

DOCUMENTS FOR CE

- | | |
|--|---|
| <input type="checkbox"/> HOME AUDIO | <input checked="" type="checkbox"/> CAR AUDIO |
| <input type="checkbox"/> COMMUNICATION | <input type="checkbox"/> SPEAKER |

•Equipment/System Name : Car Monitor
Model (s) : LZ-612IR

•Contents of Documents:

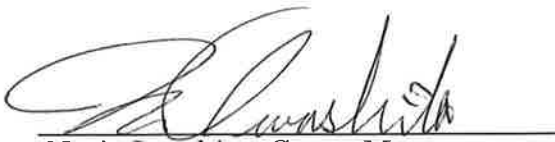
- ☒ DECLARATION OF CONFORMITY
- ☒ TEST CERTIFICATE
- ☒ EMC TEST REPORT (☒ Radiation ☒ Immunity)
- ☐ SAFETY TEST REPORT
- ☐ TECHNICAL CONSTRUCTION FILE

•Remarks:

AS/NZS CISPR13 is the same as EN55013.

※ Tick (☒) appropriate box.

Kenwood Corporation



Norio Iwashita, Group Manager
Safety and Environment Group
Technology Development Div.

Date: 16 August, 2010

DECLARATION OF CONFORMITY

We, KENWOOD ELECTRONICS EUROPE B.V.

Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

declare under our sole responsibility that the product(s),

Car Monitor

Model (s) : LZ-612IR

to which this declaration relates is/are in conformity with the following standards,

EN55013:2001 +A1:2003 +A2:2006

Electromagnetic Immunity of Broadcast Receivers and
Characteristics of Broadcast Receivers and Associated
Equipment

EN 55020:2007

Electromagnetic Immunity of Broadcast Receivers and
Associated Equipment

and the following provision of

EMC Directive, 2004/108/EC

Directive 2004/104/EC, 2005/83/EC, 2006/28/EC and 2009/19/EC

: The limits defined in Annex I, paragraphs 6.5, 6.6, 6.8 and 6.9 are fulfilled.

Year of CE-Marking : 2010

Amsterdam,



Toru Kawauchi, President
Kenwood Electronics Europe B.V.

TEST CERTIFICATEDESCRIPTION OF EQUIPMENT

Equipment	Car Monitor
Manufacturer	Kenwood Corporation
Trade mark	KENWOOD
Type	LZ-612IR
Rating	12V DC
Aerial connection	-
Intermediate frequency	-
Tuning	-

STANDARDS AND MEASUREMENTS

EN55013:2001 +A1:2003 +A2:2006

Mains Terminal Disturbance Voltage	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Antenna terminal disturbance voltage	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Disturbance radiation	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Disturbance power	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied

EN 55020:2007

Input immunity	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Immunity to conducted voltages	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Immunity to conducted currents	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Immunity to radiated fields	<input type="checkbox"/> applied	<input checked="" type="checkbox"/> not applied
Immunity to electrostatic discharge	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied

Directive 2004/104/EC, 2005/83/EC, 2006/28/EC and 2009/19/EC

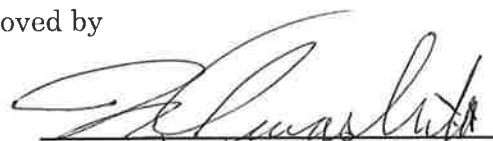
Pparagraphs 6.5 and 6.6 (CISPR25) Radiated emission test		
Broadband electromagnetic interference	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied
Narrowband electromagnetic interference	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied
Pparagraphs 6.8 (ISO7637-2) Immunity to transient disturbances conducted along supply lines		
	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied
Pparagraphs 6.9 (ISO7637-2)		
Emission conducted disturbances	<input checked="" type="checkbox"/> applied	<input type="checkbox"/> not applied

SUMMARY

The equipment fullfils the requirements in europe standards above mentioned.

Approved by

Tokyo, 16 August,2010


 Norio Iwashita, Group Manager
 Safety and Environment Group
 Technology Development Div.

TEST REPORT

Electromagnetic Immunity

Equipment under test : LZ-612IR

Standard : EN55020:2007

Measurements : Electrostatic discharge

Page

2

Test Result : Pass

Test facility : Shielded enclosure and semi-anechoic chamber at
Car Electronics Division, Kenwood corporation

Instrumentation	: RF generator	Rohde & Schwarz	SMG
	AF generator	Rohde & Schwarz	SMG-B2
	AF generator	Rohde & Schwarz	UPA-B6
	Splitter	Ind. Electronics	ZFSC-2-4
	RF switch	Rohde & Schwarz	PSU
	RF amplifier	ENI	325LA
	Audio analyzer	Rohde & Schwarz	UPA
	RF volt meter	Rohde & Schwarz	URV5
	RF level meter	Rohde & Schwarz	URV35
	Power divider	Kyoritsu D.K.	AUF 1603
	Electrostatic discharge	KIKUSUI	KES4021
	Simulator		

Tokyo, 16 August, 2010

Reviewed by



Norio Iwashita, Group Manager
Safety and Environment Group
Technology Development Div.

[ESD]Electrostatic Discharge

Standard	: EN55020
Model	: LZ-612IR
Ser No.	: PPW00016
Date	: 29 June, 2010
Operator	: Aoyama
Test Level	: B

Temperature : 25°C, Relative Humidity : 60%, Atmospheric Humidity : 988hpa

Measurement result. **PASS**

Operation Mode: AV IN (DVD Play)

Type of discharge	Discharge Part	Discharge Voltage	Result
Contact	part of metal	+4KV	PASS
		-4KV	PASS
Air	part of Insulation	+8KV	PASS
		-8KV	PASS
Indirection	HCP / VCP	+4KV	PASS
		-4KV	PASS

Operation Mode: -

Type of discharge	Discharge Part	Discharge Voltage	Result
Contact	part of metal	+4KV	-
		-4KV	-
Air	part of Insulation	+8KV	-
		-8KV	-
Indirection	HCP / VCP	+4KV	-
		-4KV	-

*HCP=Horizontal Coupling Plane , VCP=Vertical Copling Plane

Appendix

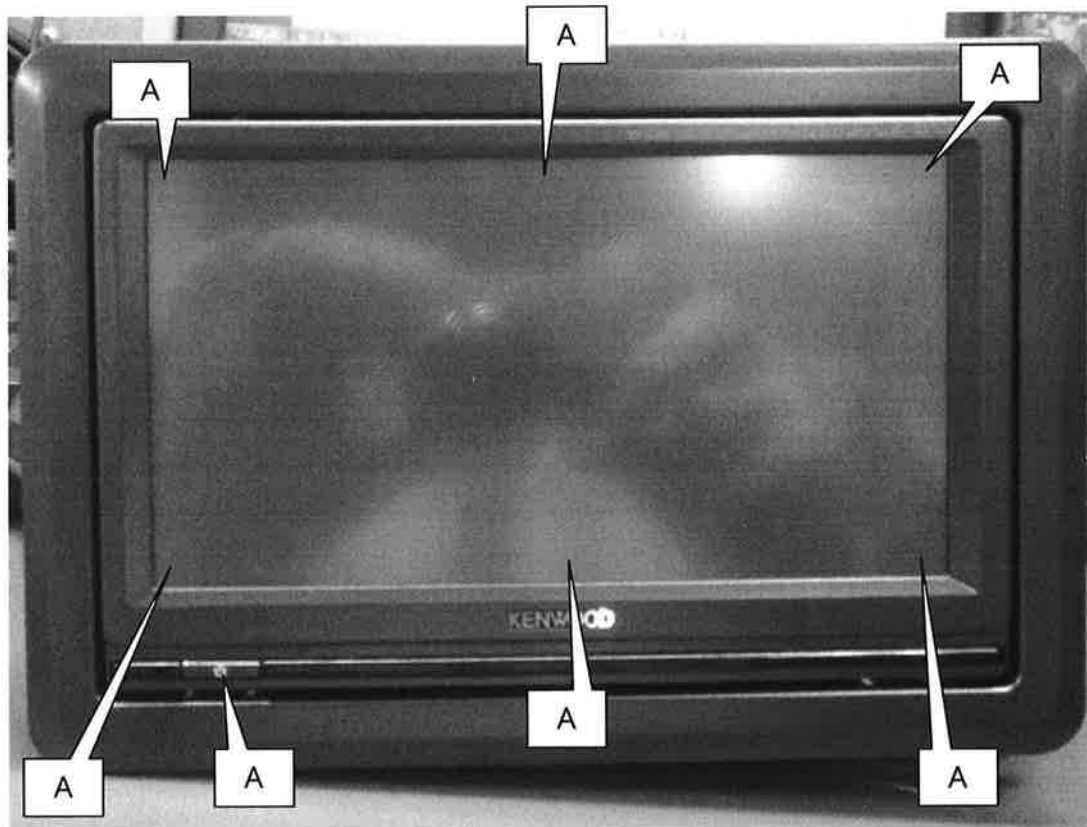
Electrostatic Discharge Test Points



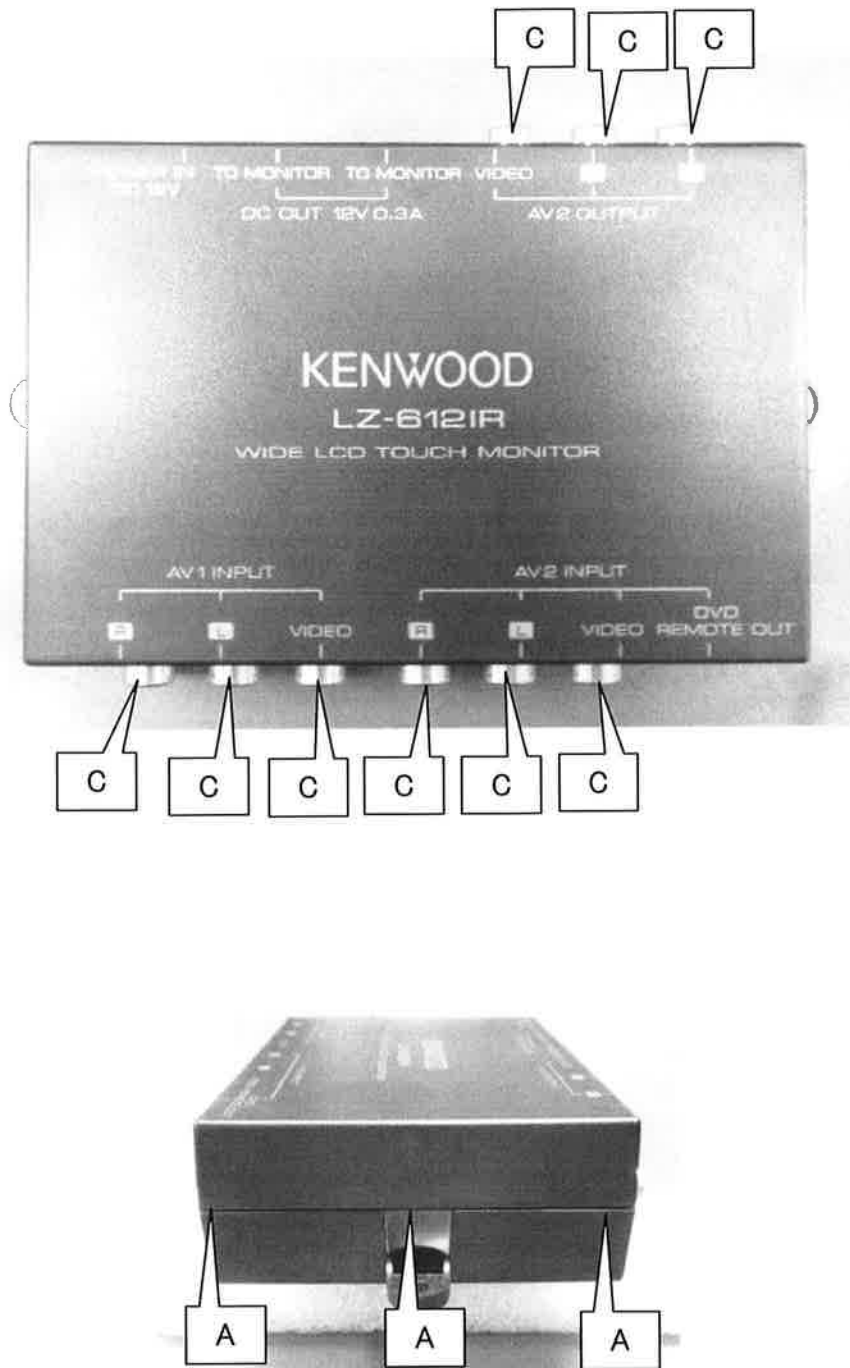
Contact



Air



Electrostatic Discharge Test Points



Appendix

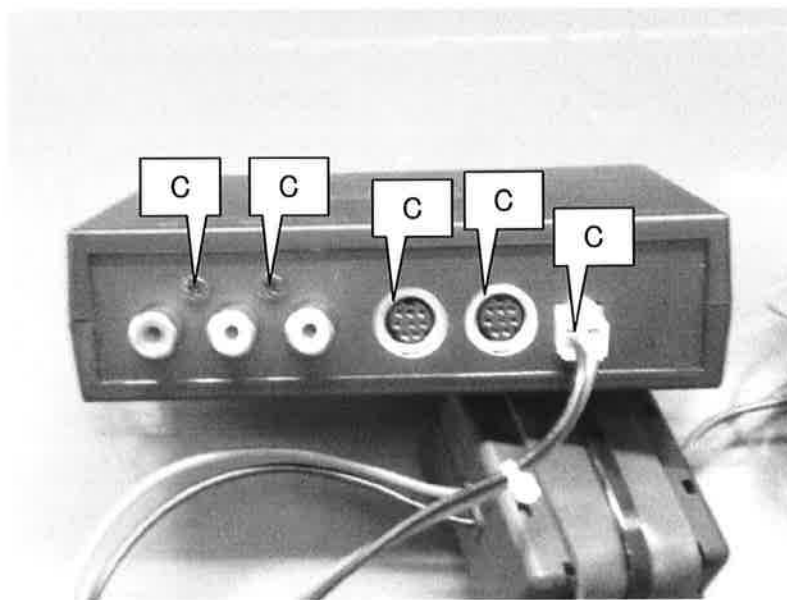
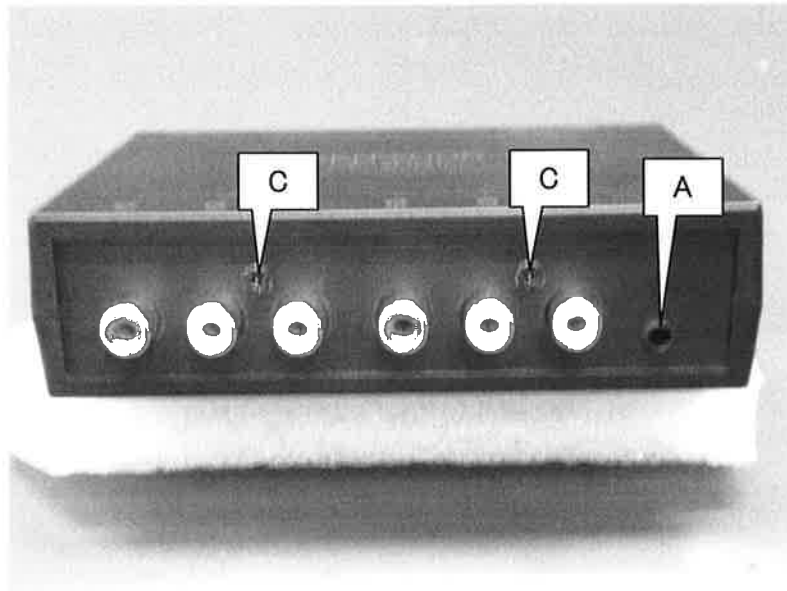
Electrostatic Discharge Test Points



Contact



Air



THE NETHERLANDS
(N E D E R L A N D)

COMMUNICATION

Concerning ⁽¹⁾:


- approval granted
- ~~approval extended~~
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

of a type of ~~electrical~~/electronic sub-assembly ⁽¹⁾ with regard to Regulation number 10.

Approval number: E4-10R-031749

Extension number: 00

1. Make (trade name of manufacturer) : KENWOOD
2. Type and general commercial description(s) : LZ-6121R / LZ-6121R (Car Monitor)
3. Means of identification of type, if marked on the ~~vehicle~~/component/
~~separate technical unit~~ ⁽¹⁾ : LZ-6121R
- 3.1. Location of that marking : Label on the bottom side of product
4. Category of vehicle : not applicable
5. Name and address of manufacturer : Kenwood Corporation,
2967-3, Ishikawa-machi, Hachioji-shi, Tokyo,
192- 8525 Japan


 Listen to the Future	Information document no. MJ-09-08-001 relating to EEC type-approval of an electric/electronic sub-assembly with respect to ECE R10.03 ESA-Type: LZ-612IR	Page: 1 / 9
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- | | | |
|-----|--|--|
| 0.1 | Make (trade name of the manufacturer) | : KENWOOD |
| 0.2 | Type and general commercial description(s) | |
| | - Type | : LZ-612IR(Car Monitor) |
| | - commercial description(s) | : LZ-612IR(Car Monitor) |
| 0.5 | Name and address of the manufacturer | : Kenwood Corporation
2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan |
| 0.7 | Location and method of affixing of the EEC approval mark | :label on the bottom side |
| 0.8 | Address(es) of assembly plant(s) | : M&J technologies Co. Ltd
40/13 Moo 5 Tambol Uthai, Amphur Uthai Phra Nakhon Si Ayutthaya Province 13210 Thailand. |
| 1. | This ESA shall be approved as a component | |
| 2. | Any restriction of use and conditions for fitting | : No restrictions |

List of contents

Appendix 1	Description of the ESA	Page 2
Attachment 1	Photo of the ESA	Page 3 to 4
Attachment 2	Block Diagrams	Page 5 to 6
Attachment 3	Circuit diagram	Page 7 to 8
Attachment 4	Label form and location	Page 9

This information document consists of pages 1 to 9 including Appendix and attachments.

 <small>Listen to the Future</small>	<p style="text-align: center;">Appendix 1 to</p> <p style="text-align: center;">Information document no. MJ-09-08-001</p> <p style="text-align: center;">Description of the ESA</p>	<p>Page: 2 / 9</p>
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1. Description of the ESA
 - 1.1. Power Source : DC 13.2V
 - 1.2. Dimension(inch)

MONITOR:

(W) 183.3 (H) 29.3 (D)123.9

AV-BOX

(W) 141.5 (H) 32.2 (D)91
 - 1.3. Sound : ANALOG
 - 1.4. OS : NO
 - 1.5. CPU

RENESAS : M30304GDPPG

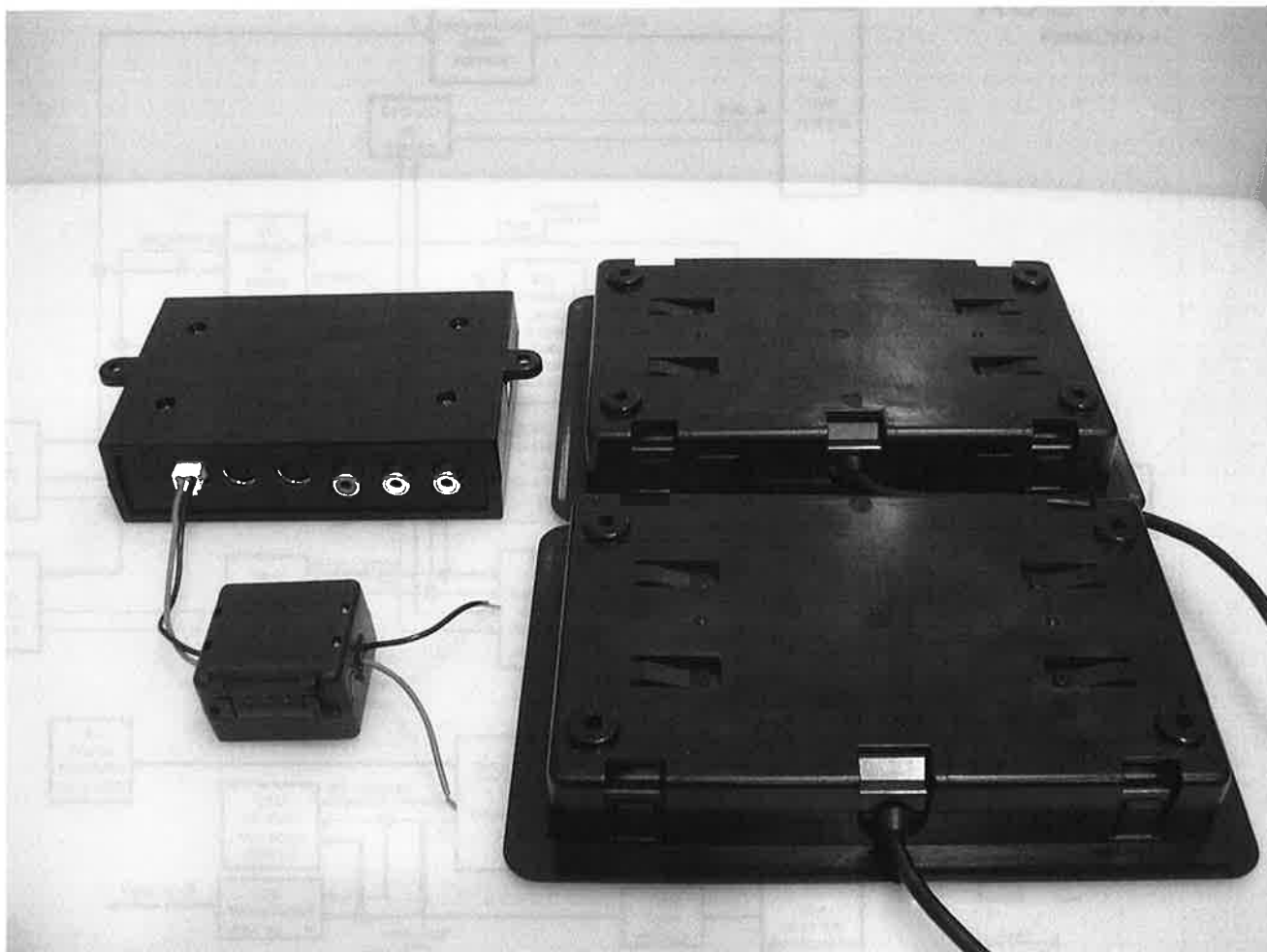
ATMAEL : ATtiny13-20SU
2. Sources of Interference : ANALOG
 - 2.1 X-TAL : 2.7MHz, 16MHz
 - 2.2 IC : TW8816, M30304GDPPG, NJM2267V, NJM2244, MM1509XNRE, BA3121F, ATtiny13-20SU

<p>KENWOOD Listen to the Future</p>	<p>Attachment 1, Appendix 1 to Information document no. MJ-09-08-001 Photo of the ESA</p>	<p>Page: 3 / 9</p>
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Front view

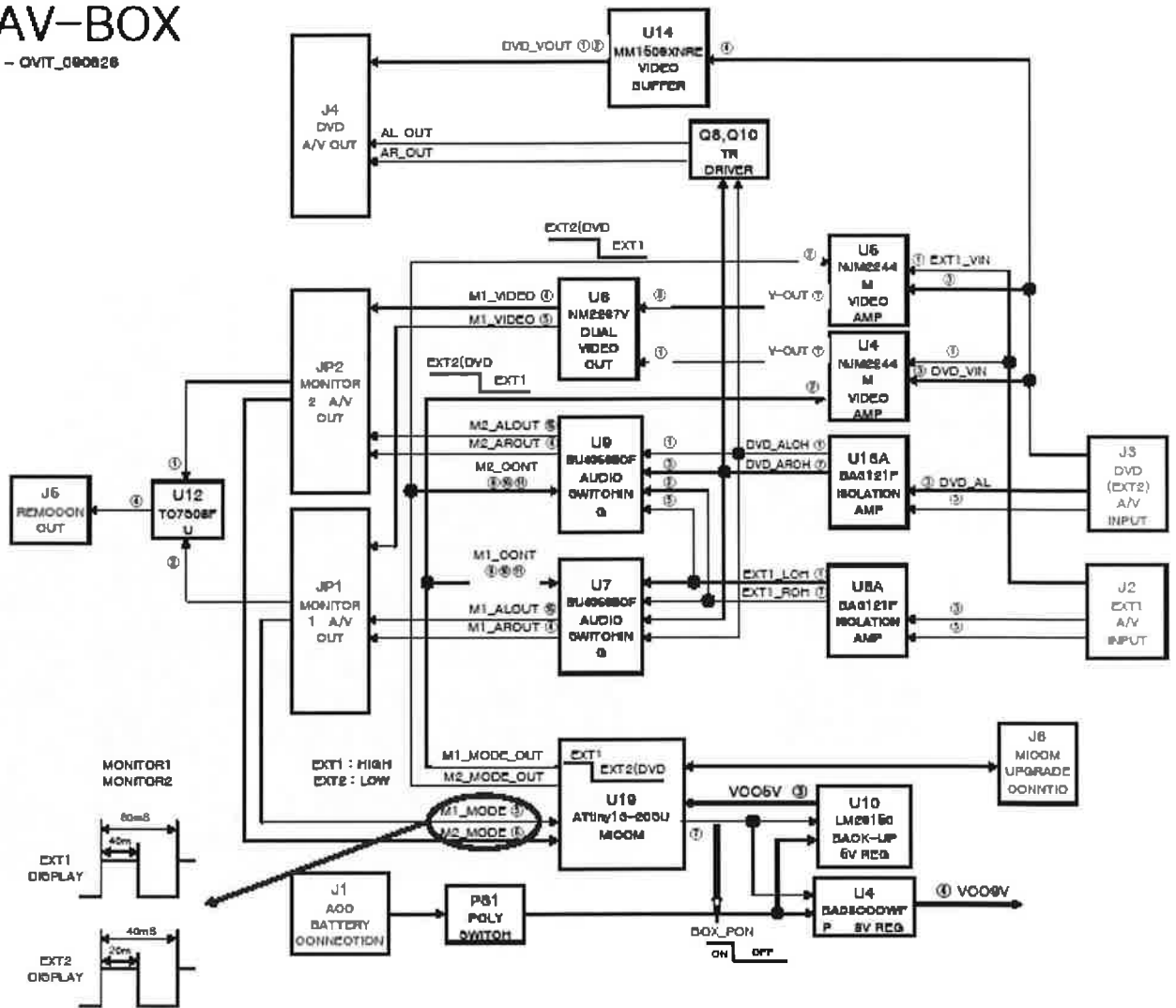


Rear View



AV control box

AV-BOX
- QVIT_000026

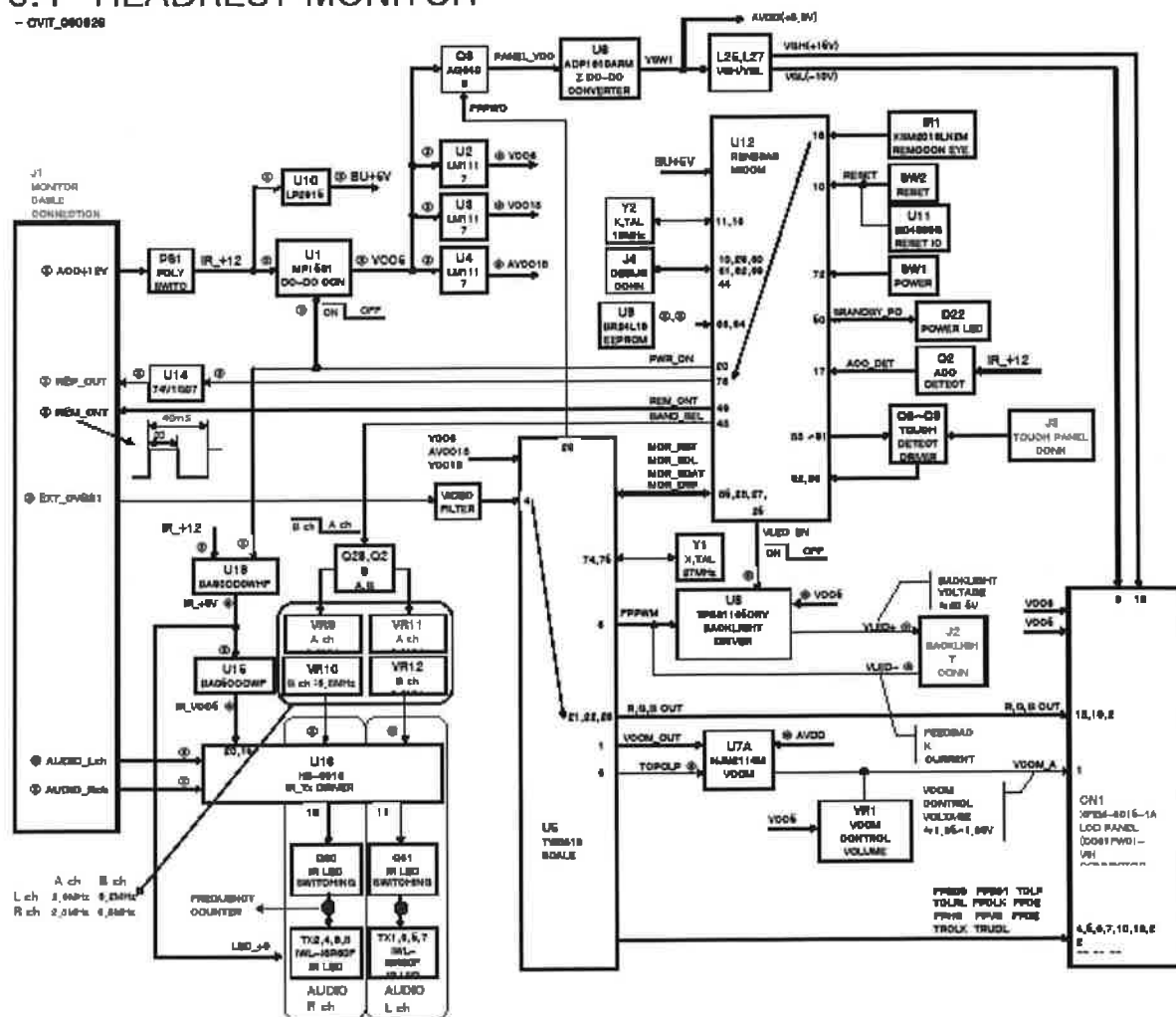


Block Diagrams

monitor

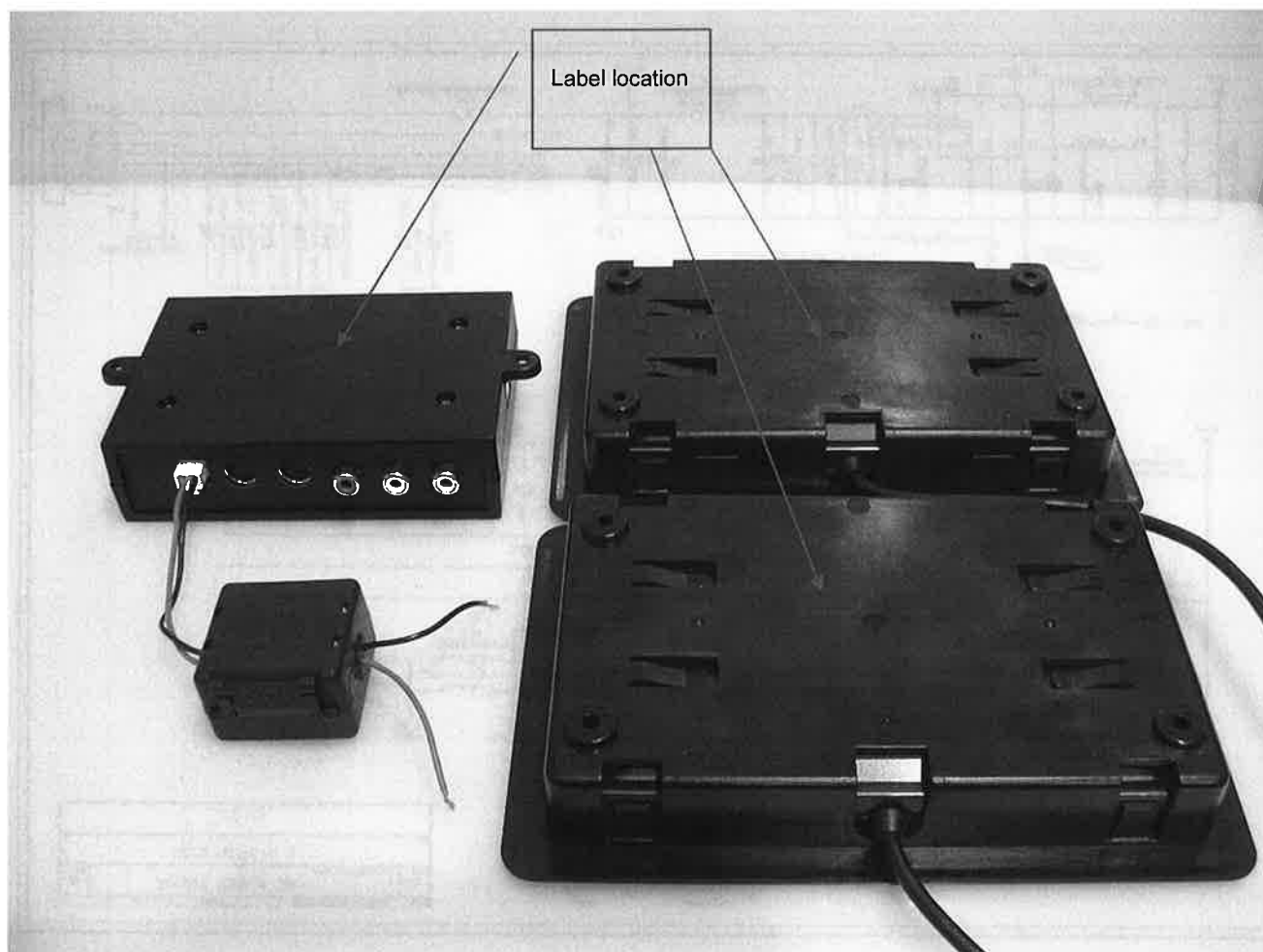
6.1" HEADREST MONITOR

- CIVT_040828



KENWOOD Listen to the Future	Attachment 4, Appendix 1 to Information document no. MJ-09-08-001 Label form & location	Page: 9 / 9
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E-MARKING LABEL LOCATION



E-MARKING LABEL FORM

E4 10R-03XXXX

Report No. : CH10-A0-1009-03093
Manufacturer : Kenwood Corporation
Type : LZ-6121R



TECHNICAL REPORT

according to ECE-Regulations

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF REVERSING LAMPS FOR POWER-DRIVEN VEHICLES AND THEIR TRAILERS

ECE-R10	dated:	April 01, 1969
Including all amendments until series of Amendments: 03	dated:	July 11, 2008

in accordance with the

COUNCIL DIRECTIVE 72/245/EEC of 20 June 1972 relating to the radio interference (electromagnetic compatibility) of vehicles (OJ L 152, 6.7.1972, p. 15)

72/245/EEC	:	July 6, 1972
Including all amendments up to	:	

Commission Directive 95/54/EC of 31 October 1995
Commission Directive 2004/104/EC of 14 October 2004
Commission Directive 2005/49/EC of 25 July 2005
Commission Directive 2005/83/EC of 23 November 2005
Commission Directive 2006/28/EC of 6 March 2006
Council Directive 2006/96/EC of 20 November 2006
Commission Directive 2009/19/EC of 12 March 2009

Previously issued	
EEC – component approval number	: ---
ECE – component approval number	: ---

Report No. : CH10-A0-1009-03093
Manufacturer : Kenwood Corporation
Type : LZ-6121R



General information

Make (trade name of manufacturer) : KENWOOD

Type and General commercial description(s) : LZ-6121R / LZ-6121R (Car Monitor)

Means of identification of type, where affixed : LZ-6121R, Label on the bottom side of product

Name and address of manufacturer : Kenwood Corporation,
2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192- 8525 Japan

Information folder : MJ-09-08-001

Test object(s) and general test information

Test object(s) : ~~motor vehicle~~ / component / ~~separate technical unit~~

Object name : Car Monitor

Test site : MOVON CORPORATION, Seoul, Korea

Test date : August 3 – 12, 2009

Remark : The results of the test refer exclusively to the object(s) mentioned under point 1.1 of this report.

Report No. : CH10-A0-1009-03093
Manufacturer : Kenwood Corporation
Type : LZ-6121R

Test minutes

Test facilities

The test equipment used was in compliance with the requirements of the Directive and Regulation.

Test results

Test of broadband electromagnetic radiation from ESA(s)

The ESA(s) has been tested according to Annex VII of the Directive (and Annex 7 of the Regulation). While testing none of the related limit values have been exceeded. The requirements concerning broadband radiation from the ESA(s) are considered to be met.

For further details including test results refer to Appendix 1.

Test of narrowband electromagnetic radiation from ESA(s)

The ESA(s) has been tested according to Annex VIII of the Directive (and Annex 8 of the Regulation). While testing none of the related limit values have been exceeded. The requirements concerning narrowband radiation from the ESA(s) are considered to be met.

For further details including test results refer to Appendix 2.

Test of immunity of ESA(s) to electromagnetic radiation

~~The ESA(s) has been tested according to Annex IX of the Directive (and Annex 9 of the Regulation). While testing the ESA did not exhibit any malfunction which would cause any degradation of performance which could cause confusion to other road users or any degradation in the driver's direct control of a vehicle fitted with the system. The requirements concerning immunity of the ESA(s) are considered to be met.~~

~~For further details including test results refer to Appendix 3.~~

Test of immunity of ESA(s) to transients and emission of transients

The ESA(s) has been tested according to Annex X of the Directive (and Annex 10 of the Regulation). The requirements concerning immunity of the ESA(s) are considered to be met.

For further details including test results refer to Appendix 4.

Report No. : CH10-A0-1009-03093
Manufacturer : Kenwood Corporation
Type : LZ-6121R

Remark concerning tested object(s) : All versions of the ESA(s) type as stated in the information document are covered with the tested ESA(s) version(s).

Car monitor is not immunity related function.
Immunity against electromagnetic radiation test is not necessary.

Appendices

1. Test minutes concerning broadband electromagnetic disturbances generated by ESA(s) according to Annex VII of the Directive and Annex 7 of the Regulation
2. Test minutes concerning narrowband electromagnetic disturbances generated by ESA(s) according to Annex VIII of the Directive and Annex 8 of the Regulation
- ~~3. Test minutes concerning immunity of ESA(s) to electromagnetic radiation according to Annex IX of the Directive and Annex 9 of the Regulation~~
4. Test minutes concerning immunity of ESA(s) to transients and emission of transients according to Annex X of the Directive and Annex 10 of the Regulation
5. List of modifications : not attached

Statement of conformity

The information folder and the type described there comply with the requirements in the above mentioned Directive/Regulation.

The test laboratory is accredited for the above mentioned tests by the RDW, Vehicle Technology and Information Centre, the Netherlands:

Certification Number: RDW-99050016

The technical report comprises the pages 1 to 18 (including appendices 1, 2 and 4) and shall not be reproduced except in full without the written approval of the test laboratory.

Essen, den September 24, 2009
IFM/#



Eun-Jeong Hur
Engineer

Report No. : CH10-A0-1009-03093
 Manufacturer : Kenwood Corporation
 Type : LZ-6121R

**Test minutes concerning broadband electromagnetic disturbances generated by
 ESA(s) according to Annex VII of the Directive and Annex 7 of the Regulation**

Appendix 1

Test details

Conditions while testing

- ☛ The general requirements of paragraph 1 of Annex VII have been met. The test site and test method was in compliance with paragraph 3 of Annex VII.
- The ESA state during the conducted test was in compliance with paragraph 4 of Annex VII.
- Each single frequency was measured in horizontal and vertical antenna polarization.

Measuring apparatus

- ☛ ~~A quasi-peak detector with 120kHz bandwidth was used for the measurement of radiated broadband electromagnetic emissions.~~

Test results

frequency [MHz]	test results [dB (μV/m)]		Measured*) peak value [dB (μV/m)]	test limit [dB (μV/m)]	margin to limit value [dB (μV/m)]
	Horizontal	Vertical			
45	9.22	13.05	13.05	55.57	More than 20dB
65	18.89	8.22	18.89	51.56	More than 20dB
90	11.56	8.57	11.56	51.2	More than 20dB
120	11.51	10.61	11.51	53.09	More than 20dB
150	10.49	12.50	12.50	54.55	More than 20dB
190	16.49	12.59	16.49	56.11	More than 20dB
230	10.82	11.79	11.79	57.36	More than 20dB
280	13.21	13.28	13.28	58.66	More than 20dB
380	18.31	15.75	18.32	60.66	More than 20dB
450	19.42	18.75	19.42	61.00	More than 20dB
600	18.03	18.32	18.32	61.00	More than 20dB
750	21.03	19.48	21.03	61.00	More than 20dB
900	22.61	21.56	22.61	61.00	More than 20dB

*) including correction factors

Report No. : CH10-A0-1009-03093
 Manufacturer : Kenwood Corporation
 Type : LZ-6121R

**Test minutes concerning narrowband electromagnetic disturbances generated by
 ESA(s) according to Annex VIII of the Directive and Annex 8 of the Regulation**

Appendix 2

Test details

- Conditions while testing : The general requirements of paragraph 1 of Annex VIII have been met.
 The test site and test method was in compliance with paragraph 3 of Annex VIII.
 The ESA state during the conducted test was in compliance with paragraph 4 of Annex VIII.
 Each single frequency was measured in horizontal and vertical antenna polarization.
- Measuring apparatus : A **peak detector** with 120kHz bandwidth was used for the initial scan.
 An **average detector** with 120kHz bandwidth was used for the measurement of radiated narrowband electromagnetic emissions.

Test results

Results of measurement of narrowband electromagnetic radiation from a representative ESA in a range of frequency of 30 - 1000 MHz

frequency [MHz]	test results [dB (μV/m)]		Measured*) peak value [dB (μV/m)]	test limit [dB (μV/m)]	margin to limit value [dB (μV/m)]
	Horizontal	Vertical			
30~50	7.15	15.54	15.54	48.61	More than 20dB
50~75	19.35	6.34	19.35	41.49	More than 20dB
75~100	18.94	14.19	18.94	40.69	More than 20dB
100~130	24.45	18.69	24.45	42.92	More than 20dB
130~165	19.48	24.49	24.49	45.06	More than 20dB
165~200	17.76	12.77	17.76	45.78	More than 20dB
200~250	19.09	17.27	19.09	46.95	More than 20dB
250~320	17.34	18.22	18.22	48.42	More than 20dB
320~400	15.52	16.82	16.82	50.89	More than 20dB
400~520	22.11	32.36	32.36	51	More than 20dB
520~660	29.87	39.43	39.43	51	More than 20dB
660~820	16.35	28.60	28.60	51	More than 20dB
820~1000	16.24	28.27	28.27	51	More than 20dB

*) including correction factors

Report No. : CH10-A0-1009-03093
Manufacturer : Kenwood Corporation
Type : LZ-6121R

**Test minutes concerning immunity of ESA(s) to electromagnetic radiation
according to Annex IX of the Directive and Annex 9 of the Regulation**

Appendix 3

Test details

Conditions while testing	<p>The general requirements of paragraph 1 of Annex IX have been met. The ESA state during the conducted test was in compliance with paragraph 2 of Annex IX. The test site was in compliance with paragraph 4 of Annex IX. The suggested spot frequency was used according to paragraph 3 of Annex IX, and dwell time is at least 2 seconds.</p> <p>Test signal has</p> <ul style="list-style-type: none">— AM, with 1 kHz modulation and 80 % modulation depth in the 20 – 800 MHz frequency range;— PM, t on 577µs, period 4600µs in the 800 – 2000 MHz frequency range
Measuring apparatus	<p>Absorber Chamber test: according to ISO 11452-2: 2nd edition 2004</p>

Test results

~~Results of measurement of immunity of a representative ESA in a range of frequency of 20 to 2000 MHz was verified by laboratory, and 16 spot frequencies 27, 45, 65, 90, 120, 150, 190, 230, 280, 380, 450, 600, 750, 900, 1300, 1800 MHz are witnessed and recorded.~~

~~Test method: Free field test in accordance with paragraph 1.2.1 of Annex IX
Field strength: 30 Volts/m at suggested 16 spot frequency
Antenna (field generating) polarization: Vertical~~

Remarks: ~~The representative ESA met the requirements of Annex IX under this Directive and Regulation~~
The ESA is non-immunity related function. Actual test is not necessary.

Report No. : CH10-A0-1009-03093
 Manufacturer : Kenwood Corporation
 Type : LZ-6121R

**Test minutes concerning immunity of ESA(s) to transients and emission of transients
 according to Annex X of the Directive and Annex 10 of the Regulation**

Appendix 4

Test details

Conditions while testing : The general requirements of paragraph 1 of Annex X have been met.

The ESA's immunity against disturbances conducted along supply lines paragraph 2 of Annex X.

The ESA's emission of conducted disturbances along supply lines paragraph 3 of Annex X.

Measuring apparatus : Test method according to ISO7637-2:2004

Test results

Immunity against disturbances conducted along supply lines

Category of product: non-immunity related functions

Test pulses described in ISO 7637-2: 2nd edition 2004 5.6.1, 5.6.2, 5.6.3, 5.6.4 are adjusted according to procedure Figure 2a and Annex D

Yes

Test pulse	Immunity test level			Number of pulse	Burst cycle time/ pulse repetition time		Functional status	
	Severity level	Level			min.	max.	Limit	Observed
		12V system	24V system					
1	III	-75V	-450V	5000	0.5s	5s	D	C
2a	III	+37V	+37V	5000	0.2s	5s	D	C
2b	III	+10V	+20V	10	0.5s	5s	D	C
3a	III	-112V	-150V	1 hour	90ms	100ms	D	C
3b	III	+75V	+150V	1 hour	90ms	100ms	D	C
4	III	-6V	-12V	1	ISO 7637-2: 2 nd edition 2004 5.6.4		D	C

Emission of conducted disturbances along supply lines

Type of pulse: Slow (millisecond range or slower)¹⁾

Justification: The ESA power supply is directly switched by ACC keyset switch which may significantly change inductive loads. The ESA ON/OFF via front panel button of ESA did not develop significant transient emission.

Polarity of pulse amplitude	Maximum allowed pulse amplitude for		Type of pulse	Observed
	12V system	24V system		
Positive	+75V	+150	Slow	8.24V
			Fast	6.15V
Negative	-100V	-450	Slow	7.65V
			Fast	3.29V

¹⁾ Slow: millisecond range or slower, Fast: nanosecond-to-microsecond range (refer to ISO 7637-2(2004) Figure 1a, 1b)

Electromagnetic Compatibility Test Report

Applicant : Kenwood Corporation
2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan.

Manufacturer : M&J technologies Co., Ltd.
40/13 Moo 5 Tambol Uthai, Amphur Uthai Phra Nakhon Si Ayutthaya
Province 13210 Thailand.

Product name : Car Monitor

Model name. : LZ-612IR

Serial number : Prototype

Standard : AS/NZS CISPR 13:2004

Date issue : August 14, 2009

Date of Receipt : August 5, 2009

Test Period : August 13, 2009

Test Result : Pass

This report applies only to the product named in the title of this report manufactured at the location indicated. Test results apply only to the particular equipment and functionality described in this test report.

Tested by :

Seung-bum Cho/EMC Engineer

Approved by:

Min-seob Shim/Chief Engineer

SGS Tesco Korea Co., Ltd.



*This test report shall not be reproduced except in full, without the written approval of SGS TESCO Laboratory.

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4. EUT PHOTOGRAPHS	16

1. General Description of EUT

1.1 Applicant

Company Name	: Kenwood Corporation
Address	: 2967-3, Ishikawa-machi, Hachioji-shi, Tokyo, 192-8525 Japan.
Contact Person	: Sung-min Oh
E-mail	: Smoh2009@gmail.com
Phone/Fax	: Phone : +82-70-7404-5013 Fax : +82-31-204-2160

1.2 Manufacture

Company Name	: M&J technologies Co., Ltd.
Address	: 40/13 Moo 5 Tambol Uthai, Amphur Uthai Phra Nakhon Si Ayutthaya Province 13210 Thailand.

1.3 Basic Description of EUT

Product Name	: Car Monitor
Model Name	: LZ-612IR
Serial Number	: Prototype
Input Rating	: DC 13.2 V
Internal Clock Freq	: 2.7 MHz, 16 MHz, 25 MHz

2. General Information of Test

2.1 Test Facility

This test was carried out by SGS Tesco Korea.
Test Site Location : 413-15, Gomae-dong, Giheung-gu, Yongin-si,
Gyeonggi-do, Korea

TEL : 82-31-8005-6020
FAX : 82-31-8005-6025

2.2 Standard for Methods of Measurement

Basic Standard	Description	Test Result
AS/NZS CISPR 13:2004	Disturbance Voltage at the Mains Terminal	See note #1
	Disturbance Power	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
	Disturbance Voltage at the Antenna Terminal	See note #2

Note #1 : The test has not been performed since the item is operated by DC power.

Note #2 : The test has not been performed, since the EUT don't have the antenna terminal.

2.3 Description of EUT modification

The device tested is not modified anything, mechanical or circuits to improve EMI status during a test. No EMI suppression device(s) was added and/or modified during testing.

2.4 Variations covered by this report

N/A

2.5 Additional information related to Testing

Test results apply only to the particular sample tested and functionality described in this test report. This report may be reproduced in full. Partial reproduction may only be made with the written permission of the SGS Tesco Korea.

2.6 Test Conditions

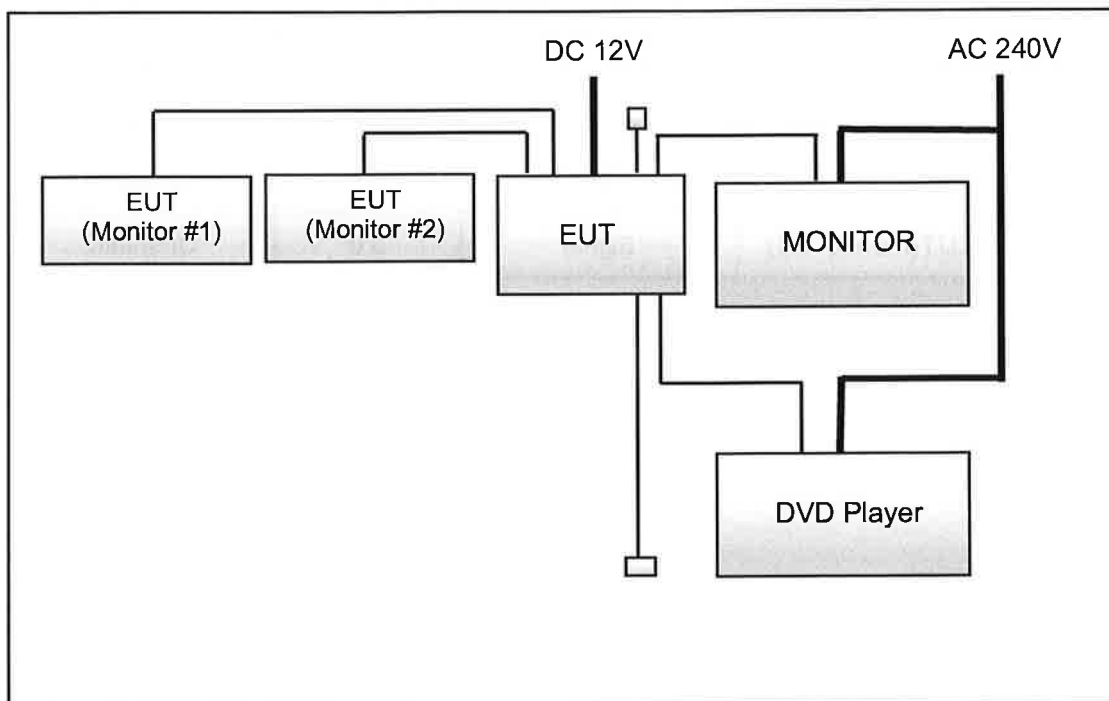
EUT Operating Mode

EUT was tested according to the following operation modes provided by the specifications given by the manufacturer and reported the worst emissions.

Operation Modes	Worst Case Mode
Video Monitoring	<input checked="" type="checkbox"/>

Test System layout on EUT and peripherals

— Power cable, — Signal cable



2.7 Description of Test System

Type of Peripheral Equipment Used:

Description	Model Name	Serial No.	Manufacturer
DVD Player	DVP-NS92V	2002068	Sony EMCS
Monitor	M228WA	803KCGW4M847	LG ELECTRONICS
DC Power Supply	SDP30-5DT	47270012	SUN MYOUNG

Type of Cables Used:

Device from	Device to	Type of Cable	Length (m)	Type of shield
EUT	DC Power	Power	1.0	Unshield
Monitor	AC Power	Power	1.8	Unshield
DVD Player	AC Power	Power	1.8	Unshield
EUT	Monitor	Audio/Video	1.5	Unshield
EUT	DVD Player	Audio/Video	1.5	Unshield
EUT	Termination	Audio/Video	1.5	Unshield
EUT	Remote	Signal	1.6	Unshield
EUT	EUT(Monitor #1)	Signal	3.0	Unshield
EUT	EUT(Monitor #2)	Signal	3.0	Unshield

3.1 Disturbance Power

Disturbance power were measured from 30 MHz to 300 MHz with a bandwidth of 120 kHz. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in photograph of test setup. The clamp positioning were varied within limits of reasonable applications to determine the position producing maximum radiated power.

3.1.1 Test Condition

Frequency Range of Test : 30 MHz to 300 MHz

Test Standard : AS/NZS CISPR 13:2004

Test Date : August 13, 2009

Temperature/Humidity : (24 ± 1) °C / (44 ± 2) % R.H.

3.1.2 Test Standard.

Frequency Range (MHz)	Limit [dB(pW)]	
	Quasi-Peak	Average
30	45	35
300	55	45

3.1.3 Test Equipment List

Equipment Type	Model	Manufacture	Serial No	Cal Due Date	Use
ABSORBING CLAMP	MDS21	R&S	100310	2010.02.02	<input checked="" type="checkbox"/>
EMI TEST RECEIVER	ESU8	R&S	100128	2010.01.19	<input checked="" type="checkbox"/>

3.1.4 Test Result of Disturbance Power

Test Mode : Power cable

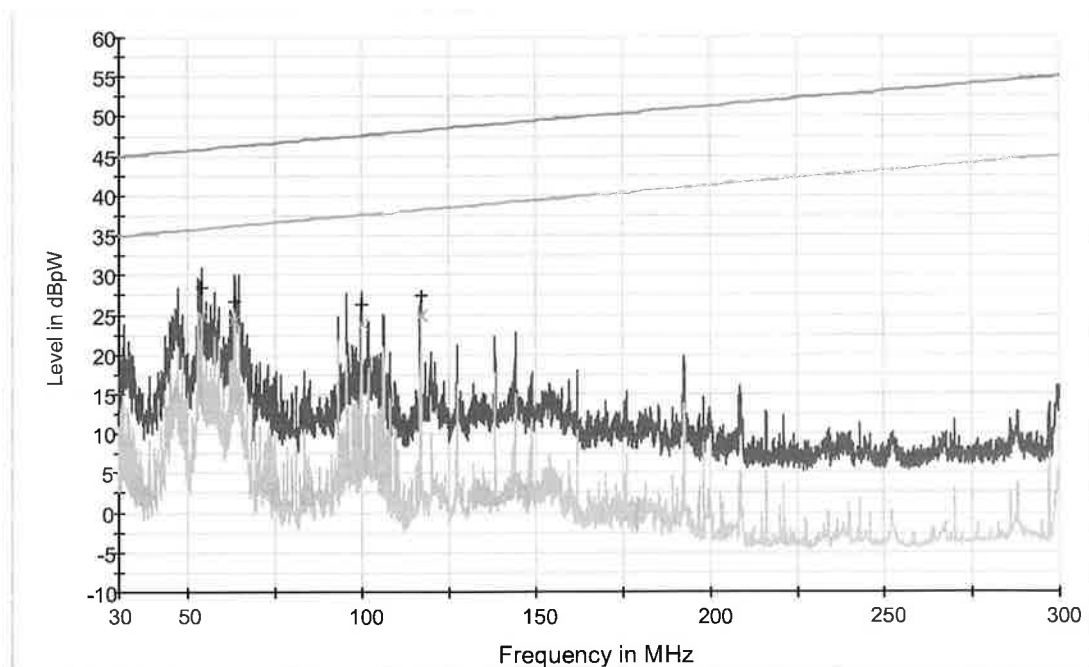
Test Results : **PASS**

Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
53.96	45.9	28.4	17.5	35.9	25.0	10.9
63.36	46.2	26.8	19.4	36.2	24.2	12.0
99.92	47.6	26.4	21.2	37.6	23.9	13.7
116.92	48.2	27.4	20.8	38.2	24.8	13.4

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



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S.B.

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Test Mode : Remote cable

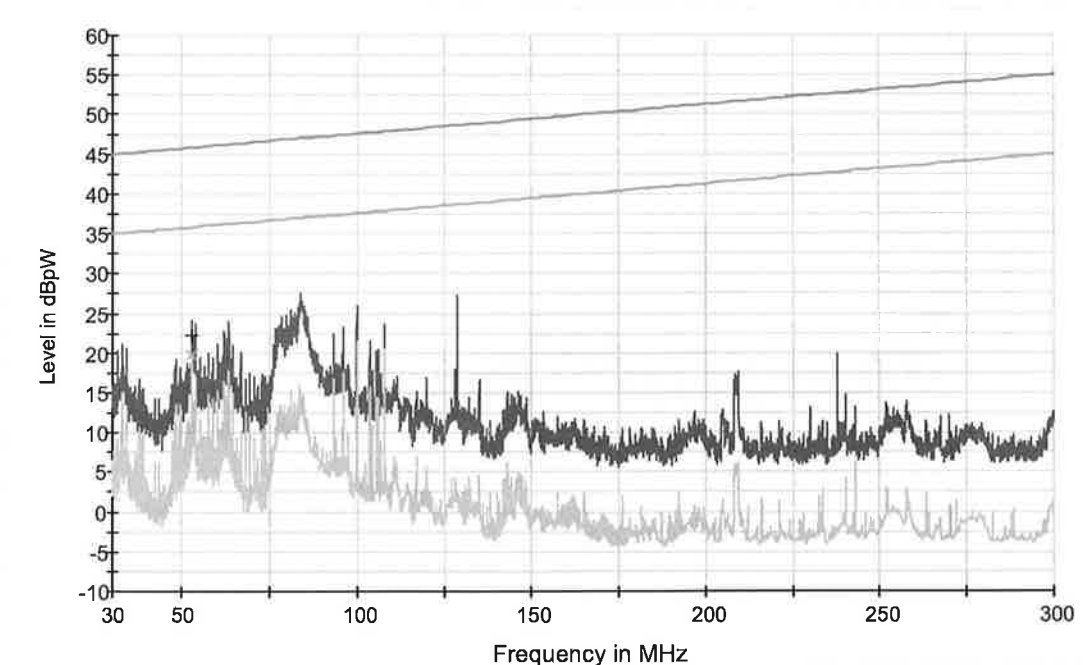
Test Results : **PASS**

Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
52.8	45.9	22.3	23.6	35.9	19.8	16.1

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



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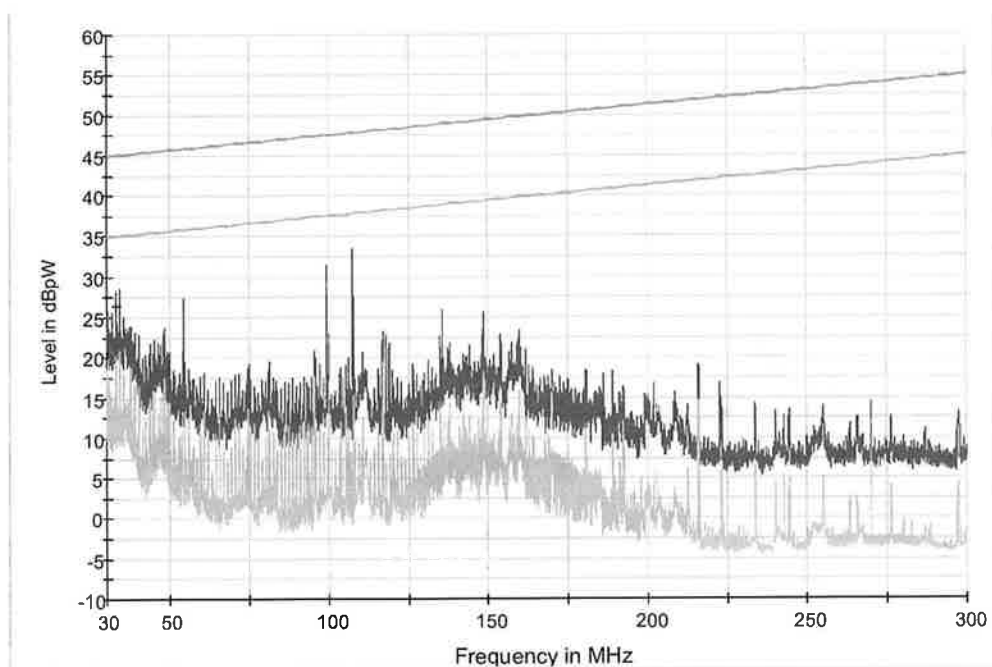
Test Mode : Monitor A cable

Test Results : **PASS**
Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
32.84	45.1	26.4	18.7	35.1	20.3	14.8

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



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Tested by Seung-bum Cho

Test Mode : Monitor B cable

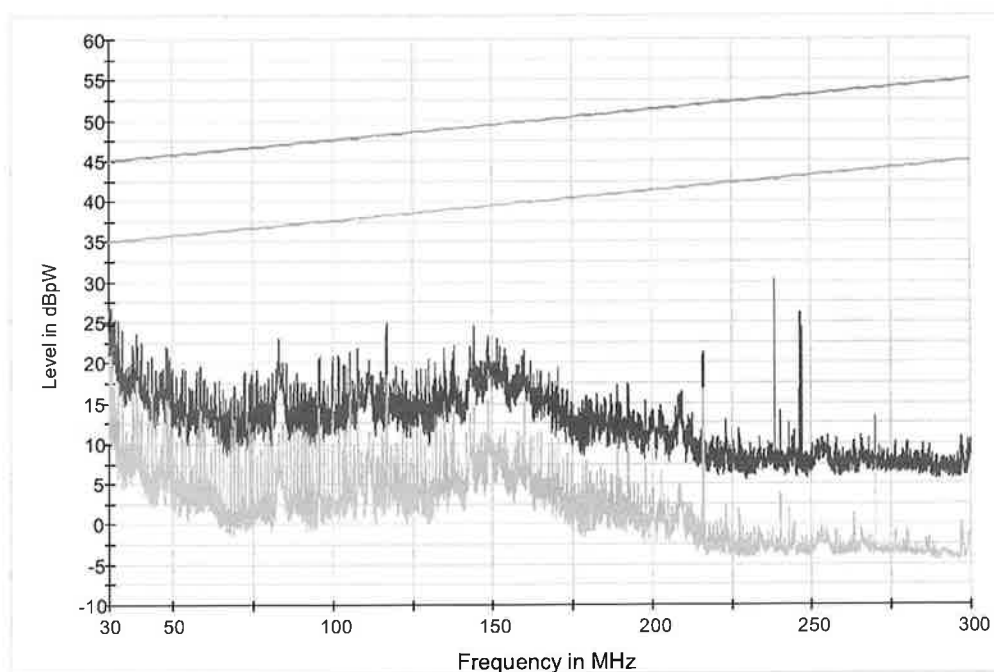
Test Results : **PASS**

Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
30.08	45.0	24.8	20.2	35.0	21.2	13.8

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



Cho
S.B.

Tested by Seung-bum Cho

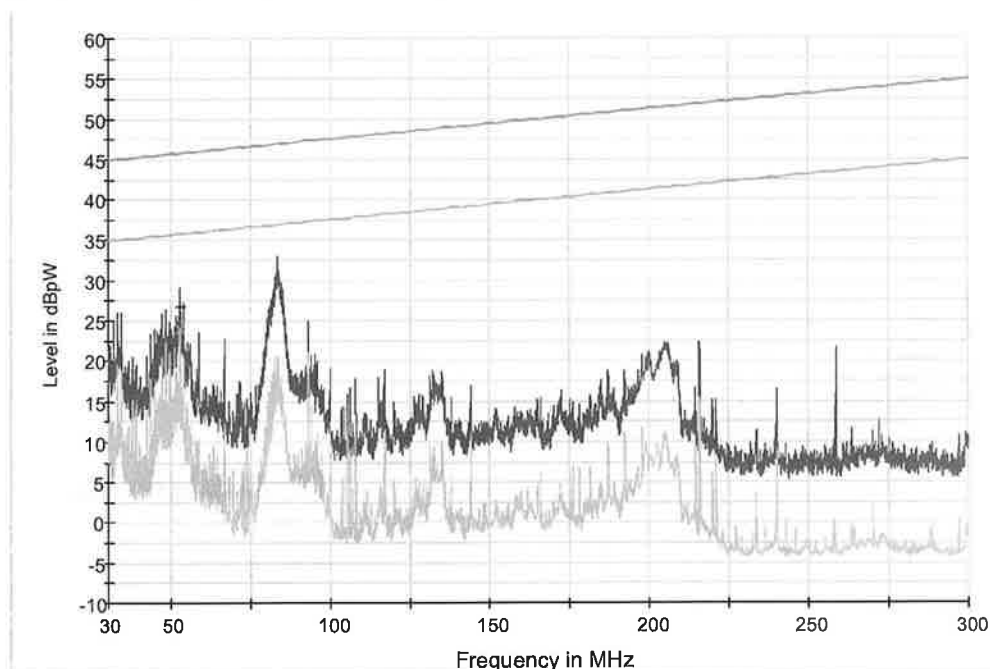
Test Mode : DVD Input cable

Test Results : **PASS**
Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
52.8	45.9	26.8	19.1	35.9	24.1	11.8

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



Cho
S.B.

Tested by Seung-bum Cho

Test Mode : AV Input cable

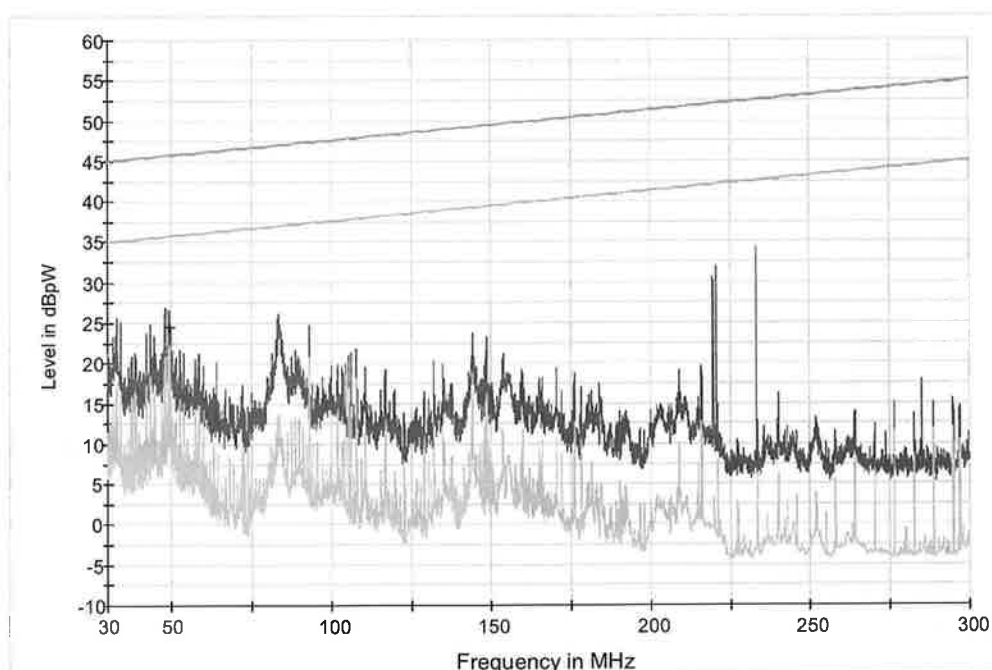
Test Results : **PASS**

Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
49.24	45.7	24.6	21.1	35.7	21.9	13.8

Notes :

1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



Cho
S.B.

Tested by Seung-bum Cho

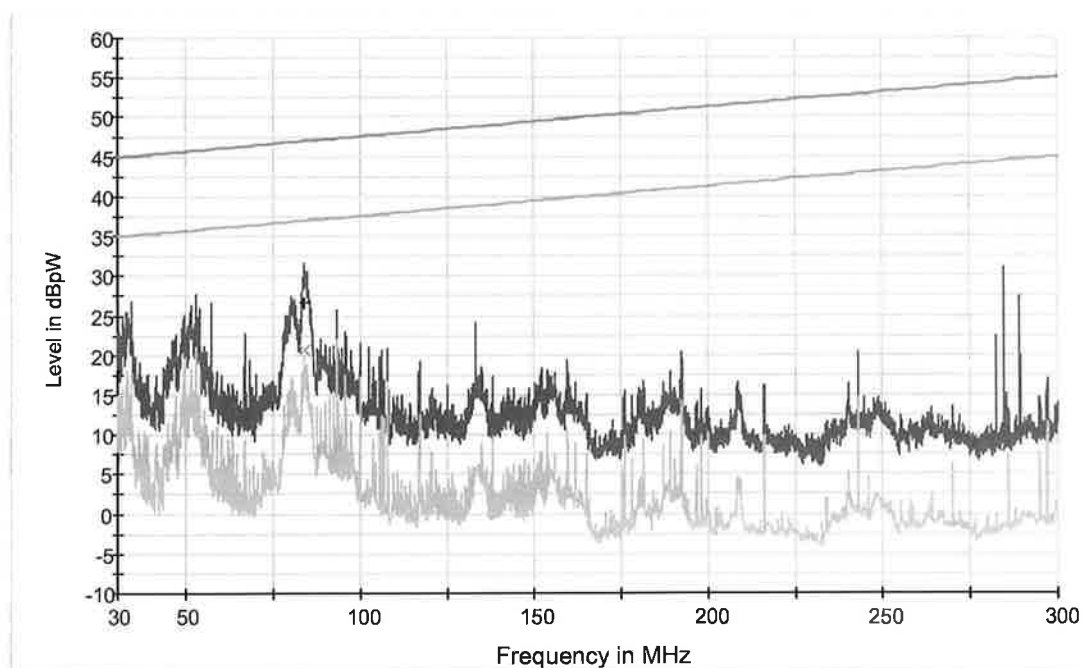
Test Mode : AV Output cable

Test Results : **PASS**
Test data sheets follow.

Frequency	Quasi-Peak Mode			Average Mode		
	Limit	Result	Margin	Limit	Result	Margin
[MHz]	[dB(pW)]	[dB(pW)]	[dB]	[dB(pW)]	[dB(pW)]	[dB]
83.84	47.0	26.6	20.4	37.0	20.6	16.4

Notes :

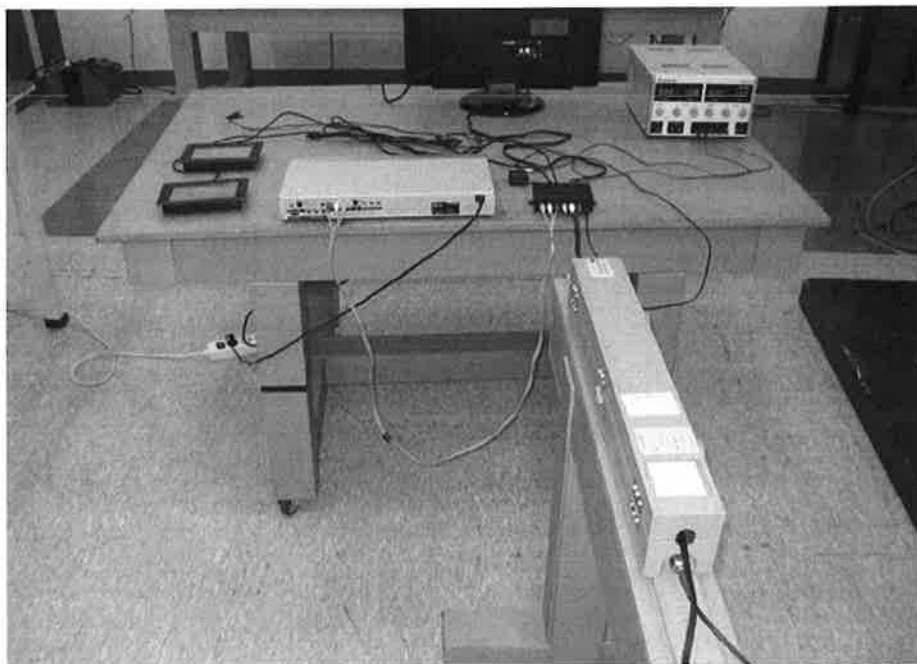
1. C.F = Clamp Factor + Cable Loss // Result = Reading Level + C.F
2. All modes of operation were investigated and the worst-case emissions are reported.



Cho
S.B.

Tested by Seung-bum Cho

3.1.5 Photographs of Disturbance Power Test Configuration

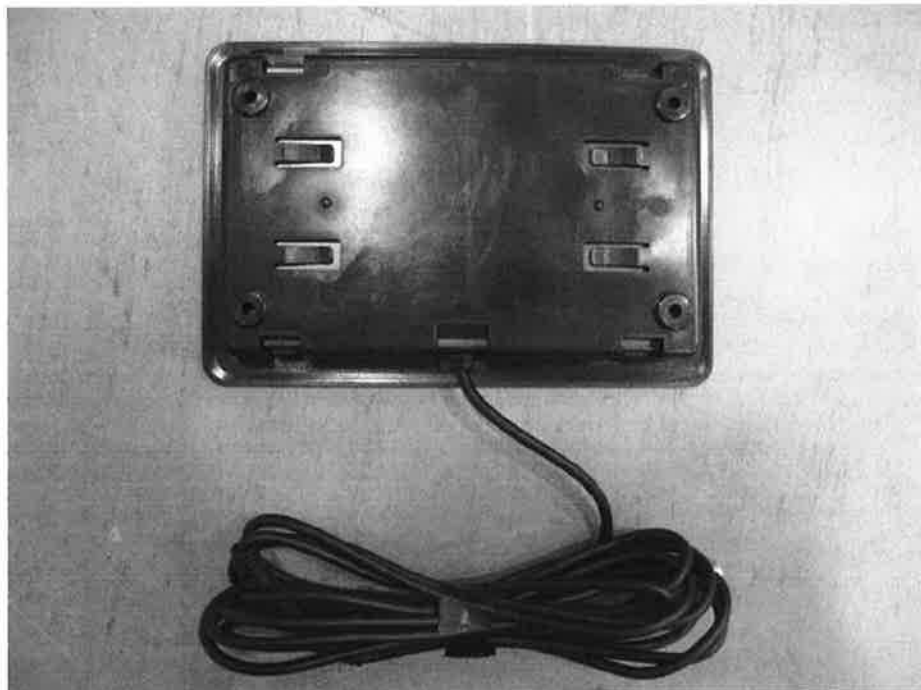


4. EUT PHOTOGRAPHS

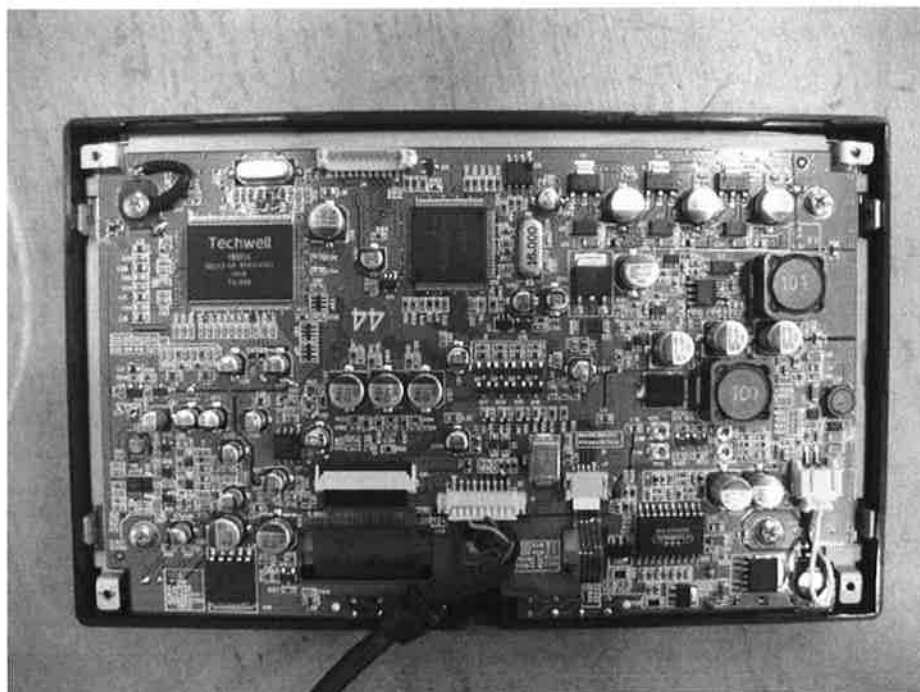
[Front of Monitor]



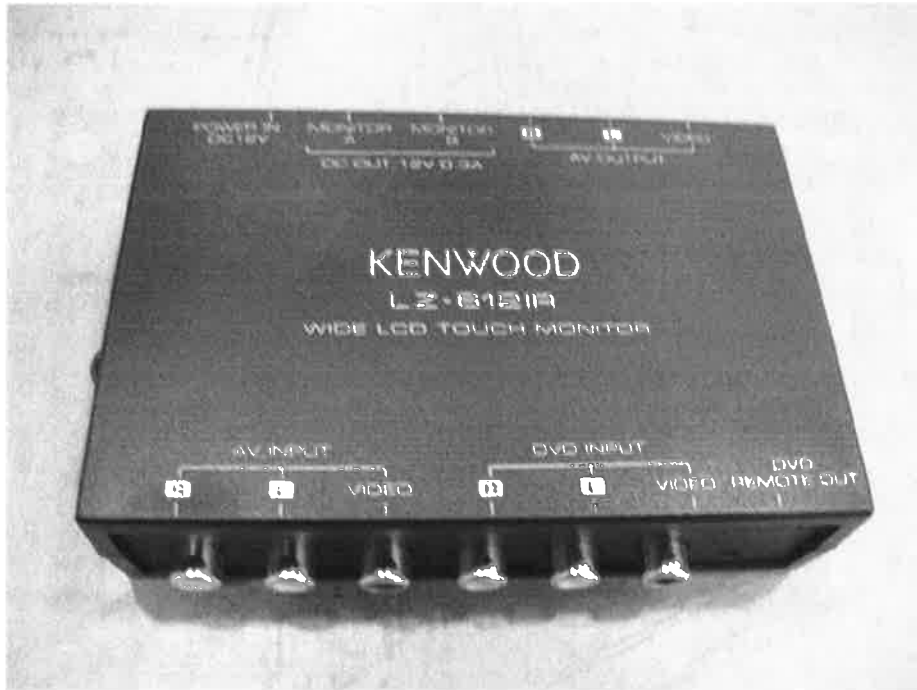
[Rear of Monitor]



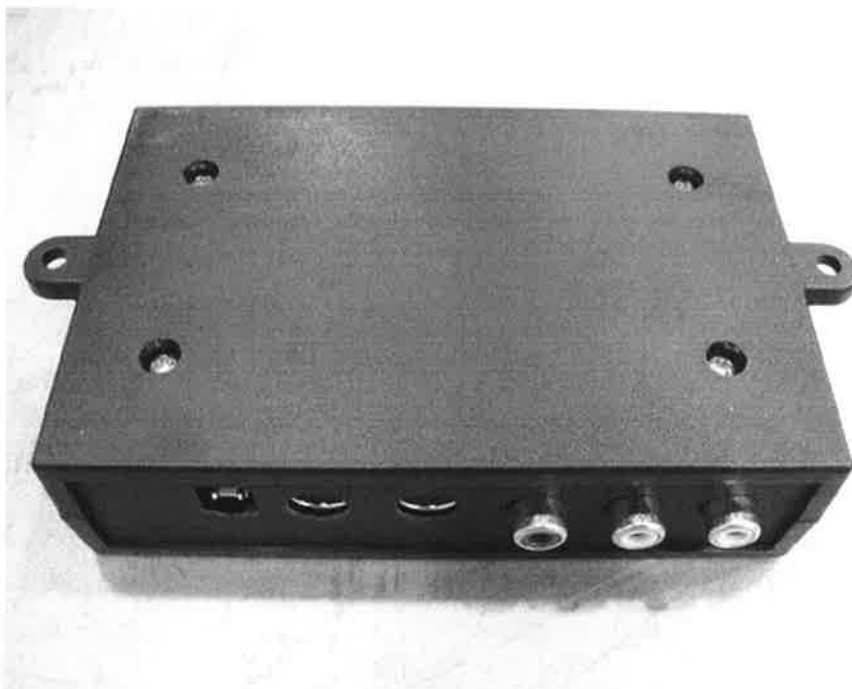
[Inside of Monitor]



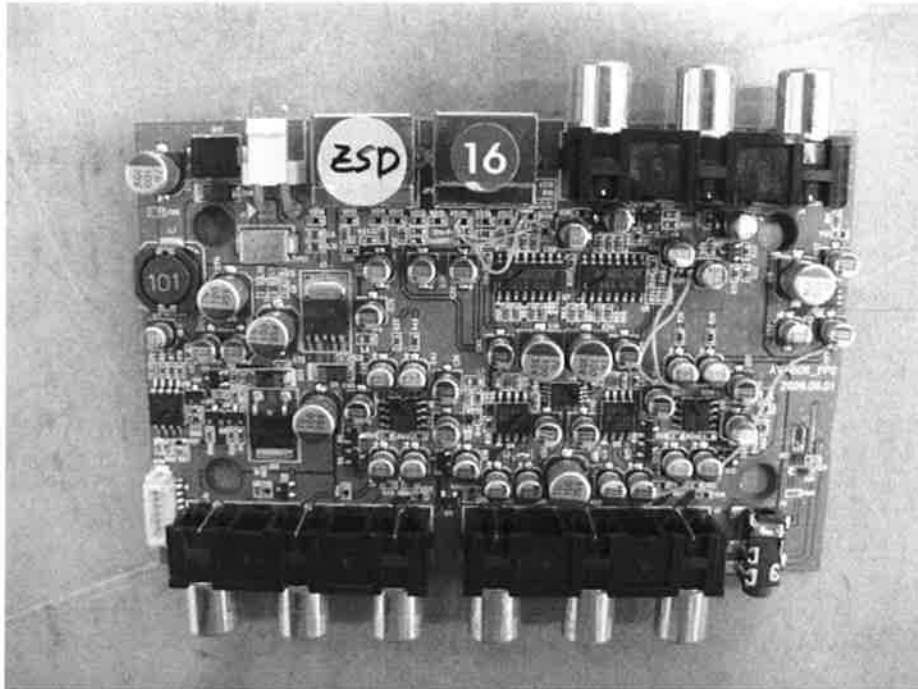
[Front]



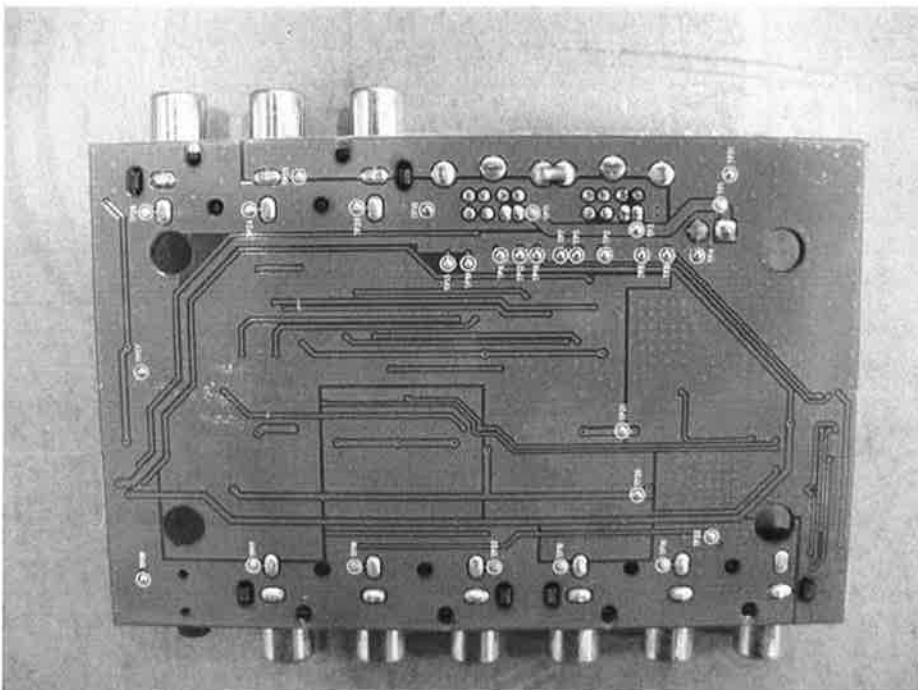
[Rear]



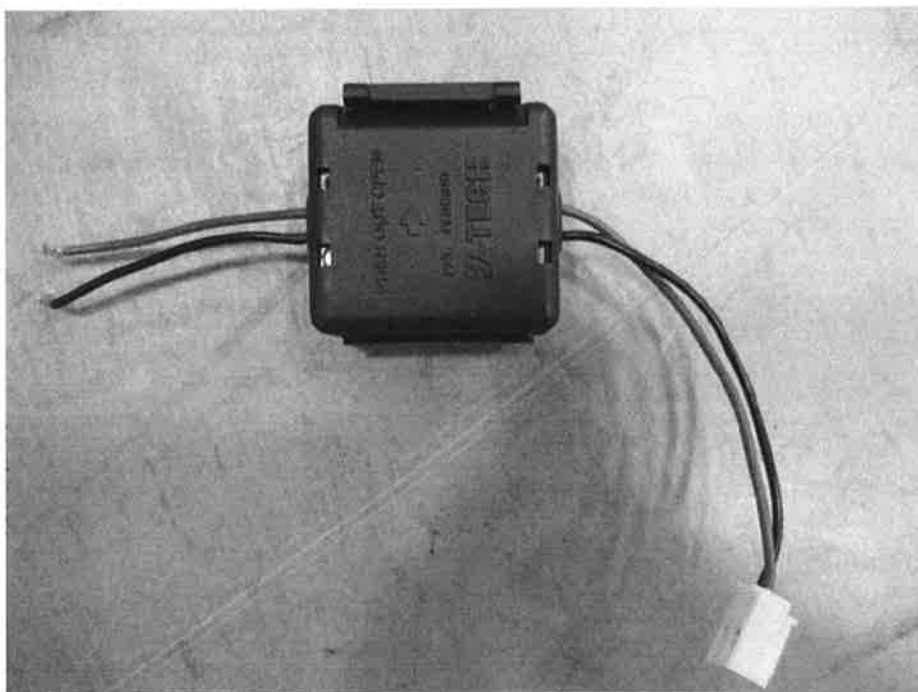
[Inside 1]



[Inside 2]



[Filter]



[Inside of Filter]

