SGS-CSTC Standards Technical Services Co., Ltd.

No. 1 Workshop, M-10, Middle Section, Science & Technology Park,
District Shenzhen, China 518057

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TEST REPORT

Application No.:	SZEMO081005325TX
Applicant/Manufacturer/ Factory:	Gembird Electronics Ltd
Address of Applicant::	2F, B Building, Shifeng Science and Technology Park, Huaning Road,Xinwei Village Dalang Street, Longhua,Bao An, Shenzhen
Equipment Under Test (EUT):	
EUT Name:	Notebook Universal Adapter
Item No.:	NPA-DC1
Standards:	2006/28/EC as last amended to directive 72/245/EEC; EN 61000-6-3 : 2007 & EN 61000-6-1 : 2007.
Date of Receipt:	29 October 2008
Date of Test:	05 November 2008
Date of Issue:	11 November 2008

Test Result :	**PASS***

* In the configuration tested, the EUT complied with the standards specified above.

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with 2004/108/EC Directives.

CE

Robinson Lo
Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Test Summary

For emark directive:				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Radiated Emissions 30MHz to 1GMHz	2006/28/EC	2004/104/EC Clause 6.5 and 6.6	6.5.2.1 for broad band emissions 6.6.2.1 for narrow band emissions	PASS
Transient Conducted Emission	2006/28/EC	2004/104/EC & ISO 7637-2:DIS2002	N/A	N/A
Transient Conducted Immunity	2006/28/EC	2004/104/EC & ISO 7637-2:DIS2002	6.8 of 2004/104/EC Table 1	PASS
Radiated RF immunity	2006/28/EC	2004/104/EC ISO 11452	N/A	N/A
For EMC directive:				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Radiated Emission (30MHz to 1GHz) §	EN 61000-6-3: 2007	CISPR 16-2-3	Table 1 Column 3 of EN61000-6-3	PASS
ESD	EN 61000-6-1: 2007	EN 61000-4-2 :1995 + A1: 1998+A2:2001	±2, 4 kV Contact ±2, 4, 8 kV Air	PASS
Radiated Immunity, 80MHz to 1GHz	EN 61000-6-1:2007	EN 61000-4-3-2006	3V/m, 80%, 1kHz Amp. Mod.	PASS
Radiated Immunity, 1.4GHz to 2GHz	EN 61000-6-1:2007	EN 61000-4-3:2006	3V/m, 80%, 1kHz Amp. Mod.	PASS
Radiated Immunity, 2GHz to 2.7GHz	EN 61000-6-1:2007	EN 61000-4-3:2006	1V/m, 80%, 1kHz Amp. Mod.	PASS

Remark:

1. N/A: not applicable. Please refer to Section 6.2 and 6.3 of this report for further details.

2.As the clause 3.9 of 2004/104/EC:" Components sold as aftermarket equipment and intended for the installation in motor vehicles need no type approval if they are not related to immunity-related functions (Annex I, 2.1.12). In this case a Declaration of Conformity according to the procedures of Directive 89/336/EEC must be issued. Part of this declaration must be that the ESA fulfils the limits defined in paragraphs 6.5, 6.6, 6.8, 6.9 and 8.5 of Annex I of this Directive (2004/104/EC)".

§ If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. (Refer to CISPR22:2006 clause 6.2 Conditional testing procedure)

The report SZEMO081005325TX was an additional report copied from the report SZEMO081005324TX, just changing the Applicant Name and Address, EUT Name and Item No. Since the electrical circuit design, layout, components used and internal wiring for the Item "NPA-DC1" in the report SZEMO081005325TX was exactly the same as the Item "ZYT-DD80-100" in the report SZEMO081005324TX.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:

DC input: 12-16V 10A

DC output: 15/16/18/19/20V 4A 22/24V 3.4A

4.2 Description of Support Units

N/A

4.3 Standards Applicable for Testing

The customer requested EMC test for Notebook Universal Adapter.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L2929)**
  CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.
- **VCCI**
  The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.
  Date of Registration: September 29, 2008. Valid until September 28, 2011.
- **FCC – Registration No.: 556682**
  SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27, 2008.
- **Industry Canada (IC)**
  The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

5 Appendix A: Instruments Used during Test

RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2009
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2008	17-06-2009
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2008	11-08-2009
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2008	17-06-2009
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2008	11-08-2009
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2008	11-08-2009
9	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2008	17-06-2009
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	18-06-2008	17-06-2009
11	Band filter	Amindeon	82346	SEL0094	18-06-2008	17-06-2009
12	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2008	14-06-2009

Radiated Immunity						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2009
2	Signal Generator	Rohde & Schwarz	SML03	SEL0068	18-06-2008	17-06-2009
3	RF Amplifier 30M-1GHz	Amplifier Research	250W1000A	SEL0066	12-12-2007	11-12-2008
4	RF Amplifier 0.8-3.0GHz	Amplifier Research	60S1G3	SEL0065	12-12-2007	11-12-2008
5	Power Meter	Rohde & Schwarz	NRVD	SEL0069	18-06-2008	17-06-2009
6	Power Sensor	Rohde & Schwarz	URV5-Z2	SEL0071	18-06-2008	17-06-2009
7	Power Sensor	Rohde & Schwarz	URV5-Z2	SEL0072	18-06-2008	17-06-2009
8	Software EMC32	Rohde & Schwarz	EMC32-S	SEL0082	N/A	N/A
9	Log-periodic Antenna	Amplifier Research	AT1080	SEL0073	N/A	N/A
10	Antenna Tripod	Amplifier Research	TP1000A	SEL0074	N/A	N/A
11	High Gain Horn Antenna (0.8-5GHz)	Amplifier Research	AT4002A	SEL0075	N/A	N/A

ESD						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	ESD Simulator	Thermo	MZ-15/EC	SEL0012	03-04-2008	02-04-2009
2	ESD Ground Plane	SGS(3m*3m)	N/A	SEL0004	N/A	N/A

General used equipment						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101 to SEL0103	18-11-2007	17-11-2008
2	Barometer	ChangChun	DYM3	SEL0088	11-07-2008	10-07-2010

6 Test Results

6.1 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	2006/28/EC
Test Method:	CISPR 25
Frequency Range:	30MHz to 1GHz
Measurement Distance:	1 meter
Limit:	Annex I 6.5.2 of 2004/104/EC (for broadband emissions)
	Annex I 6.6.2 of 2004/104/EC (for narrowband emissions)
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak for broad band emissions (120KHz)
	Average for narrow band emissions (120KHz)

6.1.1 E.U.T. Operation

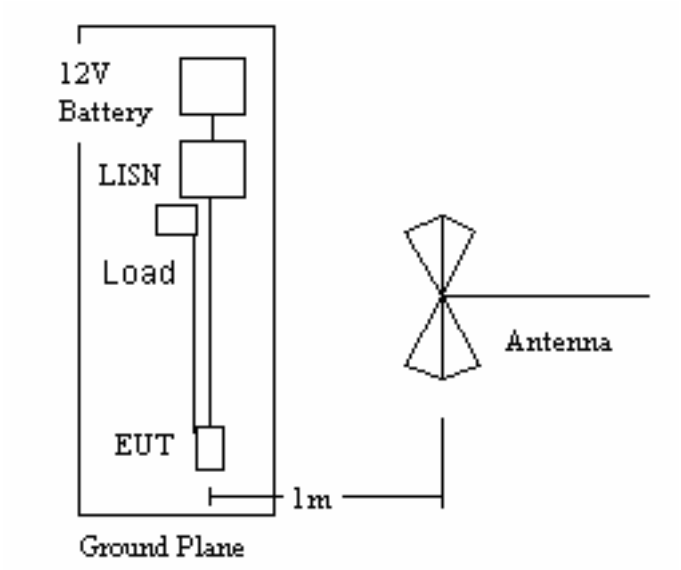
Operating Environment:

Temperature: 22.0°C Humidity: 53% RH Atmospheric Pressure: 1010 mbar

EUT Operation: Test in on mode. keep EUT working with full load

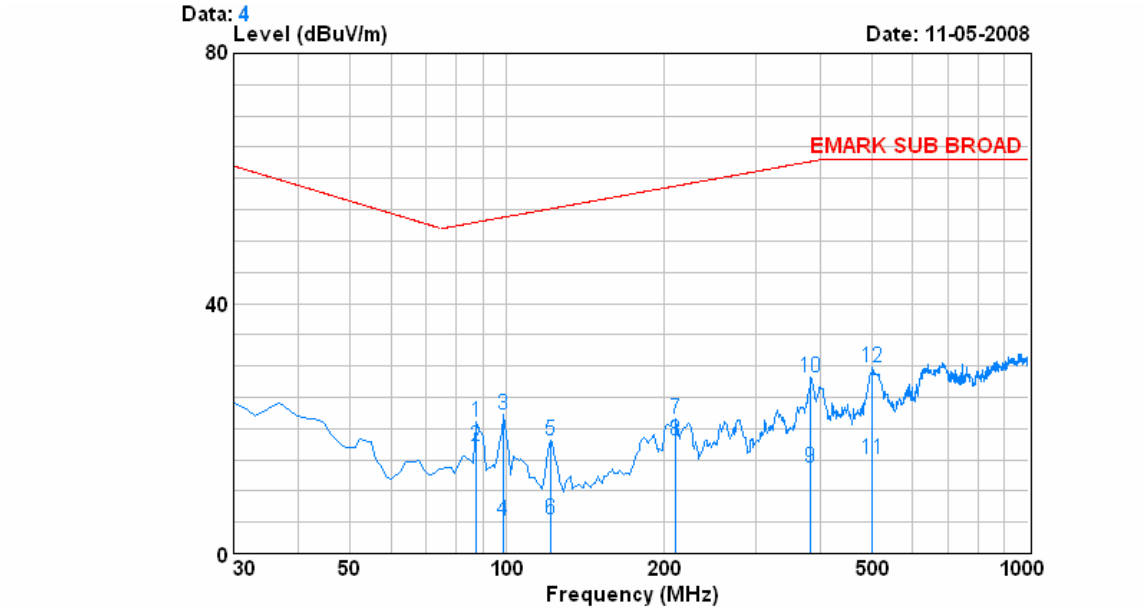
6.1.2 Test Setup

The EUT was insulated placed 50mm above the ground plane, the ground plan was in a height of 1m to the reference plane of semi-anechoic chamber and with electrical connection. No additional electric connection was made between the EUT and ground plane as the EUT will not be intended to be bonded to the bodywork of the vehicle. The EUT was powered by 12V vehicle battery through 5uH/50ohm LISN.



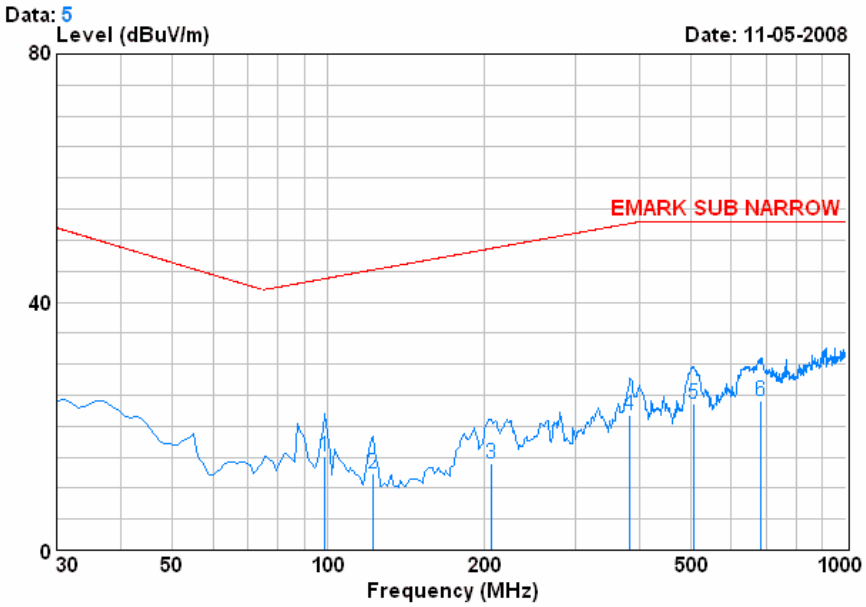
6.1.3 Measurement Data

Vertical:



Condition : EMARK SUB BROAD 3m 0042673 VERTICAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

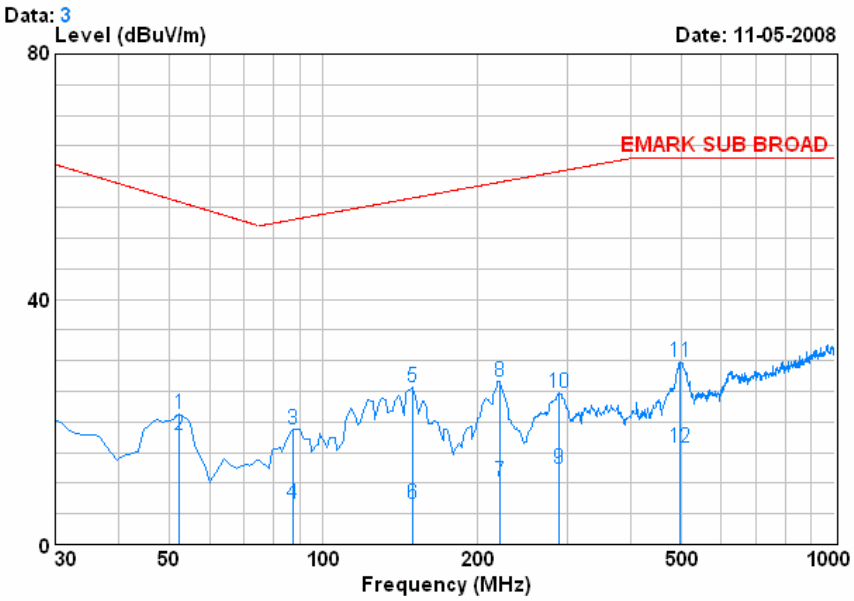
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	87.230	1.10	8.45	27.96	39.50	21.08	52.99	-31.91	Peak
2	87.230	1.10	8.45	27.96	35.54	17.13	52.99	-35.86	QP
3	98.870	1.19	9.06	27.89	39.87	22.23	53.82	-31.58	Peak
4	98.870	1.19	9.06	27.89	22.90	5.26	53.82	-48.55	QP
5	121.180	1.26	7.87	27.67	36.61	18.06	55.15	-37.09	Peak
6	121.180	1.26	7.87	27.67	23.96	5.41	55.15	-49.74	QP
7	210.420	1.46	10.73	27.10	36.38	21.48	58.78	-37.30	Peak
8	210.420	1.46	10.73	27.10	33.10	18.20	58.78	-40.58	QP
9	382.110	2.15	16.08	27.30	22.74	13.68	62.70	-49.02	QP
10	382.110	2.15	16.08	27.30	37.38	28.31	62.70	-34.38	Peak
11	502.390	2.60	17.85	27.71	22.40	15.15	63.00	-47.85	QP
12	502.390	2.60	17.85	27.71	36.99	29.74	63.00	-33.26	Peak



Condition : EMARK SUB NARROW 3m 0042673 VERTICAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

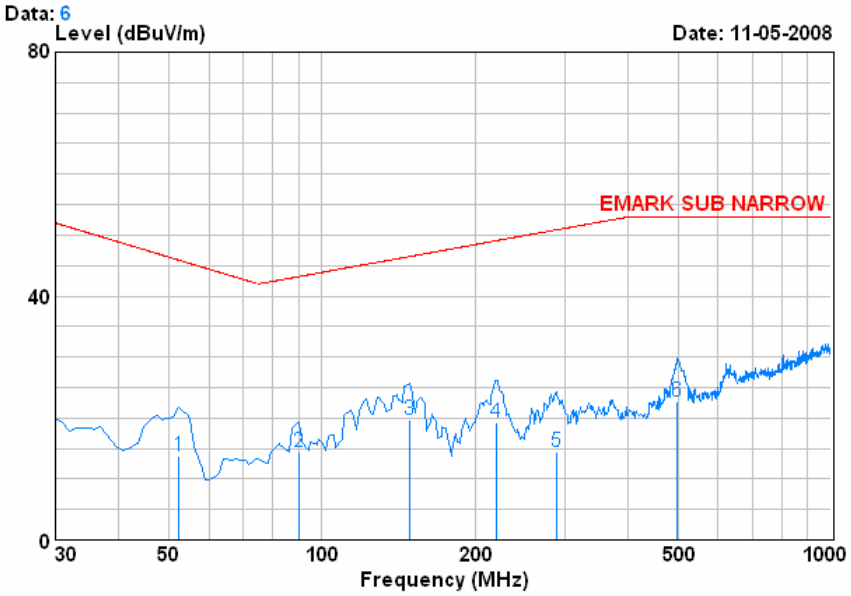
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 @	98.870	1.19	9.06	27.89	32.68	15.04	43.82	-28.77	Average
2	122.150	1.26	7.85	27.67	30.96	12.41	45.21	-32.80	Average
3	206.540	1.44	10.52	27.12	29.23	14.07	48.66	-34.58	Average
4	382.110	2.15	16.08	27.30	30.90	21.83	52.70	-30.86	Average
5	509.180	2.61	18.07	27.70	30.61	23.59	53.00	-29.41	Average
6	684.750	2.87	21.48	27.33	26.97	23.99	53.00	-29.01	Average

Horizontal:



Condition : EMARK SUB BROAD 3m 0042673 HORIZONTAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	52.310	0.80	8.18	28.09	40.44	21.33	55.93	-34.60	Peak
2	52.310	0.80	8.18	28.09	36.98	17.87	55.93	-38.06	QP
3	87.230	1.10	8.45	27.96	37.28	18.87	52.99	-34.12	Peak
4	87.230	1.10	8.45	27.96	25.04	6.63	52.99	-46.36	QP
5	149.310	1.32	8.91	27.46	42.85	25.62	56.52	-30.91	Peak
6	149.310	1.32	8.91	27.46	23.95	6.71	56.52	-49.81	QP
7	222.060	1.53	11.34	27.04	24.40	10.23	59.13	-48.91	QP
8	222.060	1.53	11.34	27.04	40.80	26.62	59.13	-32.51	Peak
9	288.990	1.85	13.40	26.76	24.01	12.50	60.86	-48.36	QP
10	288.990	1.85	13.40	26.76	36.24	24.73	60.86	-36.13	Peak
11	497.540	2.59	17.80	27.70	37.10	29.79	63.00	-33.21	Peak
12	497.540	2.59	17.80	27.70	23.10	15.79	63.00	-47.21	QP



Condition : EMARK SUB NARROW 3m 0042673 HORIZONTAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	52.310	0.80	8.18	28.09	32.82	13.71	45.93	-32.22	Average
2	90.140	1.10	8.71	27.95	32.50	14.37	43.21	-28.84	Average
3 @	148.340	1.31	8.86	27.47	37.05	19.76	46.48	-26.72	Average
4	220.120	1.52	11.26	27.05	33.46	19.18	49.07	-29.89	Average
5	288.990	1.85	13.40	26.76	25.93	14.42	50.86	-36.44	Average
6	498.510	2.59	17.80	27.70	30.03	22.72	53.00	-30.28	Average

6.2 Transient Conducted Emissions Test

There is no need for Transient conducted emission test to be performed on this product in accordance with 8.5 of Annex I of this Directive (2004/104/EC).

ESAs that are not switched, contain no switches or do not include inductive loads need not be tested for conducted emission and shall be deemed to comply with paragraph 6.9 of this Annex.

6.3 Immunity Test

6.3.1 Transient ImmunityTest

Test Requirement:	Clause 6.8 of 2004/104/EC
Test Method:	2004/104/EC & ISO 7637-2
Test requirement	Table 1 of 2004/104/EC
Test mode:	Test the EUT in charging mode with full load and half load.

Table 1: Immunity of ESA

Test pulse number	Immunity test level	Functional status for systems	
		Related to immunity-related functions	Not related to immunity-related functions
1	III	C	D
2a	III	B	D
2b	III	C	D
3a/3b	III	A	D
4	III	B *(for ESA which must be operational during engine start phases)* C *(for other ESAs)*	D

Pulse 1:

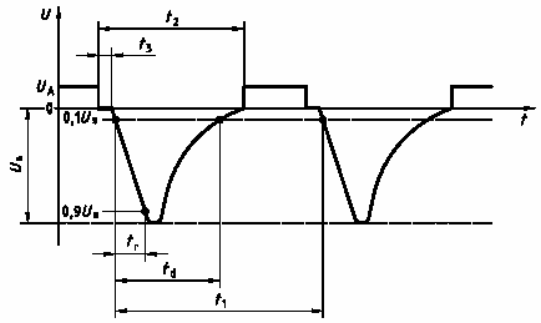


Figure 5 — Test pulse 1

Table 3 — Parameters for test pulse 1

Parameter	12 V system	24 V system
U_s	−75 V to − 100 V	− 450 V to − 600 V
R_i	10 Ω	50 Ω
t_d	2 ms	1 ms
t_r	$1^{\ 0}_{-05}$ µs	$3^{\ 0}_{-1,5}$ µs
t_1 [a]	0,5 s to 5 s	
t_2	200 ms	
t_3 [b]	< 100 µs	

[a] t_1 shall be chosen such that the DUT is correctly initialized before the application of the next pulse.

[b] t_3 is the smallest possible time necessary between the disconnection of the supply source and the application of the pulse.

Pulse 2a

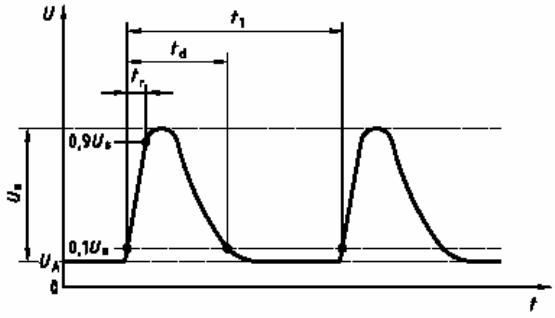


Figure 6 — Test pulse 2a

Table 4 — Parameters for test pulse 2a

Parameter	12 V system	24 V system
U_s	+ 37 V to + 50 V	
R_i	2 Ω	
t_d	0,05 ms	
t_r	$\left(10\ ^{0}_{-0,5}\right)$ µs	
t_1 [a]	0,2 s to 5 s	

[a] The repetition time t_1 can be short, depending on the switching. The use of a short repetition time reduces the test time.

Pulse 2b

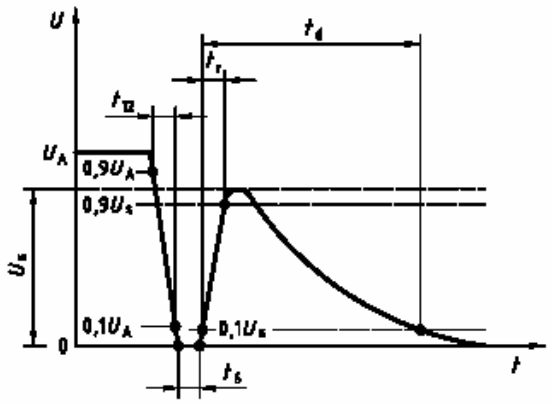


Figure 7 — Test pulse 2b

Table 5 — Parameters for test pulse 2b

Parameter	12 V system	24 V system
U_s	10 V	20 V
R_i	0 Ω to 0,05 Ω	
t_d	0,2 s to 2 s	
t_{12}	1 ms ± 0,5 ms	
t_r	1 ms ± 0,5 ms	
t_6	1 ms ± 0,5 ms	

Pulse 3

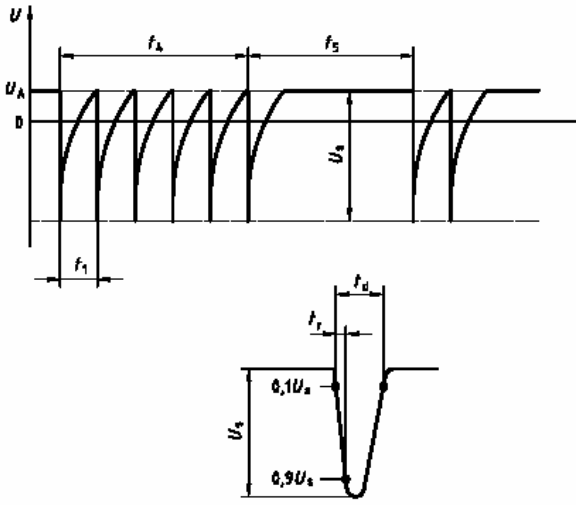


Figure 8 — Test pulse 3a

Table 6 — Parameters for test pulse 3a

Parameter	12 V system	24 V system
U_s	– 112 V to – 150 V	– 150 V to – 200 V
R_i	50 Ω	
t_d	$(0,1\ ^{+0,1}_{0})$ µs	
t_r	5 ns ± 1,5 ns	
t_1	100 µs	
t_4	10 ms	
t_5	90 ms	

Pulse 4

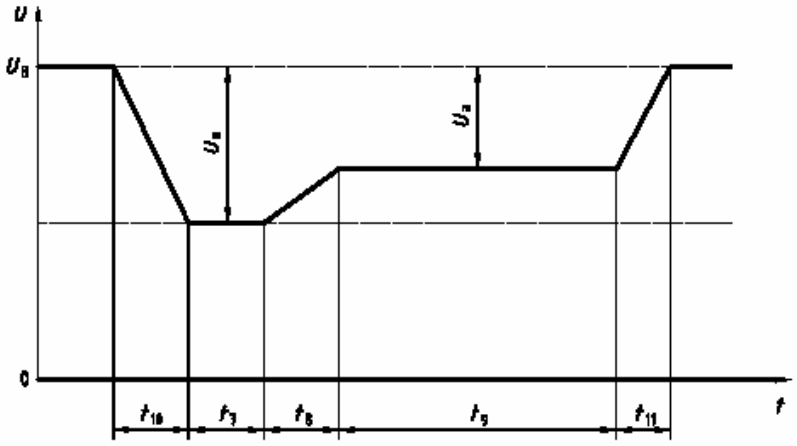


Figure 10 — Test pulse 4

Table 8 — Parameters for test pulse 4

Parameter	12 V system	24 V system
U_s	– 6 V to – 7 V	– 12 V to – 16 V
U_a	– 2,5 V to – 6 V with $\lvert U_a \rvert \leqslant \lvert U_s \rvert$	– 5 V to – 12 V with $\lvert U_a \rvert \leqslant \lvert U_s \rvert$
R_i	0 Ω to 0,02 Ω	
t_7	15 ms to 40 ms [a]	50 ms to 100 ms [a]
t_8	⩽ 50 ms	
t_9	0,5 s to 20 s [a]	
t_{10}	5 ms	10 ms
t_{11}	5 ms to 100 ms [b]	10 ms to 100 ms [c]

[a] The value used should be agreed between the vehicle manufacturer and the equipment supplier to suit the proposed application.

[b] t_{11} = 5 ms is typical of the case when engine starts at the end of the cranking period, while t_{11} = 100 ms is typical of the case when the engine does not start.

[c] t_{11} = 10 ms is typical of the case when engine starts at the end of the cranking period, while t_{11} = 100 ms is typical of the case when the engine does not start.

Test Results:

Test Pulse Number	Immunity Test Level (min. voltage)	Performance Criterion required	Performance under test
1	III (-75)	C	A
2a	III (+37)	B	A
2b	III (+10)	C	A
3a/3b	III (-112/+75)	A	A
4	III (-6)	C	A

Remark:

A: No Loss of Function

Conclusion:

The EUT can meet the requirements of the standard.

6.3.2 Radiated ImmunityTest

Test requirement: Clause 6.7 of 2004/104/EC

There is no immunity related function in the EUT, radiated Immunity test was not applicable according to 8.6 of 2004/104/EC.

7 Test Results (EMC directive)

7.1 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	EN 61000-6-3
Test Method:	CISPR 16-2-3
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

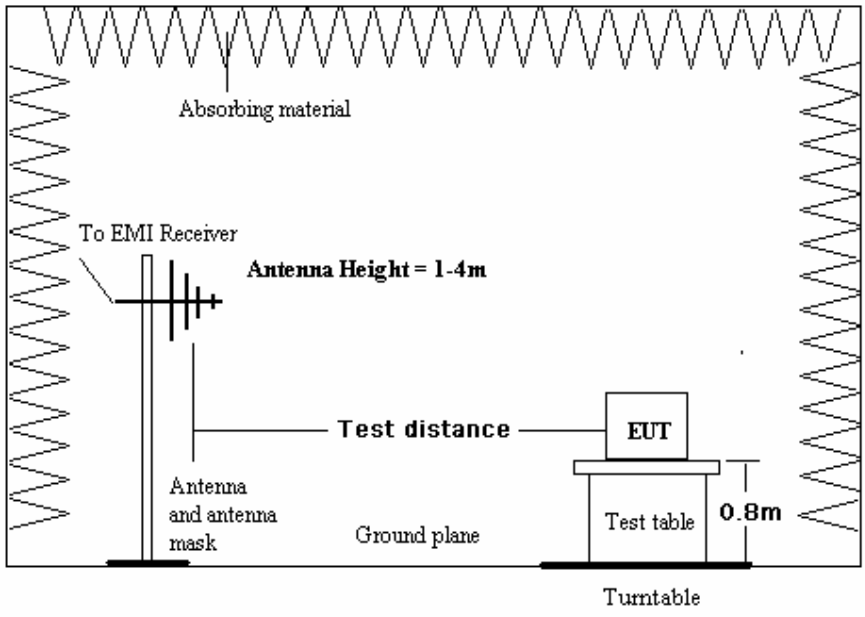
E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

EUT Operation: Test in on mode. keep EUT working with full load

Plan View of Test Setup

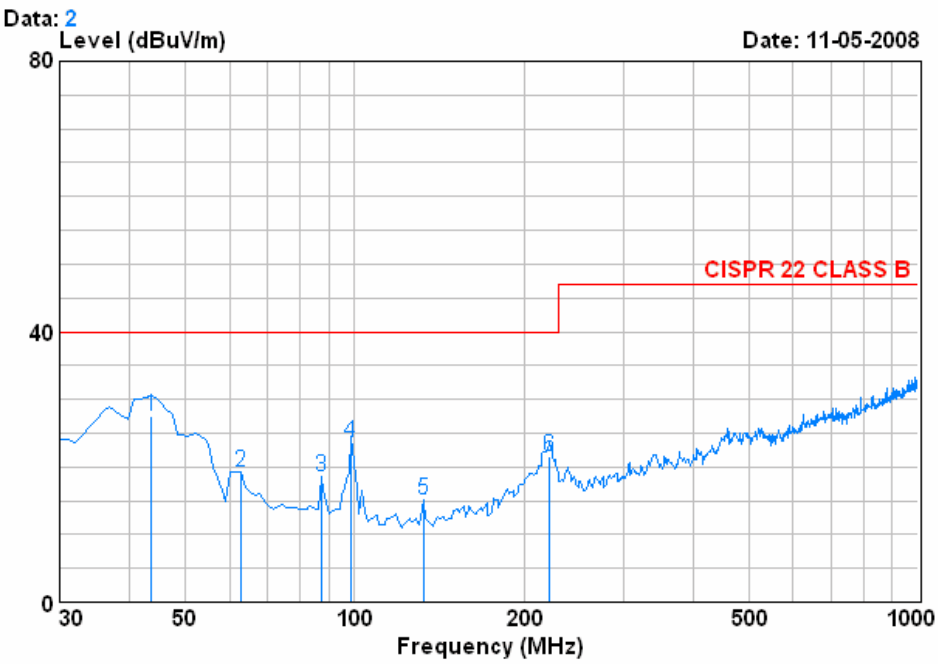


Measurement Data

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities.

The following quasi-peak measurements were performed on the EUT.

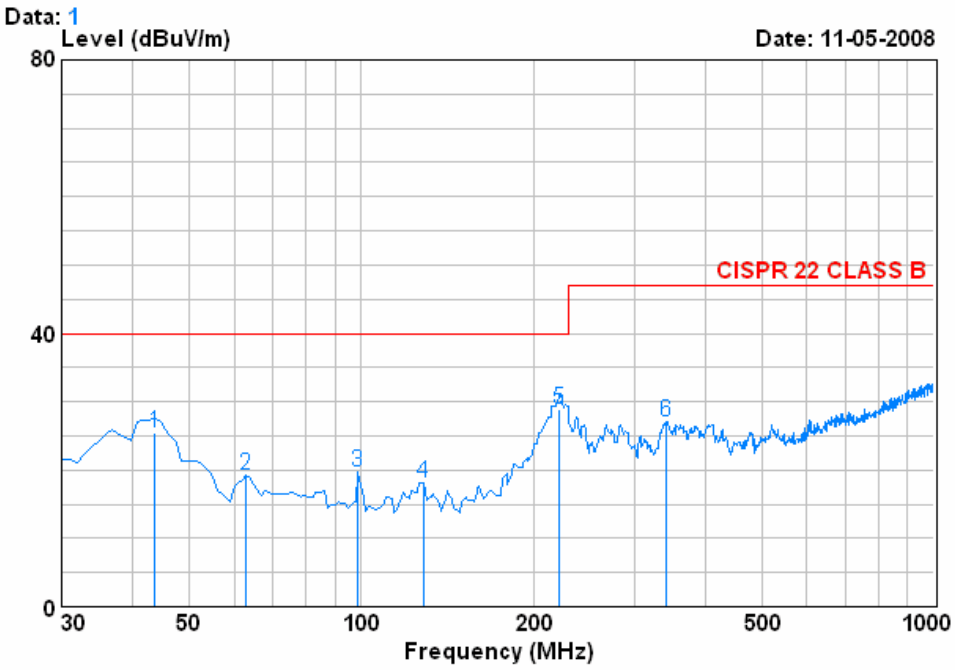
Vertical:



Condition : CISPR 22 CLASS B 3m 0042673 VERTICAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	43.580	0.68	9.92	28.10	44.99	27.50	40.00	-12.50
2	62.980	0.80	7.11	28.03	39.41	19.28	40.00	-20.72
3	87.230	1.10	8.45	27.96	36.98	18.57	40.00	-21.43
4	98.870	1.19	9.06	27.89	41.20	23.56	40.00	-16.44
5	132.820	1.28	7.82	27.58	33.57	15.09	40.00	-24.91
6	222.060	1.53	11.34	27.04	35.70	21.52	40.00	-18.48

Horizontal:



Condition : CISPR 22 CLASS B 3m 0042673 HORIZONTAL
EUT : Universal DC Adapter
Job No. : 5324TX
Mode : On

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	43.580	0.68	10.52	28.10	42.37	25.47	40.00	-14.53
2	62.980	0.80	7.11	28.03	39.30	19.17	40.00	-20.83
3	98.870	1.19	9.06	27.89	37.35	19.72	40.00	-20.28
4	128.940	1.27	7.72	27.61	36.73	18.11	40.00	-21.89
5 @	222.060	1.53	11.34	27.04	43.15	28.98	40.00	-11.02
6	341.370	2.03	15.22	27.03	36.73	26.95	47.00	-20.05

7.2 ESD

Test Requirement:	EN 61000-6-1	
Test Method:	EN 61000-4-2	
Criterion Required:	B	
Discharge Impedance:	330 Ω / 150 pF	
Discharge Voltage:	Air Discharge:	2, 4, 8 kV
	Contact Discharge:	2, 4 kV
	VCP / HCP:	2, 4 kV
Polarity:	Positive & Negative	
Number of Discharge:	Minimum 10 times at each test point	
Discharge Mode:	Single Discharge	
Discharge Period:	1 second minimum	

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

EUT Operation: Test in on mode. keep EUT working with full load

7.2.2 Test Results

Direct Application Test Results

Observations: Test Point:

1. All insulated enclosure & seams.
2. All accessible metal parts of the enclosure.

Direct Application			Test Results	
Discharge Level (kV)	**Polarity (+/-)**	**Test Point**	**Contact Discharge**	**Air Discharge**
2, 4, 8	+/-	1	N/A	A
2, 4	+/-	2	A	N/A

Indirect Application Test Results

Observations: Test Point: 1. All sides.

Indirect Application			Test Results	
Discharge Level (Kv)	**Polarity (+/-)**	**Test Point**	**Horizontal Coupling**	**Vertical Coupling**
2, 4	+/-	1	A	A

Results:

A: No degradation in the performance of the EUT was observed.

N/A: Not applicable (not requested by Standard).

7.3 Radiated Immunity 80MHz to 1000MHz

Test Requirement: EN 61000-6-1

Test Method: EN 61000-4-3

Criterion Required: A

Frequency Range: 80MHz to 2.7GHz

Modulation: 80%, 1kHz Amplitude Modulation

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.0 °C Humidity: 56 % RH Atmospheric Pressure: 1010 mbar

EUT Operation: Test in on mode. keep EUT working with full load

7.3.2 Test Results:

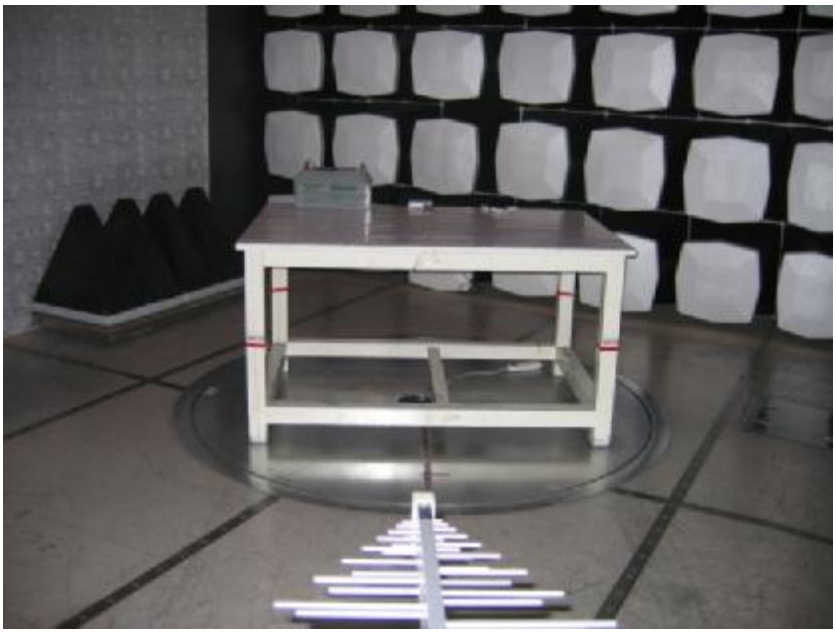
Frequency	Level	Modulation	EUT Face	Result / Observations
80MHz-1GHz	3V/m	1kHz, 80% Amp. Mod, 1% increment	Front/back	A
			Right/left	A
			Top/underside	A
1.4GHz-2GHz	3V/m	1kHz, 80% Amp. Mod, 1% increment	Front/back	A
			Right/left	A
			Top/underside	A
2GHz-2.7GHz	1V/m	1kHz, 80% Amp. Mod, 1% increment	Front/back	A
			Right/left	A
			Top/underside	A

Remarks:

A: No degradation in the performance of the E.U.T. was observed.

8 Photographs

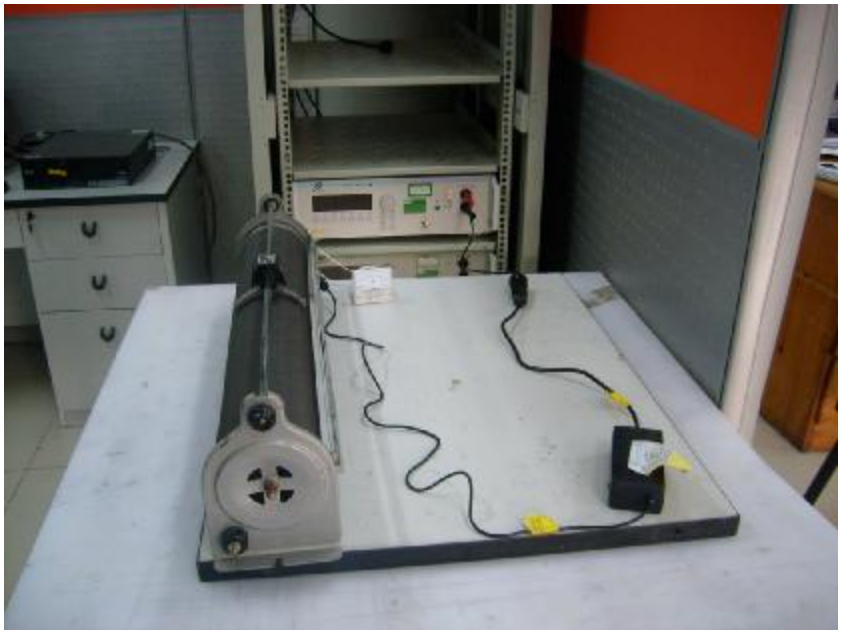
8.1 Radiated Emission Test Setup



8.2 ESD Test Setup

8.3 Radiated Immunity Test Setup

8.4 Transient Immunity Test



8.5 EUT Constructional Details