



VERIFICATION OF COMPLIANCE

This Verification of Compliance is hereby issued to the product designated below.

Product	Panel PC with Touch Screen
Model	POC-S155
Trade name	ADVANTECH
Applicant	Advantech Co., Ltd. No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Applicable Standard(s)	EN 60601-1-2: 2001 EN 55011: 1998 + A1: 1999 IEC 61000-4-2: 1995 + A2: 2000; IEC 61000-4-3: 1995 + A2: 2000; IEC 61000-4-4: 1995 + A1: 2000; IEC 61000-4-5: 1995 + A1: 2000; IEC 61000-4-6: 1996 + A1: 2000; IEC 61000-4-8: 1993 + A1: 2000; IEC 61000-4-11: 1994 + A1: 2000 EN 61000-3-3: 1995 + A1: 2001
Report No.	41109205-E1
Test Laboratory	Compliance Certification Services Inc. No. 81-1, Lane 210, Bade Rd., 2, Luchu Hsiang, Taoyuan Hsien, Taiwan, R.O.C. Tel: +886-3-3240332/ Fax: +886-3-3245235

This device has been tested and found to comply with the stated standard(s), which is(are) required by the Council Directive of 89/336/EEC and Amendment Directive of 93/42/EEC. The test results are indicated in the test report and are applicable only to the tested sample identified in the report.

Kurt Chen / Director of Linkou Laboratory

Date: January 11, 2005



CE EMC

TEST REPORT

For

Panel PC with Touch Screen

Model: POC-S155

Trade Name: ADVANTECH

Issued for

Advantech Co., Ltd.

**No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.**

Issued by

COMPLIANCE CERTIFICATION SERVICES INC.

**No. 81-1, Lane 210, Bade Rd., 2, Luchu Hsiang,
Taoyuan Hsien, (338) Taiwan, R.O.C.**

TEL: 886-3-324-0332

FAX: 886-3-324-5235



***Note:** This report shall not be reproduced except in full, without the written approval of Compliance Certification Services Inc. Ltd. This document may be altered or revised by Compliance Certification Services Inc. personnel only, and shall be noted in the revision section of the document.*



TABLE OF CONTENTS

1	TEST RESULT CERTIFICATION.....	3
2	EUT DESCRIPTION.....	4
3	TEST METHODOLOGY.....	6
3.1	EUT SYSTEM OPERATION.....	6
3.2	DECISION OF FINAL TEST MODE.....	6
4	SETUP OF EQUIPMENT UNDER TEST.....	7
5	FACILITIES AND ACCREDITATIONS.....	7
5.1	FACILITIES.....	7
5.2	LABORATORY ACCREDITATIONS AND LISTINGS	8
6	INSTRUMENT AND CALIBRATION.....	9
6.1	MEASURING INSTRUMENT CALIBRATION.....	9
6.2	TEST AND MEASUREMENT EQUIPMENT	9
7	LINE CONDUCTED & RADIATED EMISSION TEST.....	12
7.1	LIMIT	12
7.2	TEST PROCEDURE OF LINE CONDUCTED EMISSION.....	13
7.3	TEST PROCEDURE OF RADIATED EMISSION.....	15
7.4	TEST RESULTS	17
8	POWER HARMONICS TEST.....	21
9	POWER VOLTAGE FLUCTUATION / FLICKER TEST	27
10	ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST	30
11	RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST	34
12	FAST TRANSIENTS/BURST IMMUNITY TEST.....	36
13	SURGE IMMUNITY TEST.....	38
14	CONDUCTED DISTURBANCE/INDUCED RADIO-FREQUENCY FIELD IMMUNITY TEST ...	40
15	POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST.....	42
16	VOLTAGE DIPS / SHORT INTERRUPTIONS	44
	APPENDIX I - PHOTOGRAPHS OF TEST SETUP	47
	APPENDIX II – TEST RESULT OF EN 61000-3-3.....	62



1 TEST RESULT CERTIFICATION

Applicant: Advantech Co., Ltd.
No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.

Manufacturer: Advantech Co., Ltd.
No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District,
Taipei 114, Taiwan, R.O.C.

Equipment Under Test: Panel PC with Touch Screen

Trade Name: ADVANTECH

Model: POC-S155

Detailed EUT Description: See Item 2 of this report

Date of Test: November 13 ~ December 31, 2004

Applicable Standard	Class/Limit/Criterion	Test Result
EN 60601-1-2: 2001, including		
EN 55011: 1998 + A1: 1999	Class B	No non-compliance noted
IEC 61000-4-2: 1995 + A2: 2000	See Item 10 of this report	No non-compliance noted
IEC 61000-4-3: 1995 + A2: 2000	See Item 11 of this report	No non-compliance noted
IEC 61000-4-4: 1995 + A1: 2000	See Item 12 of this report	No non-compliance noted
IEC 61000-4-5: 1995 + A1: 2000	See Item 13 of this report	No non-compliance noted
IEC 61000-4-6: 1996 + A1: 2000	See Item 14 of this report	No non-compliance noted
IEC 61000-4-8: 1993 + A1: 2000	See Item 15 of this report	No non-compliance noted
IEC 61000-4-11: 1994 + A1: 2000	See Item 16 of this report	No non-compliance noted
EN 61000-3-2: 2000	Class A/B/C/D	N/A
EN 61000-3-3: 1995 + A1: 2001	Limit	No non-compliance noted
Deviation from Applicable Standard		
None		

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in the EMC Directive 93/42/EEC and the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Kurt Chen
Director of Linkou Laboratory
Compliance Certification Services Inc.

Reviewed by:

Susan Su
Section Manager of Linkou Laboratory
Compliance Certification Services Inc.



2 EUT DESCRIPTION

Product	Panel PC with Touch Screen		
Trade Name	ADVANTECH		
Model	POC-S155		
Housing Type	Plastic		
EUT Power Rating	DCV from Power Adapter		
Power Adapter Manufacturer	SINPRO	Model	MPU50-108
			PCM80PS24
Power Adapter Power Rating	For MPU50-108 I/P: 100-240VAC, 47-63Hz O/P: DC 11-13V, 2.08A For PCM80PS24 I/P: 100-240VAC, 50-60Hz, 1.1-0.45A O/P: DC 24V, 3.33A		
AC Power Cord Type	Unshielded, 1.8m (Detachable)		
DC Power Cable Type	Unshielded, 1.2m (Non-detachable) with a core		
CPU Manufacturer	Intel	Model	Celeron-M 600MHz
OSC/Clock Frequencies	100MHz		
Memory Capacity		Installed	512MB
LCD Panel Manufacturer	AU	Model	M150XN07
			G150XG01
Main Board Manufacturer	ADVENTECH	Model	PCM-9686
HDD Manufacturer	Fujitsu	Model	MHT2020AT (20GB)

**I/O Port of EUT**

I/O Port Type	Q'TY	TESTED WITH
1). Video Out Port (VGA)	1	1
2). Serial Port	2	2
3). PS/2 Keyboard / Mouse Port	1	1
4). Audio In Port1	1	1
5). Audio Out Port	1	1
6). LAN Port	1	1
7). USB Port	2	2

3 TEST METHODOLOGY

3.1 EUT SYSTEM OPERATION

1. EMI test program was loaded and executed in Windows XP mode.
2. The EMI test program sequentially exercised all I/O's of EUT.
3. A communicated software was loaded and executed to communicate between EUT and remote side.
4. The EUT receives message from remote side, and filling the screen of monitor with upper case of "H" patterns.
5. Repeat 2 to 4.

Note: Test program is self-repeating throughout the test.

3.2 DECISION OF FINAL TEST MODE

1. The following test mode(s) were scanned during the preliminary test:

Mode	Resolution	LCD Panel	Power Adapter
1	1024 × 768	AU / G150XG01	SINPRO / MPU50-108
2	1024 × 768	AU / M150XN07	SINPRO / MPU50-108
3	1024 × 768	AU / G150XG01	SINPRO / PCM80PS24
4	800 × 600	AU / G150XG01	SINPRO / PCM80PS24

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Mode 1, 3

Then, the EUT configuration and cable configuration of the above highest emission mode was chosen for all final test items.



4 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	Monitor	959NF	AQ19H2RT706132L	FCC DoC	SAMSUNG	Shielded, 1.8m with two cores	Unshielded, 1.8m
2.	Modem	DM-1414	304012263	IFAXDM1414	ACEEX	Unshielded, 1.8m	Unshielded, 1.8m
3.	Modem	DM-1414	304012264	IFAXDM1414	ACEEX	Unshielded, 1.8m	Unshielded, 1.8m
4.	PS/2 Keyboard (One to two adapter)	KB-0133	N/A	FCC DoC	COMPAQ	Unshielded, 1.8m	N/A
5.	PS/2 Mouse (One to two adapter)	M-S69	N/A	FCC DoC	COMPAQ	Unshielded, 1.8m	N/A
6.	USB 2.0 External HDD	F12-UF	A0100214-43b0013	FCC DoC	TeraSys	Shielded, 1.8m	N/A
7.	USB 2.0 External HDD	F12-UF	A0100214-39g0018	FCC DoC	TeraSys	Shielded, 1.8m	N/A
8.	Multimedia Earphone	Axis-301	N/A	FCC DoC	Labtec	Unshielded, 2.0m	N/A
9.	Notebook PC (Remote)	M285	NU2503544	FCC DoC	LEO	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES







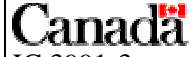
All measurement facilities (except above 1GHz measurement frequency of IEC 61000-4-3) used to collect the measurement data are located at CCS Taiwan Linkou Lab at No. 81-1, Lane 210, Bade Rd., 2, Luchu Hsiang, Taoyuan Hsien, Taiwan.

The measurement facilities of IEC 61000-4-3 frequency rang above 1GHz are located at ADT Test Lab. at No. 47, 14th Ling, Chia-Pau Tsuen, Linkou Hsiang, Taipei, Taiwan, R.O.C

The measurement facilities are constructed in conformance with the requirements of CISPR 16-1, ANSI C63.4 and other equivalent standards.

5.2 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform Electromagnetic compatibility tests are registered or accredited by the organizations listed in the following table which includes the recognized scope specifically.

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP	EN 55011, EN 55014-1, AS/NZS 1044, CNS 13783-1, EN 55022, CNS 13438, EN 61000-3-2, EN 61000-3-3, ANSI C63.4, FCC OST/MP-5, AS/NZS CISPR 22, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11	 Lab. Code:200600-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	 93105, 90471
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	 R-393/1066/725/879/1868 C-402/747/912
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328-2, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2	 ELA 124a ELA 124b ELA 124c
Taiwan	CNLA	EN 300 328-1, EN 300 328-2, EN 300 220-1, EN 300 220-2, EN 300 220-3, 47 CFR FCC Part 15 Subpart C, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 14115, CNS 13438, AS/NZS CISPR 22, CNS 13022-1, IEC 61000-4-2/3/4/5/6/8/11, CNS 13022-2/3	 0 3 6 3 ILAC MRA
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	 SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS212, Issue 1	 IC 3991-3 IC 3991-4

Note: No part of this report may be used to claim or imply product endorsement by CNLA, NVLAP or other government agency.



6 INSTRUMENT AND CALIBRATION

6.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Conducted Emission Test Site # 3				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	845552/030	03/14/2005
LISN	R&S	ESH2-Z5	843285/010	01/08/2005
LISN	EMCO	3825/2	9003-1628	07/26/2005

Note: The measurement uncertainty is less than +/- 2.83dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.

Open Area Test Site # 5				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Bilog Antenna	SCHWAZBECK	VULB9163	128	01/16/2005
Spectrum Analyzer	ADVANTEST	R3132	91700456	N.C.R
EMI Test Receiver	R&S	ESVS10	846285/016	04/25/2005
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Controller	CCS	CC-C-1F	04	N.C.R
RF Switch	ANRITSU	MP59B	10877	N.C.R
Site NSA	CCS	N/A	N/A	12/12/2005

Note: The measurement uncertainty is less than +/- 3.36dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.



Power Harmonic & Voltage Fluctuation/Flicker Measurement (EN 61000-3-2&-3-3)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
HARMONICS SYSTEM	EMC-PARTNER	HARMONICS-1000	094	11/04/2005

Equipment Used for Immunity Measurement

ESD Test Site (IEC/EN 61000-4-2)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
ESD Generator	EM TEST	P30C	0603-01	08/01/2005

Radiated Electromagnetic Field Immunity Test Site (IEC/EN 61000-4-3) (80-1000MHz)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
S.G.	R&S	SMY02	100094	08/05/2005
Power Meter	R&S	NRVD	837794/029	08/06/2005
Power Sensor	R&S	URV5-Z2	835640/015	08/06/2005
Power Sensor	R&S	URV5-Z2	835640/016	08/06/2005
Power Amplifier	ar	150W1000	300300	N.C.R

Radiated Electromagnetic Field Immunity Test Site (IEC/EN 61000-4-3) (1400-2500MHz)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
S.G.	Agilnet	8648C	4108A05772	07/29/2005
Power Meter	BOONTON	4232A	98501	07/08/2005
Power Amplifier	ar	150W1000M3	306730	N.C.R
Power Amplifier	ar	30S1G3M1	306722	N.C.R
RF Test Sys Ctrlr	ar	SC1000M3	306666	N.C.R
Bilog Antenna	ar	AT1080	306709	N.C.R
Horn Antenna	ar	AT4002	306750	N.C.R

Fast Transients/Burst Test Site (IEC/EN 61000-4-4)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Fast Transients/Burst Generator	HAEFELY TRENCH	PEFT- JUNIOR	583 333-117	08/25/2005
Clamp	HAEFELY TRENCH	093 506.1	080 421.13	N.C.R



Surge Immunity Test Site (IEC/EN 61000-4-5)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Surge Tester	HAEFELY TRENCH	PSUGER 4010	583 334-71	08/25/2005

CS Test Site (IEC/EN 61000-4-6)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
S.G.	R&S	SMY02	100094	08/05/2005
Power Meter	R&S	NRVD	837794/029	08/06/2005
Power Sensor	R&S	URV5-Z2	835640/015	08/06/2005
Power Sensor	R&S	URV5-Z2	835640/016	08/06/2005
Power Amplifier	ar	500A100A	300299	N.C.R
CDN	Lüthi	801-M3	1879	03/03/2005
CDN	FRANKONIA	CDN-M2	A3002010	08/06/2005
CDN	SCHAFFNER	T400	16906	12/28/2004

Power Frequency Magnetic Field Immunity Test Site (IEC/EN 61000-4-8)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
TRIAx ELF Magnetic Field Meter	F.W.BELL	4090	9711	11/13/2005
Magnetic Field Tester	HAEFELY TRENCH	MAG 100.1	080 938-01	N.C.R

Voltage Dips/Short Interruption and Voltage Variation Immunity Test Site (IEC/EN 61000-4-11)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Dips/Interruption and Variations Simulator	HAEFELY TRENCH	PLINE 1610	080 344-05	04/06/2005



7 LINE CONDUCTED & RADIATED EMISSION TEST

7.1 LIMIT

Maximum permissible level of Line Conducted Emission

Frequency (MHZ)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note: The lower limit shall apply at the transition frequency.

Maximum permissible level of Radiated Emission measured at 10 meter

Frequency (MHZ)	Class A (dBuV/m)	Class B (dBuV/m)
	Quasi-peak	Quasi-peak
30 – 230	40	30
230 - 1000	47	37

Note: The lower limit shall apply at the transition frequency.



7.2 TEST PROCEDURE OF LINE CONDUCTED EMISSION

Procedure of Preliminary Test

- The EUT was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55011 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55011.
- All I/O cables were positioned to simulate typical actual usage as per EN 55011.
- The test equipment EUT installed received AC power, 230VAC/50Hz, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipment received power from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the Average limit in Q.P. mode, then the emission signal was re-checked using an Average detector.
- The test data of the worst-case condition(s) was recorded.

**Data Sample:**

Freq. (MHz)	Q.P. Raw (dBuV)	Average Raw (dBuV)	Q.P. Limit (dBuV)	Average Limit (dBuV)	Q.P. Margin (dB)	Average Margin (dB)	Note
x.xx	43.95	---	56.00	46.00	-12.05	---	L1

Freq. = Emission frequency in MHz

Raw dBuV = Uncorrected Analyzer/Receiver reading + Insertion loss of LISN, if it > 0.5 dB

Limit dBuV = Limit stated in standard

Margin dB = Reading in reference to limit

Note = Current carrying line of reading

“---“ = The emission level complied with the Average limits, with at least 2dB margin limits, so no further recheck.

Calculation Formula

Margin (dB) = RAW (dBuV) – Limit (dBuV)



7.3 TEST PROCEDURE OF RADIATED EMISSION

Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55011.
- All I/O cables were positioned to simulate typical usage as per EN 55011.
- The EUT received AC power source, 230VAC/50Hz, from the outlet socket under the turntable. All support equipment received power from another socket under the turntable.
- The antenna was placed at 10 meter away from the EUT as stated in EN 55011. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

**Data Sample:**

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
xx.xx	14.00	12.20	26.20	30.00	-3.80

Freq.	= Emission frequency in MHz
Raw Data (dBuV)	= Uncorrected Analyzer / Receiver reading
Corr. Factor (dB/m)	= Antenna factor + Cable loss – Amplifier gain
Emiss. Level (dBuV/m)	= Raw reading converted to dBuV/m and CF added
Limit (dBuV/m)	= Limit stated in standard
Margin (dB)	= Reading in reference to limit
P	= Peak Reading
Q	= Quasi-peak Reading
A	= Average Reading

Calculation Formula

Margin (dB) = Emiss. Level (dBuV/m) – Limits (dBuV/m)

Emission Level (dBuV/m) = Raw Data (dBuV) + Corr. Factor (dB/m)



7.4 TEST RESULTS

Line Conducted Emission

Model: POC-S155**Test Mode:** Mode 1**Temperature:** 20°C**Humidity:** 60% RH**Tested by:** Arno Hsieh**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Q.P. Raw (dBuV)	AVG Raw (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Q.P. Margin (dB)	AVG Margin (dB)	NOTE
0.295	30.10	---	60.38	50.38	-30.28	---	L1
1.594	32.40	---	56.00	46.00	-23.60	---	L1
3.774	27.50	---	56.00	46.00	-28.50	---	L1
5.421	34.20	---	60.00	50.00	-25.80	---	L1
6.784	36.20	---	60.00	50.00	-23.80	---	L1
7.132	37.80	---	60.00	50.00	-22.20	---	L1
0.175	31.50	---	64.72	54.72	-33.22	---	L2
1.694	30.20	---	56.00	46.00	-25.80	---	L2
3.803	27.60	---	56.00	46.00	-28.40	---	L2
5.274	31.40	---	60.00	50.00	-28.60	---	L2
6.914	35.60	---	60.00	50.00	-24.40	---	L2
7.093	36.70	---	60.00	50.00	-23.30	---	L2

L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

Note: “---” denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.

**Line Conducted Emission****Model:** POC-S155**Test Mode:** Mode 3**Temperature:** 16°C**Humidity:** 60% RH**Tested by:** Carl Chang**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Q.P. Raw (dBuV)	AVG Raw (dBuV)	Q.P. Limit (dBuV)	AVG Limit (dBuV)	Q.P. Margin (dB)	AVG Margin (dB)	NOTE
1.912	25.30	---	56.00	46.00	-30.70	---	L1
2.753	31.40	---	56.00	46.00	-24.60	---	L1
4.608	25.20	---	56.00	46.00	-30.80	---	L1
5.512	24.80	---	60.00	50.00	-35.20	---	L1
8.319	20.00	---	60.00	50.00	-40.00	---	L1
8.604	16.80	---	60.00	50.00	-43.20	---	L1
1.852	25.00	---	56.00	46.00	-31.00	---	L2
2.793	34.10	---	56.00	46.00	-21.90	---	L2
5.101	21.40	---	60.00	50.00	-38.60	---	L2
5.582	30.20	---	60.00	50.00	-29.80	---	L2
8.370	22.60	---	60.00	50.00	-37.40	---	L2
9.528	15.60	---	60.00	50.00	-44.40	---	L2

L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)

Note: “---” denotes the emission level was or more than 2dB below the Average limit, so no re-check anymore.

**Radiated Emission (A)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 26°C**Humidity:** 64% RH**Detector Function:** Quasi-peak.**Antenna:** Vertical at 10m**Tested by:** George Kuo**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
73.83	10.6	9.3	19.9	30.0	-10.1
113.37	12.1	12.3	24.4	30.0	-5.6
123.66	12.2	11.1	23.3	30.0	-6.7
142.75	17.4	9.7	27.1	30.0	-2.9
158.08	15.4	10.3	25.7	30.0	-4.3
166.36	16.8	10.7	27.5	30.0	-2.5
173.00	14.4	11.1	25.5	30.0	-4.5
205.48	14.9	12.9	27.8	30.0	-2.2
233.27	14.2	14.2	28.4	37.0	-8.6
255.50	15.6	14.9	30.5	37.0	-6.5
278.44	15.2	15.6	30.8	37.0	-6.2
300.00	11.6	16.3	27.9	37.0	-9.1
320.60	8.2	16.9	25.1	37.0	-11.9
365.60	5.4	18.1	23.5	37.0	-13.5
499.40	4.8	21.0	25.8	37.0	-11.2
624.80	7.1	23.3	30.4	37.0	-6.6

**Radiated Emission (B)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 26°C**Humidity:** 64% RH**Detector Function:** Quasi-peak.**Antenna:** Horizontal at 10m**Tested by:** George Kuo**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
110.48	8.8	12.6	21.4	30.0	-8.6
120.24	9.6	11.4	21.0	30.0	-9.0
142.22	14.3	9.6	23.9	30.0	-6.1
165.59	13.8	10.7	24.5	30.0	-5.5
209.00	6.9	13.1	20.0	30.0	-10.0
233.50	5.8	14.2	20.0	37.0	-17.0
251.80	5.2	14.8	20.0	37.0	-17.0
264.10	4.9	15.1	20.0	37.0	-17.0
335.80	6.4	17.3	23.7	37.0	-13.3
435.20	5.1	19.4	24.5	37.0	-12.5
599.40	3.1	23.2	26.3	37.0	-10.7
833.50	5.1	26.2	31.3	37.0	-5.7

**Radiated Emission (A)****Model:** POC-S155**Test Mode:** Mode 3**Temperature:** 21°C**Humidity:** 60% RH**Detector Function:** Quasi-peak.**Antenna:** Vertical at 10m**Tested by:** Carl Chang**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
62.38	11.5	12.2	23.7	30.0	-6.3
83.25	12.6	10.3	22.9	30.0	-7.1
110.00	15.3	12.7	28.0	30.0	-2.0
136.04	13.7	9.9	23.6	30.0	-6.4
165.00	17.4	10.6	28.0	30.0	-2.0
180.22	14.2	11.6	25.8	30.0	-4.2
208.89	14.5	13.1	27.6	30.0	-2.4
214.89	14.3	13.4	27.7	30.0	-2.3
242.48	17.1	14.5	31.6	37.0	-5.4
272.05	18.0	15.4	33.4	37.0	-3.6
364.20	14.4	18.0	32.4	37.0	-4.6
372.20	15.4	18.2	33.6	37.0	-3.4
415.17	4.9	19.1	24.0	37.0	-13.0
433.32	15.3	19.4	34.7	37.0	-2.3
500.00	8.5	21.0	29.5	37.0	-7.5
540.00	7.4	21.8	29.2	37.0	-7.8
615.60	10.6	23.3	33.9	37.0	-3.1



630.00	10.7	23.3	34.0	37.0	-3.0
<hr/>					
763.00	5.8	25.3	31.1	37.0	-5.9
<hr/>					
858.40	4.5	26.5	31.0	37.0	-6.0
<hr/>					
985.30	5.0	27.8	32.8	37.0	-4.2
<hr/>					

**Radiated Emission (B)****Model:** POC-S155**Test Mode:** Mode 3**Temperature:** 21°C**Humidity:** 60% RH**Detector Function:** Quasi-peak.**Antenna:** Horizontal at 10m**Tested by:** Carl Chang**Test Results:** Pass

(The chart below shows the highest readings taken from the final data)

Freq. (MHz)	Raw Data (dBuV)	Corr. Factor (dB/m)	Emiss. Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)
110.00	15.0	12.7	27.7	30.0	-2.3
163.00	17.5	10.5	28.0	30.0	-2.0
180.54	15.2	11.6	26.8	30.0	-3.2
208.04	13.8	13.1	26.9	30.0	-3.1
228.54	13.5	14.0	27.5	30.0	-2.5
243.04	17.7	14.5	32.2	37.0	-4.8
253.25	17.7	14.8	32.5	37.0	-4.5
300.70	16.1	16.3	32.4	37.0	-4.6
314.60	15.3	16.7	32.0	37.0	-5.0
366.30	12.4	18.1	30.5	37.0	-6.5
372.30	15.0	18.2	33.2	37.0	-3.8
433.40	13.5	19.4	32.9	37.0	-4.1
458.20	12.9	19.9	32.8	37.0	-4.2
500.00	13.8	21.0	34.8	37.0	-2.2
544.40	10.0	21.9	31.9	37.0	-5.1
615.60	10.7	23.3	34.0	37.0	-3.0
630.20	6.9	23.3	30.2	37.0	-6.8



644.20	9.3	23.4	32.7	37.0	-4.3
658.40	5.3	23.5	28.8	37.0	-8.2
787.30	6.7	25.8	32.5	37.0	-4.5
897.40	6.5	27.2	33.7	37.0	-3.3
980.20	4.3	27.7	32.0	37.0	-5.0



8 POWER HARMONICS TEST

Port : AC mains

Basic Standard : EN 61000-3-2 (2000)

Limits : ☐ CLASS A ; ☐ CLASS B ; ☐ CLASS C ; ☐ CLASS D

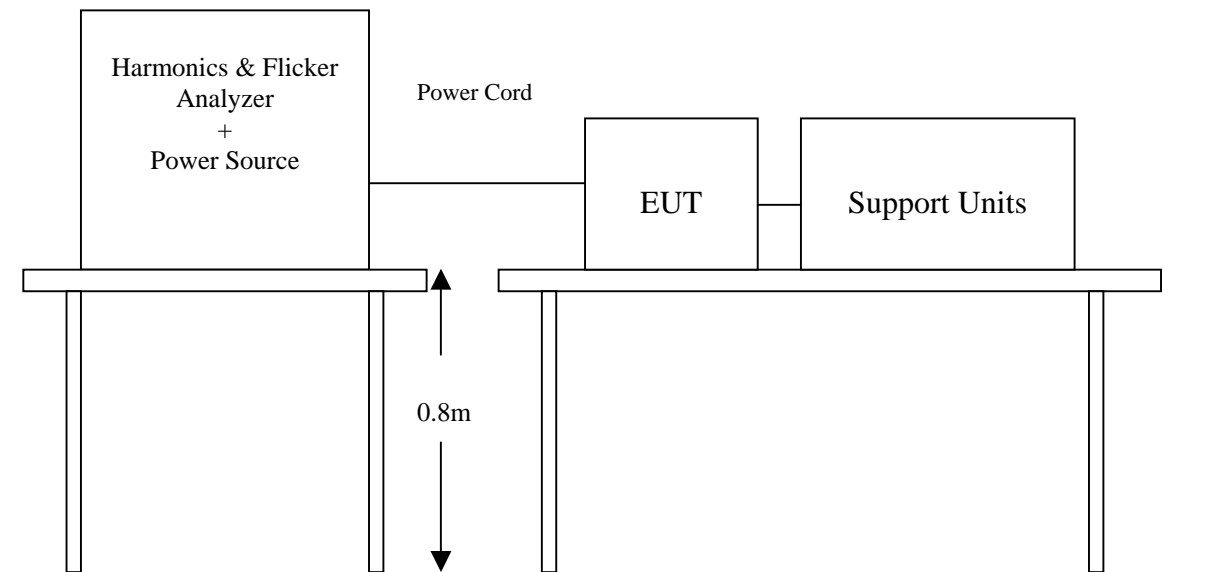
Tested by : N/A

Temperature : N/A

Humidity : N/A

Limit:

Limits for Class A equipment		Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current A	Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics		Odd Harmonics only		
3	2.30	3	3.4	2.30
5	1.14	5	1.9	1.14
7	0.77	7	1.0	0.77
9	0.40	9	0.5	0.40
11	0.33	11	0.35	0.33
13	0.21	13	0.30	0.21
15<=n<=39	0.15x15/n	15<=n<=39	3.85/n	0.15x15/n
Even harmonics				
2	1.08			
4	0.43			
6	0.30			
8<=n<=40	0.23x8/n			

Block Diagram of Test Setup:**Test Procedure:**

- a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- b. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

Test Result : (See Appendix II for details)***Mode 1******EUT max Power : 40.939W******Mode 3******EUT max Power : 49.255W***

Note: According to clause 7 of EN 61000-3-2: 2000, equipment with a rated power of 75W or less, no limits apply.

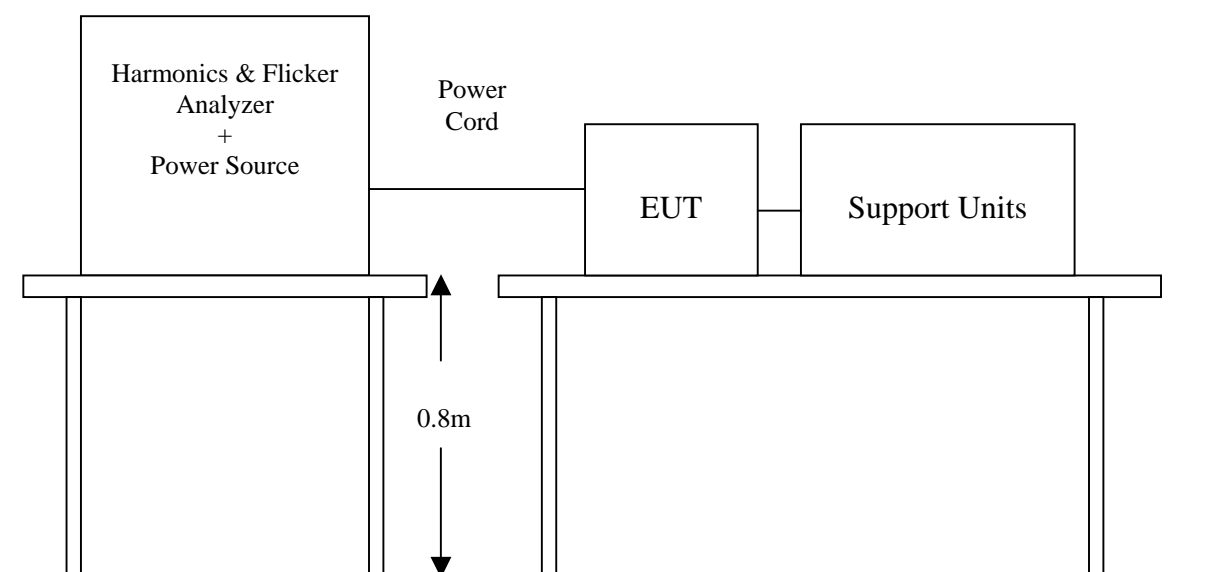
9 POWER VOLTAGE FLUCTUATION / FLICKER TEST

Port : AC mains
Basic Standard : EN 61000-3-3 (1995 + A1: 2001)
Limits : §5 of EN 61000-3-3
Tested by : Carl Chang
Temperature : 26°C
Humidity : 55%
Test Mode : 1, 3

Limit:

TEST ITEM	LIMIT	REMARK
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

Block Diagram of Test Setup:



**Test Procedure:**

- a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.
- b. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

Test Result: (See Appendix II for details)**Mode 1
Continue**

Test Parameter	Measurement Value	Limit	Result
P _{st}	0.072	1.0	Pass
P _{lt}	0.072	0.65	Pass
T _{dt} (ms)	0	500	Pass
d _{max} (%)	0%	4%	Pass
dc (%)	0.02%	3.3%	Pass

Manual Switch

Test Parameter	Measurement Value	Limit	Result
P _{st}	0.072	1.0	Pass
P _{lt}	0.072	0.65	Pass
T _{dt} (ms)	0	500	Pass
d _{max} (%)	0.57%	4%	Pass
dc (%)	0.29%	3.3%	Pass

**Mode 3
Continue**

Test Parameter	Measurement Value	Limit	Result
P _{st}	0.072	1.0	Pass
P _{lt}	0.072	0.65	Pass
T _{dt} (ms)	0	500	Pass
d _{max} (%)	0%	4%	Pass
dc (%)	0%	3.3%	Pass

Manual Switch

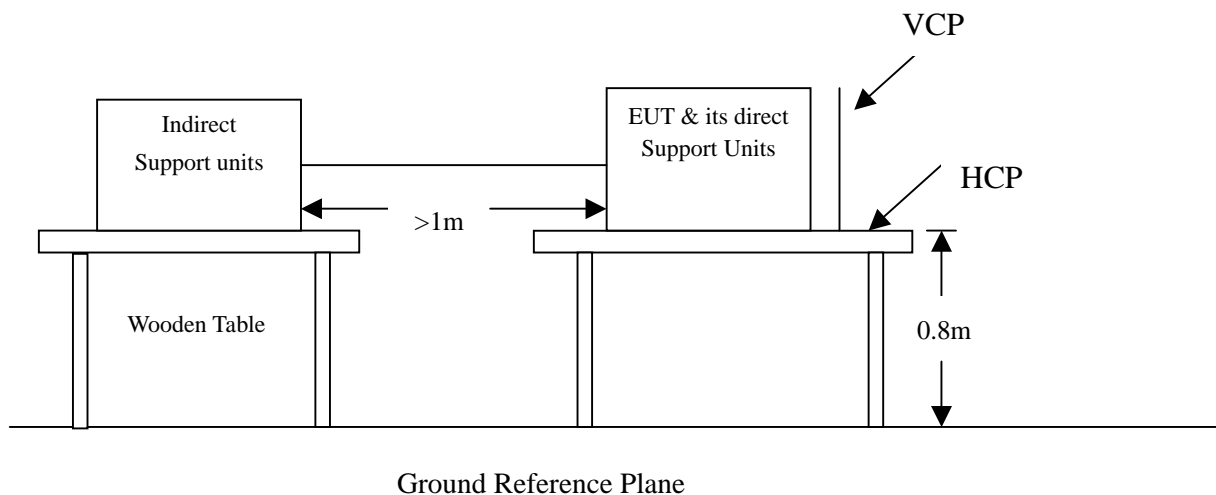
Test Parameter	Measurement Value	Limit	Result
P _{st}	0.074	1.0	Pass
P _{lt}	0.074	0.65	Pass
T _{dt} (ms)	0	500	Pass
d _{max} (%)	0.33%	4%	Pass
dc (%)	0.09%	3.3%	Pass

10 ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC/EN 61000-4-2
Test Level	: $\pm 2, 4, 8$ kV (Air Discharge) $\pm 2, 4, 6$ kV (Contact Discharge) $\pm 2, 4, 6$ kV (Indirect Discharge)
Performance Criterion	: The Equipment or System shall be able to provide the essential performance and remain safe.
Tested by	: Arno Hsieh
Temperature	: 23°C
Humidity	: 45% RH
Pressure	: 1007mbar
Test Mode	: 1, 3

Block Diagram of Test Setup:

(The 470 k ohm resistors are installed per standard requirement.)



**Test Procedure:**

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
10 / Point	$\pm 2, 4, 8$ kV	Air Discharge	Pass
10 / Point	$\pm 2, 4, 6$ kV	Contact Discharge	Pass
10 / Point	$\pm 2, 4, 6$ kV	Indirect Discharge HCP	Pass
10 / Point	$\pm 2, 4, 6$ kV	Indirect Discharge VCP (Left)	Pass
10 / Point	$\pm 2, 4, 6$ kV	Indirect Discharge VCP (Back)	Pass
10 / Point	$\pm 2, 4, 6$ kV	Indirect Discharge VCP (Right)	Pass

For the tested points to EUT, please refer to attached page.

(Blue Arrow Mark For Contact Discharge And Red Arrow Mark For Air Discharge)

Observation: The Panel of EUT were slight flicker during the contact discharge testing, but can be recovered as the events disappear.

Compliance Criteria:

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

The Tested Points of EUT

Photo 1 of 3



Photo 2 of 3



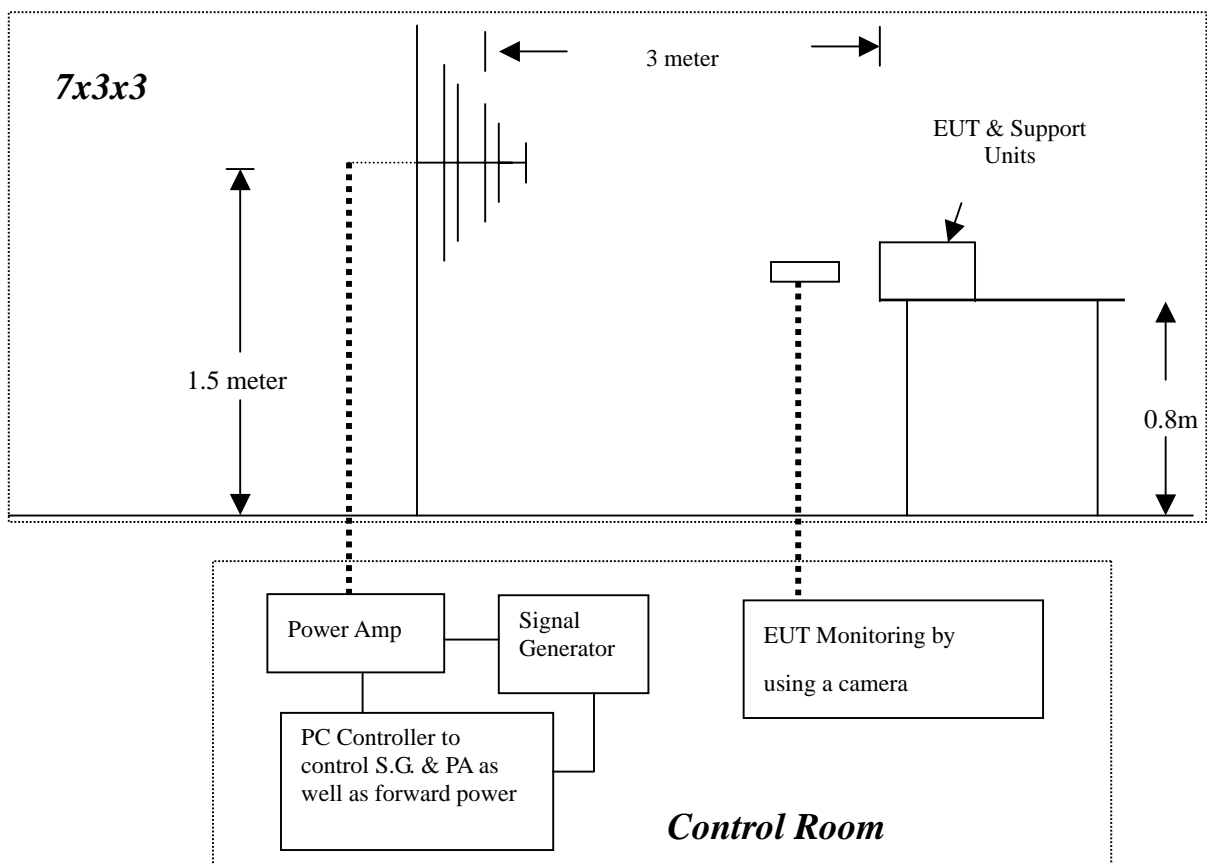
Photo 3 of 3



11 RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC/EN 61000-4-3
Requirements	: 3 V/m / with 80% AM. 1kHz Modulation.
Performance Criterion	: The Equipment or System shall be able to provide the essential performance and remain safe.
Tested by	: Arno Hsieh
Temperature	: 24°C
Humidity	: 47% RH
Pressure	: 1007mbar
Test Mode	: 1, 3

Block Diagram of Test Setup:



**Test Procedure:**

Frequency Range 80MHz ~ 2500MHz

Steps : 1 % of fundamental

Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Polarity	Position	Result (Pass/Fail)
80-2500	3V/m	Yes	H	0	Pass
80-2500	3V/m	Yes	V	0	Pass
80-2500	3V/m	Yes	H	90	Pass
80-2500	3V/m	Yes	V	90	Pass
80-2500	3V/m	Yes	H	180	Pass
80-2500	3V/m	Yes	V	180	Pass
80-2500	3V/m	Yes	H	270	Pass
80-2500	3V/m	Yes	V	270	Pass

Observation: No any function degraded during the tests.**Compliance Criteria:**

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

12 FAST TRANSIENTS/BURST IMMUNITY TEST

Port : On Power Supply Line and LAN Cable

Basic Standard : IEC/EN 61000-4-4

Requirements : ± 2 kV for Power Supply Line
 ± 1 kV for LAN Cable

Performance Criterion : The Equipment or System shall be able to provide the essential performance and remain safe.

Tested by : Arno Hsieh

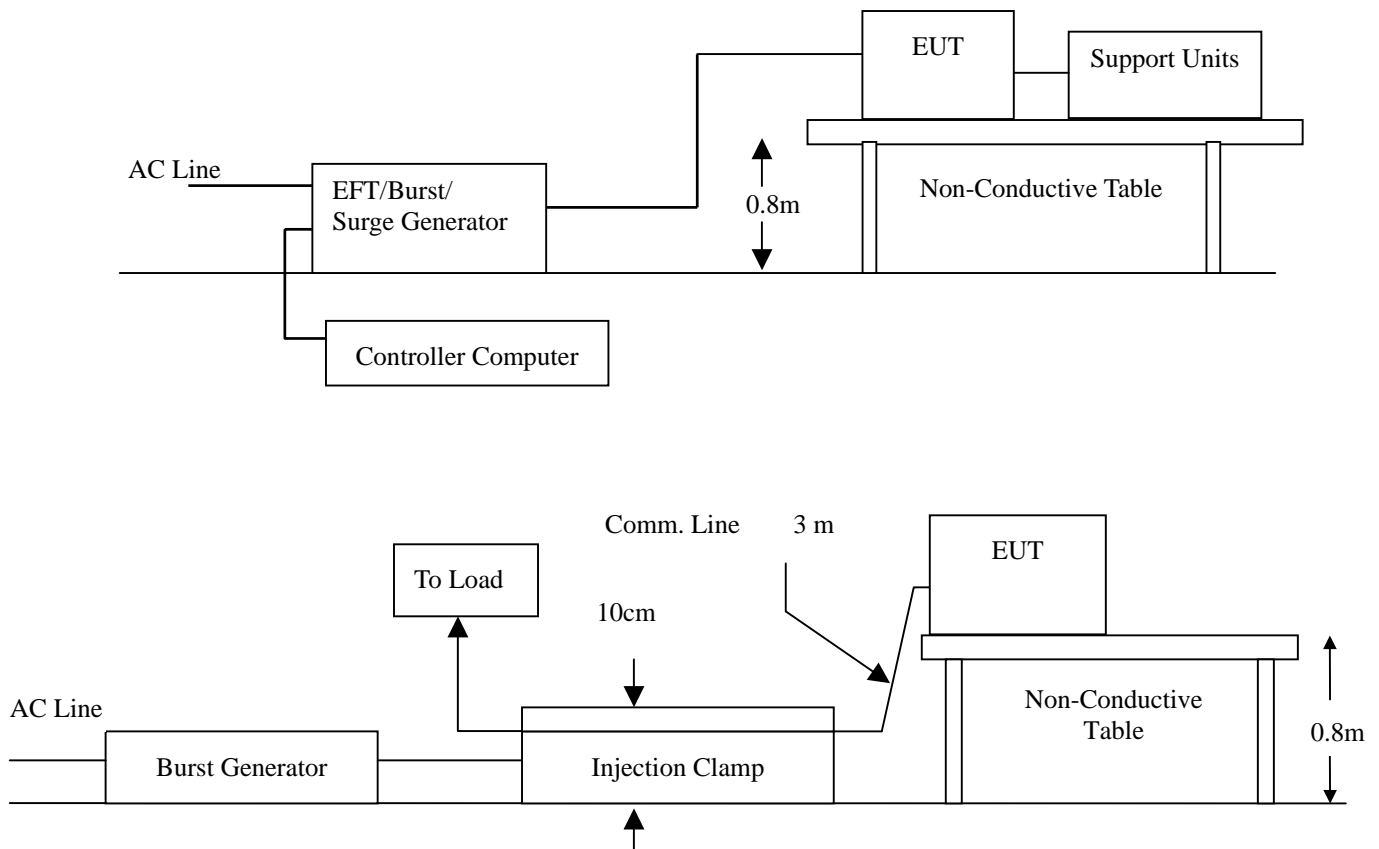
Temperature : 23°C

Humidity : 45% RH

Pressure : 1007mbar

Test Mode : 1, 3

Block Diagram of Test Setup:



**Test Procedure:**

Impulse Frequency : 5kHz
Tr/Th : 5/50ns
Burst Duration : 15ms
Burst Period : 3Hz

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L	± 2	Direct	Pass
N	± 2	Direct	Pass
PE	± 2	Direct	Pass
L + N	± 2	Direct	Pass
L + PE	± 2	Direct	Pass
N + PE	± 2	Direct	Pass
L + N + PE	± 2	Direct	Pass
RJ 45 Port (LAN Cable)	± 1	Clamp	Pass

Observation: No any function degraded during the tests.

Compliance Criteria:

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

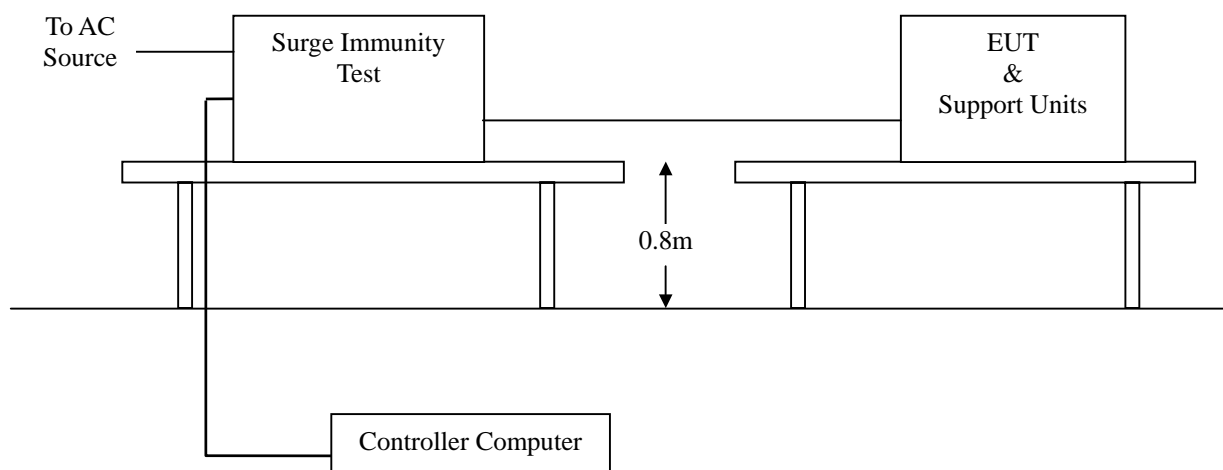
For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

13 SURGE IMMUNITY TEST

Port	: Power Cord
Basic Standard	: IEC/EN 61000-4-5
Requirements	: $\pm 0.5, 1 \text{ kV}$ (Line to Line) $\pm 0.5, 1, 2 \text{ kV}$ (Line to Ground)
Performance Criteria	: The Equipment or System shall be able to provide the essential performance and remain safe.
Tested by	: Arno Hsieh
Temperature	: 23°C
Humidity	: 45% RH
Pressure	: 1007mbar
Test Mode	: 1, 3

Block Diagram of Test Setup:



**Test Procedure:**

Voltage Waveform : 1.2/50 μ s
Current Waveform : 8/20 μ s
Polarity : Positive/Negative
Phase angle : 0°, 90°, 270°
Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2	0.5, 1	Positive	Capacitive	Pass
L1-PE	0.5, 1, 2	Positive	Capacitive	Pass
L2-PE	0.5, 1, 2	Positive	Capacitive	Pass
L1-L2	0.5, 1	Negative	Capacitive	Pass
L1-PE	0.5, 1, 2	Negative	Capacitive	Pass
L2-PE	0.5, 1, 2	Negative	Capacitive	Pass

Observation: No any function degraded during the tests.

Compliance Criteria:

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

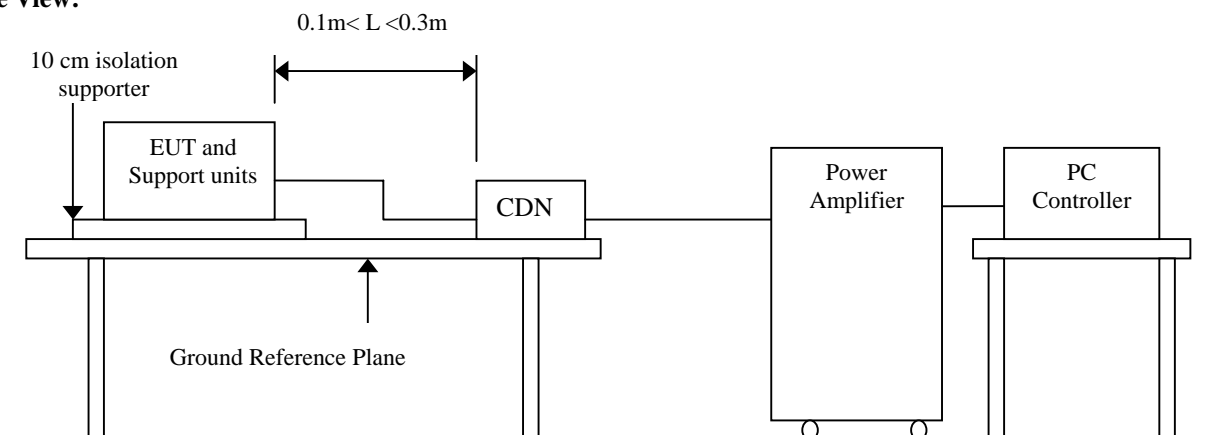
The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

14 CONDUCTED DISTURBANCE/INDUCED RADIO-FREQUENCY FIELD IMMUNITY TEST

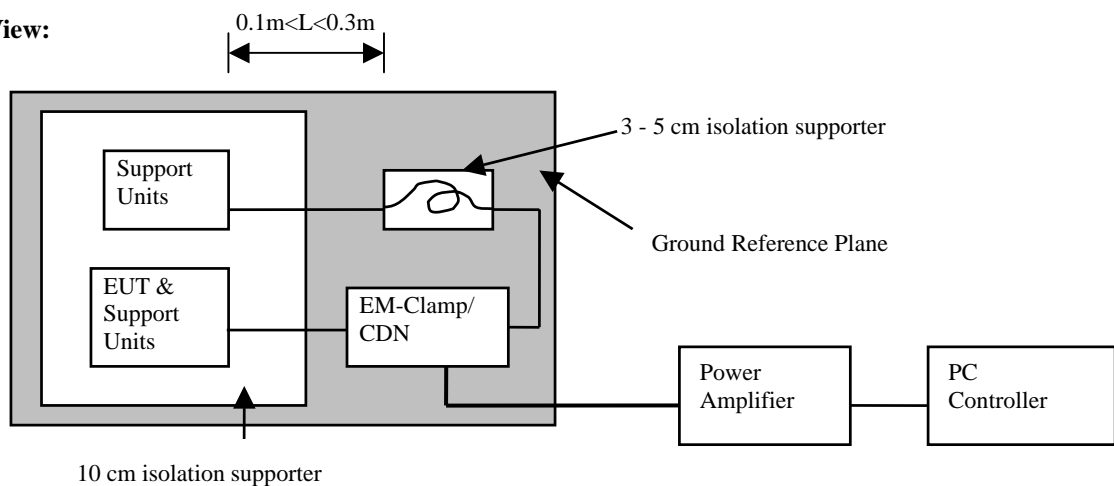
Port	: AC Port
Basic Standard	: IEC/EN 61000-4-6
Requirements	: 3 V with 80% AM. 1kHz Modulation.
Injection Method	: CDN-M3 for Power Cord CDN-T4 for LAN Cable
Performance Criterion	: The Equipment or System shall be able to provide the essential performance and remain safe.
Tested by	: Arno Hsieh
Temperature	: 24°C
Humidity	: 47% RH
Pressure	: 1011mbar
Test Mode	: 1, 3

Block Diagram of Test Setup:

Side View:



Top View:





Test Procedure:

Frequency Range : 0.15MHz-80MHz
Frequency Step : 1% of fundamental
Dwell Time : 3 sec

Range (MHz)	Field	Modulation	Result (Pass/Fail)
0.15-80	3V	Yes	Pass

Observation: No any function degraded during the tests.

Compliance Criteria:

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

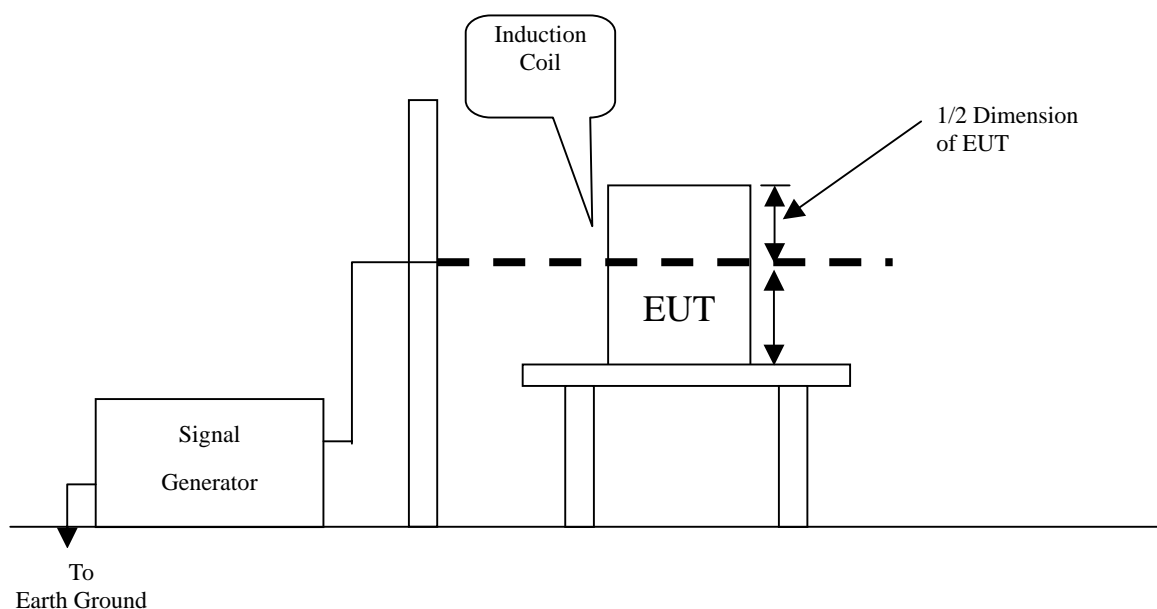
For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

15 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC/EN 61000-4-8
Requirements	: 3 A/m
Performance Criterion	: The Equipment or System shall be able to provide the essential performance and remain safe.
Tested by	: Arno Hsieh
Temperature	: 23°C
Humidity	: 45% RH
Pressure	: 1007mbar
Test Mode	: 1, 3

Block Diagram of Test Setup:



**Test Procedure:**

Field Strength : 3A/m

Power Freq. : 50Hz

Orientation : X, Y, Z

Orientation	Field	Result (Pass/Fail)	Remark
X	3A/m	Pass	
Y	3A/m	Pass	
Z	3A/m	Pass	

Observation: No any function degraded during the tests.**Compliance Criteria:**

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Chang of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

16 VOLTAGE DIPS / SHORT INTERRUPTIONS

Port : AC mains

Basic Standard : IEC/EN 61000-4-11

Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

Voltage Dips	Test Level % U_T	Reduction (%)	Duration (periods)
	<5	>95	0.5
	40	60	5
	70	30	25

Voltage Interceptions	Test Level % U_T	Reduction (%)	Duration (periods)
	<5	>95	250

Test Interval : Min. 10 sec.

Performance Criteria : The Equipment or System shall be able to provide the essential performance and remain safe.

Tested by : Arno Hsieh

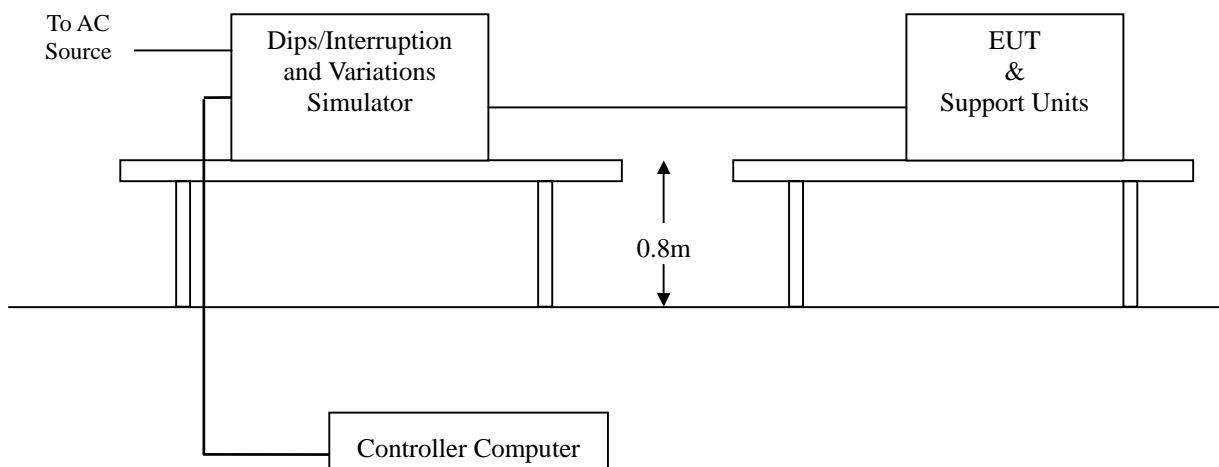
Temperature : 23°C

Humidity : 45% RH

Pressure : 1007mbar

Test Mode : 1, 3

Block Diagram of Test Setup:



**Test Procedure:**

The duration with a sequence of three dips/interruptions with interval of 10 s minimum
(Between each test event)

Voltage Dips:

Test Level % U _T	Reduction (%)	Duration (periods)	Observation	Result
0	100	0.5	Normal	PASS
40	60	5	Normal	PASS
70	30	25	Normal	PASS

Voltage Interruptions:

Test Level % U _T	Reduction (%)	Duration (periods)	Observation	Result
0	100	250	EUT shut down but can be recovered by manual, as the events disappear.	PASS

Note:

1. Normal - No any functions degrade during and after the test.
2. For Voltage Interruption, EQUIPMENT and SYSTEMS are allowed a deviation from the requirements of 36.202.1 j) at the IMMUNITY TEST LEVEL specified in Table 211, provided the EQUIPMENT or SYSTEM remains safe, experiences no component failures and is restorable to the pre-test state with OPERATOR intervention. Determination of compliance is based upon performance of the EQUIPMENT or SYSTEM during and after application of the test sequence.

Observation: No any function degraded during the tests.



Compliance Criteria:

Under the test conditions specified in 36.202, the EQUIPMENT or SYSTEM shall be able to provide the ESSENTIAL PERFORMANCE and remain safe. The following DEGRADATIONS associated with ESSENTIAL PERFORMANCE and safety shall not be allowed:

- Component failures
- Changes in programmable parameters
- Reset to factory defaults (manufacturer's presets)
- Change of operating mode
- False alarms
- Cessation or interruption of any intended operation, even if accompanied by an alarm
- Initiation of any unintended operation, including unintended or uncontrolled motion, even if accompanied by an alarm
- Error of a displayed numerical value sufficiently large to affect diagnosis or treatment
- Noise on a waveform in which the noise is indistinguishable from physiologically-produced signals or the noise interferes with interpretation of physiologically-produced signals
- Artefact or distortion in an image in which the artefact is indistinguishable from physiologically-produced signals or the distortion interferes with interpretation of physiologically-produced signals
- Failure of automatic diagnosis or treatment EQUIPMENT and SYSTEMS to diagnose or treat, even if accompanied by an alarm.

For EQUIPMENT and SYSTEMS with multiple FUNCTIONS, the criteria apply to each FUNCTION, parameter and channel.

The EQUIPMENT or SYSTEM may exhibit DEGRADATION of performance (e.g. deviation from manufacturer's specifications) that does not affect ESSENTIAL PERFORMANCE or safety.

APPENDIX I - PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST (EN 55011)

Mode 1



Mode 3



RADIATED EMISSION TEST (EN 55011)

Mode 1



Mode 3



POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST

Mode 1



Mode 3



ELECTROSTATIC DISCHARGE TEST

Mode 1



Mode 3



RADIATED ELECTROMAGNETIC FIELD TEST

Mode 1

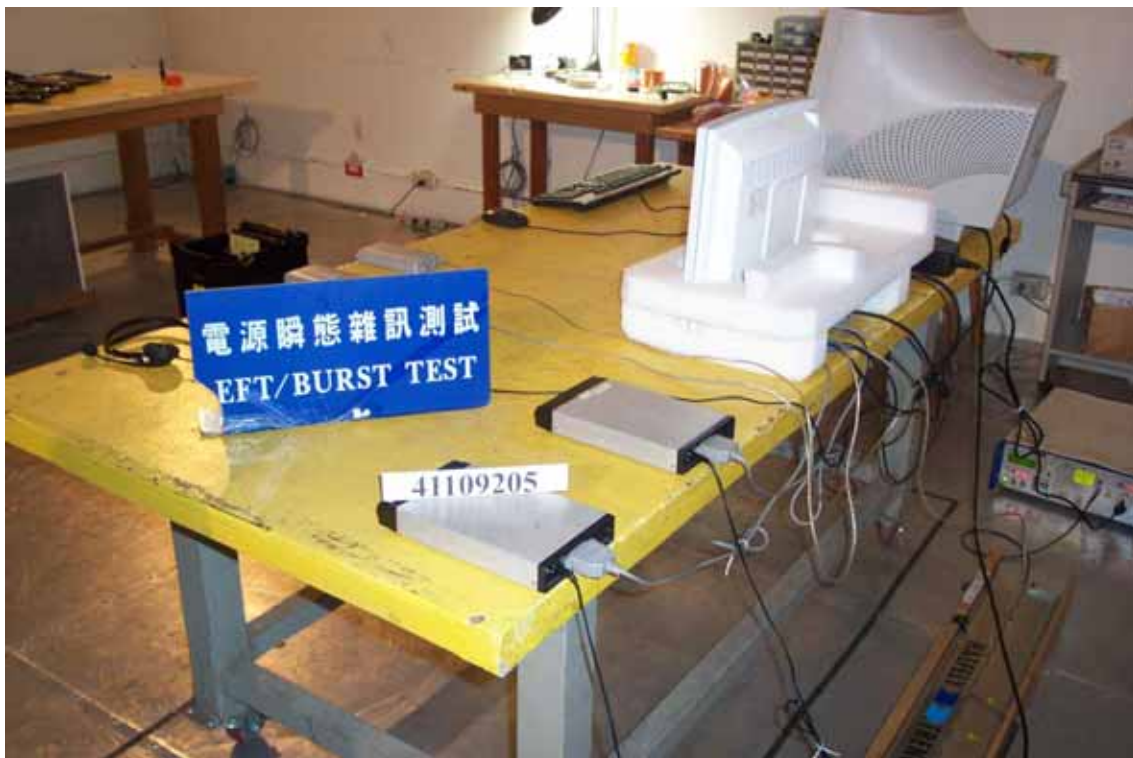


Mode 3

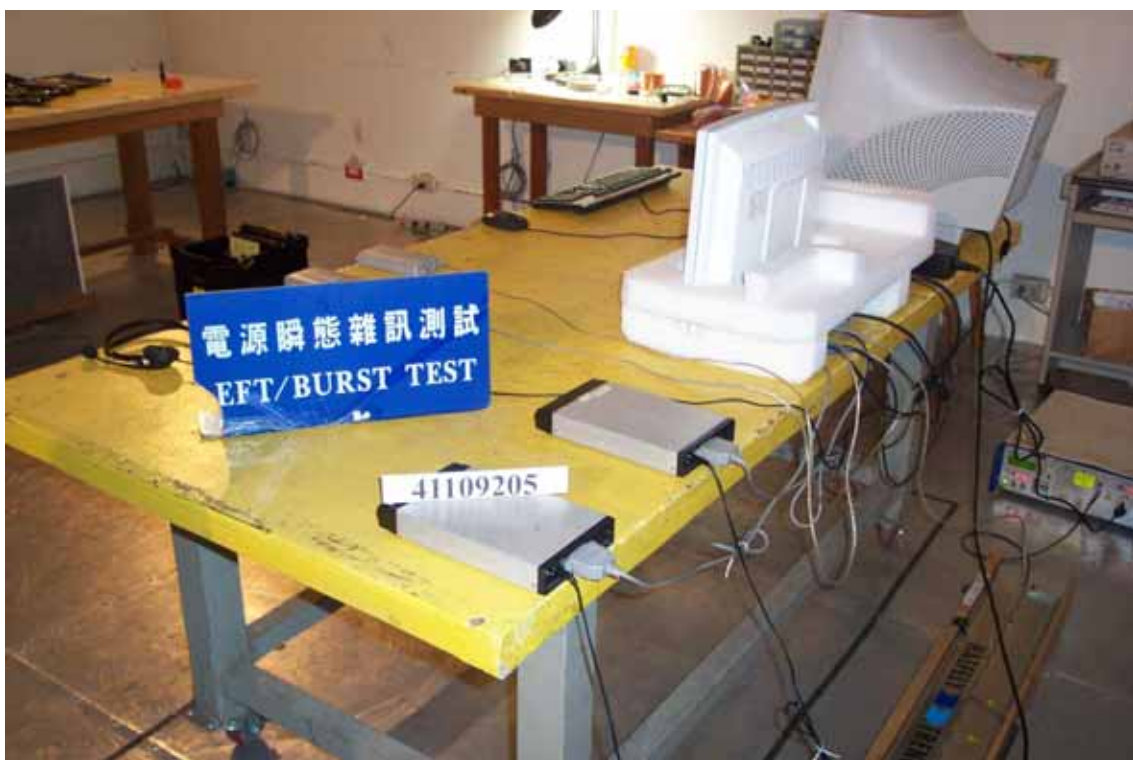


FAST TRANSIENTS/BURST TEST

Mode 1



Mode 3



SURGE IMMUNITY TEST

Mode 1



Mode 3



CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST

Mode 1



Mode 3



POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

Mode 1



Mode 3



VOLTAGE DIPS / INTERRUPTION TEST

Mode 1



Mode 3





APPENDIX II – TEST RESULT OF EN 61000-3-3

Mode 1

ADVANTECH

Date : 2004/12/2 PM 10:12:2 V3.15

File :

Operator : ARNO HSIEH
EUT : PANEL PC
Model No. POC-S155
Remarks TEMP:26 HUMD:55 (Continue)

Urms = 230.1V Freq = 60.019 Range: 2 A
Irms = 0.397A Ipik = 1.659A cf = 4.174
P = 40.99W Pap = 91.46VA pf = 0.448

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : SLIN 0.24ohm +j0.15ohm N:0.16ohm +j0.10ohm

Limits :Plt : 0.65Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

Plt = 0.072

	Pst	dmax	dc	dt>Lim	Fail
		[%]	[%]	[ms]	
1	0.072	0.000	0.020	0.000	



ADVANTECH

Date : 2004/12/2 PM 09:58:3 V3.15

File :

Operator : ARNO HSIEH
EUT : PANEL PC
Model No. POC-S155
Remarks TEMP:26 HUMD:55 (Manual Switch)

Urms = 230.1V Freq = 60.038 Range: 2 A
Irms = 0.392A Ipk = 1.593A cf = 4.067
P = 41.23W Pap = 90.11VA pf = 0.458

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : SLIN 0.24ohm +j0.15ohm N:0.16ohm +j0.10ohm

Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

Plt = 0.072

	Pst	dmax	dc	dt>Lim	Fail
		[%]	[%]	[ms]	
1	0.072	0.570	0.290	0.000	

**Mode 3**

ADVANTECH

Date : 2004/12/2 PM 09:23:2 V3.15

File :

Operator : ARNO HSIEH
EUT : PANEL PC
Model No. POC-S155
Remarks TEMP:26 HUMD:55 (Continue)

Urms = 230.1V Freq = 59.944 Range: 1 A
Irms = 0.236A Ipk = 0.418A cf = 1.774
P = 48.45W Pap = 54.27VA pf = 0.893

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : SLIN 0.24ohm +j0.15ohm N:0.16ohm +j0.10ohm

Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

Plt = 0.072

	Pst	dmax	dc	dt>Lim	Fail
		[%]	[%]	[ms]	
1	0.072	0.000	0.000	0.000	



ADVANTECH

Date : 2004/12/2 PM 09:41:0 V3.15

File :

Operator : ARNO HSIEH
EUT : PANEL PC
Model No. POC-S155
Remarks TEMP:26 HUMD:55 (Manual Switch)

Urms = 230.1V Freq = 60.038 Range: 1 A
Irms = 0.218A Ipik = 0.411A cf = 1.881
P = 43.96W Pap = 50.22VA pf = 0.875

Test - Time : 1 x 10min = 10min (100 %)

LIN (Line Impedance Network) : SLIN 0.24ohm +j0.15ohm N:0.16ohm +j0.10ohm

Limits :Plt : 0.65Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

Plt = 0.074

	Pst	dmax	dc	dt>Lim	Fail
		[%]	[%]	[ms]	
1	0.074	0.330	0.090	0.000	