

SHENZHEN TIMEWAY TESTING LABORATORIES

Room 512-519, 5/F., East Tower, Building 4, Anhua Industrial Zone, Futian District, Shenzhen, Guangdong, China

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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

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

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The 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 our files. Registration No.: 899988.

IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-02.

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General Details 1.0

1.1	Test Lab Details									
	Name :	SHENZHEN TIMEWA	AY TESTING LABORATORIES.							
	Address:	Room 512-519,5/F.,	East Tower, Building 4, Anhua Industry	rial Zone, Futian						
		District, Shenzhen, Gua	angdong China							
	Telephone:	(755) 83448688								
	Fax:	(755) 83442996								
	Site on File wi	Site on File with the Federal Communications Commission – United Sates								
	Registration N	lumber: 899988								
	For 3m & 10 r	n OATS								
	Site Listed wit	th Industry Canada of O	ttawa, Canada							
	Registration N	lumber: IC: 5205A-02								
	For 3m & 10 r	n OATS								
1.2	Applicant Det	ails								
	Applicant:	JIANGSU SHUANGS	HUANG TECHNOLOGY CO,LTD.							
	Address:	No.188,West Coastal F	o.188, West Coastal Road, Haian County, Jiangsu Province, P.R. China.							
	Telephone:	0513-88355088	355088							
	Fax:	0513-88355618								
13	Description of	FUT								
1.5	Product:	LUI	smart phone							
	Manufacturer:		JIANGSU SHUANGSHUANG TECHNOLO	GY CO,LTD.						
	Address:		No.188,West Coastal Road,Haian	County, Jiangsu						
			Province,P.R.China.							
	Brand Name:		N/A							
	Model Numbe	er:	D351W							
	Additional Mo	odel Number:	N/A							
	Tx Frequency		GSM850 : 824.2 MHz ~ 848.8 MHz							
			GSM1900 : 1850.2 MHz ~ 1909.8 MHz							
			WCDMA Band V : 826.4 MHz ~ 846.6 MHz							
			WCDMA Band II : 1852.4 MHz ~ 1907.6 MH	Ηz						
	Rx Frequency		GSM850 : 869.2 MHz ~ 893.8 MHz							
			GSM1900 : 1930.2 MHz ~ 1989.8 MHz							
			WCDMA Band V : 871.4 MHz ~ 891.6 MHz							
			WCDMA Band II : 1932.4 MHz ~ 1987.6 MHz							
	Max1mum Ou	tput Power to Antenna	GSM850 : 32.730Bm GSM1900 · 29 30 dBm							
			WCDMA Band V : 22.03 dBm							
			WCDMA Band II : 21.63 dBm							
	Antenna Type		Integral Antenna							

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Antenna Peak Gain	824 ~ 849 MHz : 1.6 dBi
	1850~1910 MHz : 3.8dBi
Type of Modulation	GSM / GPRS : GMSK
	EDGE : GMSK/8PSK
	WCDMA : QPSK
	HSDPA : QPSK / 16QAM
	HSUPA : QPSK
EMISSION DESIGNATOR	GSM : 249KGXW
	EGPRS : 290KG7W
	WCDMA: 4M22F9W
Dual Card	SIM Card 1: WCDMA/GSM Card Slot
	SMI Card 2: GSM Card Slot
	Note: Card 1 can't transmit with Card 2 simultaneously.
FCC ID:	2ABDT-D351W

- 1.4 Submitted Sample: 2 Samples
- 1.5 Test Duration 2016-03-17 to 2016-03-28

The sample tested by

- 1.6 Test Uncertainty Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB
- 1.7 Test Engineer

Terry (ang

Print Name: Terry Tang

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SUMMARY OF TEST RESULT

 Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	§2.1046	Conducted Output Power	N/A	PASS	-
3.2	§22.913(a)(2)	Effective Radiated Power	< 7 Watts	PASS	-
3.2	§24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts	PASS	-
3.3	\$2.1049 \$22.917(a) \$24.238(a)	Occupied Bandwidth	N/A	PASS	-
3.4	\$2.1051 \$22.917(a) \$24.238(a)	Band Edge Measurement	< 43+10log10(P[Watts])	PASS	-
3.5	\$2.1051 \$22.917(a) \$24.238(a)	Conducted Emission	< 43+10log10(P[Watts])	PASS	-
3.6	\$2.1053 \$22.917(a) \$24.238(a)	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	-
3.7	\$2.1055 \$22.355 \$24.235	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-
3.8	§24.232(d)	Peak-to-Average Ratio	< 13 dB	PASS	-
3.9	Part 15B	Main Conducted Emissions	See part 15.107 and 207	PASS	-

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2 Test Configuration of Equipment Under Test

2.1 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. Frequency range investigated for radiated emission is as follows:

- 1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.
- 2. 30 MHz to 19000 MHz for GSM1900 and WCDMA Band II.

Test Modes							
Band	Radiated TCs	Conducted TCs					
GSM 850	GSM Link	GSM Link					
	EDGE 8 Link	EDGE 8 Link					
CEM 1000	GSM Link	GSM Link					
GSW 1900	EDGE 8 Link	EDGE 8 Link					
WCDMA Band V	RMC 12.2Kbps Link	RMC 12.2Kbps Link					
WCDMA Band II	RMC 12.2Kbps Link	RMC 12.2Kbps Link					

Note: The maximum power levels are GSM mode for GMSK link, EDGE multi-slot class 8 mode for 8PSK link, RMC 12.2Kbps mode for WCDMA band V, and RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.

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The conducted power tables are as follows: For SIM Card 1

	Conducted Power (*Unit: dBm)							
Band		GSM850			GSM1900			
Channel	128	190	251	512	661	810		
Frequency	824.2	836.6	848.8	1850.2	1880.0	1909.8		
GSM	31.98	31.92	31.89	28.86	28.75	28.33		
GPRS 8	32.73	32.66	32.63	29.30	29.08	28.76		
GPRS 10	31.77	31.70	31.65	28.52	28.50	28.39		
GPRS 12	28.93	28.89	28.77	25.44	25.32	25.27		
EGPRS 8	27.38	27.32	27.31	24.20	24.19	24.08		
EGPRS 10	26.69	26.55	26.52	23.52	23.39	23.28		
EGPRS 12	23.56	23.46	23.52	21.89	21.76	21.72		

Conducted Power (*Unit: dBm)								
Band	Band WCDMA Band V					WCDMA Band II		
Channel	4132	4183	4233	9262	9400	9538		
Frequency	826.4	836.6	846.6	1852.4	1880.0	1907.6		
RMC 12.2K	21.97	22.03	21.96	21.50	21.63	21.39		
HSDPA Subtest-1	21.27	21.35	21.30	21.02	21.11	20.96		
HSDPA Subtest-2	21.16	21.19	21.15	20.71	20.78	20.67		
HSDPA Subtest-3	21.23	21.32	21.28	20.62	20.70	20.56		
HSDPA Subtest-4	21.30	21.33	21.29	20.24	21.33	20.18		
HSUPA Subtest-1	20.89	20.92	20.84	20.75	20.83	20.72		
HSUPA Subtest-2	20.16	20.22	20.11	20.25	20.32	20.19		
HSUPA Subtest-3	20.27	20.36	20.25	20.36	20.46	20.29		
HSUPA Subtest-4	20.44	20.52	20.46	20.20	20.31	20.23		
HSUPA Subtest-5	20.73	20.79	20.71	20.34	20.43	20.38		

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The conducted power tables are as follows: For SIM Card 2 (Only support GSM)

Conducted Power (*Unit: dBm)								
Band		GSM850			GSM1900			
Channel	128	190	251	512	661	810		
Frequency	824.2	836.6	848.8	1850.2	1880.0	1909.8		
GSM	31.86	31.73	31.75	28.82	28.70	28.35		
GPRS 8	32.68	32.53	32.60	29.16	29.01	28.80		
GPRS 10	31.70	31.59	31.62	28.48	28.43	28.36		
GPRS 12	28.85	28.80	28.68	25.50	25.37	25.33		
EGPRS 8	27.35	27.29	27.28	24.32	24.28	24.21		
EGPRS 10	26.59	26.46	26.51	23.50	23.41	23.36		
EGPRS 12	23.60	23.43	23.55	21.85	21.72	21.68		

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2.2 Connection Diagram of Test System



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3 Test Result

3.1 Conducted Output Power Measurement

3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

- 1. The transmitter output port was connected to base station.
- 2. Set EUT at maximum power through base station.
- 3. Select lowest, middle, and highest channels for each band and different modulation.

3.1.4 Test Setup



System Simulator

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3.1.5 Test Result of Conducted Output Power

Cellular Band							
Modes	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)			
GSM850 (GSM)	128 (Low)	824.2	32.73	1.875			
	190 (Mid)	836.6	32.66	1.845			
	251 (High)	848.8	32.63	1.832			
	128 (Low)	824.2	27.38	0.5470			
GSM850 (EDGE 8)	190 (Mid)	836.4	27.32	0.5395			
	251 (High)	848.8	27.31	0.5383			
WCDMA Band V (RMC 12.2Kbps)	4132 (Low)	826.4	21.97	0.1574			
	4183 (Mid)	836.6	22.03	0.1596			
	4233 (High)	846.6	21.96	0.1570			

PCS Band							
Modes	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (Watts)			
GSM1900 (GSM)	512 (Low)	1850.2	29.30	0.8511			
	661 (Mid)	1880.0	29.08	0.8091			
	810 (High)	1909.8	28.76	0.7516			
	512 (Low)	1850.2	24.20	0.2630			
GSM1900 (EDGE 8)	661 (Mid)	1880.0	24.19	0.2624			
	810 (High)	1909.8	24.08	0.2559			
	9262 (Low)	1852.4	21.50	0.1413			
WCDMA Band II (RMC 12.2Kbps)	9400 (Mid)	1880.0	21.63	0.1455			
	9538 (High)	1907.6	21.39	0.1377			

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3.2 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

3.2.1 Description of the ERP/EIRP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r01. The ERP of mobile transmitters must not exceed 7 Watts and the EIRP of mobile transmitters are limited to 2 Watts.

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

- 1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
- 2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
- GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst; UMTS operating modes: Set RBW= 100 kHz, VBW= 300 kHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per KDB 971168 D01.
- 4. The table was rotated 360 degrees to determine the position of the highest radiated power.
- 5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
- 6. Taking the record of maximum ERP/EIRP.
- 7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
- 8. The conducted power at the terminal of the dipole antenna is measured.
- 9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
- 10. ERP/EIRP = Ps + Et Es + Gs = Ps + Rt Rs + Gs

Ps (dBm) : Input power to substitution antenna.

Gs (dBi or dBd) : Substitution antenna Gain.

Et = Rt + AF

Es = Rs + AF

- AF (dB/m) : Receive antenna factor
- Rt : The highest received signal in spectrum analyzer for EUT.
- Rs : The highest received signal in spectrum analyzer for substitution antenna.

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3.2.4 Test Setup



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3.3.5 Test Result of ERP

GSM850 (GSM) Radiated Power ERP								
Frequency	ERP (dBm)	ERP (Result				
(MHz) Polariza		zation	Polariza					
	Н	V	Н	V				
824.20	28.68	27.96	0.7379	0.6252	Pass			
836.60	28.59	27.86	0.7228	0.6109	Pass			
848.80	28.52	27.82	0.7112	0.6053	Pass			

GSM850 (EDGE8) Radiated Power ERP								
Frequency	ERP	(dBm)	ERP (Result				
(MHz)	(MHz) Polarization Polarization		ation					
	н	V	Н	V]			
824.20	23.51	22.92	0.2244	0.1959	Pass			
836.60	23.45	22.83	0.2213	0.1919	Pass			
848.80	23.43	22.76	0.2203	0.1888	Pass			

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP							
Frequency	ERP (dBm)	ERP (W)	Result		
(MHz)	Polari	zation	Polariza				
	н	V	Н	V			
826.40	18.12	17.56	0.06486	0.05702	Pass		
836.60	18.19	17.61	0.06592	0.05768	Pass		
846.60	18.13	17.59	0.06501	0.05741	Pass		

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3.3.6 Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP								
Frequency	EIRP	(dBm)	EIRP	(W)	Result			
(MHz)	Polari	zation	Polariza					
	Н	V	Н	V				
1850.20	27.46	26.82	0.5572	0.4808	Pass			
1880.00	27.39	26.75	0.5483	0.4732	Pass			
1909.80	27.28	26.52	0.5346	0.4487	Pass			

GSM1900 (EDGE class 8) Radiated Power EIRP							
Frequency	EIRP	(dBm)	EIRP	(W)	Result		
(MHz)	Polari	zation	Polariza				
	Н	V	Н	V			
1850.20	22.38	21.66	0.1730	0.1466	Pass		
1880.00	22.33	21.58	0.1710	0.1439	Pass		
1909.80	22.26	21.49	0.1683	0.1409	Pass		

WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP							
Frequency EIRP (dBm) EIRP (W) R							
(MHz)	Polari	zation	Polariza				
	Н	V	Н	V			
1852.40	19.36	18.70	0.08630	0.07413	Pass		
1880.00	19.42	18.83	0.08750	0.07638	Pass		
1907.60	19.22	18.61	0.08356	0.07261	Pass		

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adopt any other remedies which may be appropriate.



3.3 Occupied Bandwidth Measurement

3.3.1 Description of Occupied Bandwidth Measurement

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.

- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 10*RBW, Peak detector, trace maximum hold.
- 4. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.

3.3.4 Test Setup



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3.4.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

Cellular Band							
Modes	G	SM850 (GSI	N)	GSM8	50 (EDGE c	lass 8)	
Channel	128	190	251	128	190	251	
	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	
Frequency (MHz)	824.2	836.6	848.8	824.2	836.6	848.8	
99% OBW (kHz)	239.10	245.89	248.99	247.69	244.95	233.20	
26dB BW (kHz)	318.83	318.67	321.95	320.56	323.28	306.16	

PCS Band							
Modes	GSM1900 (GSM)			GSM19	00 (EDGE c	lass 8)	
Ohemad	512	661	810	512	661	810	
Channel	(Low)	(Mid)	(High)	(Low)	(Mid)	(High)	
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	
99% OBW (kHz)	240.49	247.81	238.30	257.96	274.19	289.76	
26dB BW (kHz)	309.56	320.50	311.97	335.86	373.66	386.03	

Cellular Band						
Modes	WCDMA Band V (RMC 12.2Kbps)					
Channel	4132 (Low) 4182 (Mid) 4233 (High)					
Frequency (MHz)	826.4	836.4	846.6			
99% OBW (MHz)	4.16	4.18	4.14			
26dB BW (MHz)	4.72	4.70	4.70			

PCS Band							
Modes	WCDMA Band II (RMC 12.2Kbps)						
Channel	9262 (Low) 9400 (Mid) 9538 (High)						
Frequency (MHz)	1852.4	1880	1907.6				
99% OBW (MHz)	4.16	4.16 4.19 4.22					

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4./1 4.// 4.84	26dB BW (MHz)	4.71	4.77	4.84
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3.4.6 Test Result (Plots) of Occupied Bandwidth and 26dB Bandwidth

GSM 850MHz Channel = 128

🔆 Agilent	RL	Trace
Ch Freq 824.2 MHz Occupied Bandwidth	Trig Free	Trace <u>1</u> 2 3
		Clear Write
Ref 34 dBm Atten 20 dB #Peak Log 10		Max Hold
dB/ Offst 24 dB		Min Hold
Center 824.200 0 MHz #Res BW 10 kHz #VBW 30 kHz	Span 1 MHz Sweep 9.56 ms (601 pts)	View
Occupied Bandwidth 239.0950 kHz	Осс В₩ % Рwr 99.00 % х dB –26.00 dB	Blank
Transmit Freq Error 4.317 kHz × dB Bandwidth 318.830 kHz		More 1 of 2
Copyright 2000–2012 Agilent Technologi	ies	

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GSM 850MHz Channel = 190



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GSM 850MHz Channel = 251



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GSM850 EDGE Class8 Channel = 128



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GSM850 EDGE Class8 EDGE Channel = 190



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GSM850 EDGE Class8 EDGE Channel = 251



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GSM 1900MHz Channel = 512



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GSM 1900MHz Channel = 661



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GSM 1900MHz Channel = 810



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GSM1900 EDGE Class8 Channel =512



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GSM1900 EDGE Class8 Channel =661



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GSM1900 EDGE Class8 Channel =810



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WCDMA 850MHz Channel = 4132



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WCDMA 850MHz Channel = 4182



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WCDMA 850MHz Channel = 4233



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WCDMA 1900MHz Channel = 9262



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WCDMA 1900MHz Channel = 9400



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WCDMA 1900MHz Channel = 9538



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3.4 Band Edge Measurement

3.4.1 Description of Band Edge Measurement

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

3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

- 1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- The band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly BW/100.
- 4. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 5. The limit line is derived from 43 + 10log (P) dB below the transmitter power P(Watts)

= P(W) - [43 + 10log(P)] (dB)

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

3.4.4 Test Setup



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3.4.5 Test Result (Plots) of Conducted Band Edge

Band :	GSM850	Power Stage :	High
Test Mode :	GSM Link		

Lower Band Edge Plot on Channel 128



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Higher Band Edge Plot on Channel 251



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Band :	GSM850	Power Stage :	High
Test Mode :	EDGE Class 8 Link		

Lower Band Edge Plot on Channel 128



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Higher Band Edge Plot on Channel 251

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Band :	GSM1900	Power Stage :	High
Test Mode :	GSM Link		

Lower Band Edge Plot on Channel 512



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Higher Band Edge Plot on Channel 810

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Band :	GSM1900	Power Stage :	High
Test Mode :	EDGE Class 8 Link		

Lower Band Edge Plot on Channel 512



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Higher Band Edge Plot on Channel 810

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Band :	WCDMA Band V	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

Lower Band Edge Plot on Channel 4132

Mkr1 824.000 MHz Next Peak Log	🔆 Agilent	RL	Peak Search
#Peak Next Pk Right 10 Mext Pk Right 0ffst Mext Pk Right 24 Mext Pk Left 0B Min Search 0B Min Search 0B Min Search Min Search Min Search 25 FC Mext Pk Left Center 826.400 MHz #VBW 300 kHz Sweep 1.44 ms (601 pts)	Ref 34 dBm Atten 20 dB	Mkr1 824.000 MHz -16.34 dBm	Next Peak
24 A	*Peak Log 10 dB/ Offst		Next Pk Right
dBm d	24 dB DI -13.0		Next Pk Left
M1 S2 M1 M	dBm LgAv		Min Search
E(f): Mkr + CF Swp Mkr + CF Center 826.400 MHz Span 15 MHz *Res BW 100 kHz *VBW 300 kHz Sweep 1.44 ms (601 pts)	M1 S2 S3 FC AL	when when when	Pk-Pk Search
Center 826.400 MHz Span 15 MHz More 1 of 2 #Res BW 100 kHz #VBW 300 kHz Sweep 1.44 ms (601 pts) 1 of 2	E(f): FTun Swp		Mkr → CF
Conversion to 2000, 2000, Avilant Technologica	Center 826.400 MHz #Res BW 100 kHz #VBW 300 kHz Sweep	Span 15 MHz 1.44 ms (601 pts)	More 1 of 2

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Higher Band Edge Plot on Channel 4233

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Band :	WCDMA Band II	Power Stage :	High
Test Mode :	RMC 12.2Kbps Link		

Lower Band Edge Plot on Channel 9262

🔆 Agilent					RL	Peak Search
Ref 34 dBm #Peak	Atten	20 dB		Mkr1 :	1.850 000 G -18.86 dE	Hz m Next Peak
Log 10 dB/						Next Pk Right
24 dB DI		Anna	www			Next Pk Left
-13.0 dBm LgAv		1				Min Search
M1 S2 S3 FC AL	mannen			por manual	mm	Pk-Pk Search
£(f): ┻⊷⊷∭ FTun Swp						Mkr → CF
Start 1.845 (#Res BW 100	000 GHz kHz	#VBW 300) kHz S	Stop 1 veep 1.44	L.860 000 G ms (601 pt	Hz 1 of 2
Copyright 2	000-2009 A	gilent Techno	ologies			

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R L Trace Mkr1 1.910 000 GHz Trace -21.62 dBm Atten 20 dB 2 1 **Clear Write** Max Hold Min Hold

Stop 1.915 000 GHz

Sweep 1.44 ms (601 pts)

Higher Band Edge Plot on Channel 9538

M

00-2009 Agilent

#VBW 300 kHz

Technologie

WA.

🔆 Agilent

Ref 34 dBm #Peak

Log 10

dB/ Offst 24 dB

DI -13.0 dBm

LgAv

M1 S2

S3 FC AL £(f): FTun

Swp

Start 1.900 000 GHz

#Res BW 100 kHz

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View

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More

1 of 2



3.5 Conducted Emission Measurement

3.5.1 Description of Conducted Emission Measurement

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

- 1. The EUT was connected to spectrum analyzer and base station via power divider.
- The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. The middle channel for the highest RF power within the transmitting frequency was measured.
- 4. The conducted spurious emission for the whole frequency range was taken.
- 5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 6. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
 - = P(W) [43 + 10log(P)] (dB)
 - = [30 + 10log(P)] (dBm) [43 + 10log(P)] (dB)
 - = -13dBm

3.5.4 Test Setup



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3.5.5 Test Result (Plots) of Conducted Emission

Band :	GSM850	Channel :	CH190
Test Mode :	GSM Link		

Conducted Emission Plot between 30MHz ~ 1GHz

🔆 Ag	jilent								F	۲L ا	Peak Search
Ref 10 #Peak	dBm	+	ŧAtten	20 dB				Mk	r1 830 -38.9	6.7 MHz 2 dBm	Next Peak
Log 10 dB/											Next Pk Right
DI											Next Pk Left
-13.0 dBm LgAv									1 ♦		Min Search
M1 S2 S3 FC											Pk-Pk Search
€(f): FTun Swp	namilina	who repeatings	nutivativati	enerel Artonia	endel.e.r.	hontonterio	₩₩₩₩₩₩₩	140WMpr14-weby	un mar	ntreenteete	Mkr→CF
Start 3 #Res B	30.0 MH W 100	z kHz		#VB	300 W	kHz	Sweep	Stop 92.72	o 1.000 ms (60	0 GHz 1 pts)	More 1 of 2
Copyr	ight 20	000-20	Copyright 2000–2012 Agilent Technologies								

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Conducted Emission Plot between 1GHz ~ 9GHz



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Band :	GSM850	Channel :	CH190
Test Mode :	EDGE Class 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz

🔆 Ag	jilent								F	≀ L	Peak Search
Ref 10	dBm		ŧAtten	20 dB				Mk	r1 830 -41.9	6.7 MHz 17 dBm	Next Peak
#Реак Log 10 dB/											Next Pk Right
DI 12.0											Next Pk Left
dBm LgAv									1 •		Min Search
M1 S2 S3 FC											Pk-Pk Search
£(f): FTun Swp	radapper de	whether the state	wannyahan ya	lather when the	Proto Proto	ang manana katala	erreefwh-hy	u Mun y	and your	nundle	Mkr → CF
Start 3 #Res B	Start 30.0 MHz Stop 1.000 0 GHz More #Res BW 100 kHz #VBW 300 kHz Sweep 92.72 ms (601 pts)										
copyr	Copyright 2000–2012 Agilent Technologies										

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Conducted Emission Plot between 1GHz ~ 9GHz

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Band :	GSM1900	Channel :	CH661
Test Mode :	GSM Link		

Conducted Emission Plot between 30MHz ~ 1GHz

🔆 Ag	jilent								F	2 L	Peak Search
Ref 10 #Peak	dBm	:	ŧAtten	20 dB				Mk	r1 791 -68.3	.4 MHz 2 dBm	Next Peak
Log 10 dB/											Next Pk Right
DI -13.0											Next Pk Left
dBm LgAv											Min Search
M1 S2 S3 FC								1			Pk-Pk Search
£ (f): FTun Swp	Whiter	estration & April	nyanatra	ecilerral Unit	w.Warwa	H.Mryameriki)	Www.ehren	utur wile	4nnun an In	414 ⁴⁴ مۇرىمىلىرە	Mkr → CF
Start 3 #Res B	30.0 MH W 100	z kHz		#VB	300 W	kHz	Sweep	Stop 92.72	o 1.000 ms (60	0 GHz 1 pts)	More 1 of 2
Copyr	ight 20	000-20)12 Ag	ilent T	echnol	ogies					

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Conducted Emission Plot between 1GHz ~ 20GHz

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Band :	GSM1900	Channel :	CH661
Test Mode :	EDGE Class 8 Link		

Conducted Emission Plot between 30MHz ~ 1GHz

Mkr1 523.1 MHz Ref 10 dBm #Atten 20 dB —67.62 dBm #Peak	Next Peak
Log 10 dB/	Next Pk Right
DI	Next Pk Left
dBm LgAv	Min Search
M1 S2 S3 FC	Pk-Pk Search
£(f): FTun Swp	Mkr → CF
Start 30.0 MHz Stop 1.000 0 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 92.72 ms (601 pts)	More 1 of 2

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Conducted Emission Plot between 1GHz ~ 20GHz

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Band :	WCDMA Band V	Channel :	CH4183
Test Mode :	RMC 12.2Kbps Link		

🔆 Ag	ilent								F	۲.	Peak Search
Ref 10 #Peak	dBm		Atten	20 dB				Mk	r1 835 -55.7	5.1 MHz '0 dBm	Next Peak
Log 10 dB/											Next Pk Right
DI _13.0											Next Pk Left
dBm LgAv											Min Search
M1 S2 S3 FC AL											Pk-Pk Search
€(f): FTun Swp	hanan filikan an a	nder James och men	mayaayadoo ng shek	eren - Marthelan	eperson which a	www.	in when while the	arnaterial a francis		yuunuuni	Mkr → CF
Start 3 #Res B	30.0 MH W 100	z kHz		#VB	W 300	kHz	Sweep	Stop 92.72) 1.000 ms (60	0 GHz 1 pts)	More 1 of 2

Conducted Emission Plot between 30MHz ~ 1GHz

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Conducted Emission Plot between 1GHz ~ 9GHz

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Band :	WCDMA Band II	Channel :	CH9400
Test Mode :	RMC 12.2Kbps Link		

RL 🔆 Agilent Peak Search Mkr1 646.0 MHz -68.34 dBm Ref 10 dBm #Atten 20 dB Next Peak #Peak Log 10 Next Pk Right dB/ Next Pk Left DI 13.0 dBm Min Search LgAv M1 S2 S3 FC Pk-Pk Search **£**(f): personal and the provide the FTun Mkr → CF Swp More Stop 1.000 0 GHz Start 3<mark>0.0 MH</mark>z 1 of 2 Sweep 92.72 ms (601 pts) #Res BW 100 kHz #VBW 300 kHz Copyright 2000–2012 Agilent Technologies

Conducted Emission Plot between 30MHz ~ 1GHz

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Conducted Emission Plot between 1GHz ~ 20GHz

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3.6 Field Strength of Spurious Radiation Measurement

3.6.1 Description of Field Strength of Spurious Radiated Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 43 + 10 log (P) dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

- 1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- 5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
- 6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 8. Taking the record of output power at antenna port.
- 9. Repeat step 7 to step 8 for another polarization.
- 10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 11. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)
 - = P(W) [43 + 10log(P)] (dB)
 - = [30 + 10log(P)] (dBm) [43 + 10log(P)] (dB)
 - = -13dBm.
- 12. EIRP (dBm) = S.G. Power Tx Cable Loss + Tx Antenna Gain
- 13. ERP (dBm) = EIRP 2.15

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3.6.4 Test Setup



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3.6.5 Test Result of Field Strength of Spurious Radiated

Test Mode	GSM850 GSM		Test Channel	Low
Frequency (MHz)	Spurious Emissions		Limit (dPm)	Docult
	Polarization	Level(dBm)	Limit (abm)	Result
1648.40	Vertical	-41.85	-13	Pass
2472.60	Vertical	-46.31	-13	Pass
1648.40	Horizontal	-38.37	-13	Pass
2472.60	Horizontal	-44.81	-13	Pass

Test Mode	GSM850 GSM		Test Channel	Middle
Frequency (MHz)	Spurious Emissions		Limit (dPm)	Deput
	Polarization	Level(dBm)	Limit (dbm)	Result
1673.20	Vertical	-42.93	-13	Pass
2509.80	Vertical	-45.55	-13	Pass
1673.20	Horizontal	-39.12	-13	Pass
2509.80	Horizontal	-45.08	-13	Pass

Test Mode	GSM850 GSM		Test Channel	High
Frequency (MHz)	Spurious Emissions		Lincit (dDno)	Deput
	Polarization	Level(dBm)	Limit (abm)	Result
1697.60	Vertical	-42.72	-13	Pass
2546.41	Vertical	-64.63	-13	Pass
1697.60	Horizontal	-39.36	-13	Pass
2546.41	Horizontal	-43.29	-13	Pass

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Test Mode	GSM1900 GSM		Test Channel	Low
Frequency (MHz)	Spurious Emissions		Limit (dPm)	Docult
	Polarization	Level(dBm)	Limit (dbm)	Result
3700.40	Vertical	-43.39	-13	Pass
5550.60	Vertical	-48.92	-13	Pass
3700.40	Horizontal	-41.35	-13	Pass
5550.60	Horizontal	-46.28	-13	Pass

Test Mode	GSM1900 GSM		Test Channel	Middle
Frequency (MHz)	Spurious Emissions		Linsit (dDno)	Deput
	Polarization	Level(dBm)	Limit (abm)	Result
3760.00	Vertical	-43.10	-13	Pass
5640.00	Vertical	-47.82	-13	Pass
3760.00	Horizontal	-42.08	-13	Pass
5640.00	Horizontal	-46.76	-13	Pass

Test Mode	GSM1900 GSM		Test Channel	High	
Frequency (MHz)	Spurious Emissions		Lincit (dDno)	Desult	
	Polarization	Level(dBm)	Limit (abm)	Result	
3819.60	Vertical	-42.87	-13	Pass	
5729.40	Vertical	-46.52	-13	Pass	
3819.60	Horizontal	-42.65	-13	Pass	
5729.40	Horizontal	-45.92	-13	Pass	

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Test Mode	WCDMA Band V RMC 12.2Kbps		Test Channel	Low	
Frequency (MHz)	Spurious Emissions		Limit (dPm)	Desult	
	Polarization	Level(dBm)	Limit (dbm)	Result	
1652.80	Vertical	-50.24	-13	Pass	
2479.20	Vertical	-55.42	-13	Pass	
1652.80	Horizontal	-47.16	-13	Pass	
2479.20	Horizontal	-53.25	-13	Pass	

Test Mode	WCDMA Band V RMC 12.2Kbps		Test Channel	Middle	
Frequency (MHz)	Spurious Emissions		Lineit (dDne)		
	Polarization	Level(dBm)	Limit (aBm)	Result	
1673.20	Vertical	-50.38	-13	Pass	
2509.80	Vertical	-56.22	-13	Pass	
1673.20	Horizontal	-48.08	-13	Pass	
2509.80	Horizontal	-55.11	-13	Pass	

Test Mode	WCDMA Band V RMC 12.2Kbps		Test Channel	High	
Frequency (MHz)	Spurious Emissions		Lingit (dDmg)	Deput	
	Polarization	Level(dBm)	Limit (dbm)	Result	
1693.20	Vertical	-51.19	-13	Pass	
2539.80	Vertical	-56.77	-13	Pass	
1693.20	Horizontal	-47.65	-13	Pass	
2539.80	Horizontal	-53.32	-13	Pass	

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Test Mode	WCDMA Band II RMC 12.2Kbps		Test Channel	Low	
Frequency (MHz)	Spurious Emissions		Line (ColDine)	Desult	
	Polarization	Level(dBm)	Limit (abm)	Result	
3704.80	Vertical	-51.22	-13	Pass	
5557.20	Vertical	-57.17	-13	Pass	
3704.80	Horizontal	-48.31	-13	Pass	
5557.20	Horizontal	-52.83	-13	Pass	

Test Mode	WCDMA Band V RMC 12.2Kbps		Test Channel	Middle	
Frequency (MHz)	Spurious Emissions		Limit (dPm)	Desult	
	Polarization	Level(dBm)	Limit (dbm)	Result	
3760	Vertical	-51.23	-13	Pass	
5640	Vertical	-57.64	-13	Pass	
3760	Horizontal	-48.52	-13	Pass	
5640	Horizontal	-54.02	-13	Pass	

Test Mode	WCDMA Band V RMC 12.2Kbps		Test Channel	High	
Frequency (MHz)	Spurious Emissions			Desult	
	Polarization	Level(dBm)	Limit (abm)	Result	
3815.20	Vertical	-51.25	-13	Pass	
5722.80	Vertical	-56.93	-13	Pass	
3815.20	Horizontal	-48.39	-13	Pass	
5722.80	Horizontal	-54.11	-13	Pass	

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3.7 Frequency Stability Measurement

3.7.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedures for Temperature Variation

- 1. The EUT was set up in the thermal chamber and connected with the base station.
- 2. With power OFF, the temperature was decreased to -30℃ and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
- 3. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
- 4. If the EUT can not be turned on at -30℃, the testing lowest temperature will be raised in 10℃ step until the EUT can be turned on.

3.7.4 Test Procedures for Voltage Variation

- 1. The EUT was placed in a temperature chamber at 25±5° C and connected with the base station.
- 2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
- 3. The variation in frequency was measured for the worst case.

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3.7.5 Test Setup



Thermal Chamber

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3.7.6 Test Result of Temperature and Voltage Variation

GSM850, Middle Channel

Middle channel, fo =836.6MHz					
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)	
	3.1	-35	-0.04	2.5	
-30	3.7	-42	-0.05	2.5	
	4.3	-28	-0.03	2.5	
	3.1	-27	-0.03	2.5	
-20	3.7	-23	-0.03	2.5	
	4.3	-25	-0.03	2.5	
	3.1	-42	-0.05	2.5	
-10	3.7	-37	-0.04	2.5	
	4.3	-26	-0.03	2.5	
	3.1	-37	-0.04	2.5	
0	3.7	-25	-0.03	2.5	
	4.3	-32	-0.04	2.5	
	3.1	-35	-0.04	2.5	
10	3.7	-28	-0.03	2.5	
	4.3	-32	-0.04	2.5	
	3.1	-47	-0.06	2.5	
20	3.7	-27	-0.03	2.5	
	4.3	-36	-0.04	2.5	
	3.1	-54	-0.06	2.5	
30	3.7	-30	-0.04	2.5	
	4.3	-41	-0.05	2.5	
	3.1	-32	-0.04	2.5	
40	3.7	-31	-0.04	2.5	
	4.3	-26	-0.03	2.5	
	3.1	-47	-0.06	2.5	
50	3.7	-46	-0.05	2.5	
	4.3	-53	-0.06	2.5	

Note: The extreme voltage was declared by the manufacturer.

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EDGE Class 8, Middle Channel

Middle channel, fo =836.6MHz					
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)	
	3.1	-55	-0.07	2.5	
-30	3.7	-42	-0.05	2.5	
	4.3	-36	-0.04	2.5	
	3.1	-37	-0.04	2.5	
-20	3.7	-36	-0.04	2.5	
	4.3	-24	-0.03	2.5	
	3.1	-41	-0.05	2.5	
-10	3.7	-36	-0.04	2.5	
	4.3	-43	-0.05	2.5	
	3.1	-44	-0.05	2.5	
0	3.7	-38	-0.05	2.5	
	4.3	-34	-0.04	2.5	
	3.1	-27	-0.03	2.5	
10	3.7	-24	-0.03	2.5	
	4.3	-33	-0.04	2.5	
	3.1	-38	-0.05	2.5	
20	3.7	-46	-0.06	2.5	
	4.3	-41	-0.05	2.5	
	3.1	-40	-0.05	2.5	
30	3.7	-52	-0.06	2.5	
	4.3	-41	-0.05	2.5	
	3.1	-33	-0.04	2.5	
40	3.7	-37	-0.04	2.5	
	4.3	-51	-0.06	2.5	
	3.1	-46	-0.05	2.5	
50	3.7	-42	-0.05	2.5	
	4.3	-54	-0.06	2.5	

Note: The extreme voltage was declared by the manufacturer.

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GSM1900 Middle Channel:

Middle channel, fo =1880.0MHz						
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)		
	3.1	-64	-0.04	2.5		
-30	3.7	-76	-0.04	2.5		
	4.3	-67	-0.04	2.5		
	3.1	-50	-0.03	2.5		
-20	3.7	-64	-0.03	2.5		
	4.3	-60	-0.03	2.5		
	3.1	-56	-0.03	2.5		
-10	3.7	-39	-0.02	2.5		
	4.3	-53	-0.03	2.5		
	3.1	-62	-0.03	2.5		
0	3.7	-68	-0.04	2.5		
	4.3	-47	-0.03	2.5		
	3.1	-40	-0.02	2.5		
10	3.7	-55	-0.03	2.5		
	4.3	-42	-0.02	2.5		
	3.1	-46	-0.02	2.5		
20	3.7	-51	-0.03	2.5		
	4.3	-38	-0.02	2.5		
	3.1	-36	-0.02	2.5		
30	3.7	-63	-0.03	2.5		
	4.3	-55	-0.03	2.5		
40	3.1	-44	-0.02	2.5		
	3.7	-40	-0.02	2.5		
	4.3	-63	-0.03	2.5		
	3.1	-48	-0.03	2.5		
50	3.7	-54	-0.03	2.5		
	4.3	-61	-0.03	2.5		

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EDGE Class 8 Middle Channel:

Middle channel, fo =1880.0MHz						
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)		
	3.3	-78	-0.04	2.5		
-30	3.7	-86	-0.05	2.5		
	4.3	-75	-0.04	2.5		
	3.3	-59	-0.03	2.5		
-20	3.7	-62	-0.03	2.5		
	4.3	-57	-0.03	2.5		
	3.3	-64	-0.03	2.5		
-10	3.7	-59	-0.03	2.5		
	4.3	-55	-0.03	2.5		
	3.3	-67	-0.04	2.5		
0	3.7	-64	-0.03	2.5		
	4.3	-52	-0.03	2.5		
	3.3	-66	-0.04	2.5		
10	3.7	-53	-0.03	2.5		
	4.3	-48	-0.03	2.5		
	3.3	-47	-0.03	2.5		
20	3.7	-52	-0.03	2.5		
	4.3	-64	-0.03	2.5		
	3.3	-56	-0.03	2.5		
30	3.7	-63	-0.03	2.5		
	4.3	-60	-0.03	2.5		
40	3.3	-44	-0.02	2.5		
	3.7	-54	-0.03	2.5		
	4.3	-63	-0.03	2.5		
	3.3	-71	-0.04	2.5		
50	3.7	-65	-0.03	2.5		
	4.3	-76	-0.04	2.5		

Note: The extreme voltage was declared by the manufacturer.

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WCDMA Band V

Middle channel, fo =836.6MHz						
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)		
	3.3	-37	-0.04	2.5		
-30	3.7	-52	-0.06	2.5		
	4.3	-34	-0.04	2.5		
	3.3	-58	-0.07	2.5		
-20	3.7	-39	-0.05	2.5		
	4.3	-43	-0.05	2.5		
	3.3	-42	-0.05	2.5		
-10	3.7	-34	-0.04	2.5		
	4.3	-33	-0.04	2.5		
	3.3	-47	-0.06	2.5		
0	3.7	-35	-0.04	2.5		
	4.3	-39	-0.05	2.5		
	3.3	-31	-0.04	2.5		
10	3.7	-29	-0.03	2.5		
	4.3	-43	-0.05	2.5		
	3.3	-34	-0.04	2.5		
20	3.7	-47	-0.06	2.5		
	4.3	-39	-0.05	2.5		
	3.3	-54	-0.06	2.5		
30	3.7	-45	-0.05	2.5		
	4.3	-38	-0.05	2.5		
40	3.3	-39	-0.05	2.5		
	3.7	-31	-0.04	2.5		
	4.3	-40	-0.05	2.5		
	3.3	-55	-0.07	2.5		
50	3.7	-49	-0.06	2.5		
	4.3	-48	-0.06	2.5		

Note: The extreme voltage was declared by the manufacturer.

any other remedies which may be appropriate.

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WCDMA Band II

Middle channel, fo =1880.0MHz						
Temperature (℃)	Power Supplied (V)	Frequency Error (Hz)	Error (ppm)	Limit (ppm)		
	3.3	-58	-0.03	2.5		
-30	3.7	-69	-0.04	2.5		
	4.3	-74	-0.04	2.5		
	3.3	-64	-0.03	2.5		
-20	3.7	-71	-0.04	2.5		
	4.3	-46	-0.02	2.5		
	3.3	-52	-0.03	2.5		
-10	3.7	-66	-0.04	2.5		
	4.3	-64	-0.03	2.5		
	3.3	-67	-0.04	2.5		
0	3.7	-43	-0.02	2.5		
	4.3	-55	-0.03	2.5		
	3.3	-51	-0.03	2.5		
10	3.7	-63	-0.03	2.5		
	4.3	-48	-0.03	2.5		
	3.3	-42	-0.02	2.5		
20	3.7	-44	-0.02	2.5		
	4.3	-59	-0.03	2.5		
	3.3	-47	-0.03	2.5		
30	3.7	-67	-0.04	2.5		
	4.3	-51	-0.03	2.5		
40	3.3	-46	-0.02	2.5		
	3.7	-58	-0.03	2.5		
	4.3	-56	-0.03	2.5		
	3.3	-50	-0.03	2.5		
50	3.7	-73	-0.04	2.5		
	4.3	-65	-0.03	2.5		

Note: The extreme voltage was declared by the manufacturer.

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3.8 Peak-to-Average Ratio

3.8.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.8.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.8.3 Test Procedures

- 1. The EUT was connected to Spectrum Analyzer and System Simulator via power divider.
- 2. For GSM/EGPRS operating modes:
 - a. Set EUT in maximum power output.
 - b. Set the RBW = 1MHz, VBW = 3MHz, Peak detector in spectrum analyzer for first trace.
 - c. Set the RBW = 1MHz, VBW = 3MHz, RMS detector in spectrum analyzer for second trace.
 - d. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator synchronized with the spectrum analyzer.
- 3. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
- 4. Record the deviation as Peak to Average Ratio.

3.8.4 Test Setup



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PCS Band									
Modes	GSM1900 (GSM)		GSM1900 (EDGE class 8)			WCDMA Band II (RMC 12.2Kbps)			
Channel	512 (Low)	661 (Mid)	810 (High)	512 (Low)	661 (Mid)	810 (High)	9262 (Low)	9400 (Mid)	9538 (High)
Frequency (MHz)	1850.2	1880	1909.8	1850.2	1880	1909.8	1852.4	1880	1907.6
Peak-to-Average Ratio (dB)	0.41	0.39	0.43	2.29	2.27	2.30	2.38	2.36	2.38

3.8.5 Test Result of Peak-to-Average Ratio

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3.9 Mains Conducted Emissions

3.9.1 Measurement Method

The measurement procedure specified in ANSI C63.4-2003 was used for testing. Conducted Emission was measured with travel charger.

3.9.2 Provisions Applicable

Frequency of Emission (MHz)	Conducted Limit(dBuV)			
	Quasi-Peak	Average		
0.15 – 0.5	66 to 56 *	56 to 46 *		
0.5 – 5	56	46		
5 – 30	60	50		
*Decreases with the logarithm of the frequency.				
*The lower limit shall apply at the transition frequency.				

Note: The GSM850 mode is the worst condition and the test result as following:

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List of Measuring Equipment 4

Test Equipments							
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date		
ESPI Test Receiver	R&S	ESPI 3	100379	2015-08-22	2016-08-21		
TWO	R&S	EZH3-Z5	100294	2015-08-22	2016-08-21		
Line-V-NETW							
TWO	R&S	EZH3-Z5	100253	2015-08-22	2016-08-21		
Line-V-NETW	D 0 C						
Ultra Broadband	R&S	HI 562	100157	2015-08-23	2016-08-22		
ANT		1112502	100157	2015 00 25	2010 00 22		
	R&S	ESDV	100008	2015-08-22	2016-08-21		
ESDV Test Receiver		LOD V	100000	2013 00 22	2010 00 21		
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2015-08-22	2016-08-21		
System Controller	СТ	SC100	-				
Printer	EPSON	PHOTO EX3	CFNH234850				
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-		
Loop Antenna	EMCO	6502	00042960	2015-08-23	2016-08-22		
ESPI Test Receiver	R&S	ESI26	838786/013	2015-08-22	2016-08-21		
3m OATS			N/A	2015-08-24	2016-08-23		
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2015-08-24	2016-08-23		
Horn Antenna	R&S	BBHA 9120D	9120D-631	2015-08-24	2016-08-23		
Power meter	Anritsu	ML2487A	6K00003613	2015-08-22	2016-08-21		
Power sensor	Anritsu	MA2491A	32263	2015-08-22	2016-08-21		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2015-08-23	2016-08-21		
LISN	AFJ	LS16C	10010947251	2015-08-22	2016-08-21		
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2015-08-23	2016-08-22		
9*6*6 Anechoic			N/A	2015-08-24	2016-08-23		
EMI Test Receiver	RS	ESCS30	100139	2015-08-22	2016-08-21		

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5.0 Photographs

Conducted Emission Test Setup:



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Radiated Emission Test Setup:



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Photographs – EUT

Outside view



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Outside view



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Outside view

ADAPYADOR DE CORRIENTE	
MODELO : SCOSO080-US Entrada: 100-240Vcs 0.15A 50/60Hz Salids: 5,0Vcc.::: 600mA	
HECHO EN CHINA	

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Inside view



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Inside view



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Inside view



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Inside view



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Inside view



End of the report

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