



ADDENDUM TO BELKIN CORPORATION TEST REPORT FC05-022A

FOR THE

BLUETOOTH TRANSMITTTER (F8Z901-TX) AND RECEIVER (F8Z901-RX)

FCC PART 15 SUBPART C SECTIONS 15.207, 15.209 AND 15.247

COMPLIANCE

DATE OF ISSUE: DECEMBER 7, 2005

PREPARED FOR:

Belkin Corporation
501 West Walnut Street
Compton, CA 90220

PREPARED BY:

Mary Ellen Clayton
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

P.O. No.: 112636
W.O. No.: 83591

Date of test: April 25-30, 2005

Report No.: FC05-022B

This report contains a total of 66 pages and may be reproduced in full only. Partial reproduction may only be done with the written consent of CKC Laboratories, Inc. The results in this report apply only to the items tested, as identified herein.

TABLE OF CONTENTS

Administrative Information	4
FCC to Canada Standard Correlation Matrix.....	5
Conditions for Compliance	5
Approvals.....	6
Equipment Under Test (EUT) Description	7
FCC 15.31(e) Voltage Variation.....	7
FCC 15.31(m) Number Of Channels	7
FCC 15.33(a) Frequency Ranges Tested	7
FCC 15.35 Analyzer Bandwidth Settings.....	7
FCC 15.203 Antenna Requirements	7
FCC 15.205 Restricted Bands.....	7
Eut Operating Frequency	7
Equipment Under Test	8
Peripheral Devices	8
Report of Measurements	9
Table 1: FCC 15.207 Six Highest Conducted Emission Levels: F8Z901-TX.....	9
Table 2: FCC 15.207 Six Highest Conducted Emission Levels: F8Z901-RX	10
Table 3: FCC 15.209 Six Highest Radiated Emission Levels: F8Z901-RX.....	11
FCC 15.247(a)(1) Occupied Bandwidth –20dBc.....	12
FCC 15.247(a)(1)(iii) Number Of Hopping Frequency.....	16
FCC 15.247(a)(1)(iii) Average Time Of Occupancy.....	21
FCC 15.247(b)(1) RF Output Power	23
FCC 15.247(d) Bandedge Plots	25
Table 4: FCC 15.247(d) Six Highest Radiated Emission Levels: F8Z901-TX ...	29
Table 5: FCC 15.247(d) Six Highest Radiated Emission Levels: F8Z901-RX...	30
Temperature And Humidity During Testing.....	31
EUT Setup.....	31
Correction Factors.....	31
Table A: Sample Calculations	31
Test Instrumentation and Analyzer Settings	32
Spectrum Analyzer Detector Functions	32
Peak.....	32
Quasi-Peak	32
Average.....	32
EUT Testing.....	33
Mains Conducted Emissions.....	33
Antenna Conducted Emissions	33
Radiated Emissions.....	33
Appendix A: Test Setup Photographs.....	35
Photograph Showing Mains Conducted Emissions	36
Photograph Showing Mains Conducted Emissions	37
Photograph Showing Mains Conducted Emissions	38

Photograph Showing Mains Conducted Emissions	39
Photograph Showing Radiated Emissions	40
Photograph Showing Radiated Emissions	41
Photograph Showing Radiated Emissions	42
Photograph Showing Radiated Emissions	43
Photograph Showing Radiated Emissions	44
Photograph Showing RF Power Output and Voltage Variation	45
Photograph Showing Occupied Bandwidth, Carrier Frequency Separation, Average Time of Occupancy and Number of Hopping Frequency	46
Appendix B: Test Equipment List	47
Appendix C: Measurement Data Sheets	49

ADMINISTRATIVE INFORMATION

DATE OF TEST: April 25-30, 2005

DATE OF RECEIPT: April 25, 2005

MANUFACTURER: Belkin Corporation
501 West Walnut Street
Compton, CA 90220

REPRESENTATIVE: Tac Pham

TEST LOCATION: CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92621

TEST METHOD: ANSI C63.4 (2003) and FCC-MP5

PURPOSE OF TEST: To demonstrate the compliance of the Bluetooth Transmitter (F8Z901-TX) and Receiver (F8Z901-RX) with the requirements for FCC Part 15 Subpart C Sections 15.207, 15.209 & 15.247 devices. **Addendum A** is to remove some occupied bandwidth plots and a carrier frequency separation plot, revise the RF output power and average time of occupancy plots. **Addendum B** is to correct the bandedge plots to reference 15.247(d) and show how the 20.8 duty cycle correction factor was calculated for Tables 4 and 5.

FCC TO CANADA STANDARD CORRELATION MATRIX

Canadian Standard	Canadian Section	FCC Standard	FCC Section	Test Description
RSS 210	5.5	47CFR	15.203	Antenna Connector Requirements
RSS 210	6.2.1	47CFR	15.209	General Radiated Emissions Requirement
RSS 210	6.3	47CFR	15.205	Restricted Bands of Operation
RSS 210	6.4	47CFR	15.215(c)	Frequency Stability Recommendation
RSS 210	6.5	47CFR	15.35(c)	Pulsed Operation
RSS 210	6.6	47CFR	15.207	AC Mains Conducted Emissions Requirement
RSS 210	6.2.2(o)(a1)	47CFR	15.247(a)(1)	Minimum Channel Bandwidth
RSS 210	6.2.2(o)(a1)	47CFR	15.247(g)	Hopping Sequence
RSS 210	6.2.2(o)(a1)	47CFR	15.247(h)	Incorporation of Intelligence
RSS 210	6.2.2(o)(a2)	47CFR	15.247(a)(1)(i)	Average Time of Occupancy
RSS 210	6.2.2(o)(a2)	47CFR	15.247(b)(2)	RF Power Output
RSS 210	6.2.2(o)(a3)	47CFR	15.247(a)(1)(ii)	Average Time of Occupancy
RSS 210	6.2.2(o)(a3)	47CFR	15.247(a)(1)(iii)	Average Time of Occupancy
RSS 210	6.2.2(o)(a3)	47CFR	15.247(b)(1)	RF Power Output
RSS 210	6.2.2(o)(a3)	47CFR	15.247(b)(4)	Directional Gain Antennae
RSS 210	6.2.2(o)(b)	47CFR	15.247(d)	Peak Power Spectral Density
RSS 210	6.2.2(o)(b)	47CFR	15.247(b)(3)	RF Power Output
RSS 210	6.2.2(o)(b)	47CFR	15.247(a)(2)	Minimum 6dB Bandwidth
RSS 210	6.2.2(o)(b)	47CFR	15.247(b)(4)	Directional Gain Antennae
RSS 210	6.2.2(o)(b)	47CFR	15.247(f)	Hybrid Systems
RSS 210	6.2.2(o)(e1)	47CFR	15.247(c)	Spurious Emissions
	IC 3172-A		90473	Site File No.

Notes: Rule Sections for RSS 210 are taken from RSS 210 Issue 5 Amendment 1

CONDITIONS FOR COMPLIANCE

No modifications to the EUT were necessary to comply.

APPROVALS

Steve Behm, Director of Engineering Services

QUALITY ASSURANCE:



Joyce Walker, Quality Assurance Administrative
Manager

TEST PERSONNEL:



Eddie Wong, EMC Engineer

EQUIPMENT UNDER TEST (EUT) DESCRIPTION

The customer declares the EUT tested by CKC Laboratories was representative of a production unit.

FCC 15.31(e) Voltage Variations

Ipod is connected to the AC charger; a close field probe is placed near the EUT's antenna. The RF level is observed with a spectrum analyzer. Voltage is varied 80% to 115%. Result: no variation in power level was detected.

FCC 15.31(m) Number Of Channels

This device was tested on low, middle and high channels.

FCC 15.33(a) Frequency Ranges Tested

15.207 Conducted Emissions: 150 kHz – 30 MHz

15.209/15.247 Radiated Emissions: 9 kHz – 25 GHz

FCC SECTION 15.35: ANALYZER BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	9 kHz	150 kHz	200 Hz
RADIATED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	25 GHz	1 MHz

FCC 15.203 Antenna Requirements

The antenna is an integral part of the EUT and is non-removable; therefore the EUT complies with Section 15.203 of the FCC rules.

FCC 15.205 Restricted Bands

The fundamental operating frequency lies outside the restricted bands and therefore complies with the requirements of Section 15.205 of the FCC rules. Any spurious emission coming from the EUT was investigated to determine if any portion lies inside the restricted band. If any portion of a spurious emissions signal was found to be within a restricted band, investigation was performed to ensure compliance with Section 15.209.

Eut Operating Frequency

The EUT was operating at 2402-2480 MHz

The EUT is a frequency hopping device operating in the 2400 – 2483.5 MHz band.

EQUIPMENT UNDER TEST

Bluetooth Transmitter

Manuf: Belkin
Model: F8Z901-TX
Serial: NA
FCC ID: pending

Bluetooth Receiver

Manuf: Belkin
Model: F8Z901-RX
Serial: NA
FCC ID: pending

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Power Adapter

Manuf: Ipod
Model: A1070
Serial: NA
FCC ID: NA

Laptop

Manuf: Gateway
Model: Solo 5150
Serial: BC599030987
FCC ID: NA

Power Supply

Manuf: Topward
Model: 6306D
Serial: NA
FCC ID: NA

MP3 Player

Manuf: Ipod
Model: A1040
Serial: U23211J3NRH
FCC ID: NA

REPORT OF MEASUREMENTS

The following tables report the six highest worst case levels recorded during the tests performed on the EUT. All readings taken are peak readings unless otherwise noted. The data sheets from which these tables were compiled are contained in Appendix C.

Table 1: FCC 15.207 Six Highest Conducted Emission Levels: F8Z901-TX									
FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV	SPEC LIMIT dBμV	MARGIN dB	NOTES
		Lisn dB	HPF dB	Cable dB					
0.150000	29.8	0.1	3.1	0.0		33.0	56.0	-23.0	B
0.150727	29.9	0.1	3.1	0.0		33.1	56.0	-22.9	W
0.648859	22.8	0.0	0.1	0.1		23.0	46.0	-23.0	B
0.651768	23.6	0.0	0.1	0.1		23.8	46.0	-22.2	W
0.842294	21.8	0.1	0.2	0.1		22.2	46.0	-23.8	B
3.832835	21.6	0.1	0.1	0.2		22.0	46.0	-24.0	B

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead

COMMENTS: The EUT is connected to earphone port of a support Ipod MP3 Player that is placed on the wooden table. The EUT transmits digitized audio signal to the receiver. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Table 2: FCC 15.207 Six Highest Conducted Emission Levels: F8Z901-RX

FREQUENCY MHz	METER READING dB μ V	CORRECTION FACTORS				CORRECTED READING dB μ V	SPEC LIMIT dB μ V	MARGIN dB	NOTES
		Lisn dB	HPF dB	Cable dB					
0.289622	49.5	0.1	0.2	0.0		49.8	50.5	-0.7	W
0.574685	43.8	0.0	0.1	0.1		44.0	46.0	-2.0	W
0.579048	44.2	0.0	0.1	0.1		44.4	46.0	-1.6	W
0.580502	43.8	0.0	0.1	0.1		44.0	46.0	-2.0	W
0.643042	43.5	0.0	0.1	0.1		43.7	46.0	-2.3	B
0.652495	43.8	0.0	0.1	0.1		44.0	46.0	-2.0	B

Test Method: ANSI C63.4 (2003)
Spec Limit: FCC Part 15 Subpart C Section 15.207

NOTES: B = Black Lead
W = White Lead

COMMENTS: The EUT is placed on the wooden table. RCA ports are connected to support audio system; earphone port is connected to a pair of earphone. The EUT receives digitized audio signal from a remote transmitter and converts to audio signal. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Table 3: FCC 15.209 Six Highest Radiated Emission Levels: F8Z901-RX

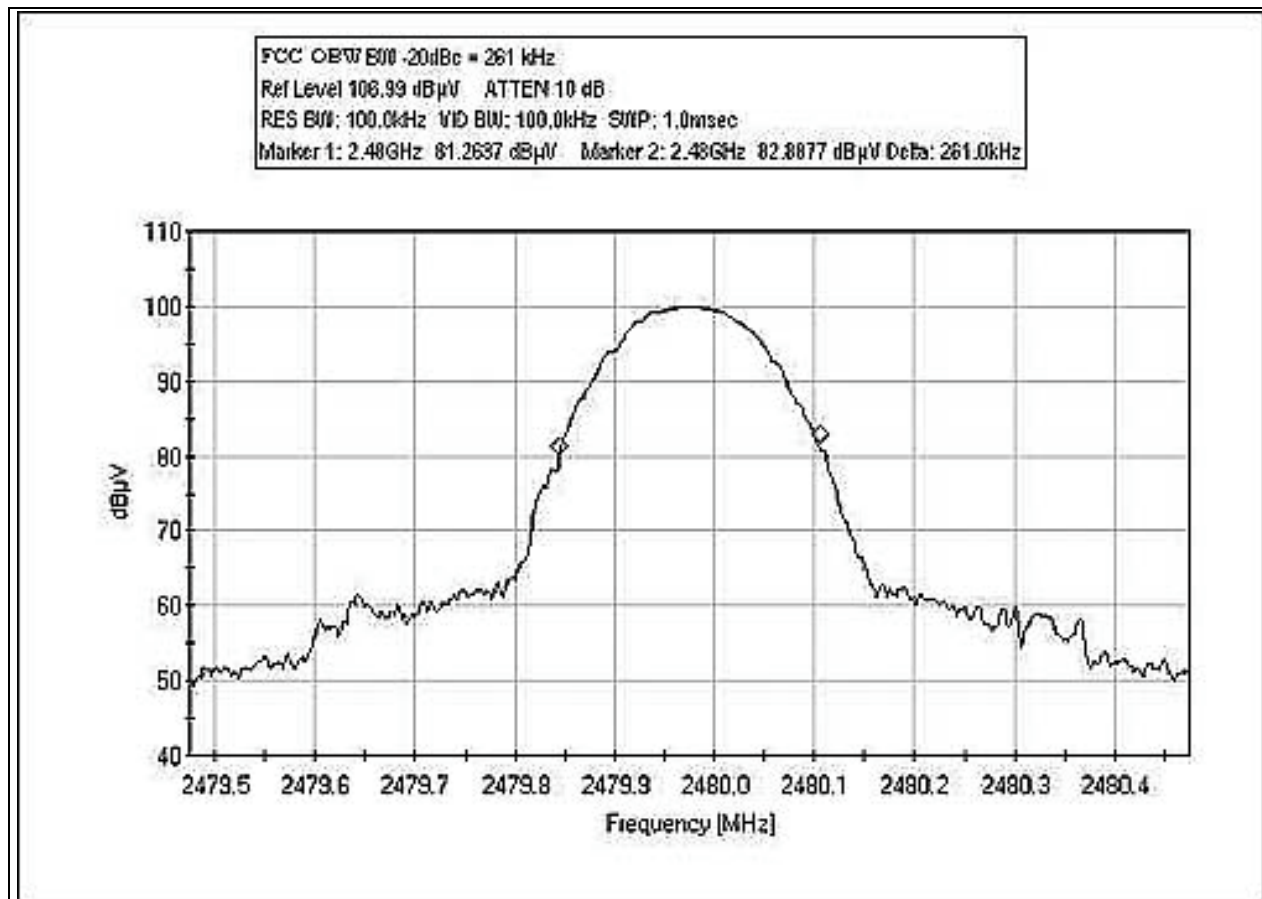
FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS				CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Filter dB				
124.945	38.2	12.1	-27.6	2.2	0.0	24.9	43.5	-18.6	V
303.935	39.6	14.1	-27.5	3.5	0.0	29.7	46.0	-16.3	H
351.945	36.8	15.4	-27.6	4.0	0.0	28.6	46.0	-17.4	H
367.953	35.4	15.8	-27.5	4.0	0.0	27.7	46.0	-18.3	H
383.971	37.2	16.1	-27.5	4.1	0.0	29.9	46.0	-16.1	H
1601.000	53.1	24.8	-38.4	3.3	0.4	43.2	54.0	-10.8	VA

Test Method: ANSI C63.4 (2003)/FCC-MP5
Spec Limit: FCC Part 15 Subpart C Section 15.209
Test Distance: 3 Meters

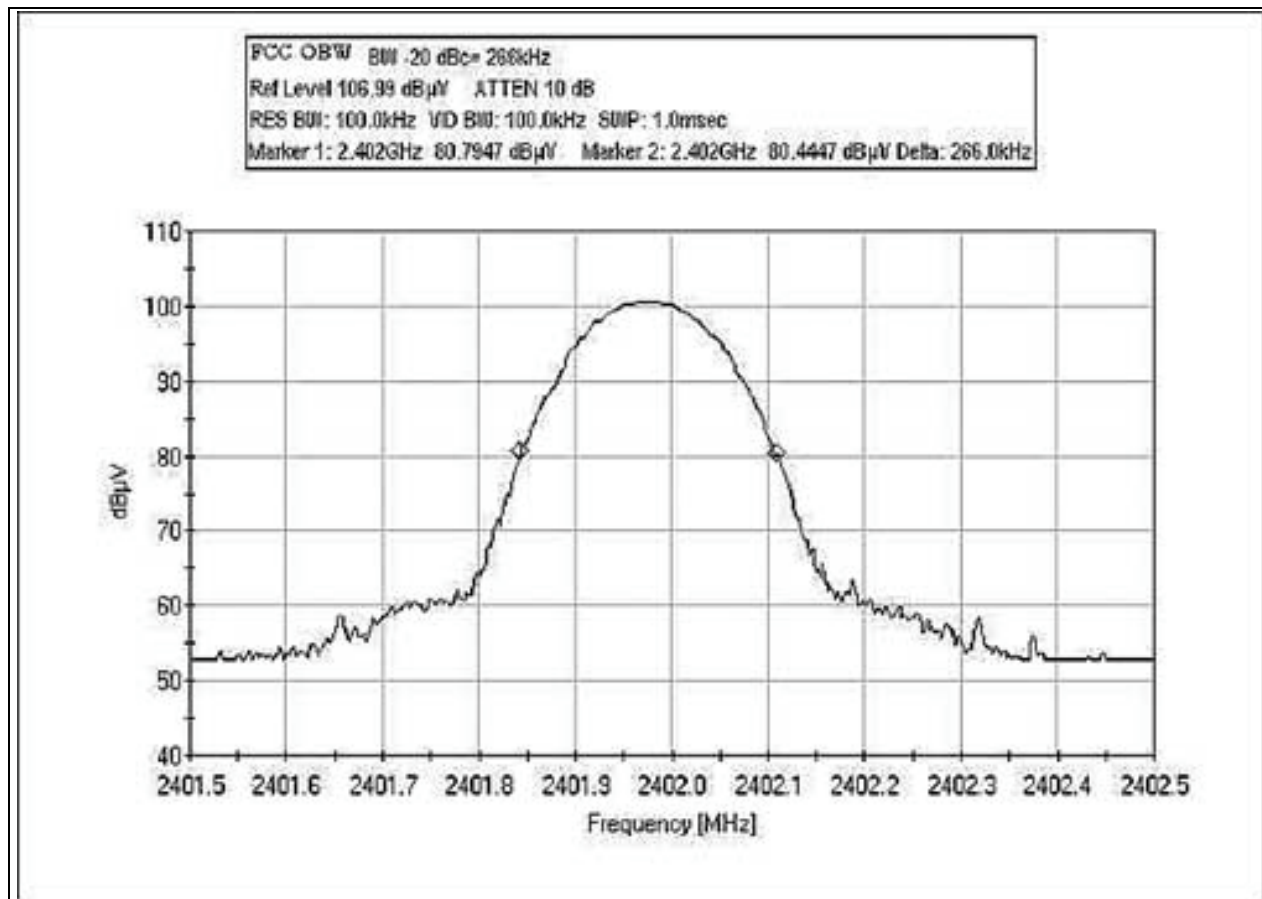
NOTES: H = Horizontal Polarization
V = Vertical Polarization
A = Average Reading

COMMENTS: The EUT (receiver) is placed on the wooden table. The RCA jacks are connected to an audio device and the headphone jack is connected to a stereo headphone. Remote Ipod plays MPS file and transmit the bluetooth signal to the EUT. Receiving Frequency: 2402-2480 MHz, Hopping. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz,VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz,VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

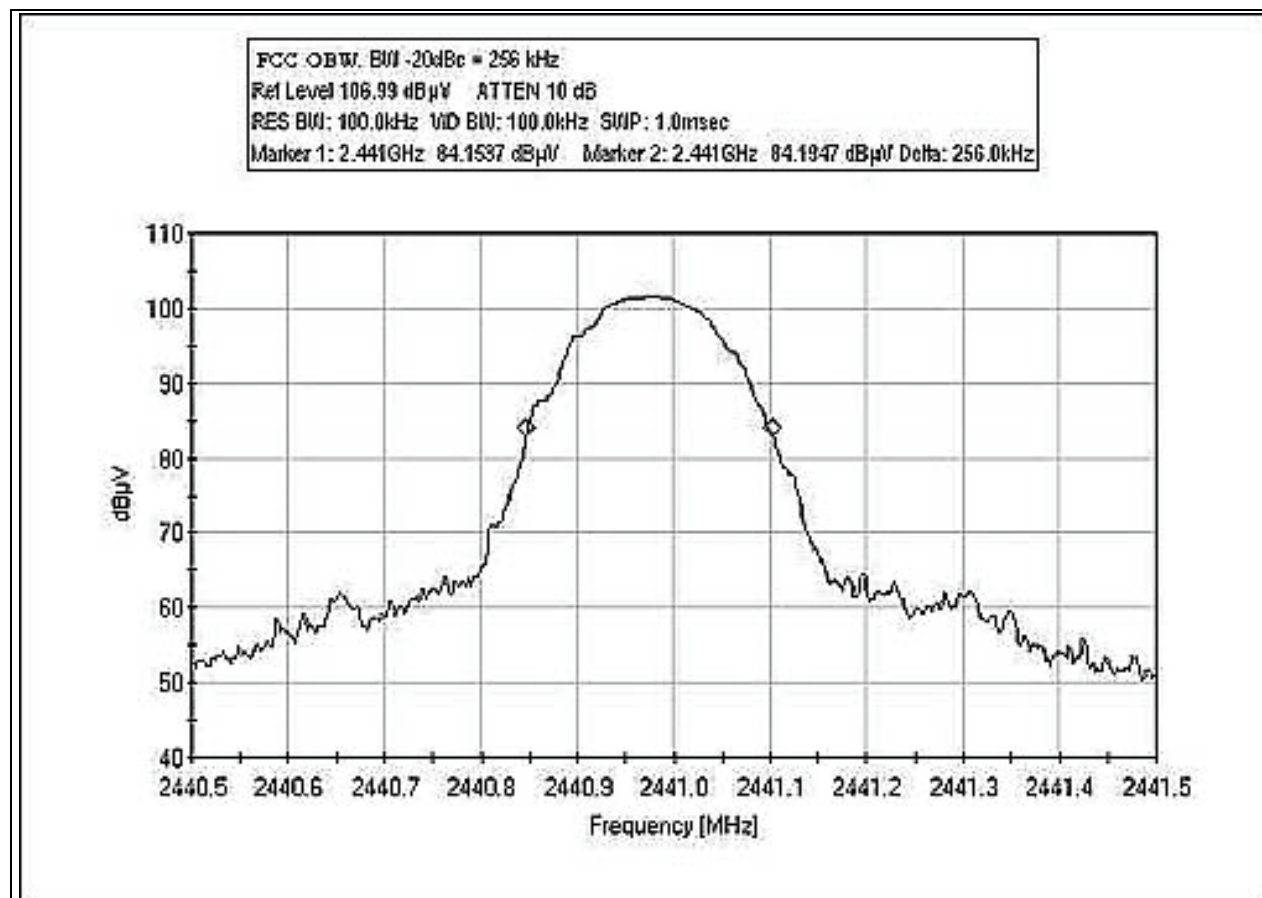
FCC 15.247(a)(1) OCCUPIED BANDWIDTH -20dBc HIGH



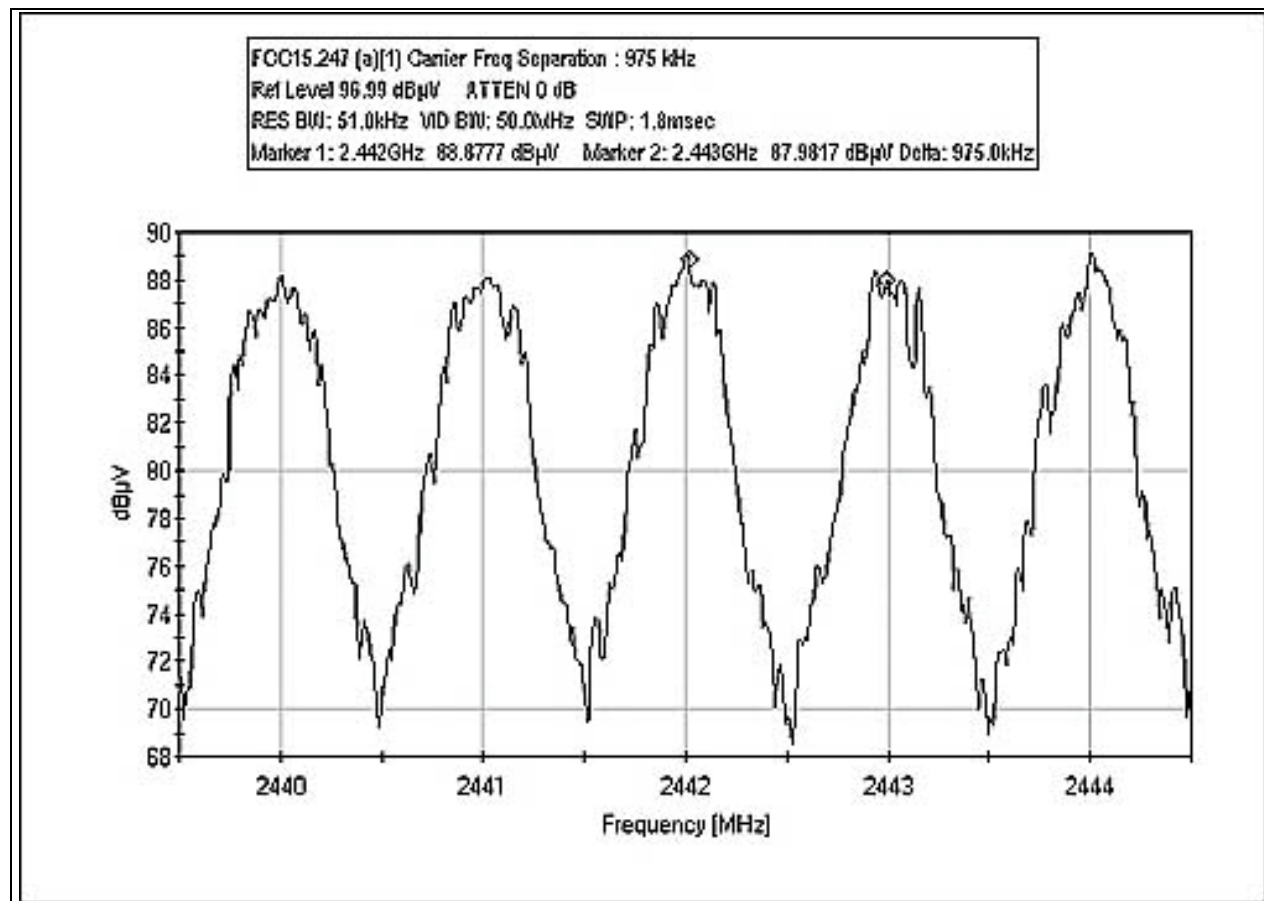
FCC 15.247(a)(1) OCCUPIED BANDWIDTH -20dBc LOW



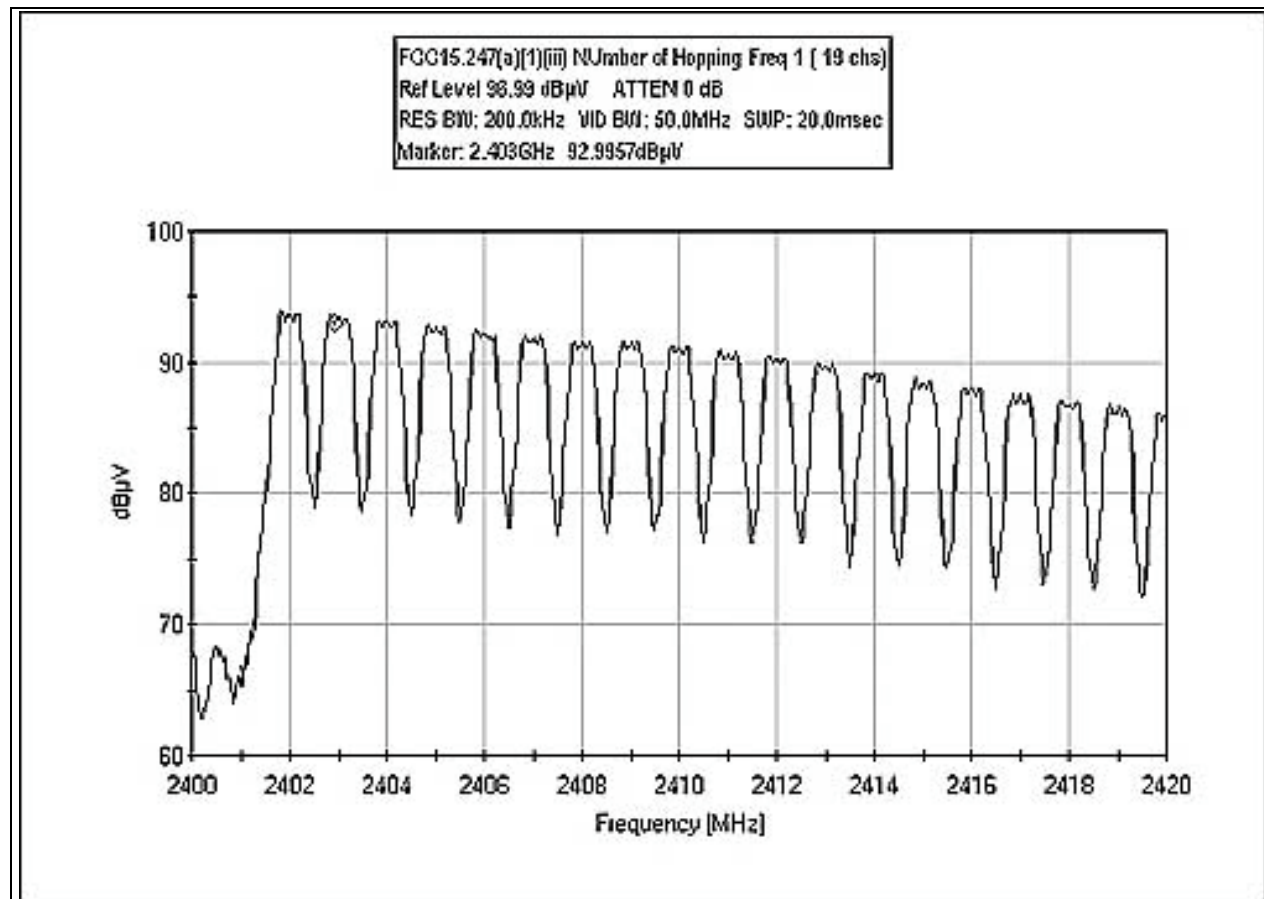
FCC 15.247(a)(1) OCCUPIED BANDWIDTH -20dBc MID



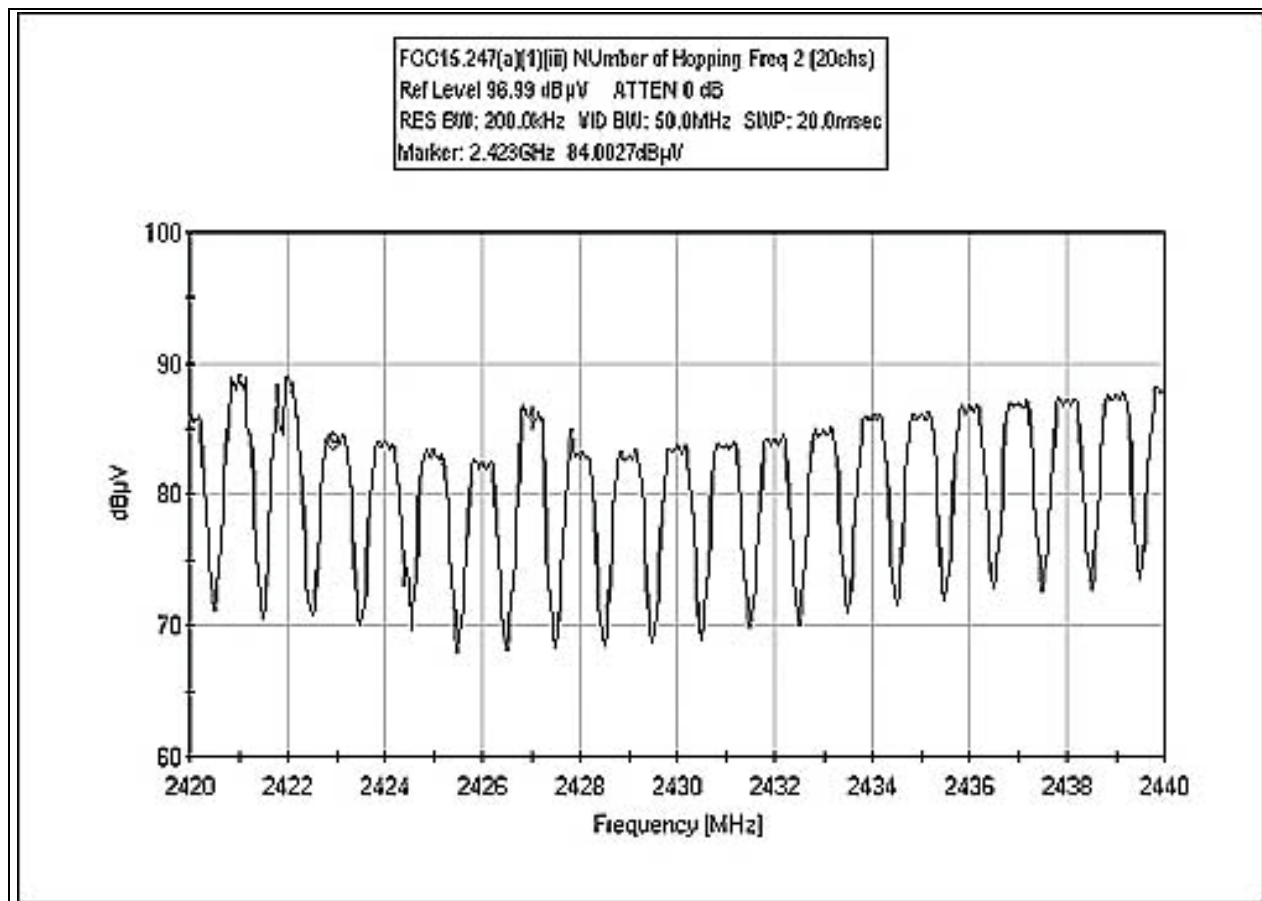
FCC 15.247(a)(1) CARRIER FREQUENCY SEPARATION



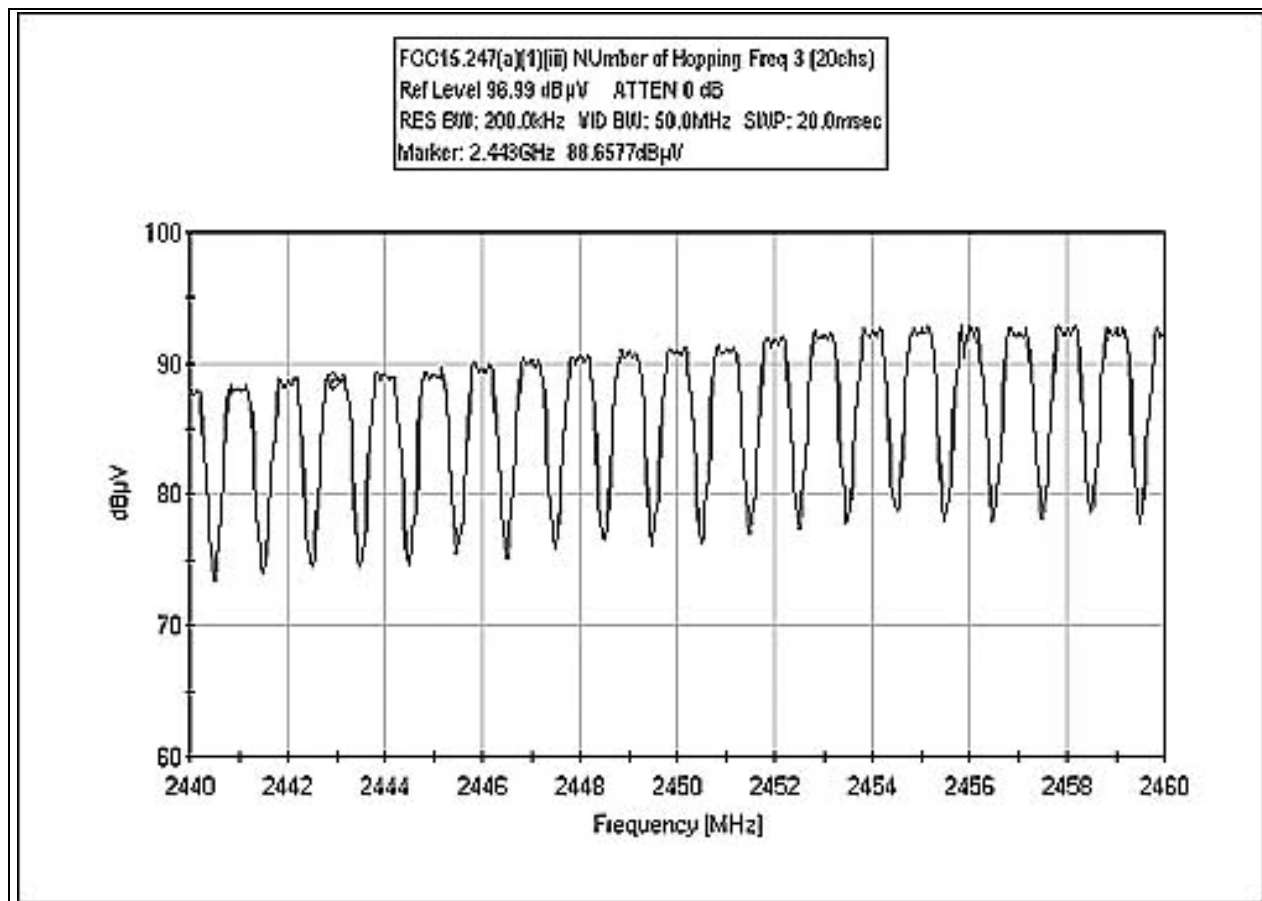
FCC 15.247(a)(1)(iii) NUMBER OF HOPPING FREQUENCY 1



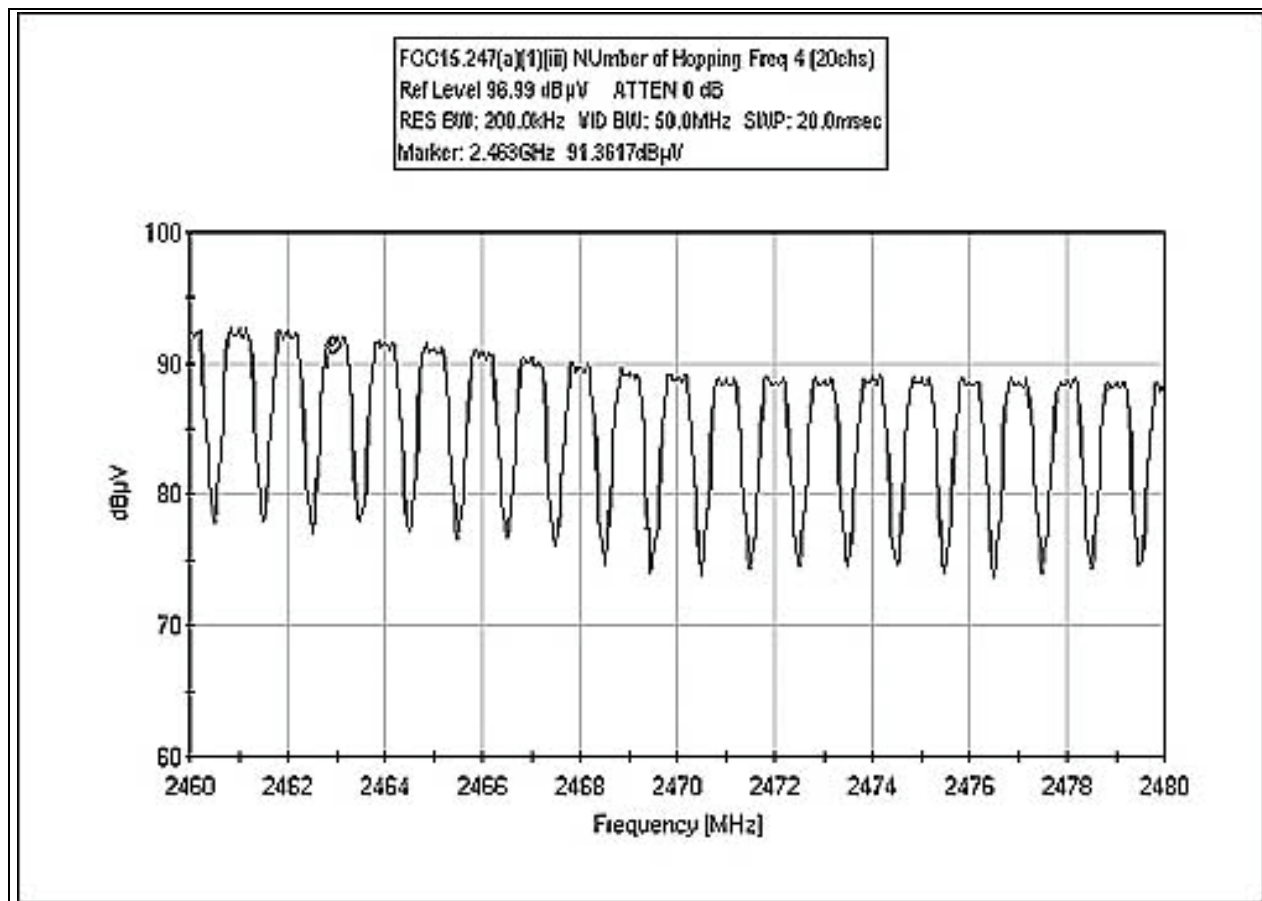
FCC 15.247(a)(1)(iii) NUMBER OF HOPPING FREQUENCY 2



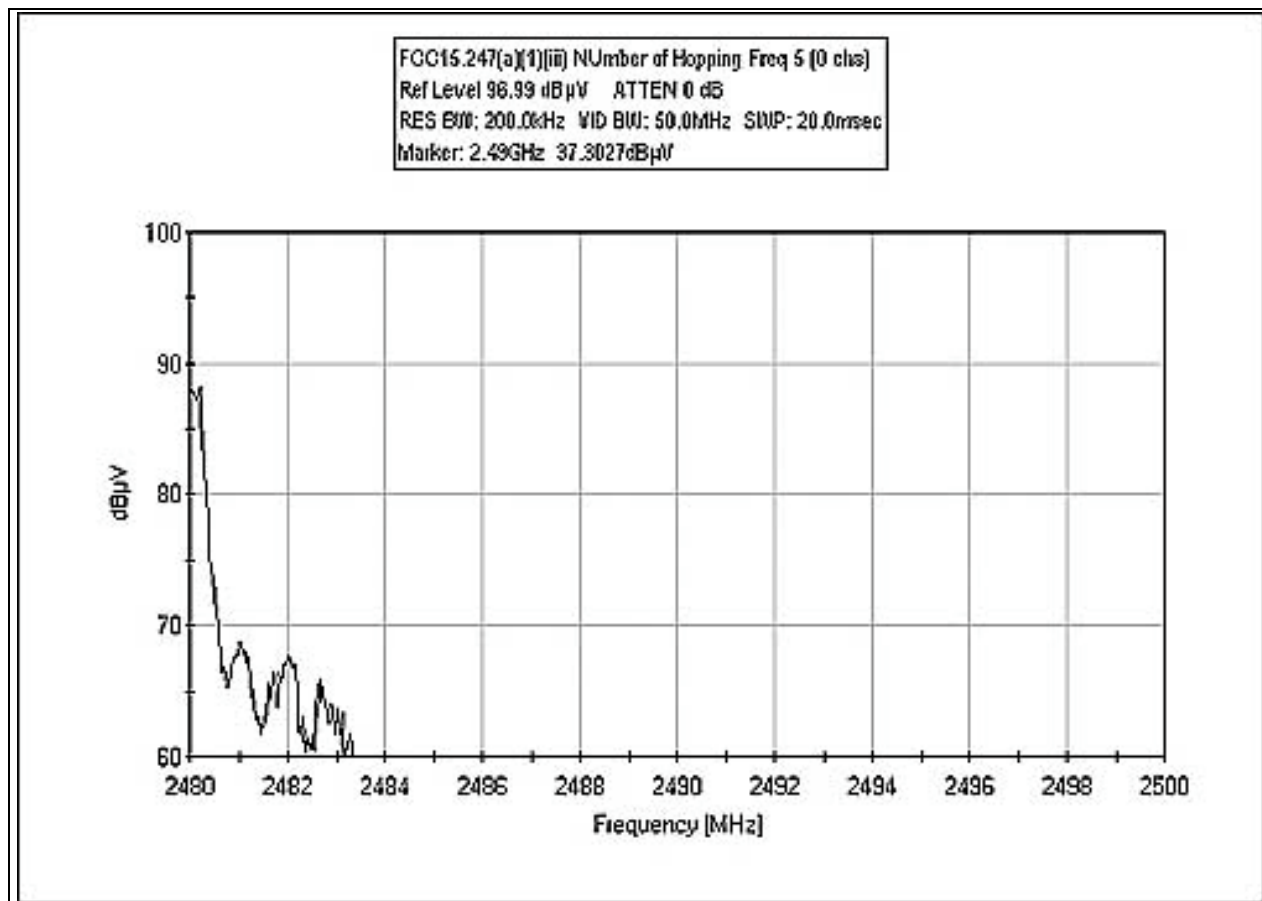
FCC 15.247(a)(1)(iii) NUMBER OF HOPPING FREQUENCY 3



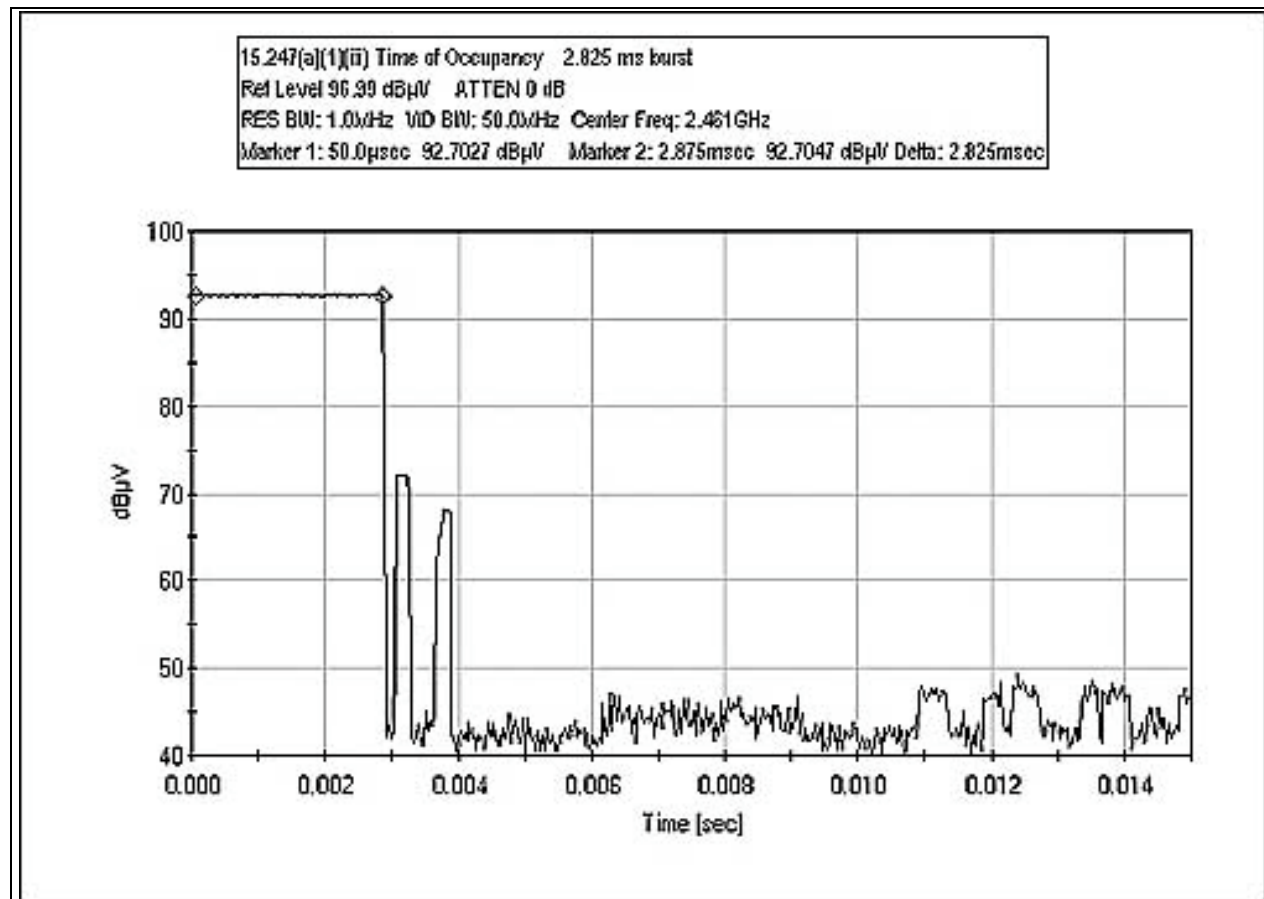
FCC 15.247(a)(1)(iii) NUMBER OF HOPPING FREQUENCY 4



FCC 15.247(a)(1)(iii) NUMBER OF HOPPING FREQUENCY 5



FCC 15.247(a)(1)(iii) AVERAGE TIME OF OCCUPANCY

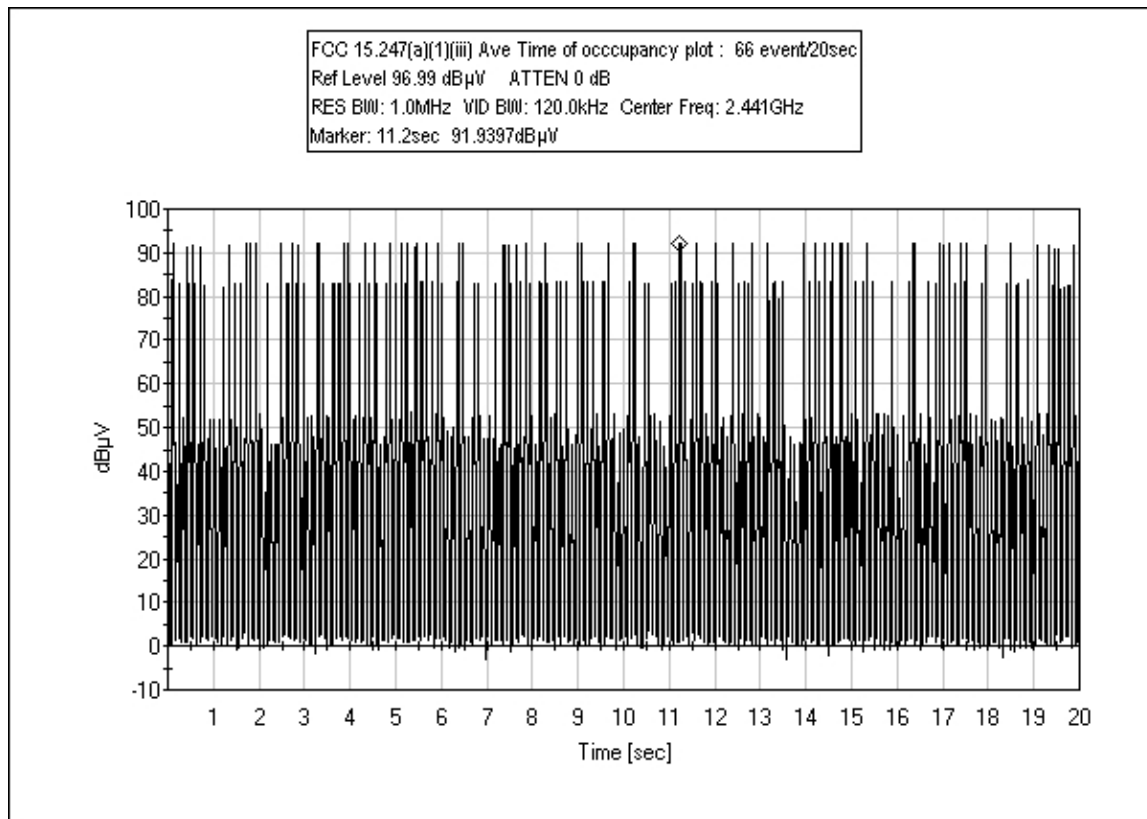


FCC 15.247(a)(1)(iii) AVERAGE TIME OF OCCUPANCY AVERAGE 1

Total hopping channel = 79 channels

79 x 0.4 sec = 31.6 sec.

1 burst : FCC15.247(a)(1)(iii) Occu time 1JPG = 2.825 mSec



(A sample plot of 20 sec sweep)

10 sweeps were measure and the average was calculated to be 54.6/ 20 sec
therefore 2.73 event/sec.

2.73 x 2.825 ms(on time) = 7.7 mSec of on time per sec.

per spec 0.4 sec x 79 channel = 31.6 sec,

Therefore in **31.6 sec** there are 31.6 x 7.7 mSec of on time
=243.32 mSec = 0.2433 Sec = **0.3 Sec of on time**

Hence fulfilled the **NOT** greater than 0.4 sec within a period of 0.4 sec multiply by the number of hopping channels employed.

FCC 15.247(b)(1) RF OUTPUT POWER

F8Z901-TX

The EUT was placed on the wooden table, setup to transmit in LMH channels. The RF field strength was measured with a horn antenna, amplifier and a Spectrum analyzer. The three orthogonal axes were investigated and orientation with maximum emission was recorded.

The EUT was then substituted with a horn antenna. A signal generator is connected to the substitution horn antenna, transmitting a CW signal. The output level of the signal generator was adjusted to match the recorded RF level as recorded earlier.

The RF power at the feed point was then measured and reported as EIRP.

Gain = $20 \cdot \log(f \text{ MHz}) - 29.77$ - (transducer factor in dB)

Sig Gen reading + Gain of the substitution antenna (dBi) = EIRP Power in watts

Freq	EIRP (dBm)	EIRP (W)
2402 MHz	0.9	0.0012
2441 MHz	1.5	0.0014
2480 MHz	1.7	0.0015

F8Z901-RX

The EUT was placed on the wooden table, setup to transmit in LMH channels. The RF field strength was measured with a horn antenna, amplifier and a Spectrum analyzer. The three orthogonal axes were investigated and orientation with maximum emission was recorded.

The EUT was then substituted with a horn antenna. A signal generator is connected to the substitution horn antenna, transmitting a CW signal. The output level of the signal generator was adjusted to match the recorded RF level as recorded earlier.

The RF power at the feed point was then measured and reported as EIRP.

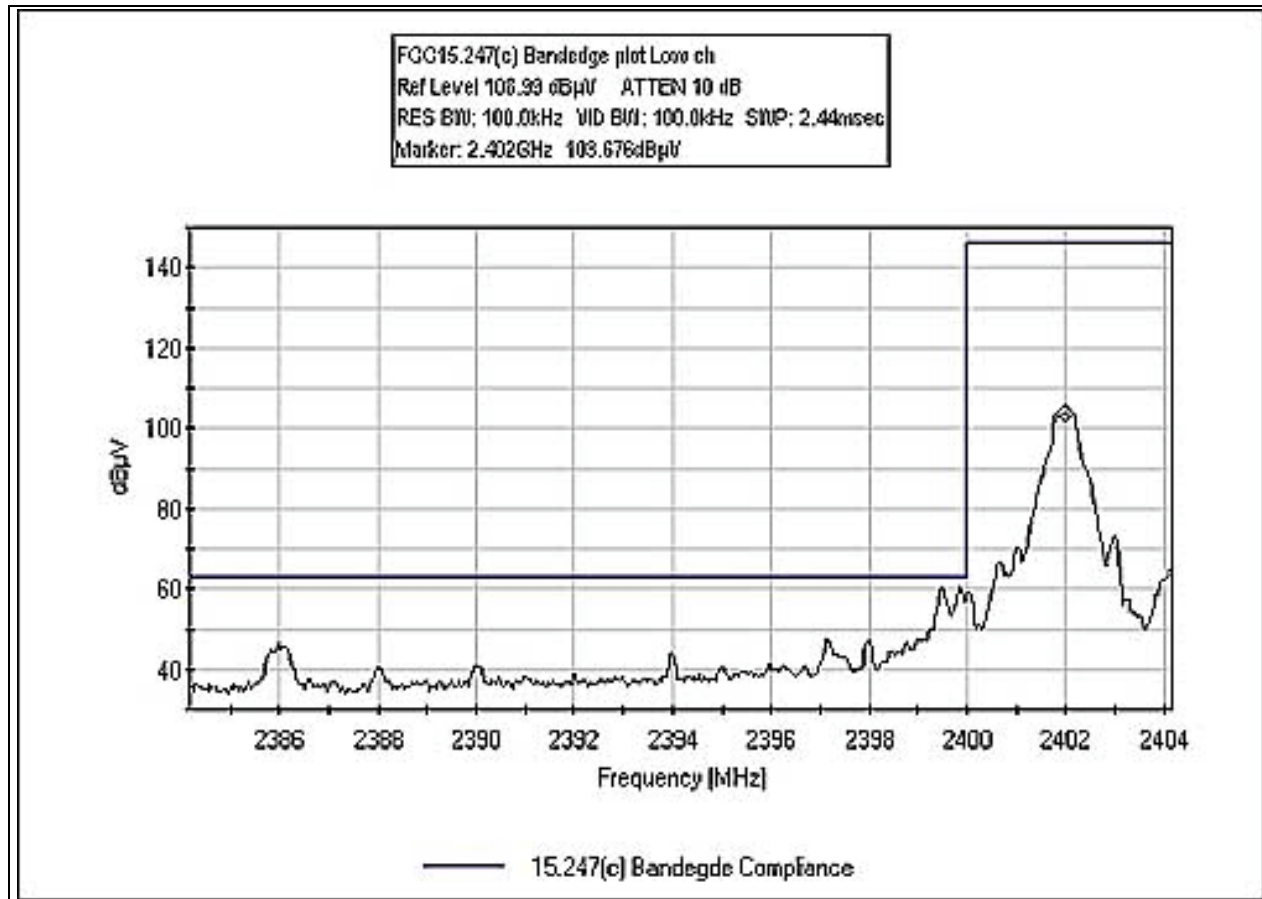
Gain = $20 \cdot \log(f \text{ MHz}) - 29.77$ - (transducer factor in dB)

Sig Gen reading + Gain of the substitution antenna (dBi) = EIRP Power in watts

RX

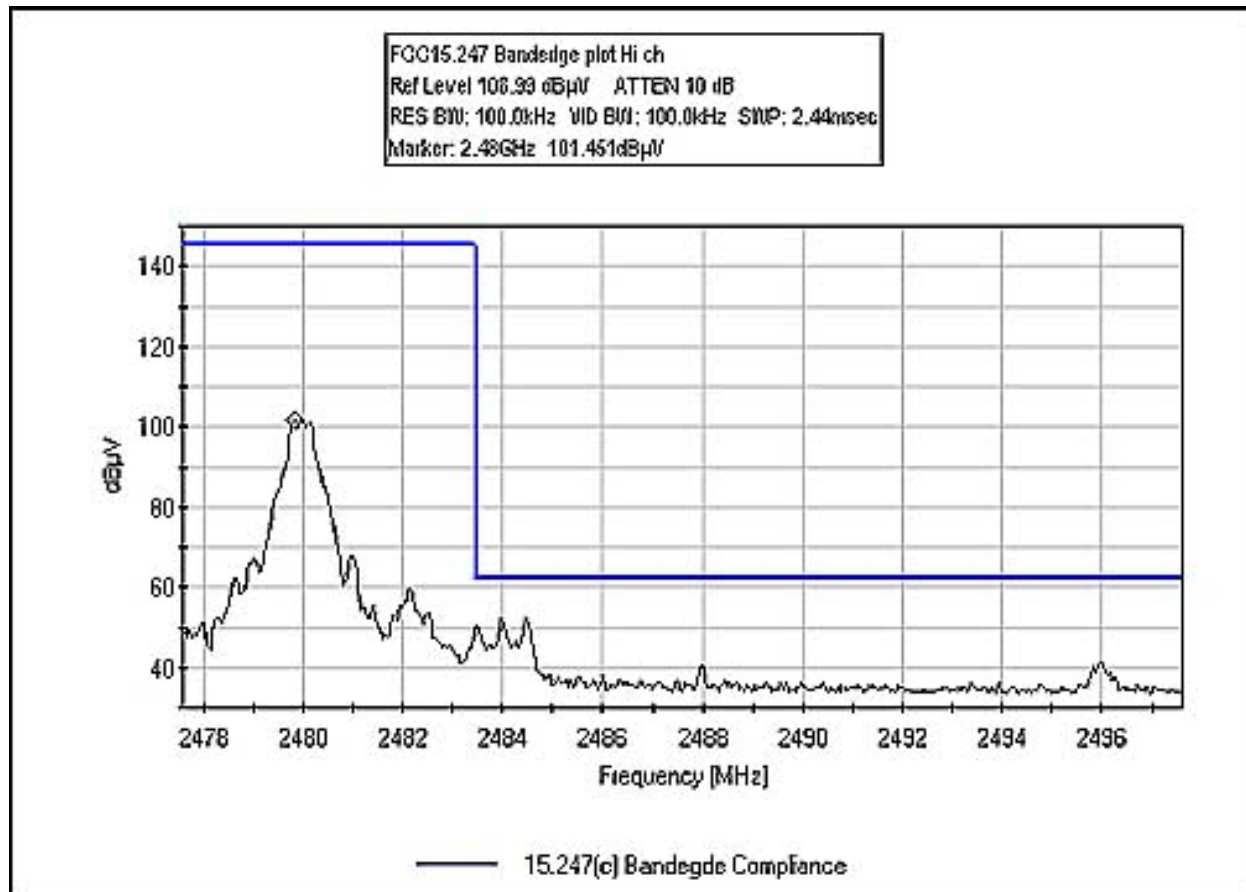
Freq	EIRP(dBm)	EIRP (W)
2402 MHz	1.0	0.0013
2441 MHz	2.6	0.0018
2480 MHz	0.7	0.0012

FCC 15.247(d) BANDEGE PLOT LOW CHANNEL



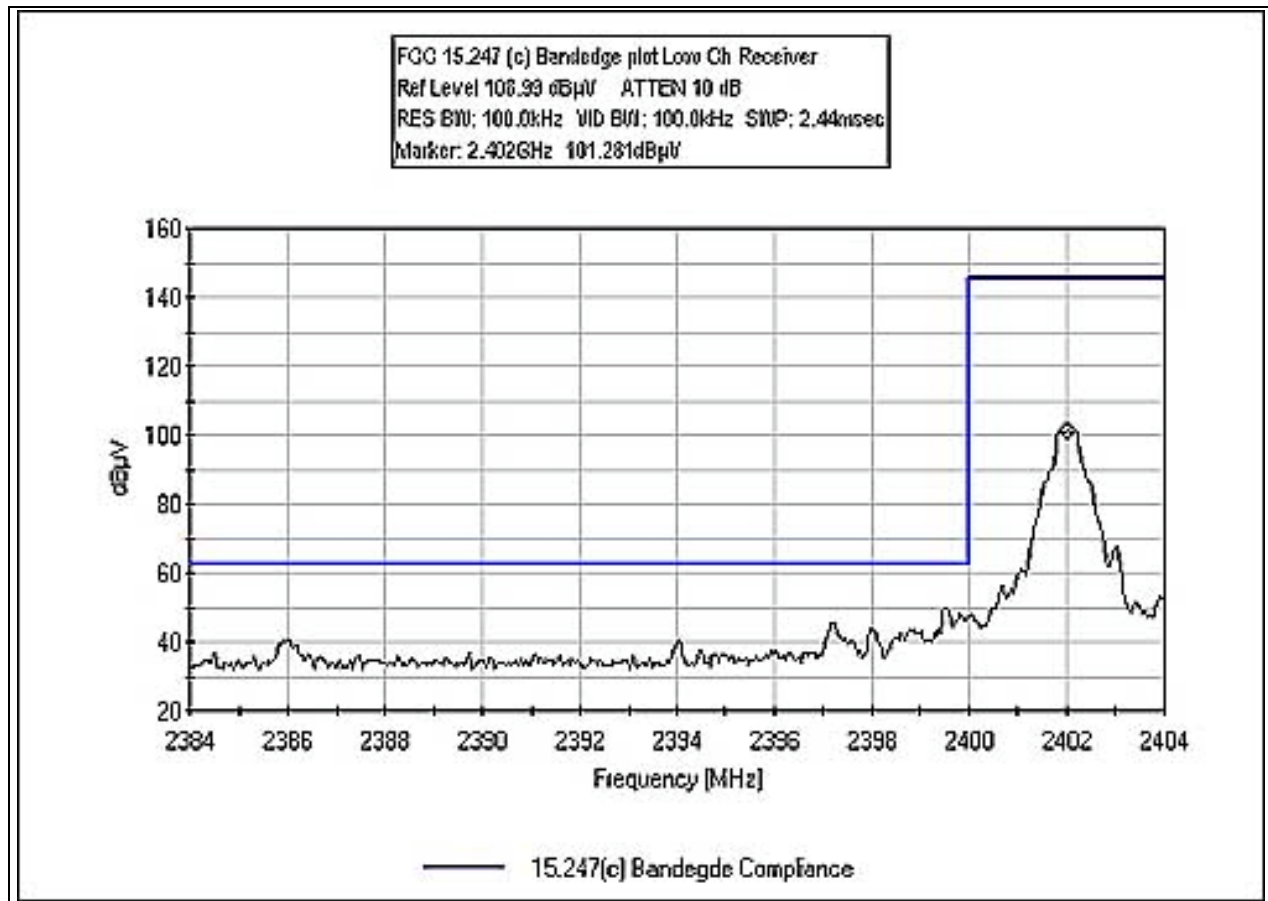
Note: The plot incorrectly states that the plot is for 15.247(c), but it is actually for 15.247(d).

FCC 15.247(d) BANDEDGE PLOT HIGH CHANNEL



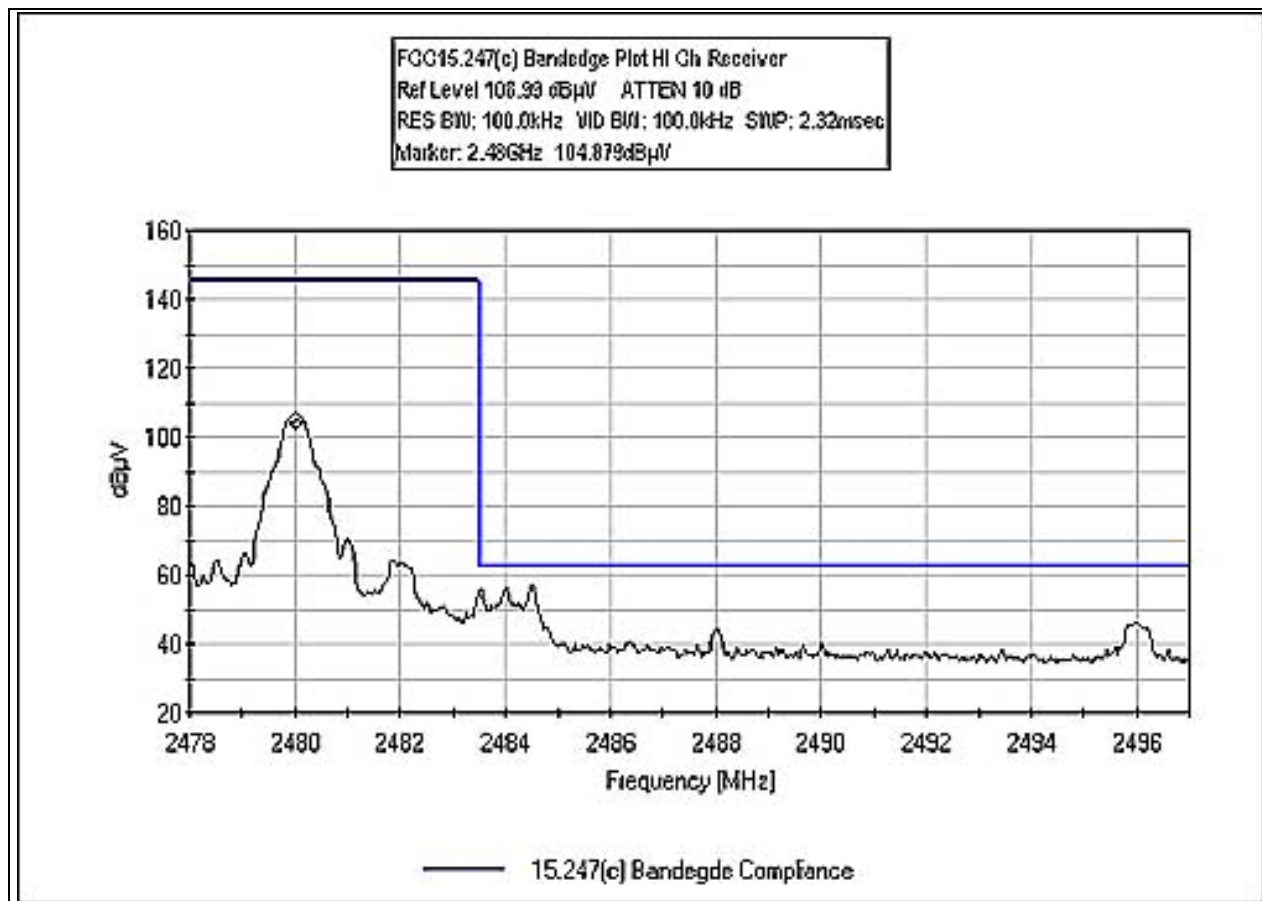
Note: The plot incorrectly states that the plot is for 15.247(c), but it is actually for 15.247(d).

FCC 15.247(d) BANDEDGE PLOT LOW CHANNEL RECEIVER



Note: The plot incorrectly states that the plot is for 15.247(c), but it is actually for 15.247(d).

FCC 15.247(d) BANDEGE PLOT HIGH CHANNEL RECEIVER



Note: The plot incorrectly states that the plot is for 15.247(c), but it is actually for 15.247(d).

Table 4: FCC 15.247(d) Six Highest Radiated Emission Levels: F8Z901-TX

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS					CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Corr dB	Filter dB				
1601.930	64.1	24.8	-38.4	3.3	-20.8	0.4	33.4	54.0	-20.6	H-1
1602.000	71.2	24.8	-38.4	3.3	-20.8	0.4	40.5	54.0	-13.5	V-1
4882.000	46.4	31.9	-37.9	5.7	0.0	0.6	46.7	54.0	-7.3	H-2
4882.000	35.6	31.9	-37.9	5.7	0.0	0.6	35.9	54.0	-18.1	VA-2
4959.650	33.9	32.0	-37.8	5.8	0.0	0.6	34.5	54.0	-19.5	HA-3
4960.000	36.1	32.0	-37.8	5.8	0.0	0.6	36.7	54.0	-17.3	VA-3

Test Method: ANSI C63.4 (2003)/FCC-MP5
Spec Limit: FCC Part 15 Subpart C Section 15.247(d)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
A = Average Reading
1 = 2402 MHz
2 = 2441 MHz
3 = 2480 MHz

COMMENTS: The EUT strapped on a support Ipod MP3 Player is placed on the wooden table. The support laptop is connected to the programming port of the transmitter via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2402 MHz, 2441 MHz and 2480 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Duty Cycle Correction Factor Calculation
Ave = 54.6/ 20 sec therefore 2.73 event/sec.
2.73 x 2.825 ms(on time) = 7.7 mSec of on time per sec.

Duty cycle correction = 20 Log (dwell/100ms)
= 20 Log 7.7/100
=-22 dB

Table 5: FCC 15.247(d) Six Highest Radiated Emission Levels: F8Z901-RX

FREQUENCY MHz	METER READING dBμV	CORRECTION FACTORS					CORRECTED READING dBμV/m	SPEC LIMIT dBμV/m	MARGIN dB	NOTES
		Ant dB	Amp dB	Cable dB	Corr dB	Filter dB				
1601.292	67.7	4.8	-38.4	3.3	-20.8	0.4	37.0	54.0	-17.0	H-1
1601.355	65.2	4.8	-38.4	3.3	-20.8	0.4	34.5	54.0	-19.5	V-1
1627.500	63.1	25.6	-38.7	3.3	0.0	0.4	52.9	80.0	-27.1	H-2
1627.500	62.8	25.6	-38.7	3.3	0.0	0.4	52.6	80.0	-27.4	V-2
1653.330	64.3	25.7	-39.0	3.3	0.0	0.4	53.9	80.0	-26.1	H-3
1653.330	63.0	25.7	-39.0	3.3	0.0	0.4	52.6	80.0	-27.4	V-3

Test Method: ANSI C63.4 (2003)/FCC-MP5
Spec Limit: FCC Part 15 Subpart C Section 15.247(d)
Test Distance: 3 Meters

NOTES: H = Horizontal Polarization
V = Vertical Polarization
1 = 2402 MHz
2 = 2441 MHz
3 = 2480 MHz

COMMENTS: The EUT is placed on the wooden table. The support laptop is connected to the programming port of the EUT via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2402 MHz, 2441 MHz and 2480 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Duty Cycle Correction Factor Calculation
Ave = 54.6/ 20 sec therefore 2.73 event/sec.
2.73 x 2.825 ms(on time) = 7.7 mSec of on time per sec.

Duty cycle correction = 20 Log (dwell/100ms)
= 20 Log 7.7/100
=-22 dB

TEMPERATURE AND HUMIDITY DURING TESTING

The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

EUT SETUP

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the photographs in Appendix A. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables. The corrected data was then compared to the applicable emission limits to determine compliance.

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available I/O ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. I/O cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The radiated and conducted emissions data of the EUT was taken with the HP Spectrum Analyzer. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in Table A.

Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dB μ V/m, the spectrum analyzer reading in dB μ V was corrected by using the following formula in Table A. This reading was then compared to the applicable specification limit to determine compliance.

TABLE A: SAMPLE CALCULATIONS		
	Meter reading	(dB μ V)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dB μ V/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed in Table A were used to collect both the radiated and conducted emissions data for the EUT. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. For radiated measurements from 30 to 1000 MHz, the biconilog antenna was used. The horn antenna was used for frequencies above 1000 MHz. Conducted emissions tests required the use of the FCC type LISNs.

The HP spectrum analyzer was used for all measurements. Table B shows the analyzer bandwidth settings that were used in designated frequency bands. For conducted emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. A 10 dB external attenuator was also used during conducted tests, with internal offset correction in the analyzer. During radiated testing, the measurements were made with 0 dB of attenuation, a reference level of 97 dB μ V, and a vertical scale of 10 dB per division.

SPECTRUM ANALYZER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the Tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the six highest readings, this is indicated as a "Q" or an "A" in the appropriate table. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the Spectrum Analyzer or test engineer recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the analyzer called "peak hold," the analyzer had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the analyzer made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the HP Quasi-Peak Adapter for the HP Spectrum Analyzer. The detailed procedure for making quasi peak measurements contained in the HP Quasi-Peak Adapter manual were followed.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer. To make these measurements, the test engineer reduces the video bandwidth on the analyzer until the modulation of the signal is filtered out. At this point the analyzer is set into the linear mode and the scan time is reduced.

EUT TESTING

Mains Conducted Emissions

During conducted emissions testing, the EUT was located on a wooden table measuring approximately 80 cm high, 1 meter deep, and 1.5 meters in length. One wall of the room where the EUT was located has a minimum 2 meter by 2 meter conductive plane. The EUT was mounted on the wooden table 40 cm away from the conductive plane, and 80 cm from any other conductive surface.

The vertical metal plane used for conducted emissions was grounded to the earth. Power to the EUT was provided through a LISN. The LISN was grounded to the ground plane. All other objects were kept a minimum of 80 cm away from the EUT during the conducted test.

The LISNs used were 50 μ H/+50 ohms. Above 150 kHz, a 0.15 μ F series capacitor was added in-line prior to connecting the analyzer to restore the proper impedance for the range. A 30 to 50 second sweep time was used for automated measurements in the frequency bands of 150 kHz to 500 kHz, and 500 kHz to 30 MHz. All readings within 20 dB of the limit were recorded, and those within 6 dB of the limit were examined with additional measurements using a slower sweep time.

Antenna Conducted Emissions

For measuring the signal strength on the RF output port of the EUT, the spectrum analyzer was connected directly to the EUT. The sweep time of the analyzer was adjusted so that the spectrum analyzer readings were always in a calibrated range. All readings within 20 dB of the limit were recorded.

Radiated Emissions

The EUT was mounted on a nonconductive, rotating table 80 cm above the conductive grid. The nonconductive table dimensions were 1 meter by 1.5 meters.

During the preliminary radiated scan, the EUT was powered up and operating in its defined FCC test mode. For radiated measurements from 9 kHz to 30 MHz, the magnetic loop antenna was used. The frequency range of 30 MHz to 1000 MHz was scanned with the biconilog antenna located about 1.5 meter above the ground plane in the vertical polarity. During this scan, the turntable was rotated and all peaks at or near the limit were recorded. A scan of the FM band from 88 to 110 MHz was then made using a reduced resolution bandwidth and frequency span. The biconilog antenna was changed to the horizontal polarity and the above steps were repeated. For frequencies exceeding 1000 MHz, the horn antenna was used. Care was taken to ensure that no frequencies were missed within the FM and TV bands. An analysis was performed to determine if the signals that were at or near the limit were caused by an ambient transmission. If unable to determine by analysis, the equipment was powered down to make the final determination if the EUT was the source of the emission.

A thorough scan of all frequencies was made manually using a small frequency span, rotating the turntable and raising and lowering the antenna from one to four meters as needed. The test engineer maximized the readings with respect to the table rotation, antenna height and configuration of EUT. Maximizing of the EUT was achieved by monitoring the spectrum analyzer on a closed circuit television monitor.

APPENDIX A

TEST SETUP PHOTOGRAPHS

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - F8Z901-TX

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



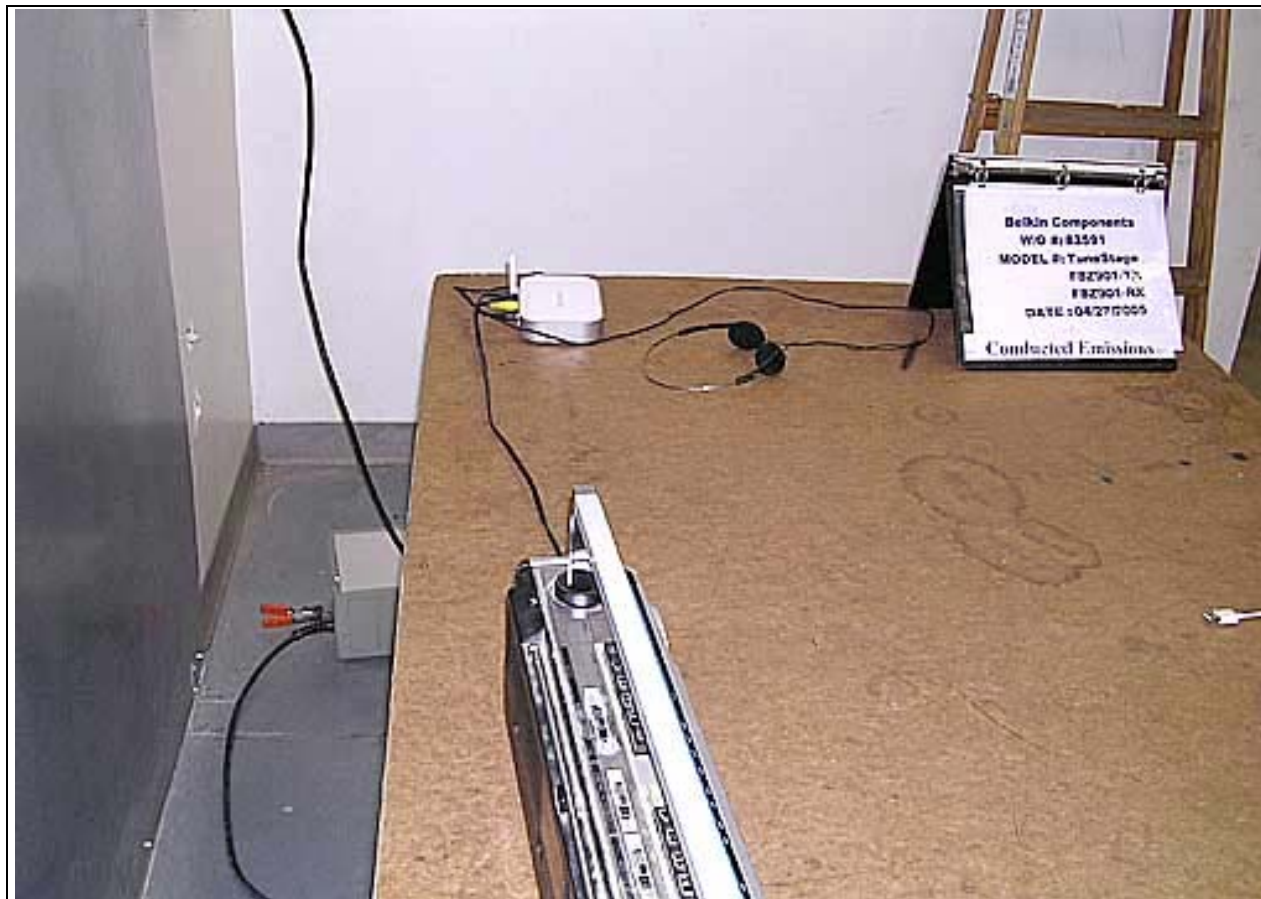
Mains Conducted Emissions - Side View - F8Z901-TX

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



Mains Conducted Emissions - Front View - F8Z901-RX

PHOTOGRAPH SHOWING MAINS CONDUCTED EMISSIONS



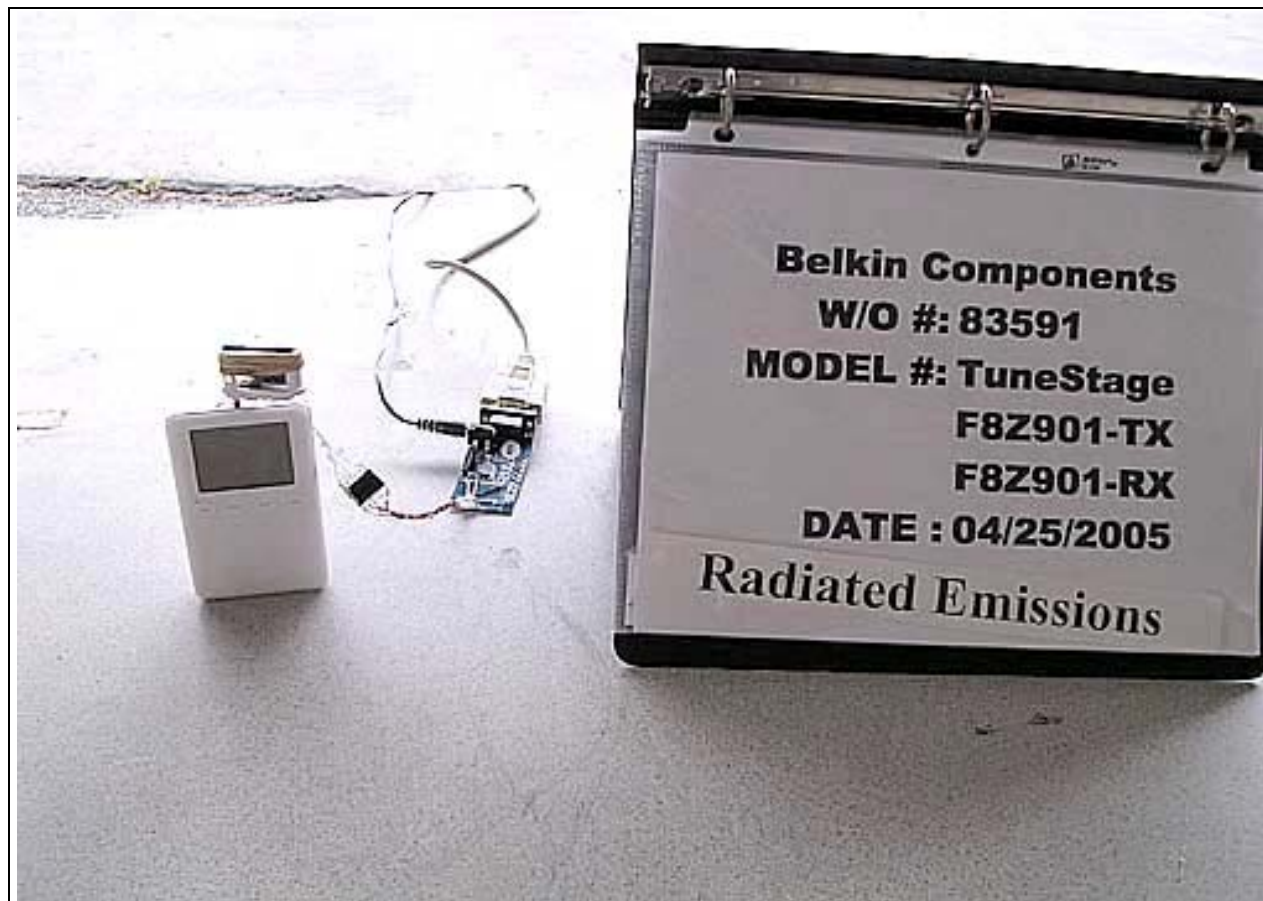
Mains Conducted Emissions - Side View - F8Z901-RX

PHOTOGRAPH SHOWING RADIATED EMISSIONS



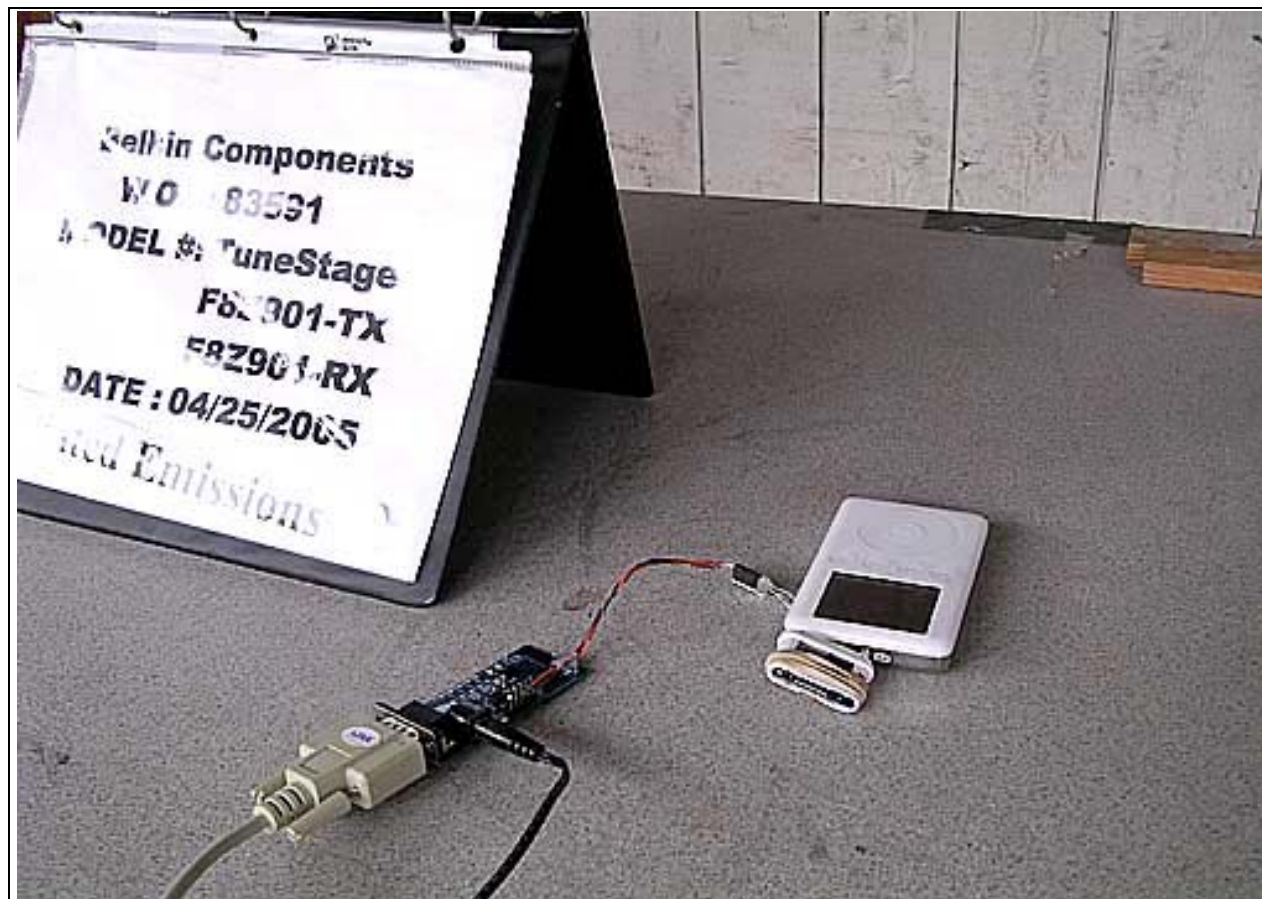
Radiated Emissions - Front View - Loop Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



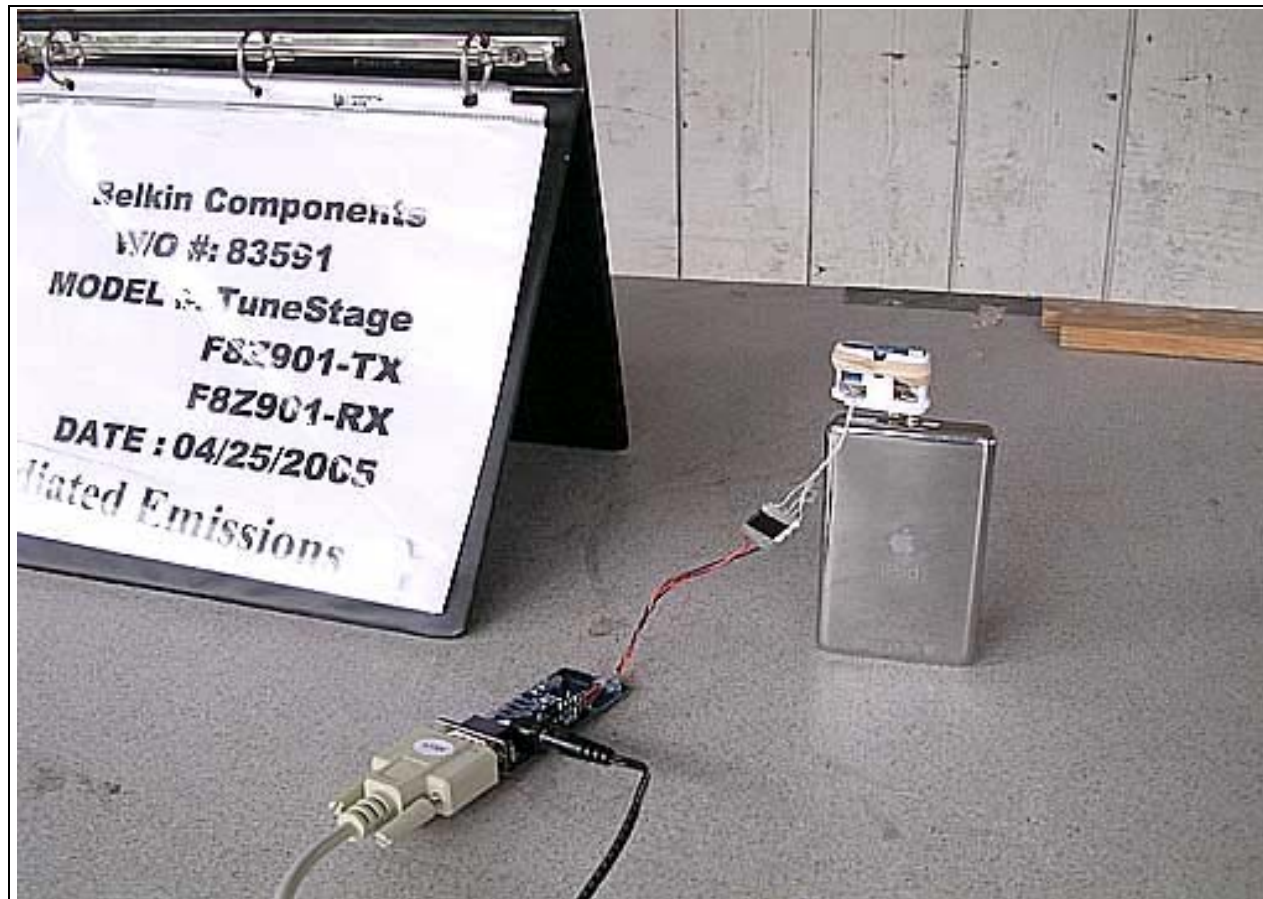
Radiated Emissions - Front View

PHOTOGRAPH SHOWING RADIATED EMISSIONS



Radiated Emissions - Front View - Horn Antenna

PHOTOGRAPH SHOWING RADIATED EMISSIONS



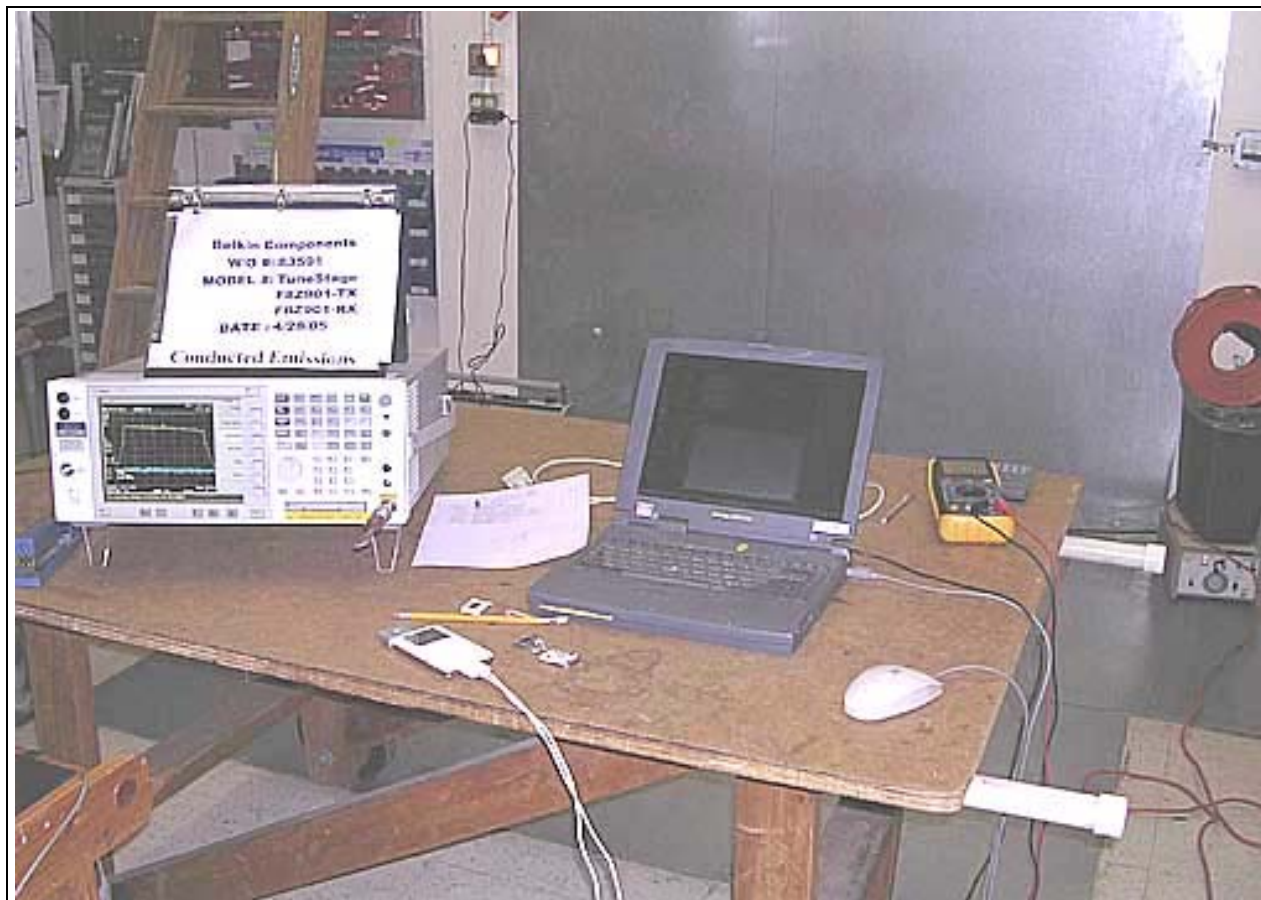
Radiated Emissions - Back View

PHOTOGRAPH SHOWING RF POWER OUTPUT AND VOLTAGE VARIATION



RF Power Output and Voltage Variation

PHOTOGRAPH SHOWING OCCUPIED BANDWIDTH, CARRIER FREQUENCY SEPARATION, AVERAGE TIME OF OCCUPANCY AND NUMBER OF HOPPING FREQUENCY



Occupied Bandwidth, Carrier Frequency Separation, Average Time of Occupancy and Number of Hopping Frequency

APPENDIX B

TEST EQUIPMENT LIST

FCC 15.247(d) Radiated Spurious emission

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407
30 – 1000MHz						
Biconilog Antenna	01995	Chase	CBL6111C	2451	040804	040806
Pre-amp	00309	HP	8447D	1937A02548	071404	071406
Antenna cable	NA	NA	RG214	Cable#15	010305	010306
Pre-amp to SA cable	NA	Pasternack	RG223/U	Cable#10	051304	051305
1 - 18 GHz						
Horn Antenna	0849	EMCO	3115	6246	072204	072206
Microwave Pre-amp	00786	HP	83017A	3123A00281	081204	081206
Helix Antenna cable	NA	Andrew	LDF1-50	Cable#20	091604	091605
2.4 GHz HPF	01440	K&L	91H31-3000	001	042505	042507*
2.5 GHz LPF	01439	K&L	10L121- 2200	001	042505	042507*
24" SMA Cable	2604	Argosy	UFA147A	0-0360-200200	012304	012306
9kHz- 30 MHz						
Loop Antenna	00314	EMCO	6502	2014	062804	062806
18-25 GHz						
Horn Antenna	00770	Scientific Atlanta	12-18	22	070703	070705

*Actual date of testing was 4/27/05 through 4/29/05.

FCC 15.31 Voltage Variation

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407
Programmable Power Source	01695/ 01696	Pacific Power	345AMX / UPC32	250 / 245	052203	052205

RF Output Power

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407
RF Power meter	02082	HP	435B	2445A11881	061704	061706
Power Sensor	02036	HP	8482A	1551A01004	061806	061806
Signal Generator	02551	HP	8673M	2534A00477	051903	051905
Horn Antenna	0849	EMCO	3115	6246	072204	072206
Microwave Pre-amp	00786	HP	83017A	3123A00281	081204	081206
Heliast Antenna cable	NA	Andrew	LDF1-50	Cable#20	091604	091605

Bandedge,
OBW,
RSS210 99% BW plot.
Carrier Freq separation
Average time of occupancy
Number of hopping frequency

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Horn Antenna	0849	EMCO	3115	6246	072204	072206
Microwave Pre-amp	00786	HP	83017A	3123A00281	081204	081206
Heliast Antenna cable	NA	Andrew	LDF1-50	Cable#20	091604	091605
Spectrum Analyzer	02672	Agilent	E4446A	US44300438	011405	011407

Conducted Emissions

Equipment	Asset #	Manufacturer	Model #	Serial #	Cal Date	Cal Due
Spectrum Analyzer RF Section	02462	HP	8568B	2928A04874	100804	100806
Spectrum Analyzer Display Section	02472	HP	85662A	3001A18430	100804	100806
QP Adapter	01437	HP	85650A	3303A01884	100804	100806
Conducted Cable	NA	Harbour Ind	RG142	Cable # 21	070204	070205
150kHz HPF	02610	TTE	HB9615-150k-50-720	07766	041606	041606
LISN	00847	EMCO	3816/2NM	1104	120804	120806
LISN	00276, 00277, 00278	Solar	8028-50-TS-24BNC	B2	101403	101405

APPENDIX C
MEASUREMENT DATA SHEETS

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.207 Class B COND [AVE]**
 Work Order #: **83591**
 Test Type: **Conducted Emissions**
 Equipment: **Bluetooth Transmitter**
 Manufacturer: Belkin Corporation
 Model: F8Z901-TX
 S/N: NA

Date: 04/27/2005
 Time: 4:07:28 PM
 Sequence#: 21
 Tested By: E. Wong
 110V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Transmitter*	Belkin	F8Z901-TX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is connected to an earphone port of a support Ipod MP3 Player that is placed on the wooden table. The EUT transmits digitized audio signal to the receiver. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Cable #21 Conducted Site A 070205	T2=(L1) Insertion Loss 00847 EMCO 3816/2NM
T3=150kHz HPF 041605	

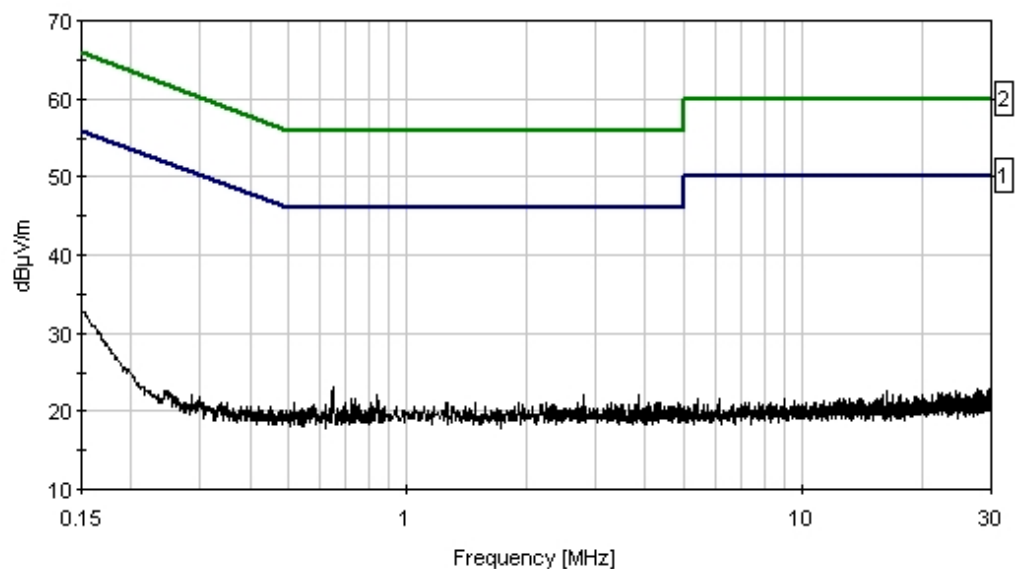
Measurement Data: Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dBμV	T1 dB	T2 dB	T3 dB	dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	150.000k	29.8	+0.0	+0.1	+3.1		+0.0	33.0	56.0	-23.0	Black
2	648.859k	22.8	+0.1	+0.0	+0.1		+0.0	23.0	46.0	-23.0	Black
3	842.294k	21.8	+0.1	+0.1	+0.2		+0.0	22.2	46.0	-23.8	Black
4	2.791M	21.6	+0.2	+0.1	+0.1		+0.0	22.0	46.0	-24.0	Black
5	3.833M	21.6	+0.2	+0.1	+0.1		+0.0	22.0	46.0	-24.0	Black
6	723.761k	21.4	+0.1	+0.0	+0.2		+0.0	21.7	46.0	-24.3	Black
7	741.941k	21.4	+0.1	+0.0	+0.2		+0.0	21.7	46.0	-24.3	Black
8	701.218k	21.0	+0.1	+0.0	+0.1		+0.0	21.2	46.0	-24.8	Black
9	1.256M	20.9	+0.1	+0.0	+0.2		+0.0	21.2	46.0	-24.8	Black

10	2.251M	20.8	+0.2	+0.1	+0.1	+0.0	21.2	46.0	-24.8	Black
11	4.058M	20.8	+0.2	+0.1	+0.1	+0.0	21.2	46.0	-24.8	Black
12	1.481M	20.9	+0.1	+0.0	+0.1	+0.0	21.1	46.0	-24.9	Black
13	1.910M	20.9	+0.1	+0.0	+0.1	+0.0	21.1	46.0	-24.9	Black
14	4.343M	20.6	+0.2	+0.1	+0.1	+0.0	21.0	46.0	-25.0	Black
15	4.849M	20.6	+0.2	+0.1	+0.1	+0.0	21.0	46.0	-25.0	Black

CKC Laboratories, Inc. Date: 04/27/2005 Time: 4:07:28 PM Belkin Corporation W/O#: 83591
FCC 15.207 Class B COND [AVE] Test Lead: Black 110V 60Hz Sequence#: 21



— Sweep Data
— 1 - FCC 15.207 Class B COND [AVE]
— 2 - FCC 15.207 Class B COND [QP]

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.207 Class B COND [AVE]**
 Work Order #: **83591**
 Test Type: **Conducted Emissions**
 Equipment: **Bluetooth Transmitter**
 Manufacturer: Belkin Corporation
 Model: F8Z901-TX,
 S/N: NA

Date: 04/27/2005
 Time: 4:10:36 PM
 Sequence#: 22
 Tested By: E. Wong
 110V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Transmitter*	Belkin	F8Z901-TX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is connected to an earphone port of a support Ipod MP3 Player that is placed on the wooden table. The EUT transmits digitized audio signal to the receiver. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Cable #21 Conducted Site A 070205	T2=(L1) Insertion Loss 00847 EMCO 3816/2NM
T3=150kHz HPF 041605	

Measurement Data:

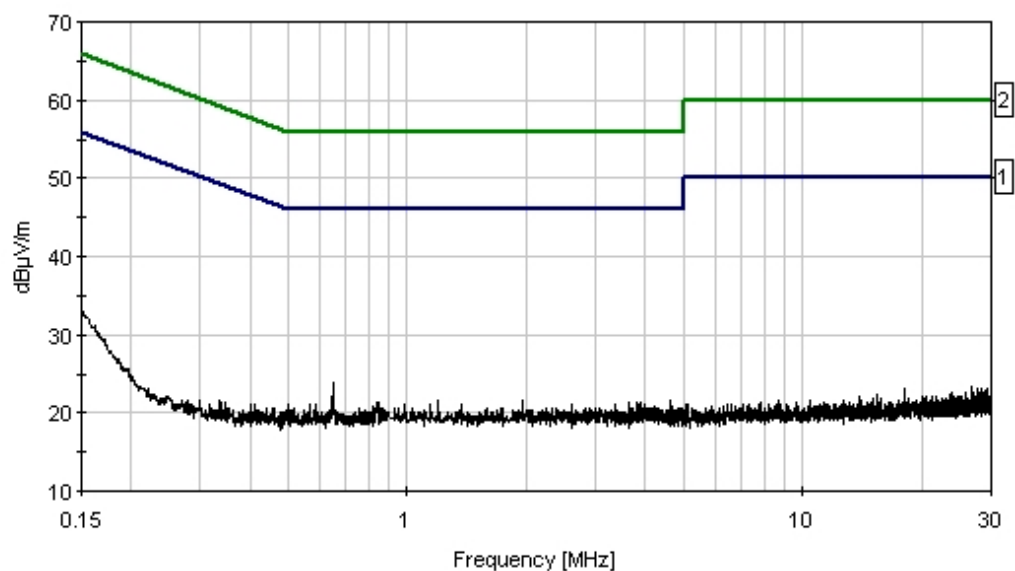
Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	651.768k	23.6	+0.1	+0.0	+0.1	+0.0	+0.0	23.8	46.0	-22.2	White
2	150.727k	29.9	+0.0	+0.1	+3.1	+0.0	+0.0	33.1	56.0	-22.9	White
3	1.200M	21.4	+0.1	+0.0	+0.2	+0.0	+0.0	21.7	46.0	-24.3	White
4	4.641M	21.3	+0.2	+0.1	+0.1	+0.0	+0.0	21.7	46.0	-24.3	White
5	1.957M	21.3	+0.1	+0.0	+0.1	+0.0	+0.0	21.5	46.0	-24.5	White
6	843.022k	21.0	+0.1	+0.1	+0.2	+0.0	+0.0	21.4	46.0	-24.6	White
7	3.637M	21.0	+0.2	+0.1	+0.1	+0.0	+0.0	21.4	46.0	-24.6	White
8	3.812M	21.0	+0.2	+0.1	+0.1	+0.0	+0.0	21.4	46.0	-24.6	White
9	3.901M	20.9	+0.2	+0.1	+0.1	+0.0	+0.0	21.3	46.0	-24.7	White
10	499.783k	21.1	+0.0	+0.0	+0.1	+0.0	+0.0	21.2	46.0	-24.8	White

11	588.502k	21.0	+0.1	+0.0	+0.1	+0.0	21.2	46.0	-24.8	White
12	2.595M	20.8	+0.2	+0.1	+0.1	+0.0	21.2	46.0	-24.8	White
13	987.578k	20.8	+0.1	+0.0	+0.2	+0.0	21.1	46.0	-24.9	White
14	1.141M	20.8	+0.1	+0.0	+0.2	+0.0	21.1	46.0	-24.9	White
15	3.858M	20.6	+0.2	+0.1	+0.1	+0.0	21.0	46.0	-25.0	White

CKC Laboratories, Inc. Date: 04/27/2005 Time: 4:10:36 PM Belkin Corporation W/O#: 83591
FCC 15.207 Class B COND [AVE] Test Lead: White 110V 60Hz Sequence#: 22



— Sweep Data
— 1 - FCC 15.207 Class B COND [AVE]
— 2 - FCC 15.207 Class B COND [QP]

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.207 Class B COND [AVE]**
 Work Order #: **83591**
 Test Type: **Conducted Emissions**
 Equipment: **Bluetooth Transmitter**
 Manufacturer: Belkin Corporation
 Model: F8Z901-RX
 S/N: NA

Date: 04/27/2005
 Time: 16:50:48
 Sequence#: 28
 Tested By: E. Wong
 110V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is placed on the wooden table. RCA ports are connected to support audio system; earphone port is connected to a pair of earphone. The EUT receives digitized audio signal from a remote transmitter and converts to audio signal. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Cable #21 Conducted Site A 070205	T2=(L1) Insertion Loss 00847 EMCO 3816/2NM
T3=150kHz HPF 041605	

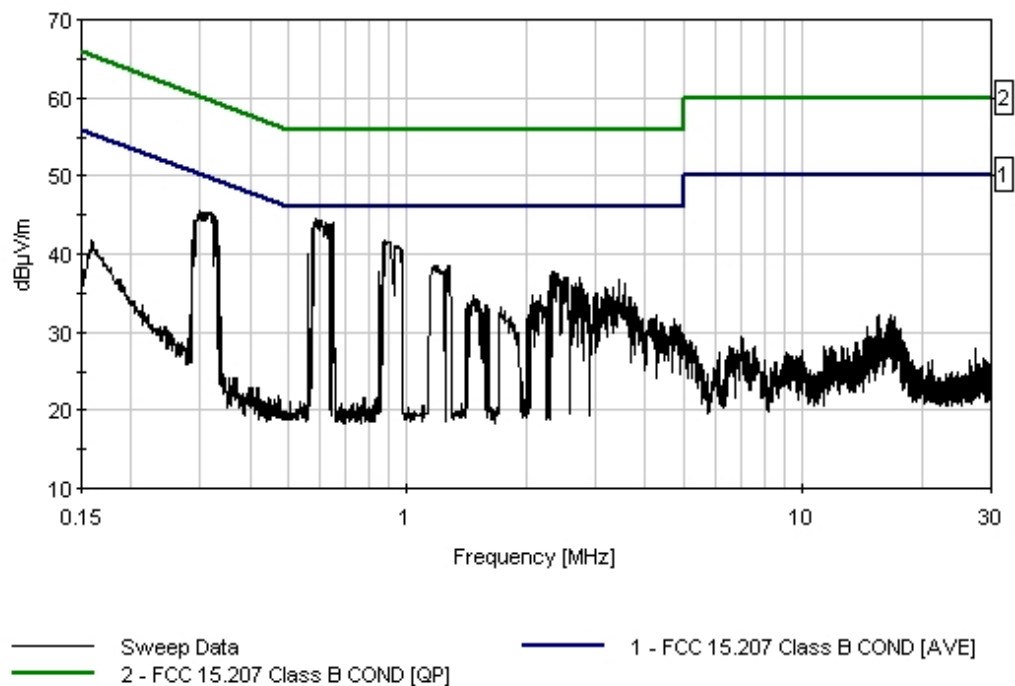
Measurement Data: Reading listed by margin.

Test Lead: Black

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	652.495k	43.8	+0.1	+0.0	+0.1	+0.0		44.0	46.0	-2.0	Black
2	643.042k	43.5	+0.1	+0.0	+0.1	+0.0		43.7	46.0	-2.3	Black
3	647.405k	43.5	+0.1	+0.0	+0.1	+0.0		43.7	46.0	-2.3	Black
4	641.587k	43.4	+0.1	+0.0	+0.1	+0.0		43.6	46.0	-2.4	Black
5	576.139k	43.0	+0.1	+0.0	+0.1	+0.0		43.2	46.0	-2.8	Black
6	650.314k	42.9	+0.1	+0.0	+0.1	+0.0		43.1	46.0	-2.9	Black
7	876.473k	41.3	+0.1	+0.1	+0.2	+0.0		41.7	46.0	-4.3	Black
8	889.759k	41.2	+0.1	+0.1	+0.2	+0.0		41.6	46.0	-4.4	Black
9	315.074k	45.0	+0.0	+0.1	+0.2	+0.0		45.3	49.8	-4.5	Black

10	572.503k	41.3	+0.1	+0.0	+0.1	+0.0	41.5	46.0	-4.5	Black
11	868.474k	41.0	+0.1	+0.1	+0.2	+0.0	41.4	46.0	-4.6	Black
12	870.655k	40.9	+0.1	+0.1	+0.2	+0.0	41.3	46.0	-4.7	Black
13	325.255k	44.6	+0.0	+0.1	+0.1	+0.0	44.8	49.6	-4.8	Black
14	932.289k	40.7	+0.1	+0.1	+0.2	+0.0	41.1	46.0	-4.9	Black
15	586.000k	15.7	+0.1	+0.0	+0.1	+0.0	15.9	46.0	-30.1	Black
Ave										
^	586.320k	44.3	+0.1	+0.0	+0.1	+0.0	44.5	46.0	-1.5	Black

CKC Laboratories, Inc. Date: 04/27/2005 Time: 16:50:48 Belkin Corporation WVO#: 83591
FCC 15.207 Class B COND [AVE] Test Lead: Black 110V 60Hz Sequence#: 28



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.207 Class B COND [AVE]**
 Work Order #: **83591**
 Test Type: **Conducted Emissions**
 Equipment: **Bluetooth Transmitter**
 Manufacturer: Belkin Corporation
 Model: F8Z901-RX
 S/N: NA

Date: 04/27/2005
 Time: 16:46:34
 Sequence#: 27
 Tested By: E. Wong
 110V 60Hz

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is placed on the wooden table. RCA ports are connected to support audio system; earphone port is connected to a pair of earphones. The EUT receives digitized audio signal from a remote transmitter and converts to audio signal. EUT Frequency: 2402-2480 MHz. Frequency tested: 150 kHz – 30 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Cable #21 Conducted Site A 070205	T2=(L1) Insertion Loss 00847 EMCO 3816/2NM
T3=150kHz HPF 041605	

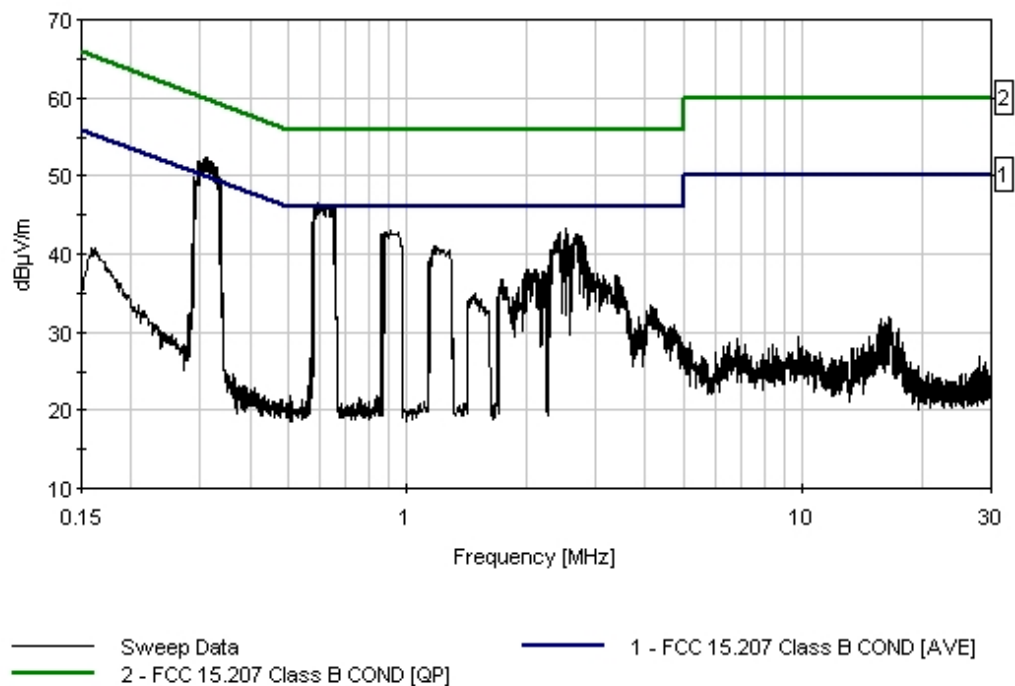
Measurement Data: Reading listed by margin.

Test Lead: White

#	Freq MHz	Rdng dB μ V	T1 dB	T2 dB	T3 dB	Dist dB	Table	Corr dB μ V/m	Spec dB μ V/m	Margin dB	Polar Ant
1	289.622k	49.5	+0.0	+0.1	+0.2	+0.0		49.8	50.5	-0.7	White
2	579.048k	44.2	+0.1	+0.0	+0.1	+0.0		44.4	46.0	-1.6	White
3	574.685k	43.8	+0.1	+0.0	+0.1	+0.0		44.0	46.0	-2.0	White
4	580.502k	43.8	+0.1	+0.0	+0.1	+0.0		44.0	46.0	-2.0	White
5	2.527M	42.8	+0.2	+0.1	+0.1	+0.0		43.2	46.0	-2.8	White
6	911.024k	42.6	+0.1	+0.1	+0.2	+0.0		43.0	46.0	-3.0	White
7	2.425M	42.4	+0.2	+0.1	+0.1	+0.0		42.8	46.0	-3.2	White
8	2.412M	42.2	+0.2	+0.1	+0.1	+0.0		42.6	46.0	-3.4	White
9	2.544M	42.2	+0.2	+0.1	+0.1	+0.0		42.6	46.0	-3.4	White

10	2.676M	42.2	+0.2	+0.1	+0.1	+0.0	42.6	46.0	-3.4	White
11	297.000k	41.6	+0.0	+0.1	+0.2	+0.0	41.9	50.3	-8.4	White
	Ave									
^	296.167k	51.5	+0.0	+0.1	+0.2	+0.0	51.8	50.3	+1.5	White
13	308.000k	39.3	+0.0	+0.1	+0.2	+0.0	39.6	50.0	-10.4	White
	Ave									
^	311.438k	52.0	+0.0	+0.1	+0.2	+0.0	52.3	49.9	+2.4	White
15	592.000k	32.9	+0.1	+0.0	+0.1	+0.0	33.1	46.0	-12.9	White
	Ave									
^	592.138k	46.3	+0.1	+0.0	+0.1	+0.0	46.5	46.0	+0.5	White

CKC Laboratories, Inc. Date: 04/27/2005 Time: 16:46:34 Belkin Corporation WVO#: 83591
FCC 15.207 Class B COND [AVE] Test Lead: White 110V 60Hz Sequence#: 27



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**

Specification: **FCC 15.209**

Work Order #: **83591**

Date: 04/26/2005

Test Type: **Radiated Scan**

Time: 09:50:59

Equipment: **Bluetooth Transmitter**

Sequence#: 4

Manufacturer: Belkin Corporation

Tested By: E. Wong

Model: F8Z901-RX

S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT (receiver) is placed on the wooden table. The RCA jacks are connected to an audio device and the headphone jack is connected to a stereo headphone. Remote Ipod plays MPS file and transmits the bluetooth signal to the EUT. Receiving Frequency: 2402-2480 MHz, Hopping. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Biconalog, SN 2451 040806	T2=Cable #15, Site A, 010306
T3=Cable #10 051305	T4=Preamp 8447D 071406
T5=Horn 6246_072206	T6=SMA Cable 1-40GHz AN2604_012306
T7=HP 83017A 071606	T8=Cable #20 48ft Helix 091605
T9=HPF 3.0 GHz High Pass Filter 042507	T10=LPF 2.2 GHz Low Pass 042507

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
	MHz	dBμV	T9	T10			Table	dBμV/m	dBμV/m	dB	Ant
1	1601.000M	53.1	+0.0	+0.0	+0.0	+0.0	+0.0	43.2	54.0	-10.8	Vert
	Ave		+24.8	+0.4	-38.4	+2.9					
			+0.0	+0.4							
^	1601.000M	69.5	+0.0	+0.0	+0.0	+0.0	+0.0	59.6	54.0	+5.6	Vert
			+24.8	+0.4	-38.4	+2.9					
			+0.0	+0.4							
3	383.971M	37.2	+16.1	+3.7	+0.4	-27.5	+0.0	29.9	46.0	-16.1	Horiz
			+0.0	+0.0	+0.0	+0.0					
4	303.935M	39.6	+14.1	+3.2	+0.3	-27.5	+0.0	29.7	46.0	-16.3	Horiz
			+0.0	+0.0	+0.0	+0.0					

5	351.945M	36.8	+15.4 +0.0	+3.6 +0.0	+0.4 +0.0	-27.6 +0.0	+0.0	28.6	46.0	-17.4	Horiz
6	367.953M	35.4	+15.8 +0.0	+3.6 +0.0	+0.4 +0.0	-27.5 +0.0	+0.0	27.7	46.0	-18.3	Horiz
7	124.945M	38.2	+12.1 +0.0	+2.0 +0.0	+0.2 +0.0	-27.6 +0.0	+0.0	24.9	43.5	-18.6	Vert
8	1649.500M Ave	42.6	+0.0 +24.9 +0.0	+0.0 +0.4 +0.4	+0.0 -39.0	+0.0 +2.9	+0.0	32.2	54.0	-21.8	Horiz
^	1649.500M	67.3	+0.0 +24.9 +0.0	+0.0 +0.4 +0.4	+0.0 -39.0	+0.0 +2.9	+0.0	56.9	54.0	+2.9	Horiz
10	690.240M	23.9	+20.9 +0.0	+5.2 +0.0	+0.6 +0.0	-26.9 +0.0	+0.0	23.7	46.0	-22.3	Horiz
11	540.240M	25.6	+20.1 +0.0	+4.5 +0.0	+0.4 +0.0	-27.8 +0.0	+0.0	22.8	46.0	-23.2	Horiz
12	592.740M	21.6	+19.7 +0.0	+4.8 +0.0	+0.5 +0.0	-27.2 +0.0	+0.0	19.4	46.0	-26.6	Horiz
13	109.905M	30.5	+11.5 +0.0	+1.9 +0.0	+0.2 +0.0	-27.6 +0.0	+0.0	16.5	43.5	-27.0	Vert
14	480.163M	23.1	+18.7 +0.0	+4.2 +0.0	+0.4 +0.0	-27.7 +0.0	+0.0	18.7	46.0	-27.3	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/27/2005
 Test Type: **Radiated Scan** Time: 11:13:07
 Equipment: **Bluetooth Transmitter** Sequence#: 1
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-TX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Transmitter*	Belkin	F8Z901-TX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT strapped on a support Ipod MP3 Player is placed on the wooden table. The support laptop is connected to the programming port of the transmitter via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2402 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Biconalog, SN 2451 040806	T2=Cable #15, Site A, 010306
T3=Cable #10 051305	T4=Preamp 8447D 071406
T5=Horn 6246_072206	T6=SMA Cable 1-40GHz AN2604_012306
T7=HP 83017A 071606	T8=Cable #20 48ft Helix 091605
T9=HPF 3.0 GHz High Pass Filter 042507	T10=LPF 2.2 GHz Low Pass 042507
T11=-20.8 dB Duty cycle correction factor	T12=-20.8 dB Duty cycle correction factor

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
	MHz	dBμV	T9	T10	T11	T12	Table	dBμV/m	dBμV/m	dB	Ant
1	1602.000M	71.2	+0.0	+0.0	+0.0	+0.0	+0.0	40.5	54.0	-13.5	Vert
			+24.8	+0.4	-38.4	+2.9					
			+0.0	+0.4	+0.0	-20.8					
2	1601.930M	64.1	+0.0	+0.0	+0.0	+0.0	+0.0	33.4	54.0	-20.6	Horiz
			+24.8	+0.4	-38.4	+2.9					
			+0.0	+0.4	+0.0	-20.8					
3	4804.000M	49.1	+0.0	+0.0	+0.0	+0.0	+0.0	28.3	54.0	-25.7	Vert
			+31.8	+0.8	-37.9	+4.7					
			+0.6	+0.0	+0.0	-20.8					

4	4804.000M	46.9	+0.0 +31.8 +0.6	+0.0 +0.8 +0.0	+0.0 -37.9 +0.0	+0.0 +4.7 -20.8	+0.0	26.1	54.0	-27.9	Horiz
5	415.961M	33.8	+17.0 +0.0	+3.8 +0.0	+0.4 +0.0	-27.5 +0.0	+0.0	27.5	80.0	-52.5	Horiz
6	207.950M	38.0	+10.4 +0.0	+2.6 +0.0	+0.2 +0.0	-27.6 +0.0	+0.0	23.6	80.0	-56.4	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/27/2005
 Test Type: **Radiated Scan** Time: 09:28:16
 Equipment: **Bluetooth Transmitter** Sequence#: 2
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-TX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Transmitter*	Belkin	F8Z901-TX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT strapped on a support Ipod MP3 Player is placed on the wooden table. The support laptop is connected to the programming port of the transmitter via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2441 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Horn 6246_072206	T2=SMA Cable 1-40GHz AN2604_012306
T3=HP 83017A 071606	T4=Cable #20 48ft Helix 091605
T5=-20.8 dB Duty cycle correction factor	T6=HPF 3.0 GHz High Pass Filter 042507
T7=LPF 2.2 GHz Low Pass 042507	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6	T7		Table	dBμV/m	dBμV/m	dB	Ant
1	4882.000M	46.4	+31.9	+0.8	-37.9	+4.9	+0.0	46.7	54.0	-7.3	Horiz
			+0.0	+0.6	+0.0						
2	4882.000M	35.6	+31.9	+0.8	-37.9	+4.9	+0.0	35.9	54.0	-18.1	Vert
	Ave		+0.0	+0.6	+0.0						
^	4882.000M	51.7	+31.9	+0.8	-37.9	+4.9	+0.0	52.0	54.0	-2.0	Vert
			+0.0	+0.6	+0.0						
4	1628.030M	67.1	+24.8	+0.4	-38.7	+2.9	+0.0	36.1	80.0	-43.9	Vert
			-20.8	+0.0	+0.4						
5	1627.992M	64.8	+24.8	+0.4	-38.7	+2.9	+0.0	33.8	80.0	-46.2	Horiz
			-20.8	+0.0	+0.4						

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112
 Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/29/2005
 Test Type: **Radiated Scan** Time: 16:02:42
 Equipment: **Bluetooth Transmitter** Sequence#: 3
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-TX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Transmitter*	Belkin	F8Z901-TX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT strapped on a support Ipod MP3 Player is placed on the wooden table. The support laptop is connected to the programming port of the transmitter via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2480 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz; 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Horn 6246_072206	T2=SMA Cable 1-40GHz AN2604_012306
T3=HP 83017A 071606	T4=Cable #20 48ft Helix 091605
T5=LPF 2.2 GHz Low Pass 042507	T6=HPF 3.0 GHz High Pass Filter 042507
T7=-20.8 dB Duty cycle correction factor	

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq MHz	Rdng dBμV	T1 T5 dB	T2 T6 dB	T3 T7 dB	T4 dB	Dist Table	Corr dBμV/m	Spec dBμV/m	Margin dB	Polar Ant
1	4960.000M	36.1	+32.0	+0.8	-37.8	+5.0	+0.0	36.7	54.0	-17.3	Vert
	Ave		+0.0	+0.6	+0.0						
^	4960.000M	52.4	+32.0	+0.8	-37.8	+5.0	+0.0	53.0	54.0	-1.0	Vert
			+0.0	+0.6	+0.0						
3	4959.650M	33.9	+32.0	+0.8	-37.8	+5.0	+0.0	34.5	54.0	-19.5	Horiz
	Ave		+0.0	+0.6	+0.0						
^	4959.650M	49.5	+32.0	+0.8	-37.8	+5.0	+0.0	50.1	54.0	-3.9	Horiz
			+0.0	+0.6	+0.0						
5	1635.950M	55.9	+24.9	+0.4	-38.8	+2.9	+0.0	45.3	80.0	-34.7	Horiz
			+0.0	+0.0	+0.0						
6	1653.980M	68.5	+24.9	+0.4	-39.1	+2.9	+0.0	37.2	80.0	-42.8	Vert
			+0.4	+0.0	-20.8						
7	1653.980M	65.8	+24.9	+0.4	-39.1	+2.9	+0.0	34.5	80.0	-45.5	Horiz
			+0.4	+0.0	-20.8						
8	1649.000M	33.9	+24.9	+0.4	-39.0	+2.9	+0.0	23.1	80.0	-56.9	Horiz
			+0.0	+0.0	+0.0						

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/29/2005
 Test Type: **Radiated Scan** Time: 11:34:14
 Equipment: **Bluetooth Transmitter** Sequence#: 51
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-RX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is placed on the wooden table. The support laptop is connected to the programming port of the EUT via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2480 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Horn 6246_072206	T2=SMA Cable 1-40GHz AN2604_012306
T3=HP 83017A 071606	T4=Cable #20 48ft Helix 091605
T5=LPF 2.2 GHz Low Pass 042507	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5 dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	1653.330M	64.3	+24.9 +0.4	+0.4	-39.0	+2.9	+0.0	53.9	80.0	-26.1	Horiz
2	1653.330M	63.0	+24.9 +0.4	+0.4	-39.0	+2.9	+0.0	52.6	80.0	-27.4	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/29/2005
 Test Type: **Radiated Scan** Time: 11:55:40
 Equipment: **Bluetooth Transmitter** Sequence#: 52
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-RX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is placed on the wooden table. The support laptop is connected to the programming port of the EUT via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2441 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Horn 6246_072206	T2=SMA Cable 1-40GHz AN2604_012306
T3=HP 83017A 071606	T4=Cable #20 48ft Helix 091605
T5=LPF 2.2 GHz Low Pass 042507	

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5 dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	1627.500M	63.1	+24.8 +0.4	+0.4	-38.7	+2.9	+0.0	52.9	80.0	-27.1	Horiz
2	1627.500M	62.8	+24.8 +0.4	+0.4	-38.7	+2.9	+0.0	52.6	80.0	-27.4	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **Belkin Corporation**
 Specification: **FCC 15.247 (d) (FCC 15.205) 25- 40000 MHz**
 Work Order #: **83591** Date: 04/29/2005
 Test Type: **Radiated Scan** Time: 14:23:56
 Equipment: **Bluetooth Transmitter** Sequence#: 53
 Manufacturer: Belkin Corporation Tested By: E. Wong
 Model: F8Z901-RX
 S/N: NA

Equipment Under Test (* = EUT):

Function	Manufacturer	Model #	S/N
Bluetooth Receiver	Belkin	F8Z901-RX	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Gateway	Solo 5150	BC599030987
Power Adapter	Ipod	A1070	NA
MP3 Player	Ipod	A1040	U23211J3NRH
Power Supply	Topward	6306D	NA

Test Conditions / Notes:

The EUT is placed on the wooden table. The support laptop is connected to the programming port of the EUT via a controller. The EUT is set to operate in non-hopping mode. Frequency: 2402 MHz. Frequency range of measurement = 9 kHz - 25 GHz. 9 kHz - 150 kHz; RBW=200 Hz, VBW=200 Hz; 150 kHz - 30 MHz; RBW=9 kHz, VBW=9 kHz; 30 MHz - 1000 MHz; RBW=120 kHz, VBW=120 kHz, 1000 MHz - 25000 MHz; RBW=1 MHz, VBW=1 MHz. 21°C, 43% relative humidity.

Transducer Legend:

T1=Horn 6246_072206	T2=SMA Cable 1-40GHz AN2604_012306
T3=HP 83017A 071606	T4=Cable #20 48ft Helix 091605
T5=LPF 2.2 GHz Low Pass 042507	T6=-20.8 dB Duty cycle correction factor

Measurement Data:

Reading listed by margin.

Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBμV	T5	T6							
			dB	dB	dB	dB	Table	dBμV/m	dBμV/m	dB	Ant
1	1601.292M	67.7	+24.8	+0.4	-38.4	+2.9	+0.0	37.0	54.0	-17.0	Horiz
			+0.4	-20.8							
2	1601.355M	65.2	+24.8	+0.4	-38.4	+2.9	+0.0	34.5	54.0	-19.5	Vert
			+0.4	-20.8							