



中国认可
国际互认
检测
TESTING
CNAS L0310



RF Test Report

Product Name: Remote Radio Unit

Product Model: RRU3268

Report Number: SYBH(R)02225178EB-1

FCC ID: QISRRU32682G6

IC: 6369A-RRU3268

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-1.
 - 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 laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named as "Global Compliance and Testing Center of Huawei Technologies Co., Ltd"; the both names have coexisted since 2009.
6. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
7. The test report is invalid if there is any evidence of erasure and/or falsification.
8. The test report is only valid for the test samples.
9. 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: RRU3268

Date of Receipt Sample: 2016-02-01
Start Date of Test: 2016-02-01
End Date of Test: 2016-03-07

Test Result: Pass

Approved by Senior Engineer:	2016-06-01	Ren Huasheng	
	Date	Name	Signature

Prepared by:	2016-06-01	Hu Wei	
	Date	Name	Signature



Modification Record

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



CONTENT

1	General Information.....	6
1.1	Applied Standard.....	6
1.2	Test Location.....	6
1.3	Test Environment Condition.....	6
2	Test Summary.....	7
2.1	BRS&EBS Band (2496/2500-2690 MHz).....	7
3	Description of the Equipment under Test (EUT).....	17
3.1	General Description.....	17
3.2	EUT Identity.....	17
3.3	Technical Specification.....	18
4	General Test Conditions / Configurations.....	20
4.1	EUT Configurations.....	20
4.2	Test Environments.....	21
4.3	Test Setups.....	22
4.4	Test Conditions.....	24
5	Main Test Instruments.....	27
6	Measurement Uncertainty.....	28



1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2 (10-1-14 Edition)
47 CFR FCC Part 27 (10-1-14 Edition)
IC RSS-Gen (Issue 4, November 2014)
IC RSS-199 (Issue 2, October 2014)

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

NOTE 1: Unless otherwise specified, all test items are performed at test location TL1. The other test locations, if applicable, are marked with (TL##) in the Verdict column.

NOTE 2: For IC, only requirements in RSS but not in SRSP are considered for compliance measurements for certification purposes, since the requirements of SRSP are to be addressed with the device at the time of licensing (except RSS refers to requirements of SRSP).

2.1 BRS&EBS Band (2496/2500-2690 MHz)

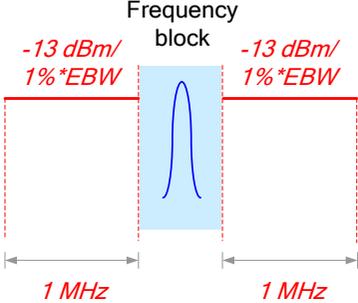
2.1.1 Measurement Technical Requirements

Test Item	FCC Rule	IC Rule	Requirements			Test Result	Verdict
Transmitter Output Power	§2.1046, §27.50(h), §27.50(i)	RSS-Gen,§6.12; RSS-199,§4.4	FCC	Main Station / Booster Station / Base Station / Response Station	<ul style="list-style-type: none"> EIRP Power: (1) For SecST: $EIRP\ Power \leq 33\ dBW + 10\ lg(X/Y)\ dBW + 10\ lg(360/beamwidth)\ dBW$. (2) Others: $EIRP\ Power \leq 33\ dBW + 10\ lg(X/Y)\ dBW$. For main, booster and response stations utilizing digital emissions with non-uniform power spectral density: $EIRP\ PD\ (100\ kHz\ RBW,\ within\ 6\ MHz\ OccCh) \leq EIRP\ Power / 60\ (W/100\ kHz)$. <p>Note 1): SecST - main or booster station sectorizes or otherwise uses one or more transmitting antennas with a non-omnidirectional horizontal plane radiation pattern.</p> <p>Note 2): $X = ChBW\ (MHz)$.</p> <p>Note 3): $Y =$ either (i) 6 MHz if prior to transition or the station is in the MBS following transition or (ii) 5.5 MHz if the station is</p>	Annex A	Pass



Test Item	FCC Rule	IC Rule	Requirements		Test Result	Verdict
				<p>in the LBS and UBS following transition.</p> <p>Note 4): beamwidth = the total horizontal plane beamwidth of the individual transmitting antenna for the station or any sector measured at the half-power points.</p>		
			Mobile Station	<ul style="list-style-type: none"> EIRP Power ≤ 2 W. Conducted Power ≤ 2 W. 		
			Other User Station	Conducted Power ≤ 2 W.		
			IC	<p>Fixed Station / Base Station</p> <ul style="list-style-type: none"> EIRP PD: <ol style="list-style-type: none"> HAAT ≤ 300 m: ≤ 1640 W/MHz (32.15 dBW/MHz), HAAT ≤ 500 m: ≤ 32.15 dBW/MHz – 2 dB, HAAT ≤ 1000 m: ≤ 32.15 dBW/MHz – 5 dB, HAAT ≤ 1500 m: ≤ 32.15 dBW/MHz – 8 dB, HAAT ≤ 2000 m: ≤ 32.15 dBW/MHz – 10 dB. <p>Note 1): HAAT - Height Above Average Terrain.</p>		
			Mobile Subscriber Station	<ul style="list-style-type: none"> EIRP Power ≤ 2 W. Peak detector. 		
			Fixed Subscriber Station	<ul style="list-style-type: none"> EIRP Power ≤ 40 W. Conducted Power ≤ 2 W. Peak detector. 		
Bandwidth	§2.1049, §27.53(m)	RSS-Gen,§6.6	FCC	<ul style="list-style-type: none"> OBW: No limit. EBW (-26 dBc): No limit. 	Annex B	Pass
			IC	OBW: No limit.		



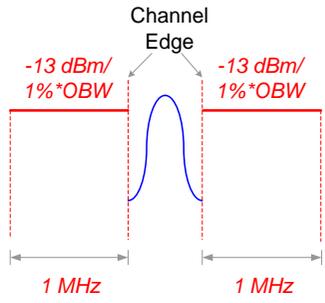
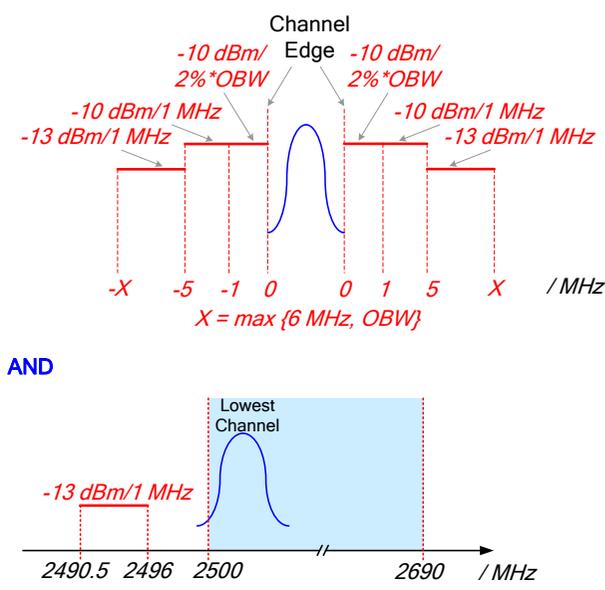
Test Item	FCC Rule	IC Rule	Requirements		Test Result	Verdict	
Band Edges Compliance / Emission Mask	§2.1051, §27.53(m)	RSS-Gen, §6.13; RSS-199, §4.6	FCC	Digital Base Station	 <p>Note 1): EBW is -26 dBc EBW.</p>	Annex C	Pass



Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict	
			Mobile Digital Station	<p>AND</p> <p>AND, if 2495-2496MHz is immediately outside and adjacent to the frequency block</p>		

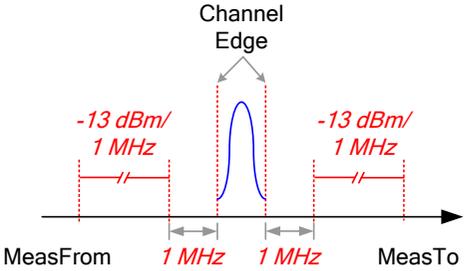
Note 1): EBW is -26 dBc EBW.



Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict	
			IC			
			Base Station / Fixed Subscriber			
			Mobile Subscriber			



Test Item	FCC Rule	IC Rule	Requirements		Test Result	Verdict	
Spurious Emission at Antenna Terminals	§2.1051, §27.53(m)	RSS-Gen, §6.13; RSS-199, §4.6	FCC	Digital Base Station	<p>Frequency block</p> <p>-13 dBm/1 MHz</p> <p>-13 dBm/1 MHz</p> <p>MeasFrom 1 MHz 1 MHz MeasTo</p> <p>Note 1): MeasFrom: max(lowest internal frequency, 9 kHz).</p> <p>Note 2): MeasTo: min(10 * highest fundamental frequency, 40 GHz).</p>	Annex D	Pass
				Mobile Digital Station	<p>Frequency block</p> <p>-25 dBm/1 MHz</p> <p>-25 dBm/1 MHz</p> <p>MeasFrom -X 0 0 X MeasTo</p> <p>$X = \max \{6 \text{ MHz}, \text{EBW}\}$</p> <p>AND</p> <p>Lowest Channel</p> <p>-25 dBm/1 MHz</p> <p>MeasFrom 2490.5 2500 2690 / MHz</p> <p>Note 1): EBW is -26 dBc EBW.</p>		

Test Item	FCC Rule	IC Rule	Requirements		Test Result	Verdict
				Note 2): MeasFrom: max(lowest internal frequency, 9 kHz). Note 3): MeasTo: min(10 * highest fundamental frequency, 40 GHz).		
			IC Base Station / Fixed Subscriber	<div data-bbox="1115 416 1579 687" data-label="Figure">  <p>The diagram illustrates a spectral measurement setup. A central blue curve represents the signal spectrum. A vertical dashed line marks the 'Channel Edge'. Two horizontal red double-headed arrows, each labeled '1 MHz', define the measurement bandwidths starting from 'MeasFrom' and ending at 'MeasTo'. Red text indicates the signal level at these points as '-13 dBm/1 MHz'.</p> </div> Note 1): MeasFrom: max(min(lowest internal frequency, 30 MHz), 9 kHz). Note 2): MeasTo: min(10 * highest fundamental frequency, 40 GHz).		

Test Item	FCC Rule	IC Rule	Requirements		Test Result	Verdict
			Mobile Subscriber	<p>Channel Edge</p> <p>-25 dBm/1 MHz</p> <p>-25 dBm/1 MHz</p> <p>MeasFrom -X 0 0 X MeasTo</p> <p>$X = \max \{6 \text{ MHz}, \text{OBW}\}$</p> <p>AND</p> <p>Lowest Channel</p> <p>-25 dBm/1 MHz</p> <p>MeasFrom 2490.5 2500 2690 /MHz</p> <p>Note 1): MeasFrom: $\max(\min(\text{lowest internal frequency}, 30 \text{ MHz}), 9 \text{ kHz})$.</p> <p>Note 2): MeasTo: $\min(10 * \text{highest fundamental frequency}, 40 \text{ GHz})$.</p>		
Field Strength of Spurious Radiation / Radiated Spurious Emissions	§2.1053, §27.53(m)	RSS-Gen,§6.13; RSS-199,§4.6	Refer to requiremnts of "Spurious Emission at Antenna Terminals".		Annex E	Pass (TL3)
Frequency Stability	§2.1055, §27.54	RSS-Gen,§6.11; RSS-199,§4.3	FCC	<ul style="list-style-type: none"> Test method: Fundamental emissions (Fc_meas) within the authorized bands of operation. Test conditions: (1) NV, -30°C/.../+50°C step=+10°C. (2) NT, ±15%*NV. 	Annex F	Pass

Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict
			<p>IC</p> <p>Base Station / Fixed Subscriber Equipment</p> <ul style="list-style-type: none"> Step 1: f(offset): no limit. Step 2: $fL - f(\text{offset}) > 2500 \text{ MHz}$, $fH + f(\text{offset}) < 2690 \text{ MHz}$. <ul style="list-style-type: none"> Test conditions for Step 1: (1) NV, -30°C/+20°C/+50°C. (2) +20°C, ±15%*NV. Test conditions for Step 2: NTV. 		
			<p>Mobile Subscriber Equipment</p> <ul style="list-style-type: none"> Step 1: f(offset): no limit. Step 2: $fL - f(\text{offset}) > 2500 \text{ MHz}$, $fH + f(\text{offset}) < 2690 \text{ MHz}$. <ul style="list-style-type: none"> Test conditions for Step 1: (1) NV, -30°C/+20°C/+50°C. (2) 		



Test Item	FCC Rule	IC Rule	Requirements	Test Result	Verdict
			+20°C, ±15%*NV. ● Test conditions for Step 2: NTVN.		
Receiver Spurious Emission (Note 1)	---	RSS-Gen,§5; RSS-Gen,§7	---	Annex G	---
Note 1: 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.					

2.1.2 Non-measurement Technical Requirements

Description	FCC Rule	IC Rule	Requirements	Exhibit	Verdict
Frequency Plan	§27.5(i)	RSS-199,§2.2; SRSP-517	FCC 2496-2690 MHz. IC 2500-2690 MHz. 	See technical specification description.	Comply
Modulation Characteristics	§2.1047	RSS-199,§4.1	Digital modulation.	See technical specification description.	Comply
Channel Bandwidth	---	RSS-199,§4.2	ChBW ≥ 1 MHz.	See technical specification description.	Comply
Equipment with Multiple Antennas	---	RSS-199,§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 RRU3268 is the outdoor remote radio unit which is powered by a power cabinet. It is the radio frequency (RF) module of the distributed eNodeB and is installed close to the antenna. The RRU3268 can modulate, demodulate, combine, and divide baseband and RF signals. It also processes baseband and RF signal data. Using the software-defined radio (SDR) technique, the RRU3268 supports the multi-carriers application.

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
WD5HLRX870	Ver.B	Manufactured Board,MARP RRU,WD5HLRX870,Transceiver Board,2T2R,2600M,2*40W,1*1
WD5ELRA870	Ver.A	Manufactured Board,DBS3900 LTE,WD5ELRA870,Power Amplifier Board,2T2R, 2600M, 1*1

3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
UMPT	--	Huawei	Universal Main Processing & Transmission unit
UBBP	--	Huawei	Baseband Processing and Interface Unit



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: 2620 to 2690 MHz RX: 2500 to 2570 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	Contiguous spectrum operation: 60 MHz Non-contiguous spectrum operation: 60 MHz	
TX Output Power	Max. 80 W (all antenna ports)	
Supported Channel Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz	
Modulation Type	GSM system:	Not applicable
	UMTS system:	Not applicable
	LTE system:	Base-band: QPSK, 16QAM, 64QAM Carrier: OFDM/OFDMA
	CDMA system:	Not applicable
	WiMAX system:	Not applicable
Designation of Emissions (Note: the necessary	GSM system:	Not applicable
	UMTS system:	Not applicable
	LTE system:	4M49D9W, 8M94D9W, 13M4D9W, 17M8D9W



Characteristics	Description	
bandwidth of which is the worst value from the measured occupied bandwidths for each type of channel bandwidth configuration.)	CDMA system:	Not applicable
	WiMAX system:	Not applicable
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

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"> All TX tests are ONLY performed at the main TX antenna port (e.g. TRXA, TXA or similar) of the EUT, and All RX tests are ONLY performed at the main RX antenna port (e.g. TRXA, RXB or similar) of the EUT.
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
UMTS/TM1	UMTS system, 3GPP TS 25.141 clause 6.1.1, Test Model 1, QPSK modulation
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.	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]	Power Level [dBm]	Test Mode
1L_5M_B	B	2622.5	--	5	46.0	E-TM1.1
1L_5M_M	M	2655	--	5	46.0	E-TM1.1
1L_5M_T	T	2687.5	--	5	46.0	E-TM1.1
1L_10M_B	B	2625	--	10	46.0	E-TM1.1
1L_10M_M	M	2655	--	10	46.0	E-TM1.1
1L_10M_T	T	2685	--	10	46.0	E-TM1.1
1L_15M_B	B	2627.5	--	15	46.0	E-TM1.1
1L_15M_M	M	2655	--	15	46.0	E-TM1.1
1L_15M_T	T	2682.5	--	15	46.0	E-TM1.1
1L_20M_B	B	2630	--	20	46.0	E-TM1.1
1L_20M_M	M	2655	--	20	46.0	E-TM1.1
1L_20M_T	T	2680	--	20	46.0	E-TM1.1
2L_5M_B	B	2622.5,2677.5	--	5,5	43.0,43.0	E-TM1.1
2L_5M_T	T	2632.5,2687.5	--	5,5	43.0,43.0	E-TM1.1

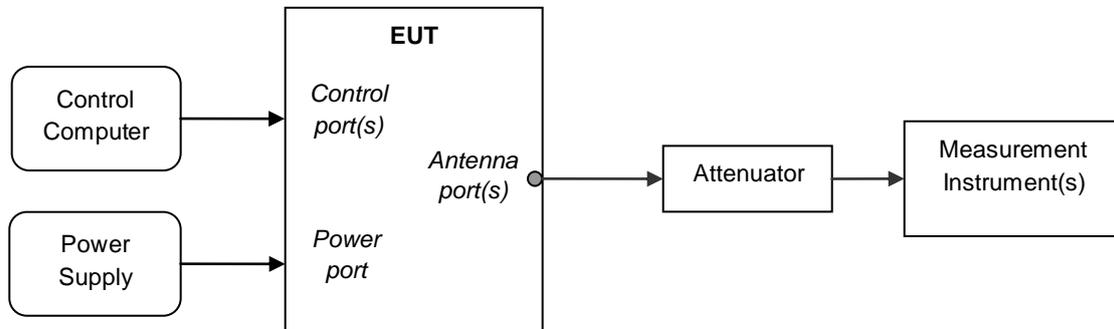


4.2 Test Environments

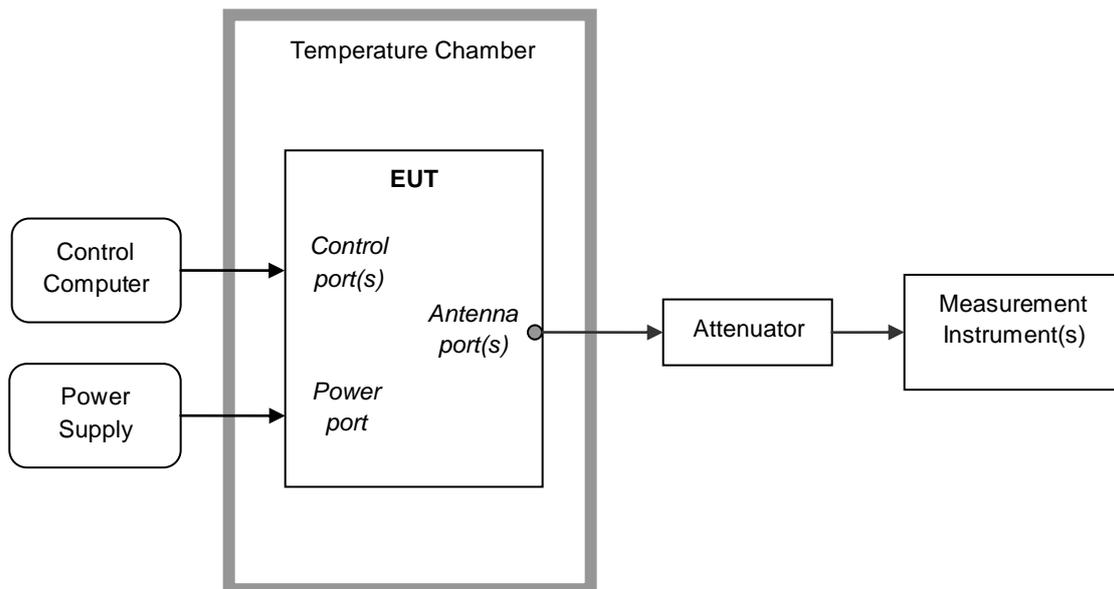
Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
Ambient Climate (See clause 1.3)	Ambient	---	Ambient
Rated Voltage	---	-48 VDC	---

4.3 Test Setups

4.3.1 Test Setup 1



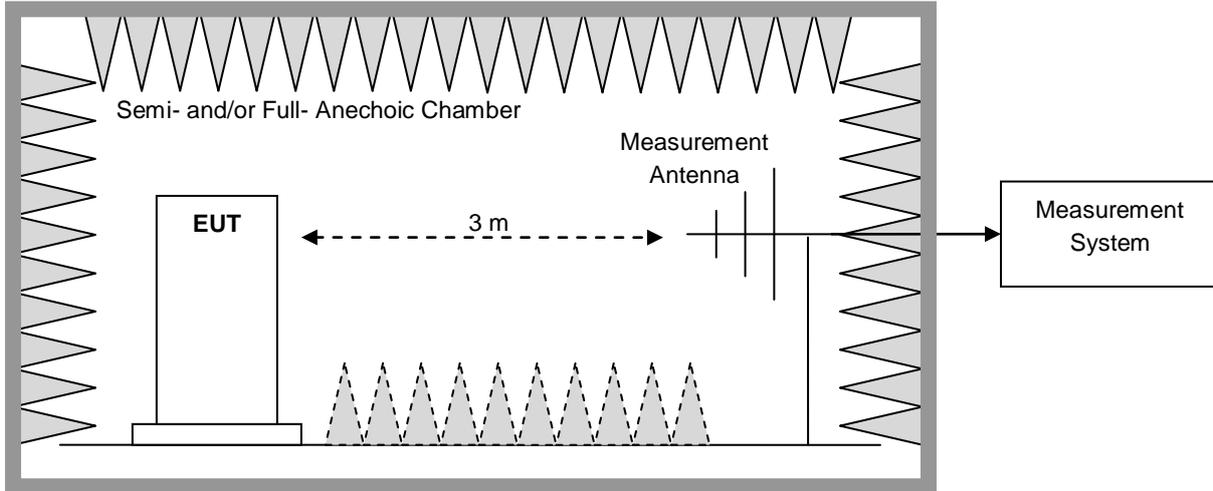
4.3.2 Test Setup 2



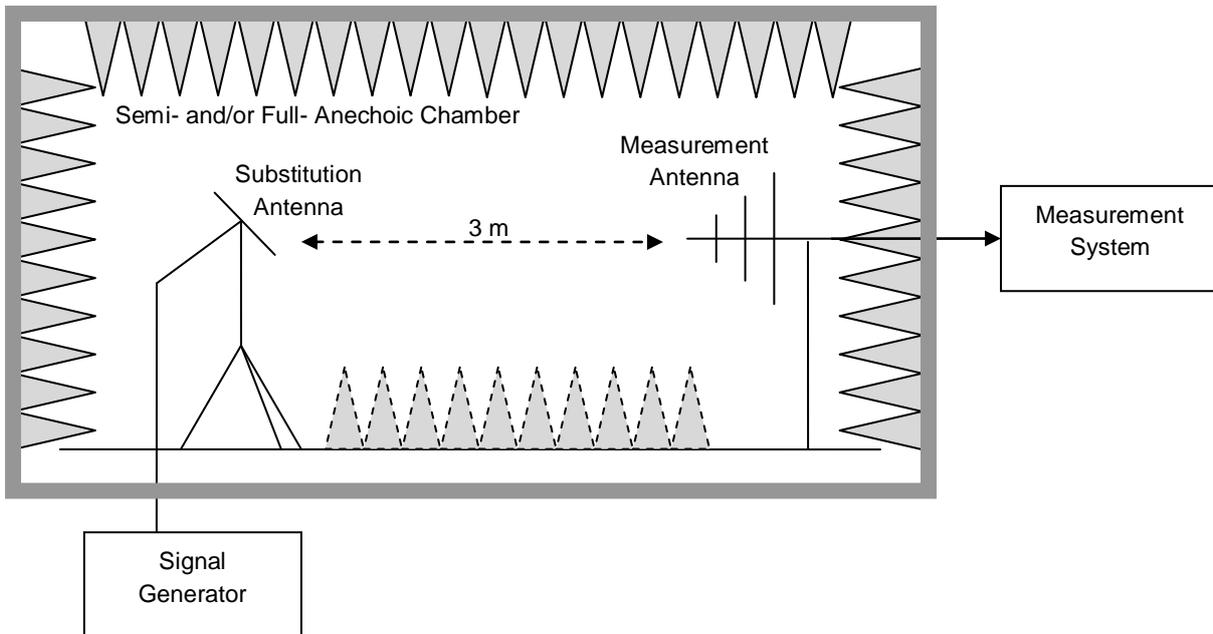
4.3.3 Test Setup 3

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, 1L_20M_B, 1L_20M_M, 1L_20M_T, 2L_5M_B, 2L_5M_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, 1L_20M_B, 1L_20M_M, 1L_20M_T,
	Peak-to-Average Ratio (if required)	Test Env.	Ambient Climate & Rated Voltage
		Test Setup	Test Seup 1
		EUT Conf.	---
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, 1L_20M_B, 1L_20M_M, 1L_20M_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, 1L_20M_B, 1L_20M_M, 1L_20M_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_20M_B, 1L_20M_M, 1L_20M_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, in the cases of the EUTs that are portable or hand-held devices utilizing one or more integral transmit antennas,	



Test Case		Test Conditions	
			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_20M_B, 1L_20M_M, 1L_20M_T, 2L_5M_B, 2L_5M_T
Field Strength of Spurious Radiation / Radiated Spurious Emissions	Test Type	<input checked="" type="checkbox"/> Field Strength of Spurious Radiation <input 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 (Worst Case) 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
		EUT Conf.	1L_5M_M NOTE: A representative EUT Conf. was selected since the un-modulation carrier configuration was required by the



Test Case		Test Conditions	
			standards/rules.
Frequency Range (if required)	Test Env.	Ambient Climate & Rated Voltage	
	Test Setup	Test Seup 2	
	EUT Conf.	1L_5M_B, 1L_5M_T, 1L_10M_B, 1L_10M_T, 1L_15M_B, 1L_15M_T, 1L_20M_B, 1L_20M_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	2017-01-10
Spectrum Analyzer	R&S	FSQ26	101170	2016-04-26
Signal Generator	R&S	SMU200A	103717	2017-01-10
Vector Network Measurement System	Anritsu	MS4622B	051604	2016-07-27
Power Supply	Chroma	62012P-80-60	62012PD01403	2016-10-20
Signal Generator	Agilent	E8257D	MY49281095	2016-10-29
Temperature Chamber	Chongqing Yinhe	ESS-SDJ71	20070305	2016-09-08
Test Setup 3				
EMI Test receiver	Agilent	N9038A	MY52260169	2016-10-26
Spectrum analyser	Agilent	N9010A	MY52220816	2017-01-10
Bilog Antenna	TESQ	CBL 6112D	35238	2017-11-27 (2y)
Bilog Antenna	TESQ	CBL 6112D	35239	2017-12-11 (2y)
Horn Antenna	SWARZBECK	BBHA 9120D	1077	2017-11-27 (2y)
Horn Antenna	SWARZBECK	BBHA 9120D	1078	2017-11-06 (2y)
Horn Antenna	ETS	3160-09	00117544	2017-11-06 (2y)



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 μ 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