FCC REPORT

Applicant: REACH Tech (Xiamen) Co., Ltd.

Address of Applicant: RM.303,#18,Guanri Road, Software Park II, Xiamen, 361008,

China

Equipment Under Test (EUT)

Product Name: Smart Phone

Model No.: Q882

FCC ID: Z5JREACH-Q882

FCC CFR Title 47 Part 2

Applicable standards: FCC CFR Title 47 Part 22 Subpart H

FCC CFR Title 47 Part 24 Subpart E

FCC CFR Title 47 Part 27 Subpart L

Date of sample receipt: 01 Nov., 2013

Date of Test: 02 Nov., to 22 Nov., 2013

Date of report issued: 25 Nov., 2013

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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CCS Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS13110045601

2. Version

Version No.	Date	Description
00	25 Nov., 2013	Original

Prepared by:	Sera Ximy	Date:	25 Nov., 2013
	Report Clerk		

Reviewed by: 25 Nov., 2013 Date:

Project Engineer



Project No.: CCIS131100456RF

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4. Test Summary

Test Item	Section in CFR 47	Result
RF Exposure (SAR)	Part 1.1307 Part 2.1093	Passed* (Please refer to SAR Report)
RF Output Power	Part 2.1046 Part 22.913 (a)(2) Part 24.232 (c) Part 27.50 (d)(4)	Pass
Modulation Characteristics	Part 2.1047	Pass
99% & -26 dB Occupied Bandwidth	Part 2.1049 Part 22.917(b) Part 24.238(b) Part 27.53(h)	Pass
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Field Strength of Spurious Radiation	Part 2.1053 Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Out of band emission, Band Edge	Part 22.917 (a) Part 24.238 (a) Part 27.53 (h)	Pass
Frequency stability vs. temperature	Part 2.1055(a)(1)(b)	Pass
Frequency stability vs. voltage	Part 2.1055(d)(1)(2)	Pass

Pass: The EUT complies with the essential requirements in the standard.

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5. General Information

5.1 Client Information

Applicant:	REACH Tech (Xiamen) Co., Ltd.		
Address of Applicant:	RM.303,#18,Guanri Road, Software Park II, Xiamen, 361008, China		
Manufacturer:	REACH Tech (Xiamen) Co., Ltd.		
Address of Manufacturer:	RM.303,#18,Guanri Road, Software Park II, Xiamen, 361008,China		

5.2 General Description of E.U.T.

Product Name:	Smart Phone	
Model No.:	Q882	
Operation Frequency range:	GSM 850: 824.20MHz-848.80MHz	
	PCS1900: 1850.20MHz-1909.80MHz	
	WCDMA Band V:826.4MHz-846.6MHz	
	WCDMA Band II:1852.4 MHz -1907.6 MHz	
	WCDMA Band IV:1712.4 MHz -1752.6 MHz	
Modulation type:	GSM/GPRS:GMSK, UMTS:QPSK	
Antenna type:	Internal Antenna	
Antenna gain:	GSM 850: -5.39 dBi	
	PCS 1900:-5.39 dBi	
	WCDMA 850 : -5.39 dBi	
	WCDMA1900 : -5.39 dBi	
	WCDMA1700 : -5.39 dBi	
AC adapter:	Model :TS22-500550U	
	Input: AC 100-240V,50/60Hz 0.2A	
	Output: DC 5.0V/550mA	
Power supply:	Rechargeable Li-ion Battery DC3.8V 1900mAh	

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Operation Frequency List:

Operation Frequency List:						
1 850	PCS1900					
Channel: Frequency (MHz)		Frequency (MHz)				
824.20	512	1850.20				
824.40	513	1850.40				
	••••					
836.40	660	1879.80				
836.60	661	1880.00				
836.80	662	1880.20				
848.60	809	1909.60				
848.80	810	1909.80				
A Band V	WCDMA Band II					
Frequency (MHz)	Channel:	Frequency (MHz)				
826.40	9262	1852.40				
826.60	9263	1852.60				
836.40	9399	1879.80				
836.60	9400	1880.00				
836.80	9401	1880.20				
846.40	9537	1907.40				
846.60	9538	1907.60				
	824.20 824.40 836.40 836.60 836.80 848.60 848.80 Frequency (MHz) 826.40 826.60 836.40 836.60 836.80 846.40	Frequency (MHz) Channel: 824.20 512 824.40 513 836.40 660 836.60 661 836.80 662 848.60 809 848.80 810 A Band V WCDMA Frequency (MHz) Channel: 826.40 9262 826.60 9263 836.40 9399 836.60 9400 836.80 9401 846.40 9537				

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Regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

GSM850			PCS1900		
	Channel	Frequency(MHz)		Channel	Frequency(MHz)
Lowest channel	128	824.20	Lowest channel	512	1850.20
Middle channel	190	836.60	Middle channel	661	1880.00
Highest channel	251	848.80	Highest channel	810	1909.80
,	NCDMA Band	I V		WCDMA Band	II
	Channel	Frequency(MHz)		Channel	Frequency(MHz)
Lowest channel	4132	826.40	Lowest channel	9262	1852.40
Middle channel	4183	836.60	Middle channel	9400	1880.00
Highest channel	4233	846.60	Highest channel	9538	1907.60
V	VCDMA Band	IV			
	Channel	Frequency(MHz)			
Lowest channel	1312	1712.40			
Middle channel	1413	1732.60			
Highest channel	1513	1752.60			

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5.3 Test modes

Communicate mode (GSM850)	Keep the EUT in communicating mode on GSM 850 band.
Data mode (GPRS850)	Keep the EUT in data communicating mode on GPRS 850 band.
Communicate mode (PCS1900)	Keep the EUT in communicating mode on PCS1900 band.
Data mode (GPRS1900)	Keep the EUT in data communicating mode on GPRS1900 band.
Communicate mode (UMTS 850)	Keep the EUT in communicating mode on UMTS 850 band.
Communicate mode (UMTS 1700)	Keep the EUT in communicating mode on UMTS 1700 band.
Communicate mode (UMTS 1900)	Keep the EUT in communicating mode on UMTS 1900 band.
Data mode (RMC UMTS 850)	Keep the EUT in data communicating mode on RMC in UMTS 850 (12.2 kbps, 64 kbps, 144 kbps & 384 kbps).
Data mode (HSDPA UMTS 850)	Keep the EUT in data communicating mode on HSDPA in UMTS 850(Sub-test 1~Sub-test 4).
Data mode (HSUPA UMTS 850)	Keep the EUT in data communicating mode on HSDPA in UMTS 850(Sub-test 1~Sub-test 5).
Data mode (RMC UMTS 1700)	Keep the EUT in data communicating mode on RMC in UMTS 1700 (12.2 kbps, 64 kbps, 144 kbps & 384 kbps).
Data mode (HSDPA UMTS 1700)	Keep the EUT in data communicating mode on HSDPA in UMTS 1700(Sub-test 1~Sub-test 4).
Data mode (HSUPA UMTS 1700)	Keep the EUT in data communicating mode on HSDPA in UMTS 1700(Sub-test 1~Sub-test 5).
Data mode (RMC UMTS 1900)	Keep the EUT in data communicating mode on RMC in UMTS 850 (12.2 kbps, 64 kbps, 144 kbps & 384 kbps).
Data mode (HSDPA UMTS 1900)	Keep the EUT in data communicating mode on HSDPA in UMTS 1900. (Sub-test 1~Sub-test 4).
Data mode (HSDPA UMTS 1900)	Keep the EUT in data communicating mode on HSDPA in UMTS 1900. (Sub-test 1~Sub-test 5).
Remark :	Pre-test output power of all modes, and found GSM 850, PCS 1900, and UMTS 850 12.2 kbps RMC & UMTS 1700 12.2 kbps RMC & UMTS 1900 12.2 kbps RMC were the worst case. The details please refer to section 6.5.

5.4 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part 27 subpart L of the FCC CFR 47 Rules.

5.5 Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603 and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057

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5.6 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

● IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

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5.8 Test Instruments list

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)		
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2013	June 08 2014		
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2013	June 03 2014		
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2013	May 29 2014		
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
5	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2013	Mar. 31 2014		
6	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2013	Mar. 31 2014		
7	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2013	Mar. 31 2014		
8	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2013	Mar. 31 2014		
9	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2013	Mar. 31 2014		
10	Amplifier(10kHz- 1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2013	Mar. 31 2014		
11	Amplifier(1GHz- 18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2013	June 08 2014		
12	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2013	Mar. 31 2014		
13	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2013	Mar. 29 2014		
14	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A		
15	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A		
16	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	May. 29 2013	May. 28 2014		
17	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2013	Mar. 31 2014		
18	Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 12 2013	Aug. 11 2014		
19	Universal radio communication tester	Rhode & Schwarz	CMU200	CCIS0069	May. 29 2013	May. 28 2014		
20	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	May. 29 2013	May. 28 2014		

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6. System test configuration

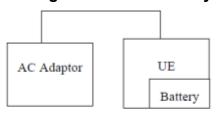
6.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

6.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

6.3 Configuration of Tested System



Remote Side



6.4 Description of Test Modes

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for three modes (GSM850, PCS1900, WCDMA Band V, WCDMA Band II and WCDMA IV) with power adaptor, earphone and Data cable. The worst-case H mode for GSM850, PCS1900, UMTS850, UMTS1900 and UMTS1700.

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6.5 Conducted Output Power

Test Requirement:	FCC part 22.913(a) , FCC part 24.232(b) and FCC part 27.50(d)			
Test Method:	FCC part 2.1046			
Limit:	GSM 850 7W PCS 1900 2W WCDMA Band V: 7W			
	WCDMA Band II: 2W			
	WCDMA Band IV: 1W			
Test setup:	EUT ATT Communication Tester Note: Measurement setup for testing on Antenna connector			
Test Procedure:	The transmitter output was connected to a calibrated attenuator, the other end of which was connected to the CMU200. Transmitter output power was read off in dBm.			
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Passed			

Measurement Data

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				Report No: CC	13 13 1 100430
	Charrel	Fraguency (MHz)	Burst Average	Line it (d Direc)	Decult
EUT Mode	Channel	Frequency (MHz)	power (dBm)	Limit(dBm)	Result
	128	824.20	31.88		
GSM 850	190	836.60	32.03		
	251	848.80	32.18		
0000 050	128	824.20	31.93		
GPRS 850	190	836.60	32.09		
(1 Uplink slot)	251	848.80	32.20		
0000 050	128	824.20	29.60		
GPRS 850	190	836.60	29.71	38.45	Pass
(2 Uplink slots)	251	848.80	29.82		
0000 050	128	824.20	27.35		
GPRS 850	190	836.60	27.49		
(3 Uplink slots)	251	848.80	27.59		
0000.050	128	824.20	26.33		
GPRS 850	190	836.60	26.47		
(4 Uplink slots)	251	848.80	26.53		
	512	1850.20	30.38		
PCS 1900	661	1880.00	30.46		
	810	1909.80	30.47		
	512	1850.20	29.34		
GPRS 1900	661	1880.00	29.47		
(1 Uplink slot)	810	1909.80	29.43		
0000 4000	512	1850.20	26.96		
GPRS 1900	661	1880.00	27.07	33.00	Pass
(2 Uplink slots)	810	1909.80	27.06		
ODDO 1000	512	1850.20	24.75		
GPRS 1900 (3 Uplink slots)	661	1880.00	24.90		
	810	1909.80	24.91		
ODDO 1655	512	1850.20	23.63		
GPRS 1900 (4 Uplink slots)	661	1880.00	23.71		
	810	1909.80	23.76		

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				Report	No: CCIS131	10045601
EUT M	ode	Channel	Frequency (MHz)	Power (dBm)	Limit(dBm)	Result
		4132	826.40	21.90		
	Subtest 1	4183	836.00	21.73		
		4233	846.60	21.74		
		4132	826.40	21.61		
	Subtest 2	4183	836.00	21.43		
UMTS Band V		4233	846.60	21.48		
HSDPA		4132	826.40	21.17		
	Subtest 3	4183	836.00	20.90		
		4233	846.60	21.06		
		4132	826.40	20.61		
	Subtest 4	4183	836.00	20.32		
		4233	846.60	20.37		
	Subtest 1	4132	826.40	21.51	38.45	
		4183	836.00	21.38		Pass
		4233	846.60	21.41		
	Subtest 2	4132	826.40	21.74		
		4183	836.00	21.64		
		4233	846.60	21.66		
UMTS Band V	Subtest 3	4132	826.40	21.23		
HSUPA		4183	836.00	21.05		
HISOFA		4233	846.60	21.05		
	Subtest 4	4132	826.40	21.88		
		4183	836.00	21.71		
		4233	846.60	21.68		
	Subtest 5	4132	826.40	22.08		
		4183	836.00	21.85		
		4233	846.60	21.80		
UMTS Band V RMC		4132	826.40	22.90		
	12.2kbps	4183	836.00	22.72		
		4233	846.60	22.67	_	
LIMTO December		4132	826.40	22.82	_	
UMTS Band V	12.2kbps	4183	836.00	22.65	_	
AMR		4233	846.60	22.71		

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Prequency (MHz) Power (dBm) Limit(dBm) Result				I	Report	No: CCIS1311	0045601
Subtest 1 9400	EUT Mode		Channel	Frequency (MHz)	Power (dBm)	Limit(dBm)	Result
UMTS Band II HSDPA DAME DAME		Subtest 1	9262	1852.40	21.10	=	
UMTS Band II HSDPA Subtest 2 900 1880.00 21.95 9538 1907.60 21.45 Subtest 3 9400 1880.00 20.50 Subtest 3 9400 1880.00 20.76 9538 1907.60 21.14 9262 1852.40 20.26 Subtest 4 9400 1880.00 19.97 9538 1907.60 20.54 Subtest 1 9400 1880.00 19.97 9538 1907.60 21.31 9262 1852.40 21.81 Subtest 1 9400 1880.00 21.03 9538 1907.60 21.16 33.00 Pass Pass UMTS Band II HSUPA UMTS Band II RMC UMTS Band II RMC Pass 9262 1852.40 21.14 9262 1852.40 21.16 33.00 Pass 1907.60 21.38 9262 1852.40 20.47 Subtest 3 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.14 9262 1852.40 21.14 9262 1852.40 21.13 9262 1852.40 21.13 9262 1852.40 21.30 9400 1880.00 21.22 9538 1907.60 21.30 9400 1880.00 21.52 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10			9400	1880.00	21.21		
UMTS Band II HSDPA Subtest 2 9400 1880.00 21.95 9538 1907.60 21.14 9262 1852.40 20.50 9538 1907.60 21.14 9262 Subtest 4 9400 1880.00 20.76 9538 1907.60 21.14 9262 Subtest 4 9400 1880.00 19.97 9538 1907.60 21.81 Subtest 1 9400 1880.00 21.03 9538 1907.60 21.31 9400 1880.00 21.16 33.00 Pass Pass UMTS Band II HSUPA UMTS Band II RMC UMTS Band II RMC Pass 9262 1852.40 20.26 1852.40 21.07 33.00 Pass Pass 1907.60 21.38 1907.60 21.14 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9400 1880.00 21.14 9400 1880.00 21.14 9400 1880.00 21.14 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10 9538 1907.60 22.10			9538	1907.60	21.43		
UMTS Band II HSDPA 9538			9262	1852.40	21.93		
HSDPA Subtest 3 9262		Subtest 2	9400	1880.00	21.95		
Subtest 3 9400	UMTS Band II		9538	1907.60	21.45		
P538 1907.60 21.14	HSDPA		9262	1852.40	20.50		
UMTS Band II RMC		Subtest 3	9400	1880.00	20.76		
Subtest 4 9400 1880.00 19.97			9538	1907.60	21.14		
Subtest 1 9538 1907.60 20.54			9262	1852.40	20.26		
Subtest 1 9262 1852.40 21.81 9400 1880.00 21.03 9538 1907.60 21.31 9262 1852.40 21.07 9400 1880.00 21.16 9538 1907.60 21.38 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 9538 1907.60 21.14 9262 1852.40 21.05 9538 1907.60 21.39 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 22.12 9538 1907.60 22.00 9262 1852.40 22.12 9538 1907.60 22.10 9262 1852.40 22.11 9400 1880.00 22.16 9538 1907.60 22.40 9262 1852.40 22.11 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400 1880.00 22.16 9400		Subtest 4	9400	1880.00	19.97		
Subtest 1 9400 1880.00 21.03 9538 1907.60 21.31 9262 1852.40 21.07 Subtest 2 9400 1880.00 21.16 33.00 Pass UMTS Band II HSUPA Subtest 3 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 9262 1852.40 22.12 UMTS Band II RMC 9262 1852.40 22.12 9538 1907.60 22.10 9538 1907.60 22.10 9262 1852.40 22.12 9538 1907.60 22.10 9262 1852.40 22.11 9262 1852.40 22.11 9400 1880.00 22.16			9538	1907.60	20.54		
UMTS Band II RMC 9538 1907.60 21.31 9262 1852.40 21.07 33.00 Pass 9538 1907.60 21.38 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 20.47 9538 1907.60 21.14 9262 1852.40 21.05 Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.39 9262 1852.40 21.30 9400 1880.00 21.52 9538 1907.60 22.00 9400 1880.00 22.12 9538 1907.60 22.12 9538 1907.60 22.12 9538 1907.60 22.12 9400 1880.00 22.12 9400 1880.00 22.12 9400 1880.00 22.11 UMTS Band II RMC 12.2kbps 9400 1880.00 22.11 9400 1880.00 22.11		Subtest 1	9262	1852.40	21.81		
Subtest 2 9400 1880.00 21.16 33.00 Pass			9400	1880.00	21.03		
Subtest 2 9400 1880.00 21.16 33.00 Pass UMTS Band II HSUPA Subtest 3 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 9538 1907.60 22.10 UMTS Band II RMC UMTS Band II AMR			9538	1907.60	21.31	-	
UMTS Band II RMC 9538 1907.60 21.38 9262 1852.40 20.47 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 21.39 9262 1852.40 21.30 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 21.30 9262 1852.40 22.12 9538 1907.60 22.00 9262 1852.40 22.12 9400 1880.00 22.19 9538 1907.60 22.40 9538 1907.60 22.40 9262 1852.40 22.11 9400 1880.00 22.16		Subtest 2	9262	1852.40	21.07		
UMTS Band II HSUPA Subtest 3 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 UMTS Band II RMC 12.2kbps 9400 1880.00 22.12 12.2kbps 9400 1880.00 22.12 9400 1880.00 22.12 12.2kbps 9400 1880.00 22.12 12.2kbps 9400 1880.00 22.12 9262 1852.40 22.12 9400 9262 1852.40 22.12 9400 9538 1907.60 22.40 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.16			9400	1880.00	21.16	33.00	Pass
UMTS Band II HSUPA Subtest 3 9400 1880.00 20.61 9538 1907.60 21.14 9262 1852.40 21.05 Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 UMTS Band II RMC 12.2kbps 9400 1880.00 22.19 9538 1907.60 22.10 UMTS Band II AMR			9538	1907.60	21.38		
HSUPA Subtest 3 9400 1880.00 20.61		Subtest 3	9262	1852.40	20.47		
9538 1907.60 21.14			9400	1880.00	20.61		
Subtest 4 9400 1880.00 21.22 9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 UMTS Band II RMC 9262 1852.40 22.12 12.2kbps 9400 1880.00 22.19 9538 1907.60 22.40 9538 1907.60 22.40 UMTS Band II AMR	HSUPA		9538	1907.60	21.14		
9538 1907.60 21.39 9262 1852.40 21.30 Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 UMTS Band II RMC 9262 1852.40 22.12 12.2kbps 9400 1880.00 22.19 9538 1907.60 22.40 9538 1907.60 22.40 9538 1907.60 22.40 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.16		Subtest 4	9262	1852.40	21.05		
Subtest 5 9400 1880.00 21.30			9400	1880.00	21.22		
Subtest 5 9400 1880.00 21.52 9538 1907.60 22.00 UMTS Band II RMC 9262 1852.40 22.12 12.2kbps 9400 1880.00 22.19 9538 1907.60 22.40 9262 1852.40 22.11 UMTS Band II AMR 12.2kbps 9400 1880.00 22.16			9538	1907.60	21.39		
9538 1907.60 22.00 UMTS Band II RMC 9262 1852.40 22.12 9400 1880.00 22.19 9538 1907.60 22.40 9538 1907.60 22.40 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.16		Subtest 5	9262	1852.40	21.30		
UMTS Band II RMC 12.2kbps 9400 1880.00 22.12 9400 9538 1907.60 22.40 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.11 12.2kbps 9400 1880.00 22.16			9400	1880.00	21.52		
UMTS Band II RMC 12.2kbps 9400 1880.00 22.19 9538 1907.60 22.40 UMTS Band II AMR 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.16			9538	1907.60	22.00	1	
UMTS Band II RMC 9400 1880.00 22.19 9538 1907.60 22.40 UMTS Band II AMR 9400 1880.00 22.11 12.2kbps 9400 1880.00 22.16		12.2kbps	9262		22.12		
RMC 9538 1907.60 22.40 UMTS Band II AMR 9262 1852.40 22.11 12.2kbps 9400 1880.00 22.16			9400		22.19		
UMTS Band II 12.2kbps 9400 1880.00 22.11 9400 22.16			9538		22.40		
UMTS Band II 12.2kbps 9400 1880.00 22.16							
AMR		12.2kbps					
	AMR	,		1907.60			

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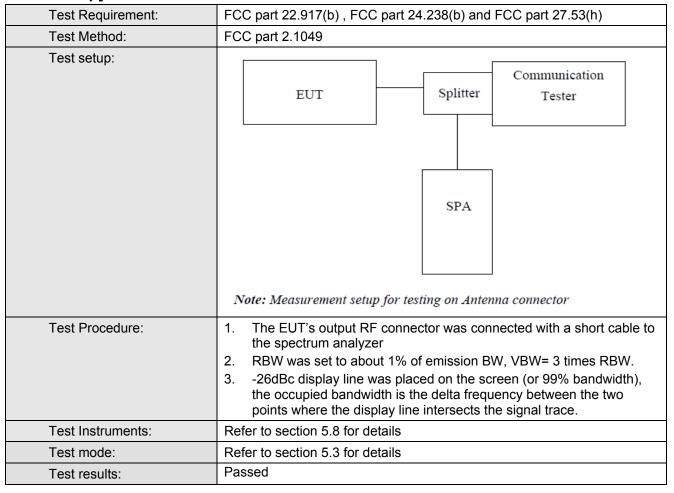


				Report I	No: CCIS1311	10045601
EUT Mode		Channel	Frequency (MHz)	Power (dBm)	Limit(dBm)	Result
	Subtest 1	1312	1712.40	21.21	_	
		1413	1732.60	20.94		
		1513	1752.60	21.29		
	Subtest 2	1312	1712.40	21.93		
		1413	1732.60	20.67		
UMTS Band IV		1513	1752.60	21.03		
HSDPA		1312	1712.40	20.70		
	Subtest 3	1413	1732.60	20.43		
		1513	1752.60	20.73		
		1312	1712.40	20.42		
	Subtest 4	1413	1732.60	20.29		
		1513	1752.60	20.59		
	Subtest 1	1312	1712.40	21.40		
		1413	1732.60	21.17		
		1513	1752.60	21.44		
	Subtest 2	1312	1712.40	21.62		
		1413	1732.60	21.37	30.00	Pass
		1513	1752.60	21.75		
LINATO D. LINA	Subtest 3	1312	1712.40	21.24		
UMTS Band IV		1413	1732.60	20.92		
HSUPA		1513	1752.60	21.29		
	Subtest 4	1312	1712.40	21.75		
		1413	1732.60	21.43		
		1513	1752.60	21.87		
	Subtest 5	1312	1712.40	21.97		
		1413	1732.60	21.63		
		1513	1752.60	22.00		
UMTS Band IV RMC	12.2kbps	1312	1712.40	22.26		
		1413	1732.60	21.94		
		1513	1752.60	22.25		
		1312	1712.40	22.33		
UMTS Band IV	12.2kbps	1413	1732.60	21.91		
AMR		1513	1752.60	22.32		

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6.6 Occupy Bandwidth



Measurement Data

Shenzhen Zhongjian Nanfang Testing Co., Ltd. No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road, Bao'an District, Shenzhen, Guangdong, China

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EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (kHz)	-26dB bandwidth (kHz)
	128	824.2	246	322
GSM 850	190	836.6	244	324
	251	848.8	248	316
	512	1850.2	248	312
PCS 1900	661	1880.0	246	318
	810	1909.8	246	320
UMTS850 12.2k RMC	4132	824.40	4160	4640
	4183	836.00	4160	4680
	4233	846.60	4160	4700
UMTS Band II 12.2k RMC	9262	1852.40	4180	4680
	9400	1880.00	4200	4680
	9538	1907.60	4180	4700
UMTS Band IV 12.2k RMC	1312	1712.40	4180	4680
	1413	1732.60	4200	4680
	1513	1752.60	4180	4700

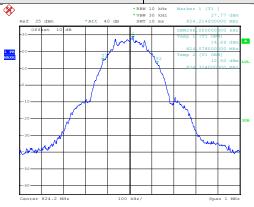
Note: GSM & GPRS use the same modulation technical (GMSK), and with the same channels, so the 99% OBW and the -26dB of GPRS not performed.

Test plot as follows:

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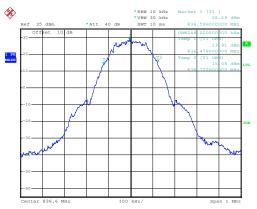


Test Item: 99% Occupy bandwidth Test Mode: GSM850



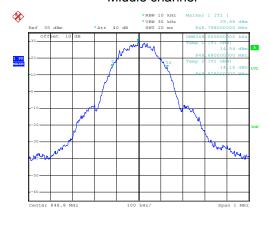
Date: 11.NOV.2013 08:42:06

Lowest channel



Date: 11.NOV.2013 08:45:04

Middle channel



Date: 11.NOV.2013 08:46:40

Highest channel

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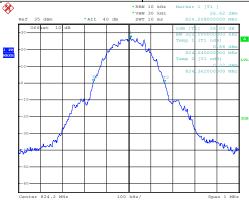
Project No.: CCIS131100456RF

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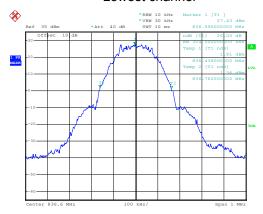






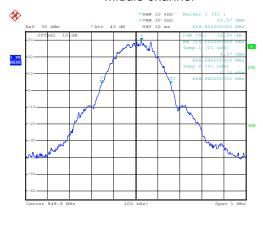
Date: 11.NOV.2013 08:48:28

Lowest channel



Date: 11.NOV.2013 08:50:06

Middle channel



Date: 11.NOV.2013 08:51:38

Highest channel

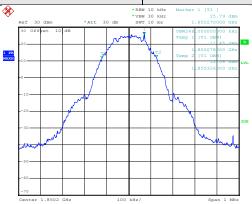
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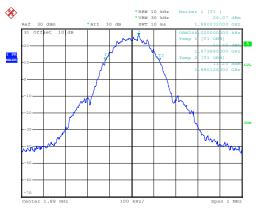


Test Item: 99% Occupy bandwidth Test Mode: PCS 1900



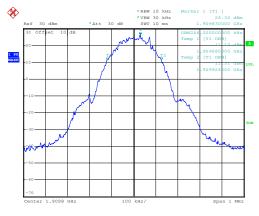
Date: 11.NOV.2013 09:23:05

Lowest channel



Date: 11.NOV.2013 09:24:18

Middle channel



Date: 11.NOV.2013 09:25:52

Highest channel

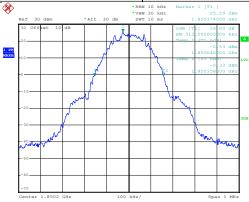
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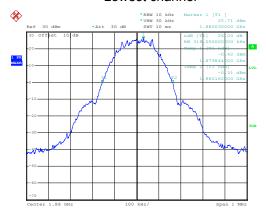






Date: 11.NOV.2013 09:29:31

Lowest channel



Date: 11.NOV.2013 09:28:26

Middle channel



Date: 11.NOV.2013 09:27:06

Highest channel

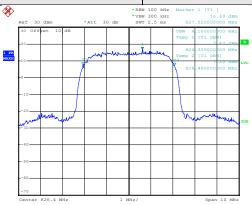
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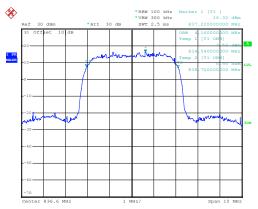


Test Item: 99% Occupy bandwidth Test Mode: UMTS 850 12.2k RMC



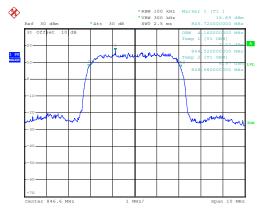
Date: 11.NOV.2013 10:00:53

Lowest channel



Date: 11.NOV.2013 10:03:11

Middle channel



Date: 11.NOV.2013 10:04:23

Highest channel

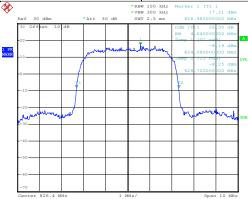
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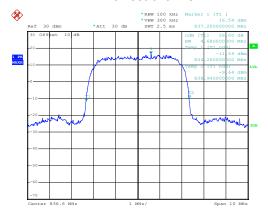






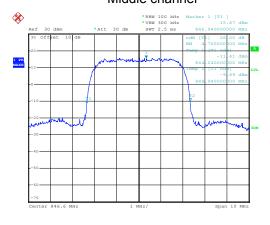
Date: 11.NOV.2013 10:08:59

Lowest channel



Date: 11.NOV.2013 10:07:52

Middle channel



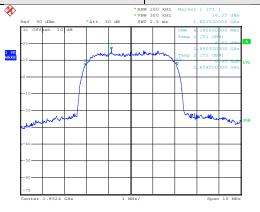
Date: 11.NOV.2013 10:06:32

Highest channel

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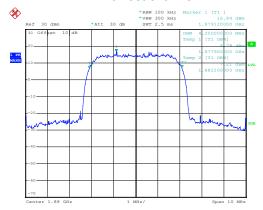






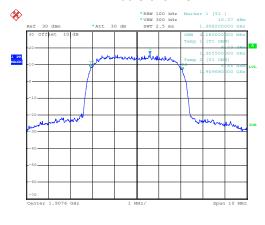
Date: 11.NOV.2013 10:31:04

Lowest channel



Date: 11.NOV.2013 10:33:19

Middle channel

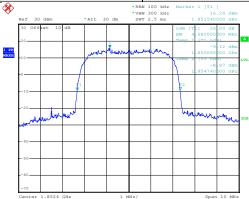


Date: 11.NOV.2013 10:34:06

Highest channel

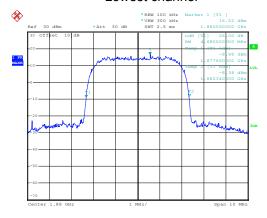






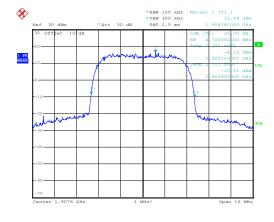
Date: 11.NOV.2013 10:37:22

Lowest channel



Date: 11.NOV.2013 10:36:21

Middle channel



Date: 11.NOV.2013 10:35:24

Highest channel

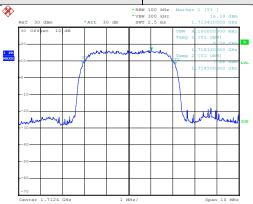
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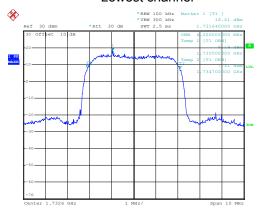


Test Item: 99% Occupy bandwidth Test Mode: UMTS 1700 12.2k RMC



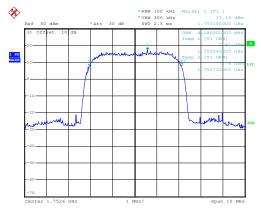
Date: 18.NOV.2013 10:16:00

Lowest channel



Date: 18.NOV.2013 10:21:33

Middle channel



Date: 18.NOV.2013 10:22:38

Highest channel

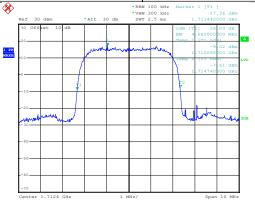
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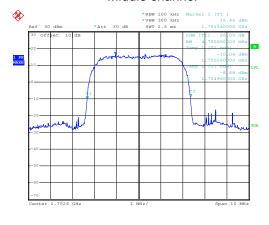
Date: 18.NOV.2013 10:27:06

Lowest channel



Date: 18.NOV.2013 10:25:15

Middle channel



Date: 18.NOV.2013 10:23:50

Highest channel

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6.7 Modulation Characteristic

According to FCC § 2.1047(d), Part 22H & 24E & 27L there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

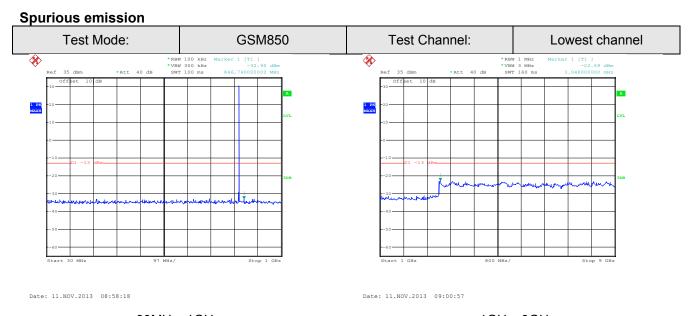
6.8 Out of band emission at antenna terminals

Test Requirement:	FCC part 22.917(a) , FCC part 24.238(a) and FCC part 27.53(h)	
Test Method:	FCC part 2.1051	
Limit:	-13 dBm	
Test setup:	EUT Splitter Communication Tester ATT SPA	
Test Procedure:	 Note: Measurement setup for testing on Antenna connector The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz when below 1GHz, 1MHz when above 1 GHz; sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic. For the out of band: Set the RBW=100 kHz, VBW=300 kHz when below 1 GHz, RBW =1 MHz, VBW=3 MHz when above 1 GHz, Start=30MHz, Stop= 10th harmonic. Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. 	
Test Instruments:	Refer to section 5.8 for details	
Test mode:	Refer to section 5.3 for details	
Test results:	Passed	

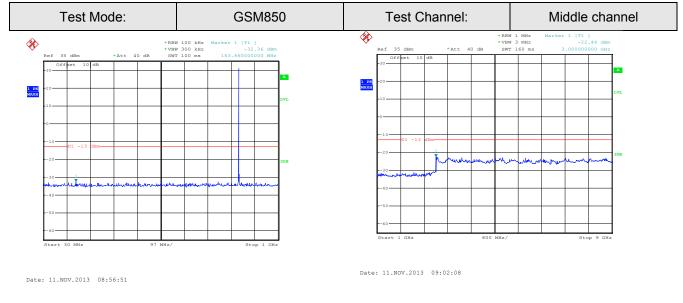
Test plots as follows:

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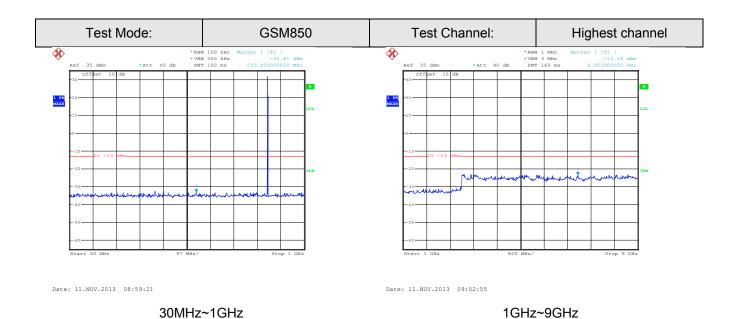
30MHz~1GHz 1GHz~9GHz

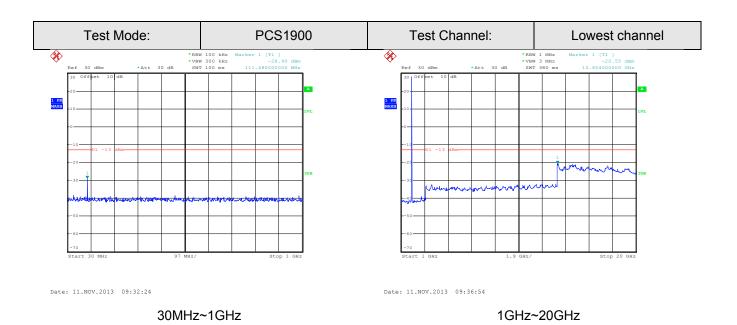


30MHz~1GHz 1GHz~9GHz

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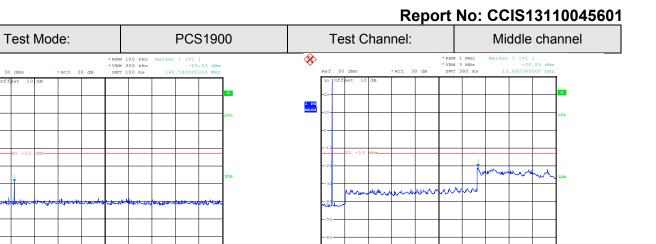


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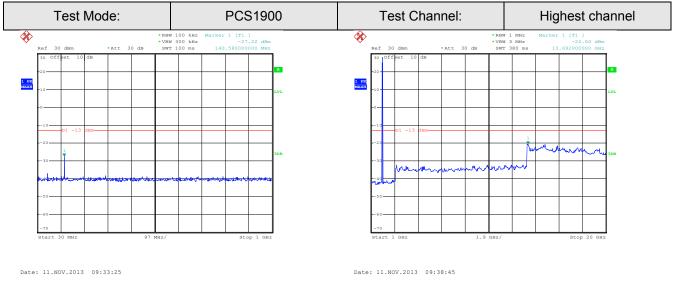
%

1 PK



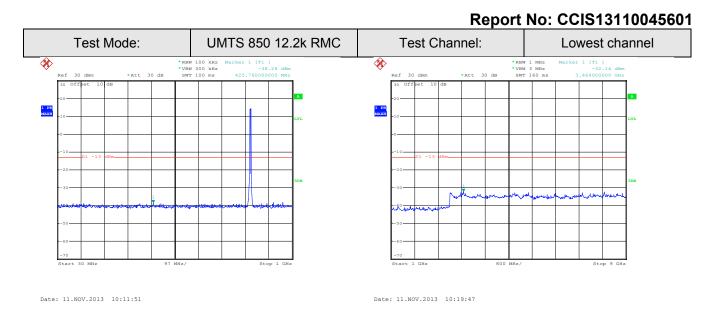
Date: 19.JUL.2013 17:21:06 Date: 11.NOV.2013 09:37:37

30MHz~1GHz 1GHz~20GHz

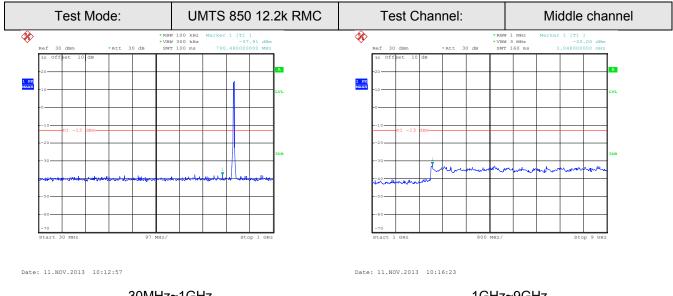


30MHz~1GHz 1GHz~20GHz



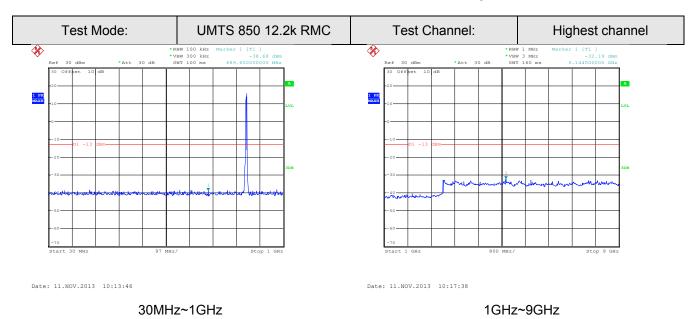


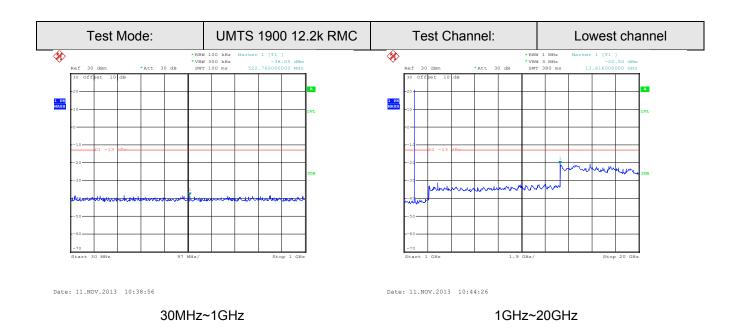
30MHz~1GHz 1GHz~9GHz



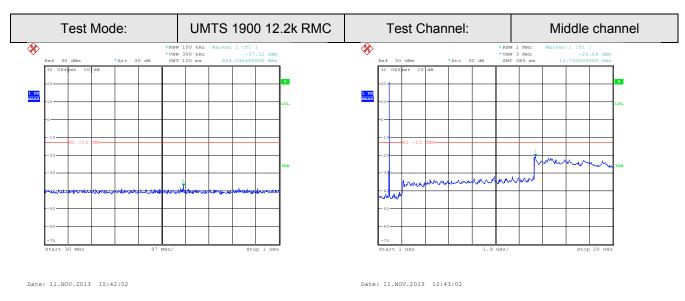
30MHz~1GHz 1GHz~9GHz



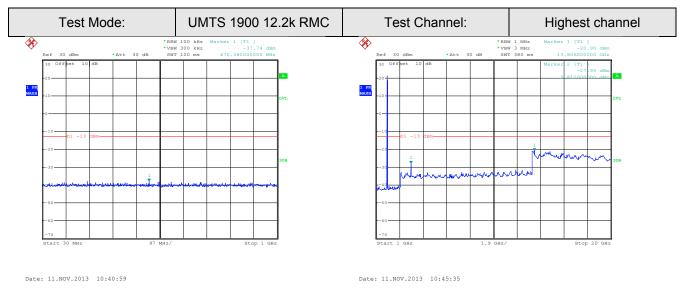








30MHz~1GHz 1GHz~20GHz

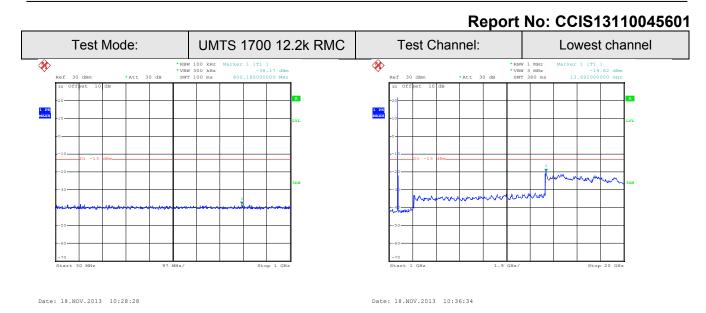


30MHz~1GHz 1GHz~20GHz

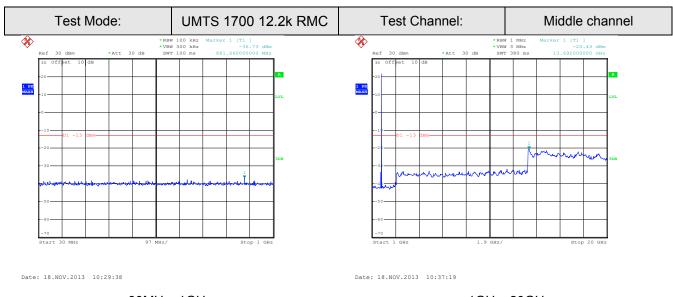
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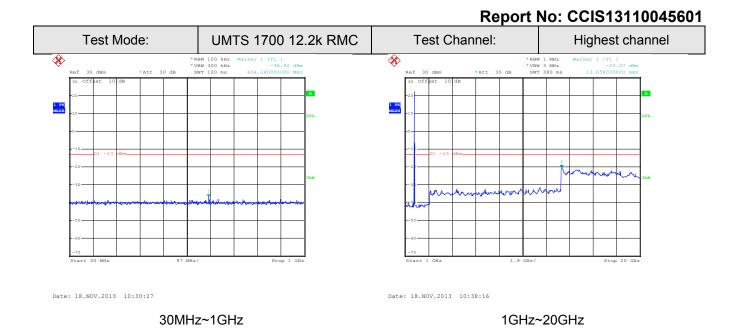


30MHz~1GHz 1GHz~20GHz



30MHz~1GHz 1GHz~20GHz

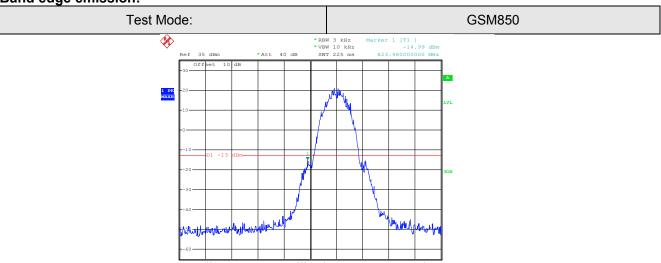




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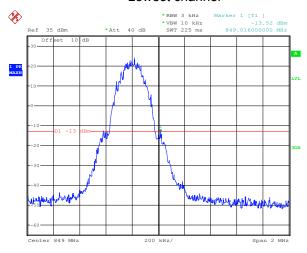


Band edge emission:



Date: 11.NOV.2013 09:06:11

Lowest channel



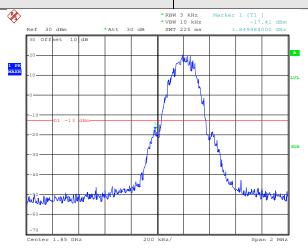
Date: 11.NOV.2013 09:12:03

Highest channel

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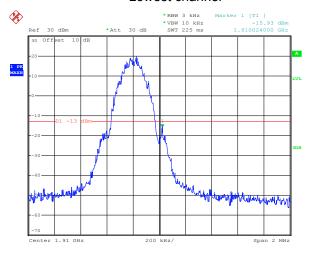


Test Mode: PCS1900



Date: 11.NOV.2013 09:40:48

Lowest channel



Date: 11.NOV.2013 09:42:01

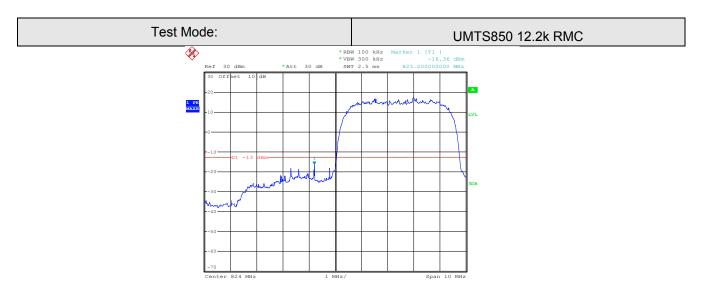
Highest channel

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Date: 11.NOV.2013 10:25:37

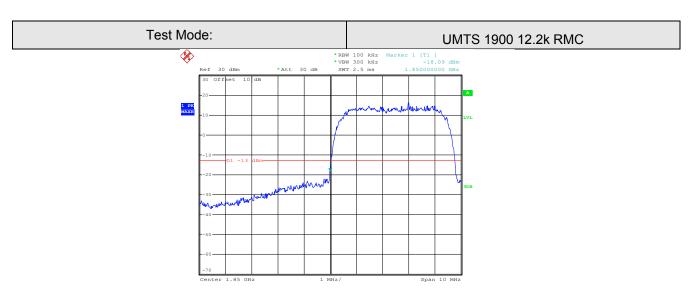
Lowest channel



Date: 11.NOV.2013 10:27:37

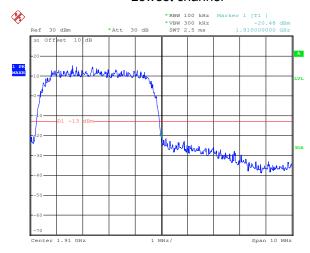
Highest channel





Date: 11.NOV.2013 10:47:53

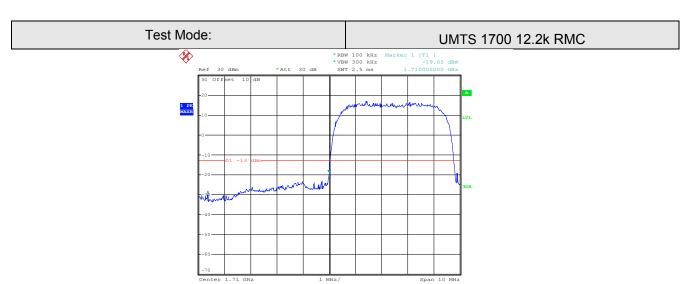
Lowest channel



Date: 11.NOV.2013 10:48:53

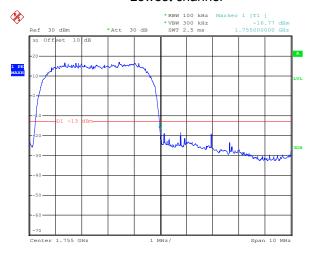
Highest channel





Date: 18.NOV.2013 10:39:50

Lowest channel



Date: 18.NOV.2013 10:41:15

Highest channel



6.9 ERP, EIRP Measurement

0.9 ERP, EIRP Measure	
Test Requirement:	FCC part 22.913(a), FCC part 24.232(b) and FCC part 27.50(d)
Test Method:	FCC part 2.1046
Limit:	GSM850 7W ERP PCS1900 2W EIRP WCDMA Band V: 7W ERP WCDMA Band II: 2W EIRP WCDMA Band IV: 1W EIRP
Test setup:	Below 1GHz
	Antenna Tower Search Antenna RF Test Receiver Ground Plane Above 1GHz Antenna Tower Horn Antenna Spectrum Analyzer Antenna Tower
	Table Amplifier Amplifier
	Substituted method:
	Ground plane d: distance in meters d: 3 meter I -4 meter SPA Substituted Dipole or Horn Antenna Bi-Log Antenna or Horn Antenna

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	11000111101 00101011004000
Test Procedure:	 The EUT was placed on an non-conductive turntable using a non- conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
	2. During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.
	3. ERP in frequency band 824.2 –848.80.8MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:
	ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable Loss (dB)
	4. EIRP in frequency band 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:
	EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)
	5. EIRP in frequency band 1712.4 –1752.6 MHz were measured using a substitution method. The EUT was replaced by or horn antenna connected, the S.G. output was recorded and EIRP was calculated as follows:
	EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)
	6. The worse case was relating to the conducted output power.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case)

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EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
		V	32.71			
		Н	Н	28.98		
	GSM850 251	251 E1	V	25.12	38.45	Pass
GSM850			Н	24.35		
		V	25.67			
		E2	Н	24.62		

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
		V	24.68			
		Н	Н	24.93		
			V	22.45		
PCS1900 810	E1	Н	17.68	33.00	Pass	
		V	23.15			
		E2	Н	18.02		

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EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result	
			V	21.41			
		Н	Н	20.24			
UMTS 850	4132	4132		V	19.35		_
12.2k RMC			E1	Н	17.68	38.45	Pass
			V	18.95			
		E2	Н	17.46			

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result	
	UMTS 1900 12.2k RMC		V	22.75			
			Н	Н	17.94		
UMTS 1900		JMTS 1900		V	17.34		
12.2k RMC		E1	Н	14.85	33.00	Pass	
			V	17.02			
		E2	Н	15.17			

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result	
				V	12.72		
		Н	Н	19.09			
UMTS 1700	1312 E1		V	12.36	30.00	Pass	
12.2k RMC		E1	Н	17.25			
		V	12.47				
		E2	Н	18.52			

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6.10 Field strength of spurious radiation measurement

Test Requirement:	FCC part 22.917(a), FCC part 24.238(a) and FCC part 27.53(h)
Test Method:	FCC part 2.1053
Limit:	-13dBm
Test setup:	Below 1GHz Antenna Tower Search Antenna Tum Table Antenna Tower
	Substituted method: Antenna mast d: distance in meters d:3 meter S.G. Substituted Dipole or Horn Antenna Bi-Log Antenna or Horn Antenna
Test Procedure:	 The EUT was placed on an non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. The frequency range up to tenth harmonic was investigated for each

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Report I	No: C	CIS1	13110	045601
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	10poit 110: 0010 101 100+000
	of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details. Based on the ERP/EIRP results, we selected GSM850, PCS1900, UMTS RMC 850, UMTS RMC 1900 and UMTS RMC 1700 for Radiated spurious emission test, other modes were not test.
Test results:	Passed



Measurement Data (worst case)

Above 1GHz:

Test mode:	GSM850		Test channel:	Lowest
- 441	Spurious	Emission		5 "
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
1648.40	Vertical	-54.12		
2472.60	V	-48.05		
3296.80	V	-49.30	40.00	6
4121.00	V	-49.10	-13.00	Pass
4945.20	V			
5769.40	V			
1648.40	Horizontal	-58.61		
2472.60	Н	-52.23		
3296.80	Н	-47.79	40.00	Pass
4121.00	Н	-49.75	-13.00	
4945.20	Н			
5769.40	Н			
	GSM850			
Test mode:	GSN	1 850	Test channel:	Middle
		//850 Emission		
Test mode: Frequency (MHz)			Test channel: Limit (dBm)	Middle Result
	Spurious	Emission		
Frequency (MHz)	Spurious Polarization	Emission Level (dBm)		
Frequency (MHz)	Spurious Polarization Vertical	Emission Level (dBm) -56.25	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80	Spurious Polarization Vertical V	Emission Level (dBm) -56.25 -45.11		
Frequency (MHz) 1673.20 2509.80 3346.40	Spurious Polarization Vertical V V	Emission Level (dBm) -56.25 -45.11 -44.70	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00	Spurious Polarization Vertical V V V	Emission Level (dBm) -56.25 -45.11 -44.70	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00 5019.60	Spurious Polarization Vertical V V V V	Emission Level (dBm) -56.25 -45.11 -44.70	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00 5019.60 5856.20	Spurious Polarization Vertical V V V V V	Emission Level (dBm) -56.25 -45.11 -44.70 -47.51	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00 5019.60 5856.20 1673.20	Spurious Polarization Vertical V V V V V Horizontal	Emission Level (dBm) -56.25 -45.11 -44.70 -47.51 -60.33	-13.00	Result Pass
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00 5019.60 5856.20 1673.20 2509.80	Spurious Polarization Vertical V V V V V Horizontal H	Emission Level (dBm) -56.25 -45.11 -44.70 -47.51 -60.33 -48.90	Limit (dBm)	Result
Frequency (MHz) 1673.20 2509.80 3346.40 4183.00 5019.60 5856.20 1673.20 2509.80 3346.40	Spurious Polarization Vertical V V V V V Horizontal H H	Emission Level (dBm) -56.25 -45.11 -44.70 -47.51 -60.33 -48.90 -47.47	-13.00	Result Pass

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured



	Report No. Cols 131 1004360						
Test mode:	GSM850		Test channel:	Highest			
Fraguanay (MILIT)	Spurious	Emission	Limit (dDm)	Pocult			
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result			
1697.60	Vertical	-53.64					
2546.40	V	-48.26					
3395.20	V	-43.99	40.00	Daga			
4244.00	V	-48.01	-13.00	Pass			
5092.80	V						
5941.60	V						
1697.60	Horizontal	-57.56					
2546.40	Н	-49.12					
3395.20	Н	-48.13	40.00	Pass			
4244.00	Н	-47.96	-13.00				
5092.80	Н						
5941.60	Н						
Test mode:	PCS	1900	Test channel:	Lowest			
	Spurious	Emission					
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result			
3700.40	Vertical	-49.00					
5550.60	V	-42.49					
7400.80	V	-38.05	40.00				
9251.00	V	-34.68	-13.00	Pass			
11101.20	V						
12951.40	V						
3700.40	Horizontal	-49.86					
5550.60	Н	-38.82					
7400.80	Н	-37.52		_			
9251.00	Н	-31.12	-13.00	Pass			
11101.20	Н						

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured



Test mode:	PCS1900		Test channel:	Middle
	Spurious	Emission		
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
3760.00	Vertical	-49.09		
5640.00	V	-45.02		
7520.00	V	-39.58		_
9400.00	V	-30.29	-13.00	Pass
11280.00	V			
13160.00	V			
3760.00	Horizontal	-49.73		
5640.00	Н	-39.47		
7520.00	Н	-40.14		_
9400.00	Н	-34.41	-13.00	Pass
11280.00	Н			
13160.00	Н			
Test mode:	PCS	1900	Test channel:	Highest
5 (241)	Spurious	Emission		5 "
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result
3819.60	Vertical	-51.21		
5729.40	V	-44.04		
7639.20	V	-38.64	40.00	
9549.00	V	-29.66	-13.00	Pass
11458.80	N /			
	V			
13368.60	V			
		 -51.31		
13368.60	V	 -51.31 -38.66		
13368.60 3819.60	V Horizontal		40.00	D.
13368.60 3819.60 5729.40	V Horizontal H	-38.66	-13.00	Pass
13368.60 3819.60 5729.40 7639.20	V Horizontal H H	-38.66 -38.99	-13.00	Pass

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured

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Took woode.	LIMTOGEO	40 OL DMO	Took about als	Lawaat	
Test mode:		12.2k RMC	Test channel:	Lowest	
Frequency (MHz)	•	Emission	Limit (dBm)	Result	
	Polarization	Level (dBm)			
1652.80	Vertical	-53.71			
2479.20	V	-43.41	_		
3305.60	V	-50.06	-13.00	Pass	
4132.00	V	-49.57	_		
4958.40	V		_		
5784.80	V				
1652.80	Horizontal	-59.03			
2479.20	Н	-45.34			
3305.60	Н	-50.04		Daga	
4132.00	Н	-48.74	-13.00	Pass	
4958.40	Н				
5784.80	Н				
Test mode:	UMTS850	12.2k RMC	Test channel:	Middle	
	Spurious	Emission		. "	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1672.00	Vertical	-51.04			
2508.00	V	-49.22			
3344.00	V	-49.76	40.00		
4180.00	V	-49.69	-13.00	Pass	
5016.00	V				
5852.00	V				
1672.00	Horizontal	-57.39			
2508.00	Н	-50.36			
	H H	-50.36 -49.37	45.55	_	
2508.00			-13.00	Pass	
2508.00 3344.00	Н	-49.37	-13.00	Pass	

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Troport troi della fatta della						
Test mode:	UMTS850 12.2k RMC		Test channel:	Highest		
Factoria (AALL)	Spurious	Emission	Limit (dDay)			
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result		
1693.20	Vertical	-49.61				
2539.80	V	-47.76				
3386.40	V	-49.57				
4233.00	V	-48.54	-13.00	Pass		
5079.60	V					
5926.20	V					
1693.20	Horizontal	-58.19				
2539.80	Н	-49.87				
3386.40	Н	-49.32		_		
4233.00	Н	-48.41	-13.00	Pass		
5079.60	Н					
5926.20	Н					

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured

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Test mode:	UMTS 1900 12.2k RMC		Test channel:	Lowest	
	Spurious	Emission			
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3704.80	Vertical	-40.90			
5557.20	V	-43.40			
7409.60	V	-38.67	40.00		
9262.00	V	-35.23	-13.00	Pass	
11114.40	V				
12966.80	V				
3704.80	Horizontal	-44.46			
5557.20	Н	-42.89			
7409.60	Н	-38.64			
9262.00	Н	-34.71	-13.00	Pass	
11114.40	Н				
12966.80	Н				
Test mode:	UMTS 1900	12.2k RMC	Test channel:	Middle	
Farmer and (MALL)	Spurious	Emission	Limit (dDay)	D 14	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3760.00	Vertical	-44.57			
3760.00 5640.00	Vertical V	-44.57 -44.18			
			40.00	Davis	
5640.00	V	-44.18	-13.00	Pass	
5640.00 7520.00	V V	-44.18 -39.01	-13.00	Pass	
5640.00 7520.00 9400.00	V V V	-44.18 -39.01	-13.00	Pass	
5640.00 7520.00 9400.00 11280.00	V V V	-44.18 -39.01 -36.45	-13.00	Pass	
5640.00 7520.00 9400.00 11280.00 13160.00	V V V V	-44.18 -39.01 -36.45 	-13.00	Pass	
5640.00 7520.00 9400.00 11280.00 13160.00 3760.00	V V V V V Horizontal	-44.18 -39.01 -36.45 -46.00			
5640.00 7520.00 9400.00 11280.00 13160.00 3760.00 5640.00	V V V V V Horizontal	-44.18 -39.01 -36.4546.00 -43.26	-13.00	Pass Pass	
5640.00 7520.00 9400.00 11280.00 13160.00 3760.00 5640.00 7520.00	V V V V V Horizontal H H	-44.18 -39.01 -36.4546.00 -43.26 -40.46			

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Test mode:	UMTS 1900 12.2k RMC		Test channel:	Highest	
F(1411-)	Spurious	Emission	Line it (dDae)		
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3815.20	Vertical	-37.66			
5722.80	V	-38.93			
7630.40	V	-36.47	40.00		
9538.00	V	-33.69		Pass	
11445.60	V				
13353.20	V				
3815.20	Horizontal	-40.87			
5722.80	Н	-41.67			
7630.40	Н	-39.56		_	
9538.00	Н	-34.20	-13.00	Pass	
11445.60	Н				
13353.20	Н				

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured

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Report No: CCIS13110045601						
Test mode:	UMTS 1700 12.2k RMC		Test channel:	Lowest		
F	Spurious	Emission	Limit (dDm)	D!4		
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result		
3424.80	Vertical	-45.17				
5137.20	V	-43.37				
6849.60	V	-43.39	40.00	Davis		
8562.00	V	-36.39	-13.00	Pass		
10274.40	V					
11986.80	V					
3424.80	Horizontal	-45.68				
5137.20	Н	-43.86				
6849.60	Н	-43.80	40.00	6		
8562.00	Н	-36.55	-13.00	Pass		
10274.40	Н					
11986.80	Н					
Test mode:	UMTS 1700	12.2k RMC	Test channel:	Middle		
	Spurious	Emission		. "		
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result		
3465.20	Vertical	-46.29				
5197.80	V	-43.12				
6930.40	V	-41.50	40.00	6		
8663.00	V	-37.89	-13.00	Pass		
10395.60	V					
12128.20	V					
3465.20	Horizontal	-50.02				
5197.80	Н	-44.22				
6930.40	Н	-41.18	40.00	Б.		
8663.00	Н	-38.12	-13.00	Pass		
			1			
10395.60	Н					

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Test mode:	UMTS 1700	UMTS 1700 12.2k RMC		Highest	
Frequency (MHz)	Spurious	Emission	Limit (dBm)	Result	
Frequency (Wiriz)	Frequency (MHz) Polarization Level		Lilliit (dbill)	Result	
3505.20	Vertical	-47.01			
5257.80	V	-40.90			
7010.40	V	-37.21	40.00		
8763.00	V	-32.67	-13.00	Pass	
10515.60	V				
12268.20	V				
3505.20	Horizontal	-50.16			
5257.80	Н	-43.90			
7010.40	Н	-40.56	40.00	_	
8763.00	Н	-35.67	-13.00	Pass	
10515.60	Н				
12268.20	Н				

Remark:

- 1. The emission behavior belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured

Note: The emissions below 1 GHz too low to detective, so not record in report.

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6.11 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part 2.1055(a)(1)(b)
Test Method:	FCC Part 2.1055(a)(1)(b)
Limit:	2.5 ppm
Test setup:	Spectrum analyzer Att. Variable Power Supply
	Note: Measurement setup for testing on Antenna connector
Test procedure:	 The equipment under test was connected to an external DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

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Project No.: CCIS131100456RF

Measurement Data:

Measurement Data:					
Refe	erence Frequency: G	SM850 Midd	lle channel=190 channe	el=836.6MHz	
Damas aug : la d (/ L)	Tomporeture (°C)	Fr	equency error	Limate (many)	Б ;
Power supplied (Vdc)	Temperature (°C)	Hz	ppm	Limit (ppm)	Result
	-30	145	0.173321		
	-20	140	0.167344		
	-10	100	0.119531		
	0	105	0.125508		
3.80	10	95	0.113555	2.5	Pass
	20	89	0.106383		
	30	103	0.123117		
	40	107	0.127899		
	50	121	0.144633		
Refe	erence Frequency: Po	CS1900 Mid	dle channel=661 chann	el=1880MHz	
	T (%0)	Frequency error			
Power supplied (Vdc)	Temperature (°ℂ)	Hz	ppm		Result
	-30	145	0.077128		
	-20	130	0.069149		
	-10	128	0.068085		
	0	96	0.051064		
3.80	10	85	0.045213	2.5	Pass
	20	106	0.056383		
	30	104	0.055319		
	40	91	0.048404		
	50	87	0.046277	1	

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Reference Frequency: UMTS850 12.2k RMC Middle channel=4183 channel=836.6MHz							
B 10(1)	T(°C)	Fr	equency error				
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)	Result		
	-30	126	0.150610				
	-20	124	0.148219				
	-10	88	0.105188				
	0	76	0.090844				
3.80	10	86	0.102797	2.5	Pass		
	20	92	0.109969				
	30	78	0.093235				
	40	93	0.111164				
	50	104	0.124313				
Reference F	requency: UMTS190	0 12.2k RM	IC Middle channel=940	0 channel=1880	MHz		
B 1 10/1)	T(°C)	Frequency error		Frequency error			.
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)	Result		
	-30	136	0.072340				
	-20	128	0.068085				
	-10	117	0.062234				
	0	86	0.045745				
3.80	10	94	0.050000	2.5	Pass		
	20	104	0.055319				
	30	100	0.053191				
	40	93	0.049468				
	50	83	0.044149				

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Reference Frequency: UMTS1700 12.2k RMC Middle channel=1413 channel=1732.6MHz							
Power supplied (Vdc)	Tomporature (°C)	Fr	equency error				
	Temperature (℃)	Hz	ppm	Limit (ppm)	Result		
	-30	128	0.073877				
	-20	65	0.037516				
	-10	79	0.045596				
	0	81	0.046751				
3.80	10	79	0.045596	2.5	Pass		
	20	92	0.053099				
	30	106	0.061180				
	40	89	0.051368				
	50	95	0.054831				

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			Re	port No: CCR	513110045
Reference	Frequency: UMTS8	50 HSDPA	Middle channel=4183 c	channel=836.6Ml	Hz
Davisa avanliad () (da)	Tomporatura (°C)	Frequency error			Desult
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)	Result
	-30	127	0.151805		
	-20	116	0.138656	-	
	-10	89	0.106383		
	0	75	0.089649		
3.80	10	68	0.081281	2.5	Pass
	20	102	0.121922		
	30	106	0.126703		
	40	89	0.106383		
	50	67	0.080086		
Reference	Frequency: UMTS19	900 HSDPA	Middle channel=9400	channel=1880M	Hz
	T(°C)	Frequency error], ,	
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)	Result
	-30	132	0.070213	_	
	-20	112	0.059574	-	
	-10	106	0.056383		
	0	104	0.055319		
3.80	10	95	0.050532	2.5	Pass
	20	87	0.046277		
	30	93	0.049468		
	40	105	0.055851		
	50	100	0.053191		

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110							
Reference Frequency: UMTS1700 HSDPA Middle channel=1413 channel=1732.6MHz							
Dower complied () (do)	Temperature (°C)	Fr	equency error	Limit (mmm)	Result		
Power supplied (Vdc)		Hz	ppm	Limit (ppm)			
	-30	122	0.070414				
	-20	117	0.067529				
	-10	109	0.062911				
	0	96	0.055408				
3.80	10	82	0.047328	2.5	Pass		
	20	63	0.036362				
	30	84	0.048482				
	40	90	0.051945				
	50	106	0.061180				

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			Re	port No: CCI	5131100456
Reference	Frequency: UMTS8	50 HSUPA	Middle channel=4183 c	hannel=836.6Ml	Нz
	T (%C)	Fr	equency error		Result
Power supplied (Vdc)	Temperature (°ℂ)	Hz	ppm	Limit (ppm)	
	-30	79	0.094430		Pass
	-20	67	0.080086		
	-10	85	0.101602		
	0	97	0.115945		
3.80	10	68	0.081281	2.5	
	20	78	0.093235		
	30	79	0.094430	-	
	40	80	0.095625		
	50	68	0.081281		
Reference	Frequency: UMTS1	900 HSUPA	Middle channel=9400	channel=1880M	Hz
5 " 10/1	T(°C)	Frequency error			
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)	Result
	-30	104	0.055319	2.5	Pass
	-20	99	0.052660		
	-10	85	0.045213		
	0	80	0.042553		
3.80	10	76	0.040426		
	20	71	0.037766		
	30	87	0.046277		
	40	88	0.046809		
	50	92	0.048936		

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Trapare training for the contract of the contr							
Reference Frequency: UMTS1700 HSUPA Middle channel=1413 channel=1732.6MHz							
	T (%)	Fr	equency error		Result		
Power supplied (Vdc)	Temperature (℃)	Hz	ppm	Limit (ppm)			
	-30	100	0.057717				
	-20	85	0.049059	2.5	Pass		
	-10	76	0.043865				
	0	89	0.051368				
3.80	10	77	0.044442				
	20	75	0.043288				
	30	68	0.039247				
	40	69	0.039825				
	50	80	0.046173				

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6.12 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part 2.1055(d)(1)(2)
Test Method:	FCC Part 2.1055(d)(1)(2)
Limit:	2.5ppm
Test setup:	Spectrum analyzer EUT Att. Variable Power Supply
	Note: Measurement setup for testing on Antenna connector
Test procedure:	 Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (+/-15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details, and all channels have been tested, only shows the worst channel data in this report.
Test results:	Passed

Measurement Data (the worst channel):

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Project No.: CCIS131100456RF

Report No. Gold for 1004000							
Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz							
Temperature (℃)	Power supplied	Frequency error		Limit (ppm)	Result		
	(Vdc)	Hz	ppm				
	4.25	105	0.125508				
25	3.70	79	0.094430	2.5	Pass		
	3.40	68	0.081281				
Refe	Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz						
Temperature (℃)	Power supplied	Frequer	ncy error	Limit (nnm)	Result		
	(Vdc)	Hz	ppm	Limit (ppm)	Result		
	4.25	88	0.046809				
25	3.70	82	0.043617	2.5	Pass		
	3.40	74	0.039362				

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Reference F	requency: UMTS850	12.2k RMC Mid	dle channel=4183	3 channel=836.6l	MHz	
Tomporatura (°C)	Power supplied	Frequer	cy error	Limit (nnm)	Result	
Temperature (℃)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	96	0.114750		1	
25	3.70	80	0.095625	2.5	Pass	
	3.40	76	0.090844			
Reference F	requency: UMTS190	0 12.2k RMC Mid	ddle channel=940	00 channel=1880	MHz	
- (00)	Power supplied	Frequency error				
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	64	0.034043			
25	3.70	63	0.033511	2.5	Pass	
	3.40	59	0.031383			
Reference Fr	requency: UMTS1700	12.2k RMC Mid	dle channel=1413	3 channel=1732.6	6MHz	
T (%)	Power supplied	Frequer	ncy error	1. ".		
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	77	0.044442			
25	3.70	68	0.039247	2.5	Pass	
	3.40	61	0.035207			

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Report No. Colo 13 1 1004300						
Reference Frequency: UMTS 850 HSDPA Middle channel=4183 channel=836.6MHz						
T (200)	Power supplied	Frequency error				
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	76	0.090844			
25	3.70	70	0.083672	2.5	Pass	
	3.40	68	0.081281			
Reference	Frequency: UMTS 1	900 HSDPA Midd	dle channel=9400	channel=1880M	1Hz	
- (00)	Power supplied	Frequer	ncy error			
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	60	0.031915			
25	3.70	55	0.029255	2.5	Pass	
	3.40	59	0.031383			
Reference	Frequency: UMTS17	00 HSDPA Middl	e channel=1413	channel=1732.6N	ИHz	
T (%0)	Power supplied	Frequer	ency error			
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	67	0.038670			
25	3.70	79	0.045596	2.5	Pass	
	3.40	80	0.046173			

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Report No. CCI313110043601						
Reference Frequency: UMTS 850 HSUPA Middle channel=4183 channel=836.6MHz						
Temperature (℃)	Power supplied	Frequen	ncy error		Result	
	(Vdc)	Hz	ppm	Limit (ppm)		
	4.25	86	0.102797			
25	3.70	88	0.105188	2.5	Pass	
	3.40	79	0.094430			
Reference Frequency: UMTS 1900 HSUPA Middle channel=9400 channel=1880MHz						
T (%C)	Power supplied	Frequen	ncy error		.	
Temperature (°C)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	59	0.031383			
25	3.70	55	0.029255	2.5	Pass	
	3.40	57	0.030319			
Reference	Frequency: UMTS17	00 HSUPA Middl	e channel=1413 d	channel=1732.6N	ИНz	
T (%)	Power supplied	Frequen	ncy error		Б. "	
Temperature (℃)	(Vdc)	Hz	ppm	Limit (ppm)	Result	
	4.25	86	0.049636			
25	3.70	80	0.046173	2.5	Pass	
	3.40	89	0.051368			

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