



EMC UPDATE TEST REPORT

For

Advantech Co., Ltd.

Panel PC with Touch Screen

Model: POC-S155

Trade Name: ADVANTECH

Date of Test: November 24 ~ December 8, 2005

Revision: 01

Description of Rev. 01:

1. Applicant adds one CPU, one Main Board, one memory and one battery to re-test.
(Please refer to have ** mark items on this report)
2. Other information, please refer to the 41109205 and this test report.

Approved by:

Reviewed by:

Kurt Chen
Director of Linkou Laboratory
Compliance Certification Services Inc.

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

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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 24 ~ December 8, 2005

Applicable Standard	Class / Limit	Test Result
FCC Part 15 Subpart B, IC ICES-003	Class B	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 FCC Rules and Regulations Part 15, Subpart B and the measurement procedures were according to ANSI C63.4. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.



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
		**	Pentium M-1.4GHz
OSC/Clock Frequencies	100MHz		
Memory Capacity		Installed	**256MB / 512MB
LCD Panel Manufacturer	AU	Model	M150XN07
			G150XG01
Main Board Manufacturer	ADVENTECH	Model	PCM-9686
		**	PCM-9686S
HDD Manufacturer	Fujitsu	Model	MHT2020AT (20GB)
**Battery Manufacturer	SAMAUNG	Model	ICR18650-22 (2200mAH)

**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 Port	1	1
5). Audio Out Port	1	1
6). LAN Port	1	1
7). USB Port	2	2



3 TEST METHODOLOGY

3.1 DECISION OF FINAL TEST MODE

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

Mode	Resolution	CPU	Memory	Main Board	LCD Panel	Power Adapter
1	1024 × 768	Intel / Pentium-M 1.4GHz	256MB	ADVENTECH / PCM-9686S	AU / G150XG01	SINPRO / MPU50-108
1	800 × 600					

2. After preliminary test, found mode 1 producing the highest emission level, used this mode for all final test.

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	AQ19H2RT706121B	FCC DoC	SAMSUNG	Shielded, 1.8m with two cores	Unshielded, 1.8m
2.	Modem	DM-1414	304012266	IFAXDM1414	ACEEX	Unshielded, 1.8m with a core	Unshielded, 1.8m
3.	PS/2 Keyboard	Y-SP29	SYU30272817	FCC DoC	Logitech	Shielded, 1.8m	N/A
4.	Mouse	M-MM43	LZE94052791	FCC DoC	Logitech	Shielded, 1.8m	N/A
5.	Multimedia Earphone	TP-950MV	N/A	FCC DoC	TOP-TINT	Unshielded, 2.0m	N/A
6.	USB 2.0 External HDD	F12-UF	A0100214-43b0011	FCC DoC	TeraSys	Shielded, 1.8m	N/A
7.	USB 2.0 External HDD	F12-UF	A0100214-43b0015	FCC DoC	TeraSys	Shielded, 1.8m	N/A
8.	Notebook PC (Remote)	M285	NU2503544	FCC DoC	LEO	LAN Cable: Unshielded, 10m with a core	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 INSTRUMENT AND CALIBRATION

5.1 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 to recognized national standards.

5.2 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	03/16/2006
LISN	R&S	ESH2-Z5	843285/010	01/12/2006
LISN	R&S	ESH3-Z5	848773/014	10/24/2006

Note: The measurement uncertainty is less than $\pm 2.83\text{dB}$, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.



Open Area Test Site # 2				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	ADVANTEST	R3261A	21720279	N.C.R
EMI Test Receiver	R&S	ESVS10	834468/006	04/06/2006
Pre-Amplifier	HP	8447D	2944A08780	07/18/2006
Bilog Antenna	Sunol Sciences	JB1	A031605	04/22/2006
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R
Controller	EMCO	2090	9709-1256	N.C.R
RF Switch	ANRITSU	MP59B	M76890	N.C.R
Site NSA	CCS	N/A	N/A	08/19/2006

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

3 meter Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	ADVANTEST	R3271A	85060321	10/20/2006
Pre-Amplifier	HP	8449B	3008A00965	11/28/2006
Horn Antenna	EMCO	3115	9602-4659	04/24/2006
Turn Table	HD	HD320	N/A	N.C.R
Antenna Tower	HD	MA 240	N/A	N.C.R
Controller	HD	HD 100	N/A	N.C.R



6 TEST RESULTS

Line Conducted Emission

CCS Conduction Test 3

Job No.:51118102

Date:2005/11/24

Time:AM 07:17

Temp.(°C)/Hum.(%):20 °C / 60 %

Tested by: HARRY WANG

Standard:CISPR22/EN55022 Class B

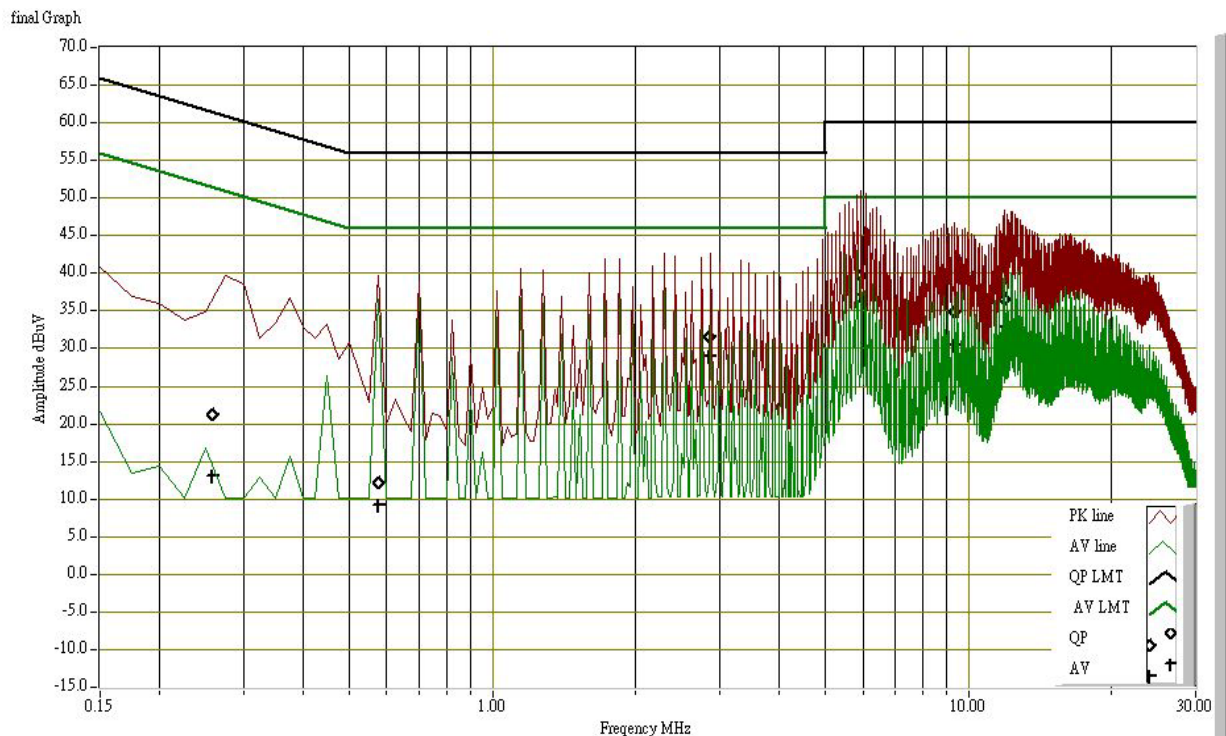
Power Source:120 Vac / 60Hz

Measured Line:L1

Company:ADVANTECH

Product : Panel PC with Touch Screen

Model :POC-S155



Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. Factor (dBuV)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dBuV)	AV Margin (dBuV)	Remark
0.258	21.300	13.150	10.100	31.400	23.250	61.480	51.480	-30.080	-28.230	PASS
0.575	12.220	9.200	10.115	22.335	19.315	56.000	46.000	-33.665	-26.685	PASS
2.850	31.540	28.940	10.285	41.825	39.225	56.000	46.000	-14.175	-6.775	PASS
5.959	39.620	37.150	10.400	50.020	47.550	60.000	50.000	-9.980	-2.450	PASS
9.331	34.900	30.390	10.433	45.333	40.823	60.000	50.000	-14.667	-9.177	PASS
11.925	36.620	32.910	10.577	47.197	43.487	60.000	50.000	-12.803	-6.513	PASS

L1 = Line One (Live Line)



CCS Conduction Test 3

Job No.:51118102

Date:2005/11/24

Time:AM 07:27

Temp.(°C)/Hum.(%):20 °C / 60 %

Tested by: HARRY WANG

Standard:CISOR22/EN55022 Class B

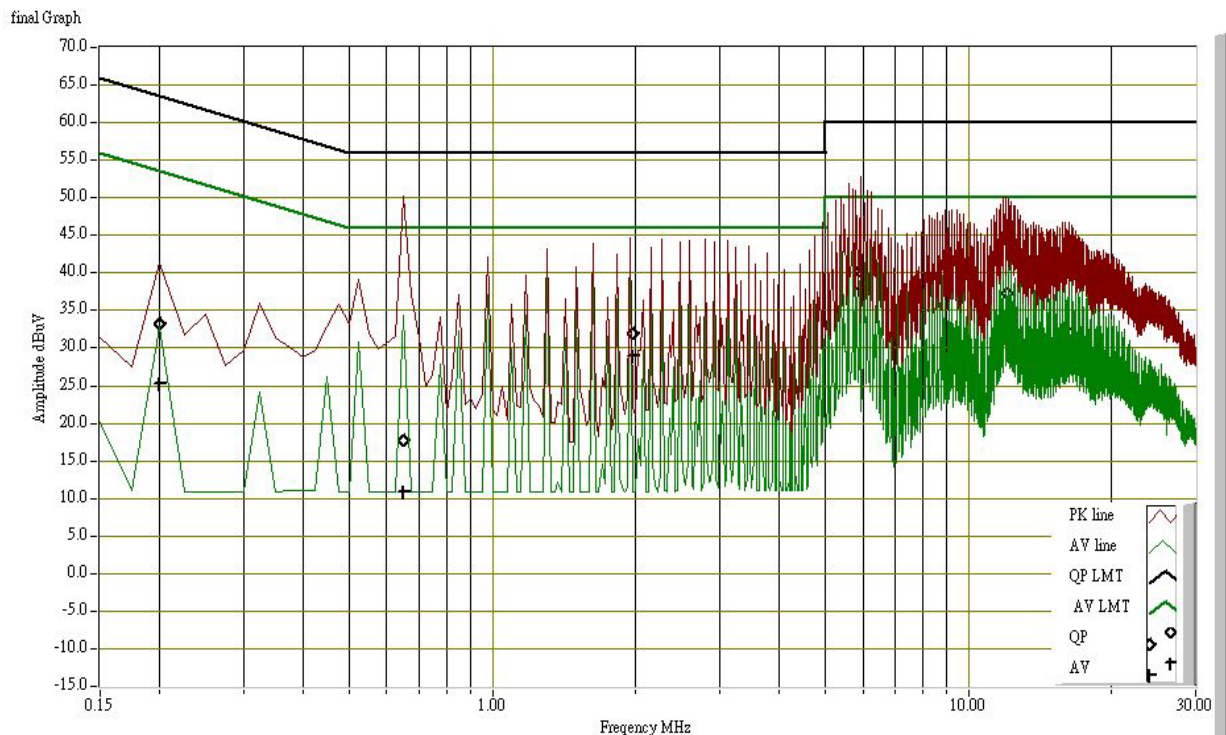
Power Source:120 Vac / 60Hz

Measured Line:L2

Company:ADVANTECH

Product : Panel PC with Touch Screen

Model :POC-S155



Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. Factor (dBuV)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dBuV)	AV Margin (dBuV)	Remark
0.200	33.220	25.220	10.900	44.120	36.120	63.611	53.611	-19.491	-17.491	PASS
0.650	17.760	10.880	10.900	28.660	21.780	56.000	46.000	-27.340	-24.220	PASS
1.968	31.960	28.940	10.900	42.860	39.840	56.000	46.000	-13.140	-6.160	PASS
5.912	40.200	36.900	11.100	51.300	48.000	60.000	50.000	-8.700	-2.000	PASS
12.026	37.220	33.100	11.341	48.561	44.441	60.000	50.000	-11.439	-5.559	PASS
15.907	32.580	28.200	11.454	44.034	39.654	60.000	50.000	-15.966	-10.346	PASS

L2 = Line Two (Neutral Line)

**Radiated Emission (A)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 21°C**Humidity:** 50% RH**Detector Function:** Quasi-peak.**Antenna:** Vertical at 10m**Tested by:** Harry Wang**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)
138.97	37.61	-10.66	26.95	30.00	-3.05
166.83	32.81	-11.79	21.02	30.00	-8.98
182.49	38.02	-11.82	26.20	30.00	-3.80
208.51	36.88	-10.91	25.97	30.00	-4.03
215.00	11.50	14.90	26.40	30.00	-3.60
233.54	38.81	-11.39	27.42	37.00	-9.58
298.14	36.28	-8.53	27.75	37.00	-9.25
307.30	36.55	-8.30	28.25	37.00	-8.75
404.40	31.99	-6.09	25.90	37.00	-11.10
455.30	32.92	-4.97	27.95	37.00	-9.05
522.00	32.64	-3.39	29.25	37.00	-7.75
830.30	28.20	2.25	30.45	37.00	-6.55
999.91	27.67	6.08	33.75	37.00	-3.25

**Radiated Emission (B)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 21°C**Humidity:** 50% RH**Detector Function:** Quasi-peak.**Antenna:** Horizontal at 10m**Tested by:** Harry Wang**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)
161.37	32.61	-11.69	20.92	30.00	-9.08
165.46	33.92	-11.77	22.15	30.00	-7.85
179.00	11.00	14.32	25.32	30.00	-4.68
217.30	38.17	-11.40	26.77	30.00	-3.23
240.10	32.17	-11.05	21.12	37.00	-15.88
300.90	37.30	-8.48	28.82	37.00	-8.18
313.30	33.90	-8.13	25.77	37.00	-11.23
366.40	33.25	-6.78	26.47	37.00	-10.53
404.70	27.99	-6.09	21.90	37.00	-15.10
502.60	30.29	-3.72	26.57	37.00	-10.43
600.60	32.84	-2.29	30.55	37.00	-6.45
814.90	28.15	1.65	29.80	37.00	-7.20
995.70	27.46	5.89	33.35	37.00	-3.65

**Radiated Emission – Above 1GHz (A)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 21°C**Humidity:** 50% RH**Detector Function:** Pk/ A.V.**Antenna:** Vertical at 3m**Tested by:** Abol Tsai**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 (Pk) (dBuV/m)	Limit 3m (Pk) (dBuV/m)	Margin (dB)
1217.14	27.25	-11.68	15.57	73.90	-58.33
1500.00	25.75	-10.29	15.46	73.90	-58.44
1654.29	25.25	-9.41	15.84	73.90	-58.06
2037.14	24.00	-7.40	16.60	73.90	-57.30
2434.29	34.50	-6.83	27.67	73.90	-46.23
2960.00	24.25	-4.82	19.43	73.90	-54.47

***Note:** In case of peak reading complied with the limit at least 22dB margin, no measurement with A.V. detector required.*

**Radiated Emission – Above 1GHz (B)****Model:** POC-S155**Test Mode:** Mode 1**Temperature:** 21°C**Humidity:** 50% RH**Detector Function:** Pk/ A.V.**Antenna:** Horizontal at 3m**Tested by:** Abol Tsai**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 (Pk) (dBuV/m)	Limit 3m (Pk) (dBuV/m)	Margin (dB)
1188.57	26.75	-11.82	14.93	73.90	-58.97
1368.57	26.75	-10.94	15.81	73.90	-58.09
1634.29	25.00	-9.53	15.47	73.90	-58.43
2031.43	23.75	-7.41	16.34	73.90	-57.56
2434.29	35.25	-6.83	28.42	73.90	-45.48
2820.00	23.25	-5.40	17.85	73.90	-56.05

***Note:** In case of peak reading complied with the limit at least 22dB margin, no measurement with A.V. detector required.*

APPENDIX I - PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST



RADIATED EMISSION TEST

