

YOUR HEALTH IS IMPORTANT TO US



With the AC - series you can clean the air 24 hours 7 days a week, because the UV-C radiation does not escape from the housing. We can ensure this by means of our intensive tests and measurements in our R&D development laboratory.

TEST REPORT

Measurement of UV radiation



TITLE	PRODUCT	PROJECT NUMBER	VB-NUMBER
Measurement of UV radiation	AC 20		2020_009

ELECTRICAL SAFETY TEST SETUP

	SKI	SKII	SKIII
Protective conductor resistance (<0,3 Ohm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Touch current (<0,5 mA)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulation resistance (>0,25 MOhm / >1 MOhm / >2 MOhm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Function correct (<0,5 mA)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Differential current (<3,5 mA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>




Date of creation: 14 May 2020

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TEST REPORT

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TARGET AND PURPOSE

Detection of the maximum UV-C radiation outside the AC 20.

TESTING / TEST SETUP / MEASUREMENT METHOD

Which test setup and which method was used for the test execution?

The AC 20 prototype is running an endurance test. During this test a dose measurement of UV-C light is done. The dose measurement was done by a „Gigahertz-Optik X1 Optometer“.

BOUNDARY CONDITIONS

Which measurement devices, tools, device options, drawing no. etc was used?

- AC 20 (164298-initial batch)
- Light labyrinth (164287_003_0)
- Dust filter type 15/150, Cl. G3 / ISO coarse 30% for air intake and air exhaust
- Philips UV-C lamp 2x 95Watt (254nm HQ-lamp)
- Measurement device: Gigahertz-Optik X1 Optometer
- Measured points: Determination of the "Radiation-Hot-Spots"
- Hot-Spot: Air exhaust

MEASUREMENT


Which physical dimensions are measured?

UV-C radiation [$\mu\text{W}/\text{cm}^2$]

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TEST REPORT

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RESULT / ASSESSMENT / OBSERVATION

Has the objective and purpose of the test been fulfilled?

Findings: The dose of radiation is behaving approximately linear, due to this a measurement period of 2h was chosen.

Measurement with Filter Test:

Result: Maximum dose of radiation directly at the exhaust (Measurement with filter) = 17.831 $\mu\text{W}/\text{cm}^2$

Interpretation: According to the study „Occupant UV Exposure Measurements for Upper-Room Ultraviolet Germicidal Irradiation“ (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4854786/> oder V62020-009) a maximum daily dose of 6.0 mJ/cm² for a duration of 8 hours is classified as harmless.

As the dose of radiation is behaving approximately linear, the measured value can be extrapolated. The result is a dose of 0.7 mJ/cm² which is far below the permitted dose.



Measurement without Filter Test:

Result: Maximum dose of radiation directly at the exhaust (Measurement without filter) = 549.24 $\mu\text{W}/\text{cm}^2$

Interpretation: According to the study „Occupant UV Exposure Measurements for Upper-Room Ultraviolet Germicidal Irradiation“ (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4854786/> oder V62020-009) a maximum daily dose of 6.0 mJ/cm² for a duration of 8 hours is classified as harmless. As the dose of radiation is behaving approximately linear, the measured value can be extrapolated. The result is a dose of 2.2 mJ/cm² which is far below the permitted dose.

SUMMARY

The maximum dose of UV radiation which passes out of the AC 20 is classified as harmless. Even there is close contact to the device.

Signed:  

Date: 14.05.2020

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