Test Report for FCC

FCC ID:VH9-KDC100

Report Number		ESTF150707-004		
Applicant	Company name	AISOLUTION CO., LTD.		
	Address	148-3 Gwangjangdong, Gwangjingu, Seoul, 143802 korea		
	Telephone	82-2201-3731		
Product	Product name	Barcode Reader		
	Model name	KDC100	Manufacturer	AISOLUTION CO., LTD.
	Serial number	NONE	Country of origin	KOREA
Test date	10-Jul-07		Date of issue	23-Jul-07
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC PART 15 2006 , 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	(Signature)		
Reviewed by	Engineering Manager J.M.Yang	(Signature)		
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, Korea
(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

Product Name : Barcode Reader
Model Number : KDC100
Serial Number : NONE
Manufacturer : AISOLUTION CO., LTD.
Country of origin : KOREA
Rating : DC 4V(Rechargeable Li-Poly battery)
Receipt Date : 2007-05-04
X-tal lists : 18.43MHz, 32.768KHz

2.2 General descriptions of EUT

Scan Options	Scan Angle	Narrow/Wide
	Filter	Normal/High
	Time Out	100..10000msec
	Minimum Barcode Length	2..36
	Security Level	1..4

LED Color	Status
Green	• Successful Reading • USB is connected and battery is fully charged
Yellow	• Low battery
Red	• No reading • Empty battery

3. Test Standards

Test Standard : FCC PART 15 (2006) & 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)

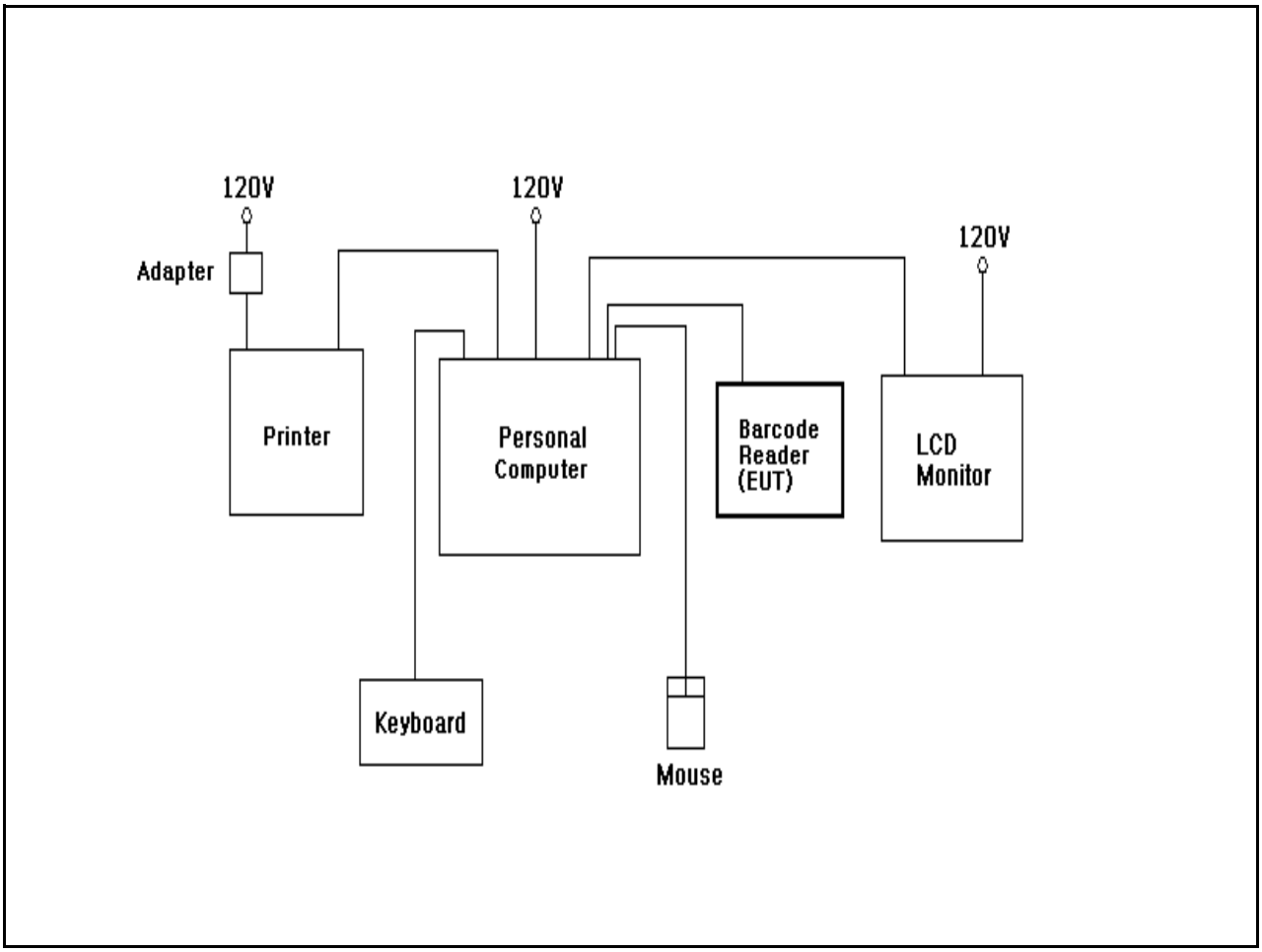
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and 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
* Connect EUT to PC USB port
* Copy the "KTSync.exe" program from the CD
* The scanned barcode will be displayed, along with barcode type and time stamp
* Use the included Synchronization program to upload barcode data from EUT to PC.
* Check error for barcode data during the test.

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Barcode Reader	KDC100	NONE	AISOLUTION CO., LTD.	EUT
Personal Computer	DCSM	85RFJ1S	Dell Asia Pacific sdn	
LCD Monitor	1704FPTt	57N	Dell Asia Pacific sdn	
Keyboard	SEM-DT35US	31001238	Dongguan Samsung Electro Mecanics Co.,Ltd.	
Mouse	Wheel Mouse Optical	3602C693	Microsoft	
Printer	MJC-5750	NA34BFFP313402V	SAMSUNG ELECTRONICS (SHAN DONG)DIGITAL PRINTING Co.,LTD.	
Adapter	PA8040WB	0703016518	Bestec Electronics (Dongguan)Co., Ltd.	

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
Barcode Reader	USB	Personal Computer	USB	1	Y	
Personal Computer	USB	Keyboard	USB	2	Y	
Personal Computer	USB	Mouse	USB	2	Y	
Personal Computer	RGB	LCD Monitor	RGB	2	Y	
Personal Computer	USB	Printer	USB	2	Y	
Printer	Power	Adapter	-	2	N	

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2006) & 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 setup.

5.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receive	ESPI7	Rohde & Schwarz	100005	2008. 1. 12
Spectrum Analyzer	R3261C	ADVANTEST	61720116	2008. 4. 20
LogBicon Antenna	VULB 9160	Schwarzbeck	3142	2008. 5. 07
Amplifier	8447F	HP	2805A02972	2008. 6 . 26
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) : 27 ℃
Humidity (%) : 60 %

5.3 Test data

Test Date : 10-Jul-07 Measurement Distance : 3 m

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)
35.71	22.10	V	1.0	12.44	1.0	40.0	35.52	-4.48
71.43	15.60	H	2.8	10.67	1.3	40.0	27.59	-12.41
110.14	11.00	H	2.8	11.08	1.6	43.5	23.71	-19.79
120.01	16.10	V	1.0	12.03	1.7	43.5	29.82	-13.68
142.87	10.00	V	1.0	13.51	1.8	43.5	25.34	-18.16
194.51	9.10	V	1.0	10.78	2.2	43.5	22.07	-21.43
216.00	10.40	H	1.4	10.68	2.4	43.5	23.44	-20.06
244.10	12.60	H	1.2	11.80	2.6	46.0	26.96	-19.04
259.70	15.10	H	1.8	12.12	2.7	46.0	29.88	-16.12
301.57	17.00	H	1.3	13.23	3.0	46.0	33.22	-12.78
352.00	10.00	H	1.2	14.27	3.3	46.0	27.60	-18.40
382.46	8.00	H	1.0	14.93	3.5	46.0	26.43	-19.57
482.51	14.40	H	1.0	16.91	4.1	46.0	35.43	-10.57
542.86	10.30	H	1.0	17.75	4.5	46.0	32.50	-13.50
658.63	9.10	V	1.0	19.73	5.1	46.0	33.96	-12.04
844.42	11.70	H	1.0	22.03	6.2	46.0	39.89	-6.11

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported. *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120KHz for Quasi-peak detection at frequency below 1GHz.

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 (2006) & ICES-003. The test setup was made according to ANSI C 63.4 (2003) in a shielded. 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	NNLA8120A	Schwarzbeck	8120161	2008. 2. 28
LISN	ESH3-Z5	Schwarzbeck	838979/010	2008. 2. 28
TEST Receive	ESP17	Rohde & Schwarz	100185	2007. 8. 24
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	-

6.2 Environmental Condition

Test Place : Shield Room
Temperature (°C) : 21 ℃
Humidity (%) : 42 %

6.3 Test data

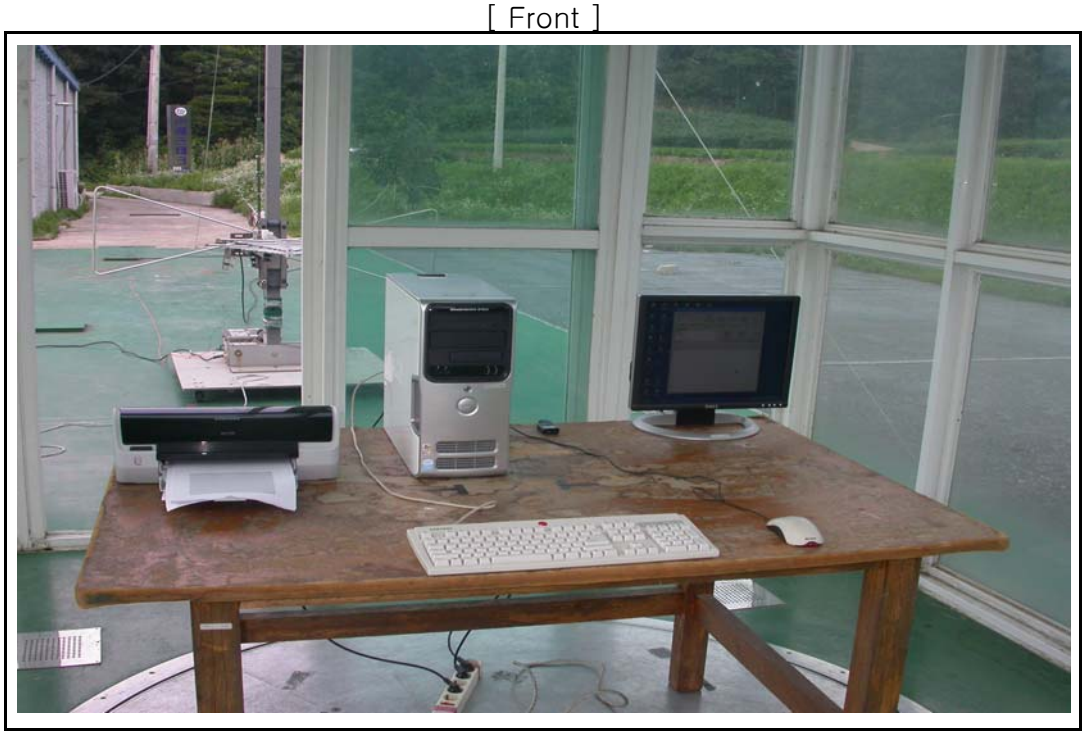
Test Date : 10-Jul-07

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 (dB)
0.15	0.17	0.0	N	66.00	38.46	38.67	56.00	32.14	32.35
0.20	0.15	0.0	N	63.57	47.78	47.98	53.57	41.64	41.84
0.21	0.15	0.0	H	63.05	32.36	32.55	53.05	26.35	26.54
0.26	0.13	0.0	H	61.30	36.90	37.08	51.30	35.26	35.44
0.27	0.13	0.0	N	61.15	35.92	36.10	51.15	30.75	30.93
0.33	0.12	0.1	H	59.38	39.47	39.65	49.38	37.61	37.79
0.60	0.15	0.1	N	56.00	31.74	32.00	46.00	29.66	29.92
0.67	0.16	0.1	N	56.00	31.57	31.84	46.00	31.39	31.66
0.87	0.19	0.1	N	56.00	32.63	32.96	46.00	32.24	32.57
0.94	0.22	0.2	N	56.00	32.51	32.88	46.00	31.55	31.92
1.54	0.27	0.2	H	56.00	23.64	24.12	46.00	20.95	21.43
2.61	0.31	0.3	H	56.00	26.97	27.58	46.00	23.25	23.86
5.76	0.41	0.5	N	60.00	32.52	33.45	50.00	27.57	28.50
6.21	0.43	0.5	H	60.00	31.39	32.36	50.00	26.75	27.72
7.38	0.48	0.6	H	60.00	31.95	33.03	50.00	27.82	28.90
13.59	0.78	0.9	H	60.00	36.47	38.16	50.00	30.93	32.62
16.19	0.85	1.0	N	60.00	35.08	36.96	50.00	30.87	32.75
23.82	0.93	1.3	H	60.00	42.26	44.46	50.00	40.74	42.94
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

7.1 Setup for Radiated Test : 30 ~ 1000 MHz

[Front]

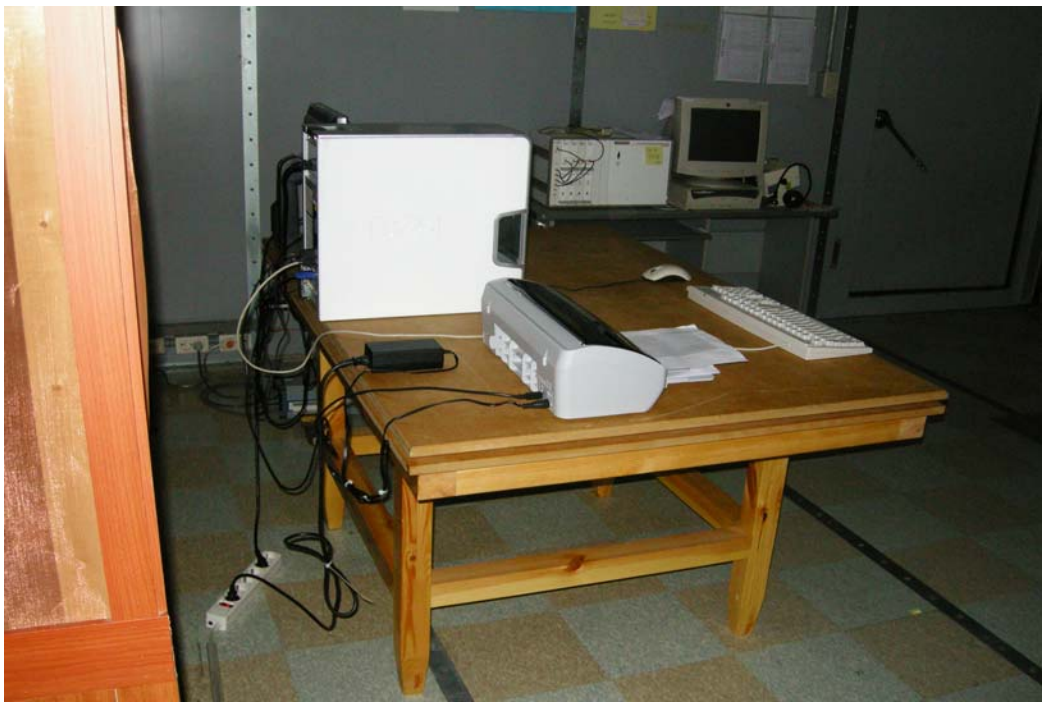


[Rear]

7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]

[Rear]



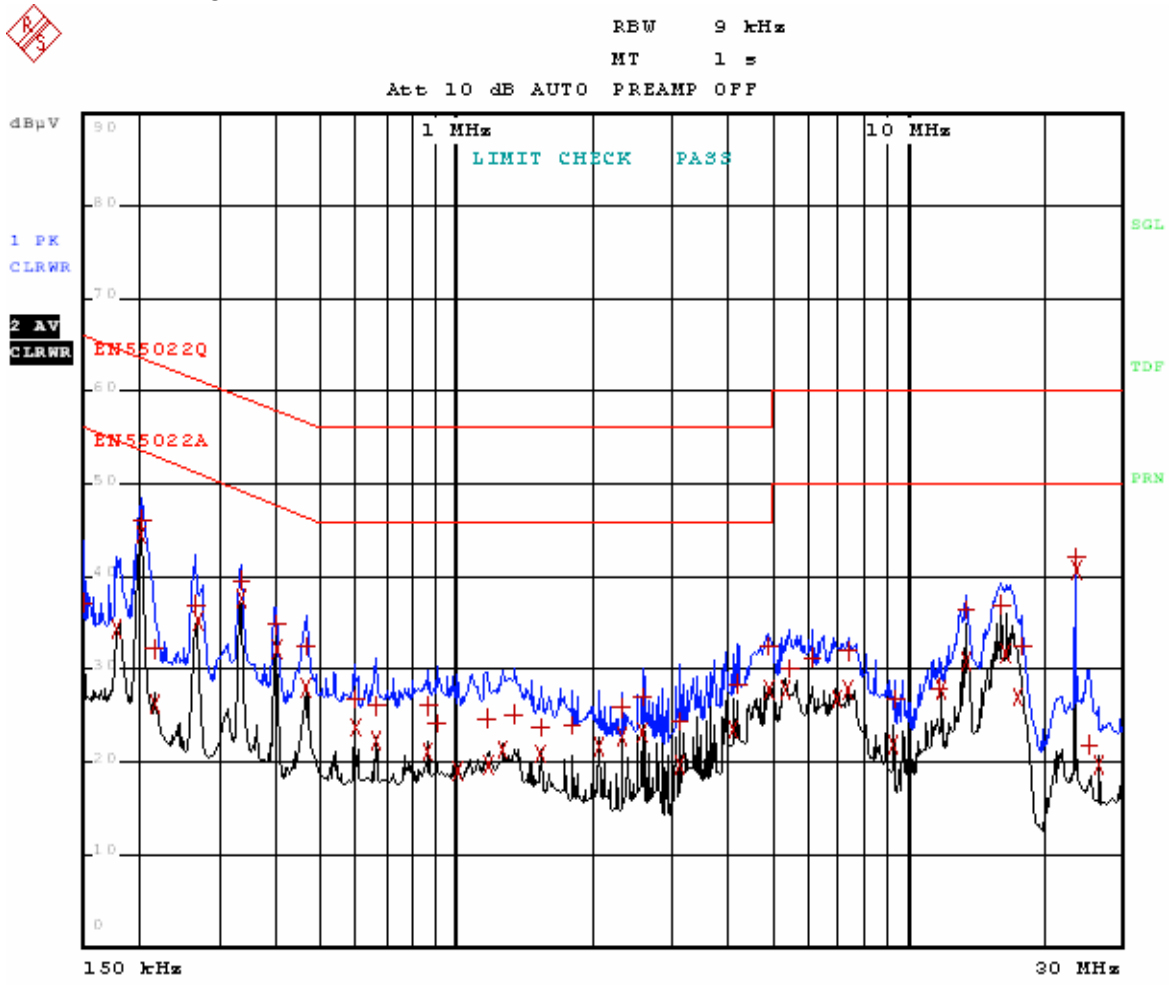
8. Photographs of EUT

[Front]

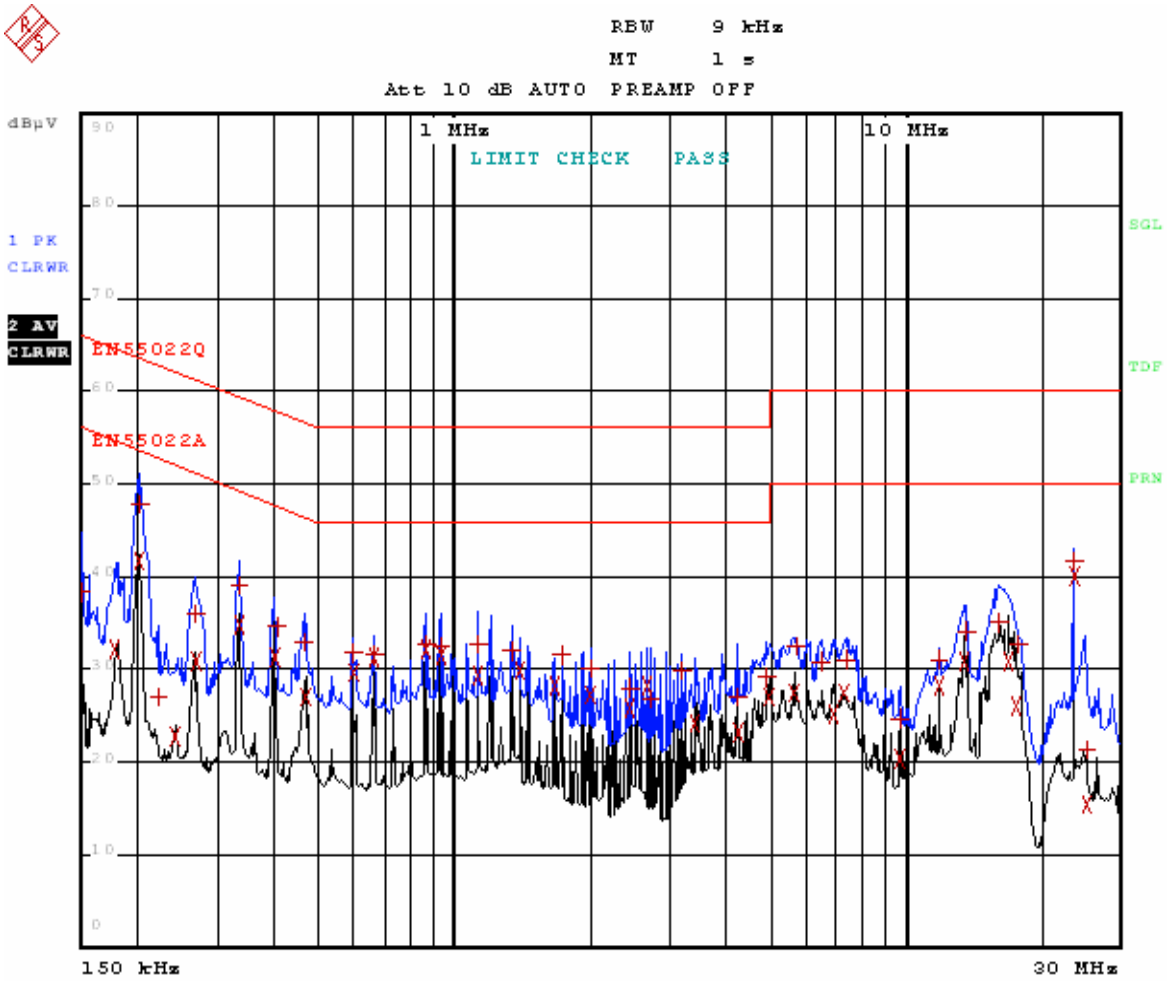
[Rear]

Appendix 1. Spectral diagram

*HOT



*NEUTRAL



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