Compliance Test Report for FCC

Report Number		ESTF150604-007		
Applicant	Company name	LG Electronics USA		
	Address	1000 Sylvan Avenue Englewood Cliffs, NJ 07632		
	Telephone	847-941-8373		
Product	Product name	DLP PROJECTOR		
	Model No.	BN315-JD	Manufacturer	LG Electronics Inc.
	Serial No.	NONE	Country of origin	KOREA
Test date	2006-04-10 ~ 2006-04-19		Date of issue	24-Apr-06
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2005 , ANSI C 63.4 2003, ICES-003			
Test item	■ Conducted Emission	□ Class A ■ Class B	Test result	OK
	■ Radiated Emission	□ Class A ■ Class B	Test result	OK
Measurement facility registration number		94696		
Tested by	Engineer J.H.Kim			
Reviewed by	Manager Engineer J.M.Yang			
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- This test report is not permitted to copy partly without our permission
- This test result is dependent on only equipment to be used
- This test result based on a single evaluation of one sample of the above mentioned

Contents

1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.
ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co. Ltd

Head Office : Rm 1015, World Venture Center II, 426-5, Gasan-dong, Geumcheon-gu, Seoul, Kor
(Safety & Telecom. Test Lab)

EMC Test Lab : 58-1 Osan-Ri, GaNam-Myon, YeoJoo-Gun, KyungKi-Do, Korea
97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea

1.3 Official Qualification(s)

MIC : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication
KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements
FCC : Filed Laboratory at Federal Communications Commission
VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

NONE : DLP PROJECTOR
Model Number : BN315-JD
Serial Number : NONE
Manufacturer : LG Electronics Inc.
Country of origin : KOREA
Rating : INPUT:AC120V / 60Hz
Receipt Date : 2006-04-10

2.2 General descriptions of EUT

Sources	Format	Vertical Freq.(Hz)	Horizontal Freq. (kHz)
VGAEGA	640X350	70.090Hz	31.468kHz
	640X350	85.080Hz	37.861kHz
PC98 / VGA text	640X400	70.090Hz	31.468kHz
	640X400	85.080Hz	37.861kHz
	720X400	70.082Hz	31.469kHz
	720X400	85.039Hz	37.927kHz
VGA	640X480	59.940Hz	31.469kHz
	640X480	72.800Hz	37.861kHz
	640X480	75.00Hz	37.500kHz
	640X480	85.008Hz	43.269kHz
SVGA	800X600	56.250Hz	35.156kHz
	800X600	60.317Hz	37.879kHz
	800X600	72.188Hz	48.077kHz
	800X600	75.00Hz	46.875kHz
	800X600	85.061Hz	53.674kHz
XGA	1024X768	60.004Hz	48.363kHz
	1024X768	70.069Hz	56.476kHz
	1024X768	75.029Hz	60.023kHz
	1024X768	84.997Hz	68.677kHz
SXGA	1152X864	60.053Hz	54.348kHz
	1152X864	70.01Hz	63.995kHz
	1152X864	75.00Hz	67.500kHz
	1280X768	60.00Hz	47.693kHz
	1280X960	60.00Hz	60.00kHz
	1280X1024	60.020Hz	63.981kHz

Using Freq. : 48MHz, 14.31818MHz(2EA), 100MHz

3. Test Standards

Test Standard : FCC PART 15 (2005) , ICES-003

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.4 (2003)

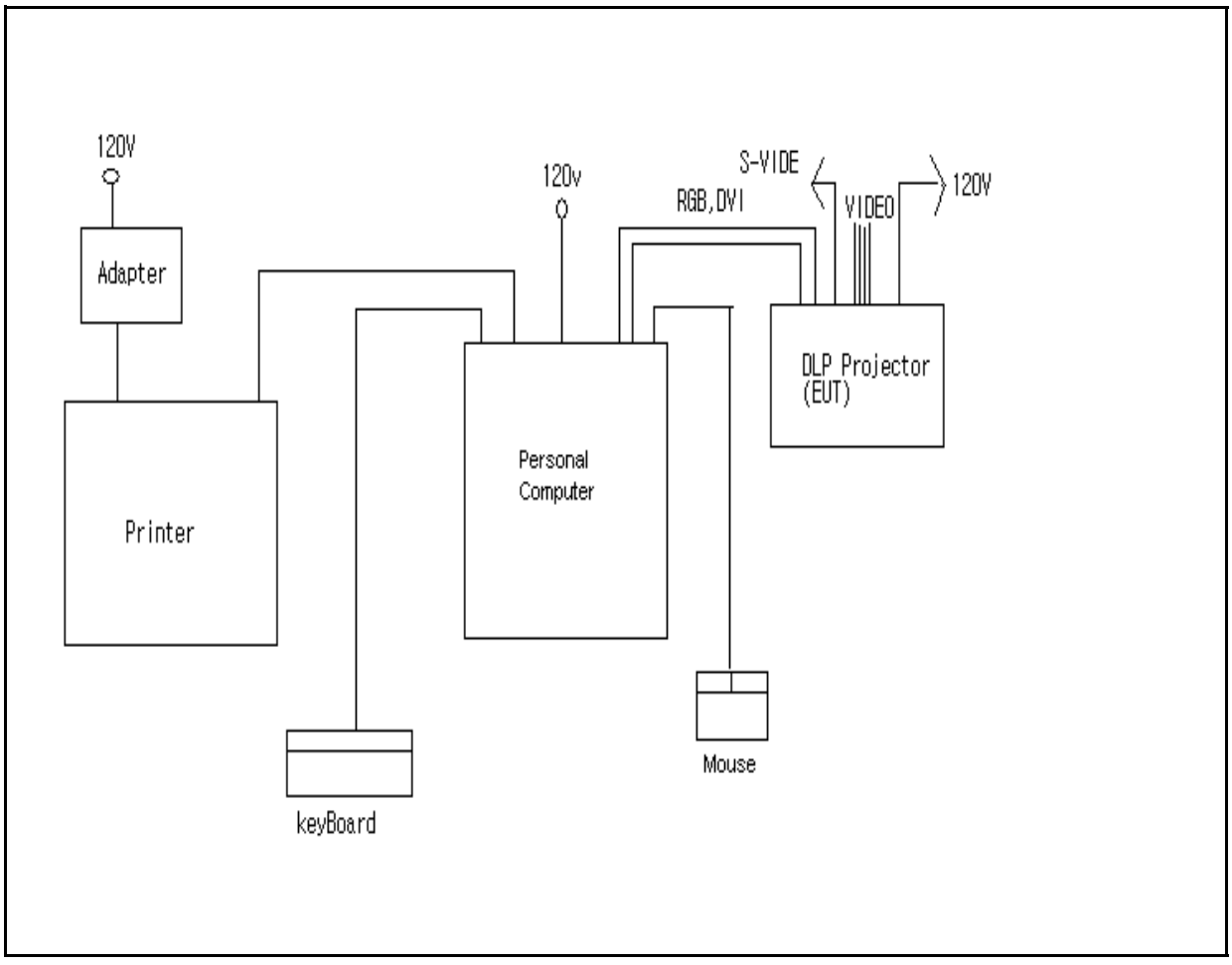
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

4. Measurement Condition

4.1 EUT Operation.

* The EUT was in the following operation mode during all testing
* The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected hightest level of emission
* After seting as test arrangment diagram, we tested the EUT under continuous displaying "H" character and playing Audio out /Video

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
DLP PROJECTOR	BN315-JD	NONE	LG Electronics Inc.	EUT
Personal Computer	DCSM	85RFJ1S	DELL	-
KEYBOARD	SEM-DT35US	31001238	Samsung Elecronics.	-
MOUSE	M-UV83	LAN40200502	Logitech	-
Printer	C6414J	TH18M149P2	Hewlett Packed	
Adapter	C6409-60152	CIH1413	YOKOGAWA	-

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
DLP PROJECTOR	RGB	Personal Computer	RGB	2	Y	-
DLP PROJECTOR	DVI	Personal Computer	DVI	2	Y	-
DLP PROJECTOR	S-VIDEO	-	-	2	Y	-
DLP PROJECTOR	Component(pr)	-	-	2	N	-
DLP PROJECTOR	Component(po)	-	-	2	N	-
DLP PROJECTOR	Component(y)	-	-	2	N	-
Personal Computer	USB	MOUSE	USB	2	Y	-
Personal Computer	USB	KEYBOARD	USB	2	Y	-
Personal Computer	USB	Printer	USB	2	Y	-
Printer	Power	Adapter	-	2	Y	-

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2005) & ICES-003. The test setup was made according to ANSI C 63.4 (2003) on an open test site, which allows a 3m distance measurement. The EUT was placed in the center of wooden turntable. The height of this table was 0.8m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test set-up.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receiver	ESPI7	Rohde & Schwarz	100185	2006. 8. 22
Spectrum Analyzer	8563E	HP	3623A05297	2007. 3. 6
LogBicon Antenna	VULB 9160	S/B	3142	2006. 7. 04
Horn Antenna	BBHA 9120 D	SCHWARZBECK	352	2007. 3. 17
PREAMPLIFIER	8449B	HP	3008A00581	2007. 3. 9
Turn Table	2087	EMCO	2129	-
Antenna Mast	2070-01	EMCO	9702-203	-
ANT Mast Controller	2090	EMCO	1535	-
Turn Table Controller	2090	EMCO	1535	-

5.2 Environmental Condition

Test Place : Open site(3m)

Temperature (°C) : 13 ℃

Humidity (%) : 49 %

5.3 Test data

Test date: 13-Apr-06 Measurement Distance : 3m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
40.01	10.20	V	1.0	12.71	1.1	40.0	24.00	-16.00
75.41	21.70	V	1.0	9.88	1.4	40.0	32.93	-7.07
119.61	20.80	V	1.0	11.20	1.3	43.5	33.29	-10.21
154.64	18.80	V	1.0	13.95	1.7	43.5	34.48	-9.02
201.25	14.00	V	1.0	10.40	2.1	43.5	26.50	-17.00
219.18	14.90	V	1.0	10.71	1.9	46.0	27.49	-18.51
288.00	9.40	H	1.1	12.92	2.4	46.0	24.72	-21.28
320.05	16.20	V	1.0	13.65	3.0	46.0	32.84	-13.16
324.00	15.20	V	1.0	13.70	2.8	46.0	31.71	-14.29
400.00	16.40	H	1.0	15.32	3.4	46.0	35.09	-10.91
432.00	11.30	V	1.0	15.85	2.9	46.0	30.02	-15.98
500.00	20.40	V	1.0	17.06	3.8	46.0	41.29	-4.71
600.00	11.20	V	1.0	19.16	4.4	46.0	34.72	-11.28
800.00	16.00	V	1.4	21.76	5.2	46.0	42.92	-3.08
1000.00	7.90	H	1.0	23.44	6.0	54.0	37.30	-16.70
1329.00	36.20	H	1.6	25.06	-33.7	54.0	27.54	-26.46
1329.00	34.21	V	1.0	25.06	-33.7	54.0	25.55	-28.45
1864.00	39.10	H	1.0	25.21	-33.1	54.0	31.22	-22.78
1864.00	44.20	V	1.0	25.21	-33.1	54.0	36.32	-17.68

Remark

H : Horizontal, V : Vertical TEST MODE ; Resolution 1280*1024 (60Hz) at DVI mode (Worse Case)

In case of below 1000MHz(QP detector, 120kHz bandwidth)
In case of above 1000MHz(Average detector, 1 MHz bandwidth)
*CL = Cable Loss-Amplifier Gain(In case of above1000Mhz)
*CL = Cable Loss(In case of below1000Mhz)

5.4 Test data

Test date: 13-Apr-06 Measurement Distance : 3m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
39.39	9.40	V	1.0	12.45	0.9	40.0	22.74	-17.26
76.12	21.90	V	1.0	9.89	1.3	40.0	33.12	-6.88
108.81	17.60	V	1.0	10.36	1.3	43.5	29.24	-14.26
111.42	19.80	V	1.0	11.09	1.6	43.5	32.48	-11.02
147.11	10.80	V	1.0	13.44	1.6	43.5	25.83	-17.67
173.56	11.30	V	1.0	13.37	1.9	43.5	26.53	-16.97
220.01	15.20	V	1.0	10.76	2.3	46.0	28.28	-17.72
288.05	8.40	V	1.0	12.92	2.4	46.0	23.72	-22.28
324.00	16.10	V	1.0	13.70	2.8	46.0	32.61	-13.39
400.00	17.10	H	1.0	15.32	3.4	46.0	35.79	-10.21
500.00	20.90	V	1.0	17.06	3.8	46.0	41.79	-4.21
600.00	11.50	V	1.0	19.16	4.4	46.0	35.02	-10.98
700.00	9.00	V	1.0	20.14	4.6	46.0	33.78	-12.22
800.00	15.20	V	1.8	21.76	5.2	46.0	42.12	-3.88
1000.00	6.80	V	1.5	23.44	6.0	54.0	36.20	-17.80
1328.00	38.79	H	1.5	25.06	-33.7	54.0	30.13	-23.87
1328.00	43.49	V	1.9	25.06	-33.7	54.0	34.83	-19.17
1862.00	38.10	H	1.6	25.21	-33.1	54.0	30.20	-23.80
1862.00	39.20	V	1.9	25.21	-33.1	54.0	31.30	-22.70

Remark	H : Horizontal, V : Vertical TEST MODE ; Resolution 1280*1024 (60Hz) at DVI mode (Worse Case) In case of below 1000MHz(QP detector, 120kHz bandwidth) In case of above 1000MHz(Average detector, 1 MHz bandwidth) *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz)

6. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 to 30 MHz was measured in accordance to FCC Part 15 (2005) & ICES-003.The test setup was made according to ANSI C 63.4 (2003) in a shielded Room. The EUT was placed on a non-conductive table at least 80 above the ground plan. A grounded vertical reference plane was positioned in a distance of 40cm from the EUT. The distance from the EUT to other metal surfaces was at least 0.8m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0m.. The test receiver with Quasi Peak detector complies with CISPR 16.

6.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
LISN	ESH3-Z5	Rohde & Schwarz	838979/010	2007. 2. 27
LISN	NNLA8120A	Schwarzbeck	NONE	2007. 2. 27
TEST Receiver	ESPI7	Rohde & Schwarz	100185	2006. 8. 22
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2006. 6. 15

6.2 Environmental Condition

Test Place : Shield Room
Temperature (°C) : 19 ℃
Humidity (%) : 45 %

6.3 Test data

Test date : 13-Apr-06

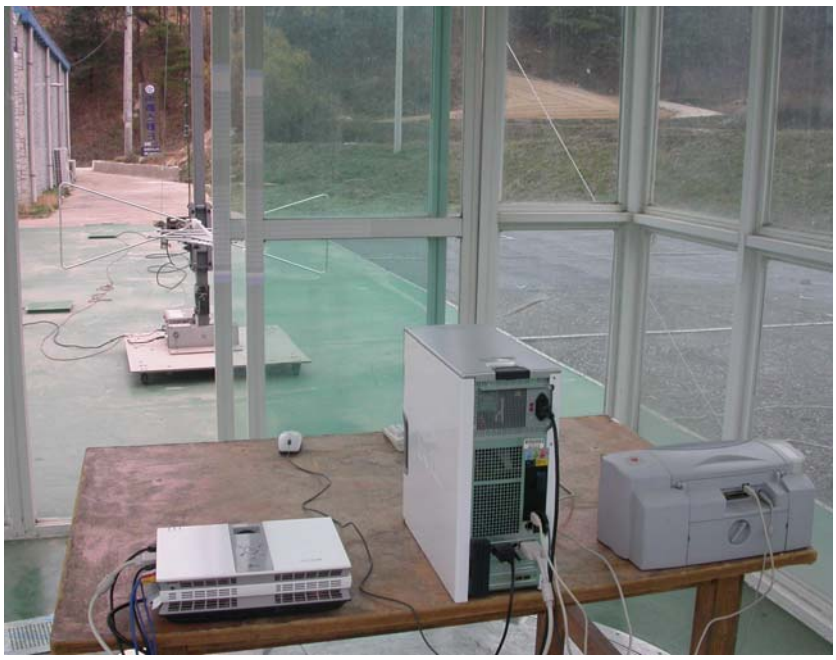
Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dBμV)
0.19	0.07	0.0	H	63.95	49.97	50.07	53.95	44.14	44.24
0.21	0.07	0.0	H	63.28	49.77	49.88	53.28	-	-
0.25	0.07	0.1	H	61.63	48.45	48.59	51.63	40.04	40.18
0.28	0.07	0.1	H	60.94	48.71	48.86	50.94	-	-
0.32	0.07	0.1	H	59.81	46.36	46.54	49.81	-	-
0.35	0.07	0.1	H	59.06	45.97	46.16	49.06	-	-
0.41	0.07	0.2	H	57.59	43.69	43.92	47.59	34.77	35.00
0.63	0.08	0.2	H	56.00	43.87	44.15	46.00	-	-
0.69	0.08	0.2	H	56.00	45.35	45.63	46.00	-	-
0.72	0.08	0.2	N	56.00	41.65	41.93	46.00	35.58	35.86
0.82	0.09	0.2	N	56.00	42.42	42.71	46.00	-	-
0.83	0.09	0.2	H	56.00	46.20	46.49	46.00	-	-
0.90	0.09	0.2	H	56.00	45.11	45.40	46.00	-	-
0.97	0.09	0.2	H	56.00	42.67	42.96	46.00	-	-
1.20	0.09	0.2	H	56.00	45.12	45.43	46.00	-	-
1.24	0.09	0.2	N	56.00	42.59	42.91	46.00	-	-
1.38	0.10	0.2	H	56.00	45.97	46.31	46.00	40.41	40.75
1.45	0.10	0.2	H	56.00	44.53	44.87	46.00	-	-
1.70	0.10	0.3	H	56.00	43.48	43.85	46.00	-	-
1.87	0.11	0.3	N	56.00	42.78	43.17	46.00	-	-
2.01	0.11	0.3	H	56.00	43.57	43.98	46.00	-	-
2.32	0.12	0.3	N	56.00	42.21	42.63	46.00	38.00	38.42
2.43	0.12	0.3	N	56.00	41.01	41.43	46.00	36.72	37.14
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

7.1 Setup for Radiated Test : 30 ~ 1000 MHz

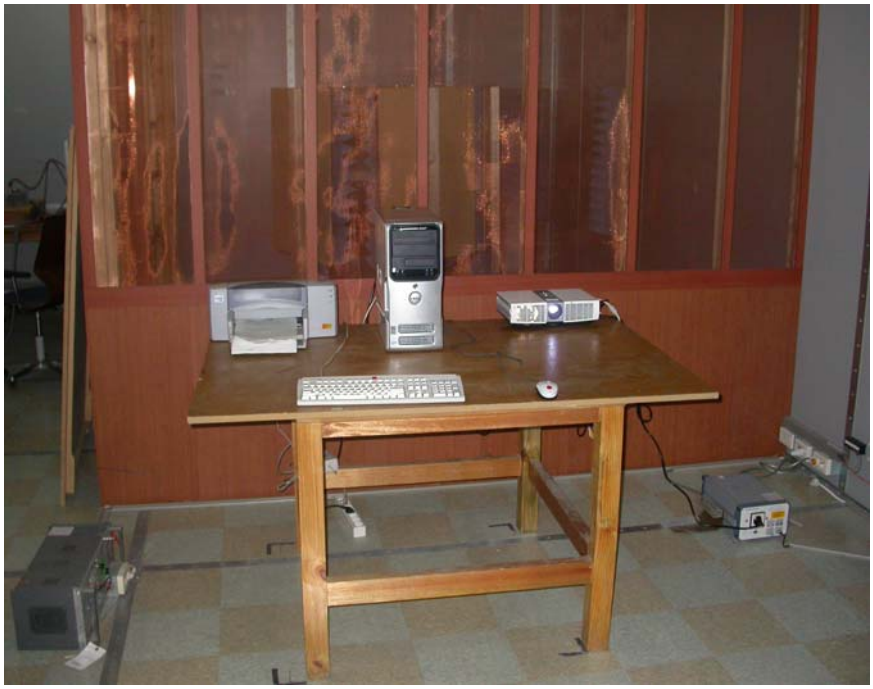
[Front]

[Rear]



7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]



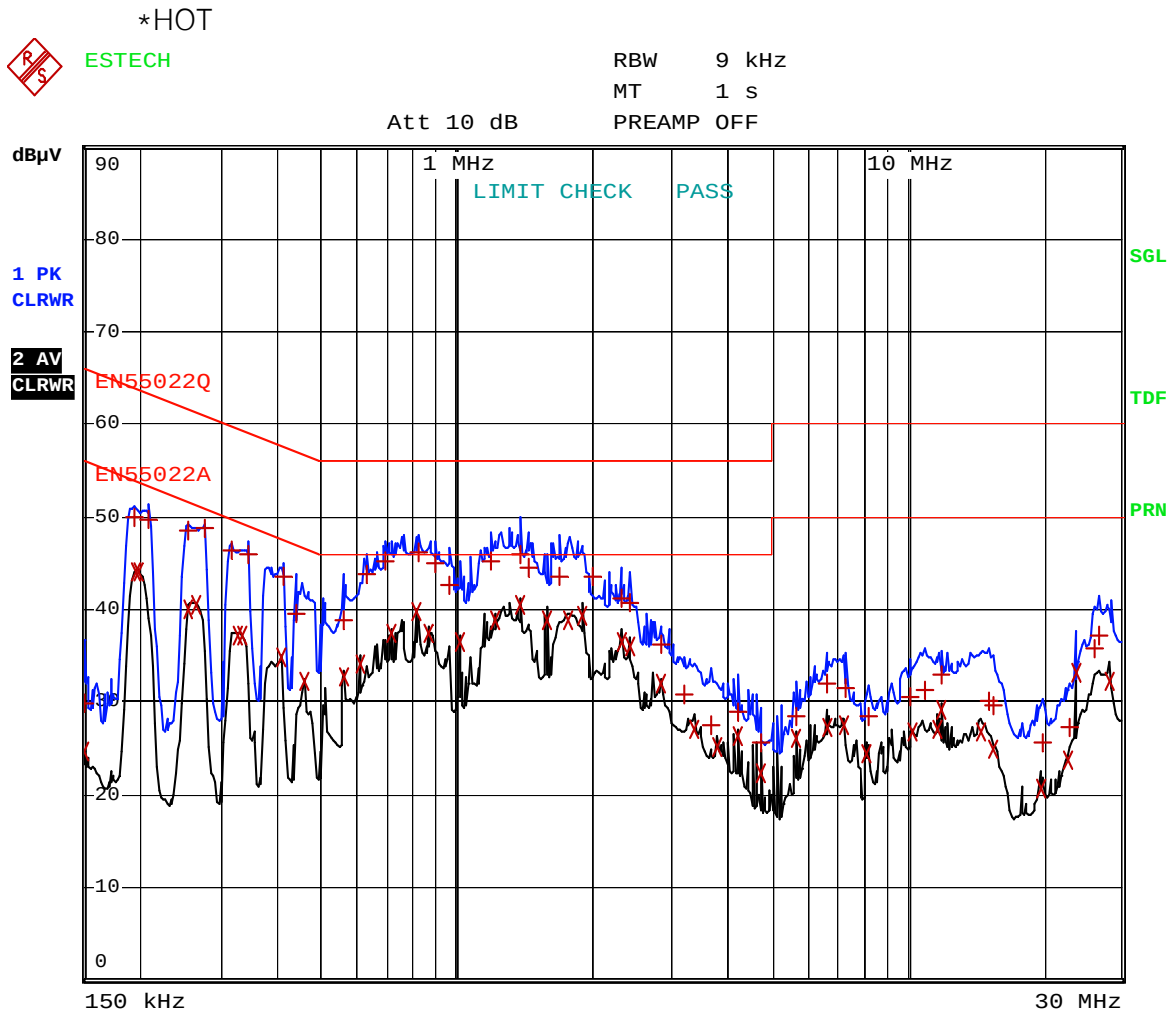
[Rear]

8. Photographs of EUT

[Front]

[Rear]

Appendix 1. Spectral diagram



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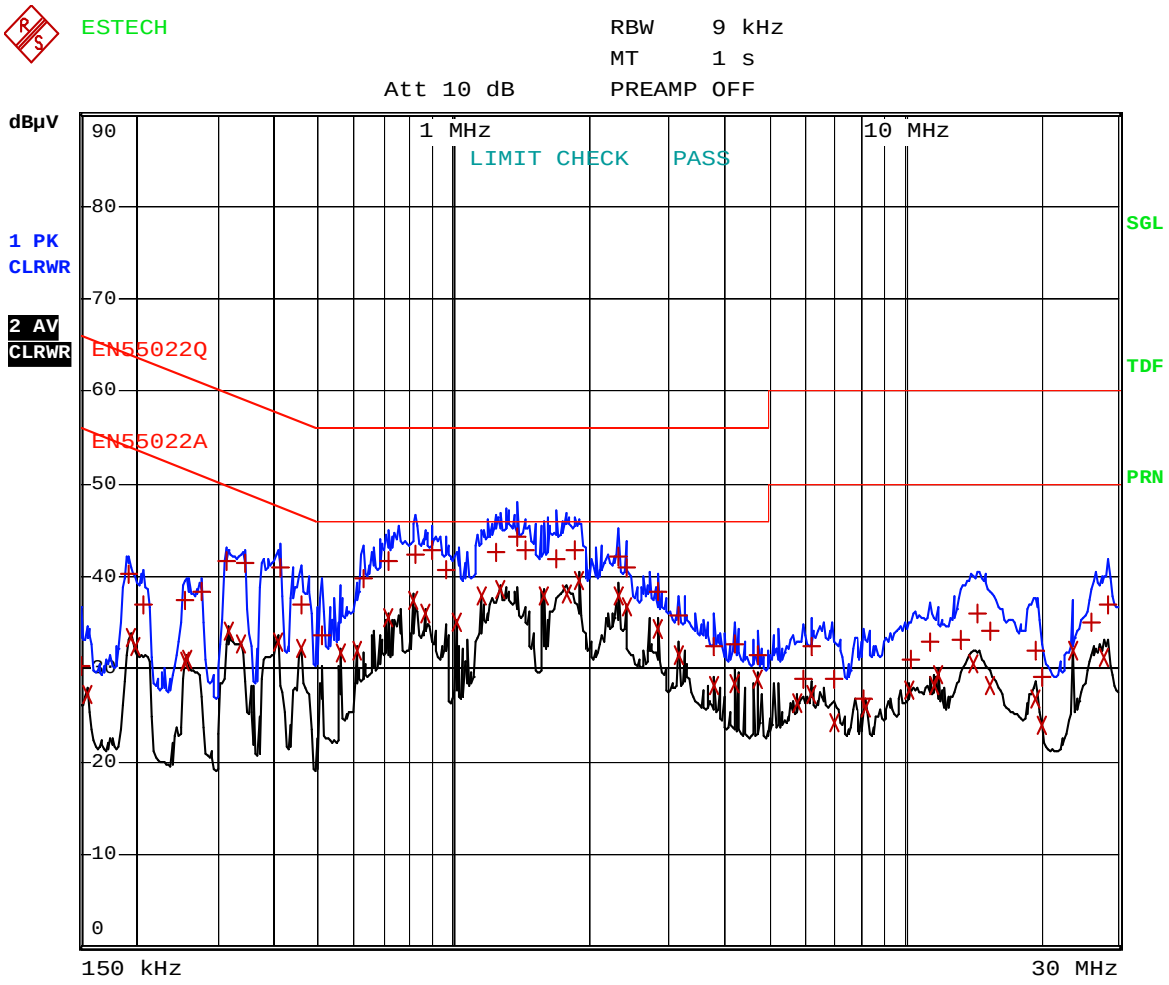

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