EU Declaration of Conformity (EMC)

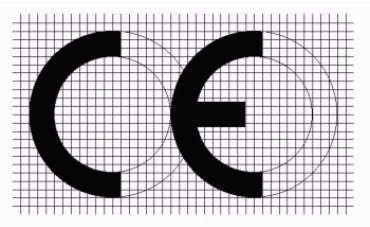
Type of equipment: **DVR CARD**

Model Name: **GV1480**

Applicant/Manufacturer: **GeoVision Inc.**

Address: 12FI., No. 316, Sec. 1, Neihu Rd., Neihu Chiu, Taipei, Taiwan 114, R.O.C

We hereby declare, that all major safety requirements, concerning to CE Mark Directive(93/68/EEC) and Low Voltage Directive(73/23/EEC), Electromagnetic Compatibility Directives(89/336/EEC,92/31/EEC) are fulfilled, as laid out in the guideline set down by the member states of the EEC Commission. This declaration is valid for all samples that are part of this declaration, which are manufactured according to the production charts appendix.



The standards relevant for the evaluation of electrical safety requirements are as follows :

EMC : EN 55022: 1998+A1+A2:2003, EN 50130-4: 1995+A1+A2:2003
EN 61000-3-2: 2000, EN 61000-3-3: 1995+A1:2001

1. Certificate of conformity / Test report issued by :

EMC : **EMC Compliance Laboratory**

Certificate No. : **EMC-CE-0687**

2. Technical documentation kept at :

GeoVision Inc.

which will be made available upon request.

GeoVision Inc.

12FI., No. 316, Sec. 1, Neihu Rd., Neihu Chiu, Taipei,

Taiwan 114, R.O.C

December 30, 2005

(place and date of issue) *(name and signature of authorized person)*

Contents

1. Client information

Applicant: GeoVision Inc.

Address: 12FI., No. 316, Sec. 1, Neihu Rd., Neihu Chiu, Taipei, Taiwan 114, R.O.C

Telephone number: + 886-2-8797-8377

Facsimile number: + 886-2-8797-8335

Contact Person: George Tai

Manufacturer: GeoVision Inc.

Address: 12FI., No. 316, Sec. 1, Neihu Rd., Neihu Chiu, Taipei, Taiwan 114, R.O.C

Telephone number: + 886-2-8797-8377

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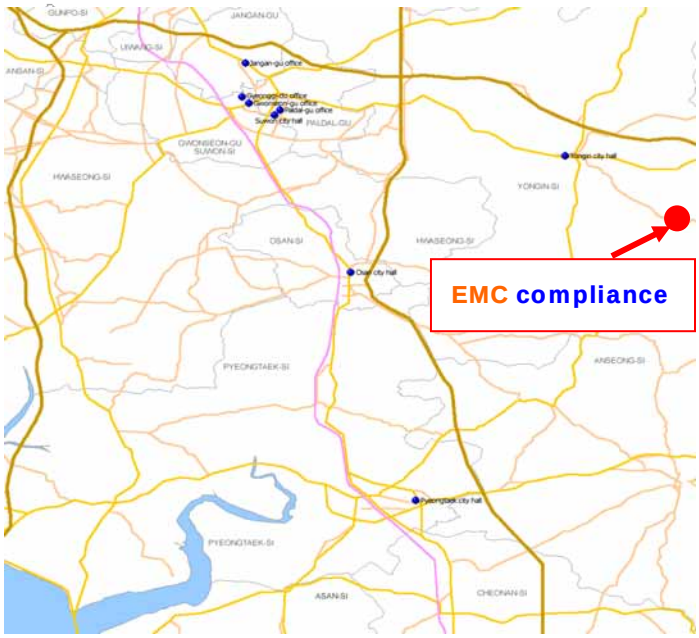
Contact Person: George Tai

2. Laboratory information

Address
EMC compliance Ltd.
82-1 JEIL-RI, YANGJI-MYUN, YONGIN-CITY, KYUNGGI-DO 449-825, KOREA
Telephone Number : 82 31 336 9919
Facsimile Number : 82 31 336 4767

FCC Filing No. : 793334
VCCI Registration No. : C-1713, R-1606
KOLAS NO.: 231
SITE MAP



3. Test system configuration

3.1 Operation environment

	Temperature	Humidity	Pressure
OATS :	16 °C	33 %	1010 hPa
Shielded room :	25 °C	38 %	1012 hPa
Immunity area :	23 °C	36 %	1020 hPa

Test site

These testing items were performed following locations;

Shielded Room : Conducted Emission, ESD
OATS (10m) : Radiated Emission
Immunity area : RS, EFT/ Burst, SURGE, CS, Dip, Harmonics, Flicker

3.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC.
The factors contributing to uncertainties are test receiver, cable loss, antenna factor calibration, Antenna directivity, antenna factor variation with height, antenna phase center variation, antenna frequency interpolation, measurement distance variation, site imperfection, mismatch, and system repeatability.
Based on NIS 80, 81, the measurement uncertainty level with a 95% confidence level was applied.

3.3 Sample calculation

Conducted Emission

The field strength is calculated by adding the LISN factor, cable loss from the measured reading.
The sample calculation is as follows :

FS = MR + LF + CL
MR = Meter Reading
LF = LISN Factor
CL = Cable Loss

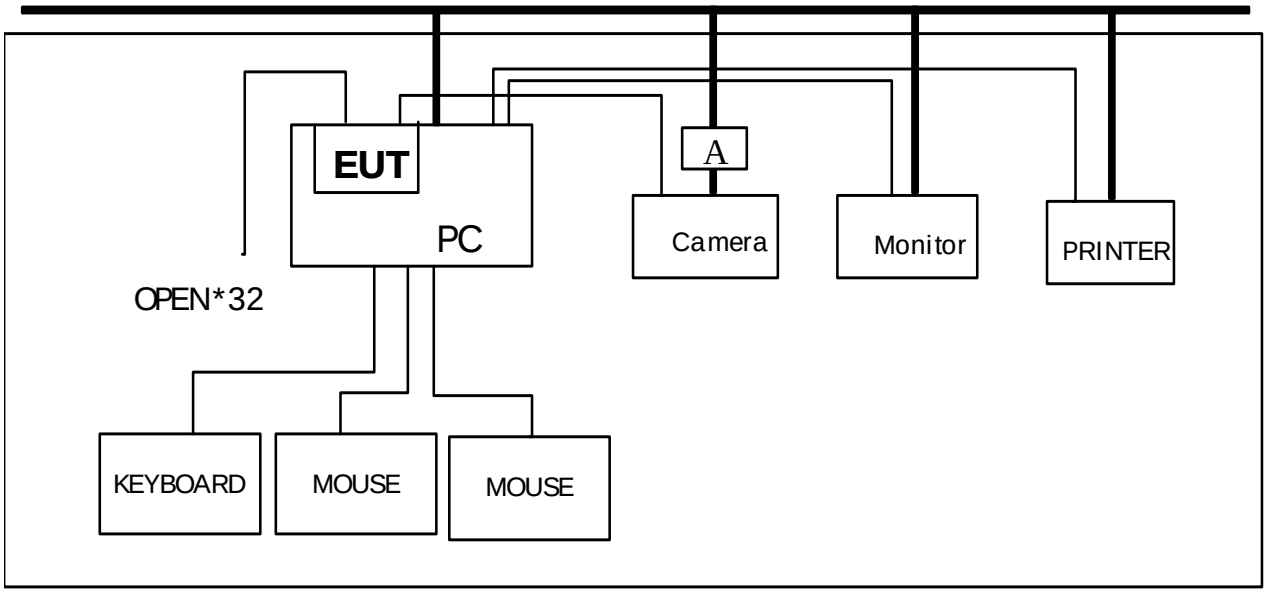
If MR is 30dB, LISN Factor 2dB, CL 1dB
The result (MR) is

30 + 2 + 1 = 33dBuV

4.3 Used cables

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	AV cable#1	OPEN	-	3.0	Shielded
	BNC cable#1	CCD Camera	BNC cable#1	3.0	Shielded
	AV cable#2~16	OPEN	-	1.5	Shielded
	BNC cable#2~16	OPEN	-	1.5	Shielded
	AV cable(EXT)	OPEN	-	1.5	Shielded

4.4 E.U.T. test configuration



4.5 Operating conditions

-Real video capture mode.

5. Summary of test results

5.1 Modification to the E.U.T.

None

5.2 Standards & results

The following standards have been applied:

EN 55022 :1998+A1+A2:2003

Information technology equipment – Radio disturbance characteristics - Limits and methods of measurement

Test items	Result
Conducted emission	Pass
Radiated emission	Pass

EN 50130-4:1995+A1+A2:2003

Alarm systems – part 4: Electromagnetic compati-bility – Product Family standard: Immunity requirements for components of fire, intruder and social alarm systems

Test items	Test methods	Result
Electrostatic discharge	EN 61000-4-2:1995	Pass
Electromagnetic field	EN 61000-4-3:1995	Pass
Electric fast transients	EN 61000-4-4:1995	Pass
Surge	EN 61000-4-5:1995	Pass
Conducted immunity	EN 61000-4-6:1996	Pass
Voltage dip/interruption	EN 61000-4-11:1994	Pass

EN 61000-3-2: 2000

Electromagnetic compatibility (EMC) – Part 3-2: Limits –
Limits for harmonic-current emissions
(equipment input current up to including 16A per phase)

Test items	**Test method**	**Result**
Harmonics	EN 61000-3-2: 2000	Pass

EN 61000-3-3: 1995+A1 : 2001

Electromagnetic compatibility (EMC) – Part 3-3: Limits –

Limitation of voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16A per phase and not subject to conditional connection

Test items	Test method	Result
Flicker	EN 61000-3-3: 1995+A1 : 2001	Pass

5.3 Performance criteria

Performance criterion A: The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level may be replaced by a permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation, and from the apparatus if used as intended.

Performance criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed.
If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation from the apparatus if used as intended.

Performance criterion C: *Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operating of the controls.*

6. Test results

6.1 Conducted Emission

6.1.1 Measurement procedure

Mains

The measurements were performed in a shielded room.
EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane.
The rear of table was located 0.4 m to the vertical conducted plane.
Each EUT power lead, except ground (safety) lead, was individually connected through a LISN to input power source.
Both lines of power cord, hot and neutral, were measured.

6.1.2 Used equipments

Equipment	Model	Serial No.	Makers	Next Cal. Date	Used
Test receiver	ESHS10	843276/003	R&S	06.05.13	☒
L.I.S.N.	ESH3-Z5	100267	R&S	06.06.17	☒
	L2-16A	0000J10705	PMM	06.11.30	☒
Test site	Shield room	-	-	-	☒

6.1.3 Measurement uncertainty

Conducted emission measurement : (k=2, 95%)
9kHz-150 kHz : ±3.47 [dB]
150kHz-300 MHz : ±3.01 [dB]

6.1.4 Test data

Frequency	Correction Factor		Line	Quasi-peak			Average		
				Limit	Reading	Result	Limit	Reading	Result
[MHz]	LISN	Cable		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]
0.174	0.20	0.2	H	79.00	57.30	57.70	66.00	48.38	48.78
0.204	0.12	0.1	N		49.42	49.64		45.47	45.69
0.231	0.12	0.1	N		48.92	49.14		41.95	42.17
0.288	0.13	0.1	N		44.55	44.78		36.69	36.92
0.348	0.12	0.1	H		43.06	43.28		35.92	36.14
0.636	0.16	0.1	N	73.00	37.97	38.23	60.00	33.37	33.63
0.807	0.16	0.1	N		35.09	35.35		28.50	28.76
2.055	0.20	0.2	H		36.01	36.41		30.34	30.74
2.169	0.20	0.2	N		35.61	36.01		31.84	32.24
18.240	0.75	0.2	N		35.10	36.05		30.69	31.64

- Note. QP = Quasi-Peak, AV= Average
- Loss = LISN Loss + Cable Loss
- Measurement time : 1 s

6.1.5 Result

Minimum limit margin is 17.22 dB at 0.174 MHz.

6.2 Radiated Emission

6.2.1 Measurement procedure

A pretest was performed at 3 m distance in a mini chamber for searching correct frequency.
The final test was done at a 10 m open area test site with a quasi-peak detector.
EUT was placed on a non-metallic table height of 0.8 m above the reference ground plane.
They were folded back and forth forming a bundle 0.3 m to 0.4 m
long and were hanged at a 0.4 m height to the ground plane.
Cables connected to EUT were fixed to cause maximum emission.
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.

6.2.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next cal. date	Used
Test receiver	EVSD	827864/006	R&S	06.05.14	☒
TRILOG Broadband Ant.	VULB 9160	9160-3149	SCHWARZBECK	06.10.10	☒
Antenna Mast	A109	N/A	DEAIL	-	☒
Turn Table	TS14	N/A	DEAIL	-	☒
10m OATS	-	-	EMC Compliance	-	☒

6.2.3 Measurement uncertainty

Radiated Emission measurement : (k=2, 95%)
30-300 MHz ; 3 m: ±3.69 [dB], 10 m: ±3.67 [dB]
300-1000 MHz ; 3 m: ±4.07 [dB], 10 m: ±3.41 [dB]

6.2.4 Test data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	angle	Correction Factor		Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
					Antenna	Cable			
108.35	17.3	V	1.0	39	10.07	1.50	40.0	28.87	11.13
134.11	10.4	V	1.0	136	12.20	1.80	40.0	24.40	15.60
200.10	14.8	V	1.2	277	9.14	2.30	40.0	26.24	13.76
225.20	9.5	V	1.1	341	10.20	2.50	40.0	22.20	17.80
459.00	16.9	H	2.2	344	16.64	4.00	47.0	37.54	9.46
702.02	5.0	H	1.5	90	20.71	5.90	47.0	31.61	15.39
750.01	5.8	H	1.6	139	21.99	6.30	47.0	34.09	12.91
779.96	1.3	H	1.2	233	22.02	6.40	47.0	29.72	17.28
811.75	6.6	V	1.5	105	22.20	6.80	47.0	35.60	11.40
845.30	5.2	H	1.3	350	22.69	6.70	47.0	34.59	12.41

* Receiving Antenna Mode : *Horizontal, Vertical*

* 10 m OATS

** Note : Reading = Test Receiver meter, P= Polarization → POL H = Horizontal, POL V = Vertical*

** Result = Field Strength (Antenna factor + Cable factor + Reading)*

6.2.5 Result

Minimum limit margin is 9.46 dB at 459.00 MHz.

6.3 Electrostatic Discharge

6.3.1 Measurement procedure

A ground reference plane was located on the floor, and connected to earth via a low impedance connection.
The return cable of the ESD generator was connected to the reference plane.
In case of floor standing equipment, EUT was placed on the reference plane on 0.1 m of insulating Support.
In case of table top equipment, EUT was placed on a wooden table 0.8m above the reference grounded floor.
A horizontal coupling plane(HCP) was placed on the table, and
Connected to the reference plane via a 470 resistor located in each end (0.5mm insulating support between EUT and HCP).
In both cases a vertical coupling plane(VCP) OF 0.5 X 0.5m was located 10cm from the EUT's sides.
The VCP was connected to the reference plane in the same matter as the HCP.

6.3.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. Date	Used
ESD Tester	PESD 1600	H011 309	HAEFELY	2006.08.12	☒
HCP	-	-	-	-	☒
VCP	-	-	-	-	☒

6.3.3 Test Data

Test Specifications

Test Specification : EN61000-4-2

Kind of Discharges

☒ Contact Discharge

☐ Air Discharge

☒ HCP

☒ VCP

Discharge Voltages

☒ Contact Discharge : ± 2, 4, 6kV

☐ Air Discharge :

Discharge Impedance

☒ 330 Ω/150 ☐ 2KΩ/330

Number Of Discharge

☒ Number of discharges per point, for each voltage and polarity

: 10 (Interval between discharges : ≥ 1s)

Test point (Please refer to attached photograph.)

▪ Contact Discharge : BNC Connector Port, AV Connector Port, Board Blacket

▪ Air Discharge : No air discharge part

Test Results

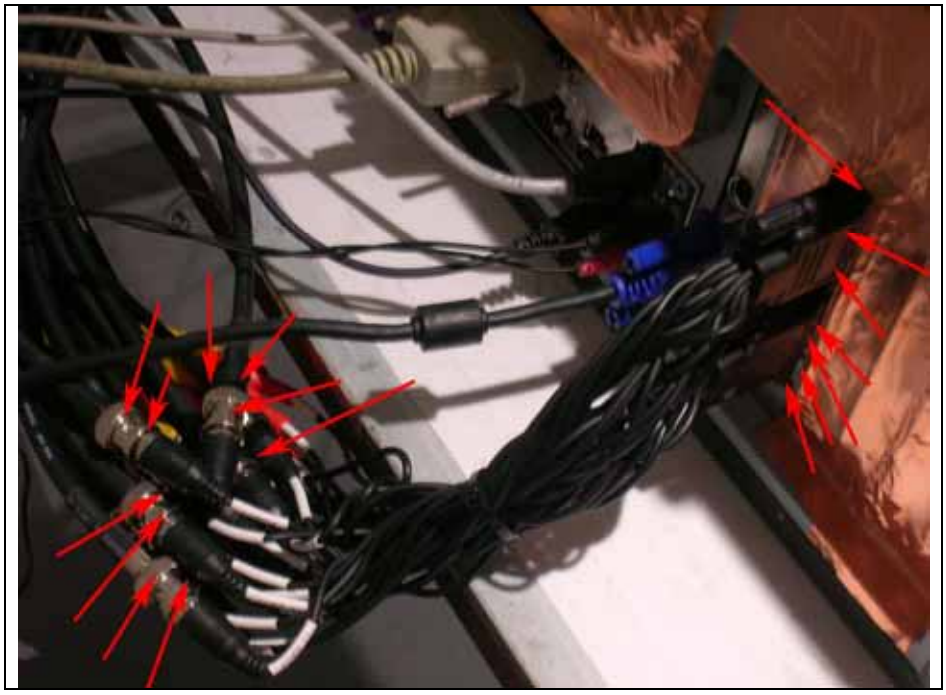
☒ Complied ☐ Not complied

Comment :

-There was no change of operation status during above testing.

Electrostatic Discharge (Test Point)

Air discharge →
Contact discharge →



6.4 Radio Frequency Electromagnetic Fields

6.4.1 Measurement procedure

The test was performed at 3m full anechoic chamber.
For floor standing equipment, the EUT was standing on the floor.
For tabletop equipment, the EUT was located on a wooden table 0.8m above the floor.
The EUT was tested all sides, horizontal and vertical polarization.
The field uniformity was calibrated for 1V/m, 3V/m, 10V/m.

6.4.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Power meter	PM2002	302852	AR	06.05.03	☒
Field monitor	FM5004	303078	AR	07.12.08	☒
Power sensor (with adapter)	PH2000	303224	AR	06.05.03	☒
Power sensor (with adapter)	PH2000	303222	AR	06.05.03	☒
Isotropic probe	FP5000	303057	AR	07.12.08	☒
Directional coupler	DC6180	303976	AR	06.05.03	☒
Amplifier	150W1000M2	303843	AR	06.05.03	☒
Signal generator	2023A	202304/2578	IFR	06.05.03	☒
Function generator	33120A	US36018826	HP	07.05.03	☒
BiconiLog Ant.	3142B	1786	EMCO	06.05.15	☒

6.4.3 Measurement uncertainty

Radio Frequency Electromagnetic Fields : ± 1.89 [dB] (k=2, 95%)

6.4.4 Test Data

Test Specifications

Test Specification : EN 61000-4-3

Frequency Range

☒ 80MHz - 1000MHz ☐ 900 MHz ± 5MHz ☐ 26MHz - 500MHz

Test level

☒1V/m ☒ 3V/m ☒ 10V/m

Modulation

☒ AM : 1kHz, 80%

☐ PM : 1Hz (0.5s ON: 0.5 s OFF)

Frequency step

☒ log 1% step ☐ log 3% step ☐ log 5% step

Dwell Time

☒ 3 s ☐ 2 s ☐ 1 s

Test point

☒ Front

☒ Rear

☒ Left

☒ Right

Test Results

☒ Complied ☐ Not complied

Comment :

-There was no change of operation status during above testing.

6.5 Electric Fast Transient/BURST

6.5.1 Measurement procedure

A ground reference plane was located on the floor.
EFT generator was connected to reference ground plane via low impedance connection.
For floor standing equipment, EUT was placed on a 0.1 m wooden table.
For tabletop equipment, EUT was placed on a wooden table(0.8m)
above the reference plane.

6.5.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. date	Used
EFT/B Tester	UCS 500 M6	0701-03	EM TEST	06.05.03	☒
	RWG500 M6	0701-08	EM TEST	06.05.08	☐
	TSS500 M4	0402-01	EM TEST	06.05.03	☐
Capacitive coupling clamp	N/A	N/A	EM TEST	-	☒

6.5.3 Test Data

Test Specifications
Test Specification : EN 61000-4-4

Coupling
☒ Power ☒ Signal Lines ☐ Telecommunication line

Test level
☒ AC Power : ±0.5 kV & ±1 kV & ±2 kV
☒ Signal Line : ±0.25 kV & ±0.5 kV & ±1 kV
☐ Tel. line :

Test mode
- AC Power : L1, L2, PE, L1-L2, L1-PE, L2-PE, L1-L2-PE
- Signal lines : BNC cable, AV cable

Burst frequency : 5 kHz, 5/50 ns

Coupling Time : 120 s

Test Results
☒ Complied ☐ Not complied

Comment :
-There was no change of operation status during above testing.(Power)
-During the test (±1kV), dot was appeared. After this test, EUT was operated normally.(Signal line)

6.6 Surge

6.6.1 Measurement procedure

A ground reference plane was located on the floor.
SURGE generator was connected to reference ground plane via low impedance connection.
For floor standing equipment, EUT was placed on a 0.1 m wooden table.
For tabletop equipment, EUT was placed on a wooden table(0.8m) above the reference plane.

6.6.2 Used equipments

Equipment	Model No.	Serial No.	Makers	Next Cal. date	Used
Surge Generator	UCS 500 M6	0701-03	EM TEST	06.05.03	☒
	RWG500 M6	0701-08	EM TEST	06.05.08	☐
	TSS500 M4	0402-01	EM TEST	06.05.03	☐
Coupling Clamp	CNV 508	1001-10	EM TEST	06.05.16	☒

6.6.3 Test Data

Test Specifications

Test Specification : EN 61000-4-5

Coupling

☒ Power ☒ Signal Line ☐ Telecommunication line

Test level

☒ Power : ± 0.5 kV & ±1 kV ± 2 kV

☒ Signal Line : ± 0.5 kV & ±1 kV

☐ Tel. line :

Test mode

- AC Power : L-N, L-PE, N-PE
- Signal Line : BNC cable, AV cable

Coupling Impedance

☒ 40Ω+0.5 ☐ 40Ω ☒ 10Ω+9 ☒ 18

Coupling Time : 5 s

Number of Surge : 5

Test Results

☒ Complied ☐ Not complied

Comment :

-There was no change of operation status during above testing.

6.7 Conducted Immunity

6.7.1 Measurement procedure

A ground reference plane was located on the floor.
For tabletop equipment, the test was performed on a ground reference plane on a 0.8m wooden table.
The EUT was isolated 0.1 m isolating support.
The ground plane was connected to floor reference ground plane via low impedance connection.
For floor standing equipment, EUT was placed on a 0.1 m wooden table.
This test were Performed using CDN for mains, clamp for signal.
and injection probe.

6.7.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
CS Generator	NSG 2070	1054	Schaffner	06.05.03	☒
CDN	M016	16674	Schaffner	06.04.08	☒
EM Clamp	KEMZ 801	17643	Schaffner	-	☒

6.7.3 Test Data

Test Specifications

Test Specification : EN 61000-4-6

Frequency Range

☒ 150 kHz - 100MHz ☐ 150 kHz - 230MHz ☐150 kHz - 500MHz

Test point: Power, BNC cable, AV cable

Coupling

☒ Power : CDN

☒ Signal : Clamp

☐ Tel. line :

Test level

☒ 1V ☒ 3V ☒ 10V

Modulation

☒ AM : 1kHz, 80%

☐ PM : 1Hz (0.5 s ON : 0.5 s OFF)

Frequency step

☒ log 1% step ☐ log 3% step ☐ log 5% step

Dwell Time

☒ 3 s ☐ 2 s ☐ 1 s

Test Results

☒ Complied ☐ Not complied

Comment :

-There was no change of operation status during above testing.

6.8 Dips and Interruptions

6.8.1 Measurement procedure

The dips/interruption test is only applicable to AC mains.
The dips/interruptions were applied at zero crossing.

6.8.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
dips/interruption Tester	UCS 500 M6	0701-03	EM TEST	06.05.03	☒
	RWG500 M6	0701-08	EM TEST	06.05.08	☐
	TSS500 M4	0402-01	EM TEST	06.05.03	☐

6.8.3 Test data

Test specification : EN 61000-4-11

Test data

Test Level (%UT)	Dip/Int. (%UT)	Duration /Period	Phase (°)	Count number	Result
0 %	100 %	0.5/1/5 Period	0	3T	Pass
40 %	60 %	0.5/1/5/10 Period	0	3T	Pass

Test results

☒ Complied ☐ Not complied

Comment :

-There was no change of operation status during above testing.

6.9 Harmonics

6.9.1 Measurement procedure

The equipment is supplied in series with shunt(s) Rm or current transformer(s) from a source having the same nominal voltage and frequency as the rated supply voltage and frequency of the equipment. Measurements shall be made under normal load, or conditions for adequate heat discharge, and under normal operating conditions. User's operation controls or automatic programmers shall be set to produce the maximum harmonic component, for each successive harmonic component in turn. For the purpose of harmonic current limitation, equipment is classified as follows :

Class A : Equipment not specified in one of the three other Classes shall be considered as Class A equipment.

- Balanced three-phase equipment;
- Household appliances excluding equipment identified as Class D;
- Tools excluding portable tools;
- Dimmers for incandescent lamps;
- Audio equipment.

Class B : Portable tools; Arc welding equipment which is not professional equipment.

Class C : Lighting equipment.

Class D : Equipment having a specified power according to 6.2.2 less than or equal to 600 w, of the following types:

- Personal computers and personal computer monitors;
- Television receivers.

6.9.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Harmonics/Flicker meter	5001x-CTS-400-413	54984	C.I.	06.05.03	☒
Test site	Immunity area	-	-	-	☒

6.9.3 Test data

- Refer to attached test data

Test results

☒ Complied ☐ Not complied

6.10 Flicker

6.10.1 Measurement procedure

EUT was connected to the power analyzer system.
Measurement was performed to obtain the desired flicker parameters.
The measuring time depends on which parameters are to be measured.
P_{lt} = 2 h
P_{st} = 10 min
Controls and automatic programs shall be set to produce the most unfavorable sequence of voltage changes, using only those combinations of controls and programs are mentioned by the manufacturer in the instruction manual.

6.10.2 Used equipments

Equipment	Model no.	Serial no.	Makers	Next Cal. date	Used
Harmonics/Flicker meter	5001x-CTS-400-413	54984	C.I.	06.05.03	☒
Test site	Immunity area	-	-	-	☒

6.10.3 Test data

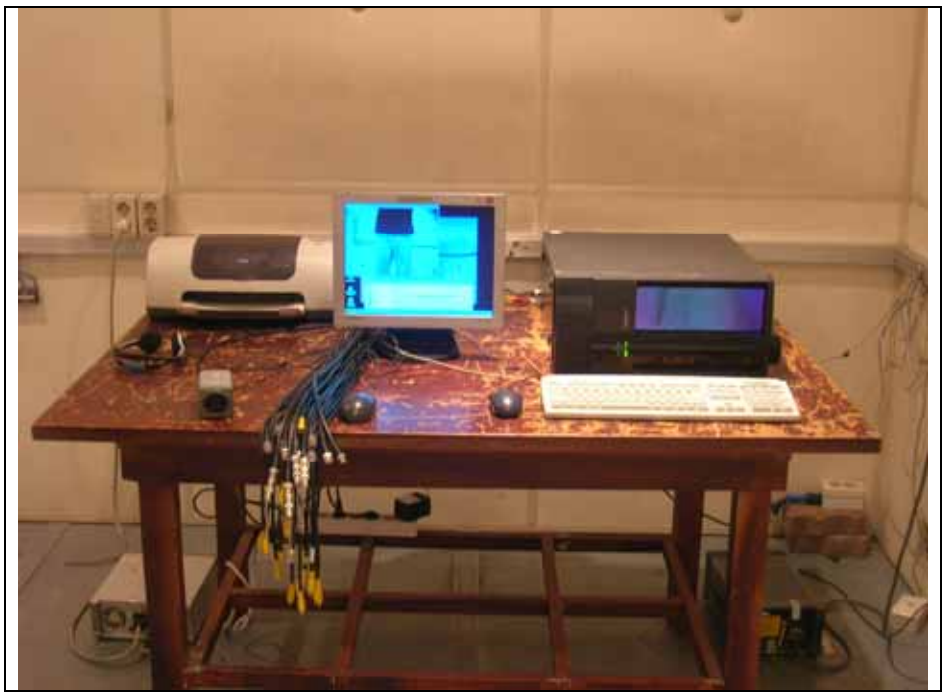
- Refer to attached test data

Test results

☒ Complied ☐ Not complied

7. Test photographs

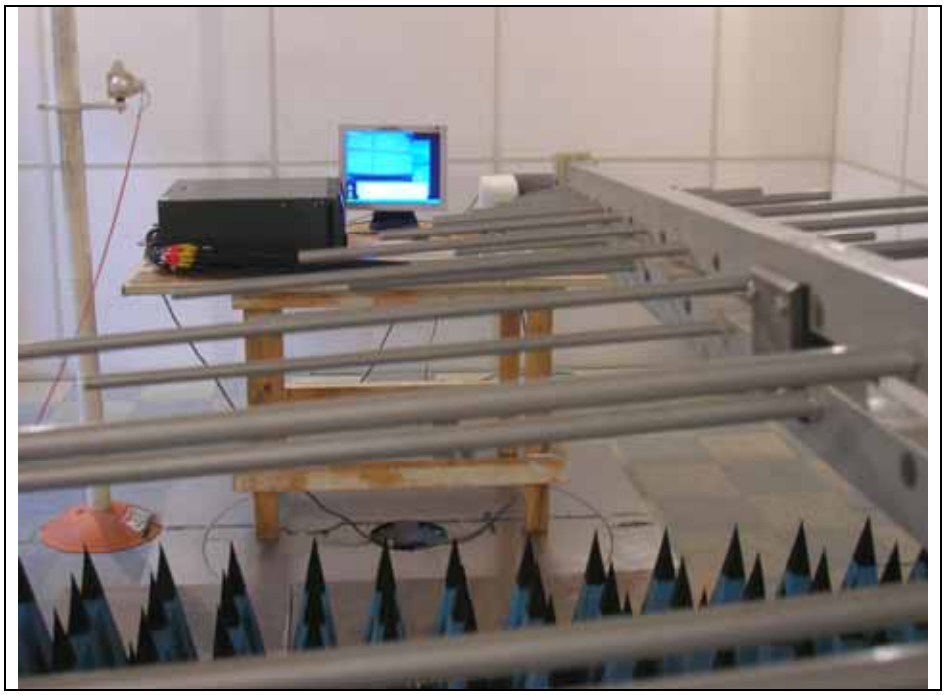
Conducted emission



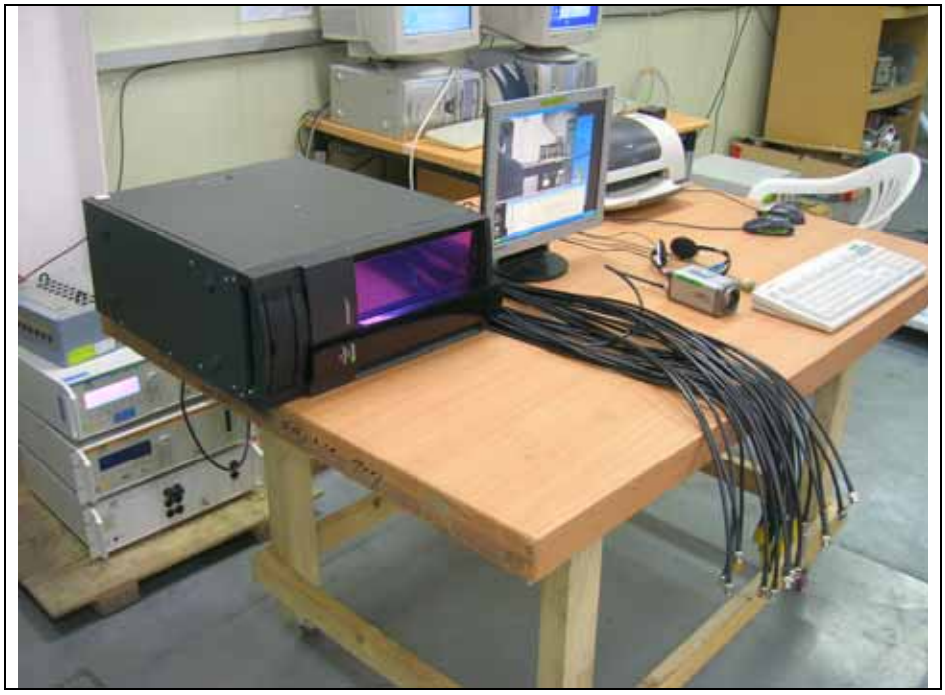
Radiated Emission

Electrostatic Discharge

Radio Frequency Electromagnetic Fields



Electric Fast Transient

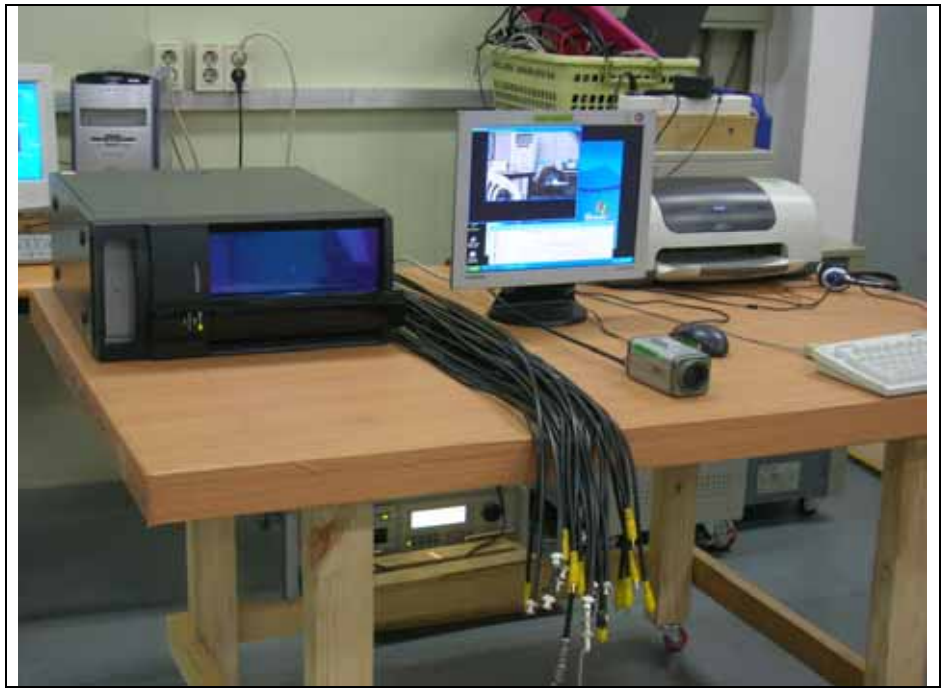


Surge

Conducted Immunity

Dip/Interruptions

Harmonics/Flicker



8. E.U.T. photographs

Front View

Rear View

Inside

Cable

9. Appendix

Conducted Emission test graph

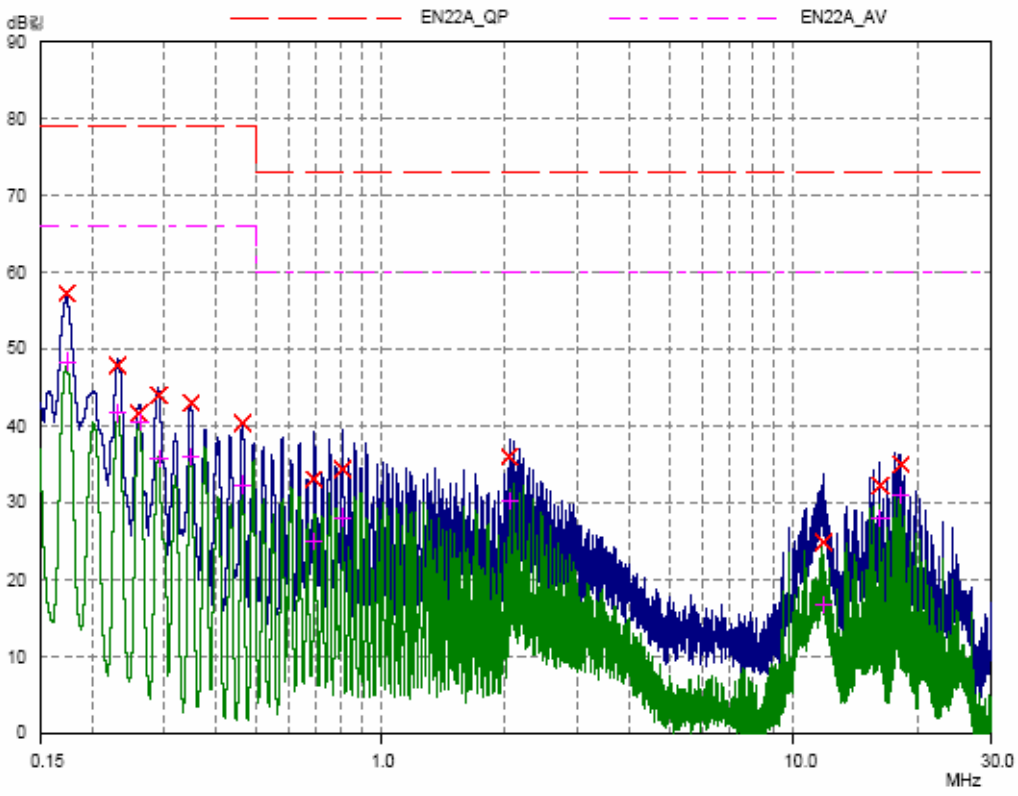
EUT: GV1480
Manuf: GEOVISION
Op Cond: H
Operator:
Test Spec: EN55022 Class A Conducted Emission
Comment:

Result File: 0512081h.dat : GEOVISION_DVRBOARD_GV1480_H

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Peaks: 8
Acc Margin: 25 dB



EUT:	GV1480
Manuf:	GEOVISION
Op Cond:	N
Operator:	
Test Spec:	EN55022 Class A Conducted Emission
Comment:	

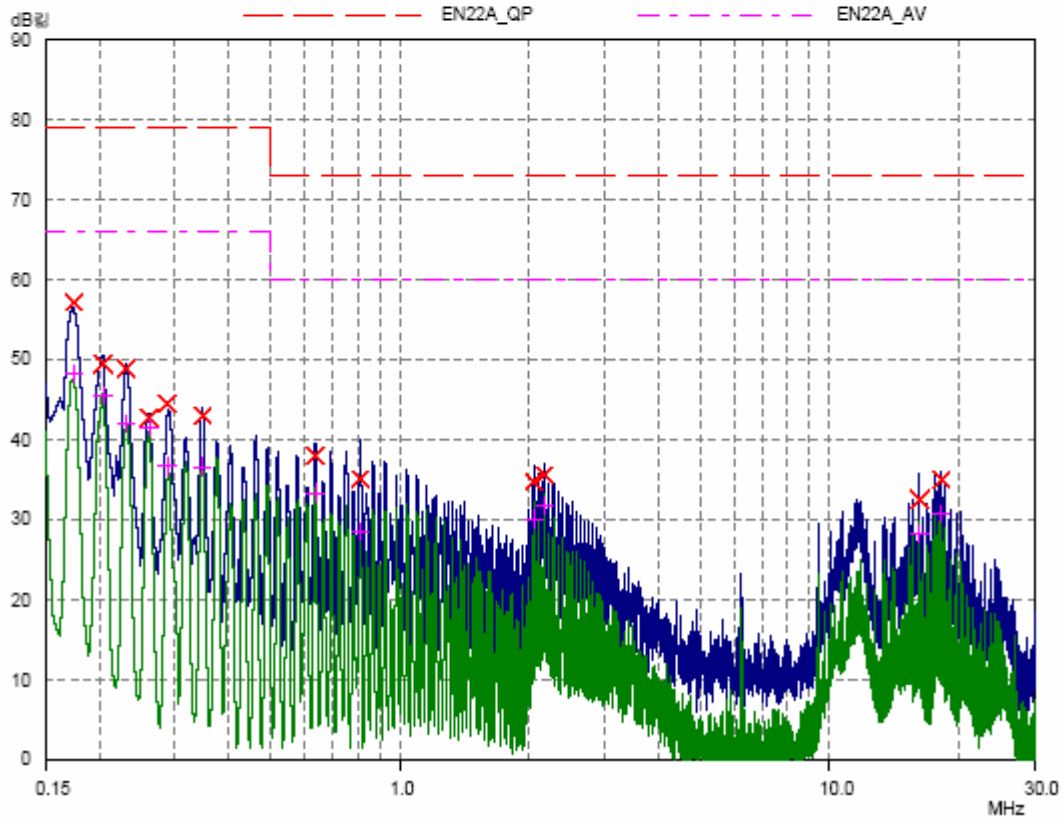
Result File: 0512081n.dat : GEOVISION_DVRBOARD_GV1480_N

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	10msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB

Final Measurement:

Detectors:	X QP / + AV
Meas Time:	1sec
Peaks:	8
Acc Margin:	25 dB



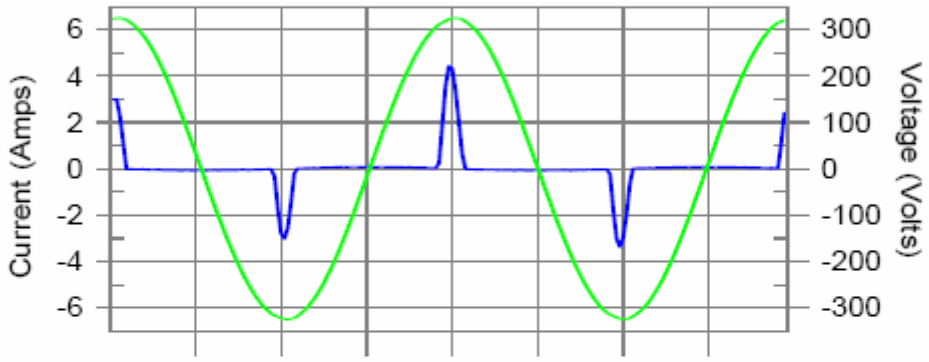
Harmonics test graph

Harmonics – Class-A per A-14(Run time)

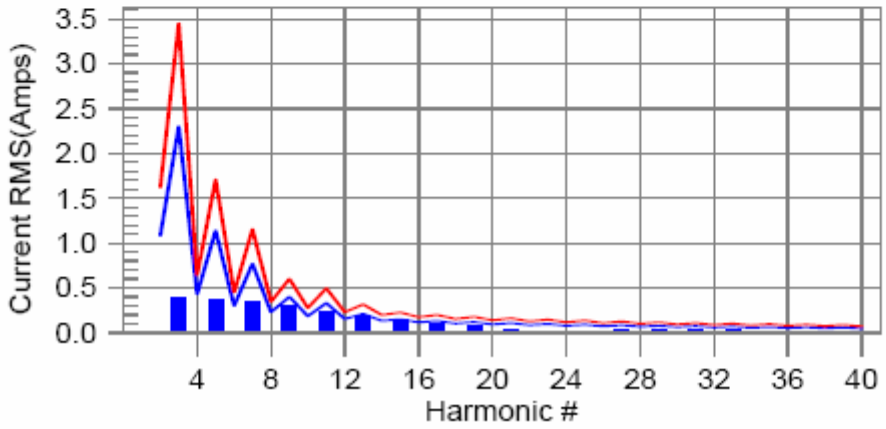
EUT: DVR BOARD_GV1480 Tested by:
Test category: Class-A per A-14 (European limits) Test Margin: 100
Test date: 2005-12-28 Start time: 오후 4:42:57 End time: 오후 4:45:32
Test duration (min): 2.5 Data file name: H-000481.cts_data
Comment: HARMONIC
Customer: UDP

Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line European Limits



Test result: Pass Worst harmonic was #15 with 63.15% of the limit.

Current Test Result Summary (Run time)

EUT: DVR BOARD_GV1480 Tested by:
Test category: Class-A per A-14 (European limits) Test Margin: 100
Test date: 2005-12-28 Start time: 오후 4:42:57 End time: 오후 4:45:32
Test duration (min): 2.5 Data file name: H-000481.cts_data
Comment: HARMONIC
Customer: UDP

Test Result: Pass Source qualification: Normal
THC(A): 0.79 I-THD(pk%): 235.85 POHC(A): 0.059 POHC Limit(A): 0.251
Highest parameter values during test:
V_RMS (Volts): 229.59 Frequency(Hz): 50.00
I_Peak (Amps): 4.504 I_RMS (Amps): 1.041
I_Fund (Amps): 0.489 Crest Factor: 5.002
Power (Watts): 112 Power Factor: 0.470

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.005	1.080	0.4	0.013	1.620	0.78	Pass
3	0.311	2.300	13.5	0.396	3.450	11.48	Pass
4	0.004	0.430	1.0	0.012	0.645	1.88	Pass
5	0.293	1.140	25.7	0.370	1.710	21.65	Pass
6	0.004	0.300	1.4	0.012	0.450	2.58	Pass
7	0.269	0.770	34.9	0.334	1.155	28.93	Pass
8	0.004	0.230	1.7	0.011	0.345	3.09	Pass
9	0.239	0.400	59.7	0.290	0.600	48.37	Pass
10	0.004	0.184	2.0	0.009	0.276	3.44	Pass
11	0.205	0.330	62.0	0.242	0.495	48.79	Pass
12	0.003	0.153	2.2	0.008	0.230	3.55	Pass
13	0.169	0.210	80.3	0.191	0.315	60.66	Pass
14	0.003	0.131	2.2	0.007	0.197	3.47	Pass
15	0.132	0.150	88.1	0.142	0.225	63.15	Pass
16	0.002	0.115	2.0	0.006	0.173	3.21	Pass
17	0.097	0.132	73.8	0.099	0.199	49.89	Pass
18	0.002	0.102	1.8	0.004	0.153	2.94	Pass
19	0.066	0.118	55.6	0.067	0.178	37.67	Pass
20	0.001	0.092	1.5	0.003	0.138	2.52	Pass
21	0.039	0.107	36.1	0.040	0.161	24.56	Pass
22	0.001	0.084	1.2	0.003	0.125	2.25	Pass
23	0.017	0.098	17.4	0.018	0.147	12.00	Pass
24	0.001	0.077	0.8	0.002	0.115	2.00	Pass
25	0.005	0.090	5.4	0.015	0.135	10.96	Pass
26	0.001	0.071	0.7	0.002	0.106	1.79	Pass
27	0.013	0.083	15.1	0.022	0.125	17.65	Pass
28	0.000	0.066	0.7	0.002	0.099	1.58	Pass
29	0.019	0.078	23.9	0.024	0.116	20.87	Pass
30	0.000	0.061	0.7	0.001	0.092	1.45	Pass
31	0.021	0.073	28.2	0.022	0.109	20.36	Pass
32	0.000	0.058	0.8	0.001	0.086	1.42	Pass
33	0.019	0.068	28.1	0.020	0.102	19.21	Pass
34	0.000	0.054	0.8	0.001	0.081	1.44	Pass
35	0.016	0.064	24.3	0.016	0.096	16.70	Pass
36	0.001	0.051	1.1	0.001	0.077	1.57	Pass
37	0.011	0.061	17.8	0.011	0.091	12.30	Pass
38	0.001	0.048	1.3	0.001	0.073	1.78	Pass
39	0.006	0.058	9.9	0.006	0.087	6.89	Pass
40	0.001	0.046	1.7	0.001	0.069	1.85	Pass

Voltage Source Verification Data (Run time)

EUT: DVR BOARD_GV1480 Tested by:
Test category: Class-A per A-14 (European limits) Test Margin: 100
Test date: 2005-12-28 Start time: 오후 4:42:57 End time: 오후 4:45:32
Test duration (min): 2.5 Data file name: H-000481.cts_data
Comment: HARMONIC
Customer: UDP

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	229.59	Frequency(Hz):	50.00
I_Peak (Amps):	4.504	I_RMS (Amps):	1.041
I_Fund (Amps):	0.489	Crest Factor:	5.002
Power (Watts):	112	Power Factor:	0.470

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0.100	0.459	21.80	OK
3	0.672	2.066	32.51	OK
4	0.021	0.459	4.49	OK
5	0.090	0.918	9.81	OK
6	0.020	0.459	4.26	OK
7	0.136	0.689	19.78	OK
8	0.018	0.459	3.88	OK
9	0.151	0.459	32.83	OK
10	0.008	0.459	1.83	OK
11	0.140	0.230	61.00	OK
12	0.016	0.230	6.94	OK
13	0.140	0.230	60.98	OK
14	0.009	0.230	3.81	OK
15	0.105	0.230	45.53	OK
16	0.015	0.230	6.66	OK
17	0.085	0.230	37.05	OK
18	0.018	0.230	7.74	OK
19	0.066	0.230	28.73	OK
20	0.009	0.230	4.11	OK
21	0.035	0.230	15.34	OK
22	0.012	0.230	5.32	OK
23	0.020	0.230	8.78	OK
24	0.008	0.230	3.42	OK
25	0.025	0.230	10.84	OK
26	0.014	0.230	6.07	OK
27	0.033	0.230	14.54	OK
28	0.006	0.230	2.43	OK
29	0.041	0.230	17.98	OK
30	0.011	0.230	4.78	OK
31	0.037	0.230	16.02	OK
32	0.007	0.230	3.18	OK
33	0.032	0.230	13.78	OK
34	0.006	0.230	2.64	OK
35	0.030	0.230	12.91	OK
36	0.008	0.230	3.52	OK
37	0.027	0.230	11.72	OK
38	0.004	0.230	1.61	OK
39	0.016	0.230	6.76	OK
40	0.007	0.230	3.22	OK

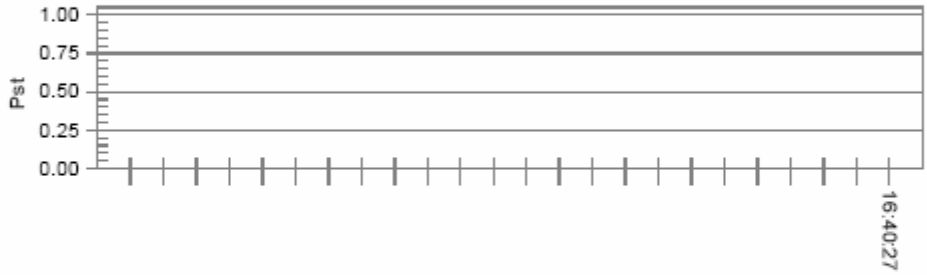
Flicker test graph

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: DVR BOARD_GV1480 Tested by:
Test category: All parameters (European limits) Test Margin: 100
Test date: 2005-12-28 Start time: 오후 4:30:20 End time: 오후 4:40:28
Test duration (min): 10 Data file name: F-000480.cts_data
Comment: FLICKER
Customer: UDP

Test Result: Pass Status: Test Completed

Pst and limit line European Limits



Time is too short for Plt plot

Parameter values recorded during the test:

Vrms at the end of test (Volt):	229.50			
Highest dt (%):	0.00	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.00	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.001	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.001	Test limit:	0.650	Pass