



FCC RF Test Report

Product Name: Smart Phone

Model Number: HUAWEI H871G, H871G

Report No: SYBH(Z-RF)010052014-2001

FCC ID: QISY336-A1

Reliability Laboratory of Huawei Technologies Co., Ltd.

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Tel: +86 755 28780808 Fax: +86 755 89652518



Notice

- 1. The laboratory has Passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
- 2. The laboratory has Passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01.
- 3. The laboratory has been listed by the US Federal Communications Commission to perform electromagnetic emission measurements. The site recognition number is 97456.
- 4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 6369A-2.
- 5. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- 6. The test report is invalid if there is any evidence of erasure and/or falsification.
- 7. The test report is only valid for the test samples.
- 8. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.



Applicant: Huawei Technologies Co., Ltd.

Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,

Bantian, Longgang District, Shenzhen, 518129, P.R.C

Date of Receipt Sample: 2014-04-11
Start Date of Test: 2014-04-12
End Date of Test: 2014-04-21

Test Result: Pass

Approved by Senior 2014-05-13 Liu Chunlin

Engineer: Date Name Signature

Prepared by: 2014-05-13 Zhang Guocai Zhang Guocai

Date Name Signature



Modification Record

No.	Last Report No.	Modification Description
1		First report.



CONTENT

1	Gene	eral Information	6	
	1.1	Applied Standard	6	
	1.2	Test Location	6	
	1.3	Test Environment Condition	6	
2	Test	Summary	7	
	2.1	Cellular Band (824-849 MHz paired with 869-894 MHz)	7	
	2.2	PCS Band (1850-1915 MHz paired with 1930-1995 MHz)	8	
	2.3	AWS Band (1710-1755 MHz paired with 2110-2155 MHz)	g	
3	Desc	ription of the Equipment under Test (EUT)	10	
	3.1	General Description	10	
	3.2	EUT Identity	10	
	3.3	Technical Specification	12	
4	Gene	eral Test Conditions / Configurations	13	
	4.1	Test Modes	13	
	4.2	Test Environment	13	
	4.3	Test Frequency	14	
	4.4	DESCRIPTION OF TESTS	16	
	4.5	Test Setups	19	
	4.6	Test Conditions	21	
5	Main	Test Instruments	23	
6	Measurement Uncertainty 24			



1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 02:2013

47 CFR FCC Part 22: 2013 47 CFR FCC Part 24: 2013 47 CFR FCC Part 27: 2013

Test Method: FCC KDB 971168 D01 Power Meas License Digital Systems v02r01

1.2 Test Location

Test Location 1: Reliability Laboratory of Huawei Technologies Co., Ltd.

Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,

Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.3 Test Environment Condition

Ambient Temperature: 19.5 to 25 °C

Ambient Relative Humidity: 40 to 55 %

Atmospheric Pressure: Not applicable



2 Test Summary

2.1 Cellular Band (824-849 MHz paired with 869-894 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §22.913	FCC: ERP ≤ 7 W.	Appendix A	SYBH(Z-RF)0490320 14-2001
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	SYBH(Z-RF)0490320 14-2001
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Appendix D	SYBH(Z-RF)0490320 14-2001
Band Edges Compliance	§2.1051, §22.917	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Appendix E	SYBH(Z-RF)0490320 14-2001
Spurious Emission at Antenna Terminals	§2.1051, §22.917	FCC: ≤ -13 dBm/100 kHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Appendix F	SYBH(Z-RF)0490320 14-2001
Field Strength of Spurious Radiation	§2.1053, §22.917	FCC: ≤ -13 dBm/100 kHz.	Appendix G	SYBH(Z-RF)0490320 14-2001
Frequency Stability	§2.1055, §22.355	≤ ±2.5ppm.	Appendix H	SYBH(Z-RF)0490320 14-2001
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".				



2.2 PCS Band (1850-1915 MHz paired with 1930-1995 MHz)

Test Item	FCC Rule No.	Requirements	Test Result	Verdict (NOTE 1)
Effective (Isotropic) Radiated Power Output Data	§2.1046, §24.232	EIRP ≤ 2 W	Appendix A	SYBH(Z-RF)0490320 14-2001
Peak-Average Ratio	§2.1046, §24.232	FCC: Limit≤13 dB	Appendix B	SYBH(Z-RF)0490320 14-2001
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	SYBH(Z-RF)0490320 14-2001
Bandwidth	§2.1049	OBW: No limit. EBW: No limit.	Appendix D	SYBH(Z-RF)0490320 14-2001
Band Edges Compliance	§2.1051, §24.238	≤ -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Appendix E	SYBH(Z-RF)0490320 14-2001
Spurious Emission at Antenna Terminals	§2.1051, §24.238	≤ -13 dBm/1 MHz, from 9 kHz to 10 th harmonics but outside authorized operating frequency ranges.	Appendix F	SYBH(Z-RF)0490320 14-2001
Field Strength of Spurious Radiation	§2.1053, §24.238	≤ -13 dBm/1 MHz.	Appendix G	SYBH(Z-RF)0490320 14-2001
Frequency Stability	§2.1055, §24.235	FCC: within authorized frequency block.	Appendix H	SYBH(Z-RF)0490320 14-2001
NOTE 1: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".				



2.3 AWS Band (1710-1755 MHz paired with 2110-2155 MHz)

Test Item	FCC	Requirements	Test Result	Verdict
	Rule No.			
Effective (Isotropic)	§2.1046,	EIRP ≤ 1 W;	Appendix A	SYBH(Z-RF)049032
Radiated Power Output Data	§27.50(d)			014-2001
Peak-Average Ratio	§2.1046,	Limit≤13 dB	Appendix B	SYBH(Z-RF)049032
reak-Average Natio	§27.50(d)	LITHE 13 GB		014-2001
Modulation Characteristics	§2.1047	Digital modulation	Appendix C	SYBH(Z-RF)049032
Modulation Characteristics	92.1047	Digital modulation		014-2001
Bandwidth	§2.1049	OBW: No limit.	Appendix D	SYBH(Z-RF)049032
		EBW: No limit.		014-2001
Band Edges Compliance	§2.1051,	≤ -13 dBm/1%*EBW, in 1	Appendix E	
	§27.53(h)	MHz bands immediately		SYBH(Z-RF)049032
		outside and adjacent to the		014-2001
		frequency block.		
Spurious Emission at	§2.1051,	≤ -13 dBm/1 MHz, from 9 kHz	Appendix F	
Antenna Terminals	§27.53(h)	to 10 th harmonics but outside		SYBH(Z-RF)049032
		authorized operating		014-2001
		frequency ranges.		
Frequency Stability	§2.1055,	Within authorized bands of	Appendix G	SYBH(Z-RF)049032
	§27.54	operation/frequency block.		014-2001
Radiated spurious emission	§2.1053,	≤ -13 dBm/1 MHz.	Appendix H	SYBH(Z-RF)049032
	§27.53(h)			014-2001



3 <u>Description of the Equipment under Test (EUT)</u>

3.1 General Description

HUAWEI H871G, H871G is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band II, Band IV, and Band V, The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band IV and Band II and Band V and GSM850 and PCS1900 bands test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port(to provide voice service) and USIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

The mobile phone H871G and Y336-A1 are mobile phone with Bluetooth and wifi; The only difference between H871G and Y336-A1 is the wifi hotspot. Y336-A1 support wifi hotspot, while H871G doesn't support wifi hotspot. Other parts of the mobile phone are the same, including the appearance, the antenna, Chipset, , Adapter, Battery, Mainboard and so on.

So the test cases refer to No. SYBH(Z-RF)049032014-2001 of Y336-A1 RF report.

3.2 EUT Identity

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.2.1 Board

Board			
Board Name	Hardware Version	Software Version	
Main Board	HD1H871GM	H871GV100R001C378B111	

3.2.2 Sub-Assembly

AC/DCAdapter Model	HW-050100U2W
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V === 1A
Rated Power	5W

Name	Manufacture	Description
		•



		Battery Model: Hb5V1HV Rated capacity: 1950mAh
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Nominal Voltage: === +3.8V
		Charging Voltage: +4.35V



3.3 Technical Specification

Characteristics	Description			
Radio System Type	⊠ GSM			
	□ UMTS			
Supported Frequency Range	0011050/11/000114.050	Transmission (TX):	824 to 849 MHz	
	GSM850/ WCDMA850	Receiving (RX):	869 to 894 MHz	
	GSM1900/ WCDMA1900	Transmission (TX):	1850 to 1910 MHz	
	GSW1900/ WCDWA1900	Receiving (RX):	1930 to 1990 MHz	
	WCDMA1700	Transmission (TX):	1710 to 1755 MHz	
	WCDIVIA 1700	Receiving (RX):	2110 to 2155 MHz	
TX and RX Antenna Ports	TX & RX port:	1		
	TX-only port:	0		
	RX-only port: 1			
Target TX Output Power	ower GSM850: 32.5dBm			
	UMTS 850: 23.5dBm			
	GSM1900 29.5dBm			
	UMTS 1900: 23.5dBm			
	UMTS1700 23.5dBm			
Supported Channel Bandwidth	GSM system:			
	UMTS system:	⊠ 5 MHz	⊠ 5 MHz	
Designation of Emissions	GSM850: 246KGXW, 243KG7W			
(Note: the necessary bandwidth of	GSM1900:	244KGXW, 242KG7W		
which is the worst value from the	UMTS 850:	4M17F9W		
measured occupied bandwidths for	UMTS 1900:	4M17F9W		
each type of channel bandwidth	UMTS1700:	4M17F9W		
configuration.)				



4 General Test Conditions / Configurations

4.1 Test Modes

NOTE: The test mode(s) are selected according to relevant radio technology specifications.

Test Mode	Test Modes Description
GSM/TM1	GSM system, GSM/GPRS, GMSK modulation
GSM/TM2	GSM system, EDGE, 8PSK modulation
UMTS/TM1	WCDMA system, QPSK modulation
UMTS/TM2	HSDPA system, QPSK modulation
UMTS/TM3	HSUPA system, QPSK modulation

4.2 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN Ambient	
	VL	3.6V
Voltage	VN	3.8V
	VH	4.35V

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

TN= normal temperature



4.3 Test Frequency

	TX/RX	RF Channel				
Test Mode		Low (L)	Middle (M)	High (H)		
	тх	Channel 128	Channel 190	Channel 251		
000000		824.2MHz	836.6MHz	848.8MHz		
GSM850	RX	Channel 128	Channel 190	Channel 251		
		869.2MHz	881.6MHz	893.8MHz		
Toot Mode	TX / RX	RF Channel				
Test Mode		Low (L)	Middle (M)	High (H)		
	тх	Channel 512	Channel 661	Channel 810		
GSM1900		1850.2MHz	1880.0MHz	1909.8MHz		
G2M1900	DV	Channel 512	Channel 661	Channel 810		
	RX	1930.2 MHz	1960.0 MHz	1989.8 MHz		
Test Mode	TX / RX	RF Channel				
i est iviode		Low (L)	Middle (M)	High (H)		
	TX	Channel 4132	Channel 4182	Channel 4233		
WCDMA850		826.4MHz	836.4MHz	846.6MHz		
WCDIVIA030	RX	Channel 4357	Channel 4407	Channel 4458		
		871.4MHz	881.4MHz	891.6MHz		
Test Mode	TX/RX	RF Channel				
		Low (L)	Middle (M)	High (H)		
WCDM44000	TX	Channel 9262	Channel9400	Channel9538		
		1852.4MHz	1880.0MHz	1907.6MHz		
WCDMA1900	RX	Channel 9662	Channel 9800	Channel 9938		
		1932.4 MHz	1960.0 MHz	1987.6 MHz		



Test Mode	TX/RX	RF Channel			
		Low (L)	Middle (M)	High (H)	
WCDMA1700	тх	Channel1312	Channel1413	Channel1513	
		1712.4MHz	1732.6MHz	1752.6MHz	
	RX	Channel 1537	Channel 1638	Channel 1738	
		2112.4 MHz	2132.6 MHz	2152.6 MHz	



4.4 DESCRIPTION OF TESTS

4.4.1 Radiated Power and Radiated Spurious Emissions

Radiated spurious emissions are investigated indoors in a semi-anechoic chamber to determine the frequencies producing the worst case emissions. Final measurements for radiated power and radiated spurious emissions are performed on the 3 meter OATS per the guidelines of ANSI/TIA-603-C-2004. The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Emissions are also investigated with the receive antenna horizontally and vertically polarized.

A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.

A half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

Pd [dBm] = Pg [dBm] - cable loss [dB] + antenna gain [dBd/dBi]

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to P_g [dBm] – cable loss [dB].

The calculated Pd levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10log₁₀(Power [Watts]).

Note: Reference test setup 3



4.4.2 Occupied Bandwidth

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

Note: Reference test setup 1.

4.4.3 Spurious and Harmonic Emissions at Antenna Terminal

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Note: Reference test setup 1.

4.4.4 Peak-Average Ratio

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

Note: Reference test setup 1.



4.4.5 Frequency Stability / Temperature Variation

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Time Period and Procedure:

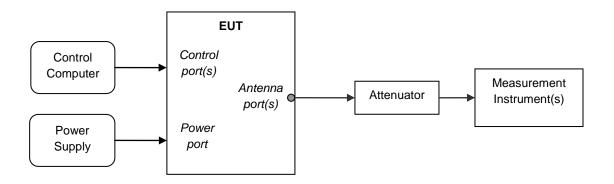
- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Note: Reference test setup 2.

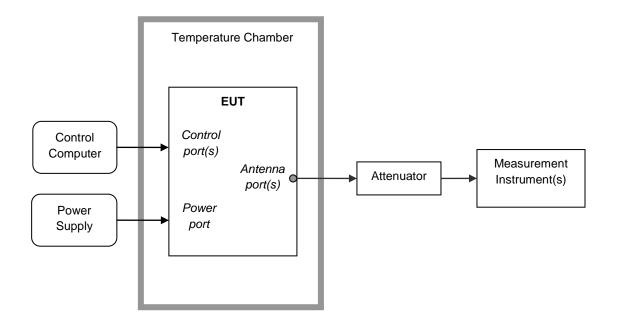


4.5 Test Setups

4.5.1 Test Setup 1



4.5.2 Test Setup 2

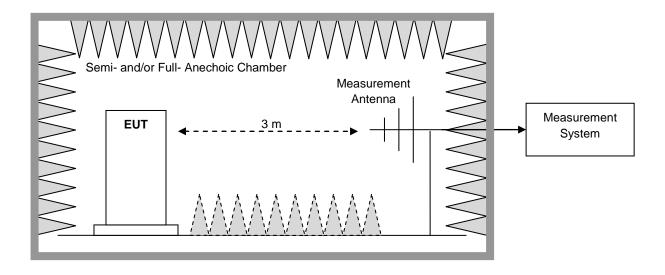




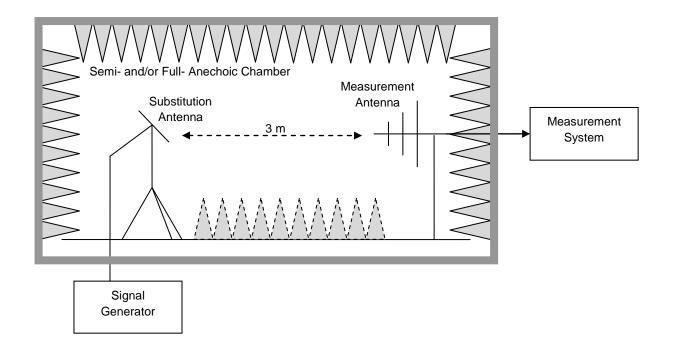
4.5.3 Test Setup 3

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

4.5.3.1 Step 1: Pre-test



4.5.3.2 Step 2: Substitution method to verify the maximum ERP





4.6 Test Conditions

Test Case		Test Conditions		
Transmit	Average Power,	Test Env.	Ambient Climate & Rated Voltage	
Output	Total	Test Setup	Test Seup 1	
Power Data		RF Channels	L, M, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
	Average Power,	Test Env.	Ambient Climate & Rated Voltage	
	Spectral Density	Test Setup	Test Seup 1	
	(if required)	RF Channels	L, M, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Peak-to-Avera	age Ratio	Test Env.	Ambient Climate & Rated Voltage	
(if required)		Test Setup	Test Seup 1	
		RF Channels	L, M, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Modulation Cl	haracteristics	Test Env.	Ambient Climate & Rated Voltage	
		Test Setup	Test Seup 1	
		RF Channels	M	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Bandwidth	Occupied	Test Env.	Ambient Climate & Rated Voltage	
	Bandwidth		Test Seup 1	
		RF Channels	L, M, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
	Emission	Test Env.	Ambient Climate & Rated Voltage	
	Bandwidth	Test Setup	Test Seup 1	
	(if required)	RF Channels	L, M, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Band Edges (Band Edges Compliance		Ambient Climate & Rated Voltage	
		Test Setup	Test Seup 1	
		RF Channels	L, H	
		(TX)	(L= low channel, M= middle channel, H= high channel)	
		Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Spurious Emission at Antenna		Test Env.	Ambient Climate & Rated Voltage	
Terminals		Test Setup	Test Seup 1	
		RF Channels	L, M, H	
			(L= low channel, M= middle channel, H= high channel)	



Test Case	Test Conditions		
	Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	
Field Strength of Spurious	Test Env.	Ambient Climate & Rated Voltage	
Radiation	Test Setup	Test Seup 3	
	Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1/TM2/TM3	
	RF Channels	L, M, H	
	(TX)	(L= low channel, M= middle channel, H= high channel)	
Frequency Stability	Test Env.	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage;	
		(2) VL, VN and VH of Rated Voltage at Ambient Climate.	
	Test Setup	Test Seup 2	
	RF Channels	L, M, H	
	(TX)	(L= low channel, M= middle channel, H= high channel)	
	Test Mode	GSM/TM1,GSM/TM2,UMTS/TM1	



5 <u>Main Test Instruments</u>

Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal- Due
Power supply	KEITHLEY	2303	1288003	2012-11-19	2014-11-18
Wireless Communication Test set	Agilent	N4010A	MY49081592	2013-10-29	2014-10-28
Universal Radio Communication Tester	R&S	CMU200	113164	2013-07-18	2014-07-17
Universal Radio Communication Tester	R&S	CMW500	126855	2013-08-08	2015-08-09
Spectrum Analyzer	Agilent	E4440A	MY48250119	2013-08-09	2014-08-08
Signal Analyzer	R&S	FSQ31	200021	2013-10-29	2014-10-28
Spectrum Analyzer	Agilent	N9030A	MY49431698	2013-10-29	2014-10-28
Temperature Chamber	ESPEC	MW3030	06114003	2013-05-14	2014-05-13
Vector Signal Generator	R&S	SMU200A	104162	2013-10-29	2014-10-28
Test receiver	R&S	ESU26	100150	2013-05-15	2014-05-14
Spectrum analyzer	R&S	FSU3	200474	2013-12-24	2014-12-23
Spectrum analyzer	R&S	FSU43	100144	2013-12-24	2014-12-23
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100304	2013-02-02	2015-02-01
Trilog Broadband Antenna (30M~3GHz)	SCHWARZB ECK	VULB 9163	9163-490	2013-02-02	2015-02-01
LOOP Antennas(9kHz-30MHz)	R&S	HFH2-Z2	100262	2013-03-23	2015-03-22
Pyramidal Horn Antenna(18GHz-26-5GHz)	ETS-LINDG REN	3160-09	5140299	2013-03-05	2015-03-04
Artificial Mains Network	R&S	ENV4200	100134	2013-12-24	2014-12-23
Artificial Mains Network	R&S	ENV216	100382	2013-12-24	2014-12-23



6 <u>Measurement Uncertainty</u>

For a 95% confidence level (k = 2), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Test Item	Extended Uncertainty	
Transmit Output Power Data	Power [dBm]	U = 0.39 dB
Bandwidth	Magnitude [%]	U = 0.2%
Band Edge Compliance	Disturbance Power [dBm]	U = 2.0 dB
Spurious Emissions, Conducted	Disturbance Power [dBm]	U = 2.0 dB
Field Strength of Spurious Radiation	ERP [dBm]	For 3 m Chamber:
		U = 4.6 dB (30 MHz to 1GHz)
		U = 3.0 dB (above 1 GHz)
		For 10 m Chamber:
		U = 4.6 dB (30 MHz to 1GHz)
		U = 3.0 dB (above 1 GHz)
Frequency Stability	Frequency Accuracy [ppm]	U = 0.21 ppm

END