HERMON LABORATORIES

ACCREDITED
839.01
Electrical

Hermon Laboratories Ltd.
P.O.Box 23, Binyamina 30500, Israel
Tel. +972 4628 8001
Fax. +972 4628 8277
E-mail: mail@hermonlabs.com

# TEST REPORT

**ACCORDING TO: FCC part 15 subpart C §15.247**

**FOR:**

## Mobile Access Networks Ltd.

## RF distribution amplifier

## Model:MA850 with new Cisco AP

# Table of contents

# 1 Applicant information

| | |
|---|---|
| **Client name:** | Mobile Access Networks |
| **Address:** | Ofek One Center, Building 2, Nothern Industrial zone, Lod, Israel, 71293 |
| **Telephone:** | +972 8918 3888 |
| **Fax:** | +972 8918 3844 |
| **E-mail:** | kochavy@mobileaccess.com |
| **Contact name:** | Mr. Kochav Yadid, QA and Integration director |

# 2 Equipment under test attributes

| | |
|---|---|
| **Product name:** | RF distribution amplifier |
| **Model(s):** | MA850 with new Cisco AP |
| **Receipt date** | 5/24/2006 |

# 3 Manufacturer information

| | |
|---|---|
| **Manufacturer name:** | Mobile Access Networks |
| **Address:** | Ofek One Center, Building 2, Nothern Industrial zone, Lod, Israel, 71293 |
| **Telephone:** | +972 8918 3888 |
| **Fax:** | +972 8918 3844 |
| **E-Mail:** | kochavy@mobileaccess.com |
| **Contact name:** | Mr. Kochav Yadid, QA and Integration director |

# 4 Test details

| | |
|---|---|
| **Project ID:** | 17138 |
| **Location:** | Hermon Laboratories Ltd. P.O.Box 23, Binyamina 30500, Israel |
| **Test started:** | 5/24/2006 |
| **Test completed:** | 7/17/2006 |
| **Test specification(s):** | FCC part 15 subpart C, §15.247 |

# 5 Tests summary

| Test | Status |
|---|---|
| **Transmitter characteristics** | |
| Section 15.247(a)2, 6 dB bandwidth | Pass |
| Section 15.247(b)3, Peak output power | Pass |
| Section 15.247(c), Conducted spurious emissions | Pass |
| Section 15.247(c), Radiated spurious emissions | Pass |
| Section 15.247(d), Peak power density | Pass |
| Section 15.203, Antenna requirement | Professional installation is required |
| Section 15.207(a), Conducted emission | Pass |
| **Unintentional emissions** | |
| Section 15.107, Conducted emission at AC power port | Pass |

Testing was completed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

This test report replaces the previously issued test report identified by Doc ID:MOBRAD_FCC.17138.

| | Name and Title | Date | Signature |
|---|---|---|---|
| **Tested by:** | Mr. A. Adelberg, test engineer | July 16, 2006 |  |
| **Reviewed by:** | Mrs. M. Cherniavsky, certification engineer | July 17, 2006 |  |
| **Approved by:** | Mr. M. Nikishin, EMC and radio group leader | July 17, 2006 |  |

# 6 EUT description

## 6.1 General information

The EUT, MobileAccess 850 provides secure and centralized connection for a number of 802.11a/b/g Access Points, significantly expands 802.11 coverage and enables distributing the data services over the same coax and antenna infrastructure used for distributing voice services through other MobileAccess products.

## 6.2 Ports and lines

| Port type | Port description | Connected | | Connector type | Qty. | Cable type | Cable length |
|---|---|---|---|---|---|---|---|
| | | From | To | | | | |
| Power | 48 V DC | adapter | EUT | Power plug | 1 | unshielded | 1.5 m |
| Power | AC power | mains | adapter | IEC 60320 | 1 | unshielded | 1.5 m |
| Signal | RS232 | Open circuit | D-type | 1 | NA | NA | NA |
| Signal | Ethernet | Open circuit | RJ-45 | 1 | NA | NA | NA |
| Conducted measurements | | | | | | | |
| Signal | 802.11b/g | EUT | Access point | TNC modified | 1 | coax | 0.7 m |
| Signal | 802.11b/g | EUT | 50 Ω termination | TNC modified | 3 | NA | NA |
| Signal | 802.11a | EUT | Access point | TNC modified | 1 | coax | 0.7 m |
| Signal | 802.11a | EUT | 50 Ω termination | TNC modified | 3 | NA | NA |
| RF | Antenna | EUT | 50 Ω termination | n-type female | 4 | NA | NA |
| RF | CELL mobile services | EUT | Signal generators via divider/splitter | SMA female | 1 | coax | 0.7 m |
| RF | CELL mobile services | EUT | 50 Ω termination | SMA female | 1 | NA | NA |
| RF | PCS mobile services | EUT | 50 Ω termination | SMA female | 2 | NA | NA |
| Radiated measurements | | | | | | | |
| Signal | 802.11b/g | EUT | Access point | TNC modified | 4 | coax | 0.7 m |
| Signal | 802.11a | EUT | Access point | TNC modified | 4 | coax | 0.7 m |
| RF | Antenna | EUT | antenna | n-type female | 4 | coax | 0.7 m |
| RF | CELL mobile services | EUT | Signal generators via divider/splitter | SMA female | 2 | coax | 0.7 m |
| RF | PCS mobile services | EUT | Signal generators via divider/splitter | SMA female | 2 | coax | 0.7 m |

## 6.3 Support and test equipment

| Description | Manufacturer | Model number | Serial number |
|---|---|---|---|
| Aironet 1240AG series 802.11a/b/g Access Point | Cisco Systems | AIR-AP1240AG-A-K9 | FTX1014B26R |
| | | | FTX1013B13Q |
| | | | FTX1015B152 |
| | | | FTX1013B13L |
| Adapter (Access Point) | Cisco Systems | NA | PHI09050DEC |
| | | | PHI08280RGY |
| | | | PHI090803G3 |
| | | | PHI0828126A |
| 4 Sencity®Art Ultra-broadband antennas | Huber+Suhner | SWA 0859/360/4/10/V | Art. No. 23040329 |
| Adapter (EUT) | NA | SB-480A7F-11 | 006291 |
| Signal generator | HP | E4431B | U538220140 |
| Signal generator | HP | 8656A | 2228A03615 |
| Laptop | IBM | 2645-4A0 | 5515FL6 |
| Adapter (laptop) | IBM | N79 | 02K6543 |
| Splitter | HL | NA | NA |
| Divider | HL | NA | NA |

## 6.4 Operating frequencies

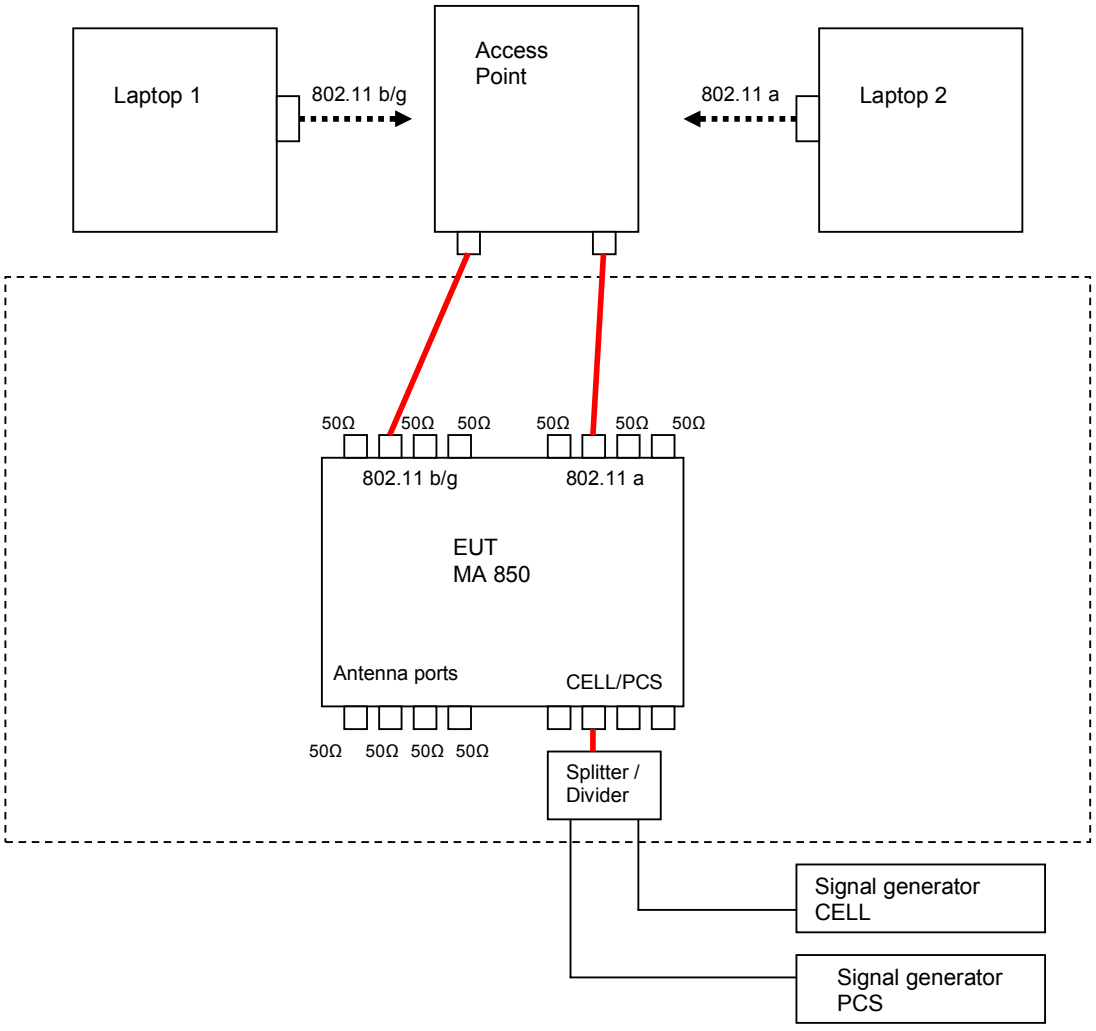
| Frequency, MHz |
|---|
| 800-1000 |
| 1800-2000 |
| 2400-2483.5 |
| 5150-5825 |

## 6.5 Changes made in the EUT

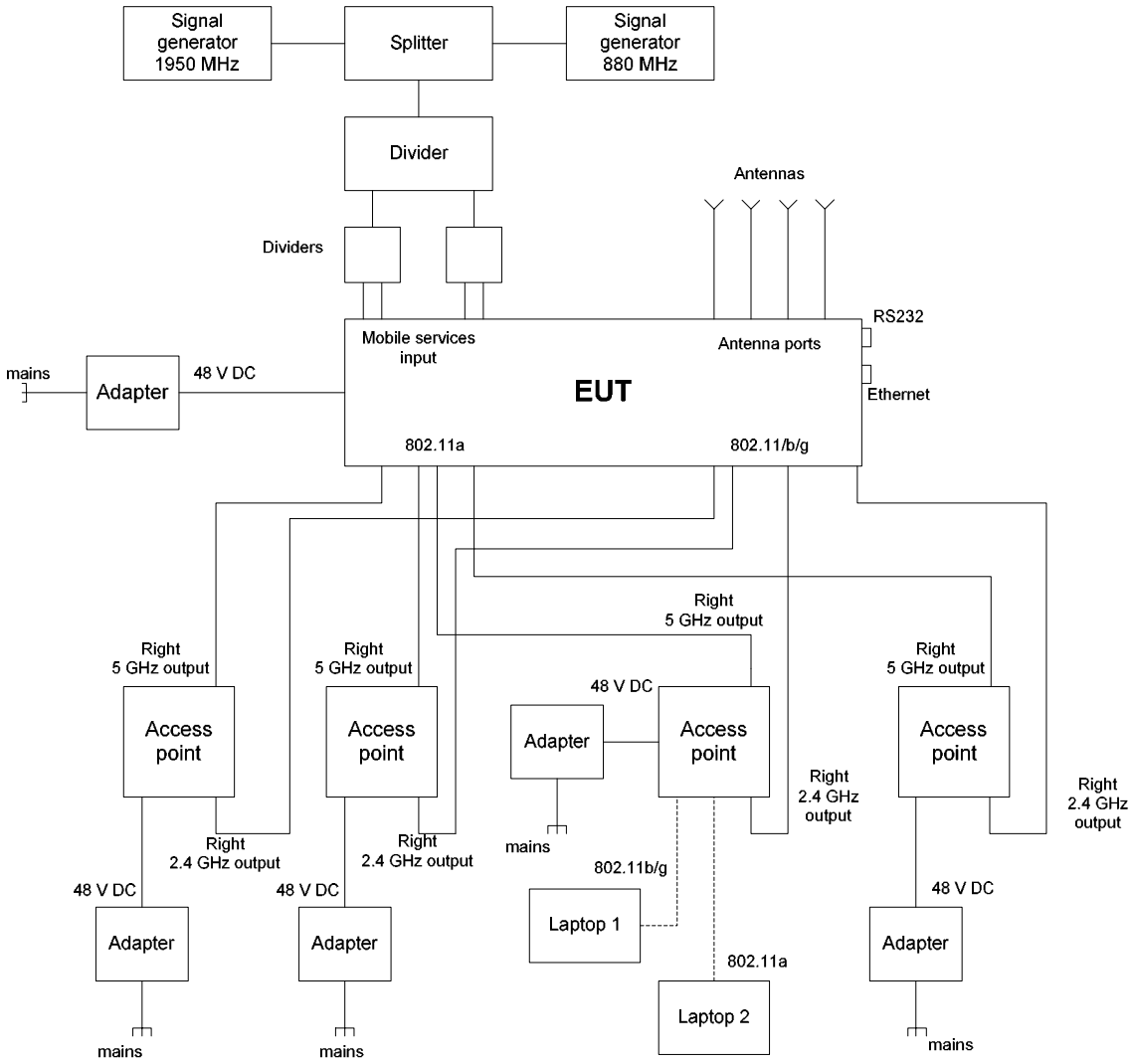
No changes were implemented.

## 6.6 Test configuration

### 6.6.1 EUT setup for conducted measurements



### 6.6.2 EUT setup for radiated measurements



## 6.7 Transmitter characteristics

| **Type of equipment** | |
|---|---|
| | Stand-alone (Equipment with or without its own control provisions) |
| X | Combined equipment (Equipment where the radio part is fully integrated within another type of equipment) |
| | Plug-in card (Equipment intended for a variety of host systems) |

| **Intended use** | | **Condition of use** |
|---|---|---|
| X | fixed | Always at a distance more than 2 m from all people |
| | mobile | Always at a distance more than 20 cm from all people |
| | portable | May operate at a distance closer than 20 cm to human body |

| | |
|---|---|
| **Assigned frequency range** | 1) 5150 – 5825 MHz; 2) 2400 – 2483.5 MHz |
| **Operating frequency range** | 1) 5015 – 5250 MHz, 5250 – 5350 MHz, 5725 - 5825 MHz; 2) 2412 -2462 MHz |

| | | |
|---|---|---|
| **Maximum rated output power** | At transmitter 50 Ω RF output connector | 29.7 dBm (802.11 b/g) |
| | Effective radiated power (for equipment with no RF connector) | |

| | | | | |
|---|---|---|---|---|
| **Is transmitter output power variable?** | | No | | |
| | X | Yes | | continuous variable |
| | | | | stepped variable with stepsize |

| **Antenna connection** | | | | | |
|---|---|---|---|---|---|
| unique coupling | X | standard connector | integral | | with temporary RF connector |
| | | | | X | without temporary RF connector |

**Antenna/s technical characteristics**

| Type | Manufacturer | Model number | Gain |
|---|---|---|---|
| ultra-broadband antenna | HUBER+SUHNER | SWA 0859/360/4/10/V<br>SENCITY-ART | 7 dBi |
| | | | |

| | |
|---|---|
| **Type of modulation** | 16-QAM, QPSK, BPSK |
| **Type of multiplexing** | TDMA |

| **Transmitter power source** | | | | | |
|---|---|---|---|---|---|
| | Battery | **Nominal rated voltage** | | Battery type | |
| X | DC | **Nominal rated voltage** | 48 V | | |
| | AC mains | **Nominal rated voltage** | | Frequency | |

| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 ºC | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

# 7 Transmitter tests according to 47CFR part 15 subpart C requirements

## 7.1 Minimum 6 dB bandwidth

### 7.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 7.1.1.

**Table 7.1.1 The 6 dB bandwidth limits**

| Assigned frequency, MHz | Modulation envelope reference points*, dBc | Minimum bandwidth, kHz |
|---|---|---|
| 902.0 – 928.0 | 6.0 | 500.0 |
| **2400.0 – 2483.5** | | |
| 5725.0 – 5850.0 | | |

* - Modulation envelope reference points provided in terms of attenuation below the peak of modulated carrier.

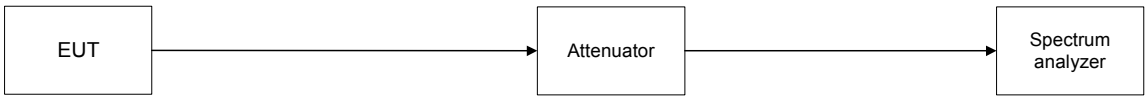
### 7.1.2 Test procedure

**7.1.2.1** The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.

**7.1.2.2** The EUT was set to transmit modulated carrier.

**7.1.2.3** The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.1.2, Table 7.1.3 and associated plots.

**Figure 7.1.1 The 6 dB bandwidth test setup**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 ºC | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Table 7.1.2 The 6 dB bandwidth test results**

ASSIGNED FREQUENCY BAND: 2400 – 2483.5 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: -6.0 dBc
MODULATION: DSSS: (DBPSK) @ 1 Mbps, (CCK) @ 11 Mbps
OFDM: BPSK @ 6 Mbps, 64-QAM @ 54 Mbps
MODULATING SIGNAL: PRBS
INPUTS: 802.11 b/g + 802.11 a

| Carrier frequency, MHz | 6 dB bandwidth, kHz | Limit, kHz | Margin, kHz | Verdict |
|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | |
| 2412 | 10012.5 | 500 | 9512.5 | Pass |
| 2437 | 10087.5 | 500 | 9587.5 | Pass |
| 2462 | 10087.5 | 500 | 9587.5 | Pass |
| **DSSS, 11 Mbps** | | | | |
| 2412 | 10500.0 | 500 | 10000.0 | Pass |
| 2437 | 10500.0 | 500 | 10000.0 | Pass |
| 2462 | 10537.5 | 500 | 10037.5 | Pass |
| **OFDM, 6 Mbps** | | | | |
| 2412 | 15062.5 | 500 | 14562.5 | Pass |
| 2437 | 15125.0 | 500 | 14625.0 | Pass |
| 2462 | 10687.5 | 500 | 10187.5 | Pass |
| **OFDM, 54 Mbps** | | | | |
| 2412 | 16250.0 | 500 | 15750.0 | Pass |
| 2437 | 16312.5 | 500 | 15812.5 | Pass |
| 2462 | 16125.0 | 500 | 15625.0 | Pass |

INPUTS: 802.11 b/g + 802.11 a + licensed

| Carrier frequency, MHz | 6 dB bandwidth, kHz | Limit, kHz | Margin, kHz | Verdict |
|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | |
| 2412 | 10050.0 | 500 | 9550.0 | Pass |
| 2437 | 10050.0 | 500 | 9550.0 | Pass |
| 2462 | 9562.5 | 500 | 9062.5 | Pass |
| **DSSS, 11 Mbps** | | | | |
| 2412 | 10050.0 | 500 | 9550.0 | Pass |
| 2437 | 10425.0 | 500 | 9925.0 | Pass |
| 2462 | 9300.0 | 500 | 8800.0 | Pass |
| **OFDM, 6 Mbps** | | | | |
| 2412 | 15000.0 | 500 | 14500.0 | Pass |
| 2437 | 15062.5 | 500 | 14562.5 | Pass |
| 2462 | 11500.0 | 500 | 11000.0 | Pass |
| **OFDM, 54 Mbps** | | | | |
| 2412 | 16375.0 | 500 | 15875.0 | Pass |
| 2437 | 16375.0 | 500 | 15875.0 | Pass |
| 2462 | 15750.0 | 500 | 15250.0 | Pass |

**Reference numbers of test equipment used**

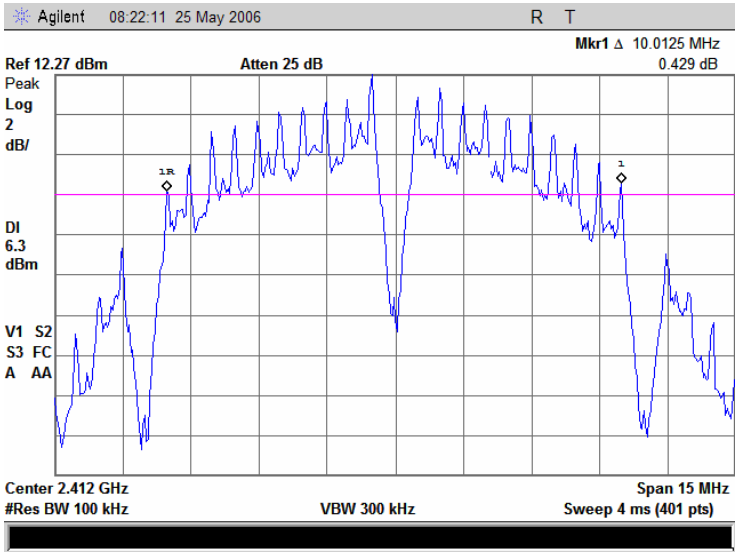
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2780 | HL 2867 | | | | | | |

Full description is given in Appendix A.

| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

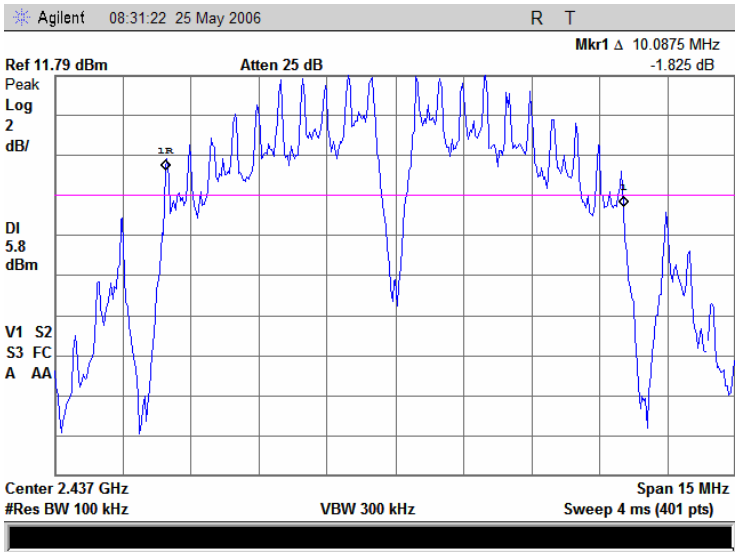
**Plot 7.1.1 The 6 dB bandwidth test result at low frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.2 The 6 dB bandwidth test result at mid frequency, DSSS, 1 Mbps**

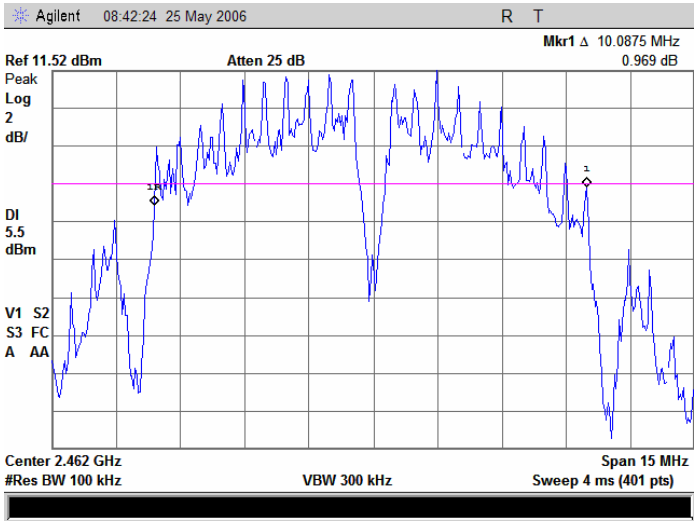
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

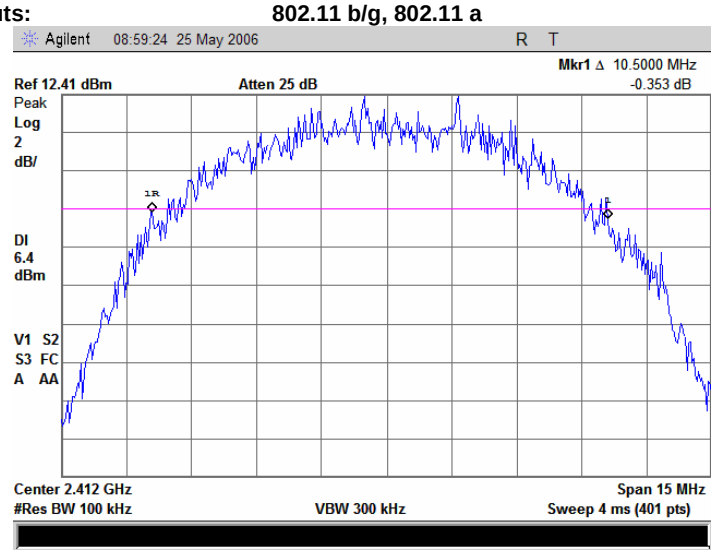
**Plot 7.1.3 The 6 dB bandwidth test result at high frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.4 The 6 dB bandwidth test result at low frequency, DSSS, 11 Mbps**

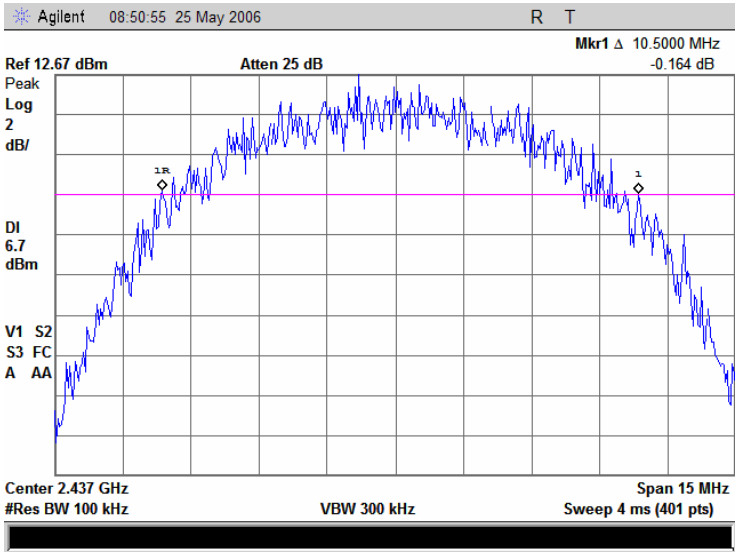
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

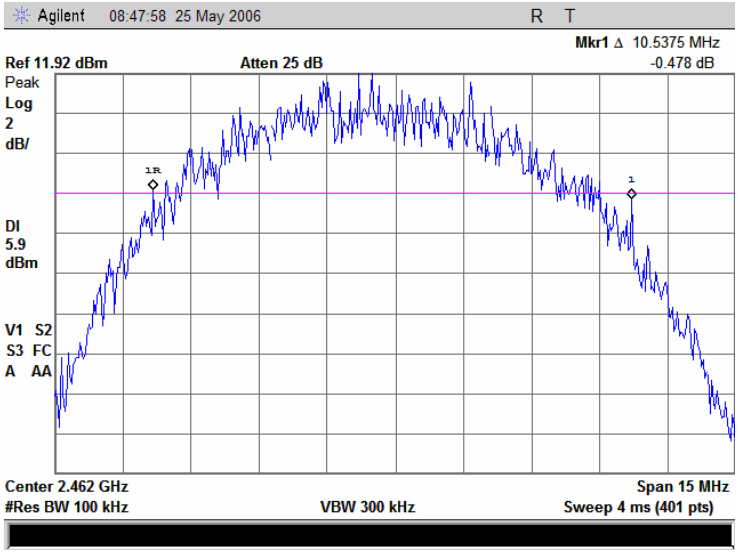
**Plot 7.1.5 The 6 dB bandwidth test result at mid frequency, DSSS, 11 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.6 The 6 dB bandwidth test result at high frequency, DSSS, 11 Mbps**

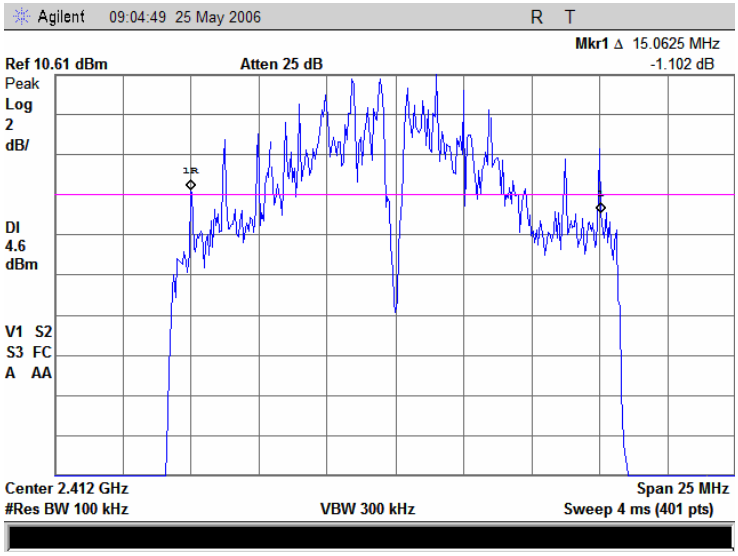
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

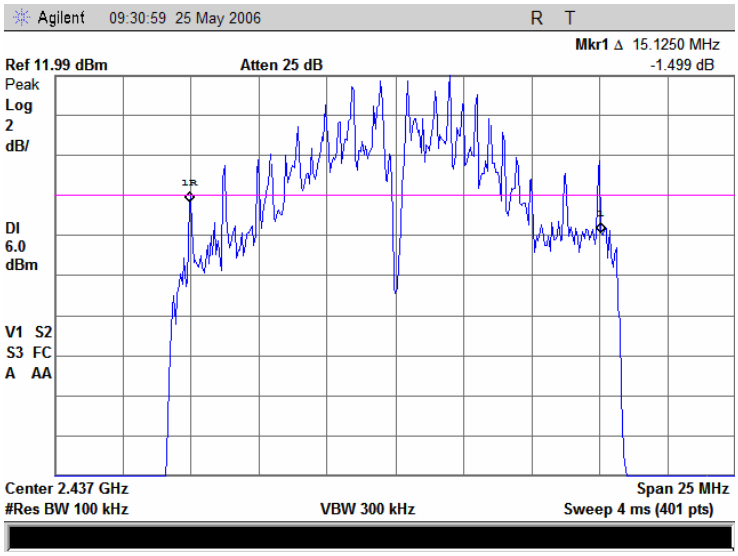
**Plot 7.1.7 The 6 dB bandwidth test result at low frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.8 The 6 dB bandwidth test result at mid frequency, OFDM, 6 Mbps**

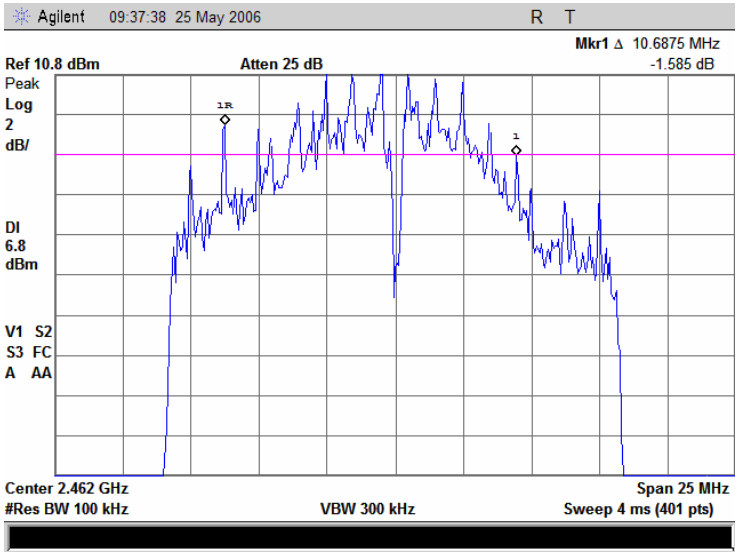
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

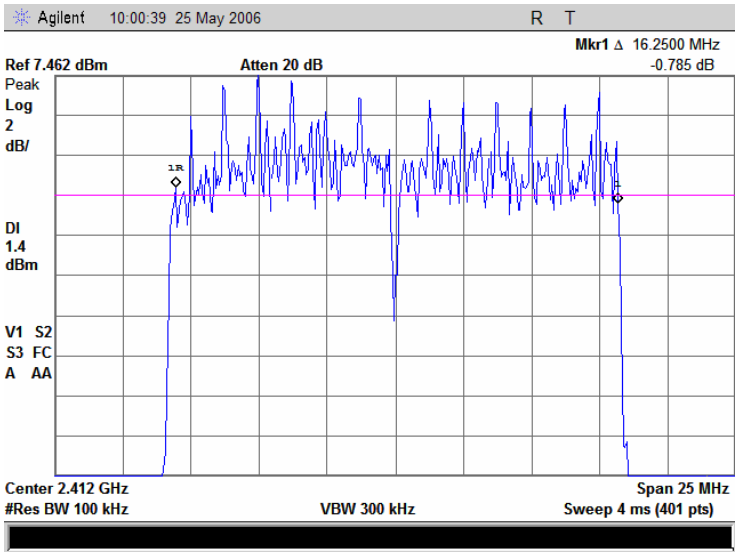
**Plot 7.1.9 The 6 dB bandwidth test result at high frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.10 The 6 dB bandwidth test result at low frequency, OFDM, 54 Mbps**

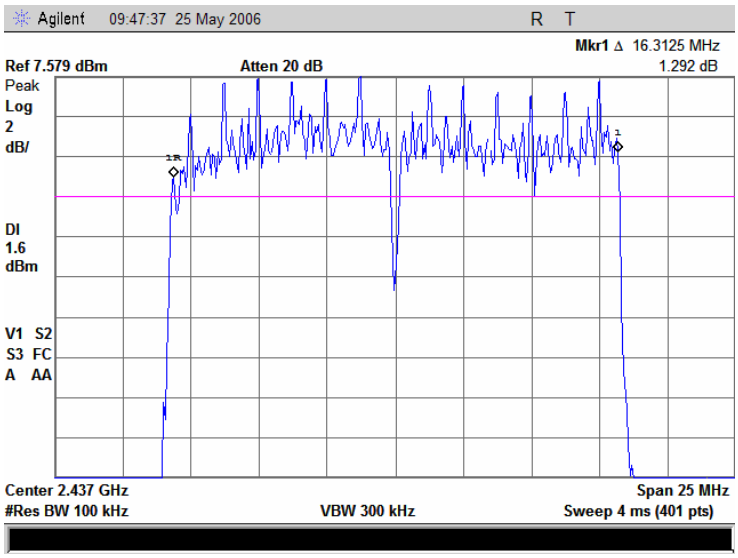
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

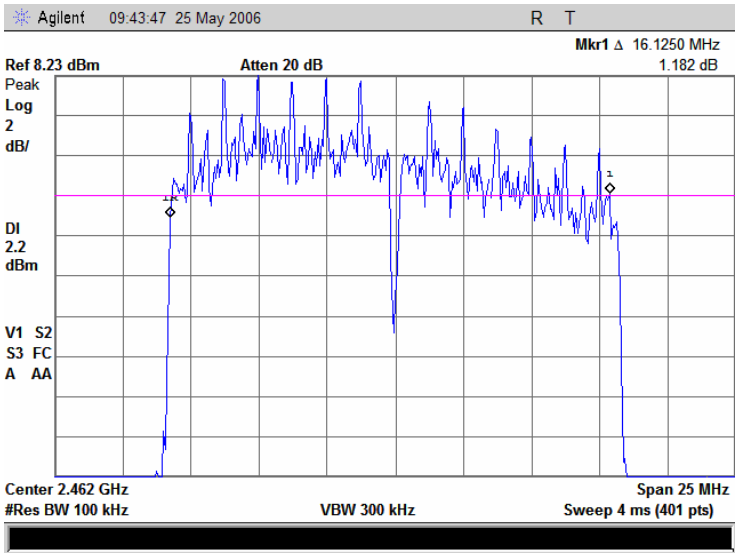
**Plot 7.1.11 The 6 dB bandwidth test result at mid frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g, 802.11 a**




**Plot 7.1.12 The 6 dB bandwidth test result at high frequency, OFDM, 54 Mbps**

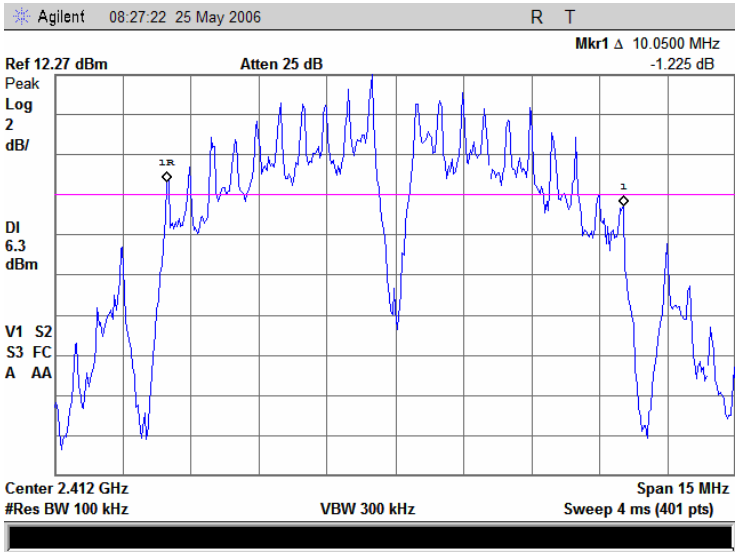
**Inputs:** **802.11 b/g, 802.11 a**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

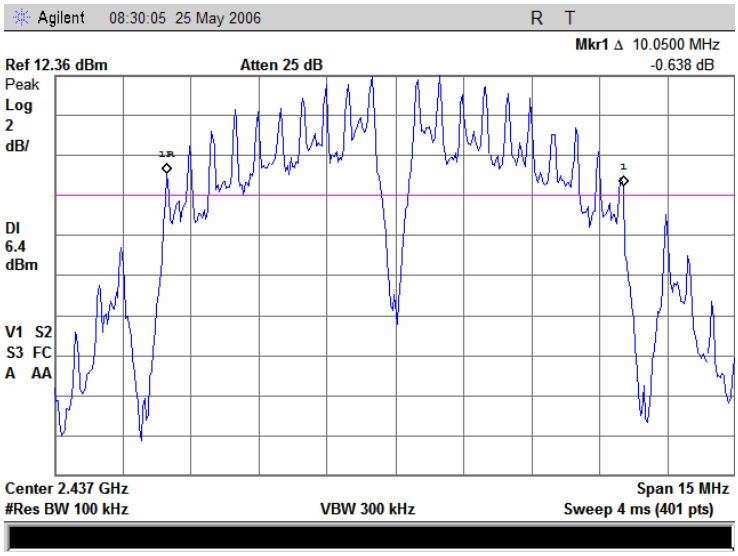
**Plot 7.1.13 The 6 dB bandwidth test result at low frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.14 The 6 dB bandwidth test result at mid frequency, DSSS, 1 Mbps**

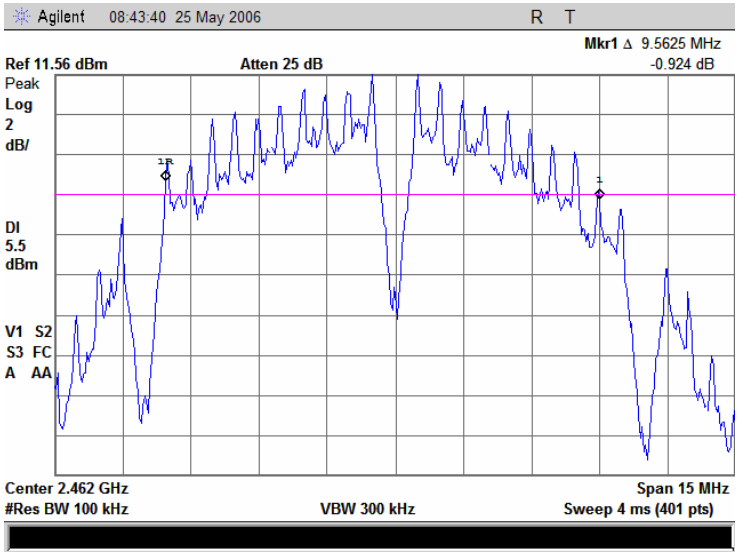
**Inputs:** **802.11 b/g, 802.11 a, licensed**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

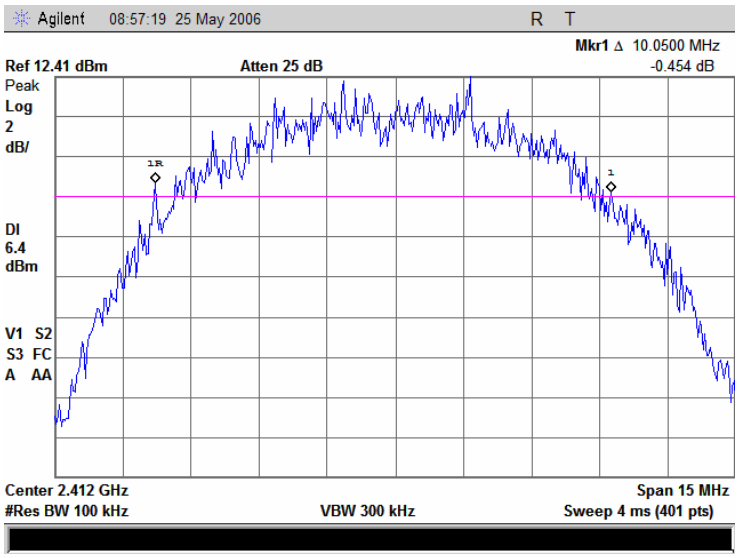
**Plot 7.1.15 The 6 dB bandwidth test result at high frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.16 The 6 dB bandwidth test result at low frequency, DSSS, 11 Mbps**

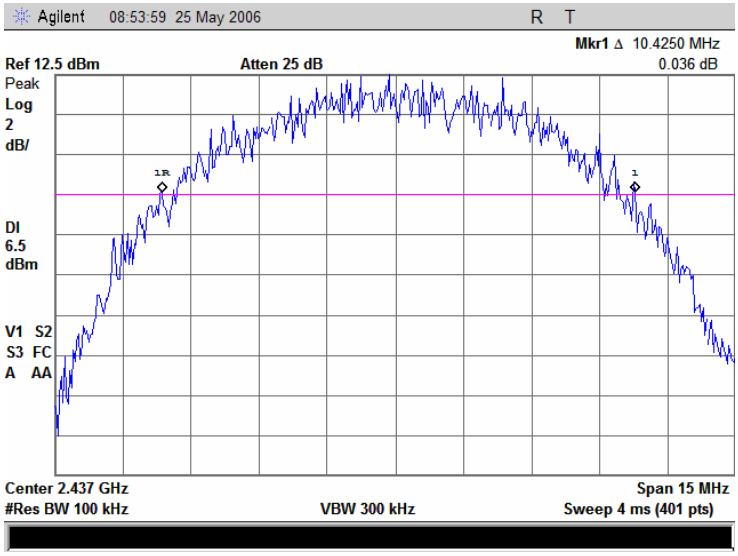
**Inputs:** **802.11 b/g, 802.11 a, licensed**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

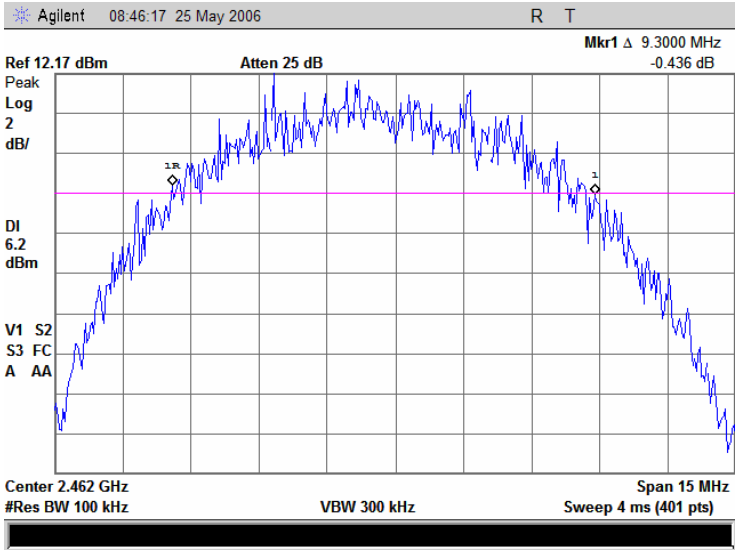
**Plot 7.1.17 The 6 dB bandwidth test result at mid frequency, DSSS, 11 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.18 The 6 dB bandwidth test result at high frequency, DSSS, 11 Mbps**

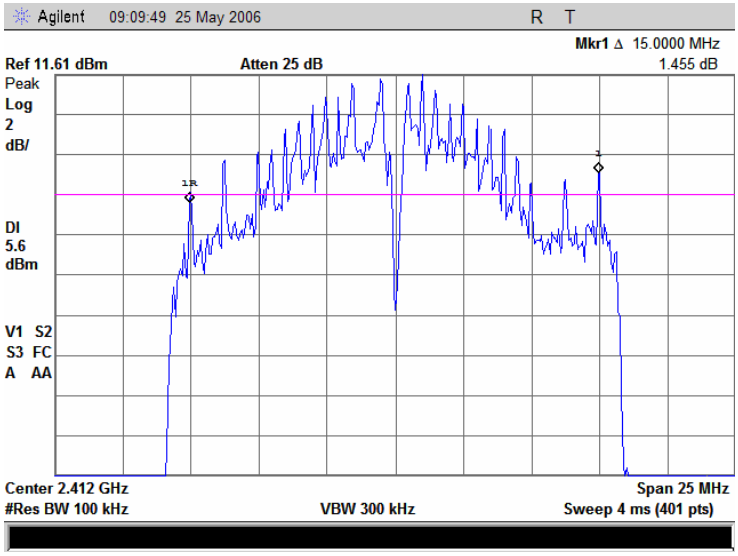
**Inputs:** **802.11 b/g, 802.11 a, licensed**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

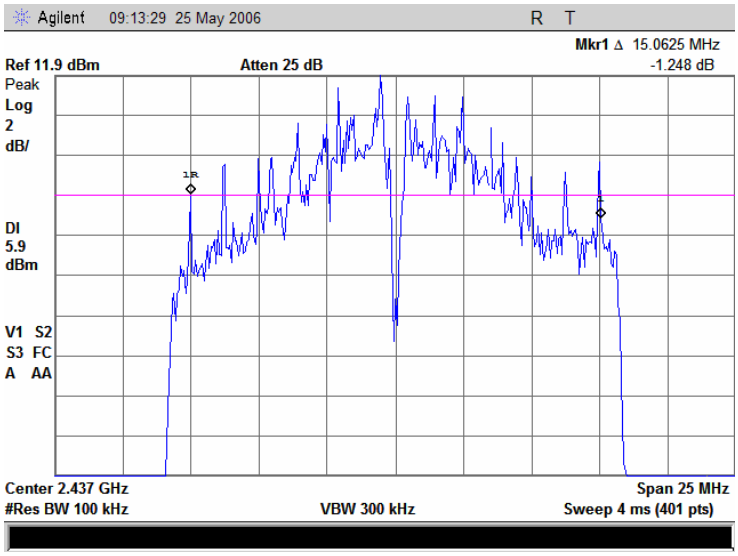
**Plot 7.1.19 The 6 dB bandwidth test result at low frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.20 The 6 dB bandwidth test result at mid frequency, OFDM, 6 Mbps**

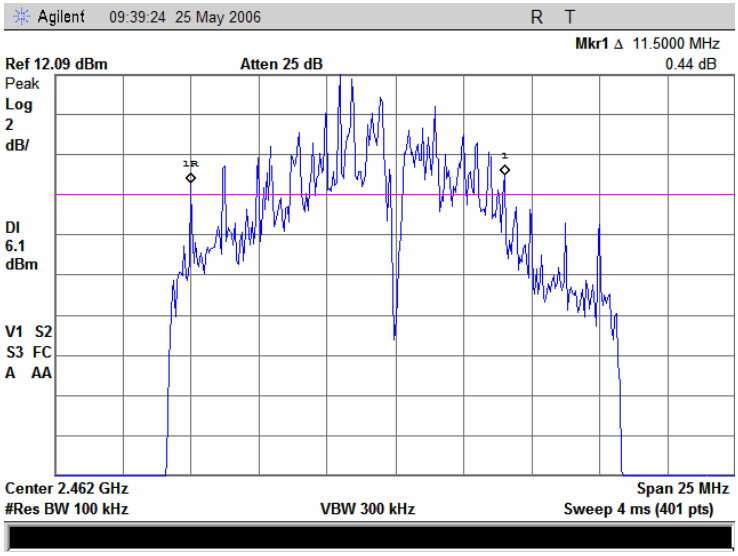
**Inputs:** **802.11 b/g, 802.11 a, licensed**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

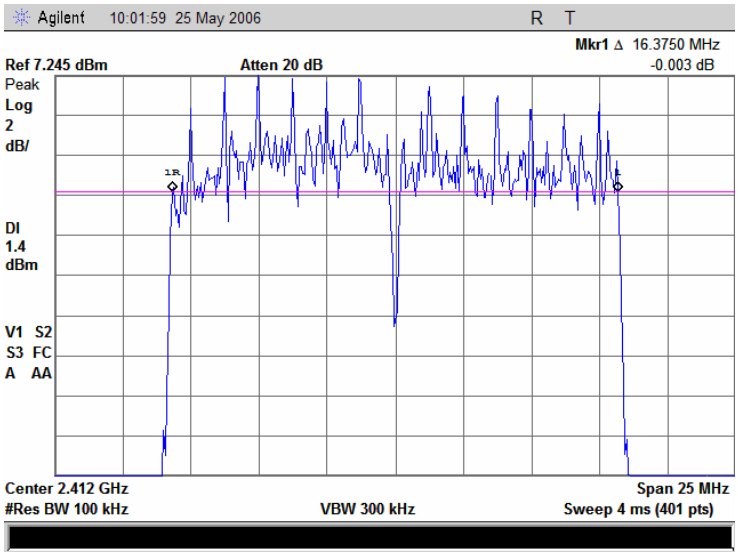
**Plot 7.1.21 The 6 dB bandwidth test result at high frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.22 The 6 dB bandwidth test result at low frequency, OFDM, 54 Mbps**

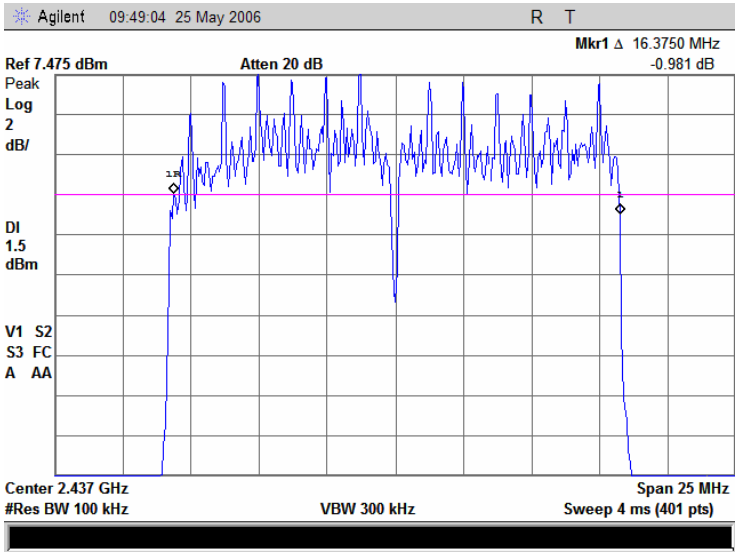
**Inputs:** **802.11 b/g, 802.11 a, licensed**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 11:31:06 AM | | |
| Temperature: 22 °C | Air Pressure: 1010 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: | | | |

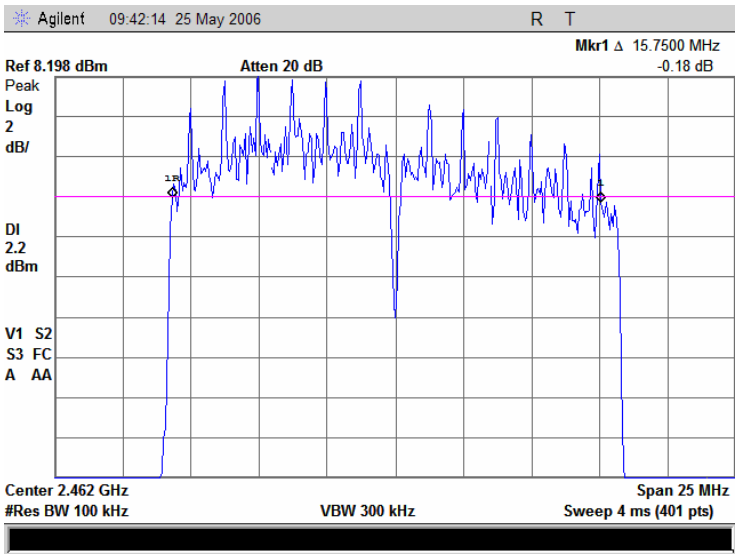
**Plot 7.1.23 The 6 dB bandwidth test result at mid frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**




**Plot 7.1.24 The 6 dB bandwidth test result at high frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g, 802.11 a, licensed**



| **Test specification:** | **Section 15.247(a)2, 6 dB bandwidth** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 6/29/2006 6:42:19 PM | | |
| **Temperature:** 24 ºC | **Air Pressure:** 1015 hPa | **Relative Humidity:** 59 % | **Power Supply:** 120 VAC |
| **Remarks:** 802.11b/g | | | |

**Table 7.1.3 The 6 dB bandwidth test results**

ASSIGNED FREQUENCY BAND: 2400 – 2483.5 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION ENVELOPE REFERENCE POINTS: -6.0 dBc
MODULATION: DSSS: (DBPSK) @ 1 Mbps, (CCK) @ 11 Mbps
OFDM: BPSK @ 6 Mbps, 64-QAM @ 54 Mbps
MODULATING SIGNAL: PRBS
INPUTS: 802.11 b/g

| Carrier frequency, MHz | 6 dB bandwidth, kHz | Limit, kHz | Margin, kHz | Verdict |
|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | |
| 2412 | 9600.0 | 500 | 9100.0 | Pass |
| 2437 | 10087.5 | 500 | 9587.5 | Pass |
| 2462 | 9637.5 | 500 | 9137.5 | Pass |
| **DSSS, 11 Mbps** | | | | |
| 2412 | 10050.0 | 500 | 9550.0 | Pass |
| 2437 | 9412.5 | 500 | 8912.5 | Pass |
| 2462 | 9450.0 | 500 | 8950.0 | Pass |
| **OFDM, 6 Mbps** | | | | |
| 2412 | 16437.5 | 500 | 15937.5 | Pass |
| 2437 | 16500.0 | 500 | 16000.0 | Pass |
| 2462 | 16375.0 | 500 | 15875.0 | Pass |
| **OFDM, 54 Mbps** | | | | |
| 2412 | 15812.5 | 500 | 15312.5 | Pass |
| 2437 | 16500.0 | 500 | 16000.0 | Pass |
| 2462 | 16000.0 | 500 | 15500.0 | Pass |

**Reference numbers of test equipment used**

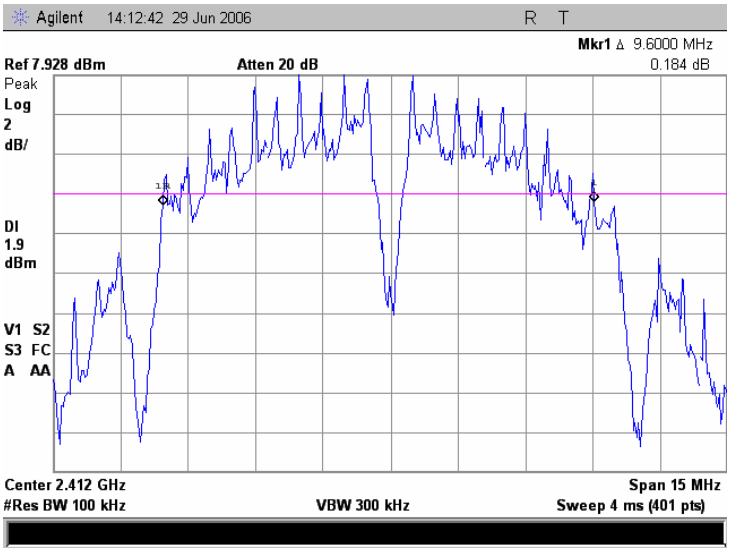
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2524 | HL 2867 | HL 2909 | | | | | |

Full description is given in Appendix A.

| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

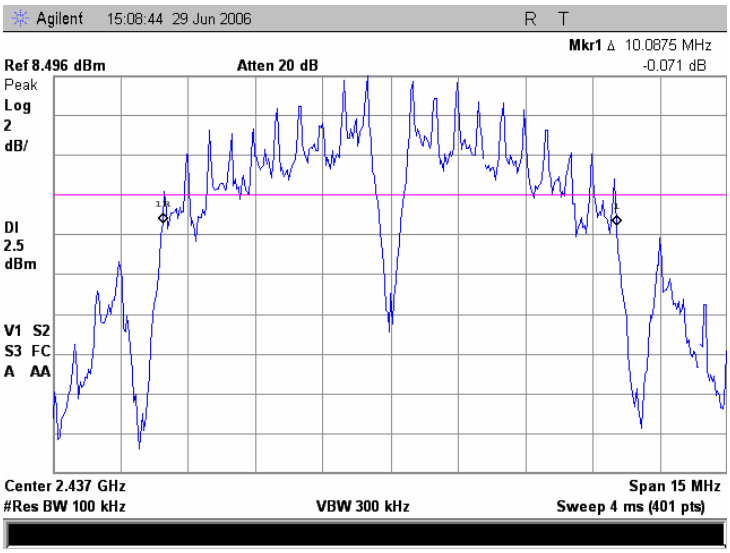
**Plot 7.1.25 The 6 dB bandwidth test result at low frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.26 The 6 dB bandwidth test result at mid frequency, DSSS, 1 Mbps**

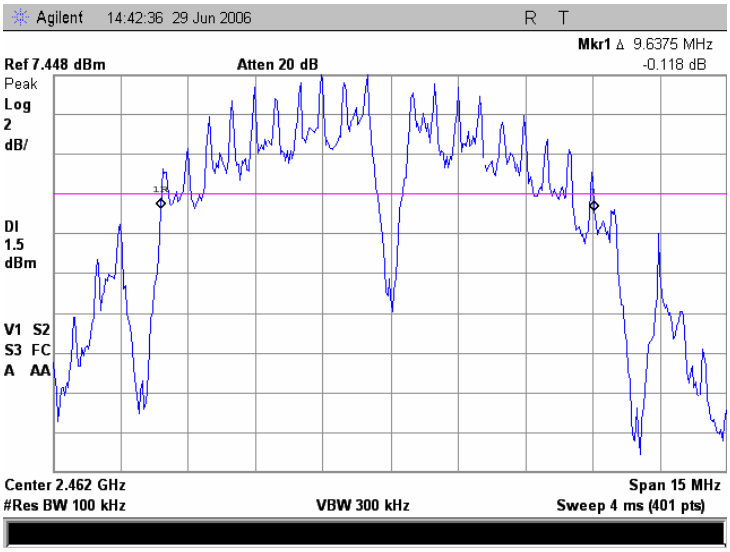
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

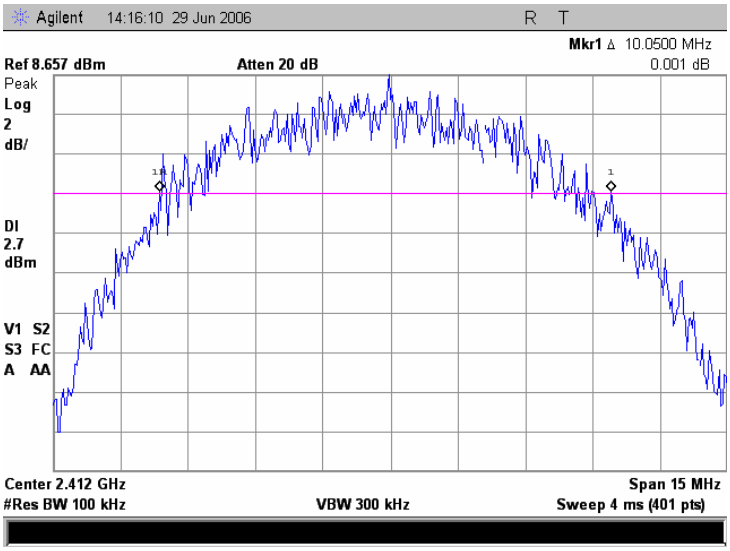
**Plot 7.1.27 The 6 dB bandwidth test result at high frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.28 The 6 dB bandwidth test result at low frequency, DSSS, 11 Mbps**

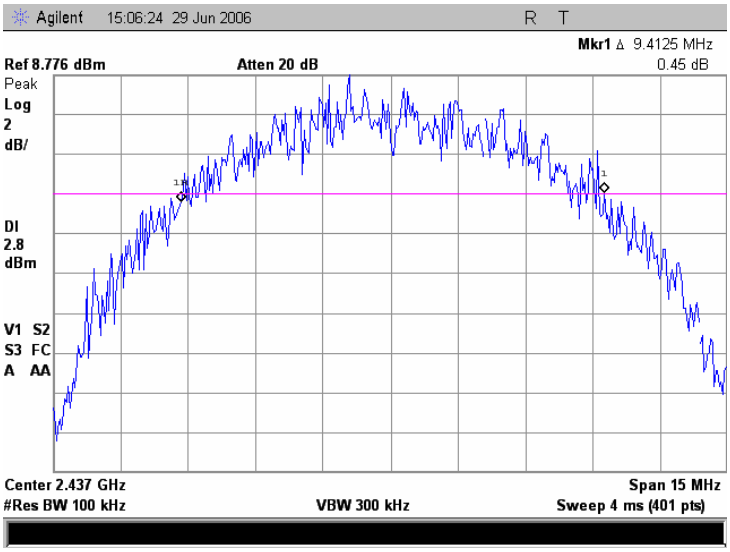
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

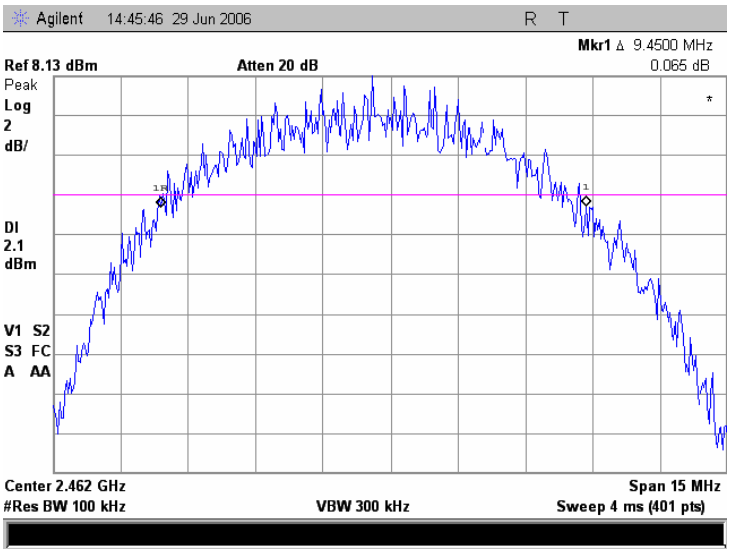
**Plot 7.1.29 The 6 dB bandwidth test result at mid frequency, DSSS, 11 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.30 The 6 dB bandwidth test result at high frequency, DSSS, 11 Mbps**

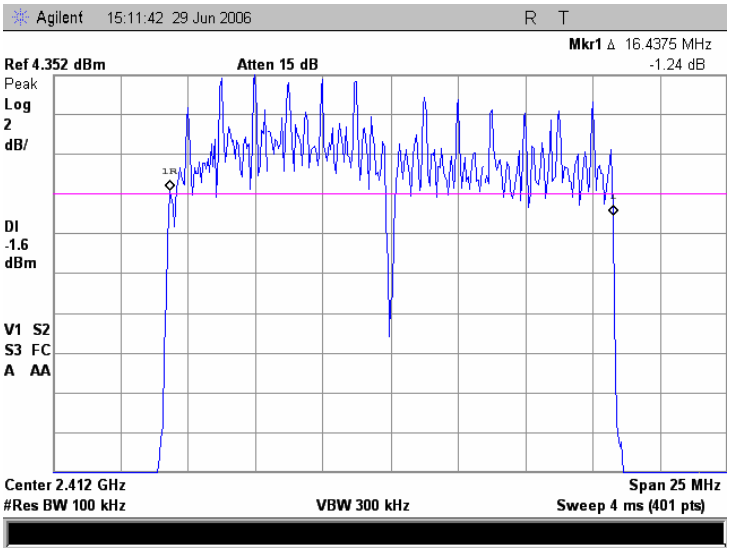
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

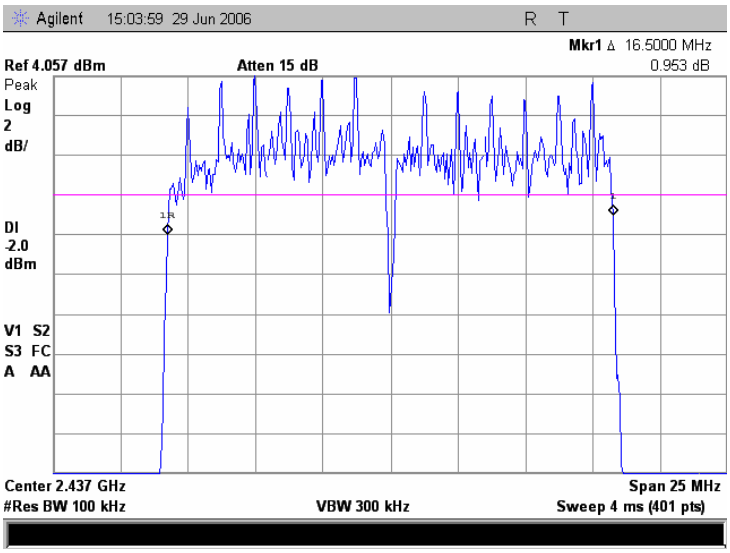
**Plot 7.1.31 The 6 dB bandwidth test result at low frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.32 The 6 dB bandwidth test result at mid frequency, OFDM, 6 Mbps**

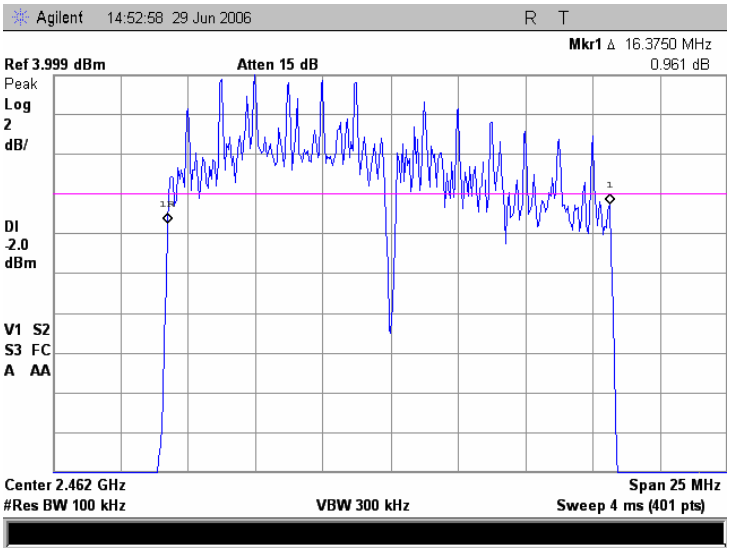
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

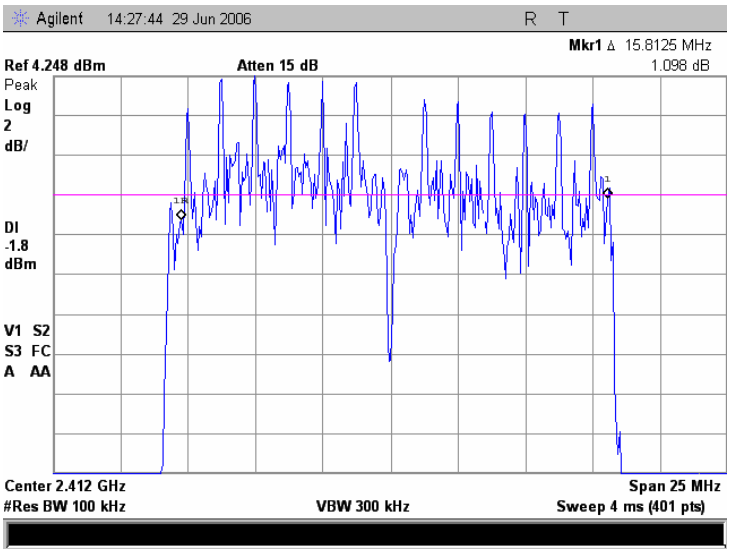
**Plot 7.1.33 The 6 dB bandwidth test result at high frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.34 The 6 dB bandwidth test result at low frequency, OFDM, 54 Mbps**

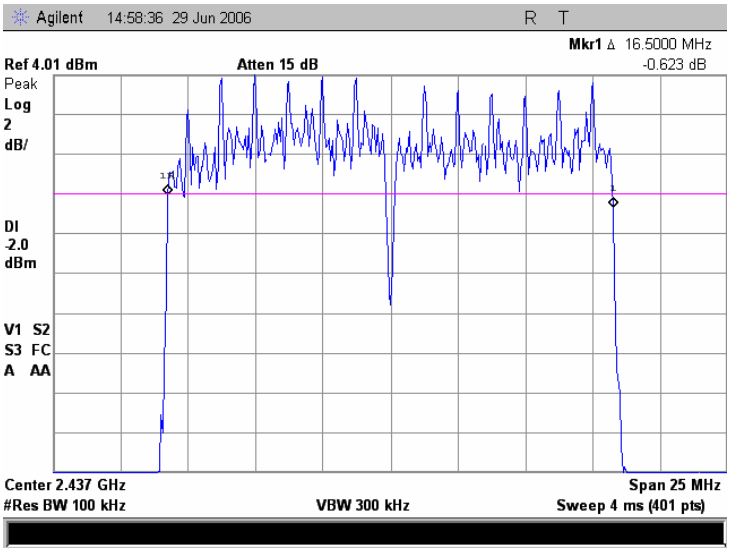
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(a)2, 6 dB bandwidth | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(a)2 | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:42:19 PM | | |
| Temperature: 24 °C | Air Pressure: 1015 hPa | Relative Humidity: 59 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

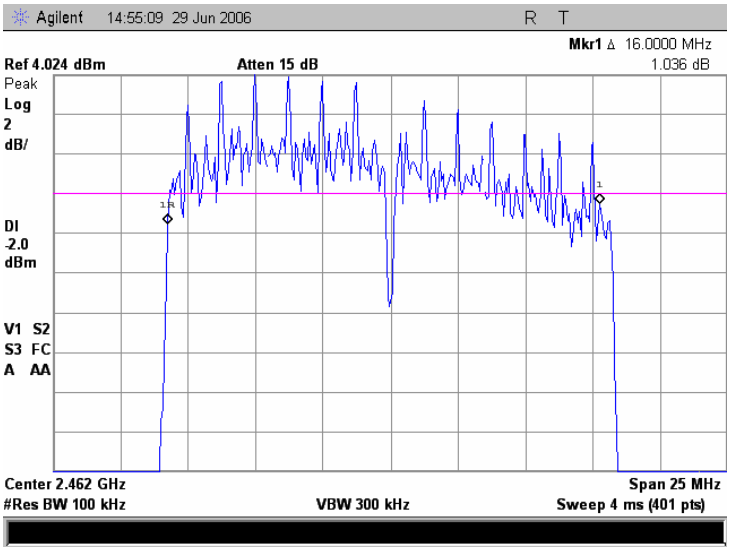
**Plot 7.1.35 The 6 dB bandwidth test result at mid frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.1.36 The 6 dB bandwidth test result at high frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 ºC | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

## 7.2 Peak output power

### 7.2.1 General

This test was performed to measure the maximum peak output power at the transmitter RF antenna connector. Specification test limits are given in Table 7.2.1.

**Table 7.2.1 Peak output power limits**

| Assigned frequency range, MHz | Maximum antenna gain, dBi | Peak output power* | |
|---|---|---|---|
| | | W | dBm |
| 902.0 – 928.0 | 6.0 | 1.0 | 30.0 |
| **2400.0 – 2483.5** | | | |
| 5725.0 – 5850.0 | | | |

*- If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;

without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band;

by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

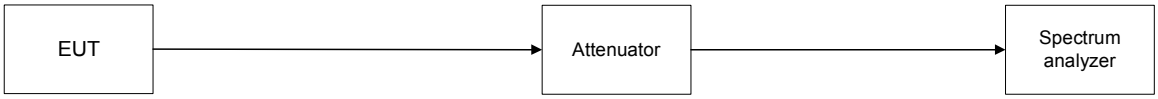
### 7.2.2 Test procedure

**7.2.2.1** The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.

**7.2.2.2** The EUT was adjusted to produce maximum available for end user RF output power.

**7.2.2.3** The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the maximum peak output power was measured as provided in Table 7.2.2, Table 7.2.3 and associated plots.

**Figure 7.2.1 Peak output power test setup**




**Photograph 7.2.1 Peak output power test setup**

| **Test specification:** | **Section 15.247(b)3, Peak output power** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol.62, page 26243, Section 15.247(b) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 5/25/2006 1:35:26 PM | | |
| **Temperature:** 22 ºC | **Air Pressure:** 1013 hPa | **Relative Humidity:** 54 % | **Power Supply:** 120 VAC |
| **Remarks:** | | | |

**Table 7.2.2 Peak output power test results**

ASSIGNED FREQUENCY: 2400.0 – 2483.5 MHz
MODULATION: DBPSK, CCK, BPSK, 64QAM
MODULATING SIGNAL: PRBS
BIT RATE: 1, 11, 6, 54 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
DETECTOR USED: Peak
EUT 6 dB BANDWIDTH: 12.5 MHz (DSSS) / 16.3 MHz (OFDM)
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
INPUTS: 802.11 b/g + 802.11 a

| Carrier frequency, MHz | Spectrum analyzer reading, dBm | External attenuation, dB | Cable loss, dB | Peak output power, dBm | Limit*, dBm | Margin**, dB | Verdict |
|---|---|---|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | | | | |
| 2412 | 25.18 | Included | Included | 25.18 | 29.0 | -3.82 | Pass |
| 2437 | 24.66 | Included | Included | 24.66 | 29.0 | -4.34 | Pass |
| 2462 | 23.94 | Included | Included | 23.94 | 29.0 | -5.06 | Pass |
| **DSSS, 11 Mbps** | | | | | | | |
| 2412 | 26.16 | Included | Included | 26.16 | 29.0 | -2.84 | Pass |
| 2437 | 26.35 | Included | Included | 26.35 | 29.0 | -2.65 | Pass |
| 2462 | 25.22 | Included | Included | 25.22 | 29.0 | -3.78 | Pass |
| **OFDM, 6 Mbps** | | | | | | | |
| 2412 | 24.34 | Included | Included | 24.34 | 29.0 | -4.66 | Pass |
| 2437 | 24.26 | Included | Included | 24.26 | 29.0 | -4.74 | Pass |
| 2462 | 23.82 | Included | Included | 23.82 | 29.0 | -5.18 | Pass |
| **OFDM, 54 Mbps** | | | | | | | |
| 2412 | 22.24 | Included | Included | 22.24 | 29.0 | -6.76 | Pass |
| 2437 | 22.62 | Included | Included | 22.62 | 29.0 | -6.38 | Pass |
| 2462 | 21.86 | Included | Included | 21.86 | 29.0 | -7.14 | Pass |

INPUTS: 802.11 b/g + 802.11 a + licensed

| Carrier frequency, MHz | Spectrum analyzer reading, dBm | External attenuation, dB | Cable loss, dB | Peak output power, dBm | Limit*, dBm | Margin**, dB | Verdict |
|---|---|---|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | | | | |
| 2412 | 24.74 | Included | Included | 24.74 | 29.0 | -4.26 | Pass |
| 2437 | 24.56 | Included | Included | 24.56 | 29.0 | -4.44 | Pass |
| 2462 | 23.98 | Included | Included | 23.98 | 29.0 | -5.02 | Pass |
| **DSSS, 11 Mbps** | | | | | | | |
| 2412 | 26.45 | Included | Included | 26.45 | 29.0 | -2.55 | Pass |
| 2437 | 26.19 | Included | Included | 26.19 | 29.0 | -2.81 | Pass |
| 2462 | 25.03 | Included | Included | 25.03 | 29.0 | -3.97 | Pass |
| **OFDM, 6 Mbps** | | | | | | | |
| 2412 | 24.51 | Included | Included | 24.51 | 29.0 | -4.49 | Pass |
| 2437 | 24.02 | Included | Included | 24.02 | 29.0 | -4.98 | Pass |
| 2462 | 23.77 | Included | Included | 23.77 | 29.0 | -5.23 | Pass |
| **OFDM, 54 Mbps** | | | | | | | |
| 2412 | 22.16 | Included | Included | 22.16 | 29.0 | -6.84 | Pass |
| 2437 | 22.45 | Included | Included | 22.45 | 29.0 | -6.55 | Pass |
| 2462 | 21.58 | Included | Included | 21.58 | 29.0 | -7.42 | Pass |

* - At 7 dBi antenna gain the limits of peak output power shall be reduced by 1 dB.
** - Margin = Peak output power – specification limit.

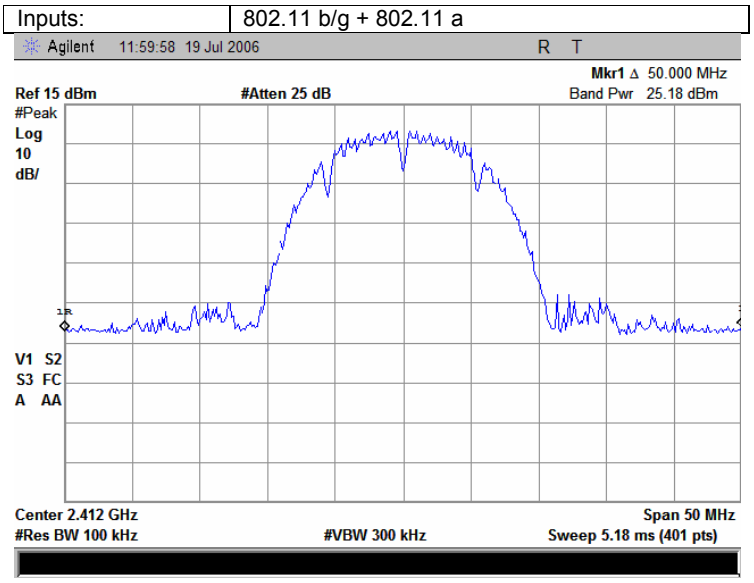
**Reference numbers of test equipment used**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2254 | HL 1200 | HL 2869 | HL 2909 | | | |

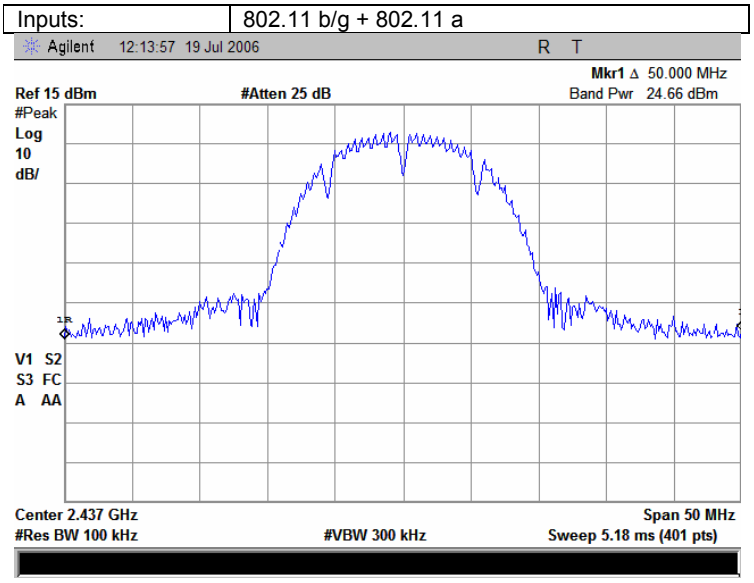
Full description is given in Appendix A.

| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.1 Peak output power at low frequency, DSSS, 1 Mbps**

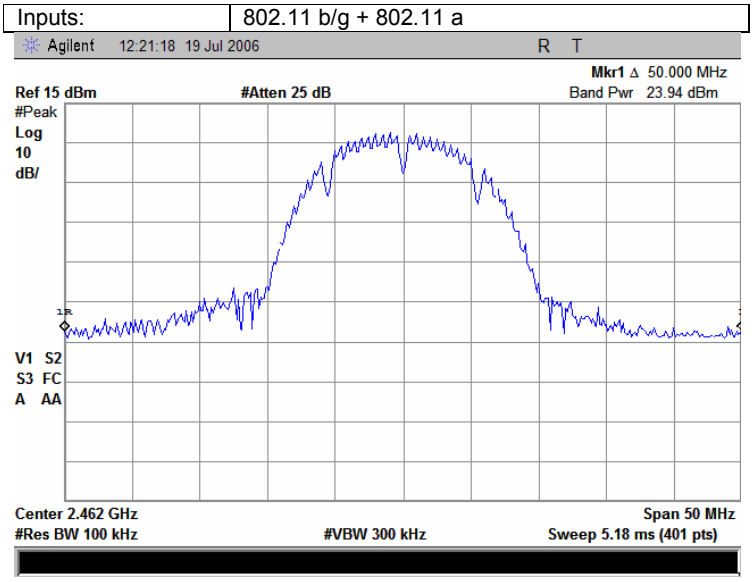



**Plot 7.2.2 Peak output power at mid frequency, DSSS, 1 Mbps**

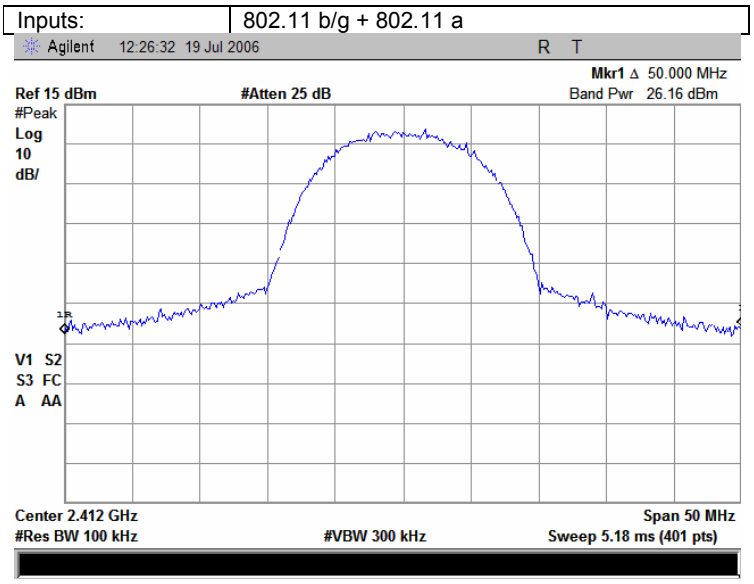


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.3 Peak output power at high frequency, DSSS, 1 Mbps**

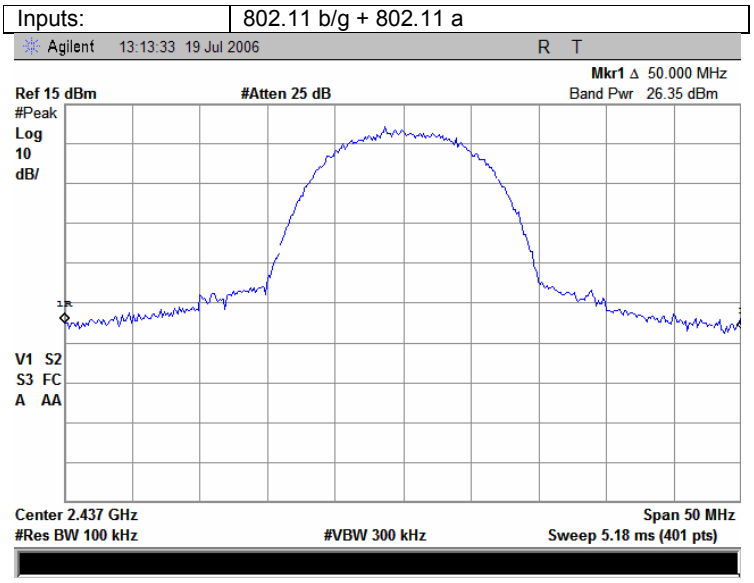



**Plot 7.2.4 Peak output power at low frequency, DSSS, 11 Mbps**

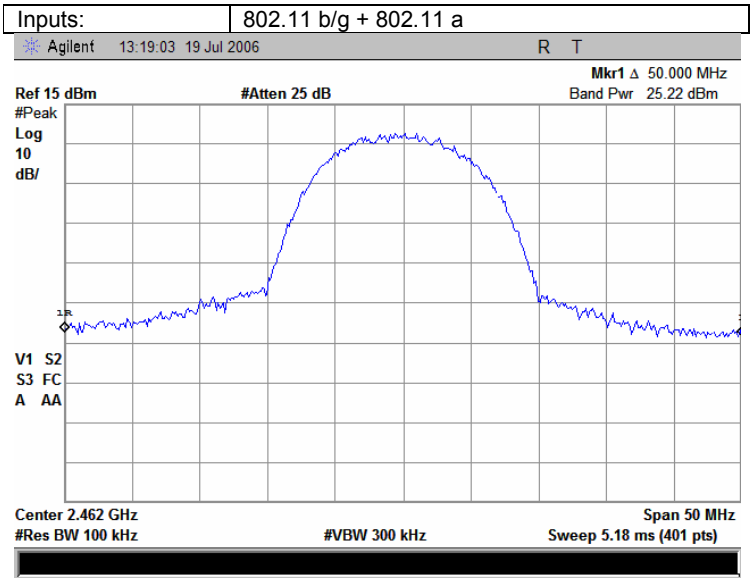


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.5 Peak output power at mid frequency, DSSS, 11 Mbps**

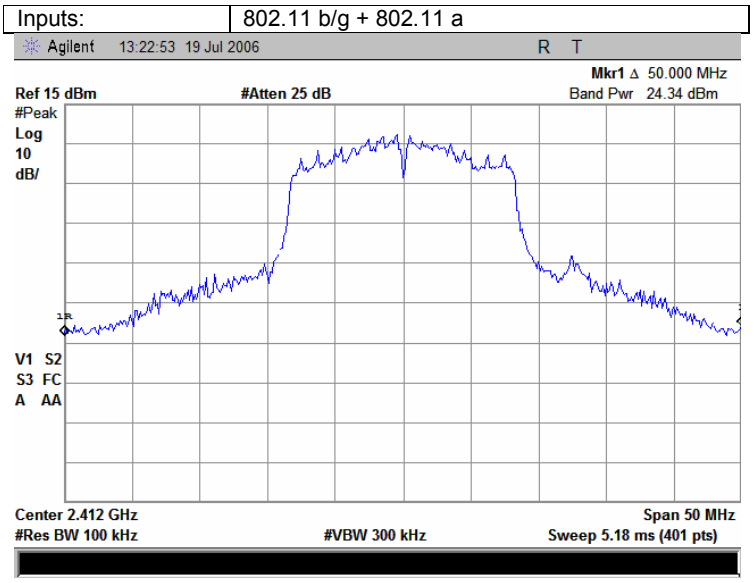



**Plot 7.2.6 Peak output power at high frequency, DSSS, 11 Mbps**

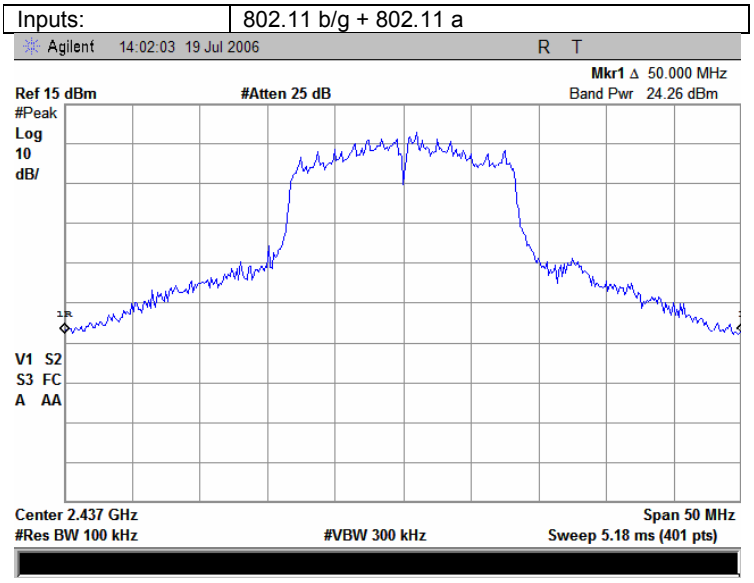


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.7 Peak output power at low frequency, OFDM, 6 Mbps**

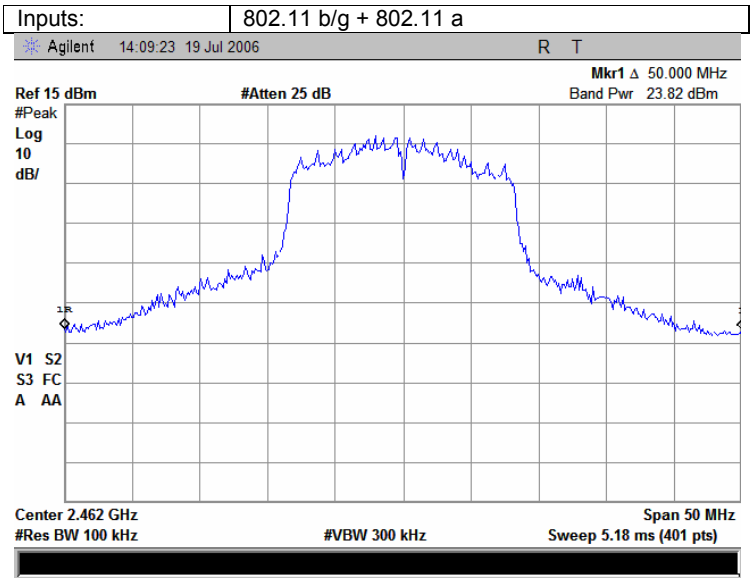



**Plot 7.2.8 Peak output power at mid frequency, OFDM, 6 Mbps**

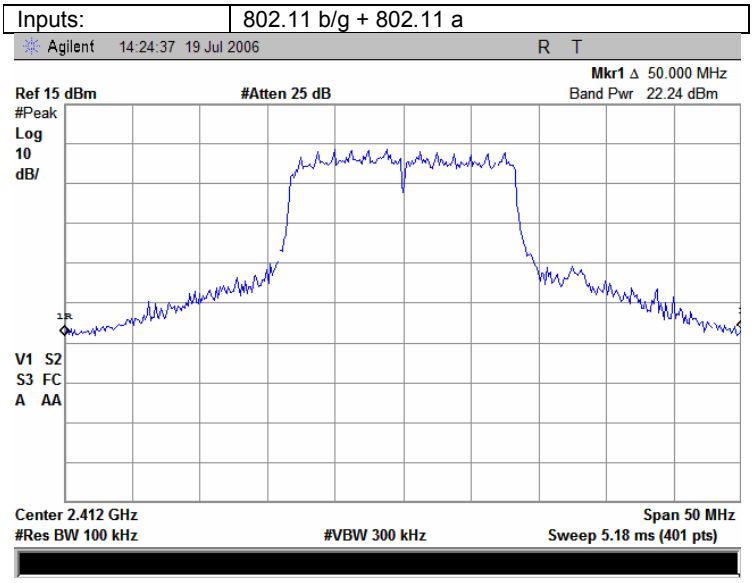


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.9 Peak output power at high frequency, OFDM, 6 Mbps**

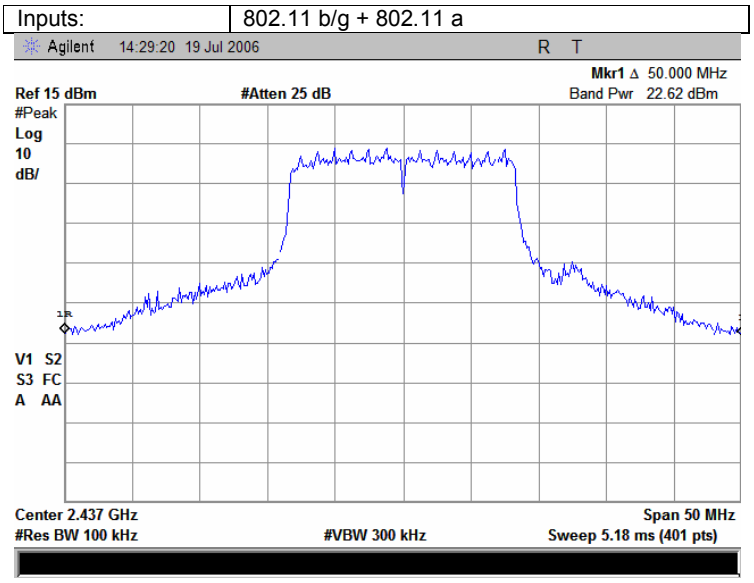



**Plot 7.2.10 Peak output power at low frequency, OFDM, 54 Mbps**

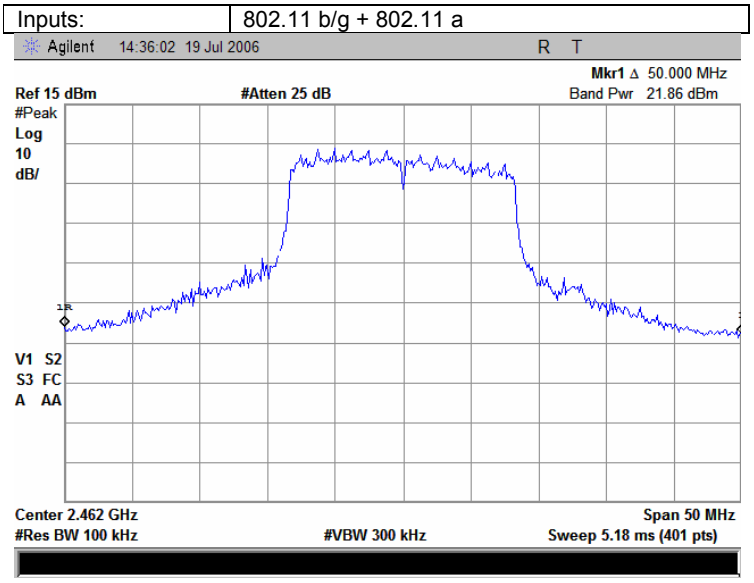


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.11 Peak output power at mid frequency, OFDM, 54 Mbps**

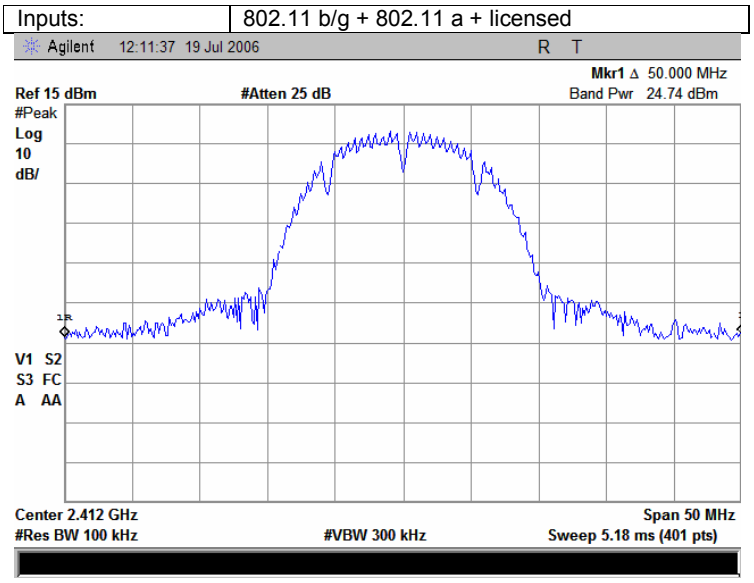



**Plot 7.2.12 Peak output power at high frequency, OFDM, 54 Mbps**

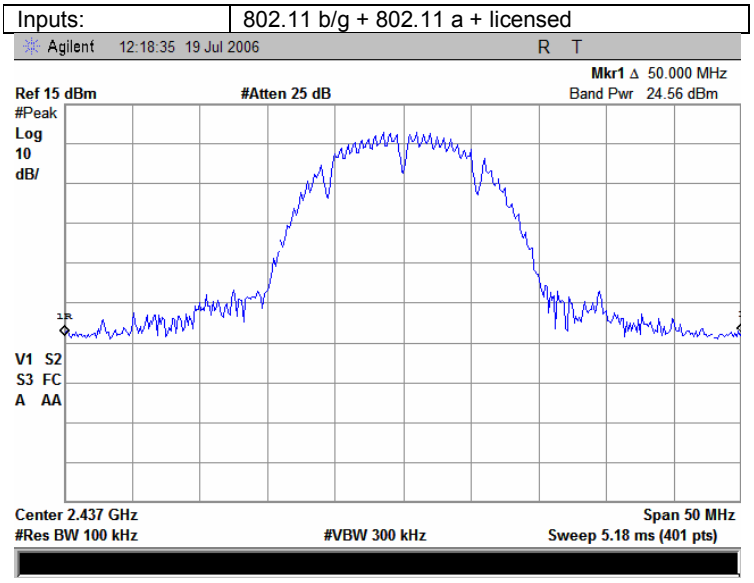


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.13 Peak output power at low frequency, DSSS, 1 Mbps**

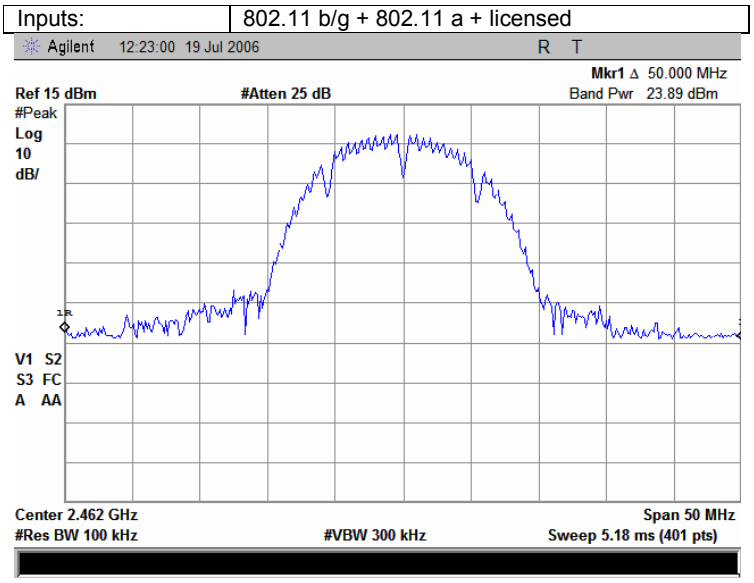



**Plot 7.2.14 Peak output power at mid frequency, DSSS, 1 Mbps**

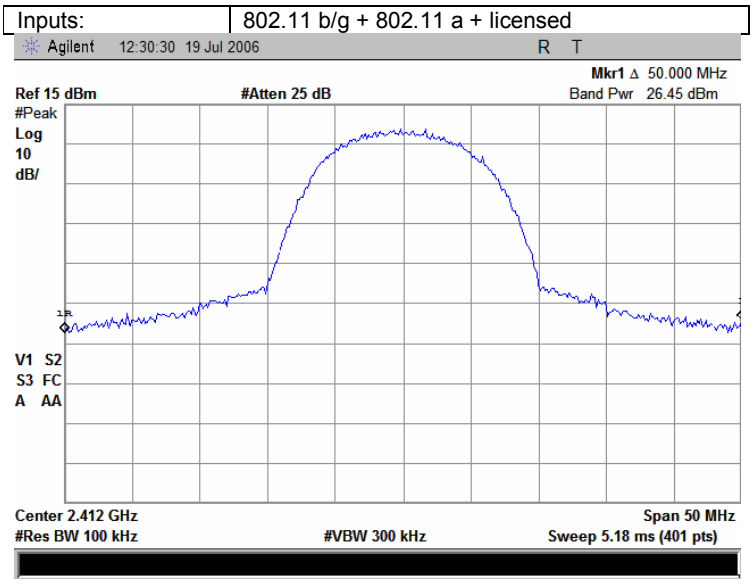


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.15 Peak output power at high frequency, DSSS, 1 Mbps**

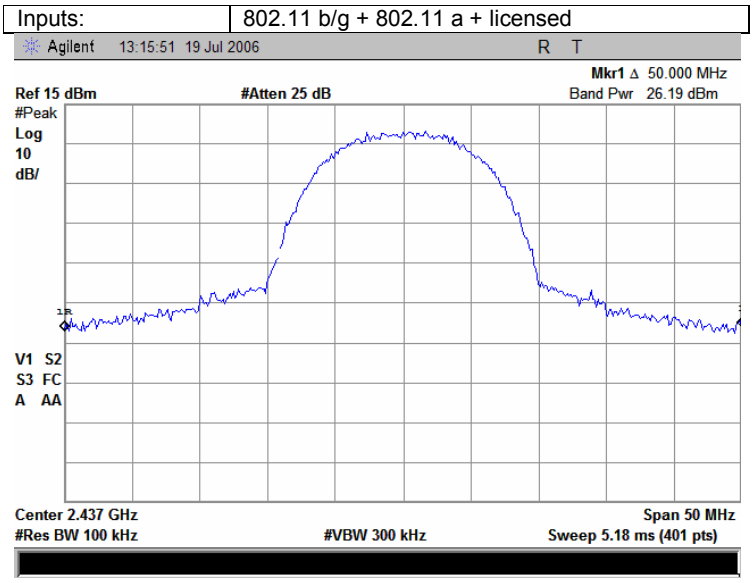



**Plot 7.2.16 Peak output power at low frequency, DSSS, 11 Mbps**

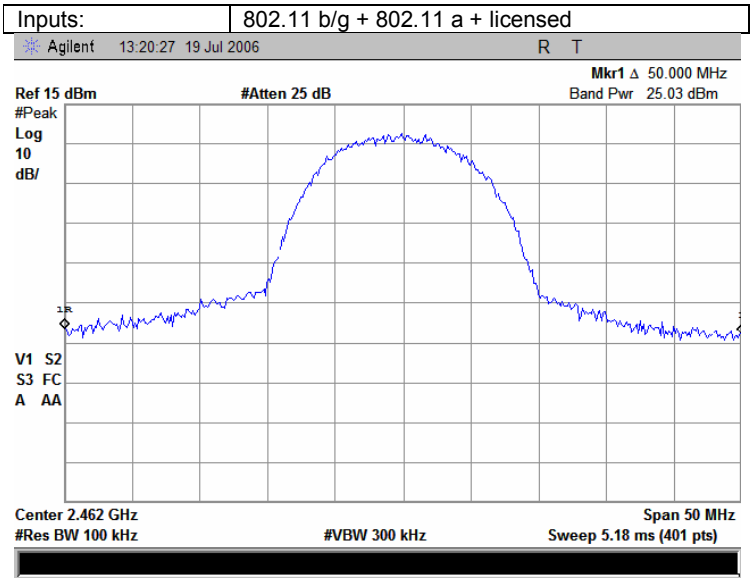


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.17 Peak output power at mid frequency, DSSS, 11 Mbps**

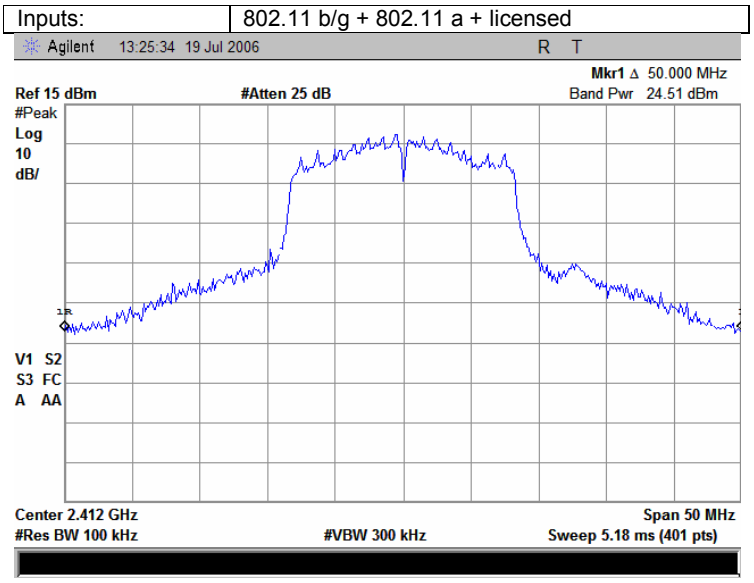



**Plot 7.2.18 Peak output power at high frequency, DSSS, 11 Mbps**

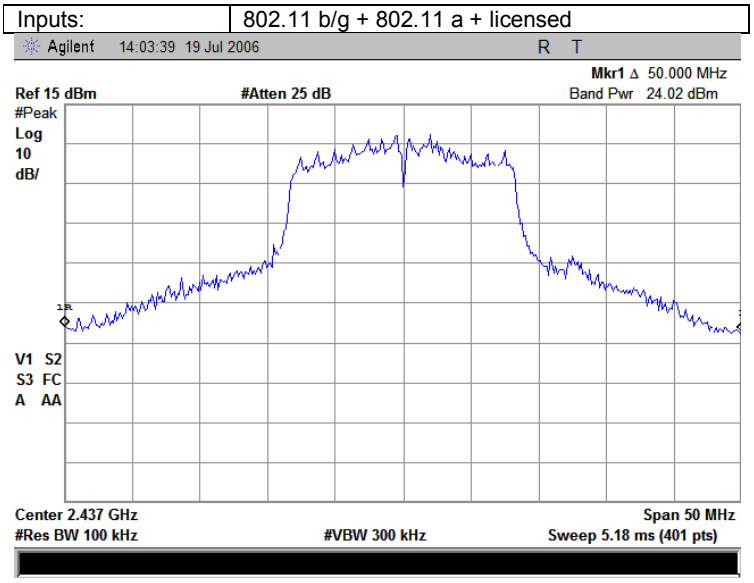


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.19 Peak output power at low frequency, OFDM, 6 Mbps**

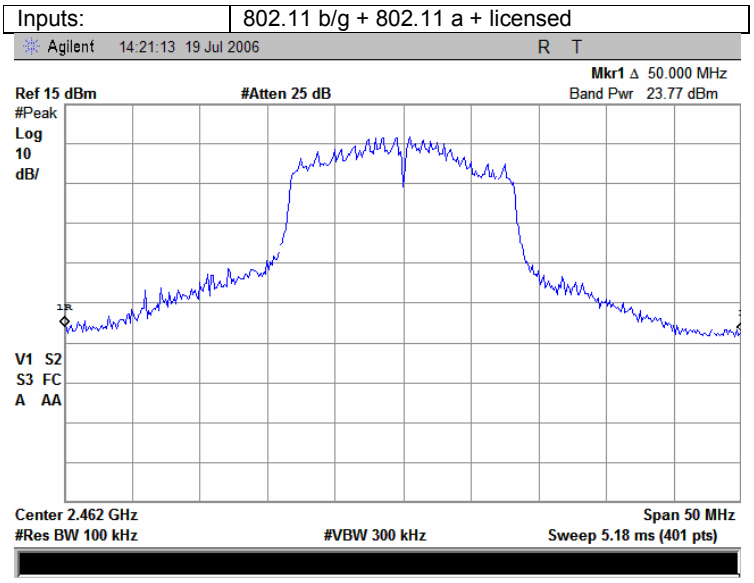



**Plot 7.2.20 Peak output power at mid frequency, OFDM, 6 Mbps**

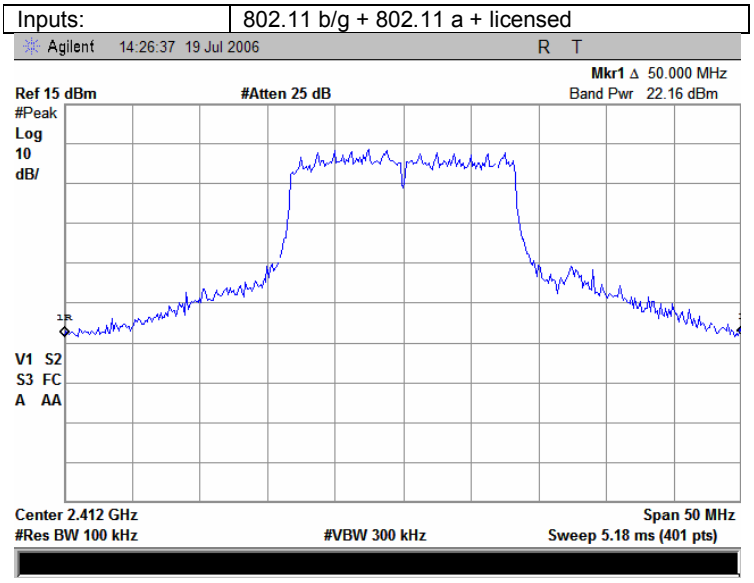


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.21 Peak output power at high frequency, OFDM, 6 Mbps**

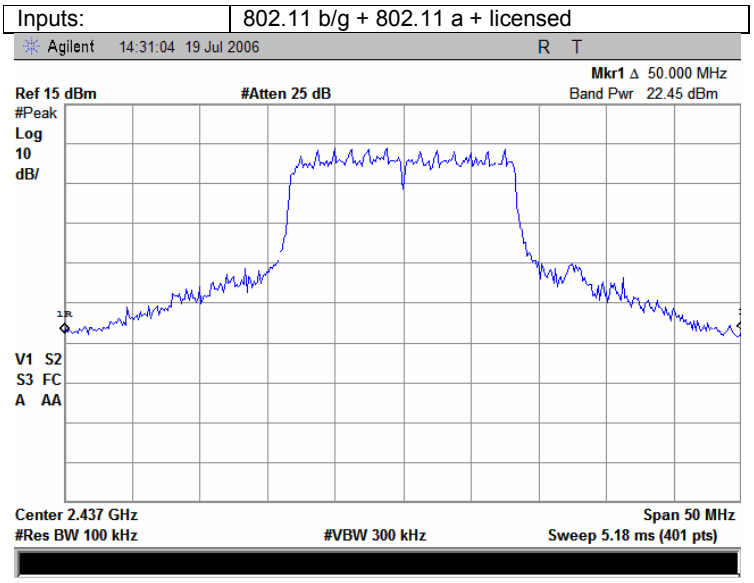



**Plot 7.2.22 Peak output power at low frequency, OFDM, 54 Mbps**

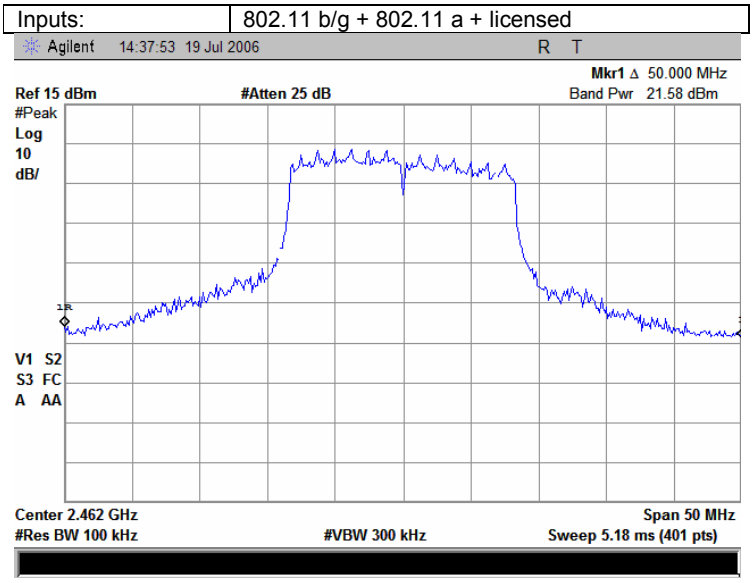


| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/25/2006 1:35:26 PM | | |
| Temperature: 22 °C | Air Pressure: 1013 hPa | Relative Humidity: 54 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.2.23 Peak output power at mid frequency, OFDM, 54 Mbps**




**Plot 7.2.24 Peak output power at high frequency, OFDM, 54 Mbps**



| **Test specification:** | **Section 15.247(b)3, Peak output power** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol.62, page 26243, Section 15.247(b) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 6/29/2006 6:37:06 PM | | |
| **Temperature:** 24.4 ºC | **Air Pressure:** 1013 hPa | **Relative Humidity:** 60 % | **Power Supply:** 120 VAC |
| **Remarks:** 802.11b/g | | | |

**Table 7.2.3 Peak output power test results**

| | |
|---|---|
| ASSIGNED FREQUENCY: | 2400.0 – 2483.5 MHz |
| MODULATION: | DBPSK, CCK, BPSK, 64-QAM |
| MODULATING SIGNAL: | PRBS |
| BIT RATE: | 1, 11, 6, 54 Mbps |
| TRANSMITTER OUTPUT POWER SETTINGS: | Maximum |
| DETECTOR USED: | Peak |
| EUT 6 dB BANDWIDTH: | 12.5 MHz (DSSS) / 16.3 MHz (OFDM) |
| RESOLUTION BANDWIDTH: | 100 kHz |
| VIDEO BANDWIDTH: | 300 kHz |
| INPUTS: | 802.11 b/g |

| Carrier frequency, MHz | Spectrum analyzer reading, dBm | External attenuation, dB | Cable loss, dB | Peak output power, dBm | Limit, dBm | Margin*, dB | Verdict |
|---|---|---|---|---|---|---|---|
| **DSSS, 1 Mbps** | | | | | | | |
| 2412 | 25.07 | Included | Included | 25.07 | 30.0 | -4.93 | Pass |
| 2437 | 24.94 | Included | Included | 24.94 | 30.0 | -5.06 | Pass |
| 2462 | 24.09 | Included | Included | 24.09 | 30.0 | -5.91 | Pass |
| **DSSS, 11 Mbps** | | | | | | | |
| 2412 | 26.16 | Included | Included | 26.16 | 30.0 | -3.84 | Pass |
| 2437 | 26.16 | Included | Included | 26.16 | 30.0 | -3.84 | Pass |
| 2462 | 24.86 | Included | Included | 24.86 | 30.0 | -5.14 | Pass |
| **OFDM, 6 Mbps** | | | | | | | |
| 2412 | 24.88 | Included | Included | 24.88 | 30.0 | -5.12 | Pass |
| 2437 | 22.78 | Included | Included | 22.78 | 30.0 | -7.22 | Pass |
| 2462 | 22.39 | Included | Included | 22.39 | 30.0 | -7.61 | Pass |
| **OFDM, 54 Mbps** | | | | | | | |
| 2412 | 25.13 | Included | Included | 25.13 | 30.0 | -4.87 | Pass |
| 2437 | 22.83 | Included | Included | 22.83 | 30.0 | -7.17 | Pass |
| 2462 | 24.46 | Included | Included | 24.46 | 30.0 | -5.54 | Pass |

* - Margin = Peak output power – specification limit.

**Reference numbers of test equipment used**

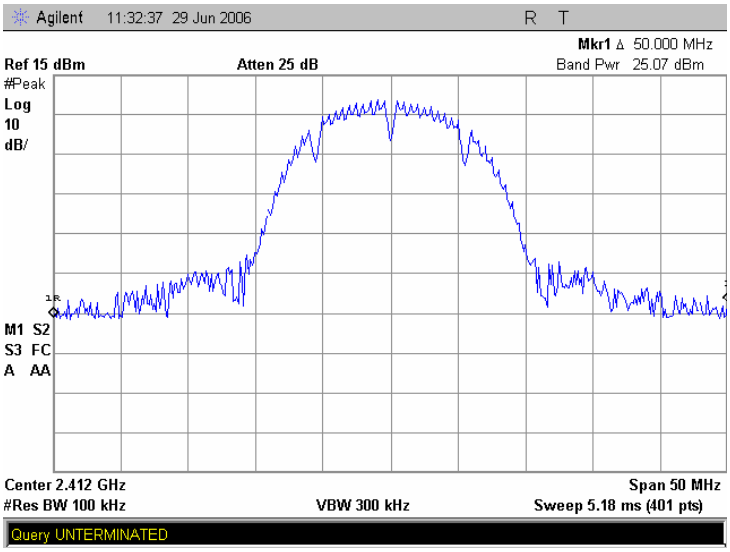
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2780 | HL 2867 | | | | | |

Full description is given in Appendix A.

| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

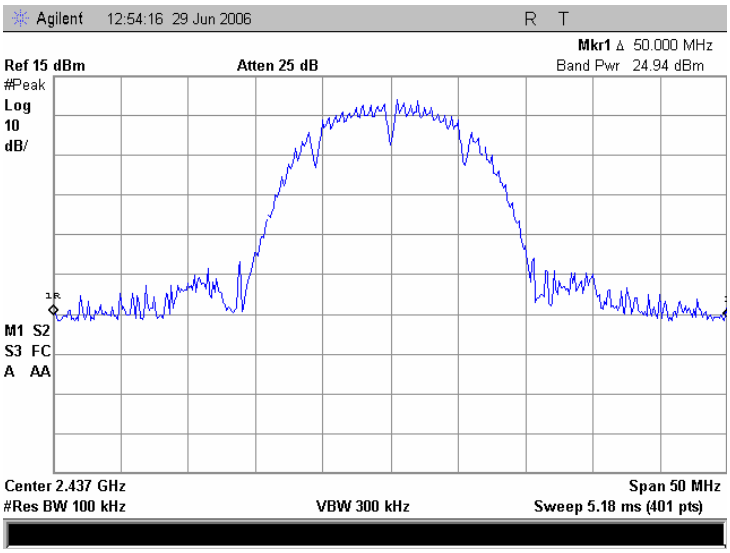
**Plot 7.2.25 Peak output power at low frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.26 Peak output power at mid frequency, DSSS, 1 Mbps**

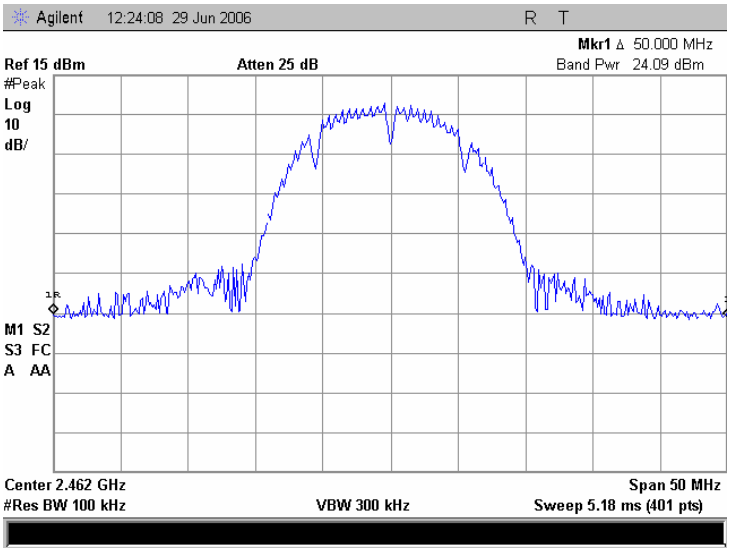
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

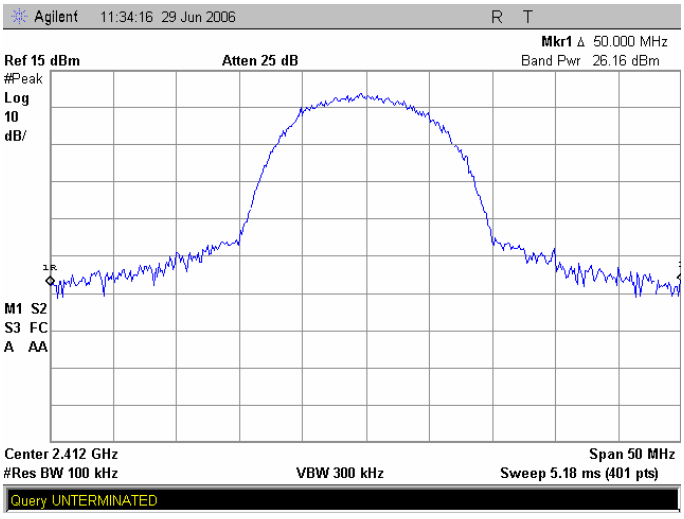
**Plot 7.2.27 Peak output power at high frequency, DSSS, 1 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.28 Peak output power at low frequency, DSSS, 11 Mbps**

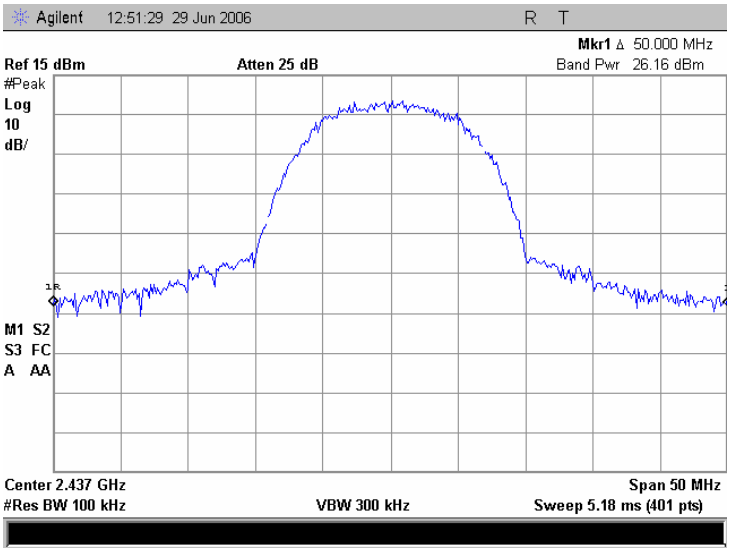
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

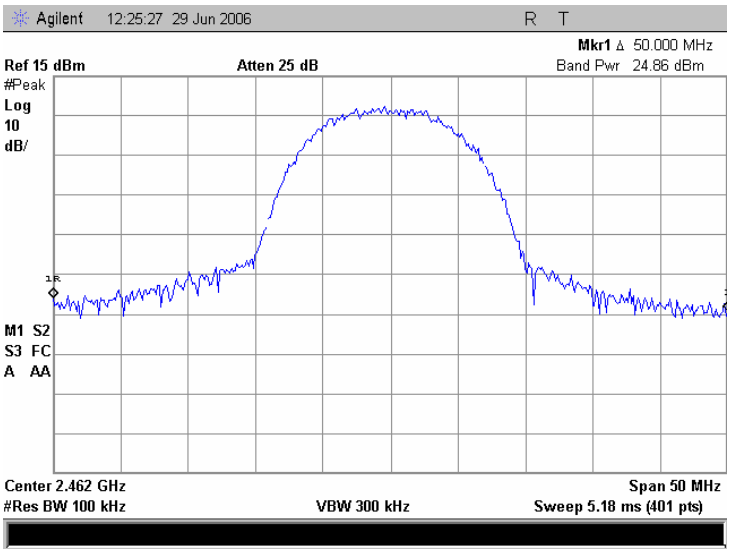
**Plot 7.2.29 Peak output power at mid frequency, DSSS, 11 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.30 Peak output power at high frequency, DSSS, 11 Mbps**

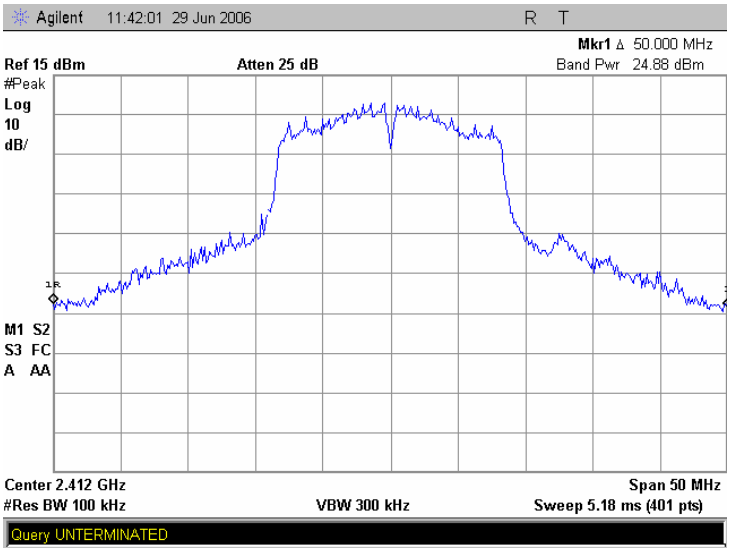
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

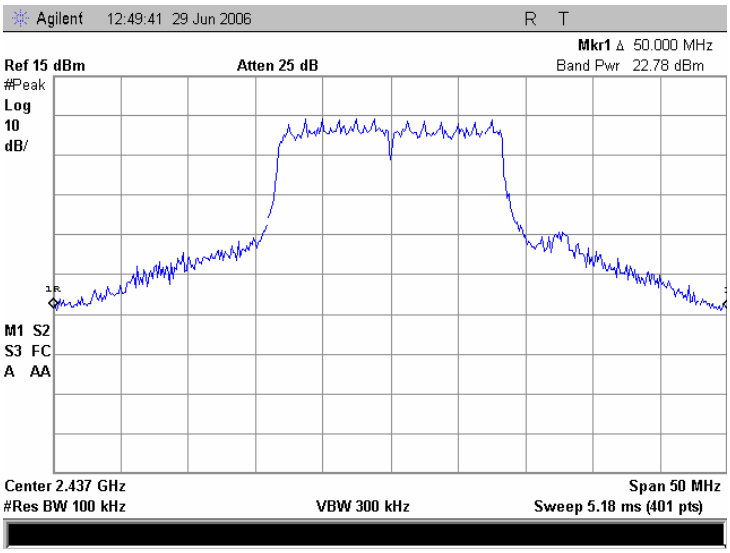
**Plot 7.2.31 Peak output power at low frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.32 Peak output power at mid frequency, OFDM, 6 Mbps**

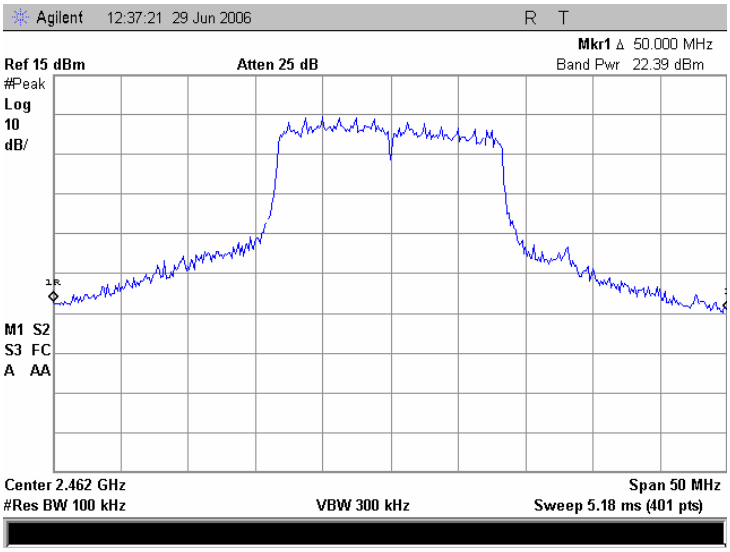
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

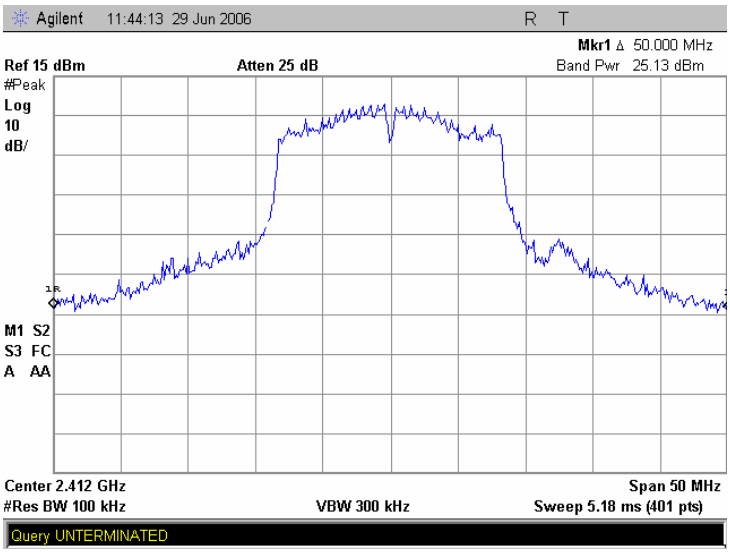
**Plot 7.2.33 Peak output power at high frequency, OFDM, 6 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.34 Peak output power at low frequency, OFDM, 54 Mbps**

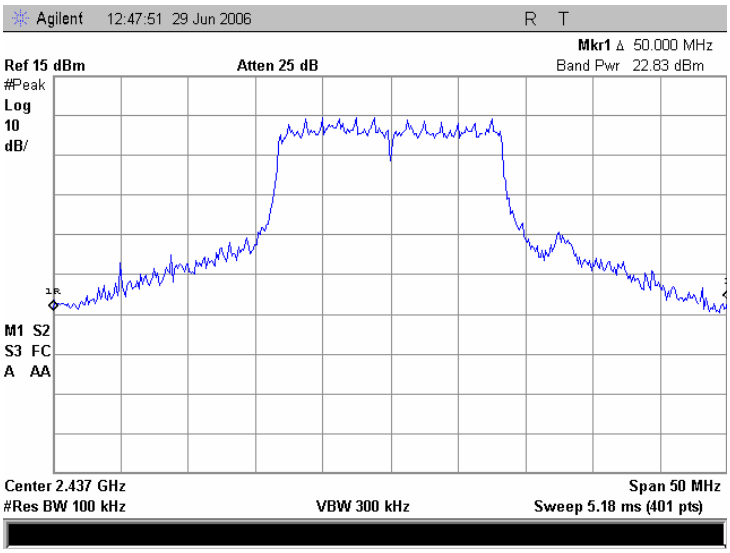
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(b)3, Peak output power | | |
|---|---|---|---|
| Test procedure: | FR Vol.62, page 26243, Section 15.247(b) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 6:37:06 PM | | |
| Temperature: 24.4 ºC | Air Pressure: 1013 hPa | Relative Humidity: 60 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

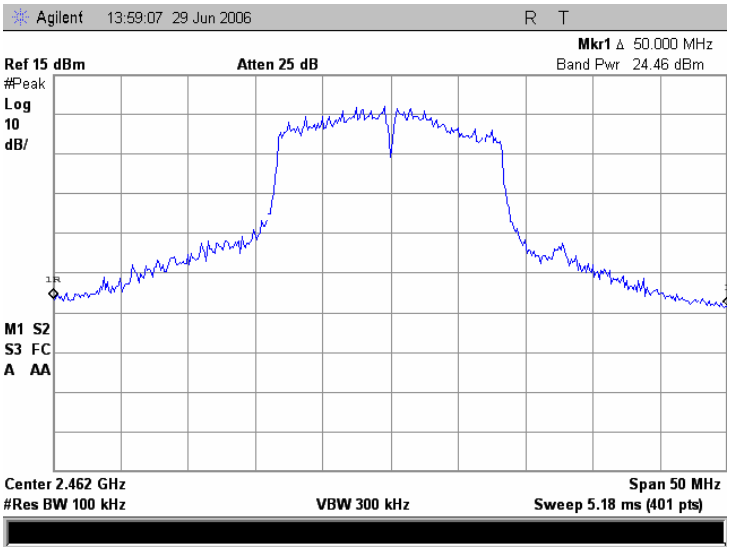
**Plot 7.2.35 Peak output power at mid frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g**




**Plot 7.2.36 Peak output power at high frequency, OFDM, 54 Mbps**

**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 ºC | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

## 7.3 Spurious emissions at RF antenna connector

### 7.3.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.3.1. The test results are provided in Table 7.3.2 and associated plots.

**Table 7.3.1 Spurious emission limits**

| Frequency*, MHz | Attenuation below carrier*, dBc |
|---|---|
| 0.009 – 10$^{th}$ harmonic | 20.0 |

* - The above limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.
** - Spurious emission limit is provided in terms of attenuation below the peak of modulated carrier measured with the same resolution bandwidth.

### 7.3.2 Test procedure

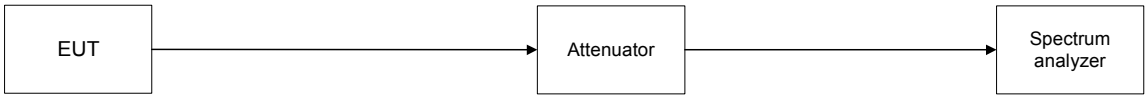
**7.3.2.1** The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.

**7.3.2.2** The EUT was adjusted to produce maximum available to end user RF output power.

**7.3.2.3** The highest emission level within the authorized band was measured.

**7.3.2.4** The spurious emission was measured with spectrum analyzer as provided in Table 7.3.2, Table 7.3.3 and associated plots and referenced to the highest emission level measured within the authorized band.

**Figure 7.3.1 Spurious emission test setup**



| **Test specification:** | **Section 15.247(c), Conducted spurious emissions** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol. 62, page 26243, Section 15.247(c) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 5/26/2006 4:40:02 PM | | |
| **Temperature:** 22 ºC | **Air Pressure:** 1012 hPa | **Relative Humidity:** 45 % | **Power Supply:** 120 VAC |
| **Remarks:** | | | |

**Table 7.3.2 Spurious emission test results**

ASSIGNED FREQUENCY RANGE: 2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 25000 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION: DSSS / OFDM
MODULATING SIGNAL: PRBS
BIT RATE: 1 / 6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
INPUTS: 802.11 b/g + 802.11 a

| Frequency, MHz | Spurious emission, dBm | Emission at carrier, dBm | Attenuation below carrier, dBc | Limit, dBc | Margin, dB* | Verdict |
|---|---|---|---|---|---|---|
| **Modulation DSSS** | | | | | | |
| **Low carrier frequency** | | | | | | |
| 2400.00 | -29.28 | 12.86 | 42.14 | 20.0 | 22.14 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| 2484.53 | -37.90 | 12.08 | 49.98 | 20.0 | 29.98 | Pass |
| **Modulation OFDM** | | | | | | |
| **Low carrier frequency** | | | | | | |
| 2398.75 | -22.50 | 12.06 | 34.56 | 20.0 | 14.56 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| 2484.58 | -35.64 | 11.81 | 47.45 | 20.0 | 27.45 | Pass |

INPUTS: 802.11 b/g + 802.11 a + licensed

| Frequency, MHz | Spurious emission, dBm | Emission at carrier, dBm | Attenuation below carrier, dBc | Limit, dBc | Margin, dB* | Verdict |
|---|---|---|---|---|---|---|
| **Modulation DSSS** | | | | | | |
| **Low carrier frequency** | | | | | | |
| 2400.00 | -29.38 | 12.24 | 41.62 | 20.0 | 21.62 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| 2483.67 | -37.48 | 12.61 | 40.09 | 20.0 | 20.09 | Pass |
| **Modulation OFDM** | | | | | | |
| **Low carrier frequency** | | | | | | |
| 2399.25 | -22.52 | 11.95 | 34.47 | 20.0 | 14.47 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| 2483.50 | -35.84 | 12.17 | 48.01 | 20.0 | 28.01 | Pass |

*****- Margin = Attenuation below carrier – specification limit.

**Reference numbers of test equipment used**

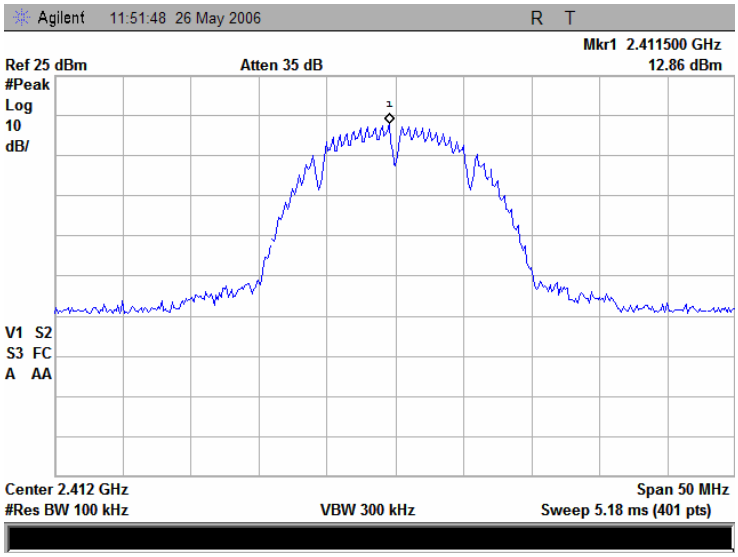
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2254 | HL 2780 | HL 2867 | | | | |

Full description is given in Appendix A.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

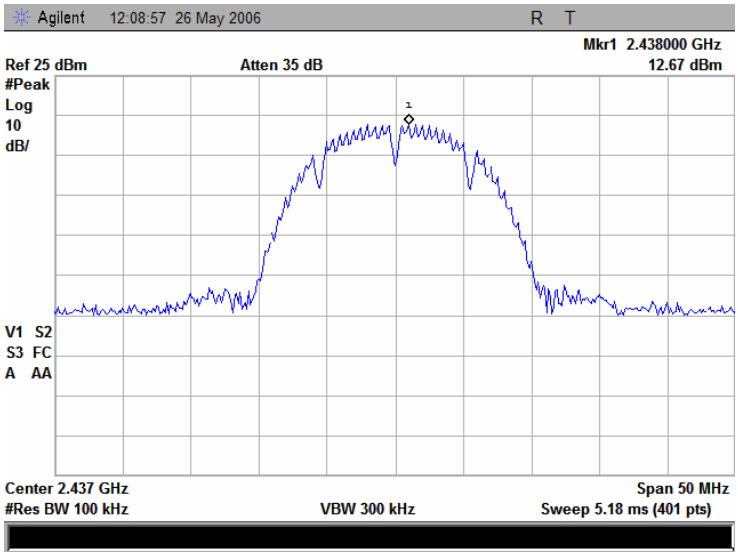
**Plot 7.3.1 The highest emission level within the assigned band at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.2 The highest emission level within the assigned band at mid carrier frequency, DSSS modulation**

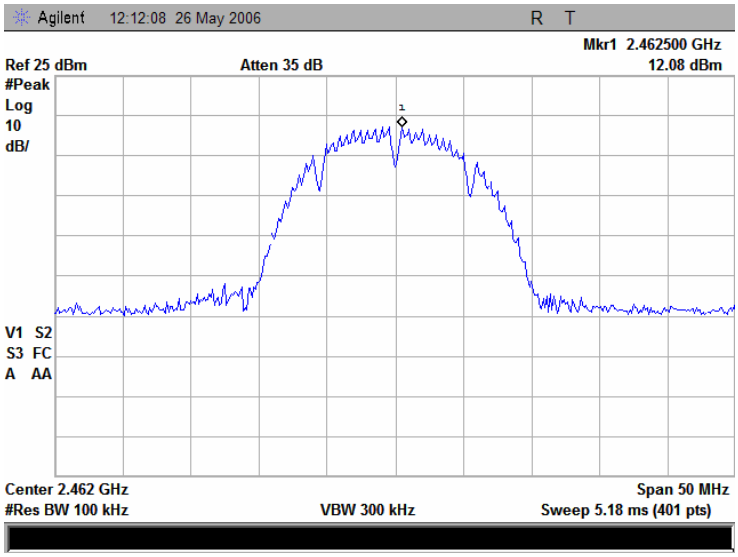
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

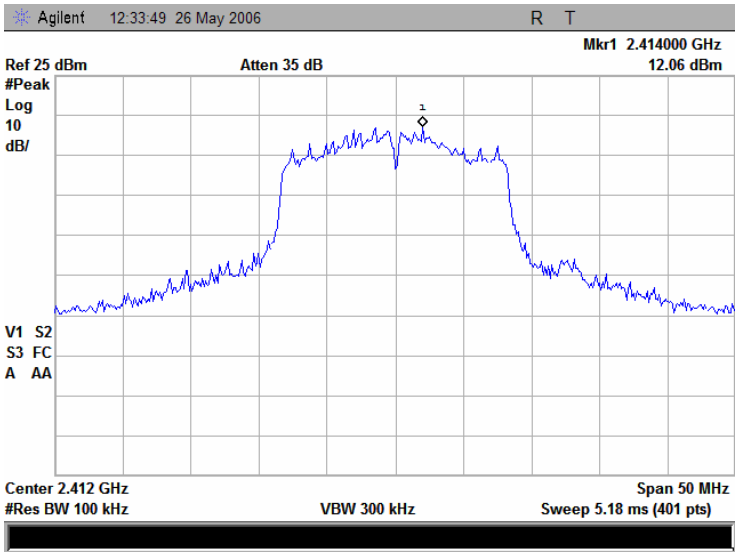
**Plot 7.3.3 The highest emission level within the assigned band at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.4 The highest emission level within the assigned band at low carrier frequency, OFDM modulation**

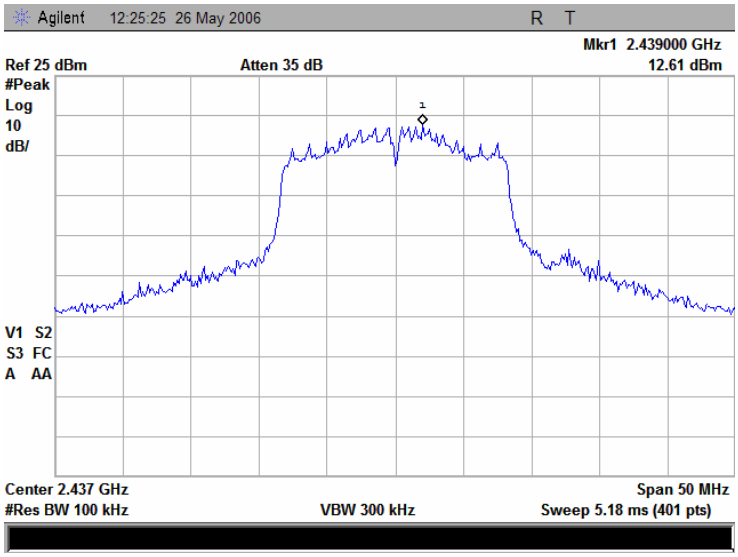
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

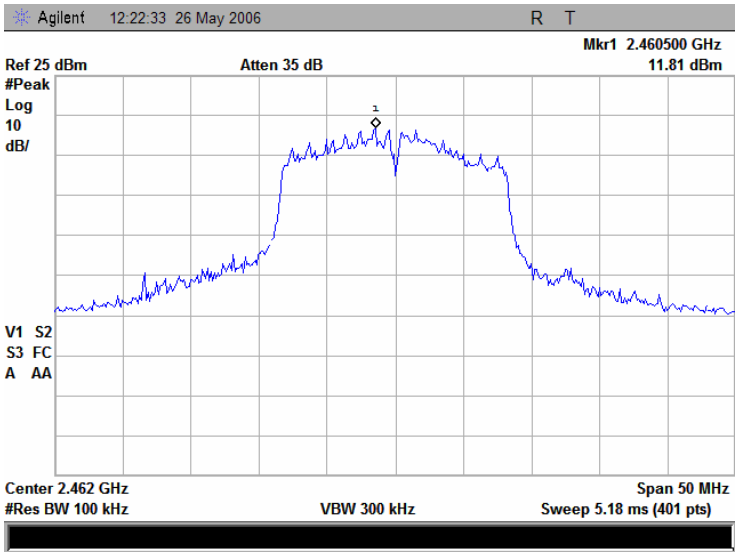
**Plot 7.3.5 The highest emission level within the assigned band at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.6 The highest emission level within the assigned band at high carrier frequency, OFDM modulation**

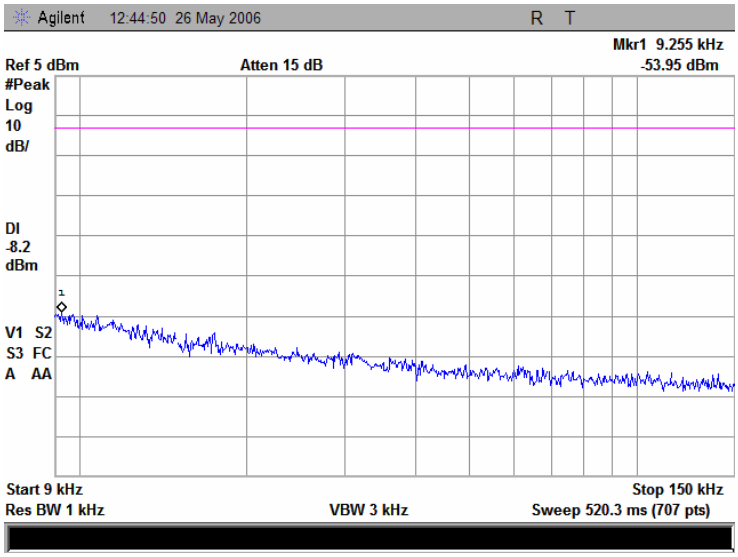
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

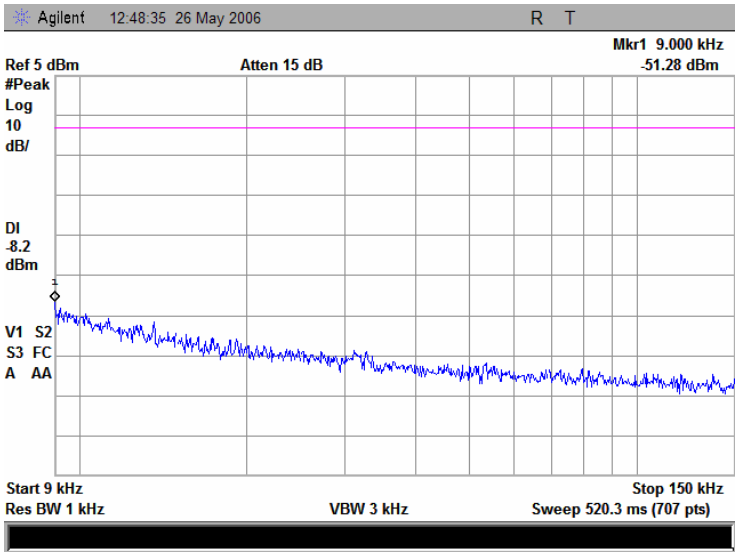
**Plot 7.3.7 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.8 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, DSSS modulation**

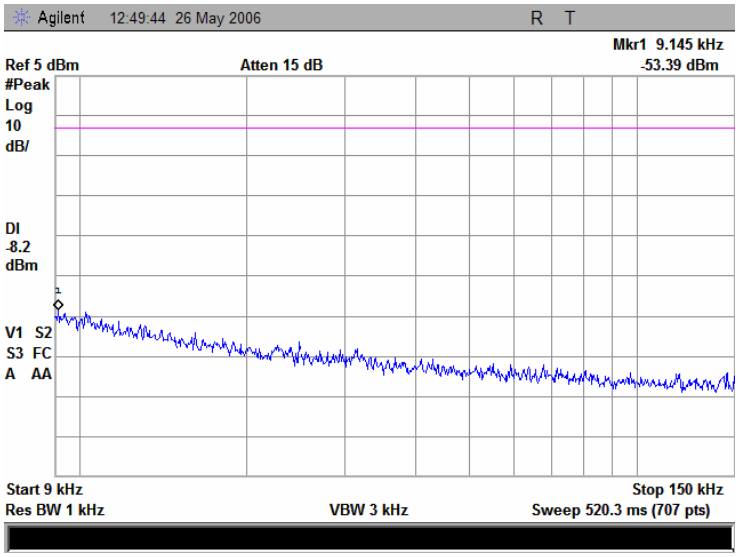
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

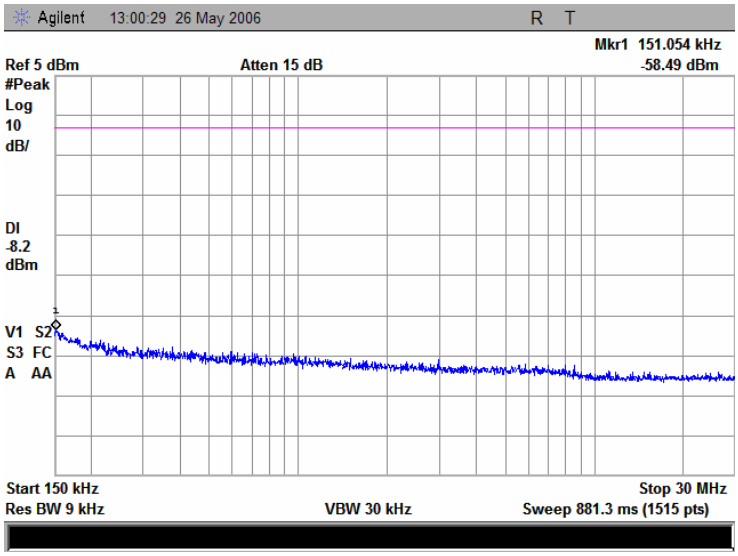
**Plot 7.3.9 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.10 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, DSSS modulation**

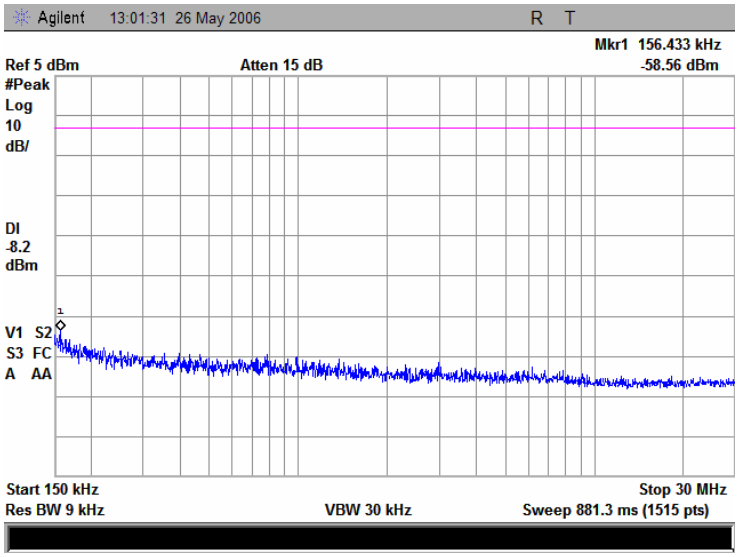
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

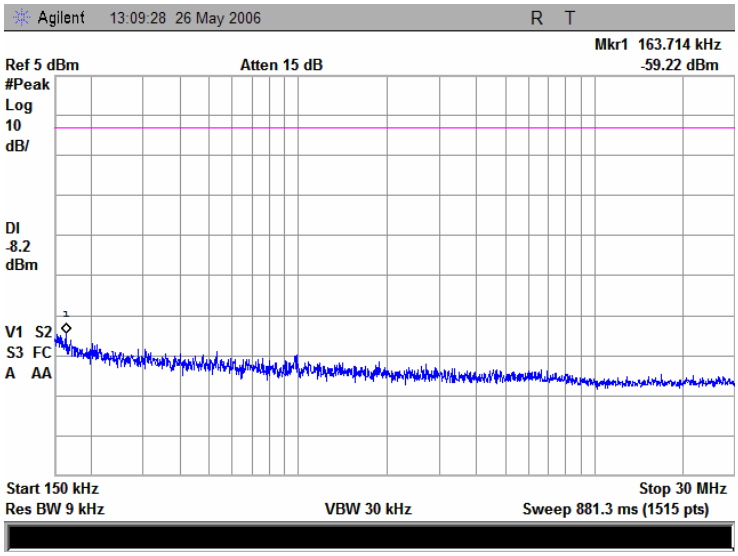
**Plot 7.3.11 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.12 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, DSSS modulation**

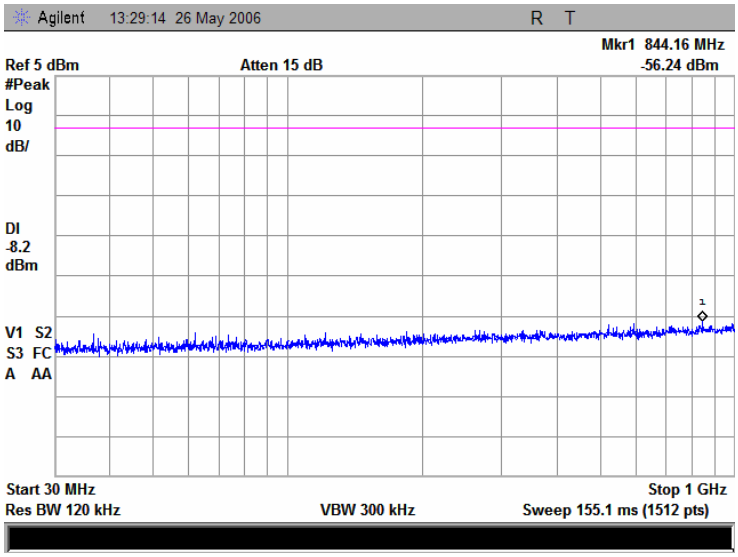
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

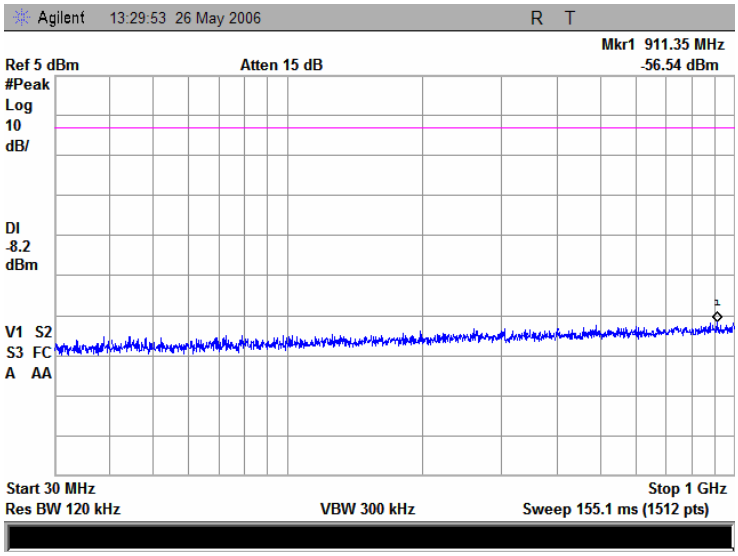
**Plot 7.3.13 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.14 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, DSSS modulation**

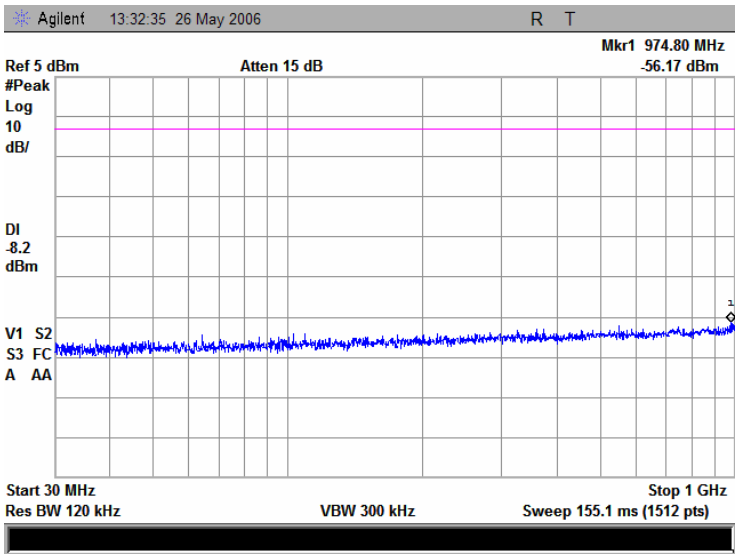
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

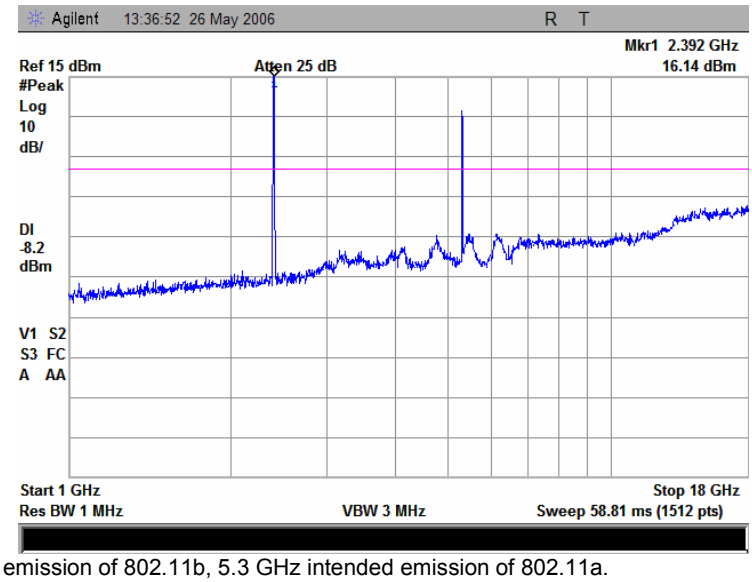
**Plot 7.3.15 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.16 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**

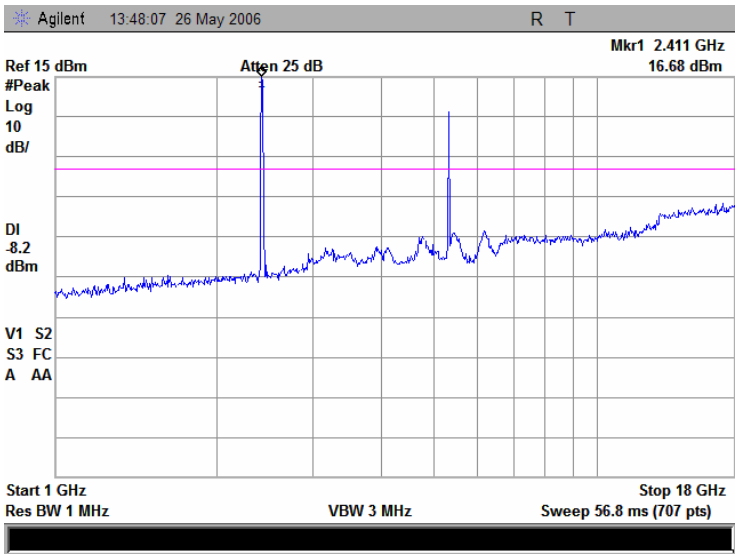



Note: 2.4 GHz intended emission of 802.11b, 5.3 GHz intended emission of 802.11a.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

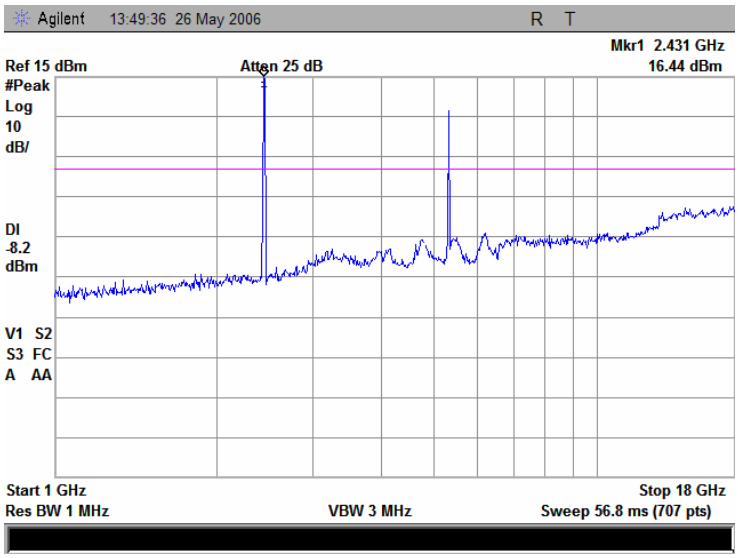
**Plot 7.3.17 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.18 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, DSSS modulation**

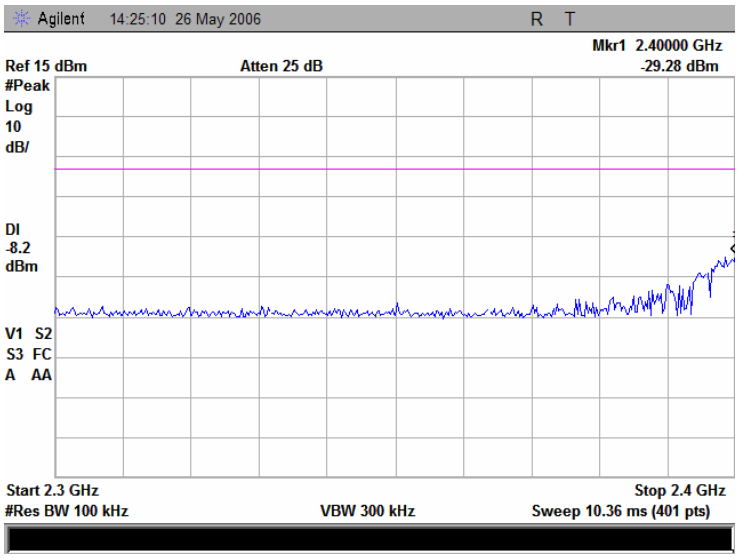
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

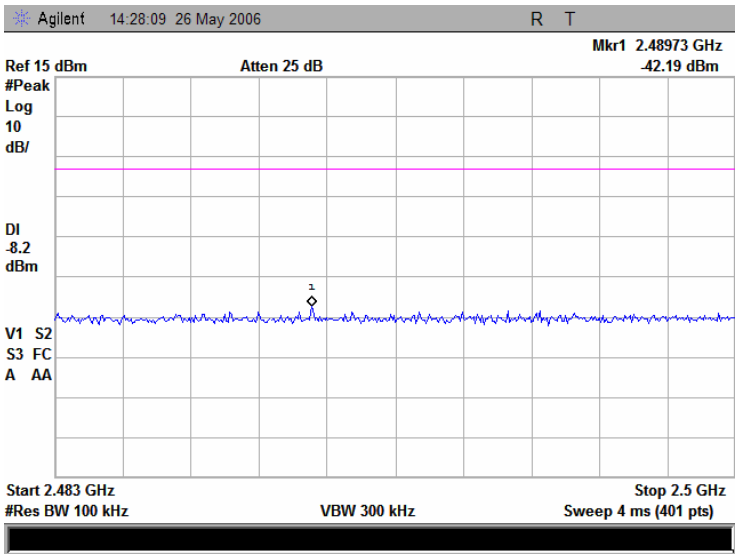
**Plot 7.3.19 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.20 Spurious emission measurements in 2483.5 - 2500 MHz range at low carrier frequency, DSSS modulation**

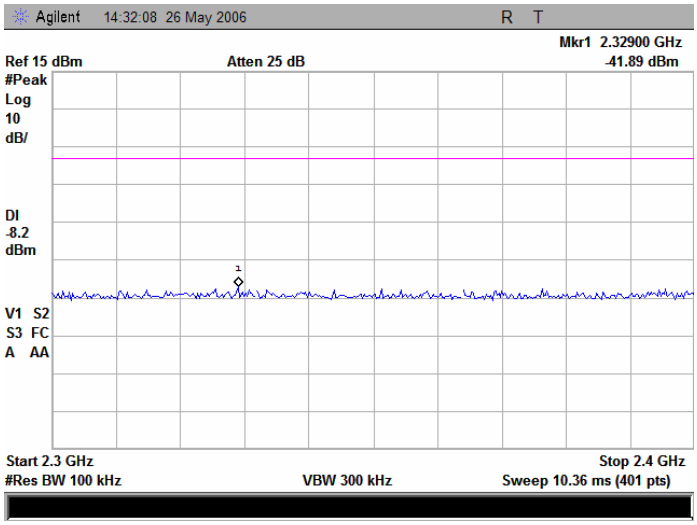
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

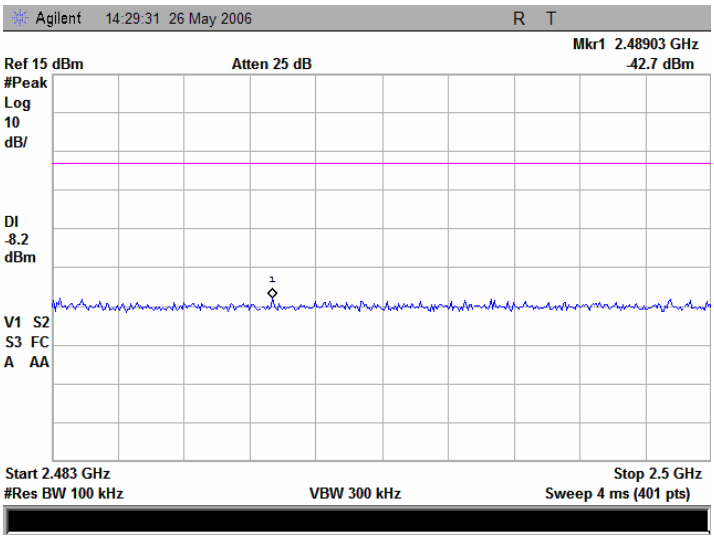
**Plot 7.3.21 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.22 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, DSSS modulation**

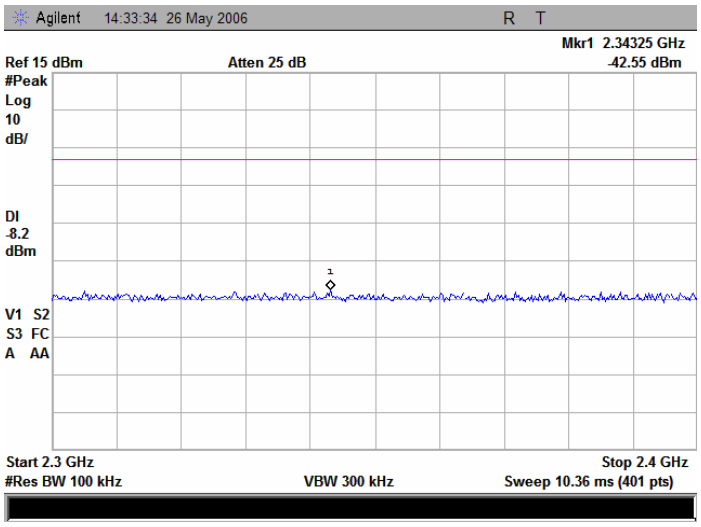
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

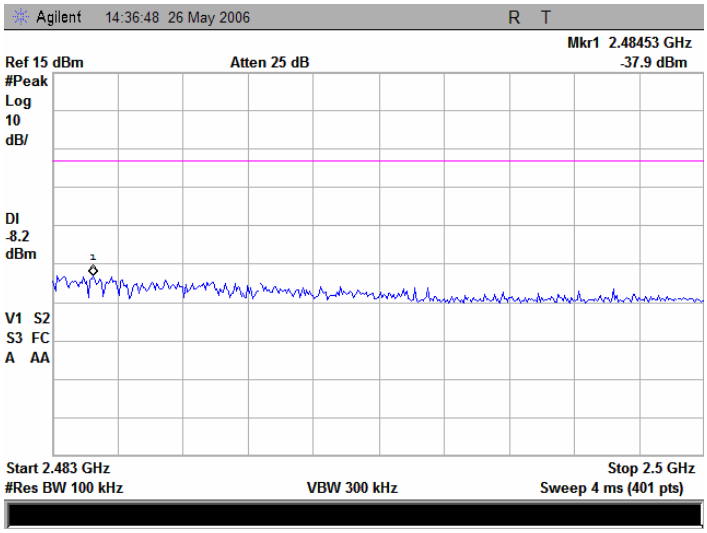
**Plot 7.3.23 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.24 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, DSSS modulation**

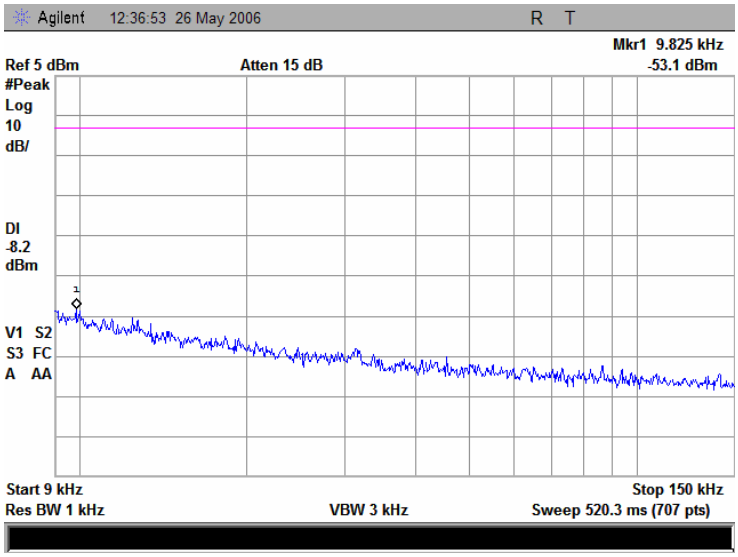
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

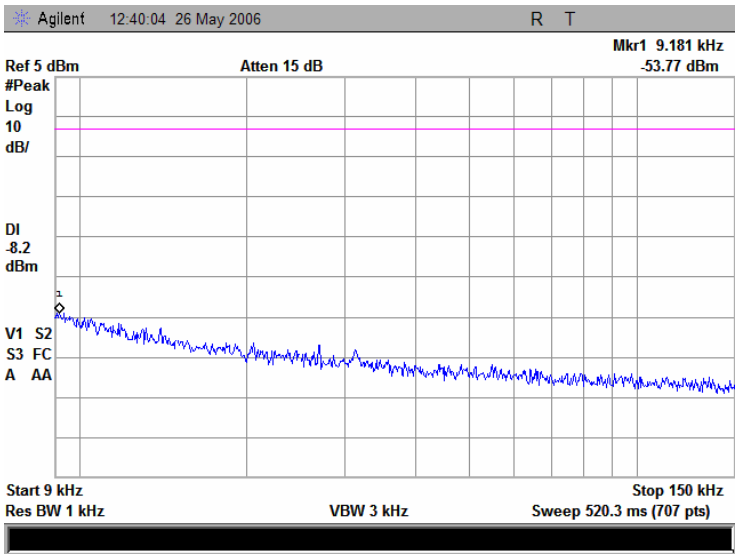
**Plot 7.3.25 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.26 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, OFDM modulation**

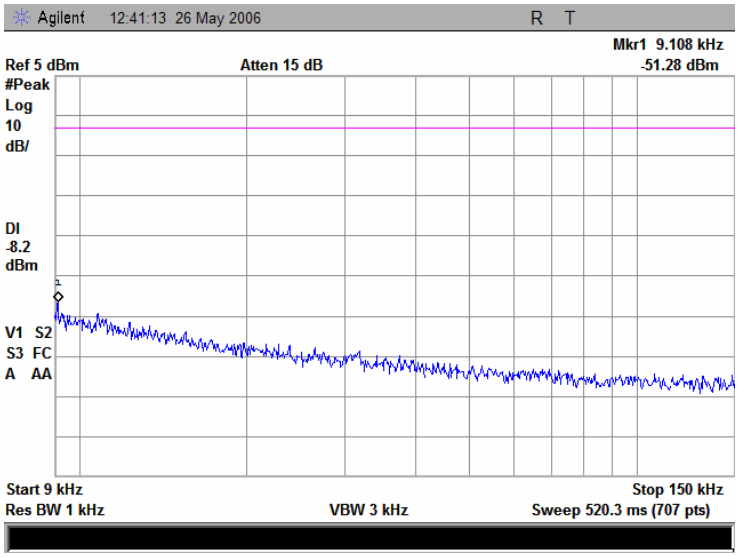
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

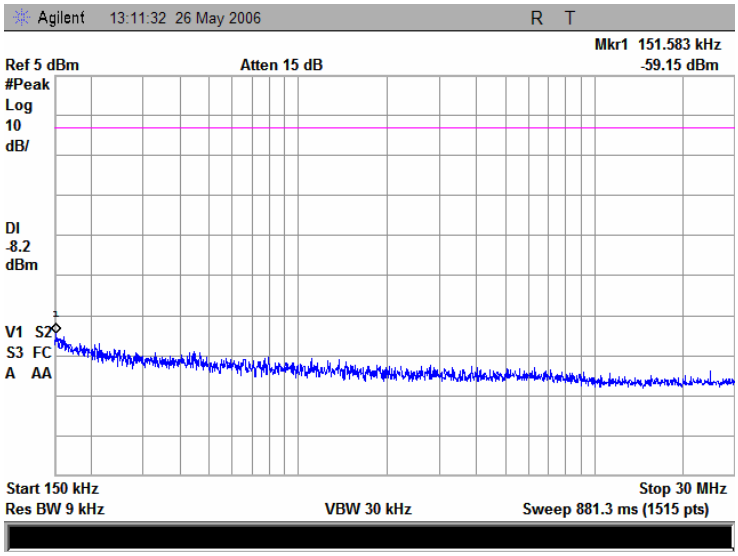
**Plot 7.3.27 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.28 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, OFDM modulation**

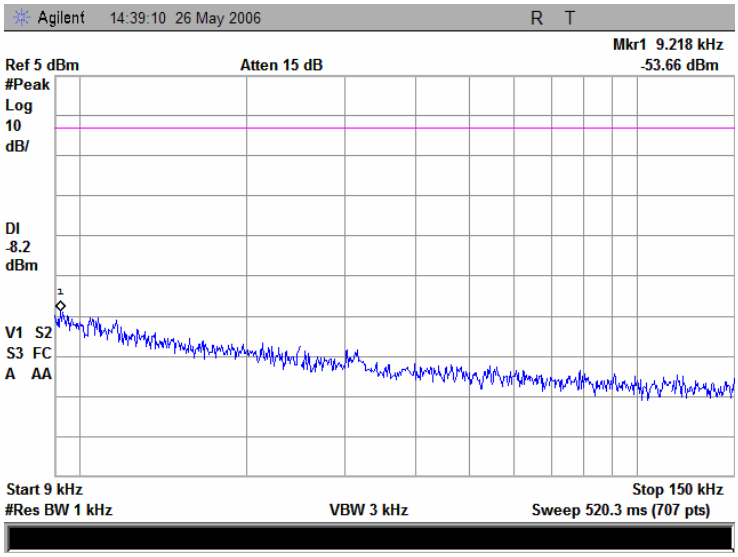
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

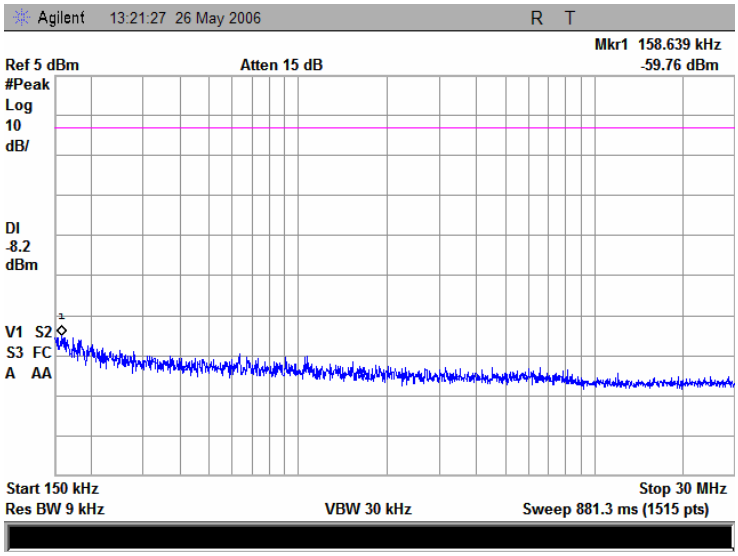
**Plot 7.3.29 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.30 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, OFDM modulation**

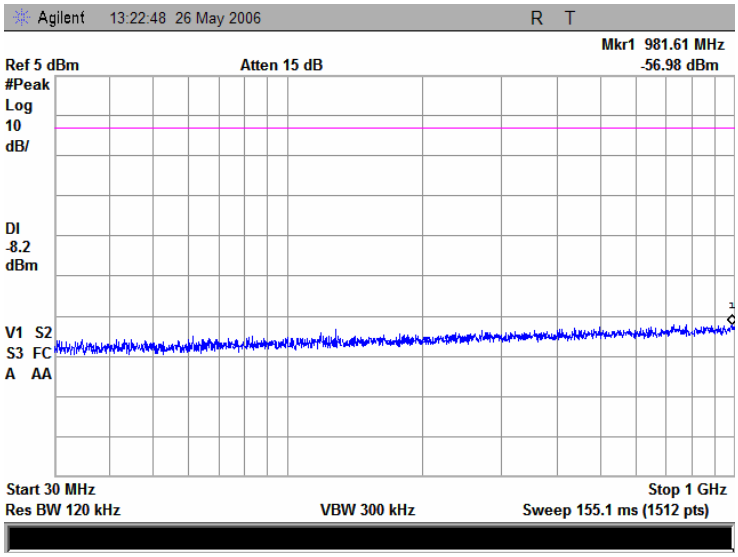
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

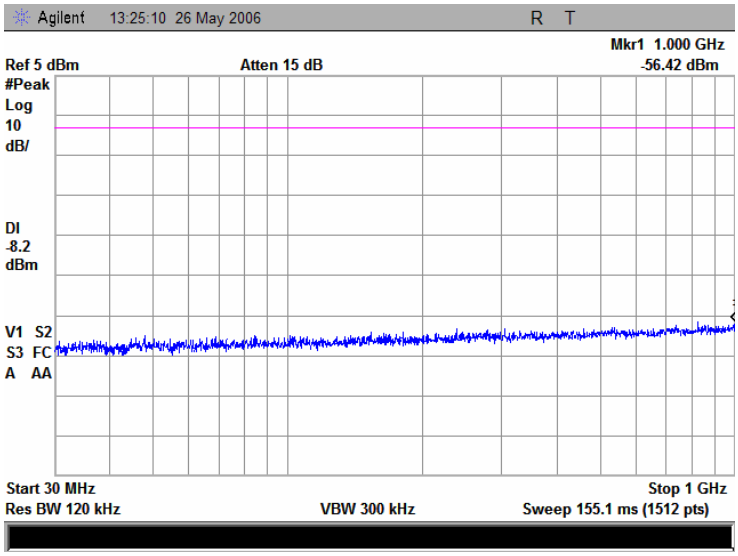
**Plot 7.3.31 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.32 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, OFDM modulation**

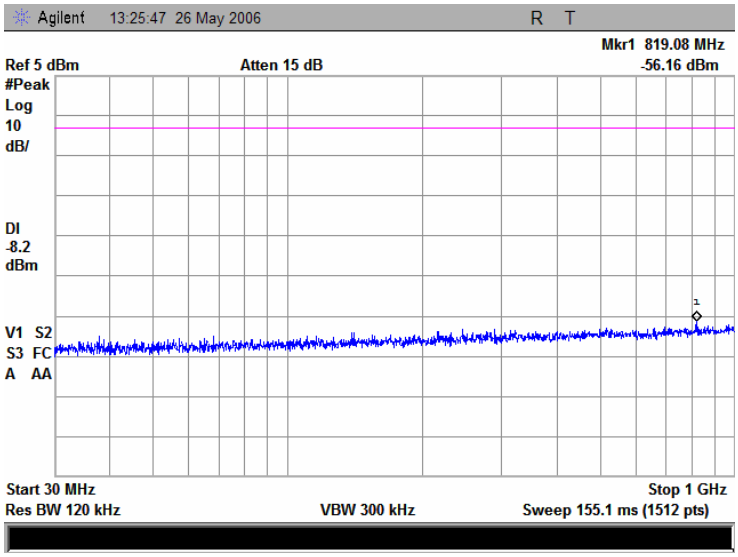
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

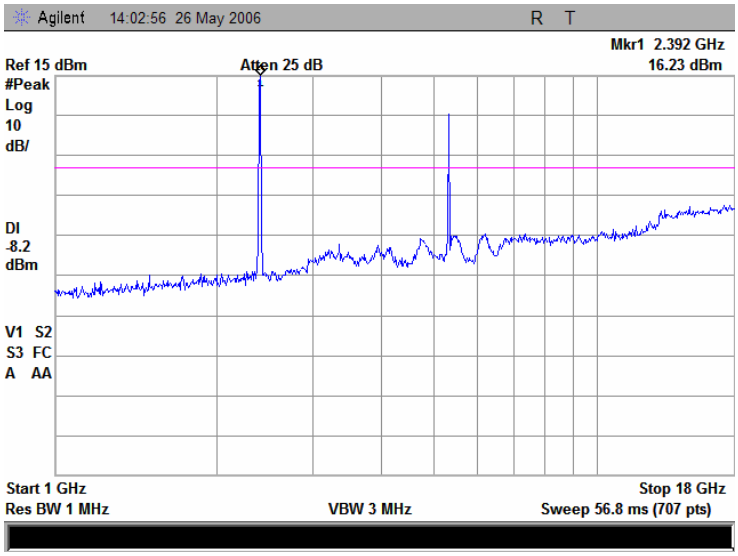
**Plot 7.3.33 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.34 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, OFDM modulation**

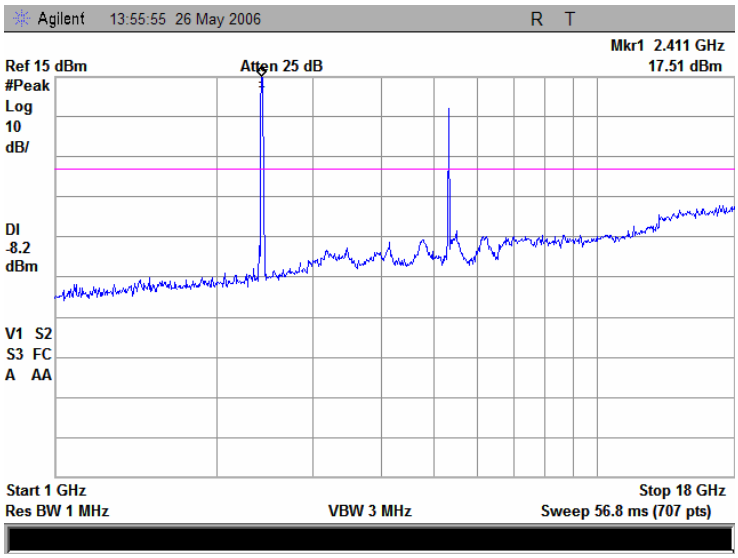
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

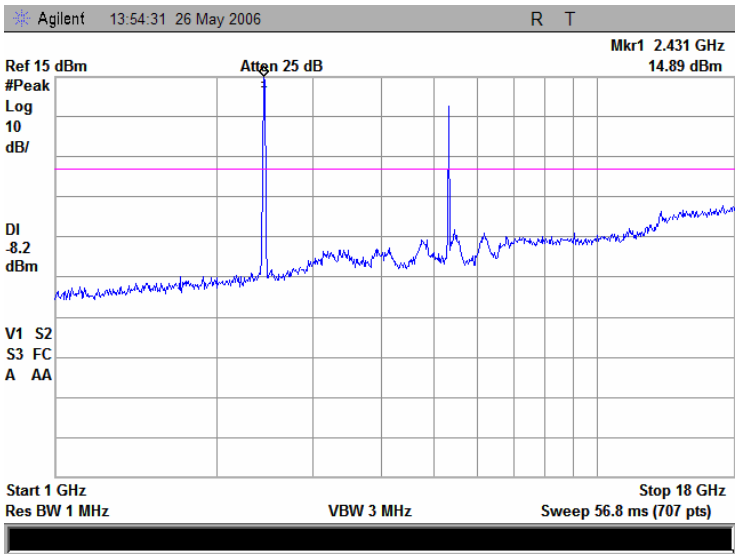
**Plot 7.3.35 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.36 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, OFDM modulation**

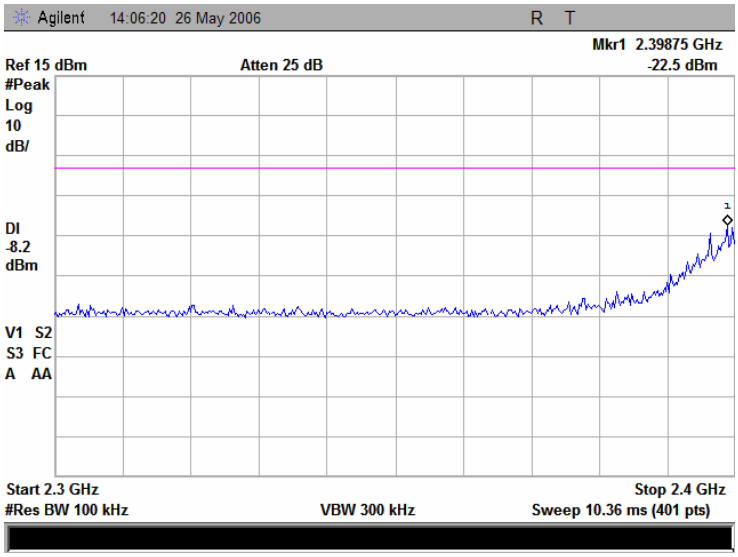
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

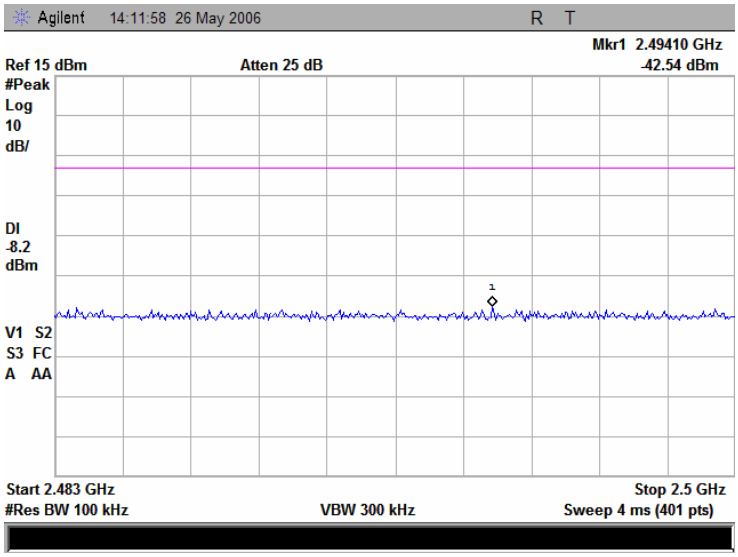
**Plot 7.3.37 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.38 Spurious emission measurements in 2483.5 - 2500 MHz range at low carrier frequency, OFDM modulation**

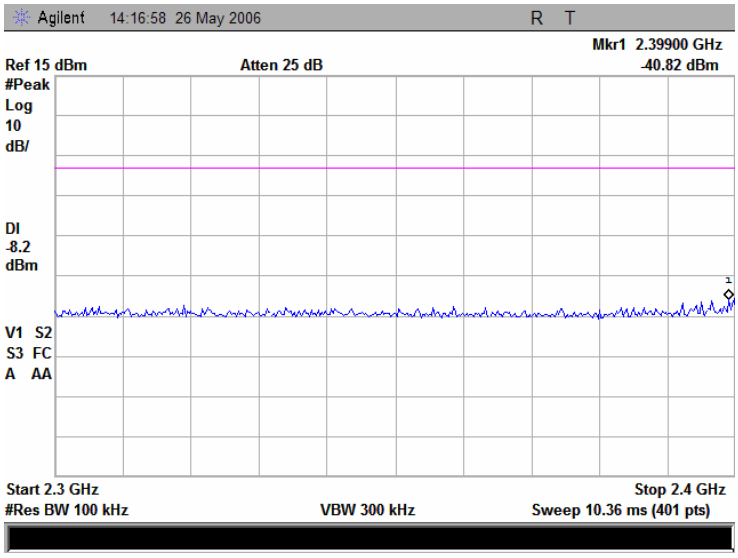
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

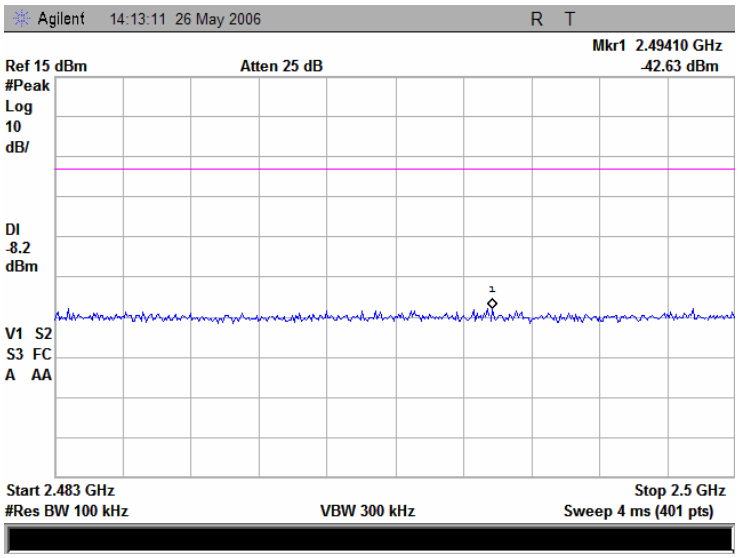
**Plot 7.3.39 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.40 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, OFDM modulation**

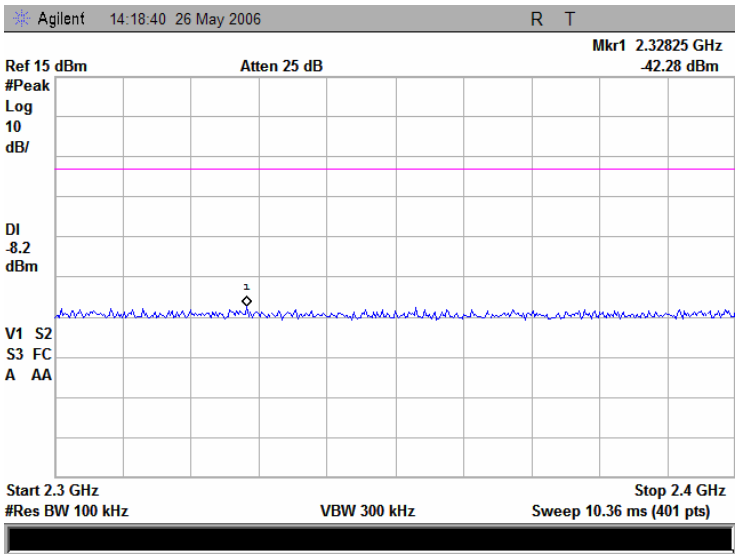
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

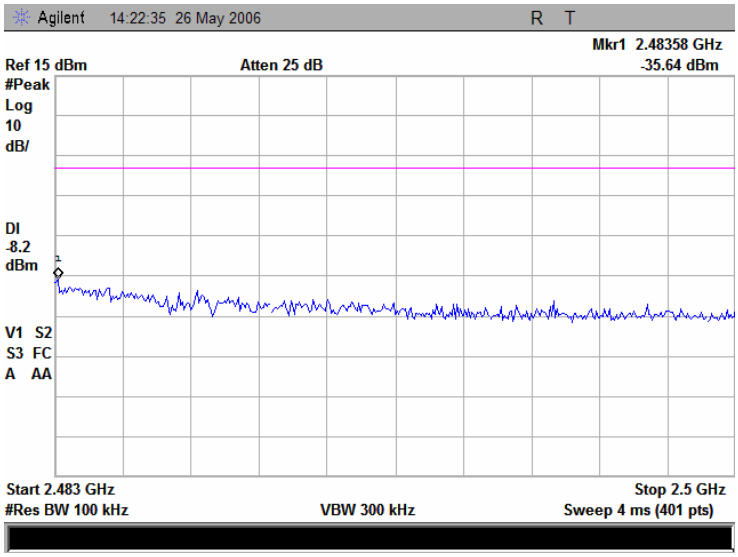
**Plot 7.3.41 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.42 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, OFDM modulation**

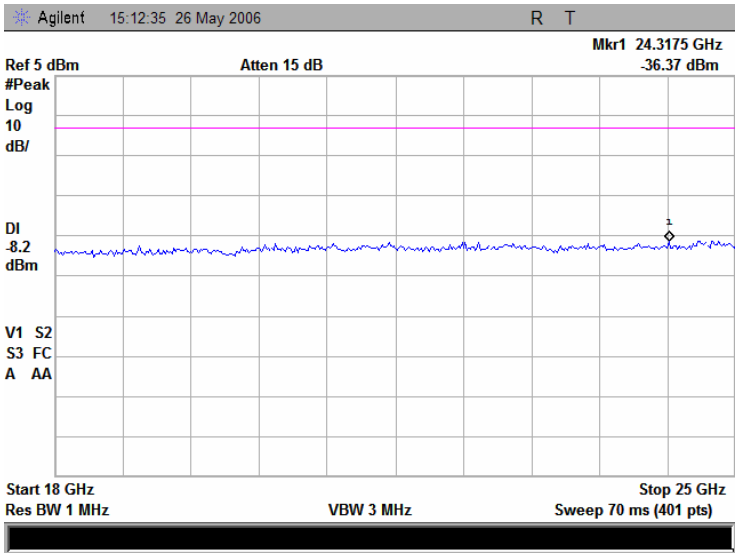
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

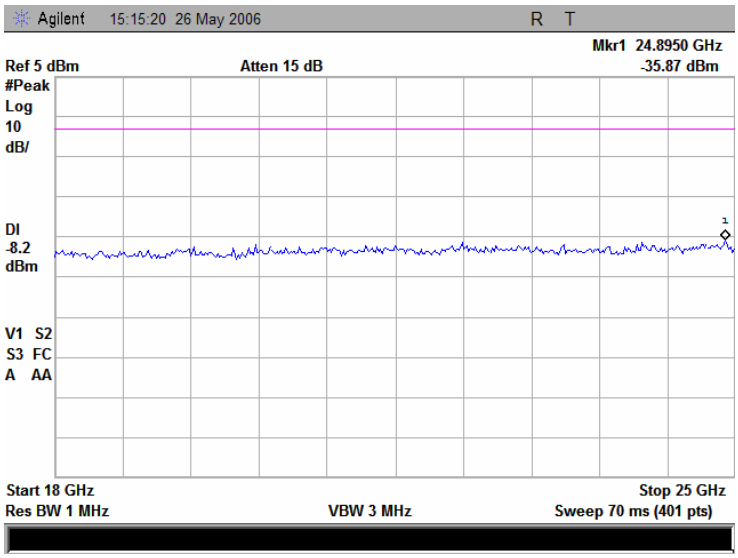
**Plot 7.3.43 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a**




**Plot 7.3.44 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, DSSS modulation**

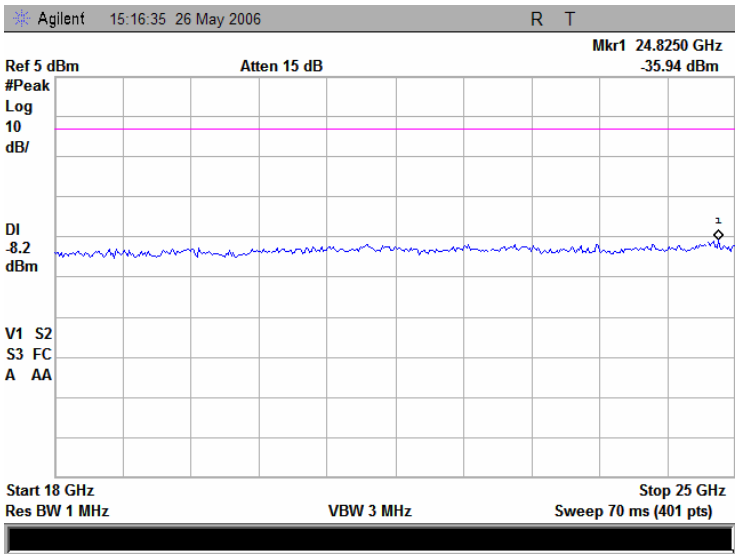
**Inputs:** **802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

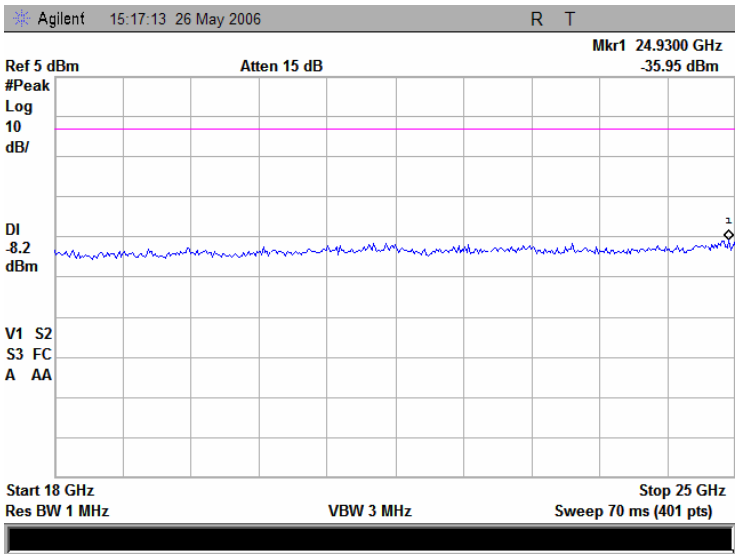
**Plot 7.3.45 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a**




**Plot 7.3.46 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, OFDM modulation**

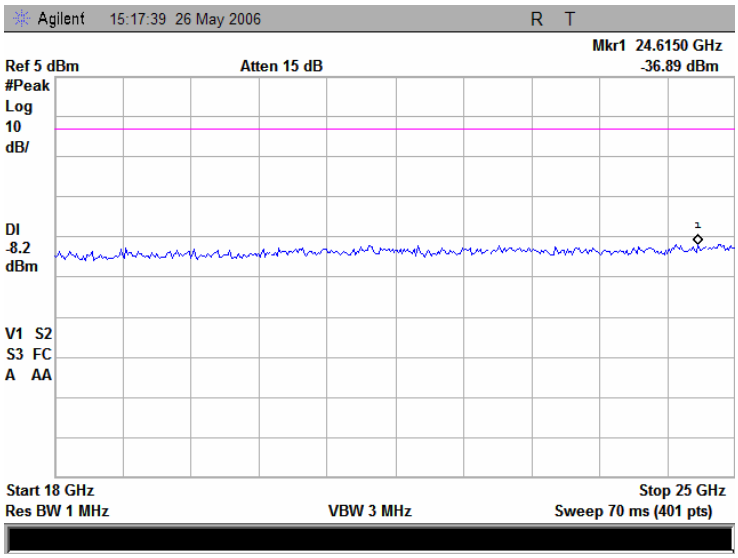
**Inputs: 802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

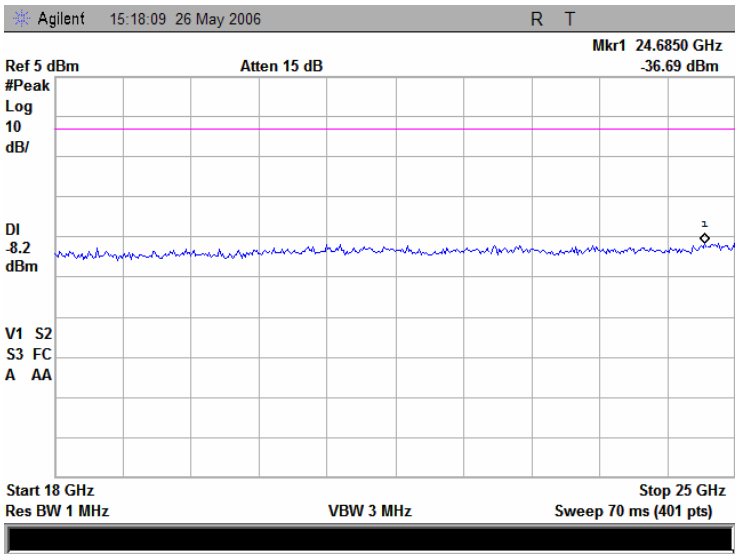
**Plot 7.3.47 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, OFDM modulation**

**Inputs: 802.11 b/g + 802.11 a**




**Plot 7.3.48 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, OFDM modulation**

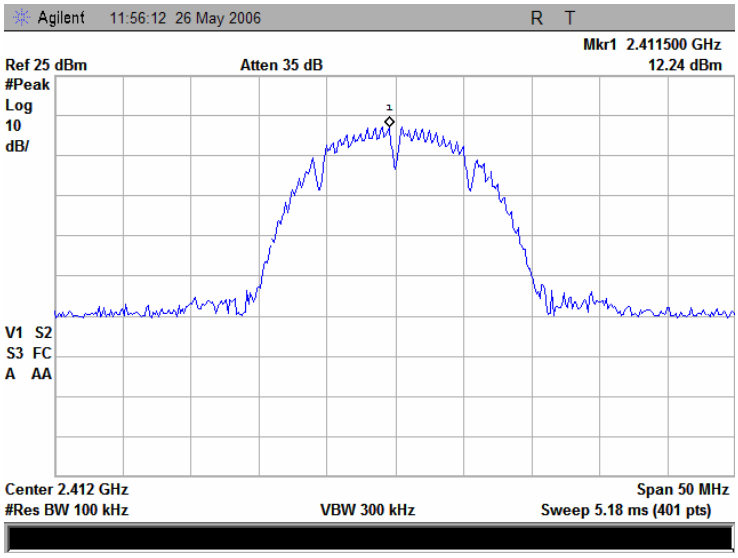
**Inputs: 802.11 b/g + 802.11 a**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

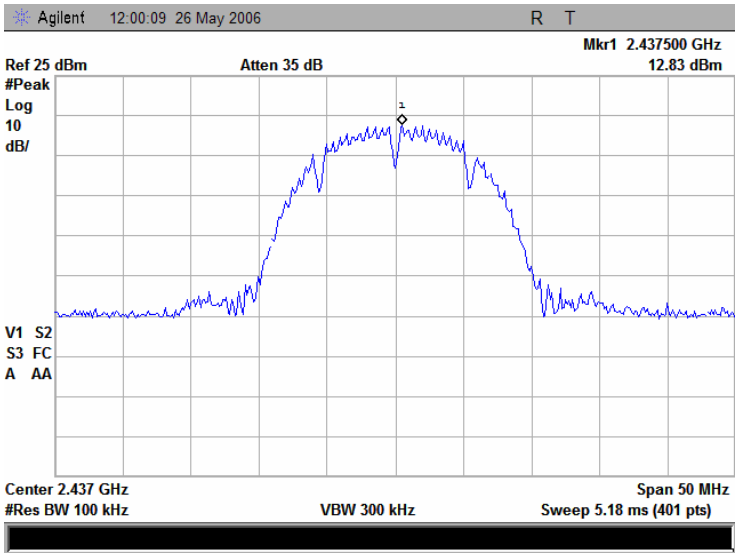
**Plot 7.3.49 The highest emission level within the assigned band at low carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.50 The highest emission level within the assigned band at mid carrier frequency, DSSS modulation**

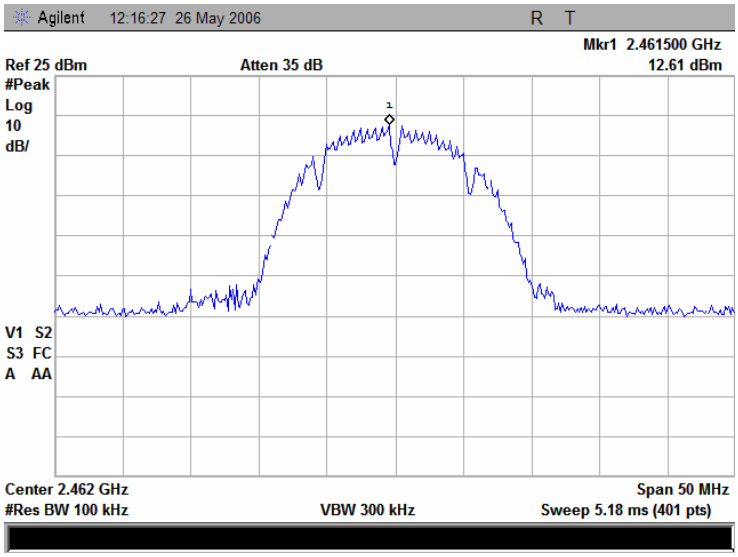
**Inputs: 802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

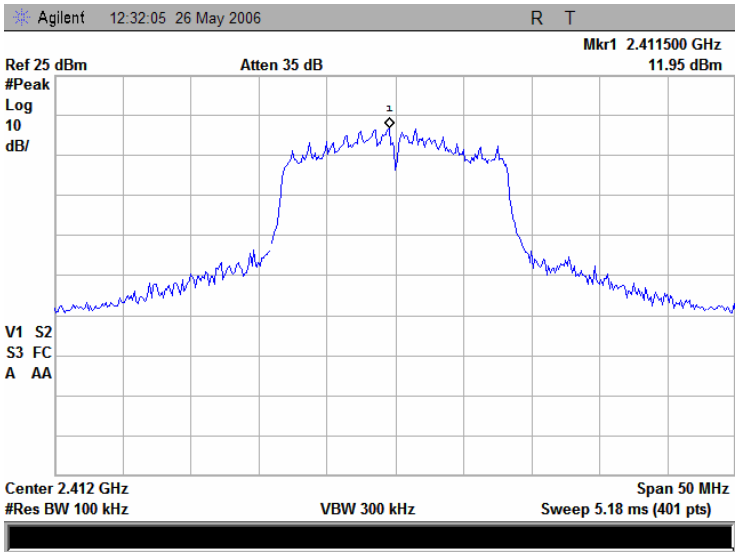
**Plot 7.3.51 The highest emission level within the assigned band at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.52 The highest emission level within the assigned band at low carrier frequency, OFDM modulation**

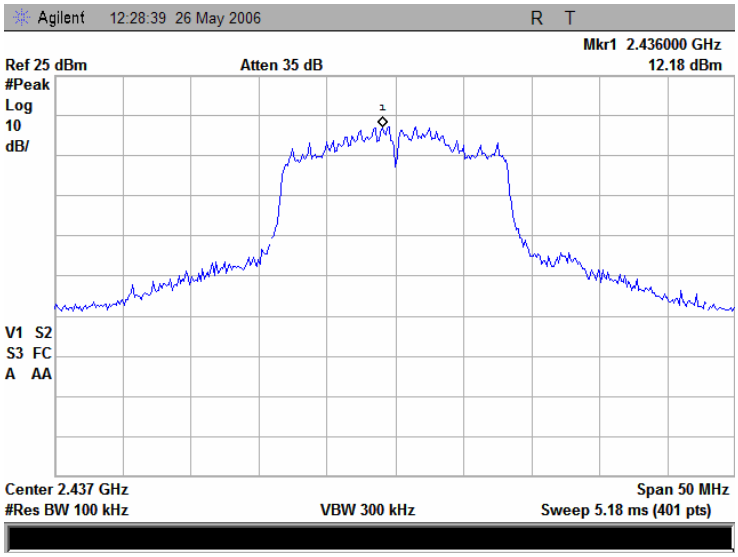
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

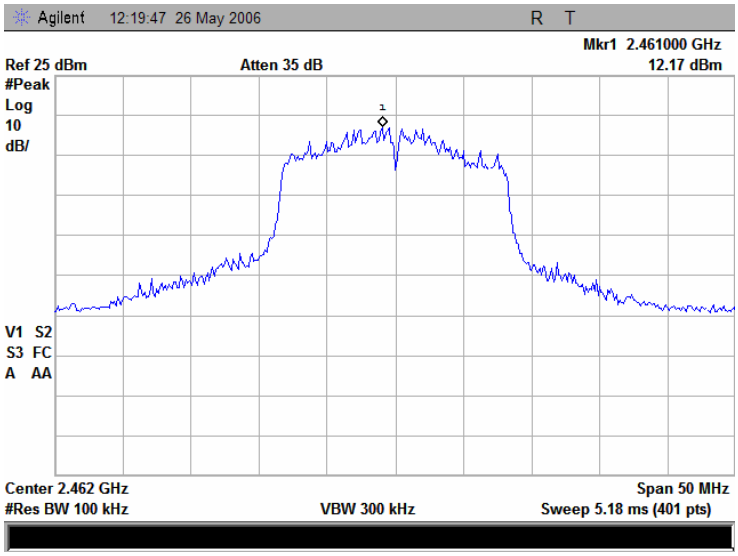
**Plot 7.3.53 The highest emission level within the assigned band at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.54 The highest emission level within the assigned band at high carrier frequency, OFDM modulation**

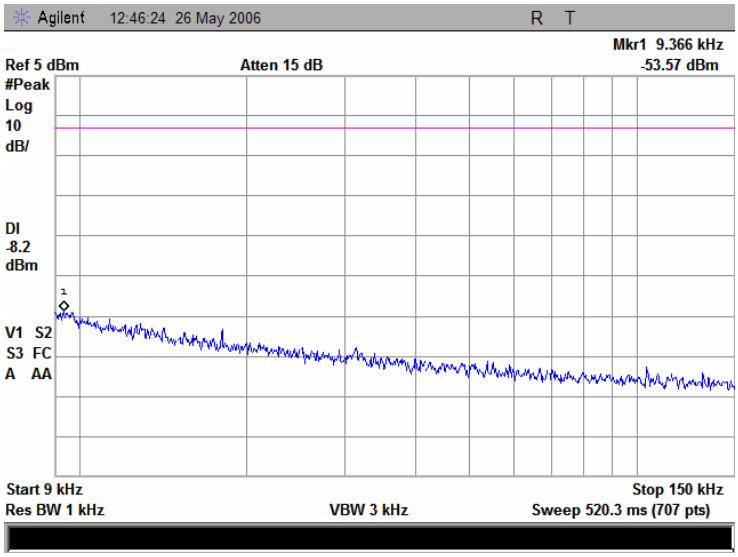
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

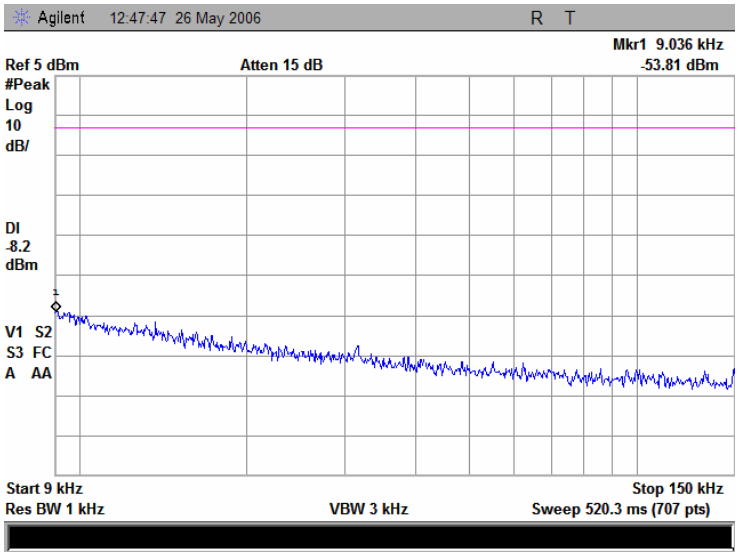
**Plot 7.3.55 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.56 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, DSSS modulation**

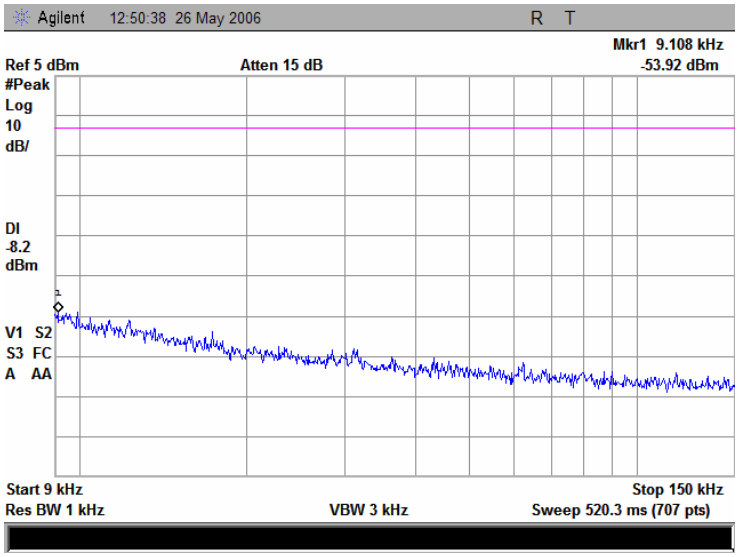
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

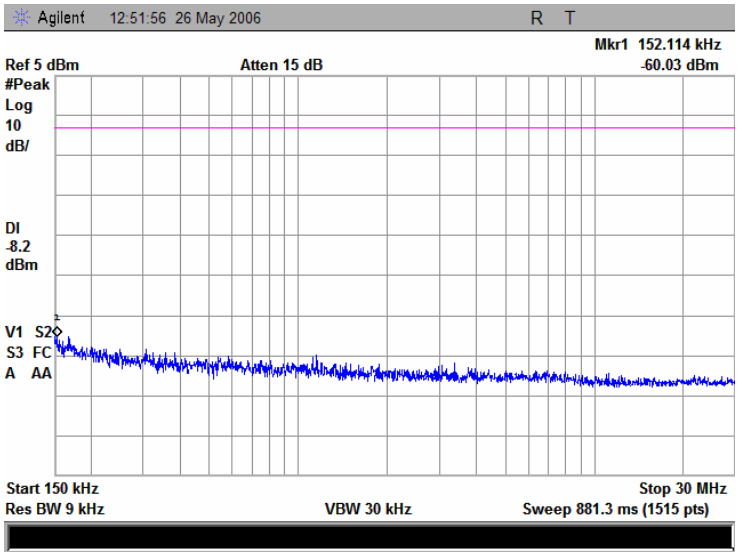
**Plot 7.3.57 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.58 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, DSSS modulation**

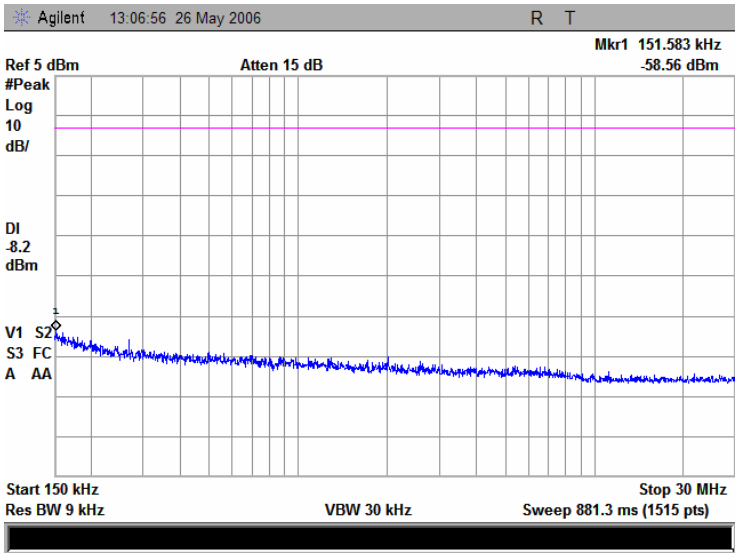
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

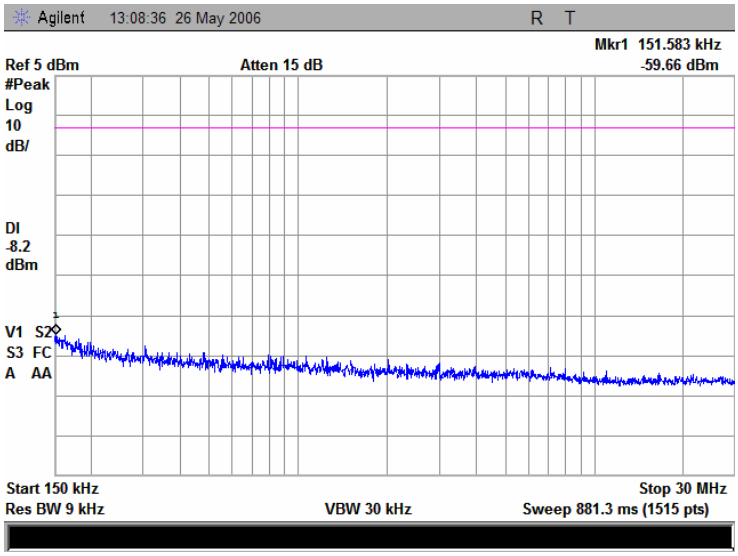
**Plot 7.3.59 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.60 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, DSSS modulation**

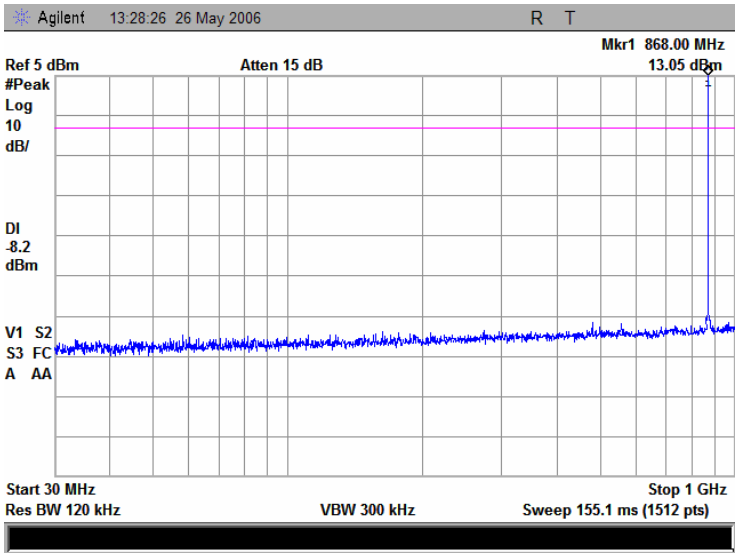
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

**Plot 7.3.61 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, DSSS modulation**

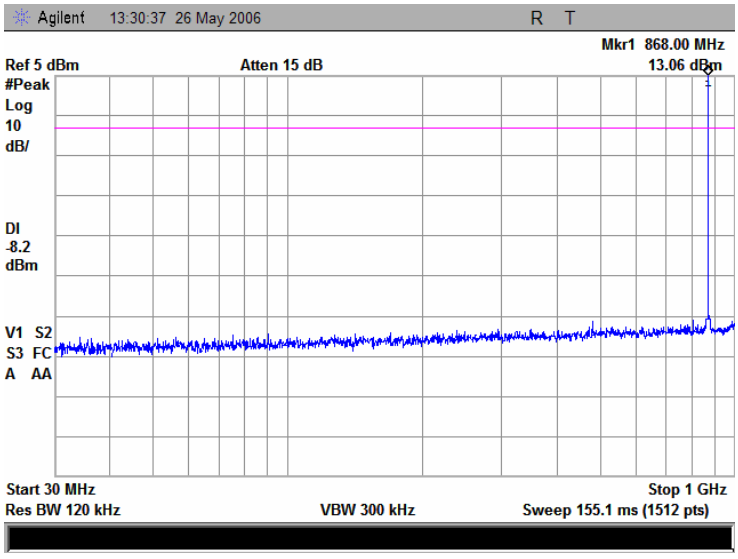
**Inputs:** **802.11 b/g + 802.11 a + licensed**




Note: 868 MHz – intended emission of CELL module

**Plot 7.3.62 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, DSSS modulation**

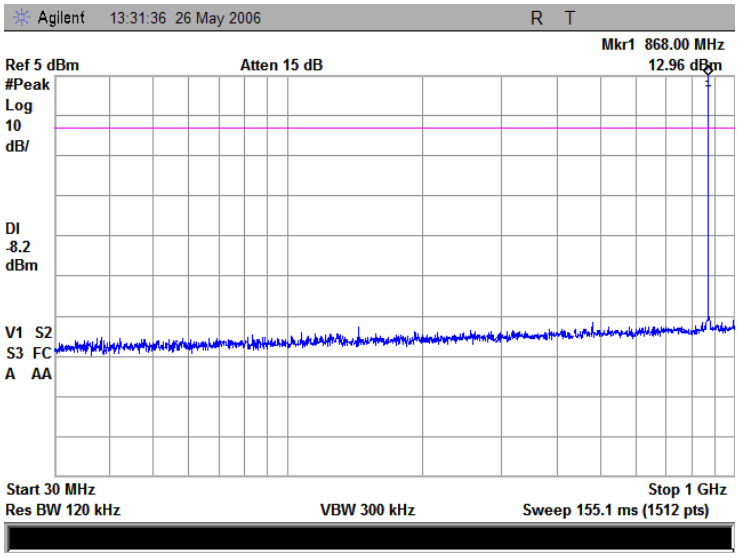
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

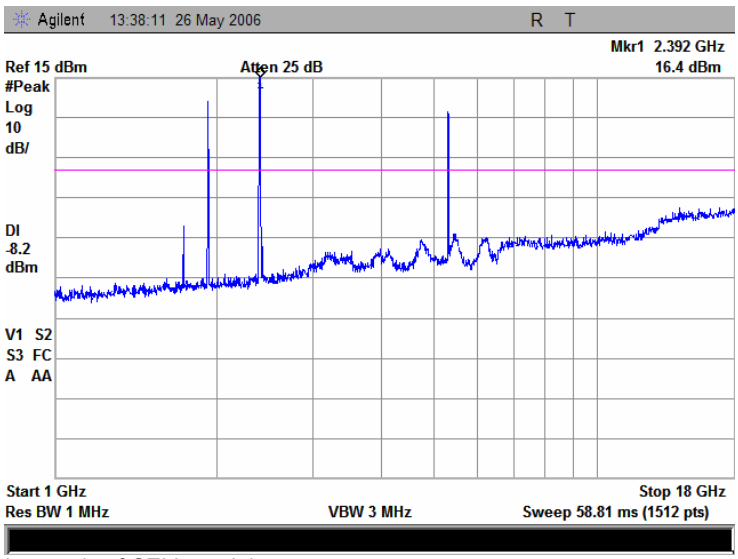
**Plot 7.3.63 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.64 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**

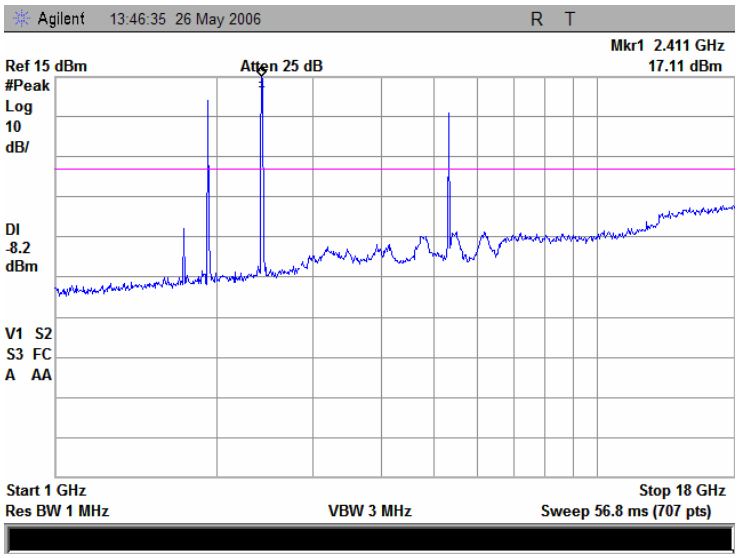



Note: 1.7 GHz second harmonic of CELL module,
1.9 GHz intended emission of PCS module,
2.4 GHz intended emission of 802.11b,
5.3 GHz intended emission of 802.11a.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

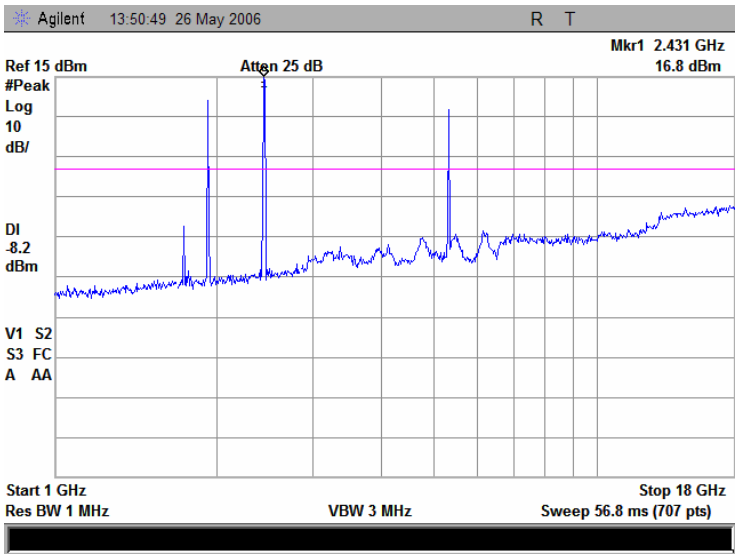
**Plot 7.3.65 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.66 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, DSSS modulation**

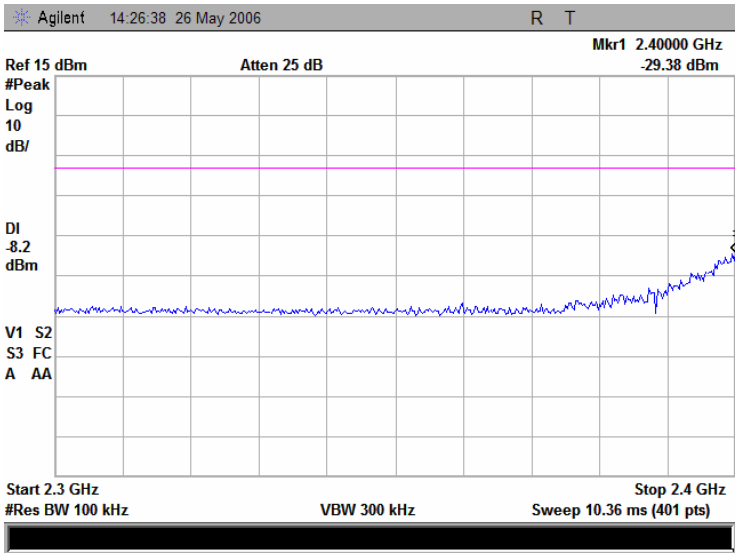
**Inputs: 802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

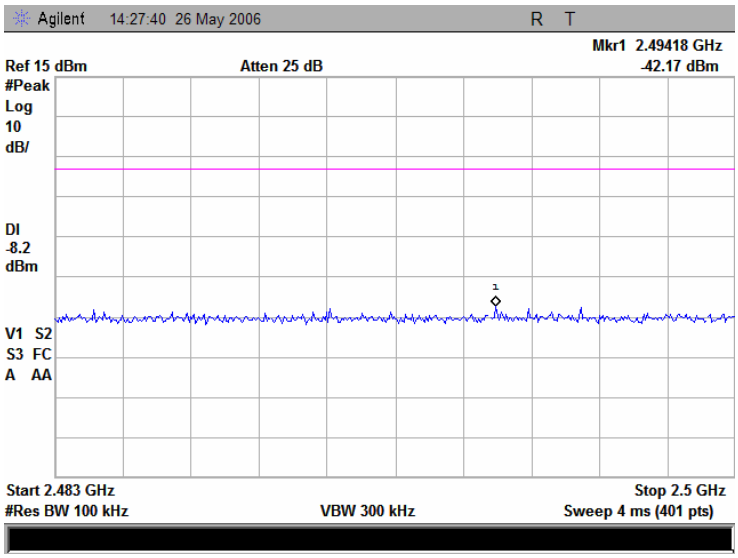
**Plot 7.3.67 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.68 Spurious emission measurements in 2483.5 - 2500 MHz range at low carrier frequency, DSSS modulation**

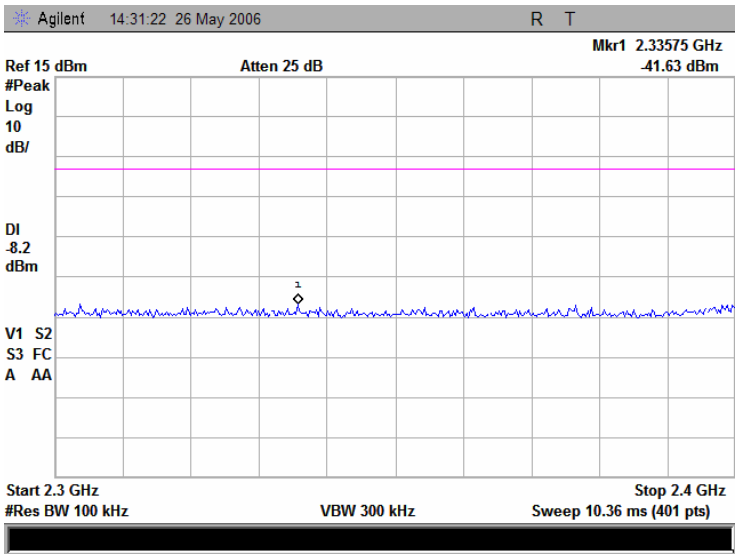
**Inputs: 802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

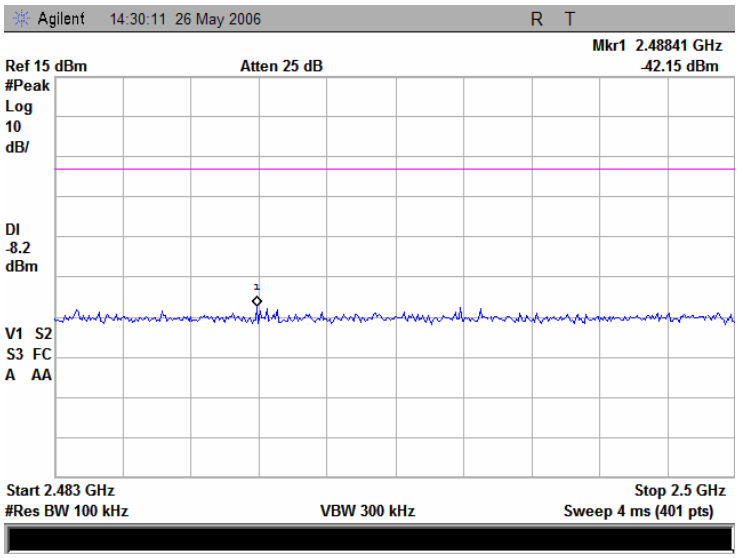
**Plot 7.3.69 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.70 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, DSSS modulation**

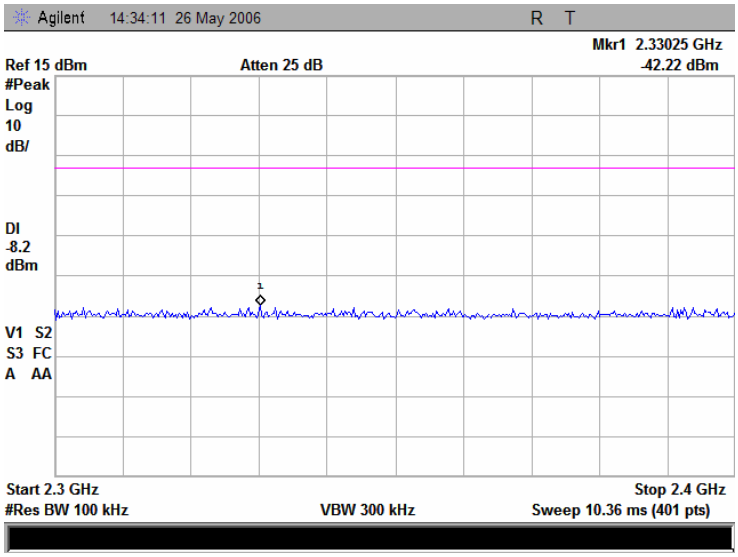
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

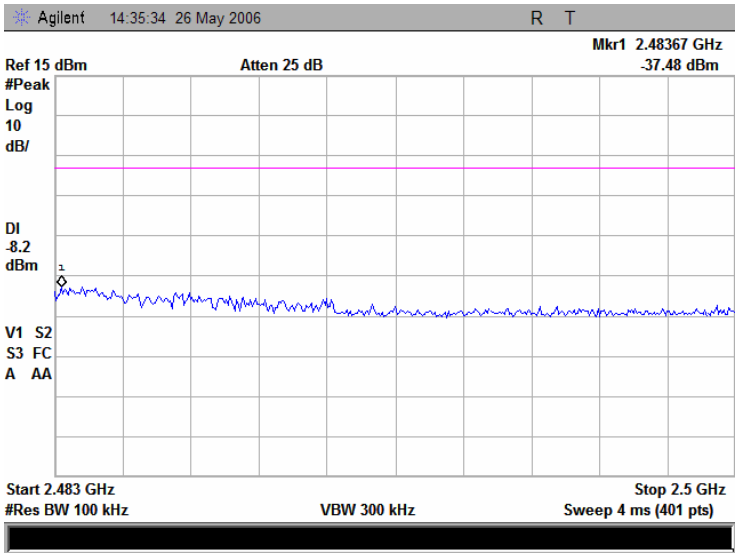
**Plot 7.3.71 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.72 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, DSSS modulation**

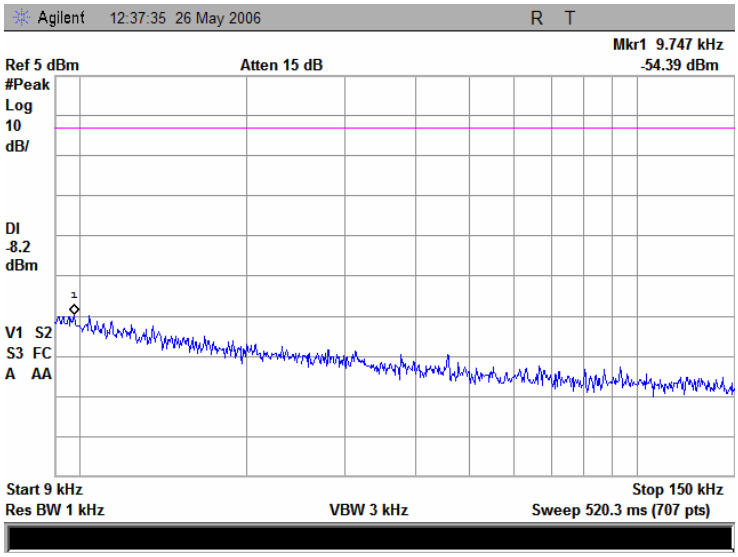
**Inputs: 802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

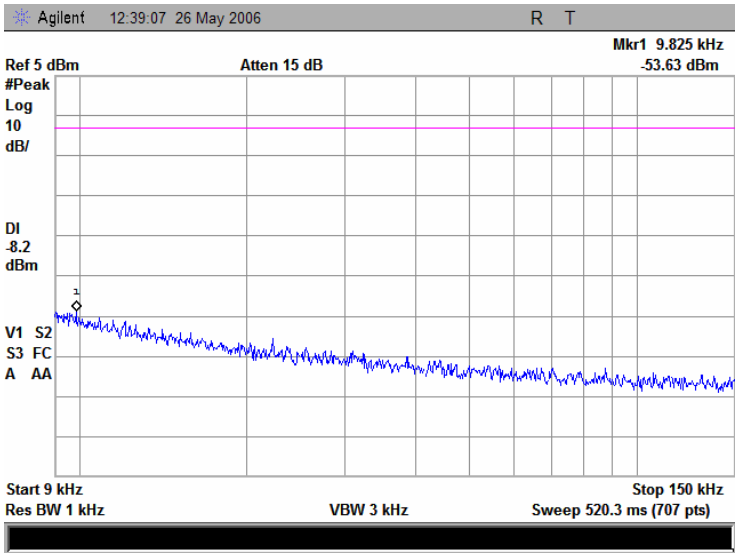
**Plot 7.3.73 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, OFDM modulation**

**Inputs: 802.11 b/g + 802.11 a + licensed**




**Plot 7.3.74 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, OFDM modulation**

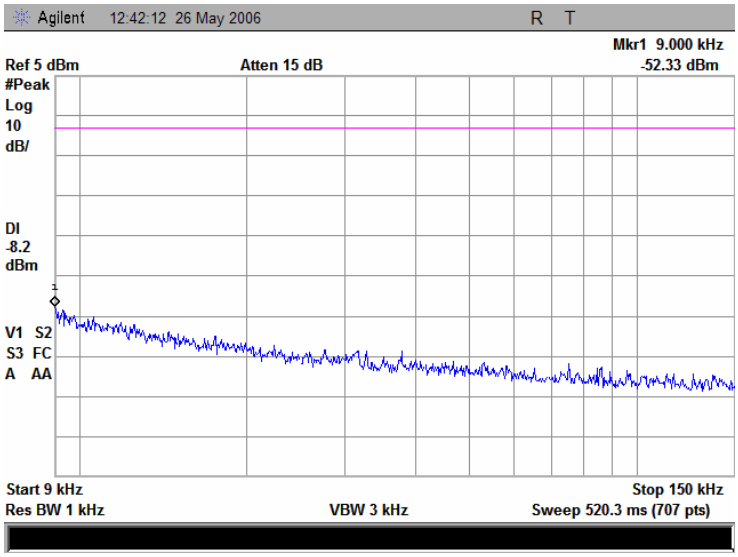
**Inputs: 802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

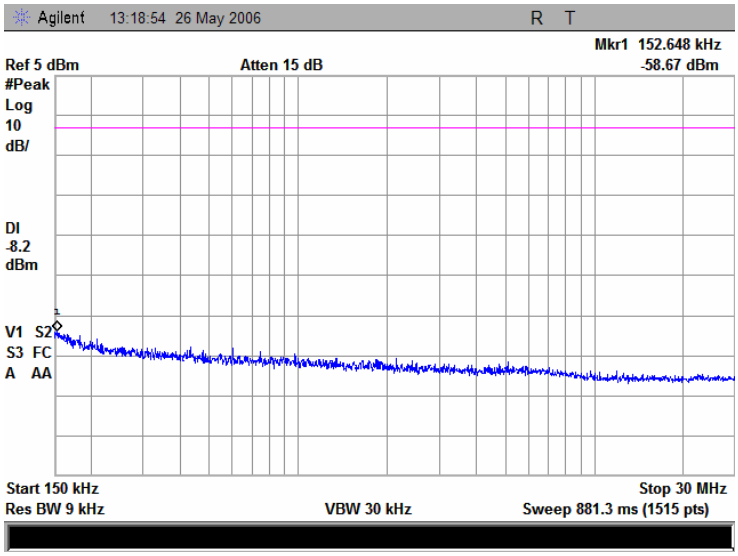
**Plot 7.3.75 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.76 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, OFDM modulation**

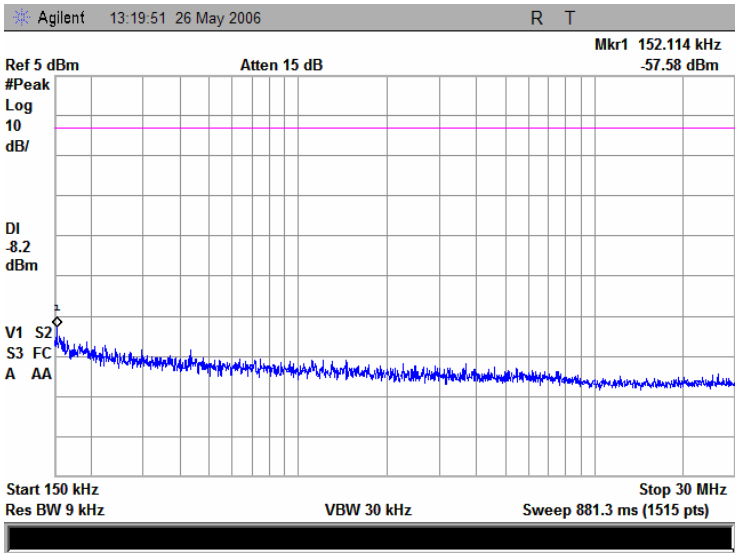
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

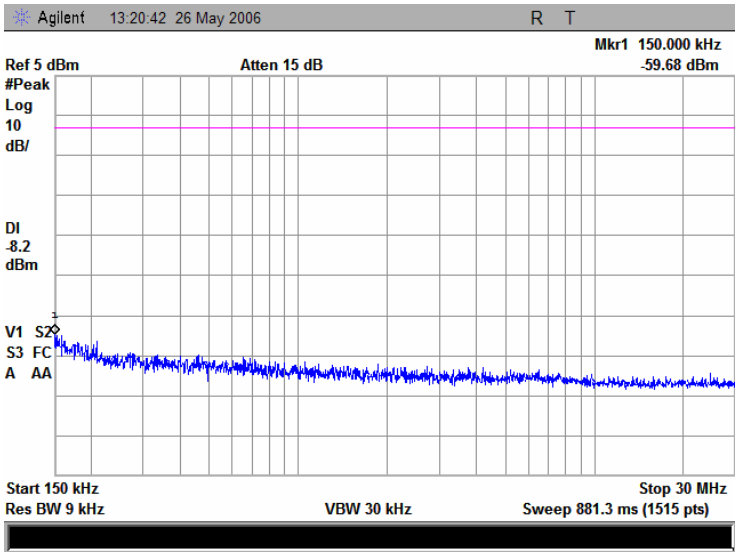
**Plot 7.3.77 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.78 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, OFDM modulation**

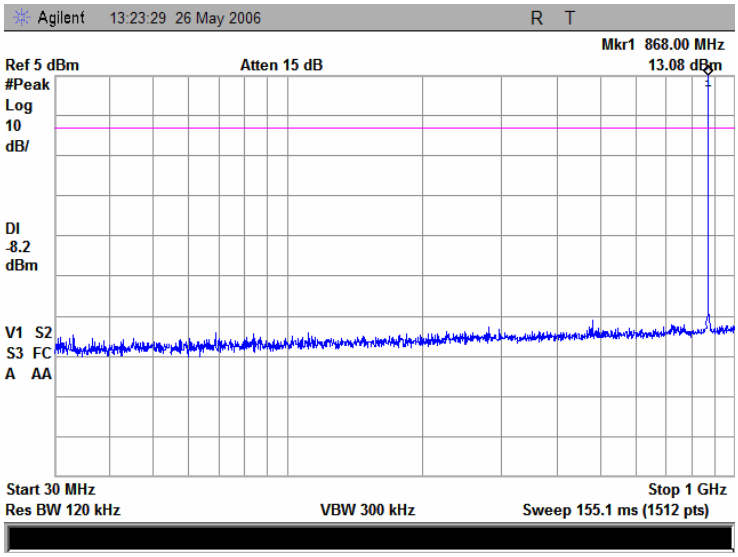
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

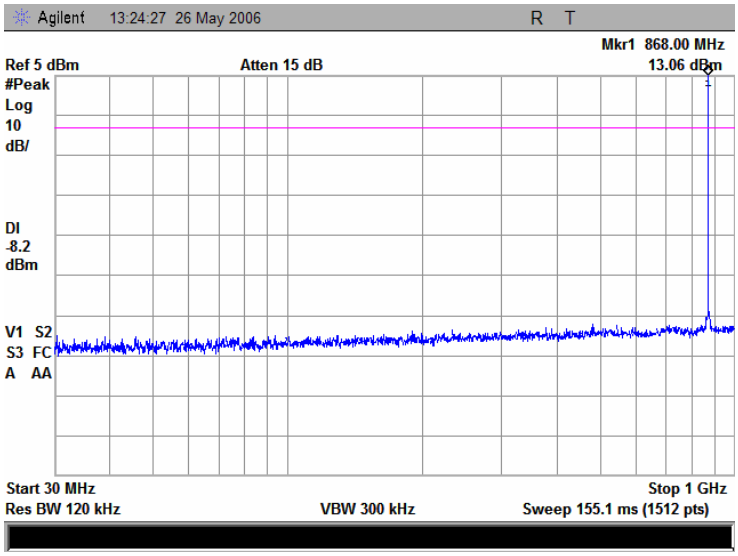
**Plot 7.3.79 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.80 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, OFDM modulation**

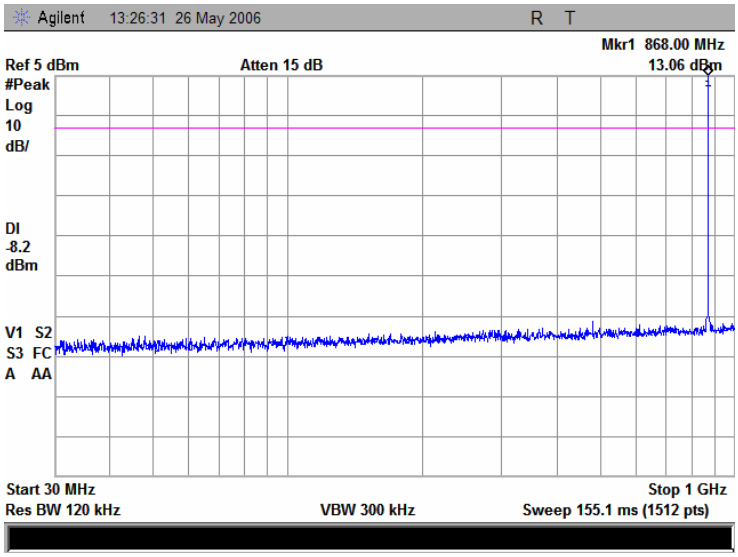
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

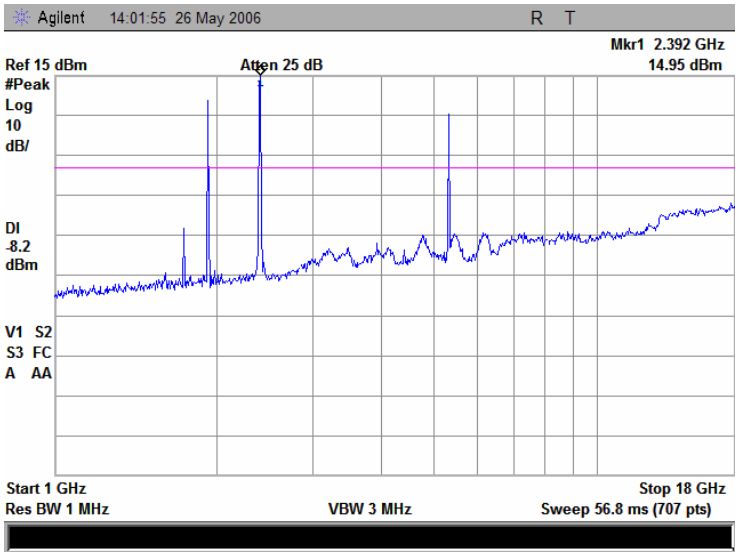
**Plot 7.3.81 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.82 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, OFDM modulation**

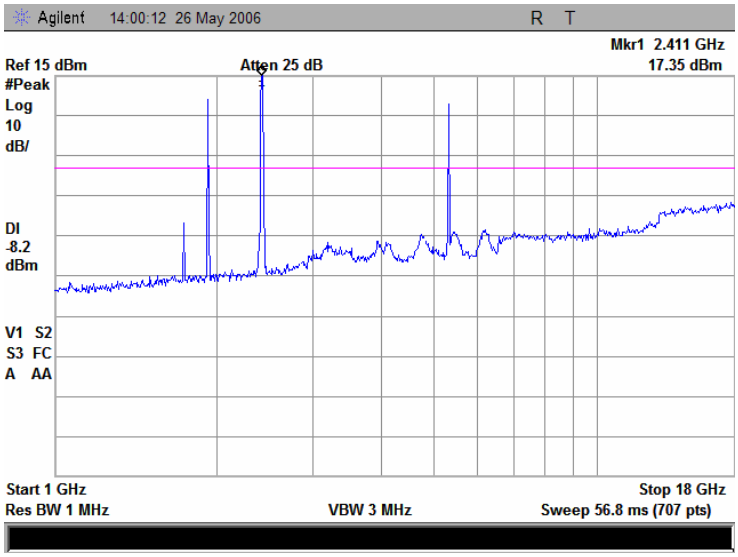
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

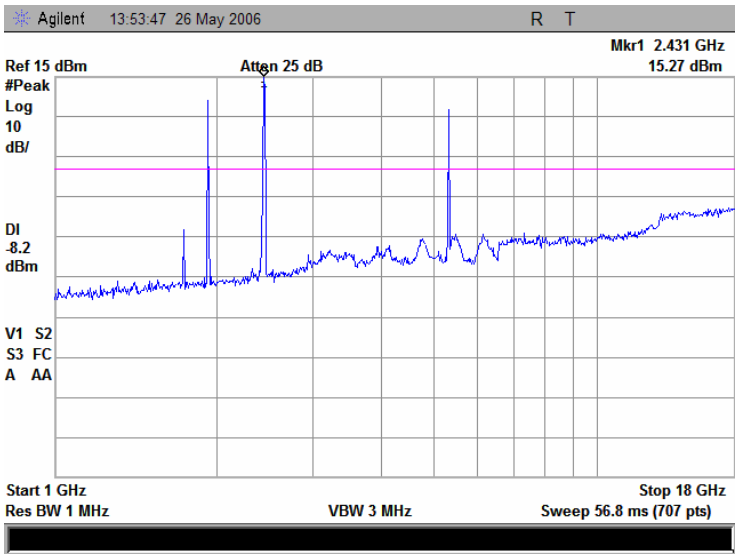
**Plot 7.3.83 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.84 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, OFDM modulation**

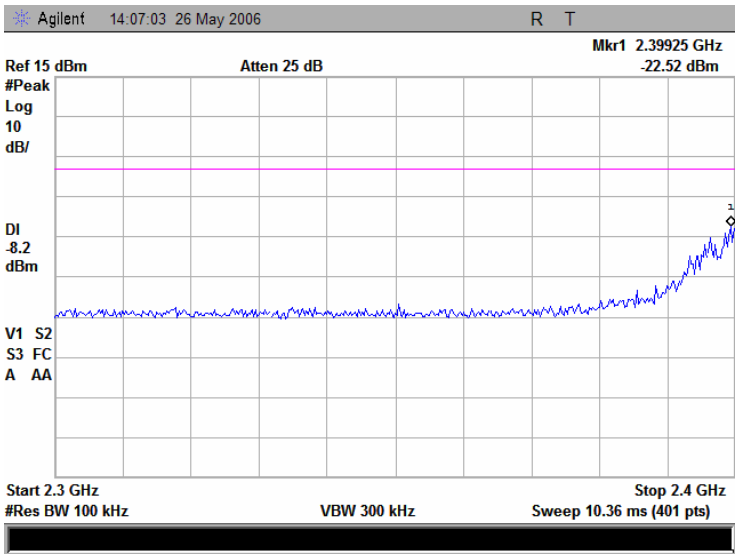
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

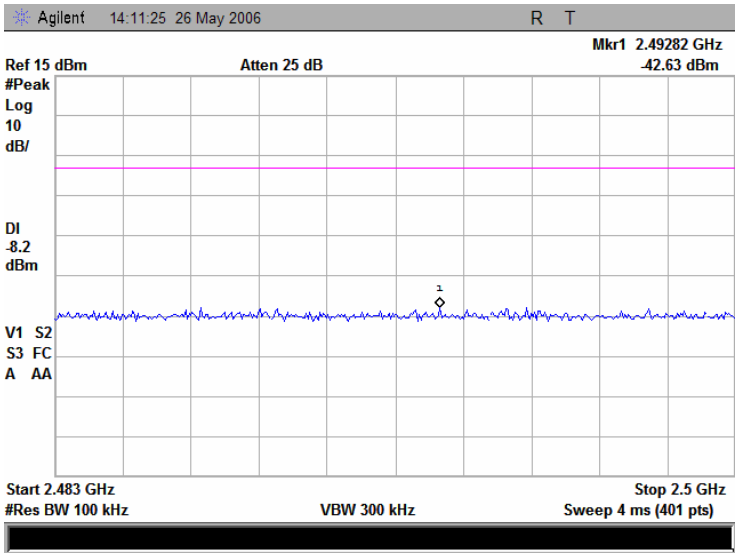
**Plot 7.3.85 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.86 Spurious emission measurements in 2483.5 - 3000 MHz range at low carrier frequency, OFDM modulation**

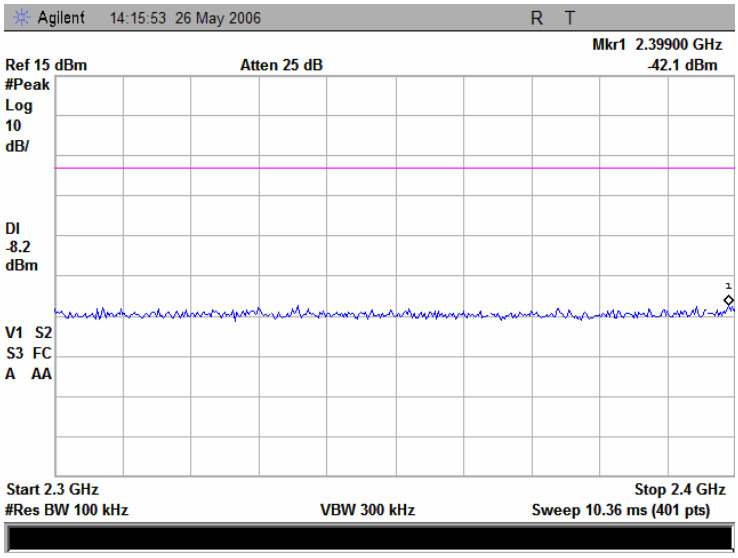
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

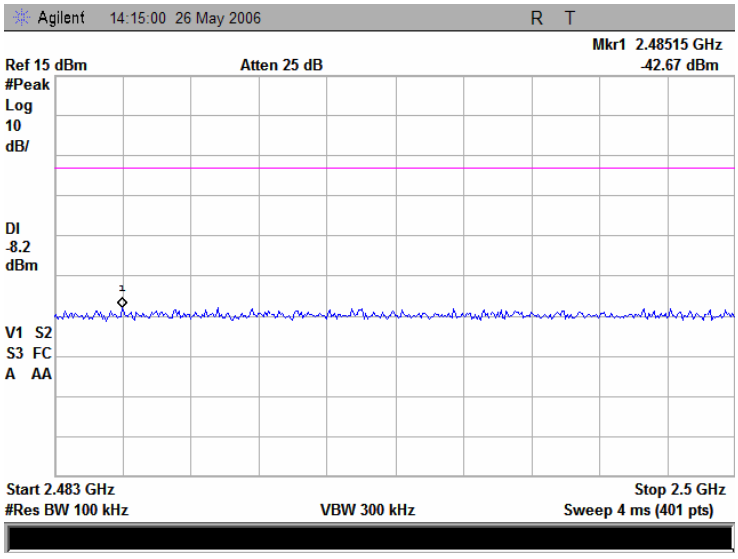
**Plot 7.3.87 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.88 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, OFDM modulation**

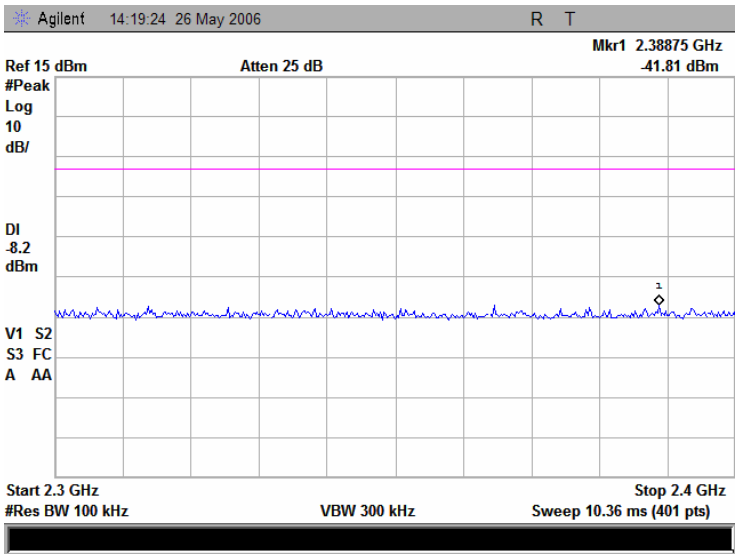
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

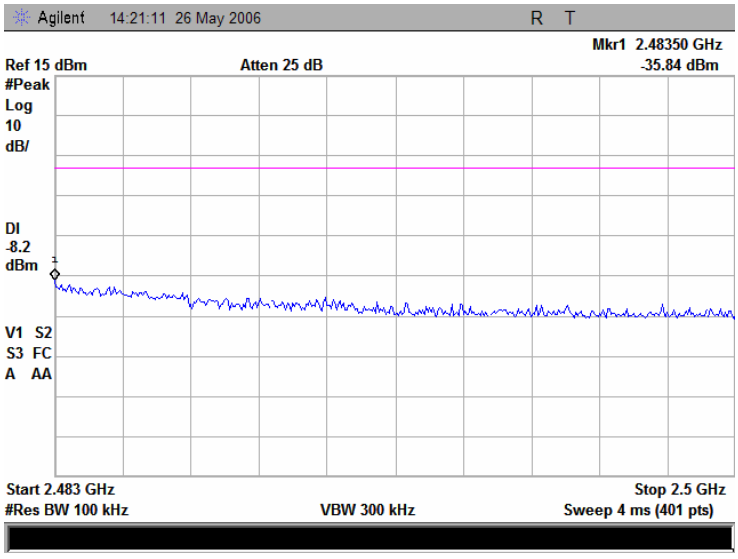
**Plot 7.3.89 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.90 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, OFDM modulation**

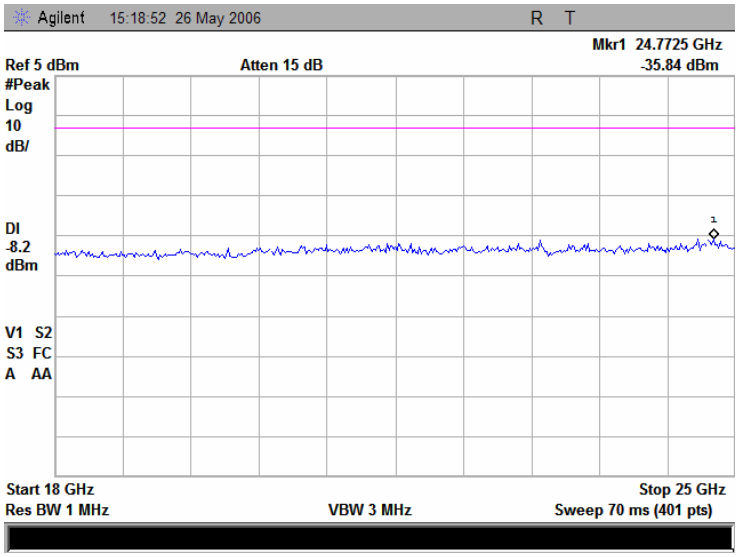
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

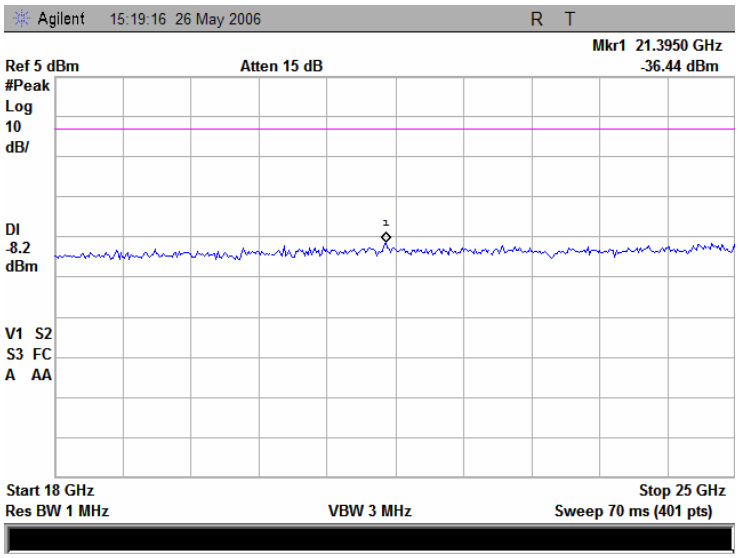
**Plot 7.3.91 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.92 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, DSSS modulation**

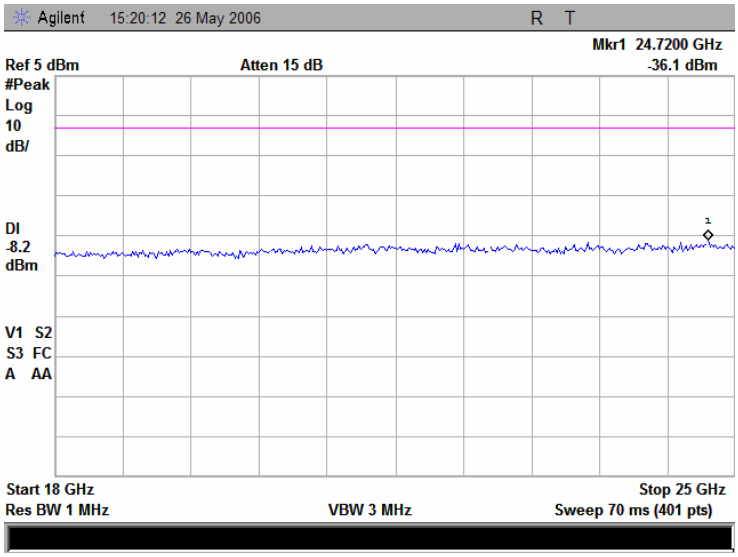
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

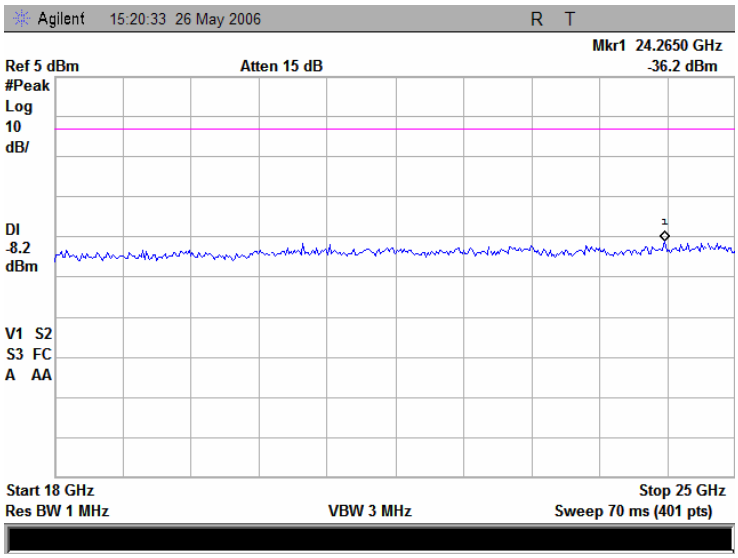
**Plot 7.3.93 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.94 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, OFDM modulation**

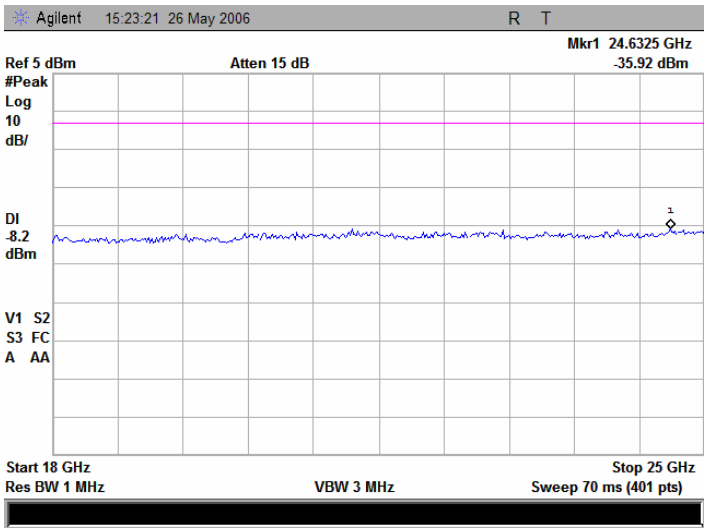
**Inputs:** **802.11 b/g + 802.11 a + licensed**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/26/2006 4:40:02 PM | | |
| Temperature: 22 °C | Air Pressure: 1012 hPa | Relative Humidity: 45 % | Power Supply: 120 VAC |
| Remarks: | | | |

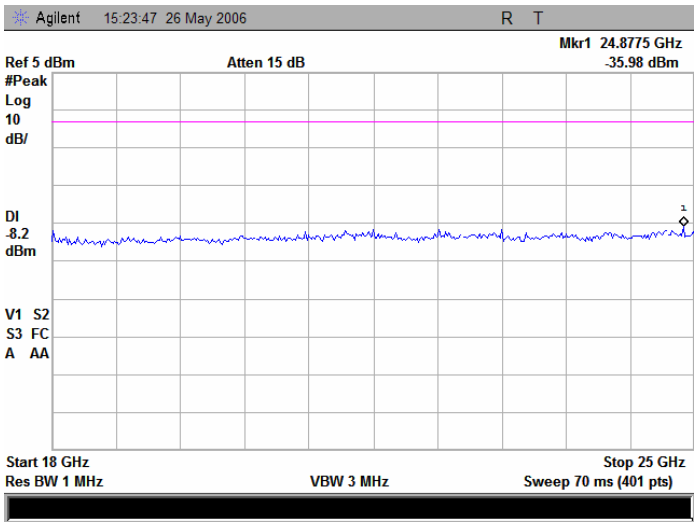
**Plot 7.3.95 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**




**Plot 7.3.96 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g + 802.11 a + licensed**



| **Test specification:** | **Section 15.247(c), Conducted spurious emissions** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol. 62, page 26243, Section 15.247(c) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 6/29/2006 7:00:19 PM | | |
| **Temperature:** 25 ºC | **Air Pressure:** 1007 hPa | **Relative Humidity:** 46 % | **Power Supply:** 120 VAC |
| **Remarks:** 802.11b/g | | | |

**Table 7.3.3 Spurious emission test results**

ASSIGNED FREQUENCY RANGE: 2400 – 2483.5 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 25000 MHz
DETECTOR USED: Peak
RESOLUTION BANDWIDTH: 100 kHz
VIDEO BANDWIDTH: 300 kHz
MODULATION: DSSS / OFDM
MODULATING SIGNAL: PRBS
BIT RATE: 1 / 6 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
INPUTS: 802.11 b/g

| Frequency, MHz | Spurious emission, dBm | Emission at carrier, dBm | Attenuation below carrier, dBc | Limit, dBc | Margin, dB* | Verdict |
|---|---|---|---|---|---|---|
| **Modulation DSSS** | | | | | | |
| **Low carrier frequency** | | | | | | |
| 2399.500 | -33.47 | 8.04 | 41.51 | 20.0 | 21.51 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| | -43.76 | 7.22 | 50.98 | 20.0 | 30.98 | Pass |
| **Modulation OFDM** | | | | | | |
| **Low carrier frequency** | | | | | | |
| | -27.4 | 7.48 | 34.88 | 20.0 | 14.88 | Pass |
| **Mid carrier frequency** | | | | | | |
| No spurious emissions were found | | | | | | Pass |
| **High carrier frequency** | | | | | | |
| | -35.67 | 7.41 | 43.08 | 20.0 | 23.08 | Pass |

*****- Margin = Attenuation below carrier – specification limit.

**Reference numbers of test equipment used**

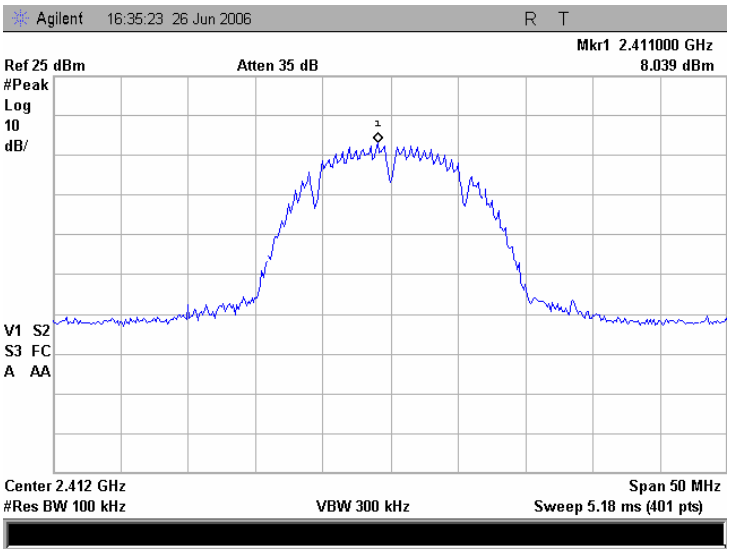
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 1650 | HL 2254 | HL 2524 | HL 2780 | HL 2867 | | | |

Full description is given in Appendix A.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

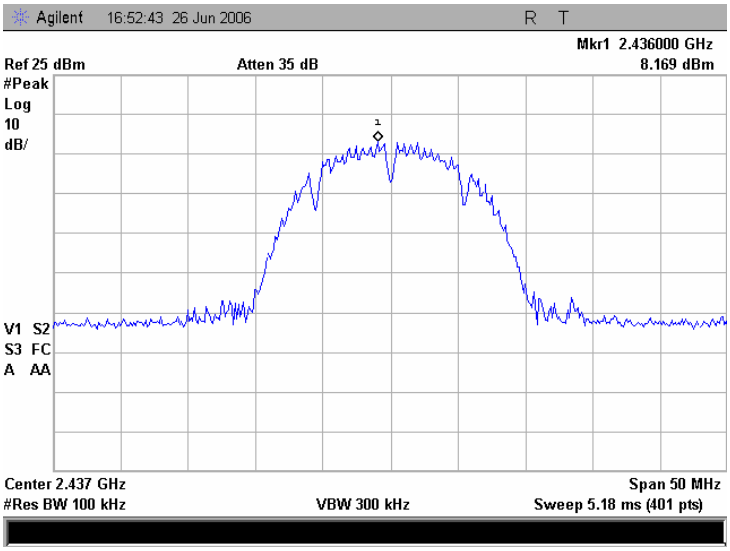
**Plot 7.3.97 The highest emission level within the assigned band at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.98 The highest emission level within the assigned band at mid carrier frequency, DSSS modulation**

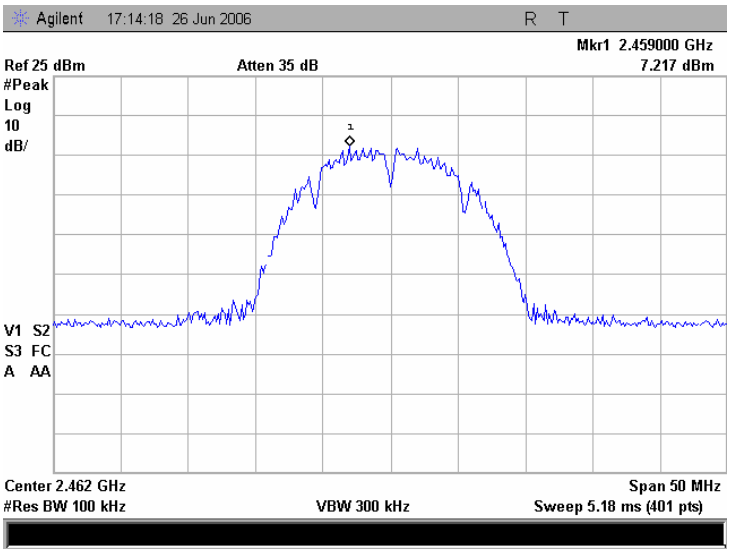
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

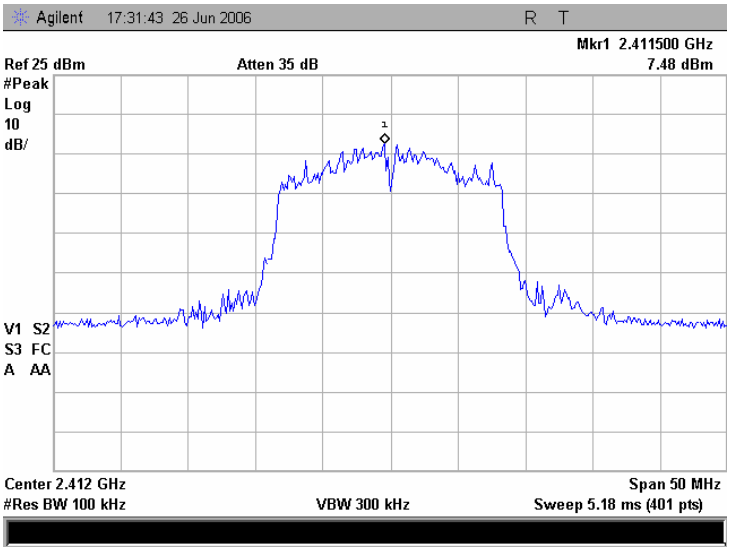
**Plot 7.3.99 The highest emission level within the assigned band at high carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g**




**Plot 7.3.100 The highest emission level within the assigned band at low carrier frequency, OFDM modulation**

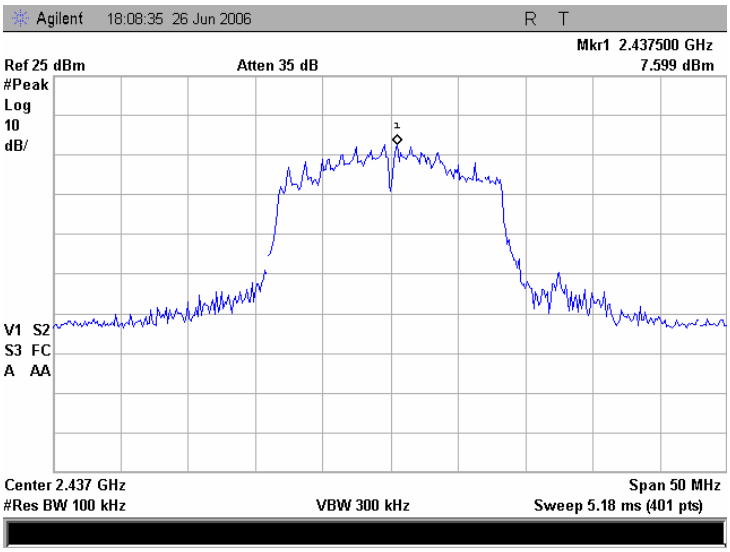
**Inputs: 802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

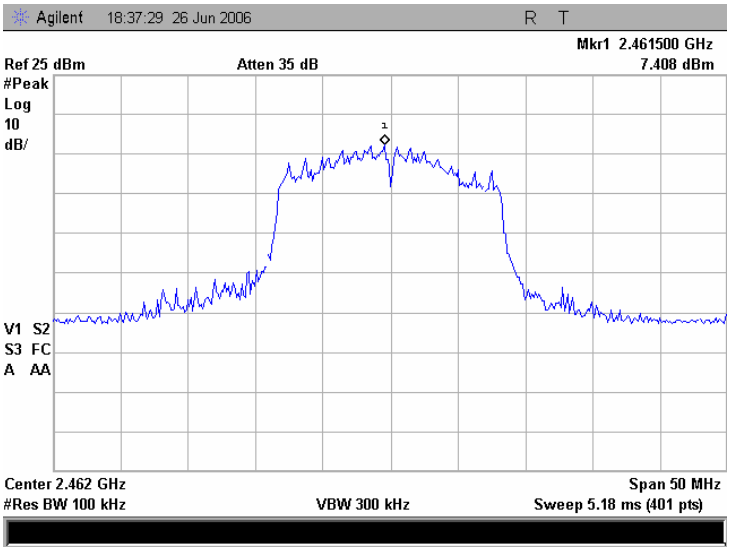
**Plot 7.3.101 The highest emission level within the assigned band at mid carrier frequency, OFDM modulation**

**Inputs: 802.11 b/g**




**Plot 7.3.102 The highest emission level within the assigned band at high carrier frequency, OFDM modulation**

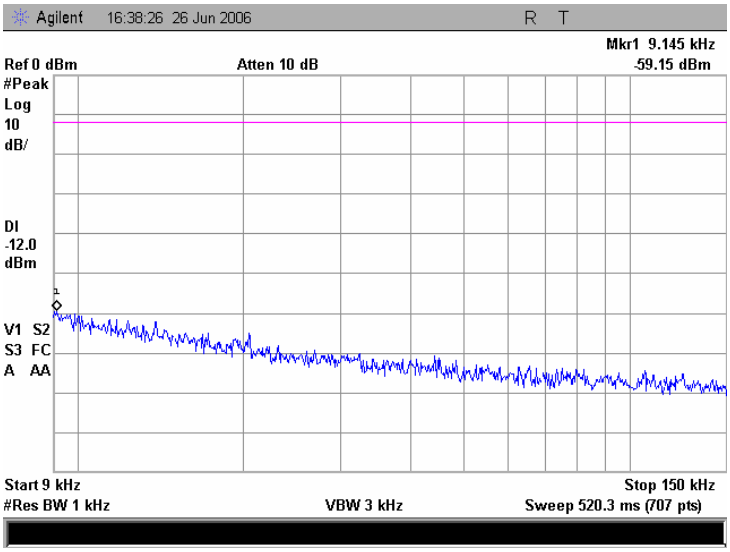
**Inputs: 802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

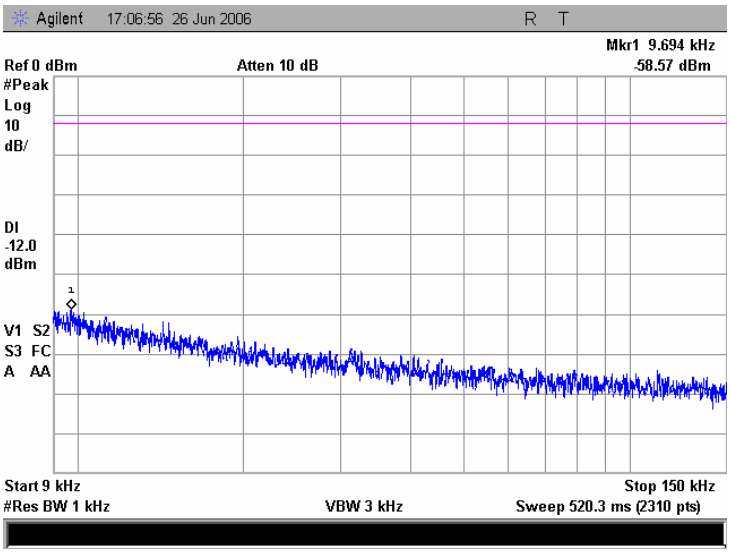
**Plot 7.3.103 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.104 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, DSSS modulation**

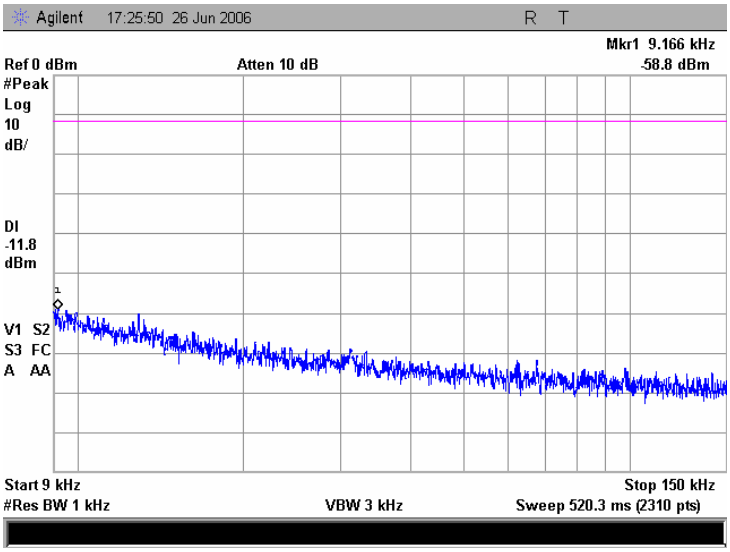
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

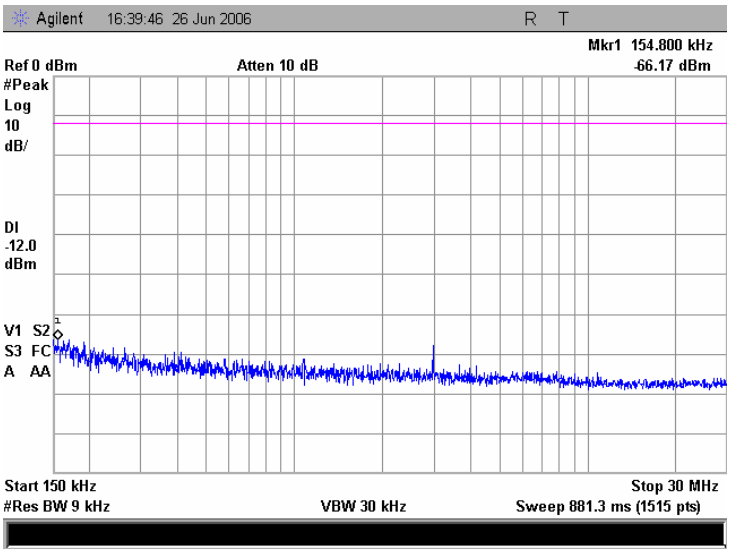
**Plot 7.3.105 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.106 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, DSSS modulation**

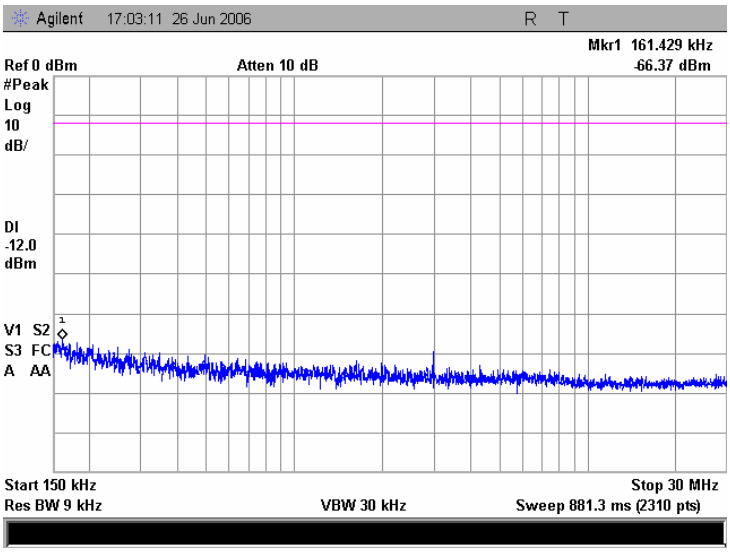
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

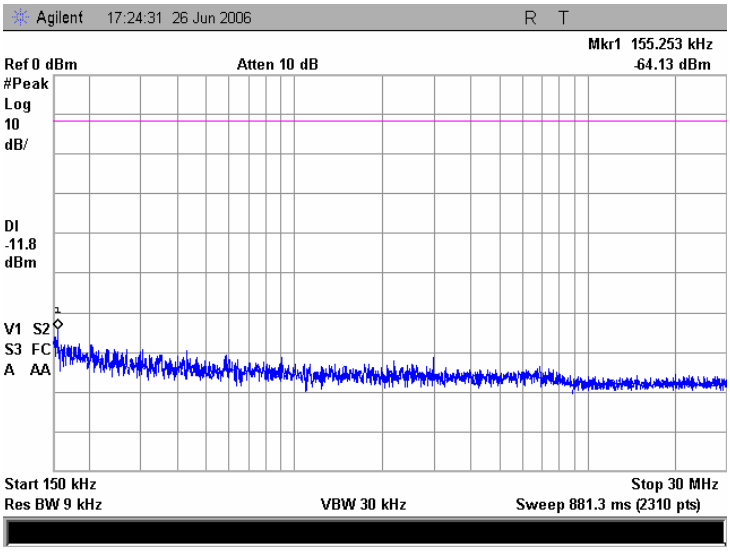
**Plot 7.3.107 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g**



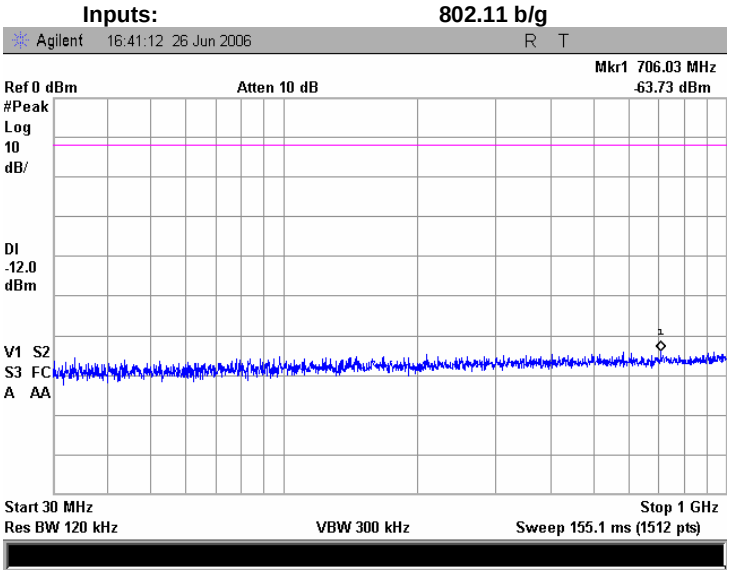

**Plot 7.3.108 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g**

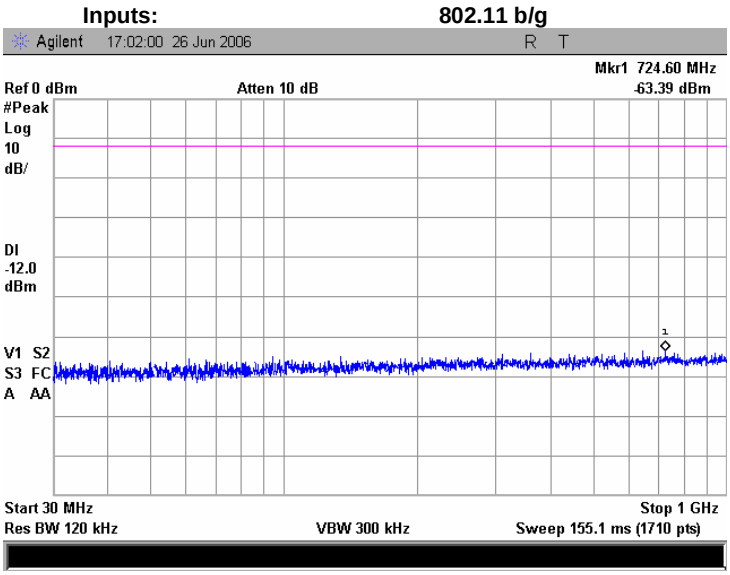


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

**Plot 7.3.109 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, DSSS modulation**



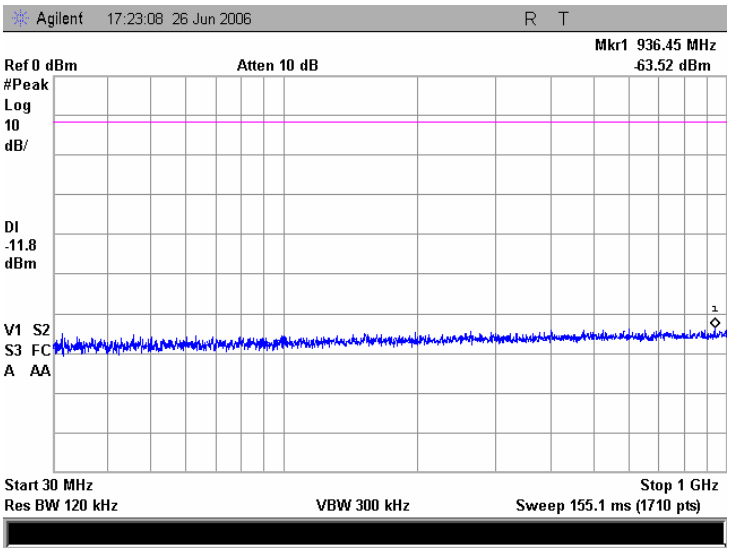

**Plot 7.3.110 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, DSSS modulation**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

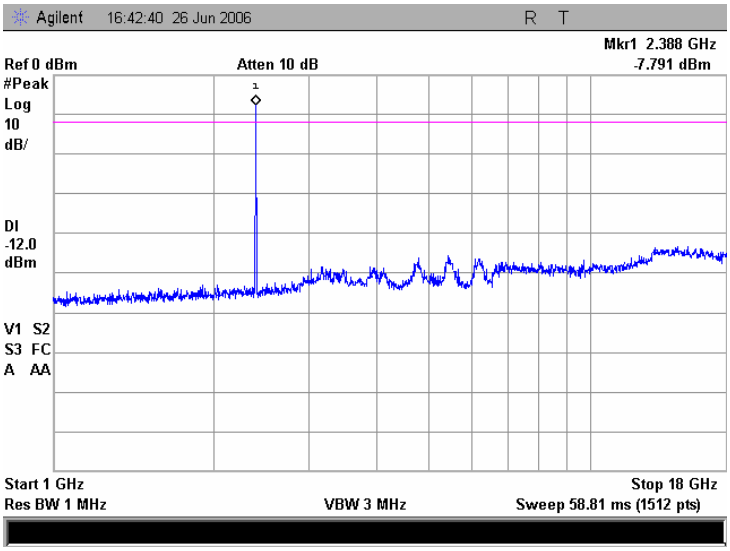
**Plot 7.3.111 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.112 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**

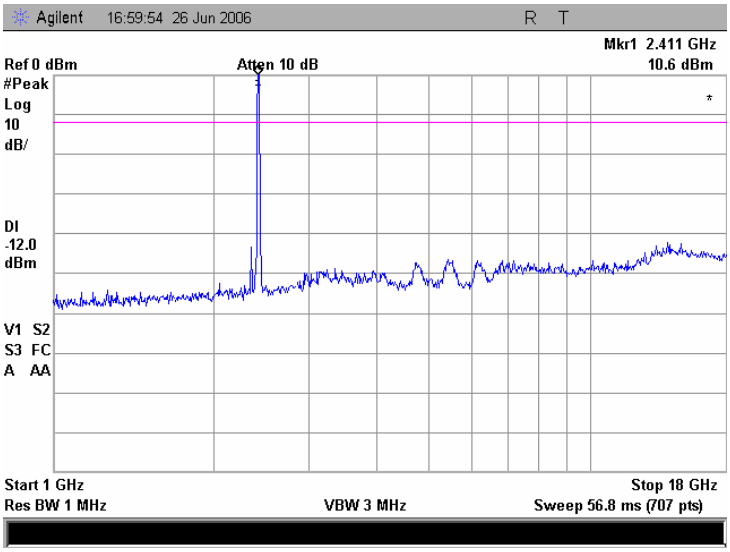



Note: 2.4 GHz intended emission of 802.11b.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

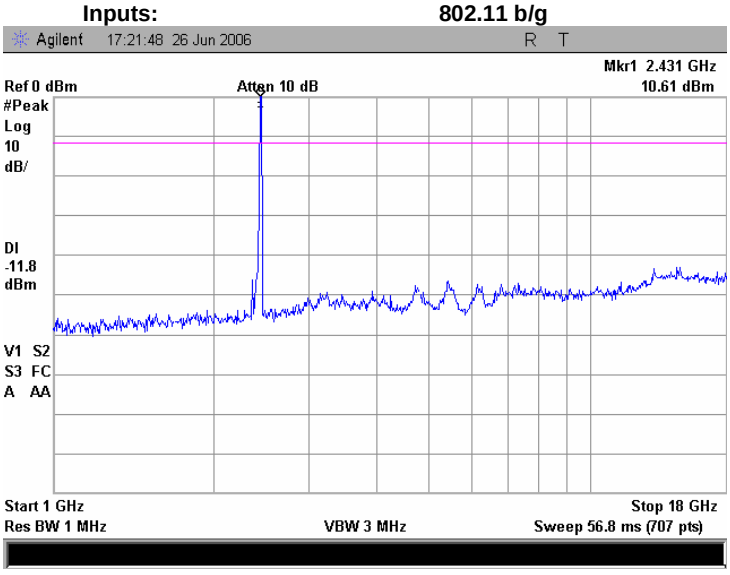
**Plot 7.3.113 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g**




**Plot 7.3.114 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, DSSS modulation**

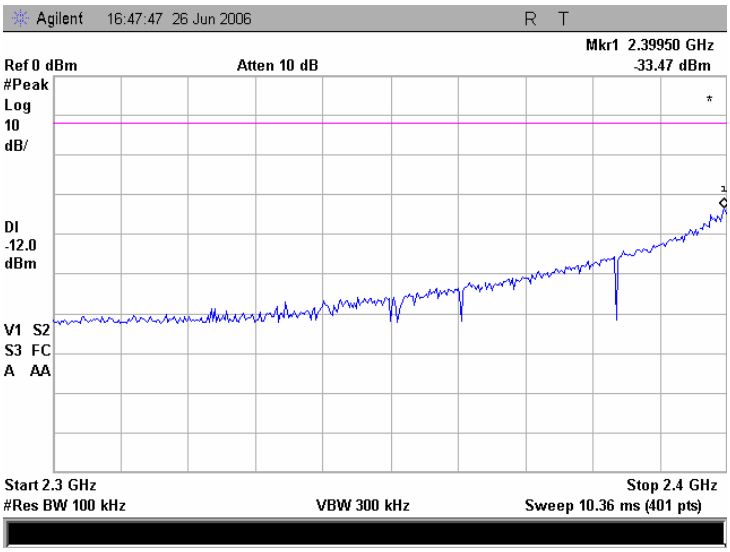
**Inputs: 802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

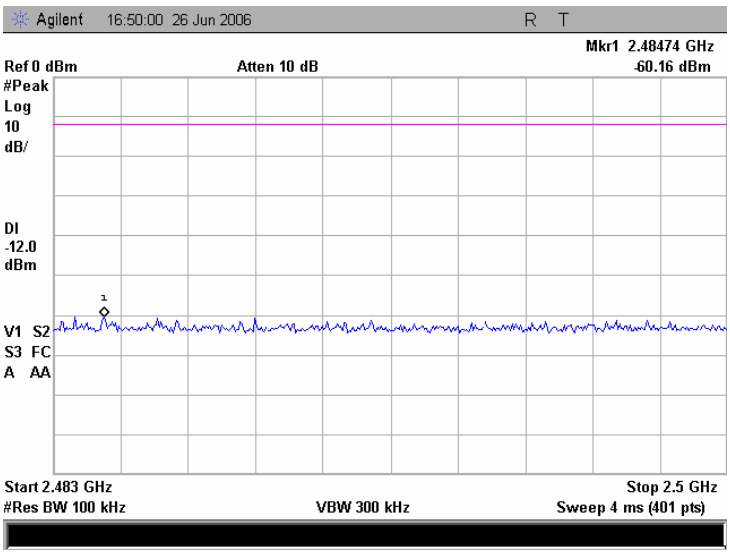
**Plot 7.3.115 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.116 Spurious emission measurements in 2483.5 - 2500 MHz range at low carrier frequency, DSSS modulation**

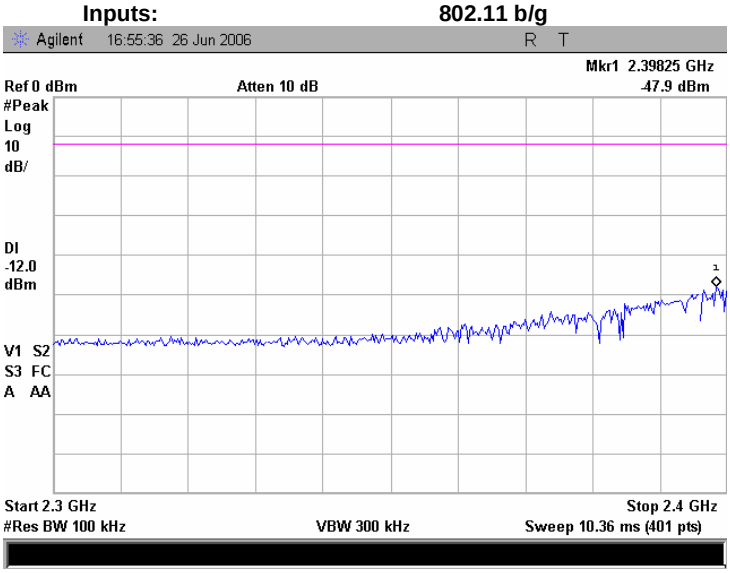
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

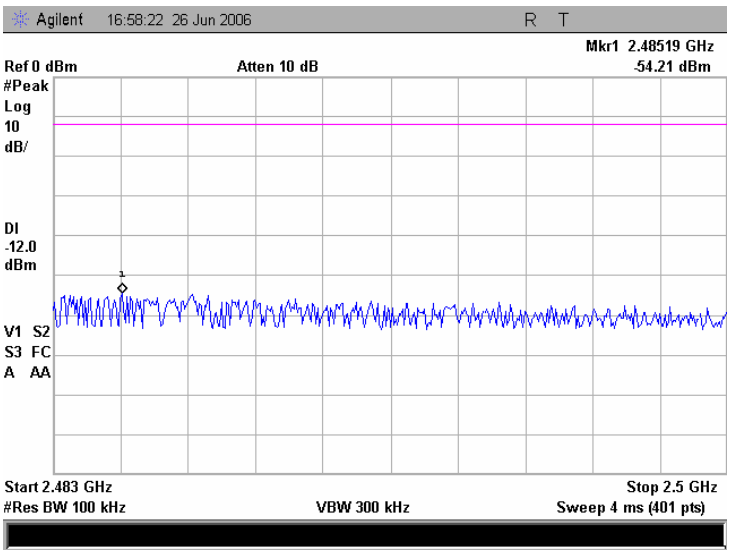
**Plot 7.3.117 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, DSSS modulation**

**Inputs: 802.11 b/g**




**Plot 7.3.118 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, DSSS modulation**

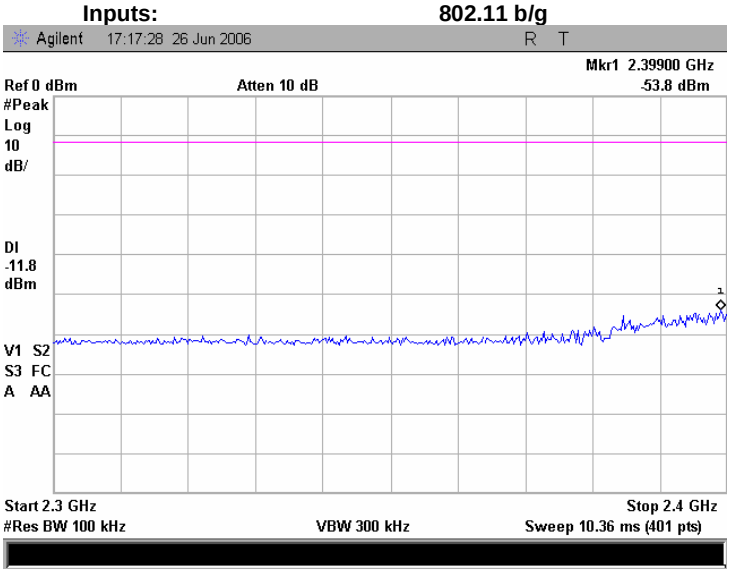
**Inputs: 802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

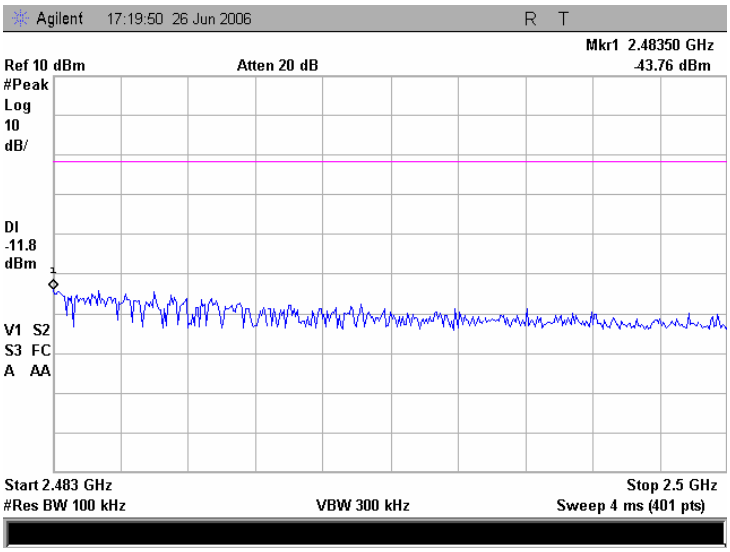
**Plot 7.3.119 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.120 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, DSSS modulation**

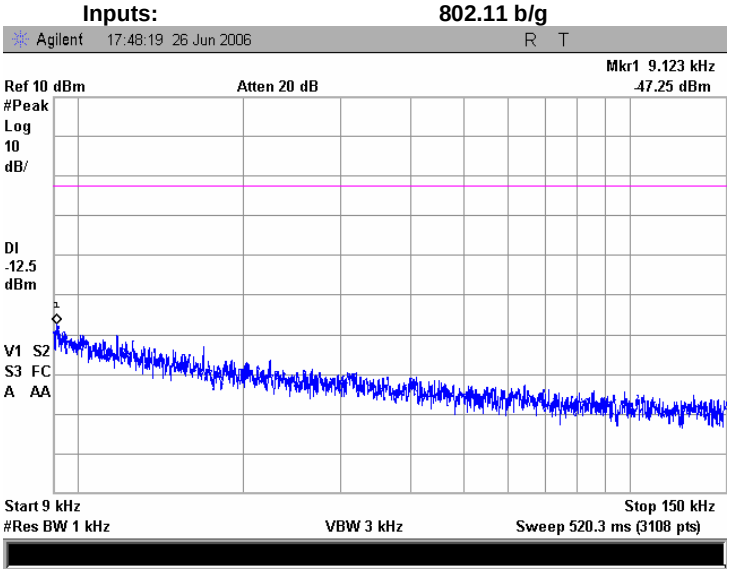
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

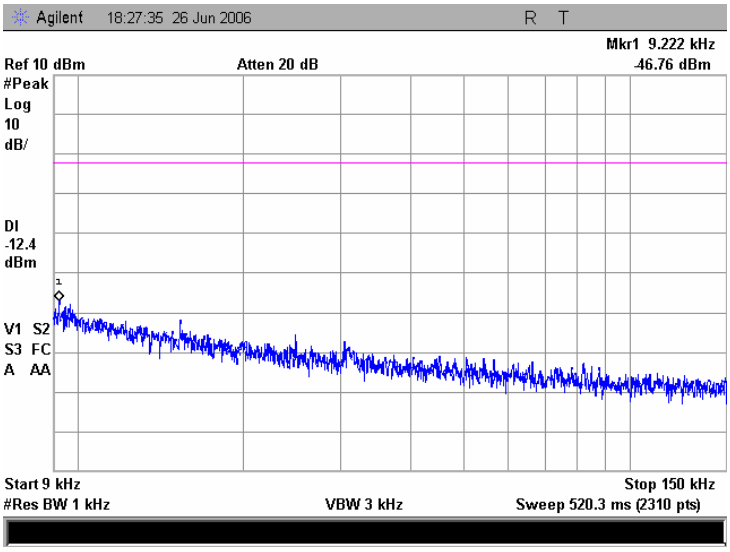
**Plot 7.3.121 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.122 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency, OFDM modulation**

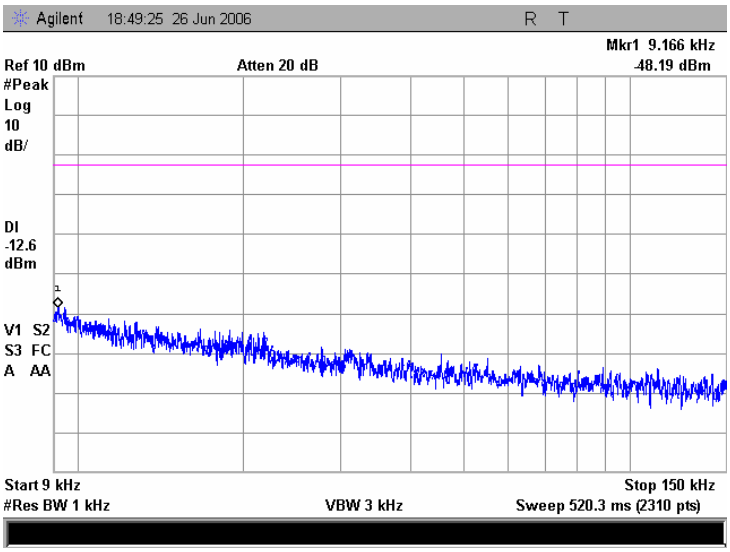
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

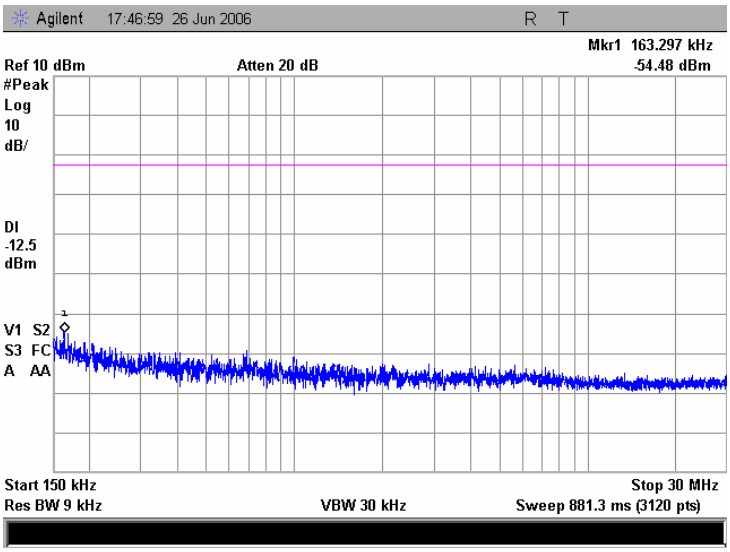
**Plot 7.3.123 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**



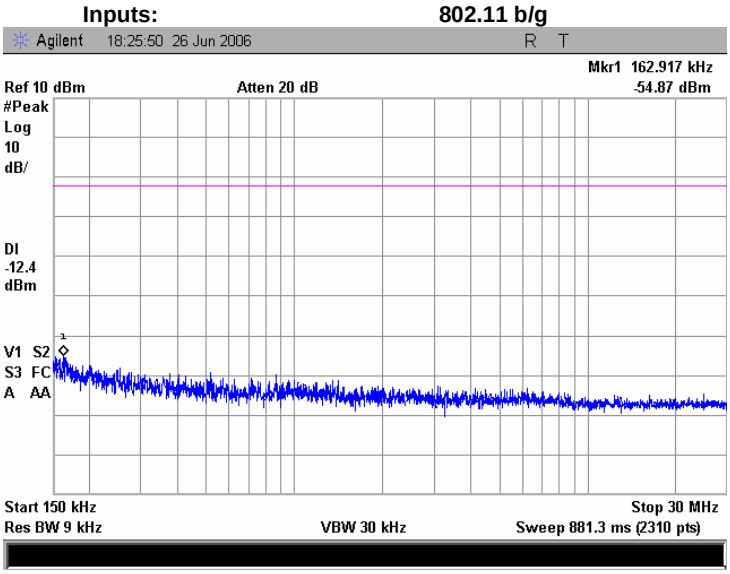

**Plot 7.3.124 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**

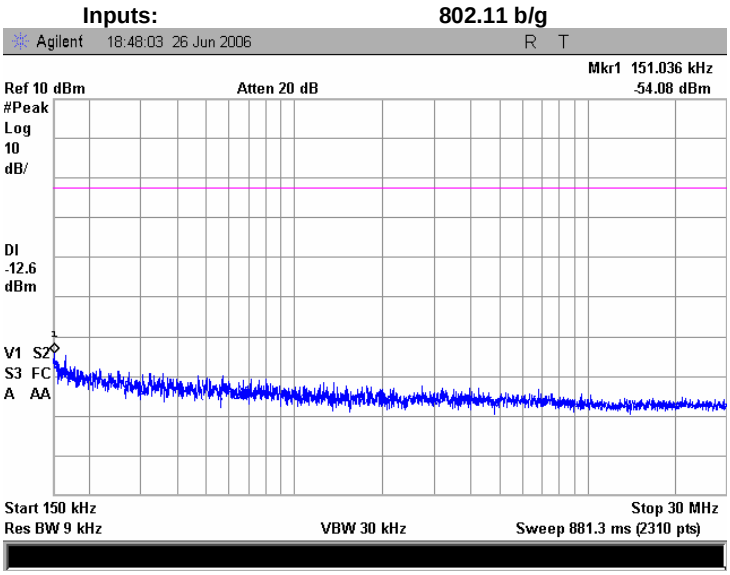


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

**Plot 7.3.125 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency, OFDM modulation**



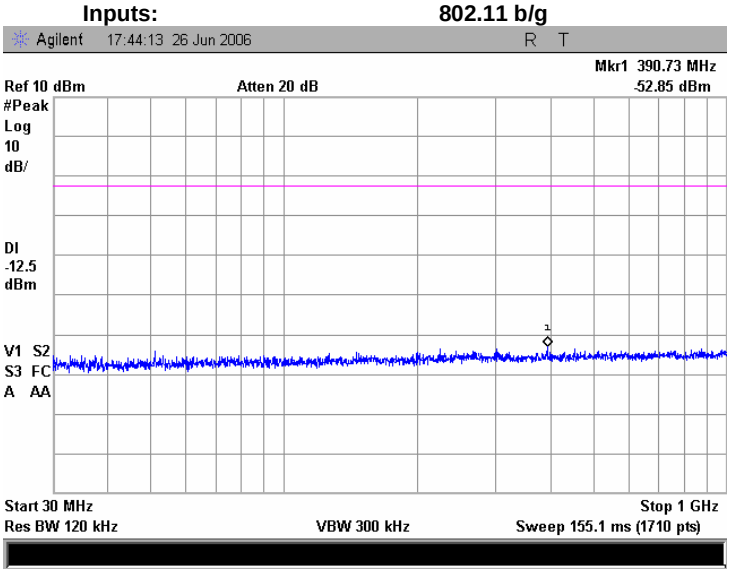

**Plot 7.3.126 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency, OFDM modulation**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

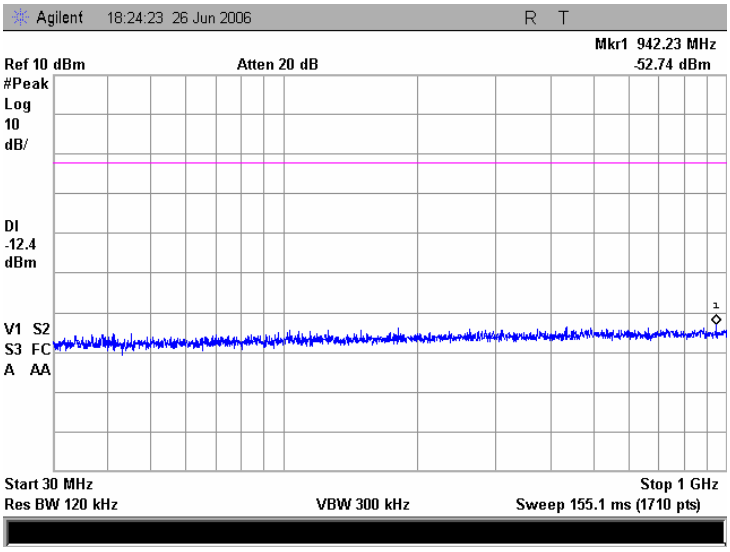
**Plot 7.3.127 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**



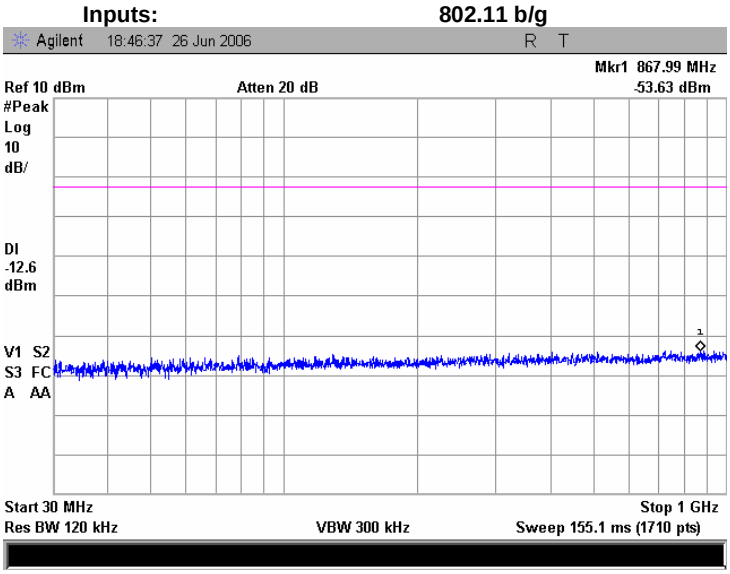

**Plot 7.3.128 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**

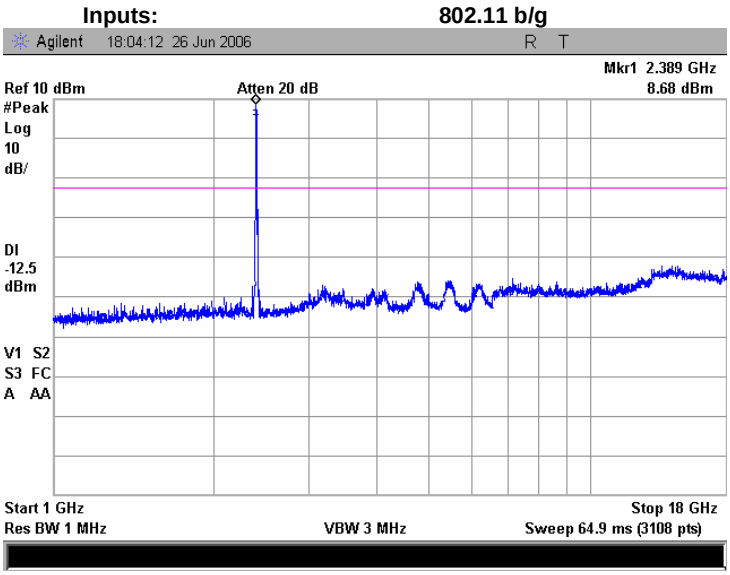


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

**Plot 7.3.129 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency, OFDM modulation**

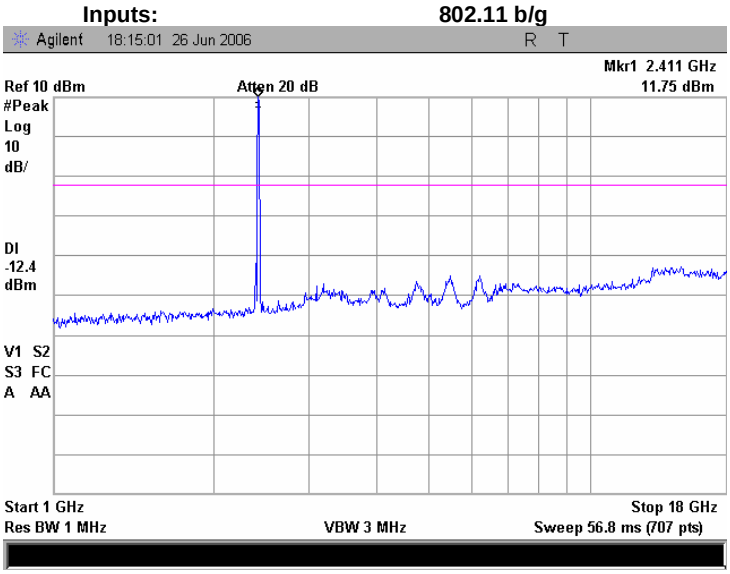



**Plot 7.3.130 Spurious emission measurements in 1000 - 18000 MHz range at low carrier frequency, OFDM modulation**

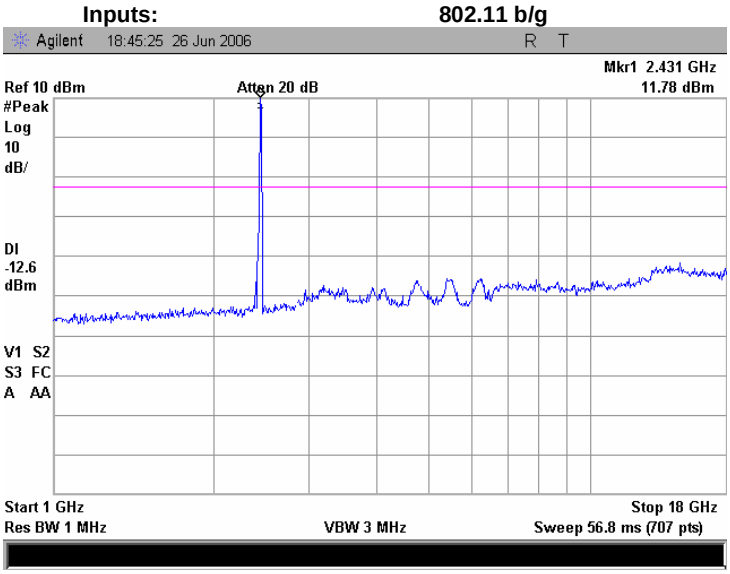


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

**Plot 7.3.131 Spurious emission measurements in 1000 - 18000 MHz range at mid carrier frequency, OFDM modulation**



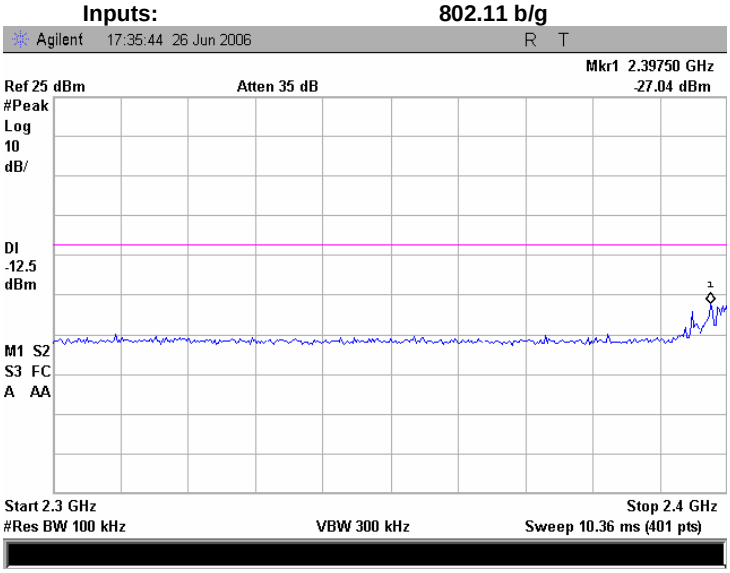

**Plot 7.3.132 Spurious emission measurements in 1000 - 18000 MHz range at high carrier frequency, OFDM modulation**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

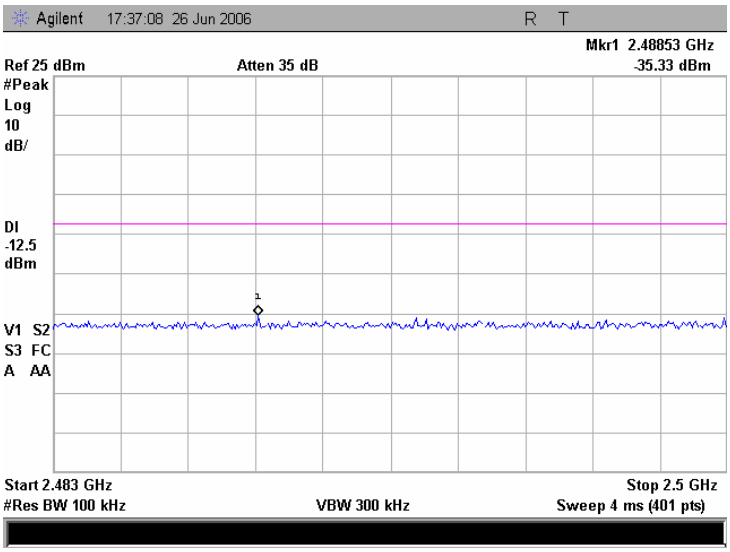
**Plot 7.3.133 Spurious emission measurements in 2300 - 2400 MHz range at low carrier frequency, OFDM modulation**

**Inputs: 802.11 b/g**




**Plot 7.3.134 Spurious emission measurements in 2483.5 - 2500 MHz range at low carrier frequency, OFDM modulation**

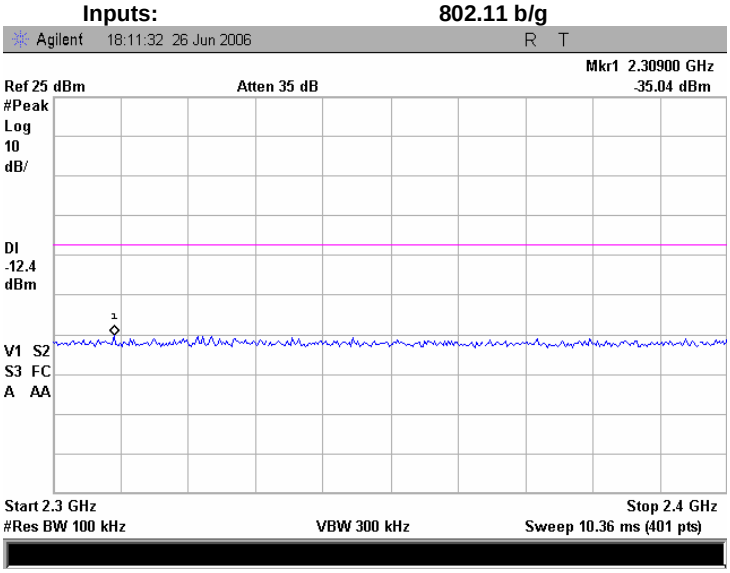
**Inputs: 802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

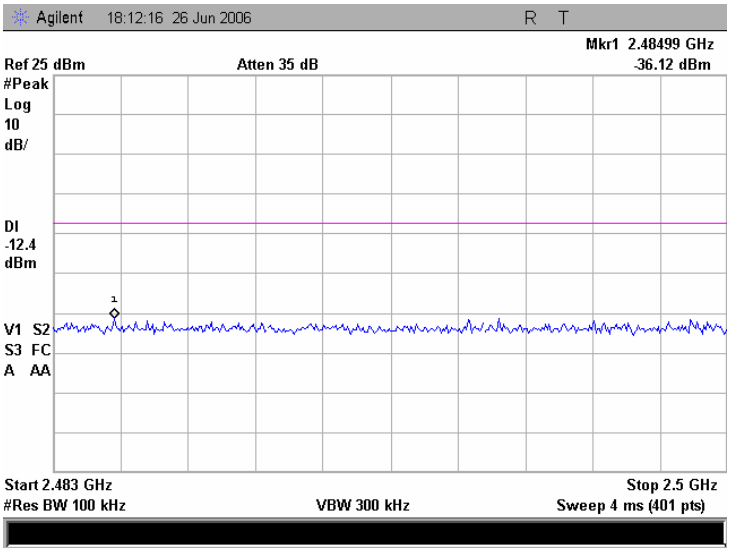
**Plot 7.3.135 Spurious emission measurements in 2300 - 2400 MHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.136 Spurious emission measurements in 2483.5 - 2500 MHz range at mid carrier frequency, OFDM modulation**

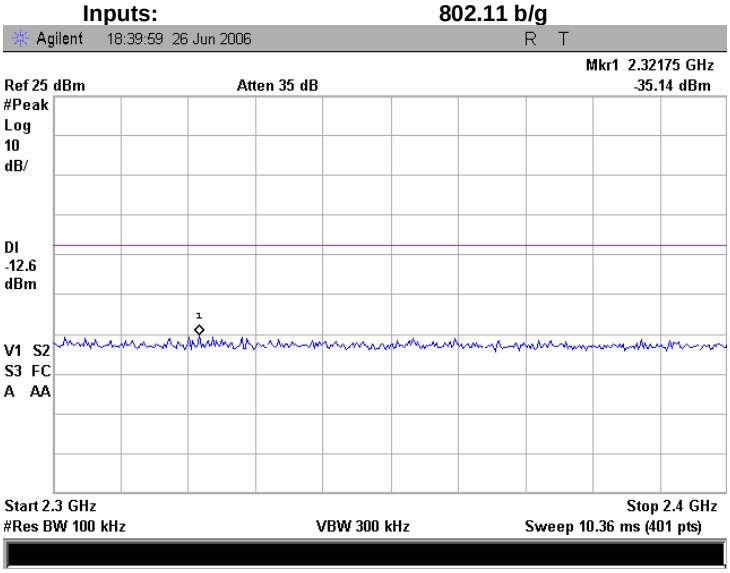
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

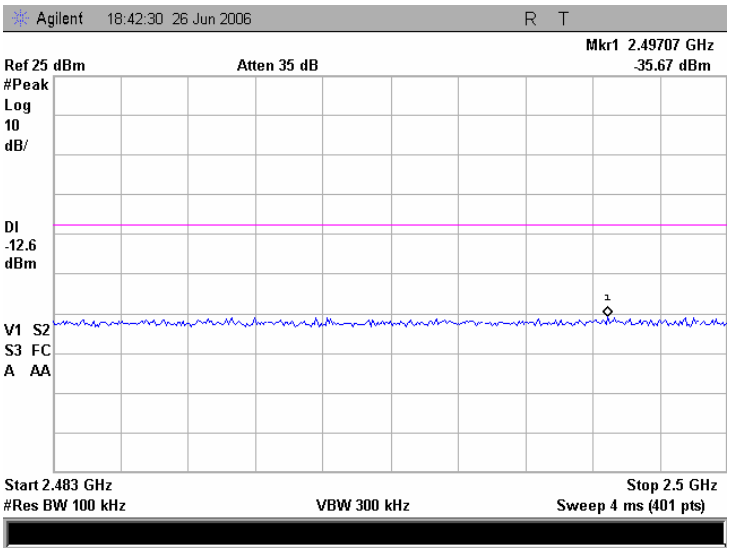
**Plot 7.3.137 Spurious emission measurements in 2300 - 2400 MHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.138 Spurious emission measurements in 2483.5 - 2500 MHz range at high carrier frequency, OFDM modulation**

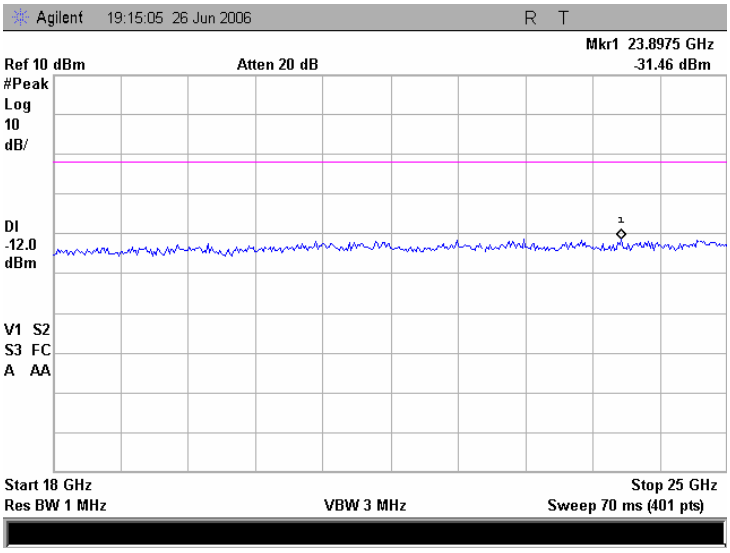
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

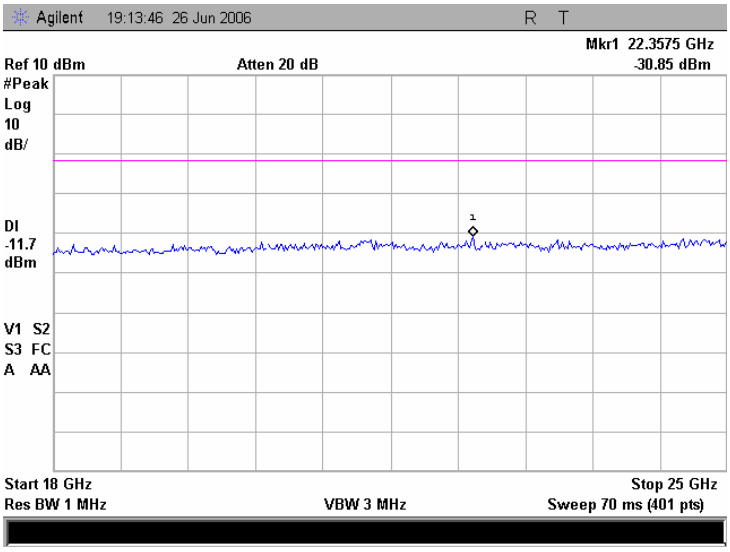
**Plot 7.3.139 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.140 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, DSSS modulation**

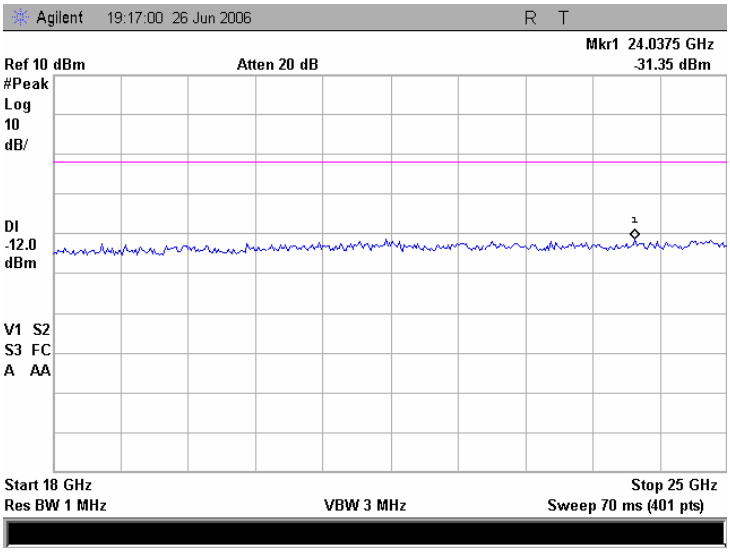
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

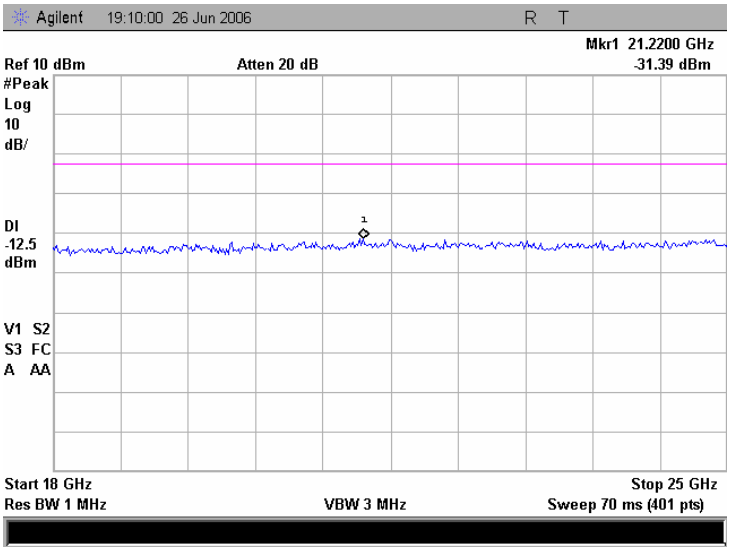
**Plot 7.3.141 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, DSSS modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.142 Spurious emission measurements in 18 - 25 GHz range at low carrier frequency, OFDM modulation**

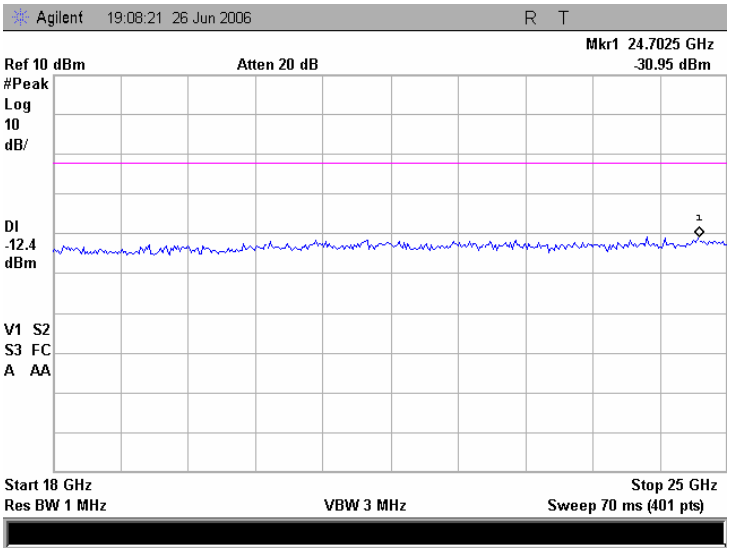
**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 6/29/2006 7:00:19 PM | | |
| Temperature: 25 ºC | Air Pressure: 1007 hPa | Relative Humidity: 46 % | Power Supply: 120 VAC |
| Remarks: 802.11b/g | | | |

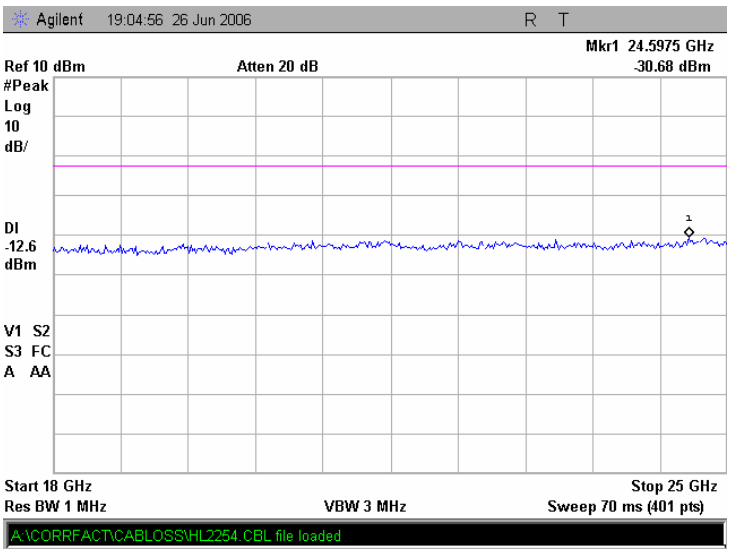
**Plot 7.3.143 Spurious emission measurements in 18 - 25 GHz range at mid carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**




**Plot 7.3.144 Spurious emission measurements in 18 - 25 GHz range at high carrier frequency, OFDM modulation**

**Inputs:** **802.11 b/g**



| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 ºC | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

## 7.4 Spurious emissions at RF antenna connector

### 7.4.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.4.1. The test results are provided in Table 7.4.2 and associated plots.

**Table 7.4.1 Spurious emission limits**

| Frequency*, MHz | Attenuation below carrier*, dBc |
|---|---|
| 0.009 – $10^{th}$ harmonic | 43+10logP |

* - The above limits applied from the lowest radio frequency generated in the device, without going below 9 kHz up to the tenth harmonic of the highest fundamental frequency.
** - Spurious emission limit is provided in terms of attenuation below the peak of modulated carrier measured with the same resolution bandwidth.

### 7.4.2 Test procedure

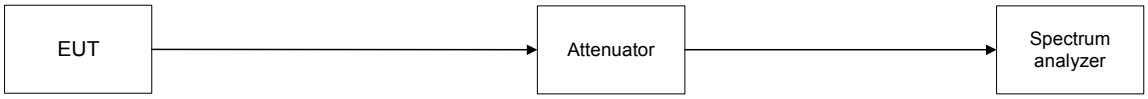
**7.4.2.1** The EUT was set up as shown in Figure 7.4.1, energized and its proper operation was checked.

**7.4.2.2** The EUT was adjusted to produce maximum available to end user RF output power.

**7.4.2.3** The highest emission level within the authorized band was measured.

**7.4.2.4** The spurious emission was measured with spectrum analyzer as provided in Table 7.4.2 and associated plots and referenced to the highest emission level measured within the authorized band.

**Figure 7.4.1 Spurious emission test setup**



| **Test specification:** | **Section 15.247(c), Conducted spurious emissions** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol. 62, page 26243, Section 15.247(c) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 5/31/2006 2:07:26 PM | | |
| **Temperature:** 24 ºC | **Air Pressure:** 1008 hPa | **Relative Humidity:** 42 % | **Power Supply:** 120 VAC |
| **Remarks:** according to part 22/24 | | | |

**Table 7.4.2 Spurious emission test results**

INVESTIGATED FREQUENCY RANGE: 0.009 – 26500 MHz
DETECTOR USED: Peak
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATION: DSSS/OFDM
MODULATING SIGNAL: PRBS
BIT RATE: 1 Mbps
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

| Frequency, MHz | SA reading, dBm | Attenuator, dB | Cable loss, dB | RBW, kHz | Spurious emission, dBm | Attenuation below carrier, dBc | Limit, dBc | Margin, dB* | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| **Low carrier frequency** | | | | | | | | | |
| 1067.5 | -34.33 | Included | Included | 1000 | -34.33 | 71.33 | 50.00 | -21.33 | Pass |
| 1728.0 | -30.16 | Included | Included | 1000 | -30.16 | 67.16 | 50.00 | -17.16 | Pass |
| **Mid carrier frequency** | | | | | | | | | |
| 1080.0 | -39.00 | Included | Included | 1000 | -39.00 | 76.00 | 50.00 | -26.00 | Pass |
| 1763.0 | -28.92 | Included | Included | 1000 | -28.92 | 65.92 | 50.00 | -15.92 | Pass |
| **High carrier frequency** | | | | | | | | | |
| 1097.5 | -42.92 | Included | Included | 1000 | -42.92 | 79.92 | 50.00 | -29.92 | Pass |
| 1788.0 | -27.63 | Included | Included | 1000 | -27.63 | 64.63 | 50.00 | -14.63 | Pass |

*****- Margin = Attenuation below carrier – specification limit.

**Note: intentional radiators at 800MHz & 1900MHz band range , and at 2.4GHz and 5GHz.**

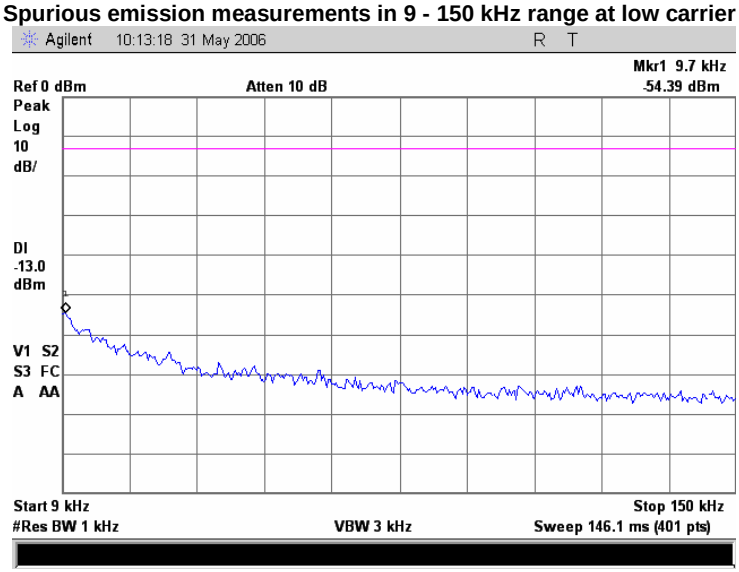
**Reference numbers of test equipment used**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HL 1441 | HL 1906 | HL 2667 | HL 2909 | | | | |

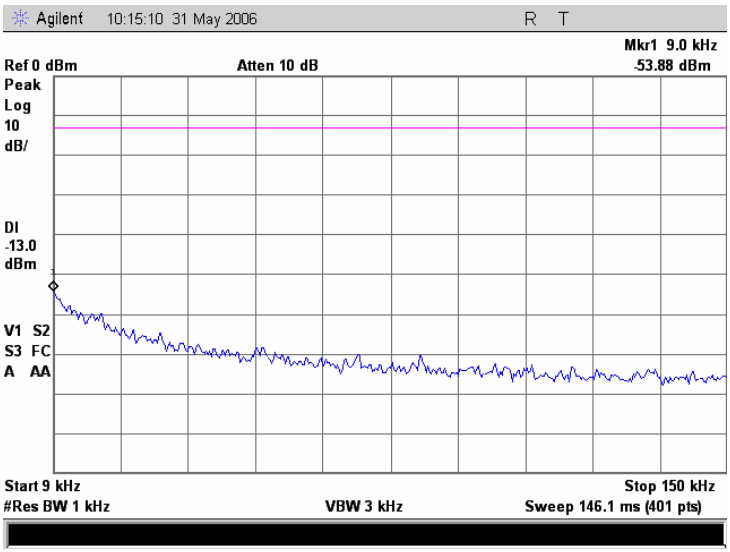
Full description is given in Appendix A.

| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency**

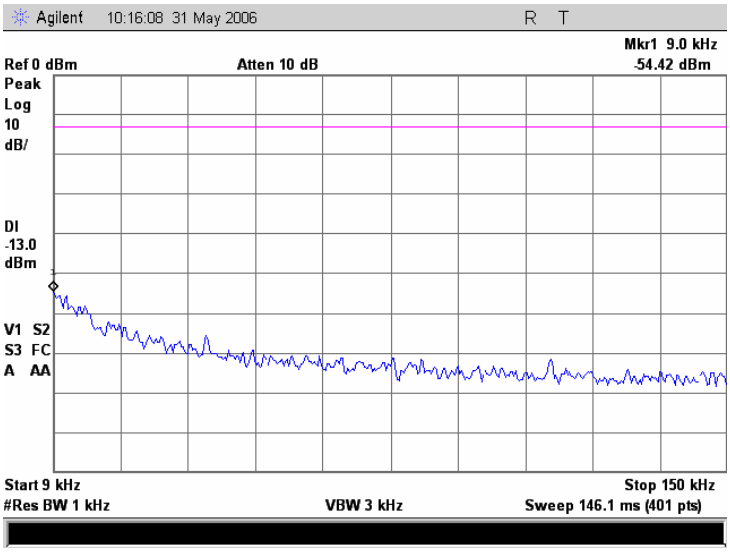



**Plot 7.4.2 Spurious emission measurements in 9 - 150 kHz range at mid carrier frequency**

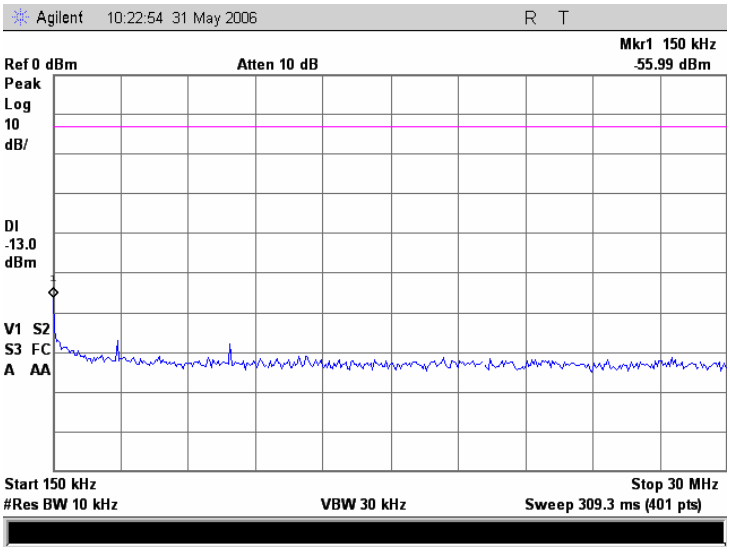


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.3 Spurious emission measurements in 9 - 150 kHz range at high carrier frequency**

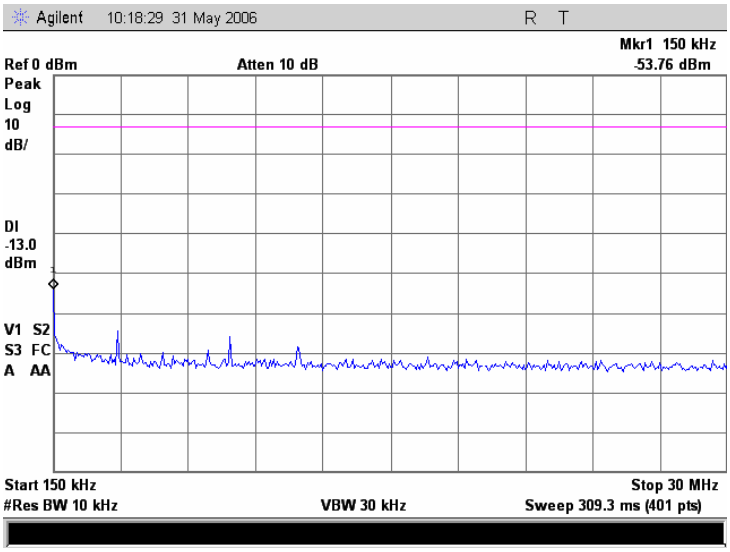



**Plot 7.4.4 Spurious emission measurements in 0.15 - 30 MHz range at low carrier frequency**

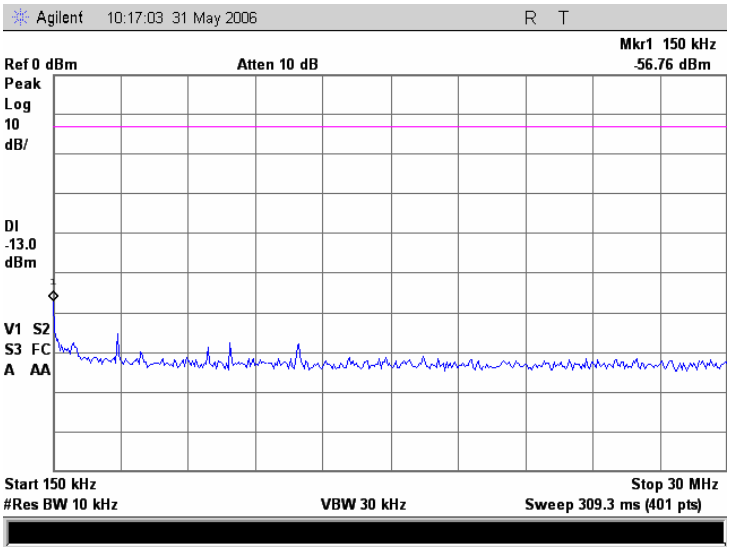


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.5 Spurious emission measurements in 0.15 - 30 MHz range at mid carrier frequency**

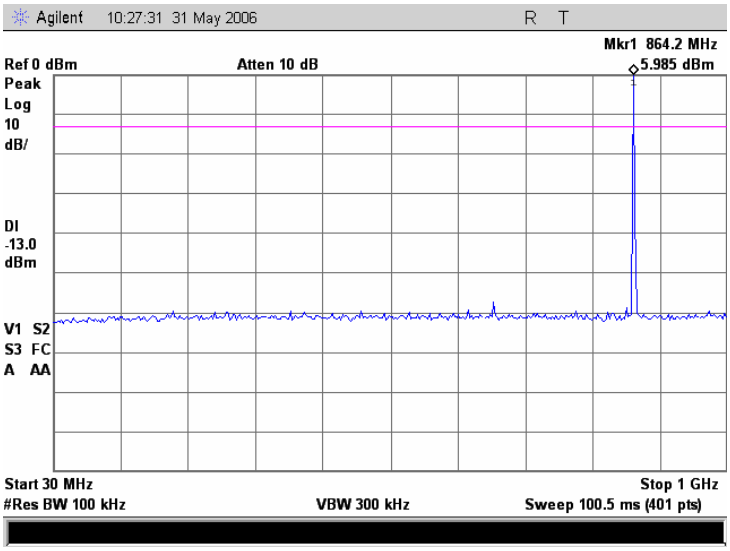



**Plot 7.4.6 Spurious emission measurements in 0.15 - 30 MHz range at high carrier frequency**

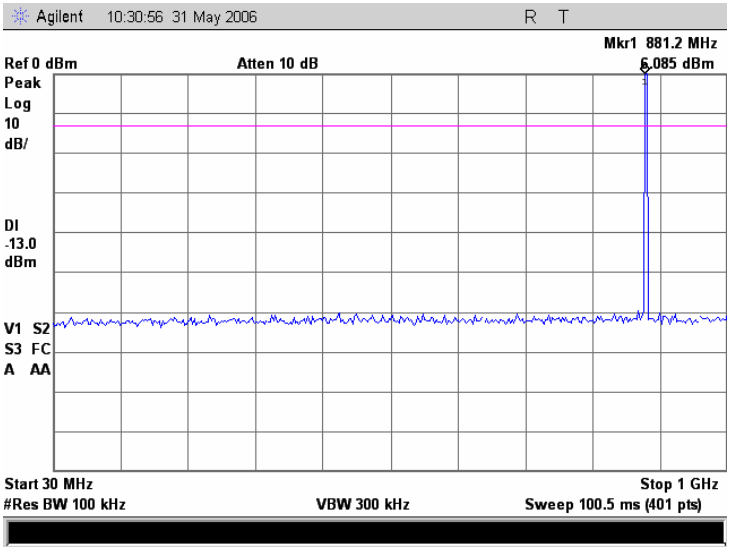


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.7 Spurious emission measurements in 30 - 1000 MHz range at low carrier frequency**

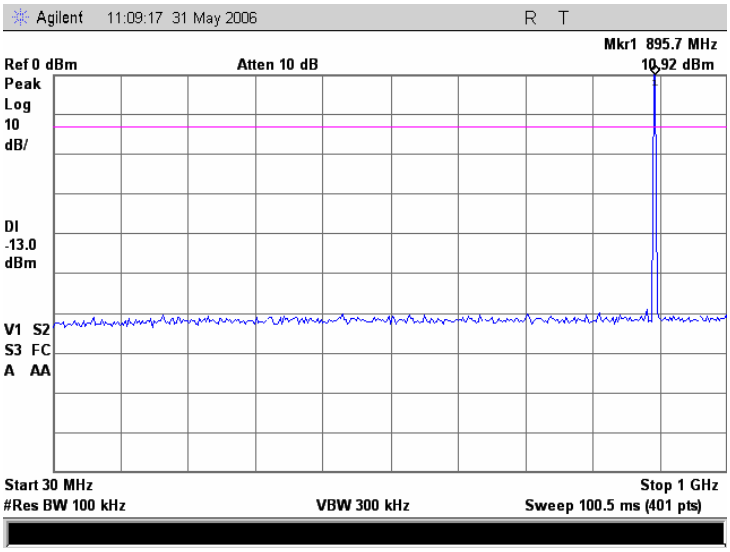



**Plot 7.4.8 Spurious emission measurements in 30 - 1000 MHz range at mid carrier frequency**

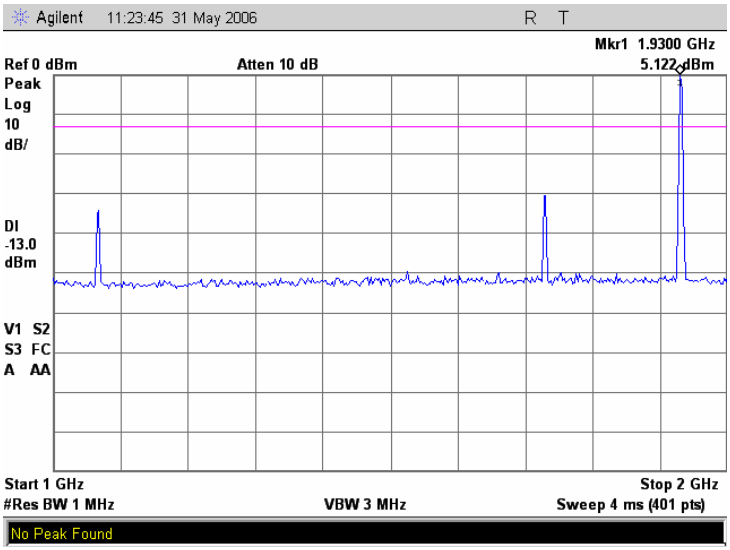


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.9 Spurious emission measurements in 30 - 1000 MHz range at high carrier frequency**

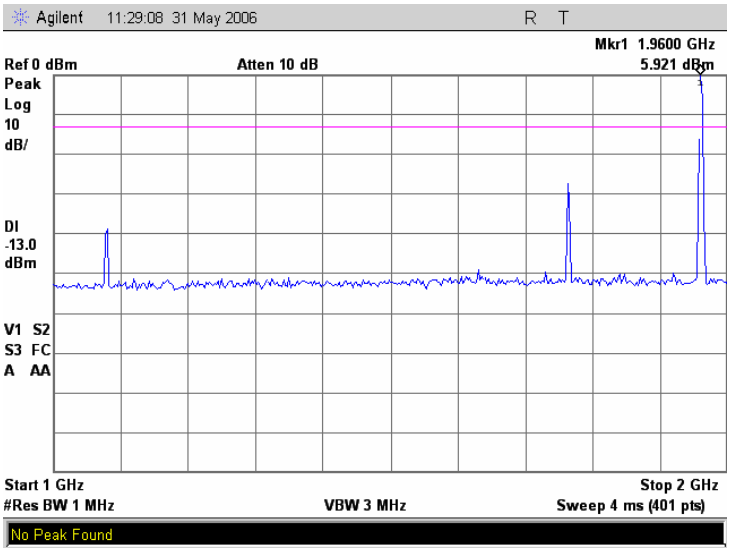



**Plot 7.4.10 Spurious emission measurements in 1000 - 2000MHz range at low carrier frequency**

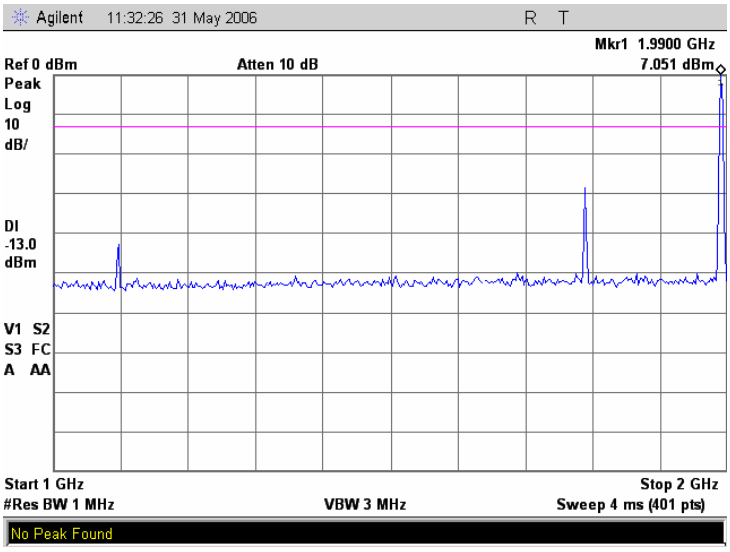


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.11 Spurious emission measurements in 1000 - 2000MHz range at mid carrier frequency**

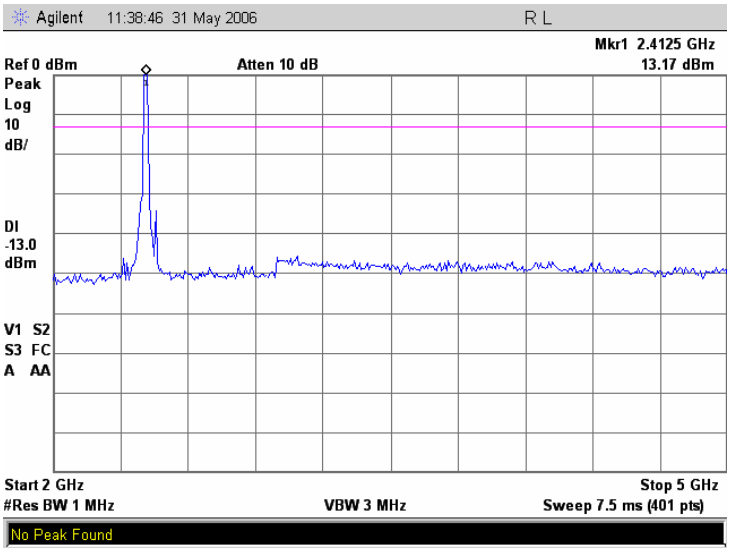



**Plot 7.4.12 Spurious emission measurements in 1000 -2000 MHz range at high carrier frequency**

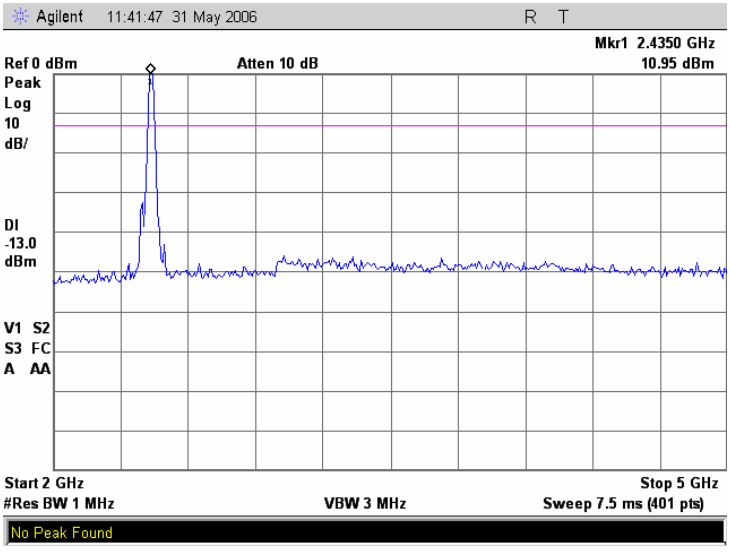


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.13 Spurious emission measurements in 2000 - 5000MHz range at low carrier frequency**

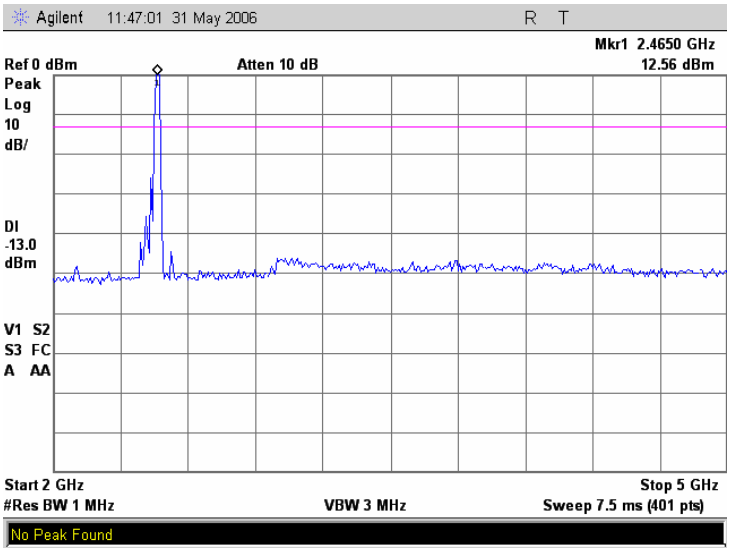



**Plot 7.4.14 Spurious emission measurements in 2000 - 5000MHz range at mid carrier frequency**

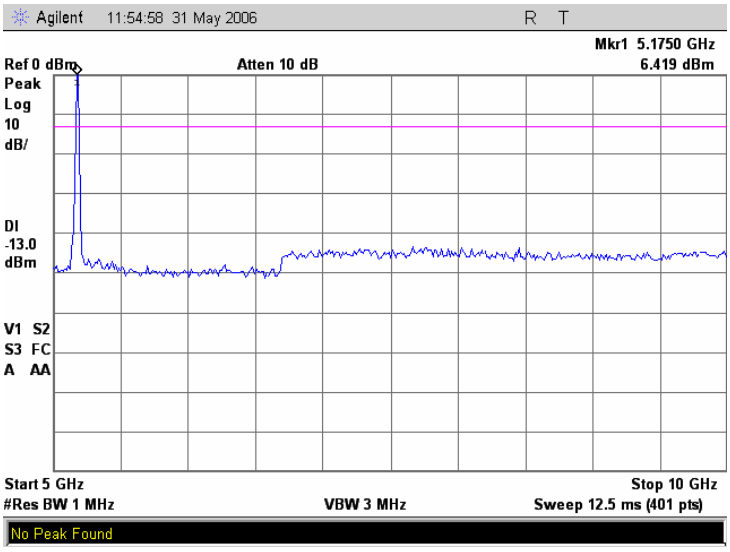


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.15 Spurious emission measurements in 2000 -5000 MHz range at high carrier frequency**

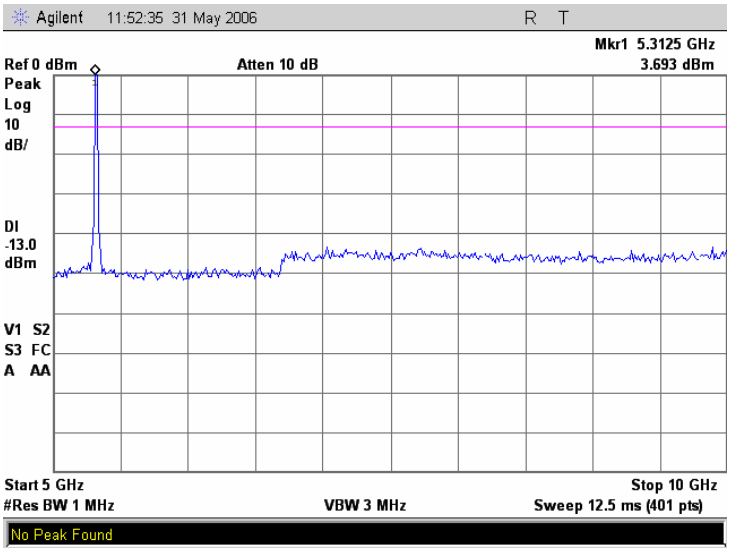



**Plot 7.4.16 Spurious emission measurements in 5000 - 10000MHz range at low carrier frequency**

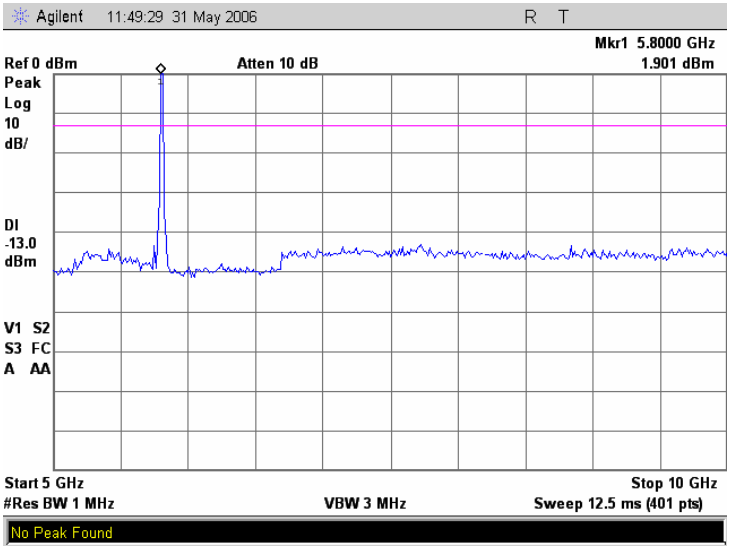


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.17 Spurious emission measurements in 5000 - 10000MHz range at mid carrier frequency**

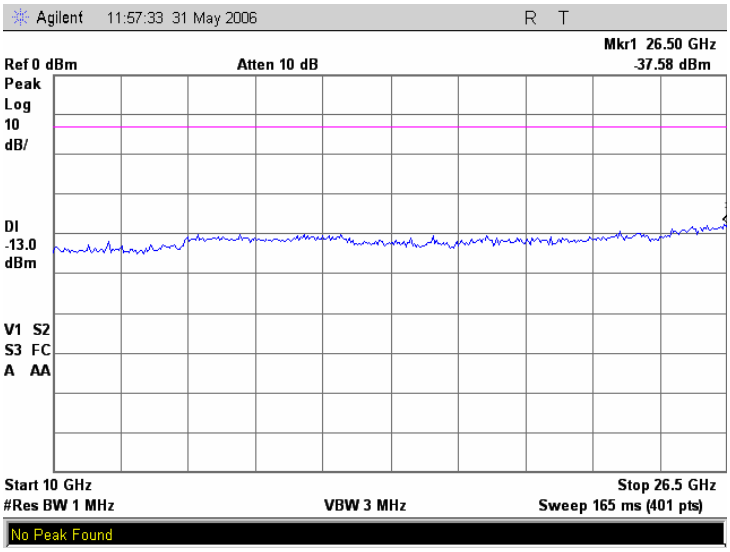



**Plot 7.4.18 Spurious emission measurements in 5000 -10000 MHz range at high carrier frequency**

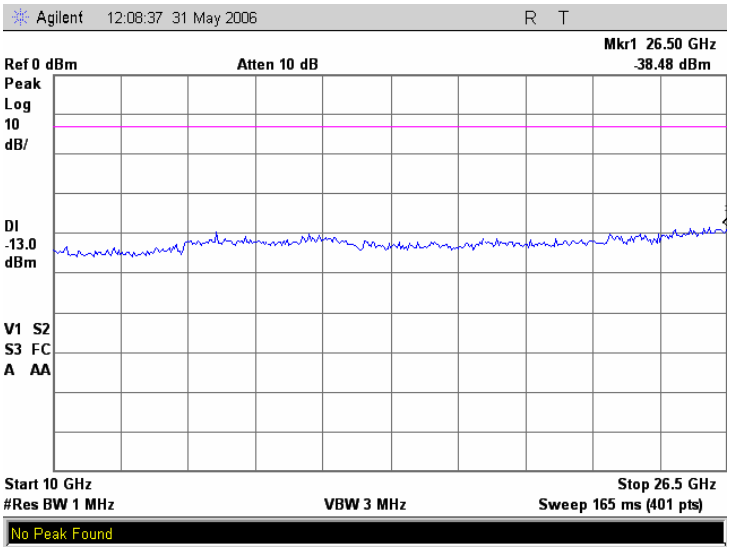


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.19 Spurious emission measurements in 10000 - 26500MHz range at low carrier frequency**

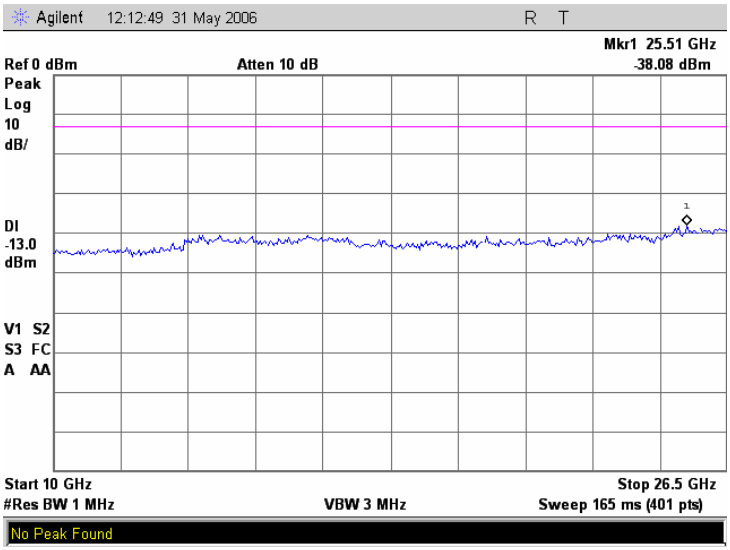



**Plot 7.4.20 Spurious emission measurements in 10000 - 26500MHz range at mid carrier frequency**



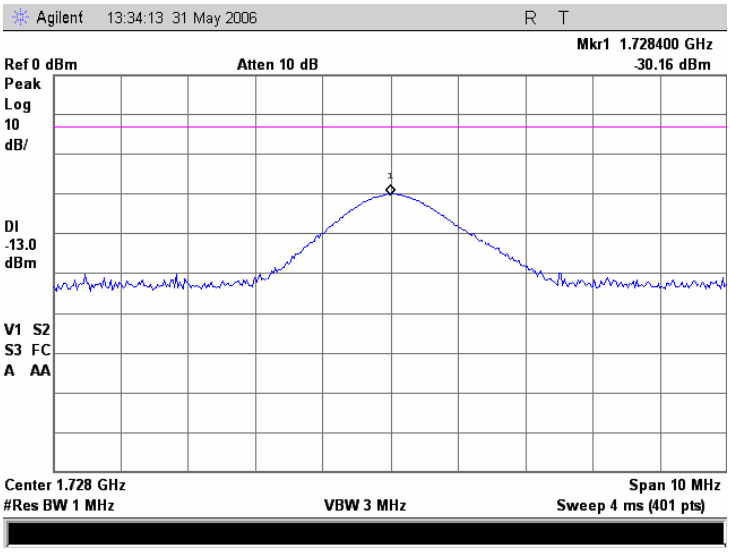
| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.21 Spurious emission measurements in 100000 -26500 MHz range at high carrier frequency**

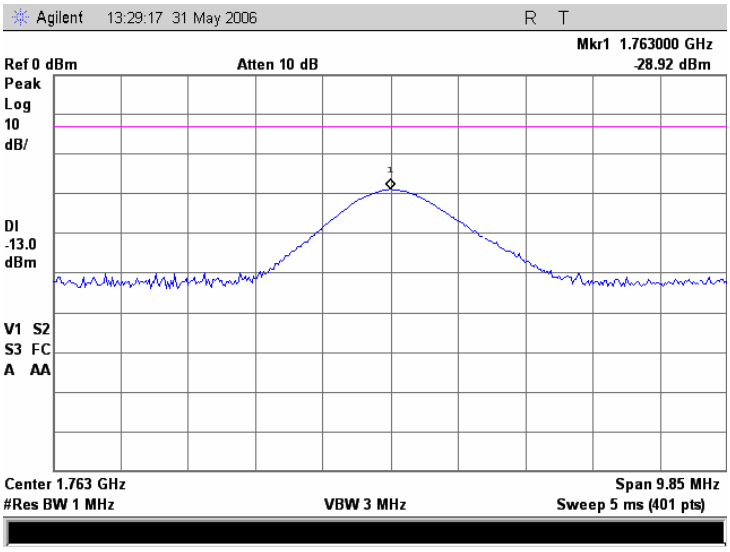


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.22 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency 800 band**

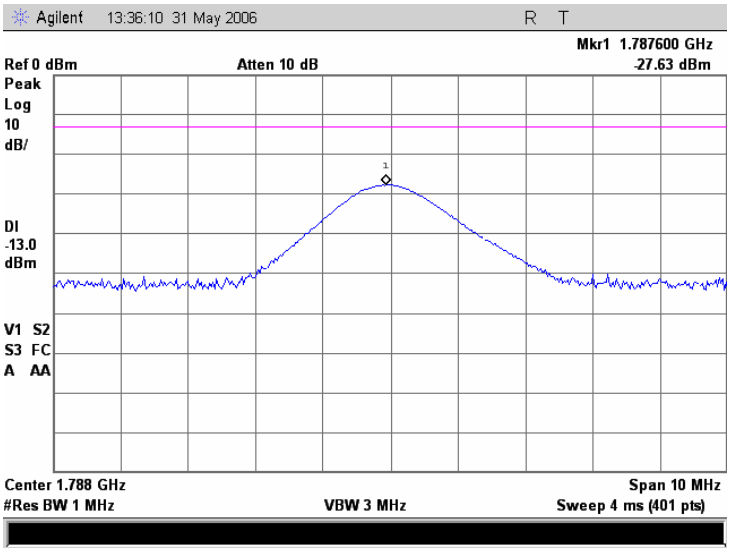



**Plot 7.4.23 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency 800 band**

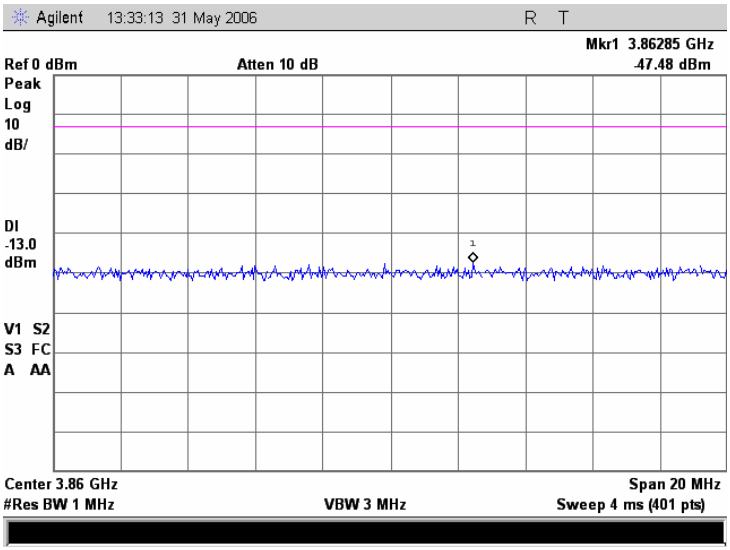


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.24 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency 800 band**

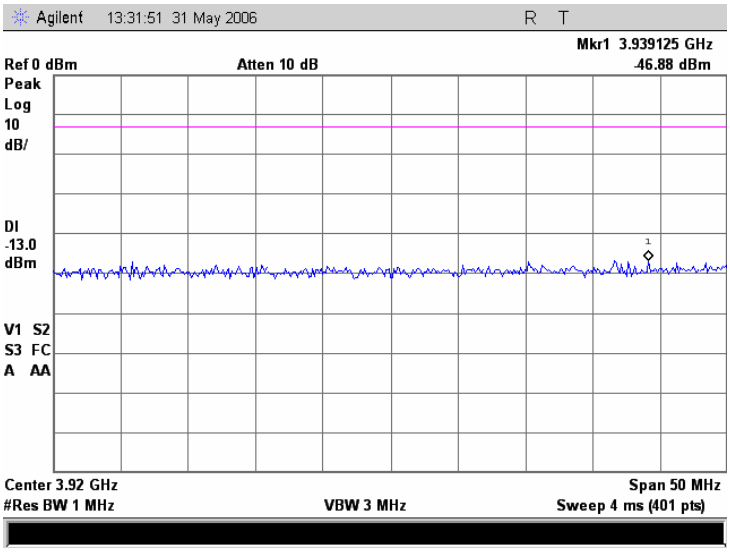



**Plot 7.4.25 Conducted spurious emission measurements at the 2nd harmonic of low carrier frequency 1900 band**

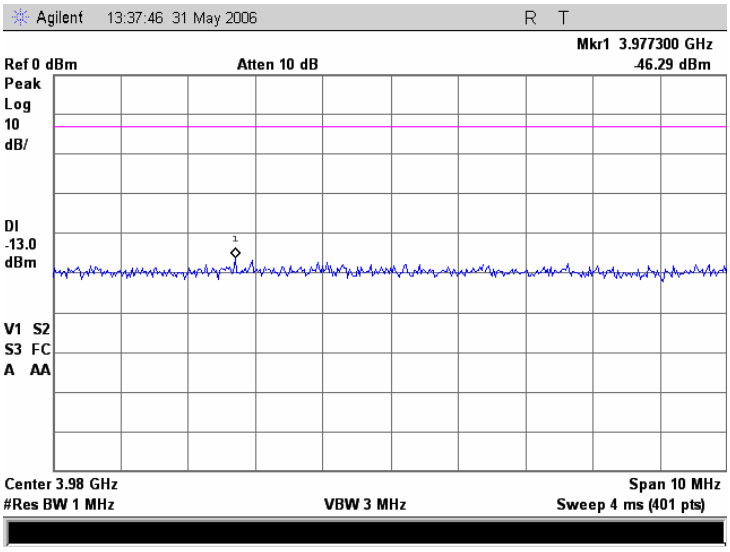


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.26 Conducted spurious emission measurements at the 2nd harmonic of mid carrier frequency 1900 band**

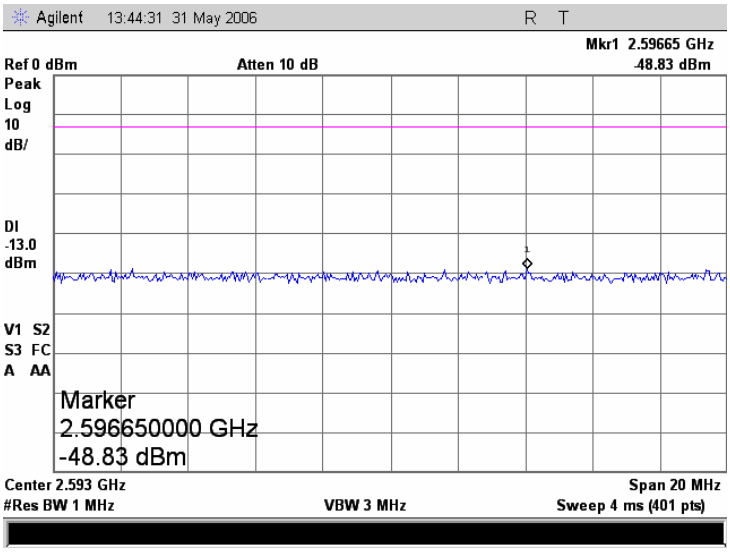



**Plot 7.4.27 Conducted spurious emission measurements at the 2nd harmonic of high carrier frequency 1900 band**

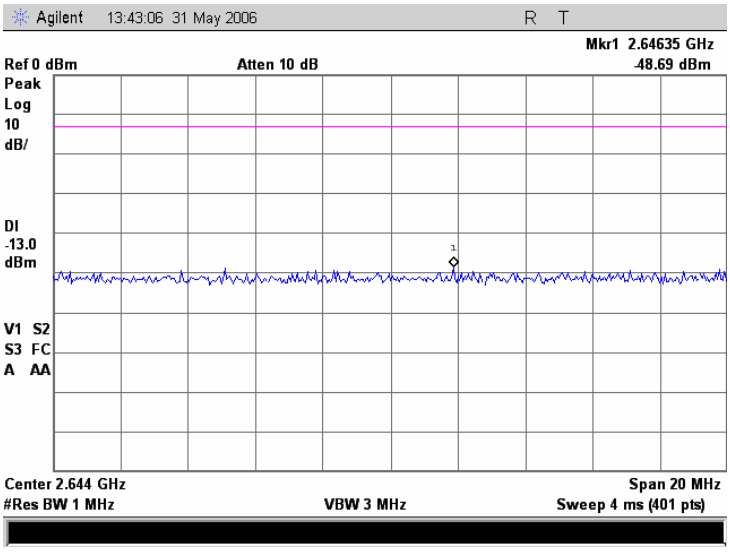


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.28 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency 800 band**

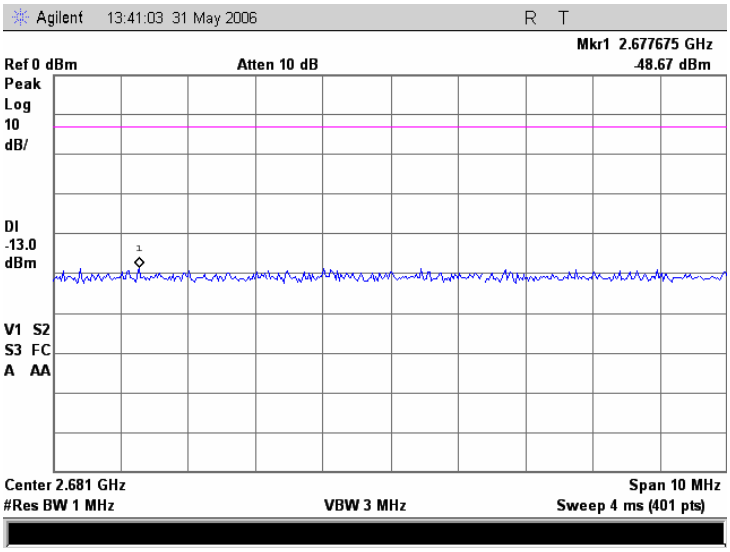



**Plot 7.4.29 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency 800 band**



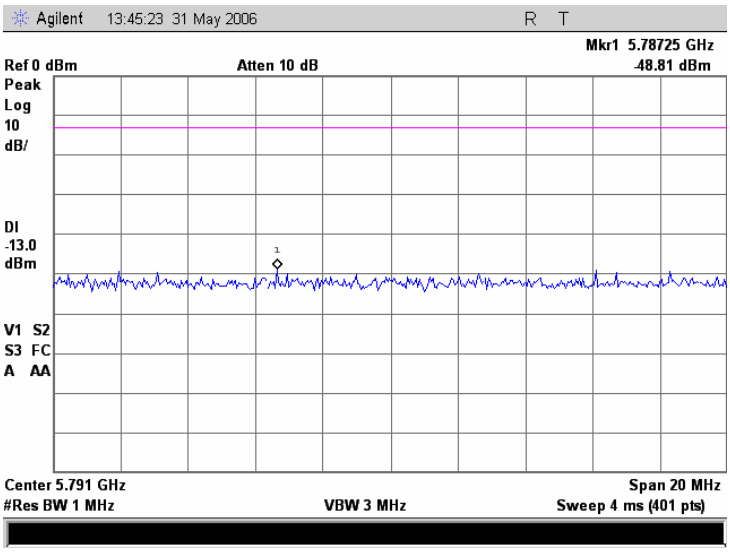
| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 ºC | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.30 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency 800 band**

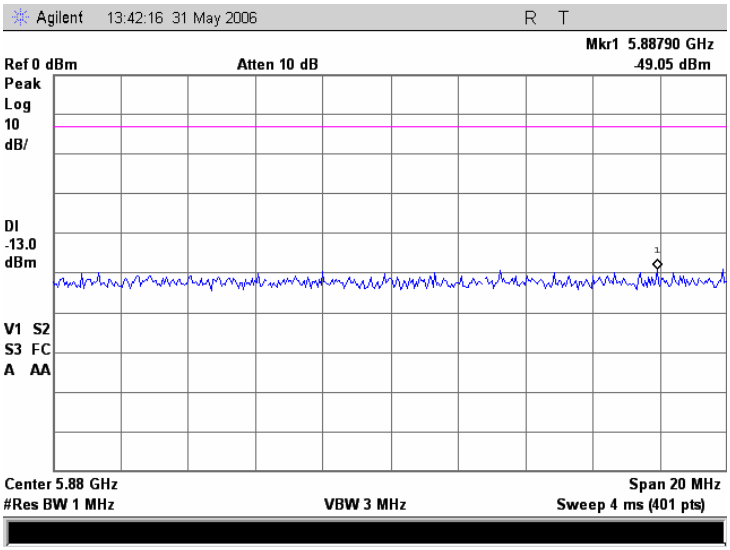


| Test specification: | Section 15.247(c), Conducted spurious emissions | | |
|---|---|---|---|
| Test procedure: | FR Vol. 62, page 26243, Section 15.247(c) | | |
| Test mode: | Compliance | Verdict: | PASS |
| Date & Time: | 5/31/2006 2:07:26 PM | | |
| Temperature: 24 °C | Air Pressure: 1008 hPa | Relative Humidity: 42 % | Power Supply: 120 VAC |
| Remarks: according to part 22/24 | | | |

**Plot 7.4.31 Conducted spurious emission measurements at the 3rd harmonic of low carrier frequency 1900 band**




**Plot 7.4.32 Conducted spurious emission measurements at the 3rd harmonic of mid carrier frequency 1900 band**



| **Test specification:** | **Section 15.247(c), Conducted spurious emissions** | | |
|---|---|---|---|
| **Test procedure:** | FR Vol. 62, page 26243, Section 15.247(c) | | |
| **Test mode:** | Compliance | **Verdict:** | PASS |
| **Date & Time:** | 5/31/2006 2:07:26 PM | | |
| **Temperature:** 24 ºC | **Air Pressure:** 1008 hPa | **Relative Humidity:** 42 % | **Power Supply:** 120 VAC |
| **Remarks:** according to part 22/24 | | | |

**Plot 7.4.33 Conducted spurious emission measurements at the 3rd harmonic of high carrier frequency 1900 band**