

# FCC RF Test Report

APPLICANT : TCL Communication Ltd  
EQUIPMENT : GSM Quad-band / UMTS Quad-band / LTE 6  
band mobile phone  
BRAND NAME : ALCATEL ONETOUCH  
MODEL NAME : 6045I  
MARKETING NAME : ALCATEL ONETOUCH IDOL 3 (5.5)  
FCC ID : 2ACCJN002  
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 Mar. 05, 2015 and testing was completed on Mar. 31, 2015. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
**No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China**



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## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG511301-03A	Rev. 01	Initial issue of report	Apr. 17, 2015



## 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) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d)	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (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	-
	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
3.4	§2.1049 §22.917(b) §24.238(b) §27.53(g)	RSS-GEN(4.6.1) RSS-133(6.5) RSS-139 (6.5)	Occupied Bandwidth	Reporting Only	PASS	-
3.5	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.6	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.7	§2.1053 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 29.31 dB at 6930.000 MHz
3.8	§2.1055 §22.355	RSS-GEN(6.11) RSS-132 (5.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22 Within Authorized Band	PASS	-
	§2.1055 §24.235 §27.54	RSS-GEN(6.11) RSS-133 (6.3) RSS-139 (6.3)				

# 1 General Description

## 1.1 Applicant

TCL Communication Ltd

FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

## 1.2 Manufacturer

TCL Communication Ltd

FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	GSM Quad-band / UMTS Quad-band / LTE 6 band mobile phone
Brand Name	ALCATEL ONETOUCH
Model Name	6045I
Marketing Name	ALCATEL ONETOUCH IDOL 3 (5.5)
FCC ID	2ACCJN002
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE/ NFC/WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 Bluetooth v3.0 + EDR/Bluetooth v4.1 LE
HW Version	PIO
SW Version	7S25
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. The device has two acoustic receives function, when a voice call is coming, user can choose any one receiver to response. And only when receiver on the bottom of the EUT is enabled, the power reduction will be activated to limit the maximum power of any cellular band.

## 1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
<b>Tx Frequency</b>	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
<b>Rx Frequency</b>	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
<b>Maximum Output Power to Antenna</b>	GSM850 : 32.89 dBm GSM1900 : 29.69 dBm WCDMA Band V : 23.76 dBm WCDMA Band IV : 23.13 dBm WCDMA Band II : 23.19 dBm
<b>Antenna Type</b>	PIFA Antenna
<b>Type of Modulation</b>	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA : QPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM (Downlink Only) DC-HSDPA : 64QAM

## 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	0.7696	0.0359 ppm	248KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.2082	0.0418 ppm	246KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.1013	0.0395 ppm	4M16F9W
Part 24	GSM1900 GSM	GMSK	1.2106	0.0229 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.5214	0.0149 ppm	246KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.2518	0.0229 ppm	4M18F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.3180	0.0225 ppm	4M18F9W

## 1.7 Testing Location

<b>Test Site</b>	SPORTON INTERNATIONAL (KUNSHAN) INC.	
<b>Test Site Location</b>	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC/IC Registration No.</b>
	TH01-KS	149928/4086E-1

<b>Test Site</b>	SPORTON INTERNATIONAL (SHENZHEN) INC.	
<b>Test Site Location</b>	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755- 3320-2398	
<b>Test Site No.</b>	<b>Sporton Site No.</b>	<b>FCC/IC Registration No.</b>
	03CH02-SZ	831040/4086F-1

## 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 v02r02
- IC RSS-132 Issue 3
- IC RSS-133 Issue 6
- IC RSS-139 Issue 2
- IC RSS-Gen Issue 4

### 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 v02r02 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 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for WCDMA Band IV
3. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

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
GSM 850	■ GSM Link ■ EDGE class 8 Link	■ GSM 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
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

**Note:** According the functionality of the EUT, the maximum power levels are chosen to test all test cases listed in this report as the worst case configuration is when top acoustic receiver works.



## Conducted Power Measurement Results:

## &lt;Full Power Mode&gt;:

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	32.89	32.62	32.83	29.37	29.32	29.69
GPRS class 8	32.87	32.60	32.82	29.35	29.31	29.68
GPRS class 10	30.96	31.07	30.54	27.86	27.67	27.66
GPRS class 11	29.10	29.21	29.38	26.01	25.77	25.73
GPRS class 12	28.03	28.22	28.36	24.91	24.80	24.70
EGPRS class 8	26.61	26.63	26.56	26.16	26.66	26.09
EGPRS class 10	25.53	25.55	25.56	24.63	24.55	24.60
EGPRS class 11	23.98	24.01	24.01	23.10	23.00	23.06
EGPRS class 12	22.45	22.43	22.38	21.58	21.49	21.59

Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
AMR 12.2Kbps	23.65	23.67	23.75	23.10	23.13	23.18	23.11	23.05	23.05
RMC 12.2Kbps	23.68	23.69	23.76	23.11	23.14	23.19	23.13	23.06	23.07
HSDPA Subtest-1	22.07	22.13	22.27	21.53	21.72	21.92	21.52	21.48	21.46
HSDPA Subtest-2	22.06	22.11	22.25	21.55	21.84	21.95	21.51	21.48	21.47
HSDPA Subtest-3	22.07	22.15	22.26	21.58	21.78	21.90	21.50	21.57	21.45
HSDPA Subtest-4	22.05	22.13	22.24	21.55	21.75	21.84	21.48	21.56	21.44
DC-HSDPA Subtest-1	22.04	22.07	22.24	21.50	21.69	21.88	21.49	21.45	21.41
DC-HSDPA Subtest-2	22.05	22.09	22.16	21.53	21.74	21.92	21.50	21.46	21.44
DC-HSDPA Subtest-3	22.01	22.12	22.20	21.54	21.76	21.90	21.46	21.52	21.42
DC-HSDPA Subtest-4	22.03	22.10	22.15	21.49	21.71	21.80	21.45	21.53	21.43
HSUPA Subtest-1	21.71	22.03	21.75	21.96	21.97	21.83	21.77	21.65	21.65
HSUPA Subtest-2	21.05	21.33	21.06	20.9	21.32	21.41	20.97	21.04	21.04
HSUPA Subtest-3	20.71	20.99	20.74	21.43	21.20	21.57	20.59	20.60	20.60
HSUPA Subtest-4	22.00	21.59	21.40	21.88	21.60	21.32	21.17	21.23	21.23
HSUPA Subtest-5	21.76	21.90	21.93	21.85	21.99	21.94	21.56	21.55	21.55

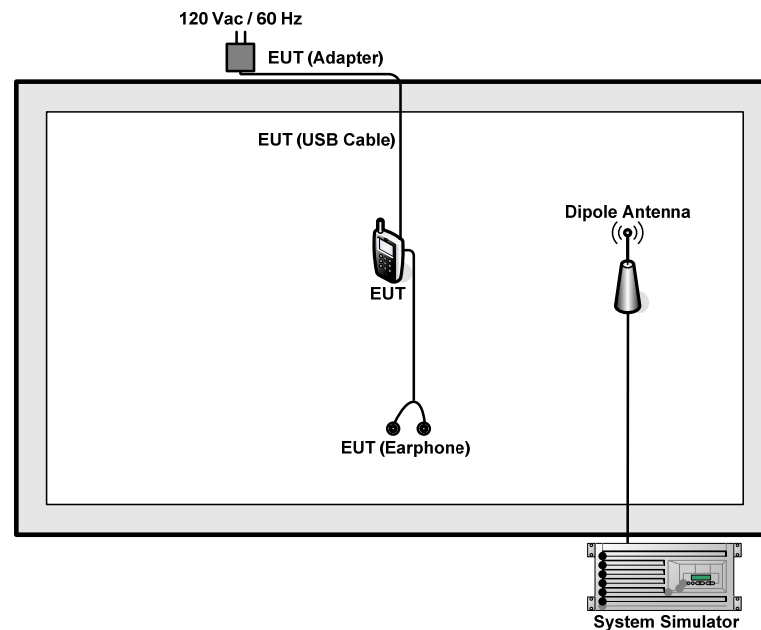


## &lt;Reduced Power Mode&gt;:

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	30.26	30.34	30.57	25.13	25.11	24.97
GPRS class 8	30.24	30.33	30.56	25.12	25.09	24.95
GPRS class 10	27.18	27.32	27.46	22.08	22.00	21.92
GPRS class 11	25.69	25.49	25.57	20.53	20.43	20.43
GPRS class 12	24.23	24.41	24.65	19.26	19.20	19.11
EGPRS class 8	26.57	26.59	26.62	25.11	25.09	24.94
EGPRS class 10	25.57	25.51	25.54	22.04	22.00	21.90
EGPRS class 11	23.94	23.97	23.97	20.50	20.41	20.41
EGPRS class 12	22.40	22.40	22.44	19.18	19.15	19.07

Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
AMR 12.2Kbps	21.96	22.01	22.07	16.78	16.85	16.92	16.94	16.85	16.87
RMC 12.2Kbps	21.97	22.02	22.09	16.80	16.86	16.93	16.96	16.85	16.88
HSDPA Subtest-1	20.52	20.59	20.63	15.66	15.59	15.77	15.52	15.63	15.43
HSDPA Subtest-2	20.51	20.57	20.60	15.68	15.61	15.79	15.50	15.62	15.43
HSDPA Subtest-3	20.07	20.36	20.04	15.65	15.66	15.77	15.53	15.61	15.40
HSDPA Subtest-4	19.92	20.25	19.96	15.62	15.57	15.76	15.50	15.58	15.38
DC-HSDPA Subtest-1	20.45	20.41	20.56	15.54	15.53	15.74	15.51	15.59	15.42
DC-HSDPA Subtest-2	20.39	20.48	20.53	15.65	15.54	15.73	15.48	15.60	15.41
DC-HSDPA Subtest-3	20.05	20.34	20.02	15.60	15.62	15.75	15.50	15.57	15.34
DC-HSDPA Subtest-4	19.90	20.23	19.93	15.59	15.48	15.67	15.43	15.54	15.29
HSUPA Subtest-1	20.09	20.38	20.09	15.79	15.93	15.86	15.46	15.80	15.43
HSUPA Subtest-2	19.44	19.67	19.40	15.19	14.83	15.33	15.01	14.99	14.96
HSUPA Subtest-3	19.10	19.27	19.12	14.82	14.53	14.89	14.56	14.63	15.12
HSUPA Subtest-4	19.83	19.90	19.72	15.51	15.91	15.53	15.22	15.25	15.19
HSUPA Subtest-5	20.05	20.18	20.29	15.74	15.82	15.05	15.50	15.44	15.62

## 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.	DC Power Supply	GW INSTEK	GPD-2303S	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.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

The following shows an offset computation example with RF cable loss 5.2 dB and a 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 5.2 + 10 = 15.2 \text{ (dB)} \end{aligned}$$

### 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.

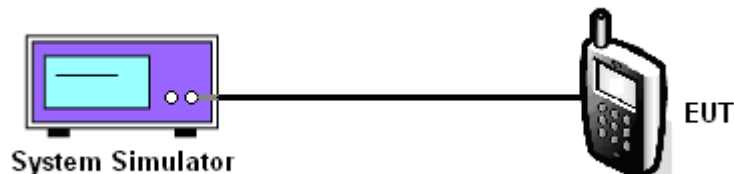
##### 3.1.2 Measuring Instruments

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)			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
Conducted Power (dBm)	32.89	32.62	32.83	26.61	26.63	26.56	23.68	23.69	23.76

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
Conducted Power (dBm)	29.37	29.32	29.69	26.16	26.66	26.09	23.11	23.14	23.19

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)	23.13	23.06	23.07

**Note:** maximum burst average power for GSM, and 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.

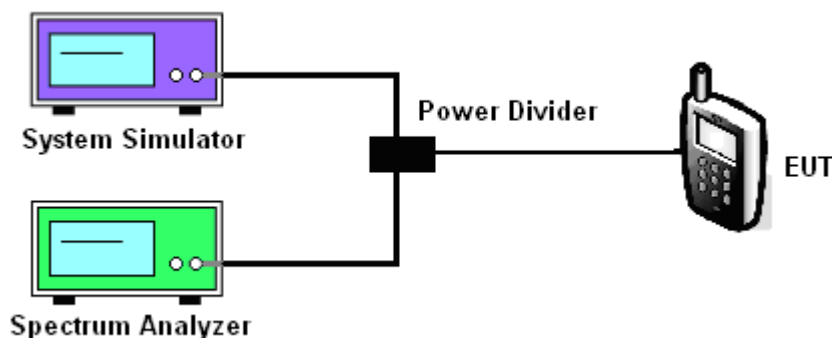
### 3.2.2 Measuring Instruments

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 v02r02 Section 5.7.1.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. For GSM/EGPRS operating modes:
  - a. Set EUT in maximum power output.
  - b. Set the RBW = 1MHz, VBW = 3MHz, Peak detector on spectrum analyzer for first trace.
  - c. Set the RBW = 1MHz, VBW = 3MHz, RMS detector on spectrum analyzer for second trace.
  - d. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator has synchronized with the spectrum analyzer.
4. 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 %.
5. Record the deviation as Peak to Average Ratio.

### 3.2.4 Test Setup



### 3.2.5 Test Result of Peak-to-Average Ratio

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)	0.34	0.35	0.35	2.77	2.71	2.61	2.64	2.60	3.00

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)	3.12	3.16	3.20

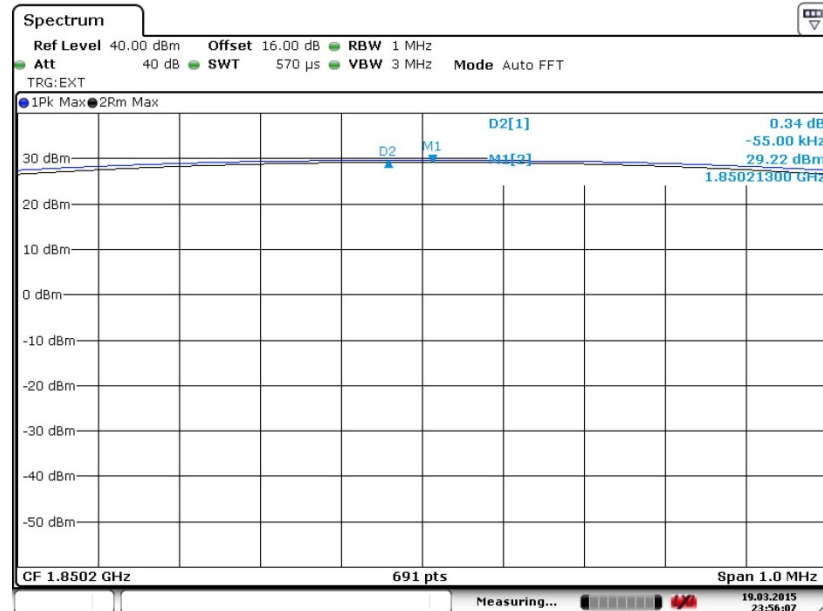




## 3.2.6 Test Result (Plots) of Peak-to-Average Ratio

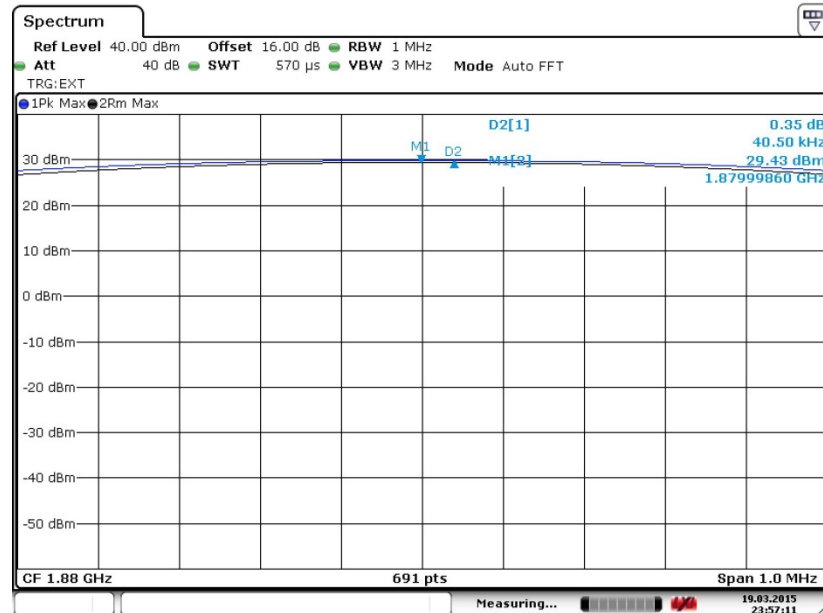
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 19.MAR.2015 23:56:07

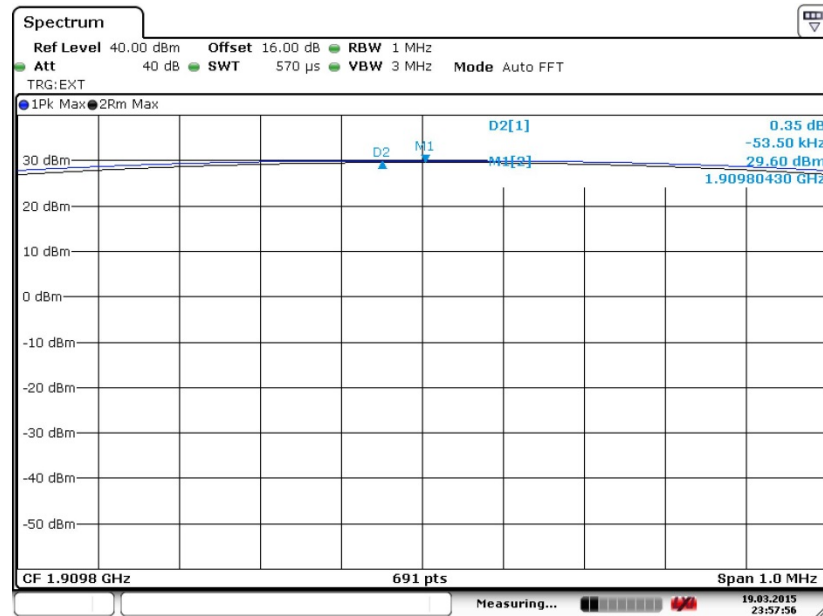
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 19.MAR.2015 23:57:11



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

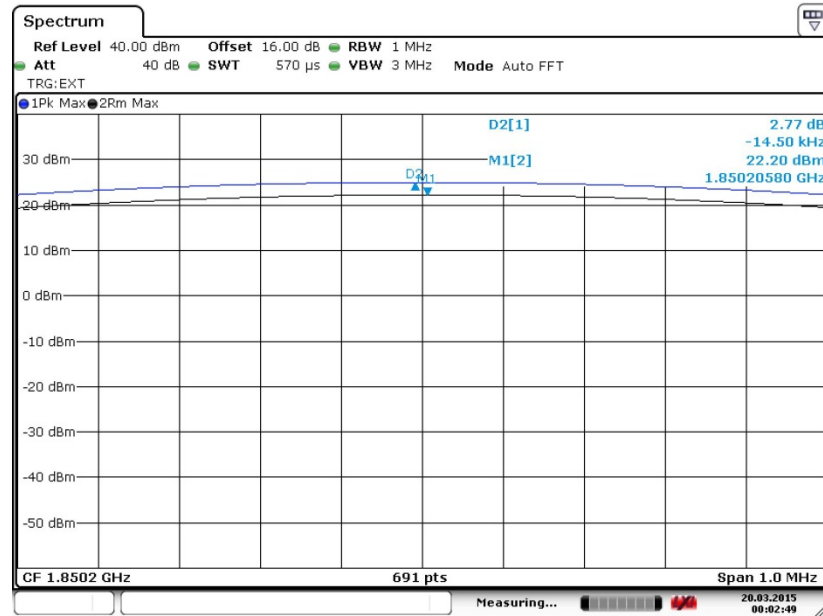


Date: 19.MAR.2015 23:57:56



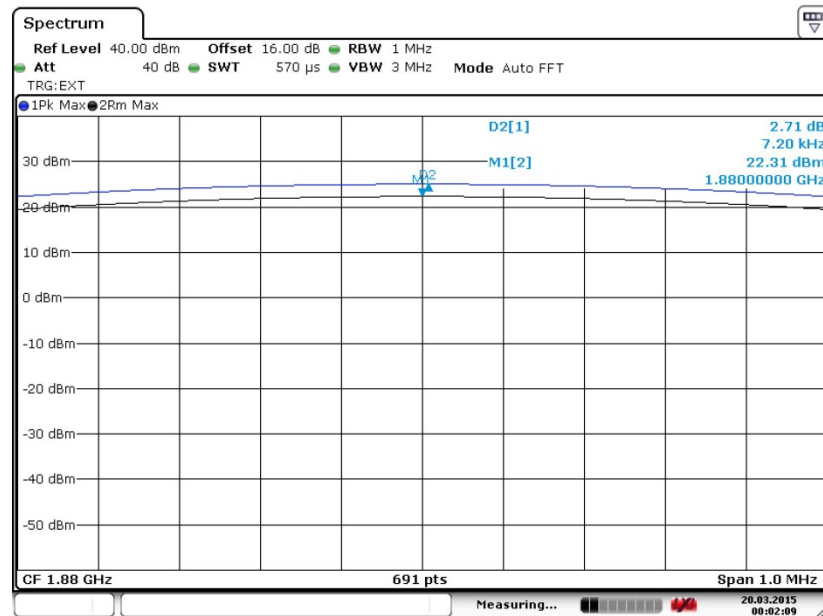
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 20. MAR. 2015 00:02:49

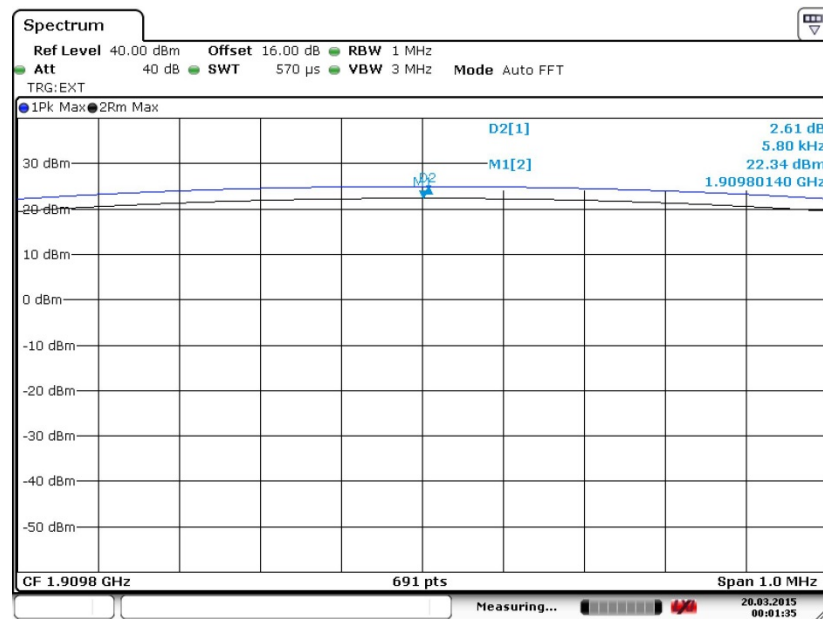
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 20. MAR. 2015 00:02:09

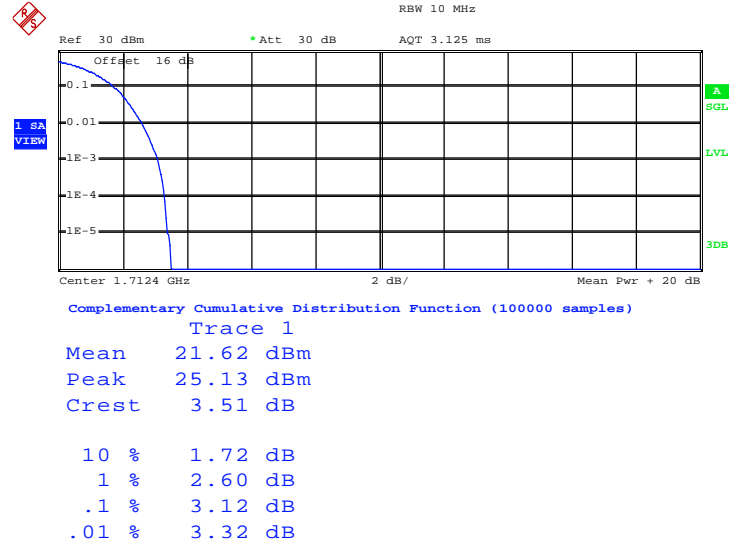


Peak-to-Average Ratio on Channel 810 (1909.8 MHz)

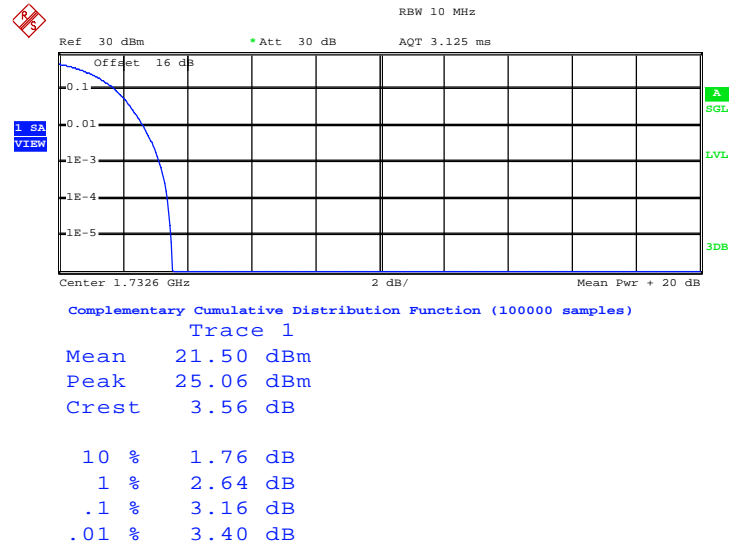


Date: 20.MAR.2015 00:01:36

<b>Band :</b>	WCDMA Band IV	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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**Peak-to-Average Ratio on Channel 1312 (1712.4 MHz)**


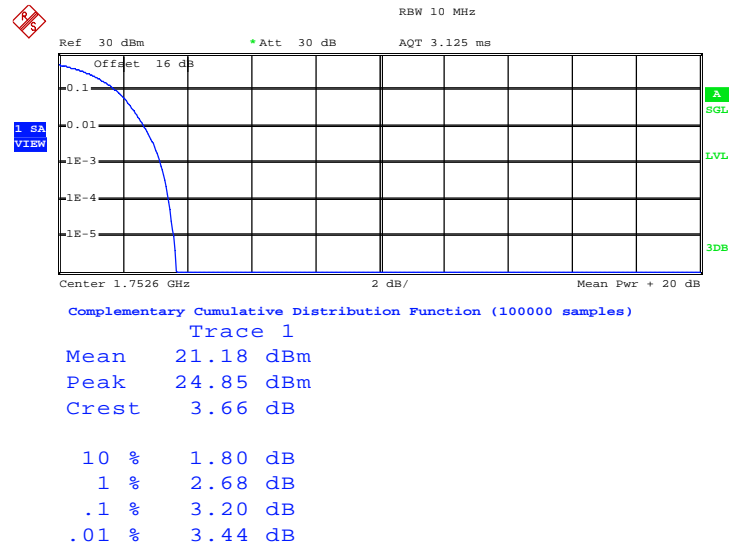
Date: 16.MAR.2015 22:29:56

**Peak-to-Average Ratio on Channel 1413 (1732.6 MHz)**


Date: 16.MAR.2015 22:29:23



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

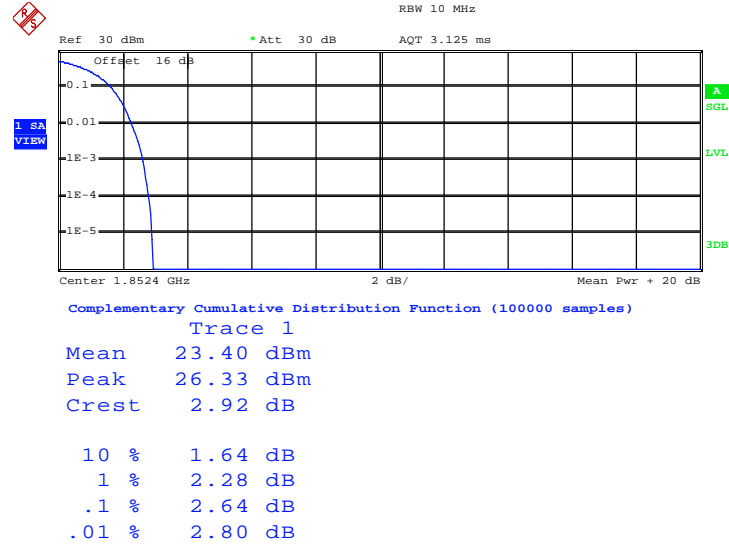


Date: 16.MAR.2015 22:28:46



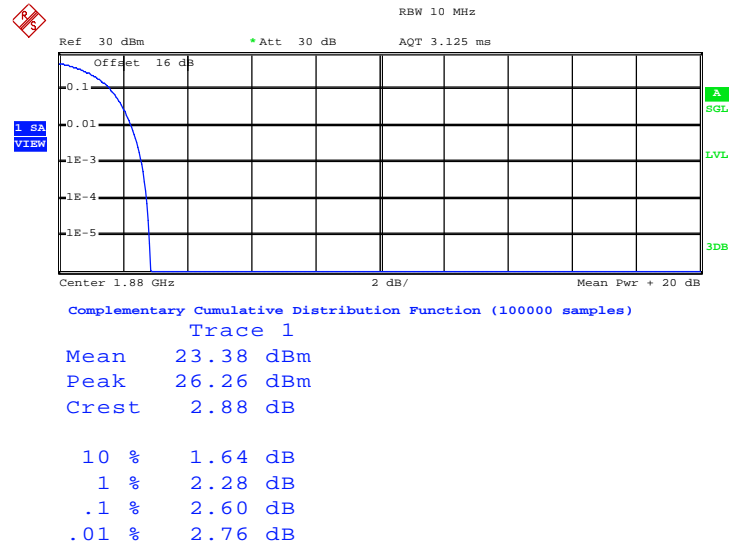
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)



Date: 16.MAR.2015 21:53:20

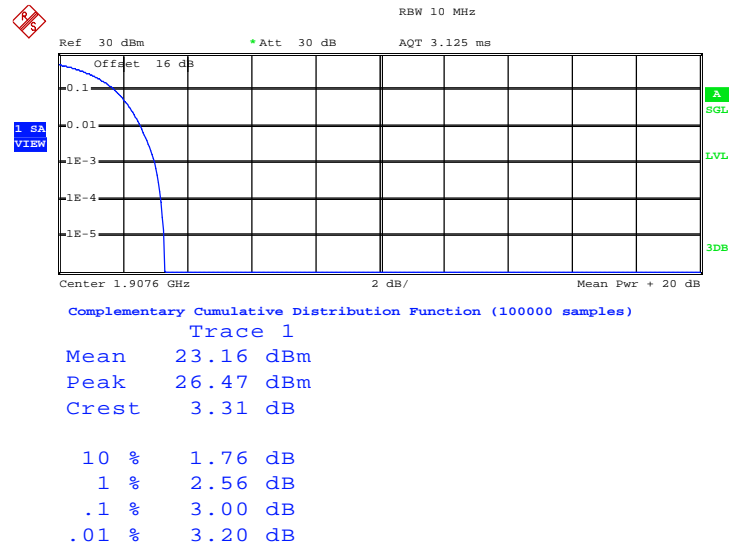
Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)



Date: 16.MAR.2015 21:54:05



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



Date: 16.MAR.2015 21:54:49



### 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 v02r02.

#### 3.3.2 Measuring Instruments

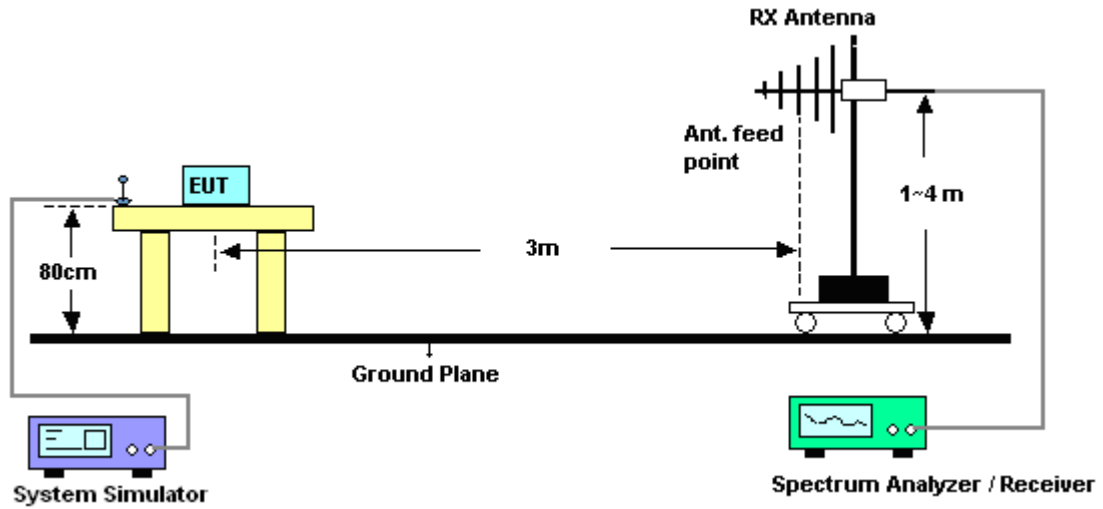
The measuring equipment is listed in the section 4 of this test report.

#### 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,  $EIRP = LVL + \text{Correction factor}$  and  $ERP = EIRP - 2.15$ .

	GSM/GPRS/EDGE	WCDMA/HSPA
SPAN	500kHz	10MHz
RBW	10kHz	100kHz
VBW	30kHz	300kHz
Detector	RMS	RMS
Trace	Average	Average
Average Type	Power	Power
Sweep Count	100	100

### 3.3.4 Test Setup



**3.3.5 Test Result of ERP**

<b>GSM850 (GSM) Radiated Power ERP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	128	28.3786	0.6884	18.1096	0.0647
Middle	189	28.7349	0.7473	18.8185	0.0762
Highest	251	28.8624	0.7696	19.4067	0.0872
Limit	ERP < 7W	Result		PASS	

<b>GSM850 (EDGE class 8) Radiated Power ERP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	128	22.3570	0.1721	12.0519	0.0160
Middle	189	22.5846	0.1813	12.8193	0.0191
Highest	251	23.1850	0.2082	13.6122	0.0230
Limit	ERP < 7W	Result		PASS	

<b>WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	4132	20.0542	0.1013	9.1066	0.0081
Middle	4183	19.9053	0.0978	9.5828	0.0091
Highest	4233	19.5529	0.0902	9.5806	0.0091
Limit	ERP < 7W	Result		PASS	

**3.3.6 Test Result of EIRP**

<b>GSM1900 (GSM) Radiated Power EIRP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	512	29.4010	0.8712	29.7268	0.9390
Middle	661	29.3720	0.8654	30.1699	1.0399
Highest	810	30.1723	1.0405	30.8300	1.2106
Limit	EIRP < 2W	Result		PASS	

<b>GSM1900 (EDGE class 8) Radiated Power EIRP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	512	25.6834	0.3701	26.5642	0.4533
Middle	661	26.0892	0.4064	26.7859	0.4771
Highest	810	25.8162	0.3816	27.1719	0.5214
Limit	EIRP < 2W	Result		PASS	

<b>WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	9262	24.0098	0.2518	23.8956	0.2452
Middle	9400	23.6602	0.2323	23.6213	0.2302
Highest	9538	23.5813	0.2281	23.8382	0.2420
Limit	EIRP < 2W	Result		PASS	

<b>WCDMA Band IV(RMC 12.2Kbps) Radiated Power EIRP</b>					
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Horizontal</b>		<b>Vertical</b>	
		<b>ERP(dBm)</b>	<b>ERP(W)</b>	<b>ERP(dBm)</b>	<b>ERP(W)</b>
Lowest	1312	23.5334	0.2256	23.7993	0.2398
Middle	1413	24.8934	0.3086	25.0236	0.3180
Highest	1513	24.8800	0.3076	24.9029	0.3092
Limit	EIRP < 1W	Result		PASS	

### 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.

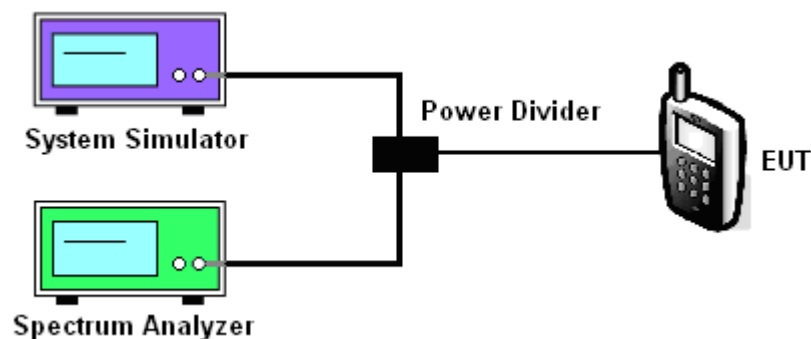
#### 3.4.2 Measuring Instruments

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 v02r02 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, peak 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 (GSM)			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)	248.00	242.00	244.00	246.00	244.00	244.00
26dB BW (kHz)	314.00	316.00	308.00	310.00	310.00	308.00

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)	246.00	244.00	242.00	246.00	246.00	246.00
26dB BW (kHz)	316.00	314.00	316.00	310.00	312.00	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)	4.14	4.16	4.16
26dB BW (MHz)	4.68	4.68	4.68

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	4.70	4.70

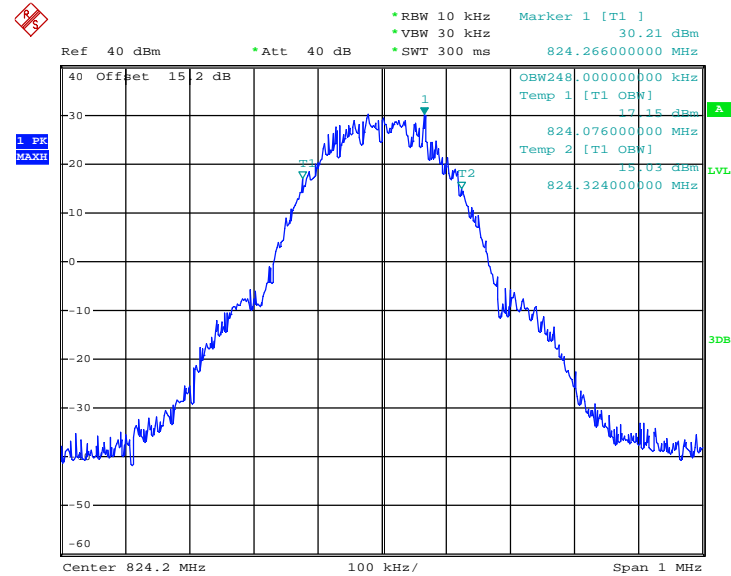


PCS Band			
Modes	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (MHz)	4.18	4.18	4.18
26dB BW (MHz)	4.70	4.68	4.68

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

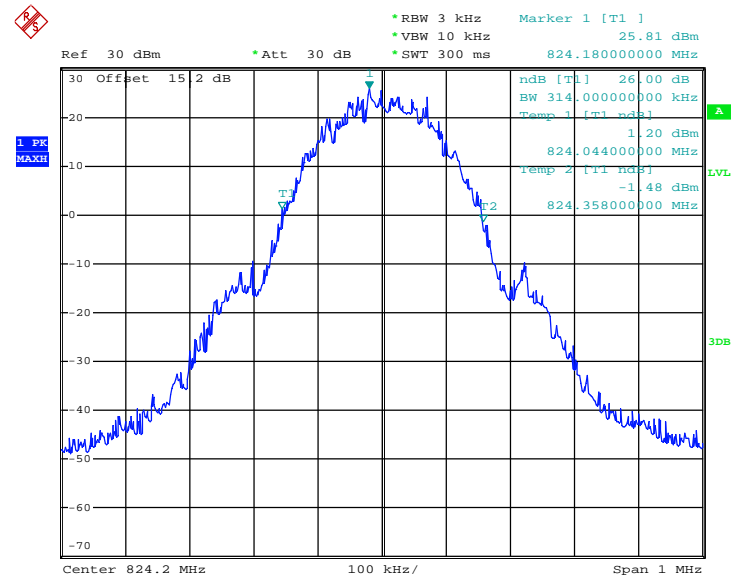
<b>Band :</b>	GSM 850	<b>Test Mode :</b>	GSM Link (GMSK)
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#### 99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 16.MAR.2015 19:07:43

#### 26dB Bandwidth Plot on Channel 128 (824.2 MHz)

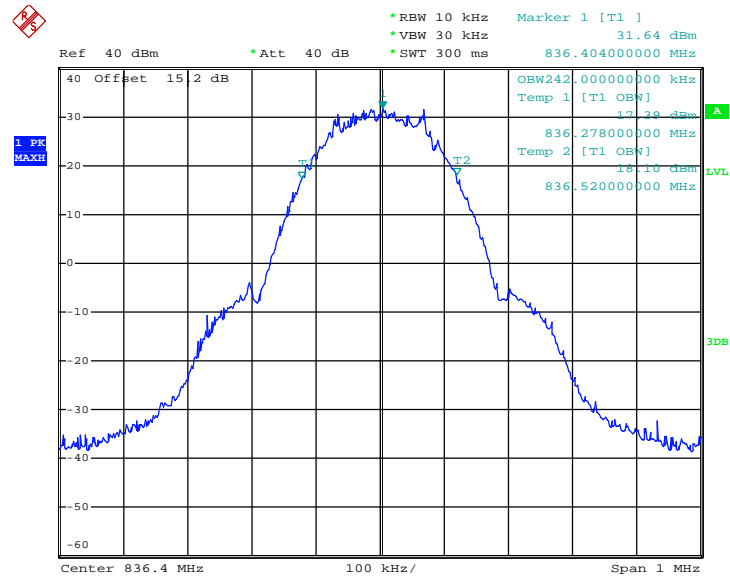


Date: 16.MAR.2015 19:00:51



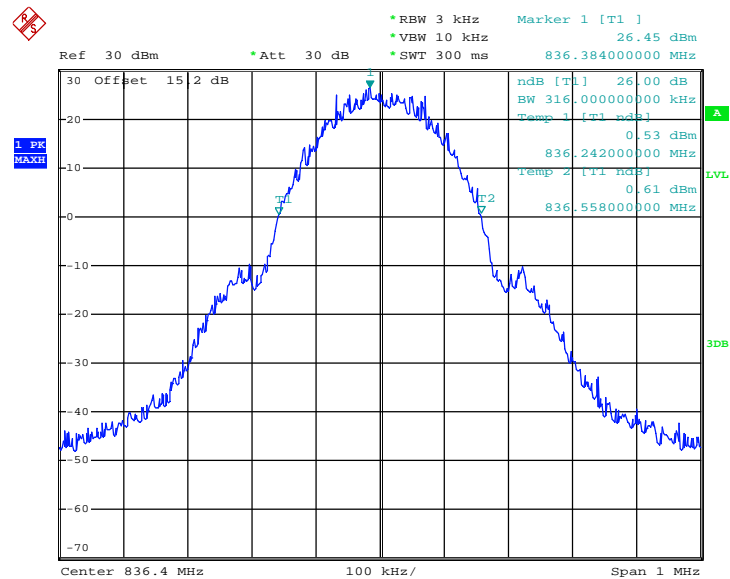


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 16.MAR.2015 19:06:41

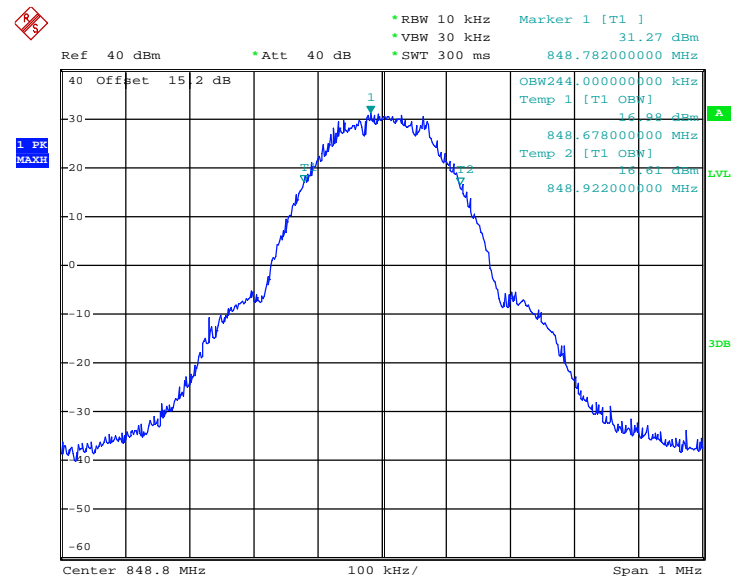
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 16.MAR.2015 19:02:02

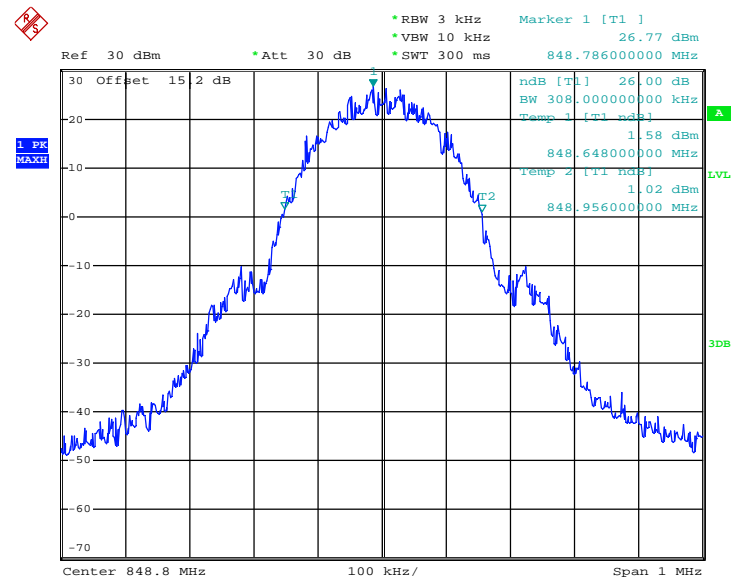


### 99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 16.MAR.2015 19:04:57

### 26dB Bandwidth Plot on Channel 251 (848.8 MHz)

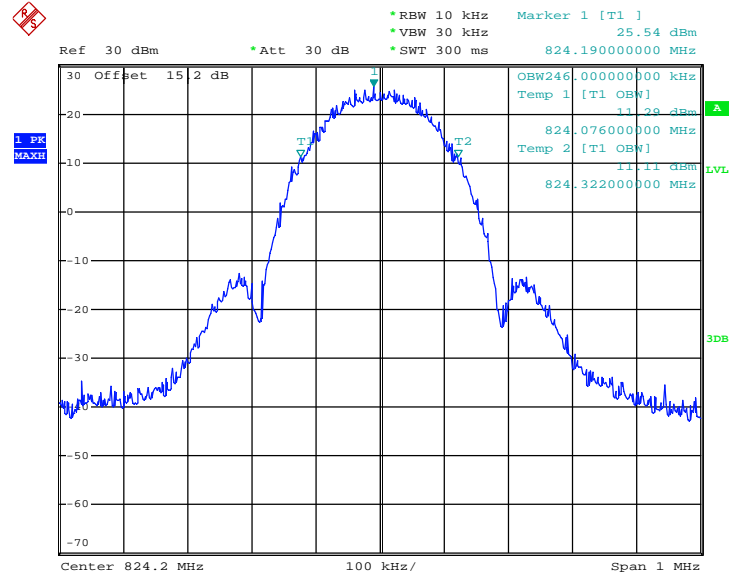


Date: 16.MAR.2015 19:02:48



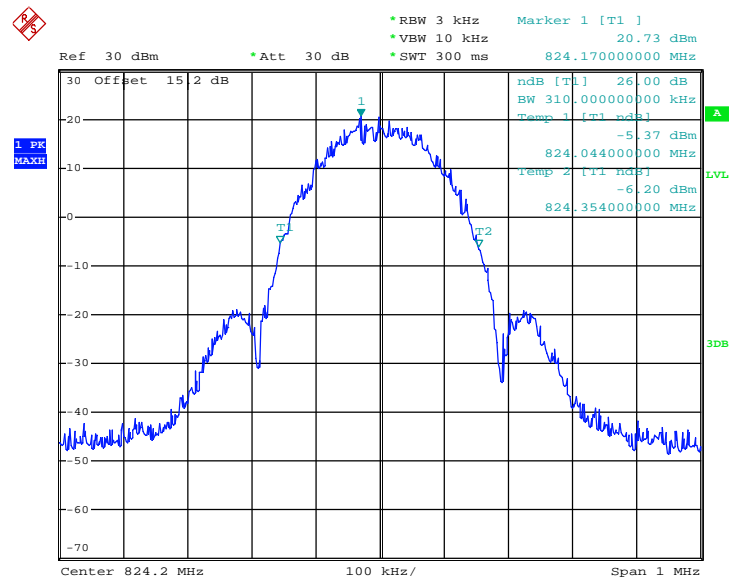
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)

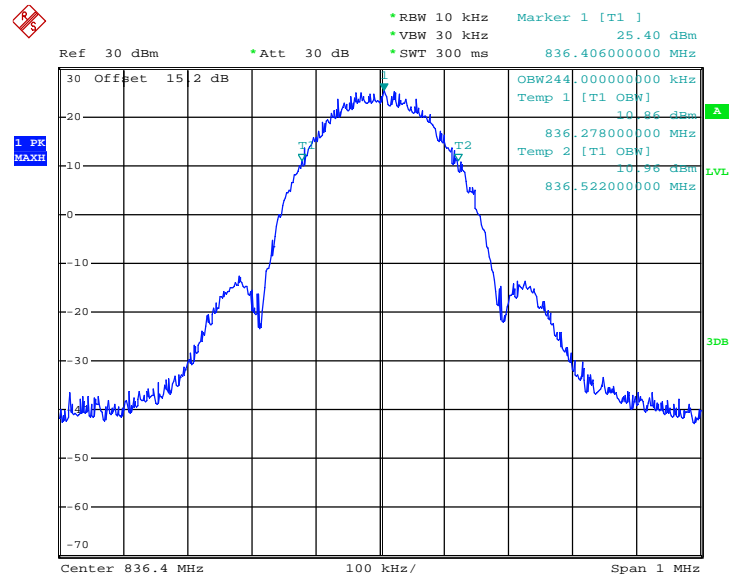


Date: 16.MAR.2015 20:29:03

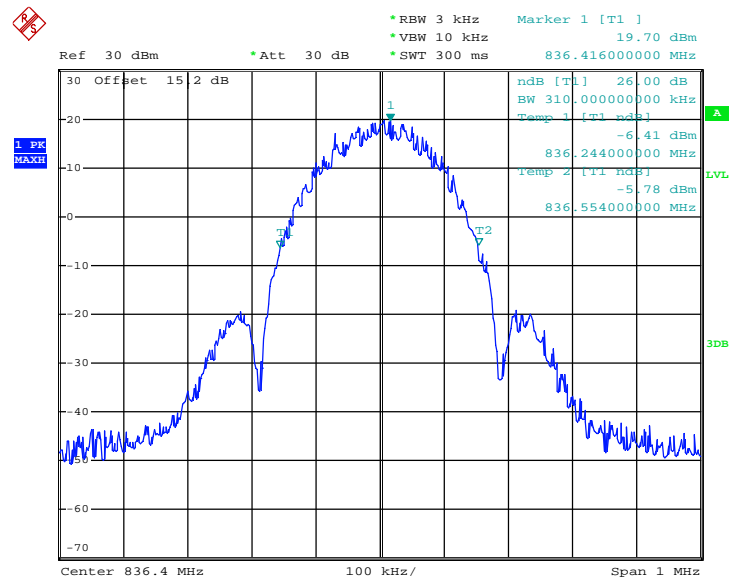
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 16.MAR.2015 20:22:49

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


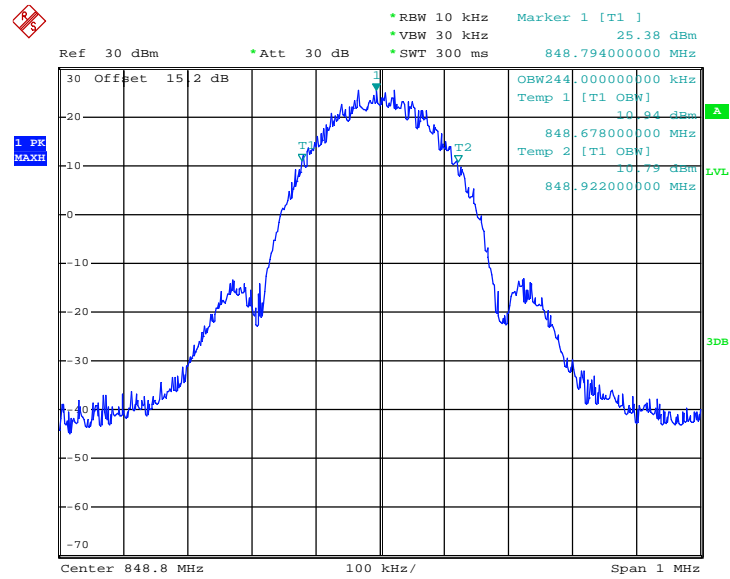
Date: 16.MAR.2015 20:28:15

**26dB Bandwidth Plot on Channel 189 (836.4 MHz)**


Date: 16.MAR.2015 20:24:23

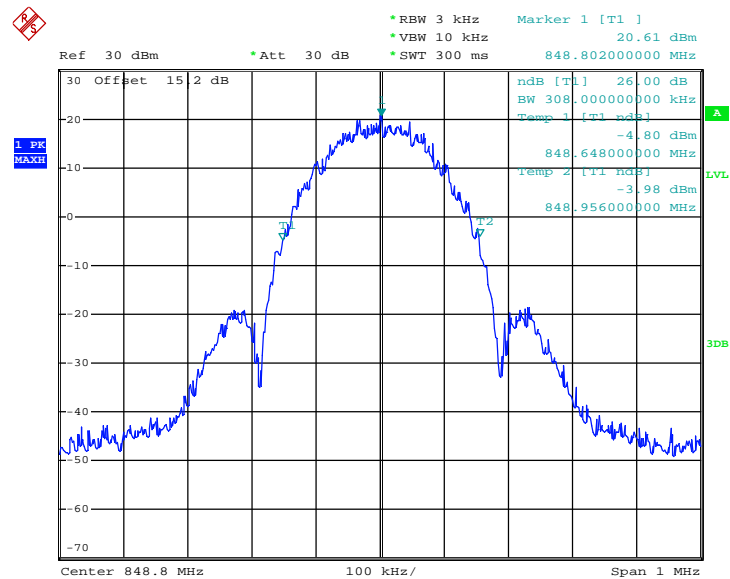


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 16.MAR.2015 20:27:31

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

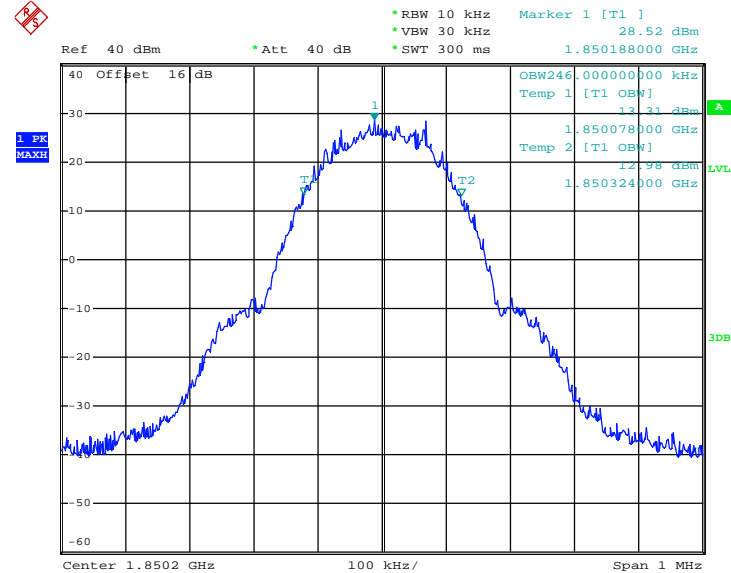


Date: 16.MAR.2015 20:25:28



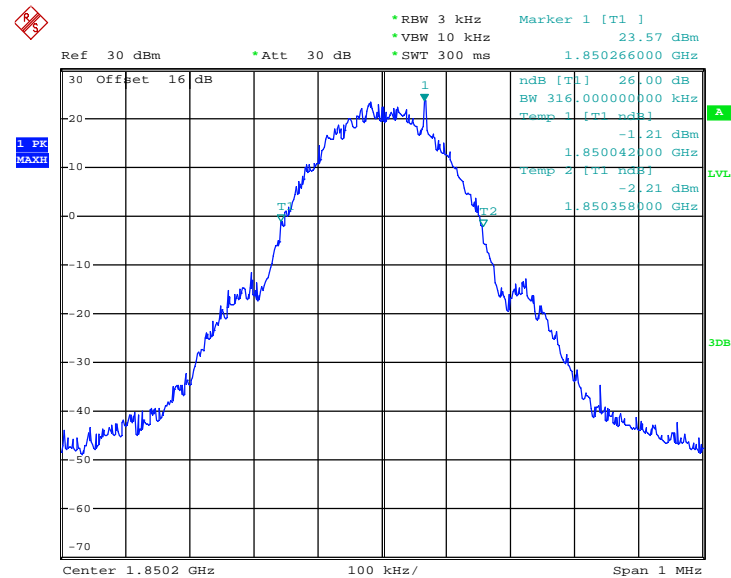
Band :	GSM 1900	Test Mode :	GSM Link (GMSK)
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## 99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 16.MAR.2015 23:02:00

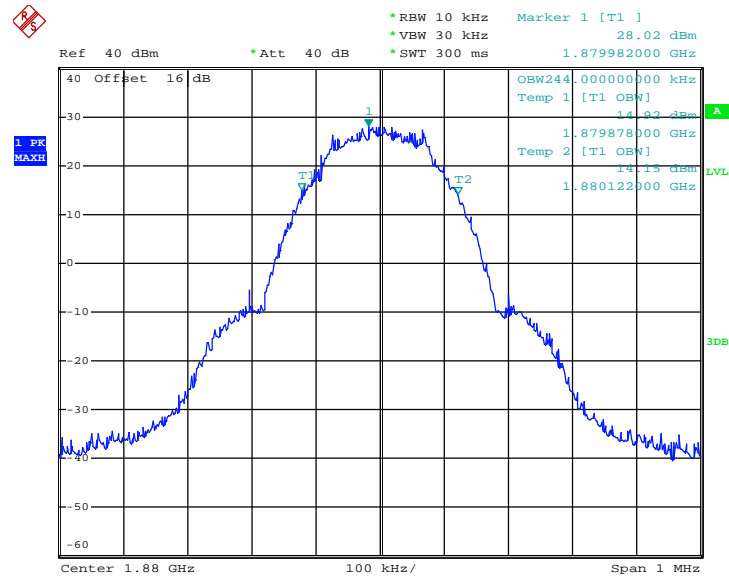
## 26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 16.MAR.2015 22:50:41

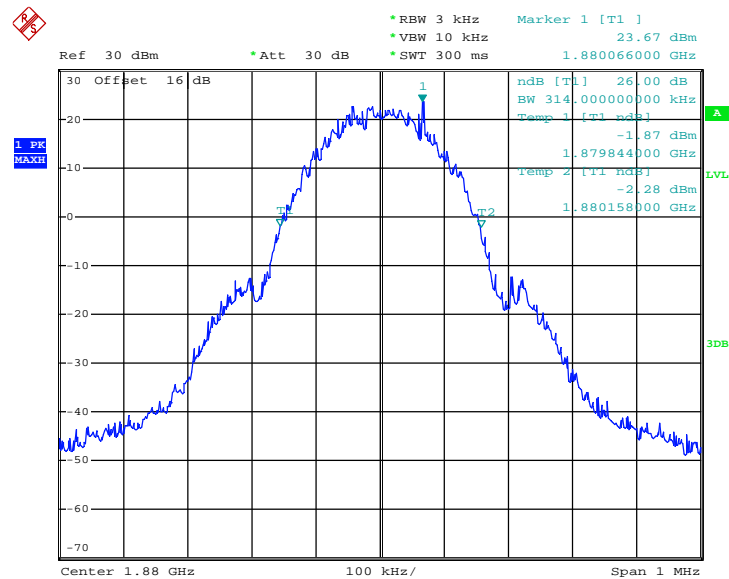


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 16.MAR.2015 23:00:14

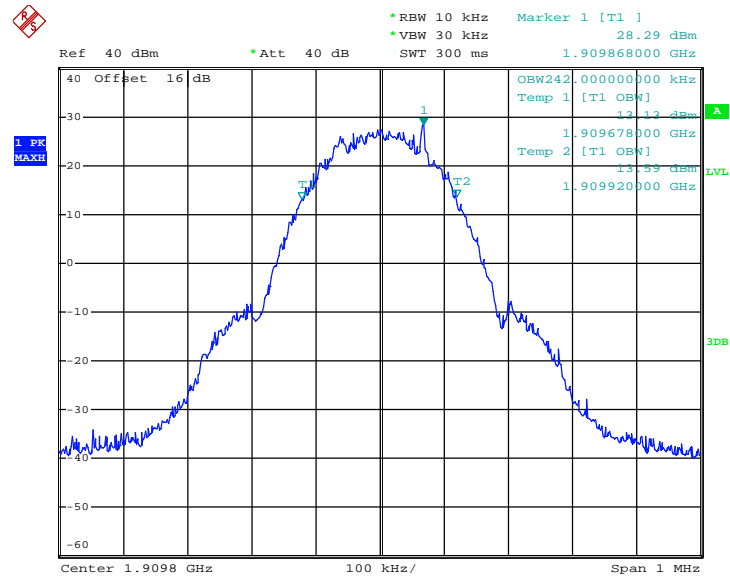
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 16.MAR.2015 22:52:07

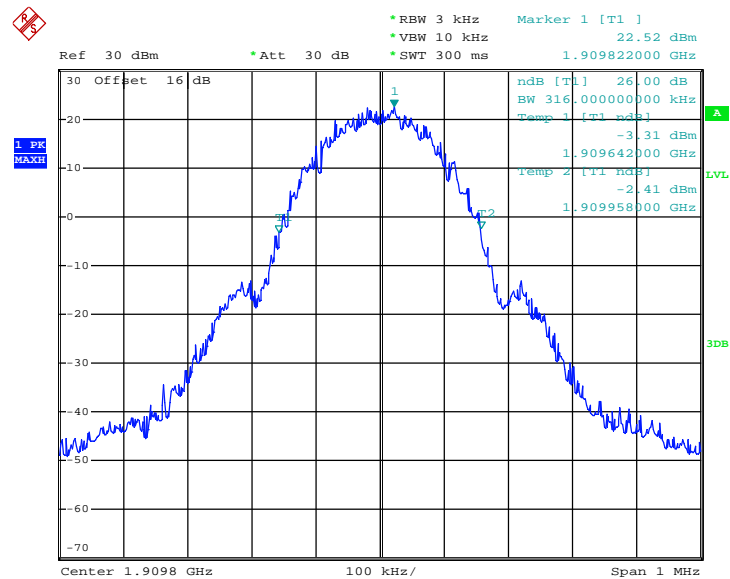


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 16.MAR.2015 22:56:31

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)



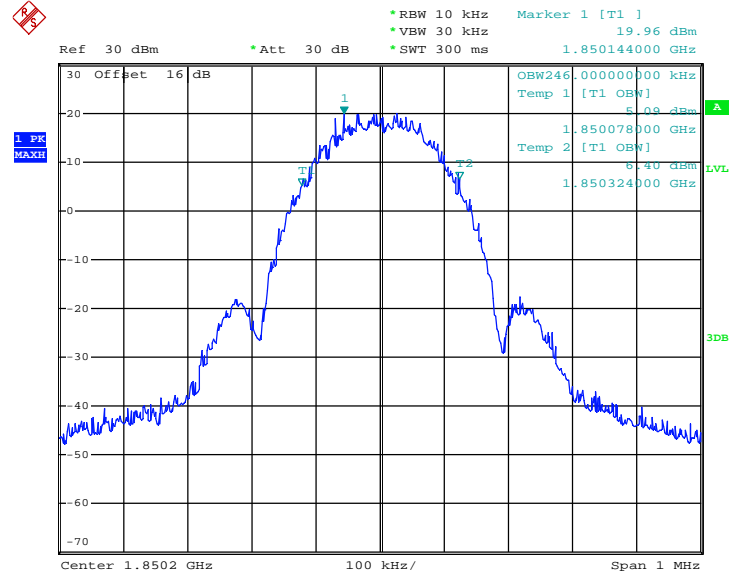
Date: 16.MAR.2015 23:33:43





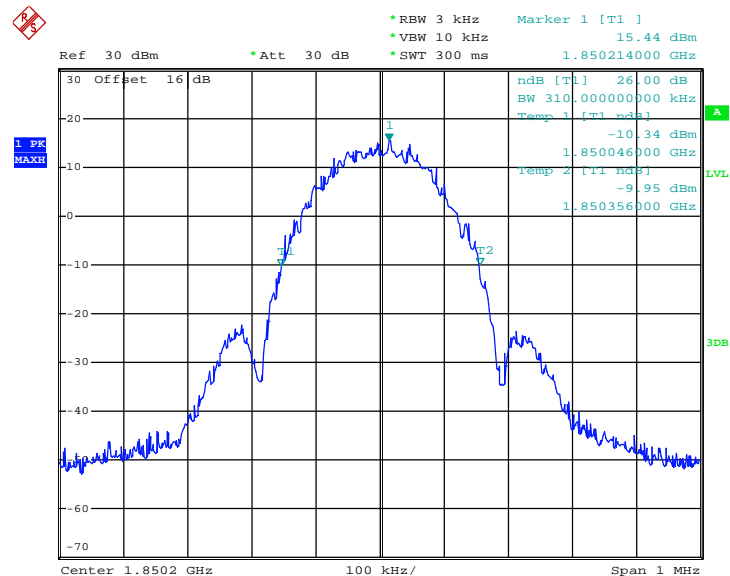
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 17.MAR.2015 00:03:59

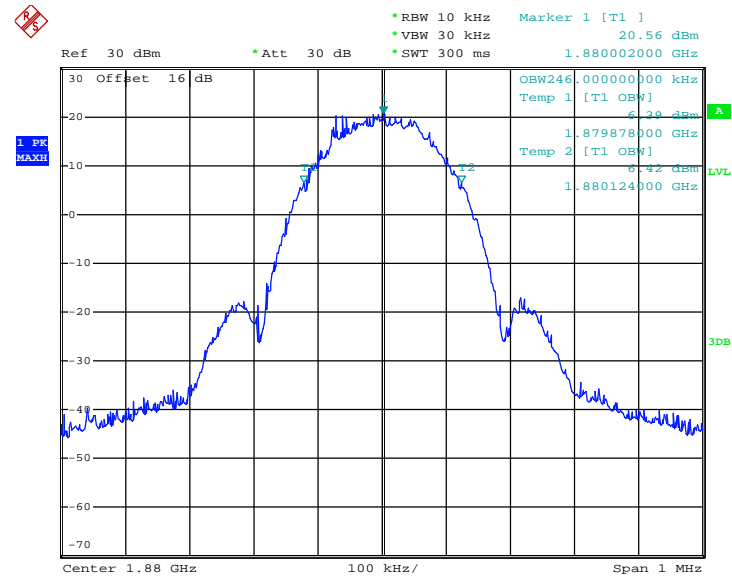
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 16.MAR.2015 23:59:15

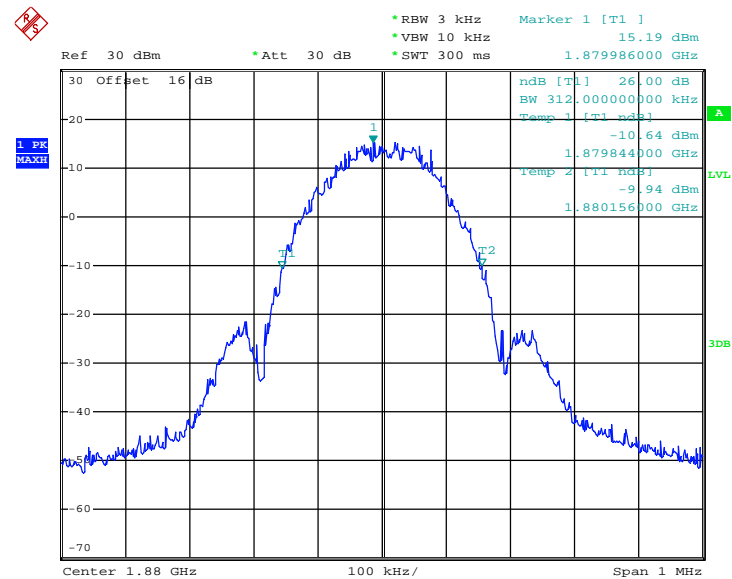


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 17.MAR.2015 00:03:02

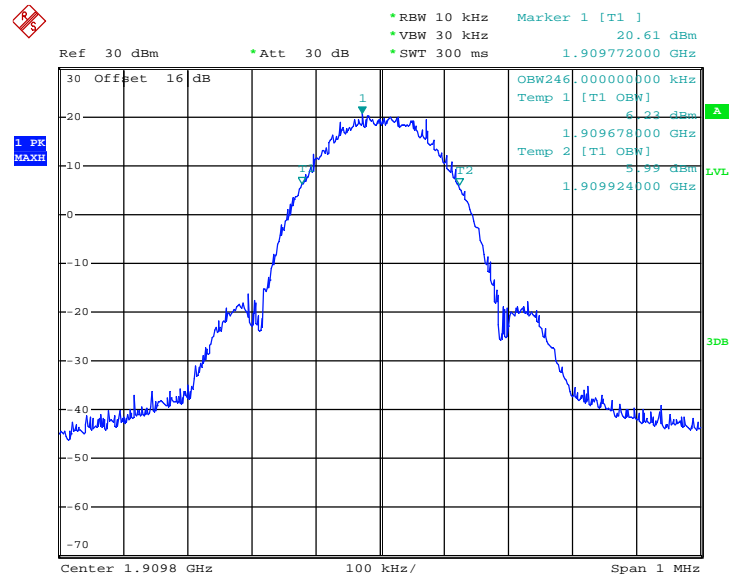
26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



Date: 16.MAR.2015 23:59:54

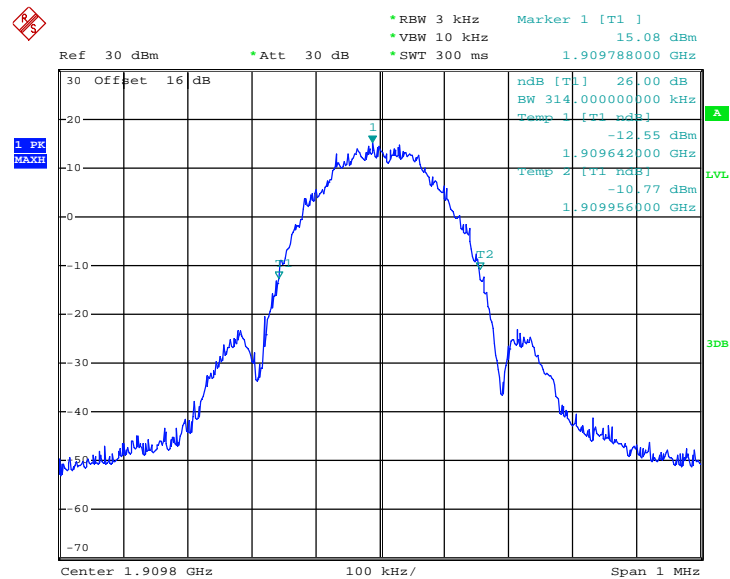


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 17.MAR.2015 00:02:33

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

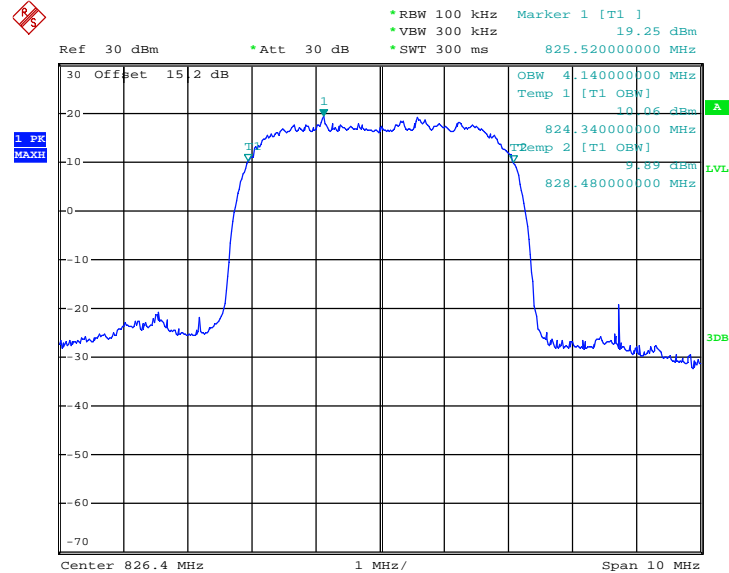


Date: 17.MAR.2015 00:00:29



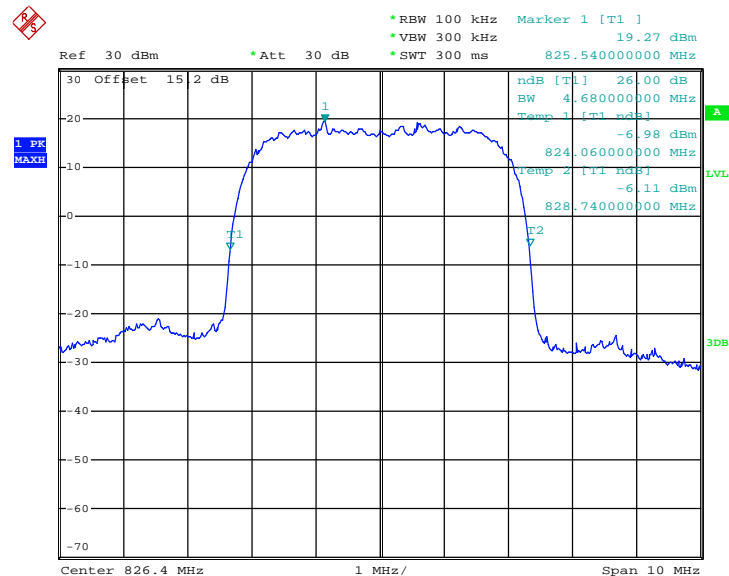
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 16.MAR.2015 21:01:42

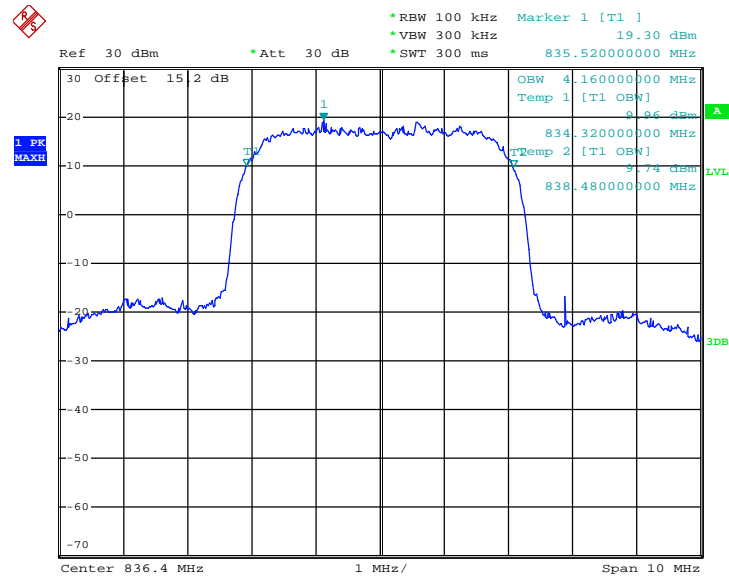
26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 16.MAR.2015 20:58:08

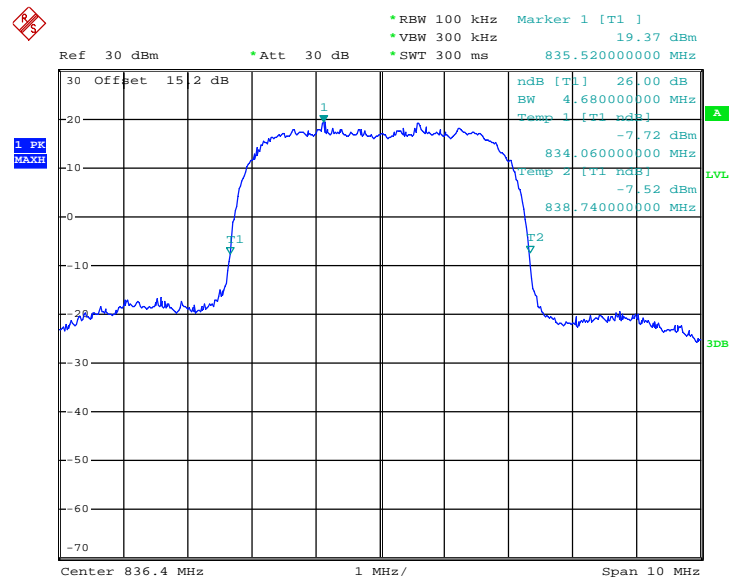


99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 16.MAR.2015 21:01:08

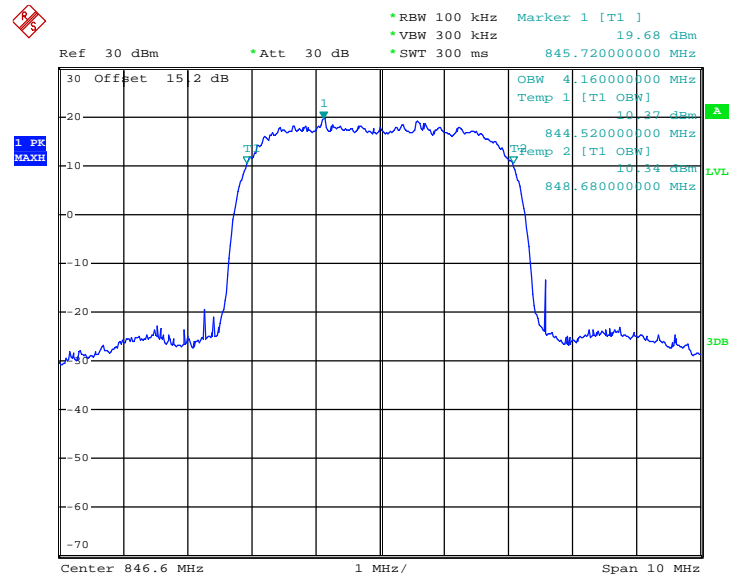
26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 16.MAR.2015 20:59:03

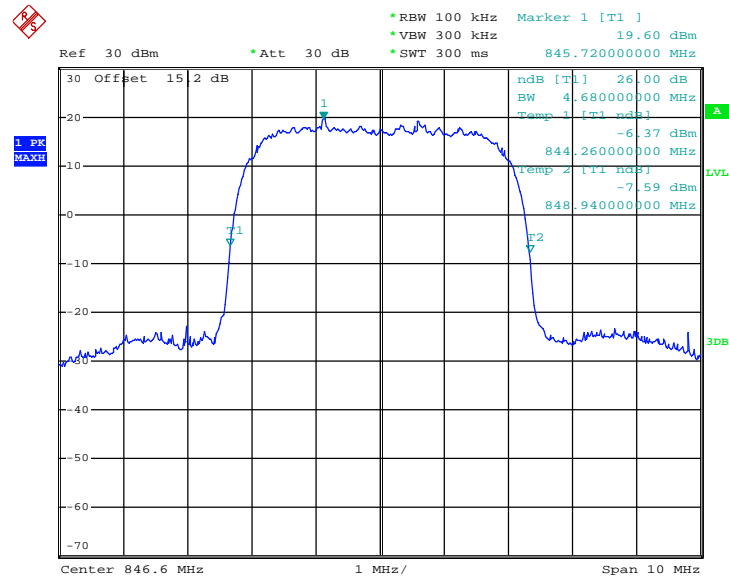


99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 16.MAR.2015 21:00:36

26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

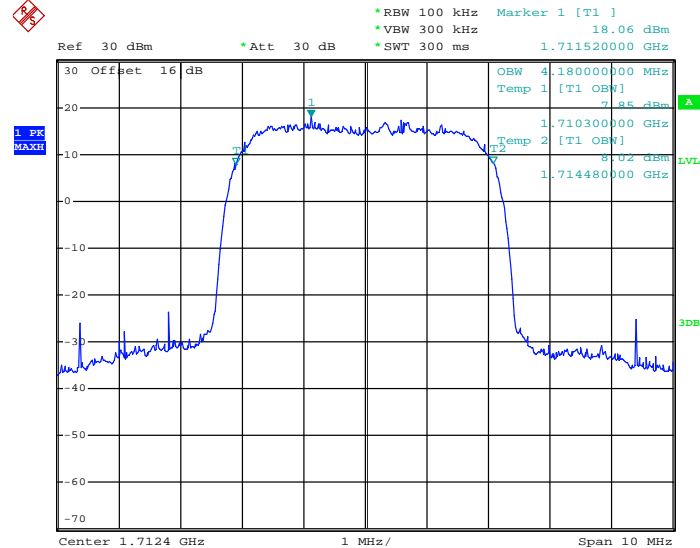


Date: 16.MAR.2015 20:59:37



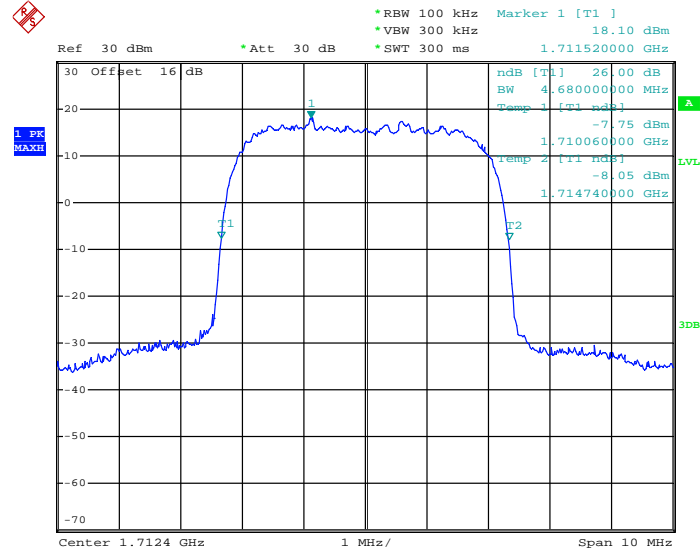
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 16.MAR.2015 22:25:46

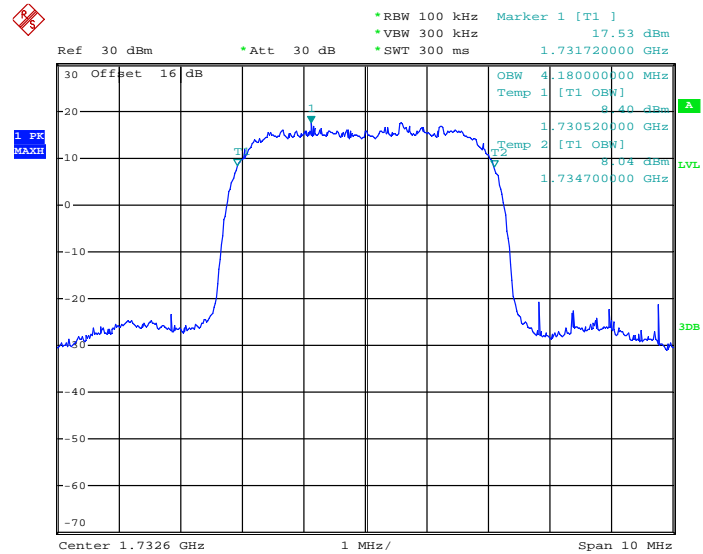
26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 16.MAR.2015 22:22:59

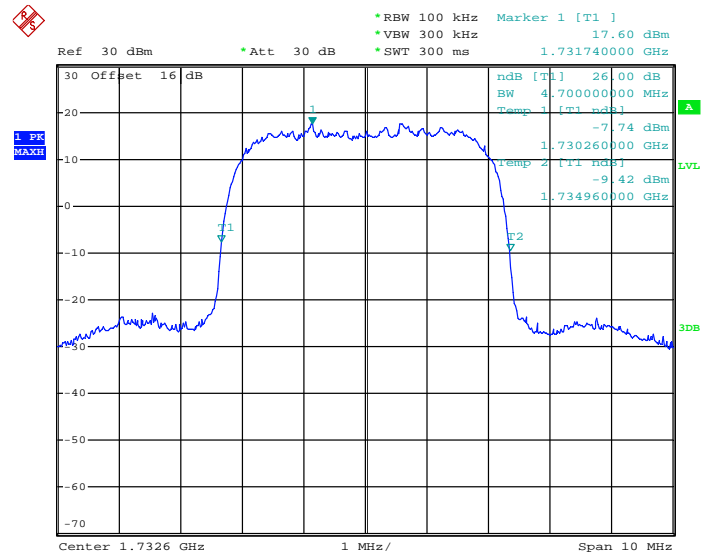


### 99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 16.MAR.2015 22:25:26

### 26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)

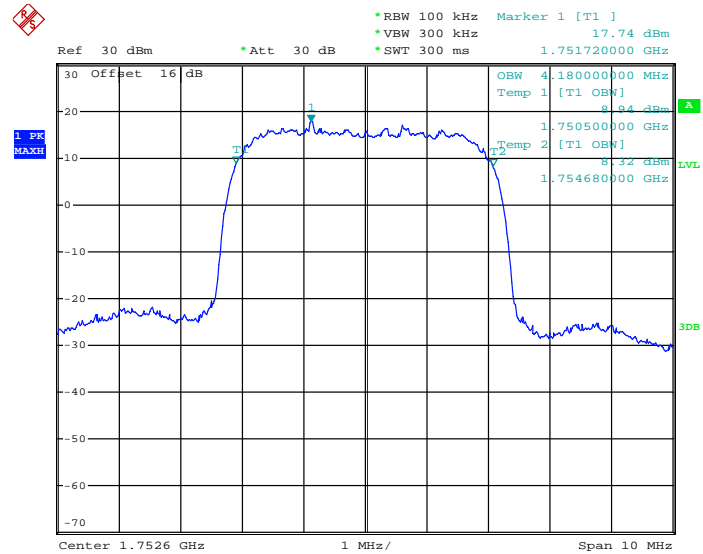


Date: 16.MAR.2015 22:23:31



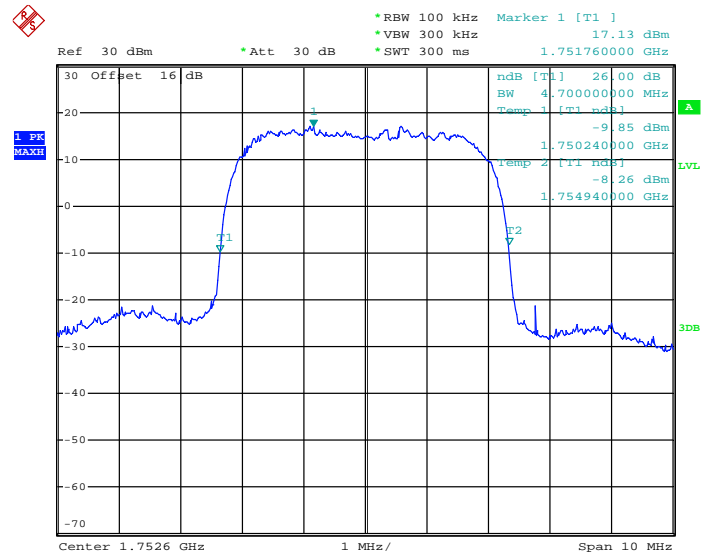


### 99% Occupied Bandwidth Plot on Channel 1513 (1752.6 MHz)



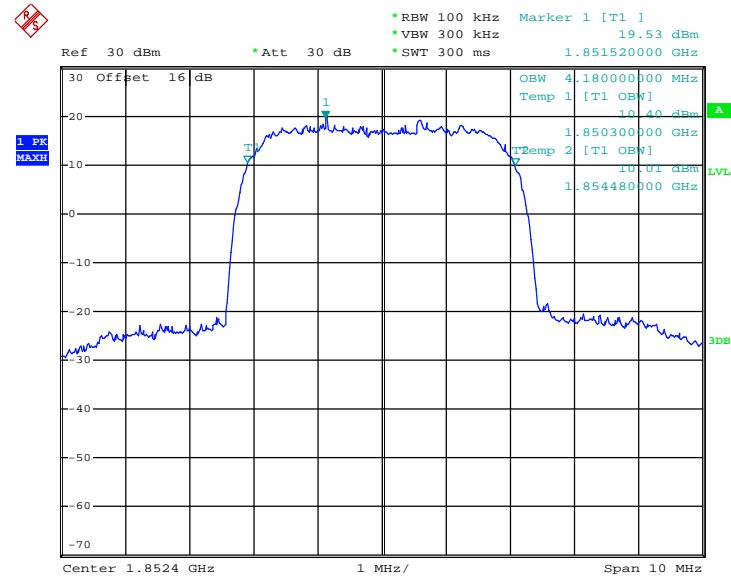
Date: 16.MAR.2015 22:25:03

### 26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)

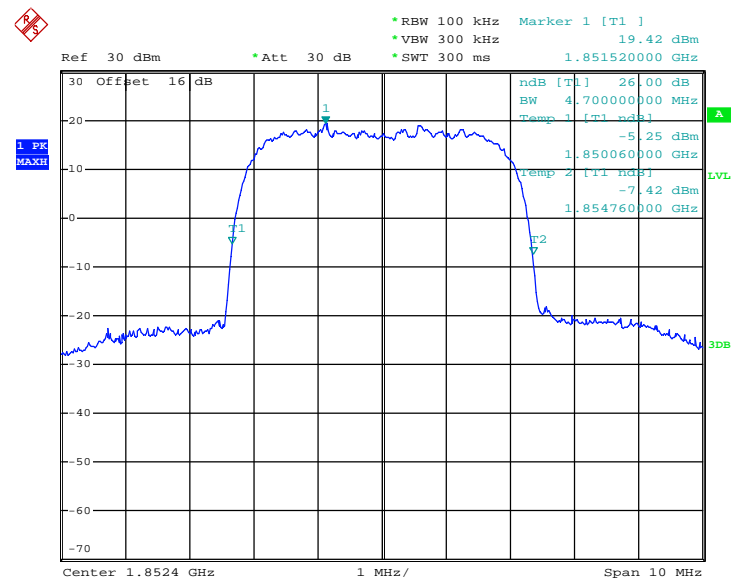


Date: 16.MAR.2015 22:24:06

<b>Band :</b>	WCDMA Band II	<b>Test Mode :</b>	RMC 12.2Kbps Link (QPSK)
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**99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)**


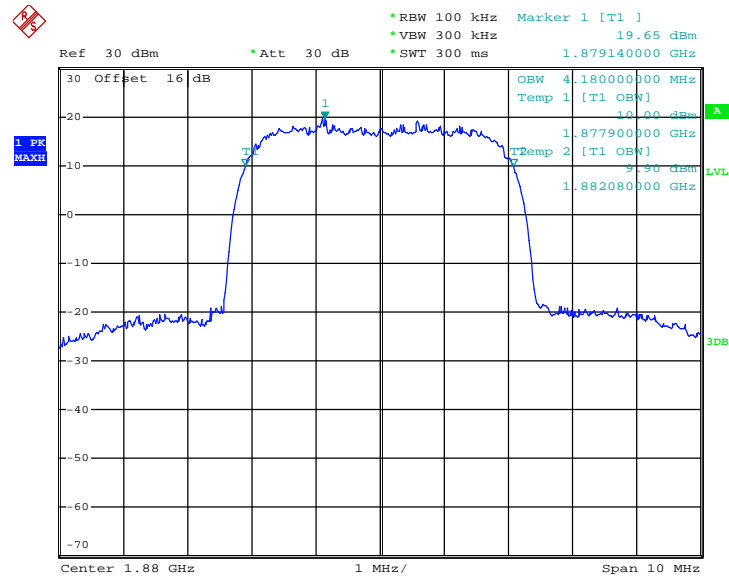
Date: 16.MAR.2015 21:49:57

**26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)**


Date: 16.MAR.2015 21:46:49

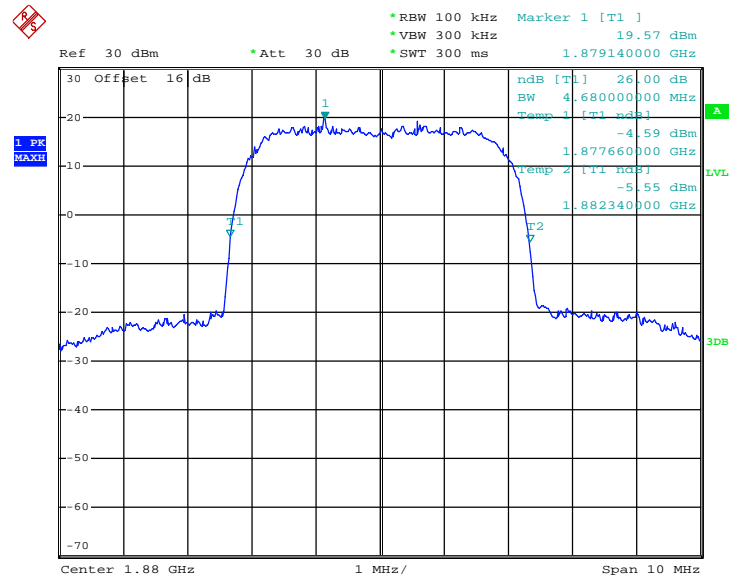


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 16.MAR.2015 21:49:26

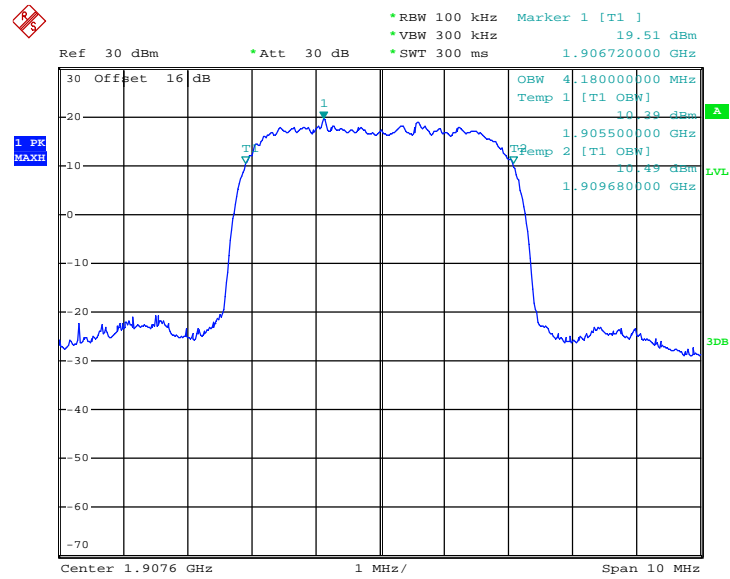
26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 16.MAR.2015 21:47:14

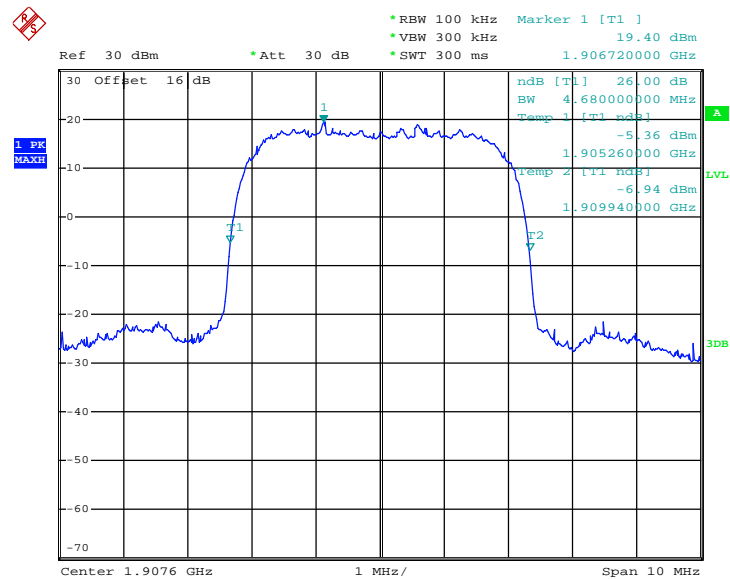


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 16.MAR.2015 21:48:59

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 16.MAR.2015 21:47:46

### 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.

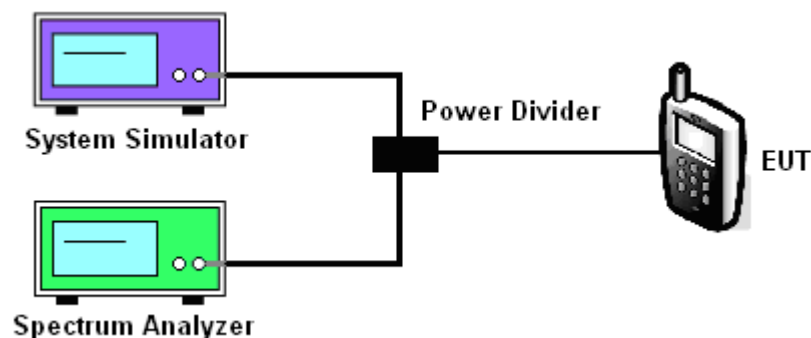
#### 3.5.2 Measuring Instruments

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 v02r02 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  $43 + 10\log(P)$  dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$   
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
 $= -13\text{dBm}.$

#### 3.5.4 Test Setup

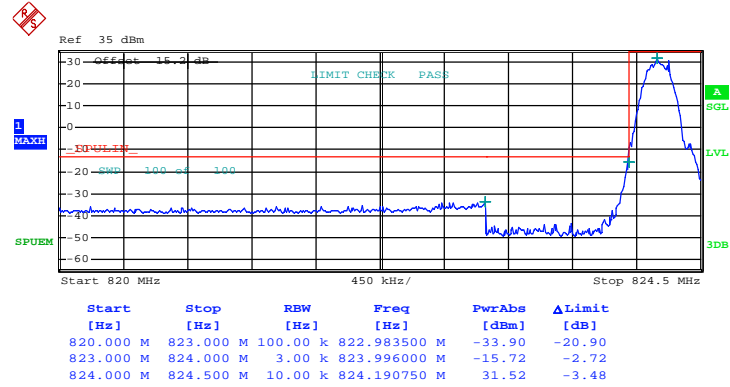




## 3.5.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Test Mode :	GSM Link (GMSK)
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## Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 16.MAR.2015 19:21:14



Ref 35 dBm

SPULIN

LIMIT CHECK PASS

Start 848 MHz

700 kHz/

Stop 855 MHz

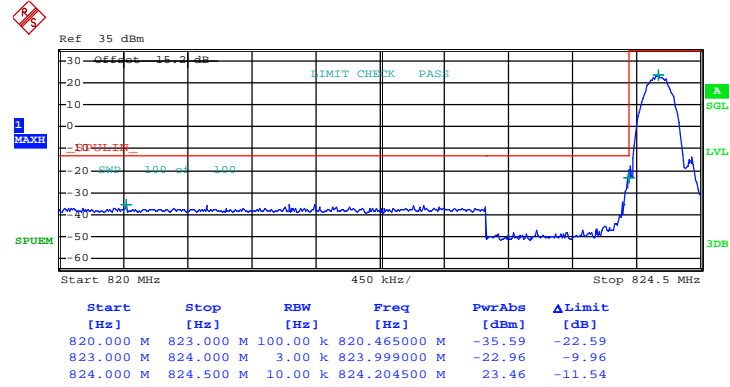
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
848.000 M	849.000 M	10.00 k	848.868500 M	-26.35	-8.65
849.000 M	850.000 M	3.00 k	849.022000 M	-13.96	-0.96
850.000 M	855.000 M	100.00 k	850.067500 M	-30.03	-17.03

Date: 24.MAR.2015 10:04:57



Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



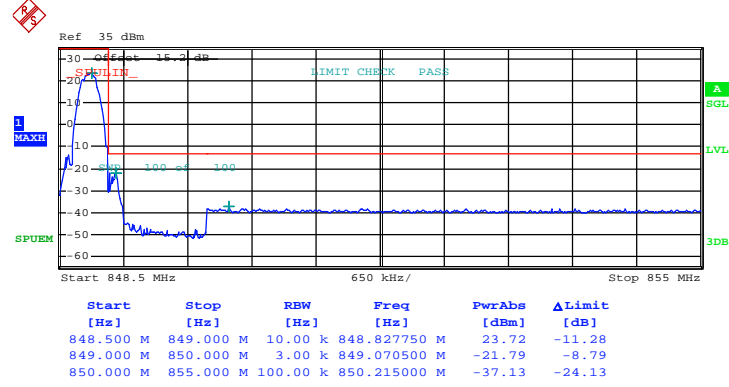
Date: 16.MAR.2015 20:36:41





Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
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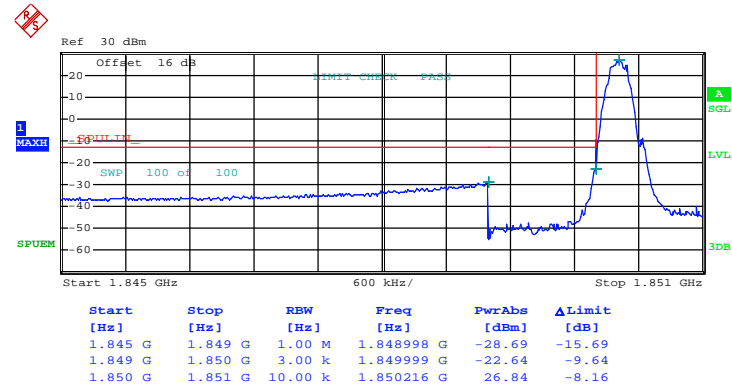
Higher Band Edge Plot on Channel 251 (848.8 MHz)



Date: 16.MAR.2015 20:39:10

<b>Band :</b>	GSM1900	<b>Test Mode :</b>	GSM Link (GMSK)
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### Lower Band Edge Plot on Channel 512 (1850.2 MHz)

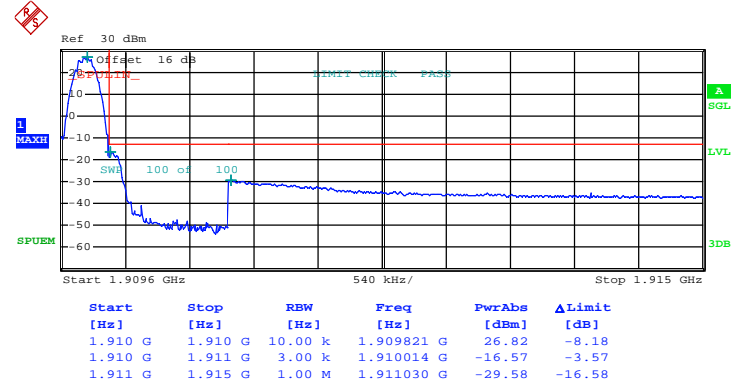


Date: 16.MAR.2015 23:07:17



Band :	GSM1900	Test Mode :	GSM Link (GMSK)
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Higher Band Edge Plot on Channel 810 (1909.8 MHz)

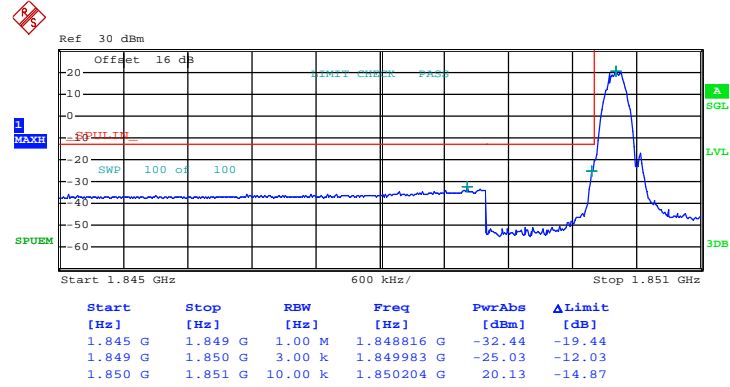


Date: 16.MAR.2015 23:09:29



Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)

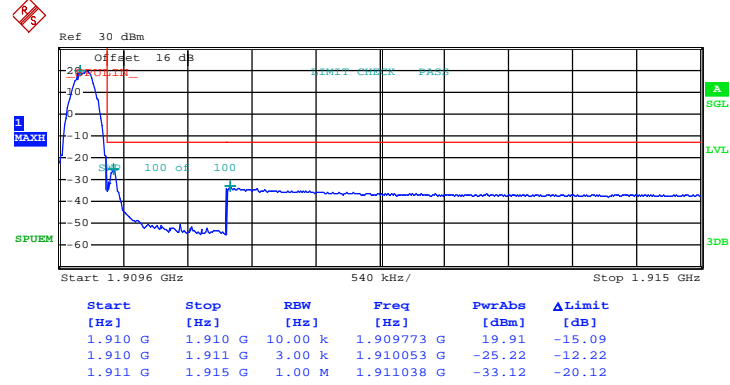


Date: 17.MAR.2015 00:12:05



Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
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Higher Band Edge Plot on Channel 810 (1909.8 MHz)

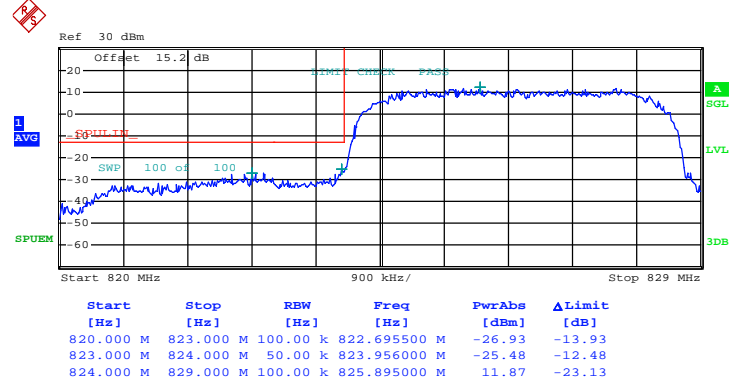


Date: 17.MAR.2015 00:15:12



Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 4132 (826.4 MHz)

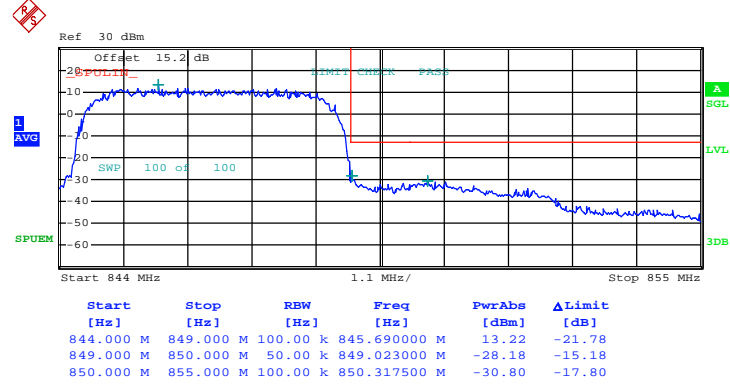


Date: 16.MAR.2015 21:07:38



Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Higher Band Edge Plot on Channel 4233 (846.6 MHz)

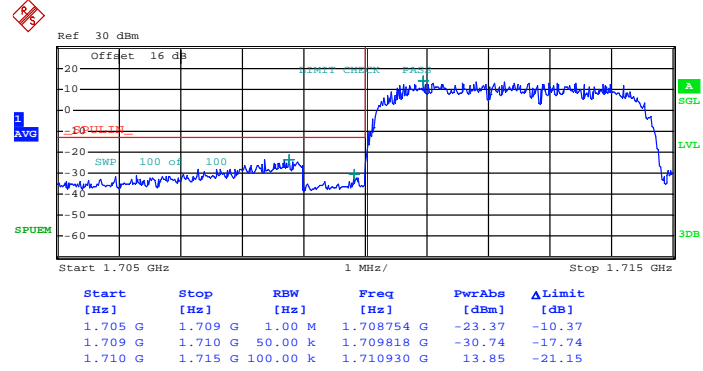


Date: 16.MAR.2015 21:09:35



Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



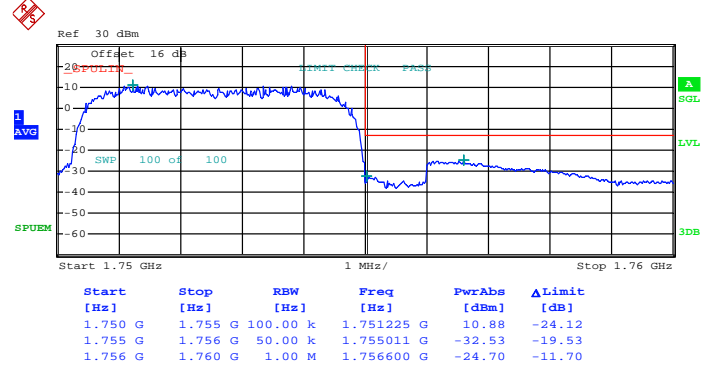
Date: 17.MAR.2015 15:29:46





Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Higher Band Edge Plot on Channel 1513 (1752.6 MHz)

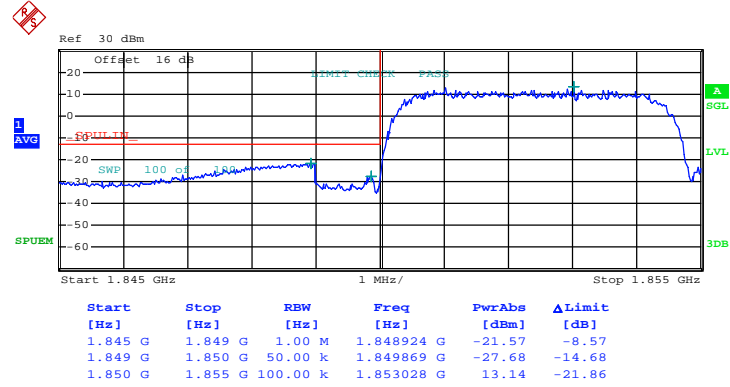


Date: 16.MAR.2015 22:35:44



Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 9262 (1852.4 MHz)

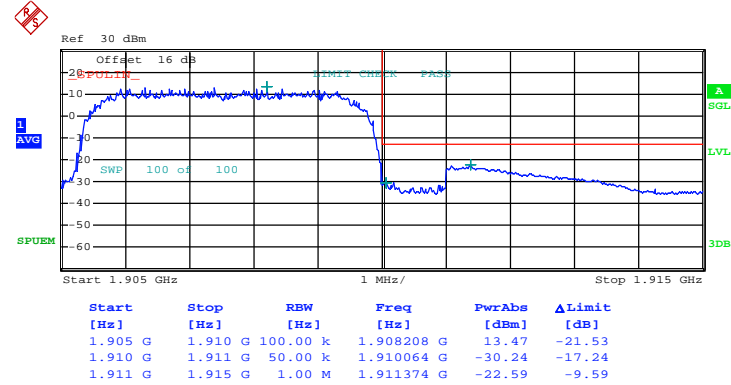


Date: 16.MAR.2015 21:57:56



Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Date: 16.MAR.2015 22:00:04

## 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<sup>th</sup> harmonic.

### 3.6.2 Measuring Instruments

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

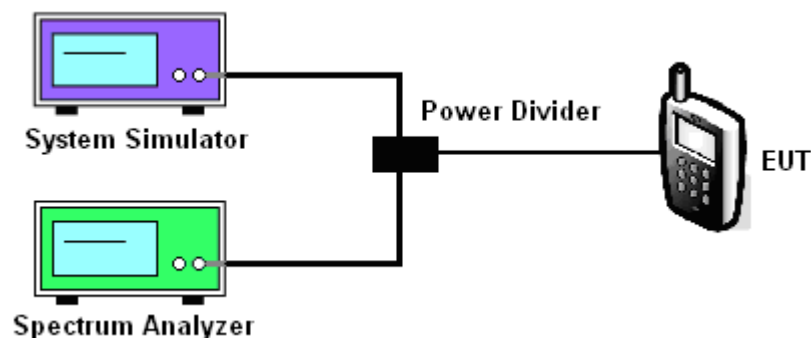
### 3.6.3 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 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  $43 + 10\log(P)$  dB below the transmitter power P(Watts)
 
$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

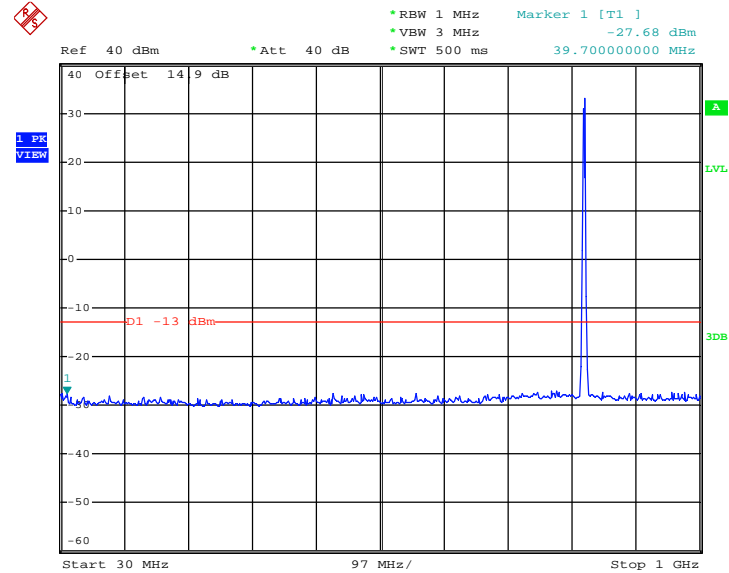
$$= -13\text{dBm}.$$

### 3.6.4 Test Setup

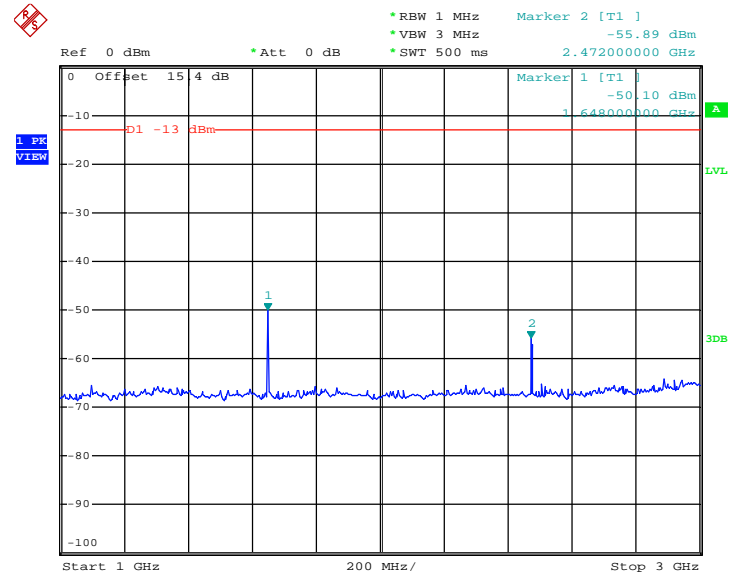


### 3.6.5 Test Result (Plots) of Conducted Spurious Emission

<b>Band :</b>	GSM850	<b>Channel :</b>	CH128
<b>Test Mode :</b>	GSM Link (GMSK)	<b>Frequency :</b>	824.2 MHz

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**


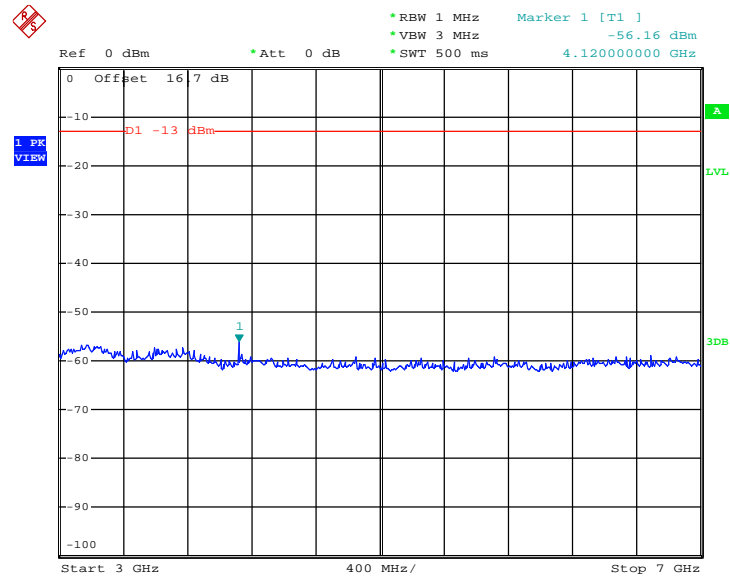
Date: 16.MAR.2015 19:52:31

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**


Date: 16.MAR.2015 19:58:14

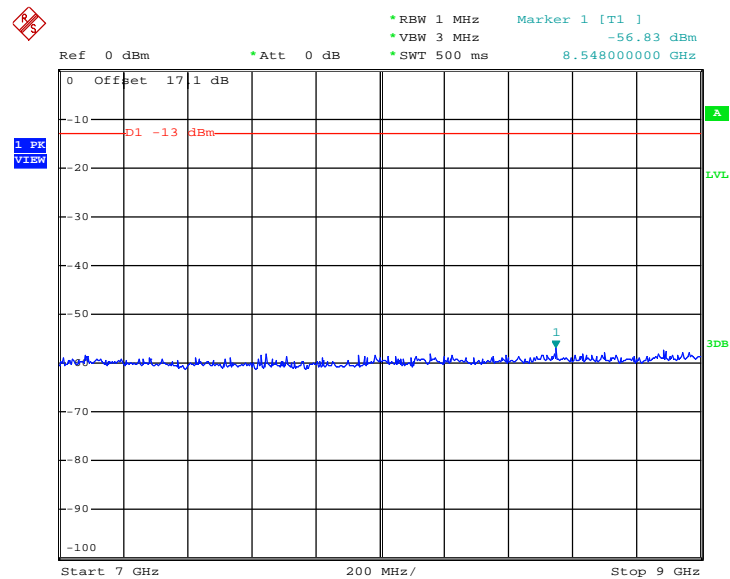


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 19:59:37

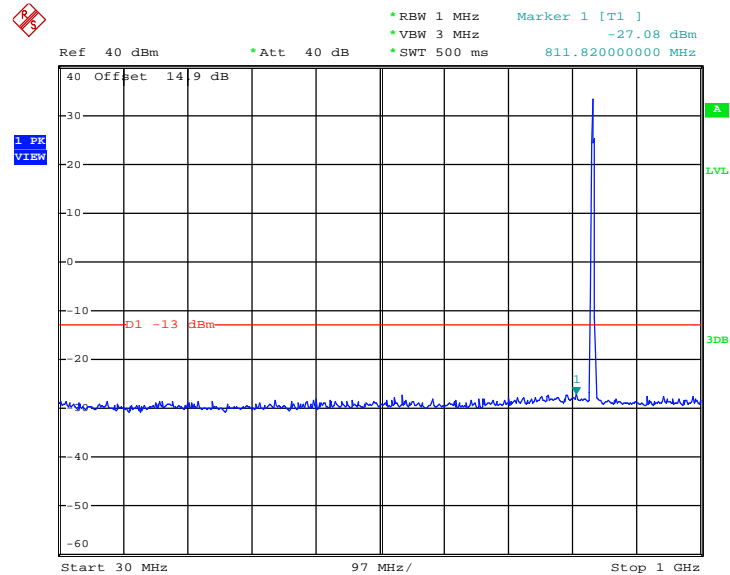
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



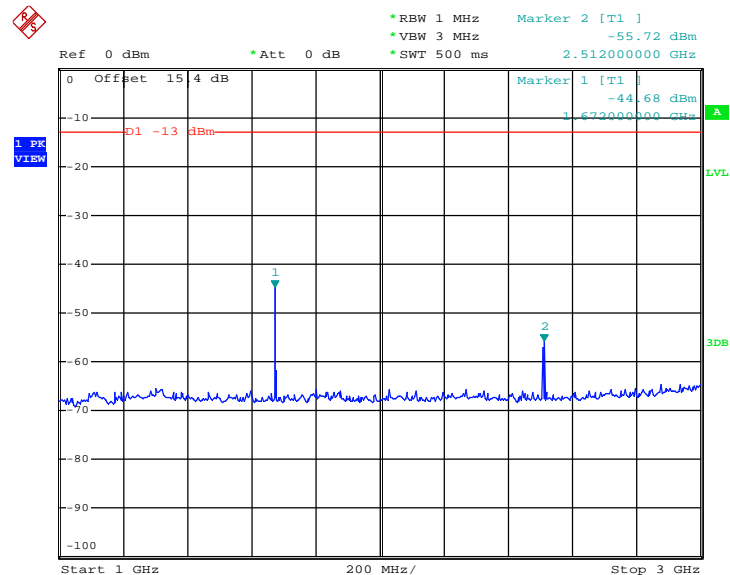
Date: 16.MAR.2015 20:03:47



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

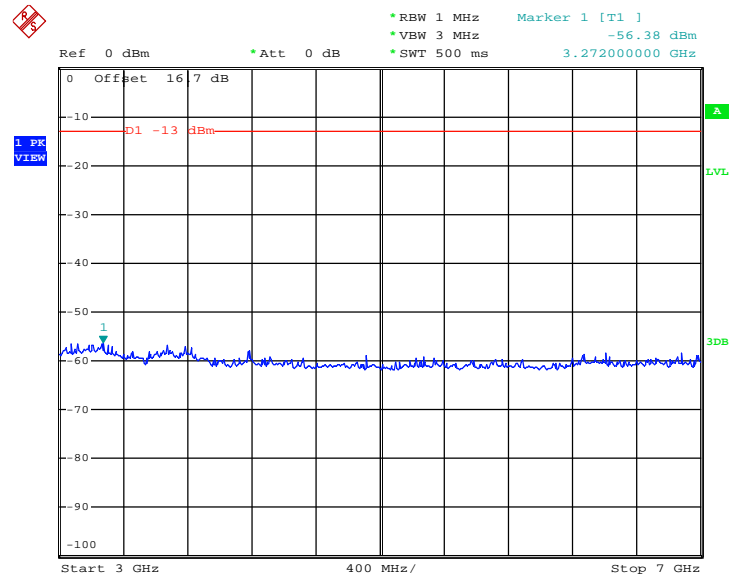
Date: 16.MAR.2015 19:54:07

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 19:57:33

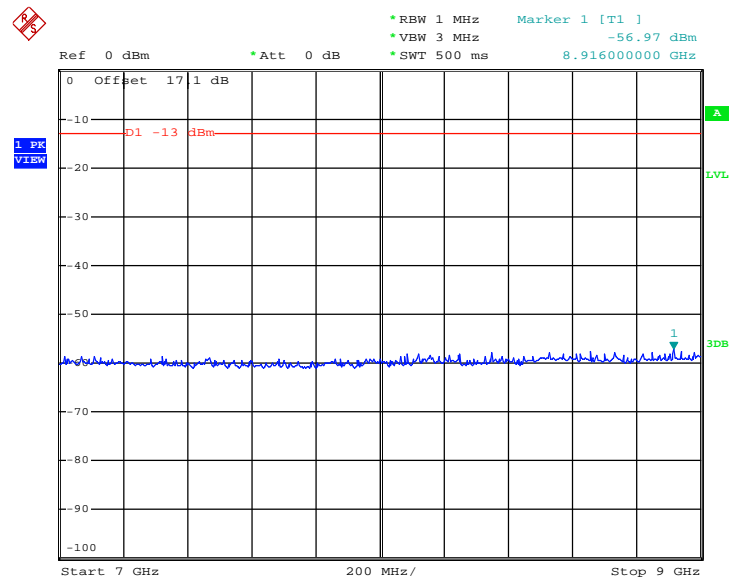


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 20:00:22

### Conducted Spurious Emission Plot between 7GHz ~ 9GHz

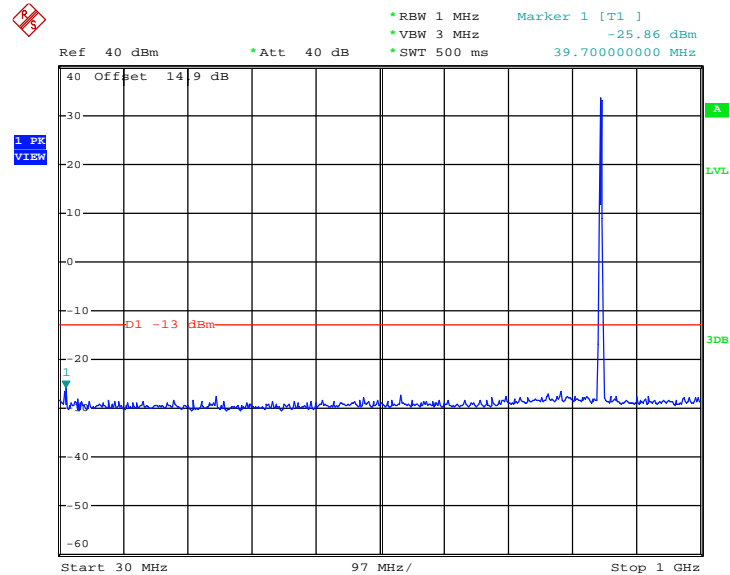


Date: 16.MAR.2015 20:03:21

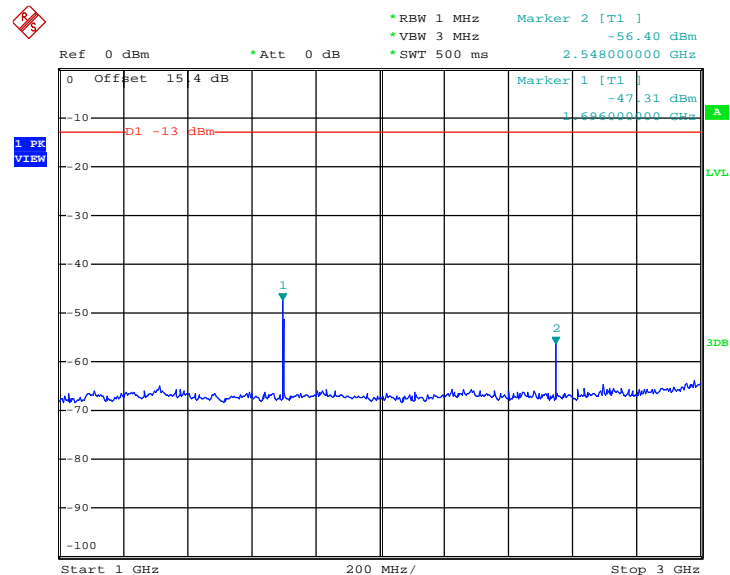




Band :	GSM850	Channel :	CH251
Test Mode :	GSM Link (GMSK)	Frequency :	848.8 MHz

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

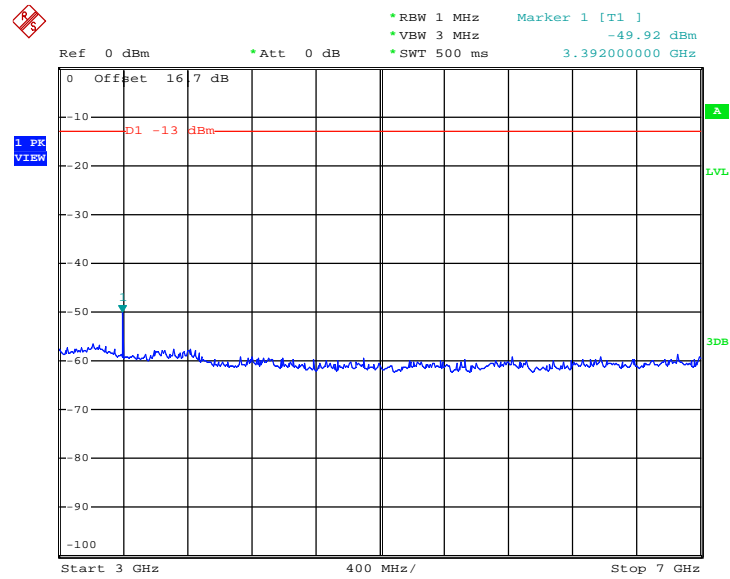
Date: 16.MAR.2015 19:54:40

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 19:57:00

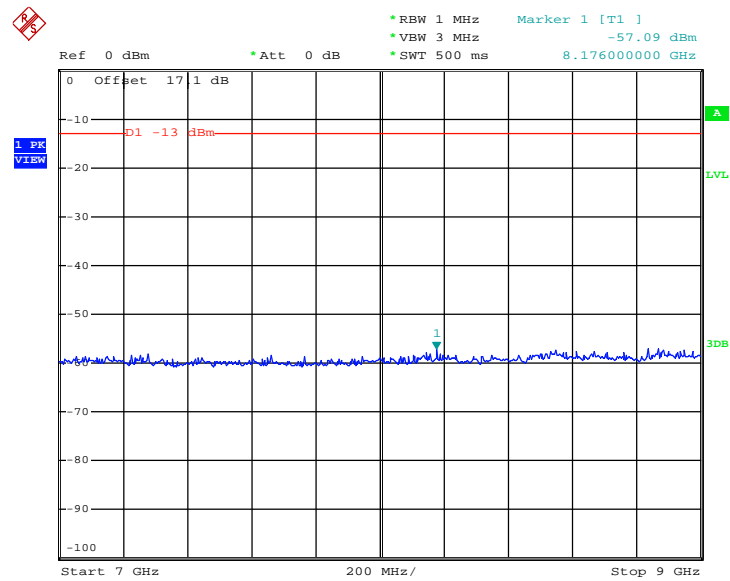


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 20:01:08

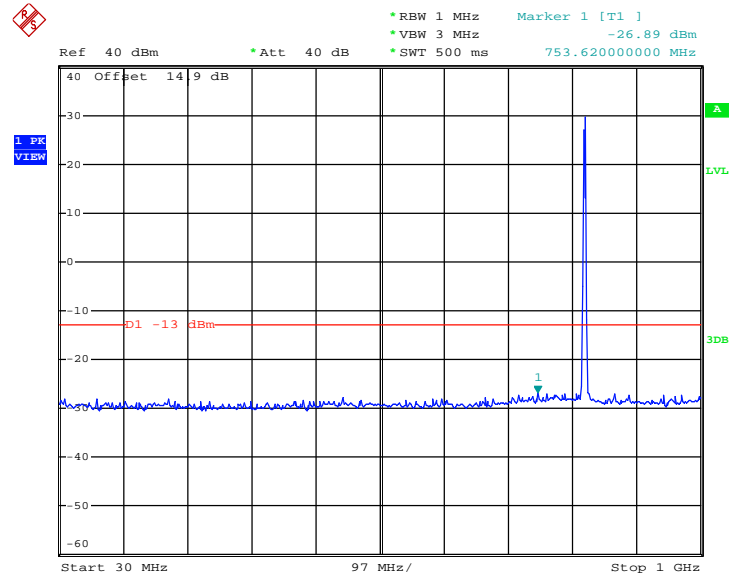
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



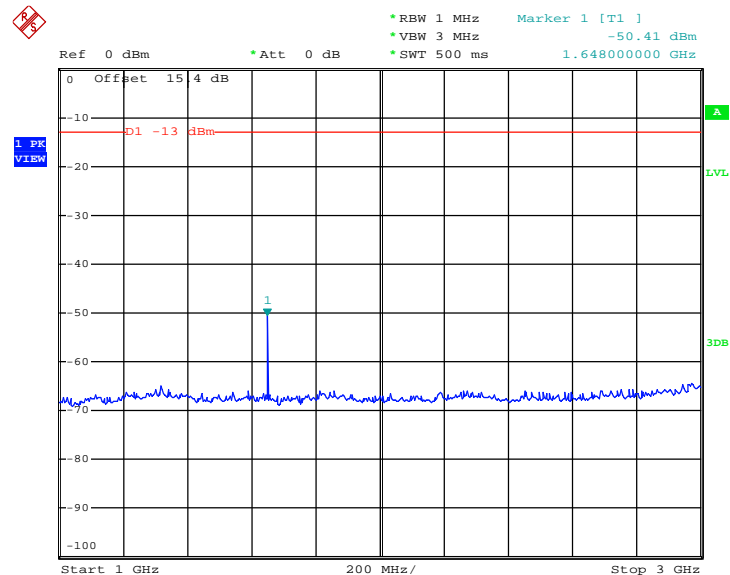
Date: 16.MAR.2015 20:02:39



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

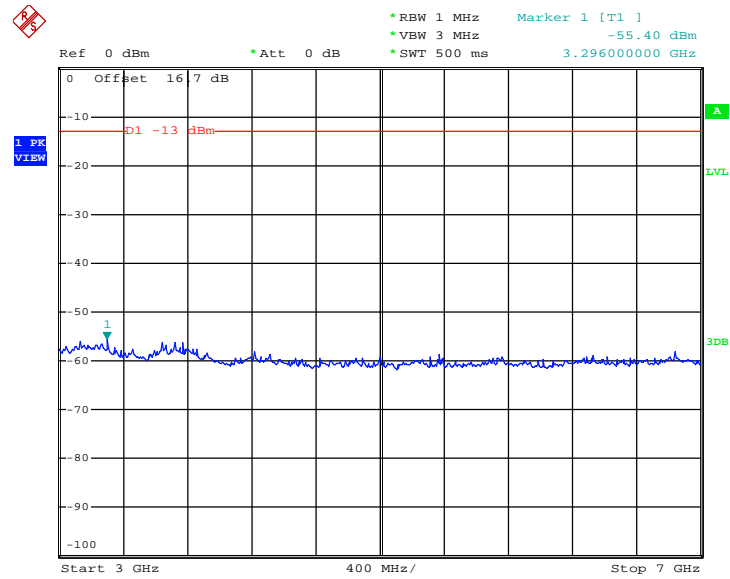
Date: 16.MAR.2015 20:20:56

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 20:15:01

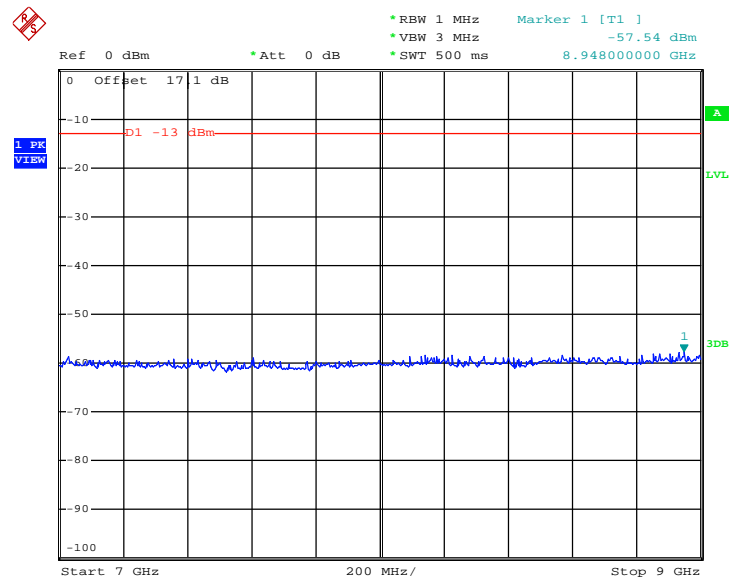


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 20:13:44

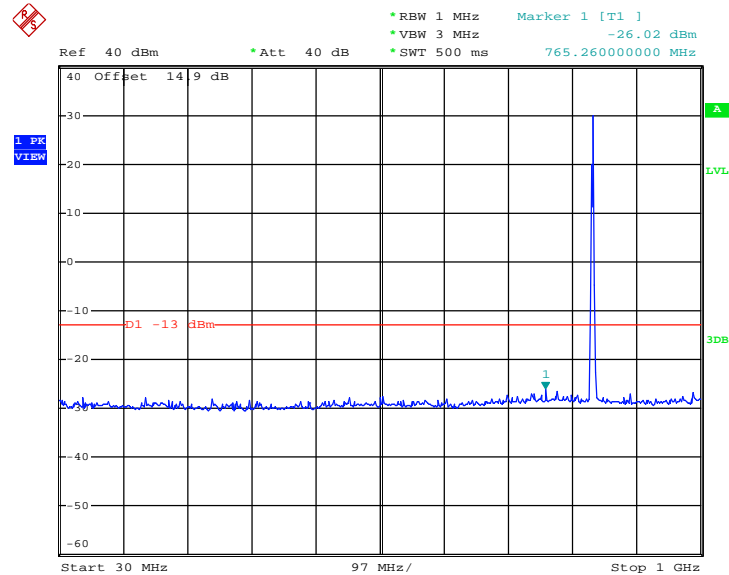
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



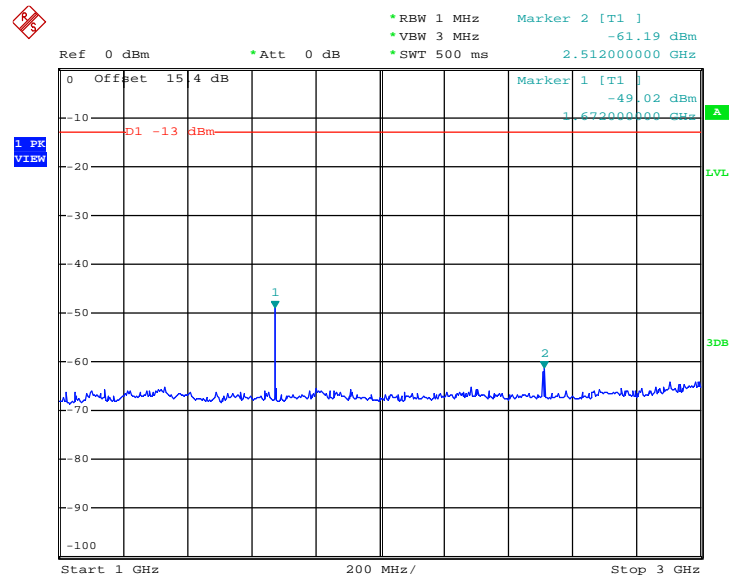
Date: 16.MAR.2015 20:52:58



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

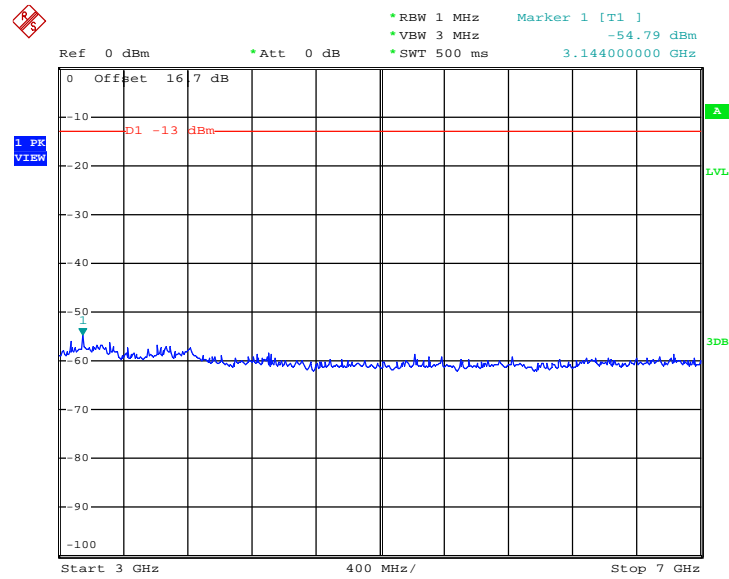
Date: 16.MAR.2015 20:19:45

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 20:16:11

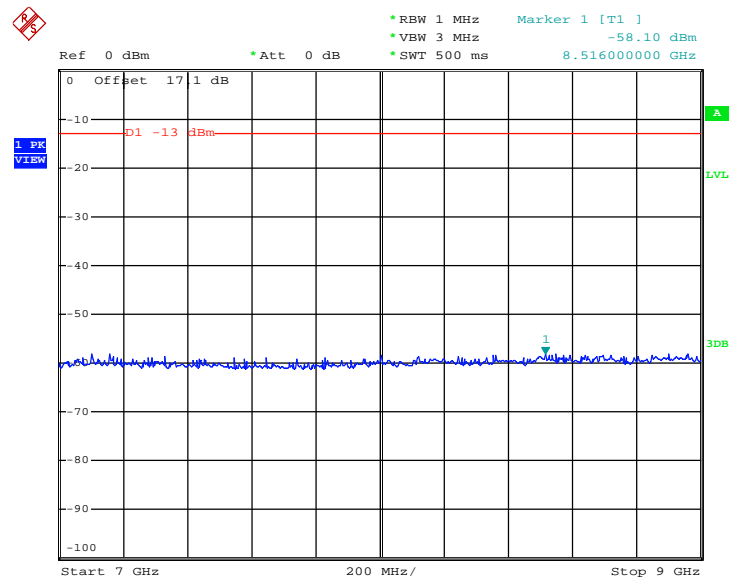


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 20:13:08

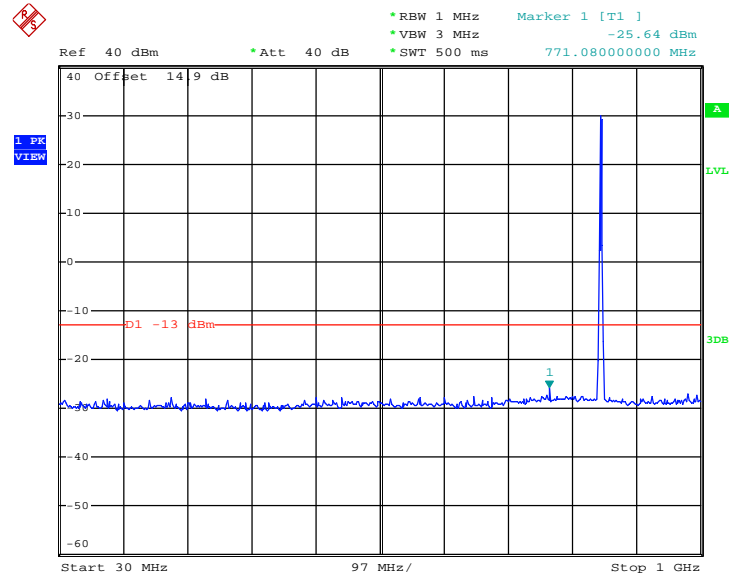
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



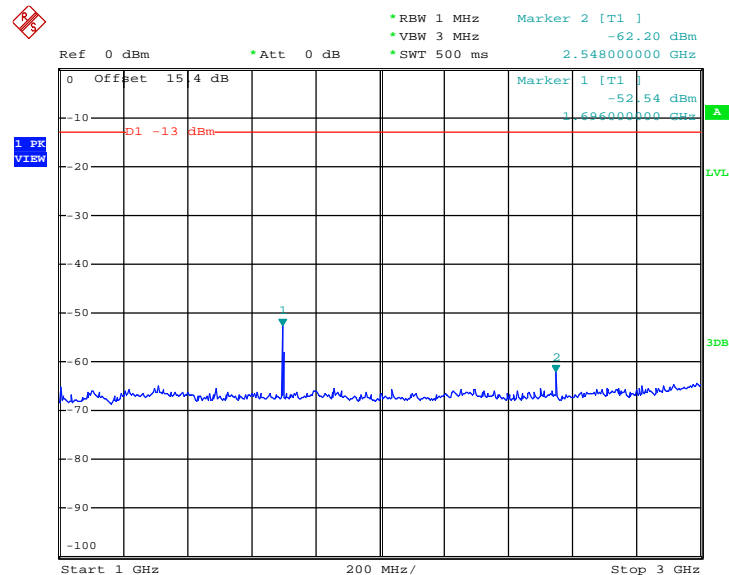
Date: 16.MAR.2015 20:10:44



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

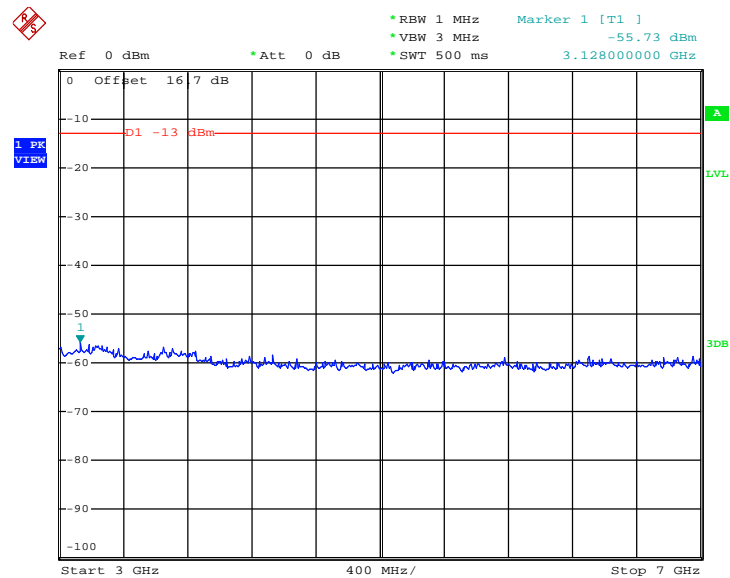
Date: 16.MAR.2015 20:19:01

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 20:17:03

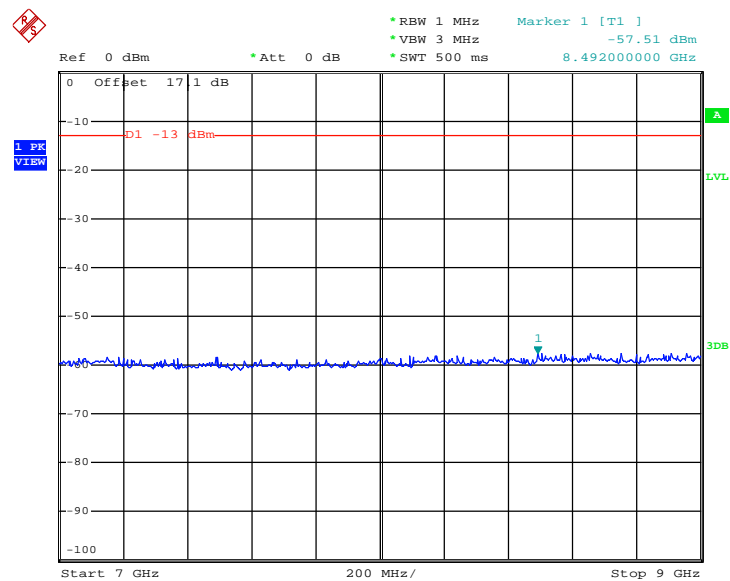


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 20:12:40

### Conducted Spurious Emission Plot between 7GHz ~ 9GHz

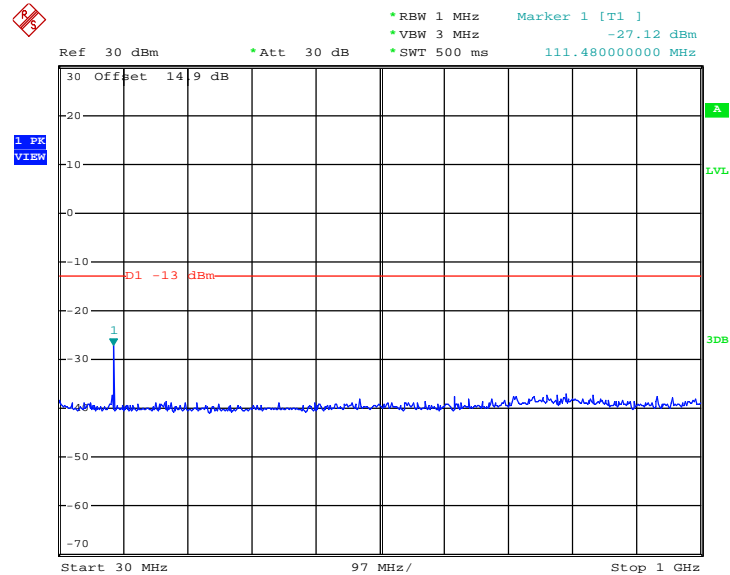


Date: 16.MAR.2015 20:11:28

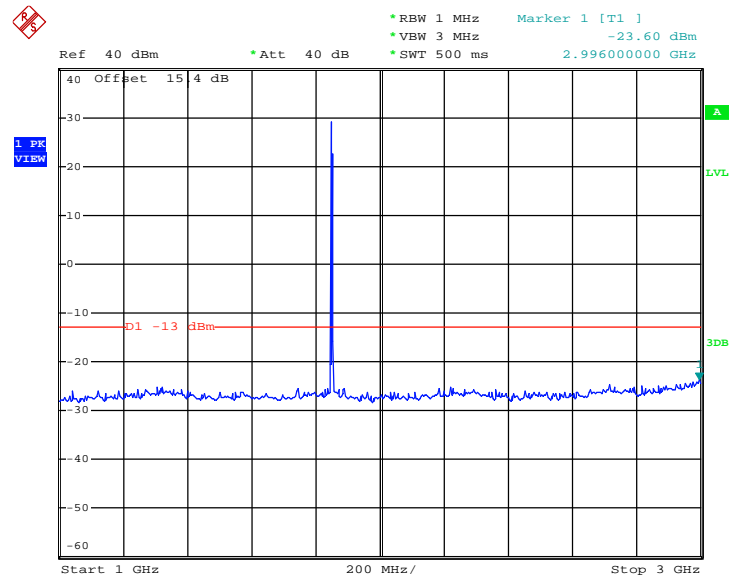




<b>Band :</b>	GSM1900	<b>Channel :</b>	CH512
<b>Test Mode :</b>	GSM Link (GMSK)	<b>Frequency :</b>	1850.2 MHz

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

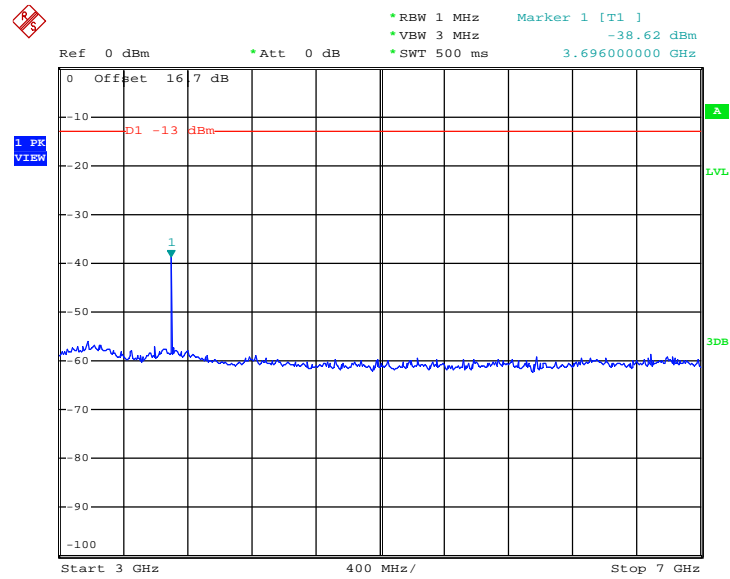
Date: 16.MAR.2015 23:12:25

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 23:14:02

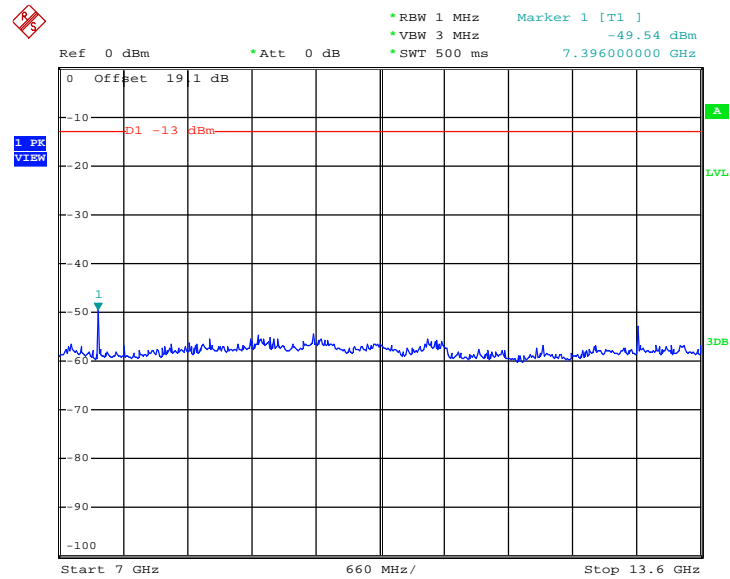


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 23:18:30

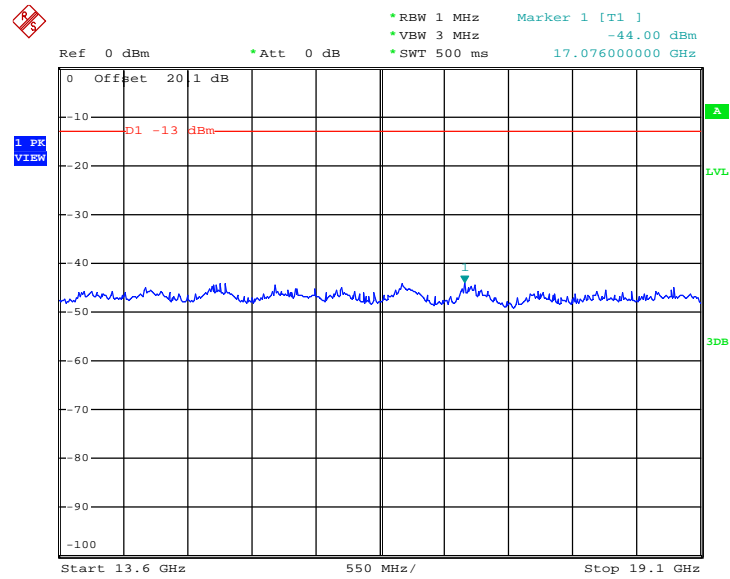
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 23:21:16



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

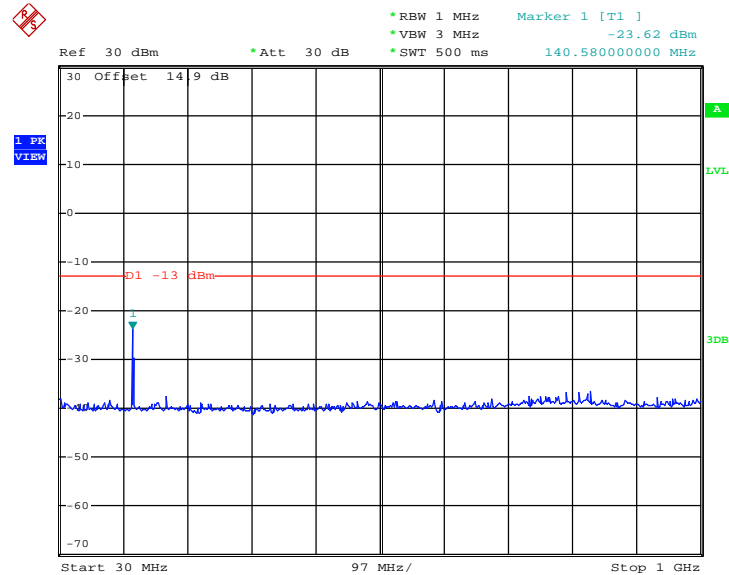


Date: 16.MAR.2015 23:26:06



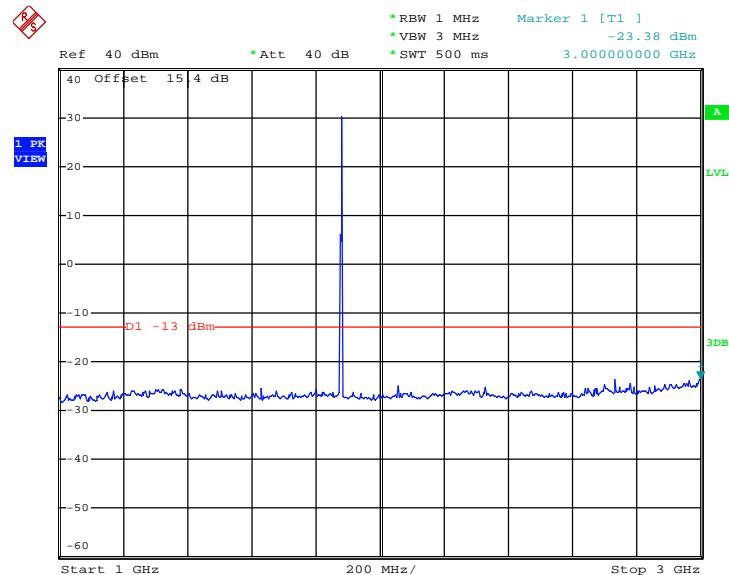
Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 16.MAR.2015 23:11:58

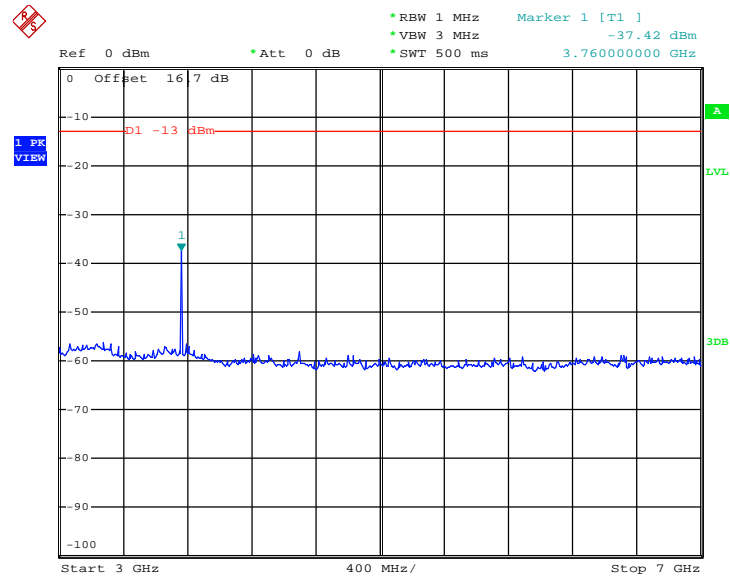
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 16.MAR.2015 23:15:06

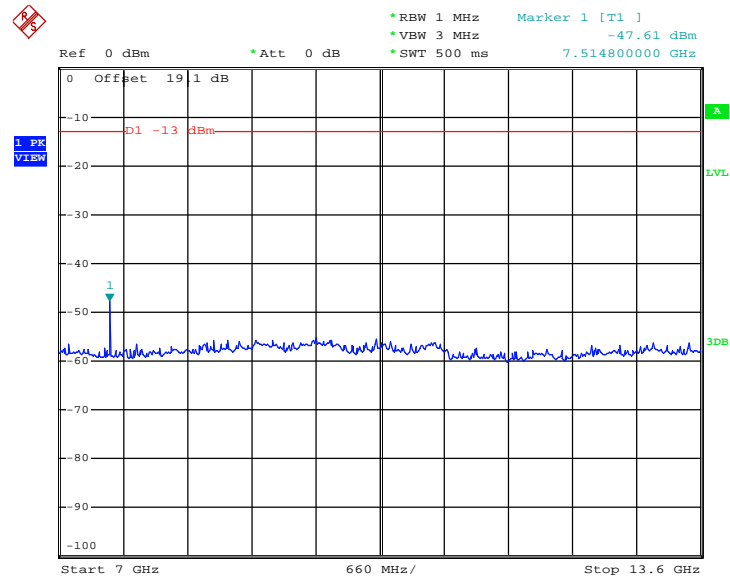


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 23:17:57

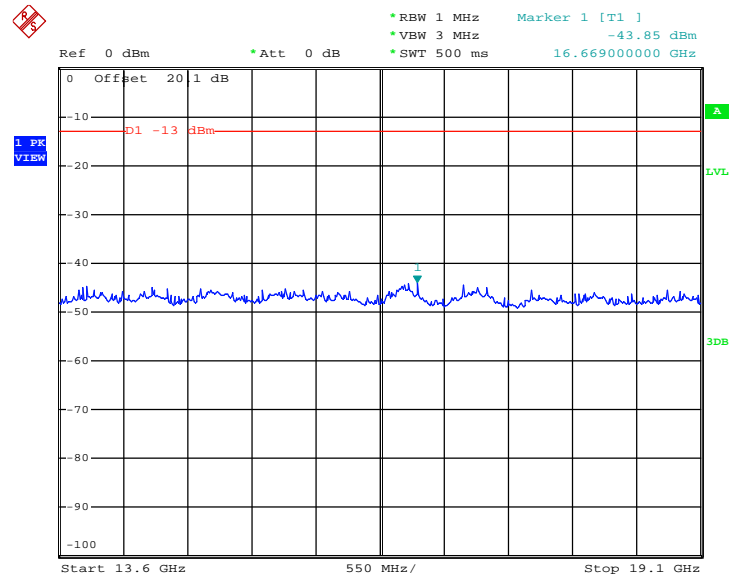
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 23:22:10



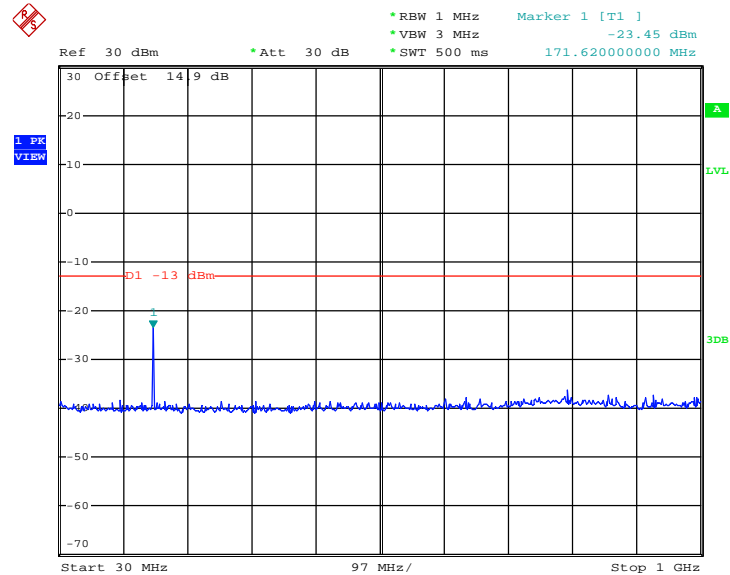
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



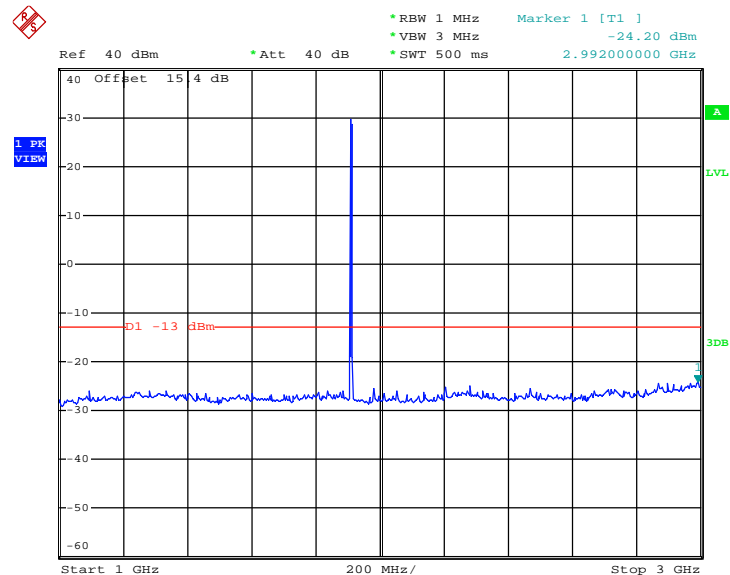
Date: 16.MAR.2015 23:25:37



<b>Band :</b>	GSM1900	<b>Channel :</b>	CH810
<b>Test Mode :</b>	GSM Link (GMSK)	<b>Frequency :</b>	1909.8 MHz

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

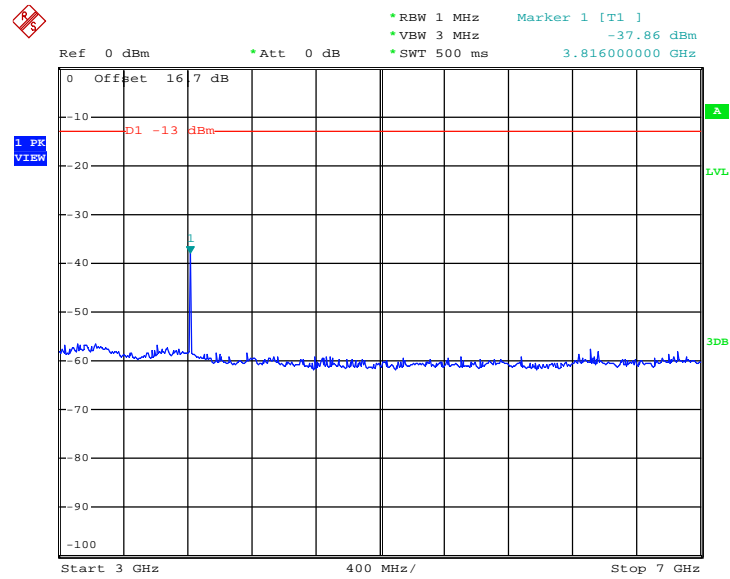
Date: 16.MAR.2015 23:11:22

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 23:15:48

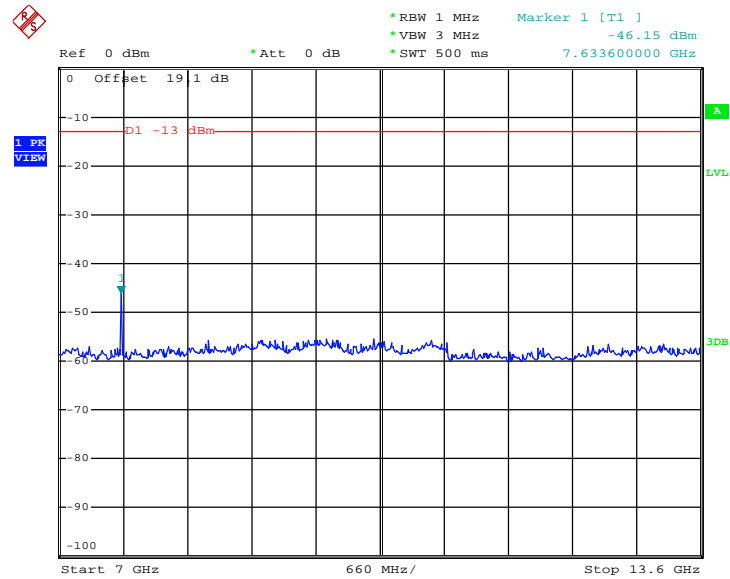


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 23:17:10

### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz

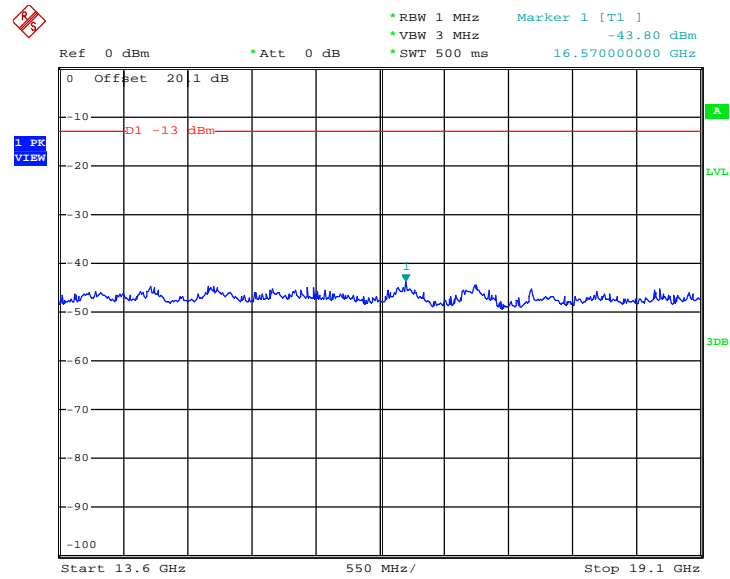


Date: 16.MAR.2015 23:22:45





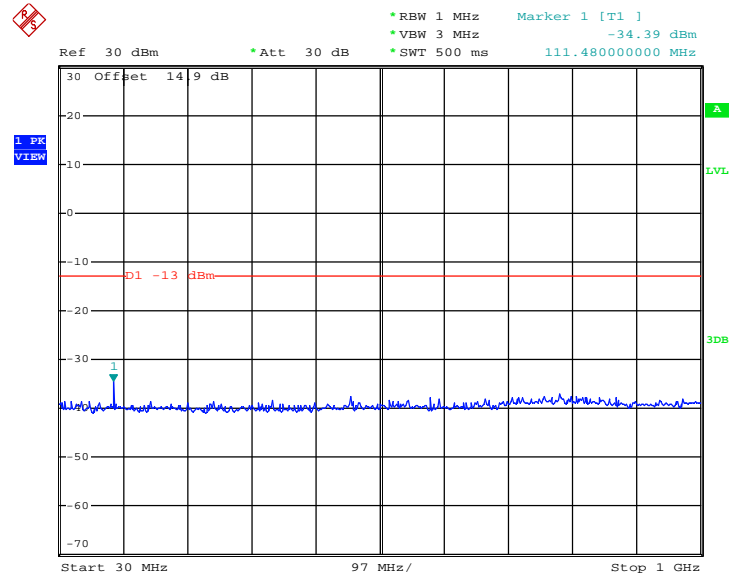
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



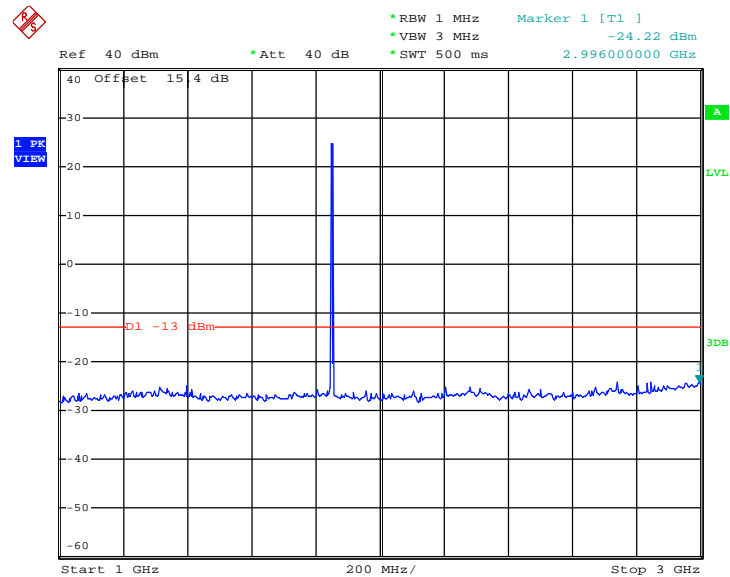
Date: 16.MAR.2015 23:24:46



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

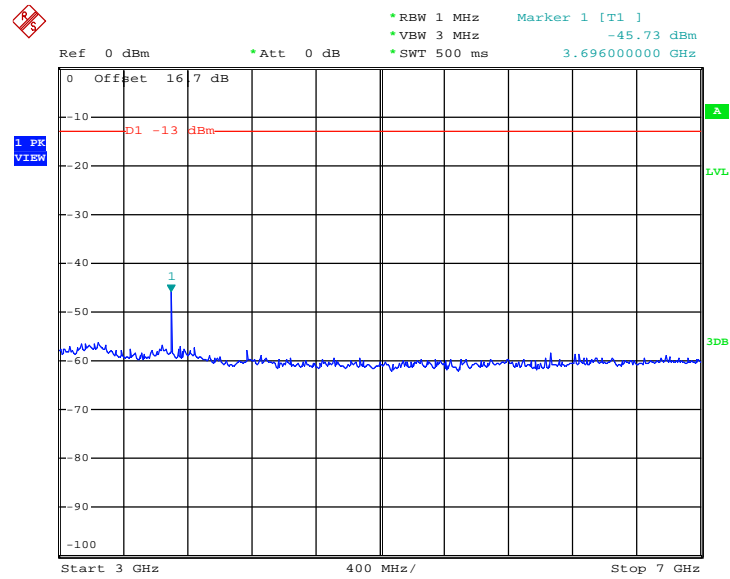
Date: 16.MAR.2015 23:45:31

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 23:48:31

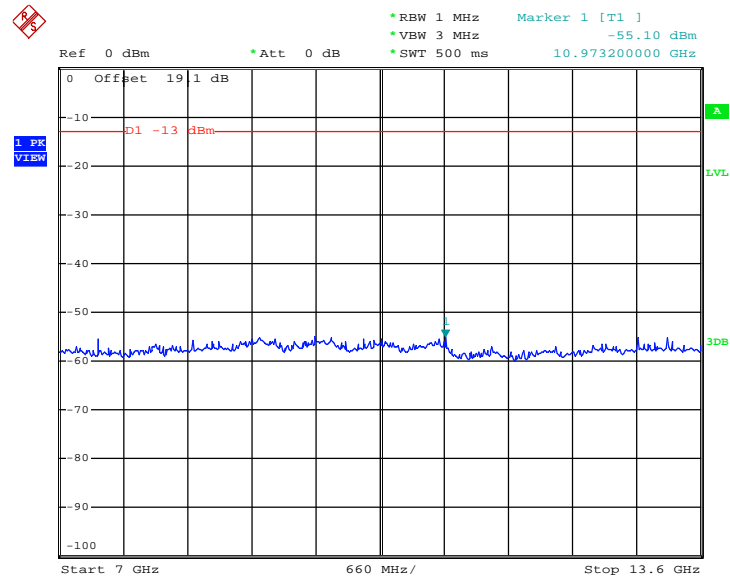


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 23:50:24

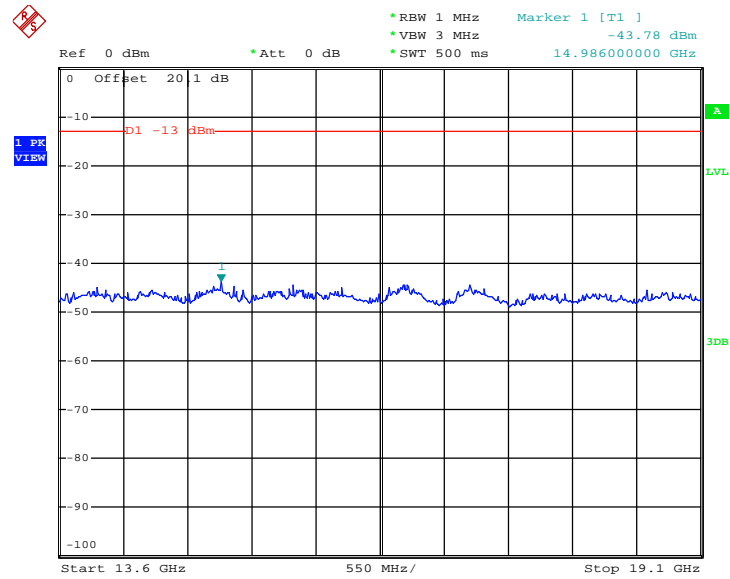
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 23:54:13



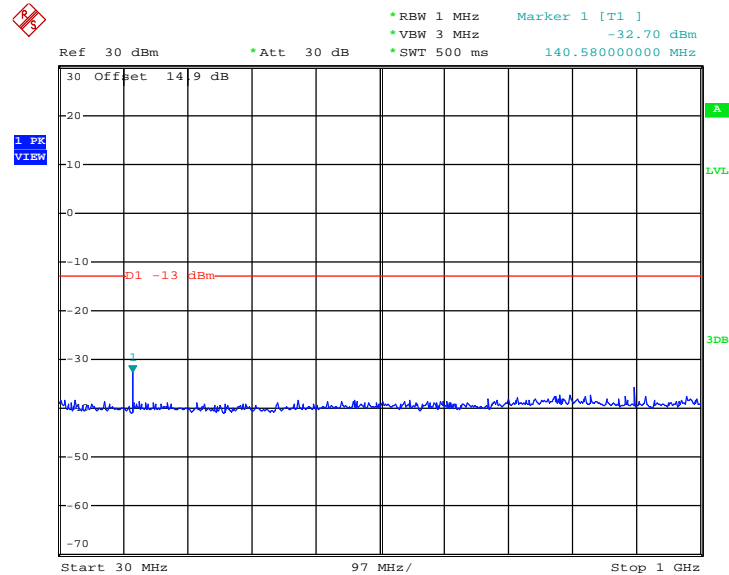
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



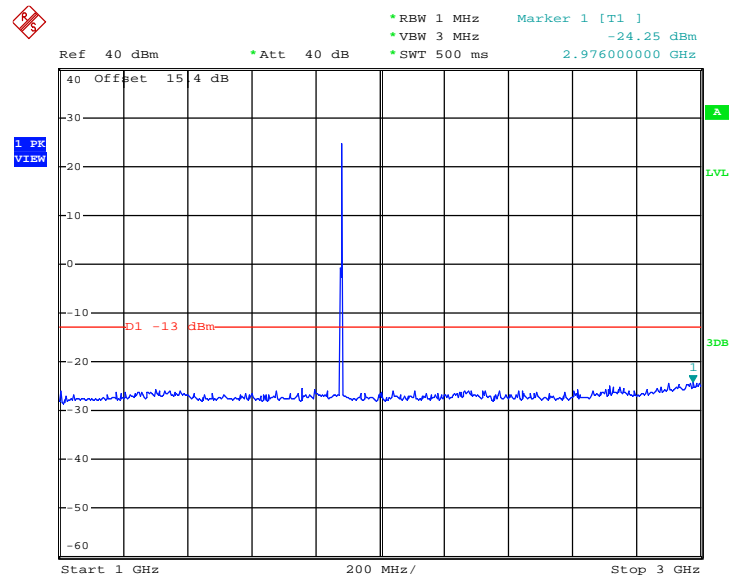
Date: 16.MAR.2015 23:55:32



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

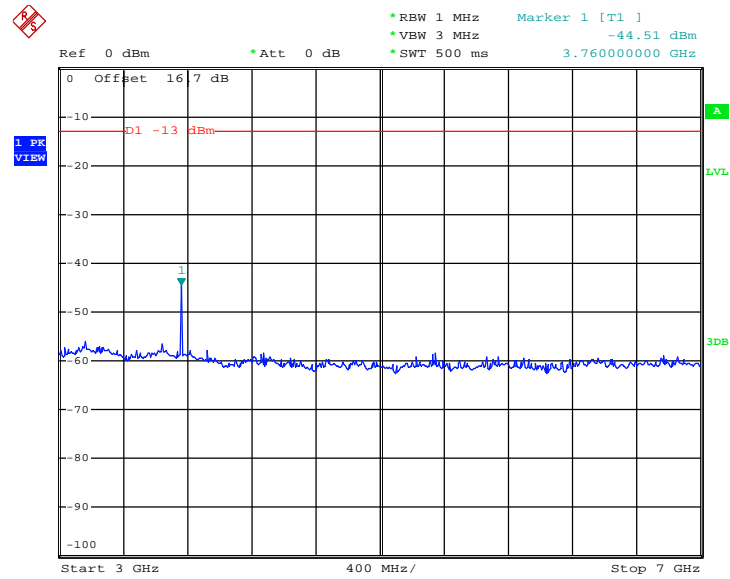
Date: 16.MAR.2015 23:45:51

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 23:47:52

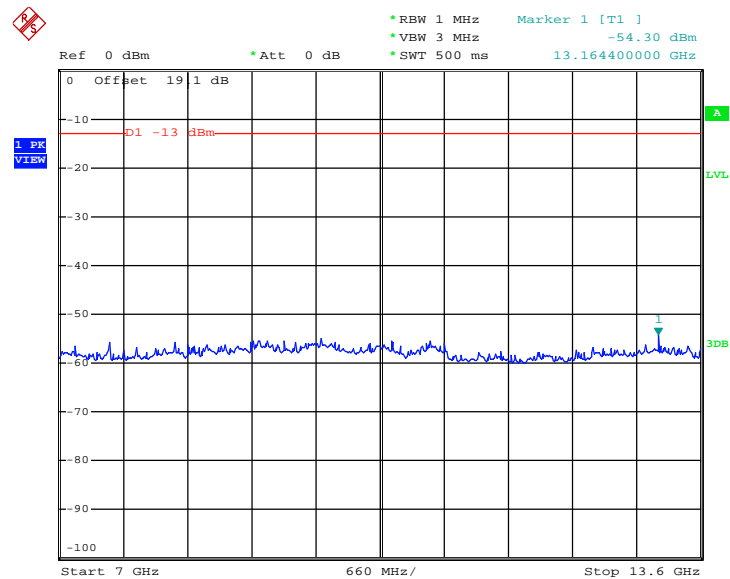


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



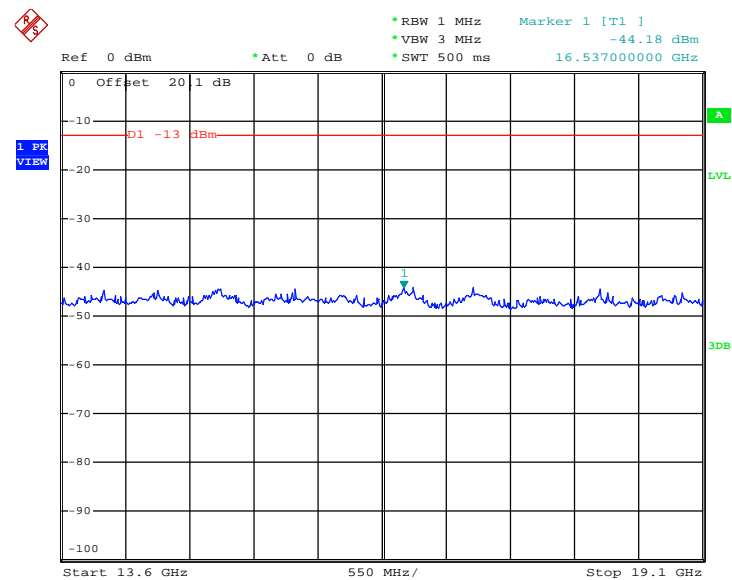
Date: 16.MAR.2015 23:50:48

### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 23:53:49

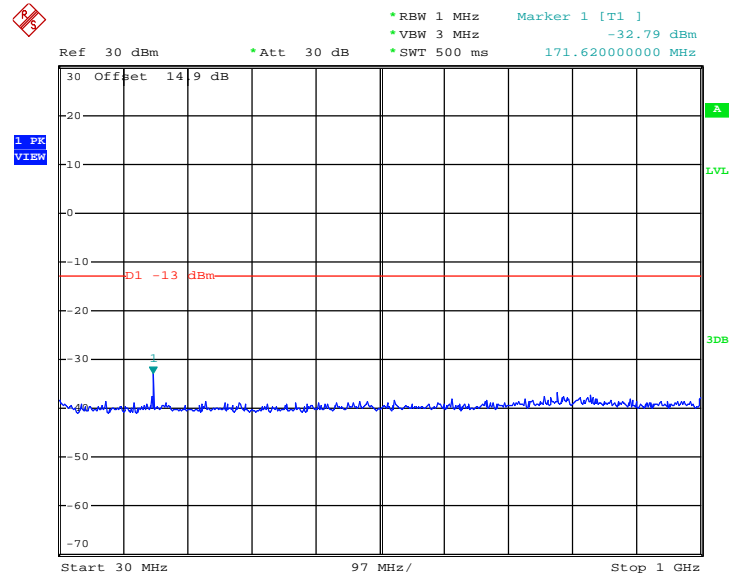
### Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



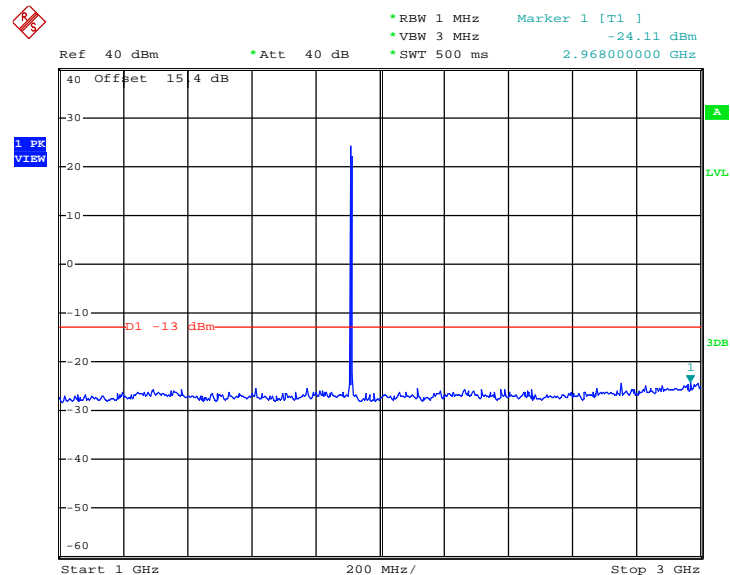
Date: 16.MAR.2015 23:56:02



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

Date: 16.MAR.2015 23:46:11

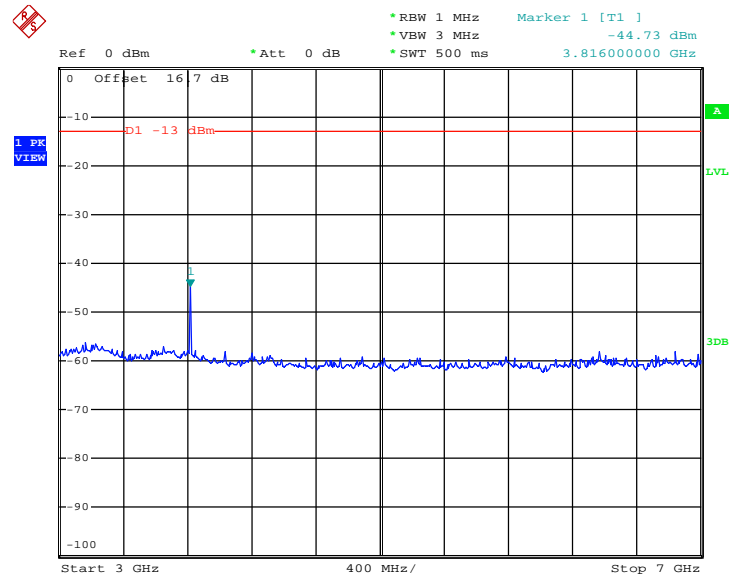
**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 23:47:19



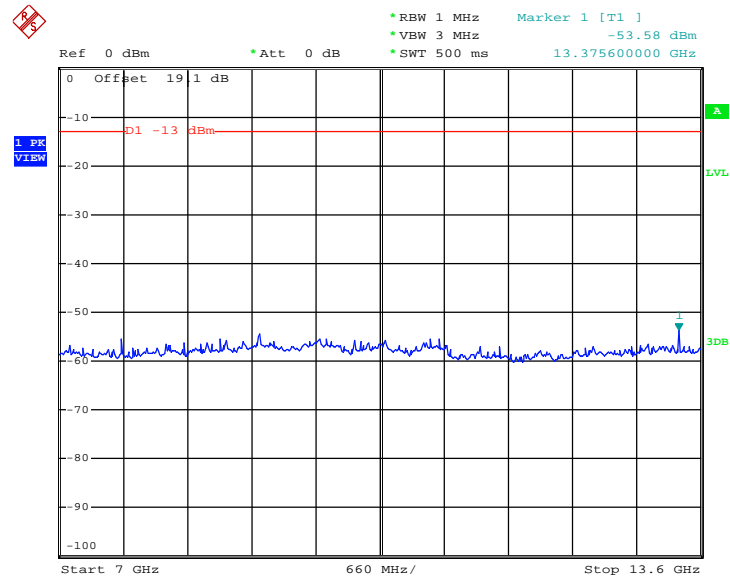


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 23:52:26

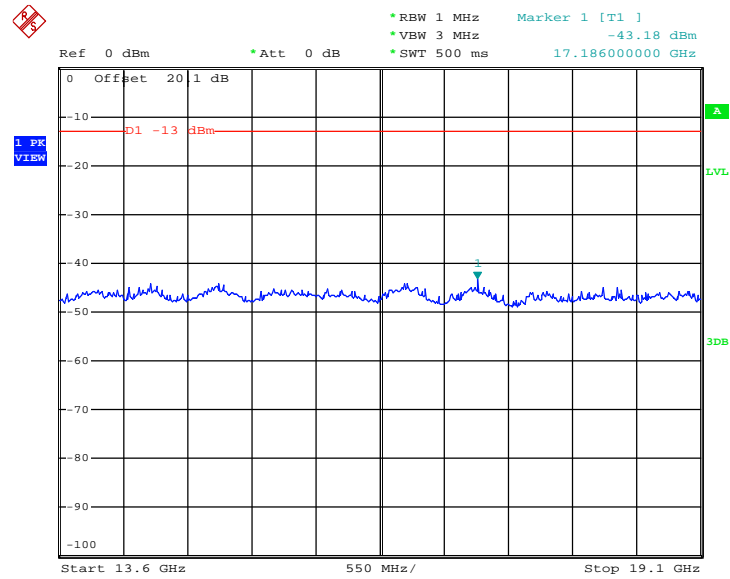
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 23:53:26



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

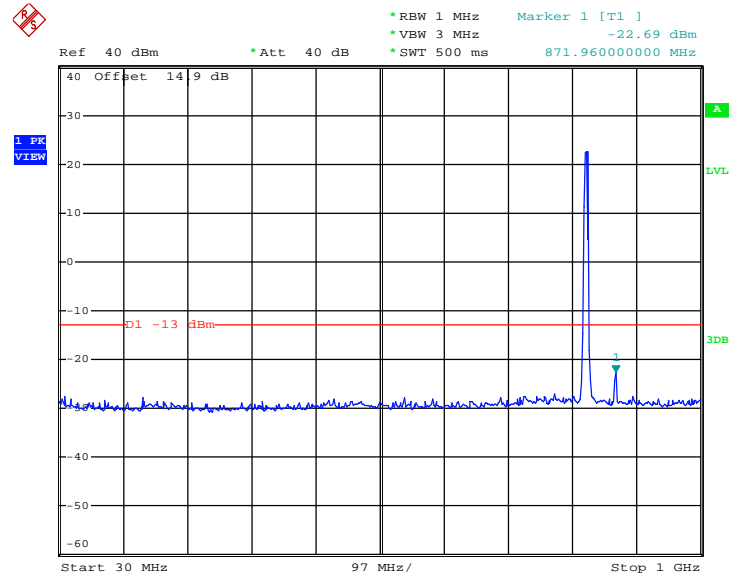


Date: 16.MAR.2015 23:56:24



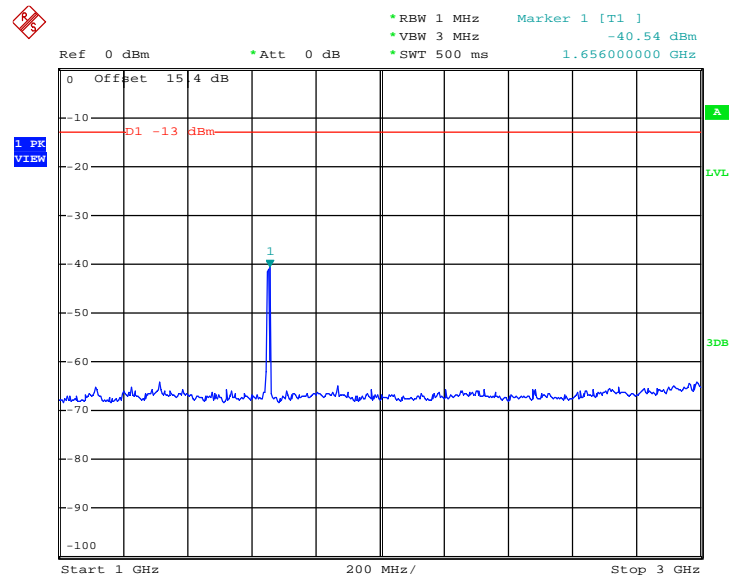
Band :	WCDMA Band V	Channel :	CH4132
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	826.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 16.MAR.2015 21:18:47

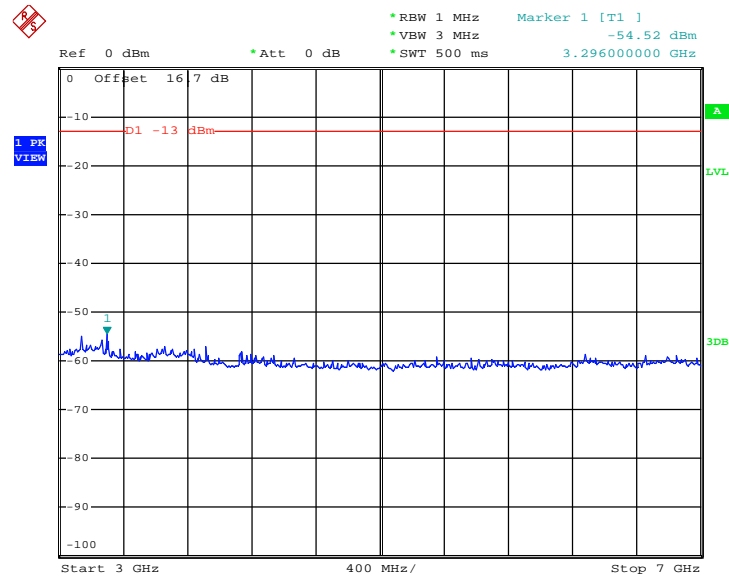
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 16.MAR.2015 21:20:24

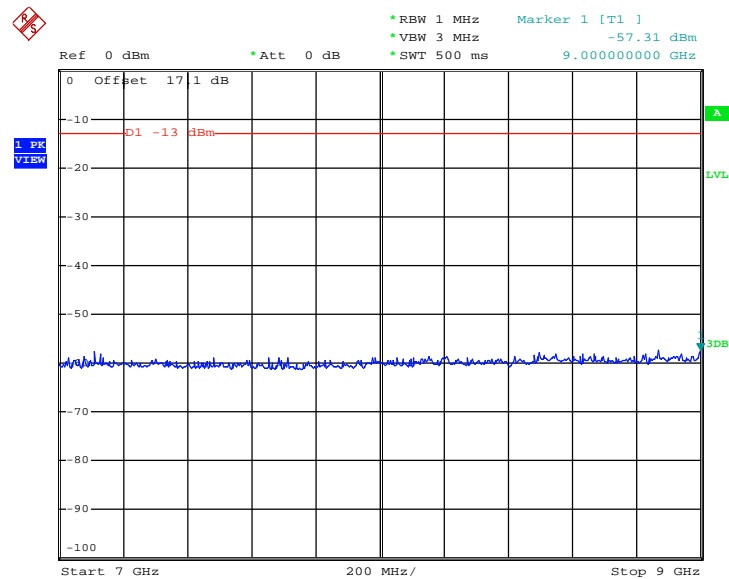


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 21:23:30

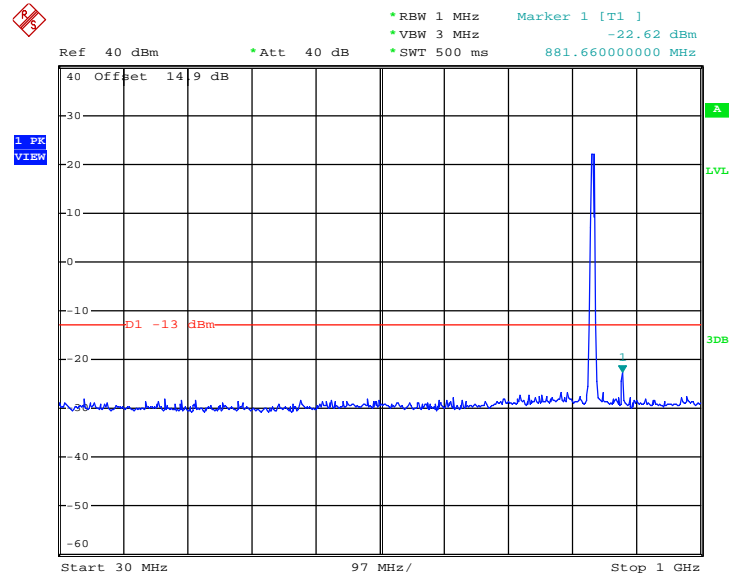
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



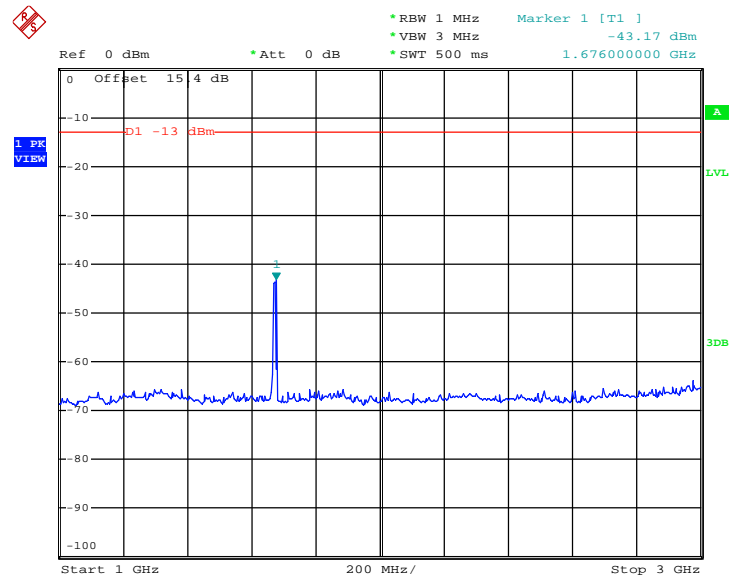
Date: 16.MAR.2015 21:24:32



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

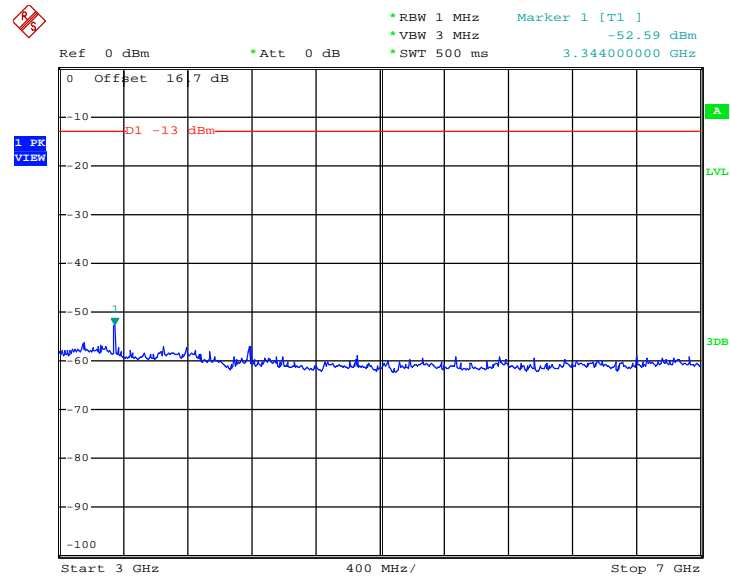
Date: 16.MAR.2015 21:18:18

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 21:20:46

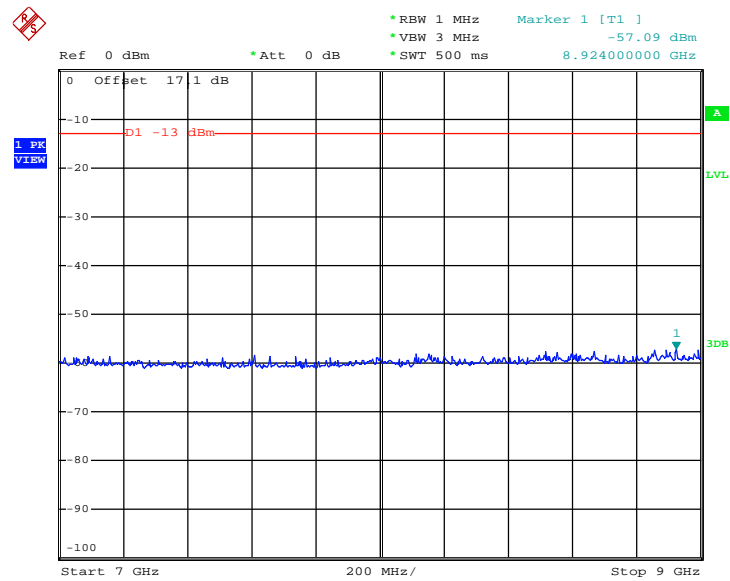


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 21:22:30

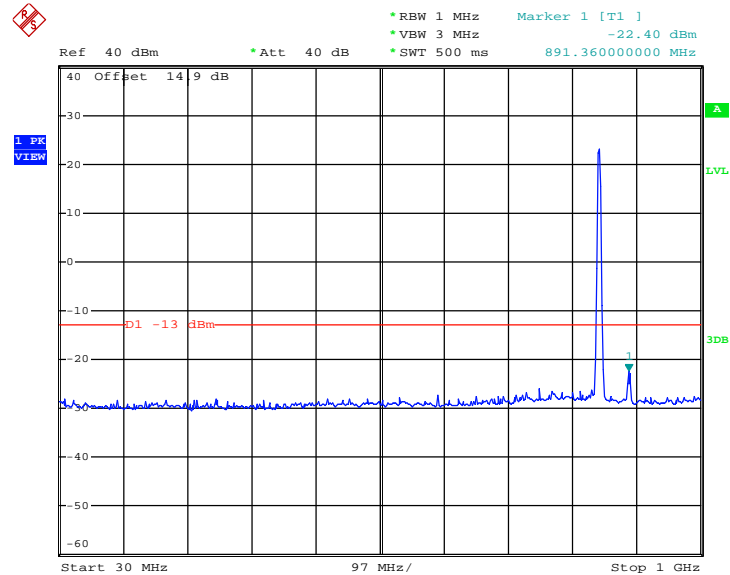
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



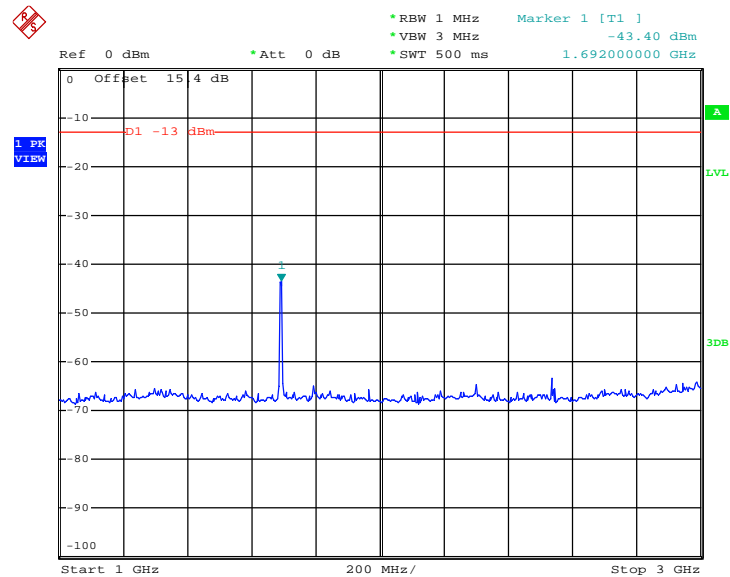
Date: 16.MAR.2015 21:25:02



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

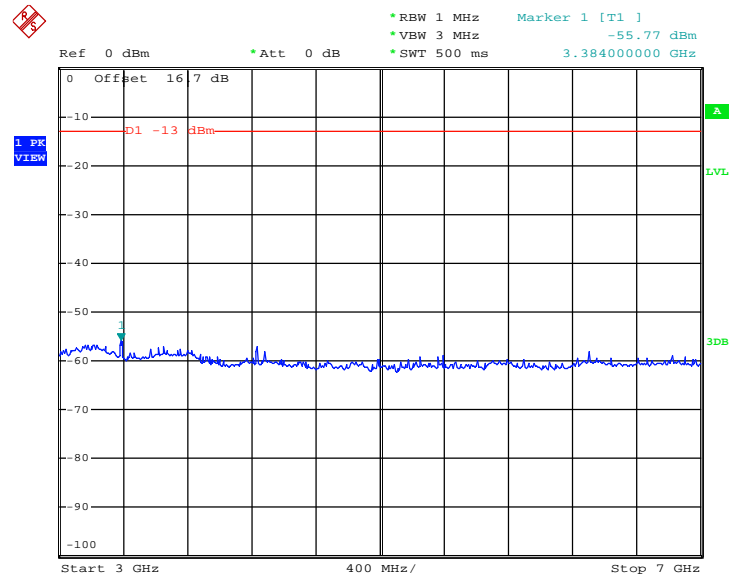
Date: 16.MAR.2015 21:17:46

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 21:21:10

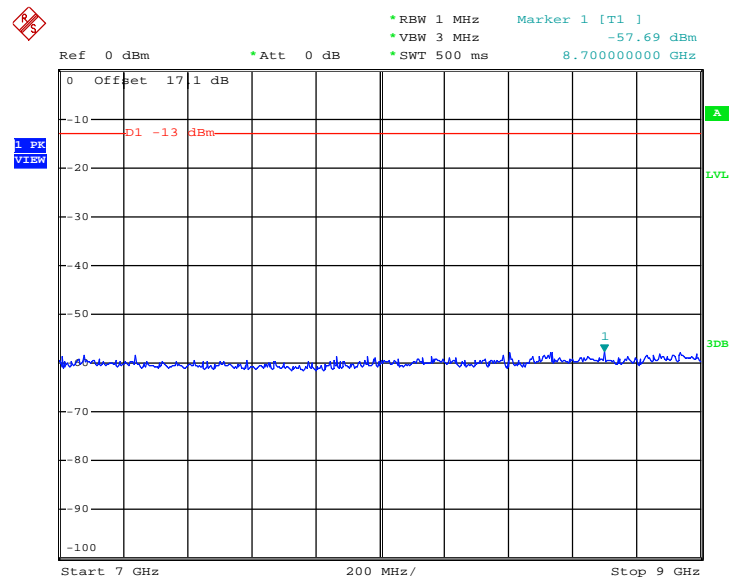


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 21:22:08

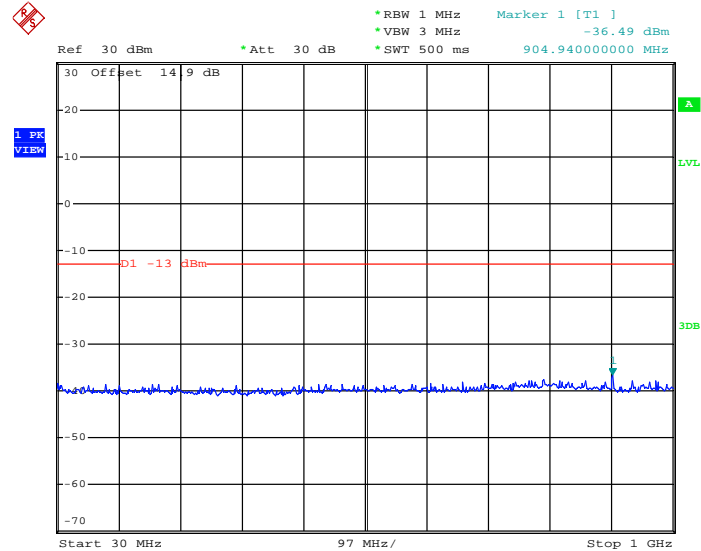
### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



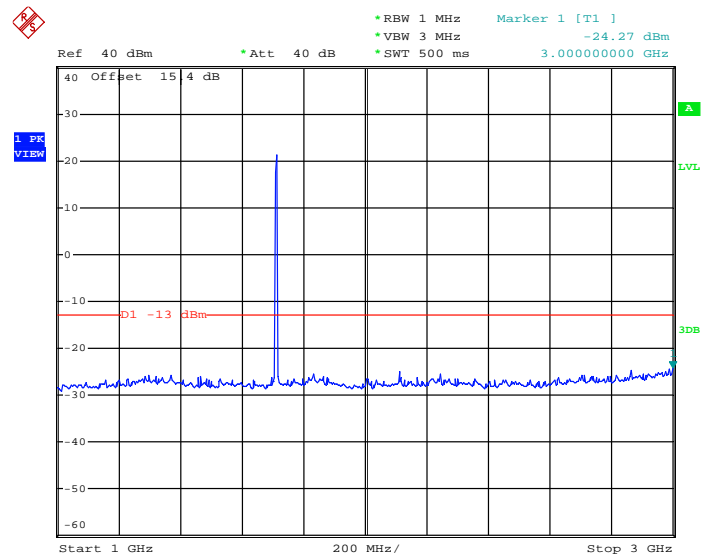
Date: 16.MAR.2015 21:25:30



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**


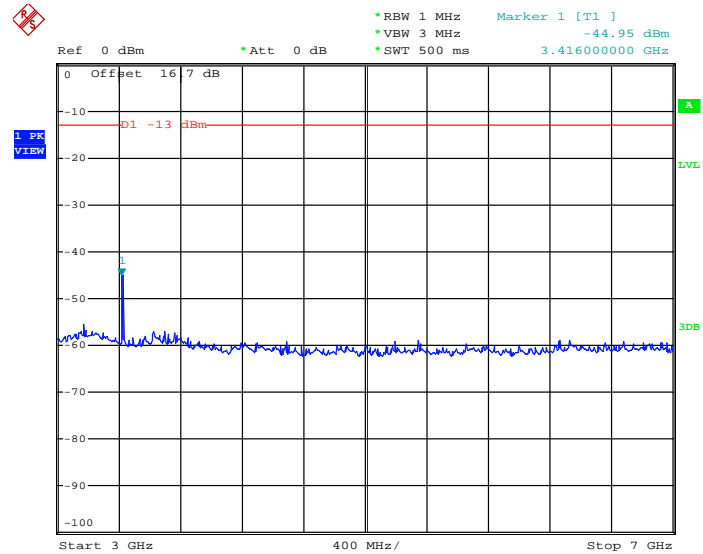
Date: 16.MAR.2015 22:12:56

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**


Date: 16.MAR.2015 22:16:06

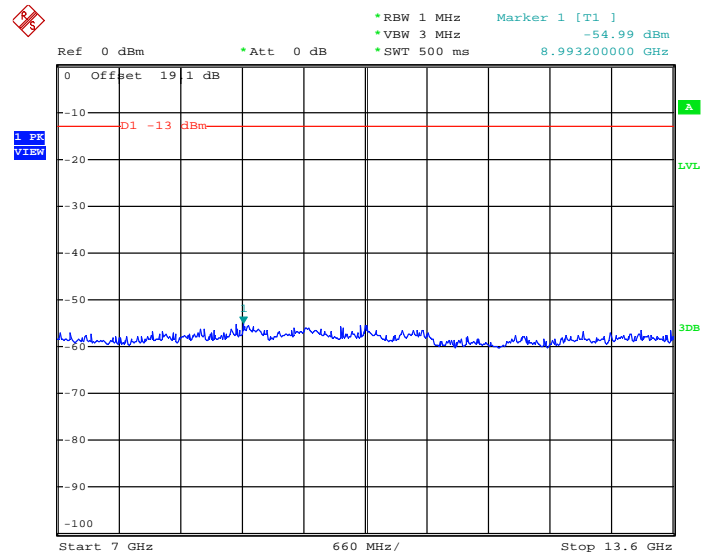


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 22:16:58

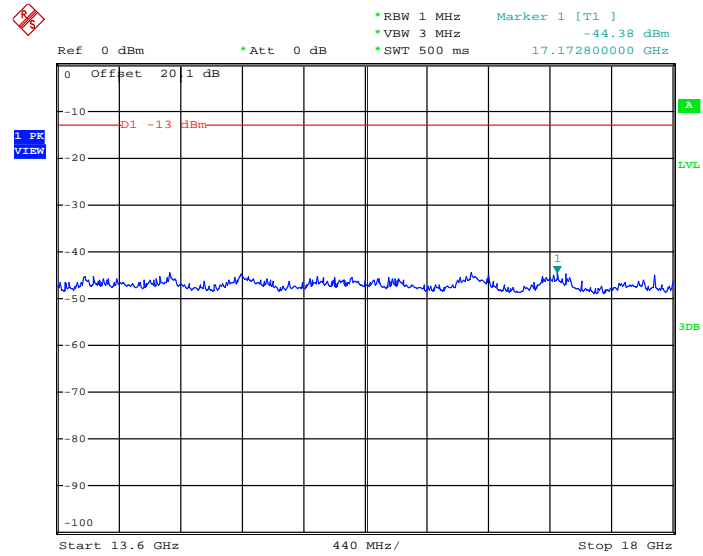
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 22:19:24

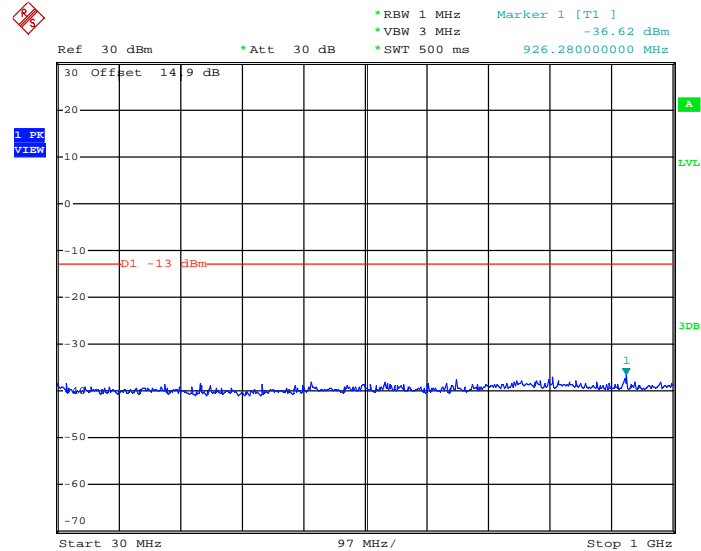


Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz

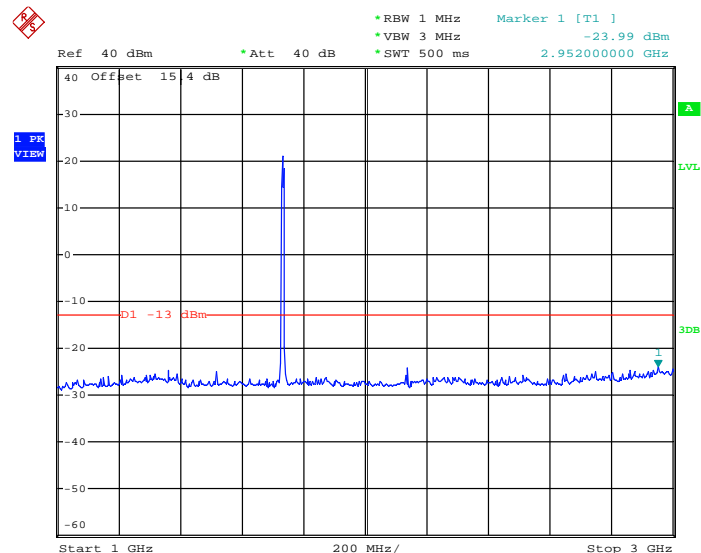


Date: 16.MAR.2015 22:20:19

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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**


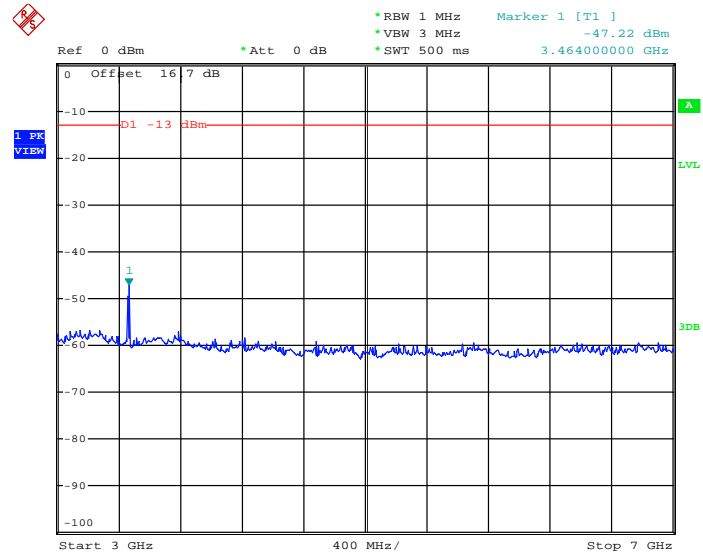
Date: 16.MAR.2015 22:13:28

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**


Date: 16.MAR.2015 22:15:31

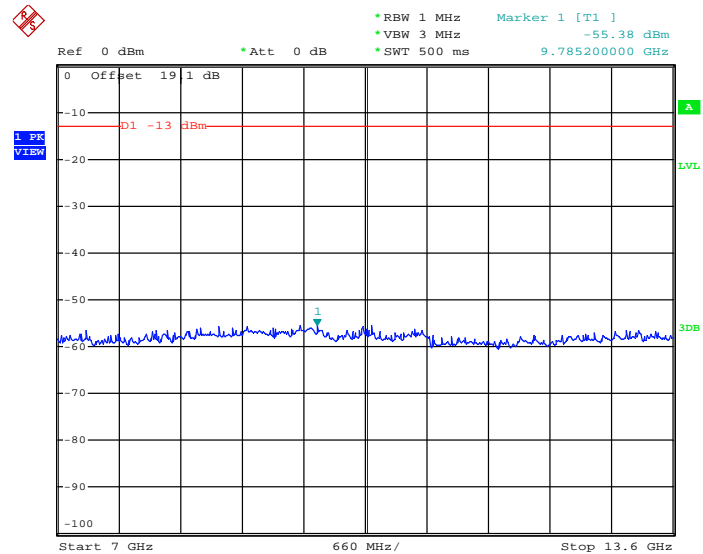


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 22:17:25

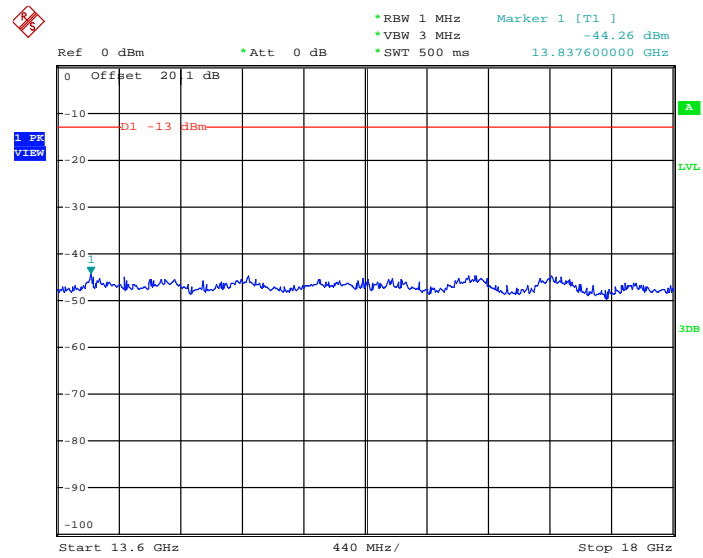
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 22:19:04



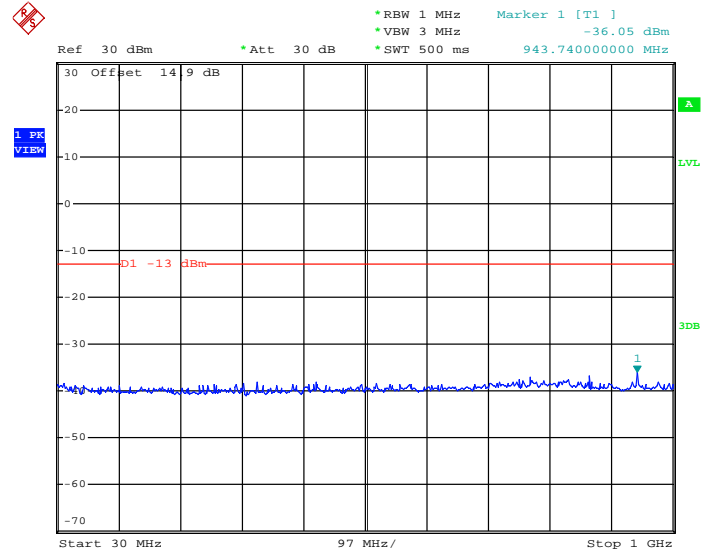
Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



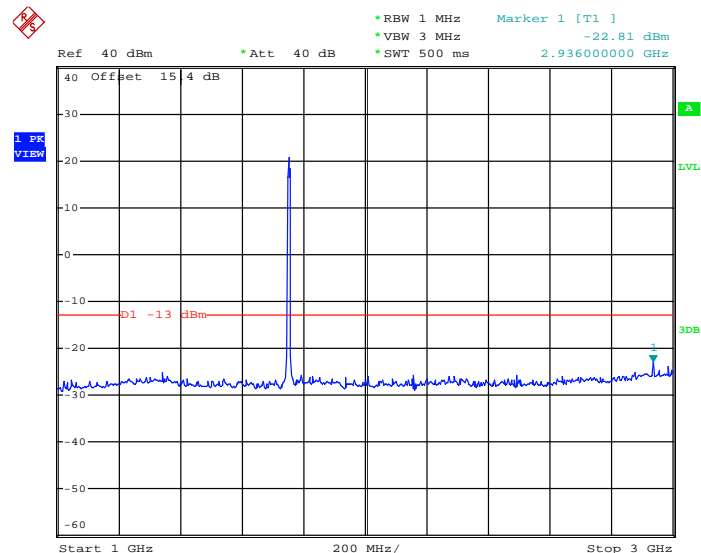
Date: 16.MAR.2015 22:20:44



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

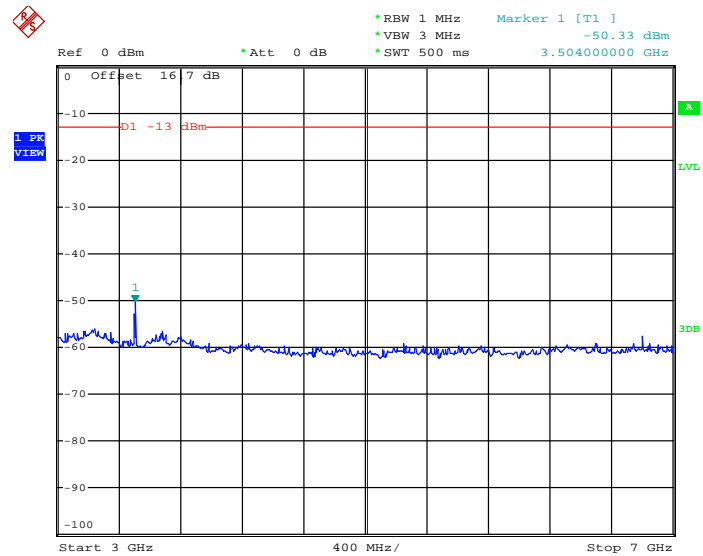
Date: 16.MAR.2015 22:14:04

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 22:14:56

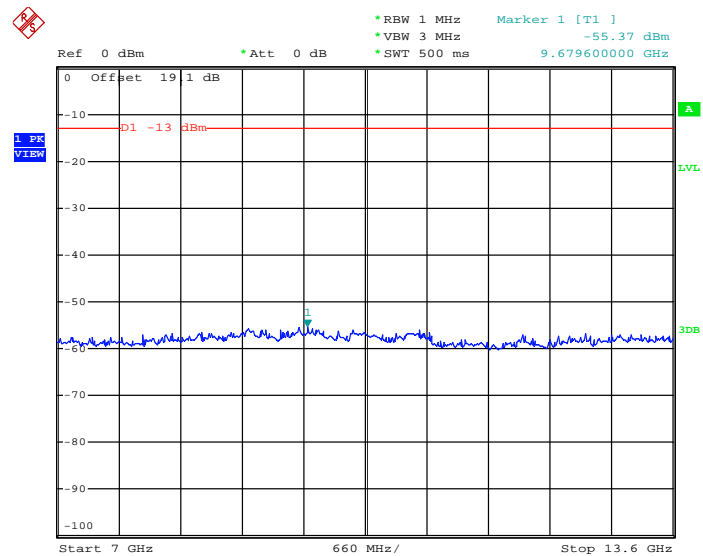


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 22:17:50

### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz

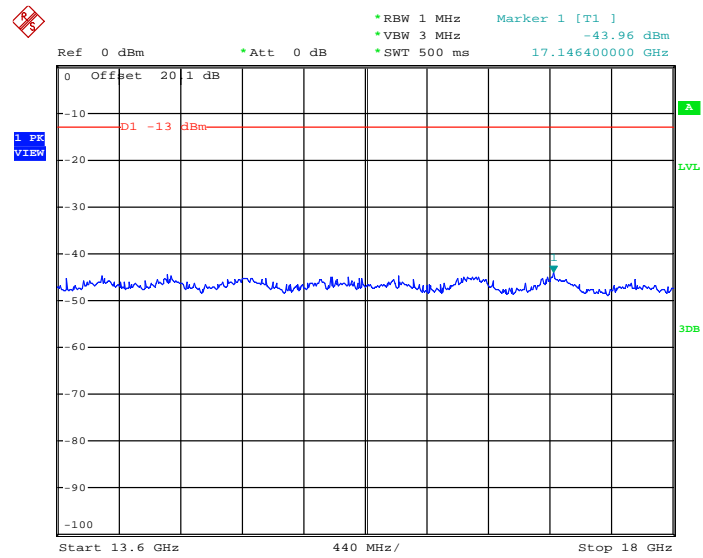


Date: 16.MAR.2015 22:18:44





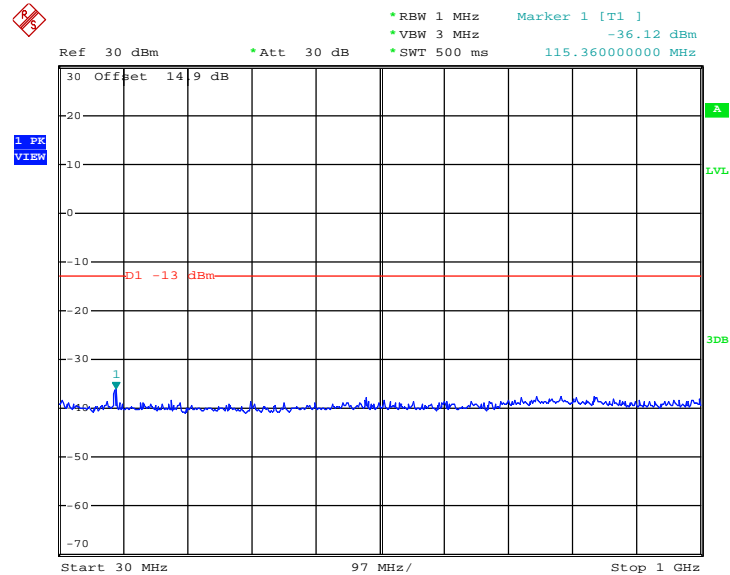
Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz



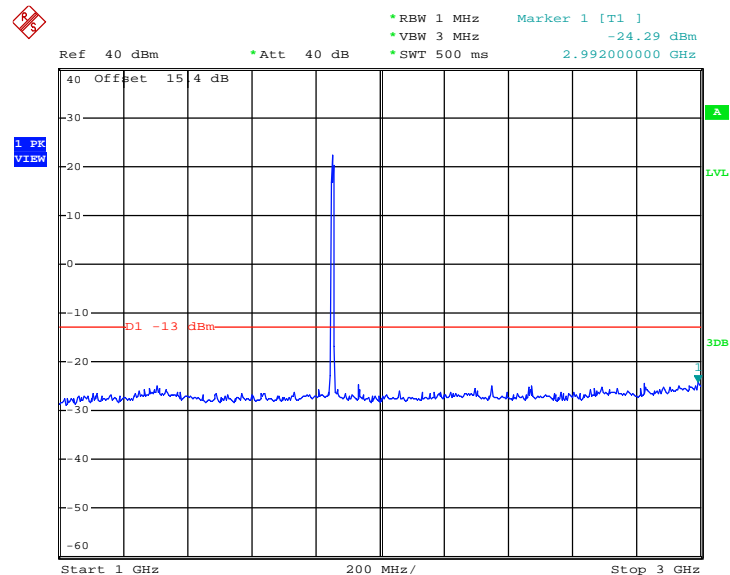
Date: 16.MAR.2015 22:21:07



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

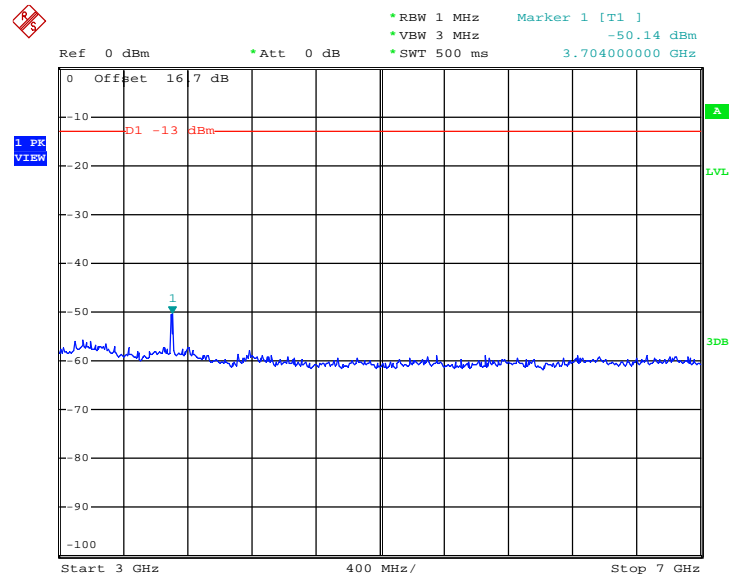
Date: 16.MAR.2015 21:35:58

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 21:39:19

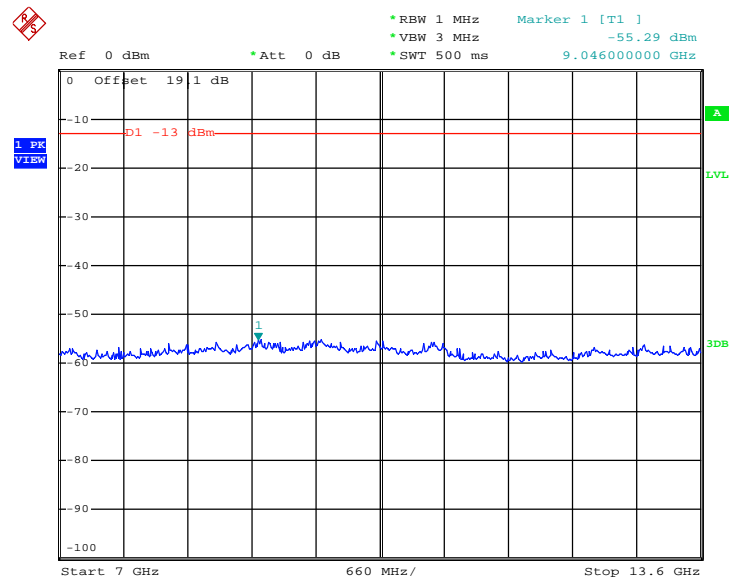


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 21:40:20

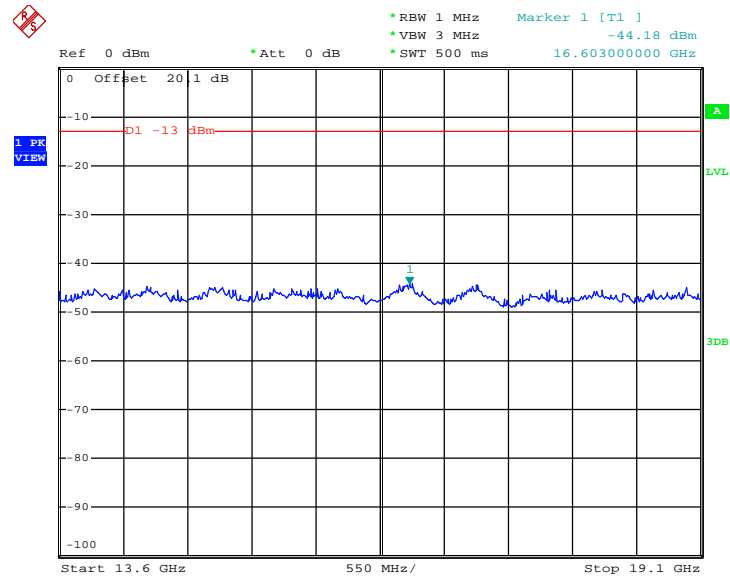
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 21:42:50



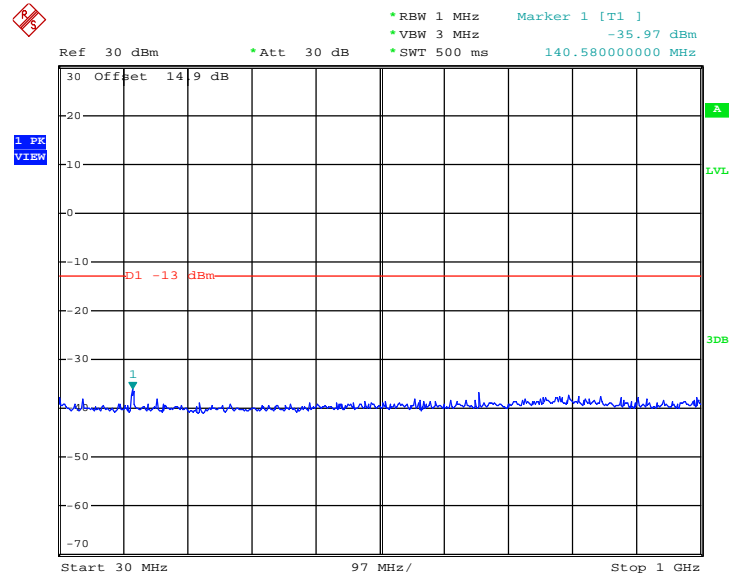
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



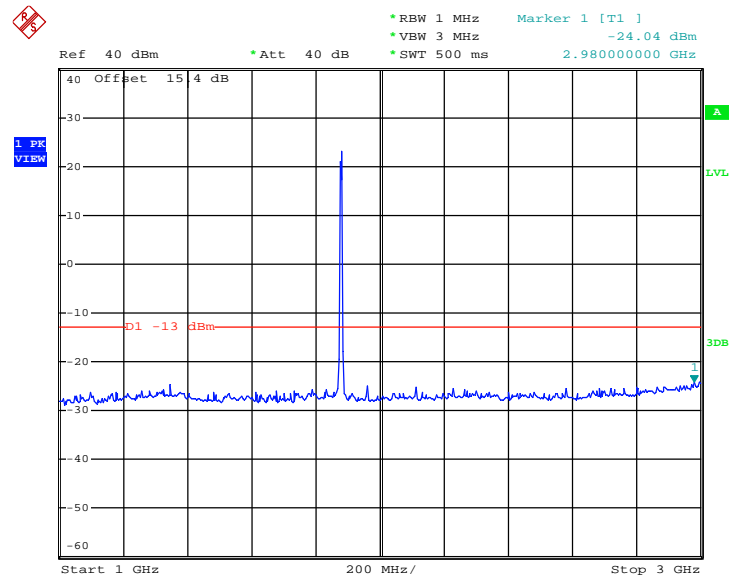
Date: 16.MAR.2015 21:43:52



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

**Conducted Spurious Emission Plot between 30MHz ~ 1GHz**

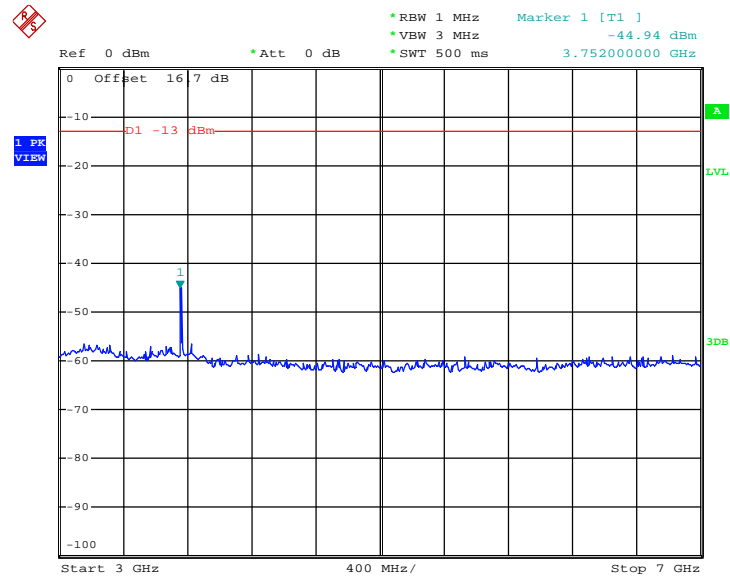
Date: 16.MAR.2015 21:36:24

**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 22:04:02

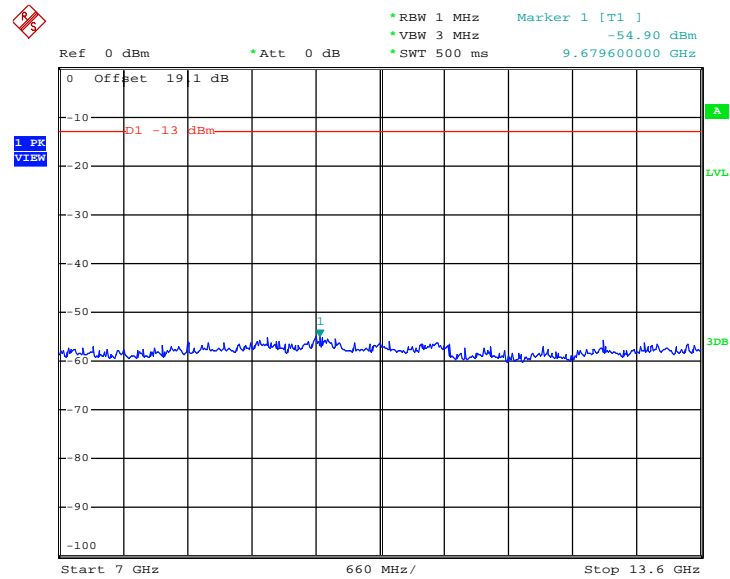


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 22:05:08

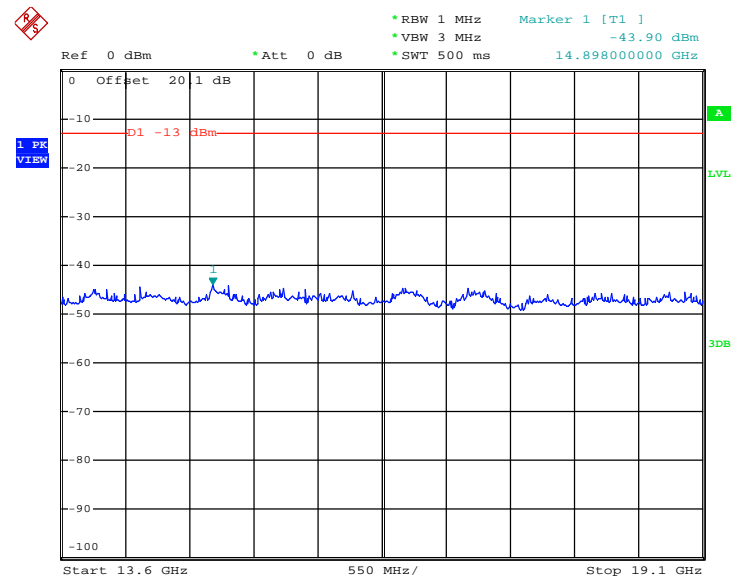
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 21:42:24



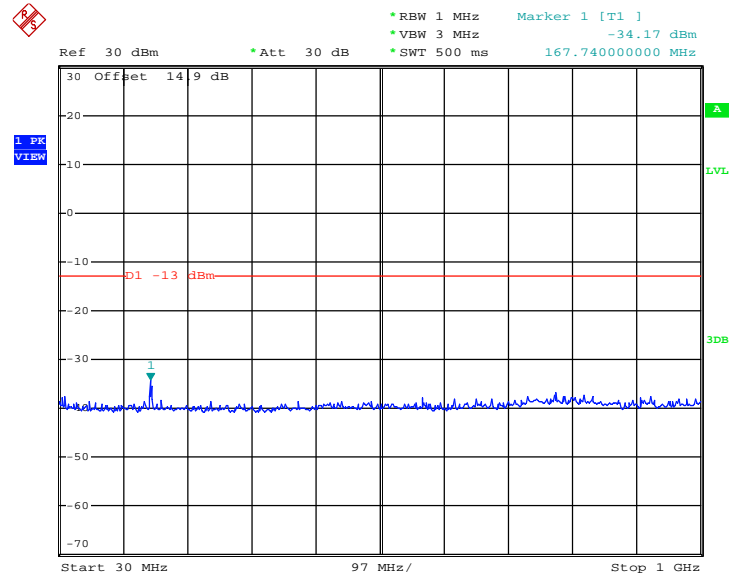
Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



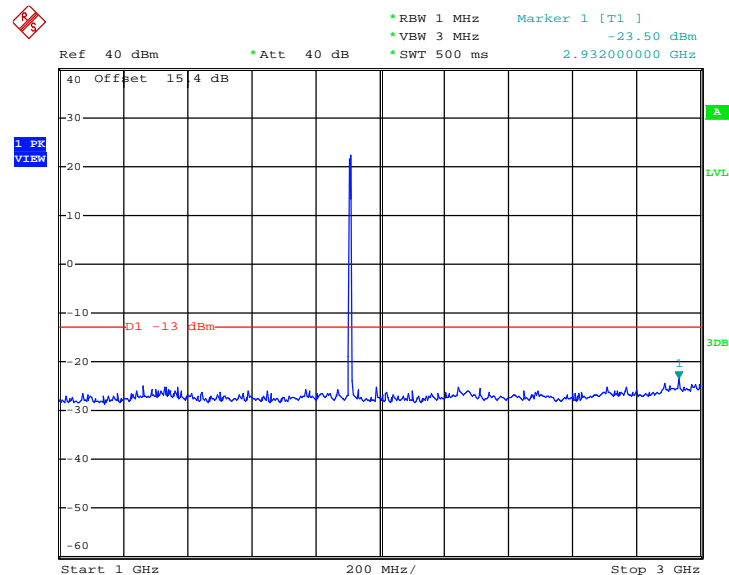
Date: 16.MAR.2015 21:44:17



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: 16.MAR.2015 21:36:50

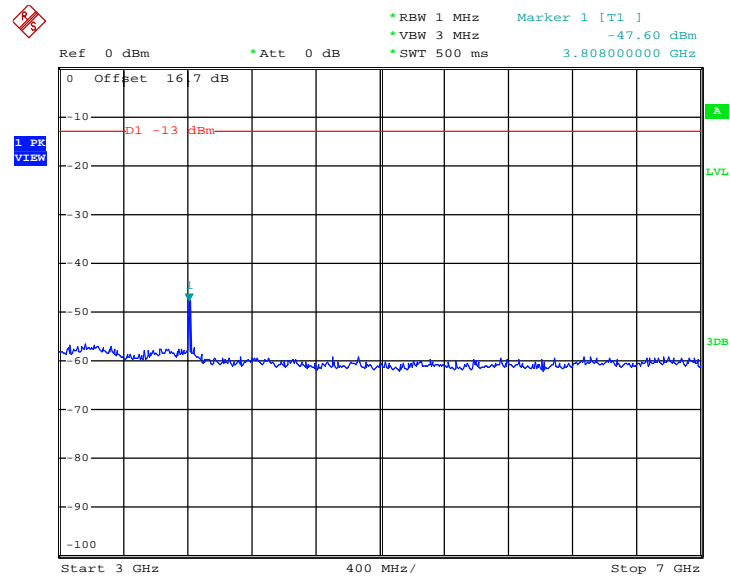
**Conducted Spurious Emission Plot between 1GHz ~ 3GHz**

Date: 16.MAR.2015 21:38:09



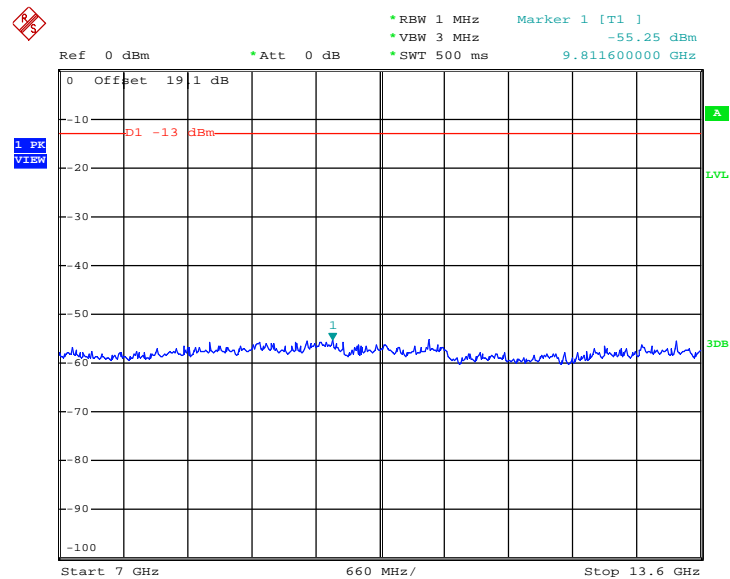


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.MAR.2015 21:41:12

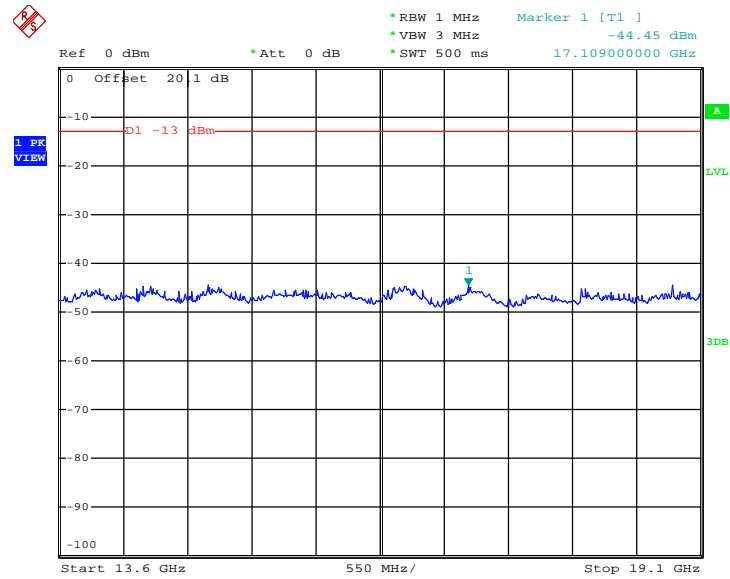
### Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 16.MAR.2015 21:42:03



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 16.MAR.2015 21:44:41

## 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

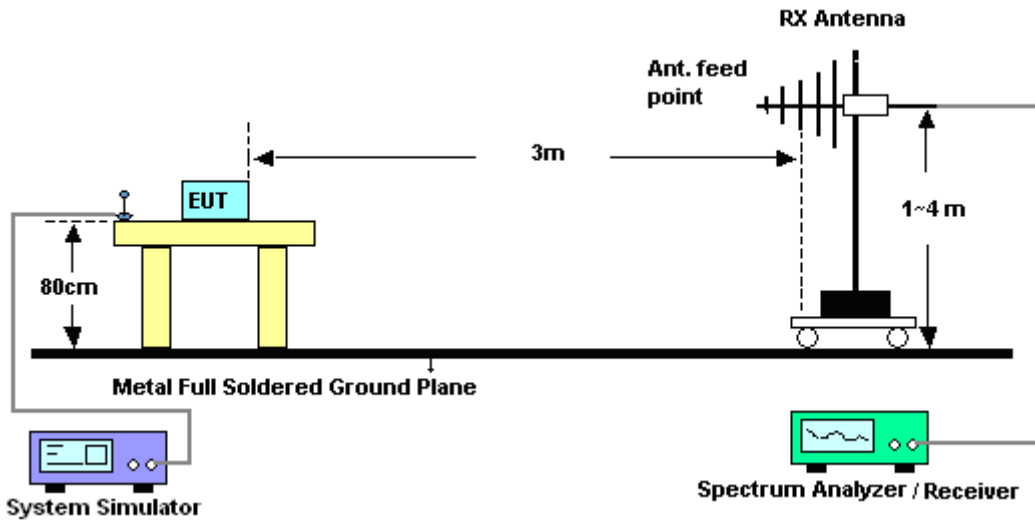
The measuring equipment is listed in the section 4 of this test report.

### 3.7.3 Test Procedures

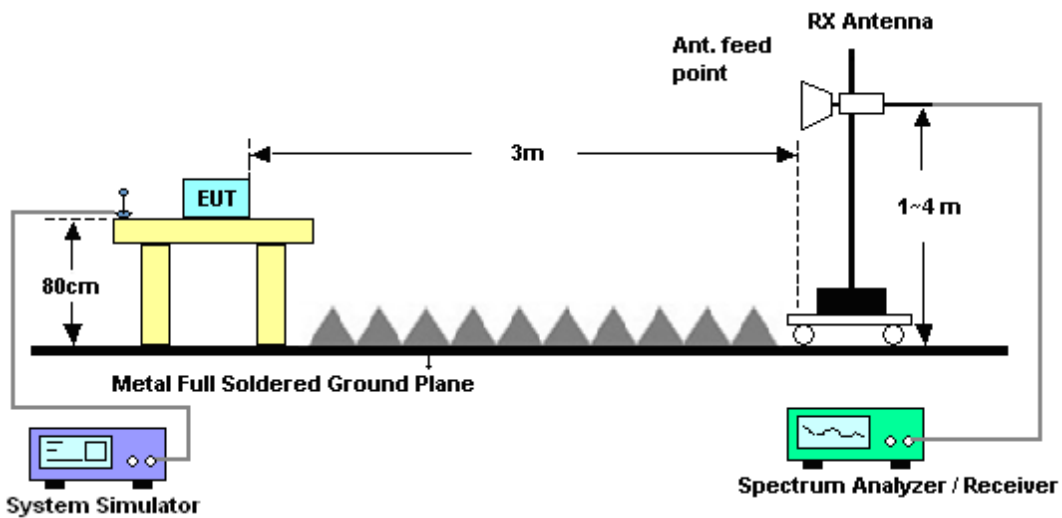
1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 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.  $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12.  $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from  $43 + 10\log(P)$  dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$   
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$   
 $= -13\text{dBm}.$

### 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

Band :	GSM850 for CH128					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1648.4	-62.07	-13	-49.07	-59.42	-67.06	0.66	7.80	H	Pass
2472.6	-62.25	-13	-49.25	-62.43	-68.65	0.85	9.40	H	Pass
3296.8	-61.73	-13	-48.73	-61.54	-67.80	0.98	9.20	H	Pass

Band :	GSM850 for CH128					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1648.4	-63.35	-13	-50.35	-59.83	-68.34	0.66	7.80	V	Pass
2472.6	-62.06	-13	-49.06	-62.74	-68.46	0.85	9.40	V	Pass
3296.8	-58.11	-13	-45.11	-58.97	-64.18	0.98	9.20	V	Pass



Band :	GSM850 for CH189					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1672	-61.57	-13	-48.57	-58.92	-66.56	0.66	7.80	H	Pass
2510	-60.41	-13	-47.41	-60.59	-66.81	0.85	9.40	H	Pass
3346	-61.47	-13	-48.47	-61.28	-67.54	0.98	9.20	H	Pass

Band :	GSM850 for CH189					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1672	-61.66	-13	-48.66	-58.14	-66.65	0.66	7.80	V	Pass
2510	-59.43	-13	-46.43	-60.11	-65.83	0.85	9.40	V	Pass
3346	-57.64	-13	-44.64	-58.50	-63.71	0.98	9.20	V	Pass



Band :	GSM850 for CH251					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
1697.6	-61.25	-13	-48.25	-58.60	-66.24	0.66	7.80	H	Pass
2546.4	-58.23	-13	-45.23	-58.41	-64.63	0.85	9.40	H	Pass
3395.2	-61.01	-13	-48.01	-60.82	-67.08	0.98	9.20	H	Pass

Band :	GSM850 for CH251					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1697.6	-62.46	-13	-49.46	-58.94	-67.45	0.66	7.80	V	Pass
2546.4	-57.51	-13	-44.51	-58.19	-63.91	0.85	9.40	V	Pass
3395.2	-56.76	-13	-43.76	-57.62	-62.83	0.98	9.20	V	Pass



Band :	GSM850 for CH128					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1648.4	-64.69	-13	-51.69	-62.04	-69.68	0.66	7.80	H	Pass
2472.6	-62.68	-13	-49.68	-62.86	-69.08	0.85	9.40	H	Pass
3296.8	-64.05	-13	-51.05	-63.86	-70.12	0.98	9.20	H	Pass

Band :	GSM850 for CH128					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1648.4	-66.46	-13	-53.46	-62.94	-71.45	0.66	7.80	V	Pass
2472.6	-61.98	-13	-48.98	-62.66	-68.38	0.85	9.40	V	Pass
3296.8	-62.44	-13	-49.44	-63.30	-68.51	0.98	9.20	V	Pass





Band :	GSM850 for CH189					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	( H/V )	
1672	-65.43	-13	-52.43	-62.78	-70.42	0.66	7.80	H	Pass
2510	-62.61	-13	-49.61	-62.79	-69.01	0.85	9.40	H	Pass
3346	-63.87	-13	-50.87	-63.68	-69.94	0.98	9.20	H	Pass

Band :	GSM850 for CH189					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1672	-66.18	-13	-53.18	-62.66	-71.17	0.66	7.80	V	Pass
2510	-61.27	-13	-48.27	-61.95	-67.67	0.85	9.40	V	Pass
3346	-63.20	-13	-50.20	-64.06	-69.27	0.98	9.20	V	Pass



Band :	GSM850 for CH251					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	( H/V )	
1697.6	-65.79	-13	-52.79	-63.14	-70.78	0.66	7.80	H	Pass
2546.4	-61.81	-13	-48.81	-61.99	-68.21	0.85	9.40	H	Pass
3395.2	-64.13	-13	-51.13	-63.94	-70.20	0.98	9.20	H	Pass

Band :	GSM850 for CH251					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	( H/V )	
1697.6	-66.96	-13	-53.96	-63.44	-71.95	0.66	7.80	V	Pass
2546.4	-61.79	-13	-48.79	-62.47	-68.19	0.85	9.40	V	Pass
3395.2	-63.11	-13	-50.11	-63.97	-69.18	0.98	9.20	V	Pass



Band :	GSM1900 for CH512					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3700.4	-56.03	-13	-43.03	-63.59	-67.38	1.25	12.60	H	Pass
5550.6	-50.10	-13	-37.10	-63.78	-61.77	1.43	13.10	H	Pass
7400.8	-51.17	-13	-38.17	-65.22	-60.21	2.26	11.30	H	Pass

Band :	GSM1900 for CH512					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3700.4	-54.76	-13	-41.76	-63.62	-66.11	1.25	12.6	V	Pass
5550.6	-50.98	-13	-37.98	-65.12	-62.65	1.43	13.1	V	Pass
7400.8	-50.53	-13	-37.53	-65.06	-59.57	2.26	11.3	V	Pass



Band :	GSM1900 for CH661					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3760	-56.61	-13	-43.61	-64.17	-67.96	1.25	12.60	H	Pass
5640	-51.10	-13	-38.10	-64.78	-62.77	1.43	13.10	H	Pass
7520	-49.79	-13	-36.79	-63.84	-58.83	2.26	11.30	H	Pass

Band :	GSM1900 for CH661					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
3760	-55.35	-13	-42.35	-64.21	-66.70	1.25	12.6	V	Pass
5640	-51.43	-13	-38.43	-65.57	-63.10	1.43	13.1	V	Pass
7520	-49.68	-13	-36.68	-64.21	-58.72	2.26	11.3	V	Pass



Band :	GSM1900 for CH810					Temperature :	23~25°C		
Test Mode :	GSM Link (GMSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3819.6	-56.16	-13	-43.16	-63.72	-67.51	1.25	12.60	H	Pass
5729.4	-51.46	-13	-38.46	-65.14	-63.13	1.43	13.10	H	Pass
7639.2	-49.78	-13	-36.78	-63.83	-58.82	2.26	11.30	H	Pass

Band :	GSM1900 for CH810	Temperature :	23~25°C						
Test Mode :	GSM Link (GMSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3819.6	-54.85	-13	-41.85	-63.71	-66.20	1.25	12.6	V	Pass
5729.4	-50.91	-13	-37.91	-65.05	-62.58	1.43	13.1	V	Pass
7639.2	-49.93	-13	-36.93	-64.46	-58.97	2.26	11.3	V	Pass



Band :	GSM1900 for CH512					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3700.4	-56.57	-13	-43.57	-64.13	-67.92	1.25	12.60	H	Pass
5550.6	-51.68	-13	-38.68	-65.36	-63.35	1.43	13.10	H	Pass
7400.8	-51.06	-13	-38.06	-65.11	-60.10	2.26	11.30	H	Pass

Band :	GSM1900 for CH512	Temperature :	23~25°C						
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3700.4	-54.84	-13	-41.84	-63.7	-66.19	1.25	12.6	V	Pass
5550.6	-50.87	-13	-37.87	-65.01	-62.54	1.43	13.1	V	Pass
7400.8	-50.99	-13	-37.99	-65.52	-60.03	2.26	11.3	V	Pass



Band :	GSM1900 for CH661					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
3760	-56.29	-13	-43.29	-63.85	-67.64	1.25	12.60	H	Pass
5640	-51.12	-13	-38.12	-64.80	-62.79	1.43	13.10	H	Pass
7520	-51.12	-13	-38.12	-65.17	-60.16	2.26	11.30	H	Pass

Band :	GSM1900 for CH661					Temperature :	23~25℃		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
3760	-54.66	-13	-41.66	-63.52	-66.01	1.25	12.6	V	Pass
5640	-51.03	-13	-38.03	-65.17	-62.70	1.43	13.1	V	Pass
7520	-50.44	-13	-37.44	-64.97	-59.48	2.26	11.3	V	Pass



Band :	GSM1900 for CH810					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	( H/V )	
3819.6	-56.29	-13	-43.29	-63.85	-67.64	1.25	12.60	H	Pass
5729.4	-51.71	-13	-38.71	-65.39	-63.38	1.43	13.10	H	Pass
7639.2	-50.95	-13	-37.95	-65.00	-59.99	2.26	11.30	H	Pass

Band :	GSM1900 for CH810					Temperature :	23~25°C		
Test Mode :	EDGE class 8 Link (8PSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3819.6	-54.80	-13	-41.80	-63.66	-66.15	1.25	12.6	V	Pass
5729.4	-50.26	-13	-37.26	-64.4	-61.93	1.43	13.1	V	Pass
7639.2	-50.06	-13	-37.06	-64.59	-59.10	2.26	11.3	V	Pass





Band :	WCDMA Band V for CH4132	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1652.8	-59.46	-13	-46.46	-56.81	-64.45	0.66	7.80	H	Pass
2479.2	-61.19	-13	-48.19	-61.37	-67.59	0.85	9.40	H	Pass
3305.6	-63.68	-13	-50.68	-63.49	-69.75	0.98	9.20	H	Pass

Band :	WCDMA Band V for CH4132	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	(H/V)	
1652.8	-60.69	-13	-47.69	-57.17	-65.68	0.66	7.80	V	Pass
2479.2	-61.39	-13	-48.39	-62.07	-67.79	0.85	9.40	V	Pass
3305.6	-62.62	-13	-49.62	-63.48	-68.69	0.98	9.20	V	Pass



Band :	WCDMA Band V for CH4182					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading ( dBm )	Power ( dBm )	loss ( dB )	Gain ( dBi )	( H/V )	
1672	-59.63	-13	-46.63	-56.98	-64.62	0.66	7.80	H	Pass
2510	-61.68	-13	-48.68	-61.86	-68.08	0.85	9.40	H	Pass
3346	-63.82	-13	-50.82	-63.63	-69.89	0.98	9.20	H	Pass

Band :	WCDMA Band V for CH4182	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit ( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
1672	-61.83	-13	-48.83	-58.31	-66.82	0.66	7.80	V	Pass
2510	-61.04	-13	-48.04	-61.72	-67.44	0.85	9.40	V	Pass
3346	-61.92	-13	-48.92	-62.78	-67.99	0.98	9.20	V	Pass



Band :	WCDMA Band V for CH4233	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
1693.2	-57.14	-13	-44.14	-54.49	-62.13	0.66	7.80	H	Pass
2539.8	-62.26	-13	-49.26	-62.44	-68.66	0.85	9.40	H	Pass
3386.4	-63.72	-13	-50.72	-63.53	-69.79	0.98	9.20	H	Pass

Band :	WCDMA Band V for CH4233	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
1693.2	-57.28	-13	-44.28	-53.76	-62.27	0.66	7.80	V	Pass
2539.8	-62.17	-13	-49.17	-62.85	-68.57	0.85	9.40	V	Pass
3386.4	-62.31	-13	-49.31	-63.17	-68.38	0.98	9.20	V	Pass



Band :	WCDMA Band IV for CH1312					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3424.8	-51.90	-13	-38.90	-64.31	-58.80	1.4	8.30	H	Pass
5137.2	-47.27	-13	-34.27	-65.71	-55.92	1.65	10.30	H	Pass
6849.6	-42.49	-13	-29.49	-64.73	-53.04	1.85	12.40	H	Pass

Band :	WCDMA Band IV for CH1312					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3424.8	-49.09	-13	-36.09	-64.38	-55.99	1.4	8.3	V	Pass
5137.2	-48.31	-13	-35.31	-65.84	-56.96	1.65	10.3	V	Pass
6849.6	-42.45	-13	-29.45	-65	-53.00	1.85	12.4	V	Pass



Band :	WCDMA Band IV for CH1413	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3465	-50.14	-13	-37.14	-62.55	-57.04	1.4	8.30	H	Pass
5197.5	-47.22	-13	-34.22	-65.66	-55.87	1.65	10.30	H	Pass
6930	-42.44	-13	-29.44	-64.68	-52.99	1.85	12.40	H	Pass

Band :	WCDMA Band IV for CH1413	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3465	-48.08	-13	-35.08	-63.37	-54.98	1.4	8.3	V	Pass
5197.5	-48.35	-13	-35.35	-65.88	-57.00	1.65	10.3	V	Pass
6930	-42.31	-13	-29.31	-64.86	-52.86	1.85	12.4	V	Pass



Band :	WCDMA Band IV for CH1513					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3505.2	-50.67	-13	-37.67	-63.08	-57.57	1.4	8.30	H	Pass
5257.8	-47.03	-13	-34.03	-65.47	-55.68	1.65	10.30	H	Pass
7010.4	-42.49	-13	-29.49	-64.73	-53.04	1.85	12.40	H	Pass

Band :	WCDMA Band IV for CH1513	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain		
			( dB )	(dBm)	( dBm )	( dB )	(dBi)	(H/V)	
3505.2	-48.84	-13	-35.84	-64.13	-55.74	1.4	8.3	V	Pass
5257.8	-47.85	-13	-34.85	-65.38	-56.50	1.65	10.3	V	Pass
7010.4	-42.40	-13	-29.40	-64.95	-52.95	1.85	12.4	V	Pass



Band :	WCDMA Band II for CH9262	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3704.8	-56.02	-13	-43.02	-63.58	-67.37	1.25	12.60	H	Pass
5557.2	-51.39	-13	-38.39	-65.07	-63.06	1.43	13.10	H	Pass
7409.6	-50.94	-13	-37.94	-64.99	-59.98	2.26	11.30	H	Pass

Band :	WCDMA Band II for CH9262	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain		
			( dB )	(dBm)	( dBm )	( dB )	(dBi)	(H/V)	
3704.8	-54.87	-13	-41.87	-63.73	-66.22	1.25	12.6	V	Pass
5557.2	-50.03	-13	-37.03	-64.17	-61.70	1.43	13.1	V	Pass
7409.6	-50.78	-13	-37.78	-65.31	-59.82	2.26	11.3	V	Pass



Band :	WCDMA Band II for CH9400					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3760	-55.04	-13	-42.04	-62.60	-66.39	1.25	12.60	H	Pass
5640	-50.58	-13	-37.58	-64.26	-62.25	1.43	13.10	H	Pass
7520	-50.68	-13	-37.68	-64.73	-59.72	2.26	11.30	H	Pass

Band :	WCDMA Band II for CH9400					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Vertical		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3760	-52.62	-13	-39.62	-61.48	-63.97	1.25	12.6	V	Pass
5640	-48.46	-13	-35.46	-62.6	-60.13	1.43	13.1	V	Pass
7520	-50.62	-13	-37.62	-65.15	-59.66	2.26	11.3	V	Pass





Band :	WCDMA Band II for CH9538					Temperature :	23~25°C		
Test Mode :	RMC 12.2Kbps Link (QPSK)					Relative Humidity :	48~52%		
Test Engineer :	Sam Li					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	Limit	Reading	Power	loss	Gain	(H/V)	
			( dB )	(dBm)	( dBm )	( dB )	(dBi)		
3815.2	-56.50	-13	-43.50	-64.06	-67.85	1.25	12.60	H	Pass
5722.8	-51.81	-13	-38.81	-65.49	-63.48	1.43	13.10	H	Pass
7630.4	-50.56	-13	-37.56	-64.61	-59.60	2.26	11.30	H	Pass

Band :	WCDMA Band II for CH9538	Temperature :	23~25°C						
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	48~52%						
Test Engineer :	Sam Li	Polarization :	Vertical						
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
( MHz )	( dBm )	( dBm )	( dB )	Reading (dBm)	Power ( dBm )	loss ( dB )	Gain (dBi)	(H/V)	
3815.2	-53.80	-13	-40.80	-62.66	-65.15	1.25	12.6	V	Pass
5722.8	-50.41	-13	-37.41	-64.55	-62.08	1.43	13.1	V	Pass
7630.4	-49.93	-13	-36.93	-64.46	-58.97	2.26	11.3	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  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

#### **3.8.2 Measuring Instruments**

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

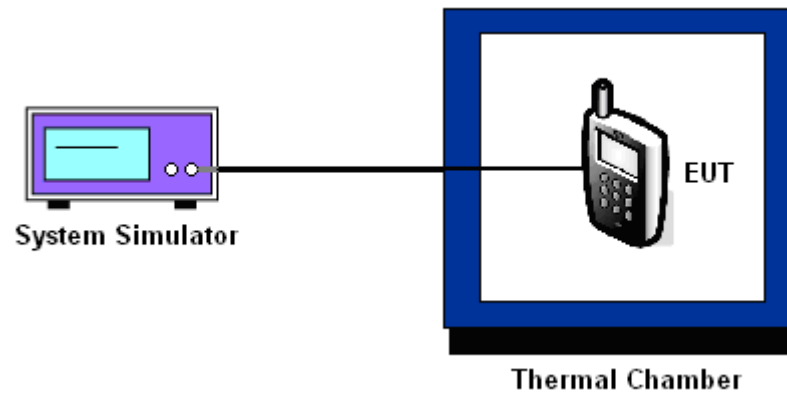
#### **3.8.3 Test Procedures for Temperature Variation**

1. The testing follows FCC KDB 971168 v02r02 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  $-30^{\circ}\text{C}$  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  $10^{\circ}\text{C}$  steps up to  $50^{\circ}\text{C}$ . 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 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at  $25\pm 5^{\circ}\text{C}$  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

<b>Band :</b>	GSM 850	<b>Channel :</b>	189
<b>Limit (ppm) :</b>	2.5	<b>Frequency :</b>	836.4 MHz

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	22	0.0060	21	0.0024	PASS
40	14	0.0036	22	0.0012	
30	27	0.0120	-6	0.0347	
20(Ref.)	17	0.0000	23	0.0000	
10	27	0.0120	28	0.0060	
0	10	0.0084	10	0.0155	
-10	-13	0.0359	-10	0.0395	
-20	17	0.0000	-11	0.0407	
-30	19	0.0024	27	0.0048	

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

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	27	0.0223	24	0.0043	PASS
40	24	0.0207	13	0.0016	
30	28	0.0229	-8	0.0128	
20(Ref.)	-15	0.0000	16	0.0000	
10	14	0.0154	17	0.0005	
0	-11	0.0021	11	0.0027	
-10	13	0.0149	-8	0.0128	
-20	18	0.0176	18	0.0011	
-30	13	0.0149	-11	0.0144	

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



<b>Band :</b>	WCDMA Band V	<b>Channel :</b>	4182
<b>Limit (ppm) :</b>	2.5	<b>Frequency :</b>	836.4 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	19	0.0024	PASS
40	-11	0.0335	
30	26	0.0108	
20(Ref.)	17	0.0000	
10	-16	0.0395	
0	18	0.0012	
-10	21	0.0048	
-20	-12	0.0347	
-30	17	0.0000	

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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	30	0.0115	PASS
40	15	0.0029	
30	-12	0.0127	
20(Ref.)	10	0.0000	
10	-19	0.0167	
0	28	0.0104	
-10	-11	0.0121	
-20	22	0.0069	
-30	-29	0.0225	

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

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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	-10	0.0037	PASS
40	-19	0.0011	
30	18	0.0186	
20(Ref.)	-17	0.0000	
10	25	0.0223	
0	-15	0.0011	
-10	17	0.0181	
-20	10	0.0144	
-30	18	0.0186	

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
GSM 850 CH189	GSM	3.80	13	0.0048	2.5	PASS
		BEP	11	0.0072		
		4.35	24	0.0084		
	EDGE class 8	3.80	17	0.0072		
		BEP	15	0.0096		
		4.35	-12	0.0418		
GSM 1900 CH661	GSM	3.80	23	0.0202	(Note 3.)	
		BEP	14	0.0154		
		4.35	-17	0.0011		
	EDGE class 8	3.80	-12	0.0149		
		BEP	17	0.0005		
		4.35	18	0.0011		
WCDMA Band V CH4182	RMC 12.2Kbps	3.80	15	0.0024	2.5	
		BEP	13	0.0048		
		4.35	-14	0.0371		
WCDMA Band IV CH1413	RMC 12.2Kbps	3.80	-14	0.0139	(Note 3.)	
		BEP	18	0.0046		
		4.35	26	0.0092		
WCDMA Band II CH9400	RMC 12.2Kbps	3.80	14	0.0165	(Note 3.)	
		BEP	26	0.0229		
		4.35	-12	0.0027		

**Note:**

1. Normal Voltage = 3.80V.
2. Battery End Point (BEP) = 3.50 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	R&S	FSP40	100319	9kHz~40GHz	Oct. 28, 2014	Mar. 16, 2015~ Mar. 24, 2015	Oct. 27, 2015	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV30	101338	9kHz~30GHz	May 04, 2014	Mar. 16, 2015~ Mar. 24, 2015	May 03, 2015	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 25, 2014	Mar. 16, 2015~ Mar. 24, 2015	Oct. 24, 2015	Conducted (TH01-KS)
EMI TEST Receiver	R&S	ESCI7	100768	9kHz~3GHz	May 04, 2014	Mar. 27, 2015~ Mar. 31, 2015	May 03, 2015	Radiation (03CH02-SZ)
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Mar. 27, 2015~ Mar. 31, 2015	May 25, 2015	Radiation (03CH02-SZ)
Bilog Antenna	TESEQ	CBL 6112D	37877	30MHz~2GHz	Oct. 15, 2014	Mar. 27, 2015~ Mar. 31, 2015	Oct. 14, 2015	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1285	1GHz~18GHz	Jan. 20, 2015	Mar. 27, 2015~ Mar. 31, 2015	Jan. 19, 2016	Radiation (03CH02-SZ)
Double Ridged Horn Antenna	COM-POWER	AH-840	101071	18GHz~40GHz	Sep. 04, 2014	Mar. 27, 2015~ Mar. 31, 2015	Sep. 03, 2015	Radiation (03CH02-SZ)
Amplifier	com-power	PA-103A	161069	1~1000MHz	May 04, 2014	Mar. 27, 2015~ Mar. 31, 2015	May 03, 2015	Radiation (03CH02-SZ)
Amplifier	Agilent	8449B	3008A01023	1GHz~26.5GHz	Oct. 29, 2014	Mar. 27, 2015~ Mar. 31, 2015	Oct. 28, 2015	Radiation (03CH02-SZ)
AC Source(AVR)	CHROMA	61601ACSO URCE	61601000247 0	100Vac~240Vac	NCR	Mar. 27, 2015~ Mar. 31, 2015	NCR	Radiation (03CH02-SZ)
Turn Table	Qiangdian	3000	N/A	0~360 degree	NCR	Mar. 27, 2015~ Mar. 31, 2015	NCR	Radiation (03CH02-SZ)
Antenna Mast	Qiangdian	3000	N/A	1 m~4 m	NCR	Mar. 27, 2015~ Mar. 31, 2015	NCR	Radiation (03CH02-SZ)





## 5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.5dB
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