FCC RF Test Report

APPLICANT	:	Solnik S.A.
EQUIPMENT	:	mobile phone
BRAND NAME	:	HYUNDAI
MODEL NAME	:	HY1-1618
FCC ID	:	2AFRUHY1-1618
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Jun. 21, 2017 and testing was completed on Jun. 27, 2017. We, SPORTON International (ShenZhen) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-D-2010 and has been in compliance with the applicable technical standards.

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

Eric Shih

Prepared by: Eric Shih / Manager

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Testing Laboratory
2353

SPORTON International (ShenZhen) INC.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG762102A	Rev. 01	Initial issue of report	Aug. 01, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§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 §22.917(b) §24.238(b)	Occupied Bandwidth	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 §22.917(a) §24.238(a)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22H	PASS	-
	§2.1055 §24.235		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 21.51 dB at 1672.800 MHz

1 General Description

1.1 Applicant

Solnik S.A.
Dr. Emilio Ravignani 1724 Ciudad Autonoma de Buenos Aires Zip Code 1414 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	HY1-1618
FCC ID	2AFRUHY1-1618
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/DC-HSDPA/HSPA+/LTE WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v2.1 + EDR/Bluetooth v3.0 + EDR/Bluetooth v4.0 LE
IMEI Code	Conducted: 354147042105800/354147043105809 Radiation: 354147042105768/354147043105767
HW Version	Ultra Active_Mainboard_P4
SW Version	Ultra Active_0402_V5748
EUT Stage	Pre-Production

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	**GSM/GPRS/EDGE:** 850: 824.2 MHz ~ 848.8 MHz 1900: 1850.2 MHz ~ 1909.8MHz **WCDMA:** Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency	**GSM/GPRS/EDGE:** 850: 869.2 MHz ~ 893.8 MHz 1900: 1930.2 MHz ~ 1989.8 MHz **WCDMA:** Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna	**GSM/GPRS/EDGE:** 850: 31.05 dBm 1900: 28.39 dBm **WCDMA:** Band V: 21.37 dBm Band II: 21.74 dBm
Antenna Type	Loop Antenna
Antenna Gain	Cellular Band: -2.70 dBi PCS Band: -4.60 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA : BPSK (Uplink) HSDPA/DC-HSDPA : QPSK (Uplink) HSUPA : QPSK (Uplink) HSPA+ : 16QAM DC-HSDPA : 64QAM

1.5 Modification of EUT

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

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

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22H	GSM850 GSM	GMSK	0.4169	0.0133 ppm	244KGXW
Part 22H	GSM850 EDGE class 8	8PSK	0.1422	0.0154 ppm	245KG7W
Part 22H	WCDMA Band V RMC 12.2Kbps	BPSK	0.0449	0.0093 ppm	4M23F9W
Part 24E	GSM1900 GSM	GMSK	0.2393	0.0107 ppm	245KGXW
Part 24E	GSM1900 EDGE class 8	8PSK	0.1208	0.0085 ppm	242KG7W
Part 24E	WCDMA Band II RMC 12.2Kbps	BPSK	0.0518	0.0045 ppm	4M21F9W

1.7 Testing Location

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan District, Shenzhen City, Guangdong Province, China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton 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	
Test Site No.	**Sporton Site No.**	**FCC Registration No.**
	03CH03-SZ	565805

Note: The test site complies with ANSI C63.4 2014 requirement.

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.

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:

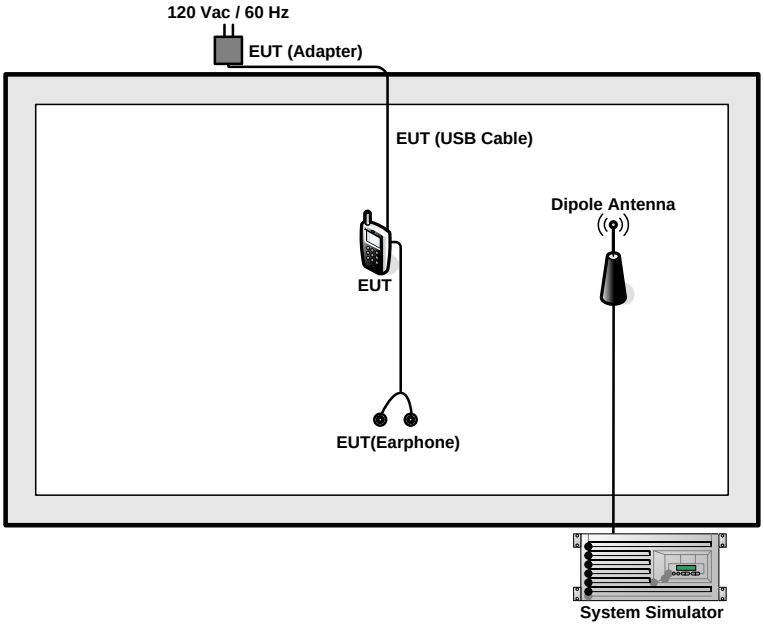
1. 30 MHz to 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

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 ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
GSM 1900	■ GSM Link ■ EDGE class 8 Link	■ GSM Link ■ EDGE class 8 Link
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

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	GW INSTEK	GPS-3030D	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 4.0 dB and a 10dB attenuator.

Example :

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

= 4.0 + 10 = 14.0 (dB)

3 Conducted Test Result

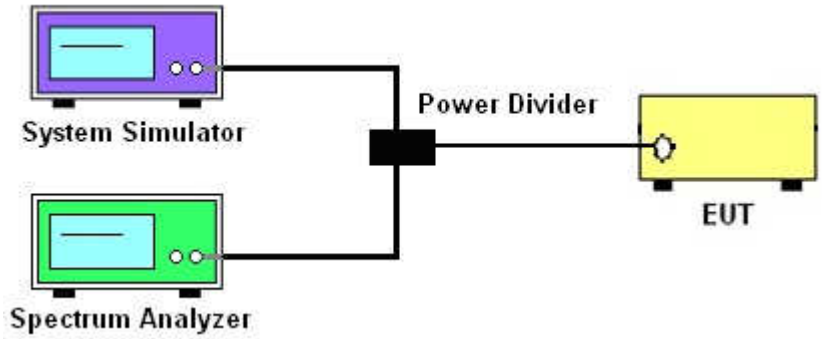
3.1 Measuring Instruments

See list of measuring instruments of this test report.

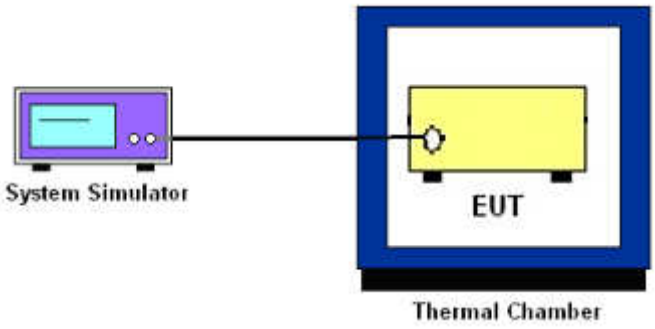
3.2 Test Setup

3.2.1 Conducted Output Power

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



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power 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_C = 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.

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.
6. Record the maximum PAPR level associated with a probability of 0.1%.

3.6 99% Occupied Bandwidth and 26dB Bandwidth Measurement

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

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

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

3.6.2 Test Procedures

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

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

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

3.7.2 Test Procedures

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

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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

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

3.8.2 Test Procedures

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

= P(W) - [43 + 10log(P)] (dB)

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

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 20±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.

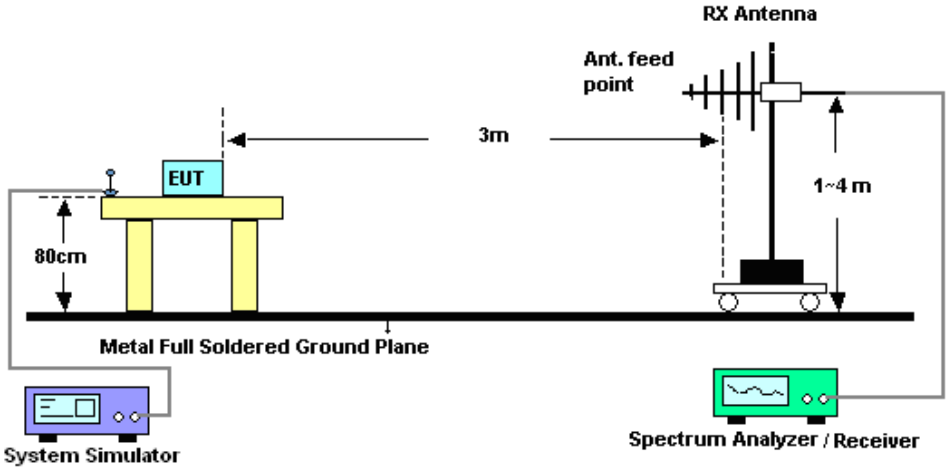
4 Radiated Test Items

4.1 Measuring Instruments

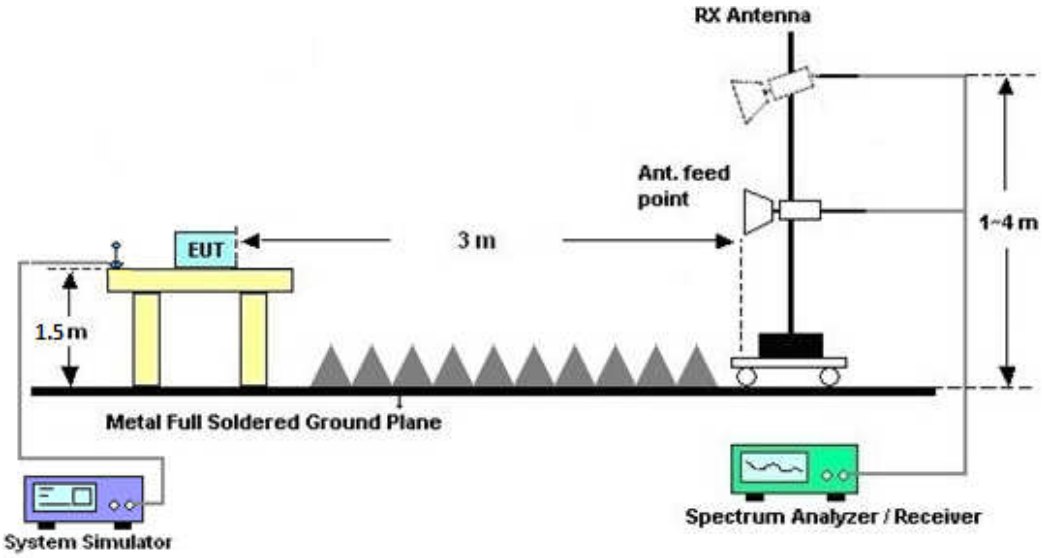
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 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

1. The testing follows FCC KDB 971168 D01 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table 0.8 meters for frequency below 1GHz and 1.5 meter for frequency above 1GHz 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	R&S	FSV40	101078	9kHz~40GHz	Apr. 20, 2017	Jun. 27, 2017	Apr. 19, 2018	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 16, 2016	Jun. 27, 2017	Jul. 15, 2017	Conducted (TH01-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 20, 2017	Jun. 23, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	May 14, 2017	Jun. 23, 2017	May 13, 2018	Radiation (03CH03-SZ)
Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1285	1GHz~18GHz	Jan. 12, 2017	Jun. 23, 2017	Jan. 11, 2018	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Jun. 23, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 16, 2016	Jun. 23, 2017	Jul. 15, 2017	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz-40GHz	Aug. 10, 2016	Jun. 23, 2017	Aug. 09, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 06, 2017	Jun. 23, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Jun. 23, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Jun. 23, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Jun. 23, 2017	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.0dB

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.6dB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.8dB

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)						
Band	GSM850			GSM1900		
Channel	128	189	251	512	661	810
Frequency	824.2	836.4	848.8	1850.2	1880.0	1909.8
GSM	31.02	31.05	31.02	28.19	28.35	28.39
GPRS class 8	31.01	31.03	31.04	28.12	28.33	28.37
GPRS class 10	29.91	30.11	30.05	27.54	27.55	27.68
GPRS class 11	28.84	28.93	28.94	25.89	26.02	26.12
GPRS class 12	28.15	28.28	28.22	24.57	24.78	24.84
EGPRS class 8	26.38	26.24	26.21	25.42	25.35	25.40
EGPRS class 10	25.12	25.01	24.91	24.37	24.33	24.37
EGPRS class 11	22.67	22.53	22.47	22.33	22.28	22.29
EGPRS class 12	21.34	21.26	21.06	21.25	21.12	21.14

Conducted Power (*Unit: dBm)						
Band	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
AMR 12.2K	21.33	21.34	21.26	21.71	21.65	21.58
RMC 12.2K	21.35	21.37	21.29	21.74	21.71	21.61
HSDPA Subtest-1	20.54	20.59	20.48	20.58	20.58	20.50
HSDPA Subtest-2	20.56	20.57	20.45	20.59	20.59	20.50
HSDPA Subtest-3	20.04	20.16	20.01	20.11	20.12	20.03
HSDPA Subtest-4	20.07	20.10	20.50	20.10	20.12	19.79
DC-HSDPA Subtest-1	20.18	20.17	20.07	20.21	20.22	20.14
DC-HSDPA Subtest-2	20.15	20.18	20.05	20.15	20.18	20.11
DC-HSDPA Subtest-3	19.66	19.68	19.55	19.75	19.73	19.65
DC-HSDPA Subtest-4	19.62	19.69	19.51	19.71	19.74	19.62
HSUPA Subtest-1	18.64	18.66	18.53	18.62	18.60	18.56
HSUPA Subtest-2	18.59	18.63	18.51	18.59	18.61	18.45
HSUPA Subtest-3	19.62	19.75	19.58	19.61	19.63	19.49
HSUPA Subtest-4	18.08	18.10	18.02	18.09	18.09	18.03
HSUPA Subtest-5	20.60	20.60	20.51	20.60	20.60	20.50
HSPA+ (16QAM) Subtest-1	18.25	18.31	18.22	18.22	18.23	18.25

ERP/EIRP

GSM850 (G_T - L_C= -2.70dBi)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	31.02	31.05	31.02
Conducted Power (Watts)	1.2647	1.2735	1.2647
ERP(dBm)	26.17	26.20	26.17
ERP(Watts)	0.4140	0.4169	0.4140

EDGE850 (G_T - L_C= -2.70dBi)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	26.38	26.24	26.21
Conducted Power (Watts)	0.4345	0.4207	0.4178
ERP(dBm)	21.53	21.39	21.36
ERP(Watts)	0.1422	0.1377	0.1368

GSM1900 (G_T - L_C= -4.60dBi)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	28.19	28.35	28.39
Conducted Power (Watts)	0.6592	0.6839	0.6902
EIRP(dBm)	23.59	23.75	23.79
EIRP(Watts)	0.2286	0.2371	0.2393

EDGE1900 (G_T - L_C= -4.60dBi)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	25.42	25.35	25.40
Conducted Power (Watts)	0.3483	0.3428	0.3467
EIRP(dBm)	20.82	20.75	20.80
EIRP(Watts)	0.1208	0.1189	0.1202

WCDMA Band V (G_T - $L_{C=}$ -2.70dBi)			
Channel	4132	4182	4233
	(Low)	(Mid)	(High)
Frequency (MHz)	826.4	836.4	846.6
Conducted Power (dBm)	21.35	21.37	21.29
Conducted Power (Watts)	0.1365	0.1371	0.1346
ERP(dBm)	16.50	16.52	16.44
ERP(Watts)	0.0447	0.0449	0.0441

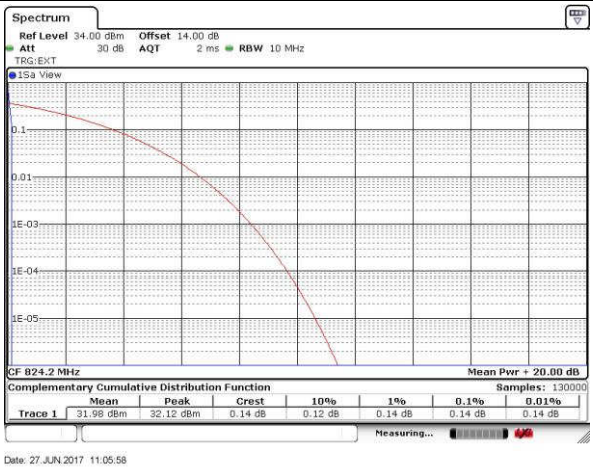
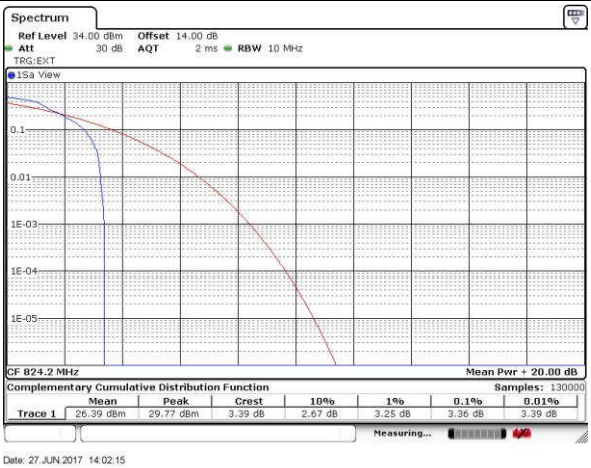
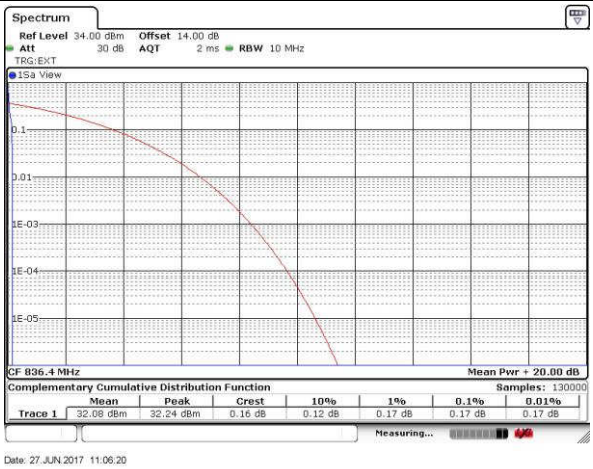
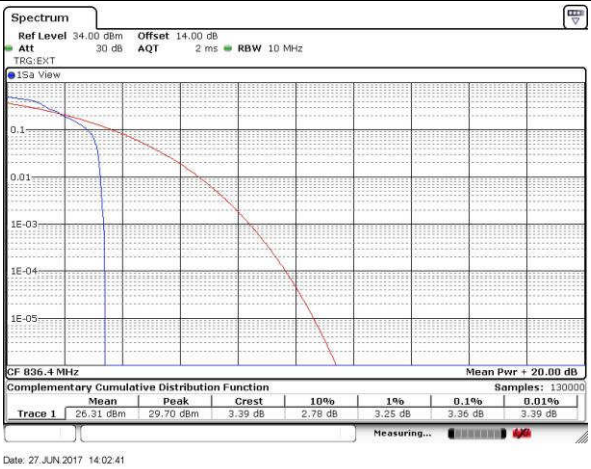
WCDMA Band II (G_T - $L_{C=}$ -4.60dBi)			
Channel	9262	9400	9538
	(Low)	(Mid)	(High)
Frequency (MHz)	1852.4	1880	1907.6
Conducted Power (dBm)	21.74	21.71	21.61
Conducted Power (Watts)	0.1493	0.1483	0.1449
EIRP(dBm)	17.14	17.11	17.01
EIRP(Watts)	0.0518	0.0514	0.0502

Peak-to-Average Ratio

Mode	GSM850(dB)		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.14	3.36	PASS
Middle CH	0.17	3.36	
Highest CH	0.17	3.30	

Mode	GSM1900(dB)		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.20	3.04	PASS
Middle CH	0.14	2.99	
Highest CH	0.17	3.28	

Mode	WCDMA Band V(dB)	WCDMA Band II(dB)	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	2.35	2.72	PASS
Middle CH	2.61	2.72	
Highest CH	2.38	2.67	

GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
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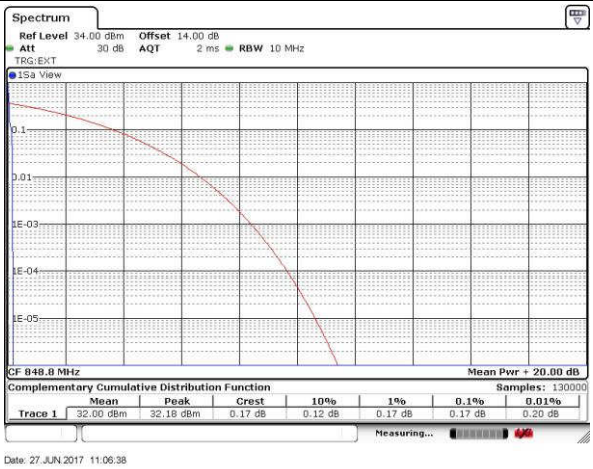
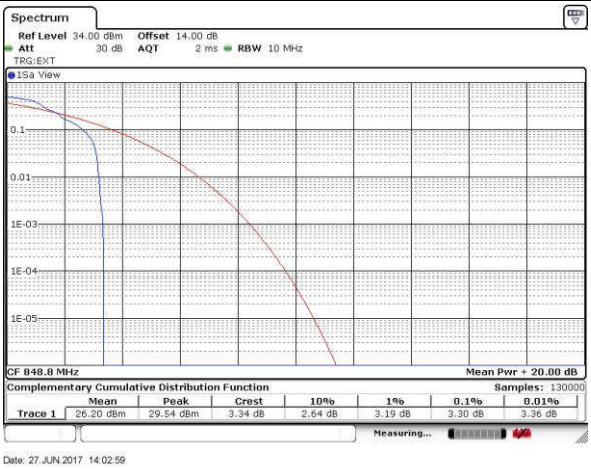
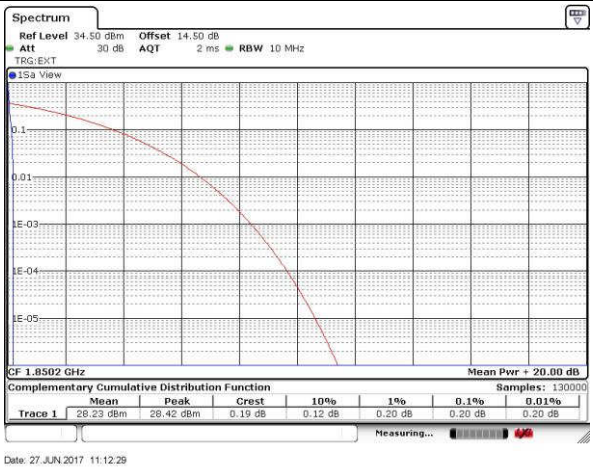
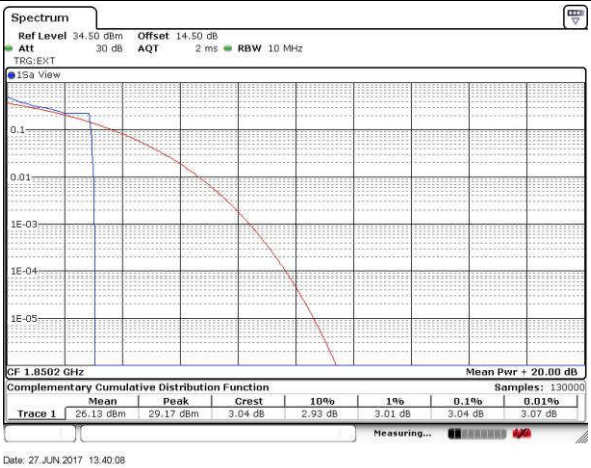
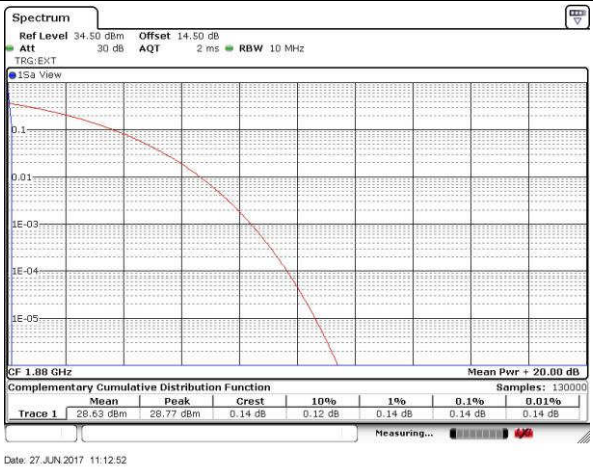
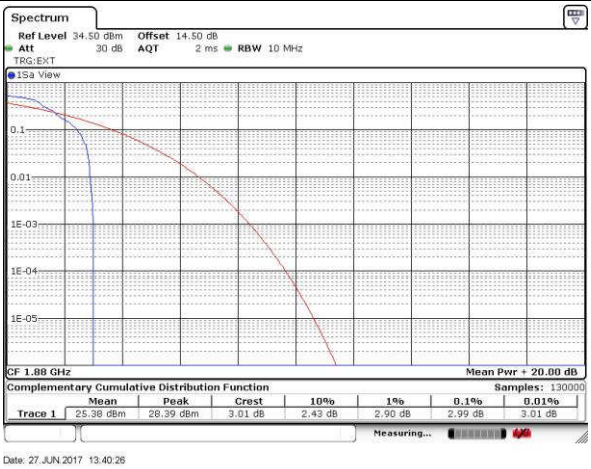
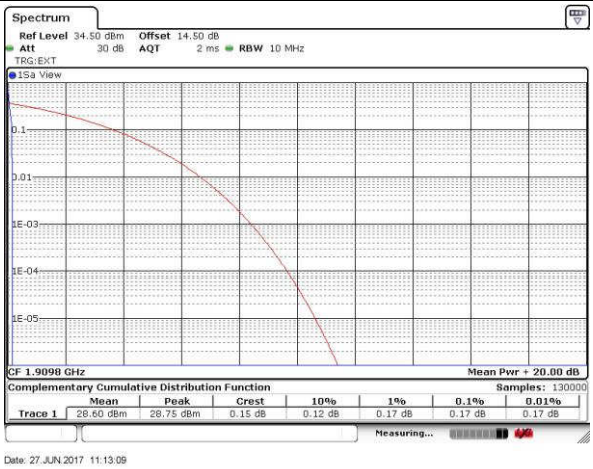
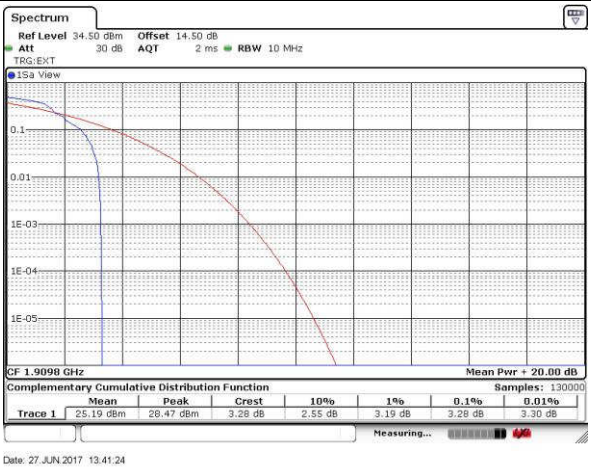
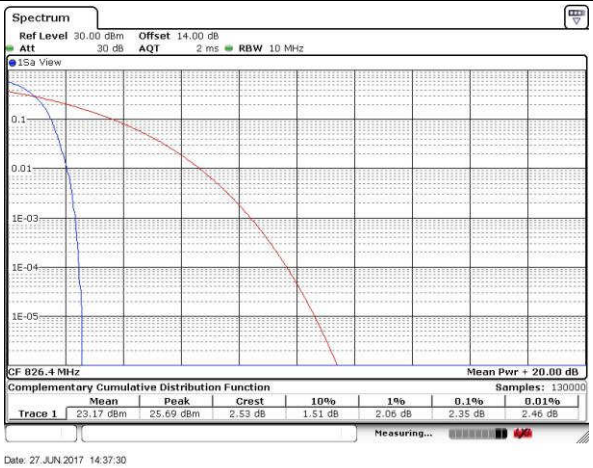
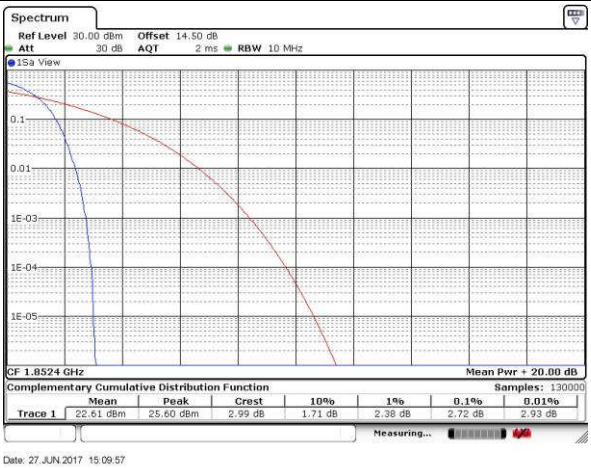
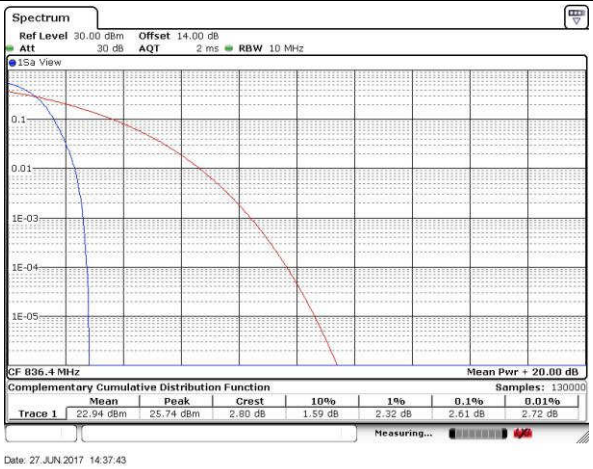
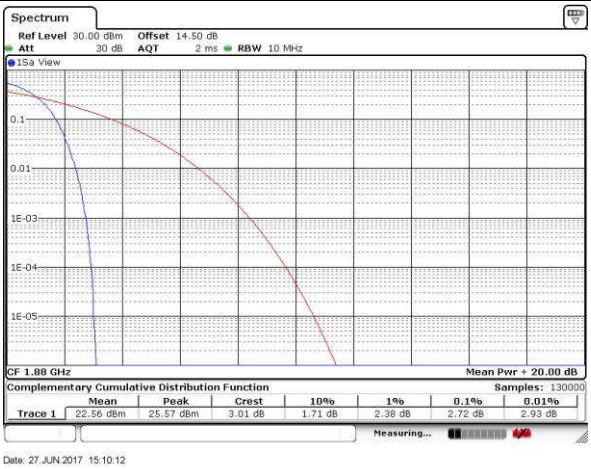
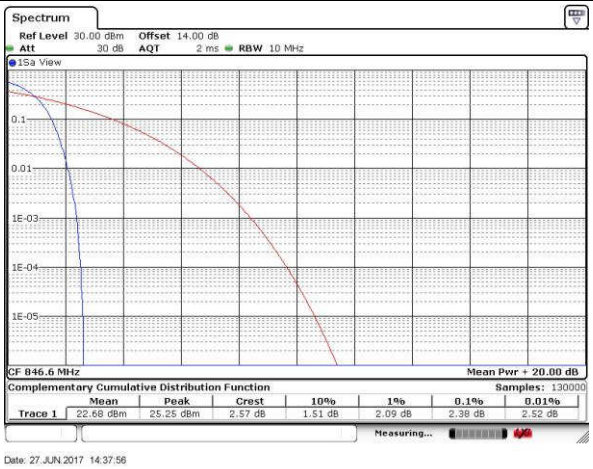
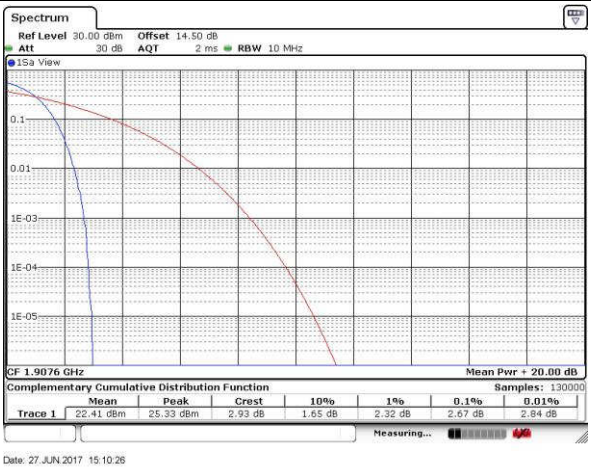
	

GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

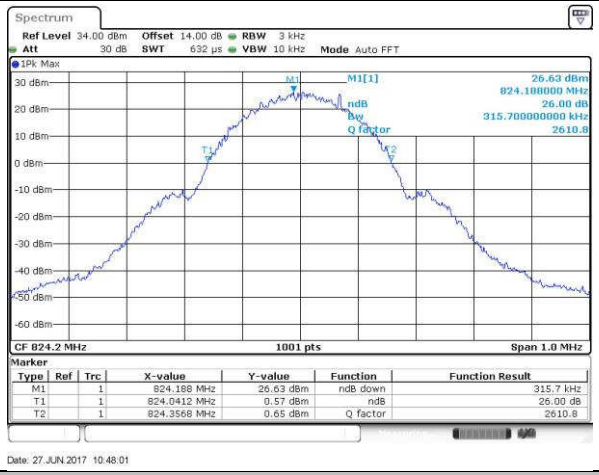
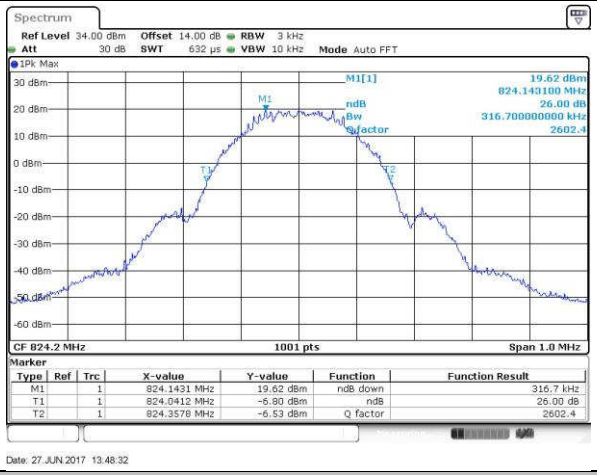
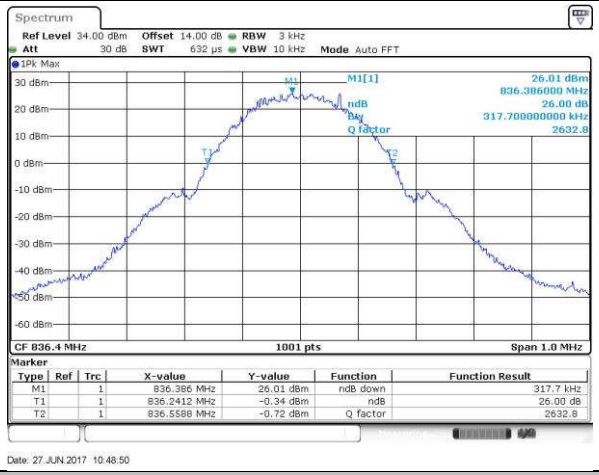
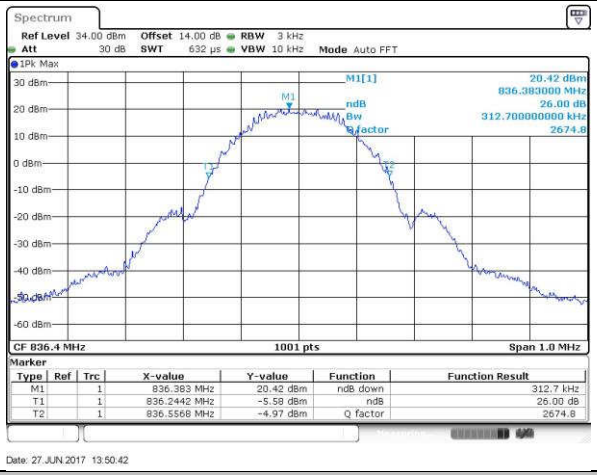
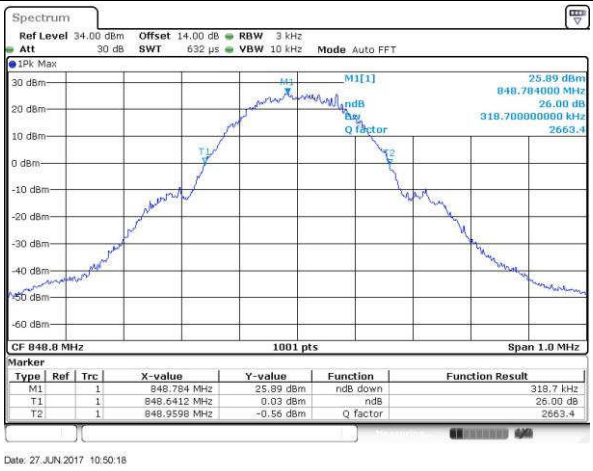
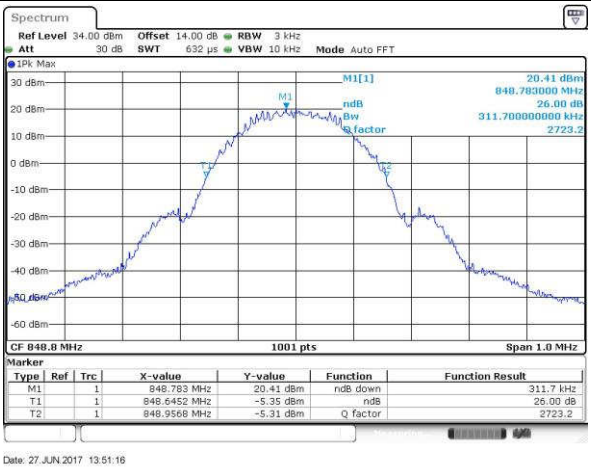
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

26dB Bandwidth

Mode	GSM850(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.316	0.317
Middle CH	0.318	0.313
Highest CH	0.319	0.312

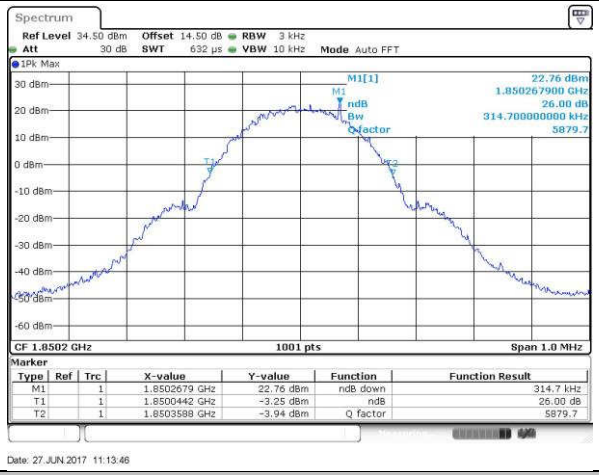
Mode	GSM1900(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.315	0.310
Middle CH	0.315	0.310
Highest CH	0.315	0.309

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.91	4.86
Middle CH	4.90	4.87
Highest CH	4.91	4.86

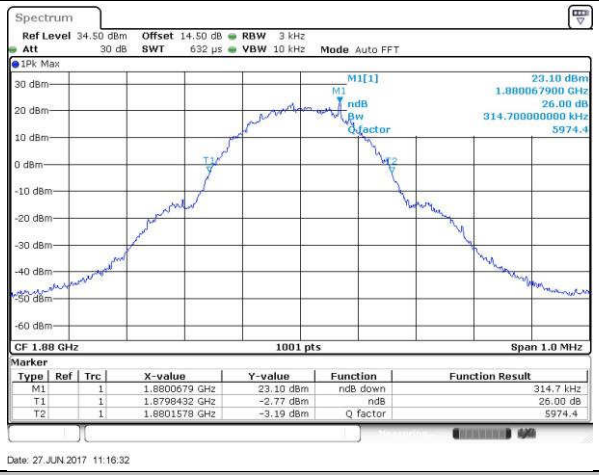
GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

GSM1900 (GSM)

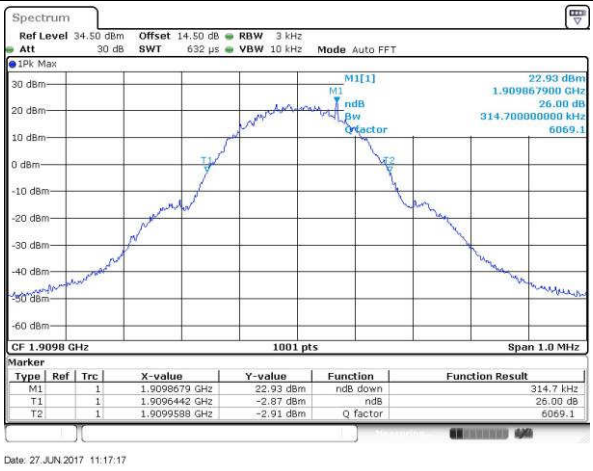
Lowest Channel



Middle Channel

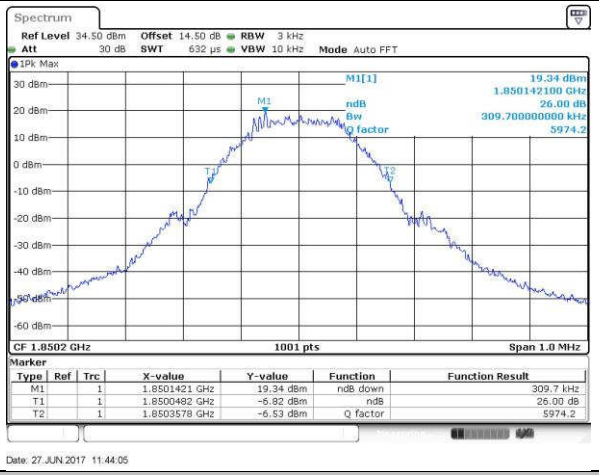


Highest Channel

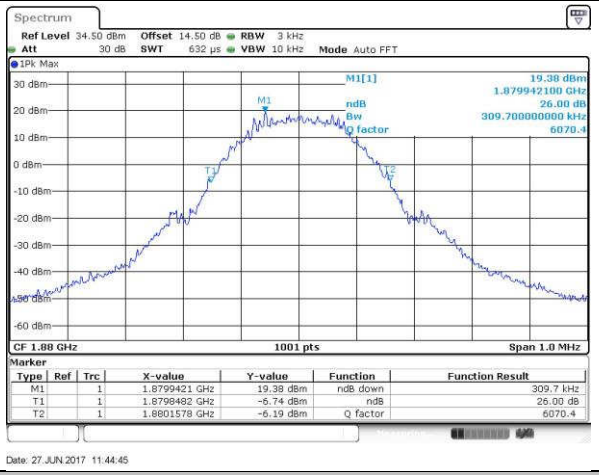


GSM1900 (EDGE class 8)

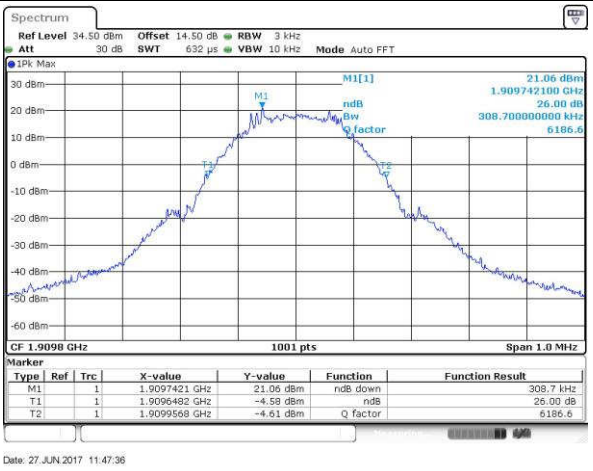
Lowest Channel



Middle Channel

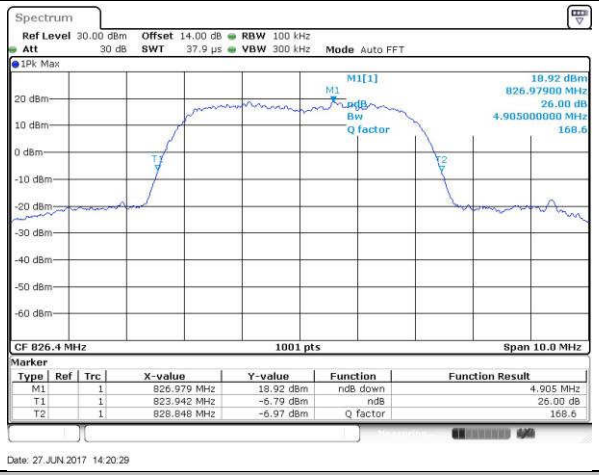


Highest Channel

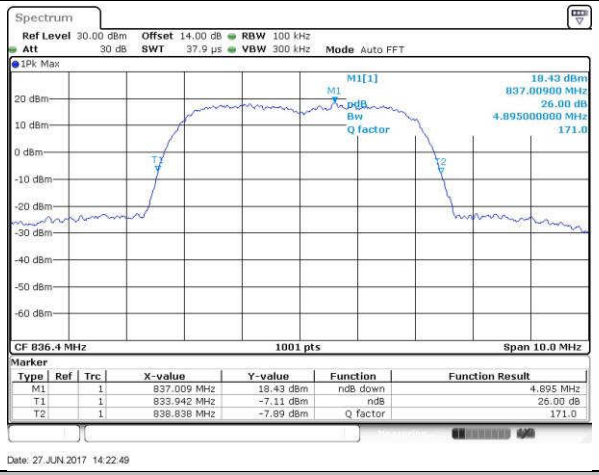


WCDMA Band V (RMC 12.2Kbps)

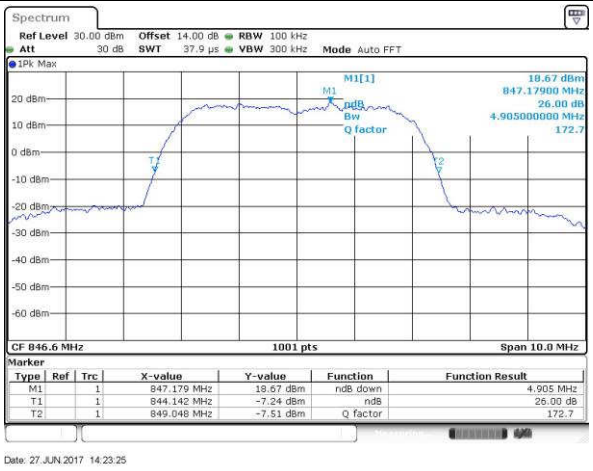
Lowest Channel



Middle Channel

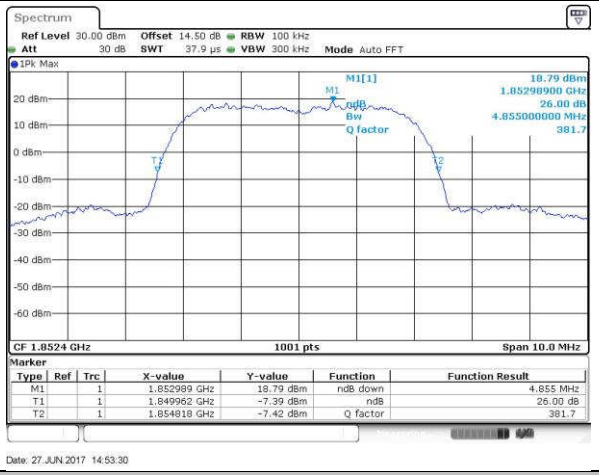


Highest Channel

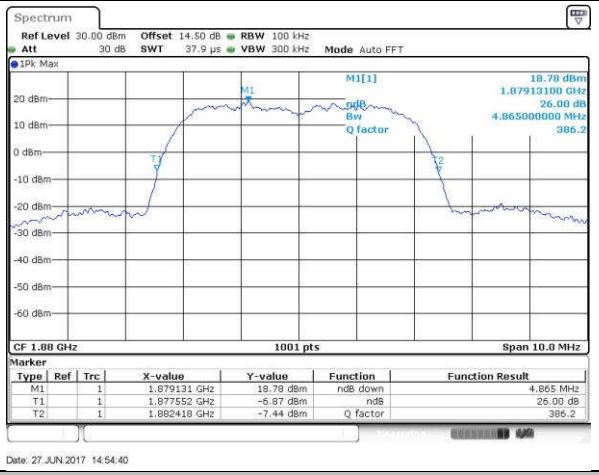


WCDMA Band II (RMC 12.2Kbps)

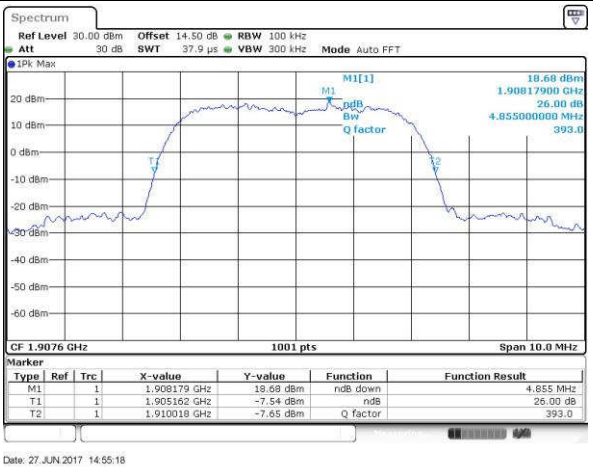
Lowest Channel



Middle Channel



Highest Channel

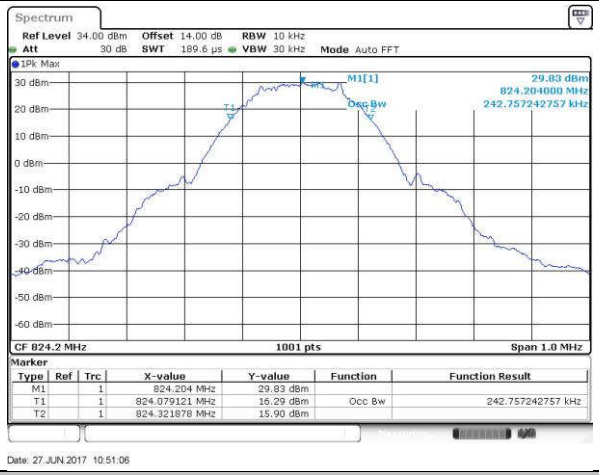
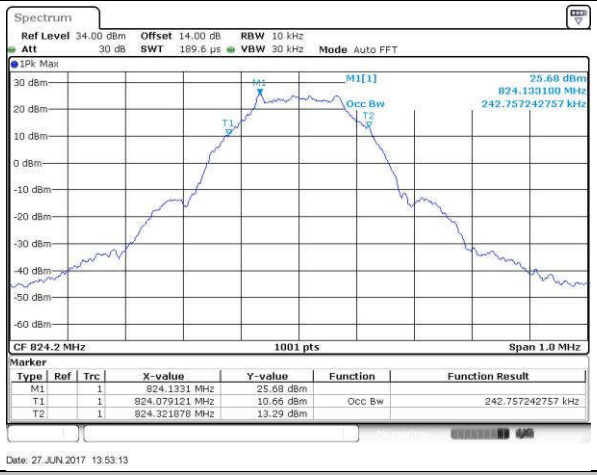
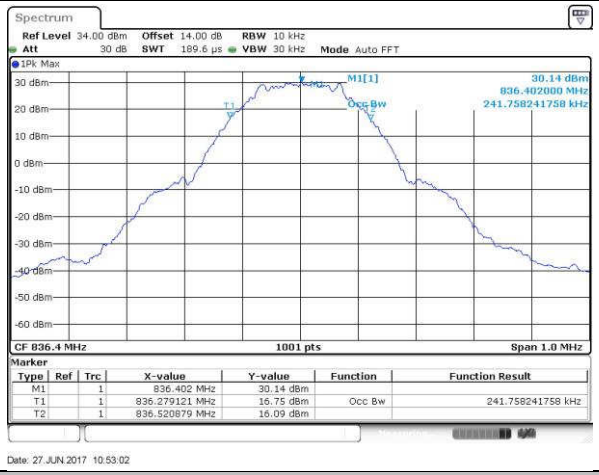
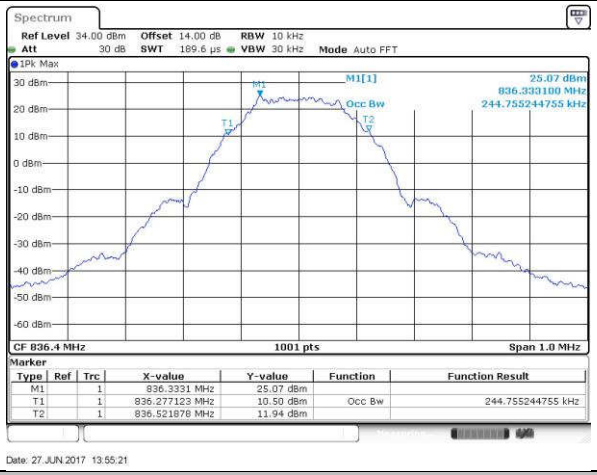
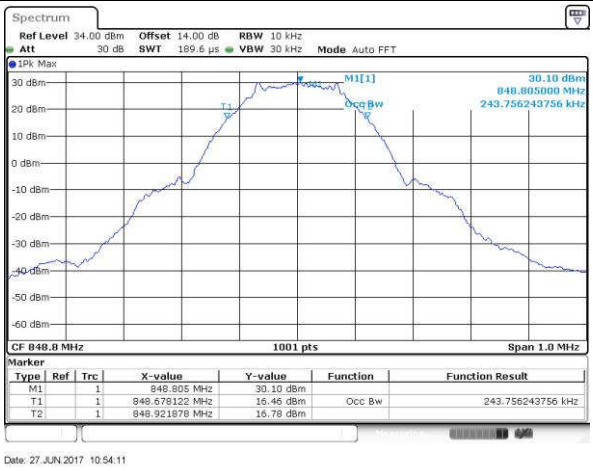


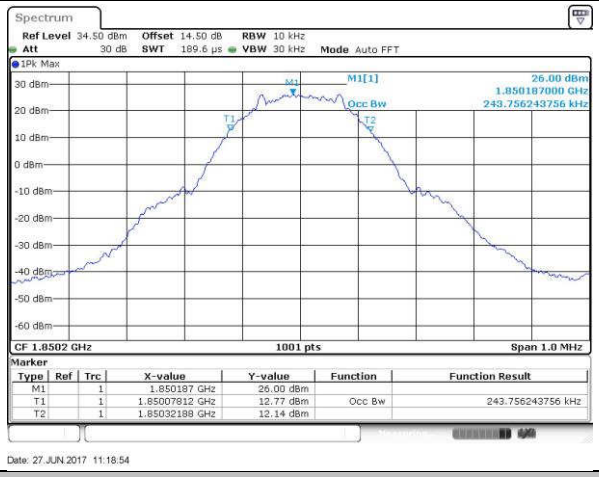
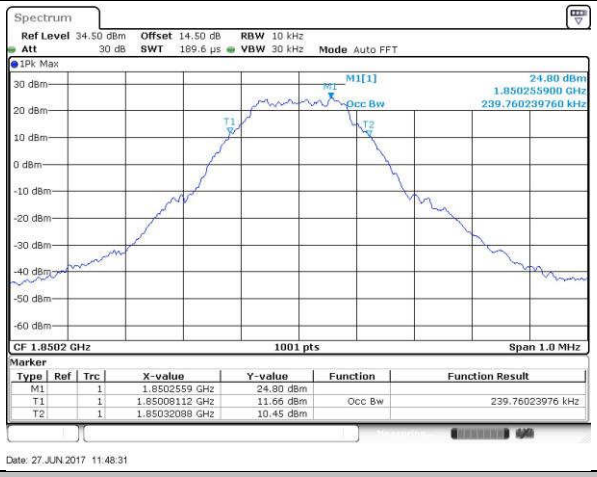
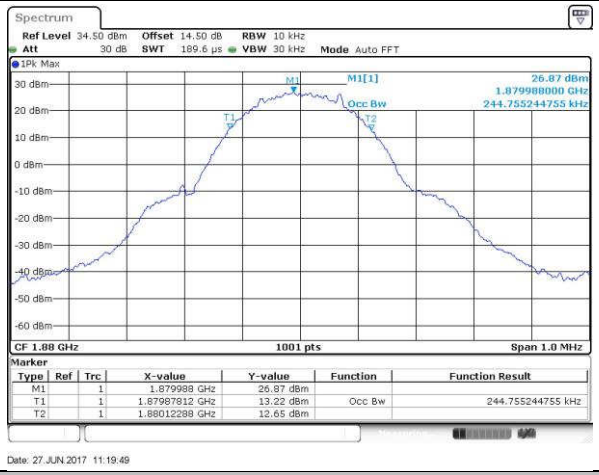
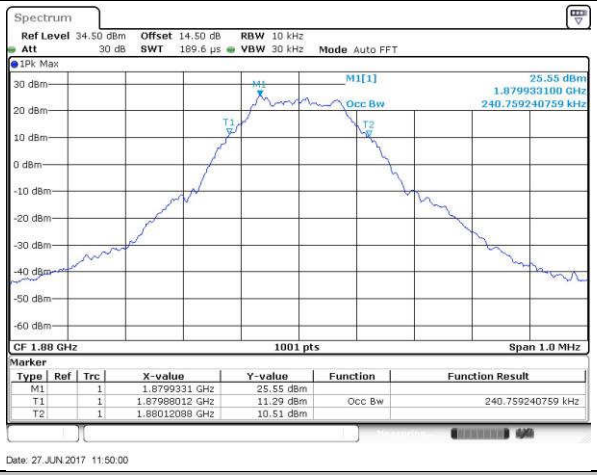
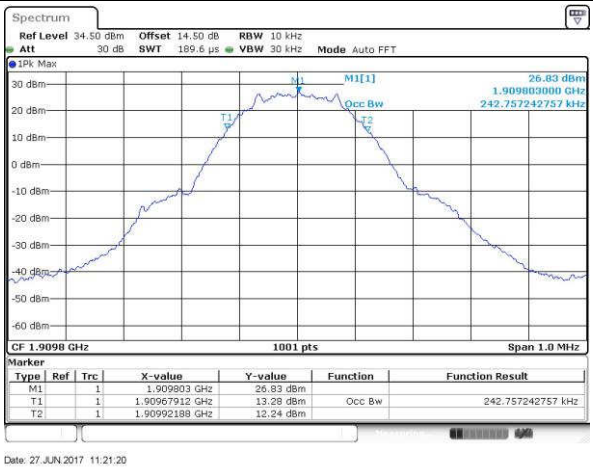
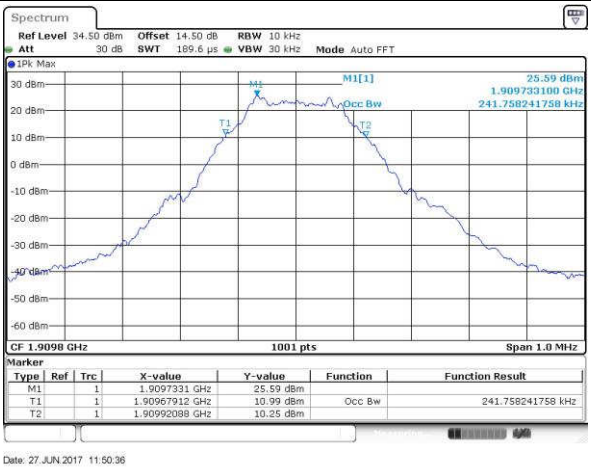
Occupied Bandwidth

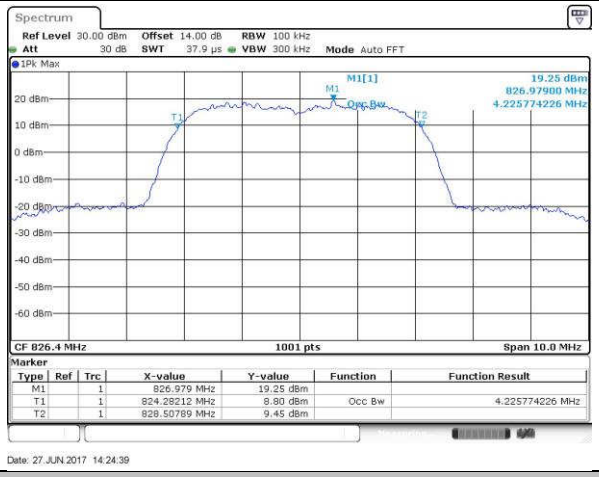
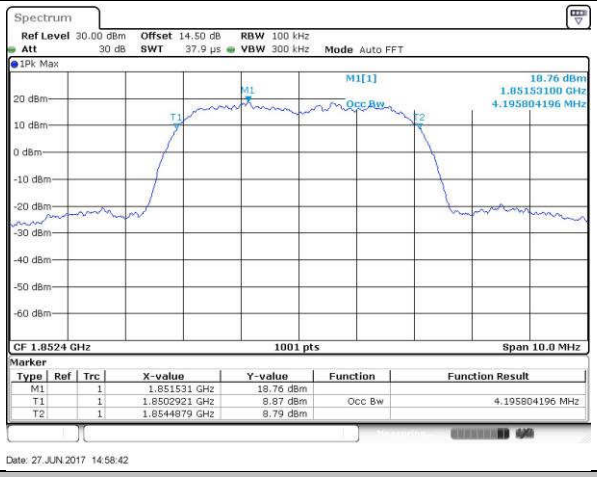
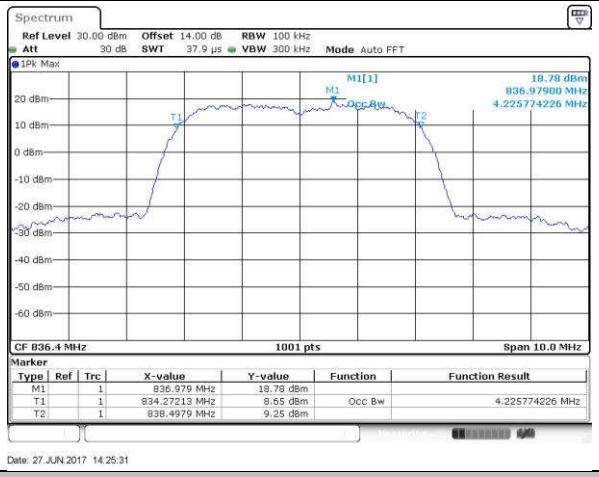
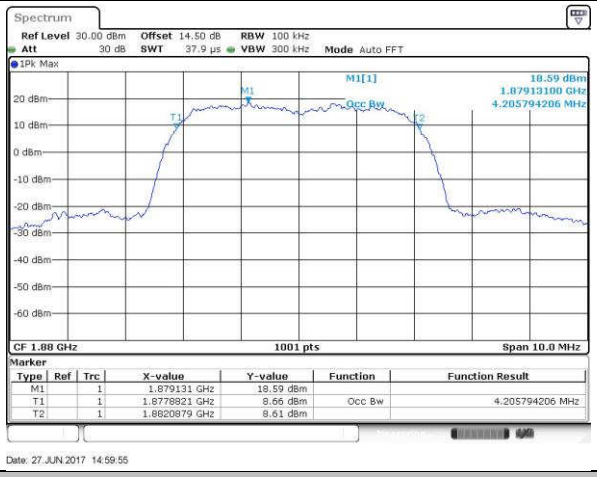
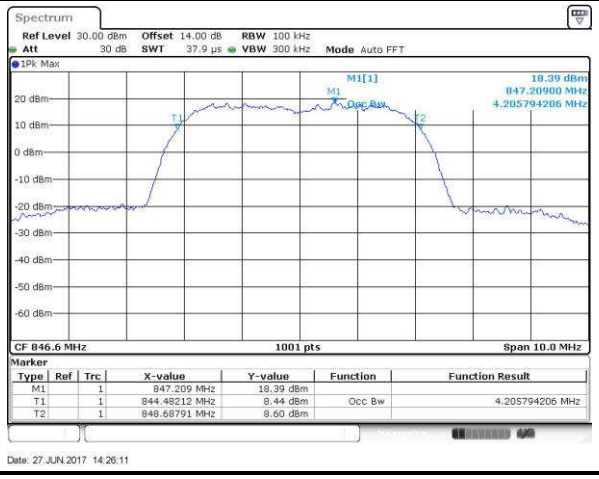
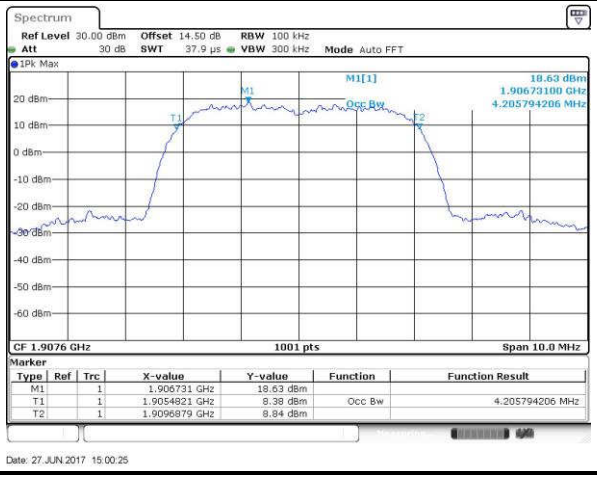
Mode	GSM850(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.243	0.243
Middle CH	0.242	0.245
Highest CH	0.244	0.241

Mode	GSM1900(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.244	0.240
Middle CH	0.245	0.241
Highest CH	0.243	0.242

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.23	4.20
Middle CH	4.23	4.21
Highest CH	4.21	4.21

GSM850 (GSM)	GSM850 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

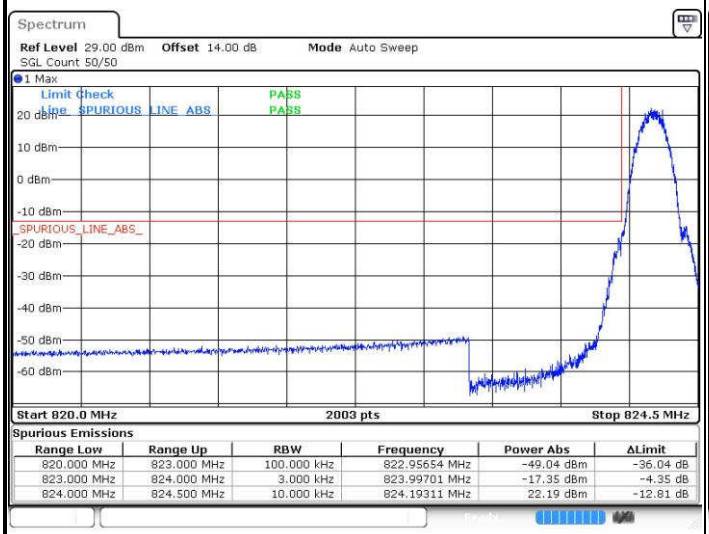
GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

Conducted Band Edge

GSM850 (GSM)

Lowest Band Edge

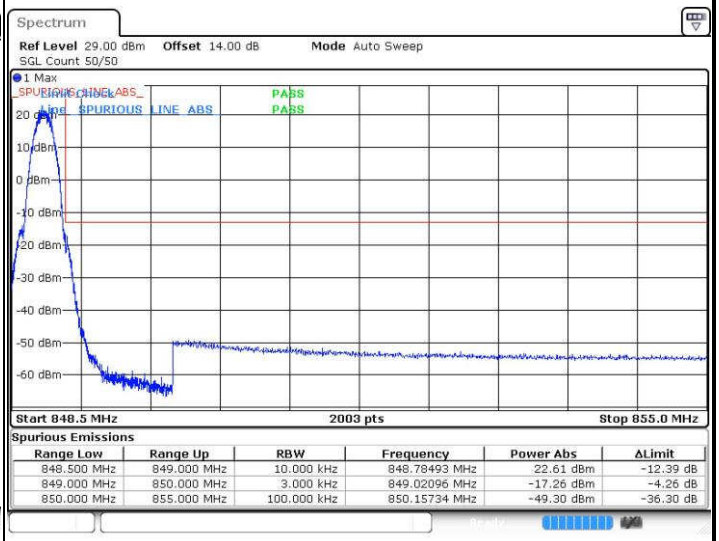


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.95654 MHz	-49.04 dBm	-36.04 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.99701 MHz	-17.35 dBm	-4.35 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.19311 MHz	22.19 dBm	-12.81 dB

Date: 27.JUN.2017 10:55:47

Highest Band Edge



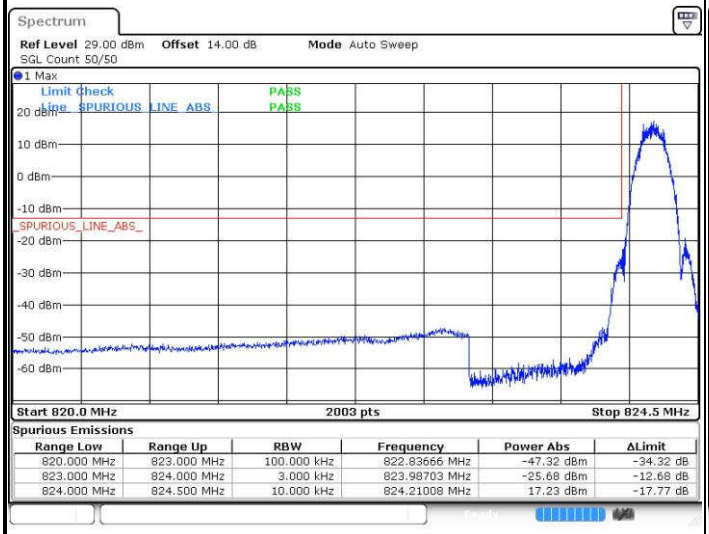
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.78493 MHz	22.61 dBm	-12.39 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.02096 MHz	-17.26 dBm	-4.26 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.15734 MHz	-49.30 dBm	-36.30 dB

Date: 27.JUN.2017 10:57:24

GSM850 (EDGE class 8)

Lowest Band Edge

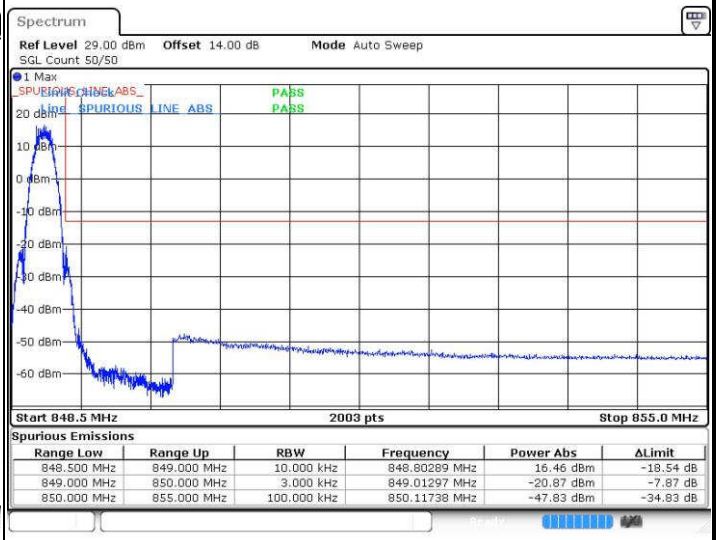


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.83666 MHz	-47.32 dBm	-34.32 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.98703 MHz	-25.68 dBm	-12.68 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.21008 MHz	17.23 dBm	-17.77 dB

Date: 27.JUN.2017 13:59:45

Highest Band Edge



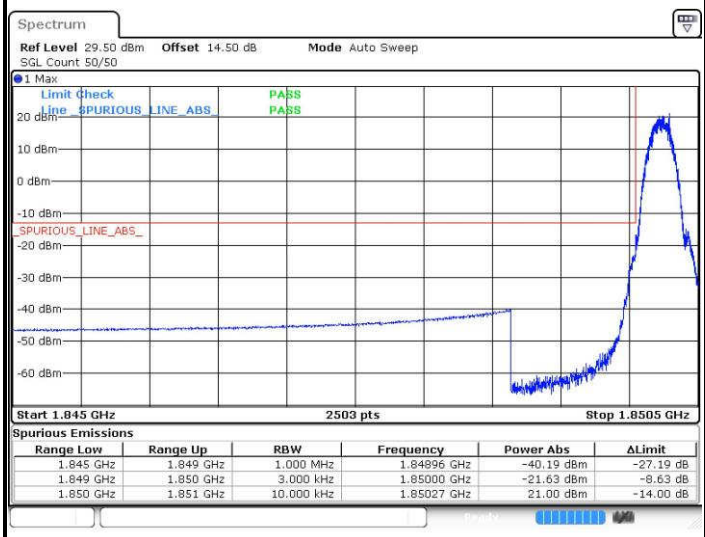
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.80289 MHz	16.46 dBm	-18.54 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.01297 MHz	-20.87 dBm	-7.87 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.11738 MHz	-47.83 dBm	-34.83 dB

Date: 27.JUN.2017 14:01:22

GSM1900 (GSM)

Lowest Band Edge

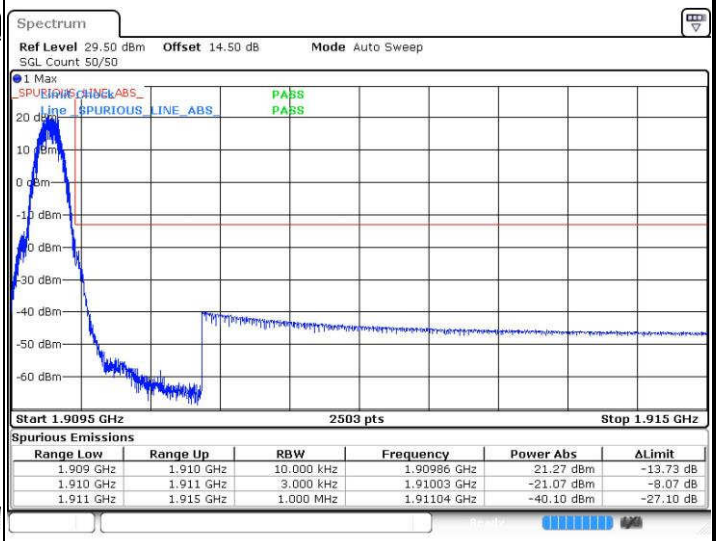


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84896 GHz	-40.19 dBm	-27.19 dB
1.849 GHz	1.850 GHz	3.000 kHz	1.85000 GHz	-21.63 dBm	-8.63 dB
1.850 GHz	1.851 GHz	10.000 kHz	1.85027 GHz	21.00 dBm	-14.00 dB

Date: 27.JUN.2017 11:23:25

Highest Band Edge



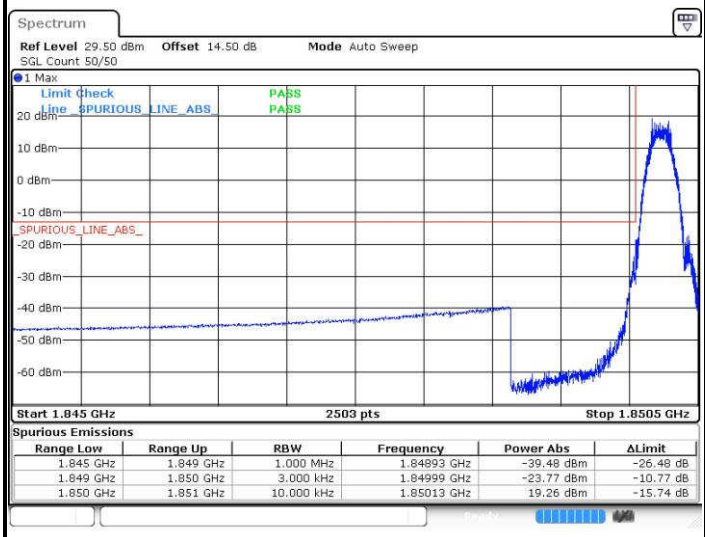
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.909 GHz	1.910 GHz	10.000 kHz	1.90986 GHz	21.27 dBm	-13.73 dB
1.910 GHz	1.911 GHz	3.000 kHz	1.91003 GHz	-21.07 dBm	-8.07 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91104 GHz	-40.10 dBm	-27.10 dB

Date: 27.JUN.2017 11:26:41

GSM1900 (EDGE class 8)

Lowest Band Edge

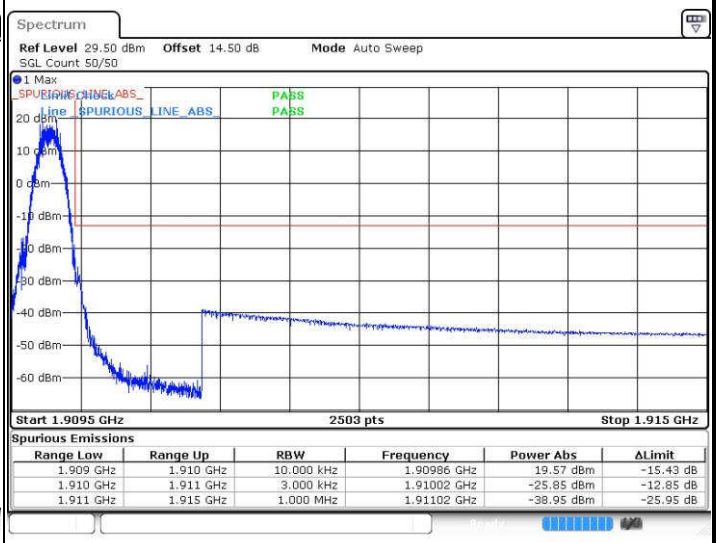


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84893 GHz	-39.48 dBm	-26.48 dB
1.849 GHz	1.850 GHz	3.000 kHz	1.84999 GHz	-23.77 dBm	-10.77 dB
1.850 GHz	1.851 GHz	10.000 kHz	1.85013 GHz	19.26 dBm	-15.74 dB

Date: 27.JUN.2017 11:52:32

Highest Band Edge



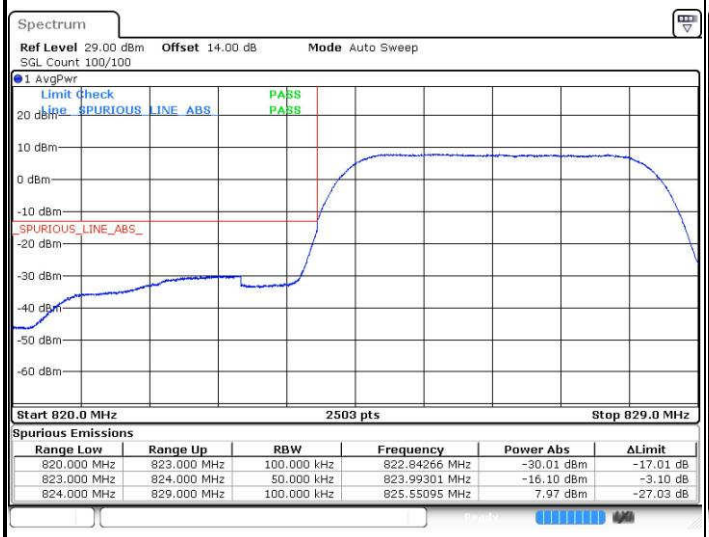
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.909 GHz	1.910 GHz	10.000 kHz	1.90986 GHz	19.57 dBm	-15.43 dB
1.910 GHz	1.911 GHz	3.000 kHz	1.91002 GHz	-25.85 dBm	-12.85 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91102 GHz	-38.95 dBm	-25.95 dB

Date: 27.JUN.2017 11:55:10

WCDMA Band V (RMC 12.2Kbps)

Lowest Band Edge

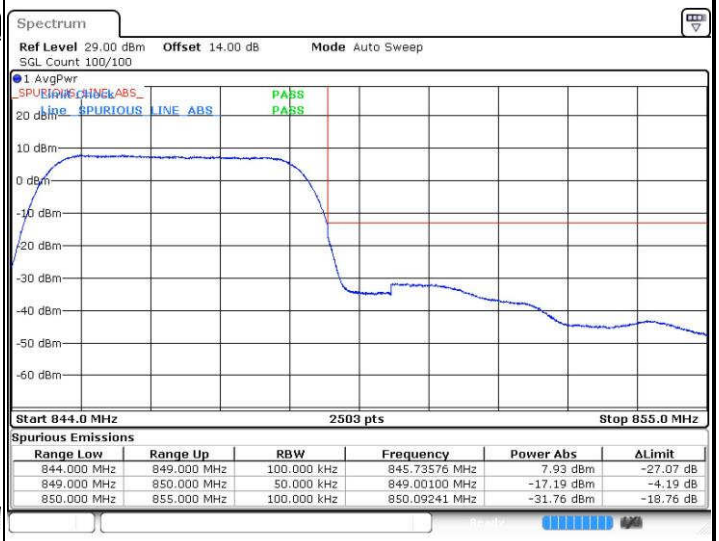


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.84266 MHz	-30.01 dBm	-17.01 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99301 MHz	-16.10 dBm	-3.10 dB
824.000 MHz	829.000 MHz	100.000 kHz	825.55095 MHz	7.97 dBm	-27.03 dB

Date: 27.JUN.2017 14:29:52

Highest Band Edge



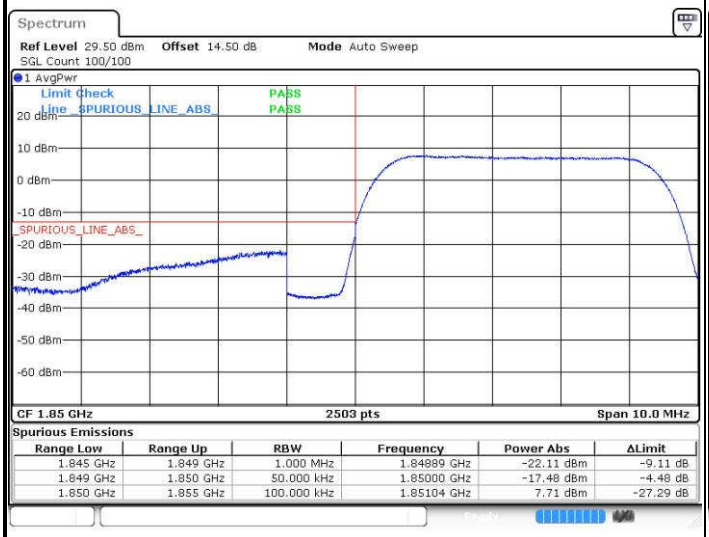
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	845.73576 MHz	7.93 dBm	-27.07 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.00100 MHz	-17.19 dBm	-4.19 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.09241 MHz	-31.76 dBm	-18.76 dB

Date: 27.JUN.2017 14:36:02

WCDMA Band II (RMC 12.2Kbps)

Lowest Band Edge

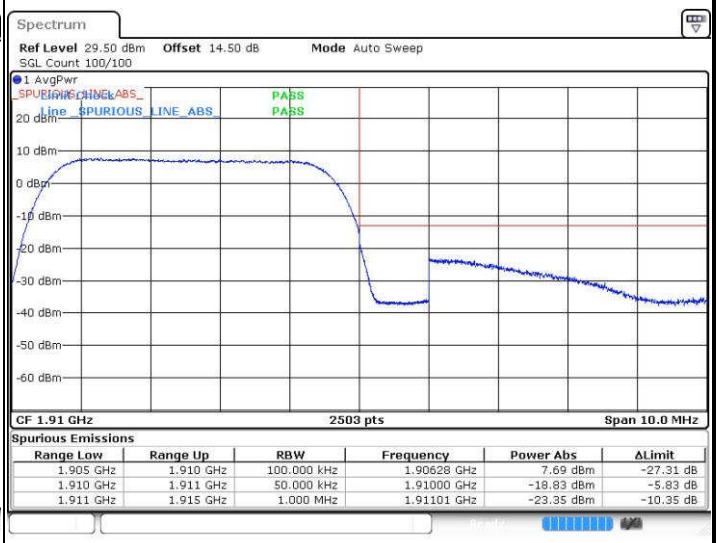


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.845 GHz	1.849 GHz	1.000 MHz	1.84889 GHz	-22.11 dBm	-9.11 dB
1.849 GHz	1.850 GHz	50.000 kHz	1.85000 GHz	-17.48 dBm	-4.48 dB
1.850 GHz	1.855 GHz	100.000 kHz	1.85104 GHz	7.71 dBm	-27.29 dB

Date: 27.JUN.2017 15:03:59

Highest Band Edge



Spurious Emissions

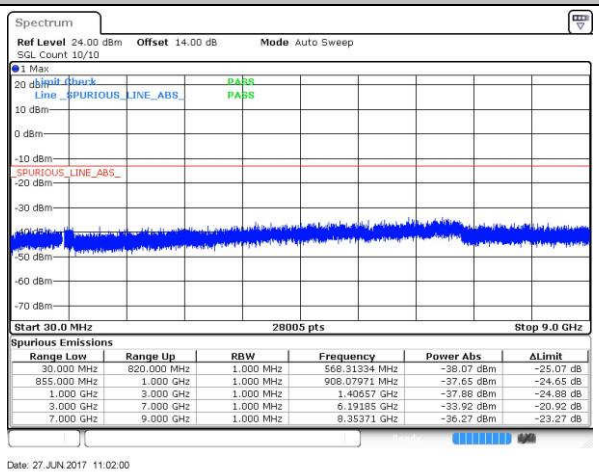
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
1.905 GHz	1.910 GHz	100.000 kHz	1.90628 GHz	7.69 dBm	-27.31 dB
1.910 GHz	1.911 GHz	50.000 kHz	1.91000 GHz	-18.83 dBm	-5.83 dB
1.911 GHz	1.915 GHz	1.000 MHz	1.91101 GHz	-23.35 dBm	-10.35 dB

Date: 27.JUN.2017 15:07:16

Conducted Spurious Emission

GSM850 (GSM)

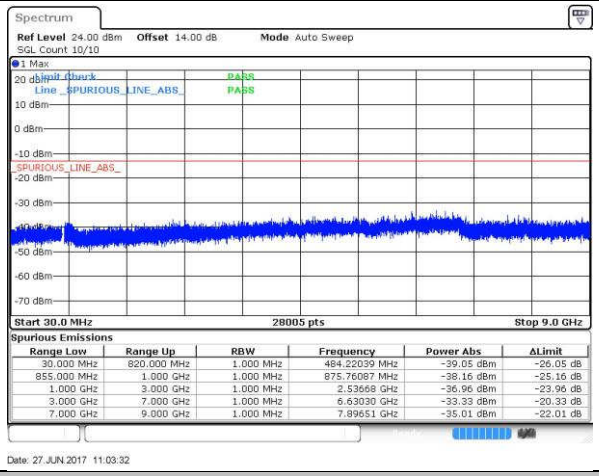
Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	568.31334 MHz	-38.07 dBm	-25.07 dB
855.000 MHz	1.000 GHz	1.000 MHz	908.07971 MHz	-37.65 dBm	-24.65 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.40657 GHz	-37.88 dBm	-24.88 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.19185 GHz	-33.92 dBm	-20.92 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.35371 GHz	-36.27 dBm	-23.27 dB

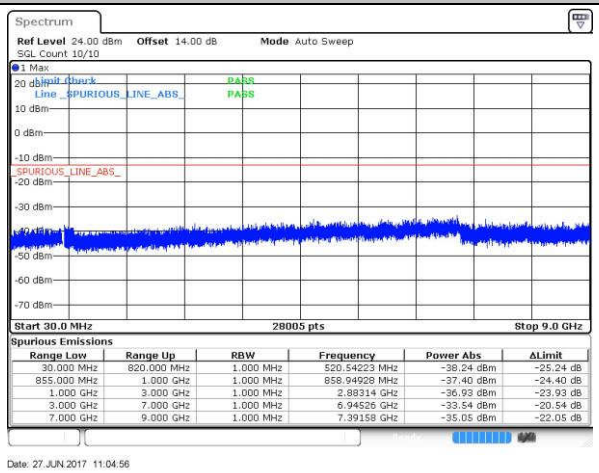
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	484.22039 MHz	-39.05 dBm	-26.05 dB
855.000 MHz	1.000 GHz	1.000 MHz	875.76087 MHz	-38.16 dBm	-25.16 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.53668 GHz	-36.96 dBm	-23.96 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.63030 GHz	-33.33 dBm	-20.33 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.89651 GHz	-35.01 dBm	-22.01 dB

Highest Channel

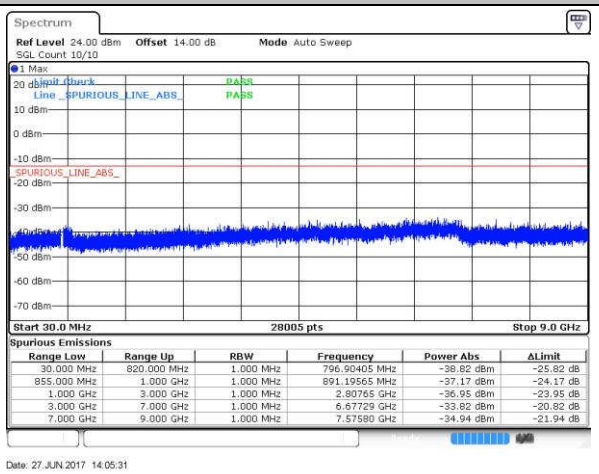


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	520.54223 MHz	-38.24 dBm	-25.24 dB
855.000 MHz	1.000 GHz	1.000 MHz	858.94928 MHz	-37.40 dBm	-24.40 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.88314 GHz	-36.93 dBm	-23.93 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94526 GHz	-33.54 dBm	-20.54 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.39158 GHz	-35.05 dBm	-22.05 dB

GSM850 (EDGE class 8)

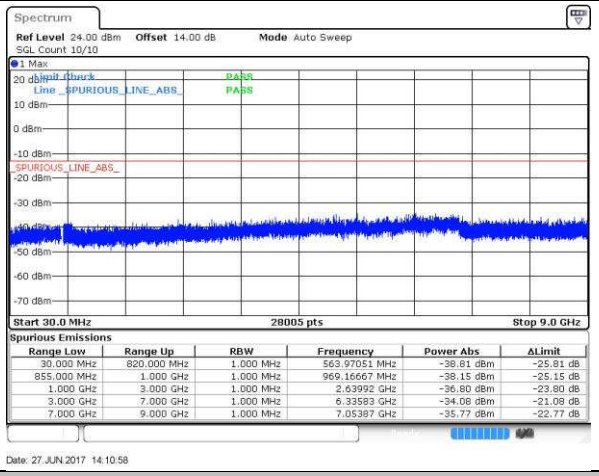
Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	796.90405 MHz	-38.82 dBm	-25.82 dB
855.000 MHz	1.000 GHz	1.000 MHz	891.19565 MHz	-37.17 dBm	-24.17 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.80765 GHz	-36.95 dBm	-23.95 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.67729 GHz	-33.82 dBm	-20.82 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.57580 GHz	-34.94 dBm	-21.94 dB

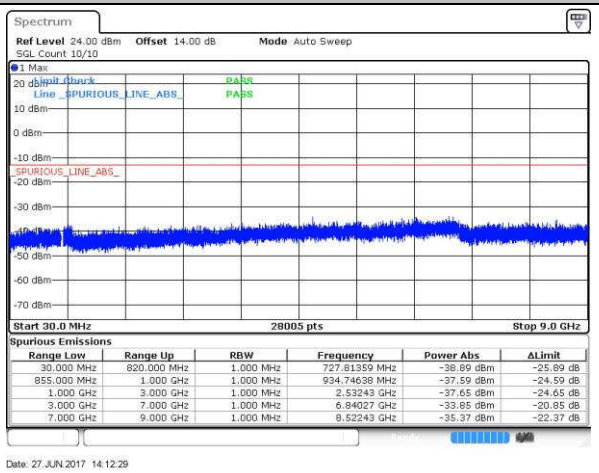
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	563.97051 MHz	-38.81 dBm	-25.81 dB
855.000 MHz	1.000 GHz	1.000 MHz	969.16667 MHz	-38.15 dBm	-25.15 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.63992 GHz	-36.80 dBm	-23.80 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.33583 GHz	-34.08 dBm	-21.08 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.05387 GHz	-35.77 dBm	-22.77 dB

Highest Channel

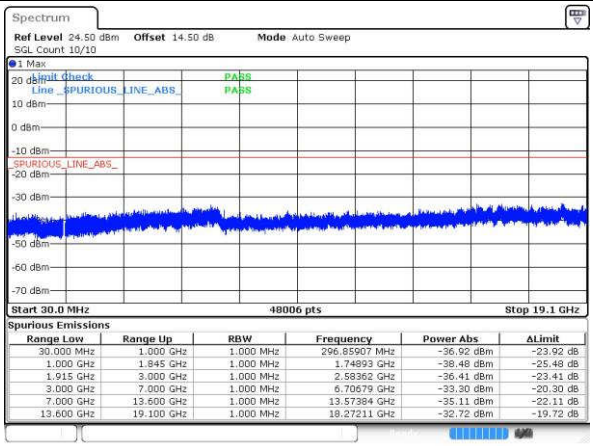


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	727.81359 MHz	-38.89 dBm	-25.89 dB
855.000 MHz	1.000 GHz	1.000 MHz	934.74638 MHz	-37.59 dBm	-24.59 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.53243 GHz	-37.65 dBm	-24.65 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.84027 GHz	-33.85 dBm	-20.85 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.52243 GHz	-35.37 dBm	-22.37 dB

GSM1900 (GSM)

Lowest Channel

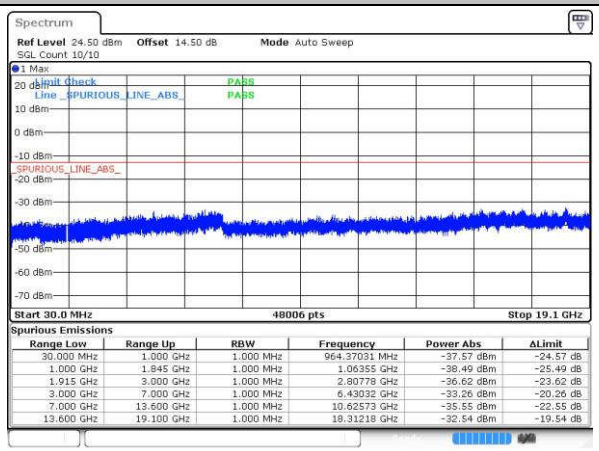


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	296.85907 MHz	-36.92 dBm	-23.92 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.74893 GHz	-38.48 dBm	-25.48 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.58362 GHz	-36.41 dBm	-23.41 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.70679 GHz	-33.30 dBm	-20.30 dB
7.000 GHz	13.600 GHz	1.000 MHz	13.57384 GHz	-35.11 dBm	-22.11 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.27211 GHz	-32.72 dBm	-19.72 dB

Date: 27.JUN.2017 11:29:30

Middle Channel

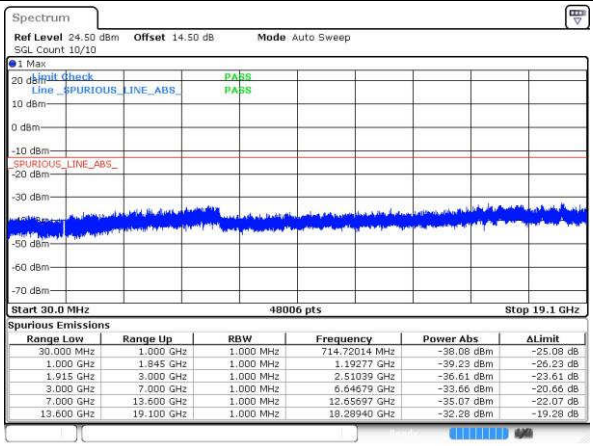


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	964.37031 MHz	-37.57 dBm	-24.57 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.06355 GHz	-38.49 dBm	-25.49 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.80778 GHz	-36.62 dBm	-23.62 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.43032 GHz	-33.26 dBm	-20.26 dB
7.000 GHz	13.600 GHz	1.000 MHz	10.62573 GHz	-35.55 dBm	-22.55 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.31218 GHz	-32.54 dBm	-19.54 dB

Date: 27.JUN.2017 11:34:20

Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	714.72014 MHz	-38.08 dBm	-25.08 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.19277 GHz	-39.23 dBm	-26.23 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.51039 GHz	-36.61 dBm	-23.61 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.64679 GHz	-33.66 dBm	-20.66 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.65597 GHz	-35.07 dBm	-22.07 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.28940 GHz	-32.28 dBm	-19.28 dB

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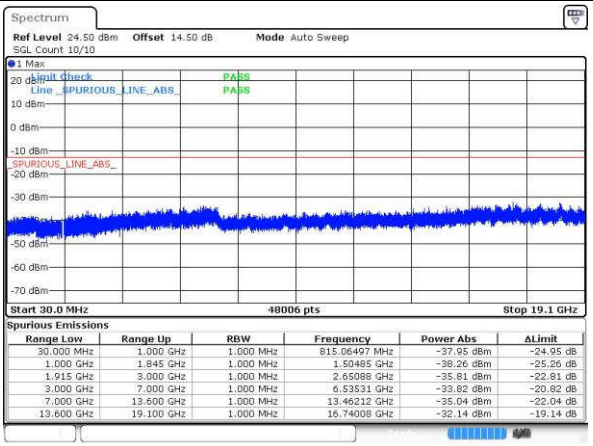
GSM1900 (EDGE class 8)

Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	815.06497 MHz	-37.95 dBm	-24.95 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.50485 GHz	-38.26 dBm	-25.26 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.65088 GHz	-35.81 dBm	-22.81 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.53531 GHz	-33.82 dBm	-20.82 dB
7.000 GHz	13.600 GHz	1.000 MHz	13.46212 GHz	-35.04 dBm	-22.04 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.74008 GHz	-32.14 dBm	-19.14 dB

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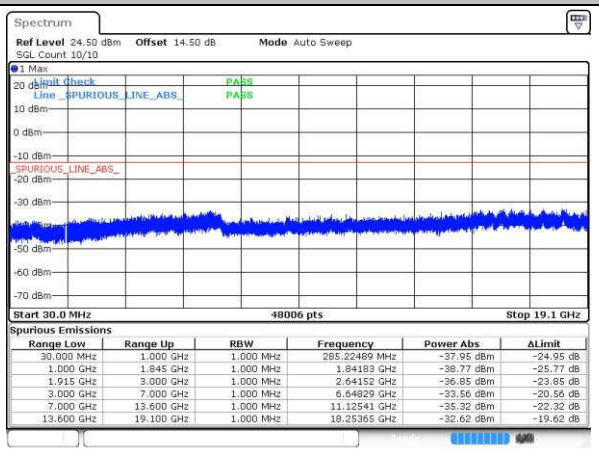
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	285.22489 MHz	-37.95 dBm	-24.95 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.84183 GHz	-38.77 dBm	-25.77 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.64152 GHz	-36.85 dBm	-23.85 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.64829 GHz	-33.56 dBm	-20.56 dB
7.000 GHz	13.600 GHz	1.000 MHz	11.12541 GHz	-35.32 dBm	-22.32 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.25365 GHz	-32.62 dBm	-19.62 dB

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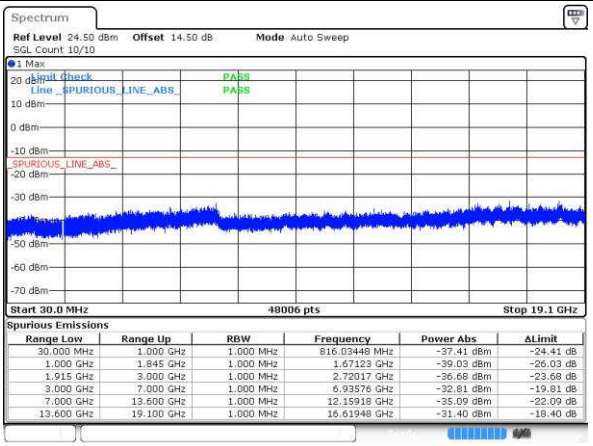
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	816.03448 MHz	-37.41 dBm	-24.41 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.67123 GHz	-39.03 dBm	-26.03 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.72017 GHz	-36.68 dBm	-23.68 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.93576 GHz	-32.81 dBm	-19.81 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.15918 GHz	-35.09 dBm	-22.09 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.61948 GHz	-31.40 dBm	-18.40 dB

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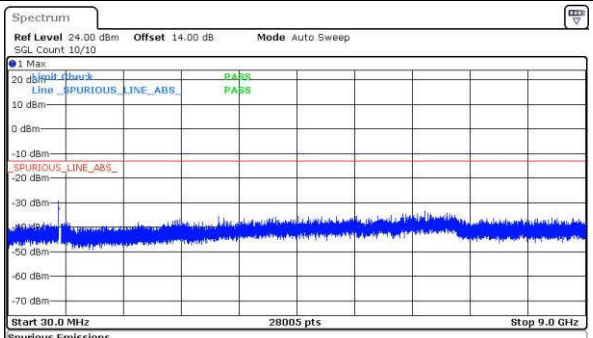
WCDMA Band V (RMC 12.2Kbps)

Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	819.01299 MHz	-29.15 dBm	-16.15 dB
855.000 MHz	1.000 GHz	1.000 MHz	950.03623 MHz	-38.24 dBm	-25.24 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.69491 GHz	-36.52 dBm	-23.52 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.50281 GHz	-33.45 dBm	-20.45 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.55668 GHz	-36.16 dBm	-23.16 dB

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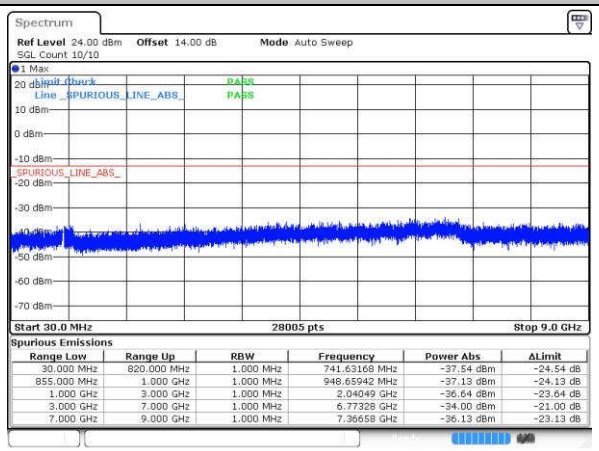
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	741.63168 MHz	-37.54 dBm	-24.54 dB
855.000 MHz	1.000 GHz	1.000 MHz	948.65942 MHz	-37.13 dBm	-24.13 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.04049 GHz	-36.64 dBm	-23.64 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.77328 GHz	-34.00 dBm	-21.00 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.36658 GHz	-36.13 dBm	-23.13 dB

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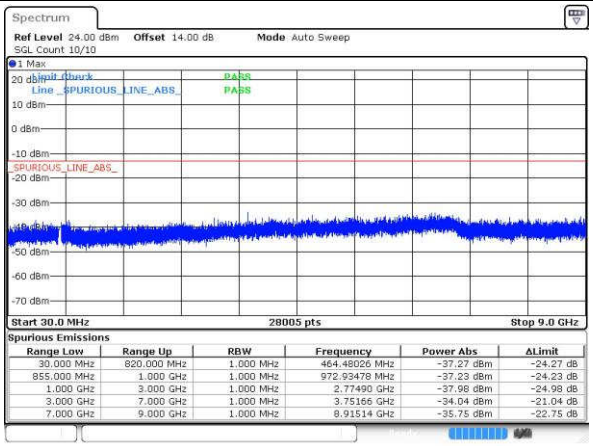
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	464.48026 MHz	-37.27 dBm	-24.27 dB
855.000 MHz	1.000 GHz	1.000 MHz	972.93478 MHz	-37.23 dBm	-24.23 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.77490 GHz	-37.98 dBm	-24.98 dB
3.000 GHz	7.000 GHz	1.000 MHz	3.75166 GHz	-34.04 dBm	-21.04 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.91514 GHz	-35.75 dBm	-22.75 dB

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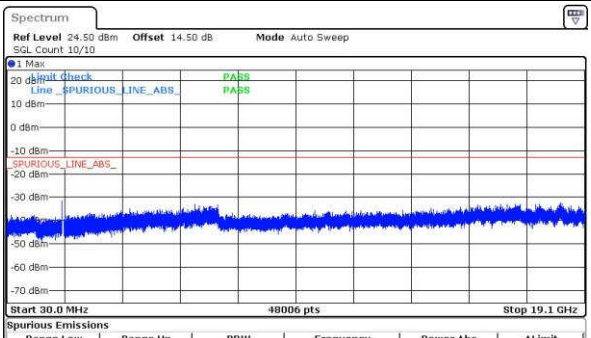
WCDMA Band II (RMC 12.2Kbps)

Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	182.45627 MHz	-37.64 dBm	-24.64 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.84437 GHz	-31.38 dBm	-18.38 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.77401 GHz	-36.94 dBm	-23.94 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.23485 GHz	-32.93 dBm	-19.93 dB
7.000 GHz	13.600 GHz	1.000 MHz	13.10103 GHz	-35.47 dBm	-22.47 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.29490 GHz	-32.42 dBm	-19.42 dB

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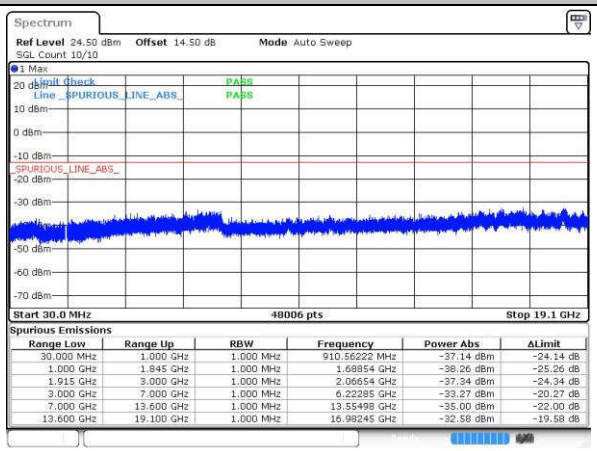
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	910.56222 MHz	-37.14 dBm	-24.14 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.69854 GHz	-38.26 dBm	-25.26 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.06654 GHz	-37.34 dBm	-24.34 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.22285 GHz	-33.27 dBm	-20.27 dB
7.000 GHz	13.600 GHz	1.000 MHz	13.55498 GHz	-35.00 dBm	-22.00 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.98245 GHz	-32.58 dBm	-19.58 dB

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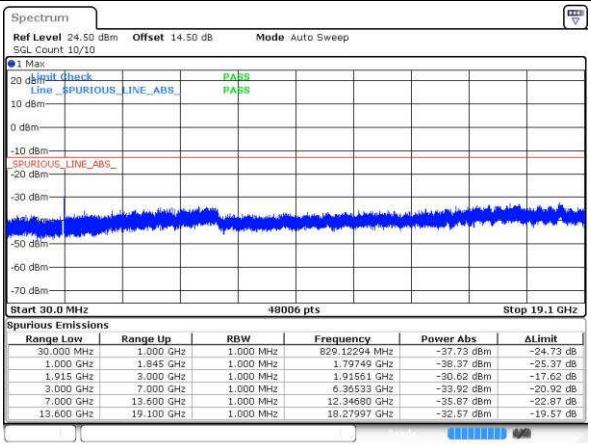
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	829.12294 MHz	-37.73 dBm	-24.73 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.79749 GHz	-38.37 dBm	-25.37 dB
1.915 GHz	3.000 GHz	1.000 MHz	1.91561 GHz	-30.62 dBm	-17.62 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.36533 GHz	-33.92 dBm	-20.92 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.34680 GHz	-35.87 dBm	-22.87 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.27997 GHz	-32.57 dBm	-19.57 dB

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Frequency Stability

Test Conditions	Middle Channel	GSM850 (GSM)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0085	0.0025	PASS
40	Normal Voltage	0.0055	0.0129	
30	Normal Voltage	0.0105	0.0064	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0093	0.0010	
0	Normal Voltage	0.0085	0.0029	
-10	Normal Voltage	0.0070	0.0019	
-20	Normal Voltage	0.0133	0.0020	
-30	Normal Voltage	0.0106	0.0043	
20	Maximum Voltage	0.0049	0.0048	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0098	0.0154	

Note: Normal Voltage = 3.8V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.35 V

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0083	0.0041	PASS
40	Normal Voltage	0.0107	0.0007	
30	Normal Voltage	0.0042	0.0035	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0011	0.0058	
0	Normal Voltage	0.0046	0.0085	
-10	Normal Voltage	0.0027	0.0049	
-20	Normal Voltage	0.0064	0.0023	
-30	Normal Voltage	0.0049	0.0005	
20	Maximum Voltage	0.0072	0.0011	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0064	0.0069	

Note:

1. Normal Voltage = 3.8V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.35 V
2. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

Test Conditions	Middle Channel	WCDMA Band V (RMC 12.2Kbps)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0039	PASS
40	Normal Voltage	0.0022	
30	Normal Voltage	0.0030	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0093	
0	Normal Voltage	0.0063	
-10	Normal Voltage	0.0076	
-20	Normal Voltage	0.0070	
-30	Normal Voltage	0.0034	
20	Maximum Voltage	0.0055	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0017	

Note: Normal Voltage = 3.8V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.35 V

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0045	PASS
40	Normal Voltage	0.0007	
30	Normal Voltage	0.0036	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0004	
0	Normal Voltage	0.0016	
-10	Normal Voltage	0.0010	
-20	Normal Voltage	0.0016	
-30	Normal Voltage	0.0002	
20	Maximum Voltage	0.0012	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0011	

Note:

1. Normal Voltage = 3.8V. ；Battery End Point (BEP) = 3.6 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.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

GSM850 (GSM)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672.8	-34.51	-13	-21.51	-41.64	-41.20	0.56	9.40	H
	2509.2	-47.52	-13	-34.52	-58.91	-55.23	0.74	10.60	H
	3345.6	-62.82	-13	-49.82	-76.10	-72.42	0.85	12.60	H
	4182	-59.40	-13	-46.40	-75.81	-68.96	0.89	12.60	H
	1672.8	-37.53	-13	-24.53	-44.66	-44.22	0.56	9.40	V
	2509.2	-50.14	-13	-37.14	-61.13	-57.85	0.74	10.60	V
	3345.6	-63.35	-13	-50.35	-76.86	-72.95	0.85	12.60	V
	4182	-61.77	-13	-48.77	-78.42	-71.33	0.89	12.60	V

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

GSM850 (EDGE class 8)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672.8	-39.41	-13	-26.41	-46.54	-46.10	0.56	9.40	H
	2509.2	-46.71	-13	-33.71	-58.10	-54.42	0.74	10.60	H
	3345.6	-64.32	-13	-51.32	-77.60	-73.92	0.85	12.60	H
	1672.8	-55.93	-13	-42.93	-63.06	-62.62	0.56	9.40	V
	2509.2	-61.72	-13	-48.72	-72.71	-69.43	0.74	10.60	V
	3345.6	-63.98	-13	-50.98	-77.49	-73.58	0.85	12.60	V

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

GSM1900 (GSM)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3760	-62.77	-13	-49.77	-78.05	-68.81	6.56	12.60	H
	5640	-56.57	-13	-43.57	-75.92	-61.67	8	13.10	H
	7520	-58.21	-13	-45.21	-81.80	-59.94	9.57	11.30	H
	3760	-61.79	-13	-48.79	-77.34	-67.83	6.56	12.6	V
	5640	-52.33	-13	-39.33	-72.25	-57.43	8	13.1	V
	7520	-58.38	-13	-45.38	-82.02	-60.11	9.57	11.3	V

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

GSM1900 (EDGE class 8)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3760	-62.75	-13	-49.75	-78.03	-68.79	6.56	12.60	H
	5640	-54.67	-13	-41.67	-74.02	-59.77	8	13.10	H
	7520	-57.93	-13	-44.93	-81.52	-59.66	9.57	11.30	H
	3760	-61.69	-13	-48.69	-77.24	-67.73	6.56	12.6	V
	5640	-49.51	-13	-36.51	-69.43	-54.61	8	13.1	V
	7520	-58.35	-13	-45.35	-81.99	-60.08	9.57	11.3	V

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

WCDMA Band V(RMC 12.2Kbps)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1672.8	-66.15	-13	-53.15	-73.28	-72.84	0.56	9.40	H
	2509.2	-64.41	-13	-51.41	-75.80	-72.12	0.74	10.60	H
	3345.6	-56.31	-13	-43.31	-69.59	-65.91	0.85	12.60	H
	4182	-58.64	-13	-45.64	-75.05	-68.20	0.89	12.60	H
	1672.8	-68.11	-13	-55.11	-75.24	-74.80	0.56	9.40	V
	2509.2	-65.47	-13	-52.47	-76.46	-73.18	0.74	10.60	V
	3345.6	-57.46	-13	-44.46	-70.97	-67.06	0.85	12.60	V
	4182	-57.72	-13	-44.72	-74.37	-67.28	0.89	12.60	V

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

WCDMA Band II(RMC 12.2Kbps)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	3760	-63.09	-13	-50.09	-78.37	-69.13	6.56	12.60	H
	5640	-60.05	-13	-47.05	-79.40	-65.15	8	13.10	H
	7520	-58.17	-13	-45.17	-81.76	-59.90	9.57	11.30	H
	3760	-62.70	-13	-49.70	-78.25	-68.74	6.56	12.6	V
	5640	-59.24	-13	-46.24	-79.16	-64.34	8	13.1	V
	7520	-58.14	-13	-45.14	-81.78	-59.87	9.57	11.3	V

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