# **FCC RF Test Report**

Report No.: FG581308-01A

APPLICANT : Solnik S.A.
EQUIPMENT : Mobile phone
BRAND NAME : HYUNDAI
MODEL NAME : HY1-1137BL
FCC ID : 2AFRUHY1-1137

**STANDARD** : FCC 47 CFR Part 2, 22(H), 24(E)

CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product testing was completed on Aug. 24, 2015. 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-C-2004 and has been in compliance with the applicable technical standards.

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

Prepared by: James Huang / Manager

Approved by: Jones Tsai / Manager

## SPORTON INTERNATIONAL (SHENZHEN) INC.

1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China

Page Number

Report Version

: 1 of 22

: Rev. 01

Report Issued Date: Oct. 29, 2015

## **TABLE OF CONTENTS**

1	GEN	ERAL DESCRIPTION	5
	1.1 1.2 1.3 1.4 1.5 1.6 1.7	Product Specification subjective to this standard	5 6 7 7
2	TES	T CONFIGURATION OF EQUIPMENT UNDER TEST	9
	2.1 2.2 2.3 2.4	Connection Diagram of Test SystemSupport Unit used in test configuration	10 10
3	CON	DUCTED TEST RESULT	11
	3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9	Test Setup Test Result of Conducted Test Conducted Output Power Peak-to-Average Ratio 99% Occupied Bandwidth and 26dB Bandwidth Measurement Conducted Band Edge Conducted Spurious Emission Frequency Stability	111213131415
4			
	4.1 4.2 4.3 4.4 4.5	Test Setup Test Result of Radiated Test Effective Radiated Power and Effective Isotropic Radiated Power Measurement	17 17 18
5	LIST	OF MEASURING EQUIPMENT	21
6	UNC	ERTAINTY OF EVALUATION	22
ΑP	PEND	DIX A. TEST RESULTS OF CONDUCTED TEST	
ΑP	PEND	DIX B. TEST RESULTS OF RADIATED TEST	
ΑP	1.4       Product Specification subjective to this standard       6         1.5       Modification of EUT       7         1.6       Maximum ERP/EIRP Power, Frequency Tolerance, and Emission Designator       7         1.7       Testing Location       7         1.8       Applicable Standards       8         TEST CONFIGURATION OF EQUIPMENT UNDER TEST       9         2.1       Test Mode       9         2.2       Connection Diagram of Test System       10         2.3       Support Unit used in test configuration       10         2.4       Measurement Results Explanation Example       10         CONDUCTED TEST RESULT       11         3.1       Measuring Instruments       11         3.2       Test Setup       11         3.3       Test Result of Conducted Test       11         3.4       Conducted Output Power       12         3.5       Peak-to-Average Ratio       12         3.6       99% Occupied Bandwidth and 26dB Bandwidth Measurement       13         3.7       Conducted Band Edge       14         3.8       Conducted Spurious Emission       15         3.9       Frequency Stability       16         RADIATED		

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 2 of 22 Report Issued Date: Oct. 29, 2015 Report Version

: Rev. 01

# **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG581308-01A	Rev. 01	This is a variant product of STUDIO ENERGY 2, the new FCC application change the application, brand name, model name, FCC ID and the 2 <sup>nd</sup> source adapter. The test result is not affected, all test cases were performed on original report which can be referred to sporton report number FG581308A (Model name: STUDIO ENERGY 2; FCC ID: YHLBLUSTENERGY2).	Oct. 29, 2015

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 3 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# **SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule Description Limit		Limit	Result	Remark
3.4	§2.1046	RSS-132 (5.4) RSS-133 (6.4)	Conducted Output Power	Reporting Only	PASS	-
3.5	§24.232(d)	RSS-132 (5.4) RSS-133 (6.4)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.6	§2.1049 §22.917(b) §24.238(b)	RSS-GEN(6.6) RSS-132(3.1) RSS-133(3.1)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
2.0	§2.1055 §22.355	RSS-GEN(6.11) RSS-132 (5.3)	Frequency Stability for	< 2.5 ppm for Part 22	DACC	
3.9	§2.1055 §24.235	RSS-GEN(6.11) RSS-133 (6.3)	Temperature & Voltage	Within Authorized Band	PASS	-
	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
4.4	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
4.5	§2.1053 §22.917(a) §24.238(a)	RSS-132 (5.5) RSS-133 (6.5)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 8.90 dB at 1648.400 MHz

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 4 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# **General Description**

# 1.1 Applicant

#### Solnik S.A.

Dr Emilio Ravignani 1724, C. A. B. A. - Republic Argentina

#### 1.2 Manufacturer

#### Gionee Communication Equipment Co., Ltd.

21/F, Times Technology Building, No. 7028, Shennan Avenue, Futian District, Shenzhen, China

# 1.3 Product Feature of Equipment Under Test

Product Feature					
Equipment	Mobile phone				
Brand Name	HYUNDAI				
Model Name	HY1-1137BL				
FCC ID	2AFRUHY1-1137				
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 (on the test)	Conducted: 354147042017260/354147042052267 Radiation: 354147042018342/354147042053349 ERP&EIRP: 354147042018342/354147042053349				
HW Version	Ultra Energy Plus_Mainboard_P3				
SW Version	Ultra Energy Plus_0304_V5414				
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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 5 of 22 Report Issued Date: Oct. 29, 2015 Report Version

: Rev. 01

# 1.4 Product Specification subjective to this standard

Product Specification subjective to this standard				
	GSM/GPRS/EDGE:			
	850:	824.2 MHz ~ 848.8 MHz		
To Francisco	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		
	GSM/GPF	RS/EDGE:		
	850:	869.2 MHz ~ 893.8 MHz		
By Fraguency	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		
	GSM/GPRS/EDGE:			
	850:	32.98 dBm		
Maximum Output Bower to Antonno	1900:	30.39 dBm		
Maximum Output Power to Antenna	WCDMA:			
	Band V:	23.22 dBm		
	Band II:	22.80 dBm		
Antenna Type	Fixed Interi	nal Antenna		
	GSM: GMSK			
	GPRS: GMSK			
	EDGE(MCS 0-4): GMSK/(MCS 5-9): 8PSK			
Type of Modulation	WCDMA: QPSK (Uplink)			
1	HSDPA/DC-HSDPA: QPSK (Uplink)			
	HSUPA : QPSK (Uplink) HSPA+ : 16QAM			
	DC-HSDPA: 64QAM			

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 6 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

#### 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	1.3740	0.0251	247KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.2449	0.0275	257KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.1054	0.0191	4M21F9W
Part 24	GSM1900 GSM	GMSK	0.5058	0.0323	246KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.4667	0.0371	252KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.1143	0.0227	4M21F9W

# 1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN) INC.				
	1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town,				
	Nanshan District, Shenzhen, Guangdong, P. R. China				
Test 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 (SHENZHEN) INC.				
Test Site Location	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China				
	TEL: +86-755- 3320-2398				
Toot Site No	Sporton Site No.	FCC/IC Registration No.			
Test Site No.	03CH01-SZ	831040/4086F			

Note: The test site complies with ANSI C63.4 2009 requirement.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 7 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

## 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)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

#### Remark:

- 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 8 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# 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 GSM1900 and WCDMA Band II.

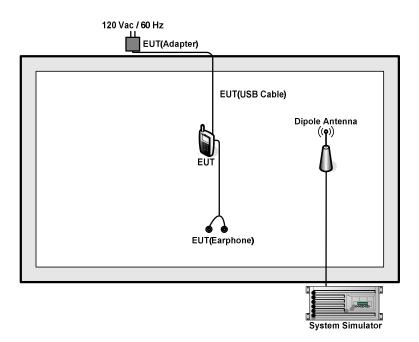
All modes and data rates and positions were investigated.

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					
CCM 4000	■ GSM Link	■ GSM Link					
GSM 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					

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 9 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

## 2.2 Connection Diagram of Test System



# 2.3 Support Unit used in test configuration

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

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

SPORTON INTERNATIONAL (SHENZHEN) INC.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 10 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

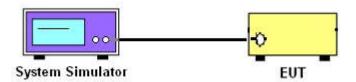
## 3 Conducted Test Result

## 3.1 Measuring Instruments

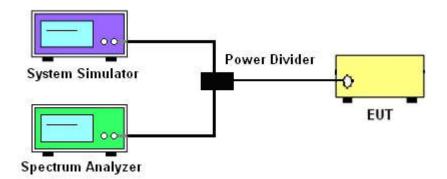
See list of measuring instruments of this test report.

#### 3.2 Test Setup

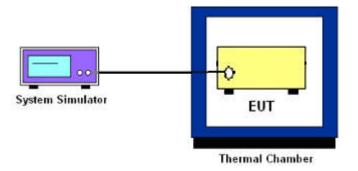
#### 3.2.1 Conducted Output Power



# 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.

SPORTON INTERNATIONAL (SHENZHEN) INC.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 11 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

## 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.

Report No.: FG581308-01A

#### 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.

## 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%.

Page Number

Report Version

: 12 of 22

: Rev. 01

Report Issued Date: Oct. 29, 2015

## 3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

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

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

#### 3.6.2 Test Procedures

- 1. The testing follows FCC KDB 971168 D01 v02r02 Section 4.2.
- 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
- 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3\*RBW, peak detector, trace maximum hold.
- 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3\*RBW, peak detector, trace maximum hold.

FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137

TEL: 86-755-8637-9589

Page Number : 13 of 22 Report Issued Date: Oct. 29, 2015 Report Version

: Rev. 01

#### **Conducted Band Edge** 3.7

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

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137

: 14 of 22 Page Number Report Issued Date: Oct. 29, 2015

Report No.: FG581308-01A

Report Version : Rev. 01

## 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 10<sup>th</sup> 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 15 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

## 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 16 of 22
Report Issued Date : Oct. 29, 2015

Report No.: FG581308-01A

Report Version : Rev. 01

#### 4 Radiated Test Items

## 4.1 Measuring Instruments

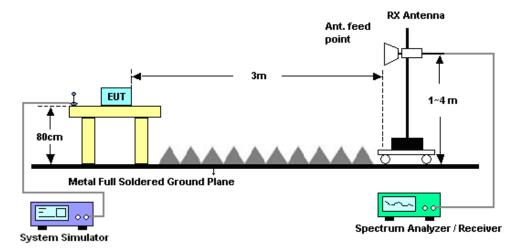
See list of measuring instruments of this test report.

# 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 17 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

#### 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-C-2004, 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)

#### 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-C-2004 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-C. 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 18 of 22 Report Issued Date: Oct. 29, 2015

Report No.: FG581308-01A

Report Version : Rev. 01

	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

Page Number : 19 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

## 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-C-2004 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.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 20 of 22
Report Issued Date : Oct. 29, 2015

Report No.: FG581308-01A

Report Version : Rev. 01

# 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	Aug. 24, 2015	Jan. 27, 2016	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Sep. 16, 2014	Aug. 24, 2015	Sep. 15, 2015	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2015	Aug. 22, 2015	May 25, 2016	Radiation (03CH01-SZ)
Spectrum Analyzer	R&S	FSV40	101041	10kHz~40GHz;Ma x 30dBm	Sep. 25, 2014	Aug. 22, 2015	Sep. 24, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	23188	30MHz~2GHz	Nov. 07, 2014	Aug. 22, 2015	Nov. 06, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Aug. 22, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Aug. 17, 2015	Aug. 22, 2015	Aug. 16, 2016	Radiation (03CH01-SZ)
Amplifier	ADVANTEST	BB525C	E9007003	9kHz~3000MHz / 30 dB	Jan. 28, 2015	Aug. 22, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 05, 2015	Aug. 22, 2015	May 04, 2016	Radiation (03CH01-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 28, 2015	Aug. 22, 2015	Jan. 27, 2016	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	61601000198 5	N/A	NCR	Aug. 22, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Aug. 22, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Aug. 22, 2015	NCR	Radiation (03CH01-SZ)

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 21 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# 6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	2 04D
Confidence of 95% (U = 2Uc(y))	3.9dB

SPORTON INTERNATIONAL (SHENZHEN) INC.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : 22 of 22
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# **Appendix A. Test Results of Conducted Test**

# Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)								
Band		GSM850						
Channel	128	189	251	512	810			
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8		
GSM	<mark>32.98</mark>	32.93	32.90	29.89	30.04	<mark>30.39</mark>		
GPRS class 8	32.96	32.92	32.89	29.88	30.02	30.38		
GPRS class 10	32.31	32.26	32.24	29.19	29.36	29.83		
GPRS class 11	30.59	30.54	30.50	27.35	27.59	28.23		
GPRS class 12	29.50	29.45	29.39	26.24	26.48	27.13		
EGPRS class 8	26.18	26.25	26.27	25.85	25.78	25.79		
EGPRS class 10	25.15	25.26	25.30	24.68	24.58	24.62		
EGPRS class 11	23.06	23.21	23.24	22.46	22.32	22.43		
EGPRS class 12	22.05	22.14	22.22	21.21	21.11	21.10		

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A1 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

Conducted Power (*Unit: dBm)									
Band		CDMA Band	•	ı <i>'</i>	VCDMA Band	II			
Channel	4132	4182	4233	9262	9538				
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6			
AMR 12.2K	23.20	23.14	23.18	22.78	22.74	22.45			
RMC 12.2K	<mark>23.22</mark>	23.15	23.19	<mark>22.80</mark>	22.75	22.46			
HSDPA Subtest-1	21.93	21.51	21.61	21.28	21.24	21.30			
HSDPA Subtest-2	21.85	21.54	21.60	21.27	21.25	21.26			
HSDPA Subtest-3	21.11	21.05	21.16	20.82	20.81	20.29			
HSDPA Subtest-4	21.06	21.02	21.14	20.83	20.77	20.27			
DC-HSDPA Subtest-1	19.12	18.87	18.86	19.06	19.04	19.09			
DC-HSDPA Subtest-2	19.12	18.86	18.86	19.07	19.07	19.07			
DC-HSDPA Subtest-3	19.13	18.87	18.87	19.08	19.10	18.08			
DC-HSDPA Subtest-4	19.12	18.87	18.86	19.09	19.09	19.08			
HSUPA Subtest-1	20.12	20.07	20.15	19.56	19.49	19.38			
HSUPA Subtest-2	20.11	20.05	20.14	19.46	19.40	19.36			
HSUPA Subtest-3	21.14	21.07	21.16	20.48	20.43	20.39			
HSUPA Subtest-4	19.55	19.59	19.61	18.85	18.85	18.83			
HSUPA Subtest-5	22.10	22.09	22.22	21.41	21.40	21.35			
HSPA+ (16QAM) Subtest-1	19.10	18.85	19.09	19.07	19.07	19.46			

Note: maximum burst average power for GSM, and maximum average power for WCDMA with SIM 1

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A2 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# Peak-to-Average Ratio

Mode	GSN	Limit: 13dB	
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.20	3.08	
Middle CH	0.20	3.12	PASS
Highest CH	0.24	3.00	]

Mode	GSM	Limit: 13dB			
Mod.	GSM	GSM EDGE class 8			
Lowest CH	0.20	3.12			
Middle CH	0.20	3.08	PASS		
Highest CH	0.24	3.08			

Mode	WCDMA Band V	WCDMA Band II	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.08	2.80	
Middle CH	2.96	3.08	PASS
Highest CH	3.24	2.60	

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A3 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

GSM850 (EDGE class 8) **GSM850 (GSM) Lowest Channel Lowest Channel %** ary Cumulative Distrib Trace 1 32.30 dBm 32.50 dBm 0.20 dB Trace 1 25.15 dBm 28.33 dBm 3.19 dB Peak Crest 10 % 10 % 1 % .1 % 2.48 dB 3.00 dB 3.08 dB 3.16 dB Date: 24.AUG.2015 16:31:50 **Middle Channel Middle Channel % %** Trace 1 32.32 dBm 32.50 dBm 28.19 dBm 3.19 dB 0.18 dB 0.16 dB 0.20 dB 0.20 dB 0.20 dB 10 % 10 % 1 % .1 % .01 % Date: 24.AUG.2015 16:32:06 Date: 24.AUG.2015 16:22:04 **Highest Channel Highest Channel %** Trace 1 25.03 dBm 28.12 dBm 3.09 dB Peak Crest Mean Peak 10 % 1 % .1 % 0.16 dB 0.16 dB 0.24 dB 0.24 dB 10 % 2.48 dB 2.92 dB 3.00 dB 3.04 dB

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

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137

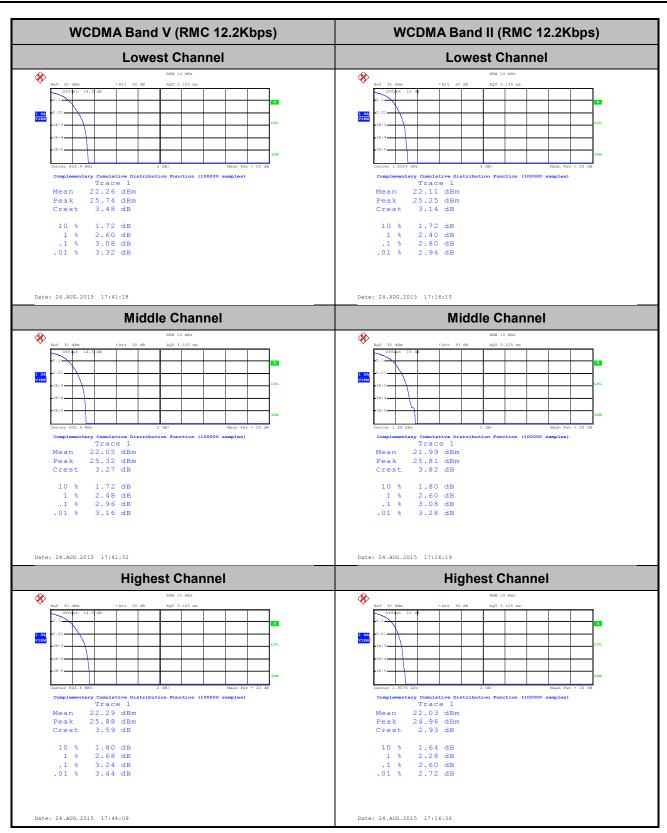
Date: 24.AUG.2015 16:22:18

Page Number : A4 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

**GSM1900 (GSM)** GSM1900 (EDGE class 8) **Lowest Channel Lowest Channel %** 22 GHZ 2 GHZ Mean Further Cumulative Distribution Function (1000000 samples)
Trace 1
28.81 dBm
29.05 dBm
0.23 dB Trace 1 23.84 dBm 27.00 dBm 3.16 dB Peak Crest Crest 0.16 dB 0.20 dB 0.20 dB 0.20 dB Date: 24.AUG.2015 16:40:13 **Middle Channel Middle Channel** \* ntary Cumulative Dis Trace 1 23.89 dBm 27.00 dBm Trace 1
28.80 dBm
29.05 dBm
0.25 dB Mean Peak Crest 2.64 dB 3.04 dB 3.08 dB 3.12 dB 0.16 dB 0.20 dB 0.20 dB 0.20 dB

	Highe	est Cha	nnel		Highest Channel										
		RBW 10 MHz			*	Ref 35 di			30 db	RBW 1	0 MHz				
Ref 35 dBm Offset 15 dB	*Att 30 dB	AQT 3.125 ms					it 15 da	Att	30 dB	AQT 3	.125 ms				
0.1				A		0.1				+			<del>   </del>	· A	9
0.01					1 SA	0.01	+			+			<del>   </del>		a .
1E-3				TRG	VIII	18-3	+	_		+	-		-	LV	L
						18-4				-	_	_	$\vdash$		
1E-4						1E-5				$\perp$					
1E-5				3DB										30	•
Complementary Cumul. Trai Mean 28.9. Peak 29.1. Crest 0.20 10 % 0.1 1 % 0.20 .1 % 0.22 .01 % 0.20	ce 1 2 dBm 2 dBm 0 dB 6 dB 0 dB 1 dB	tion Function (	100000 sampl	ea)		10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	23 27 t 3 % 2 % 3 % 3	.88 dE .00 dE .12 dE .60 dE .00 dE .08 dE .12 dE	8 m 8 m 8 8						

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A5 of A23 Report Issued Date: Oct. 29, 2015 Report Version : Rev. 01



Page Number : A6 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

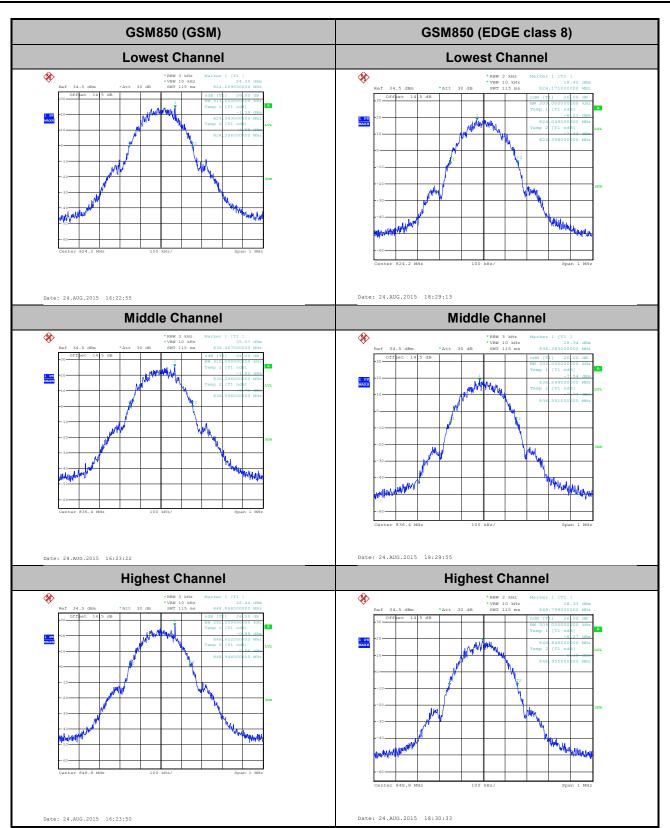
# 26dB Bandwidth

Mode	GSM	1850
Mod.	GSM	EDGE class 8
Lowest CH	0.313	0.309
Middle CH	0.301	0.302
Highest CH	0.292	0.309

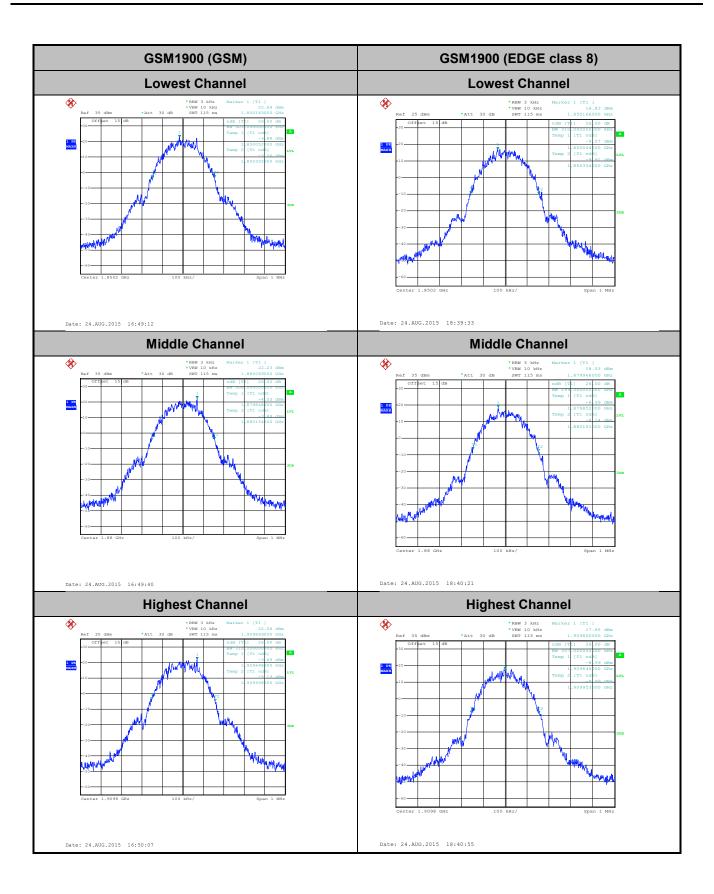
Mode	GSM	1900
Mod.	GSM	EDGE class 8
Lowest CH	0.303	0.310
Middle CH	0.306	0.299
Highest CH	0.310	0.307

Mode	WCDMA Band V	WCDMA Band II	
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	
Lowest CH	4.84	4.84	
Middle CH	4.84	4.83	
Highest CH	4.84	4.84	

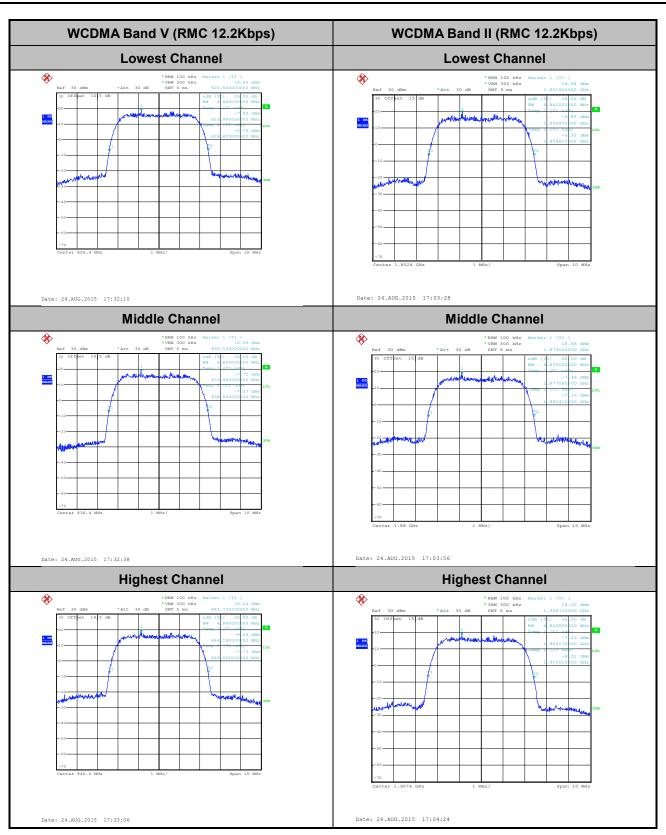
TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A7 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01



Page Number : A8 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01



Page Number : A9 of A23 Report Issued Date: Oct. 29, 2015 Report Version : Rev. 01



Page Number : A10 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

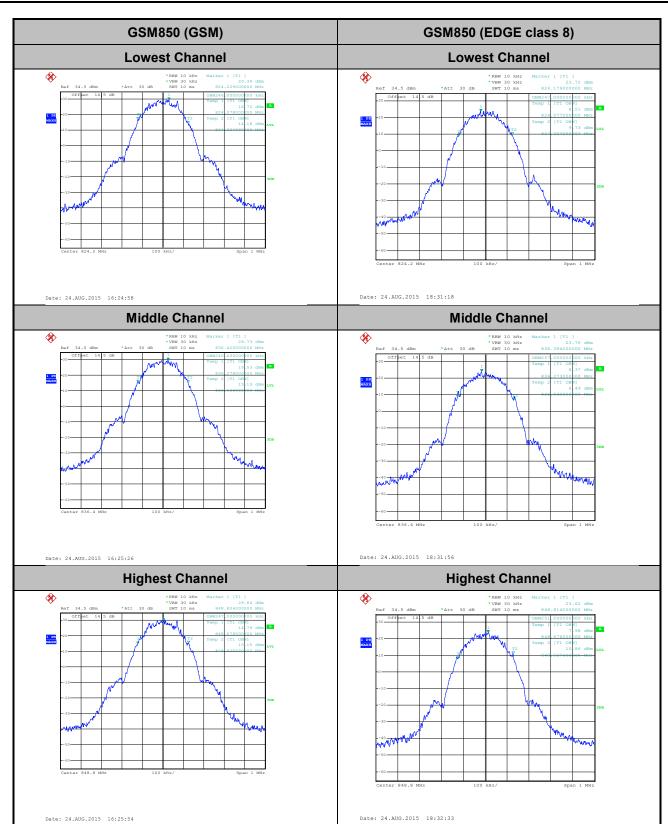
# Occupied Bandwidth

Mode	GSM	1850
Mod.	GSM	EDGE class 8
Lowest CH	0.246	0.247
Middle CH	0.245	0.257
Highest CH	0.247	0.251

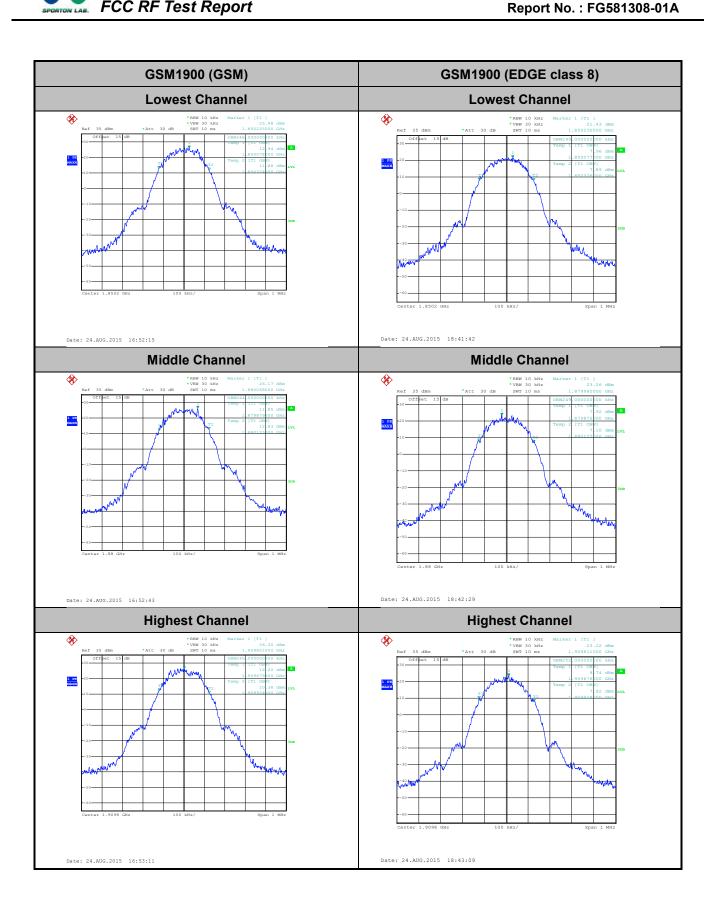
Mode	GSM	1900
Mod.	GSM	EDGE class 8
Lowest CH	0.246	0.249
Middle CH	0.244	0.249
Highest CH	0.245	0.252

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

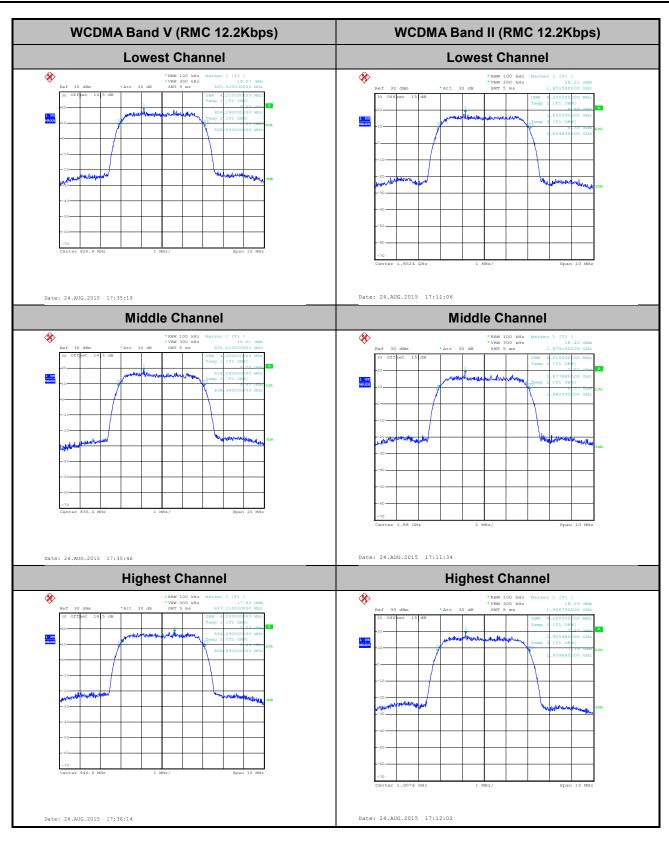
TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A11 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01



Page Number : A12 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

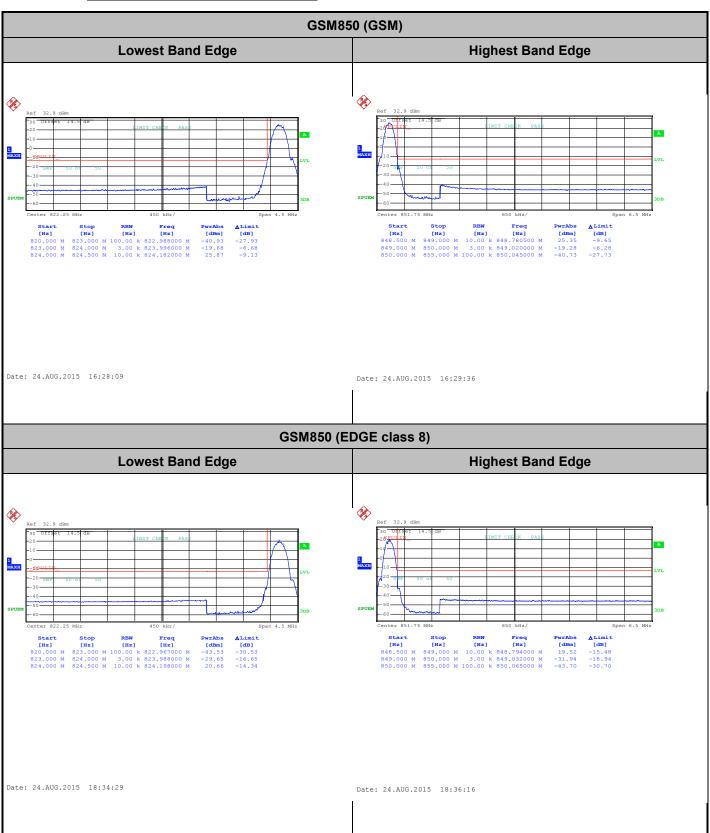


Page Number : A13 of A23 Report Issued Date: Oct. 29, 2015 Report Version : Rev. 01



Page Number : A14 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

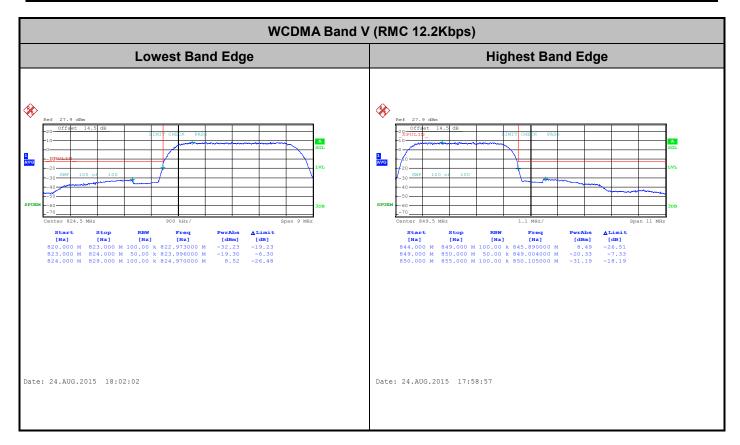
## **Conducted Band Edge**



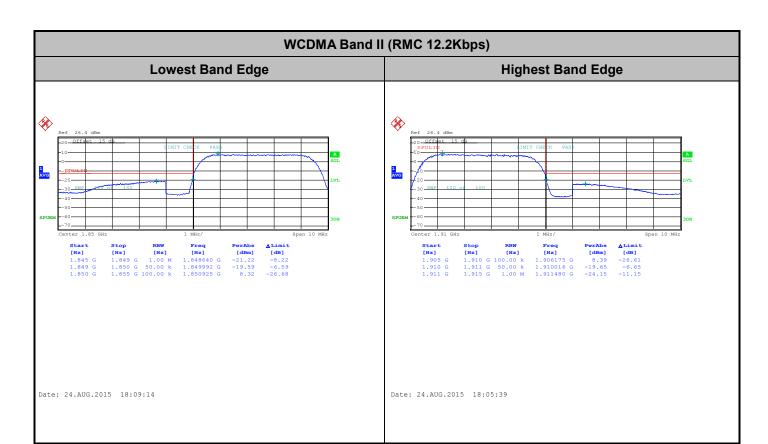
TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A15 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

**GSM1900 (GSM) Lowest Band Edge Highest Band Edge %** Date: 24.AUG.2015 16:55:30 Date: 24.AUG.2015 16:56:57 GSM1900 (EDGE class 8) **Lowest Band Edge Highest Band Edge** Date: 24.AUG.2015 18:45:22 Date: 24.AUG.2015 18:47:00

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A16 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

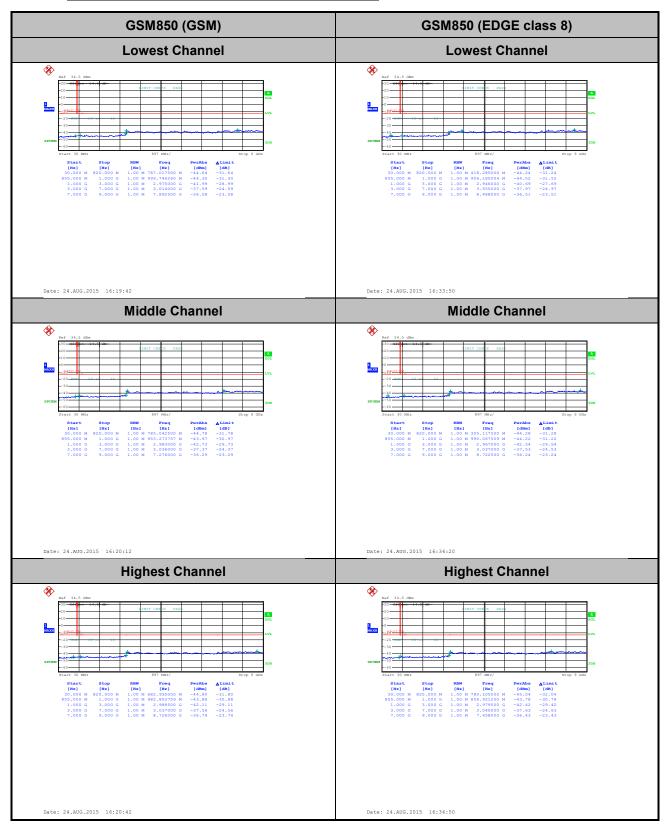


TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A17 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01



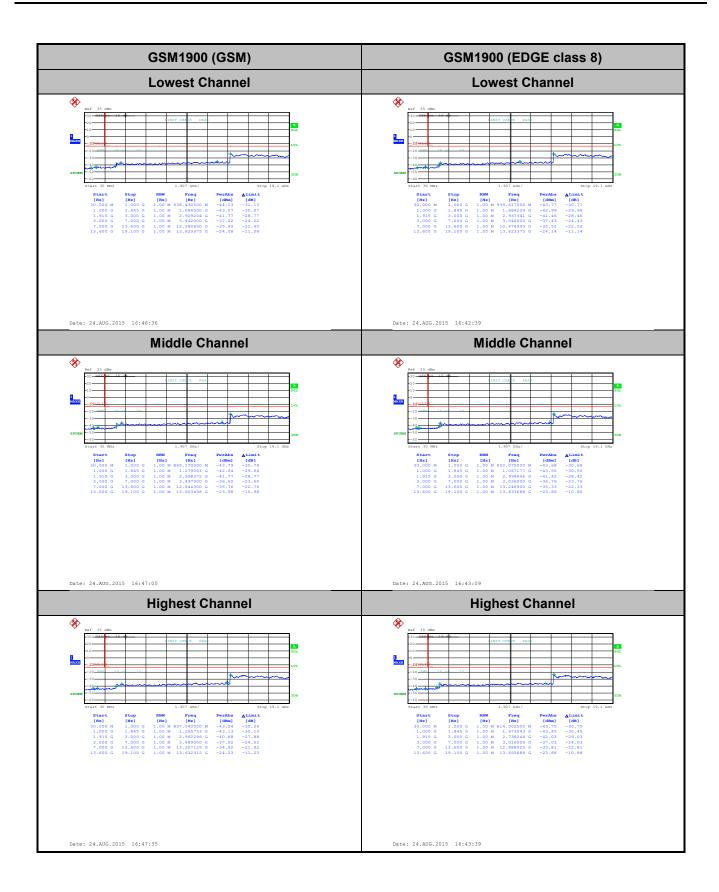
TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A18 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

### **Conducted Spurious Emission**



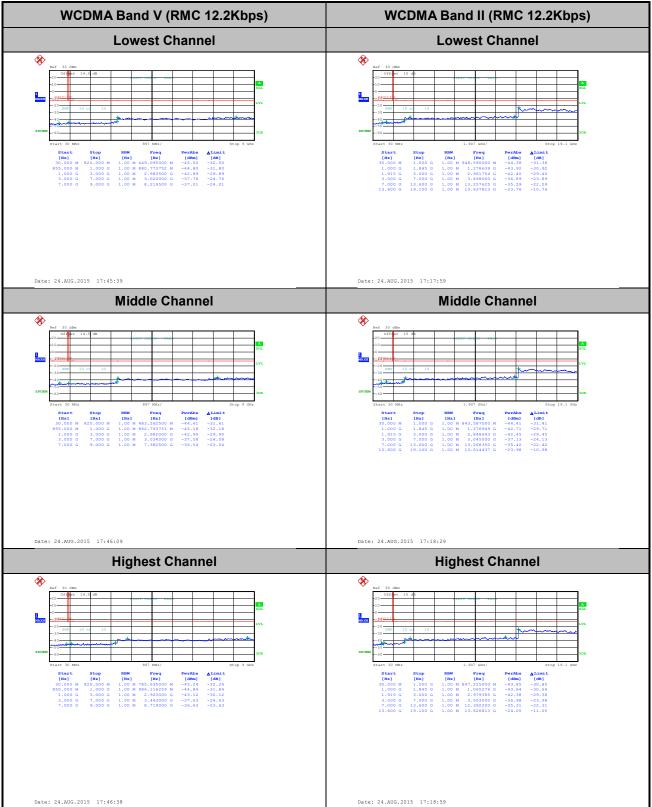
TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A19 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

Report No. : FG581308-01A



TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A20 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

Report No.: FG581308-01A



TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A21 of A23 Report Issued Date: Oct. 29, 2015 Report Version : Rev. 01

### Frequency Stability

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviatio	n (ppm)	Result
50	Normal Voltage	0.0251	0.0060	
40	Normal Voltage	0.0239	0.0036	
30	Normal Voltage	0.0024	0.0024	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0012	0.0024	
0	Normal Voltage	0.0024	0.0239	
-10	Normal Voltage	0.0048	0.0263	PASS
-20	Normal Voltage	0.0060	0.0251	
-30	Normal Voltage	0.0084	0.0275	
20	Maximum Voltage	0.0012	0.0036	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0024	0.0036	

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.			
Temperature (°C)	Voltage (Volt)	Deviation (ppm)					
50	Normal Voltage	0.0060	0.0048				
40	Normal Voltage	0.0036	0.0036				
30	Normal Voltage	0.0012	0.0012				
20(Ref.)	Normal Voltage	0.0000	0.0000				
10	Normal Voltage	0.0024	0.0048				
0	Normal Voltage	0.0287	0.0299				
-10	Normal Voltage	0.0311	0.0323	PASS			
-20	Normal Voltage	0.0299	0.0359				
-30	Normal Voltage	0.0323	0.0371				
20	Maximum Voltage	0.0024	0.0012				
20	Normal Voltage	0.0000	0.0000				
20	Battery End Point	0.0012	0.0012				

#### Note:

- 1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5 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.

SPORTON INTERNATIONAL (SHENZHEN) INC.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A22 of A23 Report Issued Date: Oct. 29, 2015 Report Version

: Rev. 01

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	0.0084	
40	Normal Voltage	0.0060	
30	Normal Voltage	0.0048	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0155	
0	Normal Voltage	0.0143	
-10	Normal Voltage	0.0179	PASS
-20	Normal Voltage	0.0167	
-30	Normal Voltage	0.0191	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0227	
40	Normal Voltage	0.0203	
30	Normal Voltage	0.0191	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0036	
-10	Normal Voltage	0.0024	PASS
-20	Normal Voltage	0.0060	
-30	Normal Voltage	0.0048	
20	Maximum Voltage	0.0024	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0012	

#### Note:

- 1. Normal Voltage = 3.8V. ; Battery End Point (BEP) = 3.5 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.

SPORTON INTERNATIONAL (SHENZHEN) INC.

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : A23 of A23
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

### **Appendix B. Test Results of Radiated Test**

### **ERP/EIRP**

Channel	Mode	Horiz	ontal	Vertical		
Channel	Wiode	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)	
Lowest	CCMOTO	31.02	1.2647	31.38	1.3740	
Middle	GSM850 GSM	30.60	1.1482	29.55	0.9016	
Highest	GSW	29.09	0.8110	29.03	0.7998	
Lowest	0011050	23.89	0.2449	23.84	0.2421	
Middle	GSM850 EDGE class 8	23.31	0.2143	22.80	0.1905	
Highest	EDGE Class o	21.12	0.1294	21.86	0.1535	
Lowest	MCDMA Bond V	20.23	0.1054	18.74	0.0748	
Middle	WCDMA Band V	19.99	0.0998	18.13	0.0650	
Highest	RMC 12.2Kbps	18.59	0.0723	17.90	0.0617	
Limit	ERP < 7W	Re	sult	PASS		

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B1 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

Channal	Mode	Horiz	ontal	Vert	Vertical		
Channel	Mode	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)		
Lowest	CCM4000	26.36	0.4325	27.04	0.5058		
Middle	GSM1900 GSM	25.54	0.3581	26.72	0.4699		
Highest	GOIVI	24.90	0.3090	26.45	0.4416		
Lowest		22.83	0.1919	26.69	0.4667		
Middle	GSM1900 EDGE class 8	22.81	0.1910	26.19	0.4159		
Highest	EDGE Class o	22.25	0.1679	26.25	0.4217		
Lowest	MODMA Band II	19.21	0.0834	20.58	0.1143		
Middle	WCDMA Band II	19.55	0.0902	19.96	0.0991		
Highest	RMC 12.2Kbps	19.21	0.0834	19.14	0.0820		
Limit	EIRP < 2W	Re	sult	PASS			

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B2 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

# Radiated Spurious Emission

				GSM85	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	-25.70	-13	-12.70	-30.74	-29.52	0.53	6.50	Н
	2472.6	-37.21	-13	-24.21	-44.73	-40.08	0.68	5.70	Н
Lowoot	3296.8	-50.64	-13	-37.64	-60.66	-55.68	0.81	8.00	Н
Lowest	1648.4	-21.90	-13	-8.90	-28.25	-25.72	0.53	6.50	V
	2472.6	-38.12	-13	-25.12	-45.45	-40.99	0.68	5.70	V
	3296.8	-48.95	-13	-35.95	-58.65	-53.99	0.81	8.00	V
	1672	-34.04	-13	-21.04	-39.07	-37.86	0.53	6.50	Н
	2510	-40.18	-13	-27.18	-47.31	-43.05	0.68	5.70	Н
Middle	3346	-52.79	-13	-39.79	-62.81	-57.83	0.81	8.00	Н
Middle	1672	-30.79	-13	-17.79	-37.30	-34.61	0.53	6.50	V
	2510	-41.07	-13	-28.07	-48.11	-43.94	0.68	5.70	V
	3346	-52.01	-13	-39.01	-61.02	-57.05	0.81	8.00	V
	1697.6	-41.15	-13	-28.15	-45.78	-44.97	0.53	6.50	Н
	2546.4	-43.87	-13	-30.87	-50.69	-46.74	0.68	5.70	Н
Llimboot	3395.2	-55.21	-13	-42.21	-65.23	-60.25	0.81	8.00	Н
Highest	1697.6	-43.69	-13	-30.69	-49.30	-47.51	0.53	6.50	V
	2546.4	-49.12	-13	-36.12	-54.53	-51.99	0.68	5.70	V
	3395.2	-53.92	-13	-40.92	-62.93	-58.96	0.81	8.00	V

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

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B3 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

				GSM850 (E	DGE class 8	3)			
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	-45.97	-13	-32.97	-50.16	-49.79	0.53	6.50	Н
	2472.6	-58.23	-13	-45.23	-63.65	-61.10	0.68	5.70	Н
Lowoot	3296.8	-56.42	-13	-43.42	-66.44	-61.46	0.81	8.00	Н
Lowest	1648.4	-44.15	-13	-31.15	-49.78	-47.97	0.53	6.50	V
	2472.6	-60.39	-13	-47.39	-64.71	-63.26	0.68	5.70	V
	3296.8	-56.69	-13	-43.69	-65.70	-61.73	0.81	8.00	V
	1672	-37.92	-13	-24.92	-42.81	-41.74	0.53	6.50	Н
	2510	-56.58	-13	-43.58	-62.00	-59.45	0.68	5.70	Н
Middle	3346	-55.49	-13	-42.49	-65.51	-60.53	0.81	8.00	Н
Middle	1672	-52.36	-13	-39.36	-55.87	-56.18	0.53	6.50	V
	2510	-57.99	-13	-44.99	-62.31	-60.86	0.68	5.70	V
	3346	-56.91	-13	-43.91	-65.92	-61.95	0.81	8.00	V
	1697.6	-47.61	-13	-34.61	-51.47	-51.43	0.53	6.50	Н
	2546.4	-58.61	-13	-45.61	-64.03	-61.48	0.68	5.70	Н
l limbos <sup>‡</sup>	3395.2	-55.92	-13	-42.92	-65.94	-60.96	0.81	8.00	Н
Highest	1697.6	-49.90	-13	-36.90	-54.18	-53.72	0.53	6.50	V
	2546.4	-60.63	-13	-47.63	-64.95	-63.50	0.68	5.70	V
	3395.2	-57.04	-13	-44.04	-66.05	-62.08	0.81	8.00	V

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B4 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

				GSM19	00 (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	-53.35	-13	-40.35	-66.12	-60.54	0.81	8.00	Н
	5550.6	-48.44	-13	-35.44	-67.19	-58.43	1.01	11.00	Н
Lowoot	7400.8	-47.28	-13	-34.28	-69.45	-59.52	1.46	13.70	Н
Lowest	3700.4	-53.76	-13	-40.76	-66.83	-60.95	0.81	8	V
	5550.6	-47.47	-13	-34.47	-66.53	-57.46	1.01	11	V
	7400.8	-47.78	-13	-34.78	-70.27	-60.02	1.46	13.7	V
	3760	-53.39	-13	-40.39	-66.16	-60.58	0.81	8.00	Н
	5640	-47.92	-13	-34.92	-66.67	-57.91	1.01	11.00	Н
Middle	7520	-48.30	-13	-35.30	-70.47	-60.54	1.46	13.70	Н
Middle	3760	-53.88	-13	-40.88	-66.95	-61.07	0.81	8	V
	5640	-46.84	-13	-33.84	-65.9	-56.83	1.01	11	V
	7520	-47.12	-13	-34.12	-69.61	-59.36	1.46	13.7	V
	3819.6	-54.29	-13	-41.29	-67.06	-61.48	0.81	8.00	Н
	5729.4	-47.81	-13	-34.81	-66.56	-57.80	1.01	11.00	Н
l limbos <sup>‡</sup>	7639.2	-47.41	-13	-34.41	-69.58	-59.65	1.46	13.70	Н
Highest	3819.6	-54.15	-13	-41.15	-67.22	-61.34	0.81	8	V
	5729.4	-47.32	-13	-34.32	-66.38	-57.31	1.01	11	V
	7639.2	-46.96	-13	-33.96	-69.45	-59.20	1.46	13.7	V

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B5 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

				GSM1900 (I	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	-53.71	-13	-40.71	-66.48	-60.90	0.81	8.00	Н
	5550.6	-49.71	-13	-36.71	-68.46	-59.70	1.01	11.00	Н
Lowest	7400.8	-46.38	-13	-33.38	-68.55	-58.62	1.46	13.70	Н
Lowest	3700.4	-52.97	-13	-39.97	-66.04	-60.16	0.81	8	V
	5550.6	-49.66	-13	-36.66	-68.72	-59.65	1.01	11	V
	7400.8	-47.57	-13	-34.57	-70.06	-59.81	1.46	13.7	V
	3760	-53.76	-13	-40.76	-66.53	-60.95	0.81	8.00	Н
	5640	-49.56	-13	-36.56	-68.31	-59.55	1.01	11.00	Н
Middle	7520	-47.60	-13	-34.60	-69.77	-59.84	1.46	13.70	Н
Middle	3760	-52.59	-13	-39.59	-65.66	-59.78	0.81	8	V
	5640	-47.74	-13	-34.74	-66.8	-57.73	1.01	11	V
	7520	-47.74	-13	-34.74	-70.23	-59.98	1.46	13.7	V
	3819.6	-53.32	-13	-40.32	-66.09	-60.51	0.81	8.00	Н
	5729.4	-50.31	-13	-37.31	-69.06	-60.30	1.01	11.00	Н
Himbook	7639.2	-47.05	-13	-34.05	-69.22	-59.29	1.46	13.70	Н
Highest	3819.6	-53.94	-13	-40.94	-67.01	-61.13	0.81	8	V
	5729.4	-49.45	-13	-36.45	-68.51	-59.44	1.01	11	V
	7639.2	-46.18	-13	-33.18	-68.67	-58.42	1.46	13.7	V

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B6 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

			WC	DMA Band	V(RMC 12.2k	(bps)			
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	-60.43	-13	-47.43	-62.98	-64.25	0.53	6.50	Н
	2479.2	-58.84	-13	-45.84	-64.26	-61.71	0.68	5.70	Н
Lowest	3305.6	-55.82	-13	-42.82	-65.84	-60.86	0.81	8.00	Н
Lowest	1652.8	-60.36	-13	-47.36	-63.27	-64.18	0.53	6.50	V
	2479.2	-58.89	-13	-45.89	-63.21	-61.76	0.68	5.70	V
	3305.6	-57.01	-13	-44.01	-66.02	-62.05	0.81	8.00	V
	1672	-59.89	-13	-46.89	-62.44	-63.71	0.53	6.50	Н
	2510	-58.77	-13	-45.77	-64.19	-61.64	0.68	5.70	Н
Middle	3346	-56.00	-13	-43.00	-66.02	-61.04	0.81	8.00	Н
Middle	1672	-60.41	-13	-47.41	-63.32	-64.23	0.53	6.50	V
	2510	-59.93	-13	-46.93	-64.25	-62.80	0.68	5.70	V
	3346	-57.11	-13	-44.11	-66.12	-62.15	0.81	8.00	V
	1693.2	-60.21	-13	-47.21	-62.76	-64.03	0.53	6.50	Н
	2539.8	-58.75	-13	-45.75	-64.17	-61.62	0.68	5.70	Н
l limboc <sup>‡</sup>	3386.4	-54.71	-13	-41.71	-64.73	-59.75	0.81	8.00	Н
Highest	1693.2	-60.36	-13	-47.36	-63.27	-64.18	0.53	6.50	V
	2539.8	-60.18	-13	-47.18	-64.50	-63.05	0.68	5.70	V
	3386.4	-56.53	-13	-43.53	-65.54	-61.57	0.81	8.00	V

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B7 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01

			WC	DMA Band	II(RMC 12.2K	(bps)			
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	-53.02	-13	-40.02	-65.79	-60.21	0.81	8.00	Н
	5557.2	-49.52	-13	-36.52	-68.27	-59.51	1.01	11.00	Н
Lowoot	7409.6	-47.09	-13	-34.09	-69.26	-59.33	1.46	13.70	Н
Lowest	3704.8	-52.80	-13	-39.80	-65.87	-59.99	0.81	8	V
	5557.2	-49.54	-13	-36.54	-68.6	-59.53	1.01	11	V
	7409.6	-46.90	-13	-33.90	-69.39	-59.14	1.46	13.7	V
	3760	-54.01	-13	-41.01	-66.78	-61.20	0.81	8.00	Н
	5640	-49.40	-13	-36.40	-68.15	-59.39	1.01	11.00	Н
Middle	7520	-46.91	-13	-33.91	-69.08	-59.15	1.46	13.70	Н
Middle	3760	-53.19	-13	-40.19	-66.26	-60.38	0.81	8	V
	5640	-48.76	-13	-35.76	-67.82	-58.75	1.01	11	V
	7520	-47.49	-13	-34.49	-69.98	-59.73	1.46	13.7	V
	3815.2	-54.54	-13	-41.54	-67.31	-61.73	0.81	8.00	Н
	5722.8	-50.07	-13	-37.07	-68.82	-60.06	1.01	11.00	Н
l limbort	7630.4	-47.41	-13	-34.41	-69.58	-59.65	1.46	13.70	Н
Highest	3815.2	-53.75	-13	-40.75	-66.82	-60.94	0.81	8	V
	5722.8	-49.74	-13	-36.74	-68.8	-59.73	1.01	11	V
	7630.4	-47.06	-13	-34.06	-69.55	-59.30	1.46	13.7	V

TEL: 86-755-8637-9589 FAX: 86-755-8637-9595 FCC ID: 2AFRUHY1-1137 Page Number : B8 of B8
Report Issued Date : Oct. 29, 2015
Report Version : Rev. 01