



# RF Test Report

**Product Name: Remote Radio Unit**

**Product Model: RRU3249**

**Report Number: SYBH(R)01811873EB-1**

**FCC ID: QISRRU3249**

**IC: 6369A-RRU3249**

**Reliability Laboratory of Huawei Technologies Co., Ltd.**

Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District,  
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## 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 recognition number for the test site located in Shenzhen is 97456.
  - The recognition number for the test site located in Shanghai is 684868.
  - The recognition number for the test site located in Chengdu is 216797.
4. The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements.
  - The recognition number for the test site located in Shenzhen is 6369A, which contains 6369A-1 (3m chamber in G2), 6369A-2 (3m chamber in K3) and 6369A-3 (10m chamber in K3).
  - The recognition numbers for the test site located in Shanghai is 6369D, which contains 6369D-1 (3m chamber) and 6369D-2 (10m chamber).
  - The recognition number for the test site located in Chengdu is 6369E-1.
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  
**Product Name:** Remote Radio Unit  
**Product Model:** RRU3249

**Date of Receipt Sample:** 2015-04-22  
**Start Date of Test:** 2015-04-23  
**End Date of Test:** 2015-05-07

**Test Result:** Pass

<b>Approved by Senior Engineer:</b>	2015-05-22	Zhang Xinghai	<i>Zhang Xing hai</i>
	Date	Name	Signature

<b>Prepared by:</b>	2015-05-22	Li Guo	<i>Li Guo</i>
	Date	Name	Signature



### Modification Record

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



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## 1 General Information

### 1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2 (10-1-13 Edition)  
47 CFR FCC Part 27 (10-1-13 Edition)

IC RSS-Gen (Issue 4, November 2014)  
IC RSS-130 (Issue 1, October 2013)

Test Method: FCC KDB 971168 D01 Power Meas License Digital Systems v02r02  
(if applicable) FCC KDB 662911 D01 Multiple Transmitter Output v02r01

### 1.2 Test Location

Test Location 1 (TL1): Reliability Laboratory of Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Test Location 2 (TL2): Reliability Laboratory of Huawei Technologies Co., Ltd.  
Address: No.2222, Xin Jinqiao Road, Pudong New Area, Shanghai, 201206, P.R.C

Test Location 3 (TL3): Reliability Laboratory of Huawei Technologies Co., Ltd.  
Address: No.1899 Xiyuan Avenue, Hi-tech Western District, Chengdu, 611731, P.R.C

### 1.3 Test Environment Condition

Temperature: 15 to 30 °C (Ambient)  
Relative Humidity: 20 to 85 % (Ambient)  
Atmospheric Pressure: Not applicable



## 2 Test Summary

### 2.1 MBS 700 MHz Lower Band (698-746 MHz)

#### 2.1.1 Measurement Technical Requirements

Test Item	FCC Rule	IC Rule	Requirements			Test Result	Verdict	Test Location
Transmitter Output Power	§2.1046, §27.50(c)	RSS-Gen,§4.8; RSS-130,§4.4	FCC	Fixed Station / Base Station	<ul style="list-style-type: none"> <li>Average ERP Power ≤ 1000 W (for EBW ≤ 1 MHz).</li> <li>Average ERP PD ≤ 1000 W/MHz (for EBW &gt; 1 MHz).</li> </ul>	Annex A	Pass	TL1
				Control Station / Mobile Station	Average ERP Power ≤ 30 W.			
				Portable Station	Average ERP Power ≤ 3 W.			
			IC	Fixed Station / Base Station	<ul style="list-style-type: none"> <li>716-746MHz (block D, E, A+, B+, C+): Average EIRP Power ≤ 1640 W (for ChBW ≤ 1 MHz).</li> <li>716-746MHz (block D,E,A+,B+,C+): Average EIRP PD ≤ 1640 W/MHz (for ChBW &gt; 1 MHz).</li> <li>PAPR ≤ 13 dB@0.1%.</li> </ul>			
				Mobile Station / Fixed Subscriber Station - outdoor	<ul style="list-style-type: none"> <li>698-716MHz (block A-, B-, C-): Average EIRP Power ≤ 50 W.</li> <li>PAPR ≤ 13 dB@0.1%.</li> </ul>			
				Portable Station / Fixed Subscriber Station - indoor	<ul style="list-style-type: none"> <li>698-716MHz (block A-, B-, C-): Average EIRP Power ≤ 5 W.</li> <li>PAPR ≤ 13 dB@0.1%.</li> </ul>			



Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict	Test Location	
Bandwidth	§2.1049	RSS-Gen,§4.6	FCC	<ul style="list-style-type: none"> <li>● OBW: No limit.</li> <li>● EBW: No limit.</li> </ul>	Annex B	Pass	TL1
			IC	OBW: No limit.			
Band Edges Compliance / Emission Mask	§2.1051, §27.53(g)	RSS-Gen,§4.9; RSS-130,§4.6	≤ -13 dBm/30 kHz, in 100 kHz bands immediately outside and adjacent to the frequency blocks.		Annex C	Pass	TL1
Spurious Emission at Antenna Terminals	§2.1051, §27.53(g)	RSS-Gen,§4.9; RSS-130,§4.6	≤ -13 dBm/100 kHz, from 9 kHz to 10 <sup>th</sup> harmonics but outside authorized operating frequency ranges.		Annex D	Pass	TL1
Field Strength of Spurious Radiation / Radiated Spurious Emissions	§2.1053, §27.53(g)	RSS-Gen,§4.9; RSS-130,§4.6	≤ -13 dBm/100 kHz.		Annex E	Pass	TL3
Frequency Stability	§2.1055, §27.54	RSS-Gen,§4.7; RSS-130,§4.3	FCC	<ul style="list-style-type: none"> <li>● Test method: Fundamental emissions (Fc_meas) within the authorized bands of operation.</li> <li>● Test conditions: (1) NV, -30°C/.../+50°C step=+10°C. (2) NT, ±15%*NV.</li> </ul>	Annex F	Pass	TL1
			IC	<ul style="list-style-type: none"> <li>● Step 1: f(offset): no limit.</li> <li>● Step 2: fL –  f(offset)  &gt; Operating Band Left Edge, fH +  f(offset)  &lt; Operating Band Right Edge.</li> </ul>			

Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict	Test Location
			<ul style="list-style-type: none"> <li>● Test conditions for Step 1: (1) NV, -30°C/+20°C/+50°C. (2) +20°C, ±15%*NV.</li> <li>● Test conditions for Step 2: NTV.</li> </ul>			
Receiver Spurious Emissions (Note 1, 2)	---	RSS-Gen,§4.10; RSS-Gen,§6	<ul style="list-style-type: none"> <li>● Radiated limit: RSS-Gen, §6.1 field strength limit.</li> <li>● Conducted limit: ≤ -57 dBm/120 kHz (CISPR-QP), from 30 MHz to 1000 MHz, and ≤ -53 dBm/1 MHz (AV), from 1 GHz to 3rd harmonics.</li> </ul>	Annex G	Pass, ---	TL1, ---
<p>Note 1: For Receiver Spurious Emissions, If the receiver has a detachable antenna of known impedance, antenna conducted spurious emissions measurement is permitted as an alternative to radiated measurement. However, the radiated method is recommended. The antenna conducted test shall be performed with the antenna disconnected and the receiver antenna terminals connected to a measuring instrument having equal impedance to that specified for the antenna.</p> <p>Note 2: According to IC NOTICE 2012-DRS0126, only radio communication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to IC requirements. All other receivers are excluded from any IC certification, testing, labelling and reporting requirements.</p>						

### 2.1.2 Non-measurement Technical Requirements

Description	FCC Rule	IC Rule	Requirements	Test Result	Verdict
Frequency Plan	§27.5(c)	RSS-130,§4.2	698-746 MHz:	See technical specification description.	Comply



Description	FCC Rule	IC Rule	Requirements	Test Result	Verdict																								
			<table border="1"> <thead> <tr> <th>Block</th> <th>Total Spectrum</th> <th>Lower Sub-band</th> <th>Upper Sub-band</th> </tr> </thead> <tbody> <tr> <td>Paired Block A</td> <td>12 MHz</td> <td>698-704 MHz</td> <td>728-734 MHz</td> </tr> <tr> <td>Paired Block B</td> <td>12 MHz</td> <td>704-710 MHz</td> <td>734-740 MHz</td> </tr> <tr> <td>Paired Block C</td> <td>12 MHz</td> <td>710-716 MHz</td> <td>740-746 MHz</td> </tr> <tr> <td>Unpaired Block D</td> <td>6 MHz</td> <td>716-722 MHz</td> <td>-</td> </tr> <tr> <td>Unpaired Block E</td> <td>6 MHz</td> <td>722-728 MHz</td> <td>-</td> </tr> </tbody> </table>	Block	Total Spectrum	Lower Sub-band	Upper Sub-band	Paired Block A	12 MHz	698-704 MHz	728-734 MHz	Paired Block B	12 MHz	704-710 MHz	734-740 MHz	Paired Block C	12 MHz	710-716 MHz	740-746 MHz	Unpaired Block D	6 MHz	716-722 MHz	-	Unpaired Block E	6 MHz	722-728 MHz	-		
Block	Total Spectrum	Lower Sub-band	Upper Sub-band																										
Paired Block A	12 MHz	698-704 MHz	728-734 MHz																										
Paired Block B	12 MHz	704-710 MHz	734-740 MHz																										
Paired Block C	12 MHz	710-716 MHz	740-746 MHz																										
Unpaired Block D	6 MHz	716-722 MHz	-																										
Unpaired Block E	6 MHz	722-728 MHz	-																										
Modulation Characteristics	§2.1047	RSS-130,§4.1	Digital modulation.	See technical specification description.	Comply																								
Equipment with Multiple Antennas	---	RSS-130,§4.5	Multiple Antennas EIRP: (1) Correlated transmission: Aggregate power + Gmax + 10 log10 N; (2) Uncorrelated transmission: Aggregate power + Gmax.	Considered during "Transmitter Output Power" test.	Comply																								



### 3 Description of the Equipment under Test (EUT)

#### 3.1 General Description

The RRU3249 is an LTE mode outdoor remote radio unit. It is the radio frequency (RF) part of a distributed base station and can be located near antennas. The RRU3249 can modulate, demodulate, combine, and divide baseband and RF signals. It also processes baseband and RF signal data.

#### 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	Description
RRU-WD5ALRACSG	Ver.A	Manufactured Board,MARP RRU,WD5ALRACSG,Power Amplifier Board,2T2R,700M,1*1
RRU-WD5CLRXC0	Ver.A	MARP RRU,WD5CLRXC0,Transceiver Board,1*1
Duplexer	Ver.C	LTE,TX:729MHz~746MHz;RX:699.25MHz~715.75MHz,-1.5dB,-3.85dB.,1.38,ANT-7/1 6DIN/Female,TX-screw,RX-MFBX/Female,REV/ALD-MFBX/Female

##### 3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
UMPT	WD22UMPTa2	Huawei	BBU3900-WD22UMPTa2-Universal Main Processing & Transmission unit with 4E1 and 2FE/GE interface
UBBP	WD22LBBPD2	Huawei	Manufactured Board,BBU3900,WD22UBBPd1,Baseband Processing and Interface Unit ,1*1



### 3.3 Technical Specification

Characteristics	Description	
Radio System Type	<input type="checkbox"/> GSM (GO) <input type="checkbox"/> UMTS (UO) <input checked="" type="checkbox"/> LTE (LO) <input type="checkbox"/> CDMA (CO) <input type="checkbox"/> GSM & UMTS (GU) <input type="checkbox"/> GSM & LTE (GL) <input type="checkbox"/> GSM & UMTS & LTE (GUL) <input type="checkbox"/> CDMA & LTE (CL) <input type="checkbox"/> P2P	
Equipment Type	Type #1	<input checked="" type="checkbox"/> Base Station Equipment <input type="checkbox"/> CPE (Customer Premises Equipment) Equipment <input type="checkbox"/> Subscriber Equipment (User Equipment) <input type="checkbox"/> Fixed Point-to-Point Equipment
	Type #2	<input checked="" type="checkbox"/> Fixed <input type="checkbox"/> Mobile <input type="checkbox"/> Portable
	Type #3	<input type="checkbox"/> Indoor <input checked="" type="checkbox"/> Outdoor
Frequency Range (Transmission (TX) and Receiving (RX))	#1	TX: 729 to 746 MHz RX: 699 to 716 MHz
TX and RX Antenna Ports	TX & RX port: 2, TX-only port: 0, RX-only port: 0	
Multiple Carrier Supported	2	
Maximum RF Bandwidth	15 MHz	
TX Output Power	Max. 60 W (per antenna port) Max. 120 W (two antenna ports)	
Supported Channel Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Modulation Type	LTE system:	Base-band: QPSK, 16QAM,64QAM Carrier: OFDM/OFDMA
	Designation of Emissions (Note: the necessary bandwidth of which is the worst value from the measured)	4M52D9W, 8M97D9W, 13M4D9W

Characteristics	Description	
occupied bandwidths for each type of channel bandwidth configuration.)		
Power Supply	Type:	<input type="checkbox"/> External AC mains, <input checked="" type="checkbox"/> External DC mains, <input type="checkbox"/> AC/DC Adapter, <input type="checkbox"/> Powered over Ethernet (PoE)
	Nominal Voltage, Input to EUT:	-48 VDC
	Voltage Range, Input to EUT:	-36 to -57 VDC

### 3.3.1 Antenna Assemblies

NOTE 1: For the “external antenna” in the report:

(1) It refers to the antenna external to the equipment, using an antenna connector with a cable and which has been designed or developed for one or more specific types of equipment.

(2) It is the combination of external antenna and radio equipment that is expected to be compliant with the regulations. If the external antenna is not supplied by the equipment manufacturer, and also will not be equipped on sale, a typical or recommended configuration will be considered during lab testing. However, when the radio equipment is put into service, the practical maximum antenna gain may exceed the value as described; if this is the case, the combination of the practical output power (may be degraded) and the practical antenna gain should NOT exceed the required ERP/EIRP limit.

NOTE 2: The “integral antenna” in the report:

(1) It refers to the antenna designed as a fixed part of the equipment, without the use of an external connector and which cannot be disconnected from the equipment by a user with the intent to connect another antenna.

(2) For the testing purpose, a temporary RF connector may be provided.

NOTE 3: The antenna gain is the combination of basic gain (directional gain, G) and, if applicable, additional beam-forming gain (Y).

Characteristics	Description
Antenna Type	<input checked="" type="checkbox"/> External (antenna equipped on sale : <input type="checkbox"/> yes, <input checked="" type="checkbox"/> no) <input type="checkbox"/> Integral
Smart Antenna	<input checked="" type="checkbox"/> MIMO <input type="checkbox"/> Non MIMO
Antenna Gain	<input checked="" type="checkbox"/> External: 17 dBi (per antenna port, typically)

## 4 General Test Conditions / Configurations

### 4.1 EUT Configurations

#### 4.1.1 General

Configuration	Description
Test Antenna Ports	Until otherwise specified, <ul style="list-style-type: none"> <li>All TX tests are ONLY performed at the main TX antenna port (e.g. TRXA, TXA or similar) of the EUT, and</li> <li>All RX tests are ONLY performed at the main RX antenna port (e.g. TRXA, RXB or similar) of the EUT.</li> </ul>
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.

#### 4.1.2 Test Modes

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

Test Mode	Test Modes Description
LTE/TM1.1	LTE system, 3GPP TS 36.141 clause 6.1.1, E-TM 1.1
LTE/TM1.2	LTE system, 3GPP TS 36.141 clause 6.1.1, E-TM 1.2

#### 4.1.3 Test Configurations

EUT Conf.	RF Ch.	Carrier Conf. Description	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]	Power Level [dBm]	Test Mode
1L_5M_B	B	1*L	731.5	701.5	5	47.8	TM1.1
1L_5M_M	M	1*L	737.5	707.5	5	47.8	TM1.1
1L_5M_T	T	1*L	743.5	713.5	5	47.8	TM1.1
1L_10M_B	B	1*	734	704	10	47.8	TM1.1
1L_10M_M	M	1*L	737.5	707.5	10	47.8	TM1.1
1L_10M_T	T	1*L	741.0	711.0	10	47.8	TM1.1
1L_15M_B	B	1*L	736.5	706.5	15	47.8	TM1.1
1L_15M_M	M	1*L	737.5	707.5	15	47.8	TM1.1
1L_15M_T	T	1*L	738.5	708.5	15	47.8	TM1.1
2L_5M+5M_B	B	2*L	731.5, 736.5	701.5, 706.5	5, 5	44.8, 44.8	TM1.1
2L_5M+5M_T	T	2*L	738.5, 743.5	708.5, 713.5	5, 5	44.8, 44.8	TM1.1
2L_5M+10M_B	B	2*L	731.5, 739.0	701.5, 709.0	5, 5	43.0, 46.0	TM1.1
2L_5M+10M_T	T	2*L	733.5, 741.0	703.5, 711.0	5, 5	43.0, 46.0	TM1.1

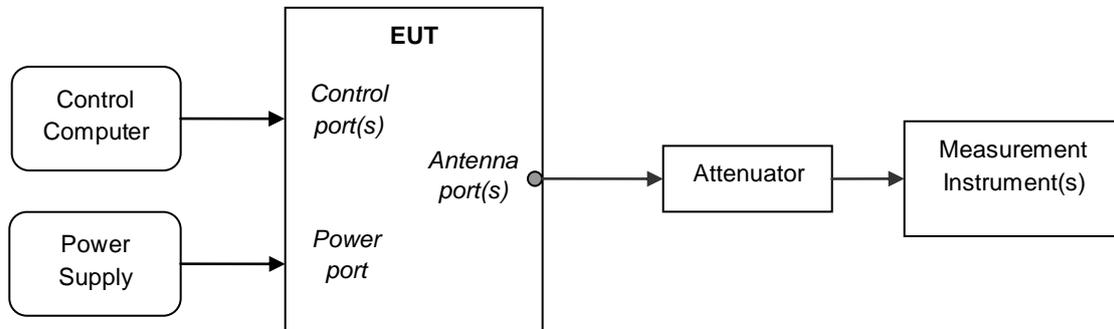


## 4.2 Test Environments

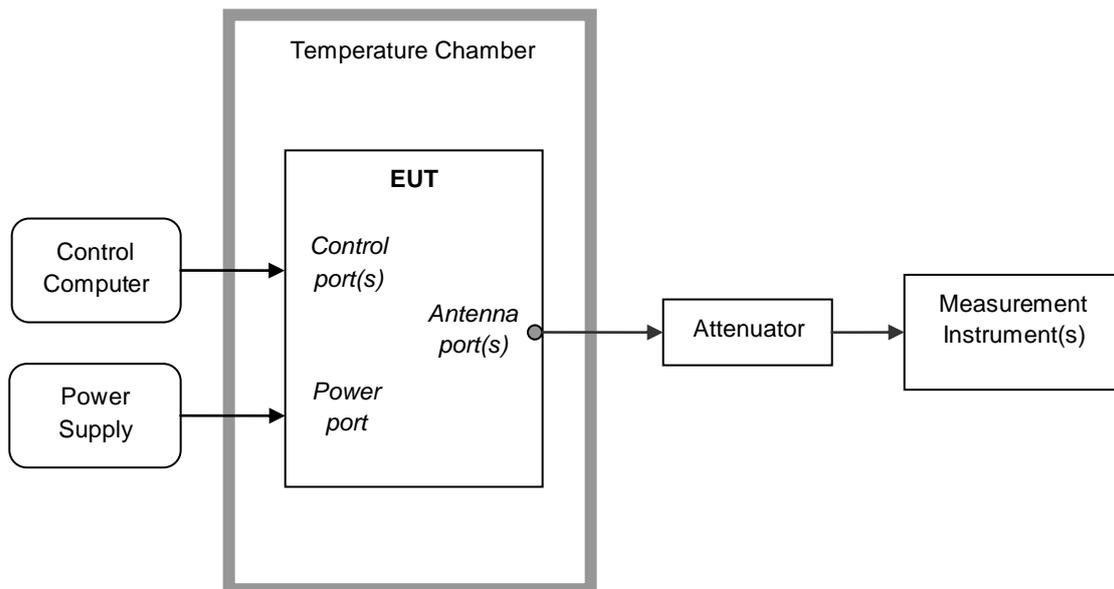
Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
Ambient Climate (See clause 1.3)	Ambient	---	Ambient
Rated Voltage	---	-48 VDC	---

### 4.3 Test Setups

#### 4.3.1 Test Setup 1



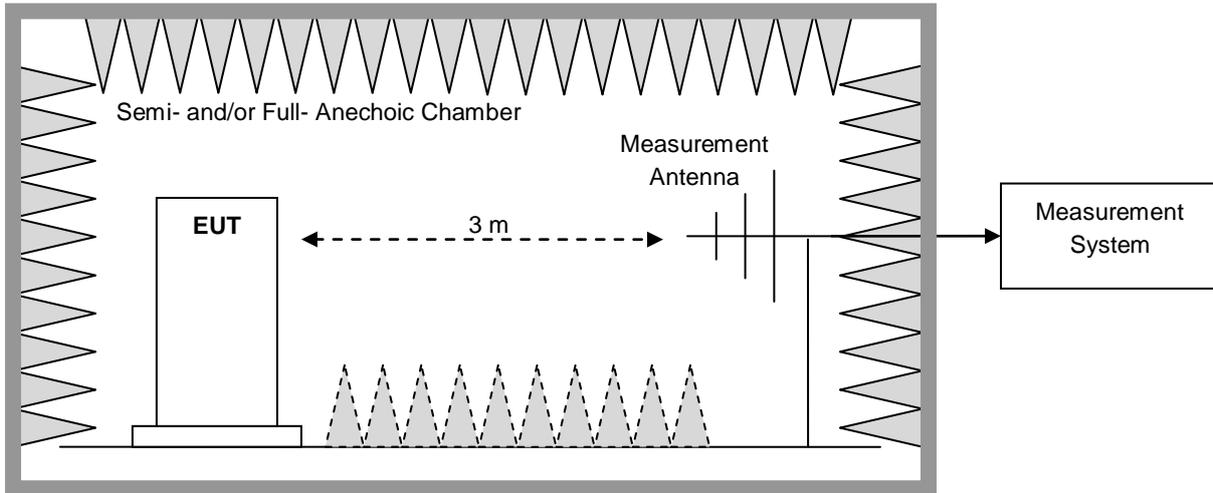
#### 4.3.2 Test Setup 2



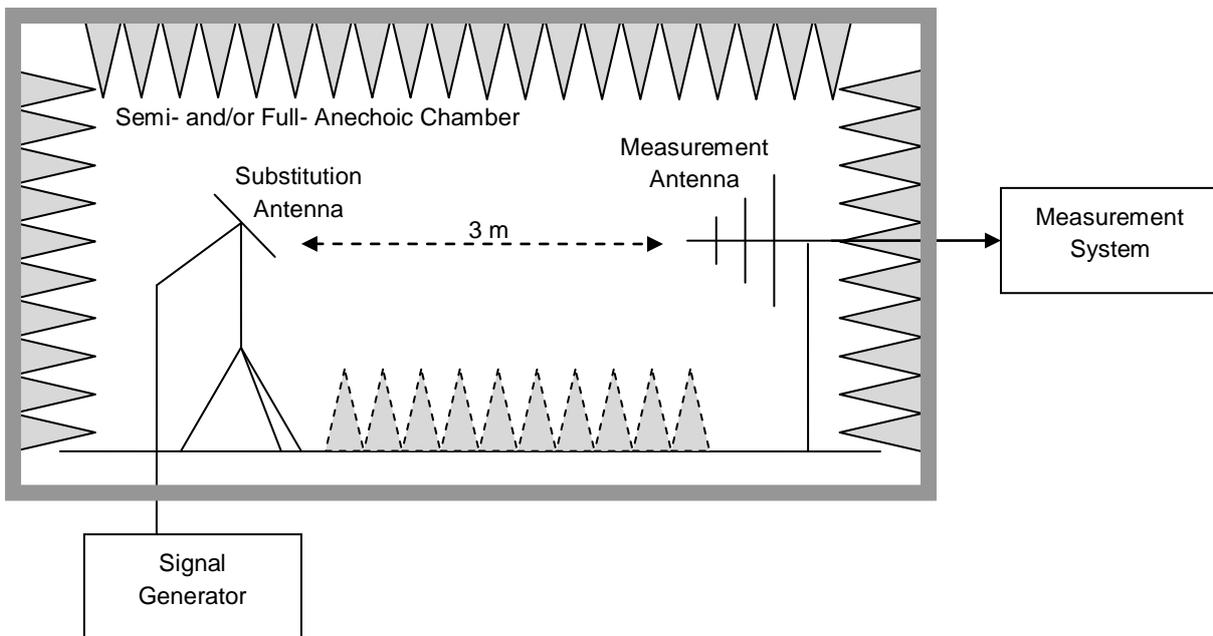
#### 4.3.3 Test Setup 3

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

##### 4.3.3.1 Step 1: Pre-test



#### 4.3.3.2 Step 2: Substitution method to verify the maximum ERP





#### 4.4 Test Conditions

Test Case		Test Conditions	
Transmitter Output Power	Channel Power, Total	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T, 2L_5M+5M_B, 2L_5M+5M_T, 2L_5M+10M_B, 2L_5M+10M_T
	Power Spectral Density (if required)	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T,
	Peak-to-Average Ratio (if required)	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T,
Bandwidth	Occupied Bandwidth	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T,
	Emission Bandwidth (if required)	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T,
Band Edges Compliance / Emission Mask	Test Env.	Ambient Climate & Rated Voltage	
	Test Setup	Test Seup 1	
	EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T, 2L_5M+5M_B, 2L_5M+5M_T, 2L_5M+10M_B, 2L_5M+10M_T	
Spurious Emission at Antenna Terminals	Test Type	<input checked="" type="checkbox"/> Conducted <input type="checkbox"/> Radiated (go to test case of Field Strength of Spurious Radiation / Radiated Spurious Emissions)  NOTE: According to FCC §2.1053 and KDB 971168 §6.1&§5.8,	



Test Case		Test Conditions	
			in the cases of the EUTs that are portable or hand-held devices utilizing one or more integral transmit antennas, measurements cannot be performed in a conducted measurement configuration, it becomes necessary to perform the described compliance measurements in a radiated test arrangement.
		Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T, 2L_5M+5M_B, 2L_5M+5M_T, 2L_5M+10M_B, 2L_5M+10M_T
Field Strength of Spurious Radiation / Radiated Spurious Emissions		Test Type	<input type="checkbox"/> Field Strength of Spurious Radiation <input checked="" type="checkbox"/> Radiated Spurious Emissions  NOTE: According to FCC §2.1053 and KDB 971168, when antenna-port conducted measurements (i.e. Spurious Emission at Antenna Terminals measurement) are performed to demonstrate compliance to the applicable unwanted emission limits, a separate radiated measurement (i.e. this Field Strength of Spurious Radiation measurement) is required to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation (, and with the transmit antenna port(s) terminated). Note that when radiated measurements for spurious emissions at antenna terminals are performed to demonstrate compliance to the unwanted emission limits (e.g., an EUT with integral transmit antenna), the field strength of spurious radiation measurement is not required.
		Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 3
		EUT Conf.	1L_5M_M  NOTE: If applicable, the EUT Conf. that has maximum power density (based on the equivalent power level) is selected.
Frequency Stability	Frequency Error	Test Env.	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) 85%, 100% and 115% of Rated Voltage at Ambient Climate.
		Test Setup	Test Seup 2



Test Case		Test Conditions	
		EUT Conf.	1L_5M_M  NOTE: A representative EUT Conf. was selected since the un-modulation carrier configuration was required by the standards/rules.
	Frequency Range (if required)	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 2
		EUT Conf.	1L_5M_B, 1L_5M_M, 1L_5M_T, 1L_10M_B, 1L_10M_M, 1L_10M_T, 1L_15M_B, 1L_15M_M, 1L_15M_T,
Receiver Spurious Emissions	Test Env.	Ambient Climate & Rated Voltage	
	Test Setup	Test Seup 1	
	EUT Conf.	---	



## 5 Main Test Instruments

NOTE 1: NCR = No calibration required, VOU = Verified on use.

NOTE 2: Unless otherwise specified, the calibration intervals for test instruments were Annual (per year). The other intervals, if applicable, are marked with (##y), which denotes ## years calibration interval.

Equipment Name	Manufacturer	Model	Serial Number	Cal. Due
Test Setup 1 & 2				
Spectrum Analyzer	R&S	FSQ26	200988	2016-01-26
Vector Network Measurement System	Anritsu	Vector Network Measurement System	051604	2015-06-24
Temperature Chamber	Chongqing Yinhe	ESS-SDJ71	20070305	2015-09-10

## 6 Measurement Uncertainty

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
Transmitter Output Power	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 / Radiated Spurious Emissions	Power [dBm] / Field Strength [dB $\mu$ V/m]	For 3 m Chamber: U = 4.15 dB (30 MHz-1 GHz) U = 3.64 dB (1 GHz-18 GHz) U = 3.26 dB (18 GHz-26.5 GHz) U = 3.83 dB (26.5 GHz-40 GHz)  For 10 m Chamber: U = 4.8 dB (30MHz to 1GHz) U = 4.3 dB (1 GHz to 26.5GHz)
Frequency Stability	Frequency Accuracy [ppm]	U = 0.21 ppm

END