

Shortwave Infrared Paint Curing Lamp **SPEED DRY 300AX**



Operating Manual

REV 2.4



This equipment is approved by following car manufactures



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1. Safety instructions



Caution! Disregard of the safety regulations or improper operation of the Infrared emitter can lead to injuries and material damage.

Dangers to health

Infrared radiation is an intensive heat source!

Extreme heat radiation of this type may harm the human body as a result of the heat produced in the absorption process (comparable to danger from an open or blazing fire).

Danger of fire

In the sense of technical fire protection with regard to the irradiated surface material (easily inflammable materials, explosive atmosphere) the IR emitter and the hot surface of the IR emitter are considered dangerous.

Before using a heating process, its suitability with regard to the medium being processed should be checked, and a suitable IR emitter with corresponding configuration selected, in order to avoid self-ignition of the material being processed.

Danger of explosion

If an explosive atmosphere can be formed (due to solvent vapour-air mixture or accumulation of dust), the applicable standard EN 1539 must be observed. The infrared emitter creates a danger of ignition (solvent vapour concentration under 25% of the lower explosion limit).

This also applies to easily inflammable dusts and all organic dusts.

Vapours and dusts released must be extracted on site. The safety regulations for the processing of coating materials (Germany: UVV BGV D 25) must be observed.

Danger of breakage

Infrared emitters basically consist of pure quartz glass and a heating spiral.

There is a possibility that quartz glass of the emitters may either break or chip off.

(Glass splinters in the emitter cannot be clearly seen). Users might hurt themselves on the broken emitter glass. Quartz glass splinters may drop on the materials to be exposed to radiation.



After an emitter break, a dangerous voltage may be exposed to contact by the heating spiral.

2. Area of Application



The IR emitter may be used only for industrial heating and drying processes (General safety regulations according to EN 60519-1).

The IR emitter must be operated with a supply voltage no higher than its nominal voltage. Depending on the installation conditions (particularly with a heat build-up and the radiation direction from above downward), the IR emitter must be cooled so that:

- With short-wave emitters, the temperature at the pinch does not exceed 250 °C (measured according to the standard DIN EN 60682).
- when using the IR emitter continuously, a temperature of 600 °C on the gold reflector surface should not be exceeded.
- the insulated connection lead has a maximum permissible operating temperature of 230 °C and a standard length of 520 mm.
- The maximum permissible operating temperature, after taking into account the heat losses of the electrical current and any possible heat dissipation (layout type, installation conditions), must not be exceeded. Experience indicates that the permissible operating temperature for an individual lead will be reached at an ambient temperature of 150°C in the absence of any air flow.

3. Introduction

Read this manual carefully before installing or servicing this equipment.

This equipment is designed for paint drying application. Adjust correct temperature and check minimum safe distance from heat source in using. Improper servicing can cause paint surface damage.

Installation and service must be performed by a qualified installer or service agency.

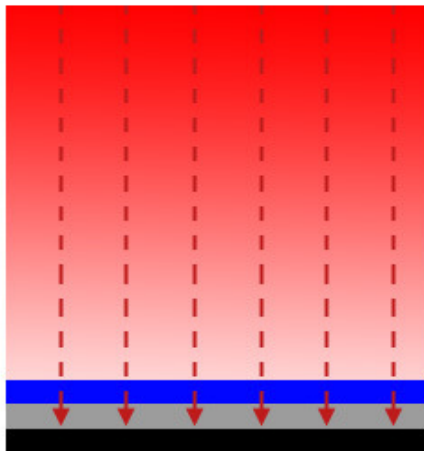
The system has been designed for easy installation, low operating cost and minimal maintenance. The warranty does not cover lamp tube defects resulting from misused or improperly operation.

Disconnect power source when the equipment not in use for long time.

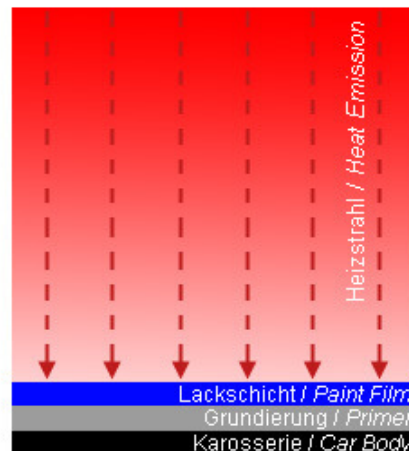
The lamp tube should not be perpendicular to the ground when the equipment is operating. Otherwise, it will shorten service life of lamp tube.

4. Infrared Technique

Kurzwellen infrarot Technik
Shortwave infrared technology



Gewöhnliche Heizstrahl-Technik
Ordinary paint curing technology



Shortwave infrared is different from medium and long wave infrared. Its wavelength has good depth of radiation penetration into the paint coats, which makes the temperature of the basic coating (crust of car body) to go up quickly and to bring spontaneous domino effect.

The moisture (or solvent) of the paint coat will be volatilized from inside to outside. When the chemical vibration frequencies of the paint are the same, chemical bond of the paint dope will enlarge it's occurring.

It increases the probability of aggregation and speed up the solidify of the paint layer. Therefore, the degree of gloss and chubbiness on the paint layer is high and the attaching power of the paint layer is strong, Some phenomena e.g. mandarin orange's hulls and blisters will not easily happen.

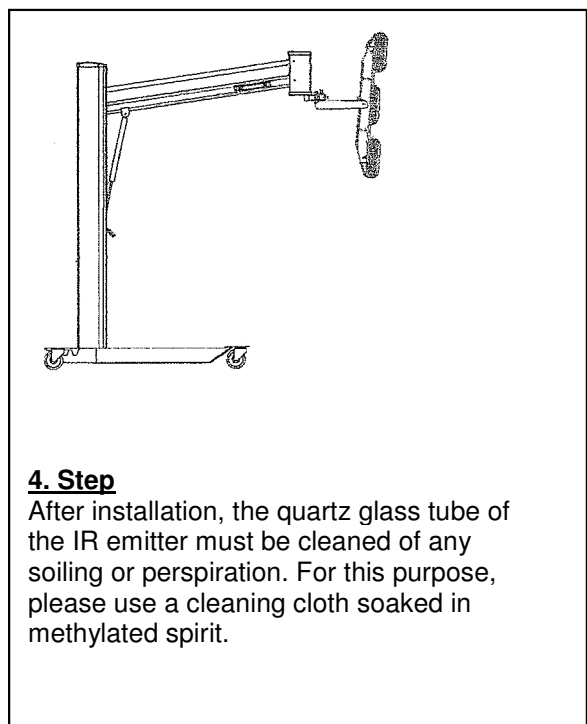
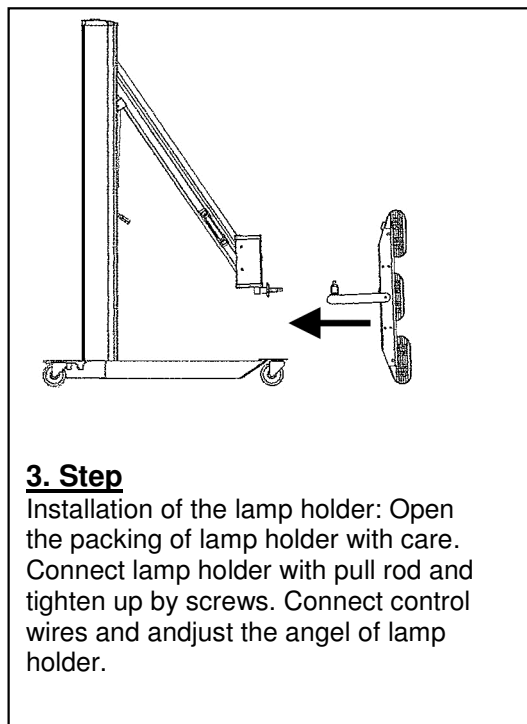
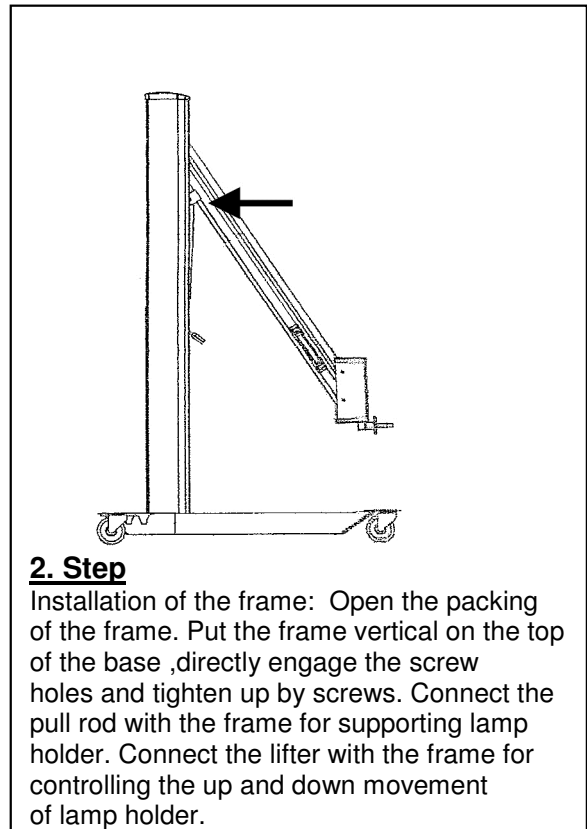
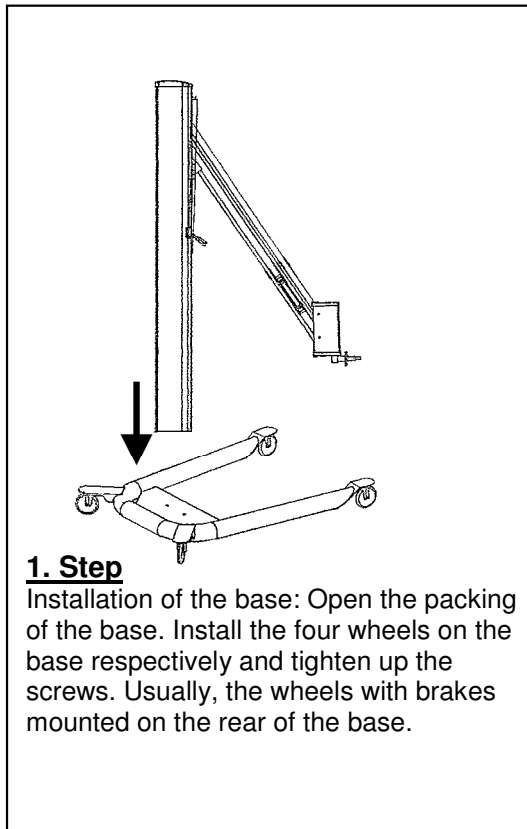
It avoids the work repeating, saving costs and improving the efficiency.

5. Specifications

Model:	SPEED DRY 300AX
Rated Voltage:	230 V, single phase, 50-60 Hz
Fuse	16 A
Power Consumption (nominal):	3x1100 W
Heating Elements:	quartz, short wave, ruby sleeved infrared emitters
Curing Area:	1200x1000 mm
Temperature:	35-100 °C
Recommended Working Distance:	30-50 cm
Time Setting:	1-99 min
Light Intensity:	35-100 %
Weight:	58 kg

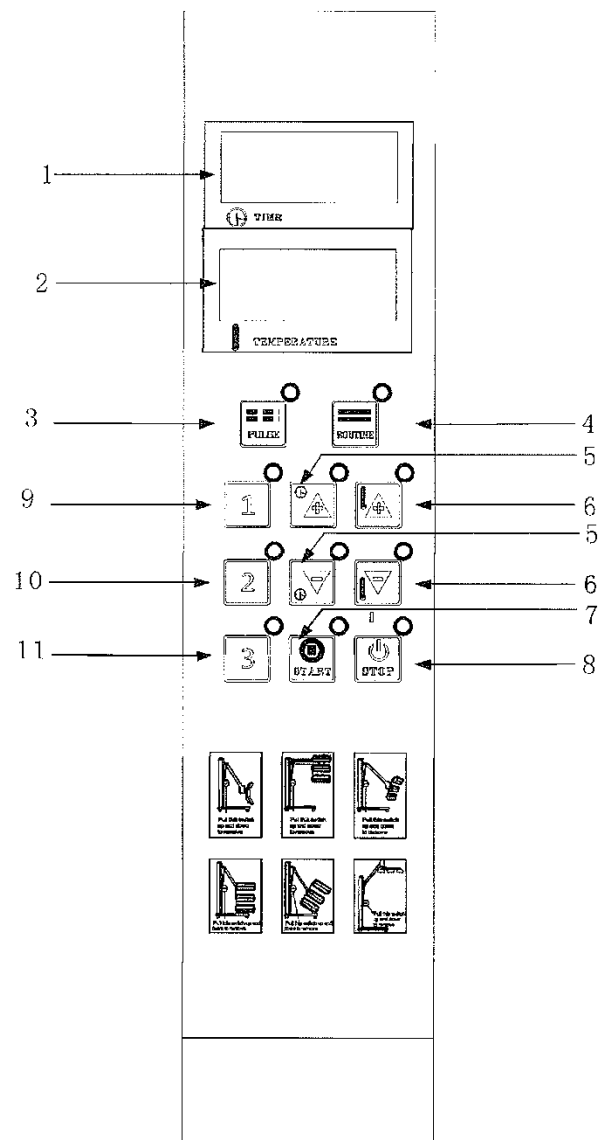
6. Assembly

The shortwave infrared curing lamp is divided into 3 parts (a base, a frame and a lamp holder).


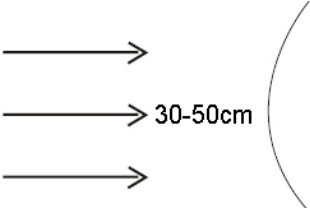
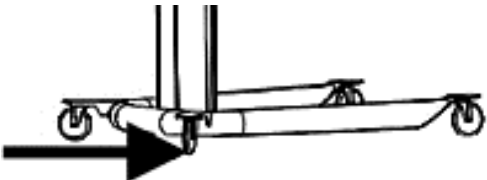
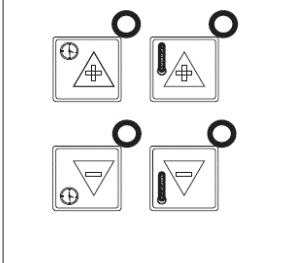
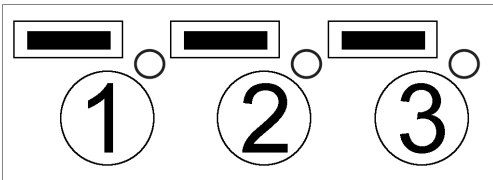


7. Control Panel

- 1.) Display Timer
- 2.) Display Light Intensity
- 3.) Pulse
- 4.) Routine
- 5.) Time Setting (1-99 min)
- 6.) Light Intensity Setting (35-100 %)
- 7.) Start
- 8.) Stop
- 9.) Switch Cassette A
- 10.) Switch Cassette B
- 11.) Switch Cassette C



8. Operation

<p>1</p> <p>Switch the unit on at the mains switch, digital displays will be on figures.</p>	
<p>2</p> <p>Adjust the distance from heat source to paint surface. To achieve the best curing result, the lamp should be parallel with the paint surface. Usually the distance of 30-50cm ist the best.</p>	
<p>3</p> <p>Lock the rear wheels of the unit to avoid accidental movement of the unit during operation.</p>	
<p>4</p> <p>Adjust Curing Time and Light Intensity according to the paint nature. The digital will display data.</p>	
<p>5</p> <p>Use the buttons (9), (10), (11) the number of emitters required to dry the surface.</p>	

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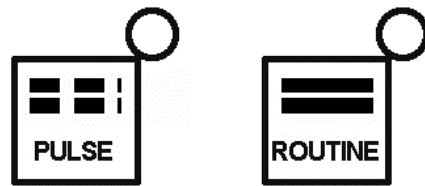
Select **PULSE** or **ROUTINE**:

PULSE

Half Power Setting (the PULSE curing is applicable to achieve the better lustrousness of pain surface).

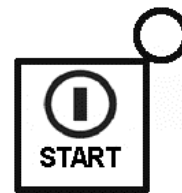
ROUTINE

Full Power Setting.



7

Press the **START** button to begin the curing process.



9. Cure Times

The tables below give a guide for different finishes:

Filler/Stopper	4-6 min
Primer	6-8 min
Hi-Build	10 min
Solid Color	11 min
Clear Coat	12 min
Waterborne Primer	8-10 min
Waterborne Basecoat	5 min

All the above times are based upon "ROUTINE" cycles although some coatings require a "PULSE" (half power) setting. This is normally used on coatings with a high film build and also on dark colours. This setting is used for approximately 5 minutes before "ROUTINE" cycle.

For detailed curing information, contact your local KRAUSS TOOLS distributor for a data sheet. Paints from Akzo Coatings, B.A.S.F., Du Pont, De Beer, Herberts, ICI, Maxmeyer, P.P.G., Spies Hecker and Sherwin Williams are included in this information.

10. Troubleshooting

PROBLEM	CAUSE	SOLUTION
SOLVENT POPPING	Unit too close to panel Insufficient flash off time Paint system has a fast Thinner	Move unit further away Increase flash off time Use a standard or slow Thinner
SOFTNESS OF THE PAINT FILM	Unit too far away Insufficient bake time Excessive film weight	Move unit closer Increase full bake time Apply lighter coats
SOFTNESS ON EDGES OF REPAIR	Repair too large for I.R. unit	Split area into two Move unit for 2nd application If flash off is used, it will not be necessary on 2nd Application
DIFFICULTY IN POLISHING OUT DIRT NIBS	Too long on bake cycle Unit too close to panel	Reduce cure time Move unit further away
UNEVEN CURE	I.R. Cassettes not shaped to contours of repair	Adjust I.R. Cassettes for even heat distribution

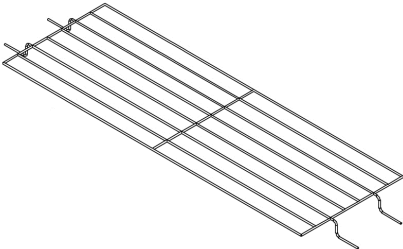
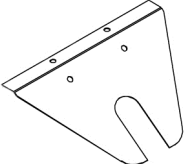

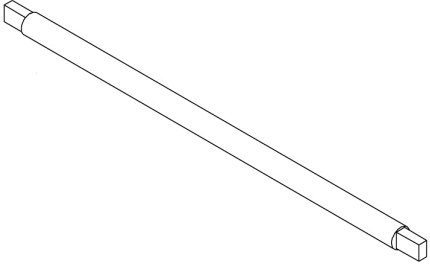
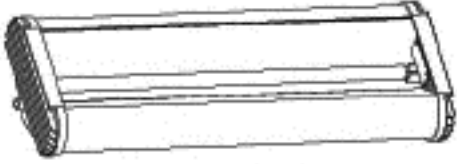
11. Maintenance

The IR emitter is maintenance-free. We recommend, however, that you check the function and cleanliness of the IR emitter regularly (especially the quartz glass).

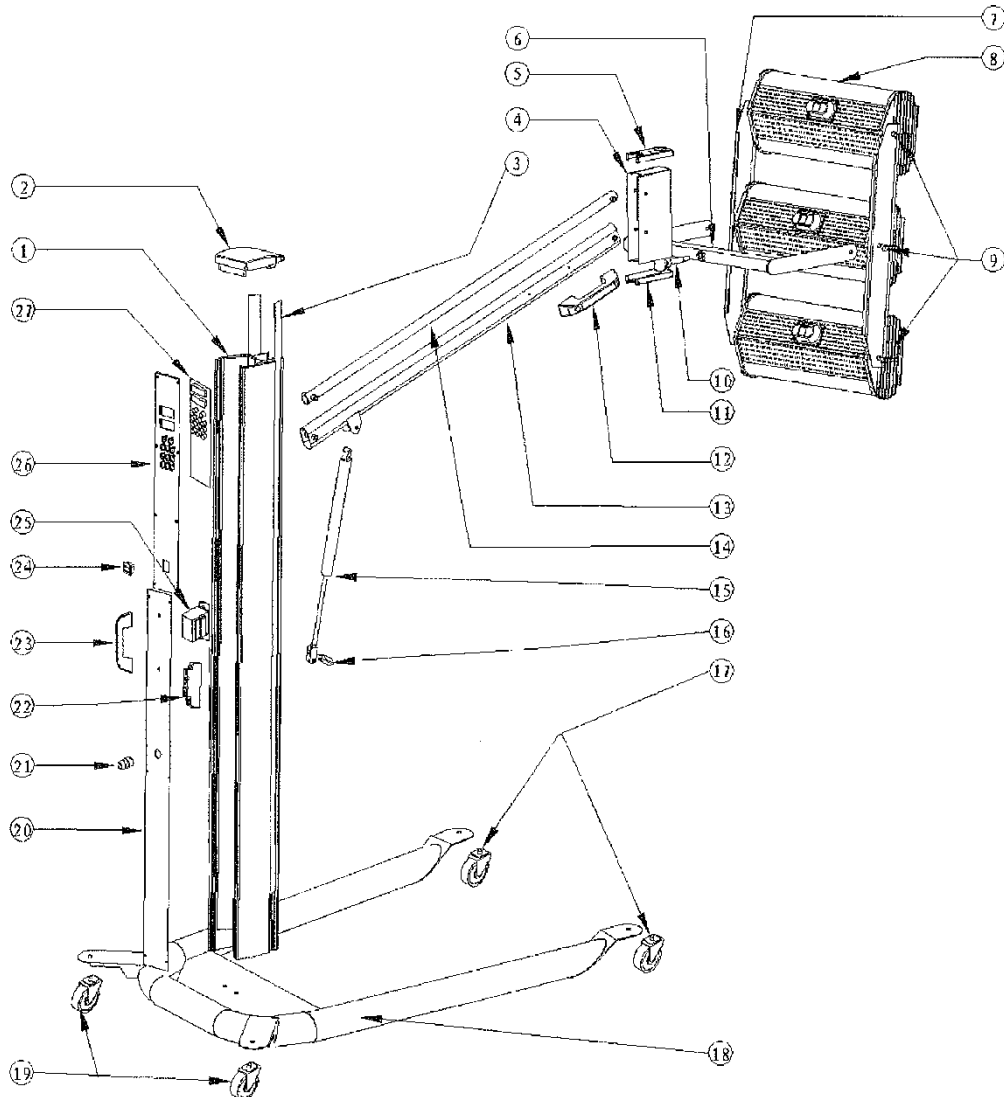
After installation, the quartz glass tube of the IR emitter must be cleaned of any soiling or perspiration. For this purpose, please use a cleaning cloth (without textile finishing agents) soaked in methylated spirit to remove any impurities and soiling or fingerprints from the surface.

Defective IR emitters should be replaced!!!

12. Lamp Tube Replacement

<p>1</p> <p>Ensure unit is disconnected from mains power supply. Prepare cassette for replacement and remove wire grille from front of cassette.</p>	
<p>2</p> <p>Remove the plates of both ends of the cassette.</p>	
<p>3</p> <p>Remove the fixed plates of both ends of the cassette.</p>	
<p>4</p> <p>Loosen fixed screws and cut off connections, the lamp can be replaced.</p>	
<p>5</p> <p>Reconnect lamp tube to cassette wiring, taking care to replace the wires in the original positions. Fit side reflectors and then clean ruby sleeve and reflector with IPA or Methylated Spirits.</p>	

13. Exploded View



(1) Upright Post	(9) Plastic Nut	(17) Front Caster	(25) Transformer
(2) Top Cover	(10) Connecting Axle	(18) Base Plate	(26) Cover Plate
(3) Plastic Band	(11) Cover Plate	(19) Back Caster	(27) Circuit Board
(4) Connector	(12) Handle	(20) Cover Plate	
(5) Top Cover	(13) Lower Connecting Rod	(21) Flange	
(6) Bracket	(14) Upper Connecting Rod	(22) Thyristor	
(7) Clamping Bar	(15) Lifter	(23) Handle	
(8) Cassette	(16) Lifter Control	(24) Power Switch	

14. CE - Declaration of Conformity

CE - Declaration of Conformity



We hereby declare,

**Krauss Tools Germany
Bessemerstr. 3
D-21339 Lüneburg**

that this product corresponds with the following directives and complies with the following standards or normative documents applied:

Product description:

Shortwave Infrared Paint Curing Lamp

Type:

SPEED DRY 300AX

CE - Directives:

2006/42/CE Machinery
2006/95/CE Low-Voltage
2004/108/CE EMC

The tests have been carried out in accordance with following standards:

EN 60745-1: 2010
EN 60745-2-4: 2009 + A11: 2011
EN 55014-1: 2006 + A1: 2009 + A2: 2011
EN 55014-2: 1997 + A1: 2001 + A2: 2008
EN 61000-3-2: 2006 + A1: 2001 + A2: 2009
EN 61000-3-3: 2008
EN 62233: 2008

Date, signature:

02.05.2010

Manager Quality Department (QD)