Institut
für
Wärme-, Klima- & Verfahrenstechnik e.V.

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44879 Bochum

TEST PROTOCOL AND CERTIFTCATE

IWK 06-009e

Vereinsregister Bochum Nr. 1858
IWK Steuer Nr.: 350/5702/0071

IWK
Institut für Wärme-, Klima-
& Verfahrenstechnik e.V.
Bochum

Measurement protocol
Fresh Light (single device),
Energy saving Lamp with Ionizer (7W–23W)

IWK 06-009e

Client: Eudemon international LTD.

Task

1. The measurement with an energy saving lamp with Ionizer from Eudemon should be made of
   - negative Ions,
   - produded Ozon,
   - and dust retainment.
2. Measurements were made according to the clients request:

Desccription of device

Sales : Eudemon International LTD
Origin : China
Type : **Fresh Light (sold under this brand in Europe)**

Measurement equipment

3. Instruments:
   Ionometer IM5005, Umweltanalytik Holbach,
   Serial-No.:13IM057,
   Program IM5005.EXE, Version 1.7

   Closed test box made of glass

   Ozone sensor SDM-O3-06,
   Unitronics

   Universal Hygro-/Thermometer GFTH 200,
   Greisinger

Time of investigation

All measurements were done between 07/06 to 08/01/2006.
surrounding air conditions:

T	=	22-26	°C,
RH	=	51-59	%,
Air pressure	=	1026	hPa

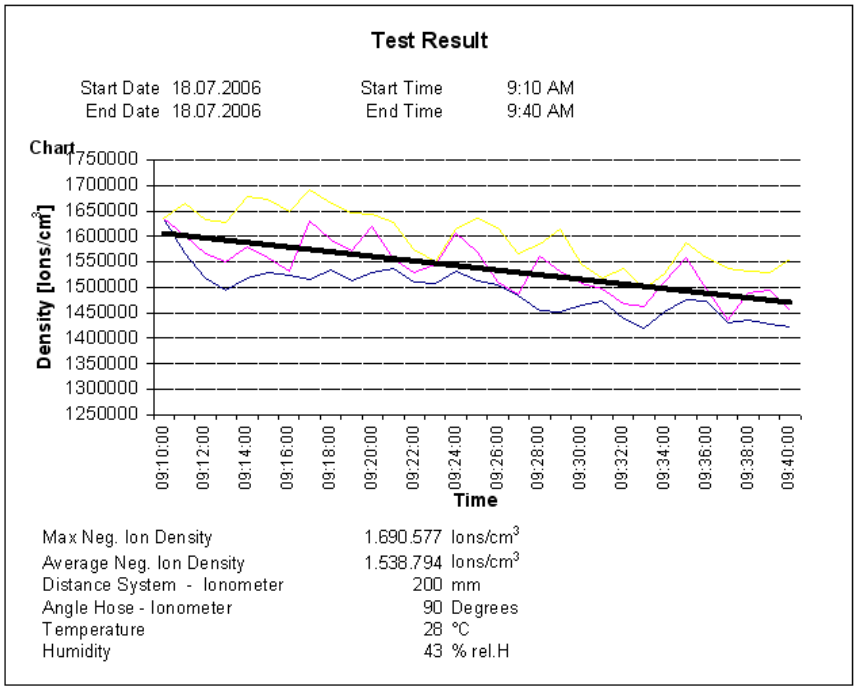
Results

4. >> This Protocol contains 12 pages <<

5. Results of measurements
(4 + 1 graphics)

Test sample
-07/18/06-
200mm
1sec

System Type: Fresh Light 7W-23W Serial-No: **Test 1**



Max Neg. Ion Density	1.690.577	Ions/cm³
Average Neg. Ion Density	1.538.794	Ions/cm³
Distance System - Ionometer	200	mm
Angle Hose - Ionometer	90	Degrees
Temperature	28	°C
Humidity	43	% rel.H

Test Equipment
Ionometer IM5005 Serien-Nr.: 13IM057

Graphic 1

Density of negative Ions

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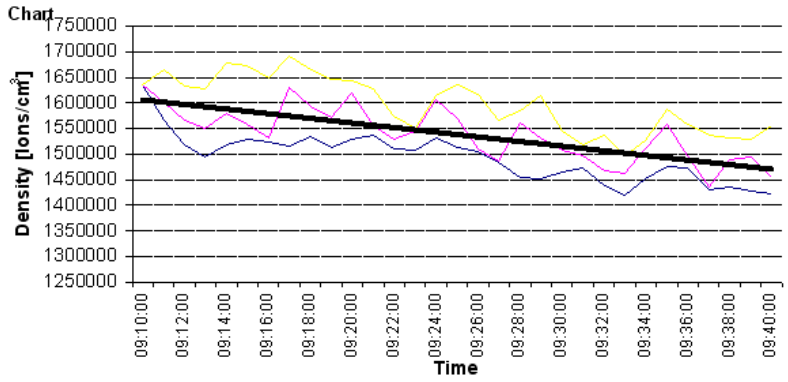
Test sample
-07/18/06-
200mm
1sec

System Type: Fresh Light 7W-23W Serial-No: **Test2**

Test Result

Start Date 18.07.2006 Start Time 9:10 AM
End Date 18.07.2006 End Time 9:40 AM



Max Neg. Ion Density	1.690.577	Ions/cm³
Average Neg. Ion Density	1.538.794	Ions/cm³
Distance System - Ionometer	200	mm
Angle Hose - Ionometer	90	Degrees
Temperature	28	°C
Humidity	41	% rel.H

Test Equipment
Ionometer IM 5005 Serien-Nr.: 13IM057

Graphic 2

Density of negative Ions

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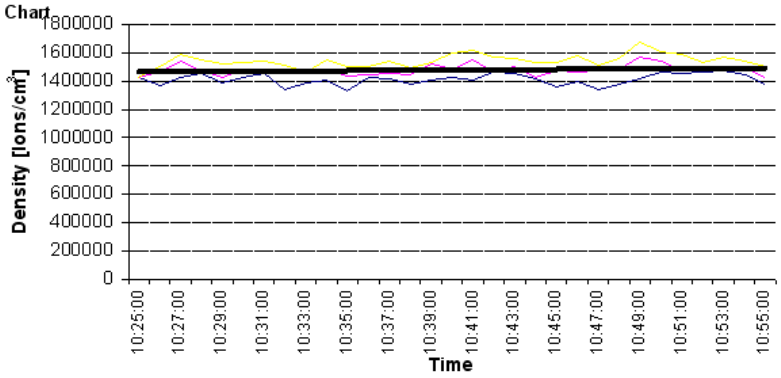
Test sample
-07/18/06-
200mm
1sec

System Type: Fresh Light 7W-23W Serial-No: **Test 3**

Test Result

Start Date 18.07.2006 Start Time 10:25 AM
End Date 18.07.2006 End Time 10:55 AM



Max Neg. Ion Density	1.678.354	Ions/cm³
Average Neg. Ion Density	1.478.184	Ions/cm³
Distance System - Ionometer	200	mm
Angle Hose - Ionometer	90	Degrees
Temperature	30	°C
Humidity	34	% rel.H

Test Equipment
Ionometer IM 5005 Serien-Nr.: 13IM057

Graphic 3

Denisty of negative Ions

Formular Prüfprotokoll **Einzelgerät**
IWK 06-009e Eudemon Energy saving lamp with Ionisation V03.doc

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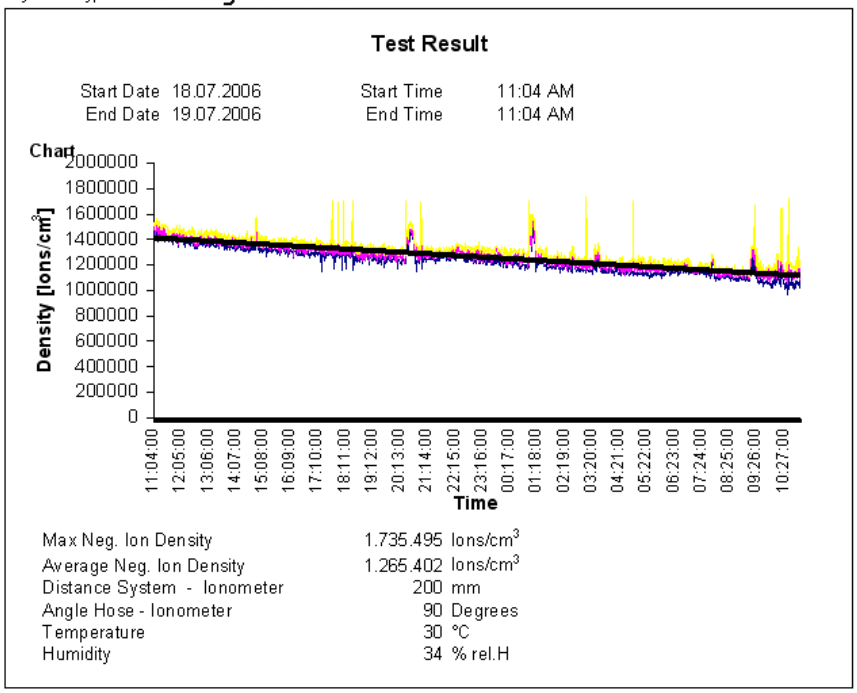
Test sample
-07/18/06-
200mm
1min
24h

System Type: Fresh Light 7W-23W Serial-No: **Test 4-24h**



Max Neg. Ion Density	1.735.495	Ions/cm³
Average Neg. Ion Density	1.265.402	Ions/cm³
Distance System - Ionometer	200	mm
Angle Hose - Ionometer	90	Degrees
Temperature	30	°C
Humidity	34	% rel.H

Test Equipment
Ionometer IM5005 Serien-Nr.: 13IM057

Graphic 4

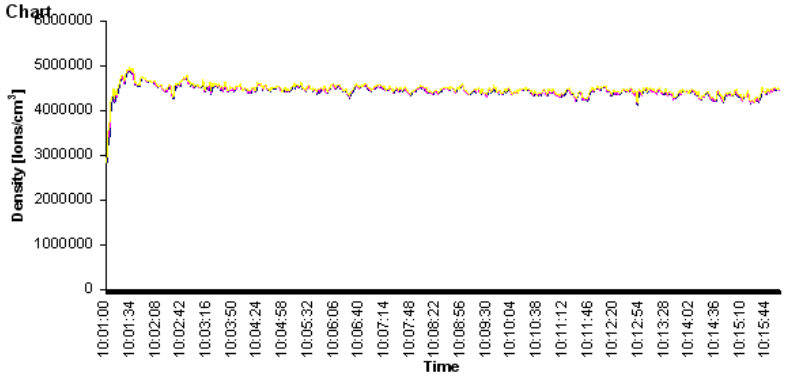
Density of negative Ions

additionally a further ideal measurement of the lamp.

System Type: Fresh Light Serial-No: Prototype 7W-23W

Test Result

Start Date 06.07.2006 Start Time 10:01 AM
End Date 06.07.2006 End Time 10:16 AM



Max Neg. Ion Density	4.953.177	Ions/cm³
Average Neg. Ion Density	4.449.326	Ions/cm³
Distance System - Ionometer	75	mm
Angle Hose - Ionometer	90	Degrees
Temperature	26	°C
Humidity	58	% rel.H

Test Equipment
Ionometer IM 5005 Serien-Nr.: 13IM057

Graphics 5

(additionally)

Density of negative Ions

REVIEW

The Energy saving lamp is built as a lamp for inside living room.

It has an ion gun at its bottom in the middle. By its spiral geometry the ionizer is protected so far that one cannot touch it without using a tool.

The main task was to make some high resolution measurements between 15 and 30 minutes and a long term Measurement of about 24 hours.

The short time measurements (Graphics 1-3, page 3-5) show extremely constant high values within a range of 30 minutes at measurement intervals of one second within 30 minutes and the mean value of 30 measurements per second.

Graphic 4 (page 6) of the long-term-measurement is self-explaining:

"high values", "very constant" and

only "small oscillations around the mean".

Ozonwerte

The ozone-measurement was made according to the guideline **EN 60335-2-65 - Abschnitt 32**.

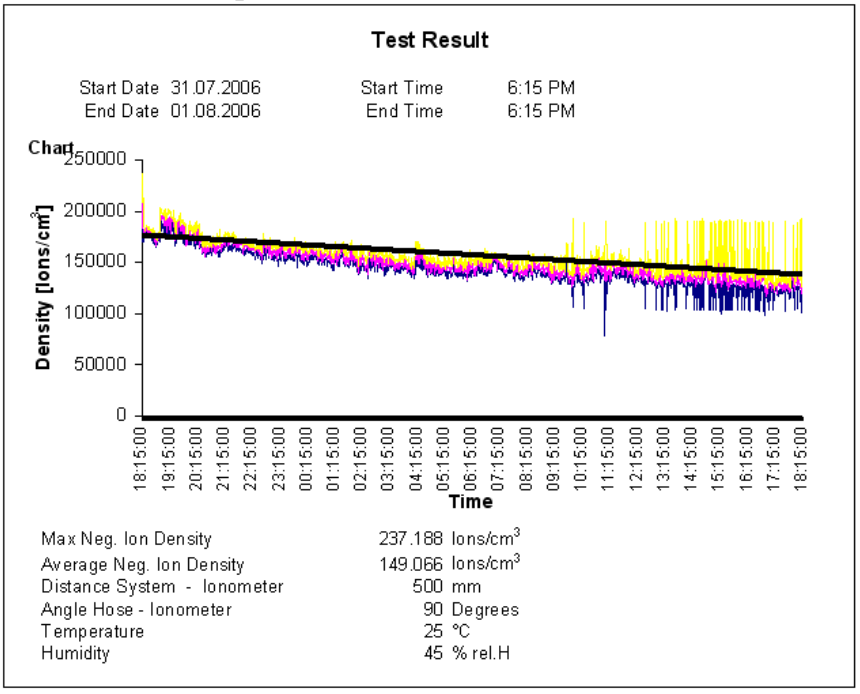
No ozone could be measured 50 mm from the outlet.

Within the framework of the 24 hours EN-testing further parameters were measured, which speak for this lamp.

The mean concentration of ions was about 149,066 negative Ions.

Test Sample
-07/31/06-
500mm
24 h
1 min

System Type: Fresh Light 7W-23W Serial-No: **Prototype**



Test Equipment
Ionometer IM5005 Serien-Nr.: 13IM057

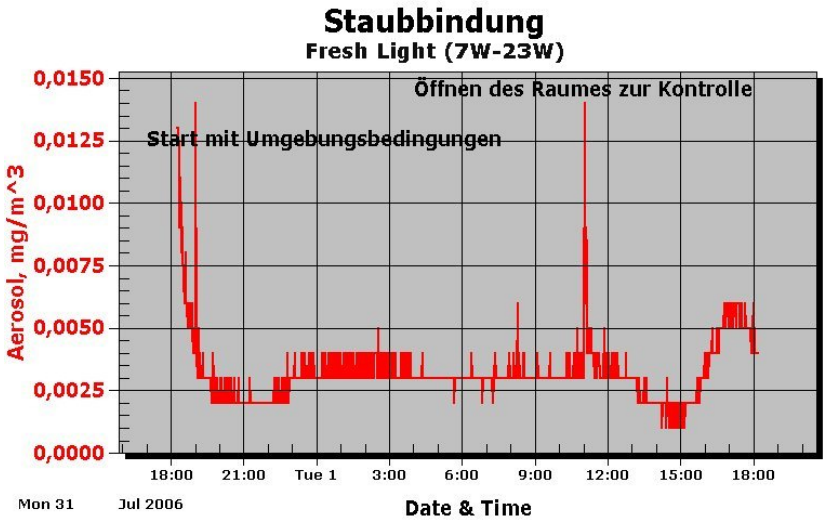
Grafik 6

Density of negative Ions

This a Value that most of the "only air purifiers" do not reach.

The dust quantities in this room went down from 14 µg/m^3 to 1 µg/m^3 .

This is a dust reduction of about 92 %.



Graphic 7

Dustreduction

More test results:

The surface temperature of the lamp was between 70 °C and 75 °C.

Die high voltage of the ionizer was constantly at 3,79 kV without any AC-overlays and a very constant DC-power (look to the following 3 photos)

photo 1: High voltage

Photo 2: DC

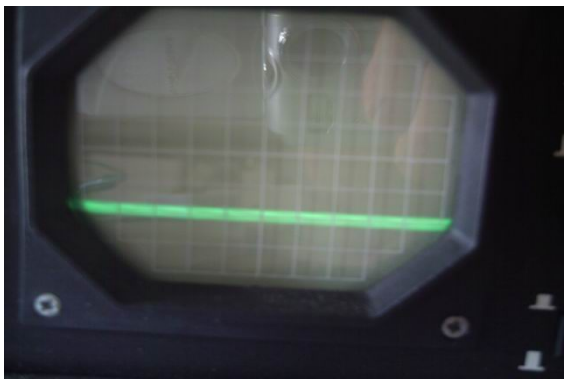
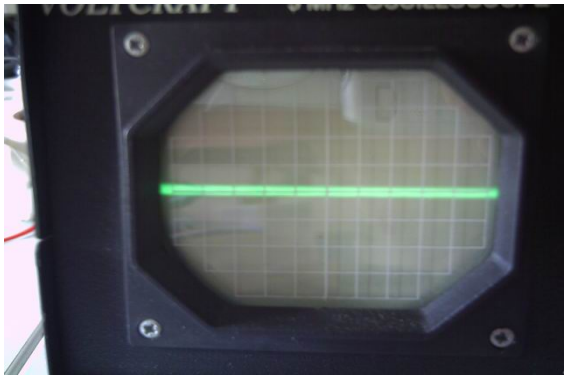


photo 3: AC



EXECUTIVE SUMMARY:

Because of the measurement results I find out, that this energy saving lamp is very good in producing reliable negative ions.

The dust reduction was measured in a test room of 25 m^3. For larger rooms you only need the corresponding amount of lamps.

We could not measure any additional ozone.

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