

MEASUREMENT/TECHNICAL REPORT

HYUNDAI ELECTRONICS INDUSTRIES CO.,LTD.

MODEL : S770

This report concerns(check one) : Original grant ☒ Class ☐ ±change _____

Equipment type : MONITOR

Deferred grant requested per 47 CFR 0.457(d)(1)(☐ ☒? yes _____ no ☒

If yes, defer until: _____

_____ agrees to notify the Commission by _____

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? yes _____ no ☒

If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-91 Edition] provision.

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1. GENERAL INFORMATION

1.1 Product Description

The Hyundai Electronics Industries Co., Ltd. Model S770(referred to as the EUT in this report) is a 17"COLOR Monitor HOR. Freq. 68.7kHz w/max. Resolution of 1024 ; 768 Non-Interlaced.

Product specification information described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	PLASTIC
LIST OF EACH OSC. OR XTAL. FREQ.(FREQ. ; 1MHz)	6 MHz
CHIPSET BRAND AND PART NO.	MOTOROLA : LSC4388P1 MOTOROLA : LSC500880B PHILIPS : TDA4854 PHILIPS : TDA4856 MOTOROLA : MC13282EP SGS TOMSON : UC3842 MICRO CHIP : 24LC21 MICRO CHIP : 24LC08 Calogic : CAV1404T SAMSUNG : KA358
POWER REQUIREMENT	100 - 240 VAC/50 Hz OR 60 Hz 1.3A
NUMBER OF LAYERS	MAIN BOARD 1 LAYER CRT SOCKET BOARD 1 LAYER
MAX. RESOLUTION	1024 X 768 NON-INTERLACED (@ 68.7kHz/85Hz)
H-SYNC FREQUENCY RANGE	30 kHz ; - 70 kHz
V-SYNC FREQUENCY RANGE	50 Hz ; - 150 Hz
CRT SIZE	17" (LG / Type : M41LFQ803X20)
VIDEO CONNECTOR TYPE	D-SUB 15-PIN,

1.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

1.3 Tested System Details

The Model names for all equipment, plus descriptions used in the tested system (including inserted cards) are:

DEVICE TYPE	MANUFACTURER	MODEL NUMBER	FCC ID / DoC	CONNECTED TO
COLOR MONITOR(EUT)	HYUNDAI	S770	CKLS770	HOST
PC(HOST)	H/P	HP BRIO 80XX	DoC	N/A
KEYBOARD	H/P	SK-2501-2D-K	DZL211029	HOST
PRINTER	H/P	C2168A	B94C2121X	HOST
MODEM	HYUNDAI	HMD-2404M	CKL8J7HMD-2404M	HOST
MOUSE	H/P	M-S34	GYUR38SK	HOST

1.4 Test Methodology

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

1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1,MAEKOK-RI,HOBUP-MYUN,ICHON-SI,KYOUNGKI-DO, 467-701,KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission on May 22, 1997 and accepted dated July 25,1997(1300F2)

2. PRODUCT LABELLING AND USER INFORMATION

2.1 Product Label

Following is a copy of the label that will be placed on the rear side of the cabinet.

Figure 3.1 PRODUCT LABEL

Both the FCC ID and compliance statement are included in the product label

•HYUNDAI	
Model NO	: S770
POWER	: AC 100-240VAC 1.3 A
FCC ID	: CKLS770
Serial No :	
<p>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:</p> <p>(1) This device may not cause harmful interference, and</p> <p>(2) This device must accept any interference received, including interference that may cause undesired operation.</p>	
<p>" Product complies with DHHS Rules-21 CFR subchapter J-applicable at date of manufacture"</p> <p>HYUNDAI ELECTRONICS AMERICA 166 Baypoint Parkway, San Jose , CA 95134 MANUFACTURED BY HYUNDAI ELECTRONICS IND. CO., LTD.</p> <p>MADE IN KOREA</p>	

2.2 User Information

Attachment A is the user's guide for the S770 COLOR MONITOR. The information to the user required by the FCC rules section 15.21 and 15.105 are included in the front page of the manual.

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 tests, the following components and I/O cards inside the E.U.T were used.

DEVICE TYPE	MANUFACTURE	MODEL/PART NUMBER
MAIN BOARD	HYUNDAI	E42087158**
CRT SOCKET BOARD	HYUNDAI	E42087158**

3.2 EUT exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software, contained on a 3-1/2 inch disc, was inserted into drive A and is auto starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is :(1) Display test, (2) RS 232 test (3) Key board test,(4) Printer test,(5) FDD test,(6) HDD test. The complete cycle takes about 20 seconds and is repeated continuously. As the keyboard and mouse are strictly input devices, no data is transmitted to them during test. They are however, continuously scanned for data input activity. The video resolution modes setup and change program was used during the radiated and conducted emission testing.

3.3 Cable Description

	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
PC(HOST)	N	N/A	1.5(P)
COLOR MONITOR(EUT)	N	Y	1.5(P), 1.5(D)
PARALLEL	N	Y	1.5(P), 1.5(D)
KEYBOARD	N/A	Y	1.0(D)
SERIAL	N	Y	1.5(P), 1.5(D)
MOUSE(PS/2)	N/A	Y	1.8(D)

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
PC(HOST)	N	N/A	N	N/A
COLOR MONITOR(EUT)	Y	PC END	Y	PC END
KEYBOARD	Y	PC END	Y	PC END
PARALLEL	N	N/A	Y	BOTH END
SERIAL	N	N/A	Y	BOTH END
MOUSE(PS/2)	N	N/A	Y	PC END

3.5 Equipment Modifications

N/A

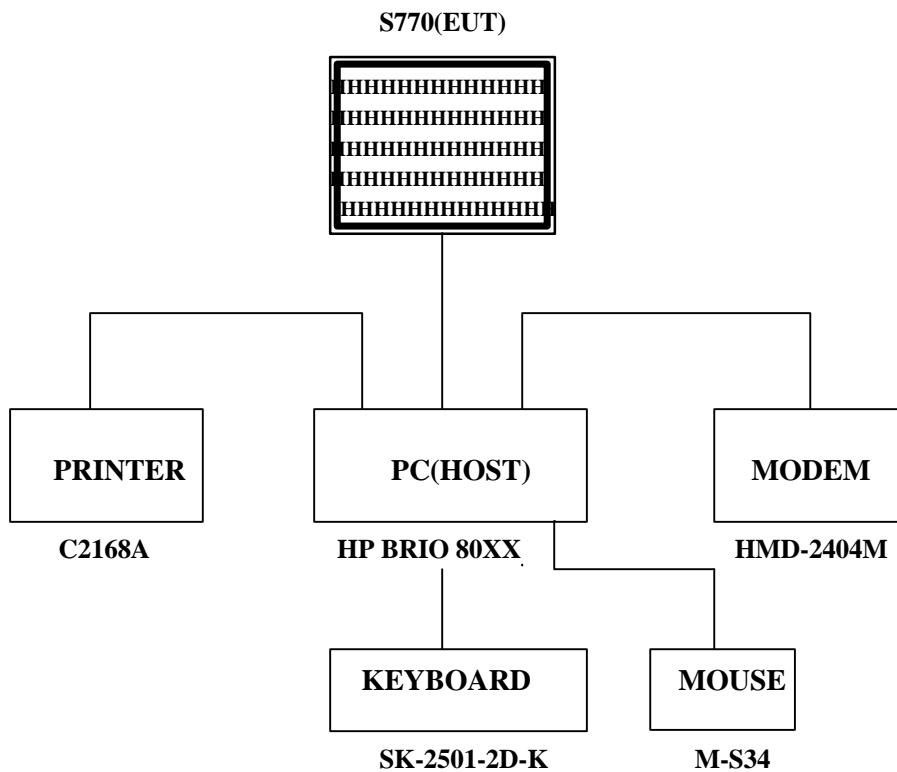
3.6 Configuration of Test system

Line Conducted Test : EUT was connected to LISN, all other supporting equipment were connected to another LISN.

Preliminary Power line Conducted Emission tests were performed by using the procedure in ANSI C63.4/1992 7.2.3 to determine the worse operating conditions.

Radiated Emission Test : Preliminary Radiated Emissions tests were conducted using the procedure in ANSI C63.4/1992 8.3.1.1 to determine the worse operating condition. Final Radiated Emission tests were conducted at 3 meter open area test site.

[Configuration of Tested System]



4. PRELIMINARY TESTS

4.1 AC Power line Conducted Emission Tests

During Preliminary Tests, the following operating mode were investigated

Processor Speed (MHz)	Video Resolution (w/max)	The worst operating condition
Pentium 75 MHz	1280 i 1024 Non-Interlaced (64KHz/60Hz)	
Pentium 75 MHz	1024 i 768 Non-Interlaced (68.7KHz/85Hz)	X
Pentium 75 MHz	800 i 600 Non-Interlaced (64KHz/100Hz)	
Pentium 75 MHz	640 i 480 Non-Interlaced (63.6KHz/120Hz)	

4.2 Radiated Emission Tests

During Preliminary Tests, the following operating mode were investigated

Processor Speed (MHz)	Video Resolution (w/max)	The worst operating condition
Pentium 75 MHz	1280 i 1024 Non-Interlaced (64KHz/60Hz)	
Pentium 75 MHz	1024 i 768 Non-Interlaced (68.7KHz/85Hz)	X
Pentium 75 MHz	800 i 600 Non-Interlaced (64KHz/100Hz)	
Pentium 75 MHz	640 i 480 Non-Interlaced (63.6KHz/120Hz)	

Tested by Sang Jun, Lee

Date : JAN. 15, 1999

7. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor.

The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dBuV is obtained. The Antenna Factor of 7.4 and a Cable Factor of 1.1 is added. The 30 dBuV/m value was mathematically converted to its corresponding level in uV/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dBuV/m}$$

$$\text{Level in uV/m} = \text{Common Antilogarithm} [(30 \text{ dBuV/m})/20] = 31.6 \text{ uV/m}$$