

DATE: 17 October 2011

I.T.L. (PRODUCT TESTING) LTD.

FCC Radio Test Report

for

Visonic Ltd.

Equipment under test:

PCA ZBT (2.4 GHz) RF ZigBee Module

E203826

Written by:



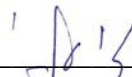
D. Shidlow, Documentation

Approved by:



A. Moses, Test Engineer

Approved by:



I. Raz, EMC Laboratory Manager

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This report relates only to items tested.

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1. General Information

1.1 Administrative Information

Manufacturer:	Visonic Ltd.
Manufacturer's Address:	30 Habarzel St. Tel-Aviv 69710 Israel Tel: +972-3-768-1400 Fax: +972-3-768-1415
Manufacturer's Representative:	Arick Elshtein
Equipment Under Test (E.U.T):	PCA ZBT (2.4 GHz) RF ZigBee Module
Equipment Model No.:	E203826
Equipment Serial No.:	Not Designated
Date of Receipt of E.U.T:	17.07.11
Start of Test:	17.07.11
End of Test:	18.09.11
Test Laboratory Location:	I.T.L (Product Testing) Ltd. Kfar Bin Nun, ISRAEL 99780
Test Specifications:	FCC Part 15 Subpart C Section 15.247

1.2 List of Accreditations

The EMC laboratory of I.T.L. is accredited by the following bodies:

1. The American Association for Laboratory Accreditation (A2LA) (U.S.A.), Certificate No. 1152.01.
2. The Federal Communications Commission (FCC) (U.S.A.), Registration No. 90715.
3. The Israel Ministry of the Environment (Israel), Registration No. 1104/01.
4. The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) (Japan), Registration Numbers: C-1350, R-1285.
5. Industry Canada (Canada), IC File No.: 46405-4025; Site No. IC 4025B-1.
6. TUV Product Services, England, ASLLAS No. 97201.

I.T.L. Product Testing Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this test report have been determined in accordance with I.T.L.'s terms of accreditation unless stated otherwise in the report.

1.3 Product Description

The E.U.T. is a ZigBee protocol transceiver placed in various hosts manufactured by Visonic Ltd.

1.4 Test Methodology

Radiated testing was performed according to the procedures in ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.5 Test Facility

The radiated emissions tests were performed at I.T.L.'s testing facility at Kfar Bin-Nun, Israel. This site is a FCC listed test laboratory (FCC Registration No. 90715, date of listing September3, 2009). I.T.L.'s EMC Laboratory is also accredited by A2LA, certificate No. 1152.01.

1.6 Measurement Uncertainty

Radiated Emission (CISPR 11, EN 55011, CISPR 22, EN 55022, ANSI C63.4) for open site 30-1000 MHz:
Expanded Uncertainty (95% Confidence, K=2):
 ± 4.96 dB

2. System Test Configuration

2.1 Justification

To select the worst case host to be tested for Limited Modular Approval certification, an exploratory radiated emission test was performed. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The frequency range of measurement was 9 kHz - 12 GHz.

The transmitter was operated in CW mode at 2445 MHz. The EMI receiver was set to 1 MHz resolution BW.

The results of the exploratory spurious radiated emission tests are shown in the table below.

Host	Polarity (H/V)	Peak Reading 2 nd Harmonic (dB μ V/m)	Peak Reading 3 rd Harmonic (dB μ V/m)
MCT-302 SMA	H	62.0	56.6
Clip SMA	H	53.9	55.9
MCT-427 SMA	H	62.3	60.9
MCT-550 SMA	H	61.3	57.7
MCT-442 SMA	H	60.5	53.6
Next Plus K9-85	H	60.2	54.1

Based on the above exploratory testing above, the MCT-427 SMA was selected to be tested.

16 October 2011

7 ZigBee Hosts Model Names

I hereby declare that the PCA ZBT (2.4 GHz) RF ZigBee Module, M/N E203826, was tested in the following hosts:

MCT-302 SMA

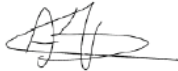
Clip MCW SMA

MCT-427 SMA

MCT-550 SMA

MCT-442 SMA

Next Plus K9-85 (Next + MCT appears in the sign in the test setup photo)



Arick Elshtein
International Compliance Manager
Visonic Ltd.

Head Office



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Postal Address: P.O.B 22020, Tel Aviv, 61220

Tel: 972 3 6458789
Fax: 972 3 6458788

www.visonic.com

2.2 ***EUT Exercise Software***

The E.U.T. was operated using JS+702033 SW OB ZigBee module 2.4 GHz PROD DEF.

2.3 ***Special Accessories***

No special accessories were needed in order to achieve compliance.

2.4 ***Equipment Modifications***

No modifications were needed in order to achieve compliance

2.5 ***Configuration of Tested System***

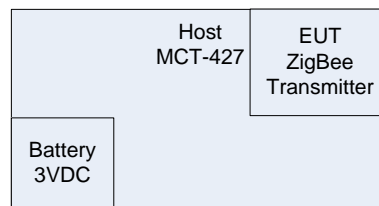


Figure 1. Configuration of Tested System

3. Radiated Measurement Test Set-up Photo



Figure 2. Exploratory Radiated Emission Test- MCT-302 SMA



Figure 3. Exploratory Radiated Emission Test- Clip SMA



Figure 4. Exploratory and Radiated Emission Test- MCT-427 SMA



Figure 5. Exploratory Radiated Emission Test- MCT-550 SMA



Figure 6. Exploratory Radiated Emission Test- MCT-442 SMA



Figure 7. Exploratory Radiated Emission Test- Next Plus K9-85 SMA



Figure 8. Radiated Emission Test Standby/Receive Mode- MCT-427 SMA

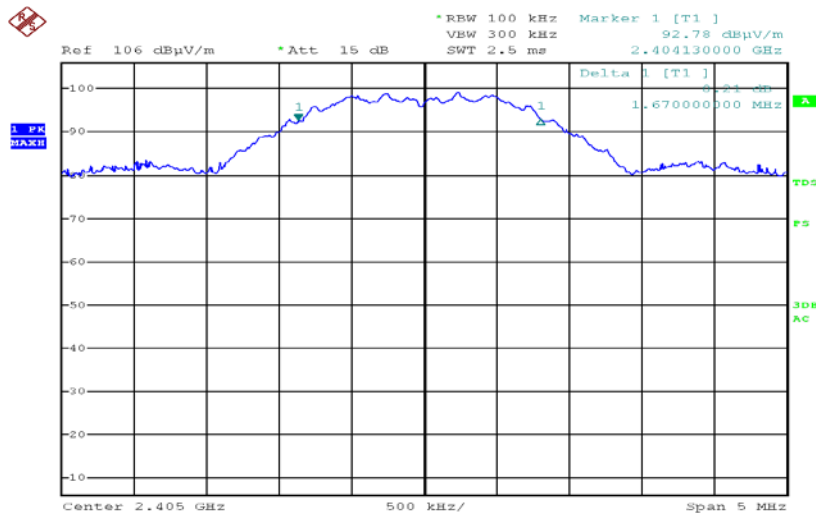
4. 6dB Minimum Bandwidth

4.1 Test Specification

F.C.C. Part 15, Subpart C: 15.247(a)(2)

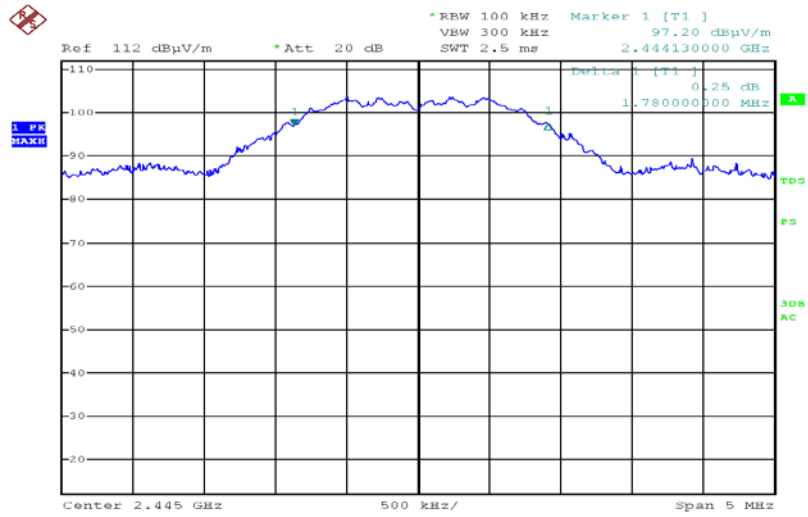
4.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 100 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested at 2405 MHz, 2445 MHz, and 2475MHz.



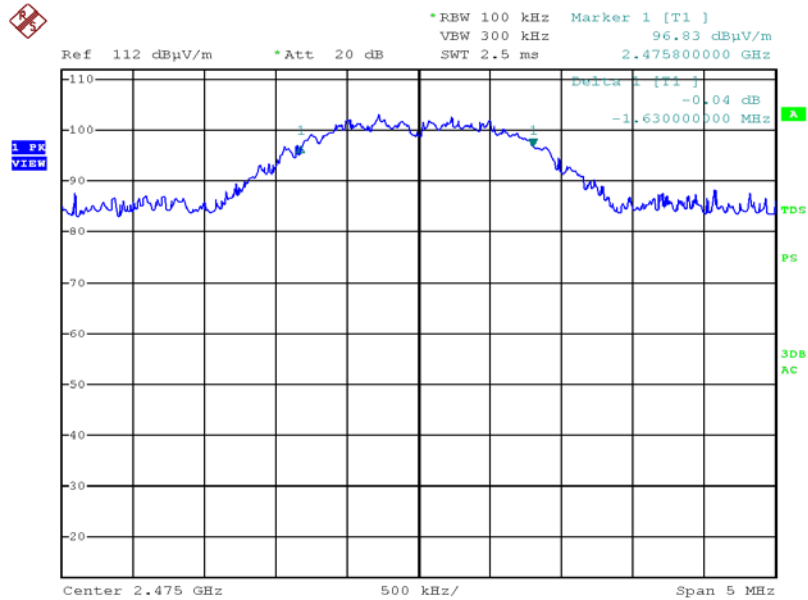
Date: 20.JUL.2011 11:34:35

Figure 9. 2405MHz



Date: 20.JUL.2011 12:20:47

Figure 10. 2445MHz



Date: 28.AUG.2011 10:27:09

Figure 11. 2475MHz

4.3 Test Results

E.U.T Description: PCA ZBT (2.4 GHz) RF ZigBee Module
 Model: E203826
 Serial Number: Not Designated

Operation Frequency (MHz)	Bandwidth Reading (MHz)	Specification (MHz)
2405	1.67	>0.5
2445	1.78	>0.5
2475	1.63	>0.5

Figure 12 Test Results

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

4.4 Test Equipment Used.

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22, 2010	2 years
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	January 27, 2011	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

Figure 13 Test Equipment Used

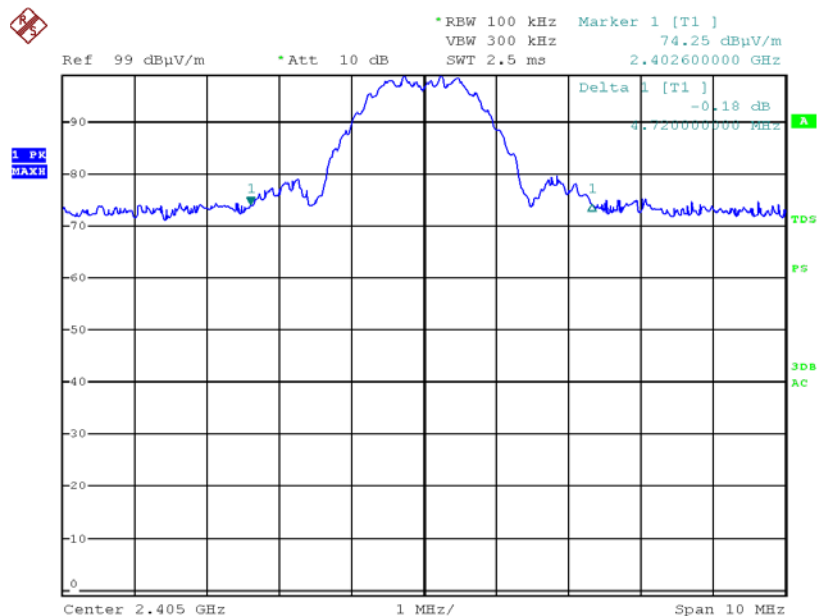
5. 26dB Bandwidth

5.1 Test Specification

F.C.C. Part 15, Subpart C: 15.247(a)(2)

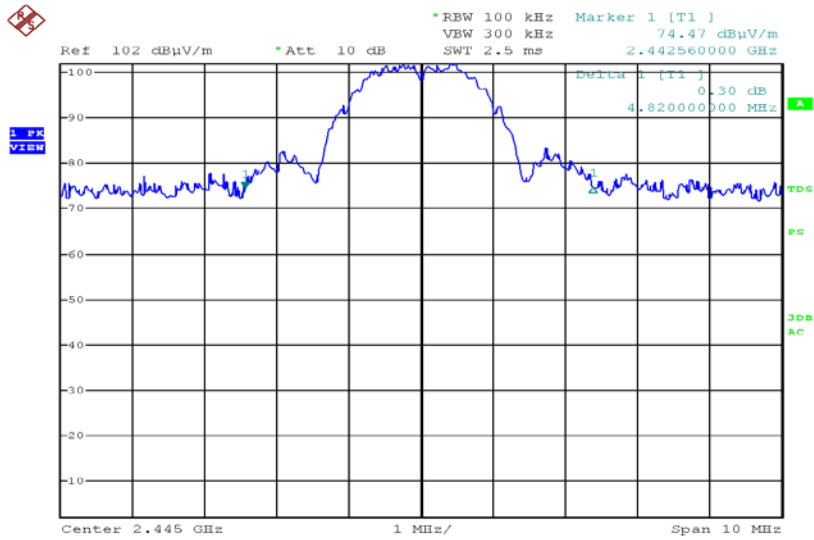
5.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters. The transmitter unit operated with normal modulation. The EMI receiver was set to 100 kHz resolution BW. The spectrum bandwidth of the transmitter unit was measured and recorded. The test was performed to measure the transmitter occupied bandwidth. The EUT was set up as shown in Figure 3, and its proper operation was checked. The transmitter occupied bandwidth was measured with the EMI receiver as frequency delta between reference points on modulation envelope. The E.U.T. was tested at 2405 MHz, 2445 MHz, and 2475MHz.



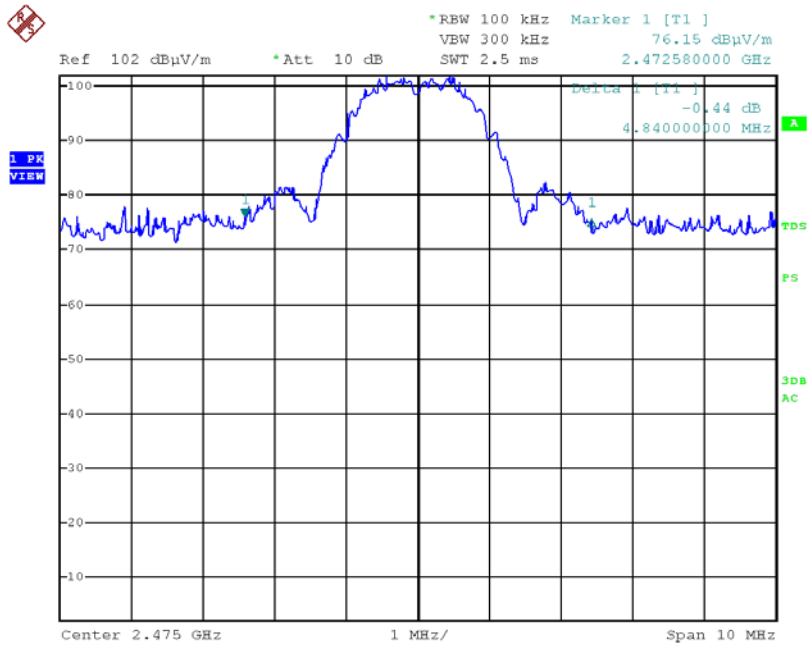
Date: 20.JUL.2011 11:42:57

Figure 14. 2405MHz



Date: 20.JUL.2011 12:24:44

Figure 15. 2445MHz



Date: 28.AUG.2011 10:31:10

Figure 16. 2475MHz

5.3 Test Results

E.U.T Description: PCA ZBT (2.4 GHz) RF ZigBee Module

Model: E203826

Serial Number: Not Designated

Operation Frequency (MHz)	Bandwidth Reading (MHz)	Specification (MHz)
2405	4.72	>0.5
2445	4.82	>0.5
2475	4.84	>0.5

Figure 17 Test Results

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

5.4 Test Equipment Used.

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22 , 2010	2 years
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	January 27, 2011	2 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

Figure 18 Test Equipment Used

6. Radiated Power Output

6.1 Test Specification

F.C.C. Part 15, Subpart C: 15.247(b)

6.2 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

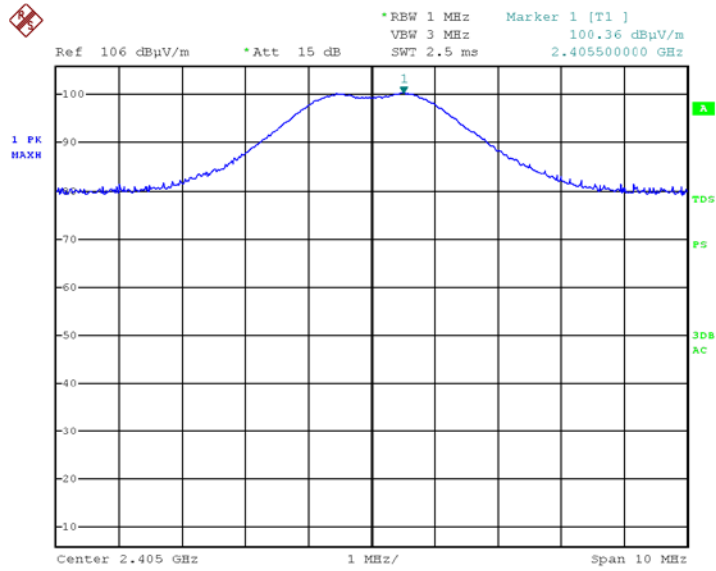
The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

The E.U.T. was tested in three operating channels and frequencies (1 (2.410 GHz); 8 (2.445 GHz); 14 (2.475 GHz)).

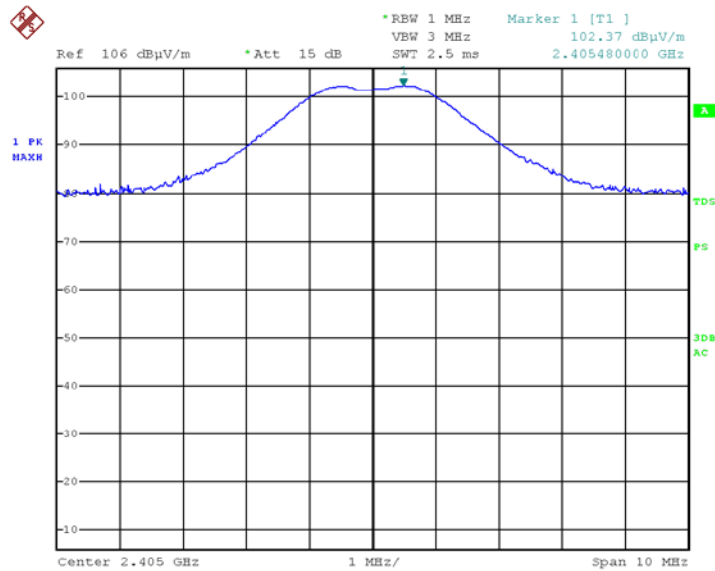
Radiated output power levels were measured at selected operation frequencies and the results were converted to power level according to the formula as shown below:

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$



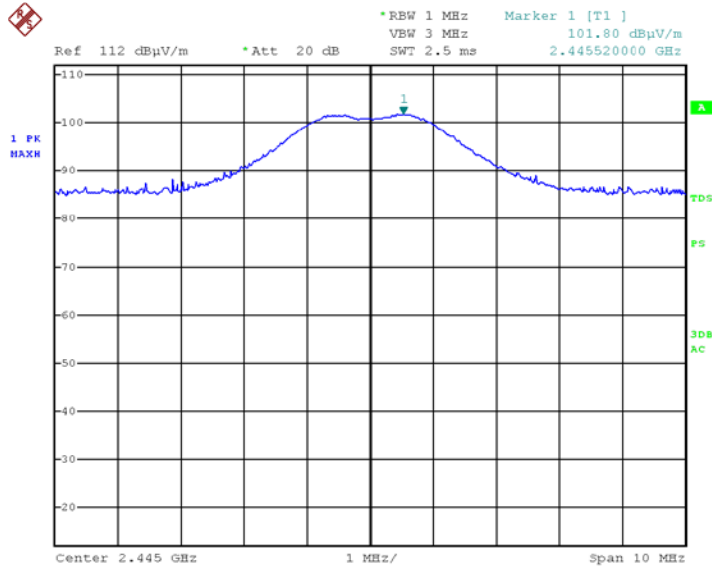
Date: 20.JUL.2011 11:25:15

Figure 19 2405MHz- vertical



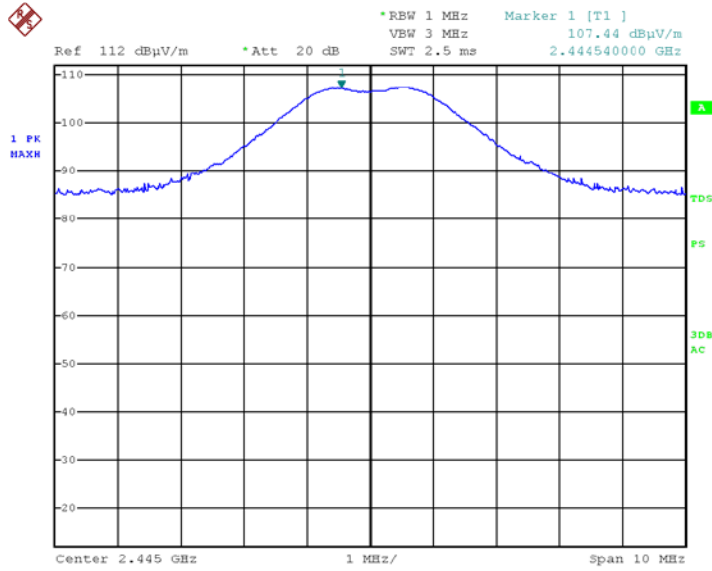
Date: 20.JUL.2011 11:28:31

Figure 20 2405MHz - Horizontal



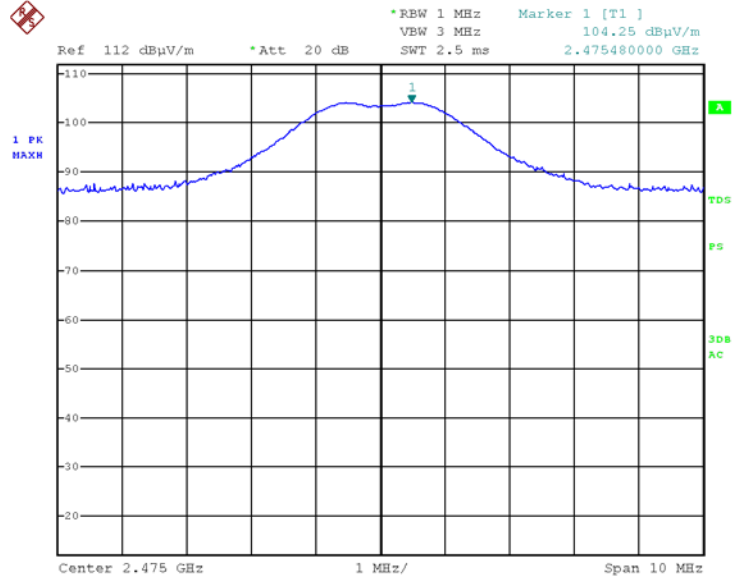
Date: 20.JUL.2011 12:12:08

Figure 21 2445MHz – Vertical



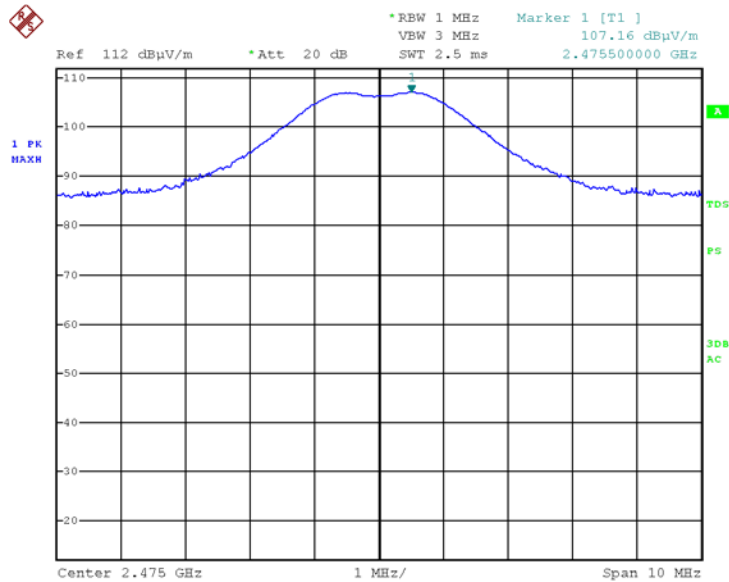
Date: 20.JUL.2011 12:18:45

Figure 22 2445MHz - Horizontal



Date: 28.AUG.2011 10:07:08

Figure 17 2475MHz- vertical



Date: 28.AUG.2011 10:18:39

Figure 17 2475MHz- Horizontal

6.3 Results Calculation

E.U.T. Description: PCA ZBT (2.4 GHz) RF ZigBee Module

Model No.: E203826

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C

The following calculations were used to determine maximum radiated power output.

2410 MHz

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{102.4}{20}\right)} = 0.13$$

$$P = \frac{(0.13 \times 3)^2}{(30 \times 1)} = 5.07mW$$

2445 MHz

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{107.4}{20}\right)} = 0.234$$

$$P = \frac{(0.234 \times 3)^2}{(30 \times 1)} = 16.48mW$$


2475 MHz

$$E(V/m) = 10^{-6} \times 10^{\left(\frac{107.1}{20}\right)} = 0.226$$

$$P = \frac{(0.226 \times 3)^2}{(30 \times 1)} = 15.32mW$$

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

6.4 Test Equipment Used.

Radiated Maximum Power Output

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22 , 2010	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A
Antenna-Log Periodic	A.H.System	SAS-200/511	253	January 27, 2011	2 years

Figure 23 Test Equipment Used

7. Band Edge

[In Accordance with section 15.247(d)]

7.1 Test procedure

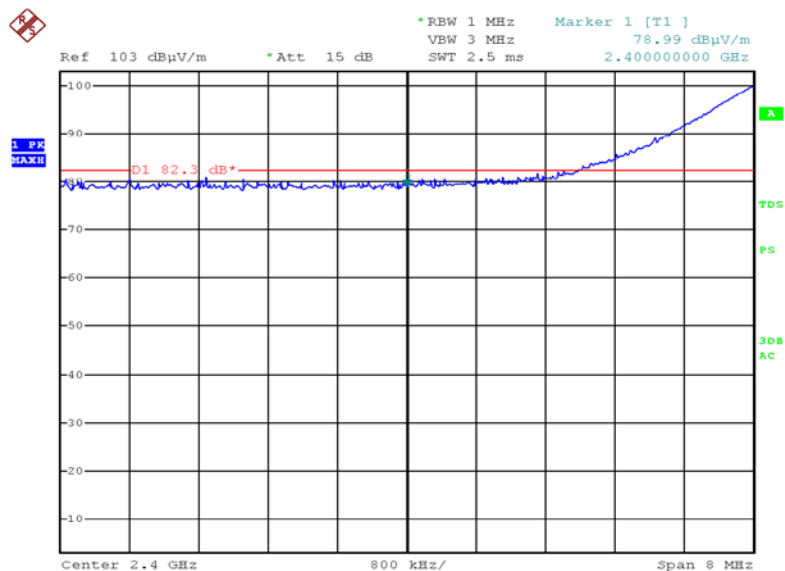
The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

The EMI receiver was adjusted to the transmission channel at the maximum radiated level. The display line was set to 20 dBc and the EMI receiver was set to the band edge frequencies.

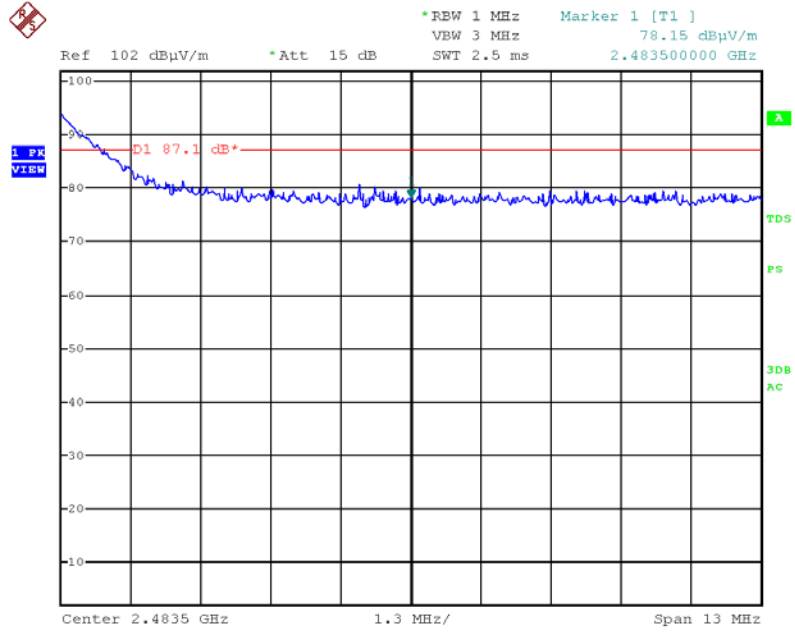
Maximum power level below 2400 MHz and above 2483.5 MHz was measured relative to power level at 2410 MHz, and 2475 MHz correspondingly.

The E.U.T. was tested at 2.405 GHz and 2.475 GHz.



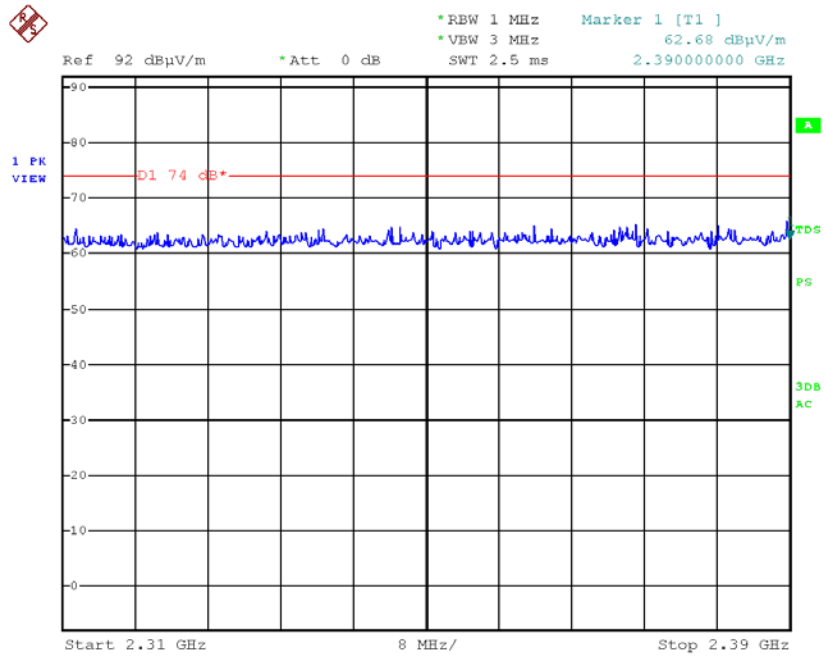
Date: 20.JUL.2011 11:47:48

Figure 24 — 2405MHz (-20 dBc Limit)



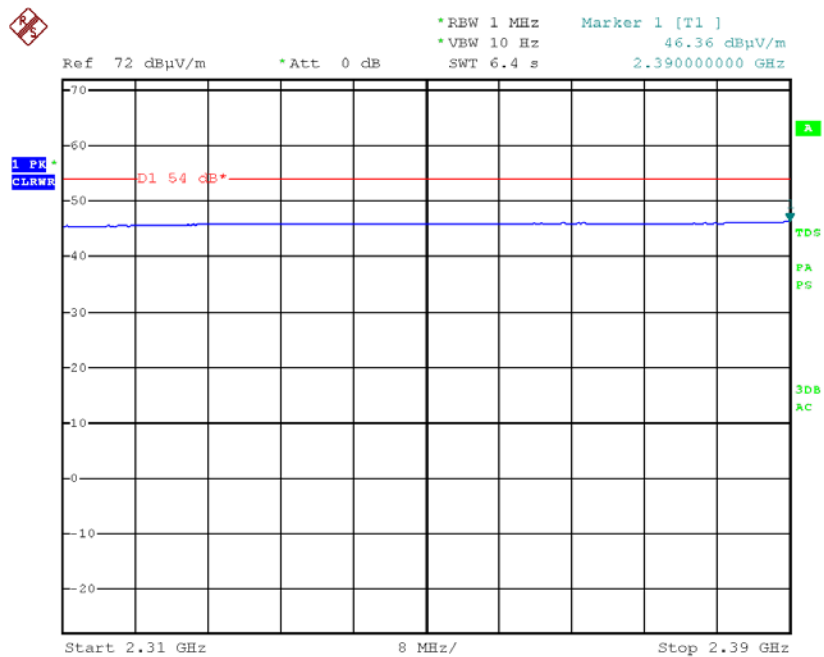
Date: 28.AUG.2011 10:23:03

Figure 25 — 2475 MHz (-20 dBc Limit)



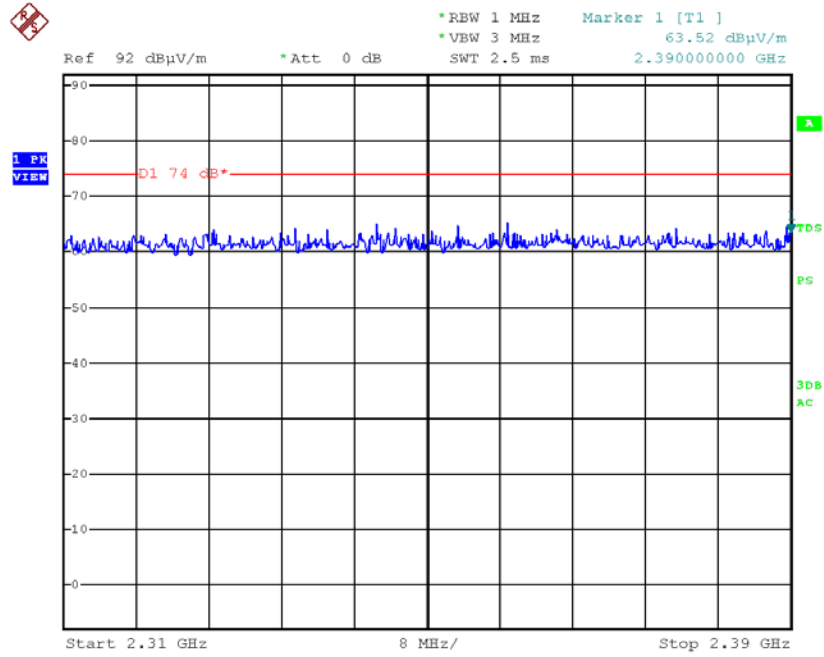
Date: 18.SEP.2011 11:19:56

Figure 26 — 2405 MHz (Restricted Band Limit) Horizontal Peak



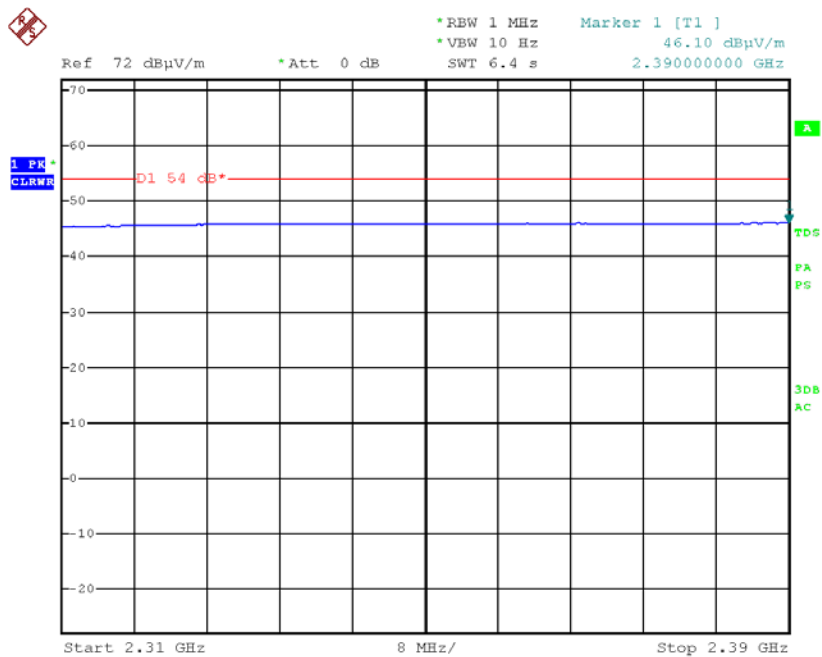
Date: 18.SEP.2011 11:21:00

Figure 27 — 2405 MHz (Restricted Band Limit) Horizontal Average



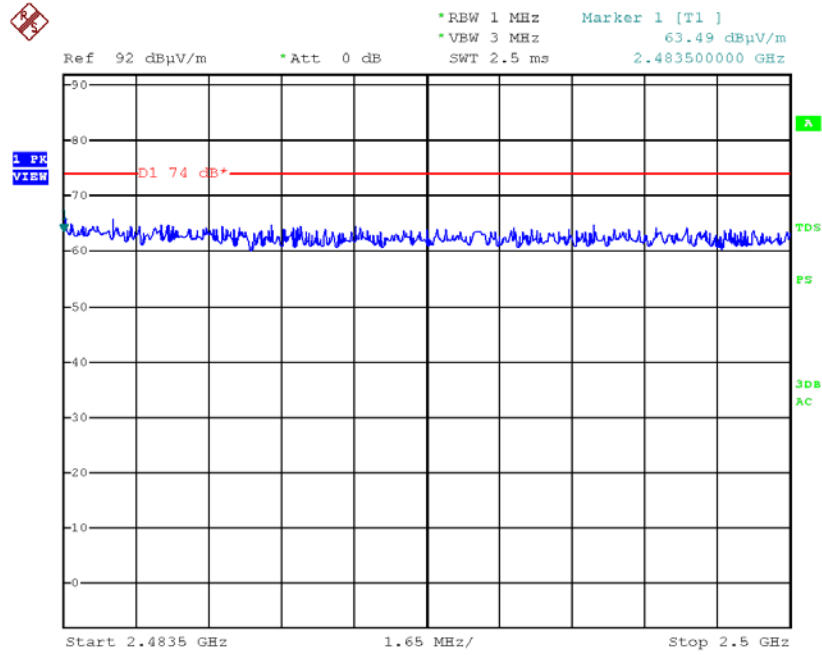
Date: 18.SEP.2011 11:12:28

Figure 28 — 2405 MHz (Restricted Band Limit) Vertical Peak



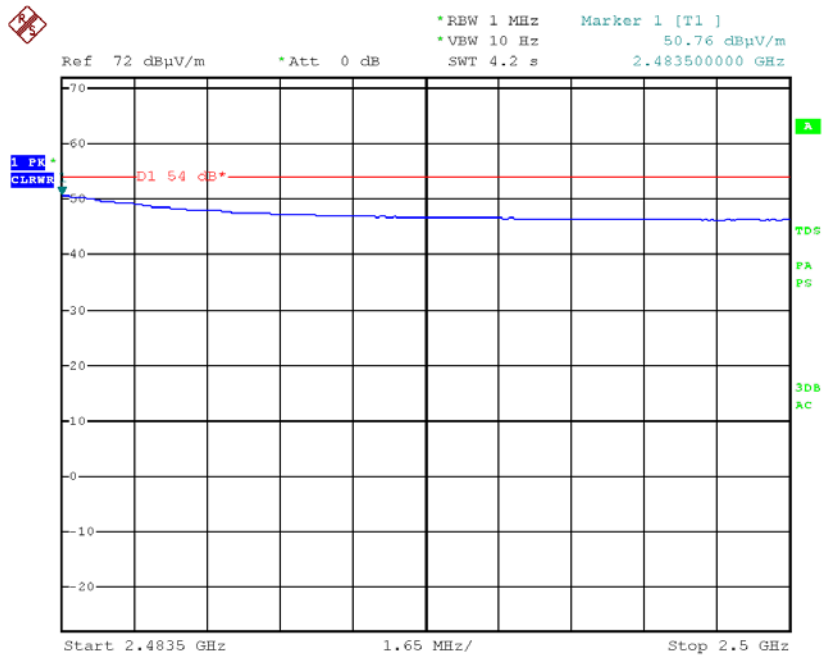
Date: 18.SEP.2011 11:13:49

Figure 29 — 2405 MHz (Restricted Band Limit) Vertical Average



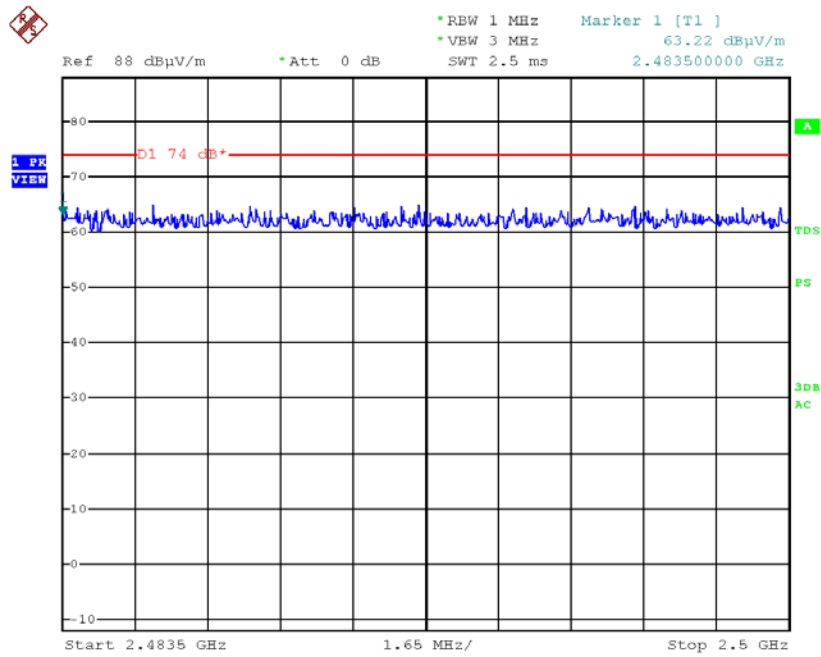
Date: 18.SEP.2011 10:54:42

Figure 30 — 2475 MHz (Restricted Band Limit) Horizontal Peak



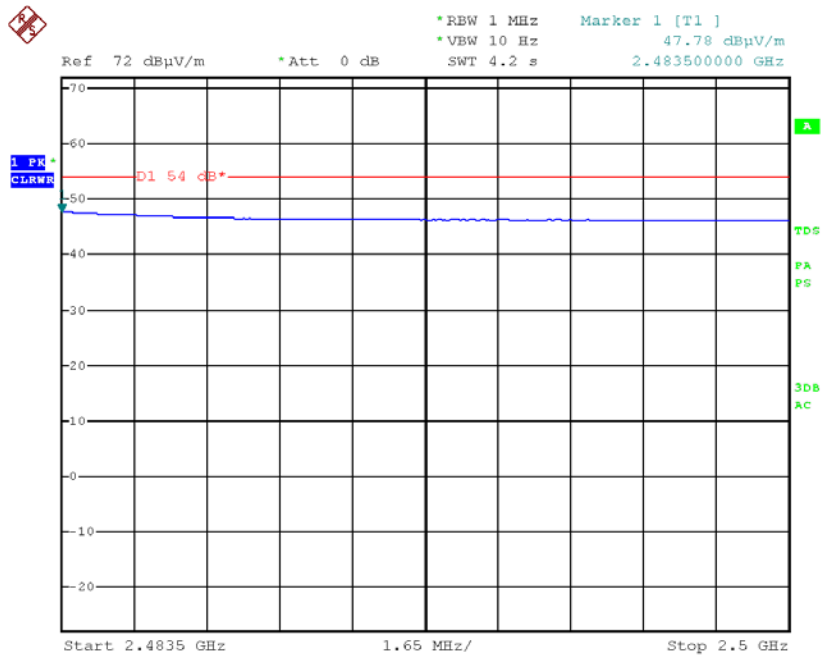
Date: 18.SEP.2011 10:56:02

Figure 31 — 2475 MHz (Restricted Band Limit) Horizontal Average



Date: 18.SEP.2011 11:03:00

Figure 32 — 2475 MHz (Restricted Band Limit) Vertical Peak



Date: 18.SEP.2011 11:03:53

Figure 33 — 2475 MHz (Restricted Band Limit) Vertical Average

7.2 Results table

E.U.T. Description: PCA ZBT (2.4 GHz) RF ZigBee Module

Model No.: E203826

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C (15.247 (d))

Operation Frequency (MHz)	Band Edge Frequency (MHz)	Spectrum Level (dBuV/m)	Specification (dBuV/m)	Margin (dB)
2405	2400	79.0	82.3	-3.3
2475	2483.3	78.1	87.1	-9.0


Figure 34 Band Edge (- 20 dBc Limit)

Operation Frequency (MHz)	Band Edge Frequency (MHz)	Antenna Polarization (H/V)	Peak Reading (dBuV/m)	Average Reading (dBuV/m)	Specification (dBuV/m)	Margin (dB)
2405.00	2390.00	H	62.68		74.0	-11.32
2405.00	2390.00	H		46.36	54.0	-7.40
2405.00	2390.00	V	63.52		74.0	-10.48
2405.00	2390.00	V		46.10	54.0	-7.90
2475.00	2483.50	H	63.49		74.0	-10.51
2475.00	2483.50	H		50.76	54.0	-3.24
2475.00	2483.50	V	63.22		74.0	-10.78
2475.00	2483.50	V		47.78	54.0	-6.22

Figure 35 Band Edge (Restricted Band Limit)

JUDGEMENT: Passed by 3.3 dB (-20 dBc Limit)
Passed by 3.24 dB (Restricted Band Limit)

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

7.3 Test Equipment Used.

Band edge Spectrum

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22 , 2010	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKGC19982	N/A	N/A
Antenna-Log Periodic	A.H.System	SAS-200/511	253	January 27, 2011	2 years

Figure 36 Test Equipment Used

8. Radiated Emission, 9 kHz – 30 MHz

8.1 Test Specification

9 kHz-30 MHz, FCC, Part 15, Subpart C, Section 209

8.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The configuration tested is shown in Figure 3.1.

The frequency range 9 kHz-30 MHz was scanned.

The emissions were measured using a computerized EMI receiver complying to CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 9 kHz-30MHz, the loop antenna was rotated on its vertical axis. The antenna height (center of loop) was 1 meter at a distance of 3 meters.

The E.U.T. was operated at the frequency of kHz. This frequency was measured using a peak detector.

The E.U.T. was tested in three operating frequencies
2.405 GHz, 2.445 GHz, and 2.475 GHz.

8.3 Measured Data

JUDGEMENT: Passed

The EUT met the requirements of the F.C.C. Part 15, Subpart C, Section 209 specification.

The results for all three channels were the same.

No signals were detected in the frequency range of 9 kHz – 30 MHz.

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

8.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
EMI Receiver	HP	85422E	3906A00276	November 24, 2010	1 year
RF Section	HP	85420E	3705A00248	November 24, 2010	1 year
Active Loop Antenna	EMCO	6502	9506-2950	October 19, 2010	1 year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

8.5 Field Strength Calculation

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

FS: Field Strength [dB μ v/m]

RA: Receiver Amplitude [dB μ v]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB μ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB μ V

No external pre-amplifiers are used.

9. Spurious Radiated Emission 30 – 25000 MHz

9.1 Test Specification

30 MHz-25000 MHz, F.C.C., Part 15, Subpart C

9.2 Test Procedure

The E.U.T. operation mode and test set-up are as described in Section 3.

See Section 3.1 Justification of the System Test Configuration concerning the E.U.T. orientation for this test.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground..

The frequency range 30 MHz-25000 MHz was scanned, and the list of the highest emissions was verified and updated accordingly.

The levels of the emissions within the frequency ranges of the restricted bands (Section 15.205 of FCC Part 15) were compared to the limits of the table in Section 15.209 (a), General Requirements.

In the frequency range 30 MHz - 2.9 GHz, a computerized EMI receiver complying to CISPR 16 requirements was used. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

In the frequency range 2.9 - 25.0 GHz, a spectrum analyzer including a low noise amplifier was used. During average measurements, the IF bandwidth was 1 MHz and the video bandwidth was 100Hz. During peak measurements, the IF bandwidth was 1 MHz and the video bandwidth was 3 MHz.

The test distance was 3 meters.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization. Verification of the E.U.T emissions was based on the following methods: turning the E.U.T on and off; using a frequency span less than 10 MHz; observation of the signal level during turntable rotation. (Background noise is not affected by the rotation of the E.U.T.)

The E.U.T. was tested in three operating frequencies
2.405 GHz, 2.445 GHz, and 2.475 GHz.

9.3 Test Data

JUDGEMENT: Passed by 0.3 dB

The EUT met the requirements of the F.C.C. Part 15, Subpart C, specification.

In the frequency range of 30 – 1000 MHz no signals were detected.

For the operation channel 2.405 GHz, the margin between the emission level and the specification limit is 0.3 dB in the worst case at the frequency of 4810 MHz, horizontal polarization.

For the operation channel 2.445 GHz, the margin between the emission level and the specification limit is 1.4 dB in the worst case at the frequency of 4890.00 MHz, horizontal polarization.

For the operation channel 2.475GHz, the margin between the emission level and the specification limit is 3.2 dB in the worst case at the frequency of 2483.50 MHz, vertical polarization.

The details of the highest emissions are given in *Figure 37* to *Figure 50*.

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee Module
 Type E203826
 Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
 Test Distance: 3 meters Detector: Peak
 Operation Frequency: 2405.00 MHz

Operation Frequency (MHz)	Freq. (MHz)	Polarity (H/V)	Peak Reading (dB μ V/m)	Peak Specification (dB μ V/m)	Margin (dB)
2405.00	2390.00	H	62.7	74.0	-11.3
2405.00	2390.00	V	63.5	74.0	-10.5
2405.00	4810.00	H	62.5	74.0	-11.5
2405.00	4810.00	V	59.0	74.0	-15.0
2405.00	7215.00	H	56.5	74.0	-17.5
2405.00	7215.00	V	53.7	74.0	-20.3

**Figure 37. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
 Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Reading” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee Module
 Type E203826
 Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
 Test Distance: 3 meters Detector: Peak
 Operation Frequency: 2445.00 MHz

Operation Frequency	Freq.	Polarity	Peak Reading	Peak Specification	Margin
(MHz)	(MHz)	(H/V)	(dB μ V/m)	(dB μ V/m)	(dB)
2445.00	4890.00	H	60.9	74.0	-13.1
2445.00	4890.00	V	62.0	74.0	-12.0
2445.00	7335.00	H	59.7	74.0	-14.3
2445.00	7335.00	V	57.4	74.0	-16.6

**Figure 38. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
 Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Reading” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee Module
 Type E203826
 Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
 Test Distance: 3 meters Detector: Peak
 Operation Frequency: 2475.00 MHz

Operation Frequency (MHz)	Freq. (MHz)	Polarity (H/V)	Peak Reading (dB μ V/m)	Peak Specification (dB μ V/m)	Margin (dB)
2475.00	2483.50	H	63.5	74.0	-10.5
2475.00	2483.50	V	63.2	74.0	-10.8
2475.00	4950.00	H	55.9	74.0	-18.1
2475.00	4950.00	V	59.3	74.0	-14.7
2475.00	7425.00	H	61.4	74.0	-12.6
2475.00	7425.00	V	60.5	74.0	-13.5

**Figure 39. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
 Detector: Peak**

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Peak Reading” includes correction factor.

* “Correction Factor” = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee
Module
Type E203826
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Average
Operation Frequency: 2405.00 MHz

Operation Frequency	Freq.	Polarity	Average Reading	Average Specification	Margin
(MHz)	(MHz)	(H/V)	(dBμV/m)	(dB μV/m)	(dB)
2405.00	2390.00	H	43.4	54.0	-10.6
2405.00	2390.00	V	46.1	54.0	-7.9
2405.00	4810.00	H	53.7	54.0	-0.3
2405.00	4810.00	V	50.3	54.0	-3.7
2405.00	7215.00	H	44.2	54.0	-9.8
2405.00	7215.00	V	43.5	54.0	-10.5

**Figure 40. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee
Module
Type E203826
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Average
Operation Frequency: 2445.00 MHz

Operation Frequency	Freq.	Polarity	Average Reading	Average Specification	Margin
(MHz)	(MHz)	(H/V)	(dB μ V/m)	(dB μ V/m)	(dB)
2445.00	4890.00	H	51.3	54.0	-2.7
2445.00	4890.00	V	52.6	54.0	-1.4
2445.00	7335.00	H	47.6	54.0	-6.4
2445.00	7335.00	V	45.2	54.0	-8.8

**Figure 41. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

“Average Amp” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee
Module
Type E203826
Serial Number: Not Designated

Specification: FCC, Part 15, Subpart C

Antenna Polarization: Horizontal/Vertical Frequency range: 1.0 GHz to 25.0 GHz
Test Distance: 3 meters Detector: Average
Operation Frequency: 2475.00 MHz

Operation Frequency	Freq.	Polarity	Average Reading	Average Specification	Margin
(MHz)	(MHz)	(H/V)	(dB μ V/m)	(dB μ V/m)	(dB)
2475.00	2483.50	H	50.8	54.0	-3.2
2475.00	2483.50	V	47.8	54.0	-6.2
2475.00	4950.00	H	45.6	54.0	-8.4
2475.00	4950.00	V	49.2	54.0	-4.8
2475.00	7425.00	H	47.9	54.0	-6.1
2475.00	7425.00	V	47.6	54.0	-6.4

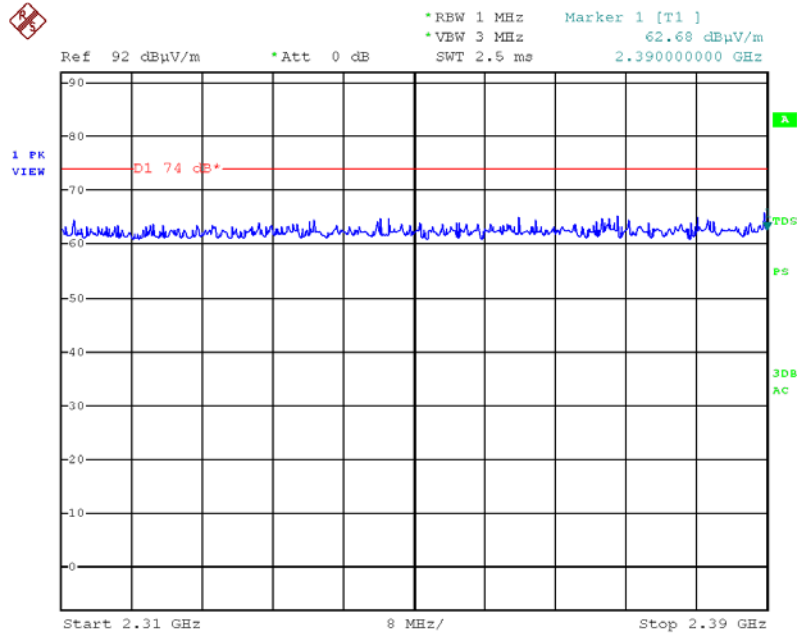
**Figure 42. Radiated Emission. Antenna Polarization: HORIZONTAL / VERTICAL.
Detector: Average**

Notes:

Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

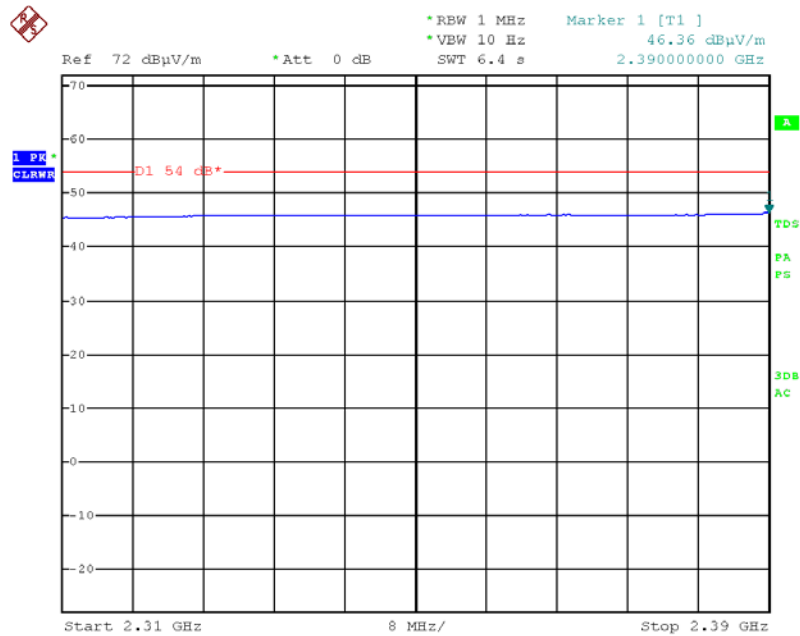
“Average Amp” includes correction factor.

* Correction Factor = Antenna Factor + Cable Loss- Low Noise Amplifier Gain



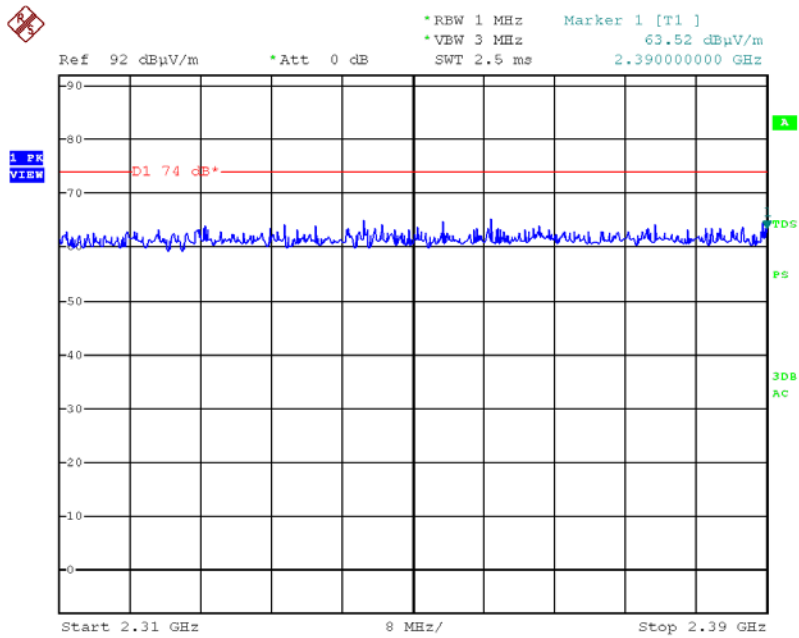
Date: 18.SEP.2011 11:19:56

Figure 43. 2405 MHz (Restricted Band Limit) Horizontal Peak



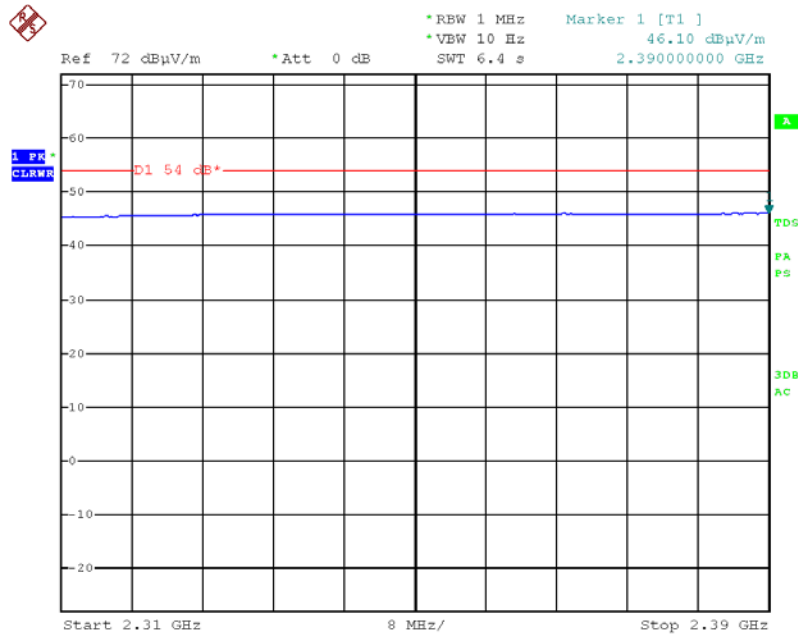
Date: 18.SEP.2011 11:21:00

Figure 44. 2405 MHz (Restricted Band Limit) Horizontal Average



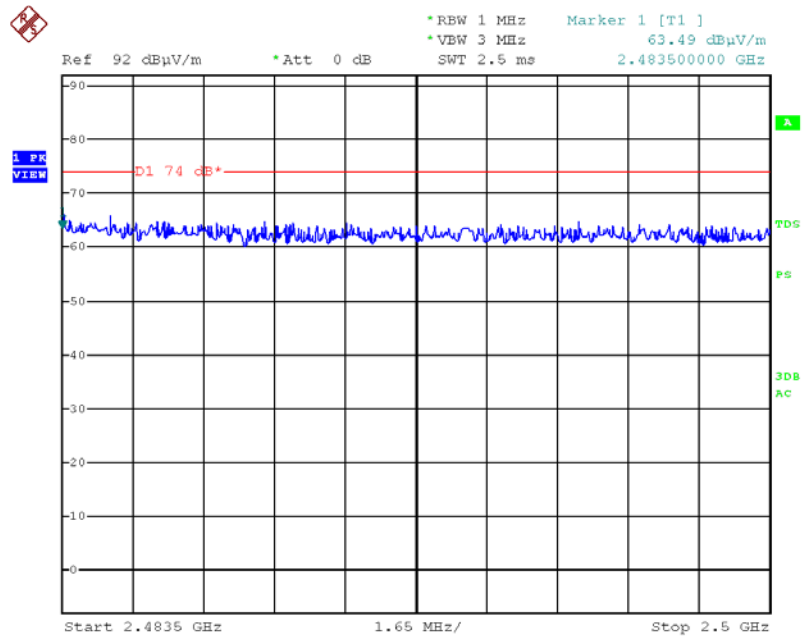
Date: 18.SEP.2011 11:12:28

Figure 45. 2405 MHz (Restricted Band Limit) Vertical Peak



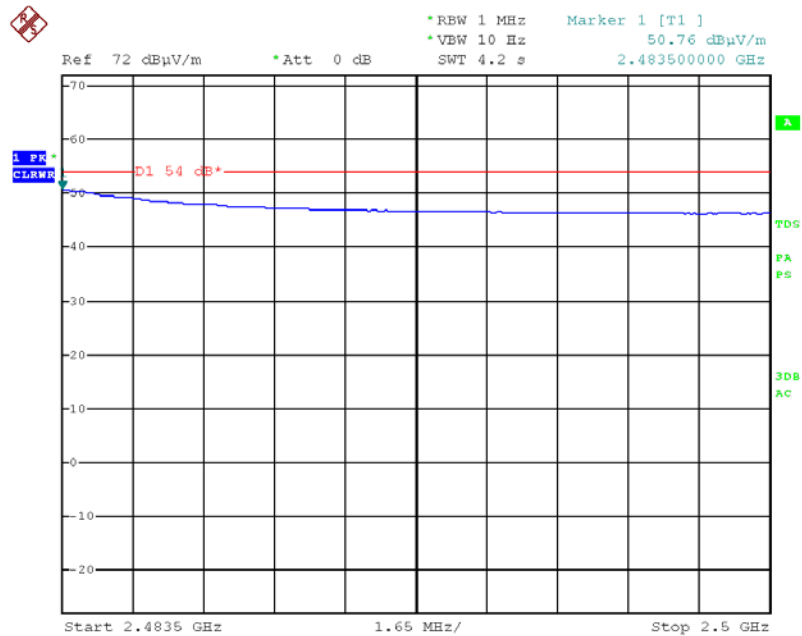
Date: 18.SEP.2011 11:13:49

Figure 46. 2405 MHz (Restricted Band Limit) Vertical Average



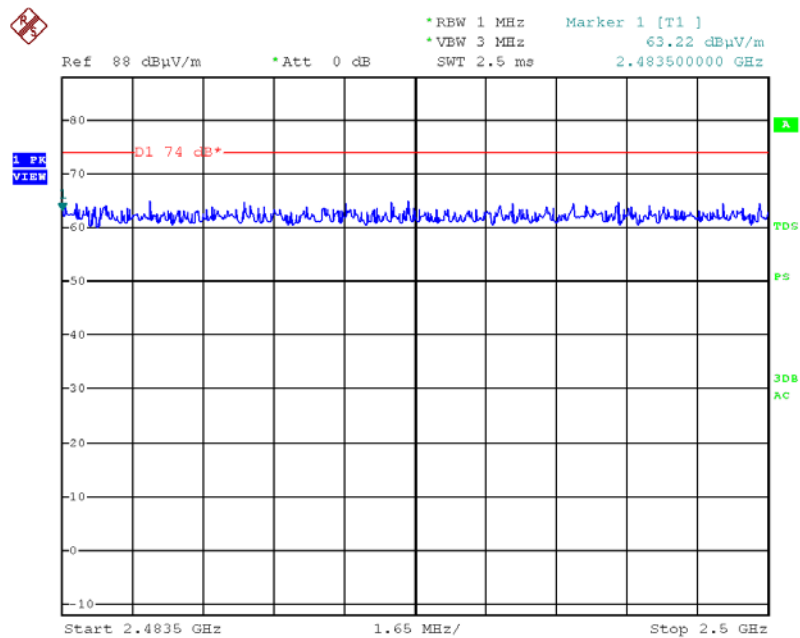
Date: 18.SEP.2011 10:54:42

Figure 47. 2475 MHz (Restricted Band Limit) Horizontal Peak



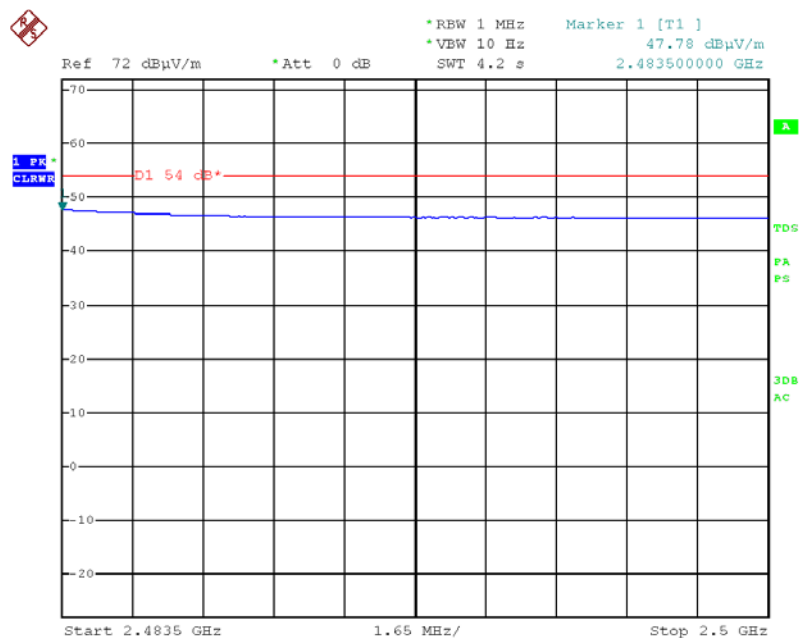
Date: 18.SEP.2011 10:56:02

Figure 48. 2475 MHz (Restricted Band Limit) Horizontal Average



Date: 18.SEP.2011 11:03:00

Figure 49. 2475 MHz (Restricted Band Limit) Vertical Peak



Date: 18.SEP.2011 11:03:53

Figure 50. 2475 MHz (Restricted Band Limit) Vertical Average

9.1 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	November 24, 2010	1 Year
RF Filter Section	HP	85420E	3705A00248	November 24, 2010	1 Year
Antenna Biconical	ETS	3109	002-3244	August 1, 2010*	1 Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	March 23, 2011	1 Year
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	January 27, 2011	2 Years
Double Ridged Waveguide Horn Antenna	EMCO	3115	29845	March 14, 2010	2 Years
Horn Antenna	ARA	SWH-28	1008	January 26, 2011	2 Years
Low Noise Amplifier	DBS MICROWAVE	LNA-DBS-0411N313	013	November 5, 2010	1 Year
Low Noise Amplifier	Sophia Wireless	LNA 28-B	232	January 4, 2011	1 Year
Spectrum Analyzer	HP	8592L	3826A01204	February 21, 2011	1 Year
Spectrum Analyzer	HP	8546E	3442A00275	January 11, 2011	1 Year
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22 , 2010	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

* Testing was performed using this antenna during July 2011.

9.2 **Field Strength Calculation**

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$[\text{dB}\mu\text{v/m}] \text{ FS} = \text{RA} + \text{AF} + \text{CF}$$

- FS: Field Strength [dB μ v/m]
- RA: Receiver Amplitude [dB μ v]
- AF: Receiving Antenna Correction Factor [dB/m]
- CF: Cable Attenuation Factor [dB]

Example: FS = 30.7 dB μ V (RA) + 14.0 dB (AF) + 0.9 dB (CF) = 45.6 dB μ V

No external pre-amplifiers are used.

10. Radiated Power Spectral Density

[In accordance with section 15.247(d)]

10.1 Test procedure

The E.U.T was placed on a non-metallic table, 0.8 meters above the ground plane, on a remote-controlled turntable in the OATS. The test distance was 3 meters.

The transmitter unit operated with normal modulation. The EMI receiver was set to 1 MHz resolution BW. The EUT was set up as shown in Figure 3, and its proper operation was checked.

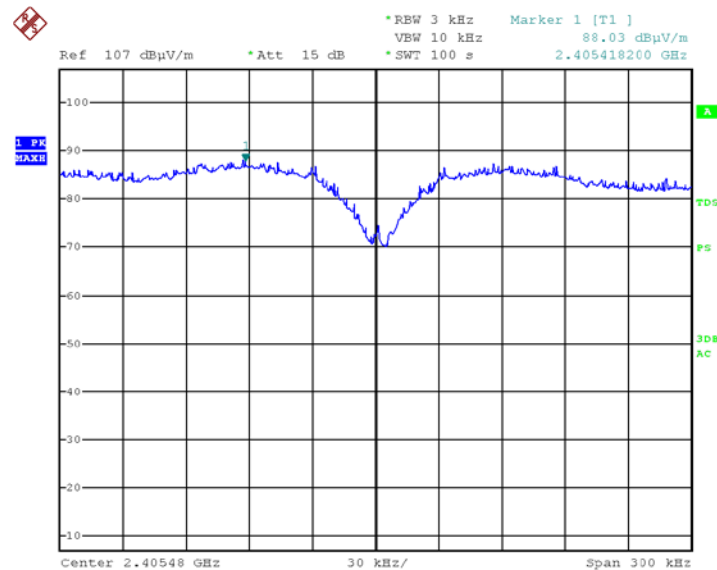
The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

The E.U.T. was tested in three operating frequencies (2.405 GHz, 2.445 GHz, and 2.475 GHz)).

Then the EMI receiver was set to 3 kHz resolution BW, span of 300.0 kHz, and sweep time of 100 seconds. The spectrum peaks were located at each of the 3 operating frequencies.

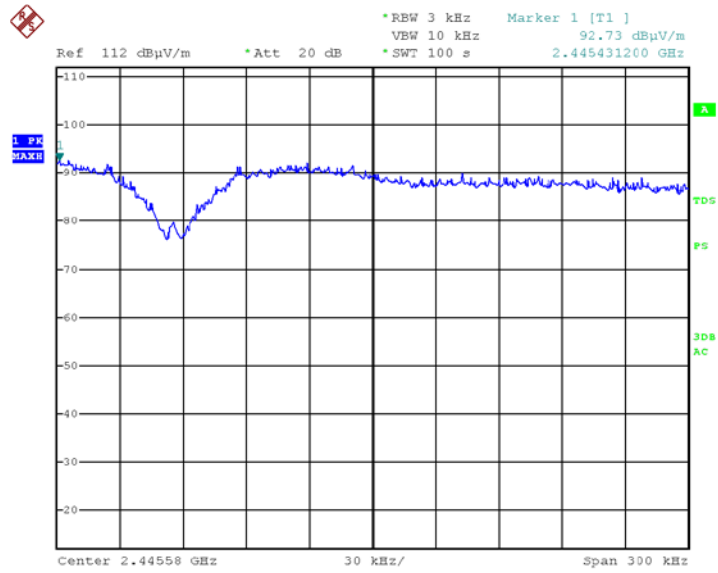
Radiated peak output power levels were converted to power level according to the formula as shown below:

$$P = \frac{(E_{V/m} \times d)^2}{(30 \times G)} \text{ [W]}$$



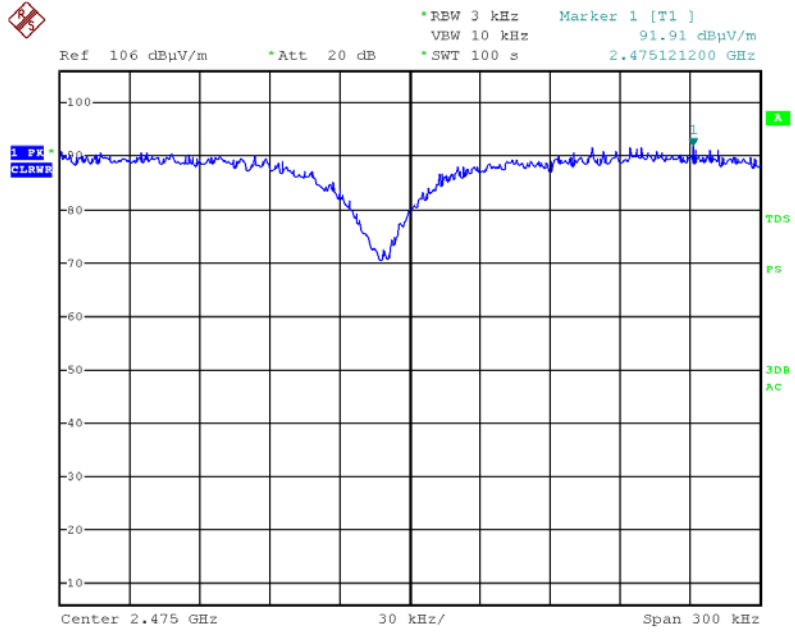
Date: 20.JUL.2011 11:55:33

Figure 51 — 2405MHz



Date: 20.JUL.2011 12:28:35

Figure 52 — 2445MHz



Date: 28.AUG.2011 10:40:07

Figure 53 — 2475 MHz

10.2 Results table

E.U.T. Description: PCA ZBT (2.4 GHz) RF ZigBee Module

Model No.: E203826

Serial Number: Not Designated

Specification: F.C.C. Part 15, Subpart C (15.247(d))

Operation Frequency (MHz)	Spectral Density Result* (dBm)	Specification (dBm)	Margin (dB)
2405	-7.2	8.0	-15.2
2445	-2.5	8.0	-10.5
2475	-3.3	8.0	-11.3

Figure 54 Test Results

* Spectral Density results were calculated as follows:

For 2405 MHz

$$P = \frac{(0.025 \times 3)^2}{(30 \times 1)} = 0.19mW$$

For 2445 MHz

$$P = \frac{(0.043 \times 3)^2}{(30 \times 1)} = 0.56mW$$

For 2475 MHz

$$P = \frac{(0.04 \times 3)^2}{(30 \times 1)} = 0.464mW$$

JUDGEMENT: Passed

TEST PERSONNEL:

Tester Signature: 

Date: 02.11.11

Typed/Printed Name: A. Moses

10.3 Test Equipment Used.

Transmitted Power Density

Instrument	Manufacturer	Model	Serial Number	Calibration	Period
Spectrum Analyzer	Rodhe & Schwarz	FSL6	100194	July 22 , 2010	2 years
Antenna Log Periodic	A.H. Systems	SAS-200/511	253	January 27, 2011	2 years
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

Figure 55 Test Equipment Used

11. Antenna Gain/Information

The antenna gain is 0 dBi.

12. R.F Exposure/Safety

The typical placement of the E.U.T. hosts is wall or ceiling mounted. The typical distance between the E.U.T. hosts and the user is 25 cm.

Calculation of Maximum Permissible Exposure (MPE)

Based on Section 1.1307(b)(1) Requirements

(a) FCC limits at 2445 MHz is: $1 \frac{mW}{cm^2}$

Using table 1 of Section 1.1310 limit for general population/uncontrolled exposures, the above level is an average over 30 minutes.

(b) The power density produced by the E.U.T. is

$$S = \frac{P_t G_t}{4\pi R^2}$$

P_t - Transmitted Power 16.48 mw (Peak)

G_t - Antenna Gain, 0 dBi = 1 (numeric)

R - Distance from Transmitter using 0.25 m worst case

(c) The peak power density is :

$$S_p = \frac{16.48 \times 1}{4\pi(25)^2} = 0.002 \frac{mW}{cm^2}$$

(d) This is below the FCC limit.

13. Radiated Emission Standby/Receive Mode

13.1 Test Specification

30-1000 MHz, FCC Part 15, Subpart B, CLASS B

13.2 Test Procedure

The E.U.T operation mode and test set-up are as described in section 4.1.

A preliminary measurement to characterize the E.U.T was performed inside the shielded room at a distance of 3 meters, using peak detection mode and broadband antennas. The preliminary measurements produced a list of the highest emissions. The E.U.T was then transferred to the open site, and placed on a remote-controlled turntable. The E.U.T was placed on a non-metallic table, 0.8 meters above the ground. The effect of varying the position of the cables was investigated to find the configuration that produces maximum emission. The configuration tested is shown in *Figure 8. Radiated Emission Test Standby/Receive Mode- MCT-427 SMA*.

The E.U.T. highest frequency source or used frequency is 24 MHz.

The frequency range 30-1000 MHz was scanned, and the list of the highest emissions was verified and updated accordingly.

The emissions were measured using a computerized EMI receiver complying to CISPR 16 requirements. The specification limits and applicable correction factors are loaded to the receiver via a 3.5" floppy disk.

The readings were maximized by adjusting the antenna height between 1-4 meters, the turntable azimuth between 0-360°, and the antenna polarization.

Verification of the E.U.T emissions was based on the following methods:

Turning the E.U.T on and off.

Using a frequency span less than 10 MHz.

Observation of the signal level during turntable rotation. Background noise is not affected by the rotation of the E.U.T.

The emissions were measured at a distance of 3 meters.

The field strength is calculated directly by the EMI Receiver software, and a "Correction Factors" data disk, using the following equation:

$$FS = RA + AF + CF$$

Where:

FS: Field strength [dBμV/m]

RA: Receiver Amplitude [dBμV]

AF: Receiving Antenna Correction Factor [dB/m]

CF: Cable attenuation Factor [dB]

Example: $FS = 30.7 \text{ dB}\mu\text{V (RA)} + 14.0 \text{ dB (AF)} + 0.9 \text{ dB (CF)} = 45.6 \text{ dB}\mu\text{V}$

13.3 Test Results

The E.U.T met the requirements of the FCC Part 15, Subpart B, Class B specification.

The margin between the emission level and the specification limit is 9.3 dB in the worst case at the frequency of 240.00 MHz, Vertical polarization.

The details of the highest emissions are given in *Figure 56*.

Radiated Emission

E.U.T Description PCA ZBT (2.4 GHz) RF ZigBee Module
 Type E203826
 Serial Number: Not Designated

Specification: FCC Part 15, Subpart B, Class B

Antenna Polarization: Horizontal/Vertical Frequency range: 30 MHz to 1000 MHz
 Antenna: 3 meters distance Detectors: Peak, Quasi-peak

Frequency (MHz)	Peak Reading dB μ V/m	QP Reading dB μ V/m	Antenna Polarization:		Limit dB μ V/m	Margin (dB)
			Hor.	Ver.		
48.00	31.1	26.8		X	40.0	-13.2
72.00	30.8	25.5		X	40.0	-14.5
120.00	32.1	27.9		X	43.5	-15.6
144.00	33.5	28.9		X	43.5	-14.6
168.00	34.6	29.6		X	43.5	-13.9
192.00	35.9	32.8		X	43.5	-10.7
240.00	39.0	34.2		X	43.5	-9.3

**Figure 56. Radiated Emission. Antenna Polarization: HORIZONTAL/VERTICAL
 Detectors: Peak, Quasi-peak**

Note: Margin refers to the test results obtained minus specified requirement; thus a positive number indicates failure, and a negative result indicates that the product passes the test.

13.4 Test Instrumentation Used, Radiated Measurements

Instrument	Manufacturer	Model	Serial No.	Last Calibration Date	Period
EMI Receiver	HP	85422E	3906A00276	November 24, 2010	1 Year
RF Filter Section	HP	85420E	3705A00248	November 24, 2010	1 Year
Antenna Biconical	ETS	3109	002-3244	August 1, 2010*	1 Year
Antenna Log Periodic	ARA	LPD-2010/A	1038	March 23, 2011	1 Year
Antenna Mast	ARA	AAM-4A	1001	N/A	N/A
Turntable	ARA	ART-1001/4	1001	N/A	N/A
Mast & Table Controller	ARA	ACU-2/5	1001	N/A	N/A
Printer	HP	LaserJet 2200	JPKG19982	N/A	N/A

* Testing was performed using this antenna during July 2010.

14. APPENDIX B - CORRECTION FACTORS

14.1 Correction factors for CABLE

from EMI receiver
to test antenna
at 3 meter range.

FREQUENCY (MHz)	CORRECTION FACTOR (dB)	FREQUENCY (MHz)	CORRECTION FACTOR (dB)
10.0	0.3	1200.0	7.3
20.0	0.6	1400.0	7.8
30.0	0.8	1600.0	8.4
40.0	0.9	1800.0	9.1
50.0	1.1	2000.0	9.9
60.0	1.2	2300.0	11.2
70.0	1.3	2600.0	12.2
80.0	1.4	2900.0	13.0
90.0	1.6		
100.0	1.7		
150.0	2.0		
200.0	2.3		
250.0	2.7		
300.0	3.1		
350.0	3.4		
400.0	3.7		
450.0	4.0		
500.0	4.3		
600.0	4.7		
700.0	5.3		
800.0	5.9		
900.0	6.3		
1000.0	6.7		

NOTES:

1. The cable type is RG-214.
2. The overall length of the cable is 27 meters.
3. The above data is located in file 27MO3MO.CBL on the disk marked "Radiated Emission Tests EMI Receiver".

14.2 Correction factors for CABLE

from EMI receiver
to test antenna
at 3 meter range.

FREQUENCY (GHz)	CORRECTION FACTOR (dB)
1.0	1.2
2.0	1.6
3.0	2.0
4.0	2.4
5.0	3.0
6.0	3.4
7.0	3.8
8.0	4.2
9.0	4.6
10.0	5.0
12.0	5.8

NOTES:

- 1. The cable type is RG-8.*
- 2. The overall length of the cable is 10 meters.*

12.6 Correction factors for LOG PERIODIC ANTENNA

Type LPD 2010/A at 3 and 10 meter ranges.

Distance of 3 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.1
250.0	10.2
300.0	12.5
400.0	15.4
500.0	16.1
600.0	19.2
700.0	19.4
800.0	19.9
900.0	21.2
1000.0	23.5

Distance of 10 meters

FREQUENCY (MHz)	AFE (dB/m)
200.0	9.0
250.0	10.1
300.0	11.8
400.0	15.3
500.0	15.6
600.0	18.7
700.0	19.1
800.0	20.2
900.0	21.1
1000.0	23.2

NOTES:

1. Antenna serial number is 1038.
2. The above lists are located in file number 38M30.ANT for a 3 meter range,
and file number 38M100.ANT for a 10 meter range.
3. The files mentioned above are located on the disk marked "Radiated Emission
Test EMI Receiver".

14.3 Correction factors for LOG PERIODIC ANTENNA
Type SAS-200/511
at 3 meter range.

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
1.0	24.9
1.5	27.8
2.0	29.9
2.5	31.2
3.0	32.8
3.5	33.6
4.0	34.3
4.5	35.2
5.0	36.2
5.5	36.7
6.0	37.2
6.5	38.1

FREQUENCY (GHz)	ANTENNA FACTOR (dB)
7.0	38.6
7.5	39.2
8.0	39.9
8.5	40.4
9.0	40.8
9.5	41.1
10.0	41.7
10.5	42.4
11.0	42.5
11.5	43.1
12.0	43.4
12.5	44.4
13.0	44.6

NOTES:

1. Antenna serial number is 253.
2. The above lists are located in file number SAS3M0.ANT for a 3 meter range.
3. The files mentioned above are located on the disk marked "Antenna Factors".

14.4 Correction factors for BICONICAL ANTENNA

**Type 3109,
at 3 meter range**

FREQUENCY (MHz)	AFE (dB/m)
30.0	13.3
40.0	12.7
50.0	11.0
60.0	9.2
70.0	10.0
80.0	7.2
90.0	7.9
100.0	9.4
120.0	11.9
140.0	13.1
160.0	12.3
180.0	12.4
200.0	14.8
250.0	15.3
300.0	17.9

NOTE:

1. Antenna serial number is 002-3244.

14.5 Correction factors for Double-Ridged Waveguide Horn

**Model: 3115, S/N 29845
at 3 meter range.**

FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENN A Gain (dBi)	FREQUENCY (GHz)	ANTENNA FACTOR (dB 1/m)	ANTENNA Gain (dBi)
1.0	24.8	5.4	10.0	38.8	11.4
1.5	26.1	7.6	10.5	38.9	11.8
2.0	28.6	7.7	11.0	39.0	12.1
2.5	29.8	8.4	11.5	39.6	11.8
3.0	31.4	8.4	12.0	39.8	12.0
3.5	32.4	8.7	12.5	39.6	12.5
4.0	33.7	8.6	13.0	40.0	12.5
4.5	33.4	9.9	13.5	39.8	13.0
5.0	34.5	9.7	14.0	40.2	13.0
5.5	35.1	9.9	14.5	40.6	12.9
6.0	35.4	10.4	15.0	41.3	12.4
6.5	35.6	10.8	15.5	39.5	14.6
7.0	36.2	10.9	16.0	38.8	15.5
7.5	37.3	10.4	16.5	40.0	14.6
8.0	37.7	10.6	17.0	41.4	13.4
8.5	38.3	10.5	17.5	44.8	10.3
9.0	38.5	10.8	18.0	47.2	8.1
9.5	38.7	11.1			

14.6 Correction factors for

**Horn Antenna
Model: SWH-28
at 1 meter range.**

FREQUENCY (GHz)	APE (dB /m)	Gain (dB1)
18.0	40.3	16.1
19.0	40.3	16.3
20.0	40.3	16.1
21.0	40.3	16.3
22.0	40.4	16.8
23.0	40.5	16.4
24.0	40.5	16.6
25.0	40.5	16.7
26.0	40.6	16.4

14.7 Correction factors for ACTIVE LOOP ANTENNA

Model 6502

S/N 9506-2950

FREQUENCY (MHz)	Magnetic Antenna Factor (dB)	Electric Antenna Factor (dB)
.009	-35.1	16.4
.010	-35.7	15.8
.020	-38.5	13.0
.050	-39.6	11.9
.075	-39.8	11.8
.100	-40.0	11.6
.150	-40.0	11.5
.250	-40.0	11.6
.500	-40.0	11.5
.750	-40.1	11.5
1.000	-39.9	11.7
2.000	-39.5	12.0
3.000	-39.4	12.1
4.000	-39.7	11.9
5.000	-39.7	11.8
10.000	40.2	11.3
15.000	-40.7	10.8
20.000	-40.5	11.0
25.000	-41.3	10.2
30.000	42.3	9.2

15. Comparison Industry Canada Requirements With FCC

IC: 1467C-ZBT FCC ID: WP3ZBT

Test	FCC	IC
<input type="checkbox"/> Max power / Peak power	15.247(b)(3)	RSS 210 Issue 8 A8.4(4)
<input type="checkbox"/> 6dB BW	15.247(a)2	RSS 210 Issue 8 A8.2(a)
<input type="checkbox"/> Power density	15.247(e)	RSS 210 Issue 8 A8.2(b)
<input type="checkbox"/> Spurious radiated emission in the restricted band	15.205(c)	RSS GEN Issue 3, 7.2.5 (Table 5)
<input type="checkbox"/> Band edge spectrum	15.247(d)	RSS 210 Issue 8 A8.5
<input type="checkbox"/> RF Exposure Limits	1.1307(b)(1)	RSS 102 4.4