FCC RF Test Report

APPLICANT : BLU Products, Inc.

EQUIPMENT: Mobile phone

BRAND NAME : BLU

MODEL NAME : STUDIO ONE

FCC ID : YHLBLUSTUDIOONE

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 Nov. 24, 2015 and testing was completed on Jan. 22, 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.

Prepared by: Andy Yeh / Manager

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Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL (SHENZHEN) INC.

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Testing Laboratory 2353

Report No.: FG5N2403A

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG5N2403A	Rev. 01	Initial issue of report	Mar. 03, 2016

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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	-
	§2.1055 §22.355	§22,355 RSS-132 (5,3)	Fraguency Stability for	< 2.5 ppm for Part 22		
3.9	§2.1055 §24.235 §27.54	RSS-GEN(6.11) RSS-133 (6.3) RSS-139 (6.4)	Frequency Stability for — Temperature & Voltage	Within Authorized Band	PASS	-

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Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	1
4.4	§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 24.34 dB at 5197.800 MHz

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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	STUDIO ONE				
FCC ID	YHLBLUSTUDIOONE				
	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/LTE				
EUT supports Radios application	WLAN2.4GHz 802.11b/g/n HT20/HT40				
	Bluetooth v3.0+EDR/Bluetooth v4.0 LE				
	Conducted: 359281015336210/359281015336210				
IMEI Code	Radiation: 868455018709482/868455018709680				
	ERP&EIRP: N/A				
HW Version	V1.1				
SW Version	BLU_S0110EE_V02_GENERIC				
EUT Stage	Pre-Production				

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. After pre-scan two SIM cards power, we found test result of the SIM1 was the worse, so we chose dual SIM1 card to perform all tests

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1.4 Product Specification of Equipment Under Test

Standards	-related Pro	oduct Specification	
	GSM/GPF	RS/EDGE:	
	850:	824.2 MHz ~ 848.8 MHz	
	1900:	1850.2 MHz ~ 1909.8MHz	
Tx Frequency	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	
	GSM/GPF	RS/EDGE:	
	850:	869.2 MHz ~ 893.8 MHz	
	1900:	1930.2 MHz ~ 1989.8 MHz	
Rx Frequency	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	
	GSM/GPF	RS/EDGE:	
	850:	32.37 dBm	
	1900:	29.54 dBm	
Maximum Output Power to Antenna	WCDMA:		
		23.06 dBm	
		22.87 dBm	
	Band IV:	23.57 dBm	
Antenna Type	PIFA Anten	na	
	GSM: GMSK		
	GPRS: GM	SK	
	EDGE: GMSK / 8PSK		
Type of Modulation	WCDMA: QPSK (Uplink)		
	HSDPA : QPSK (Uplink)		
	HSUPA : QPSK (Uplink)		
	HSPA+ : 16	SQAM (Uplink)	

1.5 Modification of EUT

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

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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	0.1574	0.0227 ppm	249KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.0515	0.0155 ppm	251KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.0225	0.0149 ppm	4M22F9W
Part 24	GSM1900 GSM	GMSK	1.2208	0.0149 ppm	247KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.6836	0.0117 ppm	257KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.2726	0.0191 ppm	4M24F9W
Part 27	WCDMA Band IV RMC 12.2Kbps	QPSK	0.1333	0.0162 ppm	4M22F9W

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1.7 Testing Location

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

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

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.

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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:

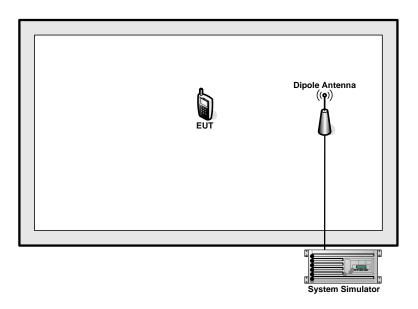
Test Modes						
Band	Radiated TCs	Conducted TCs				
GSM 850	■ GSM Link	■ GSM Link				
GSIVI 650	■ EDGE class 8 Link	■ EDGE class 8 Link				
GSM 1900	■ GSM Link	■ GSM Link				
GSW 1900	■ EDGE class 8 Link	■ EDGE class 8 Link				
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link				
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link				
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link				

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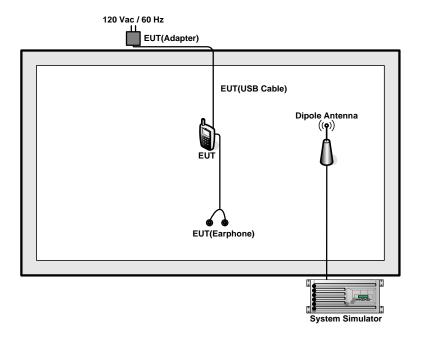
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2.2 Connection Diagram of Test System

For 22H/27L



For 24E



2.3 Support Unit used in test configuration

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

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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:

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).
=
$$4.5 + 10 = 14.5$$
 (dB)

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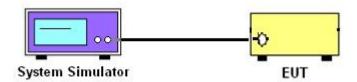
3 Conducted Test Result

3.1 Measuring Instruments

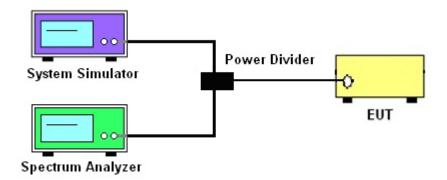
See list of measuring instruments of this test report.

3.2 Test Setup

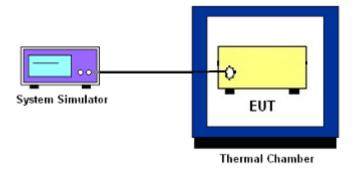
3.2.1 Conducted Output Power



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.

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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.
- Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

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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 v02r02 Section 5.7.1.
- 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
- 3. For GSM/EGPRS operating modes:
 - a. Set EUT in maximum power output.
 - b. Set the RBW = 1MHz, VBW = 3MHz, Peak detector on spectrum analyzer for first trace.
 - c. Set the RBW = 1MHz, VBW = 3MHz, RMS detector on spectrum analyzer for second trace.
 - d. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator has synchronized with the spectrum analyzer.
- 4. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option on the spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
- 5. Record the deviation as Peak to Average Ratio.

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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.

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

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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 + 10log(P) dB below the transmitter power P(Watts)
 - = P(W) [43 + 10log(P)] (dB)
- = [30 + 10log(P)] (dBm) [43 + 10log(P)] (dB)
- = -13dBm.

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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 ±0.00025% (±2.5ppm) 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±5° 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.

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4 Radiated Test Items

4.1 Measuring Instruments

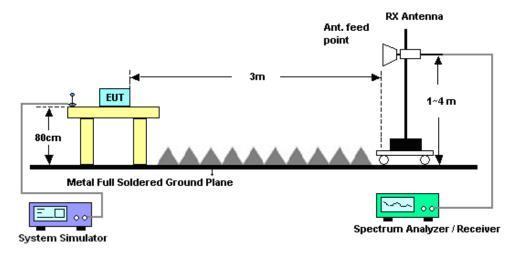
See list of measuring instruments of this test report.

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.

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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

- 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.
- 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 + Correction factor and ERP = EIRP 2.15. Take the record of the output power at substitution antenna.

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	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

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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

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

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5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP30	101400	9kHz~30GHz	Jan. 28, 2015	Nov. 27, 2015~ Dec. 27, 2015	Jan. 27, 2016	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Aug. 07, 2015	Nov. 27, 2015~ Dec. 27, 2015	Aug. 06, 2016	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Jun. 05, 2015	Jan. 01, 2016~ Jan. 22, 2016	Jun. 04, 2016	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz-2GHz	Jun. 25, 2015	Jan. 01, 2016~ Jan. 22, 2016	Jun. 24, 2016	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Jun. 25, 2015	Jan. 01, 2016~ Jan. 22, 2016	Jun. 24, 2016	Radiation (03CH03-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz ~40GHz	Mar. 03, 2015	Jan. 01, 2016~ Jan. 22, 2016	Mar. 02, 2016	Radiation (03CH03-KS)
Amplifier	Burgeon	BPA-530	102212	0.01MHz-3000MHz	Aug. 10, 2015	Jan. 01, 2016~ Jan. 22, 2016	Aug. 09, 2016	Radiation (03CH03-KS)
Amplifier	MITEQ	TTA1840-35 -HG	1887435	18~40GHz	Aug. 27, 2015	Jan. 01, 2016~ Jan. 22, 2016	Aug. 26, 2016	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 24, 2015	Jan. 01, 2016~ Jan. 22, 2016	Oct. 23, 2016	Radiation (03CH03-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jan. 01, 2016~ Jan. 22, 2016	NCR	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jan. 01, 2016~ Jan. 22, 2016	NCR	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jan. 01, 2016~ Jan. 22, 2016	NCR	Radiation (03CH03-KS)

NCR: No Calibration Required

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6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	4.5dB
Confidence of 95% (U = 2Uc(y))	4.305

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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

SIM1 Card:

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	32.37	32.24	32.26	29.38	29.39	<mark>29.54</mark>	
GPRS class 8	32.35	32.23	32.24	29.31	29.38	29.51	
GPRS class 10	30.58	30.40	30.42	27.12	27.45	27.92	
GPRS class 11	28.55	28.36	28.37	24.96	25.37	25.96	
GPRS class 12	27.51	27.32	27.34	23.99	24.30	24.90	
EGPRS class 8	27.95	27.92	27.82	27.06	27.21	27.07	
EGPRS class 10	25.40	25.39	25.35	24.70	24.92	24.89	
EGPRS class 11	23.64	23.62	23.61	22.85	23.00	22.90	
EGPRS class 12	22.70	22.67	22.62	21.86	22.05	21.97	

Conducted Power (*Unit: dBm)									
Band	WCDMA Band V		WC	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	23.00	22.91	23.01	22.60	22.82	22.85	23.54	23.11	22.84
RMC 12.2K	23.01	22.93	23.06	22.64	22.86	<mark>22.87</mark>	23.57	23.13	22.89
HSDPA Subtest-1	21.76	21.59	21.77	21.45	21.75	21.60	22.35	21.94	21.66
HSDPA Subtest-2	21.75	21.64	21.81	21.48	21.79	21.63	22.36	21.92	21.72
HSDPA Subtest-3	21.32	21.20	21.39	21.02	21.32	21.15	21.89	21.43	21.29
HSDPA Subtest-4	21.31	21.21	21.37	20.97	21.31	21.14	21.88	21.44	21.26
HSUPA Subtest-1	19.68	19.72	19.85	19.46	19.80	19.65	20.44	19.91	19.78
HSUPA Subtest-2	19.69	19.72	19.79	19.47	19.80	19.65	20.40	19.95	19.79
HSUPA Subtest-3	20.70	20.75	20.86	20.47	20.80	20.63	21.35	20.95	20.75
HSUPA Subtest-4	19.17	19.14	19.33	18.93	19.28	19.15	19.91	19.39	19.26
HSUPA Subtest-5	21.60	21.70	21.80	21.40	21.70	21.50	22.30	21.90	21.70
HSPA+ (16QAM) Subtest-1	20.55	20.41	20.67	20.95	21.09	21.59	21.42	20.79	20.72

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Peak-to-Average Ratio

Mode	GSN	Limit: 13dB	
Mod.	GSM EDGE class 8		Result
Lowest CH	0.20	3.00	
Middle CH	0.20	3.24	PASS
Highest CH	0.24	3.20	

Mode	GSM	Limit: 13dB	
Mod.	GSM EDGE class 8		Result
Lowest CH	0.16	3.00	
Middle CH	0.24	2.76	PASS
Highest CH	0.20	2.64	

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	3.20	2.84	2.72	
Middle CH	3.12	2.36	2.64	PASS
Highest CH	3.24	2.16	2.64	

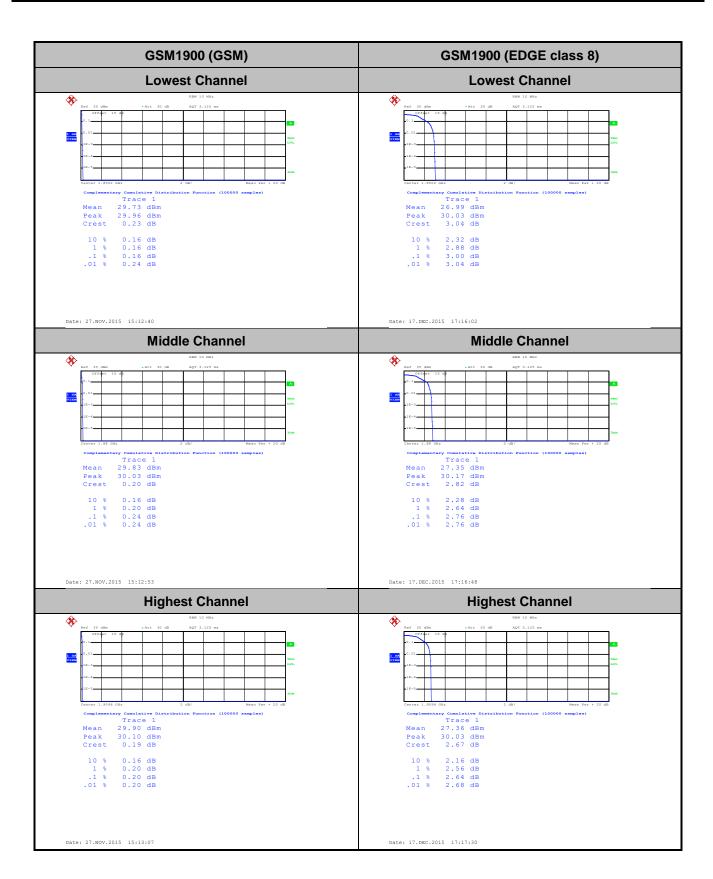
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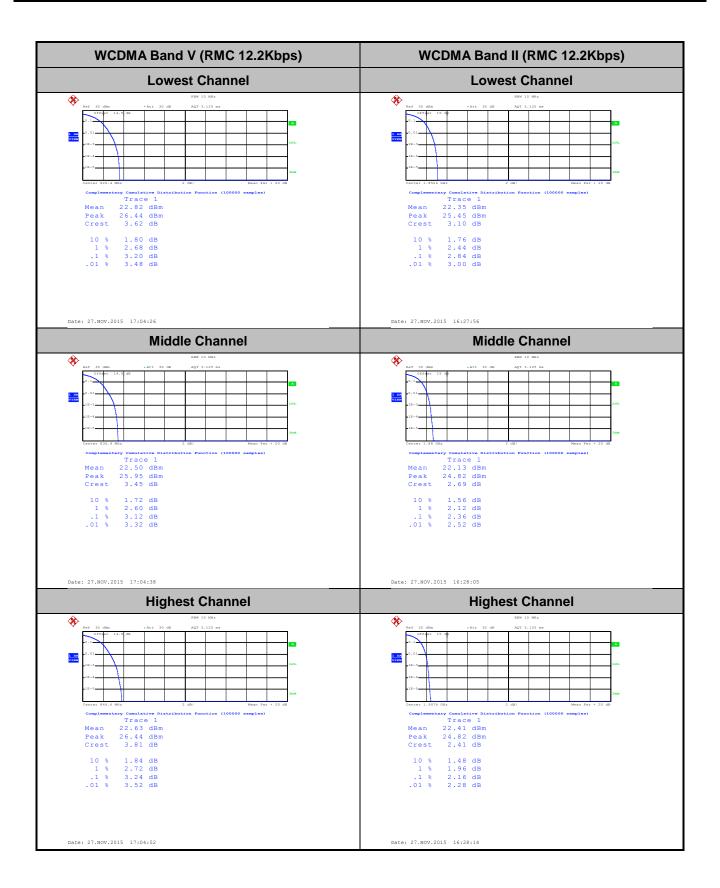
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GSM850 (GSM) GSM850 (EDGE class 8) **Lowest Channel Lowest Channel** * Trace 1 33.16 dBm 33.41 dBm 0.25 dB Trace 1 27.91 dBm 30.94 dBm 3.04 dB 10 % 1 % .1 % 10 % 1 % .1 % **Middle Channel Middle Channel** * * Trace 1 33.00 dBm 33.27 dBm 0.26 dB Trace 1 27.39 dBm 30.73 dBm 3.34 dB Date: 27.NOV.2015 14:24:21 **Highest Channel Highest Channel %** * Peak Crest Peak Crest 0.16 dB 0.24 dB 0.24 dB 0.24 dB 2.52 dB 3.08 dB 3.20 dB 3.24 dB Date: 27.NOV.2015 14:24:33 Date: 17.DEC.2015 17:48:33

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WCDMA Band IV (RMC 12.2Kbps) **Lowest Channel** * Peak Crest Date: 27.NOV.2015 16:41:31 **Middle Channel** * 1.64 dB 2.32 dB 2.64 dB 2.80 dB **Highest Channel %** Trace 1

Mean 21.63 dBm

Peak 24.53 dBm

Crest 2.91 dB

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26dB Bandwidth

Mode	GSM850				
Mod.	GSM	EDGE class 8			
Lowest CH	0.313	0.293			
Middle CH	0.311	0.312			
Highest CH	0.310	0.289			

Mode	GSM1900				
Mod.	GSM	EDGE class 8			
Lowest CH	0.311	0.317			
Middle CH	0.308	0.312			
Highest CH	0.308	0.324			

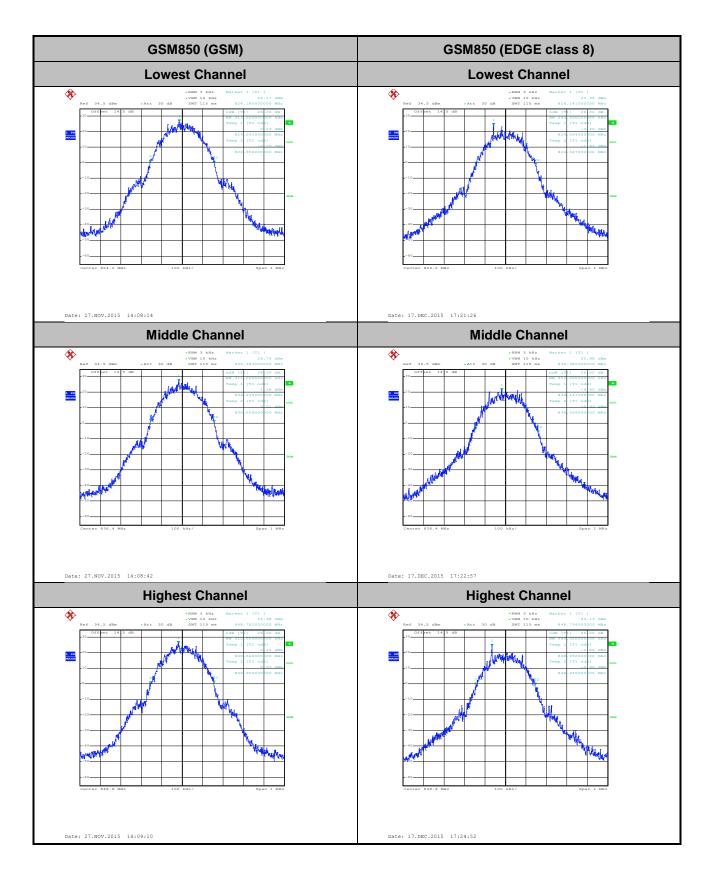
Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.84	4.85	4.87
Middle CH	4.83	4.86	4.87
Highest CH	4.84	4.91	4.87

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GSM1900 (GSM) GSM1900 (EDGE class 8) **Lowest Channel Lowest Channel** Date: 27.NOV.2015 14:47:45 **Middle Channel Middle Channel** Date: 17.DEC.2015 17:05:54 **Highest Channel Highest Channel %** *

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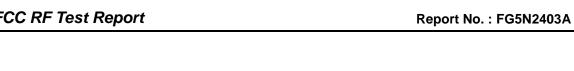
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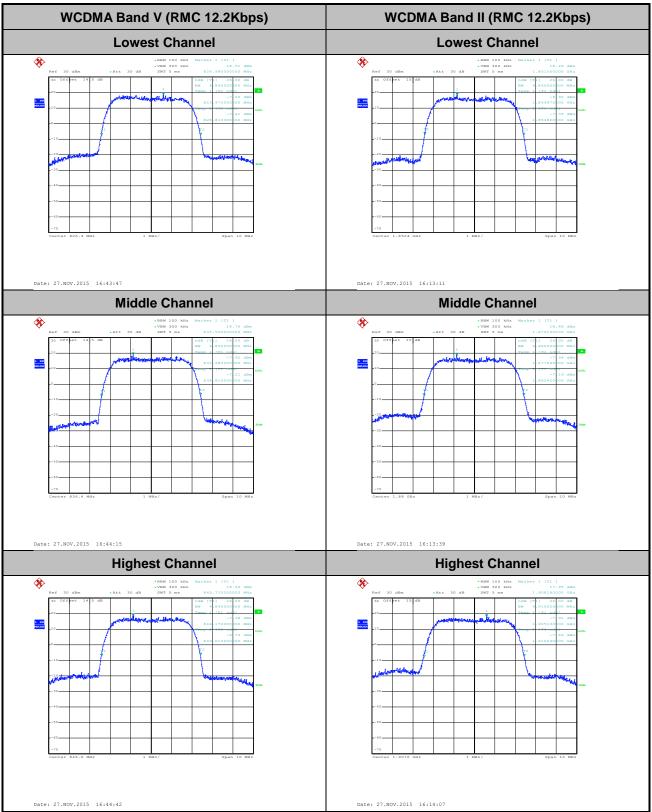
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Date: 17.DEC.2015 17:06:30

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WCDMA Band IV (RMC 12.2Kbps) **Lowest Channel** * Date: 27.NOV.2015 16:29:26 **Middle Channel Highest Channel** *

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Date: 27.NOV.2015 16:30:22

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Occupied Bandwidth

Mode	GSM850			
Mod.	GSM	EDGE class 8		
Lowest CH	0.242	0.247		
Middle CH	0.248	0.251		
Highest CH	0.249	0.242		

Mode	GSM1900				
Mod.	GSM EDGE class 8				
Lowest CH	0.247	0.254			
Middle CH	0.246	0.257			
Highest CH	0.244	0.254			

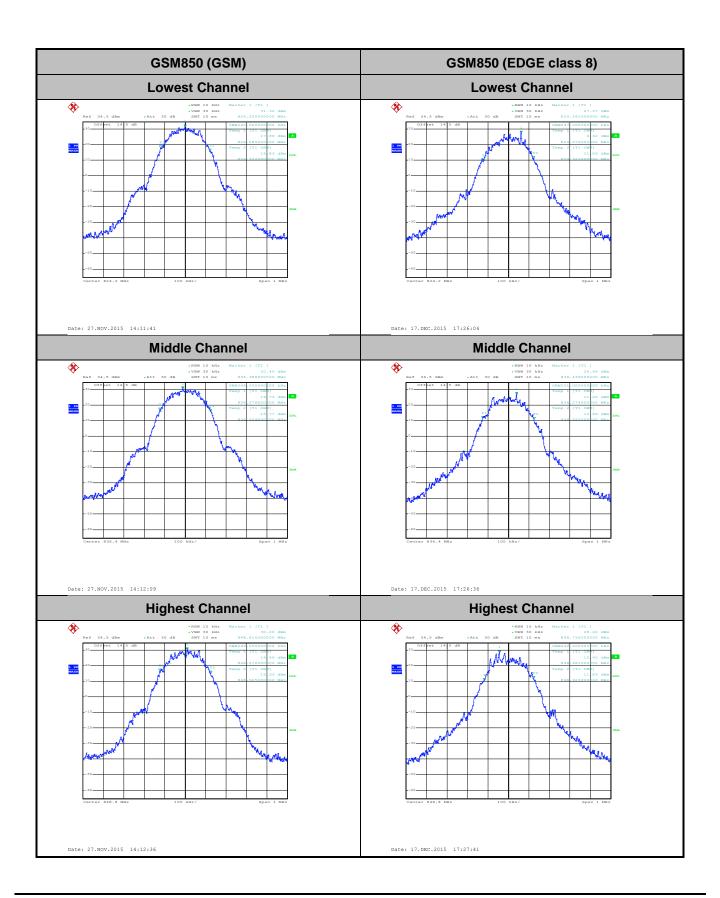
Mode	WCDMA Band V	WCDMA Band II	WCDMA Band IV	
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	RMC 12.2Kbps	
Lowest CH	4.21	4.20	4.21	
Middle CH	4.20	4.23	4.22	
Highest CH	4.22	4.24	4.20	

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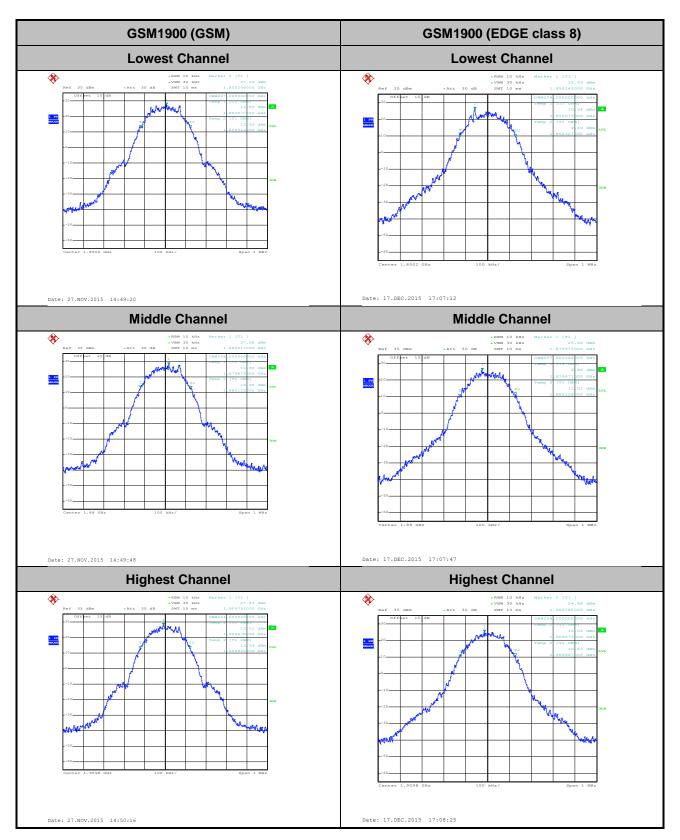
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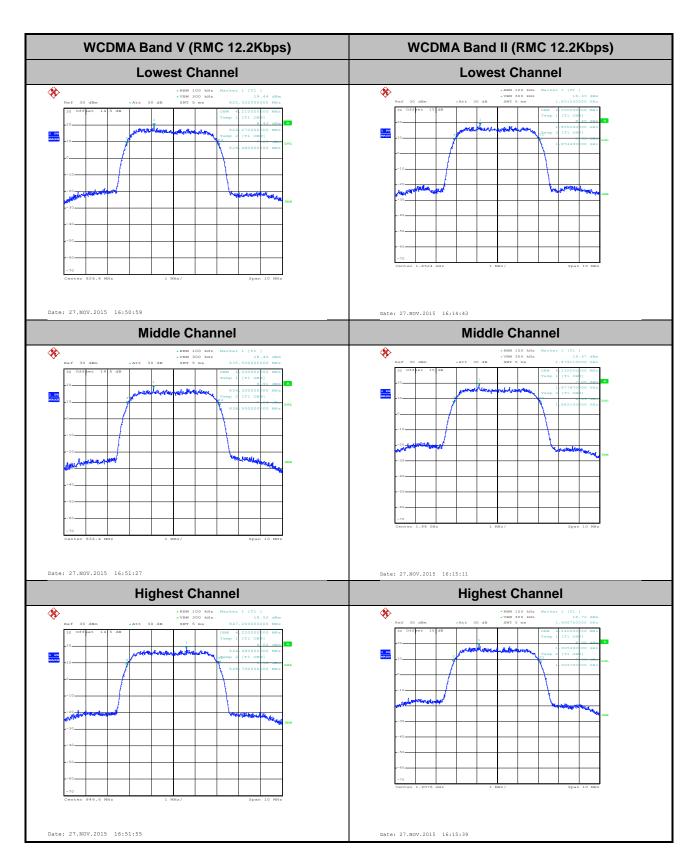
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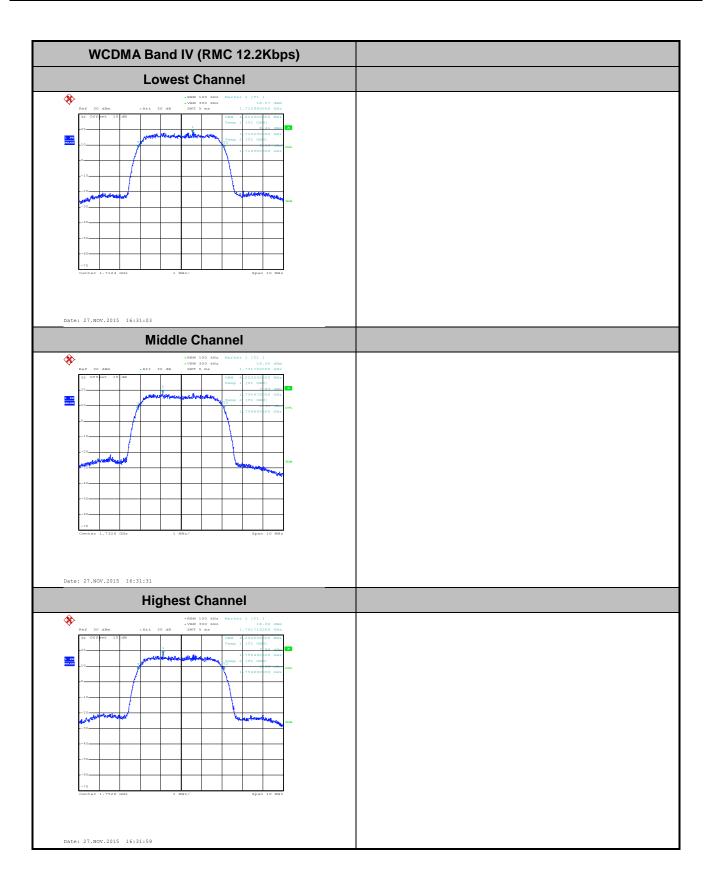


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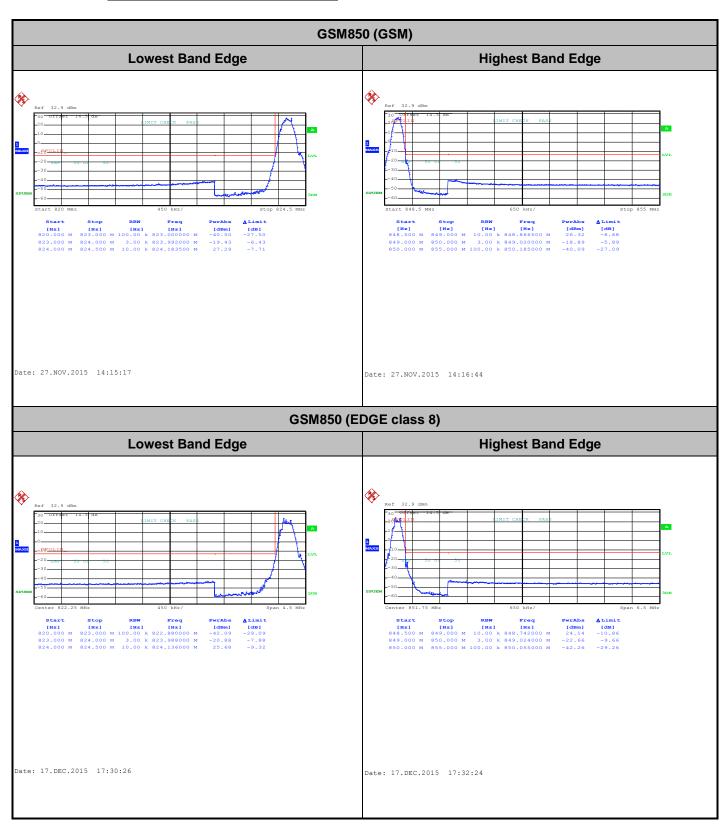
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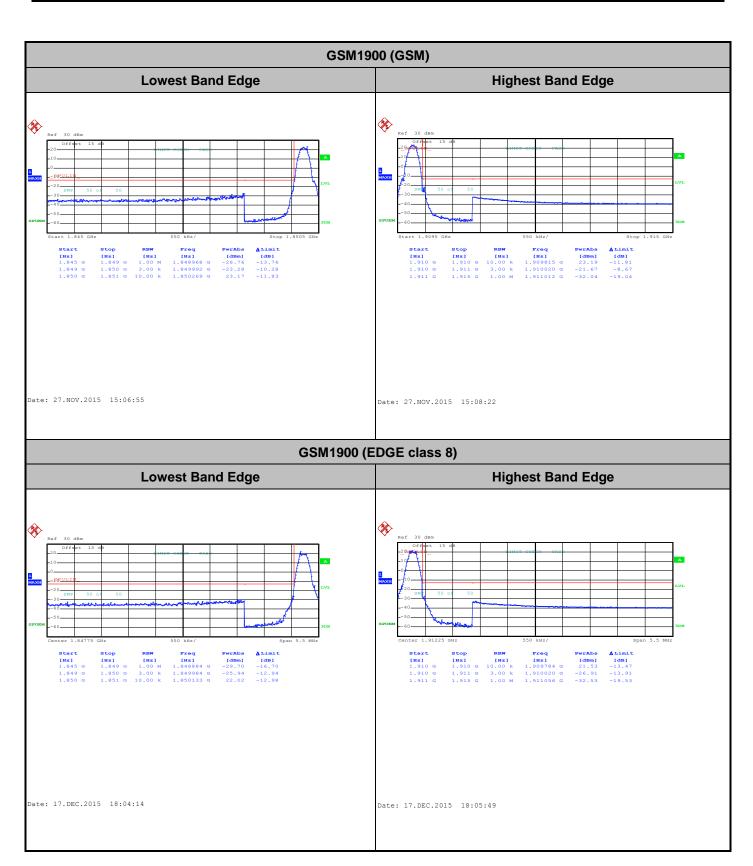
Conducted Band Edge



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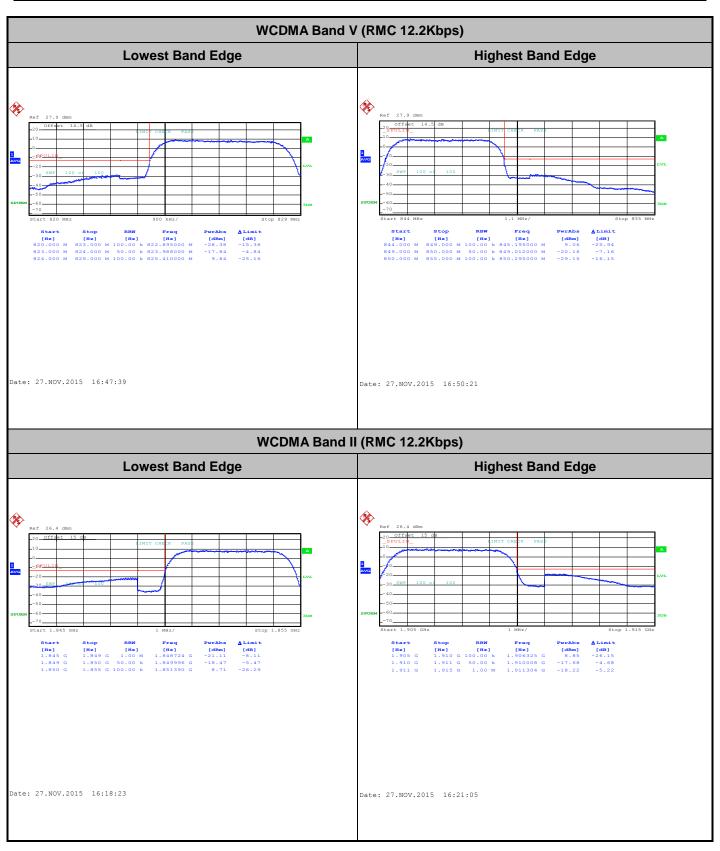
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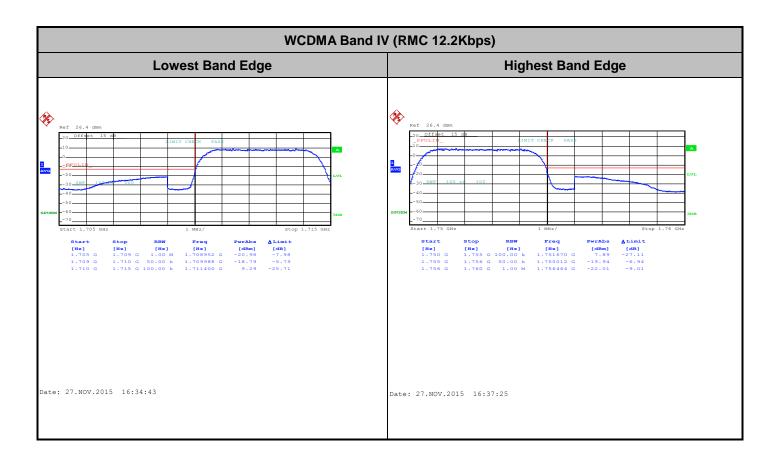
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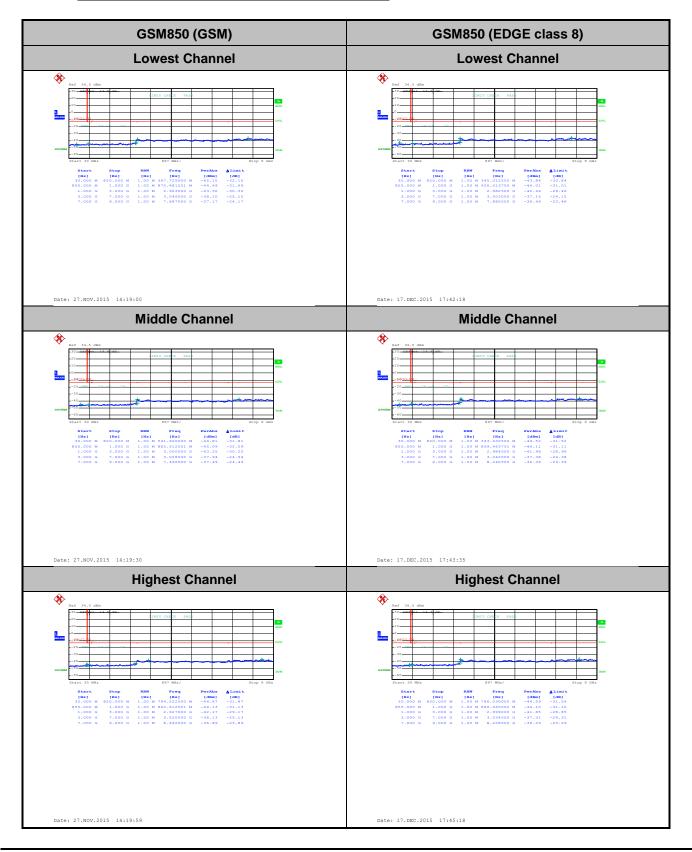
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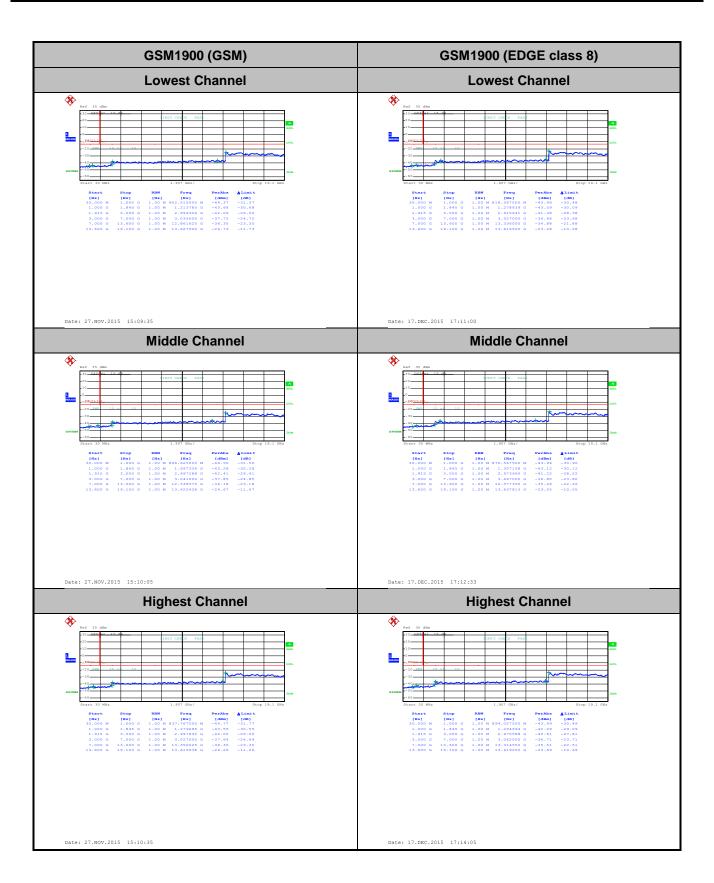
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Conducted Spurious Emission



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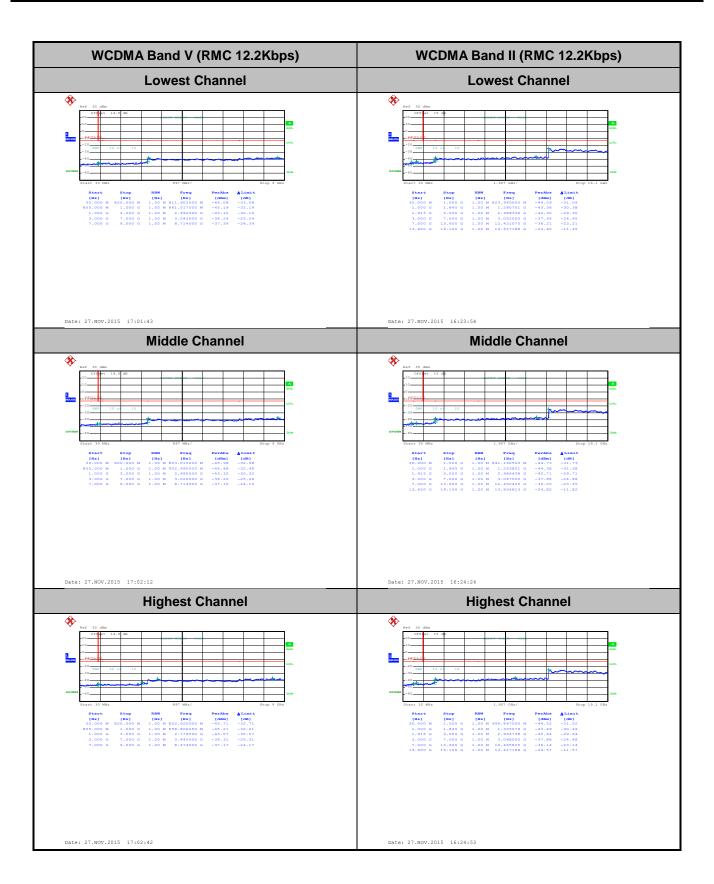
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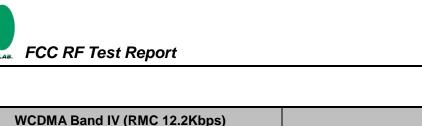
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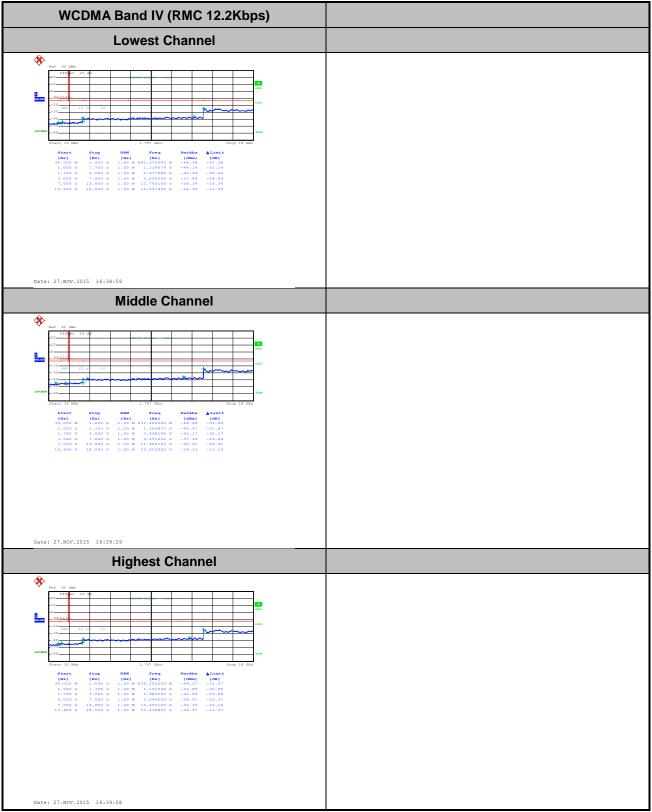




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Frequency Stability

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation	n (ppm)	Result
50	Normal Voltage	0.0227	0.0155	
40	Normal Voltage	0.0179	0.0096	
30	Normal Voltage	0.0060	0.0048	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0024	0.0024	
0	Normal Voltage	0.0060	0.0048	
-10	Normal Voltage	0.0084	0.0012	PASS
-20	Normal Voltage	0.0132	0.0096	
-30	Normal Voltage	0.0179	0.0108	
20	Maximum Voltage	0.0108	0.0072	
20	Normal Voltage	0.0012	0.0000	
20	Battery End Point	0.0036	0.0096	

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Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviatio	n (ppm)	Result
50	Normal Voltage	0.0149	0.0117	
40	Normal Voltage	0.0117	0.0085	
30	Normal Voltage	0.0085	0.0053	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0021	0.0032	
0	Normal Voltage	0.0016	0.0053	
-10	Normal Voltage	0.0074	0.0074	PASS
-20	Normal Voltage	0.0117	0.0096	
-30	Normal Voltage	0.0149	0.0117	
20	Maximum Voltage	0.0085	0.0064	
20	Normal Voltage	0.0016	0.0000	
20	Battery End Point	0.0032	0.0101	

Note:

- 1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V. ; Maximum Voltage =4.35 V
- **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	0.0149	
40	Normal Voltage	0.0117	
30	Normal Voltage	0.0085	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0021	
0	Normal Voltage	0.0016	PASS
-10	Normal Voltage	0.0074	FAGG
-20	Normal Voltage	0.0117	
-30	Normal Voltage	0.0149	
20	Maximum Voltage	0.0085	
20	Normal Voltage	0.0016	
20	Battery End Point	0.0032	

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Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0191	
40	Normal Voltage	0.0122	
30	Normal Voltage	0.0064	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0016	
0	Normal Voltage	0.0037	
-10	Normal Voltage	0.0069	PASS
-20	Normal Voltage	0.0090	
-30	Normal Voltage	0.0144	
20	Maximum Voltage	0.0048	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0037	

Note:

- 1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V.; Maximum Voltage =4.35 V
- **2.** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

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Test Conditions	Middle Channel	WCDMA Band IV (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0162	
40	Normal Voltage	0.0121	
30	Normal Voltage	0.0063	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0023	
0	Normal Voltage	0.0081	
-10	Normal Voltage	0.0087	PASS
-20	Normal Voltage	0.0104	
-30	Normal Voltage	0.0150	
20	Maximum Voltage	0.0115	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0035	

Note:

- 1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.4 V.; Maximum Voltage =4.35 V
- **2.** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

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Appendix B. Test Results of Radiated Test

ERP/EIRP

Channel	Mode	Horiz	ontal	Vertical		
Channel	Mode	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)	
Lowest	GSM850	21.48	0.1406	16.69	0.0467	
Middle		21.97	0.1574	16.51	0.0448	
Highest	- GSM	21.44	0.1394	16.89	0.0488	
Lowest	GSM850	17.12	0.0515	12.53	0.0179	
Middle		16.88	0.0487	12.17	0.0165	
Highest	EDGE class 8	16.90	0.0490	12.25	0.0168	
Lowest	MCDMA Bond V	12.82	0.0191	8.30	0.0068	
Middle	WCDMA Band V RMC 12.2Kbps	13.53	0.0225	8.15	0.0065	
Highest		13.46	0.0222	8.70	0.0074	
Limit	ERP < 7W	Re	sult	PASS		

Channel	Mode	Horiz	ontal	Vertical	
Channel	wode	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	GSM1900	29.28	0.8471	29.54	0.9005
Middle	GSM GSM	29.62	0.9152	29.86	0.9673
Highest	GSM	30.71	1.1781	30.87	1.2208
Lowest	CSM1000	27.80	0.6021	28.18	0.6572
Middle	GSM1900	28.03	0.6348	28.35	0.6836
Highest	EDGE class 8	28.10	0.6452	28.31	0.6781
Lowest	WCDMA Bond II	22.71	0.1868	23.15	0.2067
Middle	WCDMA Band II	23.32	0.2150	23.57	0.2277
Highest	RMC 12.2Kbps	23.93	0.2474	24.36	0.2726
Limit	EIRP < 2W	Re	sult	PA	SS

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Channel	Mode	Horiz	ontal	Vertical		
	wode	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)	
Lowest	14/0D144 B	21.09	0.1285	21.25	0.1333	
Middle	WCDMA Band IV RMC 12.2Kbps	20.87	0.1223	21.08	0.1281	
Highest	RIVIC 12.2NDps	21.07	0.1279	21.23	0.1327	
Limit	EIRP < 1W	Re	sult	PASS		

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Radiated Spurious Emission

				GSM8	50 (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)
	1648.4	-47.92	-13	-34.92	-57.54	-54.60	0.57	9.40	Н
	2472.6	-50.52	-13	-37.52	-63.35	-58.23	0.74	10.60	Н
Lowoot	3296.8	-54.06	-13	-41.06	-69.66	-63.66	0.85	12.60	Н
Lowest	1648.4	-41.32	-13	-28.32	-51.84	-48.00	0.57	9.40	V
	2472.6	-43.94	-13	-30.94	-59.10	-51.65	0.74	10.60	V
	3296.8	-52.96	-13	-39.96	-67.57	-62.56	0.85	12.60	V
	1672	-53.44	-13	-40.44	-61.38	-60.12	0.57	9.40	Н
	2510	-51.82	-13	-38.82	-64.17	-59.53	0.74	10.60	Н
Middle	3346	-54.64	-13	-41.64	-70.24	-64.24	0.85	12.60	Н
Middle	1672	-46.17	-13	-33.17	-56.02	-52.85	0.57	9.40	V
	2510	-43.67	-13	-30.67	-58.95	-51.38	0.74	10.60	V
	3346	-52.73	-13	-39.73	-67.34	-62.33	0.85	12.60	V
	1697.6	-55.30	-13	-42.30	-62.87	-61.98	0.57	9.40	Н
	2546.4	-54.89	-13	-41.89	-67.17	-62.60	0.74	10.60	Н
Liabaat	3395.2	-53.05	-13	-40.05	-68.65	-62.65	0.85	12.60	Н
Highest	1697.6	-48.04	-13	-35.04	-57.31	-54.72	0.57	9.40	V
	2546.4	-45.22	-13	-32.22	-60.08	-52.93	0.74	10.60	V
	3395.2	-53.58	-13	-40.58	-68.19	-63.18	0.85	12.60	V

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

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	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)			
	1648.4	-56.37	-13	-43.37	-63.94	-63.05	0.57	9.40	Н			
	2472.6	-57.03	-13	-44.03	-69.31	-64.74	0.74	10.60	Н			
Lowest	3296.8	-56.38	-13	-43.38	-71.98	-65.98	0.85	12.60	Н			
Lowest	1648.4	-48.21	-13	-35.21	-57.44	-54.89	0.57	9.40	V			
	2472.6	-56.27	-13	-43.27	-67.77	-63.98	0.74	10.60	V			
	3296.8	-57.20	-13	-44.20	-71.81	-66.80	0.85	12.60	V			
	1672	-57.89	-13	-44.89	-65.46	-64.57	0.57	9.40	Н			
	2510	-58.61	-13	-45.61	-70.89	-66.32	0.74	10.60	Н			
Middle	3346	-56.78	-13	-43.78	-72.38	-66.38	0.85	12.60	Н			
Middle	1672	-51.68	-13	-38.68	-59.91	-58.36	0.57	9.40	V			
	2510	-55.59	-13	-42.59	-67.09	-63.30	0.74	10.60	V			
	3346	-57.26	-13	-44.26	-71.87	-66.86	0.85	12.60	V			
	1697.6	-60.73	-13	-47.73	-68.30	-67.41	0.57	9.40	Н			
	2546.4	-57.55	-13	-44.55	-69.83	-65.26	0.74	10.60	Н			
Highest	3395.2	-56.31	-13	-43.31	-71.91	-65.91	0.85	12.60	Н			
	1697.6	-57.19	-13	-44.19	-64.02	-63.87	0.57	9.40	V			
	2546.4	-55.23	-13	-42.23	-66.73	-62.94	0.74	10.60	V			
	3395.2	-57.82	-13	-44.82	-72.43	-67.42	0.85	12.60	V			

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	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)			
	3700.4	-46.73	-13	-33.73	-67.06	-58.46	0.87	12.60	Н			
	5550.6	-50.47	-13	-37.47	-73.34	-62.50	1.07	13.10	Н			
Lowest	7400.8	-50.48	-13	-37.48	-75.61	-60.09	1.69	11.30	Н			
Lowest	3700.4	-47.49	-13	-34.49	-69.05	-59.22	0.87	12.6	V			
	5550.6	-50.12	-13	-37.12	-72.87	-62.15	1.07	13.1	V			
	7400.8	-50.05	-13	-37.05	-74.96	-59.48	1.87	11.3	V			
	3760	-52.25	-13	-39.25	-72.58	-63.98	0.87	12.60	Н			
	5640	-43.18	-13	-30.18	-66.05	-55.21	1.07	13.10	Н			
Middle	7520	-50.91	-13	-37.91	-76.04	-60.52	1.69	11.30	Н			
Middle	3760	-45.28	-13	-32.28	-66.84	-57.01	0.87	12.6	V			
	5640	-49.81	-13	-36.81	-72.56	-61.84	1.07	13.1	V			
	7520	-50.65	-13	-37.65	-75.56	-60.08	1.87	11.3	V			
	3819.6	-49.50	-13	-36.50	-69.83	-61.23	0.87	12.60	Н			
	5729.4	-50.49	-13	-37.49	-73.36	-62.52	1.07	13.10	Н			
Highest	7639.2	-50.99	-13	-37.99	-76.12	-60.60	1.69	11.30	Н			
	3819.6	-46.31	-13	-33.31	-67.87	-58.04	0.87	12.6	V			
	5729.4	-50.50	-13	-37.50	-73.25	-62.53	1.07	13.1	V			
	7639.2	-50.90	-13	-37.90	-75.81	-60.33	1.87	11.3	V			

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	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)			
	3700.4	-48.04	-13	-35.04	-68.37	-59.77	0.87	12.60	Н			
	5550.6	-42.13	-13	-29.13	-65.00	-54.16	1.07	13.10	Н			
Lowest	7400.8	-50.67	-13	-37.67	-75.80	-60.28	1.69	11.30	Н			
Lowest	3700.4	-46.56	-13	-33.56	-68.12	-58.29	0.87	12.6	V			
	5550.6	-44.74	-13	-31.74	-67.49	-56.77	1.07	13.1	V			
	7400.8	-49.70	-13	-36.70	-74.61	-59.13	1.87	11.3	V			
	3760	-49.37	-13	-36.37	-69.70	-61.10	0.87	12.60	Н			
	5640	-42.71	-13	-29.71	-65.58	-54.74	1.07	13.10	Н			
Middle	7520	-50.42	-13	-37.42	-75.55	-60.03	1.69	11.30	Н			
Middle	3760	-43.46	-13	-30.46	-65.02	-55.19	0.87	12.6	V			
	5640	-42.68	-13	-29.68	-65.43	-54.71	1.07	13.1	V			
	7520	-50.88	-13	-37.88	-75.79	-60.31	1.87	11.3	V			
	3819.6	-48.46	-13	-35.46	-68.79	-60.19	0.87	12.60	Н			
	5729.4	-41.47	-13	-28.47	-64.34	-53.50	1.07	13.10	Н			
Highest	7639.2	-50.40	-13	-37.40	-75.53	-60.01	1.69	11.30	Н			
	3819.6	-45.16	-13	-32.16	-66.72	-56.89	0.87	12.6	V			
	5729.4	-42.51	-13	-29.51	-65.26	-54.54	1.07	13.1	V			
	7639.2	-50.61	-13	-37.61	-75.52	-60.04	1.87	11.3	V			

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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)		
	1652.8	-60.30	-13	-47.30	-67.87	-66.98	0.57	9.40	Н		
	2479.2	-56.75	-13	-43.75	-69.03	-64.46	0.74	10.60	Н		
	3305.6	-51.02	-13	-38.02	-66.62	-60.62	0.85	12.60	Н		
Lowest	4132	-39.14	-13	-26.14	-59.41	-48.70	0.89	12.60	Н		
Lowest	1652.8	-58.80	-13	-45.80	-65.63	-65.48	0.57	9.40	V		
	2479.2	-49.01	-13	-36.01	-62.22	-56.72	0.74	10.60	V		
	3305.6	-53.43	-13	-40.43	-68.04	-63.03	0.85	12.60	V		
	4132	-47.36	-13	-34.36	-64.84	-56.92	0.89	12.60	V		
	1672	-61.88	-13	-48.88	-69.45	-68.56	0.57	9.40	Н		
	2510	-56.95	-13	-43.95	-69.23	-64.66	0.74	10.60	Н		
	3348	-51.01	-13	-38.01	-66.61	-60.61	0.85	12.60	Н		
Middle	4186	-47.65	-13	-34.65	-65.54	-57.21	0.89	12.60	Н		
ivildale	1672	-62.25	-13	-49.25	-69.08	-68.93	0.57	9.40	V		
	2510	-55.24	-13	-42.24	-66.74	-62.95	0.74	10.60	V		
	3348	-53.28	-13	-40.28	-67.89	-62.88	0.85	12.60	V		
	4186	-51.90	-13	-38.90	-69.38	-61.46	0.89	12.60	V		
	1693.2	-61.01	-13	-48.01	-68.58	-67.69	0.57	9.40	Н		
	2539.8	-57.38	-13	-44.38	-69.66	-65.09	0.74	10.60	Н		
	3386.4	-50.55	-13	-37.55	-66.15	-60.15	0.85	12.60	Н		
Llighoct	4233	-45.28	-13	-32.28	-63.17	-54.84	0.89	12.60	Н		
Highest	1693.2	-61.93	-13	-48.93	-68.76	-68.61	0.57	9.40	V		
	2539.8	-50.55	-13	-37.55	-63.52	-58.26	0.74	10.60	V		
	3386.4	-51.08	-13	-38.08	-65.69	-60.68	0.85	12.60	V		
	4233	-49.93	-13	-36.93	-67.41	-59.49	0.89	12.60	V		

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	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)			
	3704.8	-49.15	-13	-36.15	-69.48	-60.88	0.87	12.60	Н			
	5557.2	-42.35	-13	-29.35	-65.22	-54.38	1.07	13.10	Н			
Lowest	7409.6	-46.03	-13	-33.03	-71.16	-55.64	1.69	11.30	Н			
Lowest	3704.8	-51.37	-13	-38.37	-72.93	-63.10	0.87	12.6	V			
	5557.2	-42.06	-13	-29.06	-64.81	-54.09	1.07	13.1	V			
	7409.6	-49.31	-13	-36.31	-74.22	-58.74	1.87	11.3	V			
	3760	-50.77	-13	-37.77	-71.10	-62.50	0.87	12.60	Н			
	5640	-42.12	-13	-29.12	-64.99	-54.15	1.07	13.10	Н			
Middle	7520	-46.87	-13	-33.87	-72.00	-56.48	1.69	11.30	Н			
Middle	3760	-49.23	-13	-36.23	-70.79	-60.96	0.87	12.6	V			
	5640	-43.43	-13	-30.43	-66.18	-55.46	1.07	13.1	V			
	7520	-49.29	-13	-36.29	-74.2	-58.72	1.87	11.3	V			
	3815.2	-47.35	-13	-34.35	-67.68	-59.08	0.87	12.60	Н			
	5722.8	-40.91	-13	-27.91	-63.78	-52.94	1.07	13.10	Н			
Highest	7630.4	-42.70	-13	-29.70	-67.83	-52.31	1.69	11.30	Н			
	3815.2	-47.05	-13	-34.05	-68.61	-58.78	0.87	12.6	V			
	5722.8	-39.73	-13	-26.73	-62.58	-51.76	1.07	13.1	V			
	7630.4	-46.96	-13	-33.96	-71.87	-56.39	1.87	11.3	V			

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	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)			
	3424.8	-51.24	-13	-38.24	-70.02	-62.99	0.85	12.60	Н			
	5137.2	-45.28	-13	-32.28	-68.57	-57.03	0.95	12.70	Н			
Lowoot	6849.6	-50.41	-13	-37.41	-74.79	-60.93	1.18	11.70	Н			
Lowest	3424.8	-45.98	-13	-32.98	-67.07	-57.73	0.85	12.6	V			
	5137.2	-39.67	-13	-26.67	-62.71	-51.42	0.95	12.7	V			
	6849.6	-49.13	-13	-36.13	-73.44	-59.65	1.18	11.7	V			
	3465.2	-51.16	-13	-38.16	-69.94	-62.91	0.85	12.60	Н			
	5197.8	-42.39	-13	-29.39	-65.68	-54.14	0.95	12.70	Н			
Middle	6930.4	-49.76	-13	-36.76	-74.14	-60.28	1.18	11.70	Н			
Middle	3465.2	-45.22	-13	-32.22	-66.31	-56.97	0.85	12.6	V			
	5197.8	-37.34	-13	-24.34	-61.24	-49.09	0.95	12.7	V			
	6930.4	-50.08	-13	-37.08	-74.39	-60.60	1.18	11.7	V			
	3505.2	-51.75	-13	-38.75	-70.53	-63.50	0.85	12.60	Н			
	5257.8	-44.58	-13	-31.58	-67.87	-56.33	0.95	12.70	Н			
l limboot	7010.4	-51.29	-13	-38.29	-75.67	-61.81	1.18	11.70	Н			
Highest	3505.2	-48.32	-13	-35.32	-69.41	-60.07	0.85	12.6	V			
	5257.8	-47.40	-13	-34.40	-66.63	-59.15	0.95	12.7	V			
	7010.4	-51.22	-13	-38.22	-75.53	-61.74	1.18	11.7	V			

SPORTON INTERNATIONAL (SHENZHEN) INC.

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