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A				06.01.05	D.Lanuel	S.Cohen

EMC Laboratory

FDU 800

FCCID: QUX-FDU-800

Manufactured by
HomeFree Ltd.

EMC Test Report

According FCC Part 15 Requirements

Feb 2004

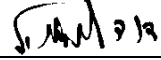
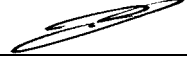
	Function/Title	Name	Signature	Date
Prepared by	Test Engineer	D.Lanuel		06.01.05
Checked by	Test Engineer	D.Lanuel		06.01.05
Approved by	EMC Lab. Manager	S.Cohen		06.01.05

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1 Introduction

a. Scope

This document describes the measurement procedures and tests for FCC part 15 of the FDU 800 Manufactured by Elmotech Ltd.

Equipment Under Test:	FDU-800
FCCID	QUX-FDU-800
Manufacturer:	HomeFree Ltd.
Serial Numbers:	11112
Mode of Operation:	TX MODE
Receiver operating frequency:	318MHZ
Year of Manufacture:	2004

b. Applicant Information:

Applicant:	HomeFree Ltd.
Applicant Address	2, Habarzel Street Tel-Aviv
Telephone:	+972-3-6478871
FAX:	+972-3-6478872
The testing was observed by: following applicant's personnel:	MICHAEL LIFSHITZ

c. Test Performance:

Date of reception for testing:	22.012.04
Dates of testing	23.12.04
Test Laboratory Location	TADIRAN EMC LAB , Hashoftim 26 Holon 58102 ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320

Applicable EMC Specification:	Federal Communication Commission (FCC), Code of Federal Regulations 47, FCC Docket 89-103,Part 15: Radio Frequency Devices, Sections, 15.209, 15.231.
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Applicable EMC Specification:	Federal Communication Commission (FCC), FCC Part 15: Radio Frequency Devices, 15.209 & 15.231
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2 Test Summary and Signatures.

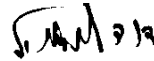
TADIRAN EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC Part 15 Regulations for Class B equipment.

The E.U.T was found to comply with the requirements of the FCC Part 15 Regulations given below

Test	Test Description	Section	PASS/FAIL
1	Bandwidth of the emission	15.231	PASS
2	Field strength of fundamental	15.231	PASS
4	Radiation emission	15.231 & 15.205	PASS

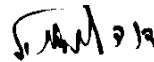
a. **Test performed by:**

Mr. D. Lanuel Test Engineer



b. **Test Report prepared by:**

Mr. D. Lanuel Test Engineer



c. **Test Report Approved by:**

Mr. Samuel Cohen EMC Lab. Manager



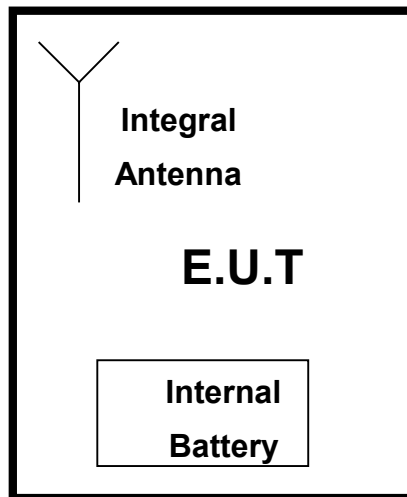
3 E.U.T information

a. E.U.T description

The Fall Detection Unit is a small, battery operated device, connected to a chair or bed monitoring mat, that can be used to notify care center staff members whenever the resident gets out of the chair or bed. The Fall Detection Unit is positioned on the chair or at the bedside.

b. E.U.T Test Configuration

E.U.T. test configuration is shown in figure bellow



c. E.U.T Mode of Operation description

(1) 318MHz TX Mode Mode operated by battery

4 BANDWIDTH OF THE EMISSION part 15.231.c—TEST RESULTS

E.U.T: FDU 800 S/N 11112
Test Method: ANSI C63.4
Date: 09/12/04
Relative Humidity: 37%
Ambient Temperature: 22c
Air Pressure: 1042hpa
Test Setup: Figure 5f

Testing Engineer: D.Lanuel



Date 12/12/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with Bandwidth of Radiated Emission fundamental frequency requirement according to section 15.231.c

b. Limits of bandwidth

The test unit shall meet the limits of Table 8.b

Table 4.b Limits For Bandwidth

Frequency (MHz)	Bandwidth Max Limits (%)	Bandwidth Max Limits (KHz)
318.01000	0.25	795

c. Test Instrumentation and Equipment

Table 4.c Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Broadband Antenna	BTA-L	FRANKONIA	10.04.06

d. Results

Table 4.d Bandwidth Test Result

Frequency (MHz)	Bandwidth (KHz)	Bandwidth Max Limit (KHz)	Plot No	PASS/FAIL
318.00	350	795	1	PASS

e. Procedure

The Bandwidth is determined at the point 20db down from the modulated carrier, while the spectrum analyzer was set to "max hold" and VBW –10KHz.

5 field strength of fundamental part 15.231-TEST RESULTS

E.U.T: FDU 800 S/N 11112
 Test Method: ANSI C63.4
 Date: 09/12/04
 Relative Humidity: 37%
 Ambient Temperature: 22c
 Air Pressure: 1042hpa
 Test Setup: Figure 5f

Testing Engineer: D.Lanuel



Date 12/12/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with fundamental frequency requirement

b. Limits of Field Strength for fundamental according 15.231

The test unit shall meet the limits of Table 8.b.

Table 5.b Limits For Fundamental

Frequency (MHz)	Average Max Limits (dB μ V/m)	Peak Max Limits (dB μ V/m)
318.01000	75.8	95.8

c. Test Instrumentation and Equipment

Table 5.c Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Broadband Antenna	BTA-L	FRANKONIA	10.04.06

d. Test Results

Table 5.d Average Factor

TX Period(min)	Duty Cycle(min)	Average Factor(db)	Plot REF
5ms	5/100=0.05	20log0.05=-26.0	9,10

Table 5.d.1 Peak Result of Fundamental

Frequency (MHz)	Peak Result (dB μ V/m)	peak Limits (dB μ V/m)	Margin (dB)	Plot No	Pass/ Fail
318.02	92.7	95.8	-3.1	Plot-2	PASS

Table 5.d.2 Average Result of Fundamental

Peak Result (dB μ V/m)	Average Factor	Calculation Results	Average Limits (dB μ V/m)	Margin (dB)	Pass/ Fail
92.7	26	66.7	75.8	-9.1	PASS

e. Test Procedure

The EUT was placed on the top of rotating table 0.8 meters above the ground and the table was rotated 360°, the height of antenna is varied from one to 4 meters (vertical and horizontal polarization) to determine the max field strength of fundamental

6 Radiated emission part 15.231 & 15.205-test results

E.U.T: FDU 800 S/N 11112
 Test Method: ANSI C63.4
 Date: 09/12/04
 Relative Humidity: 37%
 Ambient Temperature: 22c
 Air Pressure: 1042hpa
 Test Setup: Figure 5f

Testing Engineer: D.Lanuel



Date 02/07/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with 15.231

b. Limits of Radiated Interference Field Strength according 15.231

The test unit shall meet the limits of Table 9.b.

Table 6.b Limits For 15.231(b)

Frequency range(MHz)	Average Limits (dB μ V/m)	peak Limits (dB μ V/m)
0.009 – 3500	55.8	75.8

c. Test Instrumentation and Equipment

Table 9.c Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Rode Antenna(10KHz-30MHz)	95010-1	ETN	13.11.05
Double Ridge Guide Antenna(1-18GHz)	3105	EMCO	24.04.05
Broadband Antenna	BTA-L	FRANKONIA	10.04.05
Low Noise Amplifier (0-1GHz)	AM-1300-N	MITEQ	14.01.05
Low Noise Amplifier (1-2GHz)	SMC-09	MITEQ	14.01.05
Low Noise Amplifier (2-6GHz)	SMC-09	MITEQ	14.01.05

d. Preliminary Results

Table 6.d Preliminary Test Results for intentional Emissions in TX Mode 15.231

Antenna Polarization	Freq. Range MHz	Res. BW (kHz)	Plot No.	Pass/Fail
Vertical	0.009 – 0.15	0.2	Plot-3	Pass
Horizontal			Plot-4	Pass
Vertical	0.15 - 30	9	Plot-5	Pass
Horizontal			Plot-6	Pass
Both Hor.& Ver	30-1000	120	Plot-7	Pass
	1000-2.800	1000	Plot-8	Pass
	2.800-3,200	1000	Plot-9	Pass

e. Final Results

Table 6.e Six Highest Peak Emission Test Results

Freq. (MHz)	peak Reading (dB μ V/m)	Limit dB μ V/m	Margin (dB)	Pass/Fail
636.072	61.6	75.8	-14.2	PASS
1907.477	59.8	75.8	-16	PASS
2226.302	69.4	74	-4.6	PASS
2862.296	58.4	74	-15.6	PASS

Table 6.e.1 Six Highest Average Emission Test Results

Freq. (MHz)	Calculated (dB μ V/m)	Limit dB μ V/m	Margin (dB)	Pass/Fail
636.072	35.6	55.8	-20.2	PASS
1907.477	33.8	55.8	-22	PASS
2226.302	43.4	54	-10.6	PASS
2862.296	32.4	54	-21.6	PASS

Average Emission Calculate: Peak value + Average Factor(-26)

f. Test Procedure

(1) Preliminary Test Procedure

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a chamber shielded
- b) The E.U.T was set 3 meters away from the receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The Antenna height varied from one meter above the ground over its full-allowed range of travel and the table was rotated 360° to determine the maximum value of the field strength
- d) The antenna was set both horizontal and vertical polarization.

(2) Final Test Procedure

- a) The EUT was tested at open area for each suspected emission
- b) The test procedure was performed according paragraph (1) and figure 11

g. Final Test Setup

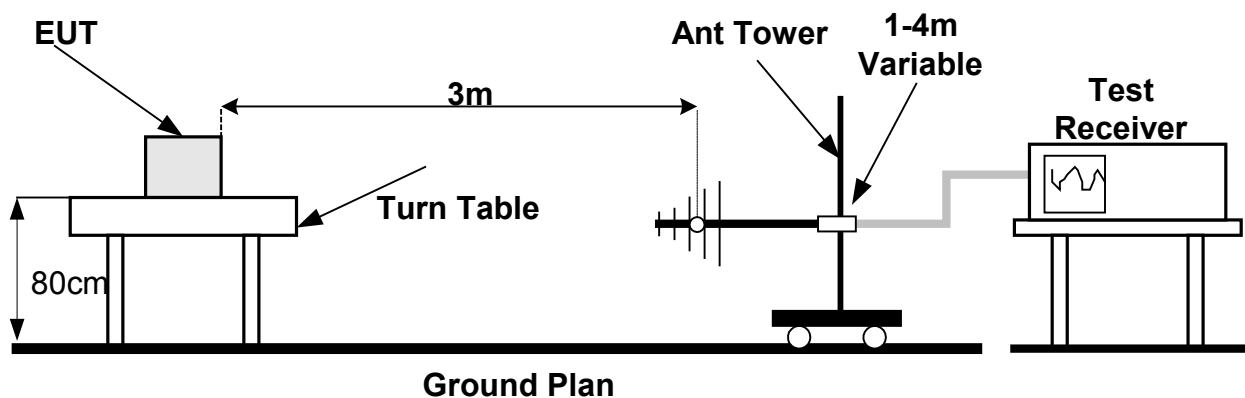


Figure 11 Radiated Emission Set up

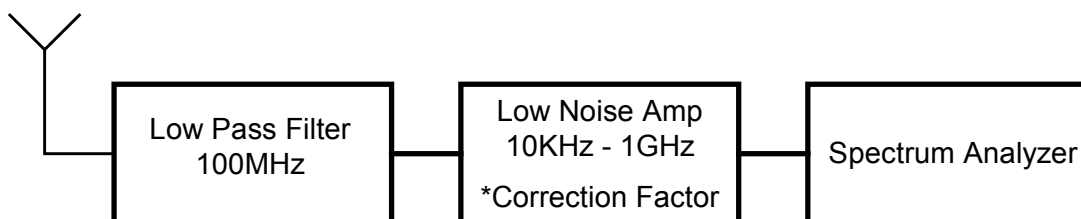


Figure 12 Radiated Emission test 10KHz – 30MHz

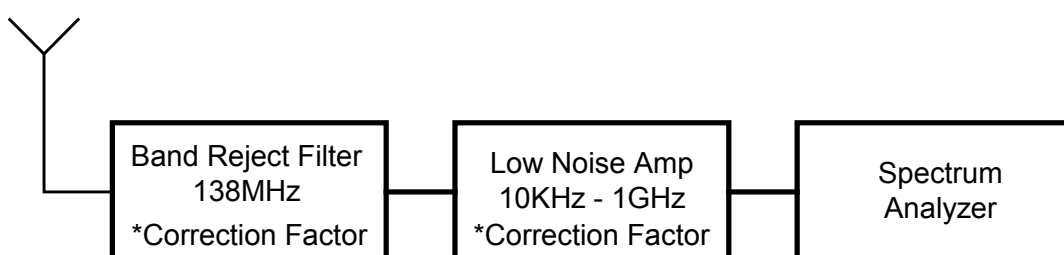


Figure 13 Radiated Emission test 30MHz – 1GHz

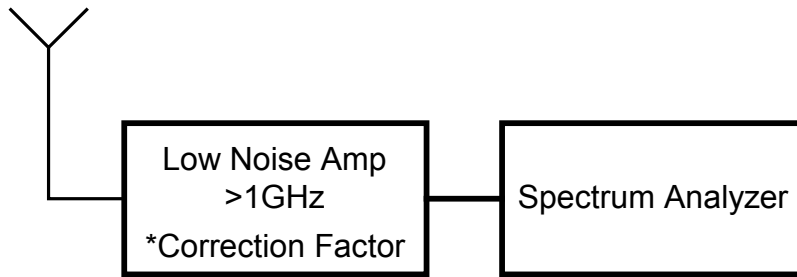
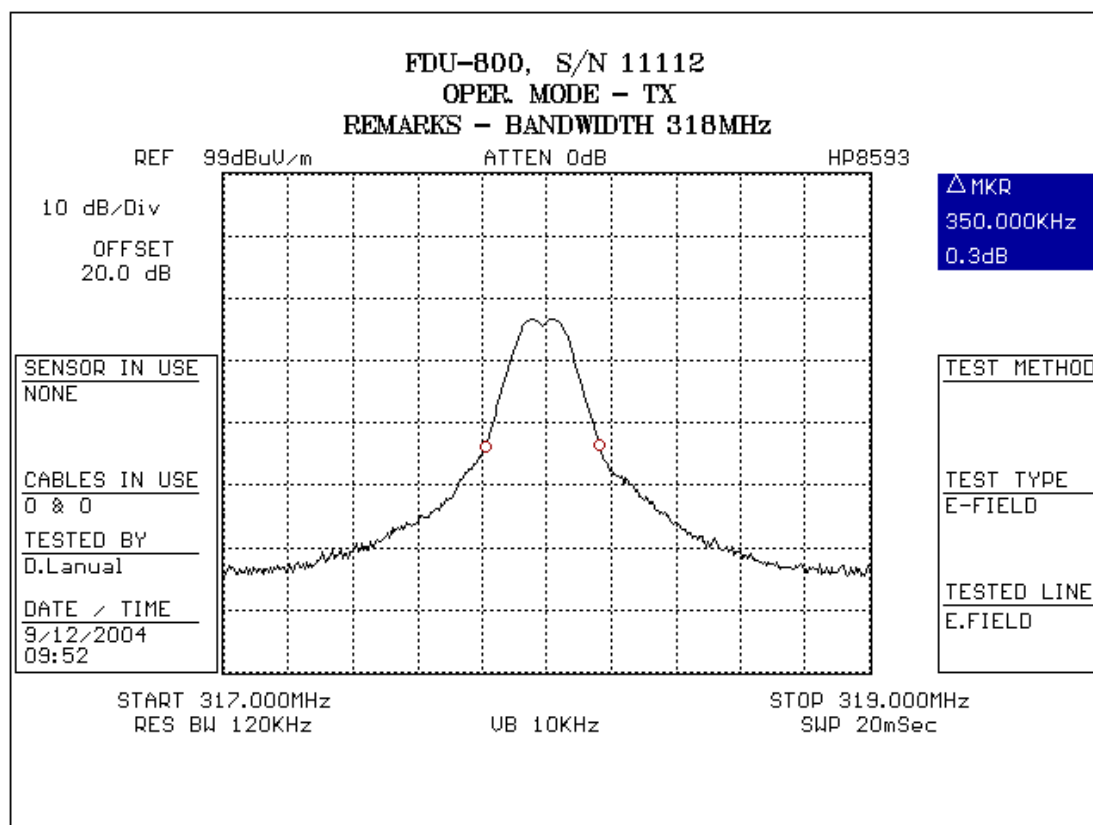


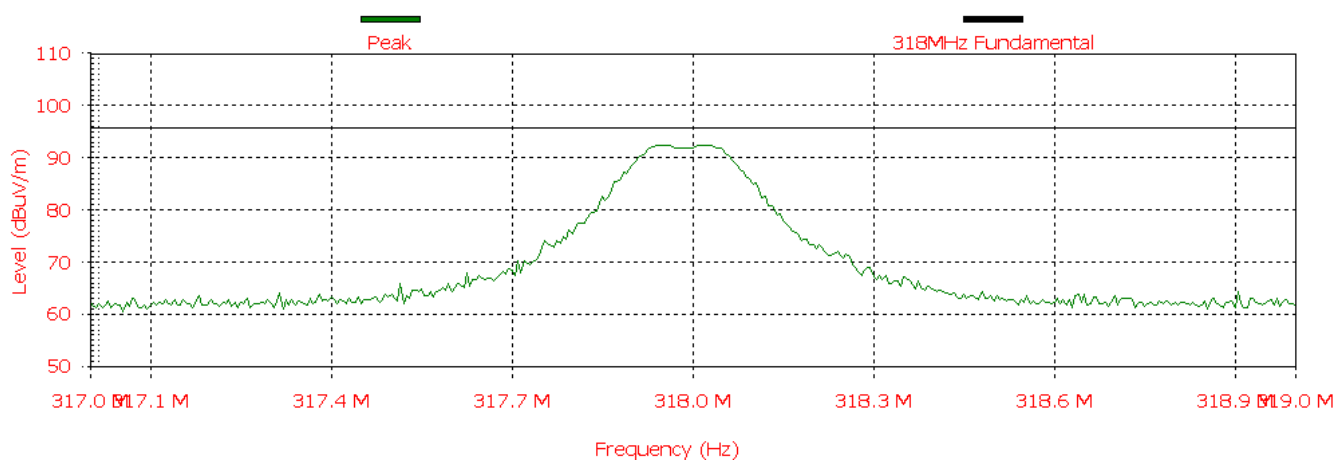
Figure 14 Radiated Emission test above 1GHz

7 Plots

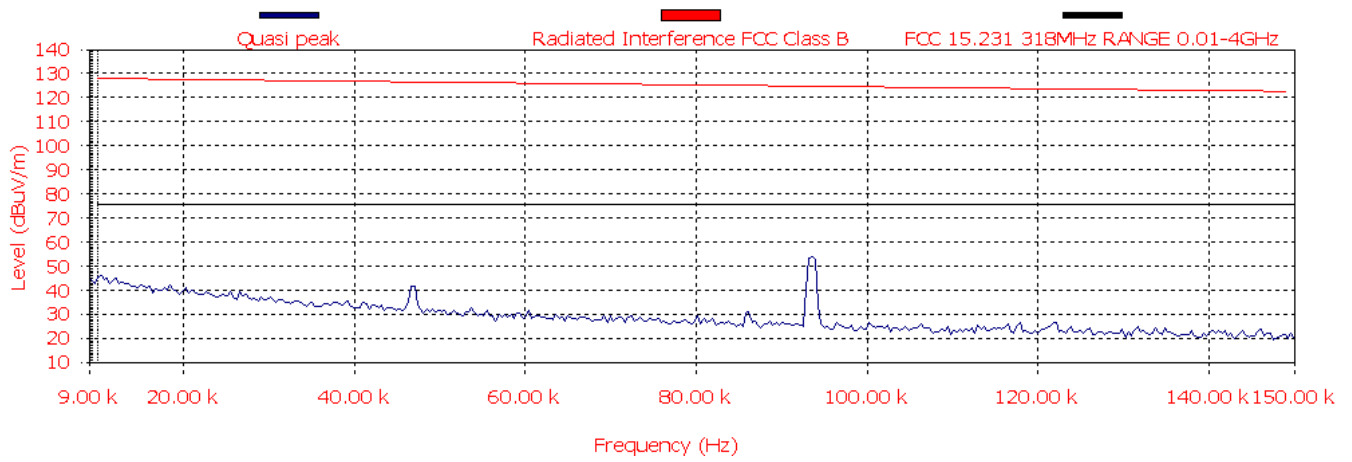


Plot/ 1

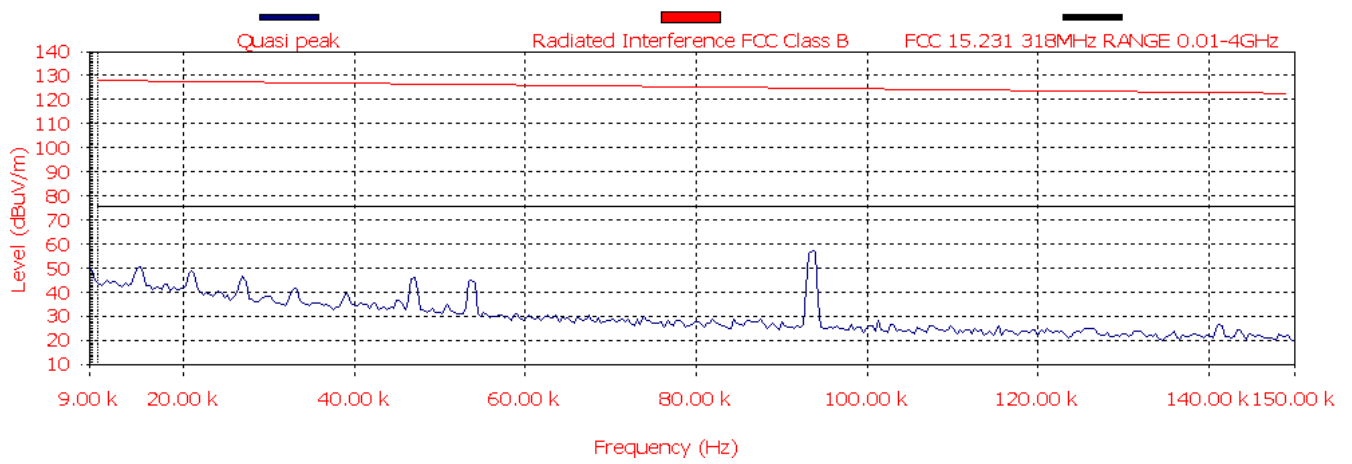
Freq(MHz)	PK	PIK Limit	PK Diff	Pass/Fail	Angle	Height
317.993	92.7	95.8	-3.4	PASS	115	1.05



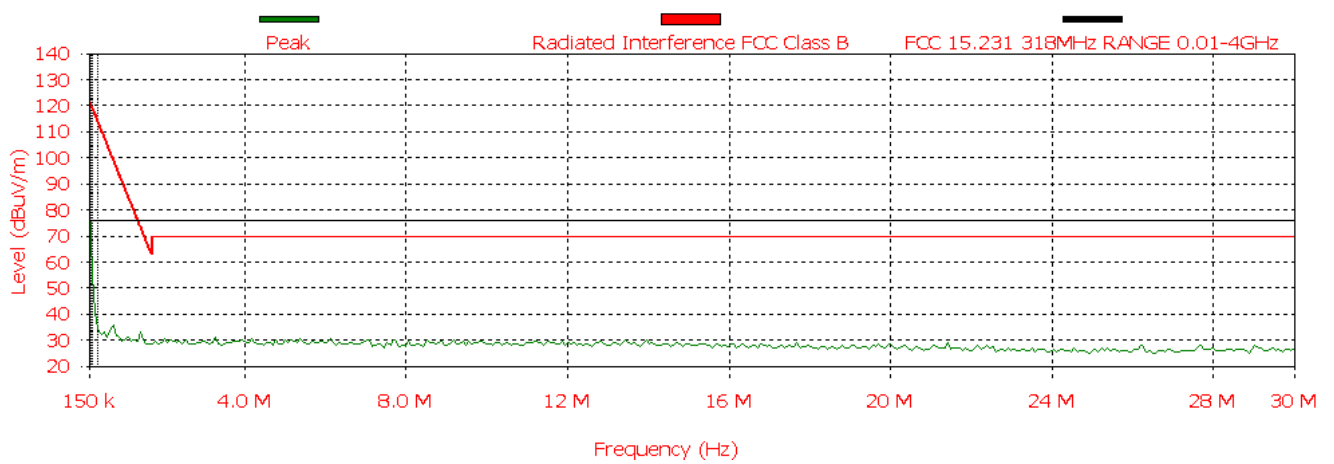
Plot/ 2



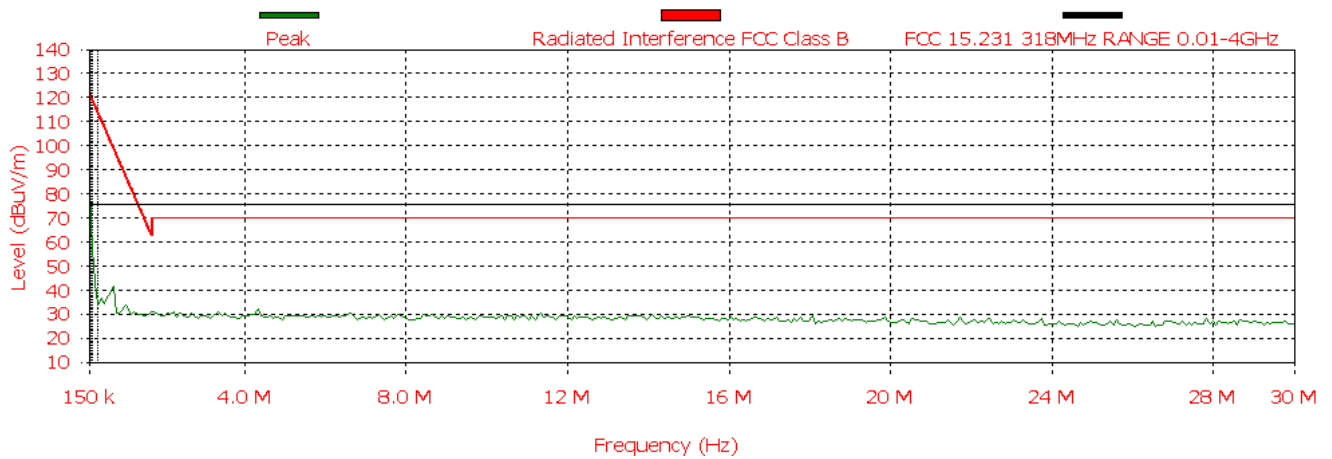
Plot/ 3



Plot/ 4

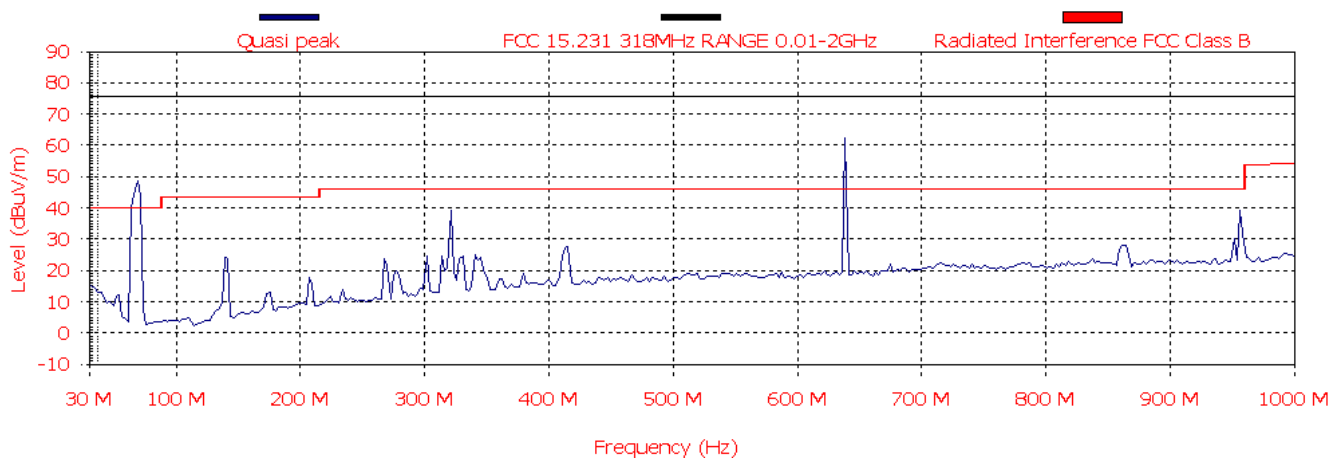


Plot/ 5



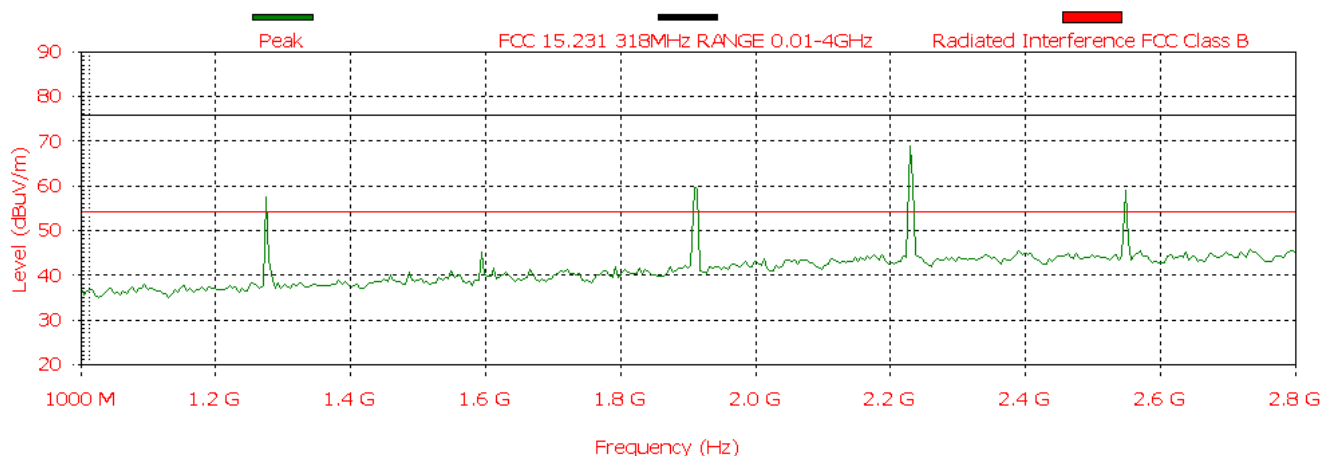
Plot/ 6

Freq(MHz)	PK	PK Limit	PK Diff	Pass/Fail	Angle	Height
68.8	48.6	75.8	27.2	PASS	240	1.65
636.072	61.6	75.8	14.2	PASS	120	1.325



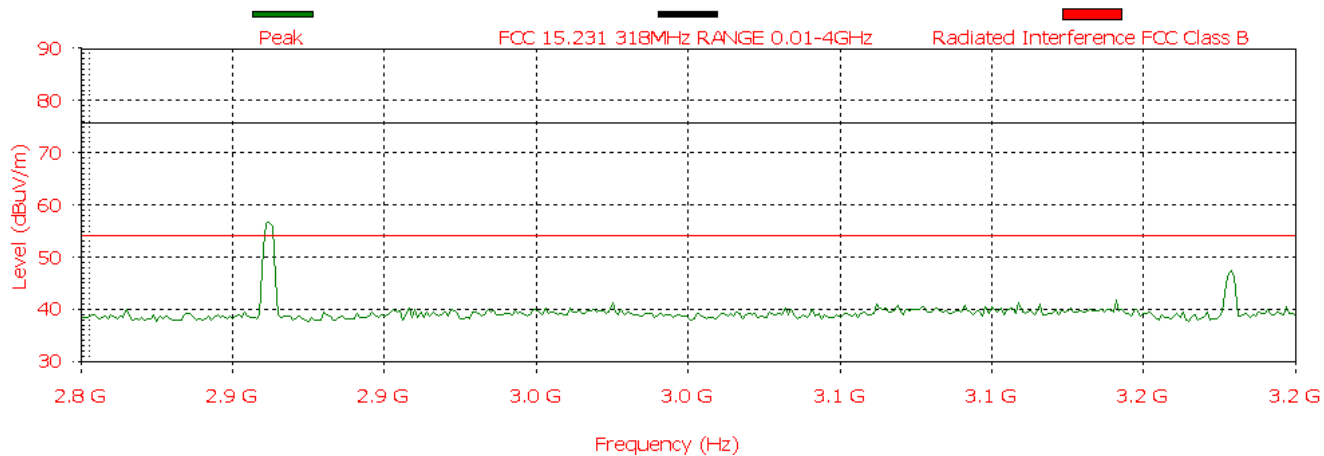
Plot/ 7

Freq(MHz)	PK	PK Limit	PK Diff	Pass/Fail	Angle	Height
1272.064	58.2	75.8	17.6	PASS	5	1.325
1907.477	59.8	75.8	16	PASS	5	1.05
2226.302	69.4	75.8	6.4	PASS	5	1.65
2544.167	59.6	75.8	16.2	PASS	240	1.65

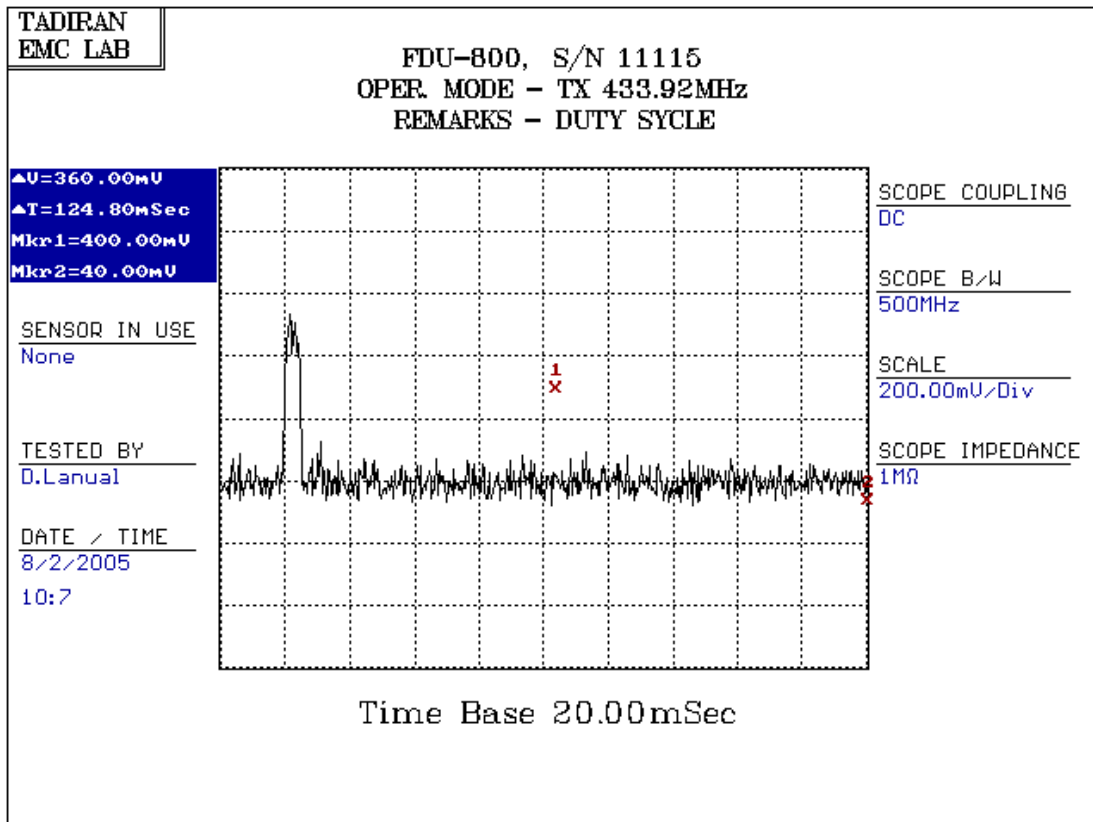


Plot/ 8

Freq(MHz)	PK	PK Limit	PK Diff	Pass/Fail	Angle	Height
2862.296	58.4	75.8	17.4	PASS	300	1.65
3180.278	49.4	75.8	26.4	PASS	300	1.65

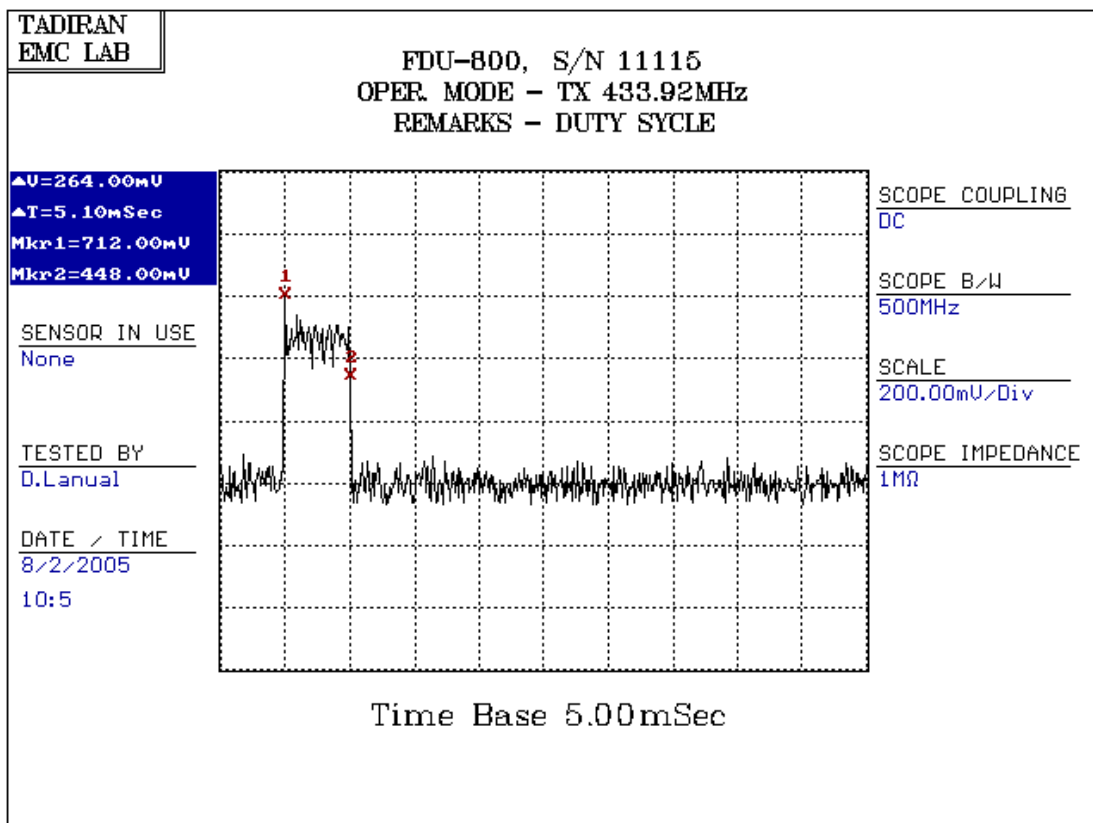


Plot/ 9



Plot/ 10

Average Factor=2olog(Tx ON/100)=2olog(5.1/100)=-25.8



Plot/ 11

8 Photos



Radiated Emission Test Setup up to 30MHz



Radiated Emission Test Setup 30MHz - 1GHz



Radiated Emission Test Setup 1GHz-4GHz



E.U.T



E.U.T Component Side



E.U.T Print Side