

FCC RF Test Report

Product Name: HUAWEI MediaPad 7 Vogue

Product Model: S7-601w

Report Number: SYBH(Z-RF)024032013-2002

FCC ID: QISS7-601W

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.
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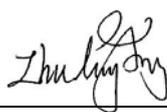


Applicant: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,
 Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name: HUAWEI MediaPad 7 Vogue
Product Model: S7-601w

Date of Receipt Sample: 2013-04-02
Start Date of Test: 2013-04-02
End Date of Test: 2013-04-09

Test Result: Pass

| | | | |
|-------------------------------------|------------|------------|---|
| Approved by Senior Engineer: | 2013-04-10 | Dai Linjun |  |
| | Date | Name | Signature |

| | | | |
|---------------------|------------|--------------|---|
| Prepared by: | 2013-04-10 | Zhu Mingjing |  |
| | Date | Name | Signature |



Modification Record

| No. | Last Report No. | Modification Description |
|-----|-----------------|--------------------------|
| 1 | NA | First report. |
| | | |
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1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2, Subpart J (2012 Edition)
47 CFR FCC Part 15, Subpart C (2012 Edition)

Test Method: FCC KDB 558074 D01 DTS Meas Guidance v03r01
FCC KDB 662911 D01 Multiple Transmitter Output v01r2

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: 19.5to 25 °C
Ambient Relative Humidity: 40 to 55 %
Atmospheric Pressure: Not applicable



2 Test Summary

| Test Item | FCC Part No. | Requirements | Test Result | Verdict (NOTE 2) |
|--|---------------------------------|--|-------------|------------------|
| DTS (6 dB) Bandwidth | 15.247(a)(2) | ≥ 500 kHz. | Appendix A | Pass |
| Maximum Peak Conducted Output Power | 15.247(b)(3) | For directional gain: < 30 dBm – (G[dBi] – 6 [dB]), peak; Otherwise: < 30 dBm, peak. | Appendix B | Pass |
| Maximum Power Spectral Density Level | 15.247(e) | For directional gain: < 8 dBm/3 kHz – (G[dBi] – 6 [dB]), peak. Otherwise: < 8 dBm/3 kHz, peak. | Appendix C | Pass |
| Band Edges Compliance | 15.247(d) | < -20 dBr/100 kHz if total peak power ≤ power limit. | Appendix D | Pass |
| Unwanted Emissions into Non-Restricted Frequency Bands | | | Appendix E | Pass |
| Unwanted Emissions into Restricted Frequency Bands (Radiated) | 15.247(d) 15.209 (NOTE 1) | FCC Part 15.209 field strength limit; | Appendix F | Pass |
| AC Power Line Conducted Emissions | 15.207 | FCC Part 15.207 conducted limit; | Appendix G | Pass |
| 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. | | | | |



3 Description of the Equipment under Test (EUT)

3.1 General Description

HUAWEI MediaPad 7 Vogue (MediaPad 7 Vogue for short) is a 7inch tablet that incorporates Hislicon processor With support for WI-FI and BT data connections,MediaPad 7 Vogue provides users with unprecedented access to high-speed internet services.

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 | | |
|-------------|------------------|---------------------|
| Description | Hardware Version | Software Version |
| Main Board | SH1S7601UM | S7-601wV100R001C500 |

3.2.2 Sub-Assembly

| Sub-Assembly | | | |
|-------------------|------------------|-------------------------------------|---|
| Sub-Assembly Name | Model | Manufacturer | Description |
| Adapter | HW-050200 U3W | Huawei Technologies Co., Ltd. | Input voltage: 100V~240V AC and 50/60 Hz,0.5A Output voltage: +5V --- 2A |
| Li-ion | HB3G1 | Huawei Technologies Co., Ltd. | Rated capacity: 4000 mAh Nominal Voltage: --- +3.7V Charging Voltage: --- +4.2V |

3.2.3 Cables Used during Test

| Cable | Quantity | Length | Type of Cable |
|----------|----------|--------|---------------|
| USB | 1 | <3m | shielded |
| Earphone | 1 | <3m | unshielded |

3.2.4 Associated Equipment Used during Test

| Name | Model | Manufacturer | S/N | Calibrated dateline | Cal interval (month) |
|---------|-------|--------------|-------------|---------------------|----------------------|
| SD Card | 2G | Kingdon | 1040RE5672k | / | / |



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), | | | |
| TX/RX Operating Range | 2412-2462 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 | | |
| Data Rate | 802.11b | 1 Mbps (Ant 1), 2 Mbps (Ant 1), 5.5 Mbps (Ant 1), 11 Mbps (Ant 1) | | |
| | 802.11g | 6 Mbps (Ant 1), 9 Mbps (Ant 1), 12 Mbps (Ant 1), 18 Mbps (Ant 1), 24 Mbps (Ant 1), 36 Mbps (Ant 2), 48 Mbps (Ant 2), 54 Mbps (Ant 2) | | |
| | 802.11n (SISO) | MCS 0 to MCS 3 (Ant 1), MCS 4 to MCS 7 (Ant 2) | | |
| Modulation Type | DBPSK/DQPSK/CCK (DSSS), BPSK/QPSK/16QAM/64QAM (OFDM). | | | |
| Emission Designator | 09M9G1D (for 802.11b mode), 16M4G7D (for 802.11g mod), 17M6G7D (for 802.11n mode) | | | |
| TX Power Control | <input checked="" type="checkbox"/> Supported, <input type="checkbox"/> Not Supported | | | |
| Standby Mode | <input type="checkbox"/> Supported, <input checked="" type="checkbox"/> Not Supported | | | |
| Equipment Type | <input type="checkbox"/> Stand-alone equipment, <input type="checkbox"/> Plug-in radio device, <input checked="" type="checkbox"/> Combined equipment | | | |
| Antenna | Description | Isotropic Antenna | | |
| | Type | <input type="checkbox"/> External, <input checked="" 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 type="checkbox"/> MIMO (for 802.11n): 2 Tx & 2 Rx, <input type="checkbox"/> Diversity (for 802.11b/g) : Tx & Rx | | |
| | Gain | Ant 1: 0.31 dBi Ant 1: 0.60 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: The worst cases for each IEEE 802.11 mode are selected to perform tests.

| Test Mode | Test Modes Description |
|-----------|--|
| 11B | IEEE 802.11b with data rate of 1 Mbps using SISO mode. |
| 11G | IEEE 802.11g 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. |



4.2 EUT Configurations

4.2.1 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. |

4.2.2 Customized Configurations

| Test Mode | RF Ch. | Antenna Port | TX Freq. [MHz] | RX Freq. [MHz] | Ch. BW [MHz] | Power Conf., per Port (dBm) |
|-----------|--------|--------------|----------------------|----------------|--------------|-----------------------------|
| 11B | L | Ant 1 | Ch No. 1 / 2412 MHz | --- | 20 | Ant 1: 17 |
| 11B | M | Ant 1 | Ch No. 6 / 2437 MHz | --- | 20 | Ant 1: 17 |
| 11B | H | Ant 1 | Ch No. 11 / 2462 MHz | --- | 20 | Ant 1: 17 |
| 11G | L | Ant 1 | Ch No. 1 / 2412 MHz | --- | 20 | Ant 1: 15 Ant 2:12 |
| 11G | M | Ant 1 | Ch No. 6 / 2437 MHz | --- | 20 | Ant 1: 15 Ant 2:12 |
| 11G | H | Ant 1 | Ch No. 11 / 2462 MHz | --- | 20 | Ant 1: 15 Ant 2:12 |
| 11N20 | L | Ant 1 | Ch No. 1 / 2412 MHz | --- | 20 | Ant 1: 14 Ant 2:11 |
| 11N20 | M | Ant 1 | Ch No. 6 / 2437 MHz | --- | 20 | Ant 1: 14 Ant 2:11 |
| 11N20 | H | Ant 1 | Ch No. 11 / 2462 MHz | --- | 20 | Ant 1: 14 Ant 2:11 |



4.3 Test Environments

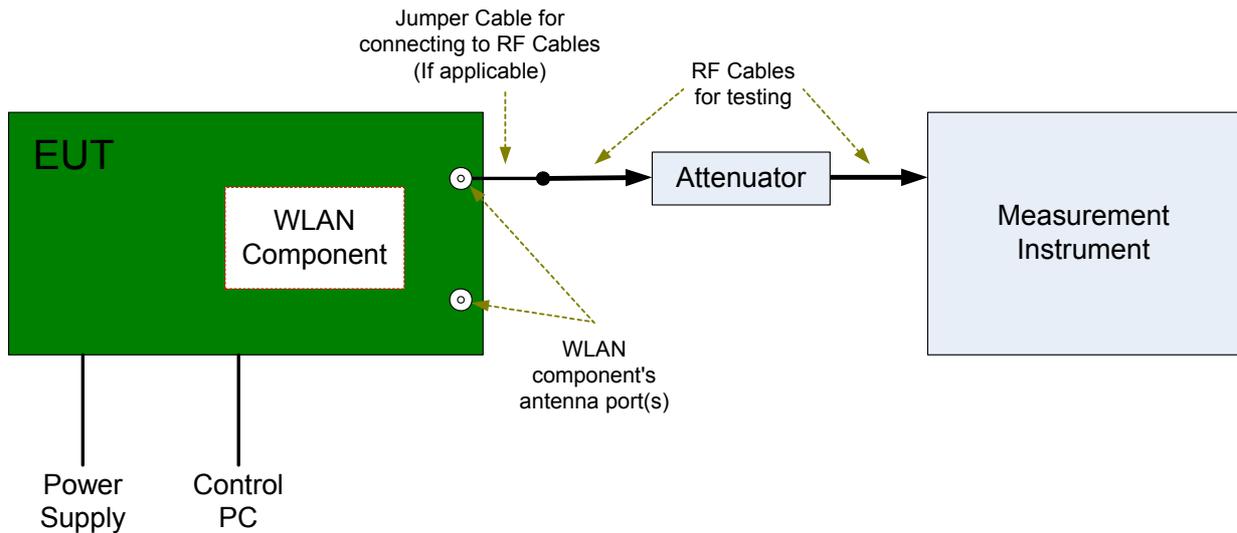
NOTE: The values used in the test report may be stringent than the declared.

| Environment Parameter | Selected Values During Tests | | |
|-----------------------|------------------------------|---------|-------------------|
| | Temperature | Voltage | Relative Humidity |
| NTNV | Ambient | 3.7 VDC | Ambient |

4.4 Test Setups

4.4.1 Test Setup 1

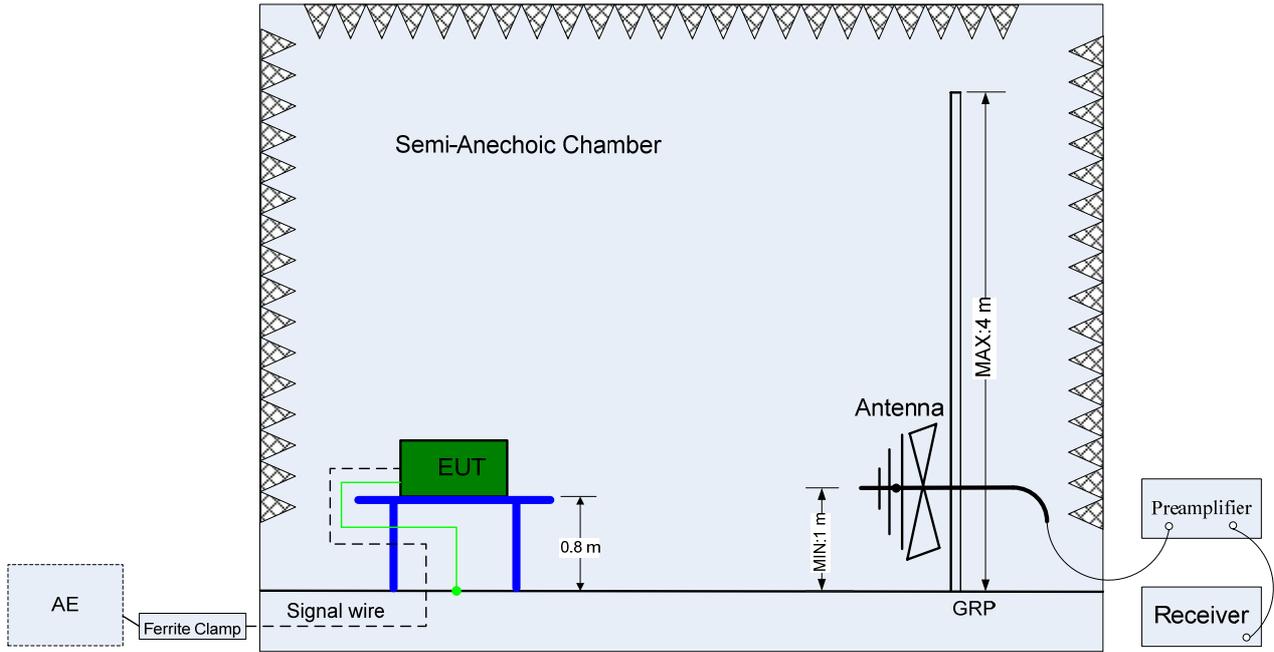
The WLAN component's antenna port(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



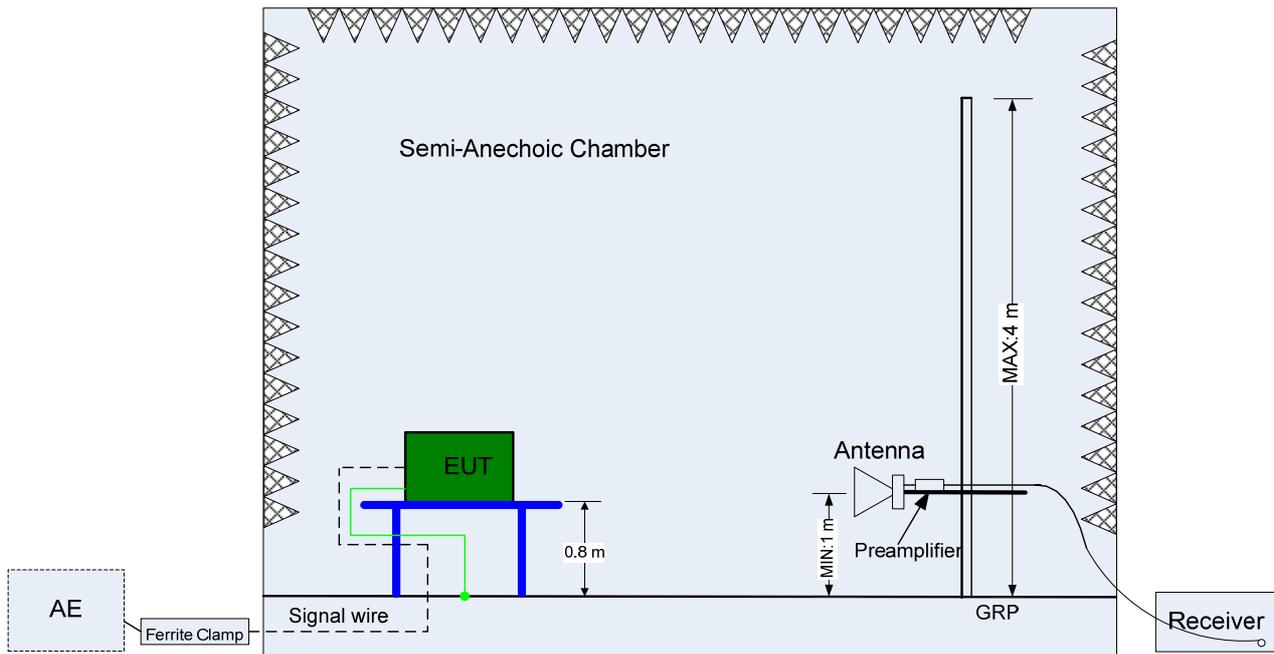
4.4.2 Test Setup 2

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 3m. The setup is according to 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)

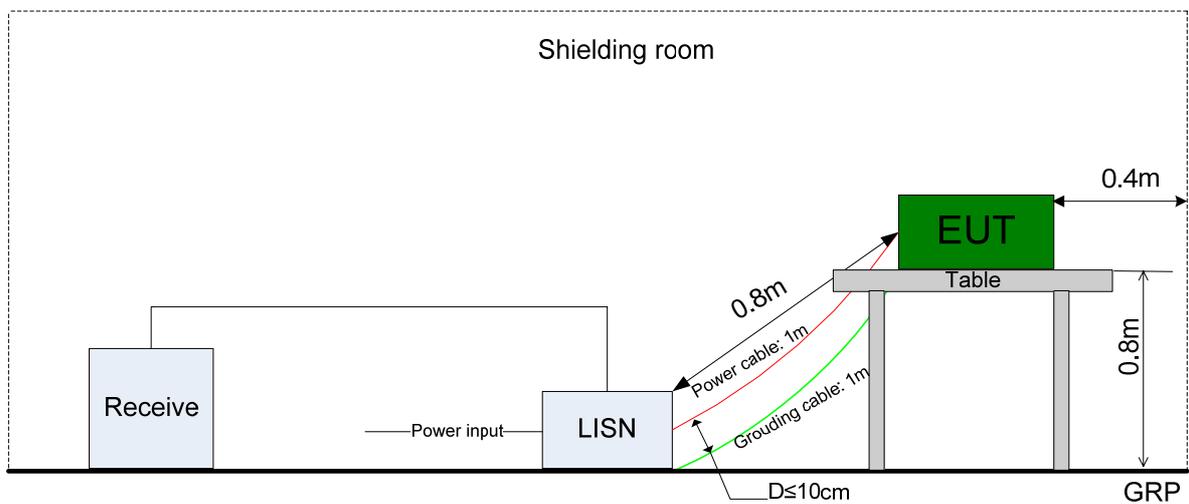


(Above 1 GHz)

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

| Test Case | Test Conditions | |
|---|--------------------|--|
| | Configuration | Description |
| DTS (6 dB) Bandwidth | Measurement Method | FCC KDB 558074 §8.2 Option 2. |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Configuration | 11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H |
| Maximum Peak Conducted Output Power | Measurement Method | FCC KDB 558074 §9.1 .2 (integrated band power method). |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Configuration | 11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H |
| Maximum Power Spectral Density Level | Measurement Method | FCC KDB 558074 §10.2 (peak PSD). |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Configuration | 11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H |
| Band Edges Compliance | Measurement Method | FCC KDB 558074 §13.0. |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Configuration | 11B_L, 11B_H 11G_L, 11G_H 11N20_L, 11 N20_H |
| Unwanted Emissions into Non-Restricted Frequency Bands | Measurement Method | FCC KDB 558074 §11.0 |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 1 |
| | EUT Configuration | 11B_L, 11B_M, 11B_H 11G_L, 11G_M, 11G_H 11N20_L, 11 N20_M, 11 N20_H |
| Unwanted Emissions into Restricted Frequency Bands (Radiated) | Measurement Method | ANSI C63.10; FCC KDB 558074 §12.1, Radiated |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 2 |
| | EUT Placement | <input type="checkbox"/> Flatwise, <input type="checkbox"/> Upright, <input type="checkbox"/> Hung |
| | EUT Configuration | (1) 30 MHz to 1 GHz: 11B_L (Worst Conf.). (2) 1 GHz to 3 GHz: 11B_L, 11B_H |



| Test Case | Test Conditions | |
|---|--------------------|--|
| | Configuration | Description |
| | | 11G_L, 11G_H 11N20_L, 11 N20_H (3) 3 GHz to 18 GHz: 11B_L (Worse Conf.), 11B_H (Worse Conf.). (4) 18 GHz to 26.5 GHz: 11B_L (Worse Conf.), 11B_H (Worse Conf.). |
| AC Power Line Conducted Emissions | Measurement Method | AC mains conducted. |
| | Test Environment | NTNV |
| | Test Setup | Test Setup 3 |
| | EUT Configuration | 11B_L(Worst Conf.). |



5 Main Test Instruments

| Equipment Name | Manufacturer | Model | Serial Number | Cal Date | Cal- Due |
|---|--------------|-----------|----------------|------------|------------|
| Power supply | KEITHLEY | 2303 | 1288003 | 2012-11-19 | 2014-11-18 |
| Spectrum Analyzer | Agilent | E4440A | MY48250119 | 2012-08-20 | 2013-08-19 |
| Signal Analyzer | R&S | FSQ31 | 200021 | 2012-11-09 | 2013-11-08 |
| Spectrum Analyzer | Agilent | N9030A | MY49431698 | 2012-11-09 | 2013-11-08 |
| Temperature Chamber | WEISS | WKL64 | 56246002940010 | 2013-01-29 | 2014-01-28 |
| Signal generator | Agilent | E8257D | MY49281095 | 2012-09-14 | 2013-09-13 |
| Spectrum analyzer | R&S | FSU3 | 200474 | 2013-01-29 | 2014-01-28 |
| Spectrum analyzer | R&S | FSU43 | 100144 | 2013-01-29 | 2014-01-28 |
| Double-Ridged Waveguide Horn Antenna (1G~18GHz) | R&S | HF907 | 100304 | 2013-02-02 | 2014-02-01 |
| Double-Ridged Waveguide Horn Antenna (1G~18GHz) | R&S | HF907 | 100391 | 2011-10-12 | 2013-10-11 |
| Trilog Broadband Antenna (30M~3GHz) | SCHWARZB ECK | VULB 9163 | 9163-521 | 2011-12-09 | 2013-12-08 |
| Pyramidal Horn Antenna(18GHz-26-5GHz) | ETS-Lindgren | 3160-09 | 00091989 | 2011-10-20 | 2013-10-19 |

END