

Test Report to

EN 301 489-1 : 2000

EN 301 489-3 : 2000

Type :

SOS-Life

SOS-Positioner

TÜV Rheinland Product Safety GmbH

Am Grauen Stein, D-51105 Köln

Test Report No. 21102044_002

Page 1 of 33

Client SOS-Life N.V.
LANDHLIS JOONCHI
KAYA RICHARD J. BEAUJON Z/N
CURACAO
NET-HERLANDS ANTILLES

Test item earthquake / emergency alarm

Identification SOS-Life / SOS-Positioner

Receipt No. 60226

Serial No. ---

Date of Receipt 2002-06-11

Place of Testing: Köln

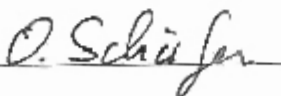
Date of Test 2002-06-11 till 2002-06-17

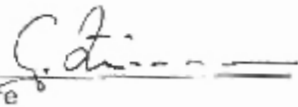
Testbasis EN 300 489-1:2000
EN 300 489-3:2000

Test Result The a. m. product passed.

Tested by: O. Schäfer

Checked by: G. Zimmermann

2004-06-04 
Date, Signature

2004-06-04 
Date, Signature

Other Aspects Annex

Page

used testequipment

Testequipment	Type	Manufacturer	Ser. / Inv. – No.	next Calibration
Messreceiver 9kHz-30MHz	FMLK 1518 D	Schwarzbeck	14200382	10.02
Shielded room	B 83102 S1-X10	Siemens		N/A
Messreceiver 25 -1GHz	VUMA 1521 A	Schwarzbeck	14200621	01.04
HF-Generator	PSG 1000 B	Farnell	14200612	05.03
Amplifier	150 A 220	Ampl. Research	94150452	N/A
HF-Millivoltmeter	URV 5	Rohde & Schwarz	14200452	07.03
HF-Probe 100 V	URV 5-Z4	Rohde & Schwarz	14200561	08.02
Open Test Site		TÜV Rheinland	14200575	09.03
Antenna	HFRA 915C	Schwarzbeck		12.02
Antonna	UHALP 9108	Schwarzbeck	14200591	11.03
Controller	HD 100		104459	N/A
Tower	MA 25C	H. Deisel		N/A
Analyser	ESMI	Rhode & Schwarz	14200550	02.03
Power Supply	TCE 8815	Töllner	14200579	10.02
Testreceiver	MES 1000	Schomandl	14200666	11.02
Notch-Filter	SF1	Schomandl	10003	09.02
Notch-Filter	SF2	Schomandl	10016	09.02
Notch-Filter	SF3	Schomandl	10013	09.02
Notch-Filter	SF4	Schomandl	10005	09.02
Amplifier	Ampl. 1GH	Schomandl	10031	09.02
Amplifier	Ampl. 1GH	Schomandl	10010	09.02
Splitt-Filter	41 BN 86871	Schomandl	10106	09.02
Splitt-Filter	88 BN 86872	Schomandl	10104	09.02
Splitt-Filter	174 BN 86873	Schomandl	10116	09.02
Splitt-Filter	470 BN 86874	Schomandl	10108	09.02
Temperature	T5042	Heraeus	14200650	05.04
Temperature	130RB/40-180 DU	Weis	94310113	03.02
Sensor	FP2000	Amplifier Research	14200609	08.02
Sensor	FP2000	Amplifier Research	14200608	08.02
ESD	NSG 435	Schaffner	14200514	10.03

Clause	Emission parameters	Test Result
8.2	Enclosure	okay yes ⁷
8.3	DC power Input / Output port	n.a. ¹
8.4	AC Mains Power in/out	yes
8.5	Harmonic current	yes
8.6	Voltage Fluctuations	yes
	Immunity parameters	
9.2	Radio frequency electromagnetic field (80-1000 MHz)	yes
9.3	Electrostatic discharge	yes
9.4	Fast transients common mode	yes
9.5	Radio frequency common mode (current clamp injection)	yes
9.6	Transients and surges, vehicular environment	yes
9.7	Voltage dips and interruptions	yes
9.8	Common and differential mode	yes

We are sending you enclosed the test report No.	21102045_001
---	--------------

Insert comments e.g. yes or n.a.^x

Remarks

n.a. ¹	not applicable
n.a. ²	there is no connection
n.a. ³	because no conduction is longer than 3 m
n.a. ⁴	because EUT is directly connected to car battery
n.a. ⁵	not a 24 volt EUT
n.a. ³	no additional equipment exist for this test
yes ⁷	it is met by the type-approval test 'frequency management'

Product documentation

For production of this report the following product documentation was used:

Description:	Date:	Identifications:
Technical description	2002-06-11	---
Manual		

Observations and comments:

none

Conclusions

The product was intended for use in the following application areas:

Electro Magnetic Compatibility (EMC) for Short Range Devices (SRD) operating on frequencies between 9 kHz and 25 GHz

Equipment Type

For the purpose of this EN the short range devices are divided into three types of equipment, based on the technical nature of the primary function.

Equipment Type	Technical nature of the primary function	piece of equipment
I	Transfer of messages (digital or analogue signals)	X
II	Transfer of audio (speech or music)	-----
III	Others	-----

Classification of equipment

The product family of short range radio devices is divided into three classes of equipment, each having its own set of minimum performance criteria. This classification is based upon the impact on persons and/or goods in case the equipment does not operate above the specified minimum performance level under EMC stress.

Class of Equipment	Result of too low performance
1	Physical risk to persons or goods
2	Inconvenience to persons, which cannot simply be overcome by other means
3	Inconvenience to persons, which can simply be overcome by other means (eg. manual)

Class	Application	piece of equipment
	Telecommand / Telecontrol	
3	Garage door openers	-----
3	Car Lock/Unlock devices	-----
1	Remote control, models - planes	-----
2	Remote control, models - ships, cars etc.	-----
3	Remote control toys general	-----
3	Remote control television , Audio etc.	-----
2	Remote control appliances & lighting etc. for residential use only	-----
3	RF door bell	-----
3	Baby monitor	-----
1	Remote control power & lighting	-----
1	Remote surveillance switching	-----
1	Remote control cranes etc.	-----
1	Remote control grass cutting tractors etc.	-----
1	Emergency shutdown controls	-----
2	Level indicators	-----

Class	Application	piece of equipment
	Telemetry	
1	Person identification	-----
2	Animal identification	-----
2	Product identification	-----
2	Cargo handling and/or store (warehouse) systems	-----
2	Domestic telemetry	-----
1	Telemetry in vehicles	-----
	Wireless sensing/measuring	
1	Machine tools/robotics	-----
1	Fire detection	-----
1	Crane weigher	-----
1	Process Control	-----
1	Position locator	-----
1	Mocring loads	-----
1	Wireless data communication	-----

Class	Application	piece of equipment
	Alarms	
1	Domestic security	-----
2	Car alarms	-----
2	Anti-theft	-----
1	Guard systems	-----
1	Personal security	X
1	Victims of avalanche	-----
1	Elderly persons	-----
1	Mental institutions etc.	-----
2	Building management systems	-----
2	Radio call alert	-----
1	Baby/nursery monitor - non domestic	-----
2	Detection	-----
2	Offender monitoring	-----

Class	Application	piece of equipment
	Other Applications	
2	Video cordless terminals	-----
2	Cordless local networks	-----
2	Identification of rail wagons	-----
1	Identification/access control	-----
2	Domestic transmission of sound & vision	-----
1	Medical telemetry	-----
2	Deaf education systems	-----
2	Surface probing radar	-----
2	Vehicle detection/monitoring	-----

8.2 Emission: Enclosure port

Ambient temperature: 23 °C

Relative humidity: 55 %

Frequency Range	Quas.-Peak
30 - 230 MHz	30 dB μ V/m
>230-1000 MHz	37 dB μ V/m

The equipment meets the requirements

n.a.¹

Further test results are attached

no

8.3 Emission: DC power Input / Output port

Ambient temperature: 23 °C

Relative humidity: 55 %

Frequency Range	Quasi-Peak	Average
0,15-0,5 MHz	66 - 56 dB μ V	56 - 46 dB μ V
>0,5-5 MHz	56 dB μ V	46 dB μ V
>5-30 MHz	60 dB μ V	50 dB μ V

The equipment meets the requirements

n.a.¹

Further test results are attached

no

8.4 Emission: AC power Input / Output port

Ambient temperature: 23 °C

Relative humidity: 55 %

Test Limits		
Frequency Range	Quasi-Peak	Average
0,15-0,5 MHz	66 - 56 dB μ V	56 - 46 dB μ V
>0,5-5 MHz	56 dB μ V	46 dB μ V
>5-30 MHz	60 dB μ V	50 dB μ V

The equipment meets the requirements	yes
Further test results are attached	yes

8.5 Harmonic current

Ambient temperature: 23 °C

Relative humidity: 55 %

The equipment meets the requirements	yes
Further test results are attached	yes

8.6 Voltage Fluctuation

Ambient temperature: 23 °C

Relative humidity: 55 %

The equipment meets the requirements	yes
Further test results are attached	yes

9.2 Immunity: Radio frequency electromagnetic field (80-1000MHz)

Ambient temperature: 23 °C

Relative humidity: 55 %

RF Immunity

Environmental phenomena	Units	Test Limits	Reference document
RF electromagnetic field	MHz V/m(rms)unmod. %AM (400Hz)	80-1000 3 80	EN 61000-4-3[10]

The equipment meets the requirements	yes
Further test results are attached	no

9.3 Immunity: Electrostatic discharge

Ambient temperature: 23 °C

Relative humidity: 55 %

Environmental phenomena	Units	Test limits	Reference document
Electrostatic discharge	kV (charge voltage)	4 (contact) 8 (air)	EN 61000-4-2[11]

The equipment meets the requirements	yes
Further test results are attached	no

9.4 Immunity: Fast transients common mode

Ambient temperature: 23 °C

Relative humidity: 55 %

Signal and control ports, DC and AC power ports:

Environmental phenomena	Units	Test limits	Reference document
Fast Transients common mode	kV(peak) Tr/Th ns Rep.Fre.kHz	1	EN 61000-4-4[12]
		5/50	
		5	
		2	
		5/50	
		5	

The equipment meets the requirements	yes
Further test results are attached	no

9.5 Immunity: RF Electromagnetic Disturbance Common Mode (Current Clamp Injection)

Ambient temperature: 23 °C

Relative humidity: 55 %

Signal and control ports, DC and AC power ports:

Environmental phenomena	Units	Test Limits	Reference document
Radio-Frequency common mode	MHz V(rms,unmod) %AM (400Hz)	0,15 - 80	EN 61000-4-6[13]
		3	
		80	

The equipment meets the requirements	yes
Further test results are attached	no

9.6 Transients and surges, vehicular environment

Ambient temperature: 23 °C

Relative humidity: 55 %

Transients and surges, vehicular environment test requirements for 12 volt dc powered equipment

Pulse	level	Pulses	characteristics	test time
3a	II		see ISO 7637 Parts 1 [6] and 2 [7]	5 min.
3b	II		see ISO 7637 Parts 1 [6] and 2 [7]	5 min.
4	II	5	Vs= -5V Va= -2,5V t6=25ms, t8=5s, tf=5ms	
1	II	10	t1= 2,5s	
2	II	10	t1=2,5s	
7	II	5		

The equipment meets the requirements

n.a.²

Further test results are attached

no

Ambient temperature: 23 °C

Relative humidity: 55 %

Transients and surges, vehicular environment test requirements for 24 volt dc powered equipment

Pulse	level	Pulses	characteristics	test time
3a	II		see ISO 7637 Parts 1 [6] and 2 [7]	5 min.
3b	II		see ISO 7637 Parts 1 [6] and 2 [7]	5 min.
4	II	5	Vs= -5V Va= -2,5V t6=25ms, t8=5s, tf=5ms	
1	II	10	t1= 2,5s	
2	II	10	t1=2,5s	
7	II	5		

The equipment meets the requirements
n.a.²

Further test results are attached

no

9.7 Immunity: Voltage dips and interruptions

Ambient temperature: 23 °C

Relative humidity: 55 %

AC mains power input ports

Environmental phenomena	Units	Test Limits	Reference document
Voltage dips Power Interruptions	% reduction ms	30 % 10 ms	EN 61000-4-11 [14]
		60 % 100 ms	
		>95 % 5000 ms	

The equipment meets the requirements	yes
Further test results are attached	no

9.8 Immunity: Surges common and differential mode

Ambient temperature: 23 °C

Relative humidity: 55 %

AC mains power input ports

Environmental phenomena	Units	Test Limits	Reference document
Surges common mode	Tr/Th μ s	1,2/50 (8/20)	EN 61000-4-5[15]
Surges differential mode	kV (peak)	0,5	

The equipment meets the requirements	yes
Further test results are attached	no

Photographs of the equipment are to be provided as part of the Test Report.

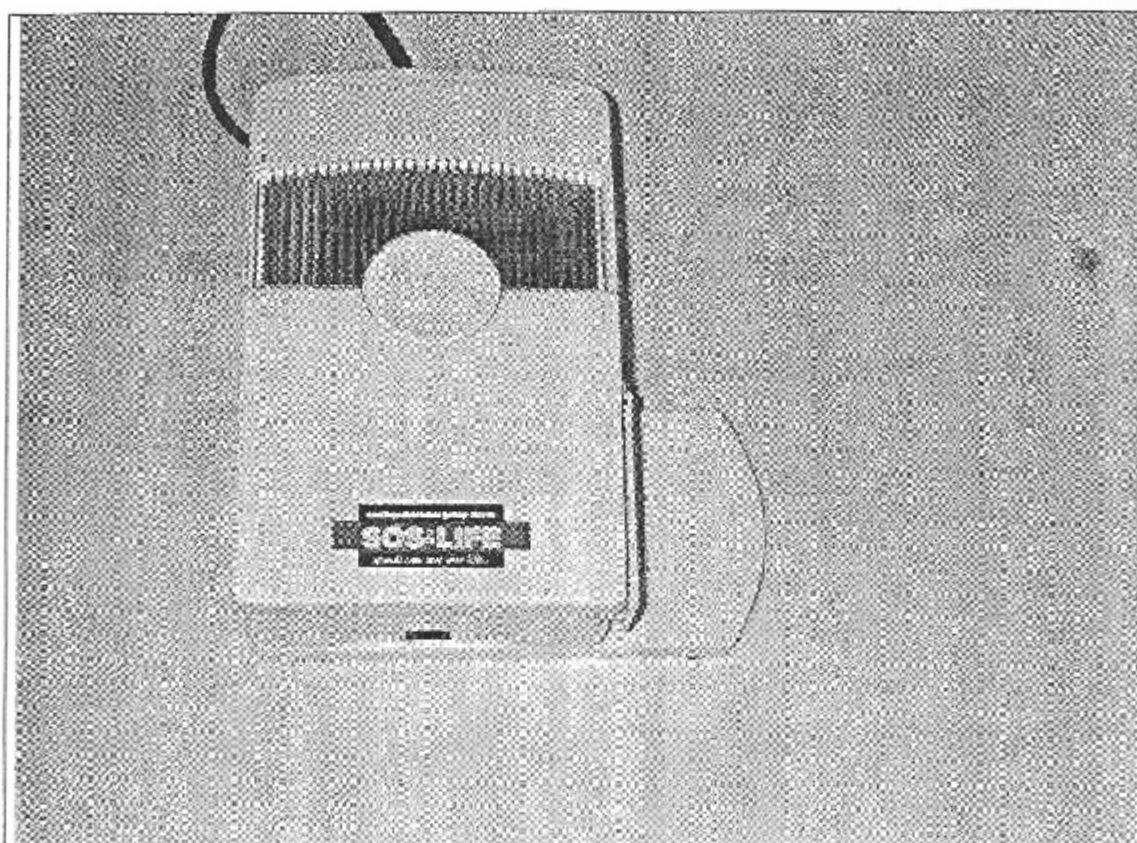
1. Assembly of units or parts

blank page

Photographs of the equipment are to be provided as part of the Test Report.

2. Front of unit (Showing controls \ labelling etc)

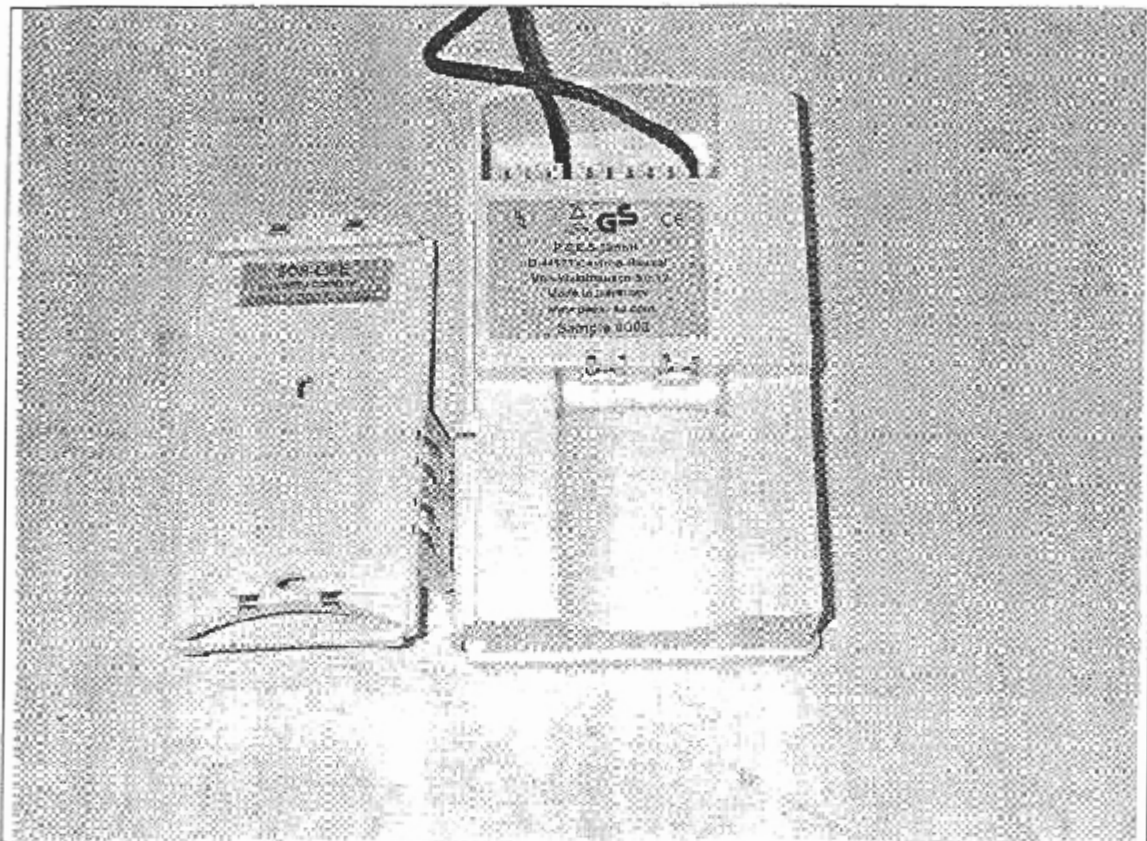
Transmitter



Photographs of the equipment are to be provided as part of the Test Report.

3. Rear of unit (Showing antenna connector, labelling etc)

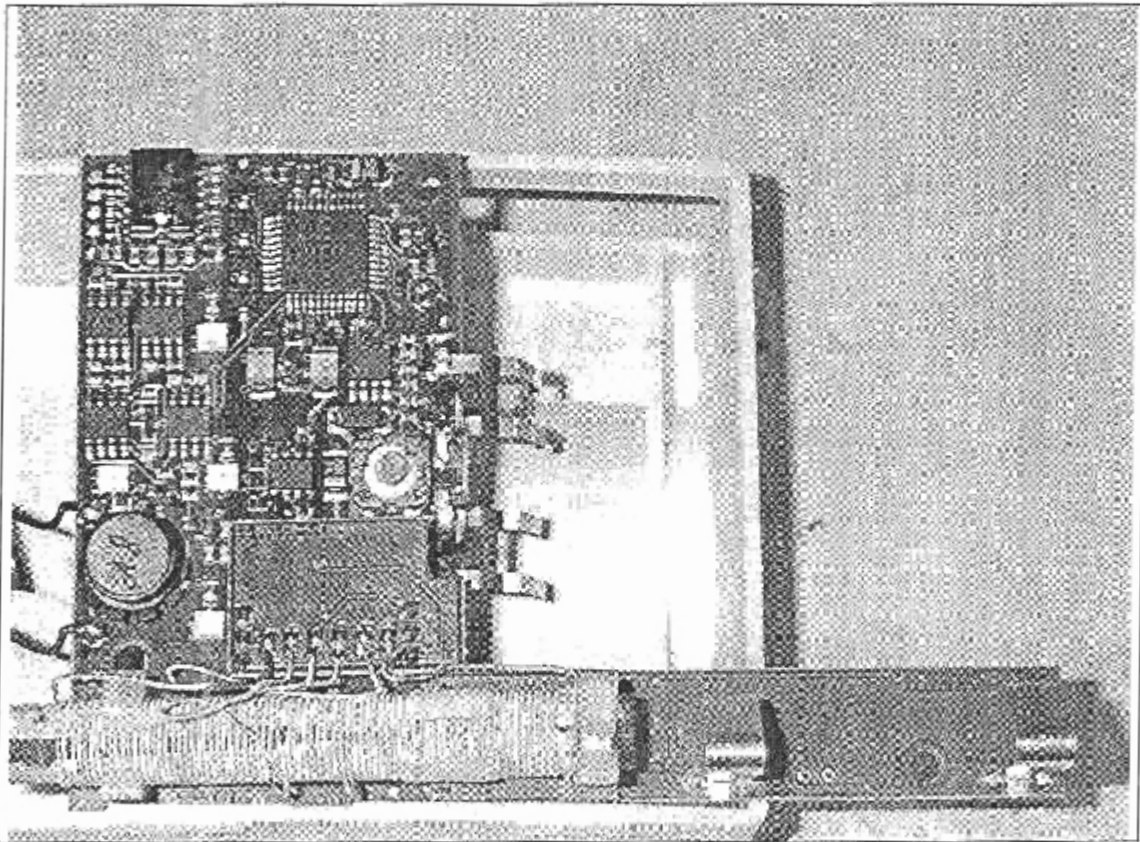
Transmitter



Photographs of the equipment are to be provided as part of the Test Report.

4 The equipment shall be opened and photographs of the internal construction shall be made (Upper Side)

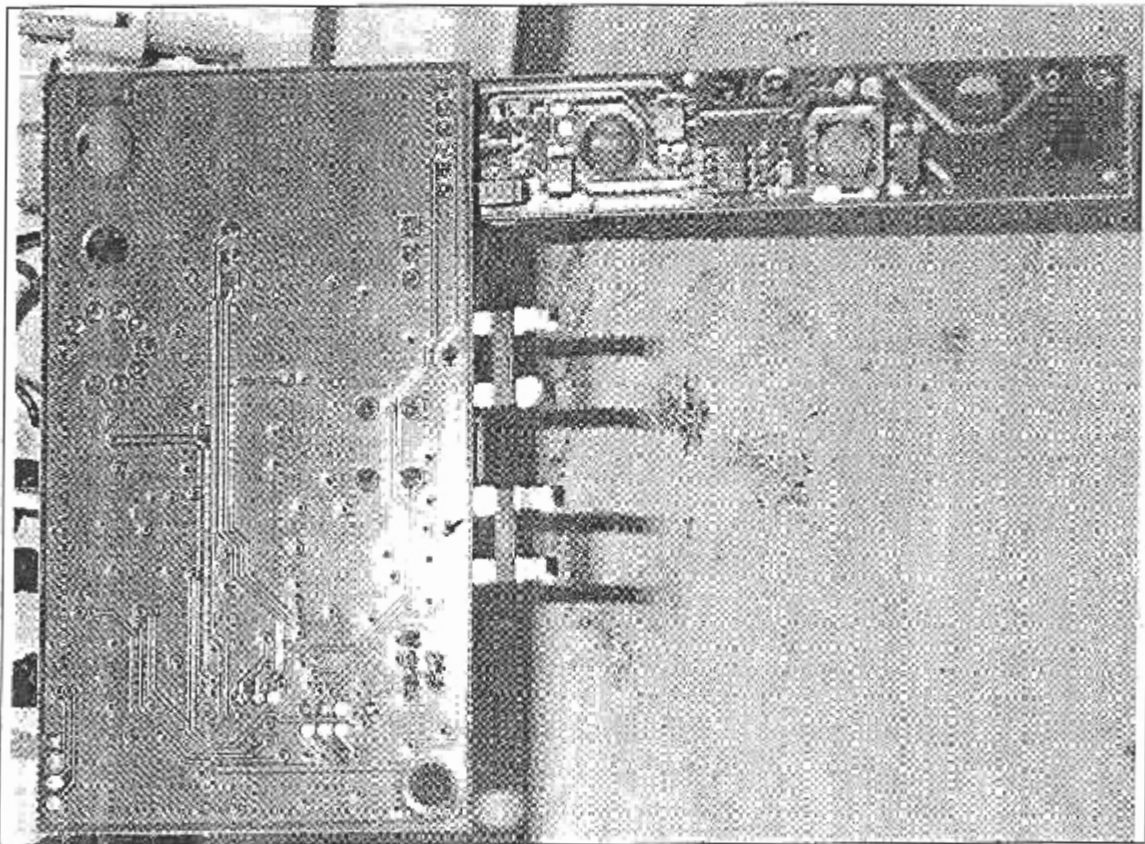
Transmitter



Photographs of the equipment are to be provided as part of the Test Report.

5 The equipment shall be opened and photographs of the internal construction shall be made (Lower Side)

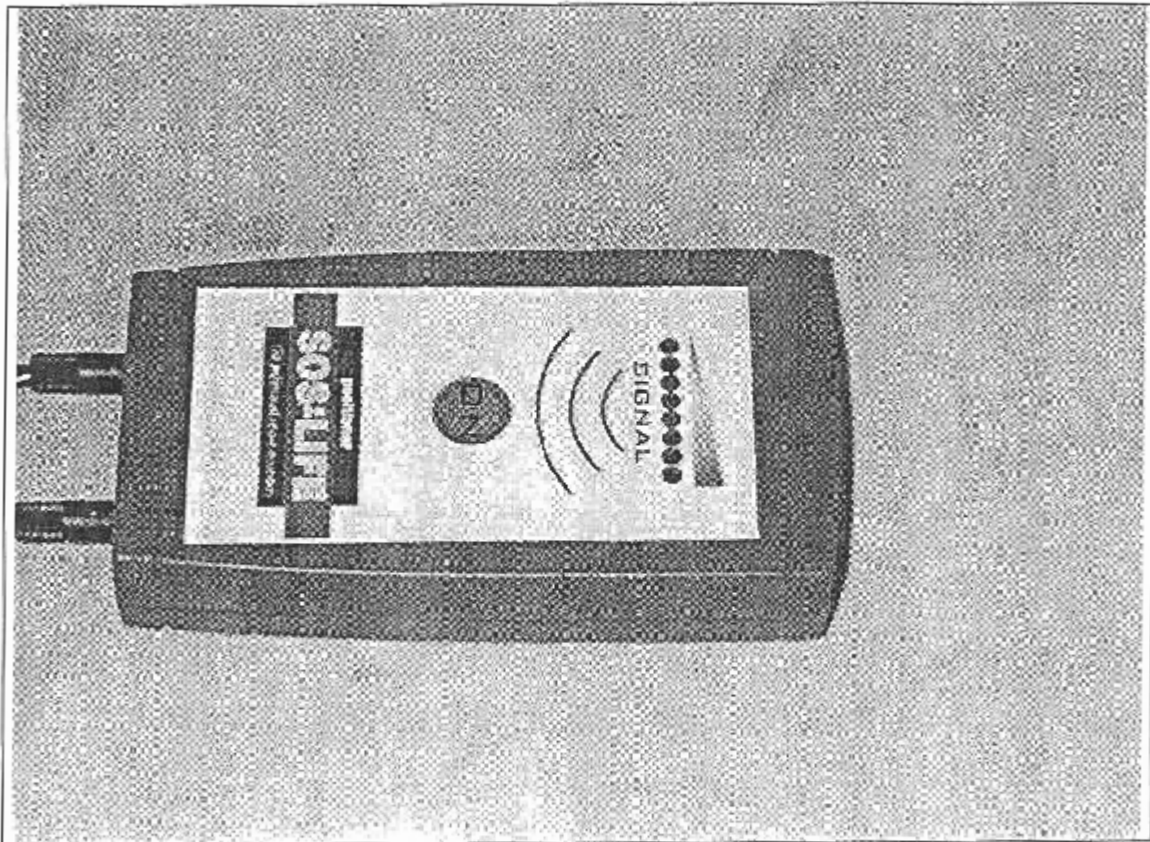
Transmitter



Photographs of the equipment are to be provided as part of the Test Report.

6 Front of unit (Showing controls \ labelling etc)

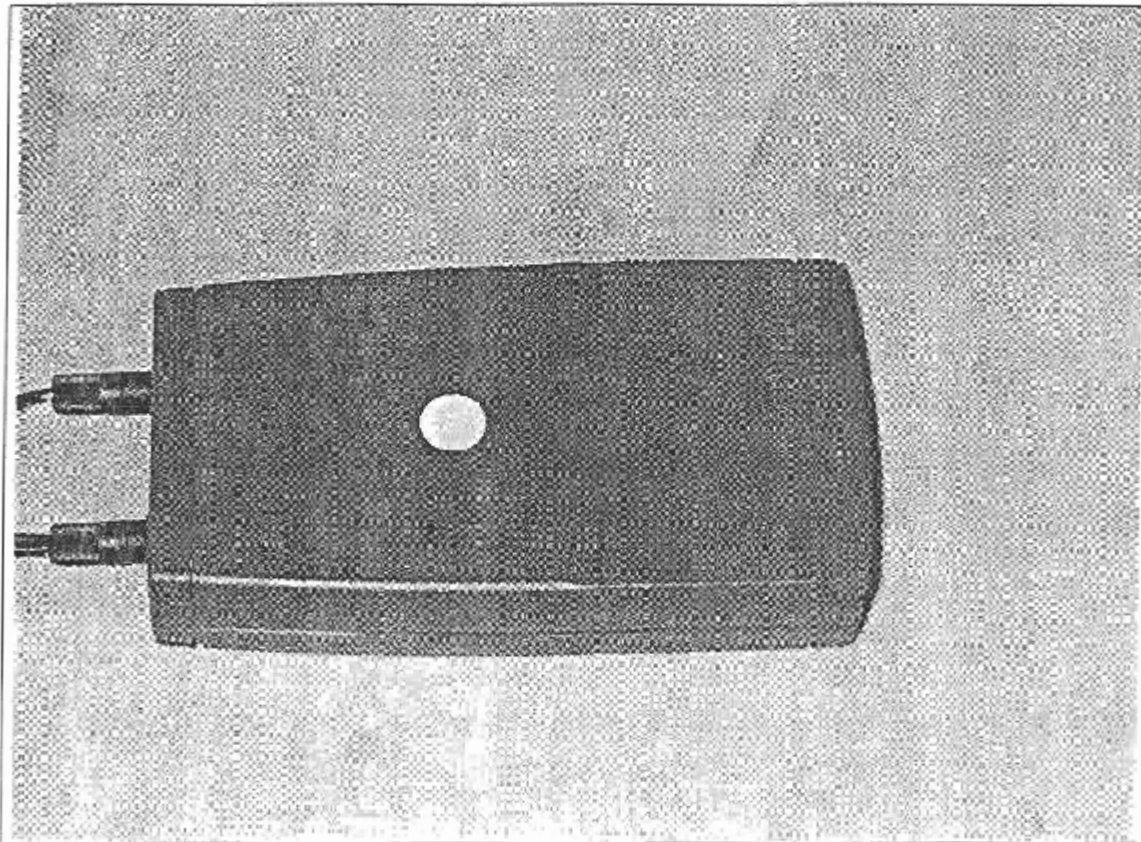
Receiver



photographs of the equipment are to be provided as part of the Test Report.

7 Rear of unit (Showing antenna connector, labelling etc)

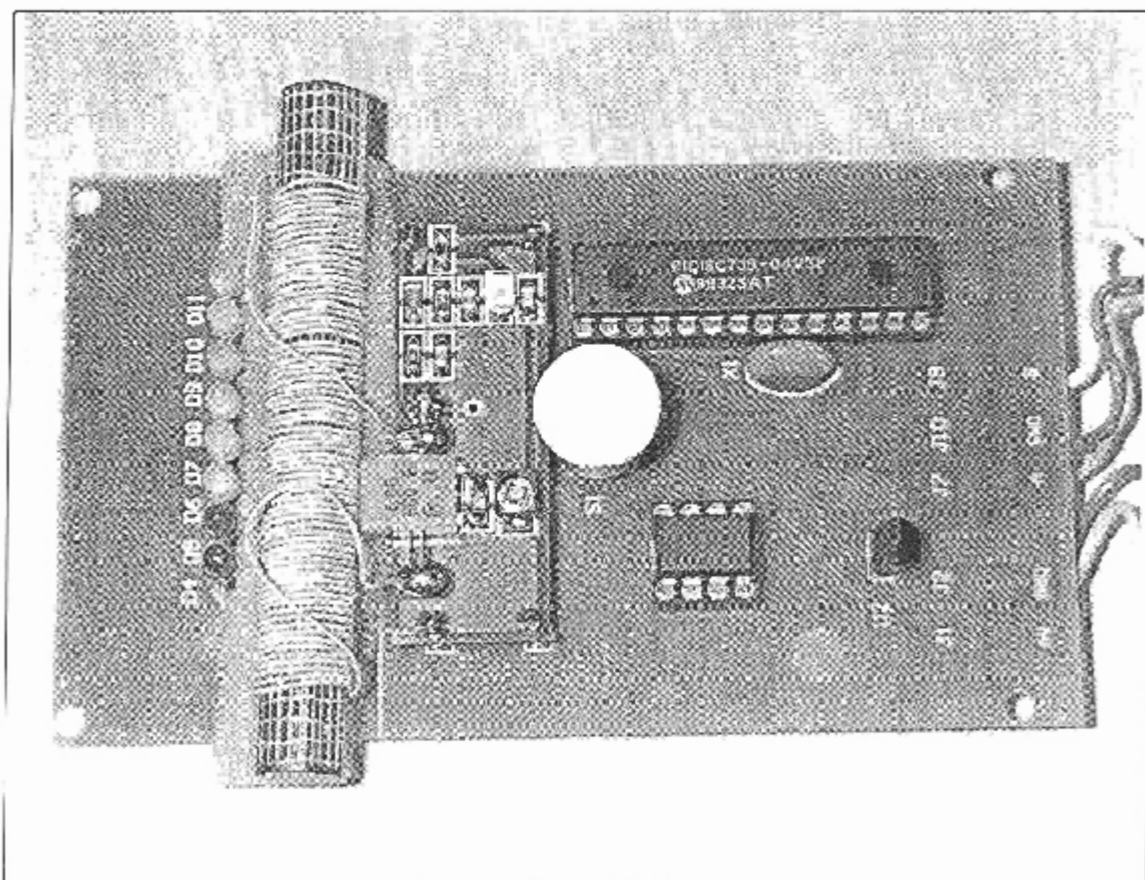
Receiver



photographs of the equipment are to be provided as part of the Test Report.

8 The equipment shall be opened and photographs of the internal construction shall be made (Upper Side)

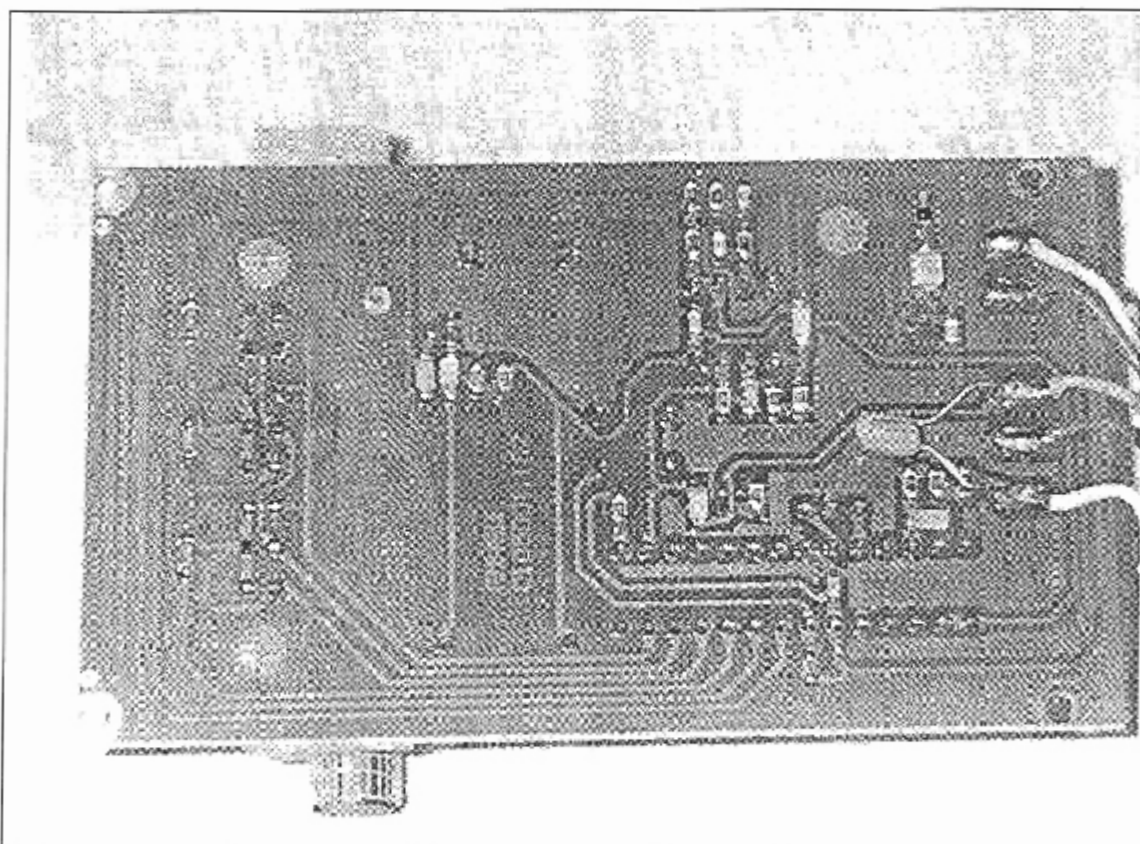
Receiver



Photographs of the equipment are to be provided as part of the Test Report.

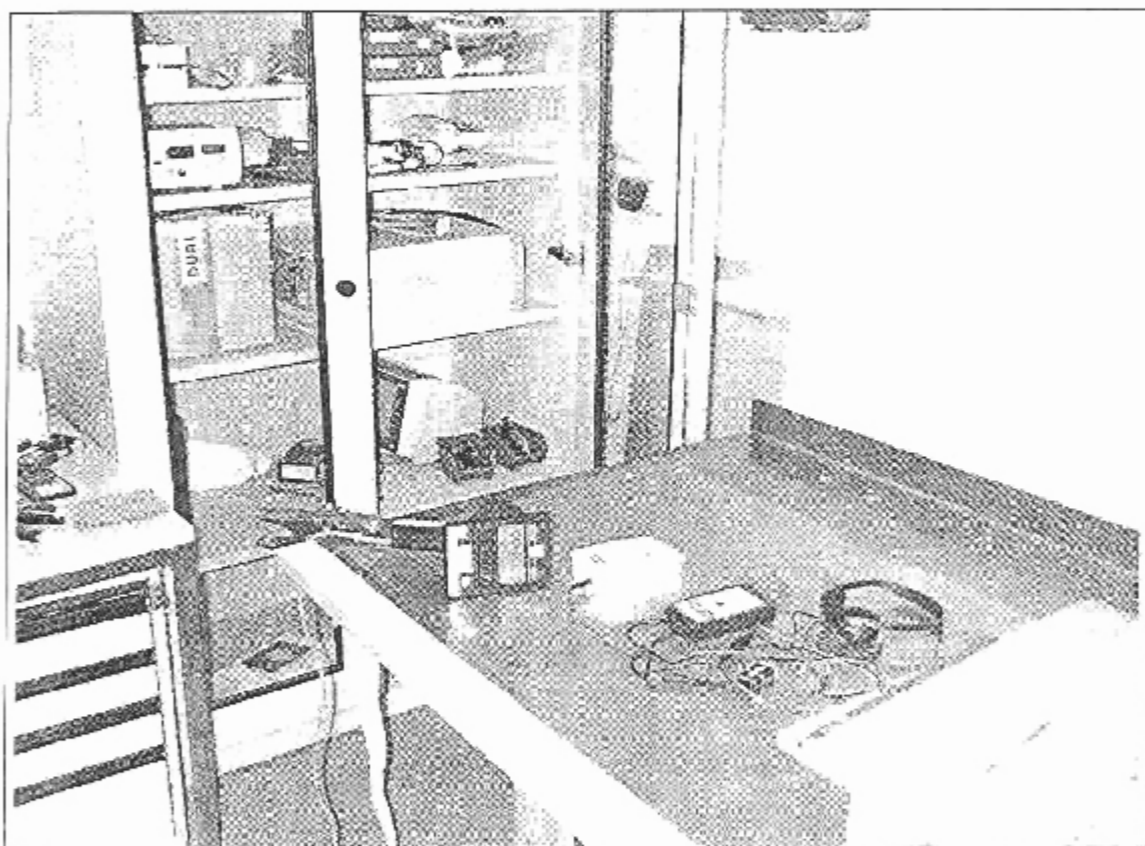
9 The equipment shall be opened and photographs of the internal construction shall be made (Lower Side)

Receiver



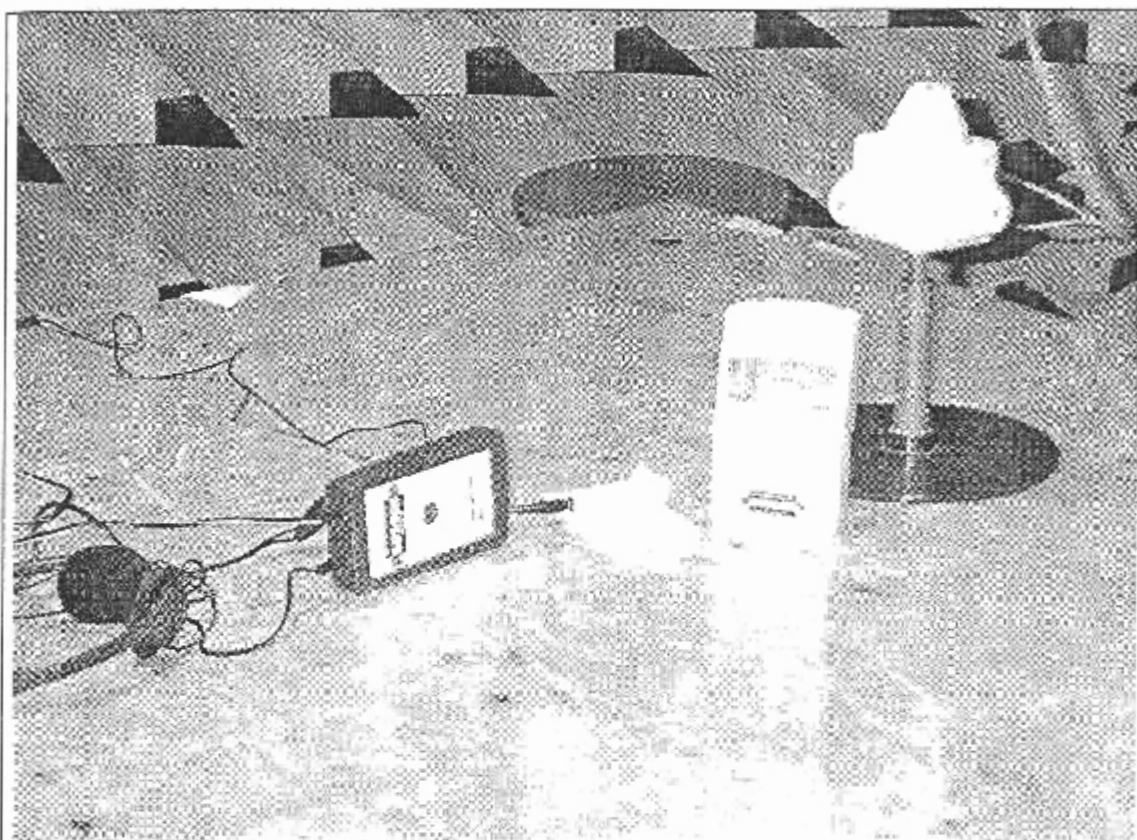
Photographs of the equipment are to be provided as part of the Test Report.

6 ESD



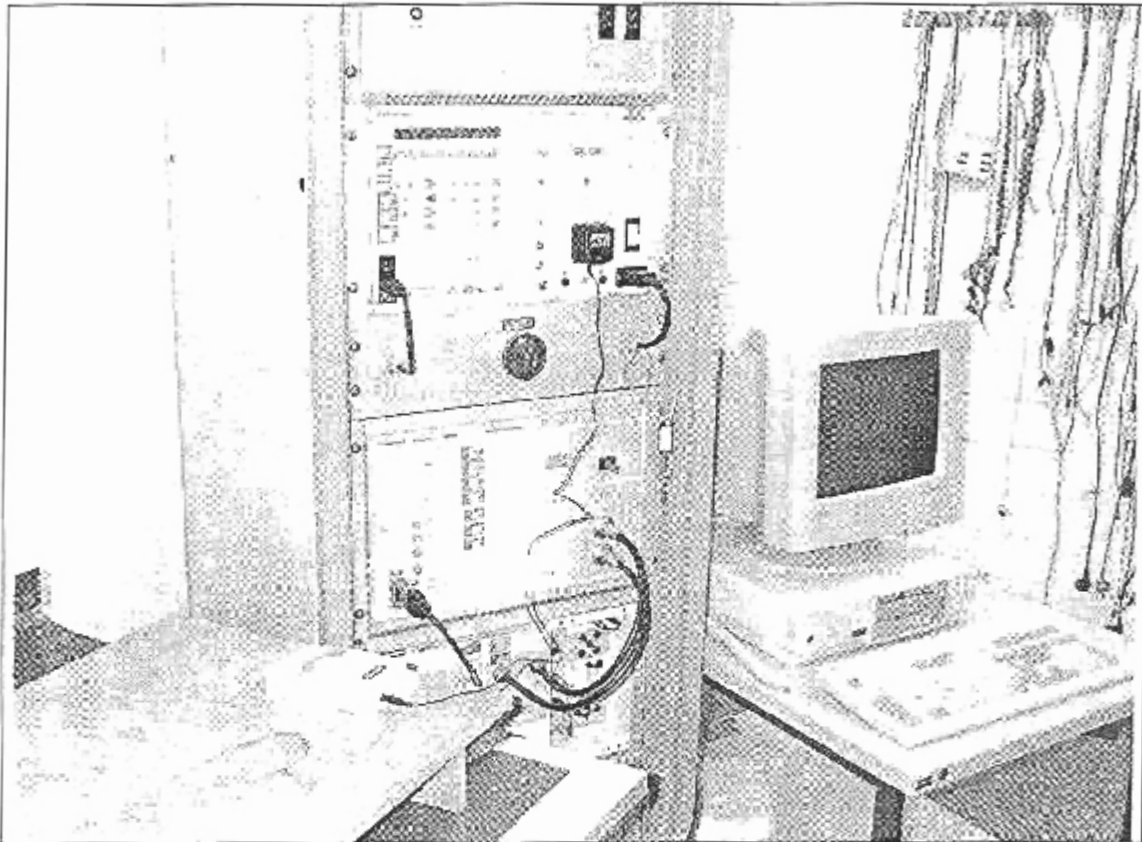
Photographs of the equipment are to be provided as part of the Test Report.

7 Electromagnetic field



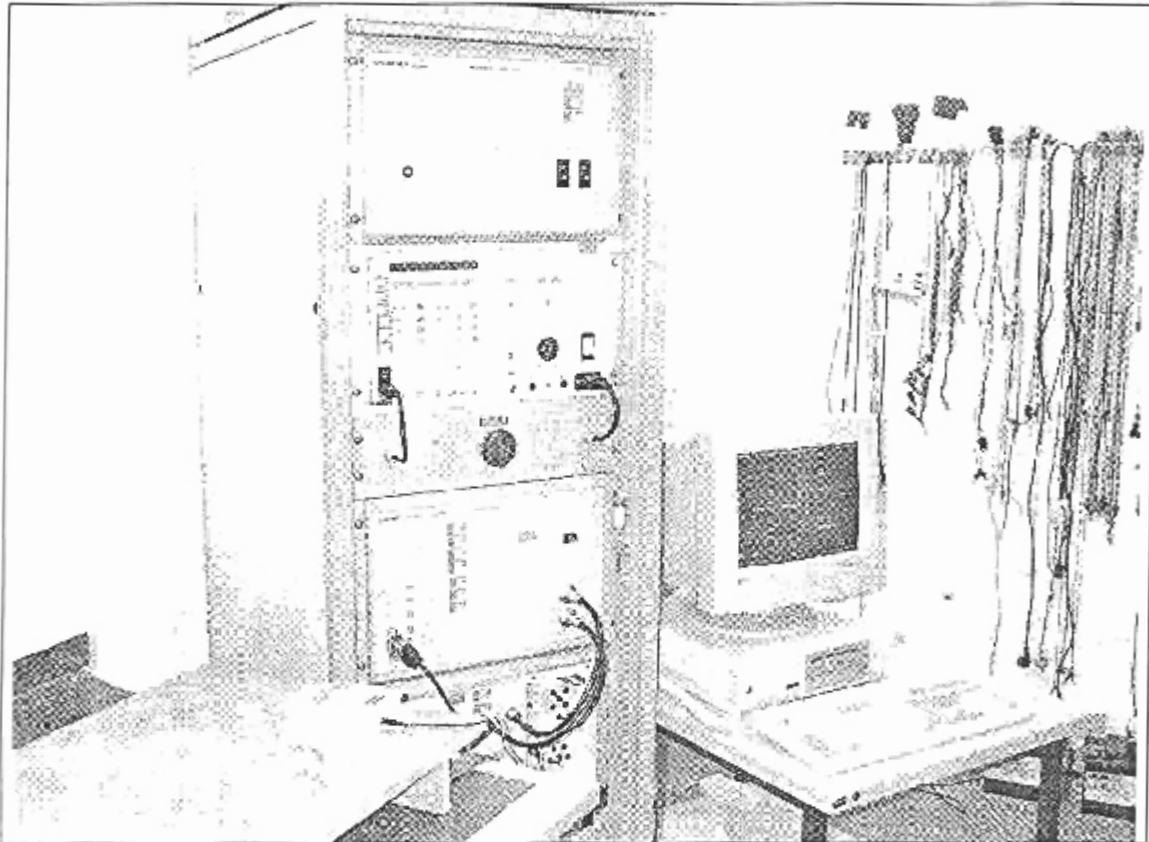
Photographs of the equipment are to be provided as part of the Test Report.

8 Fast transients common mode



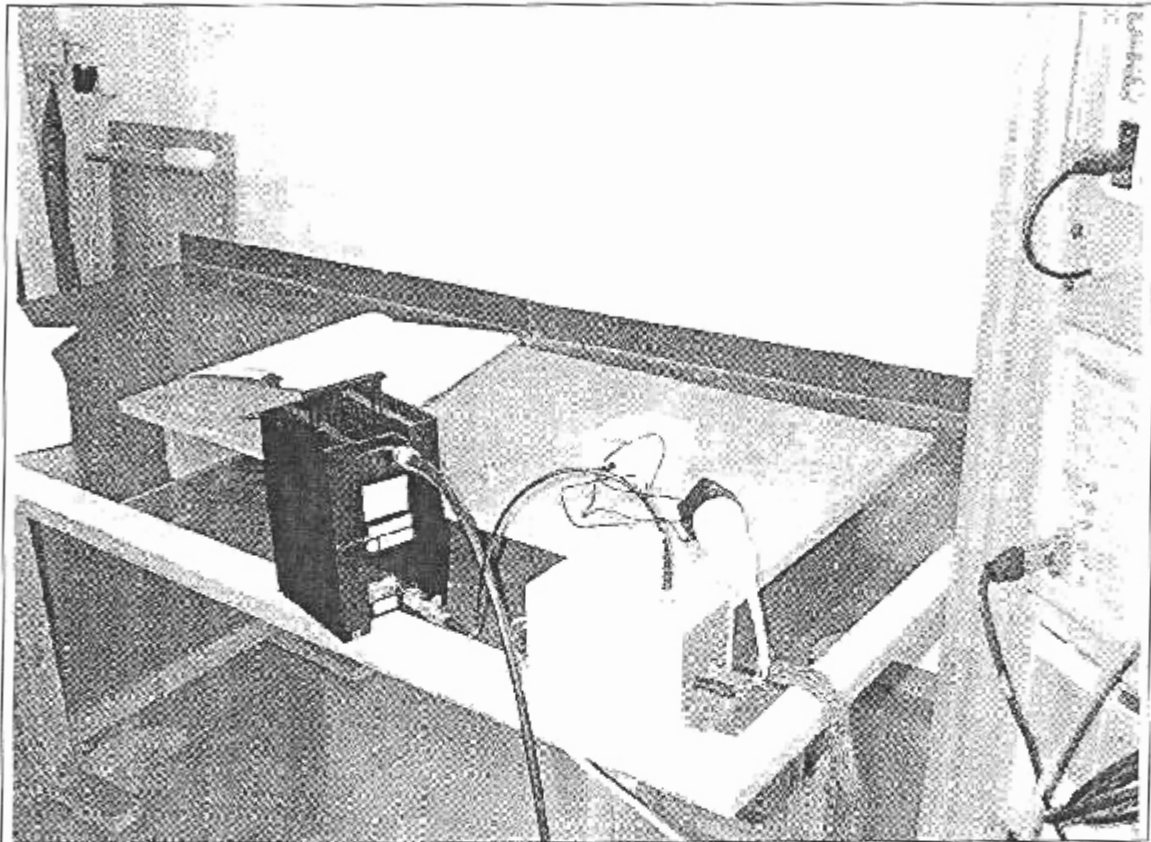
Photographs of the equipment are to be provided as part of the Test Report.

9 Surge



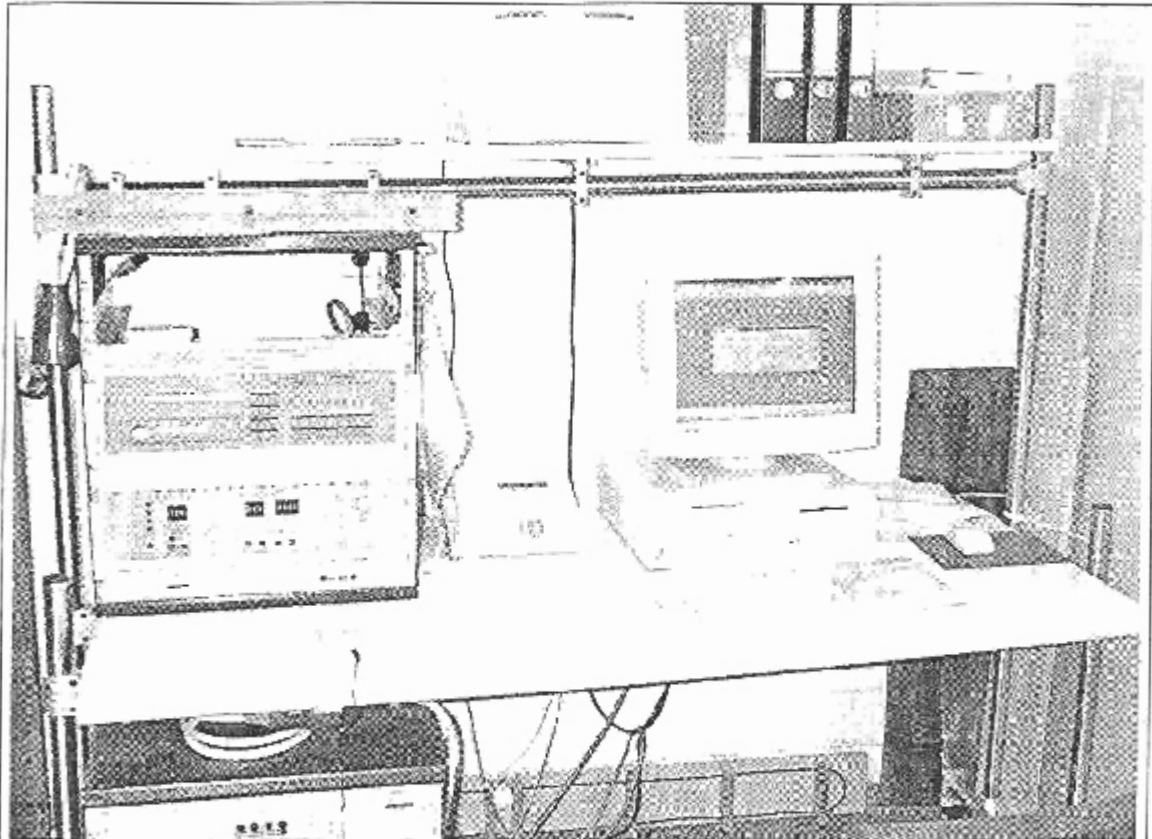
Photographs of the equipment are to be provided as part of the Test Report.

11 Common and differential mode



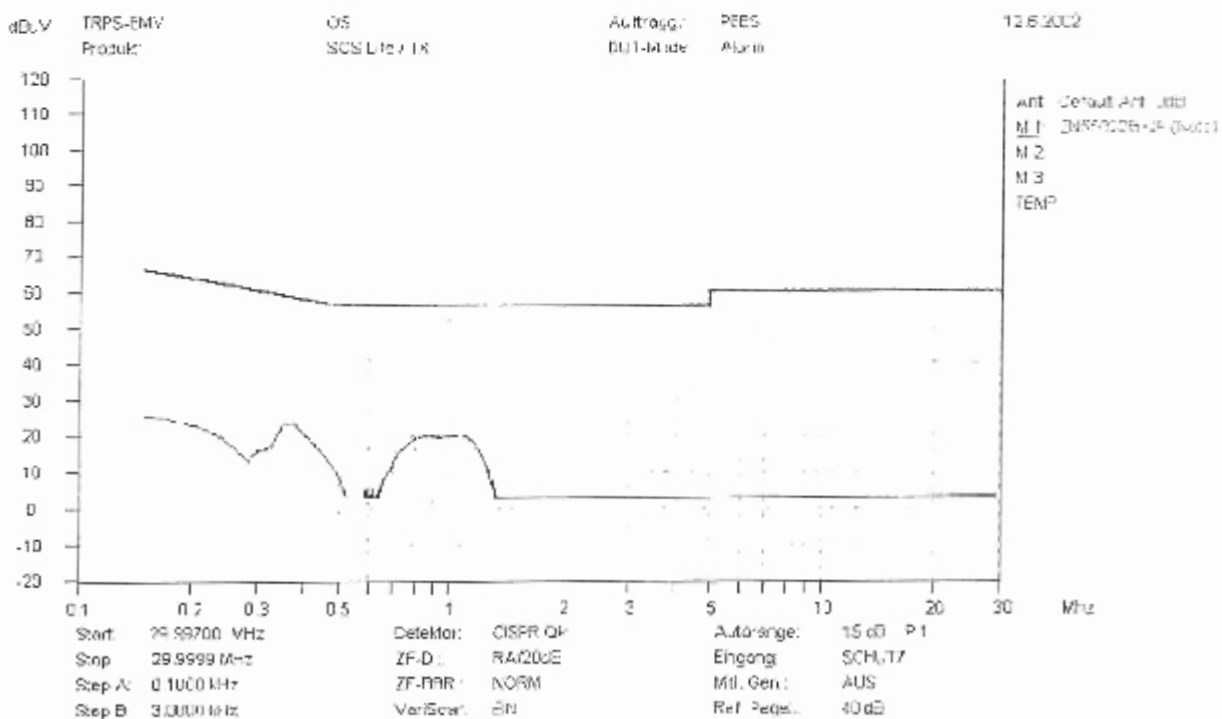
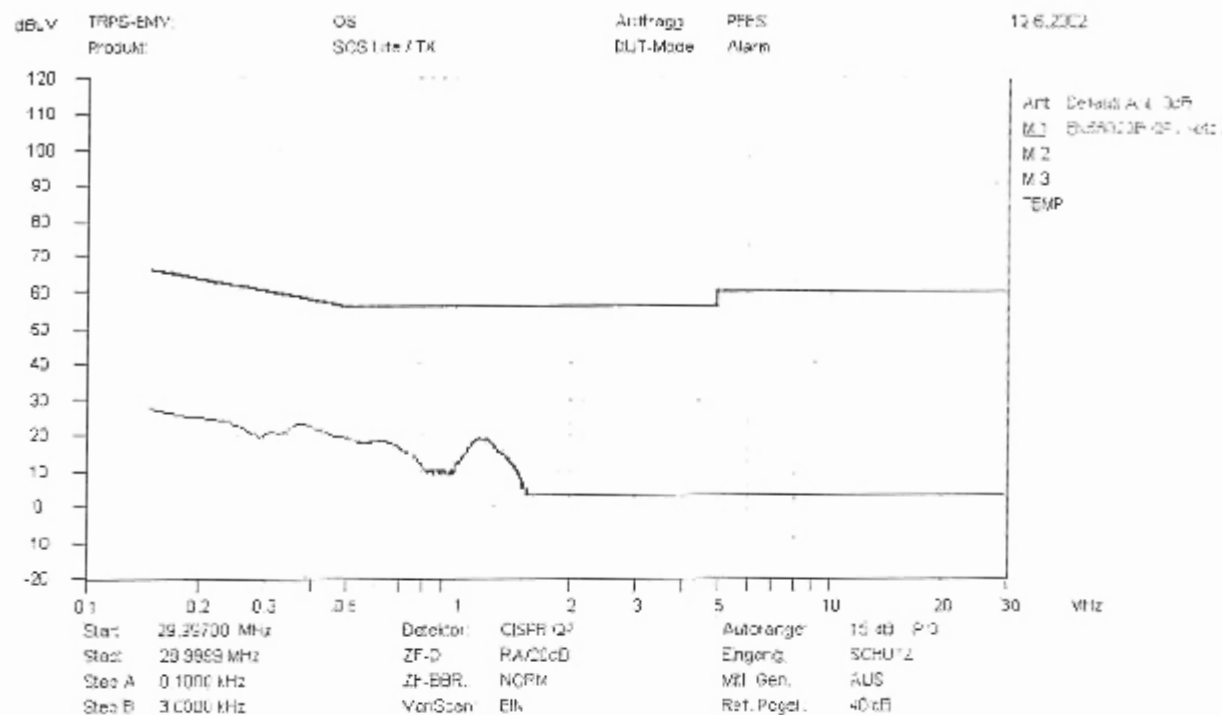
Photographs of the equipment are to be provided as part of the Test Report.

12 Harmonic current and Voltage Fluctuations



Test Data

AC Mains Power in/out



Harmonic current

Name: CS Serial no:
Operating modes: Alarm
Comment1:
Comment2:
Device: earthquake alarm Comment3:
Specimen Comment4:
Manufacturer PEES
Type: SOS-life Test date: 12.06.2002

Maximum RMS current and corresponding values in timewindow 96:

Voltage: 230.06 Vrms THD=0.24 % THV=0.568 V POHV=0.081 V
Current: 0.026 Arms THD=45.84 % THC=0.011 A POHC=0.000 A
Power: 1.6 W P1=1.6 W 6.0 VA
Powerfactor: 0.261 CosPhi1: 0.258
Testconditions: EN 61000-3-2 / A14, f=50 Hz, Phase=1 Range=0.16 A

HARMONIC ANALYSIS: Test PASS

Tobs = entire measurement POHC: avg=0.000 A, limits=0.251 A

Hz	Entire measurement (2.5 min = 460 time windows)				Worst 2.5 min				Average		P A S S	F A I L
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	Ex- ceeded	100 to 150%	Ex- ceeded	Value	Ex- ceeded		
DC	0.0015 A	145			0	0	n.e.	n.e.	-0.0014 A	0	X	
1	0.0236 A	112			0	0	n.e.	n.e.	0.0235 A	0	X	
2	0.0000 A	133	1.0800 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
3	0.0103 A	34	2.3000 A	-99.6 %	0	0	n.e.	n.e.	0.0103 A	0	X	
4	0.0000 A	320	0.4300 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
5	0.0036 A	437	1.1400 A	-99.7 %	0	0	n.e.	n.e.	0.0036 A	0	X	
6	0.0000 A	415	0.3000 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
7	0.0005 A	424	0.7700 A	-99.9 %	0	0	n.e.	n.e.	0.0005 A	0	X	
8	0.0000 A	383	0.2300 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
9	0.0007 A	3	0.4000 A	-99.8 %	0	0	n.e.	n.e.	0.0007 A	0	X	
10	0.0000 A	348	0.1840 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
11	0.0001 A	430	0.3300 A	-100.0 %	0	0	n.e.	n.e.	0.0001 A	0	X	
12	0.0000 A	347	0.1533 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
13	0.0001 A	95	0.2100 A	-99.9 %	0	0	n.e.	n.e.	0.0001 A	0	X	
14	0.0000 A	420	0.1314 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
15	0.0000 A	415	0.1500 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
16	0.0000 A	1	0.1150 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
17	0.0000 A	1	0.1324 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
18	0.0000 A	404	0.1022 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
19	0.0000 A	407	0.1184 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
20	0.0000 A	22	0.0920 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
21	0.0000 A	2	0.1071 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
22	0.0000 A	353	0.0835 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
23	0.0000 A	404	0.0978 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
24	0.0000 A	422	0.0767 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
25	0.0000 A	357	0.0900 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
26	0.0000 A	1	0.0705 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
27	0.0000 A	1	0.0833 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
28	0.0000 A	1	0.0557 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
29	0.0000 A	385	0.0770 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
30	0.0000 A	1	0.0613 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
31	0.0000 A	154	0.0726 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
32	0.0000 A	213	0.0575 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
33	0.0000 A	464	0.0682 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
34	0.0000 A	407	0.0541 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
35	0.0000 A	346	0.0643 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
36	0.0000 A	1	0.0511 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
37	0.0000 A	415	0.0608 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
38	0.0000 A	424	0.0484 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
39	0.0000 A	452	0.0577 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	
40	0.0000 A	391	0.0460 A	-100.0 %	0	0	n.e.	n.e.	0.0000 A	0	X	

Voltage Fluctuations

Name: OS
 Serial no:
 Operating modes: Alarm
 Comment1:
 Comment2:
 Comment3:
 Comment4:
 Device: earthquake alarm
 Specimen:
 Manufacturer: PEES
 Type: SOS-life
 Test date: 12.06.2002

Testconditions: 230 V / 50 Hz / Phase: 1 / Observations: 2 x 1 min

FLICKER: Test PASS!

Time	Pmax	Pst	Siding Pit	d(t)>3.99% [s]	dmax [%]	dc [%]	PASS	FAIL
14:41:49	0.000	0.0040	- - - - -	0.000	0.014	- - - - -	X	
14:42:49	0.000	0.0080	- - - - -	0.000	0.032	- - - - -	X	
Limits:		1.000	0.650	0.500	4.000	3.300		

Pit: 0.003634 (calculated over 12 periods)

Evaluated: dc, dmax, d(t)

FLICKER: Source test PASS!

Time	Pmax	Pst	Siding Pit	d(t)>3.99% [s]	dmax [%]	dc [%]	PASS	FAIL
14:41:49	0.000	0.0040	- - - - -	0.000	0.010	- - - - -	X	
14:42:49	0.000	0.0060	- - - - -	0.000	0.022	- - - - -	X	

Pit: 0.002507 (calculated over 12 periods)

Evaluated: PST <= 0.4 dmax < 20% dmax1

Geprüftechnik-Software 12.11b - (P450) von Spitzberger + Speis GmbH & Co. KG, Franzstr.70-74, D-94431 Landl, Tel.: 0219-2367