



FCC RF Test Report

APPLICANT : BLU Products, Inc.
EQUIPMENT : Mobile phone
BRAND NAME : BLU
MODEL NAME : ENERGY X LTE
FCC ID : YHLBLUEGXLTE
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 Dec. 22, 2015 and testing was completed on Jan. 18, 2016. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and has been in compliance with the applicable technical standards.

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG5D2213A	Rev. 01	Initial issue of report	Jan. 22, 2016



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.4	§2.1046	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.5)	Conducted Output Power	Reporting Only	PASS	-
3.5	§24.232(d)	RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.5)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.6	§2.1049 §22.917(b) §24.238(b) §27.53(g)	RSS-GEN(6.6) RSS-132(3.1) RSS-133(3.1) RSS-139 (3.1)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.6)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.6)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	RSS-GEN(6.11) RSS-132 (5.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §24.235 §27.54	RSS-GEN(6.11) RSS-133 (6.3) RSS-139 (6.4)		Within Authorized Band		
4.4	§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 (6.5) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power	< 1 Watts	PASS	-
4.5	§2.1053 §22.917(a) §24.238(a) §27.53(h)	RSS-132 (5.5) RSS-133 (6.5) RSS-139 (6.6)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 29.37 dB at 2479.200 MHz



1 General Description

1.1 Applicant

BLU Products, Inc.

10814 NW 33rd St # 100 Doral, FL 33172

1.2 Manufacturer

BLU Products, Inc.

10814 NW 33rd St # 100 Doral, FL 33172

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile phone
Brand Name	BLU
Model Name	ENERGY X LTE
FCC ID	YHLBLUEGLTE
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/DC-HSDPA/LTE WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0+EDR Bluetooth v4.0 LE
IMEI Code	Conducted: 354147042002668/354147042037664 Radiation: 354147042002254/354147042037250 ERP/EIRP: 354147042002254/354147042037250
HW Version	ENERGY X LTE_Mainboard_P2
SW Version	ENERGY X LTE_0202_V5237
EUT Stage	Pre-Production

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	GSM/GPRS/EDGE: 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8MHz WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	GSM/GPRS/EDGE: 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	GSM/GPRS/EDGE: 850: 33.07 dBm 1900: 29.39 dBm WCDMA: Band V: 23.22 dBm Band II: 23.54 dBm Band IV: 23.34 dBm
Antenna Type	Fixed Internal Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: QPSK (Uplink) HSDPA/ DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Uplink) DC-HSDPA: 64QAM



1.5 Modification of EUT

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

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

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	GSM850 GSM	GMSK	0.6368	0.0132 ppm	244KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.1524	0.0191 ppm	239KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0604	0.0203 ppm	4M22F9W
Part 24	GSM1900 GSM	GMSK	0.9683	0.0144 ppm	244KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.3750	0.0096 ppm	246KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.1762	0.0080 ppm	4M21F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.1683	0.0081 ppm	4M23F9W

1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.
Test Site Location	1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595
Test Site No.	Sporton Site No.
	TH01-SZ

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	03CH03-KS	306251/4086E

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-D-2010
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- ♦ IC RSS-132 Issue 3
- ♦ IC RSS-133 Issue 6
- ♦ IC RSS-139 Issue 3
- ♦ IC RSS-Gen Issue 4

Remark:

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



2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

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

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for WCDMA Band IV.
3. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

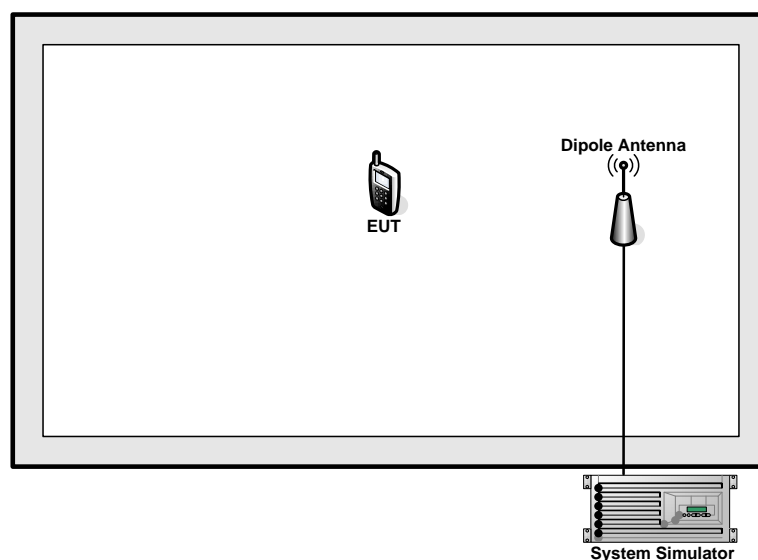
All modes and data rates and positions were investigated.

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

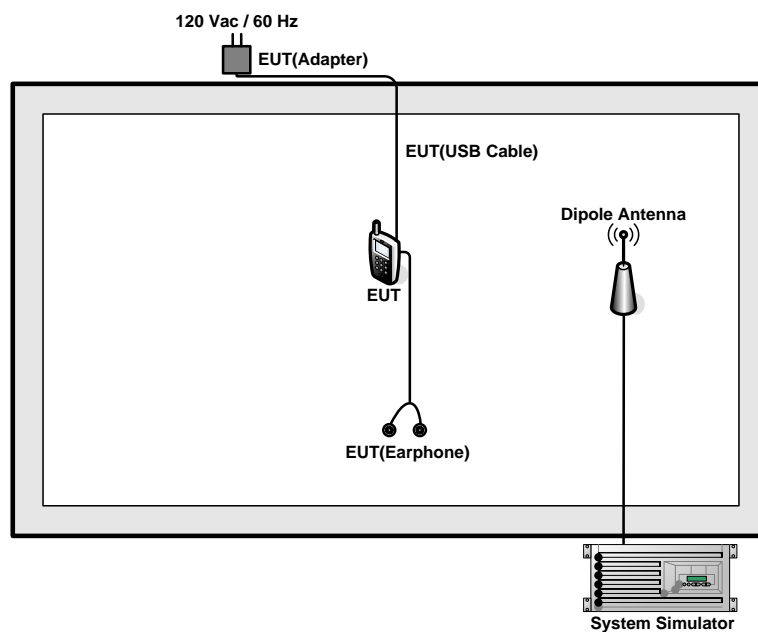
Test Modes		
Band	Radiated TCs	Conducted TCs
GSM 850	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
GSM 1900	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

2.2 Connection Diagram of Test System

For 22H



For 24E.27L



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	TOPWORD	3303DR	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 4.5 dB and a 10dB attenuator.

Example :

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 4.5 + 10 = 14.5 \text{ (dB)}\end{aligned}$$

3 Conducted Test Result

3.1 Measuring Instruments

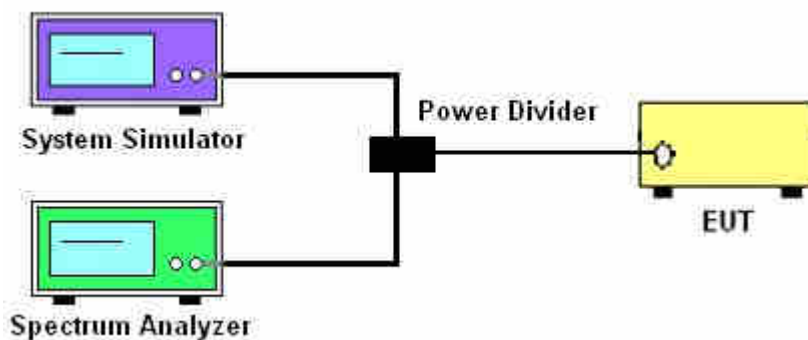
See list of measuring instruments of this test report.

3.2 Test Setup

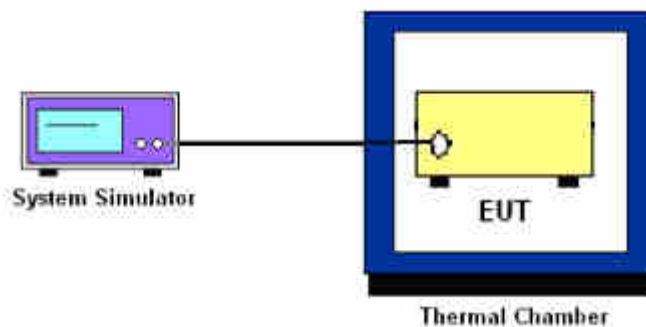
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.



3.4 Conducted Output Power

3.4.1 Description of the Conducted Output Power

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.

3.4.2 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.



3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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

3.5.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.7.1.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. Set EUT to transmit at maximum output power.
4. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer.
Record the maximum PAPR level associated with a probability of 0.1%.

3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

The 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 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 4.2.
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
(this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted 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.

3.7.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator.
The path loss was compensated to the results for each measurement.
4. The band edges of low and high channels for the highest RF powers were measured.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$
$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$
$$= -13\text{dBm}.$$

3.8 Conducted Spurious Emission

3.8.1 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.

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 6.0.
2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
= $P(W) - [43 + 10\log(P)]$ (dB)
= $[30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
= -13dBm.

3.9 Frequency Stability

3.9.1 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.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows FCC KDB 971168 D01 v02r02 Section 9.0.
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C steps up to 50°C . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows FCC KDB 971168 D01 v02r02 Section 9.0.
2. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
4. The variation in frequency was measured for the worst case.

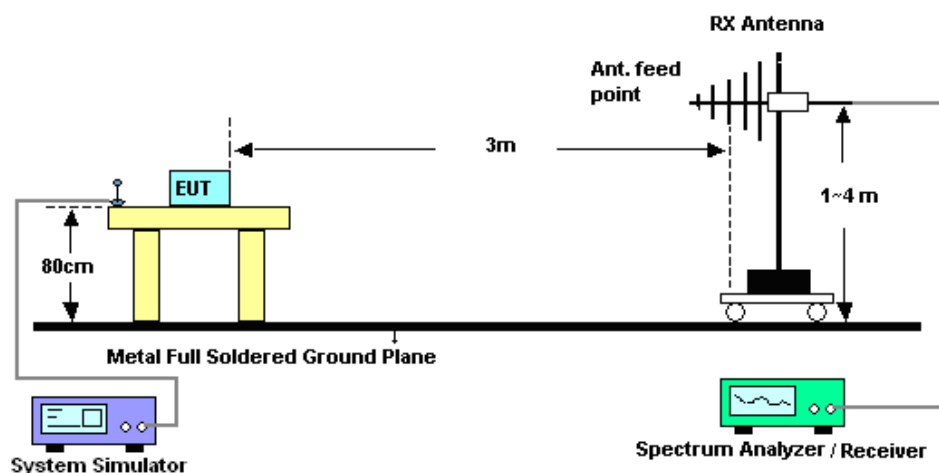
4 Radiated Test Items

4.1 Measuring Instruments

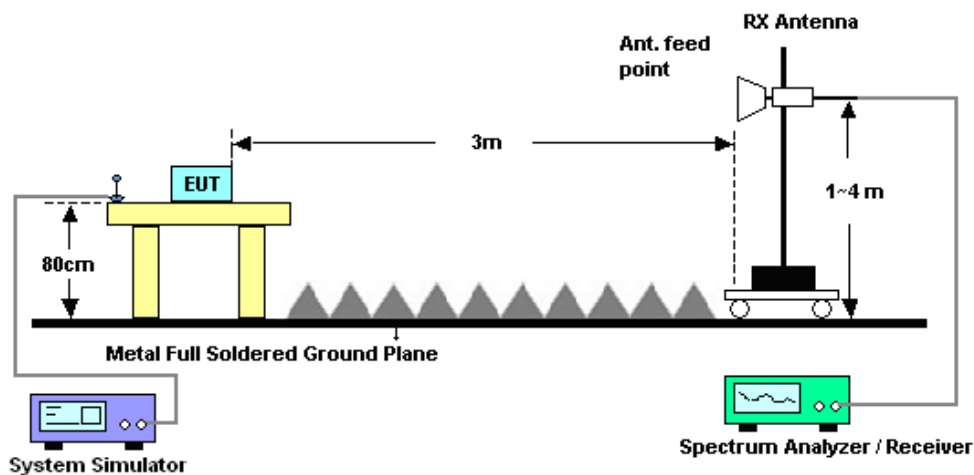
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.



4.4 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

4.4.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-D-2010, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

4.4.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-D-2010 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
3. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
4. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at 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 $ERP = EIRP - 2.15$. Take the record of the output power at substitution antenna.



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

4.5 Field Strength of Spurious Radiation Measurement

4.5.1 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.

4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
12. $ERP \text{ (dBm)} = EIRP - 2.15$
13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	9kHz~40GHz	May 05, 2015	Dec. 30, 2015~ Jan. 18, 2016	May 04, 2016	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhonggroup	LP-150U	H2014081803	-40~+150°C	Aug. 07, 2015	Dec. 30, 2015~ Jan. 18, 2016	Aug. 06, 2016	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Jun. 05, 2015	Jan. 06, 2016~ Jan. 10, 2016	Jun. 04, 2016	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz-2GHz	Jun. 25, 2015	Jan. 06, 2016~ Jan. 10, 2016	Jun. 24, 2016	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Jun. 25, 2015	Jan. 06, 2016~ Jan. 10, 2016	Jun. 24, 2016	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz ~40GHz	Mar. 03, 2015	Jan. 06, 2016~ Jan. 10, 2016	Mar. 02, 2016	Radiation (03CH03-KS)
Amplifier	Burgeon	BPA-530	102212	0.01MHz-3000MHz	Aug. 10, 2015	Jan. 06, 2016~ Jan. 10, 2016	Aug. 09, 2016	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18~40GHz	Aug. 27, 2015	Jan. 06, 2016~ Jan. 10, 2016	Aug. 26, 2016	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 24, 2015	Jan. 06, 2016~ Jan. 10, 2016	Oct. 23, 2016	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 06, 2016~ Jan. 10, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 06, 2016~ Jan. 10, 2016	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 06, 2016~ Jan. 10, 2016	NCR	Radiation (03CH03-KS)



6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.5 dB
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

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	33.07	32.95	32.85	29.25	29.36	29.39
GPRS class 8	33.06	32.91	32.82	29.23	29.31	29.36
GPRS class 10	32.24	32.09	31.98	28.61	28.71	28.79
GPRS class 11	30.29	30.08	29.91	26.98	27.08	27.21
GPRS class 12	29.20	28.99	28.83	25.85	25.87	26.16
EGPRS class 8	26.40	26.69	26.67	25.71	25.80	25.85
EGPRS class 10	25.60	25.70	25.64	24.62	24.67	24.78
EGPRS class 11	23.78	23.87	23.77	22.65	22.68	22.81
EGPRS class 12	22.98	22.92	22.80	21.61	21.64	21.78

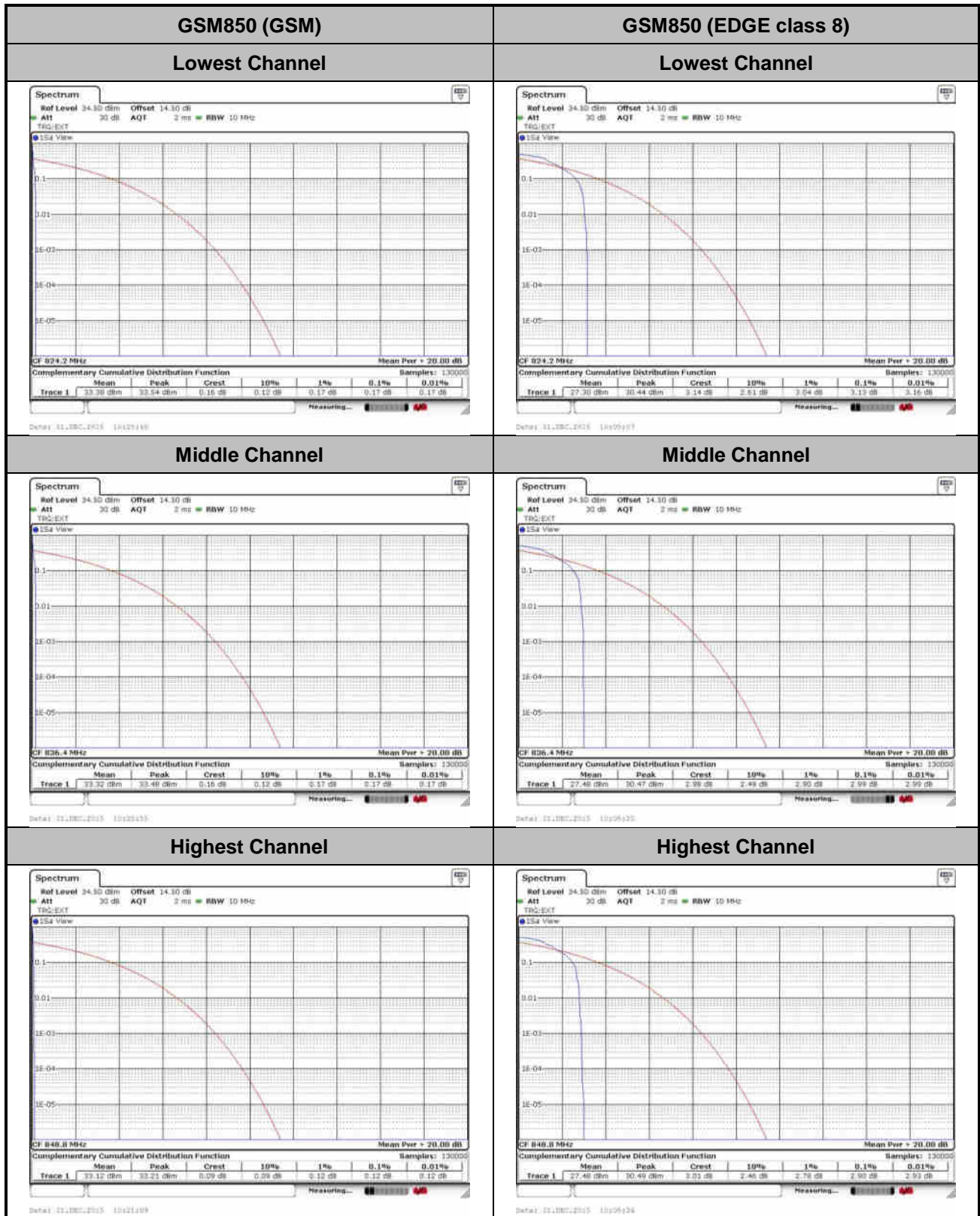
Conducted Power (*Unit: dBm)									
Band	WCDMA Band V			WCDMA Band II			WCDMA Band IV		
Channel	4132	4182	4233	9262	9400	9538	1312	1413	1513
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	1712.4	1732.6	1752.6
AMR 12.2K	22.93	23.01	23.20	23.52	23.47	23.52	23.31	23.30	23.15
RMC 12.2K	22.94	23.04	23.22	23.53	23.50	23.54	23.34	23.31	23.17
HSDPA Subtest-1	21.85	21.77	21.83	22.31	22.25	22.14	21.70	21.75	21.66
HSDPA Subtest-2	21.88	21.81	21.85	22.34	22.28	22.14	21.71	21.79	21.66
HSDPA Subtest-3	21.40	21.34	21.39	21.87	21.81	21.70	21.23	21.33	21.21
HSDPA Subtest-4	21.41	21.34	21.39	21.85	21.81	21.67	21.26	21.30	21.16
DC-HSDPA Subtest-1	21.83	21.75	21.79	22.29	22.21	22.12	21.68	21.71	21.65
DC-HSDPA Subtest-2	21.85	21.80	21.80	22.32	22.25	22.12	21.65	21.78	21.66
DC-HSDPA Subtest-3	21.36	21.28	21.30	21.83	21.79	21.67	21.25	21.33	21.18
DC-HSDPA Subtest-4	21.33	21.26	21.36	21.81	21.73	21.66	21.25	21.29	21.15
HSUPA Subtest-1	19.82	19.78	19.78	20.37	20.31	20.19	19.70	19.83	19.68
HSUPA Subtest-2	19.81	19.73	19.76	20.34	20.27	20.16	19.62	19.81	19.66
HSUPA Subtest-3	20.85	20.77	20.79	21.37	21.30	21.17	20.68	20.78	20.70
HSUPA Subtest-4	19.27	19.23	19.21	19.84	19.77	19.65	19.09	19.20	19.13
HSUPA Subtest-5	21.80	21.60	21.80	22.30	22.20	22.10	21.70	21.70	21.60
HSPA+ (16QAM) Subtest-1	21.27	21.01	21.29	21.77	21.63	21.58	21.12	21.17	21.04

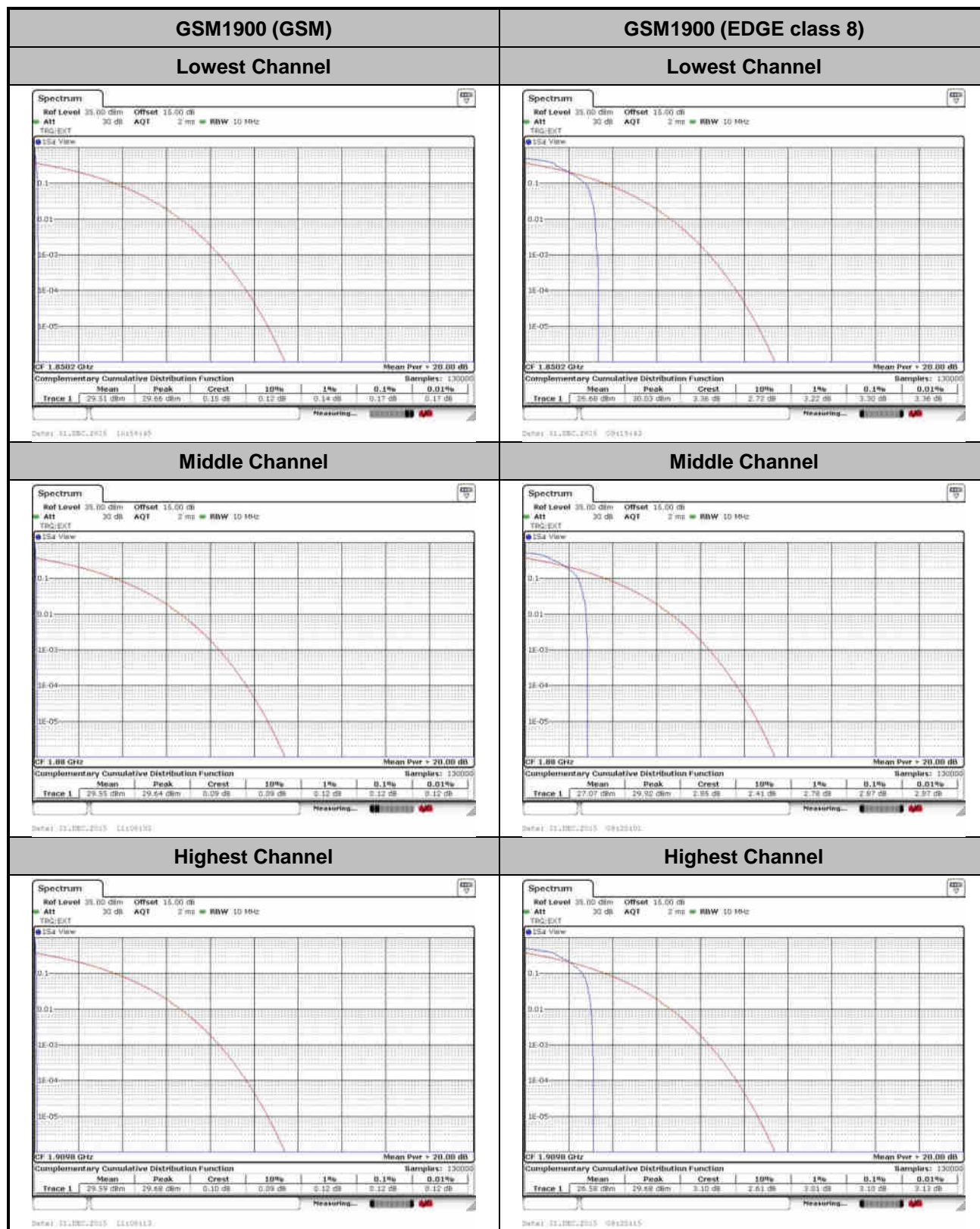
**Peak-to-Average Ratio**

Mode	GSM850		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.17	3.13	PASS
Middle CH	0.17	2.99	
Highest CH	0.12	2.90	

Mode	GSM1900		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.17	3.30	PASS
Middle CH	0.12	2.87	
Highest CH	0.12	3.10	

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.13	2.70	2.41	PASS
Middle CH	2.96	2.58	2.67	
Highest CH	3.07	2.35	2.23	

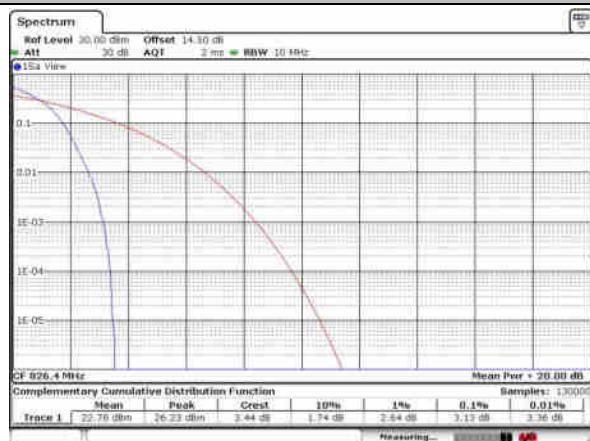






WCDMA Band V (RMC 12.2Kbps)

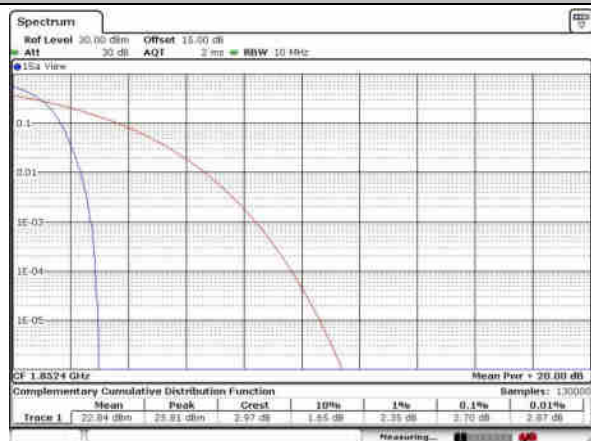
Lowest Channel



Data: 05_180C_2015 19:34:18

WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



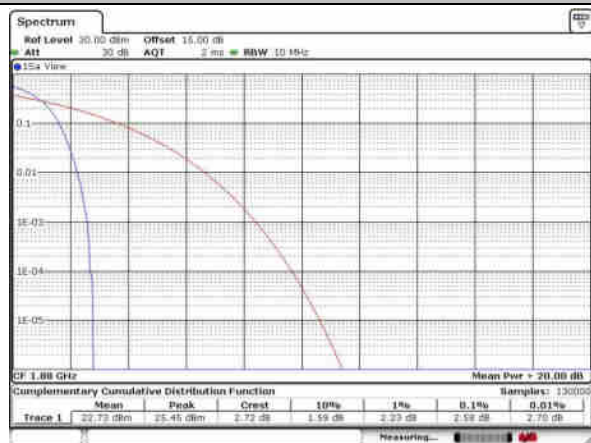
Data: 05_180C_2015 19:47:12

Middle Channel



Data: 05_180C_2015 19:35:05

Middle Channel



Data: 05_180C_2015 19:48:12

Highest Channel



Data: 05_180C_2015 19:35:15

Highest Channel



Data: 05_180C_2015 19:48:17



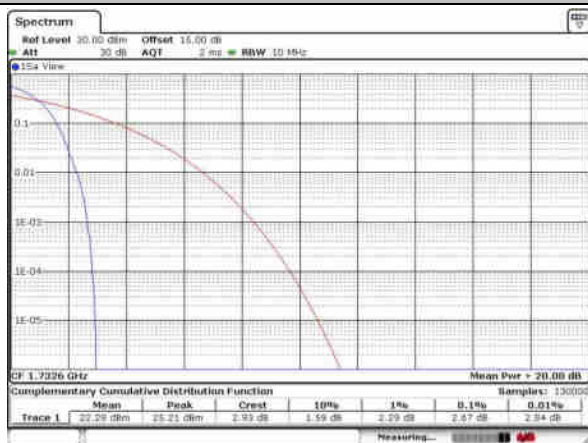
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



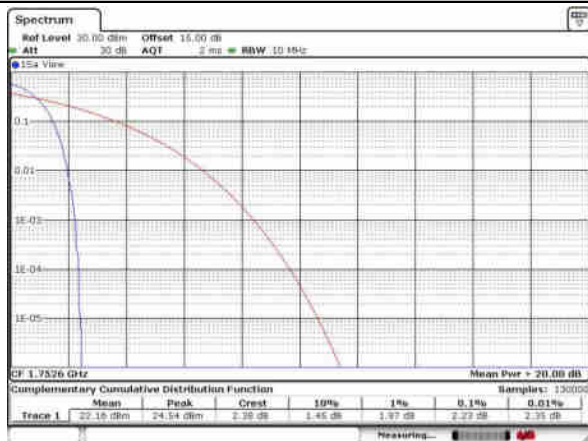
Data: 05-DEC-2015 20:11:15

Middle Channel



Data: 05-DEC-2015 20:11:27

Highest Channel



Data: 05-DEC-2015 20:11:39

**26dB Bandwidth**

Mode	GSM850	
Mod.	GSM	EDGE class 8
Lowest CH	0.317	0.291
Middle CH	0.314	0.291
Highest CH	0.318	0.292

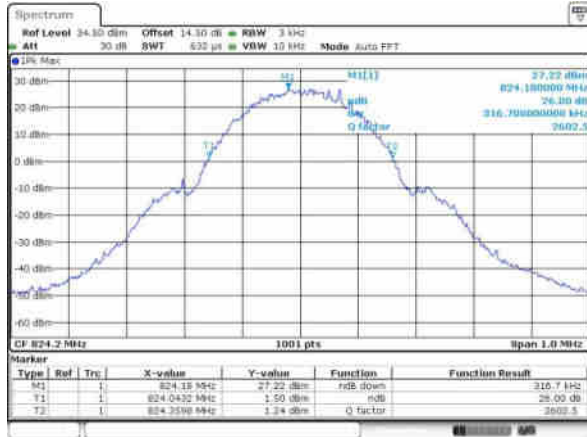
Mode	GSM1900	
Mod.	GSM	EDGE class 8
Lowest CH	0.312	0.300
Middle CH	0.315	0.308
Highest CH	0.318	0.299

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.88	4.87	4.90
Middle CH	4.86	4.88	4.88
Highest CH	4.86	4.88	4.92



GSM850 (GSM)

Lowest Channel



Data: 21.08C.2015 10:07:19

GSM850 (EDGE class 8)

Lowest Channel



Data: 21.08C.2015 09:43:22

Middle Channel



Data: 21.08C.2015 10:07:12

Middle Channel



Data: 21.08C.2015 09:45:04

Highest Channel



Data: 21.08C.2015 10:06:43

Highest Channel

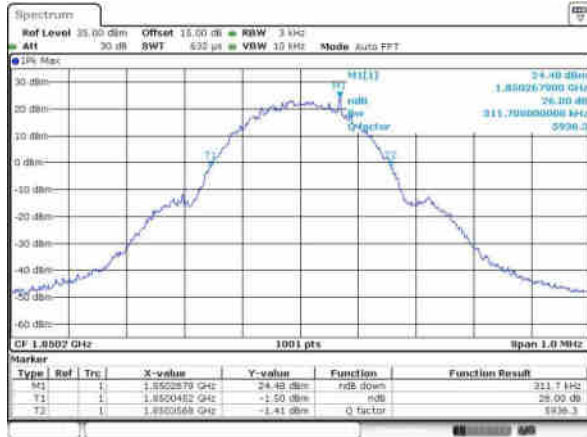


Data: 21.08C.2015 09:44:32



GSM1900 (GSM)

Lowest Channel

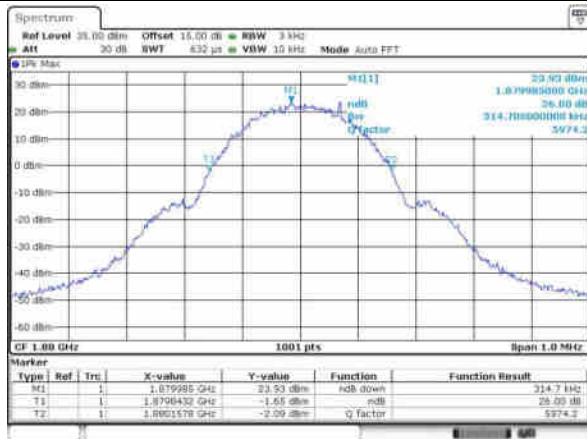


GSM1900 (EDGE class 8)

Lowest Channel



Middle Channel



Middle Channel



Highest Channel



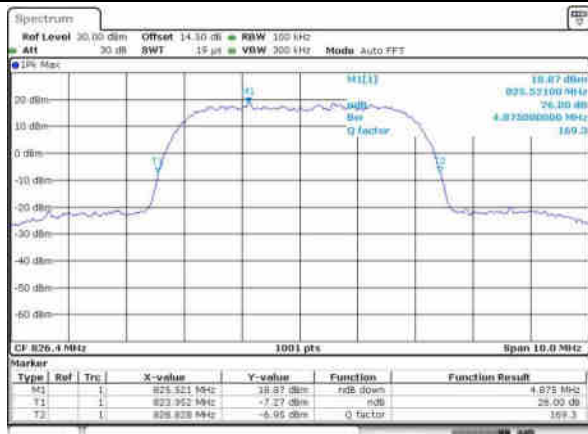
Highest Channel





WCDMA Band V (RMC 12.2Kbps)

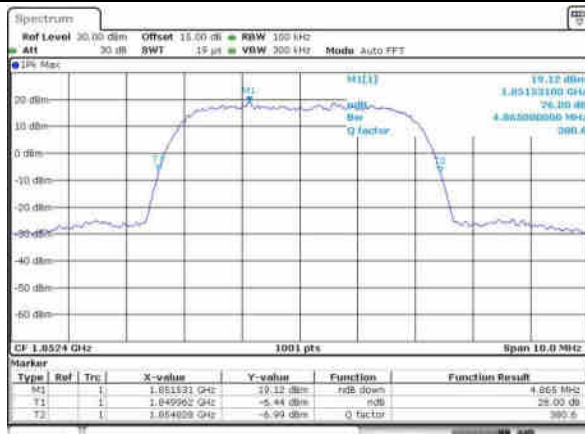
Lowest Channel



Defeat: 05_100C_2015 19x21x129

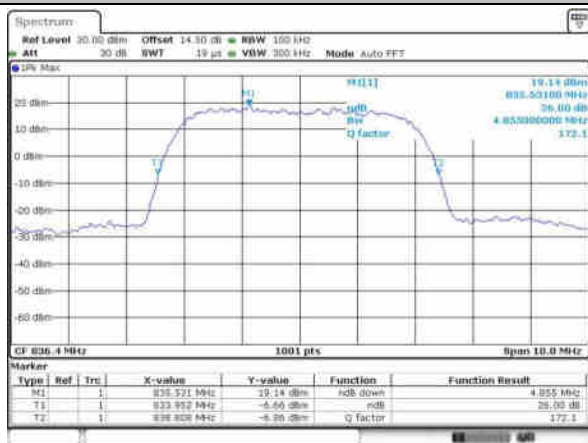
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



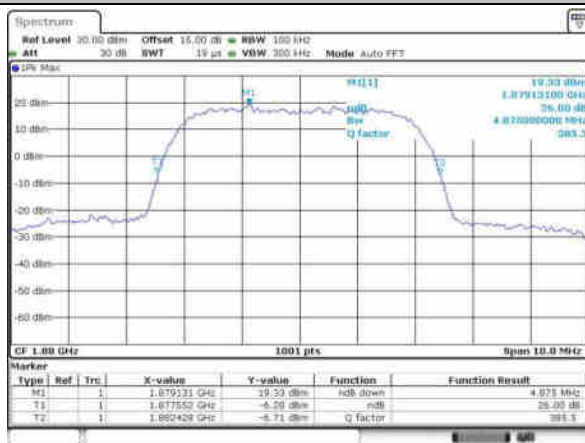
Defeat: 05_100C_2015 19x41x132

Middle Channel



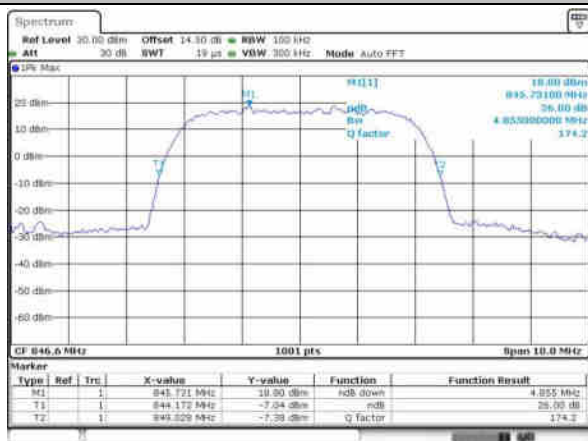
Defeat: 05_100C_2015 19x21x132

Middle Channel



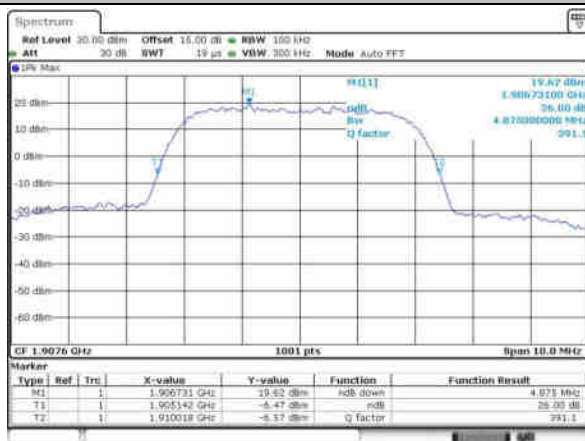
Defeat: 05_100C_2015 19x41x132

Highest Channel



Defeat: 05_100C_2015 19x21x131

Highest Channel

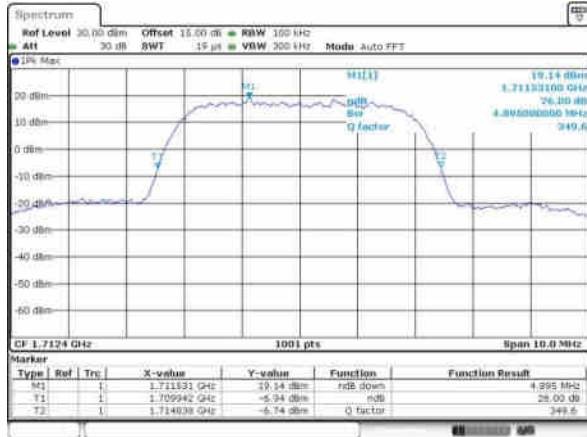


Defeat: 05_100C_2015 19x41x129

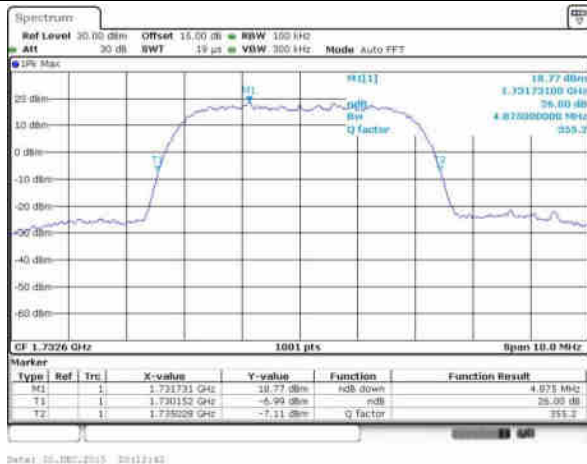


WCDMA Band IV (RMC 12.2Kbps)

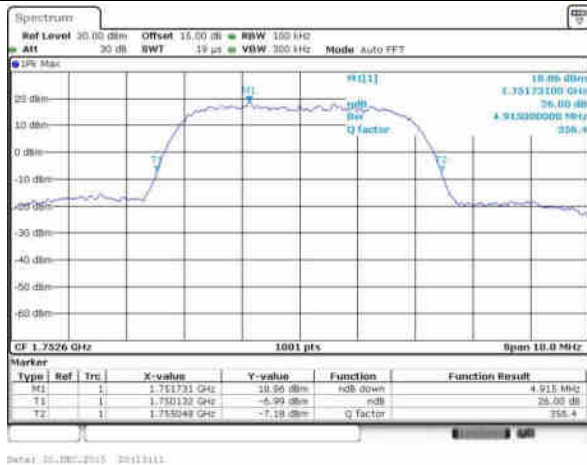
Lowest Channel



Middle Channel



Highest Channel



**Occupied Bandwidth**

Mode	GSM850	
Mod.	GSM	EDGE class 8
Lowest CH	0.244	0.239
Middle CH	0.244	0.238
Highest CH	0.244	0.236

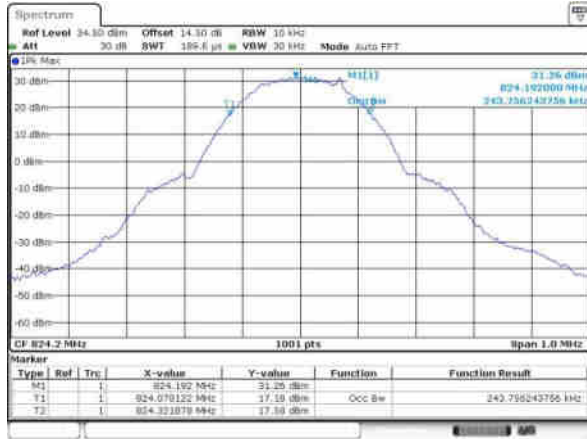
Mode	GSM1900	
Mod.	GSM	EDGE class 8
Lowest CH	0.243	0.244
Middle CH	0.244	0.246
Highest CH	0.244	0.242

Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.22	4.21	4.21
Middle CH	4.21	4.21	4.21
Highest CH	4.19	4.21	4.23



GSM850 (GSM)

Lowest Channel



Default: 31.260, 2005, 10000000

GSM850 (EDGE class 8)

Lowest Channel



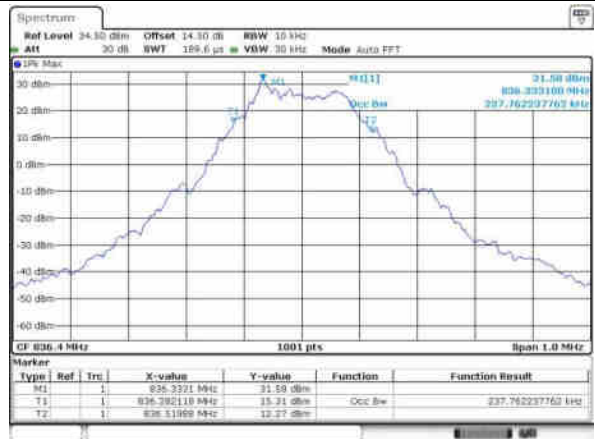
Default: 31.260, 2005, 10000000

Middle Channel



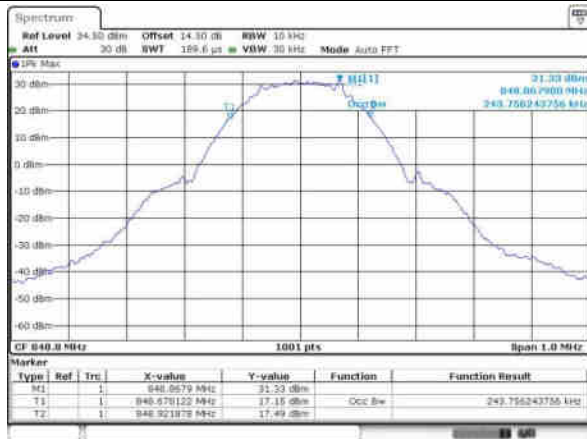
Default: 31.260, 2005, 10000000

Middle Channel



Default: 31.260, 2005, 10000000

Highest Channel



Default: 31.260, 2005, 10000000

Highest Channel



Default: 31.260, 2005, 10000000



GSM1900 (GSM)

Lowest Channel



Data: 21.08.2015 10:48:19

GSM1900 (EDGE class 8)

Lowest Channel



Data: 21.08.2015 09:07:42

Middle Channel



Data: 21.08.2015 10:48:19

Middle Channel



Data: 21.08.2015 09:08:01

Highest Channel



Data: 21.08.2015 10:48:25

Highest Channel

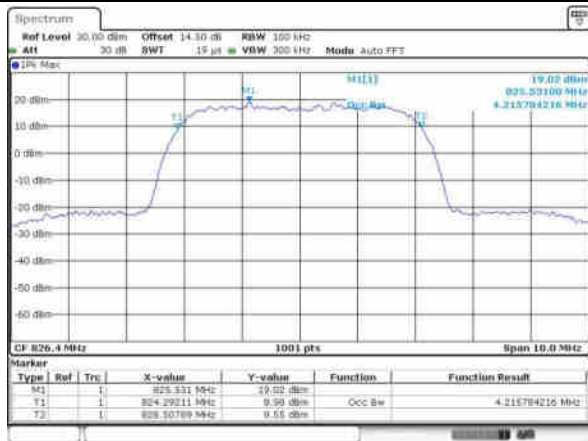


Data: 21.08.2015 09:08:26



WCDMA Band V (RMC 12.2Kbps)

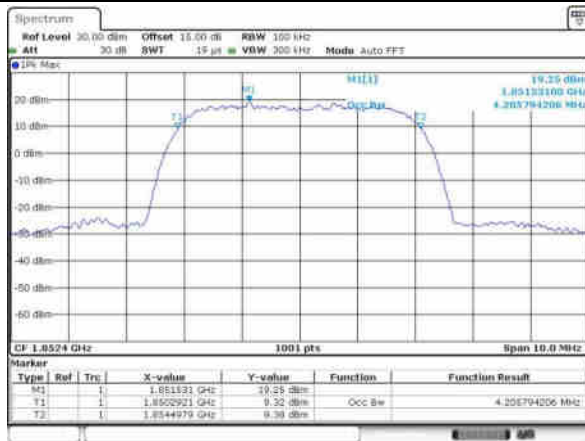
Lowest Channel



Data: 05_180C_2015 19x21x24

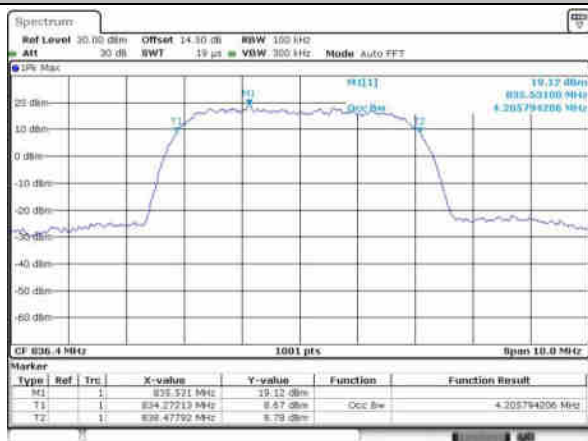
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



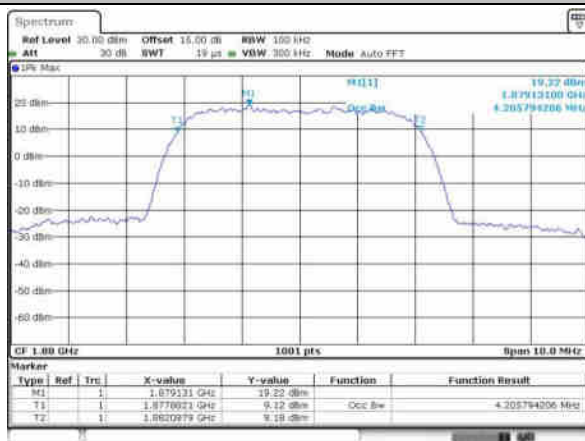
Data: 05_180C_2015 19x18x18

Middle Channel



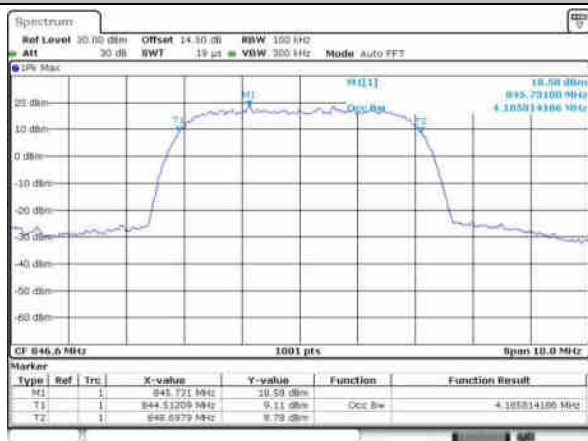
Data: 05_180C_2015 19x27x32

Middle Channel



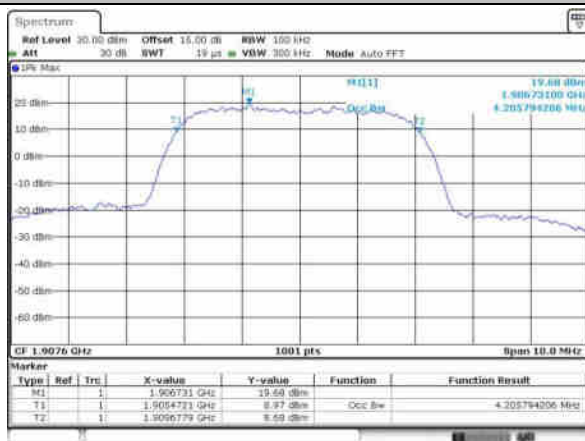
Data: 05_180C_2015 19x18x18

Highest Channel



Data: 05_180C_2015 19x28x32

Highest Channel

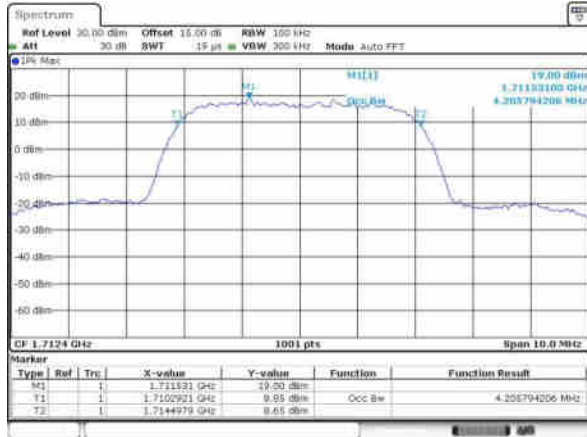


Data: 05_180C_2015 19x17x18



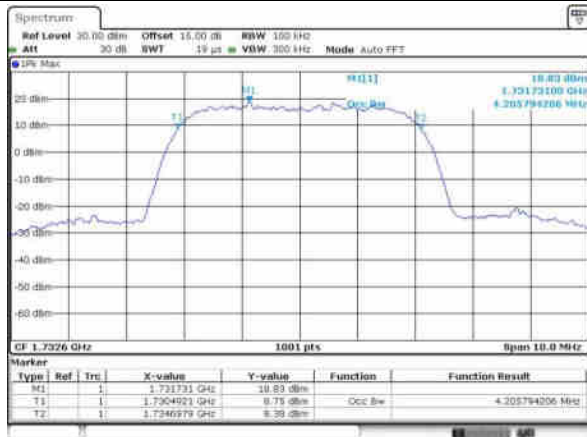
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



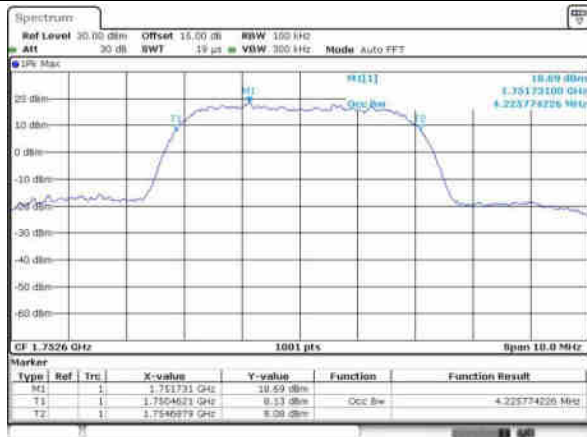
Default: 05_100C_2015 20151117

Middle Channel



Default: 05_100C_2015 20151118

Highest Channel



Default: 05_100C_2015 20151115

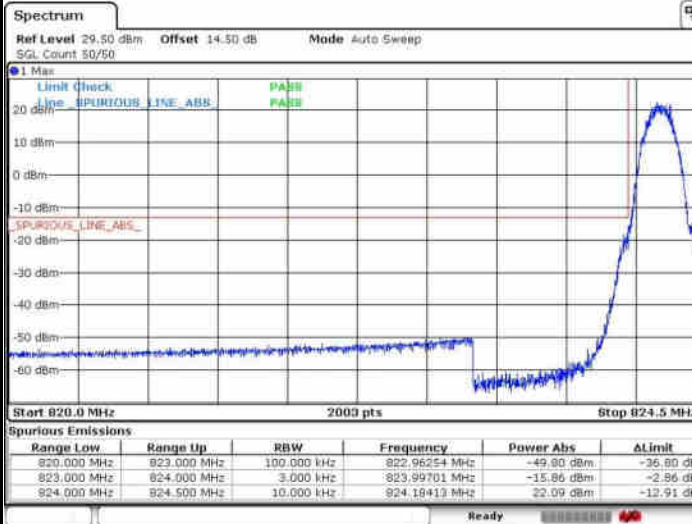


Conducted Band Edge

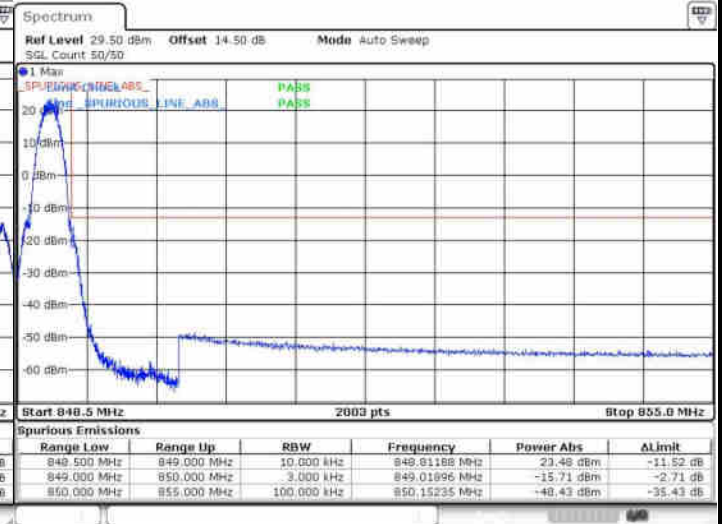


GSM850 (GSM)

Lowest Band Edge

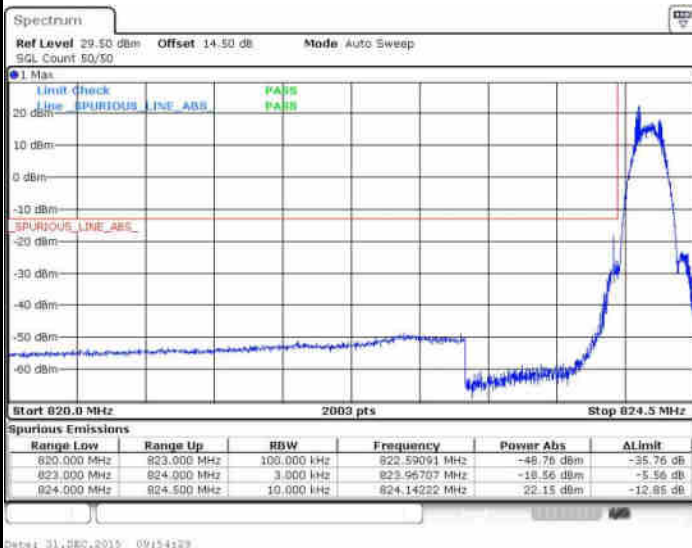


Highest Band Edge

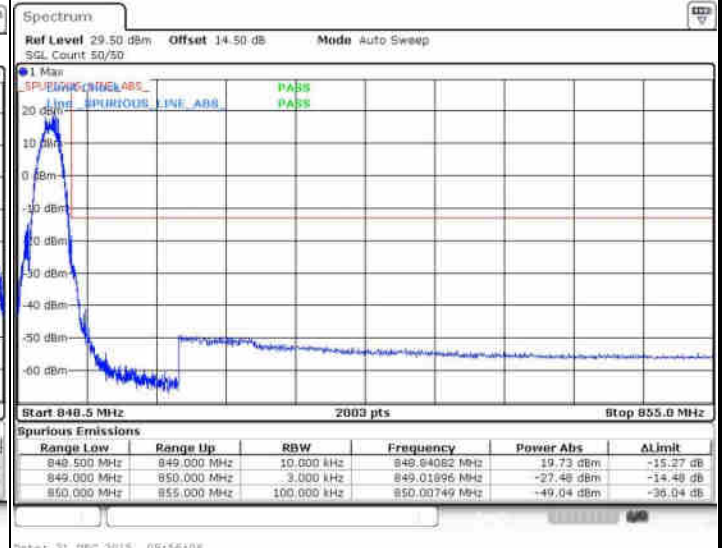


GSM850 (EDGE class 8)

Lowest Band Edge



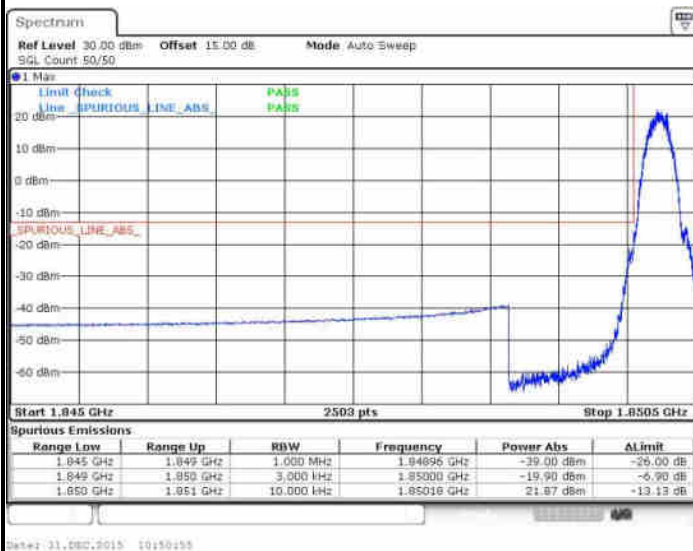
Highest Band Edge



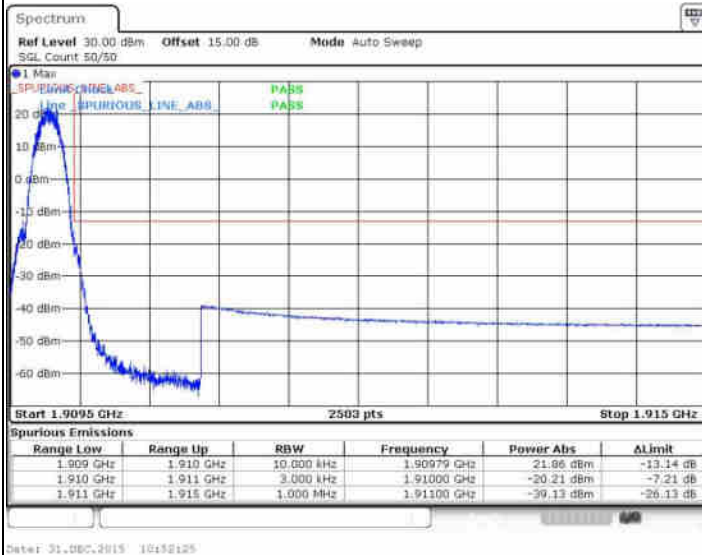


GSM1900 (GSM)

Lowest Band Edge

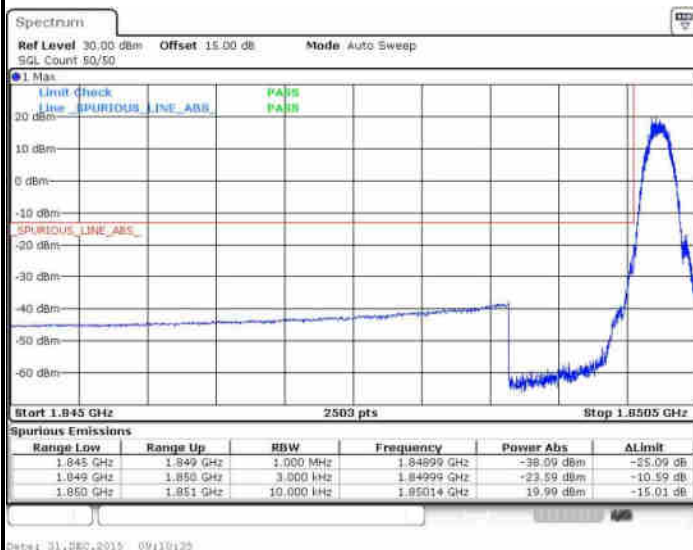


Highest Band Edge

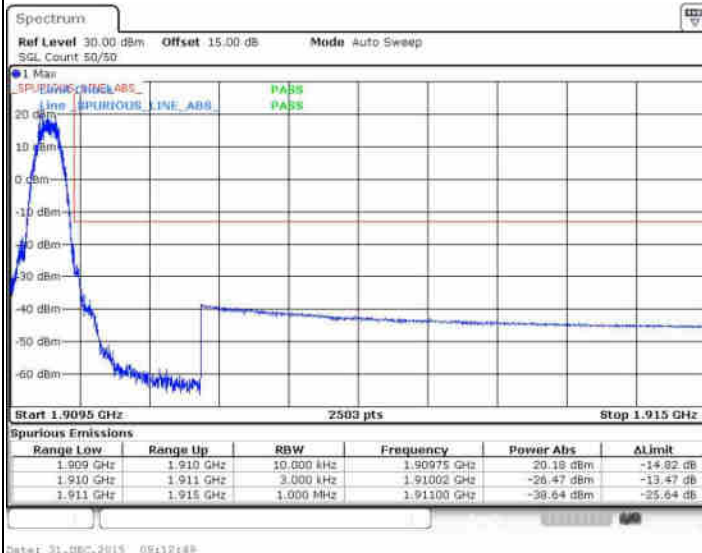


GSM1900 (EDGE class 8)

Lowest Band Edge



Highest Band Edge





WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge



Highest Band Edge

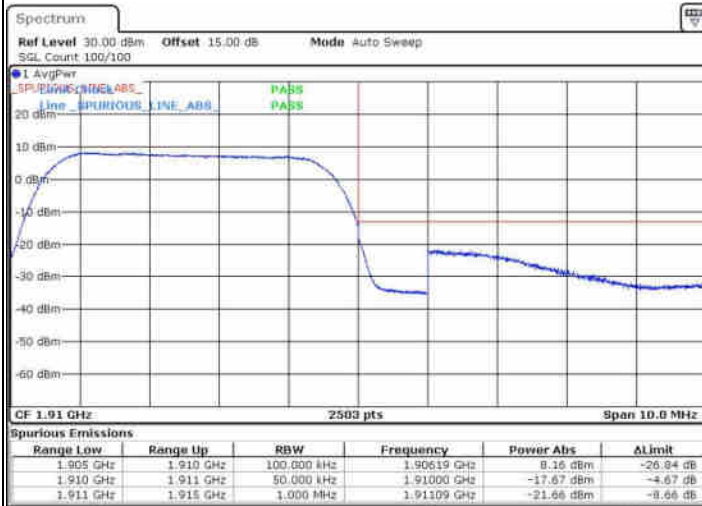


WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge



Highest Band Edge





WCDMA Band IV (RMC 12.2Kbps)

Lowest Band Edge



Highest Band Edge



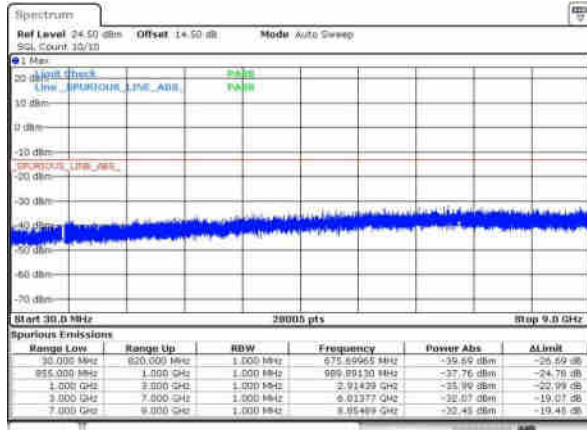


Conducted Spurious Emission



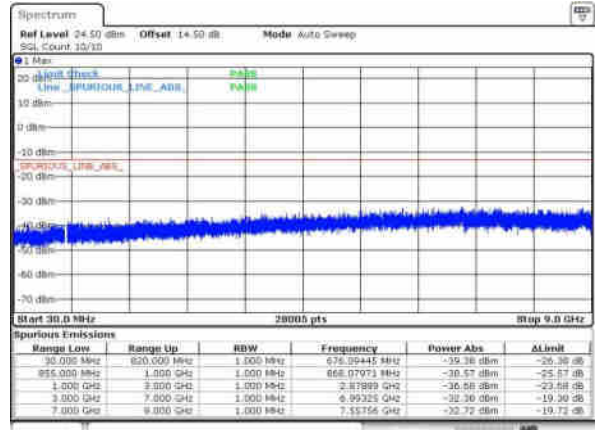
GSM850 (GSM)

Lowest Channel

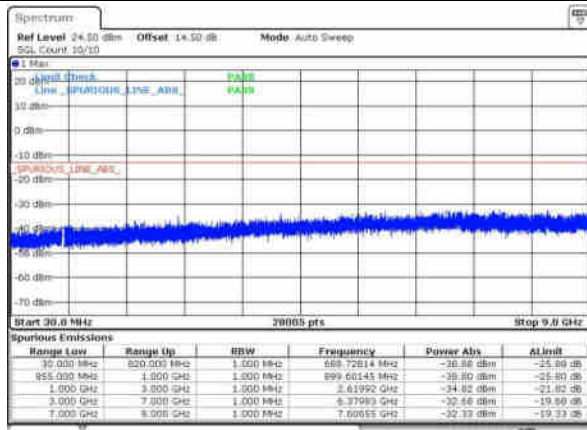


GSM850 (EDGE class 8)

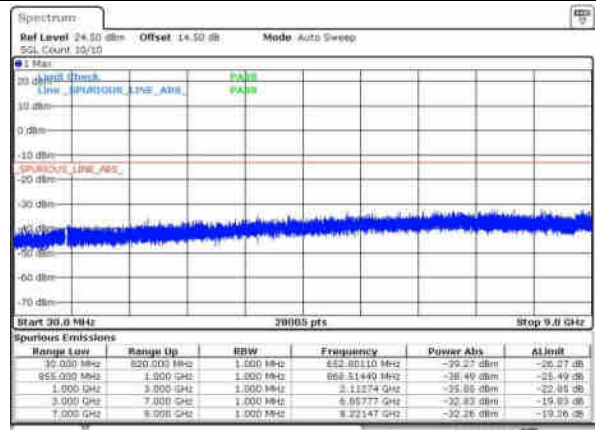
Lowest Channel



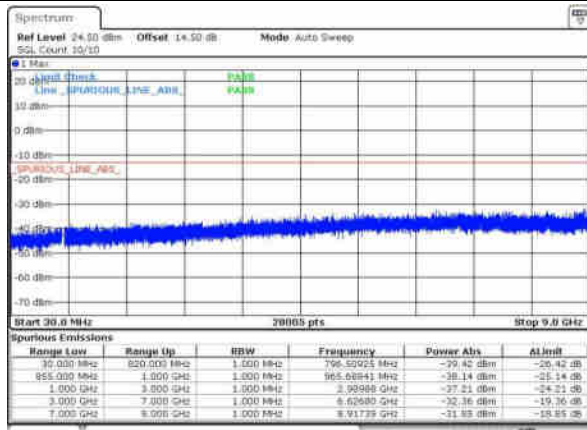
Middle Channel



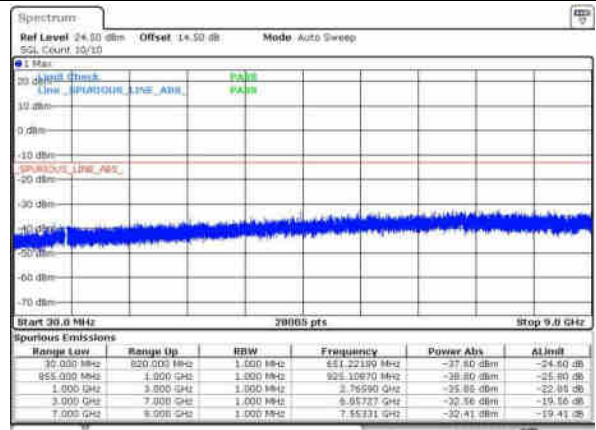
Middle Channel



Highest Channel



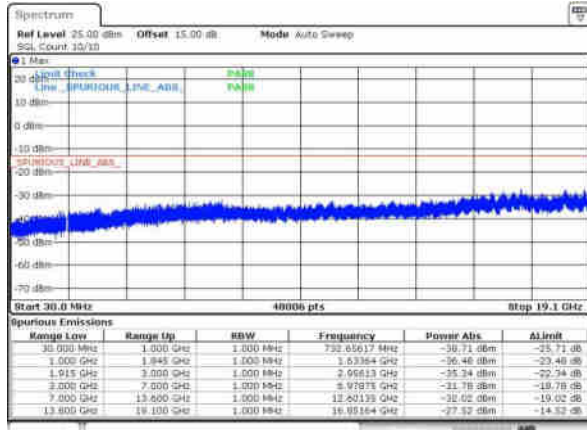
Highest Channel





GSM1900 (GSM)

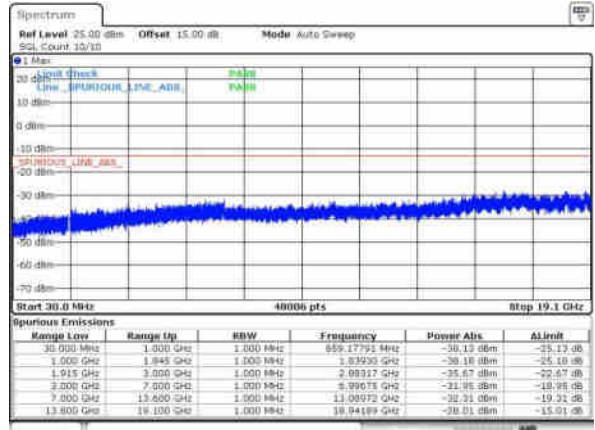
Lowest Channel



Data: 22.DEC.2015 10:55:25

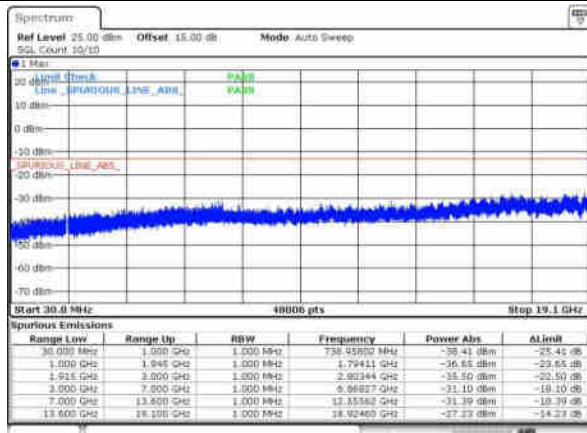
GSM1900 (EDGE class 8)

Lowest Channel

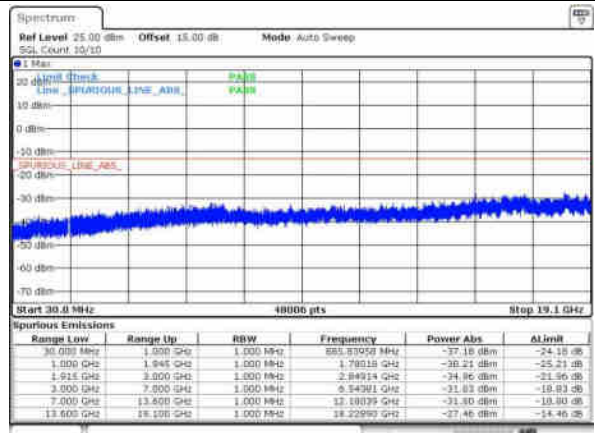


Data: 22.DEC.2015 09:11:27

Middle Channel

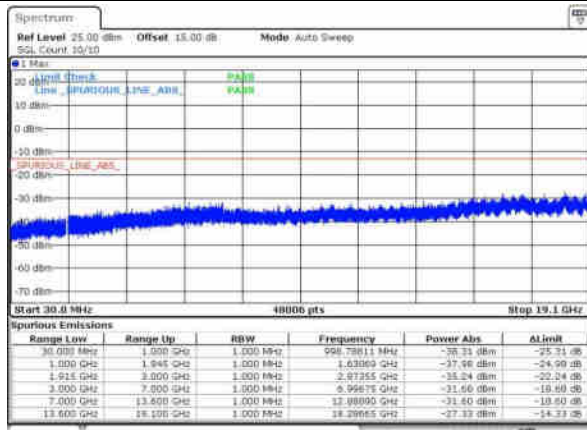


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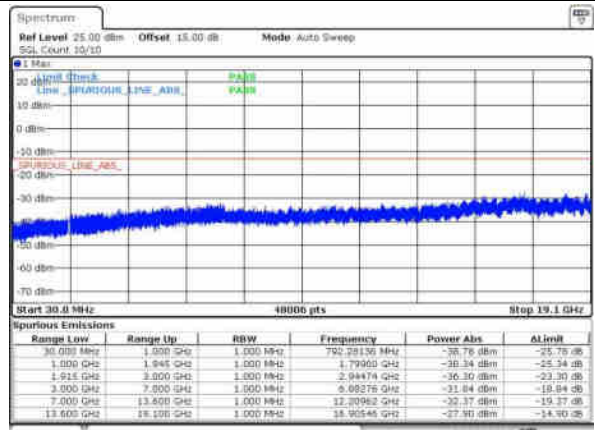


Data: 22.DEC.2015 09:13:02

Highest Channel



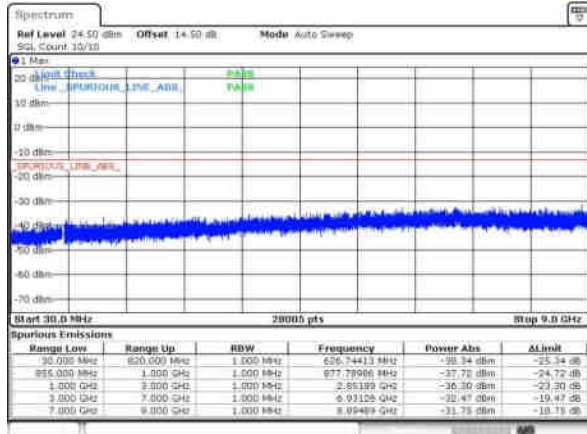
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Data: 22.DEC.2015 09:13:25

WCDMA Band V (RMC 12.2Kbps)

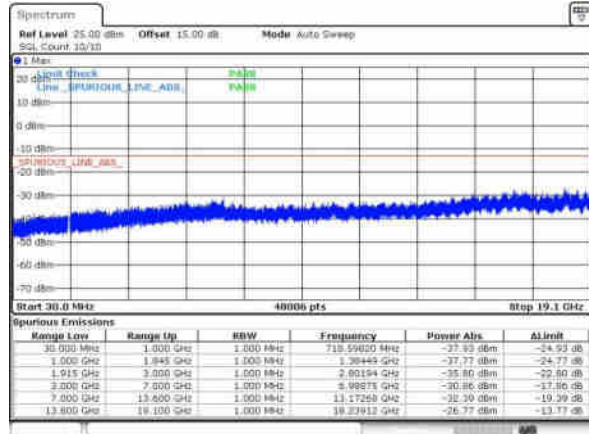
Lowest Channel



Dariusz W. Jędrzejak 1952-1998

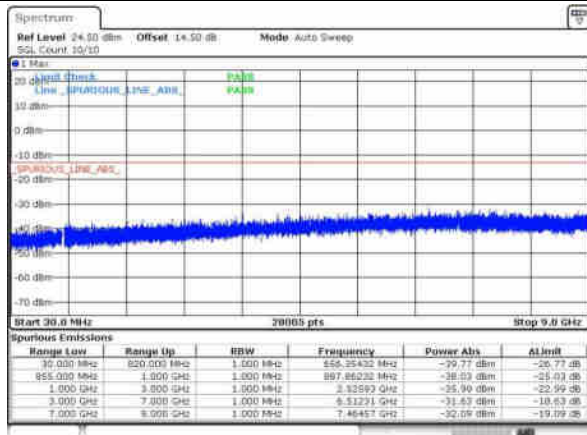
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



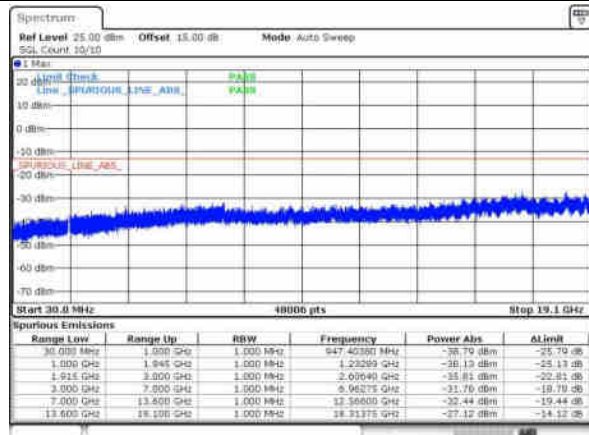
Date: 10 DEC 2016 09:20:12

Middle Channel

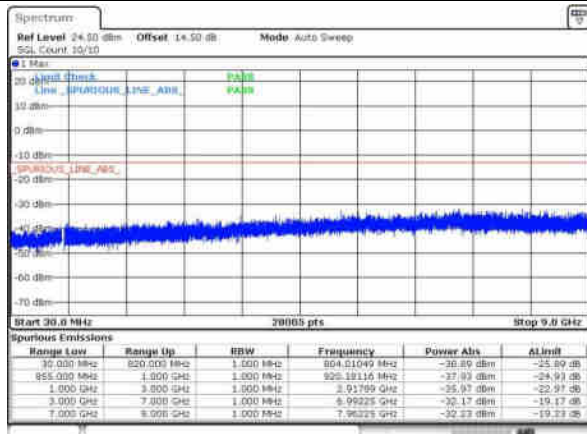


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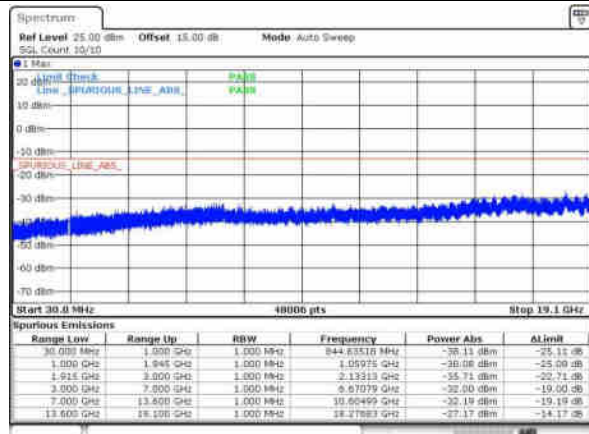
Middle Channel

[illegible]

Highest Channel

[illegible]

Highest Channel

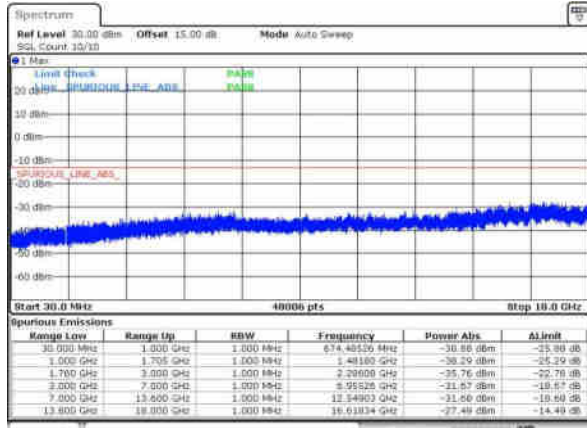


Detail: 00.000.0005 2010.02.26



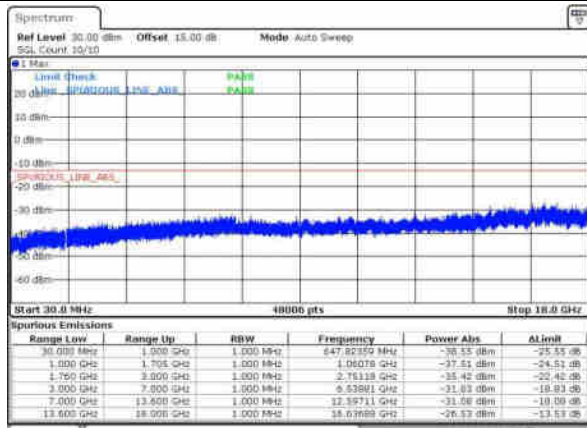
WCDMA Band IV (RMC 12.2Kbps)

Lowest Channel



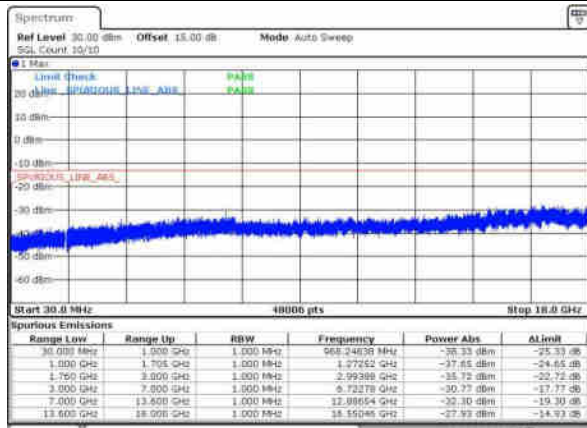
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Middle Channel



Default: 50.00000000 200000000

Highest Channel



Default: 50.00000000 200000000

**Frequency Stability**

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0012	0.0012	PASS
40	Normal Voltage	0.0084	0.0084	
30	Normal Voltage	0.0024	0.0048	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0012	0.0024	
0	Normal Voltage	0.0036	0.0048	
-10	Normal Voltage	0.0060	0.0072	
-20	Normal Voltage	0.0120	0.0120	
-30	Normal Voltage	0.0132	0.0191	
20	Maximum Voltage	0.0060	0.0072	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0036	0.0048	

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0144	0.0048	PASS
40	Normal Voltage	0.0048	0.0043	
30	Normal Voltage	0.0027	0.0021	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0011	0.0005	
0	Normal Voltage	0.0027	0.0021	
-10	Normal Voltage	0.0032	0.0032	
-20	Normal Voltage	0.0043	0.0043	
-30	Normal Voltage	0.0074	0.0096	
20	Maximum Voltage	0.0043	0.0043	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0027	0.0011	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2KbpsRMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0167	PASS
40	Normal Voltage	0.0143	
30	Normal Voltage	0.0120	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0024	
0	Normal Voltage	0.0048	
-10	Normal Voltage	0.0108	
-20	Normal Voltage	0.0143	
-30	Normal Voltage	0.0203	
20	Maximum Voltage	0.0060	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0120	



Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0053	PASS
40	Normal Voltage	0.0027	
30	Normal Voltage	0.0011	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0011	
0	Normal Voltage	0.0021	
-10	Normal Voltage	0.0048	
-20	Normal Voltage	0.0069	
-30	Normal Voltage	0.0080	
20	Maximum Voltage	0.0027	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0043	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0081	PASS
40	Normal Voltage	0.0069	
30	Normal Voltage	0.0052	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0023	
-10	Normal Voltage	0.0040	
-20	Normal Voltage	0.0046	
-30	Normal Voltage	0.0081	
20	Maximum Voltage	0.0017	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	

Note:

1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5V. ; Maximum Voltage =4.35V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



Appendix B. Test Results of Radiated Test

ERP/EIRP

Channel	Mode	Horizontal		Vertical	
		ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	GSM850 GSM	27.05	0.5070	26.56	0.4529
Middle		27.80	0.6026	26.47	0.4436
Highest		28.04	0.6368	27.10	0.5129
Lowest	GSM850 EDGE class 8	20.87	0.1222	20.45	0.1109
Middle		21.57	0.1435	20.48	0.1117
Highest		21.83	0.1524	20.05	0.1012
Lowest	WCDMA Band V RMC 12.2Kbps	16.84	0.0483	16.57	0.0454
Middle		17.05	0.0507	16.48	0.0445
Highest		17.81	0.0604	16.52	0.0449
Limit	ERP < 7W	Result		PASS	



Channel	Mode	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900 GSM	28.59	0.7228	28.86	0.7691
Middle		29.86	0.9683	28.27	0.6714
Highest		28.68	0.7379	29.28	0.8472
Lowest	GSM1900 EDGE class 8	24.96	0.3133	25.12	0.3251
Middle		25.74	0.3750	24.96	0.3133
Highest		25.18	0.3296	25.58	0.3614
Lowest	WCDMA Band II RMC 12.2Kbps	21.61	0.1449	21.62	0.1452
Middle		22.46	0.1762	21.44	0.1393
Highest		20.15	0.1035	21.86	0.1535
Limit	EIRP < 2W	Result		PASS	

Channel	Mode	Horizontal		Vertical	
		EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	WCDMA Band IV RMC 12.2Kbps	22.16	0.1644	19.94	0.0986
Middle		22.26	0.1683	21.53	0.1422
Highest		22.23	0.1671	21.19	0.1315
Limit	EIRP < 1W	Result		PASS	



Radiated Spurious Emission

GSM850 (GSM)									
Channel	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)
Lowest	1648.4	-60.07	-13	-47.07	-62.38	-58.50	4.92	5.50	H
	2472.6	-56.60	-13	-43.60	-62.89	-54.14	6.11	5.80	H
	3296.8	-54.71	-13	-41.71	-63.43	-53.33	7.33	8.10	H
	1648.4	-56.30	-13	-43.30	-58.78	-54.73	4.92	5.50	V
	2472.6	-54.24	-13	-41.24	-59.82	-51.78	6.11	5.80	V
	3296.8	-56.88	-13	-43.88	-65.11	-55.50	7.33	8.10	V
Middle	1672	-58.43	-13	-45.43	-60.74	-56.86	4.92	5.50	H
	2510	-56.57	-13	-43.57	-62.86	-54.11	6.11	5.80	H
	3346	-55.60	-13	-42.60	-64.32	-54.22	7.33	8.10	H
	1672	-55.47	-13	-42.47	-57.95	-53.90	4.92	5.50	V
	2510	-56.70	-13	-43.70	-62.28	-54.24	6.11	5.80	V
	3346	-55.78	-13	-42.78	-64.01	-54.40	7.33	8.10	V
Highest	1697.6	-61.55	-13	-48.55	-63.86	-59.98	4.92	5.50	H
	2546.4	-58.90	-13	-45.90	-65.19	-56.44	6.11	5.80	H
	3395.2	-55.33	-13	-42.33	-64.05	-53.95	7.33	8.10	H
	1697.6	-57.64	-13	-44.64	-60.12	-56.07	4.92	5.50	V
	2546.4	-56.99	-13	-43.99	-62.57	-54.53	6.11	5.80	V
	3395.2	-56.56	-13	-43.56	-64.79	-55.18	7.33	8.10	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



GSM850 (EDGE class 8)									
Channel	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)
Lowest	1648.4	-62.18	-13	-49.18	-64.49	-60.61	4.92	5.50	H
	2472.6	-59.40	-13	-46.40	-65.69	-56.94	6.11	5.80	H
	3296.8	-58.15	-13	-45.15	-66.87	-56.77	7.33	8.10	H
	1648.4	-61.66	-13	-48.66	-64.14	-60.09	4.92	5.50	V
	2472.6	-59.51	-13	-46.51	-65.09	-57.05	6.11	5.80	V
	3296.8	-58.62	-13	-45.62	-66.85	-57.24	7.33	8.10	V
Middle	1672	-62.62	-13	-49.62	-64.93	-61.05	4.92	5.50	H
	2510	-59.15	-13	-46.15	-65.44	-56.69	6.11	5.80	H
	3346	-57.57	-13	-44.57	-66.29	-56.19	7.33	8.10	H
	1672	-61.87	-13	-48.87	-64.35	-60.30	4.92	5.50	V
	2510	-59.50	-13	-46.50	-65.08	-57.04	6.11	5.80	V
	3346	-58.36	-13	-45.36	-66.59	-56.98	7.33	8.10	V
Highest	1697.6	-62.52	-13	-49.52	-64.83	-60.95	4.92	5.50	H
	2546.4	-59.21	-13	-46.21	-65.50	-56.75	6.11	5.80	H
	3395.2	-57.82	-13	-44.82	-66.54	-56.44	7.33	8.10	H
	1697.6	-61.79	-13	-48.79	-64.27	-60.22	4.92	5.50	V
	2546.4	-60.19	-13	-47.19	-65.77	-57.73	6.11	5.80	V
	3395.2	-57.45	-13	-44.45	-65.68	-56.07	7.33	8.10	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



GSM1900 (GSM)									
Channel	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)
Lowest	3700.4	-48.98	-13	-35.98	-69.31	-60.71	0.87	12.60	H
	5550.6	-51.37	-13	-38.37	-74.24	-63.40	1.07	13.10	H
	7400.8	-50.06	-13	-37.06	-75.19	-59.67	1.69	11.30	H
	3700.4	-48.50	-13	-35.50	-70.06	-60.23	0.87	12.60	V
	5550.6	-50.86	-13	-37.86	-73.61	-62.89	1.07	13.10	V
	7400.8	-50.19	-13	-37.19	-75.1	-59.62	1.87	11.30	V
Middle	3760	-47.04	-13	-34.04	-67.37	-58.77	0.87	12.60	H
	5640	-50.22	-13	-37.22	-73.09	-62.25	1.07	13.10	H
	7520	-50.36	-13	-37.36	-75.49	-59.97	1.69	11.30	H
	3760	-49.38	-13	-36.38	-70.94	-61.11	0.87	12.60	V
	5640	-50.28	-13	-37.28	-73.03	-62.31	1.07	13.10	V
	7520	-50.71	-13	-37.71	-75.62	-60.14	1.87	11.30	V
Highest	3819.6	-48.20	-13	-35.20	-68.53	-59.93	0.87	12.60	H
	5729.4	-50.69	-13	-37.69	-73.56	-62.72	1.07	13.10	H
	7639.2	-50.55	-13	-37.55	-75.68	-60.16	1.69	11.30	H
	3819.6	-46.30	-13	-33.30	-67.86	-58.03	0.87	12.60	V
	5729.4	-51.07	-13	-38.07	-73.82	-63.10	1.07	13.10	V
	7639.2	-50.74	-13	-37.74	-75.65	-60.17	1.87	11.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



GSM1900 (EDGE class 8)									
Channel	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)
Lowest	3700.4	-49.70	-13	-36.70	-70.03	-61.43	0.87	12.60	H
	5550.6	-51.22	-13	-38.22	-74.09	-63.25	1.07	13.10	H
	7400.8	-50.15	-13	-37.15	-75.28	-59.76	1.69	11.30	H
	3700.4	-51.31	-13	-38.31	-72.87	-63.04	0.87	12.60	V
	5550.6	-50.82	-13	-37.82	-73.57	-62.85	1.07	13.10	V
	7400.8	-50.22	-13	-37.22	-75.13	-59.65	1.87	11.30	V
Middle	3760	-52.02	-13	-39.02	-72.35	-63.75	0.87	12.60	H
	5640	-50.63	-13	-37.63	-73.50	-62.66	1.07	13.10	H
	7520	-50.40	-13	-37.40	-75.53	-60.01	1.69	11.30	H
	3760	-50.51	-13	-37.51	-72.07	-62.24	0.87	12.60	V
	5640	-50.90	-13	-37.90	-73.65	-62.93	1.07	13.10	V
	7520	-50.82	-13	-37.82	-75.73	-60.25	1.87	11.30	V
Highest	3819.6	-51.49	-13	-38.49	-71.82	-63.22	0.87	12.60	H
	5729.4	-50.82	-13	-37.82	-73.69	-62.85	1.07	13.10	H
	7639.2	-49.27	-13	-36.27	-74.40	-58.88	1.69	11.30	H
	3819.6	-49.66	-13	-36.66	-71.22	-61.39	0.87	12.60	V
	5729.4	-50.55	-13	-37.55	-73.3	-62.58	1.07	13.10	V
	7639.2	-50.72	-13	-37.72	-75.63	-60.15	1.87	11.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



WCDMA Band V(RMC 12.2Kbps)									
Channel	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)
Lowest	1652.8	-57.65	-13	-44.65	-59.96	-56.08	4.92	5.50	H
	2479.2	-42.37	-13	-29.37	-51.58	-39.91	6.11	5.80	H
	3305.6	-56.73	-13	-43.73	-65.45	-55.35	7.33	8.10	H
	1652.8	-57.46	-13	-44.46	-59.94	-55.89	4.92	5.50	V
	2479.2	-48.14	-13	-35.14	-55.44	-45.68	6.11	5.80	V
	3305.6	-58.07	-13	-45.07	-66.30	-56.69	7.33	8.10	V
Middle	1672	-57.58	-13	-44.58	-59.89	-56.01	4.92	5.50	H
	2510	-56.32	-13	-43.32	-62.61	-53.86	6.11	5.80	H
	3346	-58.36	-13	-45.36	-67.08	-56.98	7.33	8.10	H
	1672	-57.30	-13	-44.30	-59.78	-55.73	4.92	5.50	V
	2510	-52.85	-13	-39.85	-58.46	-50.39	6.11	5.80	V
	3346	-58.61	-13	-45.61	-66.84	-57.23	7.33	8.10	V
Highest	1693.2	-56.69	-13	-43.69	-59.00	-55.12	4.92	5.50	H
	2539.8	-56.00	-13	-43.00	-62.29	-53.54	6.11	5.80	H
	3386.4	-58.16	-13	-45.16	-66.88	-56.78	7.33	8.10	H
	1693.2	-55.65	-13	-42.65	-58.13	-54.08	4.92	5.50	V
	2539.8	-50.32	-13	-37.32	-57.02	-47.86	6.11	5.80	V
	3386.4	-58.30	-13	-45.30	-66.53	-56.92	7.33	8.10	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



WCDMA Band II(RMC 12.2Kbps)									
Channel	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)
Lowest	3704.8	-52.11	-13	-39.11	-72.44	-63.84	0.87	12.60	H
	5557.2	-50.72	-13	-37.72	-73.59	-62.75	1.07	13.10	H
	7409.6	-50.65	-13	-37.65	-75.78	-60.26	1.69	11.30	H
	3704.8	-50.55	-13	-37.55	-72.11	-62.28	0.87	12.60	V
	5557.2	-50.65	-13	-37.65	-73.4	-62.68	1.07	13.10	V
	7409.6	-50.55	-13	-37.55	-75.46	-59.98	1.87	11.30	V
Middle	3760	-52.80	-13	-39.80	-73.13	-64.53	0.87	12.60	H
	5640	-49.99	-13	-36.99	-72.86	-62.02	1.07	13.10	H
	7520	-49.92	-13	-36.92	-75.05	-59.53	1.69	11.30	H
	3760	-51.25	-13	-38.25	-72.81	-62.98	0.87	12.60	V
	5640	-50.33	-13	-37.33	-73.08	-62.36	1.07	13.10	V
	7520	-50.68	-13	-37.68	-75.59	-60.11	1.87	11.30	V
Highest	3815.2	-51.38	-13	-38.38	-71.71	-63.11	0.87	12.60	H
	5722.8	-49.96	-13	-36.96	-72.83	-61.99	1.07	13.10	H
	7630.4	-50.35	-13	-37.35	-75.48	-59.96	1.69	11.30	H
	3815.2	-50.89	-13	-37.89	-72.45	-62.62	0.87	12.60	V
	5722.8	-49.85	-13	-36.85	-72.6	-61.88	1.07	13.10	V
	7630.4	-50.31	-13	-37.31	-75.22	-59.74	1.87	11.30	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



WCDMA Band IV(RMC 12.2Kbps)									
Channel	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)
Lowest	3424.8	-52.97	-13	-39.97	-71.75	-64.72	0.85	12.60	H
	5137.2	-49.24	-13	-36.24	-72.53	-60.99	0.95	12.70	H
	6849.6	-50.13	-13	-37.13	-74.51	-60.65	1.18	11.70	H
	3424.8	-51.32	-13	-38.32	-72.41	-63.07	0.85	12.60	V
	5137.2	-53.27	-13	-40.27	-72.5	-65.02	0.95	12.70	V
	6849.6	-50.93	-13	-37.93	-75.24	-61.45	1.18	11.70	V
Middle	3465.2	-51.37	-13	-38.37	-70.15	-63.12	0.85	12.60	H
	5197.8	-49.09	-13	-36.09	-72.38	-60.84	0.95	12.70	H
	6930.4	-50.69	-13	-37.69	-75.07	-61.21	1.18	11.70	H
	3465.2	-51.24	-13	-38.24	-72.33	-62.99	0.85	12.60	V
	5197.8	-53.09	-13	-40.09	-72.32	-64.84	0.95	12.70	V
	6930.4	-50.32	-13	-37.32	-74.63	-60.84	1.18	11.70	V
Highest	3505.2	-51.30	-13	-38.30	-70.08	-63.05	0.85	12.60	H
	5257.8	-49.64	-13	-36.64	-72.93	-61.39	0.95	12.70	H
	7010.4	-50.92	-13	-37.92	-75.30	-61.44	1.18	11.70	H
	3505.2	-50.40	-13	-37.40	-71.49	-62.15	0.85	12.60	V
	5257.8	-53.40	-13	-40.40	-72.63	-65.15	0.95	12.70	V
	7010.4	-50.88	-13	-37.88	-75.19	-61.40	1.18	11.70	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.