



Test Report

Product Name : VoIP

Model No. : J2200

Applicant : American Telecom Services, Inc.

Address : 2466 Peck Road City of Industry, CA 90601

Date of Receipt : 2005/12/22

Issued Date : 2006/08/16

Report No. : 068L112-IT-US-P01V02

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by CNLA, NVLAP, NIST or any agency of the Government.

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Test Report Certification

Issued Date : 2006/08/16

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Product Name : VoIP

Applicant : American Telecom Services, Inc.

Address : 2466 Peck Road City of Industry, CA 90601

Manufacturer : Astarte Technology Co., Ltd.

Model No. : J2200

Rated Voltage : AC 120 V / 60 Hz

EUT Voltage : AC 100-240 V / 50-60Hz

Trade Name : ATS

Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2005 Class B
CISPR 22: 2005

Test Result : Complied

Performed Location : Linkou EMC laboratory
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(George Chen)

Laboratory Information

We , **QuietTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited by the following accreditation Bodies in compliance with ISO 17025, EN 45001 and Guide 25:

Taiwan R.O.C.	: BSMI, DGT, CNLA
Germany	: TÜV Rheinland
Norway	: Nemko, DNV
USA	: FCC, NVLAP
Japan	: VCCI

The related certificate for our laboratories about the test site and management system can be downloaded from QuietTek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of QuietTek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

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E-Mail : service@quietek.com



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1. General Information

1.1. EUT Description

Product Name	VoIP
Trade Name	ATS
Model No.	J2200

Component	
Power Adapter	LK-SA-05-12-1000 Input: AC100-240V 50-60Hz, 0.2A Output: DC 12V, 1A Cable Out: Non-Shielded, 1.6m with one ferrite core bonded.

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

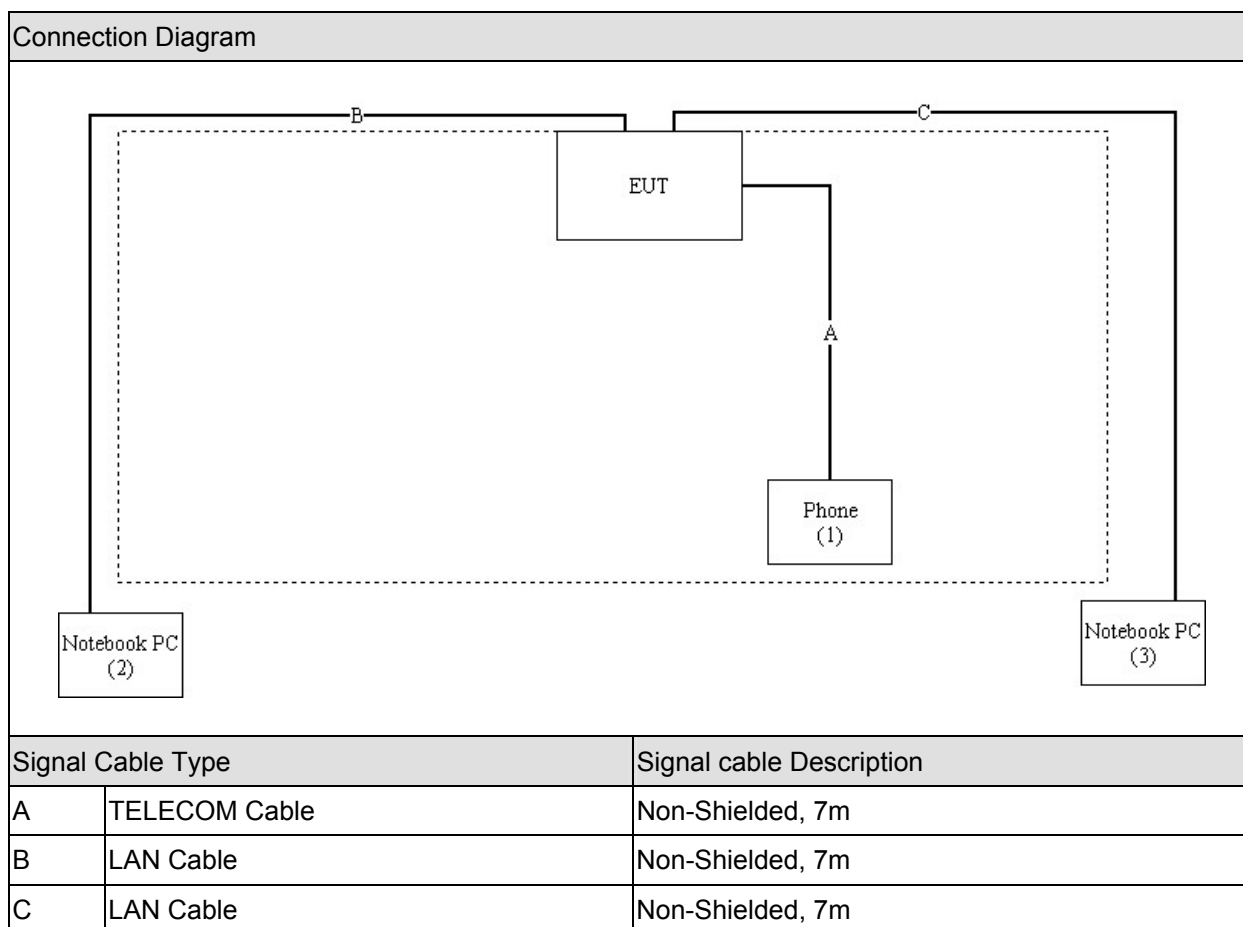
Pre-Test Mode	
Mode 1: Normal Operation	
Final Test Mode	
Emission	Mode 1: Normal Operation

1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Telephone	TENTEL	K-302	50721005000632	N/A
2	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m
3	Notebook PC	DELL	PPT	N/A	Non-Shielded, 0.8m

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	Boot the PC from Hard Disk.
4	Data will communicate between personal computer and partner personal computer through EUT.
5	The personal computer's and partner computer's monitor will show the transmitting and receiving characteristics when the communication is success.
6	Repeat the above procedure (4) to (5).

2. Technical Test

2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

Emission			
Performed Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart B: 2005 Class B ANSI C63.4: 2003	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2005 Class B ANSI C63.4: 2003	Yes	No

2.2. List of Test Equipment

Conducted Emission / SR1

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
EMI Test Receiver	R&S	ESCS 30	836858/022	2006/07/21
LISN	R&S	ESH3-Z5	836679/020	2006/02/17
LISN	R&S	ENV4200	833209/007	2006/07/27
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2005/09/07

Radiated Emission / Site5

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2920	2005/09/15
Broadband Horn Antenna	Schwarzbeck	BBHA9170	208	2006/07/25
EMI Test Receiver	R&S	ESCS 30	100369	2006/08/15
Horn Antenna	Schwarzbeck	BBHA9120D	305	2006/08/10
Pre-Amplifier	QTK	N/A	N/A	2006/05/01
Spectrum Analyzer	Advantest	R3162	100803463	2006/01/03

2.3. Measurement Uncertainty

Conducted Emission

The measurement uncertainty is evaluated as ± 2.26 dB.

Radiated Emission

The measurement uncertainty is evaluated as ± 3.19 dB.

2.4. Test Environment

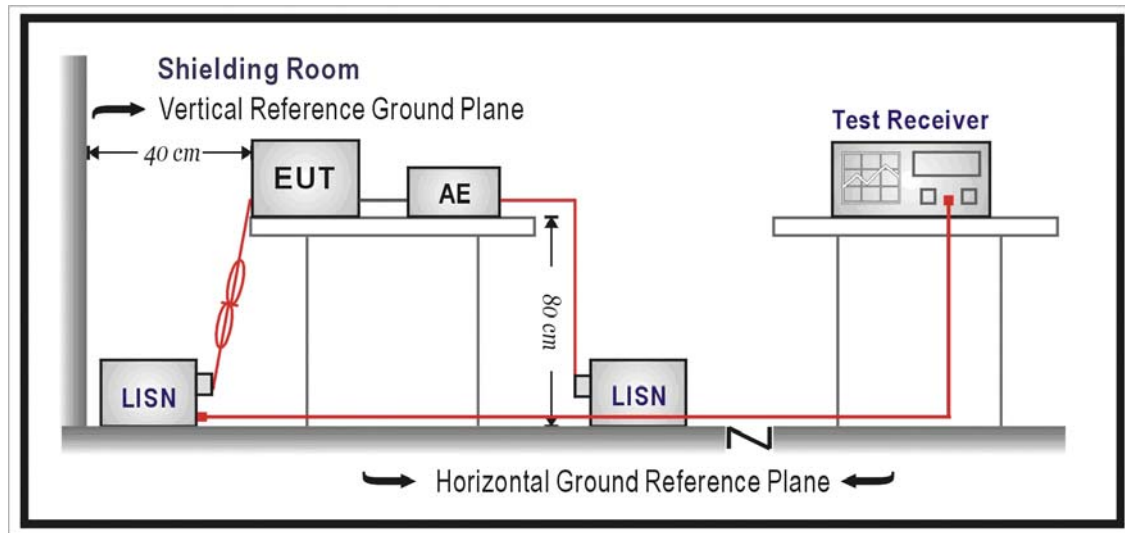
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

3.1. Test Specification

According to Standard : FCC Part 15 Subpart B, ANSI C63.4

3.2. Test Setup



3.3. Limit

Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.4. 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.

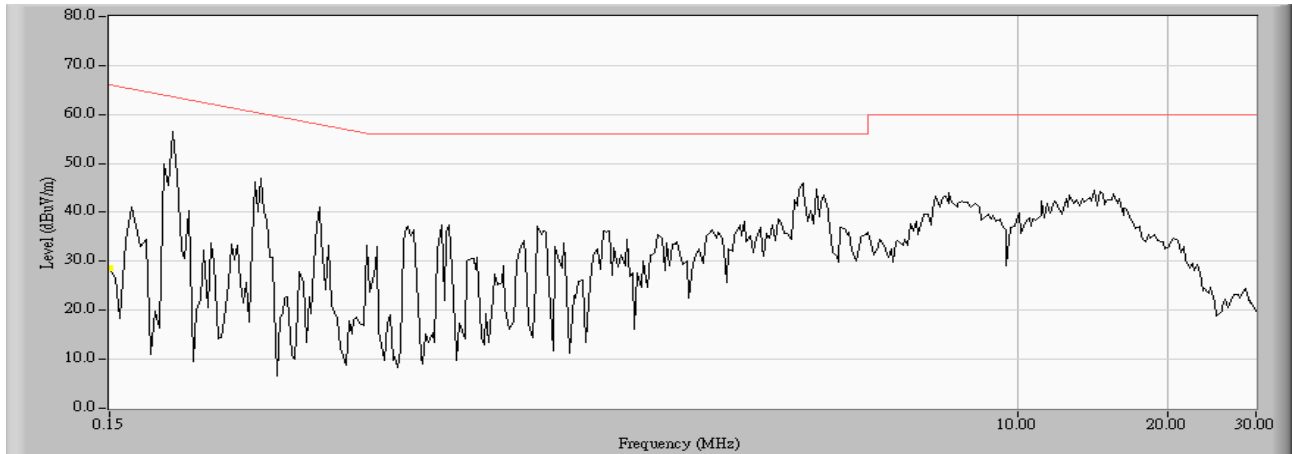
(Please refers to the block diagram of the test setup and photographs.)

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 on conducted measurement.

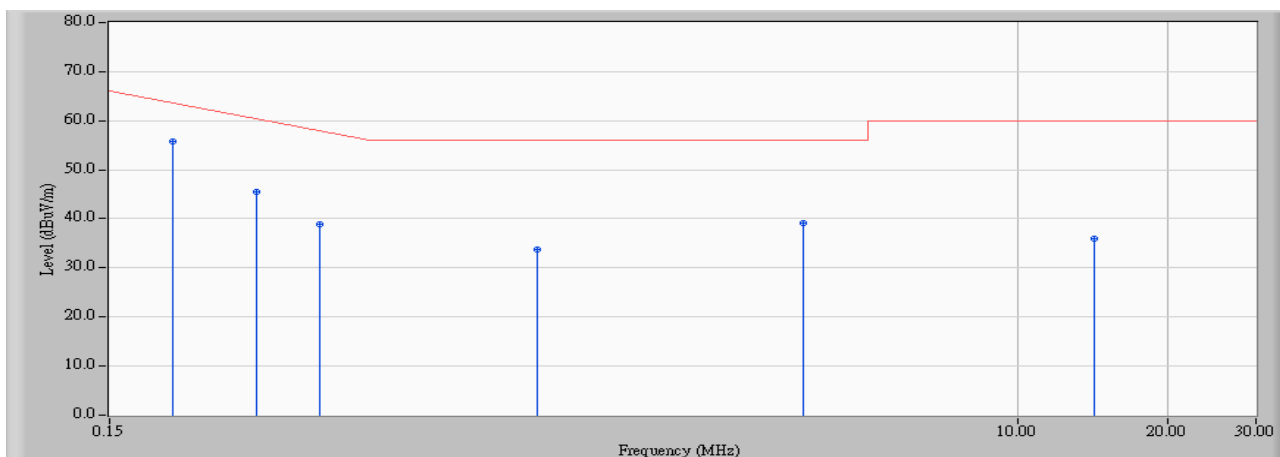
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5. Test Result

Site : SR-1	Time : 2006/01/06 - 11:11
Limit : CISPR_B_00M_QP	Margin : 0
EUT : VoIP	Probe : LISN-020(L) - Line1
Power : AC 120V/60Hz	Note : MODE1



Site : SR-1	Time : 2006/01/06 - 11:13
Limit : CISPR_B_00M_QP	Margin : 0
EUT : VoIP	Probe : LISN-020(L) - Line1
Power : AC 120V/60Hz	Note : MODE1

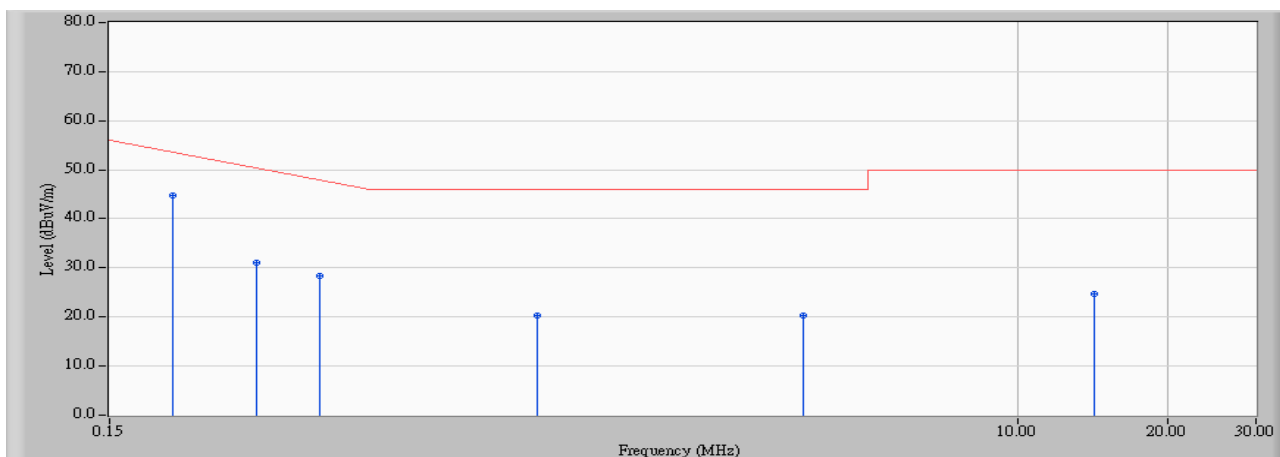


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.201	0.202	55.590	55.792	-8.751	64.543	QUASIPeAK
2		0.295	0.204	45.220	45.424	-16.433	61.857	QUASIPeAK
3		0.396	0.215	38.590	38.805	-20.166	58.971	QUASIPeAK
4		1.084	0.234	33.590	33.824	-22.176	56.000	QUASIPeAK
5		3.697	0.339	38.800	39.139	-16.861	56.000	QUASIPeAK
6		14.232	0.859	35.060	35.919	-24.081	60.000	QUASIPeAK

Note:

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

Site : SR-1	Time : 2006/01/06 - 11:13
Limit : CISPR_B_00M_AV	Margin : 0
EUT : VoIP	Probe : LISN-020(L) - Line1
Power : AC 120V/60Hz	Note : MODE1

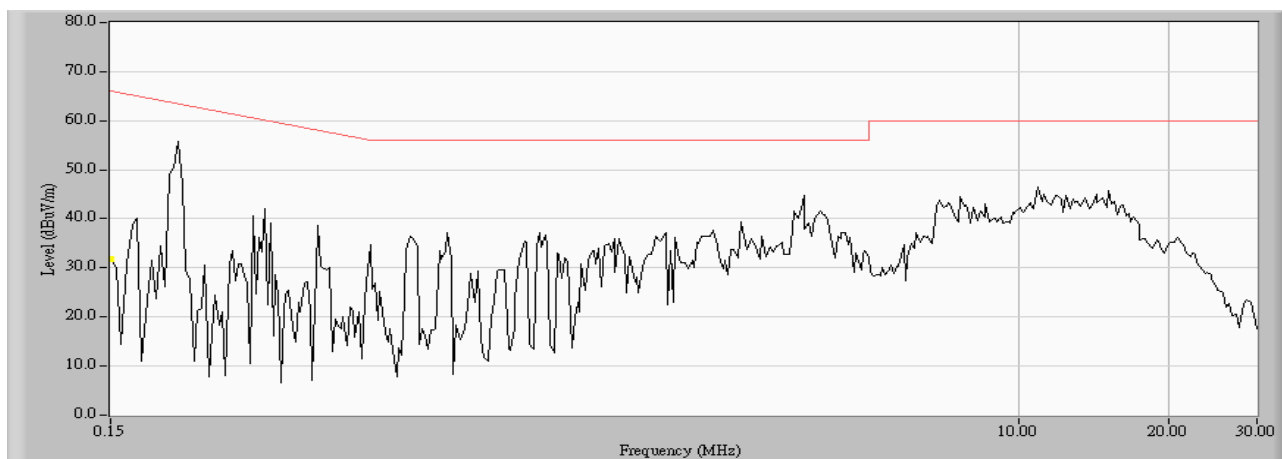


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.201	0.202	44.650	44.852	-9.691	54.543	AVERAGE
2		0.295	0.204	30.900	31.104	-20.753	51.857	AVERAGE
3		0.396	0.215	28.140	28.355	-20.616	48.971	AVERAGE
4		1.084	0.234	20.130	20.364	-25.636	46.000	AVERAGE
5		3.697	0.339	19.980	20.319	-25.681	46.000	AVERAGE
6		14.232	0.859	23.800	24.659	-25.341	50.000	AVERAGE

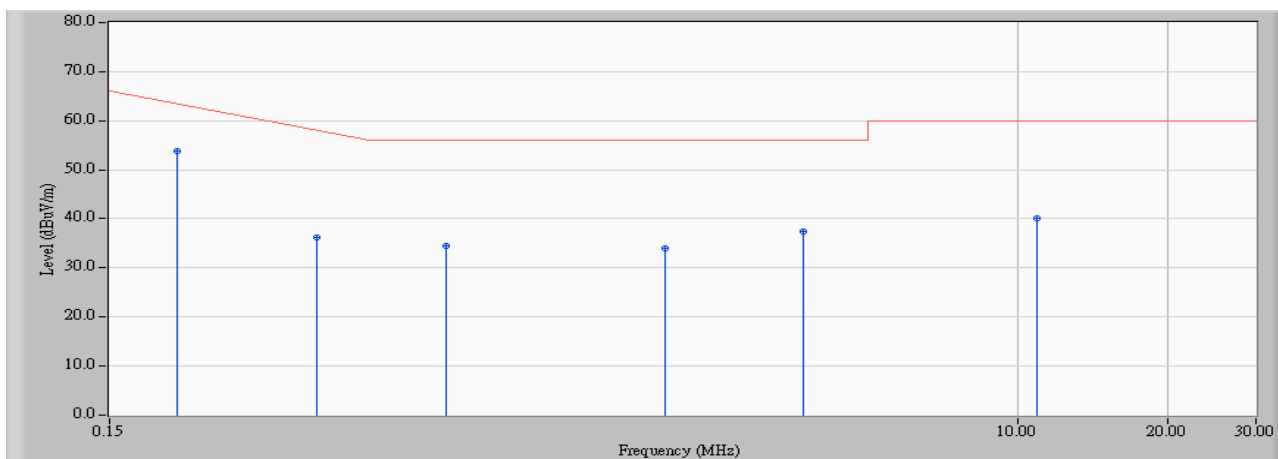
Note:

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

Site : SR-1	Time : 2006/01/06 - 11:14
Limit : CISPR_B_00M_QP	Margin : 0
EUT : VoIP	Probe : LISN-020(N) - Line2
Power : AC 120V/60Hz	Note : MODE1



Site : SR-1	Time : 2006/01/06 - 11:16
Limit : CISPR_B_00M_QP	Margin : 0
EUT : VoIP	Probe : LISN-020(N) - Line2
Power : AC 120V/60Hz	Note : MODE1

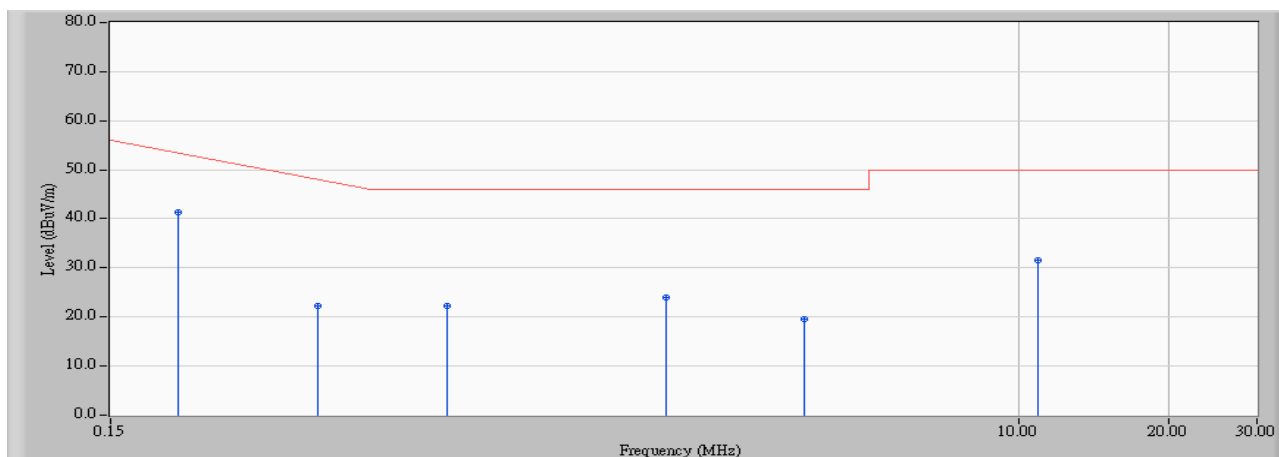


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	0.202	53.740	53.942	-10.487	64.429	QUASIPeAK
2		0.392	0.215	36.050	36.265	-22.821	59.086	QUASIPeAK
3		0.712	0.219	34.240	34.459	-21.541	56.000	QUASIPeAK
4		1.959	0.276	33.680	33.956	-22.044	56.000	QUASIPeAK
5		3.693	0.339	37.160	37.499	-18.501	56.000	QUASIPeAK
6		10.916	0.565	39.600	40.165	-19.835	60.000	QUASIPeAK

Note:

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

Site : SR-1	Time : 2006/01/06 - 11:16
Limit : CISPR_B_00M_AV	Margin : 0
EUT : VoIP	Probe : LISN-020(N) - Line2
Power : AC 120V/60Hz	Note : MODE1



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.205	0.202	41.040	41.242	-13.187	54.429	AVERAGE
2		0.392	0.215	22.110	22.325	-26.761	49.086	AVERAGE
3		0.712	0.219	22.160	22.379	-23.621	46.000	AVERAGE
4		1.959	0.276	23.750	24.026	-21.974	46.000	AVERAGE
5		3.693	0.339	19.130	19.469	-26.531	46.000	AVERAGE
6		10.916	0.565	30.990	31.555	-18.445	50.000	AVERAGE

Note:

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

3.6. Test Photograph

Test Mode : Mode 1: Normal Operation

Description : Front View of Conducted Test



Test Mode : Mode 1: Normal Operation

Description : Back View of Conducted Test



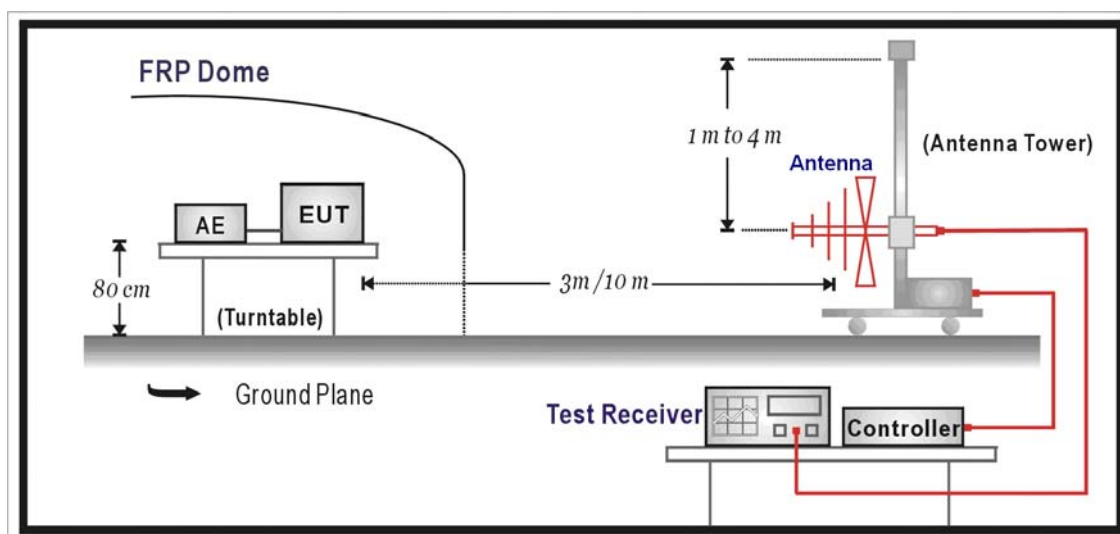
4. Radiated Emission

4.1. Test Specification

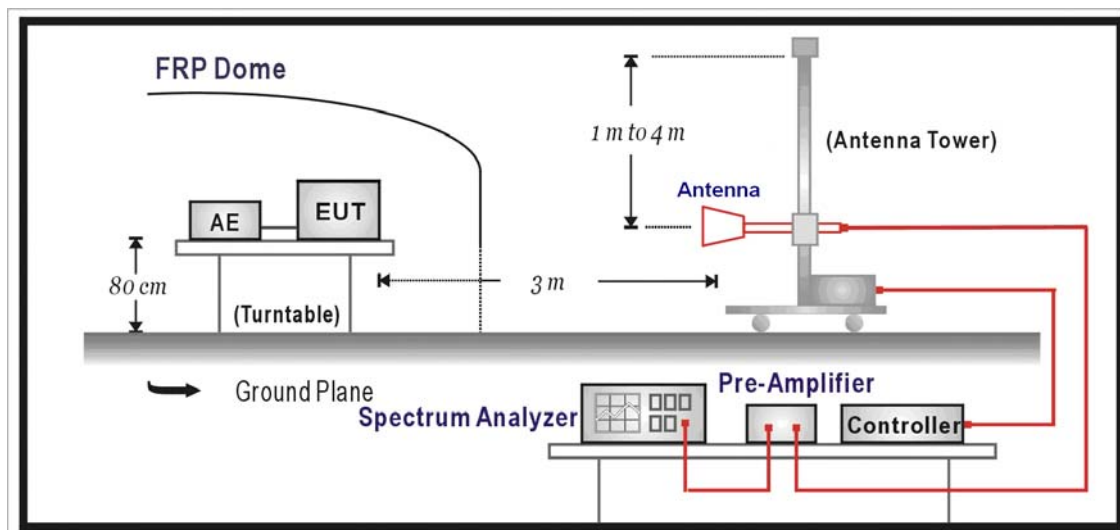
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

4.2. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

Under 1GHz test shall not exceed the following value:

Limits		
Frequency (MHz)	Distance (m)	dBuV/m
30 – 230	10	30
230 – 1000	10	37

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Above 1GHz test shall not exceed the following value:

FCC Part 15 Subpart B Paragraph 15.109 Limits (dBuV/m)		
Frequency (MHz)	Distance (m)	dBuV/m
30-88	3	40
88-216	3	43.5
216-960	3	46
Above 960	3	54

Remark:

1. The tighter limit shall apply at the edge between two frequency bands.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)

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 and 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 on radiated measurement.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

On any frequency or frequencies below or equal to 1000 MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000 MHz, the radiated limits shown are based measuring equipment employing an average detector function.

When average radiated emission measurement are included emission measurement Above 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

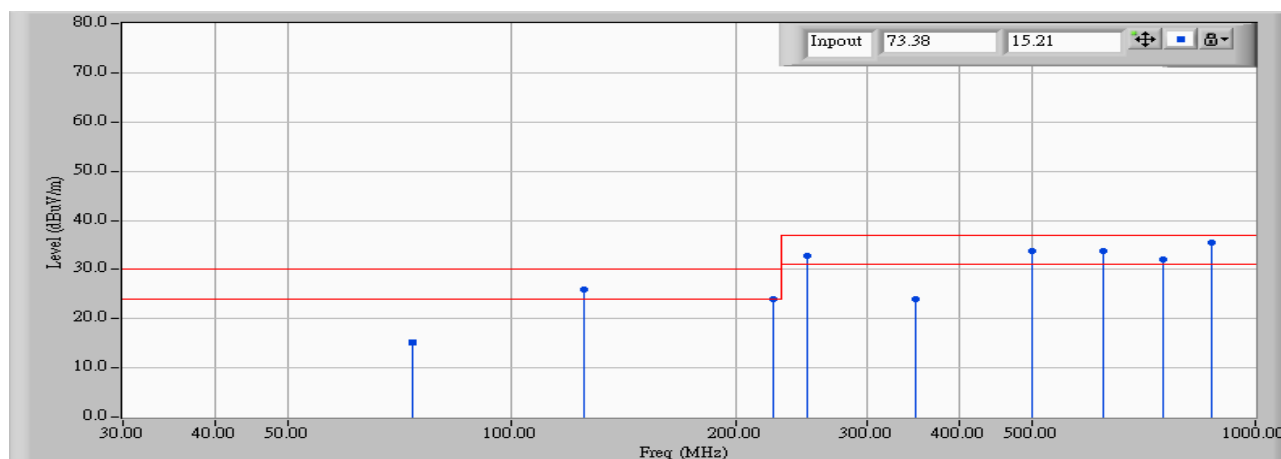
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

For class B, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and 3 meters for above 1GHz.

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

4.5. Test Result

Site : OATS-3	Time : 2006/01/13 - 15:18
Limit : CISPR_B_10M_QP	Margin : 6
EUT : VoIP	Probe : CBL6112B(2920) - HORIZONTAL
Power : AC 120V/60Hz	Note : MODE 1

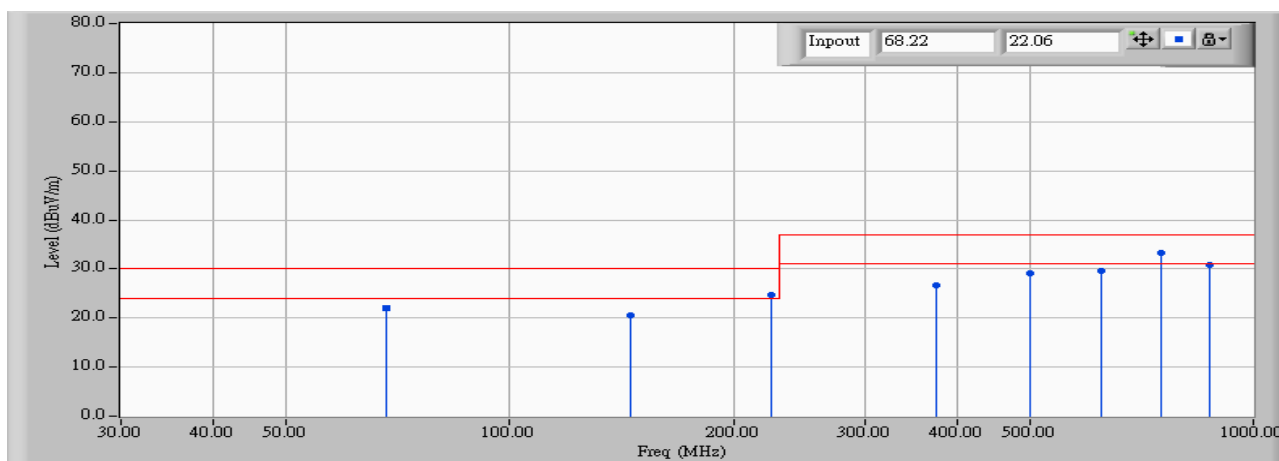


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		73.380	7.532	7.680	15.213	-14.787	30.000	QUASIPeAK
2		125.005	14.161	11.710	25.872	-4.128	30.000	QUASIPeAK
3		225.015	12.509	11.350	23.859	-6.141	30.000	QUASIPeAK
4		250.000	15.763	16.990	32.753	-4.247	37.000	QUASIPeAK
5		349.990	19.104	4.750	23.853	-13.147	37.000	QUASIPeAK
6		500.013	23.293	10.470	33.763	-3.237	37.000	QUASIPeAK
7		625.010	25.404	8.270	33.674	-3.326	37.000	QUASIPeAK
8		750.013	27.475	4.580	32.055	-4.945	37.000	QUASIPeAK
9	*	875.020	28.461	6.950	35.411	-1.589	37.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Site : OATS-3	Time : 2006/01/13 - 14:56
Limit : CISPR_B_10M_QP	Margin : 6
EUT : VoIP	Probe : CBL6112B(2920) - VERTICAL
Power : AC 120V/60Hz	Note : MODE 1



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		68.220	6.974	15.090	22.064	-7.936	30.000	QUASIPeAK
2		145.268	13.286	7.320	20.606	-9.394	30.000	QUASIPeAK
3		225.014	12.509	12.190	24.699	-5.301	30.000	QUASIPeAK
4		375.030	19.981	6.760	26.741	-10.259	37.000	QUASIPeAK
5		500.003	23.293	5.760	29.053	-7.947	37.000	QUASIPeAK
6		625.015	25.404	4.230	29.635	-7.365	37.000	QUASIPeAK
7	*	750.015	27.475	5.710	33.185	-3.815	37.000	QUASIPeAK
8		875.023	28.461	2.390	30.851	-6.149	37.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

4.6. Test Photograph

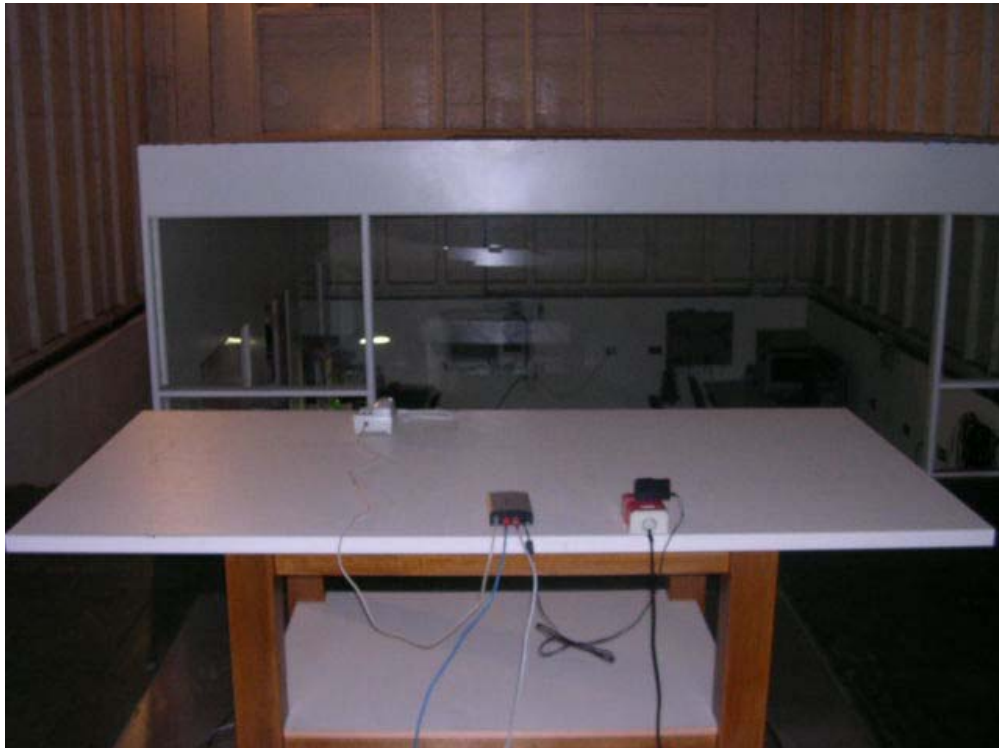
Test Mode : Mode 1: Normal Operation

Description : Front View of Radiated Test



Test Mode : Mode 1: Normal Operation

Description : Back View of Radiated Test



5. Attachment

➤ EUT Photograph

(1) EUT Photo



(2) EUT Photo



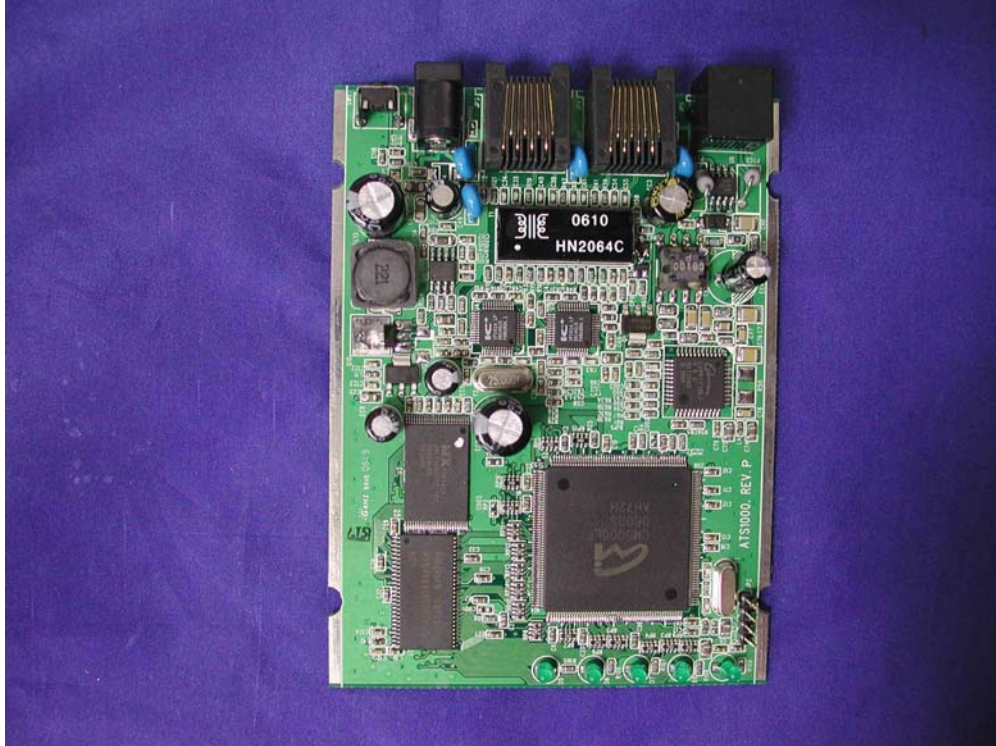
(3) EUT Photo



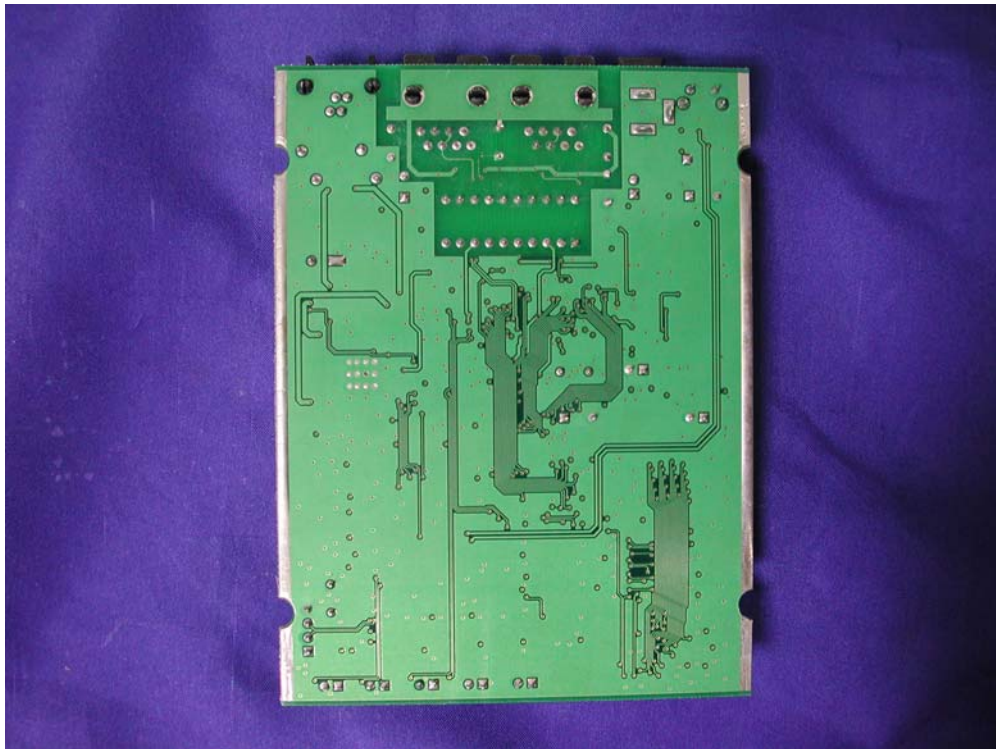
(4) EUT Photo



(5) EUT Photo



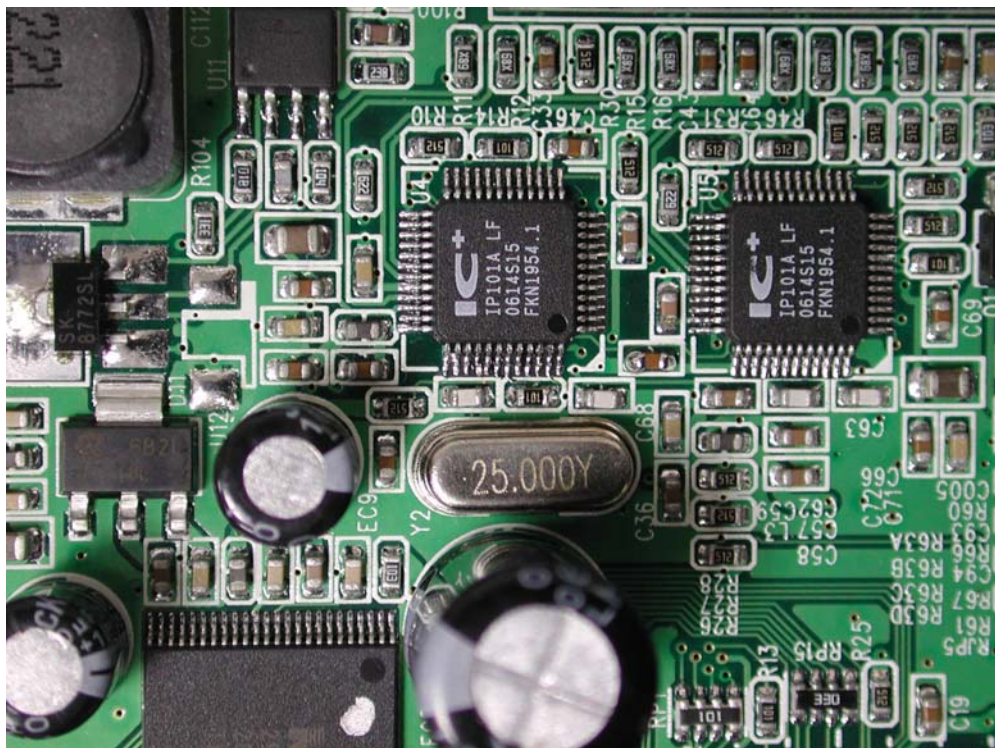
(6) EUT Photo



(7) EUT Photo



(8) EUT Photo



(9) EUT Photo

