ESTECH Co., Ltd.
Rm 1015, World Venture Center II,
426-5 Gasan-dong, Guncheon-gu,
Seoul, 158-803, Korea

Electromagnetic Interference Test Report

Test Report for FCC

Report Number		ESTF150701-013		
Applicant	Company name	Samsung Corporation		
	Address	19th Fl., Samsung Plaza Bldg. 263, Seohyeon-Dong, Bundang-Gu, Seongnam-Si, Gyeonggi-Do, Korea		
	Telephone	82-2-2145-3391		
Product	Product name	USB-Drive		
	Model No.	SPUB S-70S	Manufacturer	Samsin Innotec
	Serial No.	NONE	Country of origin	Korea
Test date	20-Jan-07		Date of issue	25-Jan-07
Testing location	ESTECH. Co., Ltd. 97-1 Hoiuk-Ri Majang-Myon, Icheon-city, KyungKi-Do, Korea			
Standard	FCC Part 15 Subpart B , ANSI C 63.4 2003			
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 M.J.Song	(Signature)		
Reviewed by	Manager Engineer J.M.Yang	(Signature)		
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- Memory capacity of the USB-Drive is used with 512MB and 1GB
- 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	: USB-Drive
Model Number	: SPUB S-70S
Serial Number	: NONE
Manufacturer	: Samsin Innotec
Country of origin	: Korea
Rating	: 5.0V 800mA(Supplied form Note PC)
Receipt Date	: 18-Dec-06
Memory capacity	: 2GB
X-tal lists	: 12MHz

2.2 General descriptions of EUT

- **Portable and secure removable mass storage for business and personal use**
- **Full Compliance with USB spec v2.0 and v1.1; true Plug&Play connection**
- **Date transfer rate up to 33MB/s for Read, 22MB/s for Write in Dual-channel mode**
- **Date transfer rate up to 20MB/s for Read, 9MB/s for Write in Single-channel mode**
- **USB bus powered: Powered from USB port, no external power or battery needed**
- **Multiple Operation Systems supported: No driver needed in Windows® ME, Windows® 2000, Windows® XP, Mac ™ 9.x or later, Linux ™ Kernel 2.4 or later. Only Windows® 98 and Windows® 98SE need the enclosed driver**
- **Disk partitions and Security Area with password check**
- **Shock resistant, noise-free and long data retention**

3. Test Standards

Test Standard : FCC PART 15 (2006)

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)

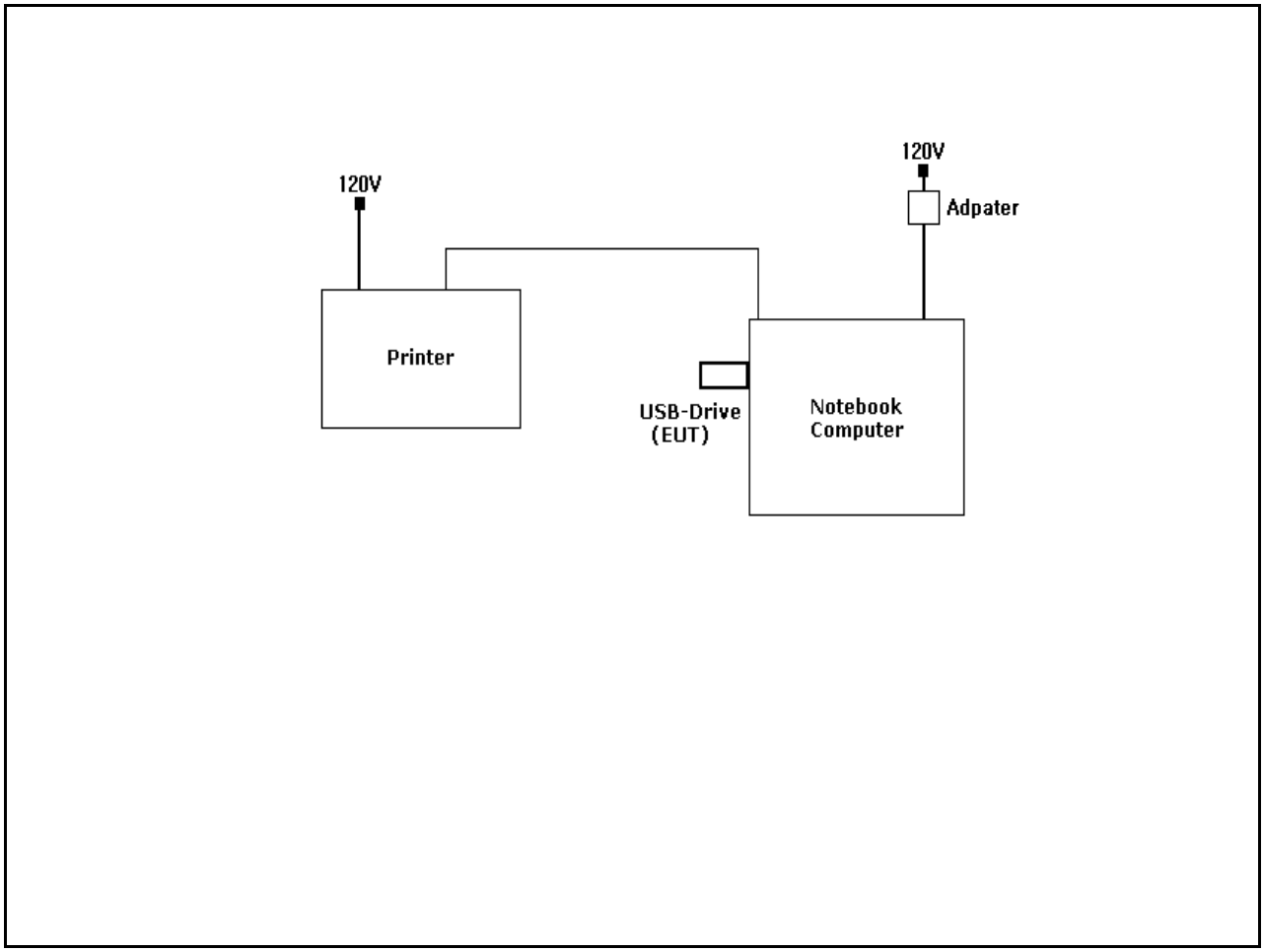
This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and 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.

1. Check to normal mode operation
2. The operational conditions of the EUT was determined by the manufacturer according to the typical use of the EUT with respect to the expected highest level of emission.
3. Using test program, reading and writting test at between note pc.

4.2 Configuration and Peripherals



4.3 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
USB-Drive	SPUB S-70S	NONE	Samsin Innotec	EUT
Notebook Computer	PPT(Latitude D400)	TW-04U917-70161-326-30BH	Dell Asia Pacific Sdn.	
Adapter	HP-OQ65B83	CN-0N2765-47890-441-0249	Hipro Electronics(Dongguan)C	
Printer	C6414J	TH18M149P2	Hewlett Packard	
Mouse	C6409-60152	C1H14B	Hewlett Packard	

4.4 Cable Connecting

Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
USB-Drive	USB	Notebook Computer	USB	-	-	
Notebook Computer	USB	Printer	USB	2	Yes	
Notebook Computer	DC Power	Adapter	-	2	No	
Printer	DC Power	Adapter	USB	2	Yes	

5. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC Part 15 (2006). 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 Receiver	ESVS10	Rohde & Schwarz	838562/002	2008. 1. 23
Spectrum Analyzer	R3261C	ADVANTEST	61720116	2007. 4. 19
LogBicon Antenna	VULB 9160	S/B	3142	2007. 5. 03
Amplifier	8447F	HP	2805A02972	2007. 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) : 11 ℃
Humidity (%) : 41 %

5.3 Test data

Test Date : 20-Jan-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)
120.00	12.80	H	2.4	12.03	1.7	43.0	26.53	-16.47
150.00	10.10	H	1.9	13.90	1.9	43.0	25.90	-17.10
210.01	21.80	H	1.5	10.57	2.3	43.0	34.62	-8.38
330.01	22.00	H	1.2	13.87	2.9	46.0	38.78	-7.22
390.03	24.40	H	1.0	15.10	3.2	46.0	42.71	-3.29
450.03	20.30	H	2.0	16.36	3.5	46.0	40.15	-5.85
510.02	21.60	H	2.0	17.20	3.7	46.0	42.48	-3.52
570.04	20.60	H	2.0	18.40	4.0	46.0	42.98	-3.02
750.02	12.60	H	1.2	21.20	4.7	46.0	38.48	-7.52
810.01	12.60	H	1.0	21.83	4.9	46.0	39.37	-6.63
870.03	10.10	H	1.0	22.21	5.1	46.0	37.42	-8.58
930.04	9.90	H	1.0	23.15	5.3	46.0	38.38	-7.62

Remark	H : Horizontal, V : Vertical *CL = Cable Loss-Amplifier Gain(In case of above1000Mhz) *CL = Cable Loss(In case of below1000Mhz) *Below 1000Mhz was applied QPeak Detector and above 1000Mhz was applied Average Detector.

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). 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	ESH3-Z5	Rohde & Schwarz	838979/010	2007. 2. 27
LISN	NNLA8120A	Schwarzbeck	8120161	2007. 2. 27
TEST Receiver	ESPI7	Rohde & Schwarz	100185	2007. 8. 24
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	2007. 6. 15

6.2 Environmental Condition

Test Place : Shield Room
Temperature (°C) : 21 ℃
Humidity (%) : 41 %

6.3 Test data

Test Date : 20-Jan-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)
0.16	0.10	0.0	H	65.46	65.46	36.86	55.46	33.12	33.23
0.18	0.10	0.0	H	64.49	64.49	40.33	54.49	39.35	39.47
0.20	0.10	0.0	N	63.45	63.45	27.29	53.45		
0.24	0.10	0.1	H	61.99	61.99	34.32	51.99		
0.33	0.10	0.1	H	59.55	59.55	29.07	49.55		
0.40	0.10	0.2	N	57.79	57.79	27.67	47.79	24.86	25.11
0.56	0.10	0.2	H	56.00	56.00	27.96	46.00	25.15	25.45
0.57	0.10	0.2	N	56.00	56.00	26.01	46.00	22.12	22.42
0.65	0.10	0.2	H	56.00	56.00	31.09	46.00	29.07	29.37
0.89	0.10	0.2	H	56.00	56.00	29.40	46.00		
1.18	0.10	0.2	H	56.00	56.00	29.93	46.00		
2.02	0.10	0.3	N	56.00	56.00	26.38	46.00	22.87	23.27
5.55	0.21	0.3	H	60.00	60.00	20.56	50.00		
6.93	0.25	0.4	N	60.00	60.00	21.67	50.00		
7.82	0.26	0.5	N	60.00	60.00	24.09	50.00		
12.26	0.35	0.7	N	60.00	60.00	24.14	50.00		
15.63	0.44	0.8	H	60.00	60.00	20.92	50.00		
25.85	0.99	0.9	H	60.00	60.00	25.84	50.00		
Remark	H : Hot Line, N : Neutral Line								

7. Photographs of test setup

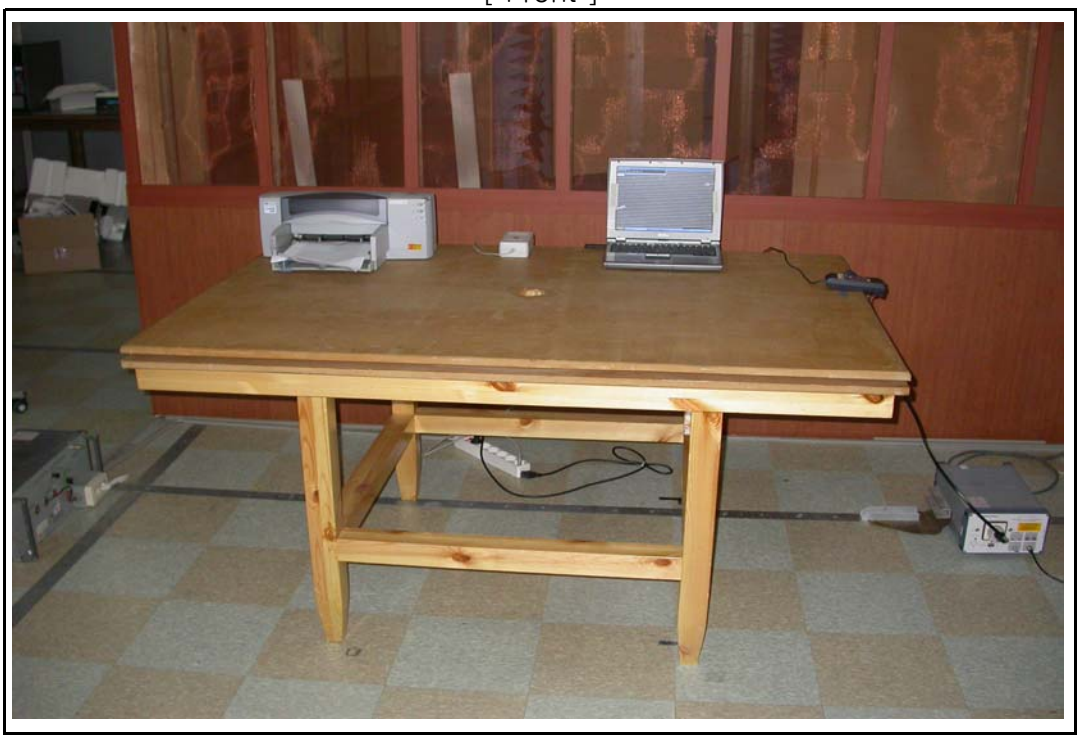
7.1 Setup for Radiated Test : 30 ~ 1000 MHz

[Front]

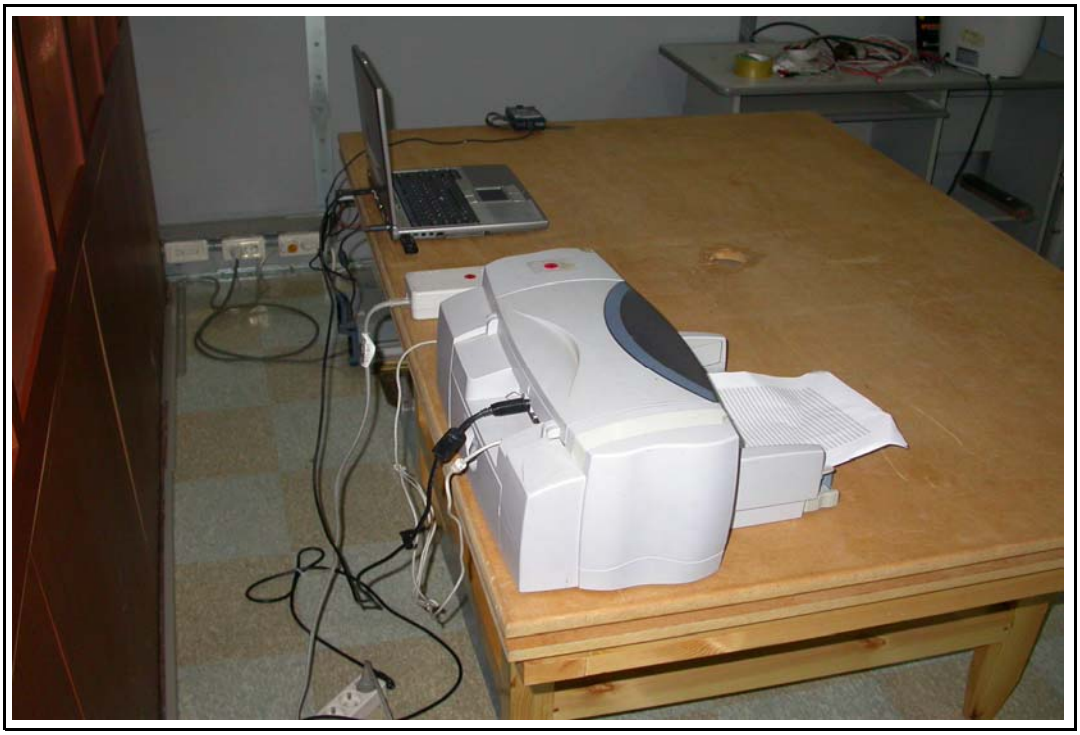
[Rear]

7.2 Setup for Conducted Test : 0.15 ~ 30 MHz

[Front]



[Rear]

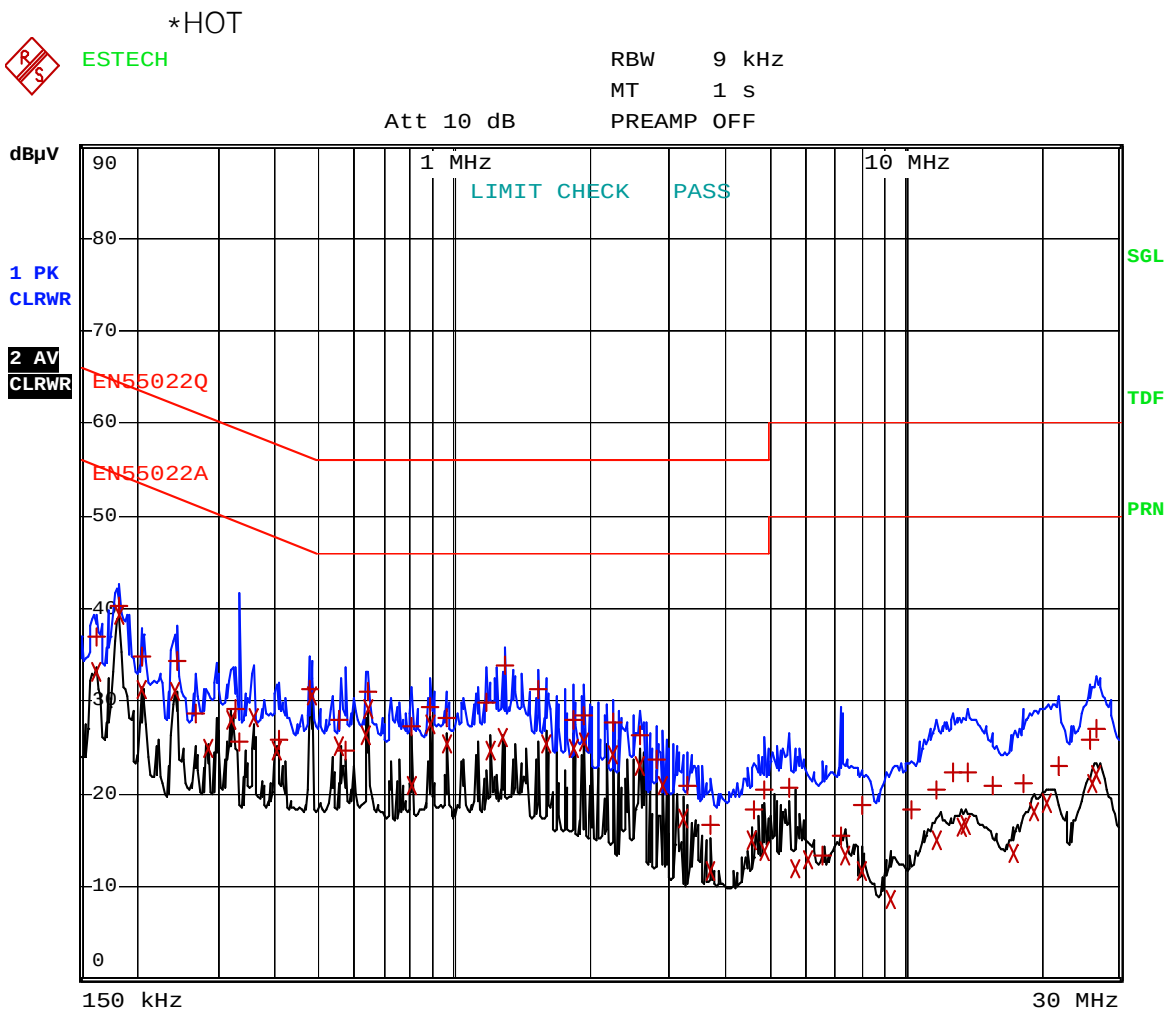


8. Photographs of EUT

[Front]

[Rear]

Appendix 1. Spectral diagram



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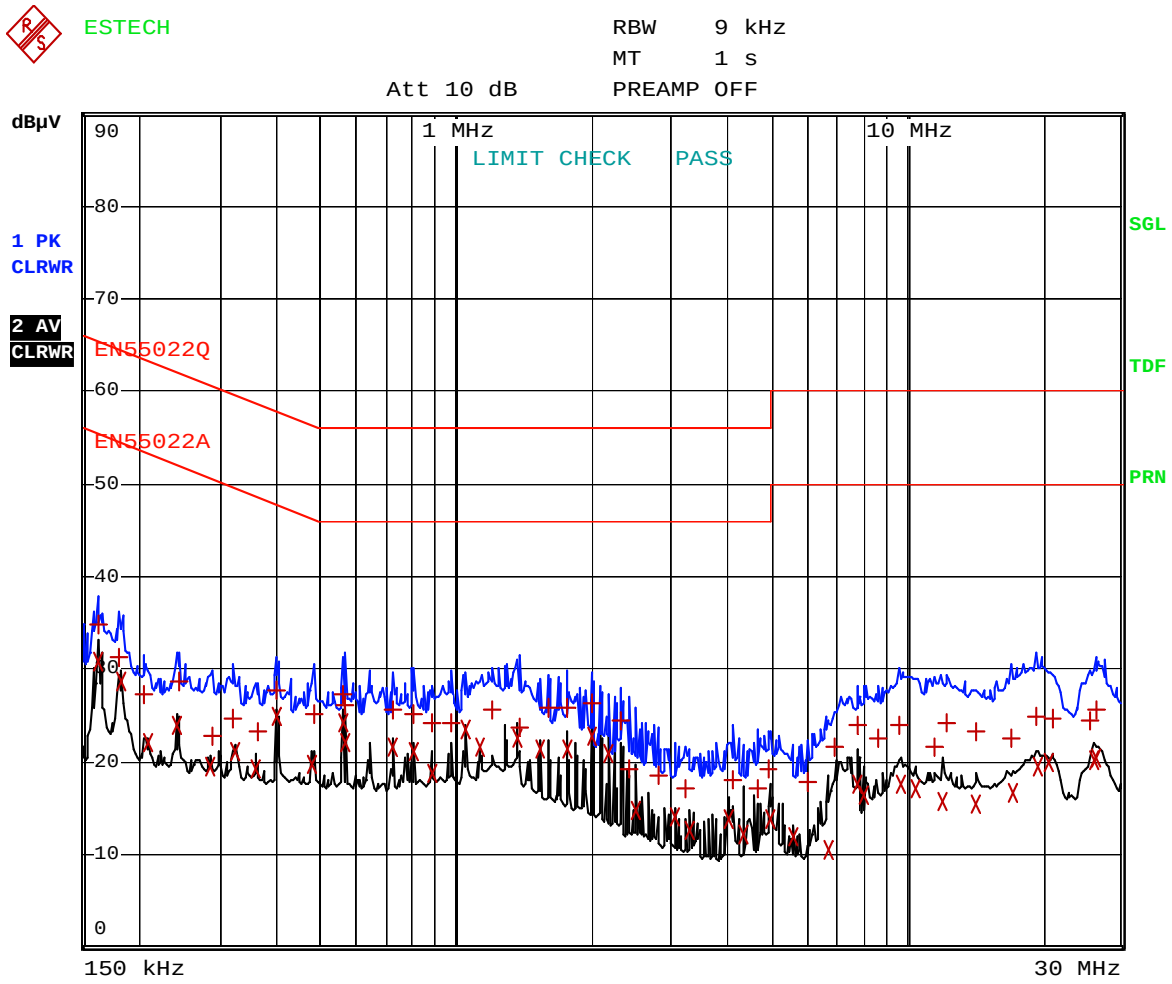

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