

Test Report for FCC Part 15 Subpart B & C

of

Product Name

Tablet Personal Computer

(Built in Wacom Digitizer, Model: SU-040)

Model

6363; 6364; 6365; 6366; 6367; 6368

Wistron Corporation
21th Fl., 88, Sec.1, Hsin Tai Wu Rd.,
Hsichih, Taipei Hsien 221,
Taiwan, R.O.C.

Test Performed by:

International Standards Laboratory

No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd.
Lung-Tan Hsiang, Tao Yuan County 325
Taiwan, R.O.C.
Tel:(03)407-1718 Fax:(03)407-1738

Report Number: ISL-06LR025FC

Issue Date: 2006/10/25

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178;
IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1
ISL-T10-R2-3

Contents of Report

1.	General.....	1
1.1	Certification of Accuracy of Test Data.....	1
2.	Test Results Summary	2
3.	Description of Equipment Under Test (EUT)	3
4.	TEST RESULTS.....	4
4.1	Powerline Conducted Emissions [Section 15.207]	4
4.1.1	EUT Configuration	4
4.1.2	Test Procedure	4
4.1.3	EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)	4
4.1.4	Test Data:.....	5
4.2	Total Input Power [Section 15.219 (a)].....	7
4.2.1	Limit of the total input power.....	7
4.2.2	Test Data:.....	7
4.3	Total Length of The Transmission Line, Antenna and Ground Lead [Section 15.219 (b)] ..	8
4.3.1	Limit of the total length.....	8
4.3.2	Test Data.....	8
4.4	Modulation Bandwidth.....	9
4.4.1	Test Procedure	9
4.4.2	Test Setup.....	9
4.4.3	Test Data:.....	9
4.5	Radiated Emission Measurement [Section [15.209]	11
4.5.1	EUT Configuration	11
4.5.2	Test Procedure	11
4.5.3	EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)	12
4.5.4	Test Data:.....	13
5.	Appendix.....	16
5.1	Appendix A: Test Equipment.....	16
5.1.1	Test Equipment List.....	16
5.1.2	Software for Controlling Spectrum/Receiver and Calculating Test Data.....	16
5.2	Appendix B: Layout of EUT and Support Equipment	17
5.2.1	General Conducted Test Configuration	17
5.2.2	General Radiation Test Configuration.....	18
5.3	Appendix C: Description of Support Equipment.....	20
5.3.1	Description of Support Equipment	20
5.3.2	I/O Cable Condition of EUT and Support Units	20
5.4	Appendix D: Accuracy of Measurement	21
5.5	Appendix E: Photographs of EUT Configuration Test Set Up.....	23
5.6	Appendix F: Photographs of EUT	23

1. General

1.1 Certification of Accuracy of Test Data

Standards: CFR 47 Part 15 Subpart B Class B
CFR 47 Part 15 Subpart C (Section 15.219)

Test Procedure: ANSI C63.4:2003

Equipment Tested: Tablet Personal Computer

Model: 6363; 6364; 6365; 6366; 6367; 6368

Applied by: Wistron Corporation

Sample received Date: 2006/09/16

Final test Date : 2006/09/21-2006/10/05

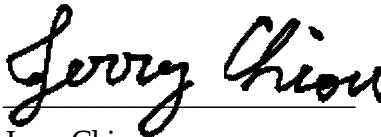
Test Result PASS

Test Site: Chamber 02, Conduction 02

Temperature Refer to each site test data

Humidity: Refer to each site test data

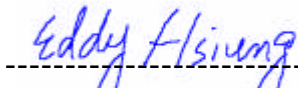
Test Engineer:


Jerry Chiou

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature



Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 25 pages, including 1 cover page, 1 contents page, and 23 pages for the test description.
This report must not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard.
International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067
LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

2. Test Results Summary

The device functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207	AC Power Line Emissions	Pass	
15.219(a)	Total Input Power	Pass	0.0099 mW
15.219 (b)	Total Length of The Transmission Line, Antenna and Ground Lead	Pass	0.64 m
15.209, 15.219 (c)	Radiated Emissions 9KHz – 1 GHz	Pass	

3. Description of Equipment Under Test (EUT)

Description:	Tablet Personal Computer
Model No.:	6363; 6364; 6365; 6366; 6367; 6368
Digitizer:	SU-040 (mode by Wacom)
Digitizer Power Type :	3.3V DC from the EUT

The operation frequency is listed below:

Frequency(KHz)

531.25

562.5

593.75

Power Supply Type:	Lenovo 65W 20V (MODEL: PA-1650-17)
Hard Disk Driver:	FUJITSU 60GB SATA (MODEL: MHT2060BH)
DDR:	HYNIX 512MB (MODEL: HYMP564S64BP6 -C4)
Battery	SANYO 8cells (MODEL: BTP-B6K8)
Power In Port:	one
USB Connector:	three
VGA Port:	one
Line Out Port:	one
MIC In Port:	one
Modem Card:	MDC 1.5 Foxconn
LAN Connector:	one
PCMCIA Slot:	one
Modem Connector:	one
SD Card reader:	one

4. TEST RESULTS

4.1 Powerline Conducted Emissions [Section 15.207]

4.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

4.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dB below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dB below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

4.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

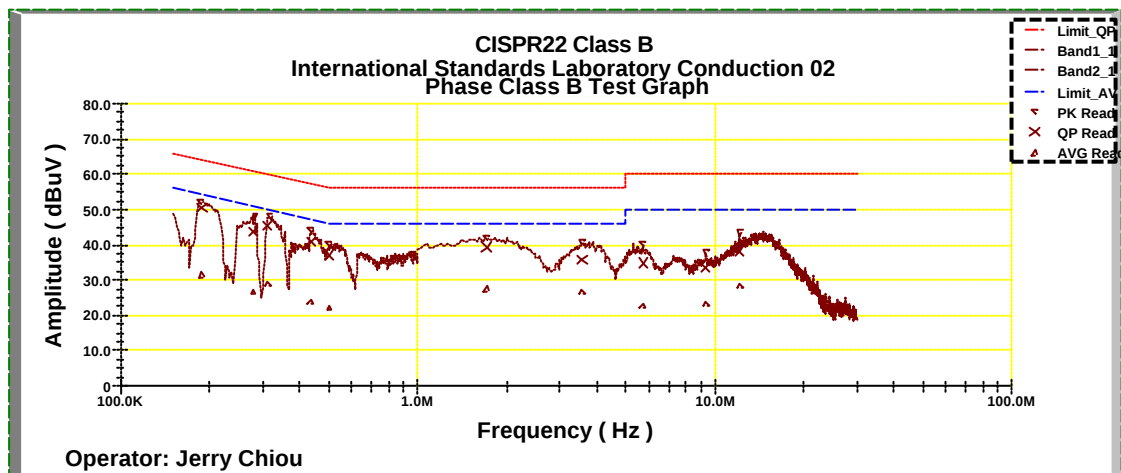
Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

4.1.4 Test Data:

Power Line Conducted Emissions (Hot)

Operator: Jerry Chiou
Temperature(C):25
Humidity(%):56

Frequency	LISN Loss	Cable Loss	QPCorrct.	QPLimit	QPMargin	AVECorrct.	AVELimit	AVEMargin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.188	0.19	0.04	50.35	64.91	-14.57	31.32	54.91	-23.59
0.27908	0.16	0.09	43.76	62.31	-18.55	26.72	52.31	-25.59
0.3125	0.14	0.1	45.42	61.36	-15.94	28.98	51.36	-22.38
0.43621	0.1	0.08	41.03	57.82	-16.79	23.64	47.82	-24.18
0.50326	0.1	0.07	37.16	56	-18.84	21.89	46	-24.11
1.70173	0.19	0.08	39.41	56	-16.59	27.4	46	-18.6
3.57599	0.18	0.13	35.75	56	-20.25	26.66	46	-19.34
5.72443	0.28	0.16	34.9	60	-25.1	22.42	50	-27.58
9.32738	0.44	0.2	33.37	60	-26.63	23.21	50	-26.79
12.1414	0.57	0.25	38.23	60	-21.77	28.45	50	-21.55



International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067
LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

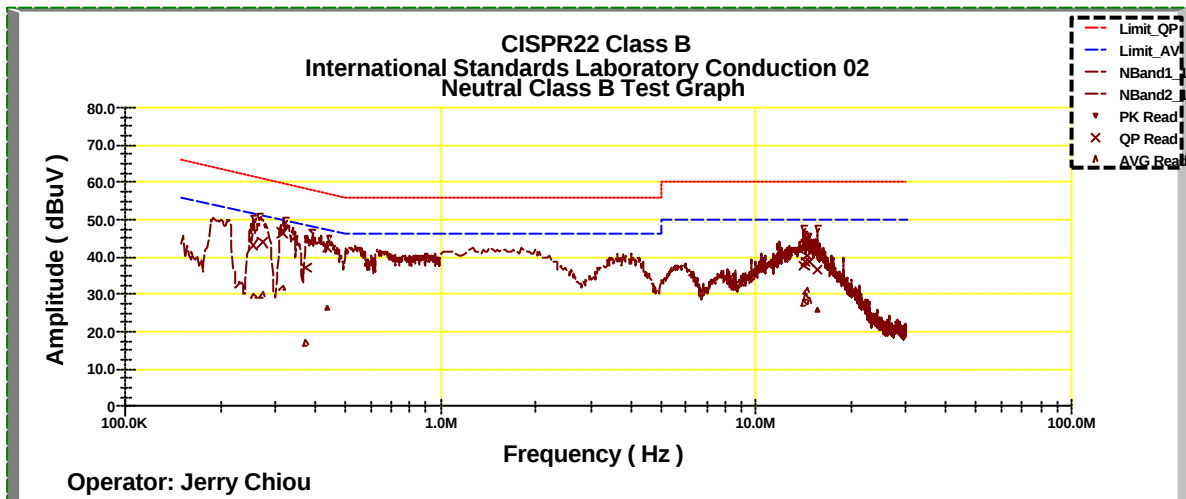
Power Line Conducted Emissions (Neutral)

Operator: Jerry Chiou

Temperature(C): 25

Humidity(%): 56

Frequency	LISN Loss	Cable Loss	QP Corrct.	QP Limit	QP Margin	AVE Corrct.	AVE Limit	AVE Margin
MHz	(dB)	(dB)	Amp.(dBuV)	(dBuV)	(dB)	Amp.(dBuV)	(dBuV)	(dB)
0.25488	0.1	0.08	43.12	63	-19.89	29.38	53	-23.62
0.272	0.1	0.09	43.92	62.51	-18.6	29.65	52.51	-22.86
0.31538	0.1	0.1	46.38	61.27	-14.9	31.46	51.27	-19.82
0.37381	0.1	0.09	37.15	59.61	-22.46	16.77	49.61	-32.84
0.43635	0.1	0.08	42.58	57.82	-15.24	26.15	47.82	-21.67
14.2078	0.38	0.29	37.66	60	-22.34	27.65	50	-22.35
14.3636	0.38	0.29	38.66	60	-21.34	29.09	50	-20.91
14.4824	0.39	0.29	40.25	60	-19.75	30.81	50	-19.19
14.7642	0.39	0.3	38.72	60	-21.28	28.08	50	-21.92
15.6718	0.41	0.31	36.48	60	-23.52	25.56	50	-24.44



* NOTE: During the test, the EMI receiver was set to Max. Hold then switch the EUT all Channel to get the maximum reading.

Margin = Amplitude + Insertion Loss- Limit

A margin of -8dB means that the emission is 8dB below the limit

International Standards Laboratory**Report Number: ISL-06LR025FC**

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

4.2 Total Input Power [Section 15.219 (a)]

4.2.1 Limit of the total input power

The total input power to the final radio frequency stage (exclusive of filament or heater power) shall not exceed 100 milliwatts.

4.2.2 Test Data:

Input Voltage	Input Current	input power	Limit	Pass/Fail
(V)	(mA)	(mW)	(mW)	
3.3	0.003	0.0099	100	Pass

4.3 Total Length of The Transmission Line, Antenna and Ground Lead [Section 15.219 (b)]

4.3.1 Limit of the total length

The total length of the transmission line, antenna and ground lead (if used) shall not exceed 3 meters.

4.3.2 Test Data

transmission line (m)	length of the antenna (m)	length of the ground lead (m)	total length (m)	Limit (m)	Pass/Fail
0.02	0.62	NA	0.64	3	Pass

Please refer to the photos of EUT-5, EUT-6, and EUT-7

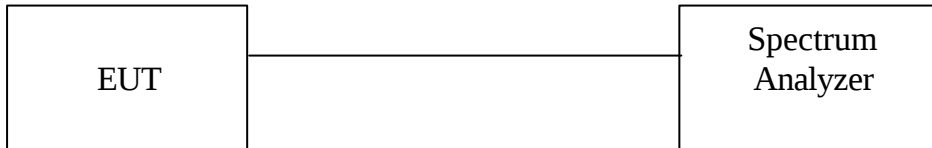
4.4 Modulation Bandwidth

4.4.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

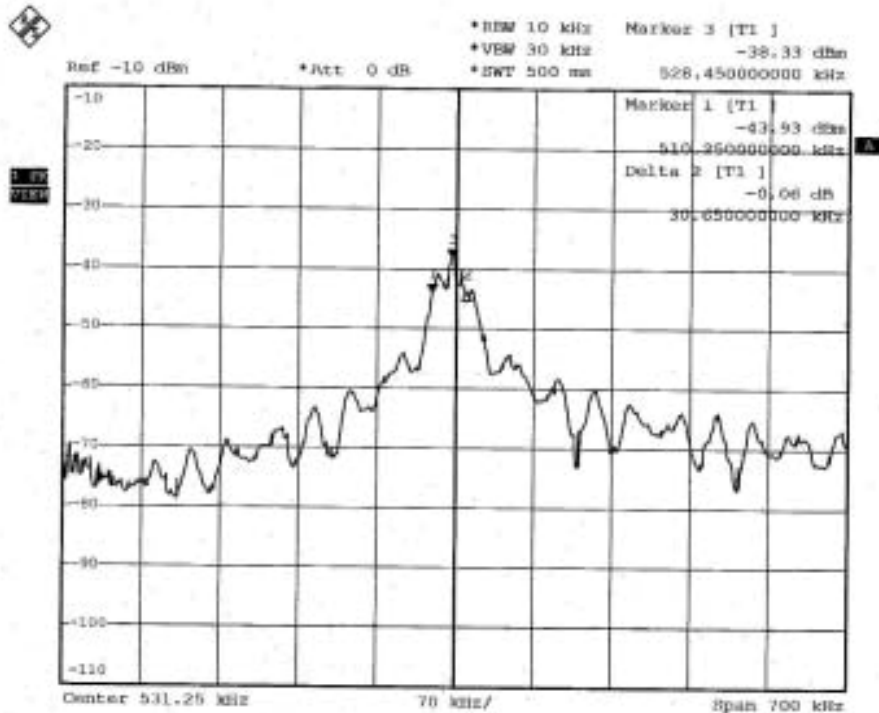
Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	10KHz
VBW	30KHz

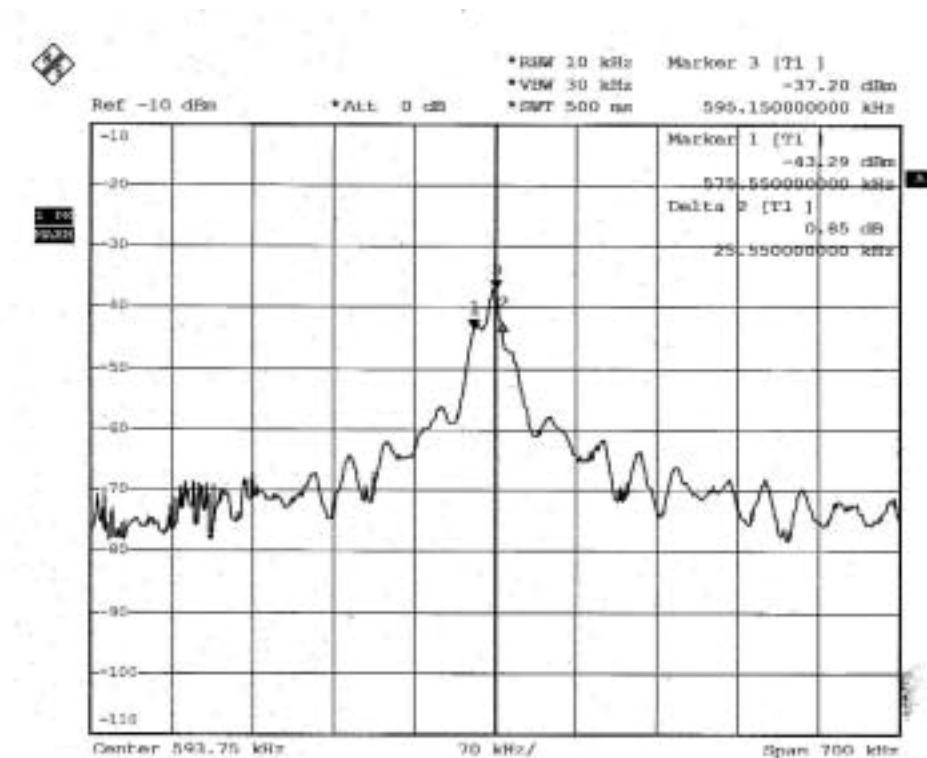
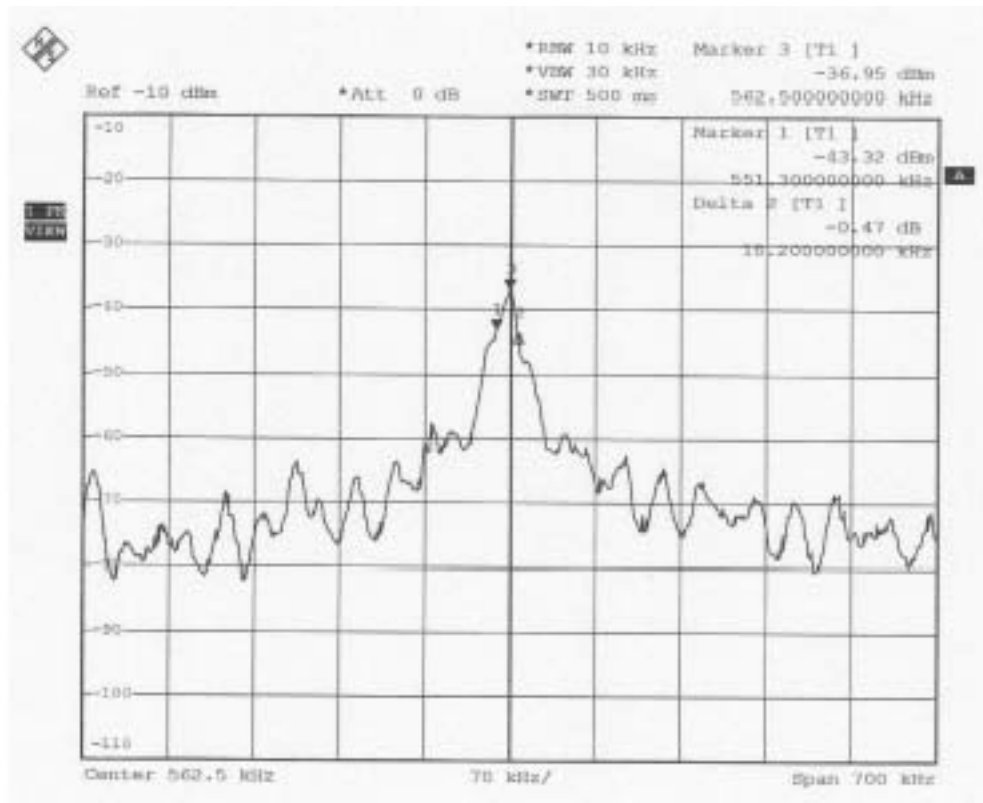
4.4.2 Test Setup



4.4.3 Test Data:

FREQUENCY(KHz)	READING BANDWIDTH (KHz)
531.25	30.65
562.56	18.20
593.75	25.55





4.5 Radiated Emission Measurement [Section [15.209]

4.5.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

4.5.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

9KHz to 30MHz: The highest emissions between 9KHz to 30MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the Loop antenna height was fixed in one meters, its angle was varied between 0 ,22.5 ,45 ,67.5 ,90 ,112.5 ,135 and 157.5 ° and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

30MHz to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.

For the test of 2nd to 10th harmonics frequencies , the equipment setup was also refer to EMI Receiver/Spectrum Analyzer Configuration. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

4.5.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	9KHz~150KHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1KHz
Video Bandwidth (VBW)	300Hz
Measurement Distance	3 m

Frequency Range Tested:	150KHz~30MHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	3KHz
Video Bandwidth (VBW)	10KHz
Measurement Distance	3 m

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz
Measurement Distance	3 m

4.5.4 Test Data:

4.5.4.1 Fundamental Frequency 531.25 KHz

9KHz – 30MHz Open Field Radiated Emissions

Operator: Jerry Chiou

Temperature (C): 25

Humidity (%): 59

Frequency MHz	Rx Amp. (dBuV)	Ant Fact (dB/m)	CableLoss (dB)	Corrct. Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
0.53125*	37.32	10.29	0.16	47.77	53.13	-5.36
1.0625	22.73	10.4	0.2	33.33	47.1	-13.77

*: Fundamental Frequency

30MHz~1GHz Open Field Radiated Emissions (Horizontal)

Operator: Jerry Chiou

Temperature(C): 25

Humidity(%): 59

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos. (deg)
199.75	18.18	9.19	2.88	0	30.25	43.5	-13.25	98	179
229.82	24.99	10.28	3.13	0	38.4	46	-7.6	98	245
258.92	11.19	14.01	3.38	0	28.58	46	-17.42	98	146
323.91	10.61	13.77	3.92	0	28.3	46	-17.7	98	17

30MHz~1GHz Open Field Radiated Emissions (Vertical)

Operator: Jerry Chiou

Temperature(C): 25

Humidity(%): 59

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos. (deg)
55.22	15.66	7.22	1.36	0	24.24	40	-15.76	98	33
199.75	19.16	9.19	2.88	0	31.24	43.5	-12.26	98	179
223.03	20.53	9.46	3.07	0	33.06	46	-12.94	98	245
443.22	10.58	16.58	4.85	0	32	46	-14	98	49
453.89	8.68	16.75	4.93	0	30.37	46	-15.63	98	49

NOTE:

➤ Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

4.5.4.2 Fundamental Frequency 562.5 KHz

9KHz – 30MHz Open Field Radiated Emissions

Operator: Jerry Chiou
Temperature (C): 25
Humidity (%): 59

Frequency	Rx Amp.	Ant Fact	CableLoss	Corrct. Emi.	Limit	Margin
MHz	(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
0.5625*	37.01	10.39	0.16	47.56	52.61	-5.05
1.125	22.4	10.43	0.2	33.03	46.6	-13.57

*: Fundamental Frequency

30MHz~1GHz Open Field Radiated Emissions (Horizontal)

Operator: Jerry Chiou
Temperature (C): 25
Humidity (%): 59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
55.22	14.38	7.22	1.36	0	22.97	40	-17.03	99	261
226.91	26.99	9.93	3.1	0	40.02	46	-5.98	99	180
443.22	10.12	16.58	4.85	0	31.55	46	-14.45	99	32
452.92	8.76	16.74	4.93	0	30.43	46	-15.57	99	49

30MHz~1GHz Open Field Radiated Emissions (Vertical)

Operator: Jerry Chiou
Temperature (C): 25
Humidity (%): 59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
56.19	14.72	7.1	1.37	0	23.18	40	-16.82	99	245
199.75	17.48	9.19	2.88	0	29.56	43.5	-13.94	99	212
233.7	22.37	10.74	3.15	0	36.26	46	-9.74	99	147
443.22	10.57	16.58	4.85	0	32	46	-14	99	32
453.89	10.77	16.75	4.93	0	32.46	46	-13.54	99	32

NOTE:

➤ Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067

LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

4.5.4.3 Fundamental Frequency 593.75 KHz

9KHz – 30MHz Open Field Radiated Emissions

Operator: Jerry Chiou
 Temperature (C): 25
 Humidity (%): 59

Frequency	Rx Amp.	Ant Fact	CableLoss	Corrct. Emi.	Limit	Margin
MHz	(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
0.59375*	36.38	10.48	0.17	47.03	52.1	-5.07
1.1875	21.25	10.46	0.21	31.92	46.1	-14.18

*: Fundamental Frequency

30MHz~1GHz Open Field Radiated Emissions (Horizontal)

Operator: Jerry Chiou
 Temperature(C):25
 Humidity(%):59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
47.46	13.95	9.02	1.22	0	24.18	40	-15.82	99	322
199.75	16.61	9.19	2.88	0	28.68	43.5	-14.82	99	89
234.67	22.9	10.86	3.15	0	36.91	46	-9.09	99	220
443.22	12.19	16.58	4.85	0	33.61	46	-12.39	99	322
453.89	10.34	16.75	4.93	0	32.02	46	-13.98	99	359

30MHz~1GHz Open Field Radiated Emissions (Vertical)

Operator: Jerry Chiou
 Temperature(C):25
 Humidity(%):59

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
55.22	16.3	7.22	1.36	0	24.89	40	-15.11	99	105
199.75	18.06	9.19	2.88	0	30.13	43.5	-13.37	99	89
235.64	20.17	10.98	3.16	0	34.31	46	-11.69	99	204
443.22	11.66	16.58	4.85	0	33.09	46	-12.91	99	322
453.89	9.42	16.75	4.93	0	31.11	46	-14.89	99	359

NOTE:

➤ Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0;VCCI: R-341,C-354; NEMKO:ELA 113A;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178; IC:IC4067

LT LAB: NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113B; BSMI:SL2-IN-E-0013;CNLA:0997; IC:IC4164-1

5. Appendix

5.1 Appendix A: Test Equipment

5.1.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction	Coaxial Cable 1F-C2	Harbourindustries	RG400	1F-C2	05/20/2006	05/20/2007
Conduction	Digital Hygro-Thermometer Conduct	MicroLife	HT-2126G	ISL-Conduction 02	11/30/2004	11/30/2006
Conduction	EMI Receiver 02	HP	85460A	3448A00183	10/01/2006	10/01/2007
Conduction	LISN 01	R&S	ESH2-Z5	890485/013	05/05/2007	05/05/2007
Conduction	LISN 06	R&S	ESH3-Z5	828874/009	12/13/2005	12/13/2006
Radiation	BILOG Antenna 08	Schaffner	CBL6112B	2756	06/07/2006	06/07/2007
Radiation	Coaxial Cable Chmb 02-10M	Belden	RG-8/U	Chmb 02-10M	12/28/2005	12/28/2006
Radiation	Digital Hygro-Thermometer Chmb 02	MicroLife	HT-2126G	Chmb 02	11/30/2004	12/30/2006
Radiation	EMI Receiver 03	HP	85460A	3448A00209	04/01/2006	04/01/2007
Radiation	Spectrum Analyzer 13	Advantest	R3132	121200411	02/17/2006	02/17/2007
Radiation	Loop Antenna 03	Com-Power	AL-130	17101	06/13/2006	06/13/2008
Radiation	Horn Antenna 02	Com-Power	AH-118	10088	07/22/2006	07/22/2007
Radiation	Microwave Cable RF SK-01	HUBER+SUHNER AG.	Sucoflex 102	22139 /2	07/07/2006	07/07/2007
Chamber 05	Peak Power Analyzer	HP	8990A	3621A01269	03/28/2006	03/28/2007
Chamber 05	Power Sensor Radar	HP	84815A	3318A01828	03/28/2006	03/28/2007
Radiation	Preamplifier 02	MITEQ	AFS44-00102650-40-10P-44	728229	11/28/2005	11/28/2006
Radiation	Spectrum Analyzer 14	Advantest	R3182	140600028	11/22/2005	11/22/2006

Note: Calibration is traceable to NIST or national or international standards.

5.1.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

Radiation/Conduction	Filename	Version	Issued Date
Conduction	Tile.exe	1.12E	7/7/2000
Radiation	Tile.exe	1.12C	6/16/2000

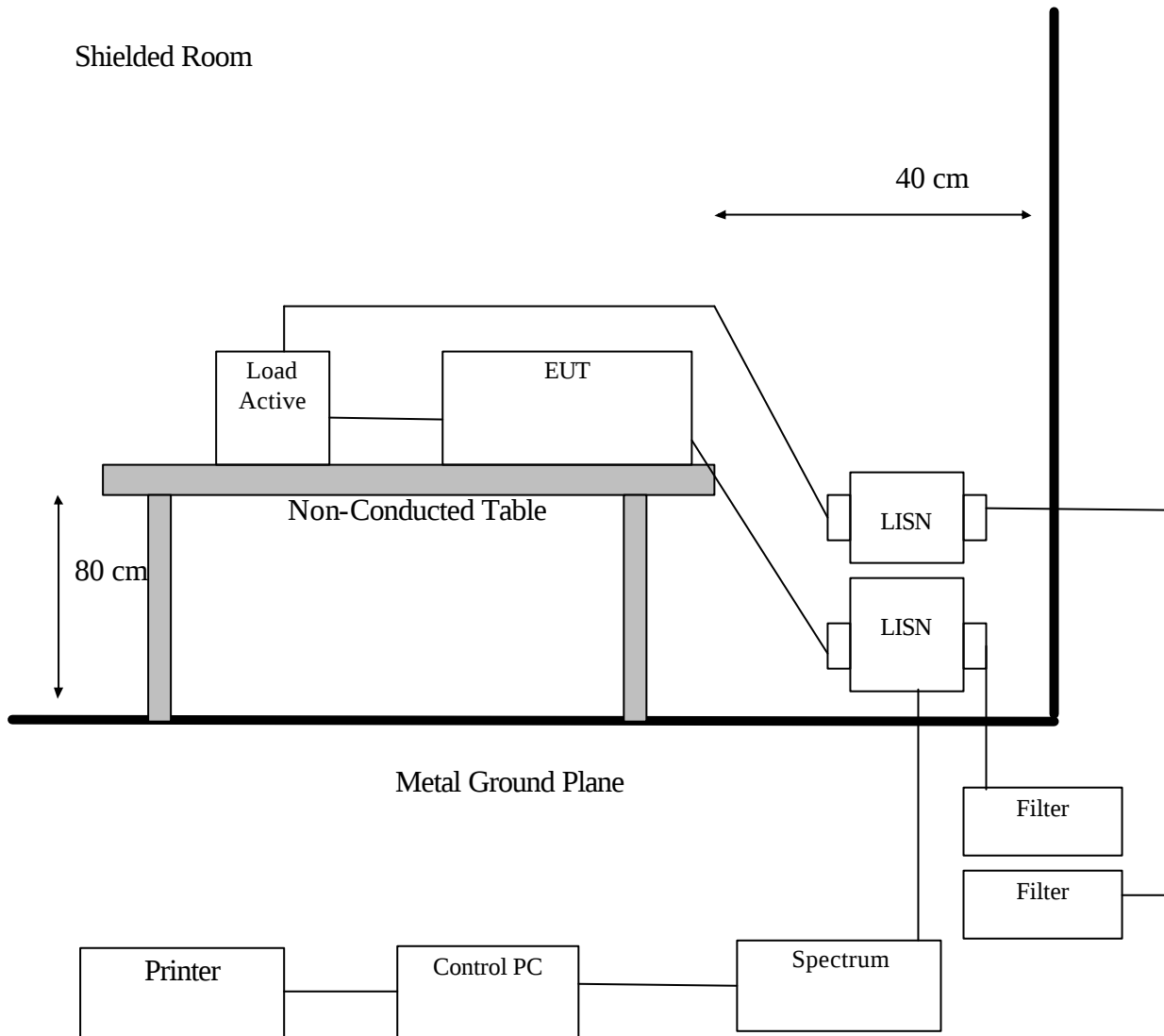
International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067
 LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

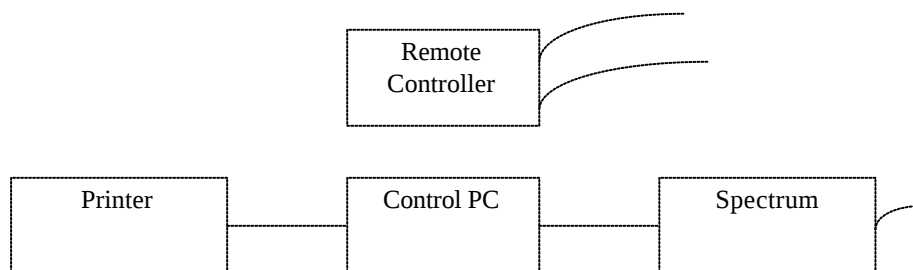
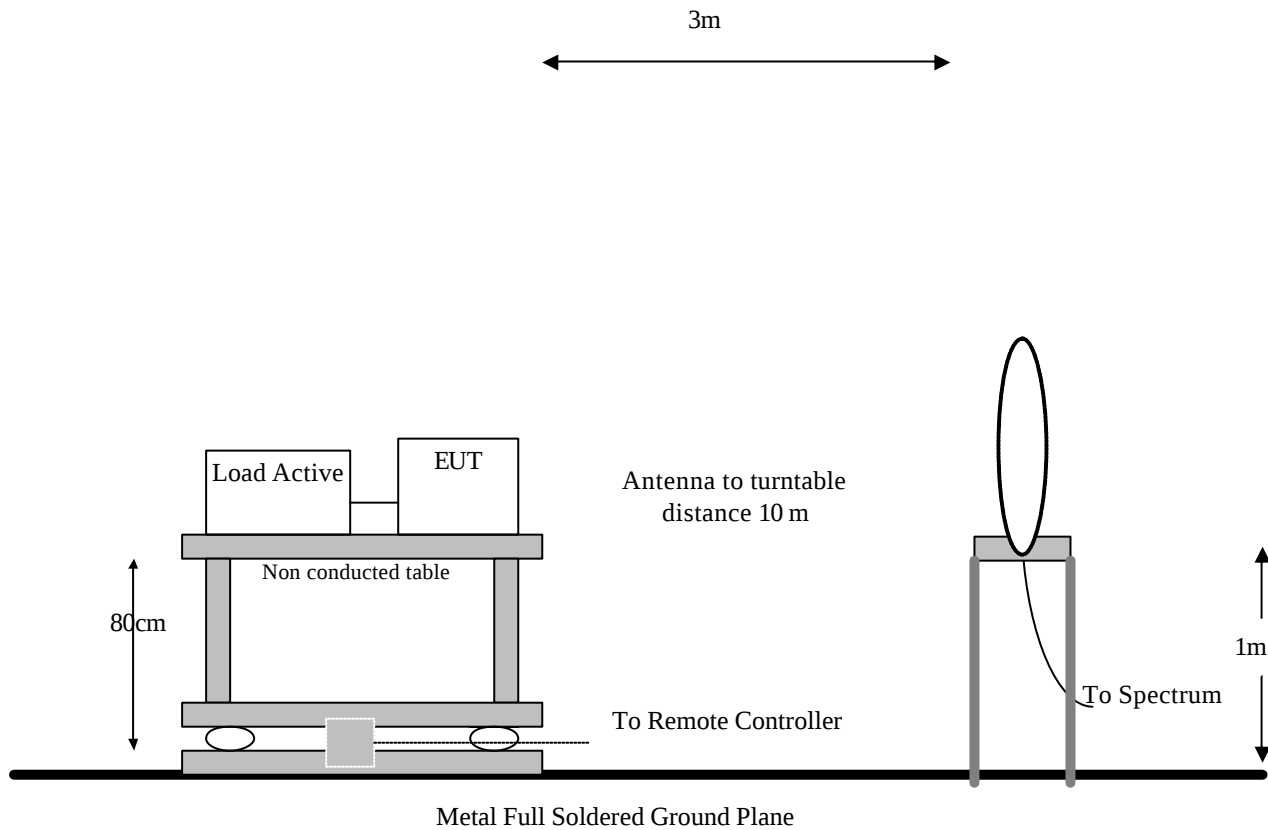
5.2 Appendix B: Layout of EUT and Support Equipment

5.2.1 General Conducted Test Configuration

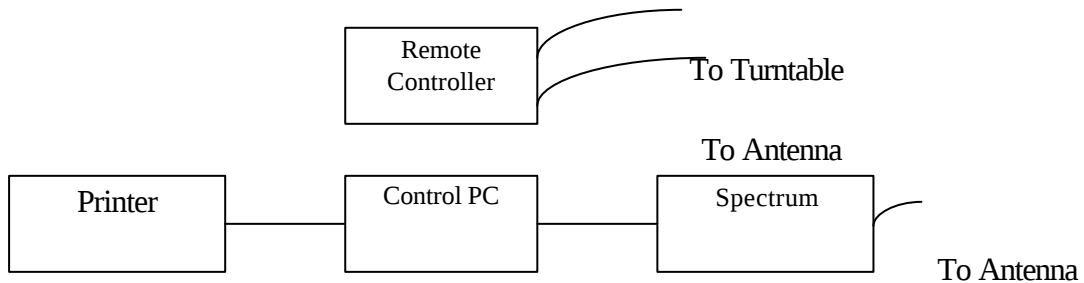
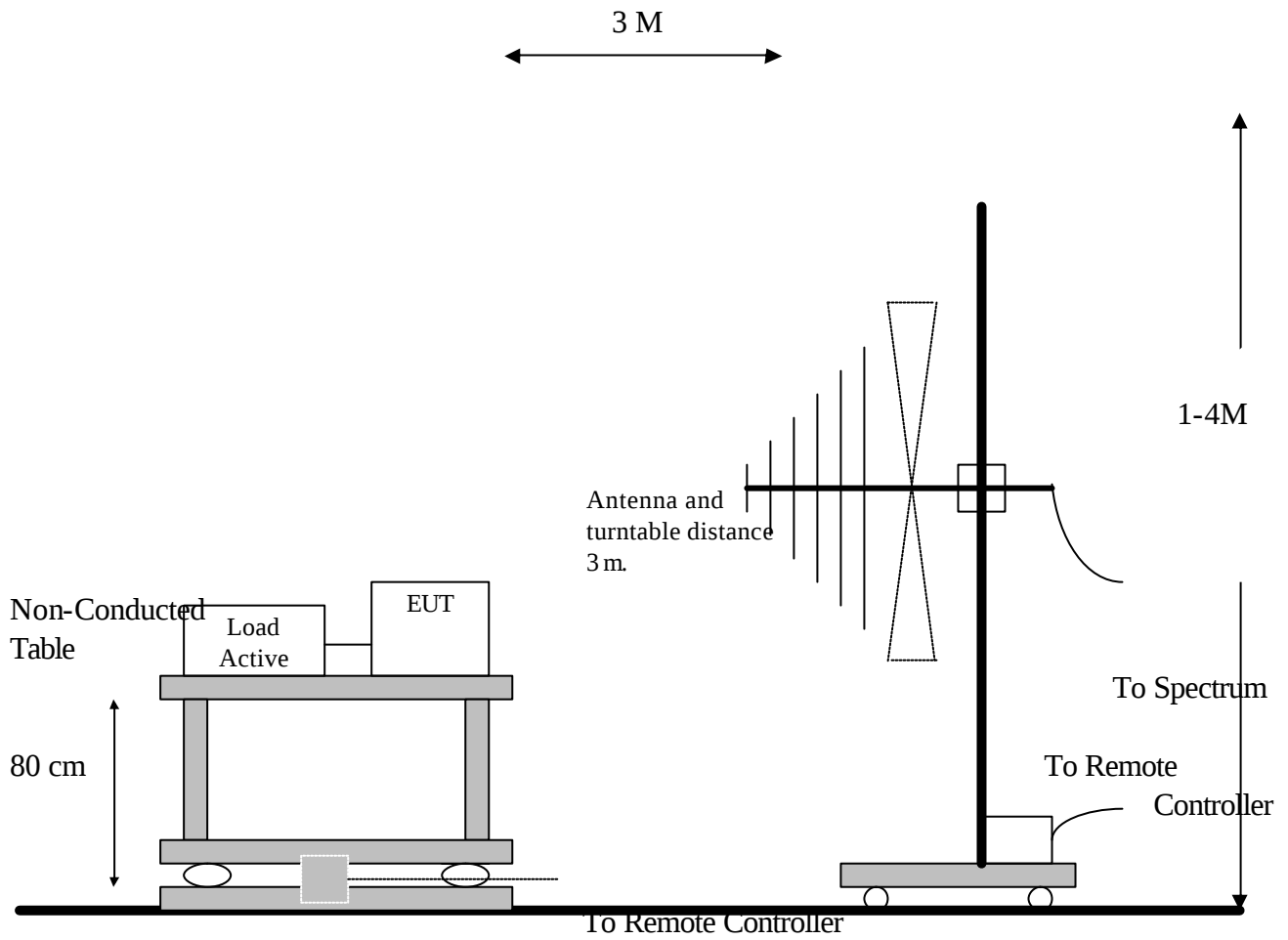


5.2.2 General Radiation Test Configuration

5.2.2.1 9KHz-30MHz



5.2.2.2 30MHz-1GHz



5.3 Appendix C: Description of Support Equipment

5.3.1 Description of Support Equipment

NA

5.3.2 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to AC Power Cord Inlet (3-pin)	1.8M	Nonshielded, Detachable	Plastic Head

5.4 Appendix D: Accuracy of Measurement

Test Site: Conduction 02

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.104	k=1	0.052
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.330	k=1	0.165
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	LISN Factor Calibration	Normal	k=2	1.200	k=1	0.600
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty $U_c(y)$	Normal			k=1	0.850
7	Total Uncertainty @95% min. Confidence Level	Normal	k=2	1.701		

Measurement Uncertainty Calculations:

$$U_c(y) = \text{square root} (u_1(y)^2 + u_2(y)^2 + \dots + u_n(y)^2)$$

$$U = 2 * U_c(y)$$

Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067
LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

Test Site: Chamber 02-3M

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.067	k=1	0.034
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.103	k=1	0.052
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	Antenna Factor Calibration	Normal	k=2	1.700	k=1	0.850
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty Uc(y)	Normal			k=1	1.029
7	Total Uncertainty @95% mim. Confidence Level	Normal	k=2	2.059		

Measurement Uncertainty Calculations:

$$U_c(y) = \text{square root} (u_1(y)^2 + u_2(y)^2 + \dots + u_n(y)^2)$$

$$U = 2 * U_c(y)$$

Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

International Standards Laboratory

Report Number: ISL-06LR025FC

HC LAB: NVLAP:200234-0; VCCI: R-341, C-354; NEMKO: ELA 113A; BSMI: SL2-IN-E-0037; SL2-R1-E-0037; CNLA: 1178; IC: IC4067
LT LAB: NVLAP:200234-0; VCCI: R-1435, C-1440; NEMKO: ELA 113B; BSMI: SL2-IN-E-0013; CNLA: 0997; IC: IC4164-1

5.5 Appendix E: Photographs of EUT Configuration Test Set Up

Refer to attachment

5.6 Appendix F: Photographs of EUT

Refer to attachment