



Test Report

Product Name : Projector
Model No. : C400 Wireless
FCC ID : H79DP3625W

Applicant : DELTA ELECTRONICS, INC.

Address : 3, Tung Yuan Road, Chungli Industrial Zone, Taoyuan Hsien
320, Taiwan, R.O.C.

Date of Receipt : Aug. 25, 2005

Issued Date : Sep. 08, 2005

Report No. : 058L177FI

The test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date : Sep. 08, 2005

Report No. : 058L177FI



Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name : Projector

Applicant : DELTA ELECTRONICS, INC.

Address : 3, Tung Yuan Road, Chungli Industrial Zone, Taoyuan Hsien 320, Taiwan,
R.O.C.

Manufacturer : DELTA ELECTRONICS, INC.

Model No. : C400 Wireless

Rated Voltage : AC 120V/60Hz

Working Voltage : DC 3.3V (Powered by EUT)

Trade Name : ThinkVision

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247:2005
ANSI C63.4: 2003

Test Result : Complied



Test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of Quietek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Rebaca Chi
(Rebaca Chi)



0914

Tested By : Tom Hsieh
(Tom Hsieh)

Approved By : Gene Chang
(Gene Chang)



TABLE OF CONTENTS

Description	Page
1. GENERAL INFORMATION.....	5
1.1. EUT Description.....	5
1.2. Operational Description	6
1.3. Tested System Details.....	7
1.4. Configuration of tested System	8
1.5. EUT Exercise Software	8
1.6. Test Facility	9
2. Conducted Emission.....	10
2.1. Test Equipment.....	10
2.2. Test Setup	10
2.3. Limits	10
2.4. Test Procedure	11
2.5. Uncertainty	11
2.6. Test Result of Conducted Emission.....	12
3. Peak Power Output	16
3.1. Test Equipment.....	16
3.2. Test Setup	16
3.3. Limits	16
3.4. Uncertainty	16
3.5. Test Result of Peak Power Output.....	17
4. Radiated Emission.....	19
4.1. Test Equipment.....	19
4.2. Test Setup	19
4.3. Limits	20
4.4. Test Procedure	21
4.5. Uncertainty	21
4.6. Test Result of Radiated Emission.....	22
5. Band Edge	26
5.1. Test Equipment.....	26
5.2. Test Setup	26
5.3. Limits	27
5.4. Test Procedure	27
5.5. Uncertainty	27
5.6. Test Result of Band Edge	28
6. Occupied Bandwidth.....	32
6.1. Test Equipment.....	32
6.2. Test Setup	32
6.3. Limits	32
6.4. Uncertainty	32
6.5. Test Result of Occupied Bandwidth	33
7. Power Density	35
7.1. Test Equipment.....	35

7.2.	Test Setup	35
7.3.	Limits	35
7.4.	Uncertainty	35
7.5.	Test Result of Power Density	36
8.	EMI Reduction Method During Compliance Testing	38

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	: Projector
Trade Name	: ThinkVision
Model No.	: C400 Wireless
FCC ID	: H79DP3625W
Frequency Range	: 2462MHz
Channel Number	: 1
Data Speed	: IEEE 802.11b – 11Mbps : IEEE 802.11g – 54Mbps
Type of Modulation	: DSSS / OFDM
Antenna Type	: Connector
Antenna Gain	: -3.67dBi
Power Cord	: Non-Shielded, 1.8m

Frequency of Each Channel:

Channel	Frequency
Channel 11:	2462 MHz

Note:

1. This device is a Projector including a 2.4GHz transmitter and receiver.
2. These tests are performed on a sample for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.247 for spreading spectrum devices.

1.2. Operational Description

The EUT is a wireless Projector with 1 channel. The device has the data speed of 11 Mbps (IEEE 802.11b) and 54 Mbps (IEEE 802.11g). The carrier uses direct sequence spread spectrum modulation. The diversity antenna is connected through the connector.

The Projector complies with IEEE 802.11b and 802.11g. The data to be displayed is obtained before reaching the display device through the software (can be regarded as a desktop mirror), and then is transferred through the wireless network to the built-in wireless processing board inside the projector after being compressed.

Test Mode	Mode 1: Transmitter 802.11b
	Mode 2: Transmitter 802.11g

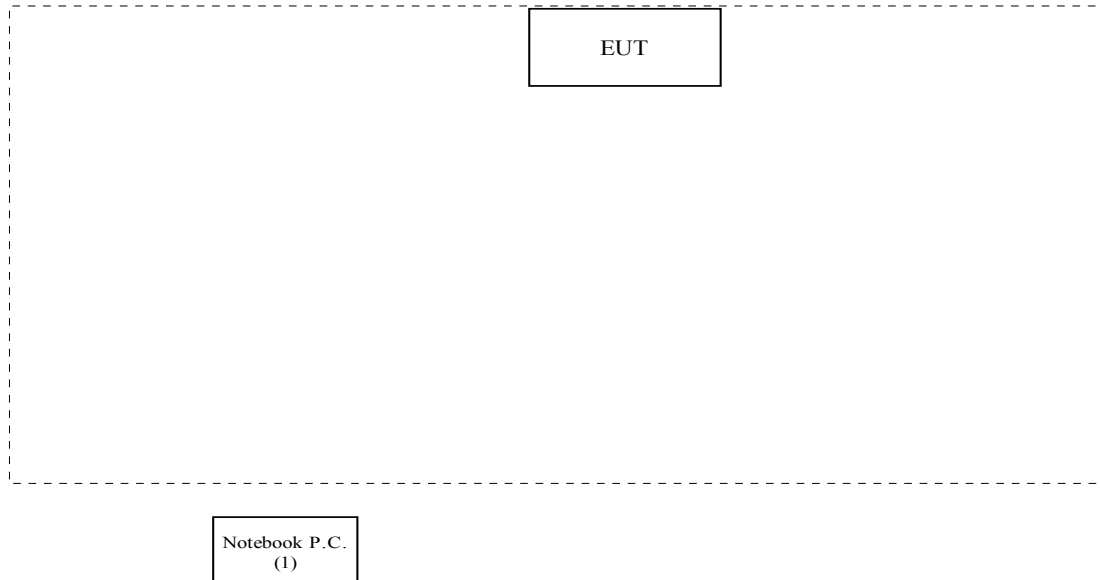
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
(1)	Notebook PC	DELL	PPT	N/A	DoC	Non-Shielded, 0.8m

	Signal Cable Type	Signal cable Description
A.	N/A	N/A

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT and simulators as shown on 1.4
- (2) Turn on the power of all equipment.
- (3) Notebook PC reads data from disk.
- (4) Data will be transmitting and receiving through EUT.
- (5) The transmitted and receive status will be shown on the monitor.
- (6) Repeat the above procedure (3) to (5)

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

Site Description: June 22, 2001 File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Reference 31040/SIT1300F2



July 03, 2001 Accreditation on NVLAP
 NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation

Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
 Lin-Kou Shiang, Taipei,
 Taiwan, R.O.C.
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com



2. Conducted Emission

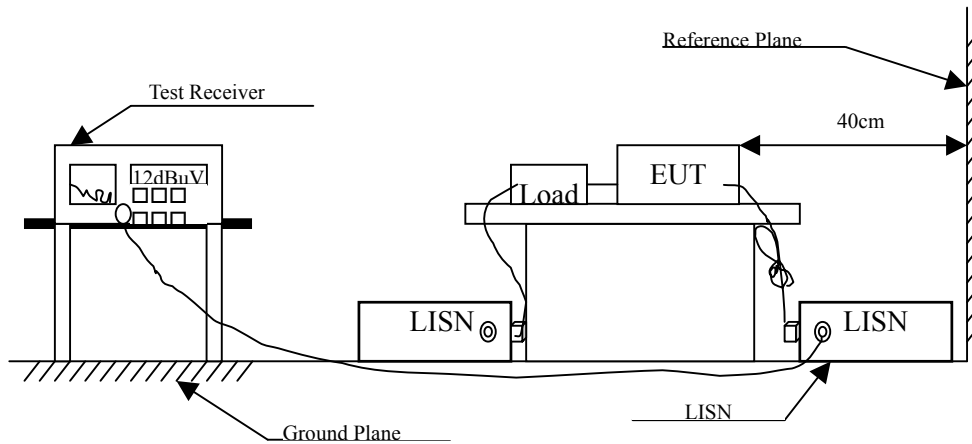
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2005	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2005	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2005	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2005	
5	No.1 Shielded Room			N/A	

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	uV	dBuV
0.15 - 0.50	66-56 ^(註)	56-46 ^(註)
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

2.6. Test Result of Conducted Emission

Product : Projector
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 1: Transmitter 802.11b

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.201	0.202	49.400	49.602	-14.941	64.543
0.280	0.203	49.440	49.643	-12.642	62.286
0.560	0.207	44.850	45.057	-10.943	56.000
*0.622	0.208	46.140	46.348	-9.652	56.000
1.076	0.214	42.490	42.704	-13.296	56.000
24.775	0.757	43.250	44.007	-15.993	60.000
Average					
0.201	0.202	38.260	38.462	-16.081	54.543
0.280	0.203	45.780	45.983	-6.302	52.286
0.560	0.207	36.690	36.897	-9.103	46.000
0.622	0.208	36.160	36.368	-9.632	46.000
1.076	0.214	30.170	30.384	-15.616	46.000
*24.775	0.757	43.040	43.797	-6.203	50.000

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Projector
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 1: Transmitter 802.11b

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.205	0.202	52.430	52.632	-11.797	0.205
0.280	0.203	49.620	49.823	-12.462	0.280
0.550	0.207	44.990	45.197	-10.803	0.550
*0.623	0.208	46.280	46.488	-9.512	0.623
1.055	0.214	42.070	42.284	-13.716	1.055
1.555	0.220	39.720	39.940	-16.060	1.555
Average					
0.205	0.202	46.350	46.552	-7.877	54.429
*0.280	0.203	45.950	46.153	-6.132	52.286
0.550	0.207	36.250	36.457	-9.543	46.000
0.623	0.208	36.420	36.628	-9.372	46.000
1.055	0.214	28.330	28.544	-17.456	46.000
1.555	0.220	26.250	26.470	-19.530	46.000

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Projector
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 2: Transmitter 802.11g

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.209	0.202	52.620	52.822	-11.492	64.314
0.284	0.203	49.850	50.053	-12.118	62.171
0.549	0.207	45.030	45.237	-10.763	56.000
*0.616	0.208	46.080	46.288	-9.712	56.000
1.116	0.214	41.990	42.204	-13.796	56.000
1.616	0.221	39.130	39.351	-16.649	56.000
Average					
*0.209	0.202	50.230	50.432	-3.882	54.314
0.284	0.203	45.770	45.973	-6.198	52.171
0.549	0.207	35.640	35.847	-10.153	46.000
0.616	0.208	34.610	34.818	-11.182	46.000
1.116	0.214	28.540	28.754	-17.246	46.000
1.616	0.221	28.150	28.371	-17.629	46.000

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Projector
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 2: Transmitter 802.11g

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.209	0.202	52.640	52.842	-11.472	64.314
0.279	0.203	49.780	49.983	-12.331	62.314
0.339	0.204	41.850	42.054	-18.546	60.600
0.566	0.207	45.490	45.697	-10.303	56.000
*0.619	0.208	46.380	46.588	-9.412	56.000
1.119	0.214	42.290	42.504	-13.496	56.000
Average					
*0.209	0.202	50.230	50.432	-3.882	54.314
0.279	0.203	45.950	46.153	-6.161	52.314
0.339	0.204	28.350	28.554	-22.046	50.600
0.566	0.207	37.420	37.627	-8.373	46.000
0.619	0.208	36.070	36.278	-9.722	46.000
1.119	0.214	28.860	29.074	-16.926	46.000

Note:

1. All Reading Levels are Quasi-Peak value.
2. “ * ” means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Equipment

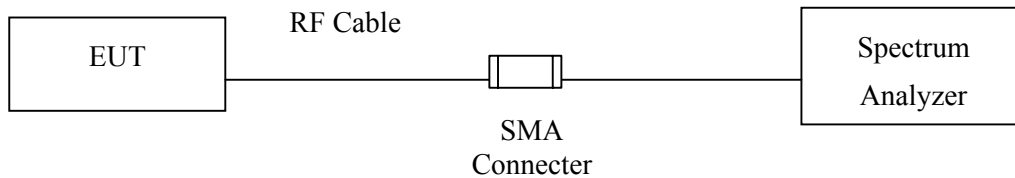
The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI26 / 838786/004	May, 2005

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

3.2. Test Setup

Conduction Power Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

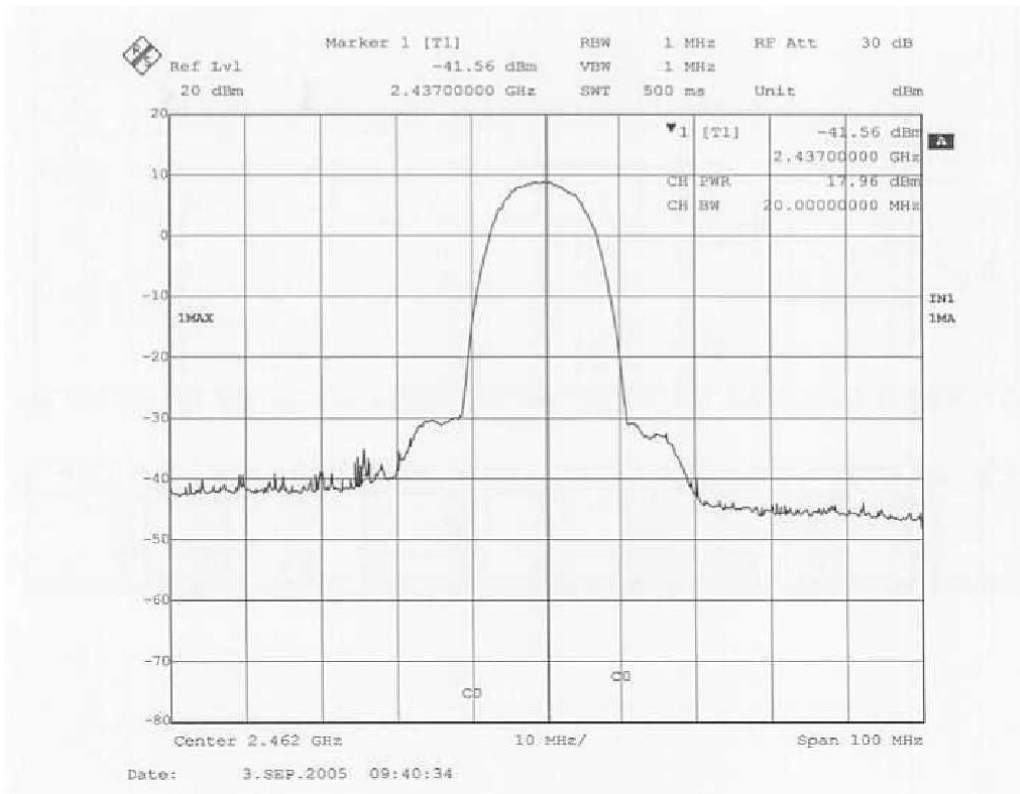
3.5. Test Result of Peak Power Output

Product : Projector
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Data Speed: 11Mbps

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
11	2462.00	17.96dBm	1Watt= 30 dBm	Pass

11Mbps-CH11

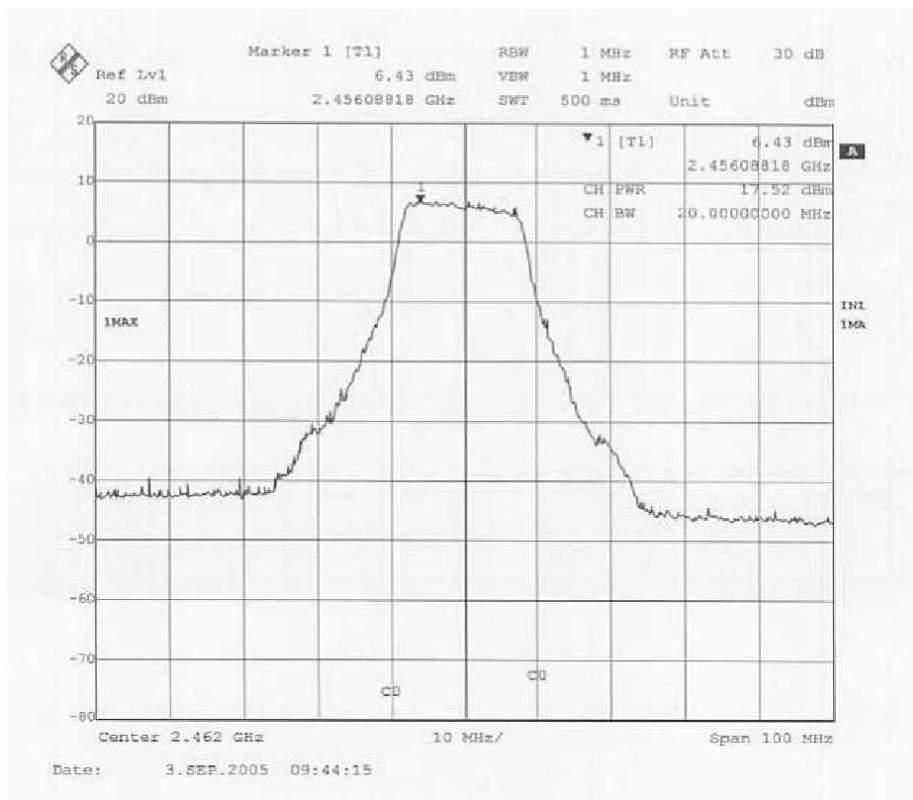


Product : Projector
 Test Item : Peak Power Output Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

Data Speed: 54Mbps

Channel No.	Frequency (MHz)	Measurement	Required Limit	Result
11	2462.00	17.52dBm	1Watt= 30 dBm	Pass

54Mbps-CH011



4. Radiated Emission

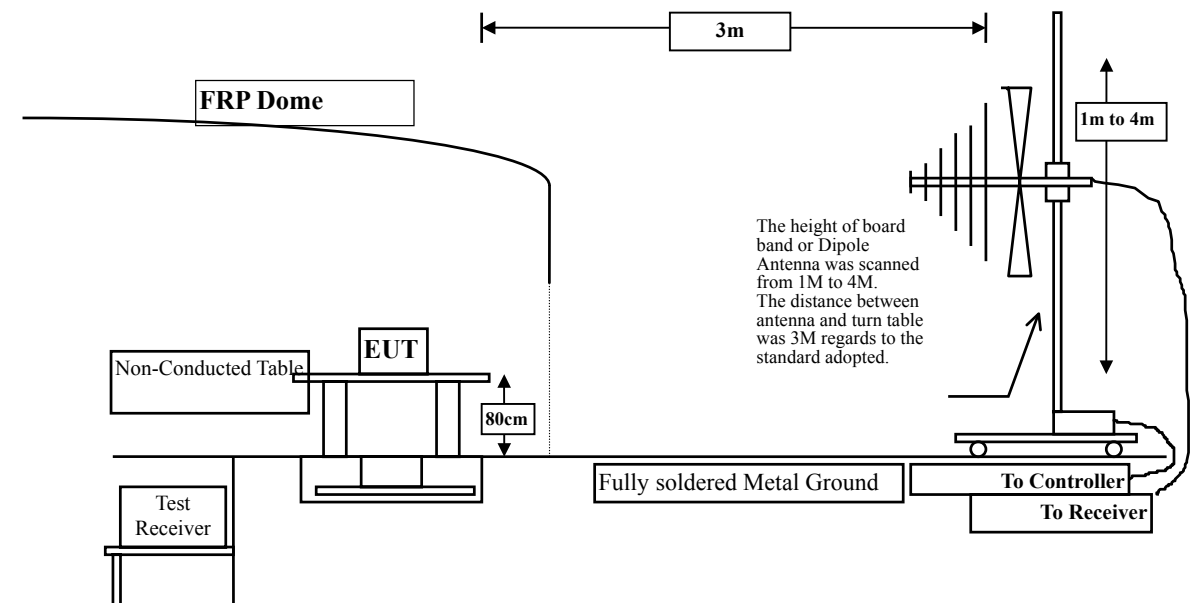
4.1. Test Equipment

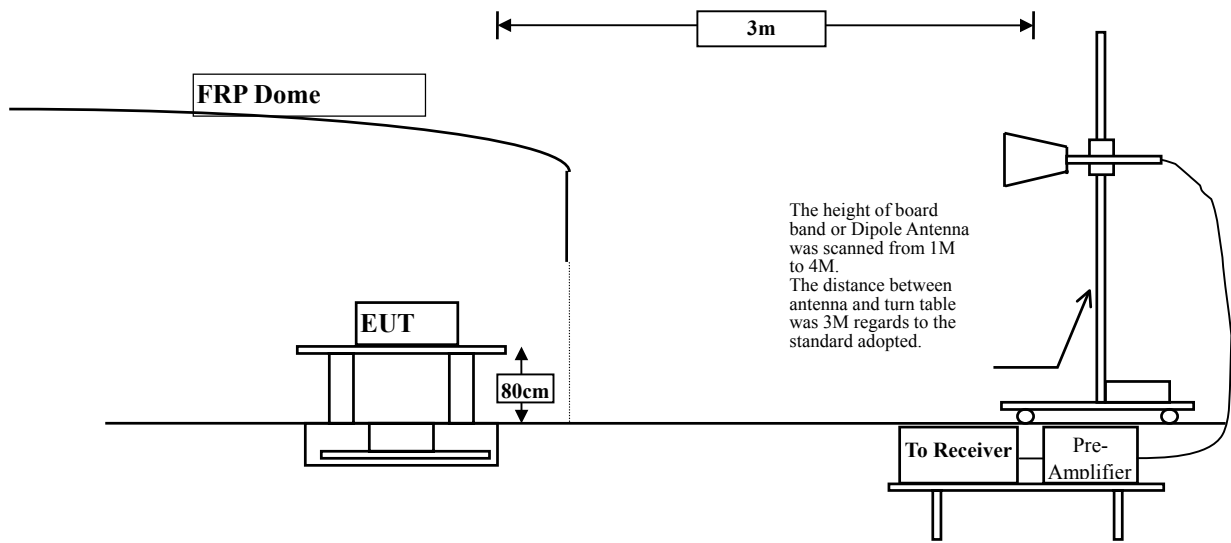
The following test equipment are used during the radiated emission test:

Test Site	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
Site # 1	Test Receiver	R & S	ESCS 30 / 825442/14	May, 2005
	Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
	Pre-Amplifier	HP	8447D/3307A01812	May, 2005
	Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
	Horn Antenna	EM	EM6917 / 103325	May, 2005
Site # 2	Test Receiver	R & S	ESCS 30 / 825442/17	May, 2005
	Spectrum Analyzer	Advantest	R3261C / 71720609	May, 2005
	Pre-Amplifier	HP	8447D/3307A01814	May, 2005
	Bilog Antenna	Chase	CBL6112B / 2455	Sep., 2005
	Horn Antenna	EM	EM6917 / 103325	May, 2005
Site # 3	X Test Receiver	R & S	ESCS30 /100122	Feb., 2005
	X Spectrum Analyzer	Advantest	R3162 / 100803480	May, 2005
	X Pre-Amplifier	QTK	QTK-AMP-03 / 0003	May, 2005
	X Bilog Antenna	SCHAFFNER	CBL6112B / 2697	May, 2005
	X Horn Antenna	ETS	3115 / 0005-6160	July, 2005
	X Pre-Amplifier	QTK	QTK-AMP-01 / 0001	July, 2005

- Note:
1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

4.2. Test Setup





4.3. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

- Remarks :
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The additional notch filter below 1GHz was used to measure the level of harmonics radiated emission during field strength of harmonics measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

The frequency range from 30MHz to 10th harmonics is checked.

4.5. Uncertainty

The measurement uncertainty is defined as ± 3.8 dB above 1GHz as ± 3.9 dB

4.6. Test Result of Radiated Emission

Product : Projector
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Peak Detector							
4924.000	4.30	33.90	20.06	34.22	52.37	21.63	74.00
7386.000	5.72	37.14	18.76	35.74	59.83	14.17	74.00
9848.000	7.12	38.44	16.83	35.34	64.07	9.93	74.00
Average Detector							
7386.000	5.72	37.14	18.76	21.84	45.93	8.07	54.00
9848.000	7.12	38.44	16.83	21.46	50.19	3.81	54.00
Vertical Peak Detector							
4924.000	4.30	33.90	20.06	36.57	54.72	19.28	74.00
7386.000	5.72	37.14	18.76	36.66	60.75	13.25	74.00
9848.000	7.12	38.44	16.83	34.20	62.93	11.07	74.00
Average Detector							
4924.000	4.30	33.90	20.06	22.39	40.54	13.46	54.00
7386.000	5.72	37.14	18.76	22.30	46.39	7.61	54.00
9848.000	7.12	38.44	16.83	21.41	50.14	3.86	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz ◦
4. Emission Level = Reading Level + Probe Factor + Cable Loss- PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Projector
 Test Item : Harmonic Radiated Emission Data
 Test Site : No.3OATS
 Test Mode : Mode 2: Transmitter 802.11g

Frequency MHz	Cable Loss dB	Probe Factor dB/m	PreAMP dB	Reading Level dBuV	Emission Level dBuV/m	Margin dB	Limit dBuV/m
Horizontal Peak Detector							
4924.125	4.30	33.90	20.06	35.96	54.11	19.89	74.00
7386.000	5.72	37.14	18.76	36.71	60.80	13.20	74.00
9848.000	7.12	38.44	16.83	36.21	64.94	9.06	74.00
Average Detector							
4924.000	4.30	33.90	20.06	27.55	45.70	8.30	54.00
7386.000	5.72	37.14	18.76	22.90	46.99	7.01	54.00
9848.000	7.12	38.44	16.83	21.52	50.25	3.75	54.00
Vertical Peak Detector							
4924.125	4.30	33.90	20.06	36.76	54.91	19.09	74.00
7386.000	5.72	37.14	18.76	36.34	60.43	13.57	74.00
9848.000	7.12	38.44	16.83	35.88	64.61	9.39	74.00
Average Detector							
4924.000	4.30	33.90	20.06	27.46	45.61	8.39	54.00
7386.000	5.72	37.14	18.76	21.80	45.89	8.11	54.00
9848.000	7.12	38.44	16.83	21.45	50.18	3.82	54.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. Receiver setting (Peak Detector) : RBW:1MHz; VBW:1MHz; Span:100MHz ◦
3. Receiver setting (AVG Detector) : RBW:1MHz; VBW:30Hz; Span:20MHz ◦
4. Emission Level = Reading Level + Probe Factor + Cable Loss- PreAMP.
5. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product : Projector
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Frequency	Cable Loss	Probe Factor	PreAMP	Reading Level	Emission Level	Margin	Limit
MHz	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m

Horizontal:

143.980	1.45	10.87	0.00	13.27	25.60	17.90	43.50
* 231.270	1.90	9.57	0.00	30.72	42.20	3.80	46.00
240.900	1.95	10.57	0.00	24.57	37.10	8.90	46.00
536.800	3.48	17.05	0.00	13.87	34.40	11.60	46.00
607.150	3.85	18.00	0.00	12.45	34.29	11.71	46.00
762.350	4.65	19.85	0.00	10.70	35.20	10.80	46.00

Vertical:

143.980	1.45	9.96	0.00	13.47	30.03	13.47	43.50
* 165.800	1.57	8.42	0.00	1.67	41.83	1.67	43.50
192.480	1.70	8.08	0.00	13.50	30.00	13.50	43.50
200.130	1.74	8.40	0.00	9.25	34.25	9.25	43.50
321.100	2.37	12.43	0.00	15.86	30.14	15.86	46.00
367.080	2.60	14.67	0.00	15.36	30.64	15.36	46.00
522.280	3.41	16.67	0.00	12.30	23.70	12.30	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ” means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

Product : Projector
 Test Item : General Radiated Emission Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

Frequency	Cable	Probe	PreAMP	Reading	Emission	Margin	Limit
MHz	Loss	Factor		Level	Level		
	dB	dB/m	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal:							
143.980	1.45	10.87	0.00	22.30	34.63	8.87	43.50
199.750	1.74	8.40	0.00	22.63	32.77	10.73	43.50
* 231.270	1.90	9.57	0.00	30.72	42.20	3.80	46.00
367.080	2.60	13.98	0.00	18.36	34.95	11.05	46.00
587.750	3.74	17.92	0.00	12.98	34.63	11.37	46.00
767.200	4.66	19.86	0.00	10.27	34.79	11.21	46.00
Vertical:							
177.930	1.63	8.28	0.00	21.23	31.14	12.36	43.50
199.750	1.74	8.40	0.00	20.33	30.47	13.03	43.50
250.680	2.00	11.86	0.00	16.25	30.11	15.89	46.00
367.080	2.60	14.67	0.00	13.37	30.64	15.36	46.00
* 500.450	3.30	16.26	0.00	15.77	35.33	10.67	46.00
522.280	3.41	16.67	0.00	13.62	33.70	12.30	46.00

Note:

1. All Readings below 1GHz are Quasi-Peak, above are average value.
2. “ * ” means this data is the worst emission level.
3. Emission Level = Reading Level + Probe Factor + Cable Loss.

5. Band Edge

5.1. Test Equipment

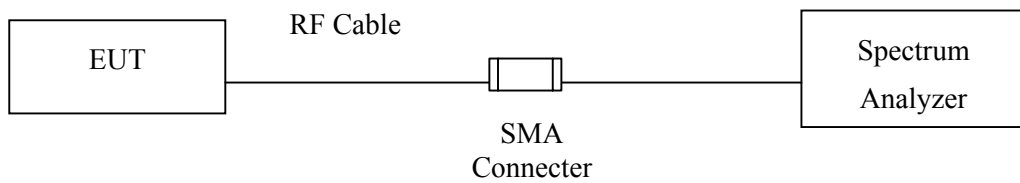
The following test equipments are used during the band edge tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Spectrum Analyzer	HP	E4407B / US39440758	May, 2005
X Test Receiver	R & S	ESCS 30 / 825442/14	May, 2005
X Spectrum Analyzer	Advantest	R3261C / 71720140	May, 2005
X Pre-Amplifier	HP	8447D/3307A01812	May, 2005
X Bilog Antenna	Chase	CBL6112B / 12452	Sep., 2005
X Horn Antenna	EM	EM6917 / 103325	May, 2005

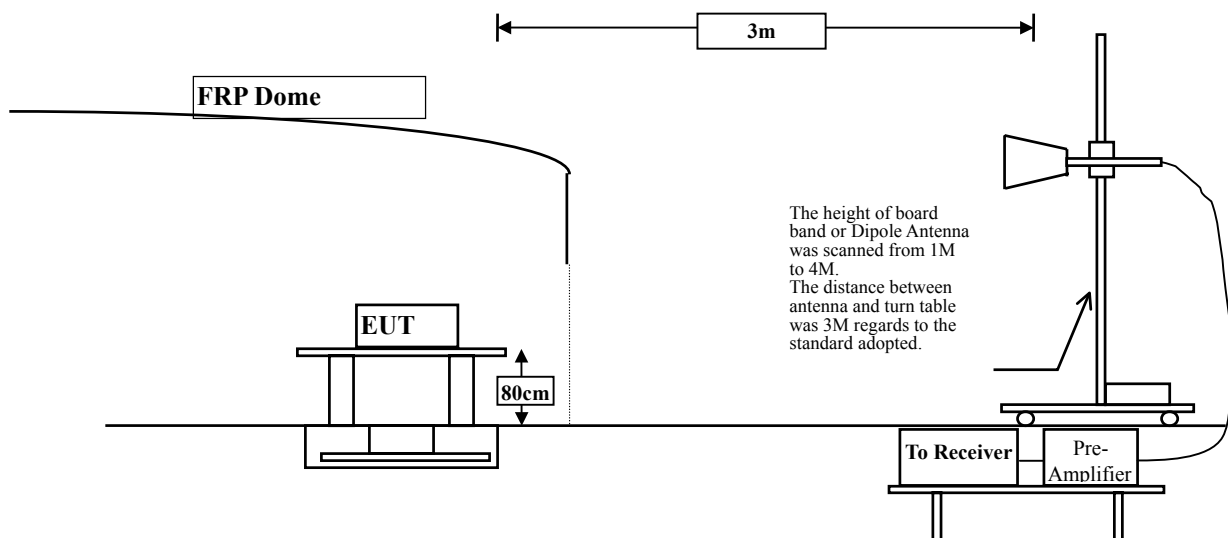
- Note: 1. All equipments that need to calibrate are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

5.2. Test Setup

RF Conducted Measurement:



RF Radiated Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter (R&S Test Receiver ESCS 30)is 120 kHz, above 1GHz are 1 MHz.

5.5. Uncertainty

The measurement uncertainty Conducted is defined as ± 1 MHz and Radiated above 1GHz as ± 3.9 dB.

5.6. Test Result of Band Edge

Product : Projector
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

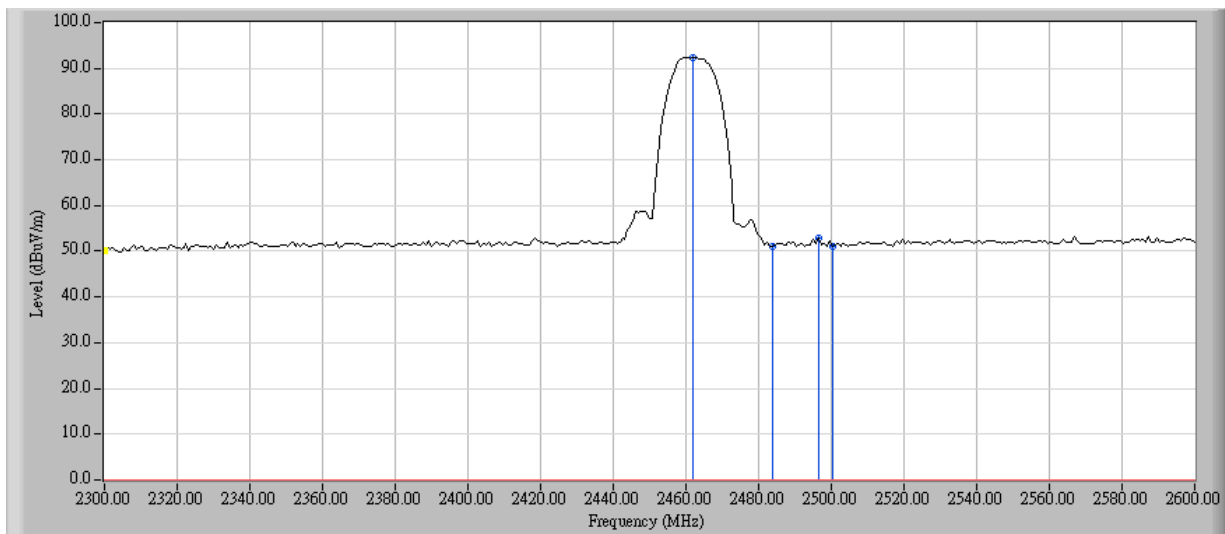
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Horizontal)	<2400	>20	Pass

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBUV)	Emission Level (dBUV/m)	Peak Limit (dBUV/m)	Average Limit (dBUV/m)	Result
11 (Peak)	2496.500	43.312	52.820	74.00	54.00	Pass
11 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Horizontal)



Product : Projector
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

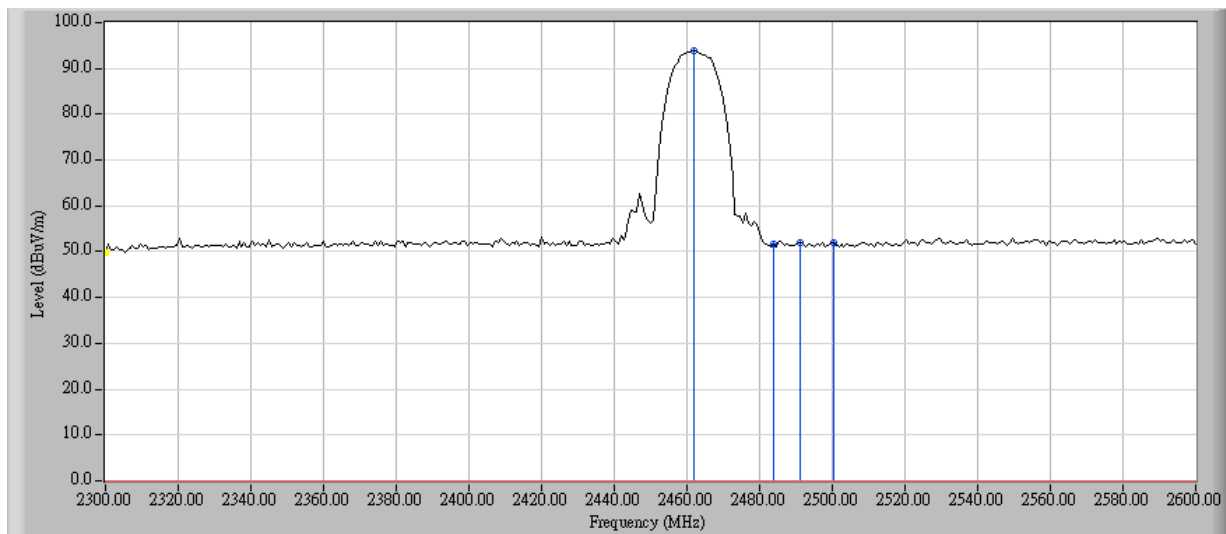
RF Radiated Measurement:

Channel No.	Frequency (MHz)	Required Limit (dBc)	Result
11 (Vertical)	<2400	>20	Pass

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2491.250	42.376	51.900	74.00	54.00	Pass
11 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Vertical)

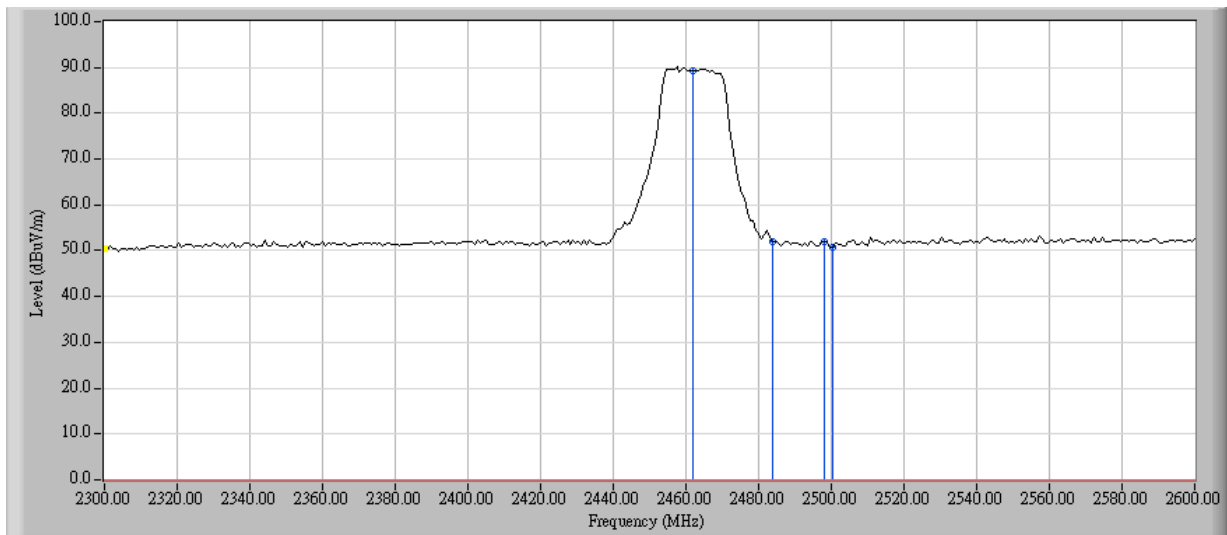


Product : Projector
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2498.000	42.527	52.030	74.00	54.00	Pass
11 (Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Horizontal)

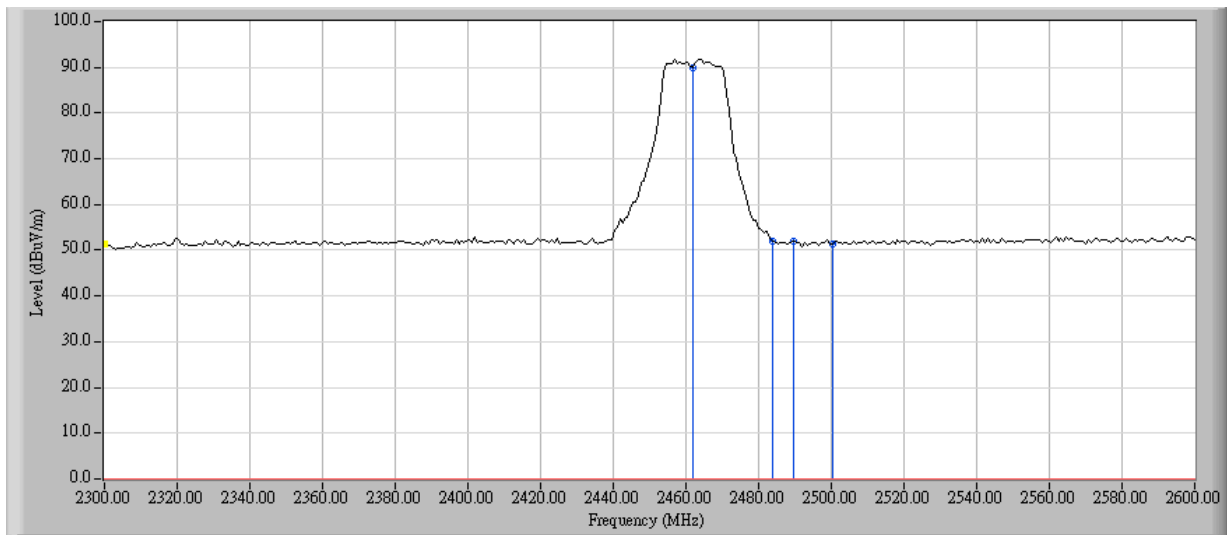


Product : Projector
 Test Item : Band Edge Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Average Limit (dBuV/m)	Result
11 (Peak)	2489.750	42.371	51.900	74.00	54.00	Pass
11(Average)	--	--	--	74.00	54.00	Pass

Figure Channel 11: (Vertical)



Note: The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

6. Occupied Bandwidth

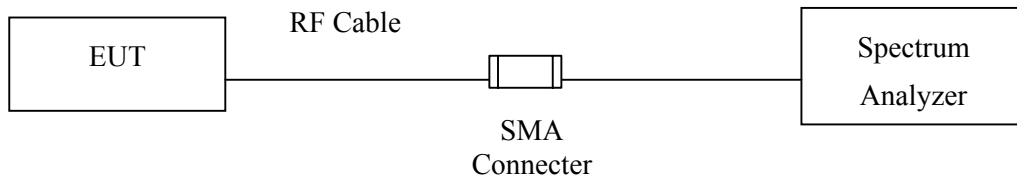
6.1. Test Equipment

The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Test Receiver	R & S	ESI26 / 838786/004	May, 2005

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

6.2. Test Setup



6.3. Limits

The minimum bandwidth shall be at least 500kHz.

6.4. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

6.5. Test Result of Occupied Bandwidth

Product : Projector
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11 (11Mbps)	2462	11423	>500	Pass

Figure Channel 11: 11Mbps

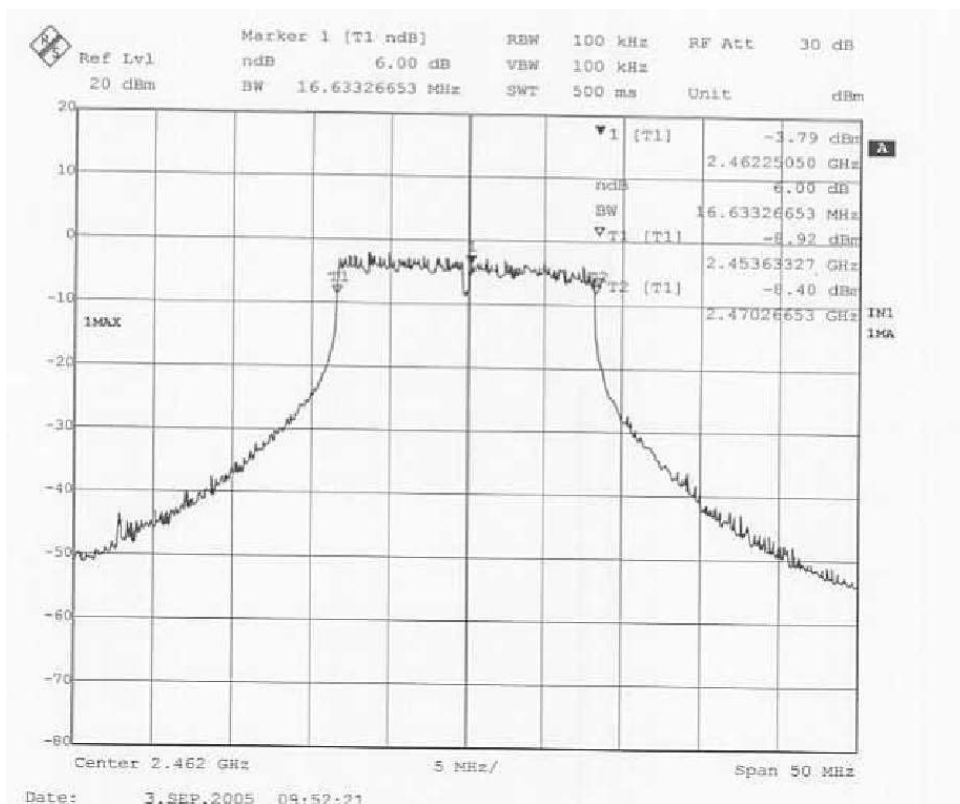


Product : Projector
 Test Item : Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
11 (54Mbps)	2462	16633	>500	Pass

Figure Channel 11:

54Mbps



7. Power Density

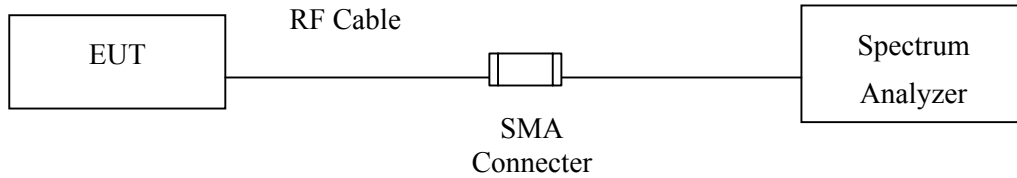
7.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	HP	E4407B / US39440758	May, 2005

Note: 1. All equipment upon which need to calibrated are with calibration period of 1 year.
 2. Mark "X" test instruments are used to measure the final test results.

7.2. Test Setup



7.3. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

7.4. Uncertainty

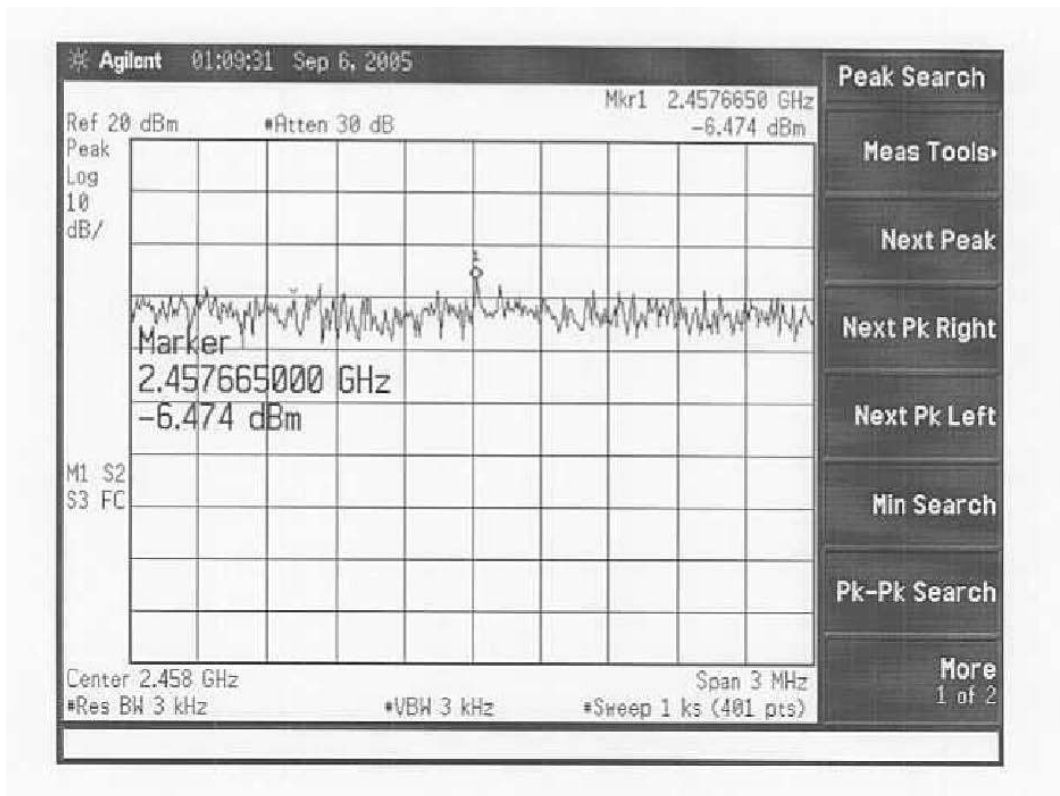
The measurement uncertainty is defined as ± 1.27 dB

7.5. Test Result of Power Density

Product : Projector
 Test Item : Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter 802.11b

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11 (11Mbps)	2462	-6.474	< 8dBm	Pass

Figure Channel 11: 11Mbps

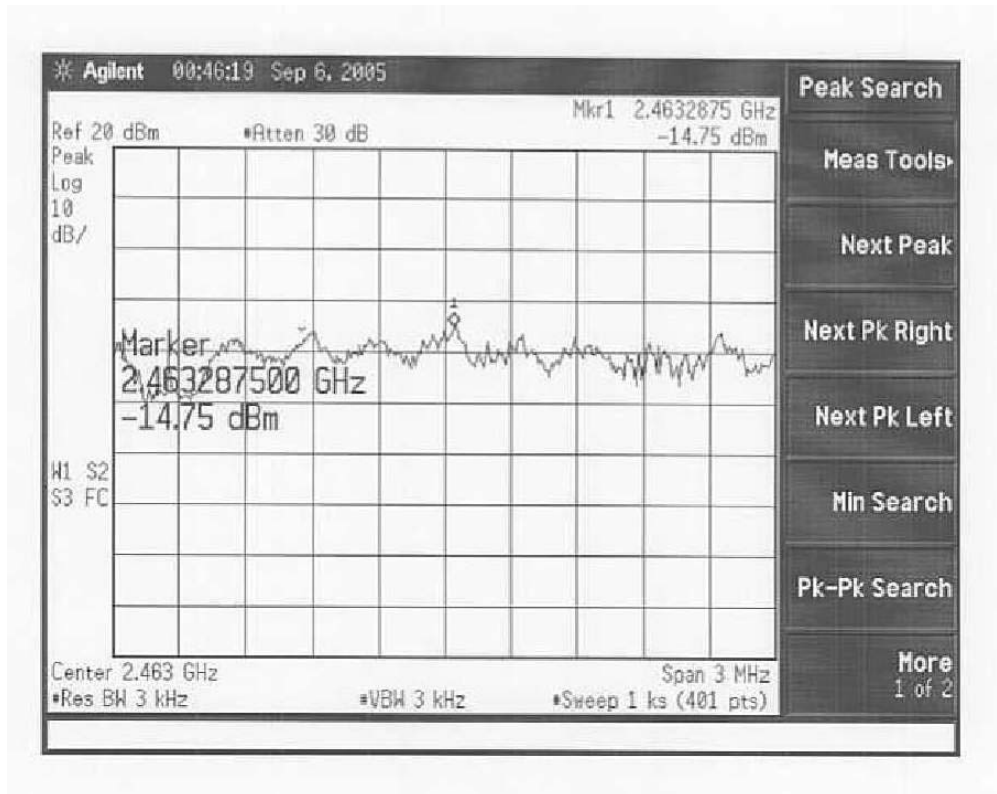


Product : Projector
 Test Item : Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter 802.11g

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
11 (54Mbps)	2462	-14.75	< 8dBm	Pass

Figure Channel 11:

54Mbps



8. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 1: EUT Test Setup Photographs

Front View of Conducted Test



Back View of Conducted Test



Front View of Radiated Test



Back View of Radiated Test



Front View of Radiated Test (Horn)



Back View of Radiated Test (Horn)



Attachment 2: EUT Detailed Photographs

Attachment 2 : EUT Detailed Photographs

(1) EUT Photo



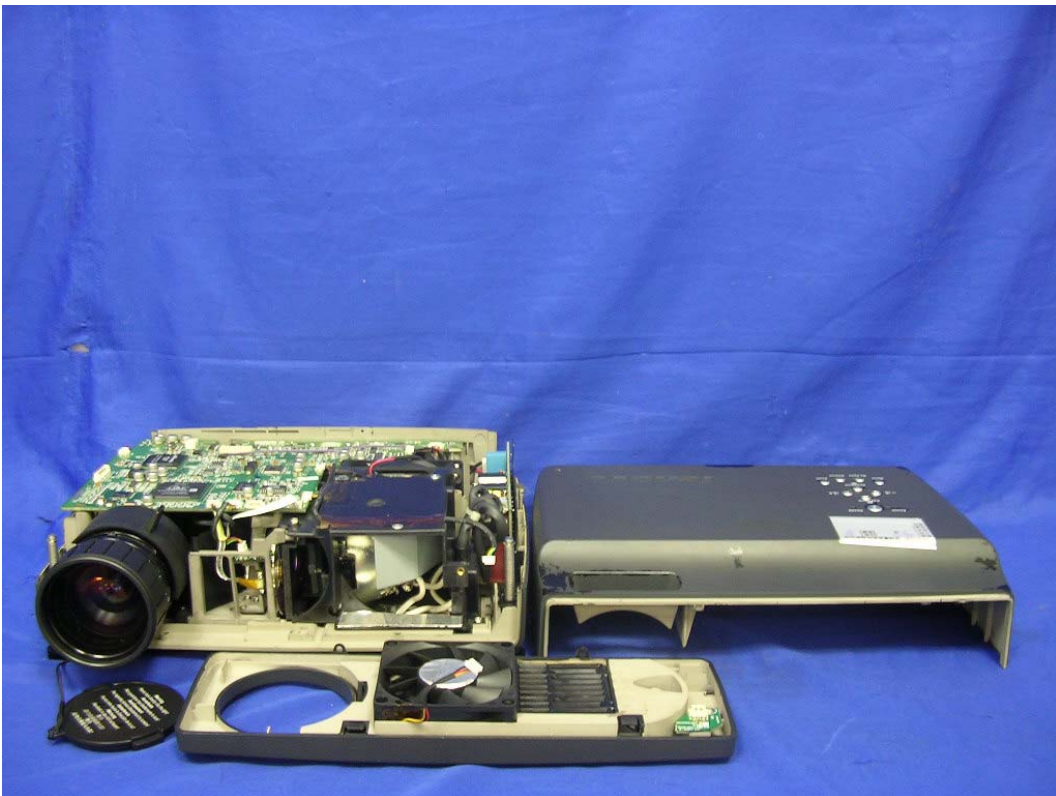
(2) EUT Photo



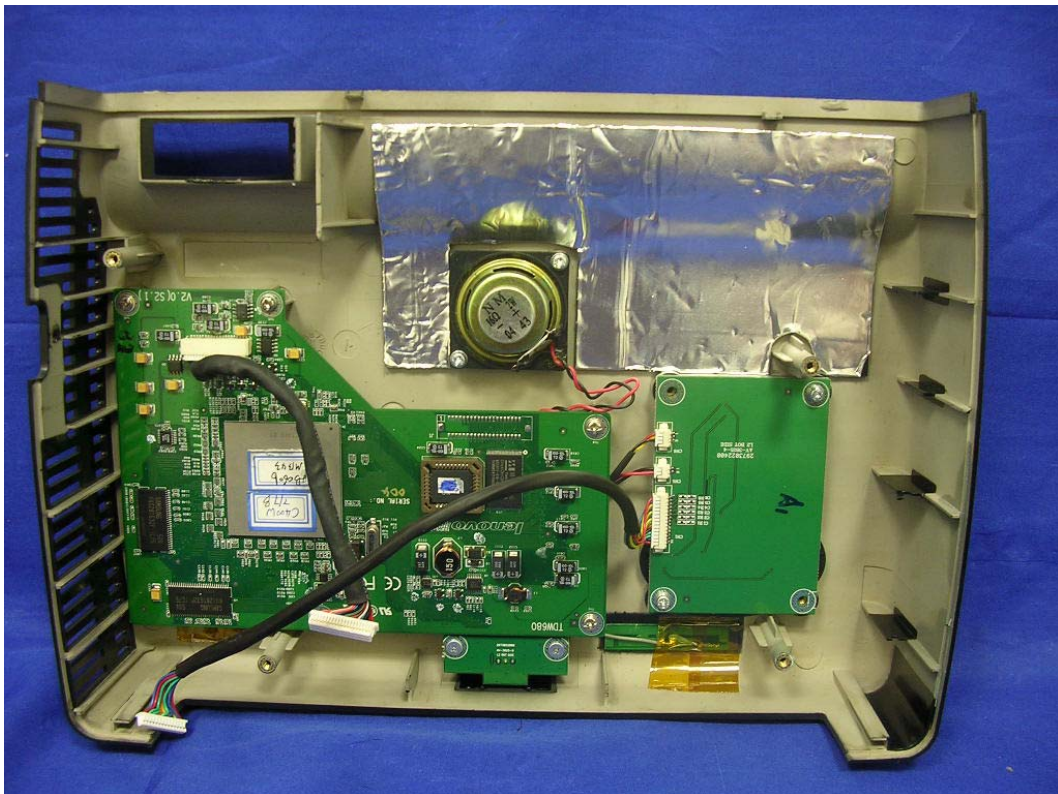
(3) EUT Photo



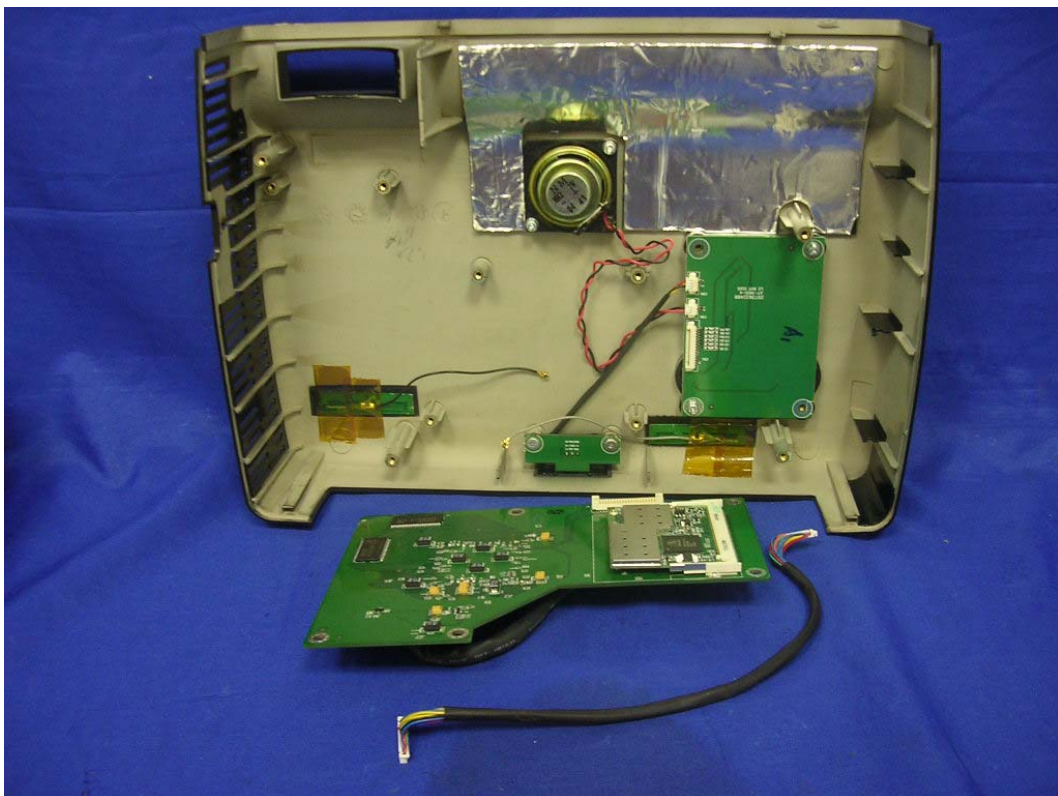
(4) EUT Photo



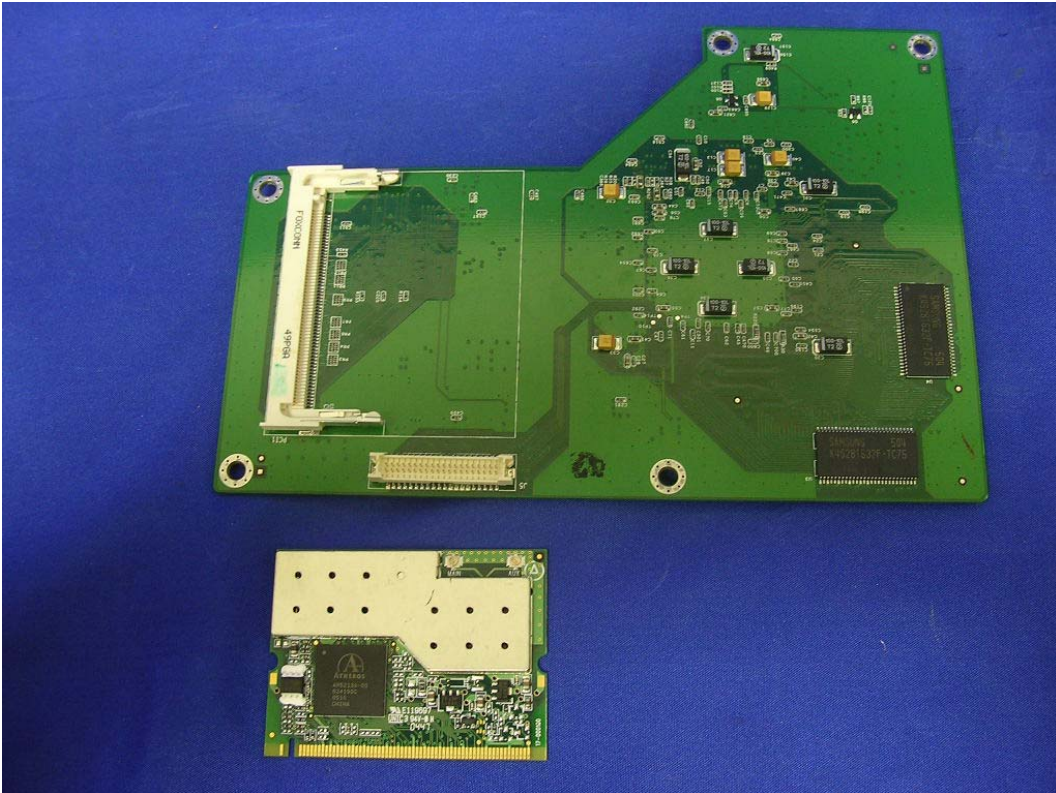
(5) EUT Photo



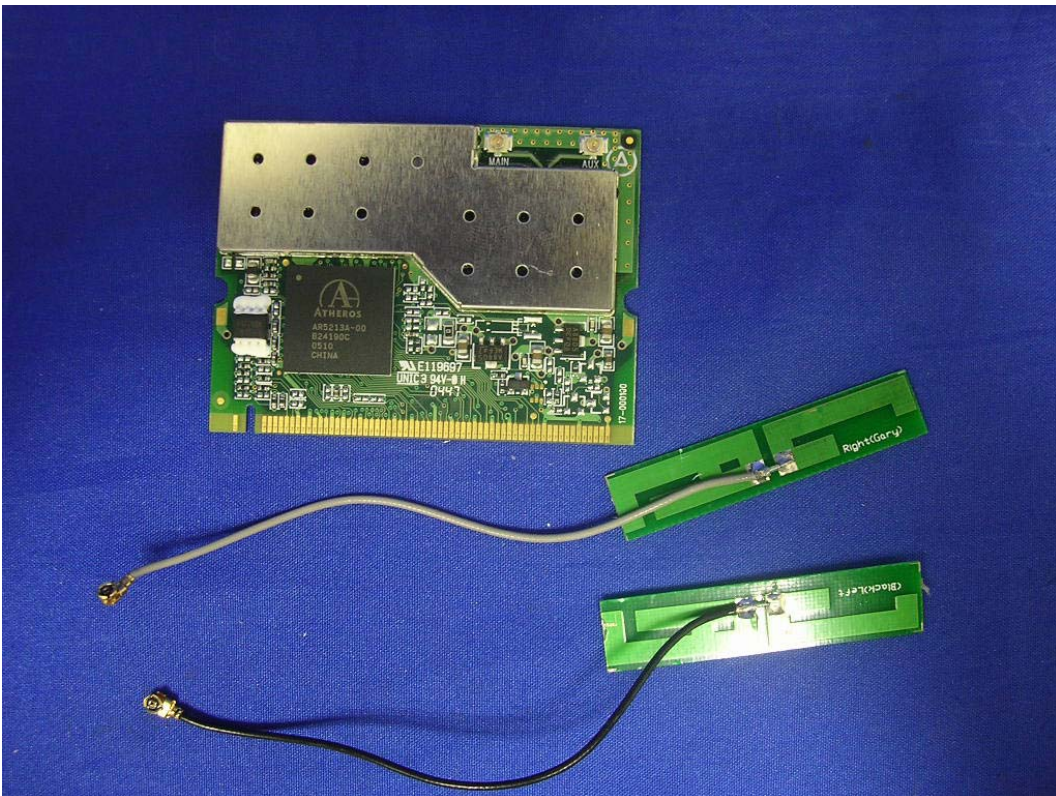
(6) EUT Photo



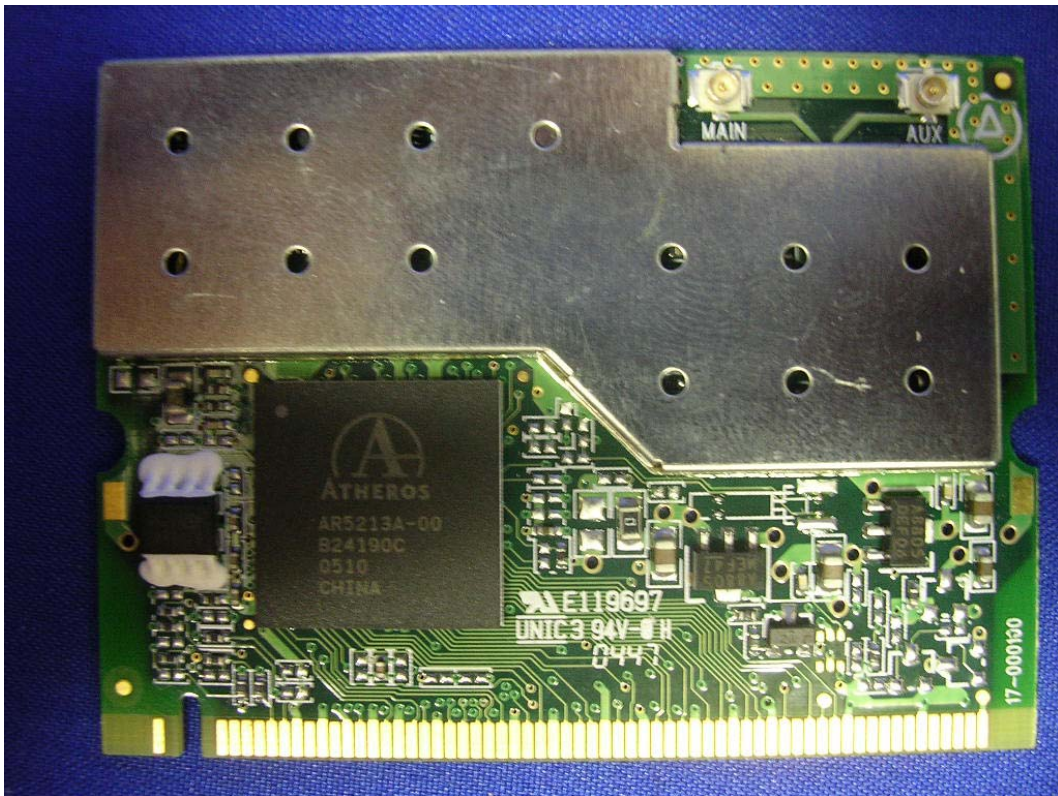
(7) EUT Photo



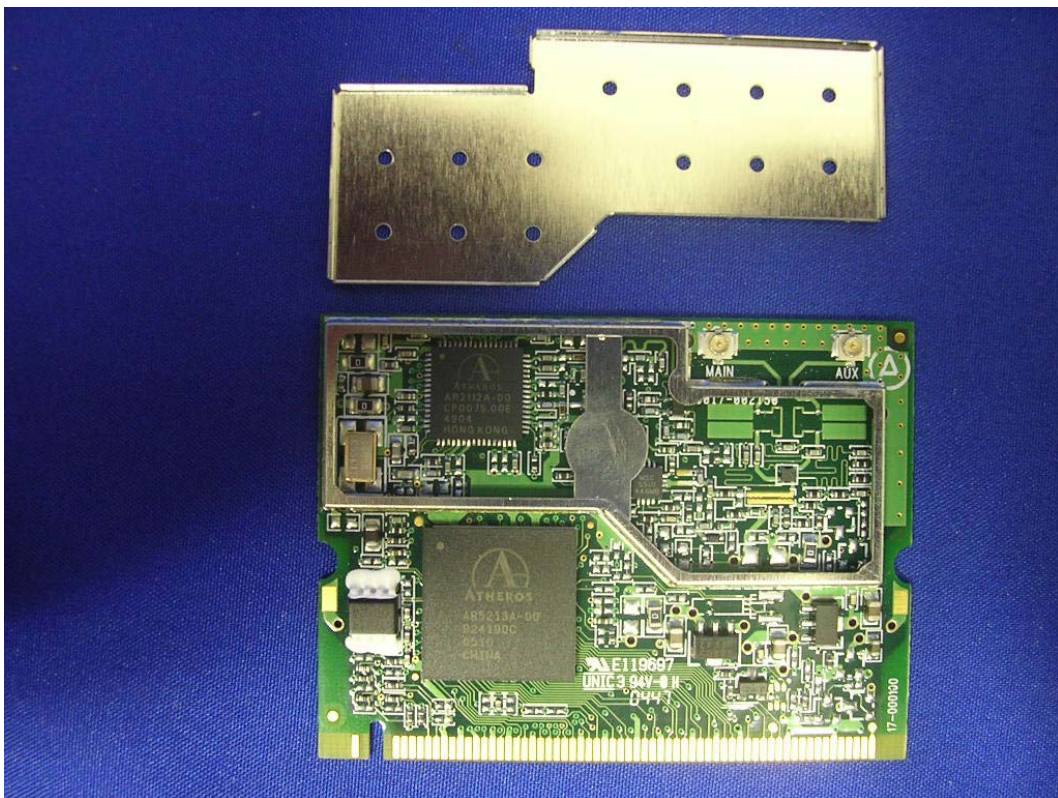
(8) EUT Photo



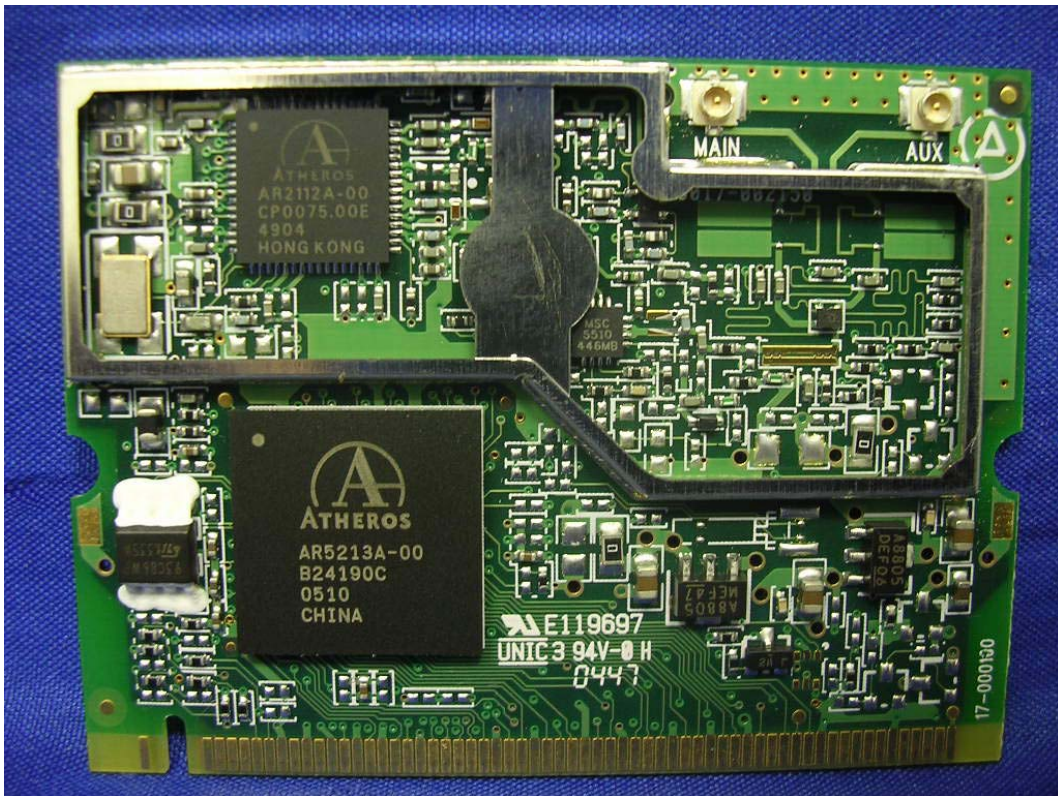
(9) EUT Photo



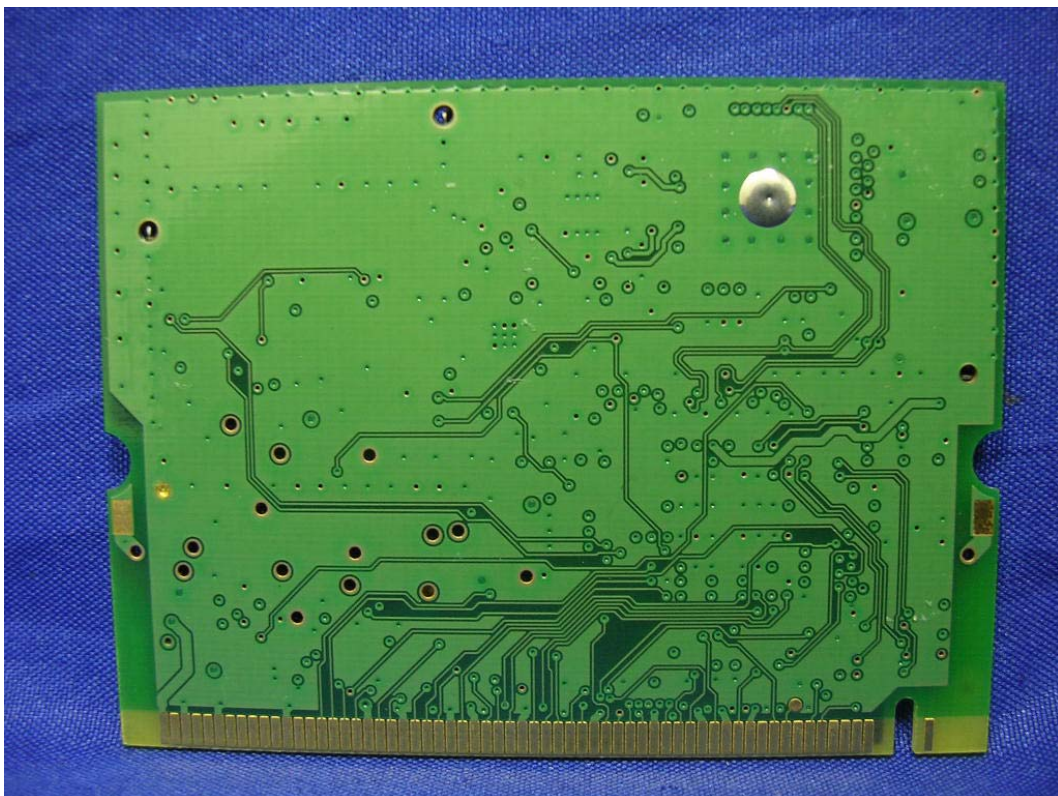
(10) EUT Photo



(11) EUT Photo



(12) EUT Photo



(13) EUT Photo

