



EMC

TEST REPORT

REPORT NO. : CE89100901A
MODEL NO. : CPC-2347
DATE OF TEST : Oct. 18 ~ 20, 2000
DATE OF RECEIVED : Oct. 9, 2000

PREPARED FOR : ADVANTECH CO., LTD.

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PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION



Accredited Laboratory

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1.

CERTIFICATION

Issue date: Nov. 10, 2000

Product	:	PCI bus 486 mini Biscuit PC with LAN/VGA	
Trade Name	:	ADVANTECH	
Model No.	:	CPC-2347	
Applicant	:	ADVANTECH CO., LTD.	
Standard	:	EN 55022:1998, Class B	EN 50082-2: 1995
		EN 61000-3-2:1995+A1: 1998	EN 61000-4-2: 1995
		+A2: 1998, Class A	EN 61000-4-3: 1996
		EN 61000-3-3: 1995	EN 61000-4-4: 1995
			EN 61000-4-6: 1996
			EN 61000-4-8: 1993
			ENV 50204: 1995

We hereby certify that one sample of the designation have been tested in our facility from Oct. 18 to 20, 2000. The test record, data evaluation and Equipment Under Test (EUT) configurations represent herein are true and accurate representation of the measurements of the sample's EMC characteristics under the conditions herein specified.

TESTED BY : _____ , DATE: _____
(Emission) (Jun Wu)

TESTED BY : _____ , DATE: _____
(Immunity) (Joyce Chen)

CHECKED BY : _____ , DATE: _____
(Vickie Yu)

APPROVED BY : _____ , DATE: _____
(Mike Su)

ADVANCE DATA TECHNOLOGY CORPORATION

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product : PCI bus 486 mini Biscuit PC with LAN/VGA
Model No. : CPC-2347
Power Supply Type : Switching (from Power Adapter)
Power Cord : Nonshielded AC (1.8m)
Nonshielded DC (0.9m)
Data Cable : Shielded (1.8m)

Note: The EUT is a CARRIER BOARD installed in an all-in-one 486 processor-based controller, whose model is WEB-2143. The processor comes equipped with 32MB DRAM, a DB-15 SVGA interface which supports CRT monitors with up to 4MB display memory, three 10/100 Base-T-Ethernet interface, two DB-9 RS-232 serial port, a Phoenix connector and a phone jack connector for DC 5V power input.

The EUT was with the processor based controller tested with a PHIHONG power adapter, model: PSA-30U-050
Its rating: I/P: 100-240V 0.7A, 50/60Hz, O/P: 5V, 4A.

The following parts are used to establish a basic configuration of system during the test:

COMPONENTS	BRAND & MODEL	REMARK
CPU	STPC client 486 MHz	Frequency Clock: 66MHz
RAM	EDO RAM 32MB	On board
SOLID STATE DISK	CompactFlash Card	Emulated HDD

For more detailed features description, please refer to manufacturer's specification or User's Manual.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARD

According to the manufacturer's request, the EUT was tested with the requirements of the following standards:

EN 55022:1998, Class B
EN 61000-3-2:1995+A1: 1998
+A2: 1998, Class A
EN 61000-3-3: 1995

EN 50082-2: 1995
EN 61000-4-2: 1995
EN 61000-4-3: 1996
EN 61000-4-4: 1995
EN 61000-4-6: 1996
EN 61000-4-8: 1993
ENV 50204: 1995

All tests are performed and recorded as per above standards.



2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories are used to form representative test configuration during the tests.

FOR EMISSION TEST

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	COLOR MONITOR	HP	D2846	JP92233133	FCC DoC APPROVED
2	MODEM	ACEEX	1414	980020506	IFAXDM1414
3	KEYBOARD	FORWARD	FDA-104GA	FDKB8110111	F4ZDA-104G
4	PS/2 MOUSE	COMSYS	MOUSE 1300	507009797	HQXPC93010-12
5	PERSONAL COMPUTER	ADVANTECH	PPC-123	NA	NA
6	HUB	C00S	Mini 5 Port	NA	NA
7	KEYBOARD	FORWARD	FDA-104GA	FDKB8110127	F4ZDA-104G
8	MOUSE	LOGITECH	M-S43	LZE00703197	DZL211106

No.	Signal cable description
1	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core.
2	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
3	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
4	1.5 m foil shielded wire, terminated with PS2 connector via drain wire, w/o core.
5	NA
6	NA
7	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
8	1.5 m foil shielded wire, terminated with PS2 connector via drain wire, w/o core.

- Note: 1. All power cords of the above support units are non shielded (1.8m).
2. Two STP cables (1.2m) was connected to the EUT to form two open loop cables.
3. The EUT communicated with support units 5-8 which acted as WORKSTATION PC and partners of communication via a STP cable (10m).

FOR IMMUNITY TEST

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	COLOR MONITOR	ACER	7254e	9171602008	JVP7254E
2	MODEM	GVC	F-1128V1R6	96-191-113004	DK4F1128VR6
3	MODEM	GVC	F-1128V1R6	96-191-113003	DK4F1128VR6
4	KEYBOARD	HP	C3758A	C3758-60223	CIGE03633
5	PERSONAL COMPUTER	ADVANTECH	PPC-123	NA	NA
6	HUB	C00S	Mini 5 Port	NA	NA
7	KEYBOARD	BTC	5121W	A00800775	E5XKB5121WT H0110

No.	Signal cable description
1	1.8 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core.
2	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
3	1.2 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core.
4	1.5 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.
5	NA
6	NA
7	1.6 m foil shielded wire, terminated with PS/2 connector via metallic frame, w/o core.

Note: 1. All power cords of the above support units are non shielded (1.8m).
 2. Two STP cables (1.2m) was connected to the EUT to form two open loop cables.
 3. The EUT communicated with support units 5-7 which acted as WORKSTATION PC and partners of communication via a STP cable (10m).

2.4 TEST SETUP

Please refer to the photos of test configuration in Item 6.



3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
ROHDE & SCHWARZ Test Receiver	ESHS30	828109/007	July 6, 2001
ROHDE & SCHWARZ Artificial Mains Network	ESH3-Z5	839135/006	July 9, 2001
ROHDE & SCHWARZ 4-wire ISN	ENY41	835154/007	Apr. 26, 2001
EMCO-L.I.S.N.	3825/2	9204-1964	July 9, 2001
Shielded Room	Site 2	ADT-C02	NA

Note: 1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA.

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
HP Spectrum Analyzer	8590L	3544A01042	April 6, 2001
HP Preamplifier	8447D	2944A08313	Mar. 20, 2001
HP Preamplifier	8449B	3008A01201	Dec. 14, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESVS 30	841977/008	Oct. 11, 2001
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Nov. 23, 2000
ROHDE & SCHWARZ TEST RECEIVER	ESMI	839013/007 839379/002	Aug. 3, 2001
EMCO Double Ridged Guide Antenna	3115	9312-4192	March 29, 2001
CHASE BILOG Antenna	CBL6111A	1647	July 3, 2001
EMCO Turn Table	1016	1722	NA
EMCO Tower	1051	1825	NA
Open Field Test Site	Site 4	ADT-R04	June 9, 2001

Note: 1. The measurement uncertainty is less than $\pm 3\text{dB}$, which is calculated as per NAMAS document NIS81.

2. The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA.

CURRENT HARMONICS, VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

Description & Manufacturer	Model no.	Serial No.	Calibrated Until
KeyTek, Power Arb Waveform Generator	EP72HF	9508346	Mar. 29, 2001
KIKUSUI AC SWITCHING POWER SUPPLY	PCR 4000L	9508355	Mar. 29, 2001

Note: The calibration interval of the above test instruments is 12 months.
And the calibrations are traceable to NML/ROC and NIST/USA



3.2. TEST INSTRUMENTS (IMMUNITY)

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
KeyTek, ESD Test System	2000	9105240/41	Aug. 10, 2001
KeyTek, ESD Simulator	MZ-15/EC	9902287	Feb. 28, 2001
KeyTek, EFT Generator	CE-40	9508257	Sept. 4, 2001
KeyTek, Capacitive Clamp	CE-40-CCL	9508259	Sept. 4, 2001
KeyTek, Control Center	E103	9508347	NA
KeyTek, Surge Combination Wave	E501A	9508349	Aug. 29, 2001
KeyTek, Surge Coupler/Decoupler	E551	9508350	Aug. 29, 2001
External Coupler /Decoupler	CM-TELCD	9926194	NA
I/O Signal Line Coupler/Decoupler	CM-110CD	9907177	NA
ROHDE & SCHWARZ Signal Generator	SMY01	840490/009	Aug. 13, 2001
KALMUS Power Amplifier	LA1000V	091995-1	NA
KALMUS Power Amplifier	757LC	091995-2	NA
HOLADAY Field Probe	HI-4422	89915	Aug. 14, 2001
EMCO BiconiLog Antenna	3141	1001	NA
FCC Coupling Decoupling Network	FCC-801-M3-25	48	NA
FCC Coupling Decoupling Network	FCC-801-M2-25	20	NA
FISCHER CUSTOM COMMUNICATIONS EM Injection Clamp	FCC-203I	50	NA
FCC Coupling Decoupling Network	FCC-801-M1-25	17	NA
BOONTON RF Voltage Meter	9200B	331801AE	Aug. 13, 2001
COMTEST Compact Full Anechoic Chamber (7x3x3 m)	CFAC	ADT-S01	Aug. 26, 2001
HAEFELY Magnetic Field Tester	MAG 100.1	083794-06	NA
COMBINOVA Magnetic Field Meter	MFM10	224	Oct. 29, 2000
KEYTEK Mains Interference Simulator	EMC Pro	9902207	Feb. 16, 2001
HAEFELY Mains Interference Simulator	PLINE 1610	083690-17	March 01, 2001

Note: The calibration interval of the above test instruments is 12 months.
and the calibrations are traceable to NML/ROC and NIST/USA.

3.3 LIMITS OF CONDUCTED AND RADIATED EMISSION

LIMIT OF CONDUCTED EMISSION OF EN 55022

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: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

LIMIT OF RADIATED EMISSION OF EN 55022

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

Note: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.



4. TEST RESULTS (EMISSION)

4.1 RADIO DISTURBANCE

Product Family Standard : EN 55022:1998, Class B
Frequency Range : 0.15 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Power System Voltage : 230 Vac, 50 Hz
Temperature : 25 Degree C
Humidity : 70 %
Atmospheric Pressure : 1000 mbar

TEST RESULT	Remarks
PASS	Minimum passing margin of conducted emission: -15.79 dB at 1.359 MHz Minimum passing margin of radiated emission: - 3.3 dB at 150.00 MHz

4.2 EUT OPERATION CONDITION

1. Turn on the power of all equipment.
2. CONTROLLER sends and receives messages to and from WORKSTATION PC via a STP cable.
3. WORKSTATION PC sends "H" messages to monitor via CONTROLER and then monitor displays "H" patterns on its screen.
4. WORKSTATION PC sends "H" messages to modem.
5. WORKSTATION PC sends "H" messages to printer, and the printer prints them on paper.
6. Repeat steps 2-6.

4.3 TEST DATA OF CONDUCTED EMISSION

EUT: PCI bus 486 mini Biscuit PC with LAN/VGA MODEL: CPC-2347

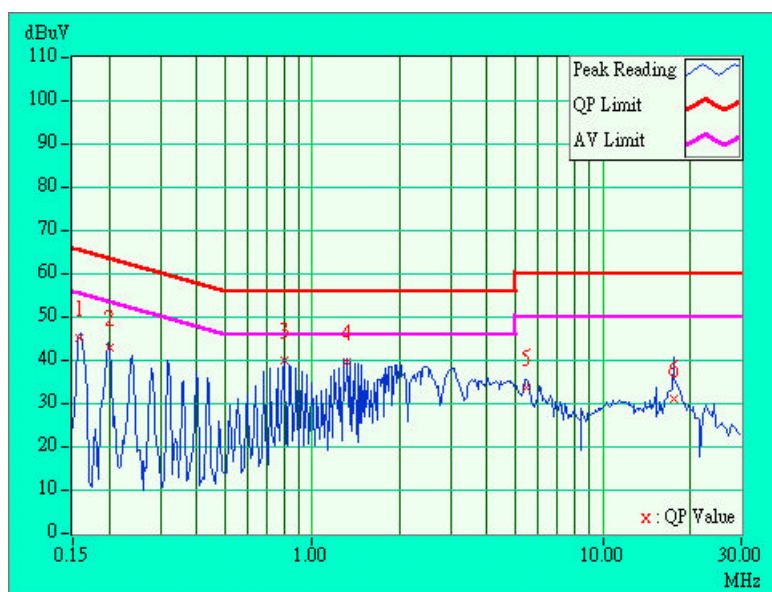
6 dB Bandwidth: 10 kHz

PHASE: LINE (L)

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.16	45.23	-	45.39	-	65.54	55.54	-20.16	-
2	0.201	0.20	42.79	-	42.99	-	63.59	53.59	-20.60	-
3	0.798	0.20	39.87	-	40.07	-	56.00	46.00	-15.93	-
4	1.319	0.20	39.45	-	39.65	-	56.00	46.00	-16.35	-
5	5.474	0.47	33.87	-	34.34	-	60.00	50.00	-25.66	-
6	17.628	1.05	31.08	-	32.13	-	60.00	50.00	-27.87	-

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Correction Factor + Reading Value.



TEST DATA OF CONDUCTED EMISSION

EUT: **PCI bus 486 mini Biscuit PC with LAN/VGA** MODEL: **CPC-2347**

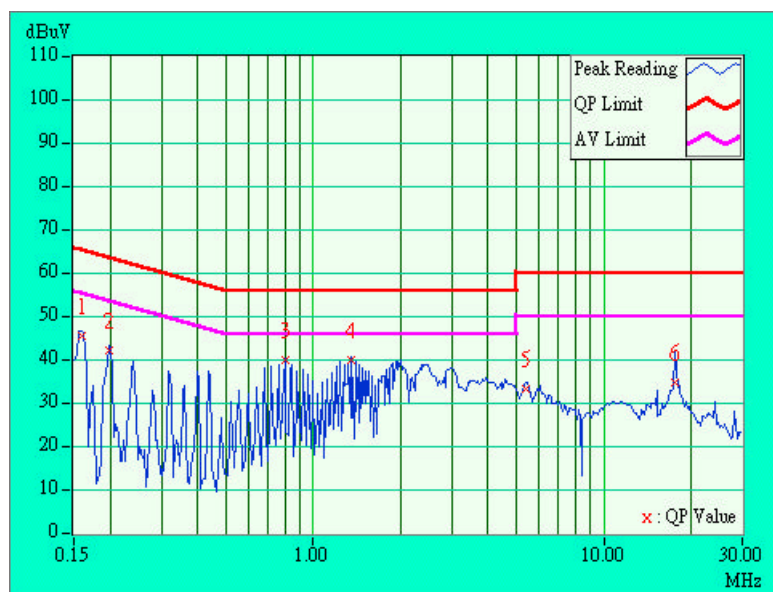
6 dB Bandwidth: 10 kHz

PHASE: NEUTRAL (N)

		Corr.	Reading Value		Emission Level		Limit		Margin	
	Freq.	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
No	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.160	0.16	45.74	-	45.90	-	65.46	55.46	-19.56	-
2	0.199	0.20	42.10	-	42.30	-	63.66	53.66	-21.36	-
3	0.801	0.20	39.95	-	40.15	-	56.00	46.00	-15.85	-
4	1.359	0.20	40.01	-	40.21	-	56.00	46.00	-15.79	-
5	5.400	0.45	33.43	-	33.88	-	60.00	50.00	-26.12	-
6	17.562	0.95	34.67	-	35.62	-	60.00	50.00	-24.38	-

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Emission Level = Correction Factor + Reading Value.





4.4 TEST DATA OF RADIATED EMISSION

EUT: **PCI bus 486 mini Biscuit PC with LAN/VGA**

MODEL: **CPC-2347**

ANT.POLARITY: Horizontal

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
132.06	13.5	6.3	19.8	30.0	-10.2	400	353
150.03	12.6	8.1	20.7	30.0	-9.3	400	358
165.09	11.3	10.7	22.0	30.0	-8.0	400	336
190.35	10.6	9.2	19.8	30.0	-10.2	400	358
200.03	10.5	9.7	20.2	30.0	-9.8	400	354
224.93	12.3	12.0	24.3	30.0	-5.7	400	358
227.44	12.4	9.8	22.2	30.0	-7.8	400	314
229.11	12.6	11.9	24.5	30.0	-5.5	400	2
294.14	15.1	16.6	31.7	37.0	-5.3	400	77
297.13	15.2	15.7	30.9	37.0	-6.1	400	306
328.73	16.1	11.3	27.4	37.0	-9.6	400	219
330.13	16.2	14.0	30.2	37.0	-6.8	400	115

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



TEST DATA OF RADIATED EMISSION

EUT: PCI bus 486 mini Biscuit PC with LAN/VGA

MODEL: CPC-2347

ANT.POLARITY: Vertical

DETECTOR FUNCTION: Quasi-peak

6 dB BANDWIDTH: 120 kHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)
66.66	7.1	11.9	19.0	30.0	-11.0	100	268
121.14	13.2	11.2	24.4	30.0	-5.6	100	110
132.05	13.5	11.2	24.7	30.0	-5.3	100	324
133.68	13.5	8.5	22.0	30.0	-8.0	100	34
150.00	12.6	14.1	26.7	30.0	-3.3	100	68
165.06	11.3	13.8	25.1	30.0	-4.9	100	358
190.00	10.6	13.6	24.2	30.0	-5.8	100	263
200.01	10.5	11.0	21.5	30.0	-8.5	100	358
224.91	12.3	8.5	20.8	30.0	-9.2	100	2
229.11	12.6	8.9	21.5	30.0	-8.5	100	118
291.66	15.0	13.6	28.6	37.0	-8.4	100	252
294.15	15.1	18.0	33.1	37.0	-3.9	100	171
297.13	15.2	13.0	28.2	37.0	-8.8	100	316
328.73	16.1	16.8	32.9	37.0	-4.1	100	342
330.14	16.2	15.9	32.1	37.0	-4.9	100	303

- REMARKS:
1. Emission level (dBuV/m) = Correction Factor (dB)
+ Reading value (dBuV).
 2. Correction Factor (dB) = Ant. Factor (dB)+Cable loss (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level - Limit value



4.5 DISTURBANCE IN SUPPLY SYSTEM

Product Family Standard : EN 61000-3-2, Class A
Input Voltage : 230Vac, 50Hz
Temperature : 27 Degree C
Humidity : 60 %
Atmospheric Pressure : 1000 mbar

TEST RESULT	Remarks
PASS	Meets the requirement of Class A Model: CPC-2347

Note: Class A or Class D is classified by test instruments automatically.

4.5.1 EUT OPERATION CONDITION

Same as item **4.1.1**

4.5.2 MEASUREMENT DATA OF HARMONICS TEST

EUT: **PCI bus 486 mini Biscuit PC with LAN/VGA** MODEL: **CPC-2347**

Fundamental Voltage : 229.523Vrms

Amperes : 0.156 Arms

Power consumption : 14.841 W

Frequency : 50 Hz

Power Factor : 0.414

Harm. Order	Reading Data (A)	Limit (A)
1	-	-
3	0.06	2.30
5	0.05	1.14
7	0.05	0.77
9	0.05	0.40
11	0.04	0.33
13	0.04	0.21
15	0.03	0.15
17	0.03	0.13
19	0.02	0.12
21	0.02	0.11
23	0.01	0.10
25	0.01	0.09
27	0.01	0.08
29	0.00	0.08
31	0.00	0.07
33	0.00	0.07
35	0.00	0.06
37	0.01	0.06
39	0.03	0.06

Harm. Order	Reading Data (A)	Limit (A)
2	0.00	1.08
4	0.00	0.43
6	0.00	0.30
8	0.00	0.23
10	0.00	0.18
12	0.00	0.15
14	0.00	0.13
16	0.00	0.11
18	0.00	0.10
20	0.00	0.09
22	0.00	0.08
24	0.00	0.08
26	0.00	0.07
28	0.00	0.07
30	0.00	0.06
32	0.00	0.06
34	0.00	0.05
36	0.00	0.05
38	0.00	0.05
40	0.00	0.05

Note: Steady state values on AC mains are recorded in the table.



4.6 VOLTAGE FLUCTUATIONS AND FLICKER

Basic Standard : EN 61000-3-3
Input Voltage : 230Vac, 50Hz
Temperature : 27 Degree C
Humidity : 60 %
Atmospheric Pressure : 1008 mbar

TEST RESULT	Remarks
PASS	Model: CPC-2347

4.6.1 EUT OPERATION CONDITION

Same as item **4.1.1**

4.6.2 TEST DATA OF VOLTAGE FLUCTUATIONS AND FLICKER

EUT: **PCI bus 486 mini Biscuit PC with LAN/VGA**

MODEL: **CPC-2347**

Input Voltage : 229.523 Vrms

Input Amperes : 0.156 Arms

Power Factor : 0.414

Power Frequency: 50 Hz

Observation period (Tp): 2 hour

Test Parameter	Measurement Value	Limitation	Remark
Pst	0.084	1.0	pass
Plt	0.037	0.65	pass
Tdt (ms)	0	200	pass
dmax (%)	0	4%	pass
dc (%)	0	3%	pass

- Note:
- (1) Plt means long-term flicker indicator
 - (2) Pst means short-term flicker indicator
 - (3) dc means relative steady-state voltage change
 - (4) dmax means maximum relative voltage change
 - (5) Tdt means maximum time that dt exceeds 3 %



5. TEST RESULTS (IMMUNITY)

5.1 GENERAL DESCRIPTION

Generic Standard	:	EN 50082-2: 1995
Basic Standard	:	EN 61000-4-2 (Electrostatic Discharge, ESD, 8kV air discharge, 4kV Contact discharge, Performance Criterion B)
Specification and Performance Criteria	:	EN 61000-4-3 (Radio-Frequency Electromagnetic Field Susceptibility Test, RS, 80-1000 MHz, 10V/m, 80% AM (1kHz), Performance Criterion A)
	:	EN 61000-4-4 (Electrical Fast Transient/Burst, EFT, Power line: 2kV, Signal line: 1kV, Performance Criterion B)
	:	EN 61000-4-6 (Conducted Radio Frequency Disturbances Test, CS, 0.15-80 MHz, 10V/m, 80% AM, 1kHz, Performance Criterion A)
	:	EN 61000-4-8 (Power Frequency Magnetic Field Test, 50 Hz, 30A/m, Performance Criterion A)
	:	ENV 50204 (Radio-Frequency Electromagnetic Field, Pulse modulated, 900+/-5 MHz, 10V/m, 50 % duty cycle, Rep. Frequency 200 Hz, Performance Criterion A)
Power System Voltage	:	230 Vac, 50 Hz
Temperature	:	25 Degree C
Humidity	:	45 %
Atmospheric Pressure	:	1000 mbar

5.2 PERFORMANCE CRITERIA DESCRIPTION

- Criterion A - The apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- Criterion B - The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended.
- Criterion C - Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.

5.3 EUT OPERATION CONDITION

Same as item 4.1.1



5.5 TEST RESULT OF RADIATED ELECTROMAGNETIC FIELDS (RS)

Basic Standard : EN 61000-4-3
Frequency range : 80 MHz - 1000 MHz
Field strength : 10 V/m
Modulation : 1kHz Sine Wave, 80%, AM Modulation
Frequency step : 1 % of fundamental
Polarity of Antenna : Horizontal and Vertical
Test distance : 3 m
Antenna height : 1.5 m
Dwell time : at least 3 seconds

Test Result		Remarks
Criterion A	PASS	Model: CPC-2347

Note: Four sides of EUT are verified separately.

Description of test result:

There was no change compared with initial operation during the test.



5.6 TEST RESULT OF ELECTRICAL FAST TRANSIENT (EFT)

Basic Standard : EN 61000-4-4
Test Voltage : Power Line - 2 kV
Signal/Control Line – 1 kV
Polarity : Positive/Negative
Impulse Frequency : 5 kHz
Tr / Tn : 5/50 ns
Burst Duration : 15 ms
Burst Period : 300 ms
Test Duration : Not less than 1 min.

Test Result		Remarks
Criterion A	PASS	Model: CPC-2347

OBSERVATION DESCRIPTION

Test Point	Polarity	Test Level (kV)	Result
L1	+/-	2	Note 1
L2	+/-	2	Note 1
GND	+/-	2	Note 1
Signal / Control Line	+/-	1	Note 1

Description of test result:

Note 1: There was no change compared with initial operation during the test.



5.7 TEST RESULT OF CONDUCTED RADIO FREQUENCY

DISTURBANCES (CS)

Basic Standard : EN 61000-4-6
Frequency range : 0.15 MHz - 80 MHz
Field strength : 10 V/m
Modulation : 1kHz Sine Wave, 80%, AM Modulation
Frequency step : 1 % of fundamental
Coupled cable : Power Mains, Unshielded
Coupling device : CDN-M3 (3 wires), Clamp

Test Result		Remarks
Criterion A	PASS	Model: CPC-2347

OBSERVATION DESCRIPTION

There was no change compared with initial operation during the test.



5.8 TEST RESULT OF POWER FREQUENCY MAGNETIC FIELD

Basic Standard : EN 61000-4-8
Frequency range : 50Hz
Field strength : 30 A/m
Observation Time : 1 minute
Inductance coil : Rectangular type, 1mx1m

Test Result		Remarks
Criterion A	PASS	Model: CPC-2347

OBSERVATION DESCRIPTION

There was no change compared with initial operation during the test.



5.9 TEST RESULT OF RADIO-FREQUENCY ELECTROMAGNETIC FIELD, PULSE MODULATED

Basic Standard : ENV 50204
Frequency range : 900 +/- 5 MHz
Field strength : 10 V/m
Modulation : 200Hz, Square Wave, 50% Duty Cycle
Dwell Time : 30 second
Polarity of Antenna : Horizontal and Vertical
Test distance : 3 m

Test Result		Remarks
Criterion A	PASS	Model: CPC-2347

Note: Four sides of EUT are verified separately.

OBSERVATION DESCRIPTION

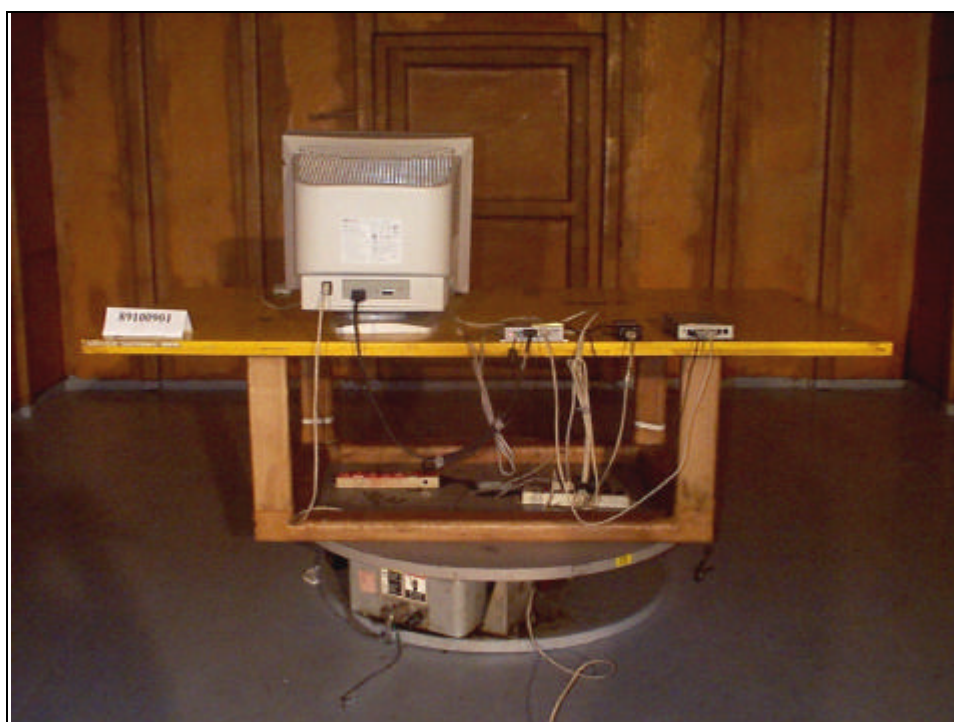
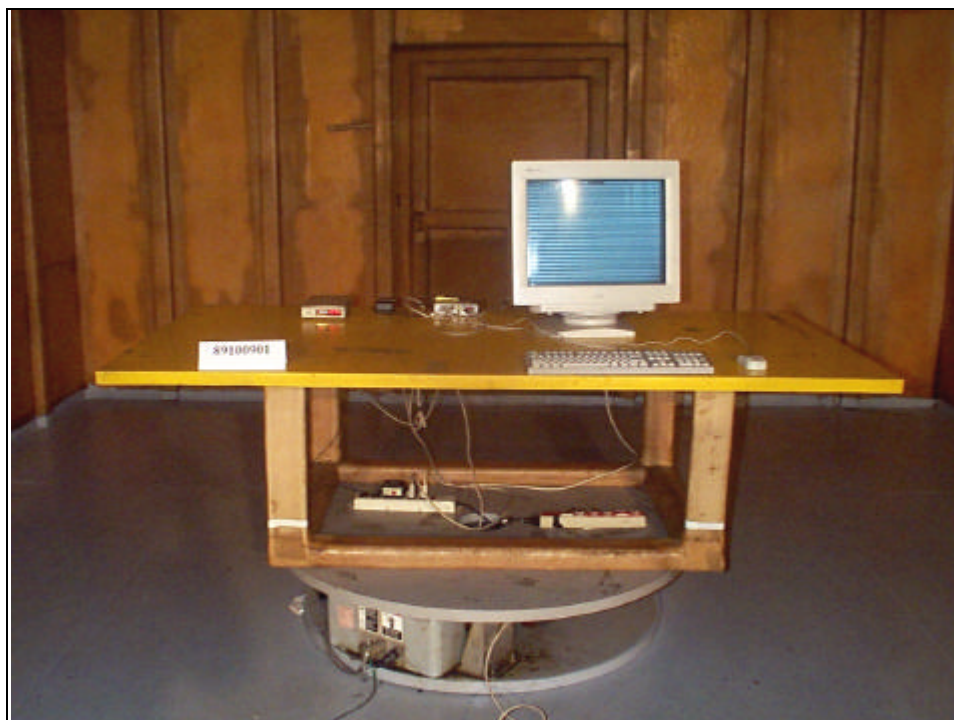
There was no change compared with initial operation during the test.

6. PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST



ESD TEST



4



RS TEST & PULSE MODULATION TEST



EFT TEST



EFT CLAMP TEST



CONDUCTED SUSCEPTIBILITY TEST



CONDUCTED SUSCEPTIBILITY CLAMP TEST



MAGNETIC TEST





7. APPENDIX - INFORMATION OF THE TESTING LABORATORY

Information of the testing laboratory

We, ADT Corp., are founded in 1988, to provide our best service in EMC and Safety consultation. Our laboratory is accredited by the following approval agencies according to ISO/IEC Guide 25 or EN 45001:

● USA	FCC, NVLAP
● Germany	TUV Rheinland
● Japan	VCCI
● New Zealand	RFS
● Norway	NEMKO, DNV
● U.K.	INCHCAPE
● R.O.C.	BSMI

Copies of accreditation certificates of our laboratory obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

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