EXHIBIT 4. TECHNICAL INFORMATION:

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

TV INTERFACE DEVICE
CERTIFICATION TO FCC PART 15 REQUIREMENT

PRODUCT	V-CHIP DECODER		
FCC ID	NRBSWDV-1		
MODEL NO.	DV.1	SERIAL NO.	N/A
APPLICANT & ADDRESS	SHINWA TRADING CO., LTD. ROOM 306, JUNGWOO BLDG., 13-25, YEOEUIDO-DONG, YOUNGDEUNGPO-KU, SEOUL, KOREA		

REPORT NO.	E985R-010	ISSUE DATE	May 15, 1998
PREPARED BY :	ONETECH CORPORATION 2 F. KUNHAN B/D, 1557-11, SEOCHO-DONG, SEOCHO-KU, SEOUL 137-070 KOREA (TEL)02-587-9037(FAX)02-587-9039		

8. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESVS 10	825120/006	AUG/97	12MONTH	■
2.	Spectrum analyzer	HP	8568B	3026A0226	AUG/97	12MONTH	■
3.	RF preselector	HP	85685A	3107A01264	AUG/97	12MONTH	■
4.	Quasi-Peak Adapter	HP	85650A	3107A01542	AUG/97	12MONTH	■
5.	Matching Pad	TME	ZT-130	9F 954	N/A	N/A	■
6.	Loop Antenna	EMCO	6502	9108-2668	DEC/96	12MONTH	
7.	Dipole Antenna	EMCO	3121C	9107-745	DEC/96	12MONTH	
8.	Biconical antenna	EMCO	3104C	9109-4441 9109-4443 9109-4444	FEB./97	12MONTH	■
9.	Log Periodic antenna	EMCO	3146	9109-3213 9109-3214 9109-3217	FEB./97	12MONTH	■
10.	LISN	EMCO	3825/2	9109-1867 9109-1869	FEB/97	12MONTH	■
11.	RF Amplifier	HP	8447F	3113A04554	N/A	N/A	■
12.	3dB Attenuator	R/S	DNF	N/A	N/A	N/A	■
13.	Spectrum Analyzer	HP	8591A	3131A02312	APRIL/95	12MONTH	
14.	Computer System Hard disk drive	HP	98581C 9153C	98543A CMC762Z9153	N/A N/A	N/A N/A	■ ■
15.	Plotter	HP	7475A	30052 22986	N/A	N/A	■
16.	Position Controller	EMCO	1090	9107-1038	N/A	N/A	■
17.	Turn Table	EMCO	1080-1.21	9109-1576	N/A	N/A	■
18.	Turn Table	ROBOTECH			N/A	N/A	
19.	Antenna Master	EMCO	1070-1	9109-1624	N/A	N/A	■
20.	Antenna Master	COMPLIANCE DESIGN INC	CD M-100		N/A	N/A	

EXHIBIT 5. PHOTO REPORT

TV INTERFACE DEVICE
CERTIFICATION TO FCC PART 15 REQUIREMENT

PRODUCT	V-CHIP DECODER		
FCC ID	NRBSWDV-1		
MODEL NO.	DV.1	SERIAL NO.	N/A
APPLICANT & ADDRESS	SHINWA TRADING CO., LTD. ROOM 306, JUNGWOO BLDG., 13-25, YEOEUIDO-DONG, YOUNGDEUNGPO-KU, SEOUL, KOREA		

REPORT NO.	E985R-010	ISSUE DATE	May 15, 1998
PREPARED BY :	ONETECH CORPORATION 2 F. KUNHAN B/D, 1557-11, SEOCHO-DONG, SEOCHO-KU, SEOUL 137-070 KOREA (TEL)02-587-9037(FAX)02-587-9039		

TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE

APPLICANT : SHINWA TRADING CO., LTD.
ROOM 306, JUNGWOO BLDG., 13-25, YEOEUIDO-DONG,
YOUNGDEUNGPO-KU, SEOUL, KOREA

CONTACT PERSON : H. K. Park / R & D Dept. Chief

TELEPHONE NO : 82-2-783-8296

FCC ID : NRBSWDV-1 MODEL NO/NAME : DV.1

SERIAL NUMBER : N/A

DATE : May 15, 1998

DEVICE TYPE	TV Interface Device-Unintentional Radiator
E.U.T. DESCRIPTION	V-CHIP DECODER
THIS REPORT CONCERNS	ORIGINAL GRANT
MEASUREMENT PROCEDURES	MP-3, 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)	PART 15
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE COMPLIANCE	NO
FINAL TEST WERE CONDUCTED ON	3 METER OPEN TEST SITE

The above equipment was tested by ONETECH CORPORATION 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.

YONG KWANG KWON / CHIEF ENGINEER
EMC TESTING DEPARTMENT
ONETECH Testing & Eval. Lab.
SEOUL KOREA

2. GENERAL INFORMATION

2.1 Product Description

The SHINWA TRADING CO., LTD., Model DV.1 (referred to as the EUT in this report) is a V-CHIP DECODER. Product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>=1MHz)	4MHz
POWER REQUIREMENT	12V DC from AC adapter
APPLICATION BROADCASTING SYSTEM	NTSC
RF INPUT CHANNEL & FREQUENCY	NTSC 3 CHANNEL / VIF : 61.25MHz, SIF : 65.75MHz
RF OUTPUT CHANNEL & FREQUENCY	NTSC 3 CHANNEL / VIF : 61.25MHz, SIF : 65.75MHz
RF IN/OUT TERMINAL IMPEDANCE	75 OHM (Unbalanced F-Type connector)
NUMBER OF RF IN/OUT TERMINAL	1 EA at each
ACCESSORIES CONNECTED TO THE EUT	Remote control unit
NO. OF EXTERNAL CONNECTOR	4 EA (RF IN/OUT, Remote control unit, DC IN)

* The V-Chip decoder allows user to determine what programs user want their family to watch. Programs are rated using codes which indicate the age level for which the programming is considered appropriate.

Model Differences:

No other model differences have been mentioned

2.2 Related Submittal(s) / Grant(s)

Original submittal only

2.3 Test System Details

The Model numbers for all equipment used in the tested system are :

Model	Manufacturer	FCC ID	Description	Connected to
DV.1	SHINWA TRADING	NRBSWDV-1	V-CHIP DECODER (EUT)	N/A
CT-1447	SAMSUNG ELECTRONICS	N/A	TELEVISION	EUT
MA/2X-1	KEC	BRFKVP11KU	VTR	EUT
KX-TWT-13	N. H. P.	N/A	AC adapter	EUT

2.4 Test Methodology

The measurement for Radiated Emissions, Line Conducted Emissions, Output signal levels and Output Terminal Conducted Spurious Emissions were performed in accordance with the procedures described in MP-3 and ANSI C63.4/1992. Radiated testing was performed at an antenna to EUT distance of 3 meters.

2.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on at 426-1 Daessangryung-Ri, Chowol-Myun, Kwangju-Kun, Kyunggi-Do 464-080 Korea. Detailed description of test facility was submitted to the Commission on January 24, 1996(31040/SIT, 1200F2).

3. SYSTEM TEST CONFIGURATION

3.1 Justification

The device was configured for testing in a typical fashion (as a customer would normally use it). During the test, the following components inside the EUT were installed.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
RF MODULATOR	LG Electronics Component Ltd.	MI8NS101F	N/A
MAIN BOARD	SHINWA TRADING	N/A	N/A

3.2 EUT exercise Software

According to the requirements in Subpart B of Part 15, the measurement is made at each function of the EUT being connected with appropriate cables and peripherals.

The model DV.1 has RF in/output terminals for only channel 3. Therefore, every measurement was investigated in the operation modes at channel 3.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O cable Shielded (Y/N)	Length (M)
V-CHIP DECODER(EUT)	N	N	1.5(P), 1.2(D)
VCR	N	N	1.5(P), 1.2(D)
TELEVISION	N	N	1.2(P), 1.2(D)
AC ADAPTER	N	N/A	1.5(P)

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

3.4 Noise Suppression Parts on Cable

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
V-CHIP DECODER(EUT)	N	N/A	Y	BOTH END
VCR	N	N/A	Y	BOTH END
TELEVISION	N	N/A	Y	BOTH END
AC ADAPTER	N	N/A	Y	EUT END

3.5 Equipment Modifications

-. There were no modified items during EMI test

3.6 Configuration of Test System

3.6.1 Line Conducted Test

EUT was connected to LISN, all supporting equipment were connected to another LISN. Preliminary Powerline Conducted Emission tests were performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

3.6.2 Radiated Emission Test

Preliminary radiated emissions test were conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating conditions. Final radiated emission tests were conducted at 3meter open area test site.

3.6.3 Output Signal Level Test

The output voltage of video carrier frequency at the RF-output terminal of the EUT was measured at 3-channel connecting directly to a spectrum analyzer with 50 Ω input impedance via 75-to-50 Ω matching pad. Indicated voltage on screen of measuring instrument was converted to the voltage of 75 Ω system.

Data conversion method is as follows.

$$V_{75}[uV] = 10^{(Vr+CF)/20}[uV]$$

here, V_{75} : Voltage at the RF-out terminal of 75 Ω in μV,

Vr : Voltage read at analyzer with 50 Ω input-impedance in $dB\mu V$,

CF : Conversion Factor of the matching pad in dB.

3.6.4 Output Terminal Conducted Spurious Emission test :

Any other spectrum at RF-output terminal appearing on frequencies removed by more than 4.6㎒ below or 7.4 ㎒ above the video carrier frequency of EUT was searched at 3-channel.

Data conversion method is as follows.

$$V_{75}[uV] = 10^{(Vr+CF+AT)/20}[uV]$$

here, V_{75} :Voltage at the RF-out terminal of 75Ω in μV,

V_r : Voltage read at analyzer with 50Ω input-impedance in $dB\mu V$,

CF : Conversion Factor of the matching pad in dB,

AT: Attenuation of attenuator in dB.

3.6.5 Transfer Switch Isolation Test

As a transfer switch was equipped with EUT as an antenna-in, measurement of isolation were made at RF-input terminal with rated input impedance.

The maximum voltage of video carrier frequency of the EUT at the antenna input (RF-in) terminal of the switch was measured for both channels.

Data conversion method is as follows.

$$V_{75}[uV] = 10^{(Vr+CF-PG+AT)/20}[uV]$$

here, V_{75} : Voltage at the RF-out terminal of 75Ω in μV,

V_r : Voltage read at analyzer with 50Ω input-impedance in $dB\mu V$,

CF : Conversion Factor of the matching pad in dB,

PG : Gain of pre-amplifier in dB,

AT: Attenuation of attenuator in dB.

4. PRELIMINARY TEST

4.1 AC Powerline Conducted Emissions Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
CH. 3	X

4.2 Radiated Emissions Test

During Preliminary Test, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
CH. 3	X

Tested by: Gea Won, Lee

Date: May 6, 1998

6. FINAL TEST DATA SUMMARY

Per preliminary test, the following normal mode of operations were selected which shown the maximum emissions level.

6.1 Conducted Emissions Test

Humidity Level : 52% Temperature : 21℃

Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section 15.107)

Type of Test : TV Interface Device

Result : PASSED BY -3.60dB

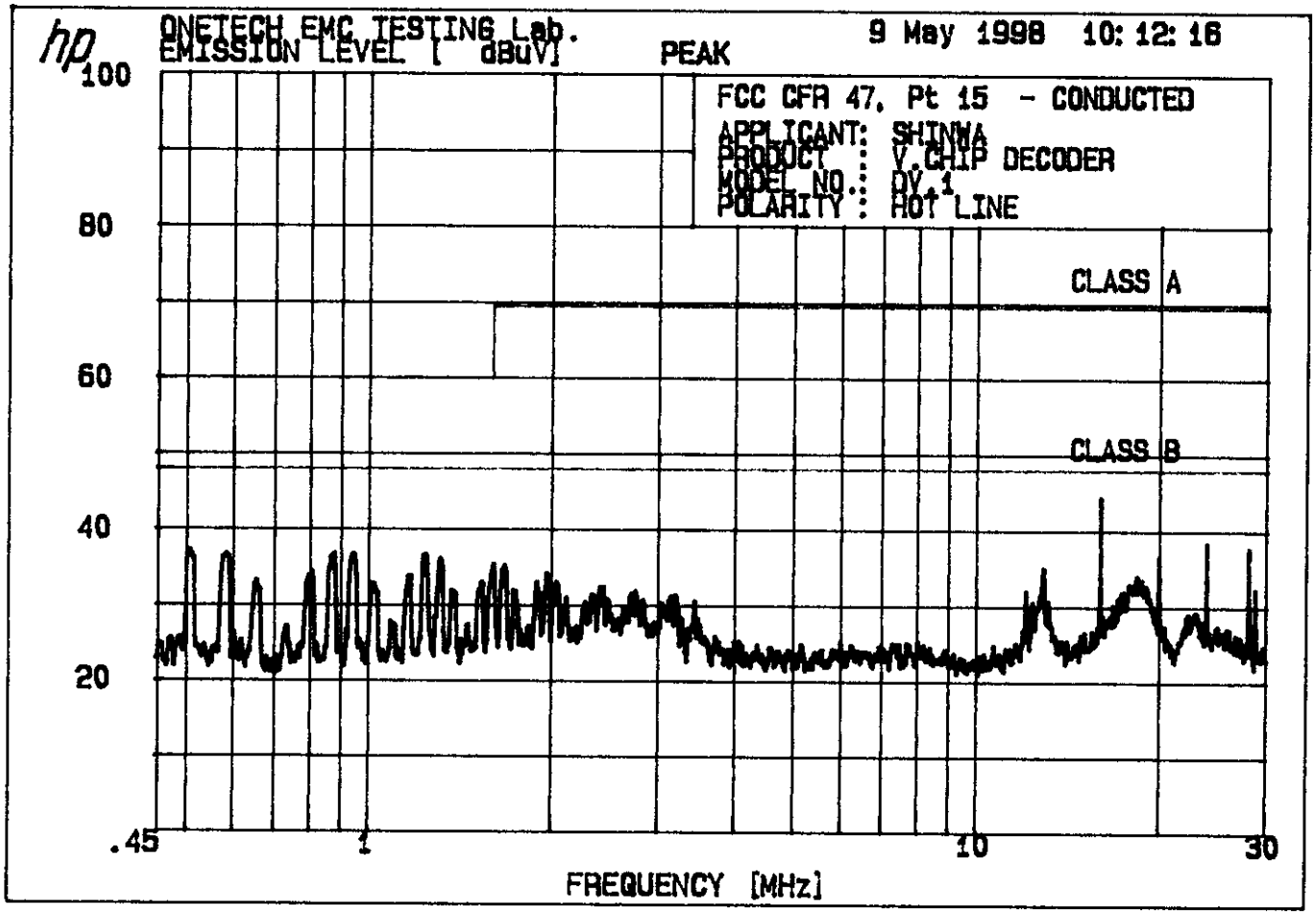
EUT : V-CHIP DECODER Date: May 9, 1998.

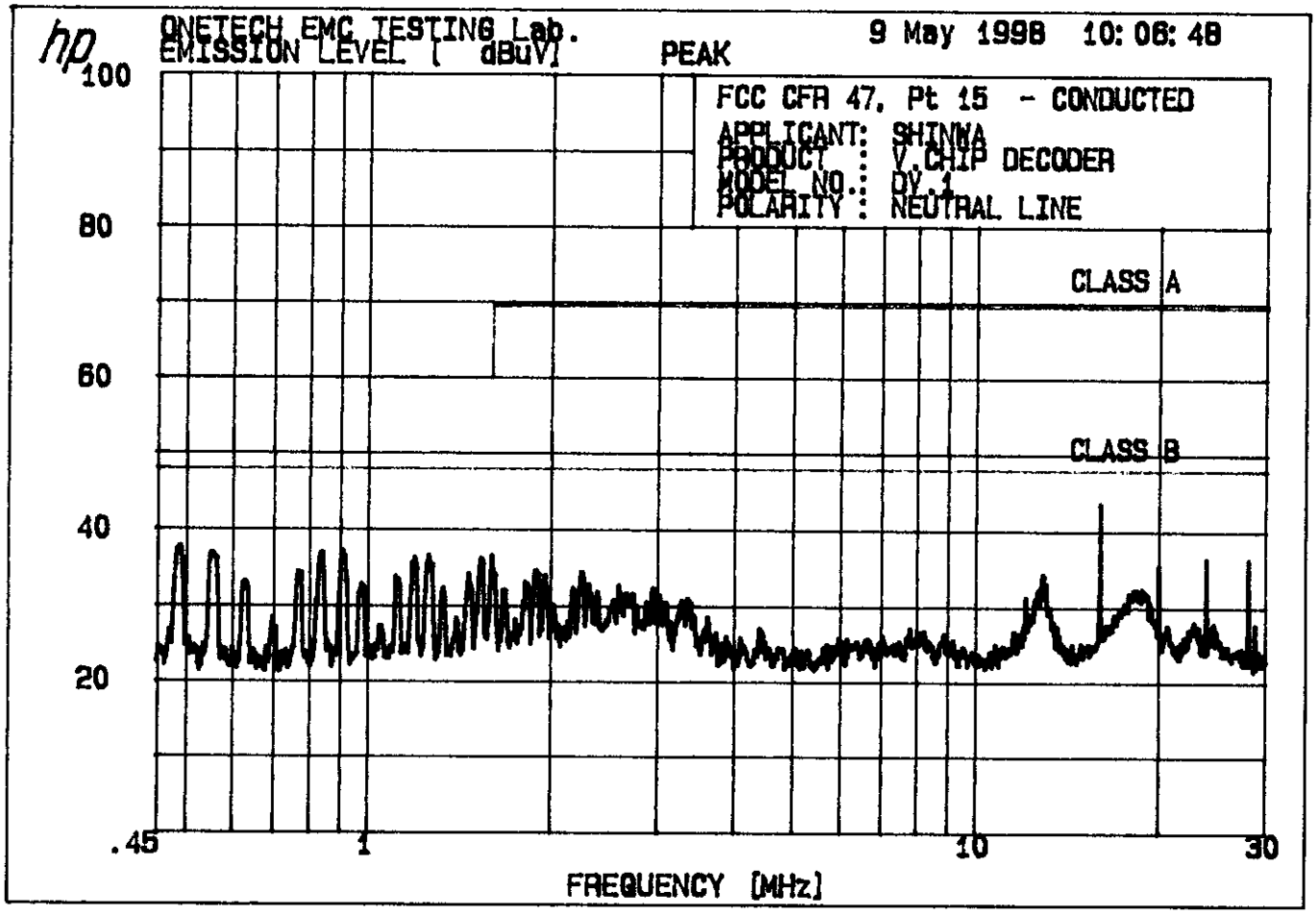
Operating Condition : V.gis control "MENU ON"

Detector : CISPR Quasi-Peak (6 dB Bandwidth : 9 kHz)

Power Line Conducted Emissions			FCC CLASS B	
Frequency (MHz)	Amplitude (dBμV)	Conductor	Limit (dBμV)	Margin (dB)
0.49	37.70	N	48.00	-10.30
0.91	37.10	N	48.00	-10.90
1.60	36.60	N	48.00	-11.40
15.99	44.40	H	48.00	-3.60
23.92	38.40	H	48.00	-9.60
28.05	37.70	H	48.00	-10.30

Measuring by: Gea Won, Lee / Prj. Engineer


hp
ONETECH EMC TESTING Lab.
EMISSION LEVEL [dBuV]
PEAK
9 May 1998 10: 12: 16
FCC CFR 47, Pt 15 - CONDUCTED
APPLICANT: SHINWA
PRODUCT : V.CHIP DECODER
MODEL NO.: DV-1
POLARITY : HOT LINE
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]


hp
ONETECH EMC TESTING Lab.
EMISSION LEVEL [dBuV]
PEAK
9 May 1998 10: 06: 48
FCC CFR 47, Pt 15 - CONDUCTED
APPLICANT: SHINWA
PRODUCT : V.CHIP DECODER
MODEL NO.: DV-1
POLARITY : NEUTRAL LINE
CLASS A
CLASS B
100
80
60
40
20
.45
1
10
30
FREQUENCY [MHz]

6.2 Radiated Emission Test

The following table shows the highest levels of radiated emissions on both polarization of horizontal and vertical.

Humidity Level : 52 % Temperature : 21℃

Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section 15.109)

Type of Test : TV Interface Device

Result : PASSED BY -9.89dB

EUT : V-CHIP DECODER Date: May 9, 1998

Operating Condition : V.gis control "MENU ON"

Detector : CISPR Quasi-Peak (6 dB Bandwidth : 120 kHz)

Distance : 3 Meter

Radiated Emissions		Ant	Correction Factors		Total	FCC CLASS B	
Freq. (MHz)	Amp. (dBμV)	Pol.	Ant. (dBμV)	Cable (dB)	Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)
35.98	15.90	V	11.67	2.54	30.11	40.00	-9.89
51.98	9.70	V	10.22	2.88	22.80	40.00	-17.20
222.80	10.00	H	11.81	4.47	26.28	46.00	-19.72
267.80	7.90	H	12.88	4.81	25.59	46.00	-20.41

Measuring by: Gea Won, Lee / Prj. Engineer

6.3 Output Terminal Signal Level Test

The following table shows that the all modes of operation and worst-case emissions were investigated

Humidity Level : 52 % Temperature : 21℃

Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section 15.115)

EUT : V-CHIP DECODER Date: May 9, 1998

Operating Condition : V.gis control "MENU ON"

Detector : SPAN : 10 ㎒ SWP : 20 msec

RBW : 100 ㎑ VBW : 300㎑

Output Impedance of RF-Output Terminal : 75 Ω

CH	Freq.(㎒)	Reading(dBuV)	M/P Loss(dB)	Signal Level(uV)	Limit(uV)	Margin(dB)
3 (Visual)	61.25	56.5	6.0	1333.5	3000	-7.04
3 (Aural)	65.75	42.1	6.0	254.1	671	-8.43

MP = Impedance Matching Pad

*Sample Calculation at 61.25㎒ = $10^{[(56.5+6.0)/20]}$ = 1333.5uV

*Margin [dB] = 20 log (R/L) where, R : Corrected Results, [uV] or [uV/m], L : Corresponding Limit, [uV] or [uV/m].

Measuring by: **Gea Won, Lee / Prj. Engineer**

6.4 Output Terminal Conducted Spurious Emissions Test

The following table shows that frequency range of 30㎒ to 1000㎒removed by more than 4.6㎒ below or 7.4㎒ above the video carrier frequency of EUT was investigated at each channel.

Humidity Level : 52 % Temperature : 21℃

Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section 15.115)

EUT : V-CHIP DECODER Date: May 9, 1998

Operating Condition : V.gis control "MENU ON"

Detector : SPAN : 10 ㎒ SWP : 20 msec

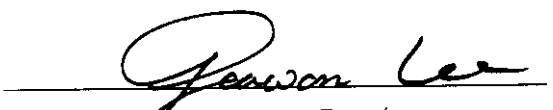
RBW : 100 ㎑ VBW : 300㎑

Output Impedance of RF-Output Terminal : 75 Ω

CH.	Freq. (㎒)	Reading (dBuV)	M/P Loss (dB)	Attn. (dB)	Output Level(uV)	Limit (uV)	Margin (dB)
3	44.70	14.30	6.0	3.0	14.62	95	-16.26
	122.24	9.30			8.22		-21.26
	179.30	8.80			7.76		-21.76
	183.80	13.60			13.49		-16.95
	188.30	8.10			7.16		-22.46
	244.60	7.30			6.53		-23.26

* Sample Calculation at 44.7㎒ = $10^{[(14.30 + 6.0 + 3.0)/20]}$ = 14.62uV

*Margin [dB] = 20 log (R/L) where, R : Corrected Results, [uV] or [uV/m], L : Corresponding Limit, [uV] or [uV/m].



Measuring by: **Gea Won, Lee / Prj. Engineer**

6.5 Transfer Switch Isolation Test

The following table shows that the maximum voltage of video carrier frequency of the EUT at the antenna input(RF-in) terminal of the switch was measured for both channels.

Humidity Level : % Temperature : ℃

Limits apply to : FCC CFR 47, PART 15, SUBPART B (Section 15.115)

EUT : V-CHIP DECODER Date:

Operating Condition : V.gis control "MENU ON"

Detector : SPAN : 1 MHz SWP : 30 msec

RBW : 10 kHz VBW : 30 kHz

Output Impedance of RF-Output Terminal : 75 Ω

CH.	Freq. (MHz)	Meter Reading (dBuV)	M/P Loss (dB)	PreAmp Gain(dB)	Attn. (dB)	Signal Level (uV)	Limit (uV)	Margin (dB)
"There is not need to test this requirement because this equipment does not provide the connector of the separate antenna to receive standard over-the-air broadcast signals."								

Measuring by: Gea Won, Lee / Prj. Engineer

7. FIELD STRENGTH CALCULATION

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

+	Meter reading	(dBμV)
+	Cable Loss	(dB)
+	Antenna Factor (Loss)	(dB/meter)
=	Corrected Reading	(dBμV/meter)
-	Specification Limit	(dBμV/meter)
=	dB Relative to Spec	(+/- dB)