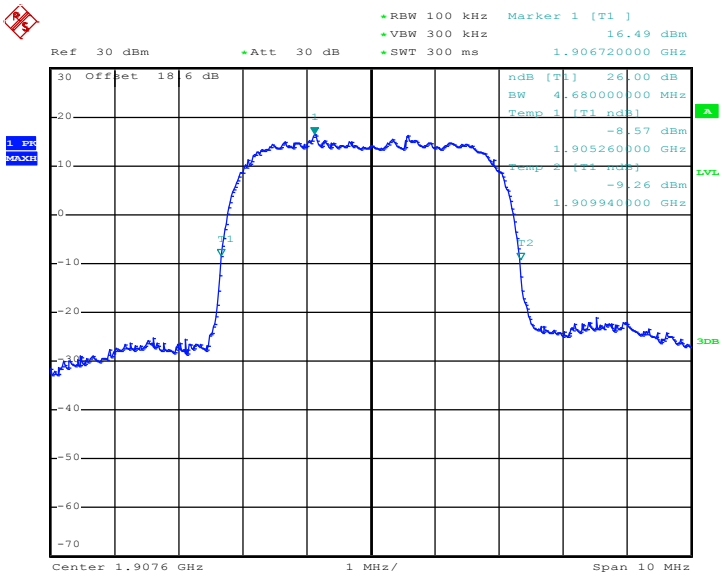
Date: 18.JUL.2014 13:08:33

99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 18.JUL.2014 13:10:45

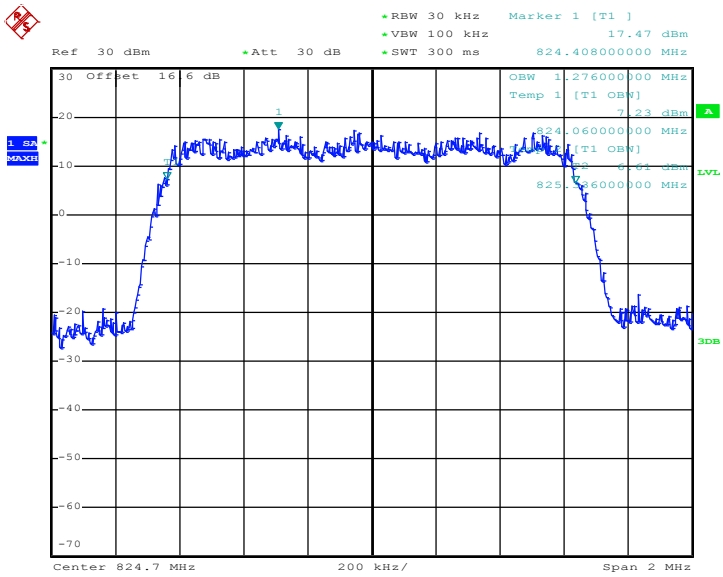
26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 18.JUL.2014 13:09:01

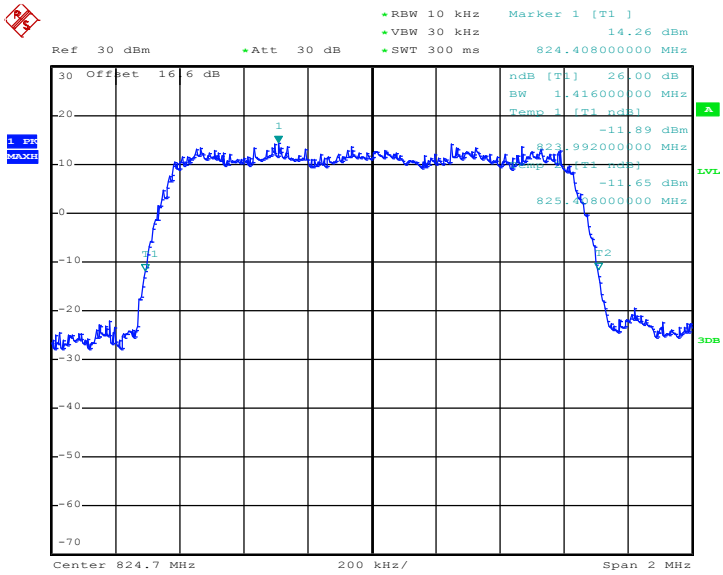
Band :	CDMA2000 BC0	Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)

99% Occupied Bandwidth Plot on Channel 1013 (824.7 MHz)



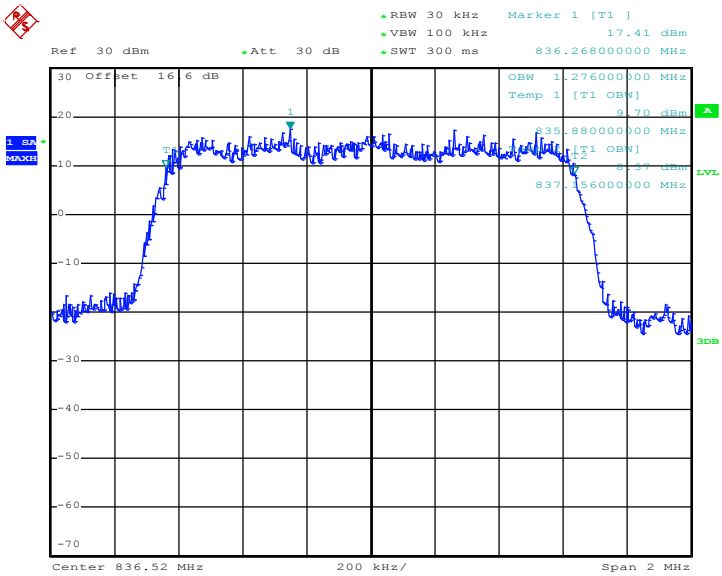
Date: 18.JUL.2014 18:27:03

26dB Bandwidth Plot on Channel 1013 (824.7 MHz)



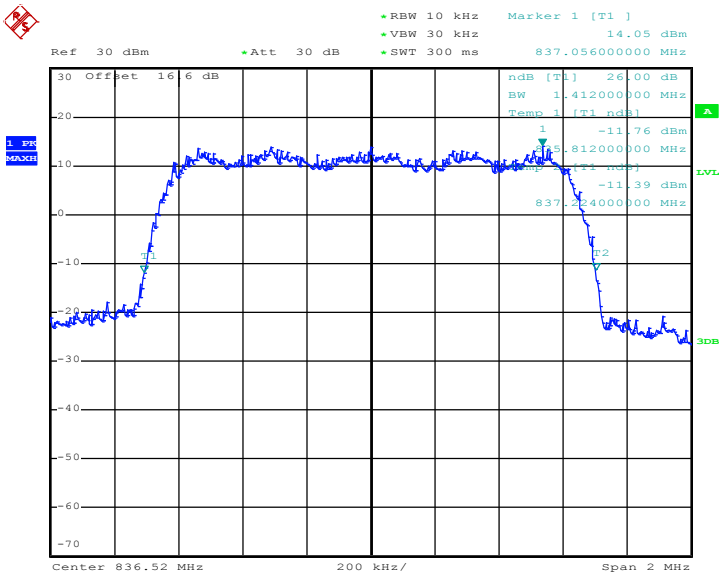
Date: 18.JUL.2014 18:25:02

99% Occupied Bandwidth Plot on Channel 384 (836.52 MHz)



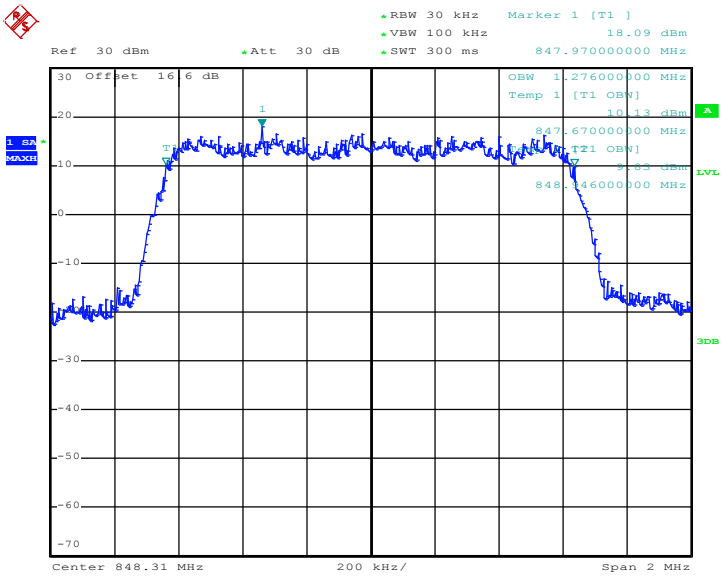
Date: 18.JUL.2014 18:27:31

26dB Bandwidth Plot on Channel 384 (836.52 MHz)



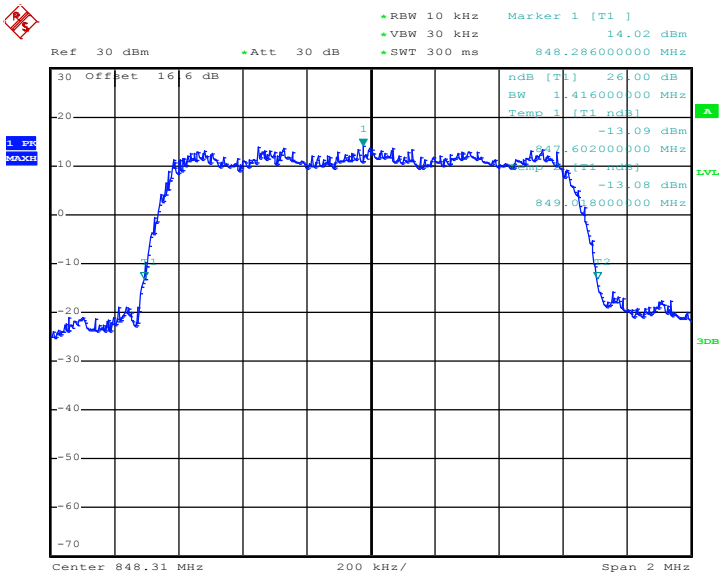
Date: 18.JUL.2014 18:25:31

99% Occupied Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 18.JUL.2014 18:28:00

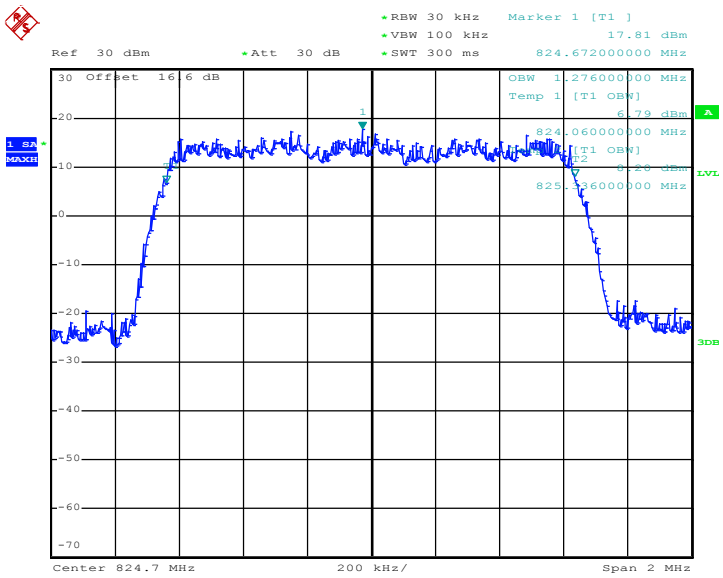
26dB Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 18.JUL.2014 18:26:00

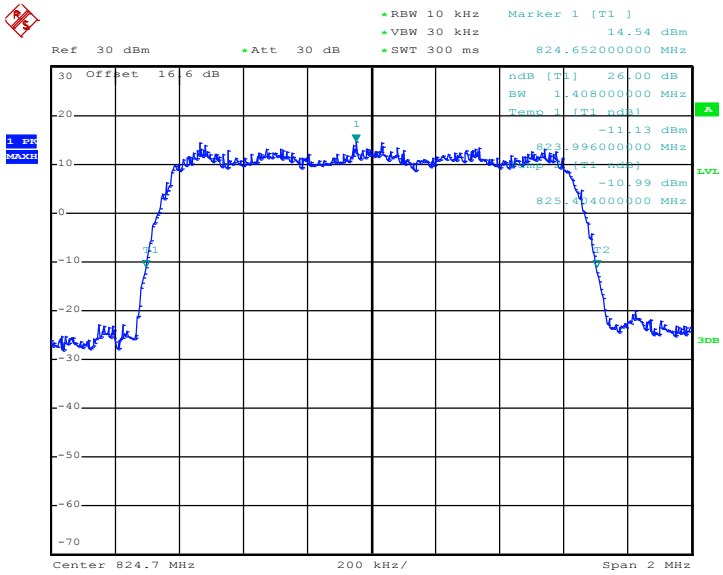
Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC1+SO55 (QPSK)

99% Occupied Bandwidth Plot on Channel 1013 (824.7 MHz)



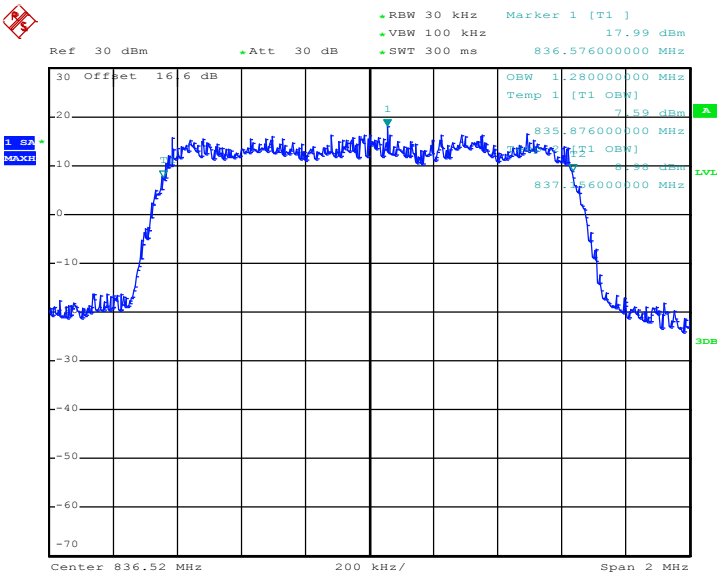
Date: 19.JUL.2014 09:59:25

26dB Bandwidth Plot on Channel 1013 (824.7 MHz)



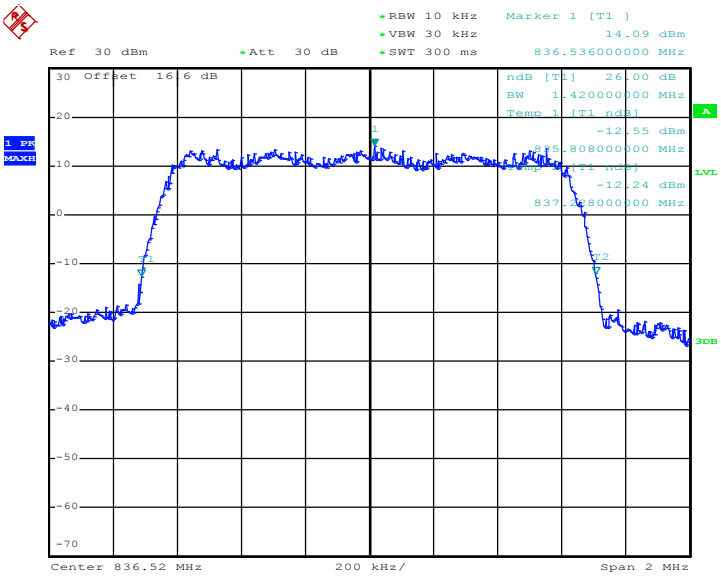
Date: 19.JUL.2014 09:57:40

99% Occupied Bandwidth Plot on Channel 384 (836.52 MHz)



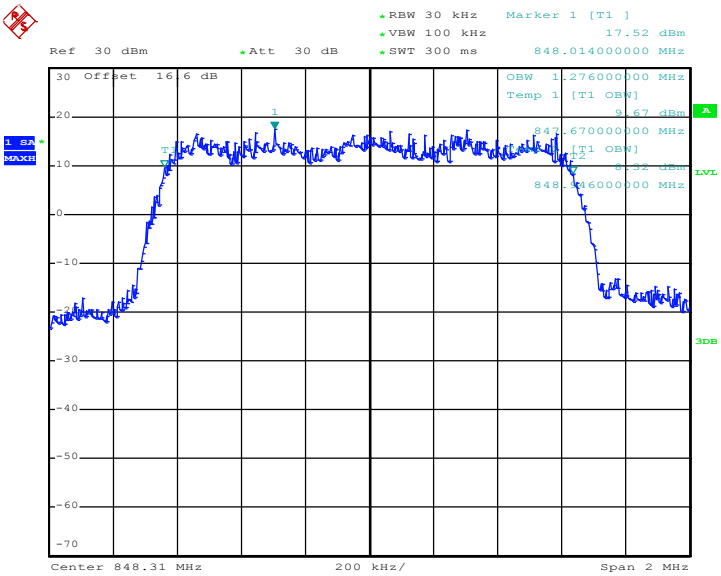
Date: 19.JUL.2014 09:59:53

26dB Bandwidth Plot on Channel 384 (836.52 MHz)



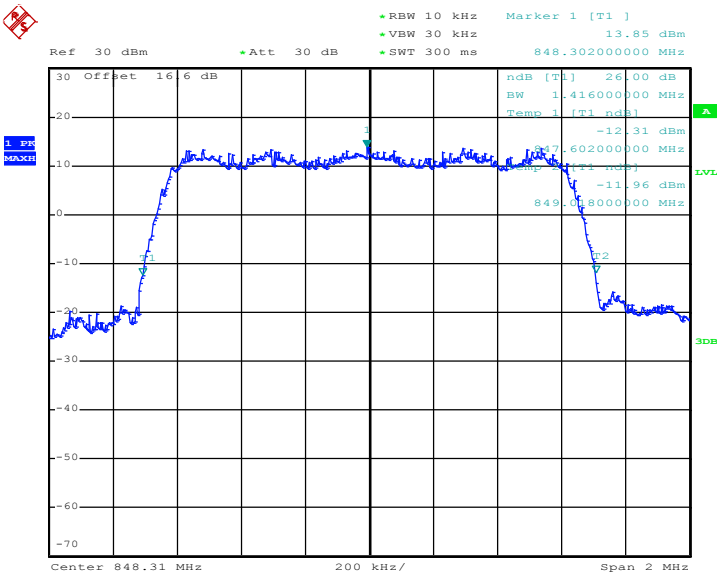
Date: 19.JUL.2014 09:58:09

99% Occupied Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 19.JUL.2014 10:00:22

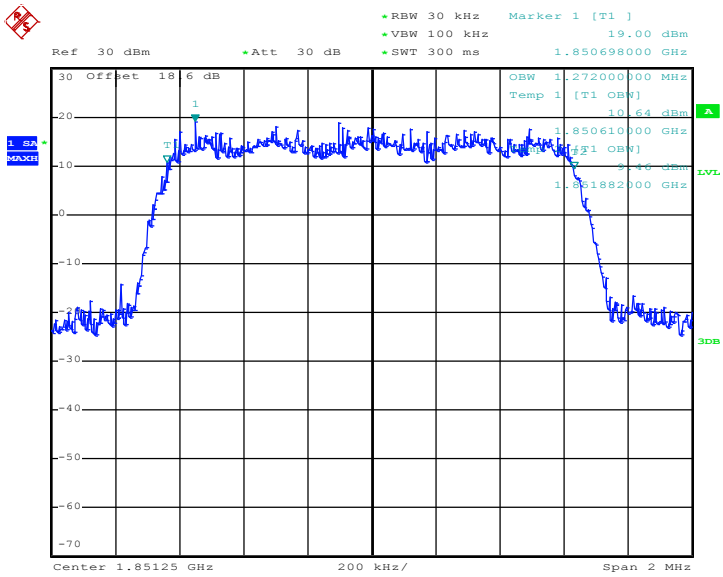
26dB Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 19.JUL.2014 09:58:38

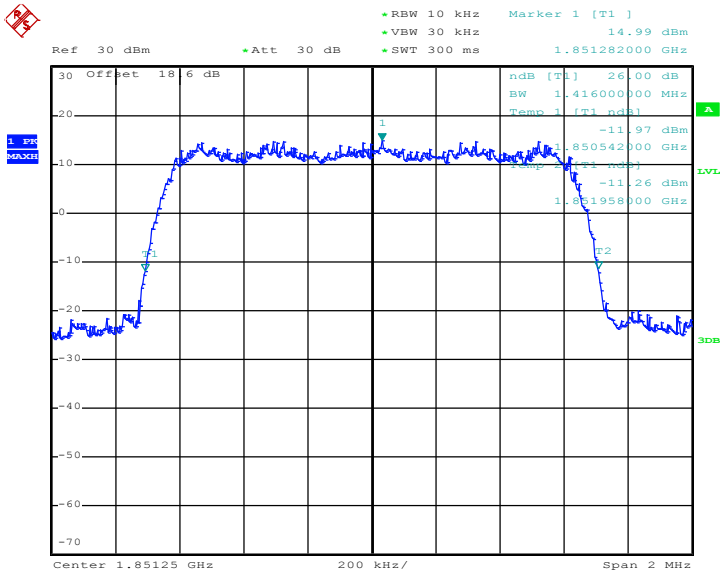
Band :	CDMA2000 BC1	Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)

99% Occupied Bandwidth Plot on Channel 25 (1851.25 MHz)



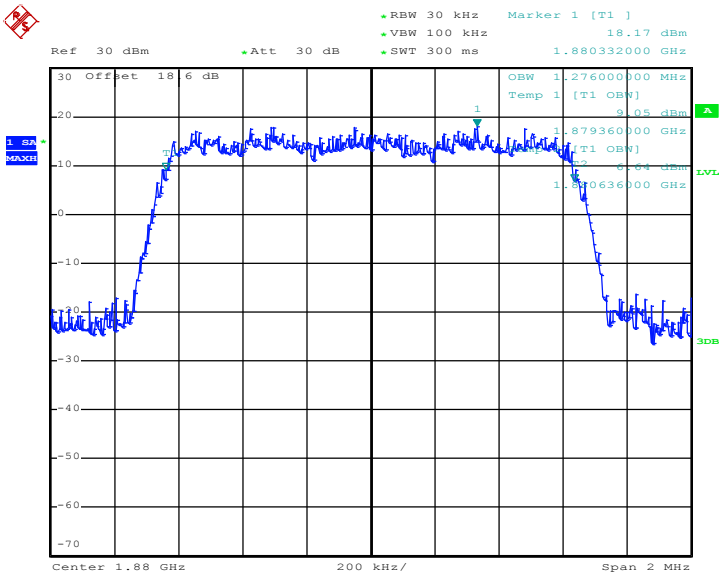
Date: 19.JUL.2014 10:47:01

26dB Bandwidth Plot on Channel 25 (1851.25 MHz)



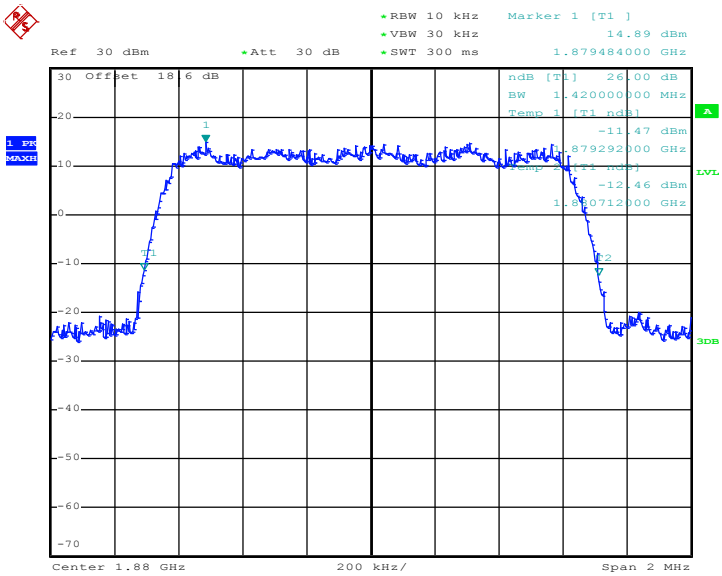
Date: 19.JUL.2014 10:44:18

99% Occupied Bandwidth Plot on Channel 600 (1880.0 MHz)



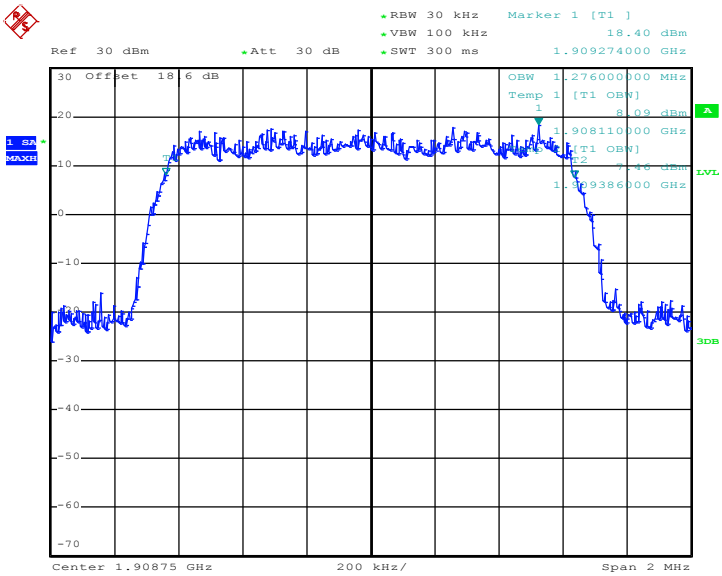
Date: 19.JUL.2014 10:47:29

26dB Bandwidth Plot on Channel 600 (1880.0 MHz)



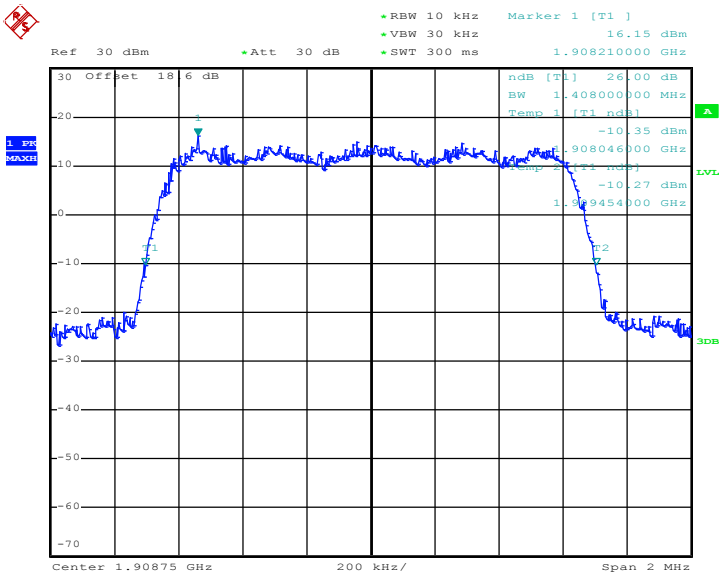
Date: 19.JUL.2014 10:44:47

99% Occupied Bandwidth Plot on Channel 1175 (1908.75 MHz)



Date: 19.JUL.2014 10:47:58

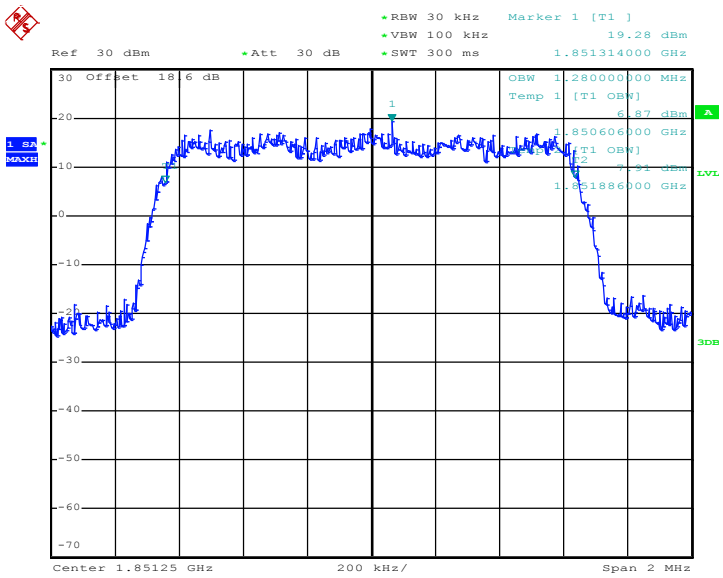
26dB Bandwidth Plot on Channel 1175 (1908.75 MHz)



Date: 19.JUL.2014 10:45:15

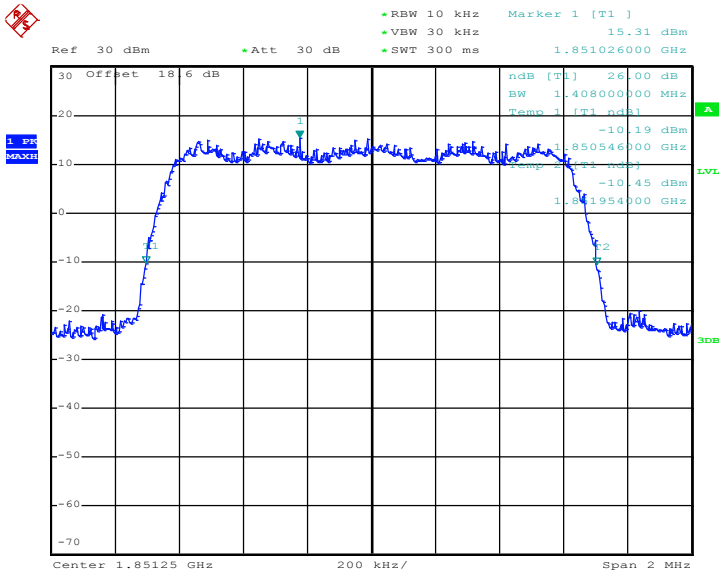
Band :	CDMA2000 BC1	Test Mode :	1xRTT_RC1+SO55 (QPSK)

99% Occupied Bandwidth Plot on Channel 25 (1851.25 MHz)



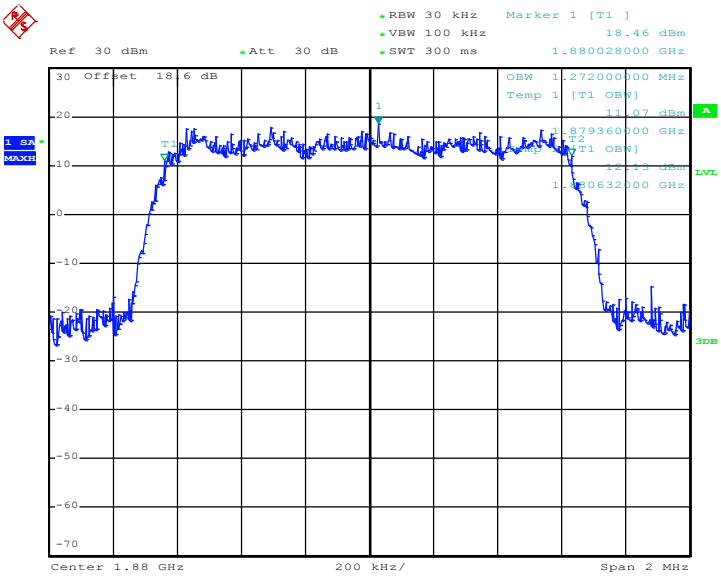
Date: 19.JUL.2014 11:17:42

26dB Bandwidth Plot on Channel 25 (1851.25 MHz)



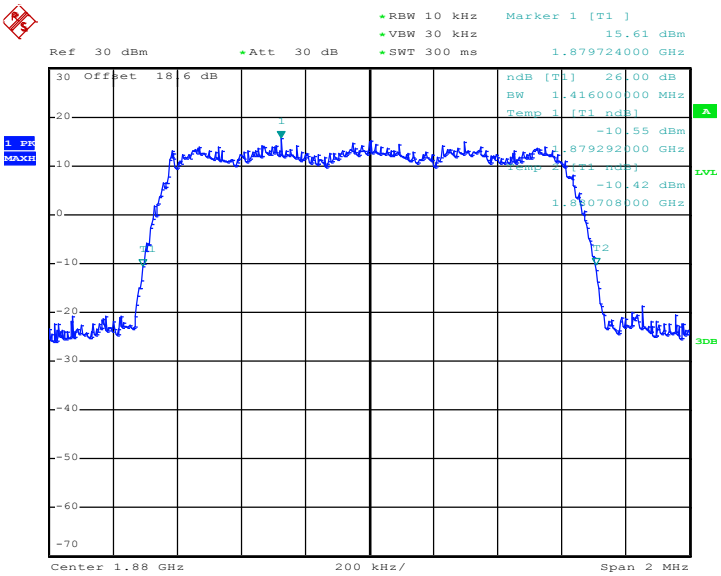
Date: 19.JUL.2014 11:15:41

99% Occupied Bandwidth Plot on Channel 600 (1880.0 MHz)



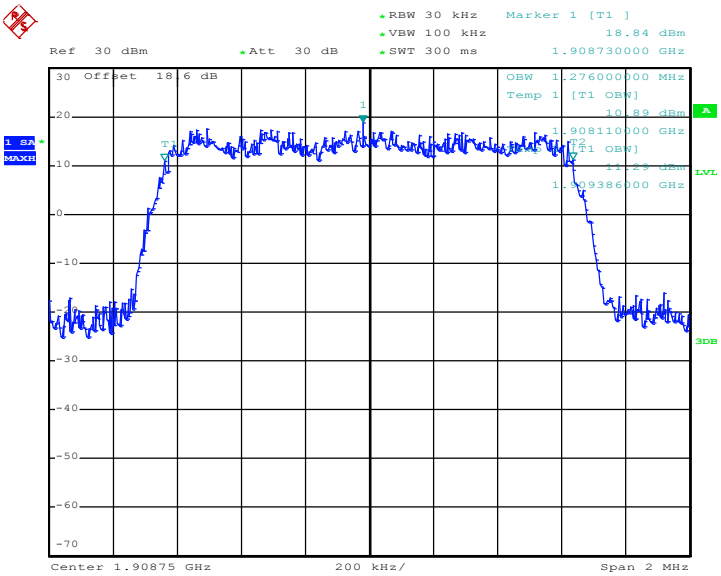
Date: 19.JUL.2014 11:18:11

26dB Bandwidth Plot on Channel 600 (1880.0 MHz)



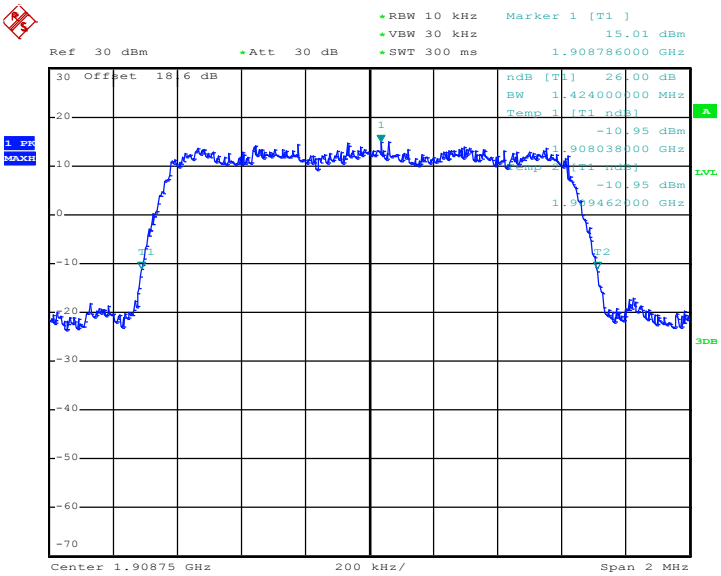
Date: 19.JUL.2014 11:16:10

99% Occupied Bandwidth Plot on Channel 1175 (1908.75 MHz)



Date: 19.JUL.2014 11:18:39

26dB Bandwidth Plot on Channel 1175 (1908.75 MHz)



Date: 19.JUL.2014 11:16:38

3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

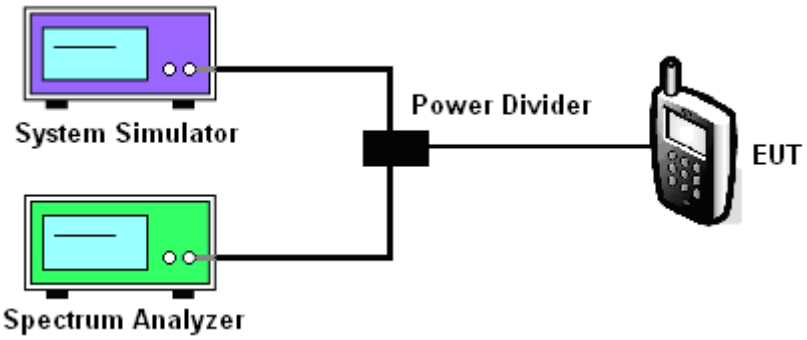
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

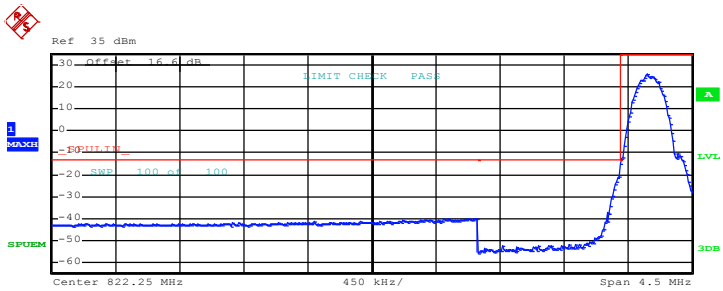
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GPRS class 8 Link (GMSK)

Lowest Band Edge Plot on Channel 128 (824.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
820.000 M	823.000 M	100.00 k	822.997000 M	-40.10	-27.10
823.000 M	824.000 M	3.00 k	823.984000 M	-20.68	-7.68
824.000 M	824.500 M	10.00 k	824.186500 M	26.04	-8.96

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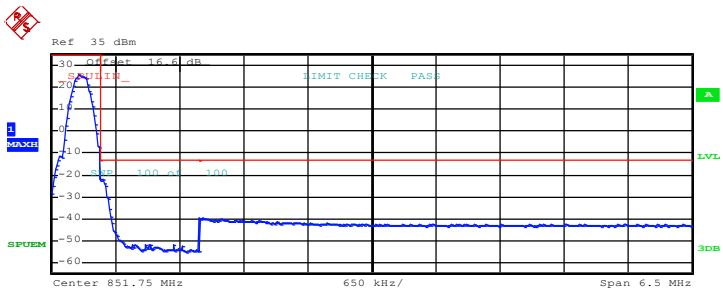
Highest Band Edge Plot on Channel 251 (848.8 MHz)

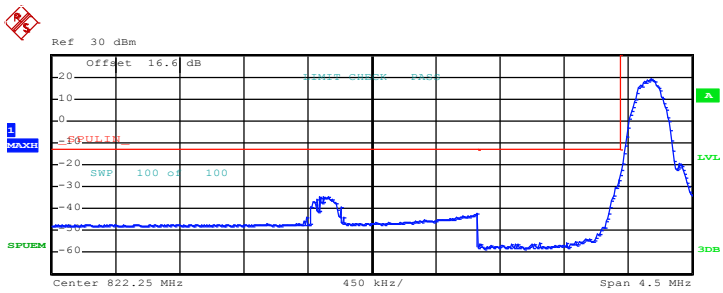


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
848.500 M	849.000 M	10.00 k	848.778500 M	25.82	-9.18
849.000 M	850.000 M	3.00 k	849.024000 M	-21.05	-8.05
850.000 M	855.000 M	100.00 k	850.000000 M	-39.78	-26.78

Date: 18.JUL.2014 09:24:26

Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)

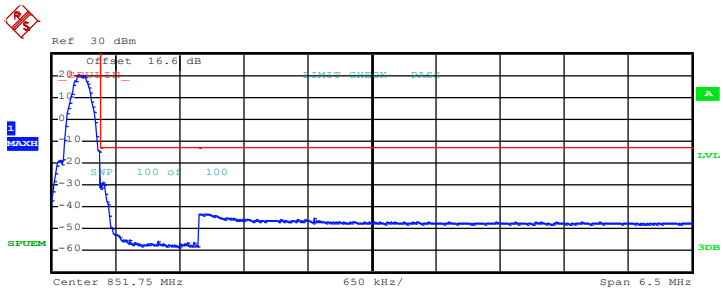
Lowest Band Edge Plot on Channel 128 (824.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
820.000 M	823.000 M	100.00 k	821.902000 M	-34.38	-21.38
823.000 M	824.000 M	3.00 k	823.988000 M	-27.10	-14.10
824.000 M	824.500 M	10.00 k	824.211500 M	19.17	-15.83

Date: 18.JUL.2014 10:07:34

Highest Band Edge Plot on Channel 251 (848.8 MHz)

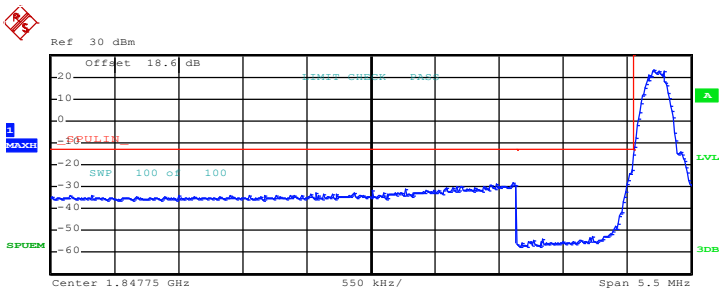


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
848.500 M	849.000 M	10.00 k	848.767500 M	20.32	-14.68
849.000 M	850.000 M	3.00 k	849.016000 M	-28.52	-15.52
850.000 M	855.000 M	100.00 k	850.070000 M	-43.13	-30.13

Date: 18.JUL.2014 09:59:19

Band :	GSM1900	Test Mode :	GSM Link (GMSK)

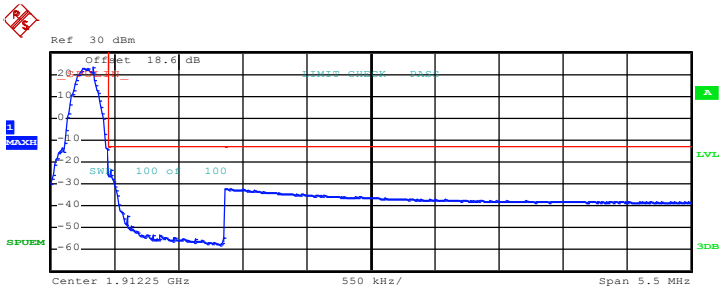
Lowest Band Edge Plot on Channel 512 (1850.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.845 G	1.849 G	1.00 M	1.848964 G	-28.35	-15.35
1.849 G	1.850 G	3.00 k	1.849984 G	-24.10	-11.10
1.850 G	1.851 G	10.00 k	1.850181 G	23.26	-11.74

Date: 18.JUL.2014 11:09:14

Highest Band Edge Plot on Channel 810 (1909.8 MHz)

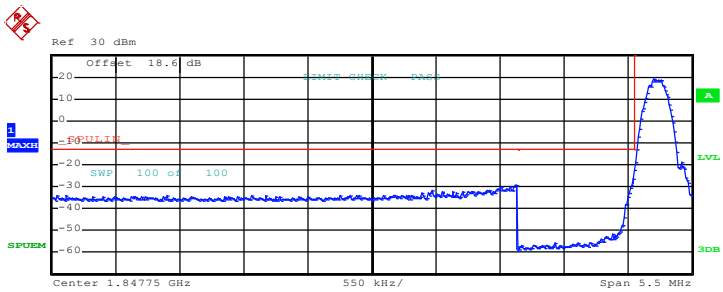


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.910 G	1.910 G	10.00 k	1.909865 G	23.07	-11.93
1.910 G	1.911 G	3.00 k	1.910012 G	-23.72	-10.72
1.911 G	1.915 G	1.00 M	1.911016 G	-32.12	-19.12

Date: 18.JUL.2014 11:06:03

Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)

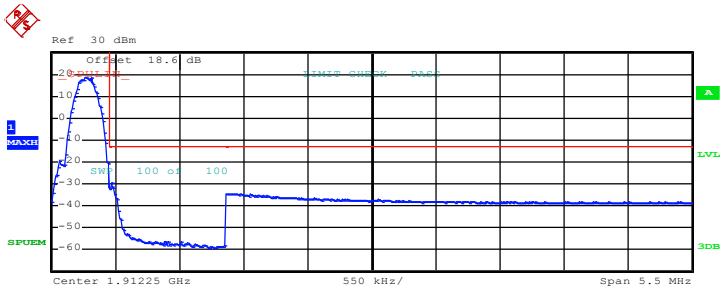
Lowest Band Edge Plot on Channel 512 (1850.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.845 G	1.849 G	1.00 M	1.848980 G	-29.11	-16.11
1.849 G	1.850 G	3.00 k	1.849988 G	-26.65	-13.65
1.850 G	1.851 G	10.00 k	1.850170 G	19.10	-15.90

Date: 18.JUL.2014 11:43:04

Highest Band Edge Plot on Channel 810 (1909.8 MHz)

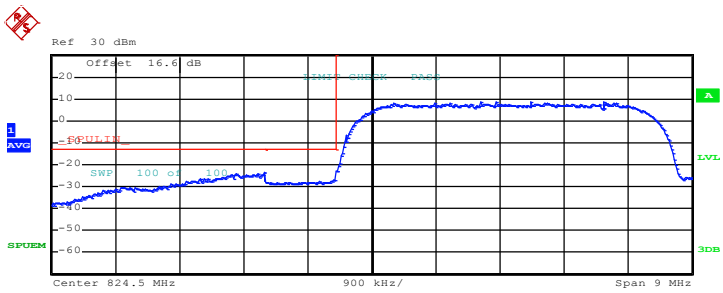


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.910 G	1.910 G	10.00 k	1.909799 G	18.71	-16.29
1.910 G	1.911 G	3.00 k	1.910012 G	-29.62	-16.62
1.911 G	1.915 G	1.00 M	1.911044 G	-34.38	-21.38

Date: 18.JUL.2014 11:40:45

Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

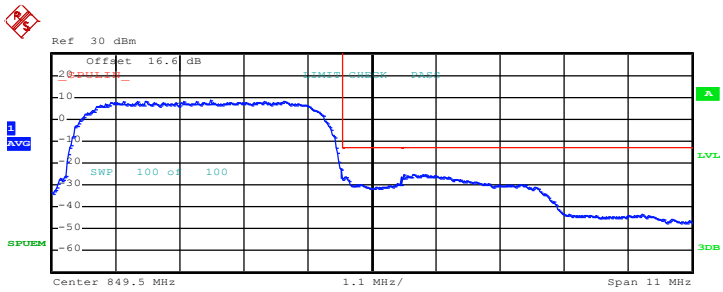
Lowest Band Edge Plot on Channel 4132 (826.4 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
820.000 M	823.000 M	100.00 k	822.982000 M	-23.58	-10.58
823.000 M	824.000 M	50.00 k	823.976000 M	-26.74	-13.74
824.000 M	829.000 M	100.00 k	826.020000 M	8.62	-26.38

Date: 18.JUL.2014 13:43:22

Highest Band Edge Plot on Channel 4233 (846.6 MHz)

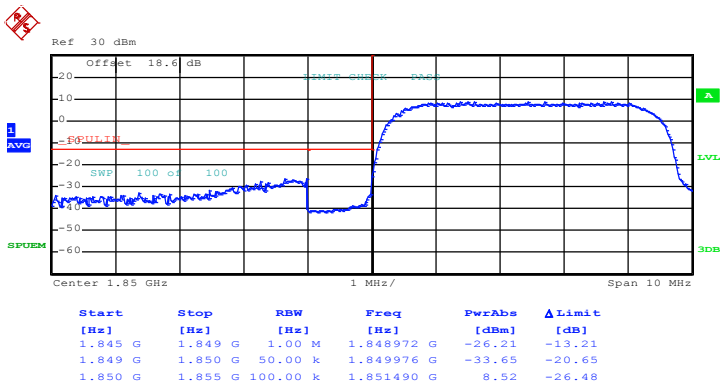


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
844.000 M	849.000 M	100.00 k	846.715000 M	8.50	-26.50
849.000 M	850.000 M	50.00 k	849.032000 M	-26.17	-13.17
850.000 M	855.000 M	100.00 k	850.050000 M	-25.12	-12.12

Date: 18.JUL.2014 13:36:10

Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

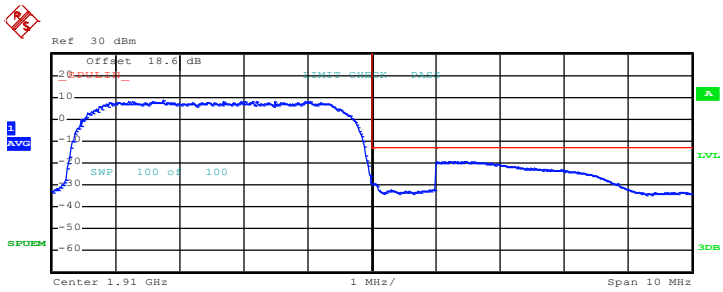
Lowest Band Edge Plot on Channel 9262 (1852.4 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848972 G	-26.21	-13.21
1.849 G	1.850 G	50.00 k	1.849976 G	-33.65	-20.65
1.850 G	1.855 G	100.00 k	1.851490 G	8.52	-26.48

Date: 18.JUL.2014 13:04:47

Highest Band Edge Plot on Channel 9538 (1907.6 MHz)

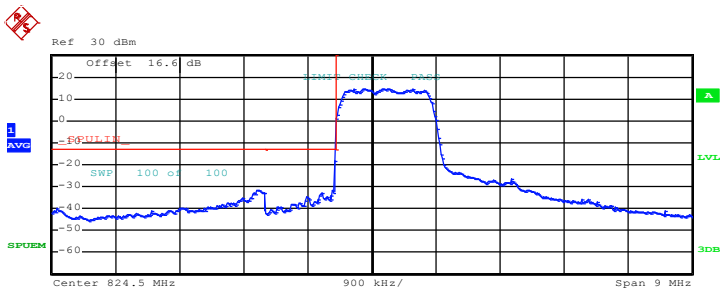


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.906730 G	8.53	-26.47
1.910 G	1.911 G	50.00 k	1.910040 G	-28.81	-15.81
1.911 G	1.915 G	1.00 M	1.911404 G	-19.27	-6.27

Date: 18.JUL.2014 13:02:24

Band :	CDMA2000 BC0	Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)

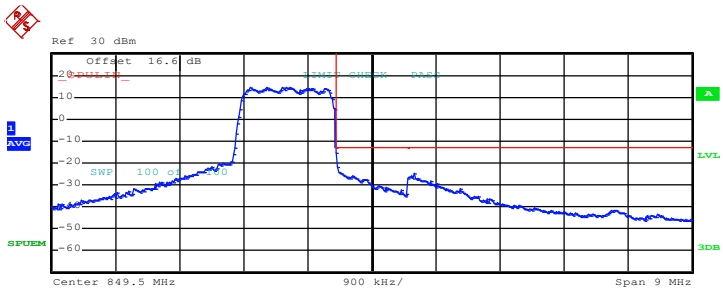
Lowest Band Edge Plot on Channel 1013 (824.7 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
820.000 M	823.000 M	100.00 k	822.898000 M	-31.79	-18.79
823.000 M	824.000 M	14.00 k	823.996000 M	-19.74	-6.74
824.000 M	829.000 M	100.00 k	824.385000 M	14.59	-20.41

Date: 18.JUL.2014 18:21:45

Highest Band Edge Plot on Channel 777 (848.31 MHz)

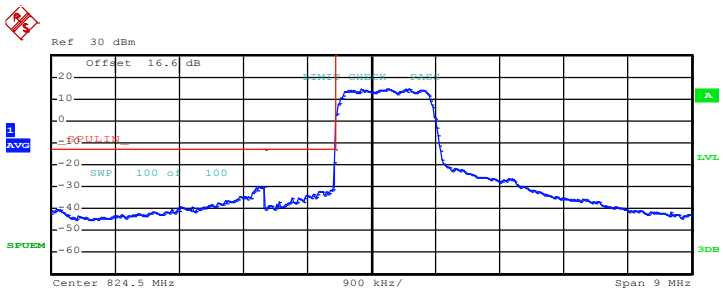


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
845.000 M	849.000 M	100.00 k	848.292000 M	14.49	-20.51
849.000 M	850.000 M	14.00 k	849.004000 M	-15.75	-2.75
850.000 M	854.000 M	100.00 k	850.084000 M	-24.82	-11.82

Date: 18.JUL.2014 18:15:58

Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC1+SO55 (QPSK)

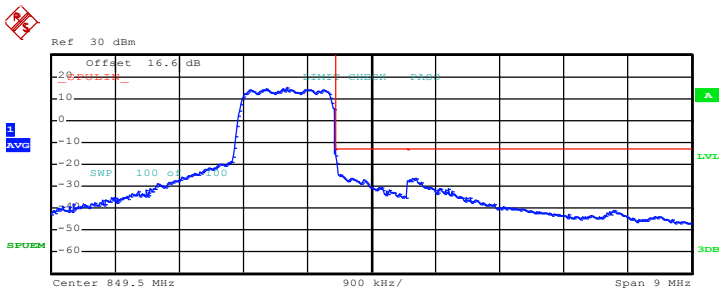
Lower Band Edge Plot on Channel 1013 (824.7 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.982000 M	-30.06	-17.06
823.000 M	824.000 M	14.00 k	823.996000 M	-20.46	-7.46
824.000 M	829.000 M	100.00 k	825.020000 M	14.57	-20.43

Date: 19.JUL.2014 09:50:18

Higher Band Edge Plot on Channel 777 (848.31 MHz)

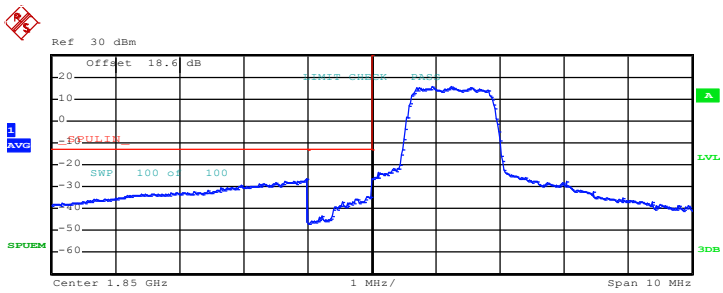


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
845.000 M	849.000 M	100.00 k	848.300000 M	14.82	-20.18
849.000 M	850.000 M	14.00 k	849.004000 M	-15.97	-2.97
850.000 M	854.000 M	100.00 k	850.100000 M	-26.43	-13.43

Date: 19.JUL.2014 09:46:19

Band :	CDMA2000 BC1	Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)

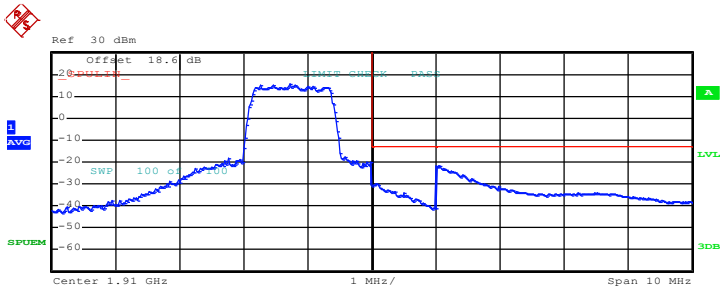
Lowest Band Edge Plot on Channel 25 (1851.25 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.845 G	1.849 G	1.00 M	1.848984 G	-26.67	-13.67
1.849 G	1.850 G	14.00 k	1.849976 G	-34.45	-21.45
1.850 G	1.855 G	100.00 k	1.850935 G	15.62	-19.38

Date: 19.JUL.2014 10:36:45

Highest Band Edge Plot on Channel 1175 (1908.75 MHz)

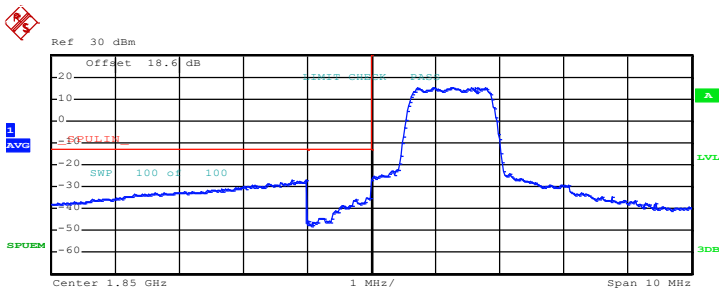


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
1.905 G	1.910 G	100.00 k	1.908725 G	15.50	-19.50
1.910 G	1.911 G	14.00 k	1.910088 G	-29.11	-16.11
1.911 G	1.915 G	1.00 M	1.911056 G	-21.71	-8.71

Date: 19.JUL.2014 10:34:08

Band :	CDMA2000 BC1	Test Mode :	1xRTT_RC1+SO55 (QPSK)

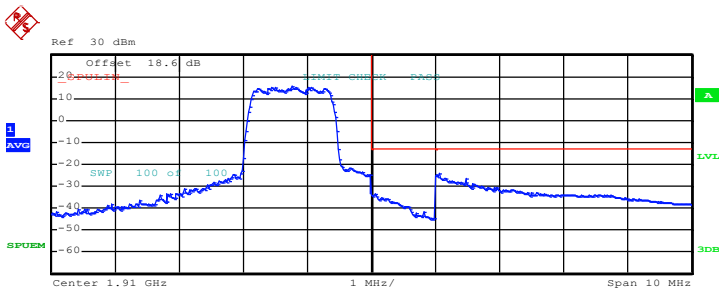
Lower Band Edge Plot on Channel 25 (1851.25 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848748 G	-27.06	-14.06
1.849 G	1.850 G	14.00 k	1.849928 G	-35.06	-22.06
1.850 G	1.855 G	100.00 k	1.851785 G	15.31	-19.69

Date: 19.JUL.2014 11:09:53

Higher Band Edge Plot on Channel 1175 (1908.75 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.908765 G	15.84	-19.16
1.910 G	1.911 G	14.00 k	1.910044 G	-33.71	-20.71
1.911 G	1.915 G	1.00 M	1.911048 G	-24.27	-11.27

Date: 19.JUL.2014 11:02:11

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

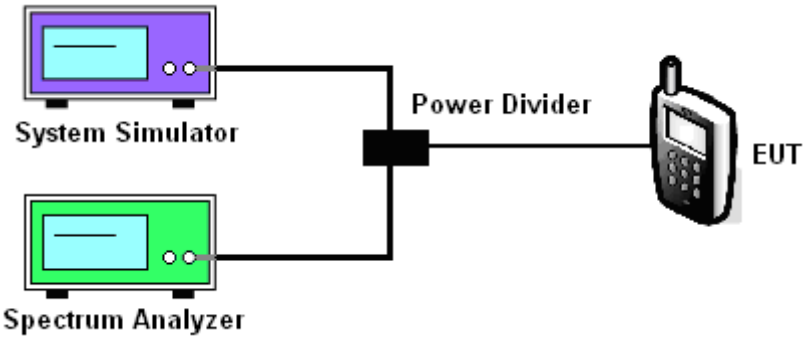
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.6.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
   = P(W) - [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

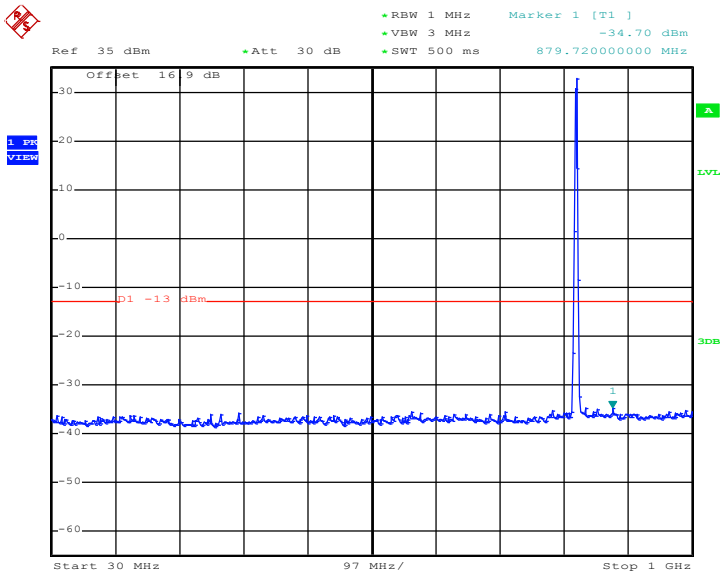
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

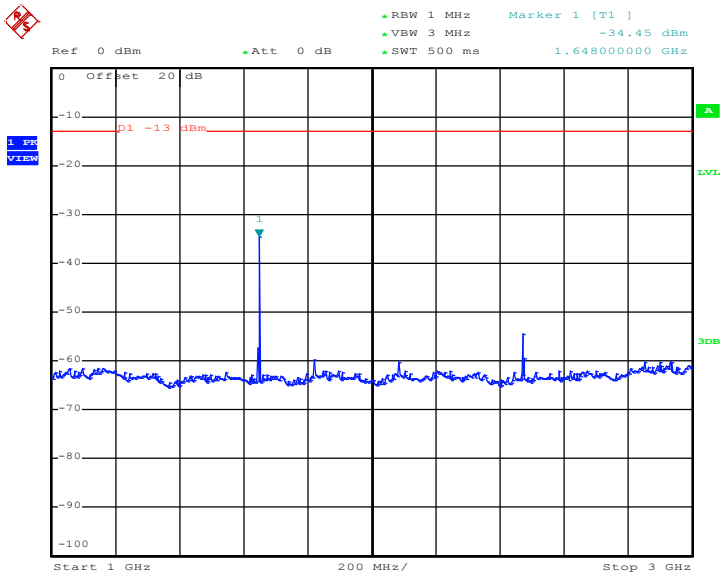
Band :	GSM850	Channel :	CH128
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



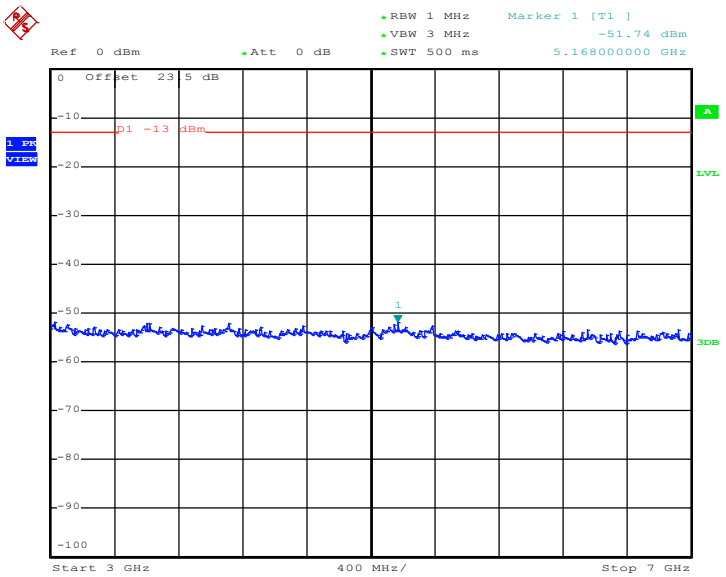
Date: 18.JUL.2014 09:44:04

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



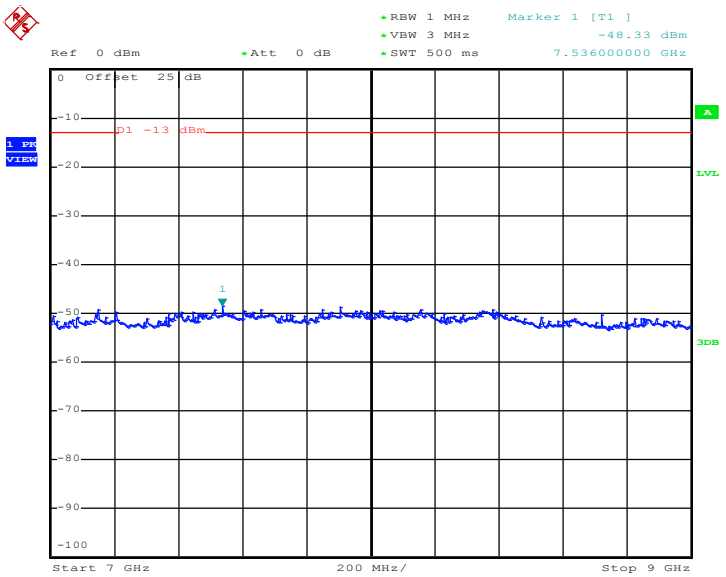
Date: 18.JUL.2014 09:44:14

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 09:44:22

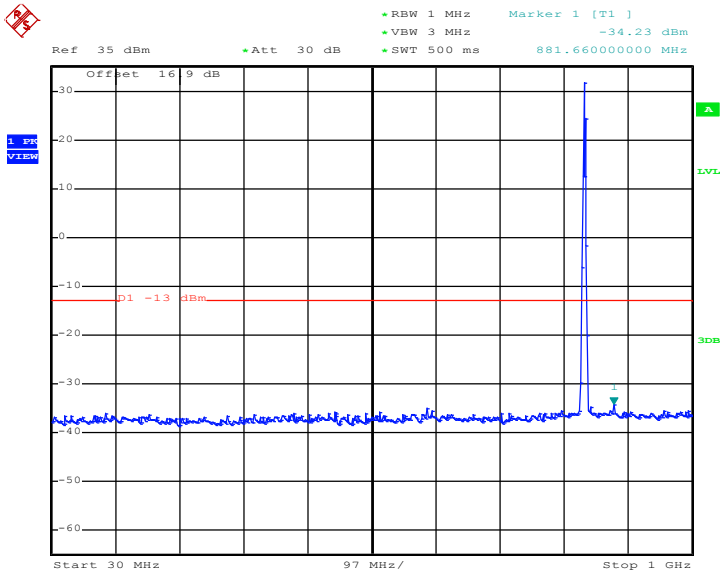
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 09:44:31

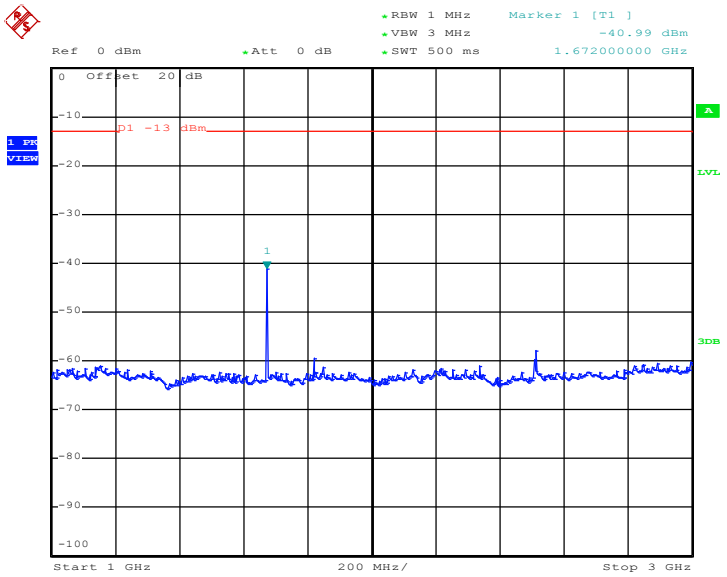
Band :	GSM850	Channel :	CH189
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



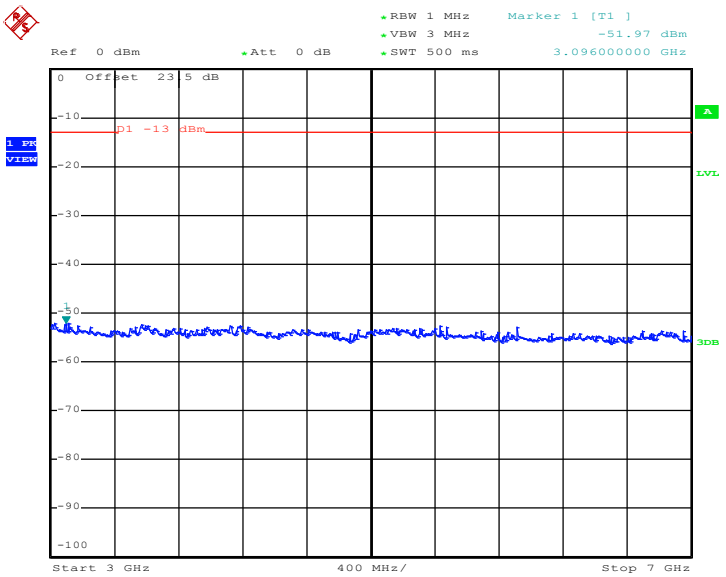
Date: 18.JUL.2014 09:41:46

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



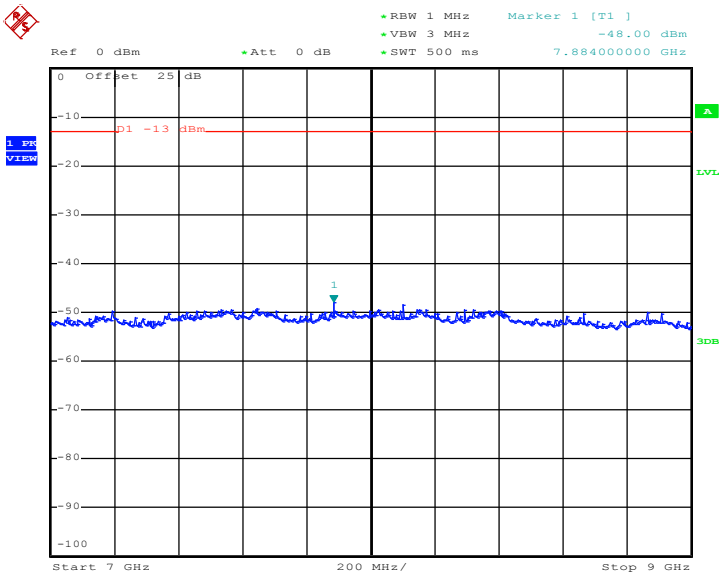
Date: 18.JUL.2014 09:41:57

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 09:42:05

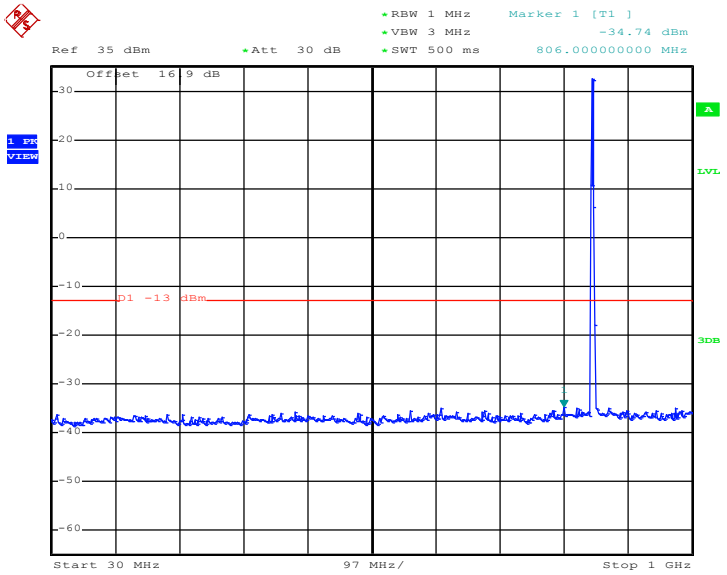
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 09:42:13

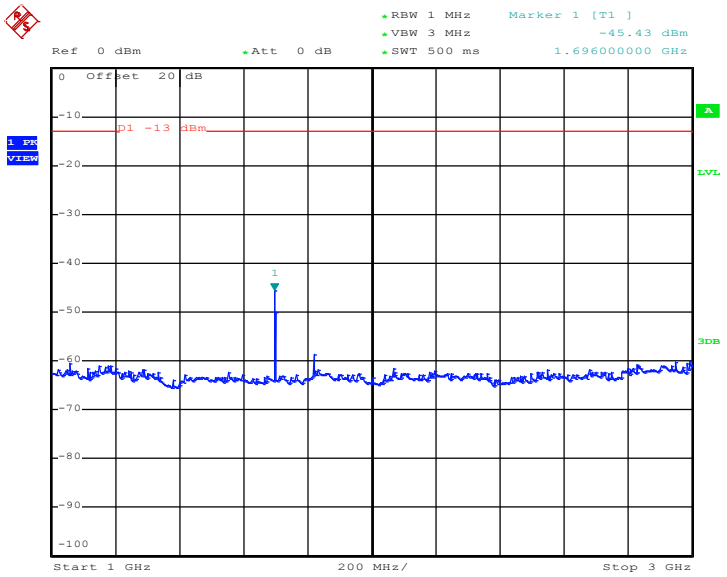
Band :	GSM850	Channel :	CH251
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



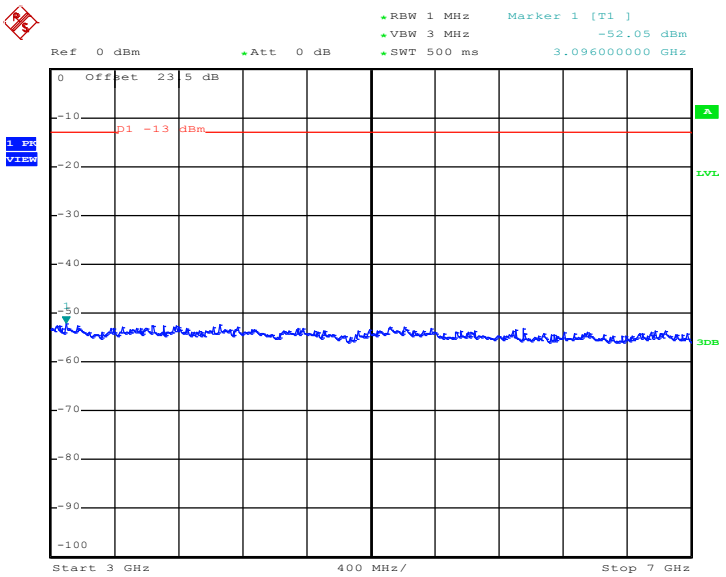
Date: 18.JUL.2014 09:49:54

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



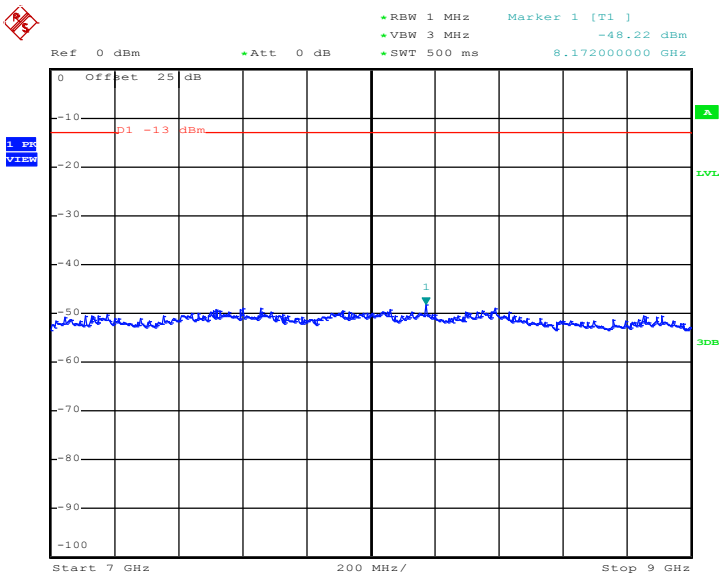
Date: 18.JUL.2014 09:50:05

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 09:50:13

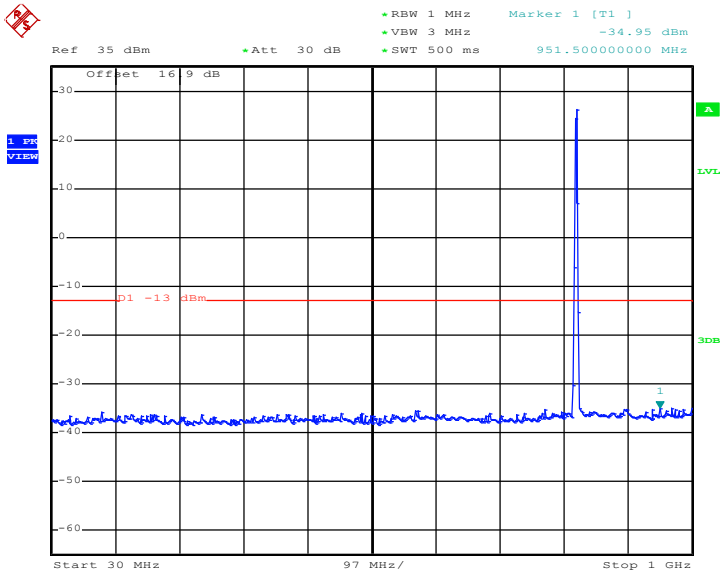
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 09:50:21

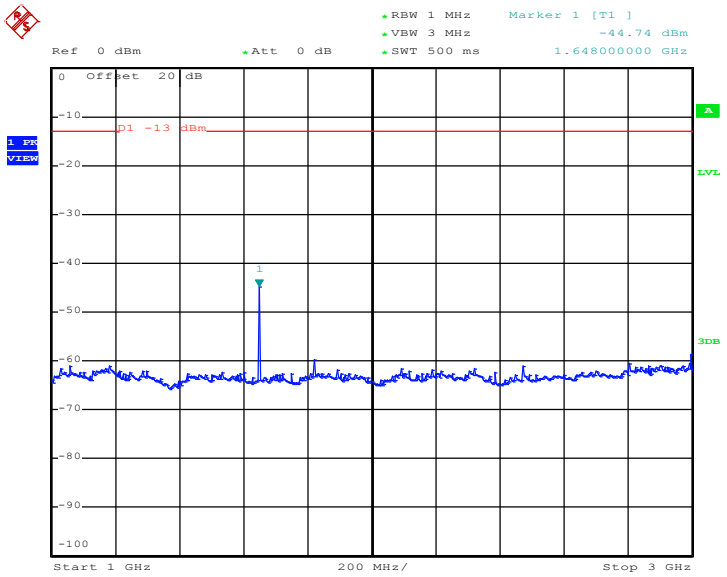
Band :	GSM850	Channel :	CH128
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



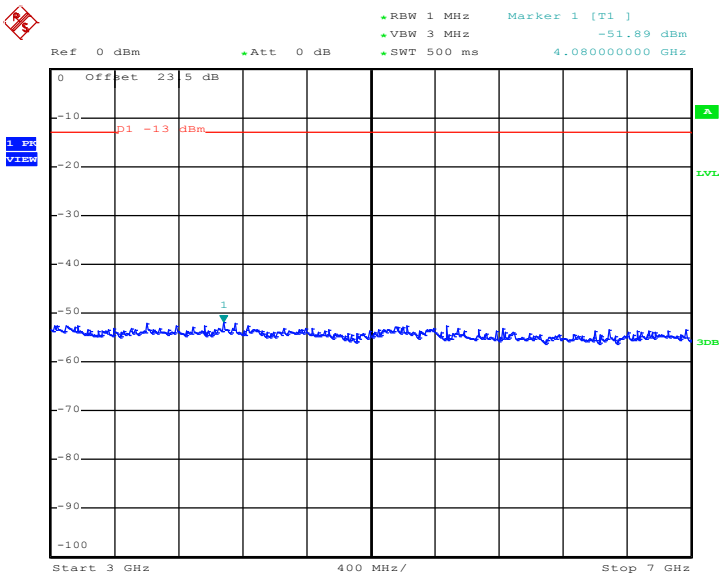
Date: 18.JUL.2014 10:42:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



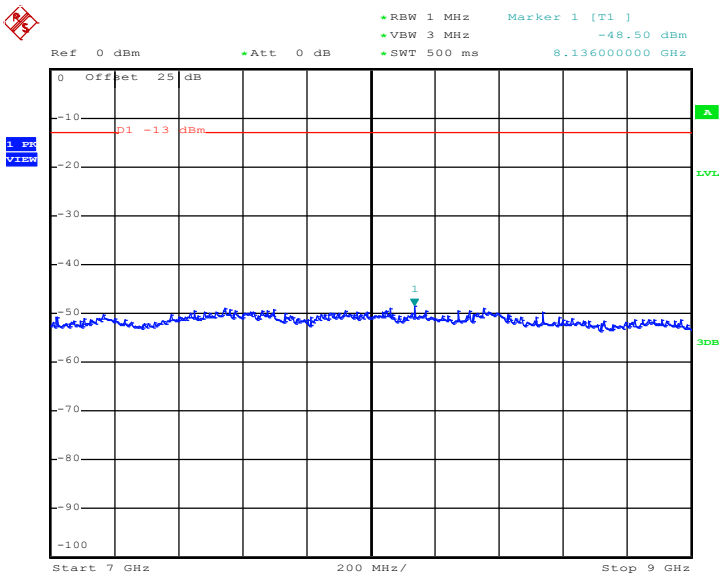
Date: 18.JUL.2014 10:42:16

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 10:42:24

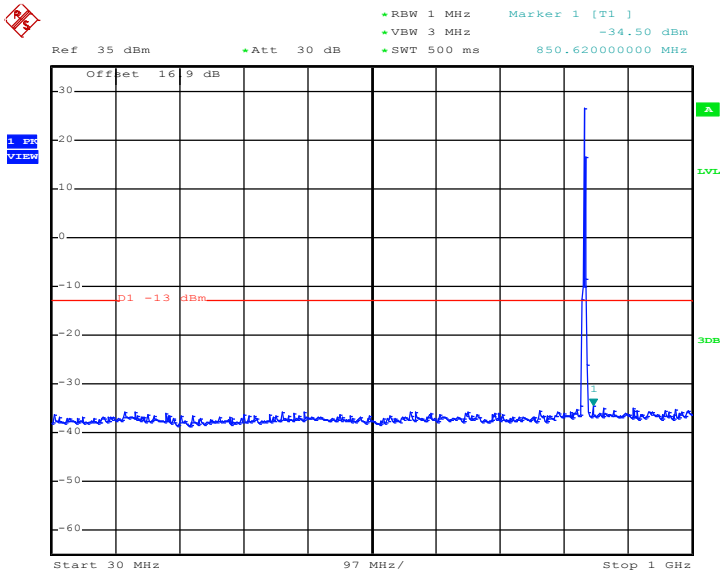
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 10:42:33

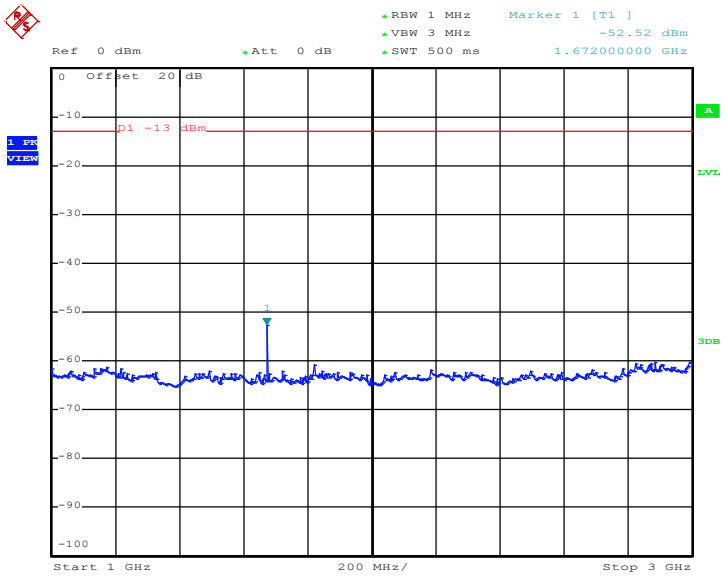
Band :	GSM850	Channel :	CH189
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



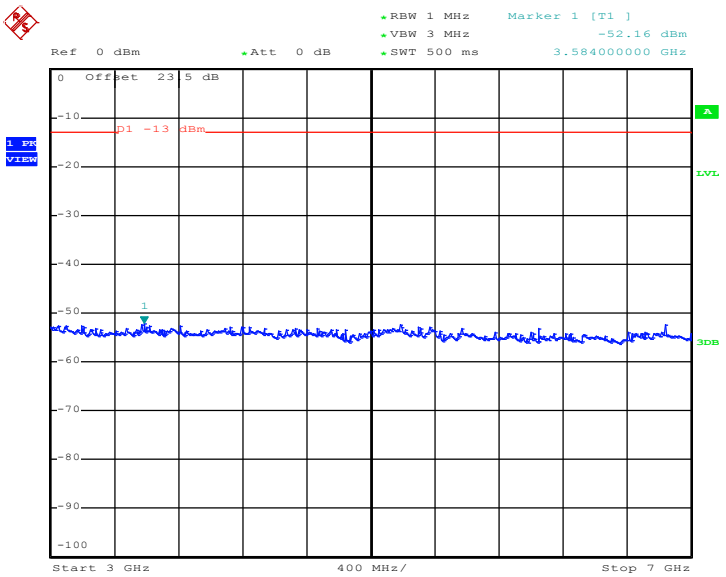
Date: 18.JUL.2014 10:40:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



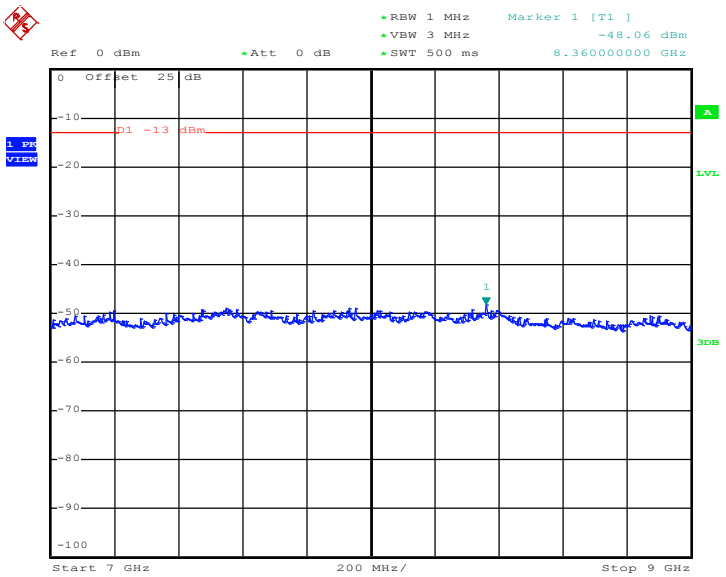
Date: 18.JUL.2014 10:40:17

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 10:40:25

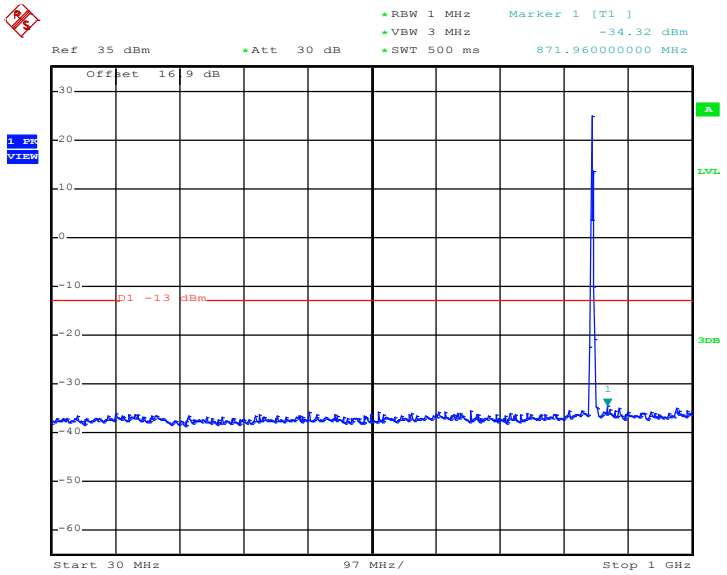
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 10:40:33

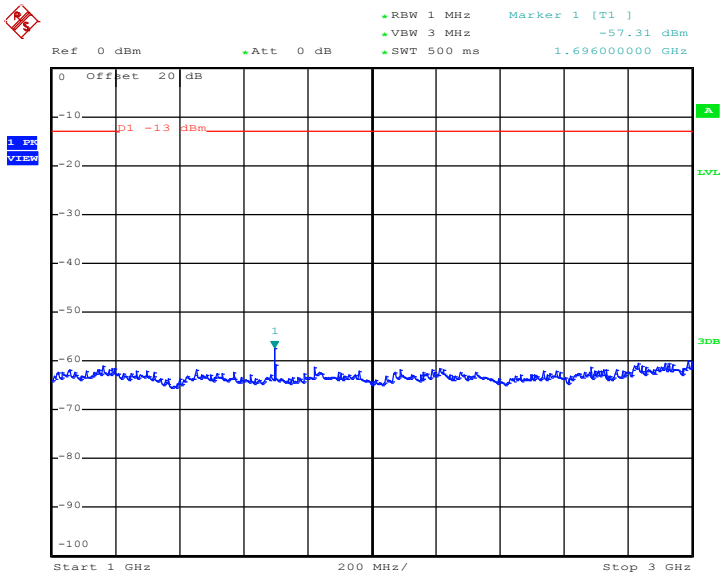
Band :	GSM850	Channel :	CH251
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



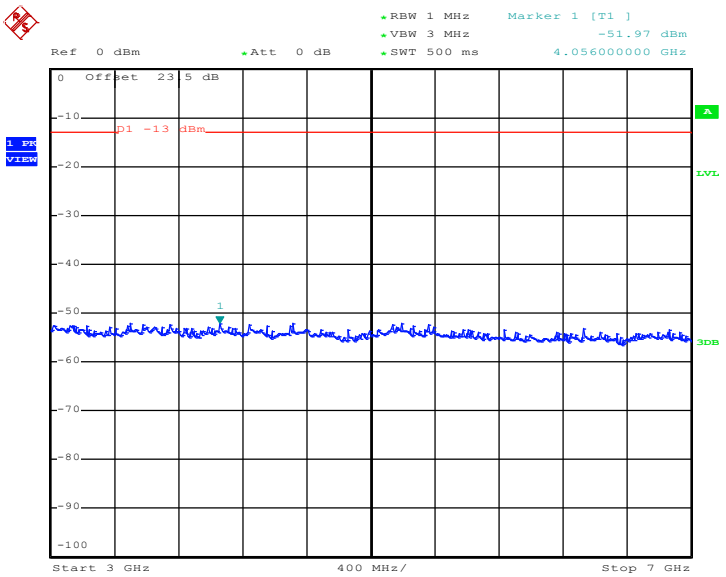
Date: 18.JUL.2014 10:46:39

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



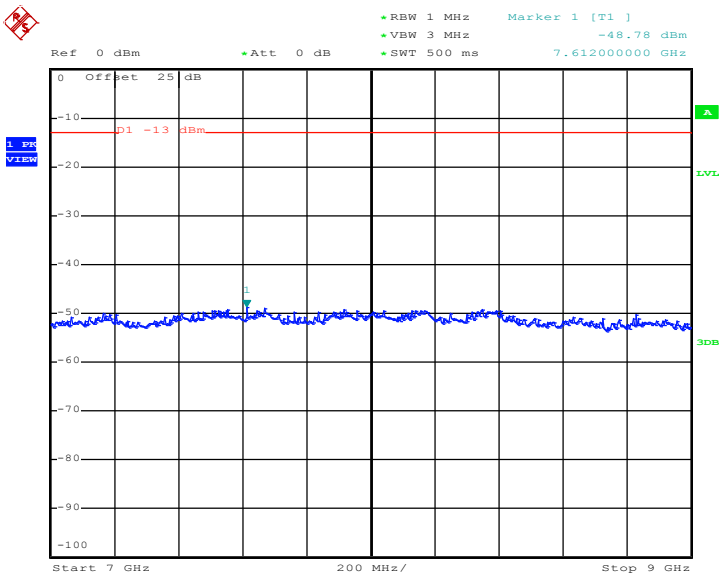
Date: 18.JUL.2014 10:46:49

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 10:46:57

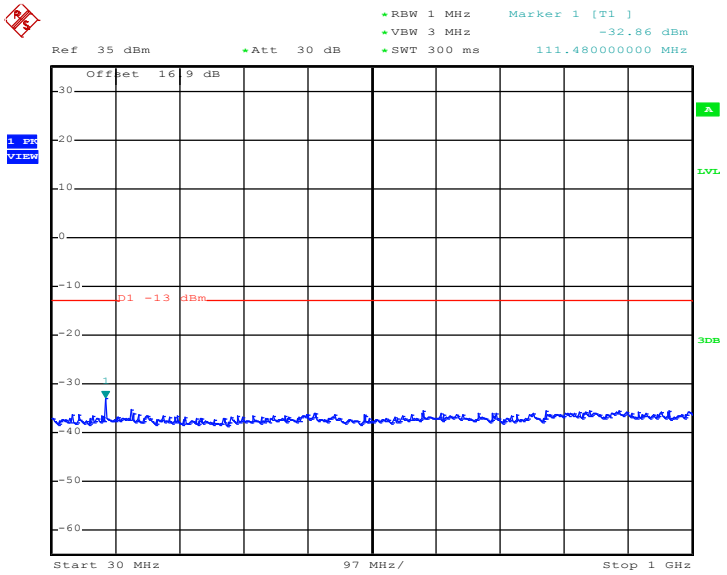
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 10:47:05

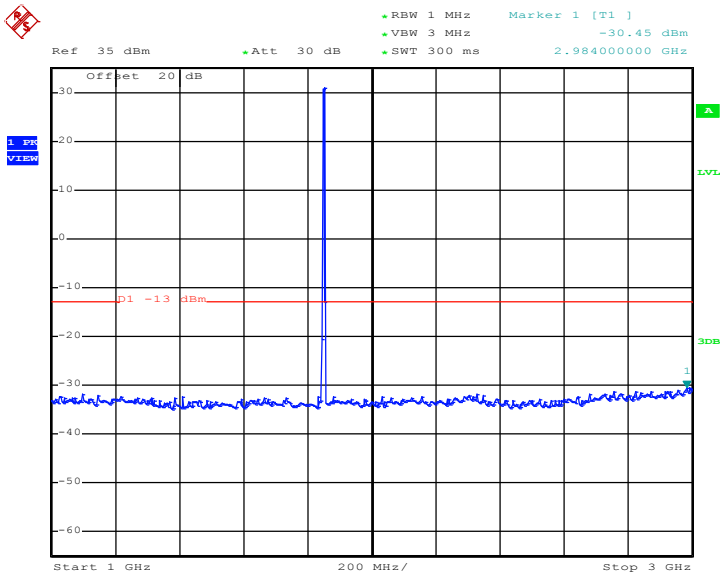
Band :	GSM1900	Channel :	CH512
Test Mode :	GSM Link (GMSK)	Frequency :	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



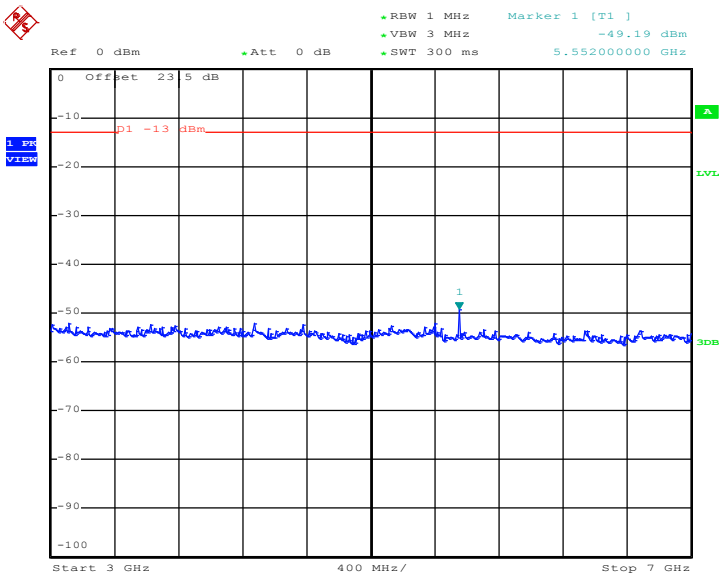
Date: 18.JUL.2014 11:30:18

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



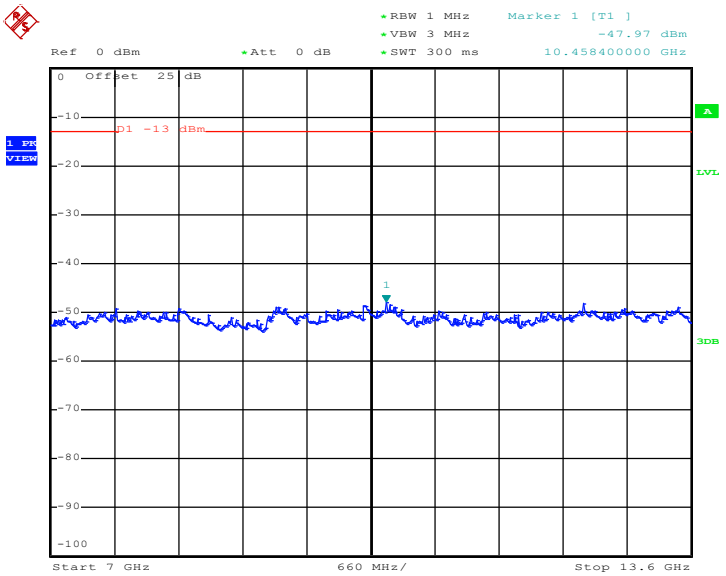
Date: 18.JUL.2014 11:30:27

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



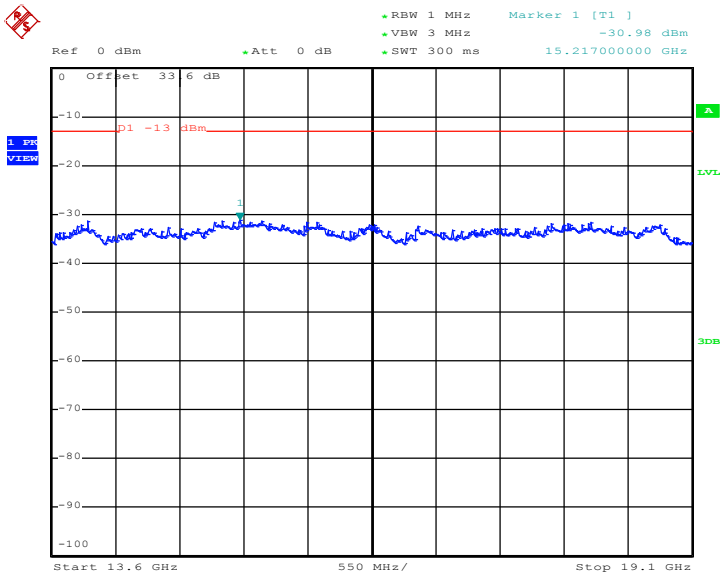
Date: 18.JUL.2014 11:30:38

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 11:30:46

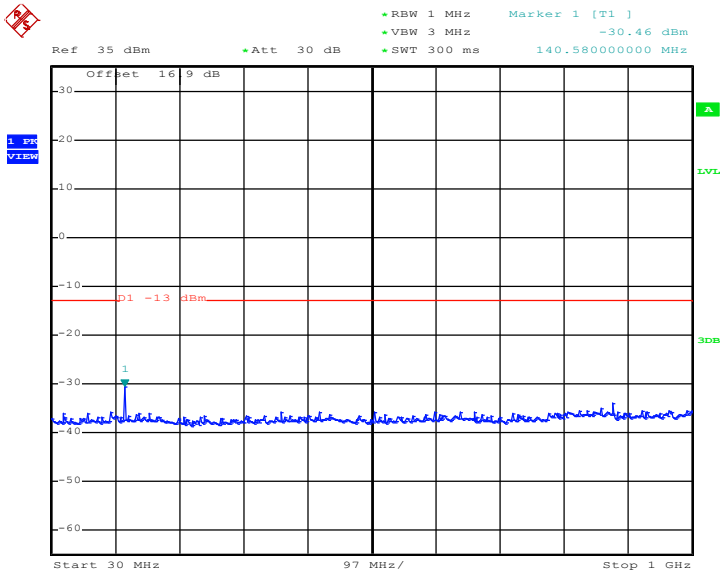
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 11:30:55

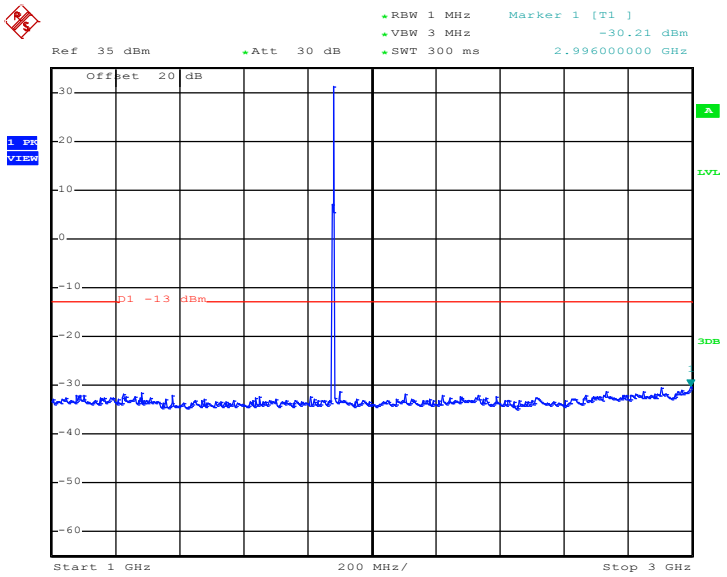
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



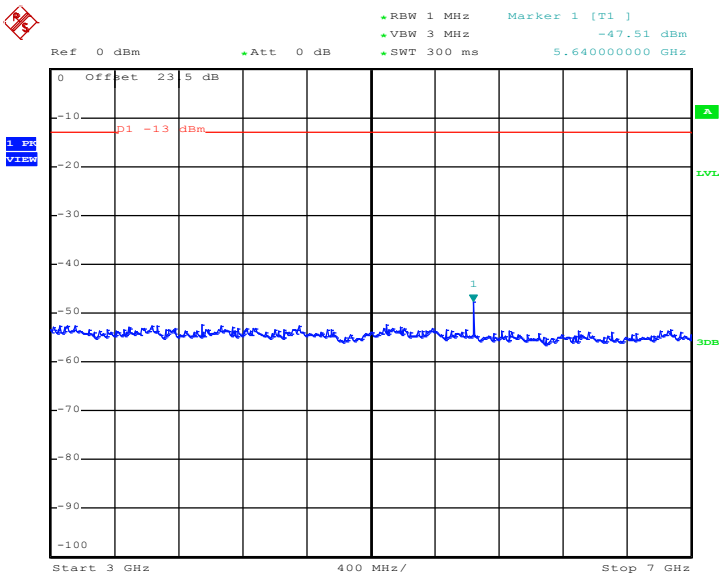
Date: 18.JUL.2014 11:29:01

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



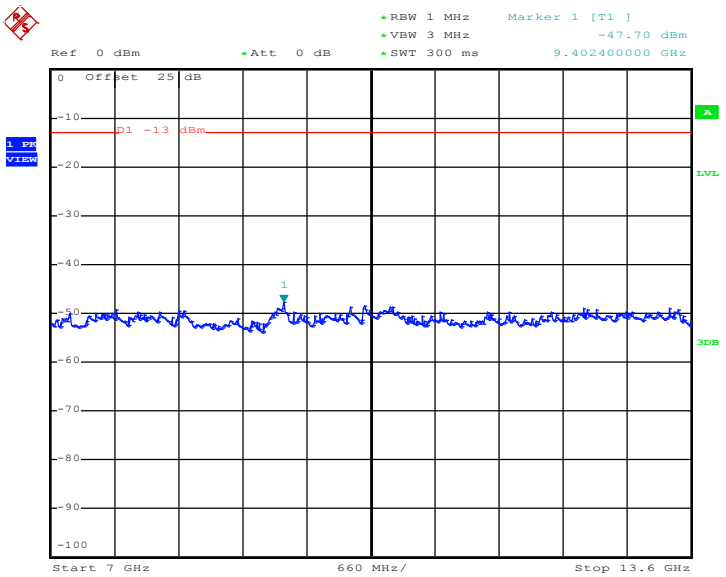
Date: 18.JUL.2014 11:29:09

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



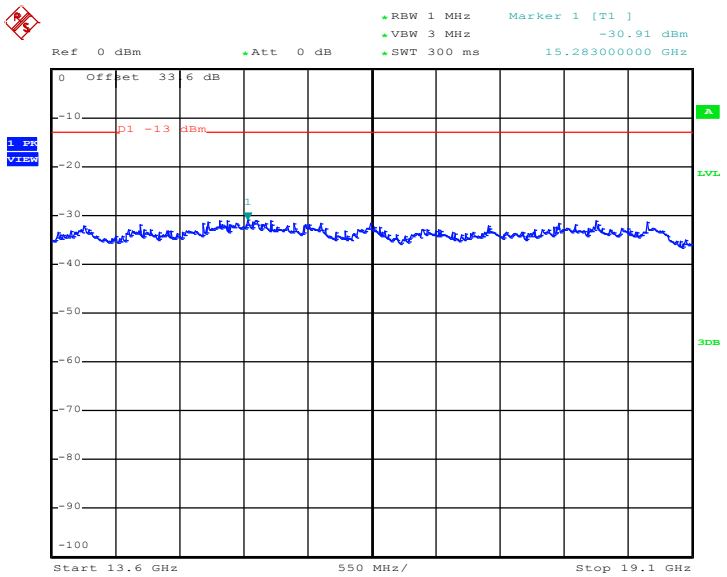
Date: 18.JUL.2014 11:29:19

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 11:29:28

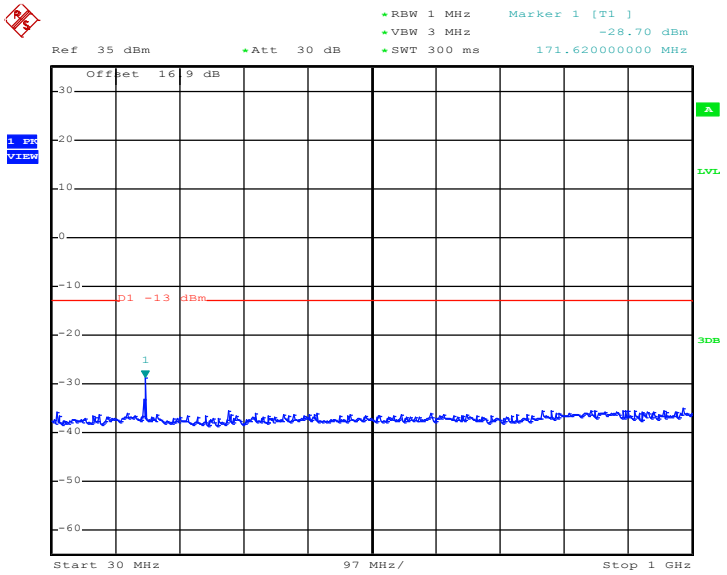
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 11:29:36

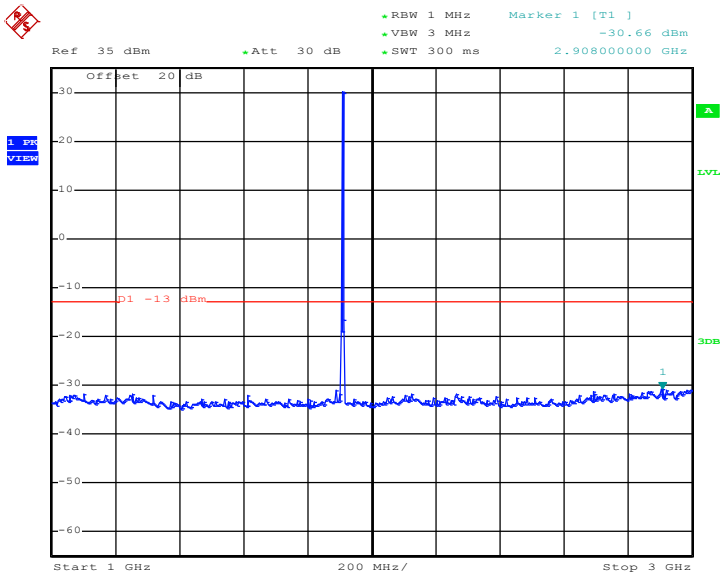
Band :	GSM1900	Channel :	CH810
Test Mode :	GSM Link (GMSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



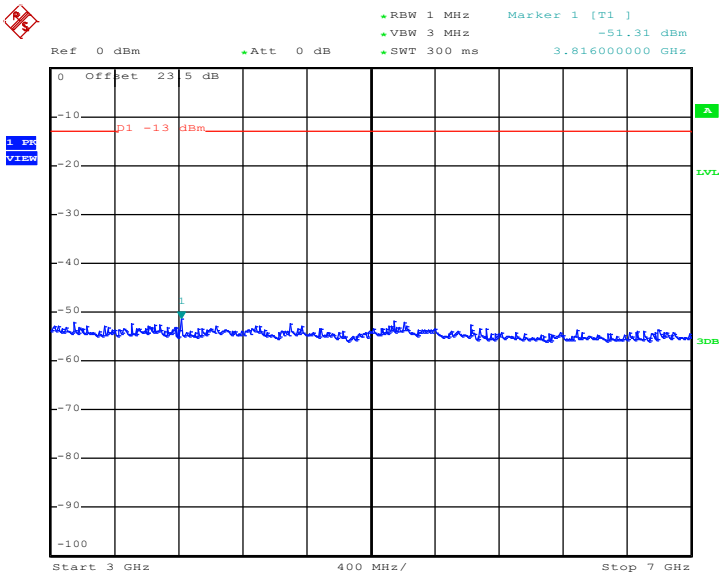
Date: 18.JUL.2014 11:32:45

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



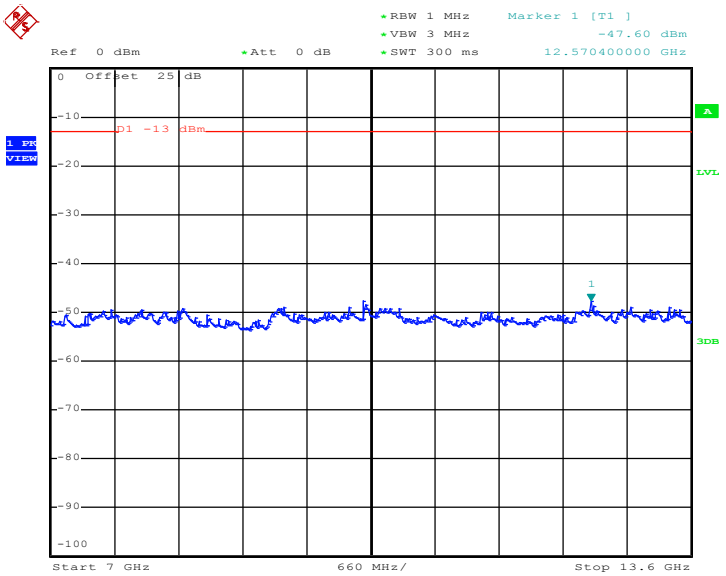
Date: 18.JUL.2014 11:32:53

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



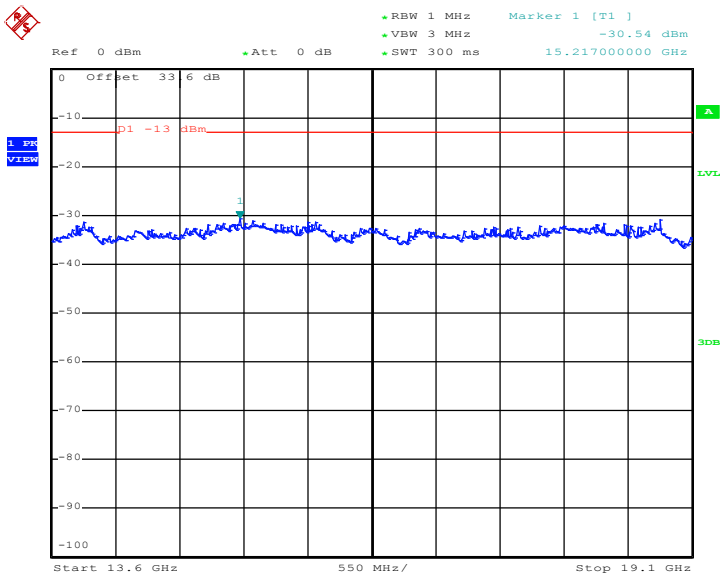
Date: 18.JUL.2014 11:33:05

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 11:33:13

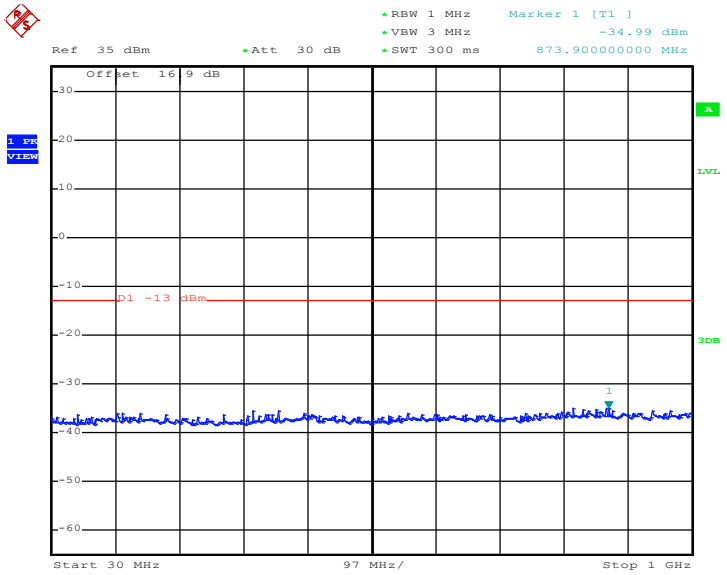
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 11:33:22

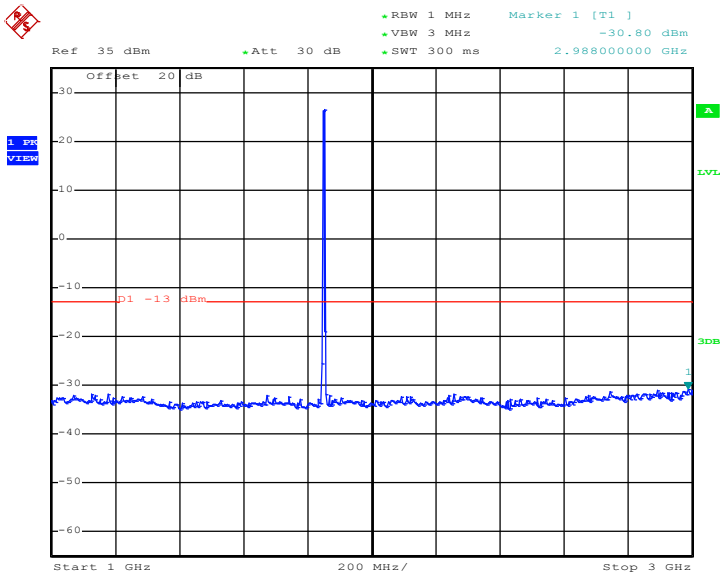
Band :	GSM1900	Channel :	CH512
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



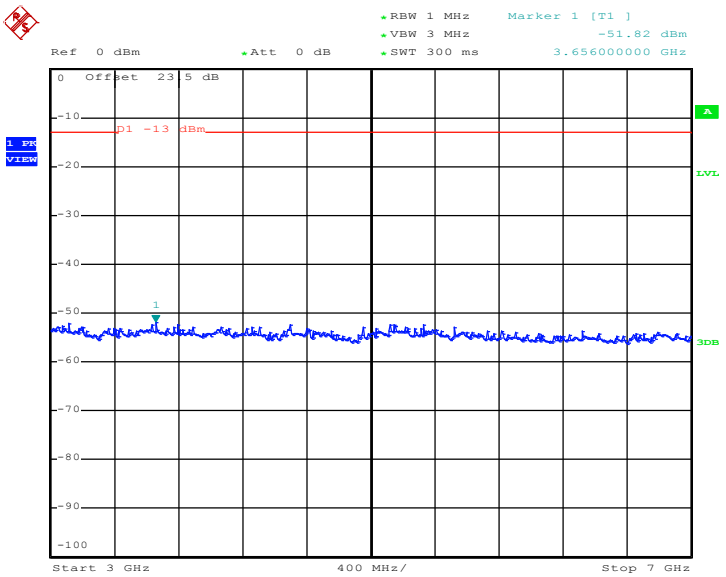
Date: 18.JUL.2014 12:38:51

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



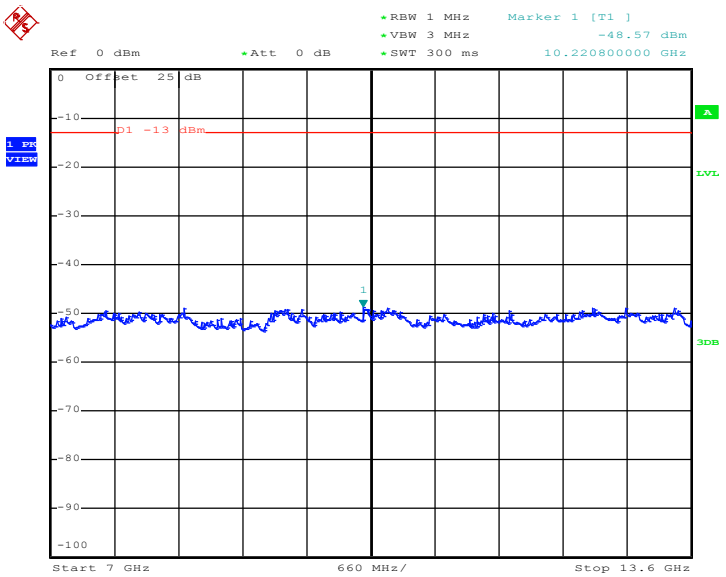
Date: 18.JUL.2014 12:39:00

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



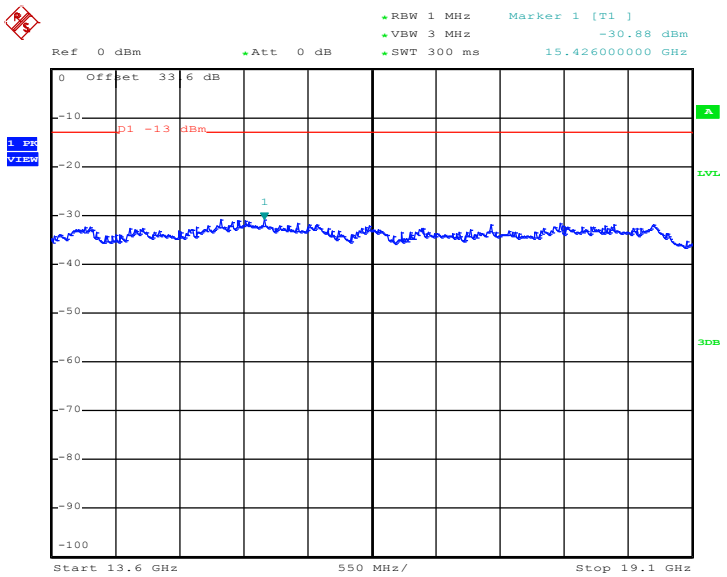
Date: 18.JUL.2014 12:39:10

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 12:39:19

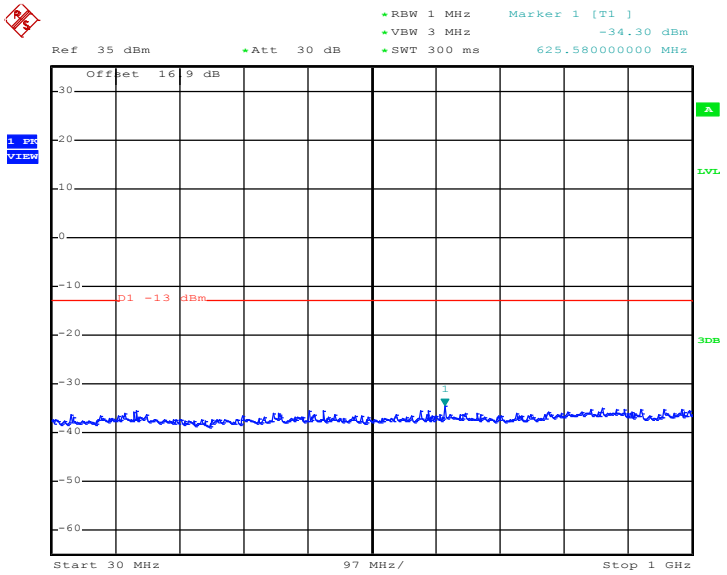
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 12:39:27

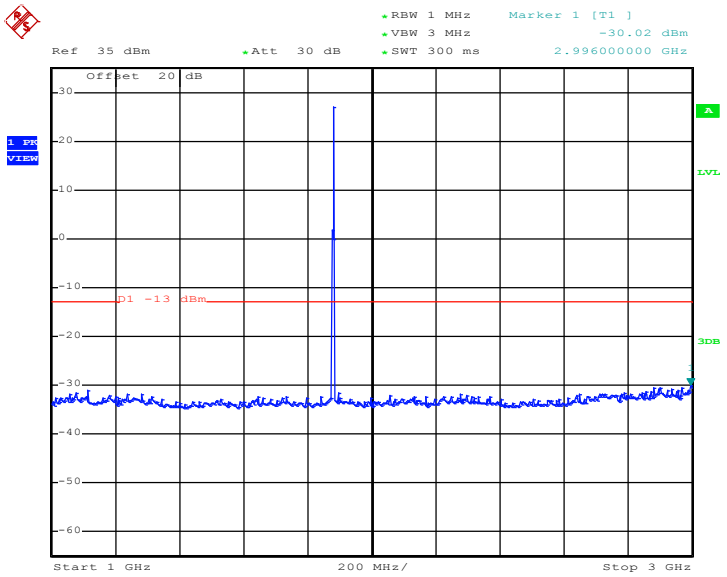
Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



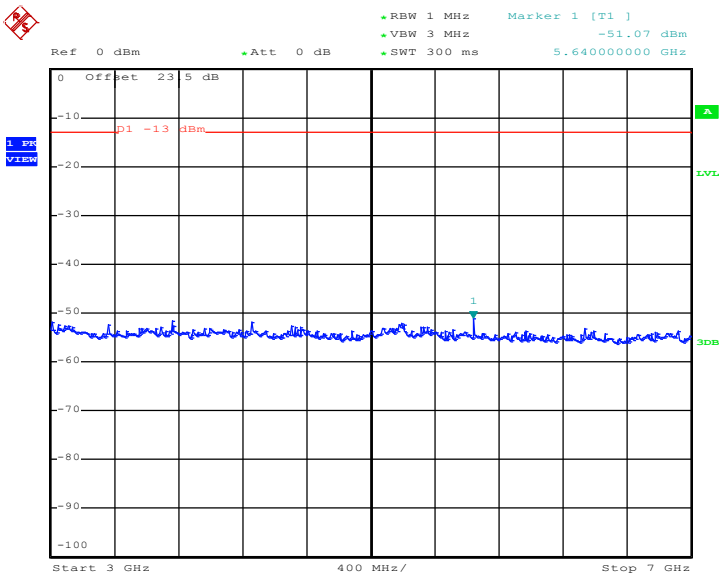
Date: 18.JUL.2014 12:37:05

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



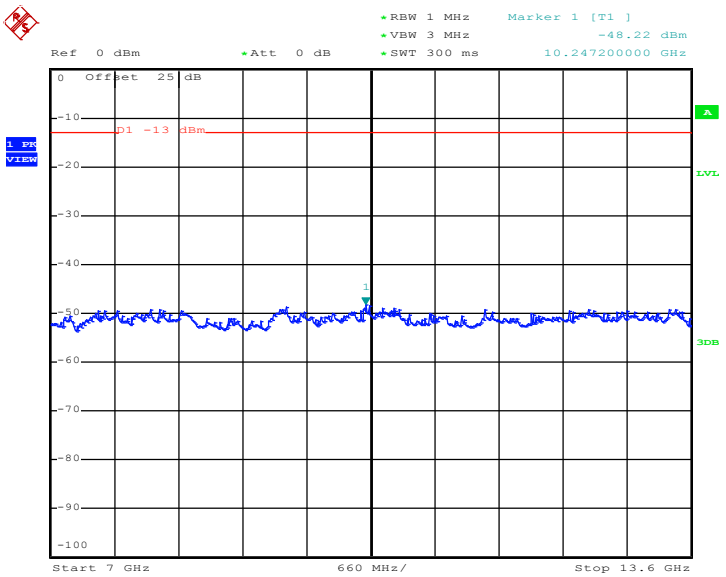
Date: 18.JUL.2014 12:37:13

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



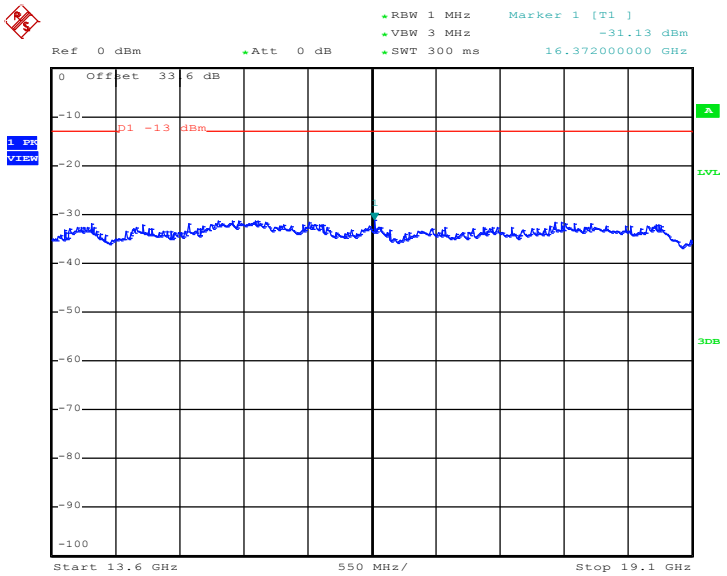
Date: 18.JUL.2014 12:37:24

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 12:37:32

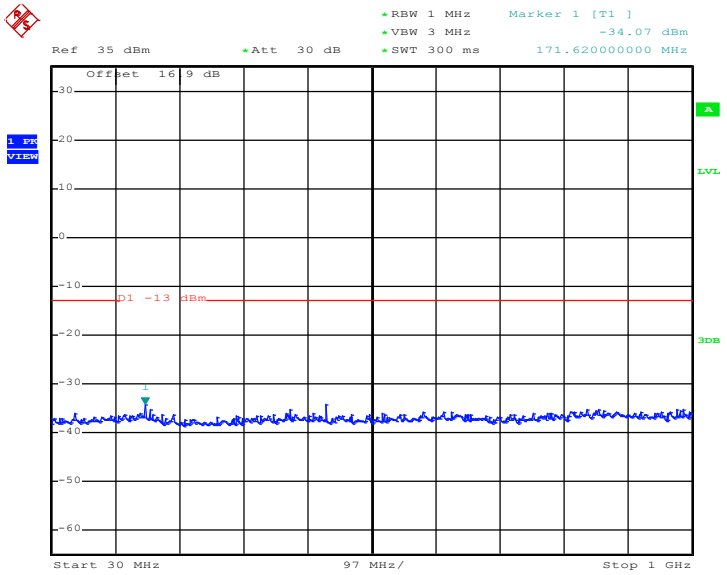
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 12:37:41

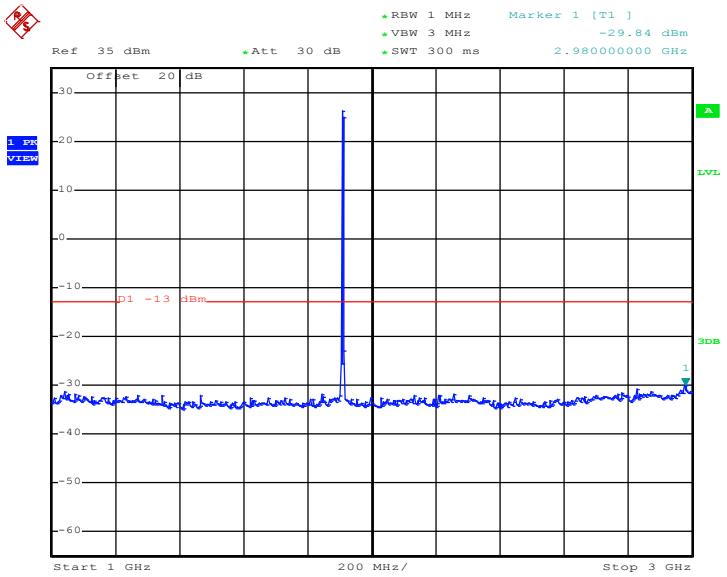
Band :	GSM1900	Channel :	CH810
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



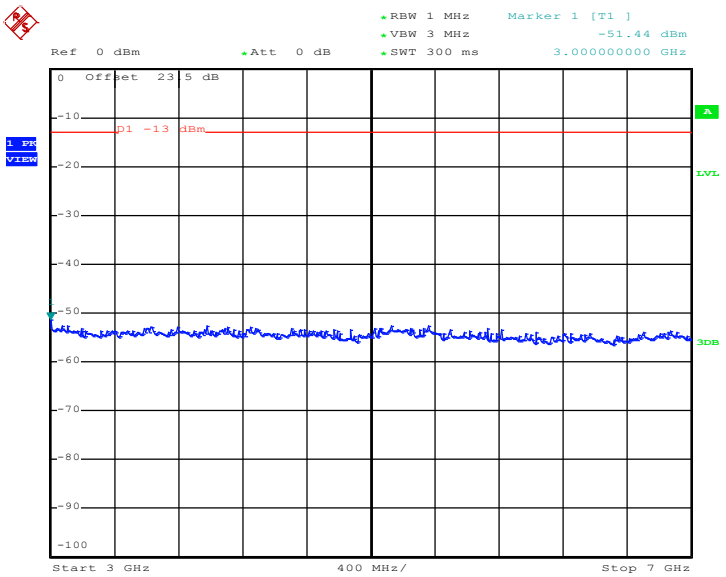
Date: 18.JUL.2014 12:40:36

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



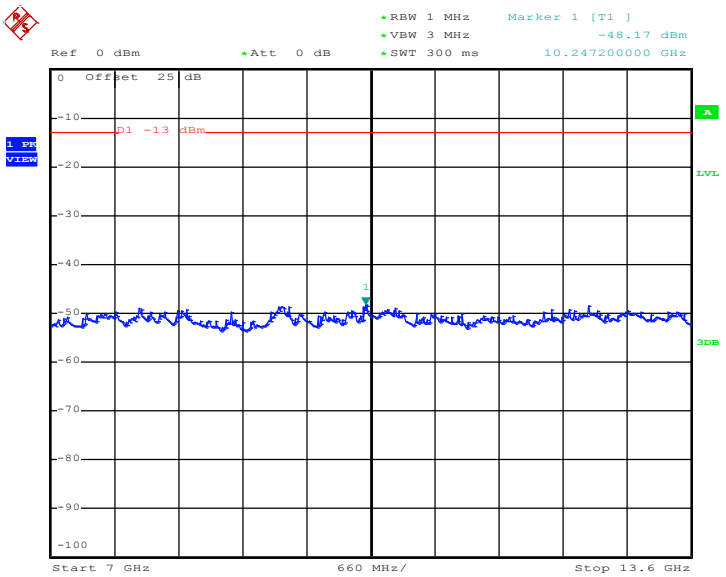
Date: 18.JUL.2014 12:40:44

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



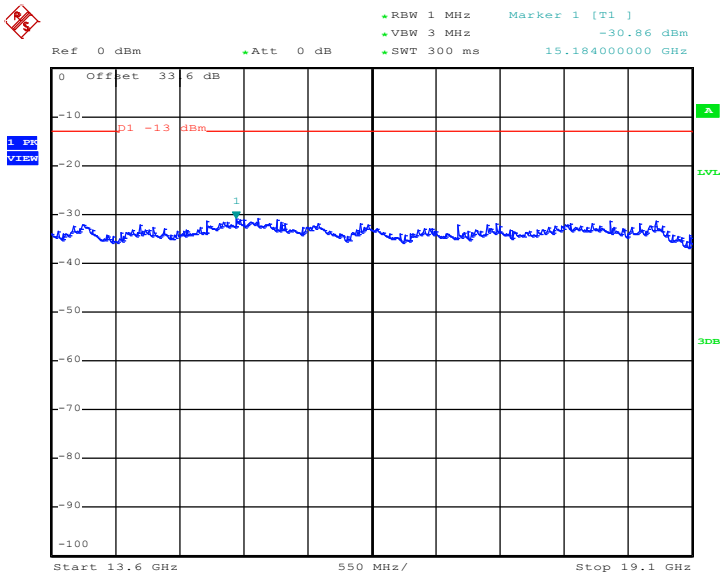
Date: 18.JUL.2014 12:40:54

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 12:41:03

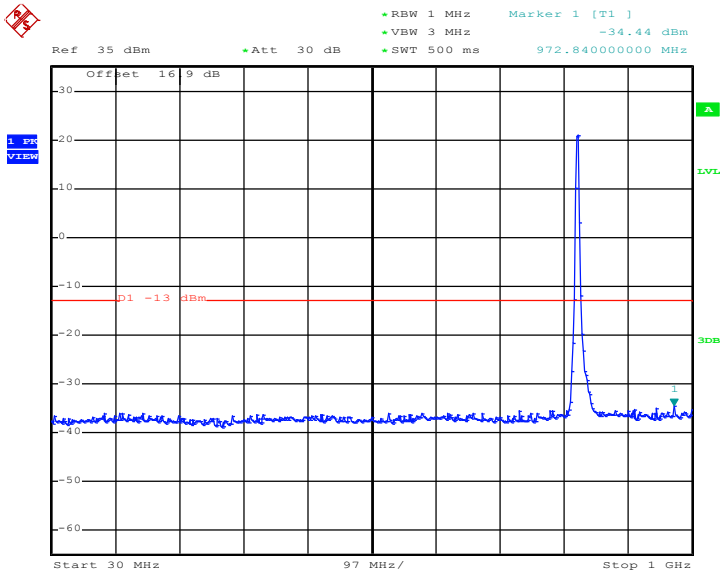
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 12:41:11

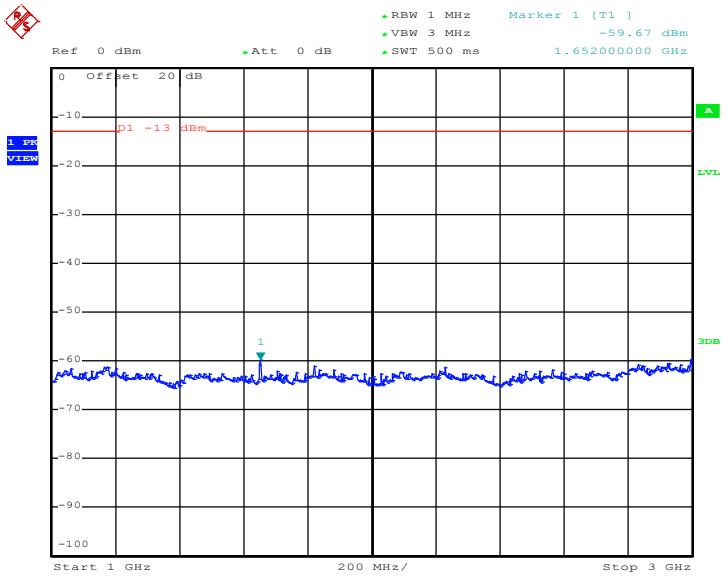
Band :	WCDMA Band V	Channel :	CH4132
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	826.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



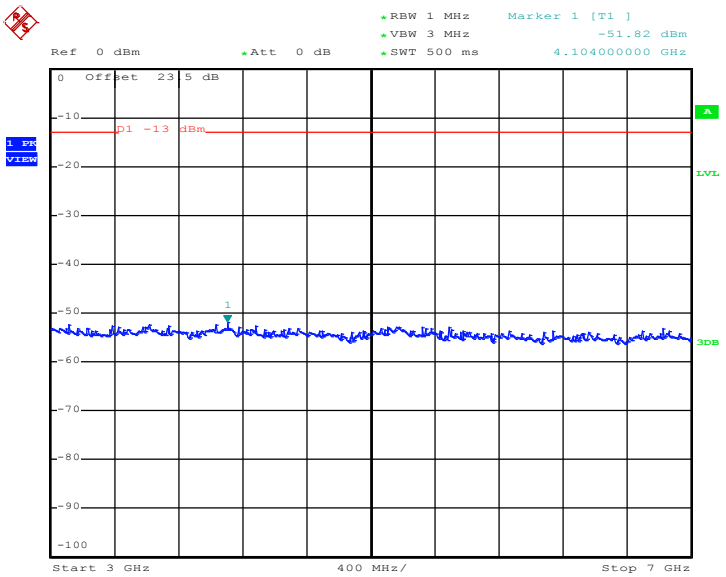
Date: 18.JUL.2014 13:54:10

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



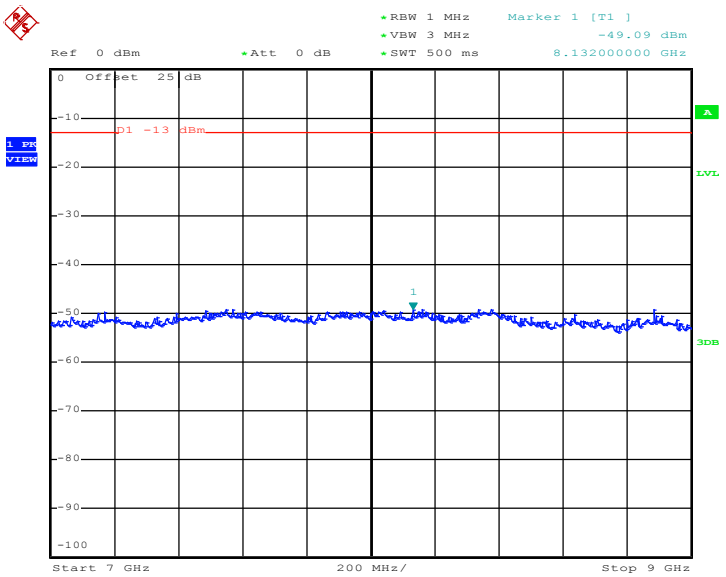
Date: 18.JUL.2014 13:54:20

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 13:54:28

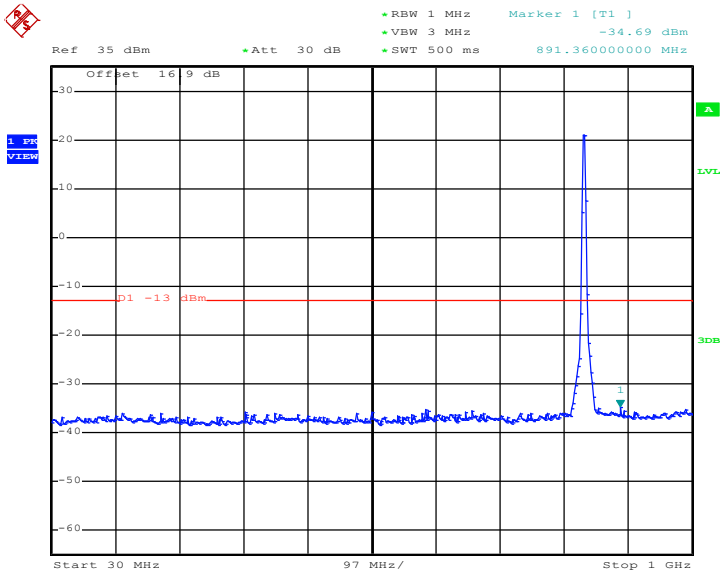
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 13:54:36

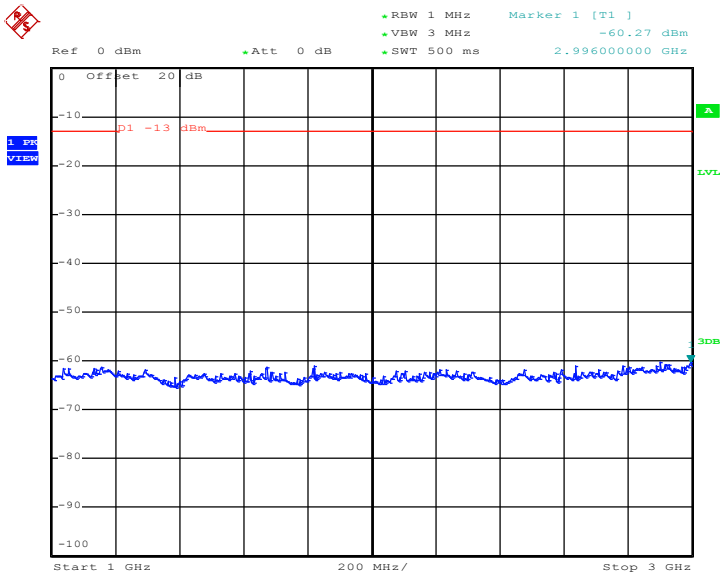
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



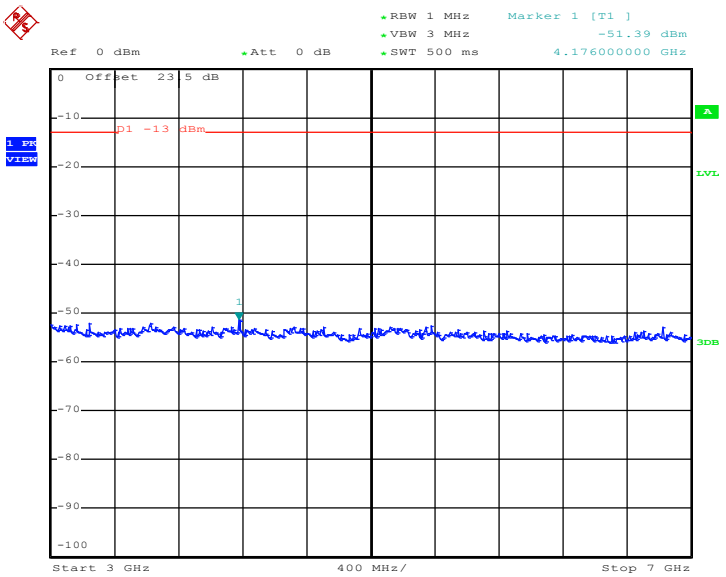
Date: 18.JUL.2014 13:52:37

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



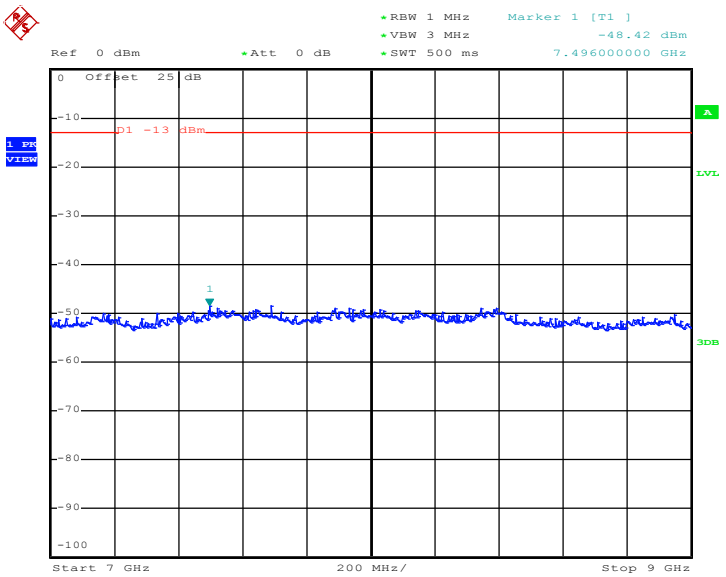
Date: 18.JUL.2014 13:52:57

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 13:53:05

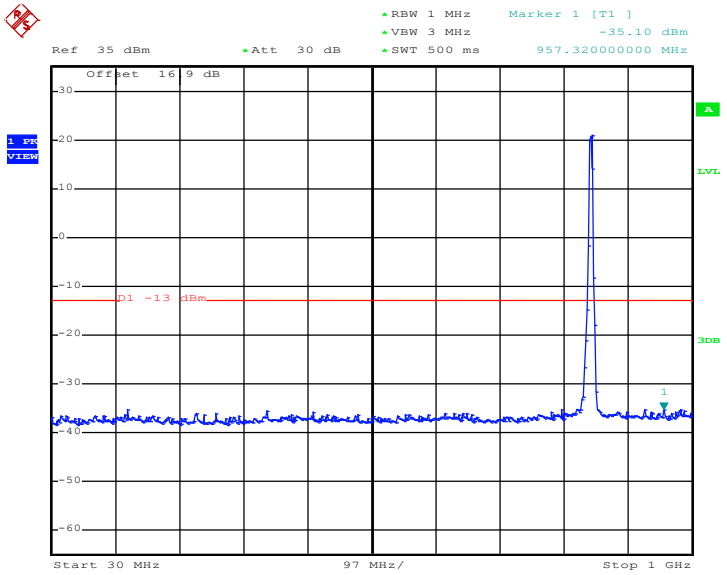
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 13:53:13

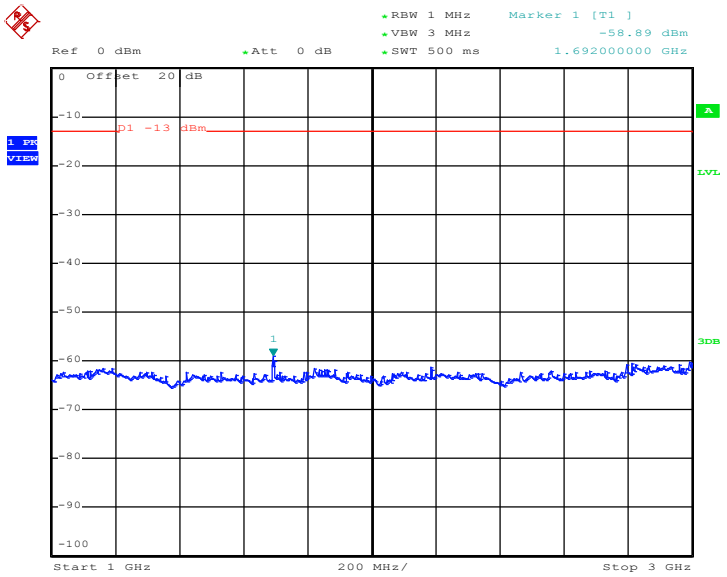
Band :	WCDMA Band V	Channel :	CH4233
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	846.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



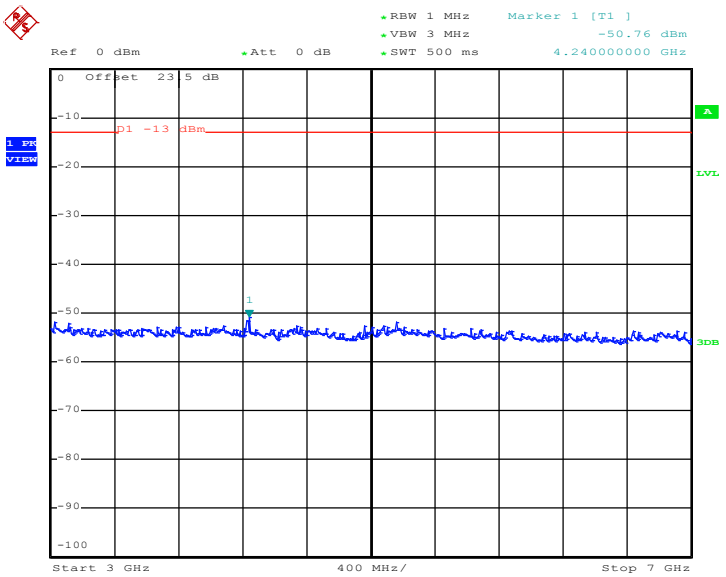
Date: 18.JUL.2014 13:56:51

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



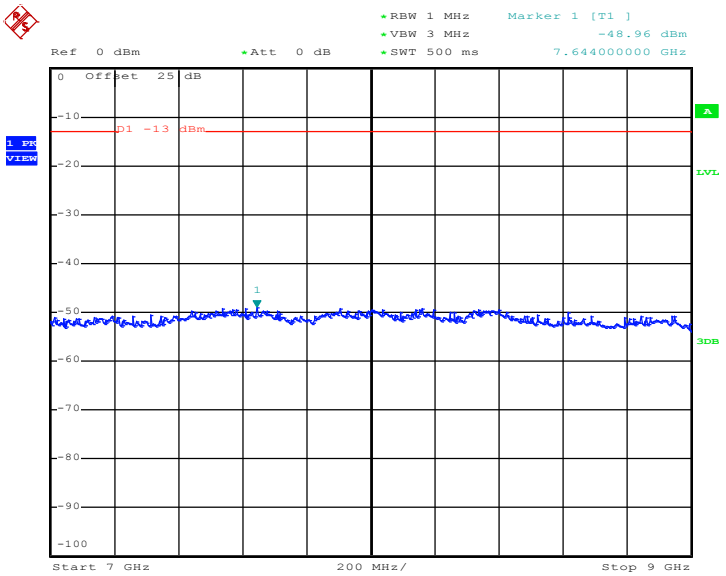
Date: 18.JUL.2014 13:57:13

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 13:57:21

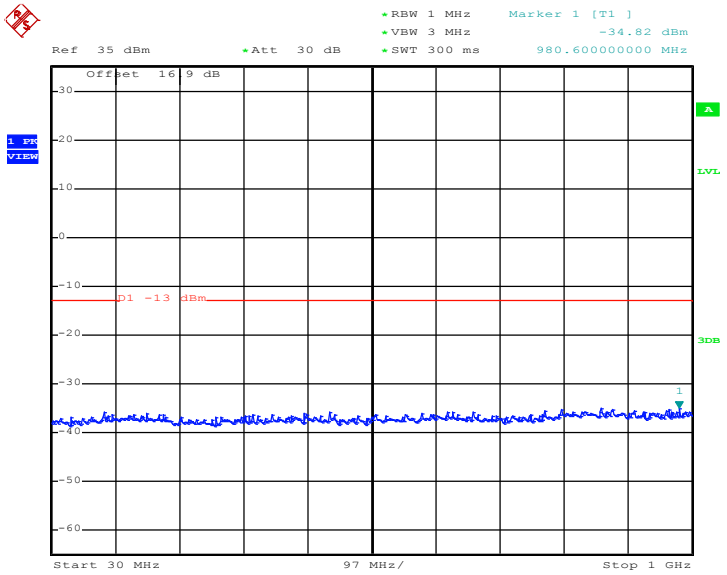
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 13:57:30

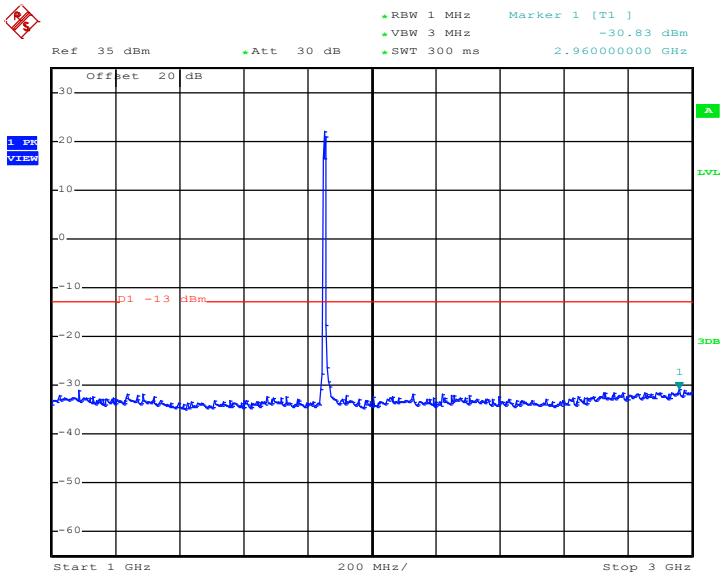
Band :	WCDMA Band II	Channel :	CH9262
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1852.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



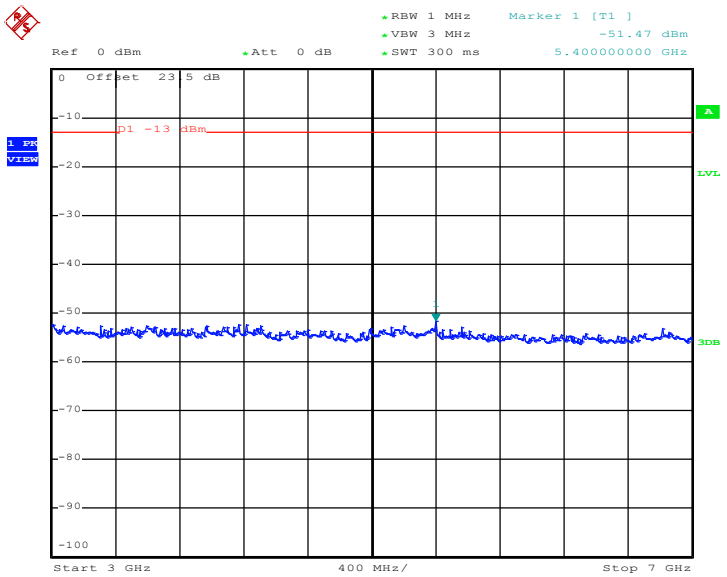
Date: 18.JUL.2014 13:12:27

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



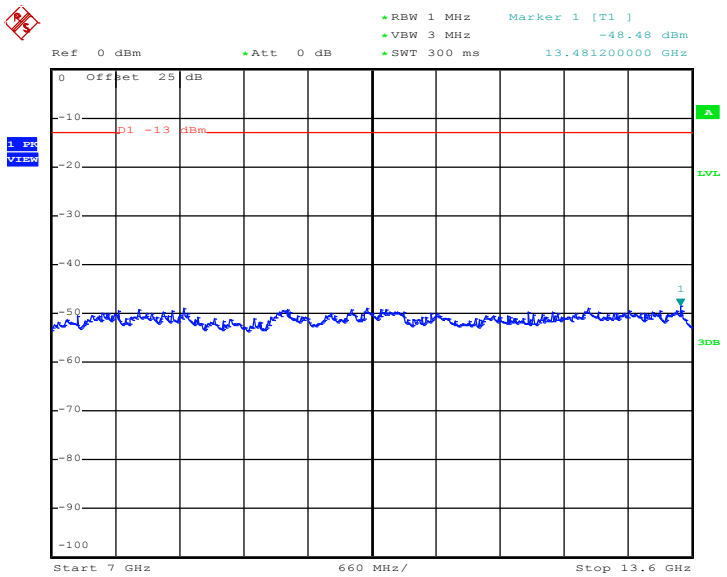
Date: 18.JUL.2014 13:12:36

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



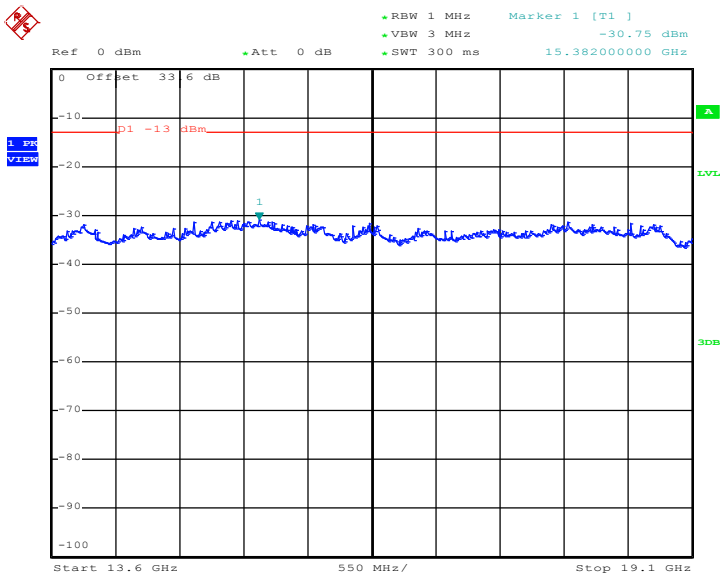
Date: 18.JUL.2014 13:12:46

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 13:12:54

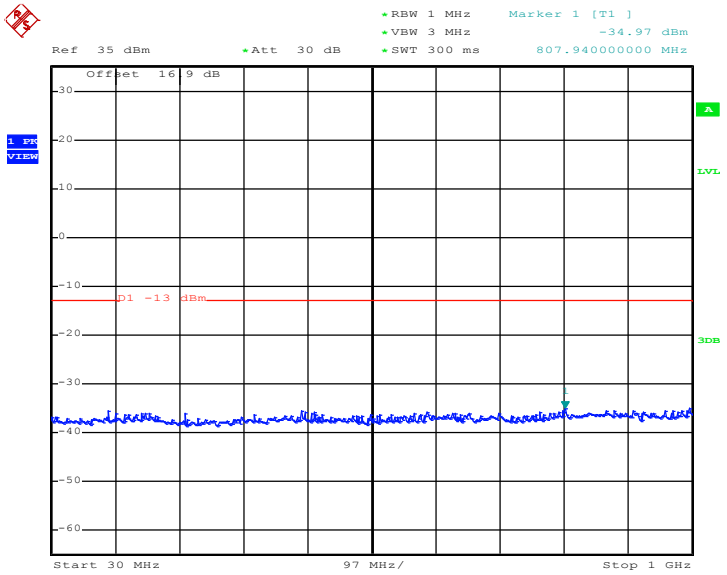
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 13:13:03

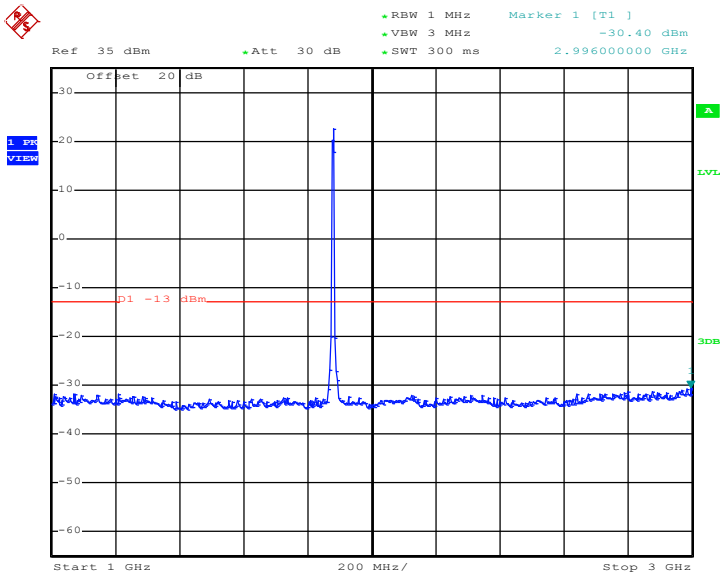
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



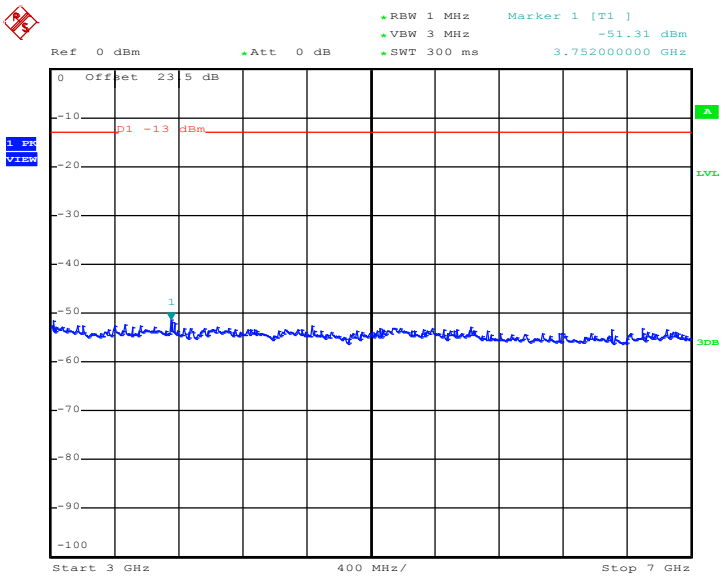
Date: 18.JUL.2014 13:11:16

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



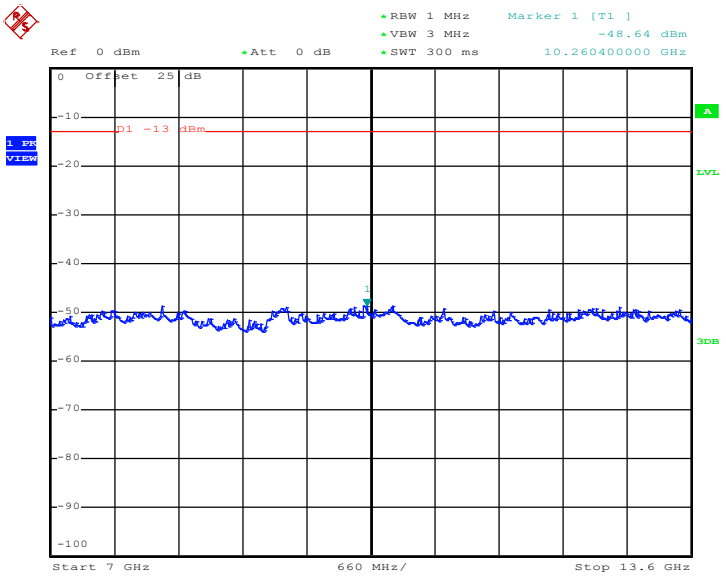
Date: 18.JUL.2014 13:11:24

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



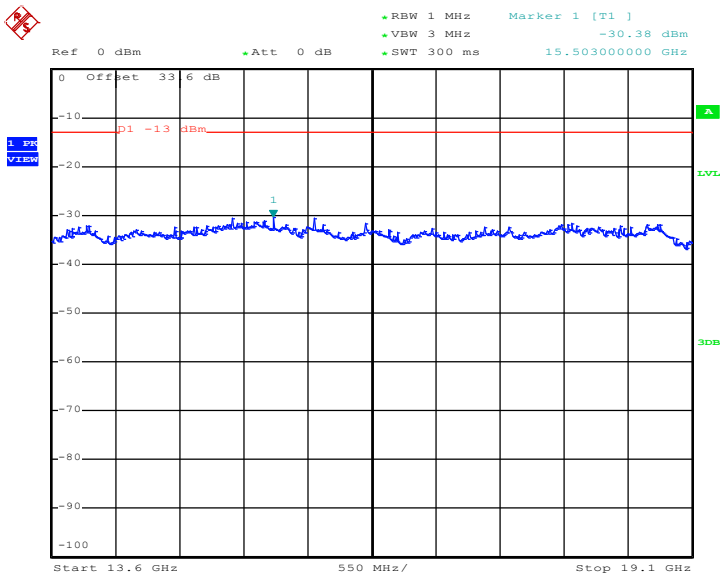
Date: 18.JUL.2014 13:11:35

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 13:11:43

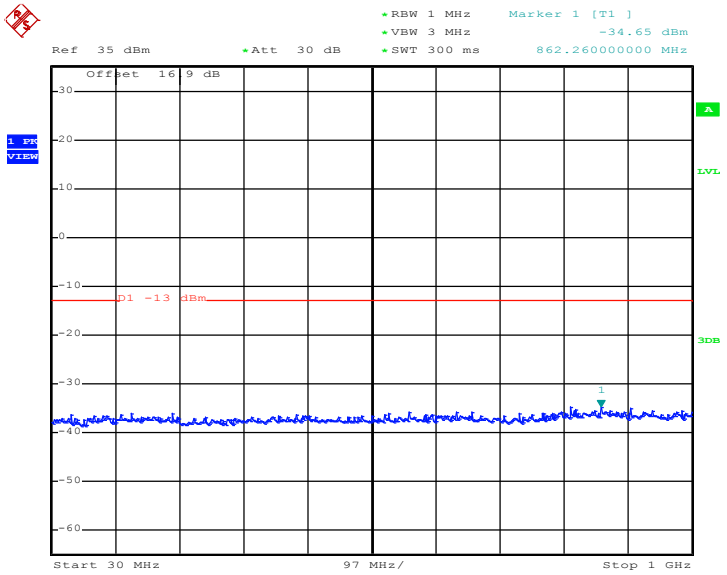
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 13:11:51

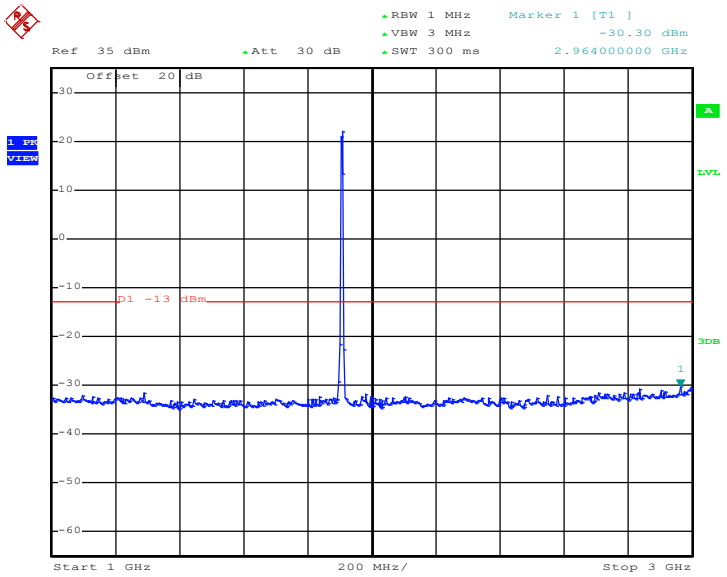
Band :	WCDMA Band II	Channel :	CH9538
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1907.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



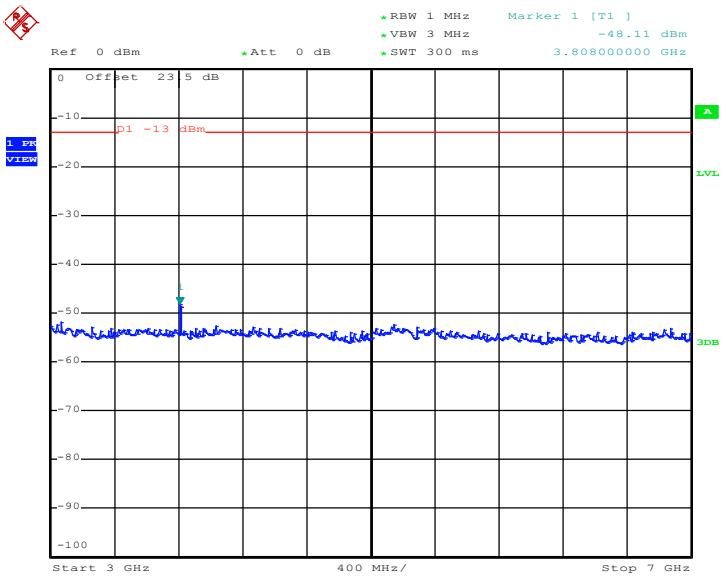
Date: 18.JUL.2014 13:14:10

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



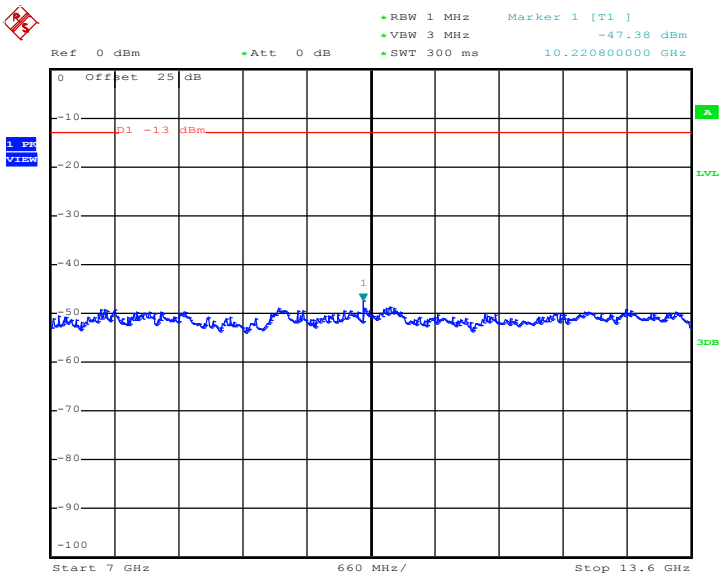
Date: 18.JUL.2014 13:14:18

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



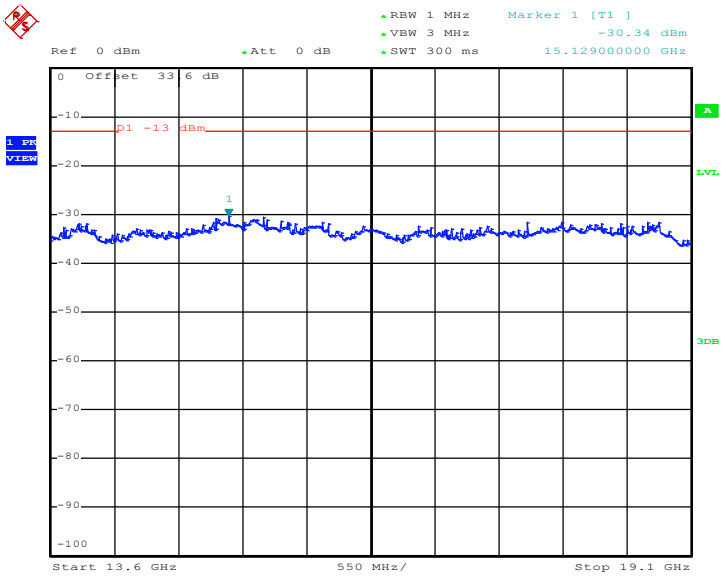
Date: 18.JUL.2014 13:14:29

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 18.JUL.2014 13:14:37

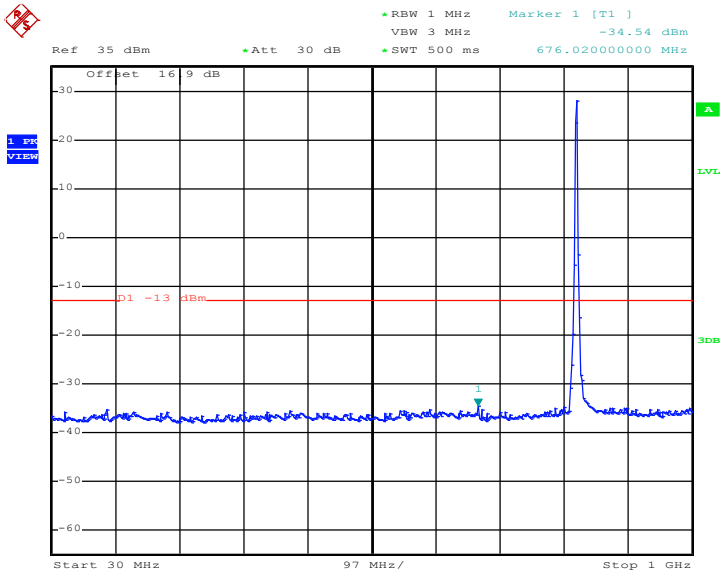
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 18.JUL.2014 13:14:46

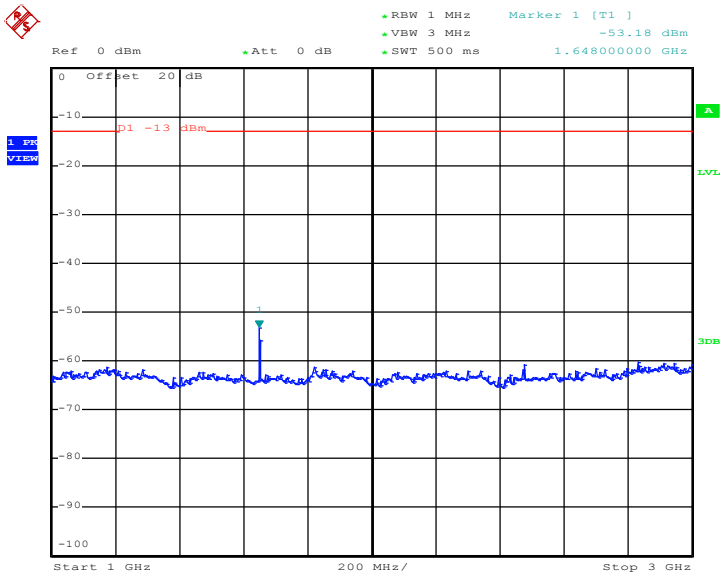
Band :	CDMA2000 BC0	Channel :	CH1013
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	824.7 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



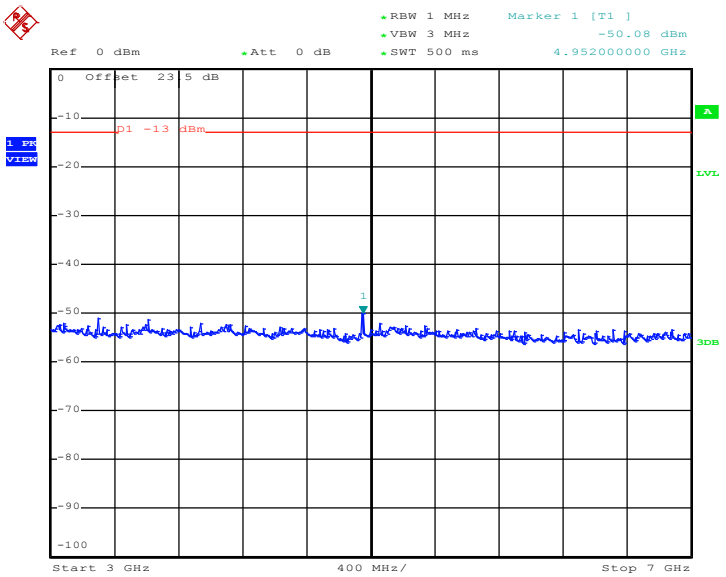
Date: 18.JUL.2014 18:34:34

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



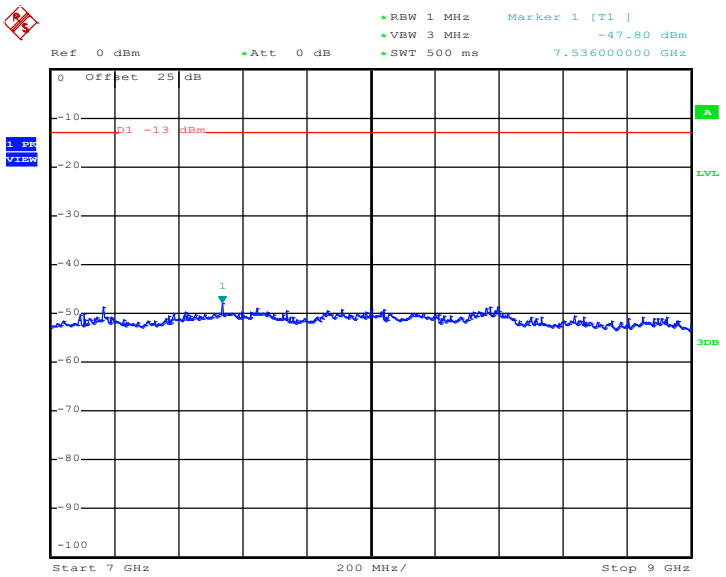
Date: 18.JUL.2014 18:34:32

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 18:34:40

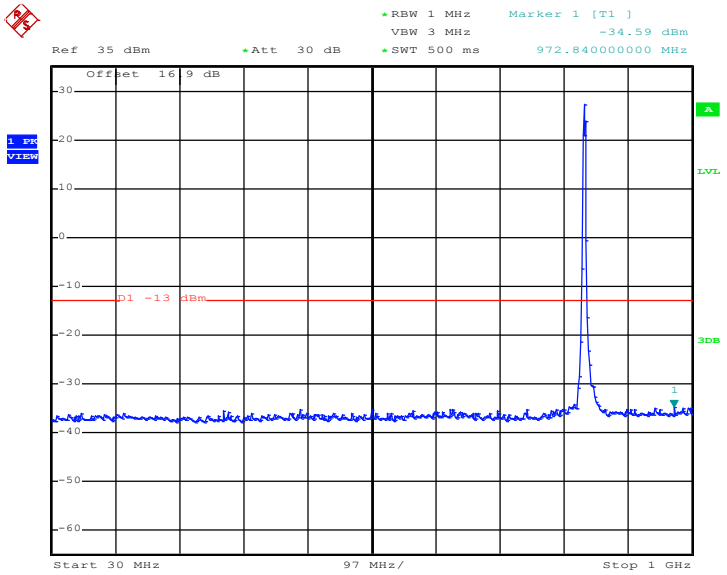
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 18:34:49

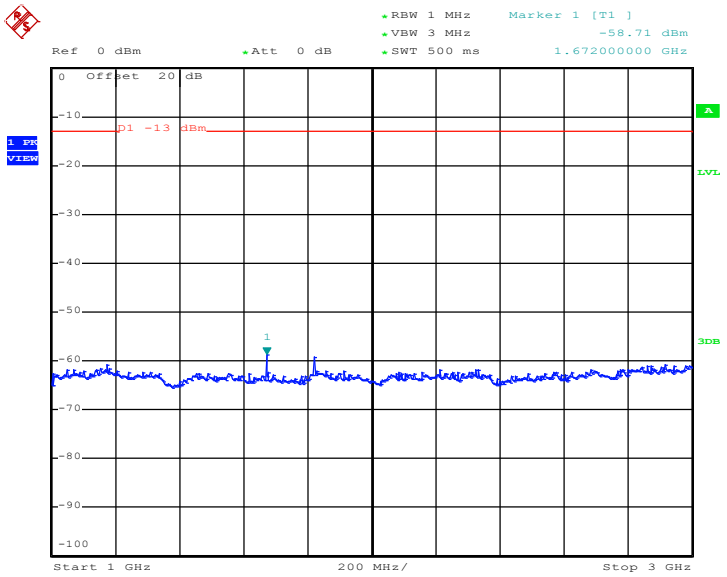
Band :	CDMA2000 BC0	Channel :	CH384
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	836.52 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



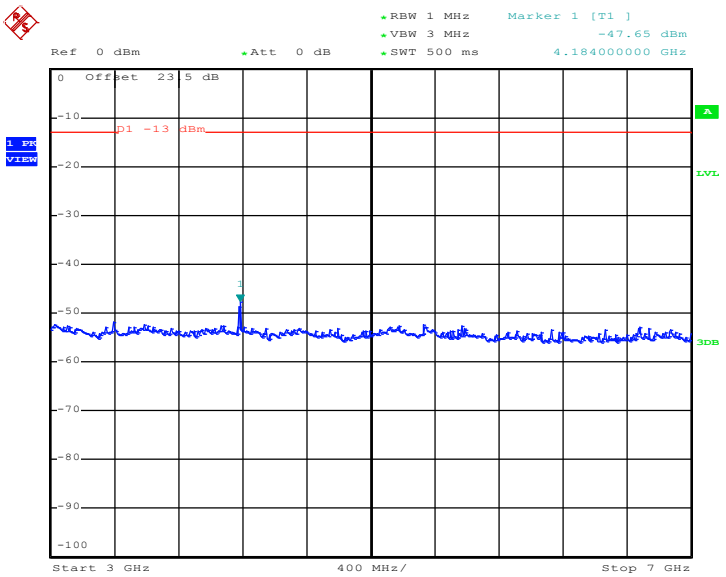
Date: 18.JUL.2014 18:31:31

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



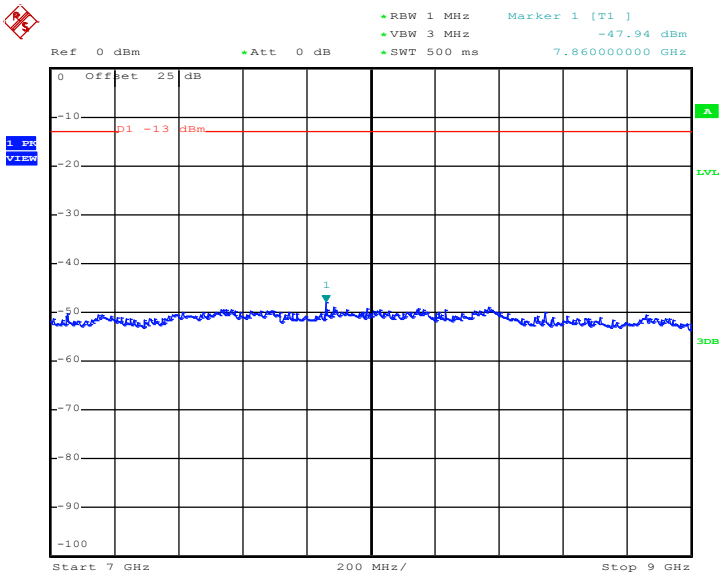
Date: 18.JUL.2014 18:31:10

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 18:31:19

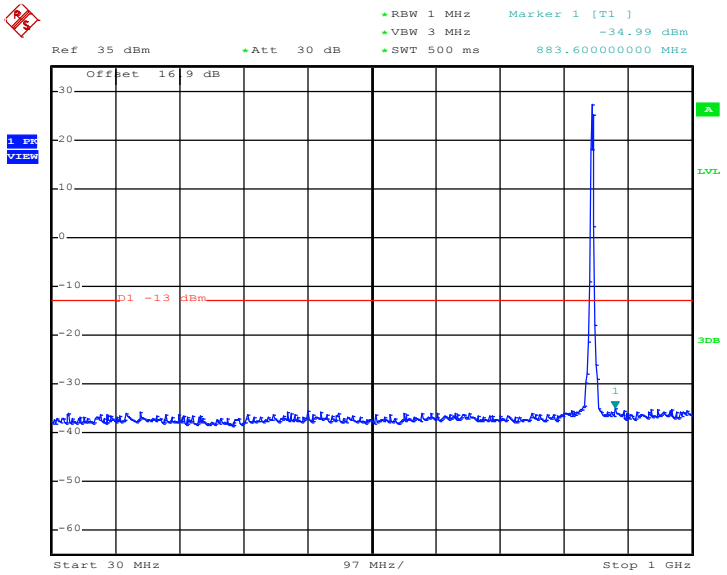
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 18:31:27

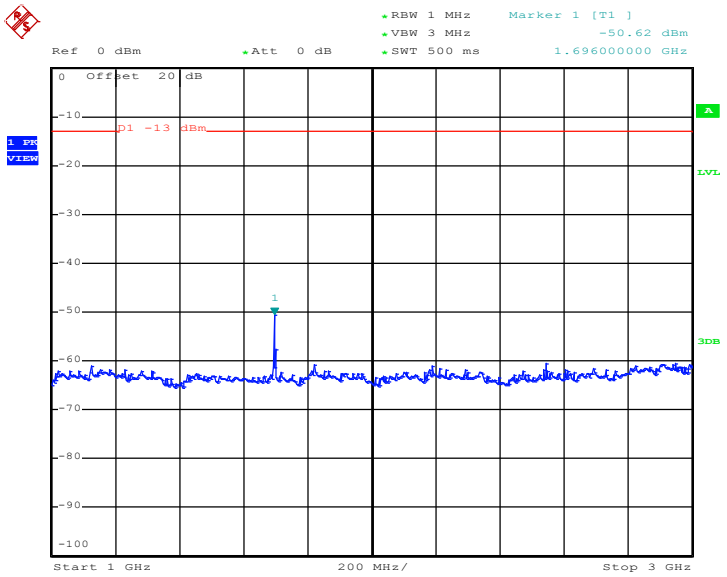
Band :	CDMA2000 BC0	Channel :	CH777
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	848.31 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



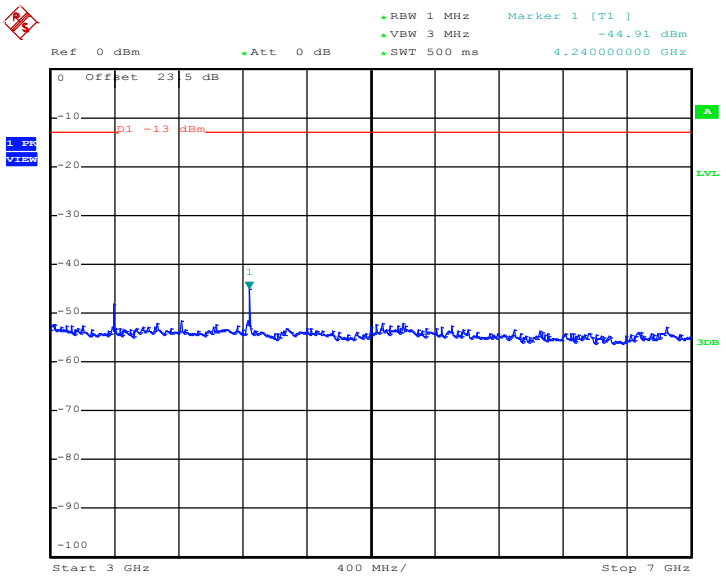
Date: 18.JUL.2014 18:35:34

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



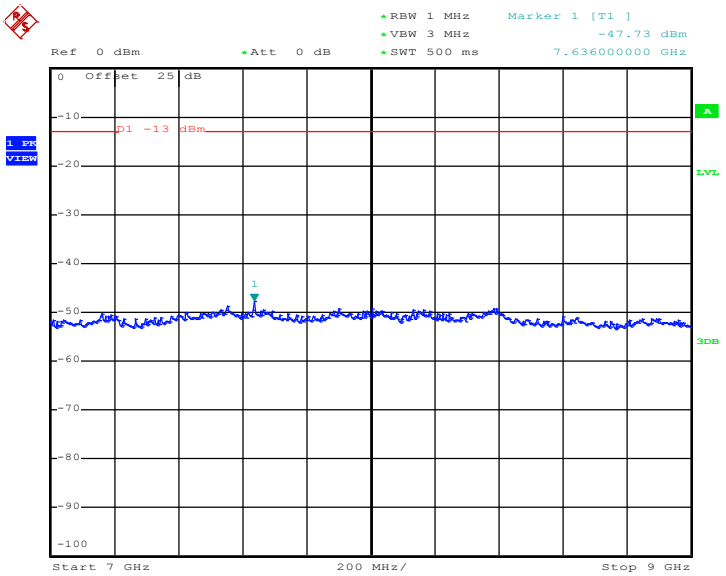
Date: 18.JUL.2014 18:35:45

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 18.JUL.2014 18:35:54

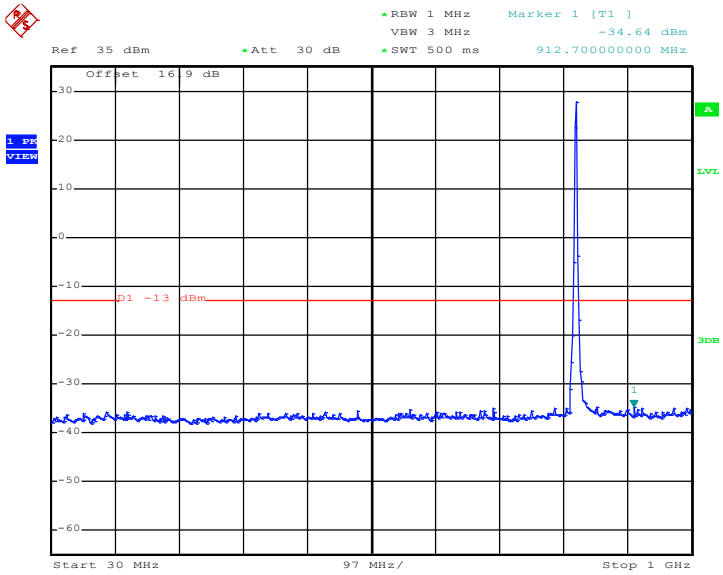
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 18.JUL.2014 18:36:02

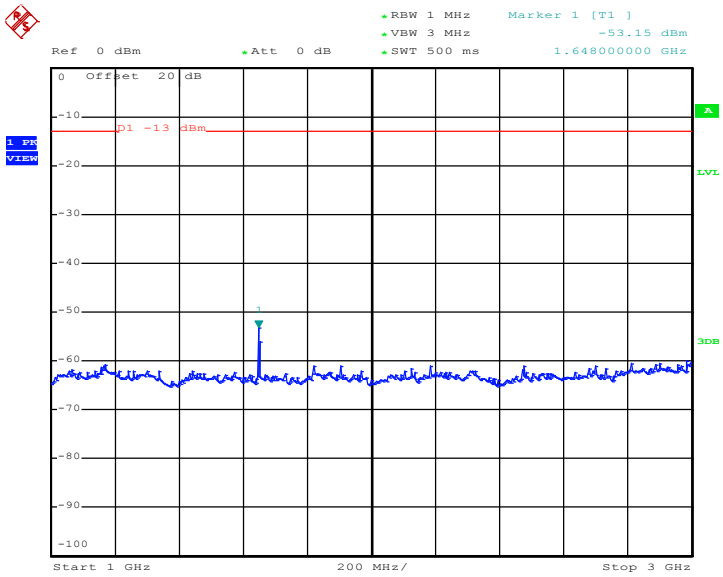
Band :	CDMA2000 BC0	Channel :	CH1013
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	824.7 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



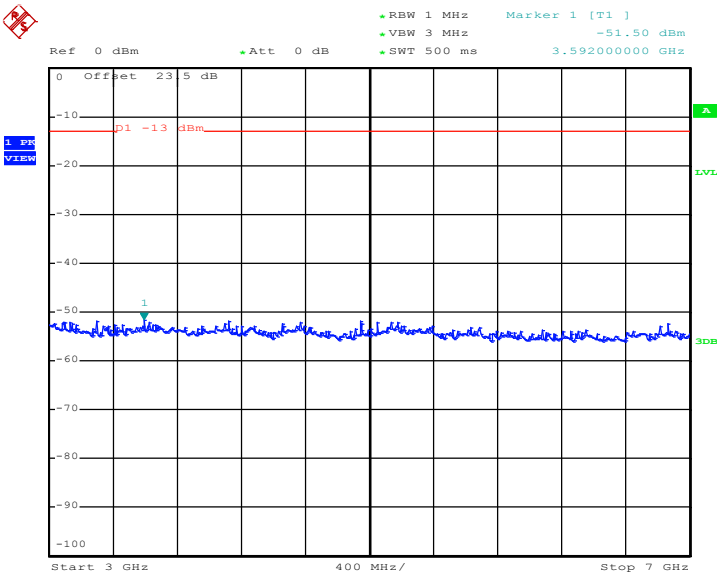
Date: 19.JUL.2014 10:02:30

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



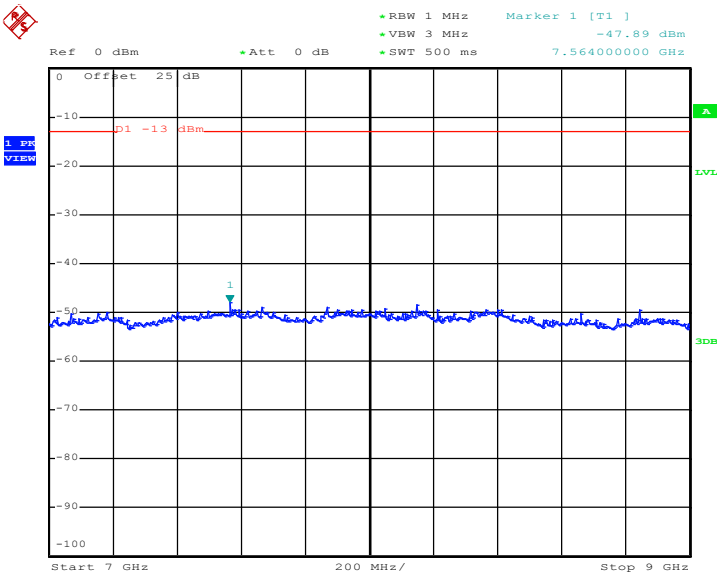
Date: 19.JUL.2014 10:03:02

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 19.JUL.2014 10:03:10

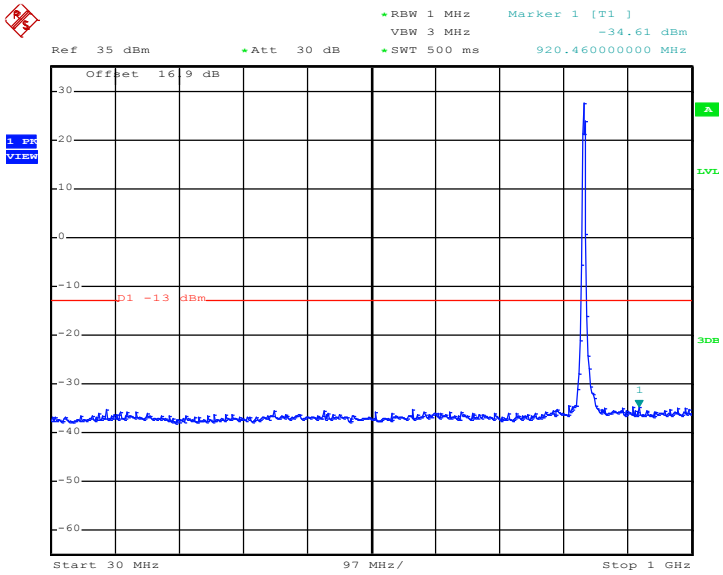
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 19.JUL.2014 10:03:18

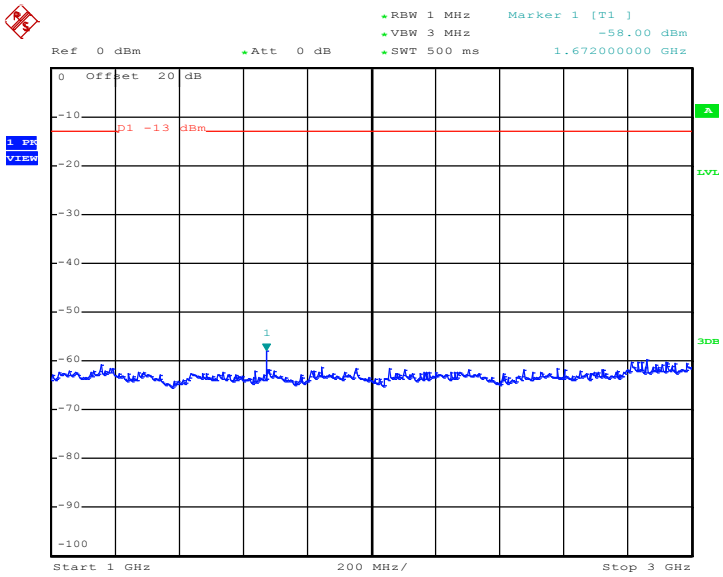
Band :	CDMA2000 BC0	Channel :	CH384
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	836.52 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



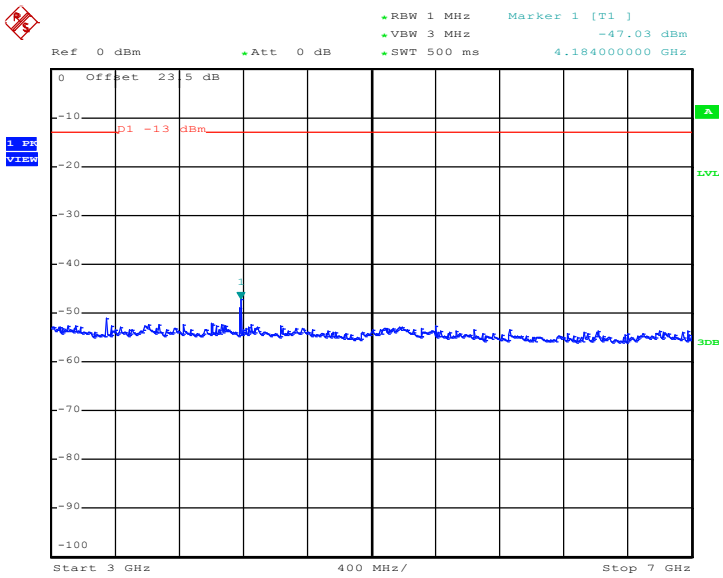
Date: 19.JUL.2014 10:01:47

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



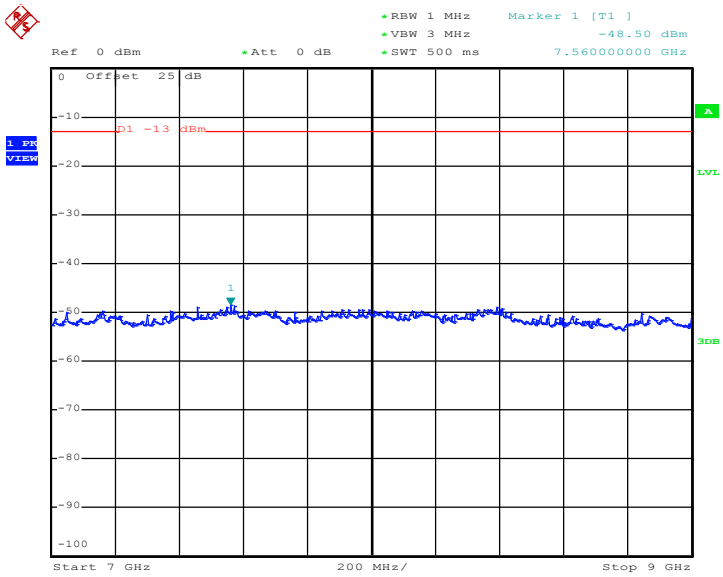
Date: 19.JUL.2014 10:01:30

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 19.JUL.2014 10:01:38

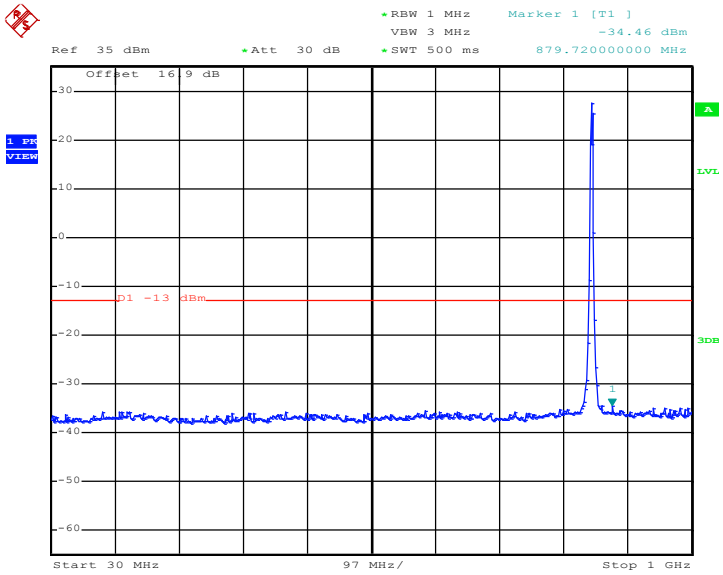
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 19.JUL.2014 10:01:46

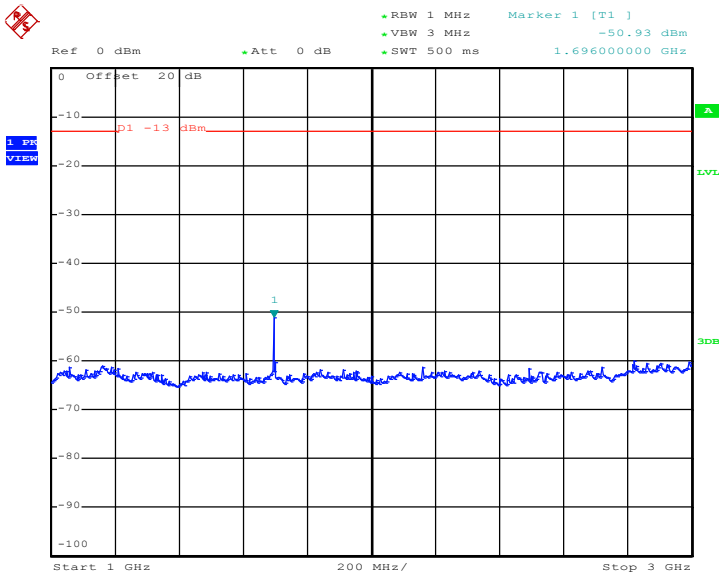
Band :	CDMA2000 BC0	Channel :	CH777
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	848.31 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



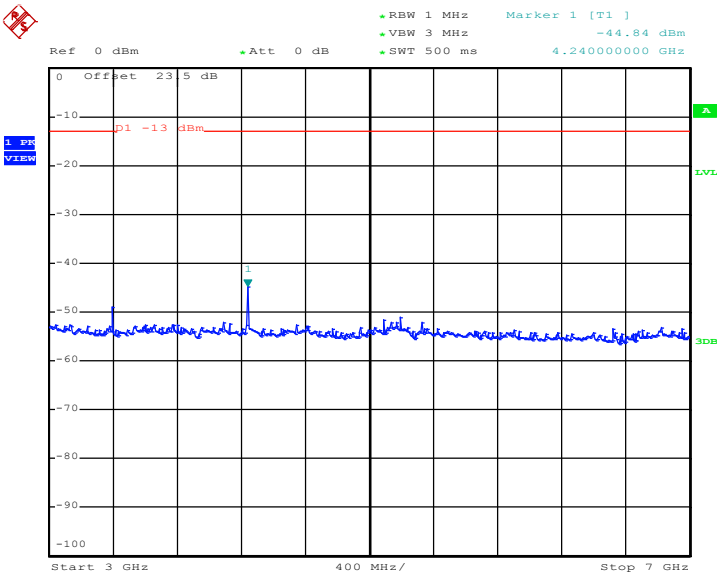
Date: 19.JUL.2014 10:30:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



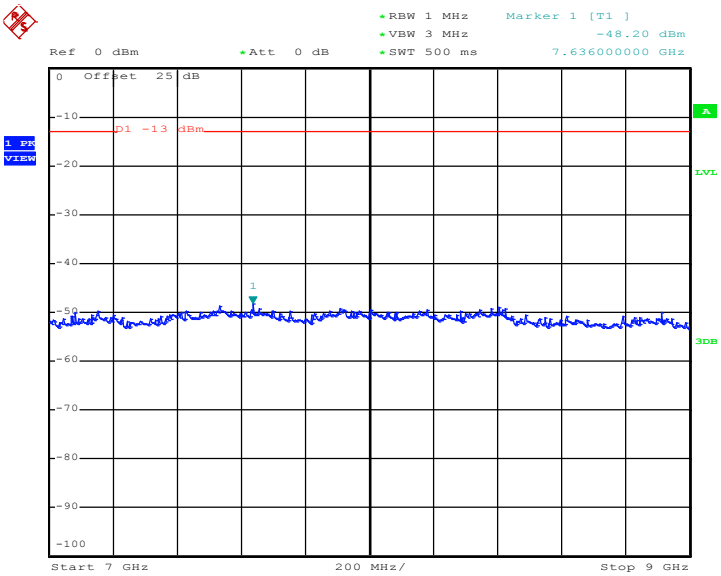
Date: 19.JUL.2014 10:29:51

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 19.JUL.2014 10:30:00

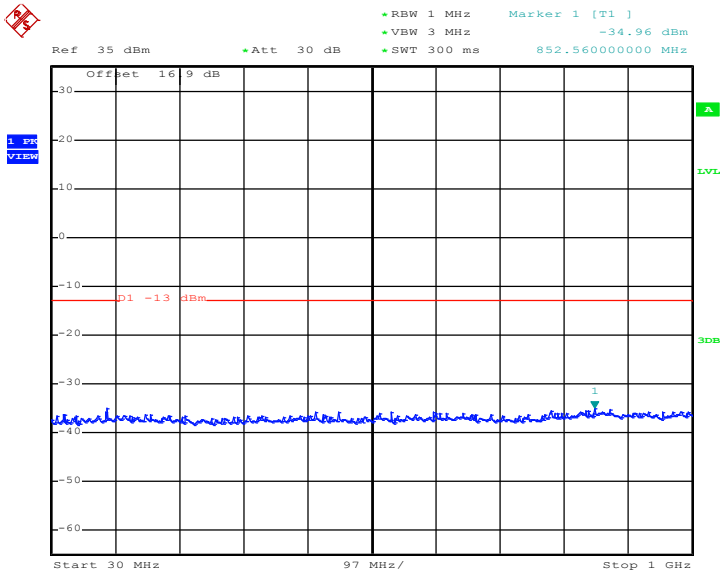
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 19.JUL.2014 10:30:08

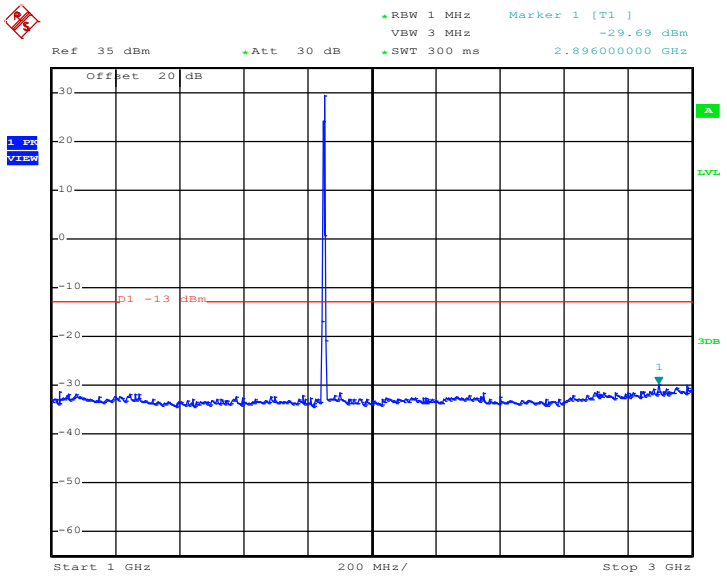
Band :	CDMA2000 BC1	Channel :	CH25
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	1851.25 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



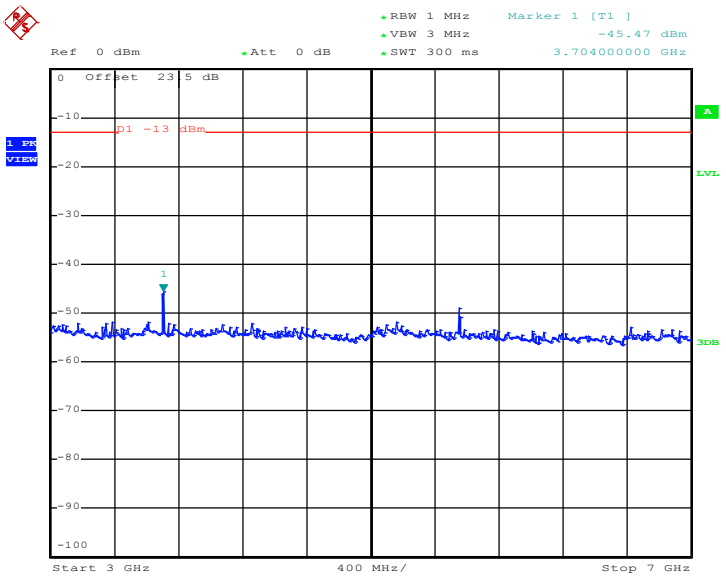
Date: 19.JUL.2014 10:52:39

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



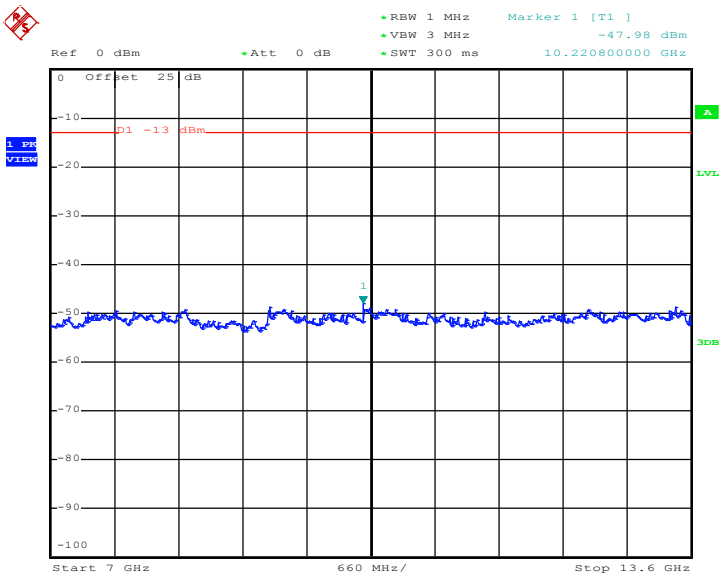
Date: 19.JUL.2014 10:52:40

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



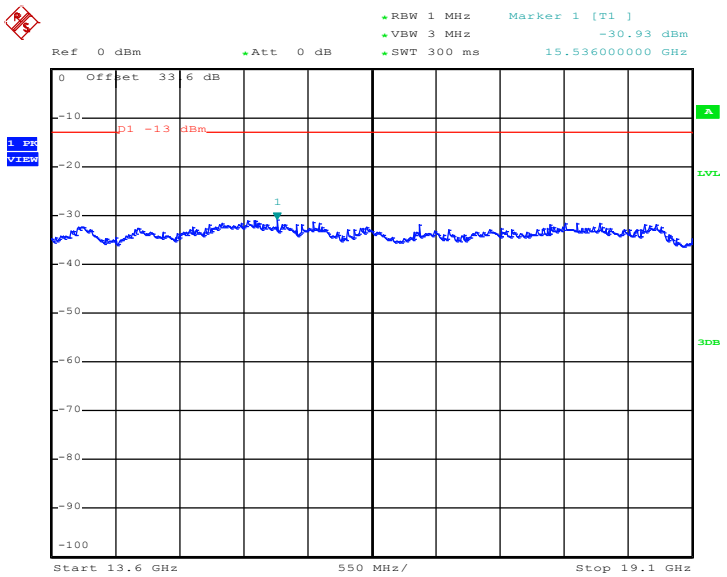
Date: 19.JUL.2014 10:52:58

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 10:53:07

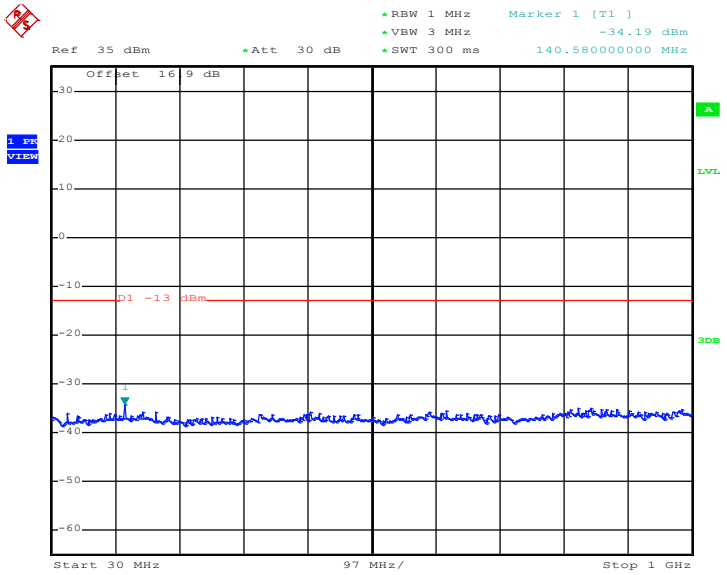
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 10:53:15

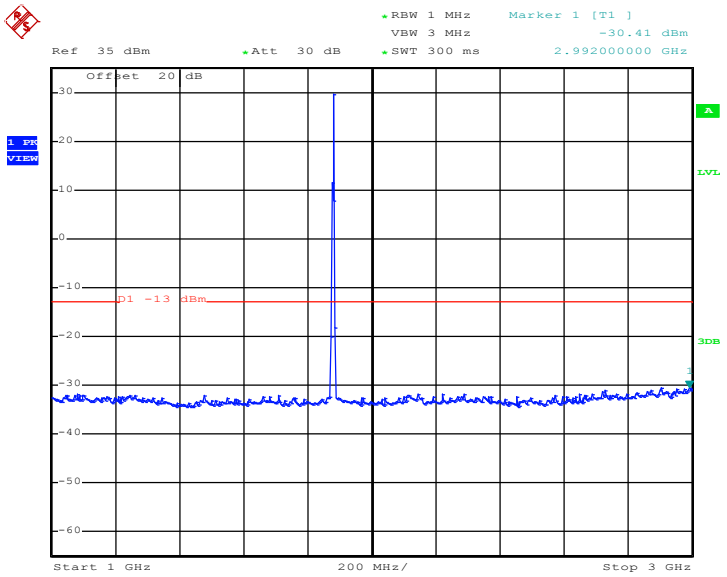
Band :	CDMA2000 BC1	Channel :	CH600
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



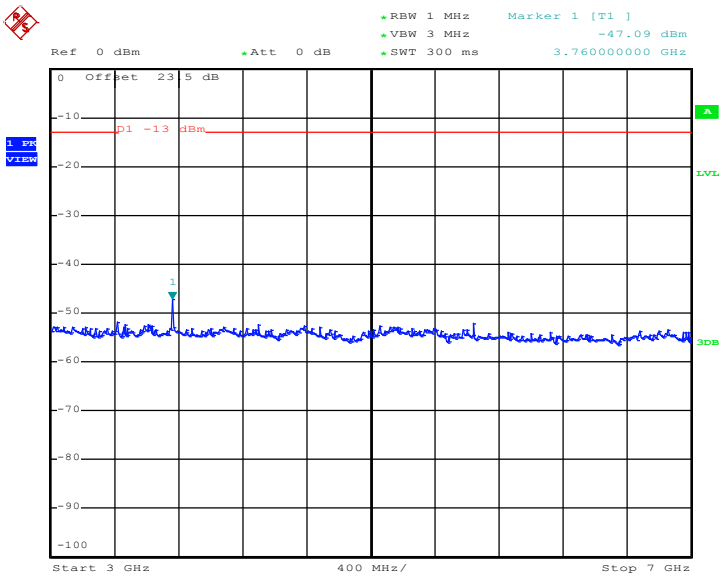
Date: 19.JUL.2014 10:50:52

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



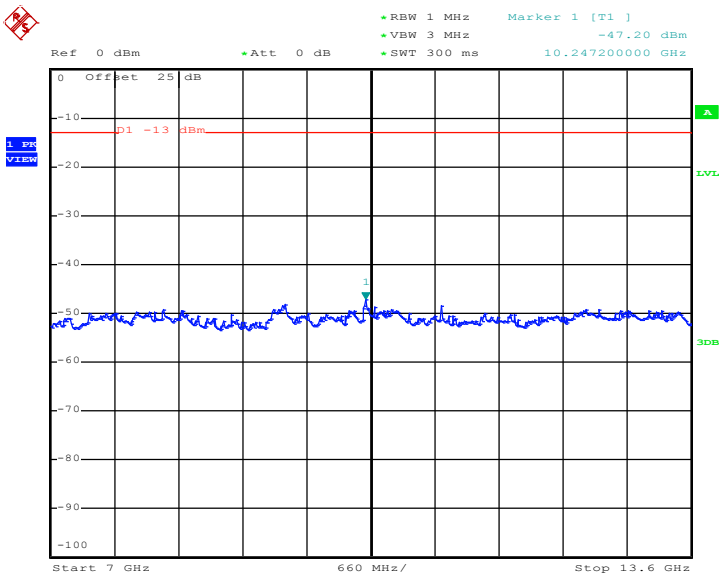
Date: 19.JUL.2014 10:51:20

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



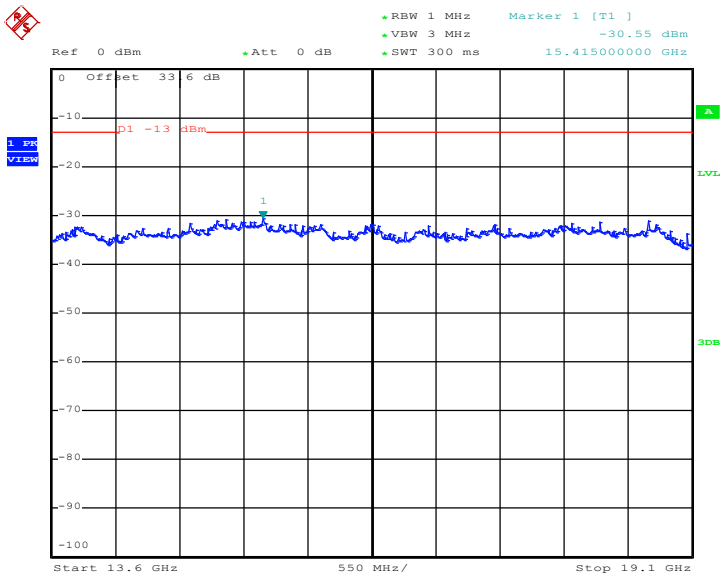
Date: 19.JUL.2014 10:51:11

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 10:51:20

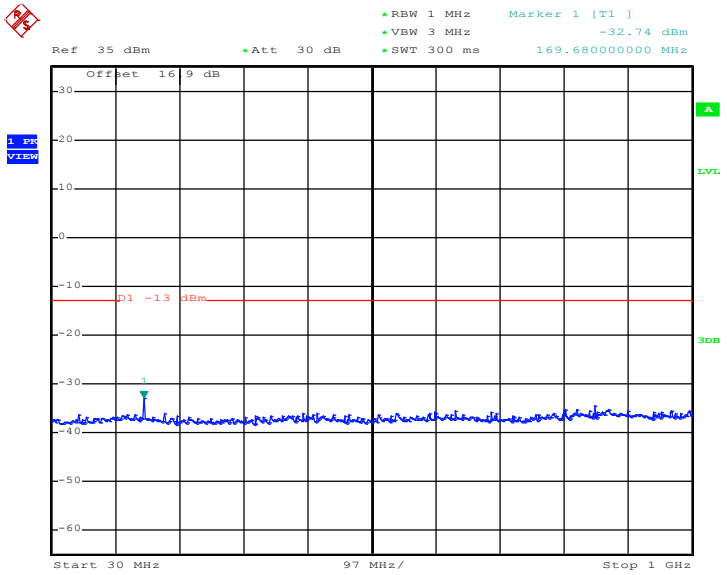
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 10:51:28

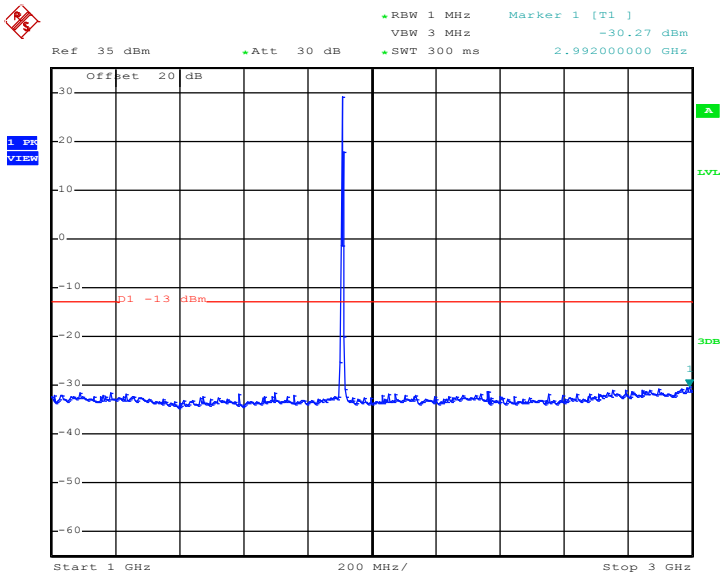
Band :	CDMA2000 BC1	Channel :	CH1175
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	Frequency :	1908.75 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



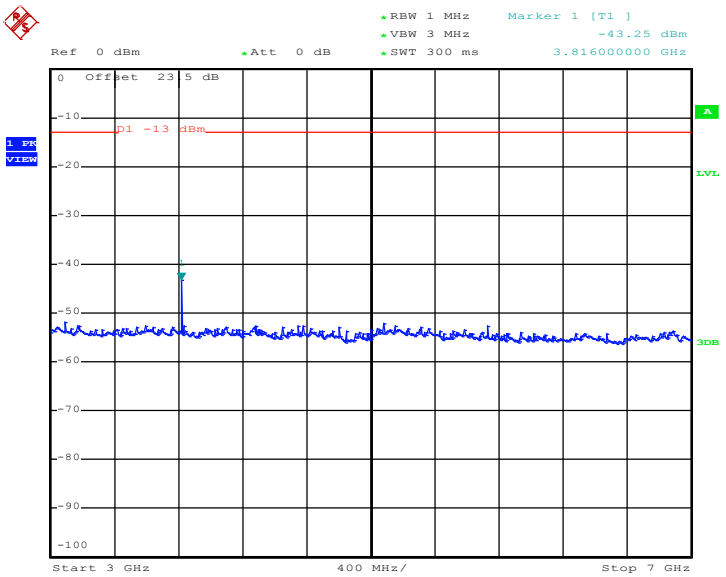
Date: 19.JUL.2014 10:55:33

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



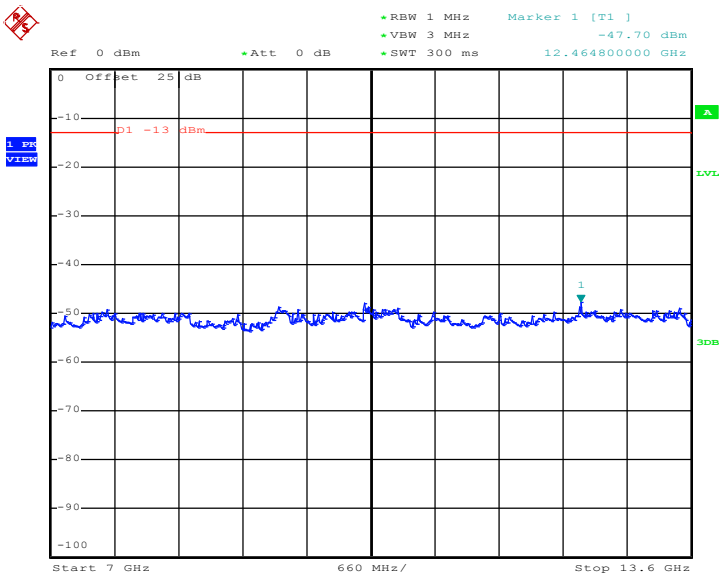
Date: 19.JUL.2014 10:55:52

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



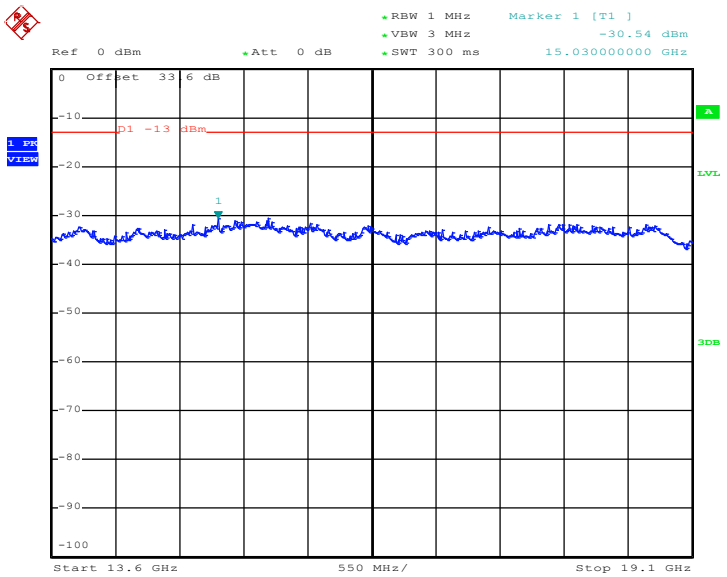
Date: 19.JUL.2014 10:55:53

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 10:56:01

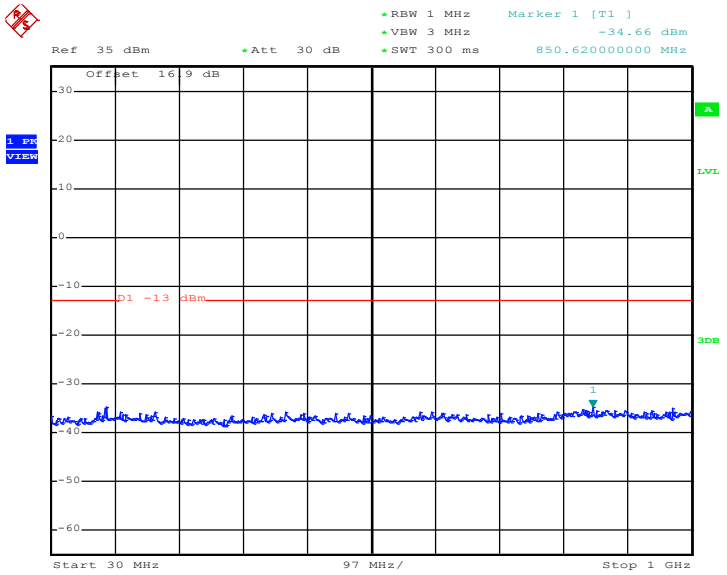
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 10:56:09

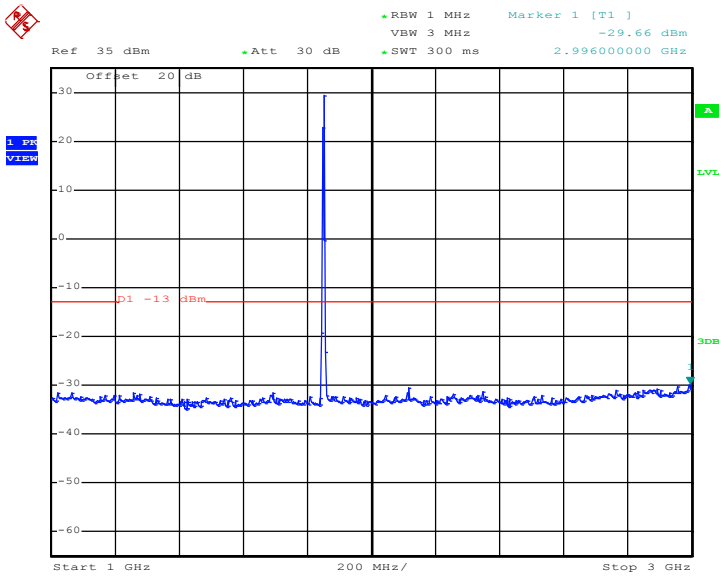
Band :	CDMA2000 BC1	Channel :	CH25
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	1851.25MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



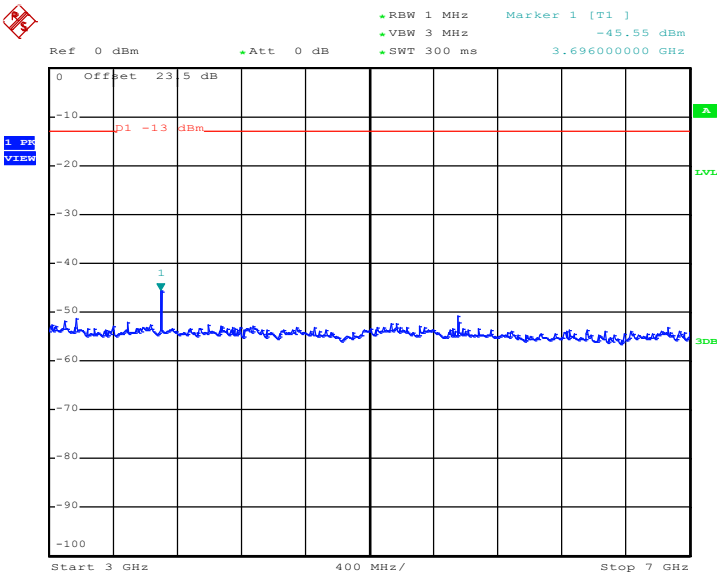
Date: 19.JUL.2014 11:23:22

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



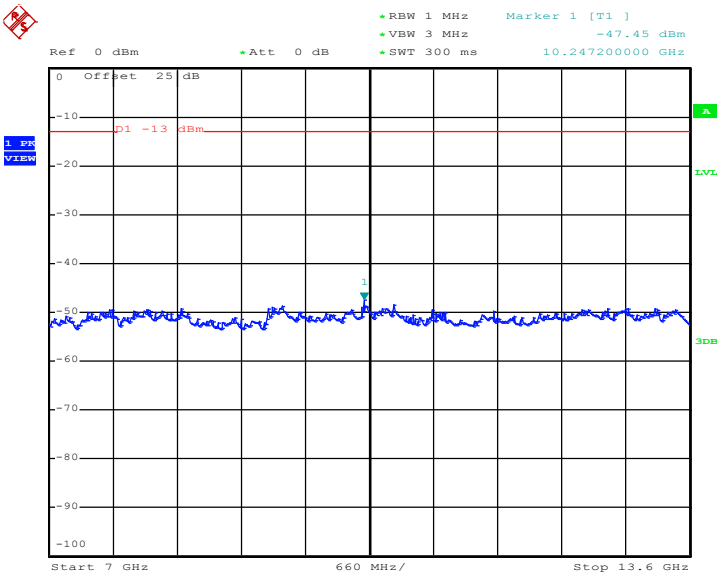
Date: 19.JUL.2014 11:23:50

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



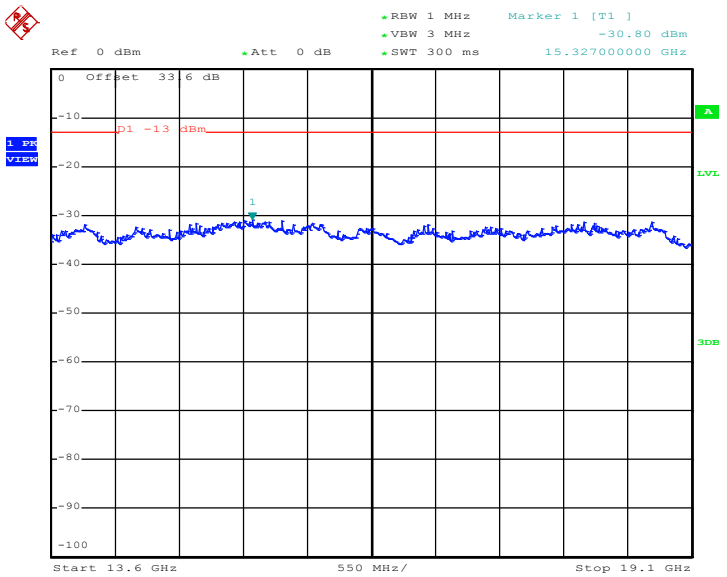
Date: 19.JUL.2014 11:23:45

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 11:23:53

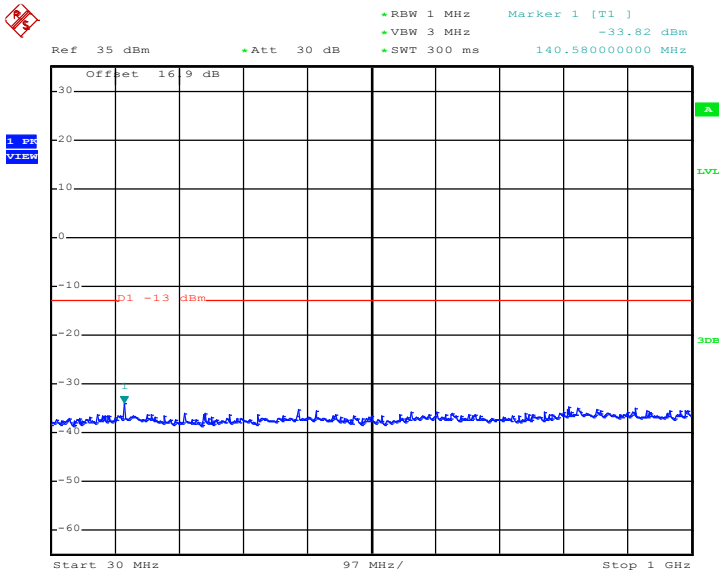
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 11:24:02

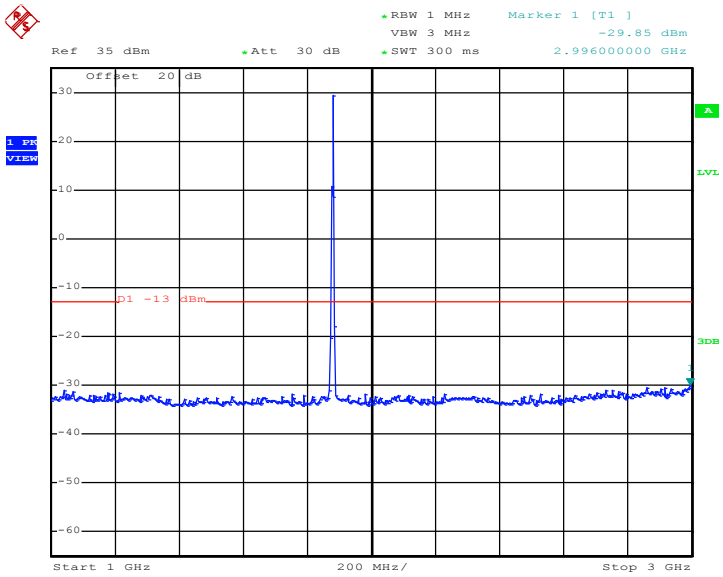
Band :	CDMA2000 BC1	Channel :	CH600
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



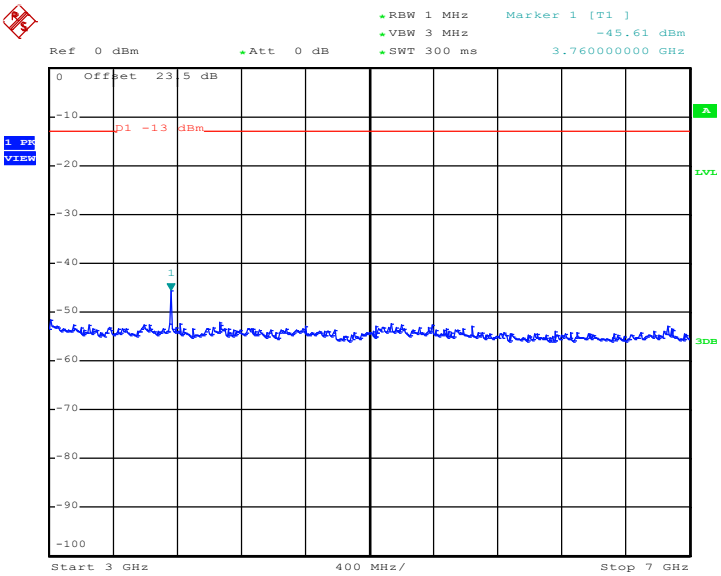
Date: 19.JUL.2014 11:20:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



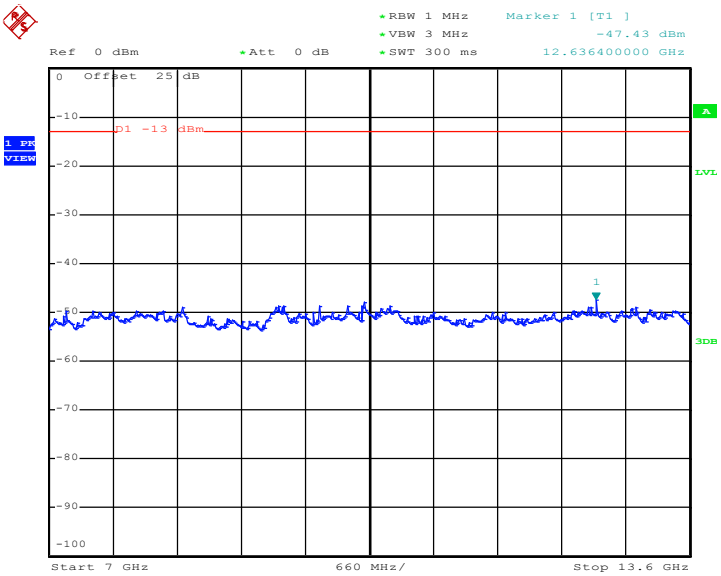
Date: 19.JUL.2014 11:20:21

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



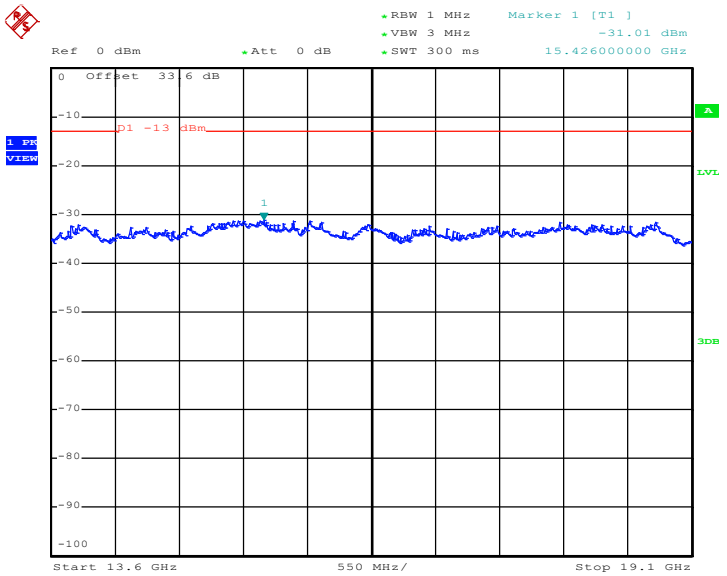
Date: 19.JUL.2014 11:20:28

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 11:20:36

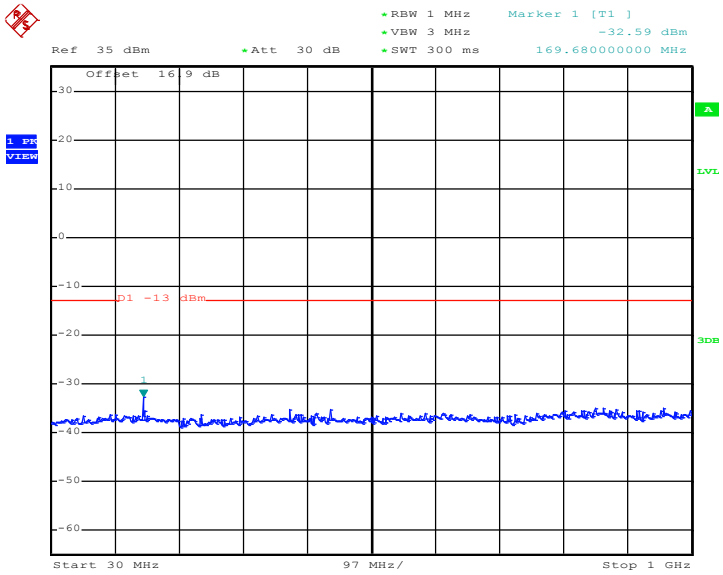
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 11:20:45

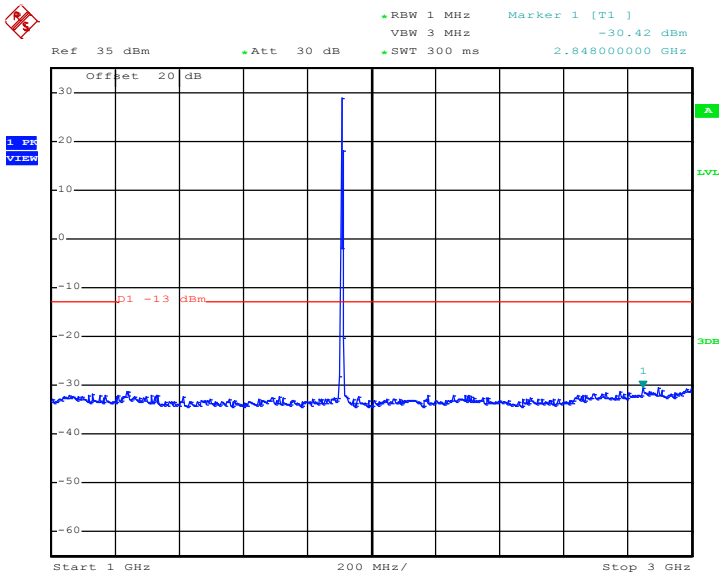
Band :	CDMA2000 BC1	Channel :	CH1175
Test Mode :	1xRTT_RC1+SO55 (QPSK)	Frequency :	1908.75MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



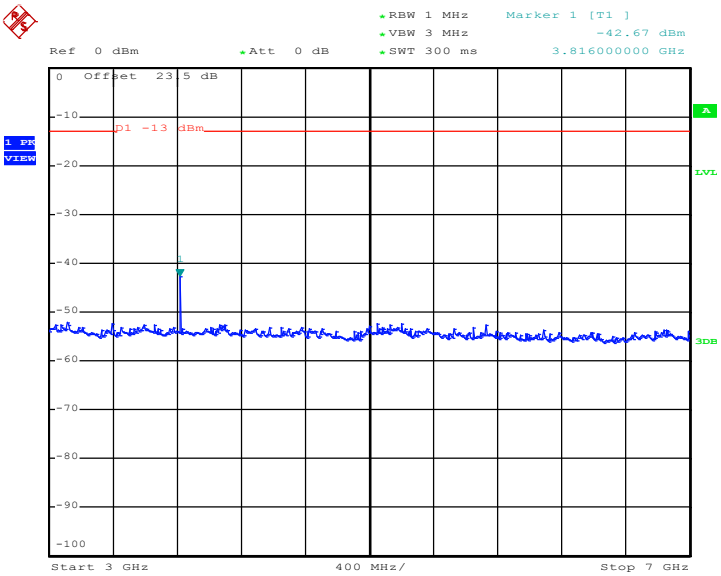
Date: 19.JUL.2014 11:26:06

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



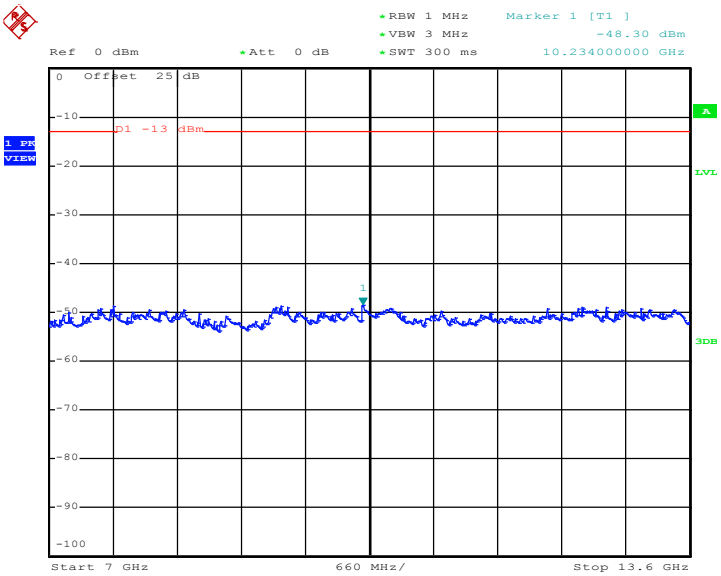
Date: 19.JUL.2014 11:26:45

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



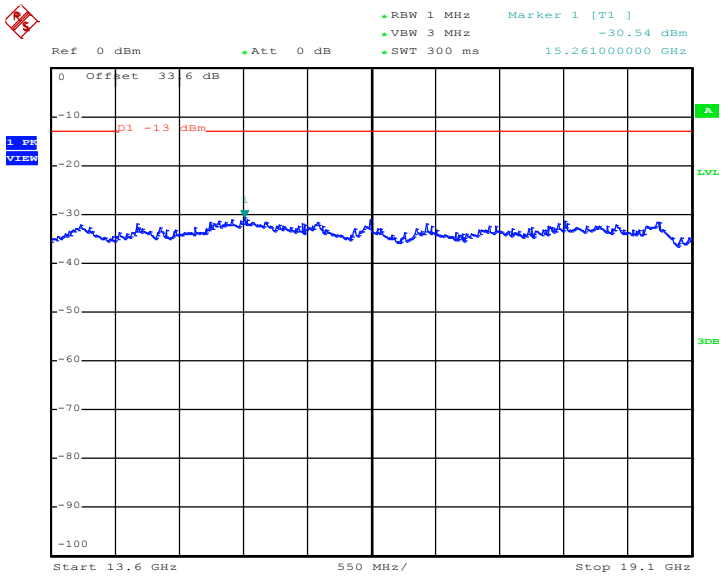
Date: 19.JUL.2014 11:26:28

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 19.JUL.2014 11:26:36

Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 19.JUL.2014 11:26:45

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

Note: Wireless Charger Configuration was evaluated.

3.7.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r01 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
12. ERP (dBm) = EIRP - 2.15
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

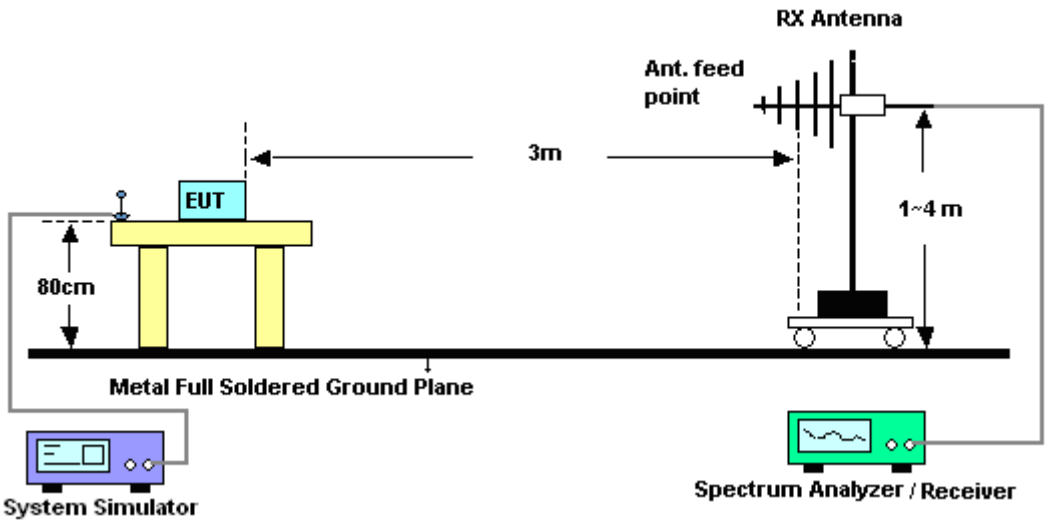
    = P(W) - [43 + 10log(P)] (dB)

    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

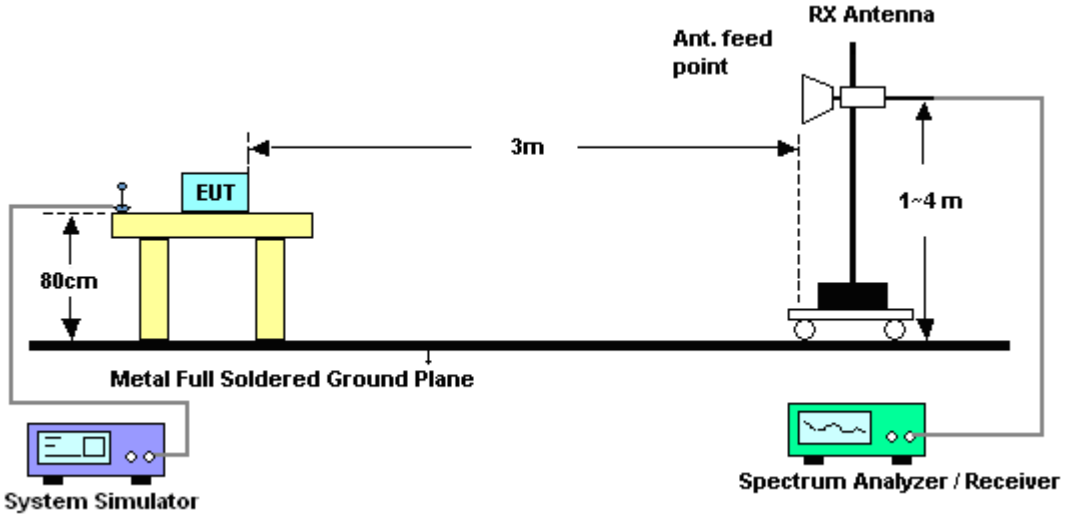
    = -13dBm.

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-56.02	-13	-43.02	-62.62	-57.87	1.53	5.53	H	Pass
2472	-55.50	-13	-42.50	-66.5	-57.44	2.06	6.15	H	Pass
3296	-54.93	-13	-41.93	-66.71	-58.23	2.48	7.93	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-49.85	-13	-36.85	-58.68	-51.7	1.53	5.53	V	Pass
2472	-55.39	-13	-42.39	-66.87	-57.33	2.06	6.15	V	Pass
3296	-53.70	-13	-40.70	-67.02	-57	2.48	7.93	V	Pass

<Middle Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-58.65	-13	-45.65	-65.35	-60.37	1.62	5.49	H	Pass
2512	-54.50	-13	-41.50	-65.76	-56.47	2.1	6.22	H	Pass
3344	-55.44	-13	-42.44	-67.44	-58.33	3.03	8.07	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-54.02	-13	-41.02	-63	-55.74	1.62	5.49	V	Pass
2512	-55.19	-13	-42.19	-66.81	-57.16	2.1	6.22	V	Pass
3344	-53.52	-13	-40.52	-67	-56.41	3.03	8.07	V	Pass

<High Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-60.02	-13	-47.02	-66.95	-61.75	1.57	5.45	H	Pass
2544	-55.57	-13	-42.57	-66.61	-57.68	2.02	6.28	H	Pass
3392	-54.47	-13	-41.47	-66.52	-58.22	2.3	8.20	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	GPRS class 8 Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-56.92	-13	-43.92	-66.03	-58.65	1.57	5.45	V	Pass
2544	-55.03	-13	-42.03	-66.71	-57.14	2.02	6.28	V	Pass
3392	-53.83	-13	-40.83	-67.25	-57.58	2.3	8.20	V	Pass

<Low Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-59.27	-13	-46.27	-65.87	-61.12	1.53	5.53	H	Pass
2472	-55.29	-13	-42.29	-66.27	-57.23	2.06	6.15	H	Pass
3296	-55.45	-13	-42.45	-67.26	-58.75	2.48	7.93	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-56.84	-13	-43.84	-65.67	-58.69	1.53	5.53	V	Pass
2472	-54.97	-13	-41.97	-66.55	-56.91	2.06	6.15	V	Pass
3296	-54.58	-13	-41.58	-67.86	-57.88	2.48	7.93	V	Pass

<Middle Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-59.60	-13	-46.60	-66.41	-61.32	1.62	5.49	H	Pass
2512	-55.41	-13	-42.41	-66.47	-57.38	2.1	6.22	H	Pass
3344	-54.85	-13	-41.85	-66.84	-57.74	3.03	8.07	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-56.69	-13	-43.69	-65.74	-58.41	1.62	5.49	V	Pass
2512	-54.42	-13	-41.42	-65.95	-56.39	2.1	6.22	V	Pass
3344	-54.23	-13	-41.23	-67.6	-57.12	3.03	8.07	V	Pass

<High Channel>

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-59.79	-13	-46.79	-66.69	-61.52	1.57	5.45	H	Pass
2544	-55.46	-13	-42.46	-66.58	-57.57	2.02	6.28	H	Pass
3392	-54.38	-13	-41.38	-66.41	-58.13	2.3	8.20	H	Pass

Band :	GSM850	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-57.56	-13	-44.56	-66.66	-59.29	1.57	5.45	V	Pass
2544	-54.25	-13	-41.25	-66.06	-56.36	2.02	6.28	V	Pass
3392	-54.40	-13	-41.40	-67.82	-58.15	2.3	8.20	V	Pass

<Low Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-53.26	-13	-40.26	-68.45	-59.41	2.59	8.74	H	Pass
5555	-48.68	-13	-35.68	-69.11	-56.34	3.04	10.70	H	Pass
7403	-41.00	-13	-28.00	-68.32	-49.74	3.28	12.02	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-52.54	-13	-39.54	-68.66	-58.69	2.59	8.74	V	Pass
5555	-48.48	-13	-35.48	-68.88	-56.14	3.04	10.70	V	Pass
7403	-41.26	-13	-28.26	-68.25	-50	3.28	12.02	V	Pass

<Middle Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3763	-52.76	-13	-39.76	-68.17	-59.06	2.51	8.81	H	Pass
5639	-47.78	-13	-34.78	-68.55	-55.49	2.99	10.70	H	Pass
7522	-41.82	-13	-28.82	-68.98	-50.35	3.59	12.12	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3763	-52.09	-13	-39.09	-68.4	-58.39	2.51	8.81	V	Pass
5639	-48.29	-13	-35.29	-68.82	-56	2.99	10.70	V	Pass
7522	-41.99	-13	-28.99	-69.18	-50.52	3.59	12.12	V	Pass

<High Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-51.08	-13	-38.08	-66.79	-57.49	2.47	8.88	H	Pass
5730	-47.50	-13	-34.50	-68.59	-55.2	3	10.70	H	Pass
7641	-42.48	-13	-29.48	-68.85	-51.26	3.43	12.21	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-51.13	-13	-38.13	-67.53	-57.54	2.47	8.88	V	Pass
5730	-48.02	-13	-35.02	-68.78	-55.72	3	10.70	V	Pass
7641	-42.22	-13	-29.22	-68.36	-51	3.43	12.21	V	Pass

<Low Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-53.65	-13	-40.65	-68.7	-59.8	2.59	8.74	H	Pass
5551	-48.14	-13	-35.14	-68.56	-55.8	3.04	10.70	H	Pass
7401	-41.86	-13	-28.86	-68.95	-50.6	3.28	12.02	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-53.05	-13	-40.05	-68.95	-59.2	2.59	8.74	V	Pass
5551	-49.04	-13	-36.04	-69.09	-56.7	3.04	10.70	V	Pass
7401	-41.66	-13	-28.66	-68.43	-50.4	3.28	12.02	V	Pass

<Middle Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-52.90	-13	-39.90	-68.14	-59.2	2.51	8.81	H	Pass
5640	-47.79	-13	-34.79	-68.5	-55.5	2.99	10.70	H	Pass
7520	-41.67	-13	-28.67	-68.85	-50.2	3.59	12.12	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-51.70	-13	-38.70	-68.01	-58	2.51	8.81	V	Pass
5640	-47.99	-13	-34.99	-68.25	-55.7	2.99	10.70	V	Pass
7520	-42.37	-13	-29.37	-69.29	-50.9	3.59	12.12	V	Pass

<High Channel>

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3820	-51.89	-13	-38.89	-67.27	-58.3	2.47	8.88	H	Pass
5729	-48.50	-13	-35.50	-69.12	-56.2	3	10.70	H	Pass
7639	-42.92	-13	-29.92	-68.74	-51.7	3.43	12.21	H	Pass

Band :	GSM1900	**Temperature :**	23~25°C
Test Mode :	EDGE class 8 Link (8PSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3820	-50.69	-13	-37.69	-66.71	-57.1	2.47	8.88	V	Pass
5729	-48.70	-13	-35.70	-69.15	-56.4	3	10.70	V	Pass
7639	-43.32	-13	-30.32	-69.21	-52.1	3.43	12.21	V	Pass

<Low Channel>

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1656	-56.75	-13	-43.75	-63.44	-58.6	1.53	5.53	H	Pass
2488	-54.63	-13	-41.63	-65.85	-56.57	2.06	6.15	H	Pass
3312	-55.64	-13	-42.64	-67.46	-58.94	2.48	7.93	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1656	-52.93	-13	-39.93	-61.85	-54.78	1.53	5.53	V	Pass
2488	-54.95	-13	-41.95	-66.56	-56.89	2.06	6.15	V	Pass
3312	-53.95	-13	-40.95	-67.31	-57.25	2.48	7.93	V	Pass

<Middle Channel>

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-58.03	-13	-45.03	-64.81	-59.75	1.62	5.49	H	Pass
2512	-55.65	-13	-42.65	-66.84	-57.62	2.1	6.22	H	Pass
3344	-55.44	-13	-42.44	-67.39	-58.33	3.03	8.07	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-55.32	-13	-42.32	-64.34	-57.04	1.62	5.49	V	Pass
2512	-54.97	-13	-41.97	-66.69	-56.94	2.1	6.22	V	Pass
3344	-53.89	-13	-40.89	-67.5	-56.78	3.03	8.07	V	Pass

<High Channel>

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-59.15	-13	-46.15	-66	-60.88	1.57	5.45	H	Pass
2536	-55.81	-13	-42.81	-66.96	-57.92	2.02	6.28	H	Pass
3384	-54.75	-13	-41.75	-66.75	-58.5	2.3	8.20	H	Pass

Band :	WCDMA Band V	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-56.39	-13	-43.39	-65.66	-58.12	1.57	5.45	V	Pass
2536	-55.52	-13	-42.52	-67.18	-57.63	2.02	6.28	V	Pass
3384	-52.99	-13	-39.99	-66.46	-56.74	2.3	8.20	V	Pass

<Low Channel>

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3705	-53.55	-13	-40.55	-68.35	-59.7	2.59	8.74	H	Pass
5557	-47.84	-13	-34.84	-68.23	-55.5	3.04	10.70	H	Pass
7410	-41.66	-13	-28.66	-68.78	-50.4	3.28	12.02	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3705	-52.25	-13	-39.25	-68.16	-58.4	2.59	8.74	V	Pass
5557	-47.44	-13	-34.44	-67.74	-55.1	3.04	10.70	V	Pass
7410	-41.46	-13	-28.46	-68.29	-50.2	3.28	12.02	V	Pass

<Middle Channel>

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-51.90	-13	-38.90	-66.99	-58.2	2.51	8.81	H	Pass
5640	-47.59	-13	-34.59	-68.36	-55.3	2.99	10.70	H	Pass
7520	-41.87	-13	-28.87	-68.93	-50.4	3.59	12.12	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.40	-13	-37.40	-66.8	-56.7	2.51	8.81	V	Pass
5640	-48.19	-13	-35.19	-68.36	-55.9	2.99	10.70	V	Pass
7520	-41.17	-13	-28.17	-68.7	-49.7	3.59	12.12	V	Pass

<High Channel>

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3815	-48.09	-13	-35.09	-63.51	-54.5	2.47	8.88	H	Pass
5723	-48.20	-13	-35.20	-68.74	-55.9	3	10.70	H	Pass
7630	-42.02	-13	-29.02	-68.56	-50.8	3.43	12.21	H	Pass

Band :	WCDMA Band II	**Temperature :**	23~25°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3815	-49.69	-13	-36.69	-65.88	-56.1	2.47	8.88	V	Pass
5723	-48.00	-13	-35.00	-68.36	-55.7	3	10.70	V	Pass
7630	-42.82	-13	-29.82	-69.1	-51.6	3.43	12.21	V	Pass

<Low Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-53.78	-13	-40.78	-62.65	-55.63	1.53	5.53	H	Pass
2474	-51.23	-13	-38.23	-65.12	-53.17	2.06	6.15	H	Pass
3298	-53.76	-13	-40.76	-67.73	-57.06	2.48	7.93	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-48.98	-13	-35.98	-59.89	-50.83	1.53	5.53	V	Pass
2474	-52.05	-13	-39.05	-66.45	-53.99	2.06	6.15	V	Pass
3298	-52.17	-13	-39.17	-67.6	-55.47	2.48	7.93	V	Pass

<Middle Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-53.56	-13	-40.56	-60.77	-55.28	1.62	5.49	H	Pass
2509	-55.72	-13	-42.72	-66.43	-57.69	2.1	6.22	H	Pass
3345	-55.25	-13	-42.25	-67.19	-58.14	3.03	8.07	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-52.24	-13	-39.24	-60.35	-53.96	1.62	5.49	V	Pass
2509	-54.29	-13	-41.29	-66.05	-56.26	2.1	6.22	V	Pass
3345	-54.10	-13	-41.10	-66.86	-56.99	3.03	8.07	V	Pass

<High Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-53.44	-13	-40.44	-60.23	-55.17	1.57	5.45	H	Pass
2544	-55.18	-13	-42.18	-66.43	-57.29	2.02	6.28	H	Pass
3393	-55.51	-13	-42.51	-67.41	-59.26	2.3	8.20	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K Link (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-51.96	-13	-38.96	-60.67	-53.69	1.57	5.45	V	Pass
2544	-54.72	-13	-41.72	-66.82	-56.83	2.02	6.28	V	Pass
3393	-53.34	-13	-40.34	-67.1	-57.09	2.3	8.20	V	Pass

<Low Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-55.52	-13	-42.52	-62.12	-57.37	1.53	5.53	H	Pass
2472	-54.06	-13	-41.06	-65.15	-56	2.06	6.15	H	Pass
3296	-55.17	-13	-42.17	-67.09	-58.47	2.48	7.93	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-51.46	-13	-38.46	-60.29	-53.31	1.53	5.53	V	Pass
2472	-53.84	-13	-40.84	-65.24	-55.78	2.06	6.15	V	Pass
3296	-53.32	-13	-40.32	-66.67	-56.62	2.48	7.93	V	Pass

<Middle Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-53.95	-13	-40.95	-60.65	-55.67	1.62	5.49	H	Pass
2512	-55.22	-13	-42.22	-66.31	-57.19	2.1	6.22	H	Pass
3344	-55.25	-13	-42.25	-67.15	-58.14	3.03	8.07	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-51.19	-13	-38.19	-60.19	-52.91	1.62	5.49	V	Pass
2512	-54.32	-13	-41.32	-65.89	-56.29	2.1	6.22	V	Pass
3344	-54.07	-13	-41.07	-67.44	-56.96	3.03	8.07	V	Pass

<High Channel>

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-56.90	-13	-43.90	-63.71	-58.63	1.57	5.45	H	Pass
2544	-54.63	-13	-41.63	-65.72	-56.74	2.02	6.28	H	Pass
3392	-55.31	-13	-42.31	-67.33	-59.06	2.3	8.20	H	Pass

Band :	CDMA2000 BC0	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-53.02	-13	-40.02	-62.08	-54.75	1.57	5.45	V	Pass
2544	-54.02	-13	-41.02	-65.84	-56.13	2.02	6.28	V	Pass
3392	-53.69	-13	-40.69	-67.16	-57.44	2.3	8.20	V	Pass

<Low Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-52.48	-13	-39.48	-68.06	-58.63	2.59	8.74	H	Pass
5553	-47.52	-13	-34.52	-68.39	-55.18	3.04	10.70	H	Pass
7405	-41.34	-13	-28.34	-68.9	-50.08	3.28	12.02	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-52.84	-13	-39.84	-68.63	-58.99	2.59	8.74	V	Pass
5553	-46.20	-13	-33.20	-68.04	-53.86	3.04	10.70	V	Pass
7405	-40.99	-13	-27.99	-68.78	-49.73	3.28	12.02	V	Pass

<Middle Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3756	-48.57	-13	-35.57	-63.7	-54.87	2.51	8.81	H	Pass
5640	-48.37	-13	-35.37	-68.78	-56.08	2.99	10.70	H	Pass
7520	-40.68	-13	-27.68	-68.17	-49.21	3.59	12.12	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3763	-51.81	-13	-38.81	-67.65	-58.11	2.51	8.81	V	Pass
5640	-47.92	-13	-34.92	-68.49	-55.63	2.99	10.70	V	Pass
7520	-41.51	-13	-28.51	-68.97	-50.04	3.59	12.12	V	Pass

<High Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-41.27	-13	-28.27	-56.88	-47.68	2.47	8.88	H	Pass
5726	-47.38	-13	-34.38	-68.74	-55.08	3	10.70	H	Pass
7635	-42.45	-13	-29.45	-69.35	-51.23	3.43	12.21	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xEV-DO Rev. A_RETAP 4096K (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-48.83	-13	-35.83	-65.04	-55.24	2.47	8.88	V	Pass
5726	-47.47	-13	-34.47	-68.53	-55.17	3	10.70	V	Pass
7635	-41.70	-13	-28.70	-68.54	-50.48	3.43	12.21	V	Pass

<Low Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-53.95	-13	-40.95	-68.86	-60.1	2.59	8.74	H	Pass
5555	-48.54	-13	-35.54	-68.71	-56.2	3.04	10.70	H	Pass
7403	-41.26	-13	-28.26	-68.45	-50	3.28	12.02	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-51.85	-13	-38.85	-67.89	-58	2.59	8.74	V	Pass
5555	-47.54	-13	-34.54	-67.59	-55.2	3.04	10.70	V	Pass
7403	-41.06	-13	-28.06	-68.02	-49.8	3.28	12.02	V	Pass

<Middle Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3763	-48.80	-13	-35.80	-64.24	-55.1	2.51	8.81	H	Pass
5639	-46.99	-13	-33.99	-67.63	-54.7	2.99	10.70	H	Pass
7522	-41.37	-13	-28.37	-68	-49.9	3.59	12.12	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3763	-51.50	-13	-38.50	-67.98	-57.8	2.51	8.81	V	Pass
5639	-47.39	-13	-34.39	-67.65	-55.1	2.99	10.70	V	Pass
7522	-41.67	-13	-28.67	-68.66	-50.2	3.59	12.12	V	Pass

<High Channel>

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-39.49	-13	-26.49	-55.34	-45.9	2.47	8.88	H	Pass
5730	-47.20	-13	-34.20	-65.25	-54.9	3	10.70	H	Pass
7641	-42.32	-13	-29.32	-68.66	-51.1	3.43	12.21	H	Pass

Band :	CDMA2000 BC1	**Temperature :**	23~25°C
Test Mode :	1xRTT_RC1+SO55 (QPSK)	**Relative Humidity :**	44~48%
Test Engineer :	Stan Hsieh	**Polarization :**	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3819	-43.69	-13	-30.69	-60.32	-50.1	2.47	8.88	V	Pass
5730	-48.10	-13	-35.10	-68.69	-55.8	3	10.70	V	Pass
7641	-41.92	-13	-28.92	-68.44	-50.7	3.43	12.21	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block for FCC Part 24 and the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency for FCC Part 22.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

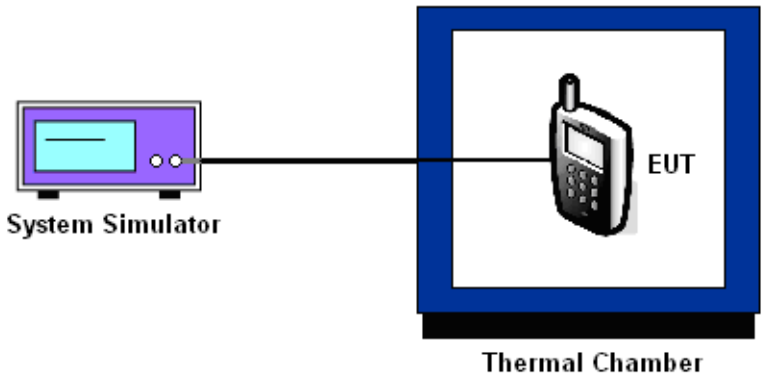
3.8.3 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 v02r01 Section 9.0.
2. The EUT was placed in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.8.4 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 v02r01 Section 9.0.
2. The EUT was placed in the thermal chamber at 25±5° C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

Band :	GSM 850	Channel :	189
Limit (ppm) :	2.5	Frequency :	836.4 MHz

Temperature (°C)	GPRS class 8	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0036	0.0060	PASS
40	0.0048	0.0024	
30	0.0024	0.0036	
20(Ref.)	0.0000	0.0000	
10	0.0024	0.0012	
0	0.0012	0.0012	
-10	0.0036	0.0036	
-20	0.0060	0.0084	
-30	0.0108	0.0048	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	within authorized band	Frequency :	1880.0 MHz

Temperature (°C)	GSM	EDGE class 8	Result
	Deviation (ppm)	Deviation (ppm)	
50	0.0053	0.0027	PASS
40	0.0043	0.0016	
30	0.0021	0.0005	
20(Ref.)	0.0000	0.0000	
10	0.0005	0.0011	
0	0.0005	0.0005	
-10	0.0016	0.0027	
-20	0.0037	0.0005	
-30	0.0027	0.0021	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	WCDMA Band V	Channel :	4182
Limit (ppm) :	2.5	Frequency :	836.4 MHz

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.0036	PASS
40	0.0012	
30	0.0024	
20(Ref.)	0.0000	
10	0.0012	
0	0.0000	
-10	0.0024	
-20	0.0060	
-30	0.0048	

Band :	WCDMA Band II	Channel :	9400
Limit (ppm) :	within authorized band	Frequency :	1880.0 MHz

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.0032	PASS
40	0.0021	
30	0.0005	
20(Ref.)	0.0000	
10	0.0011	
0	0.0005	
-10	0.0016	
-20	0.0048	
-30	0.0027	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Band :	CDMA2000 BC0 1xEV-DO Rev. A_RETAP 4096K	Channel :	384
Limit (ppm) :	2.5	Frequency :	836.52 MHz

Temperature (°C)	Deviation (ppm)	Result
50	0.0263	PASS
40	0.0251	
30	0.0024	
20(Ref.)	0.0000	
10	0.0263	
0	0.0227	
-10	0.0287	
-20	0.0275	
-30	0.0299	

Band :	CDMA2000 BC1 1xEV-DO Rev. A_RETAP 4096K	Channel :	600
Limit (ppm) :	within authorized band	Frequency :	1880.0 MHz

Temperature (°C)	Deviation (ppm)	Result
50	0.0037	PASS
40	0.0053	
30	0.0032	
20(Ref.)	0.0000	
10	0.0005	
0	0.0016	
-10	0.0027	
-20	0.0043	
-30	0.0016	

Note: The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GPRS class 8	4.35	0.0024	2.5 ppm (Note 3.)	PASS
		3.90	0.0036		
		BEP	0.0060		
	EDGE class 8	4.35	0.0036		
		3.90	0.0000		
		BEP	0.0012		
GSM 1900 CH661	GSM	4.35	0.0000		
		3.90	0.0005		
		BEP	0.0016		
	EDGE class 8	4.35	0.0005		
		3.90	0.0021		
		BEP	0.0016		
WCDMA Band V CH4182	RMC 12.2Kbps	4.35	0.0024		
		3.90	0.0000		
		BEP	0.0012		
WCDMA Band II CH9400	RMC 12.2Kbps	4.35	0.0011		
		3.90	0.0005		
		BEP	0.0000		
CDMA2000 BC0 CH384	1xEV-DO Rev. A RETAP 4096K	4.35	0.0287		
		3.90	0.0036		
		BEP	0.0251		
CDMA2000 BC1 CH600	1xEV-DO Rev. A RETAP 4096K	4.35	0.0011		
		3.90	0.0021		
		BEP	0.0027		

Note:

1. Normal Voltage = 3.90V.
2. Battery End Point (BEP) = 3.40 V.
3. For Part 24, the frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117997	N/A	Aug. 29, 2013	Jul. 18, 2014 ~ Aug. 06, 2014	Aug. 28, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 09, 2014	Jul. 18, 2014 ~ Aug. 06, 2014	Jun. 08, 2015	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 17, 2014	Jul. 18, 2014 ~ Aug. 06, 2014	Jul. 16, 2015	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 19, 2014	Sep. 05, 2014 ~ Sep. 07, 2014	Aug. 18, 2015	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00066583	1GHz~18GHz	Jul. 24, 2014	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	Jul. 23, 2015	Radiation (03CH07-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 23, 2014	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	May 22, 2015	Radiation (03CH07-HY)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Jul. 25, 2014 ~ Jul. 30, 2014 & Aug. 06, 2014 & Sep. 05, 2014 ~ Sep. 07, 2014	Oct. 02, 2014	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.50**