



ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

Test report file number : E012R-049

Applicant : KOREA NETWORK CORPORATION

Address : 122-1, Ohjon-Dong, Uiwang-Si, Kyunggi-Do, 437-070, Korea

Manufacturer : KOREA NETWORK CORPORATION

Address : 339-10, Dangjung-Dong, Gunpo-Si, Kyunggi-Do, 435-030, Korea

Type of Equipment : CABLE MODEM

FCC ID : PJCKNC-MNG1000

Model / Type No. : MNG-1000

Serial number : N/A

Total page of Report : 13 pages (including this page)

Date of Incoming : February 12, 2001

Date of issuing : February 28, 2001

SUMMARY

The equipment complies with the regulation; FCC CFR47 PART 15 SUBPART B SECTION 15.101.

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Prepared by:

Y. K. Nam / Asst. Chief Engineer
EMC Dept.
ONETECH Corp.

Approved by:

S. S. Hong / Managing Director
EMC Dept.
ONETECH Corp.



CONTENTS

	Page
1. CERTIFICATION OF COMPLIANCE.....	3
2. GENERAL INFORMATION.....	4
2.1 PRODUCT DESCRIPTION	4
2.2 RELATED SUBMITTAL(S) / GRANT(S).....	4
2.3 TEST SYSTEM DETAILS.....	5
2.4 TEST METHODOLOGY	5
2.5 TEST FACILITY	5
3. SYSTEM TEST CONFIGURATION	6
3.1 JUSTIFICATION	6
3.2 EUT EXERCISE SOFTWARE	6
3.3 CABLE DESCRIPTION	6
3.4 NOISE SUPPRESSION PARTS ON CABLE	7
3.5 EQUIPMENT MODIFICATIONS.....	7
3.6 CONFIGURATION OF TEST SYSTEM	7
4. PRELIMINARY TEST.....	8
4.1 AC POWER LINE CONDUCTED EMISSION TEST	8
4.2 RADIATED EMISSION TEST	8
5. FINAL RESULT OF MEASUREMENT.....	9
5.1 CONDUCTED EMISSION TEST	9
5.2 RADIATED EMISSION TEST	11
6. FIELD STRENGTH CALCULATION.....	12
7. LIST OF TEST EQUIPMENT.....	13



1. CERTIFICATION OF COMPLIANCE

APPLICANT : KOREA NETWORK CORPORATION
ADDRESS : 122-1, Ohjon-Dong, Uiwang-Si, Kyunggi-Do, 437-070, Korea
CONTACT PERSON : Young-Soo, Lee / Senior Manager
TELEPHONE NO : 82-31-428-8108
FCC ID : PJCKNC-MNG1000
MODEL NO/NAME : MNG-1000
SERIAL NUMBER : N/A
DATE : February 28, 2001

DEVICE TYPE	Peripheral Device for Class B Computing Device -Unintentional Radiator
E.U.T. DESCRIPTION	CABLE MODEM
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	ANSI C63.4/1992
TYPE OF EQUIPMENT TESTED	PRE-PRODUCTION
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	CERTIFICATION
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC CFR47 PART 15 Section 15.101
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	No
FINAL TEST WAS CONDUCTED ON	3 METER OPEN AREA TEST SITE

The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

2. GENERAL INFORMATION

2.1 Product Description

The KOREA NETWORK CORPORATION, Model MNG-1000 (referred to as the EUT in this report) is an CABLE MODEM to support super-high-speed tele-communication network consumer premise equipment (CPE) supporting multimedia communication such as internet movie, 3D game, tele-conference, etc, on cable network without any connection to telephone line. Product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic – Non Coated
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	20.00 MHz, 24.00 MHz, 40.00 MHz, 48.00 MHz on the Main Board. 4.00 MHz, 49.50 MHz on the Tuner Board
POWER REQUIREMENT	Input: 120Vac/60Hz/8W, Output: DC7.5V/1000mA from AC/DC Adapter
NUMBER OF LAYERS	Main Board : 6 Layers, Tuner and power Board : 2 Layers
EXTERNAL CONNECTOR	DC Input port for power, Ethernet port and RF Input Port

Model Differences:

-. None

2.2 Related Submittal(s) / Grant(s)

Original submittal only

2.3 Test System Details

The model numbers for all the equipments which were used in the tested system is:

Model	Manufacturer	FCC ID	Description	Connected to
MNG-1000	KOREA NETWORK CORPORATION	PJCKNC-MNG1000	CABLE MODEM (EUT)	PC
TC-PA1000	TAEIL	LIZ-TCPA1000	PC	N/A
AV-5T	KDS	EVOKD-1510T	MONITOR	PC
SKR-1032	SEJIN Elec	GJJSKR-1032B	KEYBOARD	PC
OK-520	A4-TECH	DOC	MOUSE	PC
2225C	HP	DSI6XU2225	PRINTER	PC
* UBR 7223	CISCO	N/A	Control Office (CO)	EUT
020-0470	CARDINAL	GDE0196	MODEM	PC
YK-07100UF	YANGWON ELEC	N/A	AC/DC Adapter	EUT

Remark: * marked equipment is control office to support communication with the EUT and was located in the test room.

2.4 Test Methodology

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

2.5 Test Facility

The open area test site and conducted measurement facilities are located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Description details of test facilities were submitted to the Commission on January 12, 1999. (Registration Number: 92819)

3. SYSTEM TEST CONFIGURATION

3.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.: This product consist of PCB with components.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
MAIN BOARD	KOREA NETWORK CORPORATION	N/A	N/A
POWER BOARD	YANG WON ELECTRONICS.	YK-01700UF	N/A
TUNER BOARD	TEMIC	4937	N/A

3.2 EUT exercise Software

The Tuner port of the EUT was connected to the control office device(CO) which was installed in the test room, and the Ethernet port of the EUT was connected to Lan port of the Personal Computer. The data from CO and/or PC were transmitted and received through the EUT using "Ping-t" program during the testing.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
CABLE MODEM (EUT)	N	N	1.5(P), 1.2(D), 30.0(D)
PC	N	-	1.5(P)
MONITOR	N	Y	1.5(P), 1.8(D)
KEYBOARD	N/A	Y	1.8(D)
MOUSE	N/A	Y	1.8(D)
PRINTER	N	Y	1.5(P), 1.2(D)
MODEM	N	Y	1.5(P), 1.2(D)
Control Office (CO)	N	N	1.5(P), 30.0(D)

* The marked "(P)" means the Power Cable, "(D)" means the Data cable.

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
CABLE MODEM (EUT)	N	N/A	Y	EUT END
PC	-	-	-	-
MONITOR	Y	BOTH END	Y	PC END
KEYBOARD	Y	PC END	Y	PC END
MOUSE	N	N/A	Y	PC END
PRINTER	N	N/A	Y	BOTH END
MODEM	N	N/A	Y	BOTH END
Control Office (CO)	N	N/A	N	N/A
AC/DC ADAPTER	Y	BOTH END	Y	EUT END

3.5 Equipment Modifications

To achieve compliance to CLASS B levels, the following change(s) was made by ONETECH Corp. during compliance testing:

“Not Applicable”

3.6 Configuration of Test System

Line Conducted Test: The AC/DC Adapter for the EUT was connected to LISN. All supporting equipments were connected to another LISN. Preliminary power line conducted emission test was performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test: Preliminary radiated emission test was conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission test was conducted at 3 meters open area test site.



4. PRELIMINARY TEST

4.1 AC Power line Conducted Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Continuously transferring data between CO and EUT	X

4.2 Radiated Emission Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
Continuously transferring data between CO and EUT	X

**5. FINAL RESULT OF MEASUREMENT**

Preliminary test was done in normal operation mode. And the final measurement was selected for the maximized emission level

5.1 Conducted Emission Test

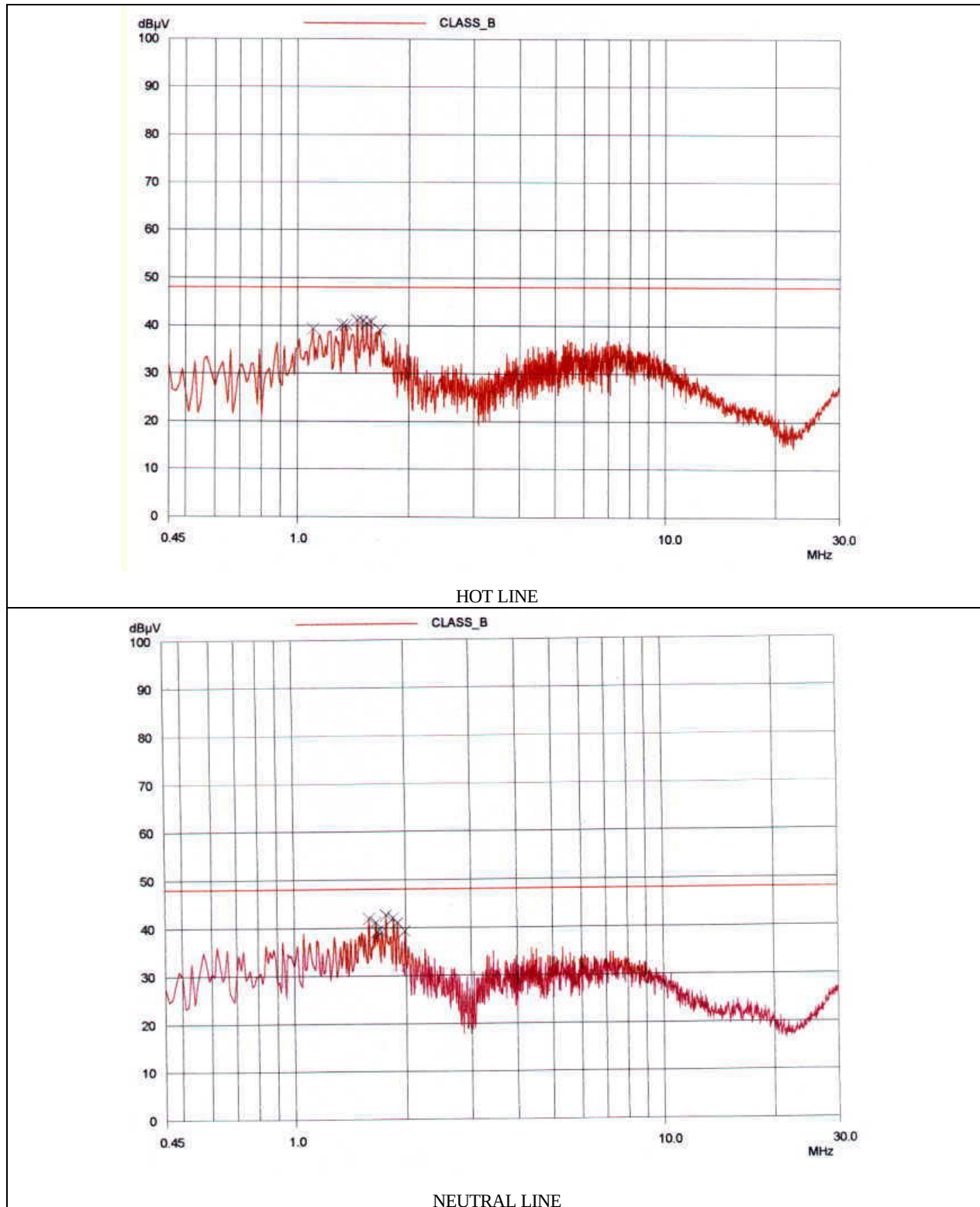
Humidity Level : 42 % Temperature : 19
Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.107
Type of Test : CLASS B
Result : PASSED BY -5.39 dB at 1.77 MHz

EUT : CABLE MODEM Date: February 26, 2001
Operating Condition : Continuously transferring data between Control Office and EUT
Detector : CISPR QuasiPeak (6 dB Bandwidth: 9 kHz)

Power Line Conducted Emission			FCC CLASS B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Limit (dBuV)	Margin (dB)
0.45	32.50	HOT	48.00	-15.50
0.68	36.20	NEUTRAL	48.00	-11.80
1.32	40.24	HOT	48.00	-7.76
1.45	41.20	HOT	48.00	-6.80
1.59	41.96	NEUTRAL	48.00	-6.04
1.77	42.61	NEUTRAL	48.00	-5.39
1.90	41.04	NEUTRAL	48.00	-6.96

Line Conducted Emission Tabulated Data

Measuring by: Seung -Hyun, Nam / Project Engineer



This report shall not be reproduced except in full without our written approval.

FCC-004 (Rev.0)

HEAD OFFICE : #505 SK APT. Factory 223-28, Sangdaewon 1 Dong, Jungwon-Gu, Seongnam-City, Kyunggi-Do, 462-121, Korea
(TEL: 82-31-746-8500 FAX: 82-31-746-8700)

EMC Testing Dept : 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-860 Korea. (TEL: 82-31-765-8289 FAX: 82-31-766-2904)

5.2 Radiated Emission Test

The following table shows the highest levels of radiated emission on both polarizations of horizontal and vertical.

Humidity Level : 48% Temperature : 17
 Limits apply to : FCC CFR 47, PART 15, SUBPART B, SECTION 15.109
 Type of Test : CLASS B
 Result : PASSED BY -4.43 dB at 679.60 MHz

EUT : CABLE MODEM Date: February 9, 2001
 Operating Condition : Continuously transferring data between Centrol Office and EUT
 Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
 Distance : 3 Meter

Radiated Emission		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBuV)	Pol.	Ant. (dBuV/m)	Cable (dB)	Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
72.00	25.10	V	6.90	1.00	33.00	40.00	-7.00
192.00	18.10	H	16.44	1.52	36.06	43.50	-7.44
199.60	18.90	H	16.52	1.57	36.99	43.50	-6.51
280.00	24.60	H	14.35	1.91	40.86	46.00	-5.14
439.60	19.10	H	16.70	2.52	38.32	46.00	-7.68
480.00	17.10	H	17.75	2.62	37.47	46.00	-8.53
639.20	14.70	V	19.88	3.05	37.63	46.00	-8.37
679.60	17.70	V	20.67	3.20	41.57	46.00	-4.43
760.00	14.50	V	20.83	3.55	38.88	46.00	-7.12
840.00	13.70	H	22.50	3.81	40.01	46.00	-5.99
880.40	12.50	V	22.58	3.89	38.97	46.00	-7.03

Radiated Emission Tabulated Data



Measuring by: Seung -Hyun, Nam / Project Engineer



6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+ Meter reading (dBuV)

+ Cable Loss (dB)

+ Antenna Factor (Loss) (dB/meter)

= Corrected Reading (dBuV/meter)

- Specification Limit (dBuV/meter)

= dB Relative to Spec (+/- dB)

7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	827864/005	OCT/00	12MONTH	■
2.	Test receiver	R/S	ESHS10	834467/007	APR/00	12MONTH	■
3.	Spectrum analyzer	HP	8568B	3026A0226	SEP/00	12MONTH	■
4.	RF preselecto	HP	85685A	3107A01264	SEP/00	12MONTH	■
5.	Quasi-Peak Adapter	HP	85650A	3107A01542	SEP/00	12MONTH	■
6.	Dipole Antenna	EMCO	3121C	9107-745	JUN/00	12MONTH	
7.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	MAR/00	12MONTH	■
8.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	JUN/00	12MONTH	■
9.	LISN	EMCO	3825/2	9109-1867 9109-1869	JUN/00	12MONTH	■
10.	RF Amplifier	HP	8447F	3113A04554	JUN/00	N/A	
11.	Spectrum Analyzer	HP	8591A	3131A02312	APR/00	12MONTH	
12.	Computer System	HP	98581C	98543A	N/A	N/A	■
	Hard disk drive		9153C	CMC762Z9153	N/A	N/A	■
13.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
14.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
15.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
16.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■