

Global United Technology Services Co., Ltd.

Report No.: GTSE15050073301

FCC Report (GSM&WCDMA)

Applicant: Gasei S.A.

Address of Applicant: Los Conquistadores 2068 Providencia Santiago-Chile

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: G5500

FCC ID: 2AEWP-G5500

Applicable standards: FCC CFR Title 47 Part 2: 2014

> FCC CFR Title 47 Part22 Subpart H: 2014 FCC CFR Title 47 Part24 Subpart E: 2014

May 19, 2015 Date of sample receipt:

Date of Test: May 20-22, 2015

Date of report issued: May 25, 2015

PASS * Test Result:

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

Authorized Signature:



Robinson Lo **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 GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	May 25, 2015	Original

Prepared By:	Zdward.Pan	Date:	May 25, 2015
	Project Engineer		
Check By:	hank. yan	Date:	May 25, 2015
	Reviewer		



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4 Test Summary

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



5 General Information

5.1 Client Information

Applicant:	Gasei S.A.
Address of Applicant:	Los Conquistadores 2068 Providencia Santiago-Chile
Manufacturer/Factory:	Huizhou Hengdu Electronics Co., Ltd
Address of	DIP South Area, Huiao Highway, Huizhou, Guangdong, China
Manufacturer/Factory:	

5.2 General Description of EUT

Product Name:	Mobile Phone
Model No.:	G5500
Support Networks:	GSM, GPRS, EGPRS, WCDMA
Support Bands:	GSM850, PCS1900, WCDMA Band II, Band V
TX Frequency:	GSM850: 824.20MHz-848.80MHz
	PCS1900: 1850.20MHz-1909.80MHz
	WCDMA Band II: 1852.40MHz -1907.60MHz
	WCDMA Band V: 826.40MHz -846.60MHz
GPRS/EGPRS Class:	12
Modulation type:	GSM/GPRS: GMSK
	EGPRS: GMSK/8PSK
	WCDMA Band II/V: QPSK
IMEI:	355287000474480
	355287000456457
Hardware Version:	S17E-ZX-Android4.4.2-150430
Software Version:	Android 4.4.2
Antenna type:	PIFA antenna
Antenna gain:	2.5dBi (declare by Applicant)
Power supply:	Adapter:
	Model No.: OV-VERTIS
	Input: AC 100-240V, 50/60Hz, 0.3A
	Output: DC 5.0V, 1.0A
	or
	DC 3.7V Li-ion Battery



Operation Frequency List:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
129	824.40	513	1850.40	4133	826.60	9263	1852.60
· :	• :	• :	• :	• :	• :	• :	· :
189	836.40	660	1879.80	4181	836.20	9399	1879.80
190	836.60	661	1880.00	4182	836.40	9400	1880.00
191	836.80	662	1880.20	4183	836.60	9401	1880.20
· ;	• :	• :	• :	• ;	• ::	• :	· :
250	848.60	809	1909.60	4232	846.40	9537	1907.40
251	848.80	810	1909.80	4233	846.60	9538	1907.60

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:

Final test channel:

GSM 850		PCS1900		WCDMA Band V		WCDMA Band II	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20	4132	826.40	9262	1852.40
190	836.60	661	1880.00	4183	836.60	9400	1880.00
251	848.80	810	1909.80	4233	846.60	9538	1907.60

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



5.3 Related Submittal(s) / Grant (s)

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

5.4 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

5.5 Test Facility

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

• CNAS —Registration No.: CNAS L5775

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 28, 2013.

• Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen 518102

Tel: 0755-27798480 Fax: 0755-27798960

Global United Technology Services Co., Ltd.

Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen 518102 Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960

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6 Test Instruments list

0	rest 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	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 27 2015	Mar. 26 2016		
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A		
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	July 01 2014	June 30 2015		
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	July 01 2014	June 30 2015		
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 27 2014	June 26 2015		
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 27 2015	Mar. 26 2016		
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 28 2015	Mar. 27 2016		
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016		
10	Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016		
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 28 2015	Mar. 27 2016		
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	July 01 2014	June 30 2015		
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	July 01 2014	June 30 2015		
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 27 2014	June 26 2015		
15	Band filter	Amindeon	82346	GTS219	Mar. 28 2015	Mar. 27 2016		
16	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	May 08 2015	May 07 2016		
17	Signal Generator	Rohde & Schwarz	SML03	GTS236	May 08 2015	May 07 2016		
18	Temp. Humidity/ Barometer	Oregon Scientific	BA-888	GTS248	May 08 2015	May 07 2016		
19	D.C. Power Supply	Instek	PS-3030	GTS232	NA	NA		
20	Splitter	Agilent	11636B	GTS237	May 08 2015	May 07 2016		
21	Power meter	Rohde & Schwarz	NRVS	GTS238	May 08 2015	May 07 2016		
22	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 4 2014	Dec. 3 2015		
23	Temp.&Humidity chamber	Chuang wei	GDS-225	GTS005-1	May 06 2015	May 05 2016		
24	Highpass filter	Micro-Tronics	HPM50108	GTS549	Mar. 28 2015	Mar. 27 2016		
25	Highpass filter	Micro-Tronics	HPM50111	GTS550	Mar. 28 2015	Mar. 27 2016		



7 System test configuration

7.1 Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Test modes								
Band	Radiated	Conducted						
GSM 850	■ GSM link ■ GSM link							
	■ GPRS 1 link	■ GPRS 1 link						
	■ EPRS 1 link	■ EGPRS 1 link						
PCS 1900	■ GSM link	■ GSM link						
	■ GPRS 1 link	■ GPRS 1 link						
	■ EGPRS 1 link	■ EGPRS 1 link						
WCDMA II	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link						
WCDMA Band V	■ RMC 12.2Kbps link	■ RMC 12.2Kbps link						

Note: The maximum power levels are GSM mode for GMSK link, GPRS multi-slot class 4 mode for GMSK link, EGPRS multi-slot class 8 mode for 8PSK link, RMC12.2Kbps mode for WCDMA Band V and Band II. only these modes were used for all tests.

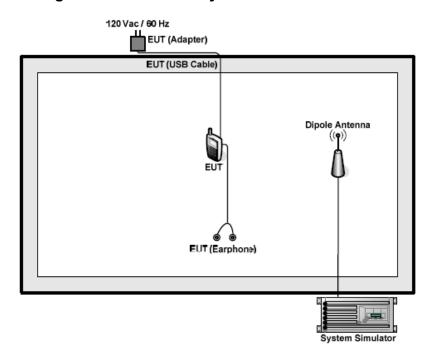
The conducted power tables are as follows:

Conducted Power (dBm)								
Band		GSM850			PCS1900			
Channel	128	190	251	512	661	810		
Frequency	824.20	836.60	848.80	1850.20	1880.00	1909.80		
GSM (GMSK, 1 TX slot)	32.64	32.44	32.58	28.54	28.67	28.93		
GPRS (GMSK, 1 TX slot)	32.61	32.42	32.51	28.52	28.64	28.75		
GPRS (GMSK, 2 TX slot)	31.72	31.46	31.74	27.49	27.62	27.73		
GPRS (GMSK, 3 TX slot)	30.42	30.23	30.37	26.59	26.45	26.66		
GPRS (GMSK, 4 TX slot)	29.30	29.19	29.34	25.58	25.56	25.61		
EGPRS (8PSK, 1 TX slot)	29.96	29.99	29.85	24.86	24.95	24.88		
EGPRS (8PSK, 2 TX slot)	28.95	28.93	28.95	23.87	23.89	23.77		
EGPRS (8PSK, 3 TX slot)	27.86	27.82	27.84	22.84	22.83	22.74		
EGPRS (8PSK, 4 TX slot)	26.79	26.67	26.74	21.81	21.69	21.62		



Conducted Power (dBm)							
Band	V	/CDMA Band	II	WCDMA Band V			
Channel	9262	9400	9538	4132	4183	4233	
Frequency	1852.4	1880.0	1907.6	826.4	836.6	846.6	
RMC 12.2Kbps	22.01	21.85	21.62	22.35	22.42	22.33	
HSDPA Subtest-1	21.34	20.79	20.67	22.09	22.16	22.27	
HSDPA Subtest-2	20.68	20.59	20.78	20.32	20.65	20.63	
HSDPA Subtest-3	20.43	20.62	20.59	20.24	20.35	20.38	
HSDPA Subtest-4	20.67	20.85	20.78	19.17	19.42	20.46	
HSUPA Subtest-1	21.26	20.67	20.64	21.95	21.93	22.05	
HSUPA Subtest-2	20.58	20.36	20.52	20.65	20.32	20.68	
HSUPA Subtest-3	20.37	20.85	20.49	20.61	20.50	20.34	
HSUPA Subtest-4	20.26	20.84	20.32	20.12	20.33	20.68	
HSUPA Subtest-5	20.12	20.33	20.24	20.04	20.11	20.28	
AMR	20.87	20.41	20.31	21.82	21.67	21.75	

7.2 Configuration of Tested System





7.3 Conducted Peak Output Power

Test Requirement:	FCC part22.913(a) and FCC part24.232(b)		
Test Method:	FCC part2.1046		
Limit:	GSM850,: 7W		
	PCS1900, WCDMA Band V: 2W		
Test setup:	EUT Splitter Communication Tester Power meter		
	Note: Measurement setup for testing on Antenna connector		
Test Procedure:	 The transmitter output port was connected to base station. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement. 		
	3. Set EUT at maximum power through base station.		
	Select lowest, middle, and highest channels for each band and different modulation.		
	5. Measure the maximum burst average power.		
Test Instruments:	Refer to section 6.0 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

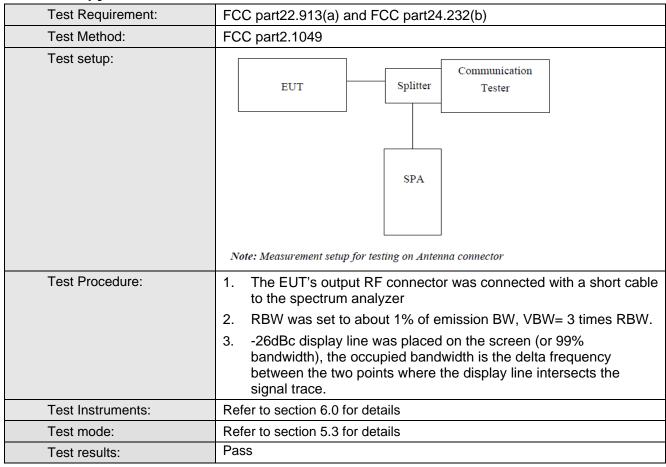


Measurement Data

EUT Mode	Channel	Frequency (MHz)	PK power (dBm)
2211.22	128	824.20	32.64
GSM 850 (GSM link)	190	836.60	32.44
(CONTINUE)	251	848.80	32.58
0011.050	128	824.20	32.61
GSM 850 (GPRS 1 link)	190	836.60	32.42
	251	848.80	32.51
	128	824.20	29.96
GSM 850 (EGPRS 1 link)	190	836.60	29.99
(LOI TO T IIIII)	251	848.80	29.85
700	512	1850.20	28.54
PCS 1900 (GSM link)	661	1880.00	28.67
(GOW IIIIK)	810	1909.80	28.93
	512	1850.20	28.52
PCS 1900 (GPRS 1 link)	661	1880.00	28.64
	810	1909.80	28.75
	512	1850.20	24.86
PCS 1900 (EGPRS 1 link)	661	1880.00	24.95
	810	1909.80	24.88
	4132	826.40	22.35
WCDMA Band V (RMC 12.2Kbps link)	4183	836.60	22.42
(INIVIO 12.2INDPS IIIIK)	4233	846.60	22.33
W00144 D	9262	1852.40	22.01
WCDMA Band II (RMC 12.2Kbps link)	9400	1880.00	21.85
	9538	1907.60	21.62



7.4 Occupy Bandwidth





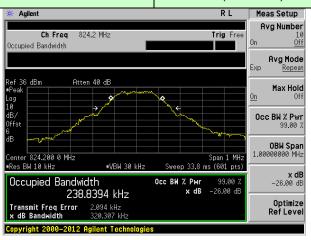
Measurement Data

EUT Mode	Channel	Frequency (MHz)	99% Occupy bandwidth (KHz)	-26dB bandwidth (KHz)
GSM 850 (GSM link)	128	824.20	238.839	320.307
	190	836.60	243.974	315.227
	251	848.80	237.571	315.023
0011070	128	824.20	249.535	310.529
GSM 850 (GPRS 1 link)	190	836.60	245.473	316.577
	251	848.80	247.121	315.752
	128	824.20	246.682	320.750
GSM 850 (EGPRS 1 link)	190	836.60	255.564	333.414
(LOT NO TIME)	251	848.80	249.019	320.271
	512	1850.20	238.208	316.421
PCS 1900 (GSM link)	661	1880.00	245.886	318.255
	810	1909.80	241.037	313.998
	512	1850.20	252.293	321.218
PCS 1900 (GPRS 1 link)	661	1880.00	237.274	311.097
	810	1909.80	236.509	315.375
PCS 1900 (EGPRS 1 link)	512	1850.20	247.787	311.265
	661	1880.00	252.658	336.296
	810	1909.80	249.488	321.235
WCDMA Band V (RMC 12.2Kbps link)	4132	826.40	4162.80	4694.00
	4183	836.60	4166.80	4695.00
	4233	846.60	4138.00	4689.00
WCDMA Band II (RMC 12.2Kbps link)	9262	1852.40	4171.70	4715.00
	9400	1880.00	4177.40	4731.00
	9538	1907.60	4196.30	4735.00

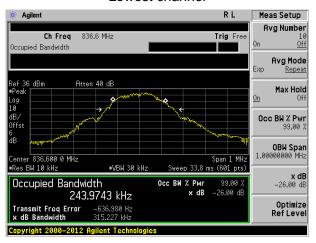
Test plot as follows:



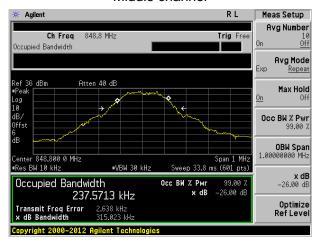
Test band: GSM 850 (GSM link)



Lowest channel



Middle channel

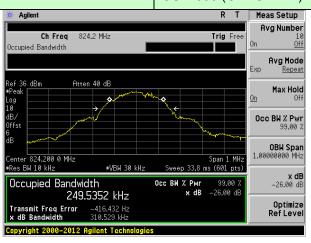


Highest channel

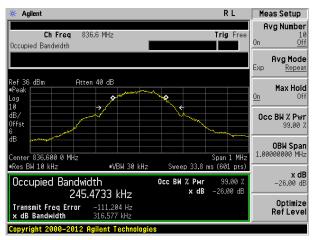


Test band:

GSM 850 (GPRS 1 link)



Lowest channel



Middle channel



Highest channel

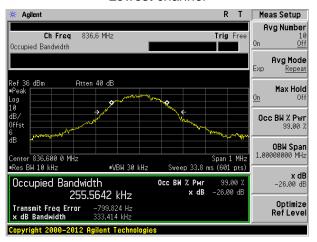


Test band:

GSM 850 (EGPRS 1 link)



Lowest channel



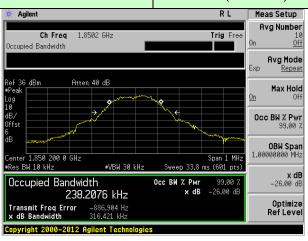
Middle channel



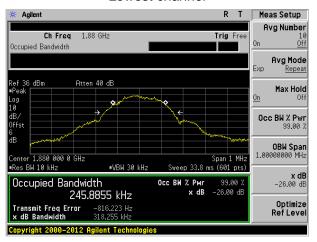
Highest channel



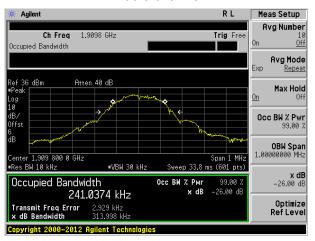
Test band: PCS 1900 (GSM link)



Lowest channel



Middle channel



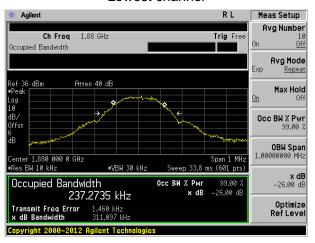
Highest channel



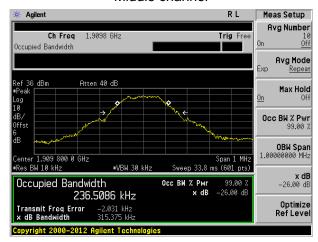
Test band: PCS 1900 (GPRS 1 link)



Lowest channel



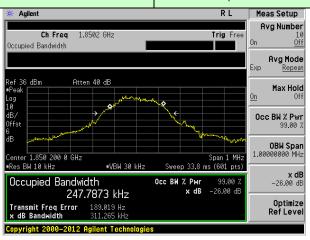
Middle channel



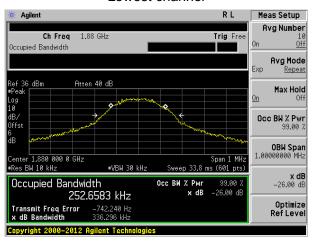
Highest channel



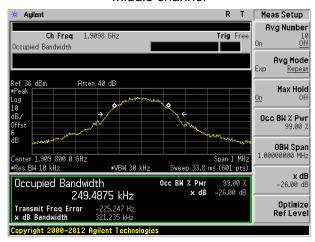
Test band: PCS 1900 (EGPRS 1 link)



Lowest channel



Middle channel

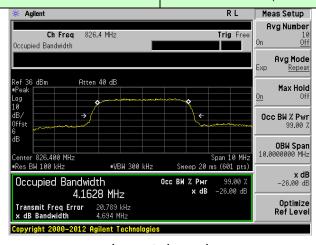


Highest channel

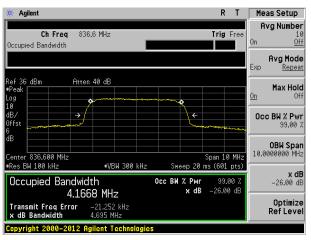


Test band:

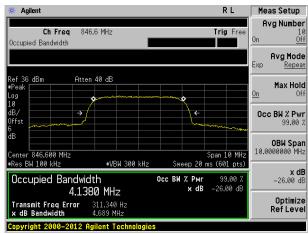
WCDMA Band V (RMC 12.2Kbps link)



Lowest channel



Middle channel

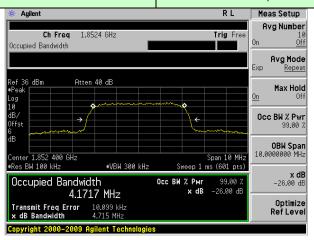


Highest channel

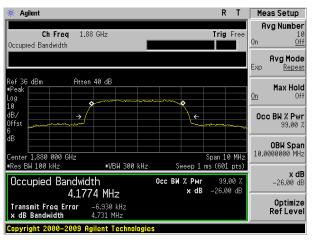


Test band:

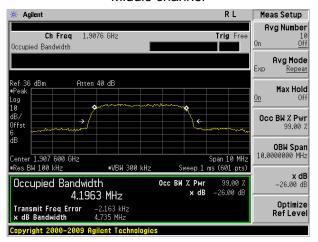
WCDMA Band II (RMC 12.2Kbps link)



Lowest channel



Middle channel



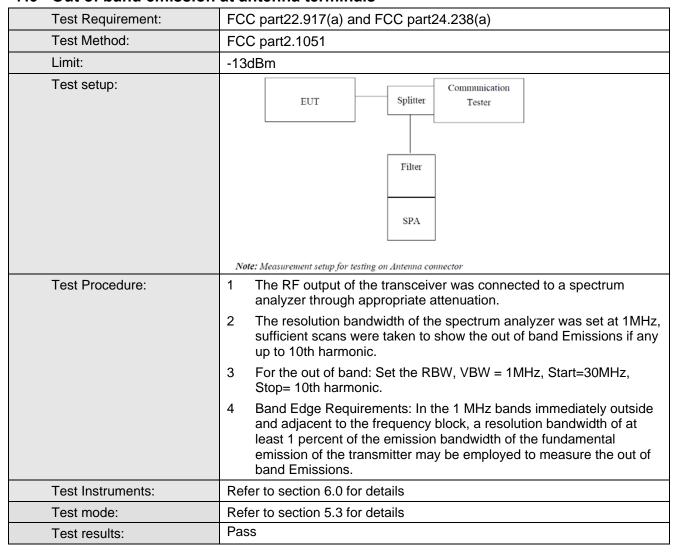
Highest channel



7.5 MODULATION CHARACTERISTIC

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

7.6 Out of band emission at antenna terminals



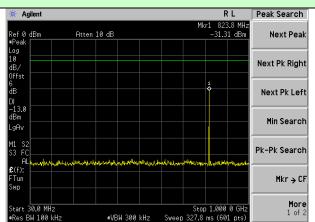
Test plot as follows:

Note: During the conducted spurious emission test, a band filter was used. The information of the filter is reported at section 6.0 (refer to item 24, 25).

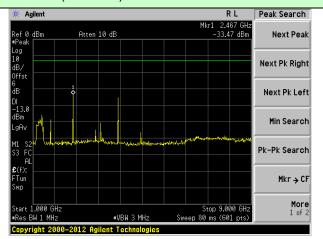
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



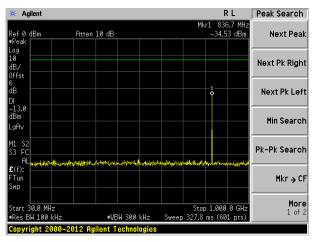
Test Mode: Traffic mode

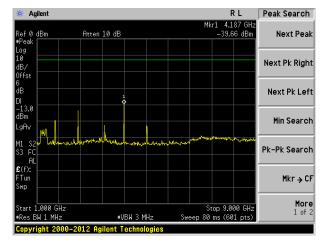


GSM 850 (GSM link)

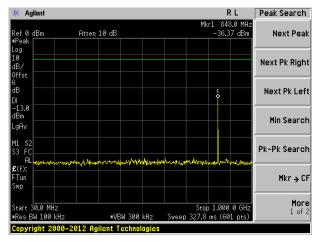


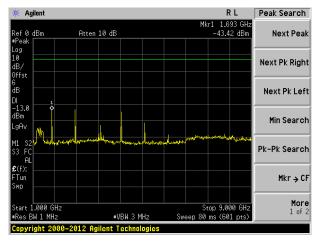
Lowest channel





Middle channel

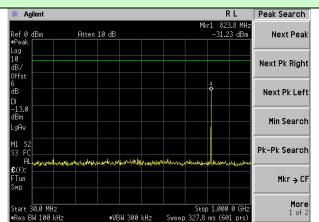




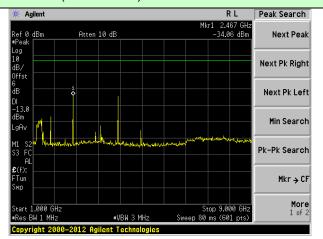
Highest channel



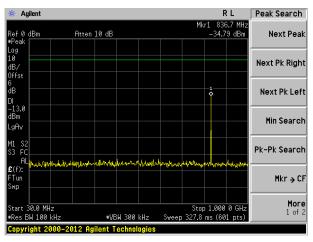
Test Mode: Traffic mode

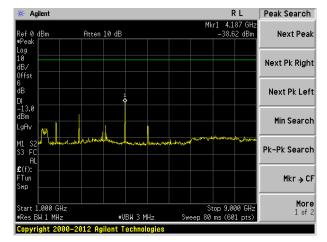


GSM 850 (GPRS 1 link)

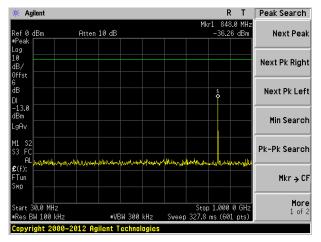


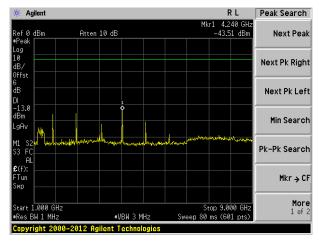
Lowest channel





Middle channel



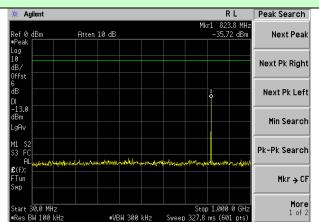


Highest channel

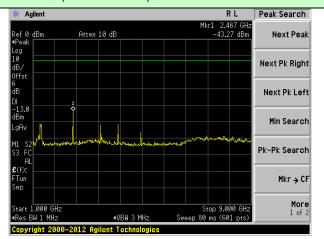
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



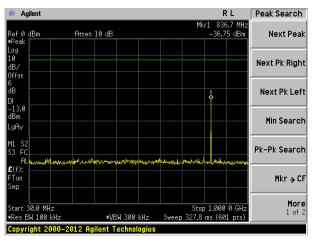
Test Mode: Traffic mode

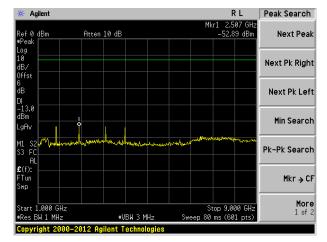


GSM 850 (EGPRS 1 link)

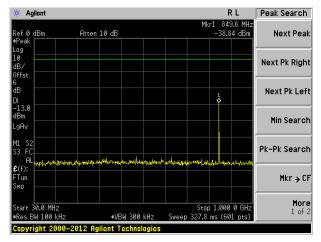


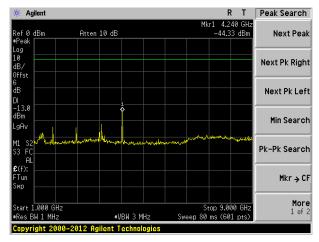
Lowest channel





Middle channel



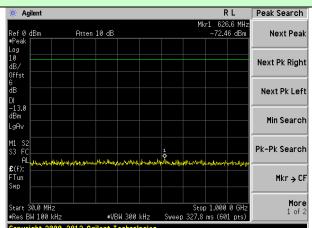


Highest channel

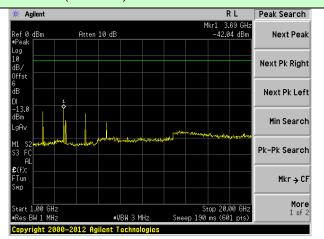
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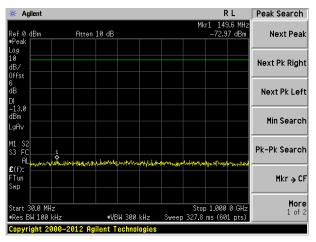
Test Mode: Traffic mode

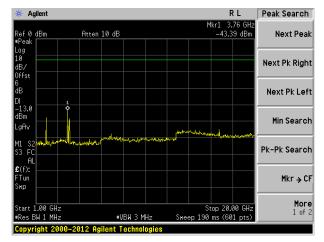


PCS1900 (GSM link)

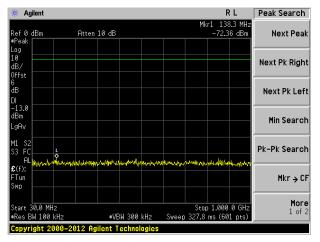


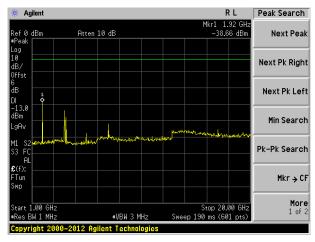
Lowest channel





Middle channel

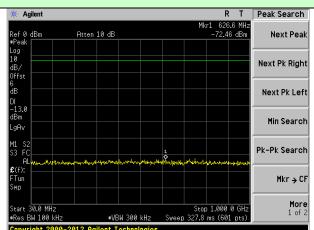




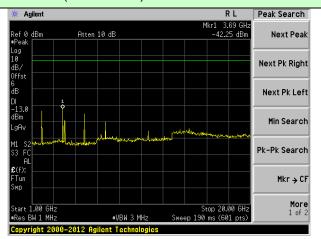
Highest channel



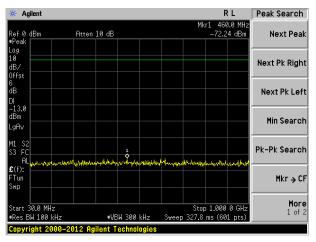
Test Mode: Traffic mode

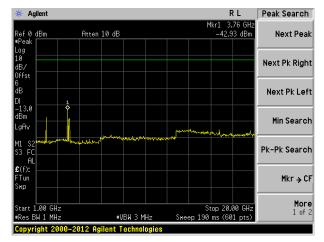


PCS1900 (GPRS 1 link)

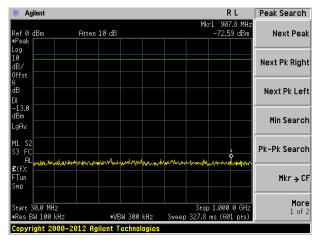


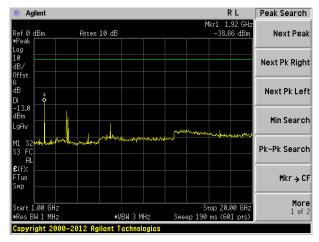
Lowest channel





Middle channel

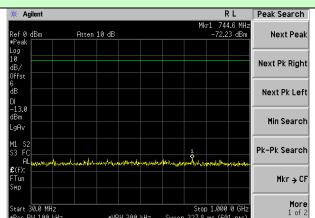




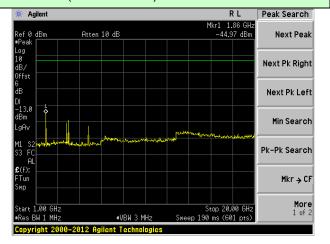
Highest channel



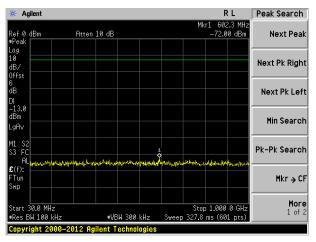
Test Mode: Traffic mode

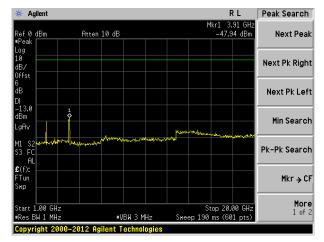


PCS1900 (EGPRS 1 link)

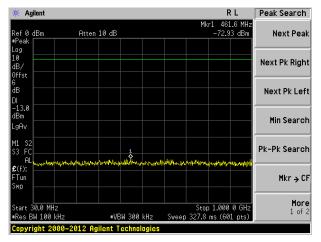


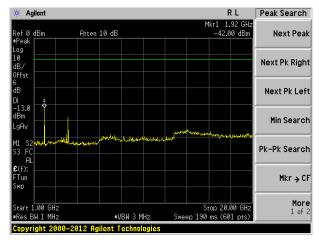
Lowest channel





Middle channel





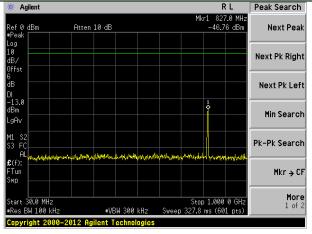
Highest channel

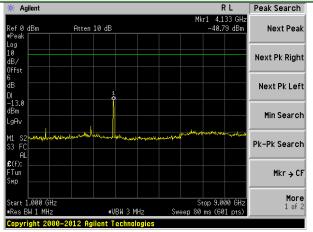
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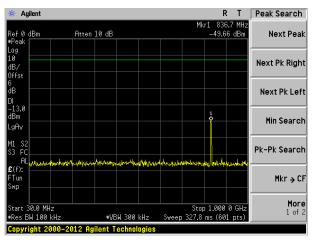
Test Mode: Traffic mode

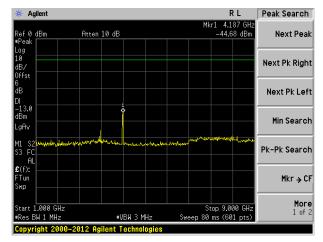




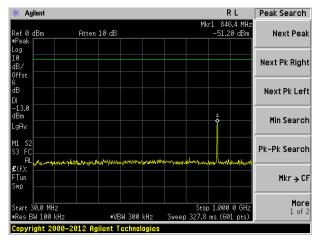


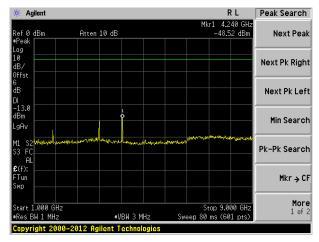
Lowest channel





Middle channel



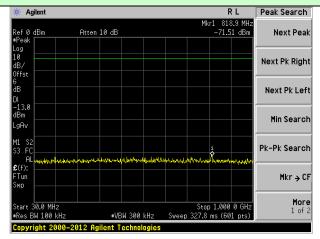


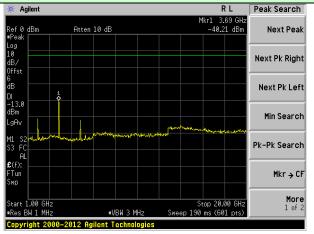
Highest channel



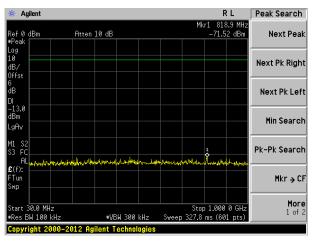
Test Mode: Traffic mode

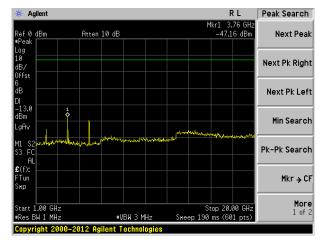
WCDMA Band II (RMC 12.2Kbps link)



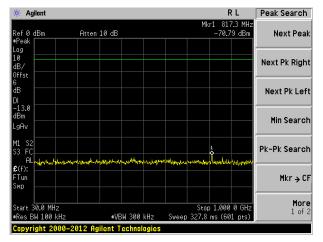


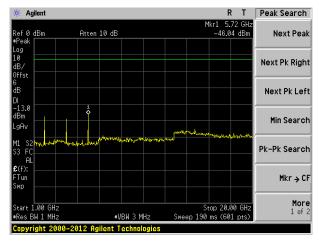
Lowest channel





Middle channel

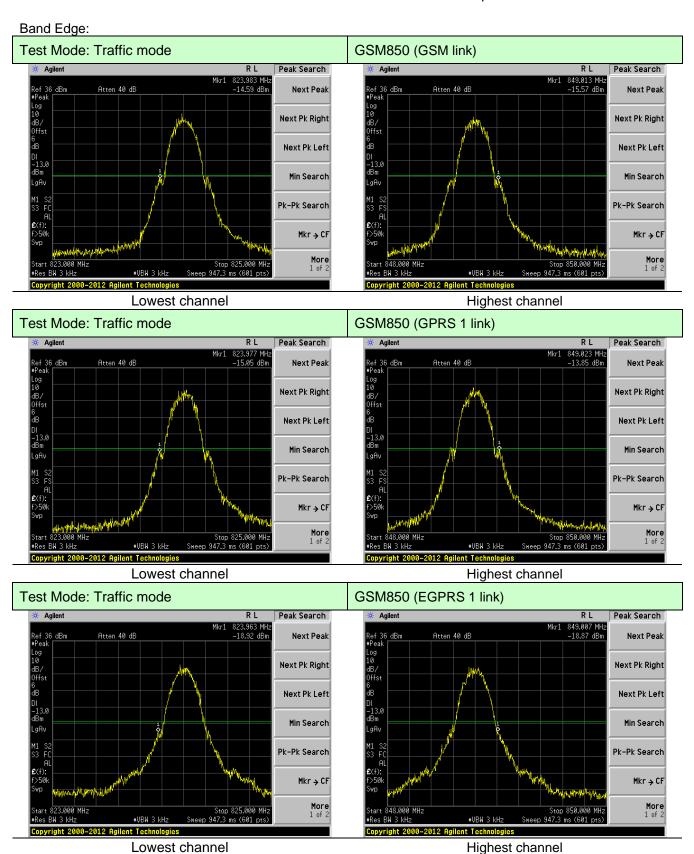




Highest channel

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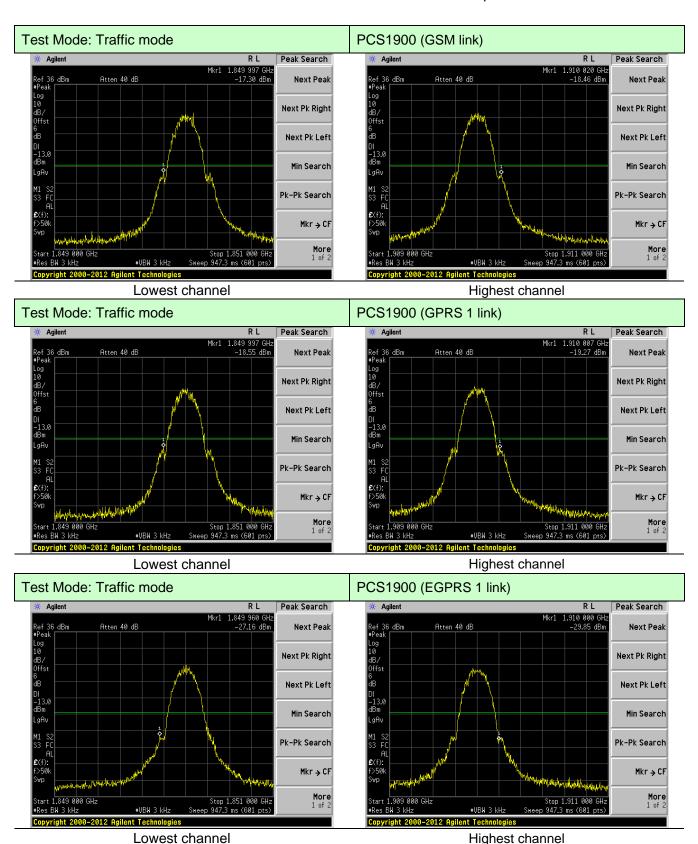


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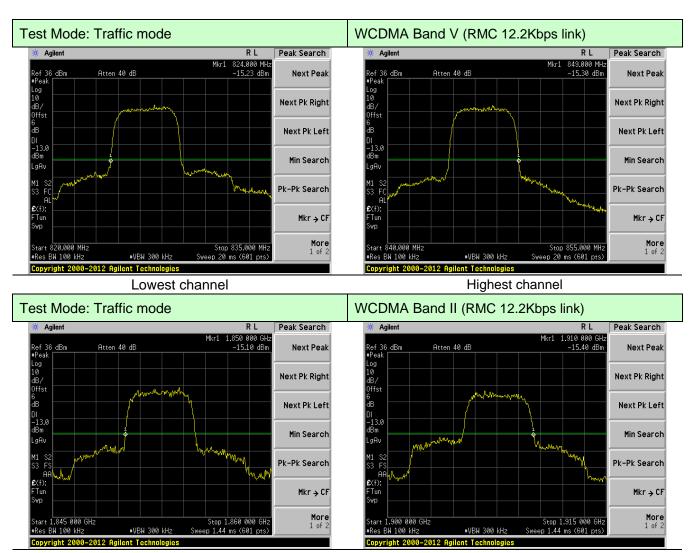


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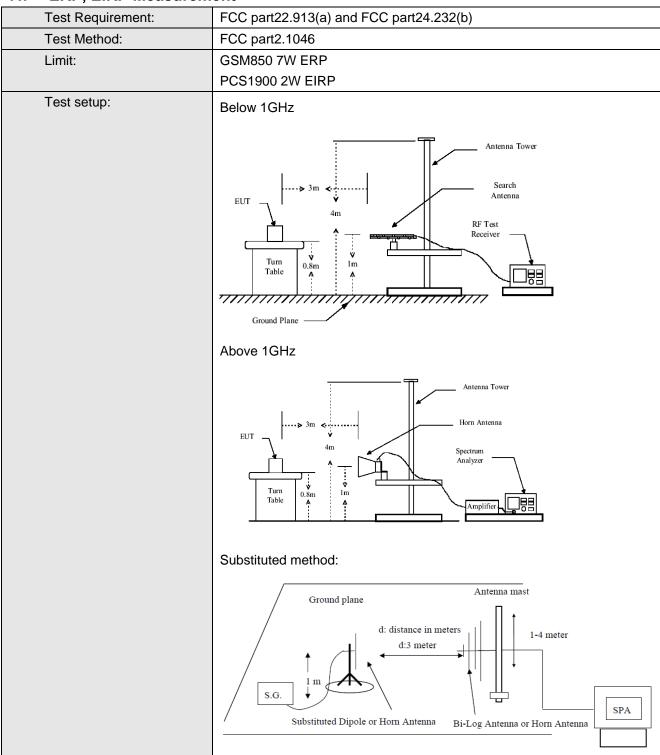




Lowest channel Highest channel



7.7 ERP, EIRP Measurement





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 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 asfollows:	
	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)	
Test Instruments:	Refer to section 6.0 for details	
Test mode:	Refer to section 5.3 for details	
Test results:	Pass	

Measurement Data



EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
		11	V	31.86		
		Н	Н	28.73		
	I a sail	E1	V	23.35	00.45	Davis
	Lowest		Н	28.87	38.45	Pass
		Fo	V	22.39		
		E2	Н	26.47		
		Н	V	31.69		Pass
	MC L II -	П	Н	28.51		
GSM850		ddle E1	V	23.21	38.45	
(GSM link)	Middle		Н	28.77		
		E2	V	23.98		
		E2	Н	26.98		
		Н	V	32.12		
		П	Н	28.34		
	Highoot	E1	V	23.27	20 45	Poss
	Highest	est E1	Н	27.78	38.45	Pass
		F0	V	22.32		
		E2	Н	27.69		



EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
		Н	V	31.40		
		П	Н	28.23		
	Laurant	E1	V	22.82	20.45	Dana
	Lowest		Н	28.30	38.45	Pass
		F2	V	21.78		
		E2	Н	25.82		
		Н	V	31.10		Pass
	N 11: al al a	П	Н	27.83	_	
GSM850		Aiddle E1	V	22.49	38.45	
(GPRS 1 link)	iviidale		Н	28.01		
		E2	V	23.32		
			Н	26.28		
		Н	V	31.53		
		11	Н	27.72		
	Highost	E1	V	22.61	38.45	Page
	Highest	iignest Ei	Н	27.08	38.45	Pass
		F.6	V	21.79		
		E2	Н	27.12		



EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
		Н	V	27.63		
			Н	24.60		
	Laurant	E1	V	19.24	20.45	Dana
	Lowest	<u> </u>	Н	25.14	38.45	Pass
		F2	V	18.65		
		E2	Н	23.06		
		Н	V	27.95		Pass
	Middle	П	Н	25.11		
GSM850		ldle E1	V	19.89	38.45	
(EGPRS 1 link)	Middle		Н	25.84		
		E2	V	20.39		
			Н	23.69		
		Н	V	28.16		
		11	Н	24.46		
	Highoet	E1	V	19.42	38.45	Page
	Highest	gnest E I	Н	24.27	38.45	Pass
		F0	V	17.75		
		E2	Н	23.49		



EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
		1.1	V	28.29		
		Н	Н	25.50		
	Laurant	E1	V	20.71	22.04	Dana
	Lowest		Н	25.68	33.01	Pass
		E2	V	19.89		
			Н	23.56		
		Н	V	28.27		Pass
	Middle	П	Н	25.46		
PCS1900		Middle E1	V	20.75	33.01	
(GSM link)	ivildale		Н	25.76		
			V	21.41		
		EZ	Н	24.11		
		Н	V	28.75		
		11	Н	25.38		
	Highest	E1	V	20.87	33.01	Page
	Highest	iignest	Н	24.92	33.01	Pass
		F0	V	19.93		
		E2	Н	24.77		



EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
		Н	V	27.77		
		П	Н	24.94		
	Lawast	E1	V	20.10	33.01	Daga
	Lowest		Н	25.03	33.01	Pass
		E2	V	19.19		
		EZ	Н	22.82		
		Н	V	27.60		Pass
	N Ali ad ad la	11	Н	24.69		
PCS1900 (GPRS 1		Middle E1	V	19.92	33.01	
link)	ivildale		Н	24.88		
		E2	V	20.65		
		LZ	Н	23.31		
		Н	V	28.08		
		11	Н	24.67		
	Highest	E1	V	20.11	33.01	Dace
	Highest	ignest E1	Н	24.12	33.01	Pass
		E2	V	19.34		
		E2	Н	24.13		



EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
		Н	V	24.56		
			Н	20.19		
	Lawast	E1	V	14.40	22.04	Daga
	Lowest		Н	20.34	33.01	Pass
		E2	V	13.36		
		E2	Н	17.74		
		Н	V	23.33		Pass
	Middle	П	Н	19.89	33.01	
PCS1900		Middle E1	V	14.21		
(EGPRS 1 link)	Middle		Н	20.17		
		E2	V	15.03		
			Н	18.26		
		Н	V	23.74		
		11	Н	19.67		
	Highoet	E1	V	14.22	33.01	Page
	підпезі	lighest E1	Н	19.07	33.01	Pass
		F.6	V	13.21		
		E2	Н	18.99		



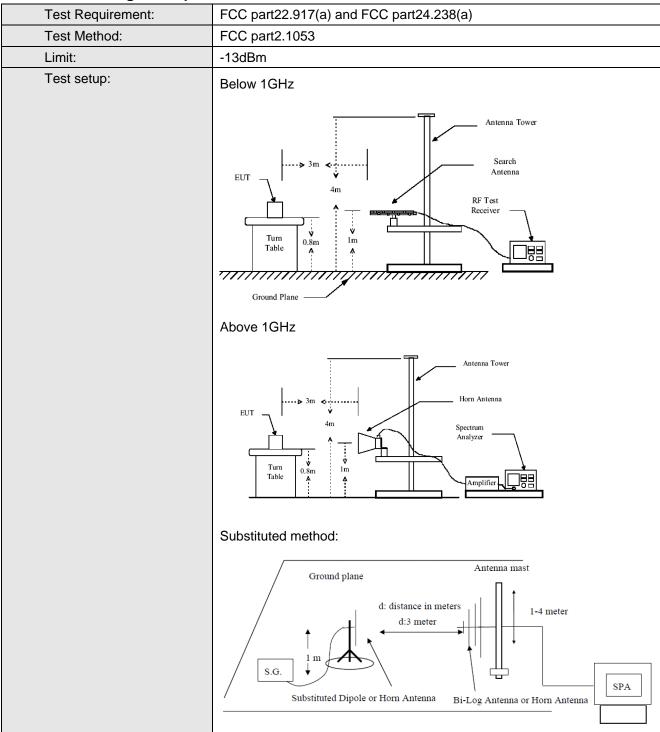
EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
		Н	V	20.98		
		''	Н	18.52		
		F4	V	14.63	00.45	ı
	Lowest	E1	Н	17.70	38.45	Pass
		F0.	V	13.11		
		E2	Н	15.26		
		Н	V	19.42		Pass
	A4: 1 H	11	Н	16.36	38.45	
WCDMA		ddle E1	V	12.41		
Band V	ivildale		Н	15.50		
		F0	V	13.58		
		E2	Н	15.04		
		Н	V	18.42		
		П	Н	15.55		
	Llighoot		V	11.84	20.45	Door
	Highest	est E1	Н	14.28	38.45	Pass
		F-0	V	12.83		
		E2	Н	15.81		



EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP(dBm)	Limit (dBm)	Result
		Н	V	22.90		
		П	Н	20.70		
	Laurant	E1	V	17.05	22.04	Dava
	Lowest	E1	Н	20.37	33.01	Pass
		F0	V	16.03		
		E2	Н	18.43		
		1.1	V	22.21		Pass
	A4: 1 H	Н	Н	19.71		
WCDMA		Middle E1	V	16.07	33.01	
Band II	ivildale		Н	19.42		
			V	16.87		
		E2	Н	18.58		
		Н	V	21.15		
		П	Н	18.53		
	Llighoot		V	15.07	22.04	Door
	Highest	st E1	Н	17.76	33.01	Pass
		5 0	V	15.19		
		E2	Н	18.42		



7.8 Field strength of spurious radiation measurement





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 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 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data



Test mode:	GS	M850	Test channel:	Lowest	
Fraguency (MLI=)	Spurious	Emission	Limit (dDm)	Dooult	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1648.40	Vertical	-35.78			
2472.60	V	-38.52			
3296.80	V	-40.80	-13.00	Pass	
4121.00	V	-42.96			
4945.20	V				
1648.40	Horizontal	-41.03			
2472.60	Н	-44.91			
3296.80	Н	-46.49	-13.00	Pass	
4121.00	Н	-49.23			
4945.20	Н				
Test mode:	GS	M850	Test channel:	Middle	
Fragues and (MILL)	Spurious	Emission	Lineit (dDne)	Dooult	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1673.20	Vertical	-37.18			
2509.80	V	-39.46		Pass	
3346.40	V	-41.36	-13.00		
4183.00	V	-43.17			
5019.60	V				
1673.20	Horizontal	-41.56			
2509.80	Н	-44.79		Pass	
3346.40	Н	-46.11	-13.00		
4183.00	Н	-48.39			
5019.60	Н				
Test mode:	GS	M850	Test channel:	Highest	
Fraguency (MUz)	Spurious	Emission	Limit (dPm)	Result	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1697.60	Vertical	-37.44			
2546.40	V	-39.47			
3395.20	V	-41.15	-13.00	Pass	
4244.00	V	-42.76			
5092.80	V				
1697.60	Horizontal	-41.33			
2546.40	Н	-44.21			
3395.20	Н	-45.38	-13.00	Pass	
4244.00	Н	-47.41			
5092.80	Н		7		

Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured
- 3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

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Test mode:	PC	S1900	Test channel:	Lowest	
F (MIL)	Spuriou	s Emission	l: '(/ ID)	D 1	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3700.40	Vertical	-36.94			
5550.60	V	-39.32			
7400.80	V	-41.30	-13.00	Pass	
9251.00	V	-43.20			
11101.20	V				
3700.40	Horizontal	-41.52			
5550.60	Н	-44.90			
7400.80	Н	-46.26	-13.00	Pass	
9251.00	Н	-48.63			
11101.20	Н				
Test mode:	PC	S1900	Test channel:	Middle	
Fraguency (MUz)	Spuriou	s Emission	Limit (dDm)	Dooult	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3760.00	Vertical	-34.60			
5640.00	V	-37.07		Pass	
7520.00	V	-39.11	-13.00		
9400.00	V	-41.08			
11280.00	V				
3760.00	Horizontal	-39.35			
5640.00	Н	-42.84		Pass	
7520.00	Н	-44.26	-13.00		
9400.00	Н	-46.72			
11280.00	Н				
Test mode:	PC	S1900	Test channel:	Highest	
Frequency (MHz)	Spuriou	s Emission	Limit (dBm)	Result	
Frequency (Miriz)	Polarization	Level (dBm)	Lilliit (ubili)	Result	
3819.60	Vertical	-35.81			
5729.40	V	-38.20			
7639.20	V	-40.18	-13.00	Pass	
9549.00	V	-42.08			
11458.80	V				
3819.60	Horizontal	-40.40			
5729.40	Н	-43.79	_		
7639.20	Н	-45.15	-13.00	Pass	
9549.00	Н	-47.53			
11458.80	Н				

Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured
- 3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.



Test mode:	WCDM	A Band V	Test channel:	Lowest	
Francisco (MILE)	Spuriou	s Emission	Lineit (dDms)	Dooult	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1652.80	Vertical	-37.42			
2479.20	V	-41.17			
3305.60	V	-43.90	-13.00	Pass	
4132.00	V	-41.43			
4958.40	V				
1652.80	Horizontal	-40.22			
2479.20	Н	-42.91			
3305.60	Н	-48.33	-13.00	Pass	
4132.00	Н	-51.95			
4958.40	Н				
Test mode:	WCDM	A Band V	Test channel:	Middle	
Fraguenov (MILIT)	Spuriou	s Emission	Limit (dDm)	Dooult	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1672.80	Vertical	-39.45			
2509.20	V	-40.76		Pass	
3345.60	V	-44.38	-13.00		
4182.00	V	-46.84			
5018.40	V				
1672.80	Horizontal	-41.90			
2509.20	Н	-43.80		Pass	
3345.60	Н	-48.49	-13.00		
4182.00	Н	-50.88			
5018.40	Н				
Test mode:	WCDM	A Band V	Test channel:	Highest	
Fraguenov (MILIT)	Spuriou	s Emission	Limit (dDm)	Result	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
1693.20	Vertical	-37.94			
2539.80	V	-40.38			
3386.40	V	-43.00	-13.00	Pass	
4233.00	V	-45.90			
5079.60	V				
1693.20	Horizontal	-41.29			
2539.80	Н	-43.71			
3386.40	Н	-45.08	-13.00	Pass	
4233.00	Н	-51.27			
5079.60	Н				

Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured
- 3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

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Test mode:	WCDMA Band II		Test channel:	Lowest	
Fragues av (MUz)	Spurious Emission		Limit (dDm)	D #	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3704.46	Vertical	-38.83			
5556.86	V	-41.91			
7409.26	V	-44.46	-13.00	Pass	
9261.66	V	-46.91			
11114.40	V				
3704.46	Horizontal	-44.74			
5556.86	Н	-49.10			
7409.26	Н	-50.86	-13.00	Pass	
9261.66	Н	-53.92			
11114.40	Н				
Test mode:	WCDM	A Band II	Test channel:	Middle	
Fragues av (MHz)	Spurious	s Emission	Limit (dDm)	Result	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)		
3759.83	Vertical	-39.58			
5639.83	V	-42.50		Pass	
7519.83	V	-44.91	-13.00		
9399.83	V	-47.24			
11280.00	V				
3759.83	Horizontal	-45.19		Pass	
5639.83	Н	-49.32			
7519.83	Н	-50.98	-13.00		
9399.83	Н	-53.89			
11280.00	Н				
Test mode:	WCDM	A Band II	Test channel:	Highest	
[Spurious Emission		Limit (dDm)	D 1	
Frequency (MHz)	Polarization	Level (dBm)	Limit (dBm)	Result	
3815.03	Vertical	-38.82			
5722.63	V	-41.55			
7630.23	V	-43.79	-13.00	Pass	
9537.83	V	-45.97			
11445.60	V				
3815.03	Horizontal	-44.05			
5722.63	Н	-47.90		Pass	
7630.23	Н	-49.45	-13.00		
9537.83	Н	-52.16			
11445.60	Н		1		

Remark:

- 1. The emission behaviour belongs to narrowband spurious emission.
- 2. Remark"---" means that the emission level is too low to be measured
- 3. The emission levels of below 1 GHz are very lower than the limit and not show in test report.

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7.9 Frequency stability V.S. Temperature measurement

Test Requirement:	FCC Part2.1055(a)(1)(b)
Test Method:	FCC Part2.1055(a)(1)(b)
Limit:	2.5ppm
Test setup:	Spectrum analyzer EUT 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°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data



Reference	Frequency: GSM850	(GSM link) Midd	dle channel=19	0 channel=836 6	ИНz	
Power supplied		•	ncy error			
(Vdc)	Temperature (°C)	Hz	ppm	Limit (ppm)	Result	
, ,	-30	35	0.0413			
	-20	38	0.0458	-		
	-10	33	0.0399	-	Pass	
	0	28	0.0339	-		
3.70	10	32	0.0384	2.5		
3.7. 3	20	28	0.0339		. 0.00	
	30	43	0.0517	-		
	40	40	0.0473			
	50	38	0.0458	_		
Reference Fi	requency: GSM850 (90 channel=836	6MHz	
Power supplied			ncy error		Result	
(Vdc)	Temperature (°C)	Hz	ppm	Limit (ppm)		
,	-30	51	0.0607		Pass	
	-20	59	0.0709	-		
	-10	49	0.0586			
	0	42	0.0503	2.5		
3.70	10	48	0.0569			
	20	41	0.0490			
	30	72	0.0860			
	40	62	0.0743			
	50	59	0.0700			
Reference From	equency: GSM850 (E			190 channel=836	.6MHz	
Power supplied			ncy error			
(Vdc)	Temperature (°C)	Hz	ppm	Limit (ppm)	Result	
	-30	29	0.0341			
	-20	31	0.0368	1	Pass	
	-10	27	0.0328			
	0	25	0.0301			
3.70	10	26	0.0314	2.5		
-	20	24	0.0287			
	30	36	0.0436	7		
	40	32	0.0382			
	50	31	0.0368	7		



Reference I	Frequency: PCS190	0 (GSM link) Mid	dle channel=66°	1 channel=1880	MHz
Power supplied (Vdc)	Tomporoture (%C)	Frequency error			Dogult
rower supplied (vdc)	Temperature (°C)	Hz	ppm		Result
	-30	33	0.0177		Pass
	-20	42	0.0221		
	-10	33	0.0177		
	0	26	0.0140		
3.70	10	33	0.0177	2.5	
	20	28	0.0147		
	30	51	0.0273		
	40	43	0.0229		
	50	40	0.0214		
Reference Fr	equency: PCS1900	(GPRS 1 link) M	iddle channel=6	61 channel=188	0MHz
Power supplied (Vdc)	Temperature (°C)	Frequency error			Docult
rowei Supplied (vdc)	remperature (C)	Hz	ppm		Result
	-30	114	0.0605	2.5	Pass
	-20	134	0.0715		
	-10	109	0.0580		
	0	89	0.0474		
3.70	10	110	0.0587		
	20	92	0.0489		
	30	151	0.0805		
	40	126	0.0670		
	50	133	0.0705		
Reference Fre	equency: PCS1900 ((EGPRS 1 link) M	liddle channel=6	661 channel=188	30MHz
Power supplied (Vdc)	Tomporatura (°C)	Frequer	ncy error		Result
rowei supplied (vdc)	remperature (C)	Hz	ppm		Result
3.70	-30	34	0.0181		
	-20	40	0.0215		Pass
	-10	31	0.0167	2.5	
	0	25	0.0133		
	10	33	0.0174		
	20	25	0.0133		
	30	47	0.0249]	
	40	38	0.0201		
	50	40	0.0215]	



Power supplied (Vdc)	Temperature (°C)	Frequency error		1: '(/)	D
		Hz	ppm	Limit (ppm)	Result
	-30	32	0.0383		Pass
	-20	44	0.0532		
	-10	50	0.0599		
	0	24	0.0289		
3.70	10	35	0.0424	2.5	
	20	39	0.0464		
	30	57	0.0680		
	40	54	0.0640		
	50	64	0.0761		
Refere	nce Frequency: WCDN	IA Band II Middle	channel=9400 ch	annel=1880.0MHz	
Power supplied (Vdc)	Temperature (°C)	Frequency error		error Limit (ppm)	
Tower supplied (vdc)	remperature (C)	Hz	ppm	Еши (ррш)	Result
	-30	111	0.0588		Pass
	-20	98	0.0522		
	-10	84	0.0449		
3.70	0	79	0.0420		
	10	72	0.0384	2.5	
	20	63	0.0333		
	30	79	0.0420		
	40	89	0.0471		
	50	84	0.0449		



7.10 Frequency stability V.S. Voltage measurement

Test Requirement:	FCC Part2.1055(d)(1)(2)
Test Method:	FCC Part2.1055(d)(1)(2)
Limit:	2.5ppm
Test setup:	Spectrum analyzer EUT 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 specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass



Measurement Data

Measurement Data						
Reference	e Frequency: GSM85	60 (GSM link) Mid	dle channel=190	channel=836.6M	lHz	
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result	
		Hz	ppm	Limit (ppin)	Nesuit	
	4.25	20	0.0242	2.5	Pass	
25	3.70	23	0.0272			
	3.40	25	0.0302			
Reference Frequency: GSM850 (GPRS 1 link) Middle channel=190 channel=836.6MHz						
Temperature (°C)	Power supplied	Frequency error		Limit (ppm)	Result	
romporatoro (o)	(Vdc)	Hz	ppm	Limit (ppin)	rtoodit	
	4.25	32	0.0383	2.5	Pass	
25	3.70	37	0.0444			
	3.40	42	0.0502			
Reference F	requency: GSM850	(EGPRS 1 link) M	liddle channel=19	0 channel=836.6	6MHz	
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (nnm)	Result	
remperature (C)		Hz	ppm	Limit (ppm)	Kesuit	
	4.25	24	0.0288			
25	3.70	16	0.0186	2.5	Pass	
	3.40	18	0.0220	1		

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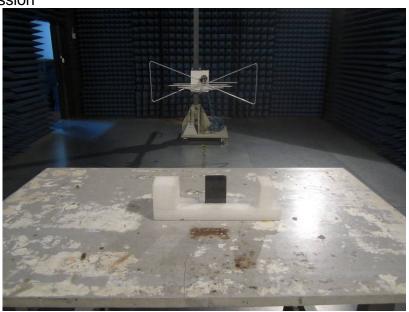


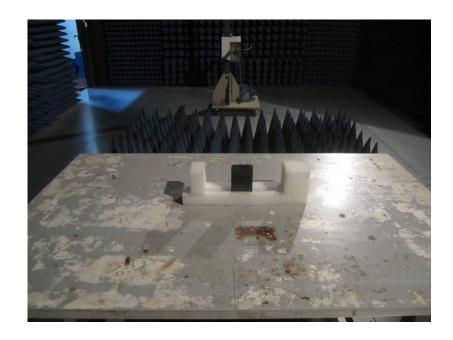
Reference	e Frequency: PCS19	00 (GSM link) Mic	Idle channel=661	channel=1880M	lHz		
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (mmm)	Decult		
		Hz	ppm	Limit (ppm)	Result		
	4.25	19	0.0102	2.5	Pass		
25	3.70	27	0.0143				
	3.40	27	0.0143				
Reference	Frequency: PCS1900) (GPRS 1 link) M	iddle channel=66	31 channel=1880	MHz		
Temperature (°C)	Power supplied	Freque	ncy error	Limit (ppm)	Result		
remperature (C)	(Vdc)	Hz	ppm	- Limit (ppin)	Result		
	4.25	70	0.0373				
25	3.70	80	0.0423	2.5	Pass		
	3.40	80	0.0425				
Reference Frequency: PCS1900 (EGPRS 1 link) Middle channel=661 channel=1880MHz							
Temperature (°C)	Power supplied	Frequency error		Limit (ppm)	Result		
Temperature (O)	(Vdc)	Hz	ppm	Limit (ppm)	reguit		
	4.25	48	0.0257	2.5	Pass		
25	3.70	38	0.0202				
	3.40	40	0.0213				
Refe	rence Frequency: WCD	MA Band V Middle	channel=4183 cha	nnel=836.6MHz			
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result		
Tomporataro (O)	1 ower supplied (vae)	Hz	ppm	Limit (ррті)	Kesuit		
	4.25	30	0.0356				
25	3.70	39	0.0464	2.5	Pass		
	3.40	21	0.0248				
Reference Frequency: WCDMA Band II Middle channel=940 channel=1880.0MHz							
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result		
Tomporatore (o)		Hz	ppm	Еппі (рріпі)	Nesuit		
	4.25	59	0.0316				
25	3.70	49	0.0259	2.5	Pass		
	3.40	55	0.0291				



8 Test Setup Photo

Radiated Emission







9 EUT Constructional Details



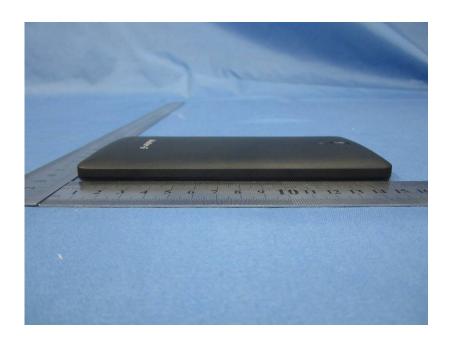


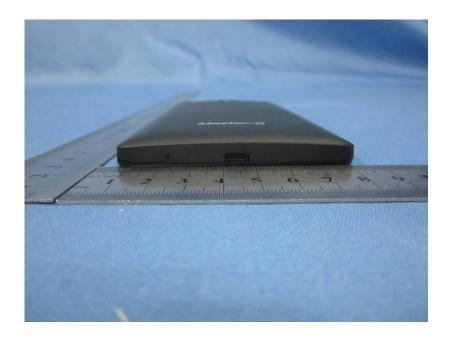




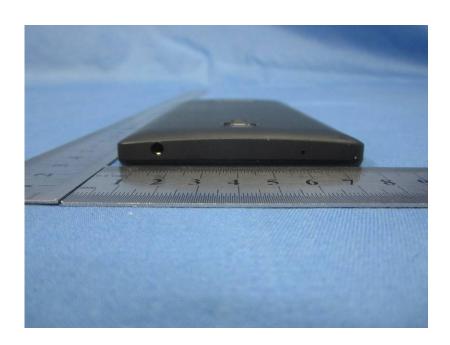














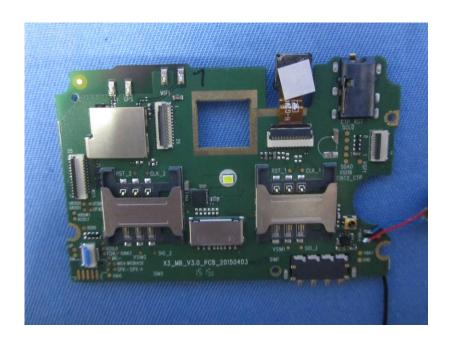












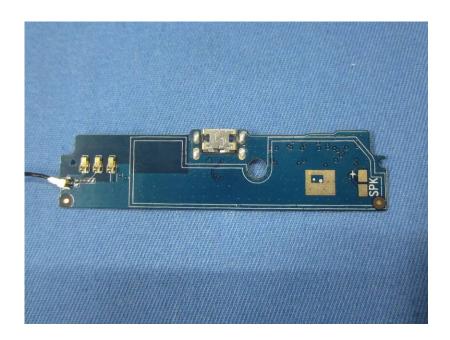




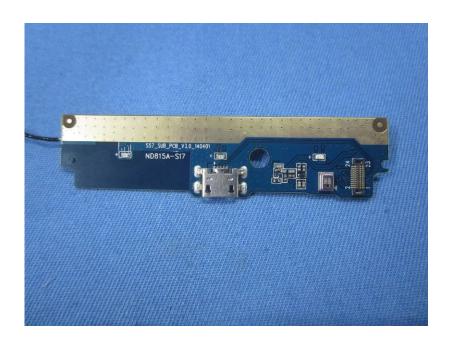






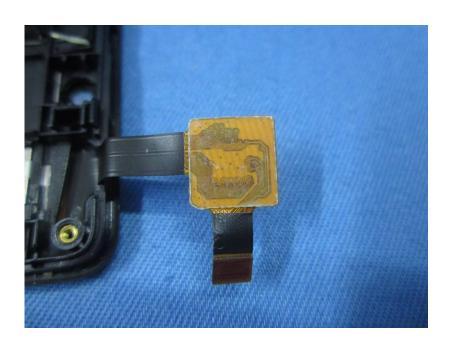






















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