# **FCC RF Test Report**

APPLICANT : AMobile Intelligent Corp

**EQUIPMENT**: AMobile 5" RISC-based Panel PC

BRAND NAME : AMobile MODEL NAME : IOT-500

FCC ID : 2ACC5-HM500

STANDARD : FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Jan. 11, 2016 and testing was completed on Mar. 04, 2016. We, SPORTON INTERNATIONAL 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 INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager

#### SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

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**Report No.: FG611103** 

Report Issued Date: Mar. 08, 2016 Report Version: Rev. 01

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# **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE	
FG611103	Rev. 01	Initial issue of report	Mar. 08, 2016	

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# **SUMMARY OF TEST RESULT**

Report Section FCC Rule		Description	Limit	Result	Remark
	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.4	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.5 §24.232(d) Peak-to-Average Ratio		< 13 dB	PASS	-	
3.6	\$2.1049 3.6 \$22.917(b) Occupied Bandwidth \$24.238(b)		Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051		< 43+10log10(P[Watts])	PASS	-
0.0	§2.1055 §22.355	Frequency Stability for	< 2.5 ppm for Part 22		
3.9	§2.1055 §24.235	Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §22.917(a) §24.238(a) Field Strength of Spurious Radiation		< 43+10log10(P[Watts])	PASS	Under limit 19.63 dB at 3756.000 MHz

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# 1 General Description

# 1.1 Applicant

#### **AMobile Intelligent Corp**

18F. -1, No.150, Jian 1st Rd., Zhong He Dist., New Taipei City 235, Taiwan

## 1.2 Manufacturer

#### **AMobile Intelligent Corp**

18F. -1, No.150, Jian 1st Rd., Zhong He Dist., New Taipei City 235, Taiwan

# 1.3 Product Feature of Equipment Under Test

	Product Feature					
Equipment	AMobile 5" RISC-based Panel PC					
Brand Name	AMobile					
Model Name	IOT-500					
FCC ID	2ACC5-HM500					
	GSM/EGPRS/WCDMA/HSPA					
EUT supports Radios application	WLAN 11a/b/g/n HT20/HT40					
Supports Radios application	WLAN 11ac VHT20/VHT40/VHT80					
	Bluetooth v4.1 EDR/LE					
HW Version	1.0					
SW Version	V01.01.00.R277					
EUT Stage	Production Unit					

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

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# 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification					
	GSM/GPRS/EDGE:				
	850:	824.2 MHz ~ 848.8 MHz			
T., F.,	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/GPR	RS/EDGE:			
	850:	869.2 MHz ~ 893.8 MHz			
<b>D</b> . <b>F</b>	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:	31.54 dBm			
Marrian Control Barranta Antana	1900:	28.37 dBm			
Maximum Output Power to Antenna	WCDMA:				
	Band V:	23.80 dBm			
	Band II:	22.25 dBm			
Antenna Type	Dipole Ante	enna			
Antonno Coin	Cellular Band: 2.43 dBi				
Antenna Gain	PCS Band: 1.61 dBi				
	GSM: GMSK				
	GPRS: GMSK				
Type of Modulation	EDGE: GMSK / 8PSK				
· ·	WCDMA: QPSK (Uplink)				
	HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink)				

# 1.5 Modification of EUT

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

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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 GPRS class 8	GMSK	1.5205	0.0072 ppm	248KGXW
Part 22	GSM850 EDGE class 8	8PSK	0.3350	0.0120 ppm	249KG7W
Part 22	WCDMA Band V RMC 12.2Kbps	QPSK	0.2559	0.0060 ppm	4M16F9W
Part 24	GSM1900 GPRS class 8	GMSK	0.9954	0.0074 ppm	247KGXW
Part 24	GSM1900 EDGE class 8	8PSK	0.3606	0.0069 ppm	248KG7W
Part 24	WCDMA Band II RMC 12.2Kbps	QPSK	0.2432	0.0059 ppm	4M16F9W

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## 1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

SPORTON INTERNATIONAL INC.
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Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.
TEL: +886-3-327-3456
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Sporton Site No.
TH03-HY

Test Site	SPORTON INTERNATIONAL INC.
	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist,
Toot Site Leastion	Taoyuan City, Taiwan (R.O.C.)
Test Site Location	TEL: +886-3-327-0868
	FAX: +886-3-327-0855
Took Site No	Sporton Site No.
Test Site No.	03CH11-HY

# 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-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

#### 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 9000 MHz for GSM850 and WCDMA Band V.
- 2. 30 MHz to 19000 MHz 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:

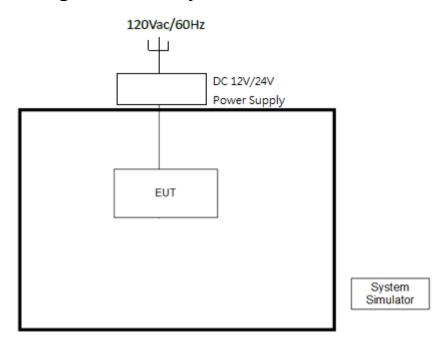
	Test Modes							
Band	Radiated TCs	Conducted TCs						
	■ GPRS class 8 Link + DC 12V	■ GPRS class 8 Link						
GSM 850	■ EDGE class 8 Link + DC 12V	■ EDGE class 8 Link						
	■ GPRS class 8 Link + DC 24V							
CCM 4000	■ GPRS class 8 Link + DC 12V	■ GPRS class 8 Link						
GSM 1900	■ EDGE class 8 Link + DC 12V	■ EDGE class 8 Link						
WCDMA Band V	■ RMC 12.2Kbps Link + DC 12V	■ RMC 12.2Kbps Link						
WCDMA Band II	■ RMC 12.2Kbps Link + DC 12V							
WCDINIA Band II	■ RMC 12.2Kbps Link + DC 24V	■ RMC 12.2Kbps Link						

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## 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	Topward	3303D	N/A	N/A	Unshielded, 1.8 m

# 2.4 Measurement Results Explanation Example

#### For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

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

#### Example:

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

= 4.2 + 10 = 14.2 (dB)

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#### 3 Conducted Test Result

# 3.1 Measuring Instruments

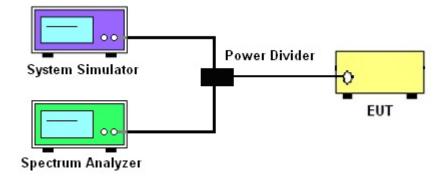
See list of measuring instruments of this test report.

## 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 and ERP/EIRP

#### 3.4.1 Description of the Conducted Output Power and ERP/EIRP

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.

The ERP of mobile transmitters must not exceed 7 Watts for GSM850 and WCDMA Band V.

The EIRP of mobile transmitters must not exceed 2 Watts for GSM1900 and WCDMA Band II.

According to KDB 412172 D01 Power Approach,

 $EIRP = P_T + G_T - L_C$ , ERP = EIRP - 2.15, where

 $P_T$  = transmitter output power in dBm

 $G_T$  = gain of the transmitting antenna in dBi

L<sub>C</sub> = signal attenuation in the connecting cable between the transmitter and antenna in dB

#### 3.4.2 Test Procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set EUT at maximum power through system simulator.
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

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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 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%.

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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.
- 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 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.

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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.
- 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

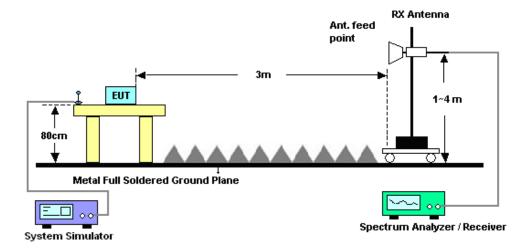
See list of measuring instruments of this test report.

# 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 Field Strength of Spurious Radiation Measurement

#### 4.4.1 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.

#### 4.4.2 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.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
- 6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
- 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 9. Taking the record of output power at antenna port.
- 10. Repeat step 7 to step 8 for another polarization.
- 11. EIRP (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.

#### 5 **List of Measuring Equipment**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Rohde & Schwarz	FSP30	101329	9kHz~30GHz	Jun. 24, 2015	Mar. 02, 2016 ~ Mar. 03, 2016	Jun. 23, 2016	Conducted (TH03-HY)
Temperature Chamber	ESPEC	SU-641	92013721	-30℃ ~70℃	Nov. 20, 2015	Mar. 02, 2016 ~ Mar. 03, 2016	Nov. 19, 2016	Conducted (TH03-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL883644	Voltage:0~20V;Cur rent:0~5A	Nov. 26, 2015	Mar. 02, 2016 ~ Mar. 03, 2016	Nov. 25, 2016	Conducted (TH03-HY)
System Simulator	Agilent	E5515C	MY50266977	N/A	May 14, 2015	Mar. 02, 2016 ~ Mar. 03, 2016	May 13, 2016	Conducted (TH03-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 20, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Nov. 19, 2016	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D	35414	30MHz~1GHz	Nov. 17, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Nov. 16, 2016	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz ~ 18GHz	Oct. 08, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Oct. 07, 2016	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 19, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Nov. 18, 2016	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHZ	Sep. 24, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Sep. 23, 2016	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-450 0-B	N/A	1~4m	N/A	Mar. 03, 2016 ~ Mar. 04, 2016	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0-360 degree	N/A	Mar. 03, 2016 ~ Mar. 04, 2016	N/A	Radiation (03CH11-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	18GHz- 40GHz	Oct. 12, 2015	Mar. 03, 2016 ~ Mar. 04, 2016	Oct. 11, 2016	Radiation (03CH11-HY)

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# 6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of	4.90
Confidence of 95% (U = 2Uc(y))	4.90

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

# Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)						
Band		GSM850		GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GPRS class 8	31.46	<mark>31.54</mark>	31.47	28.22	28.06	<mark>28.37</mark>
GPRS class 10	30.79	30.78	30.84	27.48	27.33	27.68
GPRS class 11	29.06	29.09	29.06	25.76	25.55	25.95
GPRS class 12	28.03	28.06	27.99	24.72	24.52	24.93
EGPRS class 8	24.97	24.90	24.78	23.83	23.87	23.96
EGPRS class 10	23.96	23.77	23.67	22.68	22.71	22.64
EGPRS class 11	21.88	21.64	21.52	20.35	20.23	20.27
EGPRS class 12	20.78	20.59	20.50	19.12	19.08	19.14

Conducted Power (*Unit: dBm)							
Band	W	WCDMA Band V			WCDMA Band II		
Channel	4132	4182	4233	9262	9400	9538	
Frequency	826.4	836.4	846.6	1852.4	1880	1907.6	
RMC 12.2K	<mark>23.80</mark>	22.49	22.78	21.75	21.23	<mark>22.25</mark>	
HSDPA Subtest-1	22.79	21.52	21.79	19.71	19.24	20.38	
HSDPA Subtest-2	22.78	21.49	21.77	19.70	19.25	20.38	
HSDPA Subtest-3	22.32	21.01	21.33	19.71	19.24	20.39	
HSDPA Subtest-4	22.30	20.99	21.31	19.70	19.28	20.40	
HSUPA Subtest-1	20.86	19.46	19.81	18.68	18.30	19.43	
HSUPA Subtest-2	20.86	19.50	19.80	18.68	18.33	19.48	
HSUPA Subtest-3	21.81	20.45	20.78	19.65	19.30	20.40	
HSUPA Subtest-4	20.40	19.04	19.31	17.82	17.81	18.90	
HSUPA Subtest-5	22.74	21.37	21.70	20.10	19.75	20.85	

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# A1. GSM

# Peak-to-Average Ratio

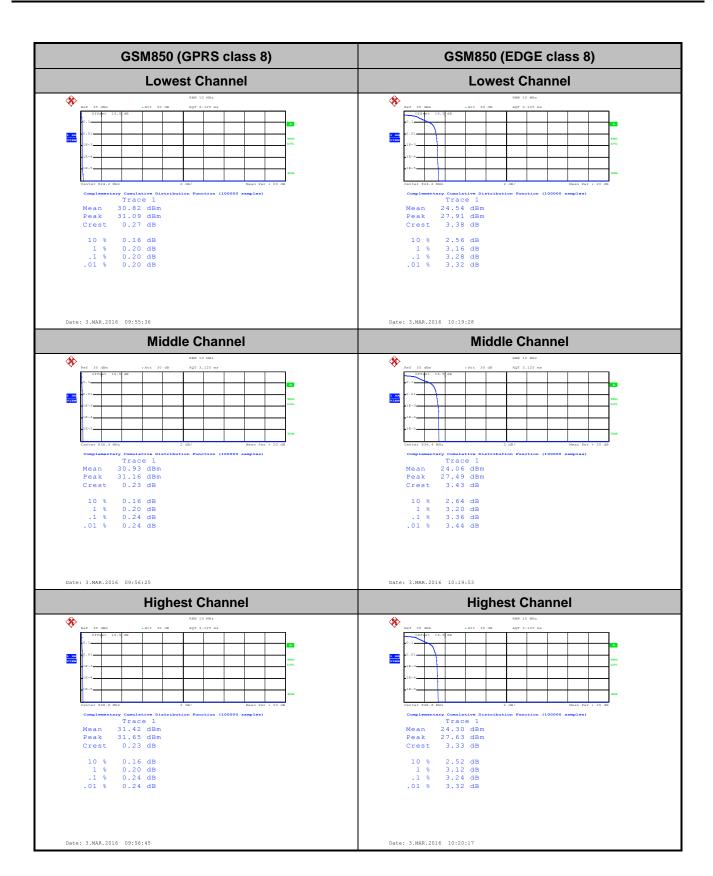
Mode	GSN	Limit: 13dB	
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.20	3.28	
Middle CH	0.24	3.36	PASS
Highest CH	0.24	3.24	

Mode	GSN	Limit: 13dB	
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.20	3.52	
Middle CH	0.20	3.64	PASS
Highest CH	0.24	3.64	

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GSM1900 (GPRS class 8) GSM1900 (EDGE class 8) **Lowest Channel Lowest Channel** \* \* Trace 1 28.67 dBm 28.90 dBm 0.23 dB Trace 1 25.05 dBm 28.62 dBm 3.57 dB Crest Crest 10 % 1 % .1 % Date: 3.MAR.2016 10:49:30 Date: 3.MAR.2016 11:21:32 **Middle Channel Middle Channel** \* Trace 1 28.08 dBm 28.34 dBm 0.26 dB 0.16 dB 0.20 dB 0.20 dB 0.24 dB 2.92 dB 3.52 dB 3.64 dB 3.72 dB **Highest Channel Highest Channel** \* \* Trace 1 27.85 dBm 28.13 dBm 0.28 dB Trace 1 23.51 dBm 27.21 dBm 3.70 dB Crest

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# 26dB Bandwidth

Mode	GSM850			
Mod.	GPRS class 8	EDGE class 8		
Lowest CH	0.298	0.307		
Middle CH	0.314	0.309		
Highest CH	0.307	0.298		

Mode	GSM1900			
Mod.	GPRS class 8	EDGE class 8		
Lowest CH	0.315	0.298		
Middle CH 0.307		0.303		
Highest CH 0.302		0.304		

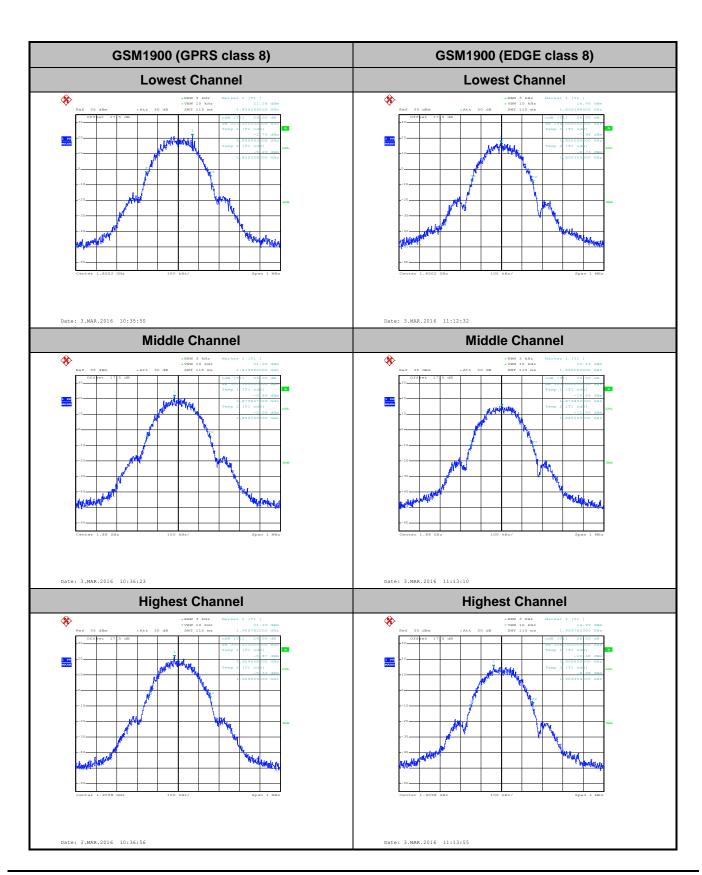
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GSM850 (GPRS class 8) GSM850 (EDGE class 8) **Lowest Channel Lowest Channel** Date: 3.MAR.2016 09:39:03 Date: 3.MAR.2016 10:05:12 **Middle Channel Middle Channel Highest Channel Highest Channel** Date: 3.MAR.2016 09:40:15

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# Occupied Bandwidth

Mode	GSM850			
Mod.	GPRS class 8	EDGE class 8		
Lowest CH	0.248	0.248		
Middle CH	0.247	0.249		
Highest CH	0.246	0.249		

Mode	GSM1900			
Mod.	GPRS class 8	EDGE class 8		
Lowest CH	0.245	0.248		
Middle CH 0.247		0.241		
Highest CH 0.246		0.245		

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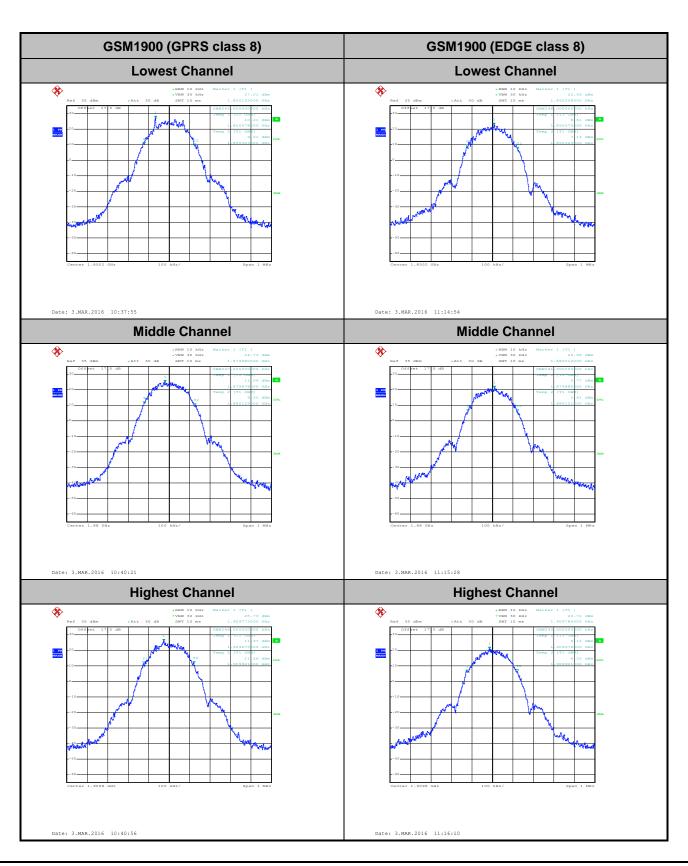
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GSM850 (GPRS class 8) GSM850 (EDGE class 8) **Lowest Channel Lowest Channel** Date: 3.MAR.2016 09:41:02 Date: 3.MAR.2016 10:10:20 **Middle Channel Middle Channel Highest Channel Highest Channel** Date: 3.MAR.2016 09:42:57

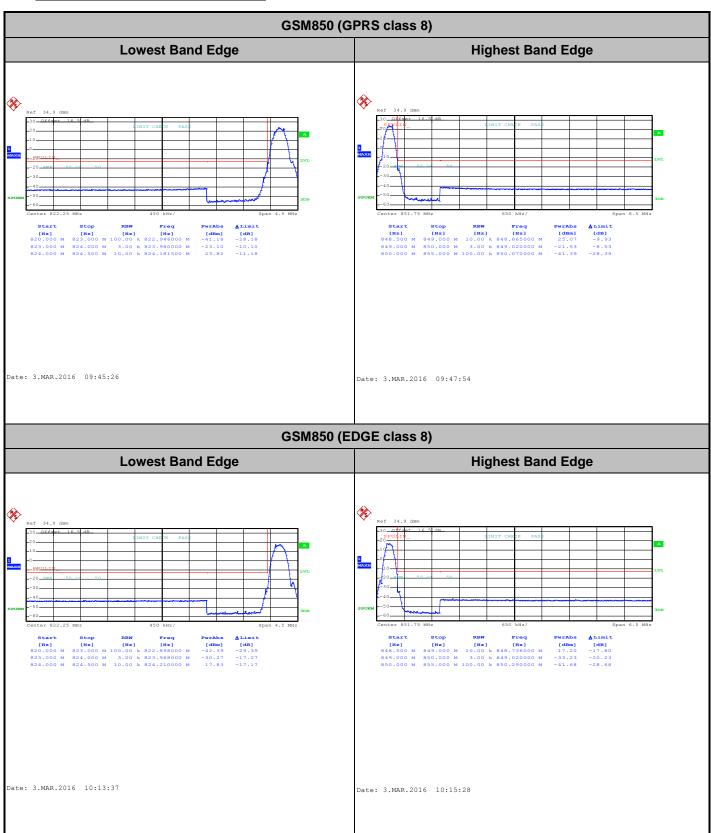
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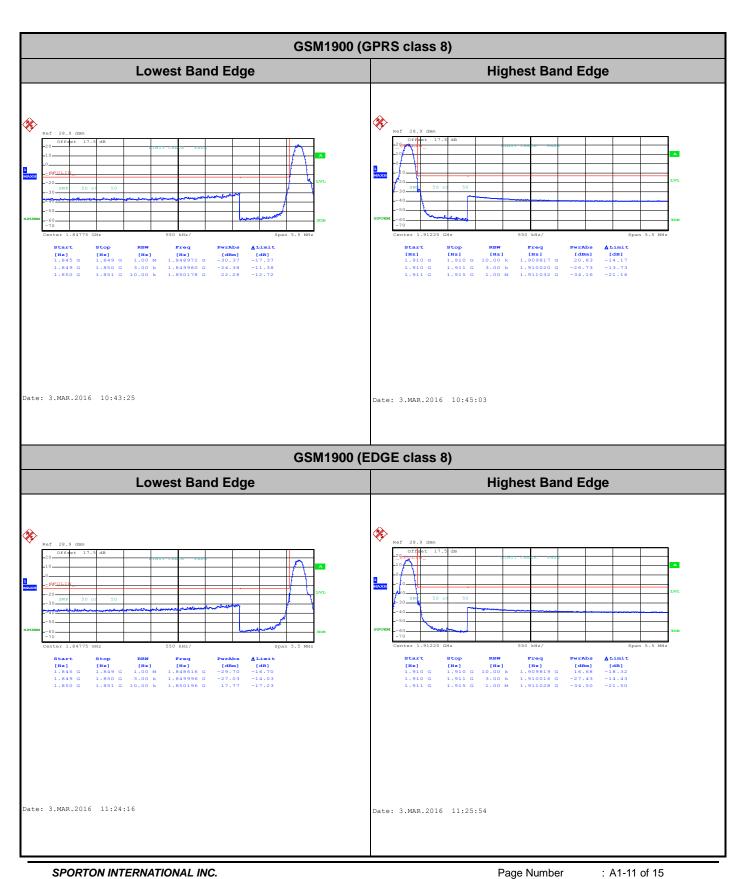
# **Conducted Band Edge**



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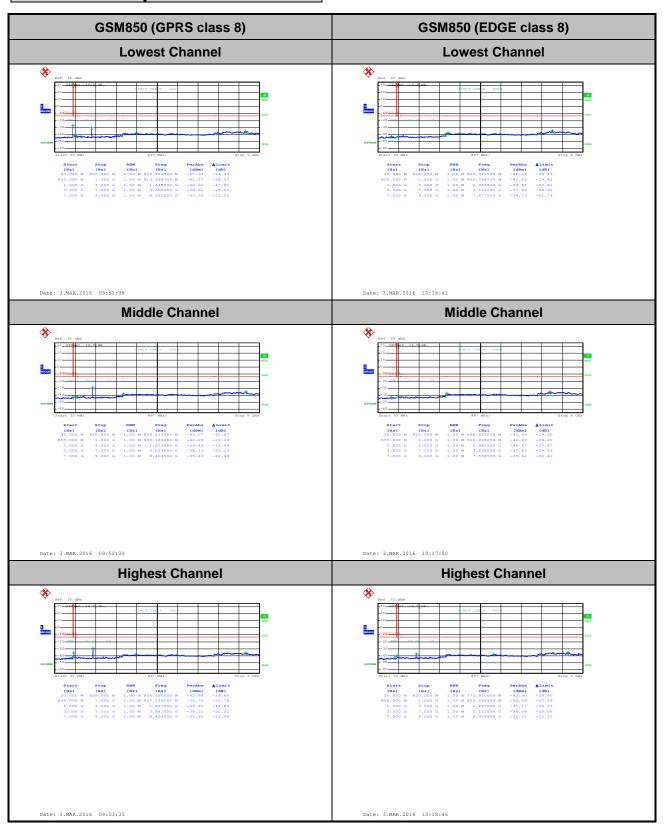
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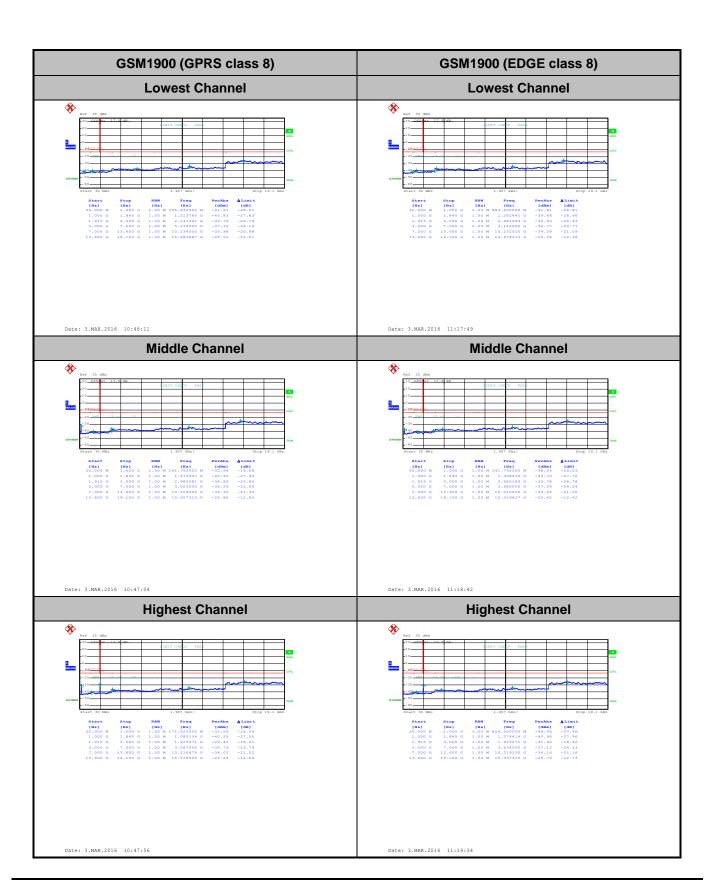
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# **Conducted Spurious Emission**



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# Frequency Stability

Test Conditions	Middle Channel	GSM850 (GPRS class 8)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation	Result	
50	Normal Voltage	0.0024	0.0120	
40	Normal Voltage	0.0036	0.0036	
30	Normal Voltage	0.0036	0.0012	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0012	0.0012	
0	Normal Voltage	0.0024	0.0036	
-10	Normal Voltage	0.0012	0.0060	PASS
-20	Normal Voltage	0.0000	0.0108	
-30	Normal Voltage	0.0048	0.0084	
20	Maximum Voltage	0.0024	0.0024	
20	Normal Voltage	0.0012	0.0108	
20	Battery End Point	0.0072	0.0072	

#### Note:

- 1. Normal Voltage = 12.0V. ; Battery End Point (BEP) = 12.0 V. ; Maximum Voltage =24.0 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	GSM1900 (GPRS class 8)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation	on (ppm)	Result
50	Normal Voltage	0.0011	0.0011	
40	Normal Voltage	0.0021	0.0053	
30	Normal Voltage	0.0005	0.0016	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0005	0.0027	
0	Normal Voltage	0.0032	0.0048	
-10	Normal Voltage	0.0016	0.0032	PASS
-20	Normal Voltage	0.0027	0.0011	
-30	Normal Voltage	0.0048	0.0027	
20	Maximum Voltage	0.0074	0.0069	
20	Normal Voltage	0.0043	0.0021	
20	Battery End Point	0.0069	0.0037	

#### Note:

- 1. Normal Voltage = 12.0V. ; Battery End Point (BEP) = 12.0 V. ; Maximum Voltage =24.0 V
- **2.** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

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### A2. WCDMA

## Peak-to-Average Ratio

Mode	WCDMA Band V	WCDMA Band II	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	3.08	3.16	
Middle CH	3.00	2.84	PASS
Highest CH	3.00	2.72	1

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Report Template No.: BU5-FG22/24/ Version 1.1

WCDMA Band V (RMC 12.2Kbps) WCDMA Band II (RMC 12.2Kbps) **Lowest Channel Lowest Channel** \* Trace 1 20.35 dBm 23.83 dBm 3.48 dB Trace 1 19.62 dBm 23.06 dBm 3.44 dB 1.80 dB 2.64 dB 3.08 dB 3.28 dB 1.84 dB 2.72 dB 3.16 dB 3.36 dB Date: 3.MAR.2016 13:38:17 Date: 3.MAR.2016 11:53:18 **Middle Channel Middle Channel** \* **%** Trace 1 20.83 dBm 24.11 dBm 3.28 dB Trace 1 20.09 dBm 23.20 dBm 3.11 dB Mean Peak Crest Peak Crest Date: 3.MAR.2016 13:38:30 Date: 3.MAR.2016 11:53:28 **Highest Channel Highest Channel** \* \* Complementary Cumulative Dia Trace 1 Mean 20.67 dBm Peak 24.04 dBm Crest 3.37 dB Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 19.82 dBm
Peak 22.77 dBm
Crest 2.96 dB 10 % 1 % .1 % 1.72 dB 2.56 dB 3.00 dB 3.20 dB 10 % 1 % .1 %

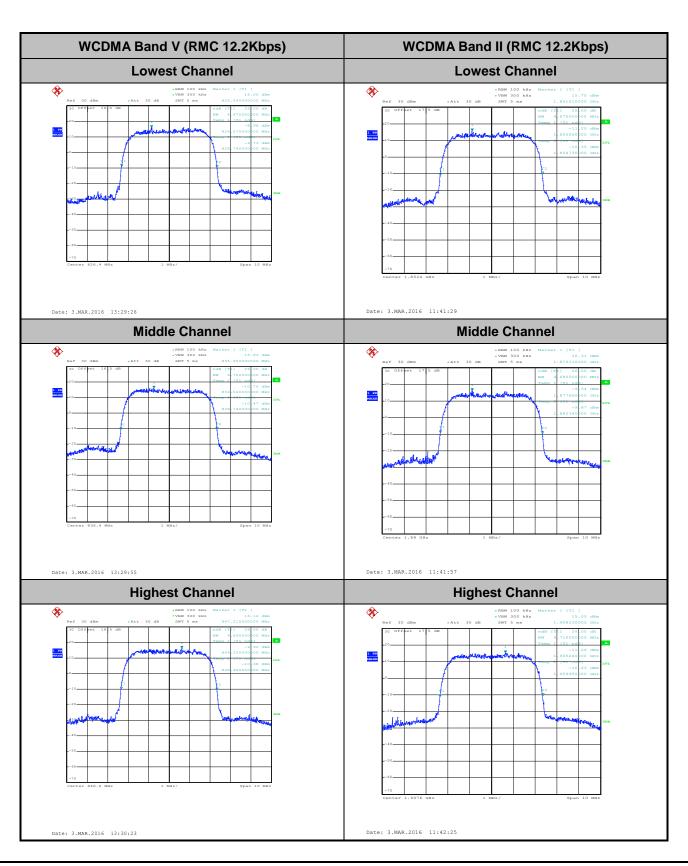
TEL: 886-3-327-3456 FAX: 886-3-328-4978

## 26dB Bandwidth

Mode	WCDMA Band V	WCDMA Band II
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.67	4.67
Middle CH	4.70	4.68
Highest CH	4.69	4.71

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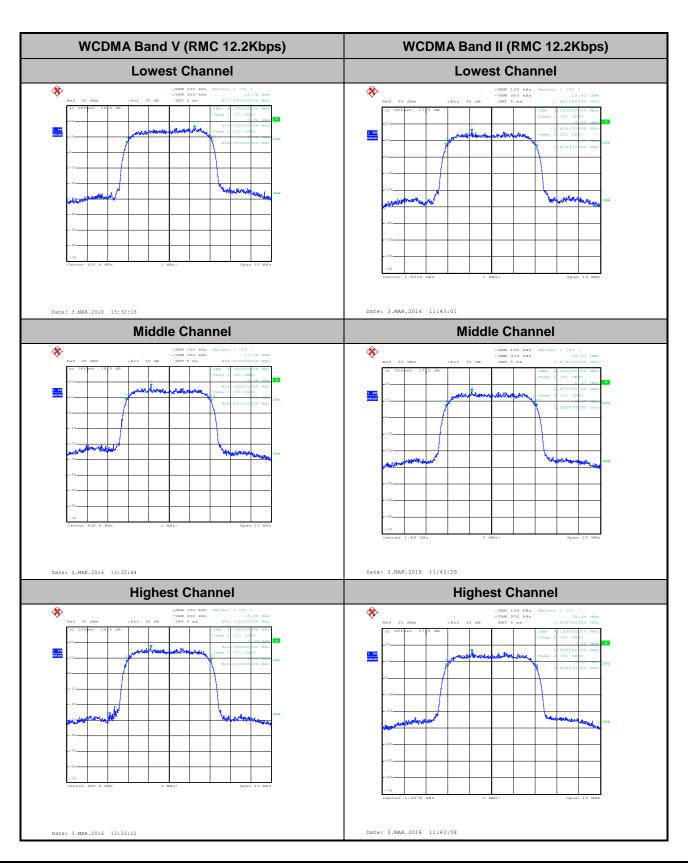
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# Occupied Bandwidth

Mode	WCDMA Band V	WCDMA Band II
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.16	4.15
Middle CH	4.16	4.16
Highest CH	4.14	4.15

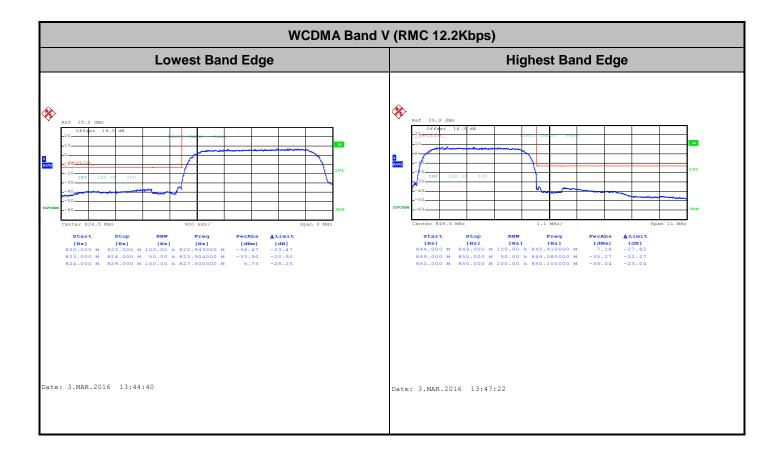
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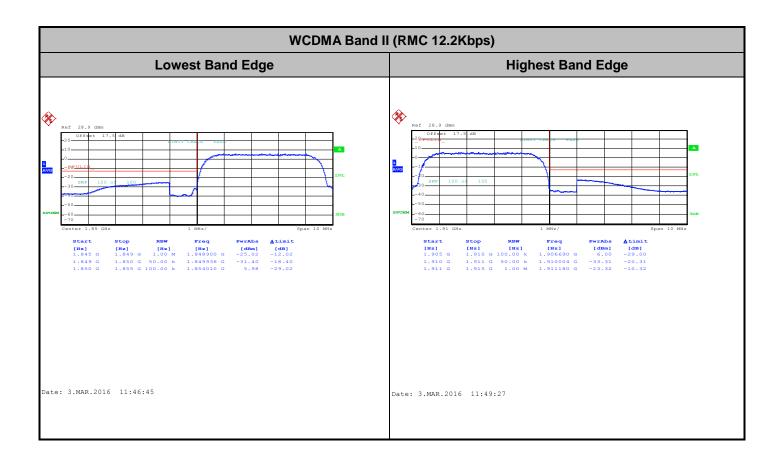
## **Conducted Band Edge**



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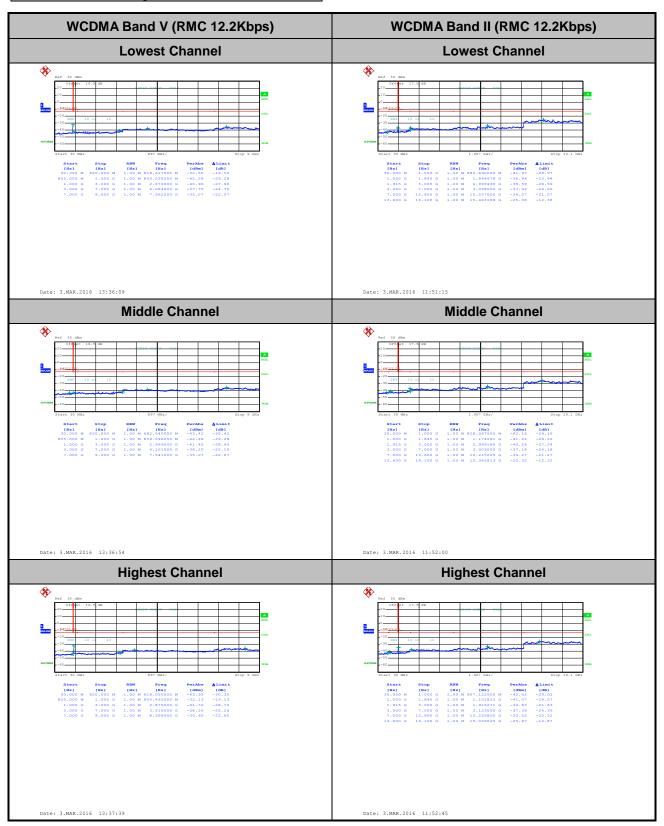
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## **Conducted Spurious Emission**



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## Frequency Stability

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0036	
40	Normal Voltage	0.0060	
30	Normal Voltage	0.0024	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0012	
0	Normal Voltage	0.0024	
-10	Normal Voltage	0.0048	PASS
-20	Normal Voltage	0.0000	
-30	Normal Voltage	0.0012	
20	Maximum Voltage	0.0024	
20	Normal Voltage	0.0012	
20	Battery End Point	0.0060	

#### Note:

- 1. Normal Voltage = 12.0V. ; Battery End Point (BEP) = 12.0 V. ; Maximum Voltage =24.0 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 II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0043	
40	Normal Voltage	0.0021	
30	Normal Voltage	0.0027	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0005	
0	Normal Voltage	0.0021	
-10	Normal Voltage	0.0037	PASS
-20	Normal Voltage	0.0021	
-30	Normal Voltage	0.0059	
20	Maximum Voltage	0.0016	
20	Normal Voltage	0.0037	
20	Battery End Point	0.0021	

#### Note:

- 1. Normal Voltage = 12.0V. ; Battery End Point (BEP) = 12.0 V. ; Maximum Voltage =24.0 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**

	Cellular Band (G <sub>T</sub> - L <sub>C</sub> = 2.43dB)										
Modes	GSM8	50 (GPRS c	lass 8)	GSM8	GSM850 (EDGE class 8)			WCDMA Band V (RMC 12.2Kbps)			
Channel	128 (Low)	189 (Mid)	251 (High)	128 (Low)	189 (Mid)	251 (High)	4132 (Low)	4182 (Mid)	4233 (High)		
Frequency (MHz)	824.2	836.4	848.8	824.2	836.4	848.8	826.4	836.4	846.6		
Conducted Power (dBm)	31.46	31.54	31.47	24.97	24.9	24.78	23.8	22.49	22.78		
Conducted Power (Watts)	1.40	1.43	1.42	0.31	0.31	0.30	0.24	0.18	0.19		
ERP(dBm)	31.74	31.82	31.75	25.25	25.18	25.06	24.08	22.77	23.06		
ERP(Watts)	1.4928	1.5205	1.4962	0.3350	0.3296	0.3206	0.2559	0.1892	0.2023		

	PCS Band ( $G_T - L_C = 1.61 dB$ )										
Modes	GSM19	000 (GPRS c	lass 8)	GSM19	GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)			
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)		
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6		
Conducted Power (dBm)	28.22	28.06	28.37	23.83	23.87	23.96	21.75	21.23	22.25		
Conducted Power (Watts)	0.66	0.64	0.69	0.24	0.24	0.25	0.15	0.13	0.17		
EIRP(dBm)	29.83	29.67	29.98	25.44	25.48	25.57	23.36	22.84	23.86		
EIRP(Watts)	0.9616	0.9268	0.9954	0.3499	0.3532	0.3606	0.2168	0.1923	0.2432		

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

 $EIRP = P_T + G_T - L_C$ , ERP = EIRP - 2.15, where

P<sub>T</sub> = transmitter output power in dBm

 $G_T$  = gain of the transmitting antenna in dBi

 $L_{\text{C}}$  = signal attenuation in the connecting cable between the transmitter and antenna in dB

SPORTON INTERNATIONAL INC.

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Report Issued Date : Mar. 08, 2016
Report Version : Rev. 01

**Report No. : FG611103** 

# Radiated Spurious Emission

<DC 12V>

				GSM850 (G	PRS 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	-51.96	-13	-38.96	-56.71	-53.72	0.98	4.89	Н
	2472	-52.45	-13	-39.45	-61.85	-54.33	1.28	5.32	Н
	3296	-59.17	-13	-46.17	-71.78	-62.58	1.54	7.10	Н
	4120	-59.47	-13	-46.47	-75.14	-64.11	1.83	8.62	Н
Lowest	5768	-56.72	-13	-43.72	-77.07	-61.6	2.78	9.81	Н
Lowest	1648	-53.82	-13	-40.82	-57.09	-55.58	0.98	4.89	V
	2472	-43.94	-13	-30.94	-54.34	-45.82	1.28	5.32	V
	3296	-56.37	-13	-43.37	-67.87	-59.78	1.54	7.10	V
	4120	-59.48	-13	-46.48	-75.08	-64.12	1.83	8.62	V
	5768	-55.47	-13	-42.47	-74.73	-60.35	2.78	9.81	V
	1672	-53.63	-13	-40.63	-58.2	-55.31	0.99	4.82	Н
	2512	-52.80	-13	-39.80	-62.36	-54.77	1.29	5.41	Н
	3344	-58.12	-13	-45.12	-70.29	-61.73	1.56	7.31	Н
	4184	-59.68	-13	-46.68	-75.43	-64.3	1.87	8.64	Н
Middle	5856	-58.02	-13	-45.02	-78.76	-62.88	2.83	9.84	Н
Middle	1672	-53.44	-13	-40.44	-56.46	-55.12	0.99	4.82	V
	2512	-43.40	-13	-30.40	-53.63	-45.37	1.29	5.41	V
	3344	-57.42	-13	-44.42	-68.77	-61.03	1.56	7.31	V
	4184	-58.36	-13	-45.36	-74.15	-62.98	1.87	8.64	V
	5856	-55.52	-13	-42.52	-75.63	-60.38	2.83	9.84	V
	1696	-56.21	-13	-43.21	-60.92	-57.81	1.00	4.75	Н
	2544	-53.53	-13	-40.53	-63.13	-55.51	1.30	5.44	Н
	3392	-59.22	-13	-46.22	-71.5	-63.02	1.57	7.52	Н
	4248	-59.32	-13	-46.32	-75.28	-63.92	1.90	8.65	Н
Llighaat	5944	-56.84	-13	-43.84	-77.99	-61.69	2.88	9.88	Н
Highest	1696	-57.30	-13	-44.30	-61.08	-58.9	1.00	4.75	V
	2544	-51.18	-13	-38.18	-61.41	-53.16	1.30	5.44	V
	3392	-57.36	-13	-44.36	-69.16	-61.16	1.57	7.52	V
	4248	-59.45	-13	-46.45	-75.19	-64.05	1.90	8.65	V
	5944	-55.84	-13	-42.84	-76.66	-60.69	2.88	9.88	V

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

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				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	-53.52	-13	-40.52	-58.21	-55.28	0.98	4.89	Н
	2472	-48.18	-13	-35.18	-58.32	-50.06	1.28	5.32	Н
	3296	-56.70	-13	-43.70	-69.27	-60.11	1.54	7.10	Н
Lowest	4120	-60.79	-13	-47.79	-75.68	-65.43	1.83	8.62	Н
Lowest	1648	-53.53	-13	-40.53	-57.2	-55.29	0.98	4.89	V
	2472	-44.25	-13	-31.25	-54.61	-46.13	1.28	5.32	V
	3296	-55.03	-13	-42.03	-67.32	-58.44	1.54	7.10	V
	4120	-59.27	-13	-46.27	-74.72	-63.91	1.83	8.62	V
	1672	-53.60	-13	-40.60	-58.42	-55.28	0.99	4.82	Н
	2512	-49.07	-13	-36.07	-59.26	-51.04	1.29	5.41	Н
	3344	-59.76	-13	-46.76	-71.95	-63.37	1.56	7.31	Н
Middle	4184	-60.49	-13	-47.49	-75.92	-65.11	1.87	8.64	Н
Middle	1672	-53.61	-13	-40.61	-56.09	-55.29	0.99	4.82	V
	2512	-47.09	-13	-34.09	-57.27	-49.06	1.29	5.41	V
	3344	-57.23	-13	-44.23	-68.65	-60.84	1.56	7.31	V
	4184	-59.71	-13	-46.71	-75	-64.33	1.87	8.64	V
	1696	-53.68	-13	-40.68	-58.6	-55.28	1.00	4.75	Н
	2544	-52.73	-13	-39.73	-62.3	-54.71	1.30	5.44	Н
	3392	-58.39	-13	-45.39	-71.19	-62.19	1.57	7.52	Н
المام مدا	4248	-58.88	-13	-45.88	-74.94	-63.48	1.90	8.65	Н
Highest	1696	-55.51	-13	-42.51	-59.02	-57.11	1.00	4.75	V
	2544	-50.24	-13	-37.24	-60.58	-54.37	1.30	5.44	V
	3392	-57.07	-13	-44.07	-69.15	-63.02	1.57	7.52	V
	4248	-57.17	-13	-44.17	-72.94	-63.92	1.90	8.65	V

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				GSM1900 (0	GPRS class	B)			
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	-53.62	-13	-40.62	-68.05	-60.19	1.67	8.24	Н
	5548	-43.15	-13	-30.15	-63.78	-50.22	2.65	9.72	Н
Lowest	7403	-52.04	-13	-39.04	-78.35	-61.19	2.46	11.61	Н
Lowest	3700	-55.84	-13	-42.84	-70.29	-62.41	1.67	8.24	V
	5548	-49.02	-13	-36.02	-68.02	-56.09	2.65	9.72	V
	7403	-53.51	-13	-40.51	-77.37	-62.66	2.46	11.61	V
	3763	-52.18	-13	-39.18	-67.02	-58.81	1.69	8.32	Н
	5639	-42.11	-13	-29.11	-62.31	-49.16	2.71	9.76	Н
Middle	7522	-51.18	-13	-38.18	-76.8	-60.57	2.42	11.81	Н
Middle	3763	-54.39	-13	-41.39	-68.55	-61.02	1.69	8.32	V
	5639	-46.21	-13	-33.21	-64.94	-53.26	2.71	9.76	V
	7522	-53.32	-13	-40.32	-77.22	-62.71	2.42	11.81	V
	3819	-52.56	-13	-39.56	-67.44	-59.24	1.70	8.38	Н
	5730	-42.08	-13	-29.08	-62.15	-49.11	2.76	9.79	Н
l limboot	7641	-50.58	-13	-37.58	-75.63	-60.08	2.38	11.88	Н
Highest	3819	-59.47	-13	-46.47	-73.97	-66.15	1.70	8.38	V
	5730	-50.41	-13	-37.41	-69.56	-57.44	2.76	9.79	V
	7641	-54.31	-13	-41.31	-78.42	-63.81	2.38	11.88	V

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				GSM1900 (E	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	-52.77	-13	-39.77	-67.48	-59.34	1.67	8.24	Н
	5548	-42.04	-13	-29.04	-62.53	-49.11	2.65	9.72	Н
Lowest	7403	-52.66	-13	-39.66	-77.82	-61.81	2.46	11.61	Н
Lowest	3700	-56.68	-13	-43.68	-70.55	-63.25	1.67	8.24	V
	5548	-48.04	-13	-35.04	-67.19	-55.11	2.65	9.72	V
	7403	-52.28	-13	-39.28	-76.38	-61.43	2.46	11.61	V
	3763	-50.71	-13	-37.71	-65.66	-57.34	1.69	8.32	Н
	5639	-41.10	-13	-28.10	-61.88	-48.15	2.71	9.76	Н
Middle	7522	-51.94	-13	-38.94	-76.95	-61.33	2.42	11.81	Н
Middle	3763	-54.61	-13	-41.61	-68.92	-61.24	1.69	8.32	V
	5639	-47.14	-13	-34.14	-66.12	-54.19	2.71	9.76	V
	7522	-53.65	-13	-40.65	-77.18	-63.04	2.42	11.81	V
	3819	-54.75	-13	-41.75	-69.27	-61.43	1.70	8.38	Н
	5730	-41.08	-13	-28.08	-61.99	-48.11	2.76	9.79	Н
l limboot	7641	-48.56	-13	-35.56	-73.34	-58.06	2.38	11.88	Н
Highest	3819	-56.03	-13	-43.03	-70.66	-62.71	1.70	8.38	V
	5730	-46.82	-13	-33.82	-65.89	-53.85	2.76	9.79	V
	7641	-53.46	-13	-40.46	-77.22	-62.96	2.38	11.88	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)
	1648	-58.68	-13	-45.68	-62.91	-60.44	0.98	4.89	Н
	2480	-63.31	-13	-50.31	-73.37	-65.22	1.28	5.34	Н
	3296	-63.67	-13	-50.67	-76.5	-67.08	1.54	7.10	Н
Lowest	1648	-62.19	-13	-49.19	-66.12	-63.95	0.98	4.89	V
	2480	-63.81	-13	-50.81	-73.94	-65.72	1.28	5.34	V
	3296	-65.40	-13	-52.40	-76.6	-68.81	1.54	7.10	V
	1672	-58.51	-13	-45.51	-63.37	-60.19	0.99	4.82	Н
	2504	-65.32	-13	-52.32	-74.61	-67.28	1.29	5.40	Н
Middle	3344	-63.40	-13	-50.40	-75.62	-67.01	1.56	7.31	Н
ivildale	1672	-62.31	-13	-49.31	-65.46	-63.99	0.99	4.82	V
	2504	-64.58	-13	-51.58	-74.44	-66.54	1.29	5.40	V
	3344	-64.44	-13	-51.44	-75.5	-68.05	1.56	7.31	V
Highest	1696	-58.52	-13	-45.52	-63.44	-60.12	1.00	4.75	Н
	2544	-65.55	-13	-52.55	-75.42	-67.53	1.30	5.44	Н
	3392	-61.48	-13	-48.48	-73.91	-65.28	1.57	7.52	Н
	1696	-61.62	-13	-48.62	-65.46	-63.22	1.00	4.75	V
	2544	-63.20	-13	-50.20	-74.01	-65.18	1.30	5.44	V
	3392	-62.63	-13	-49.63	-74.26	-66.43	1.57	7.52	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)	
	3707	-34.73	-13	-21.73	-48.85	-41.31	1.67	8.25	Н	
	5555	-55.04	-13	-42.04	-76.02	-62.11	2.66	9.72	Н	
Lowest	7410	-51.92	-13	-38.92	-76.67	-61.08	2.46	11.62	Н	
Lowest	3707	-39.00	-13	-26.00	-53.4	-45.58	1.67	8.25	V	
	5555	-54.86	-13	-41.86	-72.75	-61.93	2.66	9.72	V	
	7410	-53.91	-13	-40.91	-77.83	-63.07	2.46	11.62	V	
	3756	-32.63	-13	-19.63	-47.67	-39.25	1.68	8.31	Н	
	5646	-54.13	-13	-41.13	-74.29	-61.18	2.71	9.76	Н	
Middle	7515	-51.99	-13	-38.99	-76.17	-61.37	2.42	11.81	Н	
Middle	3756	-40.47	-13	-27.47	-55.26	-47.09	1.68	8.31	V	
	5646	-53.28	-13	-40.28	-71.72	-60.33	2.71	9.76	V	
	7515	-51.56	-13	-38.56	-75.66	-60.94	2.42	11.81	V	
	3812	-38.61	-13	-25.61	-53.3	-45.28	1.70	8.37	Н	
Highest	5730	-54.37	-13	-41.37	-74.32	-61.4	2.76	9.79	Н	
	7627	-47.60	-13	-34.60	-72.44	-57.09	2.39	11.88	Н	
	3812	-44.69	-13	-31.69	-58.34	-51.36	1.70	8.37	V	
	5730	-52.08	-13	-39.08	-71.97	-59.11	2.76	9.79	V	
	7627	-48.57	-13	-35.57	-72.51	-58.06	2.39	11.88	V	

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#### <DC 24V>

GSM850 (GPRS 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	-53.32	-13	-40.32	-57.97	-55.08	0.98	4.89	Н
	2472	-49.61	-13	-36.61	-59.29	-51.49	1.28	5.32	Н
	3296	-58.40	-13	-45.40	-70.88	-61.81	1.54	7.10	Н
	4120	-59.71	-13	-46.71	-75.01	-64.35	1.83	8.62	Н
Lowest	5768	-56.96	-13	-43.96	-76.88	-61.84	2.78	9.81	Н
Lowest	1648	-53.53	-13	-40.53	-57.2	-55.29	0.98	4.89	V
	2472	-45.20	-13	-32.20	-55.6	-47.08	1.28	5.32	V
	3296	-54.93	-13	-41.93	-65.71	-58.34	1.54	7.10	V
	4120	-59.55	-13	-46.55	-74.98	-64.19	1.83	8.62	V
	5768	-55.56	-13	-42.56	-74.52	-60.44	2.78	9.81	V
	1672	-53.68	-13	-40.68	-58.01	-55.36	0.99	4.82	Н
	2512	-54.11	-13	-41.11	-64.12	-56.08	1.29	5.41	Н
	3344	-59.10	-13	-46.10	-71.78	-62.71	1.56	7.31	Н
	4184	-60.20	-13	-47.20	-75.76	-64.82	1.87	8.64	Н
Middle	5856	-57.03	-13	-44.03	-77.96	-61.89	2.83	9.84	Н
Middle	1672	-54.13	-13	-41.13	-57.03	-55.81	0.99	4.82	V
	2512	-46.12	-13	-33.12	-56.48	-48.09	1.29	5.41	V
	3344	-56.92	-13	-43.92	-67.9	-60.53	1.56	7.31	V
	4184	-58.32	-13	-45.32	-74.69	-62.94	1.87	8.64	V
	5856	-55.21	-13	-42.21	-75.24	-60.07	2.83	9.84	V
	1696	-57.65	-13	-44.65	-62.2	-59.25	1.00	4.75	Н
	2544	-58.50	-13	-45.50	-67.99	-60.48	1.30	5.44	Н
	3392	-59.71	-13	-46.71	-71.73	-63.51	1.57	7.52	Н
	4248	-59.49	-13	-46.49	-74.97	-64.09	1.90	8.65	Н
Highest	5944	-56.12	-13	-43.12	-77.88	-60.97	2.88	9.88	Н
	1696	-57.86	-13	-44.86	-61.43	-59.46	1.00	4.75	V
	2544	-51.73	-13	-38.73	-62	-53.71	1.30	5.44	V
	3392	-55.24	-13	-42.24	-66.82	-59.04	1.57	7.52	V
	4248	-59.28	-13	-46.28	-74.92	-63.88	1.90	8.65	V
	5944	-55.07	-13	-42.07	-76.3	-59.92	2.88	9.88	V

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

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	3707	-44.26	-13	-31.26	-58.75	-50.84	1.67	8.25	Н	
	5555	-55.90	-13	-42.90	-75.23	-62.97	2.66	9.72	Н	
Lowest	7410	-49.85	-13	-36.85	-74.75	-59.01	2.46	11.62	Н	
Lowest	3707	-48.46	-13	-35.46	-63.31	-55.04	1.67	8.25	V	
	5555	-54.87	-13	-41.87	-72.62	-61.94	2.66	9.72	V	
	7410	-52.08	-13	-39.08	-76.71	-61.24	2.46	11.62	V	
	3756	-45.29	-13	-32.29	-59.87	-51.91	1.68	8.31	Н	
	5646	-54.04	-13	-41.04	-74.18	-61.09	2.71	9.76	Н	
Middle	7515	-49.88	-13	-36.88	-74.11	-59.26	2.42	11.81	Н	
Middle	3756	-47.81	-13	-34.81	-62.34	-54.43	1.68	8.31	V	
	5646	-52.44	-13	-39.44	-71.21	-59.49	2.71	9.76	V	
	7515	-50.79	-13	-37.79	-74.84	-60.17	2.42	11.81	V	
	3812	-44.73	-13	-31.73	-59.08	-51.4	1.70	8.37	Н	
	5730	-54.05	-13	-41.05	-74.4	-61.08	2.76	9.79	Н	
Llighoct	7627	-49.94	-13	-36.94	-74.38	-59.43	2.39	11.88	Н	
Highest	3812	-46.79	-13	-33.79	-60.33	-53.46	1.70	8.37	V	
	5730	-52.18	-13	-39.18	-71.46	-59.21	2.76	9.79	V	
	7627	-51.82	-13	-38.82	-75.26	-61.31	2.39	11.88	V	

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