Test Report

Product Name ： Handy Steno

Model No. ： AH332

Applicant ： Apacer Technology Inc.

Address ： 3F, No.83, Kur Wong Rd., Aspire Park, Lung Tan Hsiang, Tao Yuan Hsien, Taiwan

Date of Receipt ： 2010/08/24

Issued Date ： 2010/09/01

Report No. ： 108398R-ITUSP01V02

Report Version ： V1.0

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2. 1077(a)

The following equipment:

Product : Handy Steno

Trade name : Apacer

Model Number : AH332

It's herewith confirmed to comply with the requirements of FCC Part 15 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 result of electromagnetic emission has been evaluated by QuieTek EMC laboratory (NVLAP Lab. Code : 200533-0) and showed in the test report. (Report No. : 108398R-ITUSP01V02)

It is understood that each unit marketed is identical to the device as tested, and any changes to the device that could adversely affect the emission characteristics will require retest.

The following importer / manufacturer is responsible for this declaration:

Company Name _____

Company Address _____

Telephone _____ Facsimile : _____

Person is responsible for marking this declaration:

_____ _____

Name (Full name) Position / Title

_____ _____

Date Legal Signature

Test Report Certification

Issued Date : 2010/09/01
Report No. : 108398R-ITUSP01V02

QuieTek

Product Name	:	Handy Steno
Applicant	:	Apacer Technology Inc.
Address	:	3F, No.83, Kur Wong Rd., Aspire Park, Lung Tan Hsiang, Tao Yuan Hsien, Taiwan
Manufacturer	:	Apacer Technology Inc.
Model No.	:	AH332
EUT Rated Voltage	:	Power by PC
EUT Test Voltage	:	AC 120 V / 60 Hz
Trade Name	:	Apacer
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart B: 2009, Class B CISPR 22: 2008, ANSI C63.4: 2003
Test Result	:	Complied
Performed Location	:	Quietek Corporation (Linkou Laboratory) No.5-22, Ruei-Shu Valley, Ruei-Ping Tsuen Lin Kuo Shiang, Taipei, 244 Taiwan, R.O.C. TEL:+866-2-8601-3788 / FAX:+886-2-8601-3789

Documented By : Rita Huang
(Senior Adm. Specialist / Rita Huang)

Reviewed By : Phillip Luo
(Engineer / Phillip Luo)

Approved By :
(Manager / Vincent Lin)

Laboratory Information

We , **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted (audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scopes:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV 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 QuieTek Corporation's Web Site : http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

NVLAP Lab Code : 200347-0

Testing Laboratory 1313

LinKou Testing Laboratory :
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

NVLAP Lab Code: 200533-0

Testing Laboratory 0914

Suzhou (China) Testing Laboratory :
No. 99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou,China.
TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098 E-Mail : service@quietek.com

NVLAP Lab Code : 200743-0

Testing Laboratory 1596

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	Handy Steno
Trade Name	Apacer
Model No.	AH332

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

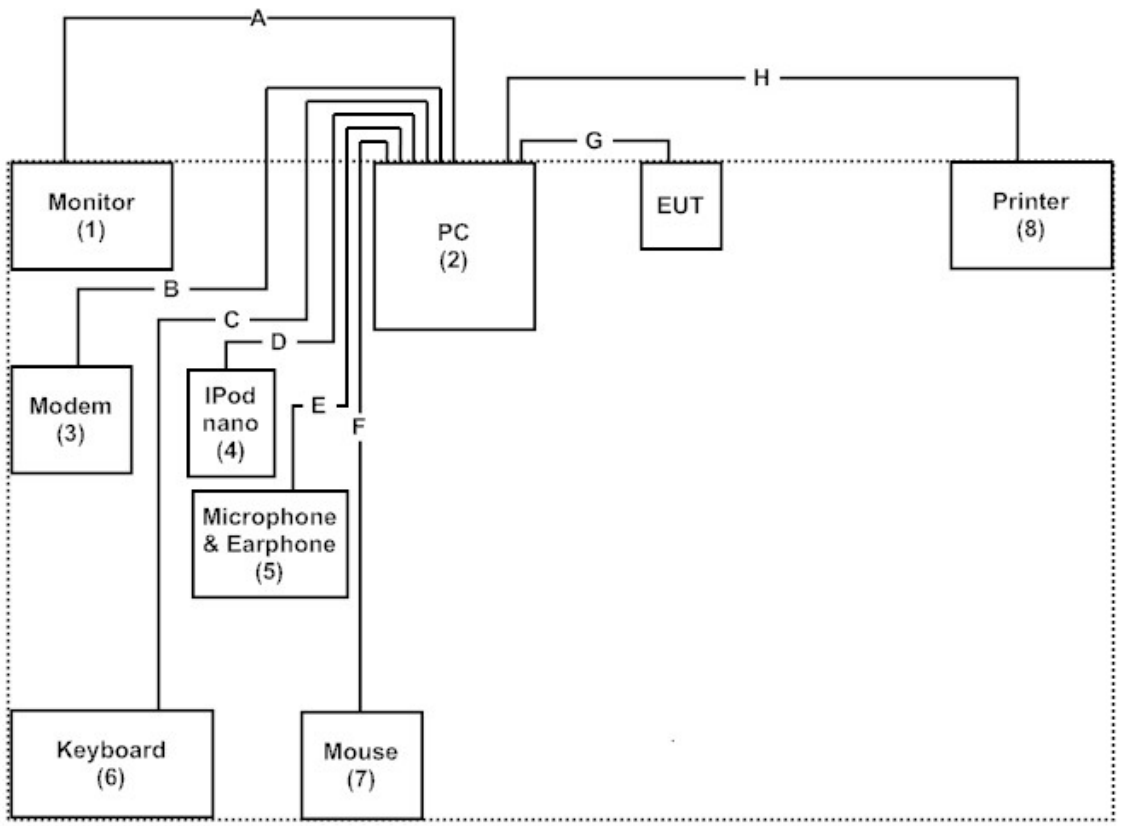
1.3. Tested System Details

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	Monitor	Dell	2408WFPb	CN-0G293H-74261-95M-1H6S	Non-Shielded, 1.8m
2	PC	Acer	Veriton M460	0826TDT11605	Non-Shielded, 1.8m
3	Modem	ACEEX	DM-1414	0102027536	Non-Shielded, 1.8m
4	IPod nano	Apple	A1236	7K823DWSY0P	N/A
5	Microphone & Earphone	Ergotech	ET-E201	N/A	N/A
6	Keyboard	COMPAQ	KB-0133	B55940FBUOE04B	N/A
7	Mouse	COMPAQ	M-S69	44H0	N/A
8	Printer	EPSON	StyLus C63	FAPY093590	Non-Shielded, 1.9m

1.4. Configuration of Tested System

Connection Diagram



Signal Cable Type		Signal cable Description
A	D-SUB Cable	Shielded, 1.8m, with two ferrite cores bonded.
B	RS-232 Cable	Shielded, 1.5m
C	Keyboard Cable	Shielded, 1.8m
D	USB Cable	Shielded, 1.5m
E	Earphone & Microphone Cable	Non-Shielded, 1.6m
F	Mouse Cable	Shielded, 1.8m
G	USB Cable	Shielded, 1.5m
H	Printer Cable	Shielded, 1.2m

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)	A multi meter was used to verify the model operation before the measurement.

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: 2009 Class B, ANSI C63.4: 2003	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart B: 2009 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	100366	2009/10/29
LISN	R&S	ENV4200	833209/007	2010/08/14
LISN	R&S	ENV216	100085	2010/02/17
Pulse Limiter	R&S	ESH3-Z2	357.88.10.52	2009/09/10

Radiated Emission / Site6

Instrument	Manufacturer	Type No.	Serial No	Cal. Date
Bilog Antenna	Schaffner Chase	CBL6112B	2909	2010/08/01
Broadband Horn Antenna	Schwarzbeck	BBHA9170	209	2010/07/25
EMI Test Receiver	R&S	ESCS 30	100368	2010/08/22
Horn Antenna	Schwarzbeck	BBHA9120D	305	2010/08/26
Pre-Amplifier	QTK	AP-025C	0506002	2010/08/01
Spectrum Analyzer	Advantest	R3162	120300652	2010/06/25

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

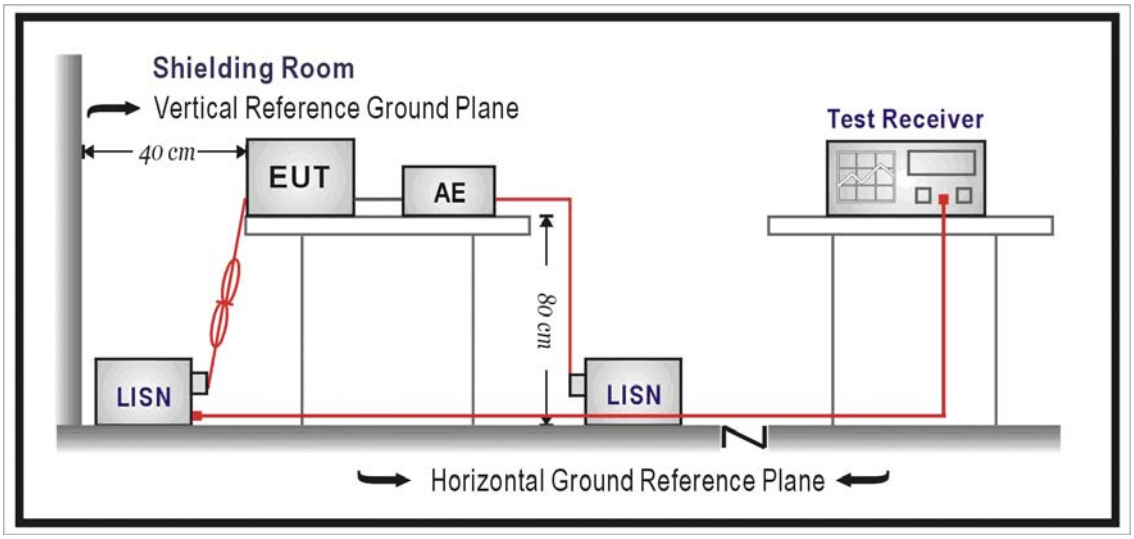
Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000
Radiated Emission	Temperature (°C)	15-35	25
	Humidity (%RH)	25-75	50
	Barometric pressure (mbar)	860-1060	950-1000

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

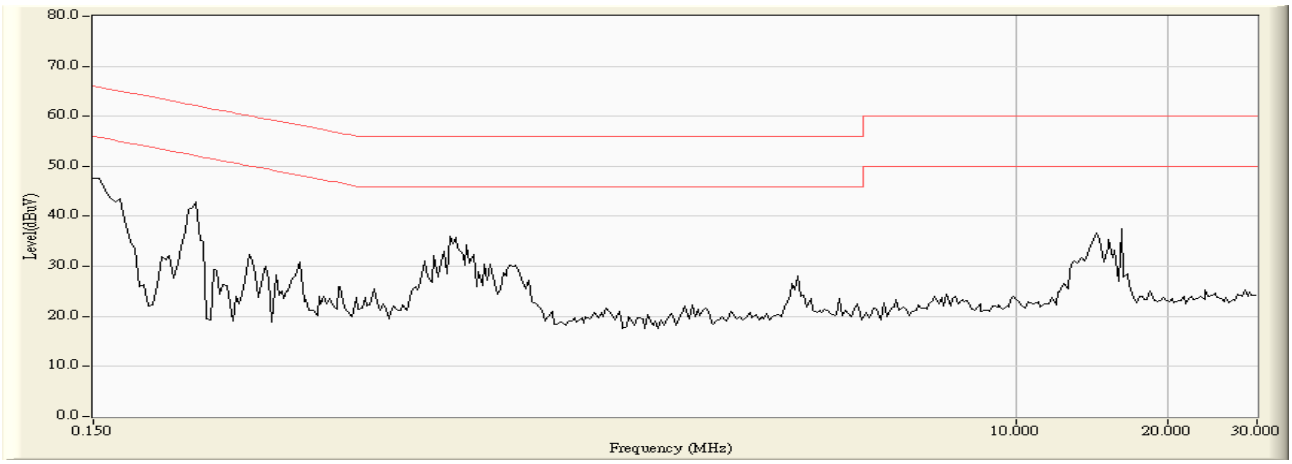
Remarks: In the above table, the tighter limit applies at the band edges.

3.4. Test Procedure

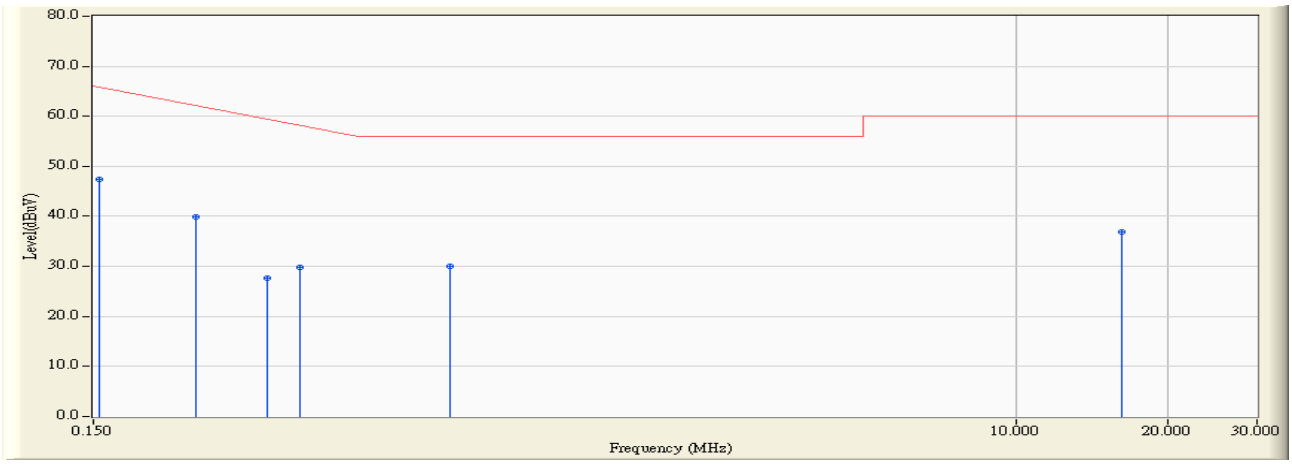
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling 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 : 2010/08/25 - 01:24**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : ENV216-L1 - Line1	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**



Site : SR-1	**Time : 2010/08/25 - 01:26**
Limit : CISPR_B_00M_QP	**Margin : 0**
Probe : ENV216-L1 - Line1	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**

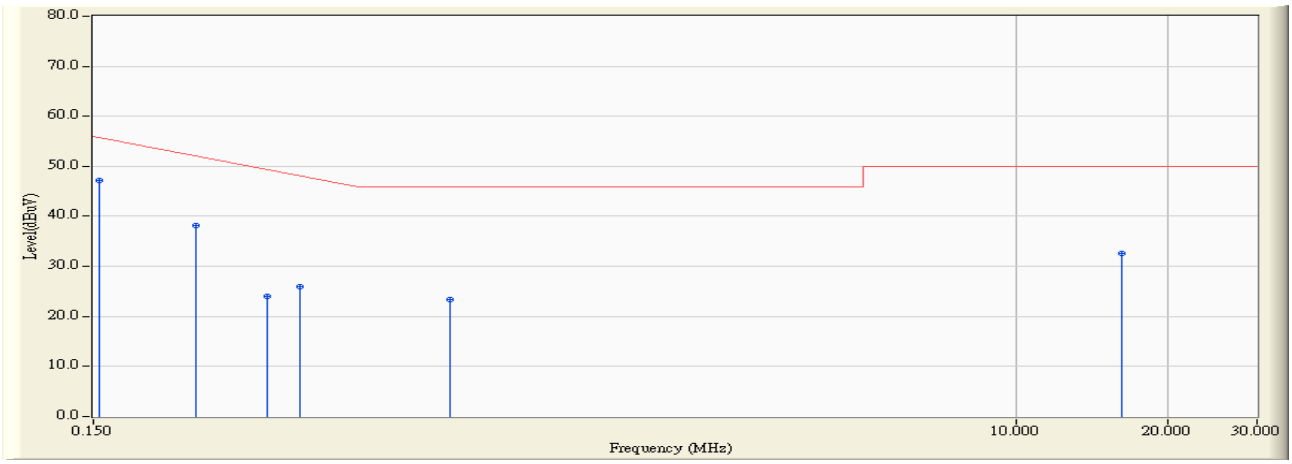


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.154	9.760	37.540	47.301	-18.585	65.886	QUASIPEAK
2		0.240	9.680	30.280	39.960	-23.469	63.429	QUASIPEAK
3		0.330	9.650	18.000	27.650	-33.207	60.857	QUASIPEAK
4		0.384	9.650	20.160	29.810	-29.504	59.314	QUASIPEAK
5		0.759	9.644	20.300	29.944	-26.056	56.000	QUASIPEAK
6		16.181	9.990	26.830	36.820	-23.180	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 : 2010/08/25 - 01:26**
Limit : CISPR_B_00M_AV	**Margin : 0**
Probe : ENV216-L1 - Line1	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**



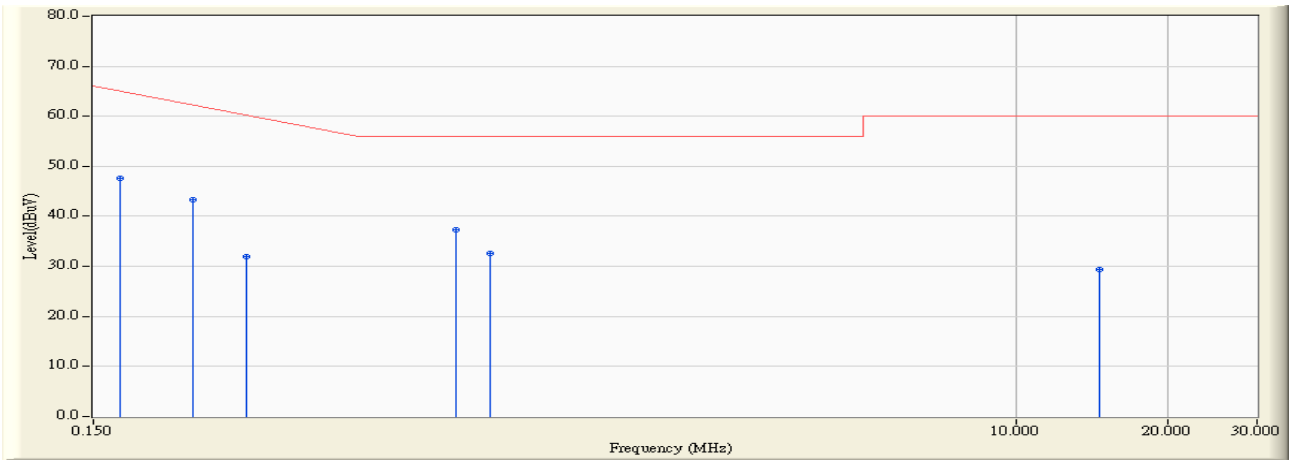
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.154	9.760	37.530	47.291	-8.595	55.886	AVERAGE
2		0.240	9.680	28.450	38.130	-15.299	53.429	AVERAGE
3		0.330	9.650	14.470	24.120	-26.737	50.857	AVERAGE
4		0.384	9.650	16.200	25.850	-23.464	49.314	AVERAGE
5		0.759	9.644	13.770	23.414	-22.586	46.000	AVERAGE
6		16.181	9.990	22.510	32.500	-17.500	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 : 2010/08/25 - 01:29**
Limit : CISPR_B_00M_QP	**Margin : 10**
Probe : ENV216-N - Line2	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**

Site : SR-1	**Time : 2010/08/25 - 01:32**
Limit : CISPR_B_00M_QP	**Margin : 0**
Probe : ENV216-N - Line2	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**

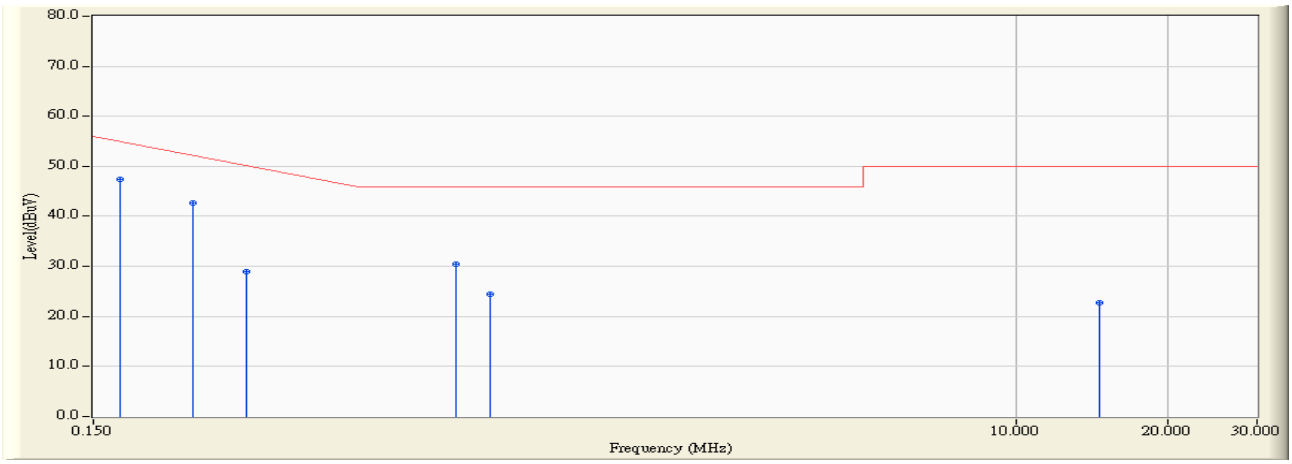


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.170	9.743	37.800	47.543	-17.886	65.429	QUASIPEAK
2		0.236	9.692	33.550	43.242	-20.301	63.543	QUASIPEAK
3		0.302	9.660	22.340	32.000	-29.657	61.657	QUASIPEAK
4		0.783	9.670	27.590	37.260	-18.740	56.000	QUASIPEAK
5		0.912	9.670	22.920	32.590	-23.410	56.000	QUASIPEAK
6		14.634	9.990	19.370	29.360	-30.640	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 : 2010/08/25 - 01:32**
Limit : CISPR_B_00M_AV	**Margin : 0**
Probe : ENV216-N - Line2	**Power : AC 120V / 60Hz**
EUT : Handy Steno	**Note : Mode 1**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.170	9.743	37.670	47.413	-8.016	55.429	AVERAGE
2		0.236	9.692	32.970	42.662	-10.881	53.543	AVERAGE
3		0.302	9.660	19.200	28.860	-22.797	51.657	AVERAGE
4		0.783	9.670	20.680	30.350	-15.650	46.000	AVERAGE
5		0.912	9.670	14.830	24.500	-21.500	46.000	AVERAGE
6		14.634	9.990	12.840	22.830	-27.170	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

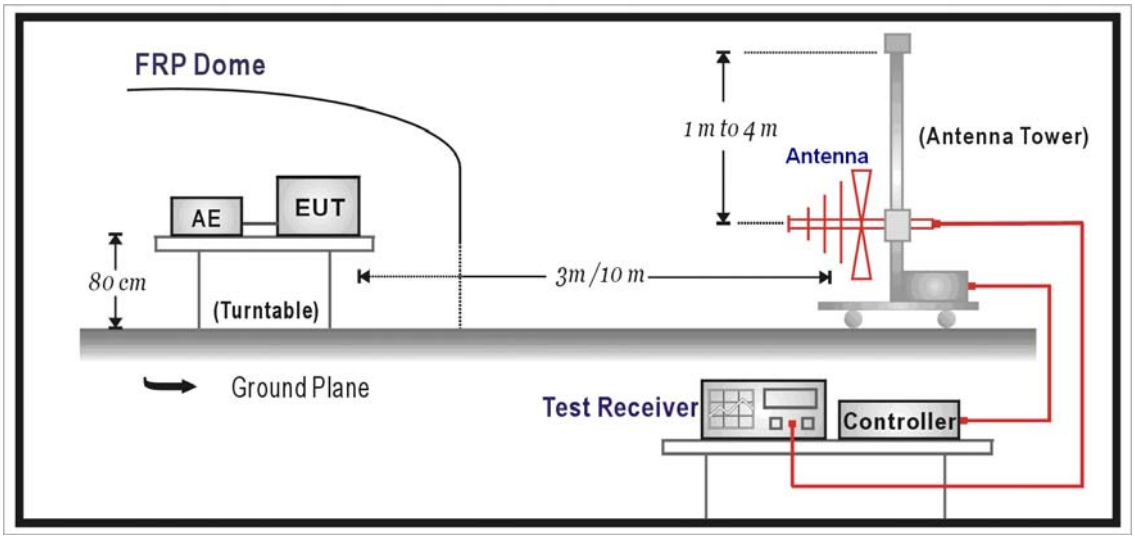
4. Radiated Emission

4.1. Test Specification

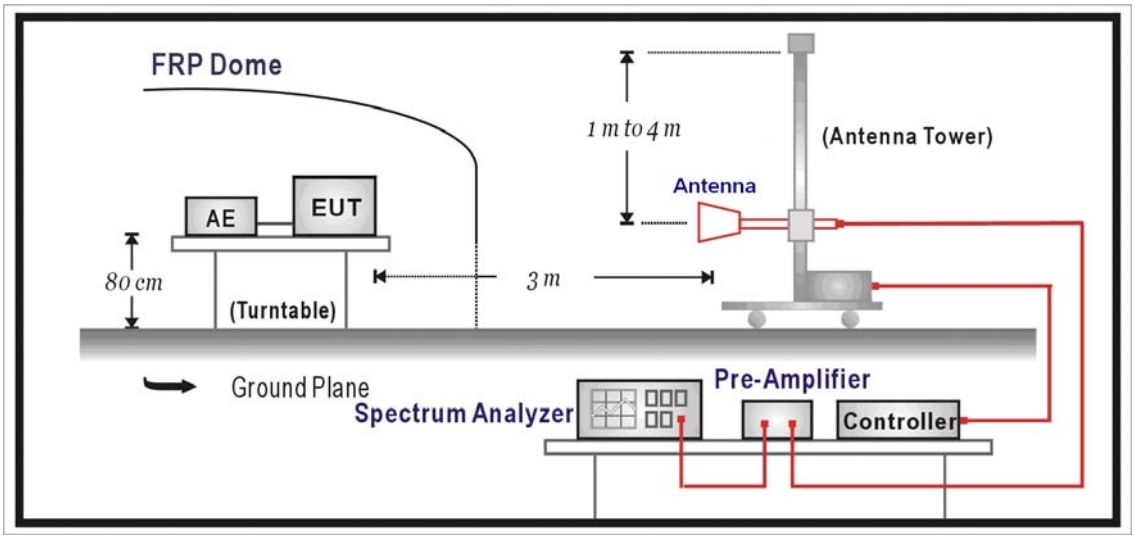
According to EMC Standard : FCC Part 15 Subpart B, ANSI C63.4

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 folowing 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.

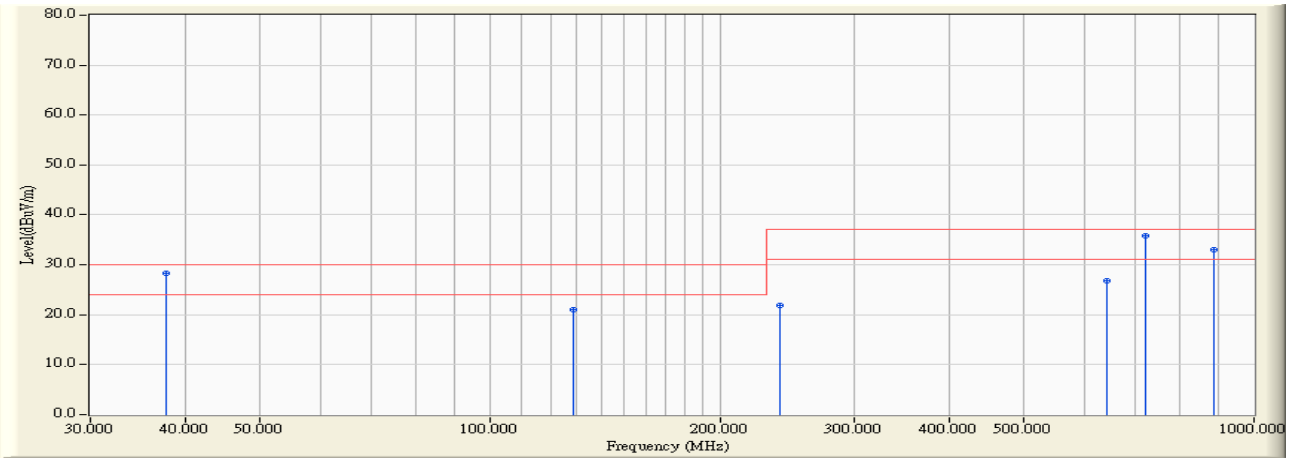
For class A, the measurement distance between the EUT and antenna is 10 meters for under 1GHz and above 1GHz.

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-6	**Time : 2010/08/24 - 20:53**
Limit : CISPR_B_10M_QP	**Margin : 6**
EUT : Handy Steno	**Probe : Site6_CBL6112_0811_10m - HORIZONTAL**
Power : AC 120V / 60Hz	**Note : Mode 1**

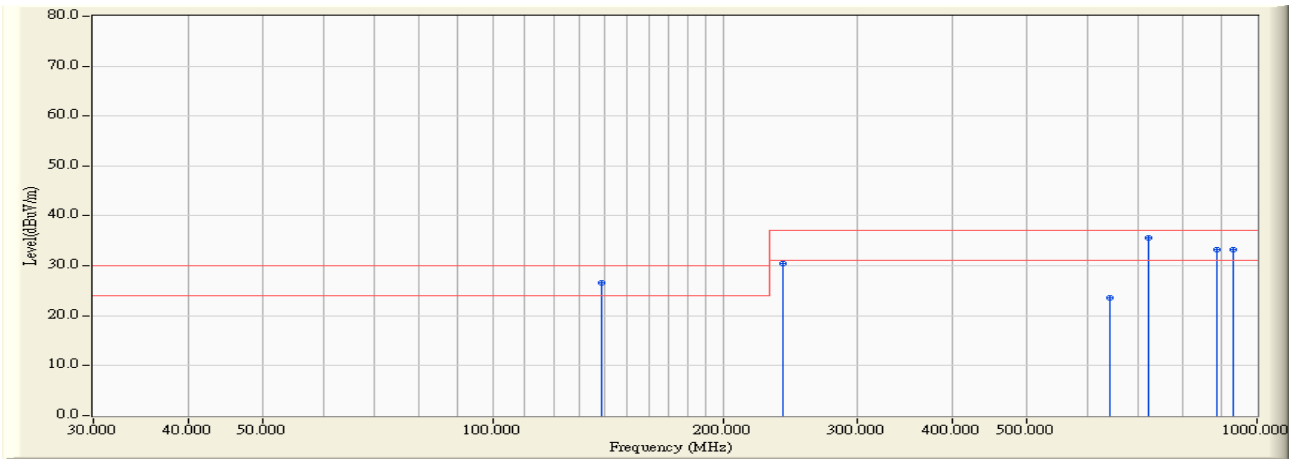


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		37.760	15.160	13.047	28.207	-1.793	30.000	QUASIPEAK
2		128.640	15.411	5.615	21.025	-8.975	30.000	QUASIPEAK
3		239.520	14.180	7.674	21.854	-15.146	37.000	QUASIPEAK
4		641.100	24.710	2.133	26.843	-10.157	37.000	QUASIPEAK
5	*	720.640	27.720	8.034	35.754	-1.246	37.000	QUASIPEAK
6		887.480	28.930	4.135	33.065	-3.935	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-6	**Time : 2010/08/24 - 21:46**
Limit : CISPR_B_10M_QP	**Margin : 6**
EUT : Handy Steno	**Probe : Site6_CBL6112_0811_10m - 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		138.640	14.270	12.383	26.653	-3.347	30.000	QUASIPEAK
2		239.520	16.280	14.084	30.364	-6.636	37.000	QUASIPEAK
3		641.100	25.570	-1.925	23.645	-13.355	37.000	QUASIPEAK
4	*	720.640	26.630	8.978	35.608	-1.392	37.000	QUASIPEAK
5		887.480	29.780	3.379	33.159	-3.841	37.000	QUASIPEAK
6		932.100	29.070	4.148	33.218	-3.782	37.000	QUASIPEAK

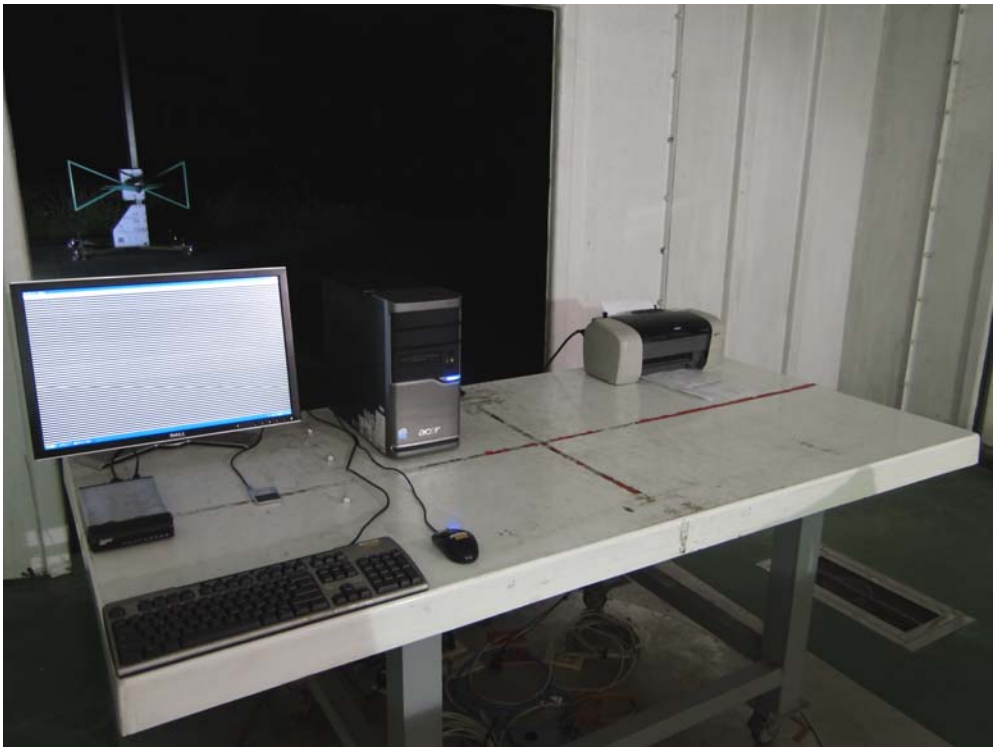
Note:

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