FCC RF Test Report

APPLICANT	:	LG Electronics Inc.
EQUIPMENT	:	WHP(Wireless Home Phone)
BRAND NAME	:	AT&T / LG
MODEL NAME	:	AF300, LGAF300,LG-AF300
FCC ID	:	ZNFAF300
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter (PCB)

The product was received on Apr. 25, 2014 and testing was completed on May 03, 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 the testing has shown the tested sample to be 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
FG442506	Rev. 01	Initial issue of report	May 13, 2014
FG442506	Rev. 02	Add the model name description on page 5.	May 19, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-132 (5.4) RSS-133 (6.4)	Conducted Output Power	N/A	PASS	-
3.2	§24.232(d)	RSS-132 (5.4) RSS-133(6.4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.3	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.3	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b)	RSS-GEN(4.6.1) RSS-133(2.3)	Occupied Bandwidth	N/A	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Band Edge Measurement	< $43+10\log_{10}$(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Conducted Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Field Strength of Spurious Radiation	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 11.32 dB at 1696.000 MHz
3.8	§2.1055 §22.355 §24.235	RSS-132(5.3) RSS-133(6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

LG Electronics Inc.
22, Digital-ro 10-gil, Geumcheon-gu, Seoul gu, Korea

1.2 Manufacturer

LG ELECTRONICS MOBILECOMM U.S.A., INC
100 SYLVAN AVENUE
ENGEWOOD CLIFFS,
NEW JERSEY, 07632, U.S.A.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	WHP(Wireless Home Phone)
Brand Name	AT&T / LG
Model Name	AF300, LGAF300,LG-AF300
FCC ID	ZNFAF300
EUT supports Radios application	GSM/GPRS/WCDMA
HW Version	Rev1.0
SW Version	AF30009i
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. LG-AF300, AF300 and LGAF300 are same model and device. Only reason we need to listing for 3 kinds of model is marketing propose.

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
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
Maximum Output Power to Antenna	GSM850 : 31.95 dBm GSM1900 : 29.49 dBm WCDMA Band V : 23.67 dBm WCDMA Band II : 23.67 dBm
Antenna Type	PIFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK WCDMA: 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 22	GSM850 GSM	GMSK	0.69	0.0526 ppm	246KGXW
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.14	0.0490 ppm	4M20F9W
Part 24	GSM1900 GSM	GMSK	0.79	0.0335 ppm	248KGXW
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.24	0.0372 ppm	4M16F9W

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.**		**IC Registration No.**
	TH02-HY	03CH07-HY	4086B-1

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

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

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 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GSM Link	■ GSM Link
GSM 1900	■ GSM Link	■ GSM Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note: The maximum power levels are chosen to test as the worst case configuration as follows:

GSM mode for GMSK modulation,

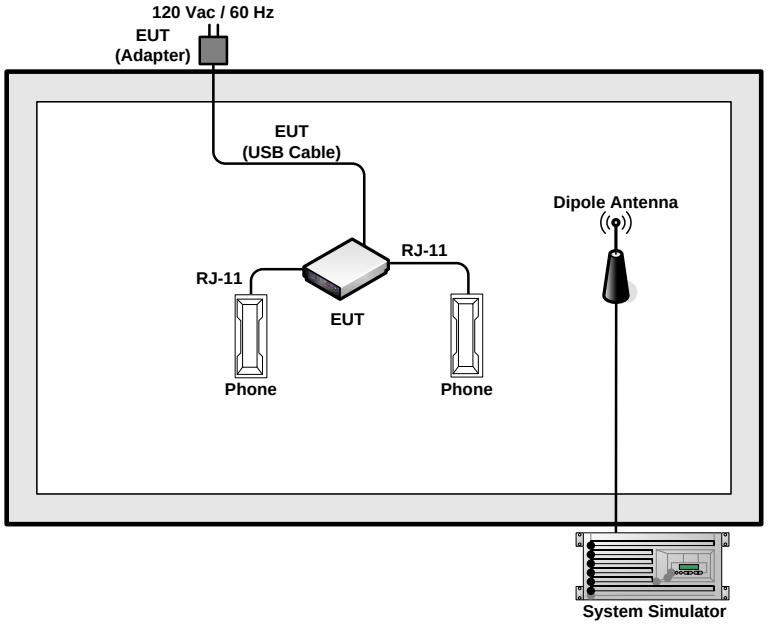
RMC 12.2Kbps mode for WCDMA band V and WCDMA band II, only these modes were used for all tests.

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	31.94	**31.95**	31.91	**29.49**	29.40	29.37
GPRS class 8	31.94	31.94	31.90	29.48	29.39	29.36
GPRS class 10	31.90	31.91	31.88	29.47	29.37	29.35

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	**23.67**	23.65	23.49	23.46	23.28	**23.67**

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.	Phone	Wonder	WD-303	N/A	N/A	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.

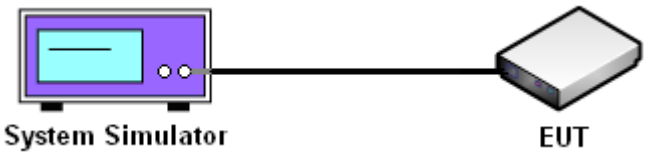
3.1.2 Measuring Instruments

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 (GSM)**			**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)	31.94	31.95	31.91	23.67	23.65	23.49

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)	29.49	29.40	29.37	23.46	23.28	23.67

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.

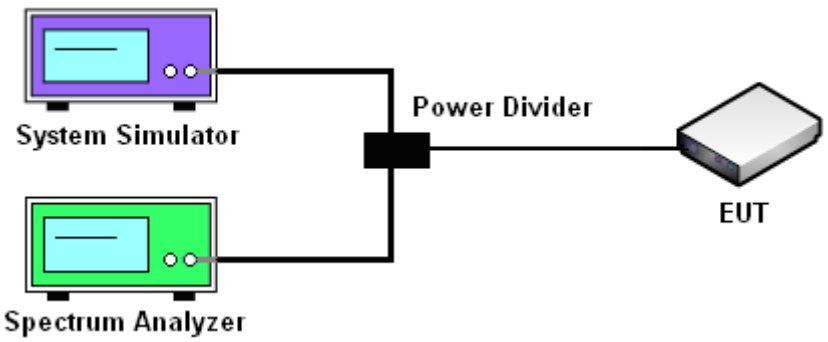
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. 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

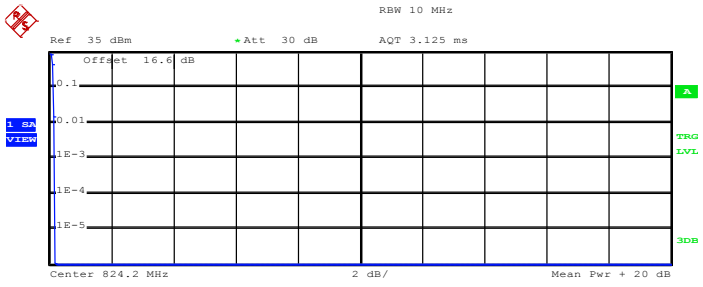
Cellular Band						
Modes	**GSM850 (GSM)**			**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**	**826.4**	**836.4**	**846.6**
Peak-to-Average Ratio (dB)	0.20	0.20	0.20	2.88	3.00	2.96

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**
Peak-to-Average Ratio (dB)	0.16	0.20	0.16	3.00	3.04	3.00

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

Band :	GSM 850	Test Mode :	GSM Link (GMSK)

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

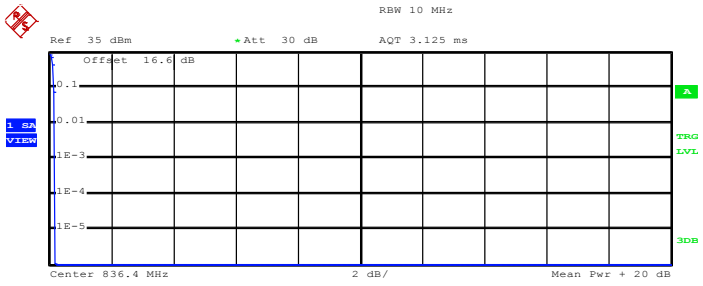


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	32.06 dBm
Peak	32.22 dBm
Crest	0.16 dB
10 %	0.16 dB
1 %	0.16 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 2.MAY.2014 15:49:57

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

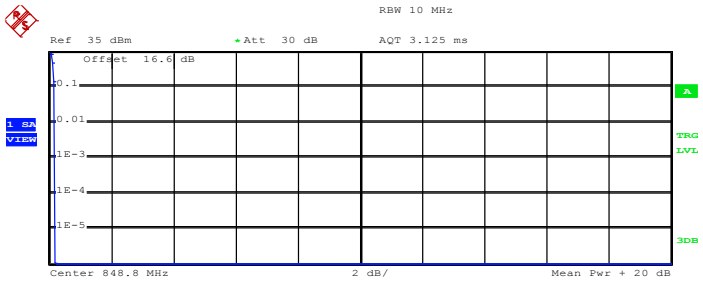


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	31.49 dBm
Peak	31.65 dBm
Crest	0.17 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 2.MAY.2014 15:50:27

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



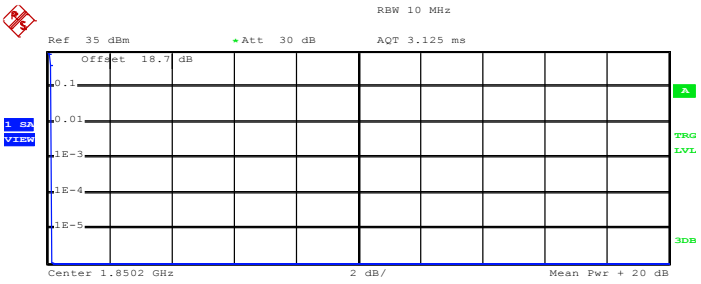
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	31.62 dBm
Peak	31.80 dBm
Crest	0.18 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 2.MAY.2014 15:51:06

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

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

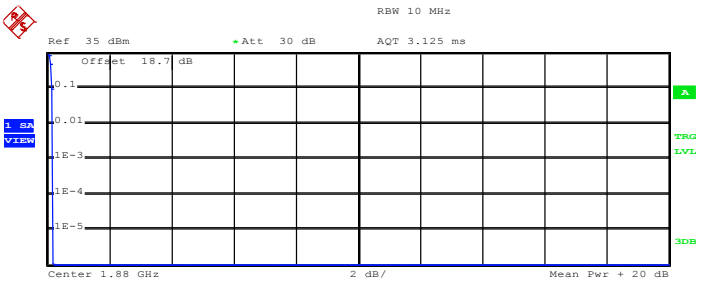


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	30.23 dBm
Peak	30.38 dBm
Crest	0.15 dB
10 %	0.16 dB
1 %	0.16 dB
.1 %	0.16 dB
.01 %	0.16 dB

Date: 2.MAY.2014 16:30:34

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

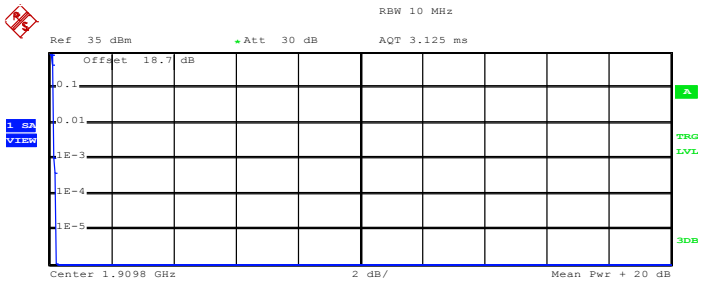


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	30.14 dBm
Peak	30.31 dBm
Crest	0.17 dB
10 %	0.16 dB
1 %	0.20 dB
.1 %	0.20 dB
.01 %	0.20 dB

Date: 2.MAY.2014 16:31:37

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



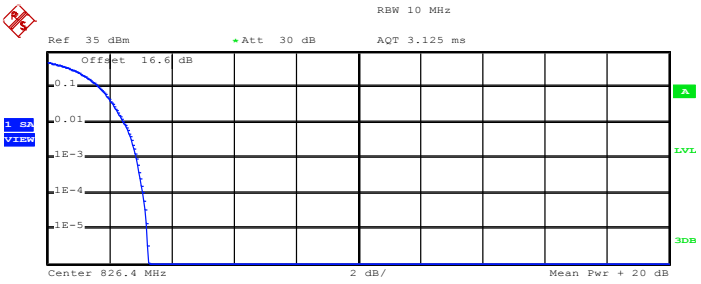
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	30.44 dBm
Peak	30.67 dBm
Crest	0.22 dB
10 %	0.16 dB
1 %	0.16 dB
.1 %	0.16 dB
.01 %	0.24 dB

Date: 2.MAY.2014 16:32:16

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

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

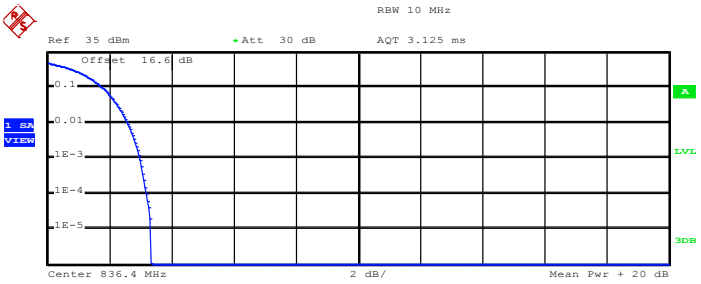


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.18 dBm
Peak	27.42 dBm
Crest	3.25 dB
10 %	1.68 dB
1 %	2.48 dB
.1 %	2.88 dB
.01 %	3.08 dB

Date: 2.MAY.2014 18:19:32

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

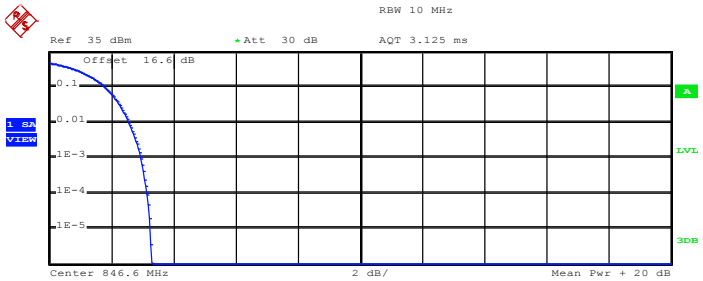


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.28 dBm
Peak	27.63 dBm
Crest	3.35 dB
10 %	1.80 dB
1 %	2.60 dB
.1 %	3.00 dB
.01 %	3.20 dB

Date: 2.MAY.2014 18:20:32

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



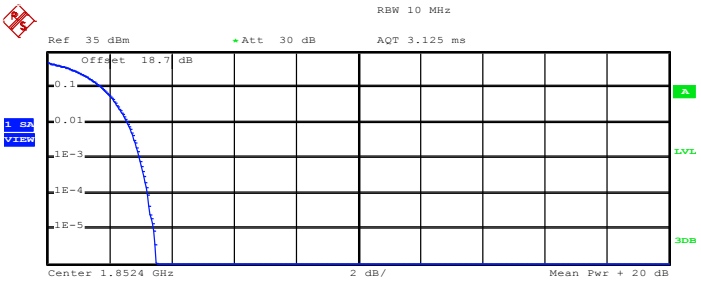
Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.93 dBm
Peak	27.21 dBm
Crest	3.28 dB
10 %	1.80 dB
1 %	2.56 dB
.1 %	2.96 dB
.01 %	3.16 dB

Date: 2.MAY.2014 18:21:28

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

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

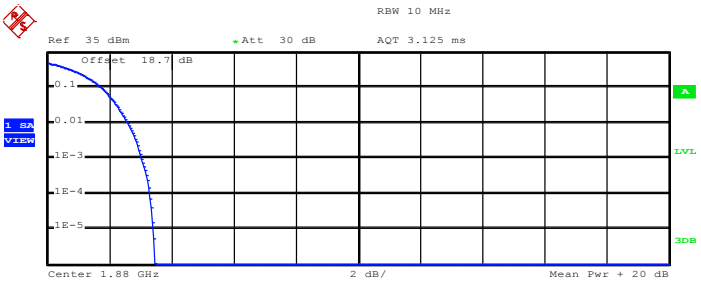


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.64 dBm
Peak	27.14 dBm
Crest	3.50 dB
10 %	1.76 dB
1 %	2.60 dB
.1 %	3.00 dB
.01 %	3.24 dB

Date: 2.MAY.2014 17:36:17

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

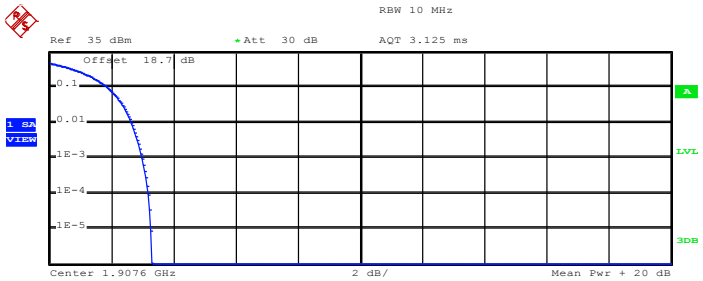


Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	24.18 dBm
Peak	27.63 dBm
Crest	3.45 dB
10 %	1.76 dB
1 %	2.60 dB
.1 %	3.04 dB
.01 %	3.32 dB

Date: 2.MAY.2014 17:36:48

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



Complementary Cumulative Distribution Function (100000 samples)

	Trace 1
Mean	23.99 dBm
Peak	27.28 dBm
Crest	3.29 dB
10 %	1.88 dB
1 %	2.64 dB
.1 %	3.00 dB
.01 %	3.20 dB

Date: 2.MAY.2014 17:37:49

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.

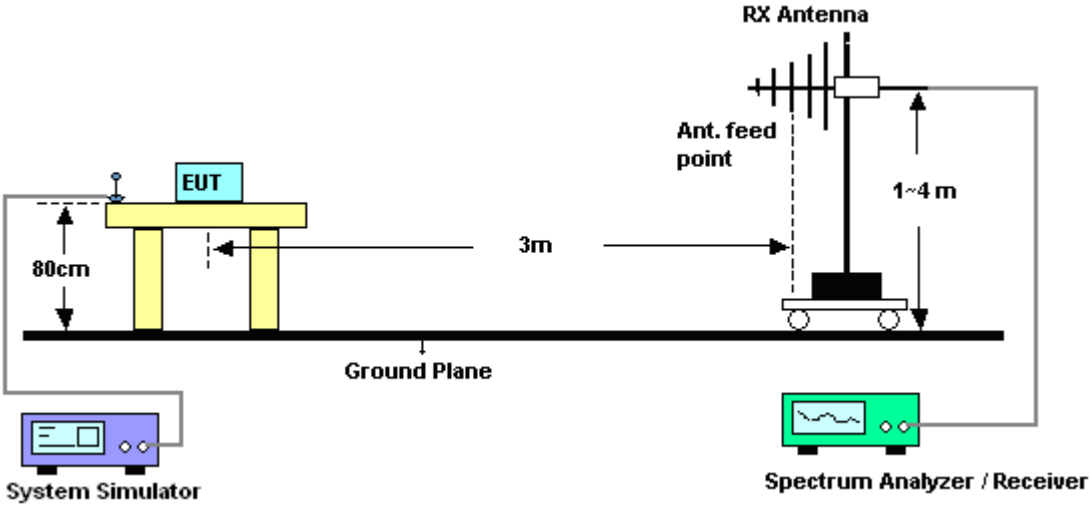
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

1. The 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 ERP

GSM850 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-2.95	31.54	26.44	0.44
836.4	-2.68	32.04	27.21	0.53
848.8	-2.07	32.59	28.37	0.69
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
824.2	-11.19	32.93	19.59	0.09
836.4	-10.82	32.82	19.85	0.10
848.8	-10.86	33.62	20.61	0.12

* 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	-8.66	31.44	20.63	0.12
836.40	-9.10	32.04	20.79	0.12
846.60	-8.91	32.63	21.57	0.14
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**ERP (dBm)**	**ERP (W)**
826.40	-17.41	32.78	13.22	0.02
836.40	-17.65	32.82	13.02	0.02
846.60	-18.22	33.4	13.03	0.02

* 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	-17.43	45.34	27.91	0.62
1880.0	-17.69	46.01	28.32	0.68
1909.8	-16.86	45.81	28.95	0.79
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1850.2	-22.93	49.22	26.29	0.43
1880.0	-21.47	50.42	28.95	0.79
1909.8	-21.25	49.00	27.75	0.60

* 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	-22.32	45.37	23.05	0.20
1880.00	-22.29	46.01	23.72	0.24
1907.60	-23.76	45.87	22.11	0.16
Vertical Polarization				
Frequency (MHz)	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (W)**
1852.40	-29.20	49.23	20.03	0.10
1880.00	-27.69	50.42	22.73	0.19
1907.60	-26.25	49.04	22.79	0.19

* 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.

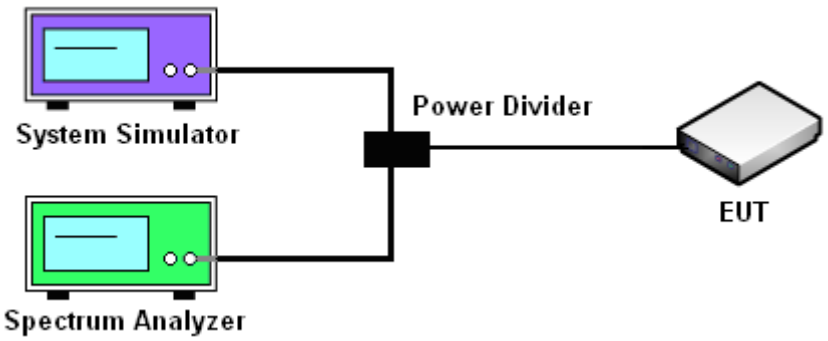
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.
4. 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 (GSM)**		
Channel	**128 (Low)**	**189 (Mid)**	**251 (High)**
Frequency (MHz)	**824.2**	**836.4**	**848.8**
99% OBW (kHz)	246.00	242.00	244.00
26dB BW (kHz)	316.00	314.00	314.00

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

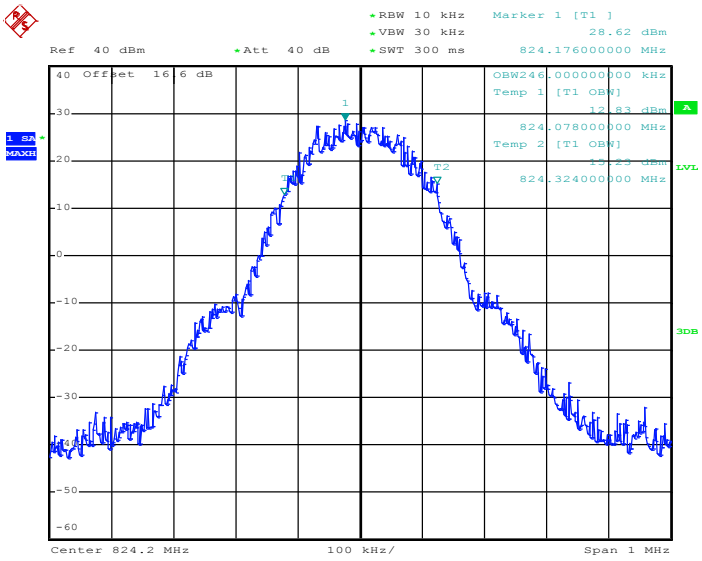
Cellular Band			
Modes	**WCDMA Band V (RMC 12.2Kbps)**		
Channel	**4132 (Low)**	**4182 (Mid)**	**4233 (High)**
Frequency (MHz)	**826.4**	**836.4**	**846.6**
99% OBW (MHz)	4.16	4.18	4.20
26dB BW (MHz)	4.68	4.68	4.70

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)	4.16	4.16	4.12
26dB BW (MHz)	4.68	4.68	4.64

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

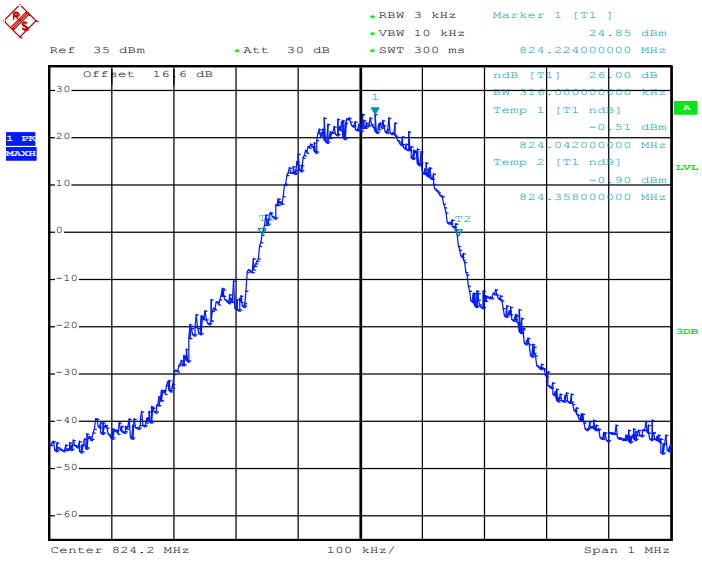
Band :	GSM 850	Test Mode :	GSM Link (GMSK)

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



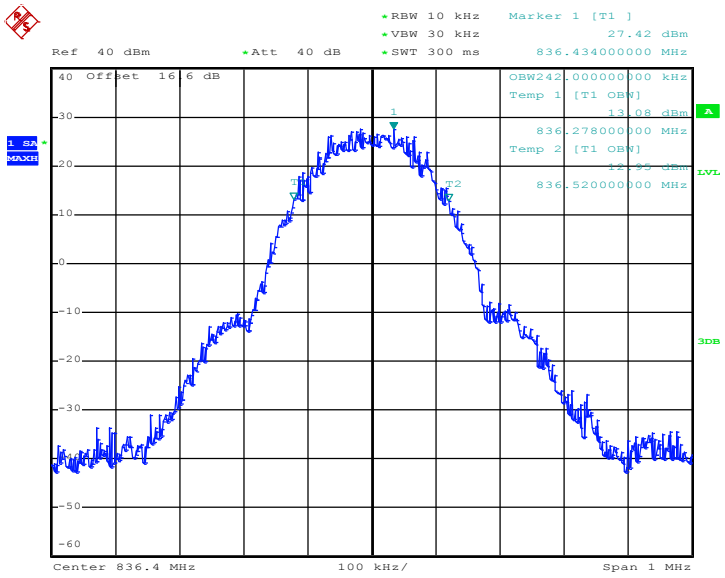
Date: 2.MAY.2014 15:37:01

26dB Bandwidth Plot on Channel 128 (824.2 MHz)



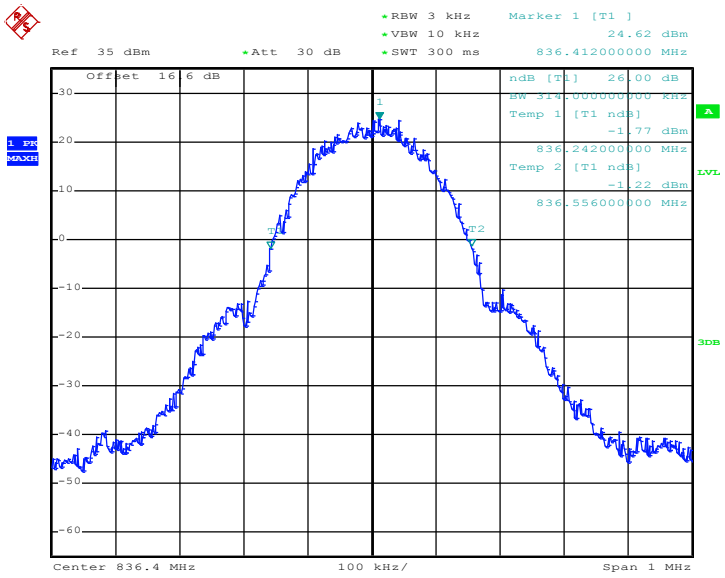
Date: 2.MAY.2014 15:31:19

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



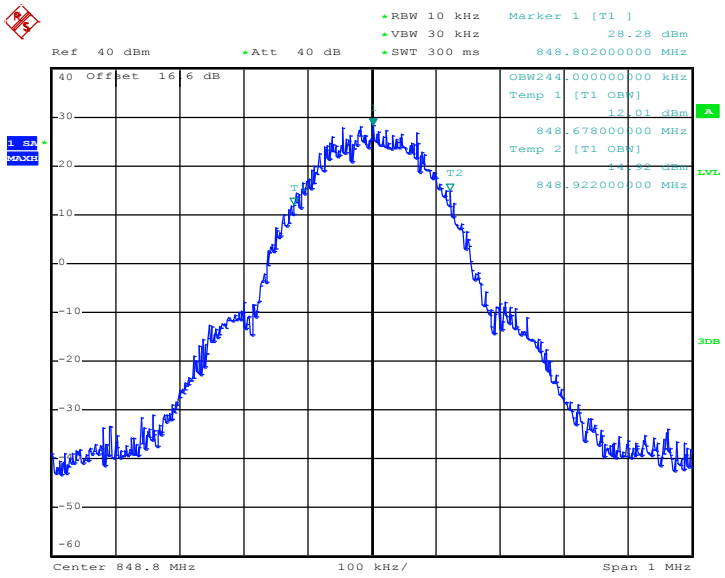
Date: 2.MAY.2014 15:37:30

26dB Bandwidth Plot on Channel 189 (836.4 MHz)



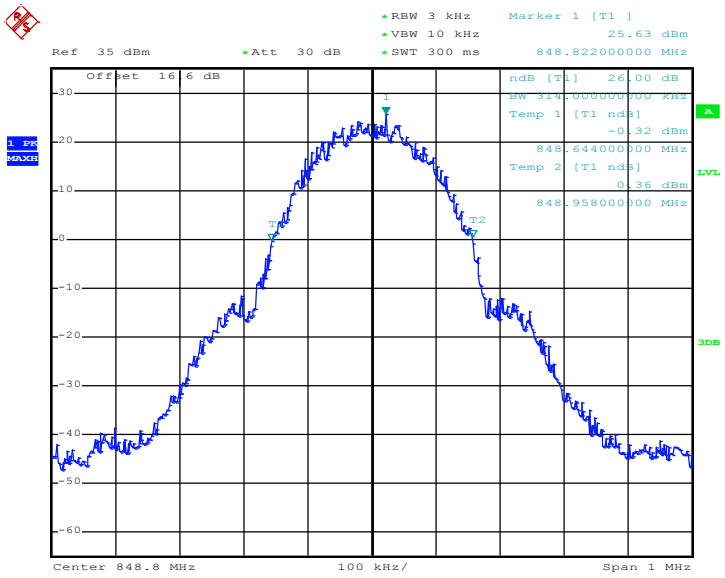
Date: 2.MAY.2014 15:31:47

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



Date: 2.MAY.2014 15:37:59

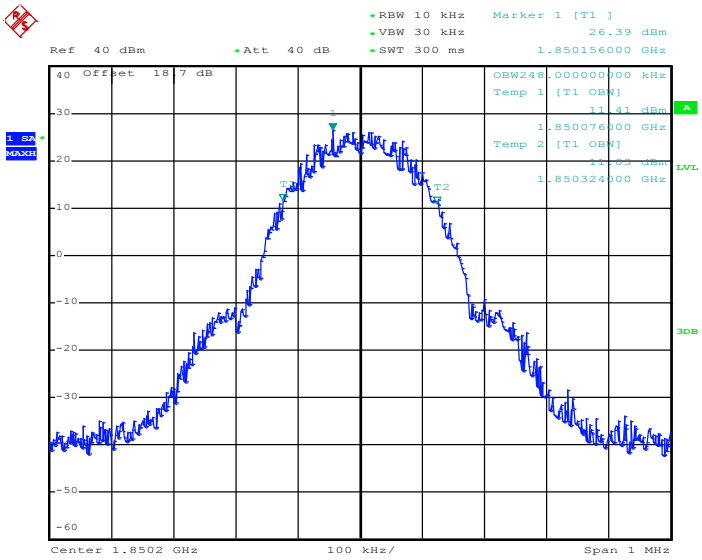
26dB Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 2.MAY.2014 15:32:16

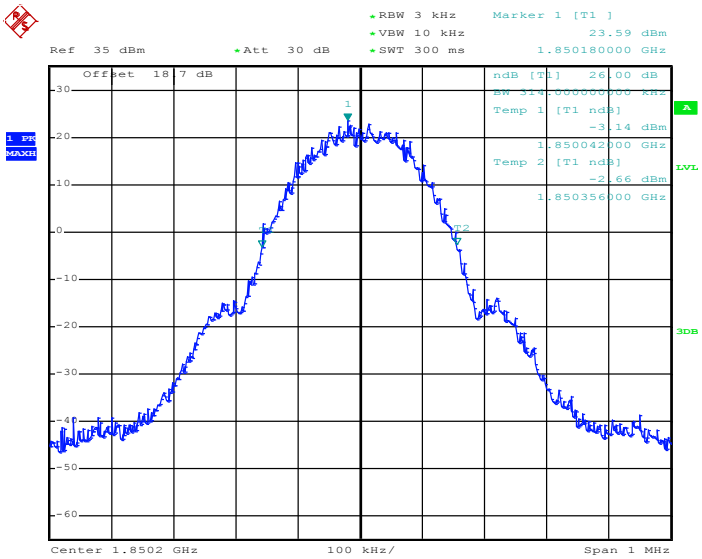
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)

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



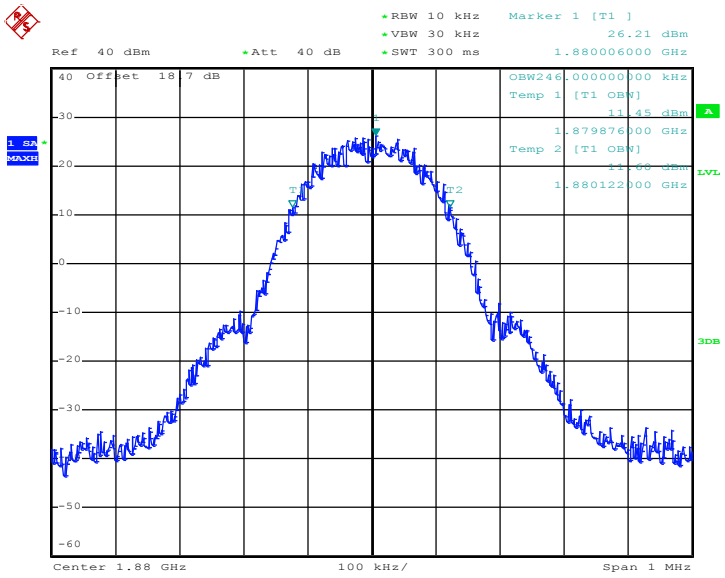
Date: 2.MAY.2014 16:40:19

26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



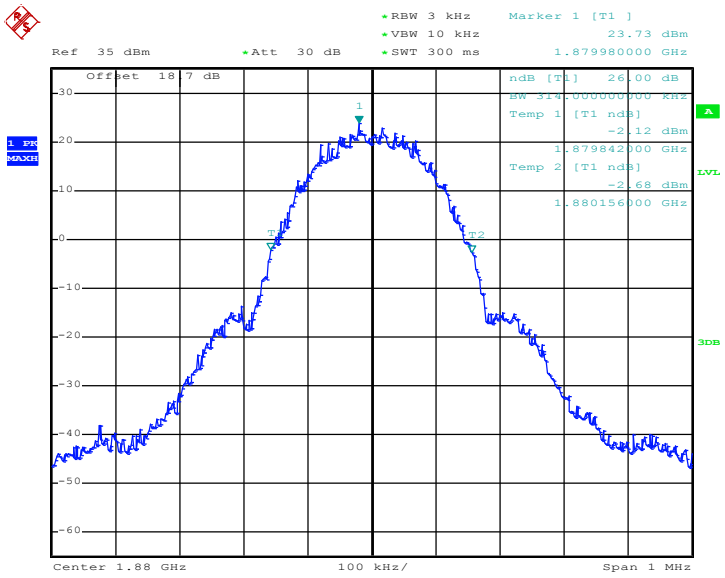
Date: 2.MAY.2014 16:37:18

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



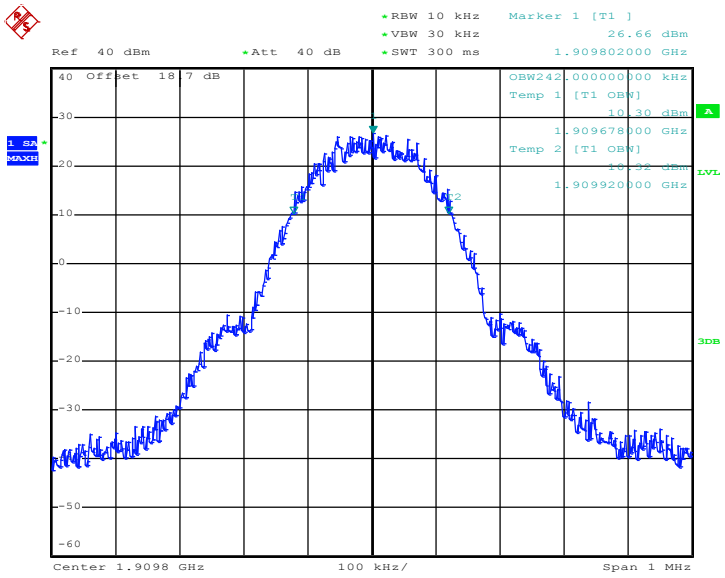
Date: 2.MAY.2014 16:40:48

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



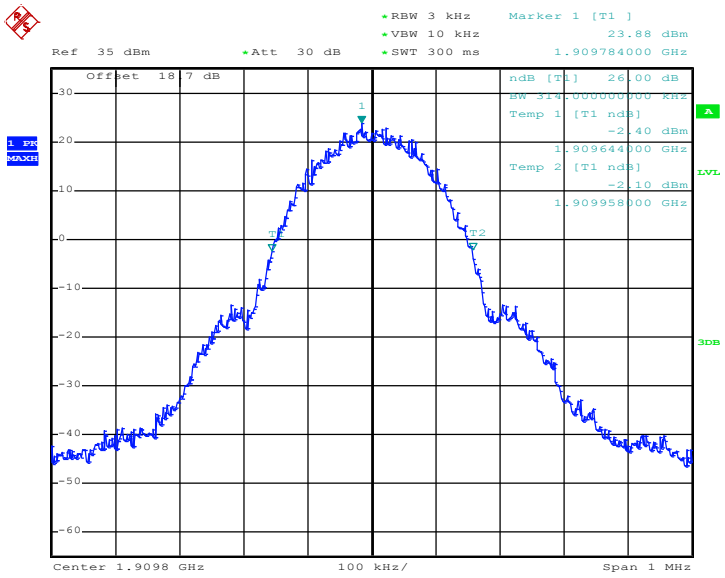
Date: 2.MAY.2014 16:37:47

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



Date: 2.MAY.2014 16:45:08

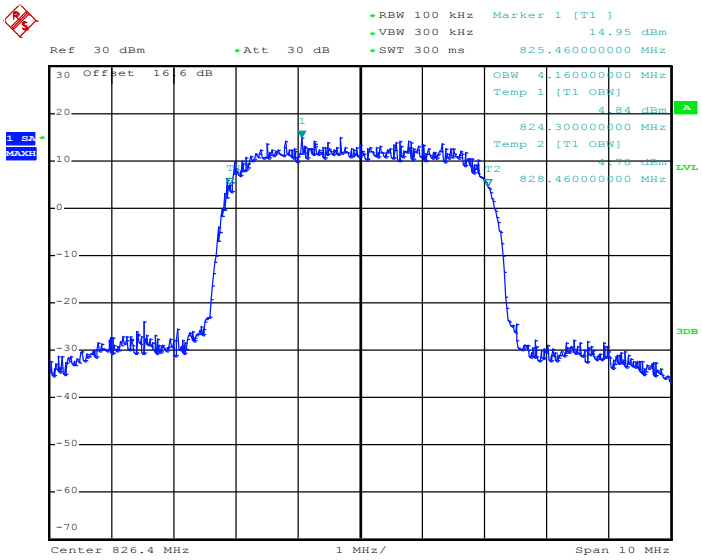
26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 2.MAY.2014 16:38:15

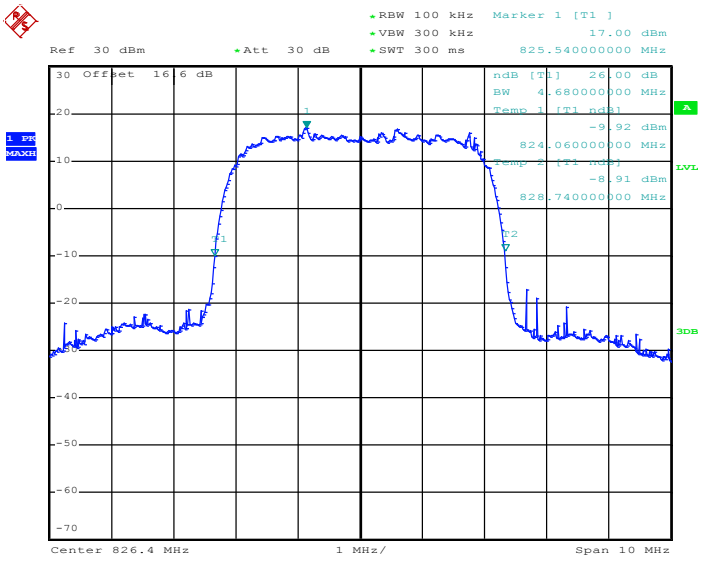
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)

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



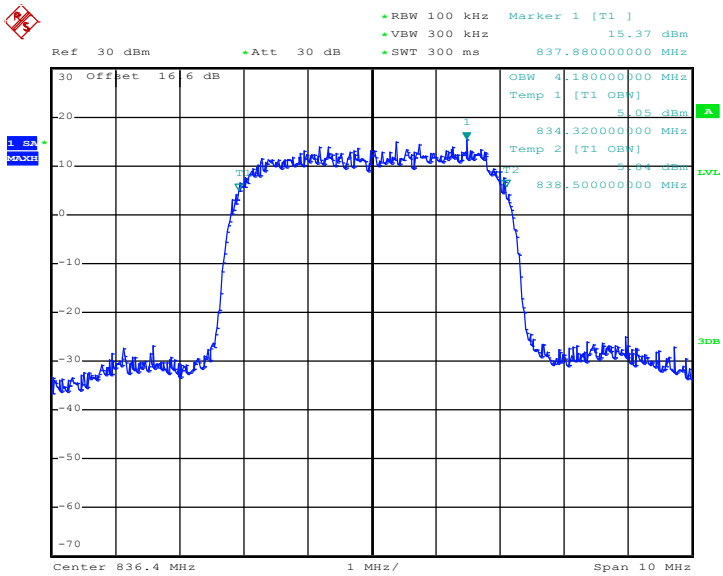
Date: 2.MAY.2014 19:09:35

26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



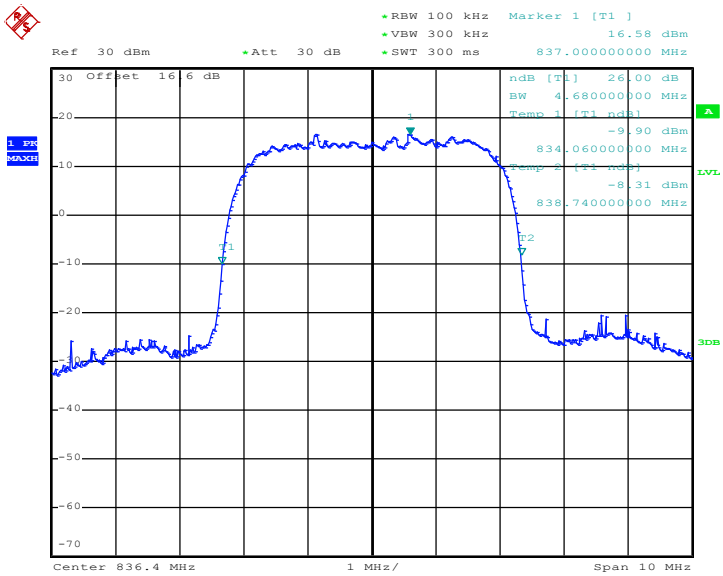
Date: 2.MAY.2014 19:05:44

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



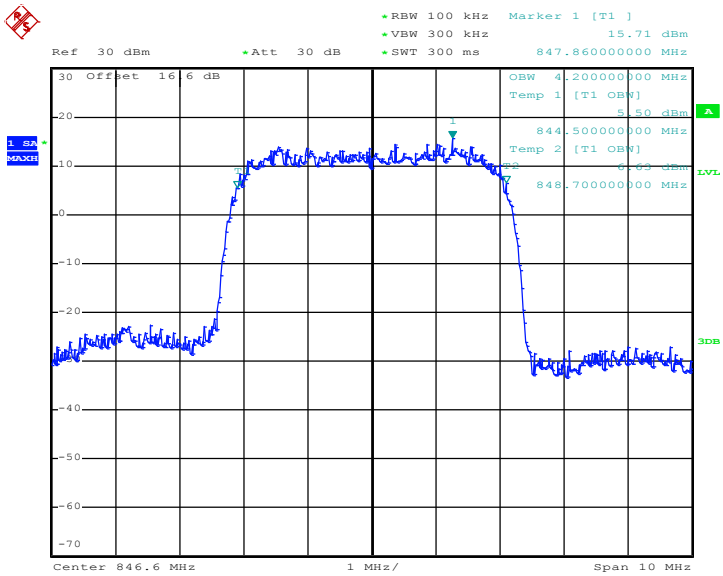
Date: 2.MAY.2014 19:10:04

26dB Bandwidth Plot on Channel 4182 (836.4 MHz)

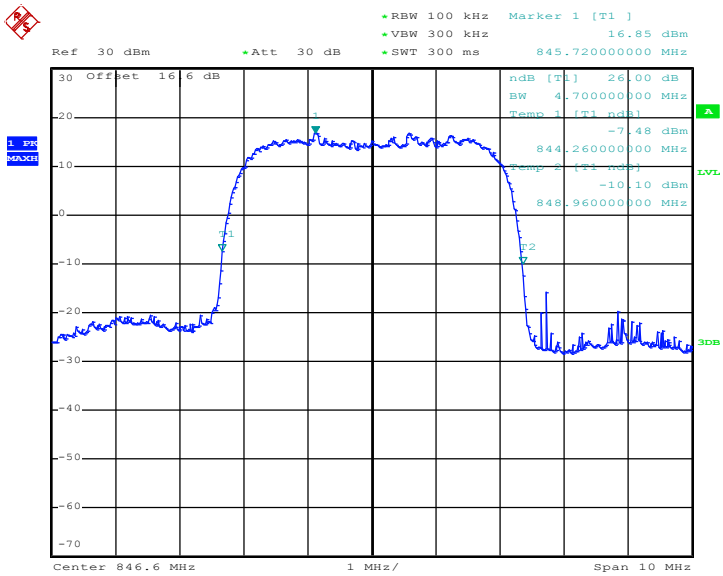


Date: 2.MAY.2014 19:06:13

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

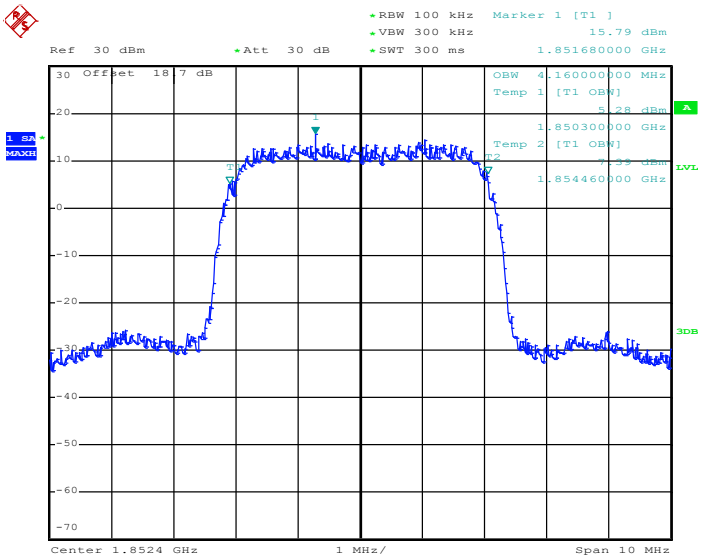


26dB Bandwidth Plot on Channel 4233 (846.6 MHz)



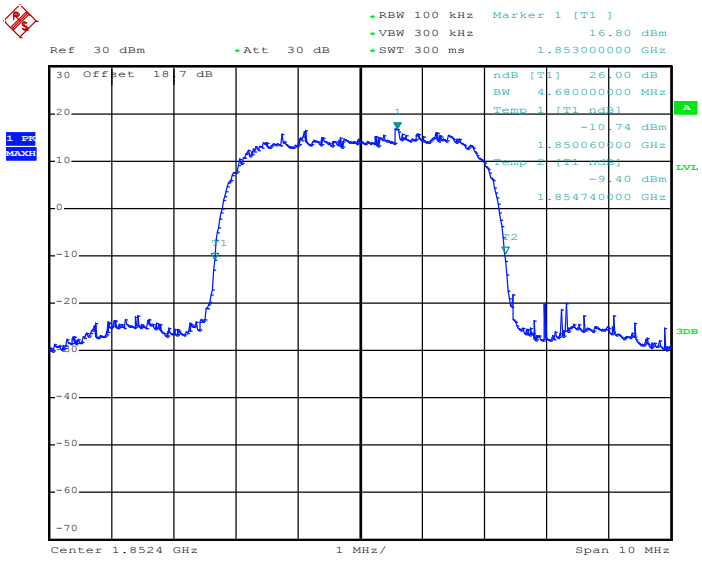
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)

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



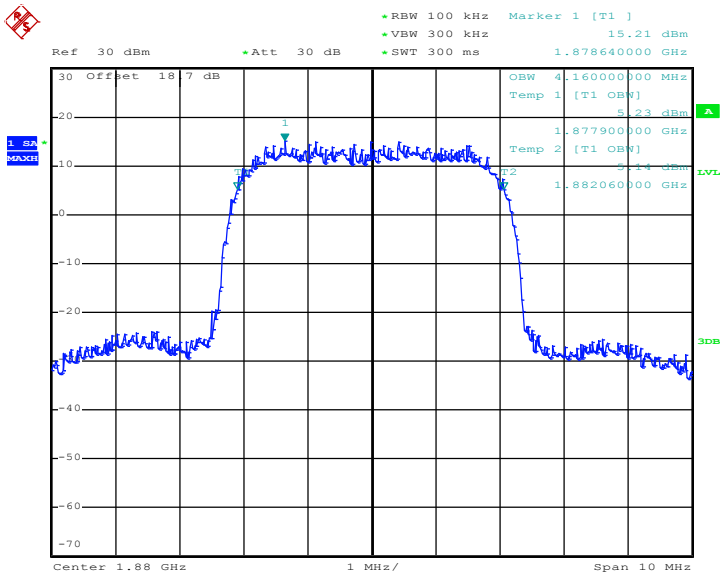
Date: 2.MAY.2014 17:48:07

26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)

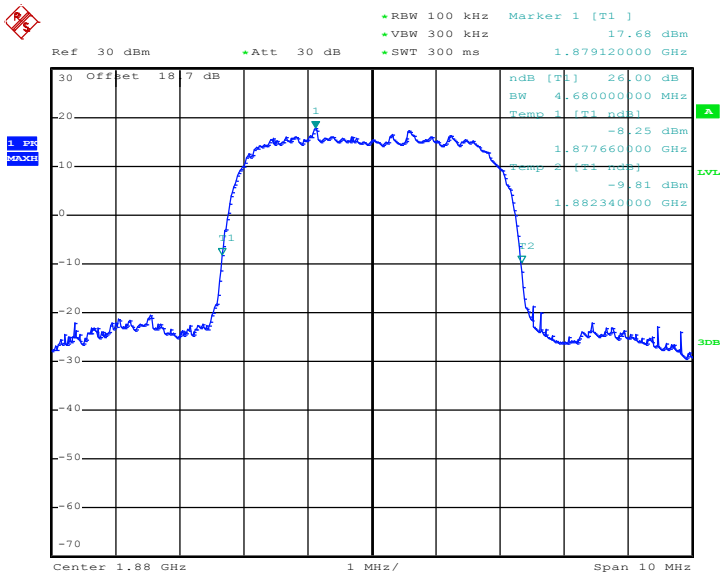


Date: 2.MAY.2014 17:46:19

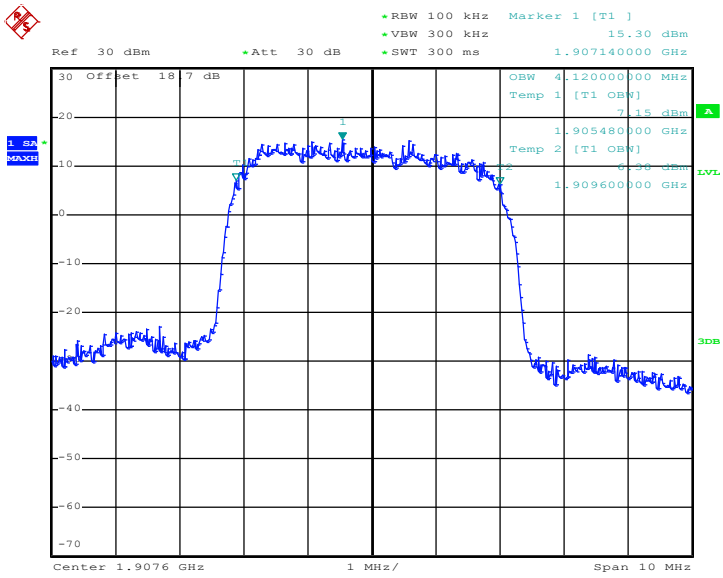
99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)

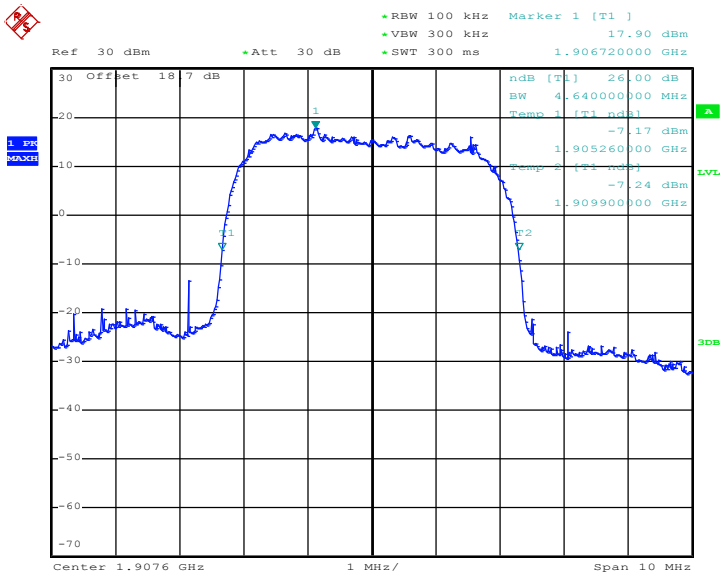


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 2.MAY.2014 17:49:04

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 2.MAY.2014 17:43:57

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.

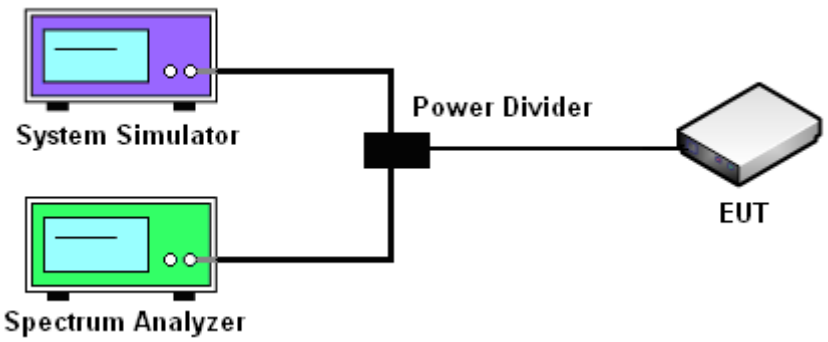
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. The band edges of low and high channels for the highest RF powers were measured.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. 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.

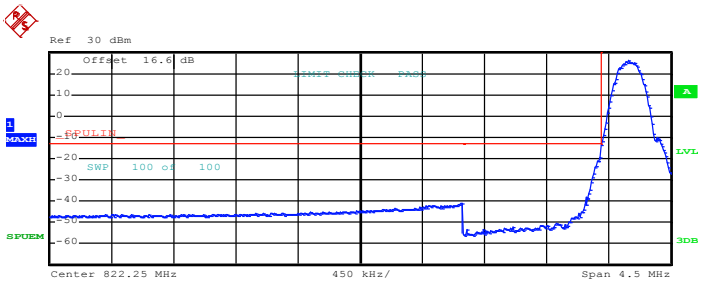
3.5.4 Test Setup



3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GSM Link (GMSK)

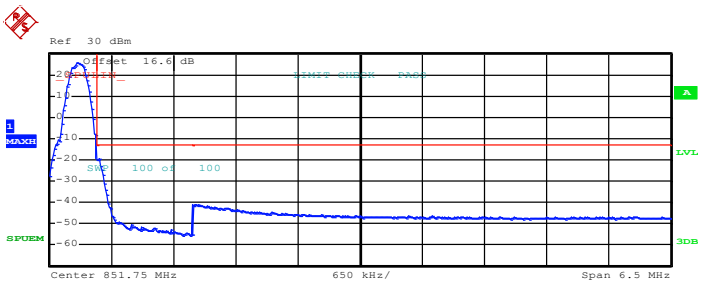
Lower Band Edge Plot on Channel 128 (824.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
820.000 M	823.000 M	100.00 k	822.973000 M	-41.11	-28.11
823.000 M	824.000 M	3.00 k	823.984000 M	-19.38	-6.38
824.000 M	824.500 M	10.00 k	824.197000 M	26.37	-8.63

Date: 2.MAY.2014 15:45:40

Higher Band Edge Plot on Channel 251 (848.8 MHz)

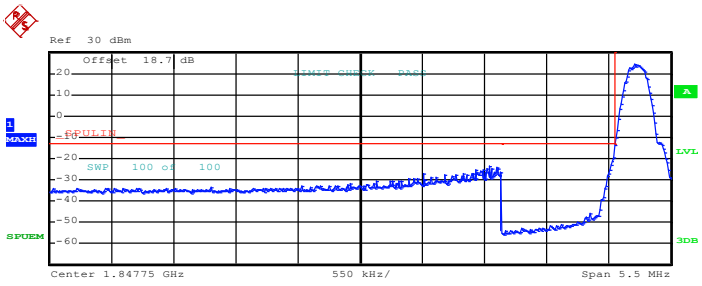


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
848.500 M	849.000 M	10.00 k	848.781500 M	25.64	-9.36
849.000 M	850.000 M	3.00 k	849.020000 M	-19.69	-6.69
850.000 M	855.000 M	100.00 k	850.050000 M	-41.12	-28.12

Date: 2.MAY.2014 15:42:14

Band :	GSM1900	Test Mode :	GSM Link (GMSK)

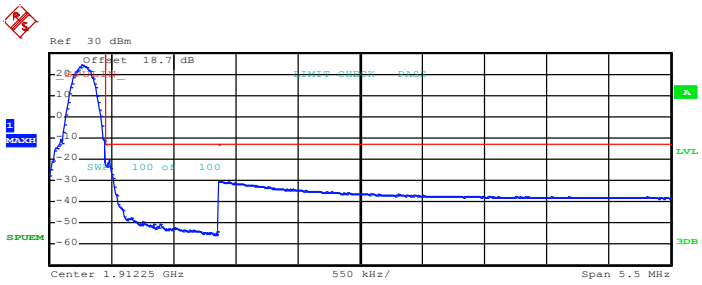
Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.845 G	1.849 G	1.00 M	1.848892 G	-23.39	-10.39
1.849 G	1.850 G	3.00 k	1.849980 G	-21.07	-8.07
1.850 G	1.851 G	10.00 k	1.850186 G	24.22	-10.78

Date: 2.MAY.2014 16:52:39

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

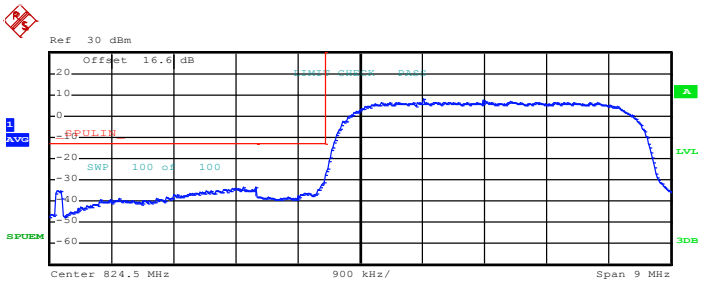


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.910 G	1.910 G	10.00 k	1.909789 G	24.46	-10.54
1.910 G	1.911 G	3.00 k	1.910024 G	-20.58	-7.58
1.911 G	1.915 G	1.00 M	1.911004 G	-30.30	-17.30

Date: 2.MAY.2014 16:49:02

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

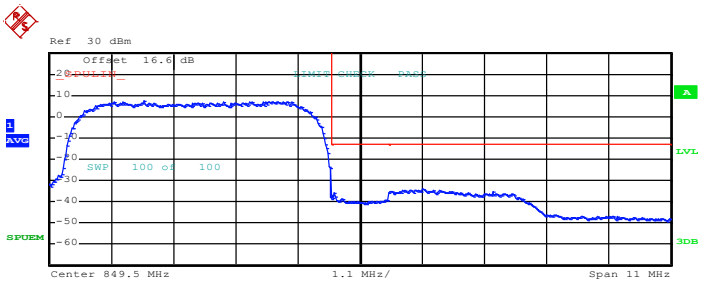
Lower Band Edge Plot on Channel 4132 (826.4 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
820.000 M	823.000 M	100.00 k	822.799000 M	-33.37	-20.37
823.000 M	824.000 M	50.00 k	823.980000 M	-30.92	-17.92
824.000 M	829.000 M	100.00 k	825.405000 M	8.07	-26.93

Date: 2.MAY.2014 19:22:55

Higher Band Edge Plot on Channel 4233 (846.6 MHz)

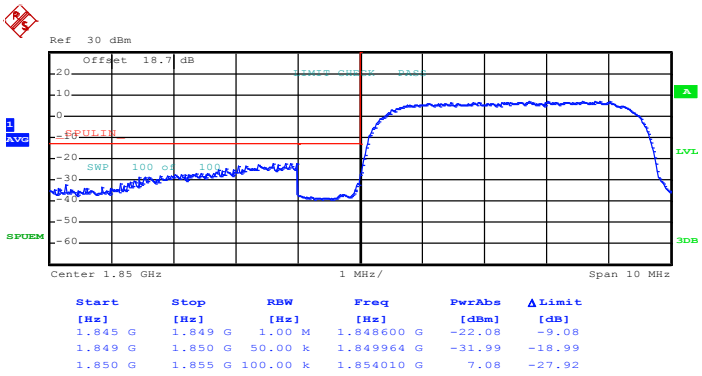


Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
844.000 M	849.000 M	100.00 k	845.660000 M	7.46	-27.54
849.000 M	850.000 M	50.00 k	849.028000 M	-35.88	-22.88
850.000 M	855.000 M	100.00 k	850.625000 M	-34.16	-21.16

Date: 2.MAY.2014 19:13:37

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

Lower 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	1.848600 G	-22.08	-9.08
1.849 G	1.850 G	50.00 k	1.849964 G	-31.99	-18.99
1.850 G	1.855 G	100.00 k	1.854010 G	7.08	-27.92

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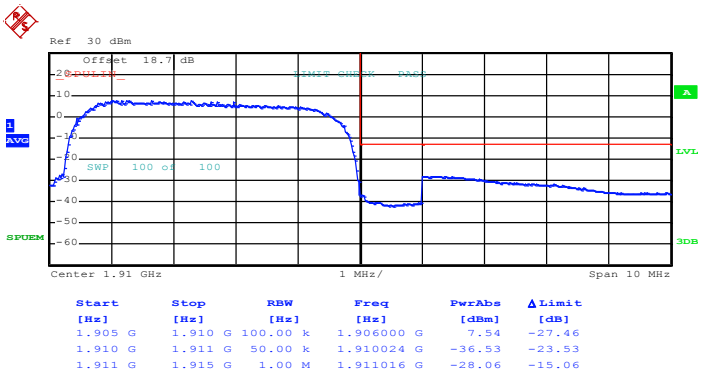
Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
1.905 G	1.910 G	100.00 k	1.906000 G	7.54	-27.46
1.910 G	1.911 G	50.00 k	1.910024 G	-36.53	-23.53
1.911 G	1.915 G	1.00 M	1.911016 G	-28.06	-15.06

Date: 2.MAY.2014 17:52:24

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 10^{th} harmonic.

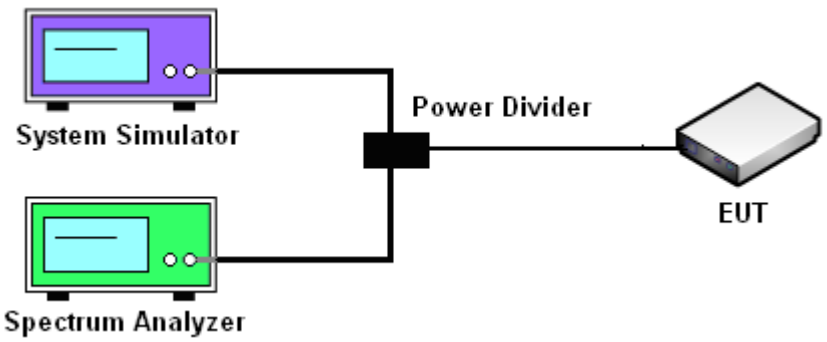
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. 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.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
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.

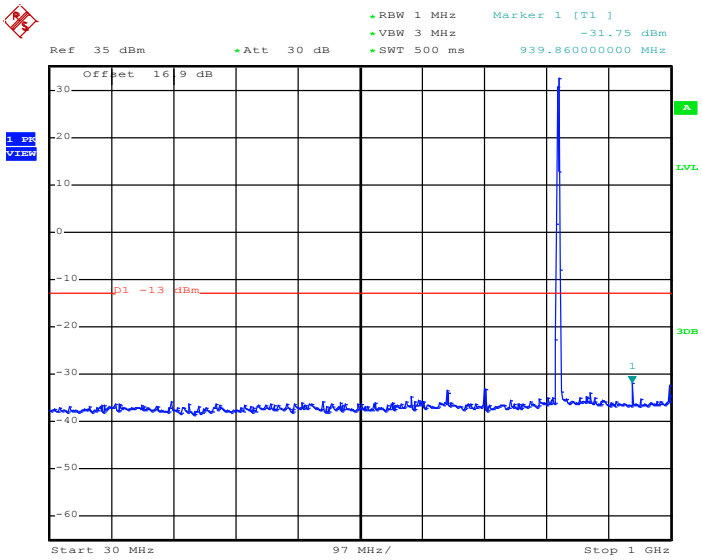
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

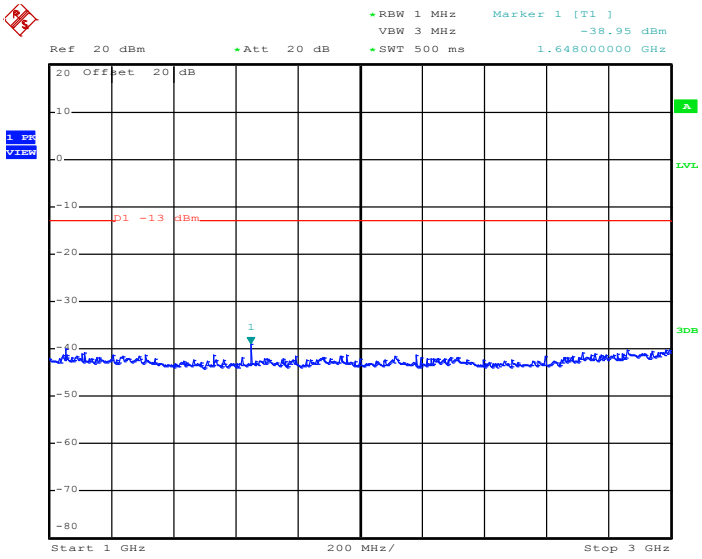
Band :	GSM850	Channel :	CH128
Test Mode :	GSM Link (GMSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



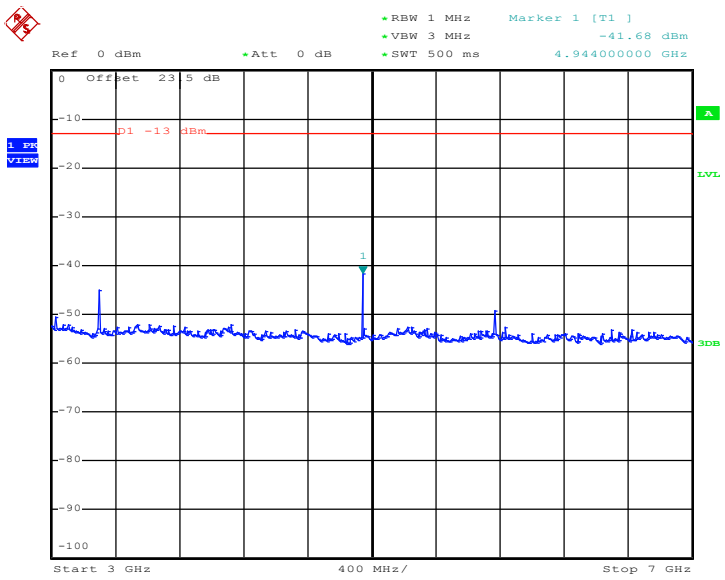
Date: 2.MAY.2014 16:03:32

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



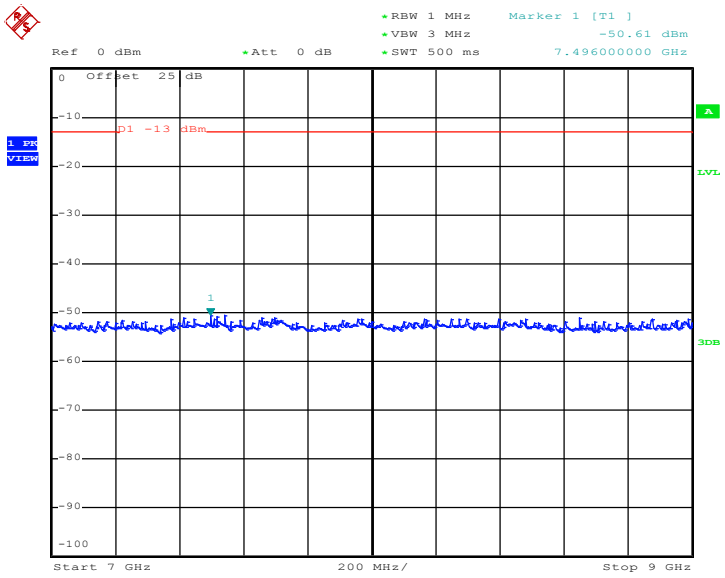
Date: 2.MAY.2014 16:03:59

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 16:03:52

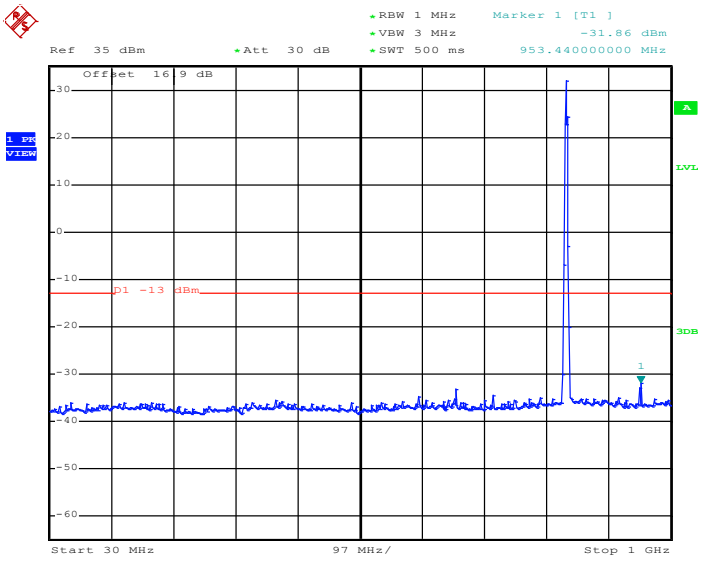
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 16:04:01

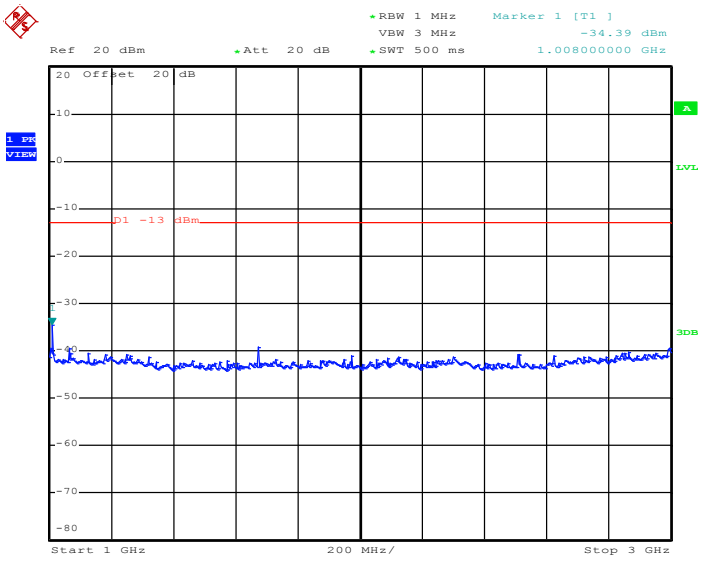
Band :	GSM850	Channel :	CH189
Test Mode :	GSM Link (GMSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



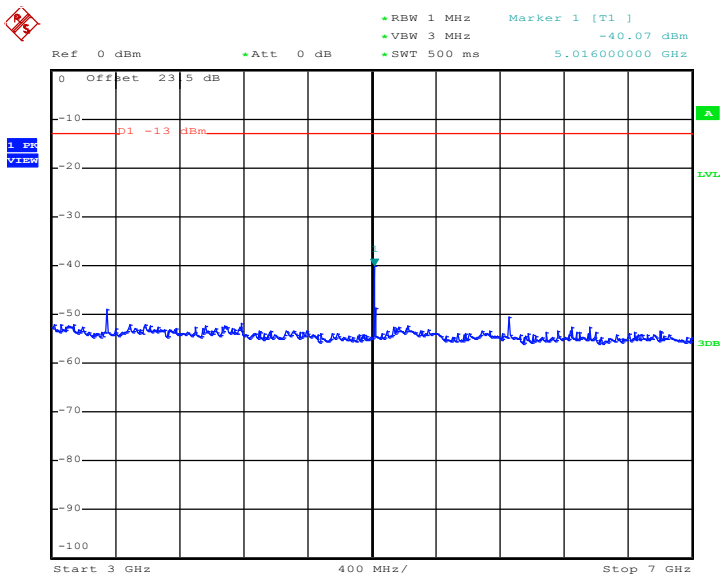
Date: 2.MAY.2014 15:53:44

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



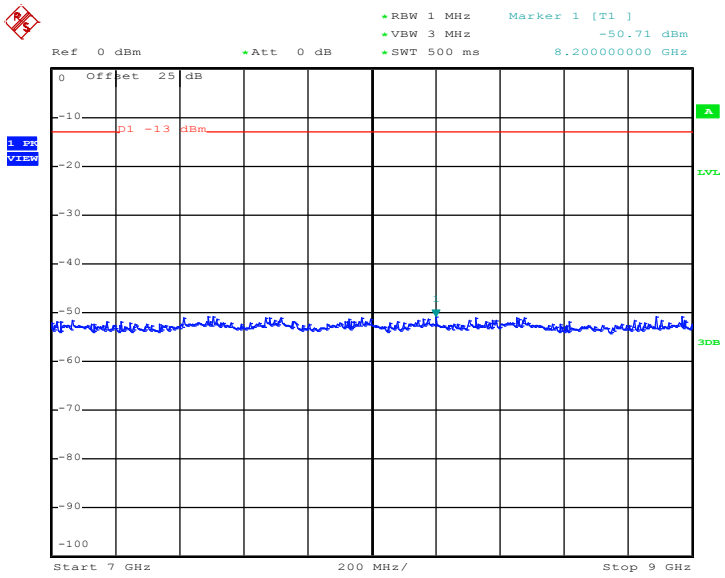
Date: 2.MAY.2014 15:54:03

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 15:54:04

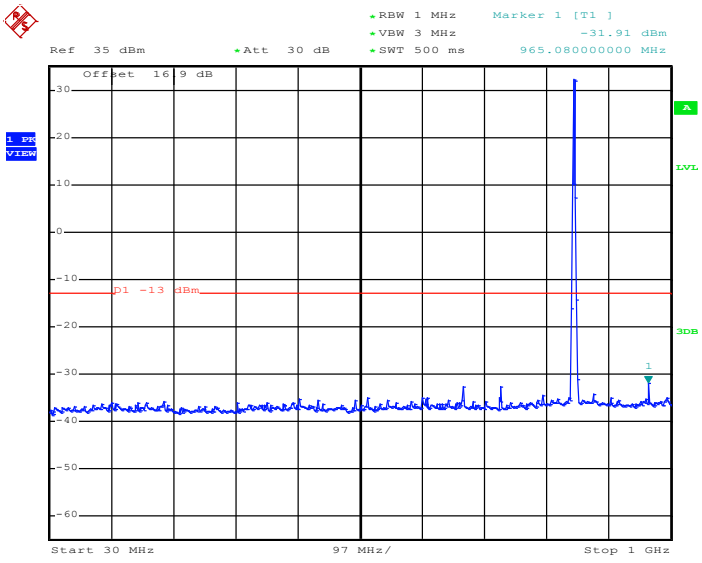
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 15:54:13

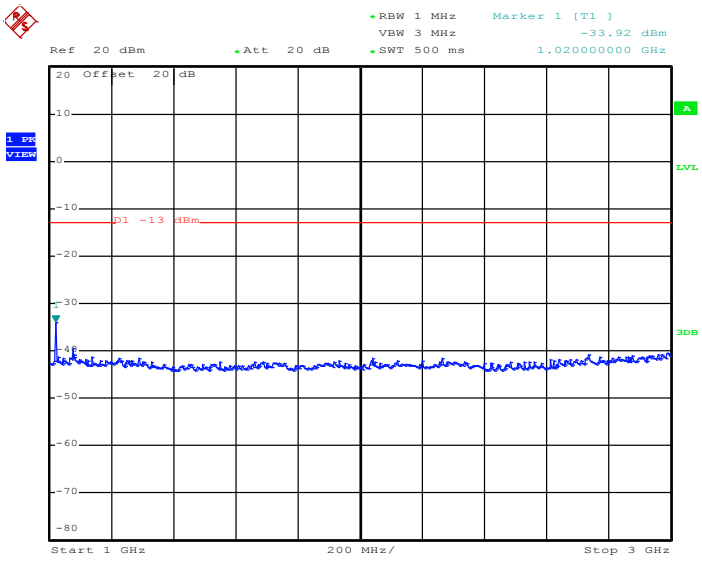
Band :	GSM850	Channel :	CH251
Test Mode :	GSM Link (GMSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



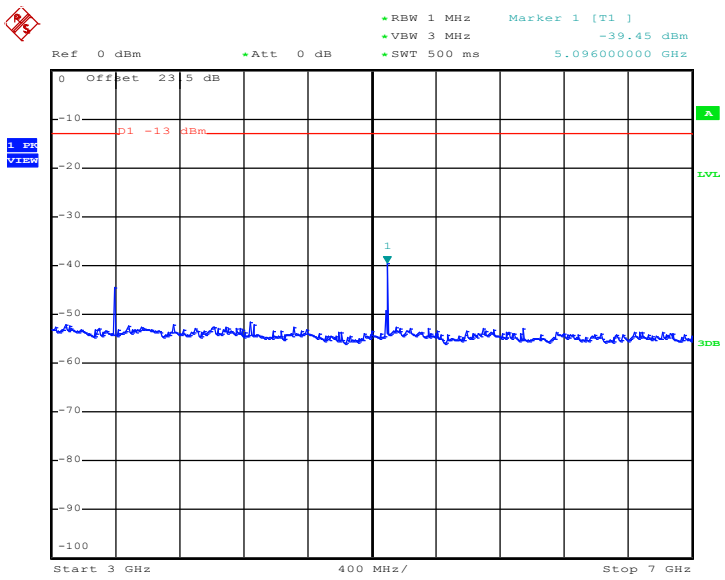
Date: 2.MAY.2014 16:05:05

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



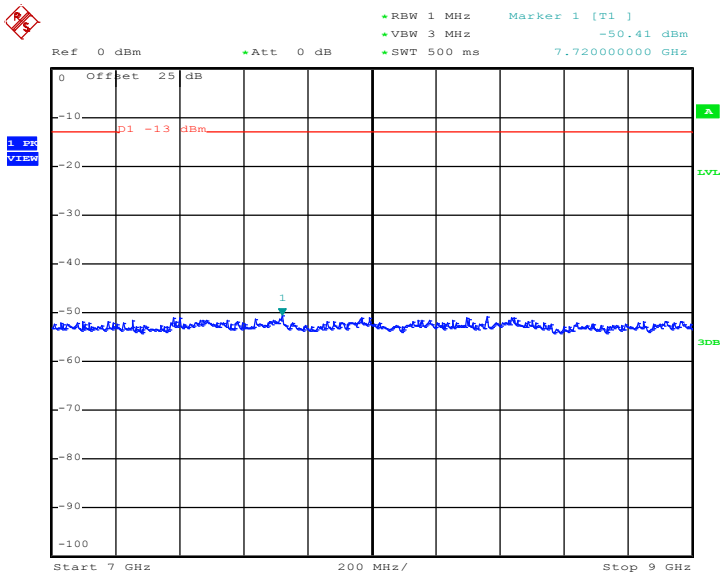
Date: 2.MAY.2014 16:05:41

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 16:05:25

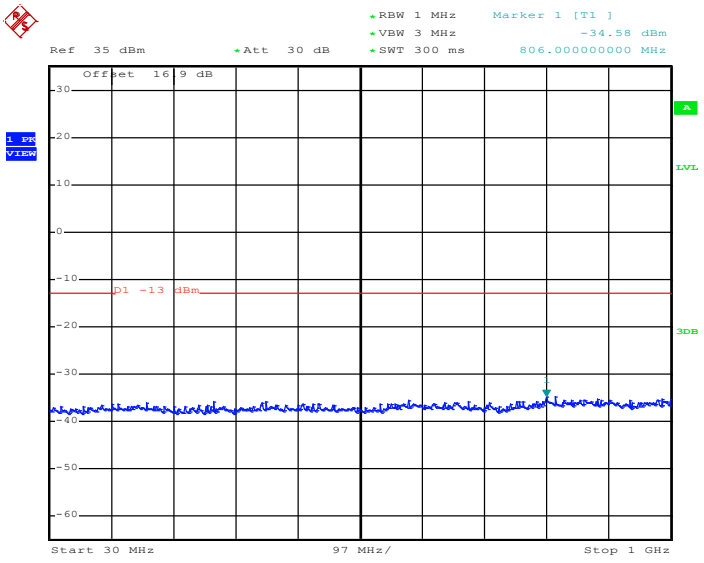
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 16:05:34

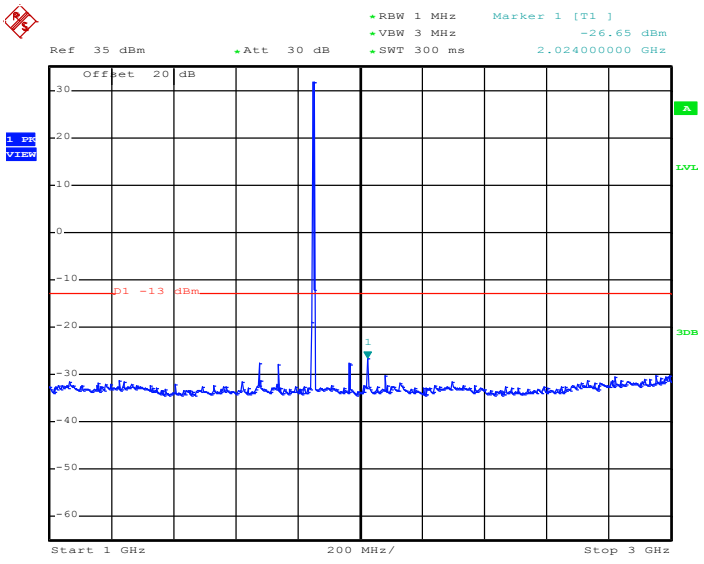
Band :	GSM1900	Channel :	CH512
Test Mode :	GSM Link (GMSK)	Frequency :	1850.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



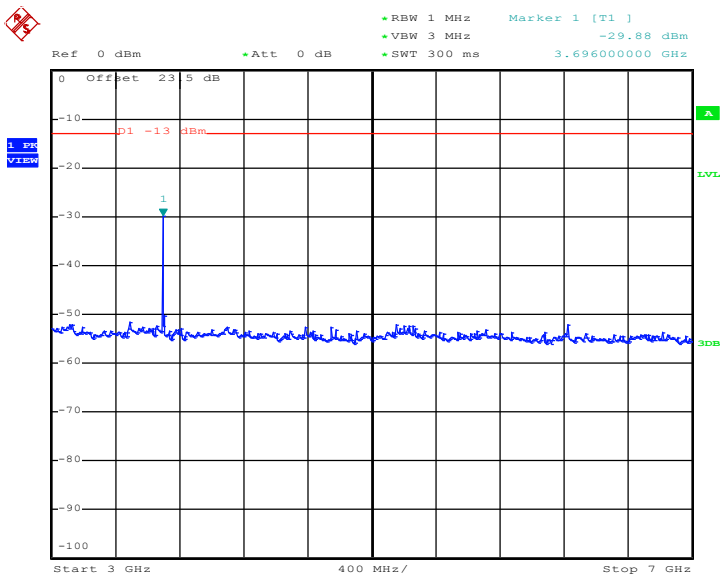
Date: 2.MAY.2014 17:02:05

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



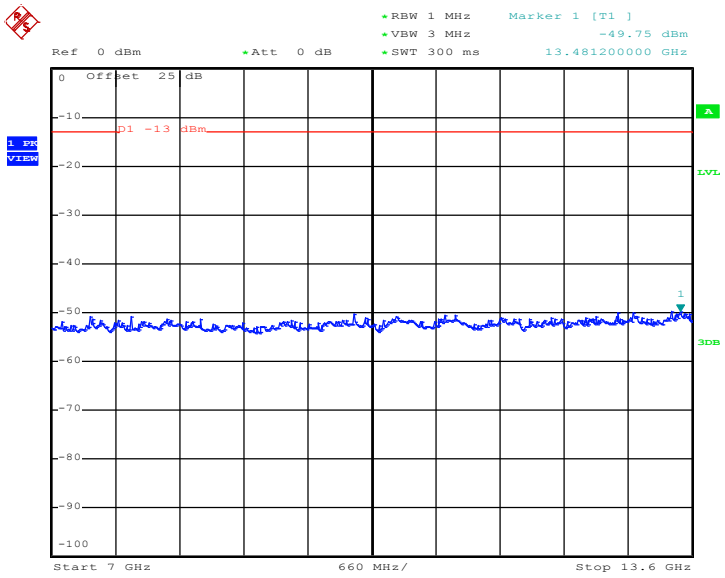
Date: 2.MAY.2014 17:02:14

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



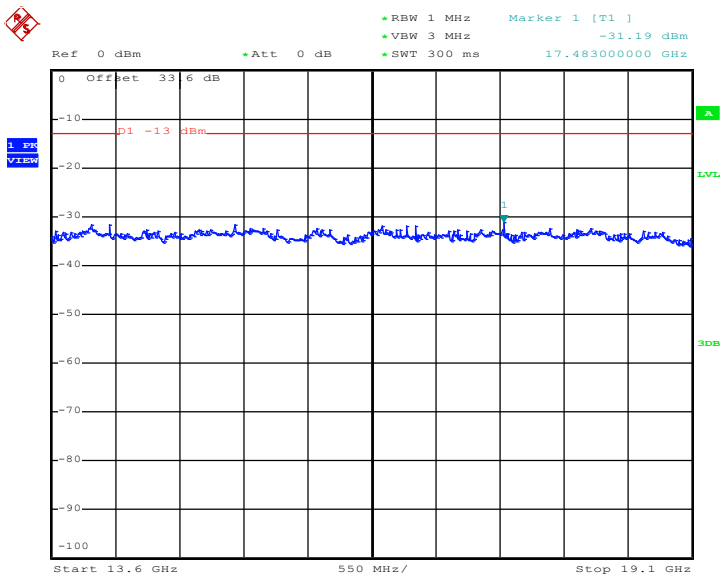
Date: 2.MAY.2014 17:02:27

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 17:02:35

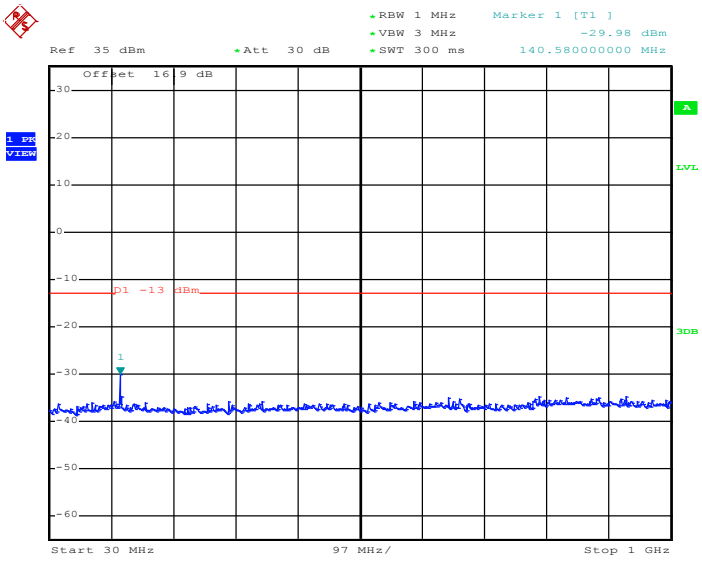
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 17:02:44

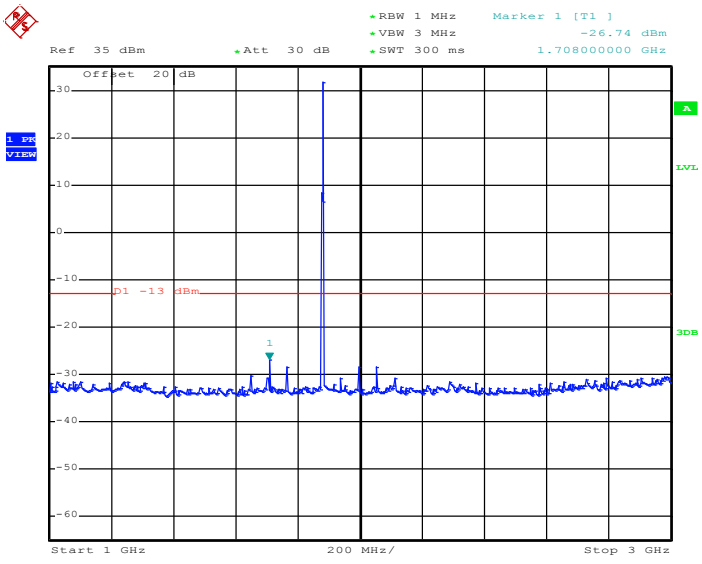
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



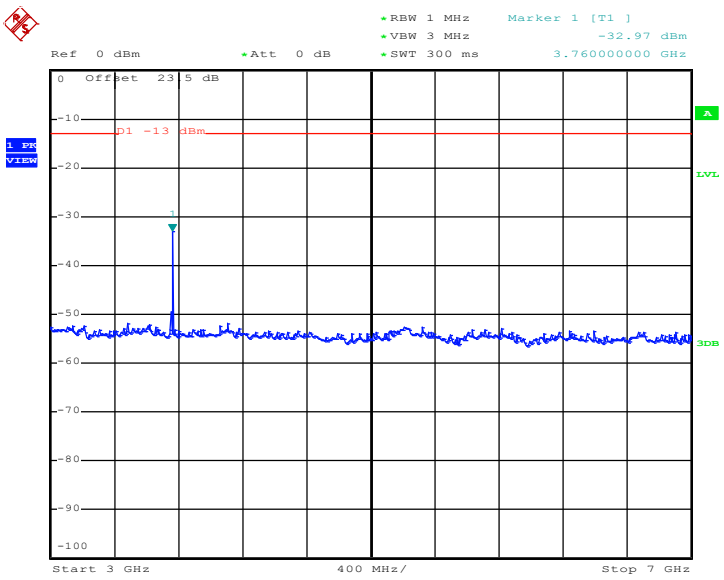
Date: 2.MAY.2014 16:56:03

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



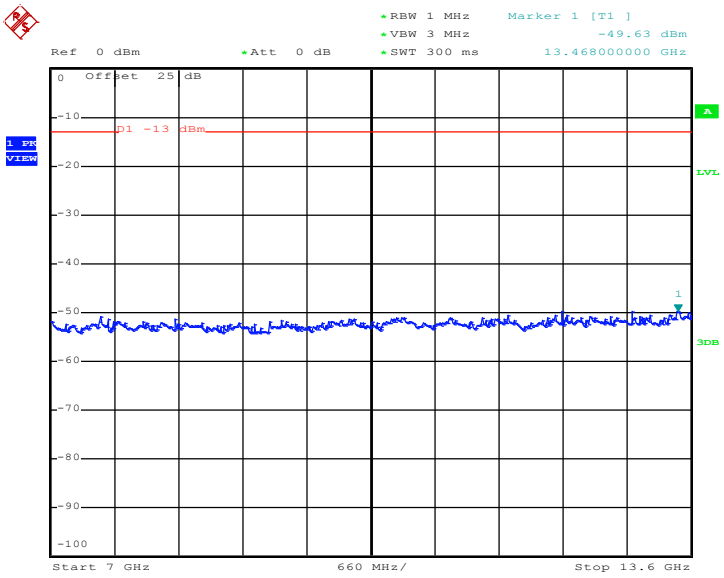
Date: 2.MAY.2014 16:56:12

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



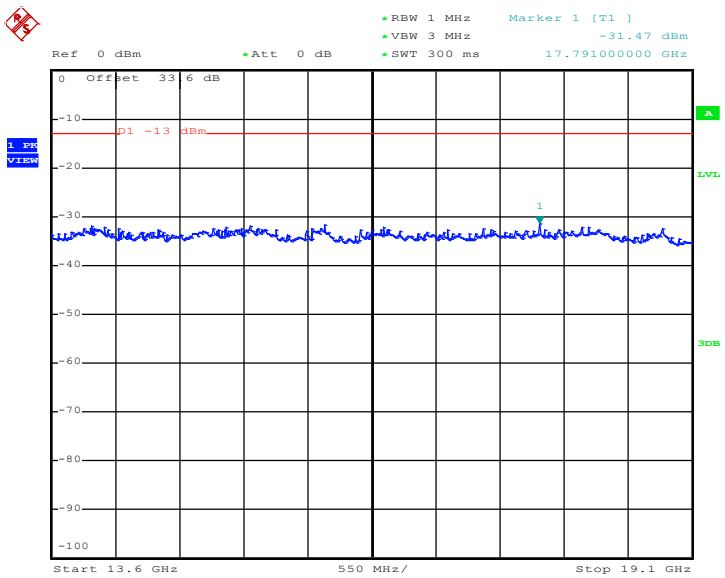
Date: 2.MAY.2014 16:56:24

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 16:56:33

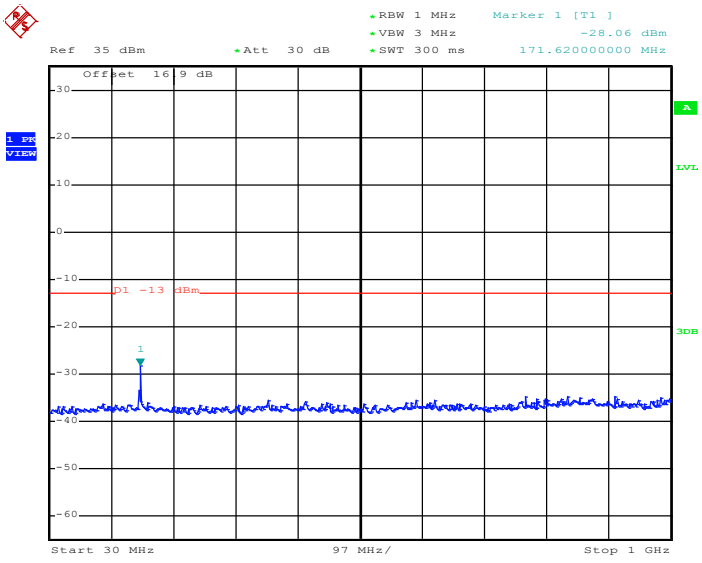
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 16:56:41

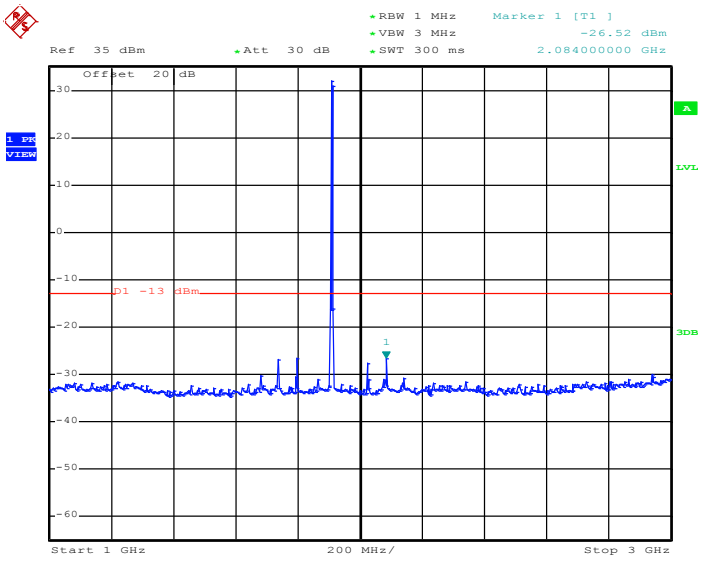
Band :	GSM1900	Channel :	CH810
Test Mode :	GSM Link (GMSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



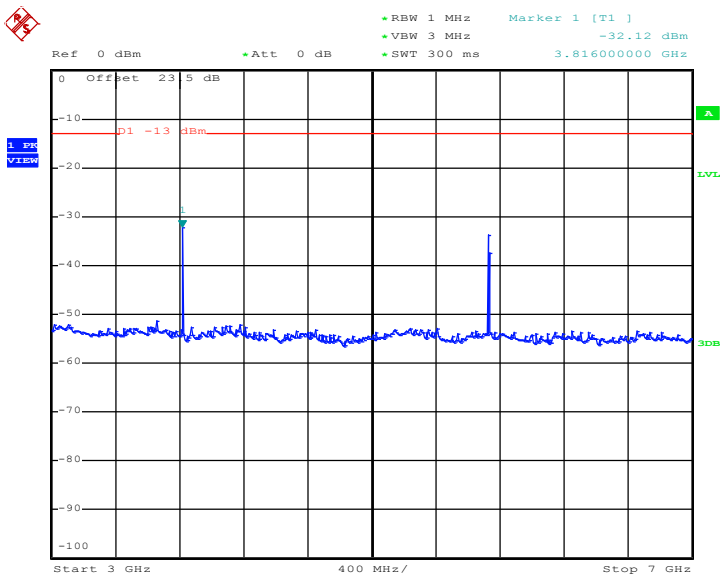
Date: 2.MAY.2014 17:03:56

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



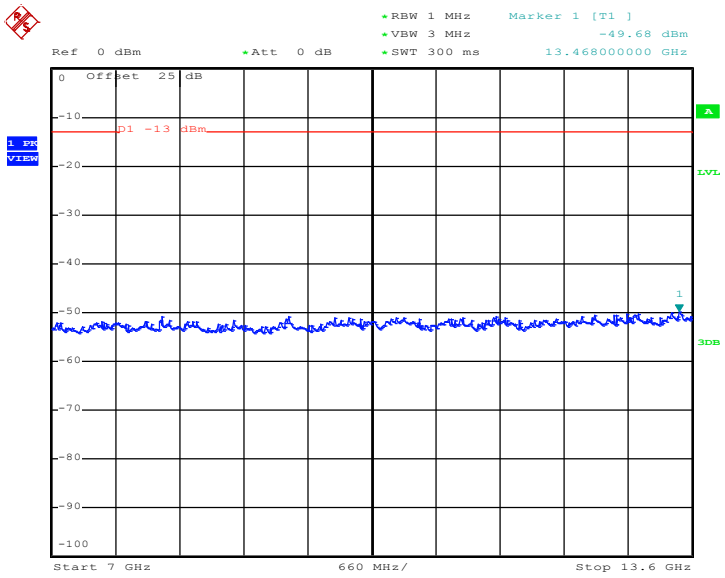
Date: 2.MAY.2014 17:04:05

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



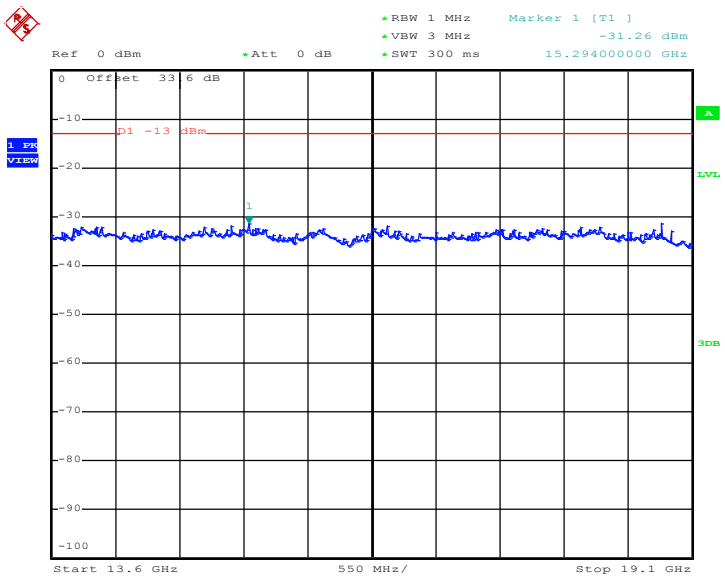
Date: 2.MAY.2014 17:04:18

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 17:04:26

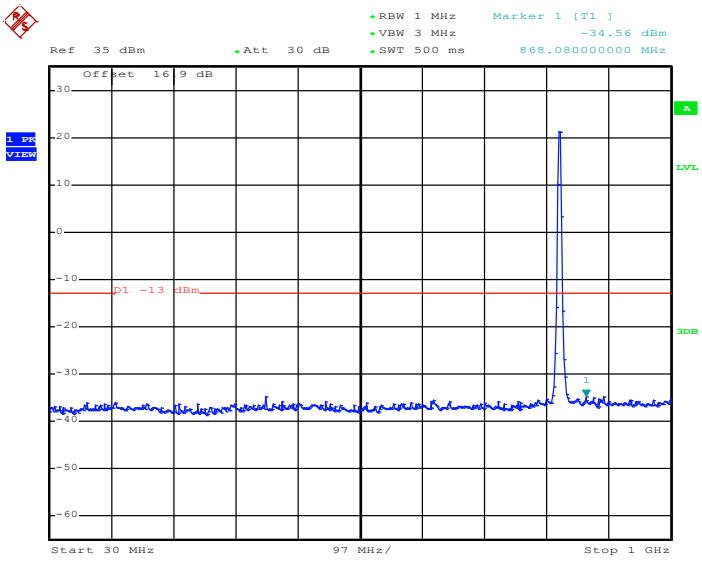
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 17:04:35

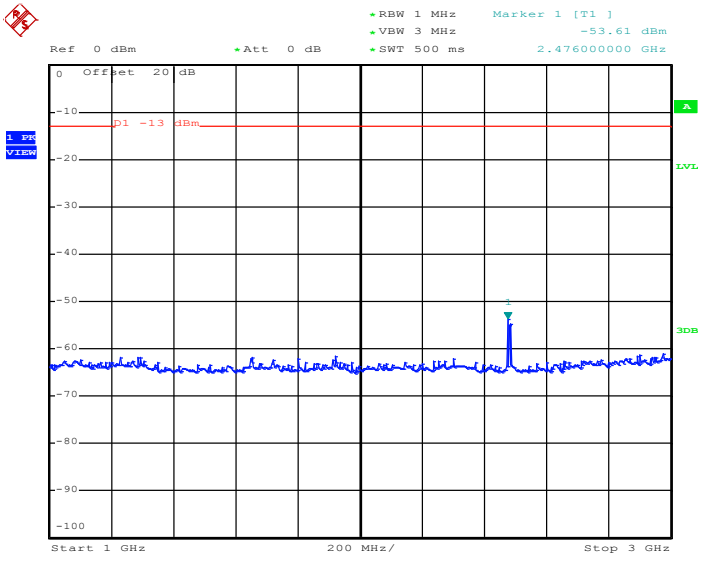
Band :	WCDMA Band V	Channel :	CH4132
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	826.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



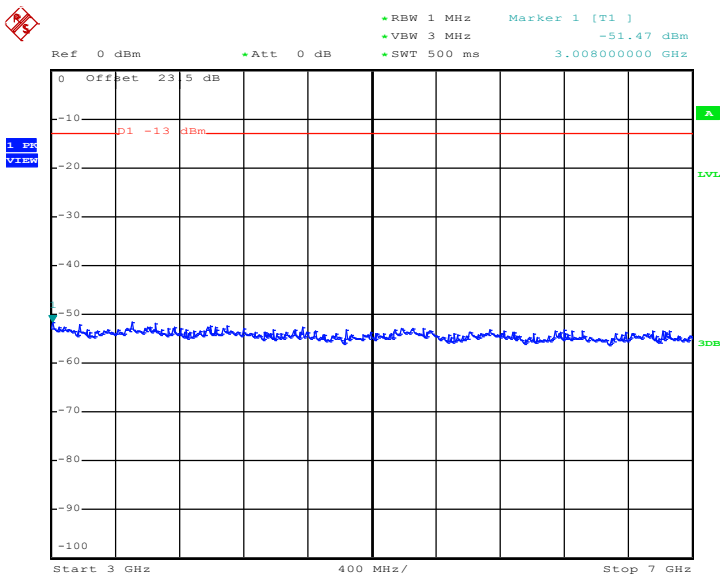
Date: 2.MAY.2014 19:33:09

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



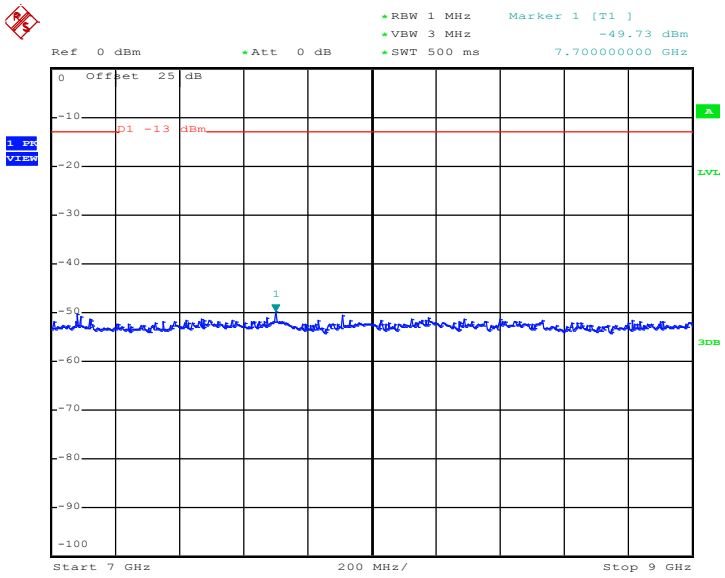
Date: 2.MAY.2014 19:31:22

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 19:31:30

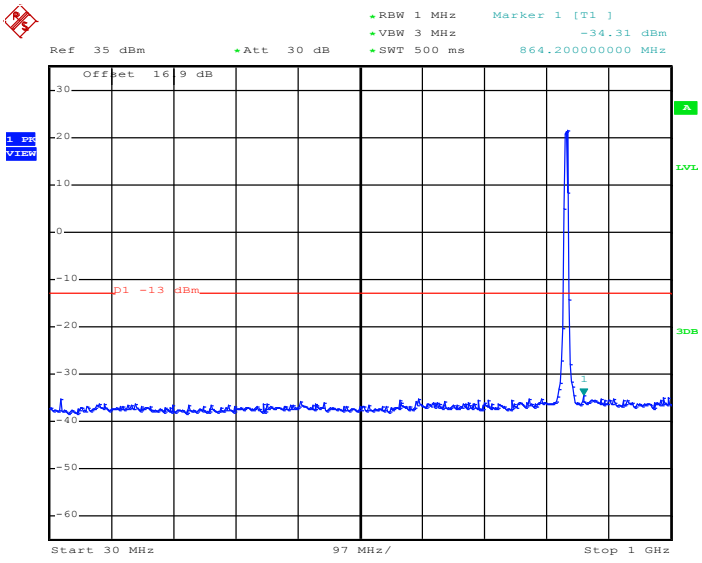
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 19:31:39

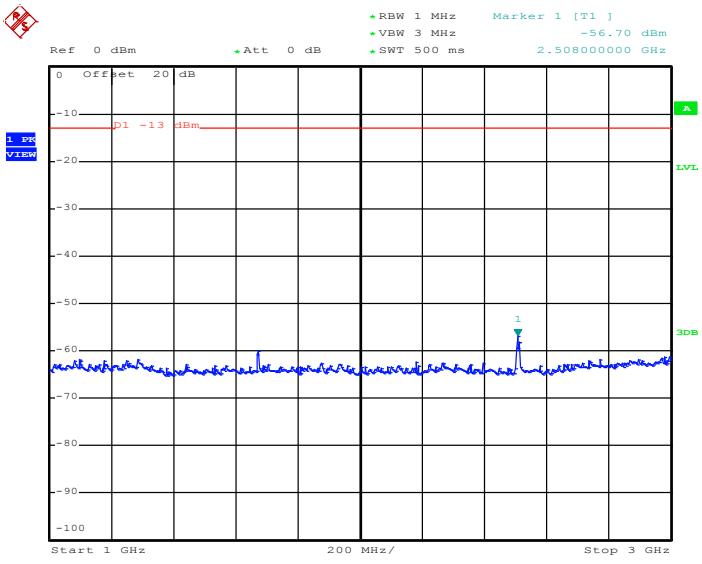
Band :	WCDMA Band V	Channel :	CH4182
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	836.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



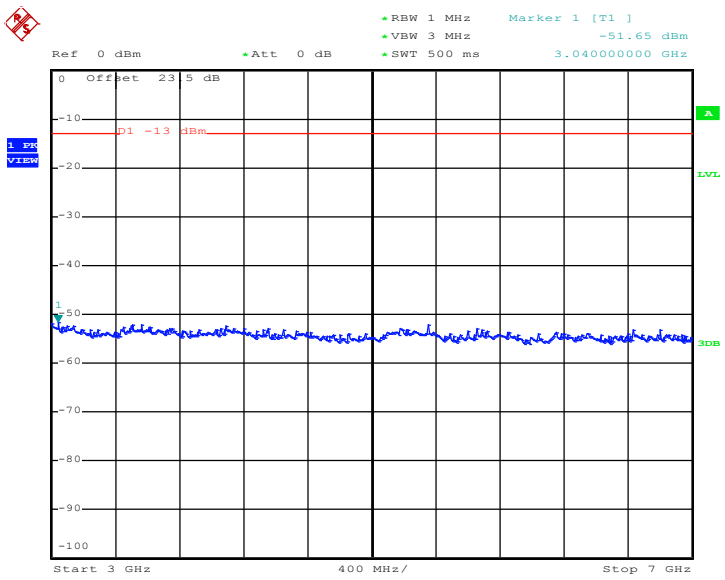
Date: 2.MAY.2014 19:29:22

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



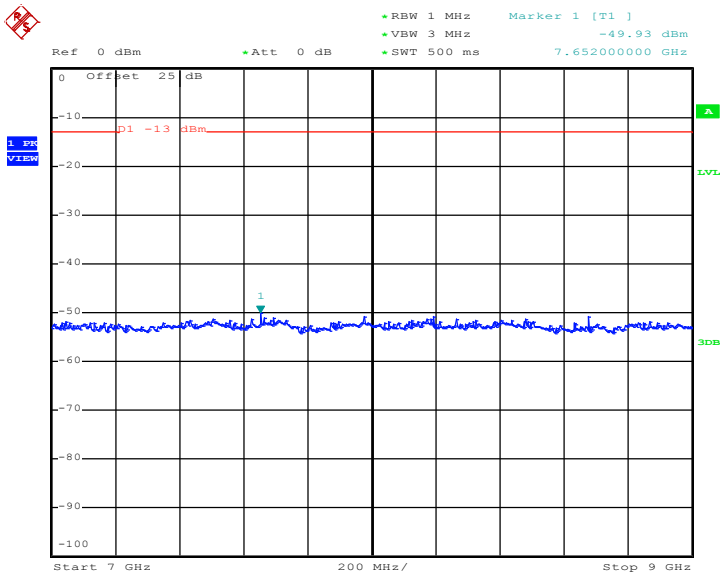
Date: 2.MAY.2014 19:29:32

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 19:29:41

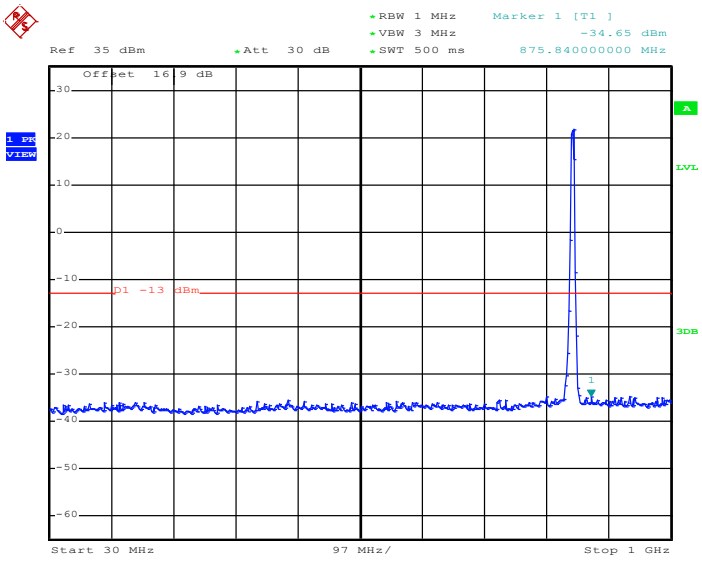
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 19:29:49

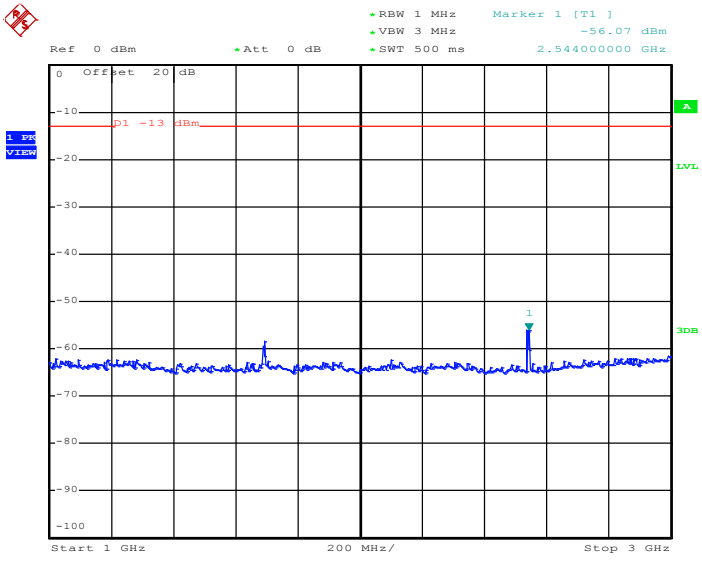
Band :	WCDMA Band V	Channel :	CH4233
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	846.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



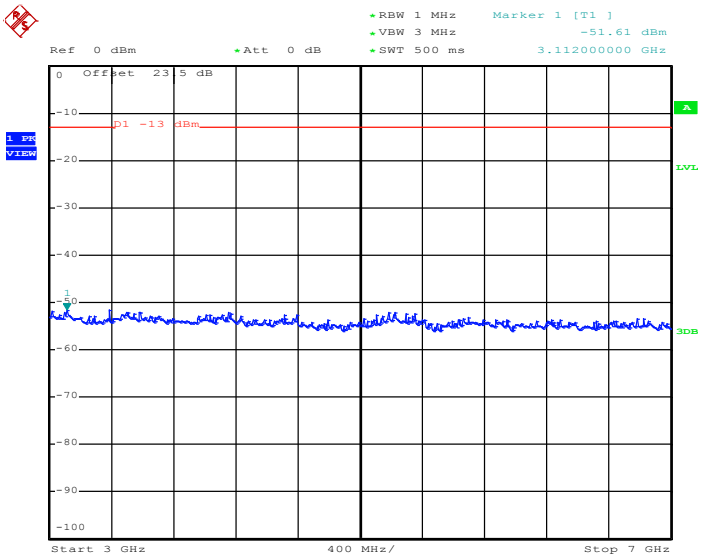
Date: 2.MAY.2014 19:37:34

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



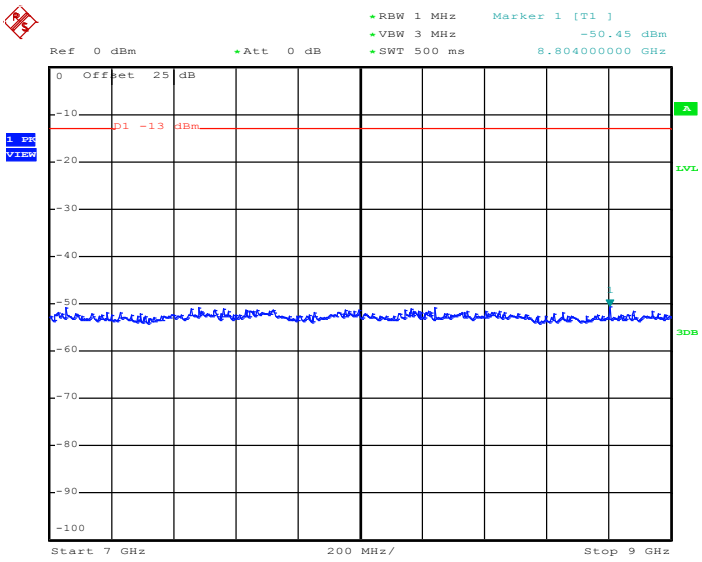
Date: 2.MAY.2014 19:37:44

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 2.MAY.2014 19:37:53

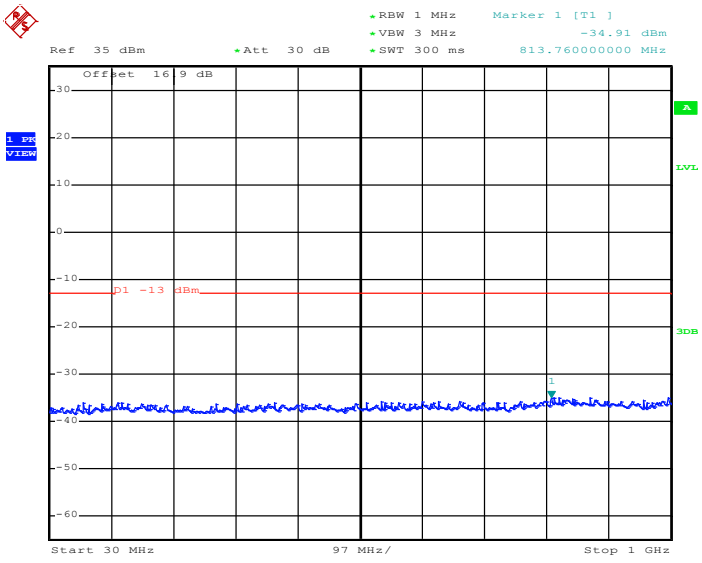
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 2.MAY.2014 19:38:01

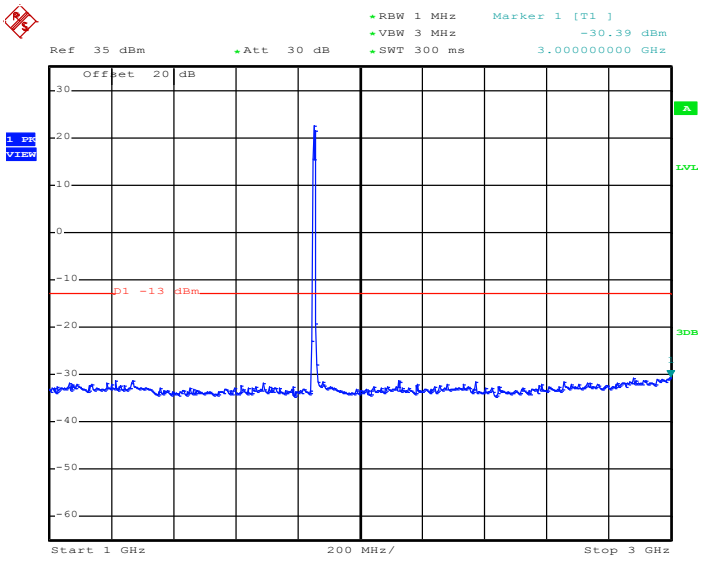
Band :	WCDMA Band II	Channel :	CH9262
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1852.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



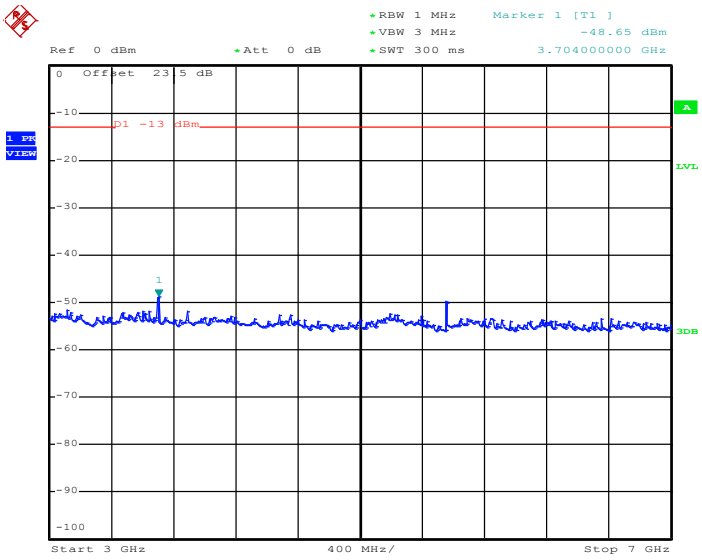
Date: 2.MAY.2014 17:57:46

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



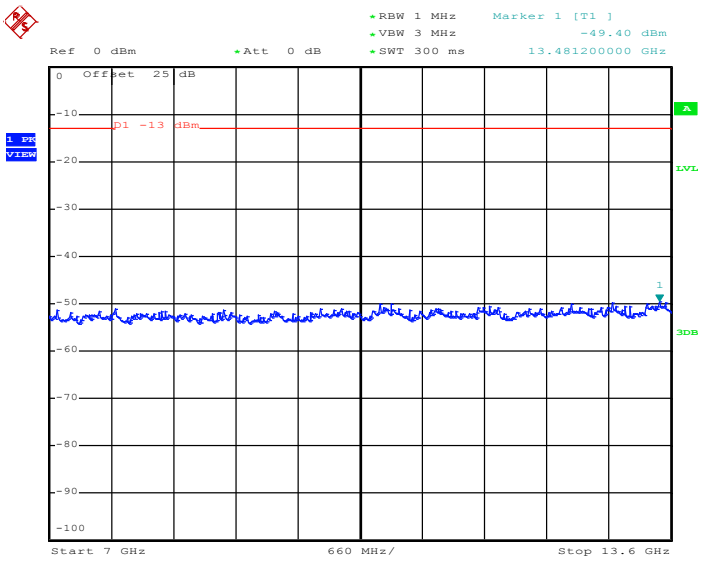
Date: 2.MAY.2014 17:57:54

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



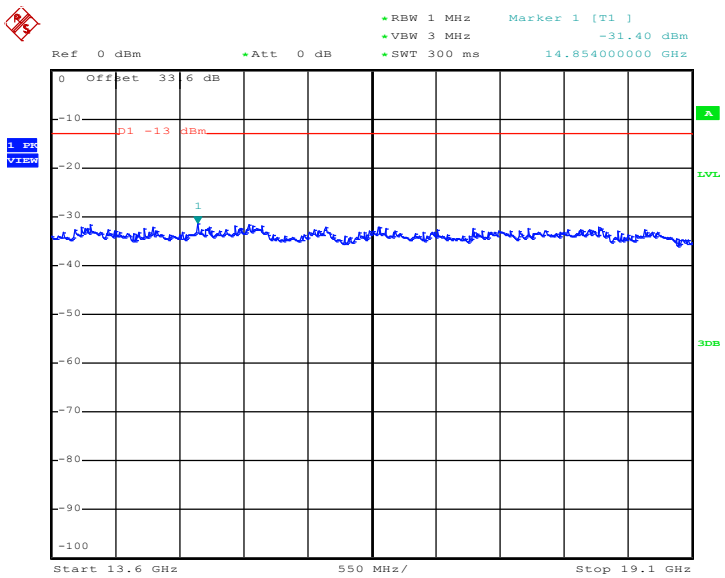
Date: 2.MAY.2014 17:58:04

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 17:58:13

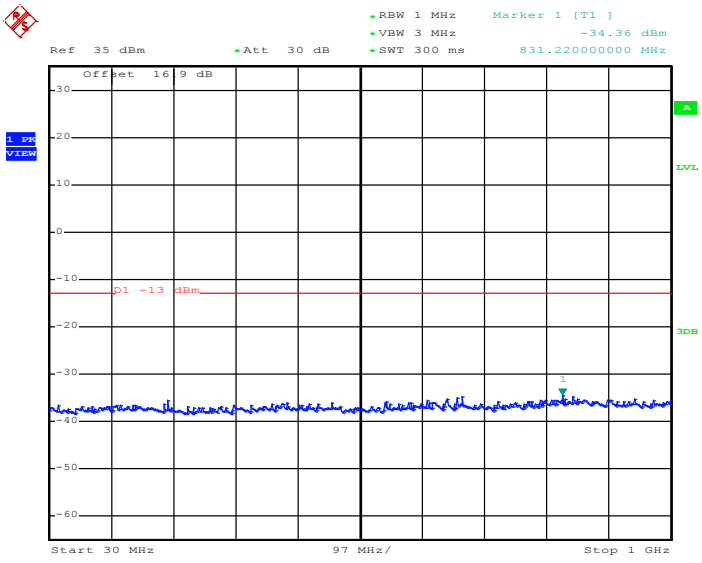
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 17:58:21

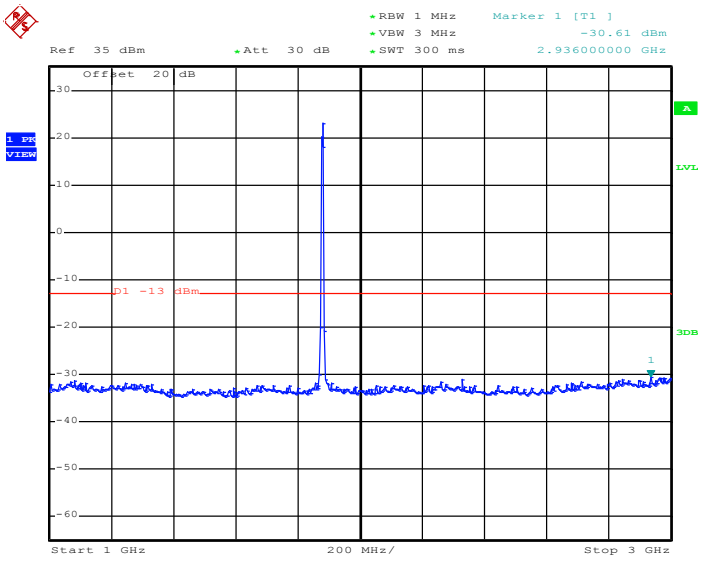
Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



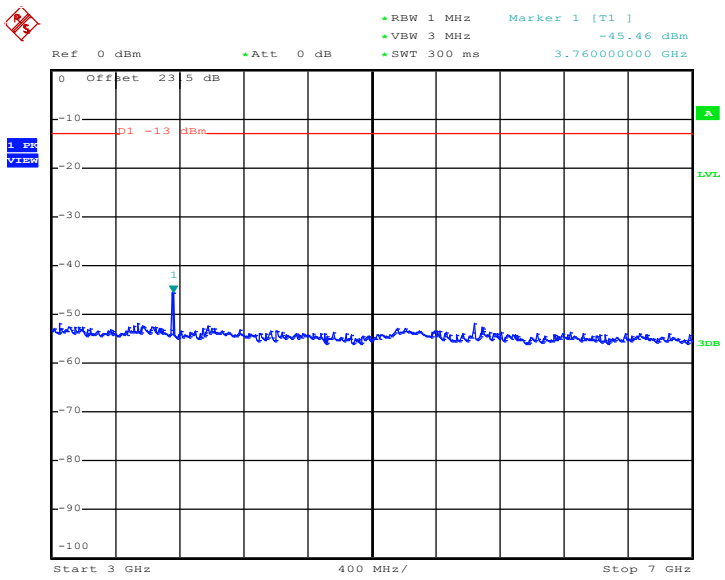
Date: 2.MAY.2014 17:56:29

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



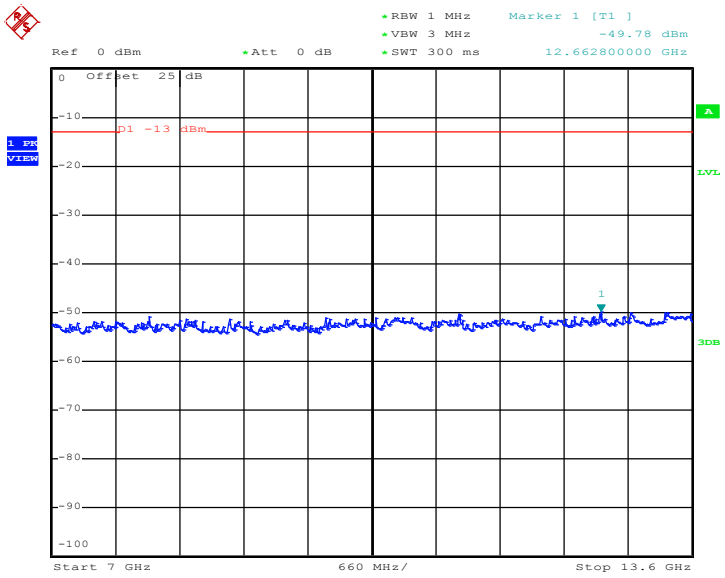
Date: 2.MAY.2014 17:56:37

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



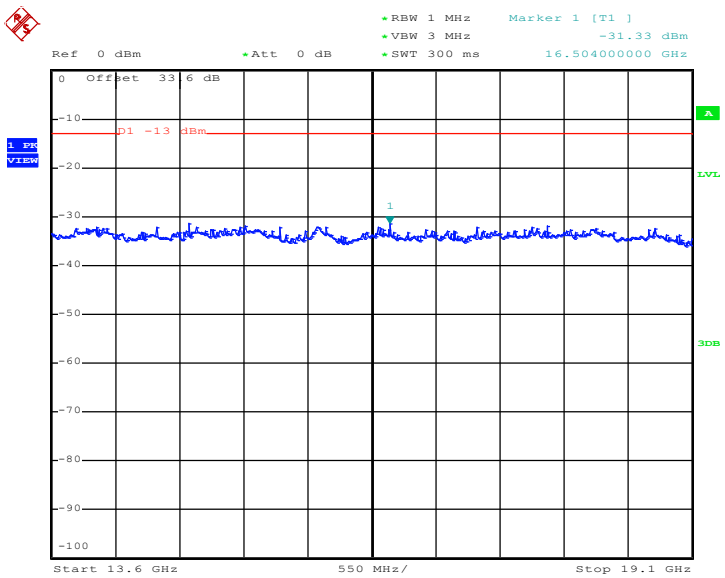
Date: 2.MAY.2014 17:56:49

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 17:56:57

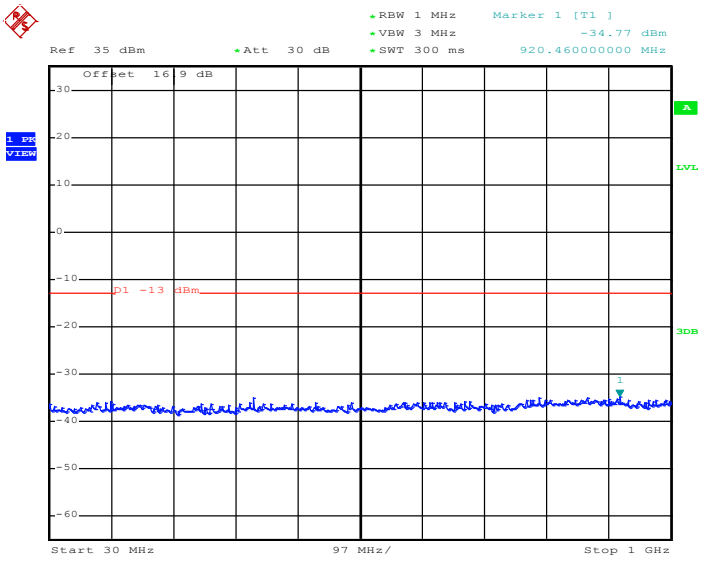
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 17:57:06

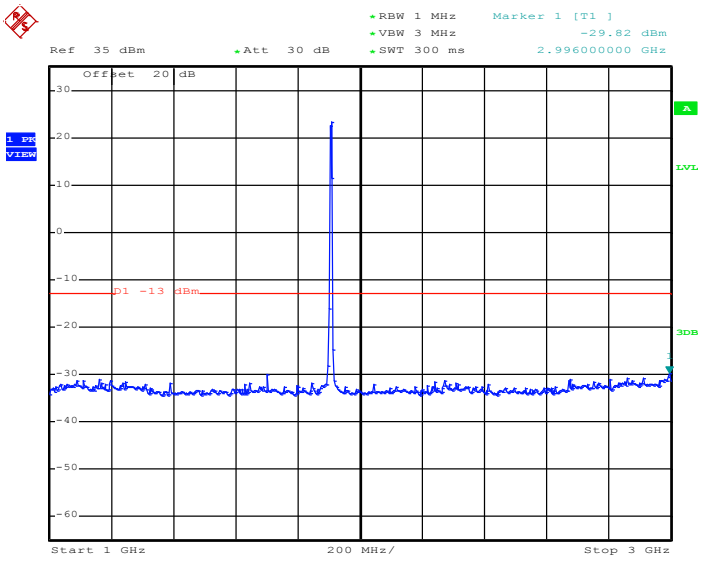
Band :	WCDMA Band II	Channel :	CH9538
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1907.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



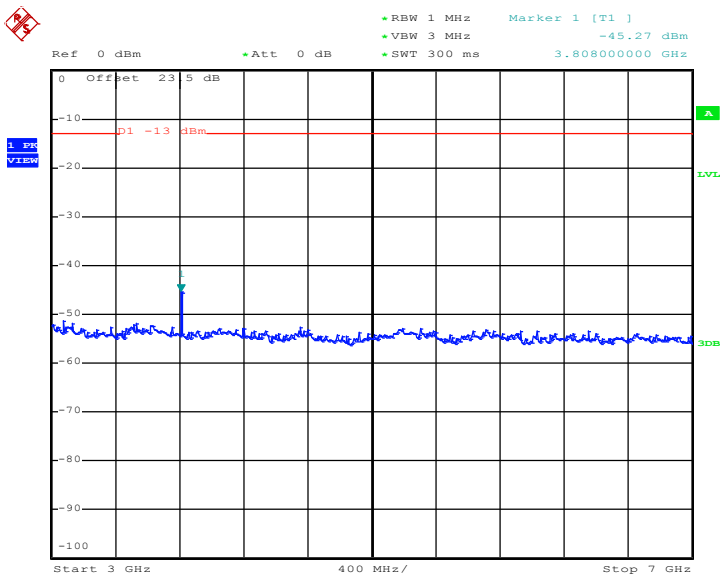
Date: 2.MAY.2014 17:58:56

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



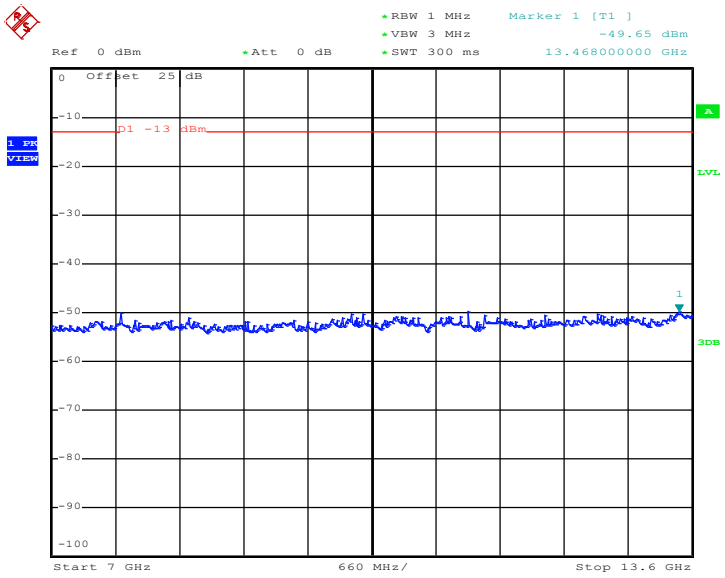
Date: 2.MAY.2014 17:59:04

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



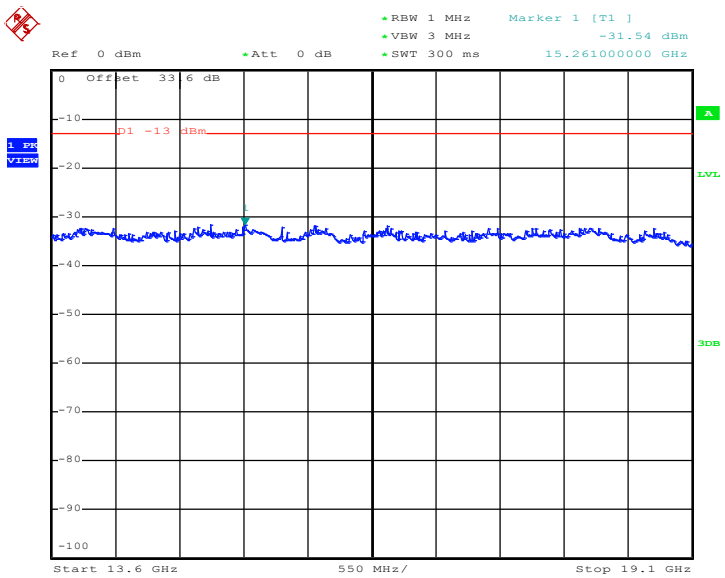
Date: 2.MAY.2014 17:59:15

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 2.MAY.2014 17:59:24

Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 2.MAY.2014 17:59:32

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

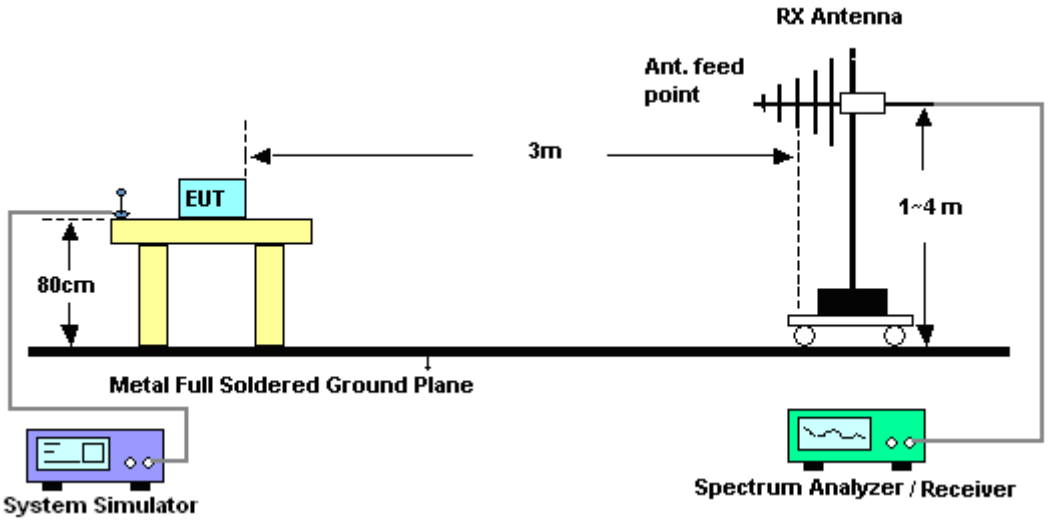
    = P(W) - [43 + 10log(P)] (dB)

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

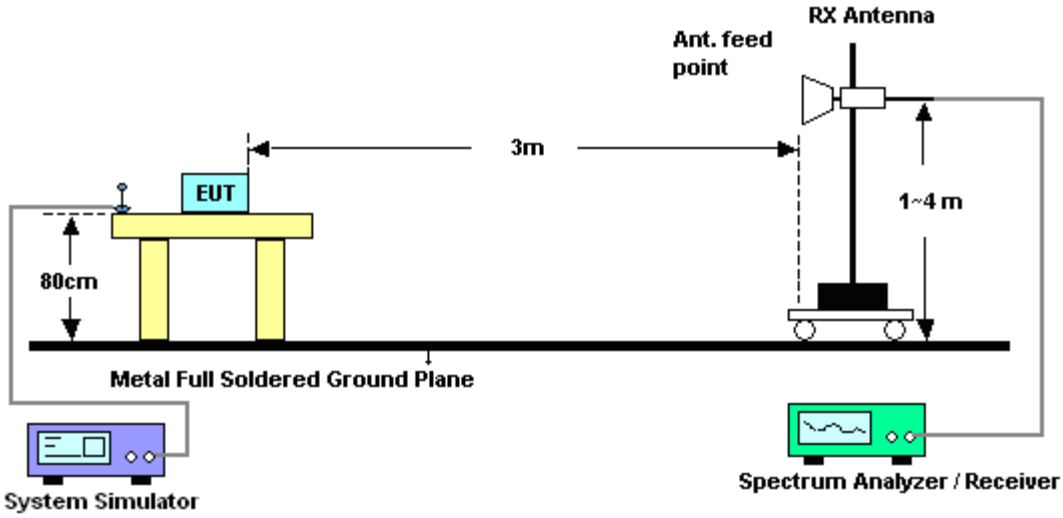
    = -13dBm.

3.7.4 Test Setup

For radiated emissions from 30MHz to 1GHz



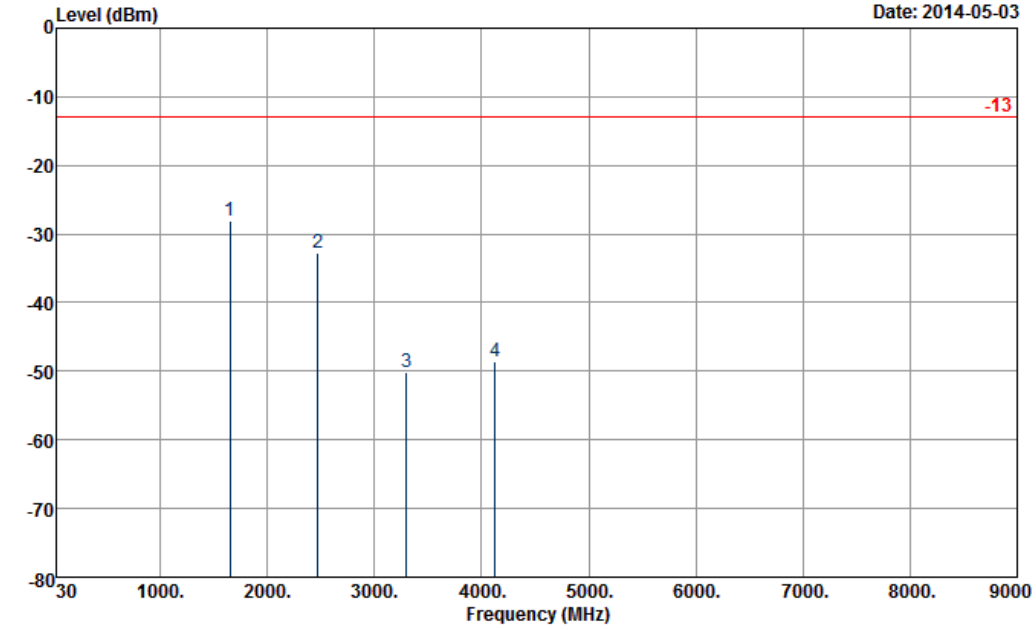
For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

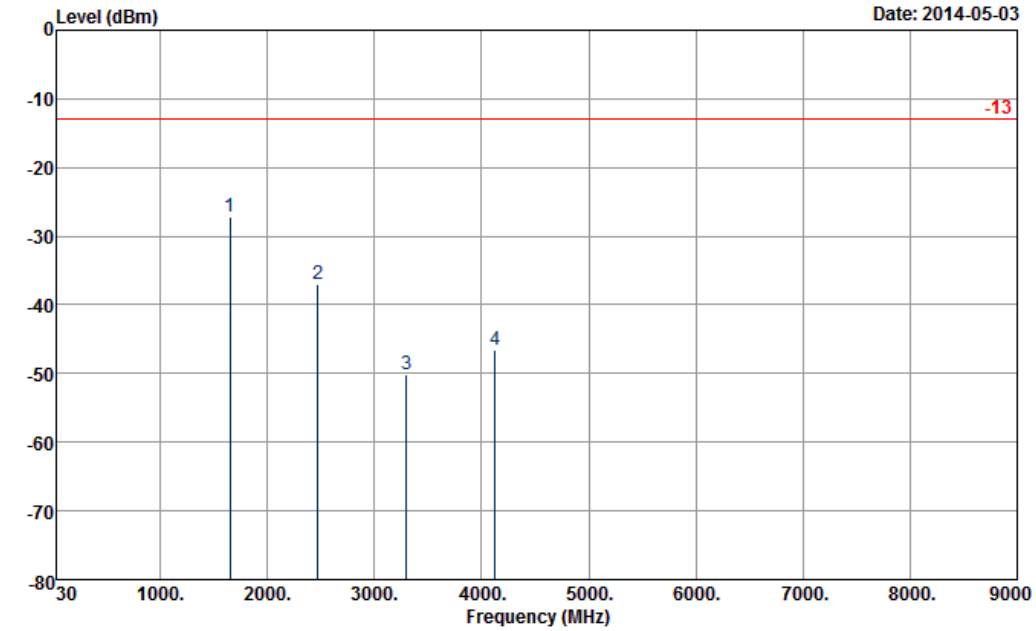
Band :	GSM850	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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
1649	-28.10	-13	-15.10	-37.1	-32.1	1.53	5.53	H	Pass
2474	-32.81	-13	-19.81	-46.68	-36.9	2.06	6.15	H	Pass
3298	-50.25	-13	-37.25	-64.41	-55.7	2.48	7.93	H	Pass
4123	-48.47	-13	-35.47	-64.78	-55.1	2.54	9.17	H	Pass

Band :	GSM850	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

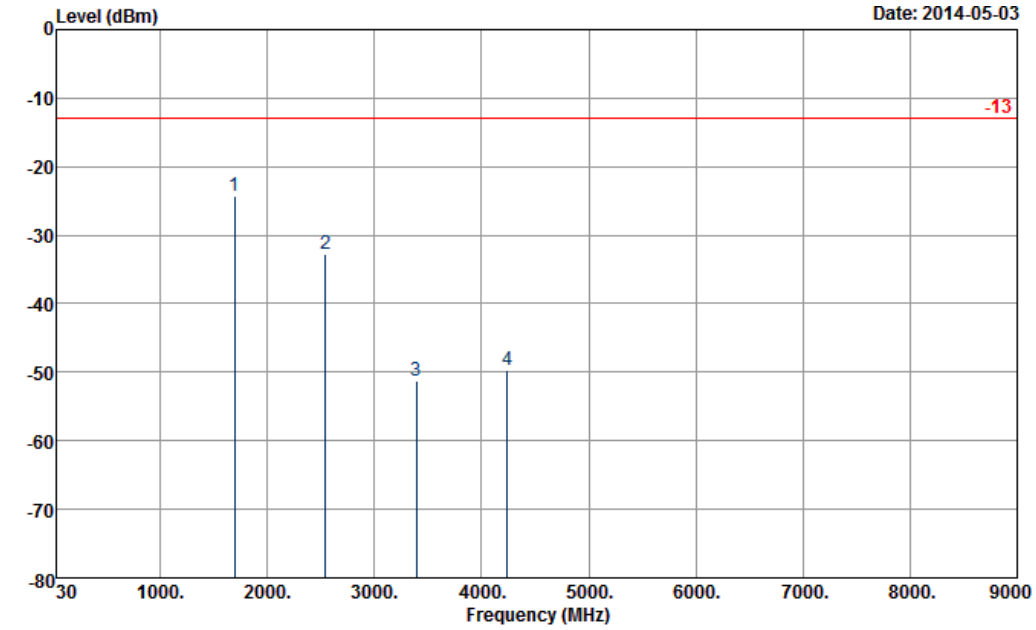


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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
1649	-27.20	-13	-14.20	-38.6	-31.2	1.53	5.53	V	Pass
2474	-36.91	-13	-23.91	-50.71	-41	2.06	6.15	V	Pass
3298	-50.15	-13	-37.15	-65.91	-55.6	2.48	7.93	V	Pass
4123	-46.47	-13	-33.47	-63.86	-53.1	2.54	9.17	V	Pass

<Middle Channel>

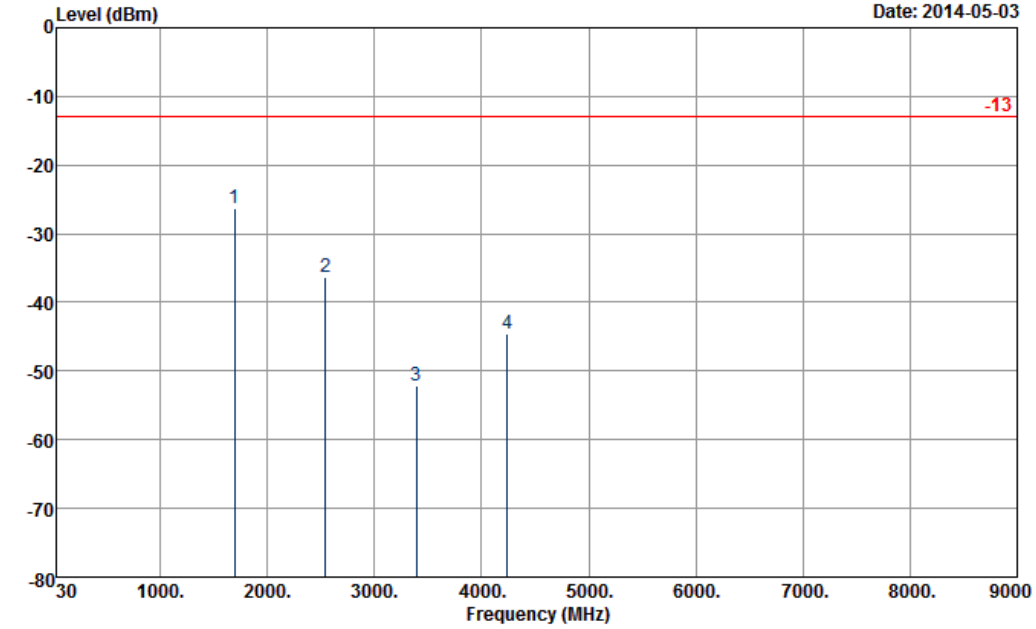
Band :	GSM850	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-26.43	-13	-13.43	-35.88	-30.3	1.62	5.49	H	Pass
2509	-34.08	-13	-21.08	-47.56	-38.2	2.1	6.22	H	Pass
3345	-52.06	-13	-39.06	-66.22	-57.1	3.03	8.07	H	Pass
4182	-47.81	-13	-34.81	-64.3	-54.5	2.52	9.21	H	Pass

Band :	GSM850	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

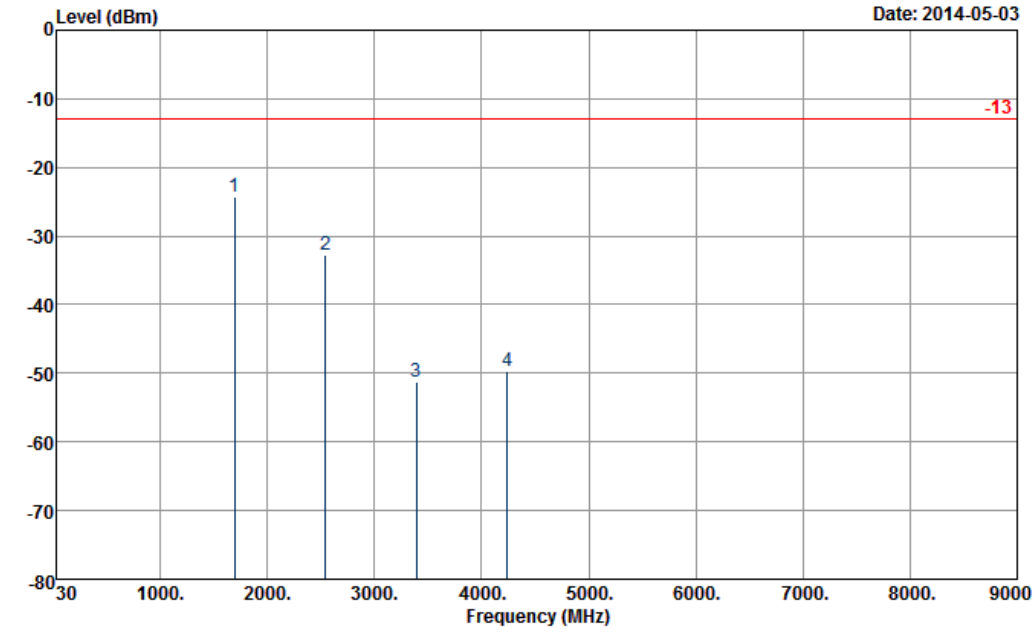


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-28.63	-13	-15.63	-39.91	-32.5	1.62	5.49	V	Pass
2509	-36.08	-13	-23.08	-49.97	-40.2	2.1	6.22	V	Pass
3345	-50.06	-13	-37.06	-65.64	-55.1	3.03	8.07	V	Pass
4182	-45.41	-13	-32.41	-62.67	-52.1	2.52	9.21	V	Pass

<High Channel>

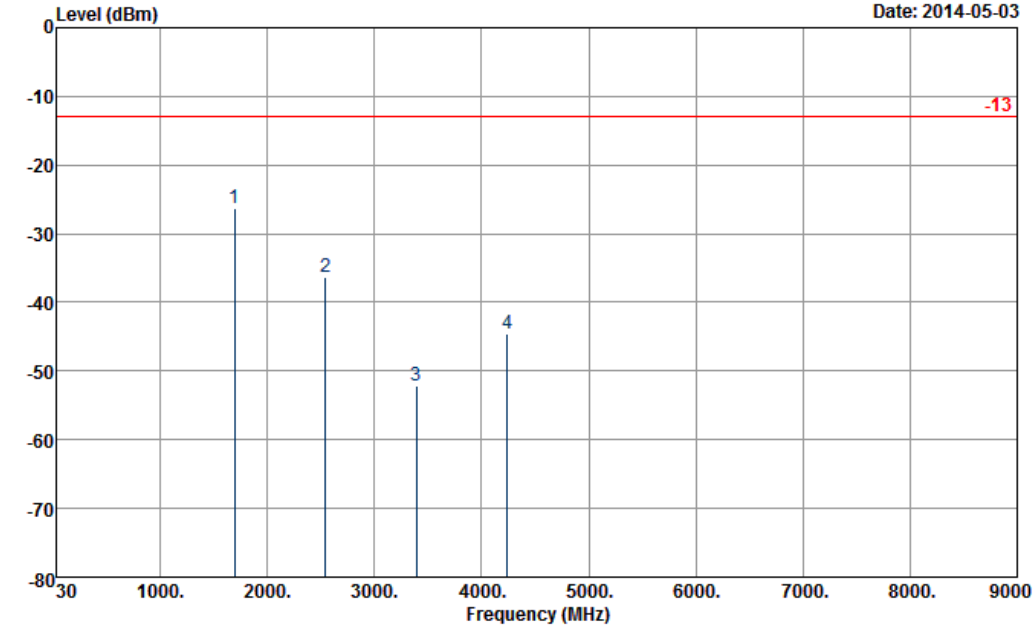
Band :	GSM850	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-24.32	-13	-11.32	-33.53	-28.2	1.57	5.45	H	Pass
2544	-32.74	-13	-19.74	-46.17	-37	2.02	6.28	H	Pass
3393	-51.20	-13	-38.20	-65.43	-57.1	2.3	8.20	H	Pass
4241	-49.69	-13	-36.69	-66.12	-56.2	2.73	9.24	H	Pass

Band :	GSM850	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

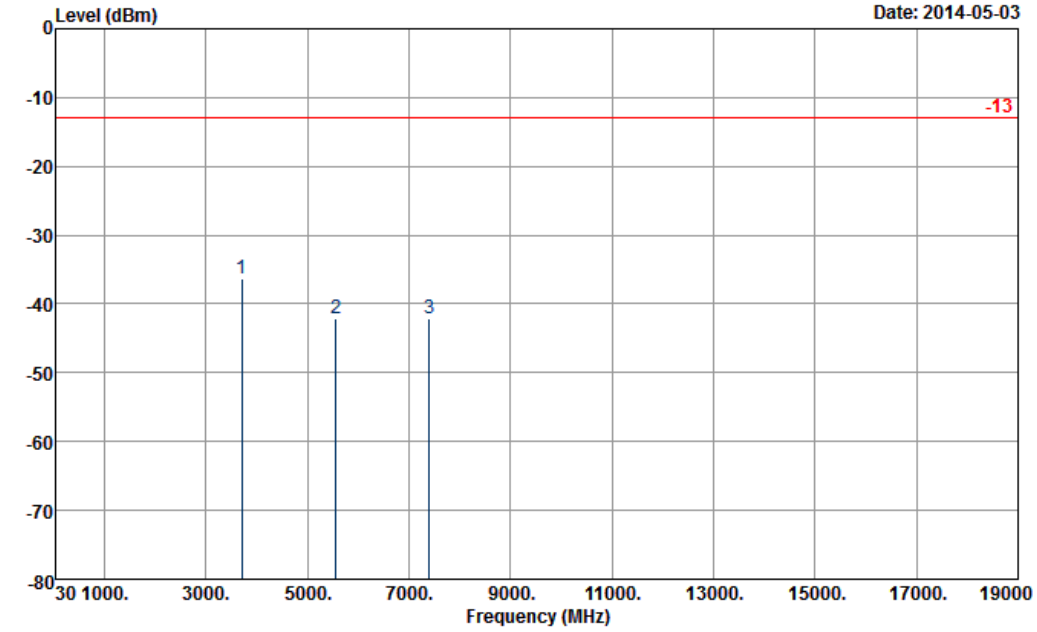


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-26.32	-13	-13.32	-37.77	-30.2	1.57	5.45	V	Pass
2544	-36.24	-13	-23.24	-50.8	-40.5	2.02	6.28	V	Pass
3393	-52.10	-13	-39.10	-67.87	-58	2.3	8.20	V	Pass
4241	-44.59	-13	-31.59	-62.28	-51.1	2.73	9.24	V	Pass

<Low Channel>

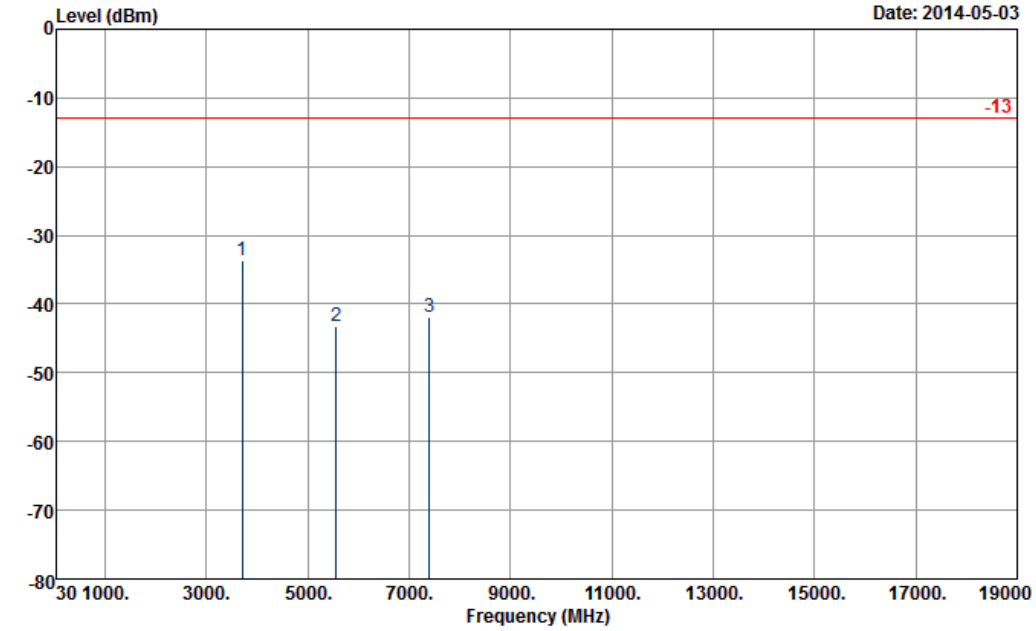
Band :	GSM1900	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-36.35	-13	-23.35	-51.92	-42.5	2.59	8.74	H	Pass
5550	-42.14	-13	-29.14	-62.65	-49.8	3.04	10.70	H	Pass
7401	-42.16	-13	-29.16	-69.85	-50.9	3.28	12.02	H	Pass

Band :	GSM1900	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

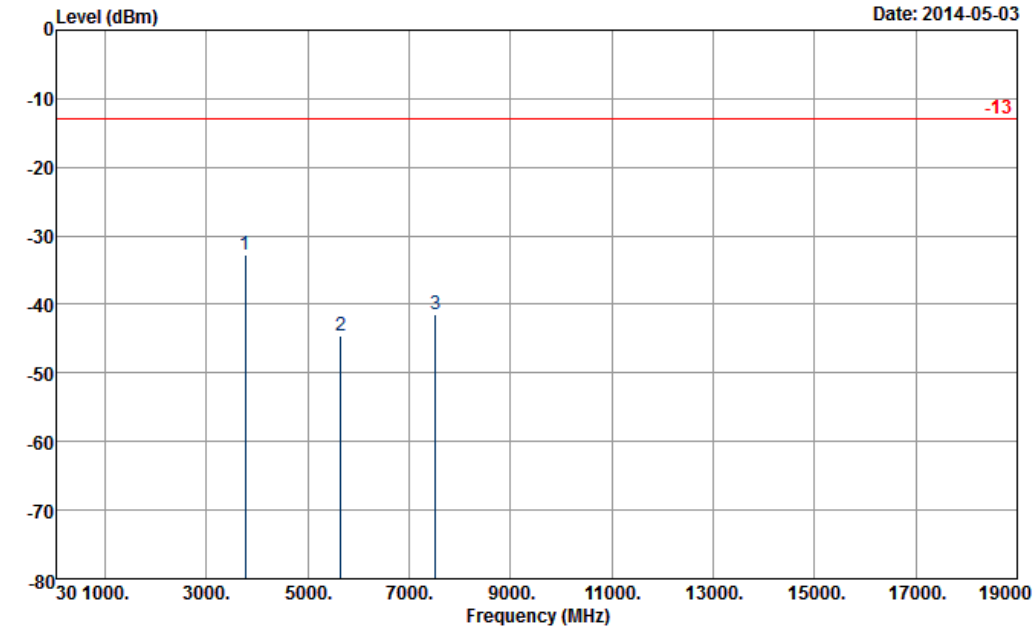


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-33.55	-13	-20.55	-49.62	-39.7	2.59	8.74	V	Pass
5550	-43.14	-13	-30.14	-63.94	-50.8	3.04	10.70	V	Pass
7401	-41.96	-13	-28.96	-68.75	-50.7	3.28	12.02	V	Pass

<Middle Channel>

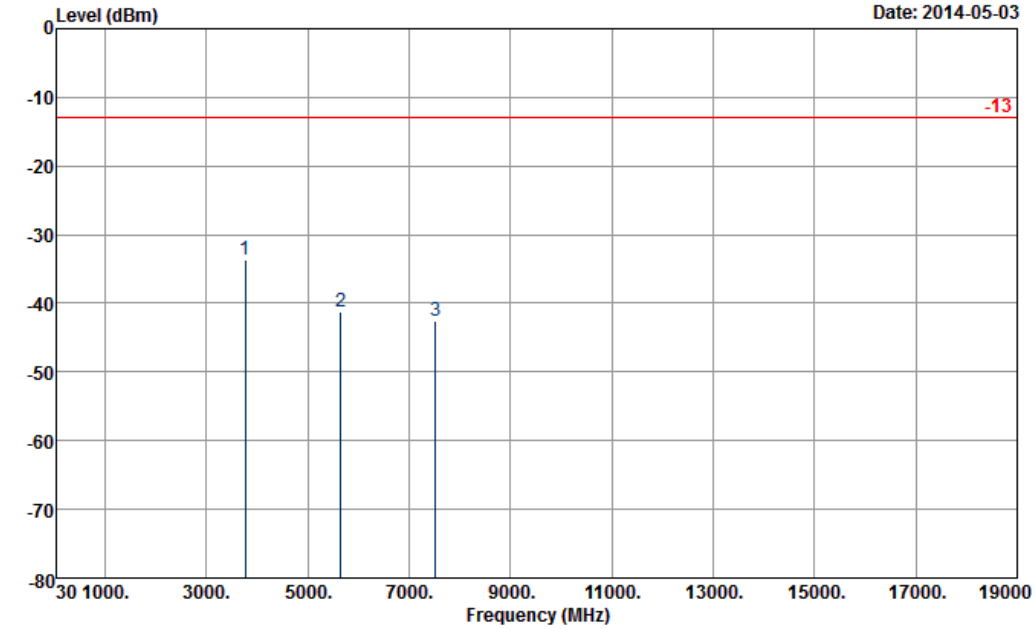
Band :	GSM1900	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-32.80	-13	-19.80	-48.25	-39.1	2.51	8.81	H	Pass
5640	-44.49	-13	-31.49	-65.59	-52.2	2.99	10.70	H	Pass
7520	-41.47	-13	-28.47	-68.56	-50	3.59	12.12	H	Pass

Band :	GSM1900	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

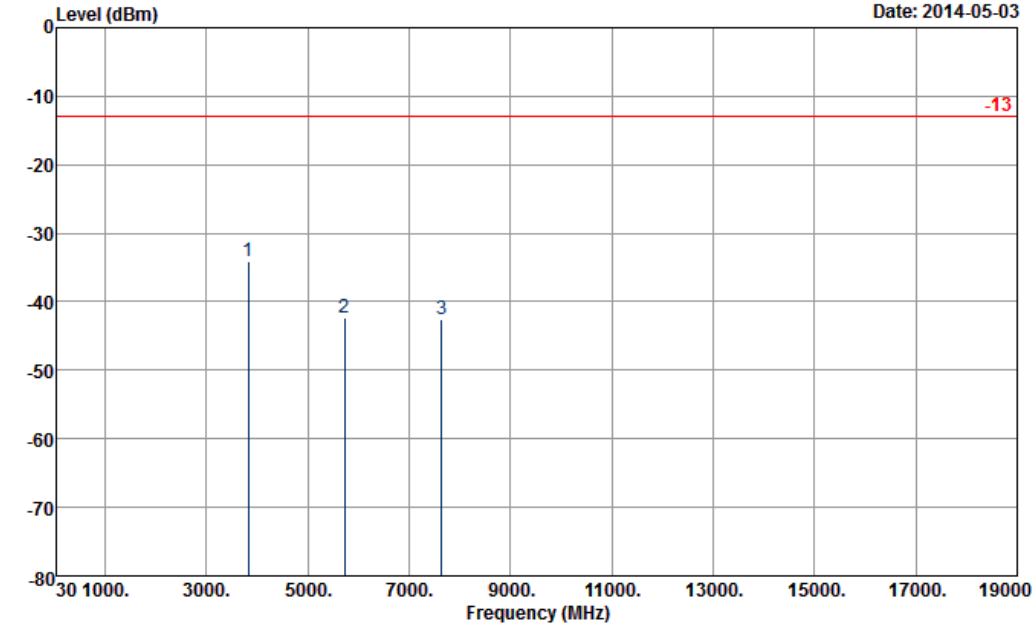


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-33.60	-13	-20.60	-49.92	-39.9	2.51	8.81	V	Pass
5640	-41.19	-13	-28.19	-61.58	-48.9	2.99	10.70	V	Pass
7520	-42.57	-13	-29.57	-69.94	-51.1	3.59	12.12	V	Pass

<High Channel>

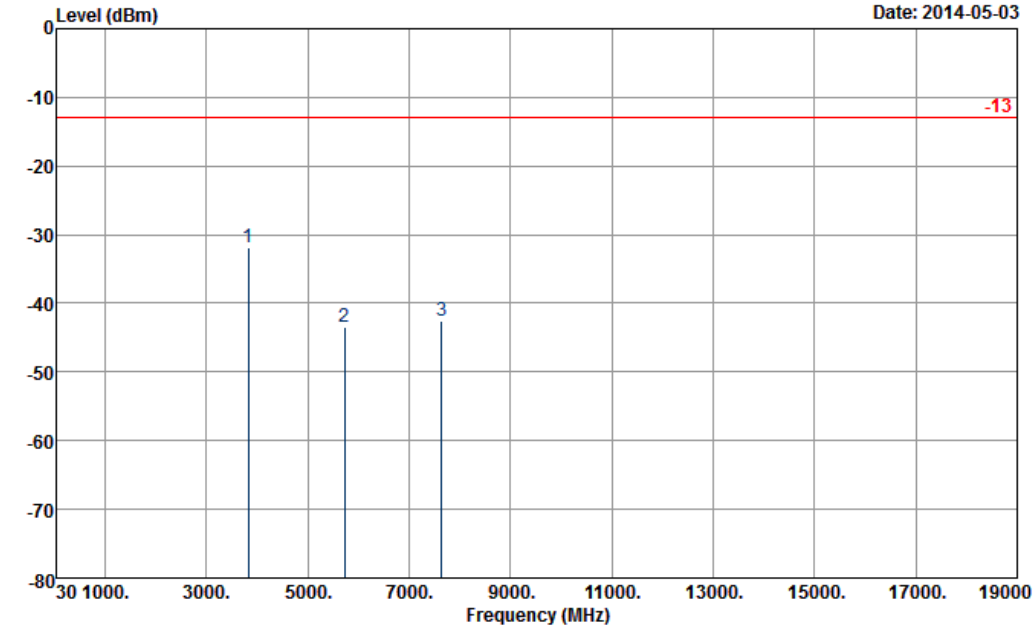
Band :	GSM1900	**Temperature :**	19~21°C
Test Mode :	GSM Link (GMSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-34.19	-13	-21.19	-49.86	-40.6	2.47	8.88	H	Pass
5730	-42.40	-13	-29.40	-63.73	-50.1	3	10.70	H	Pass
7639	-42.52	-13	-29.52	-69.33	-51.3	3.43	12.21	H	Pass

Band :	GSM1900	Temperature :	19~21°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

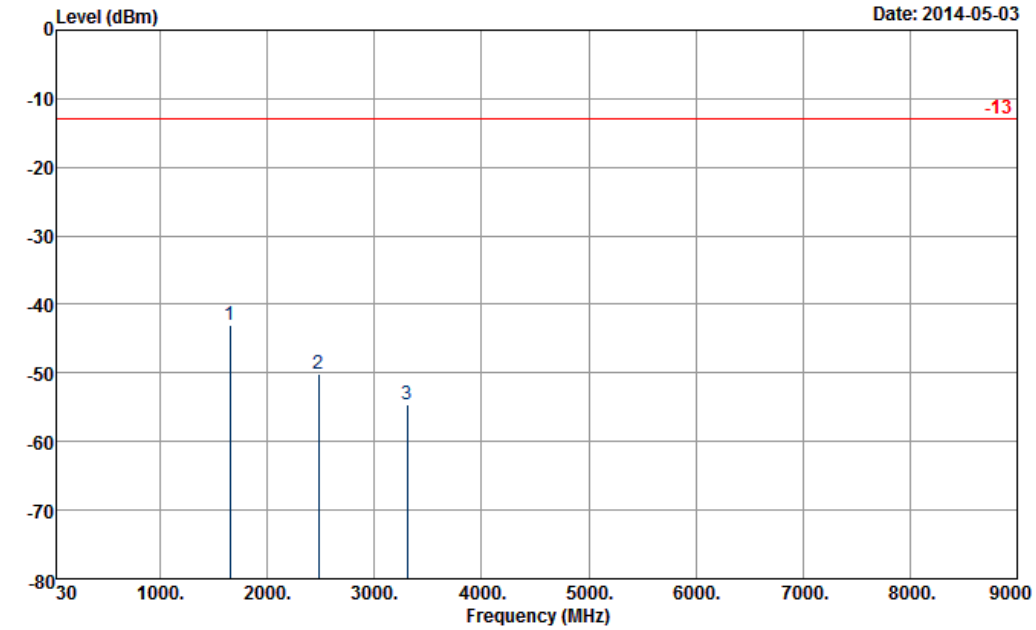


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-31.79	-13	-18.79	-48.39	-38.2	2.47	8.88	V	Pass
5730	-43.40	-13	-30.40	-64.48	-51.1	3	10.70	V	Pass
7639	-42.62	-13	-29.62	-68.65	-51.4	3.43	12.21	V	Pass

<Low Channel>

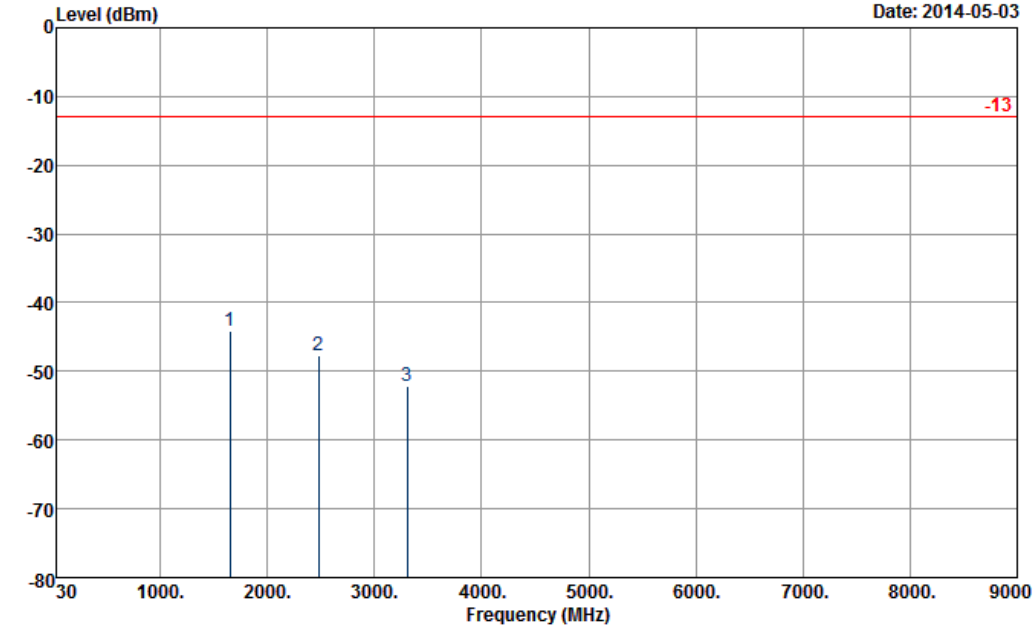
Band :	WCDMA Band V	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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
1652	-43.10	-13	-30.10	-52.06	-47.1	1.53	5.53	H	Pass
2479	-50.21	-13	-37.21	-63.47	-54.3	2.06	6.15	H	Pass
3305	-54.65	-13	-41.65	-68.37	-60.1	2.48	7.93	H	Pass

Band :	WCDMA Band V	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

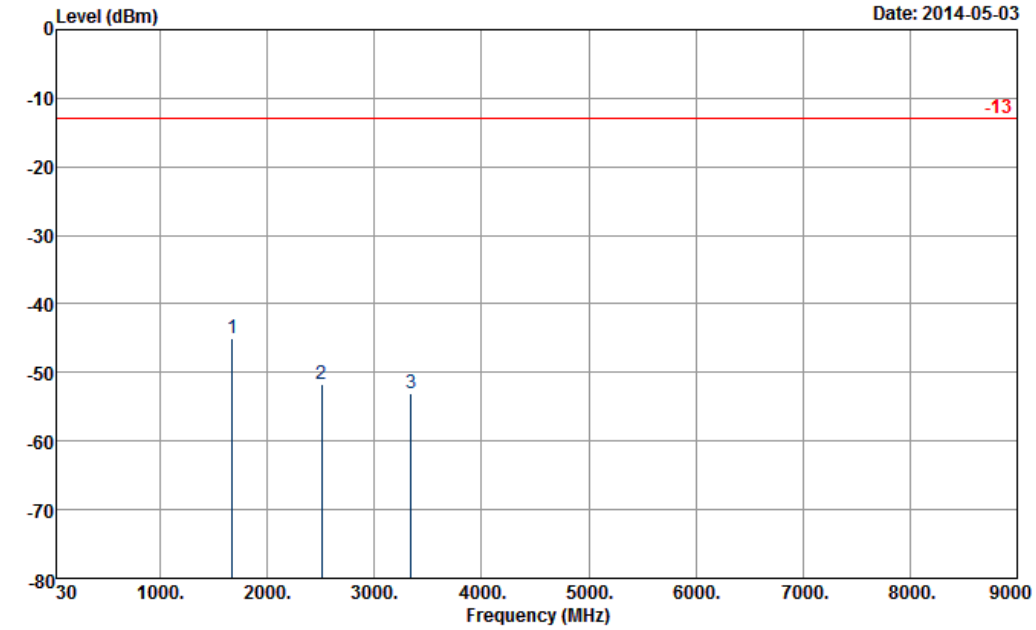


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Proiect : FG 442506

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
1652	-44.10	-13	-31.10	-55.39	-48.1	1.53	5.53	V	Pass
2479	-47.71	-13	-34.71	-61.36	-51.8	2.06	6.15	V	Pass
3305	-52.15	-13	-39.15	-67.73	-57.6	2.48	7.93	V	Pass

<Middle Channel>

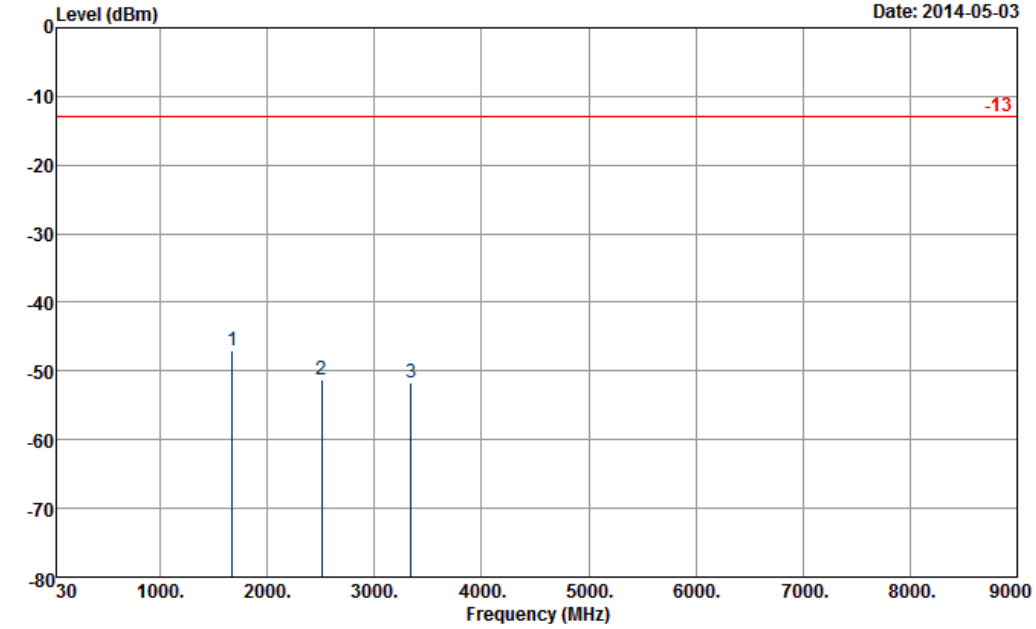
Band :	WCDMA Band V	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-45.03	-13	-32.03	-54.04	-48.9	1.62	5.49	H	Pass
2509	-51.78	-13	-38.78	-65	-55.9	2.1	6.22	H	Pass
3345	-52.96	-13	-39.96	-66.86	-58	3.03	8.07	H	Pass

Band :	WCDMA Band V	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

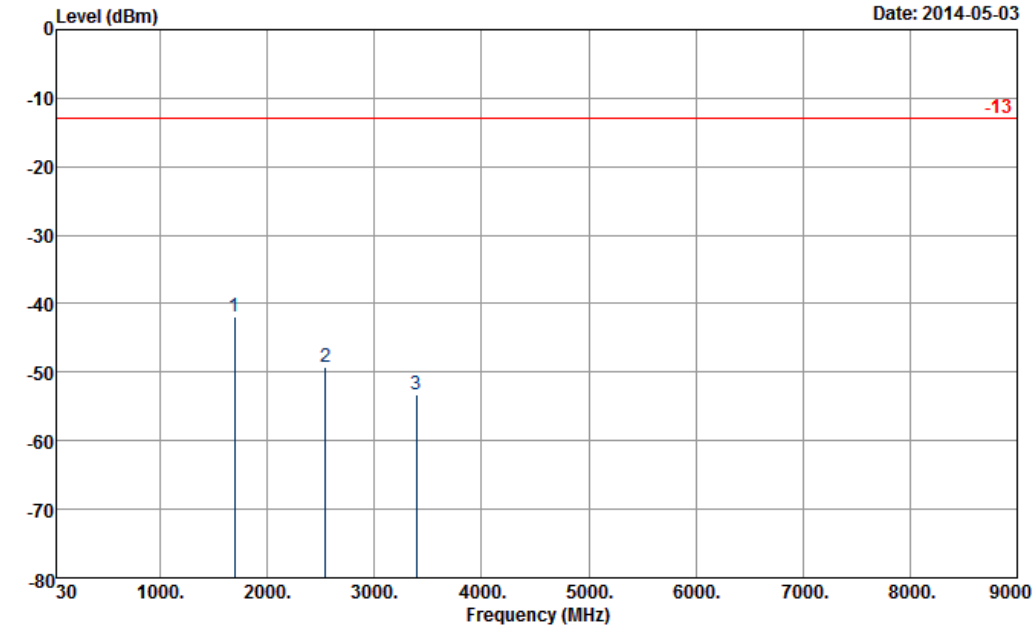


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-46.93	-13	-33.93	-58.38	-50.8	1.62	5.49	V	Pass
2509	-51.28	-13	-38.28	-64.86	-55.4	2.1	6.22	V	Pass
3345	-51.76	-13	-38.76	-67.55	-56.8	3.03	8.07	V	Pass

<High Channel>

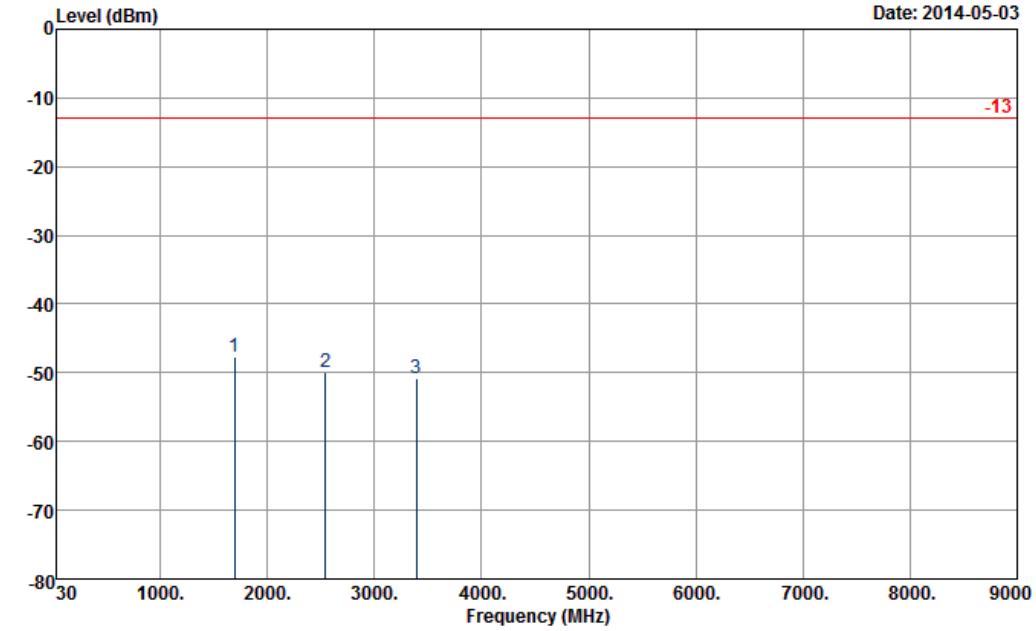
Band :	WCDMA Band V	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-41.82	-13	-28.82	-50.93	-45.7	1.57	5.45	H	Pass
2544	-49.34	-13	-36.34	-62.78	-53.6	2.02	6.28	H	Pass
3393	-53.20	-13	-40.20	-67.5	-59.1	2.3	8.20	H	Pass

Band :	WCDMA Band V	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

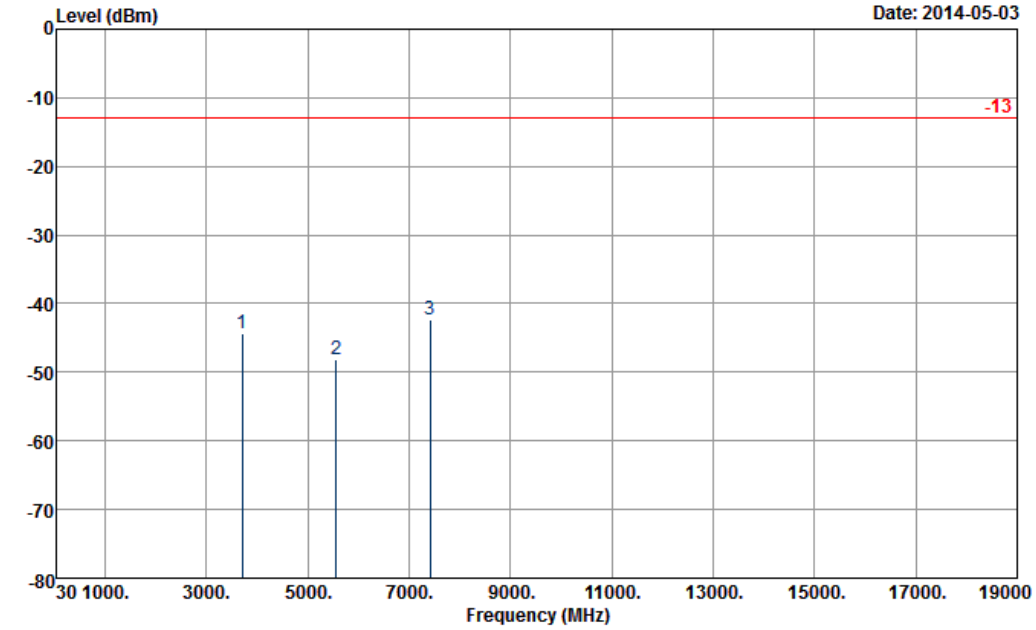


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-47.62	-13	-34.62	-59.08	-51.5	1.57	5.45	V	Pass
2544	-49.94	-13	-36.94	-63.9	-54.2	2.02	6.28	V	Pass
3393	-50.90	-13	-37.90	-67.12	-56.8	2.3	8.20	V	Pass

<Low Channel>

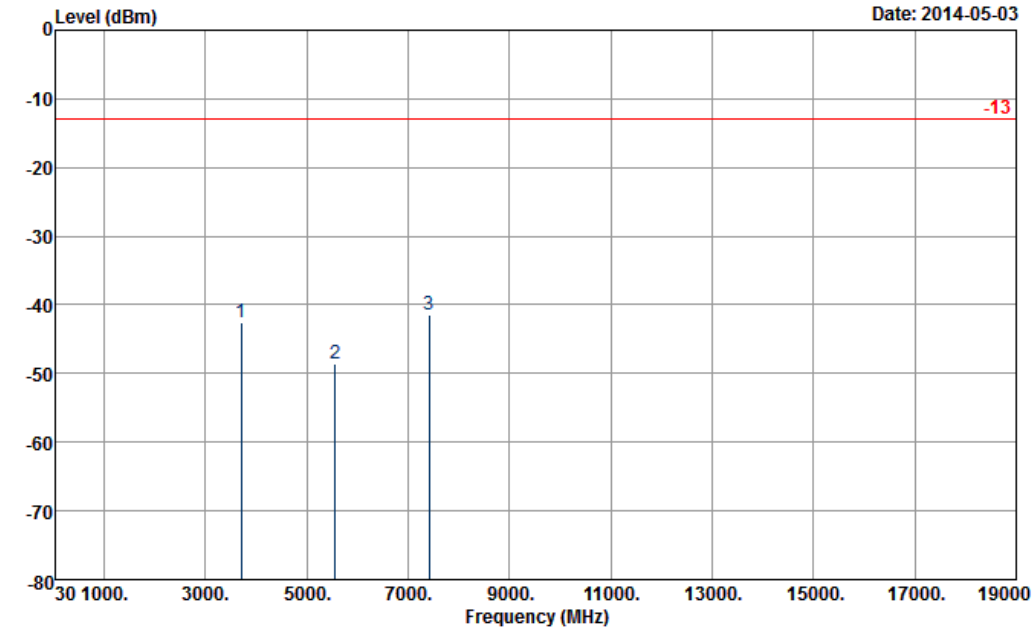
Band :	WCDMA Band II	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-44.25	-13	-31.25	-59.6	-50.4	2.59	8.74	H	Pass
5557	-48.14	-13	-35.14	-68.77	-55.8	3.04	10.70	H	Pass
7410	-42.36	-13	-29.36	-69.73	-51.1	3.28	12.02	H	Pass

Band :	WCDMA Band II	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

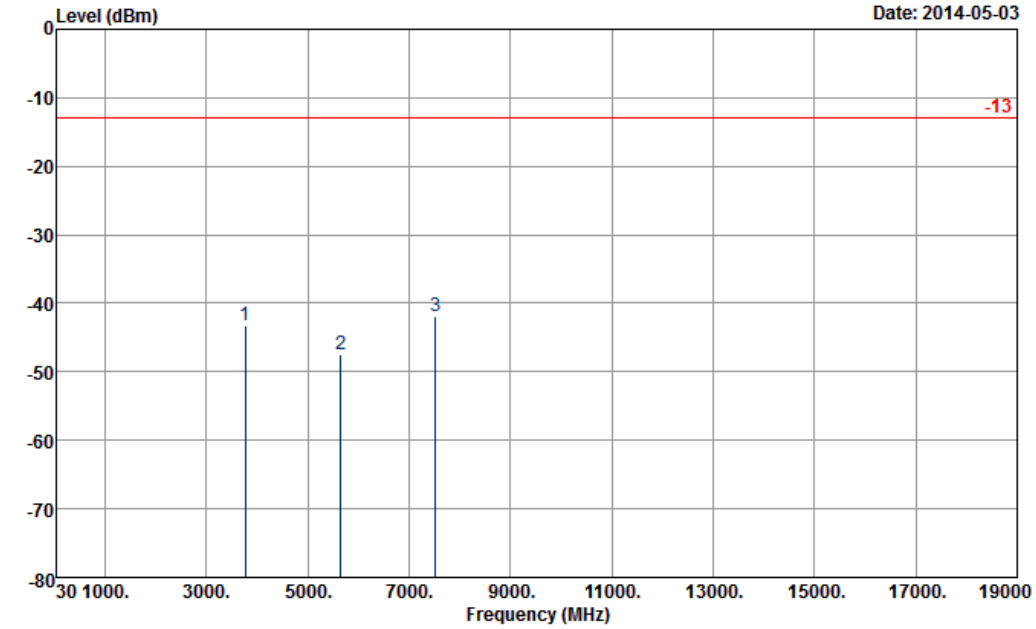


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-42.65	-13	-29.65	-58.88	-48.8	2.59	8.74	V	Pass
5557	-48.54	-13	-35.54	-68.69	-56.2	3.04	10.70	V	Pass
7410	-41.36	-13	-28.36	-68.73	-50.1	3.28	12.02	V	Pass

<Middle Channel>

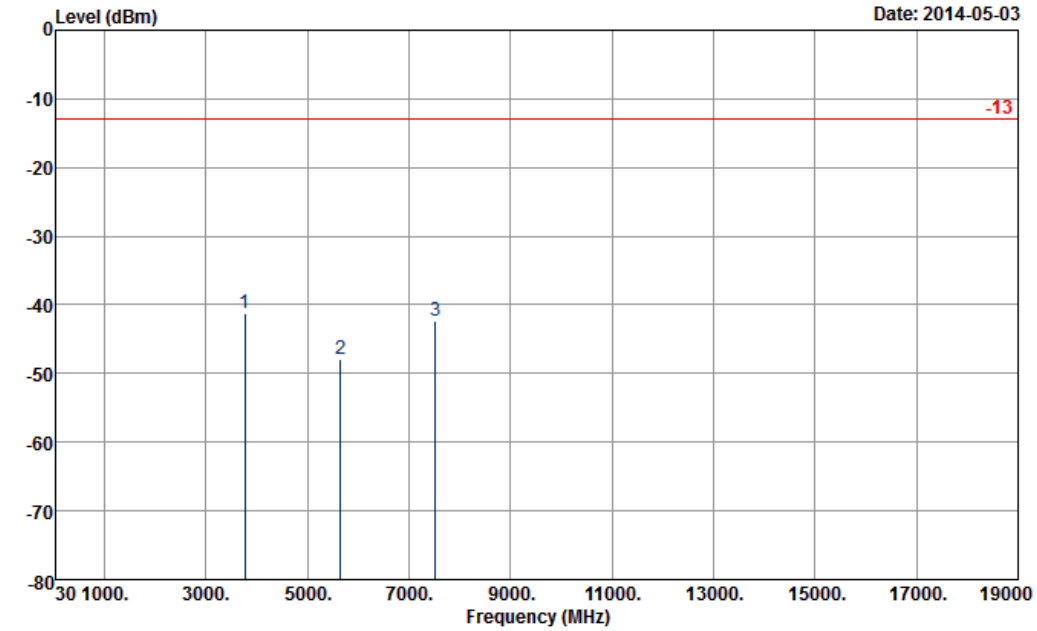
Band :	WCDMA Band II	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-43.20	-13	-30.20	-58.62	-49.5	2.51	8.81	H	Pass
5640	-47.49	-13	-34.49	-68.64	-55.2	2.99	10.70	H	Pass
7520	-41.87	-13	-28.87	69.28	-50.4	3.59	12.12	H	Pass

Band :	WCDMA Band II	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

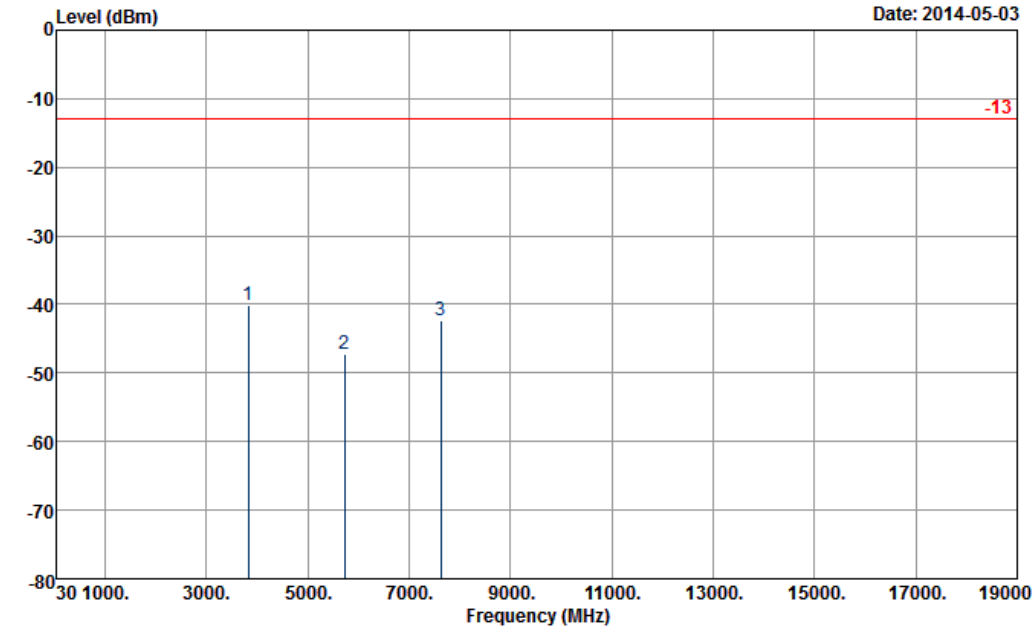


Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-41.30	-13	-28.30	-57.77	-47.6	2.51	8.81	V	Pass
5640	-47.89	-13	-34.89	-68.66	-55.6	2.99	10.70	V	Pass
7520	-42.27	-13	-29.27	-69.36	-50.8	3.59	12.12	V	Pass

<High Channel>

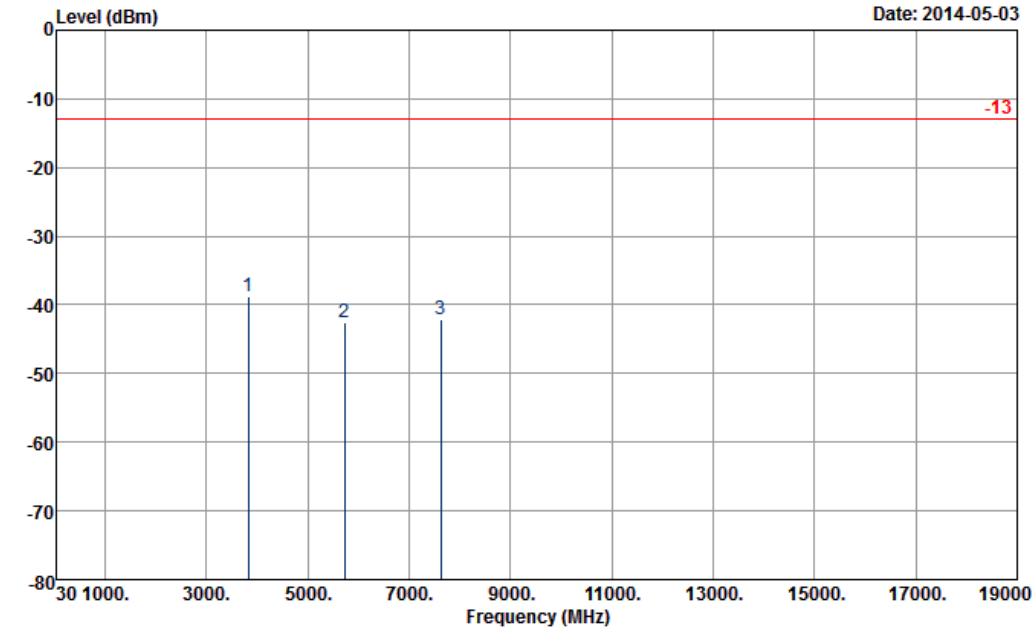
Band :	WCDMA Band II	**Temperature :**	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	**Relative Humidity :**	47~49%
Test Engineer :	Eric Shih	**Polarization :**	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) HORIZONTAL
Project : FG 442506

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	-40.19	-13	-27.19	-55.61	-46.6	2.47	8.88	H	Pass
5722	-47.20	-13	-34.20	-68.19	-54.9	3	10.70	H	Pass
7630	-42.32	-13	-29.32	-69.01	-51.1	3.43	12.21	H	Pass

Band :	WCDMA Band II	Temperature :	19~21°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	47~49%
Test Engineer :	Eric Shih	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH07-HY
Condition : -13 HF-EIRP(080306) VERTICAL
Project : FG 442506

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	-38.79	-13	-25.79	-55.51	-45.2	2.47	8.88	V	Pass
5722	-42.60	-13	-29.60	-63.44	-50.3	3	10.70	V	Pass
7630	-42.02	-13	-29.02	-67.85	-50.8	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. 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.

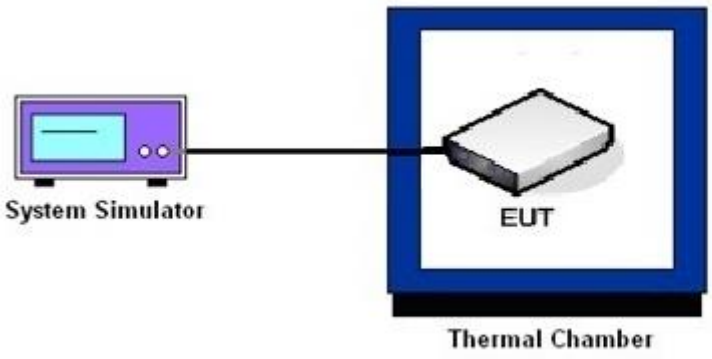
3.8.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. 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.
3. 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 EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. 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)	GSM	Result
	Deviation (ppm)	
50	0.0526	PASS
40	0.0383	
30	0.0395	
20	0.0311	
10	0.0371	
0	0.0347	
-10	0.0407	
-20	0.0478	
-30	0.0430	

Band :	GSM 1900	Channel :	661
Limit (ppm) :	2.5	Frequency :	1880.0 MHz

Temperature (°C)	GSM	Result
	Deviation (ppm)	
50	0.0335	PASS
40	0.0303	
30	0.0207	
20	0.0261	
10	0.0218	
0	0.0191	
-10	0.0229	
-20	0.0250	
-30	0.0330	

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

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.0383	PASS
40	0.0454	
30	0.0323	
20	0.0371	
10	0.0407	
0	0.0359	
-10	0.0335	
-20	0.0430	
-30	0.0490	

Band :	WCDMA Band II	Channel :	9400
Limit (ppm) :	2.5	Frequency :	1880.0 MHz

Temperature (°C)	RMC 12.2Kbps Deviation (ppm)	Result
50	0.0362	PASS
40	0.0277	
30	0.0197	
20	0.0186	
10	0.0213	
0	0.0245	
-10	0.0335	
-20	0.0367	
-30	0.0372	

3.8.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH189	GSM	4.3	0.0395	2.5	PASS
		3.8	0.0347		
		BEP	0.0418		
GSM 1900 CH661	GSM	4.3	0.0218		
		3.8	0.0303		
		BEP	0.0255		
WCDMA Band V CH4182	RMC 12.2Kbps	4.3	0.0430		
		3.8	0.0395		
		BEP	0.0478		
WCDMA Band II CH9400	RMC 12.2Kbps	4.3	0.0186		
		3.8	0.0165		
		BEP	0.0176		

Note:

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.4 V.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Aug. 01, 2013	Apr. 29, 2014 ~ May 02, 2014	Jul. 31, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Apr. 29, 2014 ~ May 02, 2014	Jun. 06, 2014	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 19, 2013	Apr. 29, 2014 ~ May 02, 2014	Jul. 18, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV30	101749	10Hz ~ 30GHz	Feb. 10, 2014	May 03, 2014	Feb. 09, 2015	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	May 03, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	May 03, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10 MHz ~ 1000MHz	Mar. 17, 2014	May 03, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1 GHz~26.5 GHz	Nov. 29, 2013	May 03, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	May 03, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	M-400-0	114/8000604/L	N/A	N/A	May 03, 2014	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	May 03, 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**