

T e s t R e p o r t

Report No : L19609A
Client: : Collecta
Norman Close
Rochester
Kent
ME2 2NF
Description : UVC Luminaire
Manufacturer : Collecta
Type/Model : Violegen HEXA-gone Pro+
Test Specification : UVGI Assessment in line with the recommendations of IESNA document IES CR-2-20-V1a
Date(s) of Testing : 14/10/2020 - 04/08/2021
Conclusion : Refer to body of report
Date of Issue : 09/08/2021

Tested by: **G. JOHN**
Position: Technical Manager -
Photometry



Approved by: **T. MALIK**
Position: Head of Compliance



INTRODUCTION

Collecta have supplied the products identified in Table 1. to determine the UVC germicidal impact of the product. Reference has been made to test reports L19244A and L19268B for the measurement data on which the calculations shown in tables 3-6 (L19244A) and tables 7-9 (L19244B) are based on.

PRODUCT DETAILS

Table 1. Test Sample Details

Product Description	UVC Luminaire
Model No.	Violegen HEXA-gone Pro+
Number of Samples	One
Date of Receipt	14/10/2020
Condition on Receipt	Good
Nominal Dimensions	Ø.300mm; H.1500mm
Product Supply Requirement	240Vac 50Hz
Lamp Power	500W
Sampling Method: Test samples selected and supplied by client, no sampling method specified by client.	

Continued on following page

PROCEDURE

Table 2. Test Procedure and Equipment Used for Radiometric Measurements

Test Standard	BS EN 62471:2008
Equipment Used	Bentham IDR300-PSL Double Monochromator (249)
Standard Lamp Used	CL6 Irradiance Standard (272), CL7 Irradiance Standard (364)
Standard Lamp Traceability	Spectral Lamp 1036091
Power Measurement	3 phase power analyser (279)
Temperature Measurement	Testo Thermometer (142)
Measurement distance:	2000mm, 3000mm, 4000mm, 5000mm, 6000mm
Spectral Range	200 - 400nm

Continued on following page

UVC GERMICIDAL ASSESSMENT

The products were measured for irradiance at distances of 2, 3, 4, 5 and 6 metres.

The evidence cited in the paper “Fluence (UV Dose) Required to Achieve Incremental Log Inactivation of Bacteria, Protozoa, Viruses and Algae” was used to calculate the exposure time needed for deactivation of staphylococcus aureus bacteria at two, three and four log kill rates.

Table 3. Radiant Exposure Times for the Violegen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) Front 3 tubes on.

Distance (m)	Irradiance/W m ⁻²	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log Kill exposure Time/seconds
2	1.22	59.02	72.13	81.97
3	0.62	116.13	141.94	161.29
4	0.37	194.59	237.84	270.27
5	0.24	300.00	366.67	416.67
6	0.17	423.53	517.65	588.24

Table 4. Radiant Exposure Times for the Violegen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) Front 9 tubes

Distance (m)	Irradiance/W m ⁻²	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log Kill exposure Time/seconds
2	3.16	22.78	27.85	31.65
3	1.63	44.17	53.99	61.35
4	0.92	78.26	95.65	108.70

Table 5. Radiant Exposure Times for the Violegen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) Front 15 tubes

Distance (m)	Irradiance/W m ⁻²	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log Kill exposure Time/seconds
2	3.15	22.86	27.94	31.75
3	1.62	44.44	54.32	61.73
4	0.93	77.42	94.62	107.53
5	0.62	116.13	141.94	161.29

Continued on following page

Table 6. Radiant Exposure Times for the Viologen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) All tubes

Distance (m)	Irradiance/W m-2	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log kill exposure time/seconds
2	3.09	23.30	28.48	32.36
3	1.64	43.90	53.66	60.98
4	0.92	78.26	95.65	108.70
5	0.62	116.13	141.94	161.29
6	0.45	160.00	195.56	222.22

Table 7. Radiant Exposure Times for the Viologen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) Front 3 tubes

Distance (m)	Irradiance/W m-2	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log kill exposure time/seconds
3	0.304	236.84	289.47	328.95
4	0.027	2666.67	3259.26	3703.70
5	0.0575	1252.17	1530.43	1739.13
5 (blue vinyl off)	0.09	800.00	977.78	1111.11

Table 8. Radiant Exposure Times for the Viologen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) Front 9 tubes

Distance (m)	Irradiance/W m-2	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log kill exposure time/seconds
3	1.988	36.22	44.27	50.30

Table 9. Radiant Exposure Times for the Viologen HEXA-gone Pro+ for a two, three and four-log kill corresponding to inactivation of 99 %, 99.9% and 99.99% of Staphylococcus aureus bacteria (fluence of 72, 88 and 100 Joules per square metre) All tubes

Distance (m)	Irradiance/W m-2	Two log Kill Exposure Time/seconds	Three log Kill Exposure Time/seconds	Four log kill exposure time/seconds
2	1.761	40.89	49.97	56.79
3	2.14	33.64	41.12	46.73
4	1.293	55.68	68.06	77.34
5 (with baffles)	0.0575	1252.17	1530.43	1739.13

Continued on following page

CONCLUSION

This product delivers the stated kill rate of the specified viruses, in line with the recommendations outlined in the peer reviewed papers mentioned in the 'UVC Germicidal Assessment' section.

Continued on following page

EXCLUSIONS

This report covers the resulting UVC germicidal impact of the product. No assessment has been made as to compliance with any IEC/EN standard in terms of product safety. Therefore, the Laboratory is unable to comment on its compliance with such standards at this time.

DEVIATION(S) FROM TEST STANDARD

The measurement distance was 2000mm, 3000mm, 4000mm, 5000mm and 6000mm, which is larger than the distance of 200mm specified in the test standard.

Continued on following page

ILLUSTRATION



Figure 1. *Product image*

End