



RF Test Report

Product Name: Enterprise Gateway

Product Model: eSpace EGW1520

Report Number: SYBH(R)00785447EB-1

FCC ID: QIS-EGW1520A

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 and 6369A-3.
5. The laboratory has been listed by the VCCI to perform EMC measurements. The accreditation numbers of test site No.1 are R-2364, G-415, C-2583, and T-256, and the accreditation numbers of test site No.2 are R-3760, G-485, C-4210 and T-1237.
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: Enterprise Gateway
Product Model: eSpace EGW1520

Date of Receipt Sample: 2012-06-01
Start Date of Test: 2012-06-05
End Date of Test: 2012-11-04

Test Result: Pass

Approved by Senior	2013-01-16	Zhang Xinghai	<i>Zhang Xing hai</i>
Engineer:	Date	Name	Signature

Prepared by:	2013-01-16	Zhang Weimin	<i>Zhang Weimin</i>
	Date	Name	Signature



Modification Record

No.	Last Report No.	Modification Description
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1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2, Subpart J (10-1-11 Edition)
47 CFR FCC Part 15, Subpart C (10-1-11 Edition)

Test Method: FCC KDB 558074 D01 DTS Meas Guidance v02
FCC KDB 662911 D01 Multiple Transmitter Output v01r02
FCC KDB 662911 D02 MIMO with Cross-Polarized Antennas v01

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: 45 to 75 %
Atmospheric Pressure: Not applicable



2 Test Summary

2.1 Non-measurement Technical Requirements

Description	FCC Rule No.	IC Rule No.	Requirements	Evidence	Verdict (NOTE)
Antenna Use	§15.203	RSS-Gen, 7.1.2	FCC&IC: Permanently attached antenna. IC: User manual notices required (see detailed for RSS-Gen, 7.1.2) .	See user's manual.	Comply
User Manual Notice for Licence-Exempt Radio Apparatus	---	RSS-Gen, 7.1.3	User Manual Notice for Licence-Exempt Radio Apparatus is required.	See user's manual.	Comply
Radio Apparatus Containing Digital Circuits	§15 subpart B	RSS-Gen, 7.1.4, ICES-003	FCC: §15 subpart B. IC: ICES-003.	See separate test report (EMC).	Comply
Radiation Exposure Requirement	§15.247(i), §1.1307(b), §2.1091, §2.1093	RSS-Gen, 5.6, RSS-102	General population/uncontrolled limit.	See separate test report or declaration document (MPE).	Comply
NOTE: For the verdict, the "N/A" denotes "not applicable", the "N/T" denotes "not tested".					

2.2 Measurement Technical Requirements

Test Item	FCC Part No.	IC Standard No.	Requirements	Test Result	Verdict (NOTE 2)
DTS (6 dB) Bandwidth	15.247(a)(2)	RSS-210, A8.2(a)	≥ 500 kHz.	Appendix A	Pass
Occupied Bandwidth	---	RSS-210, 2.1 RSS-Gen, 4.6.1	No limit.	Appendix B	N/A
Maximum Peak Conducted Output Power	15.247(b)(3)	RSS-210, A8.4(4)	For directional gain: < 30 dBm – (G[dBi] – 6 [dB]), peak; Otherwise: < 30 dBm, peak.	Appendix C	Pass
Maximum Power Spectral Density Level	15.247(e)	RSS-210, A8.2(b)	For directional gain: < 8 dBm/3 kHz – (G[dBi] – 6 [dB]), peak. Otherwise: < 8 dBm/3 kHz, peak.	Appendix D	Pass
Unwanted Emissions into Non-Restricted Frequency Bands	15.247(d)	RSS-210, A8.5	< -20 dBm/100 kHz if total peak power ≤ power limit.	Appendix E	Pass
Unwanted Emissions into Restricted Frequency Bands (Conducted)	15.247(d) 15.209 (NOTE 1)	RSS-210, A8.5 RSS-210, 2.2 RSS-Gen, 7.2.2 RSS-Gen, 7.2.5 (NOTE 1)	FCC Part 15.209 field strength limit; RSS-Gen 7.2.5 field strength limit.	Appendix F.1	Pass
Unwanted Emissions into Restricted Frequency Bands (Radiated)				Appendix F.2	Pass
Receiver Spurious Emissions	---	RSS-210, 2.3 RSS-Gen, 6.1	RSS-Gen 6.1 radiated limit.	Appendix G	N/T
AC Power Line Conducted Emissions	15.207	RSS-Gen, 7.2.4	FCC Part 15.207 conducted limit; RSS-Gen, 7.2.4 conducted limit.	Appendix H	Pass
Photos of Test Setups	---	---	---	Appendix I	---

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.

NOTE 2: For the verdict, the “N/A” denotes “not applicable”, the “N/T” denotes “not tested”.



3 Description of the Equipment under Test (EUT)

3.1 General Description

Huawei eSpace EGW1520 is a new-generation enterprise gateway that provides a complete access solution and implements data, voice, broadband connection, wireless access, and security-related functions. It is an optimal choice for Small Office Home Office (SOHO) users and small-sized enterprises to establish an integrated office network.

The eSpace EGW1520 provides various uplink ports for different networking scenarios. It also provides diversified user ports to establish flexible office networks.

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	Description
EG12MAUB	Manufactured Board,EGW1520,EG12MAUB,UPLINK:ADSL,GE,3G(USB),FXO*4.DOWNLINK:FE*4,WLAN,FXS*1
AC/DC Adapter	(See clause 3.3)
Antenna	(See clause 3.3)

3.2.2 Sub-Assembly

Sub-Assembly			
Sub-Assembly Name	Model	Manufacturer	Description
Adapter	HW-120200 U1W	Huntkey	Adapter,-5degC,45degC,90V,270V,12V/2A,US Standard/DC inlet
Adapter	HW-120200 U1W	Fuhua	Adapter,-5degC,45degC,90V,270V,12V/2A,US Standard/DC inlet
Antenna	SL15206N	Shenglu	Isotropic Antenna,2400-2500 MHz,2 dBi,Vertical,Isotropic
Antenna	TT-2402-411	Tongyu	Isotropic Antenna,2400-2500 MHz,2 dBi,Vertical,Isotropic

3.3 Technical Description

Characteristics	Description			
IEEE 802.11 WLAN Mode Supported	<input checked="" type="checkbox"/> 802.11b (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11g (20 MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth), <input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth)			
TX/RX Operating Range	2400-2483.5 MHz band	$f_c = 2407 \text{ MHz} + N * 5 \text{ MHz}$, where: - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11 for the 20 MHz channel bandwidth, or 3 to 9 for the 40 MHz channel bandwidth.		
Data Rate	802.11b	1 Mbps, 2 Mbps, 5.5 Mbps, 11 Mbps		
	802.11g	6 Mbps, 9 Mbps, 12 Mbps, 18 Mbps, 24 Mbps, 36 Mbps, 48 Mbps, 54 Mbps		
	802.11n (SISO)	MCS 0 to MCS 7		
	802.11n (MIMO)	MCS 8 to MCS 15		
Modulation Type	DBPSK/DQPSK/CCK (DSSS), BPSK/QPSK/16QAM/64QAM (OFDM).			
Emission Designator	10M4G1D (for 802.11b mode), 16M5G7D (for 802.11g mod), 36M5G7D (for 802.11n mode)			
Equipment Type	<input type="checkbox"/> Stand-alone equipment, <input type="checkbox"/> Plug-in radio device, <input checked="" type="checkbox"/> Combined equipment			
Antenna	Model/ID	27010828		
	Description	Isotropic Antenna,2400-2500 MHz,2 dBi,Vertical,Isotropic,50W,U.FL,No Need Bracket		
	Type	<input checked="" type="checkbox"/> External, <input type="checkbox"/> Integrated		
	Ports	<input checked="" type="checkbox"/> Ant 1, <input checked="" type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3		
	Smart System	<input checked="" type="checkbox"/> SISO (for 802.11b/g/n), <input checked="" type="checkbox"/> MIMO (for 802.11n): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11b/g) : Tx & Rx		
	Gain	2 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 type="checkbox"/> AC/DC Adapter	<input type="checkbox"/> PoE:	<input type="checkbox"/> Other:
	Model/ID	HW-120200U1W	---	---
	Specification	~100-240V	---	---

4 General Test Conditions / Configurations

4.1 Declaration

4.1.1 Modular Approval

- Not applicable.
- The present document is based on the RF module installed within the product. The RF module was proved complying with relevant standard, see test report issued by _____ with report number _____ for the RF module with model number _____. The present document provides additive assessments and/or measurements to prove that the whole product still complies with relevant standard.

The differences and modifications between the “alone RF module” (RF_org) and the “RF module integrated into the host/combination product” (RF_new) are declared by the applicant and showed as below:

- ---
- All other components of the RF_org are not changed.

4.1.2 Permissive Change

- Not applicable.
- The present document/product is based on another report/product as reference, both of which utilize the similar or identical radio design, shielding, interface, physical layout and so on. The referred test report was proved complying with relevant standard, see test report issued by _____ with report number _____ for the product with model number _____. The present document provides additive assessments and/or measurements, which are based on the referred test report, to prove the compliance with relevant standard.

The differences and modifications between the referred test report/product (Product_ref) and the present test report/product (Product_cur) are declared by the applicant and showed as below:

- ---
- All other components of the Product_ref are not changed.

4.1.3 Multiple Models Applications

- The present document applies to single model number.
- The present document applies to several model numbers. The practical measurements are performed with the model number _____.

These model numbers utilize the similar radio design, shielding, interface, physical layout and so on. The differences and modifications between these model numbers are declared by the applicant and showed as below:

- ---
- All others between these model numbers are identical.



4.2 Test Modes

NOTE: Typical working modes for each IEEE 802.11 mode are selected to perform tests.

Test Mode	Test Modes Description
11B/1	IEEE 802.11b with data rate of 1 Mbps using SISO mode.
11G/6	IEEE 802.11g with data rate of 6 Mbps using SISO mode.
11N20/0	IEEE 802.11n with data rate of MCS0 and bandwidth of 20 MHz using SISO mode.
11N20m/8	IEEE 802.11n with data rate of MCS8 and bandwidth of 20 MHz using MIMO mode.
11N40/0	IEEE 802.11n with data rate of MCS0 and bandwidth of 40 MHz using SISO mode.
11N40m/8	IEEE 802.11n with data rate of MCS8 and bandwidth of 40 MHz using MIMO mode.

4.3 EUT Configurations

4.3.1 General Configurations

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

4.3.2 Customized Configurations

# EUT Conf.	Test Mode	RF Ch.	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]	Power Conf., per Port	Duty Cycle
11B/1_B@1	11B/1	B	Ant 1	Ch No. 1 / 2412 MHz	---	20	-q 54	0.99
11B/1_B@2	11B/1	B	Ant 2	Ch No. 1 / 2412 MHz	---	20	-q 54	0.99
11B/1_M@1	11B/1	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	-q 46	0.99
11B/1_M@2	11B/1	M	Ant 2	Ch No. 6 / 2437 MHz	---	20	-q 46	0.99
11B/1_T@1	11B/1	T	Ant 1	Ch No. 11 / 2462 MHz	---	20	-q 46	0.99
11B/1_T@2	11B/1	T	Ant 2	Ch No. 11 / 2462 MHz	---	20	-q 46	0.99
11G/6_B@1	11G/6	B	Ant 1	Ch No. 1 / 2412 MHz	---	20	-q 40	0.99
11G/6_B@2	11G/6	B	Ant 2	Ch No. 1 / 2412 MHz	---	20	-q 40	0.99
11G/6_M@1	11G/6	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	-q 46	0.99
11G/6_M@2	11G/6	M	Ant 2	Ch No. 6 / 2437 MHz	---	20	-q 46	0.99
11G/6_T@1	11G/6	T	Ant 1	Ch No. 11 / 2462 MHz	---	20	-q 38	0.99
11G/6_T@2	11G/6	T	Ant 2	Ch No. 11 / 2462 MHz	---	20	-q 42	0.99
11N20/0_B@1	11N20/0	B	Ant 1	Ch No. 1 / 2412 MHz	---	20	-q 36	0.98



# EUT Conf.	Test Mode	RF Ch.	Antenna Port	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]	Power Conf., per Port	Duty Cycle
11N20/0_B@2	11N20/0	B	Ant 2	Ch No. 1 / 2412 MHz	---	20	-q 38	0.98
11N20/0_M@1	11N20/0	M	Ant 1	Ch No. 6 / 2437 MHz	---	20	-q 46	0.98
11N20/0_M@2	11N20/0	M	Ant 2	Ch No. 6 / 2437 MHz	---	20	-q 46	0.98
11N20/0_T@1	11N20/0	T	Ant 1	Ch No. 11 / 2462 MHz	---	20	-q 36	0.98
11N20/0_T@2	11N20/0	T	Ant 2	Ch No. 11 / 2462 MHz	---	20	-q 40	0.98
11N20m/8_B@1+2	11N20m/8	B	Ant 1 + Ant 2	Ch No. 1 / 2412 MHz	---	20	-q 30	0.98
11N20m/8_M@1+2	11N20m/8	M	Ant 1 + Ant 2	Ch No. 6 / 2437 MHz	---	20	-q 46	0.98
11N20m/8_T@1+2	11N20m/8	T	Ant 1 + Ant 2	Ch No. 11 / 2462 MHz	---	20	-q 30	0.98
11N40/0_B@1	11N40/0	B	Ant 1	Ch No. 3 / 2422 MHz	---	40	-q 32	0.98
11N40/0_B@2	11N40/0	B	Ant 2	Ch No. 3 / 2422 MHz	---	40	-q 32	0.98
11N40/0_M@1	11N40/0	M	Ant 1	Ch No. 6 / 2437 MHz	---	40	-q 42	0.98
11N40/0_M@2	11N40/0	M	Ant 2	Ch No. 6 / 2437 MHz	---	40	-q 46	0.98
11N40/0_T@1	11N40/0	T	Ant 1	Ch No. 9 / 2452 MHz	---	40	-q 32	0.98
11N40/0_T@2	11N40/0	T	Ant 2	Ch No. 9 / 2452 MHz	---	40	-q 38	0.98
11N40m/8_B@1+2	11N40m/8	B	Ant 1 + Ant 2	Ch No. 3 / 2422 MHz	---	40	-q 30	0.98
11N40m/8_M@1+2	11N40m/8	M	Ant 1 + Ant 2	Ch No. 6 / 2437 MHz	---	40	-q 41	0.98
11N40m/8_T@1+2	11N40m/8	T	Ant 1 + Ant 2	Ch No. 9 / 2452 MHz	---	40	-q 30	0.98



4.4 Test Environments

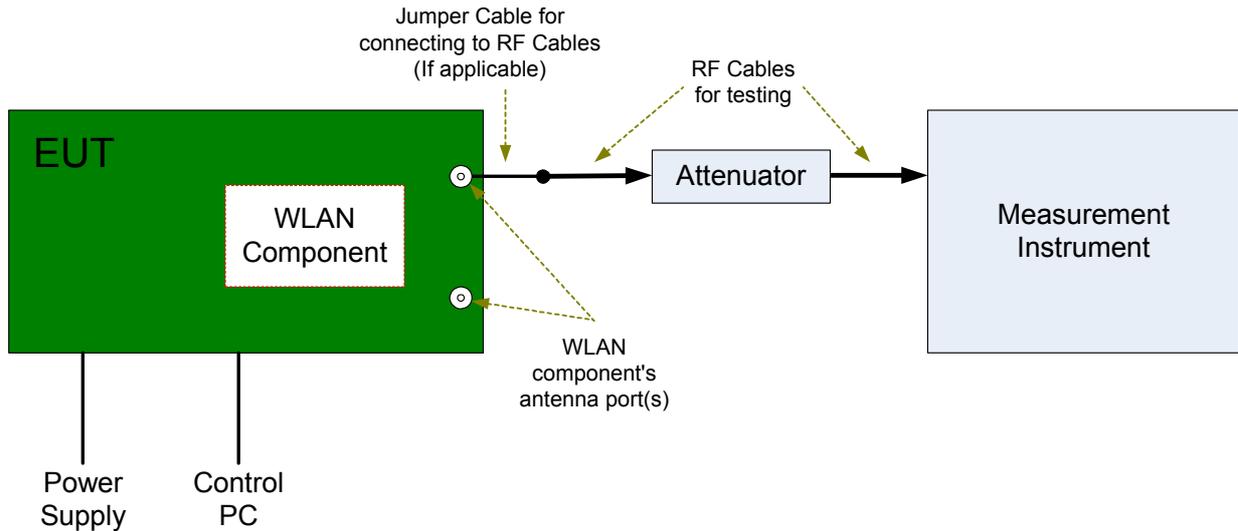
NOTE: The values used in the test report may be stringent than the declared.

Environment Parameter	Selected Values During Tests		
	Temperature	Voltage	Relative Humidity
NTNV	Ambient	12.0 VDC	Ambient

4.5 Test Setups

4.5.1 Test Setup 1

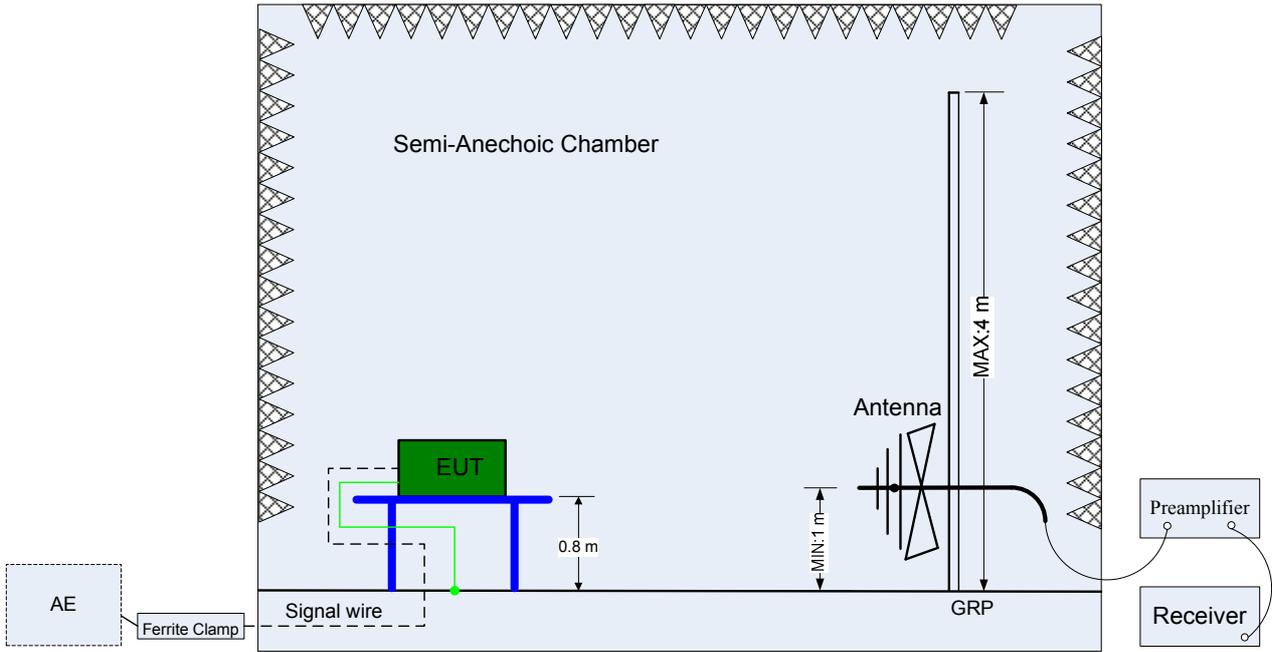
The WLAN component's antenna port(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



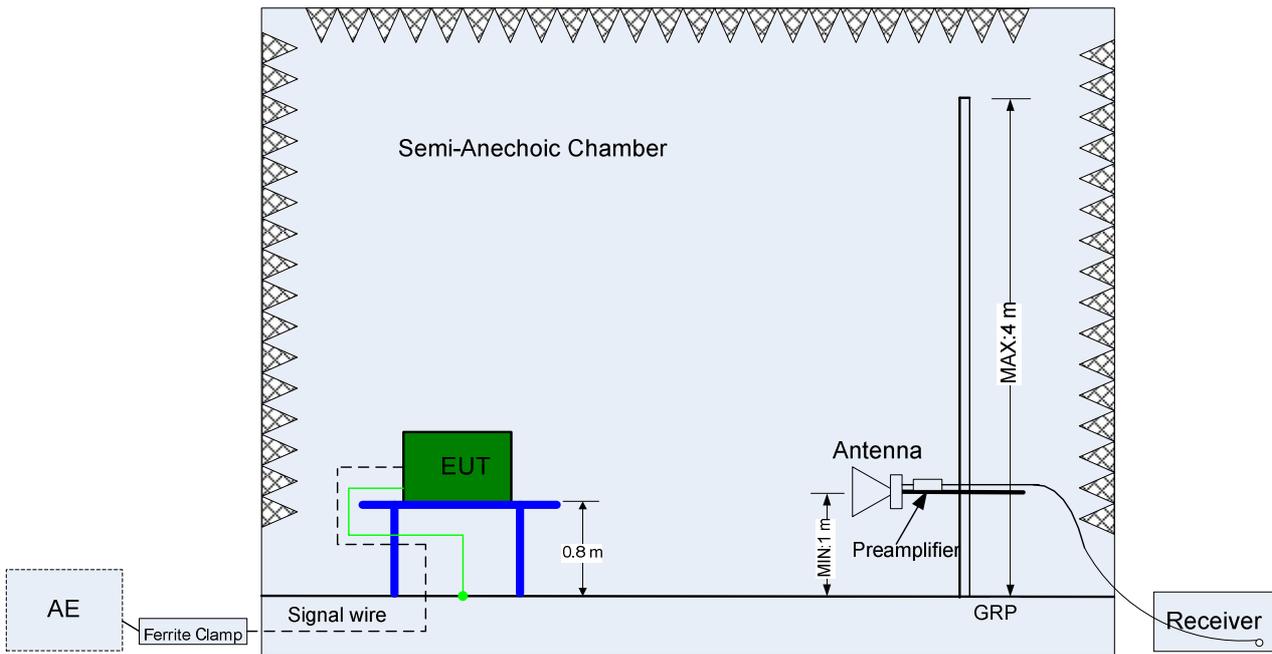
4.5.2 Test Setup 2

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 3m. 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)

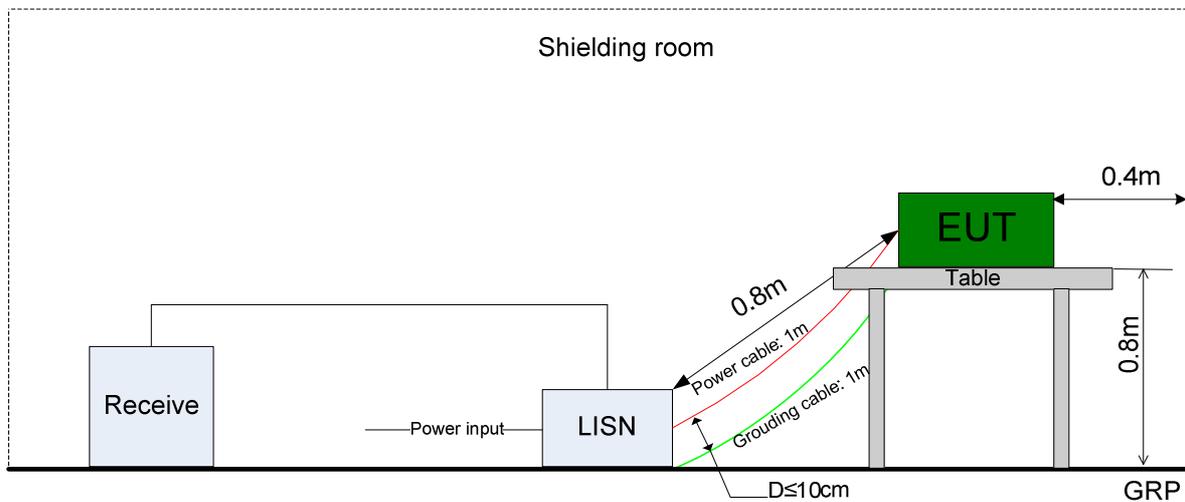


(Above 1 GHz)

4.5.3 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 0.8m 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.



4.6 Test Conditions

Test Case	Test Conditions	
	Configuration	Description
DTS (6 dB) Bandwidth	Meas. Method	FCC KDB 558074 §7.1.1 Option 1.
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.
Occupied Bandwidth	Meas. Method	RSS-Gen, 4.6.1.
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.
Maximum Peak Conducted Output Power	Meas. Method	FCC KDB 558074 §7.2.1.2 Option 2 (integrated band power method).
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.



Test Case	Test Conditions	
	Configuration	Description
Maximum Power Spectral Density Level	Meas. Method	FCC KDB 558074 §7.3.1 Option 1 (peak PSD).
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.
Unwanted Emissions into Non-Restricted Frequency Bands	Meas. Method	FCC KDB 558074 §7.4.1, use Peak PSD.
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.
Unwanted Emissions into Restricted Frequency Bands (Conducted)	Meas. Method	FCC KDB 558074 §7.4.2, Conducted (antenna-port).
	Test Env.	NTNV
	Test Setup	Test Setup 1
	EUT Conf.	11B/1_B@1, 11B/1_B@2, 11B/1_M@1, 11B/1_M@2, 11B/1_T@1, 11B/1_T@2, 11G/6_B@1, 11G/6_B@2, 11G/6_M@1, 11G/6_M@2, 11G/6_T@1, 11G/6_T@2 11N20/0_B@1, 11N20/0_B@2, 11N20/0_M@1, 11N20/0_M@2, 11N20/0_T@1, 11N20/0_T@2, 11N20m/8_B@1+2, 11N20m/8_M@1+2, 11N20m/8_T@1+2, 11N40/0_B@1, 11N40/0_B@2, 11N40/0_M@1, 11N40/0_M@2, 11N40/0_T@1, 11N40/0_T@2, 11N40m/8_B@1+2, 11N40m/8_M@1+2, 11N40m/8_T@1+2.
Unwanted Emissions into Restricted	Meas. Method	FCC KDB 558074 §7.4.2, Radiated (cabinet/case emissions with impedance matching for antenna-port), and ANSI C63.10. (1) 30 MHz to 1 GHz:



Test Case	Test Conditions		
	Configuration	Description	
Frequency Bands (Radiated)		Pre: RBW = 100 kHz; VBW = 300 kHz; Det. = Peak. Final: RBW = 120 kHz; Det. = CISPR Quasi-Peak. (2) 1 GHz to 26.5 GHz: Average: RBW = 1 MHz; VBW = 3 MHz; Det. = RMS; SPAN / Sweep-point ≤ RBW / 2; Sweep-time ≥ 10 * Sweep-points * Ts (Ts - transmission symbol period); Trace = Single. Peak: RBW = 1 MHz; VBW = 3 MHz; Det. = Peak; Sweep-time = Auto; Trace = Max Hold * 100.	
	Test Env.	NTNV	
	Test Setup	Test Setup 2	
	EUT Setup	<input checked="" type="checkbox"/> Flatwise, <input type="checkbox"/> Upright, <input type="checkbox"/> Hung	
	EUT Conf.	30 MHz -1 GHz	Worst Case (11B/1_B@1)
		1-3 GHz	Worst Case (11B/1_B@1) Worst Case (11B/1_B@2) Worst Case (11B/1_M@1) Worst Case (11B/1_M@2) Worst Case (11B/1_T@1) Worst Case (11N20/0_T@1) Worst Case (11N20/0_T@2)
		3-18 GHz	Worst Case (11B/1_B@2) Worst Case (11B/1_M@2) Worst Case (11B/1_T@1) Worst Case (11B/1_T@2) Worst Case (11N20/0_M@2)
18-26.5 GHz		Worst Case (11B/1_T@1)	
Receiver Spurious Emissions	Meas. Method	--	
	Test Env.	---	
	Test Setup	--	
	EUT Setup	---	
	EUT Conf.	---	
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.	11B/1_B@1 (Worst Conf.).	



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. Due
Test Setup 1				
Spectrum Analyzer	Agilent	E4440A	MY49420179	2013-05-13
Test Setup 2				
EMI Test Receiver	R&S	ESU40	100144	2013-05-13
Bilog Antenna (30M-1GHz)	Schaffner	CBL 6112B	2747	2013-01-12
Horn Antenna (1G-18GHz)	R&S	HF906	359287/005	2014-03-23 (2y)
Horn Antenna (18G-16.5GHz)	ETS	3160-9	053215	2013-02-01
Test Setup 3				
EMI Test Receiver	R&S	ESCI	100929	2013-05-13
Artificial Mains Network	R&S	ENV4200	100001	2013-05-13

END