FCC RF Test Report

APPLICANT	:	ASUSTeK COMPUTER INC.
EQUIPMENT	:	ASUS Phone (Mobile Phone)
BRAND NAME	:	ASUS
MODEL NAME	:	ASUS_X00HD
MARKETING NAME	:	ZC520KL
FCC ID	:	MSQX00HD
STANDARD	:	FCC 47 CFR Part 2, 22(H), 24(E)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 24, 2017 and testing was completed on Aug. 22, 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

Approved by: Eric Shih / Manager

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TESTING
NVLAP LAB CODE 600156-0

Sporton International (Shenzhen) Inc.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG752406A	Rev. 01	Initial issue of report	Aug. 28, 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 31.85 dB at 3700.400 MHz

1 General Description

1.1 Applicant

ASUSTeK COMPUTER INC.
4F, No.150, Li-Te Rd., Peitou, Taipei 112, Taiwan

1.2 Manufacturer

ASUSTeK COMPUTER INC.
4F, No.150, Li-Te Rd., Peitou, Taipei 112, Taiwan

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	ASUS Phone (Mobile Phone)
Brand Name	ASUS
Model Name	ASUS_X00HD
FCC ID	MSQX00HD
EUT supports Radios application	GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+/ DC-HSDPA/LTE WLAN2.4GHz 802.11b/g/n HT20/HT40 Bluetooth v3.0+EDR/ Bluetooth v4.0 LE Bluetooth v4.1 LE/ Bluetooth v4.2 LE
IMEI Code	Conducted: 358410080034068/358410080034076 Radiation: 358410080036386/358410080036394
HW Version	QL1526_MB_PCB_v2.0
SW Version	NMF26F.WW_Phone-14.2016.1705.135
EUT Stage	Identical Prototype

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: 32.51 dBm 1900: 30.13 dBm **WCDMA:** Band V: 23.35 dBm Band II: 22.79 dBm
Antenna Type	PIFA Antenna
Antenna Gain	Cellular Band: -2.26 dBi PCS Band: 0.48 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK WCDMA: BPSK (Uplink) HSDPA/DC-HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) HSPA+: 16QAM (Uplink) DC-HSDPA: 64QAM

1.5 Modification of EUT

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

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

FCC Rule	System	Type of Modulation	Maximum ERP/EIRP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22H	GSM850 GSM	GMSK	0.6457	0.0215 ppm	243KGXW
Part 22H	GSM850 EDGE class 8	8PSK	0.1656	0.0191 ppm	245KG7W
Part 22H	WCDMA Band V RMC 12.2Kbps	BPSK	0.0783	0.0132 ppm	4M12F9W
Part 24E	GSM1900 GSM	GMSK	0.2570	0.0106 ppm	243KGXW
Part 24E	GSM1900 EDGE class 8	8PSK	0.4864	0.0096 ppm	249KG7W
Part 24E	WCDMA Band II RMC 12.2Kbps	BPSK	0.2123	0.0053 ppm	4M12F9W

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600156-0) and the FCC designation No are CN5018 and CN5019.

Test Site	Sporton International (Shenzhen) Inc.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	TH01-SZ	251365

Test Site	SPORTON International (ShenZhen) INC.	
Test Site Location	No. 3 Bldg the third floor of south, Shahe River west, Fengzeyuan Warehouse, Nanshan District Shenzhen City Guangdong Province 518055 China TEL: +86-755-3320-2398	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH03-SZ	577730

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:

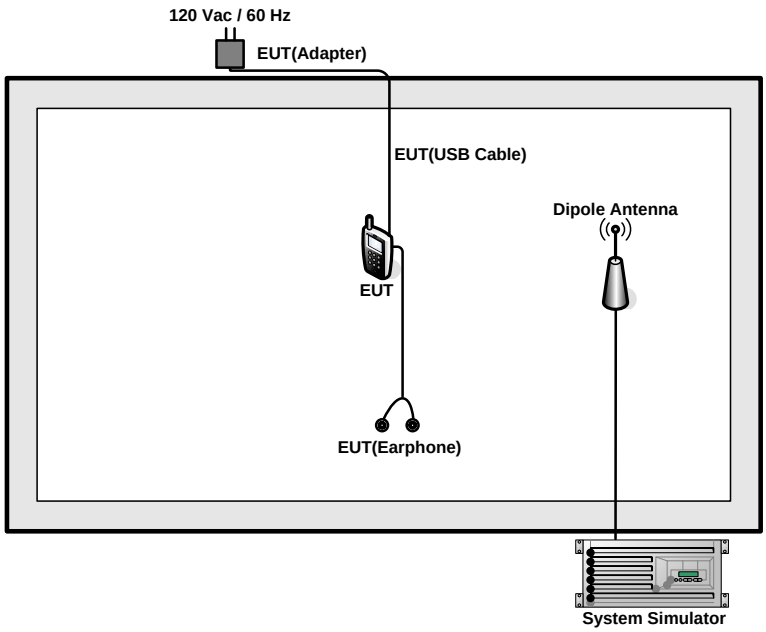
1. 30 MHz to 10th harmonic for GSM850 and WCDMA Band V.
2. 30 MHz to 10th harmonic for GSM1900 and WCDMA Band II.

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	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)

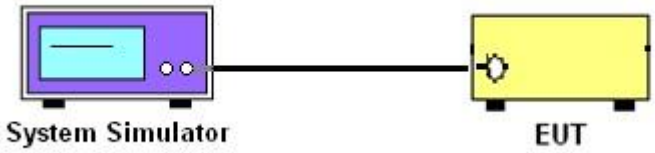
3 Conducted Test Result

3.1 Measuring Instruments

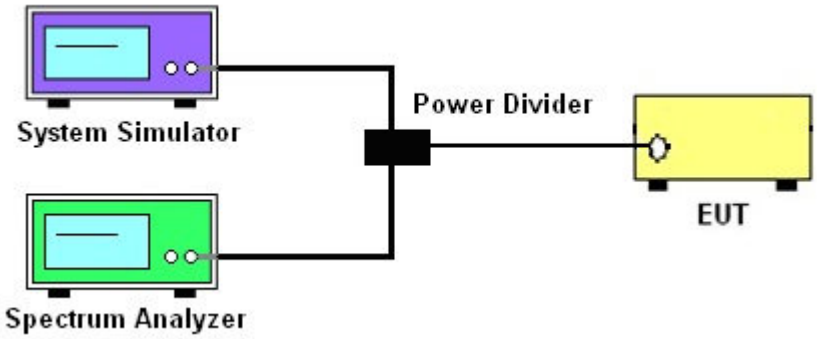
See list of measuring instruments of this test report.

3.2 Test Setup

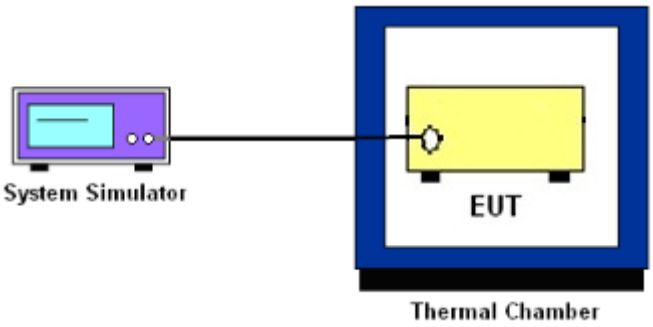
3.2.1 Conducted Output Power



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.

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.

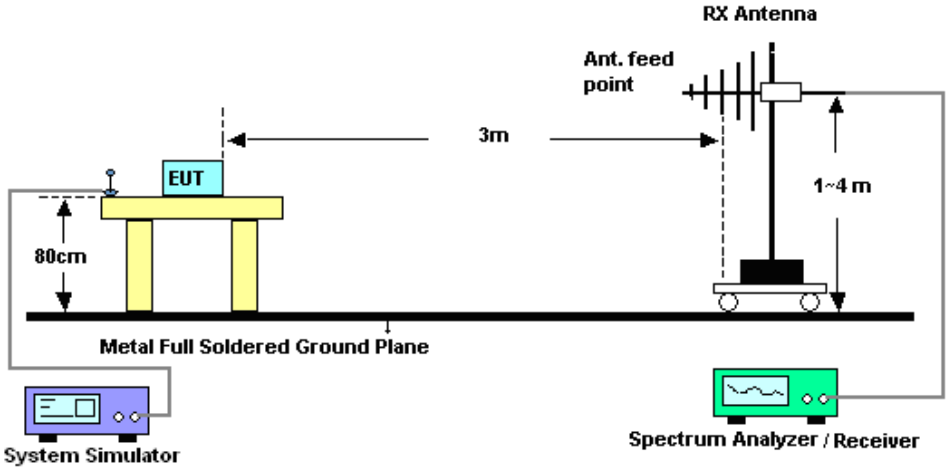
4 Radiated Test Items

4.1 Measuring Instruments

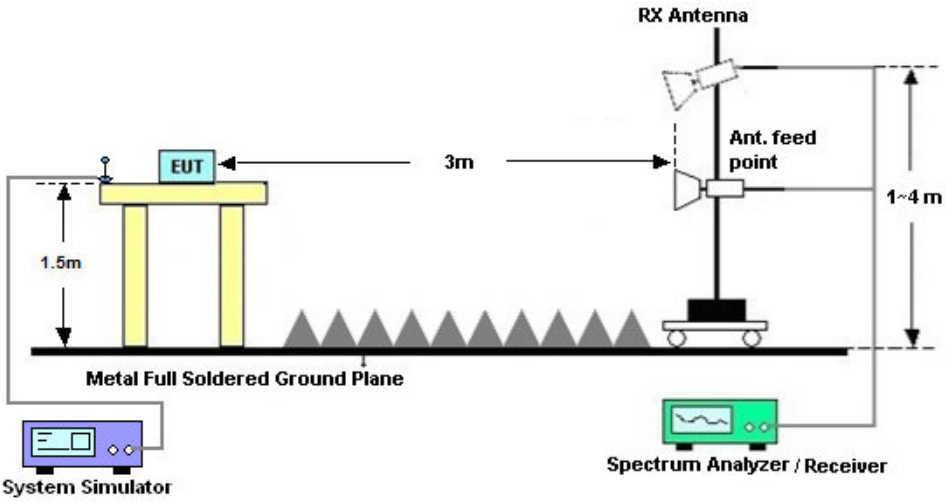
See list of measuring instruments of this test report.

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	Aug. 02, 2017~ Aug. 22, 2017	Apr. 19, 2018	Conducted (TH01-SZ)
Radio Communication Analyzer	Anritsu	MT8820C	6201563777	2G/3G/4G (CDMA)	Jan. 03, 2017	Aug. 02, 2017~ Aug. 22, 2017	Jan. 02, 2018	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion	LP-150U	H2014081803	-40~+150°C	Jul. 20, 2017	Aug. 02, 2017~ Aug. 22, 2017	Jul. 19, 2018	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 20, 2017	Aug. 18, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
EXA Spectrum Anaiyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz	Apr. 20, 2017	Aug. 18, 2017	Apr. 19, 2018	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz~2GHz	May 14, 2017	Aug. 18, 2017	May 13, 2018	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	Jan. 12, 2017	Aug. 18, 2017	Jan. 11, 2018	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Jun. 16, 2017	Aug. 18, 2017	Jun. 15, 2018	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102210	0.01Hz ~3000MHz	Oct. 11, 2016	Aug. 18, 2017	Oct. 10, 2017	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Jan. 06, 2017	Aug. 18, 2017	Jan. 05, 2018	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1988315	18GHz~40GHz	Jul. 27, 2017	Aug. 18, 2017	Jul. 26, 2018	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Aug. 18, 2017	NCR	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Aug. 18, 2017	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Aug. 18, 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))	**3.0 dB**

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

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

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

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

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	32.23	32.40	32.51	30.04	30.06	30.13
GPRS class 8	32.20	32.39	32.48	30.02	30.05	30.11
GPRS class 10	30.18	30.43	30.64	27.72	27.76	27.83
GPRS class 11	28.96	29.17	29.33	26.42	26.45	26.58
GPRS class 12	28.00	28.13	28.34	26.16	26.18	26.23
EGPRS class 8	26.52	26.50	26.60	26.37	26.39	26.02
EGPRS class 10	23.90	23.86	23.89	23.64	23.68	23.32
EGPRS class 11	22.59	22.56	22.69	23.26	23.25	23.03
EGPRS class 12	22.45	22.44	22.56	22.90	22.94	22.56

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 12.2Kbps	23.33	23.18	23.04	22.75	22.70	22.53
RMC 12.2Kbps	23.35	23.19	23.05	22.79	22.72	22.55
HSDPA Subtest-1	22.07	22.03	21.80	22.01	22.00	21.74
HSDPA Subtest-2	22.13	22.17	21.91	22.04	22.04	21.82
HSDPA Subtest-3	21.63	21.67	21.06	21.53	21.62	21.33
HSDPA Subtest-4	21.63	21.68	21.42	21.53	21.64	21.33
DC-HSDPA Subtest-1	22.01	21.95	21.77	21.85	21.88	21.77
DC-HSDPA Subtest-2	22.00	21.92	21.72	21.80	21.85	21.75
DC-HSDPA Subtest-3	21.60	21.55	21.28	21.38	21.42	21.38
DC-HSDPA Subtest-4	21.58	21.52	21.32	21.32	21.45	21.32
HSUPA Subtest-1	22.03	22.16	21.70	21.90	22.00	21.69
HSUPA Subtest-2	20.63	20.73	20.38	21.07	21.16	20.35
HSUPA Subtest-3	19.48	20.75	20.49	20.75	20.87	20.47
HSUPA Subtest-4	21.31	21.04	20.77	21.35	21.06	21.08
HSUPA Subtest-5	22.10	22.10	21.80	22.10	22.20	21.90
HSPA+ (16QAM) Subtest-1	21.11	20.77	20.56	21.08	20.78	20.80

ERP/EIRP

GSM850 (G_T - L_C = -2.26 dBi)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	32.23	32.40	32.51
Conducted Power (Watts)	1.6711	1.7378	1.7824
ERP(dBm)	27.82	27.99	28.10
ERP(Watts)	0.6053	0.6295	0.6457

GSM850 (EDGE) (G_T - L_C = -2.26 dBi)			
Channel	128	189	251
	(Low)	(Mid)	(High)
Frequency (MHz)	824.2	836.4	848.8
Conducted Power (dBm)	26.52	26.50	26.60
Conducted Power (Watts)	0.4487	0.4467	0.4571
ERP(dBm)	22.11	22.09	22.19
ERP(Watts)	0.1626	0.1618	0.1656

GSM1900 (G_T - L_C = 0.48 dBi)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	30.04	30.06	30.13
Conducted Power (Watts)	0.2113	0.2254	0.2301
EIRP(dBm)	23.73	24.01	24.10
EIRP(Watts)	0.2360	0.2518	0.2570

GSM1900 (EDGE) (G_T - L_C = 0.48 dBi)			
Channel	512	661	810
	(Low)	(Mid)	(High)
Frequency (MHz)	1850.2	1880	1909.8
Conducted Power (dBm)	26.37	26.39	26.02
Conducted Power (Watts)	0.4335	0.4355	0.3999
EIRP(dBm)	26.85	26.87	26.50
EIRP(Watts)	0.4842	0.4864	0.4467

WCDMA Band V (G_T - L_C = -2.26 dBi)			
Channel	4132	4182	4233
	(Low)	(Mid)	(High)
Frequency (MHz)	826.4	836.4	846.6
Conducted Power (dBm)	23.35	23.19	23.05
Conducted Power (Watts)	0.2163	0.2084	0.2018
ERP(dBm)	18.94	18.78	18.64
ERP(Watts)	0.0783	0.0755	0.0731

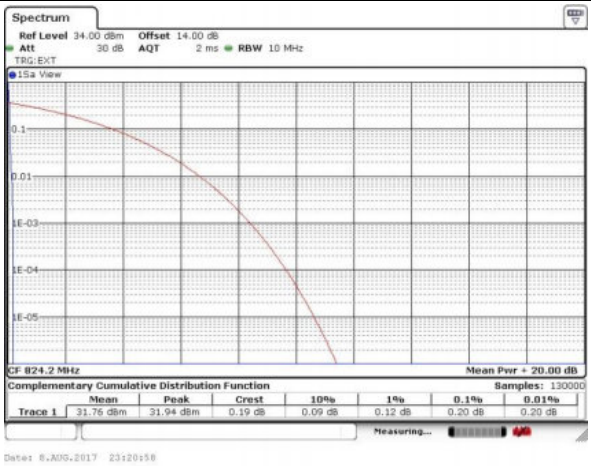
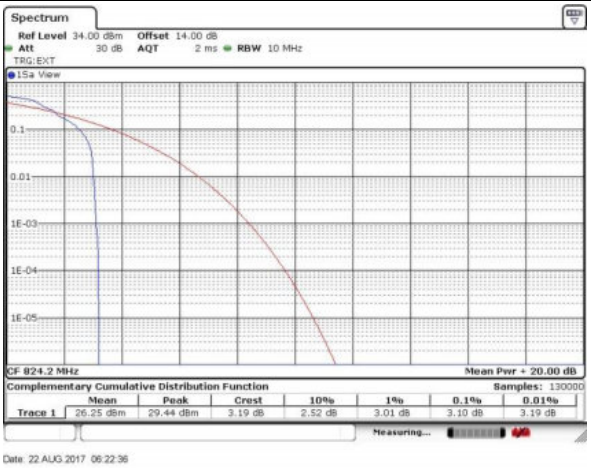
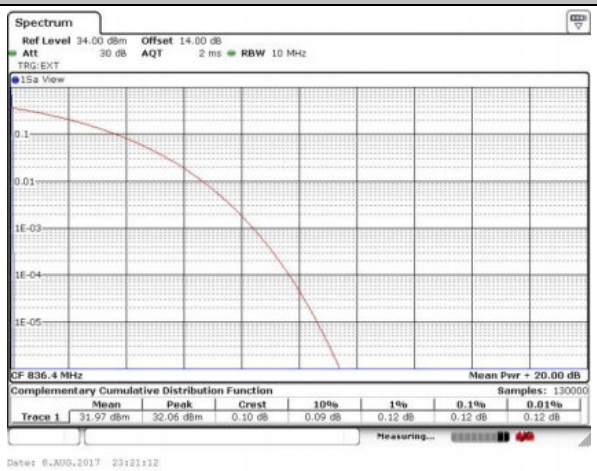
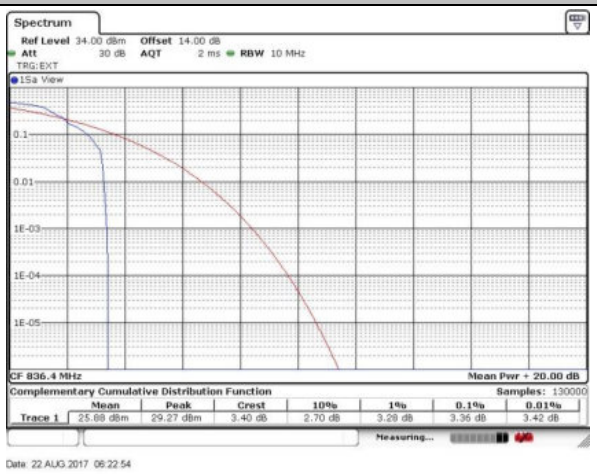
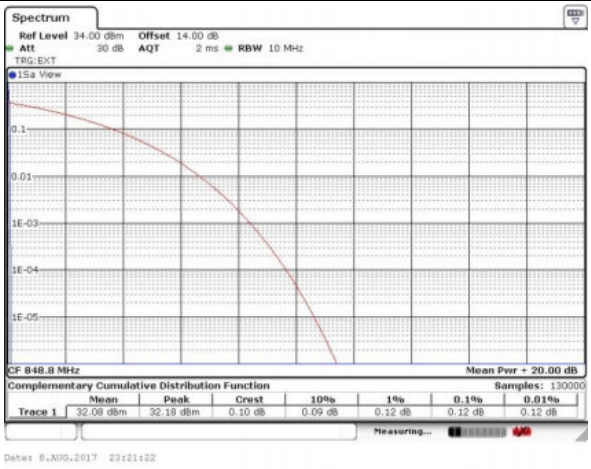
WCDMA Band II (G_T - L_C = 0.48 dBi)			
Channel	9262	9400	9538
	(Low)	(Mid)	(High)
Frequency (MHz)	1852.4	1880	1907.6
Conducted Power (dBm)	22.79	22.72	22.55
Conducted Power (Watts)	0.1901	0.1871	0.1799
EIRP(dBm)	23.27	23.20	23.03
EIRP(Watts)	0.2123	0.2089	0.2009

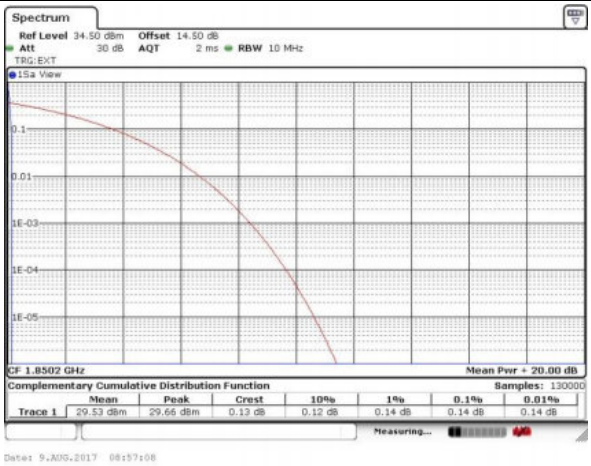
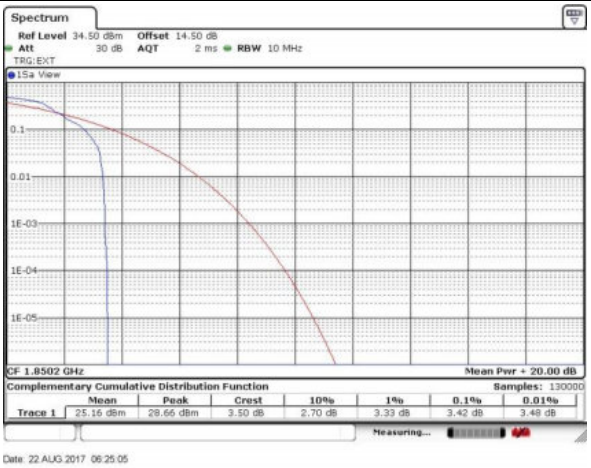
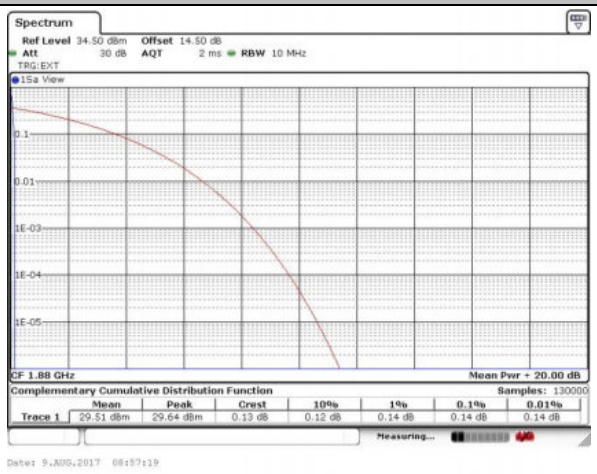
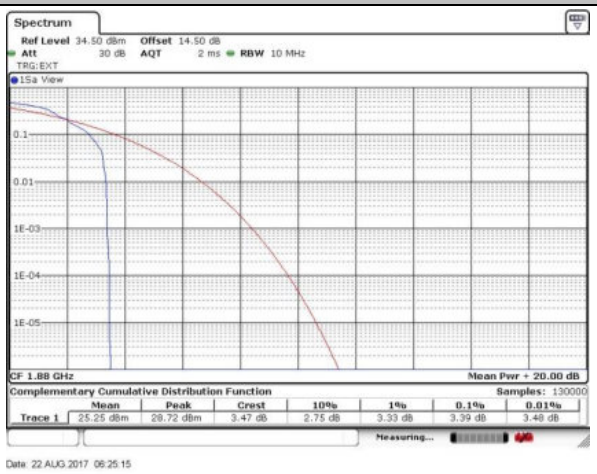
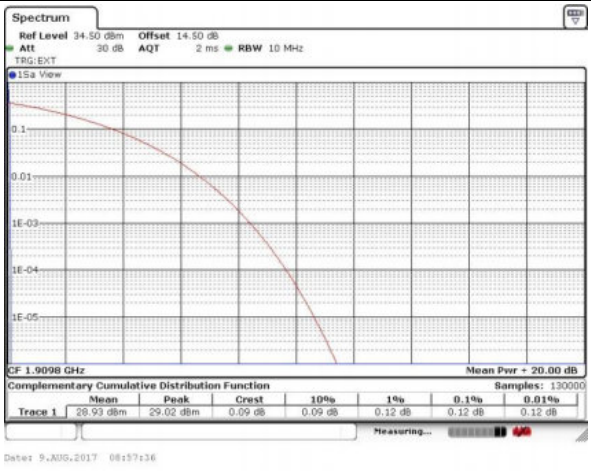
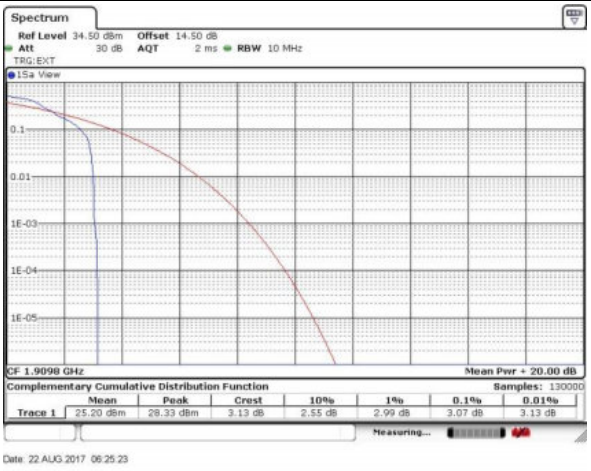
Peak-to-Average Ratio

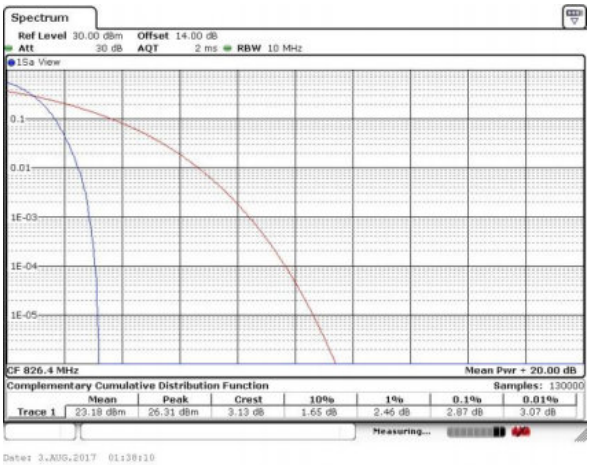
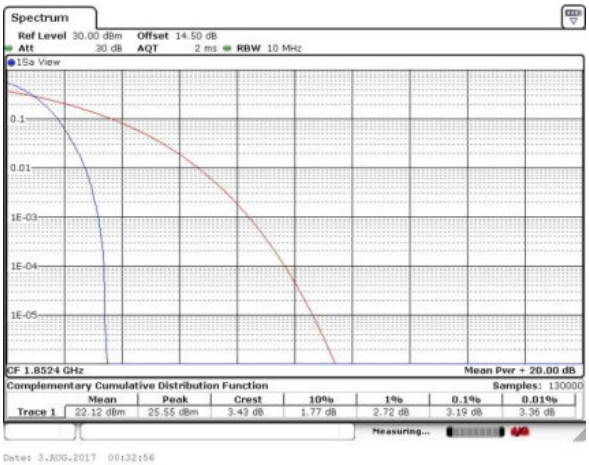
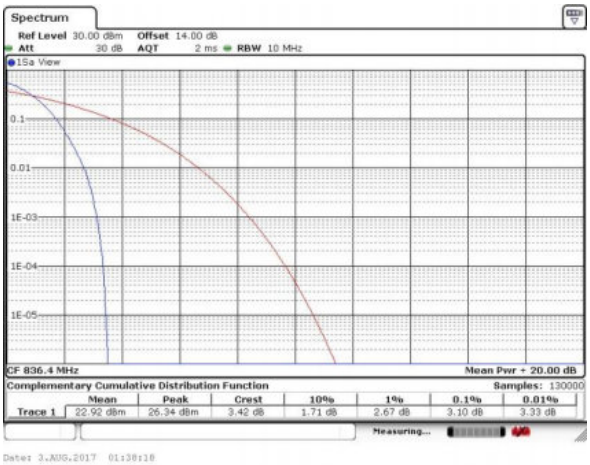
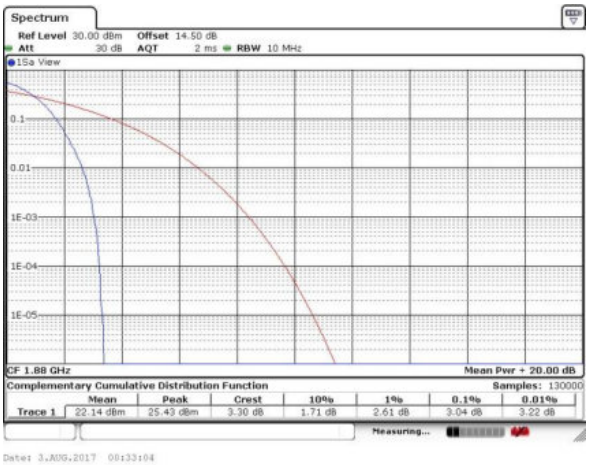
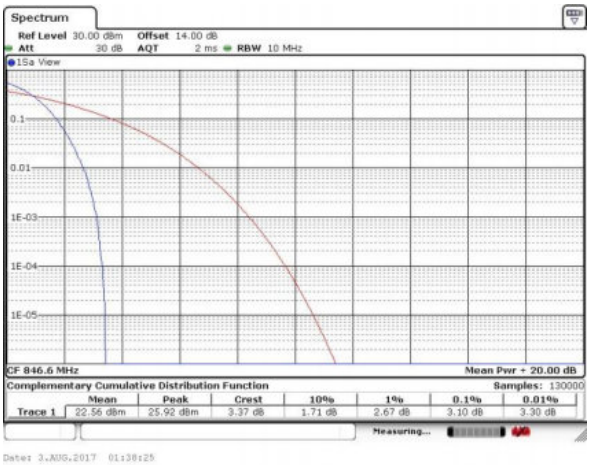
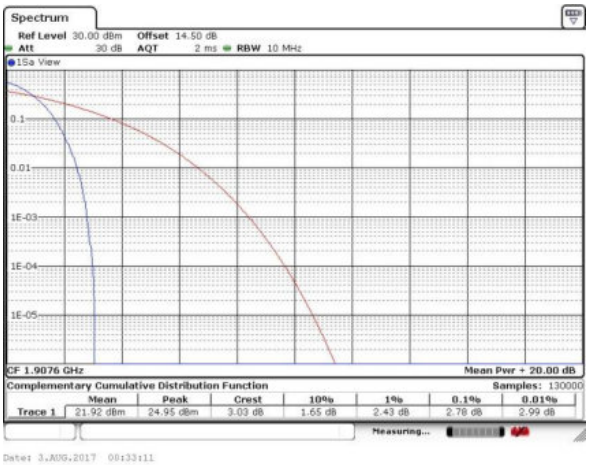
Mode	GSM850(dB)		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.20	3.10	PASS
Middle CH	0.12	3.36	
Highest CH	0.12	3.33	

Mode	GSM1900(dB)		Limit: 13dB
Mod.	GSM	EDGE class 8	Result
Lowest CH	0.14	3.42	PASS
Middle CH	0.14	3.39	
Highest CH	0.12	3.07	

Mode	WCDMA Band V(dB)	WCDMA Band II(dB)	Limit: 13dB
Mod.	RMC 12.2Kbps	RMC 12.2Kbps	Result
Lowest CH	2.87	3.19	PASS
Middle CH	3.10	3.04	
Highest CH	3.10	2.78	

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**
	

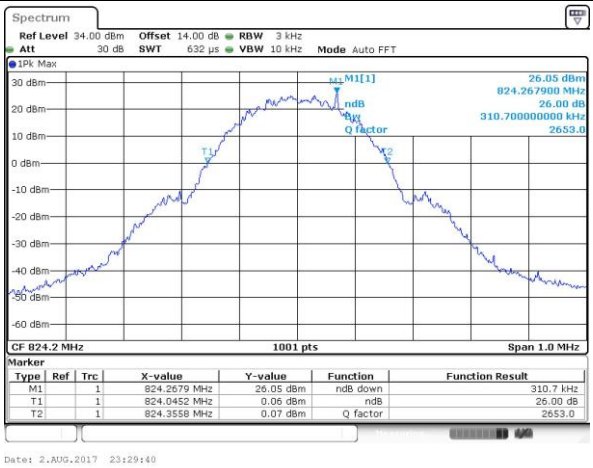
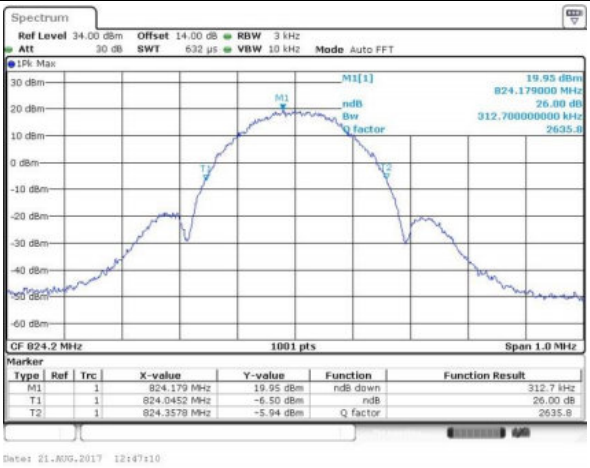
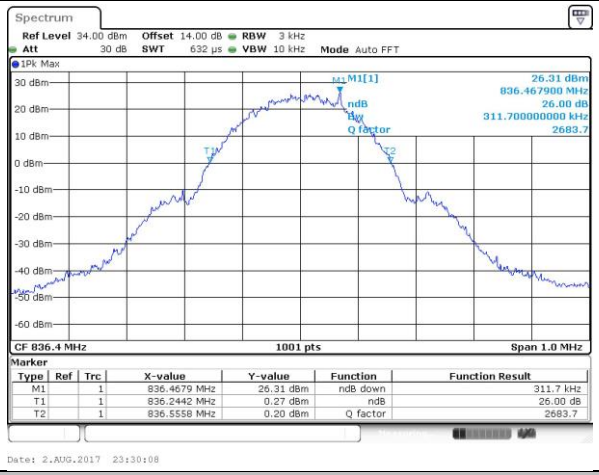
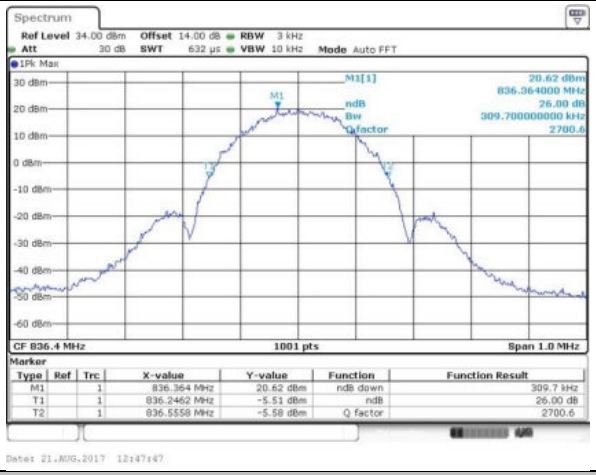
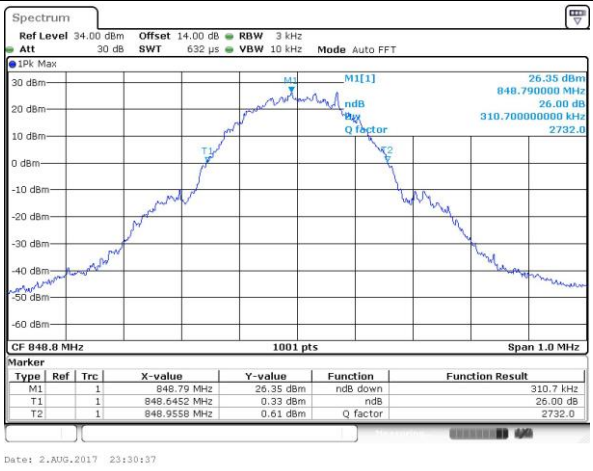
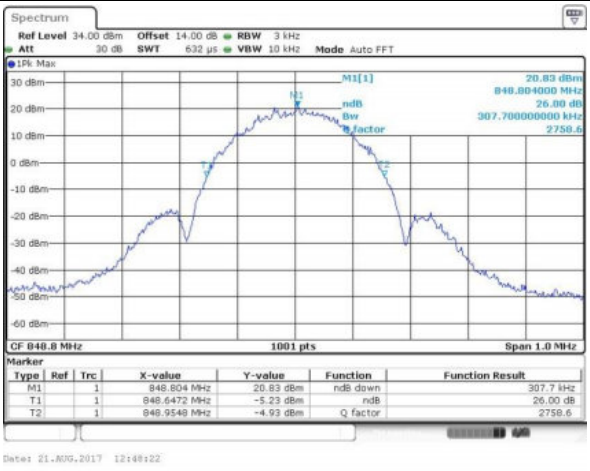
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

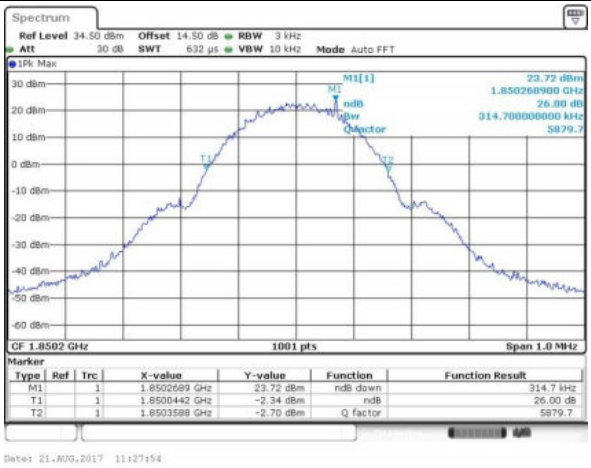
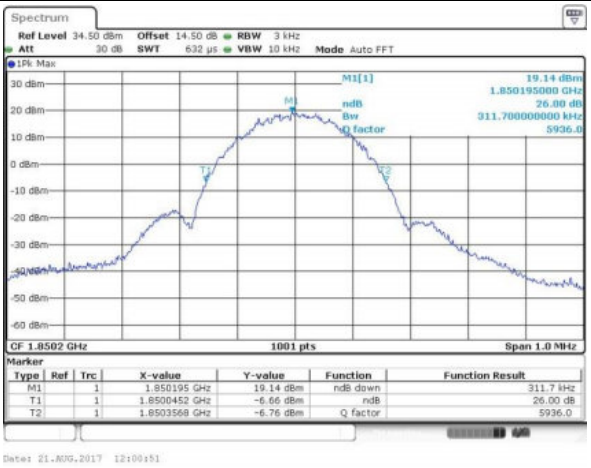
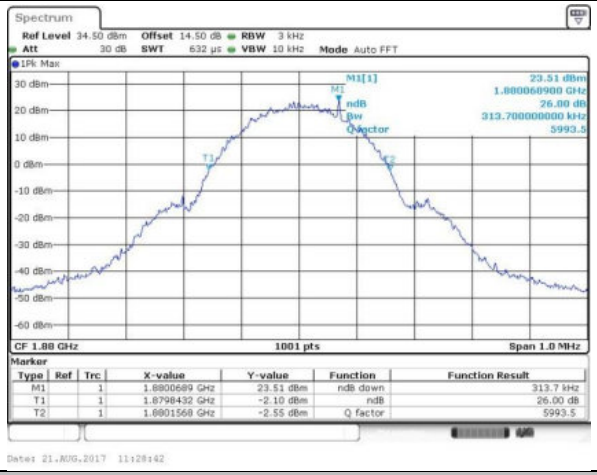
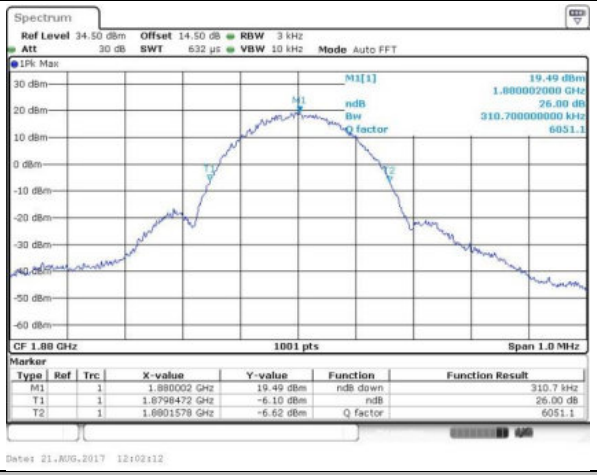
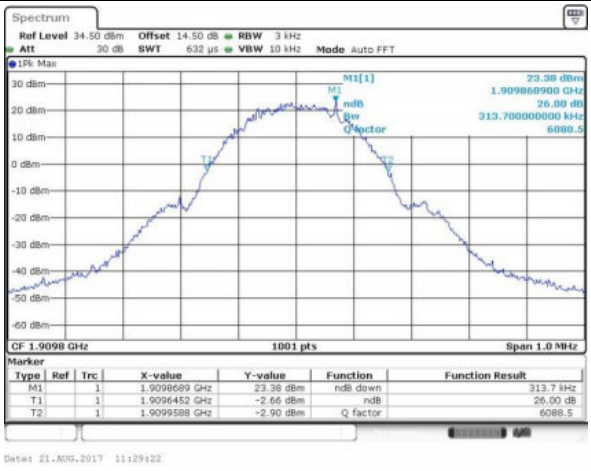
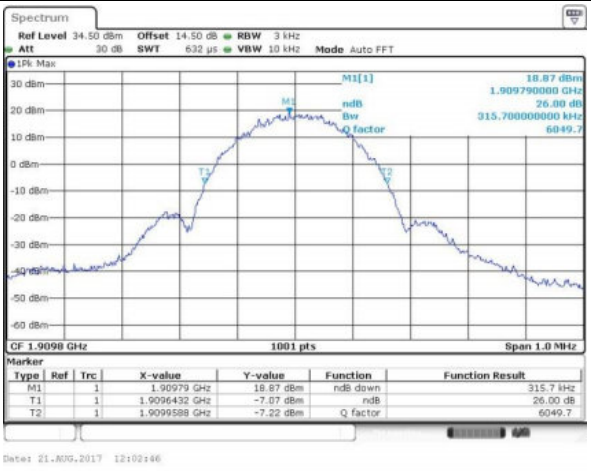
26dB Bandwidth

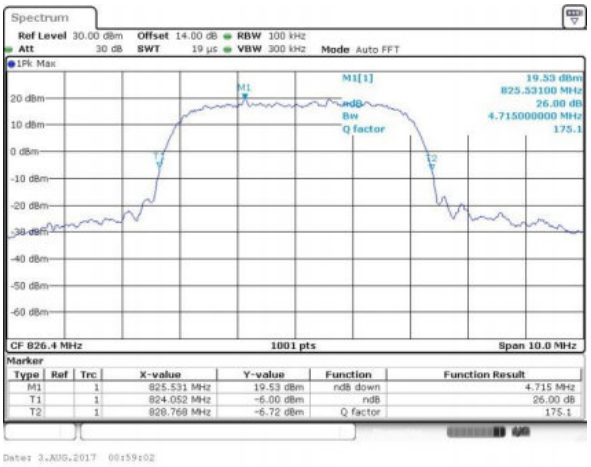
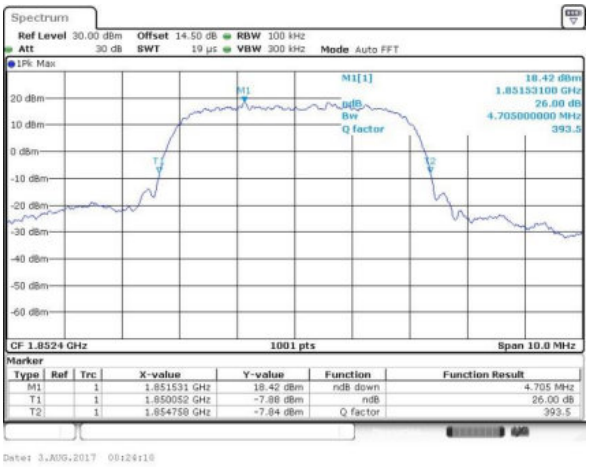
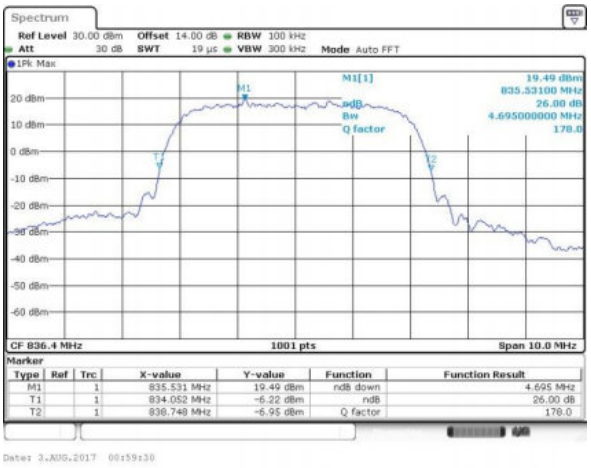
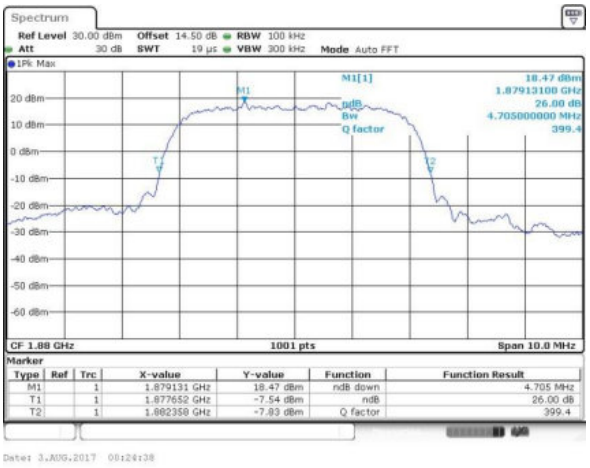
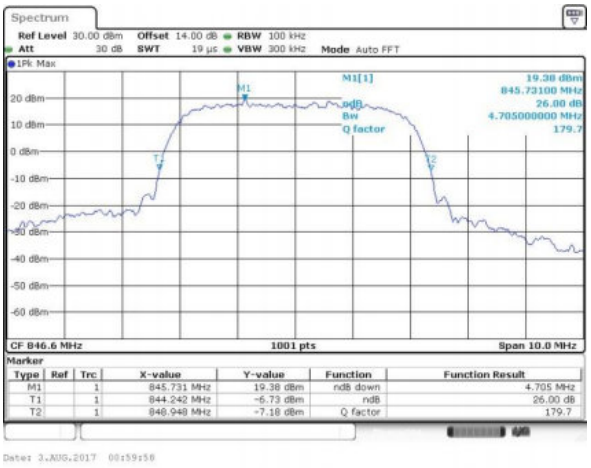
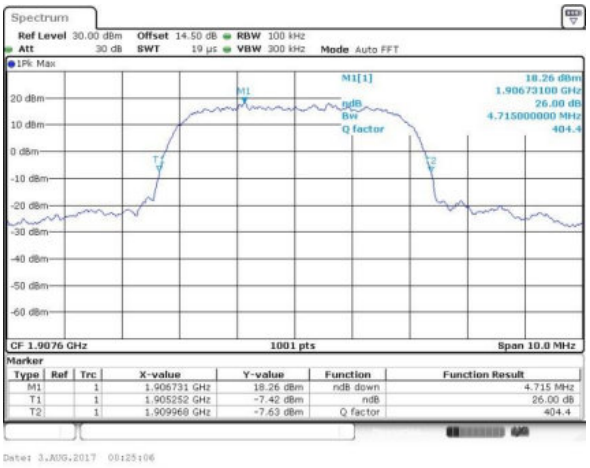
Mode	GSM850(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.311	0.313
Middle CH	0.312	0.310
Highest CH	0.311	0.308

Mode	GSM1900(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.315	0.312
Middle CH	0.314	0.311
Highest CH	0.314	0.316

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.715	4.705
Middle CH	4.695	4.705
Highest CH	4.705	4.715

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**
	

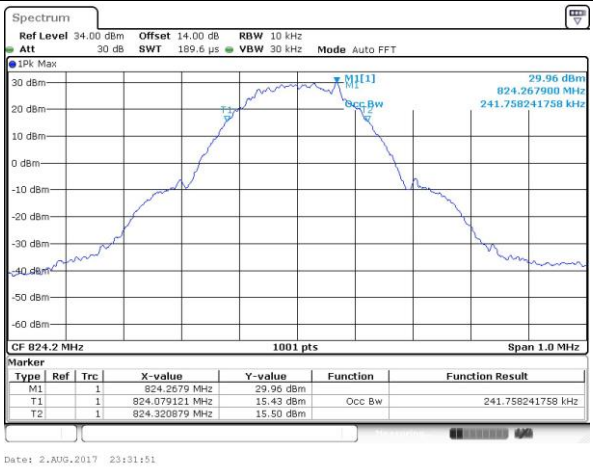
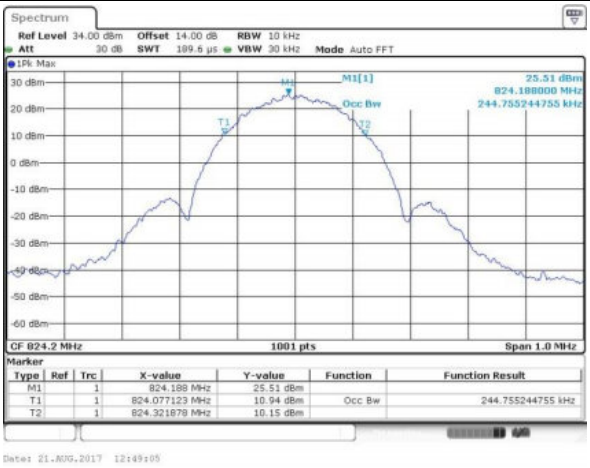
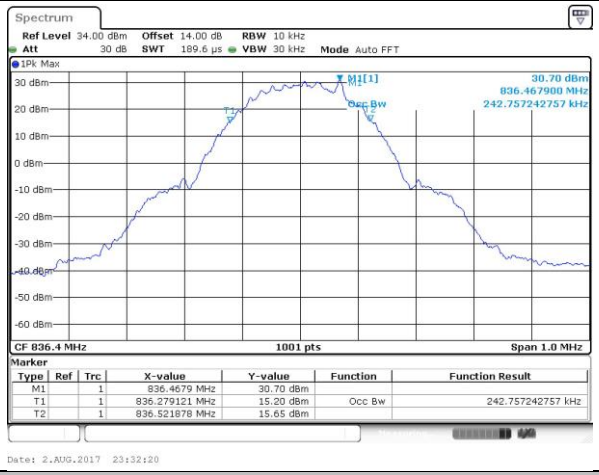
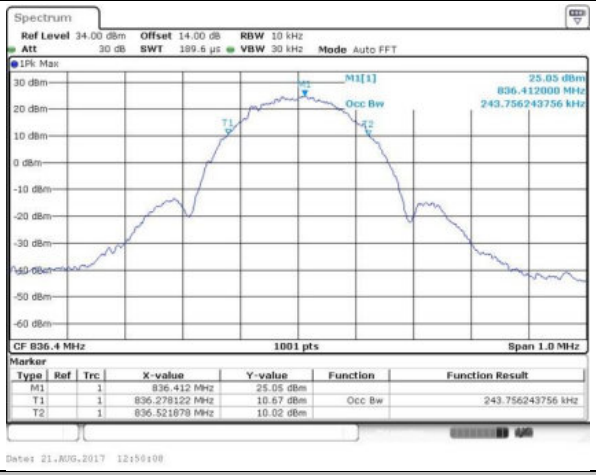
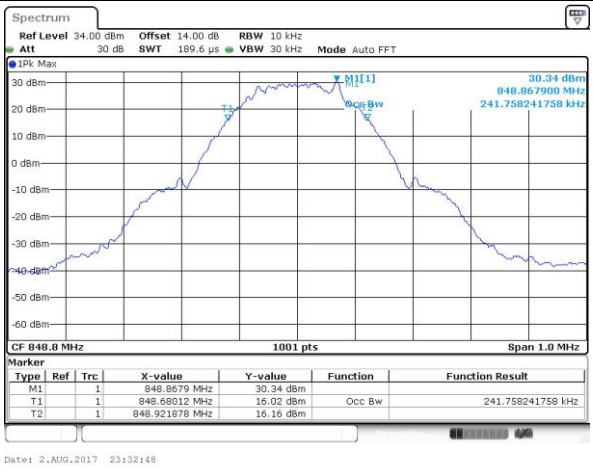
WCDMA Band V (RMC 12.2Kbps)	WCDMA Band II (RMC 12.2Kbps)
Lowest Channel	**Lowest Channel**
	
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

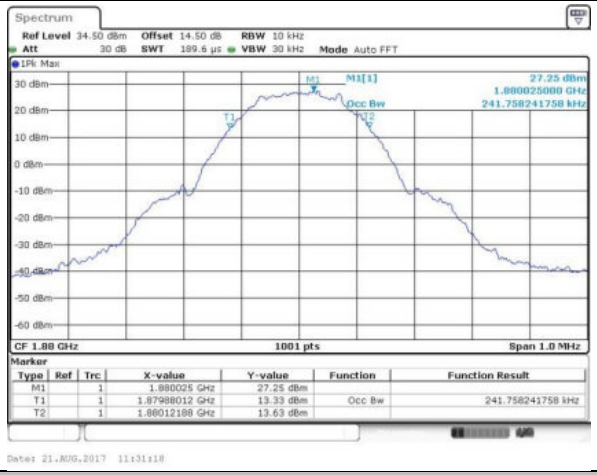
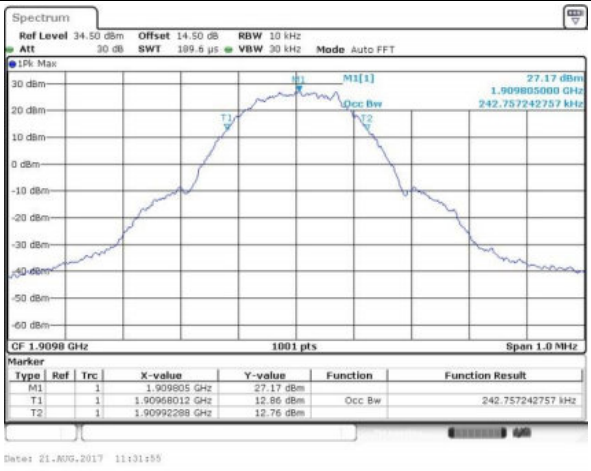
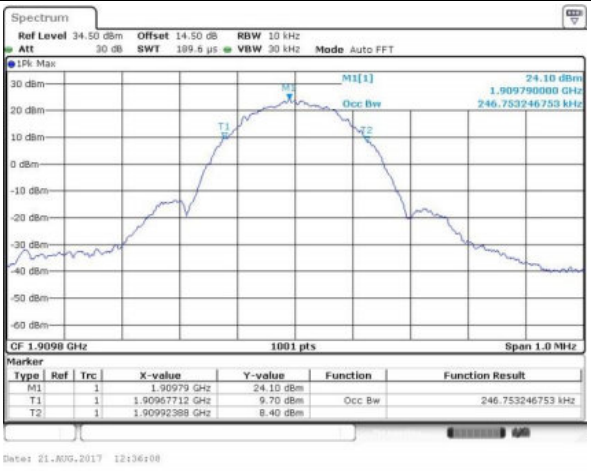
Occupied Bandwidth

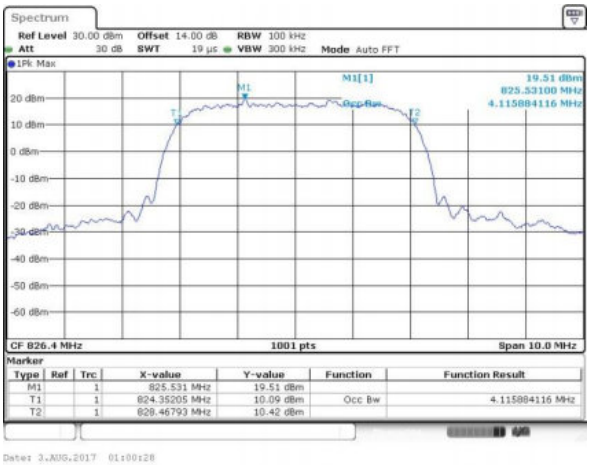
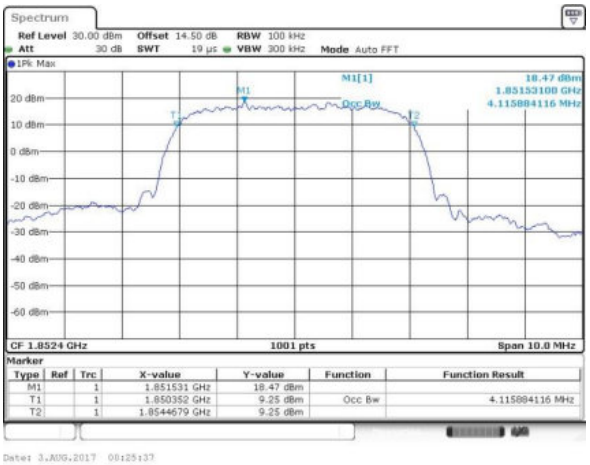
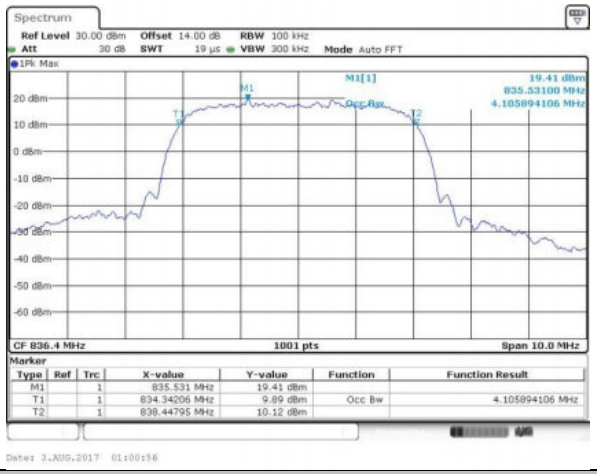
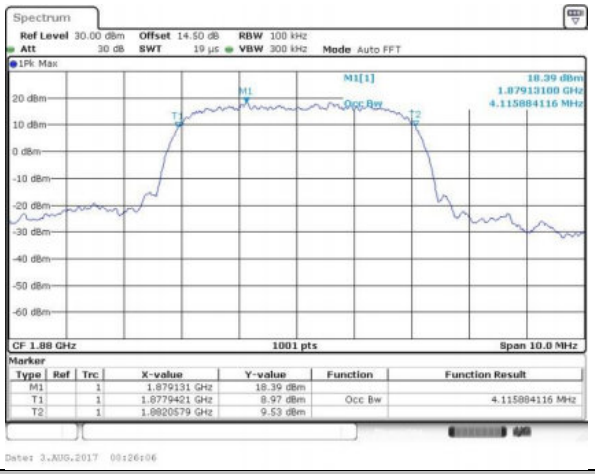
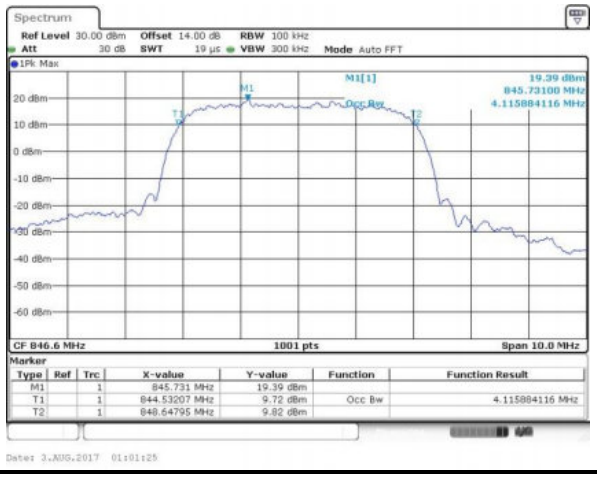
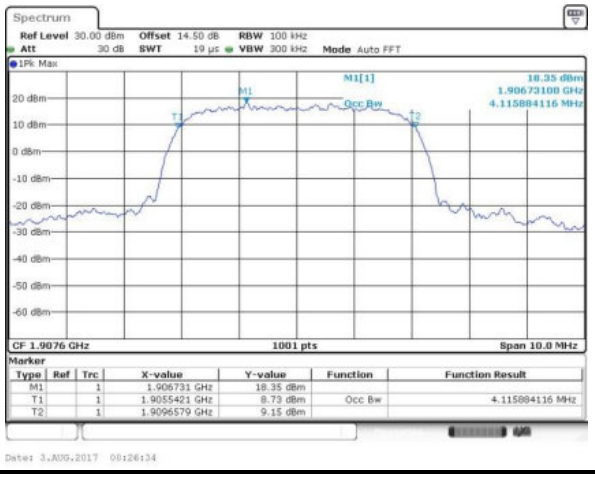
Mode	GSM850(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.242	0.245
Middle CH	0.243	0.244
Highest CH	0.242	0.241

Mode	GSM1900(MHz)	
Mod.	GSM	EDGE class 8
Lowest CH	0.243	0.247
Middle CH	0.242	0.249
Highest CH	0.243	0.247

Mode	WCDMA Band V(MHz)	WCDMA Band II(MHz)
Mod.	RMC 12.2Kbps	RMC 12.2Kbps
Lowest CH	4.12	4.12
Middle CH	4.11	4.12
Highest CH	4.12	4.12

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

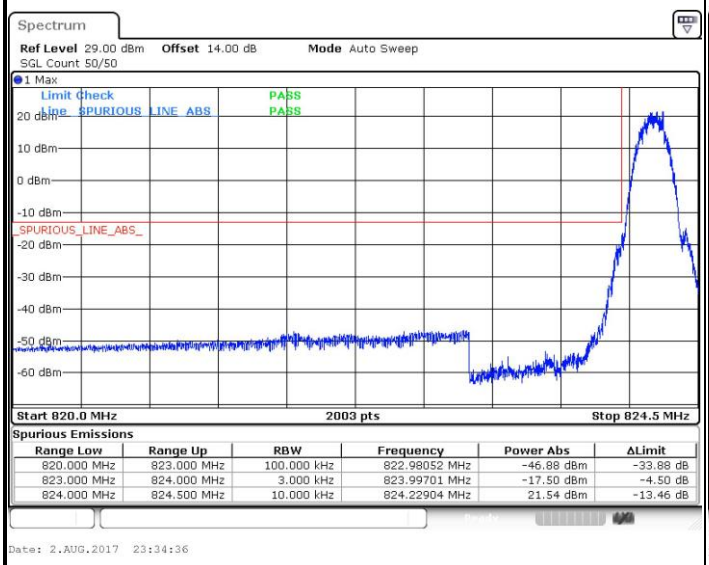
GSM1900 (GSM)	GSM1900 (EDGE class 8)
Lowest Channel	**Lowest Channel**
Middle Channel	**Middle Channel**
	
Highest Channel	**Highest Channel**
	

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

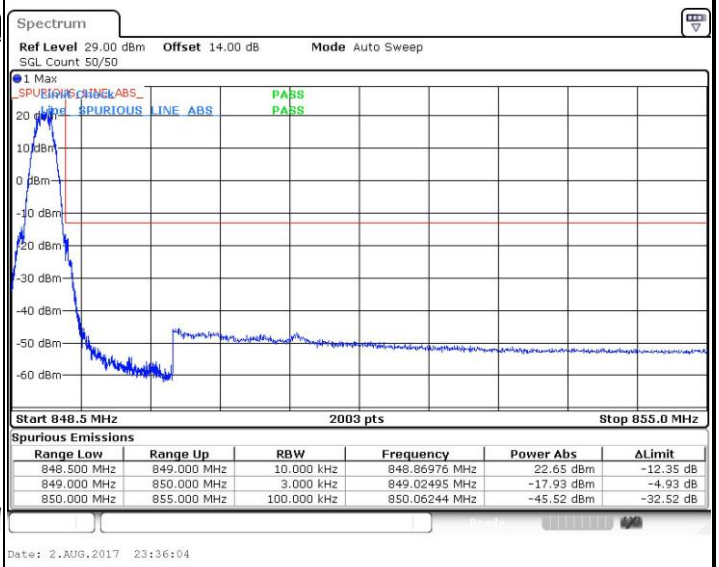


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.98052 MHz	-46.88 dBm	-33.88 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.99701 MHz	-17.50 dBm	-4.50 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.22904 MHz	21.54 dBm	-13.46 dB

Date: 2.AUG.2017 23:34:36

Highest Band Edge



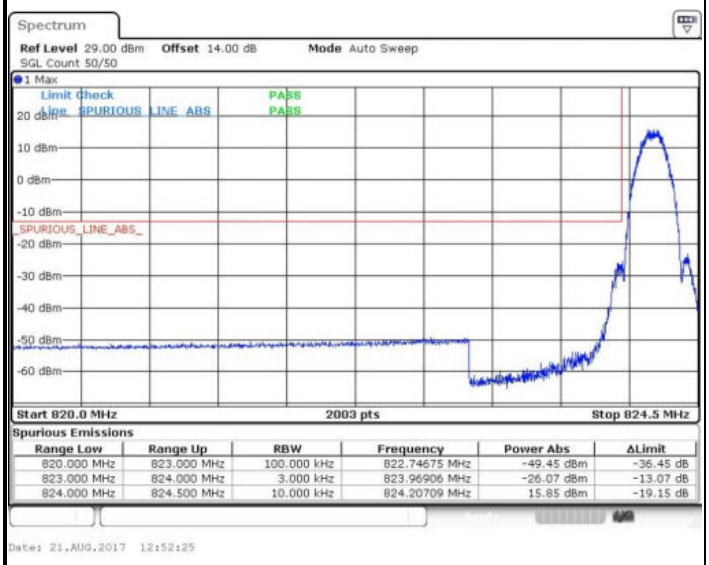
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.86976 MHz	22.65 dBm	-12.35 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.02495 MHz	-17.93 dBm	-4.93 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.06244 MHz	-45.52 dBm	-32.52 dB

Date: 2.AUG.2017 23:36:04

GSM850 (EDGE class 8)

Lowest Band Edge

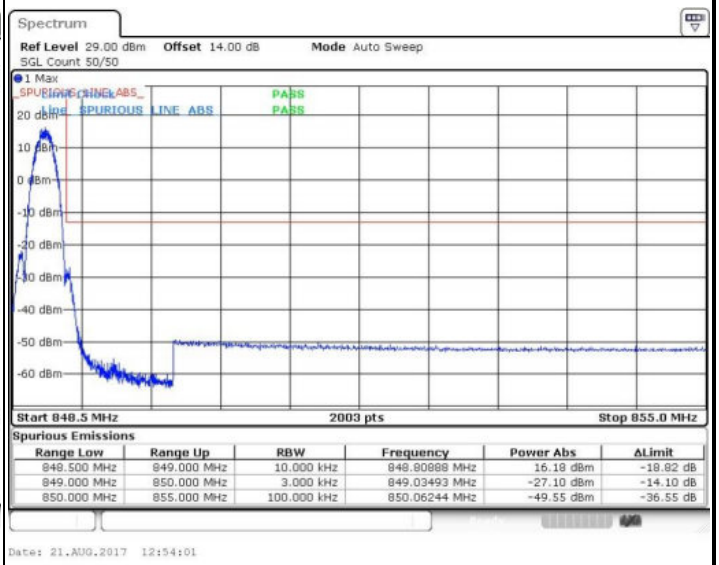


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.74675 MHz	-49.45 dBm	-36.45 dB
823.000 MHz	824.000 MHz	3.000 kHz	823.96906 MHz	-26.07 dBm	-13.07 dB
824.000 MHz	824.500 MHz	10.000 kHz	824.20709 MHz	15.85 dBm	-19.15 dB

Date: 21.AUG.2017 12:52:25

Highest Band Edge



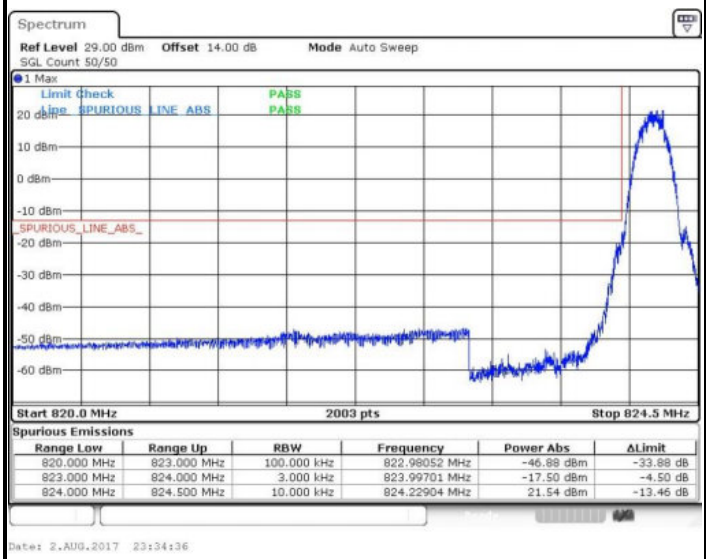
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
848.500 MHz	849.000 MHz	10.000 kHz	848.80888 MHz	16.18 dBm	-18.82 dB
849.000 MHz	850.000 MHz	3.000 kHz	849.03493 MHz	-27.10 dBm	-14.10 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.06244 MHz	-49.55 dBm	-36.55 dB

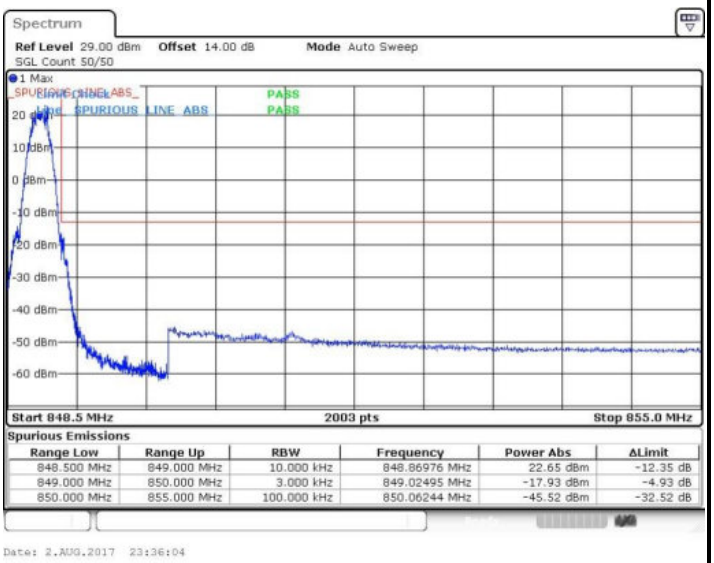
Date: 21.AUG.2017 12:54:01

GSM1900 (GSM)

Lowest Band Edge

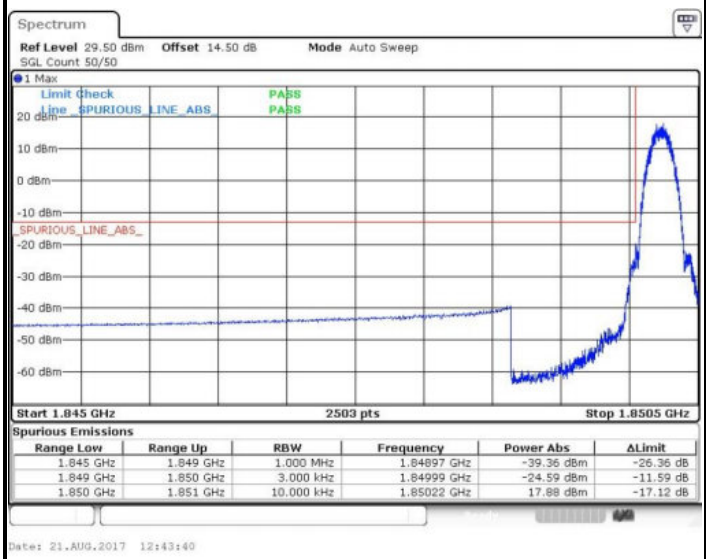


Highest Band Edge

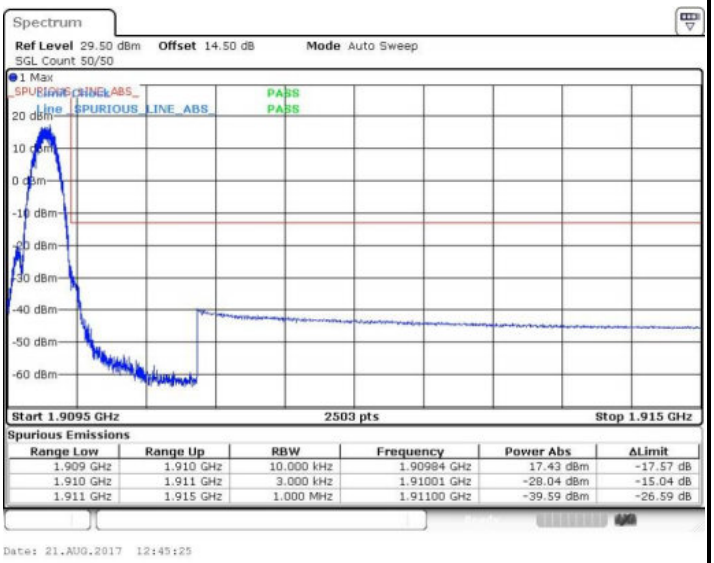


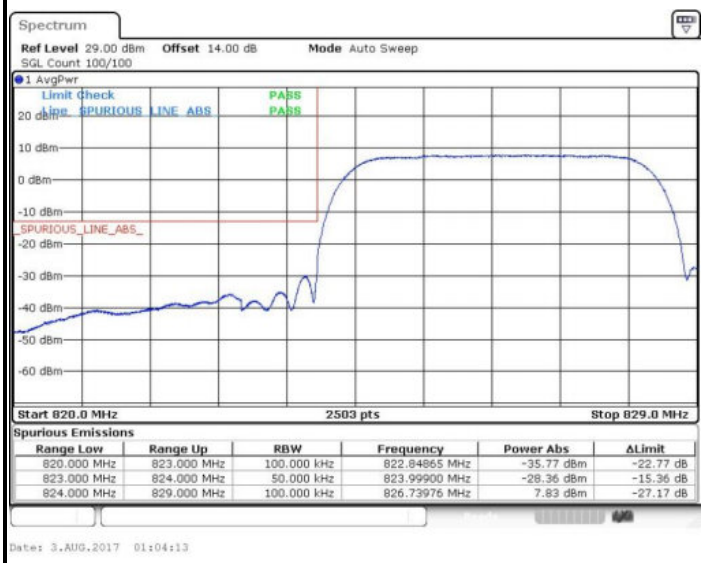
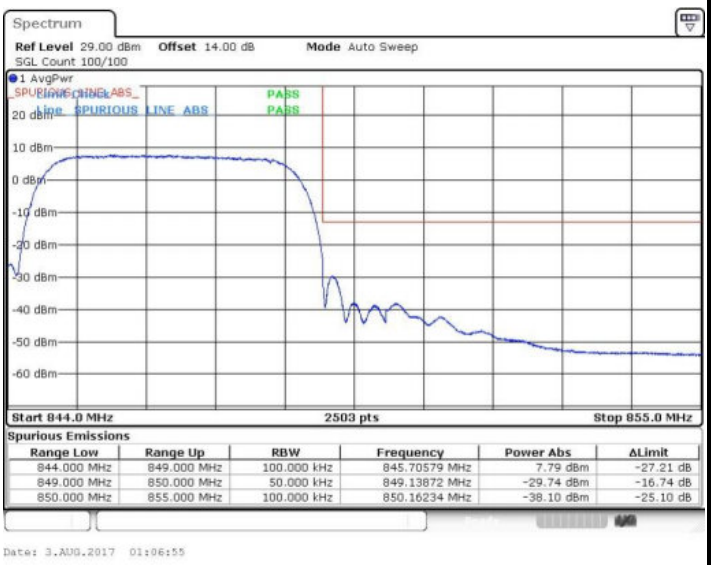
GSM1900 (EDGE class 8)

Lowest Band Edge



Highest Band Edge



WCDMA Band V (RMC 12.2Kbps)	
Lowest Band Edge	**Highest Band Edge**
	

Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
820.000 MHz	823.000 MHz	100.000 kHz	822.84865 MHz	-35.77 dBm	-22.77 dB
823.000 MHz	824.000 MHz	50.000 kHz	823.99900 MHz	-28.36 dBm	-15.36 dB
824.000 MHz	829.000 MHz	100.000 kHz	826.73976 MHz	7.83 dBm	-27.17 dB

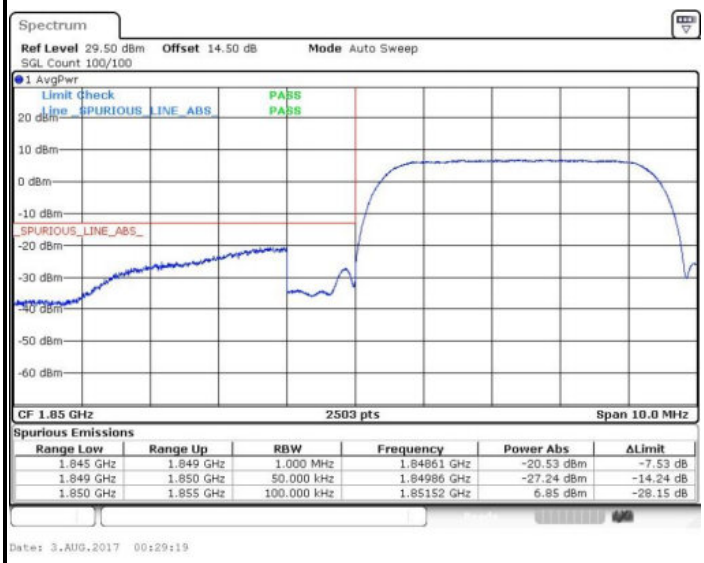
Date: 3.AUG.2017 01:04:13

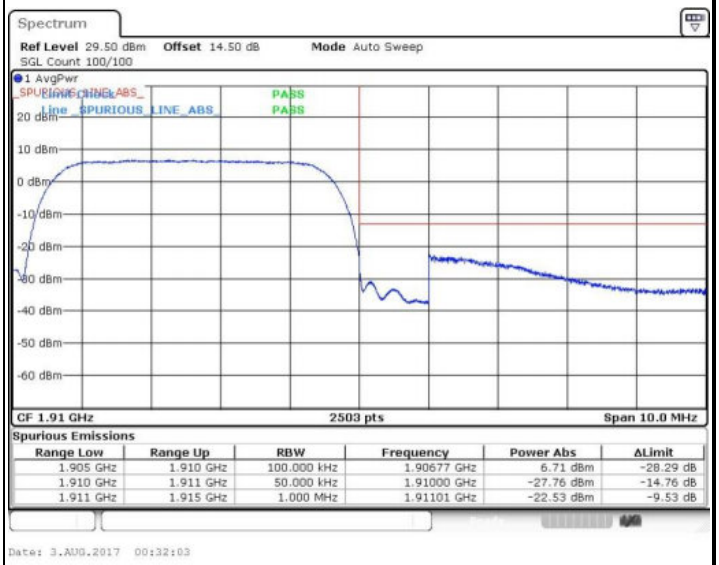
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
844.000 MHz	849.000 MHz	100.000 kHz	845.70579 MHz	7.79 dBm	-27.21 dB
849.000 MHz	850.000 MHz	50.000 kHz	849.13872 MHz	-29.74 dBm	-16.74 dB
850.000 MHz	855.000 MHz	100.000 kHz	850.16234 MHz	-38.10 dBm	-25.10 dB

Date: 3.AUG.2017 01:06:55

WCDMA Band II (RMC 12.2Kbps)	
Lowest Band Edge	**Highest Band Edge**

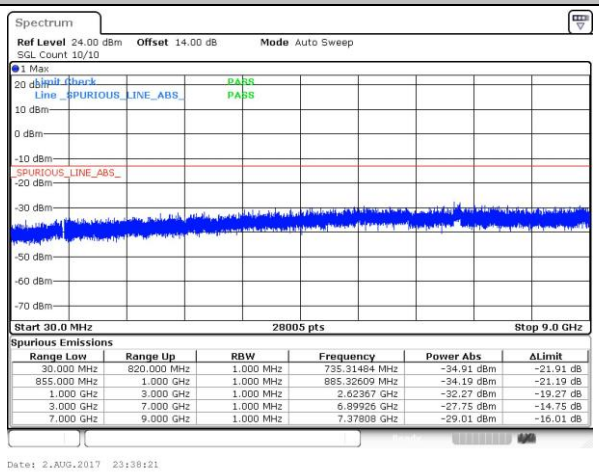




Conducted Spurious Emission

GSM850 (GSM)

Lowest Channel

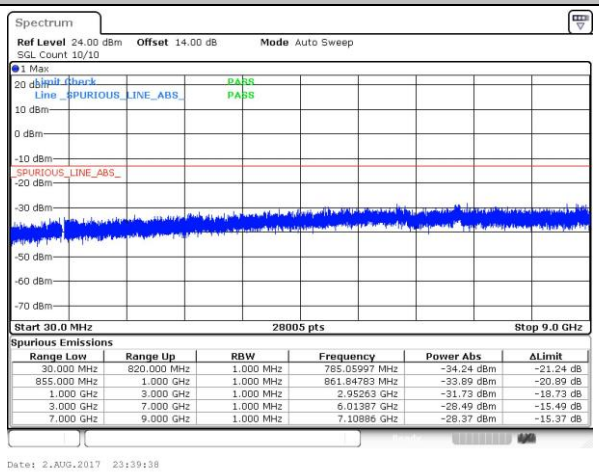


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	735.31484 MHz	-34.91 dBm	-21.91 dB
855.000 MHz	1.000 GHz	1.000 MHz	885.32609 MHz	-34.19 dBm	-21.19 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.62367 GHz	-32.27 dBm	-19.27 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.89926 GHz	-27.75 dBm	-14.75 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.37808 GHz	-29.01 dBm	-16.01 dB

Date: 2.AUG.2017 23:38:21

Middle Channel

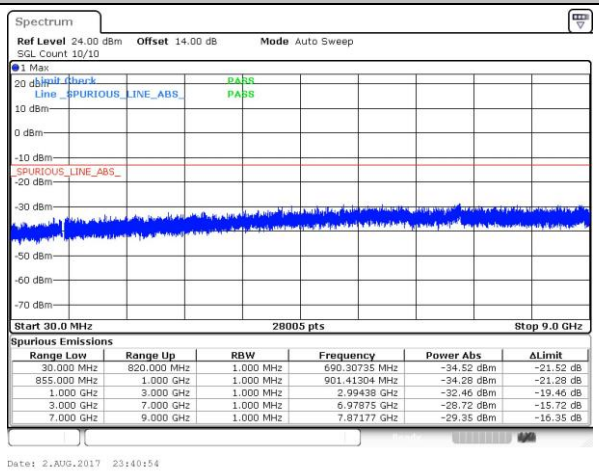


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	785.05997 MHz	-34.24 dBm	-21.24 dB
855.000 MHz	1.000 GHz	1.000 MHz	861.84783 MHz	-33.89 dBm	-20.89 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.95263 GHz	-31.73 dBm	-18.73 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.01387 GHz	-28.49 dBm	-15.49 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.10886 GHz	-28.37 dBm	-15.37 dB

Date: 2.AUG.2017 23:39:38

Highest Channel



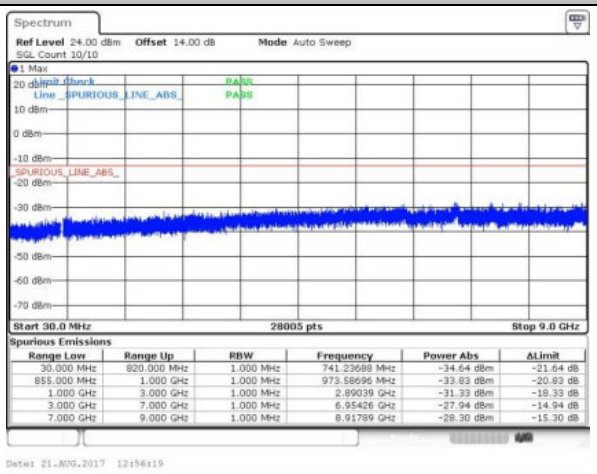
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	690.30735 MHz	-34.52 dBm	-21.52 dB
855.000 MHz	1.000 GHz	1.000 MHz	901.41304 MHz	-34.28 dBm	-21.28 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99438 GHz	-32.46 dBm	-19.46 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.97875 GHz	-28.72 dBm	-15.72 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.87177 GHz	-29.35 dBm	-16.35 dB

Date: 2.AUG.2017 23:40:54

GSM850 (EDGE class 8)

Lowest Channel

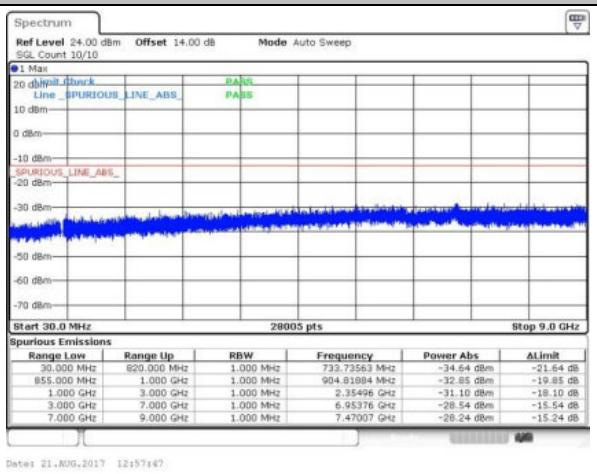


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	741.23688 MHz	-34.64 dBm	-21.64 dB
855.000 MHz	1.000 GHz	1.000 MHz	973.58696 MHz	-33.83 dBm	-20.83 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.89039 GHz	-31.33 dBm	-18.33 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95426 GHz	-27.94 dBm	-14.94 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.91789 GHz	-28.30 dBm	-15.30 dB

Date: 21.AUG.2017 12:56:19

Middle Channel

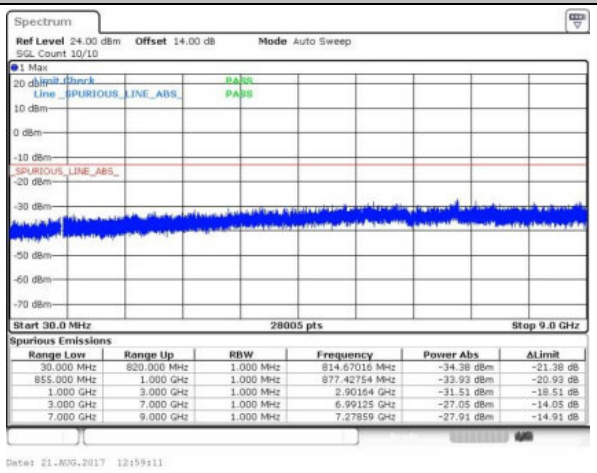


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	733.73563 MHz	-34.64 dBm	-21.64 dB
855.000 MHz	1.000 GHz	1.000 MHz	904.81084 MHz	-32.85 dBm	-19.85 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.35496 GHz	-31.10 dBm	-18.10 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95376 GHz	-28.54 dBm	-15.54 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.47007 GHz	-28.24 dBm	-15.24 dB

Date: 21.AUG.2017 12:57:47

Highest Channel

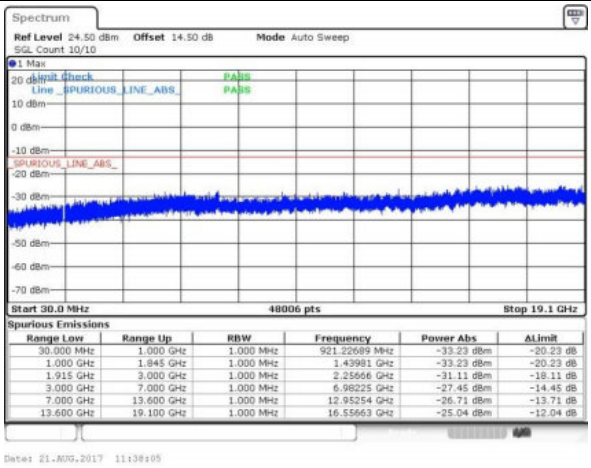


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	814.67016 MHz	-34.38 dBm	-21.38 dB
855.000 MHz	1.000 GHz	1.000 MHz	877.42754 MHz	-33.93 dBm	-20.93 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.90164 GHz	-31.51 dBm	-18.51 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99125 GHz	-27.05 dBm	-14.05 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.27859 GHz	-27.91 dBm	-14.91 dB

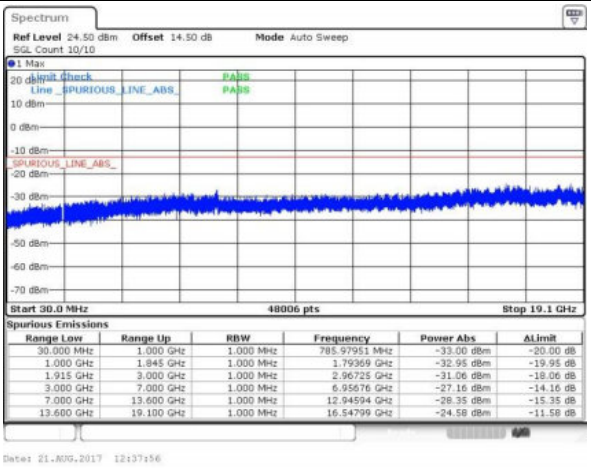
Date: 21.AUG.2017 12:59:11

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



Spurious Emissions

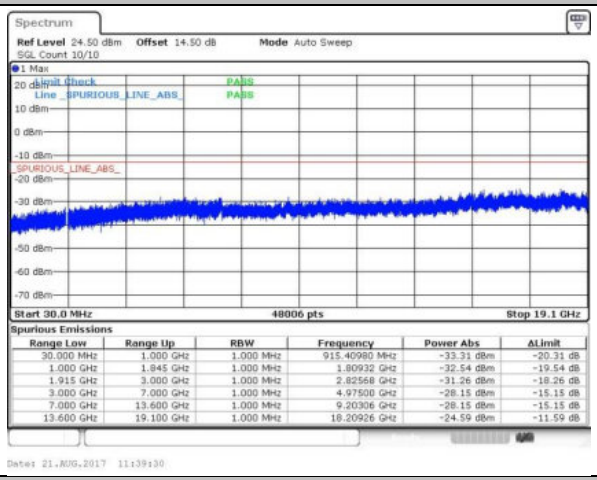
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	921.22689 MHz	-33.23 dBm	-20.23 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.43981 GHz	-33.23 dBm	-20.23 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.25666 GHz	-31.11 dBm	-18.11 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98225 GHz	-27.45 dBm	-14.45 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.95254 GHz	-26.71 dBm	-13.71 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.55663 GHz	-25.04 dBm	-12.04 dB



Spurious Emissions

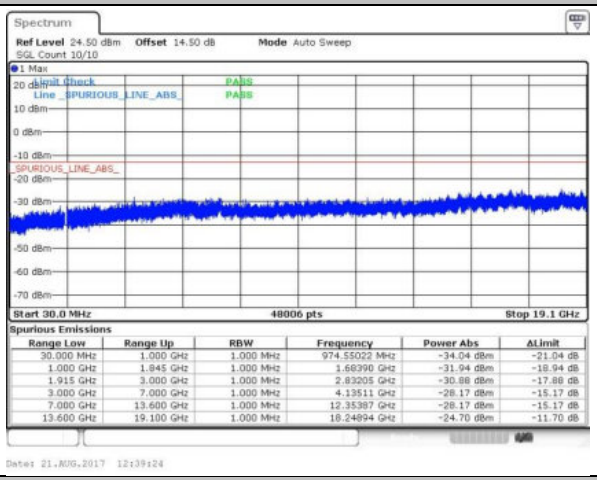
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	785.97951 MHz	-33.00 dBm	-20.00 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.79369 GHz	-32.95 dBm	-19.95 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.96725 GHz	-31.06 dBm	-18.06 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.95676 GHz	-27.16 dBm	-14.16 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.94594 GHz	-28.35 dBm	-15.35 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.54799 GHz	-24.58 dBm	-11.58 dB

Middle Channel	**Middle Channel**



Spurious Emissions

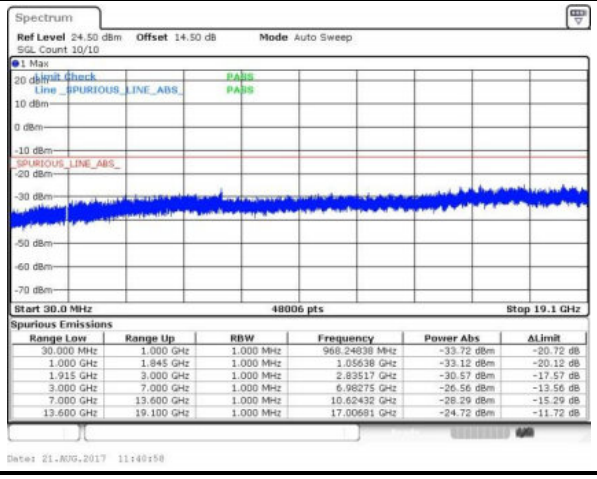
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	915.40980 MHz	-33.31 dBm	-20.31 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.80932 GHz	-32.54 dBm	-19.54 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.82568 GHz	-31.26 dBm	-18.26 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.97500 GHz	-28.15 dBm	-15.15 dB
7.000 GHz	13.600 GHz	1.000 MHz	9.20306 GHz	-28.15 dBm	-15.15 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.20926 GHz	-24.59 dBm	-11.59 dB



Spurious Emissions

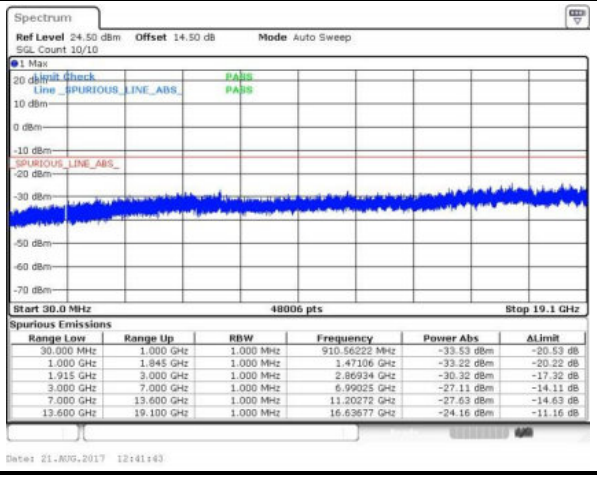
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	974.55022 MHz	-34.04 dBm	-21.04 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.68390 GHz	-31.94 dBm	-18.94 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.83205 GHz	-30.88 dBm	-17.88 dB
3.000 GHz	7.000 GHz	1.000 MHz	4.13511 GHz	-28.17 dBm	-15.17 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.35387 GHz	-28.17 dBm	-15.17 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.24894 GHz	-24.70 dBm	-11.70 dB

Highest Channel	**Highest Channel**



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	968.24838 MHz	-33.72 dBm	-20.72 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.05638 GHz	-33.12 dBm	-20.12 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.83517 GHz	-30.57 dBm	-17.57 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.98275 GHz	-26.56 dBm	-13.56 dB
7.000 GHz	13.600 GHz	1.000 MHz	10.62432 GHz	-28.29 dBm	-15.29 dB
13.600 GHz	19.100 GHz	1.000 MHz	17.00691 GHz	-24.72 dBm	-11.72 dB

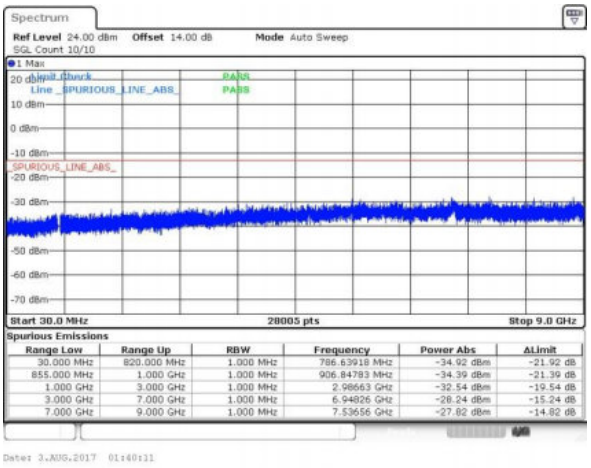


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	910.56222 MHz	-33.53 dBm	-20.53 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.47106 GHz	-33.22 dBm	-20.22 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.86934 GHz	-30.32 dBm	-17.32 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.99025 GHz	-27.11 dBm	-14.11 dB
7.000 GHz	13.600 GHz	1.000 MHz	11.20272 GHz	-27.63 dBm	-14.63 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.63677 GHz	-24.16 dBm	-11.16 dB

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	786.63918 MHz	-34.92 dBm	-21.92 dB
855.000 MHz	1.000 GHz	1.000 MHz	906.84783 MHz	-34.39 dBm	-21.39 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.98663 GHz	-32.54 dBm	-19.54 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.94826 GHz	-28.24 dBm	-15.24 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.53656 GHz	-27.82 dBm	-14.82 dB

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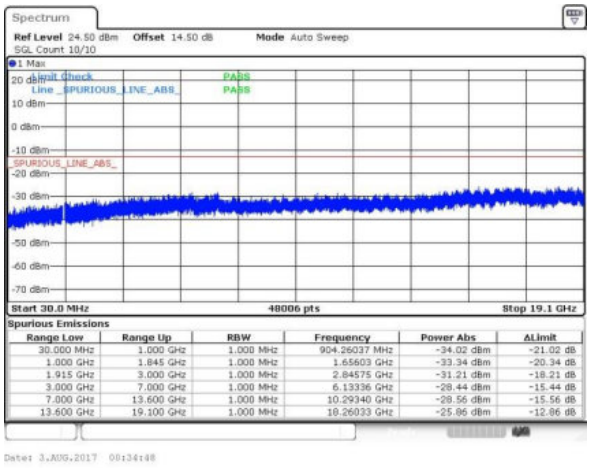
Lowest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	904.26037 MHz	-34.02 dBm	-21.02 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.65603 GHz	-33.34 dBm	-20.34 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.84575 GHz	-31.21 dBm	-18.21 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.13336 GHz	-28.44 dBm	-15.44 dB
7.000 GHz	13.600 GHz	1.000 MHz	10.29340 GHz	-28.56 dBm	-15.56 dB
13.600 GHz	19.100 GHz	1.000 MHz	18.26033 GHz	-25.86 dBm	-12.86 dB

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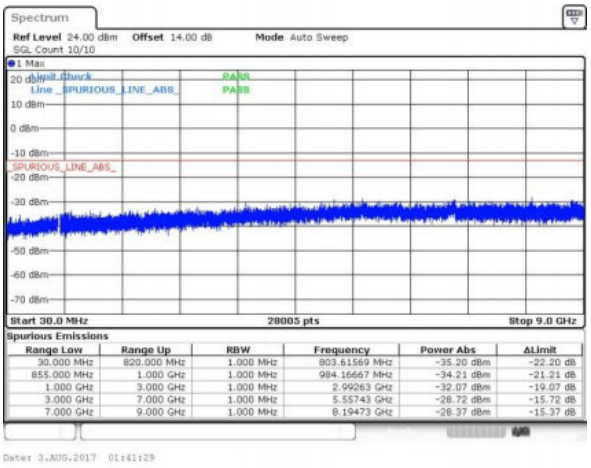
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	803.61569 MHz	-35.20 dBm	-22.20 dB
855.000 MHz	1.000 GHz	1.000 MHz	984.16667 MHz	-34.21 dBm	-21.21 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.99263 GHz	-32.07 dBm	-19.07 dB
3.000 GHz	7.000 GHz	1.000 MHz	5.55743 GHz	-28.72 dBm	-15.72 dB
7.000 GHz	9.000 GHz	1.000 MHz	8.19473 GHz	-28.37 dBm	-15.37 dB

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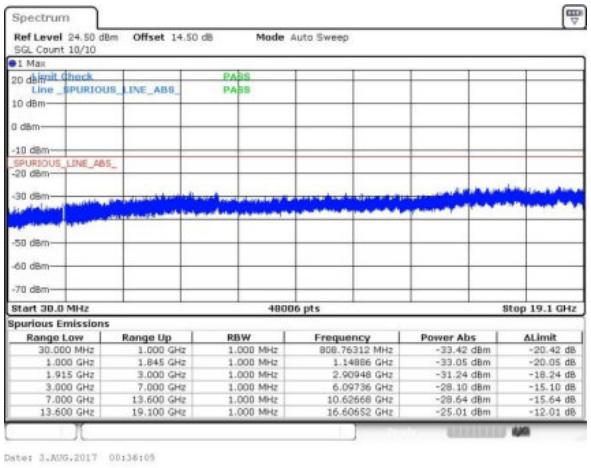
Middle Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	808.76312 MHz	-33.42 dBm	-20.42 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.14886 GHz	-33.05 dBm	-20.05 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.90948 GHz	-31.24 dBm	-18.24 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.09736 GHz	-28.10 dBm	-15.10 dB
7.000 GHz	13.600 GHz	1.000 MHz	10.62668 GHz	-28.64 dBm	-15.64 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.60652 GHz	-25.01 dBm	-12.01 dB

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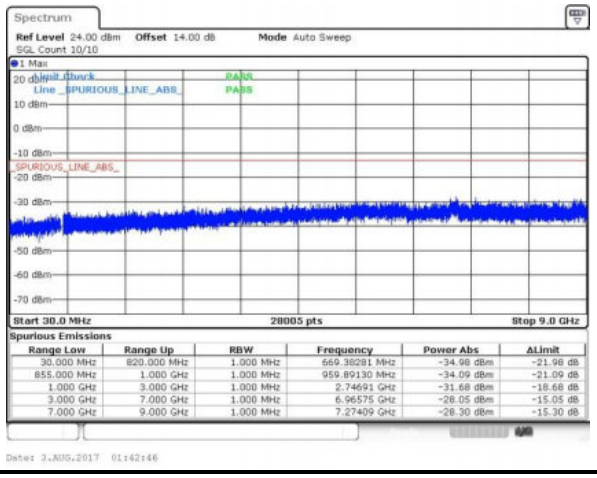
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	820.000 MHz	1.000 MHz	669.38281 MHz	-34.98 dBm	-21.98 dB
855.000 MHz	1.000 GHz	1.000 MHz	959.89130 MHz	-34.09 dBm	-21.09 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.74691 GHz	-31.68 dBm	-18.68 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.96575 GHz	-28.05 dBm	-15.05 dB
7.000 GHz	9.000 GHz	1.000 MHz	7.27409 GHz	-28.30 dBm	-15.30 dB

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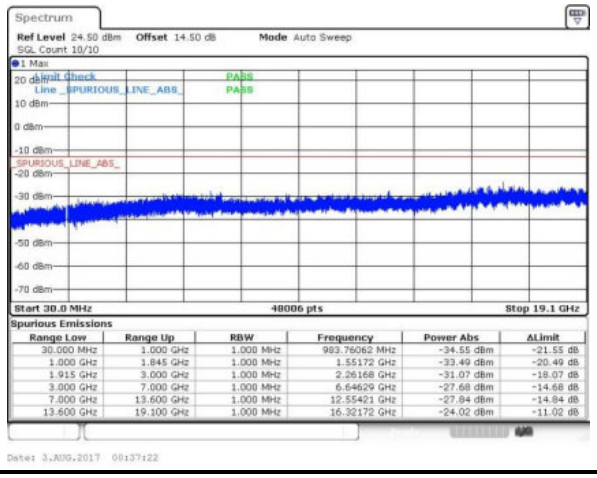
Highest Channel



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	1.000 GHz	1.000 MHz	983.76062 MHz	-34.55 dBm	-21.55 dB
1.000 GHz	1.845 GHz	1.000 MHz	1.55172 GHz	-33.49 dBm	-20.49 dB
1.915 GHz	3.000 GHz	1.000 MHz	2.26168 GHz	-31.07 dBm	-18.07 dB
3.000 GHz	7.000 GHz	1.000 MHz	6.64629 GHz	-27.68 dBm	-14.68 dB
7.000 GHz	13.600 GHz	1.000 MHz	12.55421 GHz	-27.84 dBm	-14.84 dB
13.600 GHz	19.100 GHz	1.000 MHz	16.32172 GHz	-24.02 dBm	-11.02 dB

Date: 3.AUG.2017 00:37:22

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	0.0096	0.0072	PASS
40	Normal Voltage	0.0072	0.0060	
30	Normal Voltage	0.0036	0.0024	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0024	0.0048	
0	Normal Voltage	0.0036	0.0096	
-10	Normal Voltage	0.0072	0.0143	
-20	Normal Voltage	0.0155	0.0179	
-30	Normal Voltage	0.0215	0.0191	
20	Maximum Voltage	0.0096	0.0072	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0048	0.60	

Note: Normal Voltage = 3.85V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.4 V

Test Conditions	Middle Channel	GSM1900 (GSM)	GSM1900 (EDGE class 8)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0048	0.0027	PASS
40	Normal Voltage	0.0032	0.0021	
30	Normal Voltage	0.0011	0.0011	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0021	0.0011	
0	Normal Voltage	0.0053	0.0032	
-10	Normal Voltage	0.0069	0.0053	
-20	Normal Voltage	0.0096	0.0080	
-30	Normal Voltage	0.0106	0.0096	
20	Maximum Voltage	0.0064	0.0053	
20	Normal Voltage	0.0000	0.0000	
20	Battery End Point	0.0016	0.0005	

Note:

1. Normal Voltage = 3.85V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.4 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	0.0048	PASS
40	Normal Voltage	0.0036	
30	Normal Voltage	0.0012	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0024	
0	Normal Voltage	0.0048	
-10	Normal Voltage	0.0072	
-20	Normal Voltage	0.0120	
-30	Normal Voltage	0.0132	
20	Maximum Voltage	0.0096	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0024	

Note: Normal Voltage = 3.85V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.4 V

Test Conditions	Middle Channel	WCDMA Band II (RMC 12.2Kbps)	Limit Note 2.
Temperature (°C)	Voltage (Volt)	Deviation (ppm)	Result
50	Normal Voltage	0.0016	PASS
40	Normal Voltage	0.0011	
30	Normal Voltage	0.0005	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0011	
0	Normal Voltage	0.0021	
-10	Normal Voltage	0.0032	
-20	Normal Voltage	0.0043	
-30	Normal Voltage	0.0053	
20	Maximum Voltage	0.0043	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0011	

Note:

1. Normal Voltage = 3.85V. ；Battery End Point (BEP) = 3.6 V.；Maximum Voltage =4.4 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)
Lowest	1648.4	-58.53	-13	-45.53	-60.24	-62.90	2.88	9.40	H
	2472.6	-55.97	-13	-42.97	-62.03	-61.92	2.50	10.60	H
	3296.8	-68.94	-13	-55.94	-76.94	-74.76	4.63	12.60	H
	1648.4	-56.33	-13	-43.33	-58.17	-60.70	2.88	9.40	V
	2472.6	-60.84	-13	-47.84	-66.79	-66.79	2.50	10.60	V
	3296.8	-68.51	-13	-55.51	-76.54	-74.33	4.63	12.60	V
Middle	1672.8	-49.85	-13	-36.85	-53.11	-54.22	2.88	9.40	H
	2509.2	-55.35	-13	-42.35	-61.41	-61.30	2.50	10.60	H
	3345.6	-67.97	-13	-54.97	-75.97	-73.79	4.63	12.60	H
	1672.8	-53.83	-13	-40.83	-56.06	-58.20	2.88	9.40	V
	2509.2	-61.56	-13	-48.56	-67.51	-67.51	2.50	10.60	V
	3345.6	-68.34	-13	-55.34	-76.37	-74.16	4.63	12.60	V
Highest	1697.6	-59.59	-13	-46.59	-61.30	-63.96	2.88	9.40	H
	2546.4	-58.25	-13	-45.25	-64.31	-64.20	2.50	10.60	H
	3395.2	-69.37	-13	-56.37	-77.37	-75.19	4.63	12.60	H
	1697.6	-60.09	-13	-47.09	-61.93	-64.46	2.88	9.40	V
	2546.4	-58.18	-13	-45.18	-64.13	-64.13	2.50	10.60	V
	3395.2	-69.17	-13	-56.17	-77.20	-74.99	4.63	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)
Lowest	1648.4	-71.04	-13	-58.04	-72.75	-75.41	2.88	9.40	H
	2472.6	-69.01	-13	-56.01	-75.07	-74.96	2.50	10.60	H
	3296.8	-69.12	-13	-56.12	-77.12	-74.94	4.63	12.60	H
	1648.4	-71.63	-13	-58.63	-73.47	-76.00	2.88	9.40	V
	2472.6	-69.89	-13	-56.89	-75.84	-75.84	2.50	10.60	V
	3296.8	-69.32	-13	-56.32	-77.35	-75.14	4.63	12.60	V
Middle	1672.8	-70.36	-13	-57.36	-72.07	-74.73	2.88	9.40	H
	2509.2	-68.41	-13	-55.41	-74.47	-74.36	2.50	10.60	H
	3345.6	-69.05	-13	-56.05	-77.05	-74.87	4.63	12.60	H
	1672.8	-70.71	-13	-57.71	-72.55	-75.08	2.88	9.40	V
	2509.2	-69.94	-13	-56.94	-75.89	-75.89	2.50	10.60	V
	3345.6	-69.12	-13	-56.12	-77.15	-74.94	4.63	12.60	V
Highest	1697.6	-66.26	-13	-53.26	-67.97	-70.63	2.88	9.40	H
	2546.4	-66.88	-13	-53.88	-72.94	-72.83	2.50	10.60	H
	3395.2	-69.37	-13	-56.37	-77.37	-75.19	4.63	12.60	H
	1697.6	-68.29	-13	-55.29	-70.13	-72.66	2.88	9.40	V
	2546.4	-69.17	-13	-56.17	-75.12	-75.12	2.50	10.60	V
	3395.2	-69.37	-13	-56.37	-77.40	-75.19	4.63	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)
Lowest	3700.4	-46.73	-13	-33.73	-60.35	-54.31	5.02	12.60	H
	5550.6	-59.06	-13	-46.06	-75.66	-64.86	7.30	13.10	H
	7400.8	-58.53	-13	-45.53	-78.51	-62.10	7.73	11.30	H
	3700.4	-44.85	-13	-31.85	-59.18	-52.43	5.02	12.60	V
	5550.6	-56.19	-13	-43.19	-72.72	-61.99	7.30	13.10	V
	7400.8	-52.12	-13	-39.12	-71.76	-55.69	7.73	11.30	V
Middle	3760	-62.84	-13	-49.84	-76.46	-70.42	5.02	12.60	H
	5640	-61.82	-13	-48.82	-78.42	-67.62	7.30	13.10	H
	7520	-58.85	-13	-45.85	-78.83	-62.42	7.73	11.30	H
	3760	-61.95	-13	-48.95	-76.28	-69.53	5.02	12.60	V
	5640	-61.97	-13	-48.97	-78.5	-67.77	7.30	13.10	V
	7520	-59.22	-13	-46.22	-78.86	-62.79	7.73	11.30	V
Highest	3819.6	-50.52	-13	-37.52	-64.14	-58.10	5.02	12.60	H
	5729.4	-50.28	-13	-37.28	-66.88	-56.08	7.30	13.10	H
	7639.2	-58.31	-13	-45.31	-78.29	-61.88	7.73	11.30	H
	3819.6	-45.48	-13	-32.48	-59.81	-53.06	5.02	12.60	V
	5729.4	-46.92	-13	-33.92	-63.45	-52.72	7.30	13.10	V
	7639.2	-48.49	-13	-35.49	-68.13	-52.06	7.73	11.30	V

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

GSM1900 (EDGE class 8)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3700.4	-52.61	-13	-39.61	-66.23	-60.19	5.02	12.60	H
	5550.6	-59.63	-13	-46.63	-76.23	-65.43	7.30	13.10	H
	7400.8	-58.34	-13	-45.34	-78.32	-61.91	7.73	11.30	H
	3700.4	-53.74	-13	-40.74	-68.07	-61.32	5.02	12.60	V
	5550.6	-57.82	-13	-44.82	-74.35	-63.62	7.30	13.10	V
	7400.8	-48.47	-13	-35.47	-68.11	-52.04	7.73	11.30	V
Middle	3760	-53.45	-13	-40.45	-67.07	-61.03	5.02	12.60	H
	5640	-60.09	-13	-47.09	-76.69	-65.89	7.30	13.10	H
	7520	-58.50	-13	-45.50	-78.48	-62.07	7.73	11.30	H
	3760	-54.03	-13	-41.03	-68.36	-61.61	5.02	12.60	V
	5640	-59.18	-13	-46.18	-75.71	-64.98	7.30	13.10	V
	7520	-49.53	-13	-36.53	-69.17	-53.10	7.73	11.30	V
Highest	3819.6	-56.91	-13	-43.91	-70.53	-64.49	5.02	12.60	H
	5729.4	-61.60	-13	-48.60	-78.20	-67.40	7.30	13.10	H
	7639.2	-58.53	-13	-45.53	-78.51	-62.10	7.73	11.30	H
	3819.6	-56.20	-13	-43.20	-70.53	-63.78	5.02	12.60	V
	5729.4	-56.24	-13	-43.24	-72.77	-62.04	7.30	13.10	V
	7639.2	-53.15	-13	-40.15	-72.79	-56.72	7.73	11.30	V

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

WCDMA Band V(RMC 12.2Kbps)									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1652.8	-72.75	-13	-59.75	-74.46	-77.12	2.88	9.40	H
	2479.2	-68.85	-13	-55.85	-74.91	-74.80	2.50	10.60	H
	3305.6	-69.34	-13	-56.34	-77.34	-75.16	4.63	12.60	H
	1652.8	-72.42	-13	-59.42	-74.26	-76.79	2.88	9.40	V
	2479.2	-69.76	-13	-56.76	-75.71	-75.71	2.50	10.60	V
	3305.6	-69.30	-13	-56.30	-77.33	-75.12	4.63	12.60	V
Middle	1672	-73.43	-13	-60.43	-75.14	-77.80	2.88	9.40	H
	2510	-70.87	-13	-57.87	-76.93	-76.82	2.50	10.60	H
	3346	-69.13	-13	-56.13	-77.13	-74.95	4.63	12.60	H
	1672	-73.27	-13	-60.27	-75.11	-77.64	2.88	9.40	V
	2510	-71.08	-13	-58.08	-77.03	-77.03	2.50	10.60	V
	3346	-69.12	-13	-56.12	-77.15	-74.94	4.63	12.60	V
Highest	1693.2	-73.32	-13	-60.32	-75.03	-77.69	2.88	9.40	H
	2539.8	-70.79	-13	-57.79	-76.85	-76.74	2.50	10.60	H
	3386.4	-69.50	-13	-56.50	-77.50	-75.32	4.63	12.60	H
	1693.2	-73.32	-13	-60.32	-75.16	-77.69	2.88	9.40	V
	2539.8	-71.00	-13	-58.00	-76.95	-76.95	2.50	10.60	V
	3386.4	-69.34	-13	-56.34	-77.37	-75.16	4.63	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)
Lowest	3702.5	-58.47	-13	-45.47	-72.09	-66.05	5.02	12.60	H
	5553.75	-62.15	-13	-49.15	-78.75	-67.95	7.30	13.10	H
	7405	-59.06	-13	-46.06	-79.04	-62.63	7.73	11.30	H
	3702.5	-60.52	-13	-47.52	-74.85	-68.10	5.02	12.6	V
	5553.75	-62.05	-13	-49.05	-78.58	-67.85	7.30	13.1	V
	7405	-59.70	-13	-46.70	-79.34	-63.27	7.73	11.3	V
Middle	3760	-57.67	-13	-44.67	-71.29	-65.25	5.02	12.60	H
	5640	-61.98	-13	-48.98	-78.58	-67.78	7.30	13.10	H
	7520	-58.67	-13	-45.67	-78.65	-62.24	7.73	11.30	H
	3760	-59.97	-13	-46.97	-74.3	-67.55	5.02	12.60	V
	5640	-62.15	-13	-49.15	-78.68	-67.95	7.30	13.10	V
	7520	-58.60	-13	-45.60	-78.24	-62.17	7.73	11.30	V
Highest	3817.5	-54.93	-13	-41.93	-68.55	-62.51	5.02	12.60	H
	5726.25	-61.76	-13	-48.76	-78.36	-67.56	7.30	13.10	H
	7635	-58.55	-13	-45.55	-78.53	-62.12	7.73	11.30	H
	3817.5	-58.08	-13	-45.08	-72.41	-65.66	5.02	12.60	V
	5726.25	-62.34	-13	-49.34	-78.87	-68.14	7.30	13.10	V
	7635	-58.47	-13	-45.47	-78.11	-62.04	7.73	11.30	V

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