



FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Notebook

**Model: XTB70; AMILO Xa 1526; AMILO Xa 1527;
XTB70 series; AMILO Xa 1526-x; AMILO Xa 1527-x;
AMILO Xa 1526 series; AMILO Xa 1527 series;
AMILO Xa 1526-x series; AMILO Xa 1527-x series**

Trade Name: Fujitsu Siemens Computers; FIC

Prepared for

**First International Computer, Inc.
No.300, YangGuang st., NeiHu, Taipei, Taiwan, 114**

Issued by

**Compliance Certification Services Inc.
No.10 Weiye Rd, Innovation park, Eco&Tec,
Development Zone, Kunshan City, Jiangsu, P.R.O.C**



Lab. Code: 200581-0

TEL: 86-512-57355888

FAX: 86-512-57370818

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1. TEST CERTIFICATION

Product: Notebook

XTB70; AMILO Xa 1526; AMILO Xa 1527; XTB70 series; AMILO Xa 1526-x; AMILO Xa

Model: 1527-x; AMILO Xa 1526 series; AMILO Xa 1527 series; AMILO Xa 1526-x series; AMILO Xa 1527-x series

Brand: Fujitsu Siemens Computers; FIC

Tested: September 17~19, 2006

Applicant: First International Computer, Inc.
No.300, YangGuang st., NeiHu, Taipei, Taiwan, 114

Manufacturer: FIC (Suzhou) Inc.
Export Processing Zone, No 200, Central Suhong Road, SuZhou Industrial Park
JiangSu, P.R.China

| APPLICABLE STANDARDS | |
|------------------------------|-------------------------|
| STANDARD | TEST RESULT |
| FCC 47 CFR Part 15 Subpart C | No non-compliance noted |

| DEVIATION FROM APPLICABLE STANDARD |
|------------------------------------|
| None |

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

Approved by:

Tony Houng
General Manager of Kunshan Laboratory
Compliance Certification Services Inc.

Reviewed by:

Miro Chueh
Section Manager of Kunshan Laboratory
Compliance Certification Services Inc.



2. EUT DESCRIPTION

| | |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product | Notebook |
| Trade Name | Fujitsu Siemens Computers; FIC |
| Model Number | XTB70; AMILO Xa 1526; AMILO Xa 1527; XTB70 series; AMILO Xa 1526-x; AMILO Xa 1527-x; AMILO Xa 1526 series; AMILO Xa 1527 series; AMILO Xa 1526-x series; AMILO Xa 1527-x series |
| Model Discrepancy | All the above models are identical except the model designation for different market. |
| Bluetooth module Model Number | GUBTCR42M |
| Bluetooth module Brand name | Billionton |
| Wireless LAN module Model Number | WN6301A-F4 |
| Wireless LAN module Brand name | Liteon |
| Received Date | September 17, 2006~ September 19, 2006 |
| Power Supply | Powered from Power Adapter |
| Power Adapter Power Rating | Powered from an AC/DC power adapter Model Number:(1) LSE0202D2090 Manufacturer: LISHIN Input: AC 100-240V, 50-60Hz, 1.5A Output: DC 20V, 4.5A Model Number:(2) ADP-90SB AD Manufacturer: Delta Input: AC 100-240V, 50-60Hz, 1.5A Output: DC 20V, 4.5A |
| AC Power Cord Type | Unshielded, 1.8m (Detachable) to Power Adapter |
| DC Power Cable Type | Unshielded, 1.8m (Non-Detachable) at Power Adapter with a core |
| Frequency Range | 2402~ 2480 MHz |
| Transmit Power | 2.28dBm |
| Modulation Technique | FHSS |
| Transmit Data Rate | 1 Mbps |
| Number of Channels | 79 Channels |
| Antenna Specification | PCB antenna with 1.42dBi gain (Max) |
| Temperature Range | 0 ~ +55°C |

Note: 1. The sample selected for test was engineering sample that approximated to production product and was provided by manufacturer.

2. This submittal(s) (test report) is intended for FCC ID: **EUNXTB70L** filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.



3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 and 15.247.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

3.4 MODIFICATION

N/A



3.5 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|----------------------------|---------------------|-----------------|------------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| ¹ 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.52525 | 2655 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 156.7 - 156.9 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 162.0125 - 167.17 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 167.72 - 173.2 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 240 - 285 | 3600 - 4400 | (²) |
| 13.36 - 13.41 | 322 - 335.4 | | |

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

² Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.6 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz, which worst case was in normal link mode only.

Channel Low (2402MHz) · Mid (2441MHz) and High (2480MHz) were chosen for full testing.



4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.



5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.




All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC PART 15 AND CISPR 22 requirements. No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government. In addition, the test facilities are listed with Federal Communications Commission (Registration no: 93105 and 90471).



TABLE OF ACCREDITATIONS AND LISTINGS

| Country | Agency | Scope of Accreditation | Logo |
|---------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| USA | NVLAP | EN 55022, EN 61000-3-2, EN 61000-3-3, EN550024, EN 61000-4-2, EN 61000-4-3, EN61000-4-4, EN 61000-4-5, EN 61000-4-6, IEC 61000-4-8, EN 61000-4-11 ANSI C63.4, CISPR16-1, IEC61000-3-2, IEC61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11 |  Lab. Code: 200581-0 |
| USA | FCC | 3/10 meter Sites to perform FCC Part 15/18 measurements |  93105, 90471 |
| Japan | VCCI | 3/10 meter Sites and conducted test sites to perform radiated/conducted measurements | VCCI R-1600 C-1707 |
| Norway | NEMKO | EN61000-6-1/2/3/4, EN 50082-1/2, IEC 61000-6-1/2/3/4, EN 50091-2, EN 55011, EN 55022, EN 55024, EN 61000-3-2/3, EN 61000-11, IEC 61000-4-2/3/4/5/6/8/11, CISPR16-1/2/3/4 |  ELA 105 |

* No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.



6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

| No. | Device Type | Brand | Model | Series No. | FCC ID | Data Cable | Power Cord |
|-----|--------------|-------|---------|-------------|--------|----------------|------------|
| 1. | USB Keyboard | DELL | KU-9985 | 2D41500275B | N/A. | Shielded, 1.2m | N/A |
| 2. | USB Mouse | HP | MO19UCA | 020440964 | N/A. | Shielded, 1.8m | N/A |

Remark:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*



7. FCC PART 15.247 REQUIREMENTS

7.1 PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

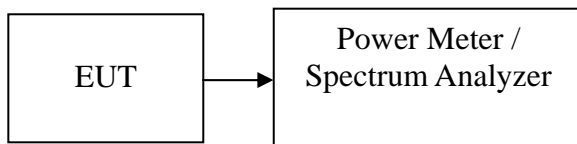
1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|---------------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |
| Peak and Avg Power Sensor | Agilent | E9327A | US40441788 | 07/29/2007 |
| EPM-P Series Power Meter | Agilent | E4416A | QB41292714 | 07/29/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the Power Meter.

TEST RESULTS

No non-compliance noted

Test Data

| Channel | Frequency (MHz) | Reading Power (dBm) | Factor (dB) | Output Power (dBm) | Output Power (W) | Limit (W) | Result |
|---------|-----------------|---------------------|-------------|--------------------|------------------|-----------|--------|
| Low | 2402 | -0.15 | 1.50 | 1.35 | 0.00136 | 1 | PASS |
| Mid | 2441 | 0.61 | 1.50 | 2.21 | 0.00166 | | PASS |
| High | 2480 | 0.78 | 1.50 | 2.28 | 0.00169 | | PASS |

7.2 BAND EDGES MEASUREMENT

LIMIT

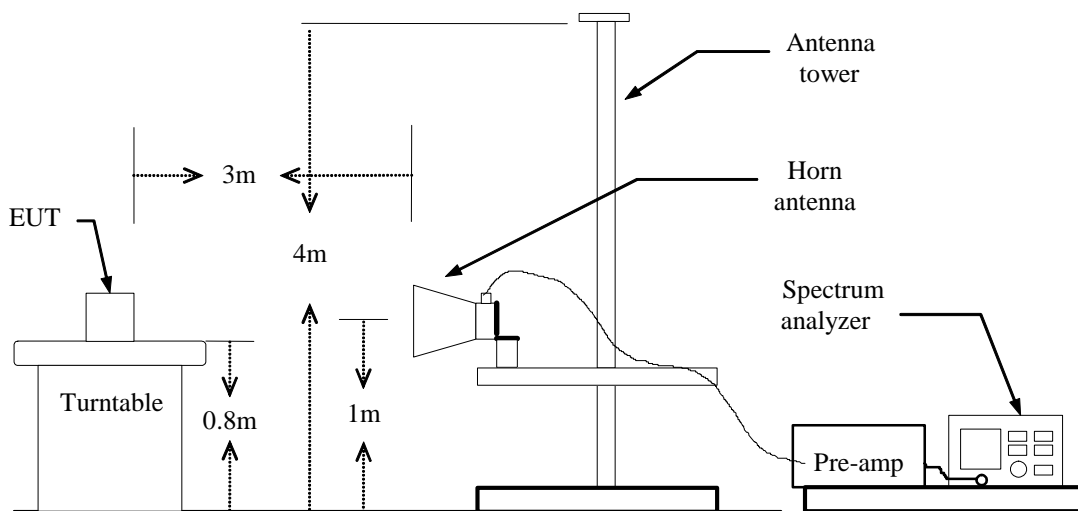
According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

MEASUREMENT EQUIPMENT USED

| 977 Chamber (3m) | | | | |
|-------------------|--------------|------------|---------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |
| Pre-Amplifier | Miteq | NSP4000-NF | 870731 | 01/21/2007 |
| Horn Antenna | Austriah | BBHA9120D | D267 | 02/03/2007 |
| Turn Table | CT | CT123 | 4162 | N.C.R |
| Antenna Tower | CT | CTERG23 | 3253 | N.C.R |
| Controller | CT | CT100 | 95635 | N.C.R |
| Coax Switch | Anitsu | MP 598 | M 80094 | N/A |
| Site NSA | CCS Lab. | N/A | N/A | 02/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.



3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.



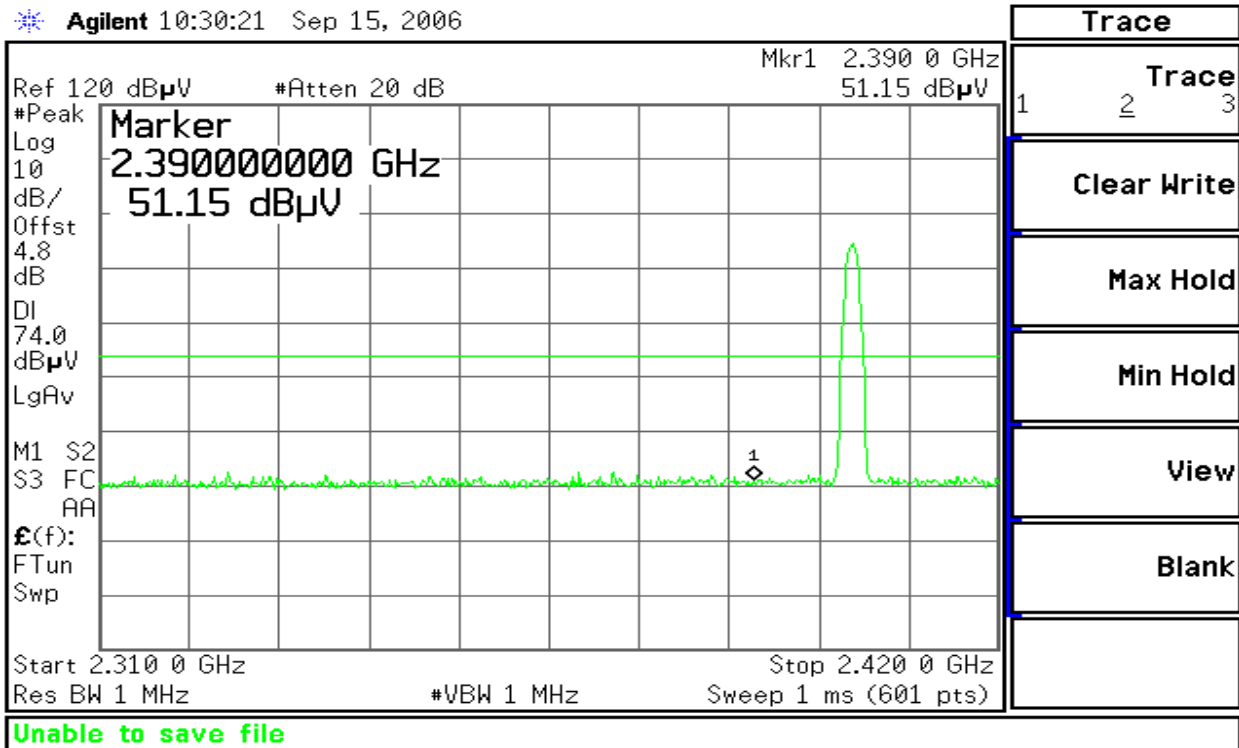
TEST RESULTS

Refer to attach spectrum analyzer data chart.

Band Edges (CH Low)

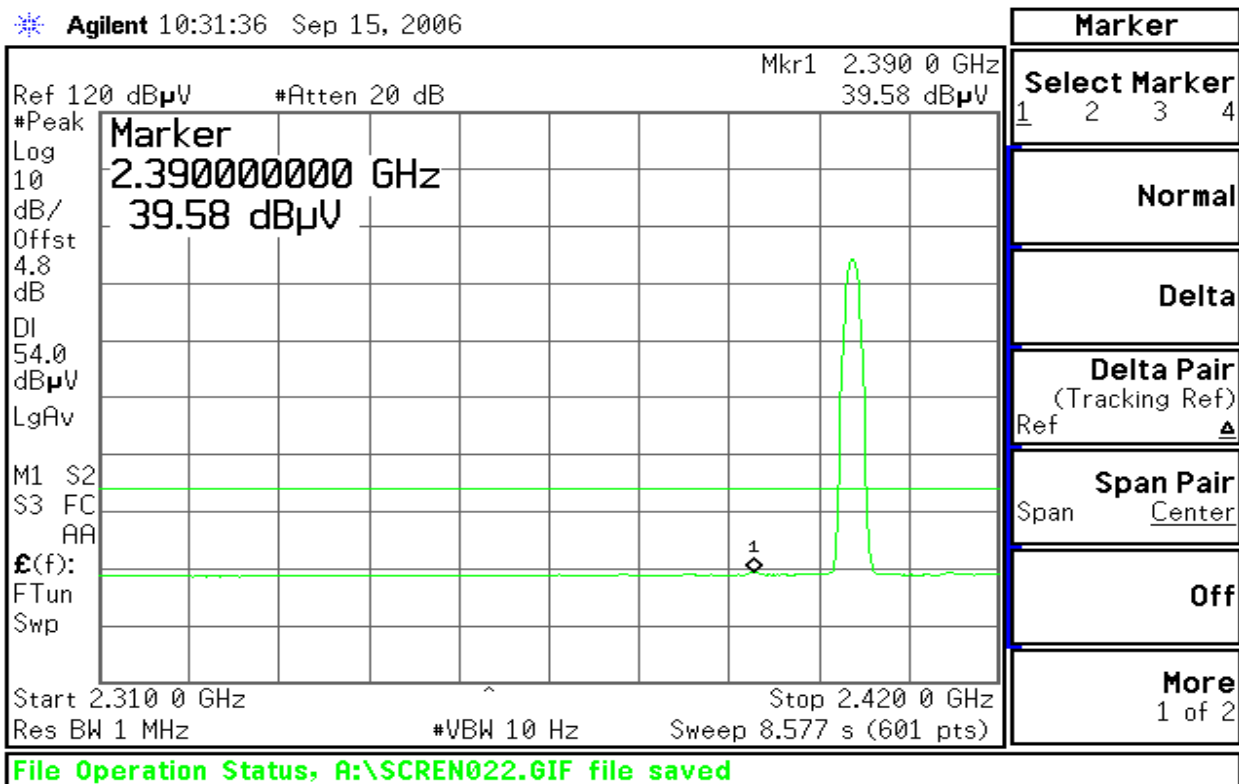
Detector mode: Peak Polarity: Vertical

Agilent 10:30:21 Sep 15, 2006



Detector mode: Average Polarity: Vertical

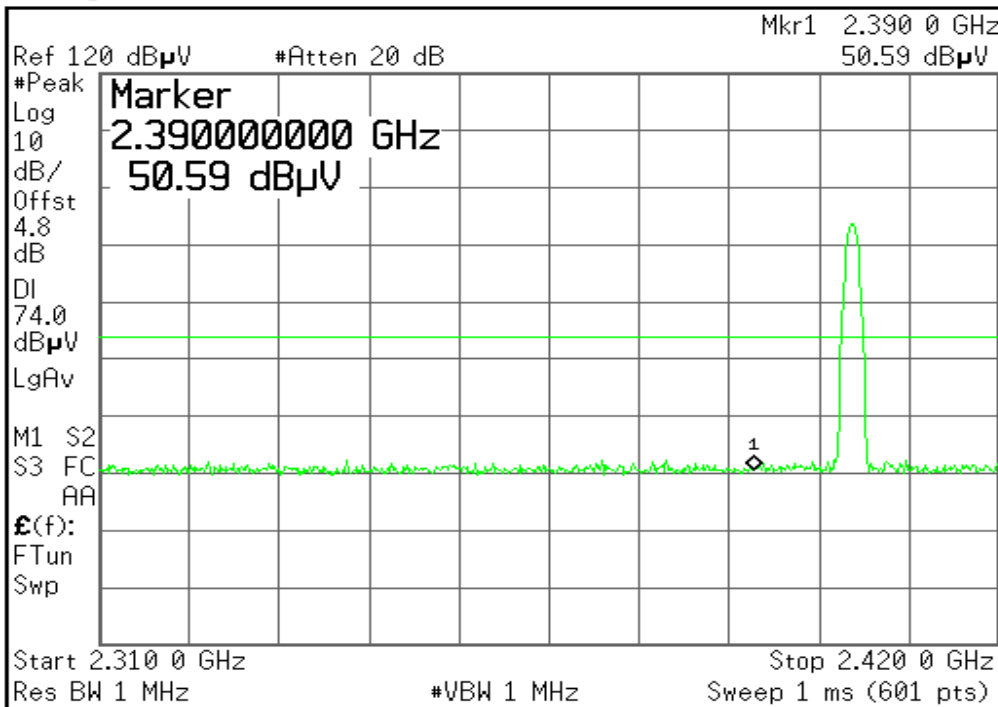
Agilent 10:31:36 Sep 15, 2006





Detector mode: Peak Polarity: Horizontal

Agilent 10:13:27 Sep 15, 2006

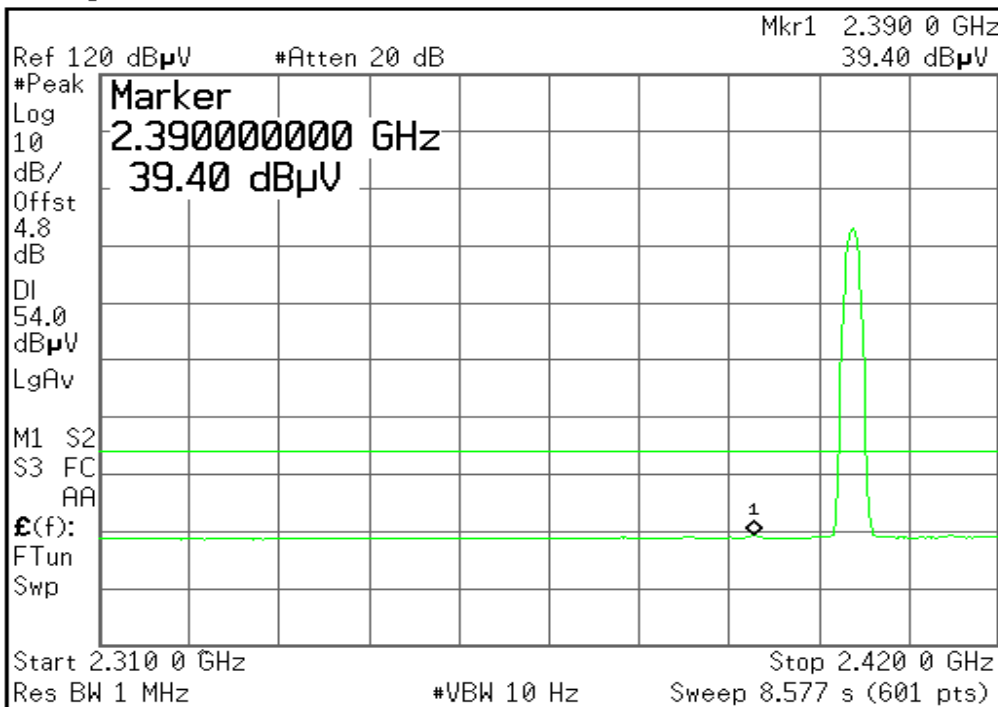


| |
|----------------------|
| Peak Search |
| Next Peak |
| Next Pk Right |
| Next Pk Left |
| Min Search |
| Pk-Pk Search |
| Mkr \rightarrow CF |
| More 1 of 2 |

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Detector mode: Average Polarity: Horizontal

Agilent 10:25:33 Sep 15, 2006



| |
|-------------------------------------------------|
| Marker |
| Select Marker 1 2 3 4 |
| Normal |
| Delta |
| Delta Pair (Tracking Ref) Ref \triangle |
| Span Pair Span Center |
| Off |
| More 1 of 2 |

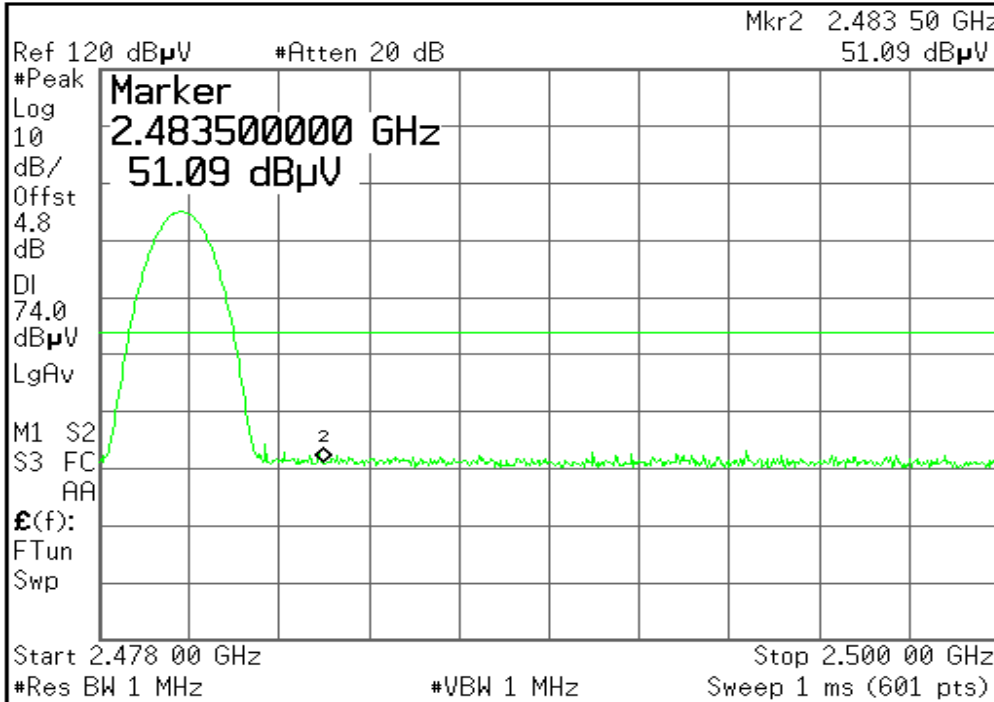
File Operation Status, A:\SCREN016.GIF file saved



Band Edges (CH High)

Detector mode: Peak Polarity: Vertical

Agilent 10:39:41 Sep 15, 2006

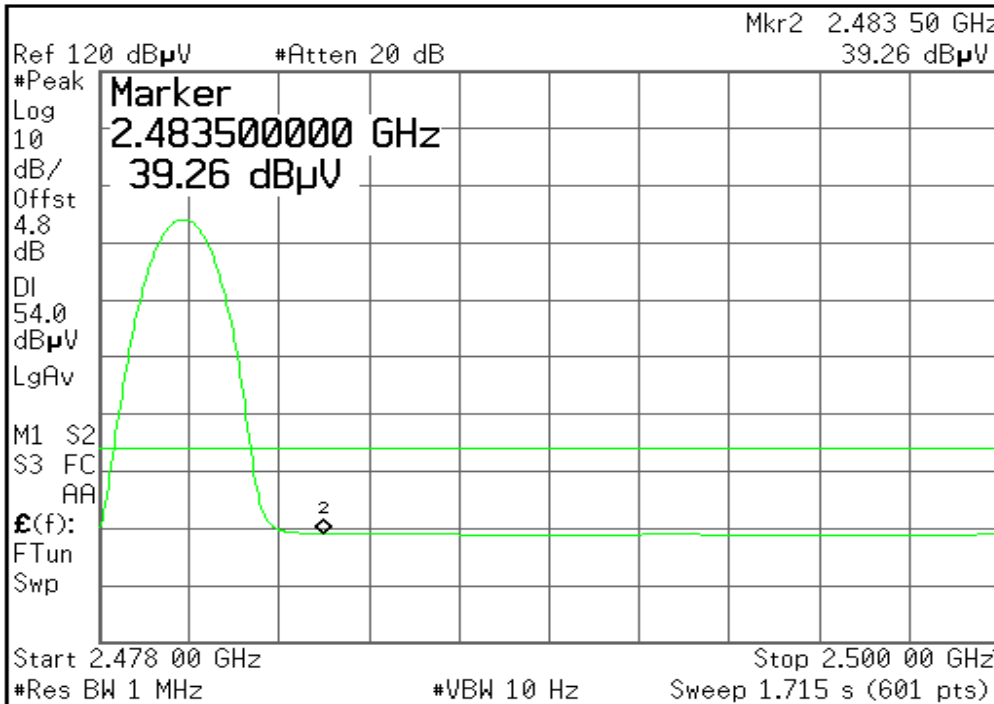


| Marker | | | |
|---------------------------|------|--------|-----|
| Select Marker | 1 | 2 | 3 4 |
| Normal | | | |
| Delta | | | |
| Delta Pair (Tracking Ref) | Ref | ▲ | |
| Span Pair | Span | Center | |
| Off | | | |
| More 1 of 2 | | | |

File Operation Status, A:\SCREN023.GIF file saved

Detector mode: Average Polarity: Vertical

Agilent 10:41:09 Sep 15, 2006



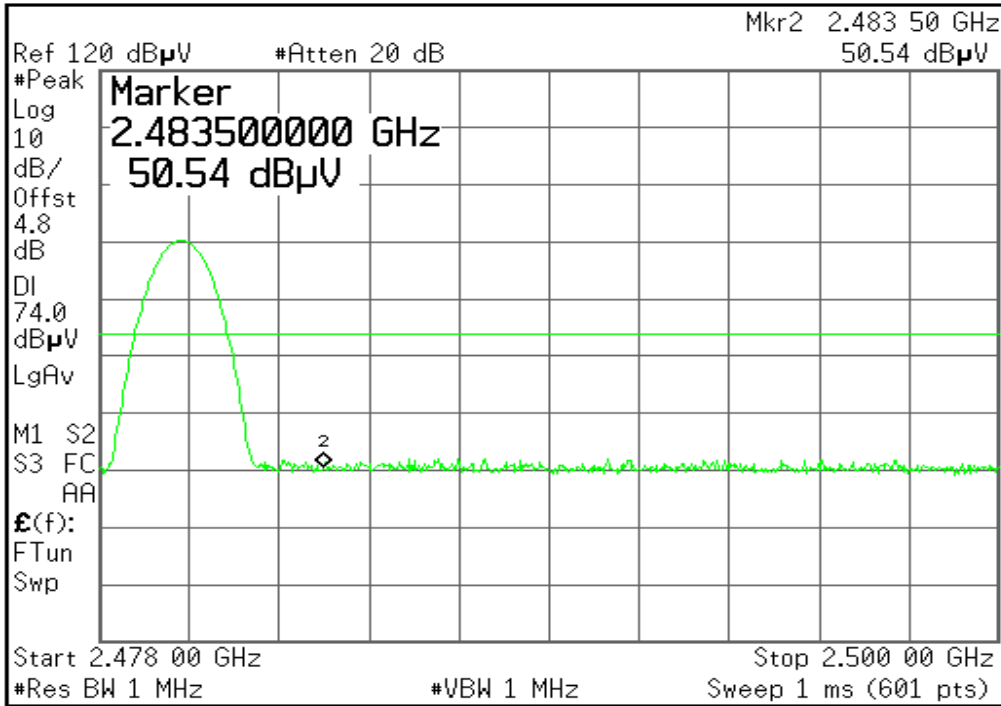
| Marker | | | |
|---------------------------|------|--------|-----|
| Select Marker | 1 | 2 | 3 4 |
| Normal | | | |
| Delta | | | |
| Delta Pair (Tracking Ref) | Ref | ▲ | |
| Span Pair | Span | Center | |
| Off | | | |
| More 1 of 2 | | | |

File Operation Status, A:\SCREN025.GIF file saved



Detector mode: Peak Polarity: Horizontal

Agilent 10:47:25 Sep 15, 2006

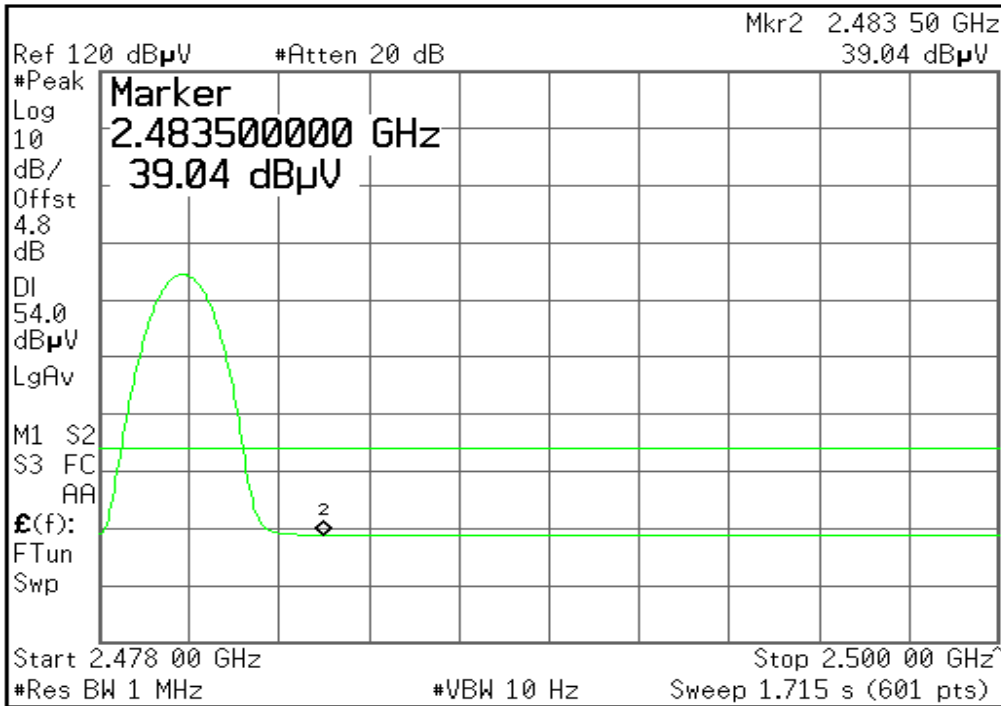


| Trace | | |
|-------------|-------|---|
| 1 | Trace | 3 |
| 2 | | |
| 3 | | |
| Clear Write | | |
| Max Hold | | |
| Min Hold | | |
| View | | |
| Blank | | |

File Operation Status, A:\SCREN028.GIF file saved

Detector mode: Average Polarity: Horizontal

Agilent 10:44:56 Sep 15, 2006



| Trace | | |
|-------------|-------|---|
| 1 | Trace | 3 |
| 2 | | |
| 3 | | |
| Clear Write | | |
| Max Hold | | |
| Min Hold | | |
| View | | |
| Blank | | |

File Operation Status, A:\SCREN027.GIF file saved



7.3 PEAK POWER SPECTRAL DENSITY

LIMIT

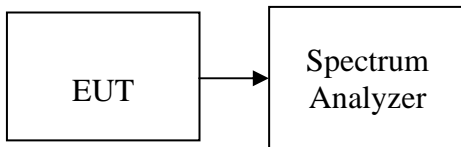
1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

TEST RESULTS

No non-compliance noted

Test Data

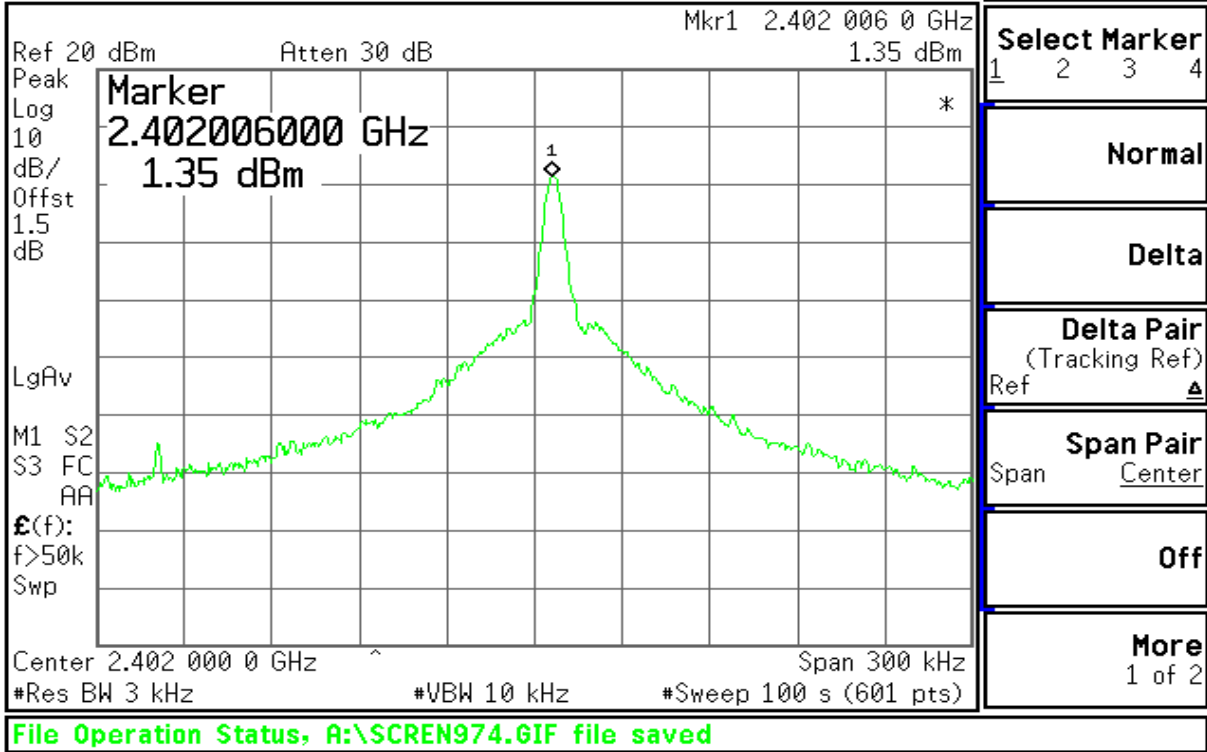
| Channel | Frequency | Reading (dBm) | Factor (dB) | PPSD (dBm) | Limit (dBm) | Result |
|---------|-----------|---------------|-------------|------------|-------------|--------|
| Low | 2402 | -0.15 | 1.50 | 1.35 | 8.00 | PASS |
| Mid | 2441 | 0.71 | 1.50 | 2.21 | | PASS |
| High | 2480 | 0.73 | 1.50 | 2.23 | | PASS |



Test Plot

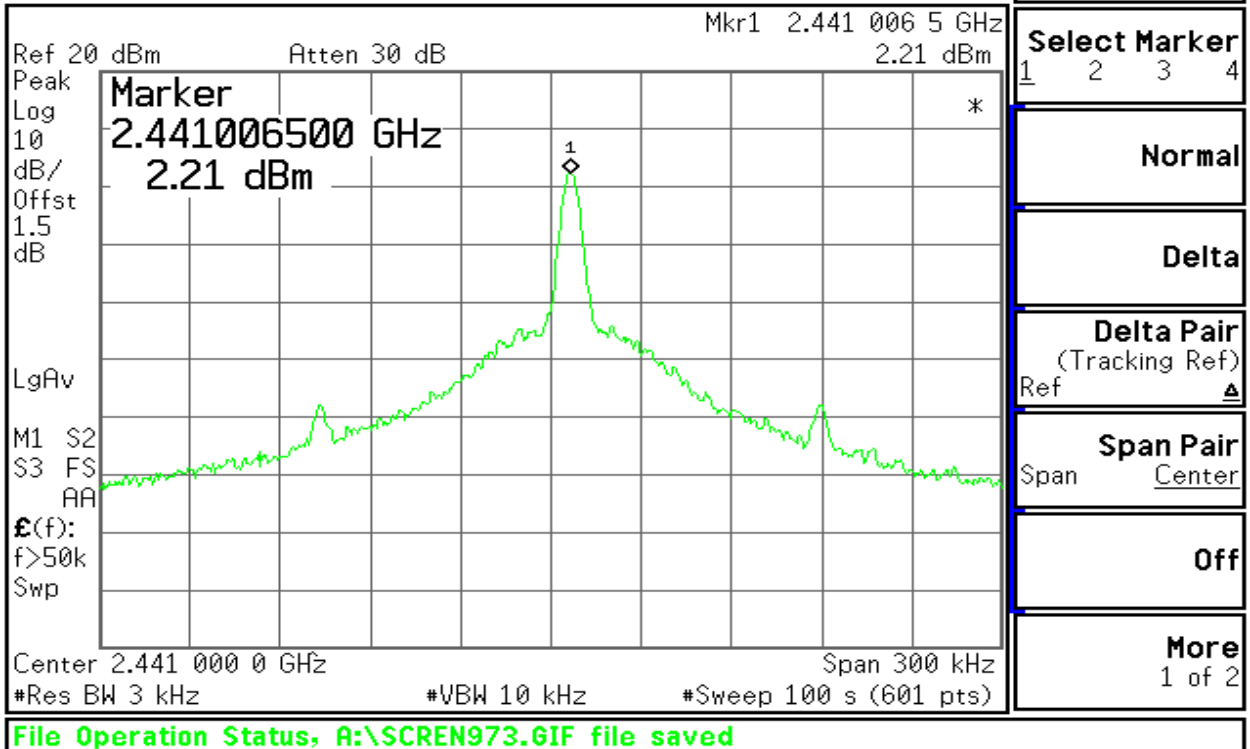
PPSD (CH Low)

Agilent 10:57:17 Sep 14, 2006



PPSD (CH Mid)

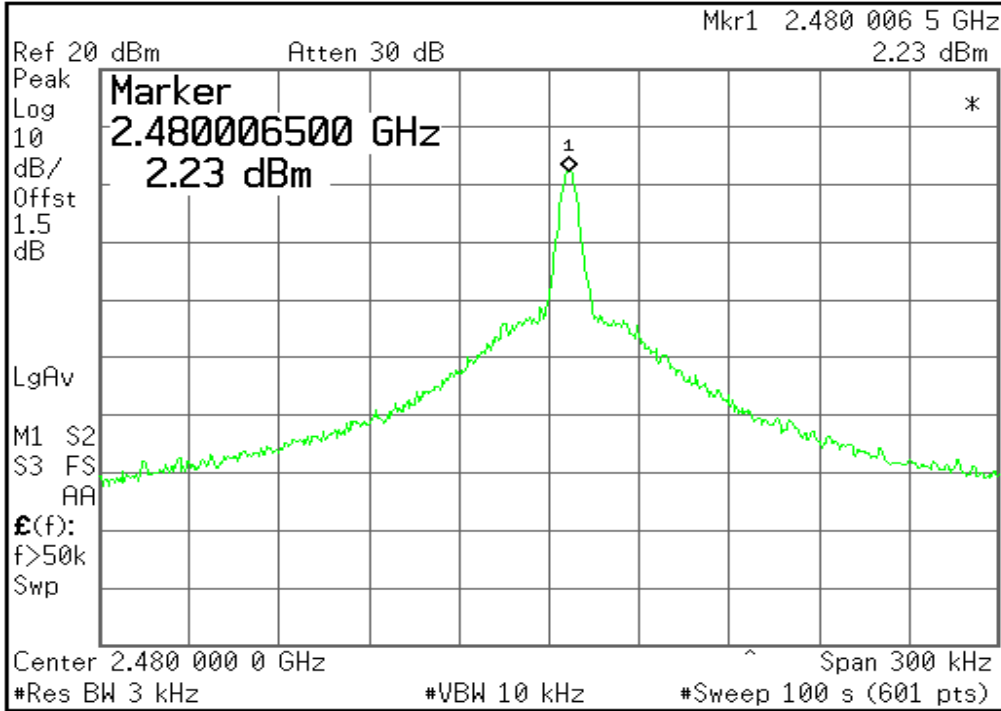
Agilent 10:54:53 Sep 14, 2006





PPSD (CH High)

Agilent 10:53:20 Sep 14, 2006



| | | | |
|----------------------------------------------|---|--------|---|
| Marker | | | |
| Select Marker | | | |
| 1 | 2 | 3 | 4 |
| Normal | | | |
| Delta | | | |
| Delta Pair (Tracking Ref) Ref ▲ | | | |
| Span Pair Span | | Center | |
| Off | | | |
| More 1 of 2 | | | |

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7.4 FREQUENCY SEPARATION

LIMIT

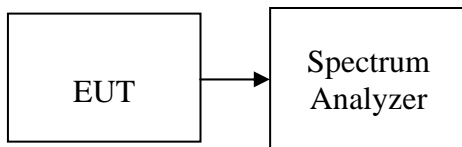
According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW = 100kHz, VBW = 100kHz, Span = 3MHz, Sweep = auto.
5. Max hold, mark 2 peaks of hopping channel and record the 2 peaks frequency.

TEST RESULTS

No non-compliance noted

Test Data

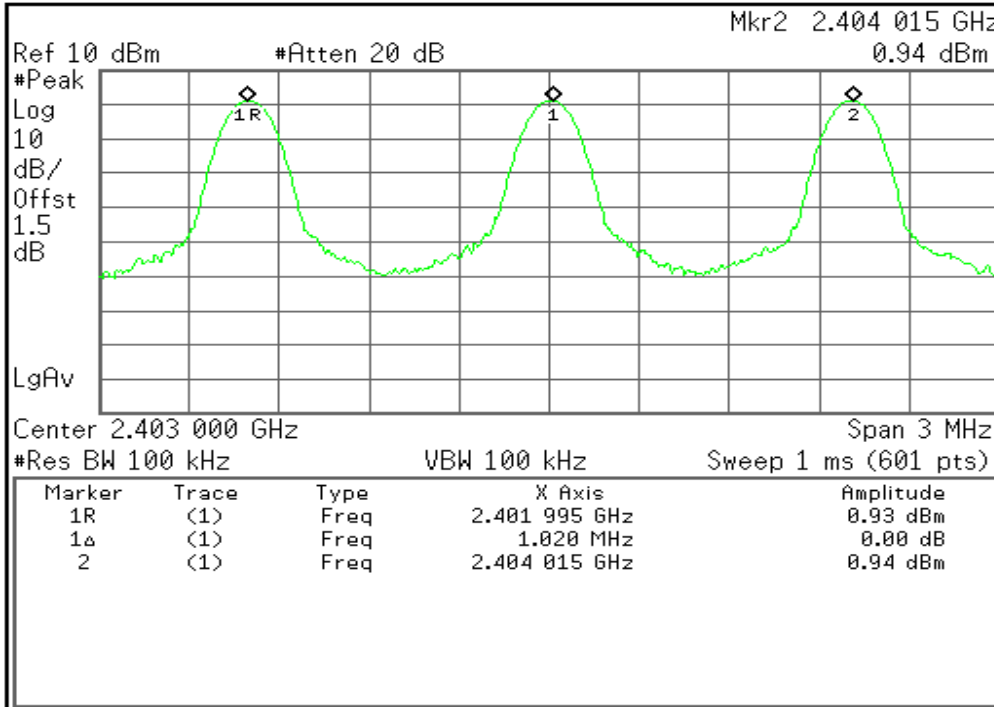
| Channel Separation (MHz) | 20dB Bandwidth (kHz) | Limit (kHz) | Result |
|--------------------------|----------------------|-------------|--------|
| 1.020 | 275 | >25 | Pass |



Test Plot

Measurement of Channel Separation

Agilent 14:22:00 Sep 14, 2006



Marker

Select Marker 1 2 3 4

Normal

Delta

Delta Pair (Tracking Ref) Ref ▲

Span Pair Center

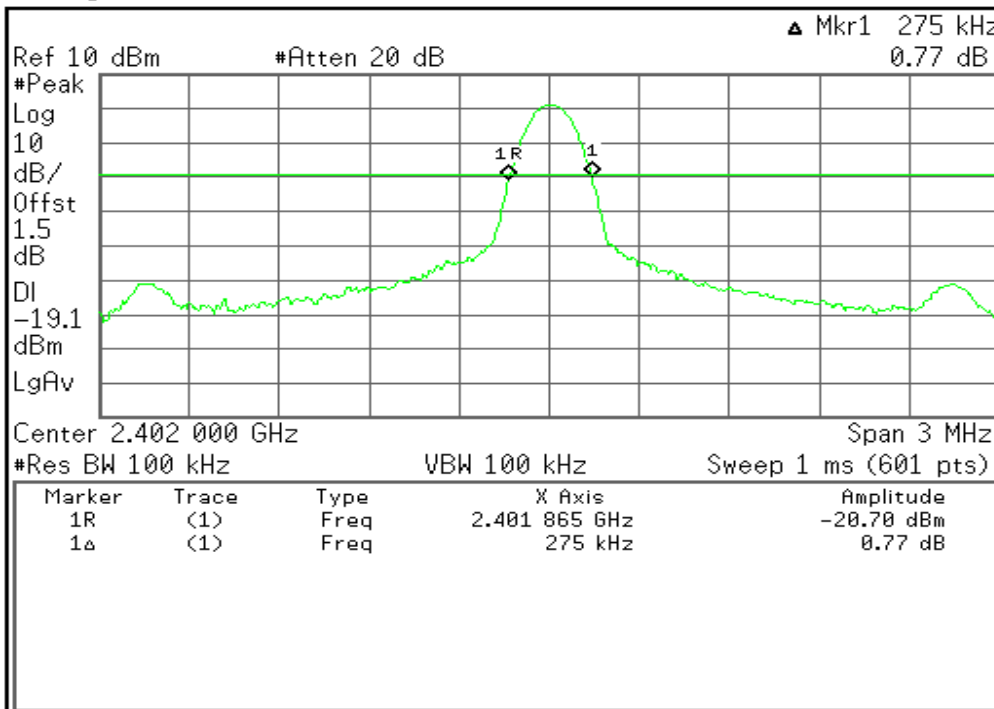
Off

More 1 of 2

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Measurement of 20dB Bandwidth

Agilent 14:25:22 Sep 14, 2006



Marker

Select Marker 1 2 3 4

Normal

Delta

Delta Pair (Tracking Ref) Ref ▲

Span Pair Center

Off

More 1 of 2

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7.5 NUMBER OF HOPPING FREQUENCY

LIMIT

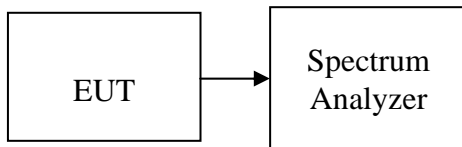
According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 75 hopping frequencies.

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2441.5MHz, Sweep =250s and Start=2441.5MHz, Stop = 2483.5MHz, Sweep = 250s.
4. Set the spectrum analyzer as RBW, VBW=100kHz.
5. Max hold, view and count how many channel in the band.

TEST RESULTS

No non-compliance noted

Test Data

| Result (No. of CH) | Limit (No. of CH) | Result |
|--------------------|-------------------|--------|
| 79 | >75 | PASS |

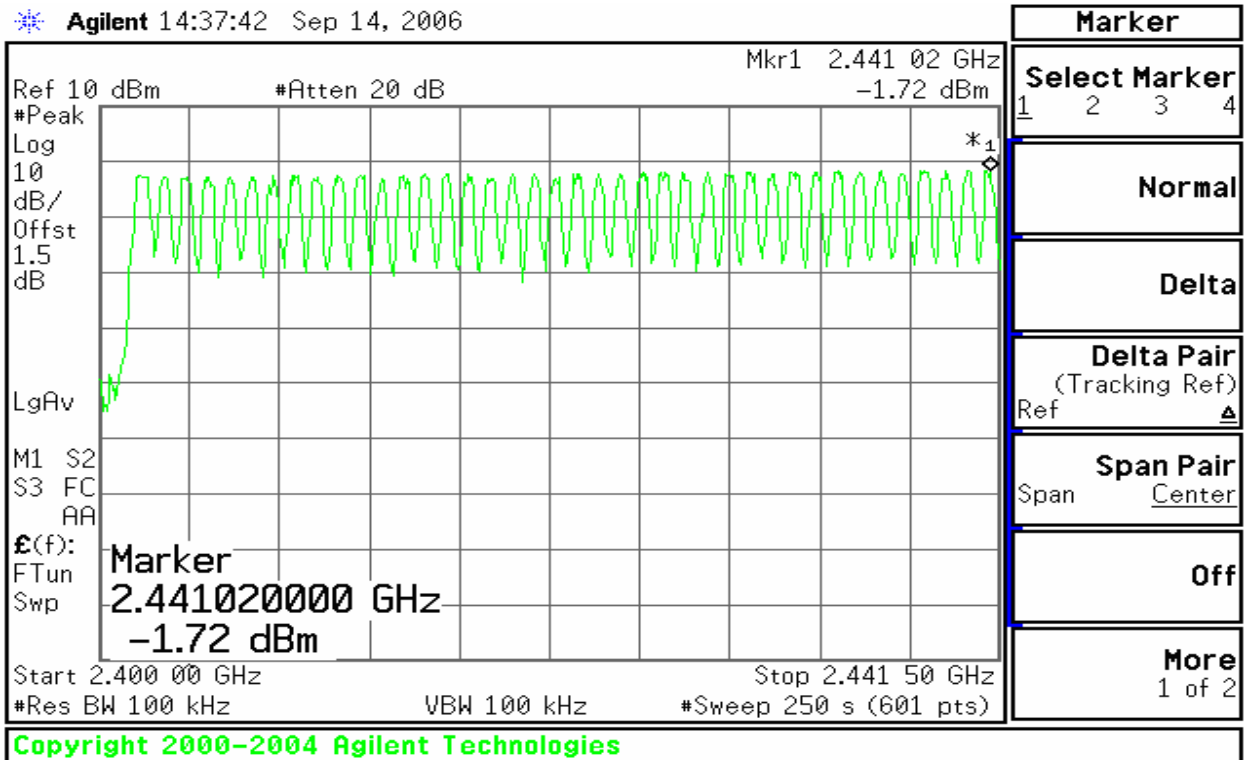


Test Plot

Channel Number

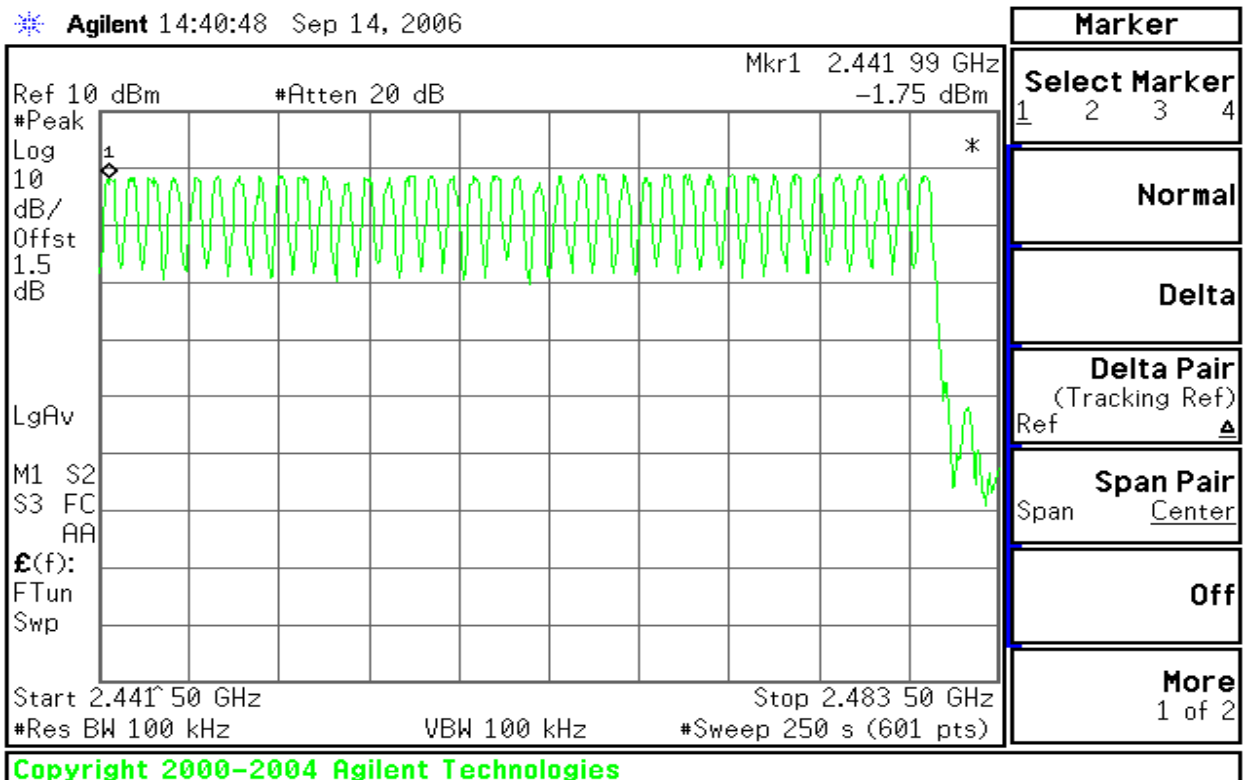
2.4 GHz – 2.4415 GHz

Agilent 14:37:42 Sep 14, 2006



2.4415 GHz – 2.4835 GHz

Agilent 14:40:48 Sep 14, 2006





7.6 TIME OF OCCUPANCY (DWELL TIME)

LIMIT

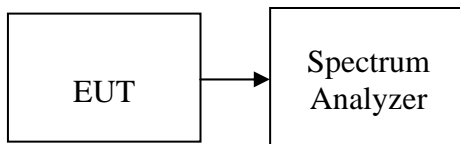
According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = 20ms.
5. Repeat above procedures until all frequency measured were complete.



TEST RESULTS

No non-compliance noted

Test Data

DH 1

CH Low: $0.43 * (1600/2)/79 * 31.6 = 137.60$ (ms)

CH Mid: $0.40 * (1600/2)/79 * 31.6 = 128.00$ (ms)

CH High: $0.43 * (1600/2)/79 * 31.6 = 137.60$ (ms)

| CH | Pulse Time (ms) | Total of Dwell (ms) | Period Time (s) | Limit (ms) | Result |
|------|-----------------|---------------------|-----------------|------------|--------|
| Low | 0.43 | 137.60 | 31.60 | 400.00 | PASS |
| Mid | 0.40 | 128.00 | 31.60 | | PASS |
| High | 0.43 | 137.60 | 31.60 | | PASS |

DH 3

CH Low: $0.43 * (1600/4)/79 * 31.6 = 68.80$ (ms)

CH Mid: $0.40 * (1600/4)/79 * 31.6 = 64.00$ (ms)

CH High: $0.40 * (1600/4)/79 * 31.6 = 64.00$ (ms)

| CH | Pulse Time (ms) | Total of Dwell (ms) | Period Time (s) | Limit (ms) | Result |
|------|-----------------|---------------------|-----------------|------------|--------|
| Low | 0.43 | 68.80 | 31.60 | 400.00 | PASS |
| Mid | 0.40 | 64.00 | 31.60 | | PASS |
| High | 0.40 | 64.00 | 31.60 | | PASS |

DH 5

CH Low: $0.40 * (1600/6)/79 * 31.6 = 42.67$ (ms)

CH Mid: $0.43 * (1600/6)/79 * 31.6 = 45.87$ (ms)

CH High: $0.43 * (1600/6)/79 * 31.6 = 45.87$ (ms)

| CH | Pulse Time (ms) | Total of Dwell (ms) | Period Time (s) | Limit (ms) | Result |
|------|-----------------|---------------------|-----------------|------------|--------|
| Low | 0.40 | 42.67 | 31.60 | 400.00 | PASS |
| Mid | 0.43 | 45.87 | 31.60 | | PASS |
| High | 0.43 | 45.87 | 31.60 | | PASS |

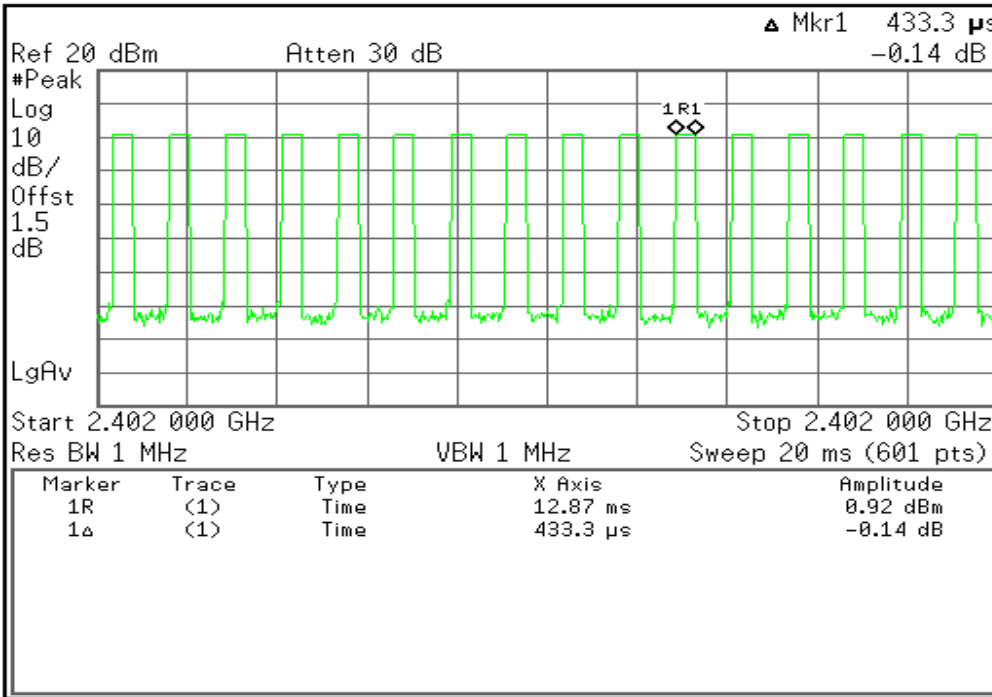


Test Plot

DH 1

(CH Low)

Agilent 13:23:29 Sep 14, 2006

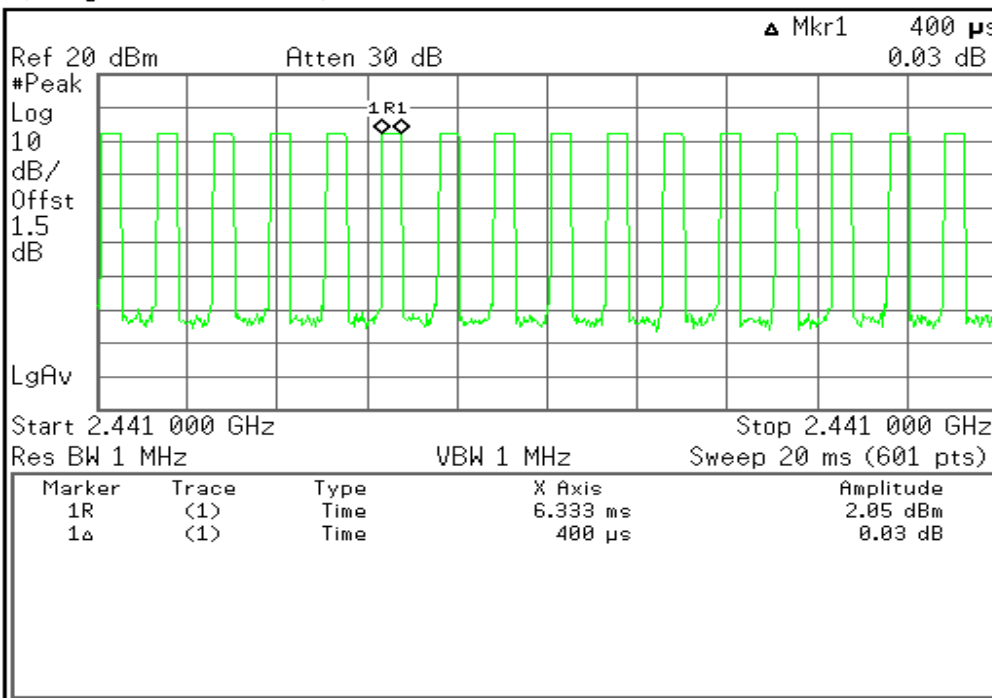


| Marker | | | | |
|---------------------------|----------|---|---|---|
| Select Marker | 1 | 2 | 3 | 4 |
| Normal | | | | |
| Delta | | | | |
| Delta Pair (Tracking Ref) | | | | |
| Ref | Δ | | | |
| Span Pair | | | | |
| Span | Center | | | |
| Off | | | | |
| More | | | | |
| 1 of 2 | | | | |

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(CH Mid)

Agilent 13:22:03 Sep 14, 2006



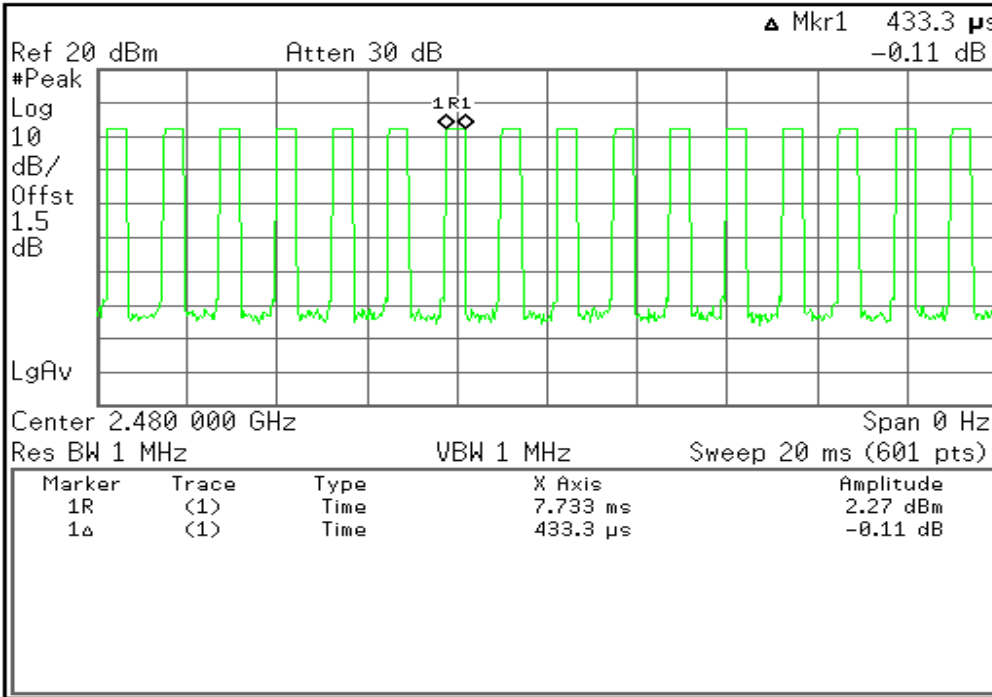
| Marker | | | | |
|---------------------------|----------|---|---|---|
| Select Marker | 1 | 2 | 3 | 4 |
| Normal | | | | |
| Delta | | | | |
| Delta Pair (Tracking Ref) | | | | |
| Ref | Δ | | | |
| Span Pair | | | | |
| Span | Center | | | |
| Off | | | | |
| More | | | | |
| 1 of 2 | | | | |

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(CH High)

Agilent 13:20:15 Sep 14, 2006



Marker

Select Marker
1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)
Ref Δ

Span Pair
Span Center

Off

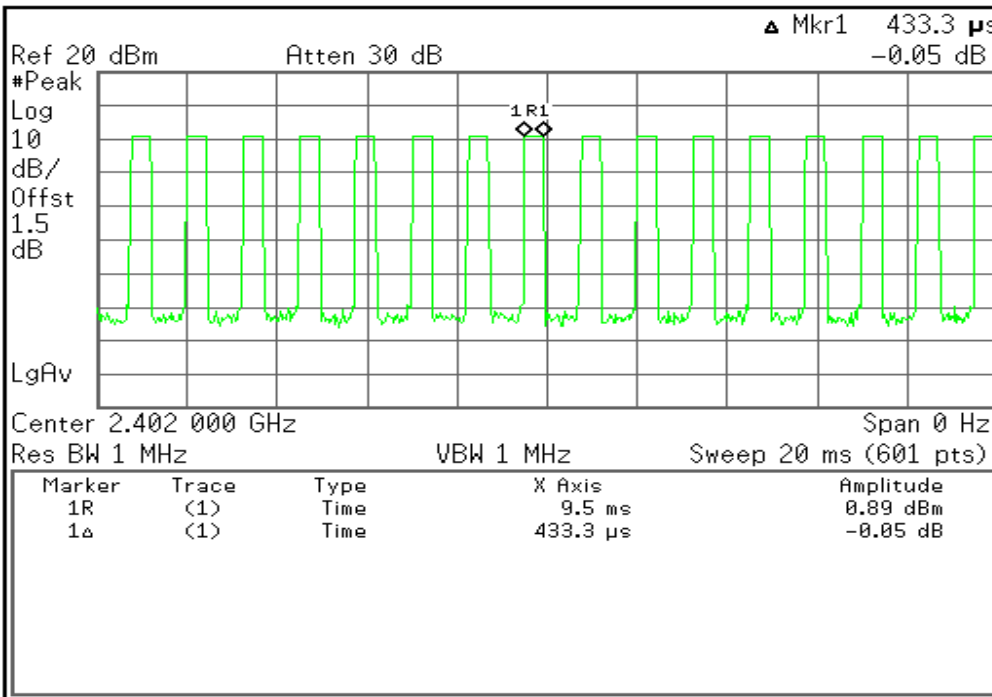
More
1 of 2

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DH 3

(CH Low)

Agilent 12:59:42 Sep 14, 2006



Marker

Select Marker
1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)
Ref Δ

Span Pair
Span Center

Off

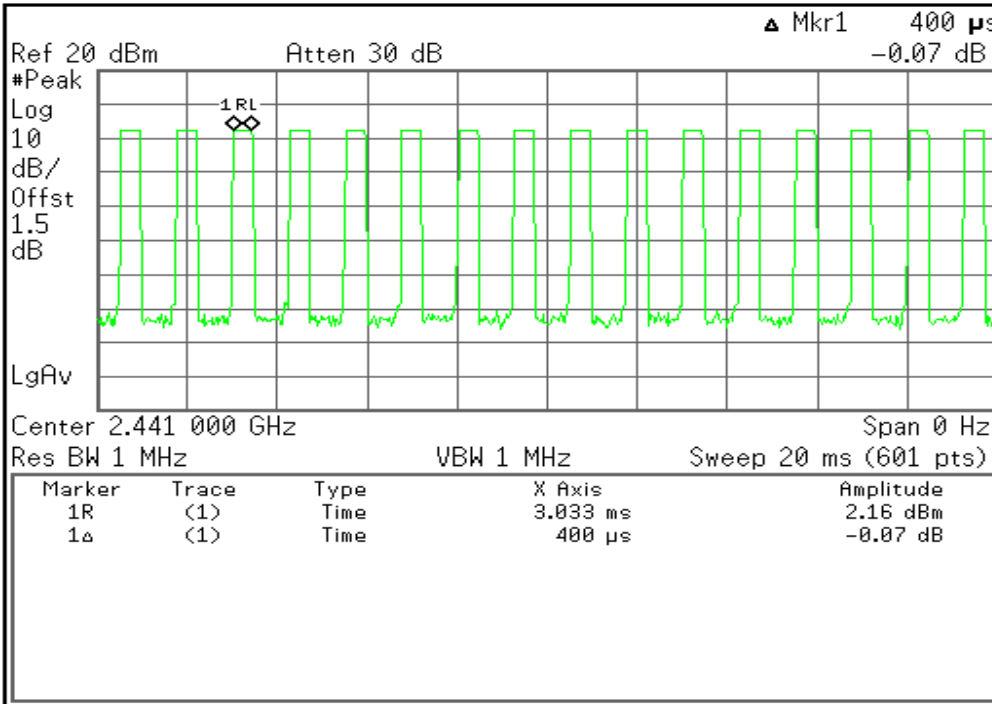
More
1 of 2

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(CH Mid)

Agilent 13:04:07 Sep 14, 2006



Marker

Select Marker
1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)
Ref ▲

Span Pair
Span Center

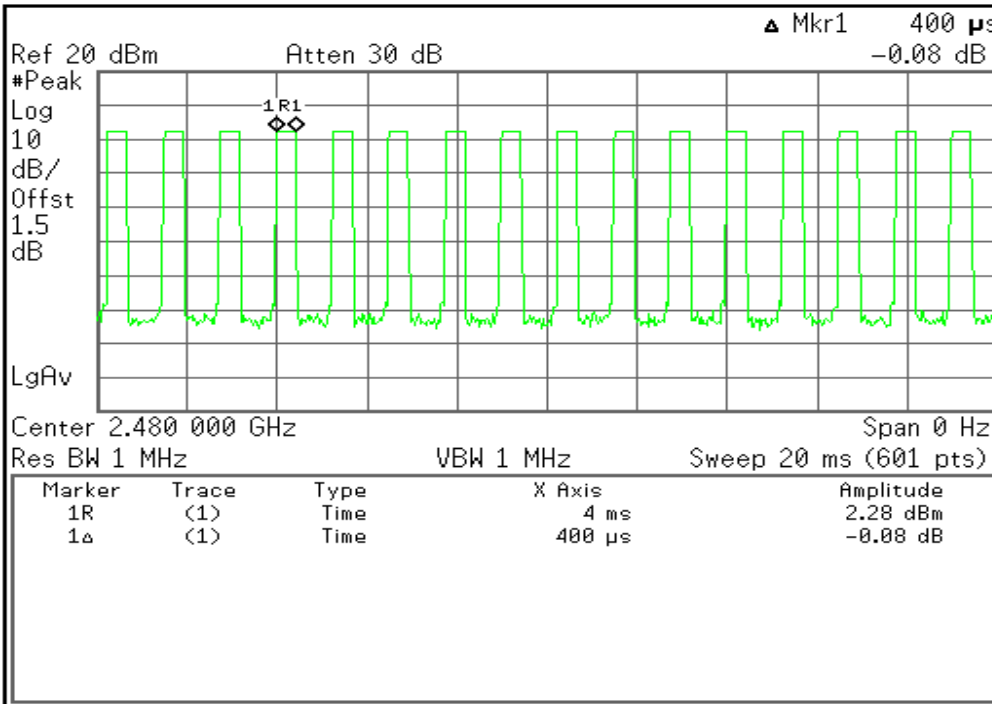
Off

More
1 of 2

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(CH High)

Agilent 13:17:58 Sep 14, 2006



Marker

Select Marker
1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)
Ref ▲

Span Pair
Span Center

Off

More
1 of 2

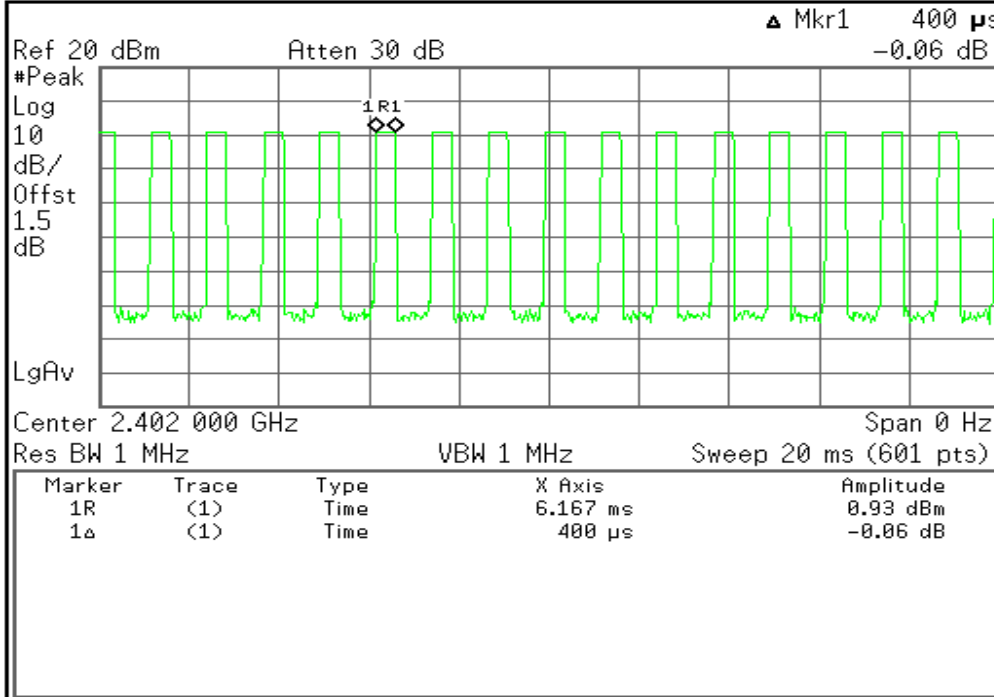
Copyright 2000-2004 Agilent Technologies



DH 5

(CH Low)

Agilent 13:15:19 Sep 14, 2006

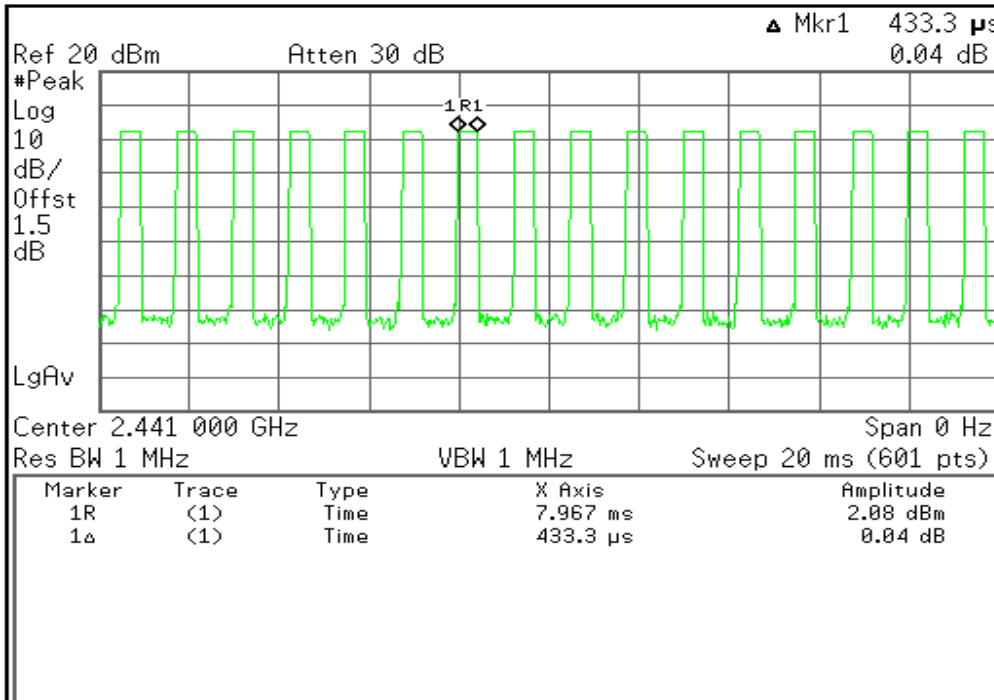


| Marker | | | | |
|---------------------------|---|---|---|---|
| Select Marker | 1 | 2 | 3 | 4 |
| Normal | | | | |
| Delta | | | | |
| Delta Pair (Tracking Ref) | | | | |
| Span Pair | | | | |
| Off | | | | |
| More 1 of 2 | | | | |

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(CH Mid)

Agilent 13:14:28 Sep 14, 2006



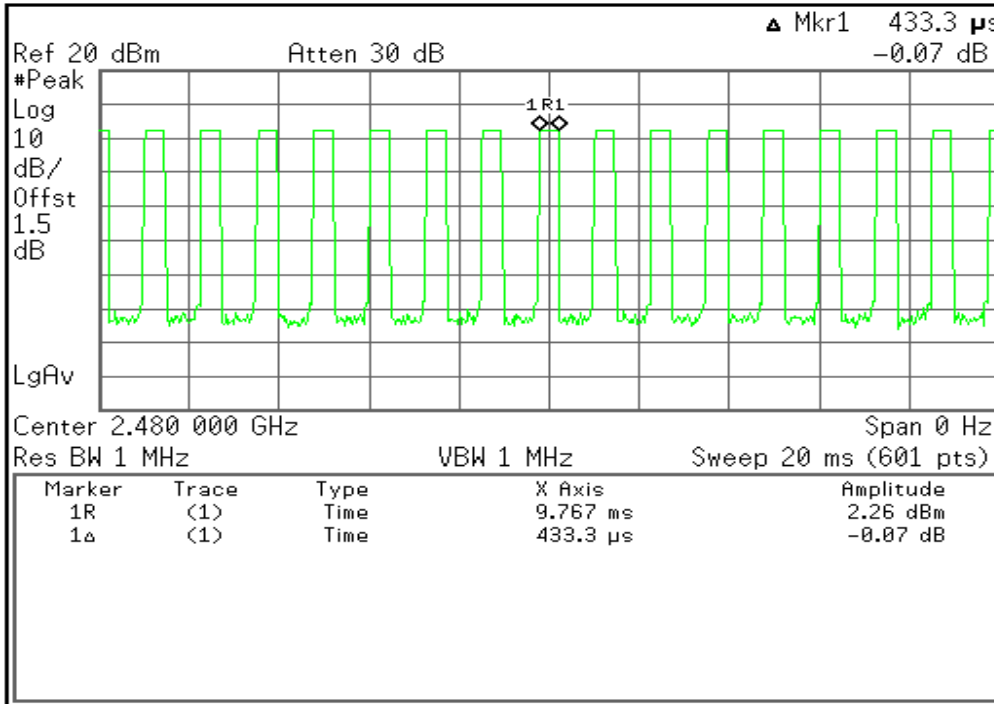
| Marker | | | | |
|---------------------------|---|---|---|---|
| Select Marker | 1 | 2 | 3 | 4 |
| Normal | | | | |
| Delta | | | | |
| Delta Pair (Tracking Ref) | | | | |
| Span Pair | | | | |
| Off | | | | |
| More 1 of 2 | | | | |

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(CH High)

Agilent 13:07:29 Sep 14, 2006



| | | | |
|-------------------------------------|----------|---|---|
| Marker | | | |
| Select Marker | | | |
| 1 | 2 | 3 | 4 |
| Normal | | | |
| Delta | | | |
| Delta Pair (Tracking Ref) | | | |
| Ref | Δ | | |
| Span Pair | | | |
| Span | Center | | |
| Off | | | |
| More 1 of 2 | | | |

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7.7 RADIO FREQUENCY EXPOSURE

LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See §15.247(b)(4) and §1.1307(b)(1) of this chapter.

EUT Specification

| | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT | Notebook |
| Frequency band (Operating) | <input type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input checked="" type="checkbox"/> Others: <u>Bluetooth: 2.402GHz ~ 2.480GHz</u> |
| Device category | <input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others _____ |
| Exposure classification | <input type="checkbox"/> Occupational/Controlled exposure ($S = 5mW/cm^2$) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure ($S=1mW/cm^2$) |
| Antenna diversity | <input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity |
| Max. output power | 2.28dBm (1.69mW) |
| Antenna gain (Max) | 1.42 dBi (Numeric gain: 1.39) |
| Evaluation applied | <input type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation <input checked="" type="checkbox"/> N/A |
| Remark: | |
| 1. The maximum output power is <u>2.28dBm (1.69mW) at 2480MHz</u> (with <u>1.42 numeric antenna gain</u> .) 2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. 3. For mobile or fixed location transmitters, no SAR consideration applied. The minimum separation generally be used is at least 20 cm, even if the calculations indicate that the MPE distance would be lesser. | |

TEST RESULTS

Non-compliance.



7.8 SPURIOUS EMISSIONS

7.8.1 Conducted Measurement

LIMIT

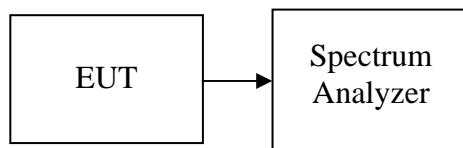
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

MEASUREMENT EQUIPMENT USED

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|--------|---------------|-----------------|
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

TEST RESULTS

No non-compliance noted

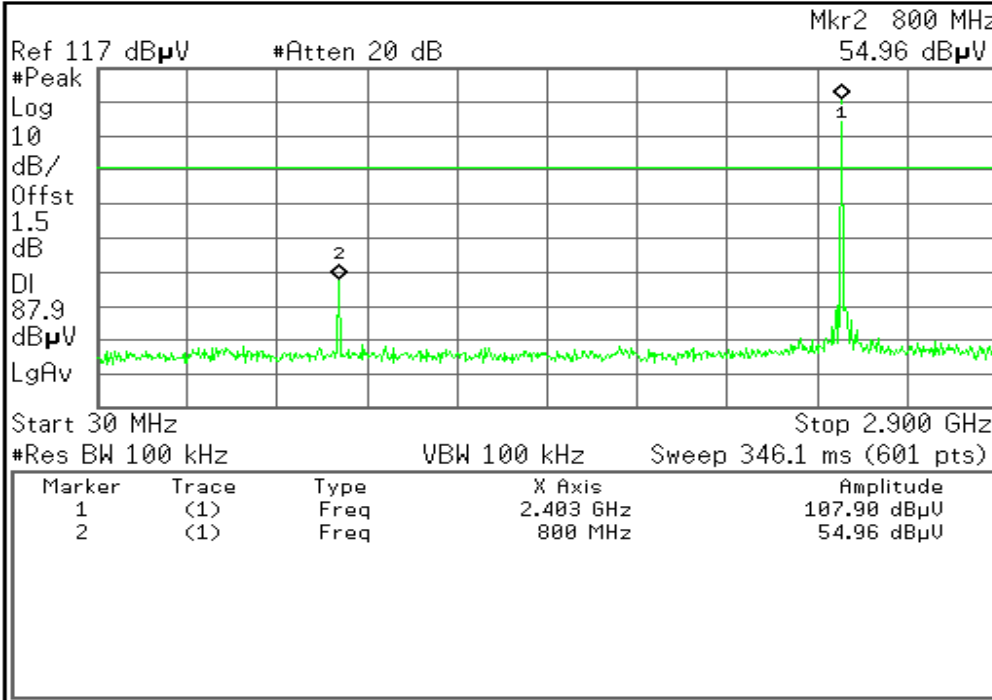


Test Plot

CH Low

30MHz ~ 2.9GHz

Agilent 13:57:46 Sep 14, 2006



Display

Full Screen

Display Line 87.90 dB μ V On Off

Limits

Active Fctn Position Top

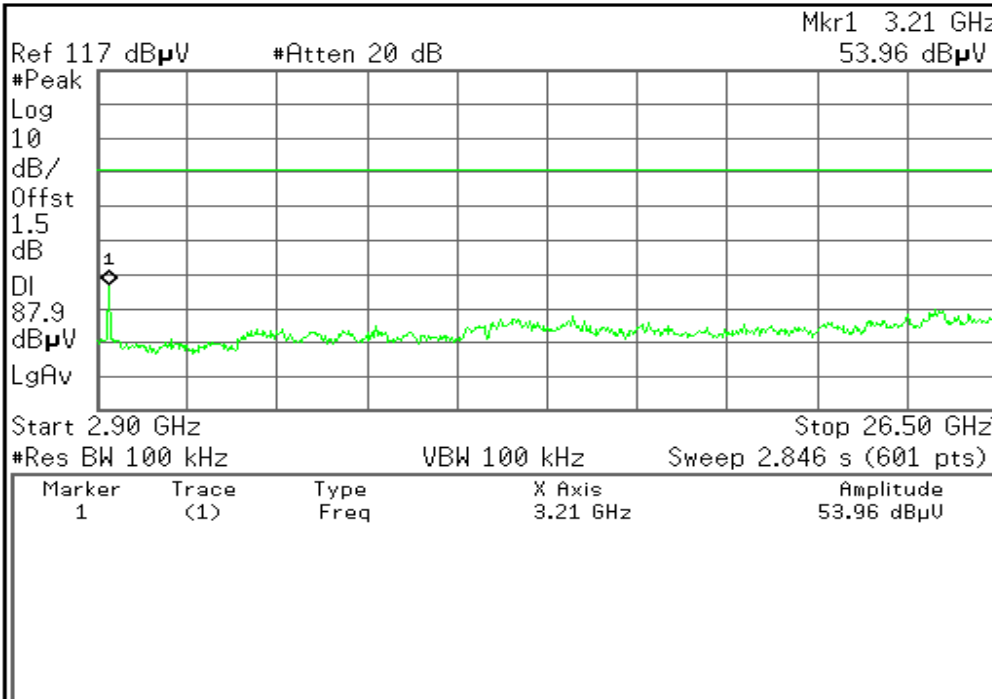
Title

Preferences

Copyright 2000-2004 Agilent Technologies

2.9GHz ~ 26.5GHz

Agilent 13:59:02 Sep 14, 2006



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More 1 of 2

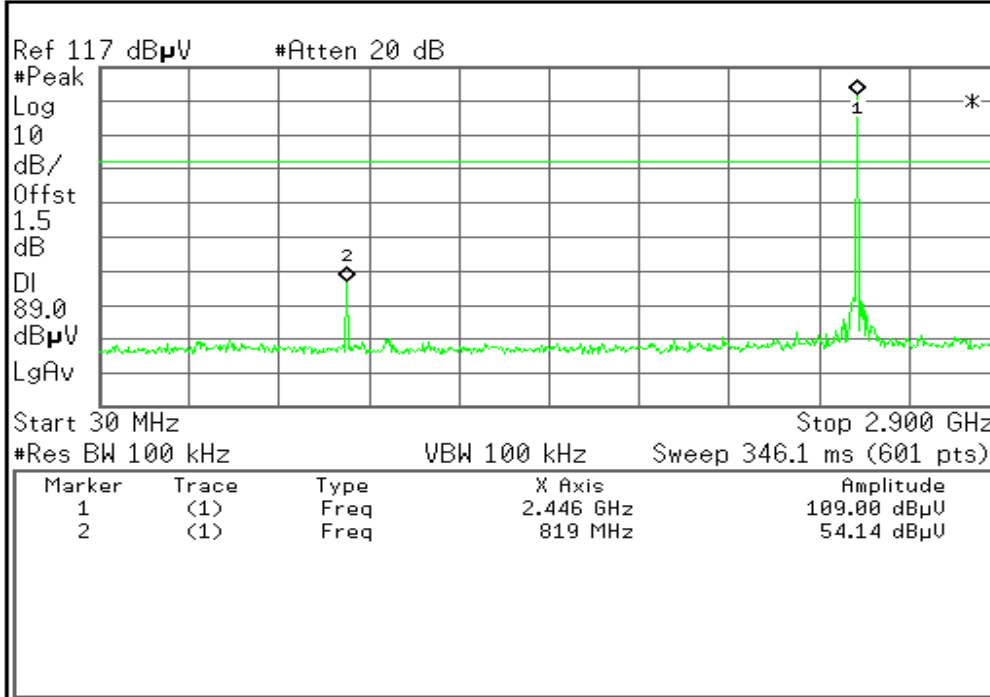
Copyright 2000-2004 Agilent Technologies



CH Mid

30MHz ~ 2.9GHz

Agilent 13:51:29 Sep 14, 2006



Marker

Select Marker 1 2 3 4

Normal

Delta

Delta Pair (Tracking Ref)

Span Pair Center

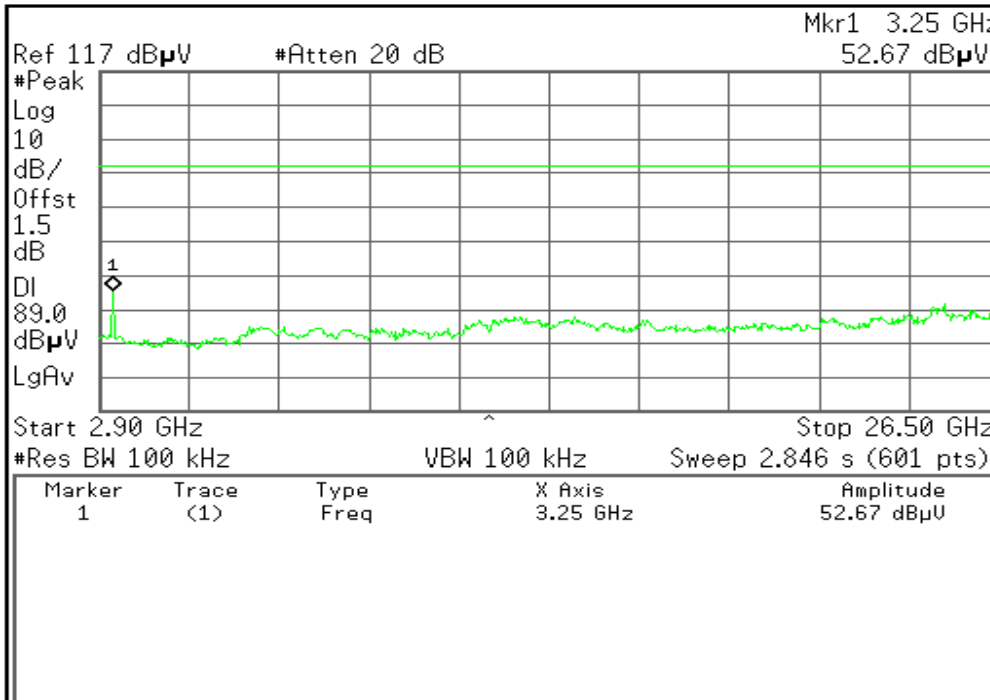
Off

More 1 of 2

Printer not responding

2.9GHz ~ 26.5GHz

Agilent 13:53:48 Sep 14, 2006



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Min Search

Pk-Pk Search

Mkr \rightarrow CF

More 1 of 2

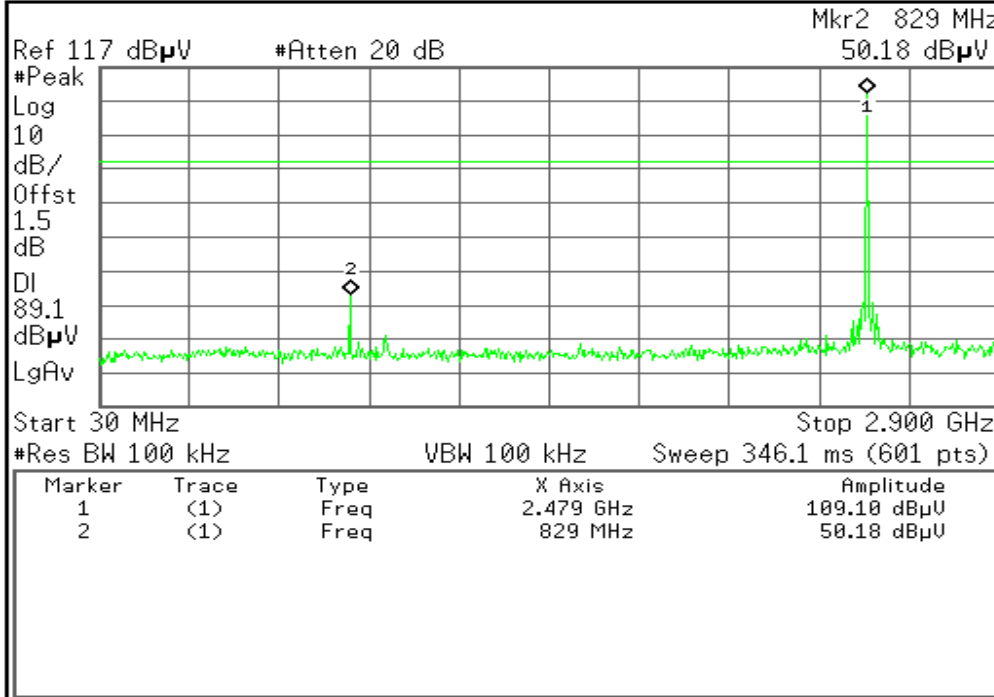
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CH High

30MHz ~ 2.9GHz

Agilent 14:01:23 Sep 14, 2006



Display

Full Screen

Display Line
89.10 dBµV
On Off

Limits

Active Fctn Position
Top

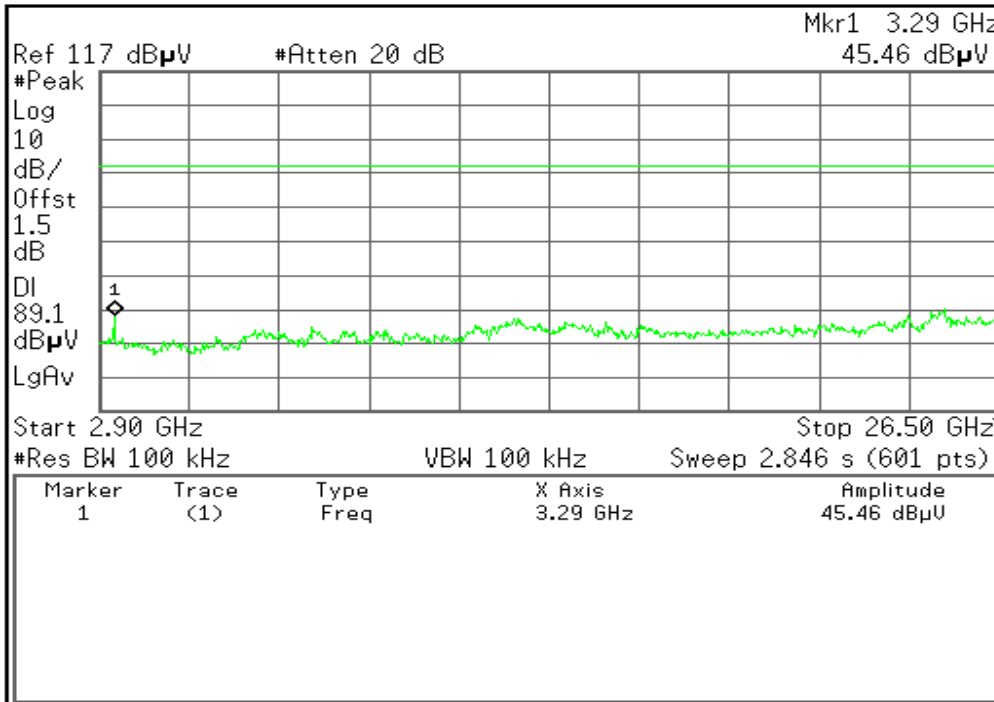
Title

Preferences

Copyright 2000-2004 Agilent Technologies

2.9GHz ~ 26.5GHz

Agilent 14:02:51 Sep 14, 2006



Marker

Select Marker
1 2 3 4

Normal

Delta

Delta Pair
(Tracking Ref)
Ref ▲

Span Pair
Span Center

Off

More
1 of 2

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7.8.2 Radiated Emissions

LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (mV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 30-88 | 100* | 3 |
| 88-216 | 150* | 3 |
| 216-960 | 200* | 3 |
| Above 960 | 500 | 3 |

Remark: Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the above emission table, the tighter limit applies at the band edges.

| Frequency (Hz) | Field Strength (μ V/m at 3-meter) | Field Strength (dB μ V/m at 3-meter) |
|----------------|----------------------------------------|------------------------------------------|
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above 960 | 500 | 54 |

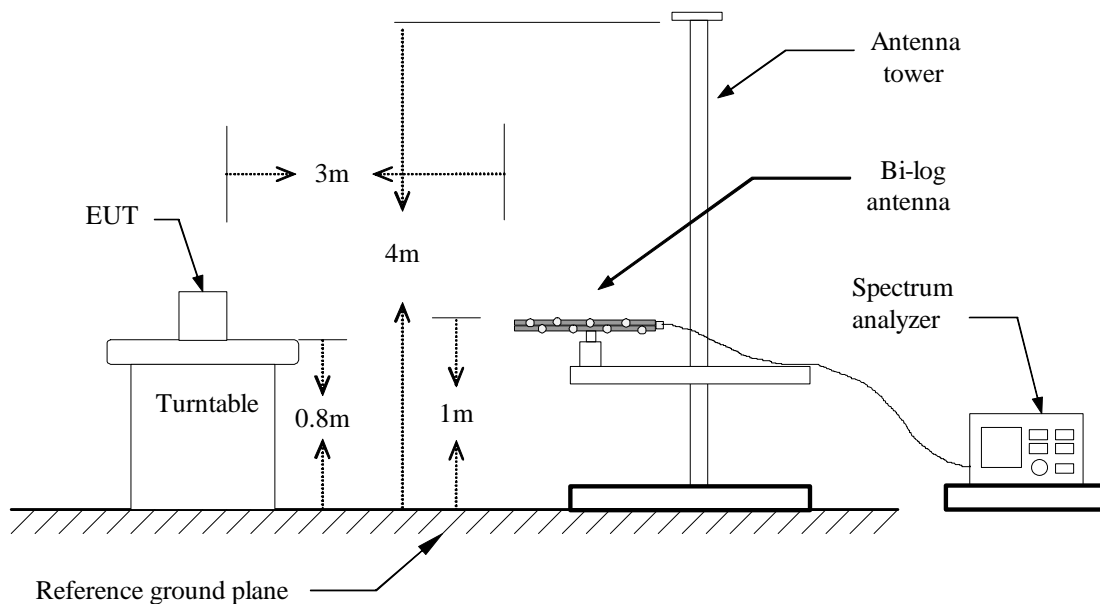
MEASUREMENT EQUIPMENT USED

| 977 Chamber (3m) | | | | |
|--------------------|----------------|-------------|---------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| Spectrum Analyzer | Agilent | E4446A | MY44020154 | 08/15/2007 |
| ESPI3 EMI RECEIVER | R&S | ESPI3 | 101026 | 11/10/2006 |
| Pre-Amplifier | MINI | ZFL-1000VH2 | d041703 | 12/12/2006 |
| Pre-Amplifier | Miteq | NSP4000-NF | 870731 | 01/21/2007 |
| Bi-log Antenna | Sunol Sciences | JB1 | A110204-2 | 11/09/2006 |
| Horn Antenna | Austriah | BBHA9120D | D267 | 09/20/2007 |
| Turn Table | CT | CT123 | 4162 | N.C.R |
| Antenna Tower | CT | CTERG23 | 3253 | N.C.R |
| Controller | CT | CT100 | 95635 | N.C.R |
| Coax Switch | Anitsu | MP 598 | M 80094 | N/A |
| Site NSA | CCS Lab. | N/A | N/A | 02/15/2007 |

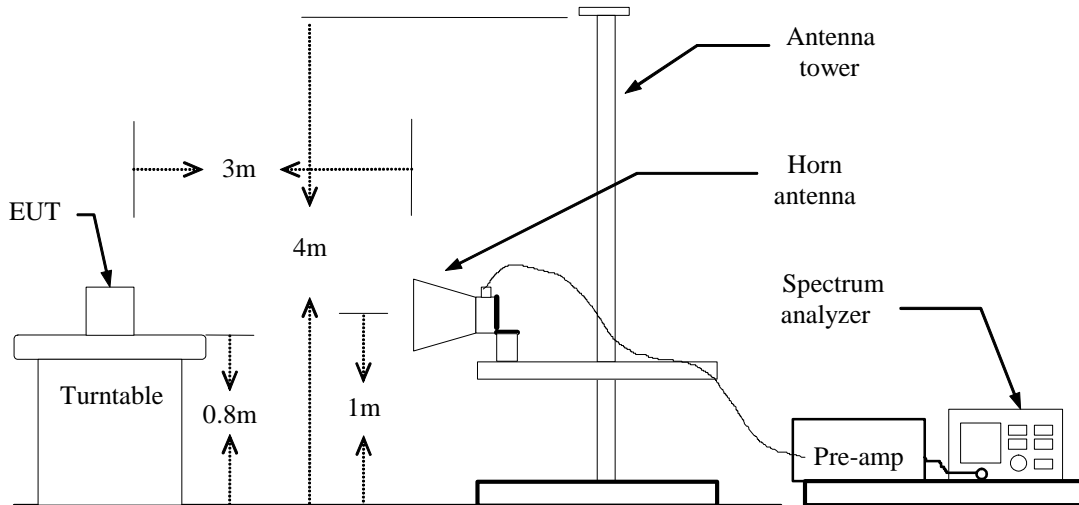
Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration

Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=100kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.



TEST RESULTS

Below 1 GHz

Operation Mode: Normal Link

Test Date: September 16, 2006

Temperature: 25°C

Tested by: ruth

Humidity: 45 % RH

Polarity: Ver. / Hor.

| Freq. (MHz) | Ant.Pol. H/V | Detector Mode (PK/QP) | Reading (dBuV) | Factor (dB) | Actual FS (dBuV/m) | Limit 3m (dBuV/m) | Safe Margin (dB) |
|----------------|-----------------|-----------------------------|-------------------|----------------|-----------------------|----------------------|------------------------|
| 96.012 | V | Peak | 38.91 | -13.16 | 25.75 | 30 | -4.25 |
| 176.0922 | V | Peak | 35.44 | -9.53 | 25.91 | 30 | -4.09 |
| 239.9399 | V | Peak | 41.77 | -9.62 | 32.15 | 37 | -4.85 |
| 479.5591 | V | Peak | 30.74 | -2.41 | 28.33 | 37.0 | -8.67 |
| 559.519 | V | Peak | 28.71 | -0.66 | 28.05 | 37.0 | -8.95 |
| 800.8016 | V | Peak | 28.4 | 2.96 | 31.36 | 37.0 | -5.64 |
| | | | | | | | |
| 35.9519 | H | Peak | 28.75 | -5.72 | 23.03 | 30 | -6.97 |
| 96.012 | H | Peak | 35.1 | -13.16 | 21.94 | 30 | -8.06 |
| 173.9279 | H | Peak | 32.74 | -9.47 | 23.27 | 30 | -6.73 |
| 244.8096 | H | Peak | 40.94 | -9.45 | 31.49 | 37 | -5.51 |
| 374.3487 | H | Peak | 32.27 | -5.38 | 26.89 | 37.0 | -10.11 |
| 558.1162 | H | Peak | 30.05 | -0.68 | 29.37 | 37.0 | -7.63 |

Notes:

1. Measuring frequencies from 30 MHz to the 1GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



Above 1 GHz

Operation Mode: TX/ CH Low

Test Date: September 16, 2006

Temperature: 25°C

Tested by: ruth

Humidity: 48 % RH

Polarity: Ver. / Hor.

| Freq. (MHz) | Ant. Pol H/V | Peak Reading (dBuV) | AV Reading (dBuV) | Ant. / CL CF (dB) | Actual Fs | | Peak Limit (dBuV/m) | AV Limit (dBuV/m) | Margin (dB) | Remark |
|-------------|--------------|---------------------|-------------------|-------------------|---------------|-------------|---------------------|-------------------|-------------|--------|
| | | | | | Peak (dBuV/m) | AV (dBuV/m) | | | | |
| 3221.56 | V | 44.08 | 29.8 | 10.56 | 54.64 | 40.36 | 74 | 54 | -13.64 | Avg |
| 4812.32 | V | 38.98 | 30.99 | 14.98 | 54.99 | 43.99 | 74 | 54 | -10.01 | Avg |
| 7210.33 | V | 39.83 | 30.75 | 15.21 | 55.04 | 45.96 | 74 | 54 | -8.04 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 3220.78 | H | 46.34 | 30.07 | 10.56 | 56.9 | 40.63 | 74 | 54 | -13.37 | Avg |
| 4811.98 | H | 39.21 | 31.02 | 14.98 | 54.98 | 43.32 | 74 | 54 | -10.68 | Avg |
| 7209.46 | H | 39.82 | 30.44 | 15.21 | 55.03 | 45.65 | 74 | 54 | -8.35 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX/ CH Mid

Test Date: September 16, 2006

Temperature: 24°C

Tested by: ruth

Humidity: 46 % RH

Polarity: Ver. / Hor.

| Freq. (MHz) | Ant. Pol H/V | Peak Reading (dBuV) | AV Reading (dBuV) | Ant. / CL CF (dB) | Actual Fs | | Peak Limit (dBuV/m) | AV Limit (dBuV/m) | Margin (dB) | Remark |
|-------------|--------------|---------------------|-------------------|-------------------|---------------|-------------|---------------------|-------------------|-------------|--------|
| | | | | | Peak (dBuV/m) | AV (dBuV/m) | | | | |
| 2910.33 | V | 46.28 | 28.18 | 10.21 | 56.49 | 38.39 | 74 | 54 | -15.61 | Avg |
| 4884.65 | V | 40.65 | 31.98 | 15.65 | 55.98 | 40.21 | 74 | 54 | -13.79 | Avg |
| 7324.56 | V | 41.15 | 30.12 | 15.84 | 56.99 | 45.96 | 74 | 54 | -8.04 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 2911.15 | H | 38.99 | 30.73 | 10.21 | 49.2 | 40.94 | 74 | 54 | -13.06 | Avg |
| 4883.98 | H | 40.23 | 31.98 | 15.65 | 55.99 | 41.56 | 74 | 54 | -12.44 | Avg |
| 7325.06 | H | 40.72 | 30.05 | 15.84 | 56.56 | 45.89 | 74 | 54 | -8.11 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



Operation Mode: TX/ CH High

Test Date: September 16, 2006

Temperature: 25°C

Tested by: ruth

Humidity: 46 % RH

Polarity: Ver. / Hor.

| Freq. (MHz) | Ant. Pol H/V | Peak Reading (dBuV) | AV Reading (dBuV) | Ant. / CL CF (dB) | Actual Fs | | Peak Limit (dBuV/m) | AV Limit (dBuV/m) | Margin (dB) | Remark |
|-------------|--------------|---------------------|-------------------|-------------------|---------------|-------------|---------------------|-------------------|-------------|--------|
| | | | | | Peak (dBuV/m) | AV (dBuV/m) | | | | |
| 2908.33 | V | 39.73 | 26.75 | 10.21 | 49.94 | 36.96 | 74 | 54 | -17.04 | Avg |
| 4954.56 | V | 39.51 | 34.21 | 15.98 | 50.65 | 38.65 | 74 | 54 | -15.35 | Avg |
| 7439.67 | V | 39.76 | 29.7 | 16.19 | 55.95 | 45.89 | 74 | 54 | -8.11 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| 2907.63 | H | 39.53 | 30.5 | 10.21 | 49.74 | 40.71 | 74 | 54 | -13.29 | Avg |
| 4953.65 | H | 39.65 | 33.98 | 15.98 | 55.98 | 40.99 | 74 | 54 | -13.01 | Avg |
| 7440.01 | H | 40.87 | 29.46 | 16.19 | 57.06 | 45.65 | 74 | 54 | -8.35 | Avg |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Spectrum setting:
 - a. Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.
 - b. AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.



7.9 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

| Frequency Range (MHz) | Limits (dBµV) | |
|-----------------------|---------------|----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

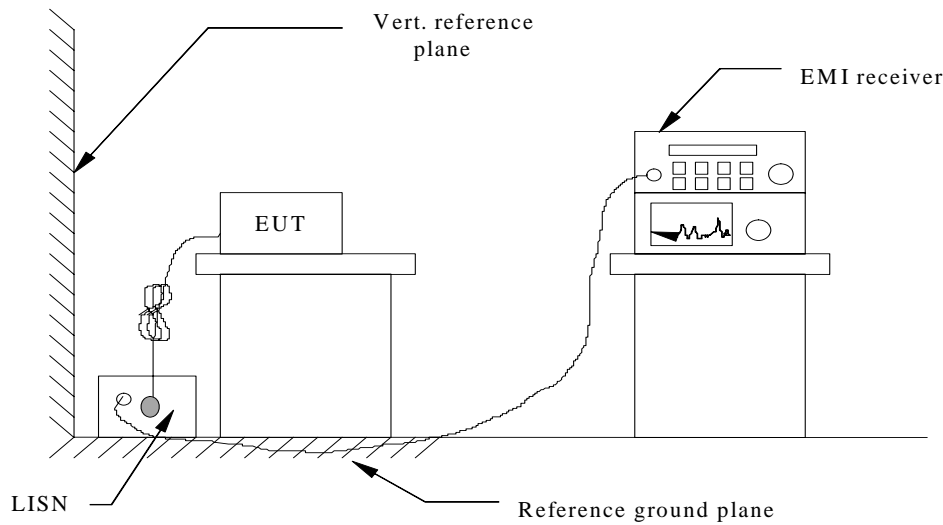
Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

MEASUREMENT EQUIPMENT USED

| Conducted Emission Test Site A (10m chamber) | | | | |
|----------------------------------------------|--------------|--------------------|---------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
| EMI Test Receiver | R&S | ESI26 | 100068 | 02/11/2007 |
| EMC Analyzer | Agilent | E7402A | US41160329 | 02/11/2007 |
| LISN | FCC | FCC-LISN-50-50-2-M | 01067 | 02/11/2007 |
| LISN (EUT) | FCC | FCC-LISN-50-50-2-M | 01068 | 02/11/2007 |
| TRANSIENT LIMITER | SCHAFFNER | CFL9206 | 1710 | 03/15/2007 |
| EMI Monitor control box | FCC | 0-SVDC | N/A | N/A |

Remark: Each piece of equipment is scheduled for calibration once a year.

Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.



| | | | |
|---------------------------------|---------------------------------|------------------------------|--------------------|
| Model No. | XTB70 | Test Mode | Normal Link |
| Environmental Conditions | 25deg.C, 65% RH, 991 hPa | 6dB BANDWIDTH | 9 kHz |
| Tested by: | RUTH | FOR FSC DELTA ADAPTER | |

| Frequency (KHz) | QP Reading (dBuV) | AV Reading (dBuV) | Corr. factor (dB) | QP Result (dBuV) | AV Result (dBuV) | QP Limit (dBuV) | AV Limit (dBuV) | QP Margin (dB) | AV Margin (dB) | Note |
|-----------------|-------------------|-------------------|-------------------|------------------|------------------|-----------------|-----------------|----------------|----------------|------|
| 150 | 41.1 | 39.71 | 10.38 | 51.48 | 50.09 | 66.00 | 56.00 | -14.52 | -5.91 | L1 |
| 160.9 | 7.26 | 8.13 | 10.38 | 17.64 | 18.51 | 65.69 | 55.69 | -48.05 | -37.18 | L1 |
| 314.9 | 11.94 | 13.02 | 10.4 | 22.34 | 23.42 | 61.29 | 51.29 | -38.95 | -27.87 | L1 |
| 318.2 | 12.55 | 14.68 | 10.4 | 22.95 | 25.08 | 61.19 | 51.19 | -38.24 | -26.11 | L1 |
| 4285.6 | 11.36 | 9.54 | 10.66 | 22.02 | 20.2 | 56.00 | 46.00 | -33.98 | -25.80 | L1 |
| 20705.8 | 13.75 | 16.95 | 12.35 | 26.1 | 29.3 | 60.00 | 50.00 | -33.90 | -20.70 | L1 |
| | | | | | | | | | | |
| 159.25 | 41.74 | 39.84 | 10.41 | 52.15 | 50.25 | 65.74 | 55.74 | -13.59 | -5.49 | L2 |
| 175.7 | 17.66 | 15.49 | 10.4 | 28.06 | 25.89 | 65.27 | 55.27 | -37.21 | -29.38 | L2 |
| 309.1 | 9.86 | 9.56 | 10.4 | 20.26 | 19.96 | 61.45 | 51.45 | -41.19 | -31.49 | L2 |
| 430.9 | 7.47 | 8.13 | 10.4 | 17.87 | 18.53 | 57.97 | 47.97 | -40.10 | -29.44 | L2 |
| 2701.2 | 9.94 | 13.81 | 10.54 | 20.48 | 24.35 | 56.00 | 46.00 | -35.52 | -21.65 | L2 |
| 20723.8 | 12.63 | 17.47 | 12.71 | 25.34 | 30.18 | 60.00 | 50.00 | -34.66 | -19.82 | L2 |

REMARKS: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

| | | | |
|---------------------------------|---------------------------------|--------------------------------|--------------------|
| Model No. | XTB70 | Test Mode | Normal Link |
| Environmental Conditions | 25deg.C, 65% RH, 991 hPa | 6dB BANDWIDTH | 9 kHz |
| Tested by: | RUTH | FOR FSC LI SHIN ADAPTER | |

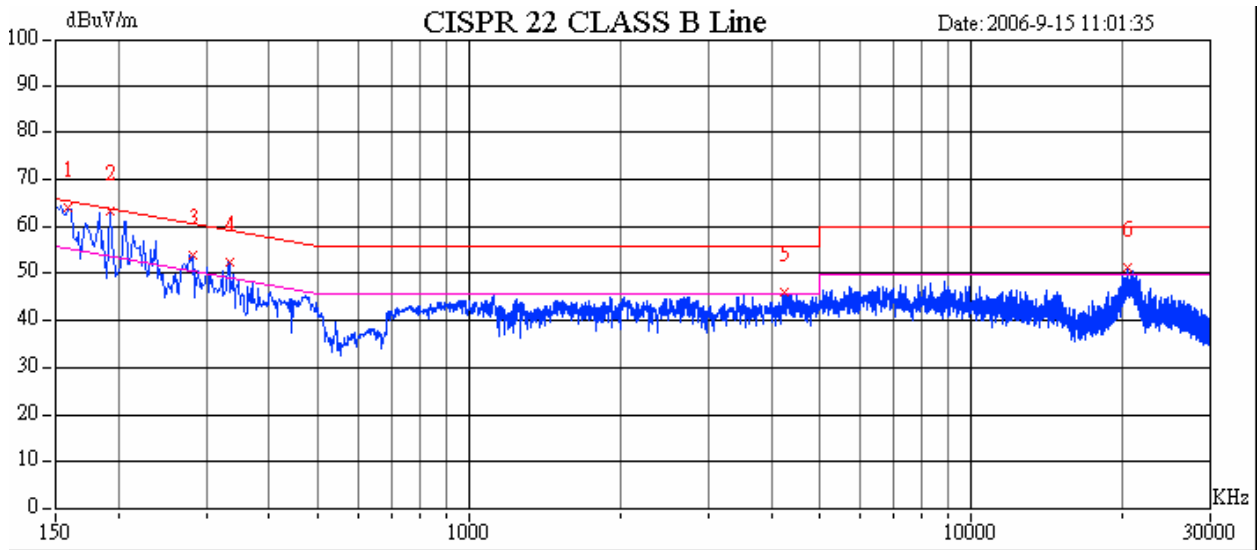
| Frequency (KHz) | QP Reading (dBuV) | AV Reading (dBuV) | Corr. factor (dB) | QP Result (dBuV) | AV Result (dBuV) | QP Limit (dBuV) | AV Limit (dBuV) | QP Margin (dB) | AV Margin (dB) | Note |
|-----------------|-------------------|-------------------|-------------------|------------------|------------------|-----------------|-----------------|----------------|----------------|------|
| 183.9 | 25.47 | 25.83 | 10.36 | 35.83 | 36.19 | 65.03 | 55.03 | -29.20 | -18.84 | L1 |
| 248.1 | 23.55 | 24.02 | 10.4 | 33.95 | 34.42 | 63.20 | 53.20 | -29.25 | -18.78 | L1 |
| 499.7 | 18.7 | 19.49 | 10.41 | 29.11 | 29.9 | 56.01 | 46.01 | -26.90 | -16.11 | L1 |
| 1498.1 | 15.5 | 15.57 | 10.43 | 25.93 | 26 | 56.00 | 46.00 | -30.07 | -20.00 | L1 |
| 3990.5 | 13.07 | 13.37 | 10.51 | 23.58 | 23.88 | 56.00 | 46.00 | -32.42 | -22.12 | L1 |
| 11788.7 | 16.3 | 15.85 | 11.47 | 27.77 | 27.32 | 60.00 | 50.00 | -32.23 | -22.68 | L1 |
| | | | | | | | | | | |
| 248.6 | 22.94 | 23.17 | 10.39 | 33.33 | 33.56 | 63.18 | 53.18 | -29.85 | -19.62 | L2 |
| 317.3 | 8.83 | 7.48 | 10.4 | 19.23 | 17.88 | 61.22 | 51.22 | -41.99 | -33.34 | L2 |
| 546.9 | 6.94 | 8.33 | 10.39 | 17.33 | 18.72 | 56.00 | 46.00 | -38.67 | -27.28 | L2 |
| 617.3 | 11.81 | 14.38 | 10.4 | 22.21 | 24.78 | 56.00 | 46.00 | -33.79 | -21.22 | L2 |
| 1182.3 | 12.46 | 12.88 | 10.43 | 22.89 | 23.31 | 56.00 | 46.00 | -33.11 | -22.69 | L2 |
| 4364.6 | 9.1 | 11.02 | 10.69 | 19.79 | 21.71 | 56.00 | 46.00 | -36.21 | -24.29 | L2 |

REMARKS: L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

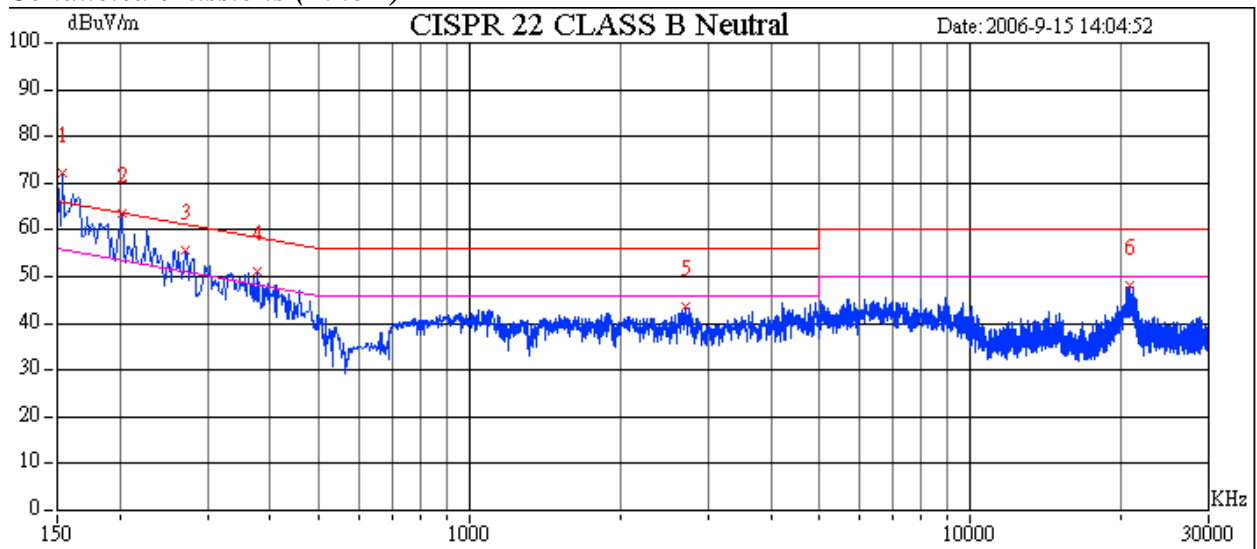


Test Plots (FOR FSC DELTA ADAPTER)

Conducted emissions (Line 1)



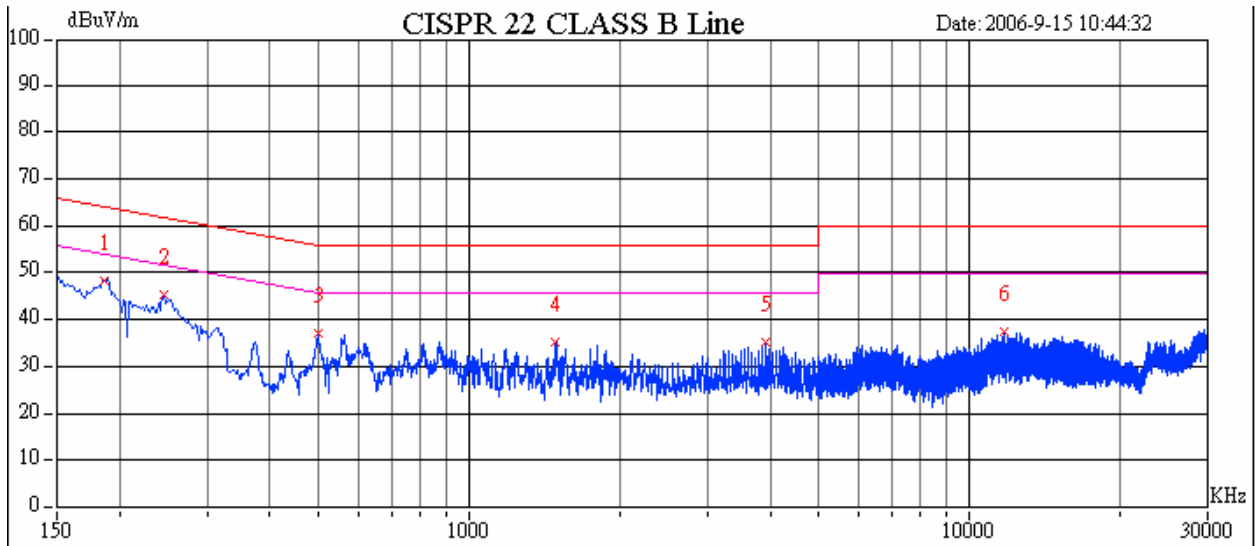
Conducted emissions (Line 2)



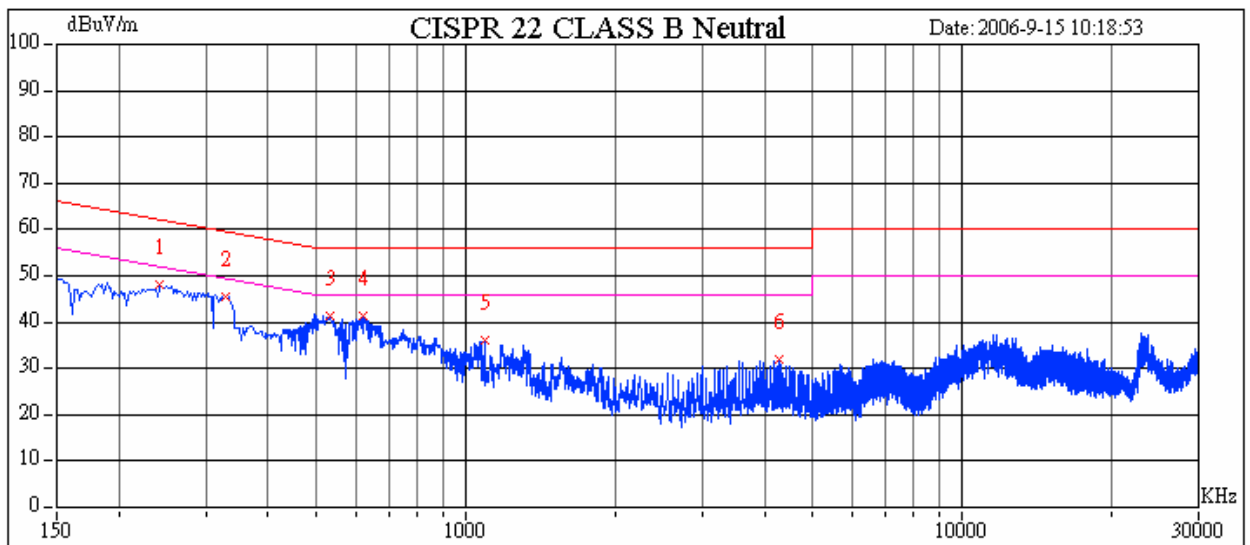


Test Plots(FOR FSC LI SHIN ADAPTER)

Conducted emissions (Line 1)



Conducted emissions (Line 2)





APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Conducted Emissions Setup Photo



Radiated Emissions Setup Photos
Front of view



Back of view



Power Line Conducted Emissions Setup Photos
Front of view



Back of view

