

## Test Report #410.054.3 Rev.A

### EMC tests on the devices/equipment:

#### *Physio Light LD 1100*

#### Equipment under Test:

**Description:** light therapy device  
**Model:** Physio Light LD 1100

**Applicant/ Manufacturer:** Davita Medizinische Produkte GmbH & Co. KG  
 Nierstrasse 16  
 D-47533 Kleve, Germany

**Test laboratory:** CEcert GmbH.  
 Alter Holzhafen 19  
 D-23966 Wismar, Germany

#### Summary of Test and Certification:

Tests:	Standards:	Result:
Interference immunity:		
Electrostatic discharge <sup>1)</sup>	EN 60601-1-2:2007	<b>PASS</b>
Electromagnetic field <sup>2)</sup>	EN 60601-1-2:2007	<b>PASS</b>
Electrical Fast Transient (Burst)	EN 60601-1-2:2007	<b>PASS</b>
Conducted disturbances, induced by RF-fields	EN 60601-1-2:2007	<b>PASS</b>
Magnetic field (power-frequency)	EN 60601-1-2:2007	<b>PASS</b>
Power supply drop, short interruptions	EN 60601-1-2:2007	<b>PASS</b>
Low frequency phenomena:		
Harmonic current	EN 61000-3-2:2006 + A1:2009 + A2:2009	<b>PASS</b>
Flicker in power supply	EN 61000-3-3:2008	<b>PASS</b>

#### Explanation:

PASS – The EUT meets the test requirements. FAIL – The EUT does not meet the requirements N/A – Test is not applicable.

1) only 6 kV contact discharge

2) only frequency range from 1 – 2,5 GHz

#### Evaluation :

*The Equipment under Test (EuT) meets the EMC immunity requirements of the EN 60601-1-2 for not life supporting equipment in the above listed specification. Additionally the harmonics and flicker requirements in accordance to EN 61000-3-2 and EN 61000-3-3 were met.*

**Period of test:** 2010-06-21

This test report with appendix consists of **19** pages.

## 1. General information on the test item(s)

**Description:** light therapy device  
**Model:** Physio Light LD 1100  
**Serial no.:** 215691

**Manufacturer/Customer:** Davita  
**Contact person:** Mr. Müller

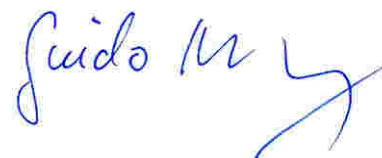
### Brief description:

EMC test of a light therapy device in accordance to manufacturer specification. The EUT meets already the requirements of the EN 60601-1-2:1993. Therefore only the additional requirements to this former version were tested. Additionally the similar product variations LD 220, LD 440 and LD 880 are available; the LD 1100 consists of the maximum amount of the used electronic ballast. According manufacturer specification the LD 1100 was tested as worst case to evaluate all variations.

**Steps to EMC, suppressions:** none

**Participant in the tests:** none

### Responsible for the technical content of the test report:

	name	signature
Examiner	Guido Mumerey Andreas Schenk	

Head of Test Laboratory	Bernd Schmidt	
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### Note:

The CEcert GmbH assures the applicant that the tests are carried out within the scope of the tests outlined under point 2 and in accordance with the test specifications outlined under point 3. Any exceptions or deviations will be clearly indicated.

The results contained in this test report are relevant exclusively to the item(s) submitted for testing. The CEcert GmbH: is not liable for any conclusions and generalizations which may be drawn from the test results and applied to further samples and examples of the type of device represented by the item submitted for testing.

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### Report history Log:

Ref.	Date of issue	Comment	Approved by
410.054.3	2010-07-21	first edition	A.Schenk
410.054.3 Rev.A	2010-11-01	adding product variations	A.Schenk

## 2. Test Specification

### 2.1. Emission

none

### 2.2. Susceptibility

#### Applied standards:

**EN 60601-1-2:2007**

Classification:

**Not life supporting equipment**

Note:

Due to device characteristic / classification, information according to chapter 5.2 of the EN 60601-1-2:2007 has to be included in the accompanying documents.

#### Tests performed:

Test method:	Basic Standard:	Chapter:
Electrostatic discharge – ESD (ID)	IEC 61000-4-2:2008	<b>4. 1.</b>
Electromagnetic field (IR)	IEC 61000-4-3:2007	<b>4. 2.</b>
Electrical Fast Transient / Burst (ICI1)	IEC 61000-4-4:2004	<b>4. 3.</b>
Conducted disturbances, induced by RF fields (ICS)	IEC 61000-4-6:2008	<b>4. 4.</b>
Magnetic fields (power-frequency) (IM1)	IEC 61000-4-8:2000	<b>4. 5.</b>
Power supply drop, short interruptions (DIPS)	IEC 61000-4-11:2004	<b>4. 6.</b>

**Exceptions and explanations:** none

### 2.3. Low frequency phenomena, line feedback

#### Applied standards:

**EN 61000-3-2:2006 + A1:2009 + A2:2009 (harmonic current emission)**

Classification: **Class C**

**EN 61000-3-3:2008 (voltage fluctuations and flicker)**

#### Tests performed:

Test method:	Basic Standard:	Chapter:
voltage fluctuations and flicker at the main ports	IEC 61000-3-3:2008	<b>6. 1.</b>

**Exceptions and explanations:** none

Due to the power consumption of the device (specified: 1,1 kW; measured: 1,04 kW), according to harmonics part 7 of EN 61000-3-2, the test is PASS.

### 2.4. Applied non-standard methods

none

### 3. Specification of the device/equipment

#### 3.1. Configuration

Description:	Model:	Type No.:	Manufacturer:	Notes:
<b>Product:</b>				
light therapy device	Physio Light LD 1100	215691	Davita	
<b>Components:</b>				
10x Electronic ballast	HF-B 258 TLD E//	--	Philips	2x lamp
20x lamp	PL-L 55 W/840/4P	--	Philips	
<b>Accessories/peripherals:</b>				
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<b>Simulators:</b> none				
<b>Software:</b> nn				

#### 3.2. Cables and Lines

Interface:	Type/model/plug:	Length:	Shielding:	Comments:
Mains	3-wire, IEC plug	1,7 m	no	

#### 3.3. Particulars related to EMC

System frequencies: --  
 Earth / Grounding: over PE mains  
 Shielding: none

### 3.4. Notes and/or sketches

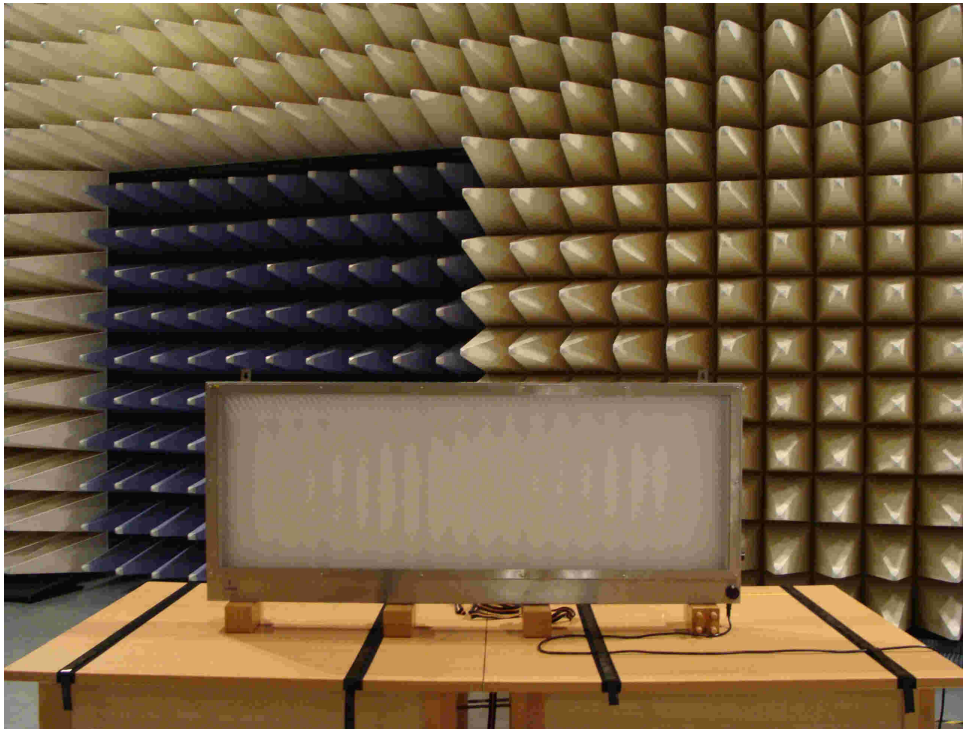


Fig. 1: Test set-up radiated disturbances

Dimension of EuT: **160 x 65 x 10 cm**

### 3.5. Operating condition of the product

The status of the test object during the tests represented its normal area of deployment.

**illumination:** The EUT is switched ON (Full light for the emission tests and medium light for the immunity tests). During the immunity tests the light intensity was observed for significant influences.

**Power supply:** 230 - 240 V (+6 % / -10 %), 50/60 Hz;  
230 V 50 Hz used, if not otherwise specified

#### Climatic conditions during the tests:

Ambient temperature: 15 °C - 35 °C (if not otherwise specified in this report)  
Relatively air humidity: 25 % - 75 % (if not otherwise specified in this report)  
Air pressure: 86 kPa - 106 kPa (860 mbar - 1060 mbar)

### 3.6. Simulation of operating conditions

None

### 3.7. Sampling particulars

The product was tested as a single device.

## Measurements and Test Results

### 4. Susceptibility

#### 4.0 Performance criteria of failure at the immunity tests

##### Criteria of failure in the generic standards:

###### *Criteria of failure A:*

The device shall continue to operate as intended without operator invention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

###### *Criteria of failure B:*

After the test the equipment shall continue to operate as intended without operator invention. No degradation of performance or loss of function is allowed *after the application of the phenomena* below a performance level specified by the manufacturer, when the equipment is used as intended. During the test, degradation of performance is allowed. However, no change in the operating mode set or loss of stored data is allowed.

###### *Criteria of failure C:*

Loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls by the user in accordance with the manufacturers instructions.

Functions and or information stored in non-volatile memory or protected by a battery backup shall not be lost.

##### Particular performance criteria determined by the manufacturer:

none

#### 4.1. Electrostatic Discharge – ESD (ID)

##### Test set-up:

The test set-up was conforming to the standard IEC 61000-4-2 for desk-type equipment.

##### Test process:

At each test point there were for each polarity, at least 50 discharges. The product was monitored during this test. The test object and the measuring values were observed as to whether any deviation from normal performance occurred. The periphery was arranged beside the horizontal coupling plate for the indirect discharge.

##### Tests:

working condition:	point of discharge	test:	test level:	polarity	Compliance Pass/ Fail/ N/A
illumination	Coupling plate	I,H,V	6 kV	pos./neg.	PASS
illumination	Enclosure (all metal parts)	D,K	6 kV	pos./neg.	PASS

Note:

D	direct discharge onto the test object	L	air discharge
I	indirect discharge onto the test object	H	horizontal coupling plate under the EUT
K	contact discharge	V	vertical coupling plate

##### Environmental Conditions while test:

Humidity: **37,3 % rH**

Temperature: **21,2 °C**

**Functional test after test procedure: PASS**

##### Test results:

No relevant influencing functions of the equipment were detected during this EMC-Test. The performance criterion for the immunity was met. There was no function failure nor loss of data, neither was there any change in the working conditions.

*According to the above test set-up the equipment under test specified in chapter 3 complies with the electrostatic discharge requirements, in accordance with EN 60601-1-2:2007.*

## 4.2. High Frequency Electromagnetic Fields (IR)

### Test set-up:

The test set-up was conforming to the standard IEC 61000-4-3 for desk-type equipment.

The equipment was built up 0,8 m over the ground plane. The field strength was calibrated in a distance of 3 m. There the Equipment under Test was placed.

- Antenna distance: 3 m
- Time per step, depends on the reaction time of the product: 1 sec.
- Test level: 3 V/m

### Test procedure:

The output of the level in the frequency range was gradually changed in steps of 1% of the first frequency and then 1% of the frequency before.

### Tests:

Operating conditions:	Frequency range: [MHz]	Modulation:	Polarization, Antenna direction	Comments/Test report	Compliance Pass/ Fail/ N/A
illumination	1000 – 2500	80 % AM, 1 kHz	horizontal, front	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	vertical, front	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	horizontal, left	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	vertical, left	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	horizontal, right	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	vertical, right	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	horizontal, back	see annex	<b>PASS</b>
illumination	1000 – 2500	80 % AM, 1 kHz	vertical, back	see annex	<b>PASS</b>

**Functional test after test procedure: PASS**

### Test results:

No relevant influencing functions of the equipment were detected during this EMC-Test. The performance criterion for the immunity was met. There was no function failure nor loss of data, neither was there any change in the working conditions.

*According to the above test set-up the equipment under test specified in chapter 3 complies with the immunity requirements in respect of high frequency electromagnetic field, in accordance with EN 60601-1-2:2007 for not life supporting equipment.*

### 4.3. Fast Transients – Burst (ICI1)

#### Test set-up:

The test set-up was conforming to the standard IEC 61000-4-4.

##### Mains:

The impulse was coupled at the main ports directly with the integrated coupling network (coupling capacity 33 nF) in the generator for fast transients.

##### Signal and Data lines:

The impulse was indirectly coupled at the signal- and data lines with the capacitive coupling clamp.

If necessary the Simulators and auxiliary equipment was decoupled.

#### Tests:

Burst duration: **15 ms** Frequency: **5 kHz**  
 Repetition: **300 ms**

Working condition:	Wire/lines:	Test level:	Polarity:	Comments/Observations	Compliance Pass/ Fail/ N/A
<b>Test with 230 V</b>					
illumination	Mains (L; N; PE; L+N+PE)	<b>0,5 kV</b>	pos./neg.		<b>PASS</b>
illumination	Mains (L; N; PE; L+N+PE)	<b>1 kV</b>	pos./neg.		<b>PASS</b>
illumination	Mains (L; N; PE; L+N+PE)	<b>2 kV</b>	pos./neg.		<b>PASS</b>
<b>Test with 240 V</b>					
illumination	Mains (L; N; PE; L+N+PE)	<b>0,5 kV</b>	pos./neg.		<b>PASS</b>
illumination	Mains (L; N; PE; L+N+PE)	<b>1 kV</b>	pos./neg.		<b>PASS</b>
illumination	Mains (L; N; PE; L+N+PE)	<b>2 kV</b>	pos./neg.		<b>PASS</b>

Test time (each case): at least 2 min

**Functional test after test procedure: PASS**

#### Test results:

No relevant influencing functions of the equipment were detected during this EMC-Test. The performance criterion for the immunity was met. There was no function failure nor loss of data, neither was there any change in the working conditions.

**According to the above test set-up the equipment under test specified in chapter 3 complies with the Fast Transients (Burst) requirements in accordance with EN 60601-1-2:2007.**

#### 4.4. Conducted disturbances, induced by radio-frequency fields (ICS)

**Test set-up:** The tests were performed in accordance to IEC 61000-4-6.

**Information about the test:**

The output of the level in the frequency range was gradually changed in steps of 1% of the first frequency and then 1% of the frequency before.

Time per step: **1 sec.**  
 Frequency range: **150 kHz - 80 MHz**  
 Modulation: **1 kHz, 80% AM**

**Tests:**

working conditions:	wire / line:	test level:	coupling- and decoupling network	notes:	Compliance Pass/ Fail/ N/A
illumination	Mains	<b>3 V</b>	CDN M3	see annex	<b>PASS</b>

**Functional test after test procedure: PASS**

**Test results:**

No relevant influencing functions of the equipment were detected during this EMC-Test. The performance criterion for the immunity was met. There was no function failure nor loss of data, neither was there any change in the working conditions.

*According to the above test set-up the equipment under test specified in part 3 complies with the requirements of conducted disturbances, induced by radio-frequency fields, in accordance with EN 60601-1-2:2007 for not life supporting equipment.*

#### 4.5. Magnetic Field with Power-frequency (IM)

##### Test set-up:

The tests were performed in accordance to IEC 61000-4-8.

The main parts of the configuration are a ground plane, a sufficient big inductance coil with a well known coil factor for producing a homogeneity magnetic field and a test generator with sufficient current supply.

A square inductance coil with 1 m x 1 m was used for generation of the magnetic field.

##### Tests:

working conditions:	equipment:	test level:	duration:	Compliance Pass/ Fail/ N/A
<b>Test with 230 V / 50 Hz</b>				
illumination	whole configuration x-axis	<b>3 A/m, 50 Hz</b>	5 min	<b>PASS</b>
illumination	whole configuration y-axis	<b>3 A/m, 50 Hz</b>	5 min	<b>PASS</b>
illumination	whole configuration z-axis	<b>3 A/m, 50 Hz</b>	5 min	<b>PASS</b>
<b>Test with 230 V / 60 Hz</b>				
illumination	whole configuration x-axis	<b>3 A/m, 60 Hz</b>	5 min	<b>PASS</b>
illumination	whole configuration y-axis	<b>3 A/m, 60 Hz</b>	5 min	<b>PASS</b>
illumination	whole configuration z-axis	<b>3 A/m, 60 Hz</b>	5 min	<b>PASS</b>

**Functional test after test procedure: PASS**

##### Test results:

No relevant influencing functions of the equipment were detected during this EMC-Test. The performance criterion for the immunity was met. There was no function failure nor loss of data, neither was there any change in the working conditions.

*According to the above test set-up the equipment under test specified in part 3 complies with the magnetic field requirements with power-frequency, in accordance with EN 60601-1-2:2007.*

#### 4.6. Power supply drop, Short interruptions (DIPS)

**Test set-up:** The tests were performed in accordance to EN 61000-4-11.  
Variac intern in the generator

#### Information about the test:

Line under test: **Mains**  
The product was directly tested on the generator.

#### Tests:

working conditions:	Reduction: [%U <sub>N</sub> ]	Duration:	Comments/ Observations:	Compliance Pass/ Fail/ N/A
<b>Test with 230 V</b>				
illumination	100	10 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	60	100 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	30	500 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	100	5000 ms	temporary interruption of function, the function reinstated itself	<b>PASS</b>
<b>Test with 240 V</b>				
illumination	100	10 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	60	100 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	30	500 ms	Short flicker during the test, the function reinstated itself after the interruption	<b>PASS</b>
illumination	100	5000 ms	temporary interruption of function, the function reinstated itself	<b>PASS</b>

Mains frequency during test: 50 Hz

The tests were performed at the following angle for:  
beginning 0°, 45°, 90°, 135° and end 180°, 225°, 270°, 315° of voltage variation.

**Functional test after test procedure: PASS**

#### Test results:

*According to the above test set-up the equipment under test specified in part 3 complies with power supply drops and short interruptions requirements, in accordance with EN 60601-1-2:2007 for not life supporting equipment.*

## 5. Low frequency phenomena

### 5.1. Flicker in power supply (MC2)

**Basic standard:** IEC 61000-3-3

**Test set-up:** The tests were performed in accordance to IEC 61000-3-3.

**Measurements:**

The equipment and the programs worked in a worst case for producing flicker on the main ports. Some special test requirements are described in appendix A.

**Frequency range / limits:**

Short time flicker  $P_{st}$  may be not higher than 1,0

Long time flicker  $P_{lt}$  may be not higher than 0,65

relative voltage distortion  $d_c$  may be not higher than 3 %

the greatest relative voltage distortion  $d_{max}$  may be not higher than 4 %

the level  $d(t)$  during one change of voltage may be not higher than 3 % for not more than 200 ms

**Notes:**

The requirements for flicker are not applicable, when manual switching is the source of flicker or the voltage dips are less than 1 time per hour.

Limits for special equipments were described in the appendix A.

**Measurement results (short time flicker):**

working conditions:	wire / line:	Diagram/table	Comments/ observations	Compliance Pass/ Fail/ N/A
illumination	main ports	$P_{st}$ <b>0.000</b> $P_{lt}$ <b>0.065</b> $d_c$ <b>0.000</b> $d_{max}$ <b>0.070</b>		<b>PASS</b>

**Valuation of the measurement results:**

*According to the above test set-up the equipment under test specified in part 3 complies with the flicker requirements, in accordance with EN 61000-3-3:2008.*

## 6. Information about the measurement equipment

Description	Model/Type	Manufacturer	Serial-No.	Test method
EMI Receiver (20 MHz - 1000 MHz)	ESVS-10	R&S	843207/008	EC, EP, ER, E1-EUB
EMI Receiver (9 KHz - 30 MHz)	ESHS-10	R&S	842884/013	EC, EP, ER
EMI Receiver (20 Hz - 26,5 GHz)	ESIB 26	R&S	100135	EC, EP, ER
Two-line-V-artificial mains network 16 A	ESH3-Z5	R&S	843012/025	EC, ER
V- artificial mains network 5 µH/ 50 Ohm	ESH 3-Z6	R&S	837950/008	EC, E1-EUB
V- artificial mains network 5 µH/ 50 Ohm	ESH 3-Z6	R&S	843864/030	EC, E1-EUB
Two-line-V-artificial mains network 2 x 10 A	NNB 2/16	Rolf Heine	2/16-96017B	EC, EP, ER
Four-line-V-artificial mains network 4 x 25 A	ESH2-Z5	R&S	100099	EC, EP, ER
Dual directional coupler 0,8- 4,2 GHz	DC 7144	ar	--	IR
Dual directional coupler	DC 6180 M1	ar	--	IR
Active voltage probe	ESH2-Z2	R&S	843837/010	EC
Passive voltage probe	ESH2-Z3	R&S	100007	EC
Biconical antenna 20- 300 MHz	HK116	R&S	842938/005	ER, E1-EUB
Log.- per.antenna 300 MHz- 1 GHz	HL 223	R&S	843338/004	ER, E1-EUB
Loop Antenna 60 cm 1KHz-30 MHz	HFH2-Z2	R&S	880665/0012	ER
Ultalog antenna 30 MHz- 3 GHz	HL562	R&S	100065	ER
Magnetic field antenna 1x1 m 1A/m- 100 A/m	MF 1000	EMC	1000-35	IM
Chase antenna 30 MHz- 1 GHz	CBL 6111B	EMC	1925	IR, E1-EUB
Active rod Antenna 10 KHz- 80 MHz	HE 010	R&S	100139	ER
Log.- per. Antenna 80 MHz- 1GHz	AT 1080	ar	305184	IR
Magnetic field antenna for RE 101	MFA 01	CEcert	--	ER, IR
Broadband horn antenna 1- 18 GHz	BBHA 9120 D	Schwarzlb.	348	ER, IR
Horn antenna 0,8- 5 GHz	AT 4002 A	ar	304917	ER, IR, E1-EUB
Horn antenna 4- 18 GHz	AT 4218	ar	312265	ER, IR
Universal power analyzer	PM 3000 A	Voltech	5370	MC1, MC2
Power supply	6560	Chroma	0462	MC1, MC2, IM
Artificial mains network	NI 2415	ZES	A9703016	MC1, MC2
Variac for power variation	TRA1H03B	EMC	100-05	DIPS
Capacitive coupling clamp	ESD 101-66	EMC	--	ICI 1
Surge-coupling kit for signal lines	TRA1Z10B	EMC	--	ICI 2
100 Ohm direct coupler	DEK 100	CEcert	--	ICI
Adapter network 1:20	APW 20:1	CEcert	--	ICI, E1-EUB
ESD-discharge kit	ESD 30C	EM Test	V0521100389	ID
Generator for transients	TRA 2000	EMC	790	ID, ICI, IM, E1-EUB
ESD-discharge kit		EMC		ID
Load dump generator	LD 200 B	EM Test	0701- 08	ICI, E1-EUB
Micro Pulse Generator	MPG 200 B	EM Test	0104- 01	ICI, E1-EUB
Coupling clamp	ACC	EM Test		ICI, E1-EUB
Voltage Drop Generator	VDS200	EM Test	V0608101200	ICI, E1-EUB
1 - cannel power meter	LMG95	ZES	8060505	MC1, MC2
Signal generator 9KHz- 1040 MHz	SMY 01	R&S	842483/030	ICS, IR, E1-EUB
Signal generator 9KHz- 1,1 GHz	SML 01	R&S	101415	IR, ICS, E1-EUB
Signal generator 1GHz- 20 GHz	SMR 20	R&S	100547	IR, E1-EUB
Comparison Noise Emitter 9KHz- 2GHz	NE 3000	ar	305380	ER
Power amplifier < 250 MHz 75W	75A250	ar	18681	IR, ICS, E1-EUB
Power amplifier < 1000 MHz 100W	FLH 100	Frankonia	--	IR, E1-EUB
Broadband RF amplifier 0,8-4,2 GHz/ 25W	25S1G4A	ar	305439	IR, E1-EUB
Broadband RF amplifier 0,08-1 GHz 500W	500W1000A	ar	305559	IR, E1-EUB
Broadband RF amplifier 1-11 GHz 27 dB	LN1G11	ar	313109	IR
Broadband RF amplifier 10-125 MHz 58,7dB	KMA3020	ar	9975-1	IR
Power meter, single channel	NRVS	R&S	843209/009	ICS, IR, E1-EUB
Power meter, single channel	NRVS	R&S	843537/030	ICS, IR, E1-EUB
Power meter, dual channel	NRVD	R&S	100644	ICS, IR, E1-EUB
10-V-voltage probe ( Insertion unit )	URV5-Z2	R&S	842558/075	ICS, IR
100-V-voltage probe ( Insertion unit )	URV5-Z4	R&S	842619	ICS, IR
Thermal power sensor 50 Ohm	NRV- Z53	R&S	100084	ICS, IR
Thermal power sensor 50 Ohm	NRV- Z51	R&S	100608	IR, ICS, E1-EUB
EM- field analyzer system	EFA3	W&G	G-0093	MR
H- field sensor	2245/90.10	W&G	H-0033	MR
E- field sensor	2245/90.30	W&G	K-0048	MR
EM Radiation Monitor	EMR-30	W&G	2244/30	IR
E- field probe	Typ 8	W&G	2244/90.20	IR
E- field probe	RadiSense	Dare	01D00057SNO	IR
EM Coupling clamp	203i	FCC	168	ICS
CDN, M 1 Conductor, 16 A	KEN 801 M1	MEB	12059	ICS
CDN, C 1 line, coaxial	FCC-801-C1	FCC	73	ICS
CDN, M 3 Conductor, 16 A	FCC-801-M3-16AMP	FCC	175	ICS
CDN, M 2 Conductor, 16 A	FCC-801-M2-16AMP	FCC	86	ICS
CDN, M 3 Conductor, 16 A	FCC-801-M3-16AMP	FCC	2022	ICS
CDN, M 2 Conductor, 16 A	FCC-801-M2-16AMP	FCC	2013	ICS
CDN, AF 4 Conductor, unshielded signal lines	FCC-801-AF4	FCC	51	ICS

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CDN, S 4 Conductor, shielded signal lines	FCC-801-S4	FCC	19	ICS
CDN, T 4 Conductor, symmetry signal lines	FCC-801-T4	FCC	74	ICS
Impedance stabilization network	ISN T200	Schaffn.	15553	ICS, EC
Impedance stabilization network	ISN T400	Schaffn.	15534	ICS, EC
100 Ohm direct coupler	Typ 100	CEcert	001	ICS
CDN, 9 Conductor, shielded signal lines	FCC-801-S9	FCC	01001	ICS
CDN, 25 Conductor, shielded signal lines	FCC-801-S25	FCC	01002	ICS
CDN, M 5 Conductor, 32 A	FCC-801-M5	FCC	04019	ICS
Impedance stabilization network	ISN T200	Schaffn.	15553	ICS, EC
Coaxial attenuator 6 dB 100W	R417706118	Radiall	LOT: 0117/1	ICS
Coaxial attenuator 6 dB 100W	R417706118	Radiall	LOT: 0117/2	ICS
Coaxial attenuator 20 dB 10W	ESH2Z11	R&S	9349.7518.52	
Coaxial attenuator 6 dB 100W	24-6-34	Weinschel	AT 3598	
Pulse limiter	ESH3-Z2	R&S	100199	EC
Fixed coaxial attenuator 2dB	1 R-2	Weinschel	LDC 9751	IR
Current probe	F-36-2	FCC	36	EC
RF current probe	F-55	FCC	34	EC
Bulk current injection probe (0,1 - 400 MHz)	95242-1	EMCO	50989	E1-EUB
Bulk current injection probe	95236-1	ETS	00032243	
Scopemeter	96B	FLUKE	DM6630620	
True RMS multi meter	189	FLUKE	81440003	SEB
Digital Oscilloscope	DL9140	Yokogawa	91F104187	E1-EUB
Climatic tester	testo 645	testo	365696/007	SEB
Climatic tester	THB4141	AIRFLOW	03900185	ID
Climatic tester	testo 110	testo	K104406	SEB
Climatic chamber	C-40/350	CTS	013085	SEB
Software Fluke Scopemeter	FlukeView	FLUKE		SEB
Software Pulsgeneratoren				
LD200/MPG200/VDS200	ISM ISO	EM Test		ICI, E1-EUB
Software supply voltage drop and transients	65XX Soft Panel	Chroma	--	MC1, MC2, IM
semi anechoic chamber	10- Meter	Frankonia	--	ER, EC, IR, ...
semi anechoic chamber immunity	3- Meter	Frankonia	--	ER, EC, IR, ...
semi anechoic chamber immunity	1- Meter	Frankonia	--	ER, EC, IR, ...
fully anechoic chamber	1- Meter	Frankonia	--	ER, EC, IR, ...
RF cabel long	BI - K9 (8m)	emv	--	ER, IR
RF cabel short	BI	emv	--	ER, IR
cable immunity	K8 (6m)	emv	--	IR
cable fully anechoic chamber	1 Meter	emv	--	E1-EUB
Tap offs (F-connector)	DM 21 A	WISI	3344	

## Test method:

EC	conducted emission measurement	ID	ESD
ER	radiated emission measurement	IR	electromagnetic field immunity
EP	power line radiation	IC11	electrical transient immunity
MC1	harmonics current	ICS	conducted disturbance immunity
MC2	flicker	IMS	magnetic fields immunity (power frequency, transient)
DIPS	voltage variation and dips	E1-EUB	electronic components used in vehicles

**Annex List :**

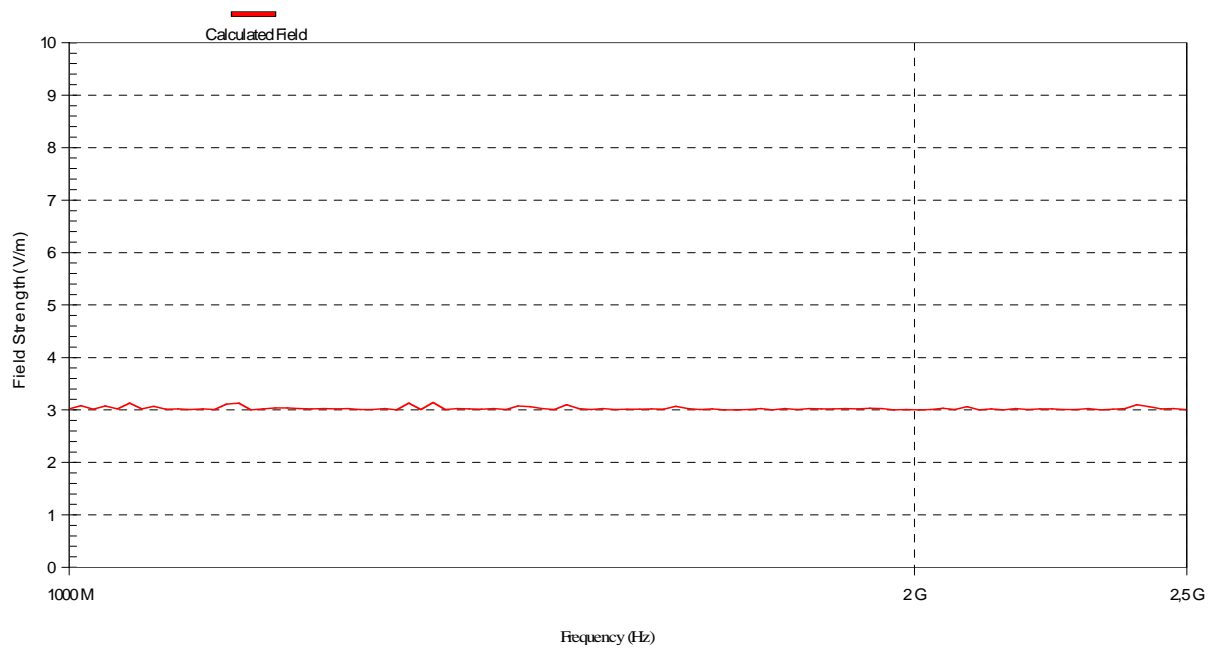
<b>Test (description)</b>	<b>Page</b>
Radiated immunity (RF field), Calculated field, horizontal	17
Radiated immunity (RF field), Calculated field, vertical	18
Conducted RF-disturbance induced by RF-fields; mains	19

**CEcert GmbH  
IEC 61000-4-3**

EUT:  
Serial Number:  
Manufacturer:  
Operating Condition:  
Test Engineer:  
Antenna Polarisation:  
Comment:

**Radiated Immunity**

Physio Light LD 1100  
215691  
Davita  
illumination  
Andreas Schenk  
horizontal

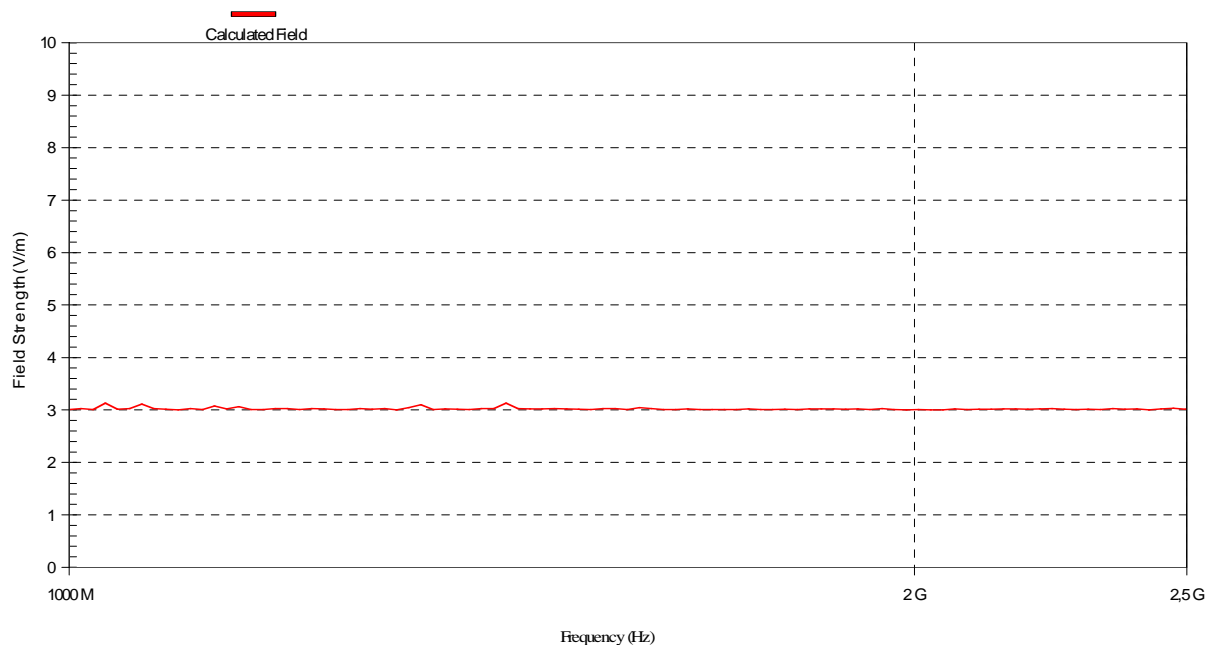
**Field strength:**

**CEcert GmbH  
IEC 61000-4-3**

EUT:  
Serial Number:  
Manufacturer:  
Operating Condition:  
Test Engineer:  
Antenna Polarisation:  
Comment:

**Radiated Immunity**

Physio Light LD 1100  
215691  
Davita  
illumination  
Andreas Schenk  
vertical

**Field strength:**

**CEcert GmbH  
IEC 61000-4-6**

EUT:  
Serial Number:  
Manufacturer:  
Operating Condition:  
Test Engineer:  
Comment:

**Conducted Immunity**

Physio Light LD 1100  
215691  
Davita  
illumination  
Andreas Schenk  
mains

**Test settings :**

Frequency Range: 0,15 MHz – 80 MHz  
Test Level: 3 V  
Modulation: AM: 1 kHz, 80 %  
Logarithmic Step: 1 % of previous test frequency  
Dwell Time: 1 second(s)

**Test Level:**