

FCC TEST REPORT

according to

FCC Rules and Regulations

Part 15 Subpart C

| | |
|------------|---|
| Applicant | : Advantech CO., Ltd. |
| Address | : No.1, Alley20, Lane 26, Rueiquang Road, Neihu District, Taipei, Taiwan 114, R.O.C. |
| Equipment | : Industrial Tablet PC |
| Model No. | : MARS-3100S |
| FCC ID | : M82-M31S01 |
| Trade Name | : ADVANTECH |

Laboratory Accreditation



- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **Exclusive Certification Corp.** the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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CERTIFICATE OF COMPLIANCE

according to

FCC Rules and Regulations

Part 15 Subpart C

Applicant : Advantech CO., Ltd.
Address : No.1, Alley20, Lane 26, Rueiquang Road, Neihu
District, Taipei, Taiwan 114, R.O.C.
Equipment : Industrial Tablet PC
Model No. : MARS-3100S
FCC ID : M82-M31S01

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart C (2003)**.

The test was carried out on Feb. 29, 2008 at **Exclusive Certification Corp.**

Signature


Anson Chou / Manager

1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

| FCC Rule | Description of Test | Result |
|--------------------------------------|--|--------|
| 15.203 | . Antenna Requirement | Pass |
| 15.207 | . Conducted Emission | Pass |
| 15.209 15.247(d) | . Radiated Emission | Pass |
| 15.247(a)(2) | . 6dB Bandwidth | Pass |
| 15.247(b) | . Maximum Peak Output Power | Pass |
| 15.247(d) | . 100kHz Bandwidth of Frequency Band Edges | Pass |
| 15.247(e) | . Power Spectral Density | Pass |
| 1.1307 1.1310 2.1091 2.1093 | . RF Exposure Compliance | Pass |

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

| | |
|---------------------------|---|
| OS | MS XP Embedded |
| Dimension W x D x H | 293 x 210 x 38 mm |
| Weight | 2.1 kg |
| Panel | 10.4" SVGA TFT |
| Touchscreen | Resistant touchscreen |
| CPU | AMD LX800 500MHz |
| DRAM | 256/512MB DDR400 (One memory module support) |
| L2 cache | 128 K |
| Chipset | AMD CS5536 |
| Graphic | AMD LX800 with shared memory |
| Storage | 4G CF (2.5" shock mounted HDD option) |
| Keypad | 5-way navigation key; 3 x function key (programmable) |
| Wireless | 802.11 a/b/g |
| PAN | Bluetooth V2.0/EDR (optional) |
| Microphone Jack | Yes |
| Headset Jack | Yes |
| RS232 | Yes (COM3) |
| USB | USB2.0 x 1 |
| RJ-45 | 10/100 Base-T |
| DC-in | Yes |
| VGA D_sub connector | Yes |
| Docking / Port Replicator | Yes |
| AC97 Audio I/F | AC97 Audio I/F |
| Speaker | One integrated speaker |
| Battery | Removable 11.1V@3600mAh Li-ion battery pack; swappable |
| Battery Life | 3 hour battery life |
| Charging Time | 2.5 hours to 90% |
| Backup Battery | 7.2V, 120mAh |
| Adapter | Auto-switching 100-240V, 50-60Hz; supplies 19VDC at 3.42A |

2.2 RF Specifications

| | |
|-----------------------------------|---|
| Type of Modulation | 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) 802.11a: OFDM BT: GFSK, $\pi/4$ -DQPSK, 8DPSK |
| Data Rate | 802.11b(11, 5.5, 2, 1 Mbps) 802.11g(54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps) 802.11a(54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps) 802.11BT(3Mbps, 2Mbps, 1Mbps) |
| Number of Channels | Number of Channels 802.11b / 802.11g USA, Canada and Taiwan: 1 ~ 11 (11 Channels) Most European Countries: 1 ~ 13 (13 Channels) France: 1 ~ 7 (7 Channels) 802.11a USA, Canada and Taiwan: 36 ~ 48, 149 ~ 165 (9 Channels) Most European Countries: 36 ~ 64, 100 ~ 140 (19 Channels) BT: 0 ~ 78 (79 Channels) |
| Frequency Band | USA, Canada and Taiwan: 802.11b/g, BT: 2.4 ~ 2.4835GHz 802.11a: 5.15 ~ 5.25GHz, 5.725 ~ 5.85GHz Most European Countries: 802.11b/g, BT: 2.4 ~ 2.4835GHz 802.11a: 5.15 ~ 5.35GHz, 5.47 ~ 5.725GHz |
| Carrier Frequency of each channel | 802.11b / 802.11g US: 2412 + 5 * K MHz; K = 0 ~ 10 EU: 2412 + 5 * K MHz; K = 0 ~ 12 France: 2412 + 5 * K MHz; K = 0 ~ 6 802.11a US : 5150 ~ 5250: 5180 + 20 K MHz; K = 0 ~ 3 5725 ~ 5850: 5745 + 20 K MHz; K = 0 ~ 4 EU: 5150 ~ 5250: 5180 + 20 K MHz; K = 0 ~ 7 5470 ~ 5725: 5500 + 20 K MHz; K = 0 ~ 10 BT: 2402 + K MHz; K = 0 ~ 78 |
| Channel Spacing | 802.11b/g: 5MHz ; 802.11a: 20MHz ; BT: 1MHz |
| Output Power | Max. Peak Output power (FCC): 802.11b: 18 dBm; 802.11g: 15 dBm; 802.11a: 13 dBm; BT: 0 dBm E.I.R.P (CE) 802.11b: 17 dBm; 802.11g: 14 dBm 802.11a: 12 dBm; BT: 0 dBm |
| Antenna Type | GPRS + WL Antenna (AT103-105) PCB Antenna (GB04001-A01) |
| Antenna Gain | AT103-105 (WLAN) 1.54 dBi (2.4GHz) 1.74 dBi (5GHz) GB04001-A01 (BT) 2.2 dBi |

2.3 Test Mode & Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4
- b. The complete test system included the remote workstation, Monitor, Modem, Flash Memory, Earphone and EUT for EMC test. The remote workstation means Toshiba Notebook.
- c. An executive program, EMITEST.exe under WIN XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

1. Turn on the power of all equipment.
 2. The EUT reads the test program from the hard disk drive and runs it.
 3. The EUT sends "H" messages to the monitor, and the monitor displays "H" patterns on the screen.
 4. The PC sends "H" messages to the modem.
 5. The PC sends "H" messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
 6. Repeat the steps from 2 to 5.
- d. An executive program, QATEST.exe under WIN XP, which generates a continuous signal by the following frequency to test.
 - 802.11b:
CH 01: 2412MHz, CH 06: 2437MHz, CH 11: 2462MHz
 - 802.11g:
CH 01: 2412MHz, CH 06: 2437MHz, CH 11: 2462MHz
 - 802.11a:
CH 149: 5745MHz, CH 157: 5785MHz, CH165: 5825MHz

Note: All the transmitter rates had been pre-tested, and the test data is worst case.

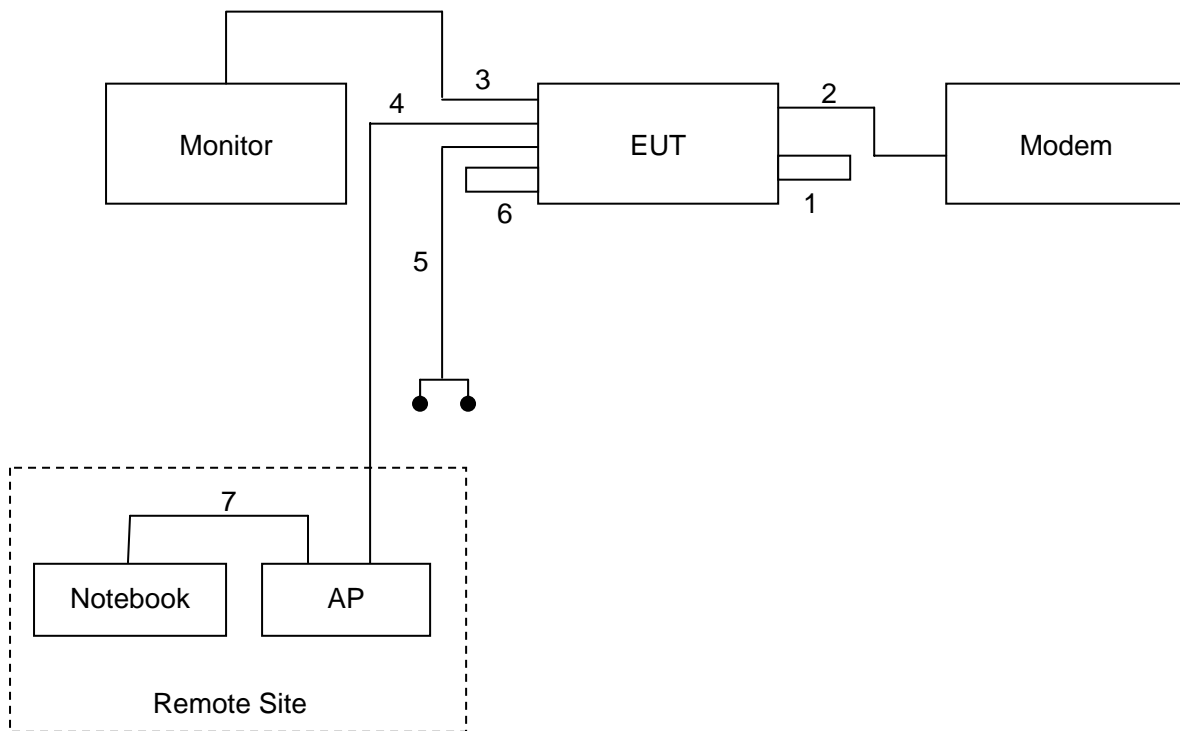
2.4 Description of Test System

| Device | Manufacturer | Model No. | Description |
|-----------------------------------|--------------|---------------|--|
| Monitor | SlimAGE | IGV | Power Cable, Adapter Unshielding 1.8 m Data Cable, VGA Shielding 1.35 m |
| Modem | ACEXX | DM-1414 | Power Cable, Adapter Unshielding 1.8 m Data Cable, RS232 Shielding 1.35 m |
| Flash memory | TranSend | JF150 512MB | N/A |
| Earphone | MIC | MIC-4 | Data Cable, Audio Shielding 1.6 m |
| SIM Card | N/A | N/A | N/A |
| CF Card | TranScend | 4GB | N/A |
| Notebook (Remote workstation) | TOSHIBA | PSA50T-05M00C | Power Cable, Adapter Unshielding 1.8 m |
| AP Router (Remote Workstation) | Netgear | WAG102 | Power Cable, Adapter Unshielding 1.8 m |

Use Cable:

| Cable | Quantity | Description |
|-------|----------|-------------------|
| RJ45 | 1 | Unshielding, 5.0m |

2.5 Connection Diagram of Test System



1. The SIM Card is connected to EUT by SIM slot.
2. The RS232 cable is connected from EUT to the Modem.
3. The VGA cable is connected from EUT to the Monitor.
4. The RJ45 cable is connected from EUT to the AP.
5. The Audio cable is connected from EUT to the Earphone.
6. The Flash Memory is connected to EUT by USB Port.
7. The RJ45 cable is connected from Notebook to the AP.

2.6 General Information of Test

| | |
|--------------------------------|---|
| Test Site : | Exclusive Certification Corp. 4F-2, No. 28, Lane 78, Xing-Ai Rd. Nei-hu, Taipei City 114 Taiwan R.O.C. |
| Test Site Location (OATS1-SD): | No.68-1, Shihbachongsi, shihding Township, Taipei City 223, Taiwan, R.O.C. Registration Number: 632249. |
| FCC Registration Number : | 632249 |
| IC Registration Number : | 6597A-1 |
| VCCI Registration Number : | T-338 for Telecommunication Test C-2188 for Conducted emission test R-1902 for Radiated emission test |
| Test Voltage: | AC 120V/ 60Hz |
| Test in Compliance with: | ANSI C63.4-2003 FCC Part 15 Subpart C |
| Frequency Range Investigated: | Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 24620MHz |
| Test Distance: | The test distance of radiated emission from antenna to EUT is 3 M. |

2.7 Measurement Uncertainty

| Measurement Item | Measurement Frequency | Polarization | Uncertainty |
|---|-----------------------|--------------|-------------|
| Conducted Emission | 9 kHz ~ 30 MHz | LINE/NEUTRAL | 2.71 dB |
| Radiated Emission | 30 MHz ~ 1GHz | Vertical | 4.11 dB |
| | | Horizontal | 4.10 dB |
| 6 dB Bandwidth | --- | --- | 7500 Hz |
| Maximum Peak Output Power | --- | --- | 1.4 dB |
| 100kHz Bandwidth of Frequency Band Edges | --- | --- | 2.2 dB |
| Power Spectral Density | --- | --- | 2.2 dB |

3. Antenna Requirements

3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

3.2 Antenna Construction and Directional Gain

Antenna 1 (WLAN Antenna):

Antenna Model: AT103-105

Antenna type: GPRS + WL Antenna

Antenna Gain: 1.54 dBi for 2.4GHz Band / 1.74 dBi for 5GHz Band.

Antenna 2 (BT Antenna):

Antenna Model: GB04001-A01

Antenna type: PCB Antenna

Antenna Gain: 2.2 dBi

4. Test of Conducted Emission (For 802.11b/g device)

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

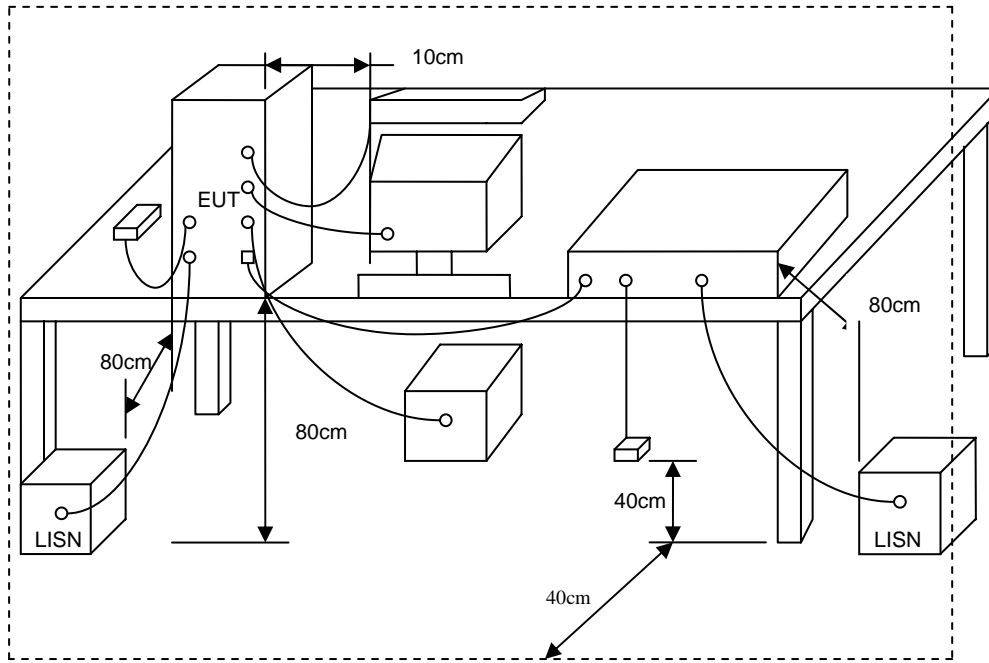
| Frequency (MHz) | Quasi Peak (dB μ V) | Average (dB μ V) |
|-----------------|-------------------------|----------------------|
| 0.15 – 0.5 | 66-56* | 56-46* |
| 0.5 – 5.0 | 56 | 46 |
| 5.0 – 30.0 | 60 | 50 |

*Decreases with the logarithm of the frequency.

4.2 Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3 Typical Test Setup

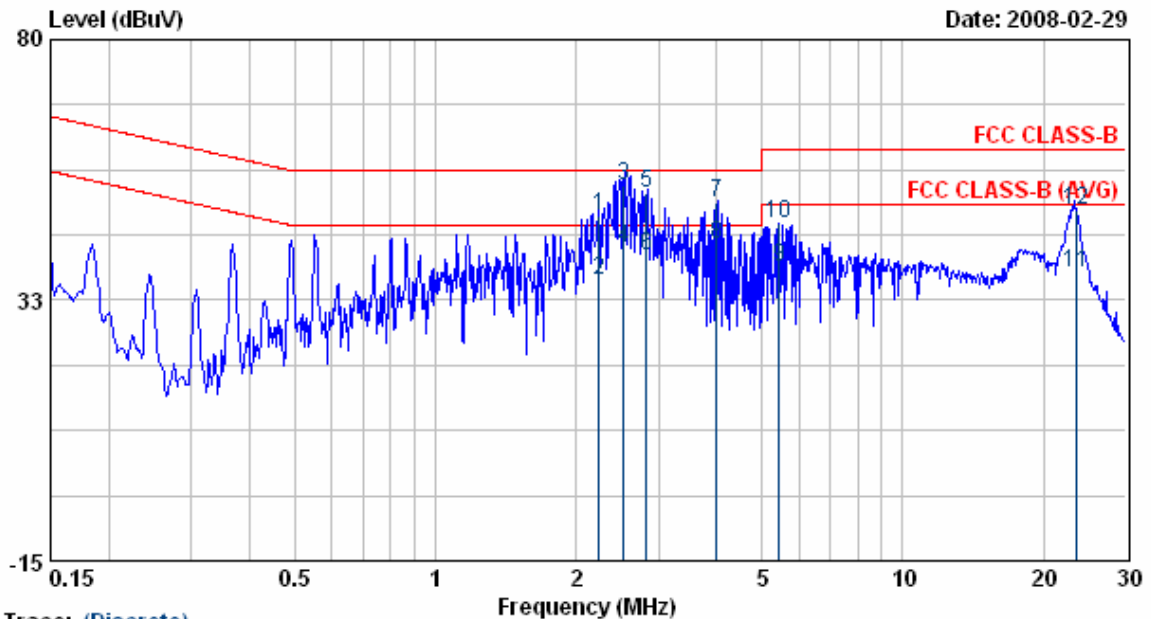


4.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date. |
|----------------------|------------|--------------|------------|------------------|-------------|
| Receiver | R&S | ESCI | 100443 | 2007/09/27 | 2008/09/26 |
| LISN | MESS TEC | NNB-2/16Z | 02/10191 | 2007/05/14 | 2008/05/13 |
| LISN | Rolf Heine | NNB-2/16Z | 03/10058 | 2007/04/19 | 2008/04/18 |

4.5 Test Result and Data

| | | | |
|-----------|---------------|-------------|---------|
| Power | : AC 120V | Pol/Phase | : LINE |
| Test Mode | : 802.11g CH1 | Temperature | : 24 °C |
| Memo | : LE-9702B-01 | Humidity | : 58 % |

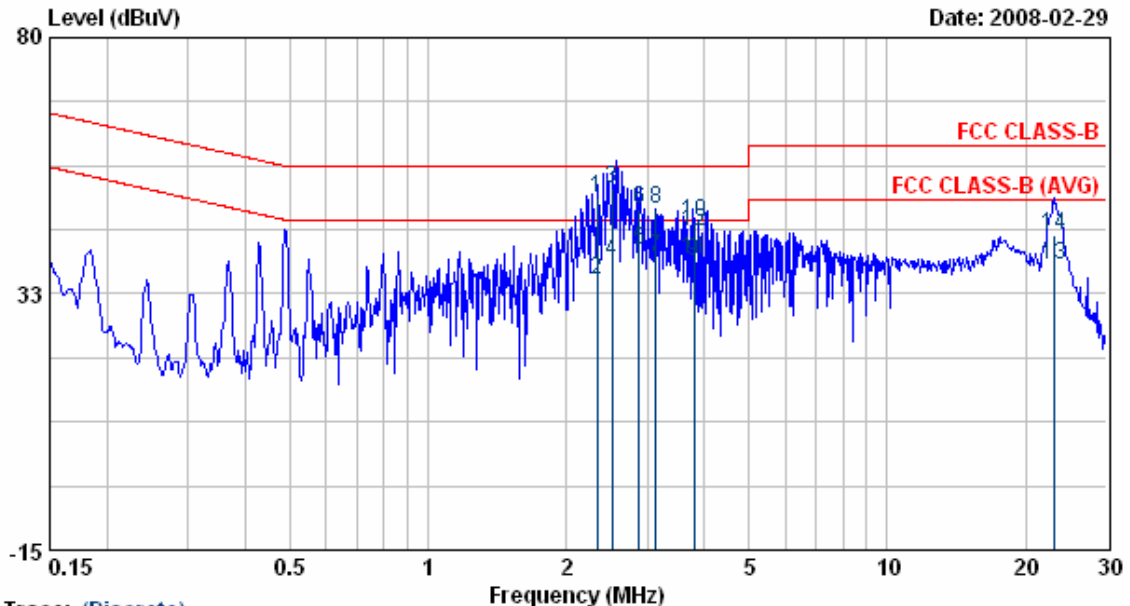


Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark |
|------|-------|------------|--------|--------|-------|--------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dBuV | |
| 1 | 2.24 | 47.66 | 0.20 | 47.86 | 56.00 | -8.14 | QP |
| 2 | 2.24 | 35.90 | 0.20 | 36.11 | 46.00 | -9.89 | AVERAGE |
| 3 | 2.53 | 53.28 | 0.21 | 53.49 | 56.00 | -2.51 | QP |
| 4 | 2.53 | 41.67 | 0.21 | 41.88 | 46.00 | -4.12 | AVERAGE |
| 5 | 2.83 | 51.74 | 0.22 | 51.95 | 56.00 | -4.05 | QP |
| 6 | 2.83 | 40.29 | 0.22 | 40.51 | 46.00 | -5.49 | AVERAGE |
| 7 | 4.00 | 49.94 | 0.23 | 50.17 | 56.00 | -5.83 | QP |
| 8 | 4.00 | 42.61 | 0.23 | 42.84 | 46.00 | -3.16 | AVERAGE |
| 9 | 5.45 | 38.24 | 0.27 | 38.50 | 50.00 | -11.50 | Average |
| 10 | 5.45 | 46.24 | 0.27 | 46.50 | 60.00 | -13.50 | QP |
| 11 | 23.42 | 37.09 | 0.48 | 37.57 | 50.00 | -12.43 | AVERAGE |
| 12 | 23.42 | 48.50 | 0.48 | 48.98 | 60.00 | -11.02 | QP |

- Remarks:
1. Level = Read Level + Factor
 2. Factor = LISN(ISN) Factor + Cable Loss
 3. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
 4. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
 5. The data is worse case.

| | | | |
|-----------|---------------|-------------|-----------|
| Power | : AC 120V | Pol/Phase | : NEUTRAL |
| Test Mode | : 802.11g CH1 | Temperature | : 24 °C |
| Memo | : LE-9702B-01 | Humidity | : 58 % |



Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark |
|------|-------|------------|--------|--------|-------|--------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dBuV | |
| 1 | 2.33 | 50.24 | 0.20 | 50.44 | 56.00 | -5.56 | QP |
| 2 | 2.33 | 34.88 | 0.20 | 35.09 | 46.00 | -10.91 | AVERAGE |
| 3 | 2.52 | 51.83 | 0.21 | 52.04 | 56.00 | -3.96 | QP |
| 4 | 2.52 | 38.48 | 0.21 | 38.69 | 46.00 | -7.31 | AVERAGE |
| 5 | 2.88 | 40.51 | 0.22 | 40.74 | 46.00 | -5.26 | AVERAGE |
| 6 | 2.88 | 48.08 | 0.22 | 48.30 | 56.00 | -7.70 | QP |
| 7 | 3.14 | 39.05 | 0.23 | 39.28 | 46.00 | -6.72 | Average |
| 8 | 3.14 | 48.05 | 0.23 | 48.28 | 56.00 | -7.72 | QP |
| 9 | 3.80 | 38.32 | 0.25 | 38.56 | 46.00 | -7.44 | AVERAGE |
| 10 | 3.80 | 45.68 | 0.25 | 45.93 | 56.00 | -10.07 | QP |
| 11 | 3.80 | 38.75 | 0.25 | 38.99 | 46.00 | -7.01 | AVERAGE |
| 12 | 3.80 | 43.94 | 0.25 | 44.18 | 56.00 | -11.82 | QP |
| 13 | 23.09 | 37.15 | 0.65 | 37.81 | 50.00 | -12.19 | AVERAGE |
| 14 | 23.09 | 42.85 | 0.65 | 43.50 | 60.00 | -16.50 | QP |

- Remarks:
- Level = Read Level + Factor
 - Factor = LISN(ISN) Factor + Cable Loss
 - All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
 - According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
 - The data is worse case.

Test engineer: Ben

5. Test of Radiated Emission (For 802.11b/g device)

5.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency (MHz) | Distance Meters | Radiated (μ V / M) | Radiated (dB μ V/ M) |
|-----------------|-----------------|-------------------------|--------------------------|
| 30-88 | 3 | 100 | 40.0 |
| 88-216 | 3 | 150 | 43.5 |
| 216-960 | 3 | 200 | 46.0 |
| Above 960 | 3 | 500 | 54.0 |

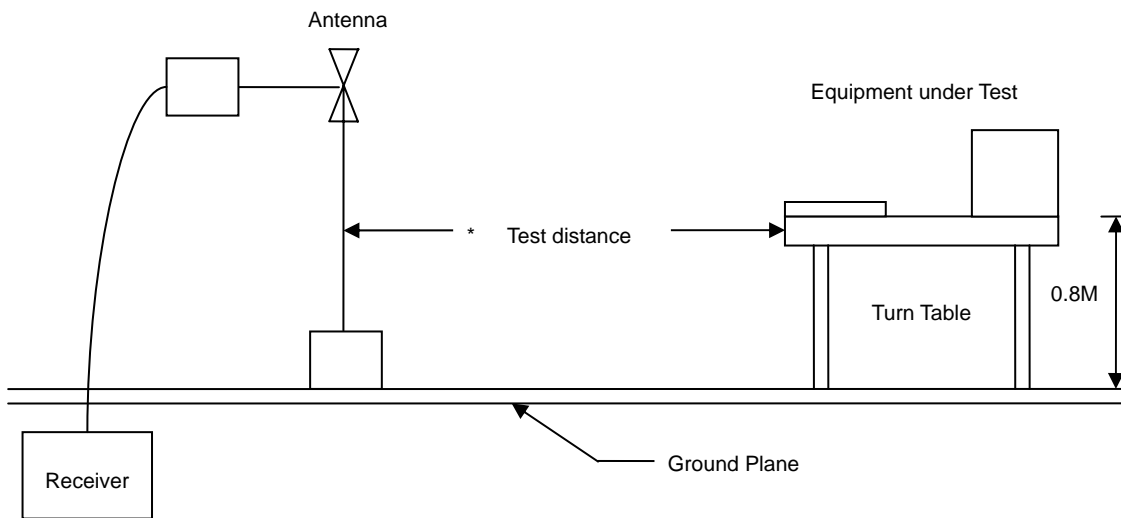
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

| Frequency (MHz) | Distance Meters | Radiated (dB μ V/ M) |
|-----------------|-----------------|--------------------------|
| 30-230 | 10 | 30 |
| 230-1000 | 10 | 37 |

5.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

5.3 Typical Test Setup

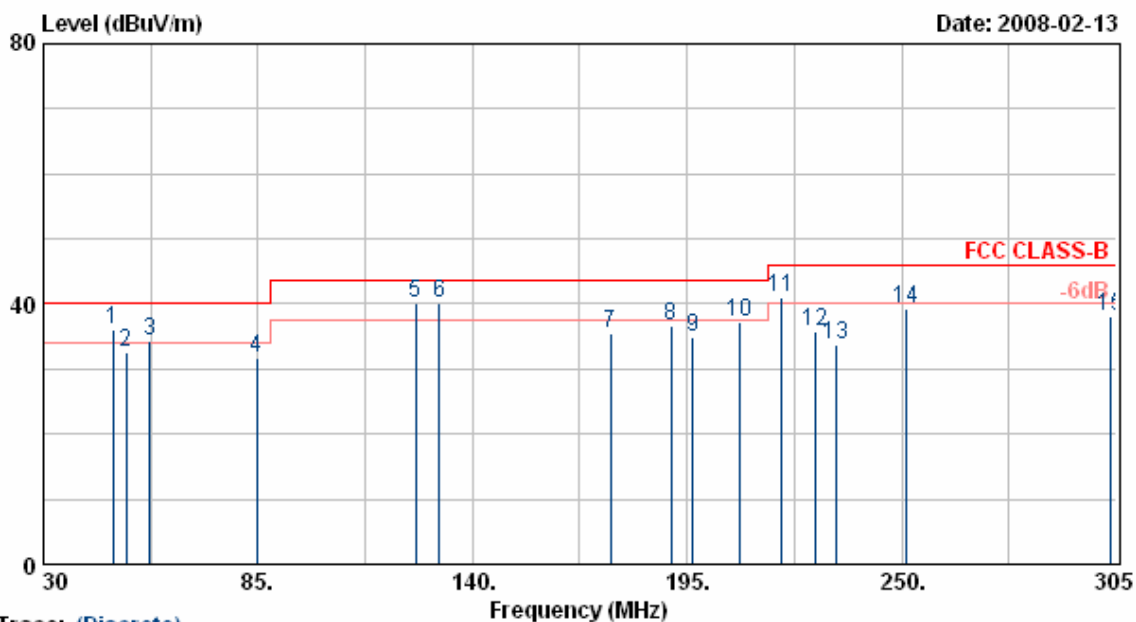


5.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| EMI Receiver | 85460A | HP | 3807A00454 | 2007/06/05 | 2008/06/04 |
| Spectrum Analyzer | FSP40 | R&S | 10047 | 2008/02/22 | 2009/02/21 |
| Horn Antenna | 3115 | EMCO | 31601 | 2007/04/09 | 2008/04/08 |
| Horn Antenna | 3116 | EMCO | 31974 | 2007/04/04 | 2008/04/03 |
| Bilog Antenna | CBL6112B | Schaffner | 2840 | 2007/04/26 | 2008/04/25 |
| Amplifier | 8449B | Agilent | 3008A01954 | 2008/01/24 | 2009/01/23 |
| Amplifier | 8447D | Agilent | 2944A10531 | 2007/09/26 | 2008/09/25 |
| Amplifier | PA-840 | Com-Power | 711885 | 2007/08/28 | 2008/08/27 |

5.5 Test Result and Data

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



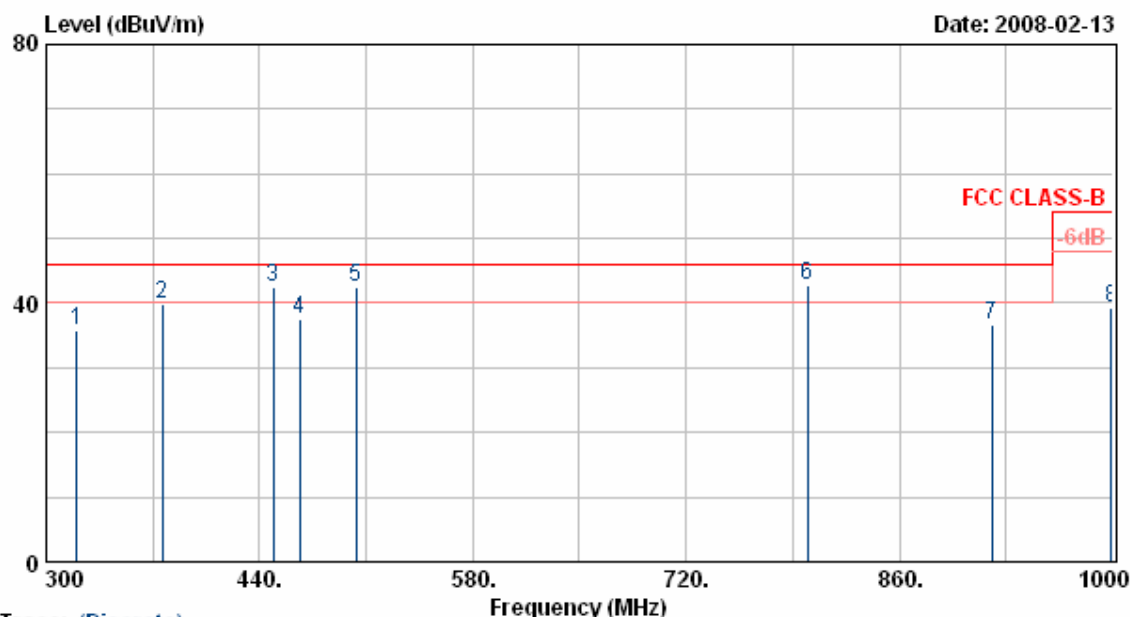
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 47.80 | 55.16 | -19.01 | 36.15 | 40.00 | -3.85 | QP | 100 | 96 |
| 2 | 51.20 | 53.16 | -20.62 | 32.54 | 40.00 | -7.46 | Peak | 100 | 122 |
| 3 | 57.25 | 52.33 | -18.04 | 34.29 | 40.00 | -5.71 | QP | 100 | 122 |
| 4 | 84.66 | 49.77 | -17.96 | 31.81 | 40.00 | -8.19 | Peak | 100 | 122 |
| 5 | 125.43 | 51.56 | -11.45 | 40.11 | 43.50 | -3.39 | QP | 100 | 88 |
| 6 | 131.50 | 53.20 | -13.04 | 40.16 | 43.50 | -3.34 | QP | 100 | 88 |
| 7 | 175.30 | 50.57 | -15.01 | 35.56 | 43.50 | -7.94 | Peak | 100 | 154 |
| 8 | 191.00 | 49.13 | -12.49 | 36.64 | 43.50 | -6.86 | Peak | 100 | 154 |
| 9 | 196.53 | 47.88 | -12.95 | 34.93 | 43.50 | -8.57 | Peak | 100 | 96 |
| 10 | 208.25 | 50.00 | -12.73 | 37.28 | 43.50 | -6.22 | Peak | 100 | 133 |
| 11 | 219.16 | 54.30 | -13.28 | 41.02 | 46.00 | -4.98 | QP | 100 | 133 |
| 12 | 227.90 | 49.70 | -13.79 | 35.92 | 46.00 | -10.09 | Peak | 100 | 222 |
| 13 | 233.20 | 46.13 | -12.29 | 33.84 | 46.00 | -12.16 | Peak | 100 | 222 |
| 14 | 251.00 | 50.06 | -10.89 | 39.17 | 46.00 | -6.83 | Peak | 100 | 222 |
| 15 | 303.35 | 50.77 | -12.54 | 38.23 | 46.00 | -7.77 | Peak | 100 | 50 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11g mode are all the same, so the 802.11g mode chosen as representative in final test.
5. According to technical experiences, all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz, so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



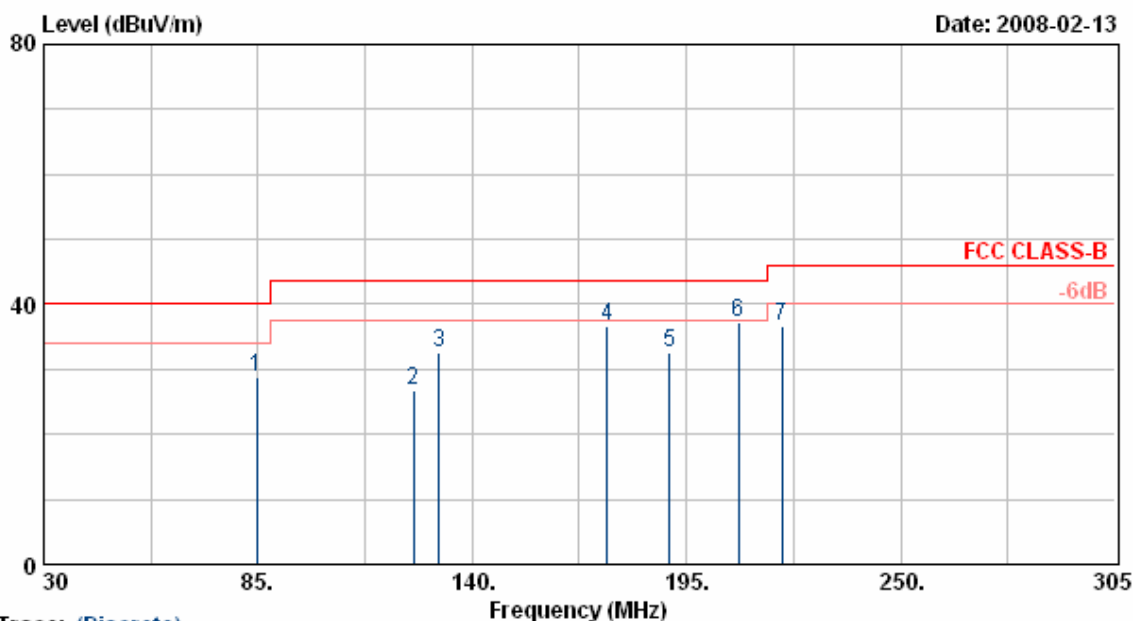
Trace: (Discrete)

| Item | Freq MHz | Read Value dBuV/m | Factor dB | Result dBuV/m | Limit dBuV/m | Margin dB | Remark | Ant Pos cm | Tab Pos Deg |
|------|-------------|-------------------------|--------------|------------------|-----------------|--------------|--------|------------------|-------------------|
| 1 | 320.30 | 48.68 | -12.88 | 35.80 | 46.00 | -10.20 | Peak | 100 | 222 |
| 2 | 376.30 | 49.51 | -9.67 | 39.84 | 46.00 | -6.16 | Peak | 100 | 222 |
| 3 | 448.80 | 52.13 | -9.78 | 42.35 | 46.00 | -3.65 | QP | 100 | 188 |
| 4 | 466.10 | 43.79 | -6.19 | 37.60 | 46.00 | -8.40 | Peak | 100 | 174 |
| 5 | 503.70 | 46.68 | -4.26 | 42.42 | 46.00 | -3.58 | QP | 100 | 180 |
| 6 | 799.80 | 44.77 | -1.93 | 42.84 | 46.00 | -3.16 | QP | 100 | 0 |
| 7 | 920.45 | 33.40 | 3.26 | 36.66 | 46.00 | -9.34 | Peak | 100 | 0 |
| 8 | 999.30 | 37.96 | 1.41 | 39.37 | 54.00 | -14.63 | Peak | 100 | 50 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



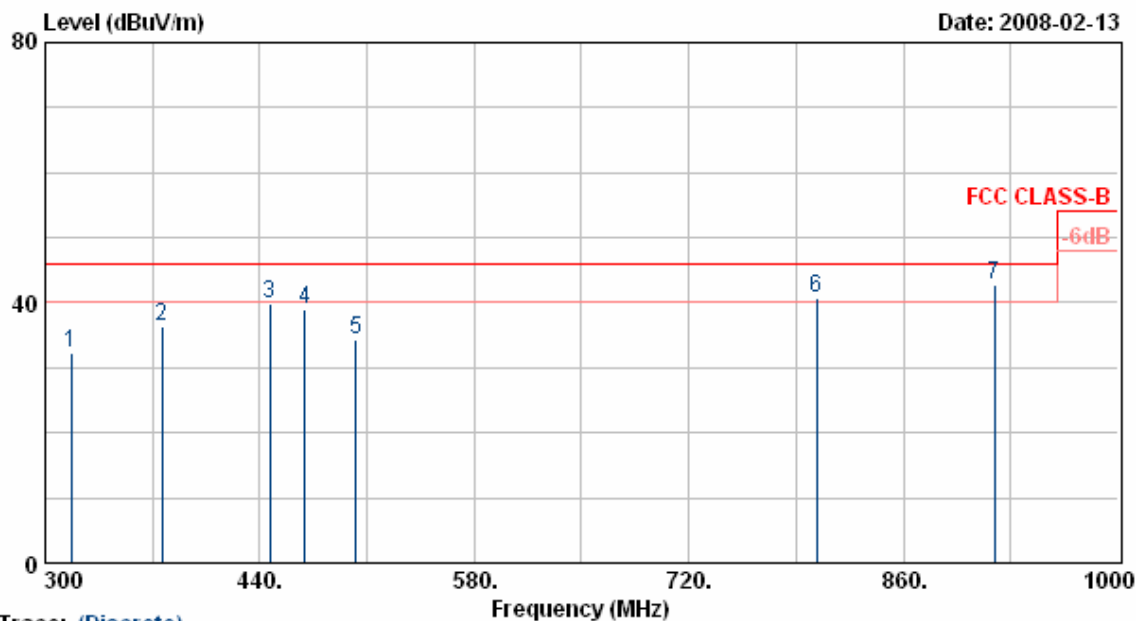
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 84.76 | 52.52 | -23.79 | 28.73 | 40.00 | -11.27 | Peak | 200 | 48 |
| 2 | 125.00 | 46.79 | -20.04 | 26.75 | 43.50 | -16.75 | Peak | 200 | 89 |
| 3 | 131.46 | 52.60 | -19.87 | 32.73 | 43.50 | -10.77 | Peak | 200 | 89 |
| 4 | 174.69 | 57.49 | -20.92 | 36.57 | 43.50 | -6.93 | Peak | 200 | 111 |
| 5 | 190.78 | 53.33 | -20.87 | 32.46 | 43.50 | -11.04 | Peak | 200 | 142 |
| 6 | 208.48 | 56.25 | -18.90 | 37.35 | 43.50 | -6.15 | Peak | 200 | 222 |
| 7 | 219.48 | 55.20 | -18.58 | 36.62 | 46.00 | -9.38 | Peak | 200 | 222 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



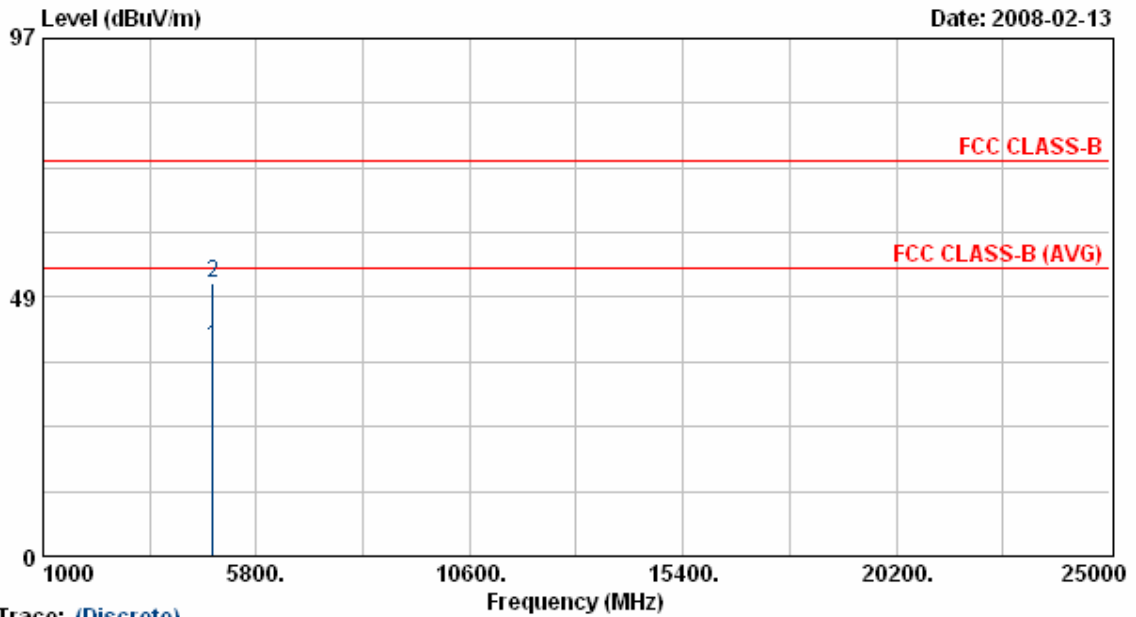
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 316.80 | 47.22 | -15.02 | 32.20 | 46.00 | -13.80 | Peak | 200 | 149 |
| 2 | 376.30 | 46.75 | -10.46 | 36.29 | 46.00 | -9.71 | Peak | 200 | 149 |
| 3 | 446.30 | 47.33 | -7.46 | 39.87 | 46.00 | -6.13 | Peak | 200 | 168 |
| 4 | 469.40 | 46.58 | -7.56 | 39.02 | 46.00 | -6.98 | Peak | 200 | 168 |
| 5 | 503.00 | 40.55 | -6.28 | 34.27 | 46.00 | -11.73 | Peak | 200 | 196 |
| 6 | 803.30 | 44.21 | -3.62 | 40.59 | 46.00 | -5.41 | QP | 200 | 255 |
| 7 | 919.60 | 39.90 | 2.89 | 42.79 | 46.00 | -3.21 | QP | 200 | 333 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. All emission below 1GHz at 802.11b/g mode are all the same,so the 802.11g mode chosen as representative in final test.
5. According to technical experiences,all spurious emission of 802.11g mode at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representative in final test.
6. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



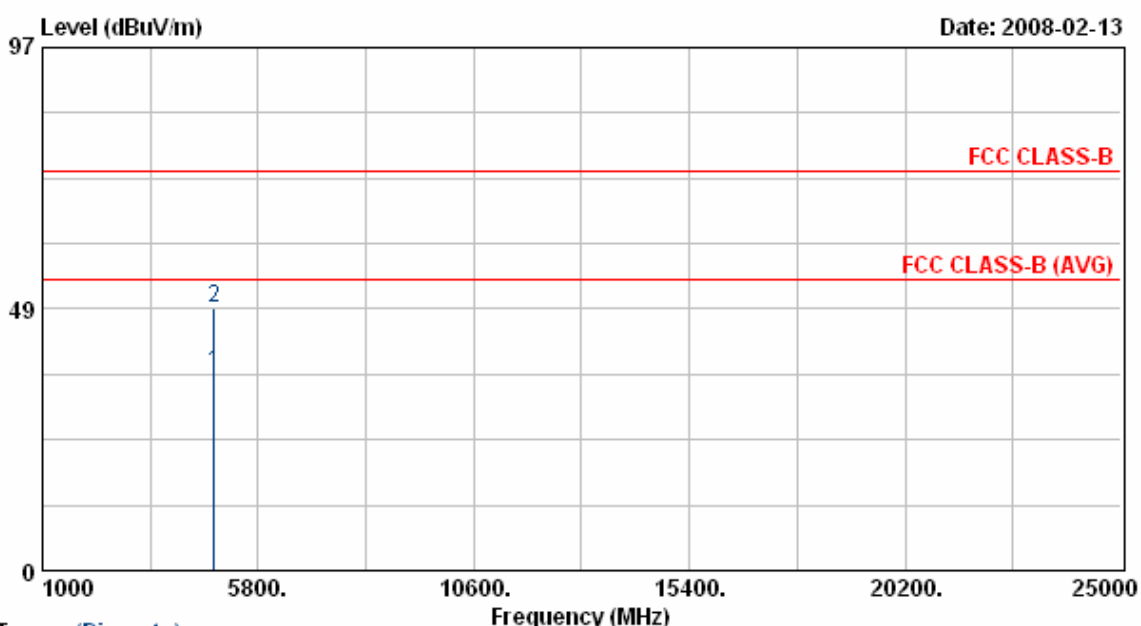
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4824.00 | 30.66 | 8.51 | 39.17 | 54.00 | -14.83 | Average | 100 | 168 |
| 2 | 4824.00 | 42.65 | 8.51 | 51.15 | 74.00 | -22.85 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



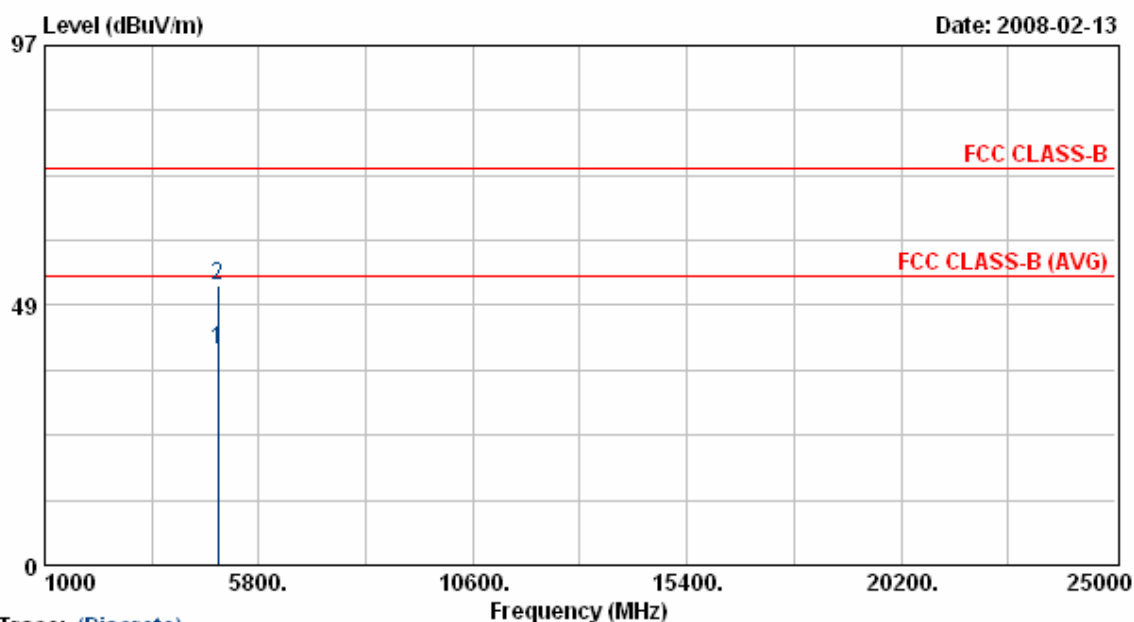
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4824.25 | 28.25 | 8.51 | 36.76 | 54.00 | -17.24 | Average | 100 | 211 |
| 2 | 4824.25 | 40.05 | 8.51 | 48.56 | 74.00 | -25.44 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 6 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



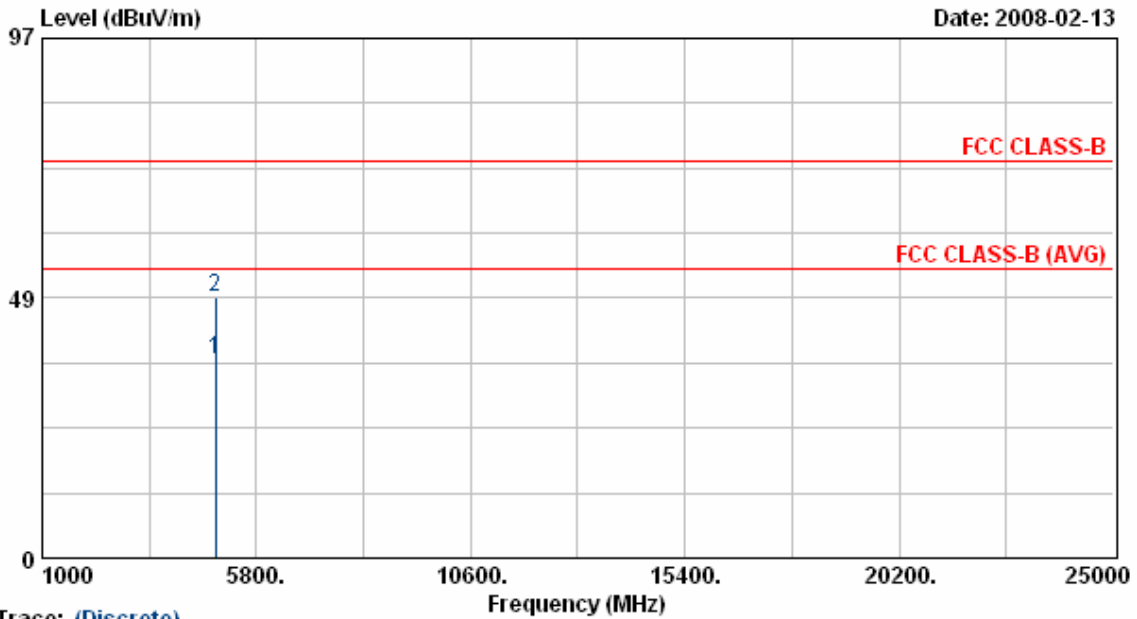
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4874.00 | 31.69 | 8.63 | 40.32 | 54.00 | -13.68 | Average | 100 | 168 |
| 2 | 4874.00 | 43.43 | 8.63 | 52.05 | 74.00 | -21.95 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 6 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



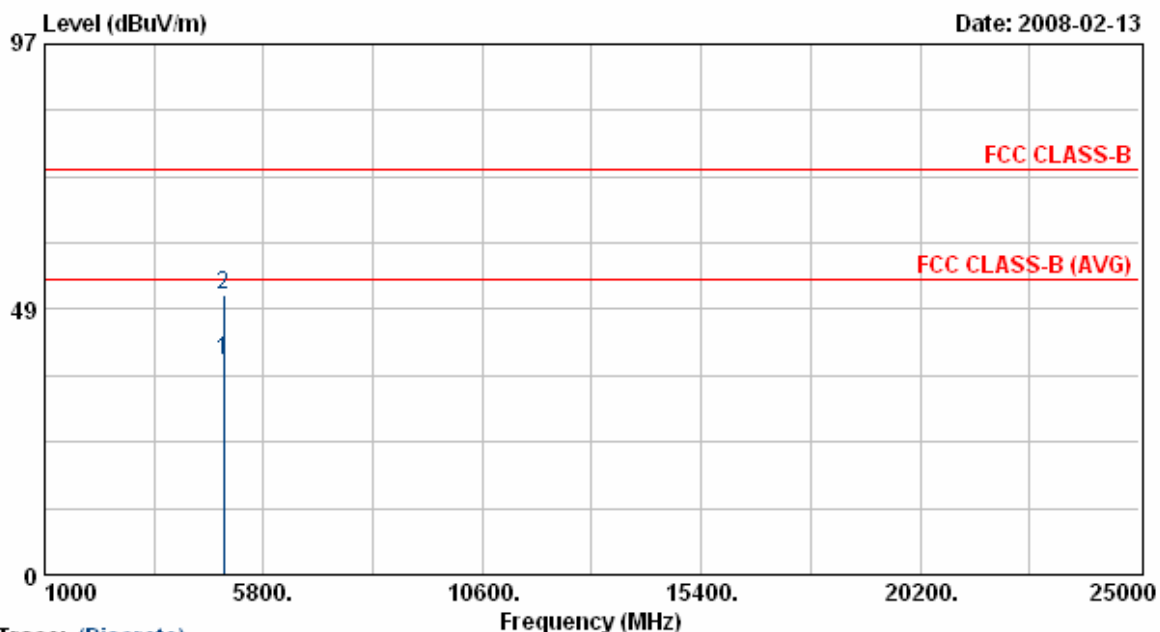
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4874.00 | 28.42 | 8.63 | 37.05 | 54.00 | -16.95 | Average | 100 | 211 |
| 2 | 4874.00 | 40.21 | 8.63 | 48.83 | 74.00 | -25.17 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 11 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



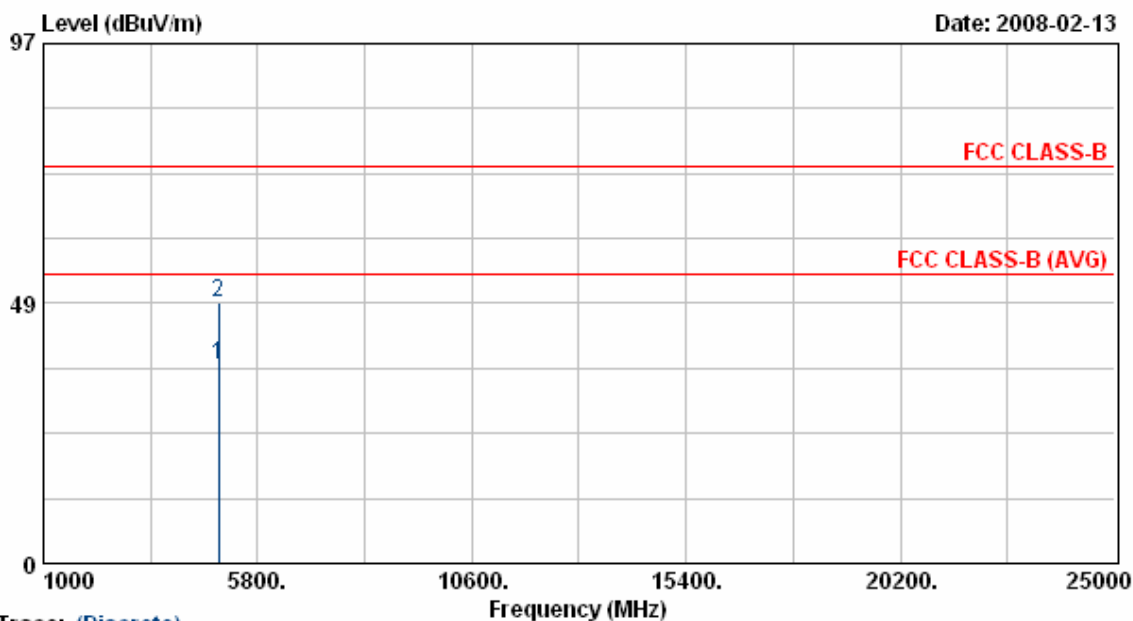
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4924.00 | 30.53 | 8.75 | 39.28 | 54.00 | -14.72 | Average | 100 | 168 |
| 2 | 4924.00 | 42.33 | 8.75 | 51.07 | 74.00 | -22.93 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 11 | Humidity | : 70 % |
| Modulation Type | : 802.11b | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 11 Mbps |



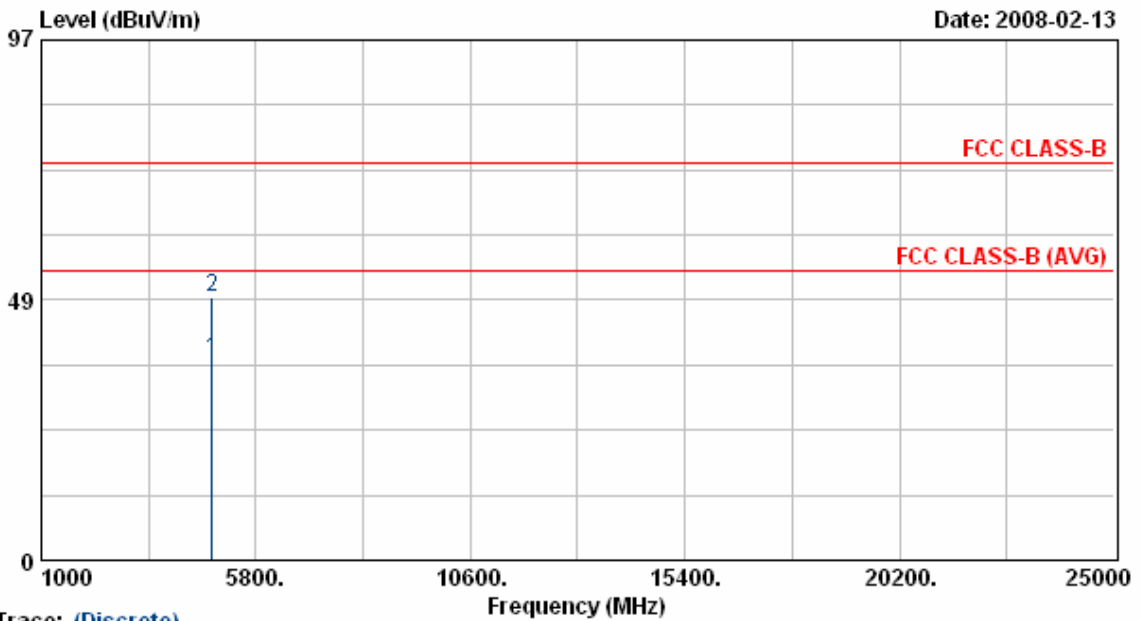
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4923.75 | 28.12 | 8.75 | 36.86 | 54.00 | -17.14 | Average | 100 | 211 |
| 2 | 4923.75 | 39.96 | 8.75 | 48.70 | 74.00 | -25.30 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



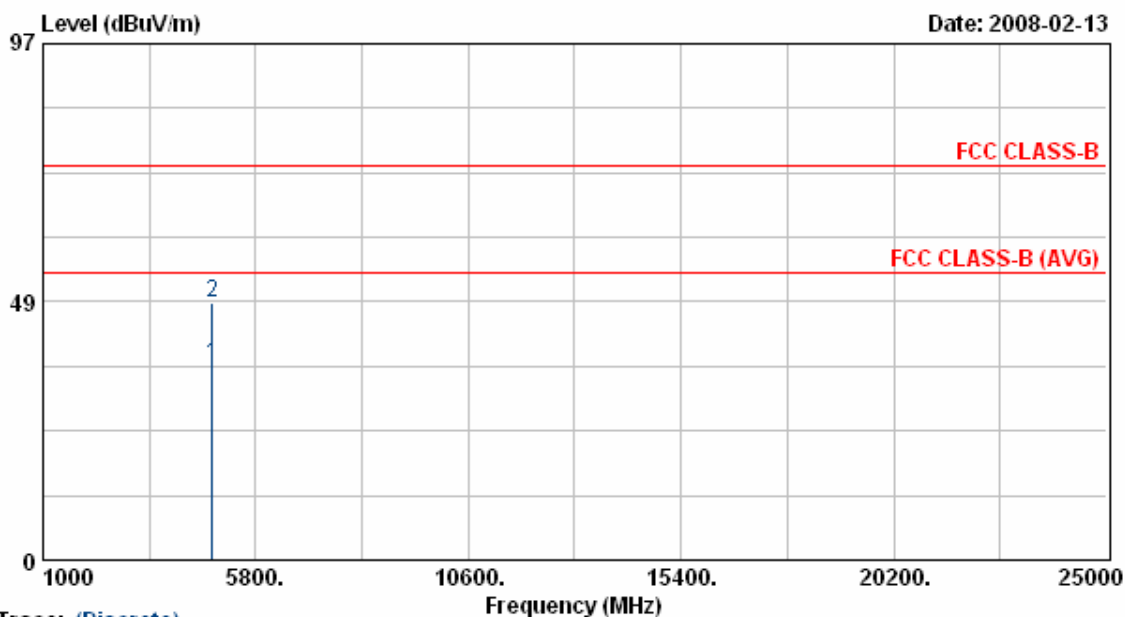
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBUV/m | dB | dBUV/m | dBUV/m | dB | | cm | Deg |
| 1 | 4824.75 | 28.85 | 8.51 | 37.36 | 54.00 | -16.64 | Average | 100 | 168 |
| 2 | 4824.75 | 40.51 | 8.51 | 49.02 | 74.00 | -24.98 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 1 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



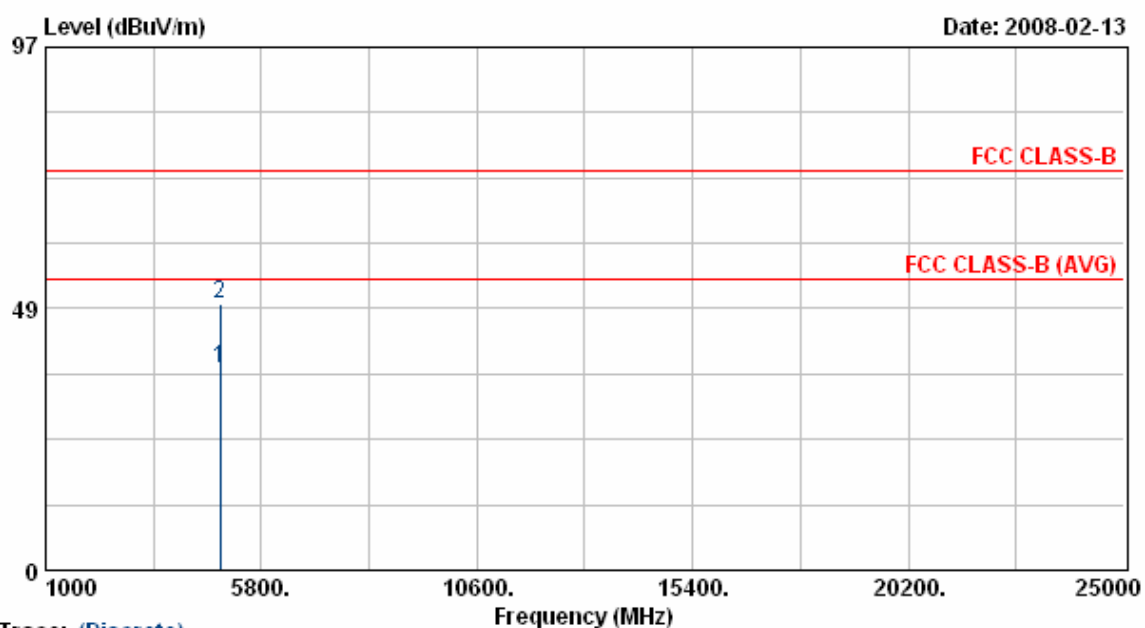
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4824.00 | 28.13 | 8.51 | 36.64 | 54.00 | -17.36 | Average | 100 | 211 |
| 2 | 4824.00 | 39.89 | 8.51 | 48.39 | 74.00 | -25.61 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 6 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



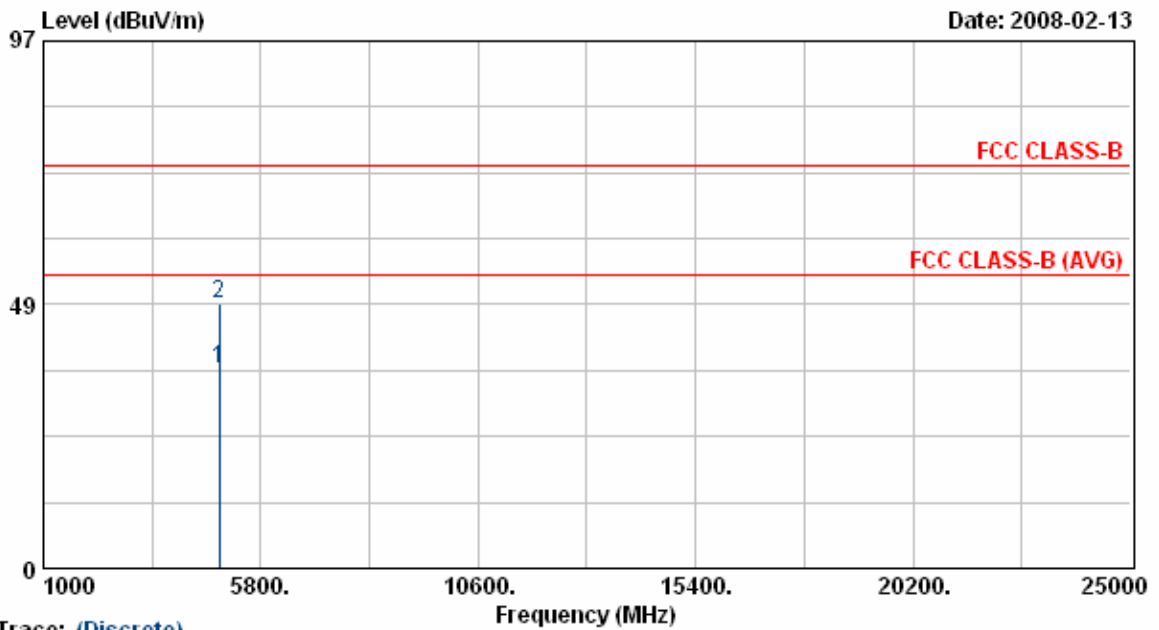
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4874.25 | 28.87 | 8.63 | 37.50 | 54.00 | -16.50 | Average | 100 | 168 |
| 2 | 4874.25 | 40.74 | 8.63 | 49.37 | 74.00 | -24.63 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 6 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



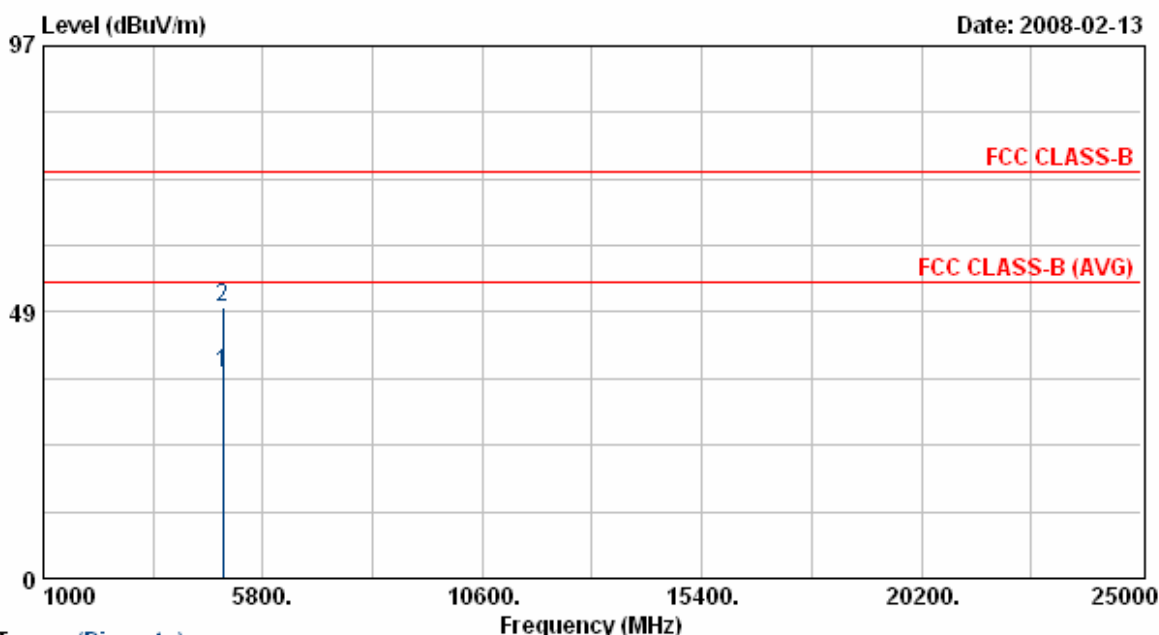
Trace: (Discrete)

| Item | Freq MHz | Read Value dBuV/m | Factor dB | Result dBuV/m | Limit dBuV/m | Margin dB | Remark | Ant Pos cm | Tab Pos Deg |
|------|-------------|-------------------------|--------------|------------------|-----------------|--------------|---------|------------------|-------------------|
| 1 | 4874.00 | 28.11 | 8.63 | 36.74 | 54.00 | -17.26 | Average | 100 | 211 |
| 2 | 4874.00 | 39.95 | 8.63 | 48.57 | 74.00 | -25.43 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 11 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



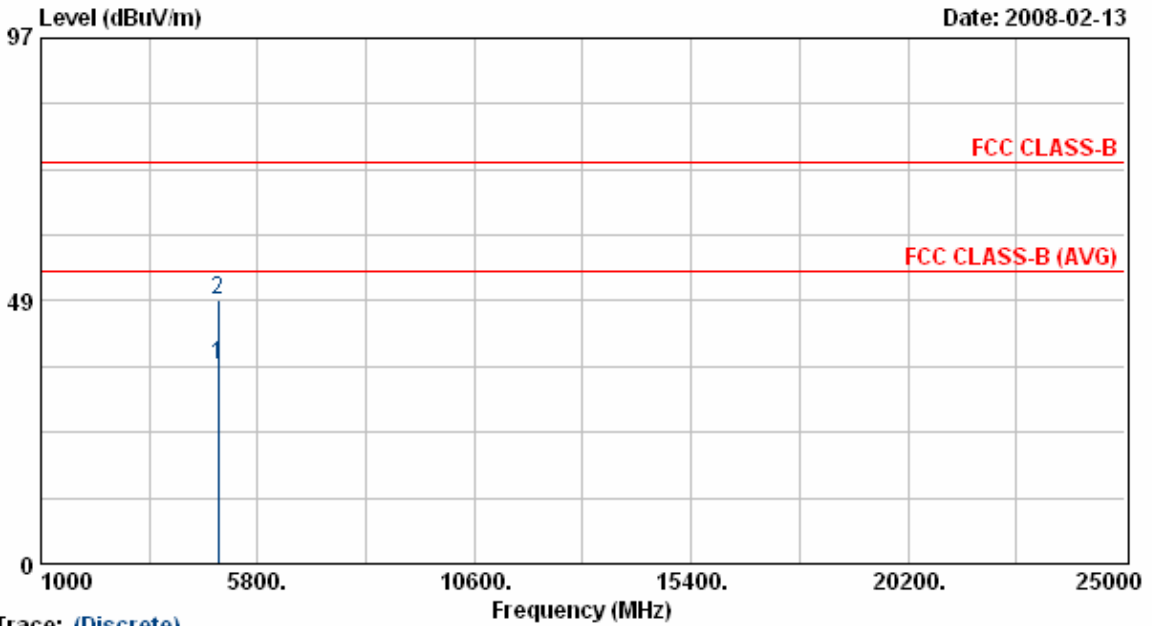
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4924.38 | 28.76 | 8.75 | 37.51 | 54.00 | -16.49 | Average | 100 | 168 |
| 2 | 4924.38 | 40.58 | 8.75 | 49.33 | 74.00 | -24.67 | Peak | 100 | 168 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 11 | Humidity | : 70 % |
| Modulation Type | : 802.11g | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|---------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 4923.88 | 28.02 | 8.75 | 36.77 | 54.00 | -17.23 | Average | 100 | 211 |
| 2 | 4923.88 | 39.82 | 8.75 | 48.57 | 74.00 | -25.43 | Peak | 100 | 211 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Test engineer: Ben

6. 6dB Bandwidth Measurement Data (For 802.11b/g device)

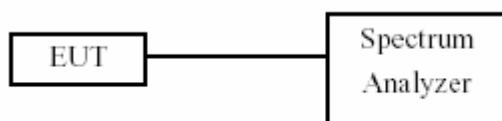
6.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

6.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

6.3 Test Setup Layout



6.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

6.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

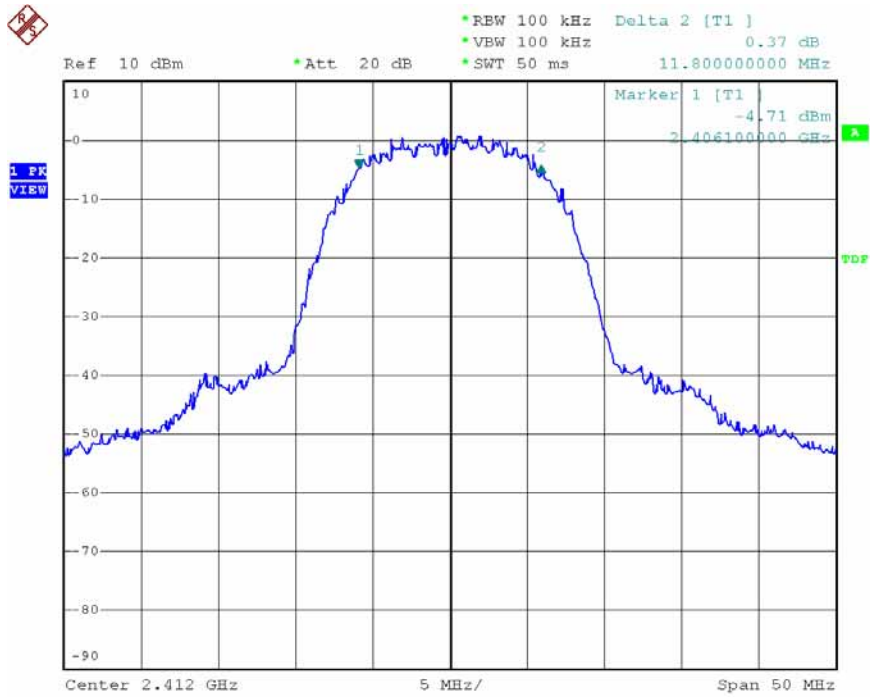
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |
|---------|-----------------|---------------------|
| 01 | 2412 | 11.80 |
| 06 | 2437 | 12.00 |
| 11 | 2462 | 11.90 |

(2) Modulation Standard: IEEE 802.11g (54Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

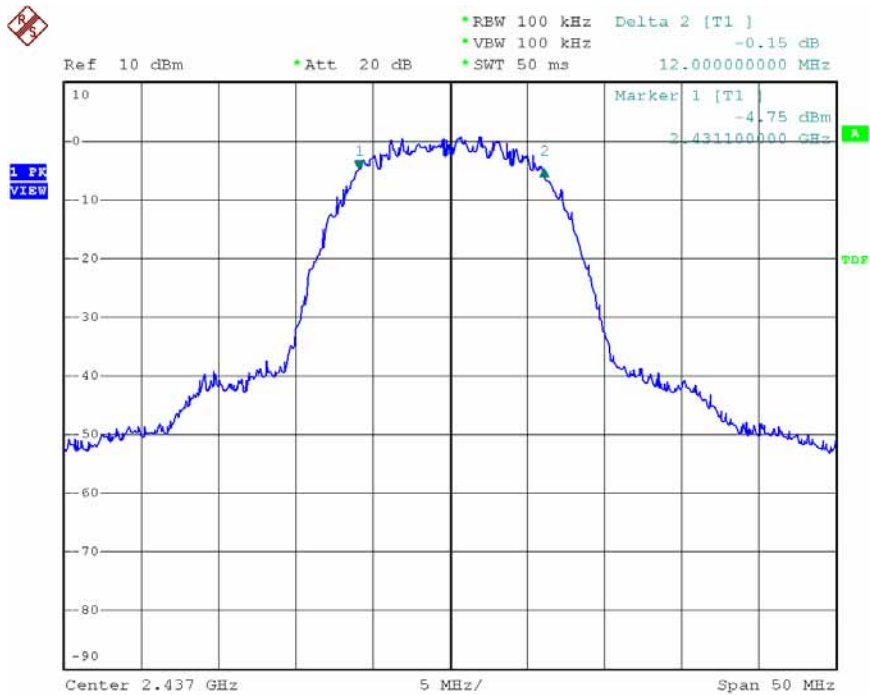
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |
|---------|-----------------|---------------------|
| 01 | 2412 | 16.50 |
| 06 | 2437 | 16.50 |
| 11 | 2462 | 16.50 |

Modulation Standard: 802.11b (11Mbps)
 Channel: 01



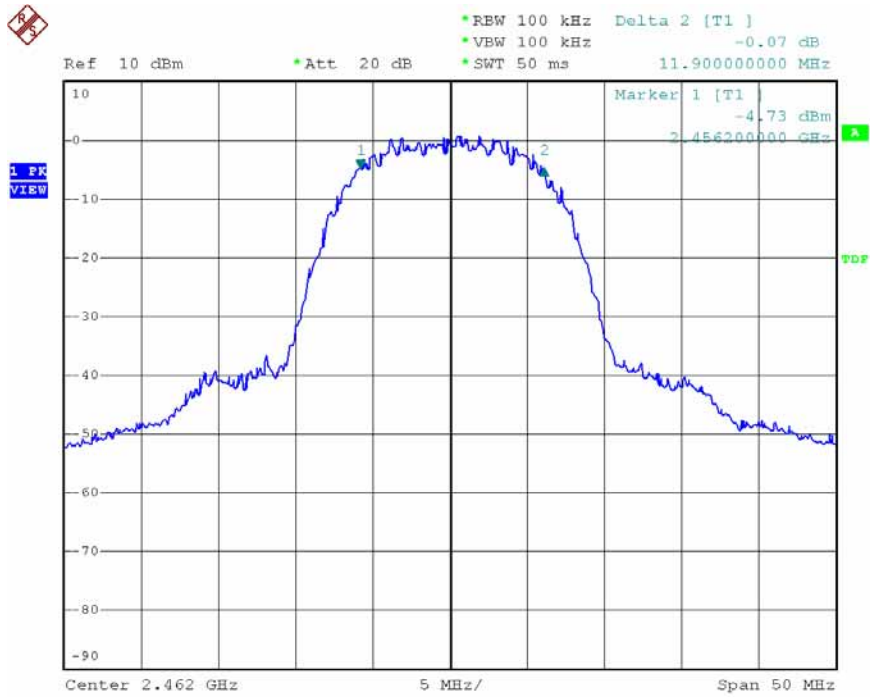
Date: 28.JAN.2008 14:53:01

Modulation Standard: 802.11b (11Mbps)
 Channel: 06



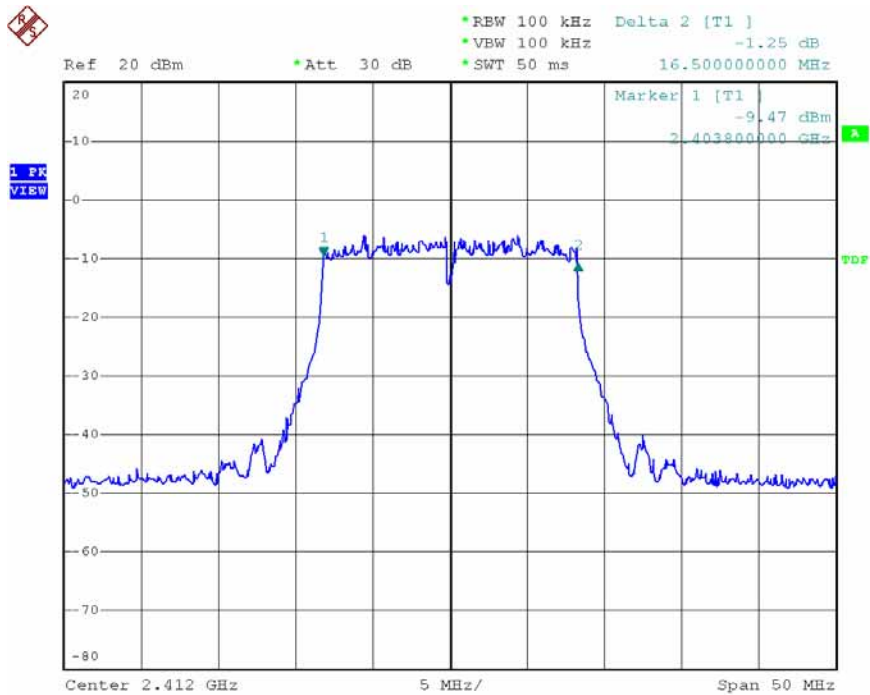
Date: 28.JAN.2008 14:51:28

Modulation Standard: 802.11b (11Mbps)
 Channel: 11



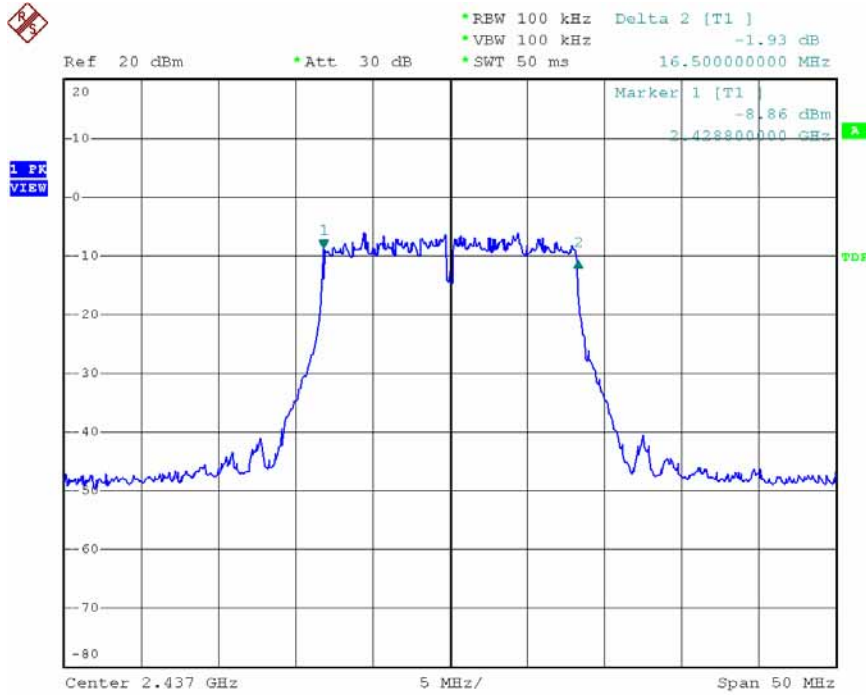
Date: 28.JAN.2008 14:48:33

Modulation Standard: 802.11g (54Mbps)
 Channel: 01



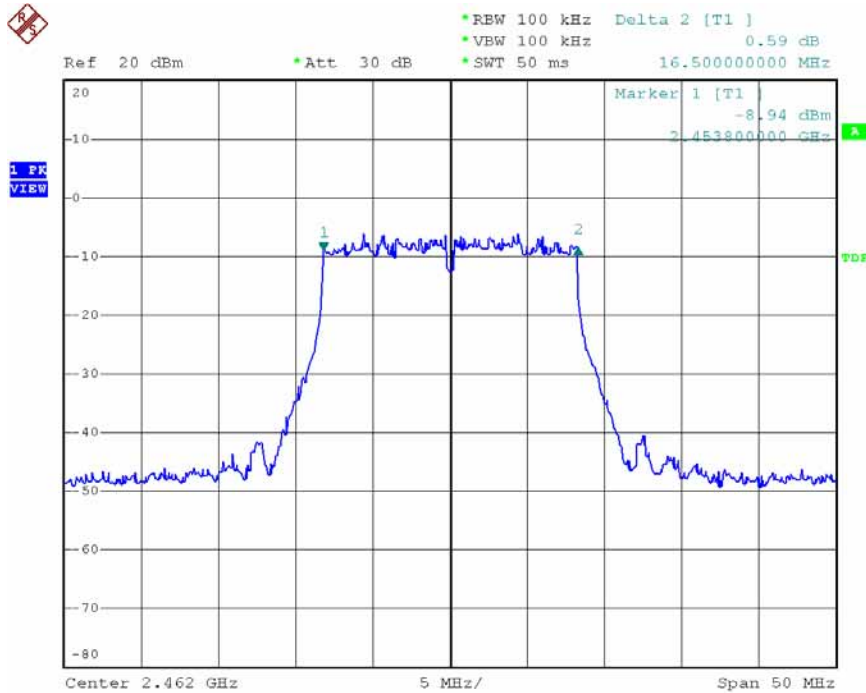
Date: 28.JAN.2008 13:53:45

Modulation Standard: 802.11g (54Mbps)
 Channel: 06



Date: 28.JAN.2008 13:51:59

Modulation Standard: 802.11g (54Mbps)
 Channel: 11



Date: 28.JAN.2008 13:50:19

7. Maximum Peak Output Power (For 802.11b/g device)

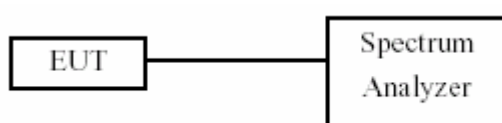
7.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

7.2 Test Procedures

The antenna port(RF output)of the EUT was connected to the input(RF input)of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

7.3 Test Setup Layout



7.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

7.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

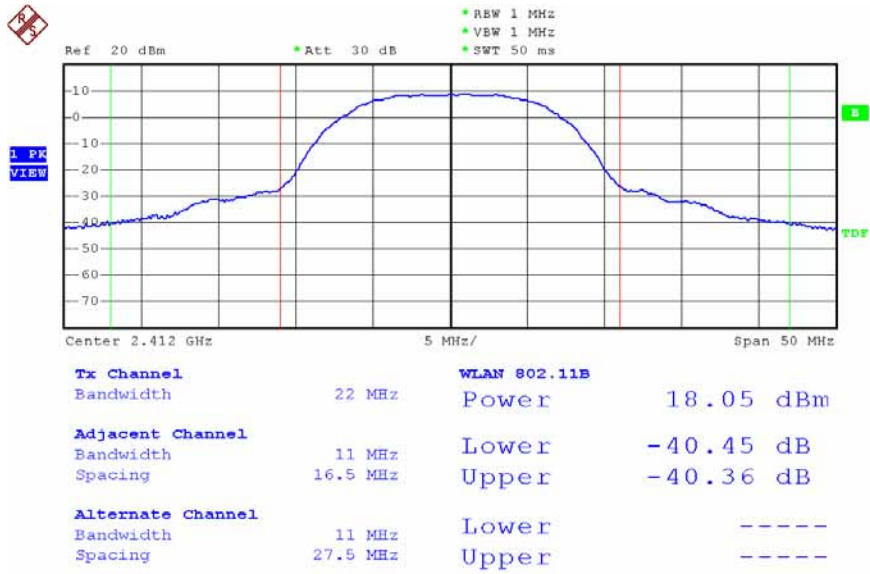
| Channel | Frequency (MHz) | Peak Power Output (dBm) | Peak Power Output (mW) |
|---------|-----------------|-------------------------|------------------------|
| 01 | 2412 | 18.05 | 63.80 |
| 06 | 2437 | 18.01 | 63.20 |
| 11 | 2462 | 18.04 | 63.70 |

(2) Modulation Standard: IEEE 802.11g (54Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

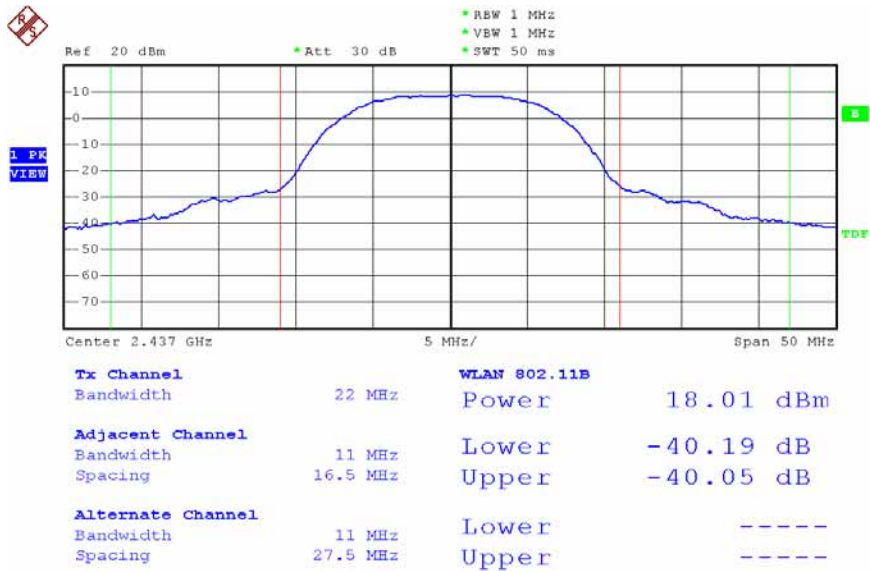
| Channel | Frequency (MHz) | Peak Power Output (dBm) | Peak Power Output (Mw) |
|---------|-----------------|-------------------------|------------------------|
| 01 | 2412 | 14.56 | 28.60 |
| 06 | 2437 | 14.53 | 28.40 |
| 11 | 2462 | 14.56 | 28.60 |

Modulation Standard: 802.11b (11Mbps)
 Channel: 01



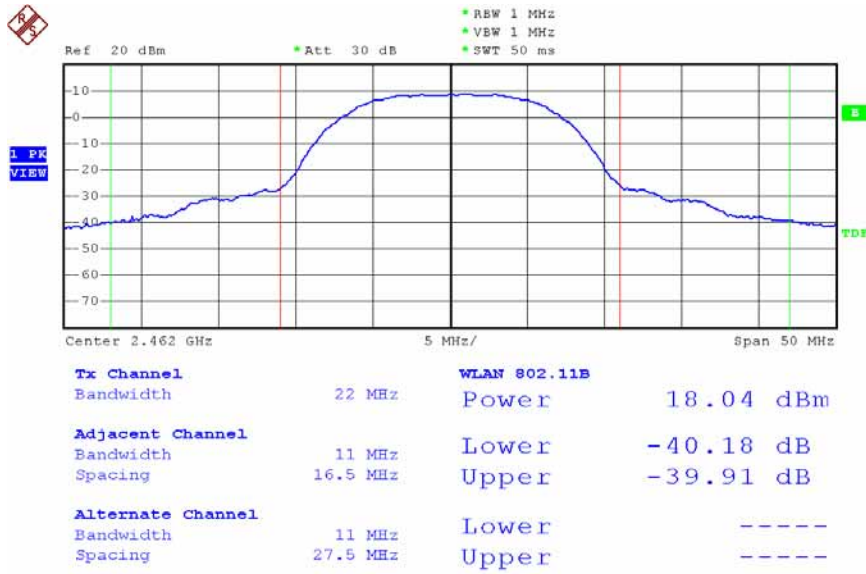
Date: 28.JAN.2008 14:39:20

Modulation Standard: 802.11b (11Mbps)
 Channel: 06



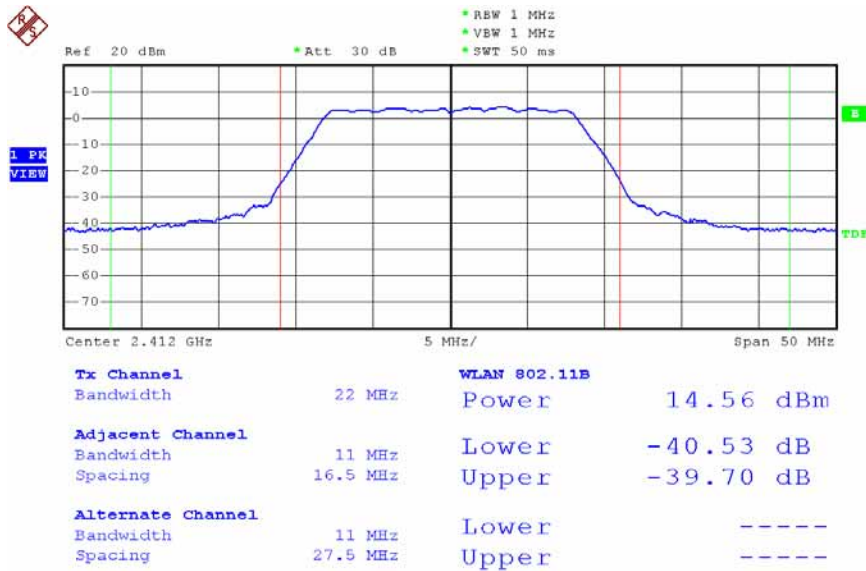
Date: 28.JAN.2008 14:42:25

Modulation Standard: 802.11b (11Mbps)
 Channel: 11



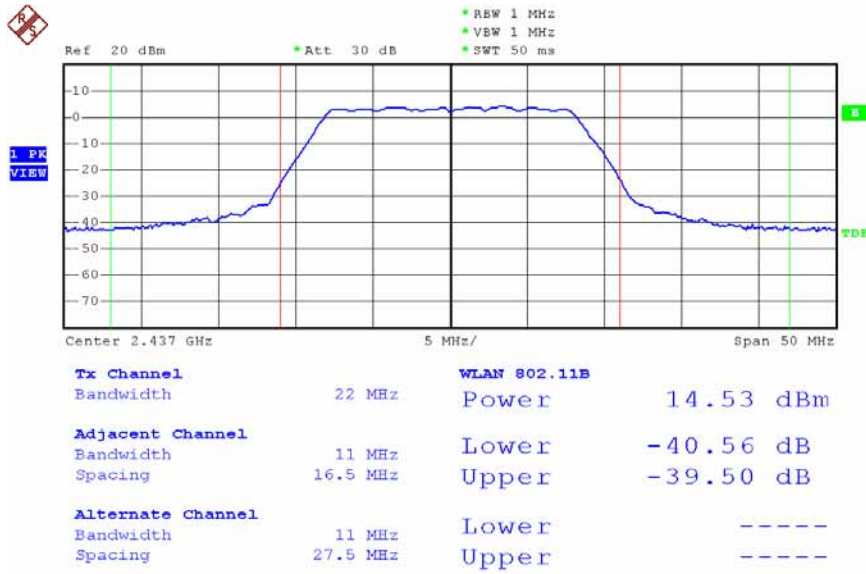
Date: 28.JAN.2008 14:44:44

Modulation Standard: 802.11g (54Mbps)
 Channel: 01



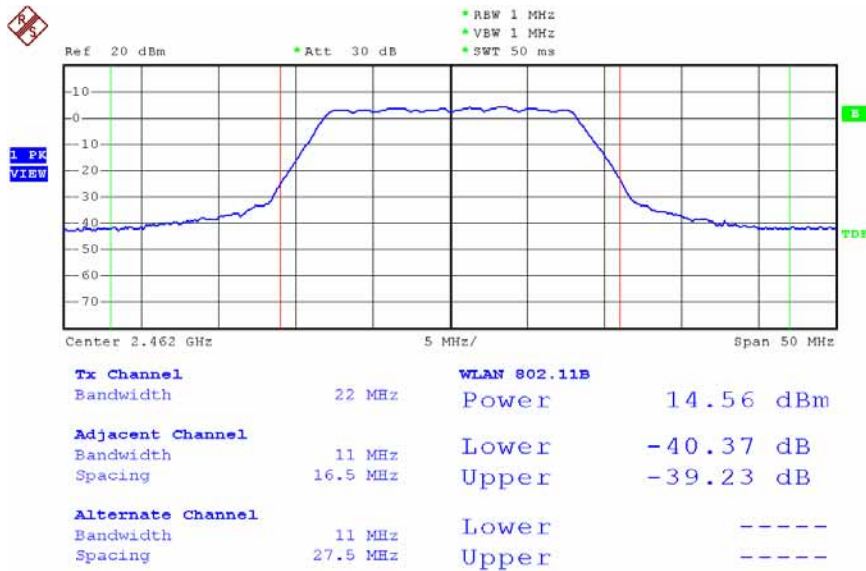
Date: 28.JAN.2008 13:44:39

Modulation Standard: 802.11g (54Mbps)
 Channel: 06



Date: 28.JAN.2008 13:46:58

Modulation Standard: 802.11g (54Mbps)
 Channel: 11



Date: 28.JAN.2008 13:49:14

8. Band Edges Measurement (For 802.11b/g device)

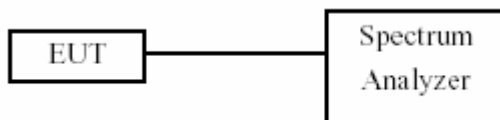
8.1 Test Limit

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

8.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

8.3 Test Setup Layout



8.4 List of Measuring Equipment Used

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

8.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Jan. 21, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

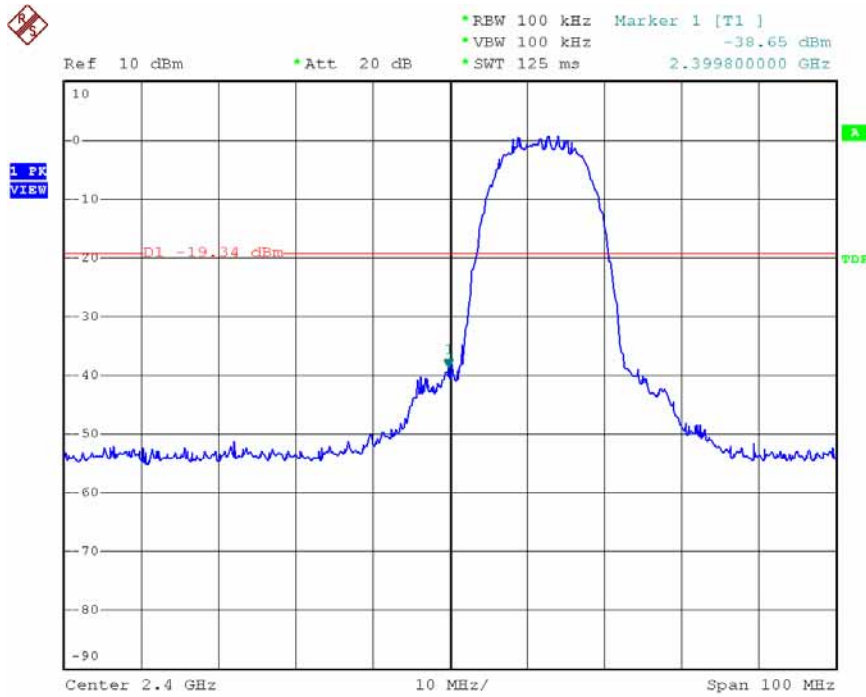
| Channel | Frequency | maximum value in frequency (MHz) | maximum value is (dBm) |
|---------|-----------|-------------------------------------|---------------------------|
| 01 | 2412 | 2399.80 | -38.65 |
| 11 | 2462 | 2502.10 | -48.92 |

(2) Modulation Standard: IEEE 802.11g (54Mbps)

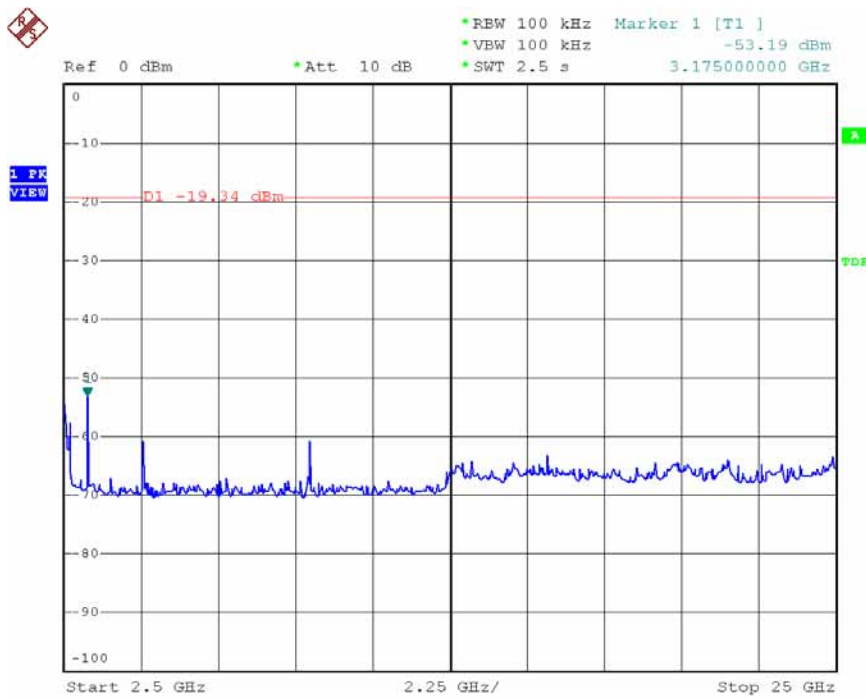
Test Date: Jan. 21, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

| Channel | Frequency | maximum value in frequency (MHz) | maximum value is (dBm) |
|---------|-----------|-------------------------------------|---------------------------|
| 01 | 2412 | 2399.80 | -42.97 |
| 11 | 2462 | 2526.90 | -50.37 |

Modulation Standard: 802.11b (11Mbps)
 Channel: 01

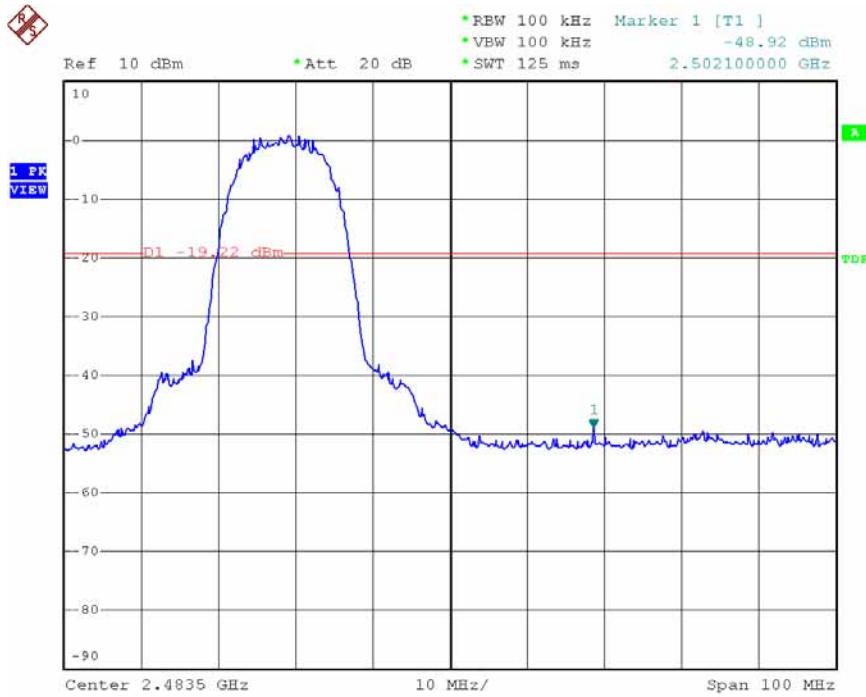


Date: 28.JAN.2008 14:54:33

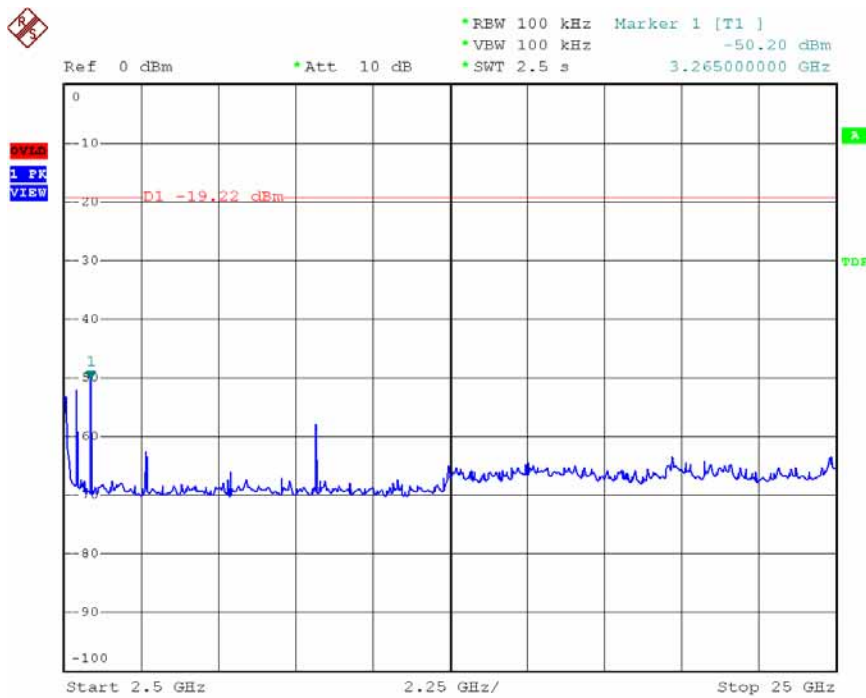


Date: 28.JAN.2008 14:55:07

Modulation Standard: 802.11b (11Mbps)
 Channel: 11

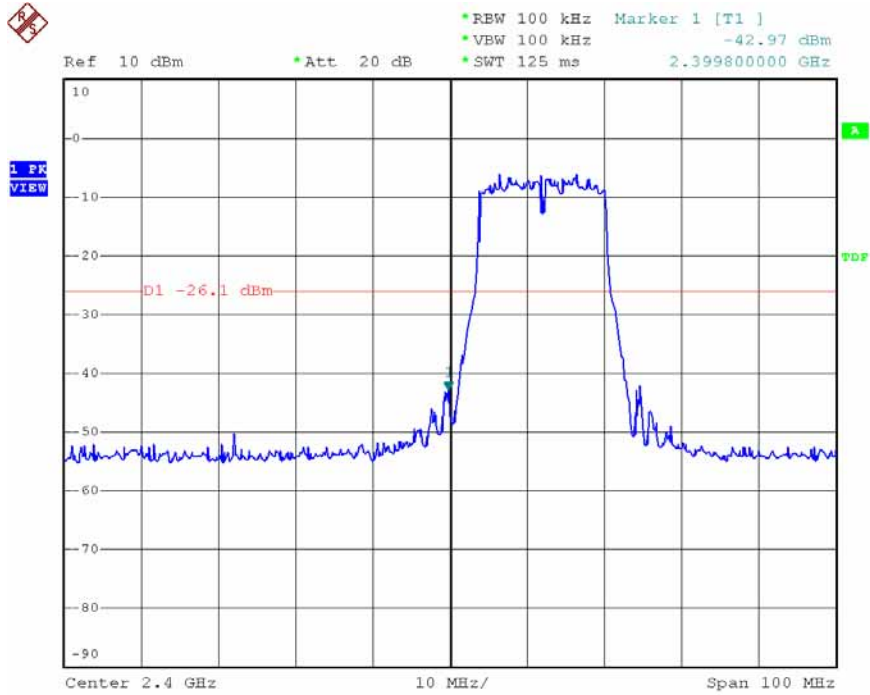


Date: 28.JAN.2008 14:57:19

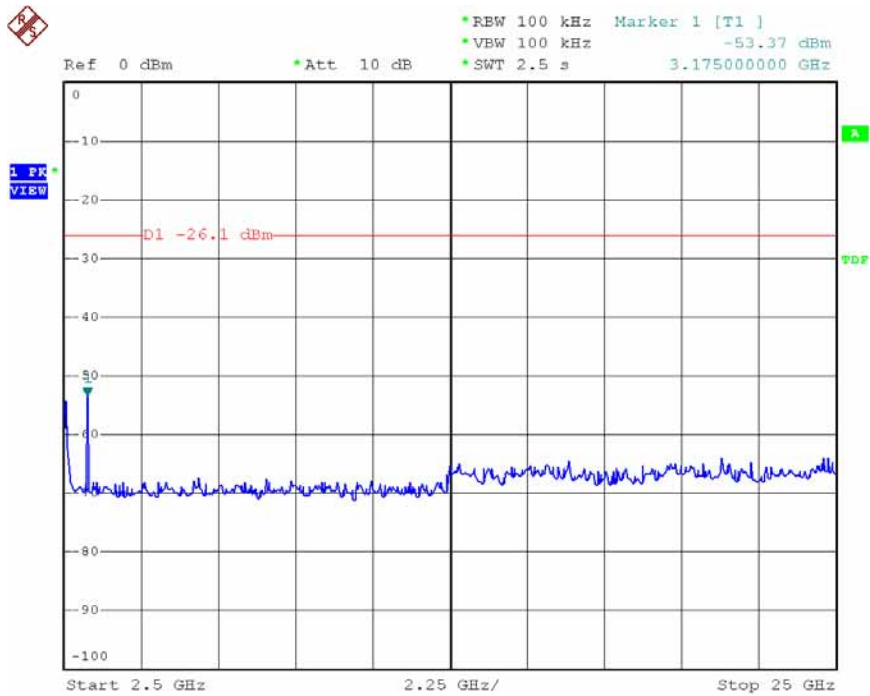


Date: 28.JAN.2008 14:57:47

Modulation Standard: 802.11g (54Mbps)
 Channel: 01

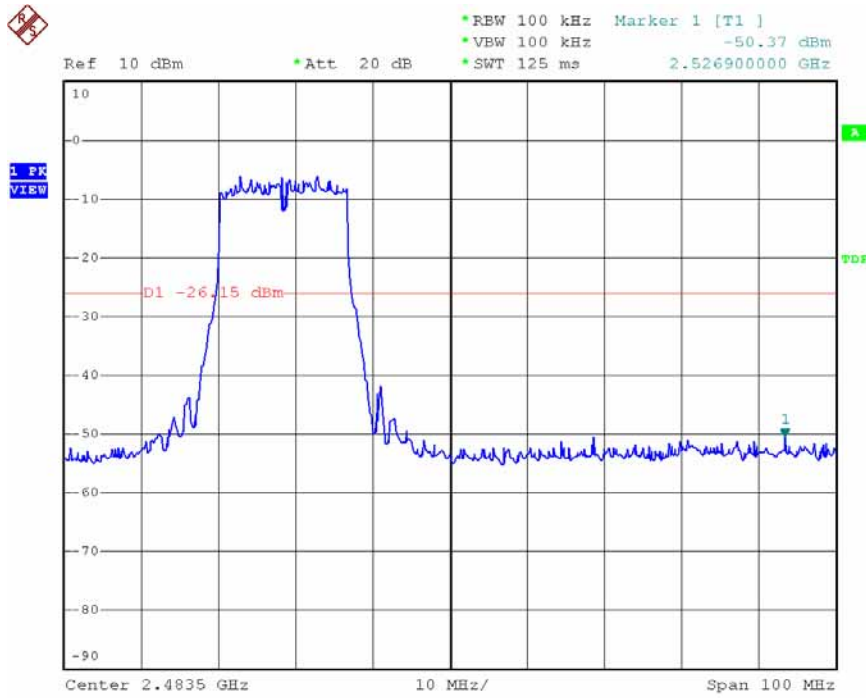


Date: 28.JAN.2008 13:57:34

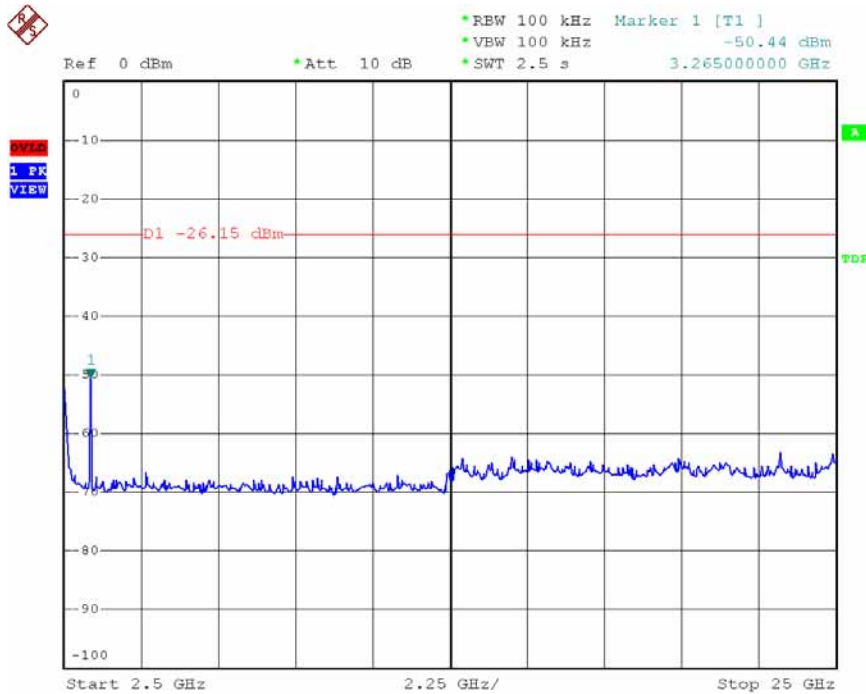


Date: 28.JAN.2008 13:58:03

Modulation Standard: 802.11g (11Mbps)
 Channel: 11



Date: 28.JAN.2008 13:59:35



Date: 28.JAN.2008 14:00:02

8.6 Restrict band emission Measurement Data

Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Feb. 13, 2008 Temperature: 15 Humidity: 70% Atmospheric pressure: 1030 hPa

a) Channel 1

| Frequency (MHz) | Ant-Pol H/V | Meter Reading | Corrected Factor | Result (dBuV/m) | Remark | Limit@3m (dBuV/m) | | Margin (dB) | Table (Deg.) | Ant High (m) |
|-----------------|-------------|---------------|------------------|-----------------|--------|-------------------|------|-------------|--------------|--------------|
| | | | | | | Peak | Ave. | | | |
| 2342.54 | H | 48.94 | -1.80 | 47.13 | Peak | 74 | 54 | -26.87 | 236 | 1.23 |
| 2387.21 | H | 37.45 | -1.66 | 35.79 | Ave | 74 | 54 | -18.21 | 236 | 1.23 |
| 2386.19 | V | 49.71 | -1.66 | 48.05 | Peak | 74 | 54 | -25.95 | 102 | 1.00 |
| 2387.42 | V | 37.70 | -1.66 | 36.04 | Ave | 74 | 54 | -17.96 | 102 | 1.00 |

b) Channel 11

| Frequency (MHz) | Ant-Pol H/V | Meter Reading | Corrected Factor | Result (dBuV/m) | Remark | Limit@3m (dBuV/m) | | Margin (dB) | Table (Deg.) | Ant High (m) |
|-----------------|-------------|---------------|------------------|-----------------|--------|-------------------|------|-------------|--------------|--------------|
| | | | | | | Peak | Ave. | | | |
| 2483.55 | H | 48.74 | -1.35 | 47.38 | Peak | 74 | 54 | -26.62 | 236 | 1.23 |
| 2495.52 | H | 37.37 | -1.31 | 36.06 | Ave | 74 | 54 | -17.94 | 236 | 1.23 |
| 2499.39 | V | 48.67 | -1.30 | 47.37 | Peak | 74 | 54 | -26.63 | 102 | 1.00 |
| 2496.47 | V | 37.37 | -1.31 | 36.06 | Ave | 74 | 54 | -17.94 | 102 | 1.00 |

Modulation Standard: 802.11g (54Mbps)

Test Date: Feb. 13, 2008 Temperature: 15 Humidity: 70% Atmospheric pressure: 1030 hPa

a) Channel 1

| Frequency (MHz) | Ant-Pol H/V | Meter Reading | Corrected Factor | Result (dBuV/m) | Remark | Limit@3m (dBuV/m) | | Margin (dB) | Table (Deg.) | Ant High (m) |
|-----------------|-------------|---------------|------------------|-----------------|--------|-------------------|------|-------------|--------------|--------------|
| | | | | | | Peak | Ave. | | | |
| 2389.46 | H | 49.64 | -1.65 | 47.99 | Peak | 74 | 54 | -26.01 | 236 | 1.23 |
| 2389.97 | H | 37.95 | -1.65 | 36.30 | Ave | 74 | 54 | -17.70 | 236 | 1.23 |
| 2389.46 | V | 50.65 | -1.65 | 49.00 | Peak | 74 | 54 | -25.00 | 102 | 1.00 |
| 2389.97 | V | 38.48 | -1.65 | 36.83 | Ave | 74 | 54 | -17.17 | 102 | 1.00 |

b) Channel 11

| Frequency (MHz) | Ant-Pol H/V | Meter Reading | Corrected Factor | Result (dBuV/m) | Remark | Limit@3m (dBuV/m) | | Margin (dB) | Table (Deg.) | Ant High (m) |
|-----------------|-------------|---------------|------------------|-----------------|--------|-------------------|------|-------------|--------------|--------------|
| | | | | | | Peak | Ave. | | | |
| 2487.73 | H | 49.28 | -1.34 | 47.95 | Peak | 74 | 54 | -26.05 | 236 | 1.23 |
| 2496.28 | H | 37.37 | -1.31 | 36.06 | Ave | 74 | 54 | -17.94 | 236 | 1.23 |
| 2499.51 | V | 48.91 | -1.30 | 47.61 | Peak | 74 | 54 | -26.39 | 102 | 1.00 |
| 2498.18 | V | 37.38 | -1.31 | 36.07 | Ave | 74 | 54 | -17.93 | 102 | 1.00 |

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz

9. Power Spectral Density (For 802.11b/g device)

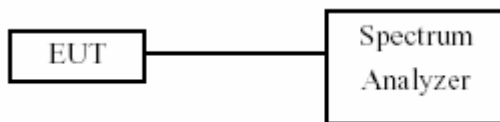
9.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

9.2 Test Procedures

- 1.The transmitter output was connected to spectrum analyzer.
- 2.The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
- 3.The power spectral density was measured and recorded.
- 4.The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

9.3 Test Setup Layout :



9.4 List of Measuring Equipment Used

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

9.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11b (11Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

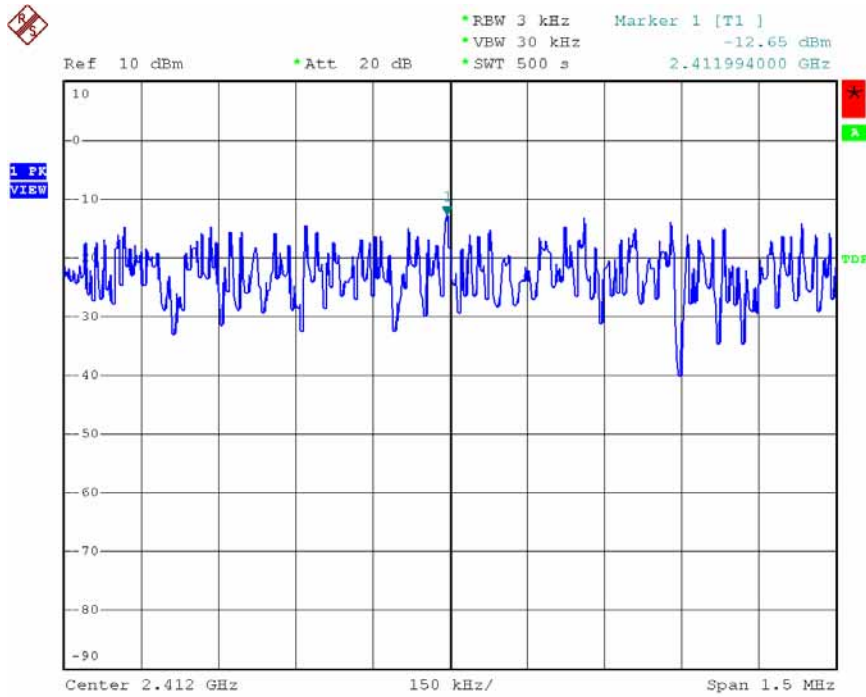
| Channel | Frequency | Maximum Power Density of 3 kHz Bandwidth (dBm) |
|---------|-----------|--|
| 01 | 2412 | -12.65 |
| 06 | 2437 | -12.69 |
| 11 | 2462 | -12.65 |

(2) Modulation Standard: IEEE 802.11g (54Mbps)

Test Date: Jan. 28, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

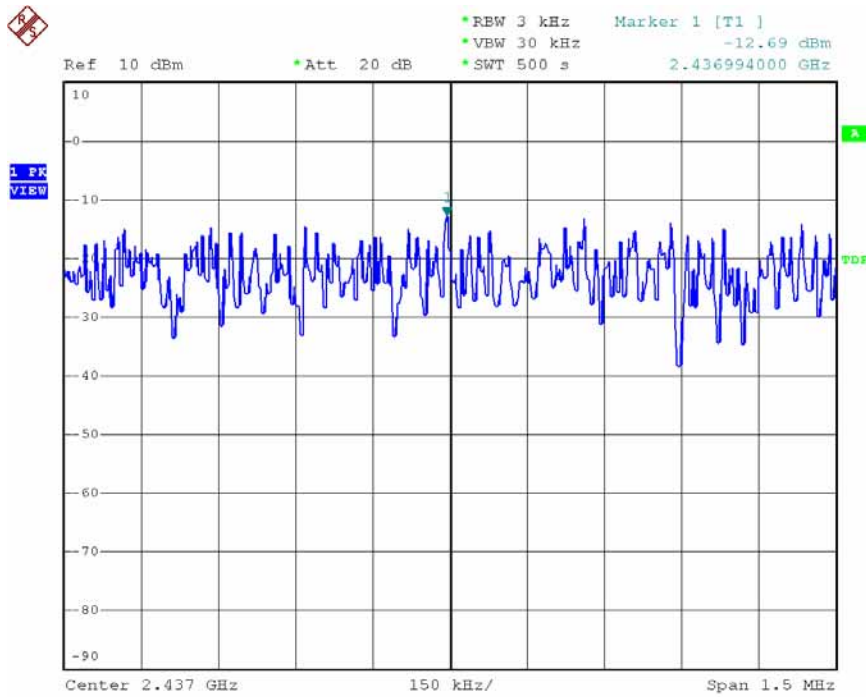
| Channel | Frequency | Maximum Power Density of 3 kHz Bandwidth (dBm) |
|---------|-----------|--|
| 01 | 2412 | -19.56 |
| 06 | 2437 | -19.60 |
| 11 | 2462 | -19.43 |

Modulation Standard: 802.11b (11Mbps)
 Channel: 01



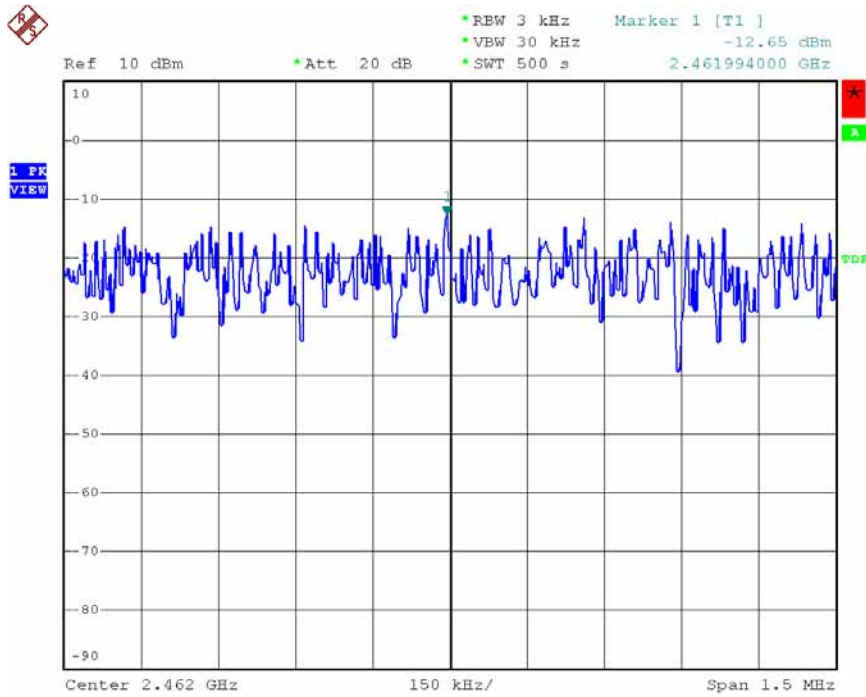
Date: 28.JAN.2008 15:39:05

Modulation Standard: 802.11b (11Mbps)
 Channel: 06



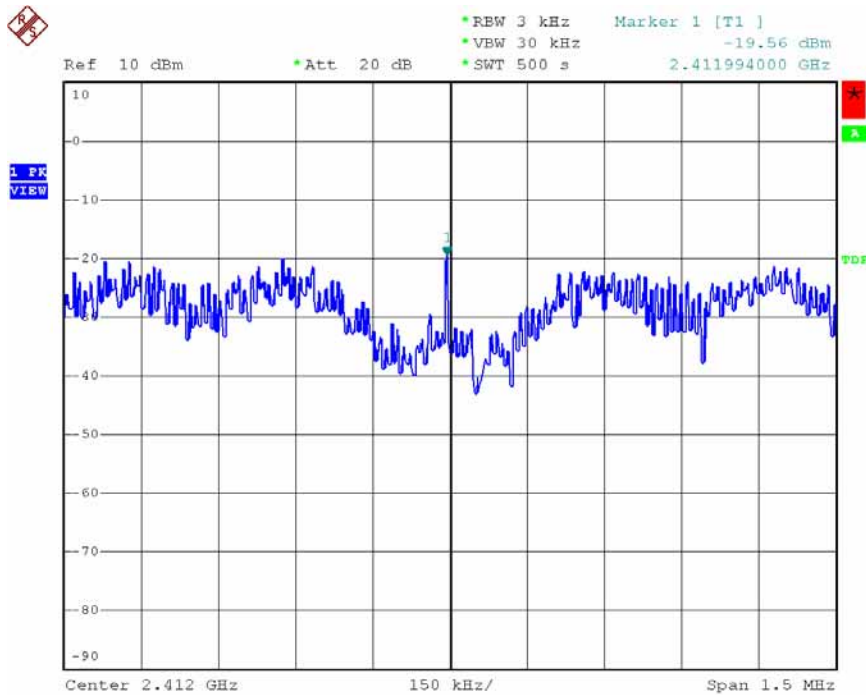
Date: 28.JAN.2008 15:30:02

Modulation Standard: 802.11b (11Mbps)
 Channel: 11



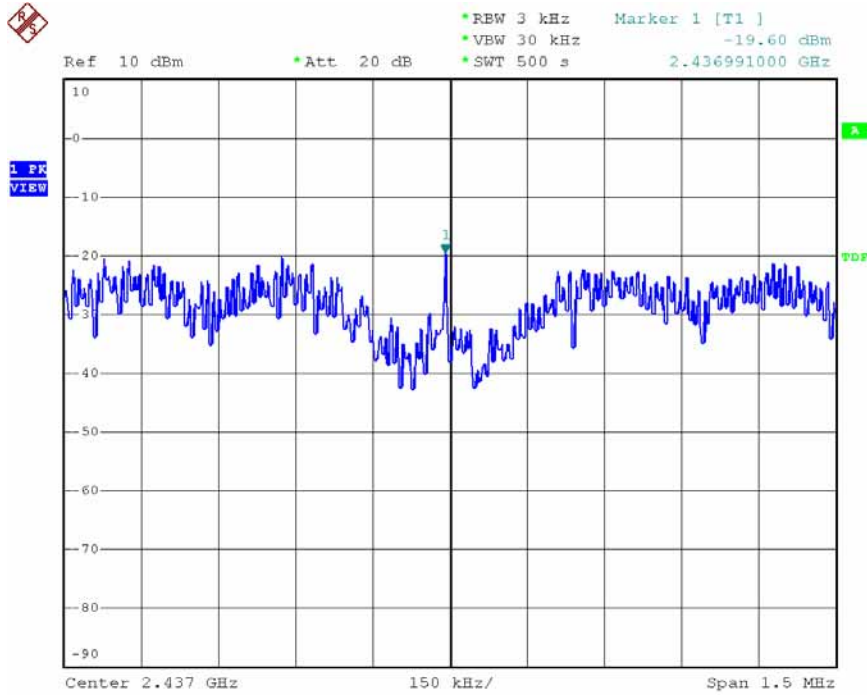
Date: 28.JAN.2008 15:07:14

Modulation Standard: 802.11g (54Mbps)
 Channel: 01



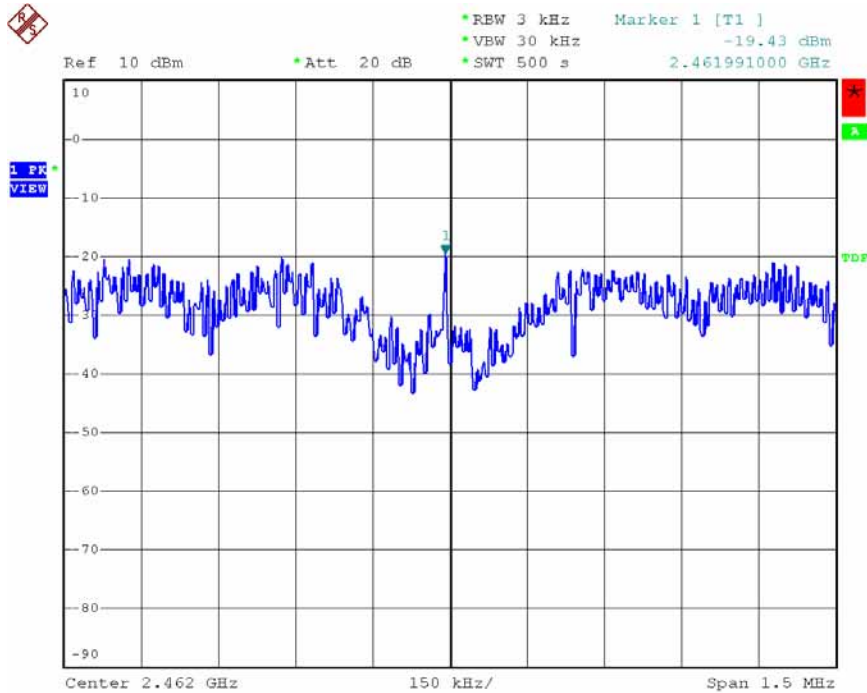
Date: 28.JAN.2008 15:51:12

Modulation Standard: 802.11g (54Mbps)
 Channel: 06



Date: 28.JAN.2008 14:20:15

Modulation Standard: 802.11g (54Mbps)
 Channel: 11



Date: 28.JAN.2008 14:10:47

10. Test of Conducted Emission (For 802.11a device)

10.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

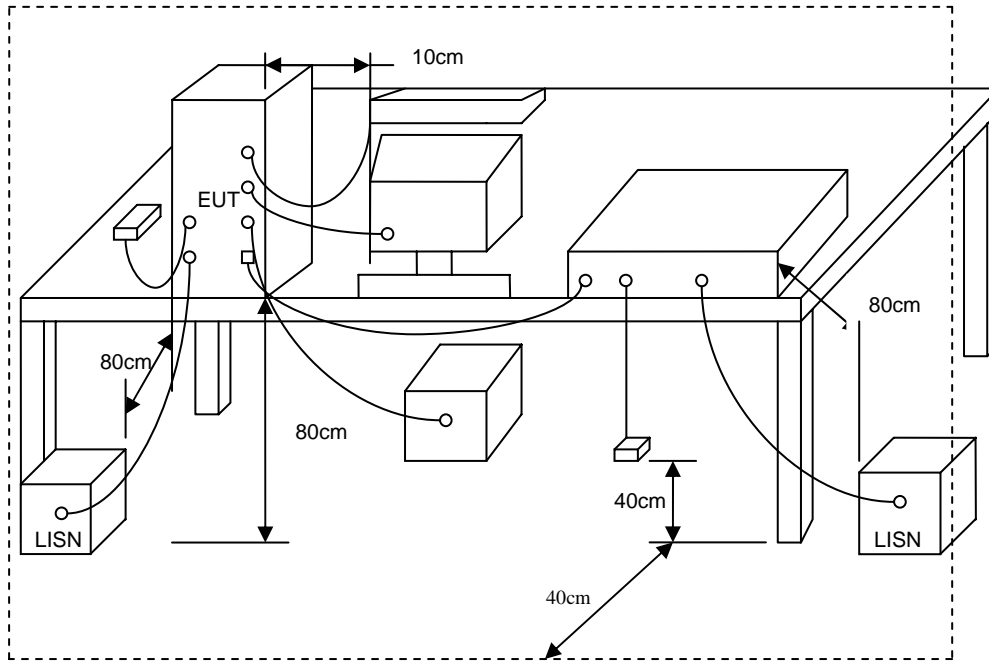
| Frequency (MHz) | Quasi Peak (dB μ V) | Average (dB μ V) |
|-----------------|-------------------------|----------------------|
| 0.15 – 0.5 | 66-56* | 56-46* |
| 0.5 – 5.0 | 56 | 46 |
| 5.0 – 30.0 | 60 | 50 |

*Decreases with the logarithm of the frequency.

10.2 Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

10.3 Typical Test Setup

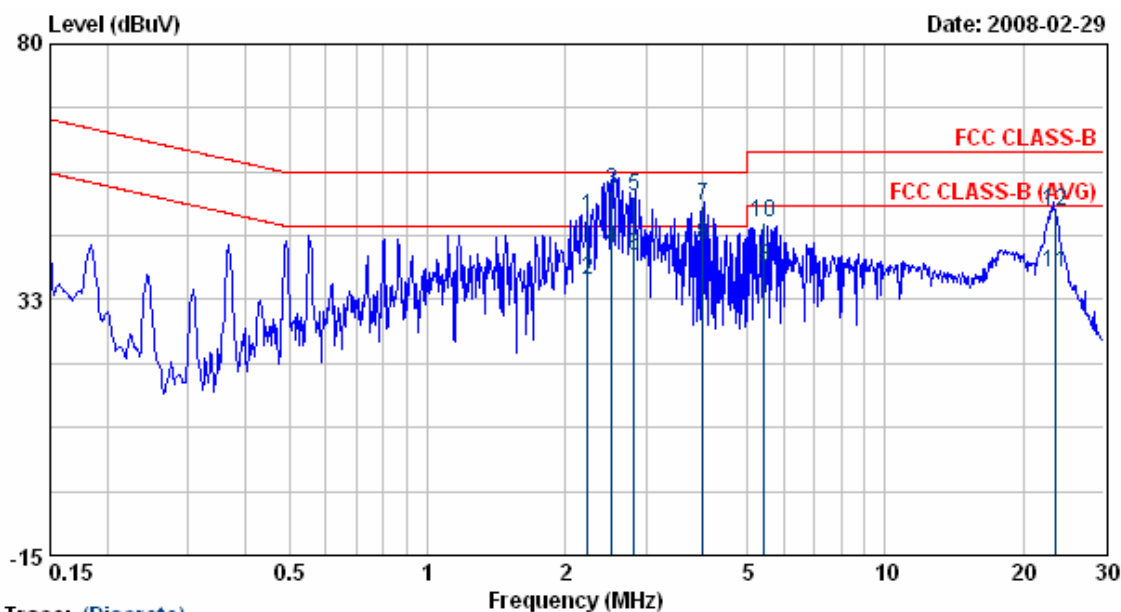


10.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date. |
|----------------------|------------|--------------|------------|------------------|-------------|
| Receiver | R&S | ESCI | 100443 | 2007/09/27 | 2008/09/26 |
| LISN | MESS TEC | NNB-2/16Z | 02/10191 | 2007/05/14 | 2008/05/13 |
| LISN | Rolf Heine | NNB-2/16Z | 03/10058 | 2007/04/19 | 2008/04/18 |

10.5 Test Result and Data

| | | | |
|-----------|-----------------|-------------|---------|
| Power | : AC 120V | Pol/Phase | : LINE |
| Test Mode | : 802.11a CH149 | Temperature | : 24 °C |
| Memo | : LE-9702B-01 | Humidity | : 58 % |

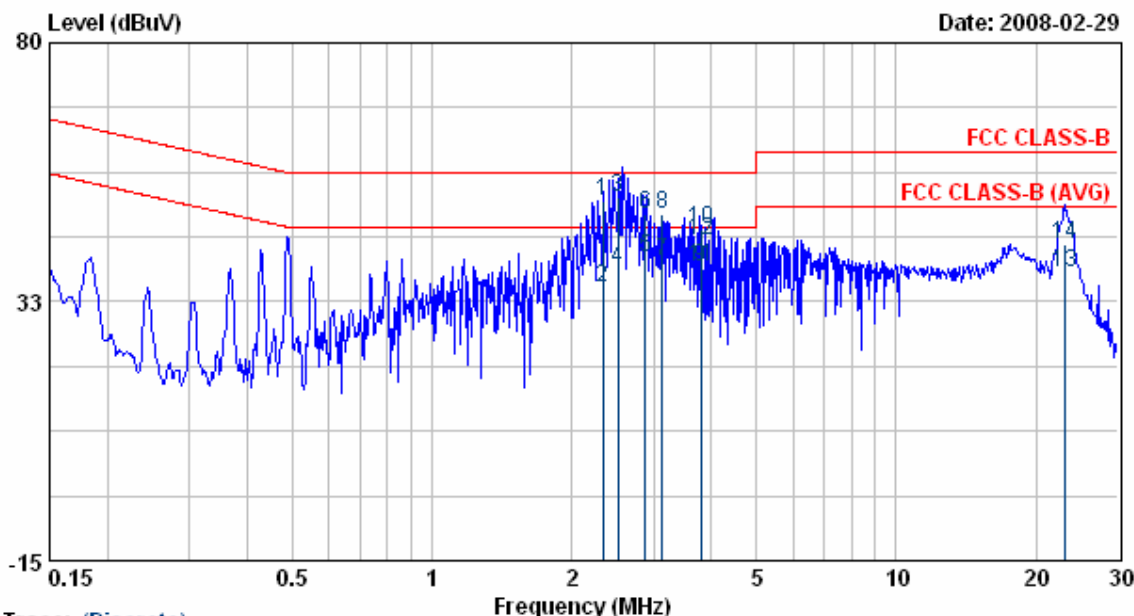


Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark |
|------|-------|------------|--------|--------|-------|--------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dBuV | |
| 1 | 2.24 | 47.66 | 0.20 | 47.86 | 56.00 | -8.14 | QP |
| 2 | 2.24 | 35.75 | 0.20 | 35.96 | 46.00 | -10.04 | AVERAGE |
| 3 | 2.53 | 52.34 | 0.21 | 52.55 | 56.00 | -3.45 | QP |
| 4 | 2.53 | 41.78 | 0.21 | 41.99 | 46.00 | -4.01 | AVERAGE |
| 5 | 2.83 | 51.61 | 0.22 | 51.83 | 56.00 | -4.17 | QP |
| 6 | 2.83 | 40.29 | 0.22 | 40.51 | 46.00 | -5.49 | AVERAGE |
| 7 | 4.00 | 49.78 | 0.23 | 50.01 | 56.00 | -5.99 | QP |
| 8 | 4.00 | 42.57 | 0.23 | 42.80 | 46.00 | -3.20 | AVERAGE |
| 9 | 5.45 | 38.37 | 0.27 | 38.63 | 50.00 | -11.37 | Average |
| 10 | 5.45 | 46.57 | 0.27 | 46.83 | 60.00 | -13.17 | QP |
| 11 | 23.42 | 37.19 | 0.48 | 37.67 | 50.00 | -12.33 | AVERAGE |
| 12 | 23.42 | 48.31 | 0.48 | 48.79 | 60.00 | -11.21 | QP |

- Remarks:
1. Level = Read Level + Factor
 2. Factor = LISN(ISN) Factor + Cable Loss
 3. According to technical experiences, all spurious emission of 802.11a mode at channel 149,157,165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
 4. The data is worse case.

| | | | |
|-----------|-----------------|-------------|-----------|
| Power | : AC 120V | Pol/Phase | : NEUTRAL |
| Test Mode | : 802.11a CH149 | Temperature | : 24 °C |
| Memo | : LE-9702B-01 | Humidity | : 58 % |



Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark |
|------|-------|------------|--------|--------|-------|--------|---------|
| | MHz | dBuV | dB | dBuV | dBuV | dBuV | |
| 1 | 2.33 | 50.71 | 0.20 | 50.91 | 56.00 | -5.09 | QP |
| 2 | 2.33 | 34.87 | 0.20 | 35.07 | 46.00 | -10.93 | AVERAGE |
| 3 | 2.52 | 51.61 | 0.21 | 51.82 | 56.00 | -4.18 | QP |
| 4 | 2.52 | 38.30 | 0.21 | 38.51 | 46.00 | -7.49 | AVERAGE |
| 5 | 2.88 | 40.47 | 0.22 | 40.69 | 46.00 | -5.31 | AVERAGE |
| 6 | 2.88 | 48.26 | 0.22 | 48.48 | 56.00 | -7.52 | QP |
| 7 | 3.14 | 39.80 | 0.23 | 40.02 | 46.00 | -5.98 | Average |
| 8 | 3.14 | 48.30 | 0.23 | 48.52 | 56.00 | -7.48 | QP |
| 9 | 3.80 | 38.50 | 0.25 | 38.74 | 46.00 | -7.26 | AVERAGE |
| 10 | 3.80 | 45.43 | 0.25 | 45.68 | 56.00 | -10.32 | QP |
| 11 | 3.80 | 38.55 | 0.25 | 38.79 | 46.00 | -7.21 | AVERAGE |
| 12 | 3.80 | 43.56 | 0.25 | 43.81 | 56.00 | -12.19 | QP |
| 13 | 23.09 | 37.03 | 0.65 | 37.69 | 50.00 | -12.31 | AVERAGE |
| 14 | 23.09 | 42.36 | 0.65 | 43.01 | 60.00 | -16.99 | QP |

- Remarks:
1. Level = Read Level + Factor
 2. Factor = LISN(ISN) Factor + Cable Loss
 3. According to technical experiences, all spurious emission of 802.11a mode at channel 149, 157, 165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
 4. The data is worse case.

Test engineer: Ben

11. Test of Radiated Emission (For 802.11a device)

11.1 Test Limit

Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 5.6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency (MHz) | Distance Meters | Radiated (μ V / M) | Radiated (dB μ V/ M) |
|-----------------|-----------------|-------------------------|--------------------------|
| 30-88 | 3 | 100 | 40.0 |
| 88-216 | 3 | 150 | 43.5 |
| 216-960 | 3 | 200 | 46.0 |
| Above 960 | 3 | 500 | 54.0 |

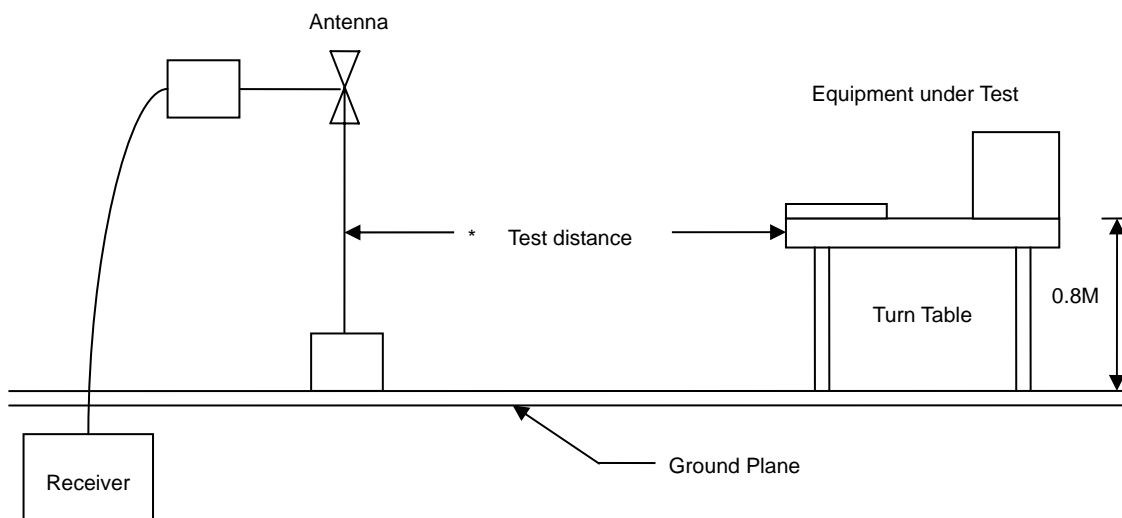
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the above table.

| Frequency (MHz) | Distance Meters | Radiated (dB μ V/ M) |
|-----------------|-----------------|--------------------------|
| 30-230 | 10 | 30 |
| 230-1000 | 10 | 37 |

11.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

11.3 Typical Test Setup

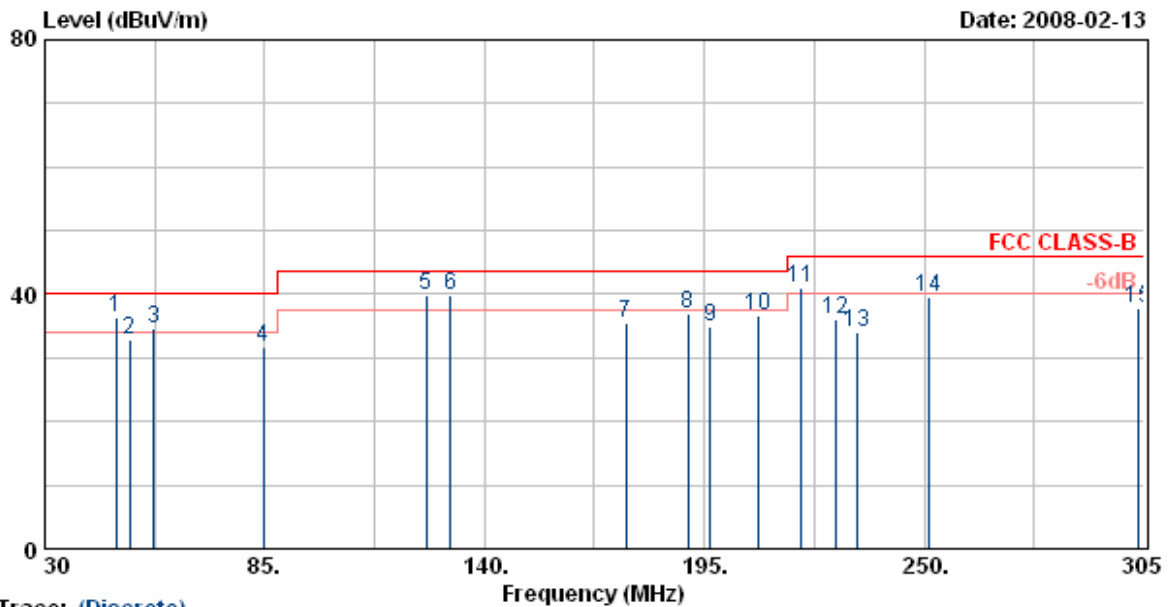


11.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| EMI Receiver | 85460A | HP | 3807A00454 | 2007/06/05 | 2008/06/04 |
| Spectrum Analyzer | FSP40 | R&S | 10047 | 2008/02/22 | 2009/02/21 |
| Horn Antenna | 3115 | EMCO | 31601 | 2007/04/09 | 2008/04/08 |
| Horn Antenna | 3116 | EMCO | 31974 | 2007/04/04 | 2008/04/03 |
| Bilog Antenna | CBL6112B | Schaffner | 2840 | 2007/04/26 | 2008/04/25 |
| Amplifier | 8449B | Agilent | 3008A01954 | 2008/01/24 | 2009/01/23 |
| Amplifier | 8447D | Agilent | 2944A10531 | 2007/09/26 | 2008/09/25 |
| Amplifier | PA-840 | Com-Power | 711885 | 2007/08/28 | 2008/08/27 |

11.5 Test Result and Data

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |

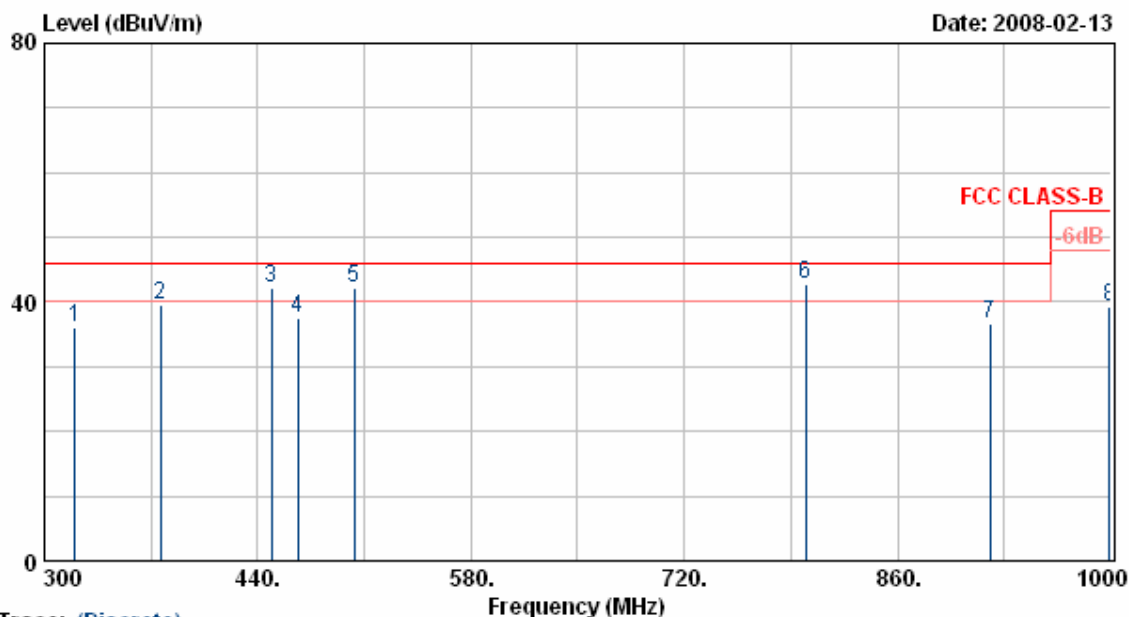


| Trace: (Discrete) | | | | | | | | | |
|-------------------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 47.80 | 55.46 | -19.01 | 36.45 | 40.00 | -3.55 | QP | 100 | 96 |
| 2 | 51.20 | 53.39 | -20.62 | 32.77 | 40.00 | -7.23 | Peak | 100 | 122 |
| 3 | 57.25 | 52.57 | -18.04 | 34.53 | 40.00 | -5.47 | QP | 100 | 122 |
| 4 | 84.66 | 49.70 | -17.96 | 31.74 | 40.00 | -8.26 | Peak | 100 | 122 |
| 5 | 125.43 | 51.16 | -11.45 | 39.71 | 43.50 | -3.79 | QP | 100 | 88 |
| 6 | 131.50 | 52.90 | -13.04 | 39.86 | 43.50 | -3.64 | QP | 100 | 88 |
| 7 | 175.30 | 50.53 | -15.01 | 35.52 | 43.50 | -7.98 | Peak | 100 | 154 |
| 8 | 191.00 | 49.54 | -12.49 | 37.05 | 43.50 | -6.45 | Peak | 100 | 154 |
| 9 | 196.53 | 47.83 | -12.95 | 34.88 | 43.50 | -8.62 | Peak | 100 | 96 |
| 10 | 208.25 | 49.33 | -12.73 | 36.61 | 43.50 | -6.90 | Peak | 100 | 133 |
| 11 | 219.16 | 54.35 | -13.28 | 41.07 | 46.00 | -4.93 | QP | 100 | 133 |
| 12 | 227.90 | 49.78 | -13.79 | 36.00 | 46.00 | -10.01 | Peak | 100 | 222 |
| 13 | 233.20 | 46.46 | -12.29 | 34.17 | 46.00 | -11.83 | Peak | 100 | 222 |
| 14 | 251.00 | 50.33 | -10.89 | 39.44 | 46.00 | -6.56 | Peak | 100 | 222 |
| 15 | 303.35 | 50.33 | -12.54 | 37.79 | 46.00 | -8.21 | Peak | 100 | 50 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a mode at channel 149,157,165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
5. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



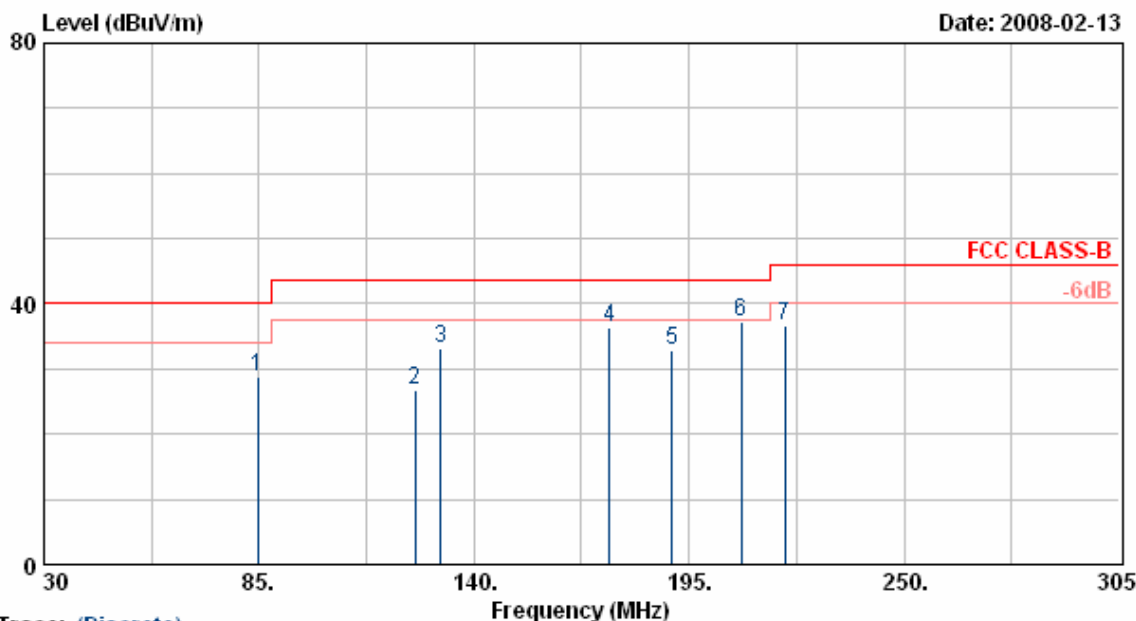
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 320.30 | 48.87 | -12.88 | 35.99 | 46.00 | -10.01 | Peak | 100 | 222 |
| 2 | 376.30 | 49.19 | -9.67 | 39.52 | 46.00 | -6.48 | Peak | 100 | 222 |
| 3 | 448.80 | 51.93 | -9.78 | 42.15 | 46.00 | -3.85 | QP | 100 | 188 |
| 4 | 466.10 | 43.70 | -6.19 | 37.51 | 46.00 | -8.49 | Peak | 100 | 174 |
| 5 | 503.70 | 46.47 | -4.26 | 42.21 | 46.00 | -3.79 | QP | 100 | 180 |
| 6 | 799.80 | 44.63 | -1.93 | 42.70 | 46.00 | -3.30 | QP | 100 | 0 |
| 7 | 920.45 | 33.43 | 3.26 | 36.69 | 46.00 | -9.31 | Peak | 100 | 0 |
| 8 | 999.30 | 37.90 | 1.41 | 39.31 | 54.00 | -14.69 | Peak | 100 | 50 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a mode at channel 149,157,165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
5. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



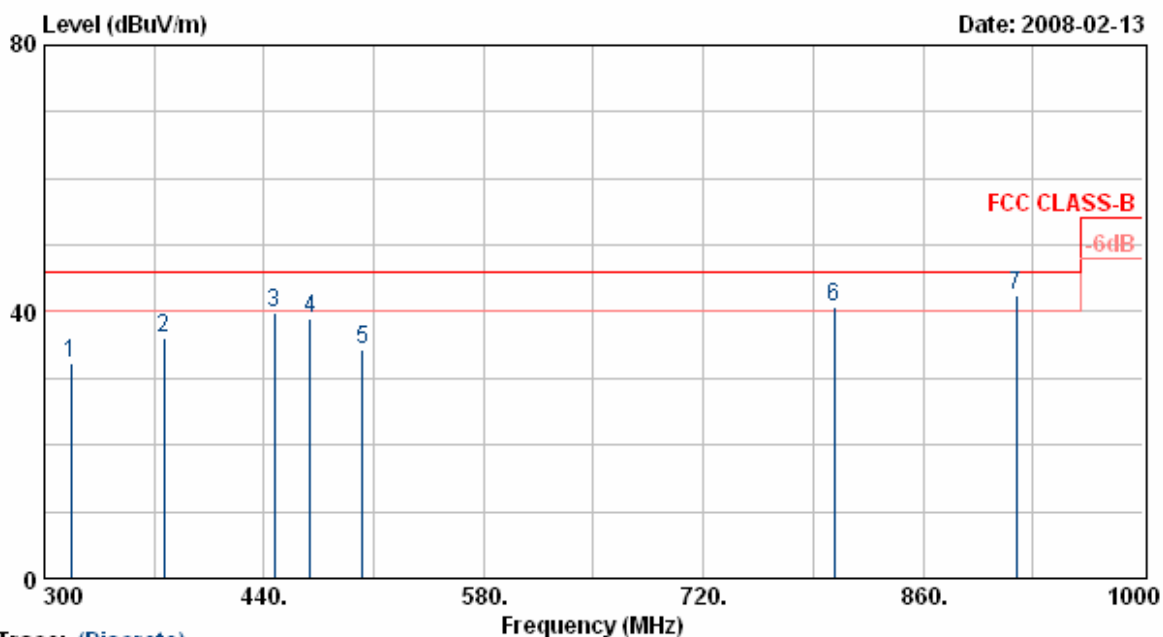
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 84.76 | 52.50 | -23.79 | 28.71 | 40.00 | -11.29 | Peak | 200 | 48 |
| 2 | 125.00 | 46.66 | -20.04 | 26.62 | 43.50 | -16.88 | Peak | 200 | 89 |
| 3 | 131.46 | 53.00 | -19.87 | 33.13 | 43.50 | -10.37 | Peak | 200 | 89 |
| 4 | 174.69 | 57.40 | -20.92 | 36.48 | 43.50 | -7.02 | Peak | 200 | 111 |
| 5 | 190.78 | 53.65 | -20.87 | 32.78 | 43.50 | -10.72 | Peak | 200 | 142 |
| 6 | 208.48 | 56.11 | -18.90 | 37.21 | 43.50 | -6.29 | Peak | 200 | 222 |
| 7 | 219.48 | 55.33 | -18.58 | 36.75 | 46.00 | -9.25 | Peak | 200 | 222 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a mode at channel 149,157,165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
5. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



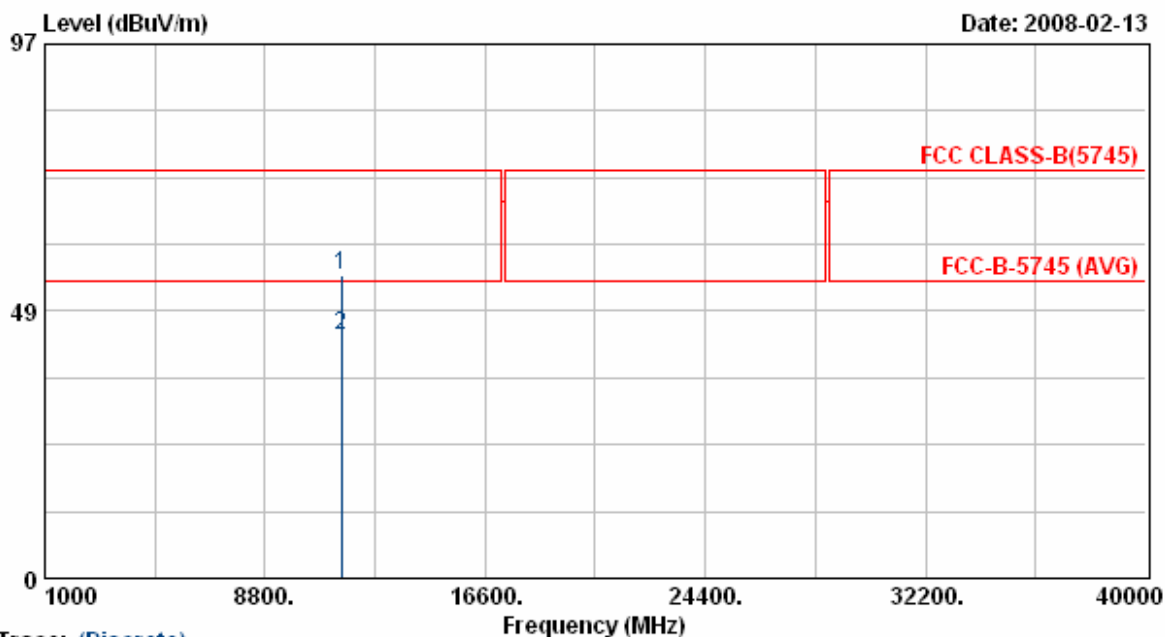
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|--------|------------|--------|--------|--------|--------|--------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 316.80 | 47.20 | -15.02 | 32.18 | 46.00 | -13.82 | Peak | 200 | 149 |
| 2 | 376.30 | 46.59 | -10.46 | 36.13 | 46.00 | -9.87 | Peak | 200 | 149 |
| 3 | 446.30 | 47.22 | -7.46 | 39.76 | 46.00 | -6.24 | Peak | 200 | 168 |
| 4 | 469.40 | 46.43 | -7.56 | 38.87 | 46.00 | -7.13 | Peak | 200 | 168 |
| 5 | 503.00 | 40.60 | -6.28 | 34.32 | 46.00 | -11.68 | Peak | 200 | 196 |
| 6 | 803.30 | 44.30 | -3.62 | 40.68 | 46.00 | -5.32 | QP | 200 | 255 |
| 7 | 919.60 | 39.45 | 2.89 | 42.34 | 46.00 | -3.66 | QP | 200 | 333 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a mode at channel 149,157,165 are almost the same below 1GHz, so that the channel 149 was chosen as representative in final test.
5. The data is worse case.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



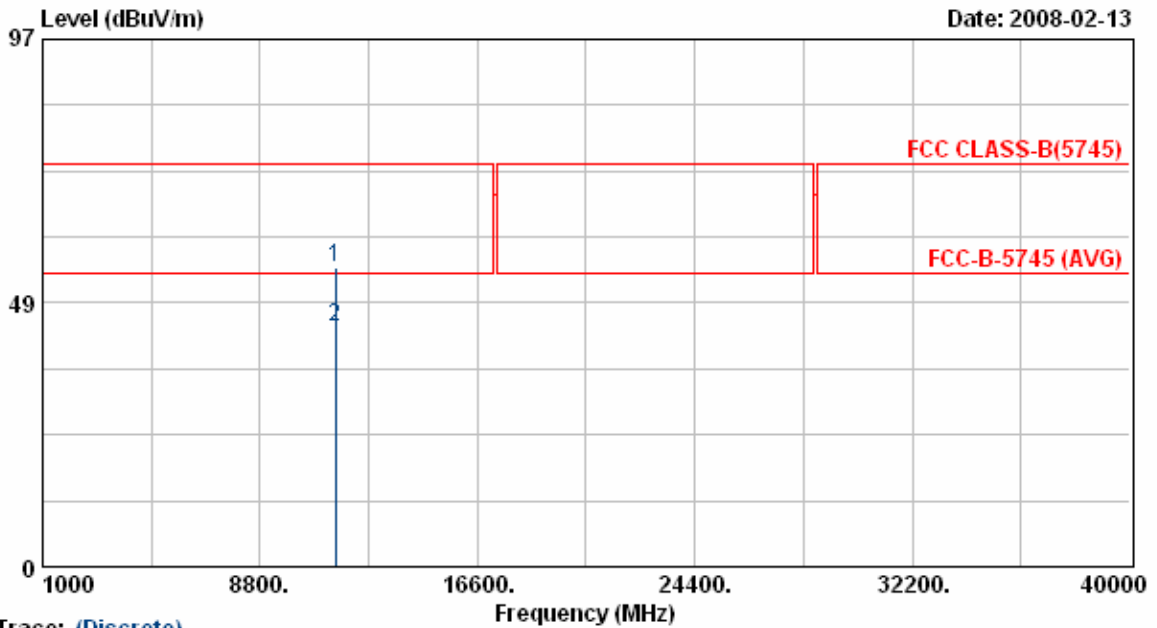
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11490.00 | 40.41 | 14.68 | 55.10 | 74.00 | -18.90 | Peak | 100 | 212 |
| 2 | 11490.00 | 29.55 | 14.68 | 44.23 | 54.00 | -9.77 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 149 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



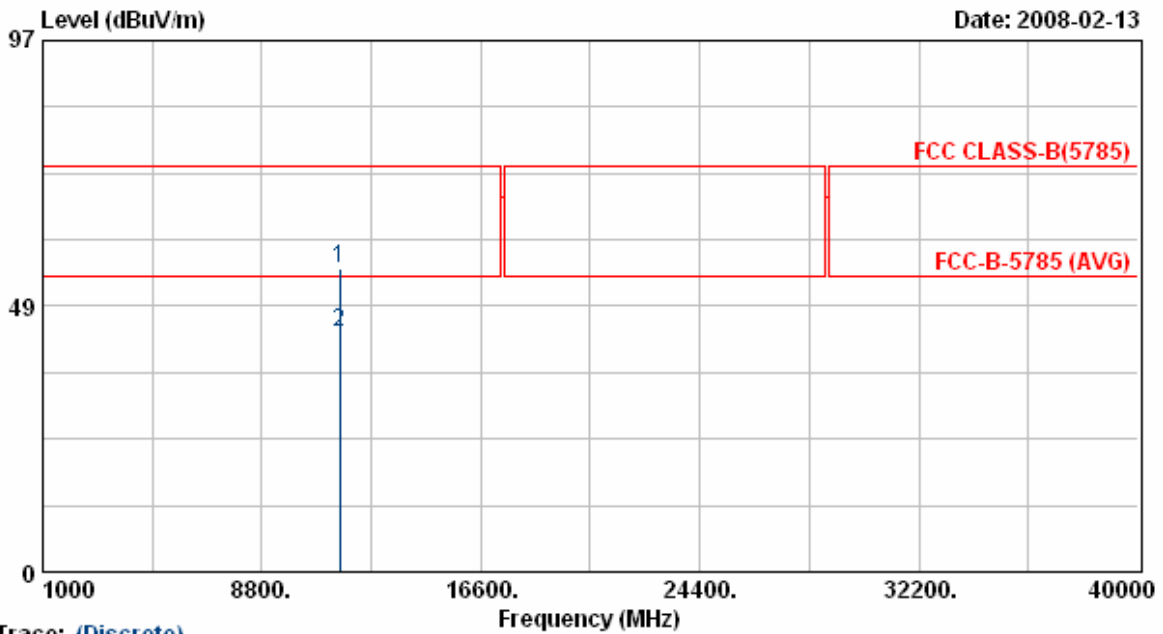
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11490.00 | 40.21 | 14.68 | 54.90 | 74.00 | -19.10 | Peak | 100 | 212 |
| 2 | 11490.00 | 29.27 | 14.68 | 43.95 | 54.00 | -10.05 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 157 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



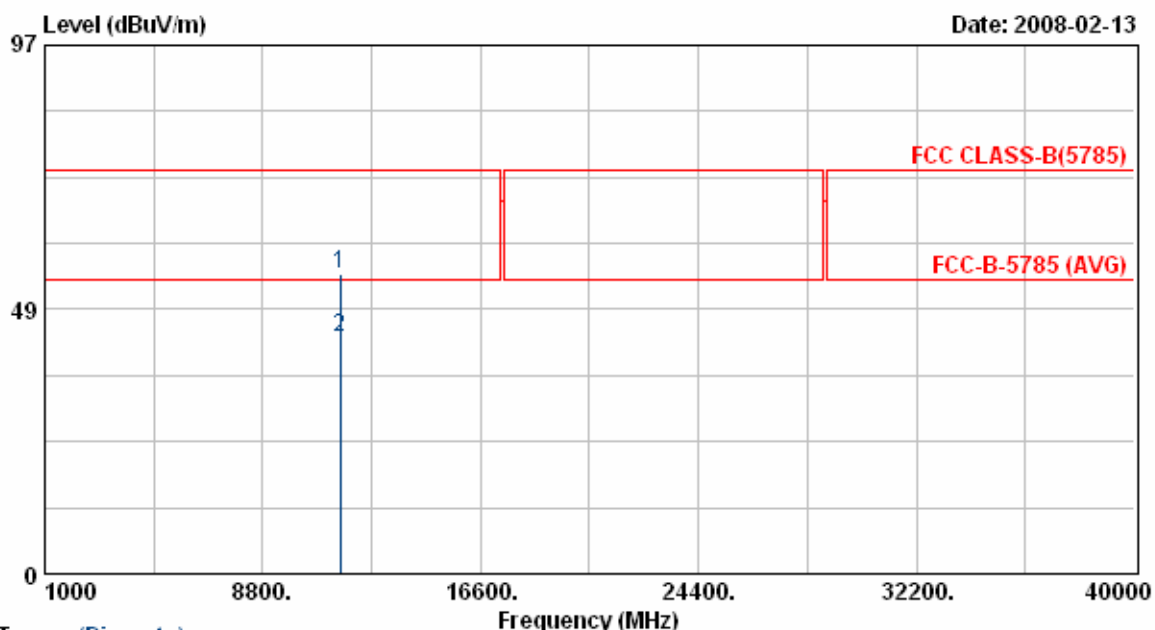
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11570.13 | 40.67 | 14.71 | 55.38 | 74.00 | -18.62 | Peak | 100 | 212 |
| 2 | 11570.13 | 28.87 | 14.71 | 43.58 | 54.00 | -10.42 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 157 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



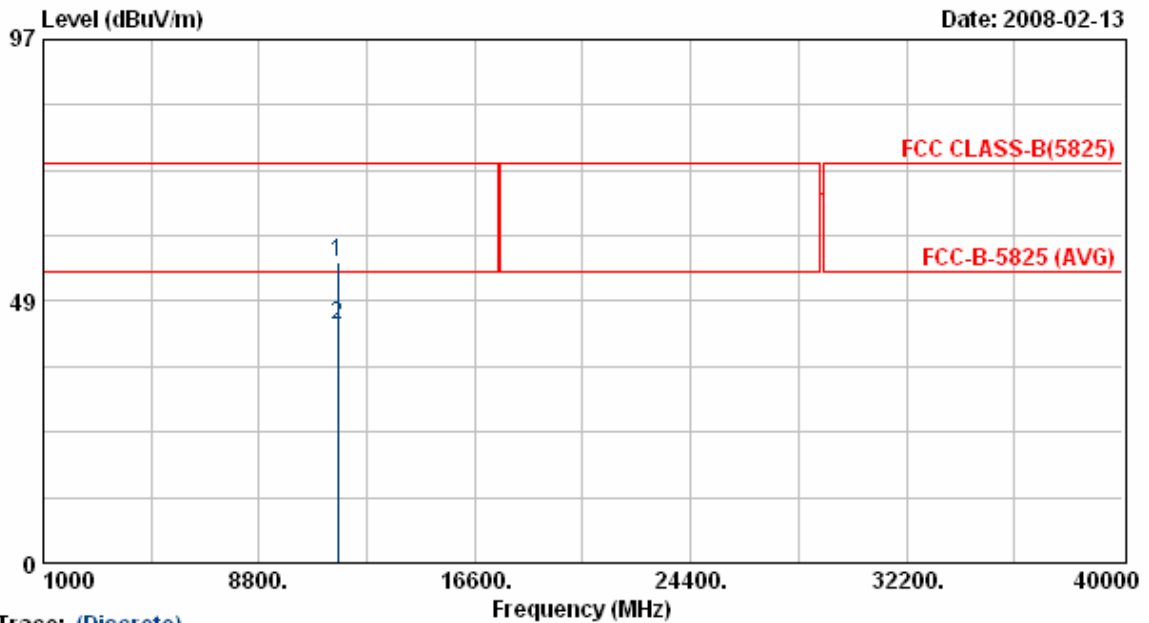
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11570.13 | 40.37 | 14.71 | 55.08 | 74.00 | -18.92 | Peak | 100 | 212 |
| 2 | 11570.13 | 28.54 | 14.71 | 43.25 | 54.00 | -10.75 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|------------|
| Power | : AC 120V | Pol/Phase | : VERTICAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 165 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



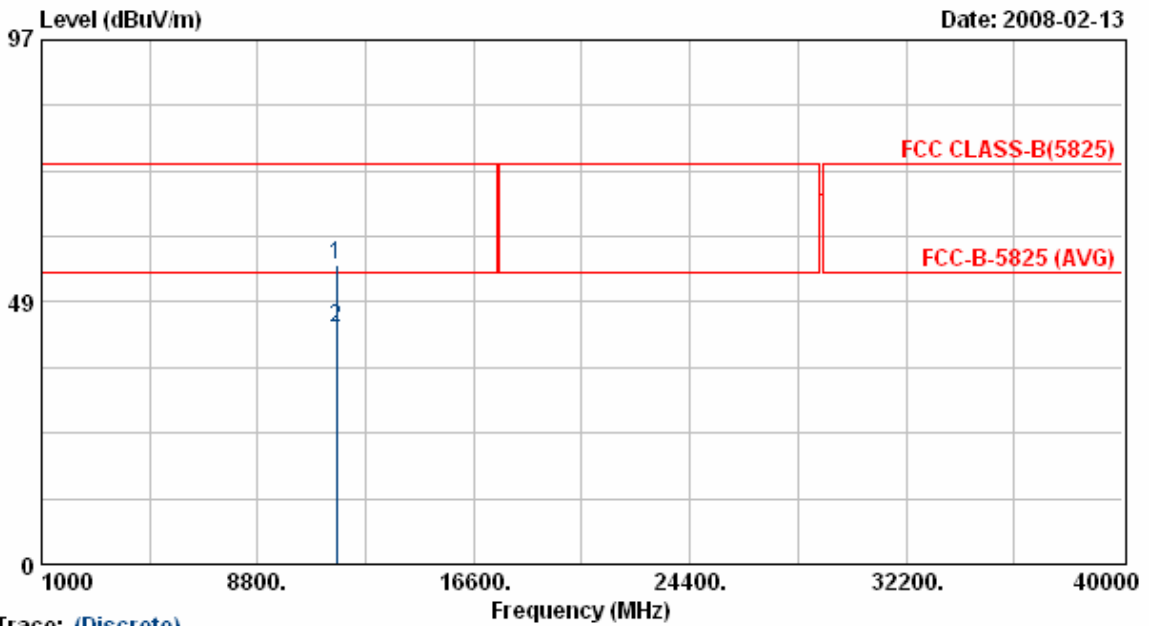
Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11649.88 | 41.12 | 14.73 | 55.85 | 74.00 | -18.15 | Peak | 100 | 212 |
| 2 | 11649.88 | 29.38 | 14.73 | 44.11 | 54.00 | -9.89 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

| | | | |
|-------------------|----------------------|----------------------|--------------|
| Power | : AC 120V | Pol/Phase | : HORIZONTAL |
| Test Mode | : Transmit / Receive | Temperature | : 15 °C |
| Operation Channel | : 165 | Humidity | : 70 % |
| Modulation Type | : 802.11a | Atmospheric Pressure | : 1030 hPa |
| Memo | : LE-9702B-01 | Rate | : 54 Mbps |



Trace: (Discrete)

| Item | Freq | Read Value | Factor | Result | Limit | Margin | Remark | Ant Pos | Tab Pos |
|------|----------|------------|--------|--------|--------|--------|---------|---------|---------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV/m | dB | | cm | Deg |
| 1 | 11649.88 | 40.82 | 14.73 | 55.55 | 74.00 | -18.45 | Peak | 100 | 212 |
| 2 | 11649.88 | 29.08 | 14.73 | 43.81 | 54.00 | -10.19 | Average | 100 | 212 |

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.

Test engineer: Ben

12. 6dB Bandwidth Measurement Data (For 802.11a device)

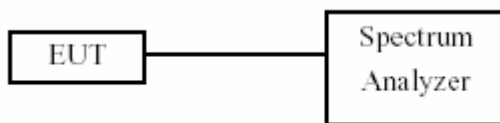
12.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

12.2 Test Procedures

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 100 KHz and VBW to 100 KHz.
3. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

12.3 Test Setup Layout



12.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

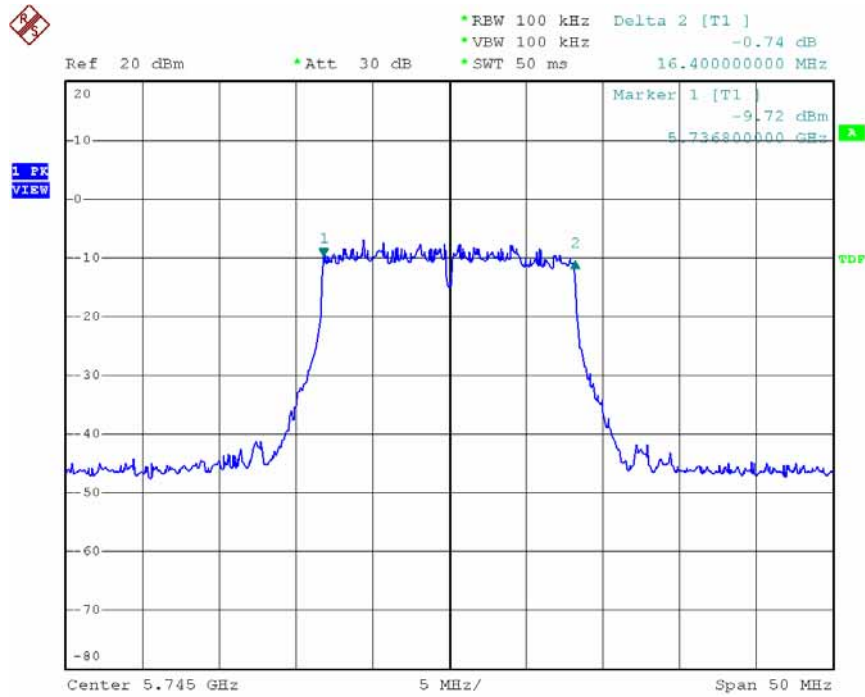
12.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Jan. 29, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

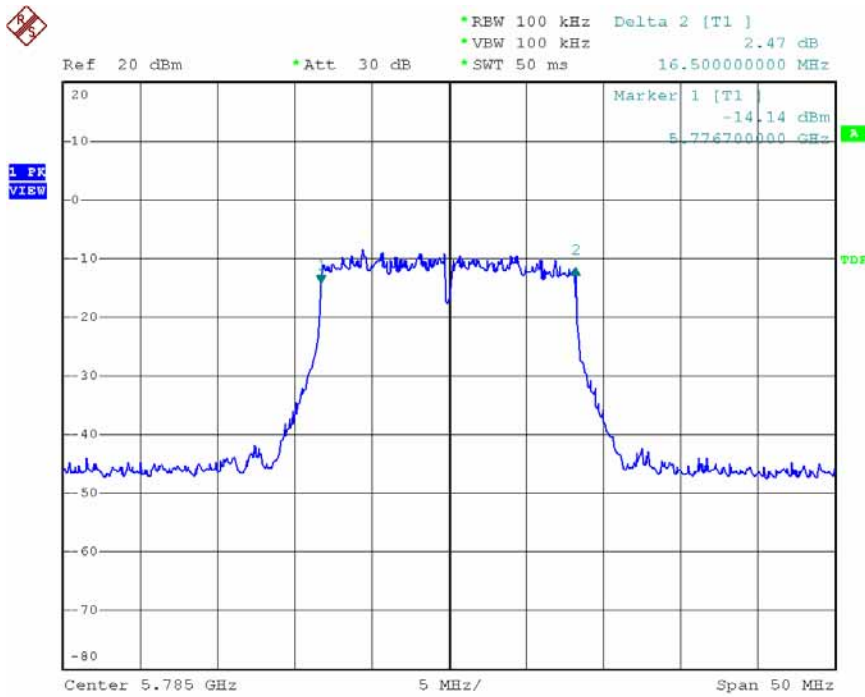
| Channel | Frequency (MHz) | 6dB Bandwidth (MHz) |
|---------|-----------------|---------------------|
| 149 | 5745 | 16.40 |
| 157 | 5785 | 16.50 |
| 165 | 5805 | 16.50 |

Modulation Standard: 802.11a (54Mbps)
 Channel: 149



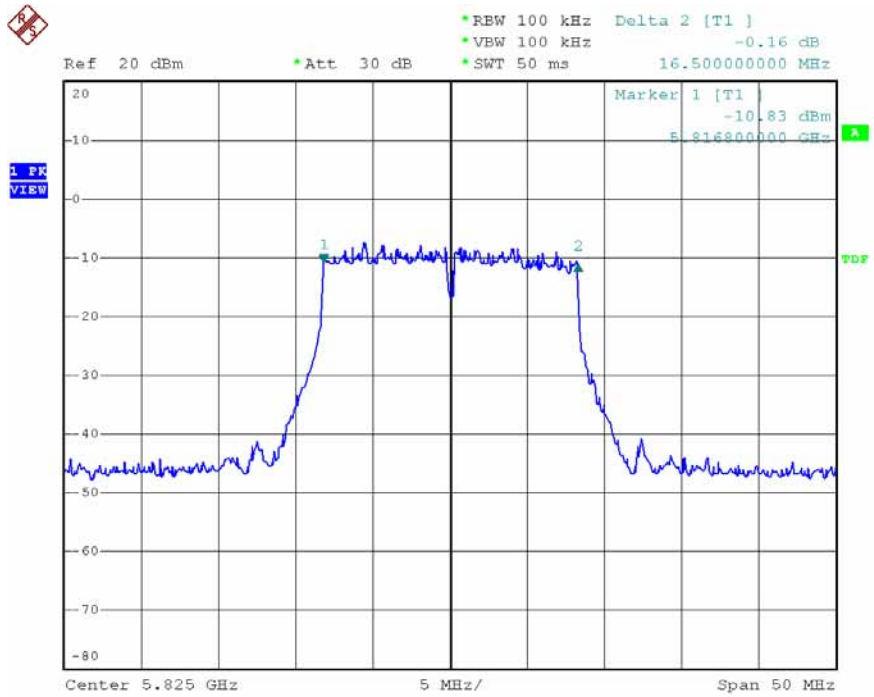
Date: 29.JAN.2008 10:37:31

Modulation Standard: 802.11a (54Mbps)
 Channel: 157



Date: 29.JAN.2008 10:35:24

Modulation Standard: 802.11a (54Mbps)
Channel: 165



Date: 29.JAN.2008 10:33:15

13. Maximum Peak Output Power (For 802.11a device)

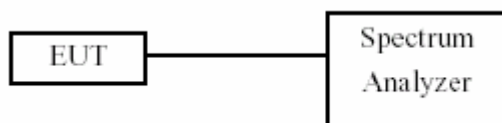
13.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

13.2 Test Procedures

The antenna port(RF output)of the EUT was connected to the input(RF input)of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

13.3 Test Setup Layout



13.4 Measurement equipment

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

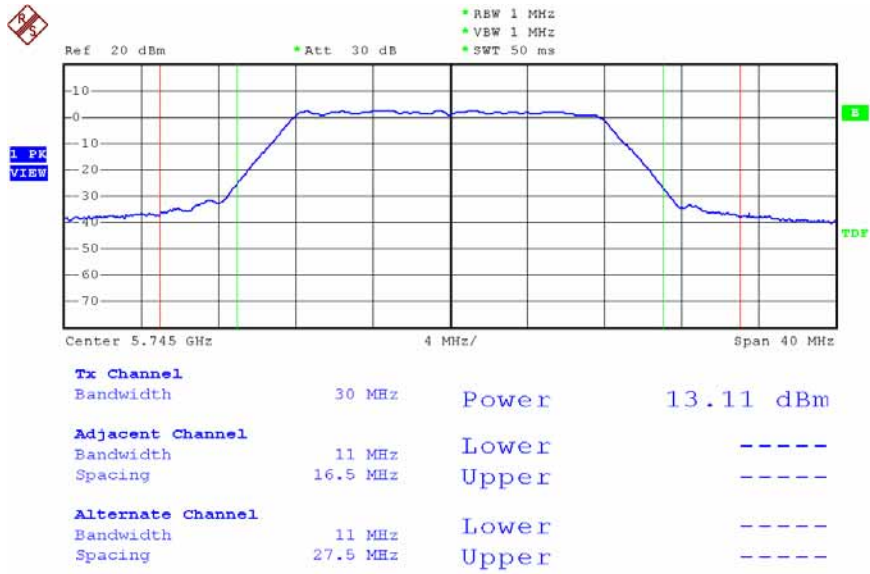
13.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Jan. 29, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

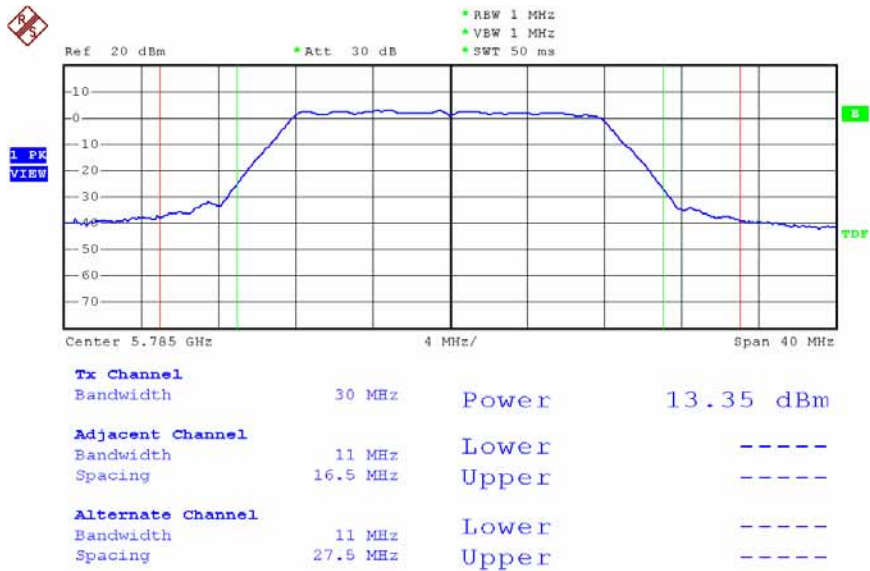
| Channel | Frequency (MHz) | Peak Power Output (dBm) | Peak Power Output (mW) |
|---------|-----------------|-------------------------|------------------------|
| 149 | 5745 | 13.11 | 20.50 |
| 157 | 5785 | 13.35 | 21.60 |
| 165 | 5805 | 12.87 | 19.40 |

Modulation Standard: 802.11a (54Mbps)
 Channel: 149



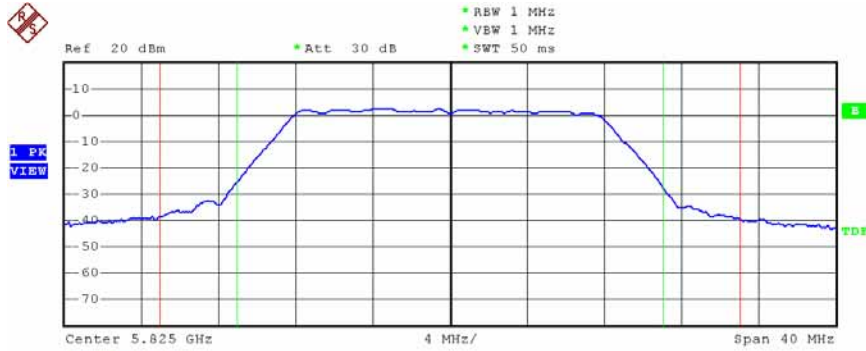
Date: 29.JAN.2008 10:25:00

Modulation Standard: 802.11a (54Mbps)
 Channel: 157



Date: 29.JAN.2008 10:27:54

Modulation Standard: 802.11a (54Mbps)
 Channel: 165



| Tx Channel | | | |
|-------------------|----------|-------|-----------|
| Bandwidth | 30 MHz | Power | 12.87 dBm |
| Adjacent Channel | | | |
| Bandwidth | 11 MHz | Lower | ----- |
| Spacing | 16.5 MHz | Upper | ----- |
| Alternate Channel | | | |
| Bandwidth | 11 MHz | Lower | ----- |
| Spacing | 27.5 MHz | Upper | ----- |

Date: 29.JAN.2008 10:31:15

14. Band Edges Measurement (For 802.11a device)

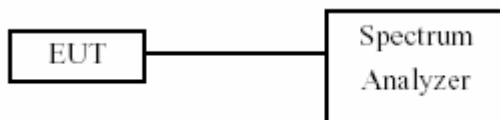
14.1 Test Limit

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

14.2 Test Procedure :

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
3. The band edges was measured and recorded.

14.3 Test Setup Layout



14.4 List of Measuring Equipment Used

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

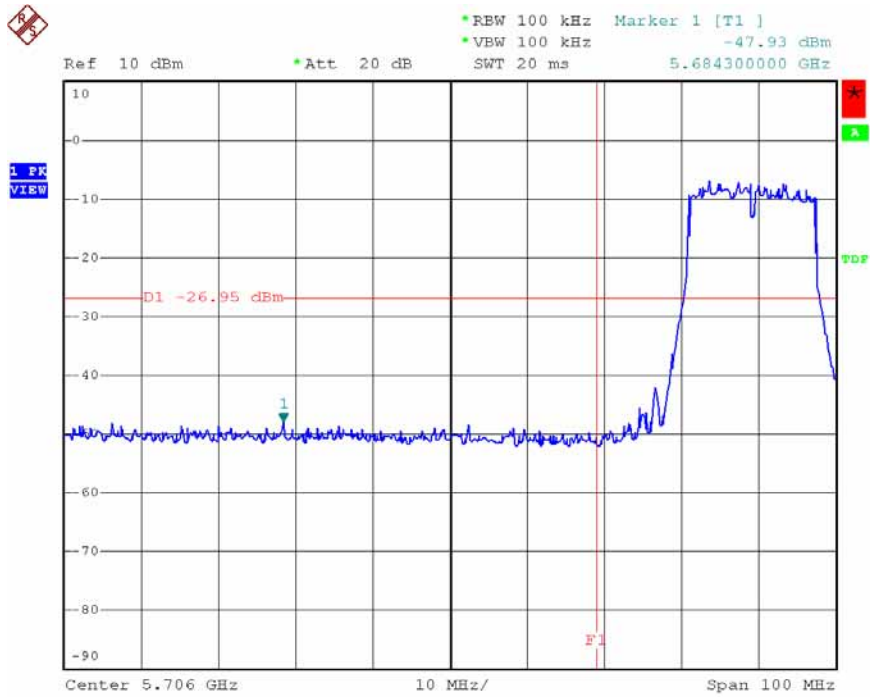
14.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11b (11Mbps)

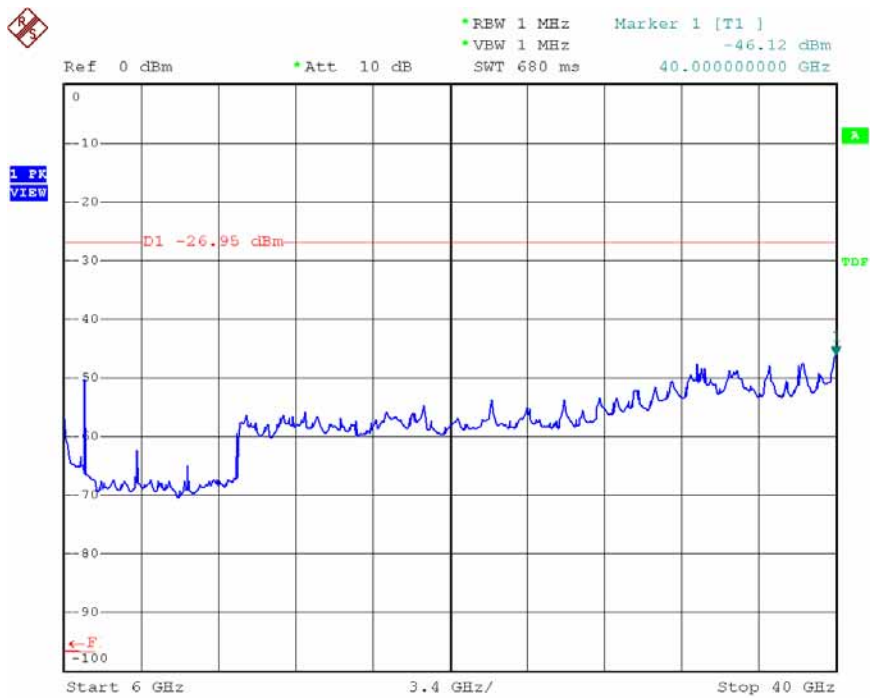
Test Date: Jan. 29, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

| Channel | Frequency | maximum value in frequency (MHz) | maximum value is (dBm) |
|---------|-----------|-------------------------------------|---------------------------|
| 149 | 5745 | 400000 | -46.12 |
| 165 | 5825 | 400000 | -46.61 |

Modulation Standard: 802.11a (54Mbps)
 Channel: 149

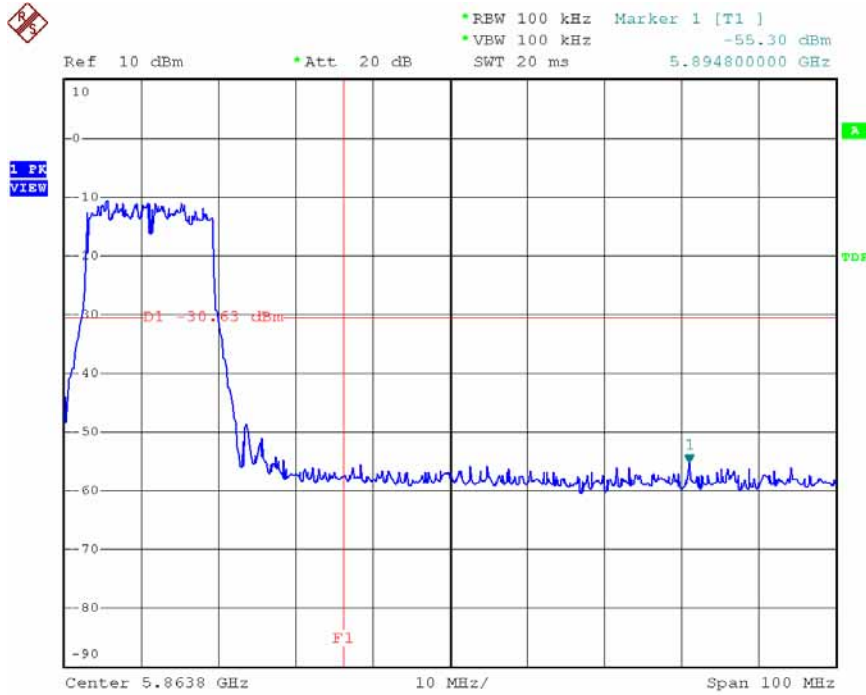


Date: 29.JAN.2008 10:39:51

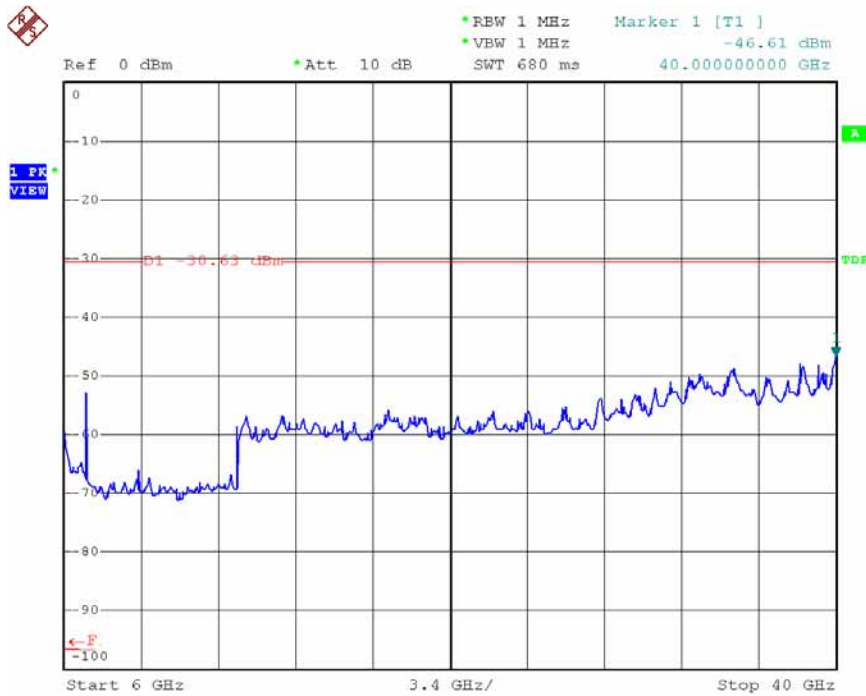


Date: 29.JAN.2008 10:41:03

Modulation Standard: 802.11a (54Mbps)
 Channel: 165



Date: 29.JAN.2008 10:42:54



Date: 29.JAN.2008 10:43:31

15. Power Spectral Density (For 802.11a device)

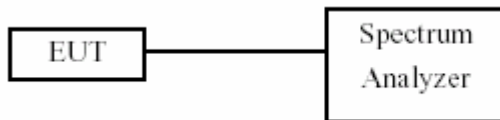
15.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

15.2 Test Procedures

- 5.The transmitter output was connected to spectrum analyzer.
- 6.The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=span/3KHz.
- 7.The power spectral density was measured and recorded.
- 8.The Sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

15.3 Test Setup Layout :



15.4 List of Measuring Equipment Used

| Instrument/Ancillary | Model No. | Manufacturer | Serial No. | Calibration Date | Valid Date |
|----------------------|-----------|--------------|------------|------------------|------------|
| Spectrum Analyzer | FSP40 | R&S | 100047 | 2008/02/22 | 2009/02/21 |

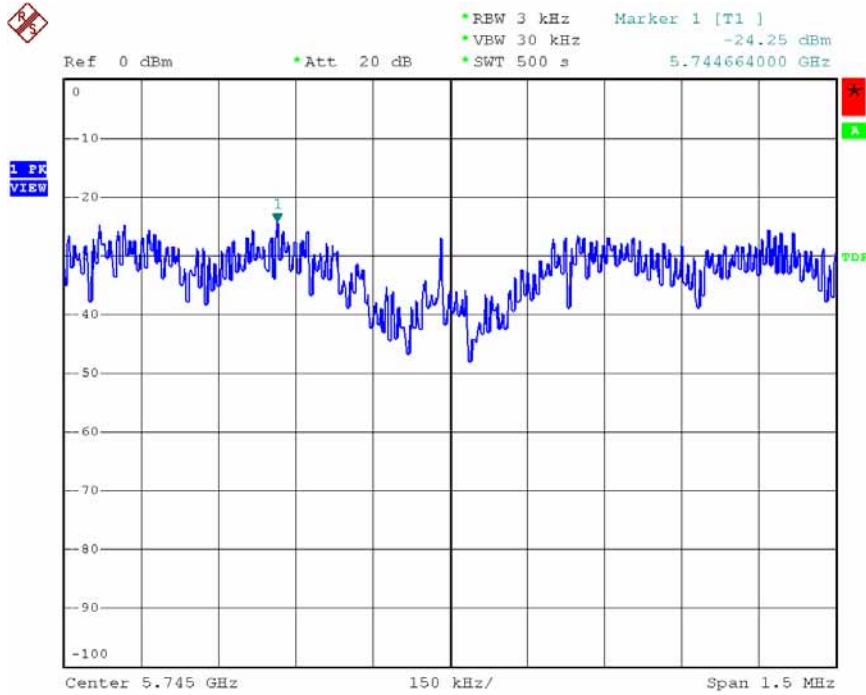
15.5 Test Result and Data

(1) Modulation Standard: IEEE 802.11a (54Mbps)

Test Date: Jan. 29, 2008 Temperature: 20 Humidity: 60% Atmospheric pressure: 1008 hPa

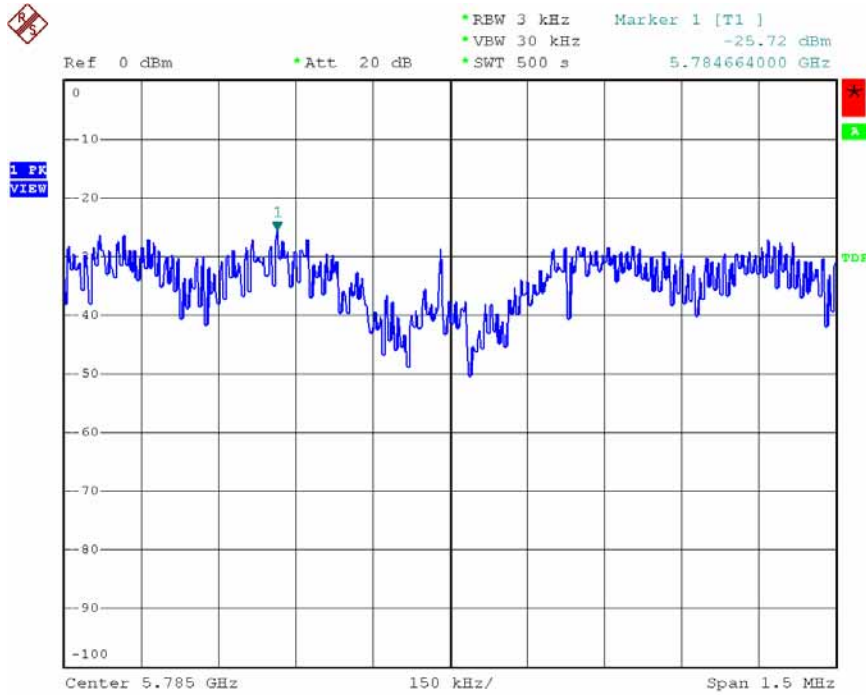
| Channel | Frequency | Maximum Power Density of 3 kHz Bandwidth (dBm) |
|---------|-----------|--|
| 149 | 5745 | -24.25 |
| 157 | 5785 | -25.72 |
| 165 | 5825 | -24.60 |

Modulation Standard: 802.11a (54Mbps)
 Channel: 149



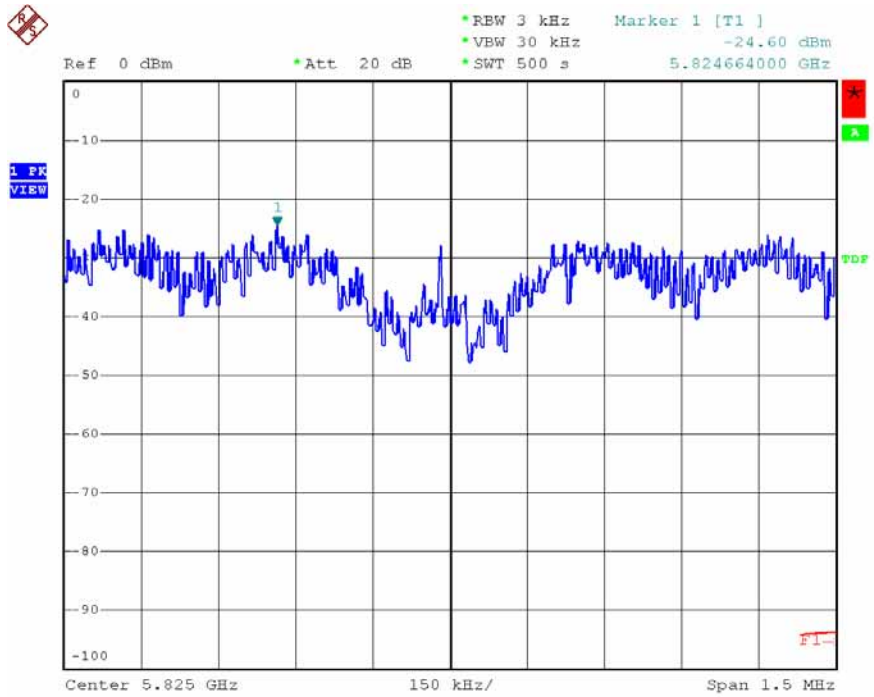
Date: 29.JAN.2008 11:15:27

Modulation Standard: 802.11a (54Mbps)
 Channel: 157



Date: 29.JAN.2008 11:03:32

Modulation Standard: 802.11a (54Mbps)
Channel: 165



Date: 29.JAN.2008 10:53:34

16. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---------------------|-----------------------|-----------------|-----------------|
| 0.09000 – 0.11000 | 16.42000 – 16.42300 | 399.9 – 410.0 | 4.500 – 5.250 |
| 0.49500 – 0.505** | 16.69475 – 16.69525 | 608.0 – 614.0 | 5.350 – 5.460 |
| 2.17350 – 2.19050 | 16.80425 – 16.80475 | 960.0 – 1240.0 | 7.250 – 7.750 |
| 4.12500 – 4.12800 | 25.50000 – 25.67000 | 1300.0 – 1427.0 | 8.025 – 8.500 |
| 4.17725 – 4.17775 | 37.50000 – 38.25000 | 1435.0 – 1626.5 | 9.000 – 9.200 |
| 4.20725 – 4.20775 | 73.00000 – 74.60000 | 1645.5 – 1646.5 | 9.300 – 9.500 |
| 6.21500 – 6.21800 | 74.80000 – 75.20000 | 1660.0 – 1710.0 | 10.600 – 12.700 |
| 6.26775 – 6.26825 | 108.00000 – 121.94000 | 1718.8 – 1722.2 | 13.250 – 13.400 |
| 6.31175 – 6.31225 | 123.00000 – 138.00000 | 2200.0 – 2300.0 | 14.470 – 14.500 |
| 8.29100 – 8.29400 | 149.90000 – 150.05000 | 2310.0 – 2390.0 | 15.350 – 16.200 |
| 8.36200 – 8.36600 | 156.52475 – 156.52525 | 2483.5 – 2500.0 | 17.700 – 21.400 |
| 8.37625 – 8.38675 | 156.70000 – 156.90000 | 2655.0 – 2900.0 | 22.010 – 23.120 |
| 8.41425 – 8.41475 | 162.01250 – 167.17000 | 3260.0 – 3267.0 | 23.600 – 24.000 |
| 12.29000 – 12.29300 | 167.72000 – 173.20000 | 3332.0 – 3339.0 | 31.200 – 31.800 |
| 12.51975 – 12.52025 | 240.00000 – 285.00000 | 3345.8 – 3358.0 | 36.430 – 36.500 |
| 12.57675 – 12.57725 | 322.00000 – 335.40000 | 3600.0 – 4400.0 | Above 38.6 |
| 13.36000 – 13.41000 | | | |

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

16.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.