EMI TEST REPORT

Test Report No. : 22KE0005-YW

Applicant:	**Matsushita Electric Industrial Co.,Ltd.**
Type of Equipment:	**Notebook Personal Computer (Wireless LAN built in PC)**
Model No.:	**CF-72**
FCC ID:	**ACJ9TGCF-721**
Test standard:	**FCC Part15 Subpart C, Section 15.247 *Except FCC 15.247(e) Processing Gain**
Test Result:	**Complied**

The results in this report apply only to the sample tested.

Date of test: June 17, 18 and 19 2002

Tested by: T. Yamashita
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EMC section

Approved by:
Kazutoyo Nakanishi
Site Operation Manager of EMC section

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1 GENERAL INFORMATION

APPLICANT	: Matsushita Electric Industrial Co.,Ltd. AVC Company Personal Computer Division.
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REGULATION(S)	: FCC Part15 Subpart C, Section 15.247 *Except FCC 15.247(e) Processing Gain
MODEL NUMBER	: CF-72
SERIAL NUMBER	: 2EKSA00036
KIND OF EQUIPMENT	: Wireless LAN built in personal computer
TESTED DATE	: June 17, 18 and 19 2002
RECEIPT DATE OF SAMPLE	: June 14, 2002
REPORT FILE NUMBER	: 22KE0005-YW
TEST SITE	: A-PEX Yokowa No.3 Open Test Sites

1.1 Tested Methodology

The measurement was performed according to the procedures in ANSI C63.4(2000).

1.2 Test Facility

The open area site measurement facilities used to collect the radiated data are located at 108, Yokowa-cho, Ise-shi, Mie-ken, 516-1106 Japan.
These sites have been fully described in reports submitted to the FCC office.
No.3 test site has filed to the FCC on September 12, 2000 as number: 90412 and is accepted by Industry Canada on May 01, 2001 as number IC2973-3.

2 PRODUCT DESCRIPTION

Matsushita Electric Industrial Co., Ltd. Model CF-72 (referred to as the EUT in this report) is a Notebook Personal Computer.
The specification is as following :

LAN Module

Frequency characteristies	: 2412MHz through 2462MHz
No. of channels / channel spacing	: 11 channels / 5MHz channel spacing
Modulation	: DSSS:Direct sequence spread spectrum.(IEEE 802.11b)
Antenna type	: Monopole Antenna
Antenna Gain	: 2.14dBi

*FccPart15.31(e)
The host device CF-72 provide the LAN Module with stable power supply (DC:3.3V), and the LAN Module complies power supply regulation.
*FccPart15.203 Antenna requirement
Wireless LAN Module and its antenna comply with this requirement since they are built in host device CF-72 when they are put up for sale and they are used with a particular antenna connector.

2.1 Test System Details

Model	FCC ID	Description
(1) Matsushita Electric M/N: CF-72 S/N: 2EKSA00036	ACJ9TGCF-721	Notebook Personal Computer (Wireless LAN built in PC)
*FccPart15 Subpart B Class B Digital Device:DOC		
(2) Matsushita Electric M/N: CF-AA1653 M1 S/N: 02301153	DOC	AC Adapter

3 SYSTEM TEST CONFIGURATION

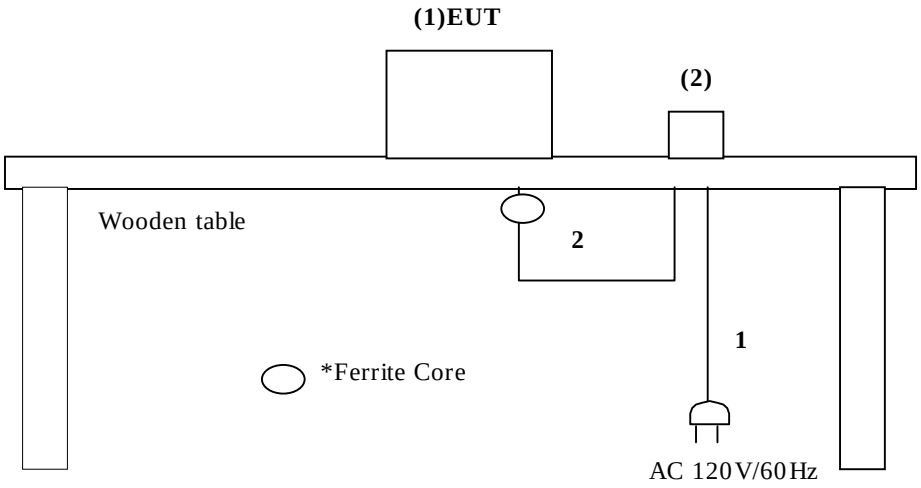
3.1 Justification

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

Test mode : Transmitting mode (11Mbps)
Performed the test about channels 1(low), 6(mid) and 11(high) among 11 channels of all Carrier frequencies.

Receiving mode

3.2 Configuration of Tested System



* Cabling was taken into consideration and test data was taken under worst case conditions.

List of cables used

No.	Name	Length (m)	Shield	Remark
1	AC Power Cable	1.8	N	Polyvinyl chloride
2	DC Power Cable	1.8	N	Polyvinyl chloride

4 Measurement Uncertainty

Conducted Emission Test

The measurement uncertainty (with a 95% confidence level) for this test was ±2.0dB.

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

Radiated Emission Test

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is±4.4dB.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is±4.8dB.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is±5.8dB.

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

5 SUMMARY OF TESTS

5.1§15.207 Conducted Emissions

Test Procedure(FCC 02-157:Limits on CISPR 22 are applied to 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 flushes with rear of tabletop. All other surfaces of tabletop was at least 80cm from any other grounded conducting surface. I/O cables and AC 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 50ohm connectors of the LISN were resistively terminated in 50ohm when not connected to the measuring equipment.
The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT on a shielded room.
The EUT was connected to a Line Impedance Stabilization Network (LISN).
An overview sweep with peak detection has been performed.
The measurements have been performed with a CISPR quasi-peak detector (IF BW 10kHz).
(Measurement range: 450kHz to 30MHz)

Test data : APPENDIX A1 to A5
Photographs of test setup : Page 11(1)
Test result : Pass
Test instruments : LS-04, SA-04, TR-05

5.2§ 15.247(a)(2) 6dB Bandwidth (Antenna Port Conducted)

Test Procedure
The minimum 6dB bandwidth was measured with a spectrum analyzer connected to the antenna port.

1. 2412MHz(Low) : 10.54MHz > 500kHz
2. 2437MHz(Mid) : 10.41MHz > 500kHz
3. 2462MHz(High) : 10.39MHz > 500kHz

Test data : APPENDIX A6
Test result : Pass
Test instruments : SA-06

5.3 § 15.247(b) Maximum Peak Out Put Power (Antenna Port Conducted)

Test Procedure
The Maximum Peak Output power was measured with a power meter connected to the antenna port.
* Antenna Gain dose not exceed 6dBi.

Test data : APPENDIX A7
Test result : Pass
Test instruments : PS-03, PM-02, SA-06

5.4 § 15.247(c) Out of Band Emissions (Radiated)

Test Procedure
EUT was placed on a platform of nominal size, 1m by 1.5m, raised 80cm above the conducting ground plane.
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 Radiated Electric Field Strength intensity has been measured on an open test site with a ground plane and at a distance of 3m.
The measuring antenna height was varied between 1 to 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.
The measurements were performed for both vertical and horizontal antenna polarization.

Radiated Spurious emissions
In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement. The result was also satisfied the general limits specified in Sec.15.209(a).
Measurement range : 30MHz to 1000MHz CISPR QP Detector, IF BW 120kHz
: 1GHz to 26GHz PK and AV Detector

Test data : APPENDIX A8 to A11 (30- 1000MHz)
: APPENDIX A12 to A14 (1- 26GHz)
: APPENDIX A15 to A18 (2390MHz/2483.5MHz: Restricted band Charts)
Photographs of test setup : Page12(2)
Test result : Pass
Test instruments : AF-01, AF-06, AT-06, AT-15, BA-03, LA-06, HA-02, HA-03, SA-04, SA-06, TR-06, HF-04

5.5 § 15.247(c) Out of Band Emissions (Antenna Port Conducted)

Test Procedure

The Out of Band Emissions (Conducted) was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX A19 to A27
Test result : Pass
Test instruments : SA-06

5.6 § 15.247(d) Power Density (Antenna Port Conducted)

Test Procedure

The Power Density was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX A28 to A29
Test result : Pass
Test instruments : SA-06

Photographs of test setup(1)

Photographs of test setup(2)

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APPENDIX

Test Data

Test Instruments