

FCC RF Test Report

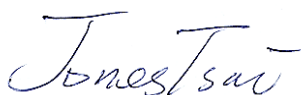
APPLICANT : VERTU Corporation Limited
EQUIPMENT : Cellular Telephone
BRAND NAME : VERTU
MODEL NAME : SIGNATURE TOUCH
TYPE (LTE) : RM-980V
TYPE (WCDMA) : RM-980C
FCC ID : P7QRM-980V
STANDARD : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Mar. 03, 2014 and testing was completed on May 20, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown to be compliant with the applicable technical standards.

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



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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FCC ID : P7QRM-980V

Page Number : 1 of 178

Report Issued Date : May 26, 2014

Report Version : Rev. 01

Report Template No.: BU5-FG22/24 Version 1.0



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG430314A	Rev. 01	Initial issue of report	May 26, 2014

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.2	§24.232(d) §27.50(d)(5)	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		
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(g)	RSS-GEN(4.9) 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(g)	RSS-GEN(4.9) 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(g)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 19.48 dB at 2548.000 MHz
3.8	§2.1055 §22.355 §24.235 §27.54	RSS-GEN(4.7) RSS-132 (5.3) RSS-133 (6.3) RSS-139 (6.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

1 General Description

1.1 Applicant

VERTU Corporation Limited

Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

1.2 Manufacturer

VERTU Corporation Limited

Beacon Hill Road, Church Crookham, Hampshire GU52 8DY, United Kingdom

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Cellular Telephone
Brand Name	VERTU
Model Name	SIGNATURE TOUCH
Type (LTE)	RM-980V
Type (WCDMA)	RM-980C
FCC ID	P7QRM-980V
Sample 1	LTE SKU
Sample 2	WCDMA SKU
Sample 3	LTE SKU with 2 nd EMMC
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth v3.0 + EDR Bluetooth v4.0 - LE
HW Version	F2
SW Version	1_160_0001
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. There are three different types of EUT sample #1, sample #2 and sample #3. For WWAN bands, Sample 1 support WCDMA and LTE bands, sample #2 only support WCDMA band and LTE band is disabled by software. Sample #1 and Sample #3 are different for EMMC. We choose sample #1 to perform all tests.

Specification of Accessory		
AC Adapter	Brand Name	VERTU
	Model Name	AC-32V
Car Charger	Brand Name	VERTU
	Model Name	DC-30V
Battery	Brand Name	VERTU
	Model Name	BP-9V
Portable Power Charger	Brand Name	VERTU
	Model Name	DC-15V
Earphone 1	Brand Name	VERTU
	Model Name	WH-4V
Earphone 2	Brand Name	VERTU
	Model Name	WH-5V
USB Cable	Brand Name	VERTU
Wireless Charger	Brand Name	VERTU
	Model Name	AC-35V

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	GSM850 : 32.57 dBm GSM1900 : 29.81 dBm WCDMA Band V : 23.26 dBm WCDMA Band IV : 23.47 dBm WCDMA Band II : 23.24 dBm
Antenna Type	Monopole+parasitic Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)

1.5 Modification of EUT

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

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

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.82	0.0275 ppm	250KGXW
Part 22	GSM850 GSM With WPC	GMSK	0.59	-	-
Part 22	GSM850 EDGE class 8	8PSK	0.18	0.0502 ppm	250KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.09	0.0108 ppm	4M20F9W
Part 24	GSM1900 GPRS class 8	GMSK	0.57	0.0330 ppm	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.22	0.0452 ppm	246KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.19	0.0064 ppm	4M20F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.12	0.0075 ppm	4M20F9W

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	TH02-HY	03CH08-HY	636805/4086B-2

1.8 Applicable Standards

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

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

Remark:

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

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.
3. 30 MHz to 18000 MHz for WCDMA Band IV.

Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GSM Link ■ EDGE class 8 Link ■ GSM Link + WPC Charging	■ GSM Link ■ EDGE class 8 Link
GSM 1900	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 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 VI	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Note:

1. The maximum power levels are chosen to test as the worst case configuration as follows:
 GSM or GPRS multi-slot class 8 mode for GMSK modulation,
 EDGE multi-slot class 8 mode for 8PSK modulation,
 RMC 12.2Kbps mode for WCDMA band V,
 RMC 12.2Kbps mode for WCDMA band IV,
 RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.

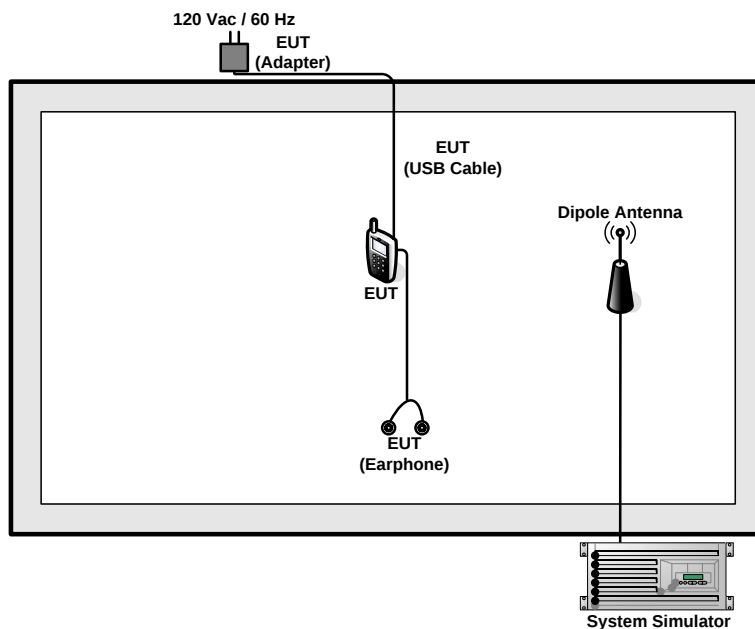
Conducted Power Measurement Results:

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	32.08	32.57	32.53	29.80	29.64	29.52
GPRS class 8	32.55	32.56	32.55	29.81	29.65	29.54
GPRS class 10	29.46	29.44	29.49	27.10	26.91	26.92
GPRS class 11	27.14	27.11	27.09	25.42	25.26	25.28
GPRS class 12	26.34	26.30	26.31	24.21	23.94	23.95
EGPRS class 8	26.56	26.47	26.49	25.93	25.73	25.70
EGPRS class 10	24.45	24.40	24.45	23.77	23.54	23.51
EGPRS class 11	22.38	22.32	22.33	21.68	21.62	21.45
EGPRS class 12	21.49	21.39	21.42	20.75	20.54	20.59

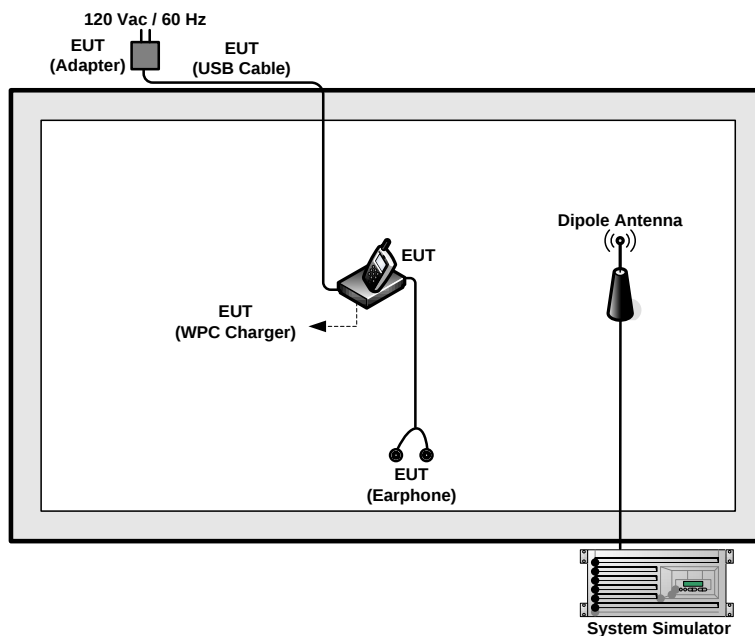
Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
RMC 12.2K	23.10	23.04	23.26	23.02	23.14	23.24	23.47	23.31	23.33
HSDPA Subtest-1	22.07	22.09	22.25	22.08	22.10	22.29	22.53	22.40	22.51
HSDPA Subtest-2	21.98	22.01	22.20	21.96	22.01	22.27	22.49	22.35	22.28
HSDPA Subtest-3	21.59	21.69	21.85	21.66	21.54	21.78	22.00	21.87	21.92
HSDPA Subtest-4	21.48	21.57	21.66	21.59	21.52	21.69	21.93	21.86	21.88
HSUPA Subtest-1	21.55	21.70	21.92	21.36	21.23	21.68	21.99	21.95	22.18
HSUPA Subtest-2	20.88	20.95	21.12	20.77	20.62	20.85	21.29	21.21	21.33
HSUPA Subtest-3	20.81	20.91	21.09	20.95	20.83	21.23	21.18	21.12	21.28
HSUPA Subtest-4	21.39	21.44	21.65	21.09	20.93	21.32	21.81	21.76	21.91
HSUPA Subtest-5	22.04	22.04	22.23	21.94	21.85	22.10	22.21	22.16	22.37

2.2 Connection Diagram of Test System

<EUT with Adapter Mode>



<EUT with WPC charging mode>



2.3 Support Unit used in test configuration

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

2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

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

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.2 + 10 = 14.2 \text{ (dB)}\end{aligned}$$

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.

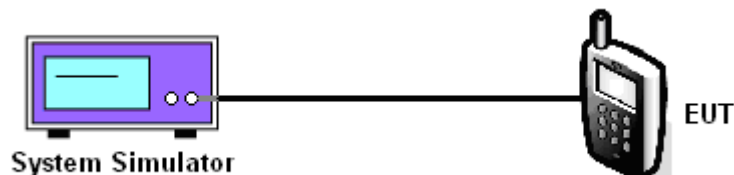
3.1.2 Measuring Instruments

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)	32.08	32.57	32.53	26.56	26.47	26.49	23.10	23.04	23.26
Conducted Power (Watts)	1.61	1.81	1.79	0.45	0.44	0.45	0.20	0.20	0.21

PCS Band									
Modes	GSM1900 (GPRS class 8)			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)	29.81	29.65	29.54	25.93	25.73	25.70	23.02	23.14	23.24
Conducted Power (Watts)	0.96	0.92	0.90	0.39	0.37	0.37	0.20	0.21	0.21

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)	23.47	23.31	23.33
Conducted Power (Watts)	0.22	0.21	0.22

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.

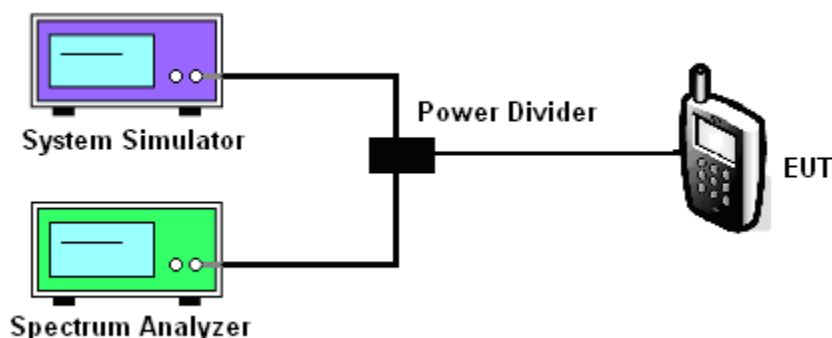
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak-to-Average Ratio

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
Peak-to-Average Ratio (dB)	0.24	0.23	0.22	2.69	2.76	2.68	3.08	2.76	3.08

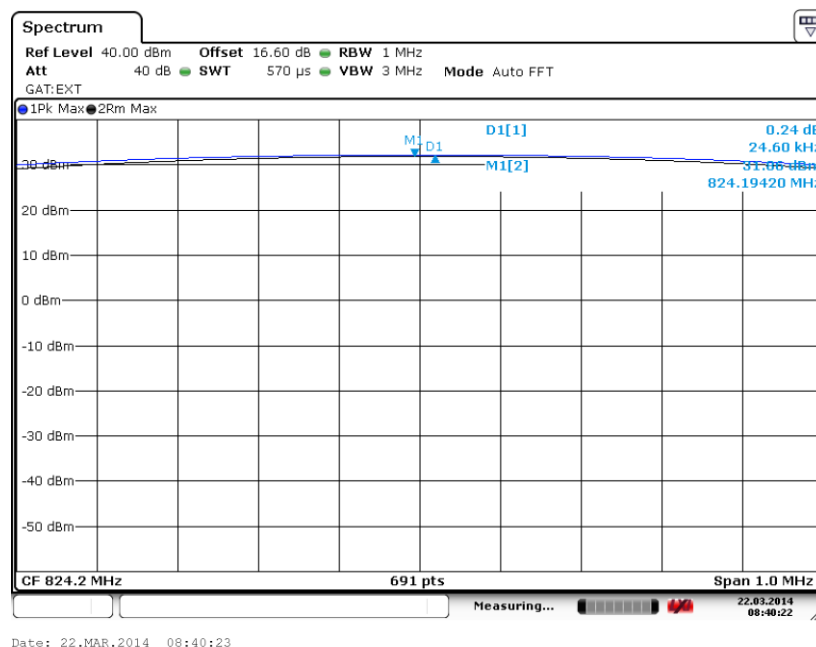
PCS Band									
Modes	GSM1900 (GPRS class 8)			GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)		
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.23	0.24	0.23	2.68	2.64	2.63	3.28	2.96	2.88

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

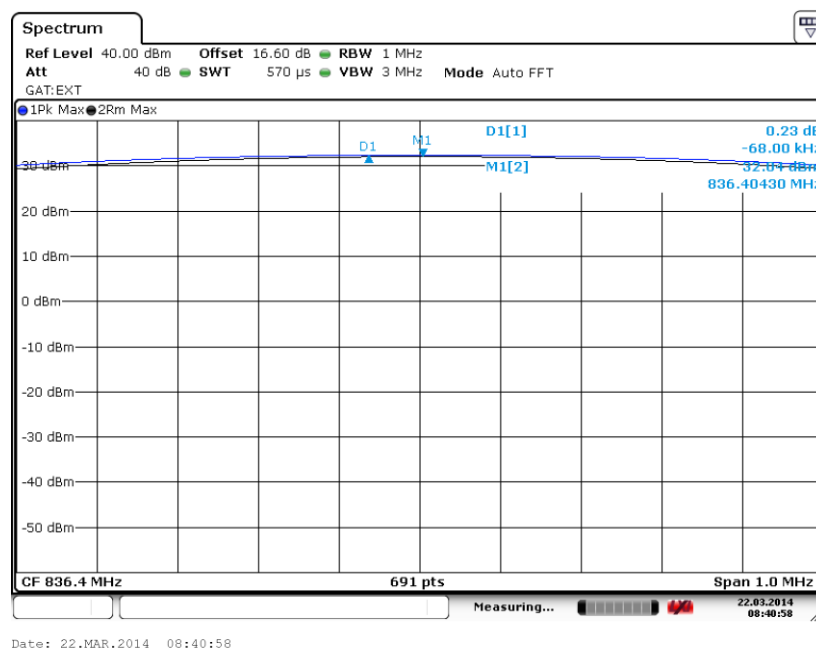
3.2.6 Test Result (Plots) of Peak-to-Average Ratio

Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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Peak-to-Average Ratio on Channel 128 (824.2 MHz)

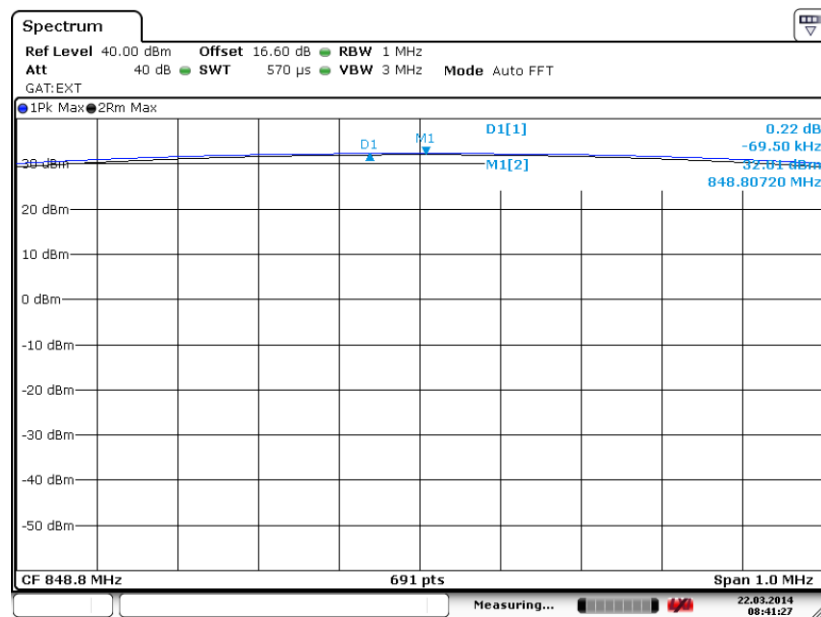


Peak-to-Average Ratio on Channel 189 (836.4 MHz)





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

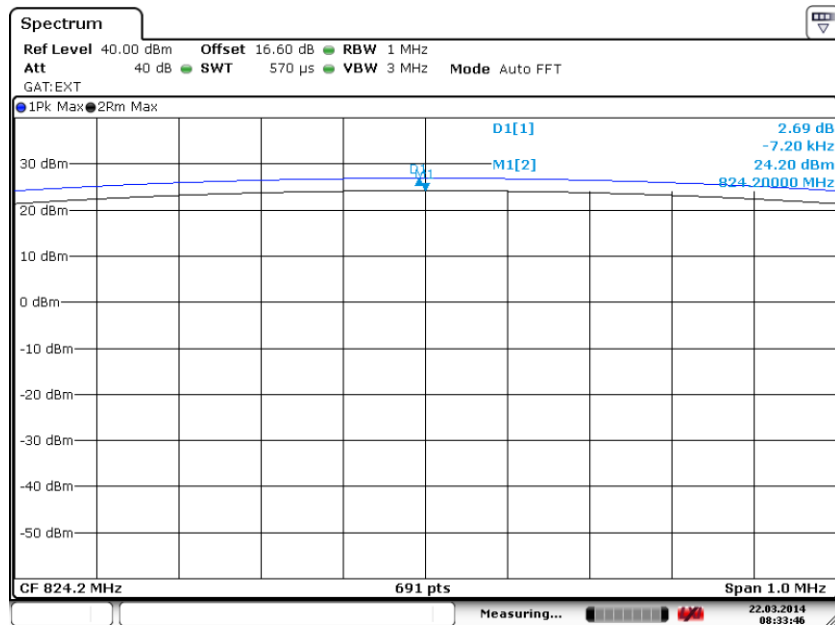


Date: 22.MAR.2014 08:41:28



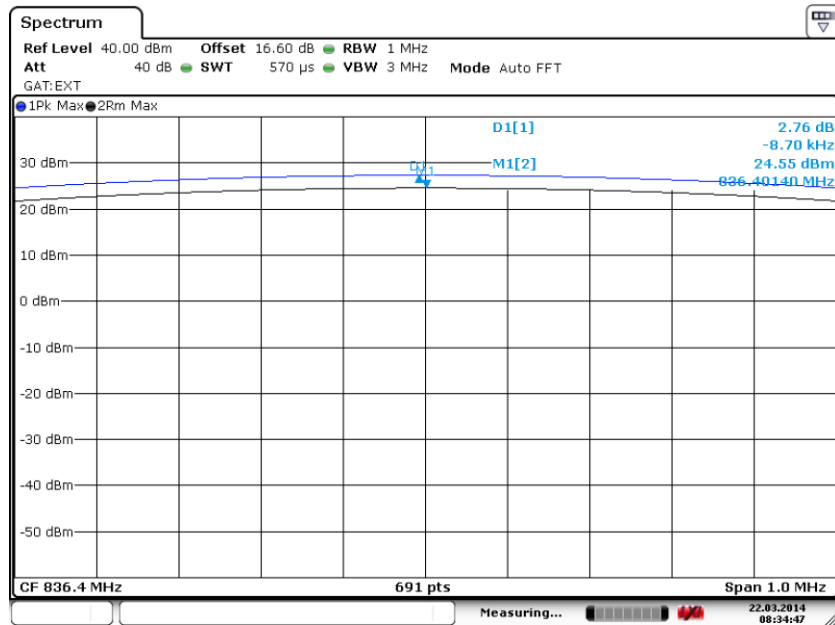
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
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Peak-to-Average Ratio on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 08:33:46

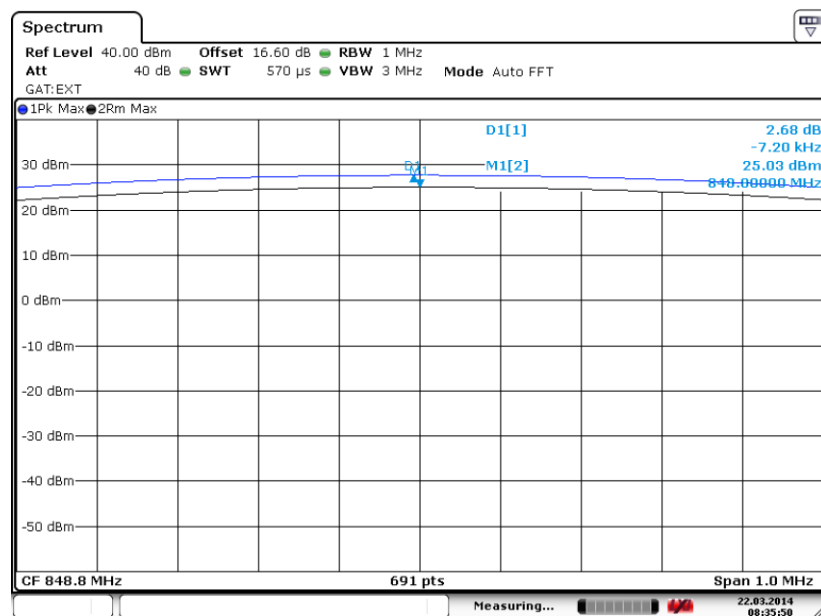
Peak-to-Average Ratio on Channel 189 (836.4 MHz)



Date: 22.MAR.2014 08:34:47



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

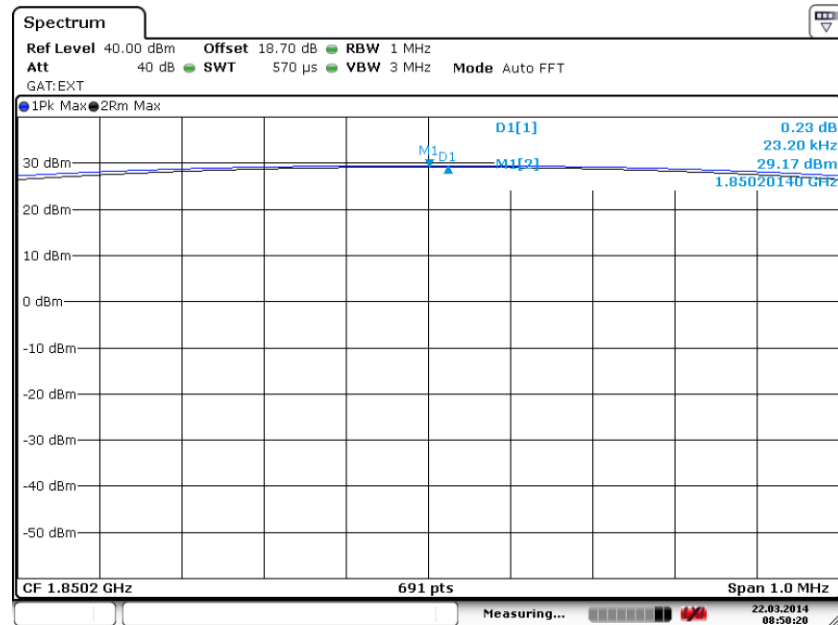


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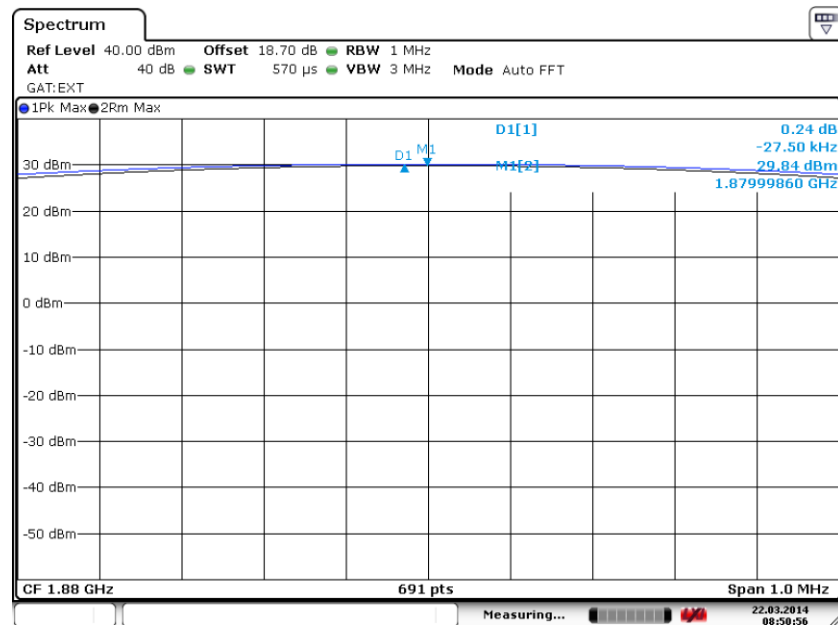
Band :	GSM 1900	Test Mode :	GPRS class 8 Link (GMSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 08:50:21

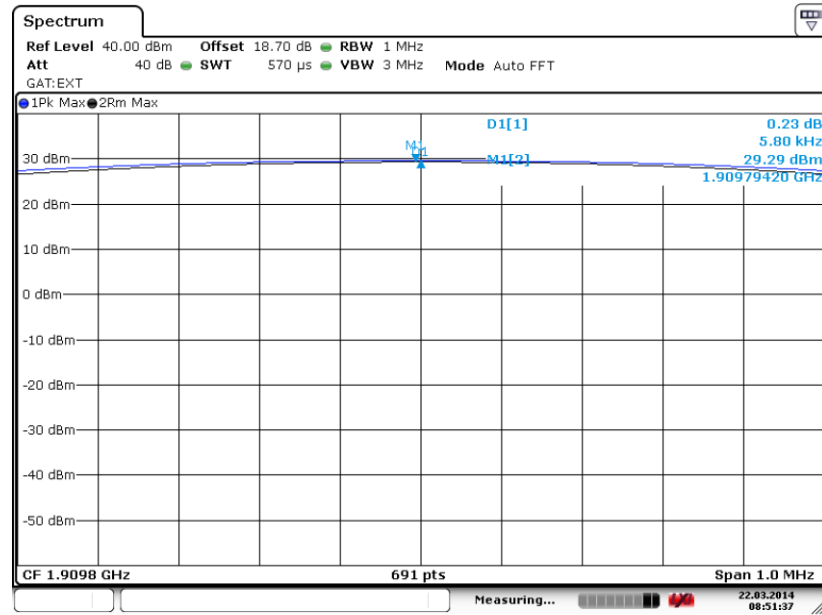
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 22.MAR.2014 08:50:57



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

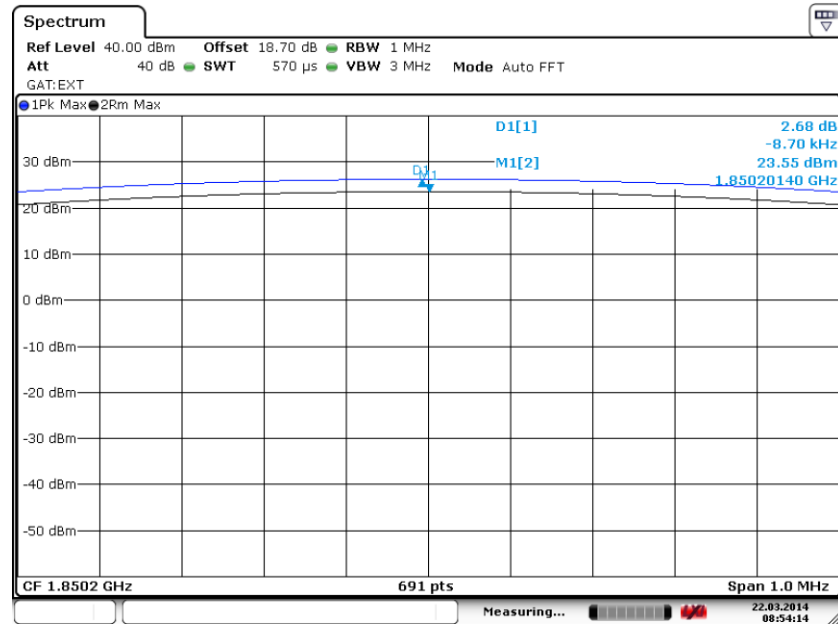


Date: 22.MAR.2014 08:51:37



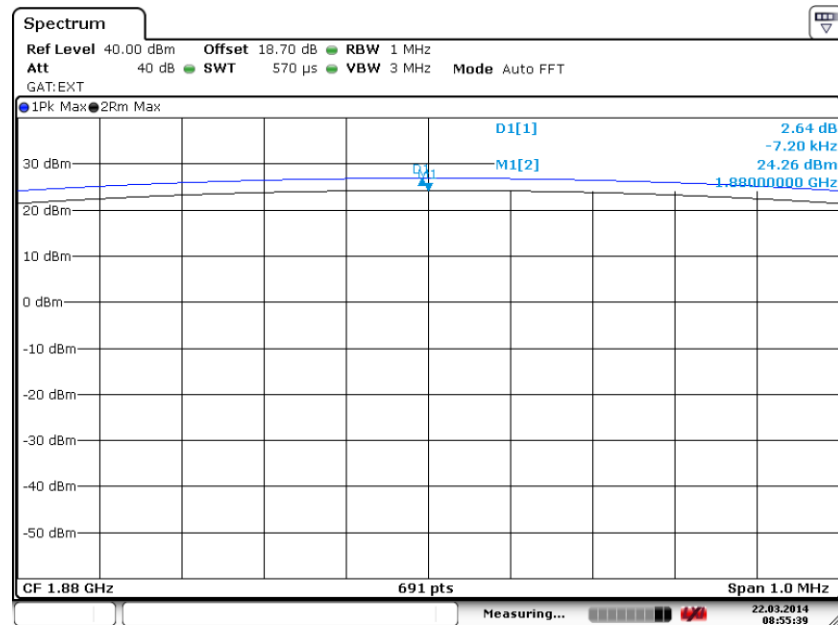
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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Peak-to-Average Ratio on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 08:54:14

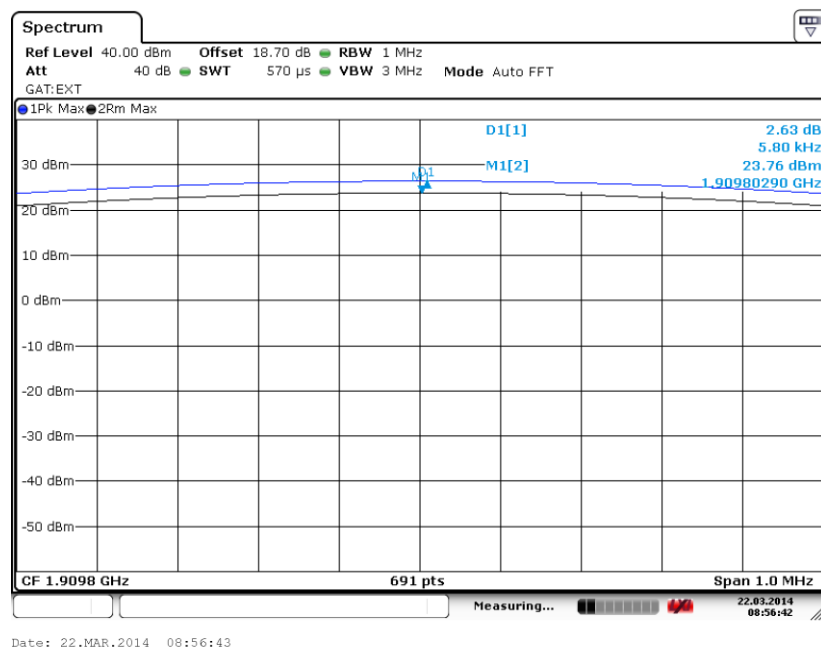
Peak-to-Average Ratio on Channel 661 (1880.0 MHz)



Date: 22.MAR.2014 08:55:39

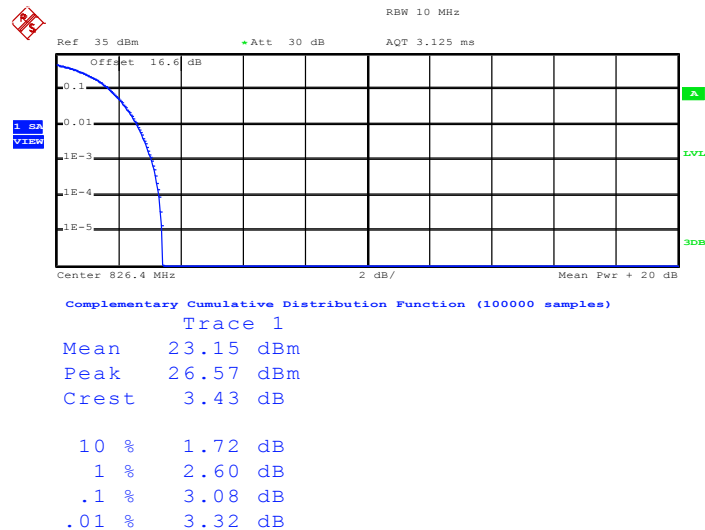


Peak-to-Average Ratio on Channel 810 (1909.8 MHz)



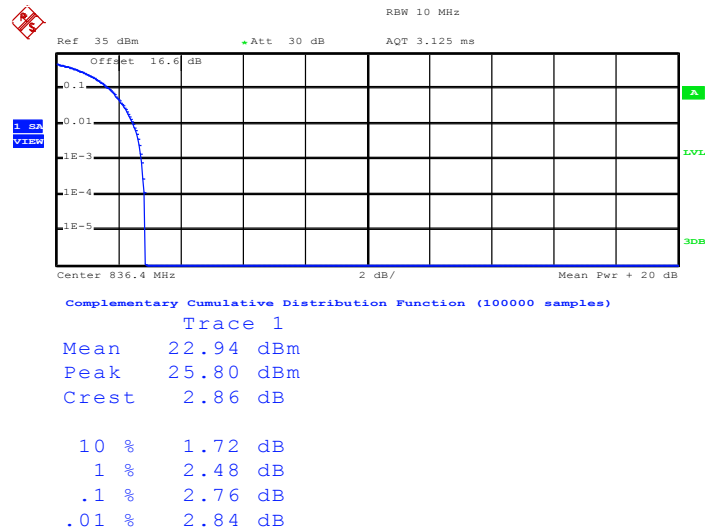
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 4132 (826.4 MHz)



Date: 22.MAR.2014 14:26:04

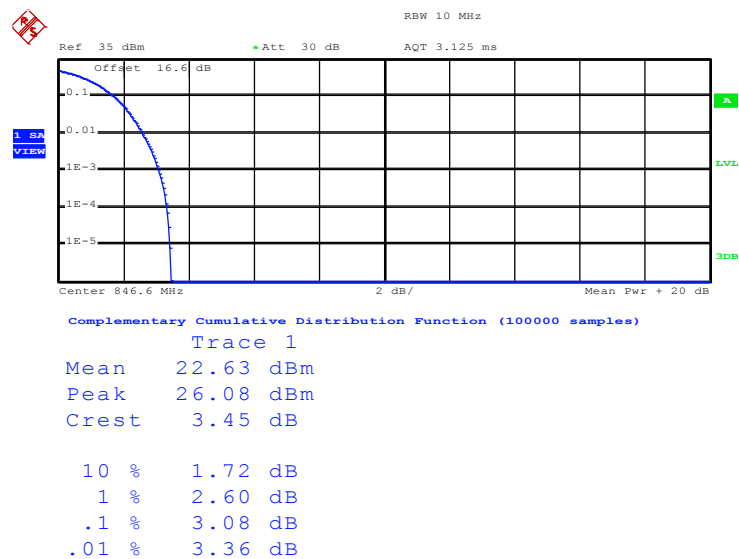
Peak-to-Average Ratio on Channel 4182 (836.4 MHz)



Date: 22.MAR.2014 14:26:47



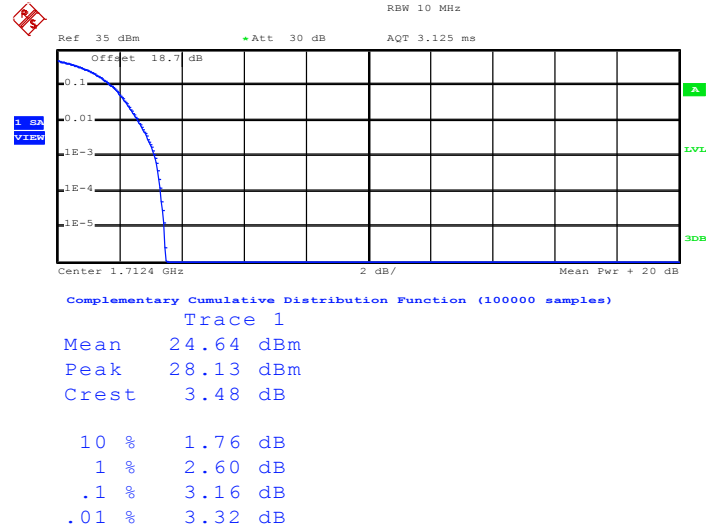
Peak-to-Average Ratio on Channel 4233 (846.6 MHz)



Date: 22.MAR.2014 14:27:16

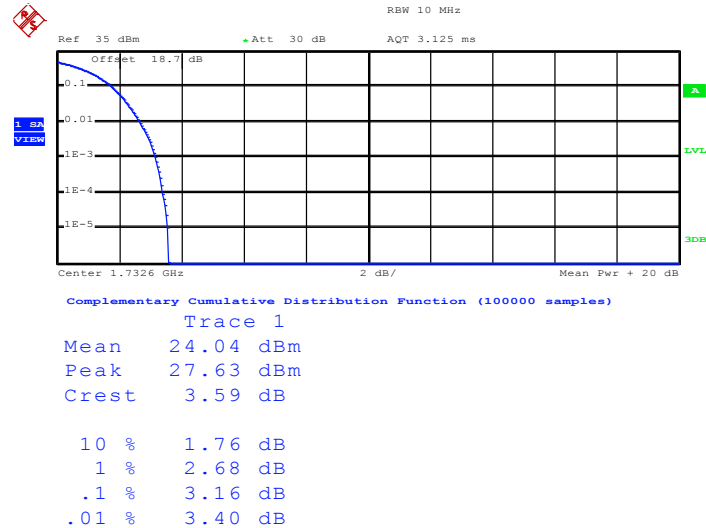
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 1312 (1712.4 MHz)



Date: 22.MAR.2014 13:28:16

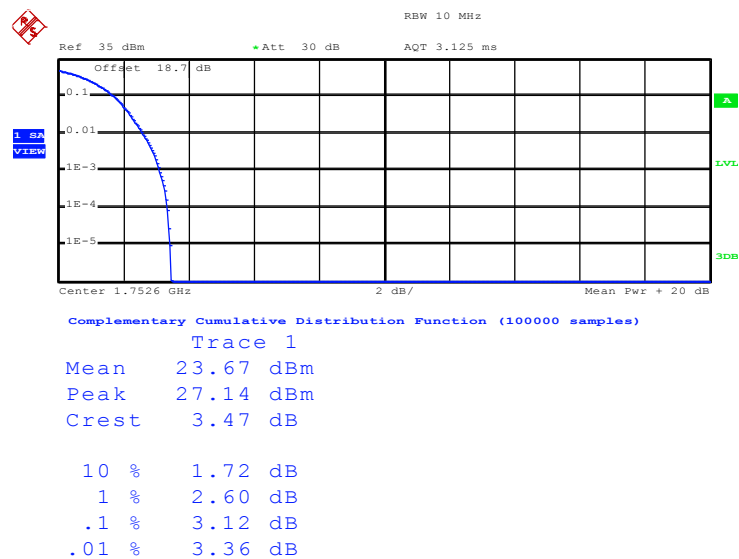
Peak-to-Average Ratio on Channel 1413 (1732.6 MHz)



Date: 22.MAR.2014 13:28:45



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

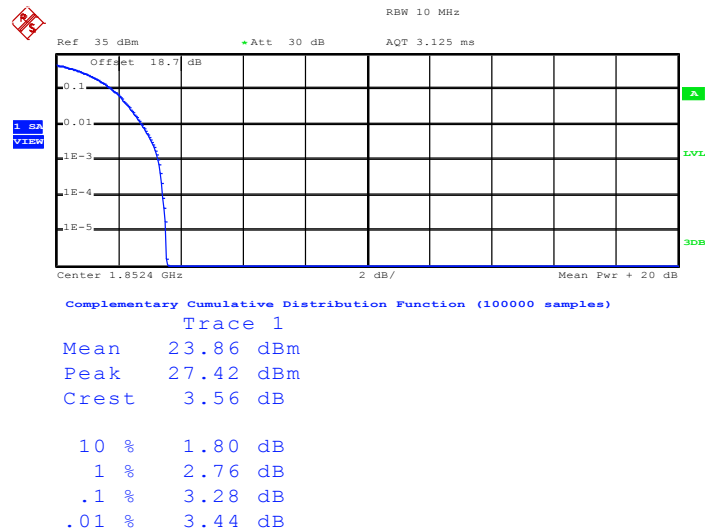


Date: 22.MAR.2014 13:29:37



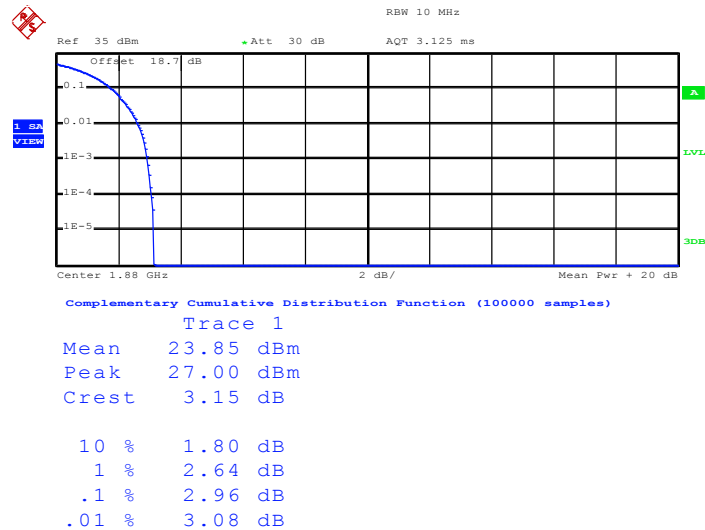
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Peak-to-Average Ratio on Channel 9262 (1852.4 MHz)



Date: 22.MAR.2014 12:35:30

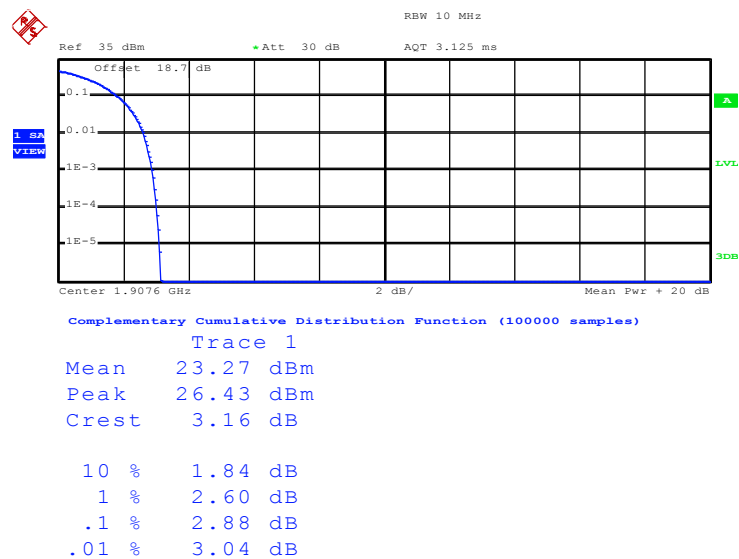
Peak-to-Average Ratio on Channel 9400 (1880.0 MHz)



Date: 22.MAR.2014 12:36:01



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



Date: 22.MAR.2014 12:36:36

3.3 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.3.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01.

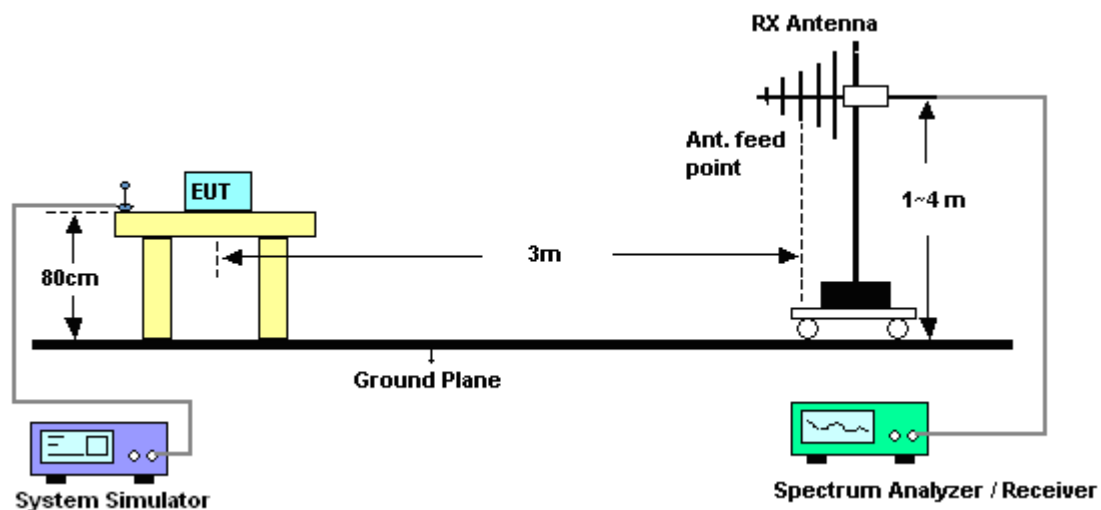
3.3.2 Measuring Instruments

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 RBW= 1MHz, VBW= 3MHz for GSM, RBW= 100 kHz, VBW= 300 kHz, used channel power option with bandwidth=5MHz for WCDMA, and RMS detector settings per 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 $ERP = EIRP - 2.15$.

3.3.4 Test Setup



3.3.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-0.74	32.00	29.12	0.82
836.4	-0.86	32.06	29.05	0.80
848.8	-2.42	32.76	28.20	0.66
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-9.36	34.43	22.92	0.20
836.4	-7.77	34.01	24.10	0.26
848.8	-9.49	33.56	21.92	0.16

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

GSM850 (EDGE class 8) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-7.41	32.00	22.44	0.18
836.4	-7.88	32.06	22.03	0.16
848.8	-8.61	32.76	22.00	0.16
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-14.90	34.43	17.38	0.05
836.4	-14.05	34.01	17.82	0.06
848.8	-14.55	33.56	16.86	0.05

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

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.4	-10.50	32.02	19.37	0.09
836.4	-11.18	32.06	18.73	0.07
846.6	-12.05	32.55	18.35	0.07
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.4	-18.77	34.34	13.42	0.02
836.4	-18.37	34.01	13.49	0.02
846.6	-19.60	33.62	11.87	0.02

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

<WPC Charging Mode>

GSM850 (GSM) Radiated Power ERP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-2.63	32.00	27.22	0.53
836.4	-2.20	32.06	27.71	0.59
848.8	-3.16	32.76	27.45	0.56
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.2	-10.18	34.43	22.10	0.16
836.4	-10.96	34.01	20.90	0.12
848.8	-10.15	33.56	21.27	0.13

3.3.6 Test Result of EIRP

GSM1900 (GPRS class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-13.87	39.88	26.01	0.40
1880.0	-13.29	39.74	26.45	0.44
1909.8	-12.87	39.91	27.04	0.51
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-13.87	40.08	26.21	0.42
1880.0	-12.80	40.35	27.55	0.57
1909.8	-13.55	40.01	26.45	0.44

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

GSM1900 (EDGE class 8) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-17.78	39.88	22.10	0.16
1880.0	-17.53	39.74	22.20	0.17
1909.8	-17.24	39.91	22.67	0.19
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1850.2	-16.65	40.08	23.42	0.22
1880.0	-16.95	40.35	23.40	0.22
1909.8	-18.23	40.01	21.77	0.15

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

WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.4	-19.43	38.78	19.35	0.09
1732.6	-18.98	39.09	20.11	0.10
1752.6	-19.17	39.23	20.06	0.10
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1712.4	-16.93	37.86	20.93	0.12
1732.6	-17.80	38.31	20.51	0.11
1752.6	-18.50	38.38	19.88	0.10

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

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP				
Horizontal Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1852.4	-19.29	39.96	20.67	0.12
1880.0	-19.50	39.74	20.24	0.11
1907.6	-19.51	39.97	20.46	0.11
Vertical Polarization				
Frequency (MHz)	LVL (dBm)	Correction Factor (dB)	EIRP (dBm)	EIRP (W)
1852.4	-17.40	40.10	22.70	0.19
1880.0	-18.62	40.35	21.73	0.15
1907.6	-19.78	40.69	20.91	0.12

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

3.4 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

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

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

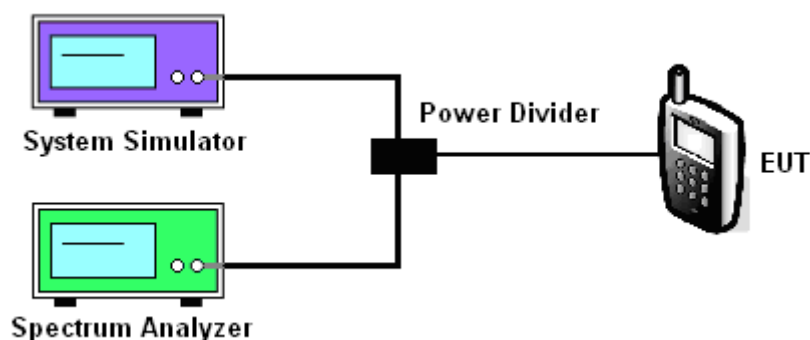
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band						
Modes	GSM850 (GSM)			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)	246.00	250.00	250.00	244.00	244.00	250.00
26dB BW (kHz)	314.00	314.00	314.00	304.00	306.00	294.00

PCS Band						
Modes	GSM1900 (GPRS class 8)			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	246.00	246.00	242.00	246.00	242.00
26dB BW (kHz)	302.00	314.00	312.00	314.00	312.00	306.00

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

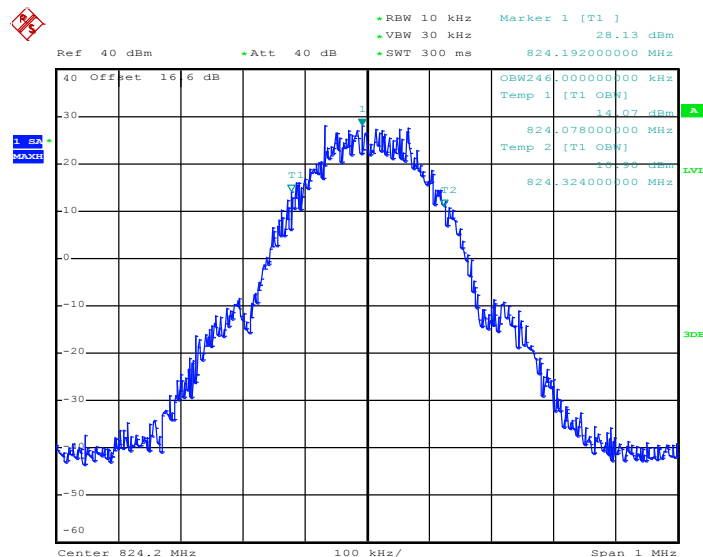


PCS Band			
Modes	WCDMA Band II (RMC 12.2Kbps)		
Channel	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1852.4	1880	1907.6
99% OBW (MHz)	4.18	4.20	4.18
26dB BW (MHz)	4.68	4.68	4.68

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

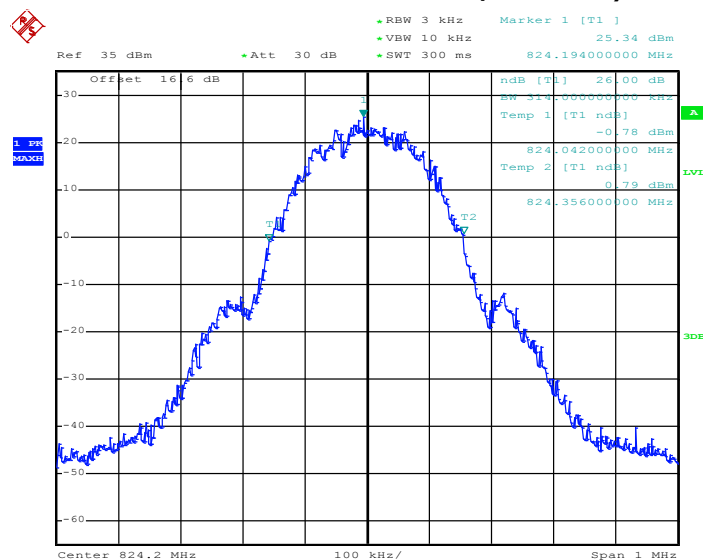
Band :	GSM 850	Test Mode :	GSM Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 09:15:35

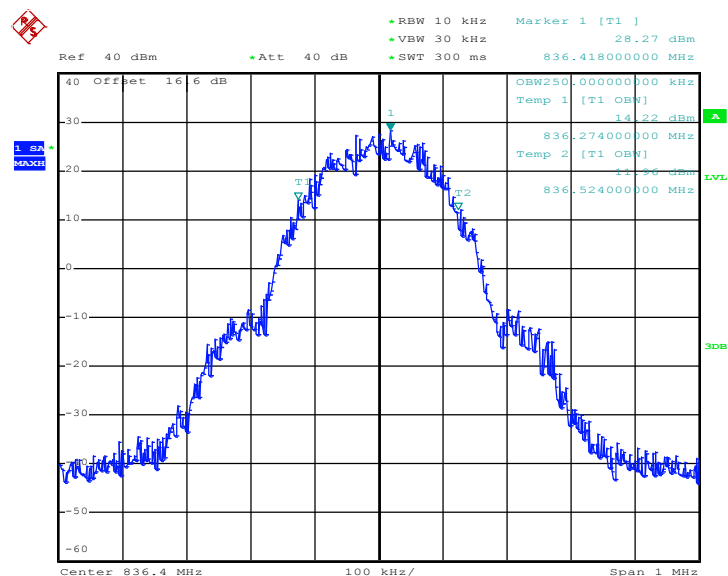
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 09:11:36

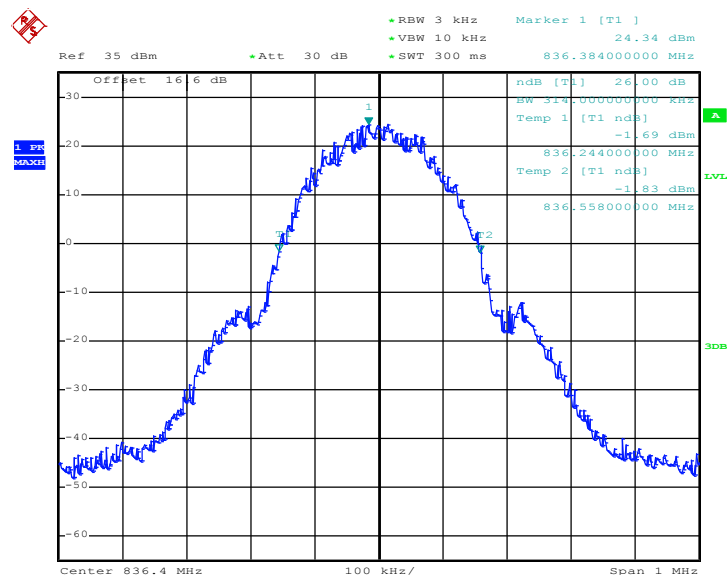


99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 22.MAR.2014 09:16:03

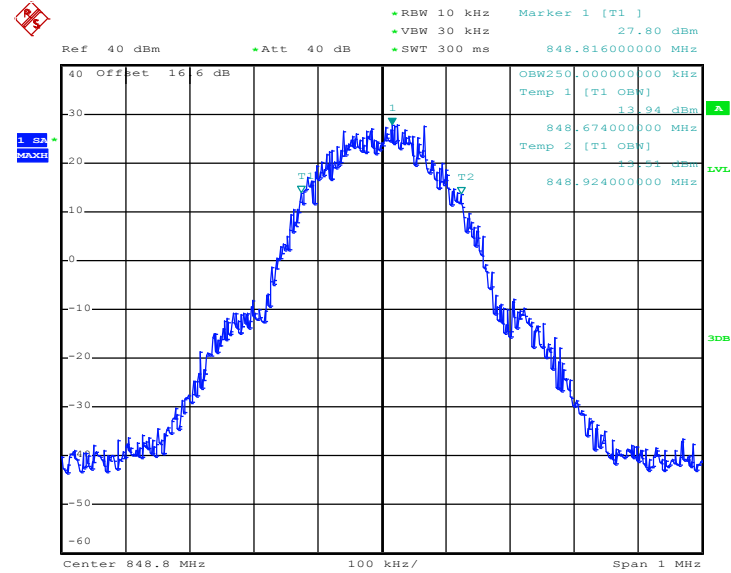
26dB Bandwidth Plot on Channel 189 (836.4 MHz)



Date: 22.MAR.2014 09:12:05

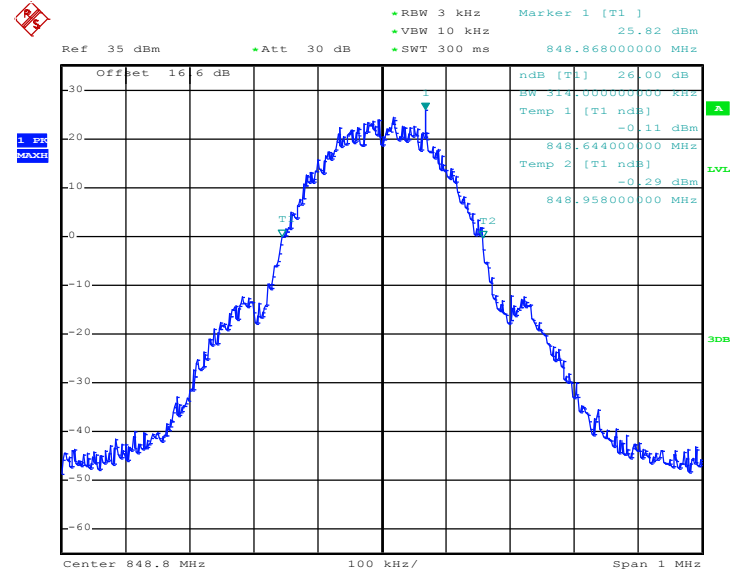


99% Occupied Bandwidth Plot on Channel 251 (848.8 MHz)



Date: 22.MAR.2014 09:16:32

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

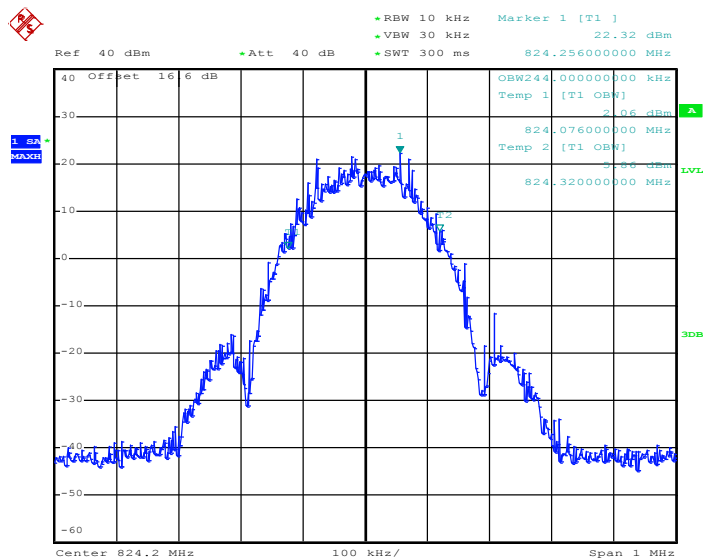


Date: 22.MAR.2014 09:12:33



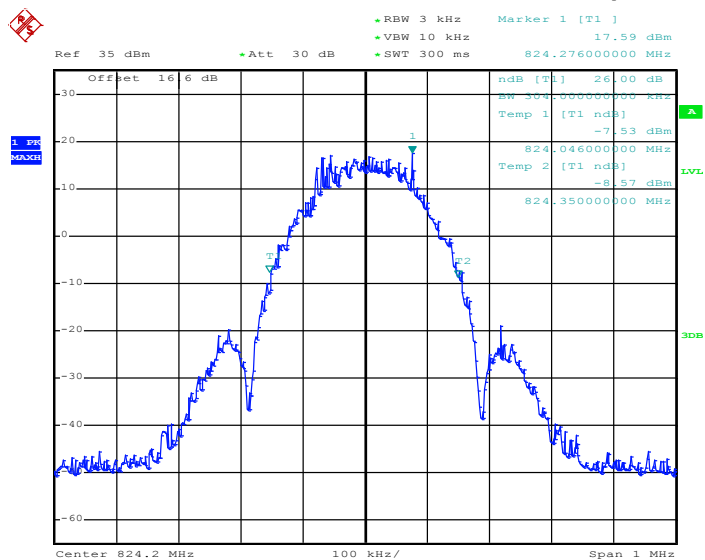
Band :	GSM 850	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 128 (824.2 MHz)

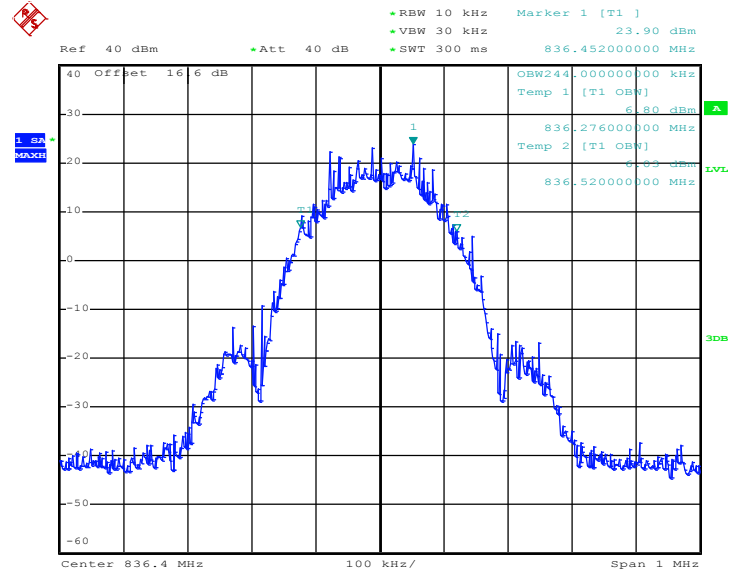


Date: 22.MAR.2014 09:56:57

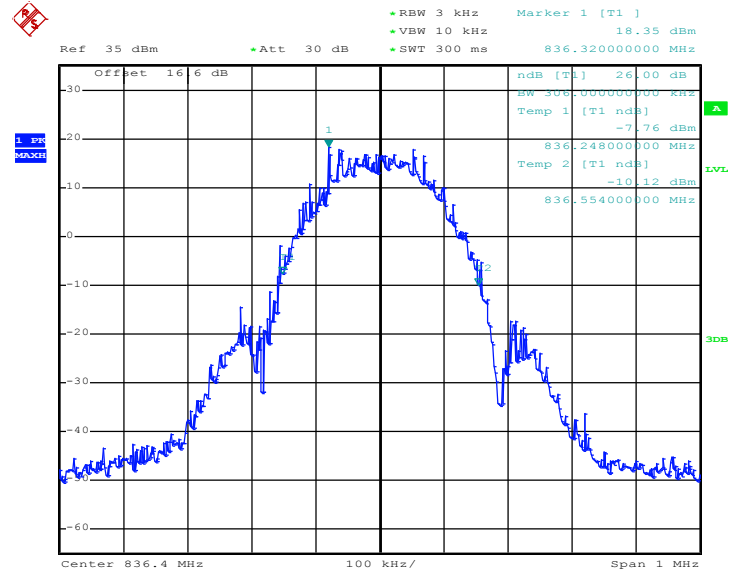
26dB Bandwidth Plot on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 09:51:05

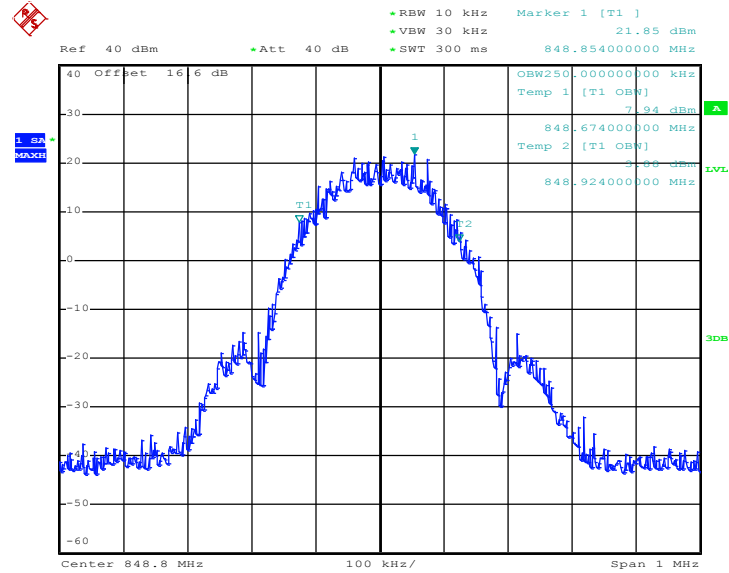
99% Occupied Bandwidth Plot on Channel 189 (836.4 MHz)


Date: 22.MAR.2014 09:57:25

26dB Bandwidth Plot on Channel 189 (836.4 MHz)


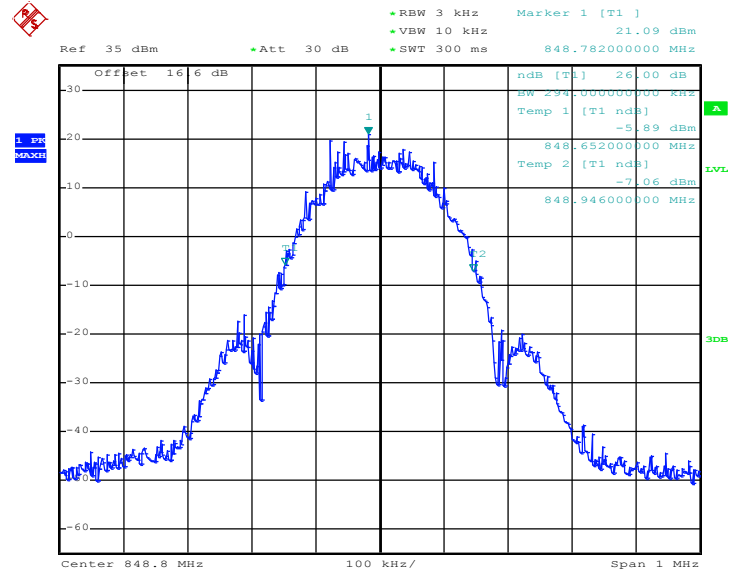
Date: 22.MAR.2014 09:55:12

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



Date: 22.MAR.2014 09:57:54

26dB Bandwidth Plot on Channel 251 (848.8 MHz)

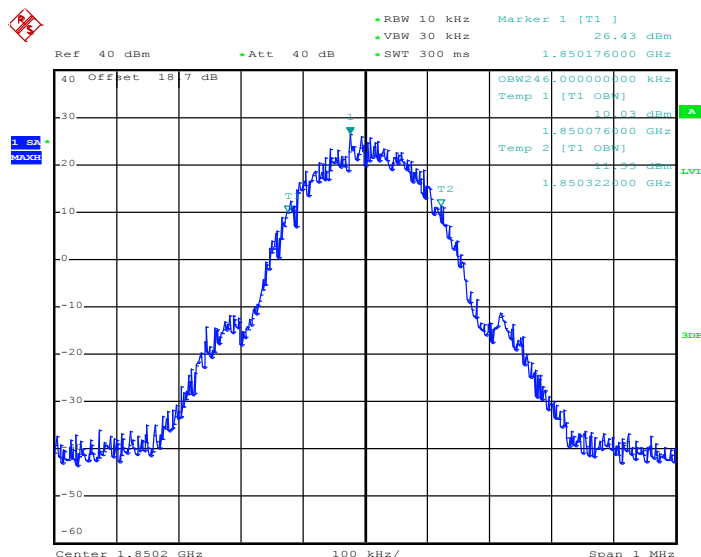


Date: 22.MAR.2014 09:55:41



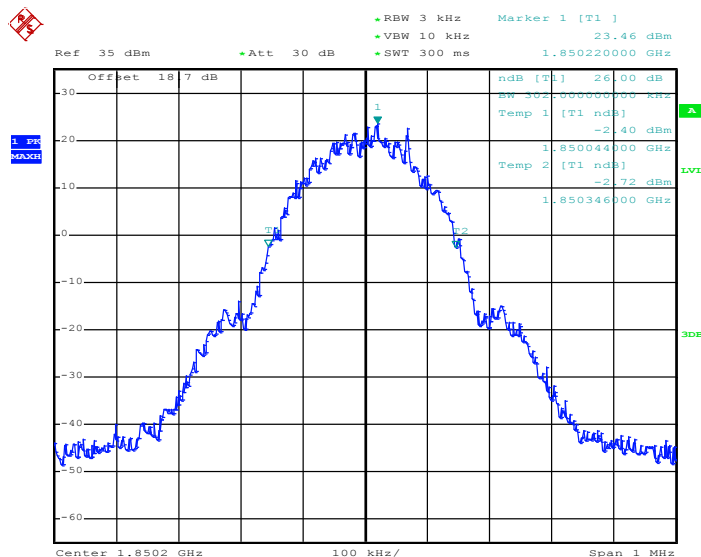
Band :	GSM 1900	Test Mode :	GPRS class 8 Link (GMSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)

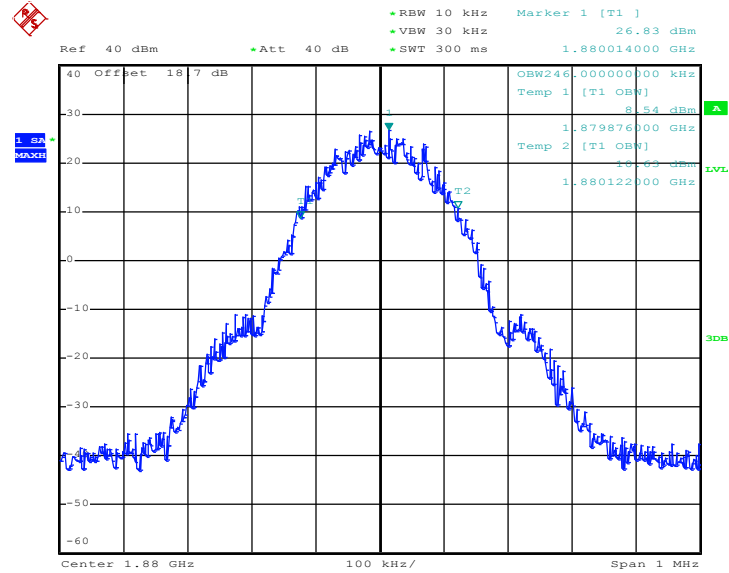


Date: 22.MAR.2014 10:36:04

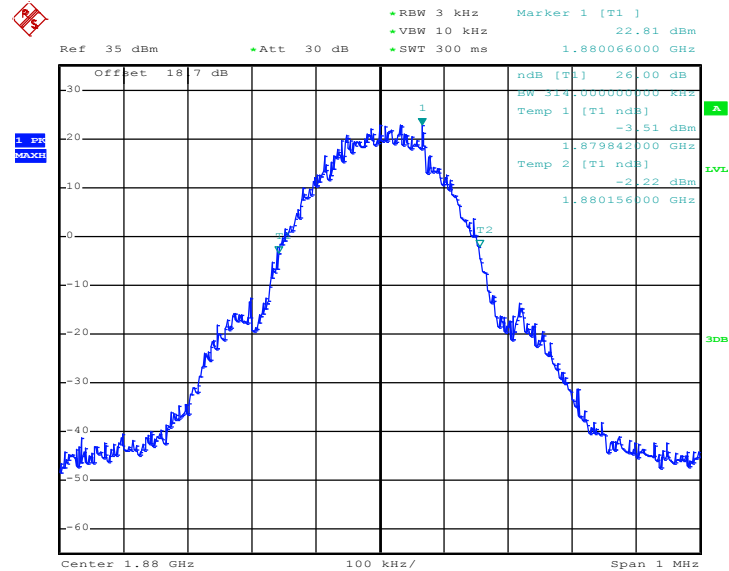
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 10:32:24

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


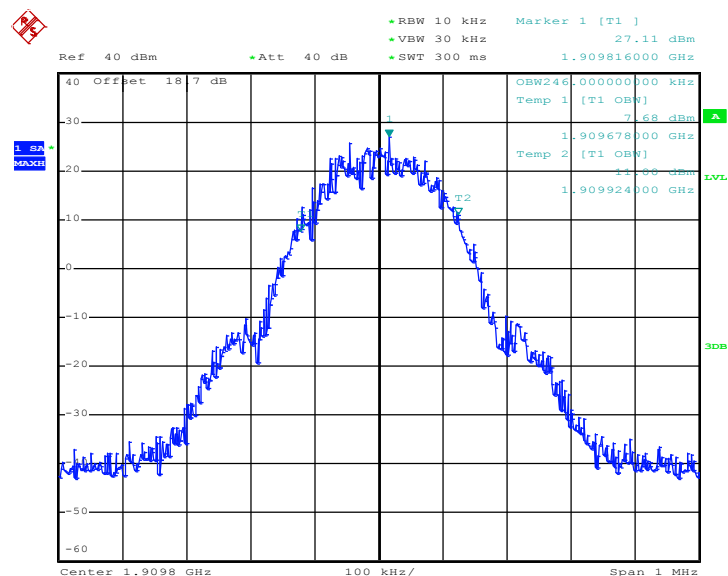
Date: 22.MAR.2014 10:36:32

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)


Date: 22.MAR.2014 10:32:52

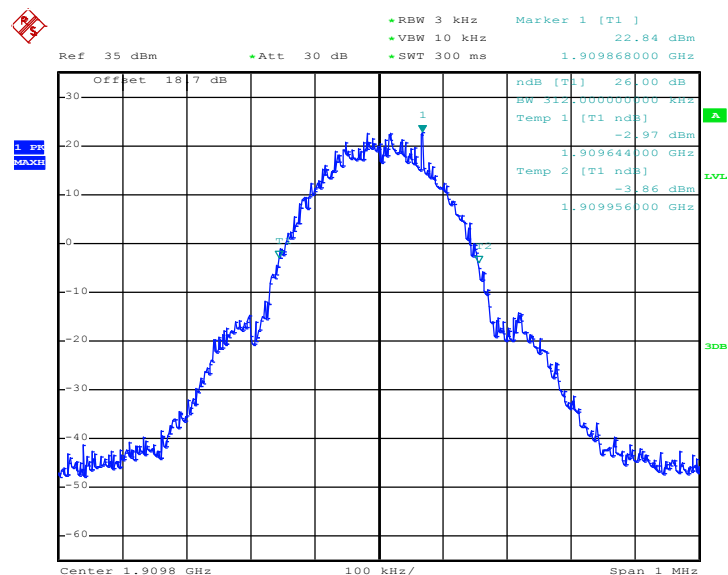


99% Occupied Bandwidth Plot on Channel 810 (1909.8 MHz)



Date: 22.MAR.2014 10:35:18

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

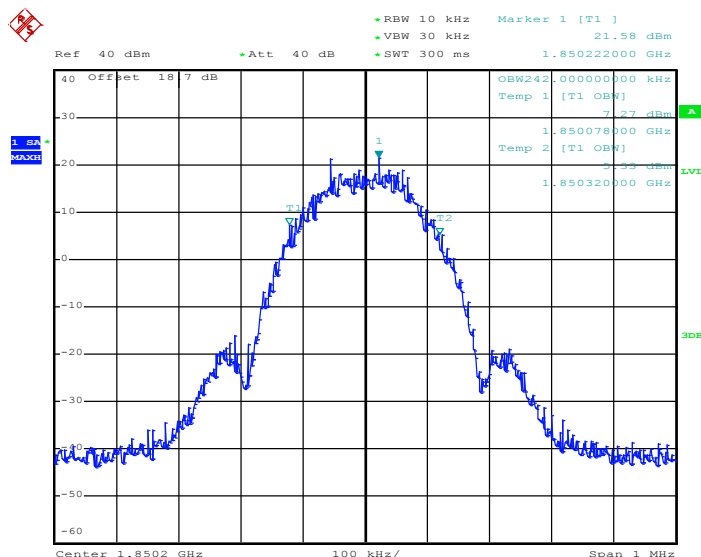


Date: 22.MAR.2014 10:33:21



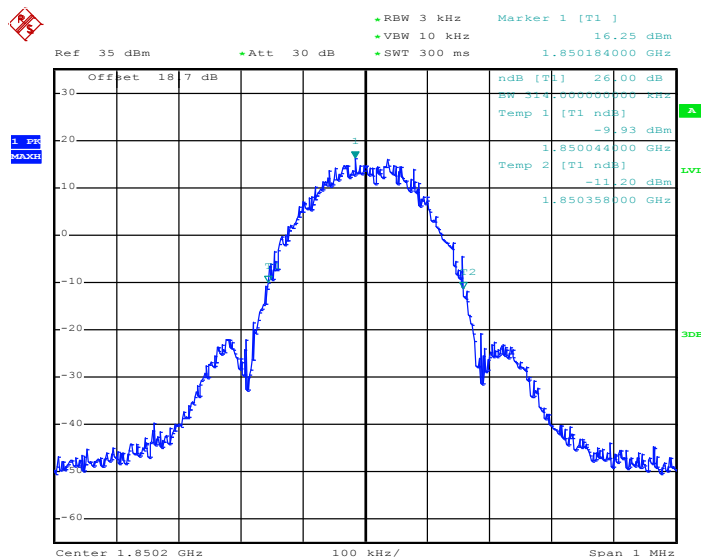
Band :	GSM 1900	Test Mode :	EDGE class 8 Link (8PSK)
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99% Occupied Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 11:03:39

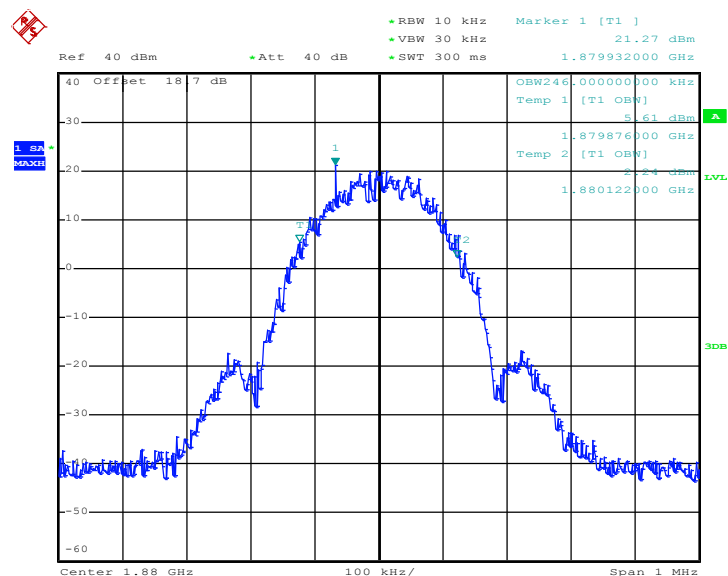
26dB Bandwidth Plot on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 11:01:57

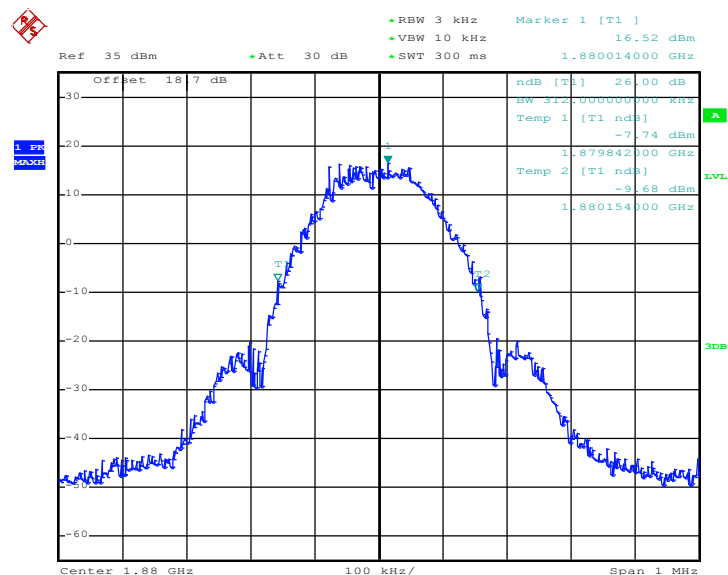


99% Occupied Bandwidth Plot on Channel 661 (1880.0 MHz)



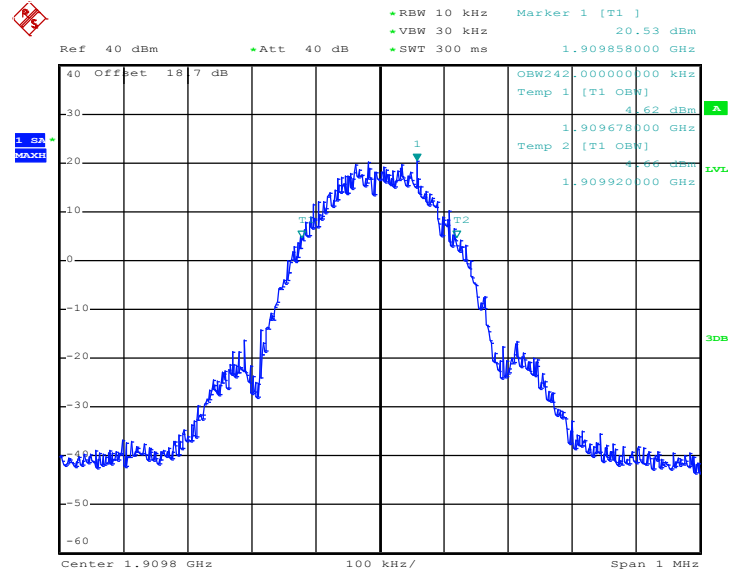
Date: 22.MAR.2014 11:04:08

26dB Bandwidth Plot on Channel 661 (1880.0 MHz)



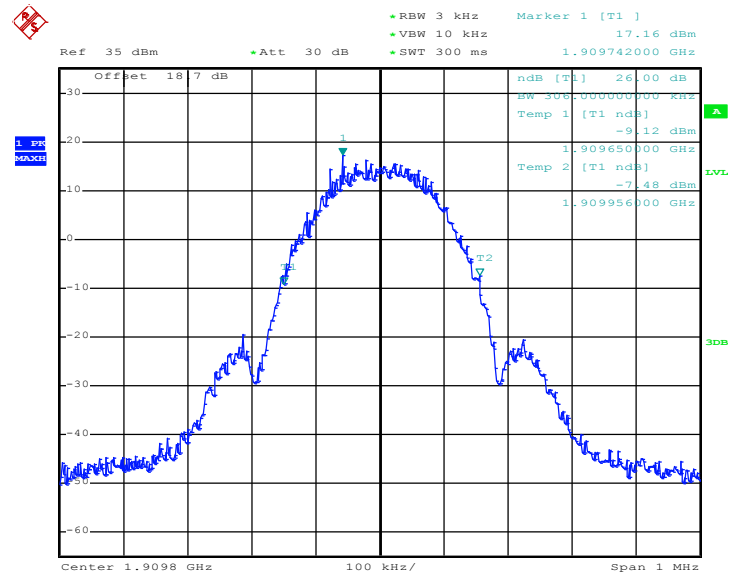
Date: 22.MAR.2014 11:02:26

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



Date: 22.MAR.2014 11:04:37

26dB Bandwidth Plot on Channel 810 (1909.8 MHz)

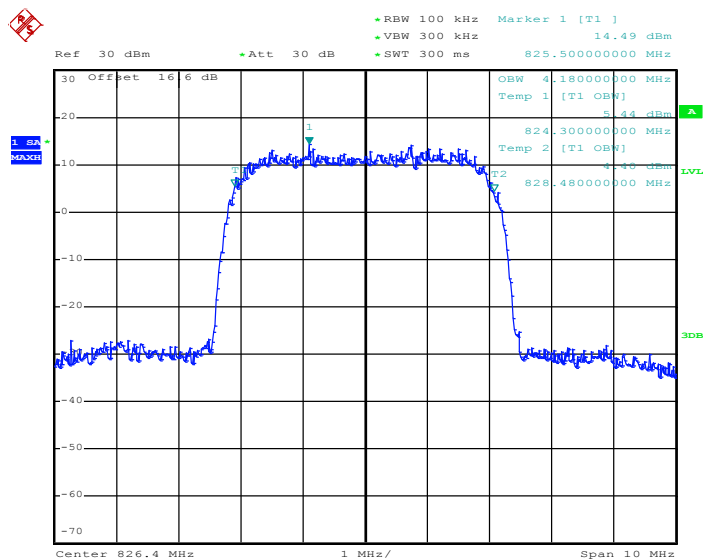


Date: 22.MAR.2014 11:02:54



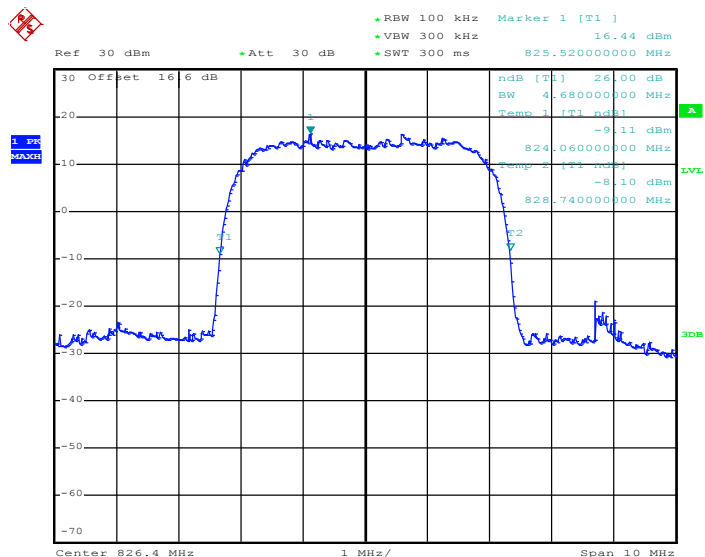
Band :	WCDMA Band V	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 22.MAR.2014 14:13:45

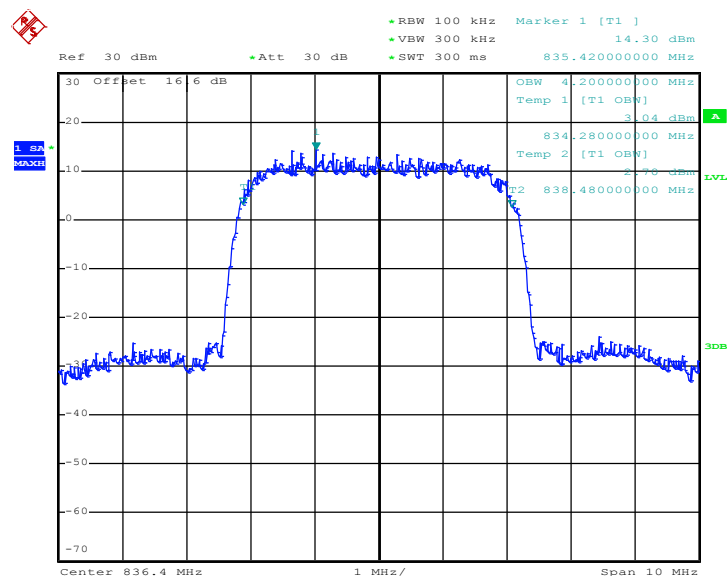
26dB Bandwidth Plot on Channel 4132 (826.4 MHz)



Date: 22.MAR.2014 14:11:41

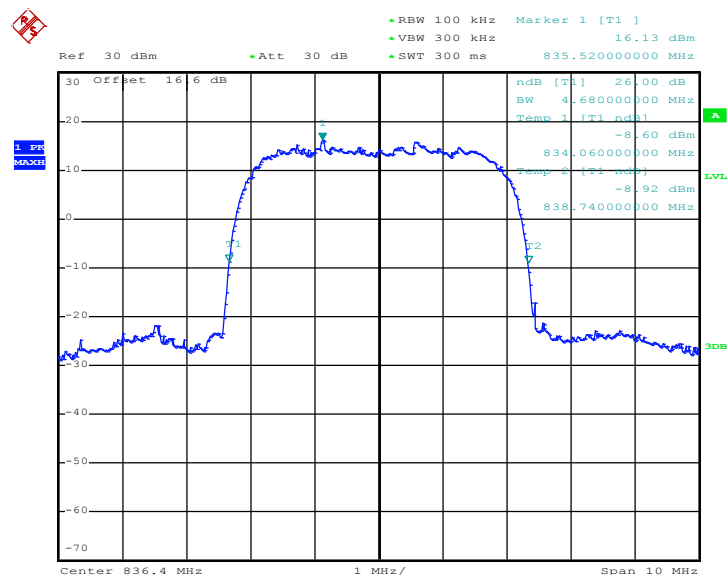


99% Occupied Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 22.MAR.2014 14:14:14

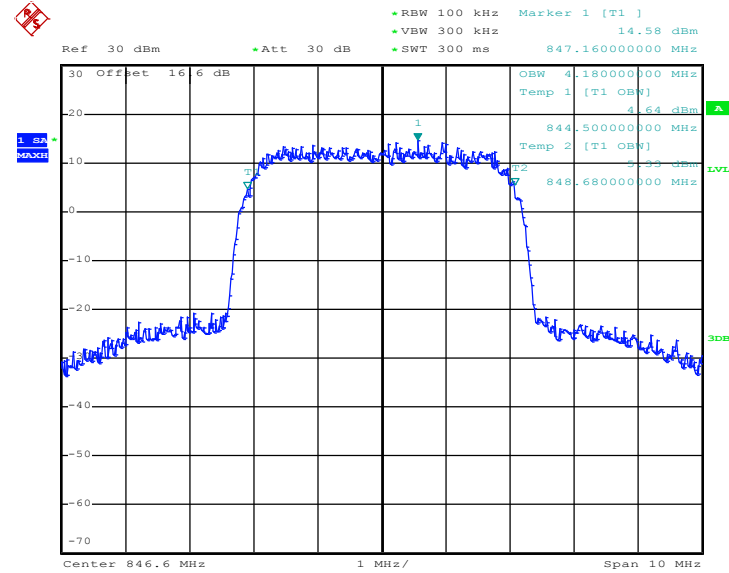
26dB Bandwidth Plot on Channel 4182 (836.4 MHz)



Date: 22.MAR.2014 14:09:23

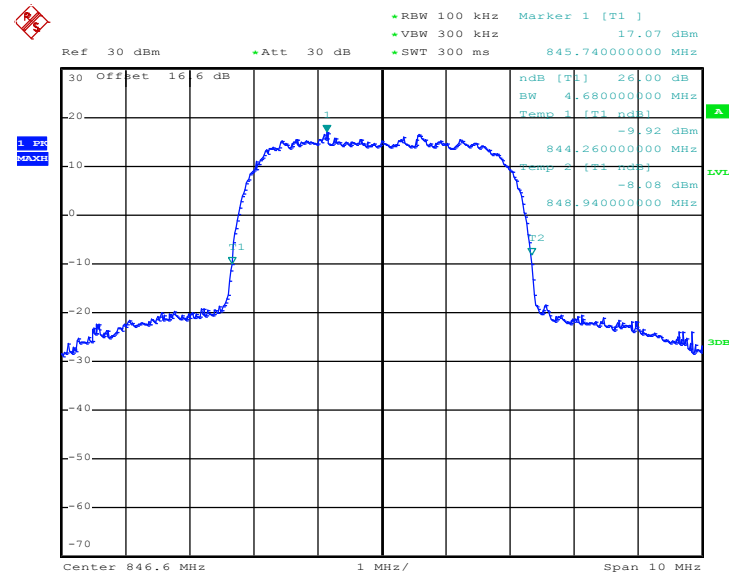


99% Occupied Bandwidth Plot on Channel 4233 (846.6 MHz)



Date: 22.MAR.2014 14:14:42

26dB Bandwidth Plot on Channel 4233 (846.6 MHz)

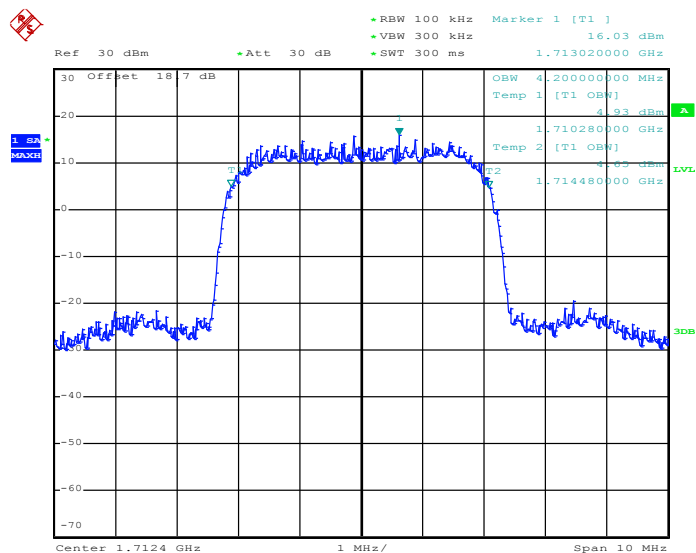


Date: 22.MAR.2014 14:09:52



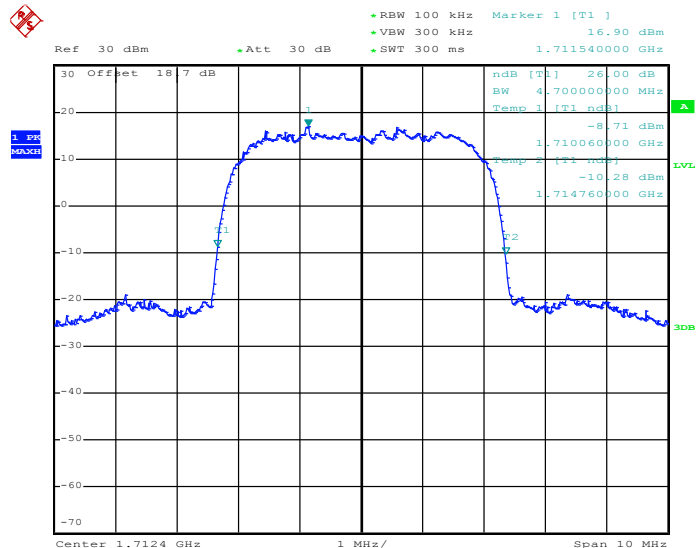
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 22.MAR.2014 13:07:27

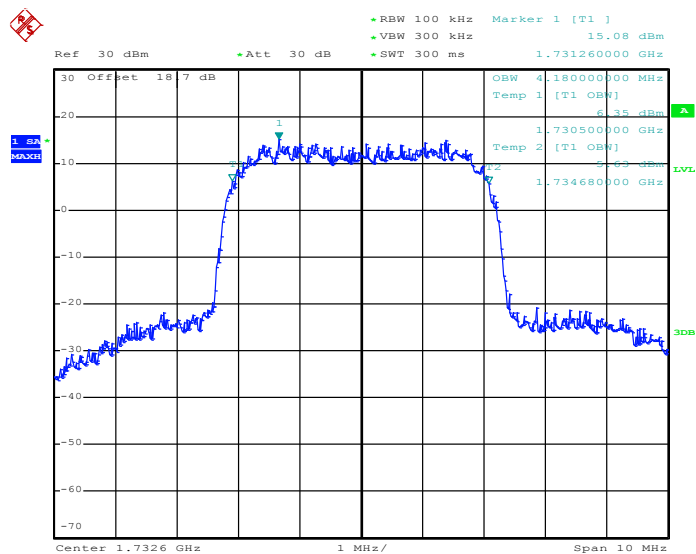
26dB Bandwidth Plot on Channel 1312 (1712.4 MHz)



Date: 22.MAR.2014 13:03:40

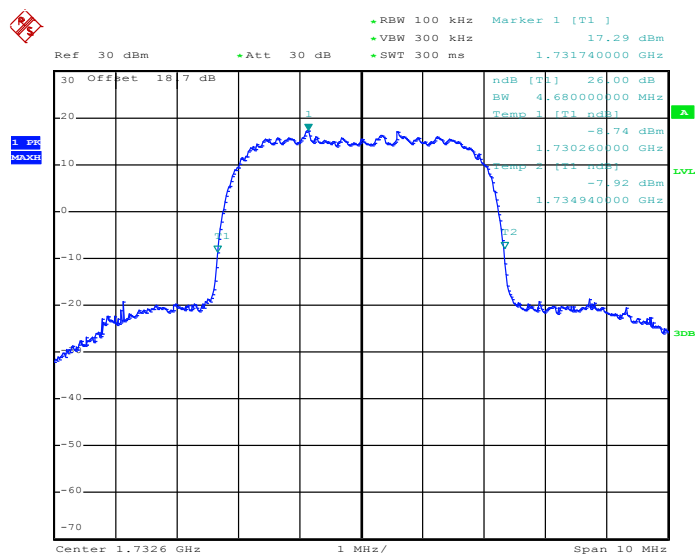


99% Occupied Bandwidth Plot on Channel 1413 (1732.6 MHz)

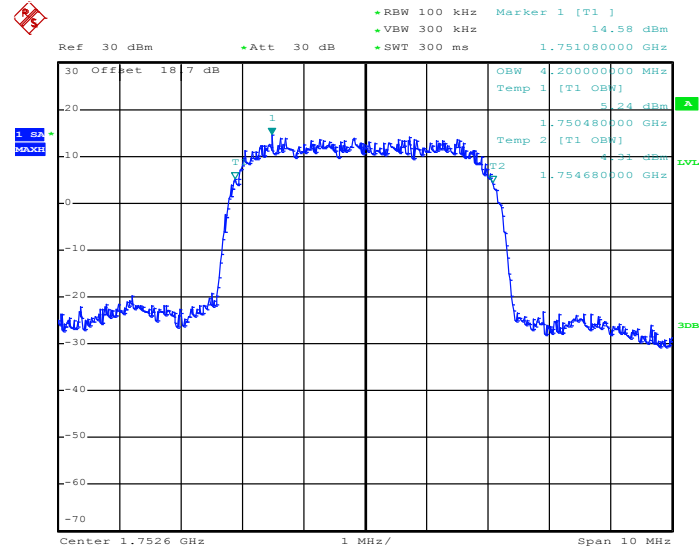


Date: 22.MAR.2014 13:07:55

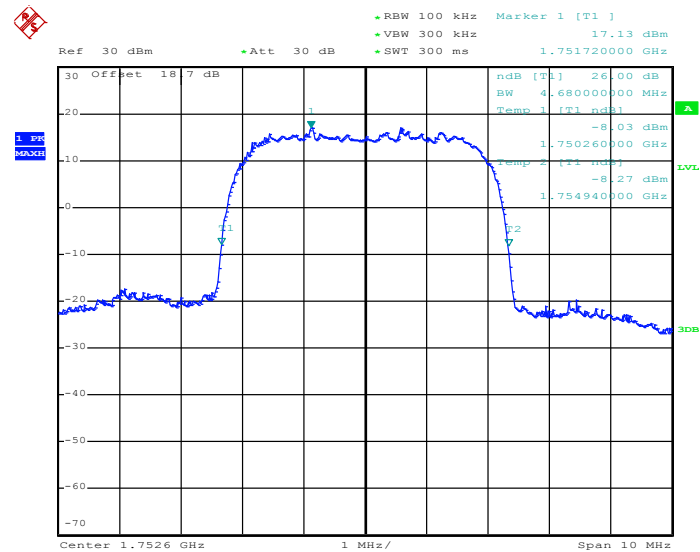
26dB Bandwidth Plot on Channel 1413 (1732.6 MHz)



Date: 22.MAR.2014 13:04:09

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


Date: 22.MAR.2014 13:08:24

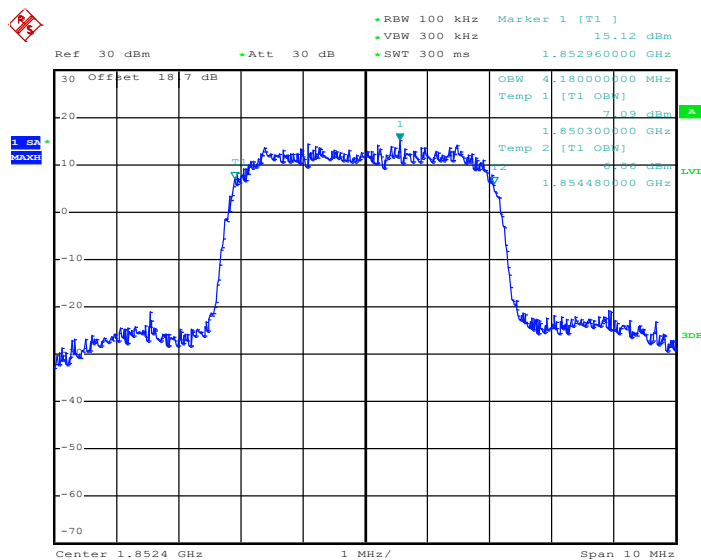
26dB Bandwidth Plot on Channel 1513 (1752.6 MHz)


Date: 22.MAR.2014 13:04:37



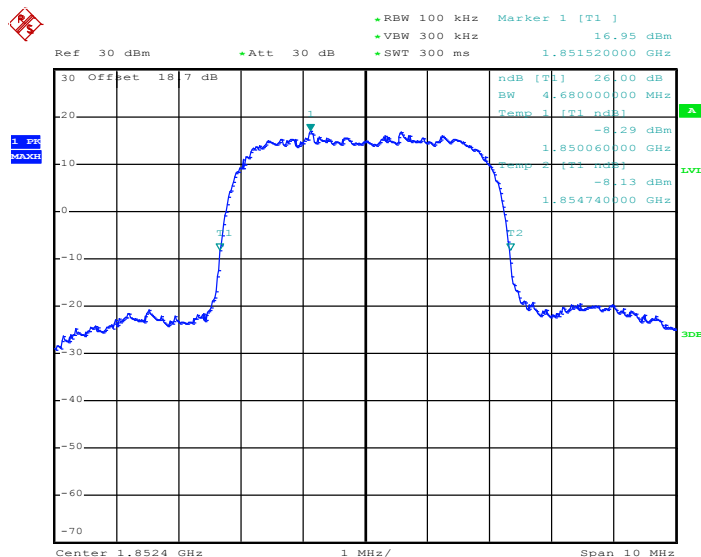
Band :	WCDMA Band II	Test Mode :	RMC 12.2Kbps Link (QPSK)
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99% Occupied Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 22.MAR.2014 12:03:27

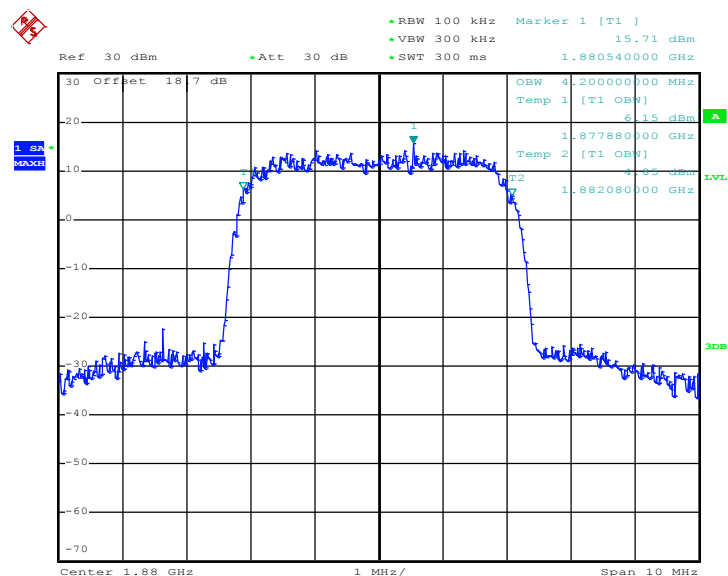
26dB Bandwidth Plot on Channel 9262 (1852.4 MHz)



Date: 22.MAR.2014 11:58:25

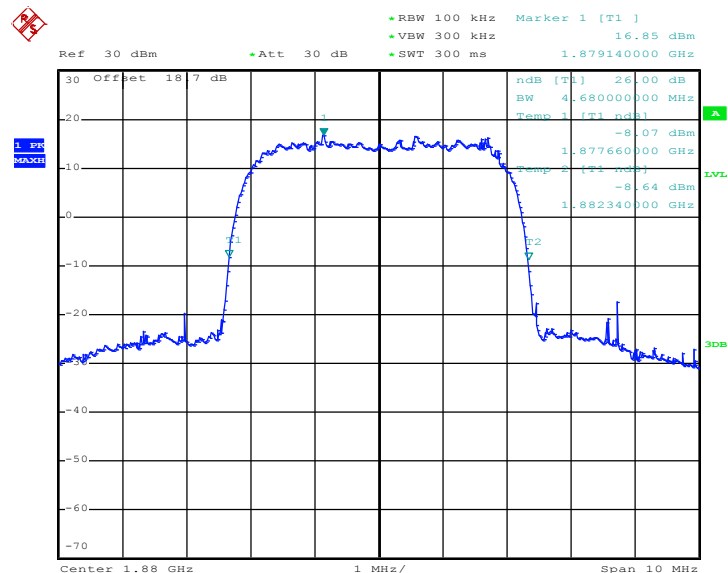


99% Occupied Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 22.MAR.2014 12:03:56

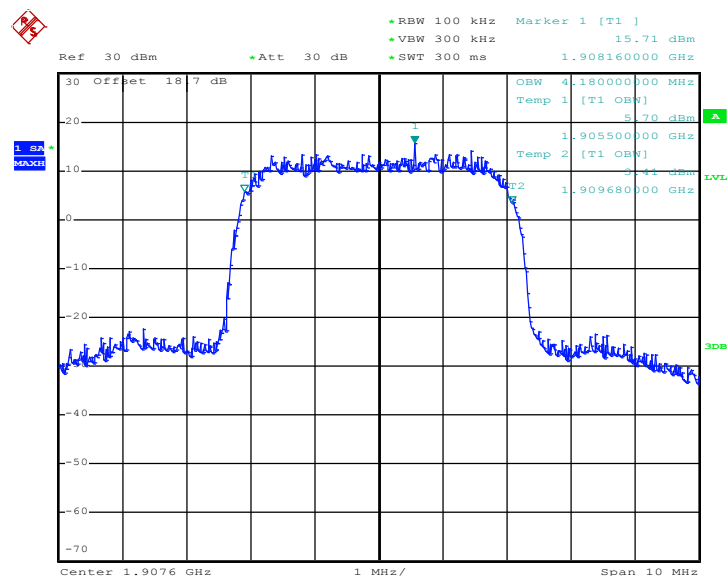
26dB Bandwidth Plot on Channel 9400 (1880.0 MHz)



Date: 22.MAR.2014 11:58:54

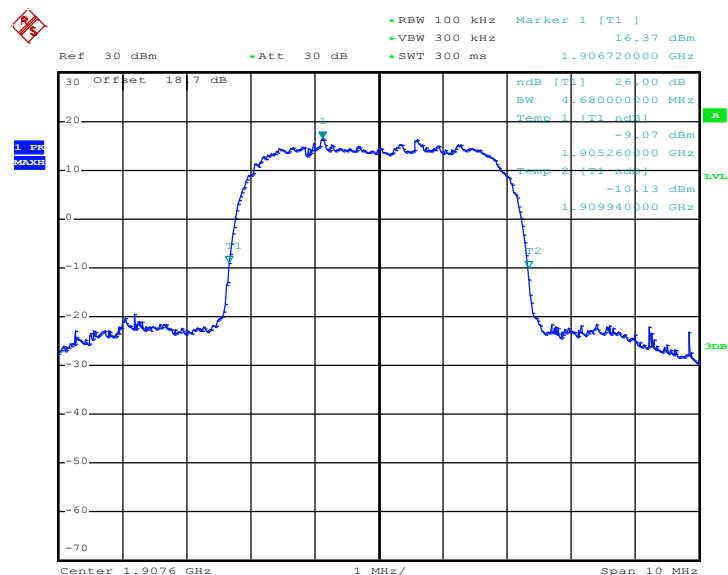


99% Occupied Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 22.MAR.2014 12:04:24

26dB Bandwidth Plot on Channel 9538 (1907.6 MHz)



Date: 22.MAR.2014 12:01:32

3.5 Band Edge Measurement

3.5.1 Description of Band Edge Measurement

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

3.5.2 Measuring Instruments

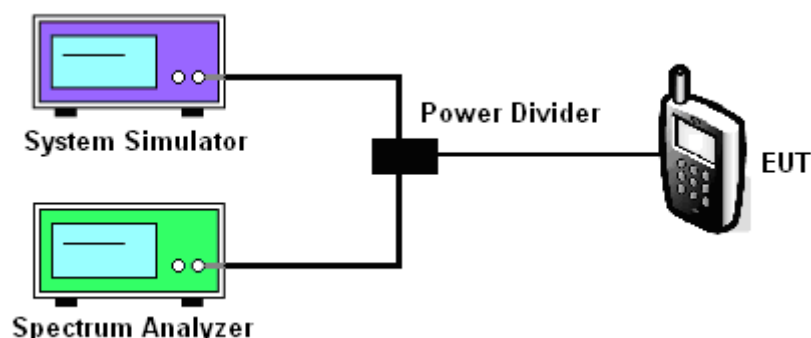
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

1. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. The band edges of low and high channels for the highest RF powers were measured.
4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
5. The limit line is derived from $43 + 10\log(P)$ 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

<Conducted Band Edge >

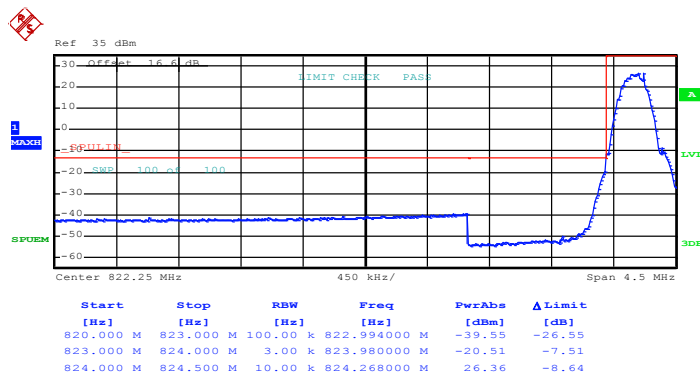




3.5.5 Test Result (Plots) of Conducted Band Edge

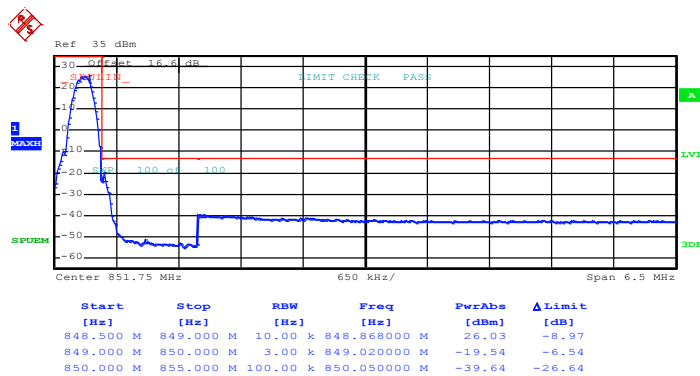
Band :	GSM850	Test Mode :	GSM Link (GMSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 09:37:24

Higher Band Edge Plot on Channel 251 (848.8 MHz)

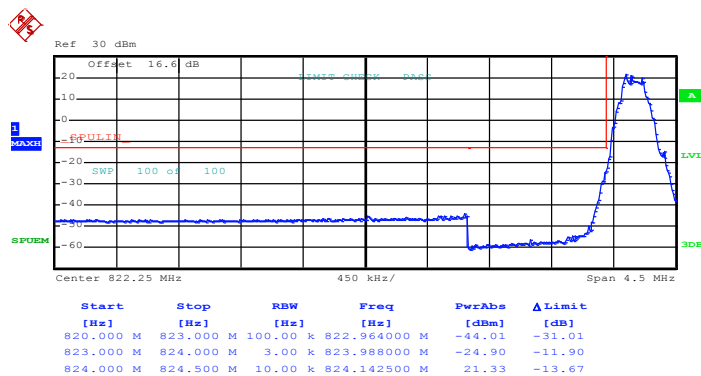


Date: 22.MAR.2014 09:21:33



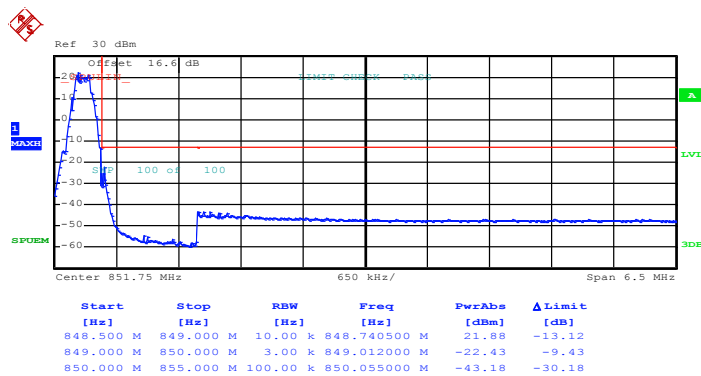
Band :	GSM850	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 128 (824.2 MHz)



Date: 22.MAR.2014 10:08:11

Higher Band Edge Plot on Channel 251 (848.8 MHz)

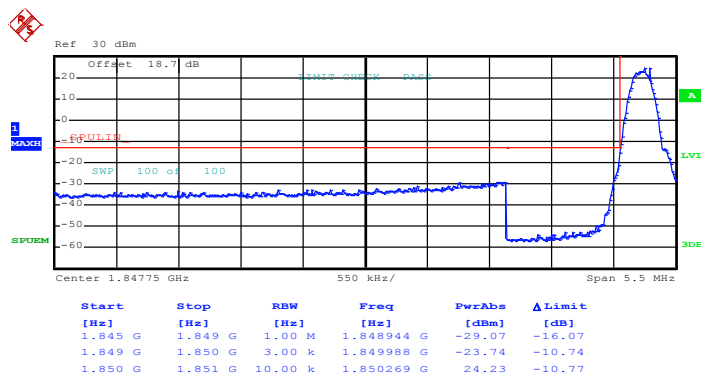


Date: 22.MAR.2014 10:05:08



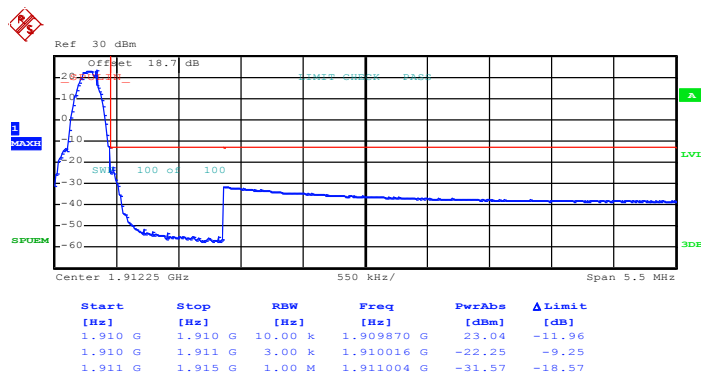
Band :	GSM1900	Test Mode :	GPRS class 8 Link (GMSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 10:43:39

Higher Band Edge Plot on Channel 810 (1909.8 MHz)

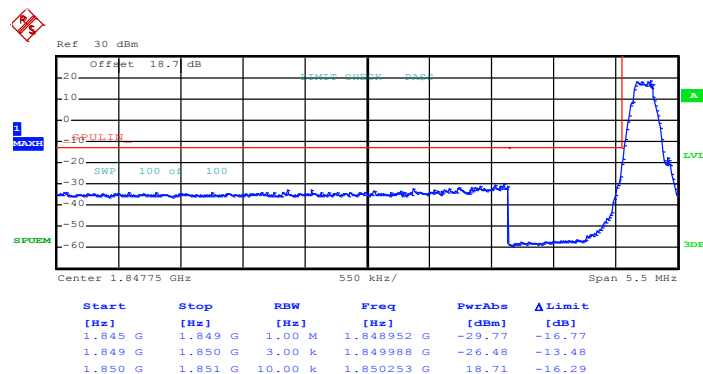


Date: 22.MAR.2014 10:40:54



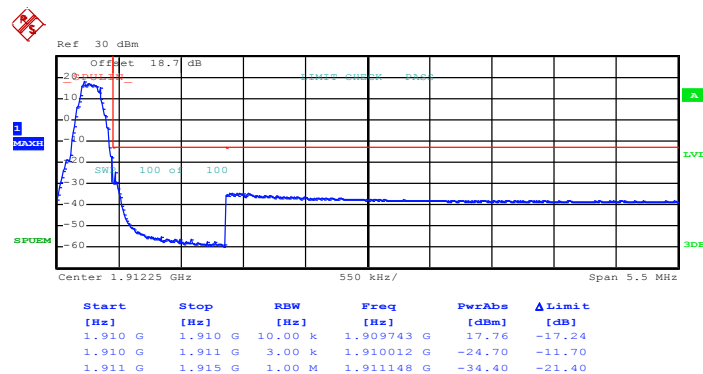
Band :	GSM1900	Test Mode :	EDGE class 8 Link (8PSK)
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Lower Band Edge Plot on Channel 512 (1850.2 MHz)



Date: 22.MAR.2014 11:18:46

Higher Band Edge Plot on Channel 810 (1909.8 MHz)



Date: 22.MAR.2014 11:09:23



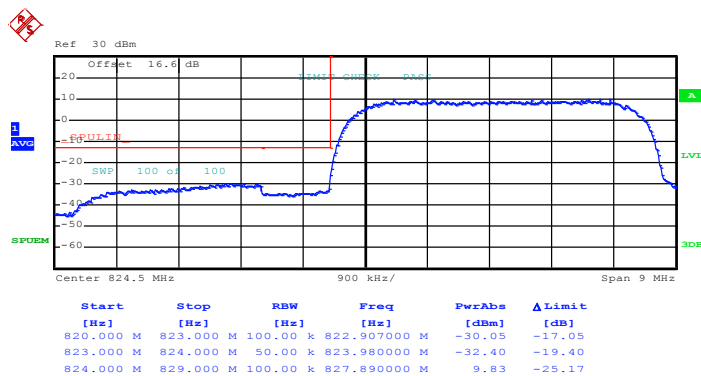
Band :

WCDMA Band V

Test Mode :

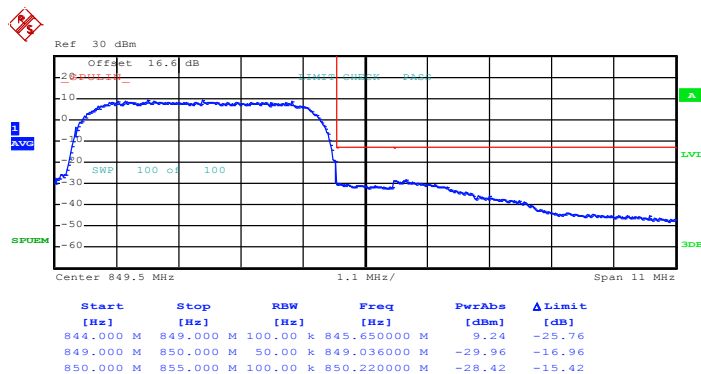
RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 4132 (826.4 MHz)



Date: 22.MAR.2014 14:22:01

Higher Band Edge Plot on Channel 4233 (846.6 MHz)

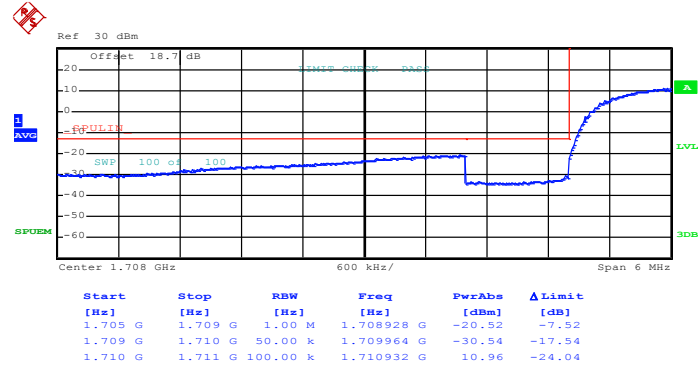


Date: 22.MAR.2014 14:18:13



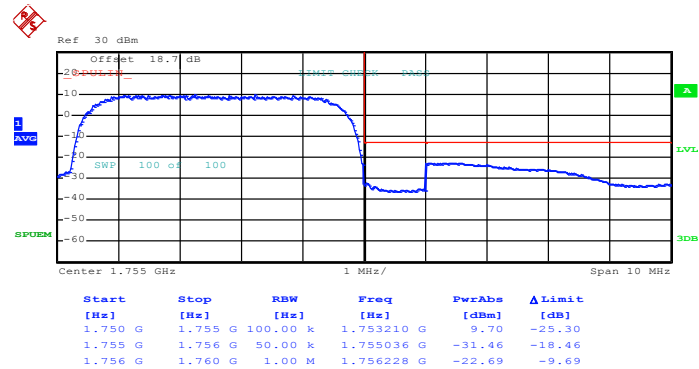
Band :	WCDMA Band IV	Test Mode :	RMC 12.2Kbps Link (QPSK)
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Lower Band Edge Plot on Channel 1312 (1712.4 MHz)



Date: 22.MAR.2014 13:16:03

Higher Band Edge Plot on Channel 1513 (1752.6 MHz)



Date: 22.MAR.2014 13:13:02



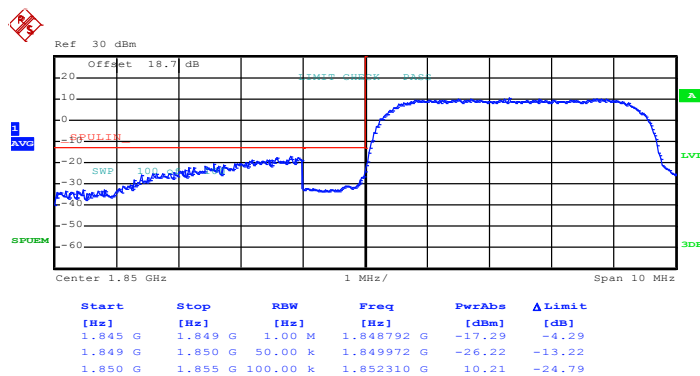
Band :

WCDMA Band II

Test Mode :

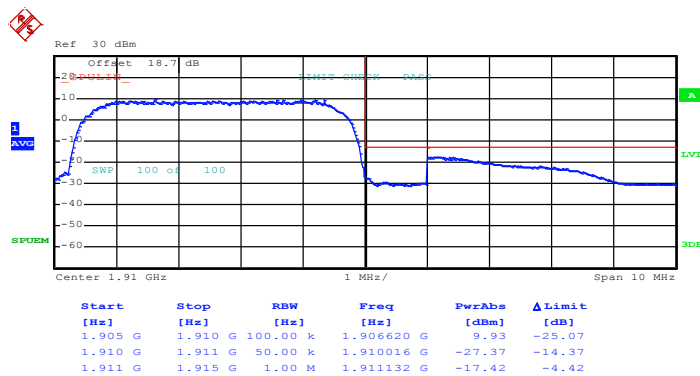
RMC 12.2Kbps Link (QPSK)

Lower Band Edge Plot on Channel 9262 (1852.4 MHz)



Date: 22.MAR.2014 12:32:09

Higher Band Edge Plot on Channel 9538 (1907.6 MHz)



Date: 22.MAR.2014 12:29:11

3.6 Conducted Spurious Emission Measurement

3.6.1 Description of Conducted Spurious Emission Measurement

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

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

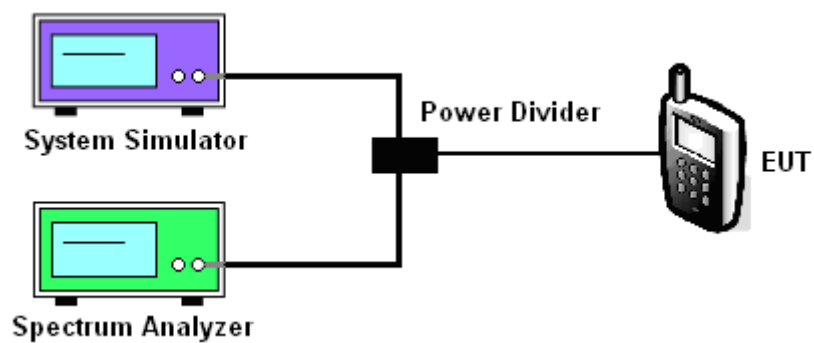
3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

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

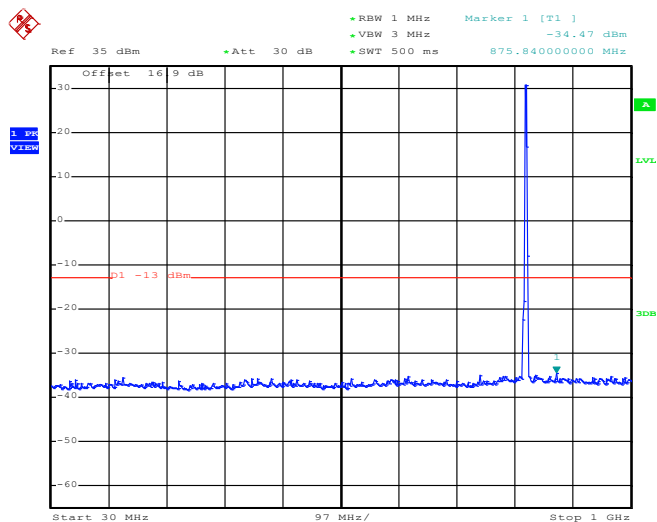
3.6.4 Test Setup



3.6.5 Test Result (Plots) of Conducted Spurious Emission

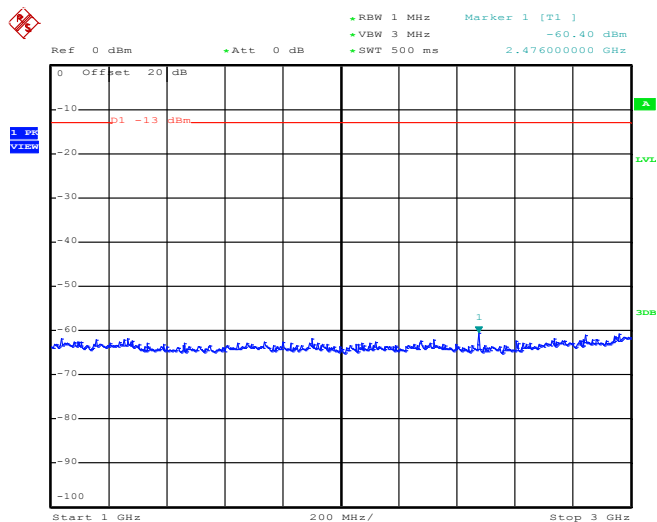
Band :	GSM850	Channel :	CH128
Test Mode :	GSM Link (GMSK)	Frequency :	824.2 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 09:42:10

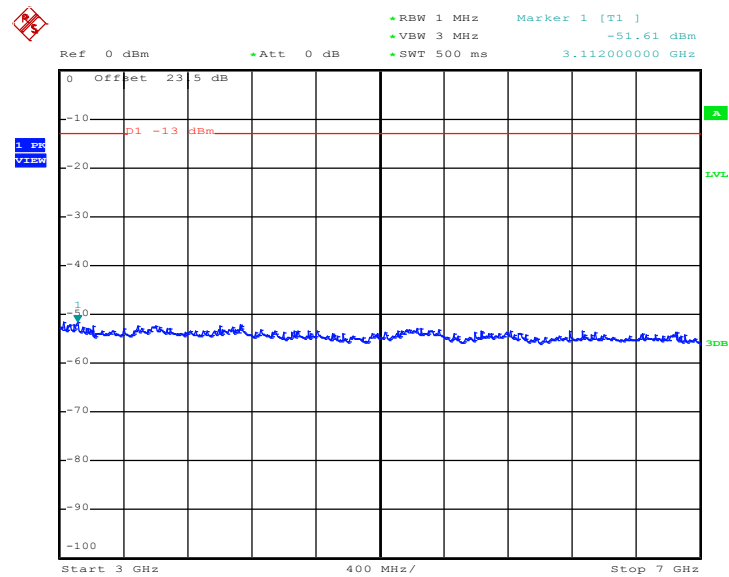
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 09:42:22

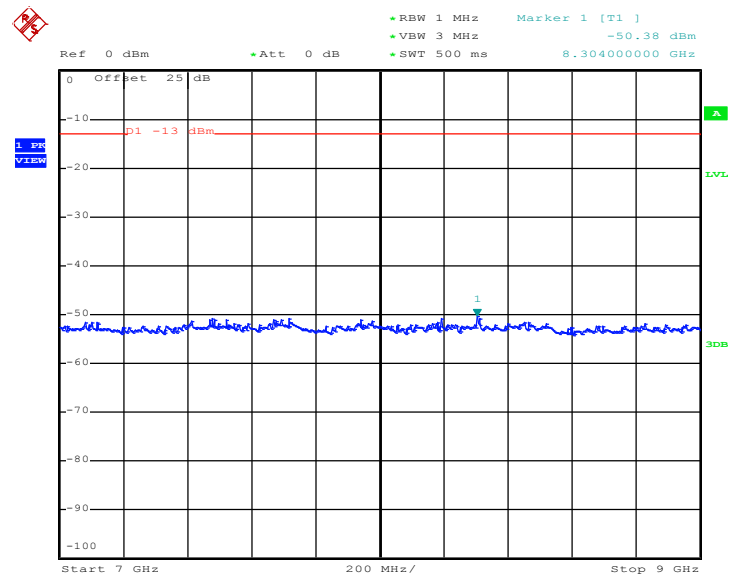


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 09:42:31

Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 22.MAR.2014 09:42:39



Ref 35 dBm Att 30 dB RBW 1 MHz VBW 3 MHz SWT 500 ms Marker 1 [T1] -34.71 dBm 885.540000000 MHz

Offset 169 dB

1. PK VIEW

D1 -13 dBm

Start 30 MHz 97 MHz/ Stop 1 GHz

Ref 0 dBm Att 0 dB RBW 1 MHz VBW 3 MHz SWT 500 ms Marker 1 [T1] -50.00 dBm 2.51200000 GHz

0 Offset 20 dB

-10 -20 -30 -40 -50 -60 -70 -80 -90 -100

1. Hz VIEW

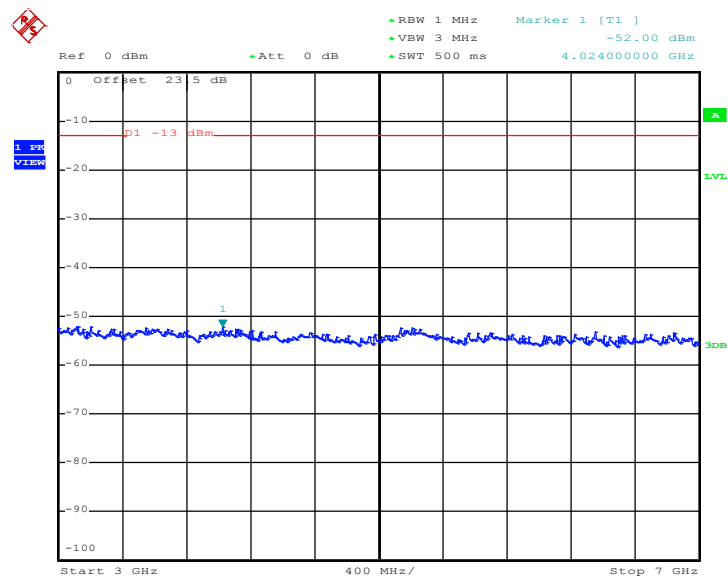
1

Start 1 GHz 200 MHz/ Stop 3 GHz

Report Template No.: BU5-FG22/24 Version 1.0

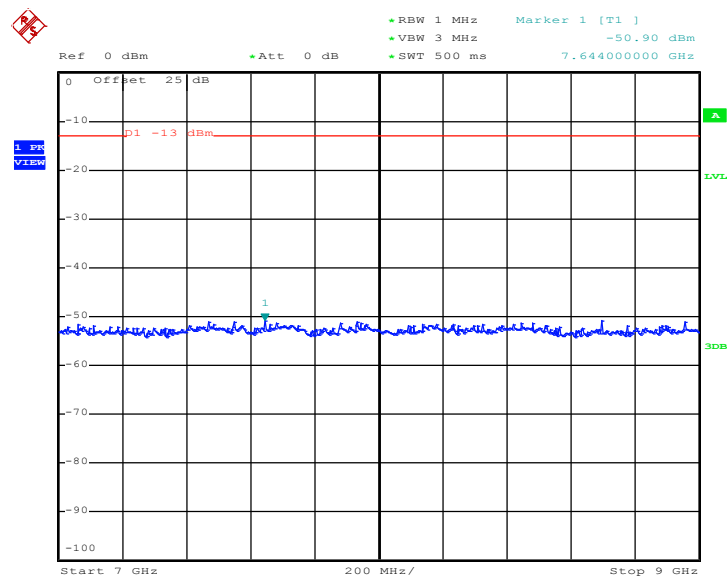


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 09:41:08

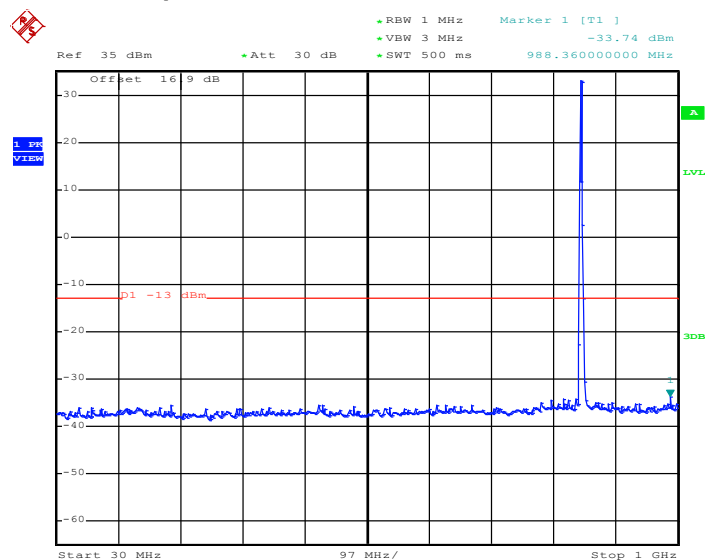
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 22.MAR.2014 09:41:16

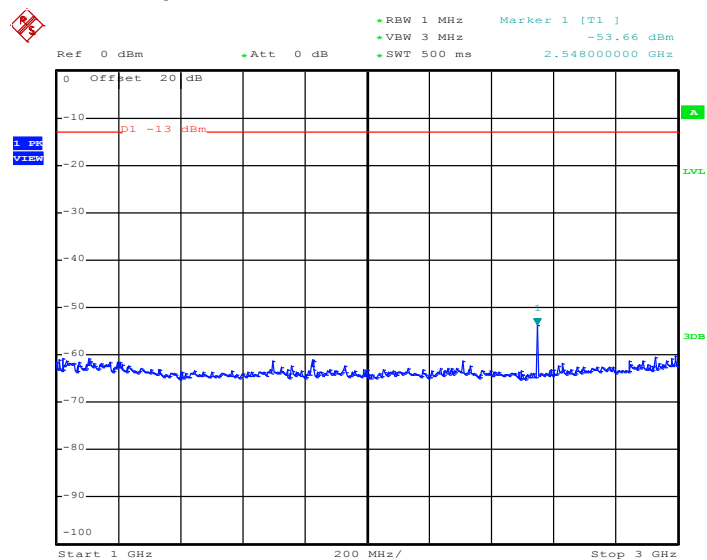
Band :	GSM850	Channel :	CH251
Test Mode :	GSM Link (GMSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 09:44:49

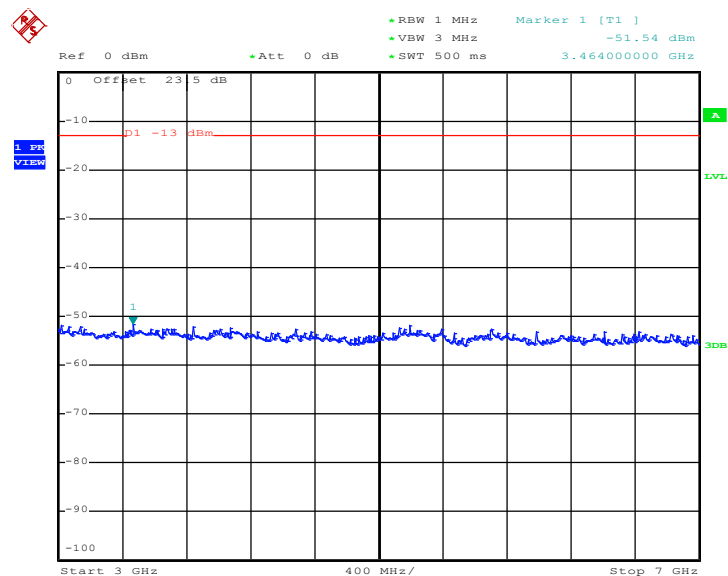
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 09:45:00

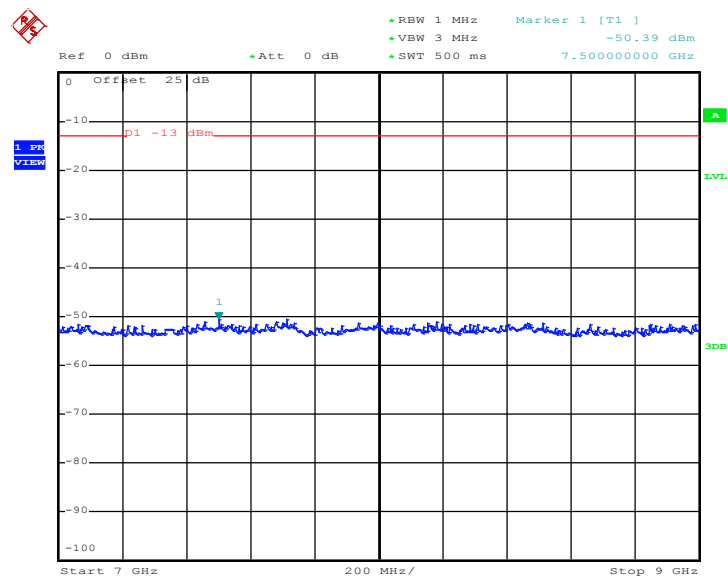


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



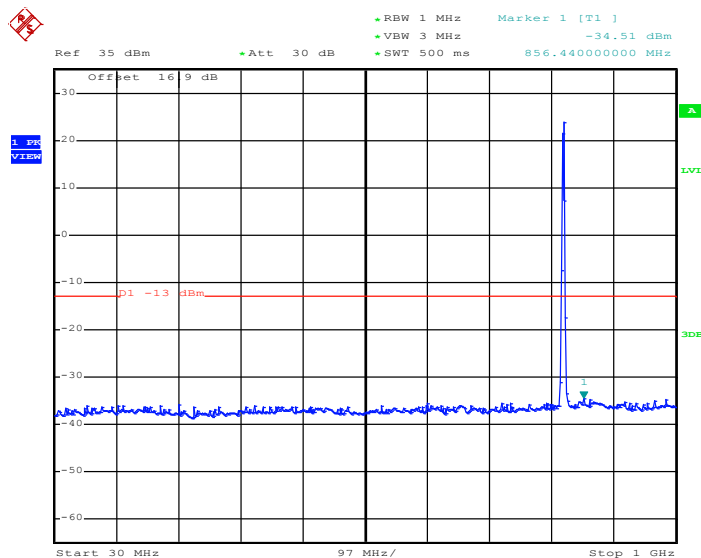
Date: 22.MAR.2014 09:45:09

Conducted Spurious Emission Plot between 7GHz ~ 9GHz

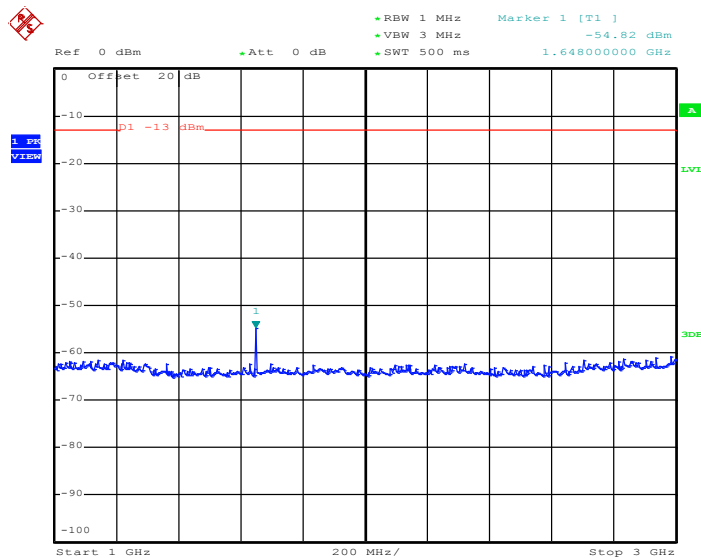


Date: 22.MAR.2014 09:45:17

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


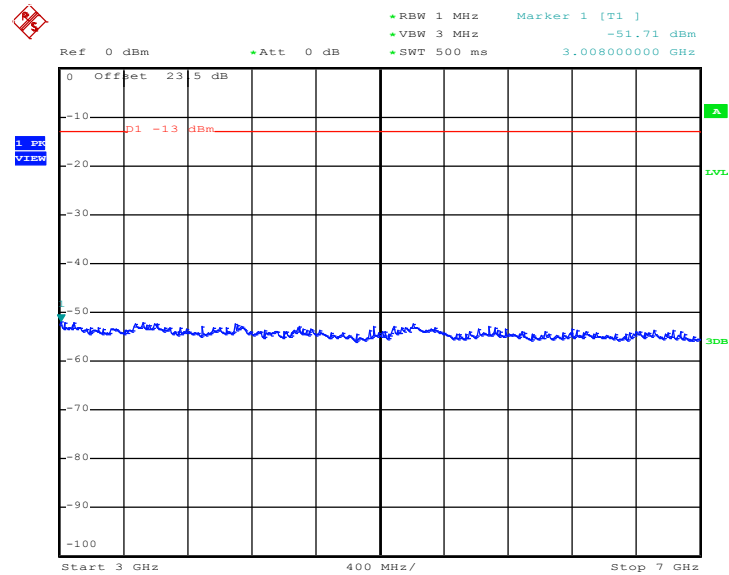
Date: 22.MAR.2014 10:15:19

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 10:15:31

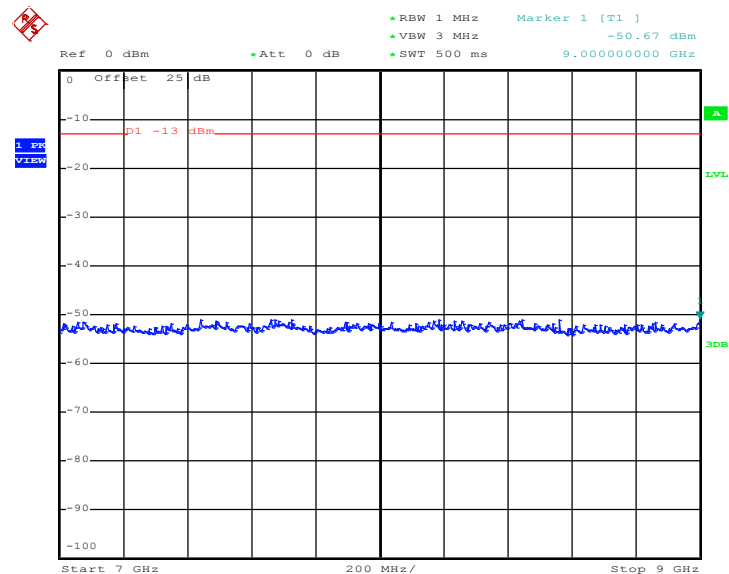


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



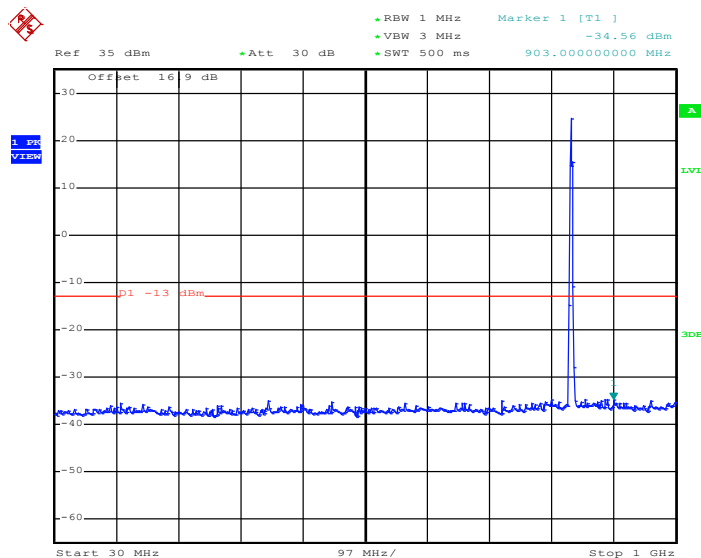
Date: 22.MAR.2014 10:15:39

Conducted Spurious Emission Plot between 7GHz ~ 9GHz

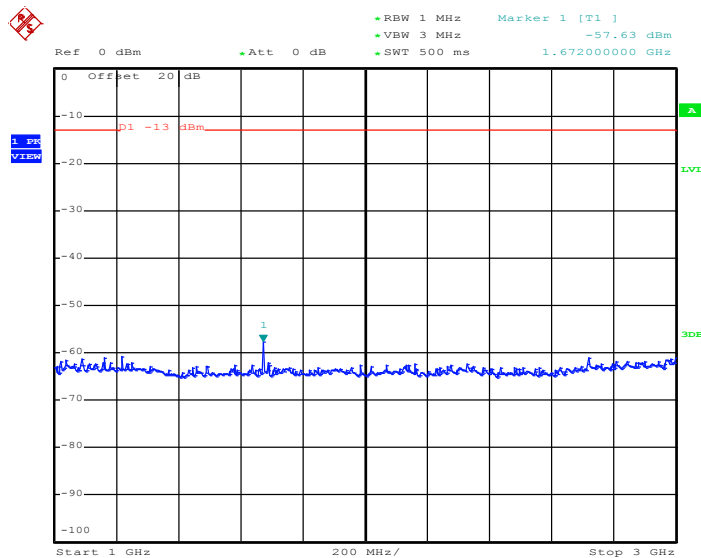


Date: 22.MAR.2014 10:15:47

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


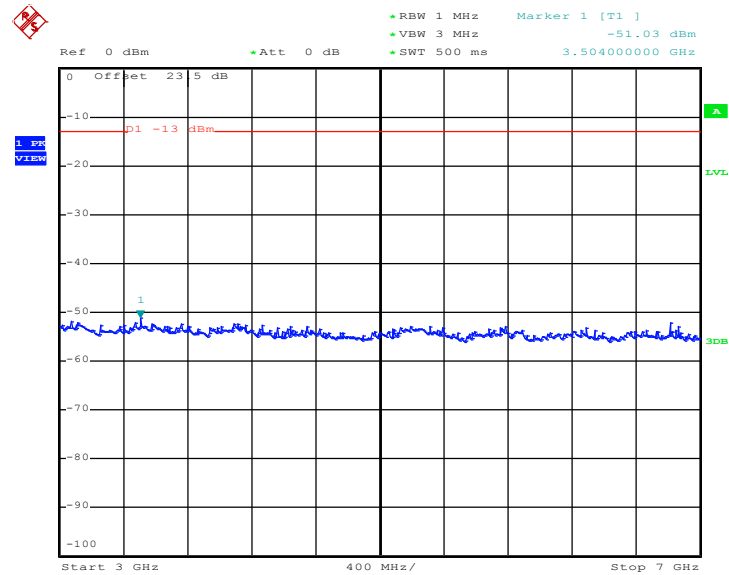
Date: 22.MAR.2014 10:13:48

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 10:14:00

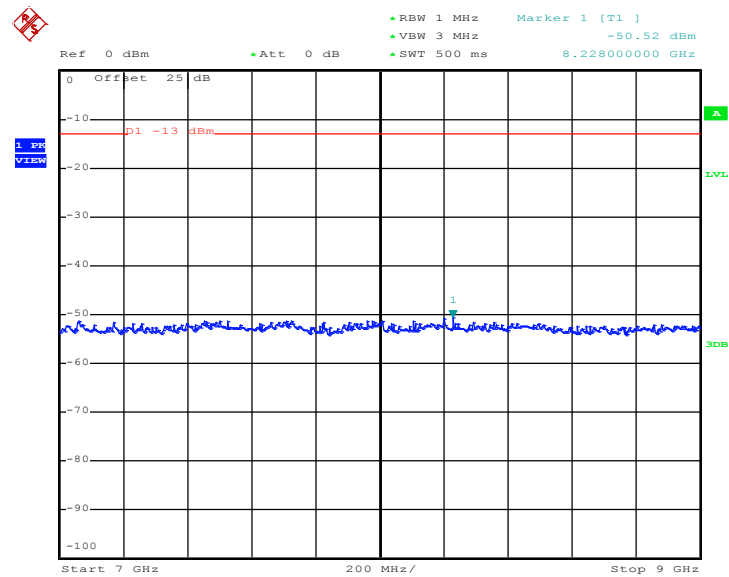


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 10:14:09

Conducted Spurious Emission Plot between 7GHz ~ 9GHz

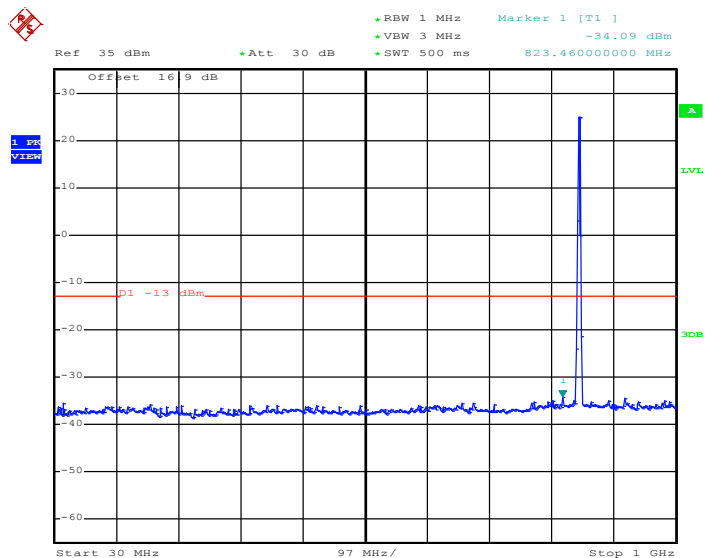


Date: 22.MAR.2014 10:14:17



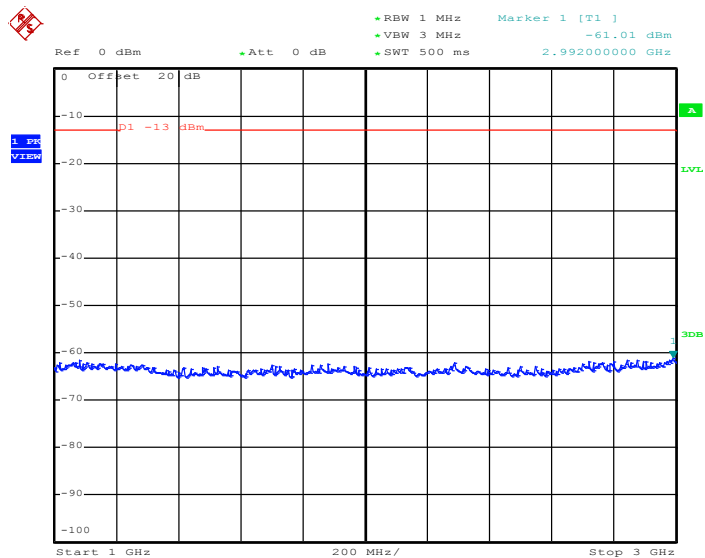
Band :	GSM850	Channel :	CH251
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	848.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 10:16:56

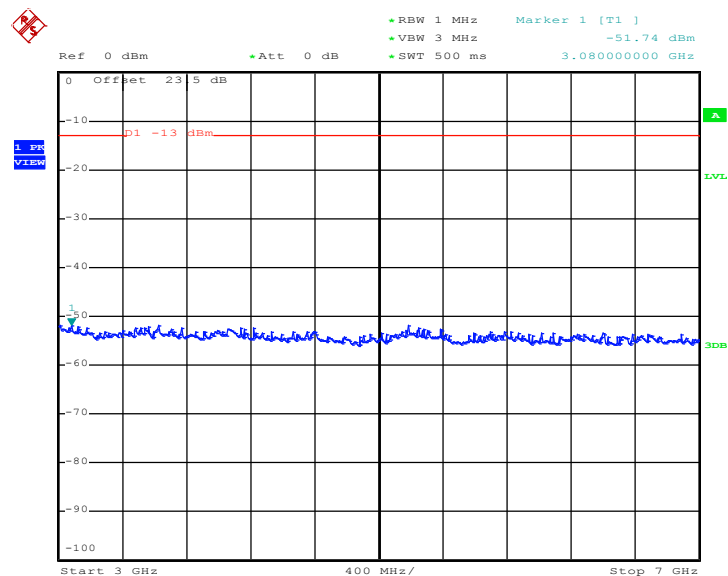
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 10:17:09

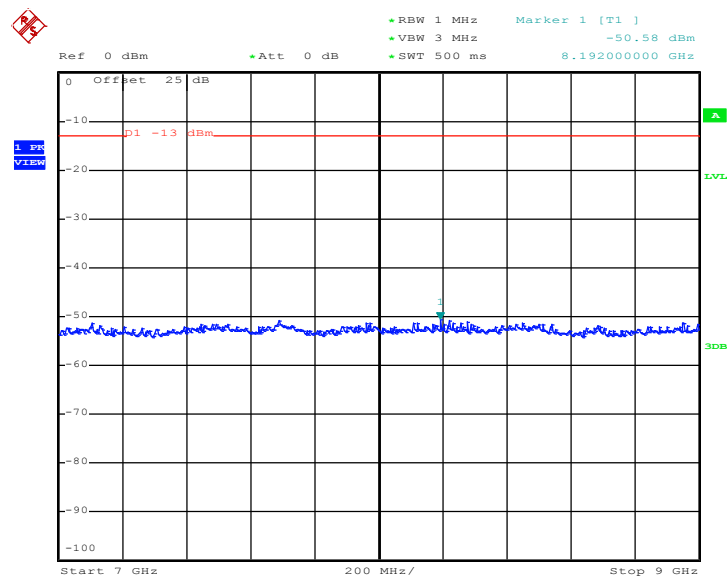


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 10:17:17

Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 22.MAR.2014 10:17:26



The screenshot displays a Spectrum Analyzer interface. At the top, a red and white logo is visible. The main display area shows a frequency spectrum with a blue trace representing the signal. The trace is mostly flat, indicating a noise floor, with a small peak marked by a green arrow and labeled '1'. The peak is at 97 MHz, as indicated by the 'Marker 1 [T1]' label. The frequency range is from 30 MHz to 1 GHz, with a center frequency of 97 MHz. The power level is in dBm, ranging from -60 to -30. The noise floor is at -32.94 dBm. The bandwidth is 3 MHz, and the resolution bandwidth is 1 MHz. The sweep time is 300 ms. The offset is 169 dB. The reference level is 35 dBm. The attenuation is 30 dB. The marker is at 111.480000000 MHz. The signal is labeled 'D1 -13 dBm'.

Ref 35 dBm + Att 30 dB + RBW 1 MHz Marker 1 [T1] -32.94 dBm
 + VBW 3 MHz + SWT 300 ms 111.480000000 MHz

Offset 169 dB

Start 30 MHz 97 MHz/ Stop 1 GHz

1. PK VIEW

D1 -13 dBm

1

30 dB

30 dBm

Offset 20 dB

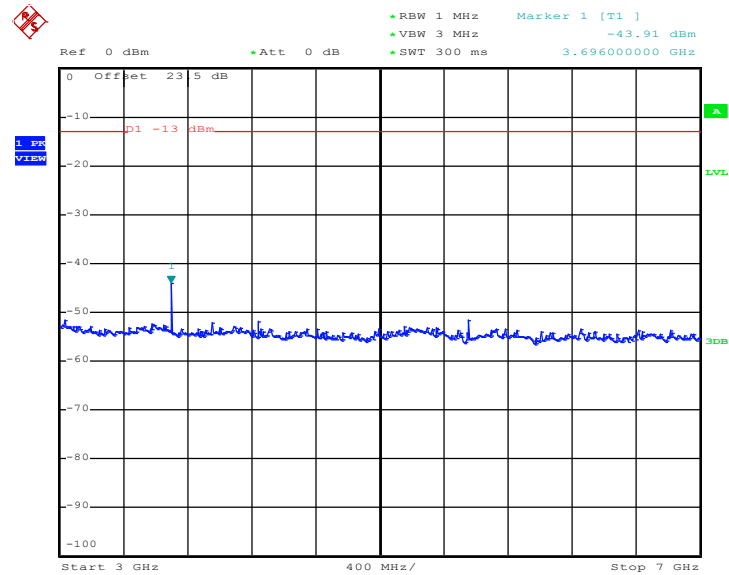
Ref 35 dBm Att 30 dB RBW 1 MHz VBW 3 MHz SWT 300 ms Marker 1 [T1] -30.20 dBm 2.98400000 GHz

D1 -13 dBm

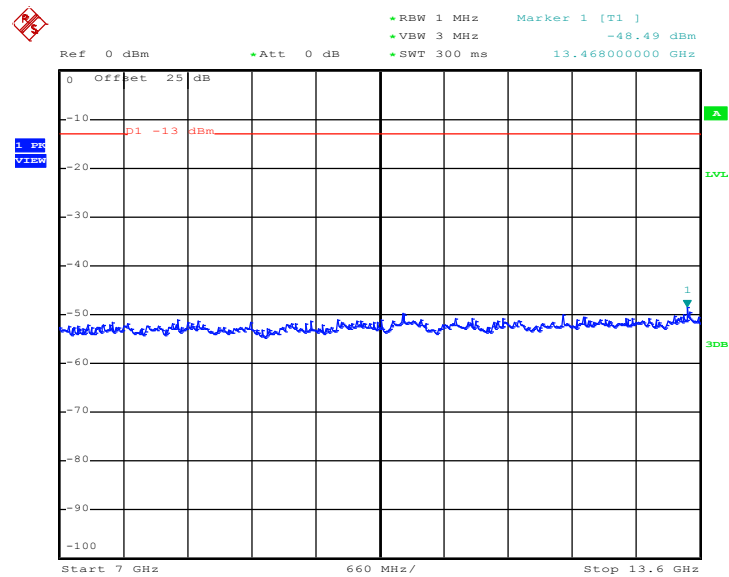
1

Start 1 GHz 200 MHz/ Stop 3 GHz

Report Template No.: BU5-FG22/24 Version 1.0

Conducted Spurious Emission Plot between 3GHz ~ 7GHz


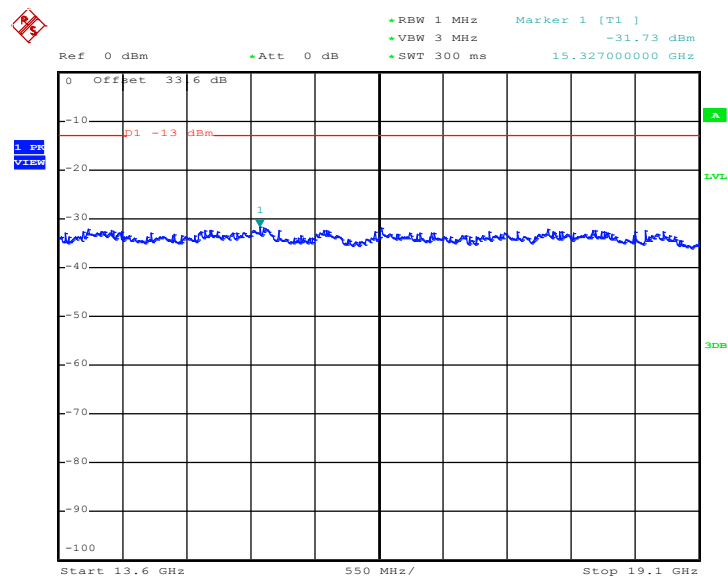
Date: 22.MAR.2014 10:49:31

Conducted Spurious Emission Plot between 7GHz ~ 13.6G


Date: 22.MAR.2014 10:49:40



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

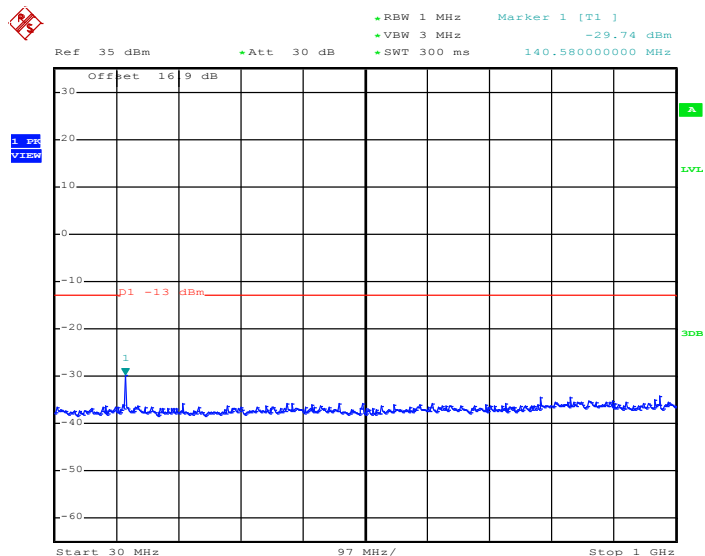


Date: 22.MAR.2014 10:49:48



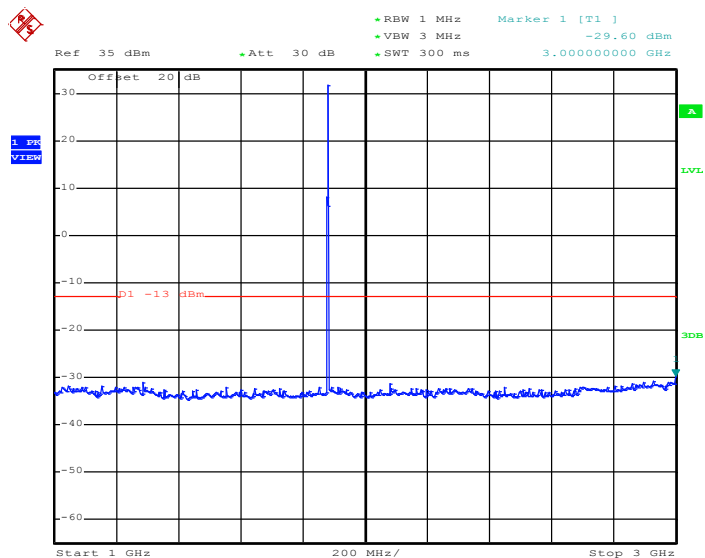
Band :	GSM1900	Channel :	CH661
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	1880.0 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



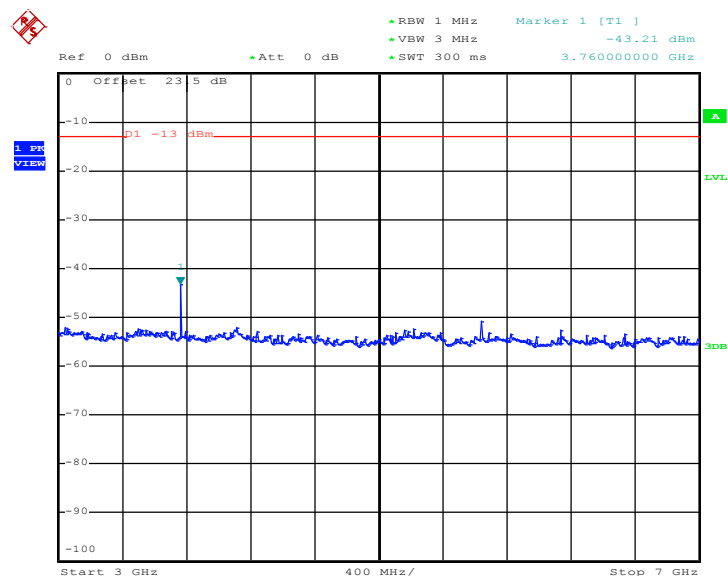
Date: 22.MAR.2014 10:47:04

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



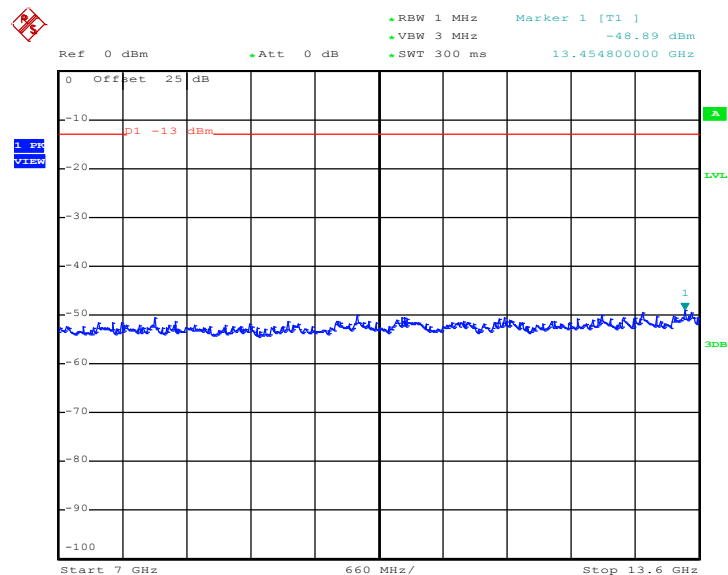
Date: 22.MAR.2014 10:47:12

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 10:47:25

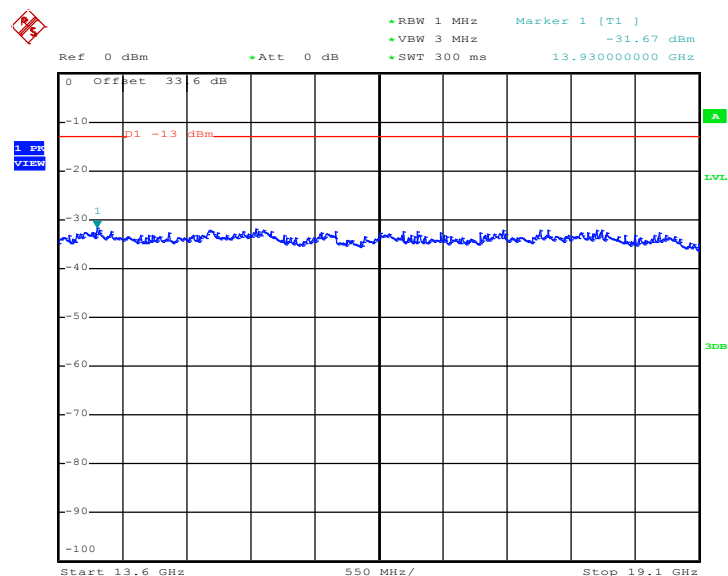
Conducted Spurious Emission Plot between 7GHz ~ 13.6G



Date: 22.MAR.2014 10:47:33

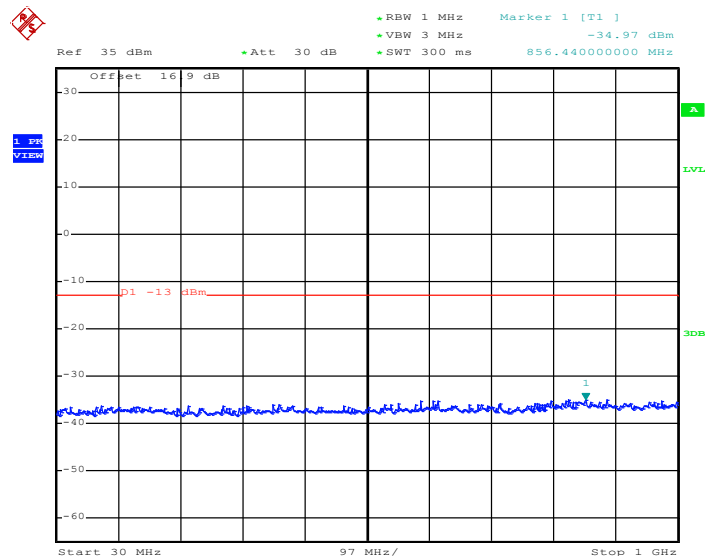


Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

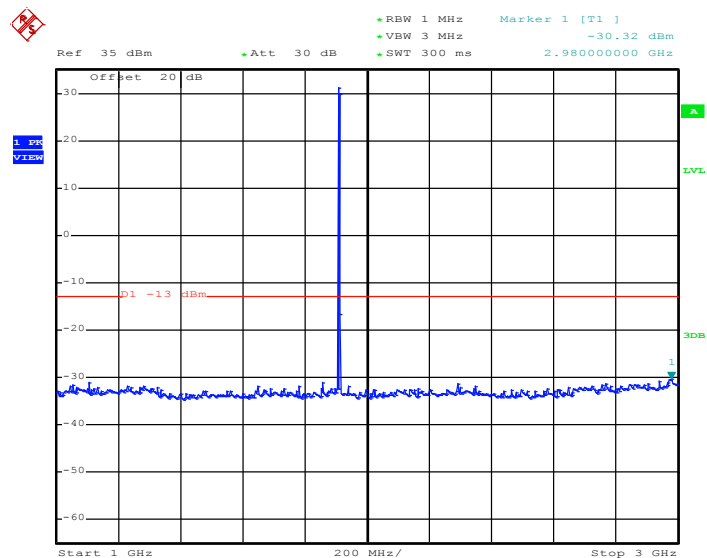


Date: 22.MAR.2014 10:47:42

Band :	GSM1900	Channel :	CH810
Test Mode :	GPRS class 8 Link (GMSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


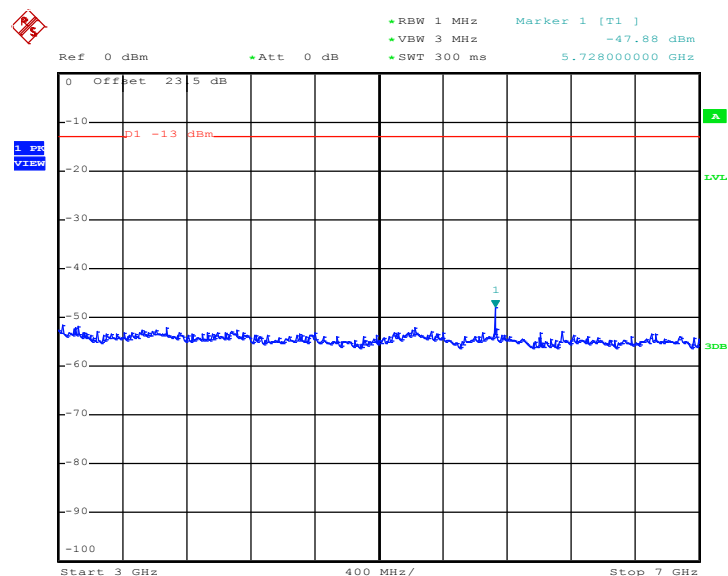
Date: 22.MAR.2014 10:54:52

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 10:55:00

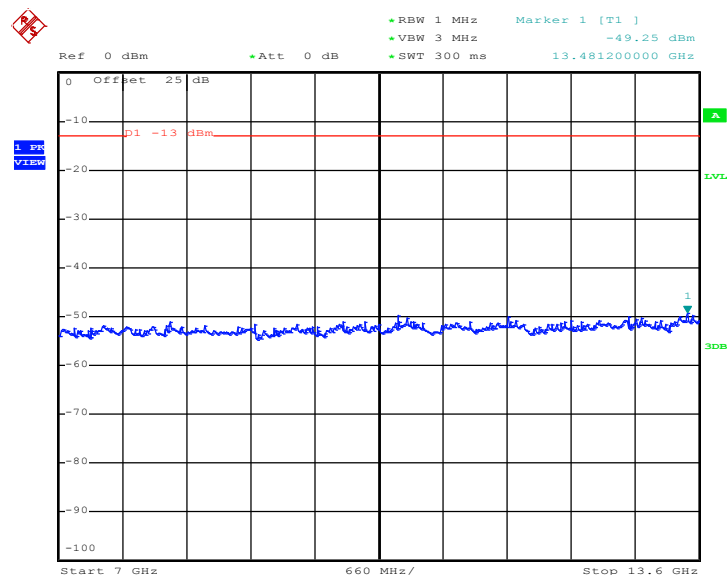


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 10:55:12

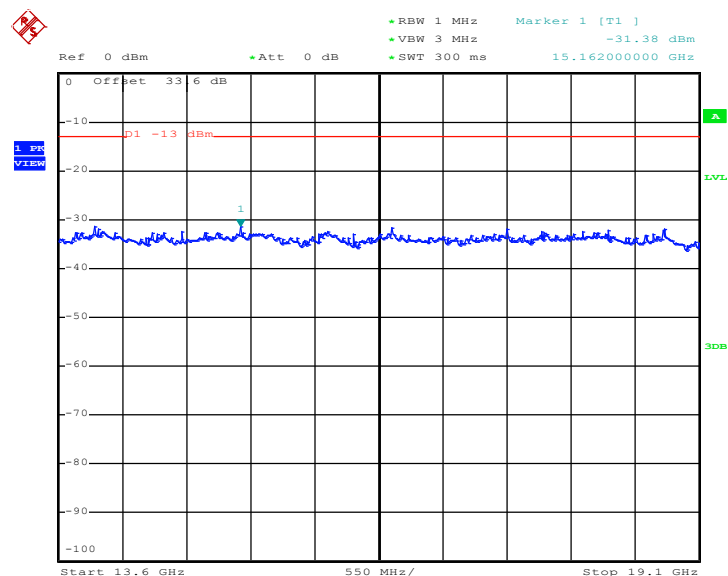
Conducted Spurious Emission Plot between 7GHz ~ 13.6G



Date: 22.MAR.2014 10:55:21

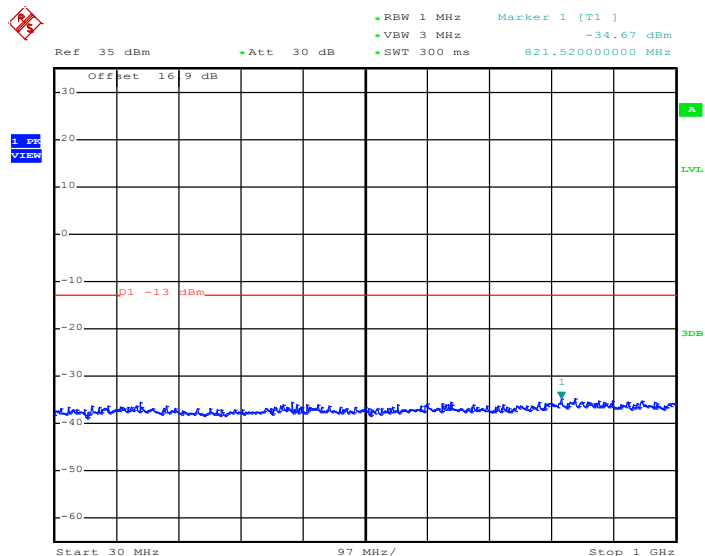


Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

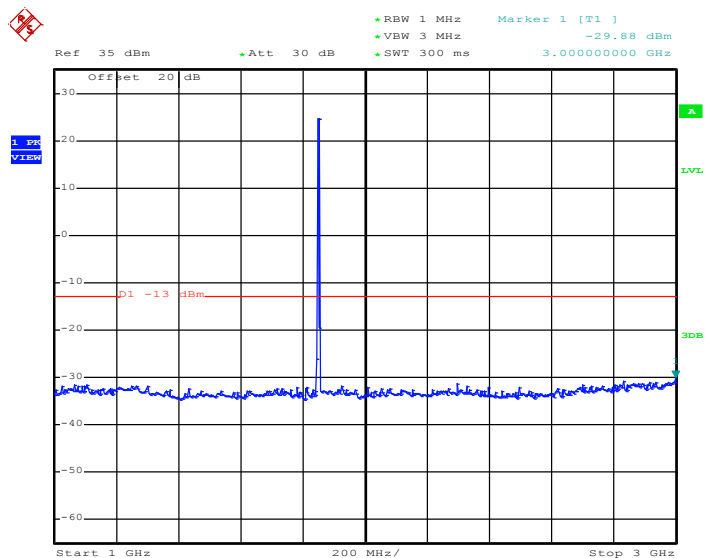


Date: 22.MAR.2014 10:55:29

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


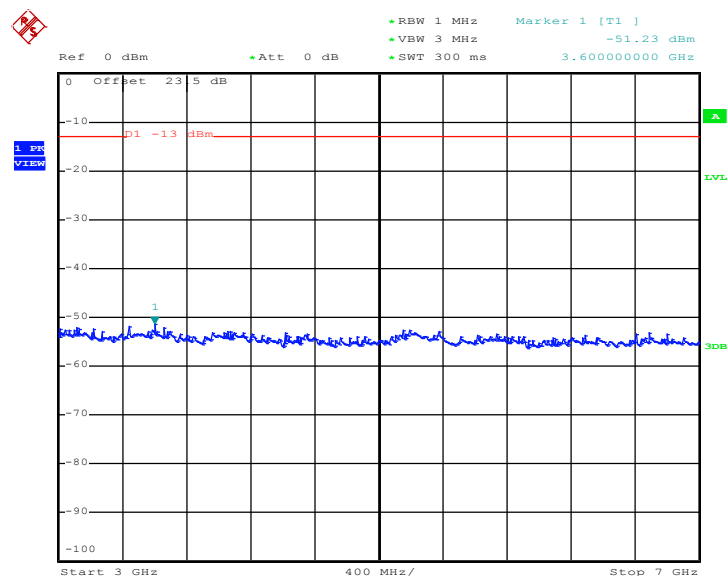
Date: 22.MAR.2014 11:41:18

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 11:41:26

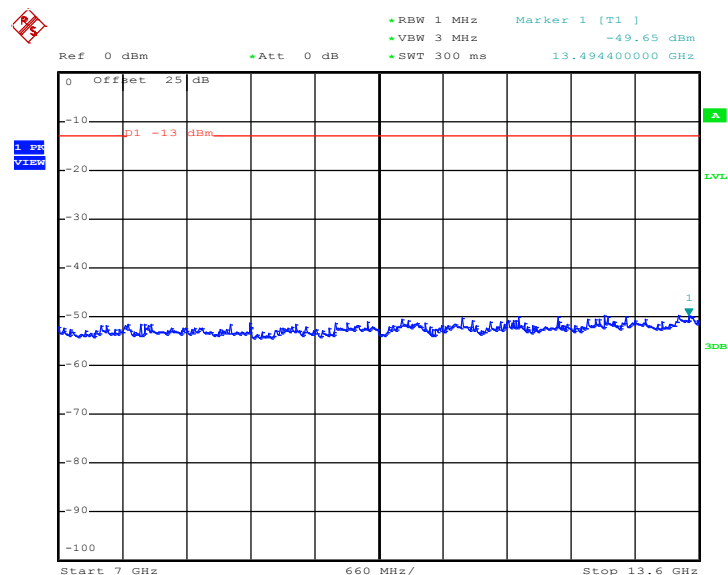


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 11:41:39

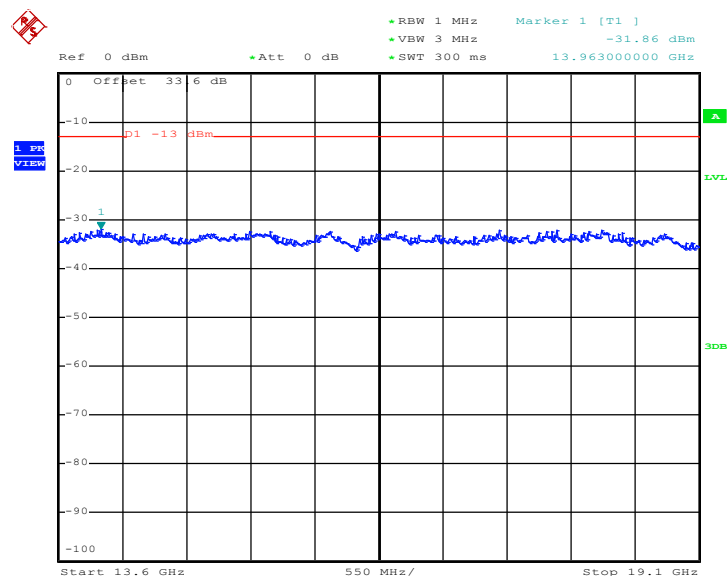
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 11:41:47

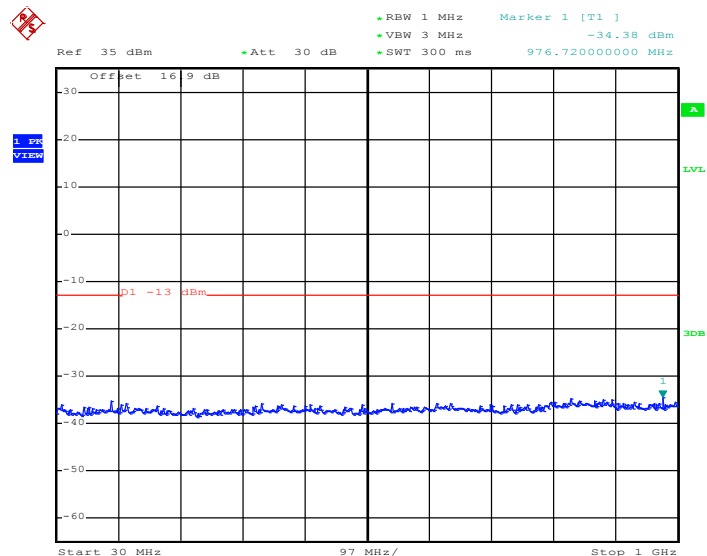


Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

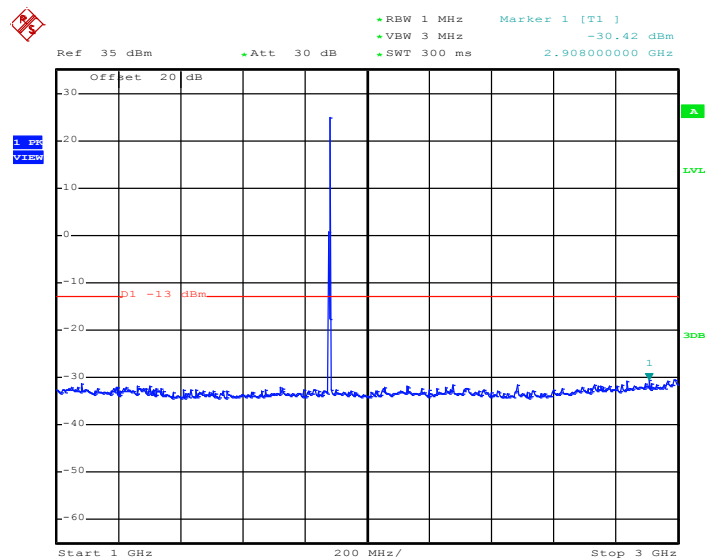


Date: 22.MAR.2014 11:41:55

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


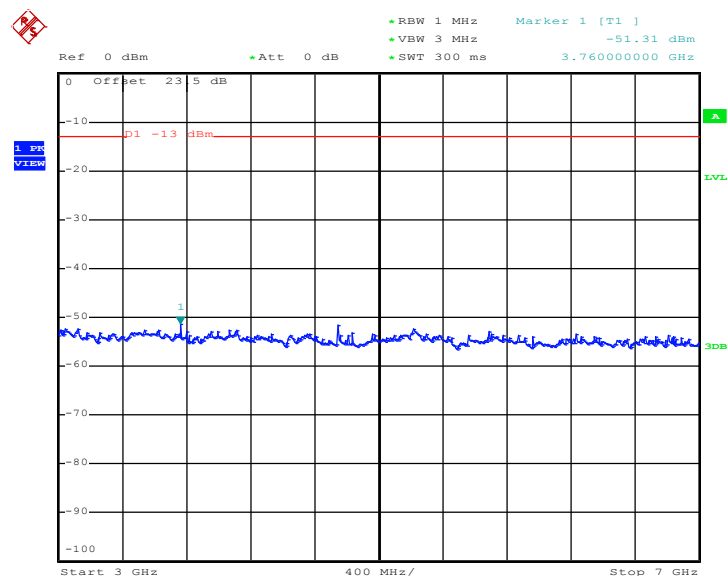
Date: 22.MAR.2014 11:39:45

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 11:39:53

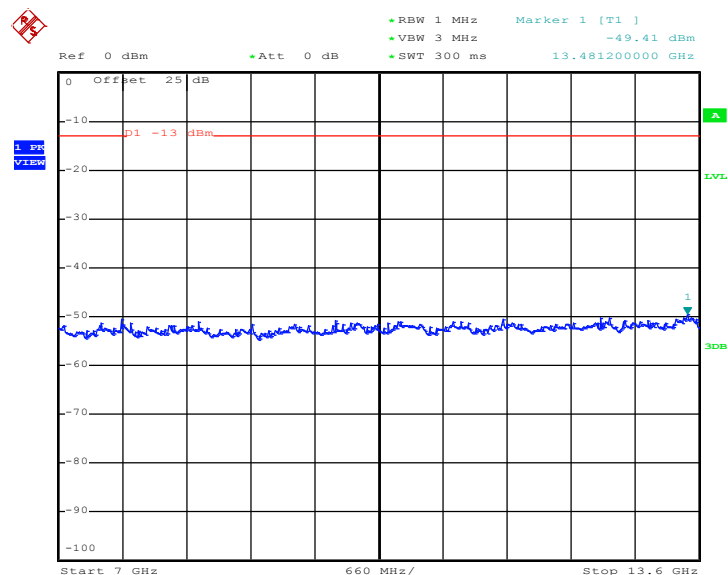


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 11:40:05

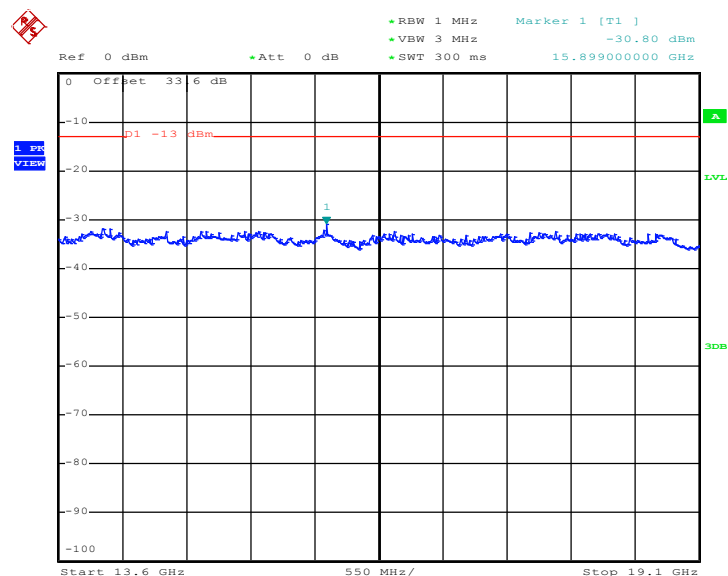
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 11:40:13



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

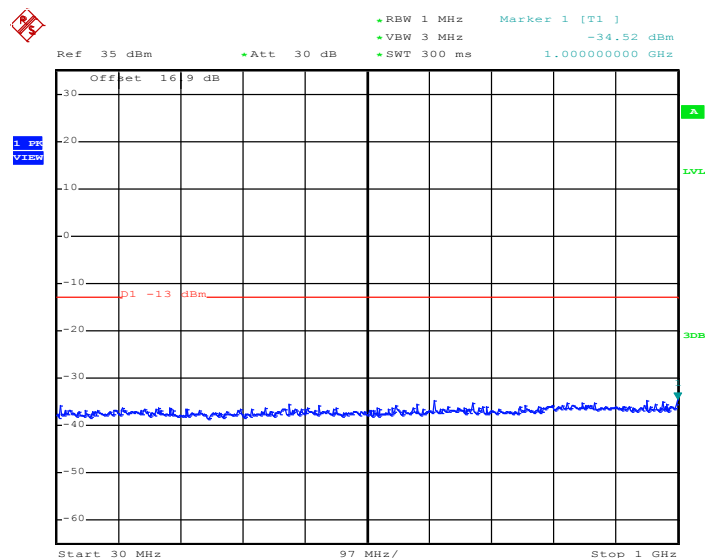


Date: 22.MAR.2014 11:40:21



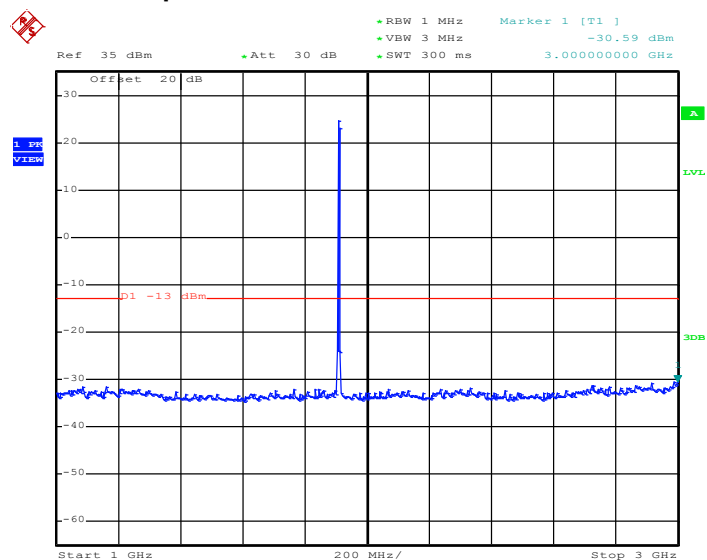
Band :	GSM1900	Channel :	CH810
Test Mode :	EDGE class 8 Link (8PSK)	Frequency :	1909.8 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



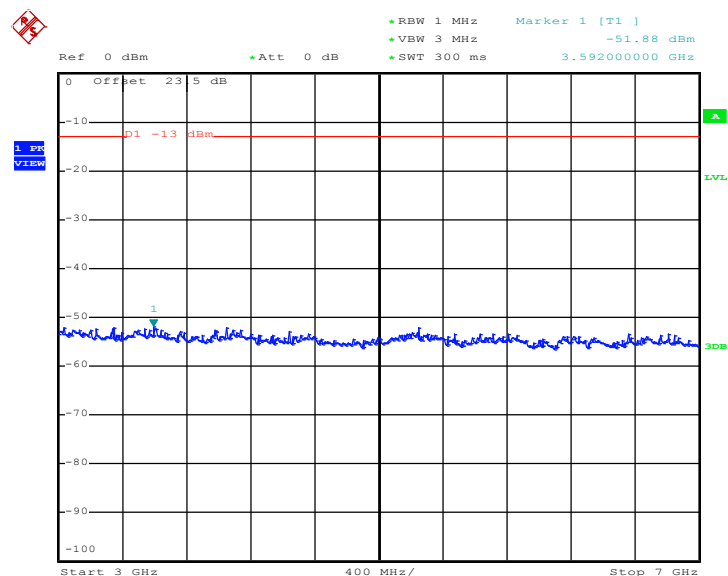
Date: 22.MAR.2014 11:42:46

Conducted Spurious Emission Plot between 1GHz ~ 3GHz



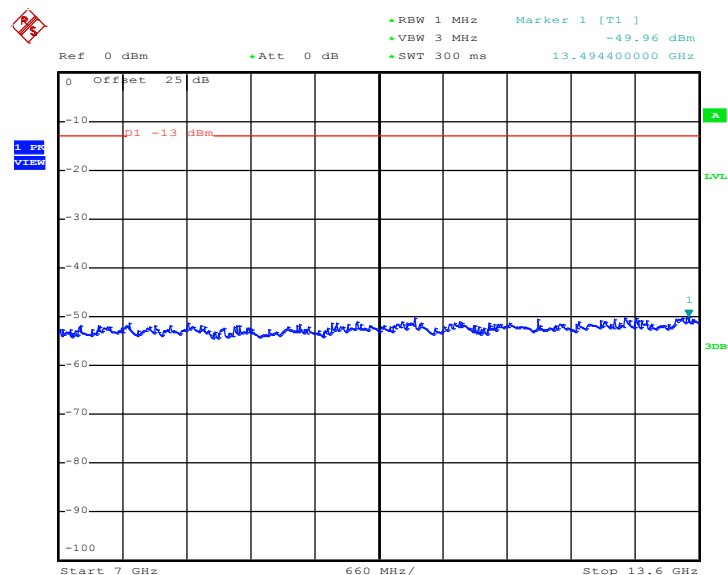
Date: 22.MAR.2014 11:42:55

Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 11:43:08

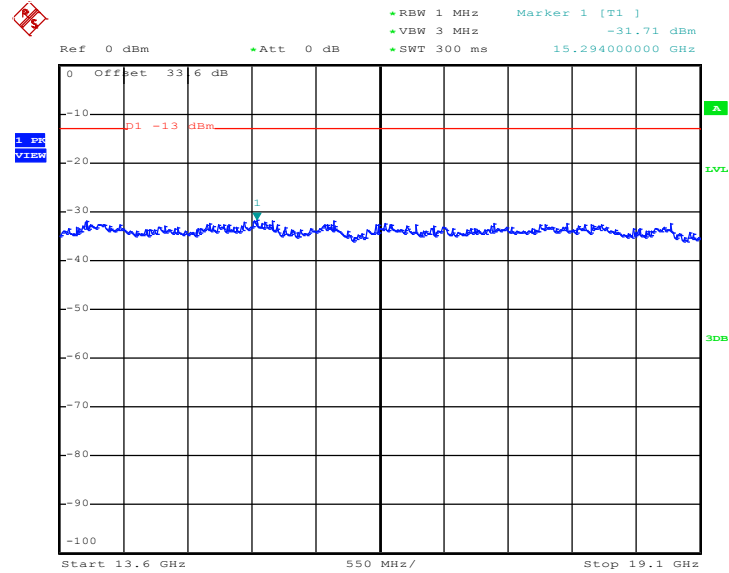
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 11:43:16



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

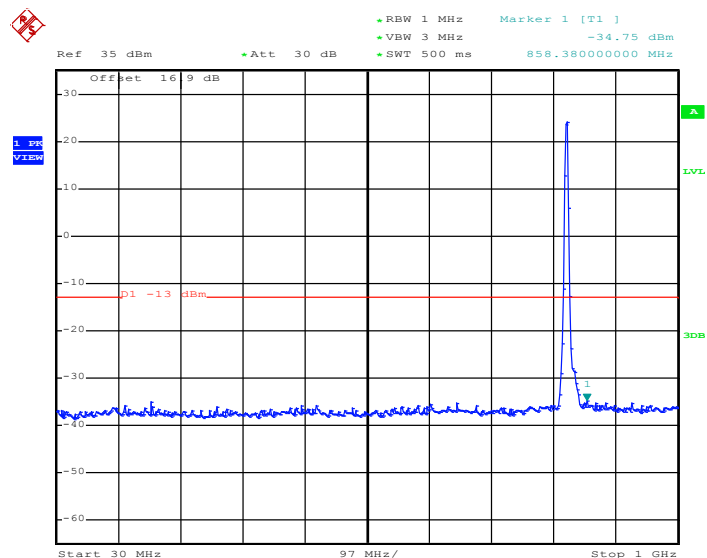


Date: 22.MAR.2014 11:43:25



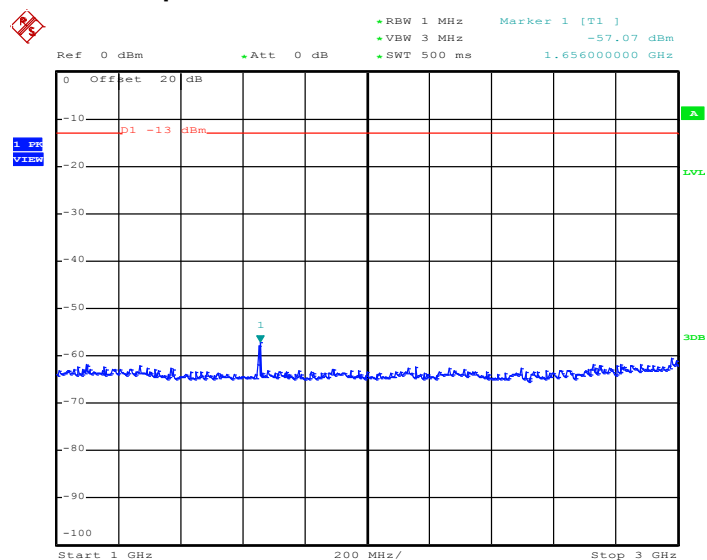
Band :	WCDMA Band V	Channel :	CH4132
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	826.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

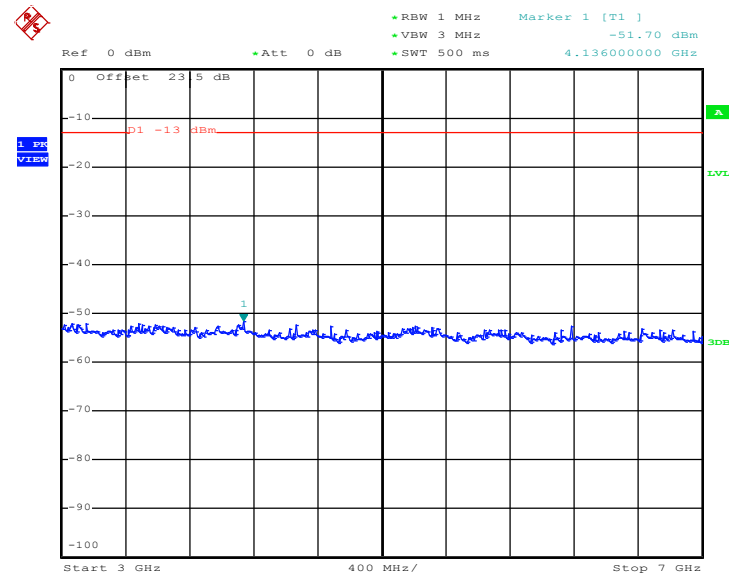


Date: 22.MAR.2014 14:32:01

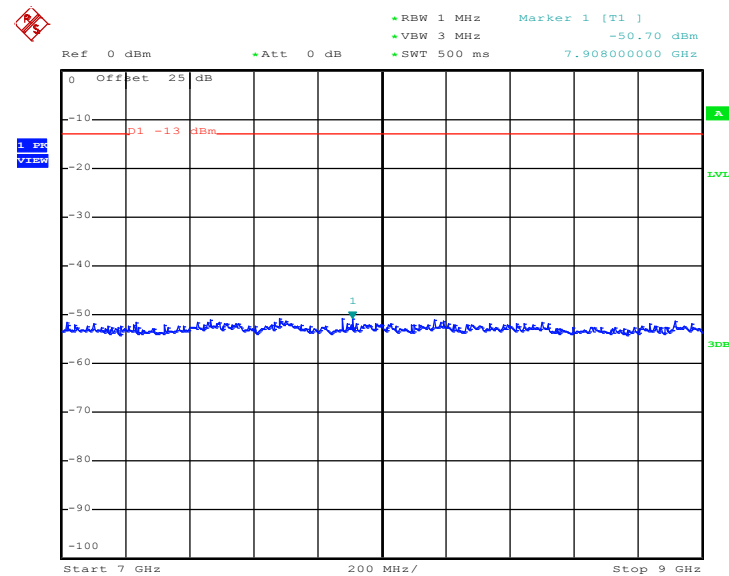
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 14:32:13

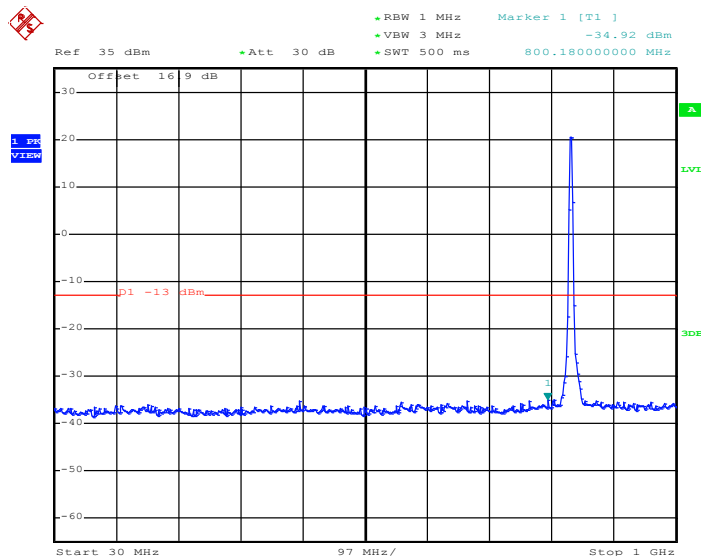
Conducted Spurious Emission Plot between 3GHz ~ 7GHz


Date: 22.MAR.2014 14:32:21

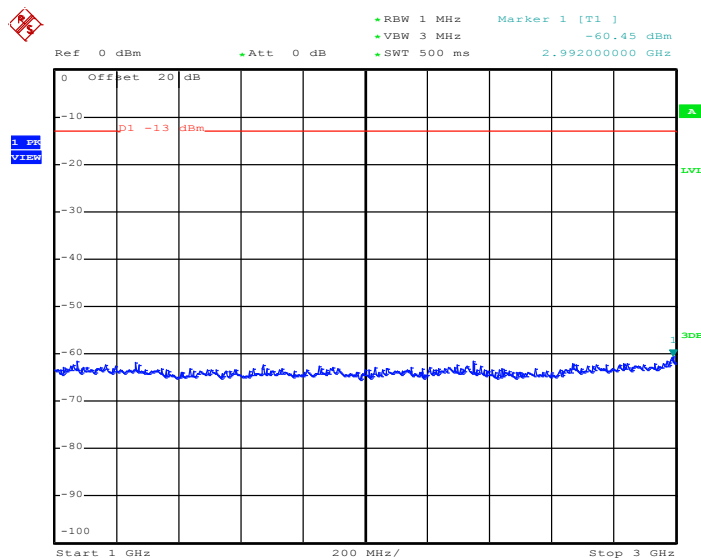
Conducted Spurious Emission Plot between 7GHz ~ 9GHz


Date: 22.MAR.2014 14:32:30

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


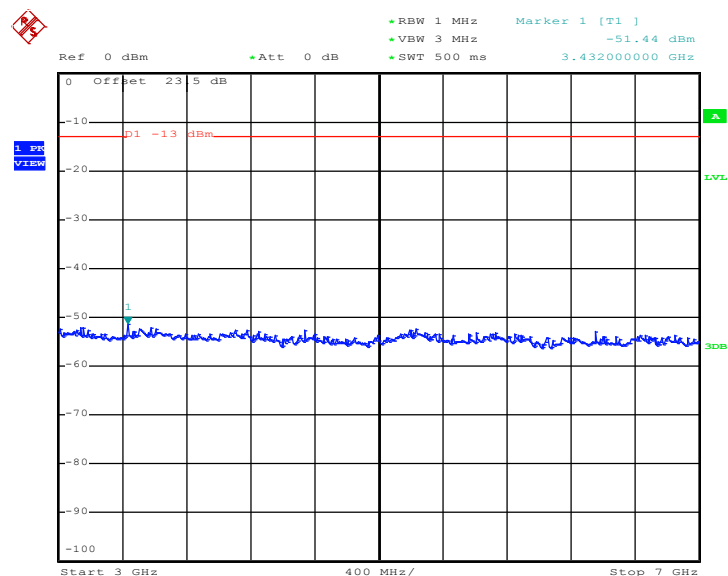
Date: 22.MAR.2014 14:29:11

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 14:29:22

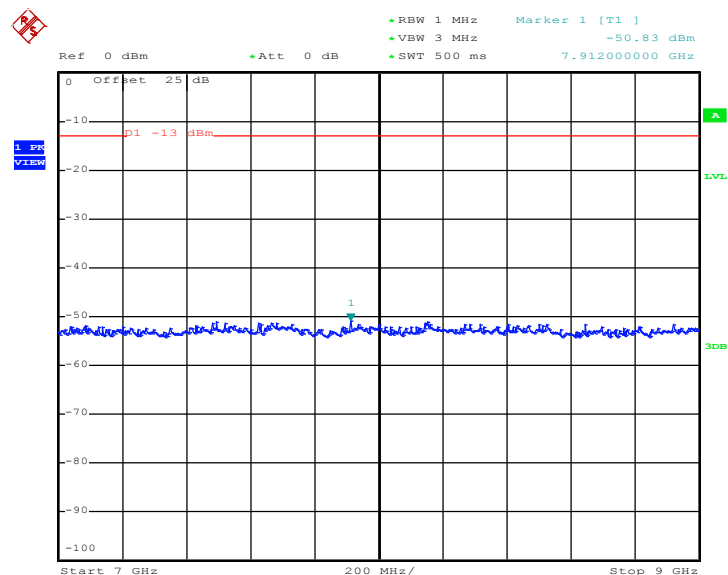


Conducted Spurious Emission Plot between 3GHz ~ 7GHz

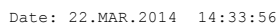


Date: 22.MAR.2014 14:29:31

Conducted Spurious Emission Plot between 7GHz ~ 9GHz



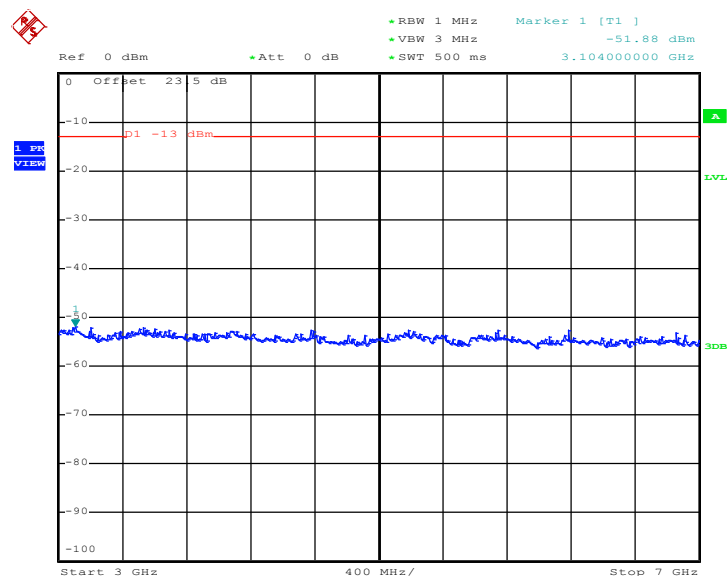
Date: 22.MAR.2014 14:29:39



Date: 22.MAR.2014 14:34:08

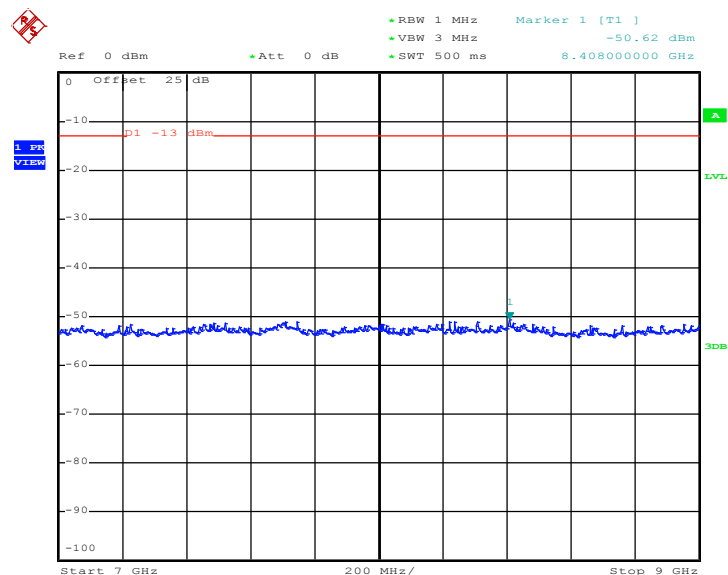


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 14:34:17

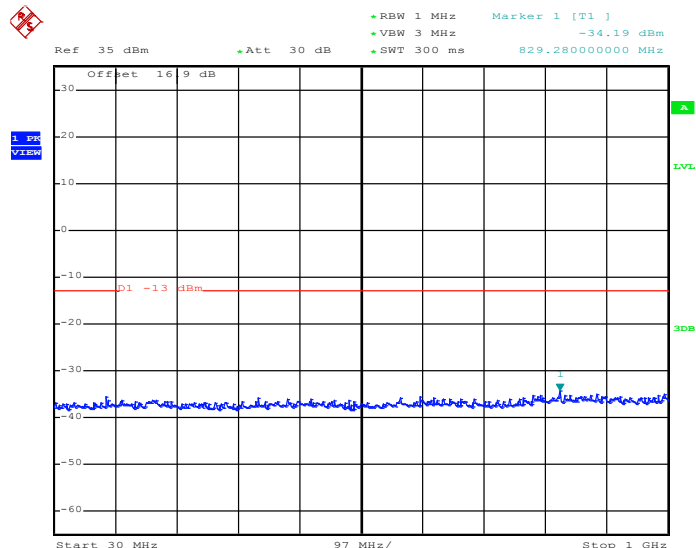
Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 22.MAR.2014 14:34:25

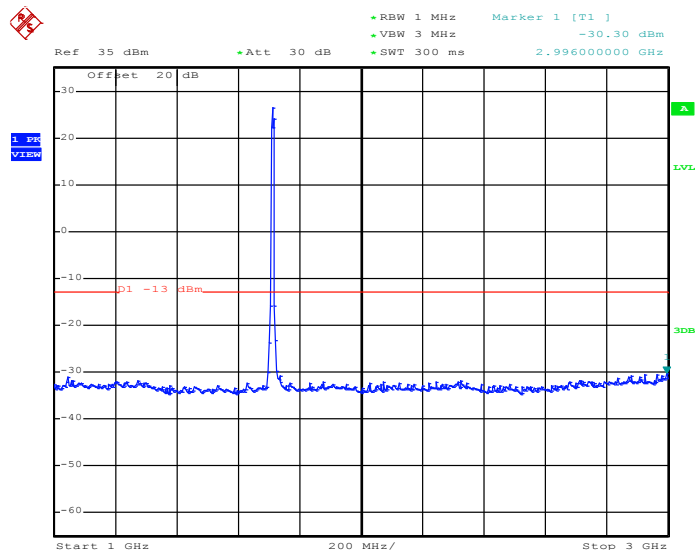
Band :	WCDMA Band IV	Channel :	CH1312
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1712.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 13:20:42

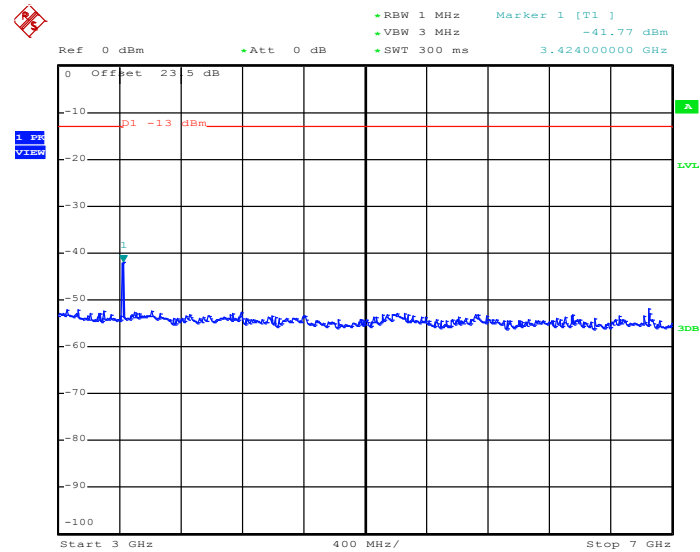
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 13:20:51

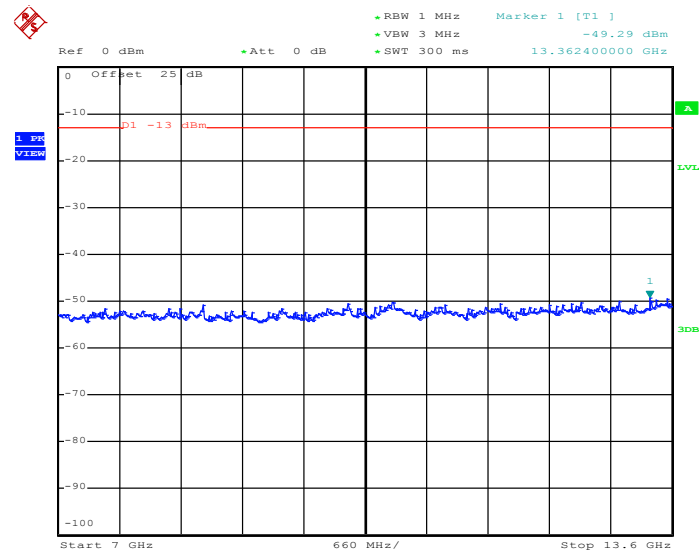


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 13:21:03

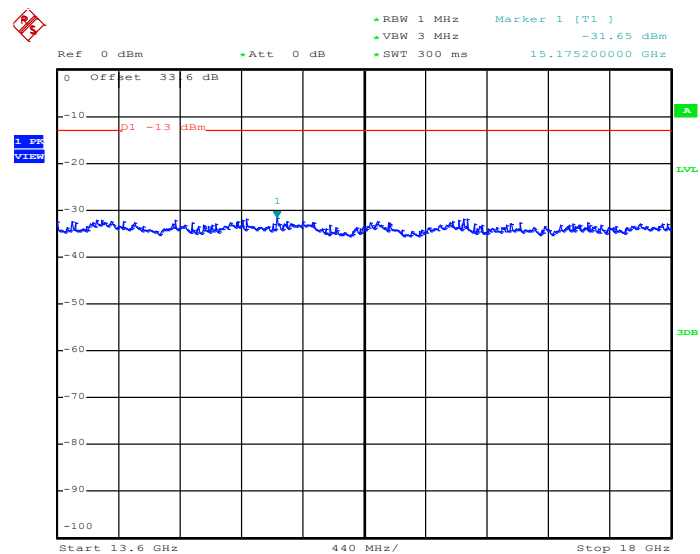
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 13:21:11



Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz

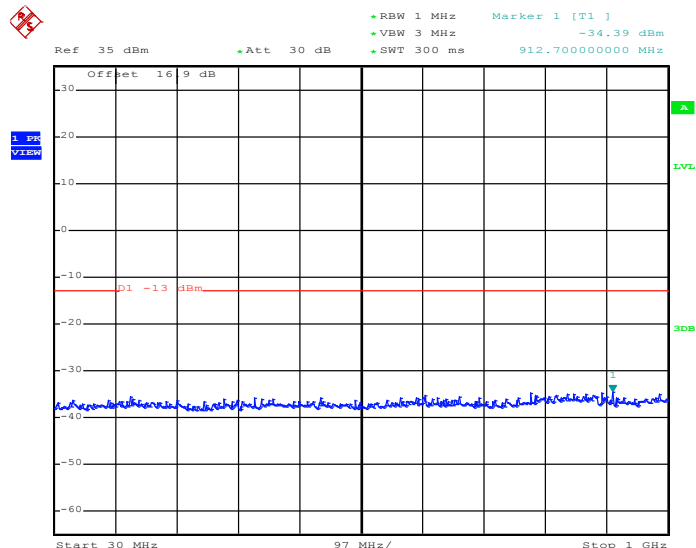


Date: 22.MAR.2014 13:21:19



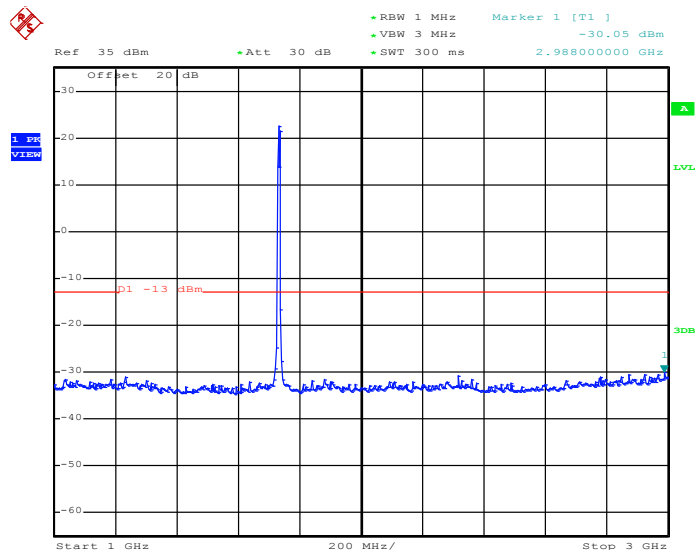
Band :	WCDMA Band IV	Channel :	CH1413
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1732.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

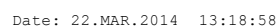


Date: 22.MAR.2014 13:18:38

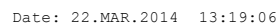
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 13:18:46



Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz





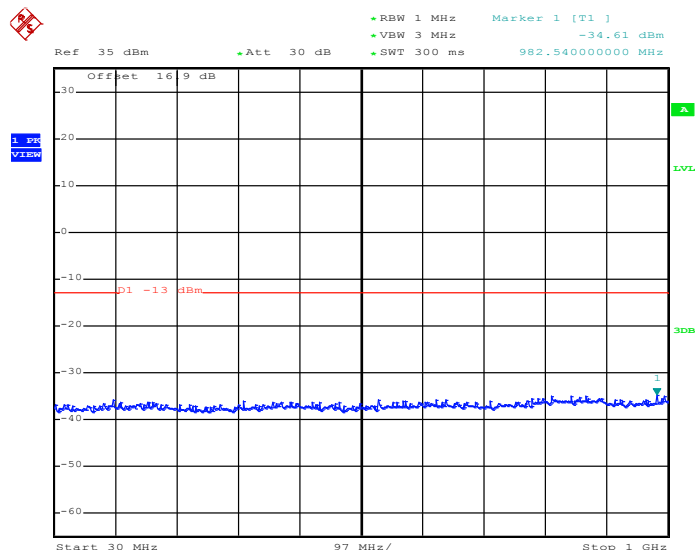
The screenshot shows a Spectrum Analyzer interface. At the top, there is a red logo on the left and a status bar on the right displaying: RBW 1 MHz, VBW 3 MHz, SWT 300 ms, Marker 1 [T1], -30.70 dBm, and 17.463200000 GHz. Below the status bar, a control bar shows: Ref 0 dBm, Offset 33.6 dB, Att 0 dB, and a green button labeled '1. Freq VIEW'. The main display area is a grid with a vertical axis for power (dBm) ranging from -10 to -100 and a horizontal axis for frequency (GHz) ranging from 13.6 to 18. A red horizontal line is drawn at -13 dBm, labeled 'P1 -13 dBm'. A blue trace shows a noisy signal floor around -37 dBm. A green marker labeled '1' is positioned at approximately 17.46 GHz and -30.7 dBm. On the right side of the grid, there are three green labels: 'A' at the top, 'LVL' in the middle, and '30dB' at the bottom.

Date: 22.MAR.2014 13:19:15



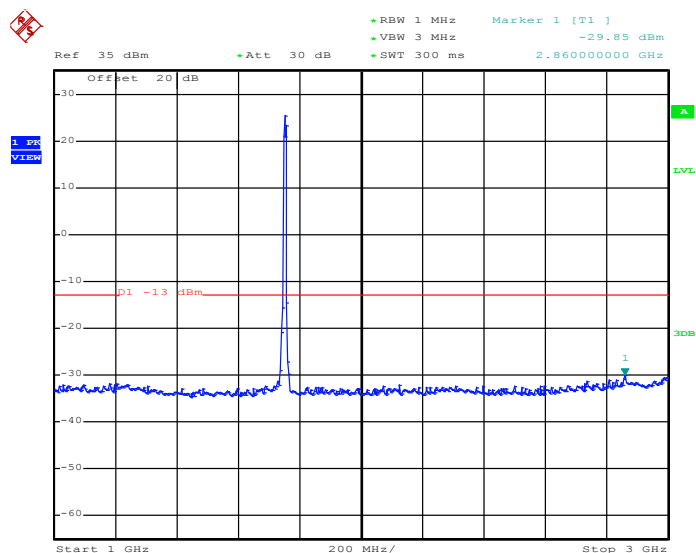
Band :	WCDMA Band IV	Channel :	CH1513
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1752.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 13:23:50

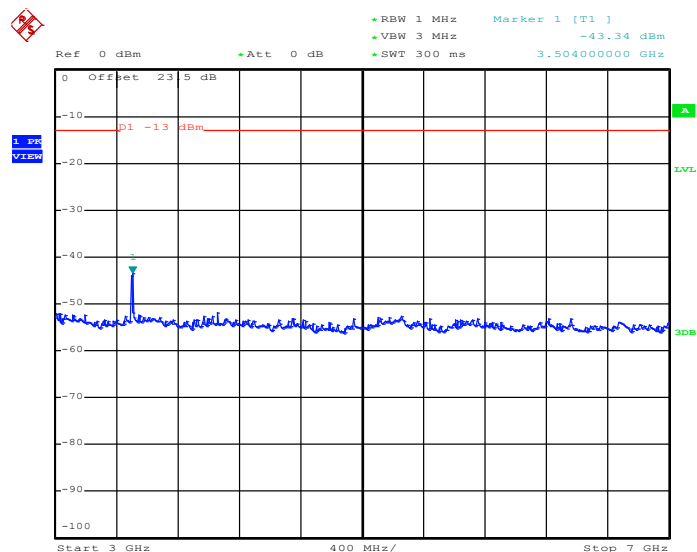
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 13:23:58

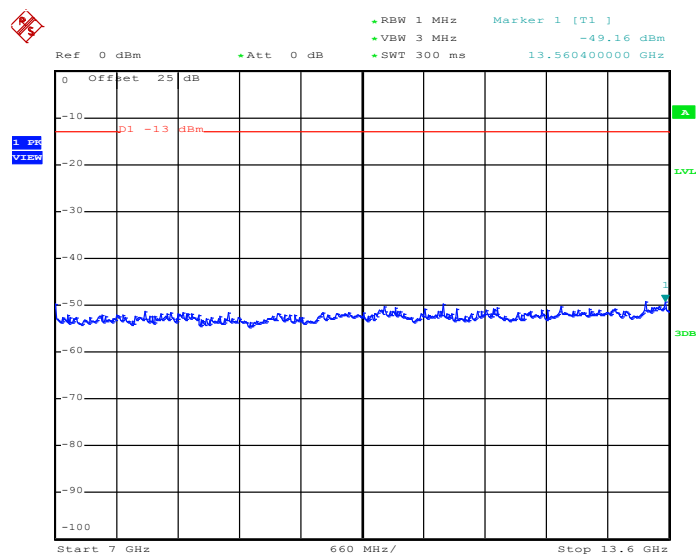


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 13:24:11

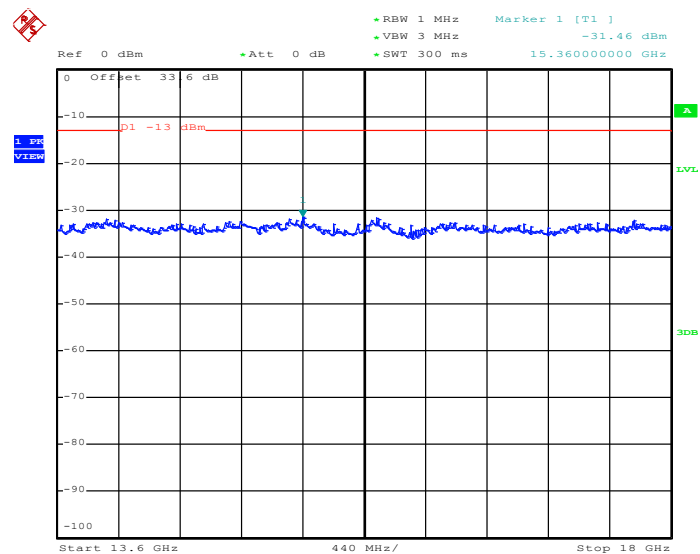
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 13:24:19



Conducted Spurious Emission Plot between 13.6GHz ~ 18GHz

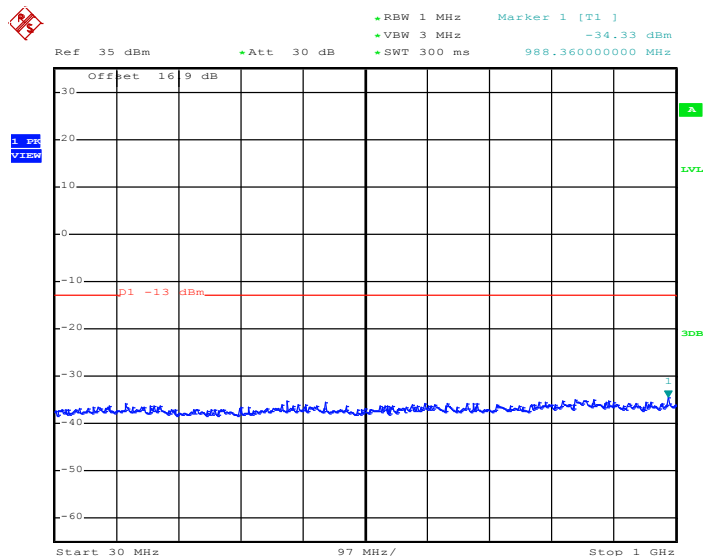


Date: 22.MAR.2014 13:24:27



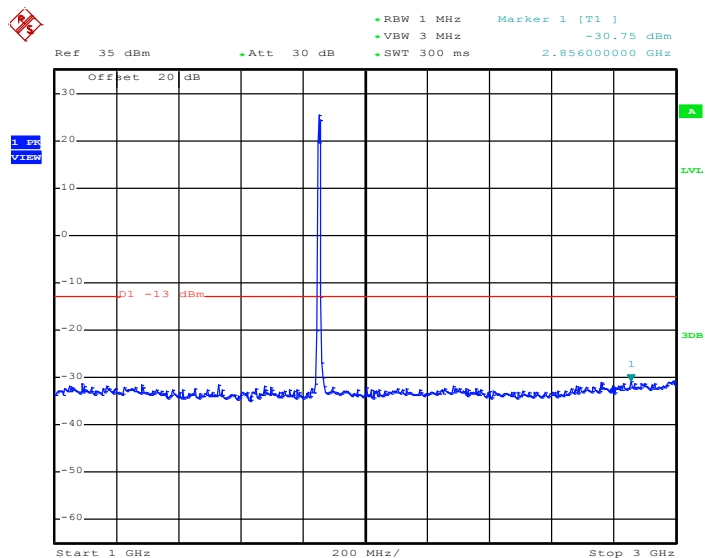
Band :	WCDMA Band II	Channel :	CH9262
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1852.4 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz

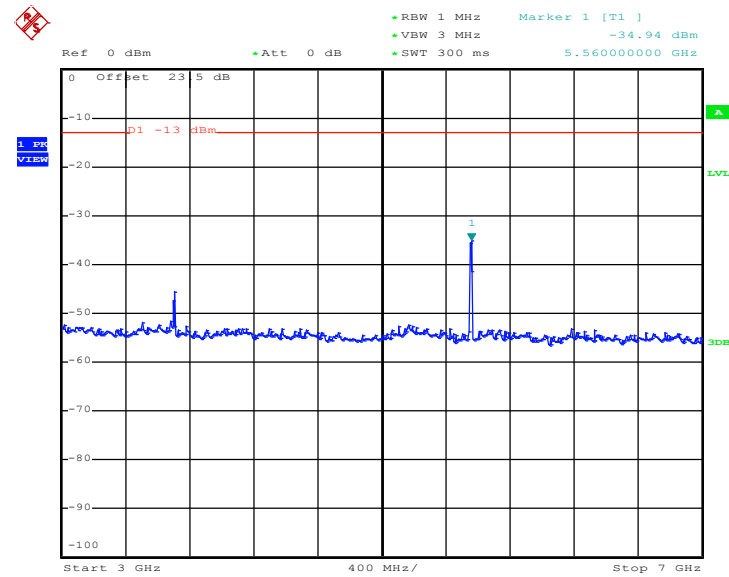


Date: 22.MAR.2014 12:43:19

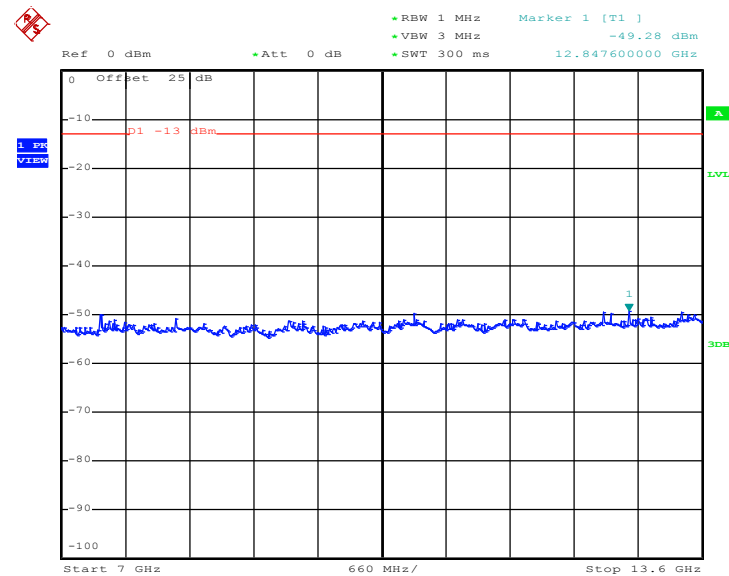
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 12:43:27

Conducted Spurious Emission Plot between 3GHz ~ 7GHz


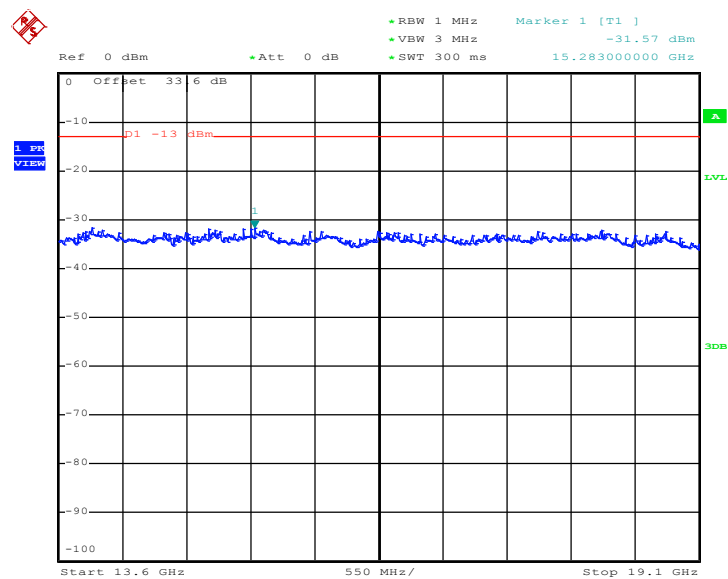
Date: 22.MAR.2014 12:43:40

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz


Date: 22.MAR.2014 12:43:48

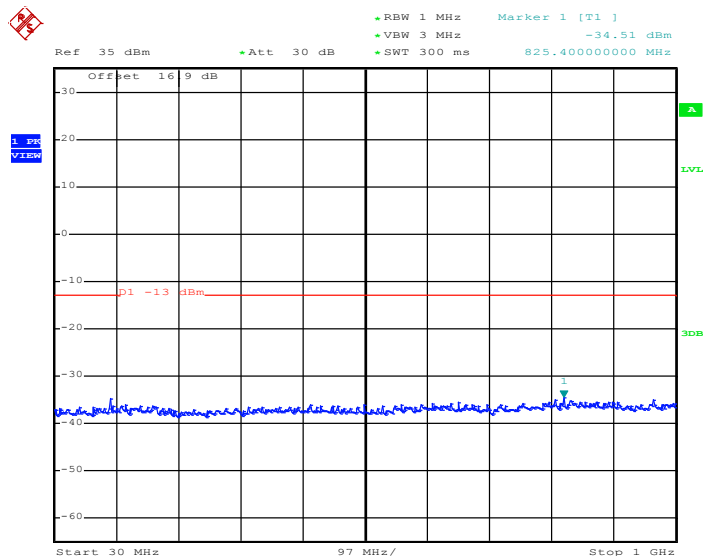


Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

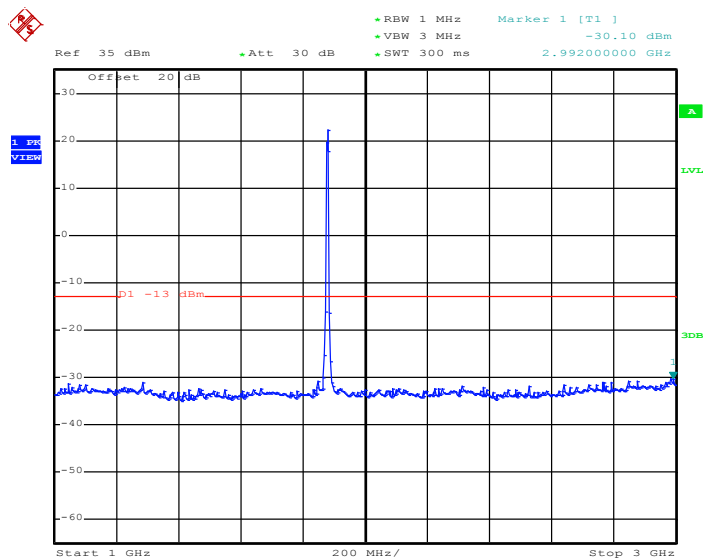


Date: 22.MAR.2014 12:43:57

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

Conducted Spurious Emission Plot between 30MHz ~ 1GHz


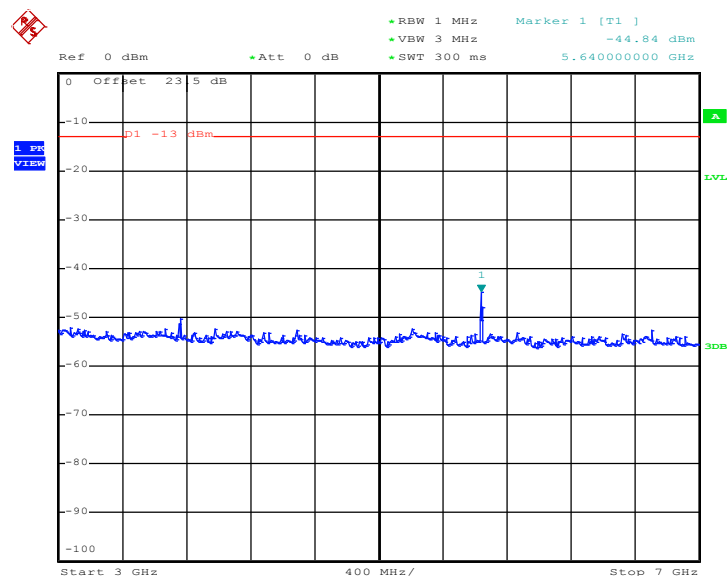
Date: 22.MAR.2014 12:39:53

Conducted Spurious Emission Plot between 1GHz ~ 3GHz


Date: 22.MAR.2014 12:40:02

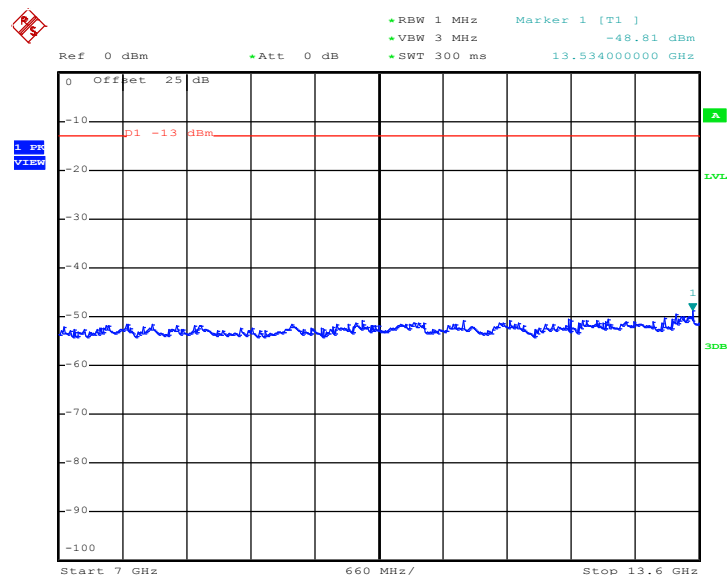


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



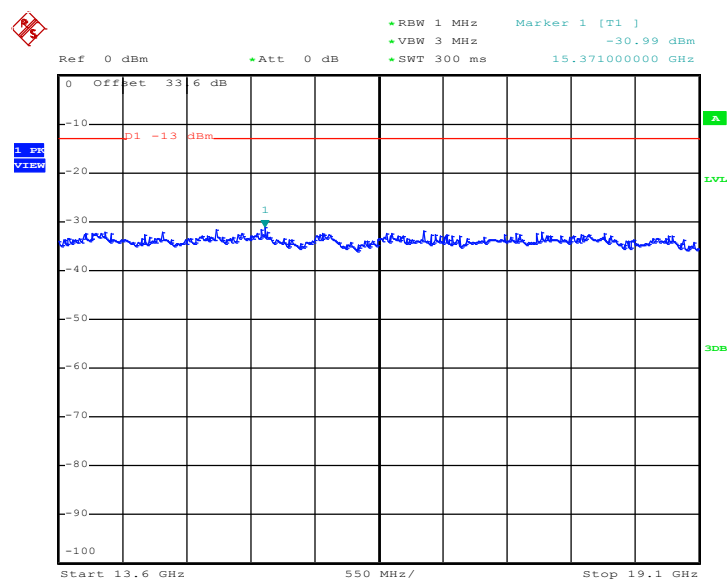
Date: 22.MAR.2014 12:40:14

Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 12:40:23

Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz

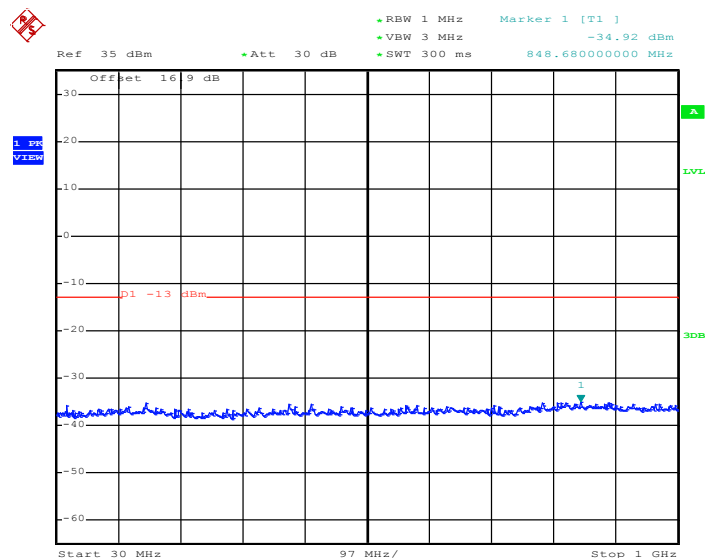


Date: 22.MAR.2014 12:40:31



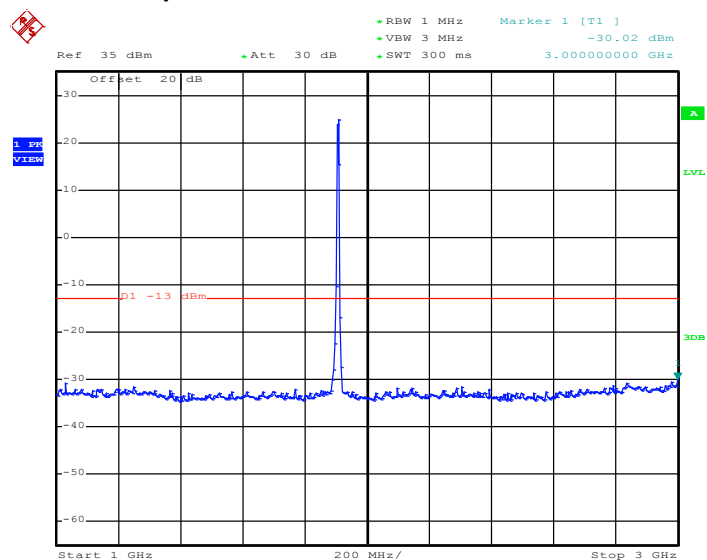
Band :	WCDMA Band II	Channel :	CH9538
Test Mode :	RMC 12.2Kbps Link (QPSK)	Frequency :	1907.6 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 22.MAR.2014 12:47:19

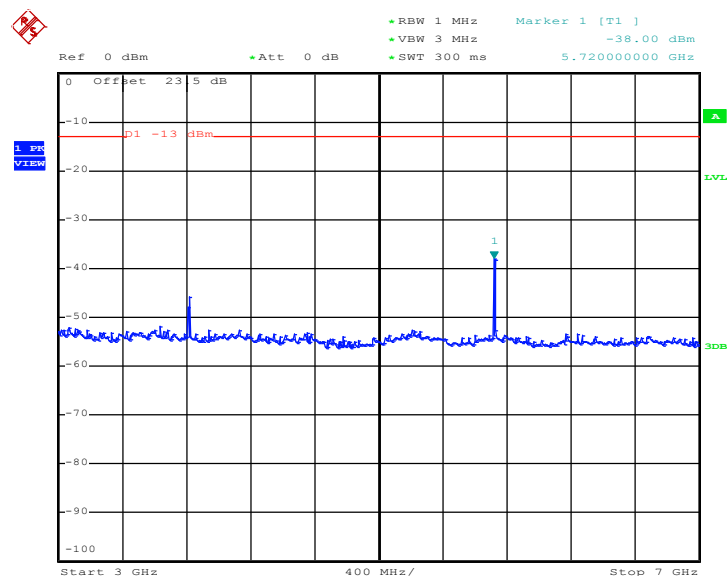
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 22.MAR.2014 12:47:27

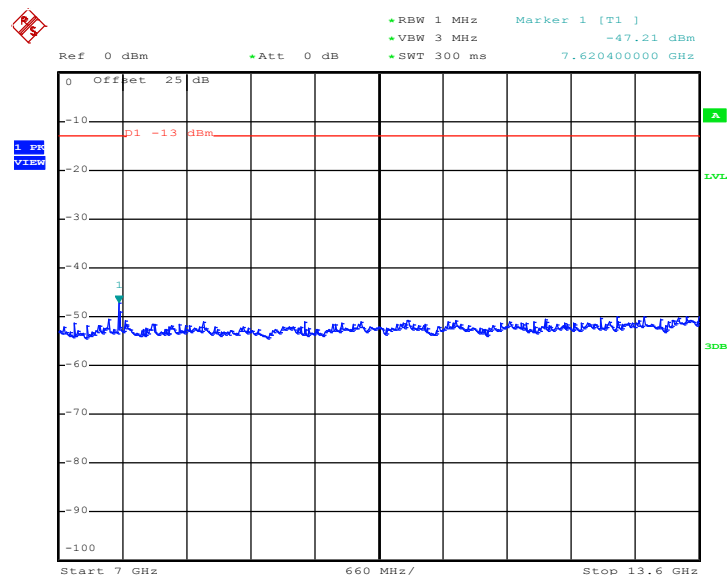


Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 22.MAR.2014 12:47:40

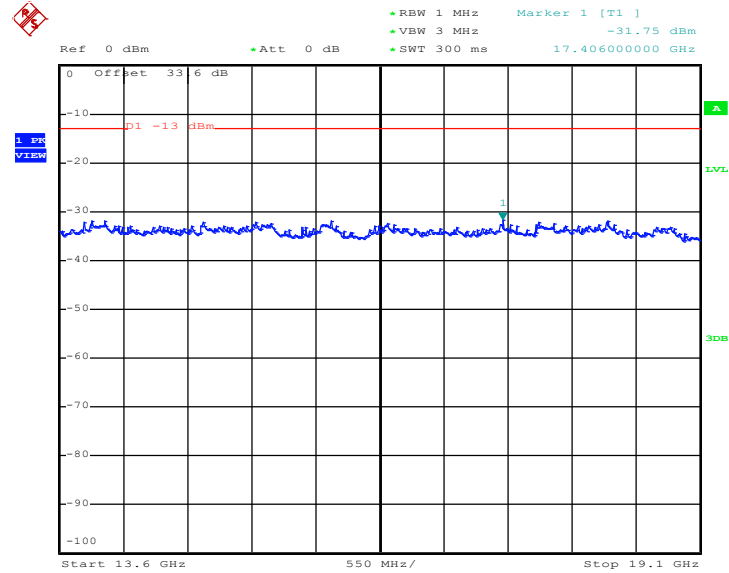
Conducted Spurious Emission Plot between 7GHz ~ 13.6GHz



Date: 22.MAR.2014 12:47:48



Conducted Spurious Emission Plot between 13.6GHz ~ 19.1GHz



Date: 22.MAR.2014 12:47:57

3.7 Field Strength of Spurious Radiation Measurement

3.7.1 Description of Field Strength of Spurious Radiated Measurement

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

3.7.2 Measuring Instruments

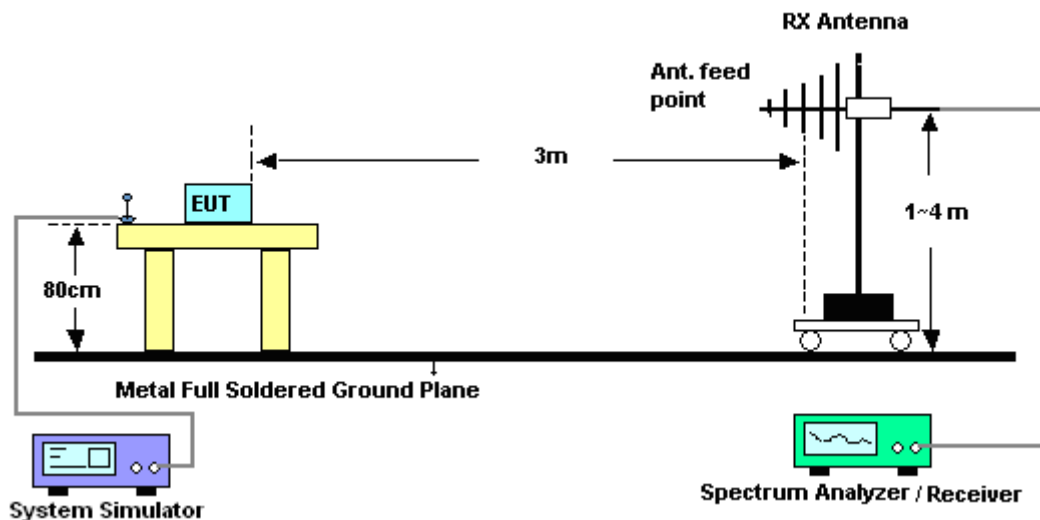
The measuring equipment is listed in the section 4 of this test report.

3.7.3 Test Procedures

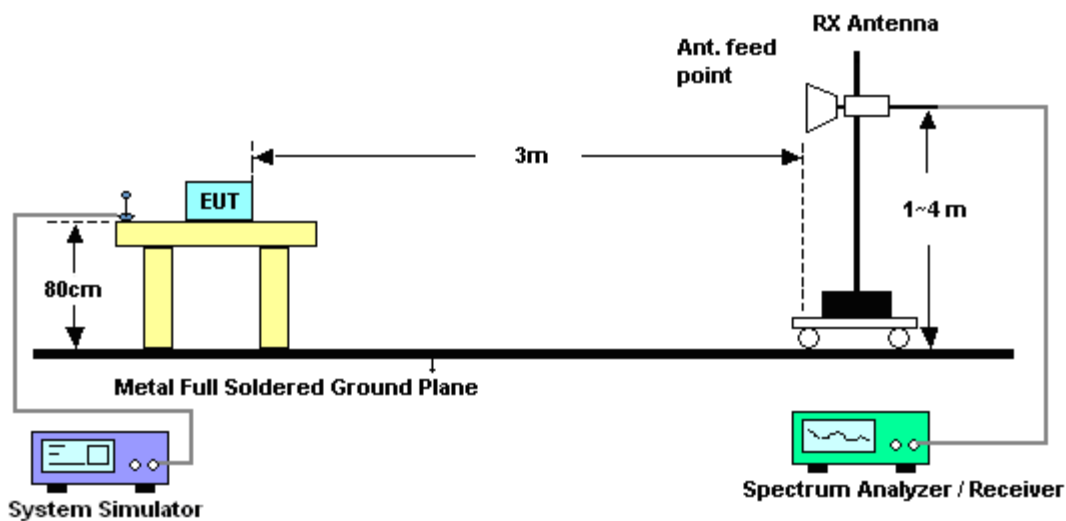
1. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving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



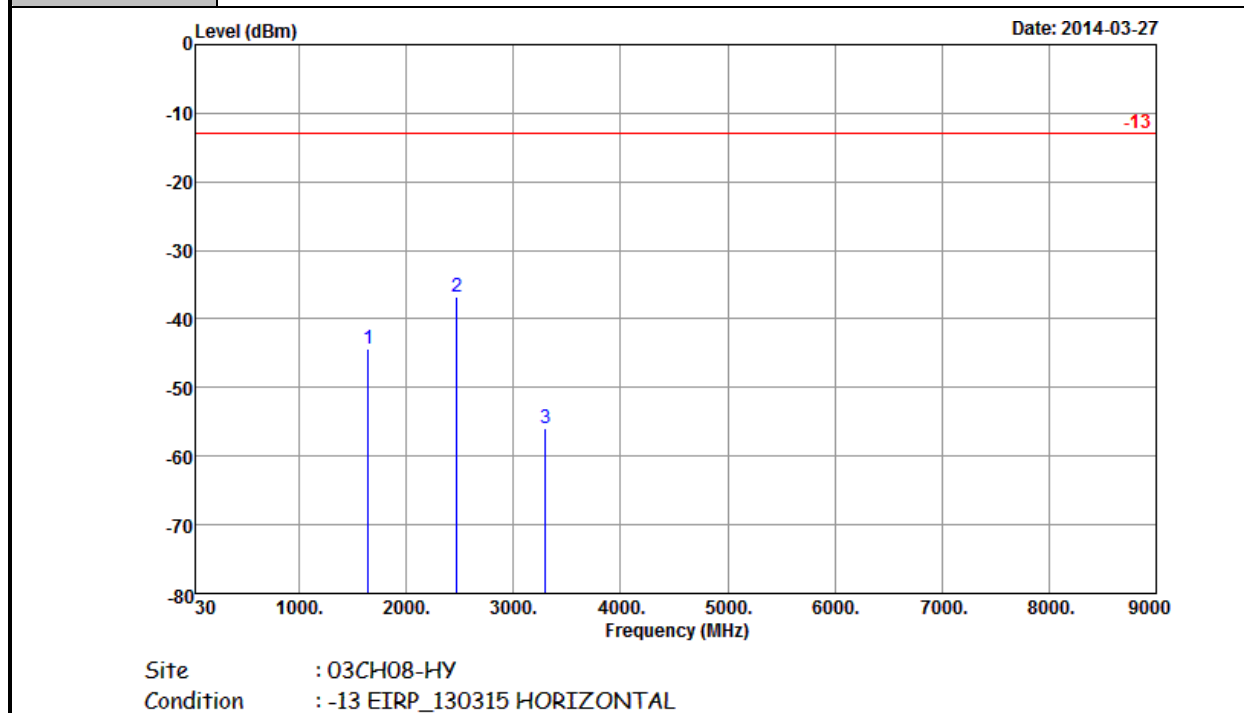
For radiated emissions above 1GHz



3.7.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

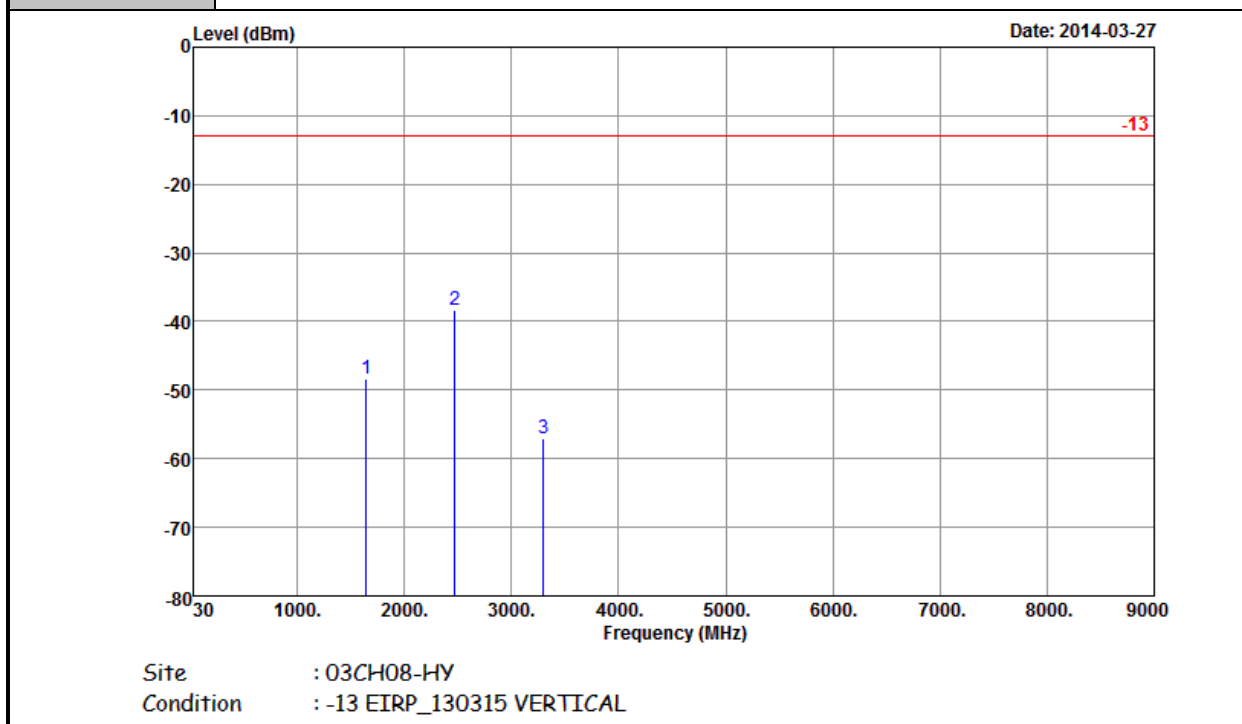
Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-44.29	-13	-31.29	-34.66	-46.12	1.55	5.53	H	Pass
2473	-36.81	-13	-23.81	-30.5	-38.87	1.94	6.15	H	Pass
3298	-56.02	-13	-43.02	-49.47	-59.53	2.27	7.93	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

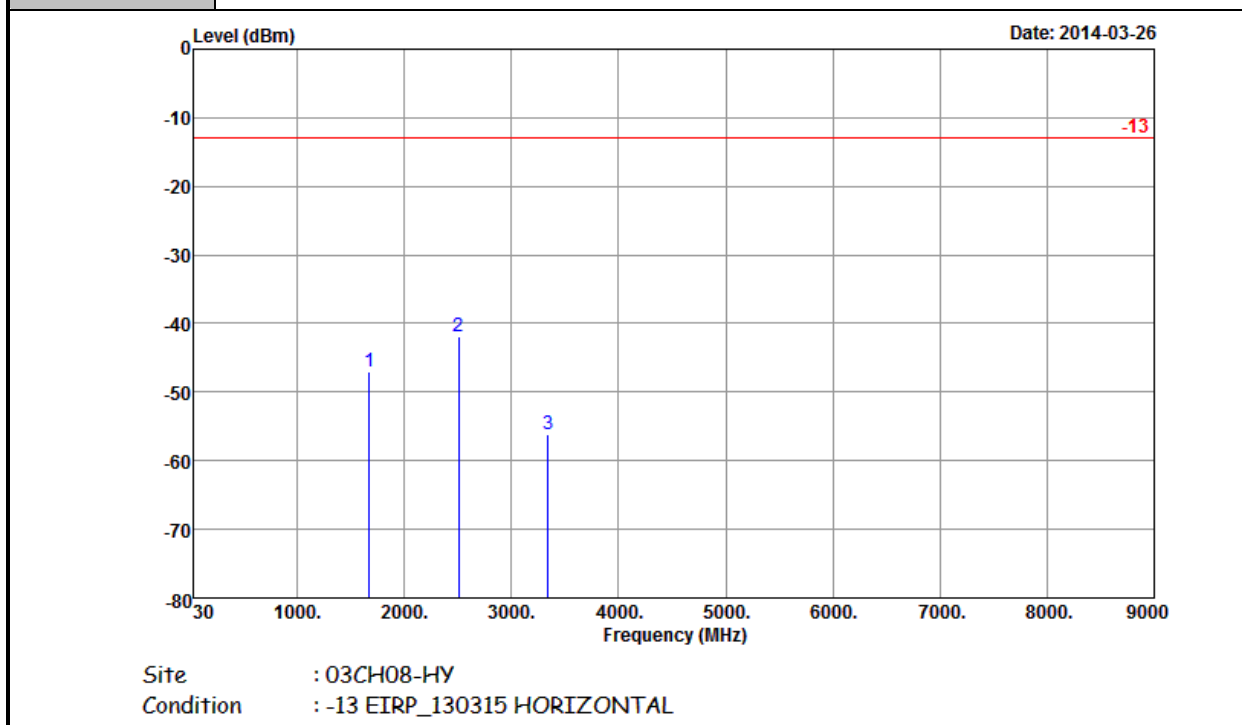


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-48.28	-13	-35.28	-36.98	-50.11	1.55	5.53	V	Pass
2473	-38.25	-13	-25.25	-29.96	-40.31	1.94	6.15	V	Pass
3298	-57.07	-13	-44.07	-49.78	-60.58	2.27	7.93	V	Pass



<Middle Channel>

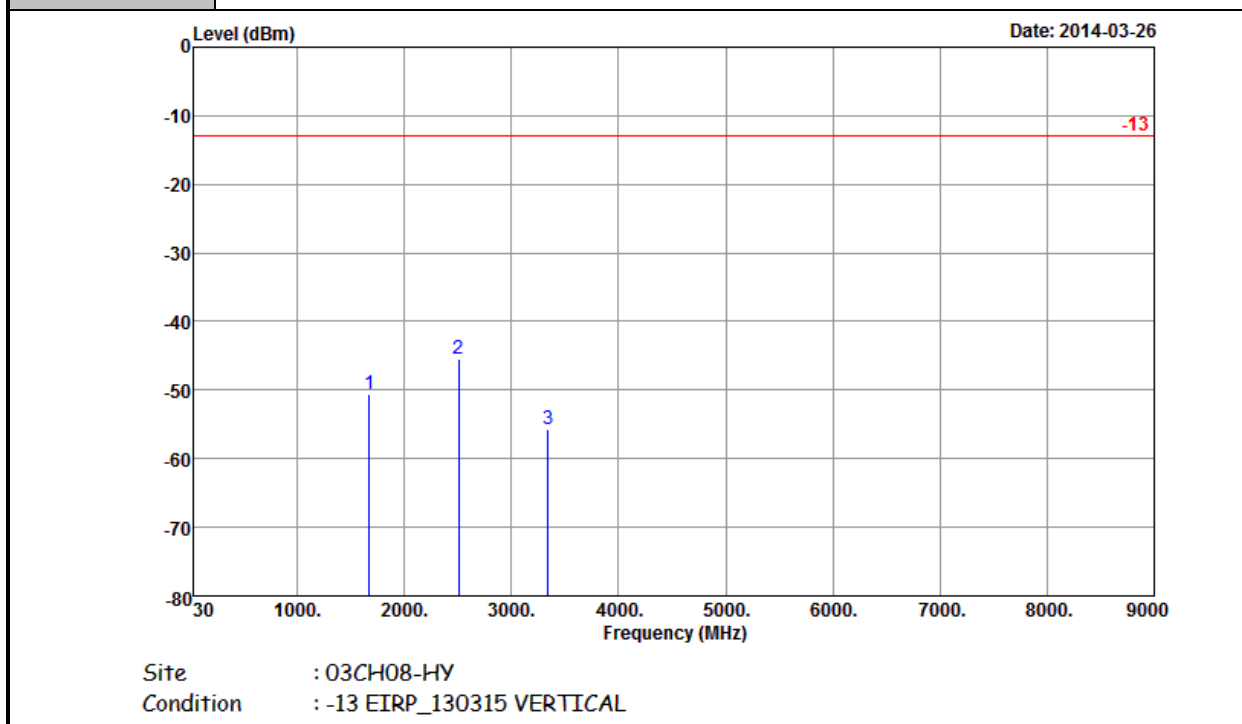
Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-47.10	-13	-34.10	-38.18	-48.84	1.6	5.49	H	Pass
2509	-41.82	-13	-28.82	-35.35	-43.93	1.96	6.22	H	Pass
3345	-56.13	-13	-43.13	-49.8	-59.44	2.61	8.07	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

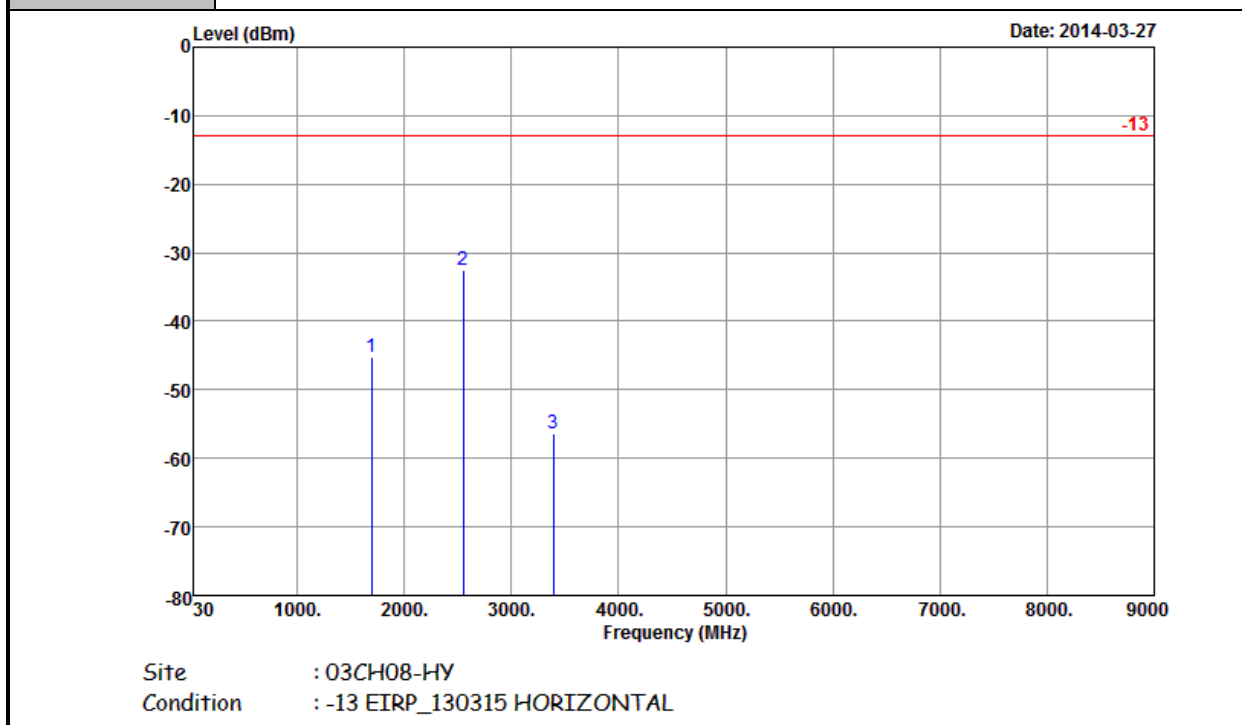


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-50.62	-13	-37.62	-39.52	-52.36	1.6	5.49	V	Pass
2509	-45.40	-13	-32.40	-36.73	-47.51	1.96	6.22	V	Pass
3345	-55.80	-13	-42.80	-48.55	-59.11	2.61	8.07	V	Pass



<High Channel>

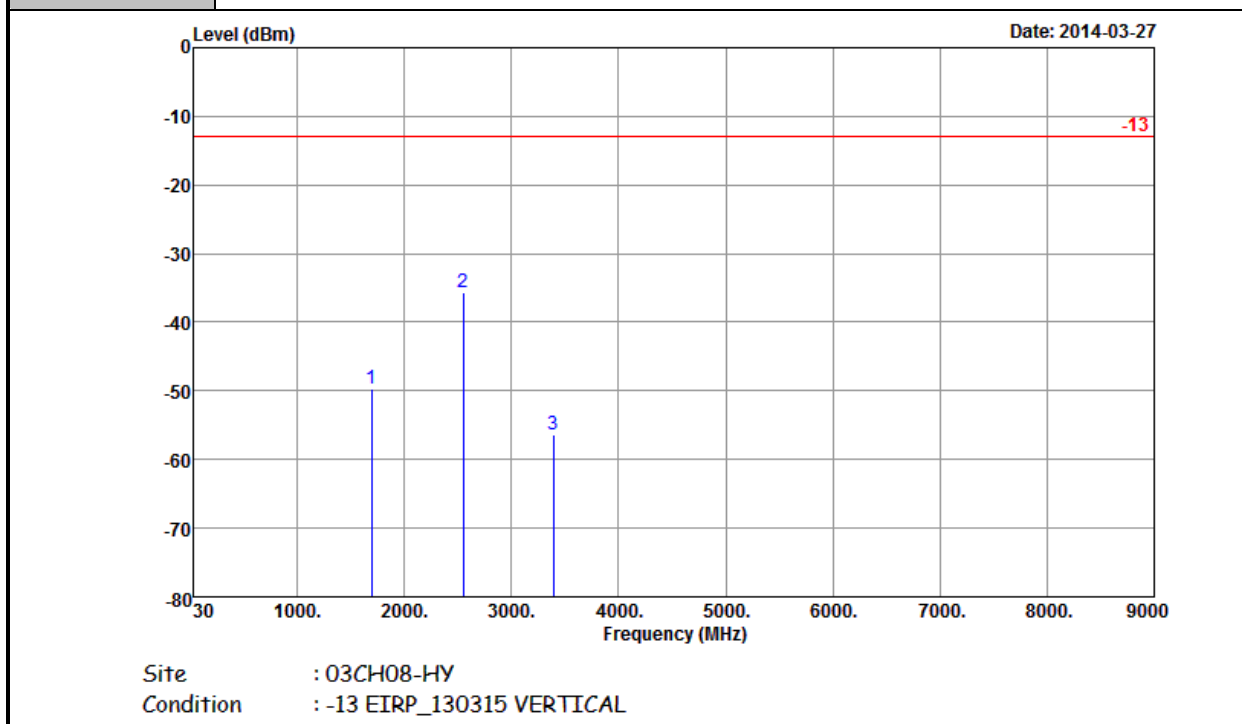
Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-45.16	-13	-32.16	-35.91	-46.88	1.58	5.45	H	Pass
2548	-32.48	-13	-19.48	-26.27	-34.69	1.92	6.28	H	Pass
3394	-56.29	-13	-43.29	-49.58	-60.13	2.21	8.20	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

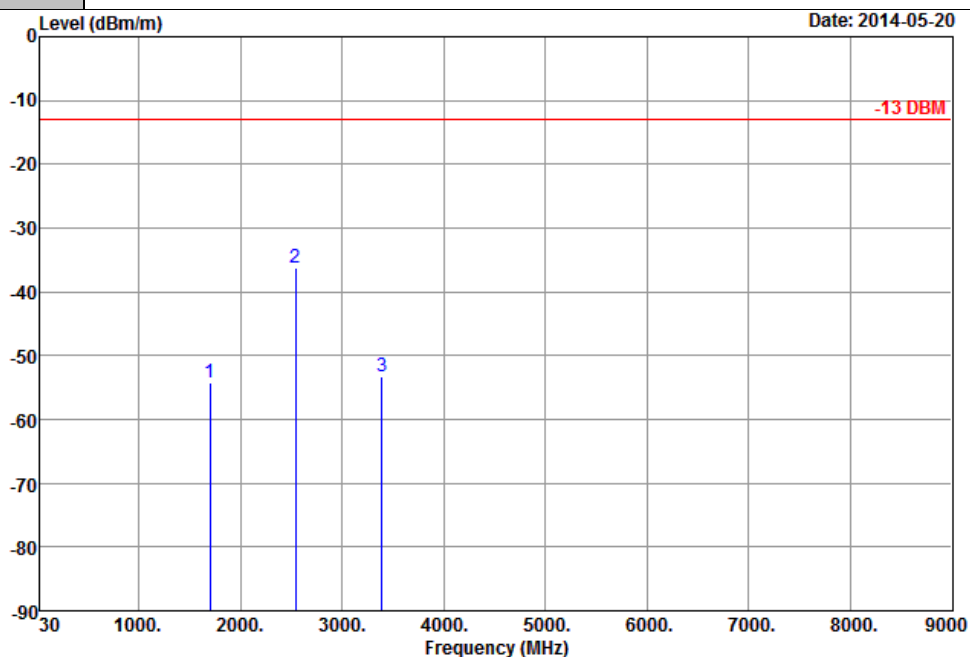


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-49.60	-13	-36.60	-38.68	-51.32	1.58	5.45	V	Pass
2548	-35.70	-13	-22.70	-27.04	-37.91	1.92	6.28	V	Pass
3393	-56.38	-13	-43.38	-49.48	-60.22	2.21	8.20	V	Pass



<High Channel for WPC Charging Mode>

Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



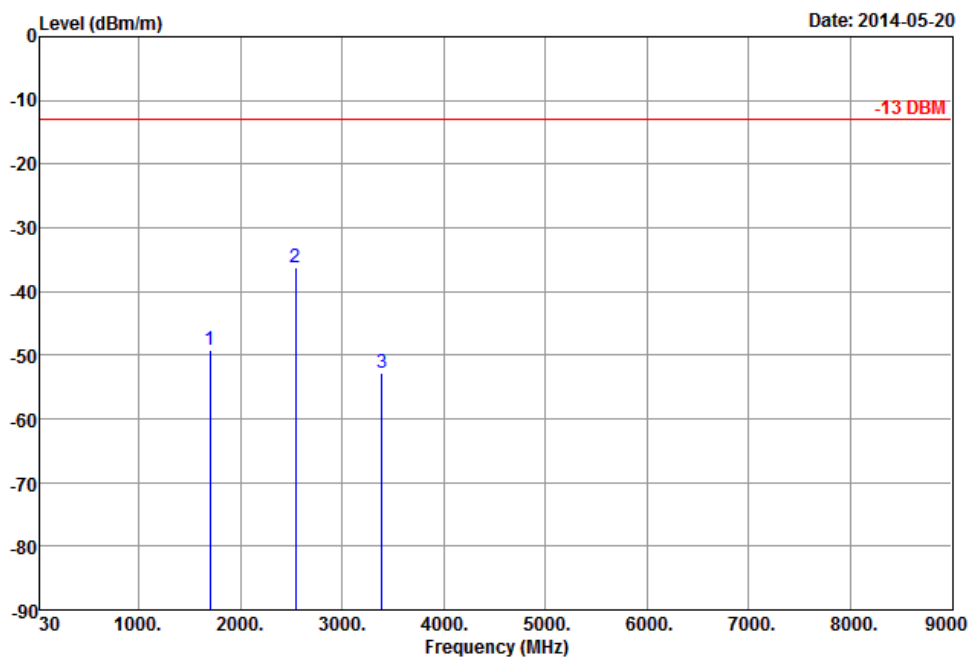
Site : 03CH08-HY

Condition: -13 DBM 3m EIRP_140314_H HORIZONTAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1697	-54.31	-13	-41.31	-60.98	-56.03	1.58	5.45	H	Pass
2546	-36.21	-13	-23.21	-46.51	-38.42	1.92	6.28	H	Pass
3395	-53.22	-13	-40.22	-65.82	-57.06	2.21	8.20	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	GSM Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



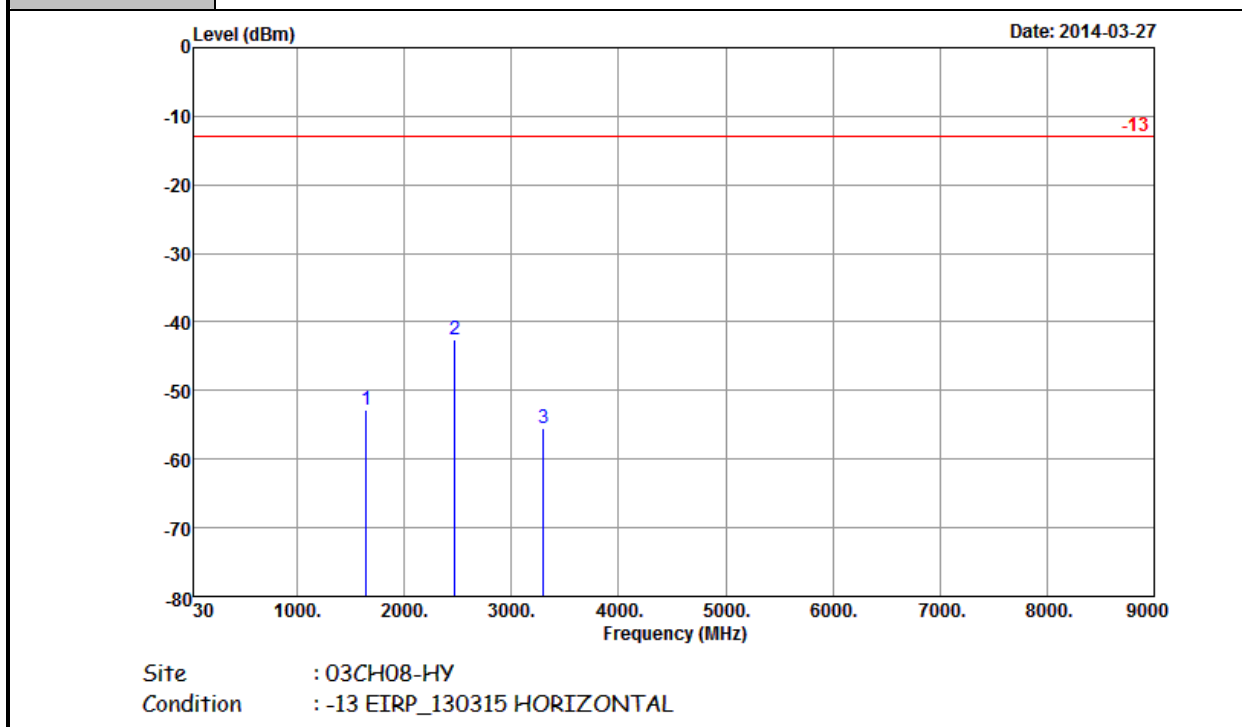
Site : 03CH08-HY
Condition: -13 DBM 3m EIRP_140314_V VERTICAL

Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1697	-49.09	-13	-36.09	-54.88	-50.81	1.58	5.45	V	Pass
2546	-36.13	-13	-23.13	-47.84	-38.34	1.92	6.28	V	Pass
3395	-52.88	-13	-39.88	-65.48	-56.72	2.21	8.20	V	Pass



<Low Channel>

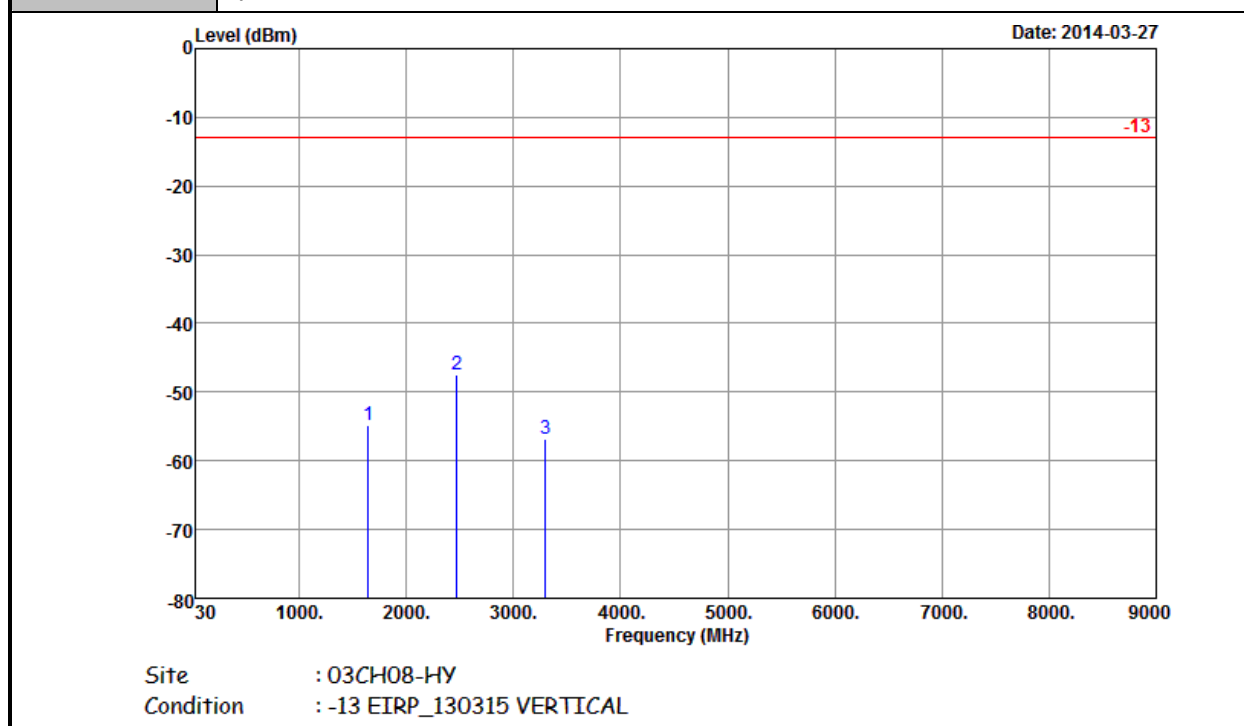
Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-52.85	-13	-39.85	-43.34	-54.68	1.55	5.53	H	Pass
2473	-42.67	-13	-29.67	-36.23	-44.73	1.94	6.15	H	Pass
3298	-55.59	-13	-42.59	-49.02	-59.1	2.27	7.93	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

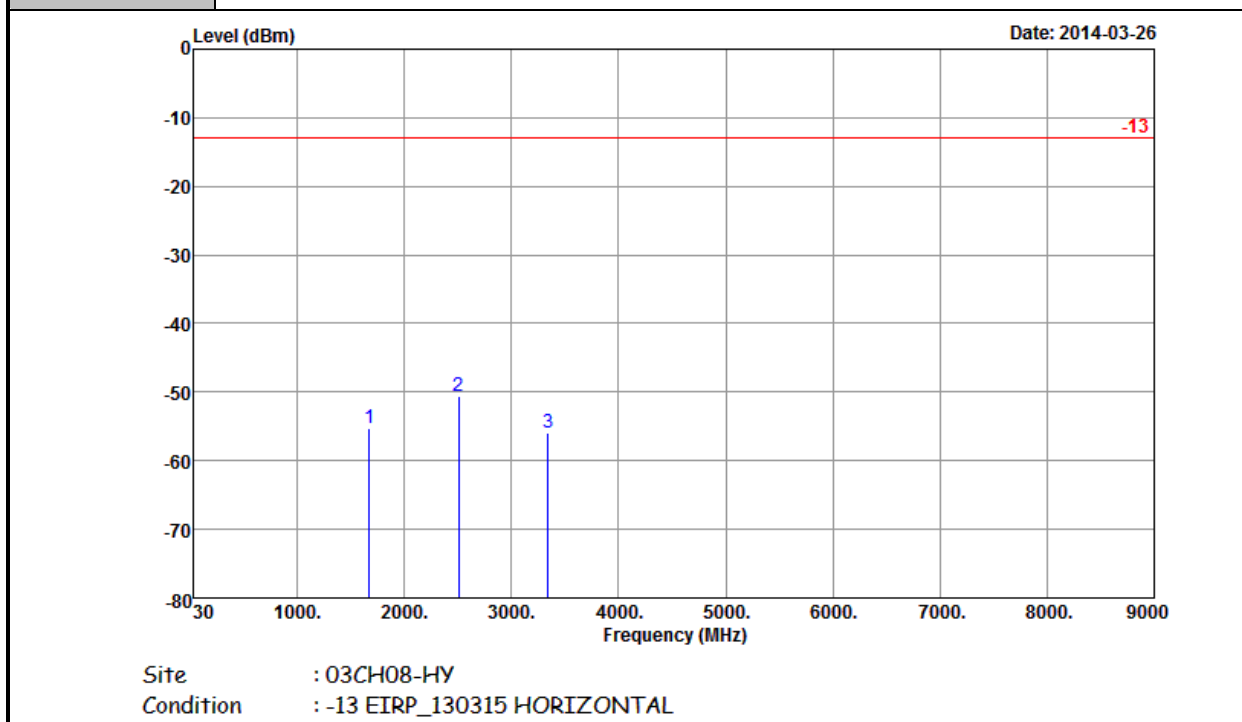


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1648	-54.91	-13	-41.91	-43.54	-56.74	1.55	5.53	V	Pass
2473	-47.50	-13	-34.50	-38.9	-49.56	1.94	6.15	V	Pass
3298	-56.72	-13	-43.72	-49.48	-60.23	2.27	7.93	V	Pass



<Middle Channel>

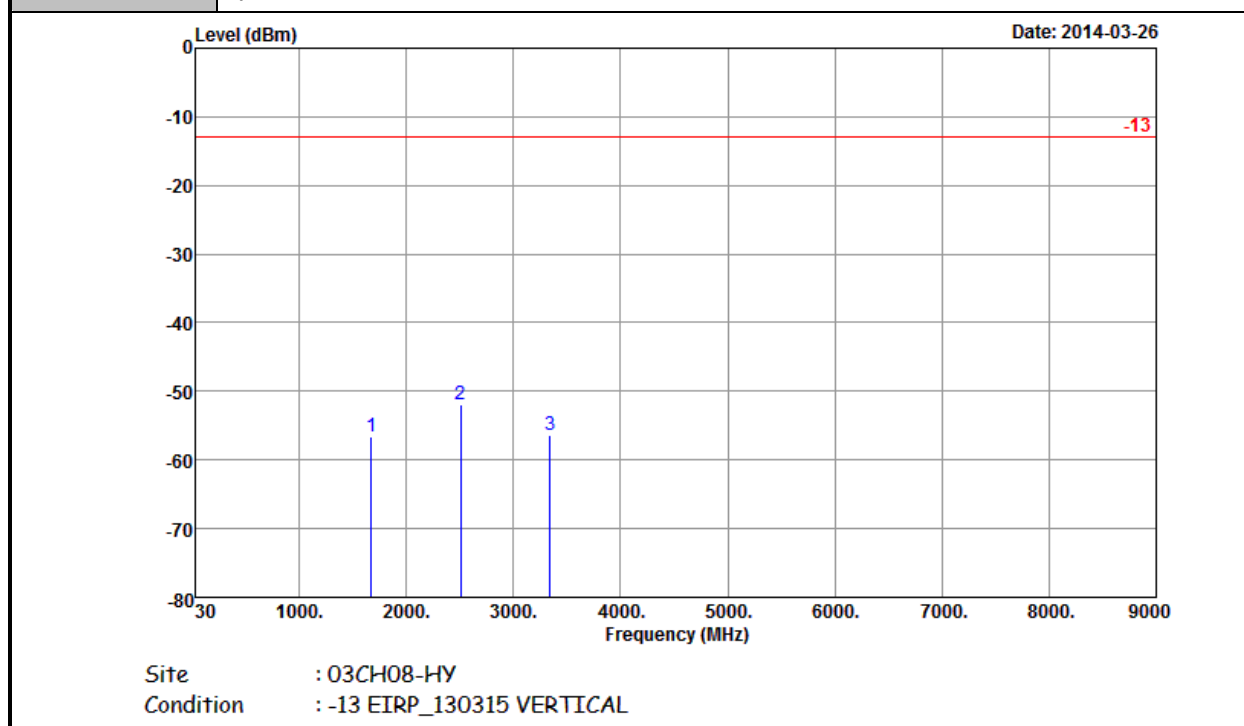
Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-55.16	-13	-42.16	-45.87	-56.9	1.6	5.49	H	Pass
2509	-50.65	-13	-37.65	-44.17	-52.76	1.96	6.22	H	Pass
3345	-55.84	-13	-42.84	-49.17	-59.15	2.61	8.07	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

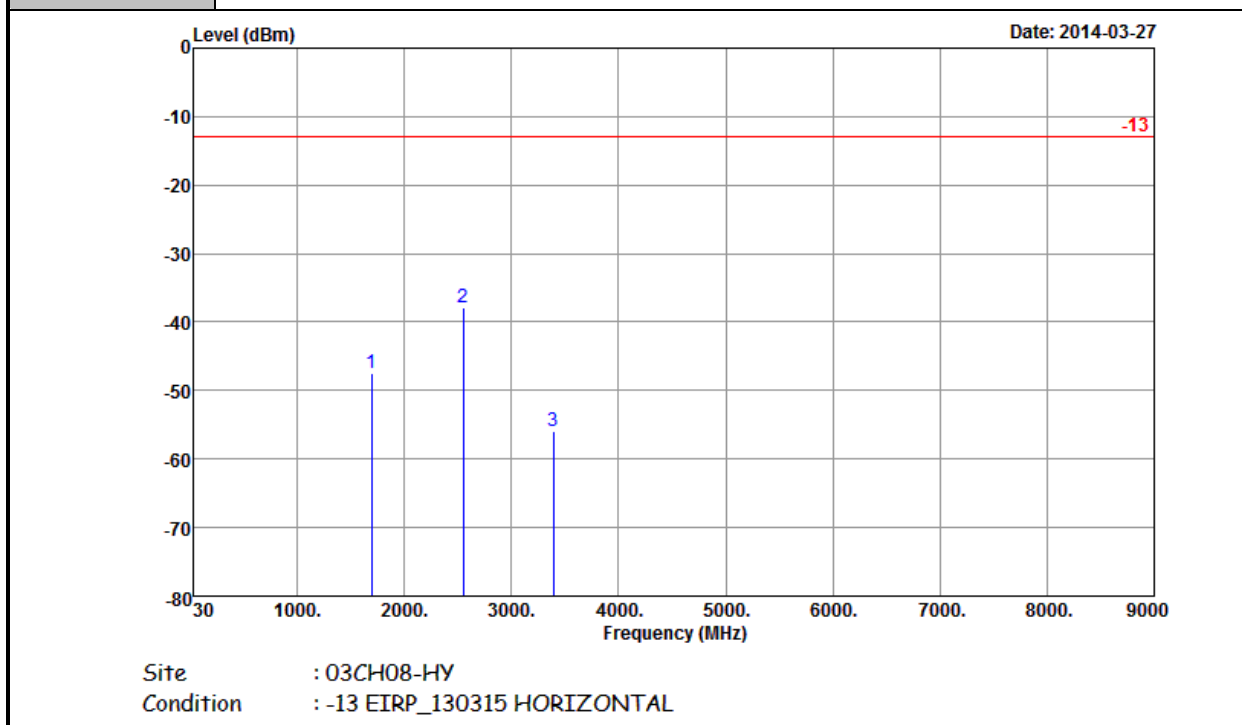


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-56.63	-13	-43.63	-45.71	-58.37	1.6	5.49	V	Pass
2509	-51.89	-13	-38.89	-43.23	-54	1.96	6.22	V	Pass
3345	-56.35	-13	-43.35	-48.98	-59.66	2.61	8.07	V	Pass



<High Channel>

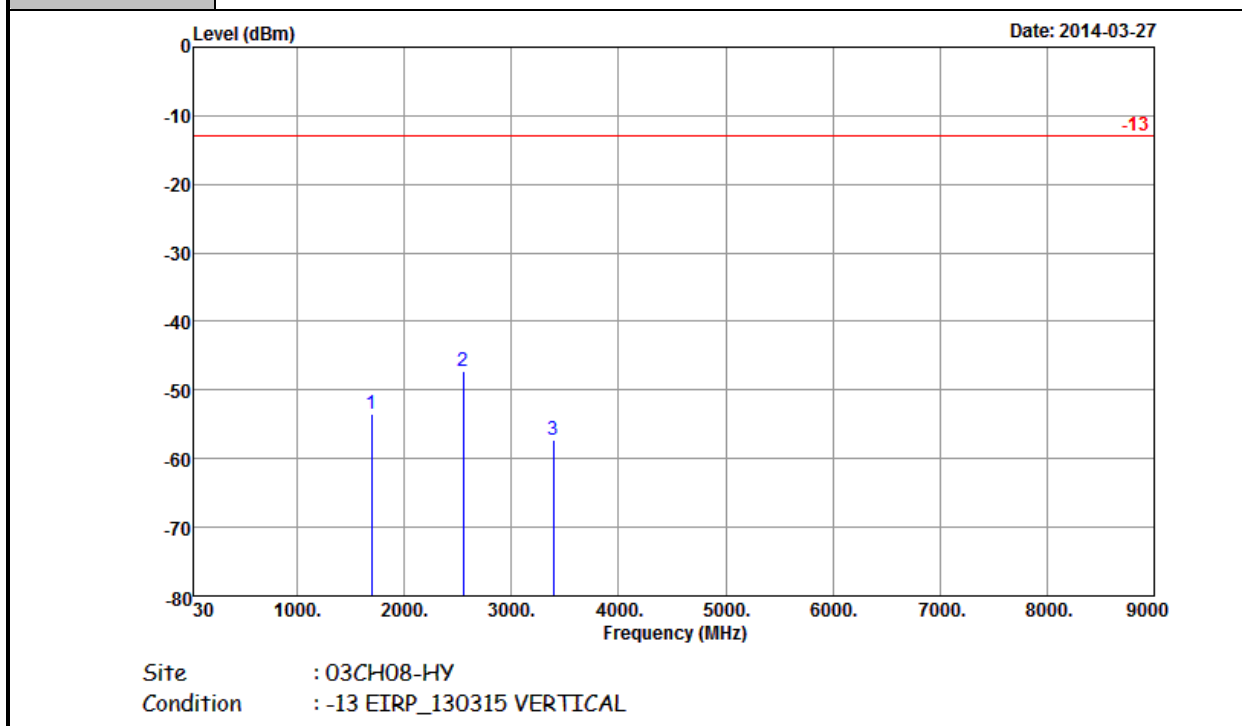
Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-47.50	-13	-34.50	-38.6	-49.22	1.58	5.45	H	Pass
2548	-37.93	-13	-24.93	-32	-40.14	1.92	6.28	H	Pass
3393	-55.95	-13	-42.95	-49.13	-59.79	2.21	8.20	H	Pass



Band :	GSM850	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

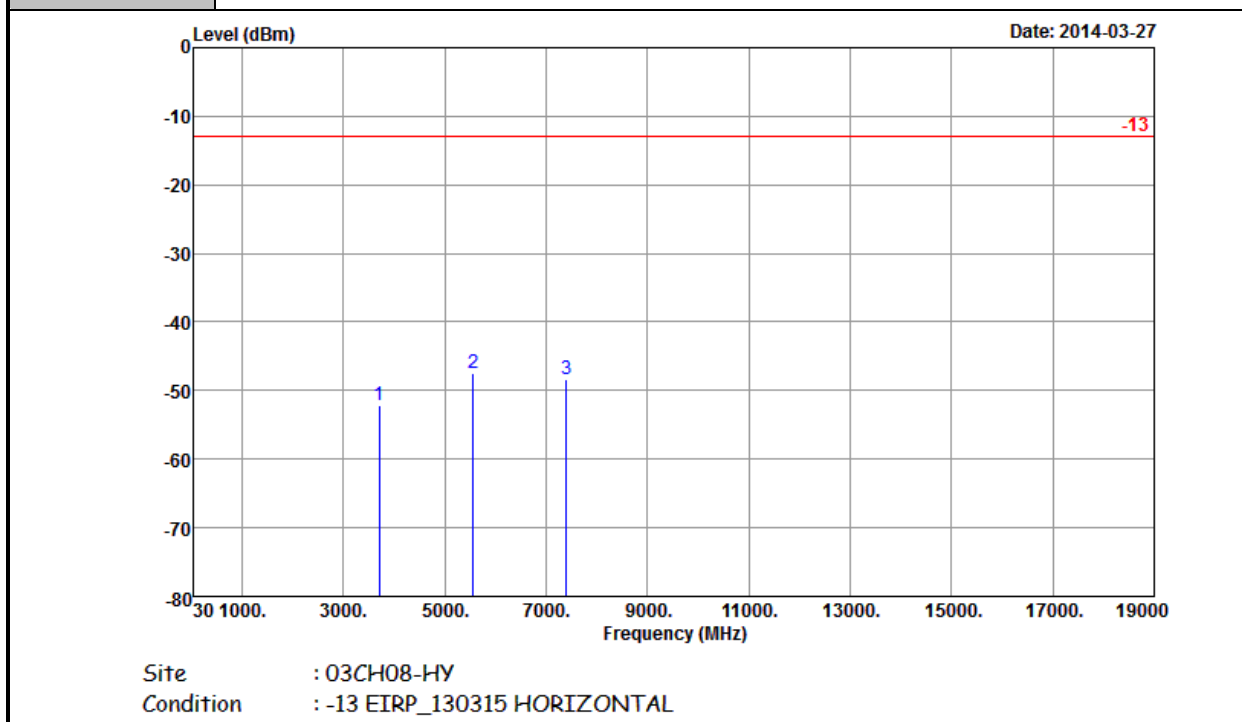


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-53.43	-13	-40.43	-42.53	-55.15	1.58	5.45	V	Pass
2548	-47.16	-13	-34.16	-37.57	-49.37	1.92	6.28	V	Pass
3393	-57.28	-13	-44.28	-50.03	-61.12	2.21	8.20	V	Pass



<Low Channel>

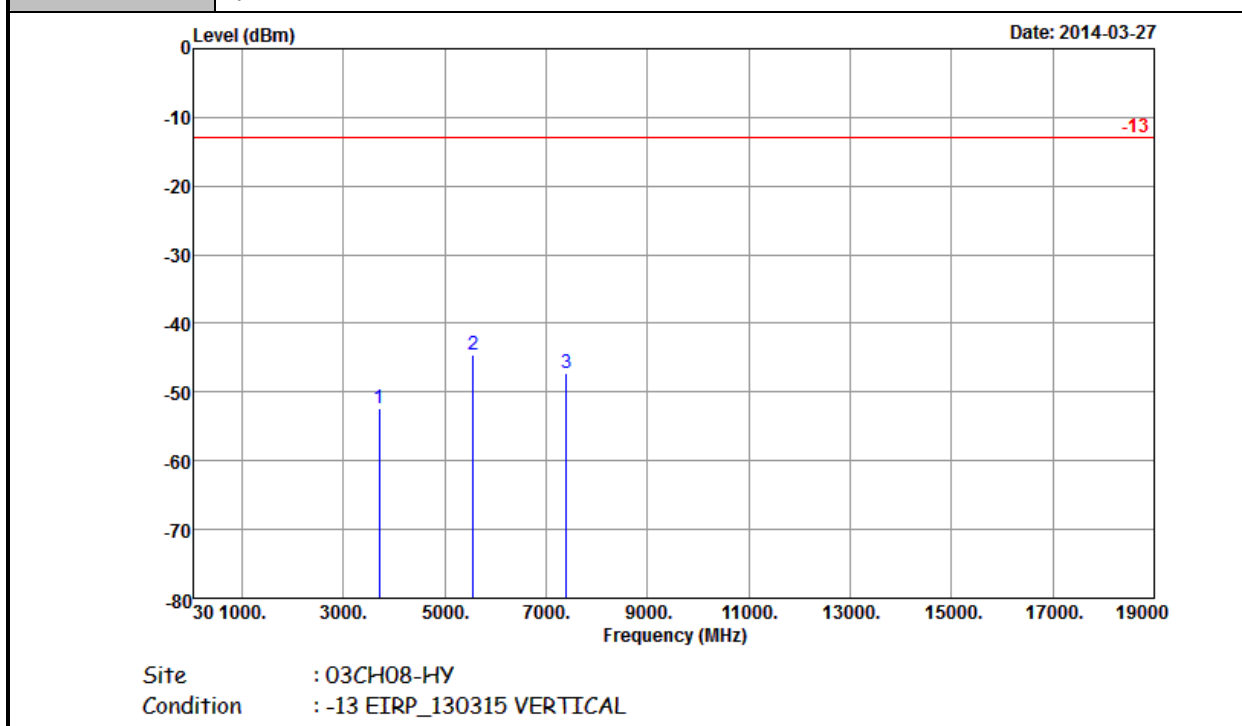
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-52.21	-13	-39.21	-47.61	-58.63	2.32	8.74	H	Pass
5552	-47.37	-13	-34.37	-44.2	-55.36	2.71	10.70	H	Pass
7400	-48.46	-13	-35.46	-50.81	-57.41	3.07	12.02	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

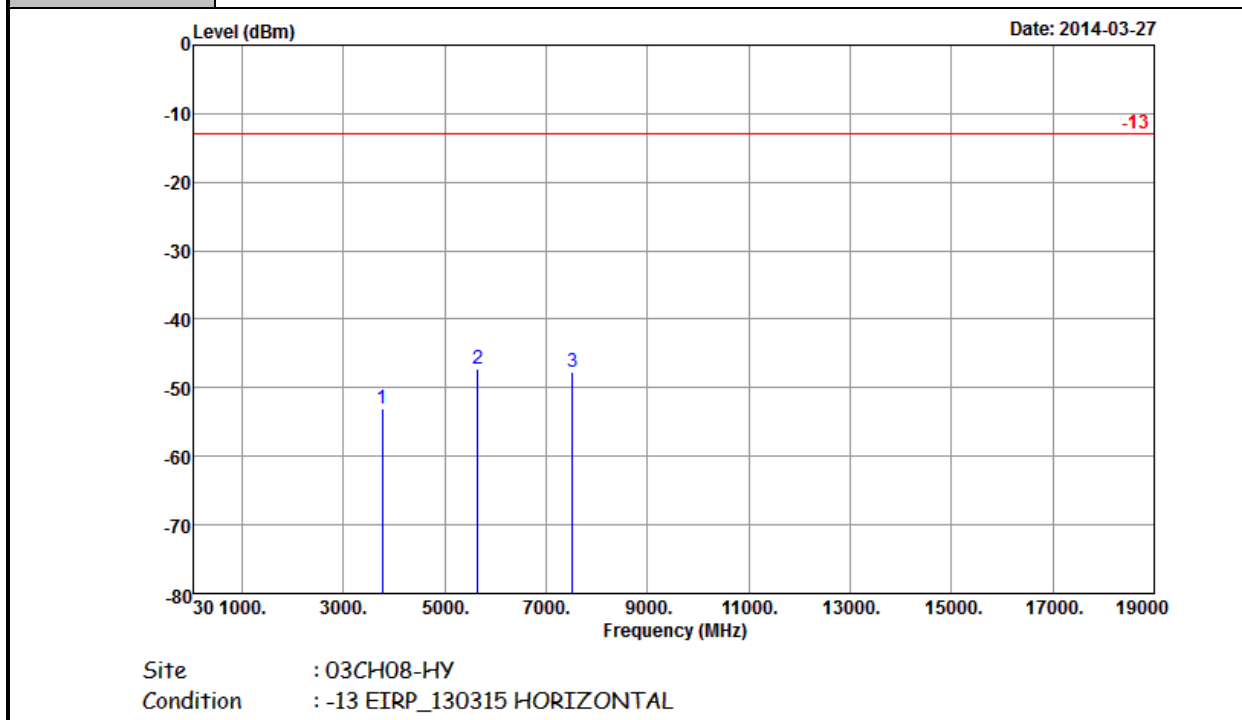


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-52.44	-13	-39.44	-47.2	-58.86	2.32	8.74	V	Pass
5552	-44.62	-13	-31.62	-43.27	-52.61	2.71	10.70	V	Pass
7400	-47.16	-13	-34.16	-50.79	-56.11	3.07	12.02	V	Pass



<Middle Channel>

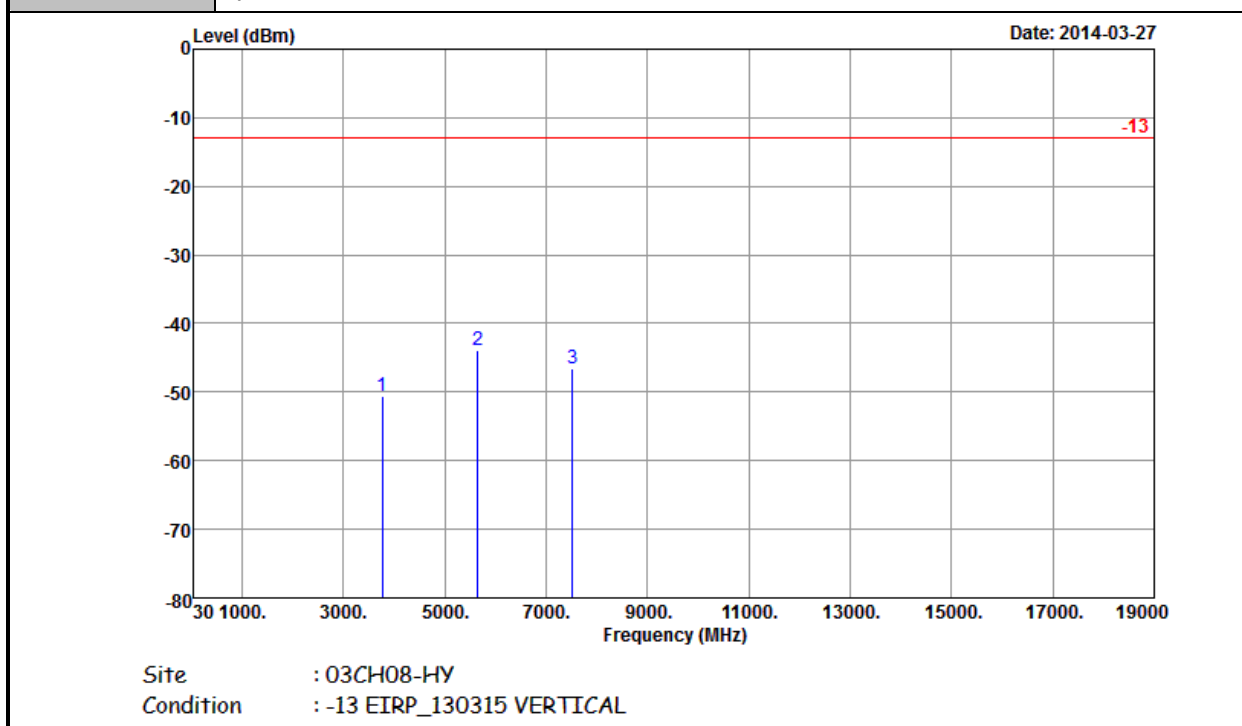
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-53.12	-13	-40.12	-48.88	-59.55	2.38	8.81	H	Pass
5640	-47.17	-13	-34.17	-44.12	-55.02	2.85	10.70	H	Pass
7520	-47.77	-13	-34.77	-50.38	-56.43	3.46	12.12	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

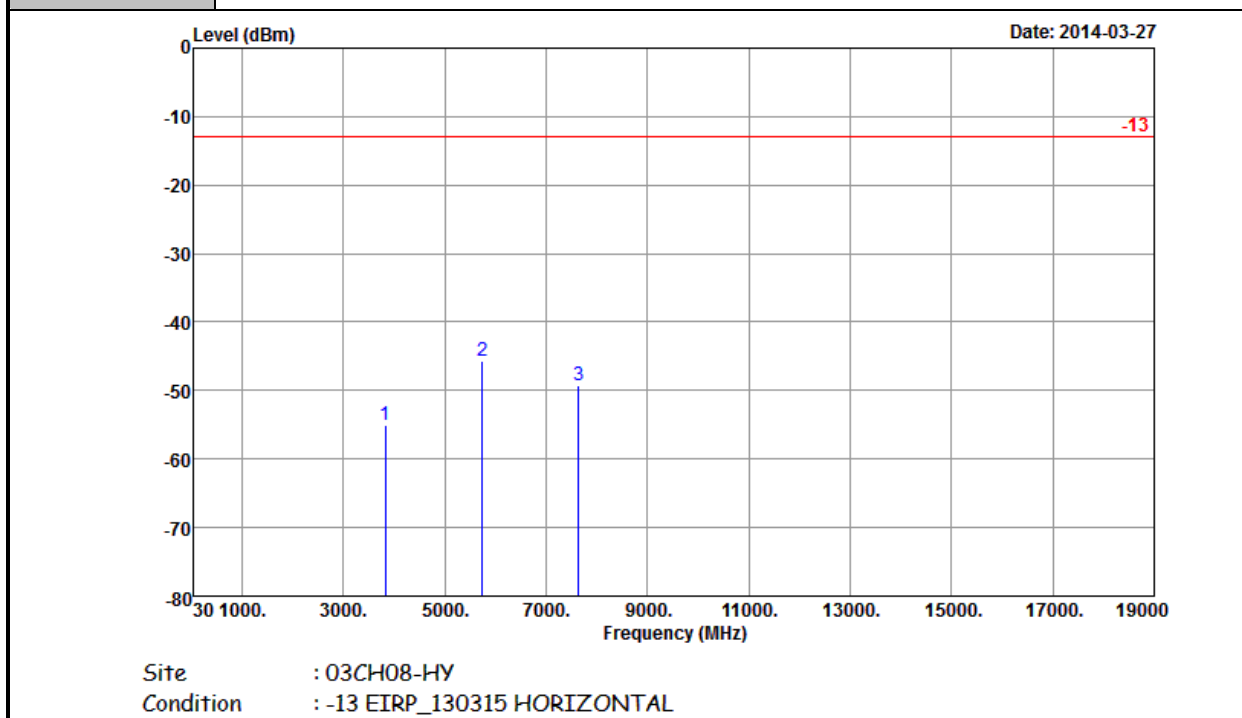


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-50.59	-13	-37.59	-45.91	-57.02	2.38	8.81	V	Pass
5640	-43.94	-13	-30.94	-42.49	-51.79	2.85	10.70	V	Pass
7520	-46.60	-13	-33.60	-50.11	-55.26	3.46	12.12	V	Pass



<High Channel>

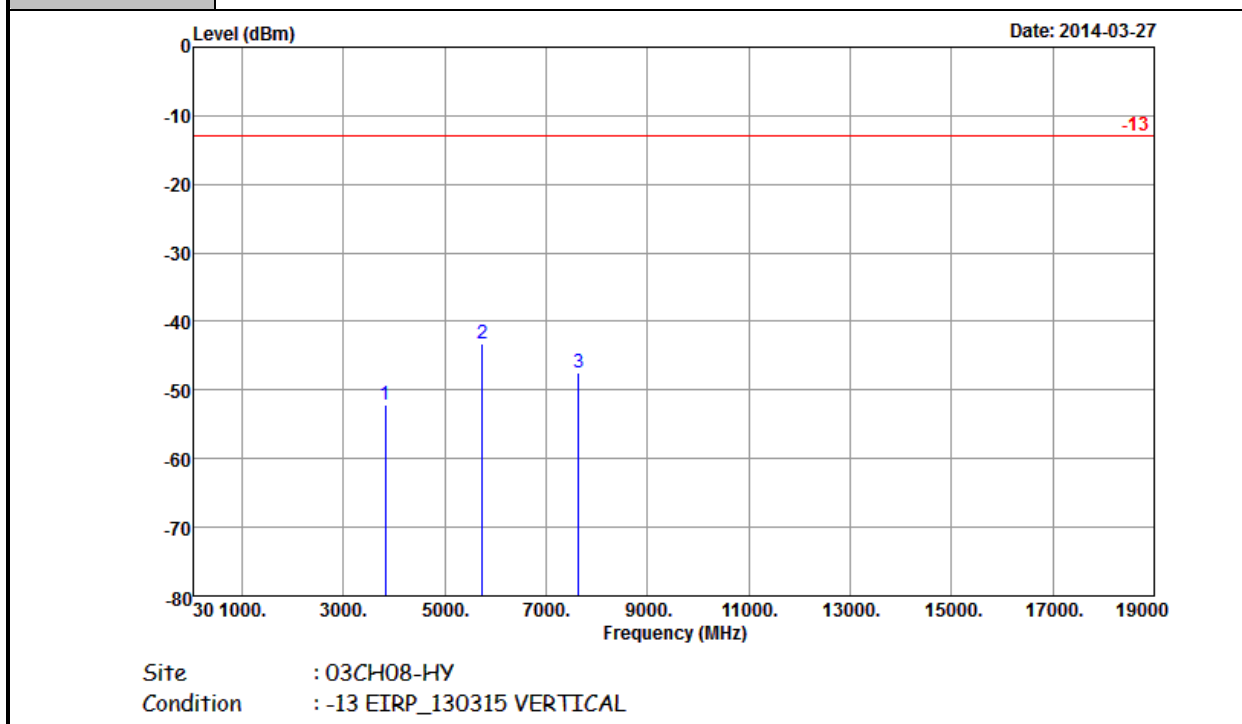
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-54.96	-13	-41.96	-50.56	-61.41	2.43	8.88	H	Pass
5732	-45.65	-13	-32.65	-43.55	-53.54	2.81	10.70	H	Pass
7636	-49.21	-13	-36.21	-51.73	-58.13	3.29	12.21	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	GPRS class 8 Link (GMSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

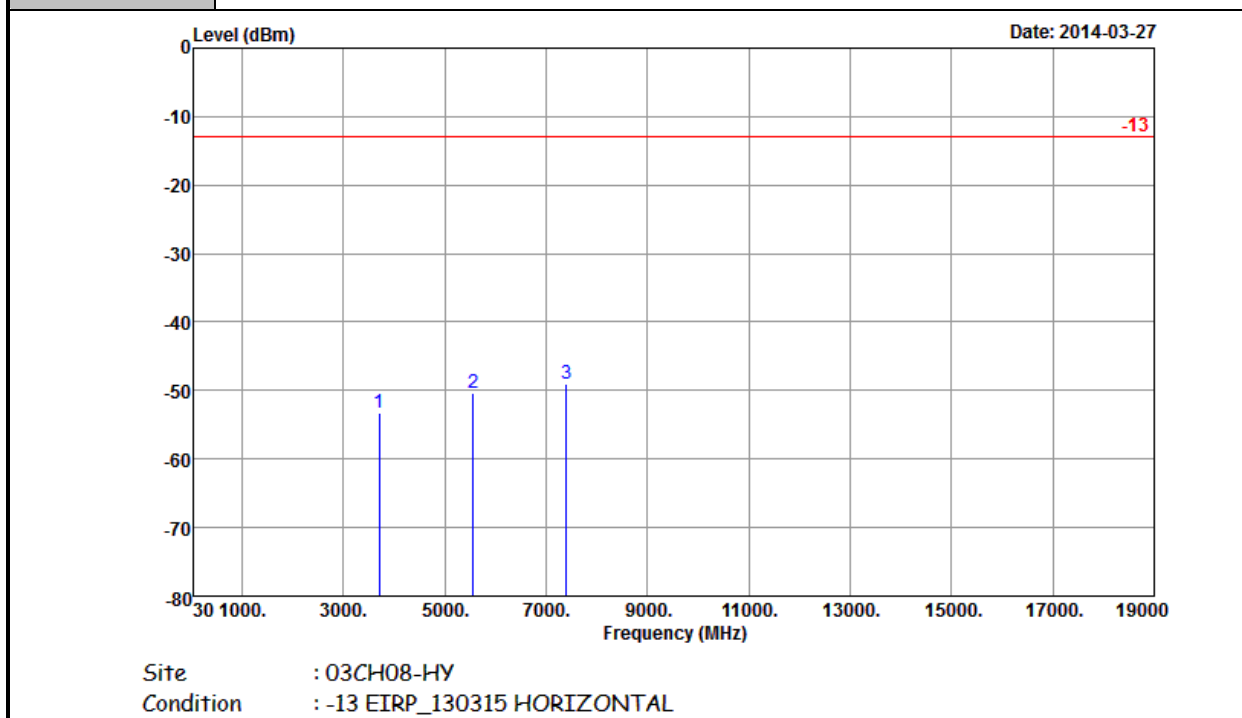


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3820	-52.16	-13	-39.16	-47.61	-58.61	2.43	8.88	V	Pass
5732	-43.17	-13	-30.17	-41.96	-51.06	2.81	10.70	V	Pass
7636	-47.36	-13	-34.36	-51.05	-56.28	3.29	12.21	V	Pass



<Low Channel>

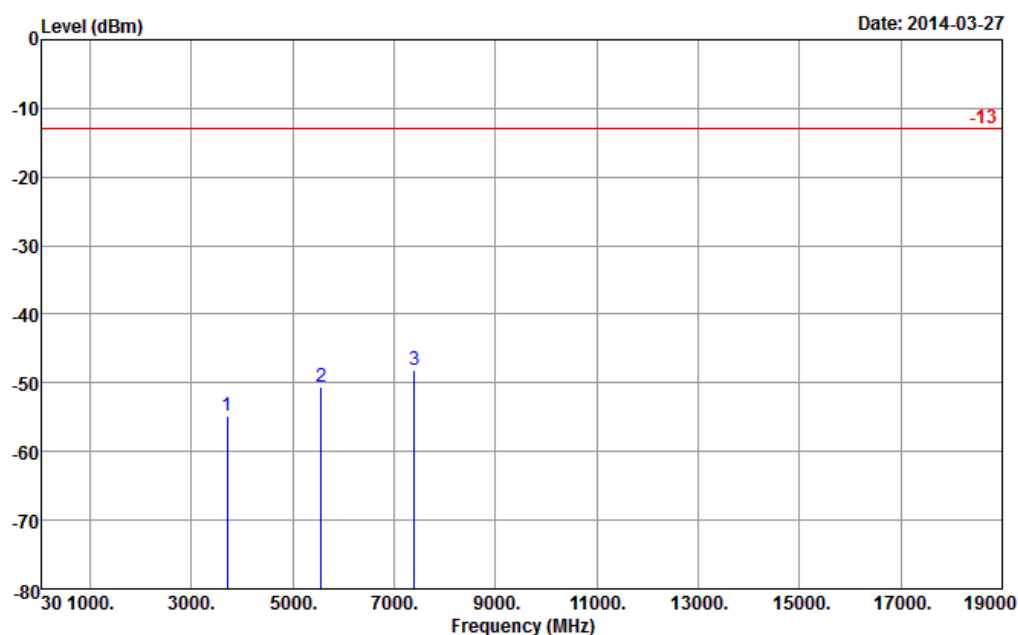
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-53.35	-13	-40.35	-48.75	-59.77	2.32	8.74	H	Pass
5552	-50.34	-13	-37.34	-47.43	-58.33	2.71	10.70	H	Pass
7400	-49.07	-13	-36.07	-51.19	-58.02	3.07	12.02	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH08-HY

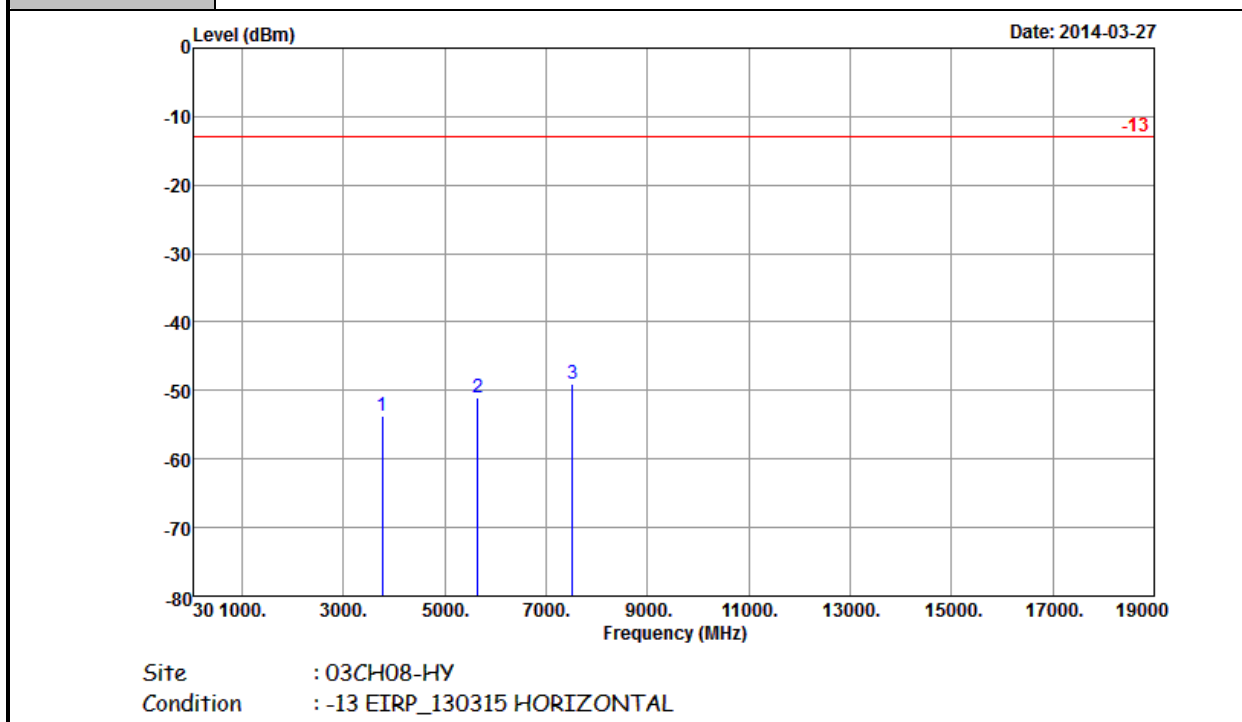
Condition : -13 EIRP_130315 VERTICAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-54.80	-13	-41.80	-49.64	-61.22	2.32	8.74	V	Pass
5552	-50.52	-13	-37.52	-49.15	-58.51	2.71	10.70	V	Pass
7400	-48.08	-13	-35.08	-51.72	-57.03	3.07	12.02	V	Pass



<Middle Channel>

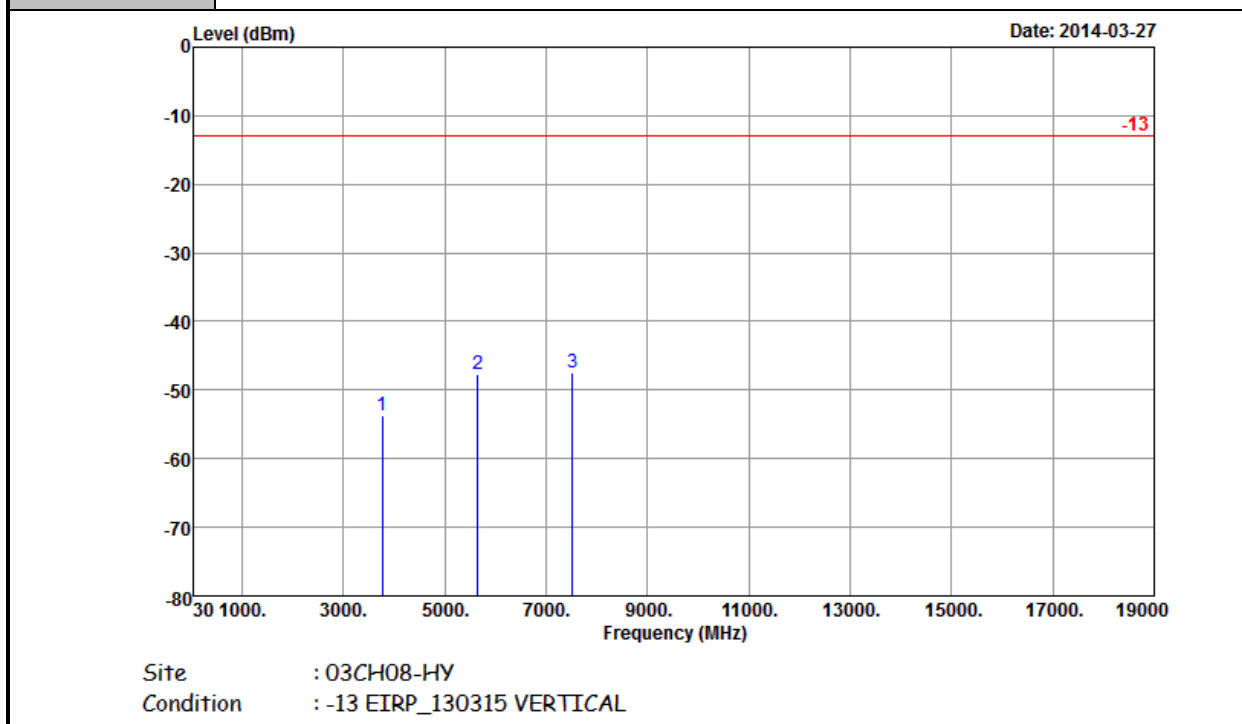
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-53.62	-13	-40.62	-49.11	-60.05	2.38	8.81	H	Pass
5640	-51.03	-13	-38.03	-47.93	-58.88	2.85	10.70	H	Pass
7520	-49.02	-13	-36.02	-51.51	-57.68	3.46	12.12	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

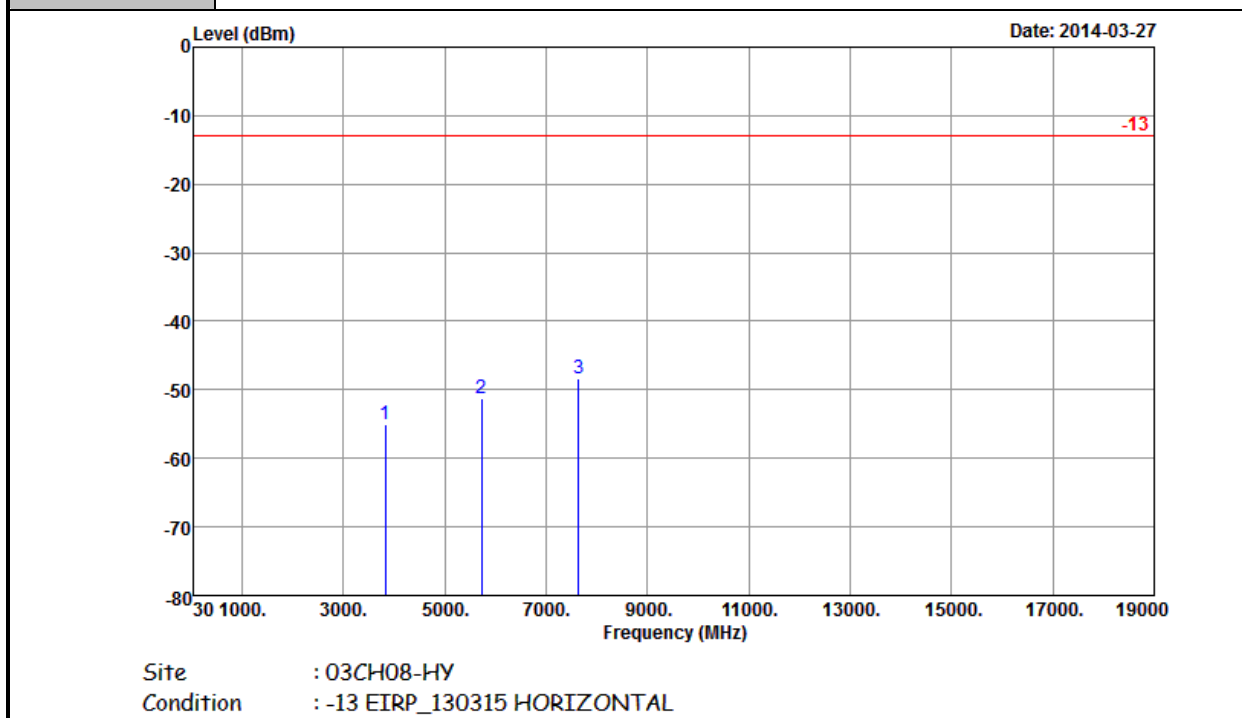


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-53.79	-13	-40.79	-48.98	-60.22	2.38	8.81	V	Pass
5640	-47.59	-13	-34.59	-46.1	-55.44	2.85	10.70	V	Pass
7520	-47.40	-13	-34.40	-50.88	-56.06	3.46	12.12	V	Pass



<High Channel>

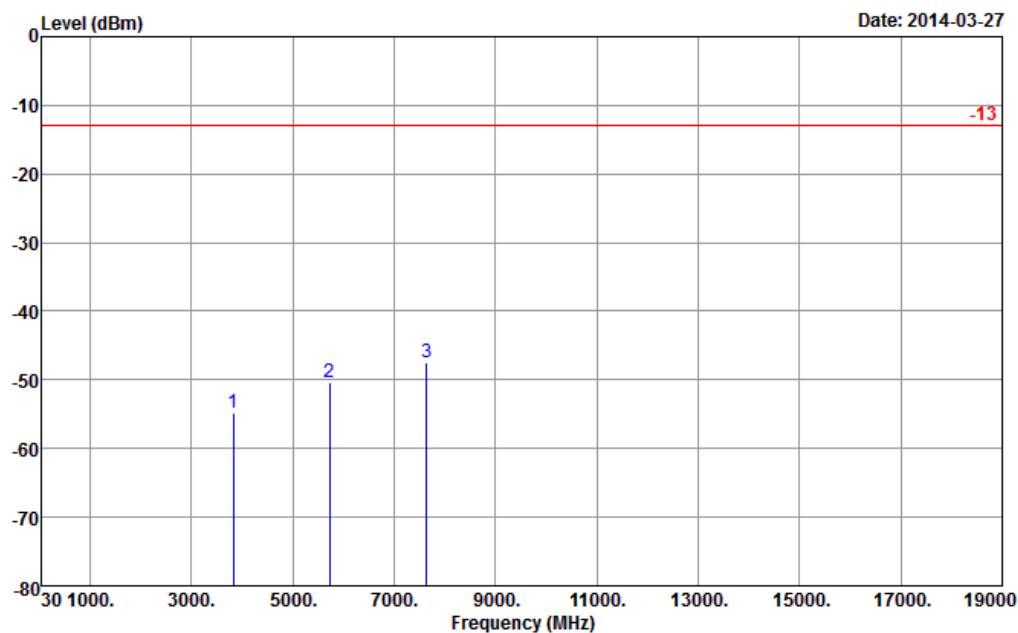
Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3816	-55.02	-13	-42.02	-50.69	-61.47	2.43	8.88	H	Pass
5726	-51.24	-13	-38.24	-48.97	-59.13	2.81	10.70	H	Pass
7636	-48.41	-13	-35.41	-50.67	-57.33	3.29	12.21	H	Pass



Band :	GSM1900	Temperature :	22~24°C
Test Mode :	EDGE class 8 Link (8PSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH08-HY

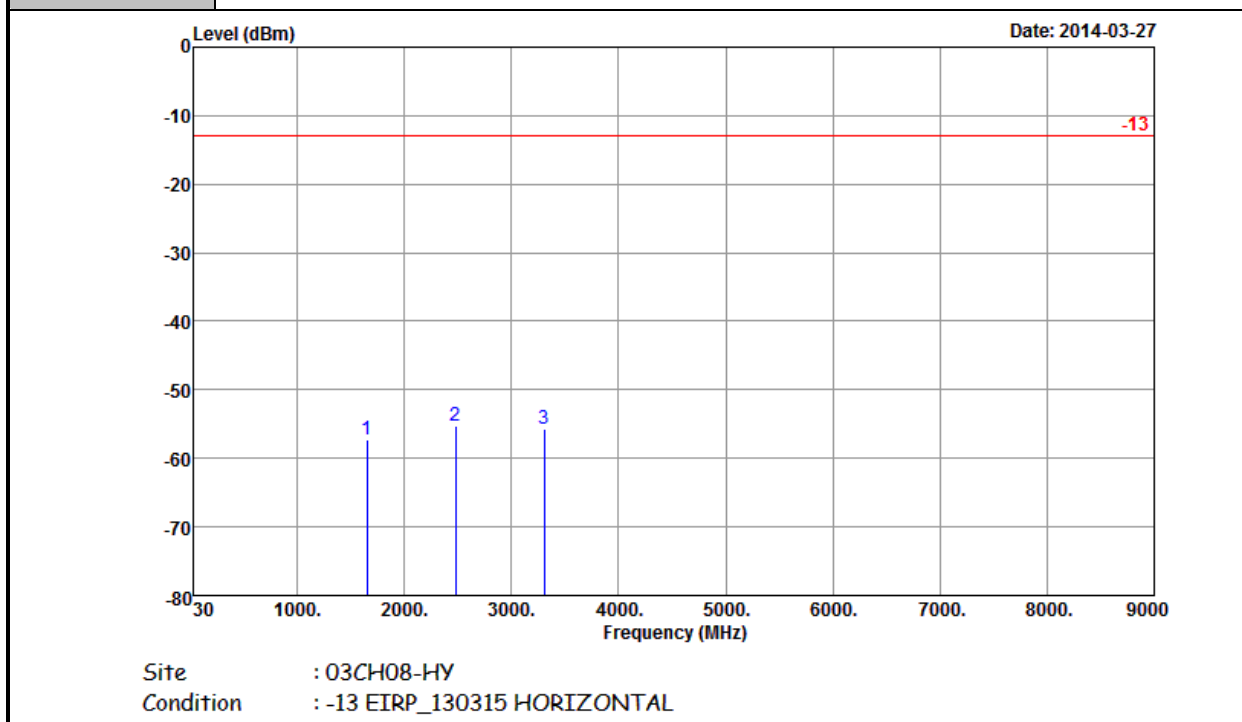
Condition : -13 EIRP_130315 VERTICAL

Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3816	-54.77	-13	-41.77	-50.29	-61.22	2.43	8.88	V	Pass
5726	-50.37	-13	-37.37	-49.37	-58.26	2.81	10.70	V	Pass
7636	-47.42	-13	-34.42	-50.97	-56.34	3.29	12.21	V	Pass



<Low Channel>

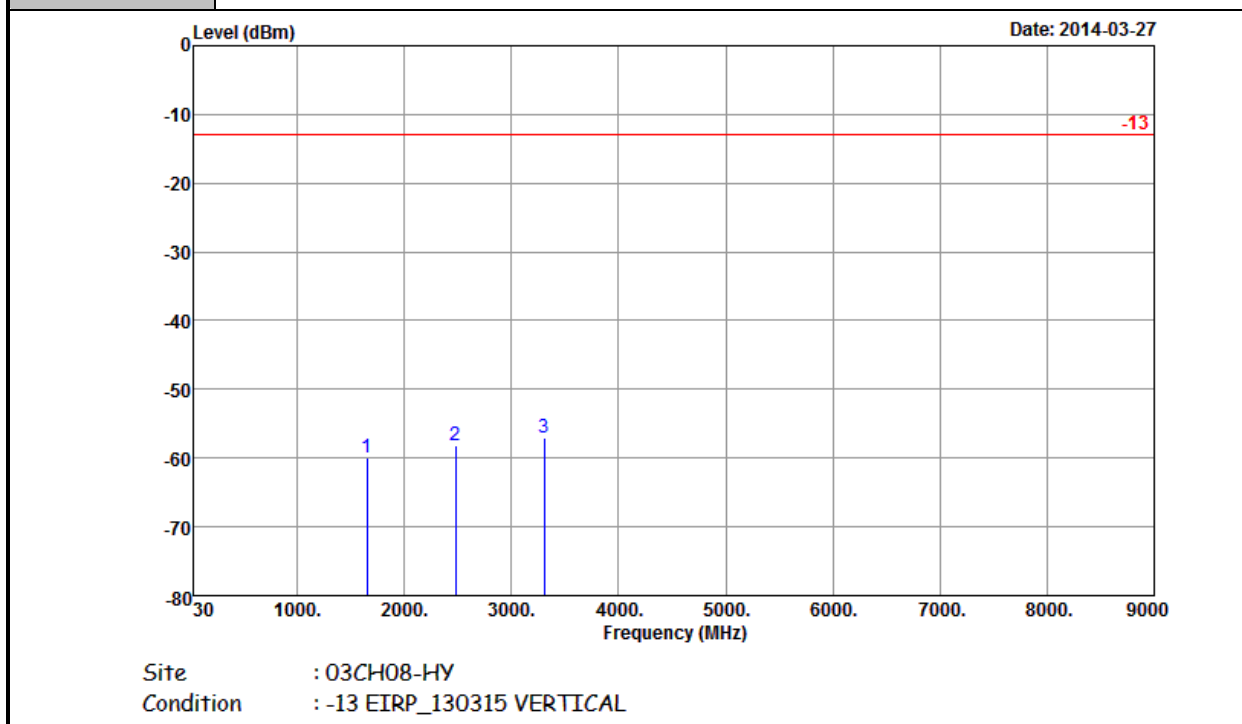
Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1654	-57.33	-13	-44.33	-47.64	-59.16	1.55	5.53	H	Pass
2479	-55.27	-13	-42.27	-49.14	-57.33	1.94	6.15	H	Pass
3305	-55.60	-13	-42.60	-49.13	-59.11	2.27	7.93	H	Pass



Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

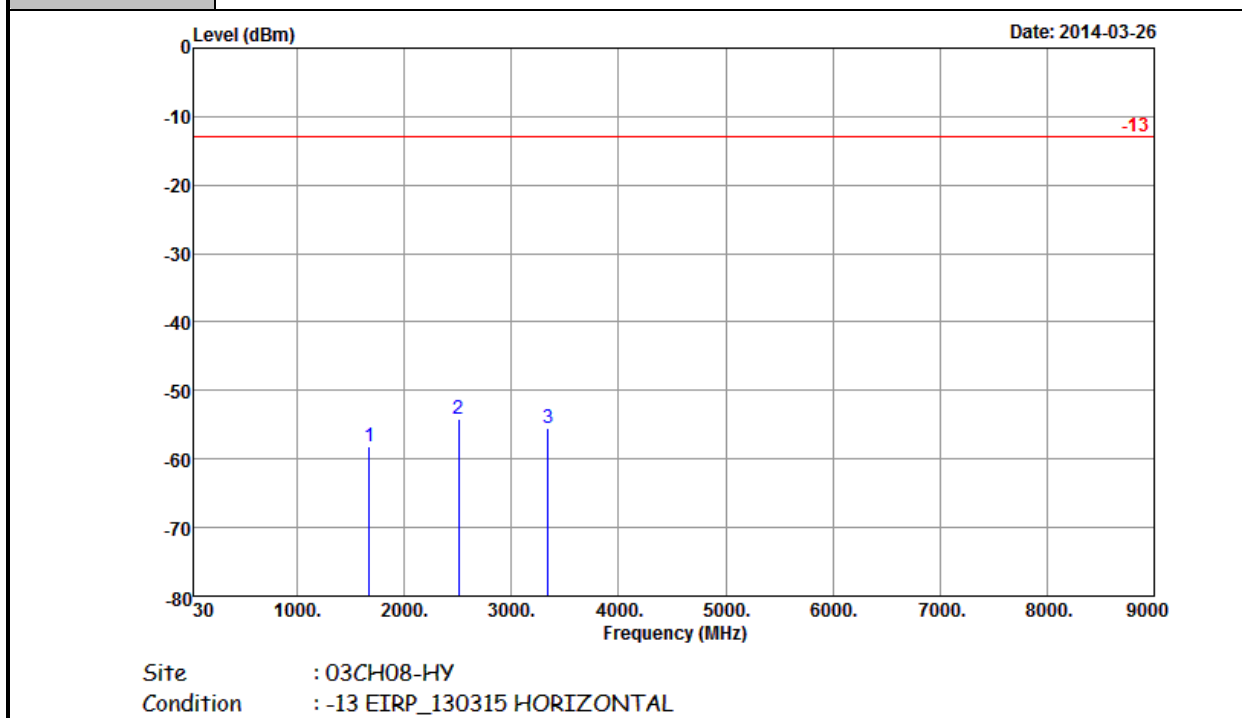


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1654	-60.04	-13	-47.04	-48.79	-61.87	1.55	5.53	V	Pass
2479	-58.11	-13	-45.11	-49.35	-60.17	1.94	6.15	V	Pass
3305	-57.04	-13	-44.04	-49.68	-60.55	2.27	7.93	V	Pass



<Middle Channel>

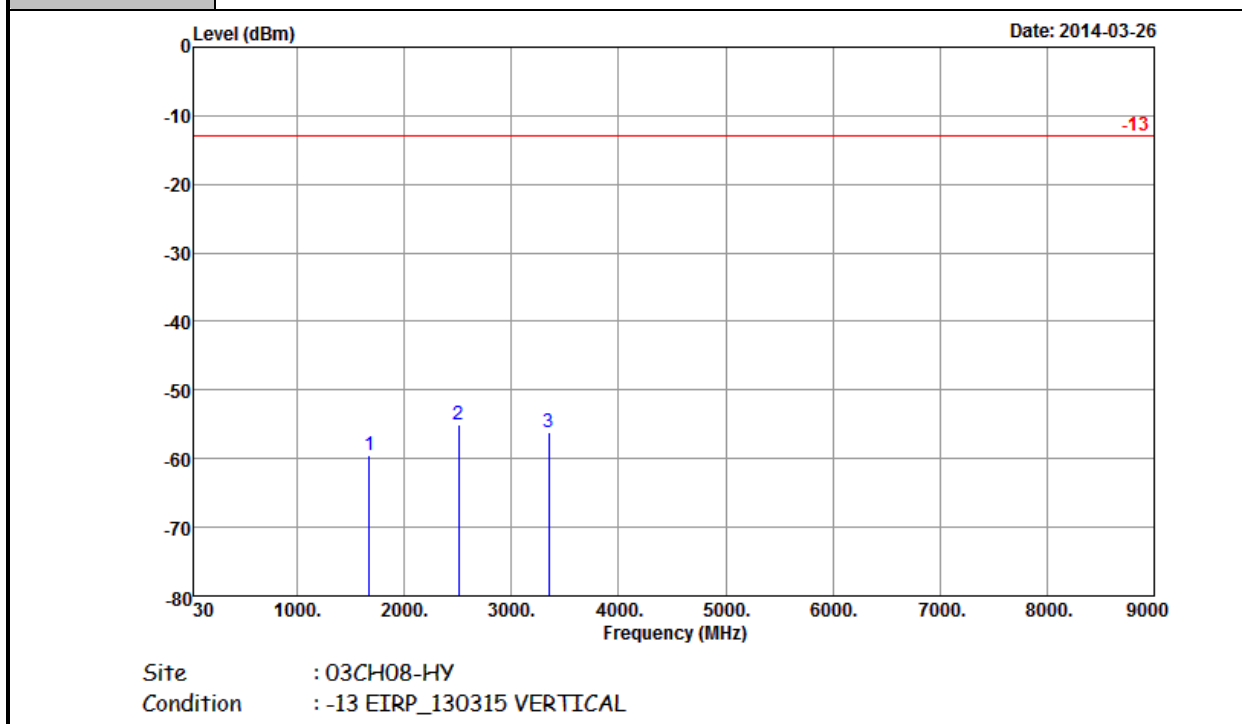
Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-58.14	-13	-45.14	-49.02	-59.88	1.6	5.49	H	Pass
2509	-54.20	-13	-41.20	-47.93	-56.31	1.96	6.22	H	Pass
3345	-55.56	-13	-42.56	-48.96	-58.87	2.61	8.07	H	Pass



Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

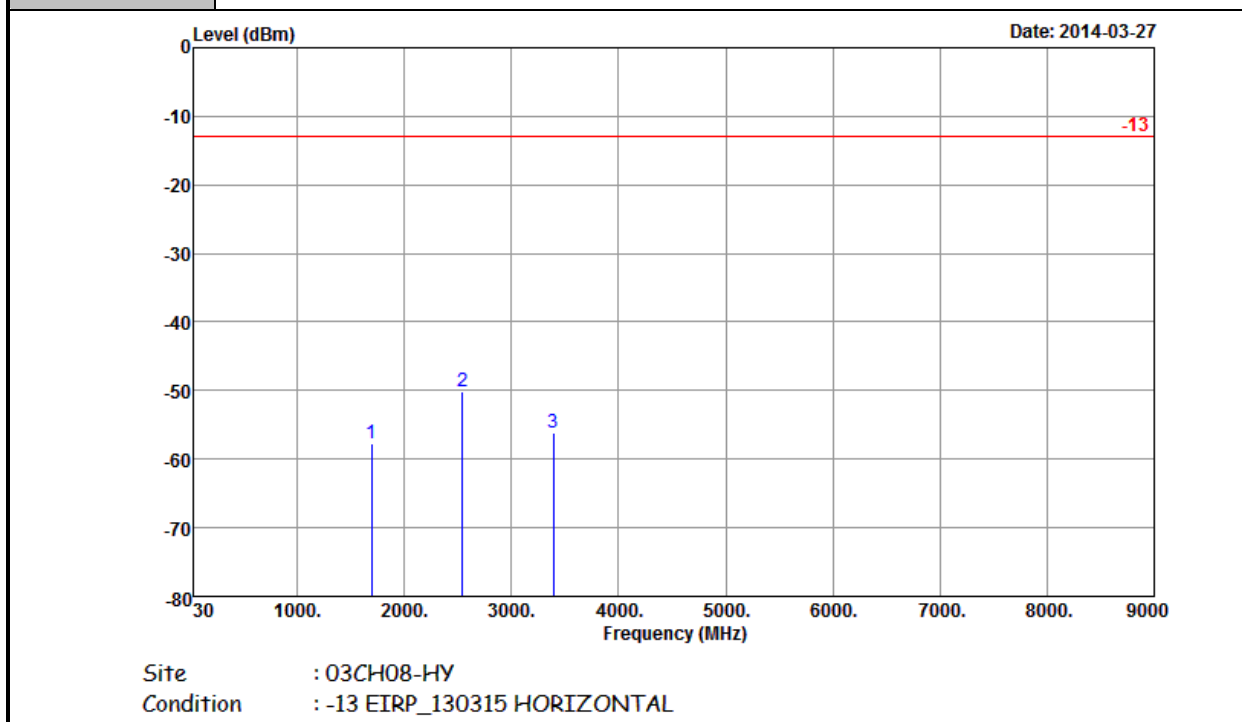


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1672	-59.48	-13	-46.48	-48.65	-61.22	1.6	5.49	V	Pass
2509	-55.02	-13	-42.02	-46.6	-57.13	1.96	6.22	V	Pass
3346	-56.16	-13	-43.16	-48.97	-59.47	2.61	8.07	V	Pass



<High Channel>

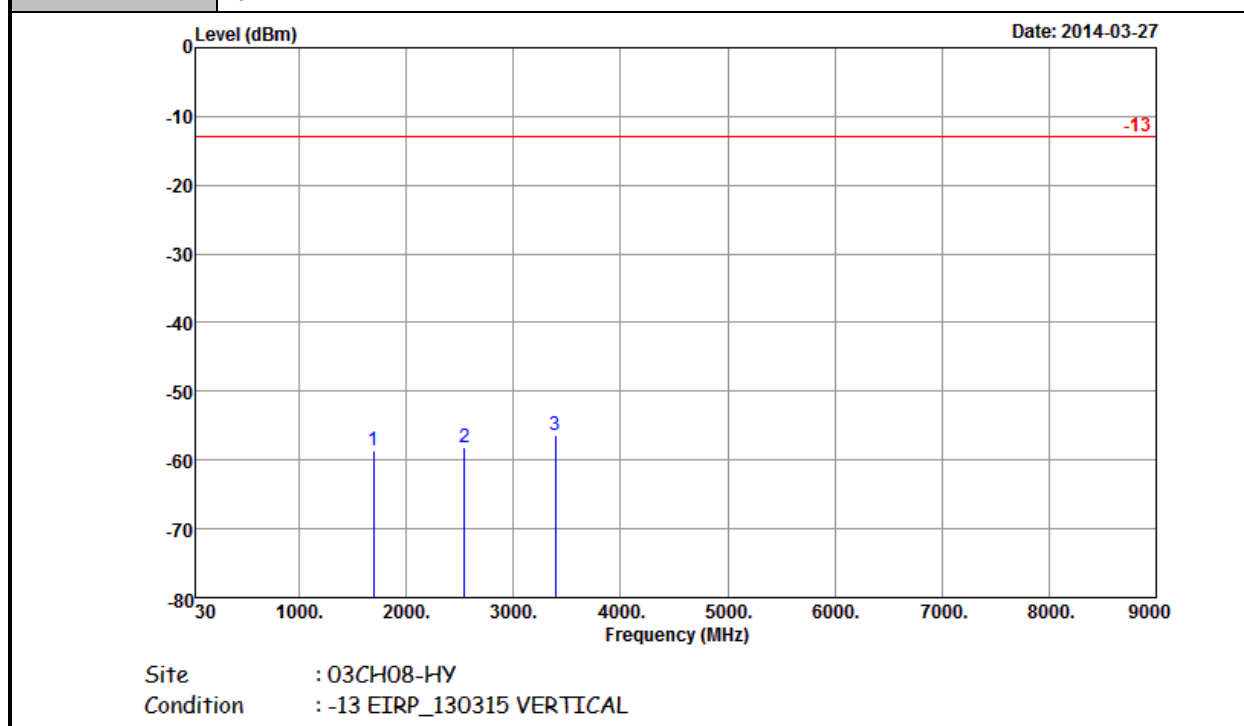
Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-57.64	-13	-44.64	-48.79	-59.36	1.58	5.45	H	Pass
2542	-50.20	-13	-37.20	-44.2	-52.41	1.92	6.28	H	Pass
3393	-56.19	-13	-43.19	-49.28	-60.03	2.21	8.20	H	Pass



Band :	WCDMA Band V	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

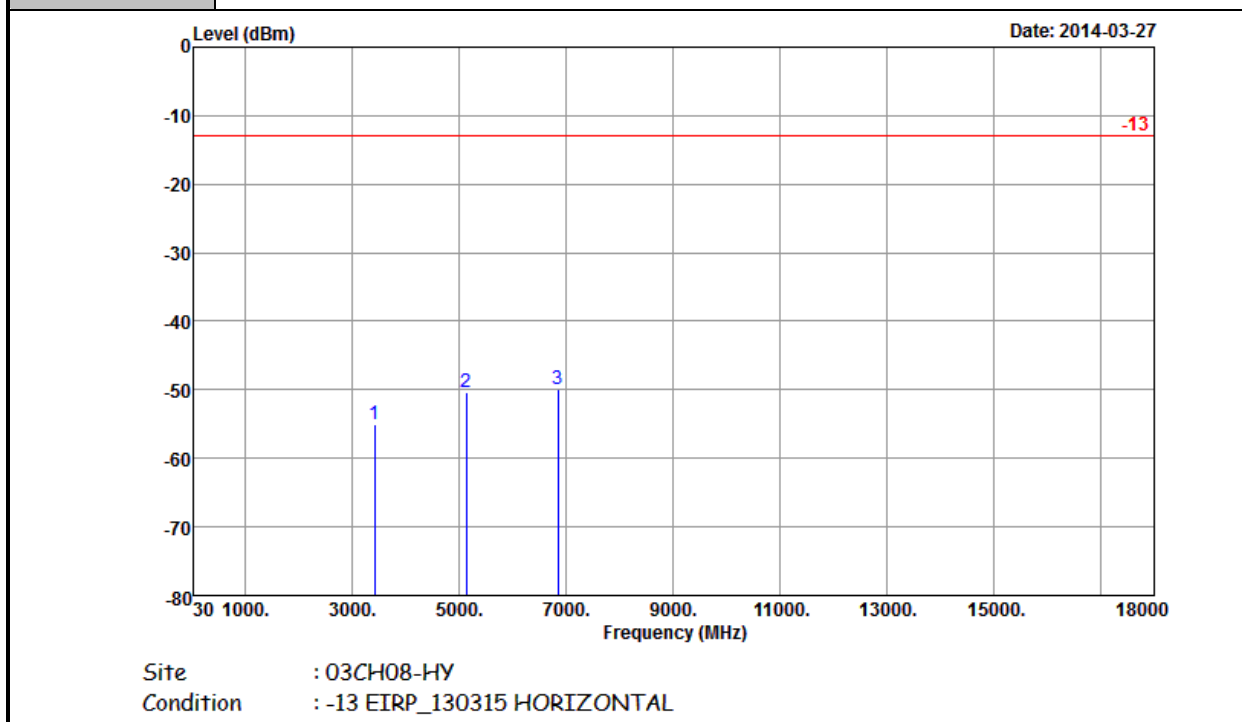


Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
1696	-58.62	-13	-45.62	-47.88	-60.34	1.58	5.45	V	Pass
2544	-58.17	-13	-45.17	-49.41	-60.38	1.92	6.28	V	Pass
3393	-56.27	-13	-43.27	-48.92	-60.11	2.21	8.20	V	Pass



<Low Channel>

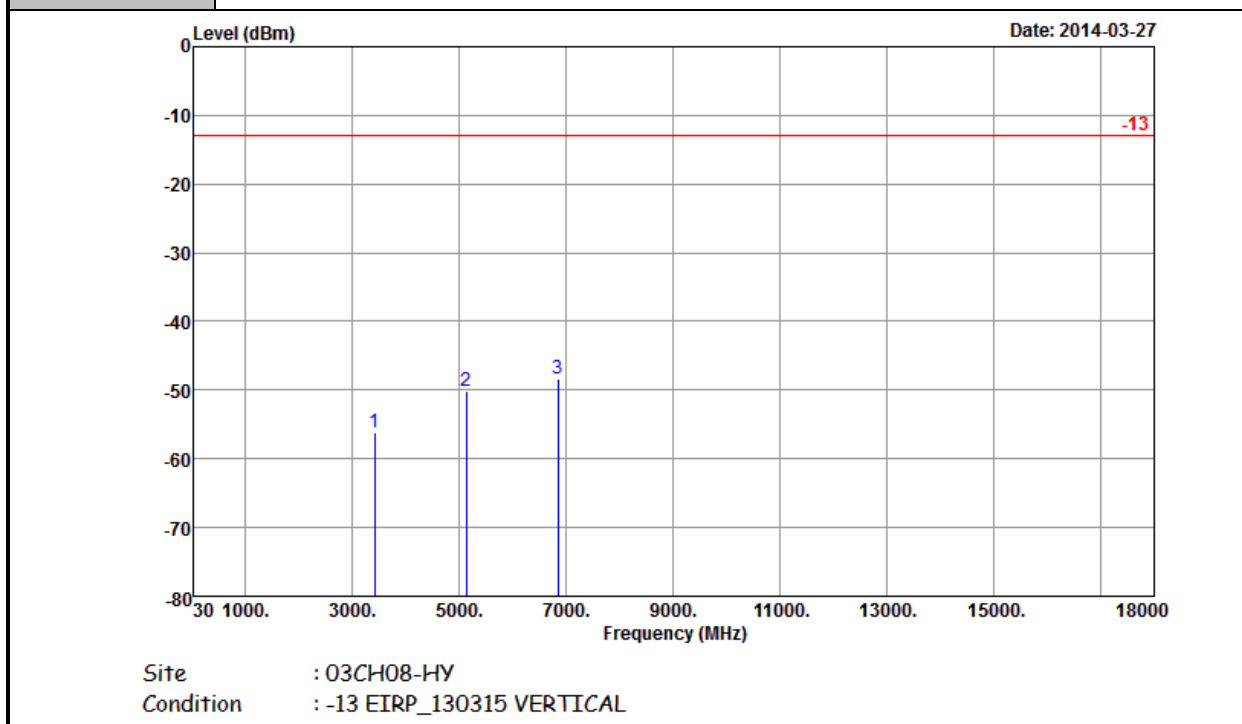
Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3420	-55.04	-13	-42.04	-48.56	-60.76	2.48	8.20	H	Pass
5136	-50.37	-13	-37.37	-46.74	-58.04	2.74	10.40	H	Pass
6850	-49.84	-13	-36.84	-50.03	-58.11	3.11	11.38	H	Pass



Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

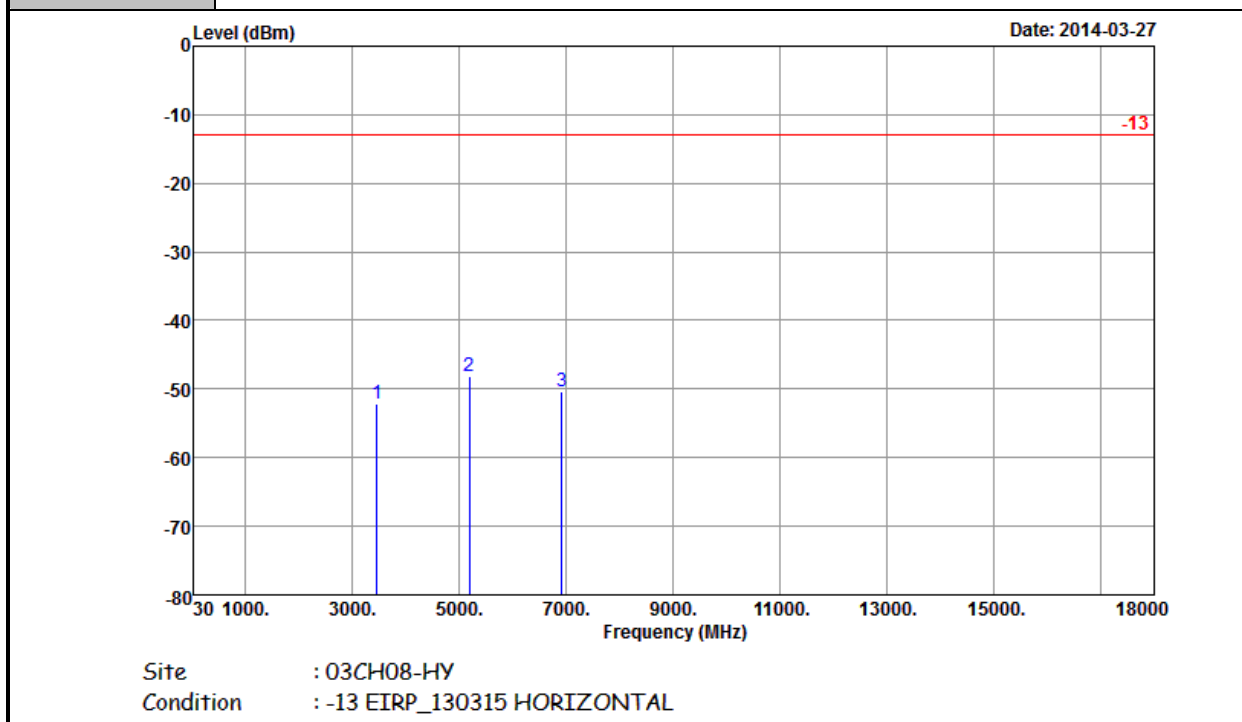


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3420	-56.05	-13	-43.05	-48.81	-61.77	2.48	8.20	V	Pass
5136	-50.09	-13	-37.09	-47.33	-57.76	2.74	10.40	V	Pass
6850	-48.42	-13	-35.42	-49.96	-56.69	3.11	11.38	V	Pass



<Middle Channel>

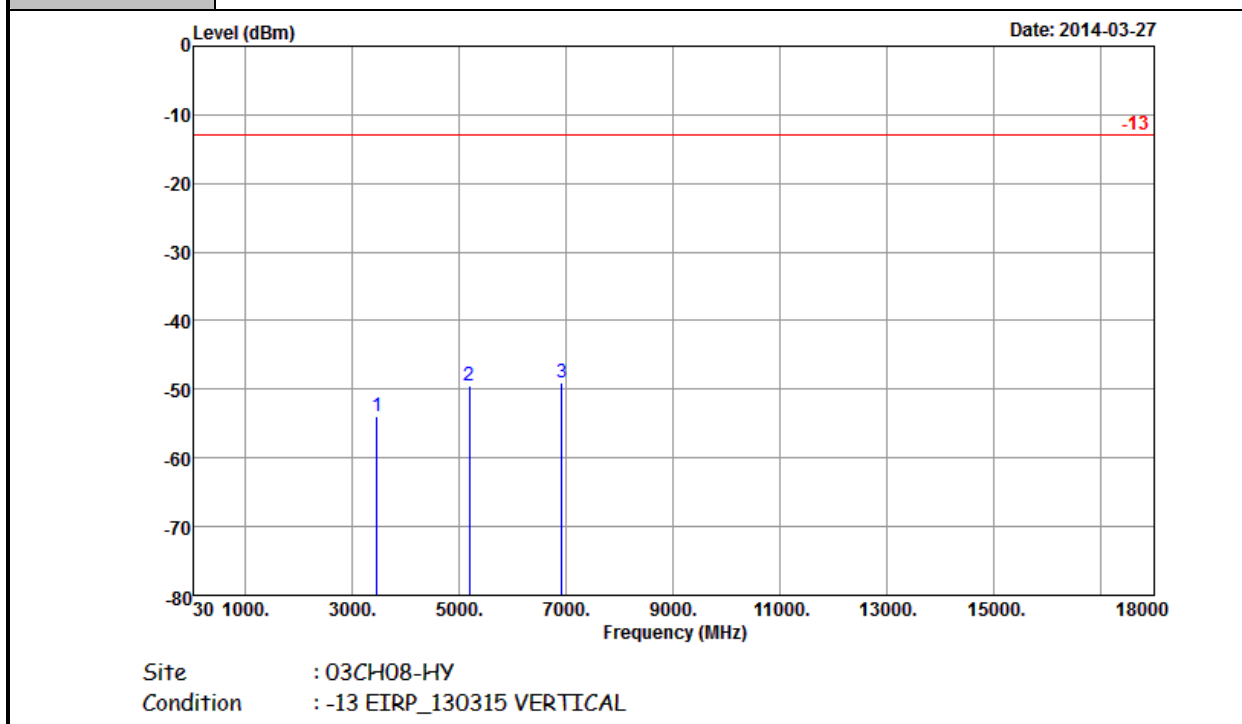
Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3464	-52.09	-13	-39.09	-46.7	-57.88	2.50	8.30	H	Pass
5196	-48.09	-13	-35.09	-45.59	-55.79	2.74	10.44	H	Pass
6928	-50.44	-13	-37.44	-50.82	-58.78	3.13	11.47	H	Pass



Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

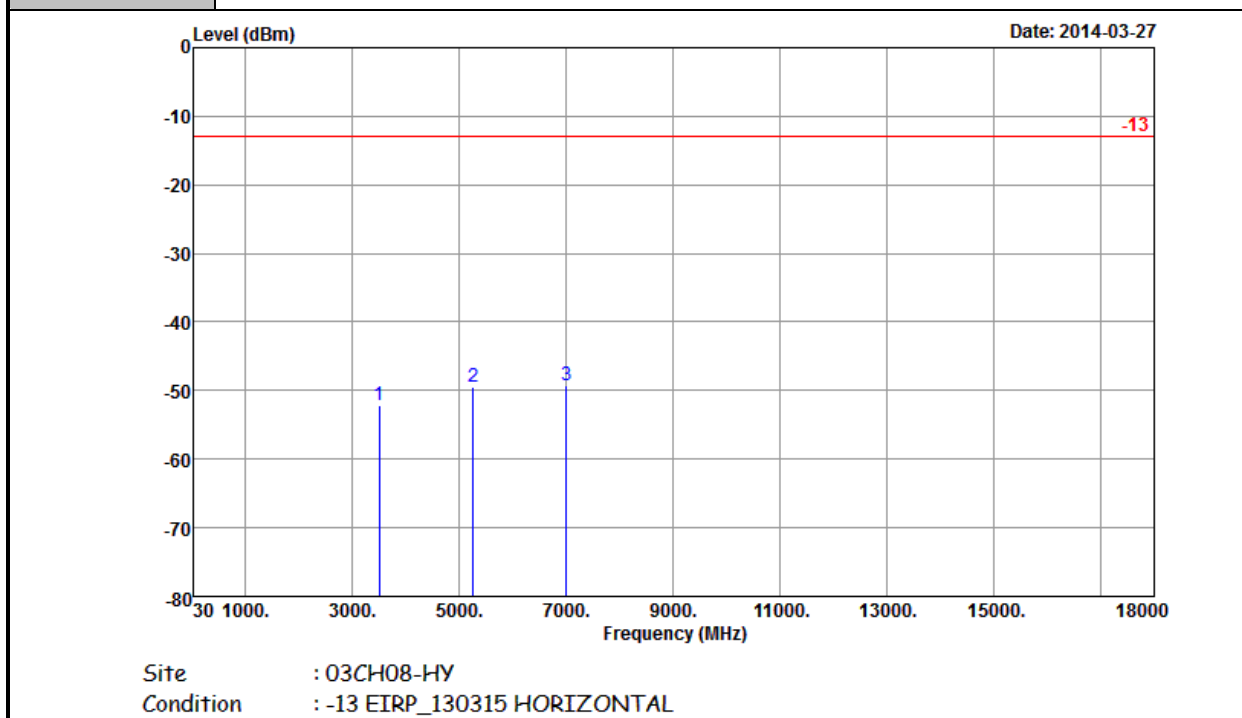


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3464	-53.94	-13	-40.94	-47.56	-59.73	2.50	8.30	V	Pass
5196	-49.46	-13	-36.46	-46.66	-57.16	2.74	10.44	V	Pass
6928	-49.05	-13	-36.05	-50.62	-57.39	3.13	11.47	V	Pass



<High Channel>

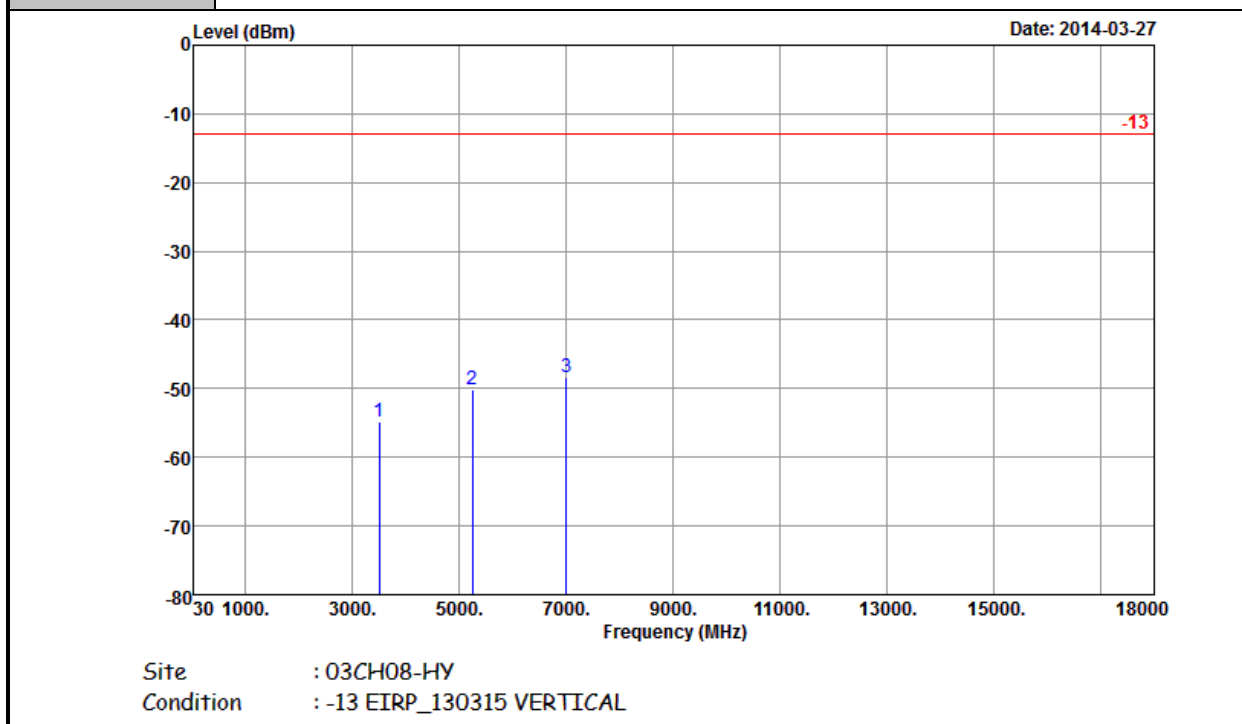
Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3504	-52.16	-13	-39.16	-47.66	-58.03	2.52	8.39	H	Pass
5260	-49.48	-13	-36.48	-46.8	-57.22	2.74	10.48	H	Pass
7012	-49.28	-13	-36.28	-49.71	-57.69	3.14	11.56	H	Pass



Band :	WCDMA Band IV	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

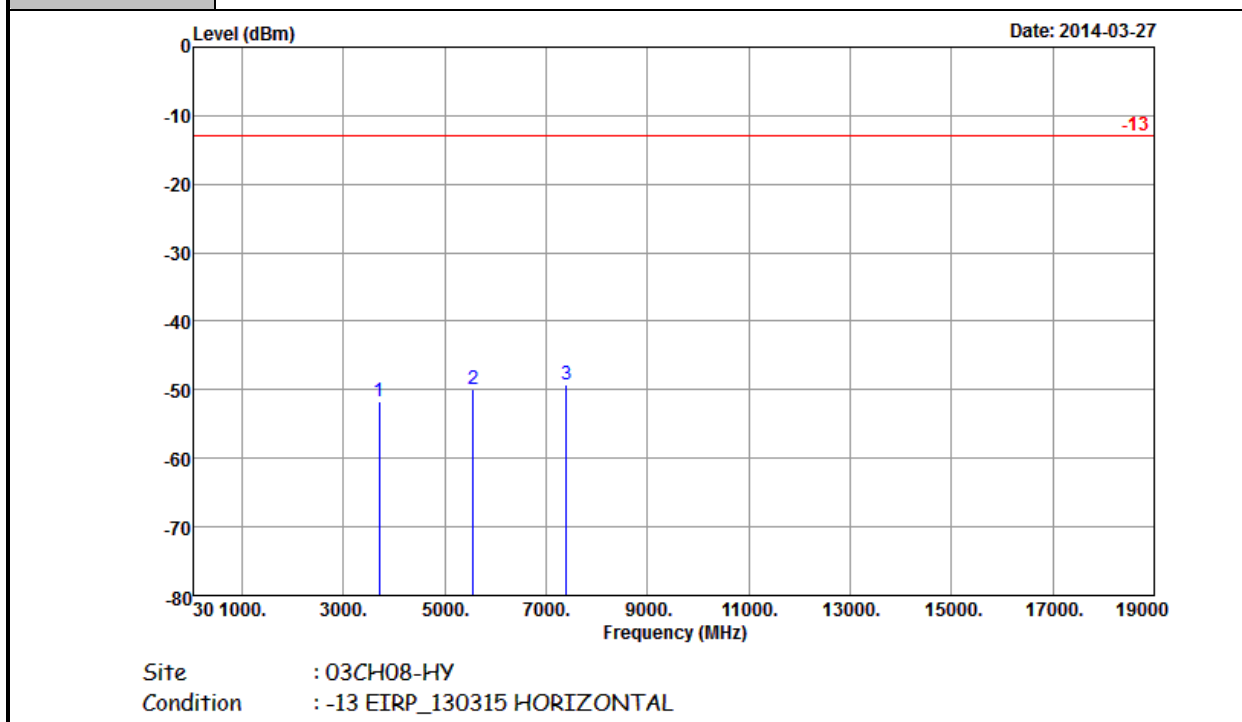


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3504	-54.92	-13	-41.92	-48.84	-60.79	2.52	8.39	V	Pass
5256	-50.07	-13	-37.07	-47.43	-57.81	2.74	10.48	V	Pass
7012	-48.46	-13	-35.46	-50.55	-56.87	3.14	11.56	V	Pass



<Low Channel>

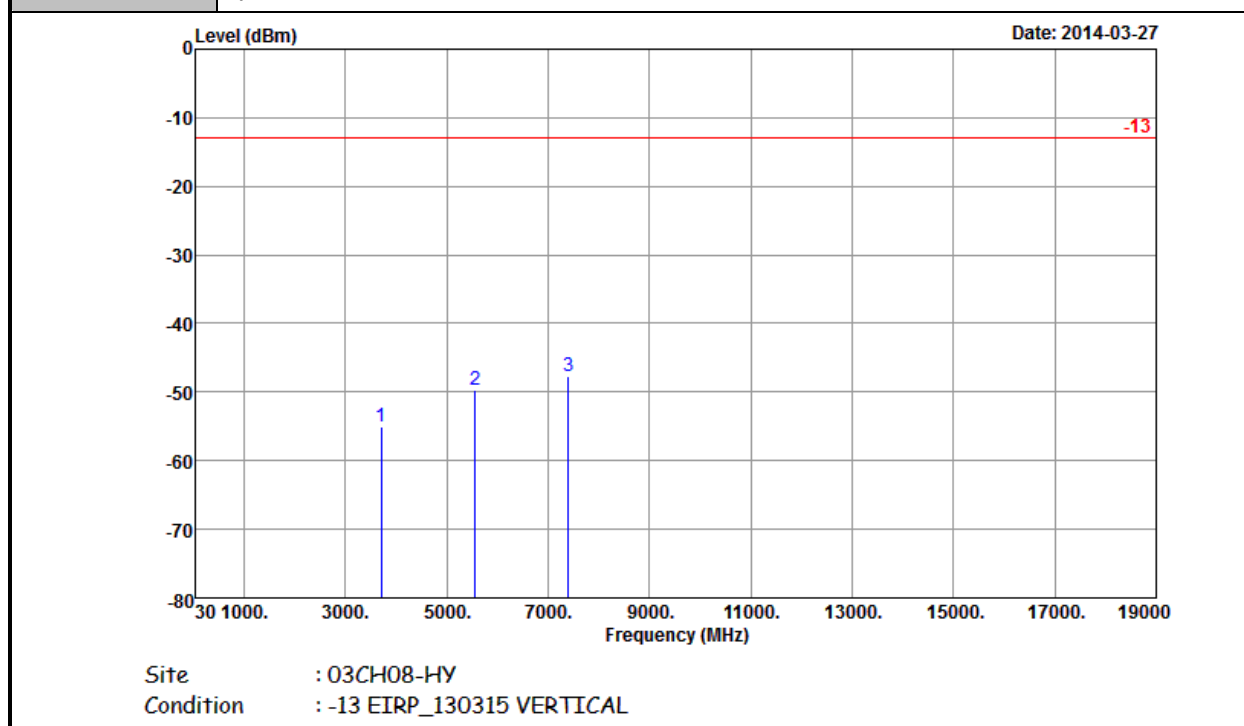
Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3704	-51.59	-13	-38.59	-46.94	-58.01	2.32	8.74	H	Pass
5560	-49.92	-13	-36.92	-46.76	-57.91	2.71	10.70	H	Pass
7400	-49.27	-13	-36.27	-51.52	-58.22	3.07	12.02	H	Pass



Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

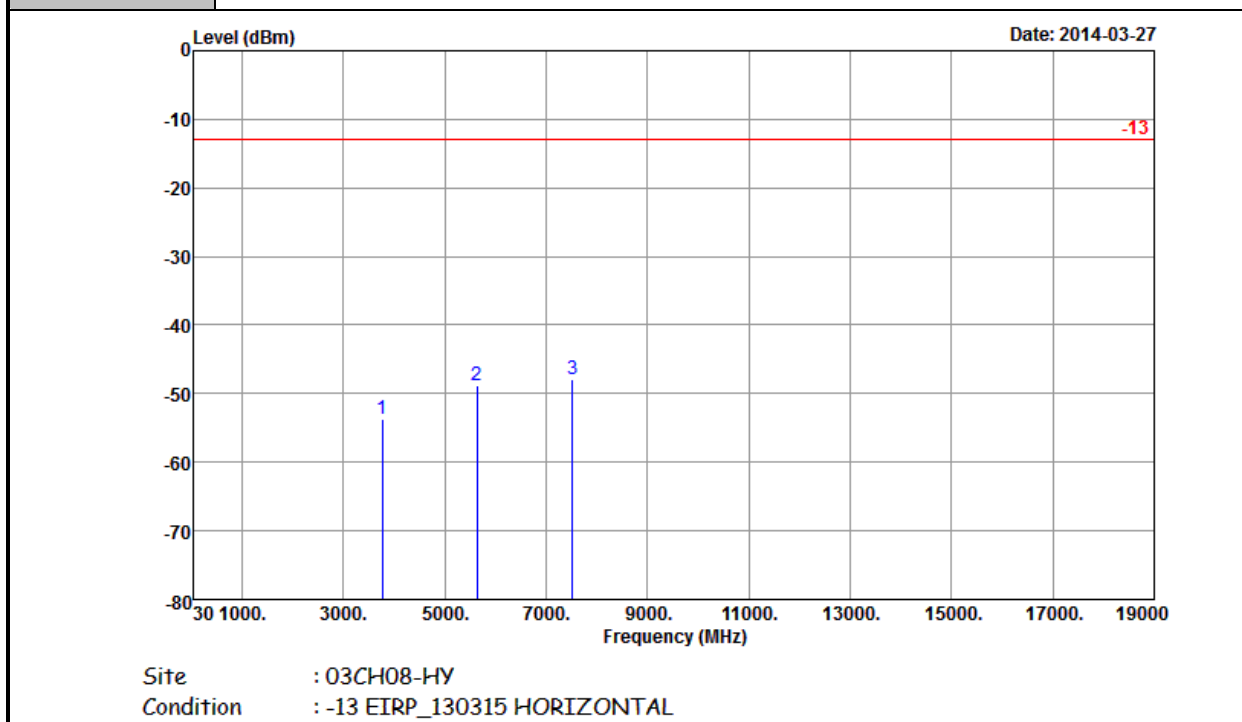


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3700	-55.12	-13	-42.12	-49.78	-61.54	2.32	8.74	V	Pass
5556	-49.79	-13	-36.79	-48.28	-57.78	2.71	10.70	V	Pass
7400	-47.58	-13	-34.58	-51.26	-56.53	3.07	12.02	V	Pass



<Middle Channel>

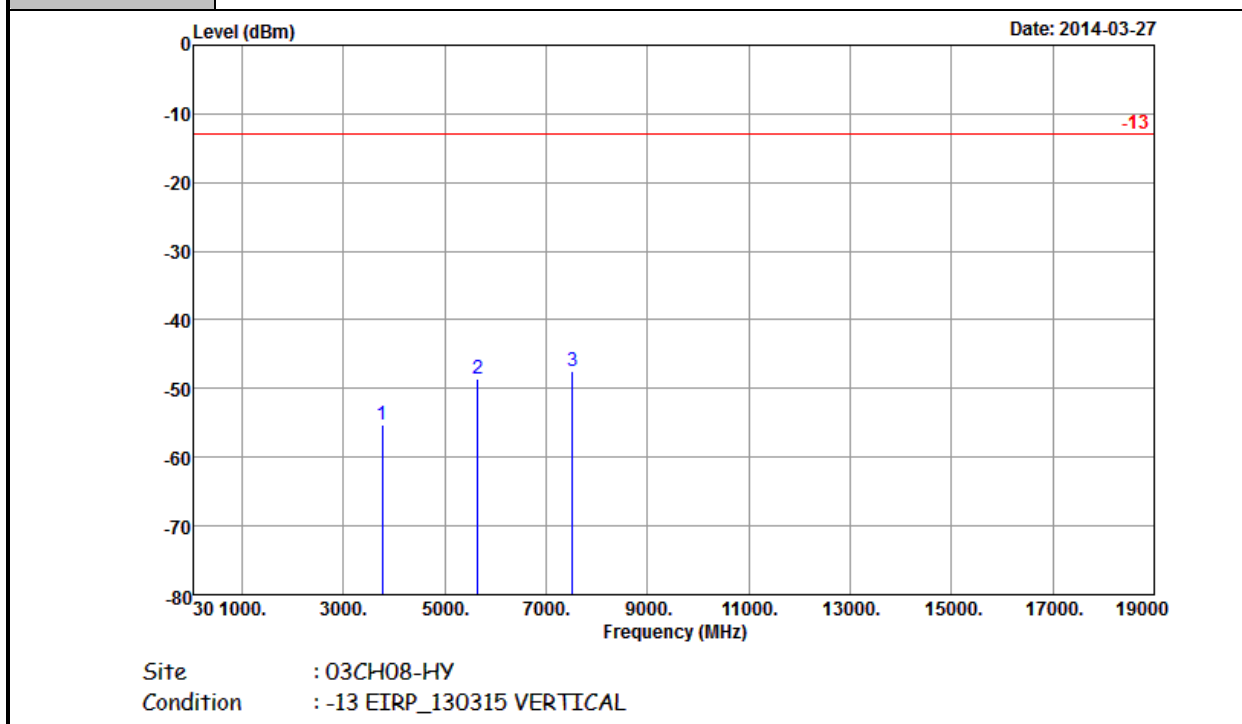
Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-53.68	-13	-40.68	-49.37	-60.11	2.38	8.81	H	Pass
5636	-48.81	-13	-35.81	-45.78	-56.66	2.85	10.70	H	Pass
7520	-47.89	-13	-34.89	-50.39	-56.55	3.46	12.12	H	Pass



Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

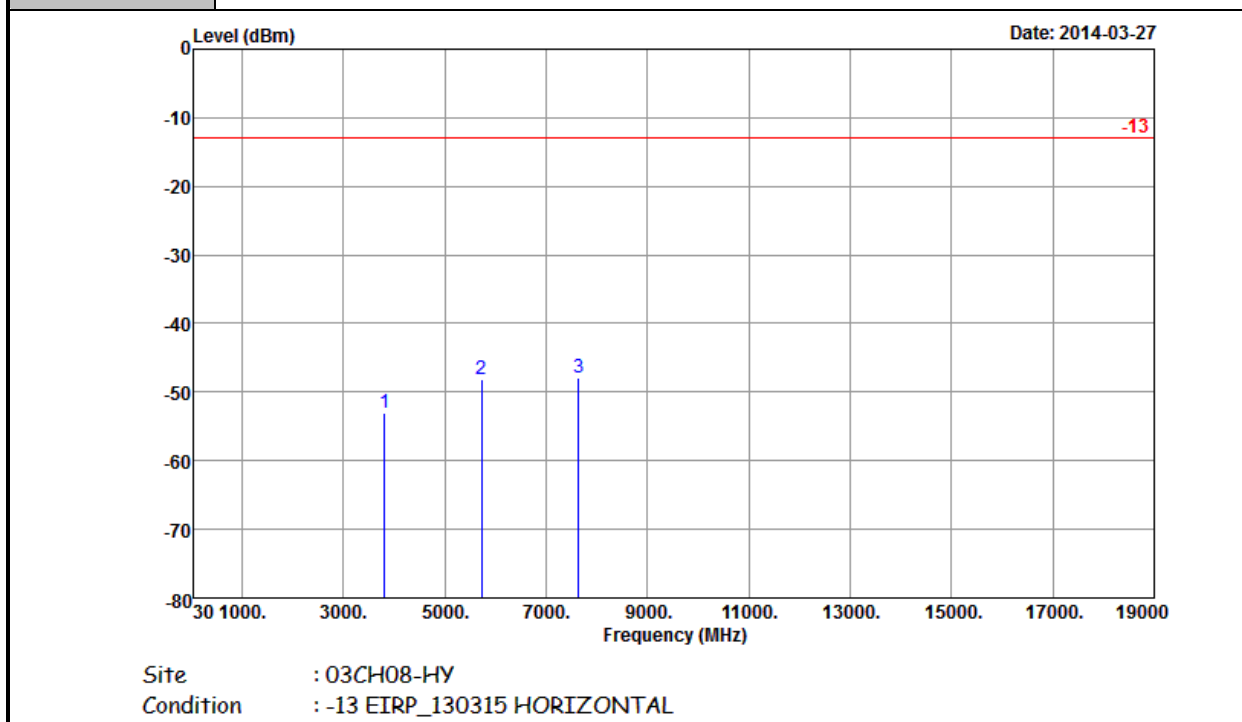


Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3760	-55.36	-13	-42.36	-50.43	-61.79	2.38	8.81	V	Pass
5644	-48.62	-13	-35.62	-47.07	-56.47	2.85	10.70	V	Pass
7520	-47.42	-13	-34.42	-50.78	-56.08	3.46	12.12	V	Pass



<High Channel>

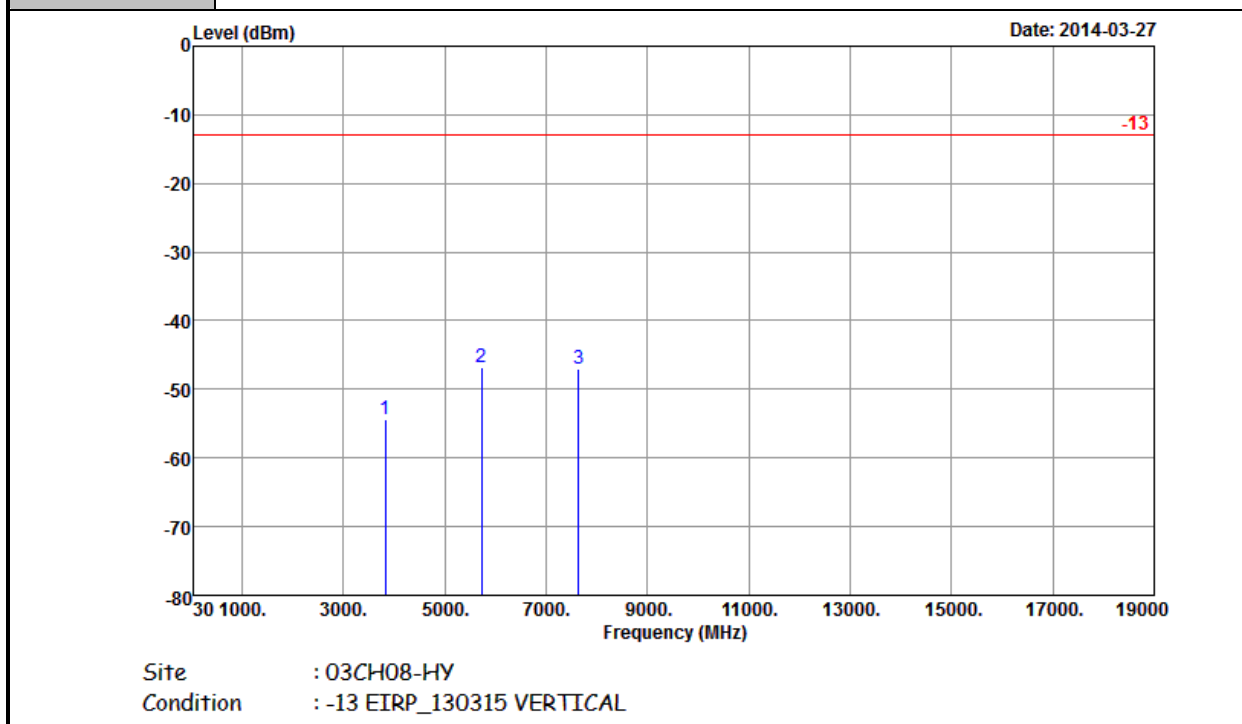
Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3812	-53.11	-13	-40.11	-48.69	-59.56	2.43	8.88	H	Pass
5728	-48.24	-13	-35.24	-46	-56.13	2.81	10.70	H	Pass
7636	-47.96	-13	-34.96	-50.38	-56.88	3.29	12.21	H	Pass



Band :	WCDMA Band II	Temperature :	22~24°C
Test Mode :	RMC 12.2Kbps Link (QPSK)	Relative Humidity :	50~51%
Test Engineer :	Kyle Jhuang	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3817	-54.36	-13	-41.36	-49.8	-60.81	2.43	8.88	V	Pass
5728	-46.74	-13	-33.74	-45.59	-54.63	2.81	10.70	V	Pass
7636	-47.10	-13	-34.10	-50.59	-56.02	3.29	12.21	V	Pass

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

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

3.8.2 Measuring Instruments

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

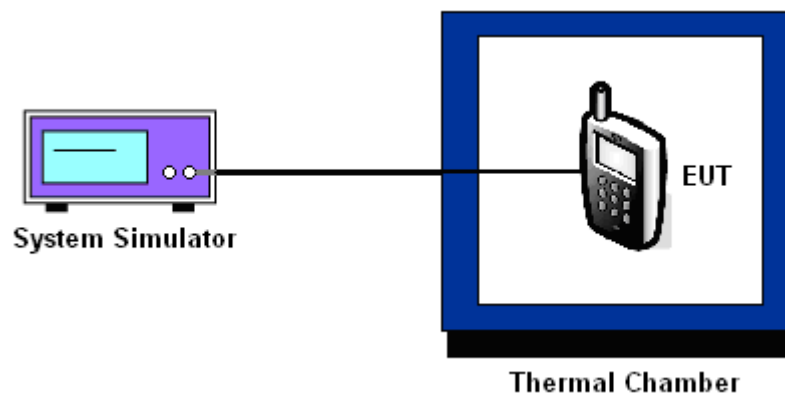
3.8.3 Test Procedures for Temperature Variation

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

3.8.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

3.8.5 Test Setup



3.8.6 Test Result of Temperature Variation

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

Temperature (°C)	GSM		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	23	0.0275	35	0.0418	PASS
40	20	0.0239	29	0.0347	
30	19	0.0227	25	0.0299	
20	17	0.0203	28	0.0335	
10	16	0.0191	33	0.0395	
0	15	0.0179	29	0.0347	
-10	19	0.0227	34	0.0407	
-20	22	0.0263	36	0.0430	
-30	21	0.0251	42	0.0502	

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

Temperature (°C)	GPRS class 8		EDGE class 8		Result
	Freq. Dev. (Hz)	Deviation (ppm)	Freq. Dev. (Hz)	Deviation (ppm)	
50	62	0.0330	81	0.0431	PASS
40	60	0.0319	82	0.0436	
30	58	0.0309	78	0.0415	
20	54	0.0287	77	0.0410	
10	51	0.0271	79	0.0420	
0	55	0.0293	81	0.0431	
-10	56	0.0298	80	0.0426	
-20	61	0.0324	83	0.0441	
-30	60	0.0319	85	0.0452	

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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	8	0.0096	PASS
40	6	0.0072	
30	-5	0.0060	
20	-4	0.0048	
10	5	0.0060	
0	7	0.0084	
-10	6	0.0072	
-20	-8	0.0096	
-30	9	0.0108	

Band :	WCDMA Band IV	Channel :	1413
Limit (ppm) :	2.5	Frequency :	1732.6 MHz

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	-12	0.0069	PASS
40	-10	0.0058	
30	-9	0.0052	
20	-8	0.0046	
10	-10	0.0058	
0	-9	0.0052	
-10	-9	0.0052	
-20	-13	0.0075	
-30	-11	0.0063	



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

Temperature (°C)	RMC 12.2Kbps		Result
	Freq. Dev. (Hz)	Deviation (ppm)	
50	10	0.0053	PASS
40	-12	0.0064	
30	9	0.0048	
20	7	0.0037	
10	9	0.0048	
0	8	0.0043	
-10	10	0.0053	
-20	9	0.0048	
-30	11	0.0059	

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	4.35	15	0.0179	2.5	PASS
		4.0	20	0.0239		
		BEP	17	0.0203		
	EDGE class 8	4.35	33	0.0395		
		4.0	31	0.0371		
		BEP	34	0.0407		
GSM 1900 CH661	GPRS class 8	4.35	57	0.0303		
		4.0	54	0.0287		
		BEP	60	0.0319		
	EDGE class 8	4.35	76	0.0404		
		4.0	80	0.0426		
		BEP	82	0.0436		
WCDMA Band V CH4182	RMC 12.2Kbps	4.35	6	0.0072		
		4.0	-5	0.0060		
		BEP	7	0.0084		
WCDMA Band IV CH1413	RMC 12.2Kbps	4.35	-8	0.0046		
		4.0	-7	0.0040		
		BEP	-11	0.0063		
WCDMA Band II CH9400	RMC 12.2Kbps	4.35	9	0.0048		
		4.0	10	0.0053		
		BEP	8	0.0043		

Note:

1. Normal Voltage = 4.0V.
2. Battery End Point (BEP) = 3.5 V

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
System Simulator	Rohde & Schwarz	CMU200	117995	N/A	Aug. 01, 2013	Mar. 22, 2014	Jul. 31, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 07, 2013	Mar. 22, 2014	Jun. 06, 2014	Conducted (TH02-HY)
Thermal Chamber	Ten Billion	TTH-D3SP	TBN-930701	N/A	Jul. 19, 2013	Mar. 22, 2014	Jul. 18, 2014	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz – 26.5GHz	Jan. 15, 2014	Mar. 26, 2014 ~ May 20, 2014	Jan. 14, 2015	Radiation (03CH08-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30MHz~2GHz	Oct. 10, 2013	Mar. 26, 2014 ~ May 20, 2014	Oct. 09, 2014	Radiation (03CH08-HY)
Horn Antenna	ESCO	3117	000143261	1GHz~18GHz	Jan. 16, 2014	Mar. 26, 2014 ~ May 20, 2014	Jan. 15, 2015	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz~40GHz	Oct. 03, 2013	Mar. 26, 2014 ~ May 20, 2014	Oct. 02, 2014	Radiation (03CH08-HY)
Amplifier	SONOMA	310N	187231	9kHz~1GHz	May 15, 2013	Mar. 26, 2014 ~ Mar. 27, 2014	May 14, 2014	Radiation (03CH08-HY)
Amplifier	SONOMA	310N	187231	9kHz~1GHz	May 12, 2014	May 20, 2014	May 11, 2015	Radiation (03CH08-HY)
Preamplifier	MITEQ	AMF-7D-00 101800-30-1	1590074	1GHz~18GHz	Jul. 09, 2013	Mar. 26, 2014 ~ May 20, 2014	Jul. 08, 2014	Radiation (03CH08-HY)
Pre Amplifier	Agilent	8449B	3008A02665	1GHz~26.5GHz	Sep. 04, 2013	Mar. 26, 2014 ~ May 20, 2014	Sep. 03, 2014	Radiation (03CH08-HY)
Turn Table	Chaintek	Chaintek 3000	N/A	0~360 Degree	N/A	Mar. 26, 2014 ~ May 20, 2014	N/A	Radiation (03CH08-HY)
Antenna Mast	MF	MFA520BS	N/A	1m~4m	N/A	Mar. 26, 2014 ~ May 20, 2014	N/A	Radiation (03CH08-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.30
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