

EMISSION TEST REPORT

Test Report No. : 18F0037-02-2

Advanced Technology & Systems Co., Ltd.

Model: AXRS-JnnnS*

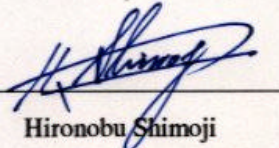
FCC Part 15 Subpart B

1. This test report shall not be reproduced except in full, without the written approval of A-Pex International Co., Ltd.
2. This test report does not constitute an endorsement by NIST/NVLAP or U.S. Government.
3. This equipment is in compliance with above regulation. We hereby certify that the data are contain a true representation of the emission profile.
4. The results in this report apply only to the sample tested.
5. This test report clearly shows that AXRS-JnnnS*, RAID Subsystem is in compliance with FCC Part 15 Subpart B Class B, specification.

Date of test: June 23, 25, 1999

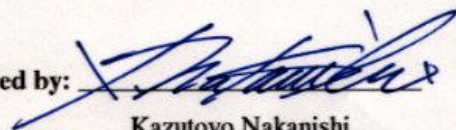
Issued date: June 2, 2000

Tested by:



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EMC section

Approved by:



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Group Leader of EMC section

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1 GENERAL INFORMATION

APPLICANT : ADVANCED TECHNOLOGY &
SYSTEMS CO., LTD.

Company Trade Name : ADTX

ADDRESS : Yokohama Business Park, East Tower, 9F
134 Gohdo-cho, Hodogaya-ku,
Yokohama-shi, Kanagawa-ken,
Japan 240-0005 JAPAN
Tel: +81-45-334-2179
Fax: +81-45-334-0094

REGULATION(S) : FCC Part 15 Subpart B, Class B

MODEL NUMBER : AXRS-JnnnS*
n: 0 to 9
*: Blank or A to Z

SERIAL NUMBER : -

KIND OF EQUIPMENT : RAID Subsystem

TESTED DATE : June 23, 25, 1999

RECEIPT DATE OF SAMPLE : June 22, 1999

TEST REPORT NUMBER : 18F0037-02-2

TEST SITE : A-PEX Yokowa No.2 Open Test Site

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1.1 Product Description

ADVANCED TECHNOLOGY & SYSTEMS CO., LTD., Model: AXRS-JnnnS*

(referred to as the EUT in this report) is a RAID Subsystem.

The clock frequency is 15MHz, 20MHz, 40MHz, 60MHz and 80MHz.

Power Supply : AC 100-240V, 50/60Hz

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1.2 Tested System Details

The FCC IDs for all equipment, plus description of all cables used in the tested system are:

Model	DoC and FCC ID	Description	Cable description	Backshell Material
(1) ADTX M/N: AXRS-JnnnS* (EUT)	NLCAXRSJ01B	RAID Subsystem	Shielded SCSI Cable Unshielded AC Power Cable	P.V.C. P.V.C.
(2) IBM M/N: PC300GL 6275-B9A S/N: 68-2M89B	DoC	Personal Computer	Unshielded RS232C Cable Unshielded AC Power Cable	P.V.C. P.V.C.
(3) IBM M/N: 6540-02E S/N: 66-R4737	H4ICM14018	Monitor	Shielded Monitor Cable Unshielded AC Power Cable	P.V.C. P.V.C.
(4) HP M/N: Scan Jet5200C S/N: SG933160XK	DoC	Scanner	Shielded USB Cable Unshielded AC Power Cable	P.V.C. P.V.C.
(5) Canon M/N: BJF200 S/N: ETF52713	DoC	Printer	Unshielded Parallel Cable Unshielded AC Power Cable	P.V.C. P.V.C.
(6) IBM M/N: KB-7953 S/N: 0292004	DoC	Keyboard	Shielded Keyboard Cable	P.V.C.
(7) IBM M/N: M-S34 S/N: 23-022637	DZL211029	Mouse	Unshielded Mouse Cable	P.V.C.

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1.3 Tested Methodology

Both conducted and radiated testing were performed according to the procedures in FCC/ANSI C63.4(1992). Radiated testing was performed at a distance of 3 meters from the antenna to EUT .

1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at 108, Yokowa-cho, Ise-shi, Mie-ken, 516-1106 Japan.

This site has been fully described in a report dated May 27, 1997 submitted to FCC office, and accepted in a letter dated September 16, 1997 (31040/SIT 1300F2).

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2 SYSTEM TEST CONFIGURATION

2.1 Operation Environment

	Conduction	Radiation
Temperature :	23 Degree	: 25 Degree
Humidity :	41%	: 65%

2.2 Justification

The system was configured in typical fashion (as a customer would normally use it) for testing.

2.3 EUT Exercise Software

The EUT exercise program used during radiated testing was designed to exercise the various system components in a manner similar to typical use.

The sequence is used:

Operation: Running mode
PC to EUT, EUT to PC DATA COPY

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2.4 Test Procedure

2.4.1 Tabletop Equipment Conducted Emissions

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flush with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. Each EUT current-carrying power lead, except the ground (safety) lead, were individually connected through a LISN to the input power source. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment.

2.4.2 Tabletop Equipment Radiated Emissions

EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane. The rear of EUT, including peripherals was aligned and flush with rear of tabletop. I/O cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged 40cm height to the ground plane. Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. The measurement distance was 3m.

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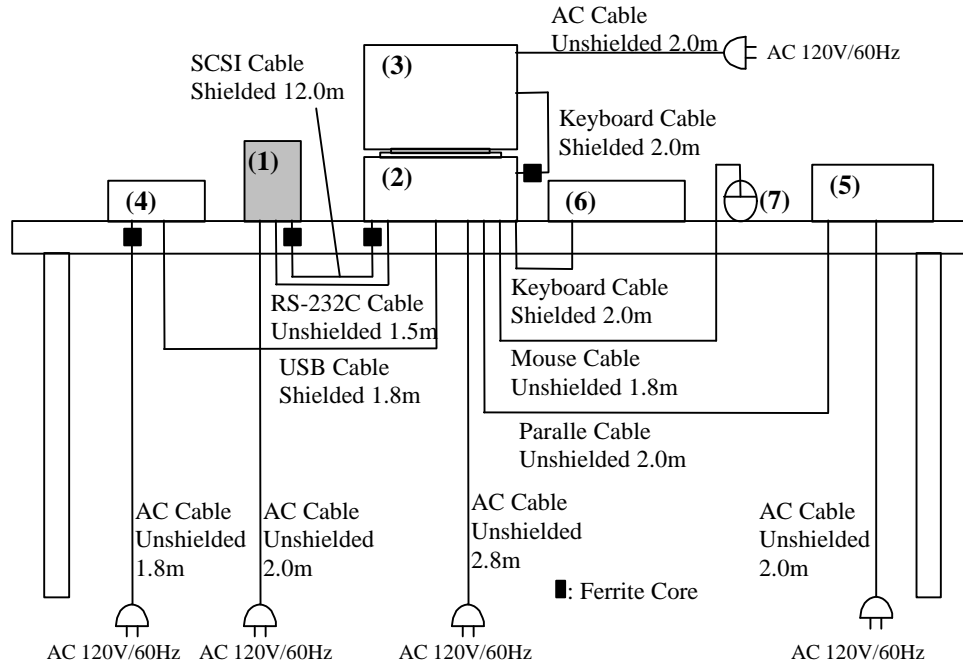
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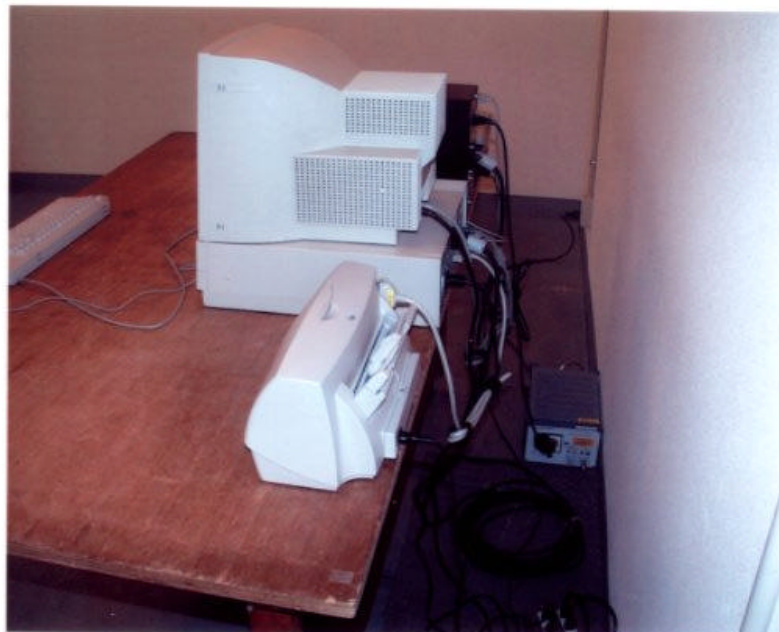
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Figure2.1 Configuration of Tested System



3 CONDUCTED AND RADIATED MEASUREMENT PHOTOS

Figure 3.1 Conducted Measurement Photos



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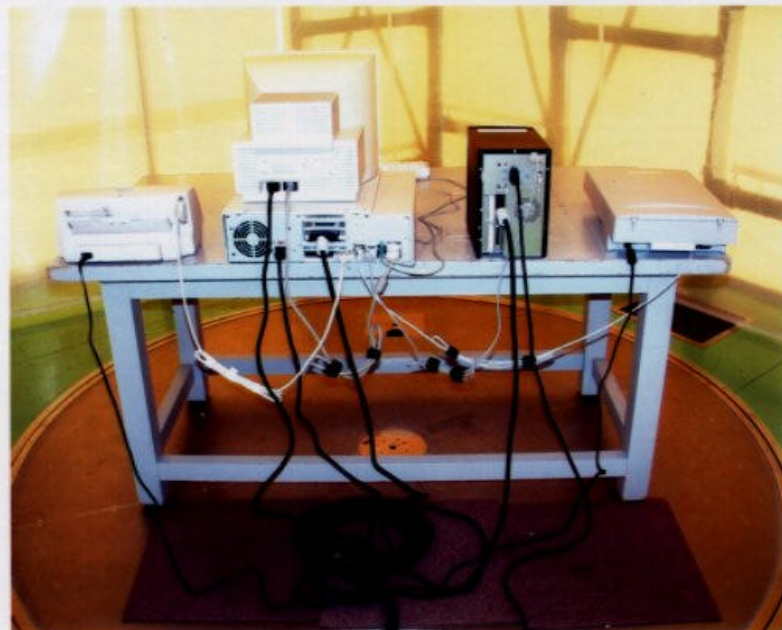
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Figure 3.2 Radiated Measurement Photos



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3.1 Measurement Uncertainty

Conducted Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was $\pm 2.0\text{dB}$.

The data listed in this test report has enough margin, more than 2.0dB.

Radiated Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was $\pm 3.3\text{dB}$.

The data listed in this test report has enough margin, more than 3.3dB.

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4 CONDUCTED EMISSION DATA

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range(450kHz-30MHz).
The final data represents worst-case emissions.
The minimum margin to the limit is as follows :

Frequency (MHz)	Line (N/L)	Measured (dBuV)	LISN Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)
7.1710	L	41.2	0.8	42.0	48.0	6.0

* All readings are quasi-peak mode.

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5 RADIATED EMISSION DATA

The initial step in collecting radiated data was a spectrum analyzer peak scan of the measurement range(30MHz-1000MHz).
The final data was reported in the worst-case emissions.

The minimum margin to the limit is as follows :

Frequency (MHz)	Receiver Reading (dBuV)	Correction Factor (dBuV)	Field Strength (dBuV/m)	Limit (dBuV/m)	Margin (dBuV)
44.44	43.5	-8.9	34.6	40.0	5.4

* All readings are quasi-peak mode.

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5.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, Cable Factor and Antenna Pad, and subtracting the Amplifier Gain from the measured reading. The sample calculation is as follows:

$$FS = RA + AF + CF + AT - AG$$

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Factor

AT = Antenna Pad

AG = Amplifier Gain

Assume a receiver reading of 43.5 dBuV is obtained. The antenna Factor of 13.2 dB, Cable Factor of 2.0 dB and Antenna Pad of 6.0 dB is added. The Amplifier Gain of 30.1 dB is subtracted, giving a field strength of 34.6 dBuV/m.

$$FS = 43.5 + 13.2 + 2.0 + 6.0 - 30.1 = 34.6 \text{ dBuV/m}$$

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6 TEST EQUIPMENT USED

<u>INSTRUMENTS</u>	<u>Mfr.</u>	<u>MODEL</u>	<u>C/N</u>	<u>Calibrated Until</u>
Pre Amplifier	Anritsu	MH648A	AF3	November 30, 1999
Biconical Antenna	Schwarzbeck	BBA9106	BA2	April 30, 2000
Logperiodic Antenna	Schwarzbeck	UHALP9108A	LA5	July 5, 2000
LISN	Rohde & Schwarz	ESH3-Z5	LS2	November 24, 1999
LISN	Rohde & Schwarz	ESH3-Z5	LS4	November 24, 1999
Spectrum Analyzer	Hewlett Packard	8567A	SA1	November 30, 1999
Test Receiver	Rohde & Schwarz	ESHS-30	TR3	July 14, 1999
Test Receiver	Rohde & Schwarz	ESVS-10	TR4	July 14, 1999

*All measurement equipment is traceable to national standard.

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APPENDIX

A: Test Data

Conducted emissions	<u> A1 to A4 </u>
Radiated emissions	<u> A5 to A6 </u>

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