ECHNICAL REPORT

卓時檢測
TIMEWAY TESTING LABORATORY

ilac-MRA

CNAS
N0.L2292

ISO/IEC17025Accredited Lab.

Report No: FCC 0611130
File reference No: 2006-12-11

Applicant: ZIOVA Corporation Pty Ltd

Product: High Definition Network Media Player

Model No: CS510

Trademark: ZIOVA

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247& Subpart B

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of electromagnetic compatibility

Approved By

Jack Chung

Jack Chung
Manager

Dated: Dec 11,2006

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.

Tel (755) 83448688 Fax (755) 83442996

Special Statement：

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAL-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

IC- Registration No.: IC5205

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205.

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD
Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.
Telephone: (755) 83448688
Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates
Registration Number: 899988
For 3m & 10 m OATS
Site Listed with Industry Canada of Ottawa, Canada
Registration Number: IC: 5205
For 3m & 10 m OATS

1.2 Applicant Details

Applicant: ZIOVA Corporation Pty Ltd
Address: Unit 3,7-9 Sherrifs Road,Lonsdale
Telephone: 61-883229544
Fax: 61-883229055

1.3 Description of EUT

Product:	High Definition Network Media Player
Manufacturer:	ZIOVA Corporation Pty Ltd
Brand Name:	ZIOVA
Model Number:	CS510
Additional Model Name	N/A
Additional Trade Name	N/A
Rating:	110-240V~, 50-60Hz, 22W，0.1A
Type of Modulation	OFDM
Frequency range	2412-2462MHz
Number of Channel	11
Air Data Rate	54Mbps at 802.11g mode; 11Mbps at 802.11b mode
Frequency Selection	By software
Antenna Designation	Dipole Antenna

1.4 Submitted Sample

1 Sample

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1.5 Test Duration
2006-11-30 to 2006-12-06

1.6 Test Uncertainty
Conducted Emissions Uncertainty =±3.0dB
Radiated Emissions Uncertainty =±6.0dB

1.7 Test Engineer

The sample tested by _____

Print Name: Terry Tang

2.0	**Test Equipments**				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2005-12-01	2006-11-30
Absorbing Clamp	ROHDE&SCHWARZ	MDS-21	100126	2005-12-01	2006-11-30
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2005-12-01	2006-11-30
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2005-12-01	2006-11-30
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2005-12-01	2006-11-30
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2006-03-31	2007-03-30
4-WIRE ISN	ROHDE&SCHWARZ	ENY 41	830663/044	2006-02-20	2007-02-19
GG ENY22 Double 2-Wire ISN	ROHDE&SCHWARZ	ENY22	83066/016	2006-02-20	2007-02-19
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2006-02-20	2007-02-19
System Controller	CT	SC100	-	-	-
Printer	EPSON	PHOTO EX3	CFNH234850	2006-02-20	2007-02-19
FM-AM Signal Generator	JUNG.JIN	SG-150M	389911177	2006-02-20	2007-02-19
Color TV Pattern Generator	PHILIPS	PM5418	LO621747	2006-02-20	2007-02-19

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Computer	IBM	8434	1S8434KCE99BLX LO*	-	-
Oscillator	KENWOOD	AG-203D	3070002	2006-02-24	2007-02-23
Spectrum Analyzer	HAMEG	HM5012	-	-	-
Power Supply	LW	APS1502	-	-	-
5K VA AC Power Source	California Instruments	5001iX	56060	2006-02-20	2007-02-19
CDN	EM TEST	CDN M2/M3	-	2006-02-20	2007-02-19
Attenuation	EM TEST	ATT6/75	-	2006-02-20	2007-02-19
Resistance	EM TEST	R100	-	2006-02-20	2007-02-19
Electromagnetic Injection Clamp	LITTHI	EM101	35708	2006-02-20	2007-02-19
Inductive Components	EM TEST	MC2630	-	2006-02-20	2007-02-19
Antenna	EM TEST	MS100	-	2006-02-20	2007-02-19
Signal Generator	ROHDE&SCHWARZ	SMT03	100029	2006-02-06	2007-02-05
Power Amplifier	AR	150W1000	300999	2006-02-06	2007-02-05
Field probe	Holaday	HI-6005	105152	2006-02-06	2007-02-05
Bilog Antenna	Chase	CBL6111C	2576	2006-02-06	2007-02-05
Loop Antenna	EMCO	6502	00042960	2006-02-06	2007-02-05
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2006-02-06	2007-02-05
3m OATS	--	--	N/A	2006-02-06	2007-02-05

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(c)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co.,Ltd

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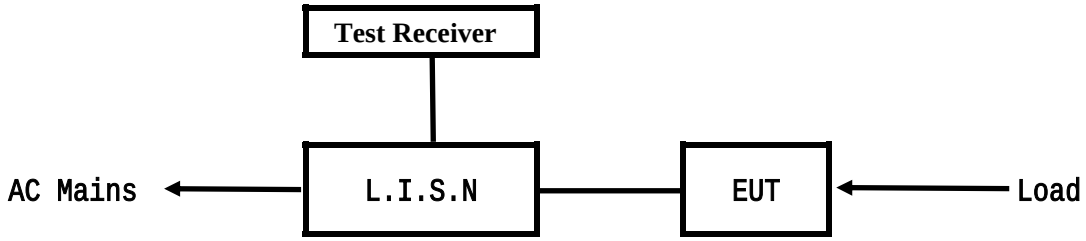
5. Power Line Conducted Emission Test

5.1 Schematics of the test

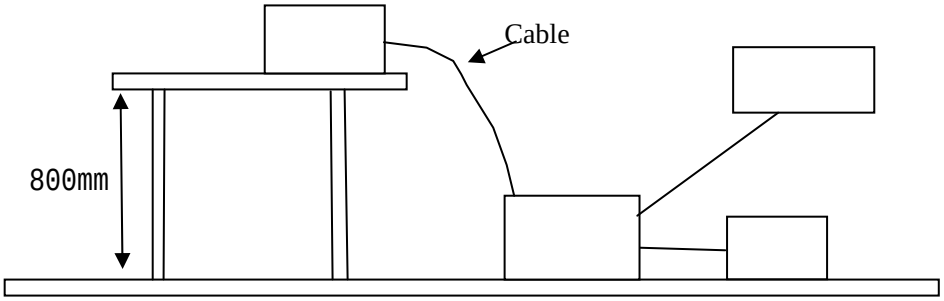


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2001.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2001.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2001. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Two channels are provided to the EUT

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	--	--

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A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Definition Network Media Player	ZIOVA Corporation Pty Ltd	CS510	T3ACS510

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2001.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Class A Limits (dB μ V)		Class B Limits (dB μ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

Note: 1. Mode: 802.11g transmitting test
2. The RF- chip combined with 802.11g & 802.11b mode. It will auto-detect the situation then switch the mode. The 802.11g mode is the worse case than the 802.11b mode. So it is only listed the 802.11g mode.

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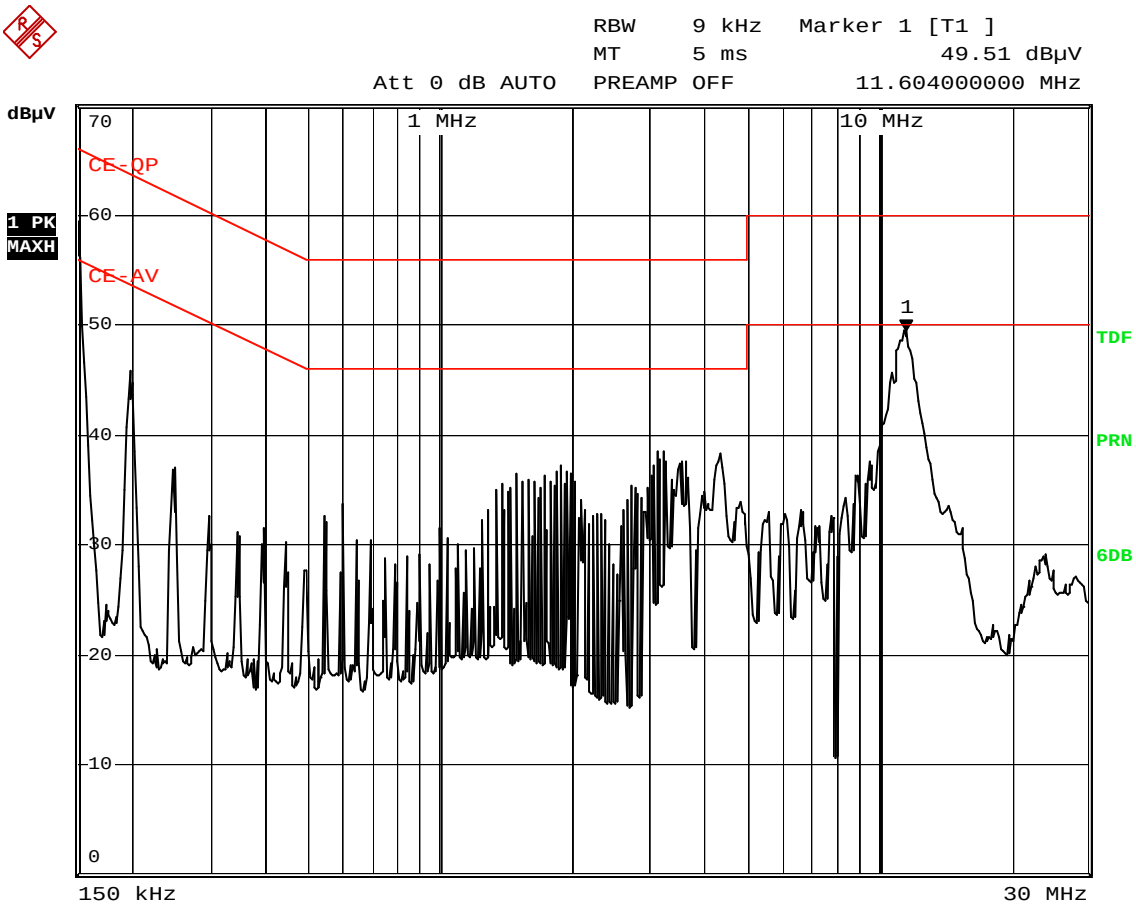
A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Transmitting at channel 1 under 802.11g mode

Results: **Pass**

Please refer to following diagram for individual



Date: 2.DEC.2006 16:14:25

Frequency (MHz)	Reading(dB µ V)				Limit (dB µ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.150	57.70	44.57	--	--	66.00	56.00
0.198	45.09	36.04	--	--	63.70	53.70
0.246	35.17	29.13	--	--	61.90	51.90
1.884	36.02	35.81	--	--	56.00	46.00
11.546	46.17	38.62	--	--	60.00	50.00

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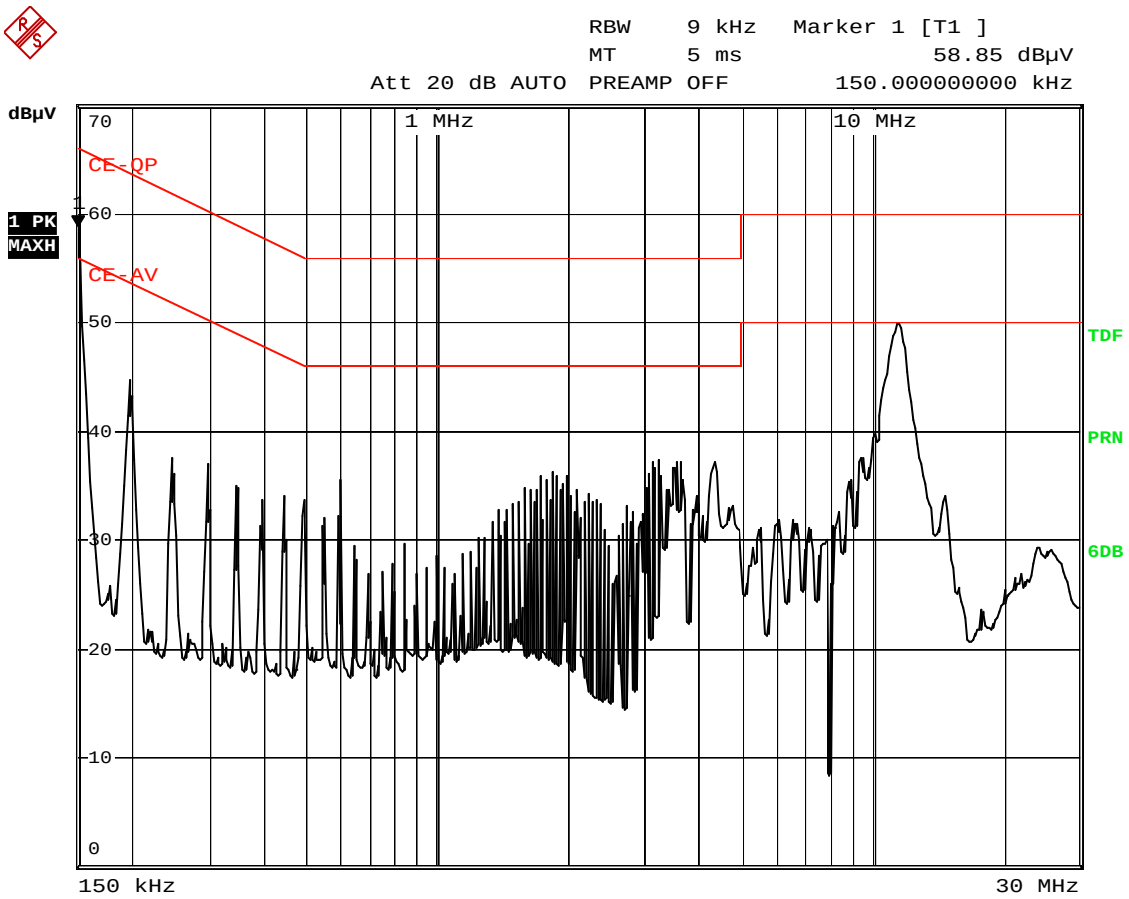
B **Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)**

EUT set Condition: Transmitting at channel 1 under 802.11g mode

Results: **Pass**

Please refer to following diagram for individual



Date: 2.DEC.2006 16:10:49

Frequency (MHz)	Reading(dB µ V)				Limit (dB µ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.150	--	--	57.46	43.28	66.00	56.00
0.198	--	--	43.30	32.65	63.70	53.70
0.246	--	--	35.58	31.20	61.90	51.90
1.836	--	--	34.33	33.68	56.00	46.00
11.556	--	--	47.65	38.53	60.0	50.0

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6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.4 –2001. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2001.

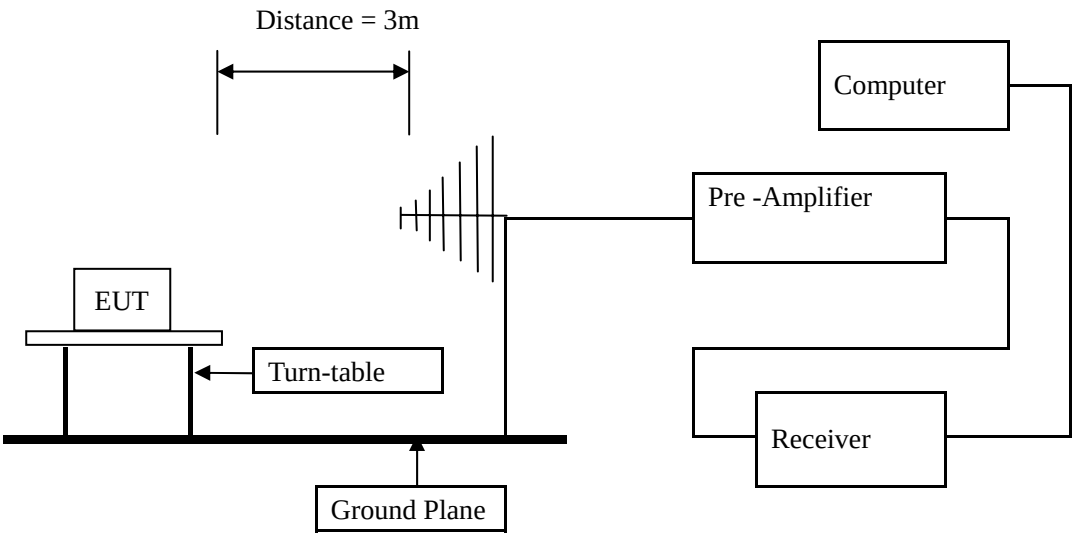
(3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 KHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz . Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209.

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

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Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Wireless 802.11g mode at channel 1

Results: **Pass**

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
132.04	27.13	H	43.50
144.04	27.79	H	43.50
165.00	30.18	H	43.50
250.00	34.05	H	46.00
264.00	39.13	H	46.00
297.00	36.26	H	46.00
858.00	37.29	H	40.00
165.00	27.98	V	43.50
198.00	27.56	V	43.50
264.00	32.68	V	46.00
330.00	28.76	V	46.00

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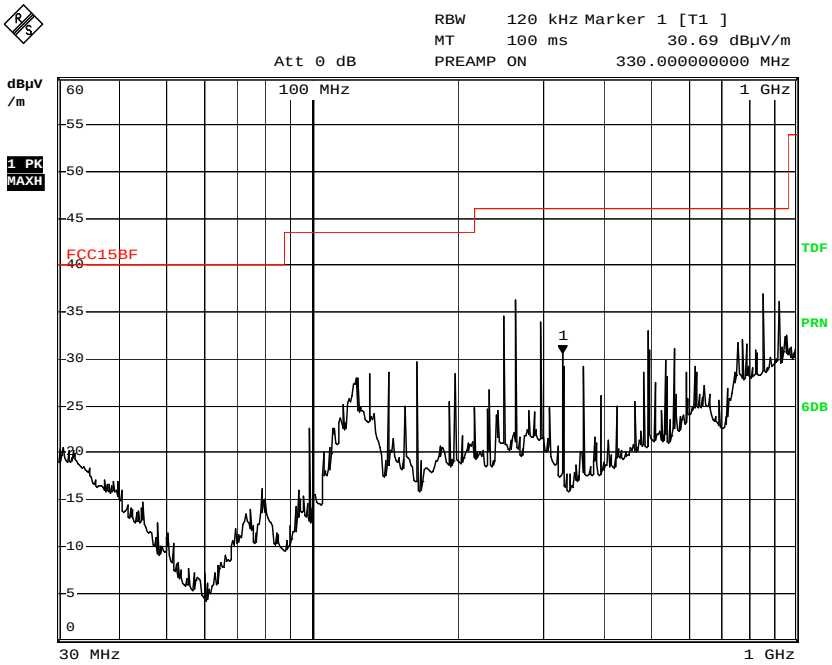
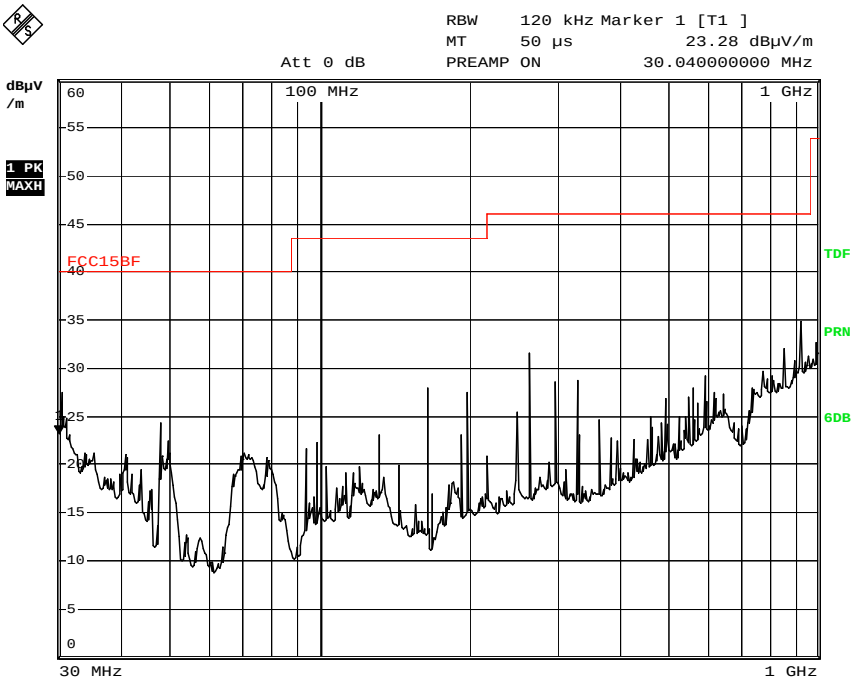
Test Figure:

H



Date: 2.DEC.2006 16:30:44

V



Date: 2.DEC.2006 16:24:59

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EUT set Condition: **Wireless 802.11b mode at channel 1**

Results: **Pass**

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
165.00	28.75	H	43.50
264.00	37.29	H	46.00
858.00	36.98	H	46.00
165.00	28.02	V	43.50
264.00	30.58	V	46.00

Note: 1. Emission level (dBμV/m) =Antenna Factor (dB/m) + Cable loss (dB) + Meter Reading (dBμV).

2. According to technical experiences, all spurious emission at channel 1,6,11 are almost the same below 1GHz,so that the channel 1 was chosen as representation for the test.

Operation Mode: Transmitting & Receiving

CH01

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4824.00	--	H/V	74(Peak)/ 54(AV)
4824.00	--	H/V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11b mode

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Operation Mode: Transmitting & Receiving

CH06

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4874.00	--	H/V	74(Peak)/ 54(AV)
4874.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11b mode

Operation Mode: Transmitting & Receiving

CH11

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4874.00	--	H/V	74(Peak)/ 54(AV)
4874.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11b mode

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Operation Mode: Transmitting & Receiving

CH01

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4924.00	--	H/V	74(Peak)/ 54(AV)
4924.00	--	H/V	74(Peak)/ 54(AV)
7386.00	--	H/V	74(Peak)/ 54(AV)
7386.00	--	H/V	74(Peak)/ 54(AV)
9848.00	--	H/V	74(Peak)/ 54(AV)
9848.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11g mode

Operation Mode: Transmitting & Receiving

CH06

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4874.00	--	H/V	74(Peak)/ 54(AV)
4874.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit
2. Remark "---" means that the emissions level is too low to be measured
3. For 802.11g mode

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Operation Mode: Transmitting & Receiving

CH11

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB μ V/m)
4924.00	--	H/V	74(Peak)/ 54(AV)
4924.00	--	H/V	74(Peak)/ 54(AV)
7386.00	--	H/V	74(Peak)/ 54(AV)
7386.00	--	H/V	74(Peak)/ 54(AV)
9848.00	--	H/V	74(Peak)/ 54(AV)
9848.00	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode

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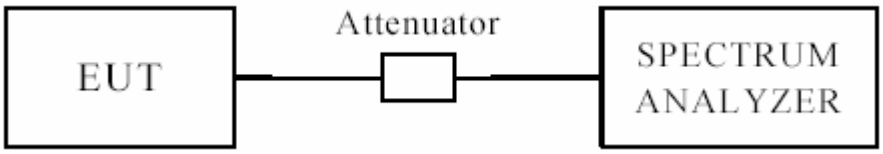
7. 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500KHz

7.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator.

The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 100 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4 Test Result

EUT	High Definition Network Media Player	Model	CS510
Mode	802.11b	Input Voltage	100-240V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	1	12.553	0.5	Pass
		2	12.400		
		5.5	12.200		
		11	11.600		
6	2437	1	12.667	0.5	Pass
		2	12.553		
		5.5	12.220		
		11	12.333		
11	2462	1	12.400	0.5	Pass
		2	12.533		
		5.5	13.000		
		11	11.600		

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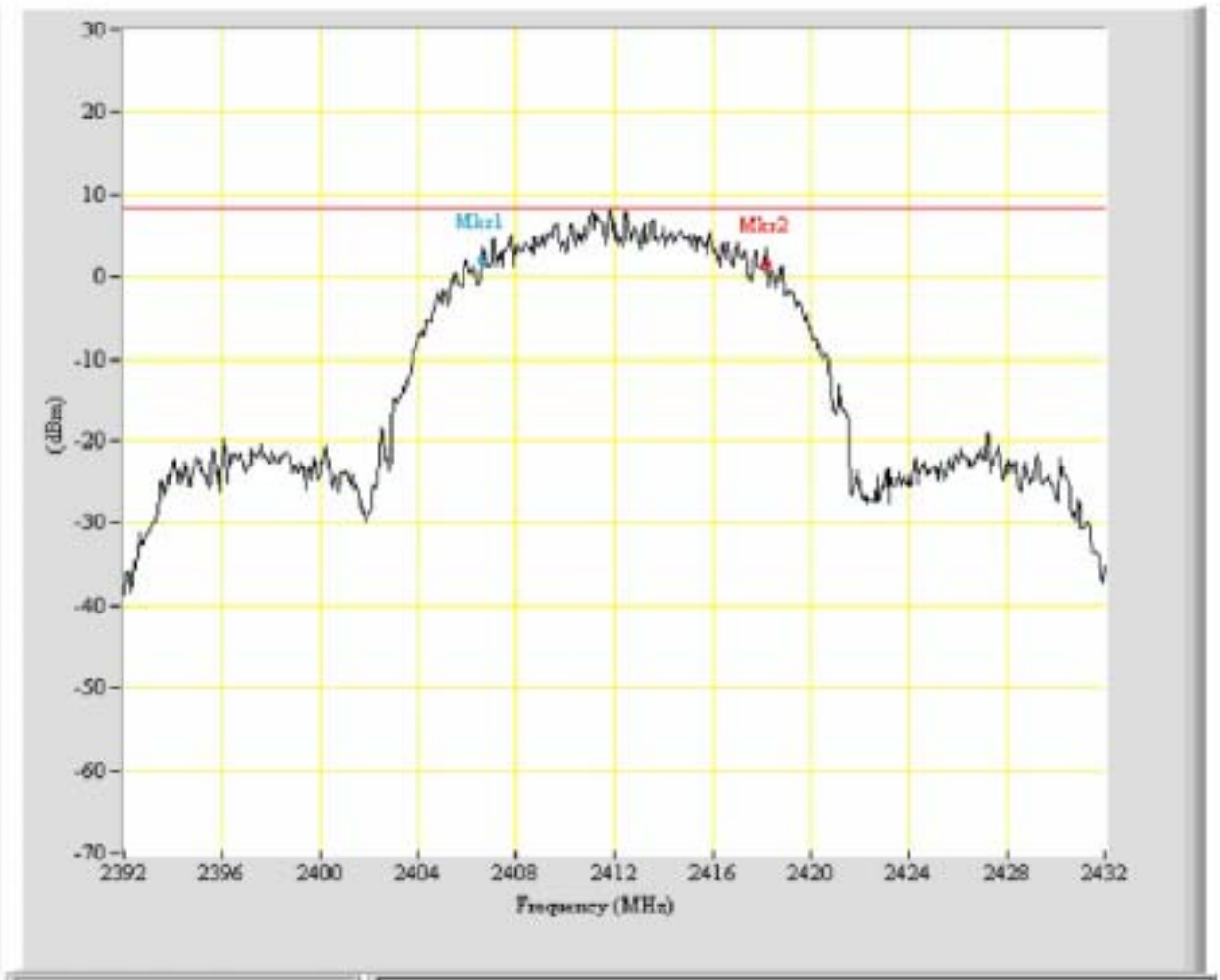
Test Figure:

1.Condition: 802.11b at 11Mbps of CH01



*Center 2412.0000MHz	Display Line 8.340dBm
*SPAN 40.0000MHz	Δ Marker -11.6000MHz -0.340dB
*RBW 100.00kHz	Mkr1 2406.600MHz 1.840dBm
*VBW 100.00kHz	Mkr2 2418.200MHz 1.500dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

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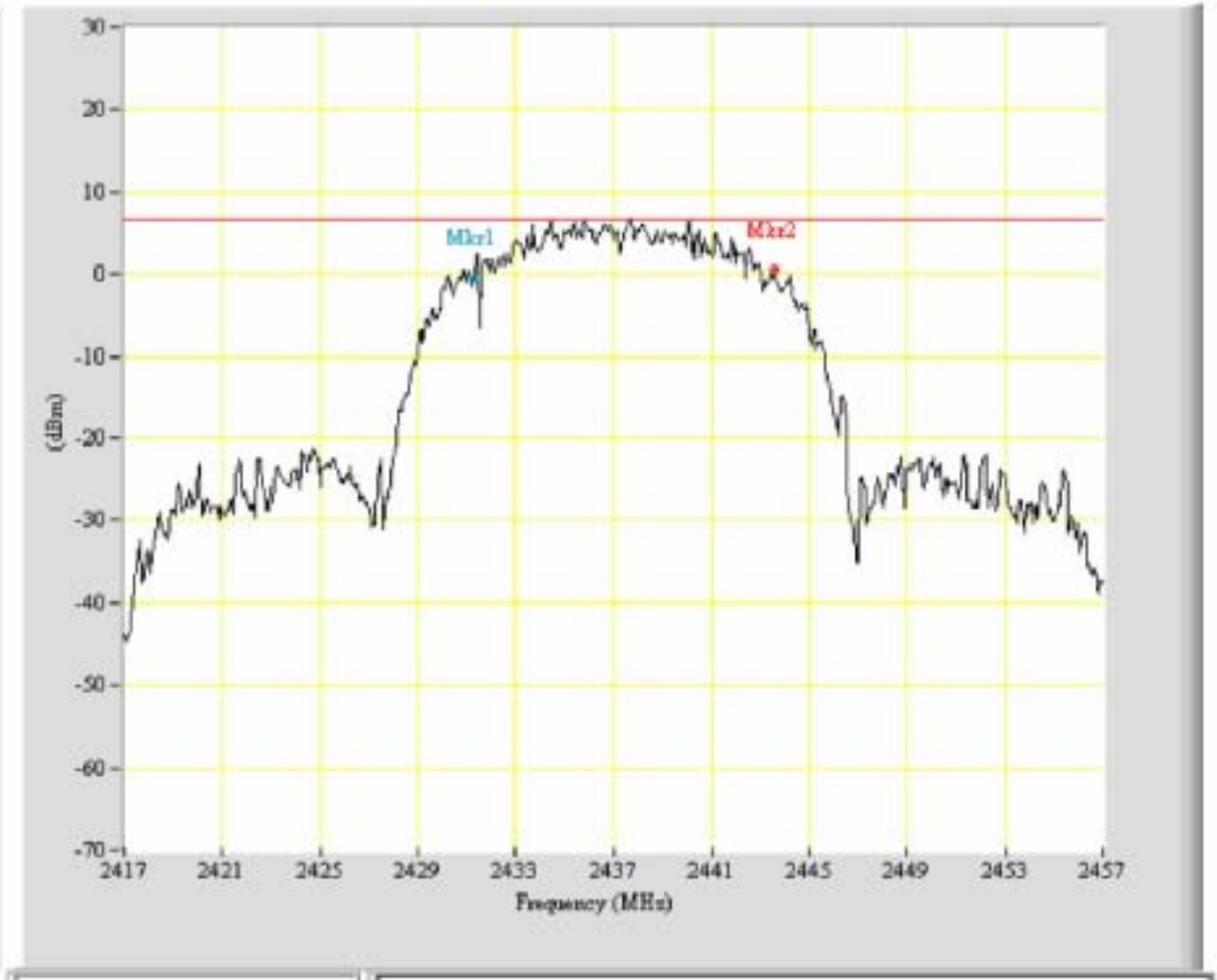
2. Condition: 802.11b at 5.5Mbps of CH06



*Center 2437.0000MHz	Display Line 6.670dBm
*SPAN 40.0000MHz	Δ Marker -12.2000MHz 1.000dB
*RBW 100.00kHz	Mkr1 2431.333MHz -0.500dBm
*VBW 100.00kHz	Mkr2 2443.533MHz 0.500dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

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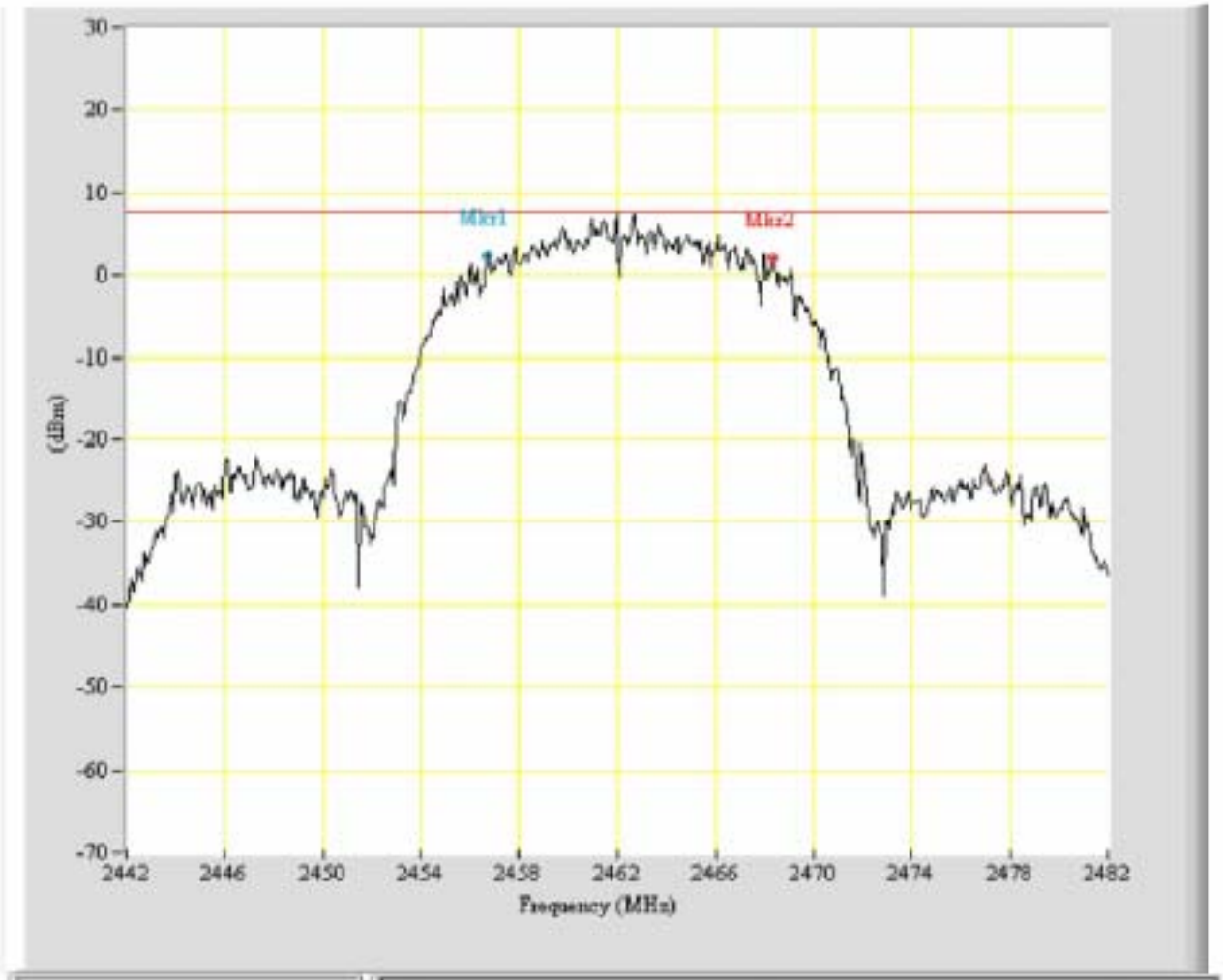
3. 802.11b at 11Mbps of CH11



*Center 2462.0000MHz	Display Line 7.670dBm
*SPAN 40.0000MHz	Δ Marker -11.6000MHz -0.170dB
*RBW 100.00kHz	Mkr1 2456.733MHz 2.170dBm
*VBW 100.00kHz	Mkr2 2468.333MHz 2.000dBm
*SWP 50.00msec	
*ATTEN 40.00dB	
*RL 30.00dBm	

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EUT	High Definition Network Media Player	Model	CS510
Mode	802.11g	Input Voltage	100-240V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	6	16.627	0.5	Pass
		9	16.133		
		12	16.333		
		18	16.067		
		24	16.533		
		36	16.600		
		48	16.533		
		54	16.533		
6	2437	6	16.200	0.5	Pass
		9	16.400		
		12	16.200		
		18	16.200		
		24	16.533		
		36	16.533		
		48	16.267		
		54	16.467		
11	2462	6	16.267	0.5	Pass
		9	16.533		
		12	16.200		
		18	16.467		
		24	16.667		
		36	16.533		
		48	16.533		
		54	16.667		

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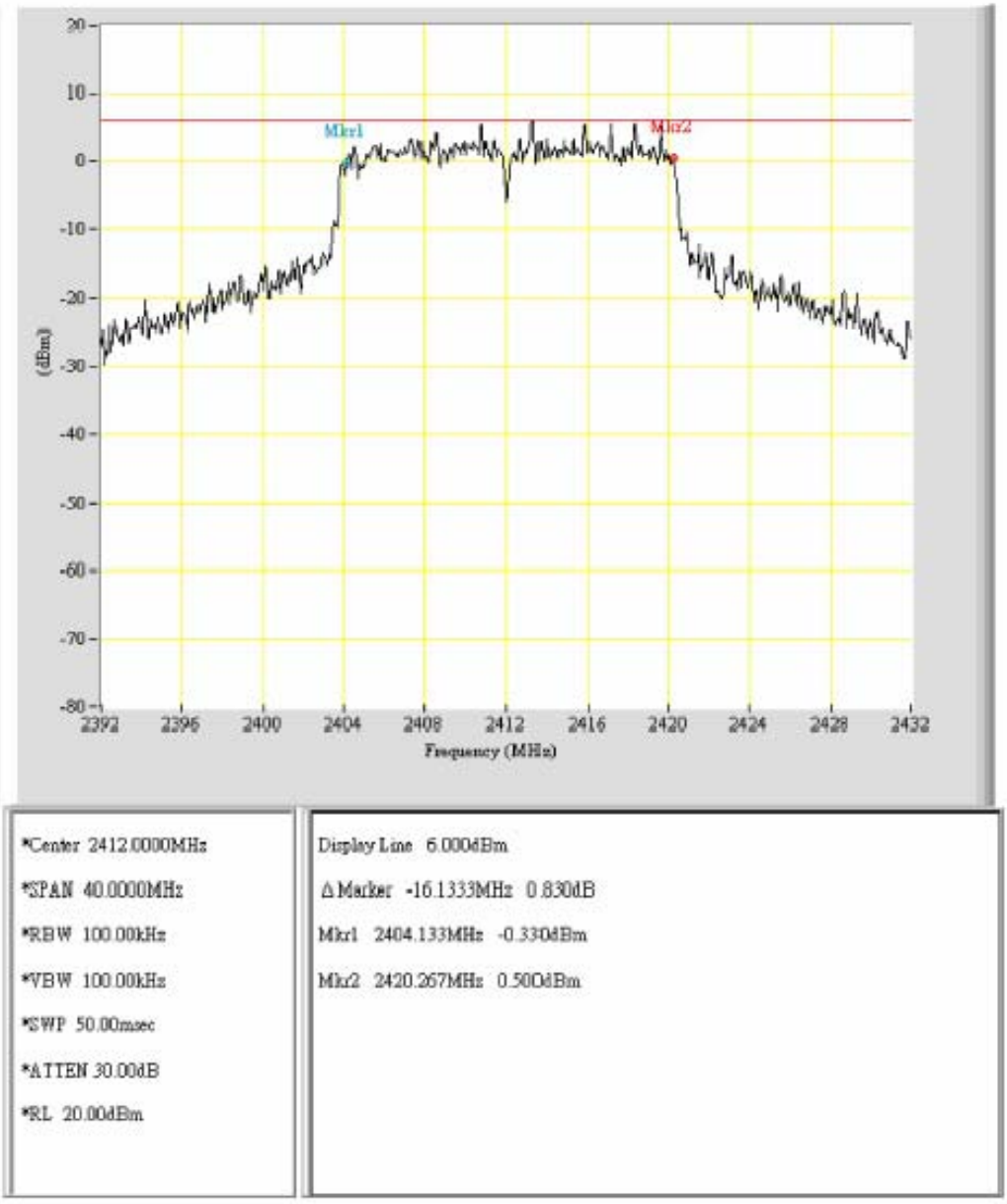
Test Figure:

1. 802.11g at 9Mbps of CH01



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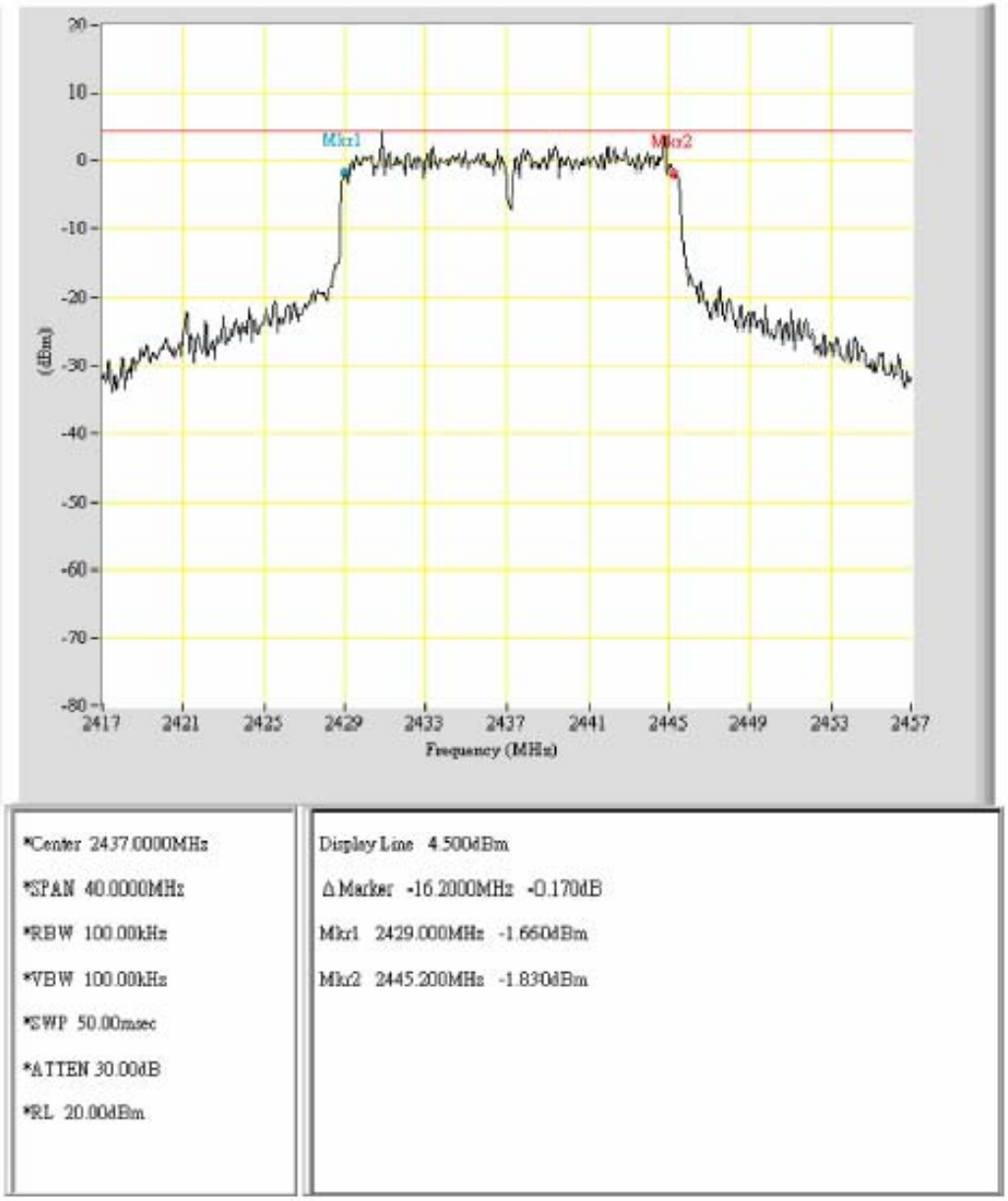
2. 802.11g at 18Mbps of CH06



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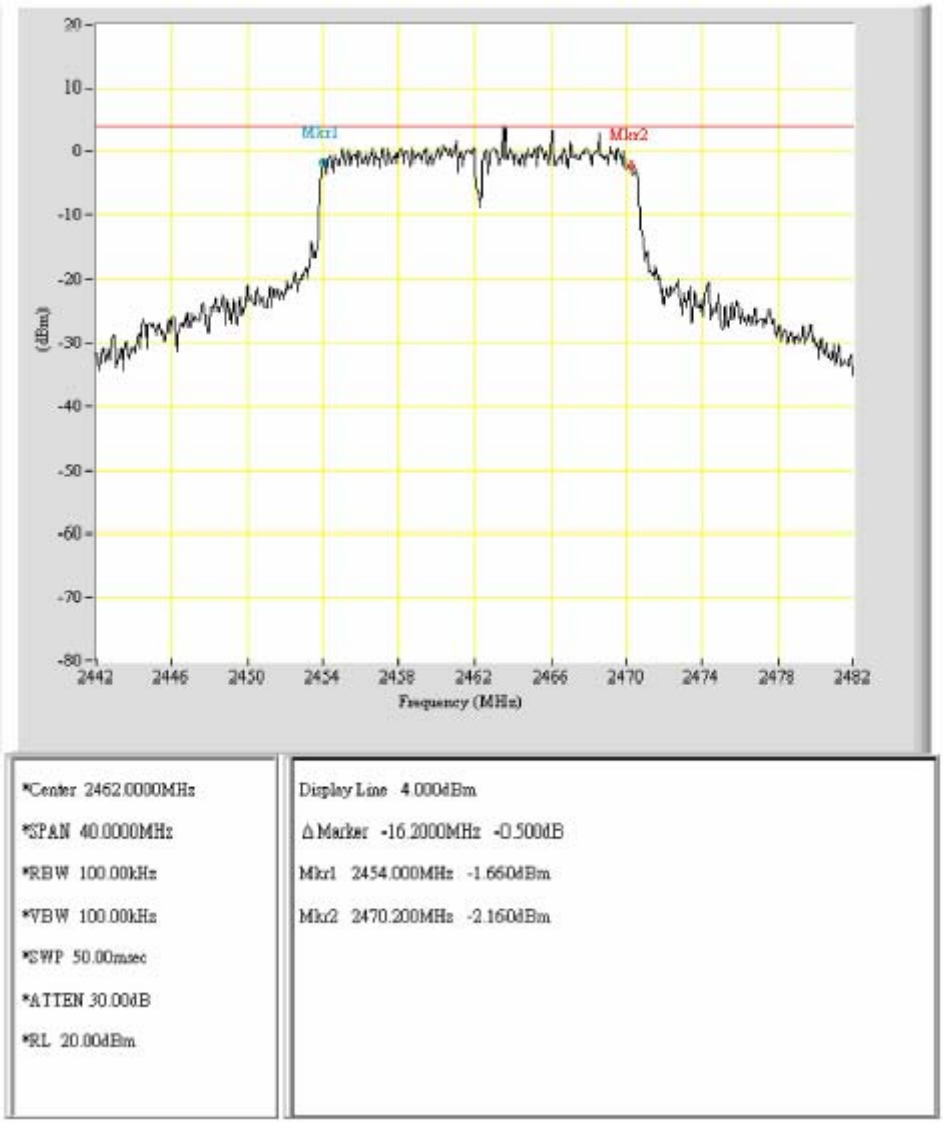
3. 802.11g at 12Mbps of CH11



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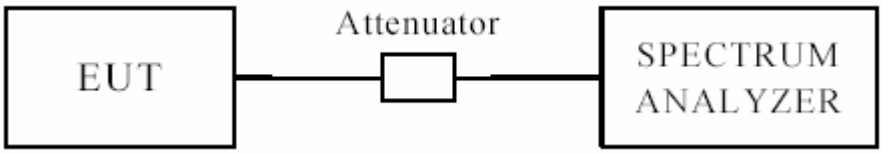
8. Maximum Peak Output Power

8.1 Test Setup



8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

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8.4Test Results

EUT	High Definition Network Media Player	Model	CS510
Mode	802.11b	Input Voltage	100-240V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	24.68	30	Pass
6	2437	24.16	30	Pass
11	2462	24.02	30	Pass

Note: 1. At finial test to get the worst-case emission at 11Mbps.
2. The result basic equation calculation as follow:
Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	High Definition Network Media Player	Model	CS510
Mode	802.11g	Input Voltage	100-240V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	25.74	30	Pass
6	2437	25.40	30	Pass
11	2462	25.11	30	Pass

Note: 1. At finial test to get the worst-case emission at 9Mbps.
2. The result basic equation calculation as follow:
Peak Power Output = Peak Power Reading + Cable loss + Attenuator

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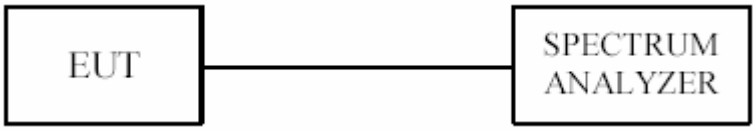
9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3KHz RBW and 10kHz VBW, set sweep time=100000.00ms

The power spectral density was measured and recorded.

The sweep time is allowed to be longer than span / 3KHz for a full response of the mixer in the spectrum analyzer.

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9.4Test Result

EUT	High Definition Network Media Player		Model	CS510
Mode	802.11b		Input Voltage	100-240V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)	Maximum Limit (dBm)	Pass/ Fail
1	2412	-5.00	8	Pass
6	2437	-4.84	8	Pass
11	2462	-4.99	8	Pass

Note: For 11Mbps (802.11b mode) at finial test to get the worst-case emission at 11Mbps.

EUT	High Definition Network Media Player		Model	CS510
Mode	802.11g		Input Voltage	100-240V~
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Final RF Power Level in 3kHz BW (dBm)	Maximum Limit (dBm)	Pass/ Fail
1	2412	-10.50	8	Pass
6	2437	-9.50	8	Pass
11	2462	-10.66	8	Pass

Note: For 54Mbps (802.11g mode) at finial test to get the worst-case emission at 6Mbps for CH01 and CH6 & 9Mbps for CH11.

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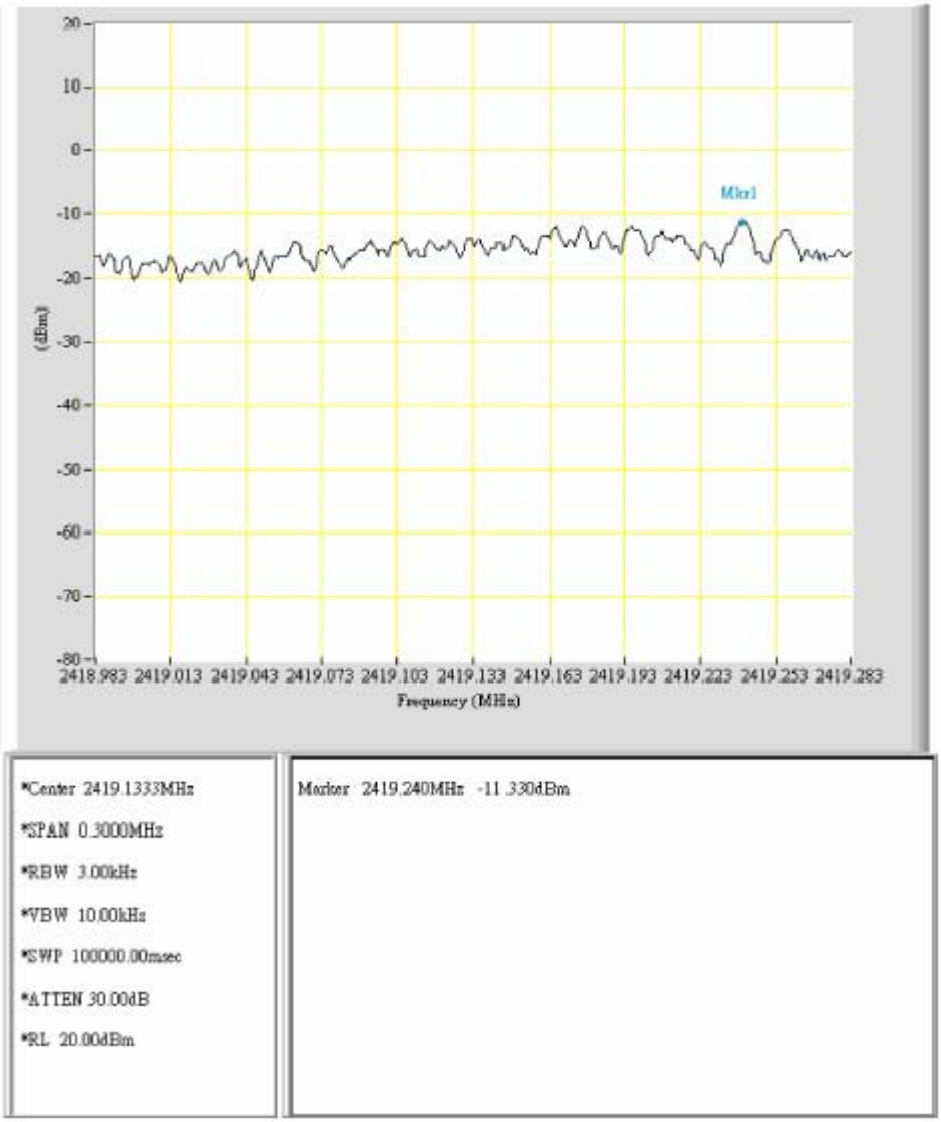
9.5Photo of Power Spectral Density Measurement

1.802.11g at 6Mbps of CH01



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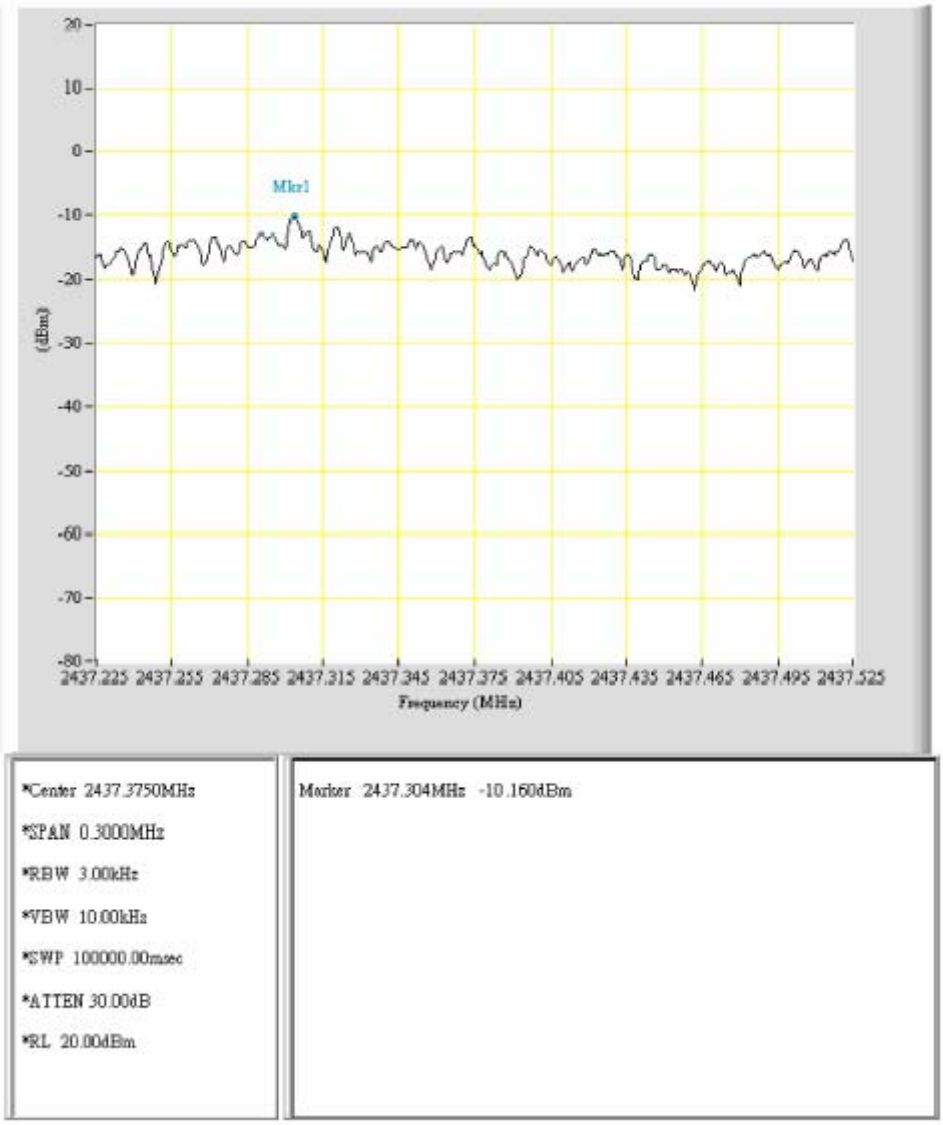
2. 802.11g at 6Mbps at CH06



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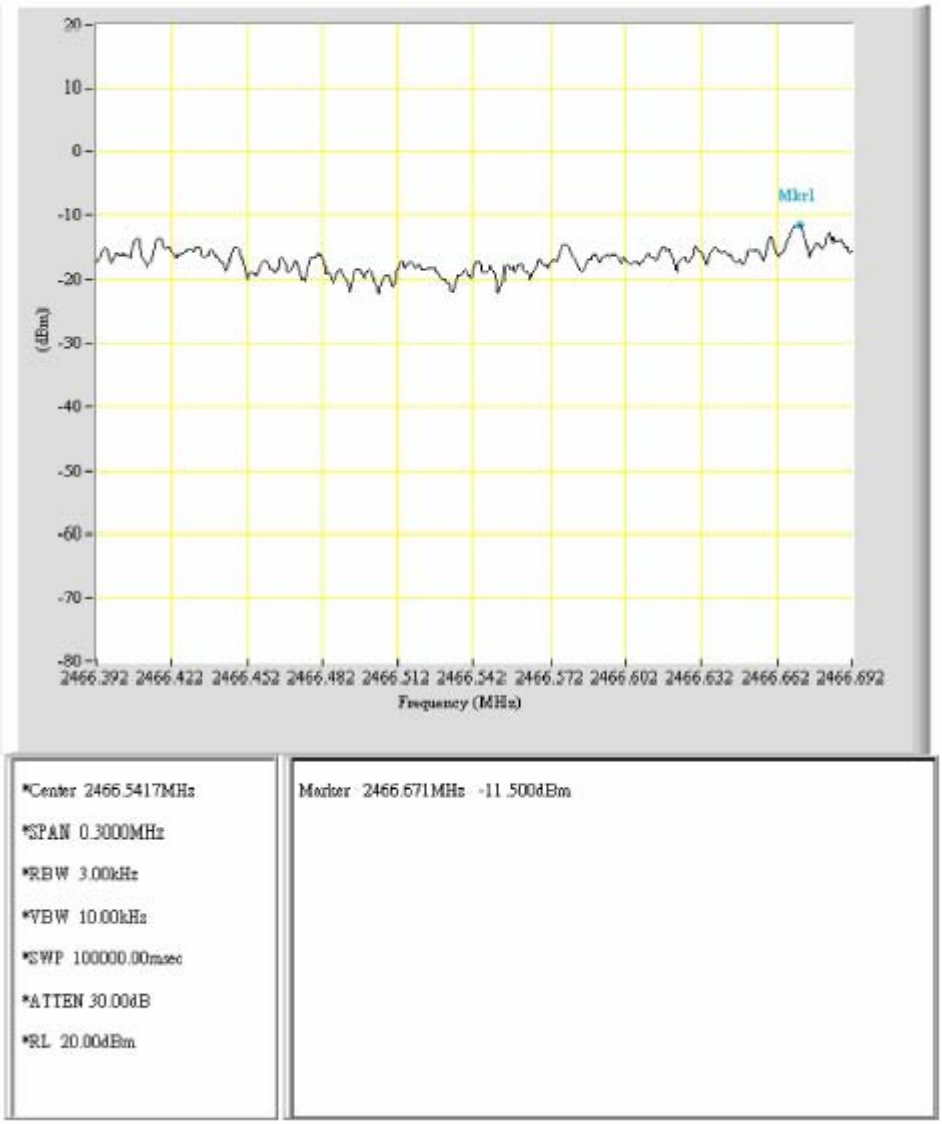
3. 802.11g at 9Mbps of CH11



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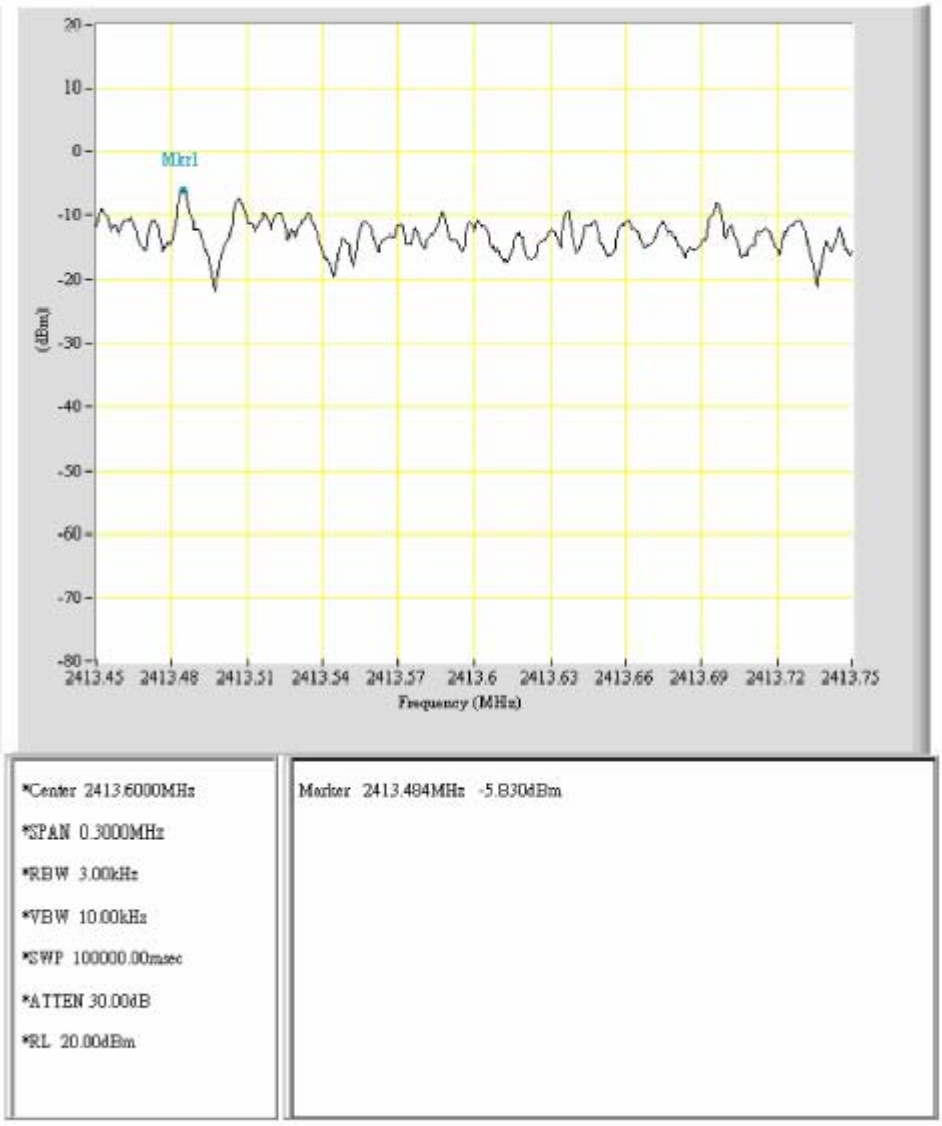
4. 802.11b at 11Mbps of CH01



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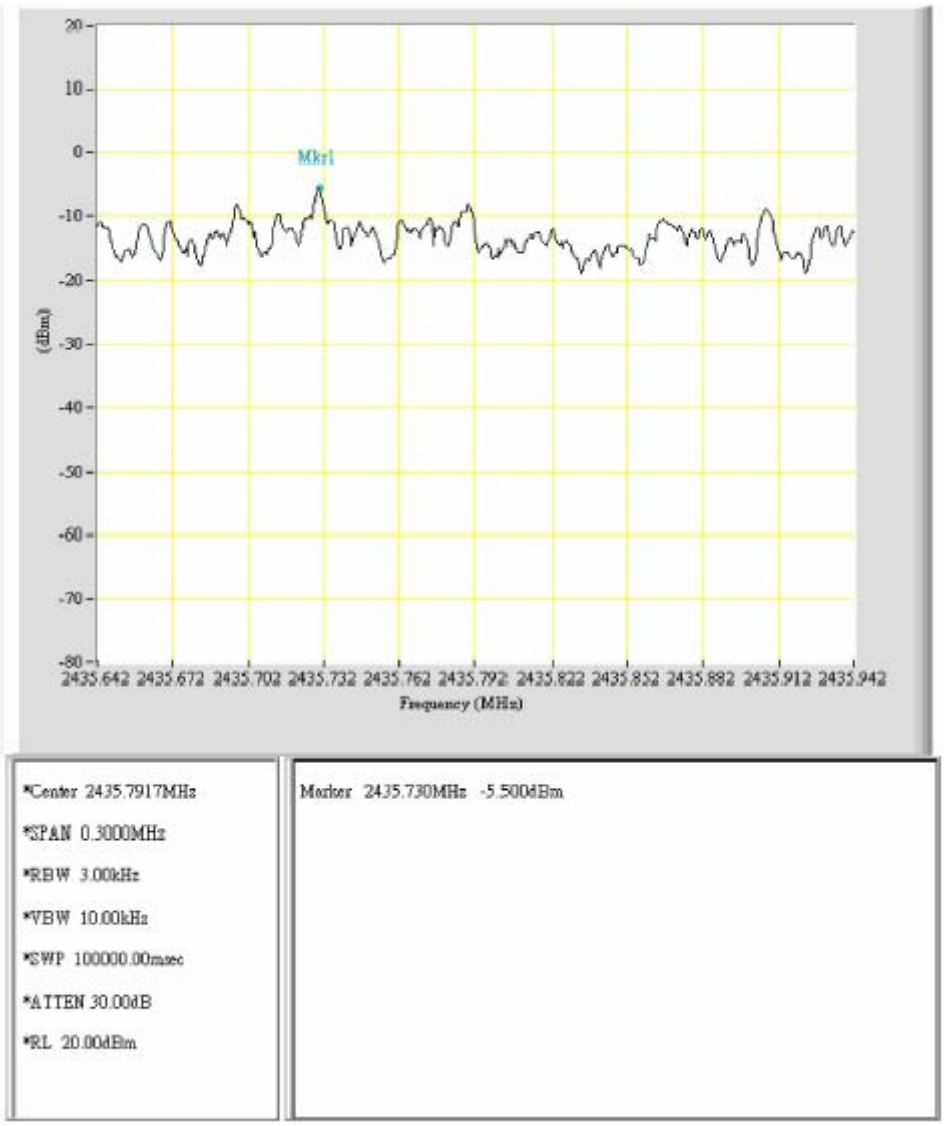
5. 802.11b at 11Mbps of CH06



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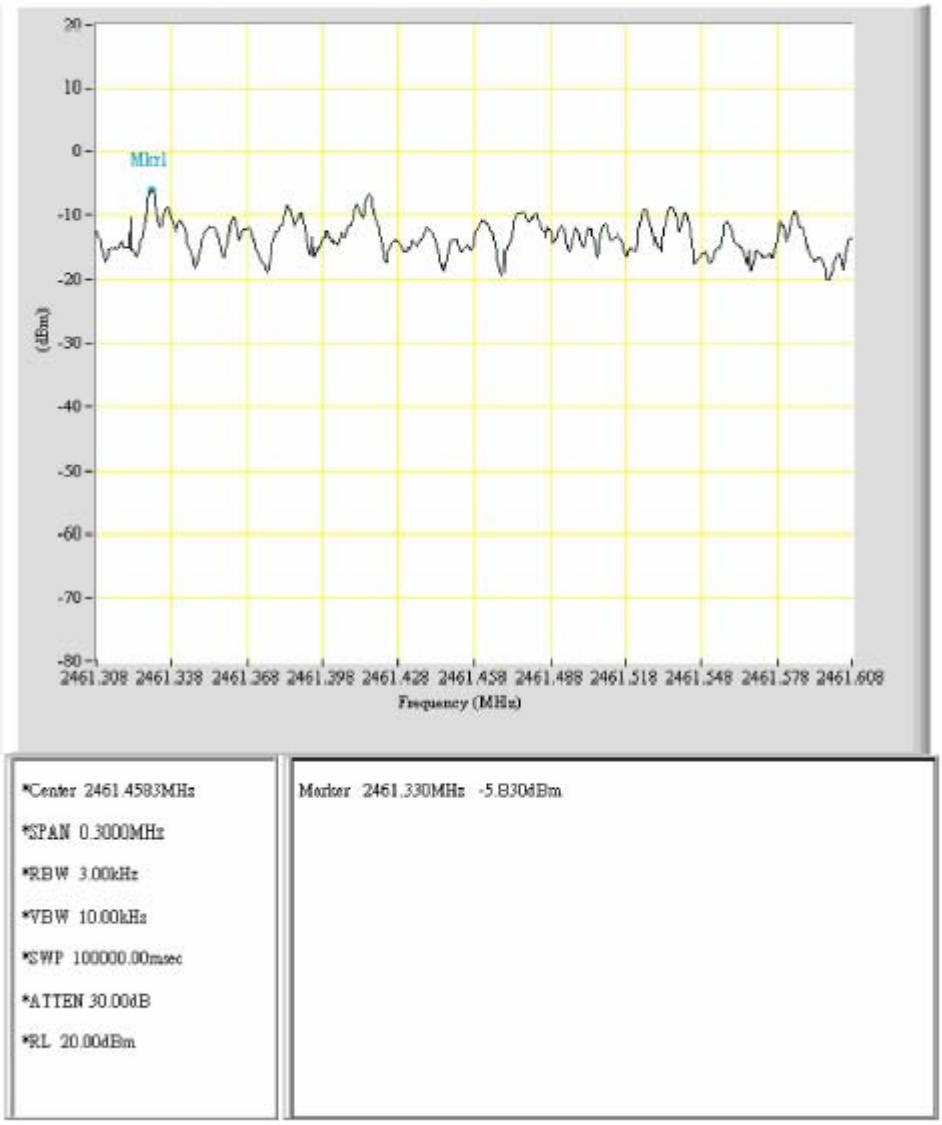
6. 802.11b at 11Mbps of CH11



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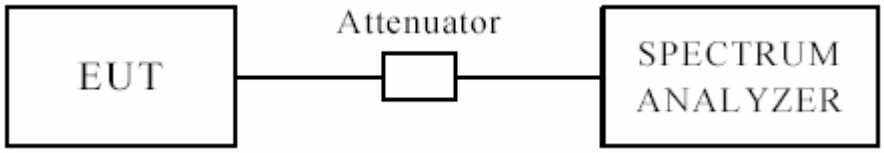
10 Out of Band Measurement

10.1 Test Setup



10.2 Limits of Out of Band Emissions Measurement

1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100KHz bandwidth from band edge. The band edges was measured and recorded.

10.4Test Result

For 802.11b mode

EUT	High Definition Network Media Player		Model		CS510	
Mode	802.11b at channel 1		Input Voltage		100-240V~	
Temperature	24 deg. C,		Humidity		56% RH	
Frequency (MHz)	Result @ 3m (dB μ V/m)				Limit @ 3m (dB μ V/m)	
	H		V			
	Peak	Ave	Peak	Ave	Peak	Ave
2390	47.8	--	47.7	--	74	54
2483.5	48.3	--	48.3	--	74	54

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EUT	High Definition Network Media Player			Model	CS510	
Mode	802.11b at channel 11			Input Voltage	100-240V~	
Temperature	24 deg. C,			Humidity	56% RH	
Frequency (MHz)	Result @ 3m (dB μ V/m)				Limit @ 3m (dB μ V/m)	
	H		V			
	Peak	Ave	Peak	Ave	Peak	Ave
2390	48.0	--	47.9	--	74	54
2483.5	49.2	--	49.3	--	74	54

For 802.11g Mode

EUT	High Definition Network Media Player			Model	CS510	
Mode	802.11g at channel 1			Input Voltage	100-240V~	
Temperature	24 deg. C,			Humidity	56% RH	
Frequency (MHz)	Result @ 3m (dB μ V/m)				Limit @ 3m (dB μ V/m)	
	H		V			
	Peak	Ave	Peak	Ave	Peak	Ave
2390	49.2	--	49.1	--	74	54
2483.5	48.8	--	48.7	--	74	54

EUT	High Definition Network Media Player			Model	CS510	
Mode	802.11g at channel 11			Input Voltage	100-240V~	
Temperature	24 deg. C,			Humidity	56% RH	
Frequency (MHz)	Result @ 3m (dB μ V/m)				Limit @ 3m (dB μ V/m)	
	H		V			
	Peak	Ave	Peak	Ave	Peak	Ave
2390	48.3	--	48.1	--	74	54
2483.5	49.7	--	49.6	--	74	54

Note: Due to the test peak value is less than 54dB μ V/m , the average also should be less than 54 dB μ V/m. This meets FCC's requirement.

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11.0 Antenna Requirement

11.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

The antenna type used in this product is Dipole antenna with reverse polarity SMA connector. The maximum Gain of this antenna is 3.3dBi.

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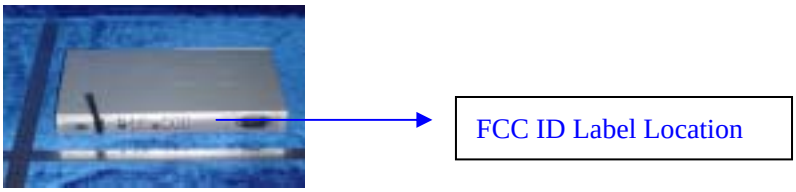
12.0 FCC ID Label

FCC ID: T3ACS510

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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13.0 Photo of testing

13.1 Conducted test View--

13.2 Photo for the EUT

Outside View

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13.3 Photo for the EUT

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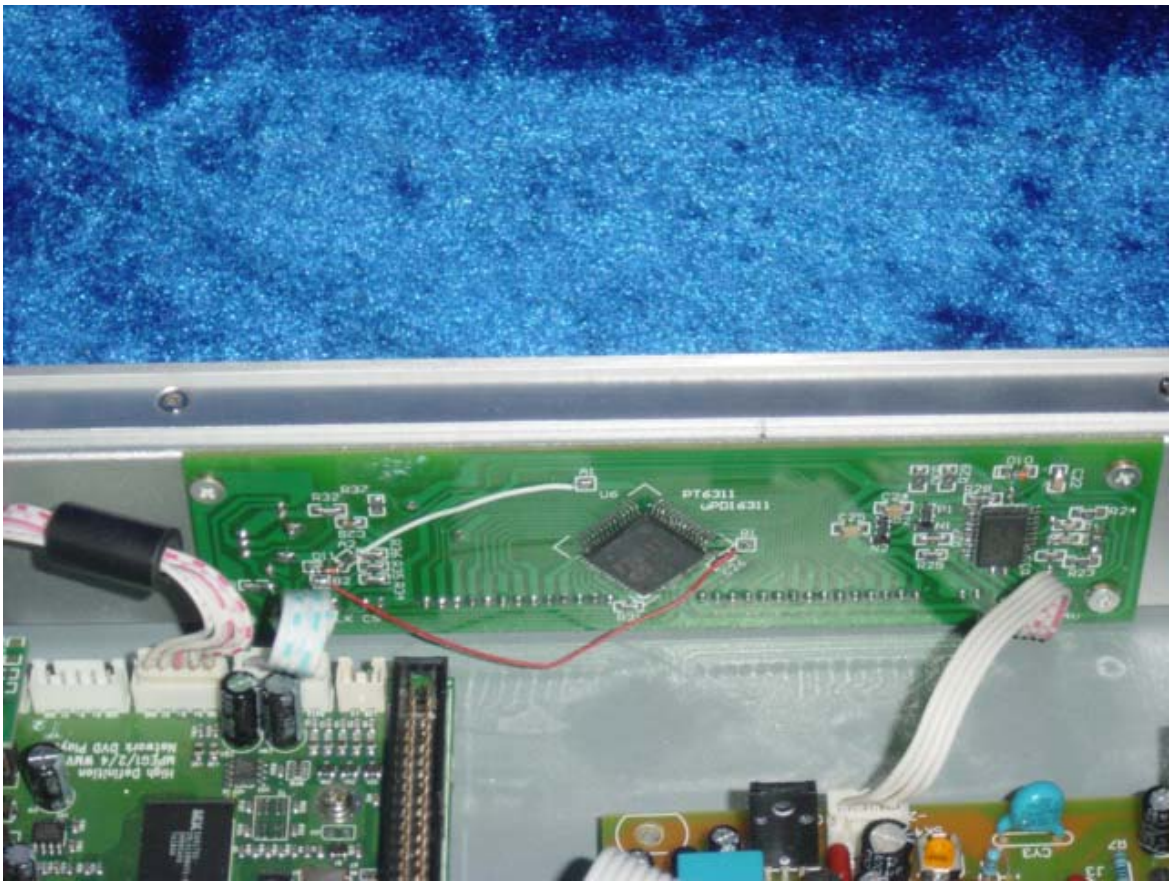
Interior View



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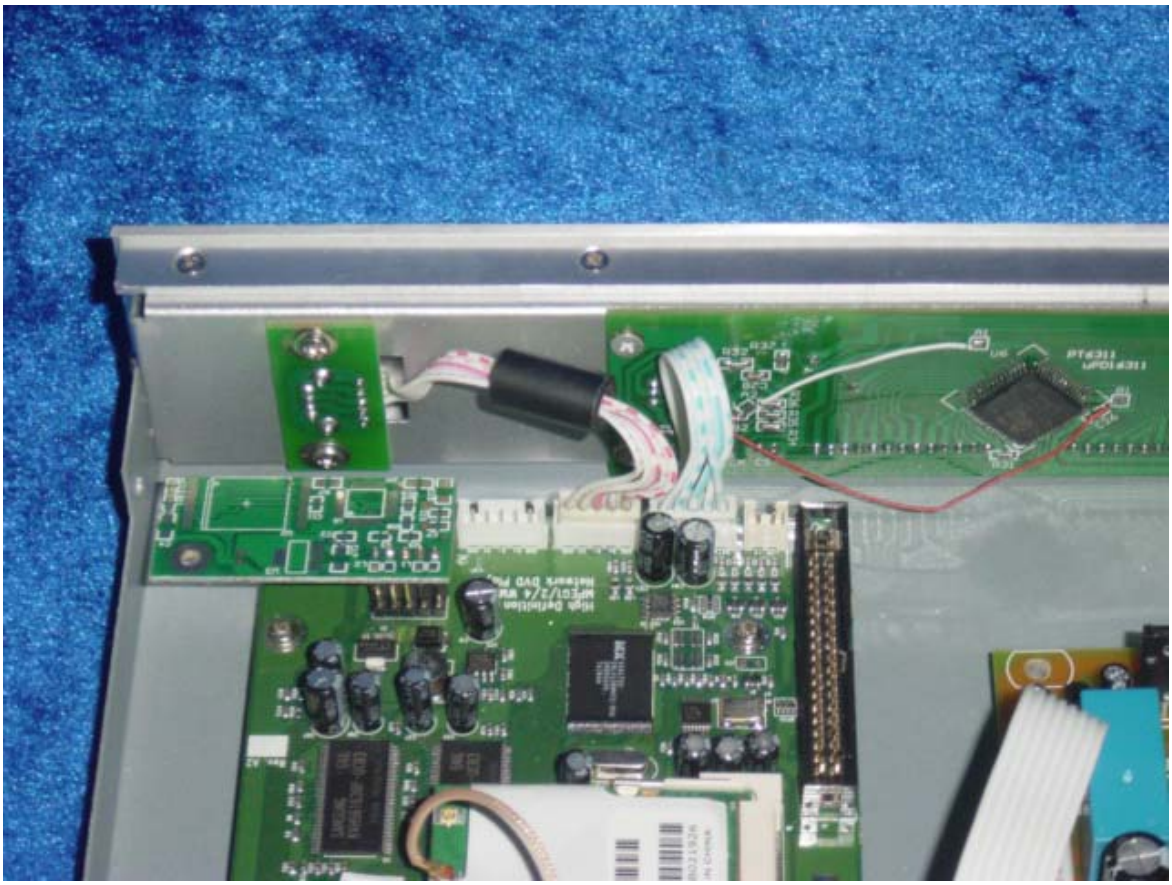

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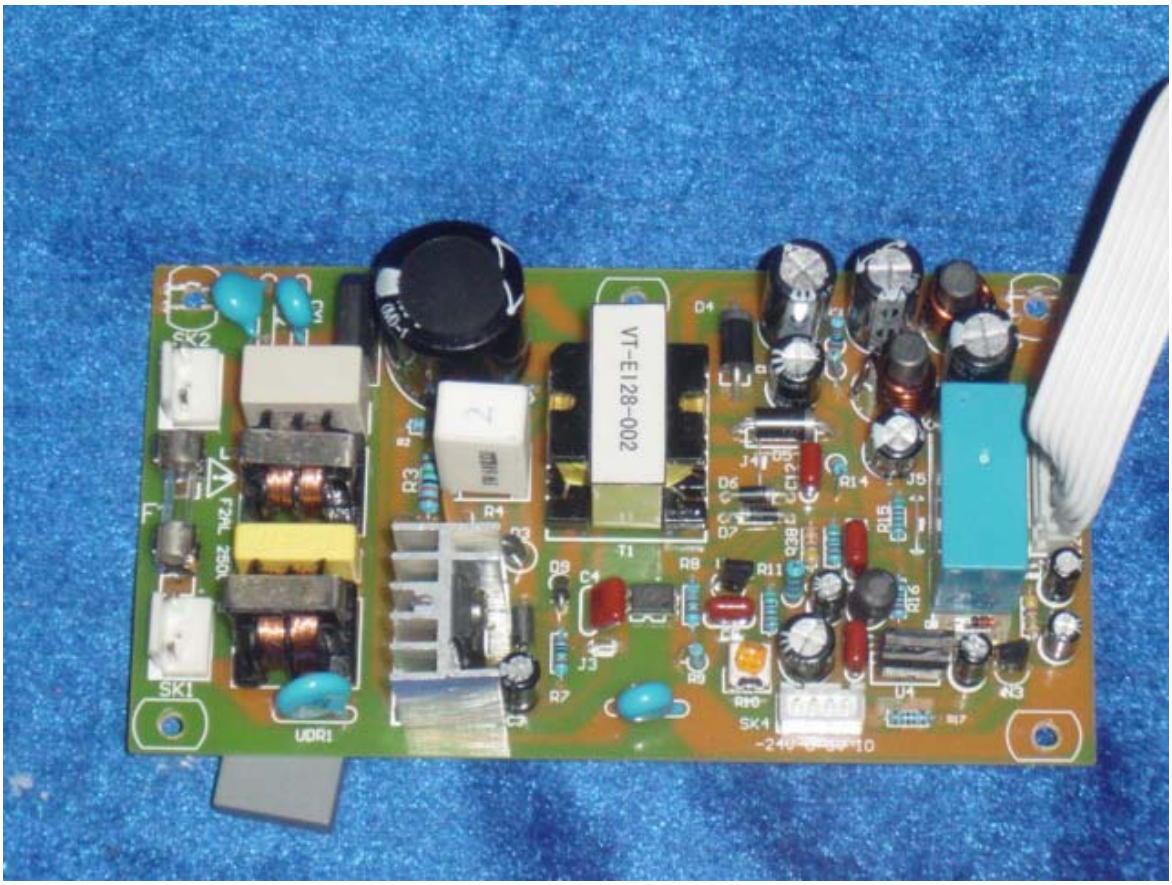

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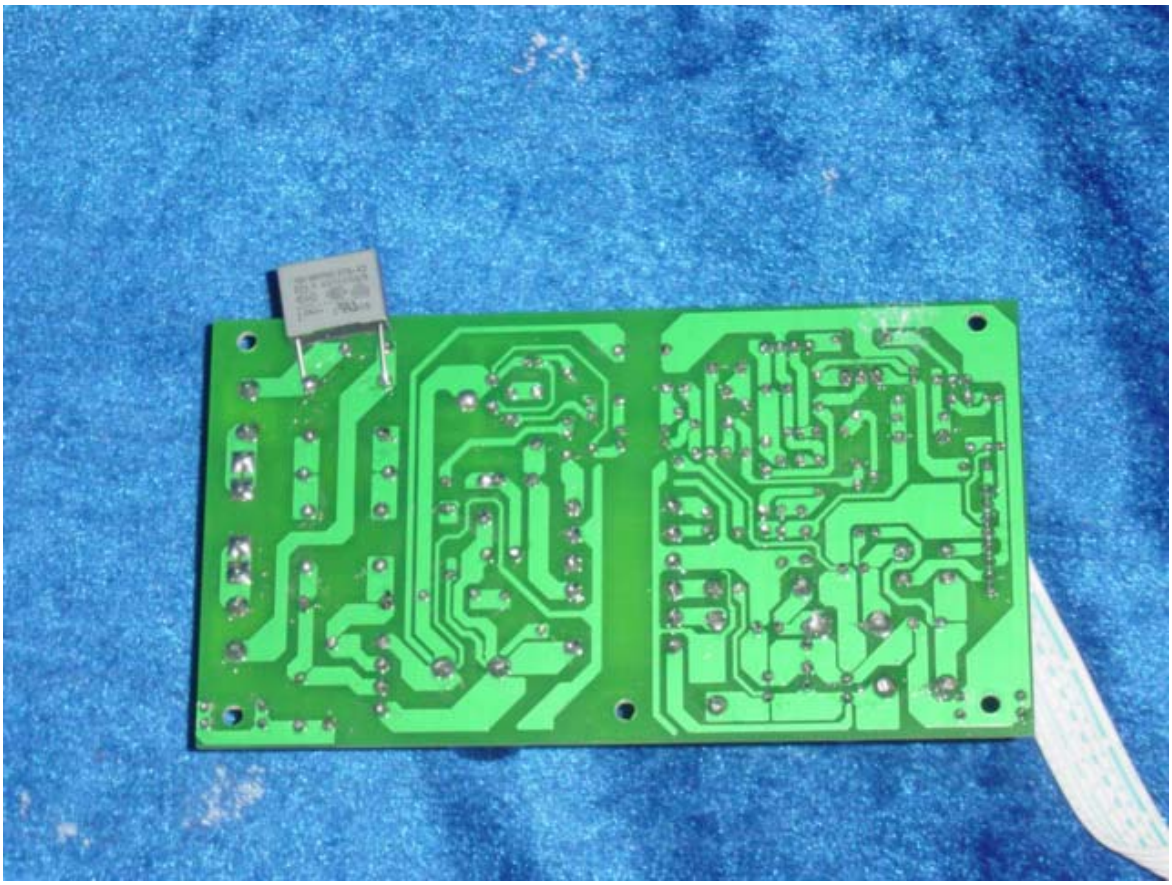

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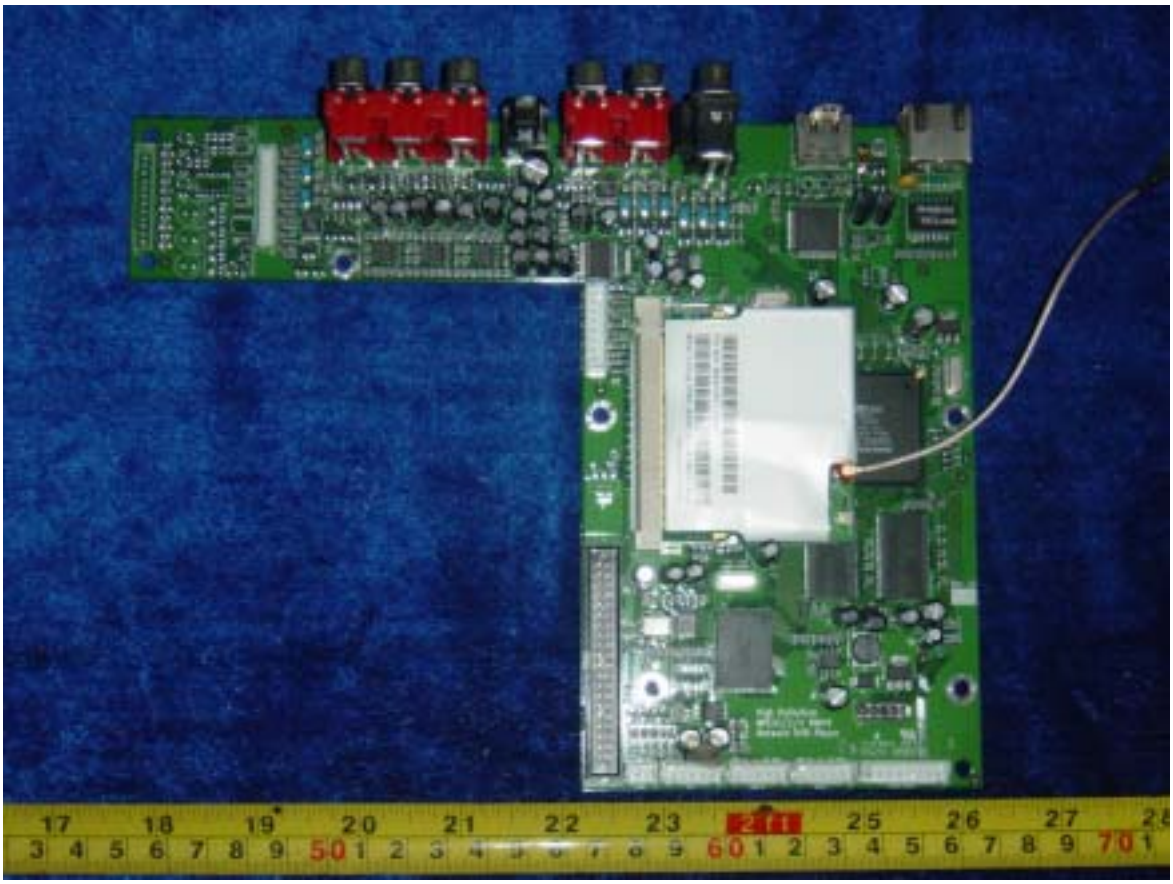

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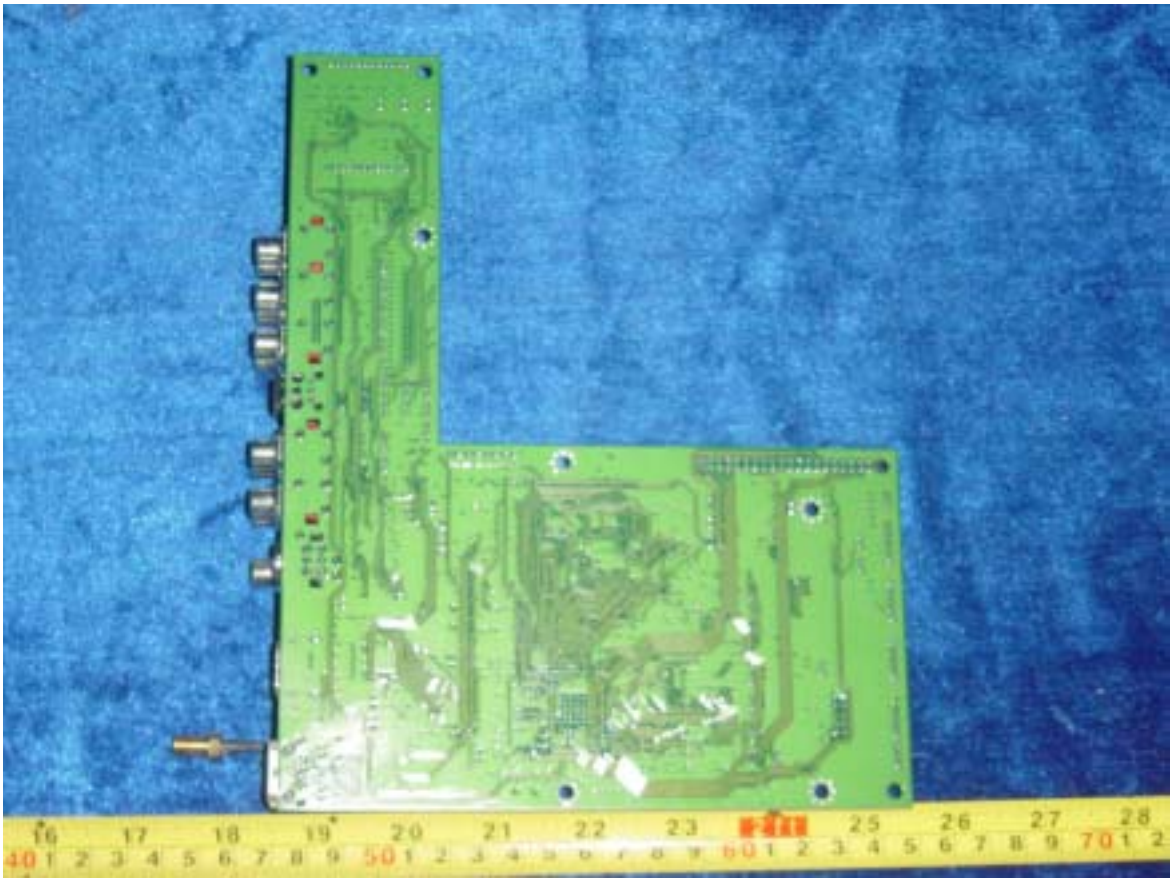

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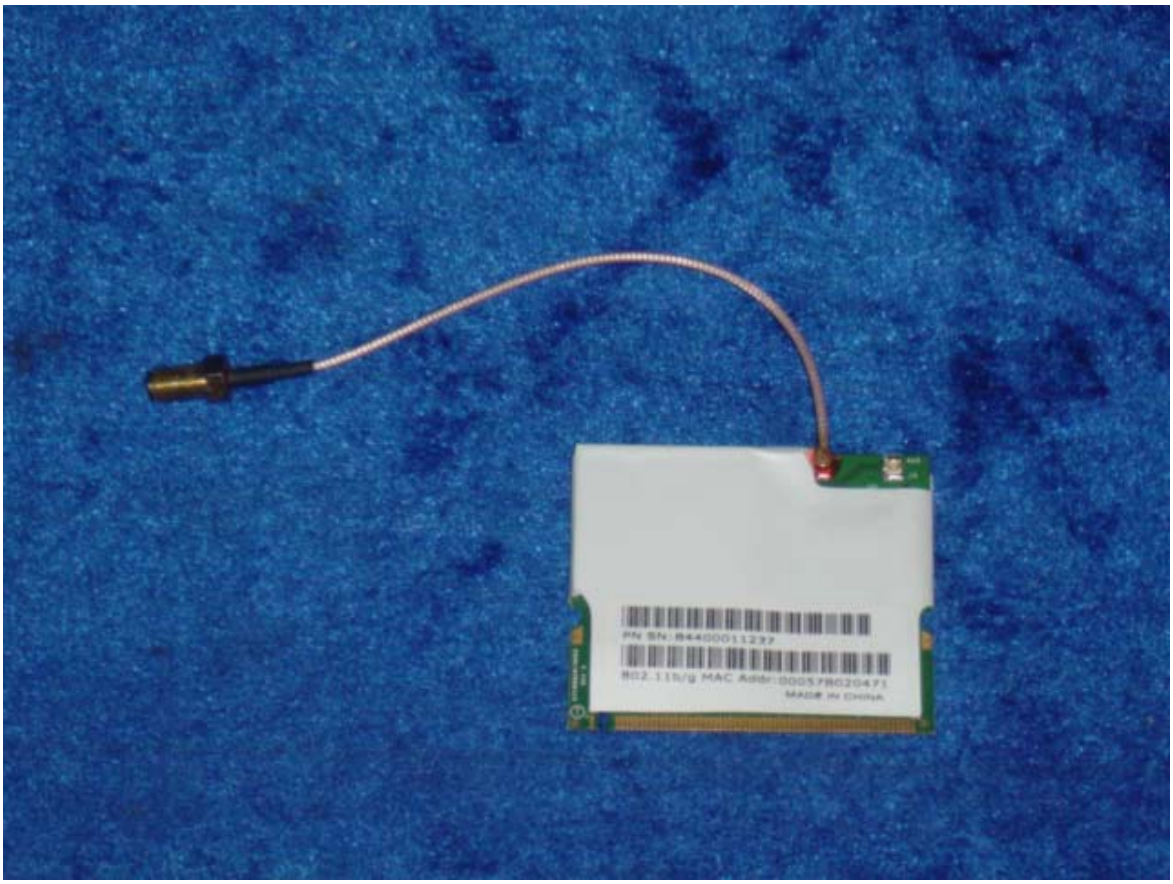
WLA Card



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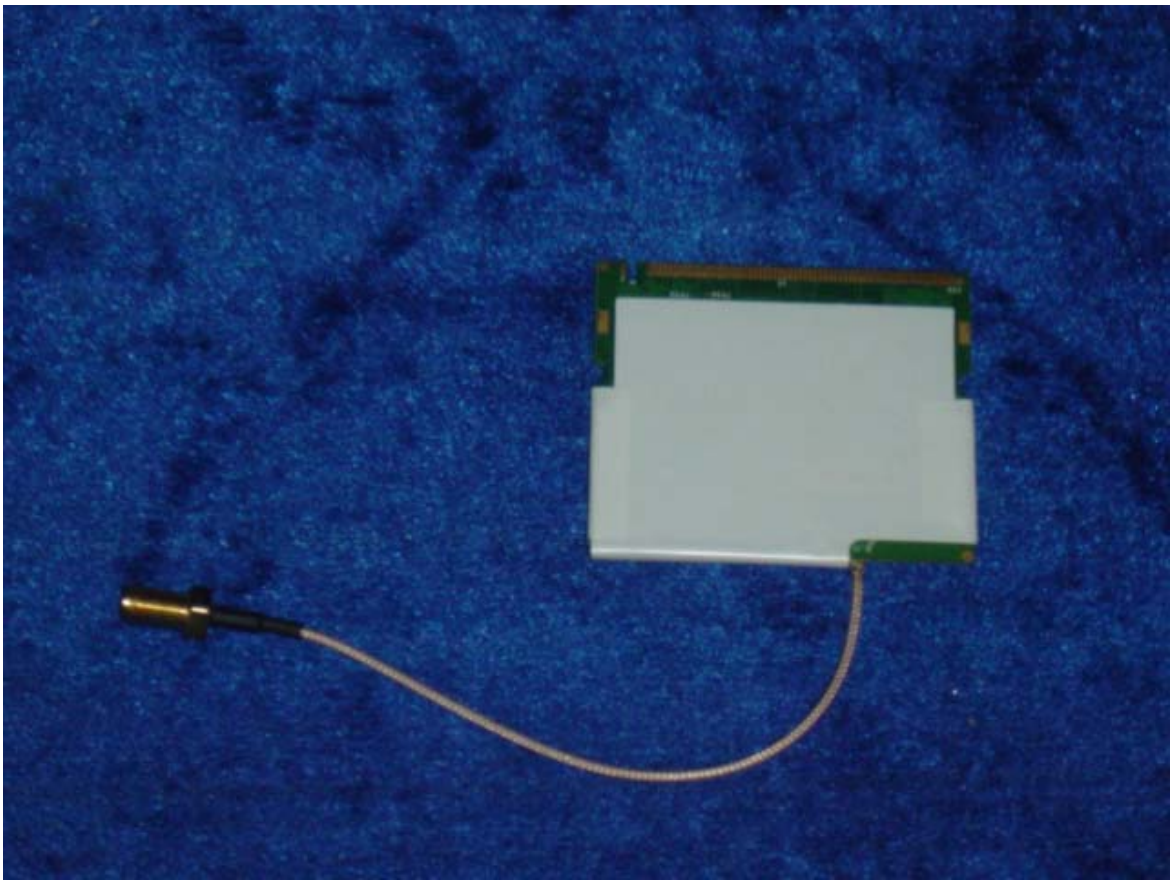

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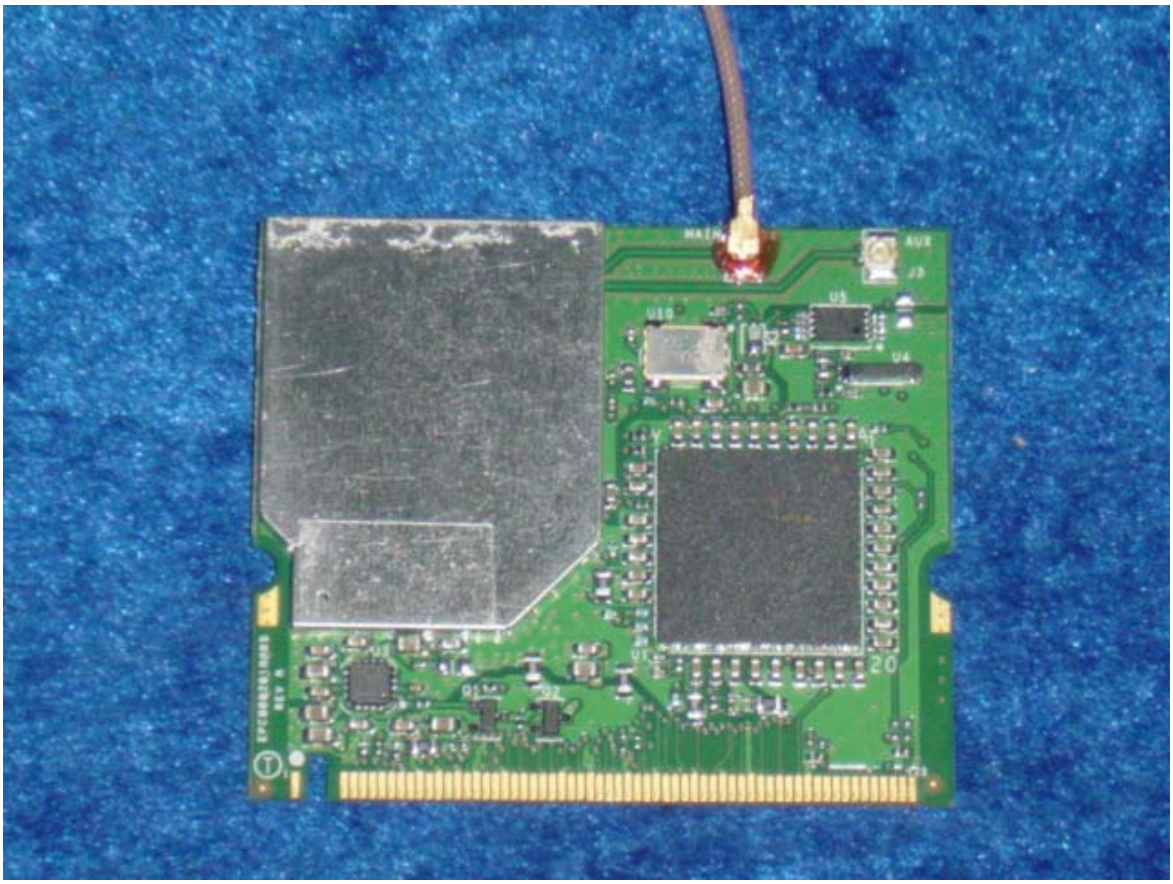

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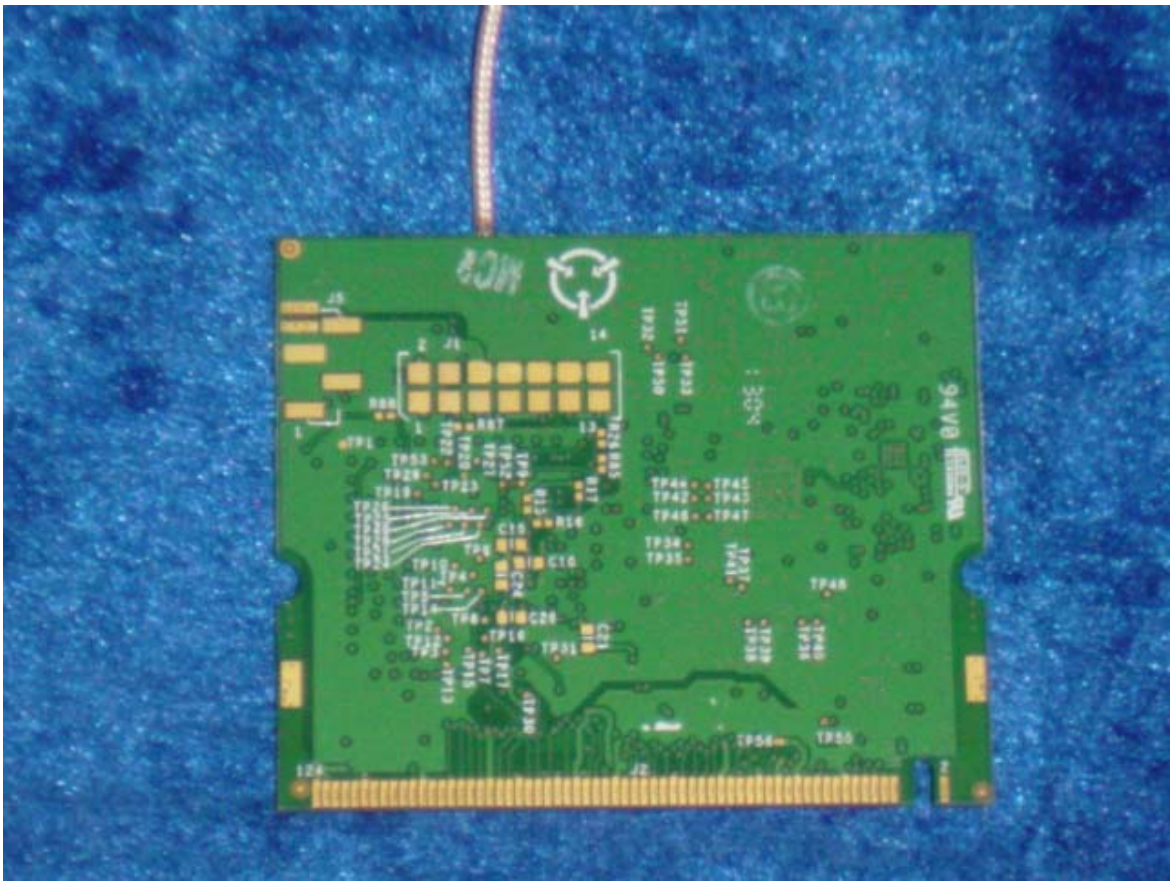

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