FCC Report

(Mobile Phone)

Applicant:	NEG TECHNOLOGY CO., LIMITED
Address of Applicant:	Rm 1406, Block B, Jinsejiari, Jingtian south road, Futian district, Shenzhen, China
Equipment Under Test (EUT)	
Product Name:	Mobile Phone
Model No.:	F2020D
Trade Mark:	OWN
FCC ID:	2AAZ8-F2020
Applicable standards:	FCC CFR Title 47 Part 2: 2013 FCC CFR Title 47 Part22 Subpart H: 2013 FCC CFR Title 47 Part24 Subpart E: 2013
Date of sample receipt:	April 21, 2014
Date of Test:	April 21 ~ April 30, 2014
Date of report issued:	May 04, 2014
Test Result :	PASS *

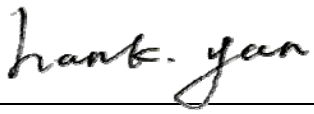
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

2 Version

Version No.	Date	Description
00	*February 20, 2014*	*Original*

Prepared By:  ***Date:*** *May 04, 2014*

Project Engineer

Check By:  ***Date:*** *May 04, 2014*

Reviewer

3 Contents

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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:	NEG TECHNOLOGY CO., LIMITED
Address of Applicant:	Rm 1406, Block B, Jinsejiari, Jingtian south road, Futian district, Shenzhen, China
Manufacturer:	XINYUANTONG
Address of Manufacturer:	Rm 201,Yuetong B Building, Minzhi Road, Baoan District, Shenzhen City

5.2 General Description of EUT

Product Name:	Mobile Phone
Trade mark:	F2020D
Support Networks:	GSM, GPRS
Support Bands:	GSM850, PCS1900
TX Frequency:	GSM850: 824.20MHz-848.80MHz PCS1900: 1850.20MHz-1909.80MHz
GPRS Class:	12
Modulation type:	GSM/GPRS: GMSK
IMEI:	352533850223558
Hardware Version:	2630-MB-V0.2
Software Version:	2630V01_TRX_NEXTEL_128X64_PDA_EN_SP_BT_FM_TV_WF_SC_DUAL_AT_320X480_V03_140415_1154
Antenna type:	Integral antenna
Antenna gain:	-0.5dBi(GSM900) -1.1dBi(DCS1800)
AC adapter:	Model No.: UT-OB-0106A Input: AC 100-240V, 50/60Hz, 0.15A Output: DC 5.0V, 0.5A
Power supply:	Type: lithium-ion 3.7V 1350mAh Voltage: DC 3.7V

Operation Frequency List:

GSM 850		PCS1900	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
⋮	⋮	⋮	⋮
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
⋮	⋮	⋮	⋮
250	848.60	809	1909.60
251	848.80	810	1909.80

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	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
128	824.20	512	1850.20
190	836.60	661	1880.00
251	848.80	810	1909.80

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 fuly 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: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

6 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	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 29 2013	Mar. 28 2014
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	Jul. 02 2013	Jul. 01 2014
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 24 2013	Feb. 23 2014
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 28 2013	June 27 2014
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 29 2013	Mar. 28 2014
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Mar. 30 2013	Mar. 29 2014
9	Coaxial Cable	GTS	N/A	GTS211	Mar. 30 2013	Mar. 29 2014
10	Coaxial cable	GTS	N/A	GTS210	Mar. 30 2013	Mar. 29 2014
11	Coaxial Cable	GTS	N/A	GTS212	Mar. 30 2013	Mar. 29 2014
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 02 2013	Jul. 01 2014
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 02 2013	Jul. 01 2014
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 28 2013	June 27 2014
15	Band filter	Amindeon	82346	GTS219	Mar. 30 2013	Mar. 29 2014
16	Universal radio communication tester	Rohde & Schwarz	CMU200	GTS235	May 10 2013	May 09 2014
17	Signal Generator	Rohde & Schwarz	SML03	GTS236	May 10 2013	May 09 2014
18	Temp. Humidity/ Barometer	Oregon Scientific	BA-888	GTS248	May 10 2013	May 09 2014
19	D.C. Power Supply	Instek	PS-3030	GTS232	NA	NA
20	Splitter	Agilent	11636B	GTS237	May 10 2013	May 09 2014
21	Power meter	Rohde & Schwarz	NRVS	GTS238	May 10 2013	May 09 2014
22	Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 5, 2013	Dec. 4 2014

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.

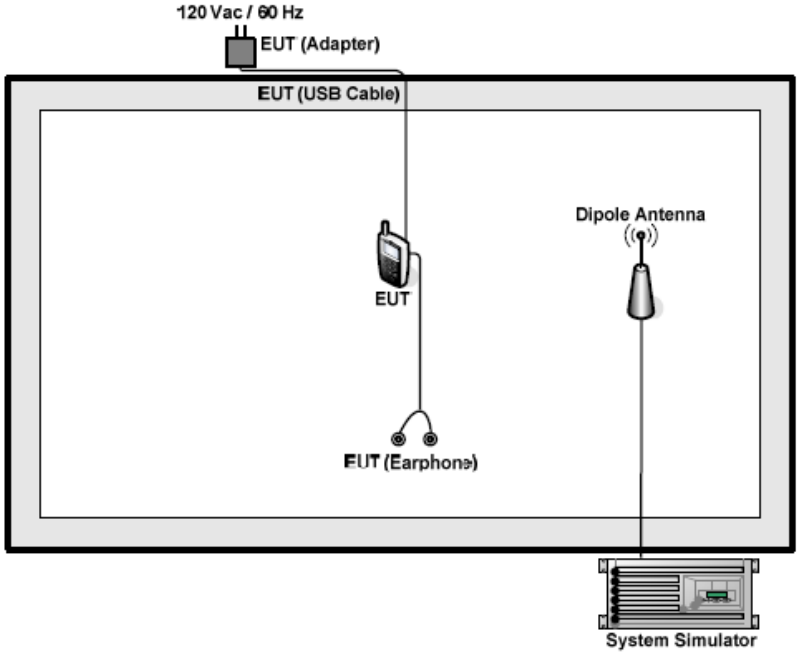
Test modes		
Band	Radiated	Conducted
GSM 850	■ GSM link	■ GSM link
PCS 1900	■ GSM link	■ GSM link

Note: The maximum power levels are GSM mode for GMSK link, GPRS multi-slot class 8 mode for GMSK link. only these modes were used for all tests.

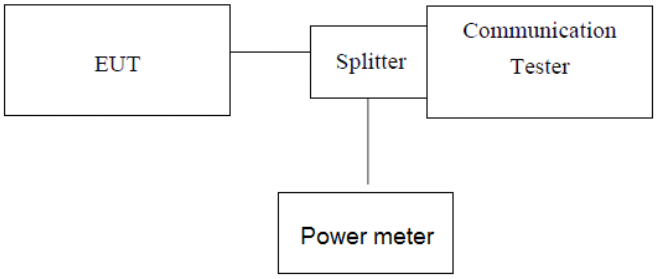
The conducted power tables are as follows:

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
SIM2						
GSM (GMSK, 1 TX slot)	32.58	32.32	32.37	27.50	27.14	27.45
GPRS (GMSK, 1 TX slot)	32.18	31.99	31.94	27.27	26.97	27.39
GPRS (GMSK, 2 TX slot)	31.53	30.31	30.31	26.74	26.31	26.20
GPRS (GMSK, 3 TX slot)	29.18	29.75	29.60	25.58	26.04	25.54
GPRS (GMSK, 4 TX slot)	27.42	27.25	27.14	25.13	24.11	25.08

7.2 Configuration of Tested System



7.3 Conducted Peak Output Power

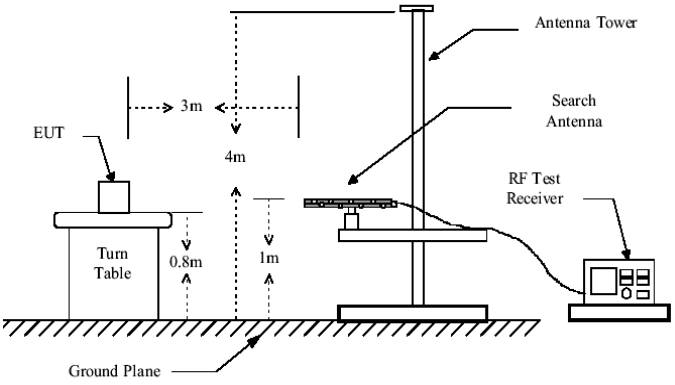
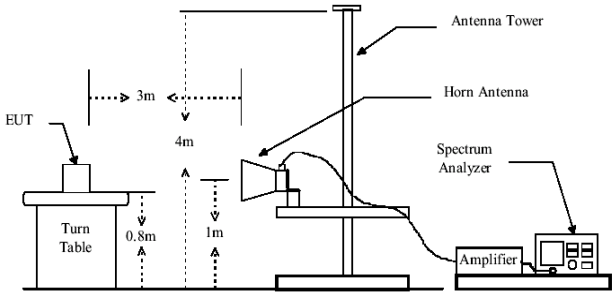
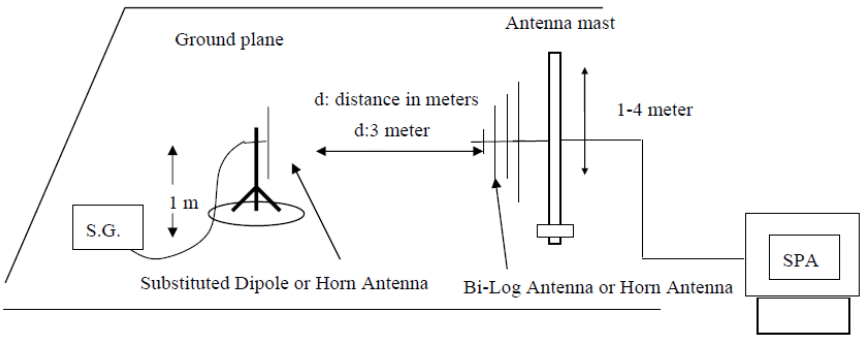
Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850,: 7W PCS1900: 2W
Test setup:	 *Note: Measurement setup for testing on Antenna connector*
Test Procedure:	1. The transmitter output port was connected to base station. 2. The RF output of EUT was connected 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. 4. 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 results:	Pass

Measurement Data

SIM2:

EUT Mode	Channel	Frequency (MHz)	PK power (dBm)	Limit (dBm)	Result
GSM 850 (GSM link)	128	824.20	32.58	38.45	Pass
	190	836.60	32.32		
	251	848.80	32.37		
GSM 850 (GPRS 4 link)	128	824.20	27.42	38.45	Pass
	190	836.60	27.25		
	251	848.80	27.14		
PCS 1900 (GSM link)	512	1850.20	27.50	33.01	Pass
	661	1880.00	27.14		
	810	1909.80	27.45		
PCS 1900 (GPRS 4 link)	512	1850.20	25.13	33.01	Pass
	661	1880.00	24.11		
	810	1909.80	25.08		

7.4 ERP, EIRP Measurement

Test Requirement:	FCC part22.913(a) and FCC part24.232(b)
Test Method:	FCC part2.1046
Limit:	GSM850 7W ERP PCS1900 2W EIRP
Test setup:	Below 1GHz  Above 1GHz  Substituted method: 

Test Procedure:	1. 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 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 results:	Pass

Measurement Data

SIM2:

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GSM link)	Lowest	H	V	31.42	38.45	Pass
			H	26.52		
		E1	V	23.40		
			H	26.93		
		E2	V	22.61		
			H	25.07		
	Middle	H	V	31.91	38.45	Pass
			H	27.17		
		E1	V	24.15		
			H	27.80		
		E2	V	24.63		
			H	26.05		
	Highest	H	V	32.43	38.45	Pass
			H	27.27		
		E1	V	24.37		
			H	27.49		
		E2	V	22.69		
			H	26.83		

SIM2:

EUT mode	Channel	EUT Pol.	Antenna Pol.	ERP(dBm)	Limit (dBm)	Result
GSM850 (GPRS 4 link)	Lowest	H	V	31.55	38.45	Pass
			H	26.58		
		E1	V	23.52		
			H	26.95		
		E2	V	22.73		
			H	25.11		
	Middle	H	V	32.03	38.45	Pass
			H	27.22		
		E1	V	24.26		
			H	27.80		
		E2	V	24.73		
			H	26.07		
	Highest	H	V	32.55	38.45	Pass
			H	27.31		
		E1	V	24.47		
			H	27.47		
		E2	V	22.78		
			H	26.83		

SIM2:

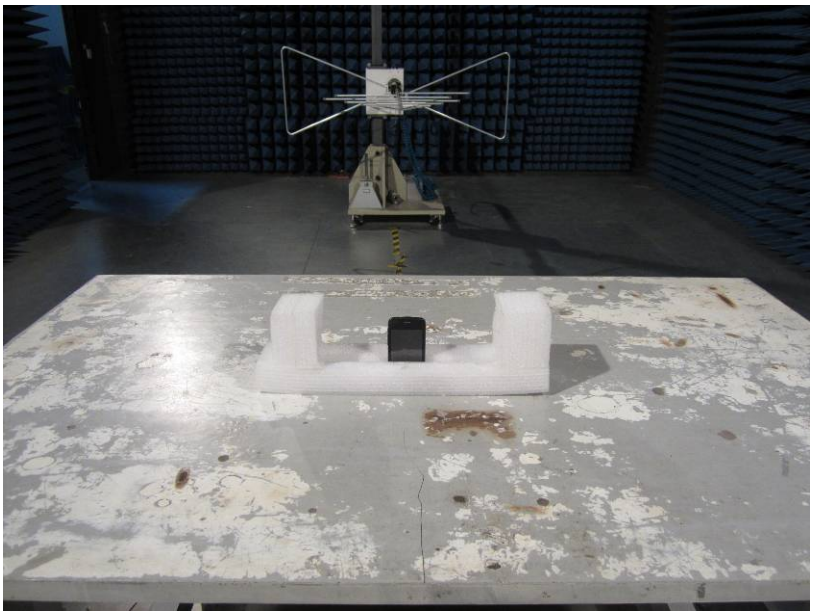
EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GSM link)	Lowest	H	V	26.35	33.01	Pass
			H	21.85		
		E1	V	19.20		
			H	22.29		
		E2	V	18.50		
			H	20.62		
	Middle	H	V	26.85	33.01	Pass
			H	22.49		
		E1	V	19.94		
			H	23.13		
		E2	V	20.37		
			H	21.56		
	Highest	H	V	27.38	33.01	Pass
			H	22.64		
		E1	V	20.22		
			H	22.92		
		E2	V	18.69		
			H	22.32		

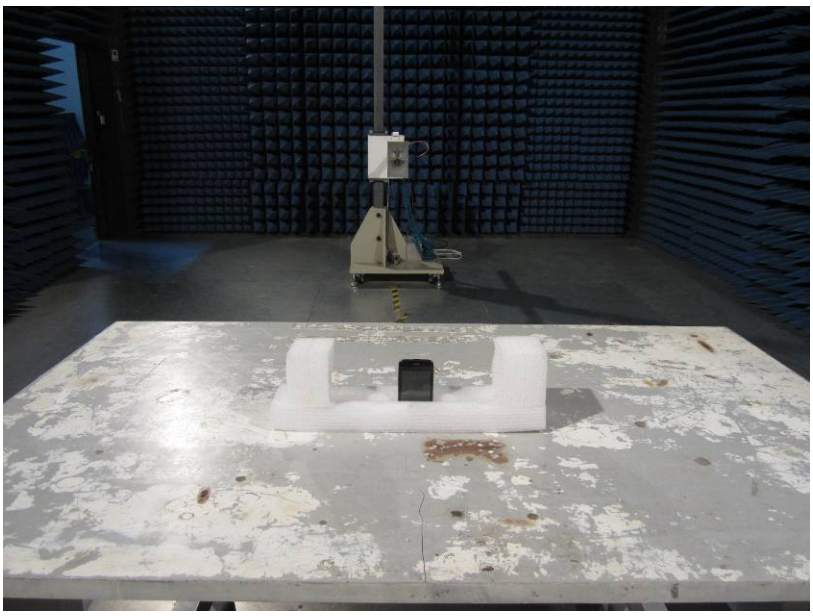
SIM2:

EUT mode	Channel	EUT Pol.	Antenna Pol.	EIRP (dBm)	Limit (dBm)	Result
PCS1900 (GPRS 4 link)	Lowest	H	V	26.01	33.01	Pass
			H	21.39		
		E1	V	18.83		
			H	21.74		
		E2	V	18.11		
			H	20.10		
	Middle	H	V	26.51	33.01	Pass
			H	22.03		
		E1	V	19.58		
			H	22.59		
		E2	V	19.99		
			H	21.05		
	Highest	H	V	27.06	33.01	Pass
			H	22.22		
		E1	V	19.88		
			H	22.43		
		E2	V	18.34		
			H	21.85		

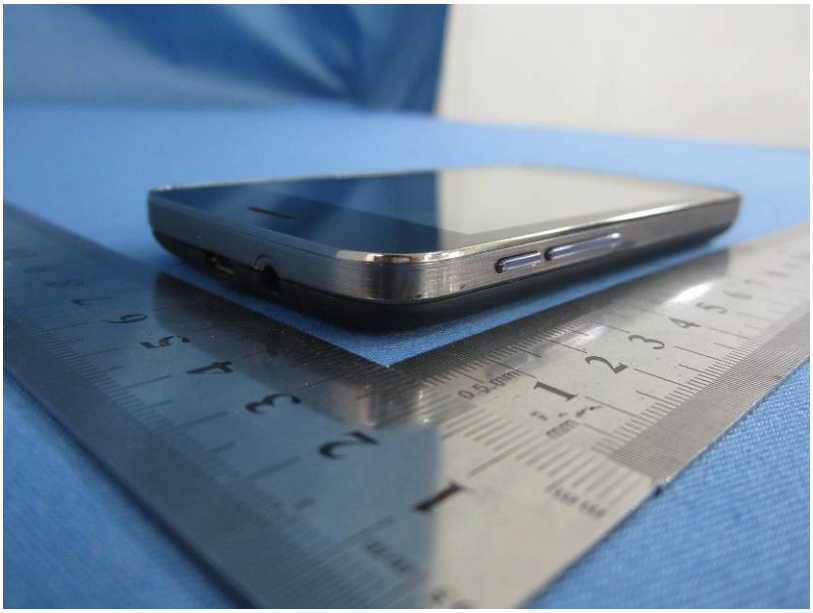
8 Test Setup Photo

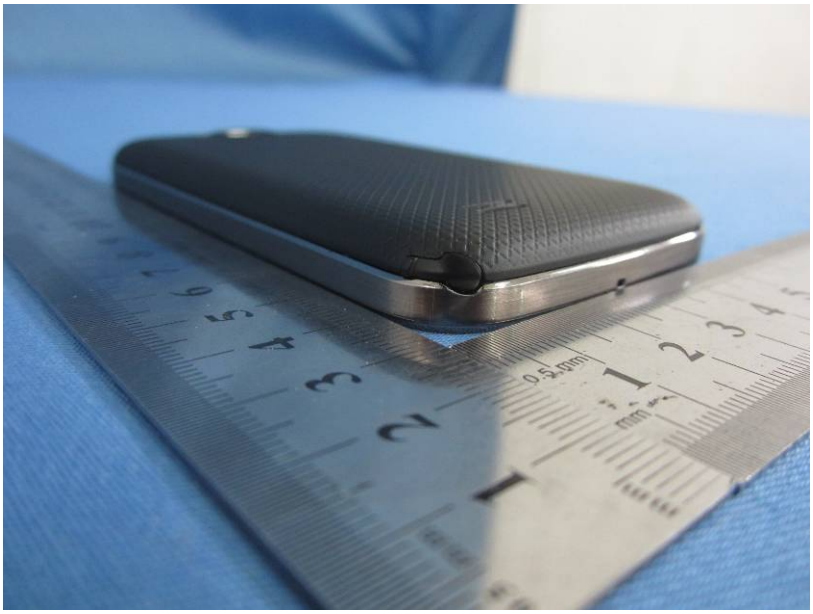
Radiated Emission





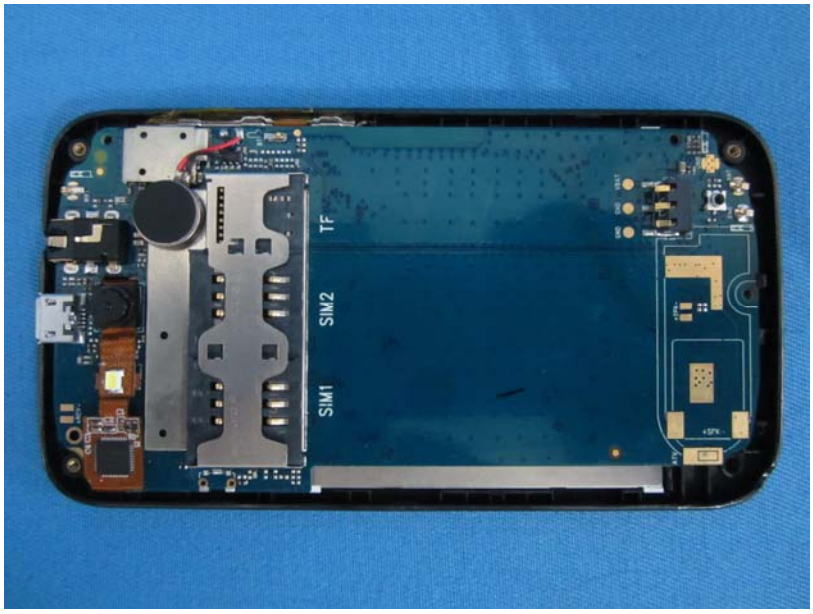
9 EUT Constructional Details






SIM1
SIM2
TF


SIM1
SIM2
TF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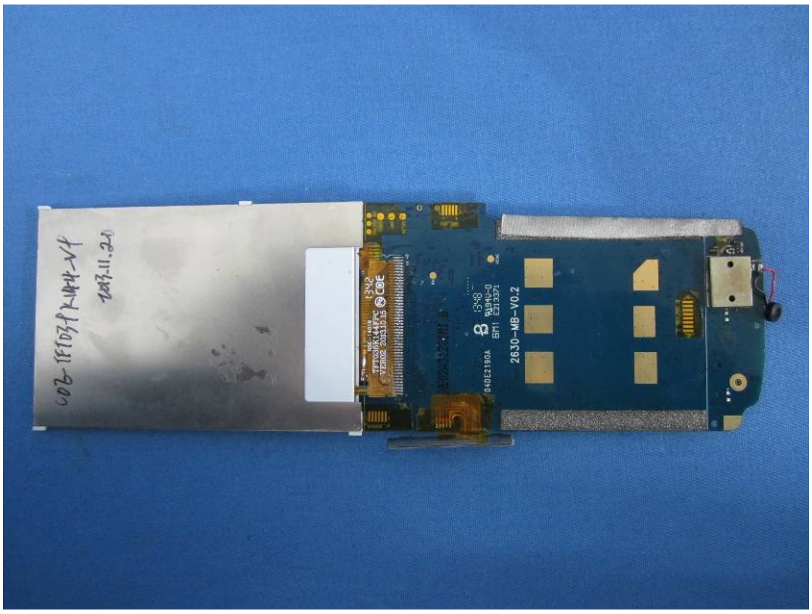
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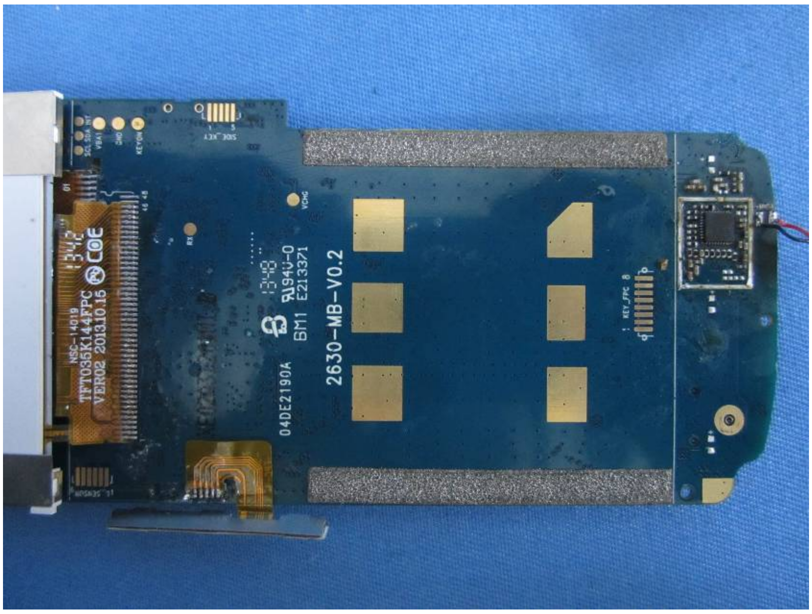
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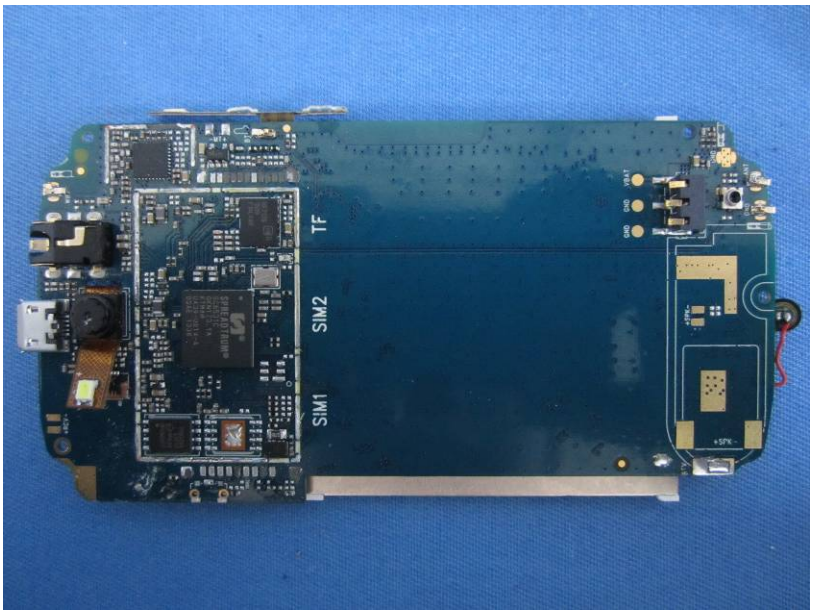
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SIM1

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