

FCC ID: EFNDB1000

Data Broadcast Systems

EXHIBIT NEEDED FOR FCC CERTIFICATION
EUT: Data Broadcast Modem; Type: DB1000

Measuring report

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

Rep.No: AR6-877150

Customer:

Philips Consumer Electronics, Data Broadcast Systems, Mr.G.Verschuren
Building SFJ304, P.O.Box 80002
5600JB Eindhoven
The Netherlands

Requirements:

Acc.: Standards : FCC part 15: 1997

Results:

According to testing performed at Philips ASA-Lab. EMC Competence Centre, the in this report mentioned Equipment Under Test is **IN COMPLIANCE** with the Electromagnetic compatibility requirements defined in the standards.

Philips ASA-Lab. EMC Competence Centre reports apply only to the specific sample tested under stated test conditions.

It is the manufacturer's responsibility to assure the continued compliance of production units of this model. Philips ASA-Lab. EMC Competence Centre, shall have no liability for any deductions, inferences or generalisations drawn by the client or others from Philips ASA-Lab. EMC Competence Centre issued reports.

Measurements:

See overview at sheet 2

Table of contents:

See overview at sheet 3

Equipment Under Test

DB1000/DB1001

(Data Broadcast)

Kind of test:

FCC-Certification

FCC ID: EENDB1000

Short description of the tested device:

Designed specially for reception of broadcast data services using the Teletext medium with PC or Notebook.
It will receive and decode Packet 31 (WST Section 21) services as well as Teletext.

Remarks:

With switch mode supply AC/DC-adapter the type number is: DB1001SER/US
(Philips 12NC number.: 9022 440 10302; UPC number.: 0609 5859 03517)

With Linear AC/DC-adapter the type number is: DB1000SER/US
(Philips 12NC number.: 9022 440 10304; UPC number.: 0609 5859 03531)

Except for the type of supply there exists no difference between the DP1000 & DP1001

Eindhoven,
The Netherlands

A.A. Janssen/T.v.Til
EMC Test Engineer


P.J. van Oosten
Supervisor EMC Test Lab.

Philips Electronics N.V. 1998

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Philips Consumer Electronics EMC Competence Centre Building SFH-p 015 Eindhoven, The Netherlands	EMC TEST REPORT	Rep.No: AR6-877150
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EXECUTED MEASUREMENTS / TESTS:

Nature of measurement or test	Restriction fulfilled ? Yes / No	Results	Acc. Requirements of:
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GENERATED DISTURBANCES OF THE ENVIRONMENT:

Mains terminal disturbance voltage	Yes	No infringements of the requirements	FCC part 15
Local oscillator radiation	./.	Not applicable	EN55013
Spurious radiation	Yes	No infringements of the requirements	FCC part 15
Local oscillator voltage on aerial terminals	Yes	No infringements of the requirements Highest measured level = 13 dBpW = 0.02 nWatt	FCC part 15
Spurious local osc. Volt on aerial terminals	./.	Not applicable	EN55013
Disturbance radiation 1 GHz - 25 GHz	./.	Not applicable	EN55013

IMMUNITY: Not applicable for FCC

Input immunity	./.		EN55020
Immunity against conducted voltages	./.		EN55020
Immunity against conducted currents	./.		EN55020
Immunity against radiated interference	./.		EN55020
Screen attenuation of the coax aerial input	./.		EN61000-4-3
Imm. against radiated interf. 80 - 1000 MHz	./.		EN61000-4-6
Conducted disturbances induced by EM-fields	./.		
Static Electricity Discharge (ESD)	./.		EN61000-4-2
Fast transient burst	./.		EN61000-4-4
Mains supply voltage, variations & voltage dips/short interruptions	./.		EN61000-4-11
Slow high energy voltage surge	./.		EN61000-4-5
Mains harmonics	./.		EN61000-3-2
Audio frequency common mode test	./.		ETS300-683

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Used measuring site(s)	07 up to & incl.: 10	Emission
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Description and results of the Spurious Radiation test	16, 17 & 18	Emission
Description and results of the Antenna Terminal Voltage test		Immunity (Not required for FCC)
Description and results of the Radiated interference test 80 - 1000 MHz		Immunity (Not required for FCC)
Description and results of the Conducted disturbances induced by EM-field tests		Immunity (Not required for FCC)
Description and results of the ESD test		Immunity (Not required for FCC)
Description and results of the Fast transient/burst test		Immunity (Not required for FCC)
Description and results of the Mains supply voltage variations & voltage dips/short interruptions test		Immunity (Not required for FCC)
Description and results of the Slow/High energy voltage Surge test		Immunity (Not required for FCC)
Description and results of the Mains Harmonic tests		Immunity (Not required for FCC)
Photo's of test/measuring set-up's	19 up to & incl.: 24	

EVALUATION OF THE DB1000 TEST RESULTS:

This DB1000 has been considered to be a peripheral of a computing device.
That's why this DB1000 has been tested according the FCC Standards for disturbances to the outside world.

This DB1000 has been tested in a full configured system with all ports connected to their relevant cables and the cables connected to their specified load-impedance's.

During and directly after the tests no infringements of the requirements have been found

For more detailed information concerning photo session of the measuring set-up's see page 3 (Table of contents).

Radiation measurements; Explanation of terms used:

FREQ :Frequency at which an emission has been found.

ANT :Type of used aerial: - BILOG aerial (30 - 2000 MHz)
- Broad band horn aerial (1 - 6.5 GHz)

Pol. :HOR; Horizontal polarity of the antenna. VERT; Vertical polarity of the antenna.

Values :Values measured from the spectrum analyser (Including all corrections from site, antenna, cable and amplifier) expressed in dBuV/m (Quasi Peak).

The spurious radiation has been checked in the anechoic chamber (3 meter test site)

Conducted disturbances:

Highest value measured in Quasi peak mode: 38.2 dBuV at 23.955 MHz.

Limit: 48 dBuV,(Quasi Peak) Margin: > 9 dBuV;

The EMC behaviour of this DB1000 is good as far as judged according the requirements for achieving FCC-certification Class B.

In case this DB1000 is extended with other sub-units/functions or options not included in this report, a new report has to be issued with the EMC-behaviour of the added parts included; unless it can be proven that the added part(s) does not influence the EMC-behaviour of the system.

PRODUCT CONFIGURATION DESCRIPTION

List of tested equipment: (CONFIGURATION)

- Data Broadcast Modem: DB1000
- Computer: HP Vectra 5L5 Series 5 DT, Tested to comply with FCC standards for home or office use.
- Keyboard: Philips type: P2818 000; FCC ID: GJK35U101UN2
- Mouse: Logitech type: M/N: M-SF14-6MD; FCC ID: DZLMSF14R
- Monitor: Olivetti DSM 28-143 PS, model number.: CDU1448G/PH
FCC ID: A3KM043
- Printer: HP C2106A; FCC ID: B94C2106X
- USB Audio system: Philips type: DSS350/17 as load for the USB bus
- AC/DC adapters: - SUPERMADE Type: WW050500-1RN (Linear supply)
- SINO-AMERICAN ELECTRONIC CO Type: SA10-0508 (Switch mode supply)

Operation of DB1000 during tests

- During the measurements the module has been connected, via the antenna cable to the TV cable system of Eindhoven and automatically tuned to 703.86 MHz to receive the Nozema test-signal to check the performance of the module and let it run in full operation.
- Initial settings:

With the dBdiag-Notepad program the initial settings of the module checked or changed. With the DB1000 Production test program first set the module (Configuration) and thereafter the test program started for checking and proper receiving the data information of the antenna cable. With the PROGRAM PLUS for windows program checked whether the received data is properly entering the computer. With this program we could check whether the data became disturbed during the measurements. (Continuous scrolling data-lines, teletext, of the TV-signal visible, transmitted by Nozema at "Nederland 3" TV-Channel.)

Operation Environment requirements:

- Power supply : 120 Volt AC $\pm 10\%$
- Temperature : $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- Rel.humidity : 50 % (30-60%)
- Atm. Pressure : 1000 mbar (860-1060 mbar)

Measuring procedure:

- According the Ansi 63.4 standard of 1992.
- To maximise the emission, the configuration has been adjusted at each frequency.

Connections made:

- Antenna cable, to the module, connected to the local cable system for receiving the test-signal.
Coax antenna cable. (75 Ohm)
- Interconnection between module and the serial A port of the computer. (Shielded cable)
- From rear of computer, parallel port, to printer; Standard printer cable.
- Monitor cable to rear of computer; Standard monitor cable.
- Cable from mouse input port to mouse.
- Cable from keyboard input to keyboard.
- Standard USB cable to the Philips loudspeaker system DSS350 as load for the USB port.

EMC TEST REPORT

Rep.No: AR6-877150

LIST OF USED TEST EQUIPMENT

Description according standard		Calibration up to
SPURIOUS RADIATION: The calibrated radiated measuring set up in the SIEPEL Anechoic- chamber of the EMC Competence Centre (Measuring Institute):	X	Nov '98
AERIAL TYPE:		
CHASE BIOLOG BROADBAND : CL611A / 30 - 1000 MHz	X	May '99
RHODE & SCHWARZ BICONICAL : HUF Z2 / 30 - 200 MHz		May '99
RHODE & SCHWARZ LOG. PER. : HUF Z3 / 200 - 1000 MHz	X	May '99
SCHWARZBECK BROADBAND HORN : BBA9120-B / 1 - 10 GHz	X	July '99
Advantest R3271 Spectrum Analyser 100 Hz - 26.5 GHz	X	June '99
HP85462A Spectrum Analyser 9 kHz - 6.5 GHz. (EMI receiver)		
MAIN DISTURBANCES:		
EMCO TYPE 3810/2 LISN 250V/10A Artificial network	X	March '99
EMCO TYPE 3810/2 LISN 250V/10A Artificial network	X	March '99
STATIC ELECTRICITY DISCHARGE (ESD): Minizap Keytek ESD Simulator		Sept '99
IMMUNITY AGAINST RADIATED INTERFERENCE: The calibrated Immunity set up in the Anechoic-chamber of the EMC Competence Centre. (Measuring Institute)		
AT1080 Log. Per. Antenna of Amplifier Research 80 - 1000 MHz.		Oct '98
100W1000M2A 100 Watt HF-amplifier of Amplifier Research.		June '99
FP3000A Isotropic field probe 10 kHz - 1 GHz.		June '99
FP3080A Isotropic field probe 80 MHz - 40 GHz.		June '99
FAST TRANSIENTS COMMON MODE: MV2616 & UCS500 Transient Generator of EM-test.		Sept '99
SURGE for Slow and High energy voltage. MV2616 & UCS500 Surge Generator of EM-test.		Sept '99
CONDUCTED DISTURBANCES induced by electromag. Field Injection EM clamp of MEB and CDN's of Lüthi & MEB Local calibrated with calibrated HP-equipment		Oct '98
MAINS supply voltage VARIATIONS & DIPS interruptions MV2616 & UCS500 Power Fail Generator of EM-test.		Sept '99
MAINS HARMONICS: HP6842A Harmonic Flicker tester.		June '99

ADDRESS MEASURING SIDE

EMC COMPETENCE CENTRE

Philips Consumer Electronics
Buildings: SFHp-015
Glaslaan 2
P.O. Box 80002

5600 JB Eindhoven
The Netherlands
Tel: +31 40 2732680
Fax: +31 40 2736177

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

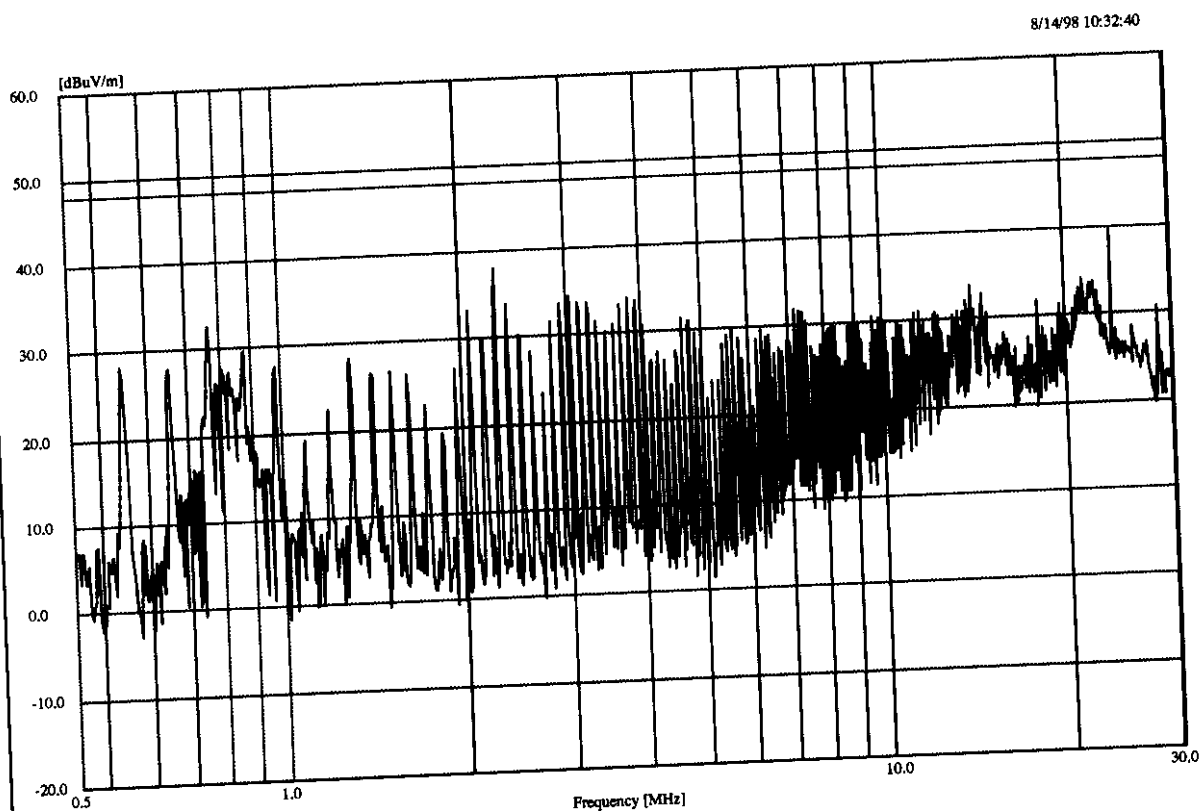
Rep.No: AR6-877150

MAINS DISTURBANCE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC part 15, class B equipment		
Test equipment used:	Calibrated EMCO LISN's and HP 8546A of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST RESULTS MEASURED AT NEUTRAL: (WITH SWITCHMODE SUPPLY)

Composite Trace



Pretest [2/574]

Frequency MHz	Freq Unc MHz	Peak dBuV	QP dBuV	QP Lmt dBuV	DelLim-QP dB	Avg dBuV	Avg Lmt dBuV	DelLim-Avg dB	Time YYMMDDHHMMSS
2.287064	0.000010	39.48	34.78	48.00	-13.22	26.27	48.00	-21.73	980814:10:35:30
23.958387	0.000010	42.74	33.15	48.00	-14.85	35.27	48.00	-12.73	980814:10:36:01

RESULT:

Positive; All measured values far below limit.

Tested by:	v.Oosten	Test date:	14-Aug.-'98
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Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

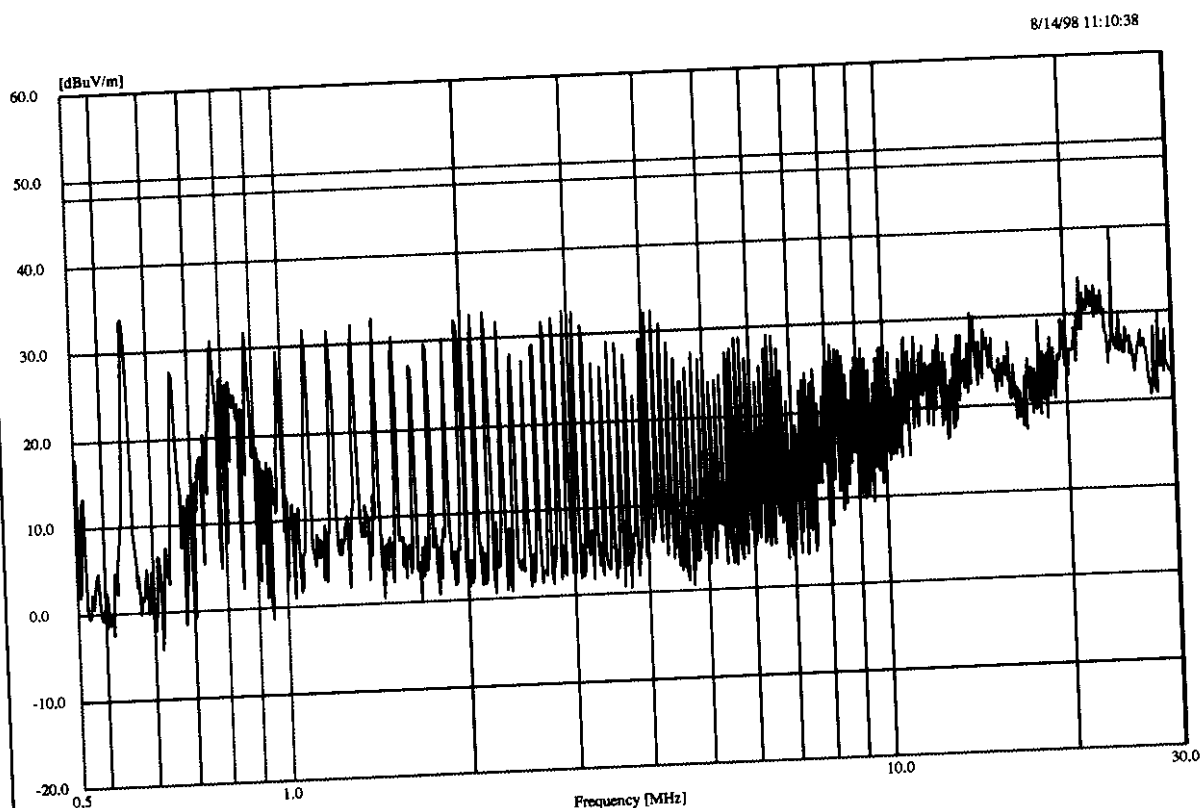
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MAINS DISTURBANCE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated EMCO LISN's and HP 8546A of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST RESULTS MEASURED AT LINE: (WITH SWITCHMODE SUPPLY)

Composite Trace



Pretest [1/574]

Frequency MHz	Freq Unc MHz	Peak dBuV	QP dBuV	QP Lmt dBuV	DelLim-QP dB	Avg dBuV	Avg Lmt dBuV	DelLim-Avg dB	Time YYMMDDHHMMSS
23.955408	0.000010	42.49	38.24	48.00	-9.76	38.12	48.00	-9.88	980814:11:11:59

RESULT:

Positive; All measured values far below limit.

Tested by: v.Oosten

Test date:

14-Aug.-'98

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

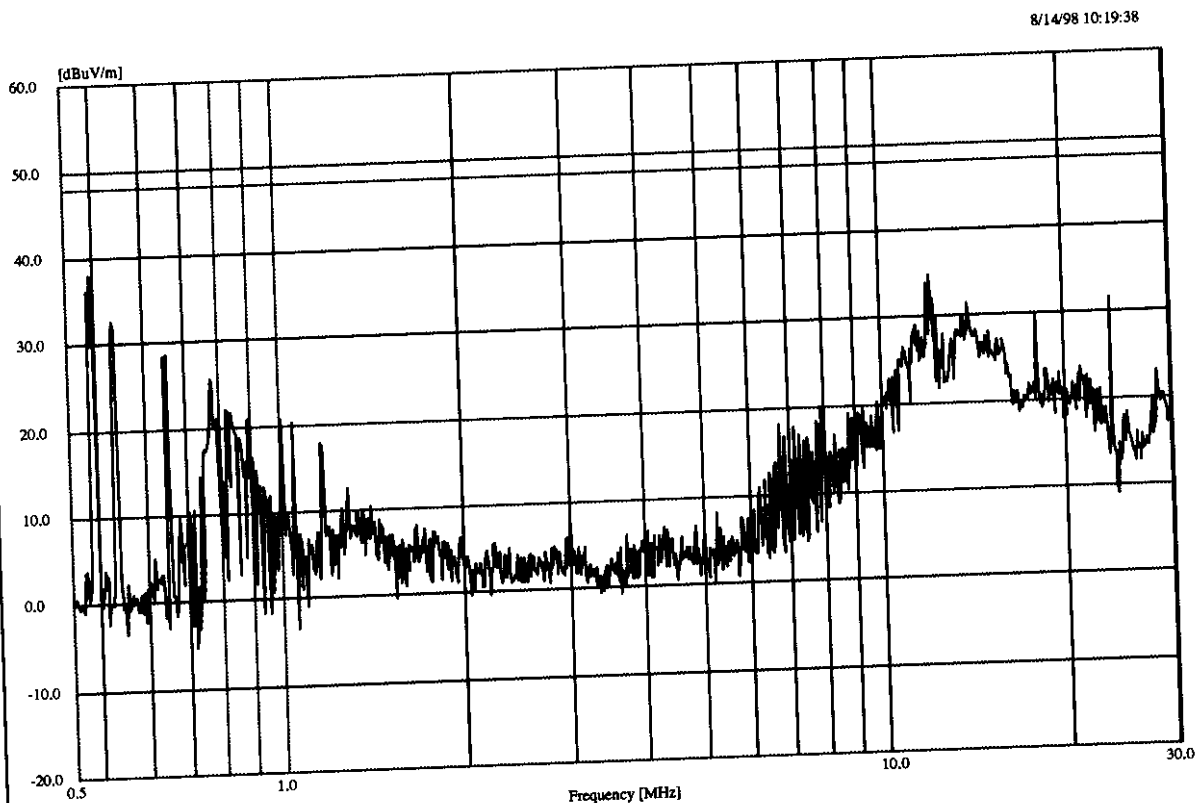
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MAINS DISTURBANCE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated EMCO LISN's and HP 8546A of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST RESULTS MEASURED AT NEUTRAL: (WITH LINEAR SUPPLY)

Composite Trace



Pretest [1/574]

Frequency MHz	Freq Unc MHz	Peak dBuV	QP dBuV	QP Lmt dBuV	DelLim-QP dB	Avg dBuV	Avg Lmt dBuV	DelLim-Avg dB	Time YYMMDDHHMMSS
0.462715	0.000010	55.47	34.51	48.00	-13.49	1.82	48.00	-46.18	980814:10:21:09

RESULT:

Positive; All measured values far below limit.

Tested by: v.Oosten

Test date:

14-Aug.-'98

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

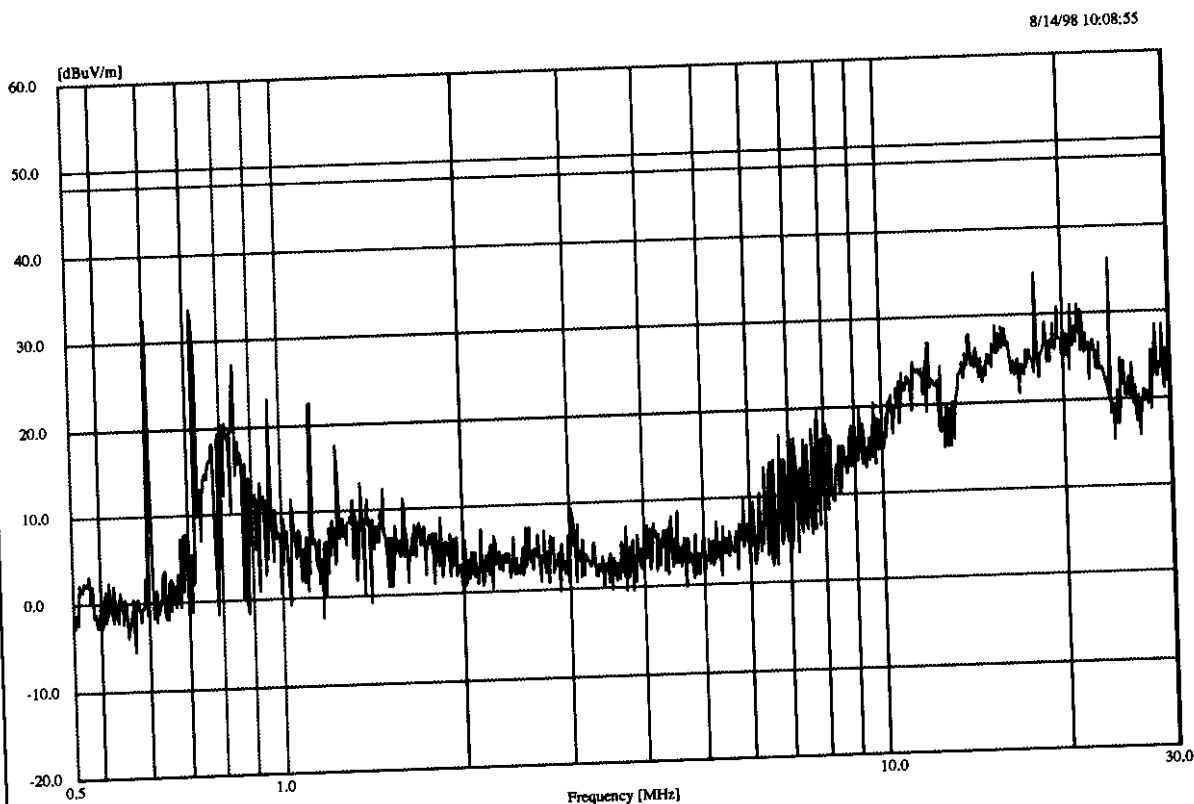
Rep.No: AR6-877150

MAINS DISTURBANCE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated EMCO LISN's and HP 8546A of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST RESULTS MEASURED AT LINE: (WITH LINEAR SUPPLY)

Composite Trace



Pretest [0/574]

Frequency MHz	Freq Unc MHz	Peak dBuV	QP dBuV	QP Lmt dBuV	DelLim-QP dB	Avg dBuV	Avg Lmt dBuV	DelLim-Avg dB	Time YYMMDDHHMMSS
No Signals in this List									

RESULT:

Positive; All measured values far below limit.

Tested by:	v.Oosten	Test date:	14-Aug.-'98
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EMC TEST REPORT

Rep.No: AR6-877150

RADIATED EMISSION TEST

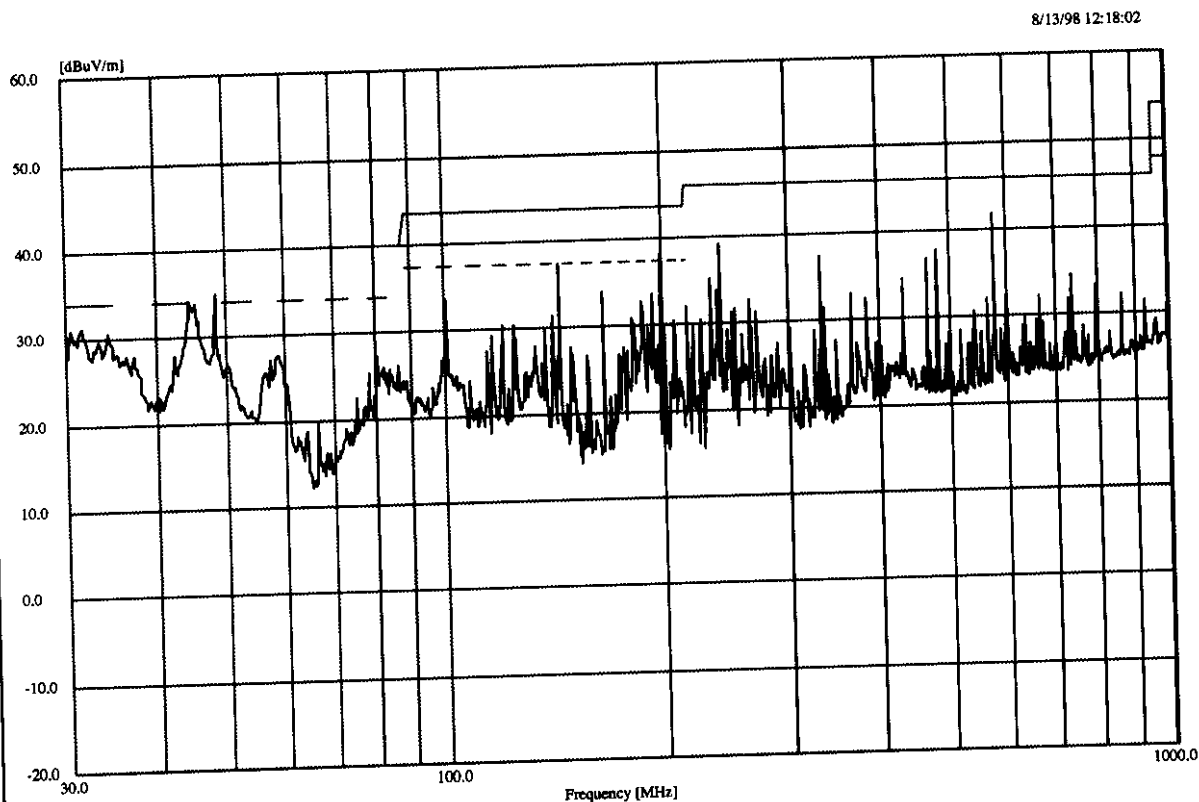
Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated Immunity set up in the Anechoic-chamber of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST DESCRIPTION:

The DB1000 has been placed at 0.8 meter above the earth reference plane (Cage floor). The table dimension at which the DB1000 has been placed is 2 by 1 meter. The table as well as the antenna (height and polarity) have been tuned for max. emission. The supply cables routed over the middle of the table downwards to the 120 Volt supply. The routing of the cables at the table has been changed 5 times for searching the most vulnerable position concerned for radiated emission. Scanned with the receiver aerial, from 30 up to 1000 MHz to tune to the frequencies at which the emission of the DB1000 is maximised. The test has been executed with horizontal and vertical polarisation of the reception aerial. The worst levels of the horizontal and vertical polarisation have been registered.

TEST RESULTS: (WITH SWITCHMODE SUPPLY)

Composite Trace



Tested by: v.Oosten

Test date:

13-Aug.-'98

EMC TEST REPORT

Rep.No: AR6-877150

RADIATED EMISSION TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated Immunity set up in the Anechoic-chamber of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

CONTINUATION OF TEST RESULTS: (WITH SWITCHMODE SUPPLY)

Pretest [20/681]

Frequency MHz	Freq Unc MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Angle deg	Pol	Hgt cm	Time YYMMDDHHMMSS
30.400000	2.420000	30.95	40.00	-9.05	359	Vert	99	980813:11:51:37
44.400000	2.420000	34.27	40.00	-5.73	359	Vert	99	980813:11:51:37
48.200000	2.420000	35.00	40.00	-5.00	57	Vert	99	980813:11:51:37
100.600000	2.420000	33.69	43.50	-9.81	36	Vert	99	980813:11:51:37
120.125000	2.720000	30.40	43.50	-13.10	319	Vert	100	980813:11:58:13
124.625000	2.720000	30.37	43.50	-13.13	2	Horz	250	980813:11:58:13
141.275000	2.720000	31.38	43.50	-12.12	100	Horz	250	980813:11:58:13
144.200000	2.720000	37.34	43.50	-6.16	100	Horz	250	980813:11:58:13
166.475000	2.720000	34.12	43.50	-9.38	231	Horz	250	980813:11:58:13
182.000000	2.720000	30.87	43.50	-12.63	75	Horz	150	980813:11:58:13
188.300000	2.720000	32.82	43.50	-10.68	62	Horz	199	980813:11:58:13
194.825000	2.720000	33.65	43.50	-9.85	312	Horz	150	980813:11:58:13
199.775000	2.720000	38.18	43.50	-5.32	269	Horz	150	980813:11:58:13
207.500000	7.520000	30.45	43.50	-13.05	265	Horz	149	980813:12:04:51
216.250000	7.520000	32.05	46.00	-13.95	214	Horz	149	980813:12:04:51
226.875000	7.520000	30.48	46.00	-15.52	246	Vert	149	980813:12:04:51
241.250000	7.520000	39.18	46.00	-6.82	239	Horz	149	980813:12:04:51
333.125000	7.520000	37.36	46.00	-8.64	171	Horz	100	980813:12:04:51
480.937500	8.270000	37.71	46.00	-8.29	122	Horz	249	980813:12:11:31
577.875000	8.270000	41.62	46.00	-4.38	184	Horz	199	980813:12:11:31

Maximized Signals [8/885]

Frequency MHz	Peak dBuV/m	Hgt cm	Pol	Angle deg	QP dBuV/m	QP Lmt dBuV/m	DelLim-QP dB
44.227036	36.02	101	Vert	359	32.03	40.00	-7.97
48.008619	35.77	101	Vert	56	33.64	40.00	-6.36
100.228997	27.51	345	Vert	36	32.64	43.50	-10.86
144.025988	38.70	200	Horz	100	37.23	43.50	-6.27
166.096000	34.33	295	Horz	231	33.77	43.50	-9.73
194.217286	31.07	215	Vert	310	28.23	43.50	-15.27
199.313521	38.82	163	Horz	267	38.23	43.50	-5.27
576.077907	43.14	188	Horz	192	41.85	46.00	-4.15

REMARK:

None.

Tested by:	v.Oosten	Test date:	13-Aug.-'98
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RADIATED EMISSION TEST

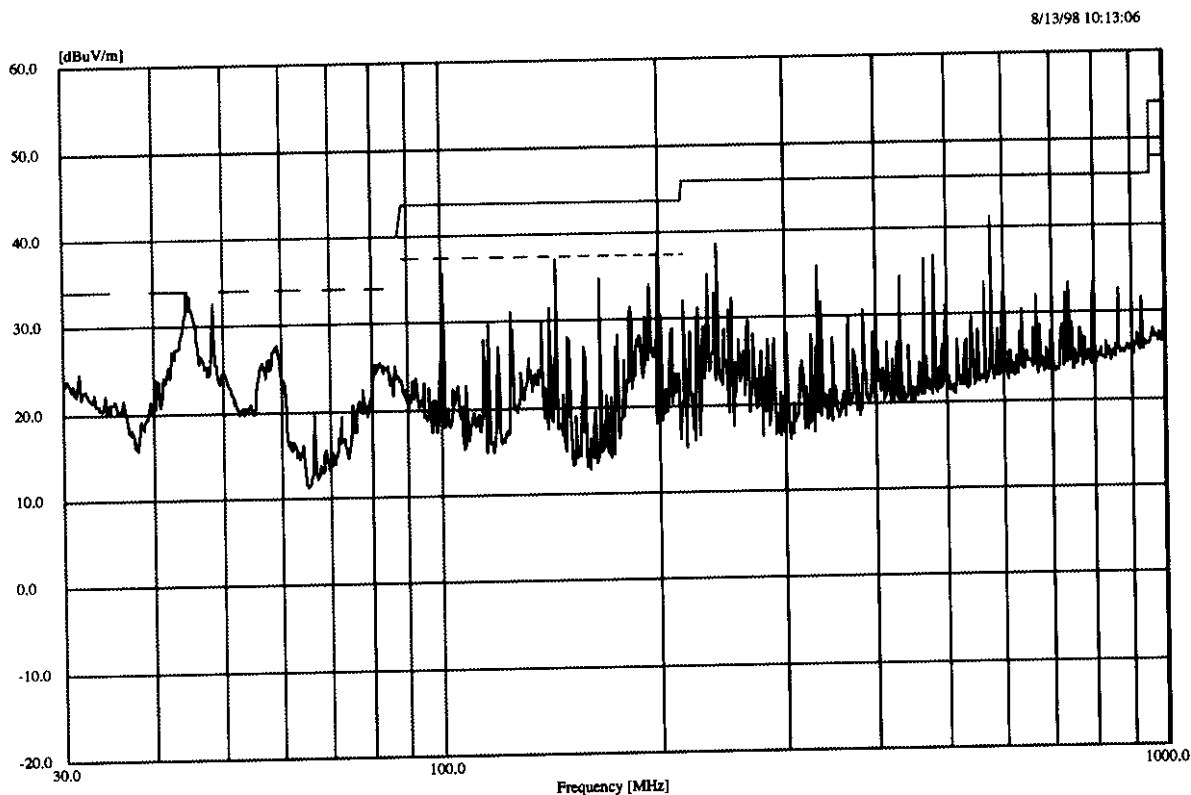
Equipment Under Test:	DB1000	Serial Number:	EUT72
Test according to:	FCC PART 15: 1997, class B equipment		
Test equipment used:	Calibrated Immunity set up in the Anechoic-chamber of EMC Comp. Centre		
Climatic conditions:	Tamb: 21°C	RH: 52 %	Air press: 1060 mbar
Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

TEST DESCRIPTION:

The DB1000 has been placed at 0.8 meter above the earth reference plane (Cage floor). The table dimension at which the DB1000 has been placed is 2 by 1 meter. The table as well as the antenna (height and polarity) have been tuned for max. emission. The supply cables routed over the middle of the table downwards to the 120 Volt supply. The routing of the cables at the table has been changed 5 times for searching the most vulnerable position concerned for radiated emission. Scanned with the receiver aerial, from 30 up to 1000 MHz to tune to the frequencies at which the emission of the DB1000 is maximised. The test has been executed with horizontal and vertical polarisation of the reception aerial. The worst levels of the horizontal and vertical polarisation have been registered.

TEST RESULTS: (WITH LINEAR SUPPLY)

Composite Trace



Tested by: v.Oosten

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RADIATED EMISSION TEST

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Mode of operation:	Receiving Teletext data via the antenna cable, while tuned at 703.86 MHz		

CONTINUATION OF TEST RESULTS: (WITH LINEAR SUPPLY)

Pretest [16/720]

Frequency MHz	Freq Unc MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Angle deg	Pol	Hgt cm	Time YYMMDDHHMMSS
44.400000	2.420000	33.87	40.00	-6.13	344	Vert	99	980813:09:46:27
48.200000	2.420000	32.60	40.00	-7.40	0	Vert	99	980813:09:46:27
100.600000	2.420000	35.67	43.50	-7.83	14	Vert	149	980813:09:46:27
124.625000	2.720000	31.01	43.50	-12.49	2	Horz	249	980813:09:53:01
137.900000	2.720000	30.09	43.50	-13.41	206	Vert	100	980813:09:53:01
141.275000	2.720000	31.45	43.50	-12.05	103	Horz	249	980813:09:53:01
144.200000	2.720000	37.09	43.50	-6.41	103	Horz	249	980813:09:53:01
166.475000	2.720000	34.80	43.50	-8.70	220	Horz	249	980813:09:53:01
183.125000	2.720000	31.41	43.50	-12.09	199	Horz	249	980813:09:53:01
191.450000	2.720000	30.27	43.50	-13.23	220	Horz	249	980813:09:53:01
194.600000	2.720000	34.00	43.50	-9.50	308	Horz	150	980813:09:53:01
199.775000	2.720000	37.69	43.50	-5.81	282	Horz	150	980813:09:53:01
216.250000	7.520000	32.14	46.00	-13.86	215	Horz	149	980813:09:59:45
226.875000	7.520000	31.21	46.00	-14.79	246	Vert	149	980813:09:59:45
241.250000	7.520000	38.70	46.00	-7.30	241	Horz	149	980813:09:59:45
577.875000	8.270000	41.17	46.00	-4.83	185	Horz	199	980813:10:06:30

Maximized Signals [7/953]

Frequency MHz	Peak dBuV/m	Hgt cm	Pol	Angle deg	QP dBuV/m	QP Lmt dBuV/m	DelLim-QP dB
44.254801	35.60	101	Vert	334	31.35	40.00	-8.65
100.223351	28.17	116	Vert	13	31.91	43.50	-11.59
144.027165	38.80	202	Horz	102	37.63	43.50	-5.87
166.095448	35.85	174	Horz	219	35.40	43.50	-8.10
194.234746	33.93	146	Horz	307	31.42	43.50	-12.08
199.314445	38.08	176	Horz	282	37.45	43.50	-6.05
576.082767	43.29	175	Horz	195	42.29	46.00	-3.71

REMARK:

None.

Tested by:	v.Oosten	Test date:	13-Aug.-'98
------------	----------	------------	-------------

EMC TEST REPORT

Rep.No: AR6-877150

RADIATED EMISSION TEST

Equipment Under Test: DB1000 Serial Number: EUT72
Test equipment used: EMI receiver HP85462A + Broad band horn Ant. : BBA9120-B
Mode of operation: Receiving Teletext data via the antenna cable, while tuned at 697 MHz

TEST RESULTS: 1 up to 6.5 GHz

13:43:31 SEP 30, 1998

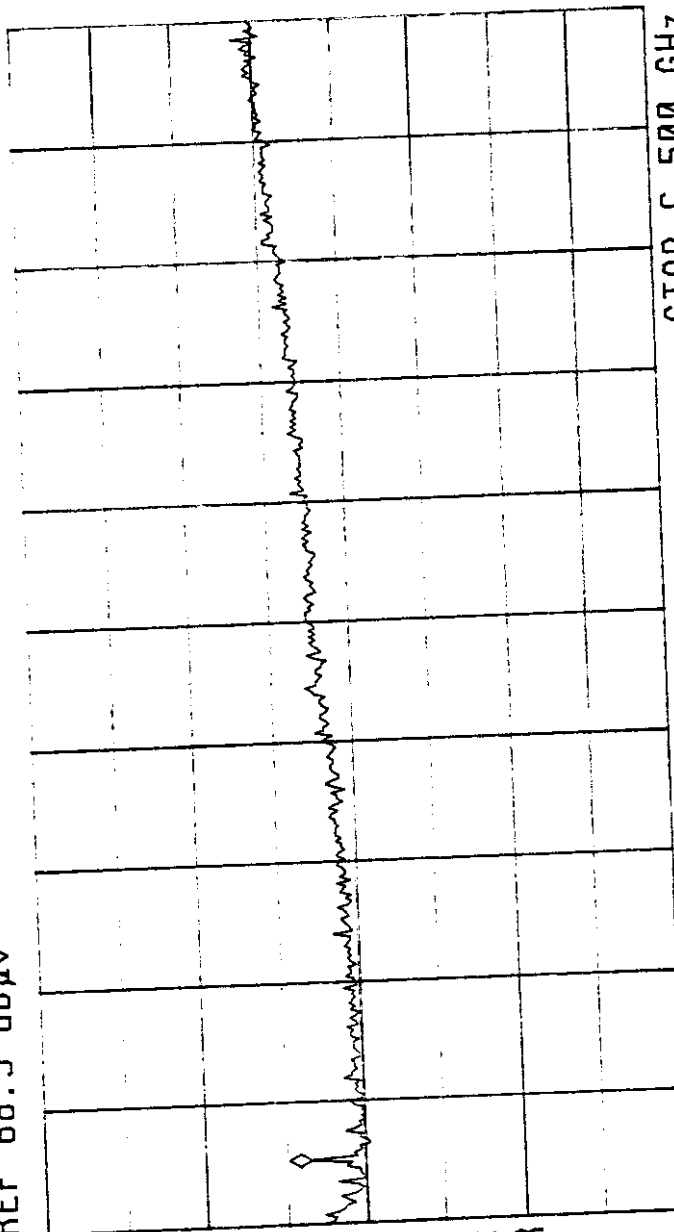
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.290 GHz
34.96 dB μ V

LOG
10 dB/

PREAMP ON

LOG REF 68.5 dB μ V

LOG
10
dB/
#ATN
0 dB



VA SB
SC FC
ACORR

START 1.000 GHz
IF BW 120 kHz
AUG BW 300 kHz
STOP 6.500 GHz
SWP 2.58 sec

Tested by: v.Oosten

Test date:

28-Sept.-'98

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

Rep.No: AR6-877150

ANTENNA TERMINAL VOLTAGE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test equipment used:	Advantest R3271 analyser connected to input terminal via 50/75 Ω adapter		
Mode of operation:	Tuned with 1 MHz steps		

TEST RESULTS: FIRST TV BAND

A_write&max



Maximum measured oscillator voltage level = 2.406 dBpW, The higher plotted levels are spurious disturbances.

Tested by: v.Oosten

Test date:

18-Sept.-'98

Philips Consumer Electronics EMC Competence Centre Building SFH-p 015 Eindhoven, The Netherlands	EMC TEST REPORT	Rep.No: AR6-877150
---	------------------------	--------------------

ANTENNA TERMINAL VOLTAGE TEST			
Equipment Under Test:	DB1000	Serial Number:	EUT72
Test equipment used:	Advantest R3271 analyser connected to input terminal via 50/75 Ω adapter		
Mode of operation:	Tuned with 1 MHz steps		
TEST RESULTS: SECOND TV BAND			
A_write&max  START 100.0 MHz			
Maximum measured oscillator voltage level = 3.406 dBpW, The higher plotted levels are spurious disturbances.			
Tested by:	v.Oosten	Test date:	18-Sept.-'98

Philips Consumer Electronics
EMC Competence Centre
Building SFH-p 015
Eindhoven, The Netherlands

EMC TEST REPORT

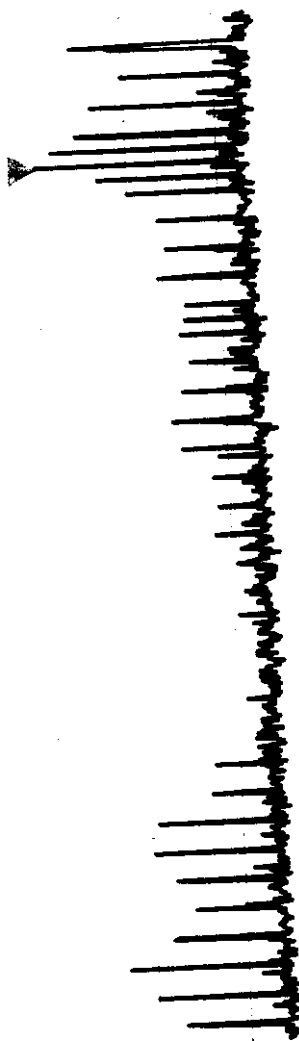
Rep.No: AR6-877150

ANTENNA TERMINAL VOLTAGE TEST

Equipment Under Test:	DB1000	Serial Number:	EUT72
Test equipment used:	Advantest R3271 analyser connected to input terminal via 50/75 Ω adapter		
Mode of operation:	Tuned with 1 MHz steps		

TEST RESULTS: THIRD TV BAND

A_write&max B_b



Maximum measured oscillator voltage level = 10.00 dBpW.

Tested by:

v.Oosten

Test date:

18-Sept.-'98

FCC ID: FENDB1000

Data Broadcast Systems

EXHIBIT NEEDED FOR FCC CERTIFICATION
EUT: Data Broadcast Modem; Type: DB1000

LINEAR SUPPLY



SUPERMADE

MANUFACTURING (M) SDN.BHD.

FOR YOUR APPROVAL

CUSTOMER : PHILIPS

CUST. P/N : S97-1118A

SAMPLE NO. : SA-1546D1

MODEL NO. : WW050500-1RN

SUPERMADE R&D

CUSTOMER APPROVAL

Zaid

To: Bertram

From: Athrae

SPECIFICATION REVISION FORM

DATE : FEB./23/98

CUSTOMER : PHILIPS

MODEL NO : WW050500-1RN

SAMPLE NO : SA-1546D1

CHANGED BY

DESCRIPTION OF CHANGE

OF CHANGE

REV. DRAWING NO. OF DRAWING CHANGED

FEB. / 23 / 98

O/P CORD & PLUG
CONSTRUCTION LIST

CHANGE THE O/P CORD TO CIRCULAR WIRE (14/0.14x2C) 105°C

AYMEN

71-0

R-F13
REV : A

SPECIFICATION

TITLE : CLASS II POWER SUPPLY

MODEL NO : WW050500-1RN

SAMPLE NO : SA-1546D1

CUST. P/N : S97-1118A

DATE : FEB./23/1998

ELECTRICAL SPECIFICATION (25 °C)

1. INPUT VOLTAGE	120Vac
2. INPUT FREQUENCY	60Hz
3. INPUT NO LOAD CURRENT	< 50mA
4. INPUT LOAD CURRENT	< 90mA
5. OUTPUT NO LOAD VOLTAGE (+5% -0)	5Vdc
6. OUTPUT LOAD CURRENT	500mA
7. OUTPUT LOAD VOLTAGE (+5% -0)	5Vdc

8. WITHSTAND VOLTAGE (HI-POT) :

Pri-Sec 1240Vac 50Hz 1 Min
Pri-Core 1240Vac 50Hz 1 Min
Sec-Core 500Vac 50Hz 1 Min

9. INSULATION RESISTANCE : 500Vdc >100M Ohms

10. TEMPERATURE RISE : < 65°C

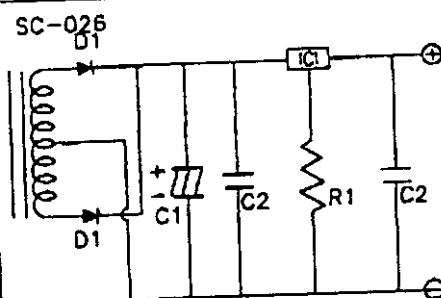
11. CORE SIZE : EI-41 x 17 m/m

12. PLUG POLARITY AND OUTPUT PLUG DIMENSION :



Refer To Related Pages

CIRCUIT DIAGRAM



D1=1N4001
C1=2200uF/16V
C2=0.1uF/50V
R1=39ohm 1/4W
IC1=LM7805

13. OUTPUT VOLTAGE VERSUS LOAD CURRENT DATA

I (mA)	0	100	200	300	400	500		
V	5.2	5.2	5.1	5.1	5.1	5.1		



SUPERMADE
MANUFACTURING (M) SDN. BHD.
[Company No. 196809-D]

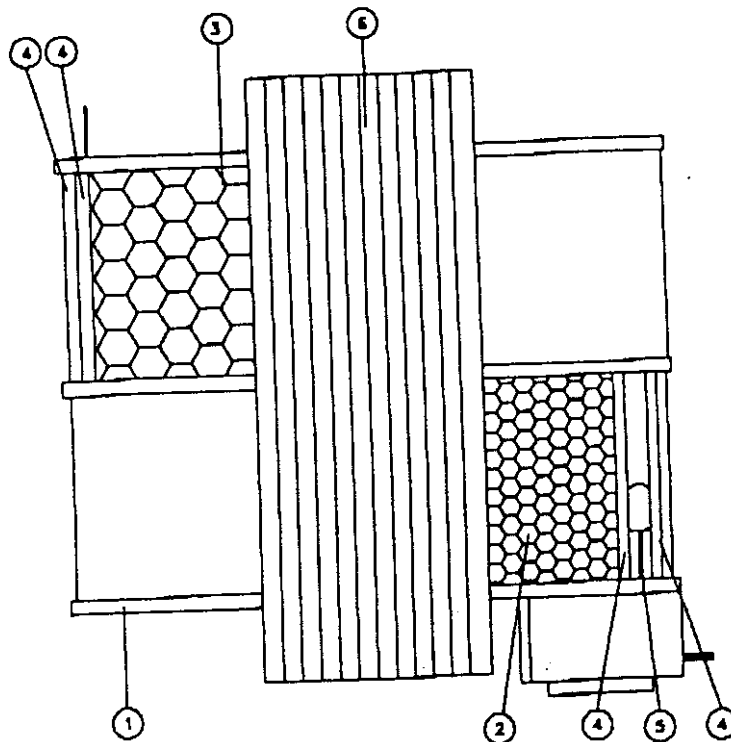
LOT 71 & 72, ALOR GAJAH INDUSTRIAL ESTATE,
PHASE III, 78000 ALOR GAJAH, MALACCA, MALAYSIA.
E-MAIL ADDRESS: jammy@pop8.jaring.my
TEL: 606-558-5686 (REP) FAX: 606-558-5681

SPEC/ADAPT-1

DRAWING FRAME WORK

R-F20
REV : A

EV. NO	DESCRIPTION OF CHANGE	CHANGED BY	DATE



UNIT:

SCALE:

TITLE : INNER CONSTRUCTION

DR. Ayman

FEB./23/98

MODEL NO. WW050500-1RM

CK. Tiar

23-02-'98

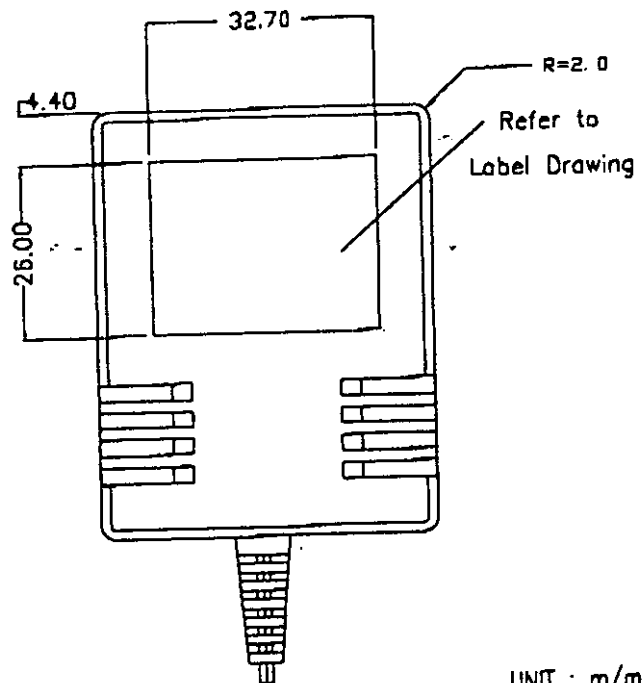
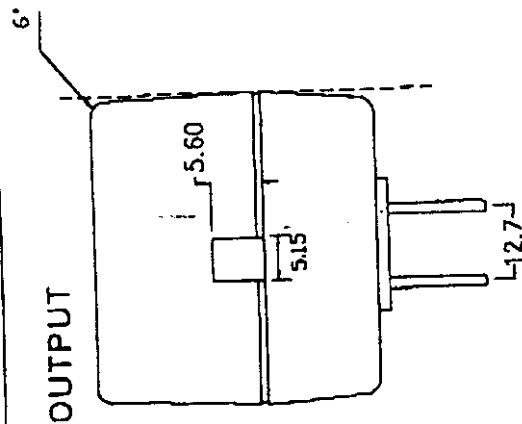
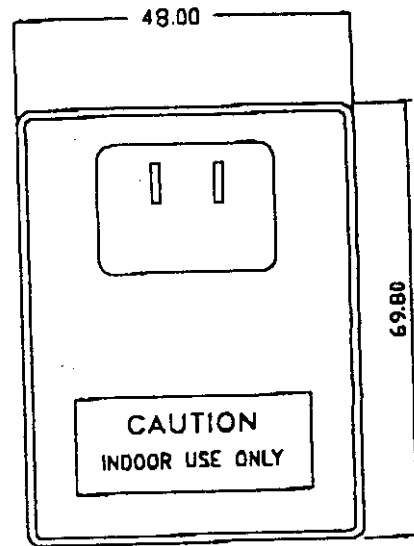
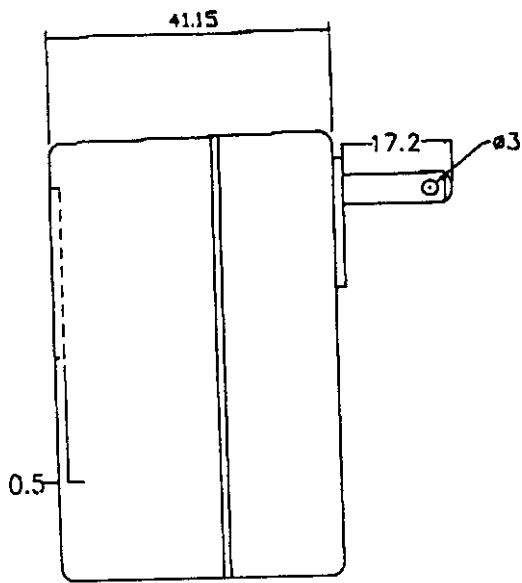
SAMPLE NO. SA-1546D1

04FEC

DRAWING FRAME WORK

R-F20
REV : A

REV. NO	DESCRIPTION OF CHANGE	CHANGED BY	DATE



UNIT : m/m

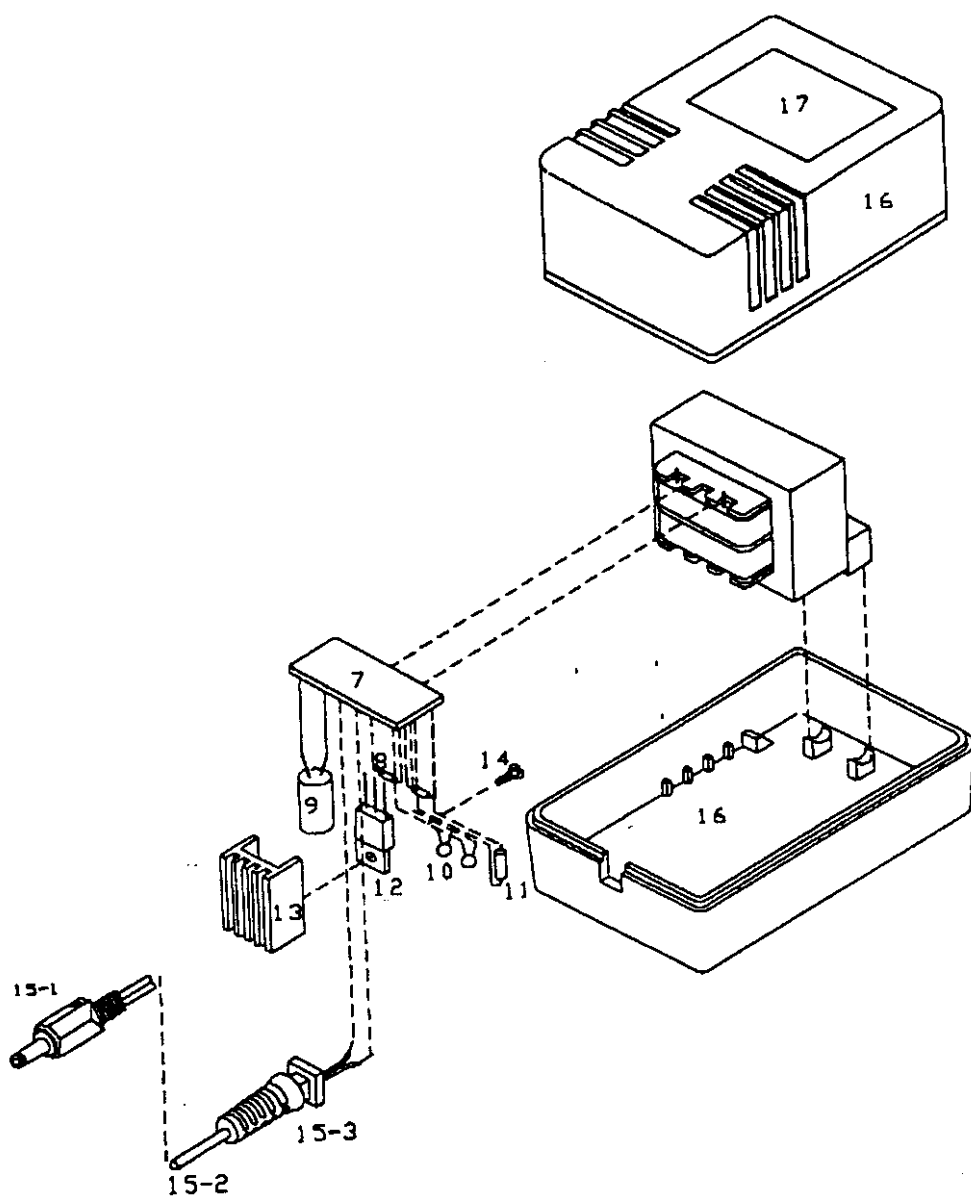
TITLE CASE	CASE	DR. <i>Aymen</i>	FER./23/98	MODEL NO. WW050500-1RN
CK. <i>Tian</i>			23-02-98	SAMPLE NO. SA-1546D1
			23-02-98	DWG NO. W410701



DRAWING FRAME WORK

R-F20
REV : A

EV. NO	DESCRIPTION OF CHANGE	CHANGED BY	DATE



TITLE : COMPONENT ASSEMBLY DIAGRAM

DR. Aymen

FEB./23/98

MODEL NO. WW050500-1RN

CK. Tian

23-02-1998

SAMPLE NO. SA-1546D1

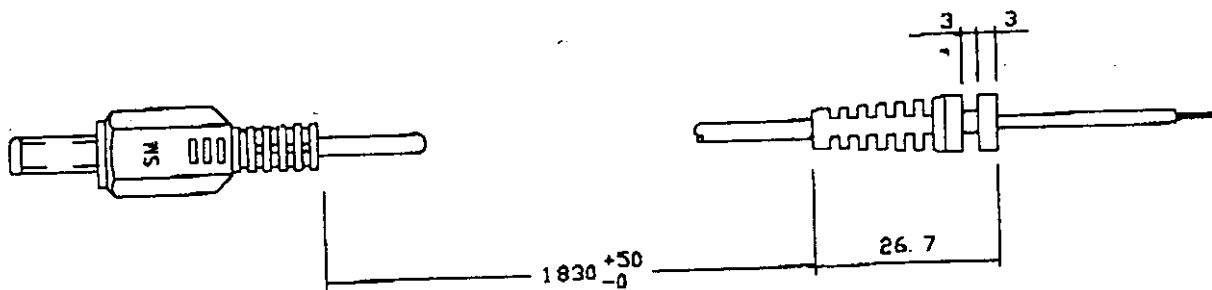
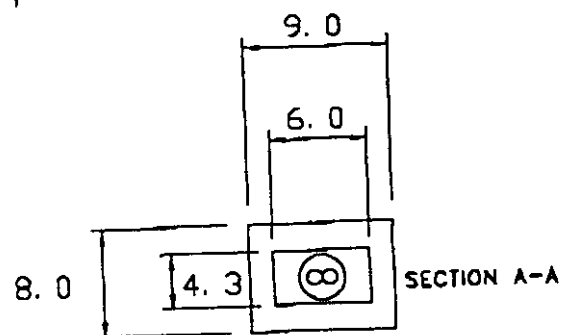
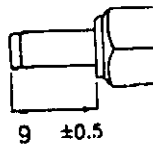
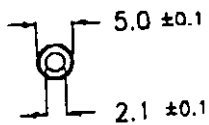
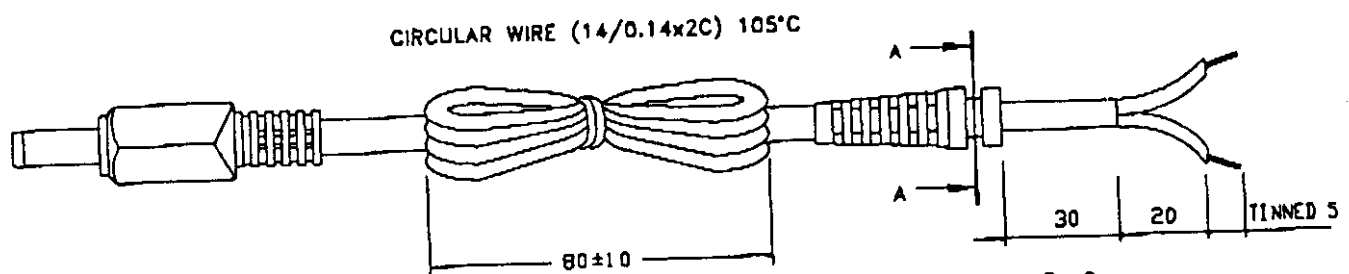


DWG NO. W410703M

DRAWING FRAME WORK

R-F 20
REV : A

REV. NO	DESCRIPTION OF CHANGE	CHANGED BY	DATE



UNIT : m/m

TITLE : OUTPUT CORD & PLUG	DR. Aymen	FEB./23/98	MODEL NO. WW050500-1RN
CK. <i>Tiar.</i>	23-02-1998	SAMPLE NO. SA-1546D1	

LIST OF CONSTRUCTION MATERIALS

<u>NO</u>	<u>DESCRIPTION</u>	<u>RAW MATERIALS</u>	<u>SUPPLIER</u>
01	Bobbin	Split Bobbin N66 E41938(M)	Jong Wenn Enterprises Co. Ltd.
02	Pri Winding	Polyurethane Enameled Copper Wire Class E	Ta Win Ind.(M) Sdn. Bhd. FE Magnet Wire (M) Sdn. Bhd. Hitachi Cable (S) Pte. Ltd.
03	Sec Winding	Polyurethane Enameled Copper Wire Class E	Ta Win Ind.(M) Sdn. Bhd. FE Magnet Wire (M) Sdn. Bhd. Hitachi Cable (S) Pte. Ltd.
04	Insulation	Polyester Tape Cat No. 316,326 UL No.E34833(M) No.500 UL No.E74186(S) No. 630F/UL No.E56086(S)	Nitto Electric Industrial Co. Ltd. Globe Industries Corp. Teraoka Seisakusho Co., Ltd.
05	Thermal Fuse	115°C	Optional
06	Core	Silicon Steel H18x0.5A	Nicomsteel Centre (M) Sdn. Bhd. Kawacho Steel Processing Centre Sdn. Bhd. Chun Yuan Steel Industry Co., Ltd. Leicong Industry Corporation.
07	PCB		Optional.
08	Diode	1N4001	Goldentech Discrete Semiconductor Inc.
09	Capacitor	2200uF/16V	Sonic Electronics (M) Sdn.Bhd. Wincap Industrial (M) Sdn.Bhd.
10	Capacitor (Ceramic)	0.1uF/50V	Optional.
11	Resistor	39Ω 1/4W	Optional.
12	Regulator	LM7805	Optional.
13	Heat Sink		Optional.
14	Screw	TP 3x8mm	Kue Huei Industrial Sdn Bhd.
15.1	Output plug	5.0x2.1x9m/m	Supermade Manufacturing (M) Sdn.Bhd.
15.2	Output Cord	Circular wire 14/0.14 2Core 105°C	Ho Wah Genting Wire & Cable Sdn. Bhd.
15.3	Strain Relief	PVC	Supermade Manufacturing (M)

LIST OF CONSTRUCTION MATERIALS

<u>NO</u>	<u>DESCRIPTION</u>	<u>RAW MATERIALS</u>	<u>SUPPLIER</u>
16	Adaptor Case	EI-41-07 E121562(R)	Jong Wenn Enterprises Co.Ltd.
17	Name Plate	Polyester Sheet	Optional.

FCC ID: FENDB1000

Data Broadcast Systems

EXHIBIT NEEDED FOR FCC CERTIFICATION
EUT: Data Broadcast Modem; Type: DB1000

SWITCH MODE SUPPLY

Approval Sheet

For

14M19N08

PART NO: SA10-0508

DESIGNED NO: 6705117-0A (X82496T)

TYPE: EE13 SWITCHING

DATE: SEP / 18 / 1998 (SA- 9838)

APPROVED BY (PLEASE SIGN)			

華美電子股份有限公司

SINO-AMERICAN ELECTRONIC CO., LTD.

公司：高雄縣橋頭鄉西林村芋林路305號
305, YU-LIN RD, CHIAO-TOU KAOHSIUNG HSIAN
TAIWAN, REPUBLIC OF CHINA
TEL: (07) 6116156-9 6113380
FAX: (07) 6116006
台北聯絡處：台北市復興北路290號8F之一
8F-1, NO. 290 FU SHING NORTH ROAD
TAIPEI TAIWAN, R.O.C.
TEL: (02) 2516-2375
FAX: (02) 2516-2183

☒ 製造工廠：高雄縣橋頭鄉西林村芋林路305號
305, YU-LIN RD, CHIAO-TOU KAOHSIUNG HSIAN
TAIWAN, REPUBLIC OF CHINA
TEL: (07) 6116156-9 6113380
FAX: (07) 6116006
☐ 製造工廠：廣東省寶安縣縣城18區（深圳廠）
DISTRICT 18, BAU-AN NEW CITY,
GUANGDONG PROVINCE, CHINA. 518101
TEL: (86-755) 7782477-8
FAX: (86-755) 7782479
☐ 製造工廠：泰國北欖府直轄縣皮瑞卡沙區素坤逸路
挽蒲國家工業區14巷817號
817 MU 4, BANGPOO INDUSTRIAL ESTATE SOI 14,
PRA KA SA SUB-DISTRICT, SAMUTPRAKARN 10280,

SWITCHING ADAPTER SPECIFICATION	MODEL NO.: SA10-0508	DESIGNED NO.: 6705117-0A
	DATE: Sep. 17. 1998	PAGE:

1. SCOPE : This specification is suitable for use 14M19N08
Switching adapter part no. SA10-0508
2. SAFETY STANDARD : ☒ UL 1310 ☒ CSA 22.2, No. 223 ☐ UL 1950 ☐ BSI 415 ☐ EN 60950
☐ IEC 65 ☐ VDE 0700 ☐ T mark ☐ other
3. EMI STANDARD : ☐ VCCI 2 ☐ FCC Class B ☒ CISPR 22 AT Electric load 0.8 A.
4. SURFACE, STRUCTURE :
4-1 Surface : damage rusting etc. are not permitted.
4-2 Appearance, Dimension and express : As drawing.
5. MECHANICAL CHARACTERISTICS :
5-1 Strain relief test : Plug and cord. at their normal position applied a weight of 16 Kg to input plug, 9 Kg to output cord. for 60 seconds each, there shall be no broken of lead or other damage result.
5-2 Vibration test : The vibration frequency are setted at 10-55-10Hz. with total amplitude of 1.5 mm along the 3 direction namely X-Y-Z, each direction vibrated for 30 minute after shall no abnormal condition of electrical and mechanical happen.
5-3 Drop test : Products shall be dropped from a height of 90 CM, onto a dry wood surface, its thickness is one CM, after shall no abnormal on condition happen, and insulation test 10 M ohms min.
5-4 Cord bending test : The cord shall withstand weight of 200 gm, it swings from left to right at an angle of 120 deg. (total) 1000 times.
6. ELECTRICAL CHARACTERISTICS :
6-1 Input rated volatage and frequency : 120 V 60 Hz 7 VA(or W)(ref.)
(max.)
6-2 Output voltage and current :

Test Point	Input Voltage	Output Voltage	Rated Current	No Load Voltage
I/O	120V 60Hz	5VDC ± 5%	860mA	5VDC ± 5%

SWITCHING ADAPTER SPECIFICATION	MODEL NO.: SA10-0508	DESIGNED NO.: 6705117DA
	DATE: Sep. 17. 1998	PAGE:

6-3 Efficiency : AC Plug input 120V 60Hz Typical : 60 % (ref)(min)

6-4 Ripple and noise voltage : AC Plug input 120V 60 Hz, output load 800 mA, ripple 150 mV (rms, p-p) (Max. or-ref.)

6-5 Hi-pot test : 1750VDC one minute (or 2500VDC one second) 5 mA between inut to output plug and case.

6-6 Insulation test : DC 500 V 100 M ohms Min. between input to output plug and case.

6-7 Temperature rise : AC Plug input 120V 60 Hz, output load 800 mA (DC, AC) shall not exceed 45 deg. on case surface (by use thermometer), 75 deg. for input coil (by use resistance method). at ambient temp 25 ± 5 °C.

6-8 short protection : OK

6-9 Over voltage protection : 5.6 VDC.

6-10 Input surge voltage : AC 150V Maximum for 10 seconds.

7. TEMPERATURE RANGE :

7-1 Normal operating temp. at -10°C --- +40°C.

7-2 Storage temp. at -20°C --- +70°C.

7-3 Normal operating humidity : 30% --- 85% R.H.

8. INSPECT OF FINISHED PRODUCTS :

8-1 The whole test for products

- ☒ A. Output voltage.
- ☒ B. Input efficiency.
- ☒ C. Hi-pot test.
- ☒ D. Polarity of output plug.

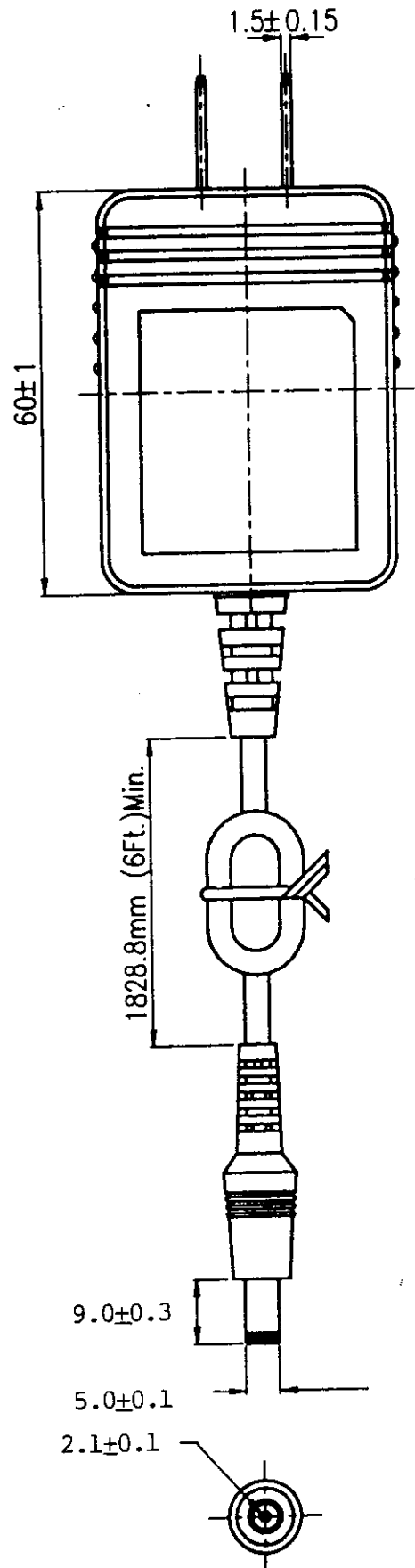
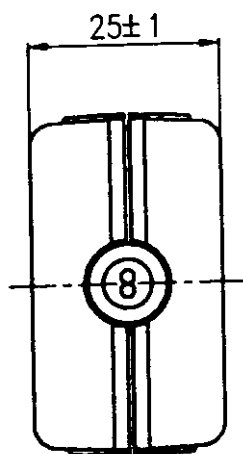
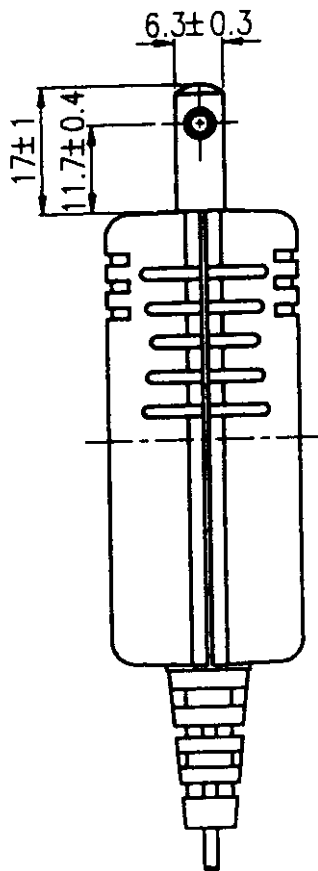
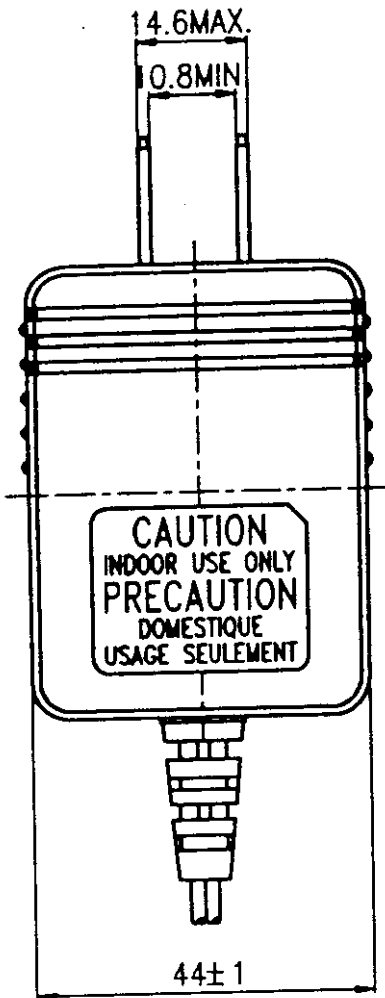
- ☒ E. Inspect of the product surface.
- ☒ F. Foreign Mat'l & sound by shock.
- ☒ G. Ripple voltage.

9-2 A part test for products

- A. Hum test
(Operating at max. rated load)
- B. Insulation test
- C. Drop test

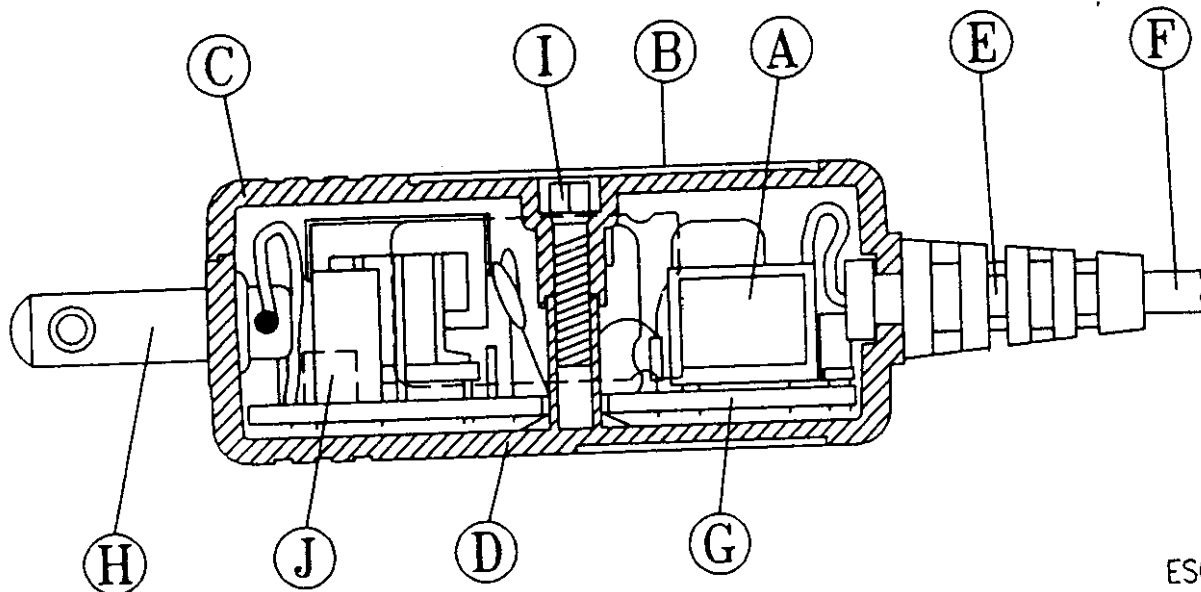
- D. Over load & short protection.
- E. Over voltage protection.
- F. Input surge voltage.

9. NET WEIGHT (REF.) : 96 g



SA10-XXXX
EA000082
UNIT : mm



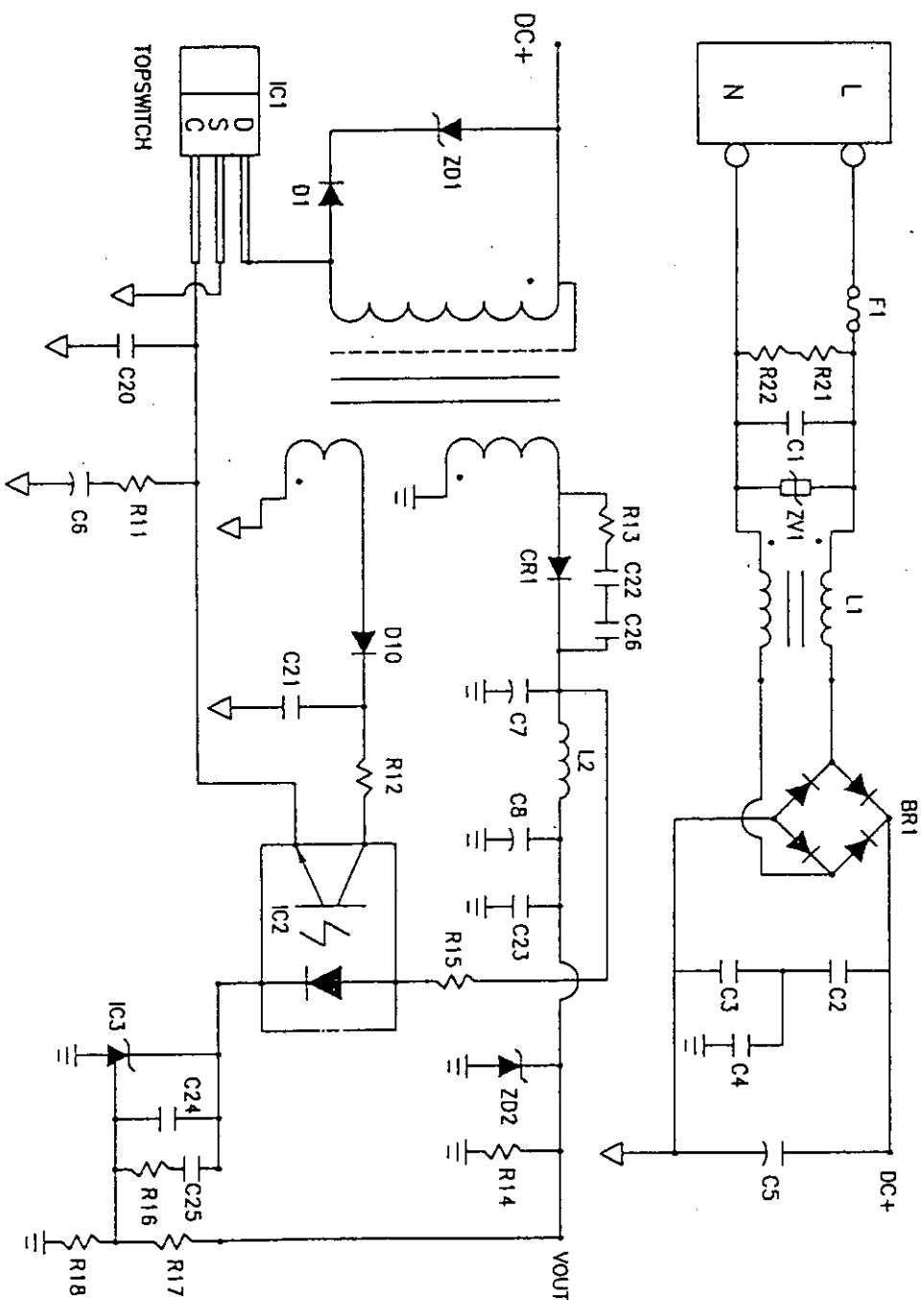


ES000018

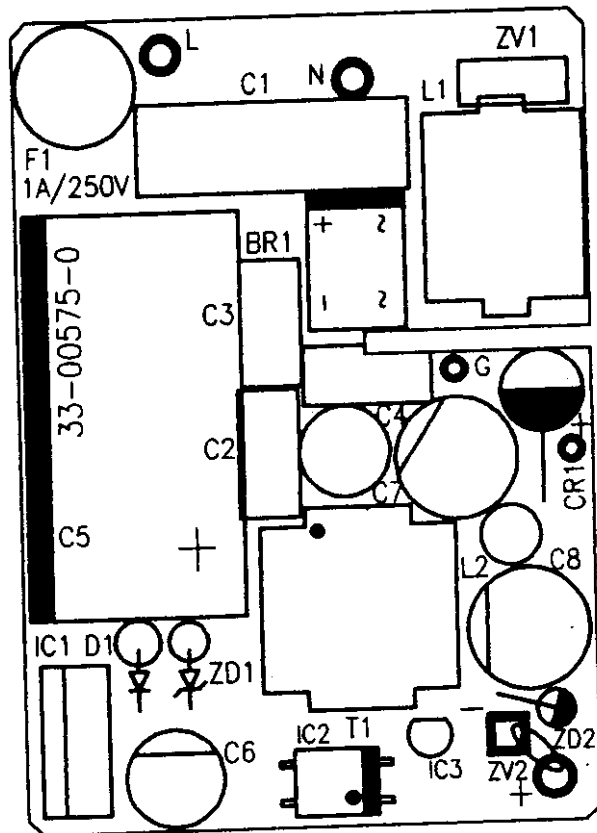
ITEM	DESCRIPTION	MATERIAL & SPEC.	MANUFACTURE
A.	Transformer	EE-13	SINO-AMERICAN CO.,LTD.
B.	Name plate	Aluminum (or PVC) 0.25mm thick.	OPTION.
C.	Top enclosure	☒ Noryl SE100-J (Color : BLK) 94V-1 ☐ A B S	GE PLASTICS JAPAN LTD. E 45587 POLY CHEMICAL CO.,LTD. E 46920 UBE CYCON LTD. E 47016 ASAHI CHEMICAL IND. E TAITA CHEMICAL CO.,LTD. E OR OTHER EQUIVALENT MANUFACTURER.
D.	Bottom enclosure	Noryl SE100-J (Color : BLK) 94V-1	AS ITEM C.
E.	Strain relief	Thermoplastic bushing P.V.C.	FORMOSA PLASTICS CARP.
F.	Output cord	☐ Flexible cord (NO UL) AWG# ☐ UL 2468 VW-1 AWG# ☐ XT-Wire AWG#20x2C ☐ SPT-1 AWG#18x2C ☒ Coaxial cable AWG# 22 ☐ Telephone cable AWG#	LU HER WIRES AND CABLES CO.,LTD. LIH TZU ELECTRIC CO.,LTD. LONGWELL CO.,LTD. YI CHING ELEC. WIRE CO.,LTD. FORMAL ELEC. WIRE CO.,LTD. DAH SAN ELEC. WIRE CO.,LTD. PEY LAN ELECTRONIC CO.,LTD. OR OTHER EQUIVALENT MANUFACTURER.
G.	Rectifier board	☒ P.C.B. 94V-0 ☐ P.C.B. 94V-1	LU YUH INDUSTRIAL CO.,LTD. E 78604 CHIEN WEY ELEC. IND. CO.,LTD. E 67882 EPOTEC CORP. SUNG WEI INDUSTRIAL CO.,LTD. OR OTHER EQUIVALENT MANUFACTURER.
H.	AC Blade	Nickel plated copper was molded in Noryl.	OPTION.
I.	Screw	SAE 1018.	OPTION.
J.	Current Fuse	T1.0A/250V SLOW TYPE	WICKMANN CO.,LTD. BEL FUSE CO.,LTD. CONQUER ELEC. CO.,LTD. BUSS FUSE CO.,LTD. OR OTHER EQUIVALENT MANUFACTURER.

SINO-AMERICAN ELECTRONIC CO.,LTD.

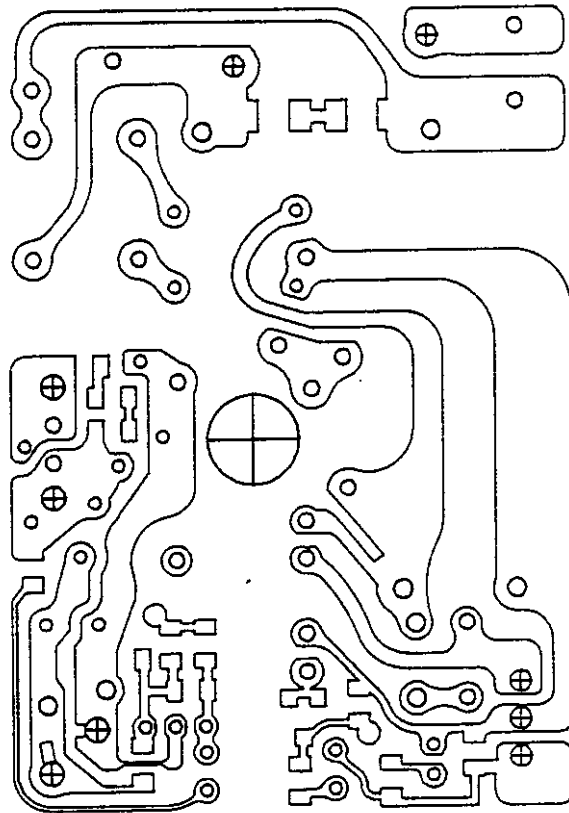
SA10-XXXX
SA10-XXXXG
SA10-XXXXG1
SA10-XXXXB
SA10 - XXXXX
SA10 - XXXXX1



					DWG. NAME			
REV.	DATE\REVISER						DWG. NO.	
DESCRIPTION							MATERIAL	
DRAWER	DESIGN	CHECK	APPROVED	DIMENSION	TOLERANCE	Q'TY	TREATMENT	
				0 ~ 5	±0.1	UNIT		
				5 ~ 60	±0.2	SCALE		
				60 ~ 200	±0.3	ORIG. DATE		
				200 ~ 350	±0.6	MANUFACTORY		
SINO-AMERICAN ELECTRONIC CO., LTD								



S-RD-033
000128B



33-00575-0

- $\phi 0.8$ * 22
- ⊕ $\phi 1.6$ * 4
- $\phi 1.2$ * 8
- ⊕ $\phi 1.4$ * 5
- $\phi 1.0$ * 23
- ⊕ $\phi 6.0$ * 1



SINO-AMERICAN ELECTRONIC CO., LTD.

ELECTRICAL DATA

CUSTOMER: 14M19N08

DATE: Sep. 17., 1998

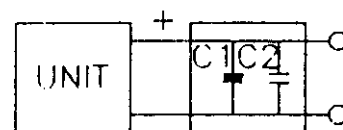
PART NO. SA10-0508

DESIGNED NO. 6705117-2A

ITEM	SPEC.	SAMPLE									
		1	2	3	4	5	6	7	8	9	10
PRIMARY EXCITING CURRENT INPUT 120 V-AC 60 Hz	25 mA Max	10	10	10	10	11	11	10	10	10	
PRIMARY LOAD CURRENT INPUT 120 V-AC 60 Hz	120 mA	102	103	102	103	104	103	103	102	103	
SECONDARY #1 NO LOAD DC VOLTAGE	5±5%V	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	
SECONDARY #1 DC VOLTAGE LOAD 0.8 A	5±5%V	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	
SECONDARY #2 NO LOAD VOLTAGE	V										
SECONDARY #2 VOLTAGE LOAD A	V										
SECONDARY #3 NO LOAD VOLTAGE	V										
SECONDARY #3 VOLTAGE LOAD A	V										
RIPPLE #1 (I/P: 120V, 60Hz) FULL LOAD P-P	150 mV	70	70	70	70	70	70	70	70	70	
RIPPLE #2 (I/P: FULL LOAD) P-P	mV										
RIPPLE #3 (I/P: FULL LOAD) P-P	mV										
Efficiency	60%	68%	68%	68%	68%	67%	67%	68%	68%	67%	
HI-POT TEST	PRI. TO SEC. DC 1750V SEC. TO SEC. & CORE AC V	OK	OK	OK	OK	OK	OK	OK	OK	OK	

BURN IN FOR _____ HOURS

TEST



C1=10uF
C2=0.1uF



APPROVED BY

CHECKED BY

TESTED BY



EMC

TEST REPORT

REPORT NO. : ADT-EC96218

MODEL NO. : SA10-18U, SA10-06U

DATE OF TEST : Oct. 22 ~ Oct. 28, 1996

MULTIPLE LISTING FOR: SA10-03U, SA10-05U, SA10-07U
SA10-75U, SA10-09U, SA10-10U
SA10-12U, SA10-15U, SA10-20U
SA10-24U

PREPARED FOR: SINO-AMERICAN ELECTRONIC CO., LTD.

ADDRESS : 305, YU-LIN RD., CHIAO-TOU,
KAOSIUNG HSIAN, 82054, TAIWAN, R.O.C.

PREPARED BY: ADVANCE DATA TECHNOLOGY CORPORATION
12F, NO.1, SEC.4, NAN-KING EAST RD.,
TAIPEI, TAIWAN, R.O.C.

This test report consists of 38 pages in total. It may be duplicated completely for legal use with the allowance of the applicant. The test result in the report only applies to the tested sample.



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STATEMENT OF CONFORMITY

Ref. No. 199710214

Product**Power Supply**

Name and address of the applicant

Sino-American Electronic Co., Ltd.
305, Yu-Lin Rd., Chiao-Tou,
Kaohsiung Hsian 82054, Taiwan R.O.C.

Name and address of the manufacturer

Sino-American Electronic Co., Ltd.
305, Yu-Lin Rd., Chiao-Tou,
Kaohsiung Hsian 82054, Taiwan R.O.C.

Name and address of the factory

Sino-American Electronic Co., Ltd.
305, Yu-Lin Rd., Chiao-Tou,
Kaohsiung Hsian 82054, Taiwan R.O.C.

Rating and principal characteristics

110-240V AC, 250mA/3...24V DC, 4,5...7,8VA (0,3..1,5A) for
SA10-XXXXYQ1 (Y=V,U)
230V AC, 120mA/3...24V DC, 4,5...7,8VA (0,3..1,5A) for
SA10-XXXXYQ1 (Y=G,B)
Class I for SA10-XXXXYQ1 (Y=V)
Class II for SA10-XXXXYQ1 (Y=U,G,B)

Trade mark (if any).

Sino American

Model/Type Ref.

SA10-XXXXYQ1 (Y=V,U,G and B)
Y=V, IEC 320 3-pin reversible appliance inlet
Y=U, IEC 320 2-pin reversible appliance inlet
Y=G, parallel German plug
Y=B, UK Standard plug
Q= optional, alternate circuit design
1= optional, alternate enclosure for models with "G"

Additional information (if necessary)

This apparatus complies with the essential requirement as
demonstrated by report: ADT - EC97085 for a model
representative of the product line. The unit shall be marked:
" For use with IT-equipment only"

A sample of the product has been
evaluated and found to be in conformity
with the current EN and equivalent
standard, (number and edition).

EN 55022 : 1994 Cl. B
EN 61000-3-2 : 1995 Cl. A
EN 61000-3-3 : 1995
EN 50082-1 : 1992

This statement confirms that this product fulfils the EMC requirements of the Council Directives
89/336/EEC and 92/31/EEC

This Statement replaces previous Statement with same ref.no. issued 1997-03-07, due to corrections under
additional information and under standards.

Oslo, date 1997-06-11

Internal ref. *R. Berget*
(No., Name or initials of contact person)

Issued by

 **Nemko**

Kjell Bergh
Kjell Bergh
Head of EMC Section

NOTICE OF RESULT Ref.No. 199710214

Applicant:
Sino-American Electronic Co., Ltd.
305, Yu-Lin Rd., Chiao-Tou,
Kaohsiung Hsian 82054,
TAIWAN R.O.C.

Responsible manufacturer:
Sino-American Electronic Co., Ltd.,
Kaohsiung Hsien/Taiwan

Application ref.:
1997-03-03 Lola Hsu, ref. SAC-970303-2

Oslo:
1997-03-07

Group:
99 55000 Radio interference measurements

Order no.:
199710214 Type: SA10-XXXXYQ1
Data: 250mA 110-240V AC, 3-24V DC
Other spec.: Cl. I and Cl. II, concerning the letters XXXXQ1 in model numbering see
Statement of Conformity

Enclosed please find EMC Statement of Conformity and an invoice for the above-mentioned assignment.

Yours faithfully
Nemko

E. Joell

per K. Bergh
EMC section

RB/EvH

NEMKO er et frittstående prøve- og sertifiseringsorgan og et kompetansesenter for teknisk sikkerhet og pålitelighet - en stiftelse uten fortjenestemotiv.
NEMKO is an independent testing- and certification body and a competence centre for technical safety and reliability - a not-for-profit foundation.

Postadresse
Postal address
P.O. BOX 73 BLINDERN

Kontoradresse
Office address
Gaustadalléen 30

Telefon
Telephone
Nal 22 96 03 30

Telefax
Nal 22 96 05 50

Postgiro
Post account

Bankkonto
Bank account
8200.01.36502 Sparebanken NOR
SWIFT:UBN0NOK



1.

CERTIFICATION

Issue date: Oct. 29, 1996

Product : POWER SUPPLY
Trade Name : SINO-AMERICAN
Model No. : SA10-18U, SA10-06U
Applicant : SINO AMERICAN ELECTRONIC CO., LTD.
Standard : EN55 022:1994 EN50 082-1:1992
 EN60555-2: 1987 IEC 801-2:1984
 EN61000-3-3: 1995 IEC 801-3:1984
 IEC 801-4:1988

We hereby certify that one sample of the designation has been tested in our facility from Oct. 22 to Oct. 28, 1996. 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.

PREPARED BY: Sandy Lin, DATE: 10/29/96
(Sandy Lin)

CHECKED BY: Andy Cheng, DATE: 10/29/96
(Andy Cheng)

APPROVED BY: Charles Wang, DATE: 10/29/96
(Charles Wang)

ADVANCE DATA TECHNOLOGY CORPORATION

TV: 金 9月25日



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product	:	POWER SUPPLY
Model No.	:	SA10-18U, SA10-06U
Power Supply	:	Switching
Power Cord	:	Nonshielded
Protection Class	:	Class I

Note: The EUT have twelve model names which are identical in all aspects except for some minor difference in secondary DC output.

- * SA10-03U Output: 3V, 1.5A (8W)
- * SA10-05U Output: 5V, 1.5A or 0.8A (12W)
- * SA10-06U Output: 6V, 1.5A (12W)
- * SA10-07U Output: 7V, 1.2A (12W)
- * SA10-75U Output: 7.5V, 1.2A (12W)
- * SA10-09U Output: 9V, 1.0A (12W)
- * SA10-10U Output: 10V, 0.5A (13W)
- * SA10-12U Output: 12V, 0.8A (13W)
- * SA10-15U Output: 15V, 0.5A (12W)
- * SA10-18U Output: 18V, 0.4A (10W)
- * SA10-20U Output: 20V, 0.3A (9W)
- * SA10-24U Output: 24V, 0.3A (10W)

According to the manufacturer's decision, two models: SA10-18U, SA10-06U, from the above twelve models are chosen as representative models and the test data of these two models are recorded in this report.

During the test, one resistor load was used to have EUT at full load condition.

For further details please refer to User's manual.



2.2 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

Product	Manufacturer	Model No.	Serial No.	I/O Cable
RESISTOR DUMMY LOAD	SINO-AMERICAN	N/A	N/A	N/A

FOR IMMUNITY TEST

Product	Manufacturer	Model No.	Serial No.	I/O Cable
MULTIMETER	BROTHER	YH-360TRE-B	N/A	Shielded Signal
RESISTOR DUMMY LOAD	SINO-AMERICAN	N/A	N/A	N/A

2.3 Test setup

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

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3. TEST INSTRUMENTS

3.1 TEST INSTRUMENTS (EMISSION)

RADIATED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Date of Calibration
HP Spectrum Analyzer	8594A	3144A00308	Aug. 27, 1996
HP Preamplifier	8447D	2944A08119	July 8, 1996
ROHDE & SCHWARZ TEST RECEIVER	ESVP	893496/030	July 17, 1996
SCHWARZBECK Tunable Dipole Antenna	VHA 9103 UHA 9105	E101051 E101055	Dec. 22, 1995
CHASE Bilog Antenna	CBL6111A	1648	Dec. 25, 1995
EMCO Turn Table	1060-04	1195	N/A
EMCO Tower	1051	1263	N/A
Open Field Test Site	Site 2	ADT-R02	Oct. 1, 1996

CONDUCTED EMISSION MEASUREMENT

Description & Manufacturer	Model No.	Serial No.	Date of Calibration
ROHDE & SCHWARZ Test Receiver	ESHS30	828765/002	July 22, 1996
ROHDE & SCHWARZ Artificial Mains Network	ESH2-Z5	892107/003	July 25, 1996
EMCO-L.I.S.N.	3825/2	9204-1964	July 25, 1996
Shielding Room	Site 2	ADT-C02	N/A

CURRENT HARMONICS, VOLTAGE FLUCTUATION AND FLICKER MEASUREMENT

Description & Manufacturer	Model no.	Serial No.	Date of Calibration
KeyTek, Power Arb Waveform Generator	EP72HF	9508346	May 15, 1996
KIKUSUI AC SWITCHING POWER SUPPLY	PCR 4000L	9508355	May 15, 1996

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.	Date of Calibration
KeyTek, ESD Test System	2000	9105240/41	Aug. 5, 1996
KeyTek, ESD Simulator	MZ-15/EC	92022232	June 7, 1996
KeyTek, EFT Generator	CE-40	9508257	Sept. 12, 1996
KeyTek, Capacitive Clamp	CE-40-CCL	9508259	Sept. 12, 1996
* ROHDE & SCHWARZ Signal Generator	SMY01	840490/009	Oct. 1, 1996
KALMUS Power Amplifier	LA1000V	091995-1	N/A
KALMUS Power Amplifier	757LC	091995-2	N/A
HOLADAY Field Probe	HI-4422	89915	Sept. 12, 1996
EMCO BiconiLog Antenna	3143	1116	N/A
COMTEST Compact Full Anechoic Chamber (7x3x3 m)	CFAC	ADT-S01	Aug. 2, 1996

Note: The calibration interval of the above test instruments is 12 months.

And the calibrations are traceable to NML/ROC and NIST/USA.

* According to the comments of signal generator manufacturer, the next calibration date is Aug. 18, 1998 for the item.



4. TEST RESULTS (EMISSION)

4.1 Radio Disturbance

Product Family Standard : EN55022, Class B
Frequency Range : 0.15 - 30 MHz (Conducted Emission)
30 - 1000 MHz (Radiated Emission)
Input Voltage : 230 Vac, 50 Hz
Temperature : 28 °C
Humidity : 70 %
Atmospheric Pressure : 1060 mbar

TEST RESULT	Remarks
PASS	The highest Conducted Emission: 14.991 MHz, 2.7 dB Margin The highest Radiated Emission: 252.6 MHz, 4.4 dB Margin

4.1.1 EUT OPERATION CONDITION

Set the EUT on full load operating condition.



4.1.2 TEST DATA OF CONDUCTED EMISSION (A)

EUT: POWER SUPPLY

MODEL: SA10-18U

6 dB Band Width: 10 KHz

TEST PERSONNEL: Tommy Wu

METER READING (dBuV)						
Frequency (MHz)	Line One (Live)		Line Two (Neutral)		Limits	
	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.206	56.00	42.30	53.10	-	63.33	53.33
0.311	48.20	-	44.30	-	59.93	49.93
0.414	43.60	-	41.00	-	57.56	47.56
0.519	42.00	-	40.50	-	56.00	46.00
1.975	39.20	-	39.40	-	56.00	46.00
14.778	45.30	-	44.50	-	60.00	50.00

- Remarks:
1. "": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 4. The emission level of other frequencies were very low against the limit.



TEST DATA OF CONDUCTED EMISSION (B)

EUT: POWER SUPPLY

MODEL: SA10-06U

6 dB Band Width: 10 KHz

TEST PERSONNEL: Jimmy Wu

METER READING (dBuV)

Frequency (MHz)	Line One (Live)		Line Two (Neutral)		Limits	
	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
0.209	52.80	-	52.20	-	63.22	53.22
0.316	41.50	-	43.80	-	59.80	49.80
0.423	35.90	-	38.20	-	57.39	47.39
1.909	31.60	-	33.20	-	56.00	46.00
14.991	53.80	47.30	53.70	47.20	60.00	50.00
21.382	46.20	-	46.30	-	60.00	50.00

- Remarks:
1. "*": Undetectable
 2. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 3. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 4. The emission level of other frequencies were very low against the limit.



4.1.3 TEST DATA OF RADIATED EMISSION (A1)

EUT: POWER SUPPLY

MODEL: SA10-18U

ANTENNA: CHASE BILOG CBL6111A

POLARITY: HORIZONTAL

DETECTOR FUNCTION: Quasi-peak

6 dB BAND WIDTH: 120 KHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Z. vrm my Wu*

Frequency (MHz)	Correction Factor (dB)	Reading Data (dBuV/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dBuV/m)
121.56	14.6	7.3	21.9	30.0	-8.1
127.61	14.5	9.0	23.5	30.0	-6.5
132.94	14.5	8.6	23.1	30.0	-6.9
260.20	17.3	9.7	27.0	37.0	-10.0
284.00	17.0	9.5	26.5	37.0	-10.5
293.70	17.2	10.7	27.9	37.0	-9.1

- REMARKS :
1. Emission level (dBuV/m) = $20\log$ Emission level (uV/m).
 2. Emission level (dBuV/m) = Ant. Factor(dB)+Cable loss(dB)
+Meter Reading (dBuV/m).
 3. The other emission levels were very low against the limit.

Graph of Test Result

Model:SA10-18U
Mode:
EMI Type:EN55022 Class B
Freq. Range:30-1000 MHz
Antenna:CHASE Bi_Log

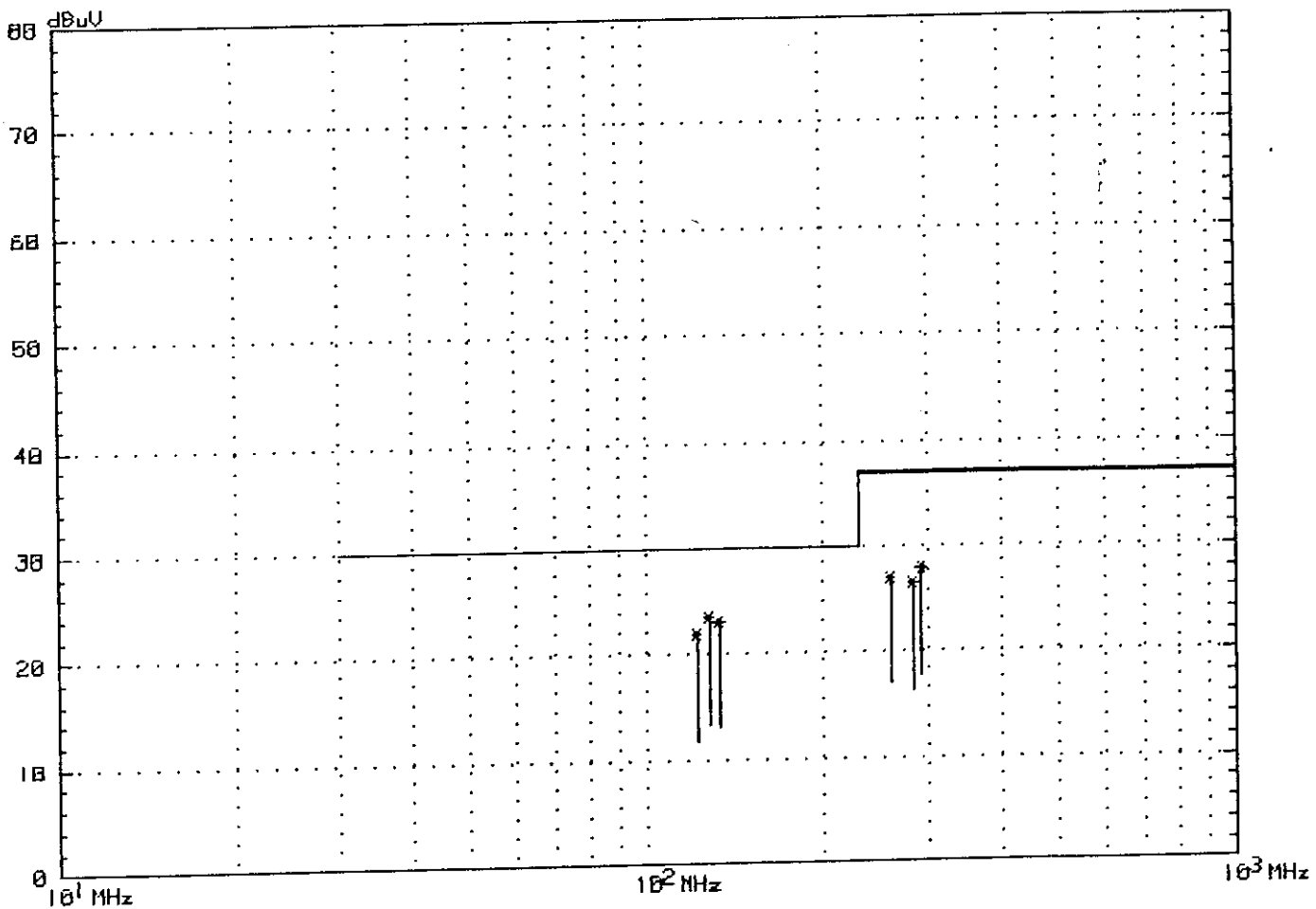
Test Date:23 OCT 1996
Remark:18VDC/0.4A
Distance:10 M
Detector:CISPR,QUASI_Peak
Ant. Polarization:HORIZONTAL

Tested By : Jimmy L. V. U.

Report No. : EC96218

No.	Freq.(MHz)	Emission(dBuV)
1	121.6	21.9
3	132.9	23.1
5	284.0	26.5

No.	Freq.(MHz)	Emission(dBuV)
2	127.6	23.5
4	260.2	27.0
6	293.7	27.9





TEST DATA OF RADIATED EMISSION (A2)

EUT: POWER SUPPLY

MODEL: SA10-18U

ANTENNA: CHASE BILOG CBL6111A

POLARITY: VERTICAL

DETECTOR FUNCTION: Quasi-peak

6 dB BAND WIDTH: 120 KHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Zmmy Wu*

Frequency (MHz)	Correction Factor (dB)	Reading Data (dBuV/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dBuV/m)
121.25	14.5	6.9	21.4	30.0	-8.6
126.00	14.4	9.2	23.6	30.0	-6.4
131.50	14.5	9.1	23.6	30.0	-6.4
213.30	13.6	4.3	17.9	30.0	-12.1
239.80	14.6	7.7	22.3	37.0	-14.7
242.30	14.7	6.6	21.3	37.0	-15.7

REMARKS :
1. Emission level (dBuV/m) = $20\log$ Emission level (uV/m).
2. Emission level (dBuV/m) = Ant. Factor(dB)+Cable loss(dB)
+Meter Reading (dBuV/m).
3. The other emission levels were very low against the limit.

Graph of Test Result

Model:SA10-18U

Mode:

EMI Type:EN55022 Class B

Freq. Range:30-1000 MHz

Antenna:CHASE Bi_Log

Test Date:23 OCT 1996

Remark:18VDC/0.4A

Distance:10 M

Detector:CISPR,QUASI_Peak

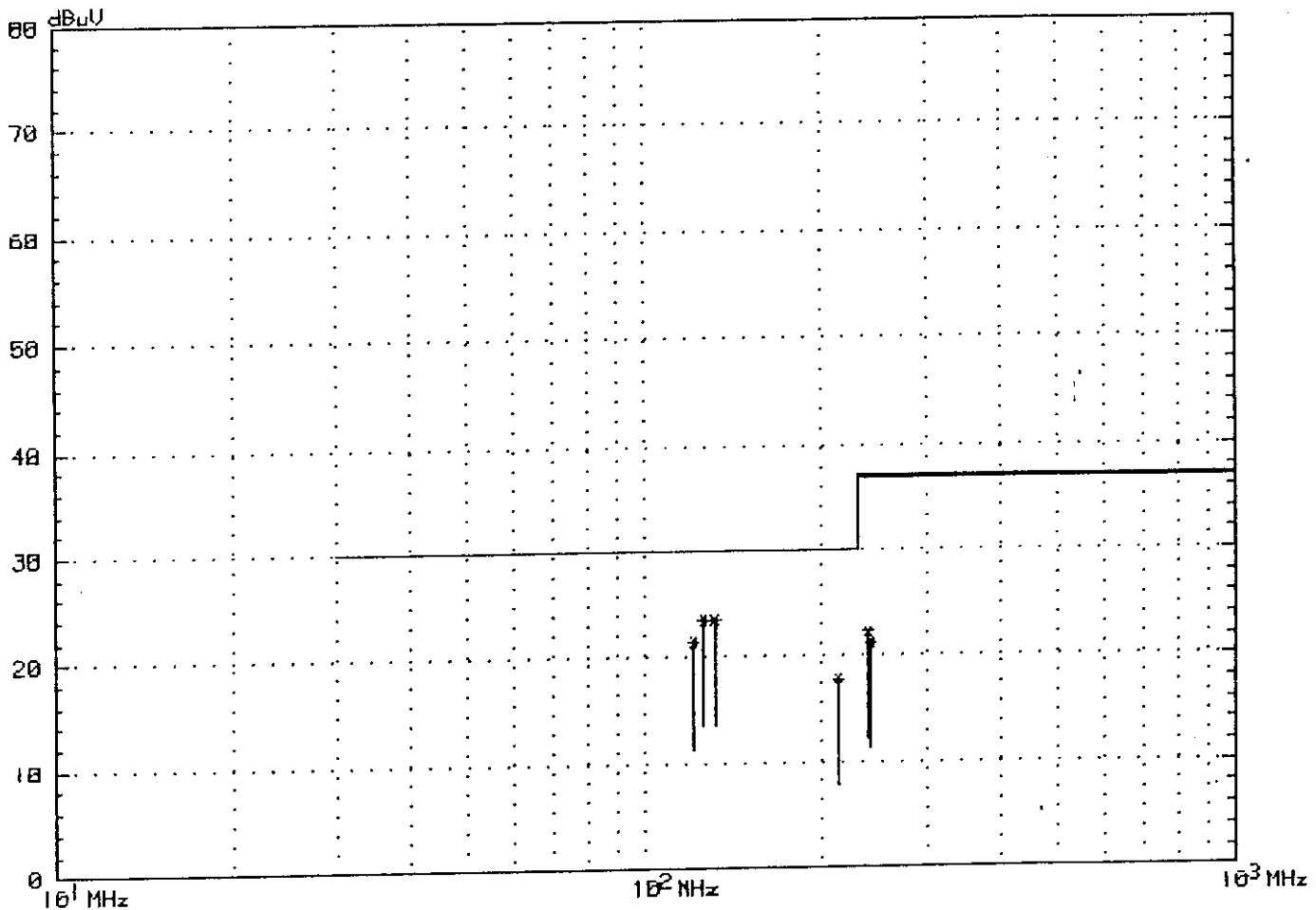
Ant. Polarization:VERTICAL

Tested By : *Terry Wu*

Report No. : EC96218

No.	Freq.(MHz)	Emission(dBuV)
1	121.3	21.4
3	131.5	23.6
5	239.8	22.3

No.	Freq.(MHz)	Emission(dBuV)
2	126.0	23.6
4	213.3	17.9
6	242.3	21.3





TEST DATA OF RADIATED EMISSION (B1)

EUT: POWER SUPPLY

MODEL: SA10-06U

ANTENNA: CHASE BILOG CBL6111A

POLARITY: HORIZONTAL

DETECTOR FUNCTION: Quasi-peak

6 dB BAND WIDTH: 120 KHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *J. J. M. W. W.*

Frequency (MHz)	Correction Factor (dB)	Reading Data (dBuV/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dBuV/m)
162.50	12.3	7.2	19.5	30.0	-10.5
189.00	12.1	8.9	21.0	30.0	-9.0
193.50	12.0	9.1	21.1	30.0	-8.9
229.00	14.4	9.2	23.6	30.0	-6.4
252.60	16.4	16.2	32.6	37.0	-4.4
272.50	16.9	10.7	27.6	37.0	-9.4

REMARKS :

1. Emission level (dBuV/m) = $20 \log$ Emission level (uV/m).
2. Emission level (dBuV/m) = Ant. Factor(dB)+Cable loss(dB)
+Meter Reading (dBuV/m).
3. The other emission levels were very low against the limit.

Graph of Test Result

Model:SA10-06U

Mode:

EMI Type:EN55022 Class B

Freq. Range:30-1000 MHz

Antenna:CHASE Bi_Log

Test Date:23 OCT 1996

Remark:6VDC/1.5A

Distance:10 M

Detector:CISPR,QUASI_Peak

Ant. Polarization:HORIZONTAL

Tested By : Jimmy Wu

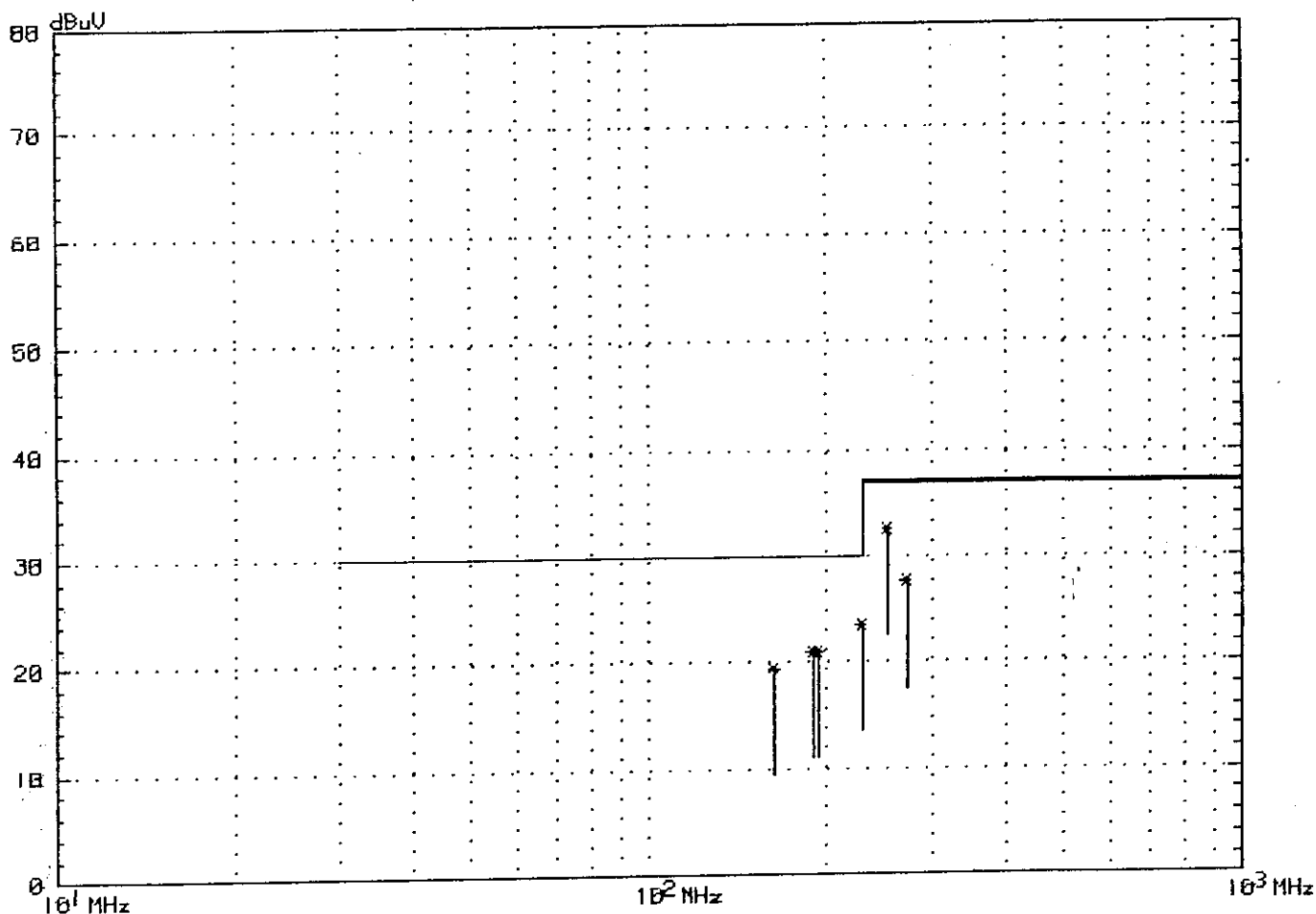
Report No. : EC96218

No. Freq.(MHz) Emission(dBuV)

No. Freq.(MHz) Emission(dBuV)

1	162.5	19.5
3	193.5	21.1
5	252.6	32.6

2	189.0	21.0
4	229.0	23.6
6	272.5	27.6





TEST DATA OF RADIATED EMISSION (B2)

EUT: POWER SUPPLY

MODEL: SA10-06U

ANTENNA: CHASE BILOG CBL6111A

POLARITY: VERTICAL

DETECTOR FUNCTION: Quasi-peak

6 dB BAND WIDTH: 120 KHz

FREQUENCY RANGE: 30-1000 MHz

MEASURED DISTANCE: 10 M

TEST PERSONNEL: *Tommy Wu*

Frequency (MHz)	Correction Factor (dB)	Reading Data (dBuV/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dBuV/m)
50.12	9.1	10.5	19.6	30.0	-10.4
203.77	13.2	10.6	23.8	30.0	-6.2
224.30	14.0	9.6	23.6	30.0	-6.4
239.80	14.6	8.7	23.3	37.0	-13.7
254.80	15.4	9.2	24.6	37.0	-12.4
275.80	16.2	9.6	25.8	37.0	-11.2

REMARKS :
1. Emission level (dBuV/m) = $20\log$ Emission level (uV/m).
2. Emission level (dBuV/m) = Ant. Factor(dB)+Cable loss(dB)
+Meter Reading (dBuV/m).
3. The other emission levels were very low against the limit.

Graph of Test Result

Model:SA10-06U

Mode:

EMI Type:EN55022 Class B

Freq. Range:30-1000 MHz

Antenna:CHASE Bi_Log

Test Date:23 OCT 1996

Remark:6VDC/1.5A

Distance:10 M

Detector:CISPR,QUASI_Peak

Ant. Polarization:VERTICAL

Tested By :

Wu

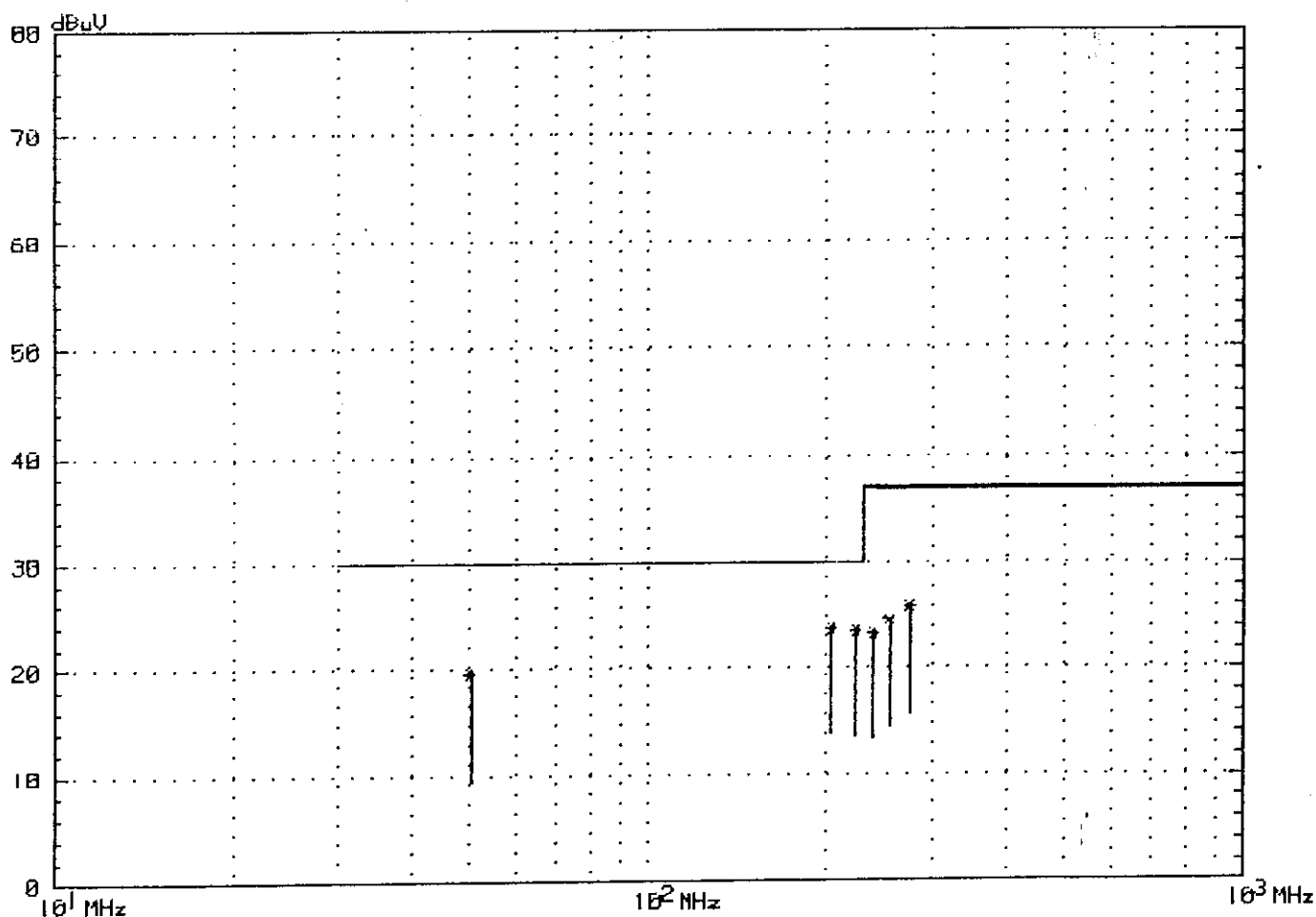
Report No. : EC96218

No. Freq.(MHz) Emission(dBuV)

No. Freq.(MHz) Emission(dBuV)

1	50.1	19.6
3	224.3	23.6
5	254.8	24.6

2	203.8	23.8
4	239.8	23.3
6	275.8	25.8





4.2 Disturbance in Supply System

Basic Standard : EN60555-2
Input Voltage : 230VAC, 50Hz
Temperature : 23 °C
Humidity : 50 %
Atmospheric Pressure : 1060 mbar

TEST RESULT	Remarks
PASS	Model:SA10-18U, SA10-06U

4.2.1 EUT OPERATION CONDITION

Connected a resistor load to DC output port of EUT to make EUT have maximum power consumption and a multimeter was used to monitor voltage of secondary output.



4.2.2 MEASUREMENT DATA OF HARMONICS TEST(A)

EUT: POWER SUPPLY MODEL: SA10-18U

Fundamental Voltage : 230.32 Vrms

Fundamental Amperes : 0.103 Arms

Fundamental Frequency: 50 Hz

Test Personnel :

TM Young

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

Harm. Order	Measured Values (A)	Max. Permissible Harm. Current (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	0.12
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.



MEASUREMENT DATA OF HARMONICS TEST(B)

EUT: POWER SUPPLY MODEL: SA10-06U

Fundamental Voltage : 230.35 Vrms

Fundamental Amperes : 0.127 Arms

Fundamental Frequency: 50 Hz

Test Personnel : TM Young

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

Harm. Order	Measured Values (A)	Max. Permissible Harm. Current (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	0.12
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.



4.3 VOLTAGE FLUCTUATIONS AND FLICKER

Basic Standard : EN 61000-3-3
Input Voltage : 230VAC, 50Hz
Temperature : 23 °C
Humidity : 50 %
Atmospheric Pressure : 1060 mbar

TEST RESULT	Remarks
PASS	Model:SA10-18U, SA10-06U

4.3.1 EUT OPERATION CONDITION

Connected a resistor load to DC output port of EUT to make EUT have maximum power consumption and a multimeter was used to monitor voltage of secondary output.



4.3.2 TEST DATA OF VOLTAGE FLUCTUATIONS AND FLICKER (A)

EUT: POWER SUPPLY

MODEL: SA10-18U

Input Voltage : 230.32 Vrms

Input Amperes : 0.103 Arms

Power Factor : 0.412

Power Frequency: 50 Hz

Observation period (Tp): 2 hour

Test Personnel: TM Henry

Note: The measured reading data are too low against the limit and therefore it can be neglected.



TEST DATA OF VOLTAGE FLUCTUATIONS AND FLICKER (B)

EUT: POWER SUPPLY

MODEL: SA10-06U

Input Voltage : 230.35 Vrms

Input Amperes : 0.127 Arms

Power Factor : 0.431

Power Frequency: 50 Hz

Observation period (Tp): 2 hour

Test Personnel: TM Mung

Note: The measured reading data are too low against the limit and therefore it can be neglected.



5. TEST RESULTS (IMMUNITY)

5.1 GENERAL DESCRIPTION

Basic Standard	:	IEC 801-2 Electrostatic Discharge, ESD) IEC 801-3 (Radio-Frequency Electromagnetic Field Susceptibility Test, RS) IEC 801-4 (Electrical Fast Transient/Burst, EFT)
Generic Standard	:	EN 50 082-1
Input Voltage	:	230 Vac, 50 Hz
Temperature	:	24 °C
Humidity	:	47 %
Atmospheric Pressure	:	1060 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

Connected a resistor load to DC output port of EUT to make EUT have maximum power consumption and a multimeter was used to monitor voltage of secondary output.



5.4 TEST RESULT OF ELECTROSTATIC DISCHARGE (ESD)

Basic Standard : IEC 801-2
Generic Standard : EN 50 082-1
Discharge Impedance : 150 ohm / 150 pF
Discharge Voltage : Air Discharge (Direct) - 8 KV
Contact Discharge: N/A
Polarity : Positive
Number of Discharge : Minimum 10 times at each test point
Discharge Mode : Single Discharge
Discharge Period : 1 second minimum

Test Personnel :

TH Yenny

Test Result		Remarks
Criterion A	PASS	Model: SA10-18U
Criterion A	PASS	Model: SA10-06U

OBSERVATION DESCRIPTION

Direct Application			Test Result	
Discharge Level (KV)	Polarity (+/-)	Test Point	Contact Discharge	Air Discharge
8	+	1 ~ 4	N/A	Note 1

Description of test point:

1. Ac input socket
2. DC output connector
3. Junction of enclosure
4. Ground reference plane

Description of test result:

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



5.5 TEST RESULT OF RADIATED RADIO FREQUENCY ELECTROMAGNETIC FIELDS (RS)

Basic Standard : IEC 801-3
Generic Standard : EN 50 082-1
Frequency range : 27 MHz - 500 MHz
Field strength : 3 V/m
Modulation : N/A
Frequency step : 1 % of fundamental
Dwell Time : 1 second
Polarity of Antenna : Horizontal and Vertical
Test distance : 3 m

Test Personnel :

TM Yang

Test Result		Remarks
Criterion A	PASS	Model: SA10-18U
Criterion A	PASS	Model: SA10-06U

Note: Six 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/BURST (EFT/BURST)

Basic Standard : IEC 801-4
Generic Standard : EN 50 082-1
Test Voltage : Power Line - 1 KV
Signal/Control Line - N/A (less than 3m)
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 Personnel :

TM Young

Test Result		Remarks
Criterion A	PASS	Model: SA10-18U
Criterion A	PASS	Model: SA10-06U

OBSERVATION DESCRIPTION

Test Point	Polarity	Test Level (KV)	Result
L1	+/-	1	Note 1
L2	+/-	1	Note 1
GND	+/-	1	Note 1

Description of test result:

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

ADT CO.SITE-2
EN55022 CLASS B

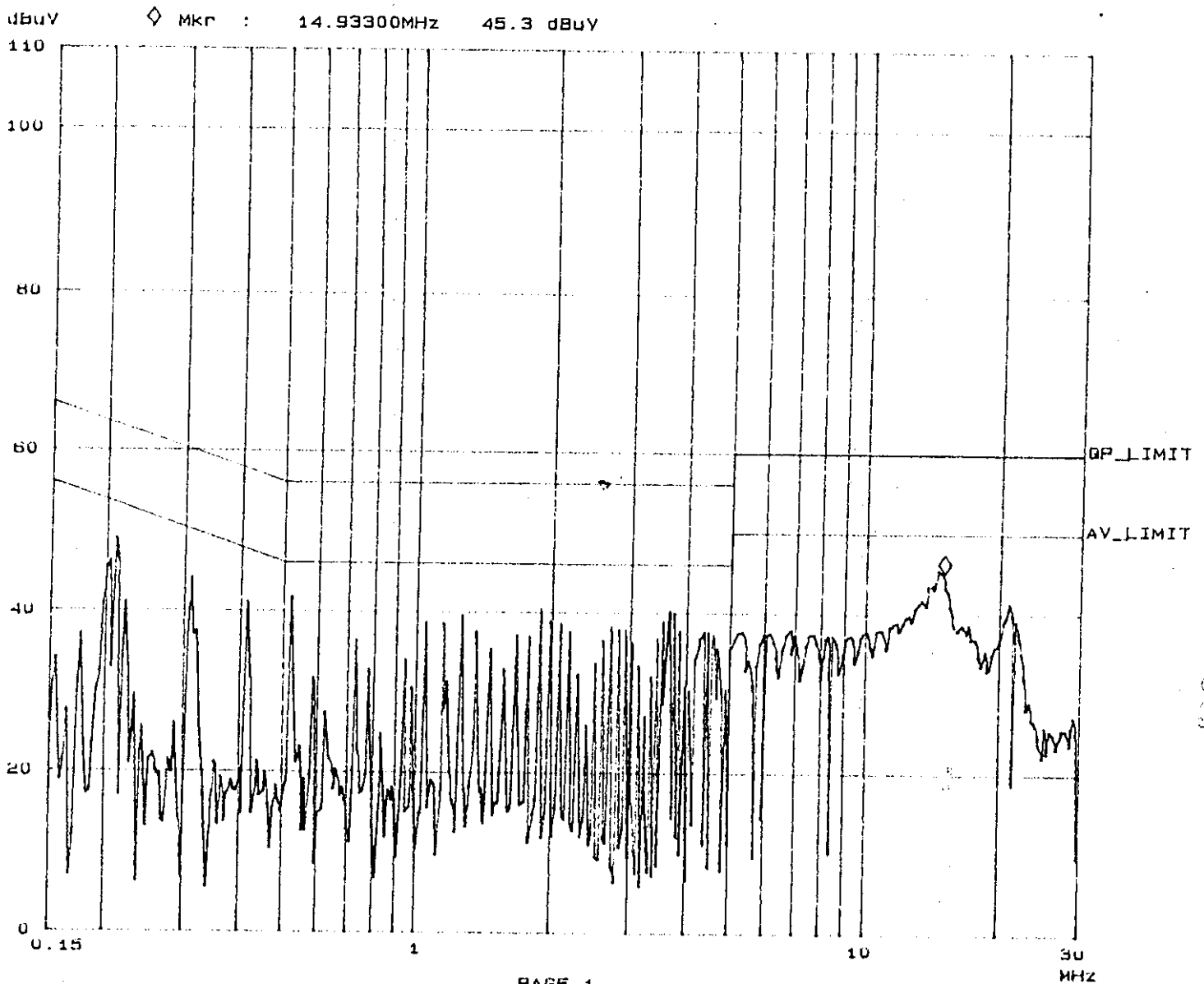
22. Oct 96 17:05

EUT: SA10-1BU
Op Cond: 18VDC/0.4A
operator: TOMMY
Test Spec: LISN : L1
Comment: 230V AC / 50Hz

File No. ADT-EC96218

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Tested by *Tommy W*



ADT CO.SITE-2
EN55022 CLASS B

22. Oct 96 16:50

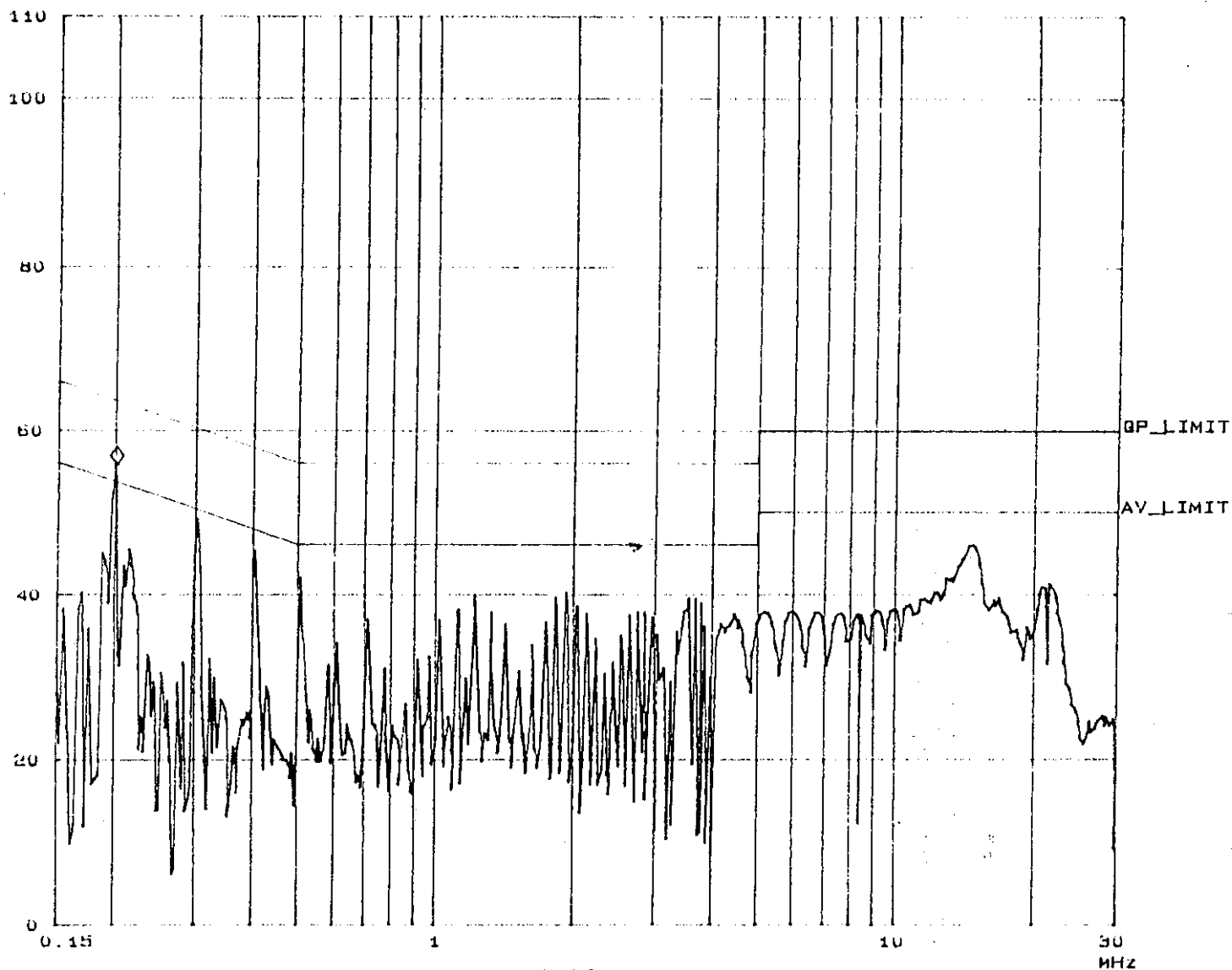
EUT: SA10-18U
Op Cond: 18VDC/0.4A
Operator: TOMMY
Test Spec: LISN : N
Comment: 230V AC / 50Hz

File No. ADT-EC96-18

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Tested by *Tommy Wu*

dBuV ◇ Mkr : 201.00 kHz 55.8 dBuV



ADT CO.SITE-2
EN55022 CLASS B

22. Oct 96 17:09

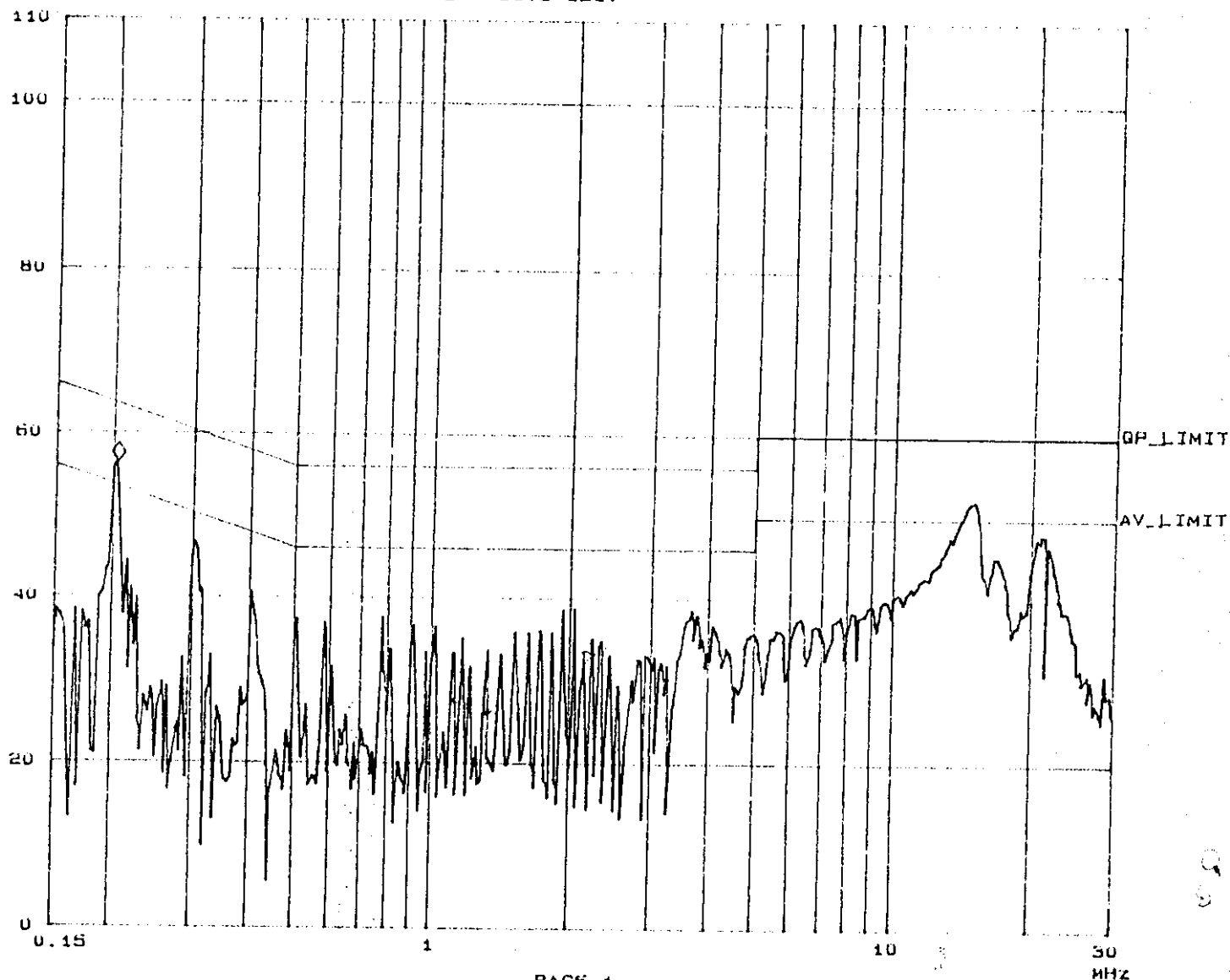
EUT: SA10-06U.
Op Cond: 6VDC/1.5A
Operator: TUMMY
Test Spec: LISN : L1
Comment: 230V AC / 50Hz

File No. ADT-EC96-18

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Tested by *Tummy Wu*

dBuV $\diamond$ Mkr : 204.00 KHz 56.5 dBuV



ADT CO.SITE-2
EN55022 CLASS B

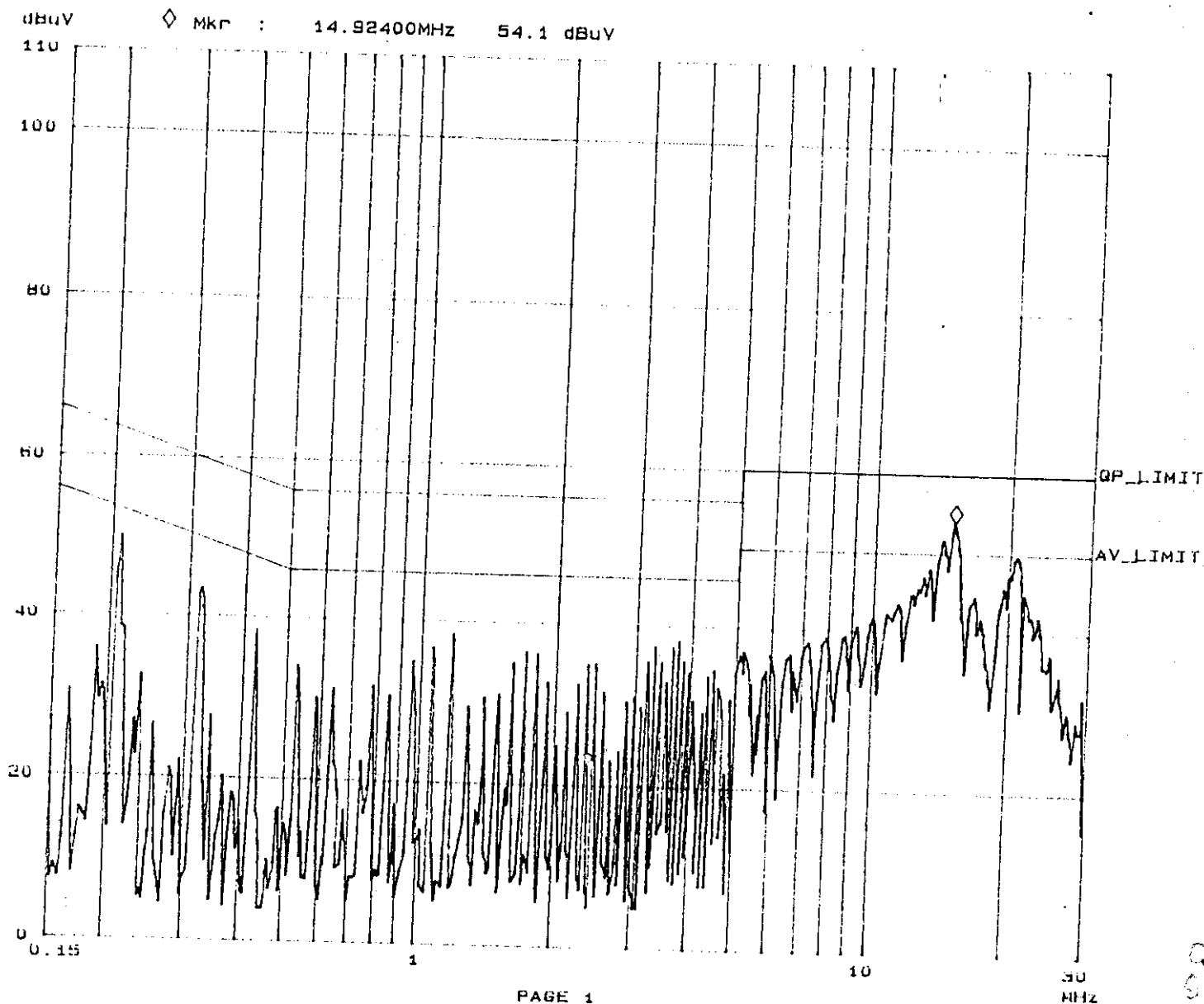
22. Oct 96 17:28

EUT: SA10-06U
Op Cond: 6VDC/1.5A
Operator: TOMMY
Test Spec: LISN : N
Comment: 230V AC / 50Hz

File No. ADT-EC96-18

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Tested by *Tommy Wu*



Project DC : Datacast
Volume 12 : Design and interface documentation
Section 05 : DB102 Interface
Reference : RWB-408-NB-97107-00

Date : 10-6-1997 :
Version : 1.2
Security :
Status : Accepted

1.4.3 Background information

The following documents are relevant to the context of the document but do not affect the contents in any way:

[NABTS] Title: Joint EIA/CVCC Recommended Practice for Teletext:
North American Basic Teletext Specification (NABTS)
Version: EIA-516-1988
Publisher: Electronic Industries Association
Date: March 1988

Date : 10-6-1997
Version : 1.2
Security :
Status : Accepted

<u>Date</u>	<u>Person</u>	<u>Version</u>	<u>Reason</u>
09-jun-1997	Peter Vink	1.0	First document for DB102
03-jul-1997	Peter Vink	1.1	Reviewed + additions
01-mar-1998	Peter Vink	1.2	Additions due to several change requests (sw release 2.05)
06-jun-1998	Peter Vink	1.3	Layout change, new name

[illegible]

2. GLOBAL

The Philips Data Broadcast Modem series DB102 (further referred to as DB102) is a device that can retrieve NABTS-information out of a standard NTSC television signal.

It comes in two versions; the standalone device (extension SER, 12nc: 9022 440 10202) and a 16-bit Plug&Play PC-ISA-card (extension ISA, 12nc: 9022 440 10102).

2.1 Hardware specifications

2.1.1 Common

Input TV-signal: VHF/UHF, 75 Ohm unbalanced, full frequency range from channel 2 (55.25 MHz) to channel 69 (801.25 MHz)

2.1.2 DB102SER/US specific

Dimensions: 8 w x 15 d x 3 h cm
Weight: 250 g
Interface: RS232
Input voltage: 5V DC
Power consumption: < 2.5W

2.1.3 DB102ISA/US specific

Dimensions: 12.8 w x 14 d x 2.5 h cm
Weight: 135 g
Interface: ISA 16-bit, Plug&Play compatible

2.2 Software interface

Although the hardware interfaces of both versions differ, the software interface is the same, viz. RS232 (8 bits, 1 stop bit, no parity).

The DB102SER/US is attached to one of the PC COMM-ports and operates at the baudrates 19k2, 28k8, 38k4, 57k6 and 115k2. The factory default is 19k2.

The DB102ISA/US has a build on UART (16550A compatible) that operates at the baudrates 345k6 and 691k2. This is achieved by up scaling the PC-set baudrates with a factor 12 (28k8 becomes 345k6, 57k6 becomes 691k2). It is therefor possible to use standard COMM-port drivers to communicate with the DB10xISA/US. The factory default is 57k6.

The DB102ISA/US onboard UARTs IRQ and I/O-address can be configured automatically using the standard Plug&Play protocol or manually using the eight onboard dipswitches

Dipswitch 1: Enable/Disable Plug&Play auto-configuration

Dipswitch 1	Function
ON	Plug&Play auto-configuration enabled
OFF	Plug&Play auto-configuration disabled

If Plug&Play auto-configuration is enabled, the IRQ number and I/O address of the DB102ISA card are automatically set during the Plug&Play initialisation-phase. The settings of all other dipswitches are ignored.

If Plug&Play auto-configuration is disabled, the IRQ number and I/O address of the DB102ISA card are defined by dipswitches 3 to 8 (see below).

Dipswitch 2: Not used.

Dipswitch 3 and 4: I/O address setting (COMM-port)

Dipswitch 3	Dipswitch 4	Function
OFF	OFF	I/O Address 3F8 - 3FF (COM1)
ON	OFF	I/O Address 2F8 - 2FF (COM2)
OFF	ON	I/O Address 3E8 - 3EF (COM3)
ON	ON	I/O Address 2E8 - 2EF (COM4)

Dipswitches 5 - 8: IRQ setting

Dipswitch 5	Dipswitch 6	Dipswitch 7	Dipswitch 8	Function
OFF	OFF	OFF	OFF	not applicable
ON	OFF	OFF	OFF	not applicable
OFF	ON	OFF	OFF	not applicable
ON	ON	OFF	OFF	IRQ3
OFF	OFF	ON	OFF	IRQ4
ON	OFF	ON	OFF	IRQ5
OFF	ON	ON	OFF	IRQ6
ON	ON	ON	OFF	IRQ7
OFF	OFF	OFF	ON	not applicable
ON	OFF	OFF	ON	IRQ9
OFF	ON	OFF	ON	IRQ10
ON	ON	OFF	ON	IRQ11
OFF	OFF	ON	ON	IRQ12
ON	OFF	ON	ON	not applicable
OFF	ON	ON	ON	not applicable
ON	ON	ON	ON	IRQ15

NOTE: Although the serial interface of the DB102 permits a higher character input rate, the DB102 can only handle input characters at 1kHz.

The DB101/SER has 7 LEDs on the front side. The following table explains the function of each LED.

LED	Function
CPU	Indicates CPU activity
DCC	Indicates DataCastCarrier (valid signal carrying VBI data)
DC	Indicates DataCast (signal contains datacast data)
TxD	Indicates Transmission of data from modem to user
RxD	Indicates Reception of data from user to modem
Err	Indicates Internal errors such uncorrectable headers or discontinuity. Possible loss of data.
PWR	Indicates power on/off

2.3 Data reception

The DB102 can handle a number of different data services in parallel. For this, the modem has so-

Project DC : Datacast
Volume 12 : Design and interface documentation
Section 05 : DB102 Interface
Reference : RWB-408-NB-97107-00

Date : 10-6-1997
Version : 1.2
Security :
Status : Accepted

called 'address-slots' (the DB102 has four of these address-slots). In every address-slot, a service address is defined with the transmission-protocol of that service. Depending on the transmission-protocol, the service is automatically enabled (transparent protocol) or disabled (all other protocols) in which case the transmitter can only enable the reception of the service.

3. COMMAND SET

All commands used with the Philips DB102 Data Broadcast modem are send to the modem using an AT-like protocol.

The commands send to the modem are referred to as a *command line*. The syntax of a command line is as follow:

AT!<cmd>↵

AT! : ASCII characters 'A', 'T', and '!'
<cmd> : one of the possible DB102 commands
↵ : CARRIAGE RETURN

To make the command line easy to read, several spaces may be included. They will be ignored by the modem.

Commands may be entered either uppercase or lower-case letters. The command line will be executed after the input of the CARRIAGE RETURN.

3.1 Modem reply

As a reply to a command, the modem outputs the requested data (if applies) and one of the following ASCII-strings:

ASCII string	Name	Description
OK	Command OK	Command processed without errors
ERROR01	Command error	Command syntax error or input out of range
ERROR11	EEPROM read error	Error during read-operation from non-volatile RAM
ERROR12	EEPROM write error	Error during write-operation to non-volatile RAM
ERROR40	Transmission not found	The selected transmission has not been found

Beside these five ASCII-strings, the DB102 has five more strings that it can output in response to any (hardware) failure:

ASCII string	Name	Description
ERROR10	EEPROM init error	Non-volatile RAM not correctly initialised
ERROR21	Tuner read error	Error during read-operation from tuner
ERROR22	Tuner write error	Error during write-operation to tuner
ERROR30	Fifo overflow	An overflow of the internal fifo has occurred, possible loss of data

Furthermore, text strings are sent to indicate empty slots, unavailable features, etc. These strings are explained per command. Note that a Fifo overflow can sometimes not be prevented, especially during intensive operations such as scanning etc. Therefore, error 30 does not necessarily mean a critical failure.

3.2 Commands

3.2.1 Read address slot

Syntax: AT!A*n*?

Description: Output the service address of address slot *n*. First three digits form the service packet address. The last digit is the transmission protocol (refer to Chapter 6).

If the address slot is empty, the output will be 'SLOT EMPTY'.

3.2.2 Write address slot

Syntax: AT!A*n*=*m*

Description: Set address slot *n* to the new service address *m*. The first three digits are the service packet address. The last digit defines the transmission protocol used by the service.

To clear an address slot, *m* should be omitted.

For instance:

- To set address slot one to service-address 9FF, using transmission protocol zero, enter:

AT! A1=9FF0↵

- To clear address slot one, enter:

AT! A1=↵

(Spaces may be omitted).

3.2.3 Read status address slot

Syntax: AT!AS*n*?

Description: Outputs the status of the address slot *n*.

The first digit is the activation-status of the slot (0: slot deactivated, 1: slot activated).

The second digit is the transmission protocol selected for this slot.

The third digit is the enabling-status of the service address (0: slot disabled, 1: slot enabled).

The next 32 bytes are the hex-representation of the bitfield of the service address. Note that the length of this string is 34 bytes, which is one larger than an NABTS packet.

If the address slot is disabled or the transmission protocol does not allow the transmission of bitfields, the bitfield will output as 0's.

If the address slot is empty, the output will be 'SLOT EMPTY'.

3.2.4 Address slot activate

Syntax: AT!AA*n*=*m*

Values: AT!AA*n*=0: Address slot *n* is deactivated
AT!AA*n*=1: Address slot *n* is activated

Description: With this command an address-slot can (temporarily) be deactivated. The enabling-status and the bitfields will be preserved but they will not be sent.

3.2.5 Read baudrate

Syntax: AT!B?

Description: The baudrate-setting stored in volatile RAM is displayed. This is not necessarily the same as the present baudrate of the modem.

3.2.6 Set baudrate

Syntax: AT!B=*n*

Description: This command is a request to the DB102 to switch to the specified baudrate *n*. If the modem cannot communicate at this baudrate, 'ERROR01' is returned and the present baudrate is maintained.

If a switch is possible, the modem returns 'OK' at the present baudrate and then switches to the new baudrate.

The new baudrate will not automatically be stored in the internal non-volatile memory of the modem! This should be done using the 'Bstore' command.

3.2.7 Store baudrate

Syntax: AT!Bstore

Description: The present baudrate is stored in the internal volatile memory of the modem.

3.2.8 Data output

Syntax: AT!D*n*

Values: AT!D0: The output of received data is temporarily halted.
AT!D1: The output of received data is resumed.

3.2.9 Read frequency

Syntax: AT!F?

Description: Output the current frequency (in Mhz).

3.2.10 Set frequency

Syntax: AT!F=*n*

Description: Set tuner to the new frequency *n* (in Mhz).

3.2.11 Read H-register¹

Syntax: AT!S*r*?

Description: The value of H-register *r* is read and outputted (refer to Chapter 5). *r* is a decimal number in the range [00-42] (always two digits), the output is hexadecimal.

3.2.12 Write H-register²

Syntax: AT!H*r*=*n*

Description: The contents of H-register *r* is changed to *n* (refer to Chapter 5). *r* is a decimal number in the range [00-42] (always two digits), *n* is a hexadecimal value of two

¹ version 2.05 and up

² version 2.05 and up

digits.

3.2.13 Read identification

Syntax: AT!In

Values: AT!I, AT!I0: Display serial number of modem.
AT!I1: Display modem version.
AT!I2: Display software version.
AT!I3: Display personal number².

Description: A string of maximum 16 characters is outputted.

3.2.14 Set personal number²

Syntax: AT!I=id

Values: AT!I=Hn
AT!I=Ln

Description: The personal number, which is displayed each time when the command AT!I3 is given, is set and stored in non-volatile memory. Because of the maximal length of an input string, the string has to be set in two steps: The High three bytes and the Low three bytes, indicated by starting the string with an 'H' or 'L' respectively. This character is followed by 6 hexadecimal digits. Once the personal number has been given a value (High and Low) other than zero, it can not be changed anymore.

3.2.15 Modem reset

Syntax: AT!RESET

Description: The modem is reset. This is the same as switching the modem off and on.

3.2.16 Scan

Syntax: AT!S

Description: The modem will scan the entire band for transmissions.
The output will be a list of frequencies (in Mhz)

3.2.17 Read S-register

Syntax: AT!Sr?

Description: The value of S-register *r* is read from non-volatile memory and outputted (refer to Chapter 4).

3.2.18 Write S-register

Syntax: AT!Sr=n

Description: The contents of S-register *r* in the non-volatile memory is changed to *n* (refer to Chapter 4).

3.2.19 Write synchronisation string

Syntax: AT!SYNC

Description: A synchronisation string is outputted by the modem. This string consists of 33 bytes and has the following format:

0x01	0x01	0x0	0x00	//															0x00	0x00	0x00	0xFF
0	1	2	3	//															29	30	31	32

The string is not seen as a command reply and is therefor not encapsulated in an output-protocol frame. It is also not followed by an 'OK'-message.

3.2.20 Automatic tune

Syntax: AT!T

Description: If the tuner is locked onto a transmission (video detection status = 1), it will find the frequency with the optimum reception quality for this transmission.
If the tuner is not locked or no transmission is found, 'ERROR40' is outputted.

3.2.21 Tune up

Syntax: AT!T+

Description: The DB102 searches for the next transmission in the band
If no transmission is found, 'ERROR40' is outputted.

3.2.22 Video status

Syntax: AT!Vn

Values: AT!V0: Display the video detection status (0 = no video, 1 = video)
AT!V1: Display the AFC status of the tuner.

Description: The requested state is outputted.

3.2.23 Read video input³

Syntax: AT!VIN?

Description: The current video input is outputted (1 = tuner, 2=cvbs).

3.2.24 Set video input³

Syntax: AT!VIN=n

Values: AT!VIN=1 Select tuner
AT!VIN=2 Select cvbs

Description: selects which video input to use.

³ Only present for ISA versions

4. S-REGISTERS

4.1 Register 0 (Output protocol)

Range: 0 to 3

Default: 0 (transparent)

Description: Defines the output protocol used by the DB100.

4.2 Register 1

Not used.

This register is kept blank on purpose in order to ensure a similar interface for db101 and db102.

4.3 Register 2 (Silent mode)

Range: 0 or 1

Default: 0 (not in silent mode)

Description: In silent mode, all runtime error-messages are suppressed. Modem replies as a result of command-inputs are not suppressed.

4.4 Register 3 (Filter mode)

Range: 0: Check Header, data and suffix.
1: Check Header and suffix
2: Check Header
3: No check

Default: 0

Description: Depending on the filter mode, the Header is checked for Hamming-correctness and for presence in one of the address slots, the data is checked for odd parity and the suffix is checked using a Longitudinal Parity Check. If data does not have odd parity mode 0 should not be used. Note that in mode 3 no filtering by address slot is possible.

4.5 Register 4 (Framingcode)

Range: 0x00 to 0xFF

Default: 0xE7

Description: Every video line containing data is identified by one byte called the 'framingcode'. In a NABTS transmission this byte is standard 0xE7 but other values are possible for different formats.

4.6 Register 5 (Video detection mode)⁴

Range: 0: No video check
 1: Tuner Locked to signal
 2: Tuner locked to strong signal
 3: Hardware video check
 4: Valid data present
 5: Software video check

Default: 0x0

Description: Sets the method that is used to determine a valid signal. This method is connected to the Video LEDs (external version) , the V0 command, and the scanning commands.

4.7 Register 6 (Data Length)⁴

Range: 0x00-0xFF

Default: 0x0

Description: If set, the values in this register override the values that are normally used for the start and length of the User Data.

⁴ Experimental register in version 2.05

5. H-REGISTERS

The H-registers give direct access to various hardware registers of the DB101, they should be used with extreme care as they may cause conflicts with normal software operation. Furthermore, the registers that are not mentioned here are not accessed at all.

5.1 Register 00 (Packet Number)

Range 0x00 to 0x2D

Default: 0x2D

Description: Sets the size of the internal buffer (in packets). Note that the minimum size is 1, writing a 0 resets the packet buffer. Normally kept at maximum size of 45 packets.

5.2 Register 01 (Acquisition control 1)

Range 0x00 to 0xFF

Default: 0x00

Description: Together with Acquisition control 2, this register controls the acquisition hardware. Changing this register will cause conflicts with software operation! Register has the following format:

525/625	HAM	FCE	HUNT	X	X	X	X
---------	-----	-----	------	---	---	---	---

Bits have the following meaning: 525/625 = expected transmission, HAM = en(dis)able hamming correction of first two data bytes, FCE = #errors allowed in Framing Code, HUNT = en(dis)able amplitude searching.

5.3 Register 02-24 (Line Controls)

Range: 0x00 to 0xFF

Default: 0x00 or 0xFF

Description: Enable and Disable acquisition on a certain line and specify what type of data to receive. Registers 2- 23 apply to lines 2-23 respectively. Register 24 applies to all lines from 24 till end of field (visible). First and second nibble specify even and odd field. Important values: 0x0 = acquire Euro WST, 0xF = do not acquire.

5.4 Register 32 (Framing Code)

Range: 0x00 to 0xFF

Default: 0x00

Description: Framing code to use for acquisition, used if the data type differs if data type (in Line control) highest bit is 1. default is Euro-WST.

5.5 Register 35 (Acquisition control 2)

Range: 0x00 to 0xFF

Default: 0x00

Description: Together with Acquisition control 1, this register controls the acquisition hardware. Changing this register will cause conflicts with software operation! Register has the following format:

X	X	CLK1	CLK2	PAD	CVBS	DB	X
---	---	------	------	-----	------	----	---

Bits have the following meaning: CLK = clock frequency (should always be 00), PAD = en(dis)able adding of padding bytes to data until next line, CVBS = select input, DB = use Data Filter registers for filtering.

5.6 Registers 36-39 (Data Filters)

Range: 0x00 to 0xFF

Default: 0x00

Description: Specify four MRAG values that are filtered. Only packets with MRAG value (after hamming decode) equal to one of the values in DB registers are passed. Changing this register will cause conflicts with normal software operation. Enabled and disabled by the DB bit in AC2 register.

5.7 Register 40 (Data Received, read only)

Range: 0x00 to 0xFF

Description: Data and signal conditions. Register has the following format:

FC8V	FC7V	VPSV	PPV	CCV	X	VSQ	525R
------	------	------	-----	-----	---	-----	------

Bits have the following meaning: FC8V = data with no errors in FC, FC7V = data with 1 error in FC, VPSV = VPS data received, PPV = PAL+ data received, CCV = Closed caption data received, VSQ = Video signal quality, 525R = 525 line transmission.

5.8 Registers 41-42 (Line Received, read only)

Range: 0x00 to 0xFF

Description: Information about current line (= line that is currently acquired) Registers have the following format:

X	X	F1/F2	LN8	LN7	LN6	LN5	LN4
---	---	-------	-----	-----	-----	-----	-----

Project DC : Datacast
Volume 12 : Design and interface documentation
Section 05 : DB102 Interface
Reference : RWB-408-NB-97107-00

Date : 10-6-1997
Version : 1.2
Security :
Status : Accepted

LN3	LN2	LN1	LN0	DT3	DT2	DT1	DT0
-----	-----	-----	-----	-----	-----	-----	-----

Bits have the following meaning: F1/F2 = field, LN = line number, DT = data type.

6. TRANSMISSION PROTOCOL

A transmission protocol between the decoder and the transmitter enables the transmitter to control for that particular service every decoder by its unique DecoderID. Depending on the protocol selected, a number of functions are available.

6.1 Transmission protocol 0 (TRANSPARENT)

All received data is forwarded without any form of processing.

An address-slot is automatically enabled if this transmission-protocol is selected.

6.2 Transmission protocol 1 (ADVANS-compatible)

This protocol is used by the EUROCOM- and ADVANS-modems and it enables the transmitter to influence some settings of every individual modem by using three byte sequences:

<0x8A><'4'><S#><S#><1 byte CSUM> : Turn service ON
<0x8A><'5'><S#><S#><1 byte CSUM> : Turn service OFF
<0x8A><'6'><S#><BitField><1 byte CSUM> : Set new bitfield

S# : 6 byte binary number (= ModemID)
BitField : 16 byte binary number
CSUM : CSUM is calculated by adding the complete sequence mod 256

The modem will recognise these sequences and respond to them if S# matches the Modem ID of the modem. The sequences will not be filtered out of the data stream.

An address-slot is automatically disabled if this transmission-protocol is selected.

6.3 Transmission protocol 2

This protocol consists of two commands that must be send at the start of a data packet. The rest of that packet is discarded by the DB102. In order to prevent data being interpreted as commands character stuffing is used for the first byte. So if a packet not containing commands starts with a DLE-character, two DLE-characters have to be send. The DB100 automatically filters out one of these characters.

<DLE><0x0><S#><CSUM> : Turn reception OFF
<DLE><0x1><S#><CSUM> : Turn reception ON

DLE : character (0x10)
S# : 6 byte binary number (= ModemID)
CSUM : CSUM is calculated by adding the complete sequence mod 256

The modem will recognise these sequences and respond to them if S# matches the Modem ID of the modem. All sequences will be filtered out of the data stream.

An address-slot is automatically disabled if this transmission-protocol is selected.

7. OUTPUT PROTOCOL

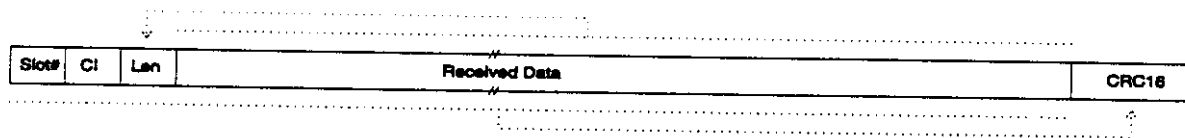
The output protocol between the decoder and the receiver (PC) enables the receiver to detect from which service data is derived in case of reception of multiple services.

7.1 Protocol 0 (TRANSPARENT)

All the received data is outputted directly. Is not possible to determine on which address-slot the data is received. Modem-replies are followed by a CARRIAGE RETURN.

7.2 Protocol 1

All data is outputted in the following format:

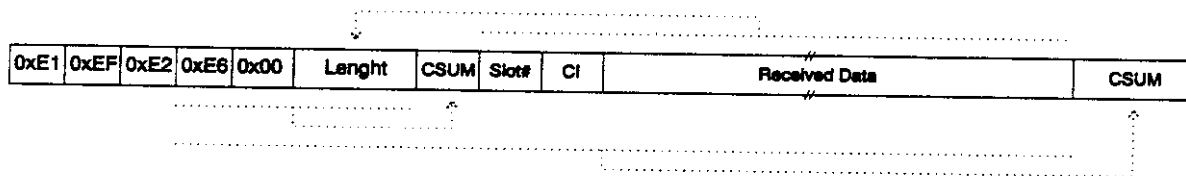


The slot number equals the address-slot on which the data is received.

Modem replies carry slotnumber 0xFF and CI 0x00.

7.3 Protocol 2 (ADVANS-compatible)

In this protocol all the data is encapsulated in a 'frame'.



The slot number equals the address-slot on which the data is received.

Modem replies carry slotnumber 0xFF and CI 0x00.

7.4 Protocol 3 (Full)

Data is outputted in lines of 33 bytes being the complete NABTS packet that was originally transmitted (see [NABTS] for further specifications).

Lines containing modem replies start with the hamming uncorrectable bytes 0xF4 and 0xF4.

The sync-string (see 3.2.17) starts with the bytes 0x01 and 0x01 that are also hamming uncorrectable.

7.5 Protocol 4 (Synchronise)

Data is outputted in lines of 34 bytes being the original Packet, as in protocol 3, preceded by a special key 0xF3, replies start with 0xF3 0xF4 0xF4. This protocol simplifies synchronising to the start of a packet after loss of bytes.