FCC RF Test Report

APPLICANT	:	**Motorola Mobility LLC**
EQUIPMENT	:	**Mobile Cellular Phone**
BRAND NAME	:	**Motorola**
MODEL NAME	:	**XT1929-4(SS)**
FCC ID	:	**IHDT56XE1**
STANDARD	:	**FCC 47 CFR Part 2, 22(H)**
CLASSIFICATION	:	**PCS Licensed Transmitter Held to Ear (PCE)**

This is partial report. The product was received on Jan. 18, 2018 and testing was completed on Mar. 06, 2018. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

This report contains data that were produced under subcontract by Laboratory SPORTON INTERNATIONAL INC.

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

James Huang

NVLAP TESTING
NVLAP LAB CODE 600155-0

Approved by: James Huang / Manager

Sporton International (Kunshan) Inc.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG811821G	Rev. 01	Initial issue of report	Mar. 06, 2018
FG811821G	Rev. 02	Revising antenna type in section 1.4.	Apr. 19, 2018

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	-
3.5	N/A	Peak-to-Average Ratio	< 13 dB	PASS	-
3.6	§2.1049 §22.917(b)	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability for Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
4.4	§2.1053 §22.917(a)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	Under limit 19.01 dB at 2546.000 MHz

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT1929-4(SS)
FCC ID	IHDT56XE1
IMEI Code	**Conducted :** IMEI: 351886090013043 **Radiation :** IMEI: 351886090021889
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/GNSS/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
HW Version	DVT2
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.

Accessory List	
AC Adapter 1	Brand Name : Motorola
	Model Name : SC-22 SPN5970A
	Manufacturer : Salom
AC Adapter 2	Brand Name : Motorola
	Model Name : SC-22 SPN5993A
	Manufacturer : Chenyang
Battery	Brand Name : Motorola
	Model Name : JS40
	Manufacturer : SUNWODA
C2Audio Cable 1	Brand Name : Motorola
	Model Name : SC18C27844
	Manufacturer : Luxshare
C2Audio Cable 2	Brand Name : Motorola
	Model Name : SC18C27845
	Manufacturer : Cabletech
USB Cable 1	Brand Name : Cabletech
	Model Name : SKN6473A
USB Cable 2	Brand Name : FOXLINK
	Model Name : SKN6473A 17195-C 0403532
USB Cable 3	Brand Name : SAIBAO
	Model Name : SKN6473A 17214-C 1127044
USB Cable 4	Brand Name : Luxshare
	Model Name : SKN6473A 17227-C 1126538

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	**GSM/GPRS/EDGE:** 850: 824.2 MHz ~ 848.8 MHz
Rx Frequency	**GSM/GPRS/EDGE:** 850: 869.2 MHz ~ 893.8 MHz
Maximum Output Power to Antenna	**GSM/GPRS/EDGE:** 850: 32.80 dBm
Antenna Type	Monopole Antenna
Antenna Gain	Cellular Band: -5.6 dBi
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE: GMSK / 8PSK

1.5 Modification of EUT

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

1.6 Maximum ERP Power, Frequency Tolerance, and Emission Designator

FCC Rule	Frequency Range (MHz)	System	Type of Modulation	Maximum ERP (W)	Frequency Tolerance (ppm)	Emission Designator
Part 22	824.2 ~848.8	GSM850 GPRS class 8	GMSK	0.3199	0.0335 ppm	243KGXW
Part 22	824.2 ~848.8	GSM850 EDGE class 8	8PSK	0.0693	0.0311 ppm	245KG7W

1.7 Testing Location

Sporton International (Kunshan) Inc. is accredited to ISO 17025 by National Voluntary Laboratory Accreditation Program (NVLAP code: 600155-0) and the FCC designation No. is CN5013.

Test Site	Sporton International (Kunshan) Inc.	
Test Site Location	No.3-2 Ping-Xiang Rd, Kunshan Development Zone Kunshan City Jiangsu Province 215335 China TEL : +86-512-57900158 FAX : +86-512-57900958	
Test Site No.	**Sporton Site No.**	**FCC Test Firm Registration No.**
	03CH03-KS	630927

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)
- ANSI / TIA -603-E
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03
- 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 v03 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850.

All modes and data rates and positions were investigated.

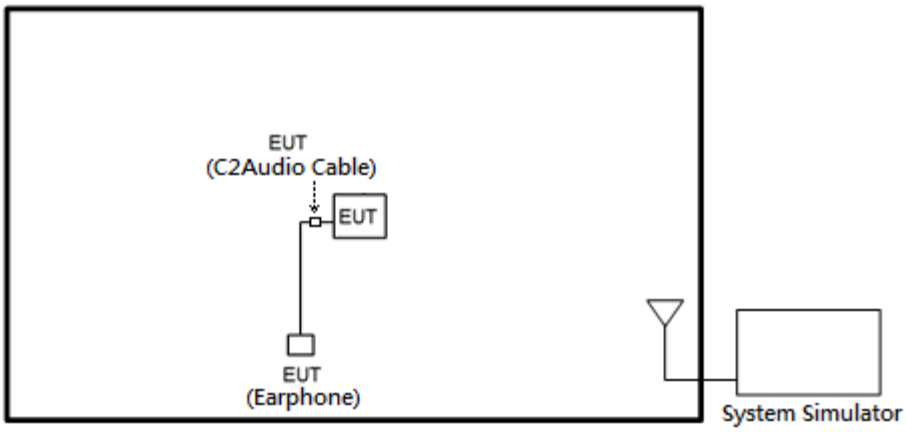
Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	■ GPRS class 8 Link ■ EDGE class 8 Link	■ GPRS class 8 Link ■ EDGE class 8 Link

Remark: All the radiated test cases were performance with C2Audio Cable 1.

2.2 Connection Diagram of Test System

<EUT with Earphone>



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.	Earphone	Motorola	SH38C16618	N/A	Unshielded, 1.2 m	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

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

Example :

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

= 4.2 + 10 = 14.2 (dB)

2.5 Frequency List of Low/Middle/High Channels

Frequency List				
Band	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
GSM850	Channel	128	189	251
	Frequency	824.2	836.4	848.8

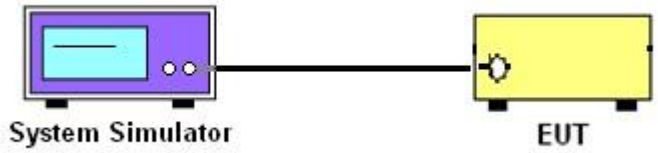
3 Conducted Test Result

3.1 Measuring Instruments

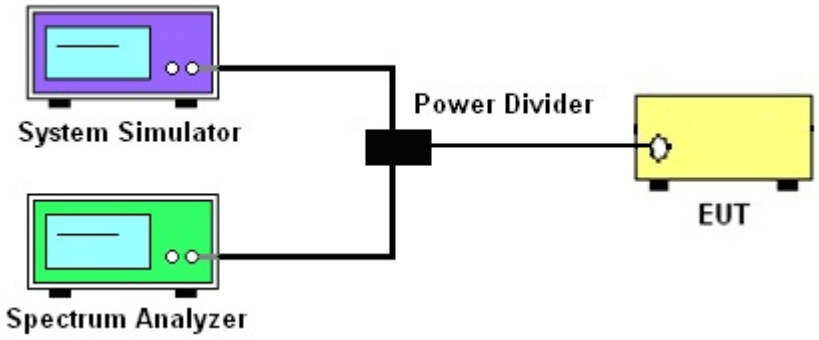
See list of measuring instruments of this test report.

3.2 Test Setup

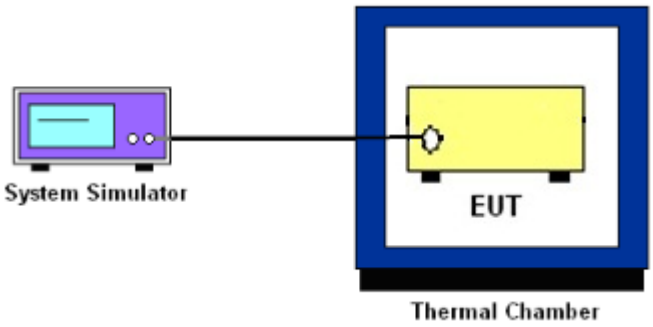
3.2.1 Conducted Output Power



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

3.4.1 Description of the Conducted Output Power and ERP

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.

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 v03 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 v03 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 v03 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)

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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

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

3.8.2 Test Procedures

1. The testing follows FCC KDB 971168 D01 v03 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)

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 v03 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 v03 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.

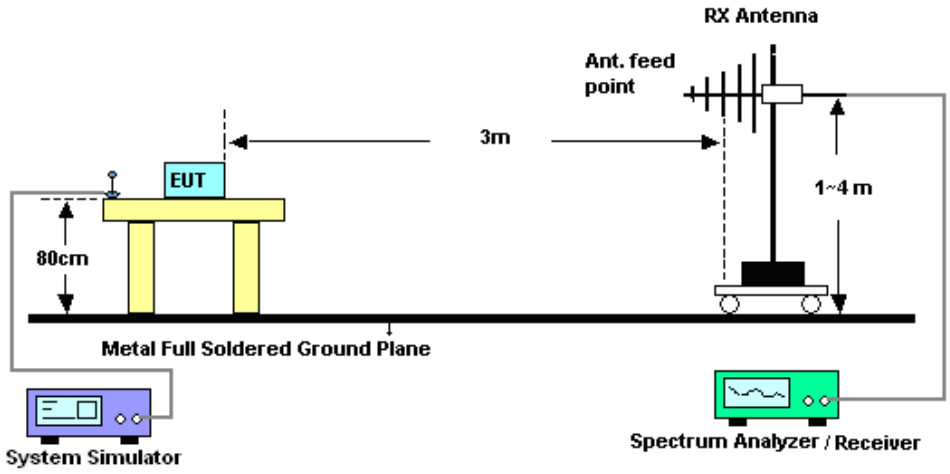
4 Radiated Test Items

4.1 Measuring Instruments

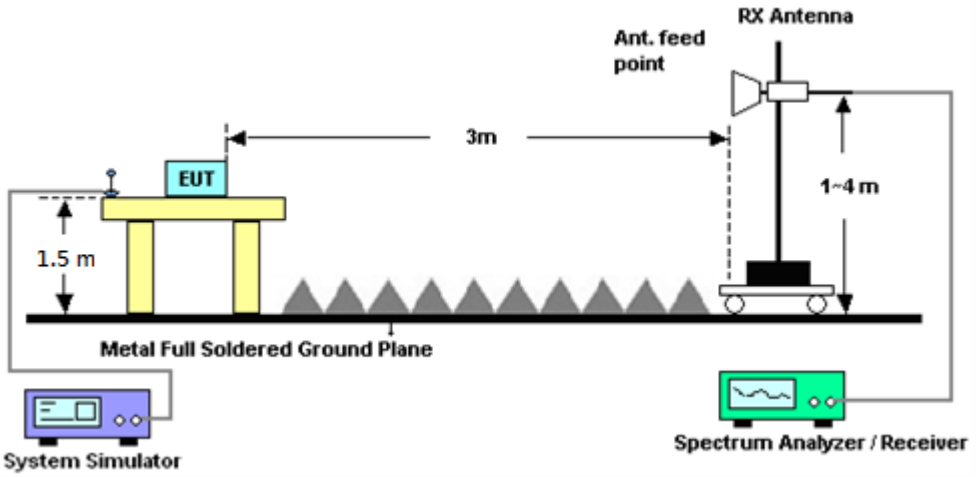
See list of measuring instruments of this test report.

4.2 Test Setup

For radiated test from 30MHz to 1GHz



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 v03 Section 5.8 and ANSI / TIA-603-E 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)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV30	101338	10kHz~30GHz; Max 30dBm	May 25, 2017	Mar. 05, 2018	May 24, 2018	Conducted (TH01-KS)
Temperature Chamber	Hongzhan	LP-150U	2306	Temperature (-40~150°C) Humidity (20~98%RH)	Apr. 20, 2017	Mar. 05, 2018	Apr. 19, 2018	Conducted (TH01-KS)
System Simulator	R&S	CMU200	105934	GSM / GPRS /WCDMA	Apr. 18, 2017	Mar. 05, 2018	Apr. 17, 2018	Conducted (TH01-KS)
Amplifier	MITEQ	TTA1840-35-HG	1887435	18~40GHz,45dB Min	Oct. 12, 2017	Mar. 05, 2018~ Mar. 06, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
Amplifier	com-power	MITEQ	2025788	100MHz ~1800MHz /	Apr. 18, 2018	Mar. 05, 2018~ Mar. 06, 2018	Apr. 17, 2019	Radiation (03CH03-KS)
Bilog Antenna	TeseQ	CBL6112D	35406	25MHz-2GHz	Apr. 22, 2017	Mar. 05, 2018~ Mar. 06, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1356	1GHz~18GHz	Apr. 22, 2017	Mar. 05, 2018~ Mar. 06, 2018	Apr. 21, 2018	Radiation (03CH03-KS)
Amplifier	com-power	PA-103A	161069	1MHz ~1000MHz / 32 dB	Apr. 18, 2017	Mar. 05, 2018~ Mar. 06, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Oct. 12, 2017	Mar. 05, 2018~ Mar. 06, 2018	Oct. 11, 2018	Radiation (03CH03-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44GHz	Apr. 18, 2017	Mar. 05, 2018~ Mar. 06, 2018	Apr. 17, 2018	Radiation (03CH03-KS)
Controller	ChamPro	EM 1000	060762	N/A	N/A	Mar. 05, 2018~ Mar. 06, 2018	N/A	Radiation (03CH03-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0-360°	N/A	Mar. 05, 2018~ Mar. 06, 2018	N/A	Radiation (03CH03-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1m-4m	N/A	Mar. 05, 2018~ Mar. 06, 2018	N/A	Radiation (03CH03-KS)
SHF-EHF Horn	com-power	AH-840	101070	18Ghz-40Ghz	Dec. 06, 2017	Mar. 05, 2018~ Mar. 06, 2018	Dec. 05, 2018	Radiation (03CH03-KS)
Double Ridge horn Antenna	ETS-lindgren	3117	75957	1GHz~18GHz	Oct. 21, 2017	Mar. 05, 2018~ Mar. 06, 2018	Oct. 20, 2018	Radiation (03CH03-KS)
Signal Generator	R&S	SMR40	100455	10MHz~40GHz	Jan. 18, 2018	Mar. 05, 2018~ Mar. 06, 2018	Jan. 17, 2019	Radiation (03CH03-KS)

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))	**2.81**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.27**

Appendix A. Test Results of Conducted Test

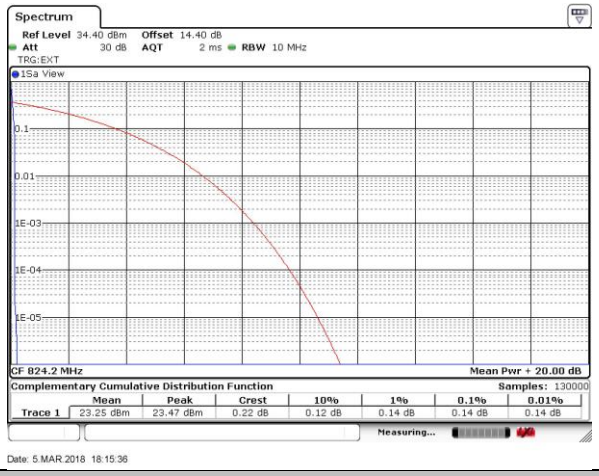
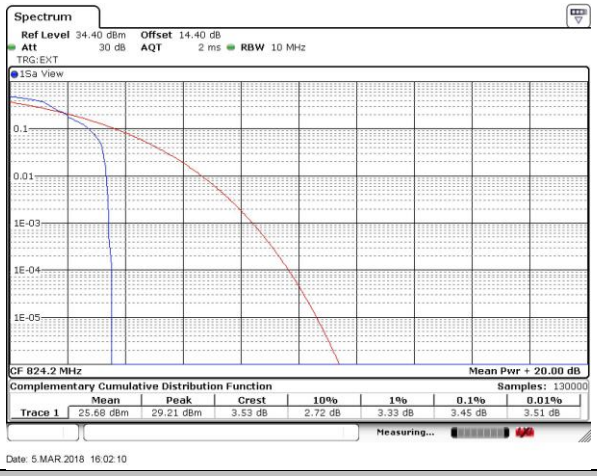
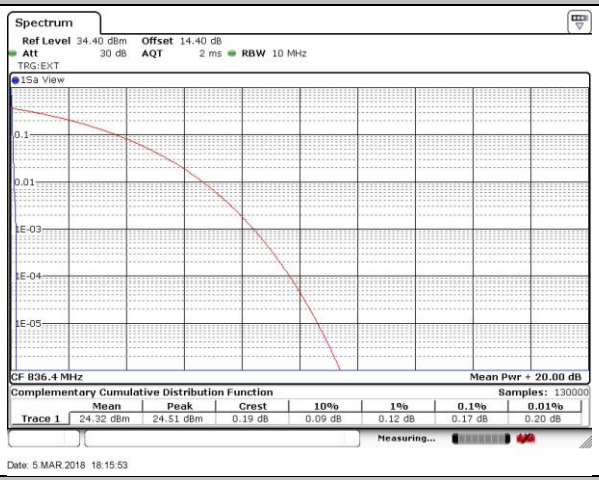
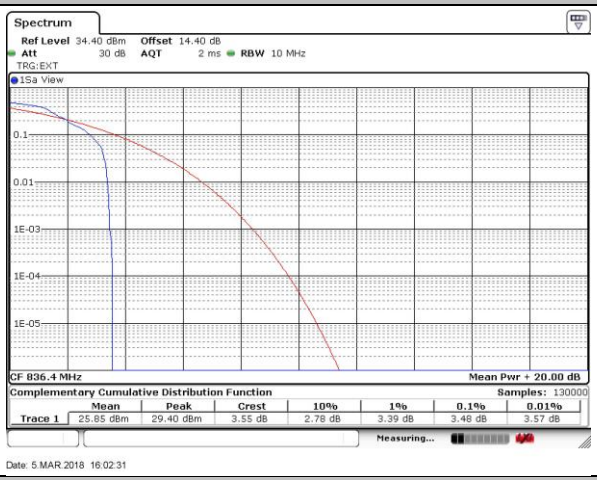
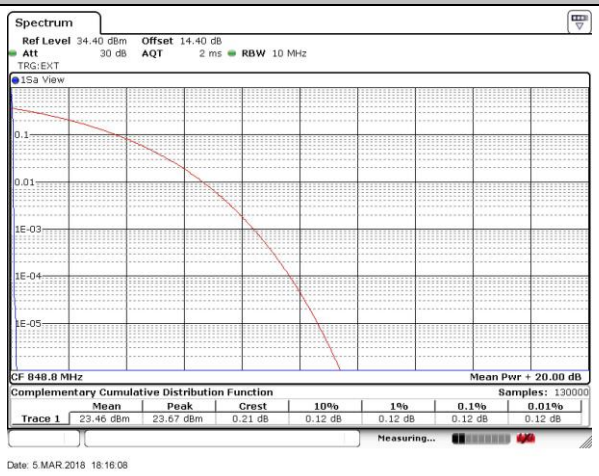
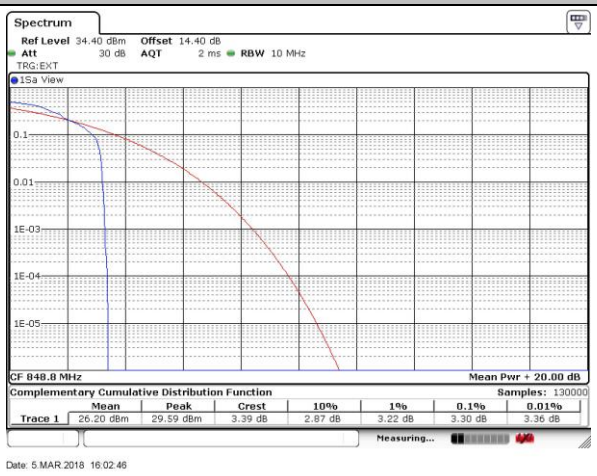
Conducted Output Power(Average power)

Conducted Power (*Unit: dBm)			
Band	**GSM850**		
Channel	**128**	**189**	**251**
Frequency	**824.2**	**836.4**	**848.8**
GSM	31.91	32.48	32.78
GPRS class 8	31.92	32.49	**32.80**
GPRS class 10	30.31	31.04	31.55
GPRS class 11	28.20	29.03	29.48
GPRS class 12	26.33	27.19	27.86
EGPRS class 8	26.00	26.12	**26.16**
EGPRS class 10	24.78	24.92	24.96
EGPRS class 11	23.10	23.20	23.23
EGPRS class 12	21.44	21.53	21.62

A2. GSM

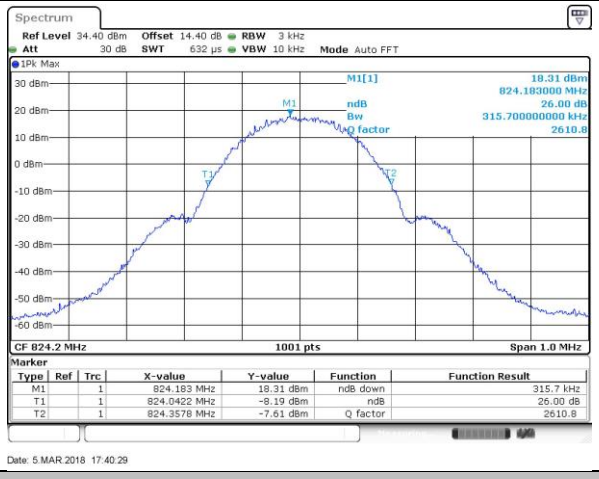
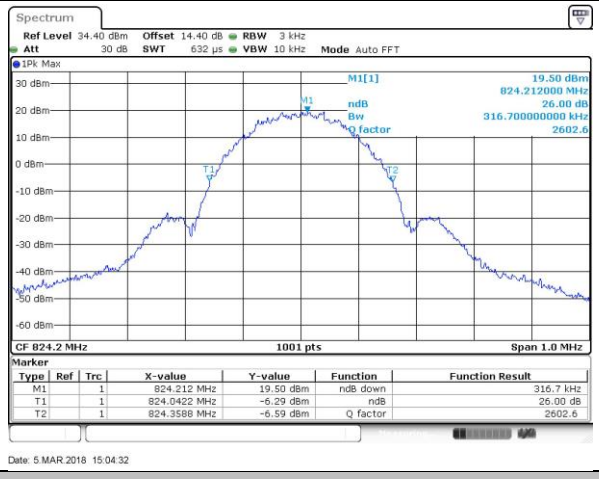
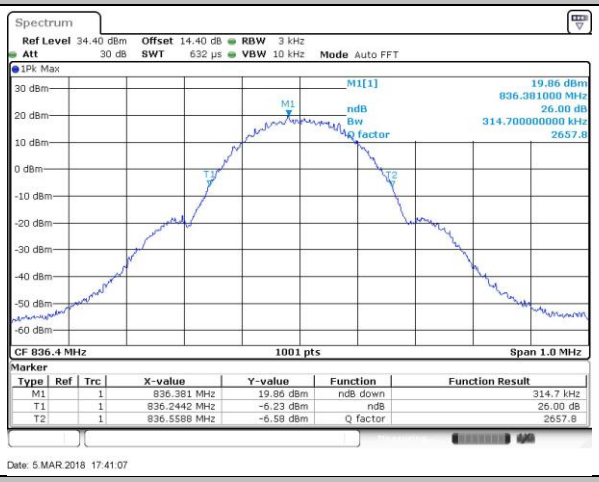
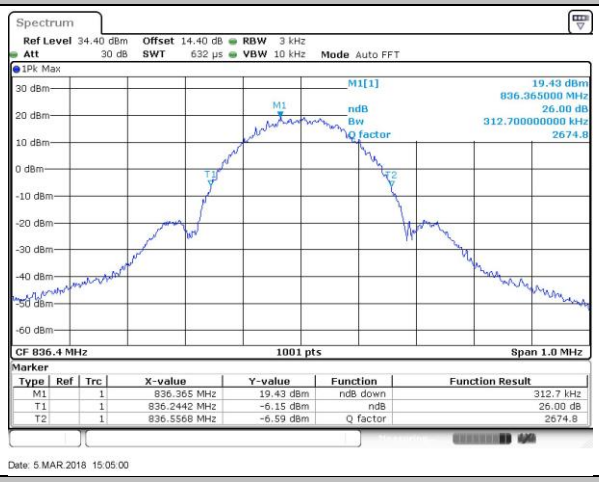
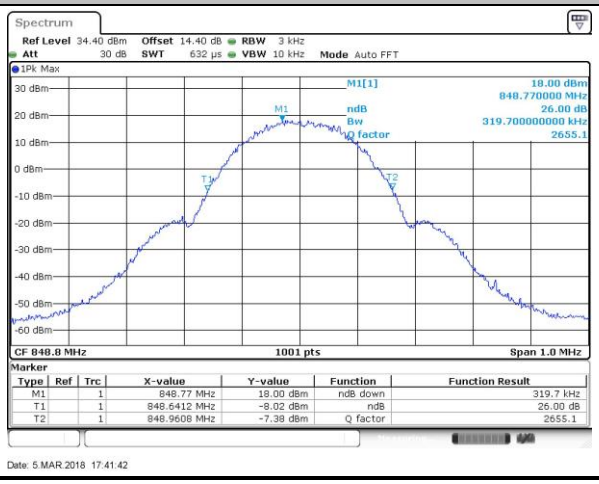
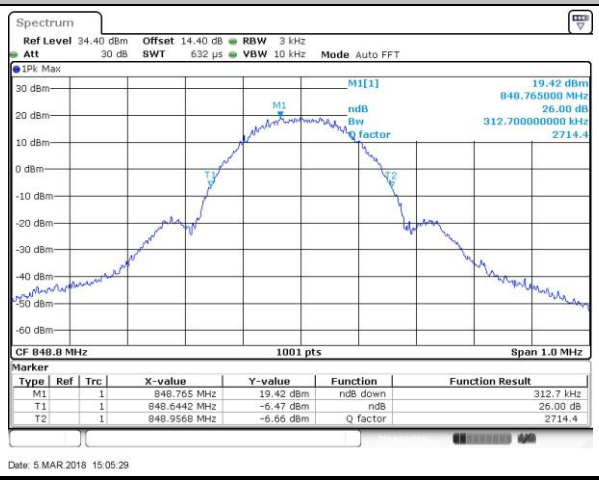
Peak-to-Average Ratio

Mode	GSM850		Limit: 13dB
Mod.	GPRS class 8	EDGE class 8	Result
Lowest CH	0.14	3.45	PASS
Middle CH	0.17	3.48	
Highest CH	0.12	3.30	

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

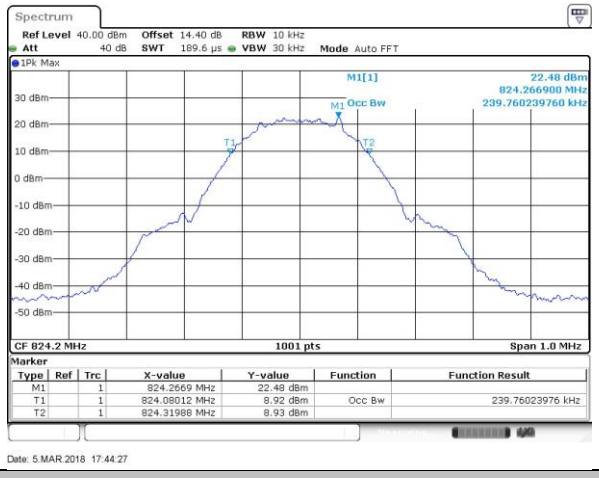
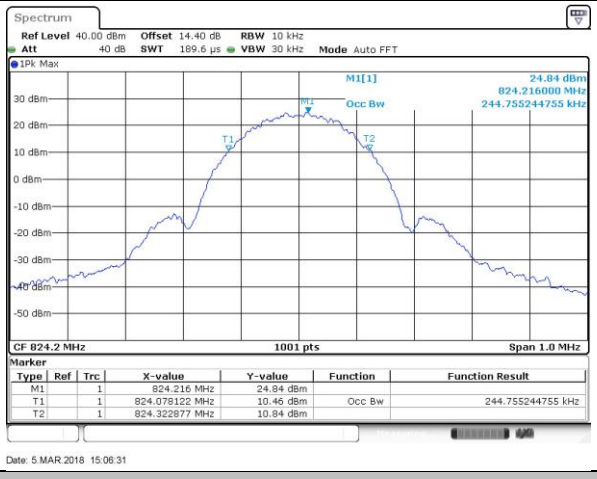
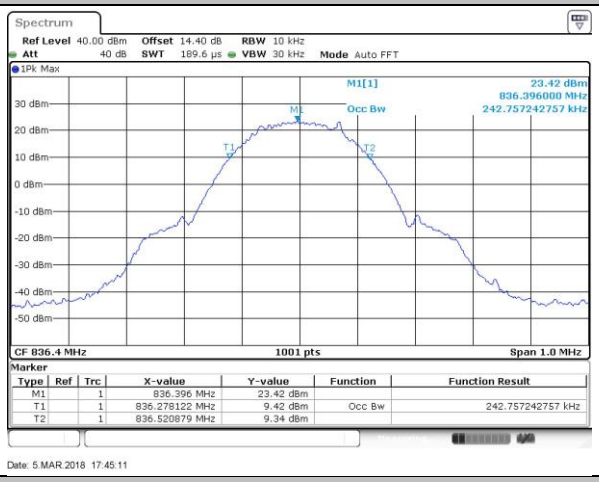
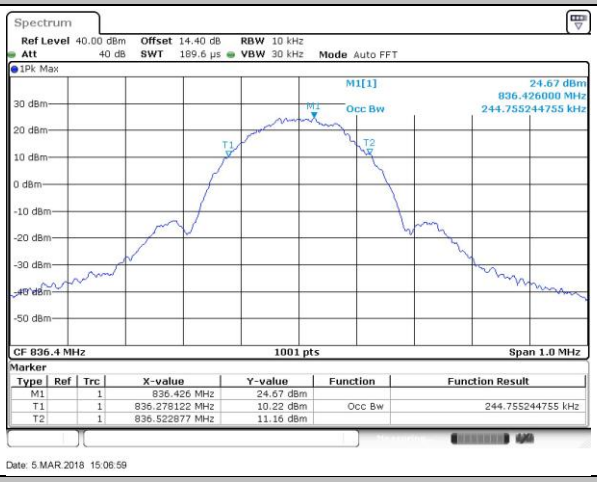
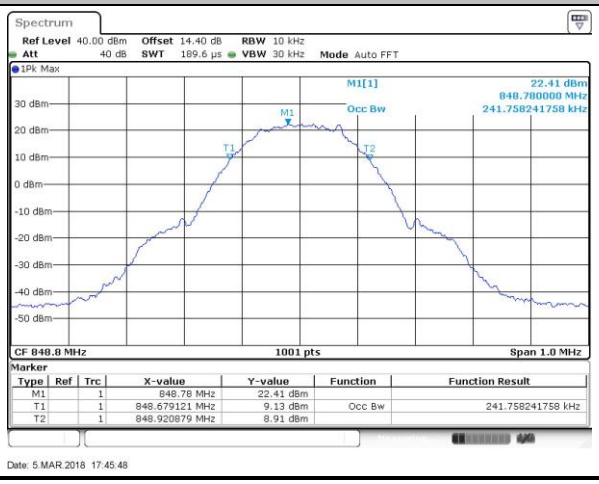
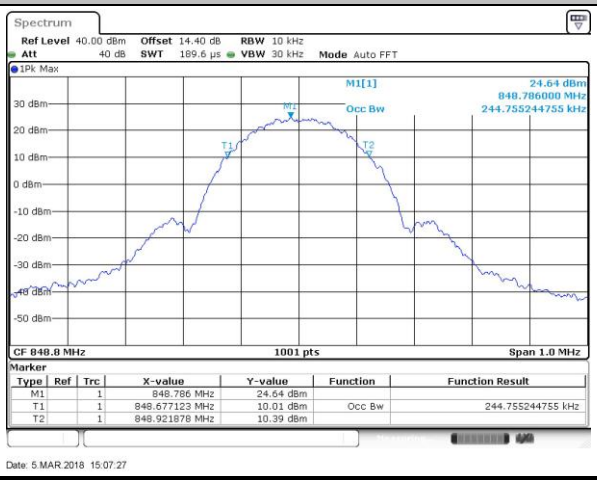
26dB Bandwidth

Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.316	0.317
Middle CH	0.315	0.313
Highest CH	0.320	0.313

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

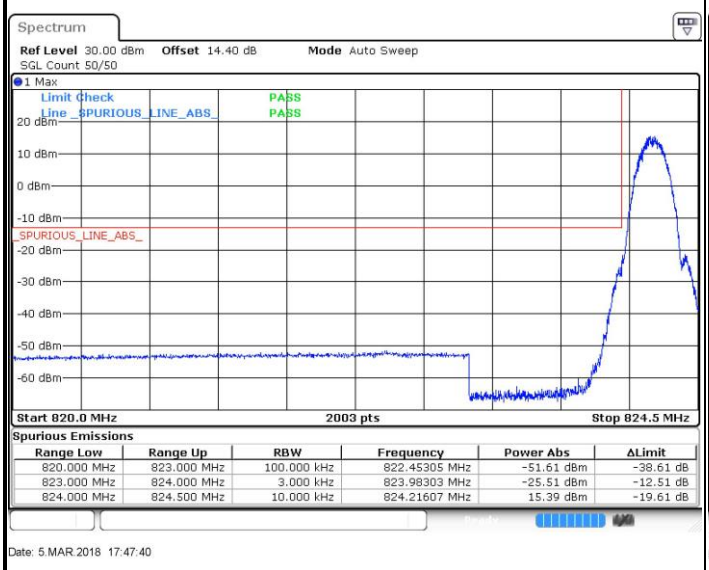
Occupied Bandwidth

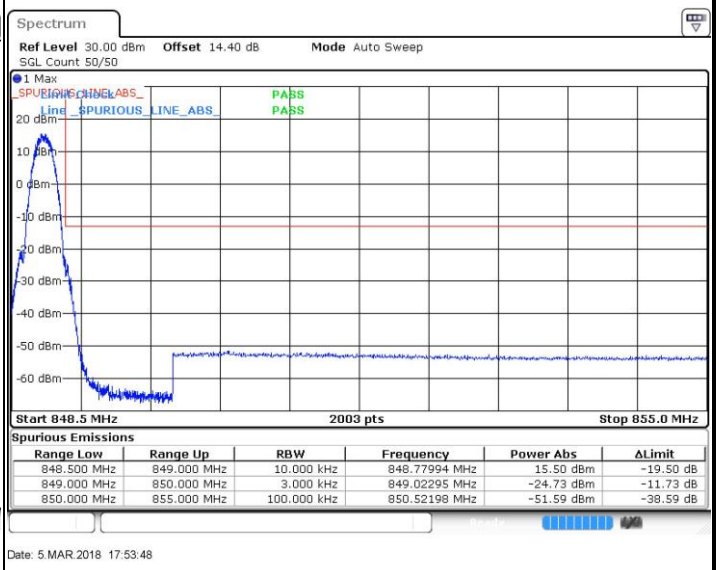
Mode	GSM850	
Mod.	GPRS class 8	EDGE class 8
Lowest CH	0.240	0.245
Middle CH	0.243	0.245
Highest CH	0.242	0.245

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

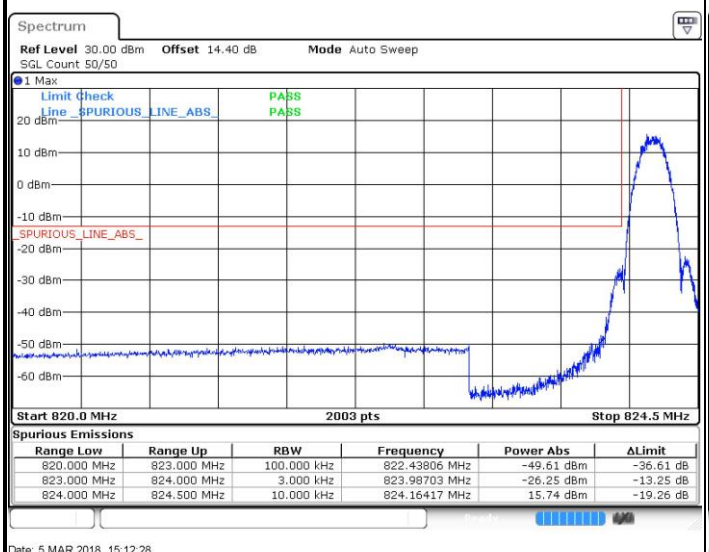
Conducted Band Edge

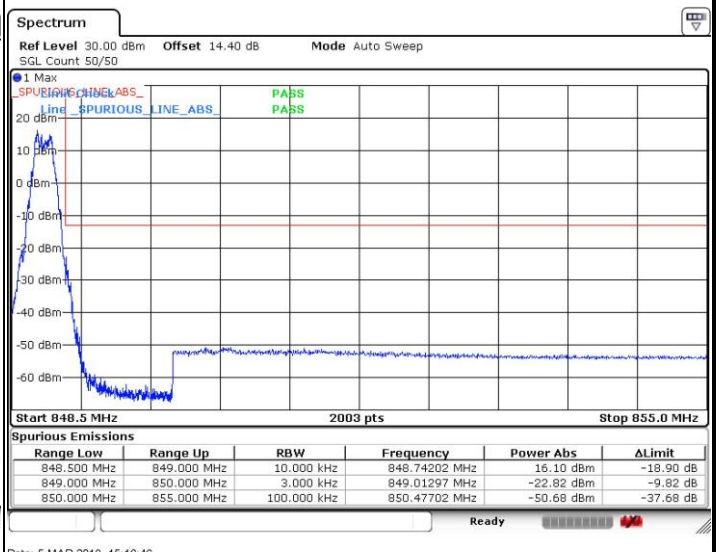
GSM850 (GPRS class 8)	
Lowest Band Edge	**Highest Band Edge**





GSM850 (EDGE class 8)	
Lowest Band Edge	**Highest Band Edge**

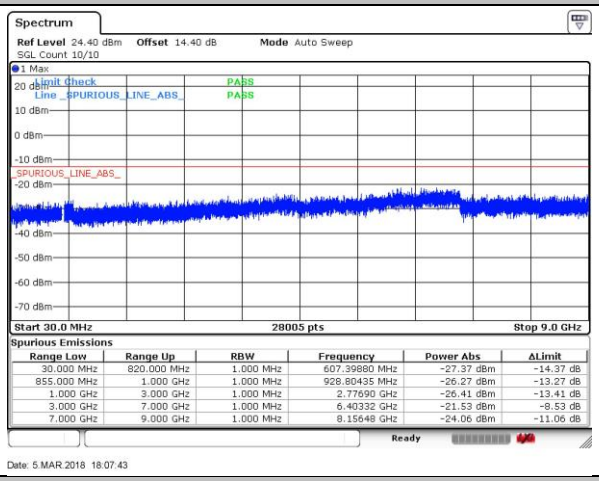




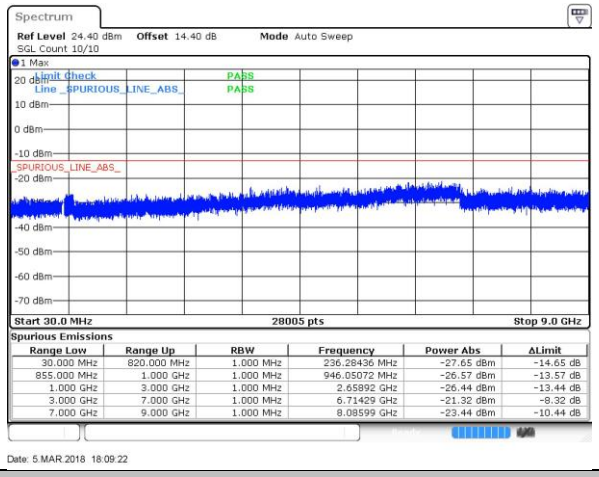
Conducted Spurious Emission

GSM850 (GPRS class 8)

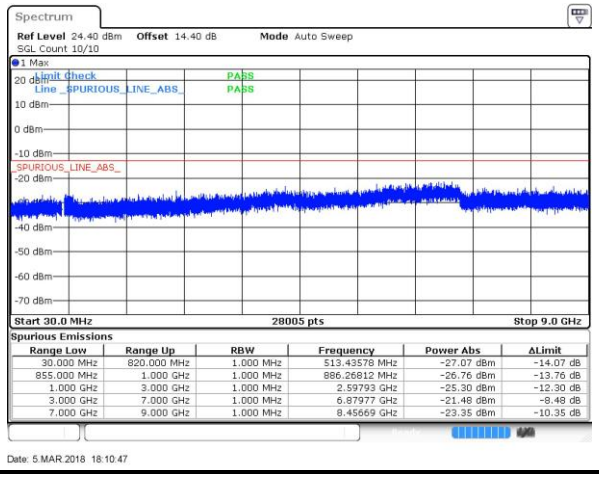
Lowest Channel



Middle Channel

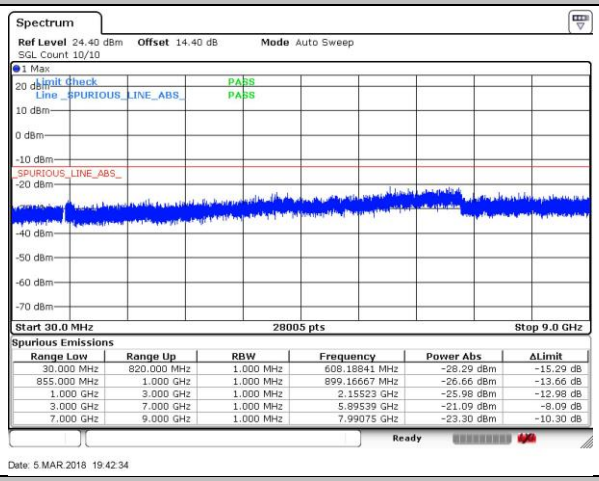


Highest Channel

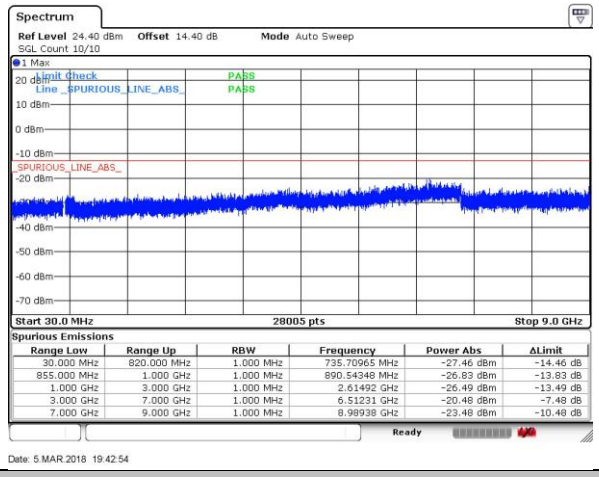


GSM850 (EDGE class 8)

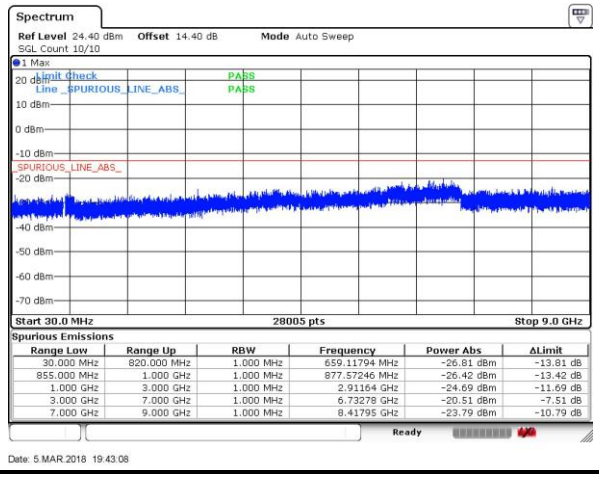
Lowest Channel



Middle Channel



Highest Channel



Frequency Stability

Test Conditions	Middle Channel	GSM850 (GPRS class 8)	GSM850 (EDGE class 8)	Limit 2.5ppm
Temperature (°C)	Voltage (Volt)	Deviation (ppm)		Result
50	Normal Voltage	0.0048	0.0132	PASS
40	Normal Voltage	0.0024	0.0132	
30	Normal Voltage	0.0335	0.0179	
20(Ref.)	Normal Voltage	0.0000	0.0000	
10	Normal Voltage	0.0024	0.0072	
0	Normal Voltage	0.0048	0.0359	
-10	Normal Voltage	0.0311	0.0024	
-20	Normal Voltage	0.0036	0.0191	
-30	Normal Voltage	0.0299	0.0191	
20	Maximum Voltage	0.0275	0.0108	
20	Normal Voltage	0.0251	0.0311	
20	Battery End Point	0.0072	0.0120	

Note:

1. Normal Voltage = 3.8V. ；Battery End Point (BEP) = 3.6V.；Maximum Voltage =4.4V

2. The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of ERP and Radiated Test

ERP

Channel	Mode	Conducted		ERP	
		Power (dBm)	Power (Watts)	ERP(dBm)	ERP(W)
Lowest	GSM850	31.92	1.5560	24.17	0.2612
Middle	GPRS class 8	32.49	1.7742	24.74	0.2979
Highest	(GT - LC = -5.6 dB)	32.80	1.9055	25.05	0.3199
Lowest	GSM850	26.00	0.3981	18.25	0.0668
Middle	EDGE class 8	26.12	0.4093	18.37	0.0687
Highest	(GT - LC = -5.6 dB)	26.16	0.4130	18.41	0.0693
Limit	ERP < 7W	Result		PASS	

Radiated Spurious Emission

Part22H_GPRS850

WCDMA 1900									
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	1648	-37.41	-13	-24.41	-39.32	1.14	5.20	1648	H
	2472	-53.38	-13	-40.38	-56.01	1.12	5.90	2472	H
	3297	-64.23	-13	-51.23	-67.44	1.34	6.70	3297	H
									H
									H
									H
	1648	-42.82	-13	-29.82	-44.73	1.14	5.20	1648	V
	2472	-53.82	-13	-40.82	-56.45	1.12	5.90	2472	V
	3297	-64.58	-13	-51.58	-67.79	1.34	6.70	3297	V
									V
									V
									V
Middle	1672	-40.95	-13	-27.95	-42.86	1.14	5.20	1672	H
	2510	-36.53	-13	-23.53	-39.16	1.12	5.90	2510	H
	3345	-64.04	-13	-51.04	-67.25	1.34	6.70	3345	H
									H
									H
									H
	1672	-43.80	-13	-30.80	-45.71	1.14	5.20	1672	V
	2510	-34.86	-13	-21.86	-37.49	1.12	5.90	2510	V
	3345	-64.29	-13	-51.29	-67.50	1.34	6.70	3345	V
									V
									V
									V

Highest	1698	-46.48	-13	-33.48	-48.39	1.14	5.20	1698	H
	2546	-32.01	-13	-19.01	-34.64	1.12	5.90	2546	H
	3396	-64.22	-13	-51.22	-67.43	1.34	6.70	3396	H
									H
									H
									H
									H
	1698	-48.65	-13	-35.65	-50.56	1.14	5.20	1698	V
	2546	-34.31	-13	-21.31	-36.94	1.12	5.90	2546	V
	3396	-64.51	-13	-51.51	-67.72	1.34	6.70	3396	V
									V
									V
									V
									V

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

Part22H_EDGE850

WCDMA 1900									
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	1648	-45.97	-13	-32.97	-47.88	1.14	5.20	1648	H
	2472	-64.54	-13	-51.54	-67.17	1.12	5.90	2472	H
	3297	-64.38	-13	-51.38	-67.59	1.34	6.70	3297	H
									H
									H
									H
									H
	1648	-51.57	-13	-38.57	-53.48	1.14	5.20	1648	V
	2472	-65.16	-13	-52.16	-67.79	1.12	5.90	2472	V
	3297	-64.74	-13	-51.74	-67.95	1.34	6.70	3297	V
									V
									V
									V
									V
Middle	1672	-44.08	-13	-31.08	-45.99	1.14	5.20	1672	H
	2510	-63.66	-13	-50.66	-66.29	1.12	5.90	2510	H
	3345	-63.75	-13	-50.75	-66.96	1.34	6.70	3345	H
									H
									H
									H
									H
	1672	-51.81	-13	-38.81	-53.72	1.14	5.20	1672	V
	2510	-64.19	-13	-51.19	-66.82	1.12	5.90	2510	V
	3345	-64.37	-13	-51.37	-67.58	1.34	6.70	3345	V
									V
									V
									V
									V

Highest	1698	-44.78	-13	-31.78	-46.69	1.14	5.20	1698	H
	2546	-38.70	-13	-25.70	-41.33	1.12	5.90	2546	H
	3396	-64.05	-13	-51.05	-67.26	1.34	6.70	3396	H
									H
									H
									H
									H
	1698	-52.47	-13	-39.47	-54.38	1.14	5.20	1698	V
	2546	-64.25	-13	-51.25	-66.88	1.12	5.90	2546	V
	3396	-64.45	-13	-51.45	-67.66	1.34	6.70	3396	V
									V
									V
									V
									V

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