

# FCC RF Test Report

**Product Name: LTE/UMTS Smart Phone; HUAWEI Ascend  
Mate2**

**Model Number: HUAWEI MT2-L03, MT2-L03**

**Report No: SYBH(Z-RF)009032014-2005**

**FCC ID: QISMT2-L03**

Reliability Laboratory of Huawei Technologies Co., Ltd.

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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 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-1.
  5. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
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  7. The test report is only valid for the test samples.
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1. The laboratory has Passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.



**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:** 2014-03-10  
**Start Date of Test:** 2014-03-12  
**End Date of Test:** 2014-04-01

**Test Result:** Pass

**Approved by Senior  
Engineer:**

2014-04-15  
Date

Cousy Xu  
Name

Cousy XU  
Signature

**Prepared by:**

2014-04-15  
Date

Ling Kaiyun  
Name

Ling Kaiyun  
Signature



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## 1 General Information

### 1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2, Subpart J 2013  
47 CFR FCC Part 15, Subpart C 2013  
47 CFR FCC Part 15, Subpart E 2013

Test Method: FCC KDB 789033 D01 General UNII Test Procedures v01r03  
FCC KDB 558074 D01 DTS Meas Guidance v03r01  
ANSI C63.10-2009, American National Standard for Testing Unlicensed Wireless Devices

### 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

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



## 2 Test Summary

### 2.1 Measurement Technical Requirements

#### 2.1.1 U-NII (5150-5250, 5250-5350, 5470-5725 MHz)

Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
Emission Bandwidth	5150-5250	15.403(i) 15.407(a)(1)	No limit.	Appendix A	Pass
	5250-5350	15.403(i) 15.407(a)(2)			
	5470-5725	15.403(i) 15.407(a)(2)			
Maximum Conducted Output Power	5150-5250	15.407(a)(1) 15.407(a)(4)	<MIN{17dBm,4dBm+10*lg(EBW)} (avg during transmission)	Appendix B	Pass
	5250-5350	15.407(a)(2) 15.407(a)(4)	<MIN{24dBm,11dBm+10*lg(EBW)} (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<MIN{24dBm,11dBm+10*lg(EBW)} (avg during transmission)		
Peak Power Spectral Density	5150-5250	15.407(a)(1) 15.407(a)(4)	<4dBm/MHz (avg during transmission)	Appendix C	
	5250-5350	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
	5470-5725	15.407(a)(2) 15.407(a)(4)	<11dBm/MHz (avg during transmission)		
Unwanted Emissions	5150-5250	15.407(b)(1) 15.407(b)(6) 15.407(b)(7) 15.209	<ul style="list-style-type: none"> <li>F&lt;1GHz: §15.209/§7.2.5 limit (QP).</li> <li>F≥1GHz &amp; out-restricted: &lt;-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35 GHz).</li> <li>F≥1GHz &amp; in-restricted: §15.209/§7.2.5 limit (AV&amp;PK).</li> </ul>	Appendix E (NOTE 1)	Pass
	5250-5350	15.407(b)(2) 15.407(b)(6) 15.407(b)(7) 15.209	<ul style="list-style-type: none"> <li>F&lt;1GHz: §15.209/§7.2.5 limit (QP).</li> <li>F≥1GHz &amp; out-restricted: &lt;-27dBm/MHz PK e.i.r.p. (exl. 5.25-5.35 GHz).</li> <li>F≥1GHz &amp; in-restricted: §15.209/§7.2.5 limit (AV&amp;PK).</li> </ul>		



Test Item	Band	FCC Rule	Requirements	Test Result	Verdict
	5470-5725	15.407(b)(3) 15.407(b)(6) 15.407(b)(7) 15.209	<ul style="list-style-type: none"><li>F&lt;1GHz: §15.209/§7.2.5 limit (QP).</li><li>F≥1GHz &amp; out-restricted: &lt;-27dBm/MHz PK e.i.r.p. (exl. 5.47-5.725 GHz).</li><li>F≥1GHz &amp; in-restricted: §15.209/§7.2.5 limit (AV&amp;PK).</li></ul>		
Peak Excursion Ratio	5150-5250 5250-5350 5470-5725	15.407(a)(6)	<13dB.	Appendix D	Pass
	5250-5350	15.407(b)(6) 15.207	§15.207/§7.2.4 limit.	Appendix F	Pass
					5470-5725

**2.1.2 DTS (5725-5850 MHz)**

Test Item	FCC Rule	Requirements	Test Result	Verdict
DTS (6 dB) Bandwidth	15.247(a)(2)	≥ 500 kHz.	Appendix A	Pass
Maximum Peak Conducted Output Power	15.247(b)(3)	<30dBm-IF{G[dBi]>6dBi,G[dBi]-6dB,0dB}. (Peak)	Appendix B	Pass
Maximum Power Spectral Density Level	15.247(e)	<8dBm/3kHz-IF{G[dBi]>6dBi,G[dBi]-6dB,0dB}. (Peak)	Appendix C	Pass
Unwanted Emissions into Non-Restricted Frequency Bands	15.247(d)	<-20dBc/100kHz.	Appendix D	Pass
Unwanted Emissions into Restricted Frequency Bands	15.247(d) 15.209 (NOTE 1)	§15.209/§7.2.5 limit.	(NOTE 2)	Pass
AC Power Line Conducted Emissions	15.207	§15.207/§7.2.4 limit.	Appendix E	Pass
<p>NOTE 1: According to KDB 558074, antenna-port conducted measurements are acceptable as an alternative to radiated measurements for demonstrating compliance to the limits in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case emissions will also be required.</p> <p>NOTE 2: The Unwanted Emissions into Restricted Frequency Bands (Radiated) tested by Neutron Engineering Inc. So the test data refer to the report No. NEI-FCCP-3-1402C116 by Neutron Engineering Inc.</p>				



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

#### 3.1 General Description

HUAWEI MT2-L03, MT2-L03 is subscriber equipment in the LTE/WCDMA/GSM system. The HSPA/UMTS frequency band is Band I and Band II and Band V and Band IV. The LTE frequency band is B2 and B17 and B4 and B5. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/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.

#### 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		
Software Version	Hardware Version	Description
MT2-L03V100R001C00B110	HL1MT2L03MT	Main Board

##### 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  2A
Rated Power	10W

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB496791EBW Rated capacity: 3740mAh Nominal Voltage:  +3.8V Charging Voltage:  +4.35V



### 3.3 Technical Description

Characteristics	Description	
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11a (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (40 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11ac (80 MHz channel bandwidth),	
TX/RX Operating Range	All	$f_c = 5000 \text{ MHz} + N * 5 \text{ MHz}$ , where: - $f_c$ = "Operating Frequency" in MHz, - $N$ = "Channel Number".
	5150-5250 MHz (U-NII)	$N = 36$ to $48$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 38$ to $46$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 42$ for the $80 \text{ MHz}$ channel bandwidth.
	5250-5350 MHz (U-NII)	$N = 52$ to $64$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 54$ to $62$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 58$ for the $80 \text{ MHz}$ channel bandwidth.
	5470-5600 MHz (U-NII)	$N = 100$ to $116$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 102$ to $110$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 106$ for the $80 \text{ MHz}$ channel bandwidth.
	5650-5725 MHz (U-NII)	$N = 132$ to $140$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 134$ for the $40 \text{ MHz}$ channel bandwidth.
	5725-5850 MHz (DTS)	$N = 149$ to $165$ with step of $4$ for the $20 \text{ MHz}$ channel bandwidth. $N = 151$ to $159$ with step of $4$ for the $40 \text{ MHz}$ channel bandwidth. $N = 155$ for the $40 \text{ MHz}$ channel bandwidth.
Modulation Type	BPSK/QPSK/16QAM/64QAM (OFDM).	
Emission Designator	U-NII(5150-5250, 5250-5350, 5470-5725)	21M5G7D (for 802.11a mod), 21M7G7D (for 802.11n 20 MHz mode), 43M1G7D (for 802.11n 40 MHz mode), 21M3G7D (for 802.11ac 20 MHz mode) 42M4G7D (for 802.11ac 40 MHz mode) 83M8G7D (for 802.11ac 80 MHz mode)
	DTS(5725-5850 MHz)	16M6G7D (for 802.11a mod), 17M9G7D (for 802.11n 20 MHz mode), 36M5G7D (for 802.11n 40 MHz mode), 17M8G7D (for 802.11ac 20 MHz mode) 36M5G7D (for 802.11ac 40 MHz mode) 75M7G7D (for 802.11ac 80 MHz mode)
TPC	<input checked="" type="checkbox"/> Supported, <input type="checkbox"/> Not Supported	
Antenna	Type	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated
	Ports	<input checked="" type="checkbox"/> Ant 1, <input type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3, <input type="checkbox"/> Ant 4
	Smart System	<input checked="" type="checkbox"/> SISO (for 802.11a/n/ac), <input type="checkbox"/> Diversity (for 802.11a) : Tx & Rx



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Characteristics	Description			
	Gain	1 dBi (per antenna port, max.)		
	Remark	When the EUT is put into service, the practical maximum antenna gain should NOT exceed the value as described above.		
Power Supply	Type	<input checked="" type="checkbox"/> AC/DC Adapter	<input type="checkbox"/> PoE:	<input type="checkbox"/> Other:



## 4 General Test Conditions / Configurations

### 4.1 Test Modes

NOTE: Worst cases for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11A	IEEE 802.11a with data rate of 6 Mbps using SISO mode.
11N20	IEEE 802.11n with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11N40	IEEE 802.11n with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC20	IEEE 802.11ac with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11AC40	IEEE 802.11ac with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11AC80	IEEE 802.11ac with data rate of MCS0 and bandwidth of 80 MHz using SISO mode.

### 4.2 EUT Configurations

#### 4.2.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, <ul style="list-style-type: none"> <li>All TX tests are performed at all TX antenna ports of the EUT, and</li> <li>All RX tests are performed at all RX antenna ports 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.

#### 4.2.2 Customized Configurations

##### 4.2.2.1 U-NII

Test Mode	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Power Conf., per Port	Duty Cycle
11A	Ant 1	5180 (Ch.36)	---	14.5	88%
11A	Ant 1	5200 (Ch.40)	---	14.5	88%
11A	Ant 1	5220 (Ch.48)	---	14.5	88%
11A	Ant 1	5260 (Ch.52)	---	14.5	88%
11A	Ant 1	5280 (Ch.56)	---	14.5	88%
11A	Ant 1	5320 (Ch.64)	---	14.5	88%
11A	Ant 1	5500 (Ch.100)	---	14.5	88%
11A	Ant 1	5580 (Ch.116)	---	14.5	88%
11A	Ant 1	5700 (Ch.140)	---	14.5	88%



Test Mode	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Power Conf., per Port	Duty Cycle
11N20	Ant 1	5180 (Ch.36)	---	14.5	87%
11N20	Ant 1	5200 (Ch.40)	---	14.5	87%
11N20	Ant 1	5220 (Ch.48)	---	14.5	87%
11N20	Ant 1	5260 (Ch.52)	---	14.5	87%
11N20	Ant 1	5280 (Ch.56)	---	14.5	87%
11N20	Ant 1	5320 (Ch.64)	---	14.5	87%
11N20	Ant 1	5500 (Ch.100)	---	14.5	87%
11N20	Ant 1	5580 (Ch.116)	---	14.5	87%
11N20	Ant 1	5700 (Ch.140)	---	14.5	87%
11N40	Ant 1	5190 (Ch.38)	---	13.5	74%
11N40	Ant 1	5230 (Ch.46)	---	13.5	74%
11N40	Ant 1	5270 (Ch.54)	---	13.5	74%
11N40	Ant 1	5310 (Ch.62)	---	13.5	74%
11N40	Ant 1	5510 (Ch.102)	---	13.5	74%
11N40	Ant 1	5550 (Ch.110)	---	13.5	74%
11N40	Ant 1	5670 (Ch.134)	---	13.5	74%
11AC20	Ant 1	5180 (Ch.36)	---	14	83%
11AC20	Ant 1	5200 (Ch.40)	---	14	83%
11AC20	Ant 1	5220 (Ch.48)	---	14	83%
11AC20	Ant 1	5260 (Ch.52)	---	14	83%
11AC20	Ant 1	5280 (Ch.56)	---	14	83%
11AC20	Ant 1	5320 (Ch.64)	---	14	83%
11AC20	Ant 1	5500 (Ch.100)	---	14	83%
11AC20	Ant 1	5580 (Ch.116)	---	14	83%
11AC20	Ant 1	5700 (Ch.140)	---	14	83%
11AC40	Ant 1	5190 (Ch.38)	---	13	69%
11AC40	Ant 1	5230 (Ch.46)	---	13	69%
11AC40	Ant 1	5270 (Ch.54)	---	13	69%
11AC40	Ant 1	5310 (Ch.62)	---	13	69%
11AC40	Ant 1	5510 (Ch.102)	---	13	69%
11AC40	Ant 1	5550 (Ch.110)	---	13	69%
11AC40	Ant 1	5670 (Ch.134)	---	13	69%
11AC80	Ant 1	5210 (Ch.42)	---	12	56%
11AC80	Ant 1	5290 (Ch.58)	---	12	56%
11AC80	Ant 1	5530 (Ch.106)	---	12	56%

**4.2.2.2 DTS**

Test Mode	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Power Conf., per Port	Duty Cycle
11A	Ant 1	5745 (Ch.149)	---	14.5	88%
11A	Ant 1	5785 (Ch.157)	---	14.5	88%
11A	Ant 1	5825 (Ch.165)	---	14.5	88%
11N20	Ant 1	5745 (Ch.149)	---	14.5	87%
11N20	Ant 1	5785 (Ch.157)	---	14.5	87%
11N20	Ant 1	5825 (Ch.165)	---	14.5	87%
11N40	Ant 1	5755(Ch.151)	---	13.5	74%
11N40	Ant 1	5795(Ch.159)	---	13.5	74%
11AC20	Ant 1	5745 (Ch.149)	---	14	83%
11AC20	Ant 1	5785 (Ch.157)	---	14	83%
11AC20	Ant 1	5825 (Ch.165)	---	14	83%
11AC40	Ant 1	5755(Ch.151)	---	13	69%
11AC40	Ant 1	5795(Ch.159)	---	13	69%
11AC80	Ant 1	5775 (Ch.155)	---	12	56%

### 4.3 Test Environments

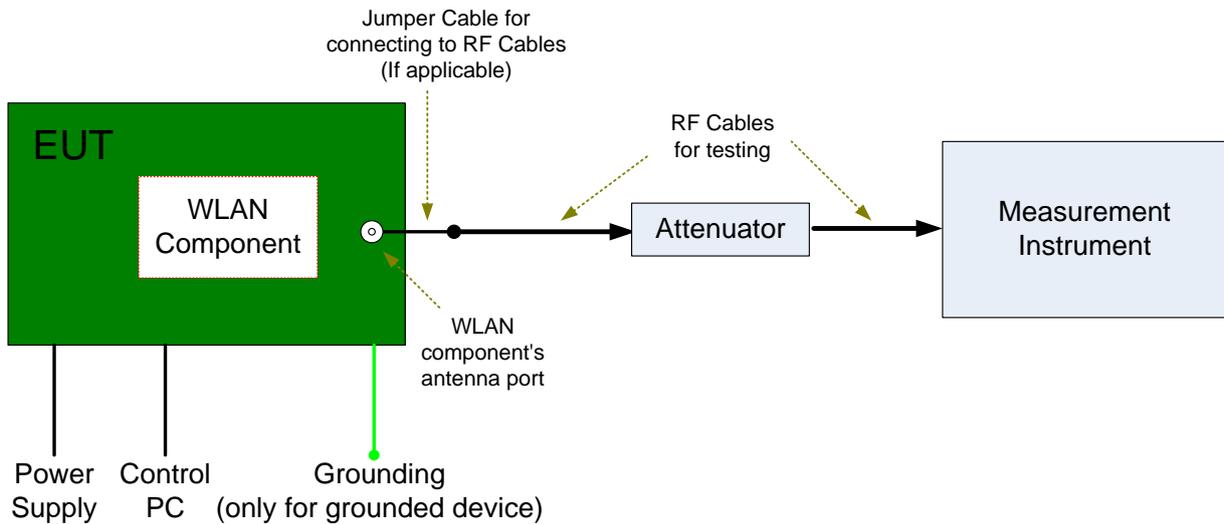
NOTE: The values used in the test report may be stringent than the declared.

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
NTNV	Ambient	3.8 VDC	Ambient

### 4.4 Test Setups

#### 4.4.1 Test Setup 1

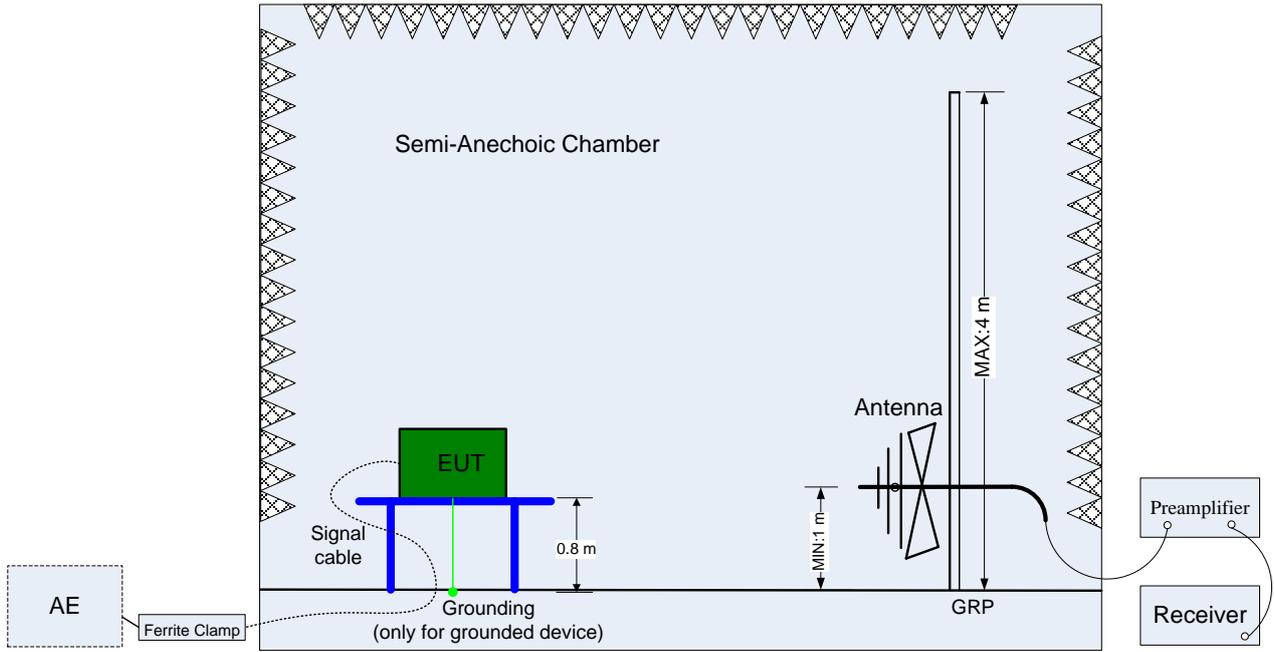
The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



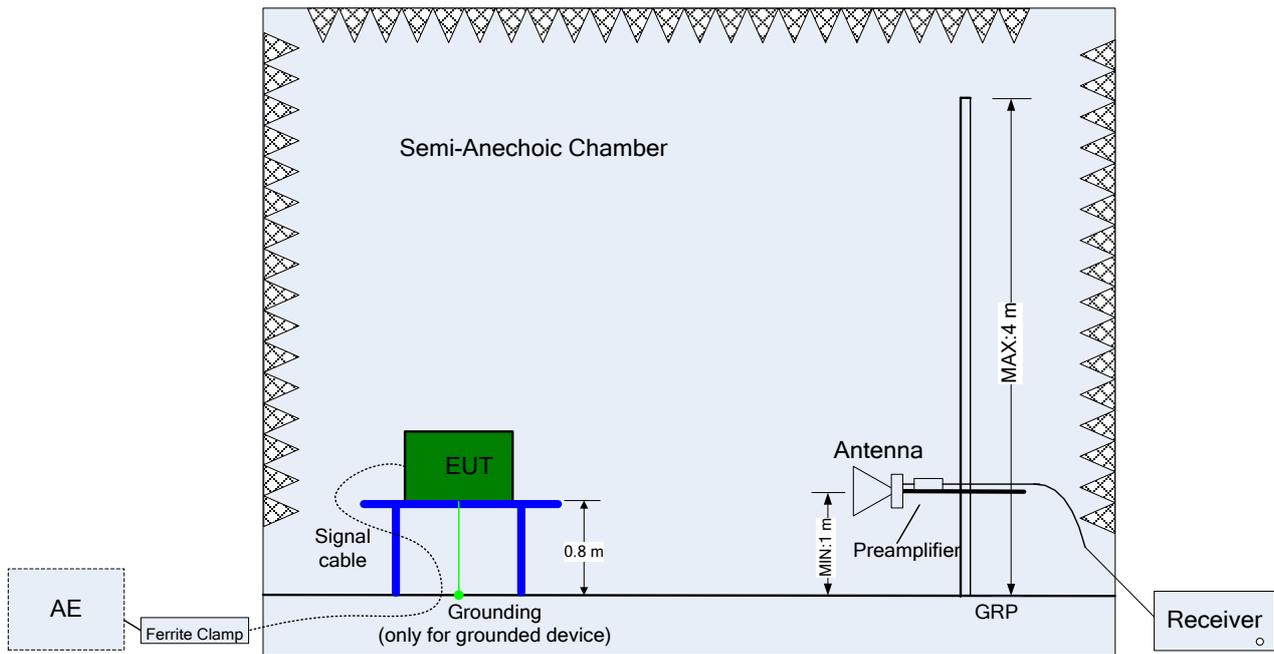
#### 4.4.2 Test Setup 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.4. The test distance is 3 m (for 30 MHz to 26.5 GHz) or 1 m (for 26.5 GHz to 40 GHz). The setup is according to ANSI C63.10, ANSI C63.4 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).



(Below 1 GHz)

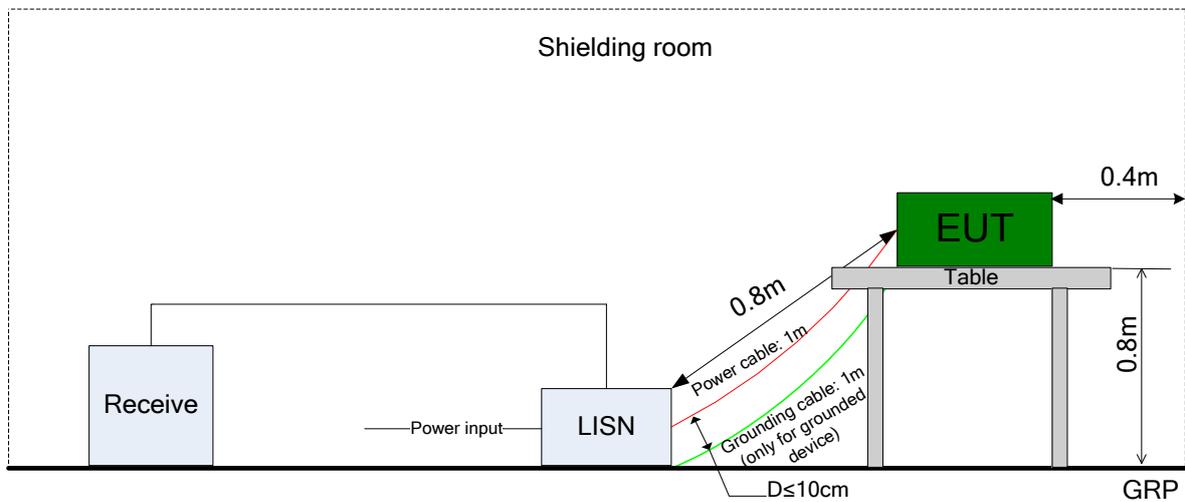


(Above 1 GHz)

### 4.4.3 Test Setup 3

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8 m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.





## 4.5 Test Conditions

### 4.5.1 U-NII

Test Case	Test Conditions		
	Configuration	Description	
26 dB Emission Bandwidth (EBW)	Meas. Method	FCC KDB 789033 §D).	
	Test Env.	NTNV	
	Test Setup	Test Setup 1	
	EUT Conf.	All EUT conf. with Tx modes.	
Maximum Conducted Output Power	Meas. Method	FCC KDB 789033 §C)3)b) Method SA-1 and d) Method SA-2.	
	Test Env.	NTNV	
	Test Setup	Test Setup 1	
	EUT Conf.	All EUT conf. with Tx modes.	
Peak Power Spectral Density	Meas. Method	FCC KDB 789033 §E).	
	Test Env.	NTNV	
	Test Setup	Test Setup 1	
	EUT Conf.	All EUT conf. with Tx modes.	
Peak Excursion Ratio	Meas. Method	FCC KDB 789033 §F).	
	Test Env.	NTNV	
	Test Setup	Test Setup 1	
	EUT Conf.	All EUT conf. with Tx modes.	
Unwanted Emissions (Cond.)	Meas. Method	FCC KDB 789033 §G), Conducted (antenna-port).  NOTE: Antenna-port conducted measurements (Cond.) are acceptable as an alternative to radiated measurements (Rad.) for demonstrating compliance to the limits in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test (Radt-a) for cabinet/case emissions will also be required.	
	Test Env.	NTNV	
	Test Setup	Test Setup 1	
	EUT Conf.	5150-5250	All EUT Test Mode 20 MHz bandwidth: Ch.36, Ch.48 40 MHz bandwidth: Ch.38, Ch.46 80 MHz bandwidth: Ch.42
		5250-5350	All EUT Test Mode 20 MHz bandwidth: Ch.52, Ch.64 40 MHz bandwidth: Ch.54, Ch.62 80 MHz bandwidth: Ch.58
		5470-5725	All EUT Test Mode 20 MHz bandwidth: Ch.100, Ch.140 40 MHz bandwidth: Ch.102, Ch.134



Test Case	Test Conditions	
	Configuration	Description
		80 MHz bandwidth: Ch.106
AC Power Line Conducted Emissions	Meas. Method	AC mains conducted. Pre: RBW = 10 kHz; Det. = Peak. Final: RBW = 9 kHz; Det. = CISPR Quasi-Peak & Average.
	Test Env.	NTNV
	Test Setup	Test Setup 3
	EUT Conf.	11A _Ch.100 (Worst Conf.)

**4.5.2 DTS**

Configuration	Description
<b>DTS (6 dB) Bandwidth</b>	
Test Method	FCC KDB 558074, §8.1 Option 1.
Test Env.	NTNV
Test Setup	Test Setup 1
EUT Conf.	All EUT conf. with Tx modes.
Remark	For measurements on EUT with multiple transmit chains, the test is performed at each chain, and is used as respective result for each chain.
<b>Maximum Peak Conducted Output Power</b>	
Test Method	FCC KDB 558074, §9.1.2 Integrated Band Power Method.
Test Env.	NTNV
Test Setup	Test Setup 1
EUT Conf.	All EUT conf. with Tx modes.
Remark	For measurements on EUT with multiple transmit chains, the test is performed at each chain (respectively as Ant 1, Ant 2, ..., Ant N) and then combined into the final result (as Ant Sum) to compare with the limit. The result for Ant Sum equals the linear power sum of results for Ant 1 to Ant N (the N denotes the antenna chains used by EUT antenna systems).
<b>Maximum Power Spectral Density Level</b>	
Test Method	FCC KDB 558074, §10.2 Method PKPSD (Peak PSD).
Test Env.	NTNV
Test Setup	Test Setup 1
EUT Conf.	All EUT conf. with Tx modes.
Remark	For measurements on EUT with multiple transmit chains, the test is performed at each chain (respectively as Ant 1, Ant 2, ..., Ant N) and then combined into the final result (as Ant Sum) to compare with the limit. The result for Ant Sum equals the linear power sum of results for Ant 1 to Ant N (the N denotes the antenna chains used by smart antenna systems). However, it is should be noted that the method is a stringent but convenient consideration, because the measured maximum value for each chain may be located at different frequency occurrence. For the ultimate judgment, the combination of the final result (Trace Sum) should be performed frequency-by-frequency on the measured spectrum trace for each chain (Trace 1, Trace 2, ..., Trace N). Unless otherwise specified, the method for ultimate judgment will not be used.
<b>Unwanted Emissions into Non-Restricted Frequency Bands</b>	
Test Method	FCC KDB 558074, §11 (Peak-based).
Test Env.	NTNV
Test Setup	Test Setup 1
EUT Conf.	All EUT conf. with Tx modes.
Remark	<ul style="list-style-type: none"> <li>● For measurements on EUT with multiple transmit chains, the test is performed at each chain and used as respective results for each chain, due to the relative-limit requirement.</li> <li>● In the result table, the “Pref”, which is used as the reference level, refers to the peak power level</li> </ul>



Configuration	Description
	<p>in any 100 kHz bandwidth within the fundamental emission, and the "P<sub>uw</sub>" refers to the maximum emission power in 100 kHz band segments outside of the authorized frequency band.</p> <ul style="list-style-type: none"><li>● In the result table, the "&lt; Limit" denotes that "The P<sub>uw</sub> [dBm] is less than Pref [dBm] – 20 [dB], see test plots for detailed".</li></ul>
AC Power Line Conducted Emissions	
Test Method	AC mains conducted. Pre.: RBW=10 kHz; Det.=Peak. Final: RBW=9 kHz; Det.=CISPR Quasi-Peak & Average.
Test Env.	NTNV
Test Setup	Test Setup 3
EUT Conf.	11N20_ Ch.149 (Worse conf.),
Remark	(void)



## 5 Main Test Instruments

NOTE: 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 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
Signal Analyzer	R&S	FSQ40	100025	2013-11-27	2014-11-26
Spectrum Analyzer	Agilent	N9030A	MY49431698	2013-10-29	2014-10-28
Temperature Chamber	WEISS	WKL64	56246002940010	2014-02-25	2015-02-24
Temperature Chamber	ESPEC	MW3030	06114003	2013-05-14	2014-05-13
Signal generator	Agilent	E8257D	MY51500314	2013-04-15	2014-04-14
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)	SCHWARZBECK	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-LINDGREN	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

END