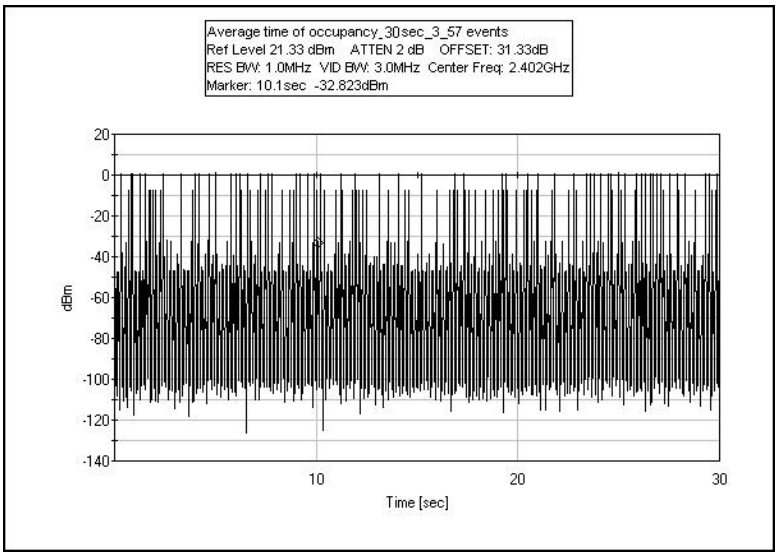
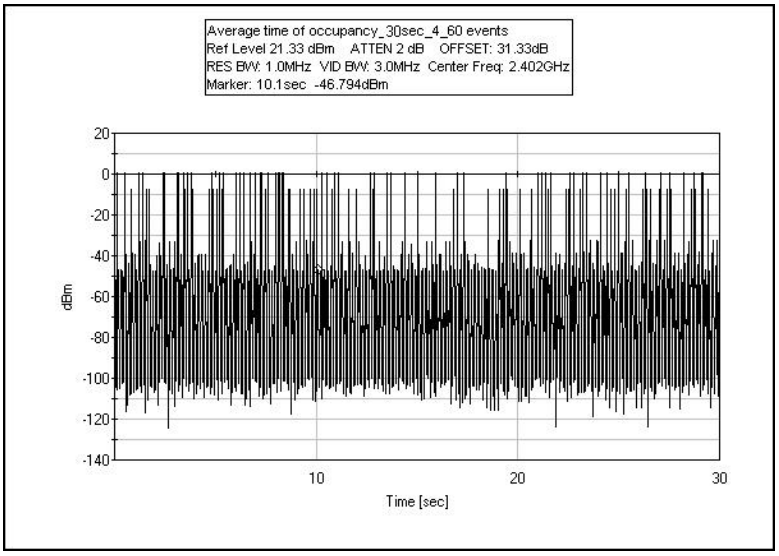
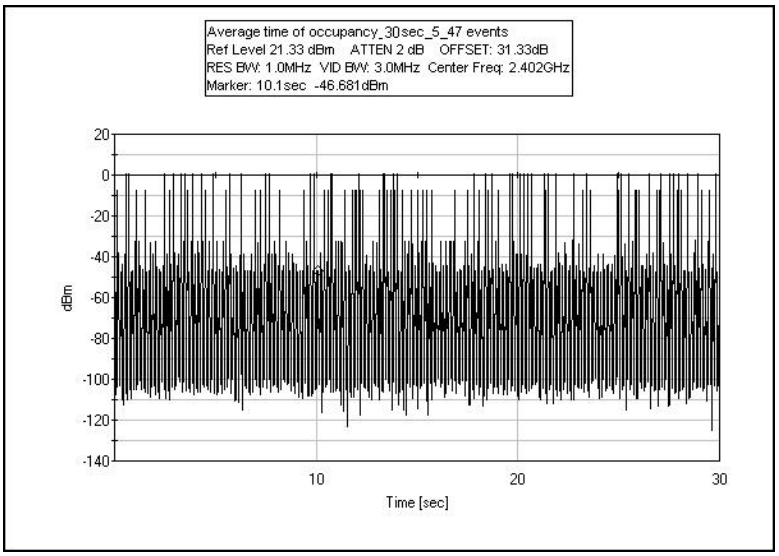
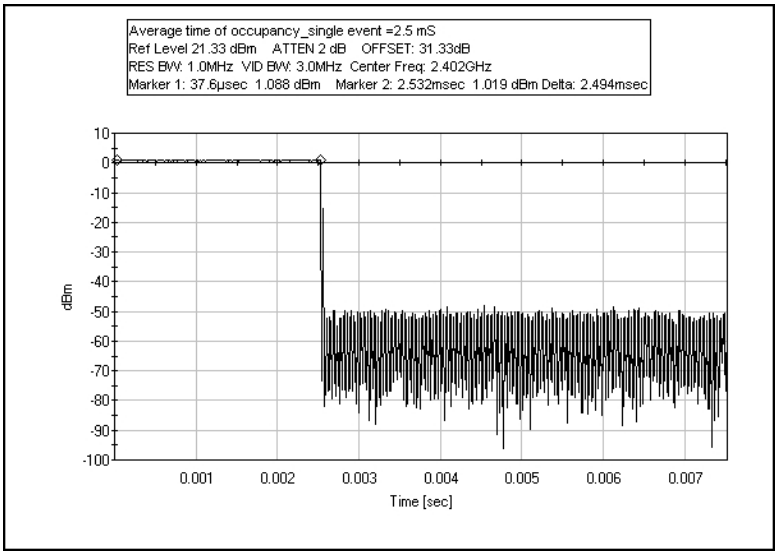

Average time of occupancy_30sec_3_57 events
Ref Level 21.33 dBm ATTEN 2 dB OFFSET: 31.33dB
RES BW: 1.0MHz VID BW: 3.0MHz Center Freq: 2.402GHz
Marker: 10.1sec -32.823dBm
dBm
Time [sec]


Average time of occupancy_30sec_4_60 events
Ref Level 21.33 dBm ATTEN 2 dB OFFSET: 31.33dB
RES BW: 1.0MHz VID BW: 3.0MHz Center Freq: 2.402GHz
Marker: 10.1sec -46.794dBm
dBm
Time [sec]



Average events occurred in every 30 seconds (44 + 48 + 57 +60 +47)/ 5 =51.2 events/ 30sec
51.2 / 30 = 1.7 events per second.



Each Events = 2.5 msec
79 channels x 0.4 sec = 31.6 secs.
31.6 sec x 1.7 event/sec = 53.7 events occurred in 31.6 second,
Total on time = 53.7 event x 2.5 ms/event = 134.25 mS **= 0.13 sec.**

The limit is:
*The average time of occupancy on any channel **shall not be greater than 0.4** seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed*

FCC Part 15.247(a)(2) –6dB Bandwidth

Test Equipment

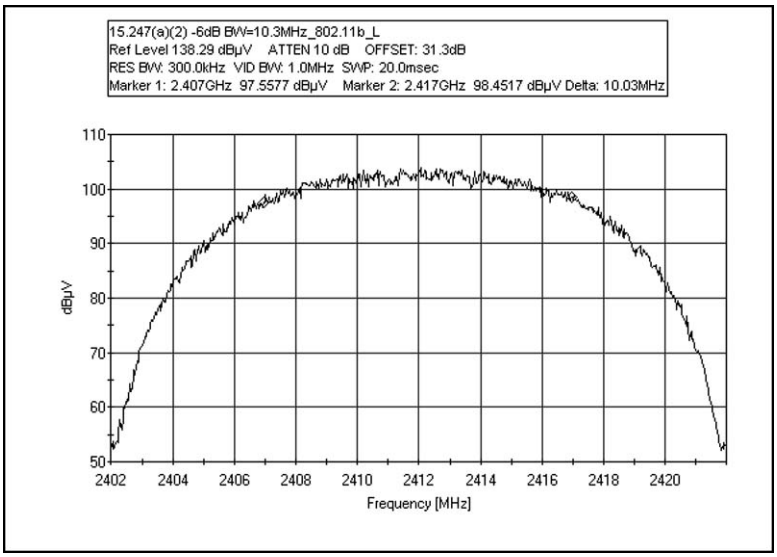
Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
24" SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109

Test Conditions: The EUT is placed on the test bench, USB port is connected to an AC power supply. The EUT is operating on Max power. RF emission profile evaluated at the internal antenna connector.

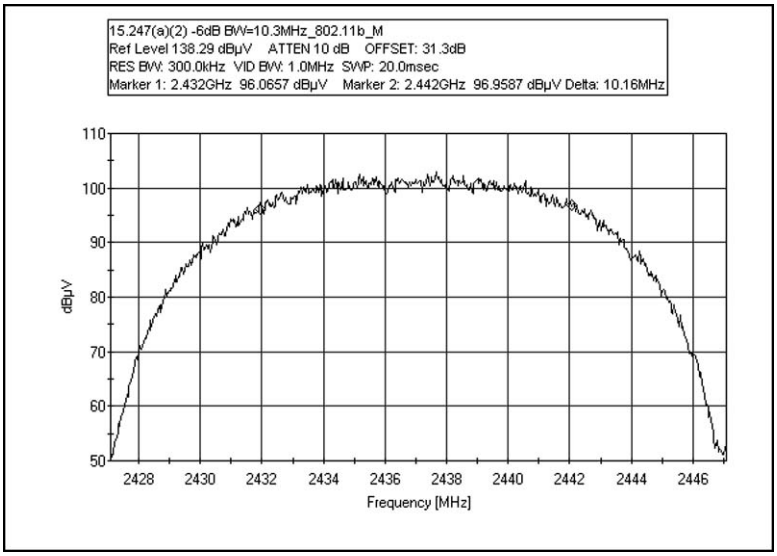
Test Setup Photos

Test Plots

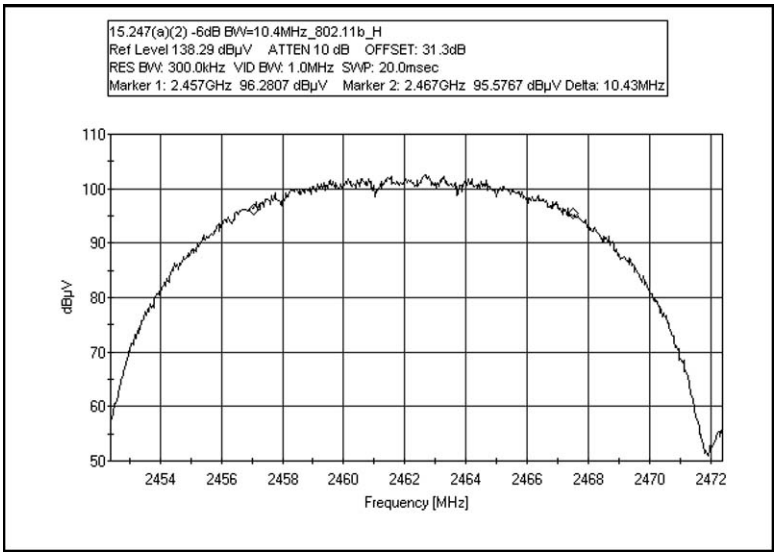
FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11b LOW



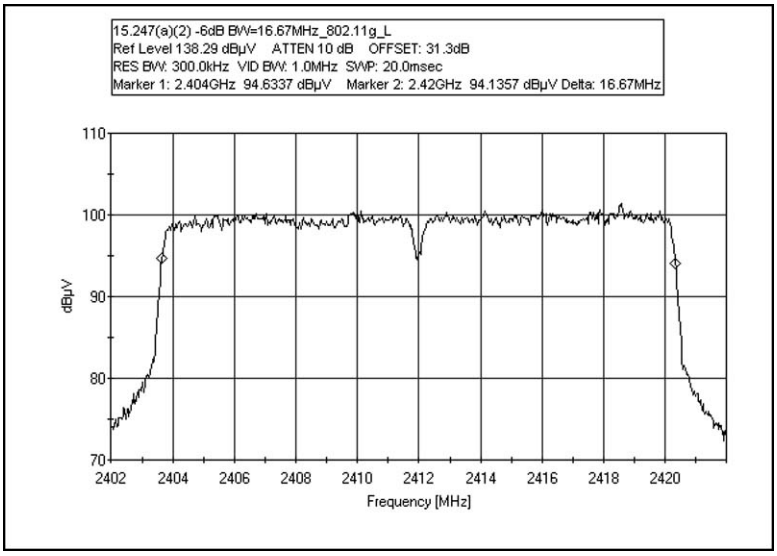
FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11b MID



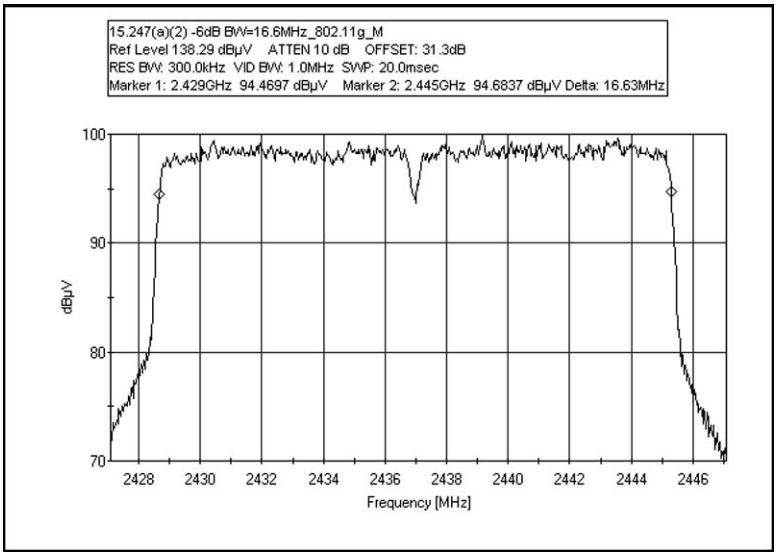
FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11b HIGH



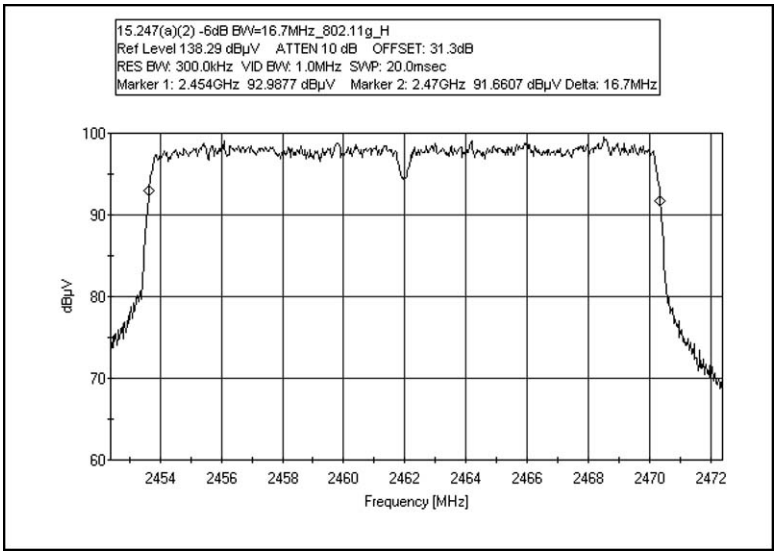
FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11g LOW



FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11g MID



FCC 15.247(a)(2) -6dB BANDWIDTH - 802.11g HIGH



FCC Part 15.247(b)(3) RF Power Output

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
24" SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109

Test Conditions: The EUT is placed on the test bench, USB port is connected to an AC power supply. The EUT is operating on Max power. RF emission profile evaluated at the internal antenna connector.

Test Setup Photos

Bluetooth: FHSS

15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:
(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: ***1 watt***

Setup: The EUT is placed on the test bench, RF output power is evaluated at the internal antenna connector, test method IN ACCORDANCE WITH DA00705, Peak Output power. Power setting at 63 (max), RBW=VBW=3MHz.

Frequency	Peak power	Peak Power
2402 MHz	3.9 dBm	0.002455 W
2441 MHz	3.9 dBm	0.002455 W
2480 MHz	3.5 dBm	0.002239 W

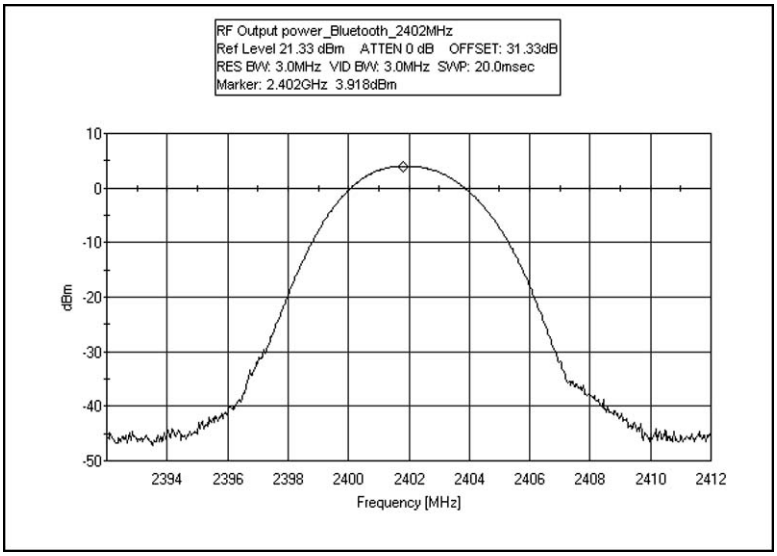
15.31(e)

The supply voltage of the intentional radiator was varied between 85% and 115% of the nominal rated supply voltage. Result: No deviation of output were detected.

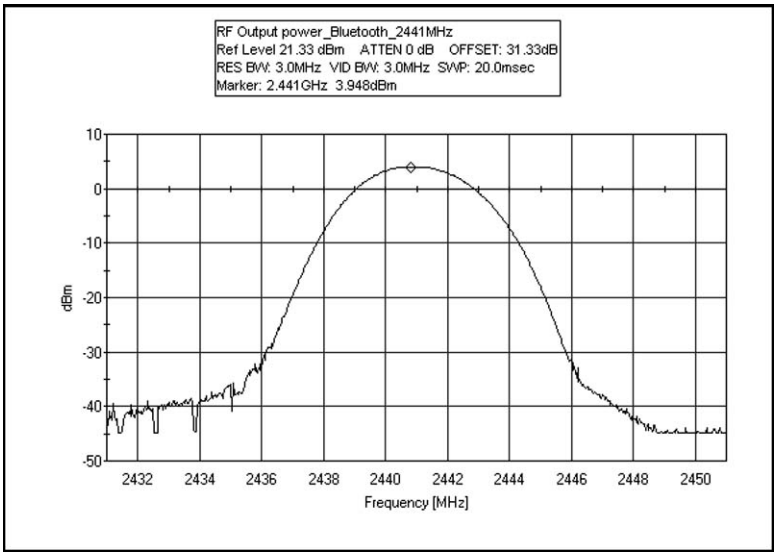
Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
24" SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109
Programmable Power Source	01695/ 01696	Pacific Power	345AMX / UPC32	250 / 245	051507	051509

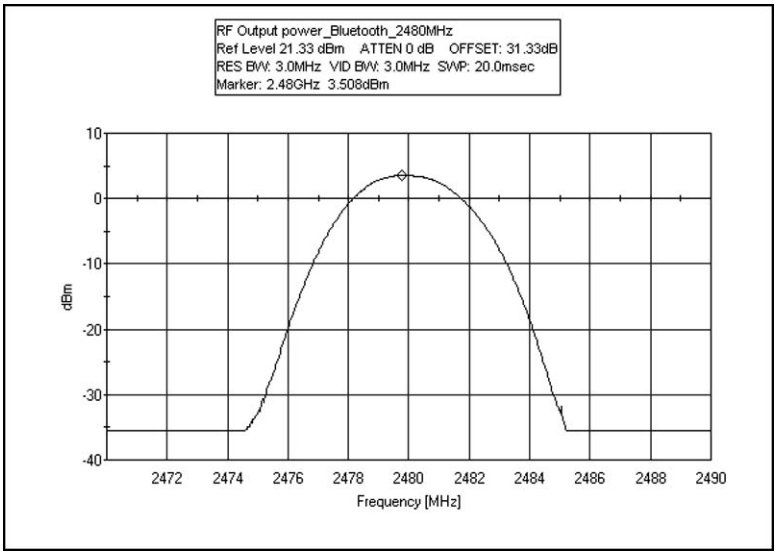
RF OUTPUT POWER - BLUETOOTH 2402MHz



RF OUTPUT POWER - BLUETOOTH 2441MHz



RF OUTPUT POWER - BLUETOOTH 2480MHz



802.11 b /g: DSSS

15.247(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: ***1 Watt.***

Setup: The EUT is placed on the test bench, RF output power is evaluated at the internal antenna connector, test method in accordance with method 3 of KDB558074 Power option 2, method 3.Power setting = 20 (max).

Modulation: 802.11b (11mbps QPSK)
Measured -26dB BW = 17.5 MHz
BW correction = 10 Log (17.5/1) = 12.4 dB
Measured at RBW =1 MHz add 13.8 dB correction.,
Sample detector turned on, 50/601 point is < 0.5 RBW

Frequency	Measured power	+ BW correction	Peak power	Peak power
2412 MHz	2.0 dBm	12.4	14.4 dBm	0.02754 W
2437 MHz	1.1 dBm	12.4	13.5 dBm	0.02238 W
2462 MHz	0.6 dBm	12.4	13.0 dBm	0.01995 W

Modulation: 802.11g (54 mbps, OFDM-64QAM)
Measured 26dB BW= 24 MHz.
BW correction = 10 Log (24/1) = 13.8 db
Measured at RBW =1 MHz add 13.8 dB correction.,
Sample detector turned on, 50/601 point is < 0.5 RBW

Frequency	Measured power	+ BW correction	Peak power	Peak power
2412 MHz	-3.8 dBm	13.8	10.0 dBm	0.01000 W
2437 MHz	-3.1dBm	13.8	10.7 dBm	0.01175 W
2462 MHz	-3.1 dBm	13.8	10.7 dBm	0.01175 W

15.31(e)

The supply voltage of the intentional radiator was varied between 85% and 115% of the nominal rated supply voltage. Result: No deviation of output were detected.

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
24” SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109
Programmable Power Source	01695/ 01696	Pacific Power	345AMX / UPC32	250 / 245	051507	051509

FCC Part 15.247(e) Power Spectral Density

Test Equipment

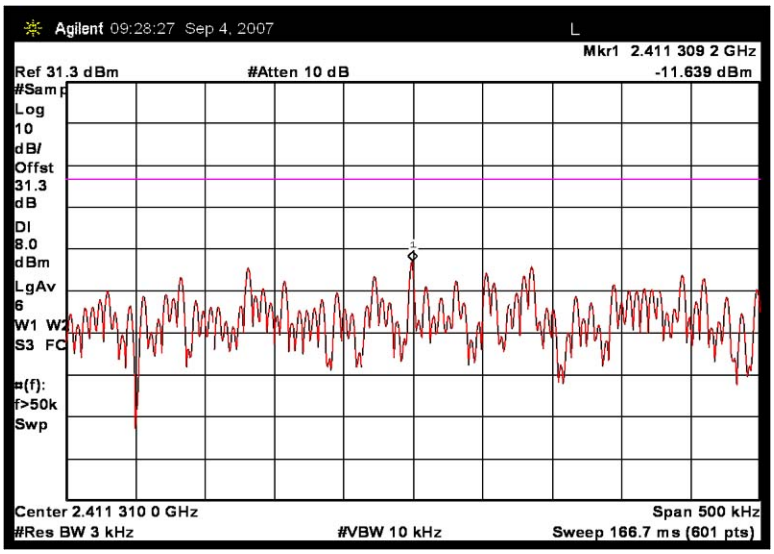
Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
24" SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109

Test Conditions: The EUT is placed on the test bench, USB port is connected to an AC power supply. The EUT is operating on Max power. RF emission profile evaluated at the internal antenna connector.

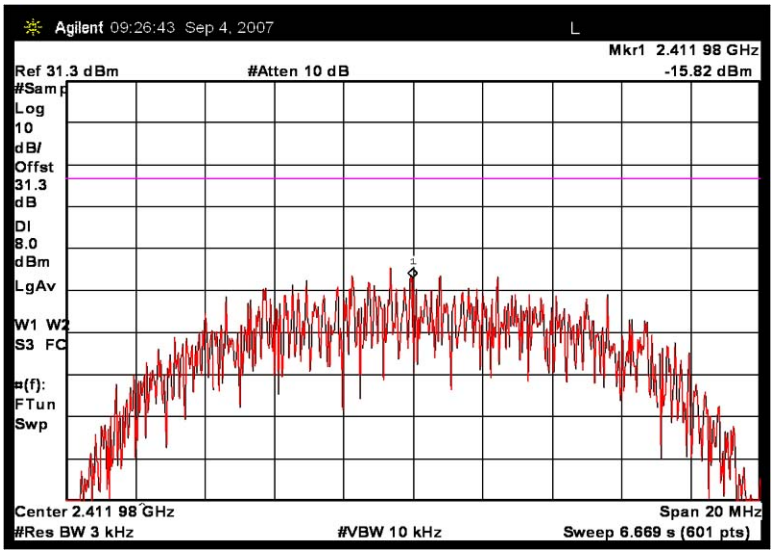
Test Setup Photos

Test Plots

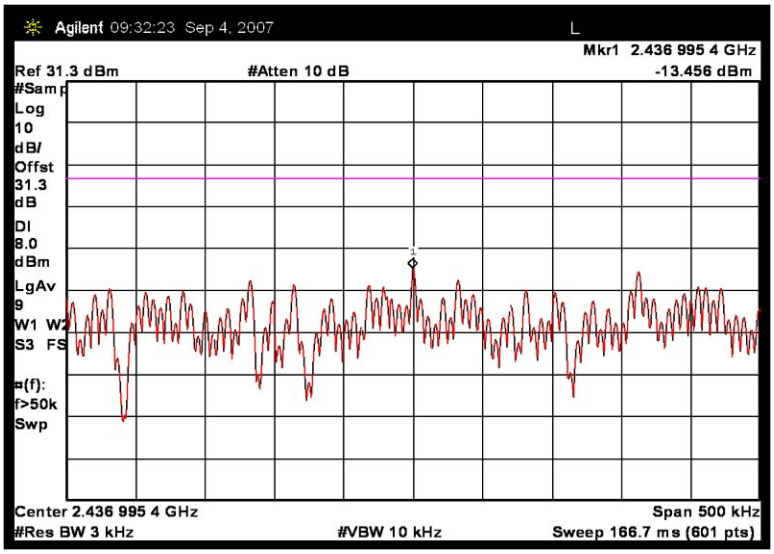
POWER SPECTRAL DENSITY - 802.11b LOW - 11.6dBm



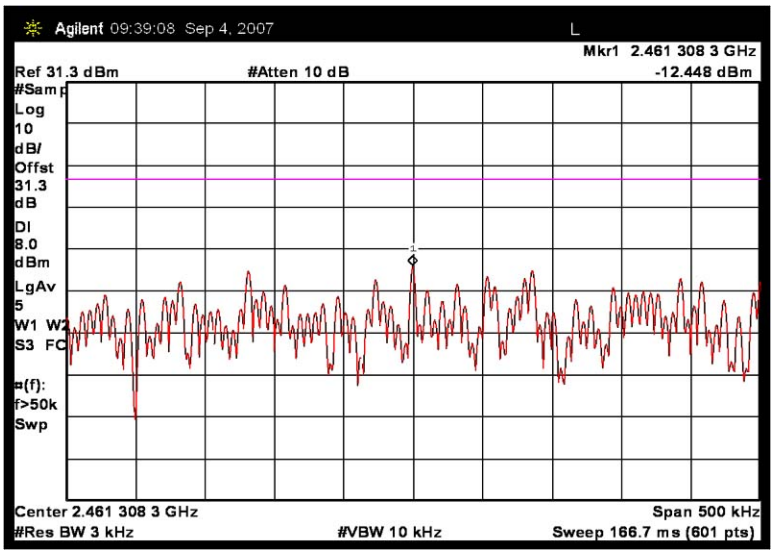
POWER SPECTRAL DENSITY - 802.11b LOW - SPANNED



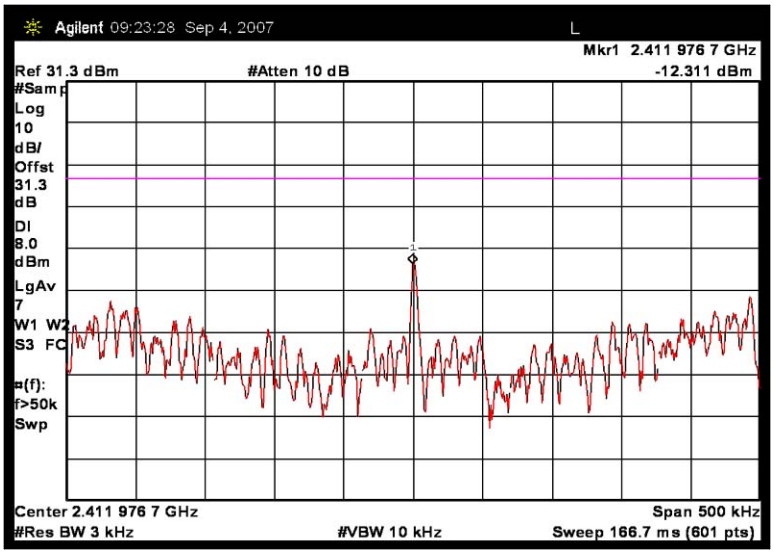
POWER SPECTRAL DENSITY - 802.11b MIDDLE - 13.5dBm



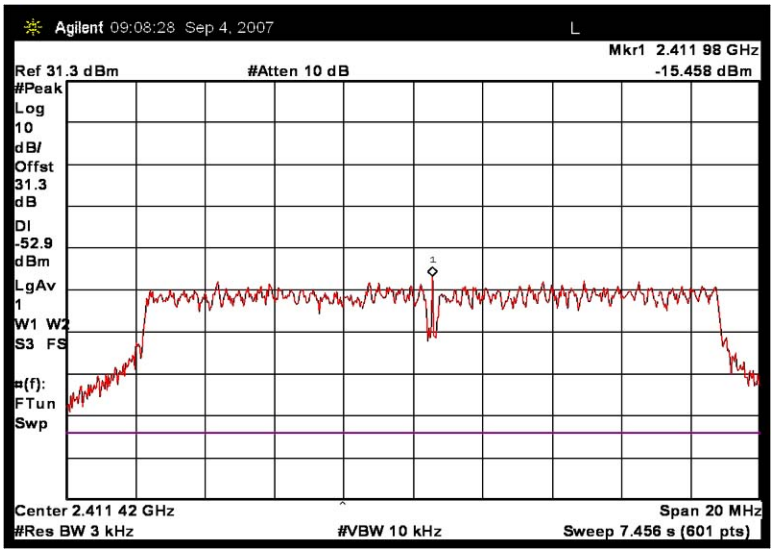
POWER SPECTRAL DENSITY - 802.11b HIGH - 12.5dBm



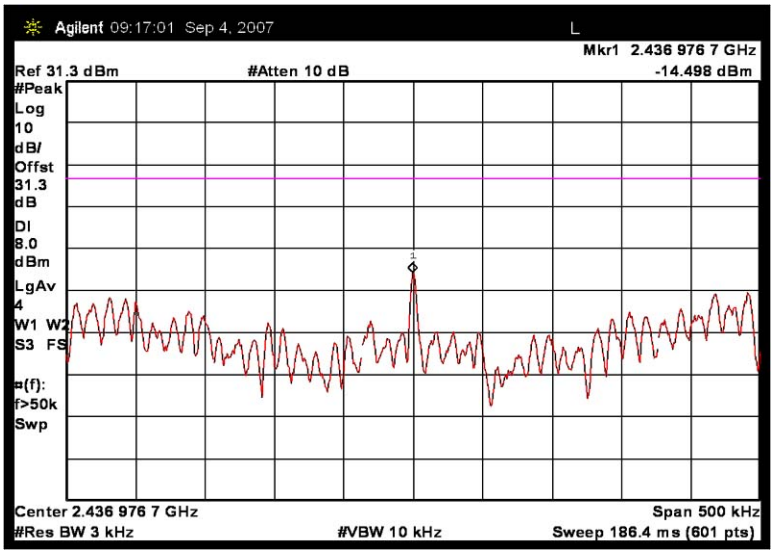
POWER SPECTRAL DENSITY - 802.11g LOW - 15dBm



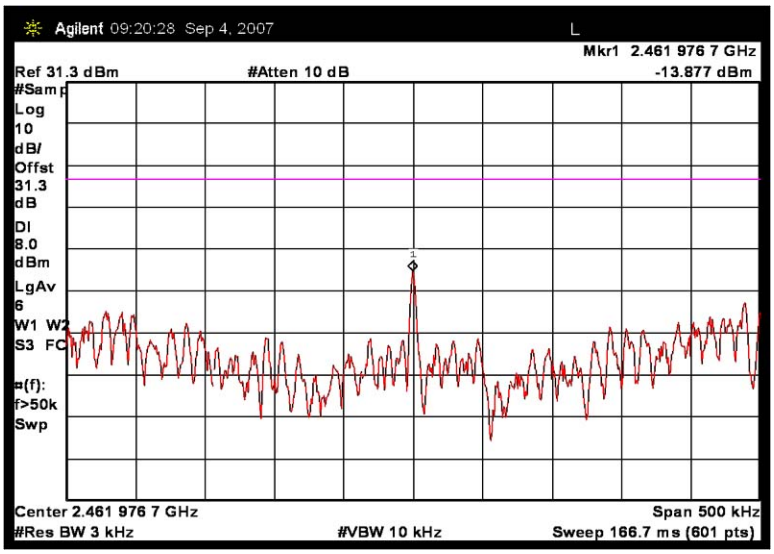
POWER SPECTRAL DENSITY - 802.11g LOW - 15dBm SPANNED



POWER SPECTRAL DENSITY - 802.11g MIDDLE - 14.4dBm



POWER SPECTRAL DENSITY - 802.11g HIGH - 13.9dBm



Bandedge

Test Equipment

Equipment	Asset #	Manufacturer	Model	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	010307	010309
Horn Antenna	00849	EMCO	3115	6246	062906	062908
Microwave Pre-amp	00786	HP	83017A	3123A00281	071906	071908
Heliax Antenna cable	P05565	Andrew	LDF1-50	P5565	091806	091808
24” SMA Cable (White)	P05183	Pasterneck	35591-48	1-40GHz_white	011107	011109

Test Conditions: The EUT is placed on the wooden table with 10 cm of Styrofoam material. A set of earphone is connected to the Audio port. Docking port is connected to a section of unterminated cable. USB port is connected to an AC power supply. The EUT is operating on Max power.

Test Setup Photos