

TEST REPORT

Report Number: M71121A4

February 25, 2008

Testing performed on the

Jive

Model Number: C-RL65

FCC ID: JNZCRL65

IC ID: 1807A-CRL65

to

FCC Part 15 Subpart C (15.247)

RSS-210 Annex 8

for

Logitech, Inc.

Test Performed by:

Suresh Kondapalli

Test Authorized by:

Kevin Bothmann

Prepared by: Kevin Bothmann **Date:** 2-25-08

Reviewed by: Jay Gandhi **Date:** 2-25-08

TABLE OF CONTENTS

1.0	Summary of Tests	3
2.0	General Description	4
2.1	Product Description	4
2.2	Related Submittal(s) Grants	5
2.3	Test Methodology	5
2.4	Test Facility	5
3.0	System Test Configuration.....	6
3.1	Support Equipment	6
3.2	Block Diagram of Test Setup.....	6
3.3	Justification.....	7
3.4	Software Exercise Program.....	7
3.5	Mode of Operation During Test.....	7
3.6	Modifications Required for Compliance	7
3.7	Additions, deviations and exclusions from standards.....	7
4.0	Measurement Results.....	8
4.1	Maximum Conducted Output Power at Antenna Terminals.....	8
4.2	6 dB RF Bandwidth	10
4.3	Power Spectral Density.....	18
4.4	Out-of-Band Conducted Emissions	28
4.5	Out of Band Radiated Emissions	29
4.6	Transmitter Radiated Emissions in Restricted Bands	29
4.6.4	Test Result – bands: 2483.5 – 2500 MHz and 2310 – 2390 MHz.....	34
4.7	AC Line Conducted Emission	35
4.8	Radiation exposure evaluation.....	42
5.0	List of Test Equipment	43
6.0	Document History	44
	Appendix A – Band edge plots.....	46
	Appendix B - 26dB and Occupied Band width Plots	47

1.0 Summary of Tests

FCC ID: JNZCRL65

TEST	REFERENCE FCC Part 15 C	REFERENCE RSS-210 Annex 8	RESULTS
RF output power	15.247(b)	A8.4	Complies
6 dB Bandwidth	15.247(a)(2)	A8.2(1)	Complies
Power Density	15.247(d)	A8.2(2)	Complies
Out of Band Antenna Conducted Emission	15.247(c)	A8.5	Antenna is integral part of the EUT
Out of Band Radiated Emission (except emissions in restricted bands)	15.247(c)	A8.5	Complies
Radiated Emission in Restricted Bands	15.247(c), 15.209, 15.205	A8.5	Complies
AC Conducted Emission	15.207	RSS-Gen	Complies
Radiated Emission from Digital Part and Receiver	15.109	RSS-Gen	Complies. A separate verification report is issued
Antenna Requirement	15.203	RSS-Gen	Complies. Antenna is integral part of the EUT

2.0 General Description

2.1 Product Description

The Jive, model C-RL65, is an IEEE 802.11b/g Wireless Residential remote controller operating at 2.4 GHz. It allows the customer to control other Logitech products.

Overview of the Equipment under Test:

Applicant	Logitech, Inc.
Model No.	C-RL65
FCC Identifier	JNZCRL65
IC Identifier	1807A-CRL65
Use of Product	Wireless Residential remote controller
Manufacturer & Model of Spread Spectrum Module	Logitech, Inc.
Modulation Technique	DSSS (802.11b) & OFDM (802.11g)
Rated RF Output	15dBm
Frequency Range	2412 – 2462 MHz
Type of modulation	CCK,
Number of Channel(s)	11
Antenna(s) & Gain,	Internal
Antenna Requirement	The EUT does not have an external antenna connector
Manufacturer Name & Address	Logitech, Inc. 6505 Kaiser Drive, Fremont, California 94555

EUT receive date: November 20, 2007

EUT receive condition: The EUT was received in good condition with no apparent damage.

Test start date: November 20, 2007

Test completion date: February 20, 2008

The test results in this report pertain only to the item tested.

2.2 Related Submittal(s) Grants

Verification Test Report for FCC Part 15 Subpart B

2.3 Test Methodology

Antenna conducted measurements were performed according to the procedure “Measurement of Digital Transmission Systems Operating under Section 15.247”.

Both AC mains line-conducted and radiated emissions measurements were performed according to the procedures in ANSI C63.4 (2003). Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Data Sheet**" of this Application.

All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

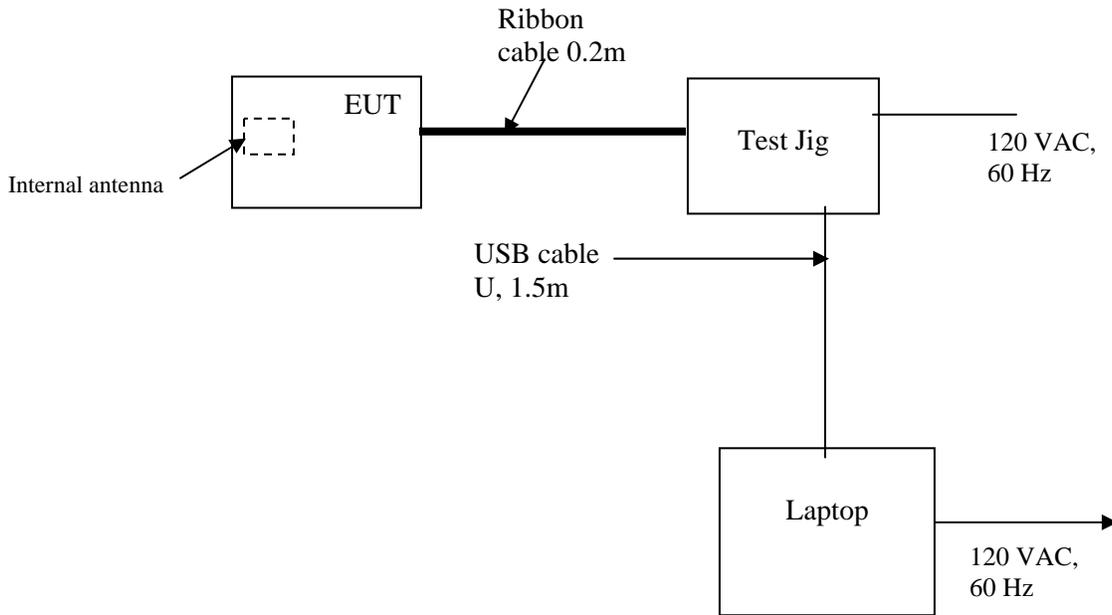
The open area test site and conducted measurement facility used to collect the radiated data is site 1, 10-m semi-anechoic chamber, Intertek Testing Services, Menlo park, California, USA. This test facility and site measurement data have been fully placed on file with the FCC and A2LA accredited.

3.0 System Test Configuration

3.1 Support Equipment

Description	Model No.	Serial No.
Test Jig, Logitech	None	None
Remote Laptop, Dell	PP23LB	(01)07898349891747
Remote Laptop Power Supply, Dell	LA65NS0-00	CN-0DF263-71615-769-6B12

3.2 Block Diagram of Test Setup



Note: Test jig and Laptop were used for setup purpose only

S = Shielded	F = With Ferrite
U = Unshielded	m = Length in Meters

3.3 Justification

For emission testing, the equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). During testing, all cables were manipulated to produce worst case emissions.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

3.4 Software Exercise Program

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

3.5 Mode of Operation During Test

During testing, the transmitter was setup to transmit continuously at maximum RF power on low, middle and high channels. Care was taken to ensure proper power supply voltages during testing.

3.6 Modifications Required for Compliance

Intertek installed no modifications during compliance testing in order to bring the product into compliance (Please note that this does not include changes made specifically by Logitech prior to compliance testing)

3.7 Additions, deviations and exclusions from standards

No additions, deviations or exclusions from the standard were made.

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals FCC Rule 15.247(b)

4.1.1 Requirement

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm).
For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6) dBm.

4.1.2 Procedure

For power measurement for FCC Part 15C testing, the procedure “**Measurement of Digital Transmission Systems Operating under Section 15.247**” is used. In particular – the **Alternate test procedure** - As antenna conducted tests cannot be performed on this device, radiated tests to show compliance with the peak output power limit specified in Section 15.247(b) and the spurious RF conducted emission limit specified in Section 15.247 was used.

Transmitter's peak power calculated using the following equation:

$$E = \frac{\sqrt{30PG}}{d}$$

Further **E** (dBuv) = 97.3+**P** (dBm)

4.1.3 Test Result

The results are summarized in the table below.

Channel	Frequency MHz	Standard	Modulation	Date rate Mbps	Measured Filed strength dBuV/m	Power(Peak) dBm	Power Limit dBm	Margin dB
1	2412	802.11b	CCK	11	101.5	4.2	30.0	-25.8
6	2437	802.11b	CCK	11	103.6	6.3	30.0	-23.7
11	2462	802.11b	CCK	11	99.1	1.8	30.0	-28.2
1	2412	802.11g	OFDM	54	97.0	-0.7	30.0	-30.7
6	2437	802.11g	OFDM	54	98.0	0.3	30.0	-29.7
11	2462	802.11g	OFDM	54	99.0	1.7	30.0	-28.3

Field strength measurements for other OFDM data rates were lower than levels shown above.

4.2 6 dB RF Bandwidth
FCC Rule 15.247(a)(2)

4.2.1 Requirement

The minimum 6-dB bandwidth shall be at least 500 kHz

4.2.2 Procedure

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn through PEAKs level. The 6-dB bandwidth was determined with delta markers from where the channel output spectrum.

4.2.3 Test Result

The results are presented on the following plots 2.1 – 2.7 and summarized in the table below.

Channel	Frequency MHz	Standard	Date rate Mbps	6-dB Bandwidth MHz	Plot
1	2412	802.11b	11	10.5	2.1
6	2437	802.11b	11	10.4	2.2
11	2462	802.11b	11	11.8	2.3
1	2412	802.11g	54	16.62	2.4
6	2437	802.11g	54	16.60	2.5
11	2462	802.11g	54	16.65	2.6
1	2412	802.11g	9	16.68	2.7

Plot 2.1

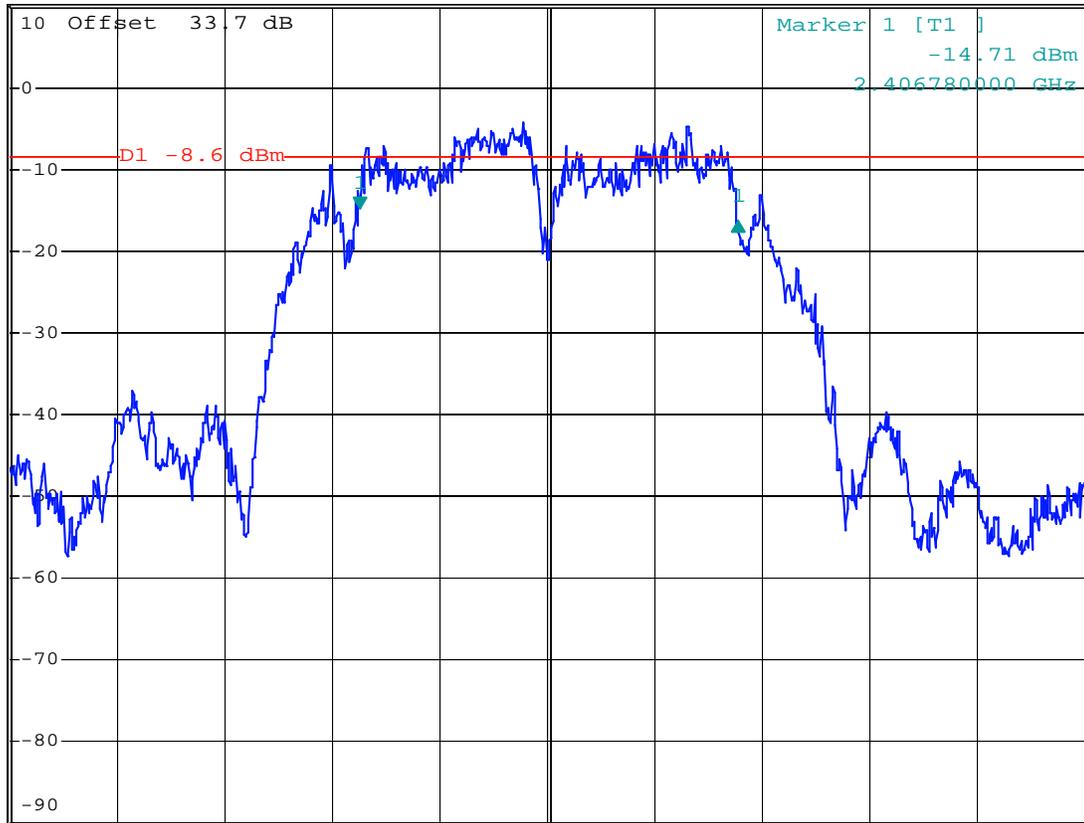


*RBW 100 kHz Delta 1 [T1]
*VBW 100 kHz -1.64 dB
SWT 10 ms 10.56000000 MHz

Ref 10 dBm

*Att 0 dB

1 PK
VIEW



Center 2.412 GHz

3 MHz/

Span 30 MHz

Comment: Jive, 6db Bw Ch 1

Date: 9.DEC.2007 19:41:41

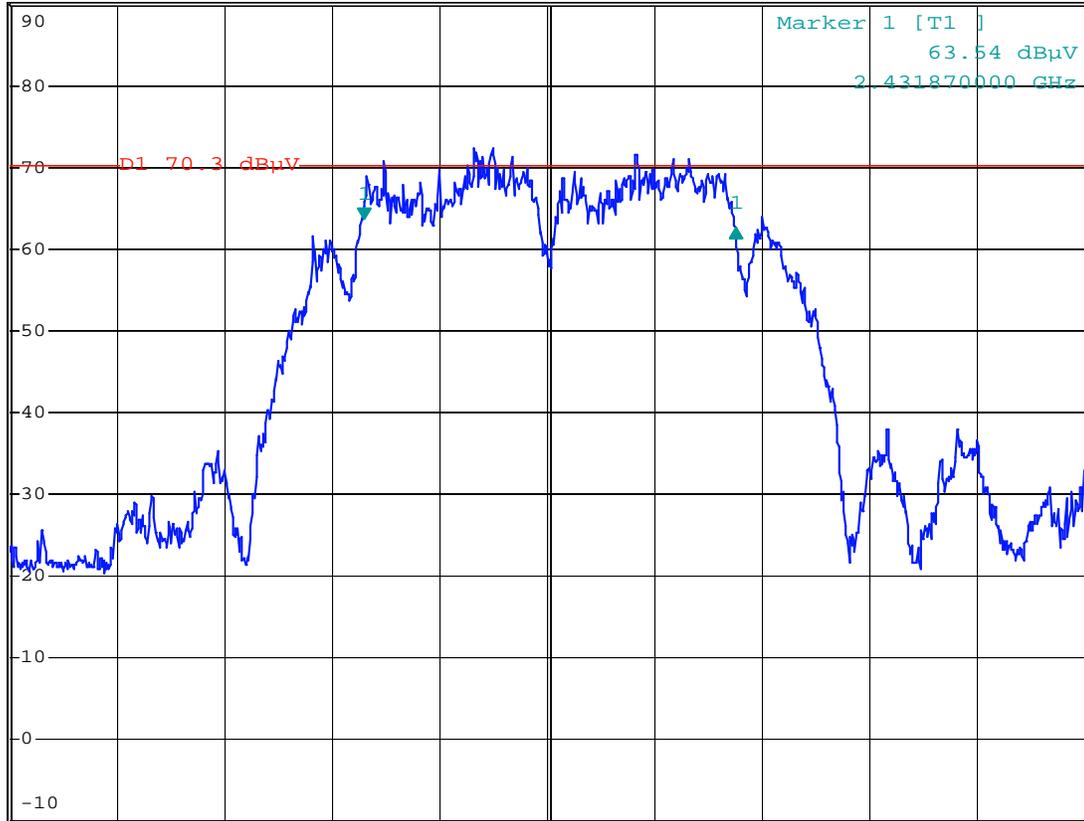
Plot 2.2



*RBW 100 kHz Delta 1 [T1]
*VBW 100 kHz -1.07 dB
SWT 10 ms 10.41000000 MHz

Ref 90 dBμV *Att 0 dB

1 PK
VIEW



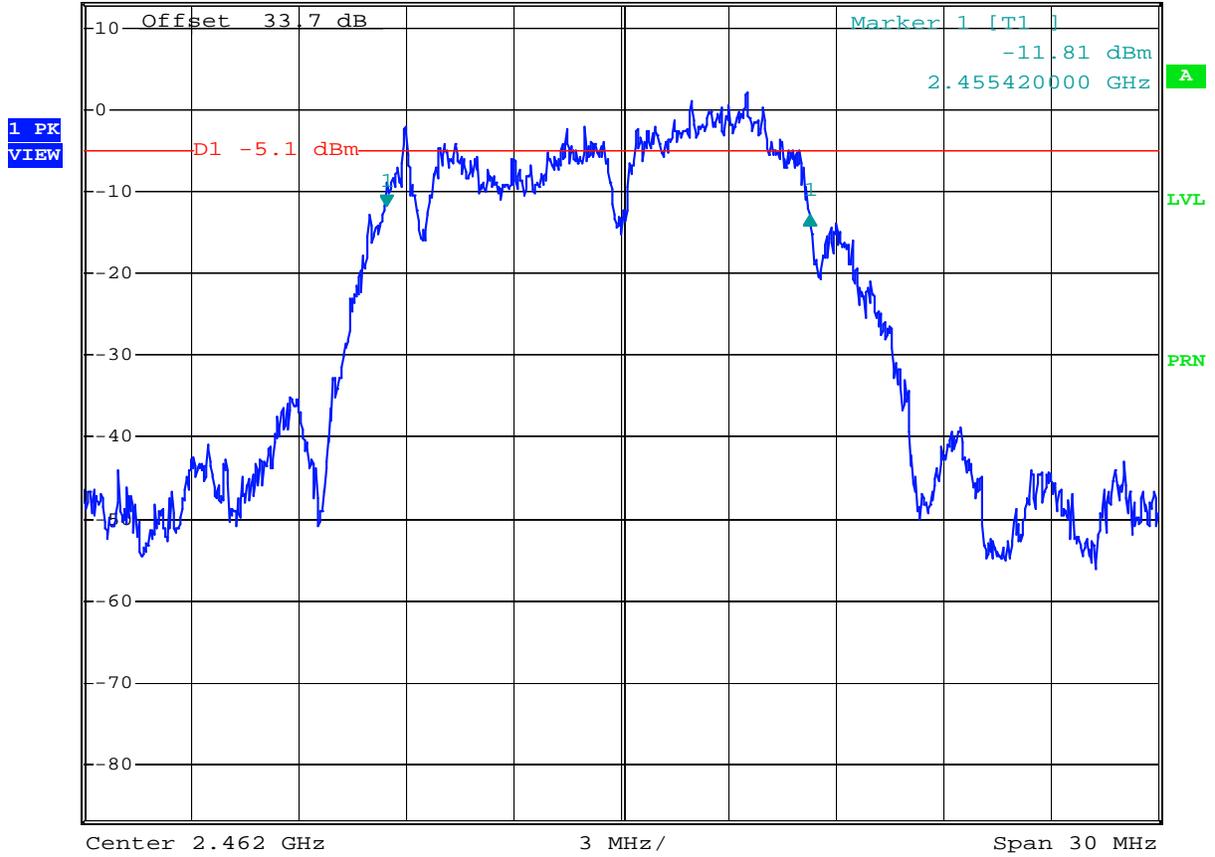
Center 2.437 GHz 3 MHz/ Span 30 MHz

Comment: Jive, Peak Power, Ch 6
Date: 9.DEC.2007 18:17:25

Plot 2.3

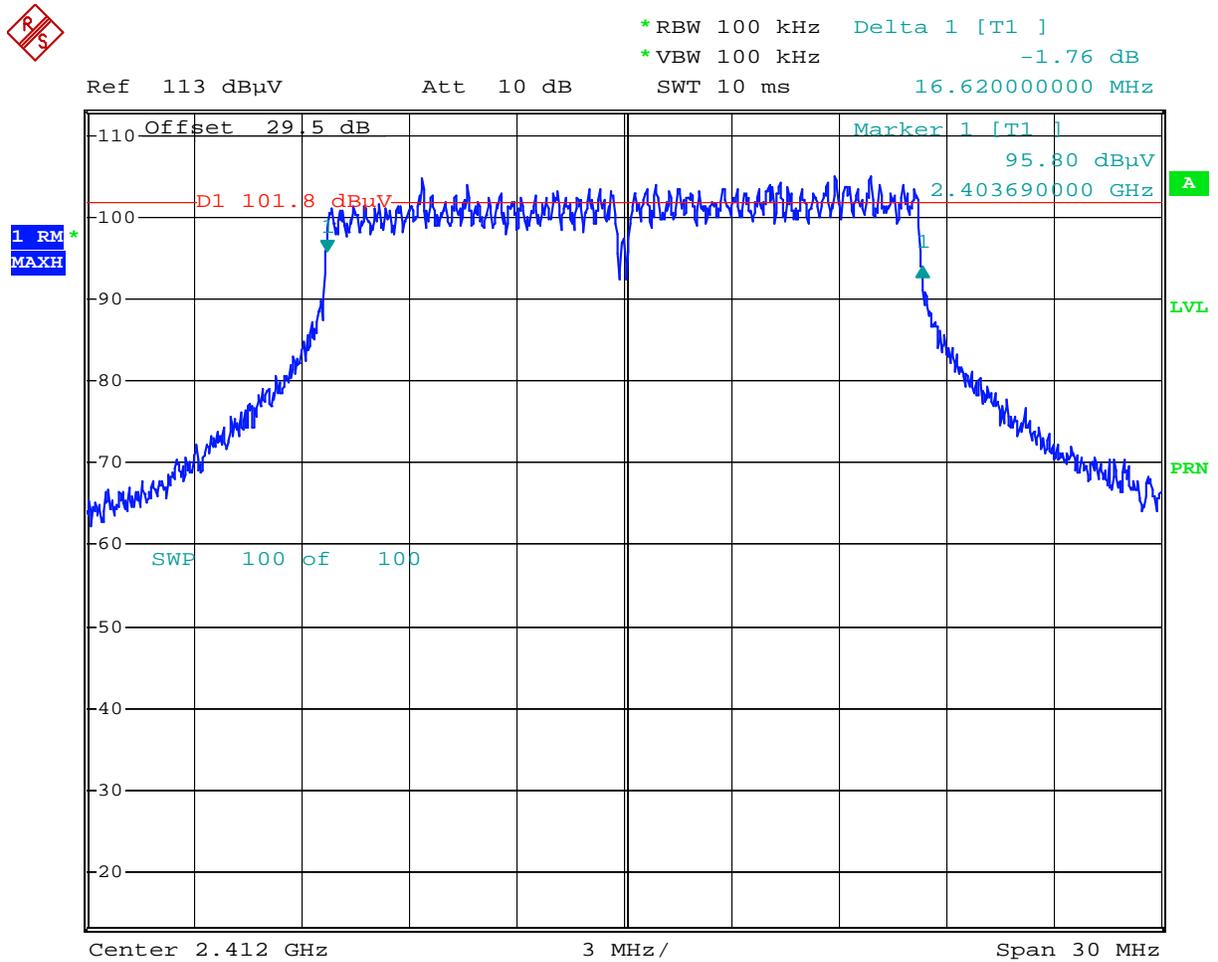


*RBW 100 kHz Delta 1 [T1]
 *VBW 100 kHz -0.95 dB
 Ref 13 dBm *Att 0 dB SWT 10 ms 11.86000000 MHz



Comment: Jive, 6 dB Bw Ch 11
 Date: 9.DEC.2007 20:05:52

Plot 2.4

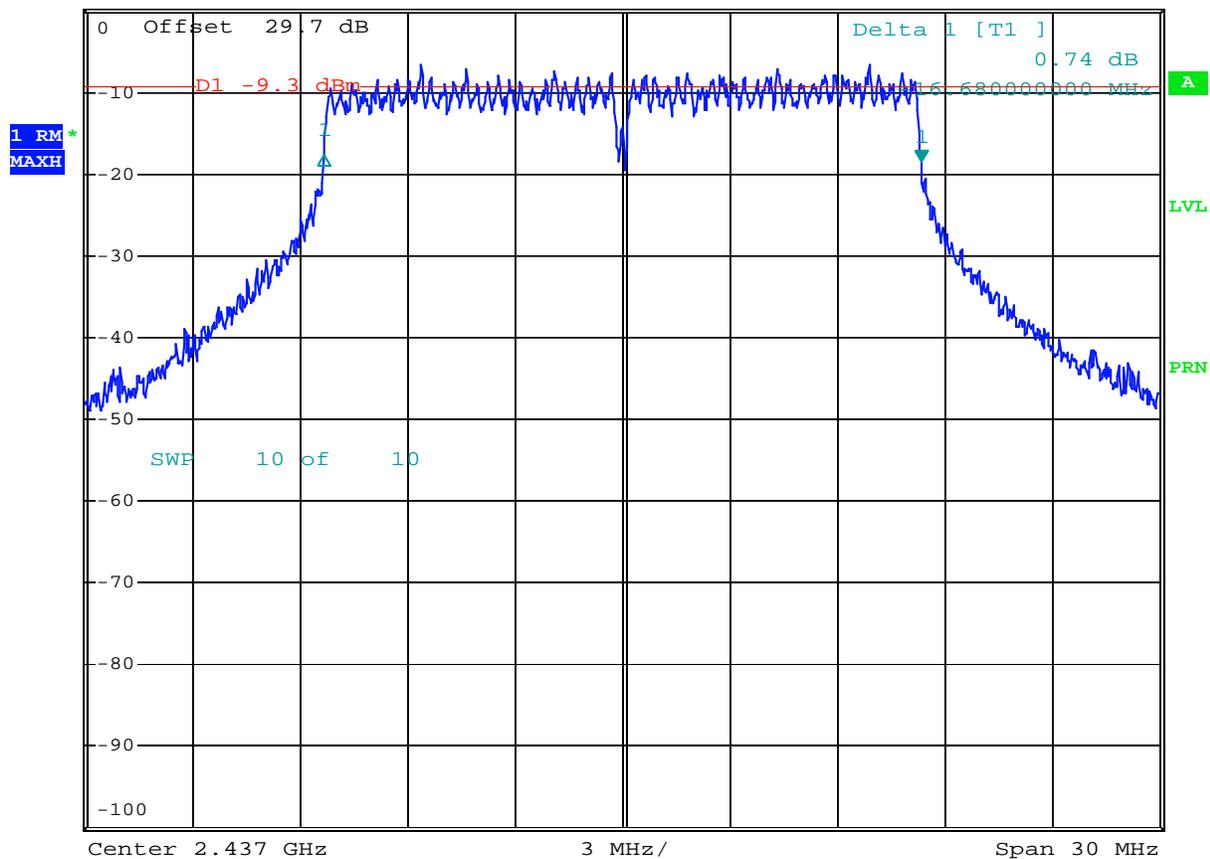


Comment: 6dB BW_OFDM_Ch#1
Date: 20.FEB.2008 20:32:23

Plot 2.5

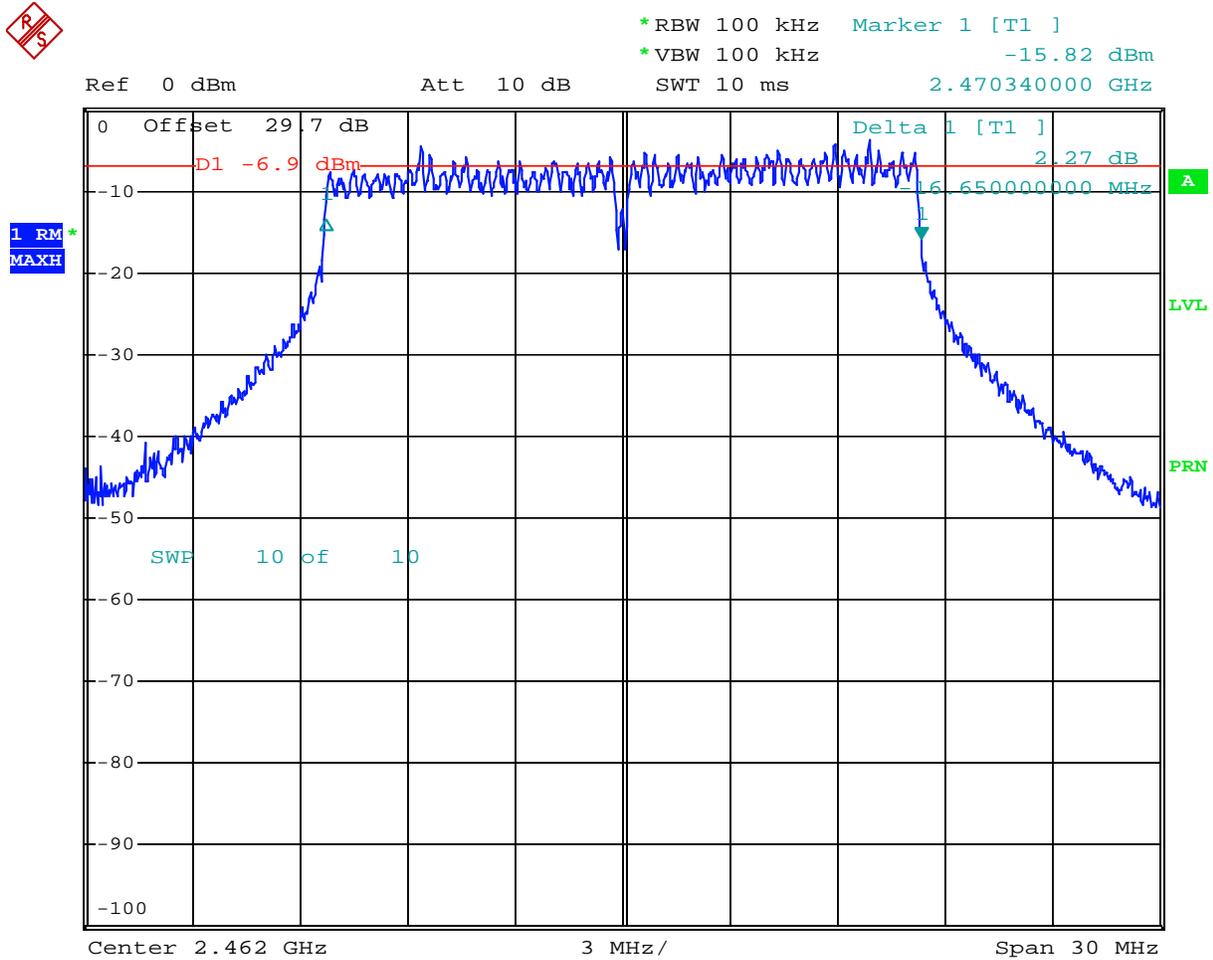


*RBW 100 kHz Marker 1 [T1]
 *VBW 100 kHz -18.39 dBm
 Ref 0 dBm Att 10 dB SWT 10 ms 2.445340000 GHz



Comment: 6dB BW_OFDM CH#6
 Date: 15.FEB.2008 19:56:40

Plot 2.6



Comment: 6dB BW_OFDM CH#11
Date: 15.FEB.2008 19:46:13

4.3 Power Spectral Density FCC Rule 15.247(d)

4.3.1 Requirement

The peak power spectral density (PSD) shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

4.3.2 Procedure

For conducted power measurement for FCC Part 15C testing, the procedure “**Measurement of Digital Transmission Systems Operating under Section 15.247**” is used. In particular – the **PSD Option 2**, - sample detector and spectral trace averaging.

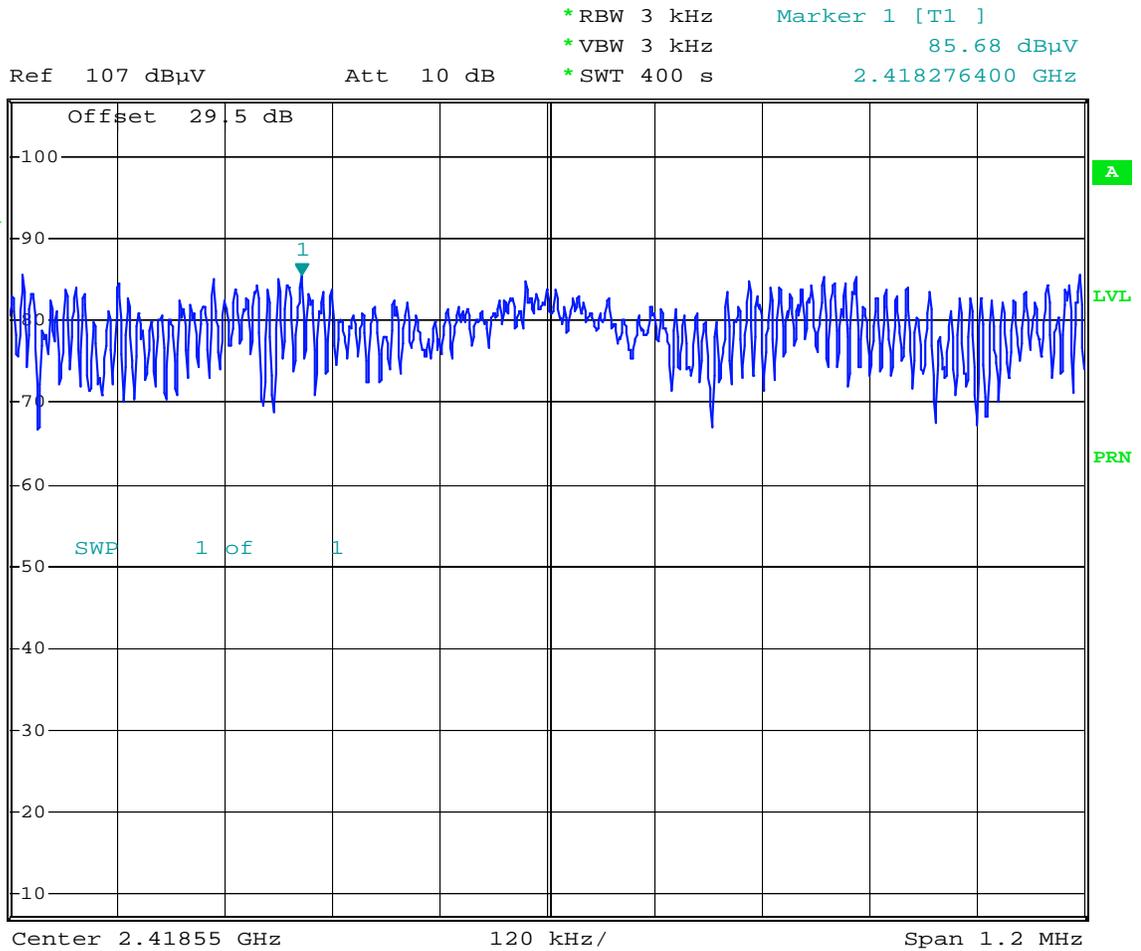
4.3.3 Test Result

The results are presented on the following plots 3.1 – 3.9 and summarized in the table below.

Channel	Frequency MHz	Standard	Date rate Mbps	Field strength	Calculated PSD dBm	PSD Limit dBm	Margin dB	Plot
1	2412	802.11b	11	96.1	-1.2	8.0	-9.2	3.1
6	2437	802.11b	11	96.3	-1.0	8.0	-9.0	3.2
11	2462	802.11b	11	101.8	4.5	8.0	-3.5	3.4
1	2412	802.11g	9	96.1	-1.2	8.0	-9.2	3.4
1	2412	802.11g	54	85.6	-11.7	8.0	-19.7	3.5
6	2437	802.11g	9	96.3	-1.0	8.0	-9.0	3.6
6	2437	802.11g	54	90.6	-6.7	8.0	-14.7	3.7
11	2462	802.11g	9	91.0	-6.3	8.0	-14.3	3.8
11	2462	802.11g	54	91.4	-5.9	8.0	-13.9	3.9

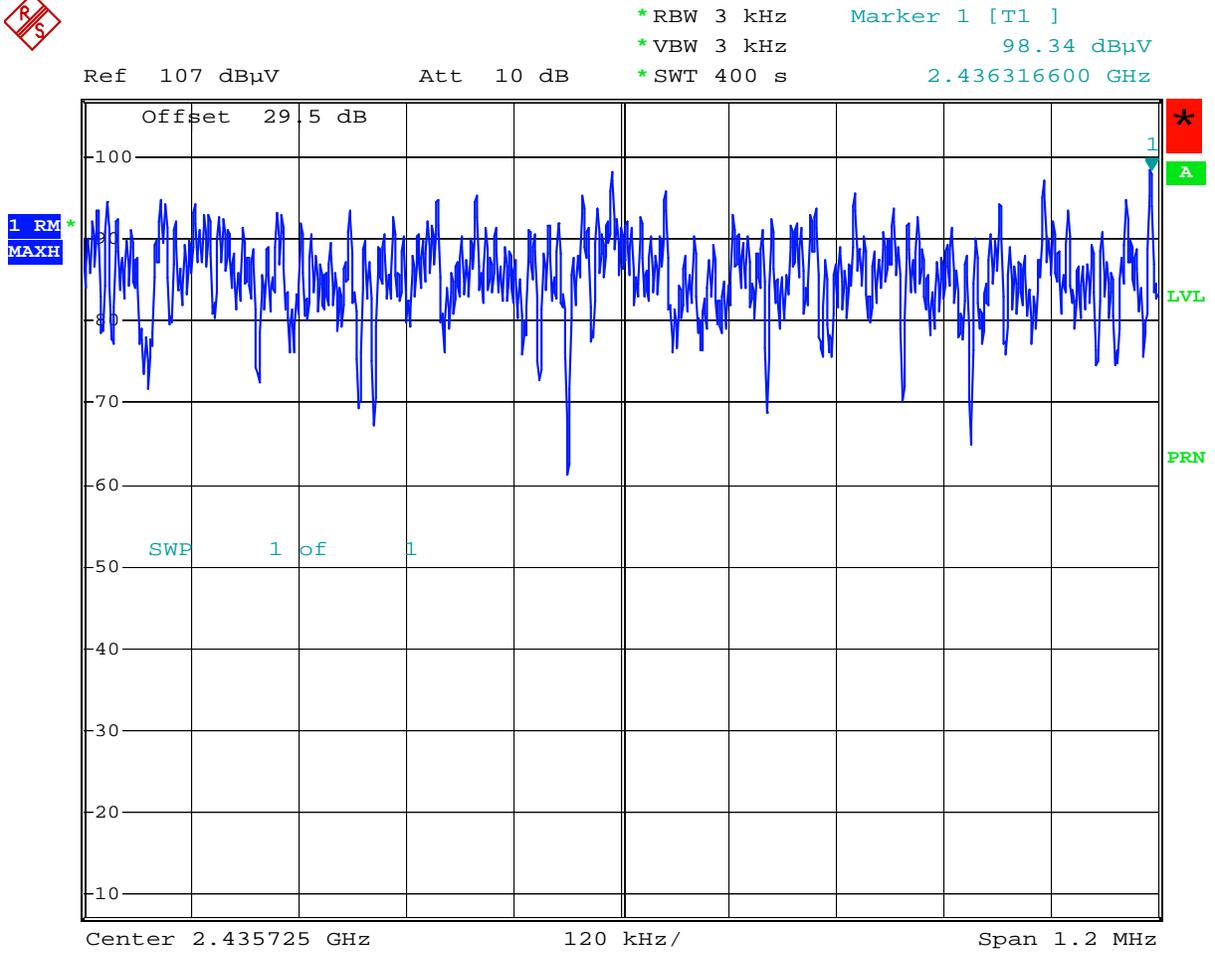
The EUT passed by 3.5 dB

Plot 3.5



Comment: OFDM_Ch#1_PSD
Date: 18.FEB.2008 17:38:24

Plot 3.6



Comment: CCK_Ch#6_PSD
Date: 18.FEB.2008 18:09:16

Plot 3.8

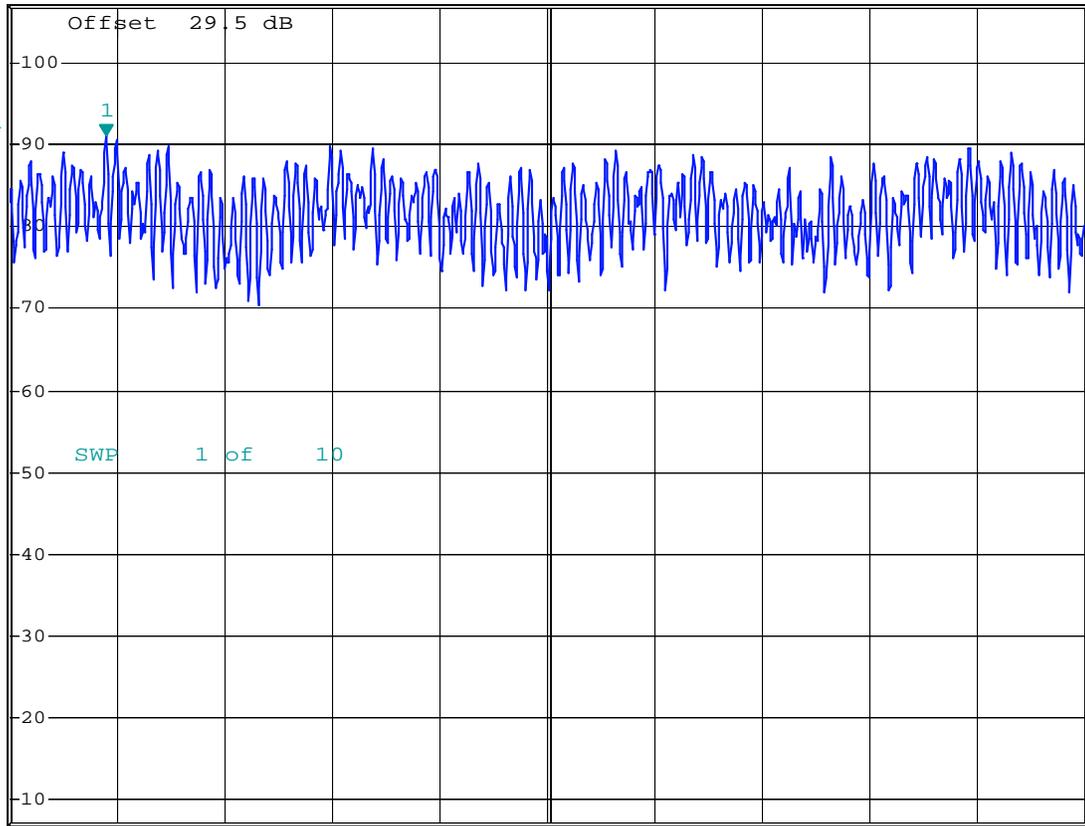


*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 91.03 dBμV
*SWT 400 s 2.466358000 GHz

Ref 107 dBμV

Att 10 dB

1. RM
MAXH



Center 2.46685 GHz

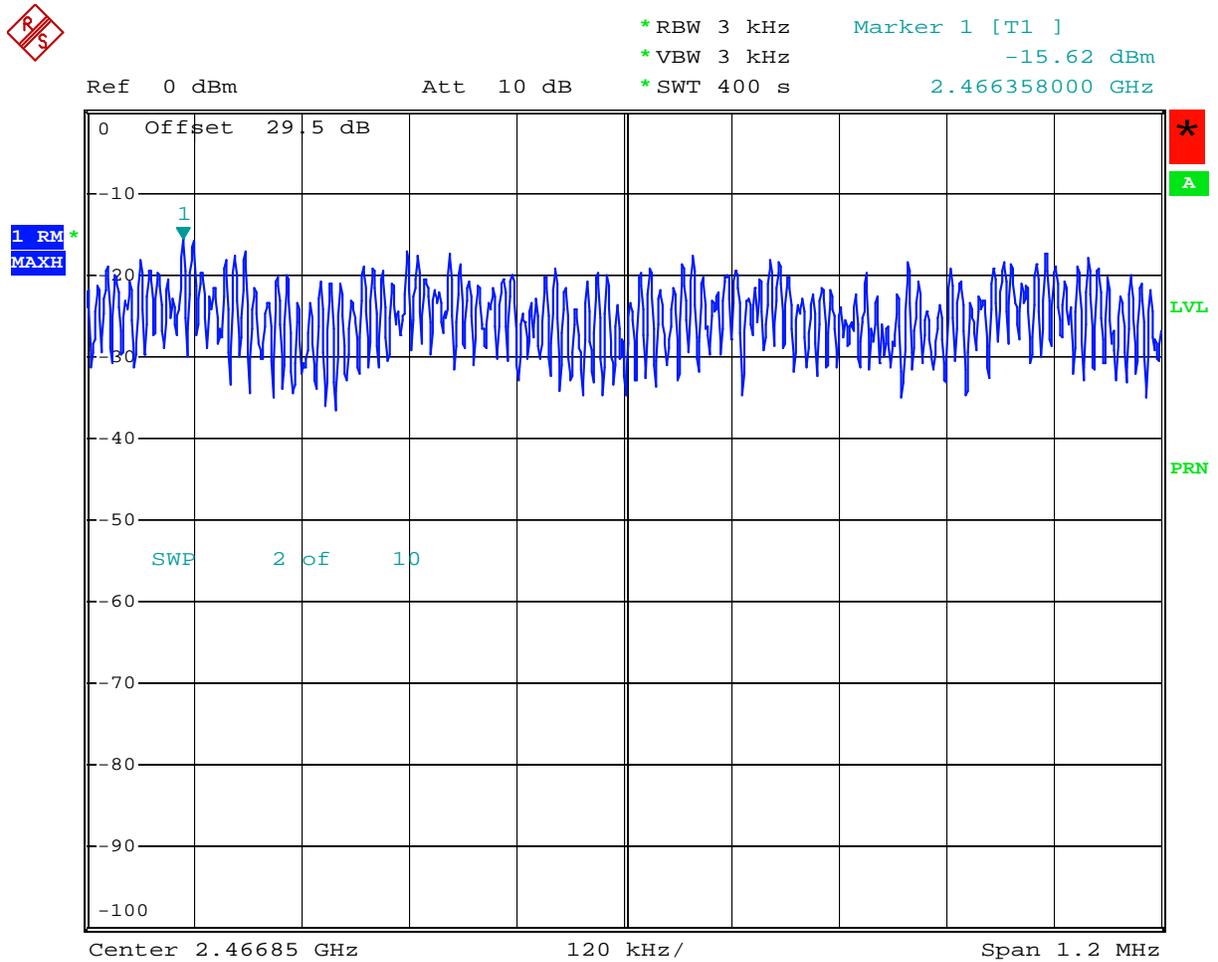
120 kHz/

Span 1.2 MHz

Comment: OFDM_Ch#11_PSD

Date: 18.FEB.2008 17:13:18

Plot 3.9



Comment: OFDM_Ch#11_PSD
Date: 18.FEB.2008 17:12:07

4.4 Out-of-Band Conducted Emissions FCC Rule 15.247(c)

4.4.1 Requirement

In any 100 kHz bandwidths outside the EUT pass-band, the RF power shall be at least 30 dB below that of the maximum in-band 100 kHz emissions.

4.4.2 Procedure

A spectrum analyzer was connected to the antenna port of the transmitter. Analyzer Resolution Bandwidth was set to 100 kHz. For each channel investigated, the in-band and out-of-band emission measurements were performed using an ample detector and averaging over 100 traces. The out-of-band emissions were measured from 30 MHz to 25 GHz.

4.4.3 Test Result

Antenna is integral part of EUT. No Antenna conducted measurements were made. EUT passed radiated Spurious Emissions

4.5 Out of Band Radiated Emissions FCC Rule 15.247(c), 15.209, 15.205

4.5.1 Requirement

For out of band radiated emissions (except for frequencies in restricted bands) that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

4.6 Transmitter Radiated Emissions in Restricted Bands FCC Rule 15.247(c), 15.209, 15.205

4.6.1 Requirement

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

4.6.2 Procedure

Radiated emission measurements were performed from 30 MHz to 25,000 MHz. Spectrum Analyzer Resolution Bandwidth is 100 kHz or greater for frequencies 30 MHz to 1000 MHz, 1 MHz - for frequencies above 1000 MHz.

The EUT is placed on a plastic turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible). During testing, all cables were manipulated to produce worst-case emissions. The signal is maximized through rotation. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters.

Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance. All readings are extrapolated back to the equivalent three-meter reading using inverse scaling with distance.

Data is included of the worst-case configuration (the configuration which resulted in the highest emission levels).

4.6.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$FS = RA + AF + CF - AG$; if measurement is performed at a distance other than specified in the rule, a Distance Correction Factor (DCF) shall be added.

Where FS = Field Strength in $\text{dB}(\mu\text{V}/\text{m})$

RA = Receiver Amplitude (including preamplifier) in $\text{dB}(\mu\text{V})$; AF = Antenna Factor in $\text{dB}(1/\text{m})$

CF = Cable Attenuation Factor in dB ; AG = Amplifier Gain in dB

Assume a receiver reading of $52.0 \text{ dB}(\mu\text{V})$ is obtained. The antennas factor of $7.4 \text{ dB}(1/\text{m})$ and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving field strength of $32 \text{ dB}(\mu\text{V}/\text{m})$. This value in $\text{dB}(\mu\text{V}/\text{m})$ was converted to its corresponding level in $\mu\text{V}/\text{m}$.

$RA = 52.0 \text{ dB}(\mu\text{V})$

$AF = 7.4 \text{ dB}(1/\text{m})$

$CF = 1.6 \text{ dB}$

$AG = 29.0 \text{ dB}$

$FS = 52.0 + 7.4 + 1.6 - 29.0 = 32 \text{ dB}(\mu\text{V}/\text{m})$.

Level in $\mu\text{V}/\text{m}$ = Common Antilogarithm $[(32 \text{ dB}\mu\text{V}/\text{m})/20] = 39.8 \mu\text{V}/\text{m}$.

4.6.4 Test Result

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance for the worst-case configuration.

The EUT passed the test by 6.0 dB .

Test Data

Temperature: 20.0 C	Company: Logitech
Humidity: 50.0 %	Model: Jive
Date: Dec 09, 2007	

Measured at 1m

Frequency	Polarity	Detector	SA reading	AG**	Ant factor	DCF	Field Strength	Limit	Margin
MHz			dB(μ V)	dB	dB(1/m)	dB	dB(μ V/m)	dB(μ V/m)	dB
Ch: 1, 2412 MHz									
4824.0	V	Pk	50.4	31.2	33.7	-9.5	43.4	74	-30.6
4824.0	V	Av	36.6	31.2	33.7	-9.5	29.6	54	-24.4
7236.0	V	Pk	51.0	27.5	36.4	-9.5	50.4	74	-23.6
7236.0	V	Av	37.2	27.5	36.4	-9.5	36.6	54	-17.4
Ch: 6, 2437 MHz									
4874.0	V	Pk	50.1	31.4	36.5	-9.5	45.7	74	-28.3
4874.0	V	Av	36.0	31.4	36.5	-9.5	31.6	54	-22.4
7311.0	V	Pk	51.4	28.2	36.5	-9.5	50.2	74	-23.8
7311.0	V	Av	37.8	28.2	36.5	-9.5	36.6	54	-17.4
Ch: 11, 2462 MHz									
4924.0	V	Pk	40.3	31.2	33.9	-9.5	33.5	74	-40.5
4924.0	V	Av	27.3	31.2	33.9	-9.5	20.5	54	-33.5
7386.0	V	Pk	39.2	29.0	36.7	-9.5	37.4	74	-36.6
7386.0	V	Av	25.0	29.0	36.7	-9.5	23.2	54	-30.8

** AG Amplifier Gain includes cable loss

Date of Test: 09 Dec 2007

Test Distance: 1meter

Test Mode: CCK TX ON

Test Data

Temperature: 20.0 C	Company: Logitech
Humidity: 50.0 %	Model: Jive
Date: Feb 11, 2008	

Measured at 1meter

Frequency MHz	Polarity	Detector	SA reading dB(μ V)	AG** dB	Ant factor dB(1/m)	DCF dB	Field Strength dB(μ V/m)	Limit dB(μ V/m)	Margin dB
Ch: 1, 2412 MHz									
4824.0	V	Pk	62.9	31.2	33.7	-9.5	55.9	74	-18.1
4824.0	V	Av	51.0	31.2	33.7	-9.5	44.0	54	-10.0
7236.0	V	Pk	46.3	27.5	36.4	-9.5	45.7	74	-28.3
7236.0	V	Av	33.0	27.5	36.4	-9.5	32.4	54	-21.6
Ch: 6, 2437 MHz									
4874.0	V	Pk	64.6	31.4	33.9	-9.5	57.6	74	-16.4
4874.0	V	Av	52.0	31.4	33.9	-9.5	45.0	54	-9.0
7311.0	V	Pk	61.3	28.2	36.5	-9.5	60.1	74	-13.9
7311.0	V	Av	49.2	28.2	36.5	-9.5	48.0	54	-6.0
Ch: 11, 2462 MHz									
4924.0	V	Pk	72.1	31.2	33.9	-9.5	65.3	74	-8.7
4924.0	V	Av	53.4	31.2	33.9	-9.5	46.6	54	-7.4
7386.0	V	Pk	65.8	29.0	36.7	-9.5	64.0	74	-10.0
7386.0	V	Av	49.4	29.0	36.7	-9.5	47.6	54	-6.4

** AG Amplifier gain includes cable loss

Date of Test: Feb 11, 2008

Test Distance: 1meter

Test Mode: OFDM TX ON

Test Data

Frequency MHz	SA reading dB(uV)	Detector P/QP/A	Pre Amp dB	Cable Loss dB	Antenna H/V	Antenna Factor dB(1/m)	FS dB(uV/m)	FS* Limit dB(uV/m)	Margin dB
48.6	54.3	QP	32.0	0.8	V	5.3	28.4	40.0	-11.6
150.0	39.3	QP	32.0	4.3	V	8.5	20.1	43.5	-23.4
192.0	41.4	QP	32.0	4.6	V	9.4	23.4	43.5	-20.1
250.0	42.7	QP	32.0	5.1	V	12.3	28.1	46.0	-17.9
300.0	37.1	QP	32.0	5.3	V	13.0	23.4	46.0	-22.6
500.0	30.6	QP	32.2	6.4	V	18.0	22.8	46.0	-23.2
900.0	27.8	QP	30.8	7.8	V	23.7	28.5	46.0	-17.5
144.0	44.1	QP	32.0	4.3	H	8.4	24.8	43.5	-18.7
250.0	46.4	QP	32.0	5.1	H	12.3	31.8	46.0	-14.2
900.0	37.8	QP	30.8	7.8	H	23.7	38.5	46.0	-7.5

* 15.209 Limits were used.

Frequency GHz	Antenna V/H	Pk Level (dBuV/m)	Av Level (dBuV/m)	Limit@3m (dBuV/m)	Raw (dBuV)	Cable (dB)	Preamp (dB)	AF dB(1/m)	Worst case Margin (dB)
1.30	V	45.8	44.2	54	52.4	2.5	35.7	25.0	-9.8
1.50	V	44.0	42.6	54	50.1	2.8	35.7	25.4	-11.4
1.70	V	48.7	40.8	54	47.2	3.0	35.7	26.3	-13.2
1.90	V	45.6	37.1	54	42.3	3.3	35.8	27.2	-16.9
1.30	H	43.5	-	54	51.7	2.5	35.7	25.0	-10.5
1.40	H	39.0	-	54	46.9	2.6	35.7	25.2	-15.0
1.50	H	41.5	-	54	49.0	2.8	35.7	25.4	-12.5
2.50	H	39.6	-	54	42.6	3.8	35.9	29.0	-14.4

Test mode: Tx On
 2437MHz
 Temperature: 20 C
 Humidity: 50 %

Measurements were performed from 30 MHz to 25GHz. All other emissions, not listed in the table, were at least 10 dB below the limit.

4.6.4 Test Result – bands: 2483.5 – 2500 MHz and 2310 – 2390 MHz

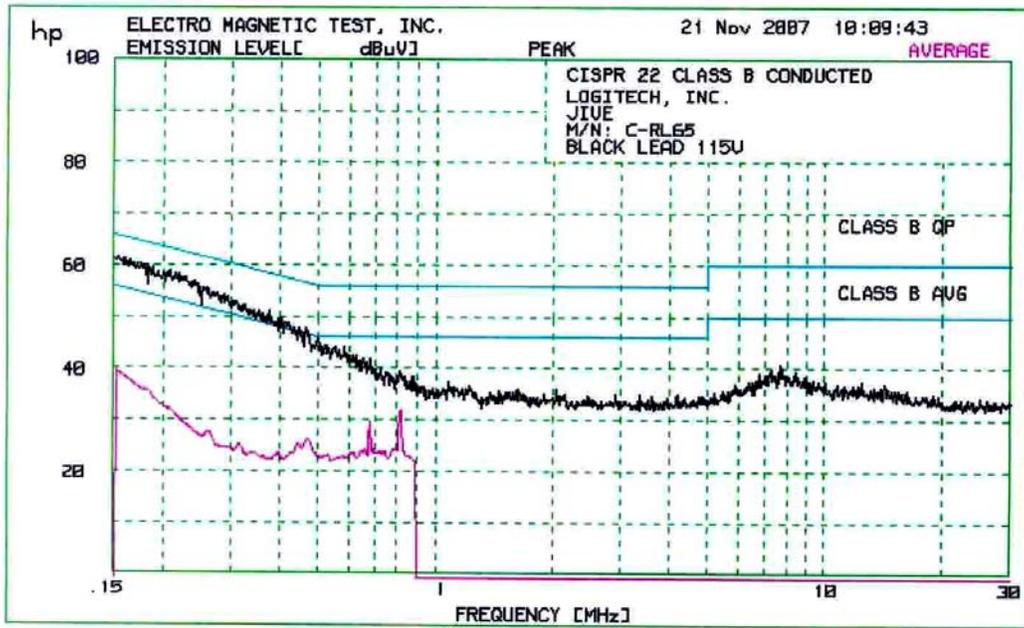
On the following graphs 6.1 – 6.10, the antenna factor, distance correction factor and cable loss are included in the spectrum analyzer reference level OFFSET. Therefore, the Marker Reading shows the Field Strength at 3m distance.

Passed by 1.4 dB.

Graphs are placed in Appendix A

4.7 AC Line Conducted Emission
FCC Rule 15.207: Complies.

See attached data on the following pages.



1. CONDUCTED WITH PRESELECTOR
 1.2 CISPR 22 CLASS B CONDUCTED

60 highest Peaks above -50 dB of Limit Line #2
 peak criteria = .1 dB

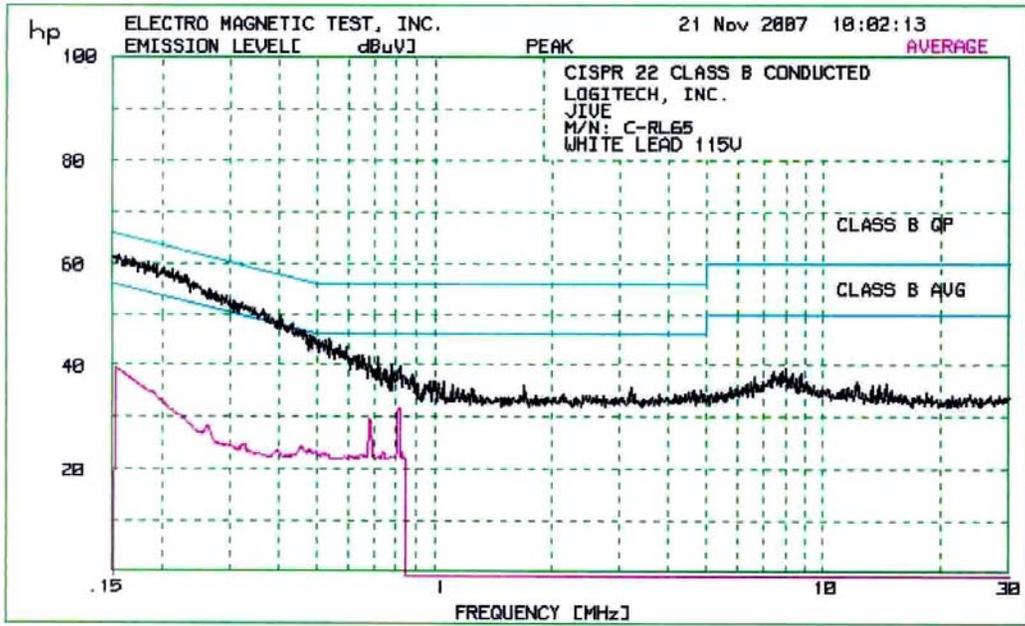
PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.1532	61.6	5.8
2	.1598	61.2	5.8
3	.1582	61.3	5.8
4	.165	61	5.8
5	.1834	59.9	5.6
6	.1883	59.7	5.6
7	.2094	58.8	5.6
8	.1557	61.1	5.5
9	.1767	60.1	5.5
10	.2161	58.4	5.5
11	.2196	58.2	5.4
12	.1694	60.2	5.3
13	.1721	60.1	5.3
14	.2291	57.7	5.3
15	.1676	60.3	5.3
16	.1786	59.8	5.3
17	.1624	60.5	5.2
18	.2072	58.5	5.2
19	.2267	57.7	5.2
20	.2219	57.6	4.9
21	.2243	57.4	4.8
22	.2415	56.8	4.8
23	.1944	58.5	4.7
24	.2007	58.2	4.7
25	.2127	57.6	4.6
26	.2365	56.6	4.4
27	.2454	56.3	4.4
28	.1924	58	4.1
29	.2493	55.7	4.0
30	.2547	55.6	4.0
31	.2587	55.4	4.0
32	.2615	55.2	3.9
33	.2757	54.7	3.8
34	.2714	54.6	3.6
35	.2876	54.1	3.6
36	.2671	54.7	3.5
37	.2938	53.8	3.4
38	.2816	54	3.3
39	.2846	53.8	3.2
40	.3098	53	3.1
41	.3065	53	3.0
42	.3748	51.1	2.8
43	.3033	52.9	2.8
44	.3266	52.1	2.6
45	.3001	52.7	2.5
46	.3232	52.1	2.5
47	.3517	51.2	2.3
48	.3197	52	2.3
49	.3164	52	2.2
50	.3443	51.1	2.1
51	.3336	51.2	1.9
52	.3371	51.1	1.9
53	.4057	49.6	1.9
54	.3301	51.2	1.8
55	.3611	50.4	1.7
56	.3951	49.5	1.6
57	.4211	49	1.6
58	.3994	49.2	1.4
59	.4681	47.8	1.3
60	.3788	49.5	1.2

1. CONDUCTED WITH PRESELECTOR
1.2 CISPR 22 CLASS B CONDUCTED

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Avg Peaks above -50 dB of Limit Line #2
peak criteria = .1 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.816	32	-14.0
2	.1516	39.6	-16.3
3	.6816	29.7	-16.3
4	.4706	26.2	-20.3
5	.4656	26.1	-20.4
6	.4416	25.4	-21.6
7	.6925	24.3	-21.7
8	.778	24.3	-21.7
9	.7905	24.3	-21.7
10	.6603	24.2	-21.8
11	.7186	24.1	-21.9
12	.6465	24	-22.0
13	.7458	24	-22.0
14	.6131	23.8	-22.2
15	.5315	23.2	-22.8
16	.5176	23	-23.0
17	.5785	23	-23.0
18	.8513	23	-23.0
19	.8649	23	-23.0
20	.2629	27.8	-23.5
21	.4278	23.7	-23.5
22	.3972	23.6	-24.3
23	.3147	25.3	-24.5
24	.3443	23.8	-25.2
25	.3389	23.8	-25.4
26	.2876	24.8	-25.7
27	.3631	22.8	-25.8
28	.3592	22.9	-25.8



1. CONDUCTED WITH PRESELECTOR
 1.2 CISPR 22 CLASS B CONDUCTED

60 highest Peaks above -50 dB of Limit Line #2
 peak criteria = .1 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.1854	60.3	6.1
2	.1615	61.3	6.0
3	.1685	61	6.0
4	.1944	59.7	5.9
5	.1548	61.6	5.9
6	.2039	59.3	5.9
7	.2127	58.9	5.9
8	.1712	60.5	5.6
9	.1524	61.3	5.5
10	.1903	59.5	5.5
11	.2018	59	5.5
12	.2327	57.7	5.4
13	.1641	60.6	5.4
14	.1805	59.7	5.3
15	.2196	58.1	5.3
16	.2291	57.7	5.3
17	.1786	59.8	5.3
18	.1834	59.5	5.2
19	.1758	59.7	5.1
20	.2105	58.1	5.0
21	.2083	58.1	4.9
22	.1924	58.6	4.7
23	.1986	58.3	4.7
24	.2219	57.4	4.7
25	.2255	57.2	4.6
26	.2352	56.8	4.6
27	.215	57.4	4.4
28	.2415	56.1	4.1
29	.2467	55.9	4.1
30	.239	55.9	3.8
31	.2643	54.8	3.6
32	.252	55.1	3.5
33	.2772	54.2	3.3
34	.2685	54.4	3.3
35	.256	54.5	3.0
36	.2728	54	3.0
37	.2846	53.6	3.0
38	.2938	53.4	3.0
39	.2601	54.3	2.9
40	.2801	53.5	2.7
41	.3214	52.3	2.7
42	.2876	53.1	2.6
43	.3065	52.5	2.5
44	.3631	51	2.4
45	.348	51.3	2.3
46	.3164	52	2.2
47	.3001	52.4	2.2
48	.3283	51.5	2.1
49	.3131	51.8	2.0
50	.3371	51.2	2.0
51	.3407	51.1	2.0
52	.3336	51.2	1.9
53	.3033	51.9	1.8
54	.4036	49.4	1.7
55	.3669	50.1	1.6
56	.3768	49.6	1.3
57	.3592	49.9	1.2
58	.3848	49.3	1.2
59	.4079	48.8	1.2
60	.4324	48.3	1.1

1. CONDUCTED WITH PRESELECTOR
1.2 CISPR 22 CLASS B CONDUCTED

=====

Avg Peaks above -50 dB of Limit Line #2
peak criteria = .1 dB

PEAK#	FREQ (MHz)	(dBuV)	DELTA
1	.8117	31.7	-14.3
2	.6852	29.8	-16.2
3	.1516	39.5	-16.4
4	.1986	33.4	-20.2
5	.4559	24.2	-22.5
6	.4806	23.7	-22.6
7	.8291	23.4	-22.6
8	.7379	23.3	-22.7
9	.4883	23.3	-22.8
10	.4935	23.3	-22.8
11	.5203	23.1	-22.9
12	.2615	28.2	-23.1
13	.6568	22.7	-23.3
14	.5908	22.4	-23.6
15	.6131	22.3	-23.7
16	.6329	22.3	-23.7
17	.7301	22.3	-23.7
18	.7149	22.2	-23.8
19	.3972	23.5	-24.4
20	.3249	24.7	-24.8
21	.2985	24.6	-25.6
22	.3164	24.1	-25.7
23	.3517	22.9	-26.0

4.8 Radiation exposure evaluation

The **Jive** is a Wireless remote Controller. It is battery operated handheld device. AC power adapter is used for charging purposes only.

The maximum calculated conducted average power is 6.8 dBm, antenna is fix-mounted, -2 dBi gain (maximum). Therefore, to comply with RF Exposure Requirement, the MPE is calculated.

The maximum Average EIRP calculated is 4.8mWatts. The Power Density can be calculated using the formula

$$S = \text{EIRP} / 4\pi D^2$$

Where: S is Power Density in W/m²
D is the distance from the antenna.

At distance of 0.2 m, S = 0.010 W/m² which is below MPE Limit of 10 W/m²

5.0 List of Test Equipment

Measurement equipment used for emission compliance testing utilized the equipment on the following list:

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CAL. INTERVAL	CAL. DUE
RF Filter Section	Hewlett Packard	85460A	3448A00267	12	10/02/08
EMI Receiver	Hewlett Packard	8546A	3710A00373	12	10/02/08
Spectrum Analyzer	R & S	FSP40	036612004	12	10/01/08
BI-Log Antenna	EMCO	3143	9509-1160	12	9/05/08
Horn Antenna	EMCO	3115	9170-3712	12	7/16/08
Pre-Amplifier	Sonoma Inst.	310	185634	12	9/26/08
Pre-Amplifier	Miteq	AMF-4D-001180-24-10P	799159	12	7/13/08
Spectrum Analyzer	Hewlett Packard	8566B	3013A07296	12	2/09/08
RF Preselector	Hewlett Packard	85685A	3010A01157	12	2/13/08
Quasi-Peak Adapter	Hewlett Packard	85650A	2521A00584	12	2/09/08
RF Attenuator	Mini-Circuits	CAT-10	Asset #1000	12	12/08/08
LISN	Com-Power	LI-200	12012	12	7/01/08
LISN	Com-Power	LI-200	12214	12	7/01/08
LISN	Com-Power	LI-200	1767	12	7/01/08
LISN	Com-Power	LI-200	1768	12	7/01/08

No Calibration required

6.0 Document History

Revision/ Job Number	Writer Initials	Date	Change
1	KB	2/21/08	Original document
2	KB	2/25/08	Update FCC ID

Appendix A – Band edge plots

Appendix B - 26dB and Occupied Band width Plots