



# Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong

Glare Impact Assessment Report

8 January 2020

Project No.: 0511456

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				Name	Date	
Draft	1.0	Dharshan S	Benny Poon	Terence Fong	06.09.2019	ERM, OPC
Formal	1.0a	Scott Terry	Benny Poon	Terence Fong	02.01.2020	ERM, OPC
Formal	1.0b	Scott Terry	Benny Poon	Terence Fong	08.01.2020	IEC

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## Signature Page

8 January 2020

# Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong

## Glare Impact Assessment Report



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## Environmental Permit No. EP-249/2006/D

### Ocean Park Master Redevelopment Project

### Environmental Team Leader Verification

#### Reference Document/Plan

Document/ <del>Plan</del> to be Certified/ <del>Verified</del> :	Glare Impact Assessment Report (revised)
Date of Report:	8 January 2020

#### Reference EP Condition

Environmental Permit Condition: 2.34

The Permit Holder shall, at least one month before the commencement of the first lagoon show at an open-air venue in the Aqua City (as shown in Figure 10) and any outdoor activity within the Waterfront area (as shown in Figure 1), deposit with the Director four hard copies and one electronic copy of a detailed design of night time functional and thematic lighting. The design shall take into account the possible light pollution and night-time glare and shall at least describe:

- (a) the mounting height and direction of light fixtures;
- (b) the lighting schedule, including power, number and types of lighting;
- (c) the monitoring programme;
- (d) maintenance requirements; and
- (e) measures for avoiding/minimizing possible light pollution and negative glare impacts on nearby sensitive receivers.

Before submission to the Director, the design shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA report. All measures recommended in the deposited design shall be fully and properly implemented.

#### ETL Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-249/2006/D.

Ms Mandy To  
Environmental Team Leader

Date: 8 January 2020

Our ref: 0511456\_ETL Verification Cert\_Glare\_20200106.docx

**Ocean Park Master Redevelopment Project**

**Environmental Permit No. EP-249/2006/D - Condition 2.34**

**Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong  
Glare Impact Assessment Report**

**Submitted by ERM-Hong Kong, Limited dated 08-01-2020**

**This is to verify that**

**Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong  
Glare Impact Assessment Report**

**Submitted by ERM-Hong Kong, Limited**

**dated 08-01-2020**

**Has been verified by the undersigned.**

Signed



Ir Eric Ching  
Independent Environmental Checker (IEC)  
Retained by Ocean Park Corporation  
pursuant to Environmental Permit No. EP-249/2006/D

Date

08 January 2020

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## 1. INTRODUCTION

### 1.1 Background

An updated design of the existing open-air lagoon night show will be hosted at the Aqua City as one of the attractions of the Ocean Park (the Park). Pyros will not be used in the revised show. Apart from the original light sources including light poles, underwater LED, theatrical flame, projections on water wall screen, there will also be laser projections on the wall of the nearby buildings based on the revised design. The most up-to-date layout plan of the lagoon and design drawings are presented in *Appendix A*. Detailed description of the show and updated design details are presented in *Section 1.3*.



The two highlighted areas are the new buildings near the Park, which include:

- Ocean Park MTR Station
- Hong Kong Ocean Park Marriott

The potential glare impacts of the Master Redevelopment Plan (MRP) have been assessed and presented in the Environmental Impact Assessment Report for “Repositioning and Long Term Operation Plan of Ocean Park” (Register No. AEIAR-101/2006) (the approved EIA Report), and an Environmental Permit (EP-249/2006) for the MRP was granted on 28 July 2006. A Glare Impact Assessment Report was deposited to EPD on 19 October 2010 (GIA 2010) under the requirement of Condition 2.34 of the EP. The EP was varied subsequently with the latest version of EP-249/2006/D issued by EPD on 2 July 2014.

## 1.2 Purpose of the Report

This purpose of this report is to update and compare GIA 2010 which was deposited to EPD on 19 October 2010. CSA (M&E) Ltd an NV5 company, a sub-consultant of ERM-Hong Kong, Ltd (ERM) which was appointed by the Ocean Park Corporation, Hong Kong (OPC) to prepare the updated GIA based on the most up-to-date design layout and other relevant design details provided by the OPC .

This report is to outline the study approach of the impact assessment for the night-time functional and thematic lighting of the show. Potential impacts of light pollution and negative glare impact to the nearby sensitive receivers have been assessed and compared with relevant guidelines.

## 1.3 The Lagoon Night Show

The lagoon night show is an open-air entertainment event to be hosted at the Aqua City featuring a combination of audio and visual effects. Pyros will not be used in the revised show. The show effect will focus in the use of audio and visual systems and hence additional audio equipment will be installed for the revised show. Details of the revised lagoon night show are summarised in *Table 1.1*.

The show will be held in an exterior area of about 4,000m<sup>2</sup>, with medium level of pollution have been assumed. A light loss factor of 0.75 has been employed in the assessment.

**Table 1.1 Details of the New Lagoon Night Show**

Show	Frequency every Night <sup>(a)</sup>	Duration	Description
Main show One, "Soul of the Ocean"	1	About 12 minutes	A timeless story told through a shape-shifting sea creature
Main show Two, "Vision of Hong Kong"	1	About 5 minutes	An unparalleled visual celebration of culture and beauty beneath the night sky of the Southern District of Hong Kong
	Total	About 17 minutes <sup>(b)</sup>	

**Note:**

- (a) The shows will be started at 19:00 hours and ended before 22:00 hours, ie before the Park closes daily.
- (b) Comparing with the previous show of 10-20 minutes, the duration of the revised show is about the same.

## 2. POTENTIAL SOURCES OF LIGHTS AND ASSUMPTIONS

The lagoon night show is an open-air entertainment event to be hosted at the Aqua City featuring a combination of audio and visual effects. With respect to the latest layout plan of the show (see *Appendix A*), the light sources that have the potential to cause adverse glare impact to the nearby sensitive receivers are similar to the *GIA 2010*.

The potential glare impact was assessed using a computer simulation based assumptions similar to the *GIA 2010*, laser projections are considered in this report due to limitation of the computer modelling programme.

A lighting schedule, including power, number and types of lighting is given in *Table 2.1*.

**Table 2.1 Lighting Schedule**

Description	Power	Mounting Height	Beaming Direction	Nos.	Type	Lumen Output
1 Pole, and Roof Mount Static LED Strobe Light (SGM P-10)	1152w	6m + Grand Aquarium lower rooftop	70 degree	12	MSI metal halide	39690
2 Roof Mount Rotating Head Projector ( <i>Elation Proteus</i> )	470w	12m Grand Aquarium lower rooftop	70 degree	8	MSD Platinum + LED	23000
3 Roof Mount Rotating Head Projector ( <i>PR Aqua 480 WS</i> )	480w	16m Grand Aquarium upper rooftop	70 degree	8	Metal halide	31000
4 Rack and Roof Mount Projection Projector ( <i>Panasonic PT-RZ31k</i> ) & Rack and Roof Mount Laser Show Machine ( <i>Mega Laser</i> )	2870w & 30w	5m/6m + 12m East, West retail building rooftop, around the Lagoon planter area and Grand aquarium rooftop	To grand aquarium wall and peacock water screen in lagoon, the beam projected on buildings around the lagoon	24 & 5	Laser Diode	31000

**Note:**

Lights less than 100w are considered as low power hence will not affect the glare impact on the nearby building.

### 3. REPRESENTATIVE SENSITIVE RECEIVERS

With reference to the GIA 2010, four representative receivers, ie Mini Range Complex and Petrol Station, Wong Chuk Hang Road Garden, Buildings near Shouson Hill Road and Country Villa were identified. Apart from these, two new representative sensitive receivers including Ocean Park Marriott Hotel and Ocean Park MTR Station and Train Line have been identified, as presented in *Table 3.1* with details given in *Appendix B*.

**Table 3.1 Representative Sensitive Receivers**

<b>Sensitive Receiver</b>	<b>Type of Sensitive Receiver</b>	<b>Approximate Distance from the Show</b>	<b>Type of View</b>
1 Mini Range Complex	Commercial / Municipal	87m	Obstructed view toward site, blocked by building inside the Park
2 Wong Chuk Hang Road Garden	Municipal	292m	Obstructed view toward site, blocked by building inside the Park
3 Buildings near Shouson Hill Road	Residential	270m	Obstructed view toward site, blocked by building inside the Park
4 Country Villa	Residential	228m	Obstructed view toward site, blocked by building inside the Park
5 Ocean Park Marriott Hotel	Hotel	62m	Obstructed view toward site, blocked by building inside the Park
6 Ocean Park MTR Station and Train Line	Transportation	203m	Obstructed view toward site, blocked by building inside the Park

## 4. ASSESSMENT METHODOLOGY

The potential glare impacts were assessed with reference to *Section 4* in the *GIA 2010*, using the Dialux 4.11 computer simulation program.

Rectangular 'solid objects' have been used to simulate the representative sensitive receivers (see *Appendix B*).

The assessment parameters, including glare, source intensity and light entry through windows are defined as same as *Section 4* of the *GIA 2010*.

The degrees of impacts on the representative sensitive receivers have been simulated as same as *Section 4* of the *GIA 2010*.

## 5. ASSESSMENT CRITERIA

There is no legislative criterion for glare impact assessment in the *Technical Memorandum on Environmental Impact Assessment Process* (EIAO-TM). References have been made to relevant guidelines issued by the *Highways Department* (HyD) and *The Chartered Institution of Building Services Engineers* (CIBSE). The assessment criteria are same as *GIA 2010*.

### 5.1 Maximum Estimated Allowable Veil Luminance

With reference to the *Public Lighting Design Manual* issued by the HyD, it is proposed to use the threshold increment for the assessment of the disability glare caused by the show. The threshold increment (% T.I.) will depend on both the background luminance and the veil luminance observed by the sensitive receivers. The maximum allowable veil luminance caused by the show is 3.64 candela (cd)/m<sup>2</sup>, assuming an interior lighting arrangement of 200 Lux, a relative wall illuminance of 0.5, a wall reflectance of 0.5 and a maintenance factor of 0.8. Details of the calculation of maximum allowable veil luminance are presented in *Appendix B*.

### 5.2 Source Intensity

In accordance with the *Environment Consideration for Exterior Lighting* issued by the CIBSE, the source luminance shall be limited to 30 kilocandela (kcd) for Environmental Zone E3, Medium district brightness areas.

### 5.3 Light Entry Through Window

In accordance with the *Environment Consideration for Exterior Lighting* issued by the CIBSE, the suggested maximum Lux level entering the window shall be less than 10 Lux for Environmental Zone E3, Medium district brightness areas.

## 6. ASSESSMENT RESULTS

The predicted glare, source intensity and light entry through window are presented below.

### 6.1 Discomfort and Disability Glare

The veil luminance will be caused by the show to the representative sensitive receivers. The veil luminance will reduce the contrast between the interior illuminance and the objects observed by the receivers, which may cause distraction and discomfort to the sensitive receivers.

The predicted maximum veil luminance is 3.15 cd/m<sup>2</sup> at the Mini Range Complex, which is lower than the maximum allowable veil luminance of 3.64 cd/m<sup>2</sup> as stated in *Section 5.1*. The predicted veil luminance was lower than 0.91 cd/m<sup>2</sup> at other sensitive receivers, ie far lower than the maximum allowable veil luminance. The prediction results are summarised in *Table 6.1*.

### 6.2 Source Intensity

The predicted maximum source intensity of each light source at the calculation points (1 to 4) is 3.67kcd, which is well within the CIBSE's requirement as stated in *Section 5.2*. The prediction results are summarised in *Table 6.1*.

### 6.3 Light Entry Through Window

The predicted maximum Lux level is 1.30 at the Mini Range Complex, which is much lower than the CIBSE's requirement of 10 Lux as stated in *Section 5.3*. The prediction results are presented in *Appendix B*, with relevant page numbers listed in *Table 6.1*.

**Table 6.1 Source Intensity Appendix B-DIALUX Report Reference**

Source intensity	DIALUX Report Page No.
Hong Kong Police College Building	15
Country Villa / Hill Building	16
Wong Chuk Hang Road Garden	17
Ocean Park MTR	18
Ocean Park Marriott Hotel	19
Aqua Park Building (Grand Aquarium)	20
	21

## 7. RECOMMENDATIONS

In accordance with the EP Condition 2.35, a specialist with training and practical experience in outdoor sport lighting and illumination had be employed to design, manage and oversee the implementation and maintenance of the illumination requirements and system for the show.

Although the assessment results indicate no significant glare impact at the representative sensitive receivers, it is still recommended to undertake at least two times of monitoring during the show test and the performance after commencement by the specialist. During each monitoring, the Lux levels should be measured with a Lux Meter or Light Meter at one of the mostly affected sensitive receivers before and during the show. The increase in the Lux level with the show should be compared with that before the show. The Lux level measured during the show should also be compared with the recommended CIBSE's requirement of 10 Lux.

In case the monitoring results indicate measured Lux level higher than 10 Lux, an investigation on the exceedance is required to be conducted by the specialist. Recommendations should be given on any need to adjust the lighting schedule of the show.

The specialist is also required to conduct regular checks, at least once a month, on the lights for the show to ensure all lights are fixed at not more than 70 degree vertical beam angle and all lights being used are under the lighting schedule.

Implementation schedule is presented in *Appendix D*.

## 8. CONCLUSIONS

The predicted maximum veil luminance (ie  $3.15 \text{ cd/m}^2$ ) at all representative sensitive receivers is lower than the maximum allowable veil luminance of  $3.64 \text{ cd/m}^2$ .

The predicted source intensities of all lightings from the show at the representative sensitive receivers are well below the criterion of 30kcd recommended by the CIBSE.

For light entry through window, the predicted Lux levels at all representative sensitive receivers are well below the CIBSE's recommendation of 10 Lux.

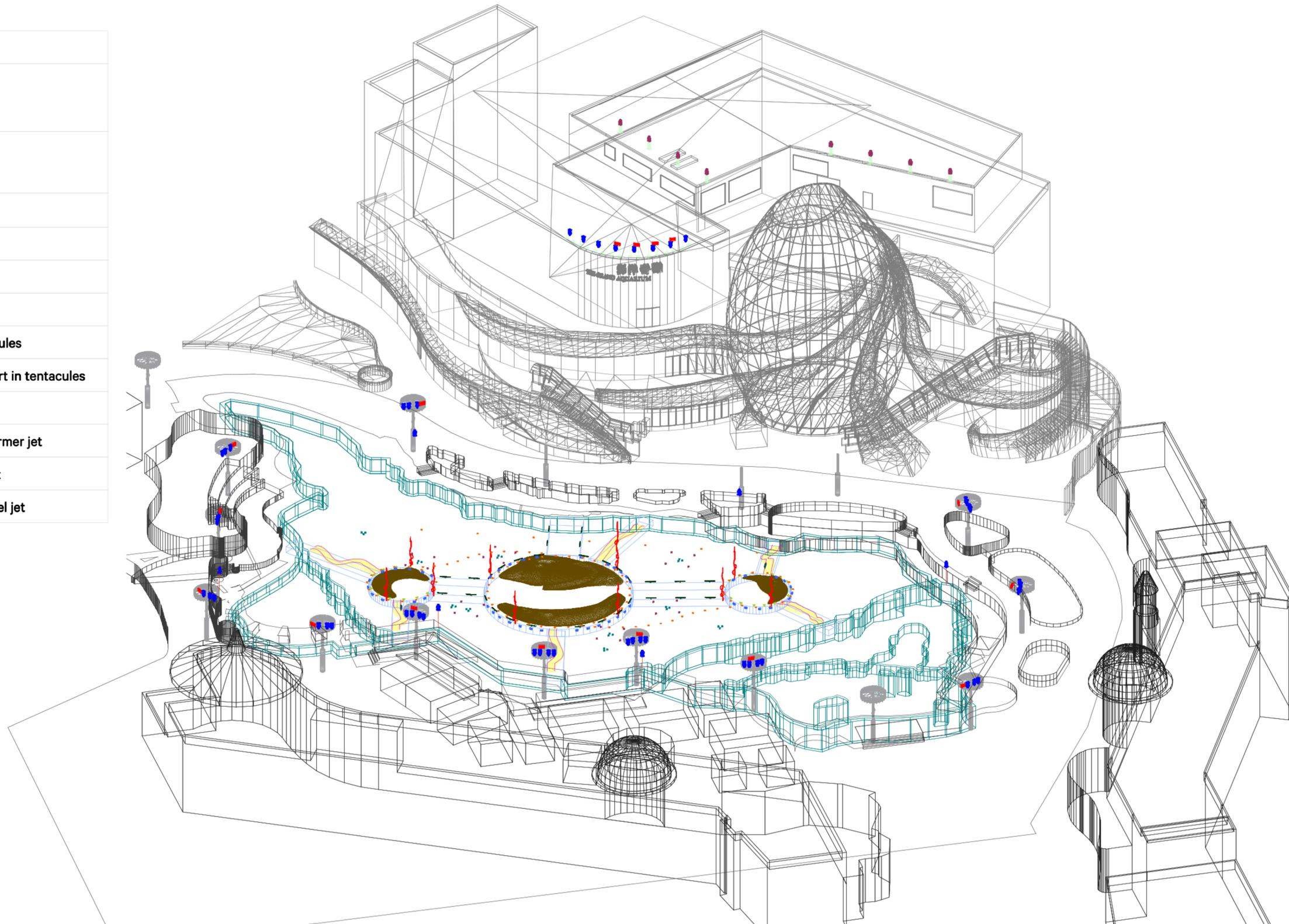
The potential glare impacts of the spot lights, underwater LED lights, flame jets, projectors, and lights of the lagoon night show to the representative sensitive receivers are considered insignificant. Laser projections are not considered in this report due to limitation of the computer modelling programme.

The potential night-time glare impacts are expected to be further mitigated by its absorption into the overall operational lighting of the Park.

## **APPENDIX A          UPDATED DESIGN LAYOUT PLANS AND DRAWINGS**

**LEGEND**

Symbol	Name	Count	Lens	Notes
	Proteus Hybrid	56		
	Aqua 480 BWS	8		
	P-10	16	19deg	Strob light
	Aqua Graze HO 4ft	30	60x60	Foot light
	Aqua Graze HO 1ft	26	60x60	Foot light
	Aqua Drum HO	8	40deg	Side light
	Dive 1R FC	114	Wide	Insert in tentacles
	Digital Led Strip	114		By meter / Insert in tentacles
	UWLED.E2B	47	15deg	
	UL 800 RGBW	30	Spot	Helix & transformer jet
	UL 800 RGBW	24	45deg	Transformer jet
	ULR 900 RGBW	93	16deg	Straight & Swifel jet



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Project

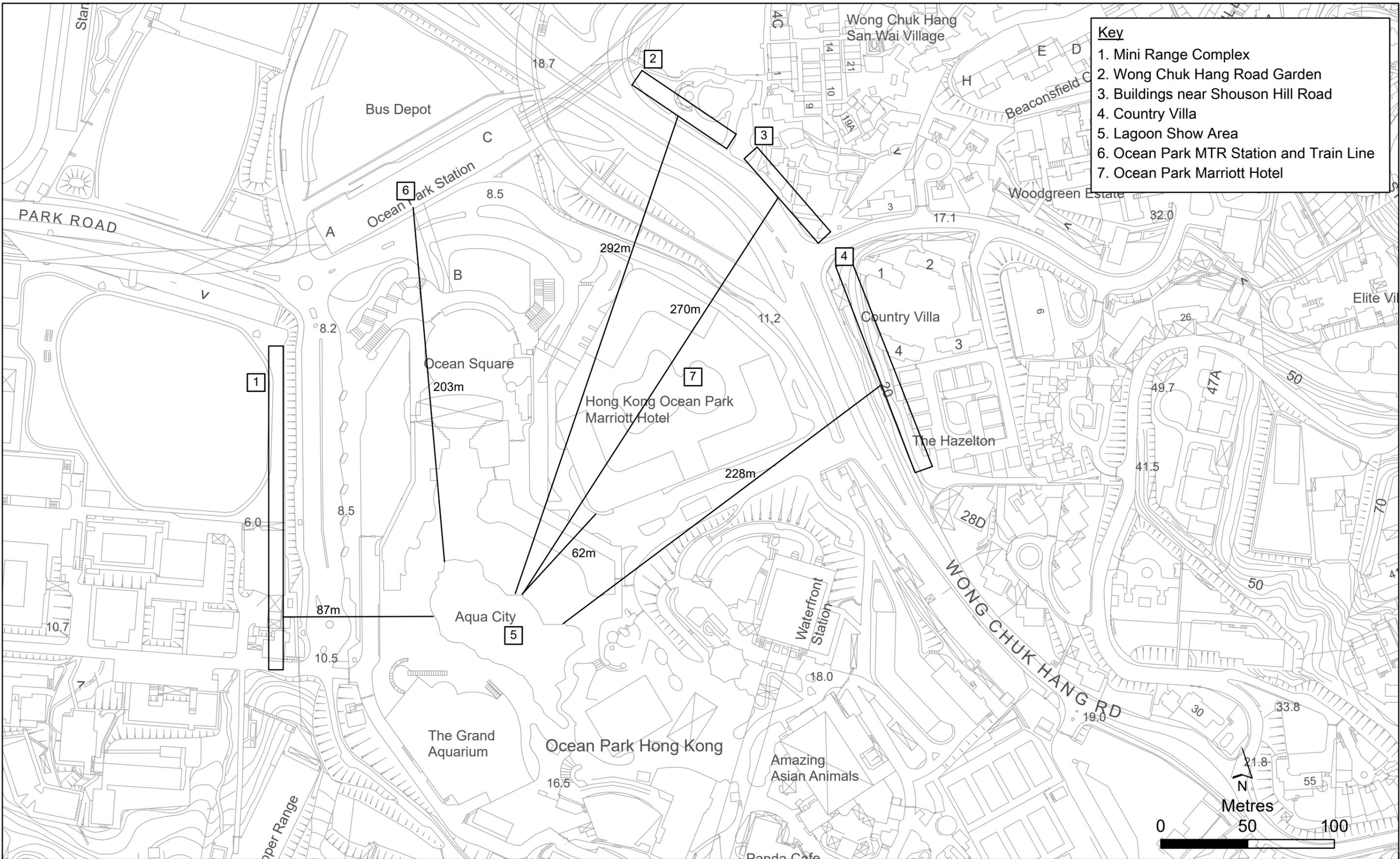
**OPeX**  
Ocean Park Experience

**MOMENT  
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Project manager	Moment Factory / Ptmigan	No.	Date	Description	Title	Modified date	
		R6.0	20190705	P10 and lagoon proteus patch update (mode change)	<b>OPeX</b> FULL ISOMETRIC VIEW LAGOON AND AQUARIUM	11/07/2019	
Lighting designer	Guillaume Fournier	R6.1	20190709	Remove 50 UWLED		Scale	NTS
Technical director	Pierre-Olivier Durand					Revision	R6.1
Drawing by	Guillaume Fournier					Drawing name	101_Full iso
						Sheet	101_Full iso

**APPENDIX B      LOCATIONS OF REPRESENTATIVE SENSITIVE  
RECEIVERS, THE LAGOON NIGHT SHOW AND DIALUX  
STUDY SIMULATION**



Appendix B

Locations of Representative Sensitive Receivers and the Lagoon Night Show

File: T:\GIS\CONTRACT\0511456\mxd\0511456\_Representative\_Sensitive\_Receivers\_and\_Lagoon\_Night\_Show.mxd  
 Date: 8/1/2020

Environmental  
 Resources  
 Management



## 1329 - Dialux Study Simulation

Partner for Contact:  
Order No.:  
Company:  
Customer No.:

Date: 31.12.2019  
Operator:

Operator  
Telephone  
Fax  
e-Mail

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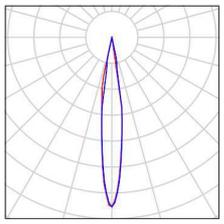
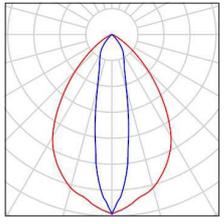
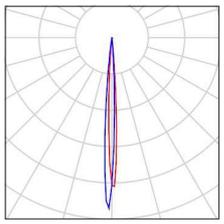
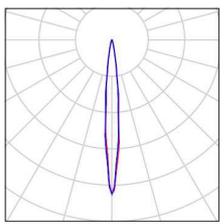
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### 1329 - Dialux Study Simulation / Luminaire parts list

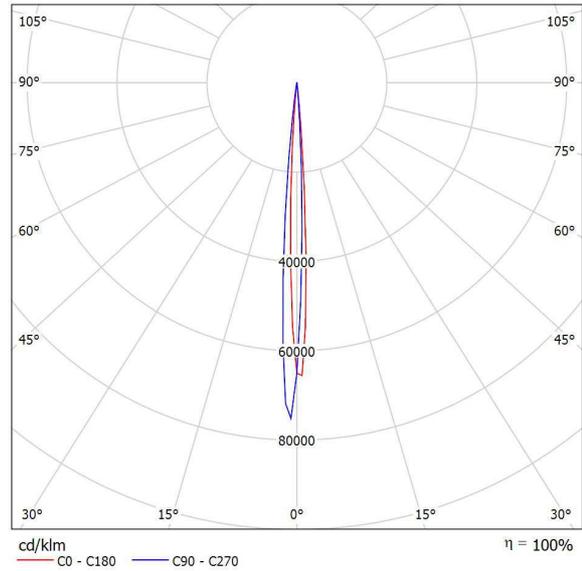
8 Pieces	<p>Elation Proteus Hybrid (Beam CTO color wheel Zoom Out) Article No.: Luminous flux (Luminaire): 6453 lm Luminous flux (Lamps): 6469 lm Luminaire Wattage: 649.0 W Luminaire classification according to CIE: 97 CIE flux code: 97 99 100 97 100 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	
69 Pieces	<p>Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W Article No.: Luminous flux (Luminaire): 30855 lm Luminous flux (Lamps): 36300 lm Luminaire Wattage: 0.0 W Luminaire classification according to CIE: 100 CIE flux code: 84 99 100 100 85 Fitting: 1 x HAL-TDL-1500W (Correction Factor 1.000).</p>		
8 Pieces	<p>PR Lighting PR-2497 Article No.: Luminous flux (Luminaire): 16774 lm Luminous flux (Lamps): 16816 lm Luminaire Wattage: 574.1 W Luminaire classification according to CIE: 100 CIE flux code: 100 100 100 100 100 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	
16 Pieces	<p>SGM P-10_All on_raw_LM-79 Article No.: Luminous flux (Luminaire): 23739 lm Luminous flux (Lamps): 23739 lm Luminaire Wattage: 1240.0 W Luminaire classification according to CIE: 100 CIE flux code: 97 99 100 100 101 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	

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## PR Lighting PR-2497 / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 100  
CIE flux code: 100 100 100 100 100

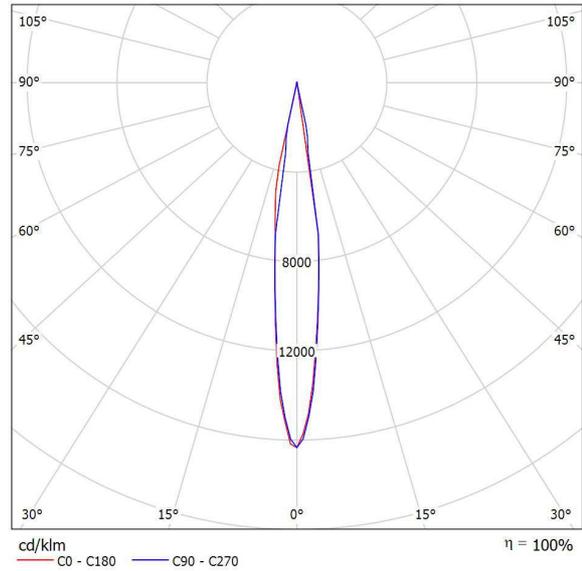
Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

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## Elation Proteus Hybrid (Beam CTO color wheel Zoom Out) / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



Luminaire classification according to CIE: 97  
CIE flux code: 97 99 100 97 100

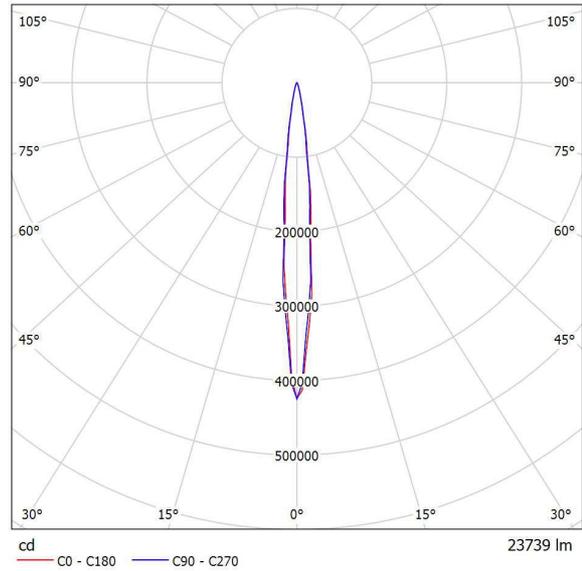
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## SGM P-10\_All on\_raw\_LM-79 / Luminaire Data Sheet

Luminous emittance 1:

See our luminaire catalog for an image of the luminaire.



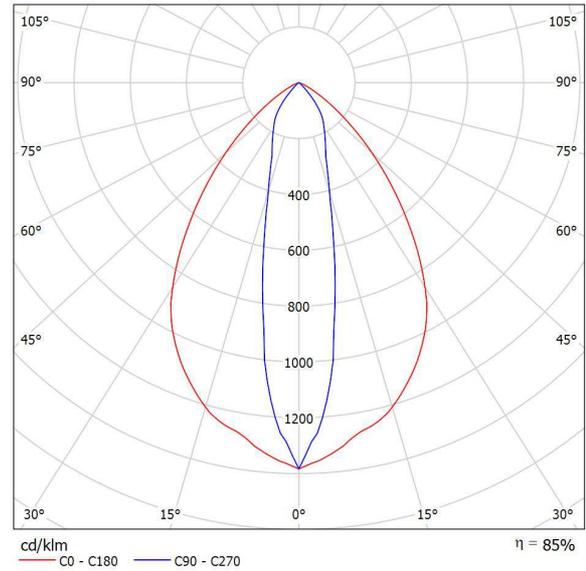
Luminaire classification according to CIE: 100  
CIE flux code: 97 99 100 100 101

Due to missing symmetry properties, no UGR table can be displayed for this luminaire.

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## Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W / Luminaire Data Sheet

### Luminous emittance 1:



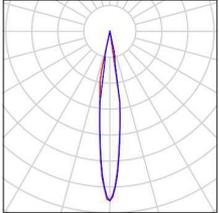
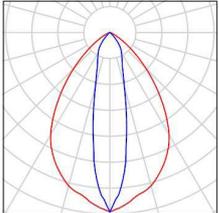
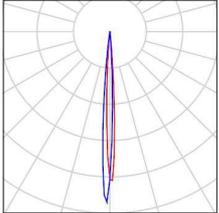
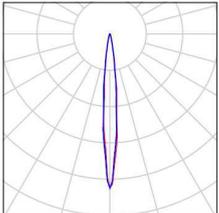
Luminaire classification according to CIE: 100  
CIE flux code: 84 99 100 100 85

### Luminous emittance 1:

Glare Evaluation According to UGR											
p Ceiling		70	70	50	50	30	70	70	50	50	30
p Walls		50	30	50	30	30	50	30	50	30	30
p Floor		20	20	20	20	20	20	20	20	20	20
Room Size X	Room Size Y	Viewing direction at right angles to lamp axis					Viewing direction parallel to lamp axis				
2H	2H	35.9	36.7	36.1	36.9	37.1	26.5	27.3	26.8	27.5	27.7
	3H	35.9	36.6	36.2	36.8	37.1	26.4	27.1	26.7	27.4	27.6
	4H	35.8	36.5	36.1	36.8	37.0	26.3	27.0	26.6	27.3	27.5
	6H	35.8	36.4	36.1	36.7	37.0	26.2	26.9	26.6	27.1	27.4
	8H	35.7	36.3	36.1	36.6	36.9	26.2	26.8	26.5	27.1	27.4
12H	35.7	36.3	36.0	36.6	36.9	26.2	26.7	26.5	27.0	27.4	
4H	2H	35.7	36.4	36.0	36.6	36.9	26.7	27.4	27.0	27.6	27.9
	3H	35.7	36.2	36.0	36.6	36.9	26.6	27.1	26.9	27.4	27.7
	4H	35.6	36.1	36.0	36.5	36.8	26.5	27.0	26.9	27.3	27.7
	6H	35.6	36.0	36.0	36.3	36.7	26.4	26.8	26.8	27.2	27.6
	8H	35.5	35.9	35.9	36.3	36.7	26.4	26.7	26.8	27.1	27.5
12H	35.5	35.8	35.9	36.2	36.6	26.3	26.7	26.8	27.1	27.5	
8H	4H	35.5	35.9	35.9	36.3	36.7	26.4	26.8	26.8	27.2	27.6
	6H	35.4	35.7	35.9	36.2	36.6	26.3	26.6	26.8	27.0	27.5
	8H	35.4	35.6	35.9	36.1	36.6	26.3	26.5	26.7	27.0	27.4
	12H	35.3	35.6	35.8	36.0	36.5	26.2	26.4	26.7	26.9	27.4
12H	4H	35.5	35.8	35.9	36.2	36.6	26.4	26.7	26.8	27.1	27.5
	6H	35.4	35.6	35.9	36.1	36.6	26.3	26.5	26.7	27.0	27.4
	8H	35.3	35.6	35.8	36.0	36.5	26.2	26.4	26.7	26.9	27.4
Variation of the observer position for the luminaire distances S											
S = 1.0H		+2.5	/	-4.1		+3.3	/	-9.6			
S = 1.5H		+5.0	/	-7.6		+4.6	/	-14.9			
S = 2.0H		+6.9	/	-10.6		+6.1	/	-27.4			
Standard table		BK00					BK00				
Correction Summand		16.8					7.5				
Corrected Glare Indices referring to 36300lm Total Luminous Flux											

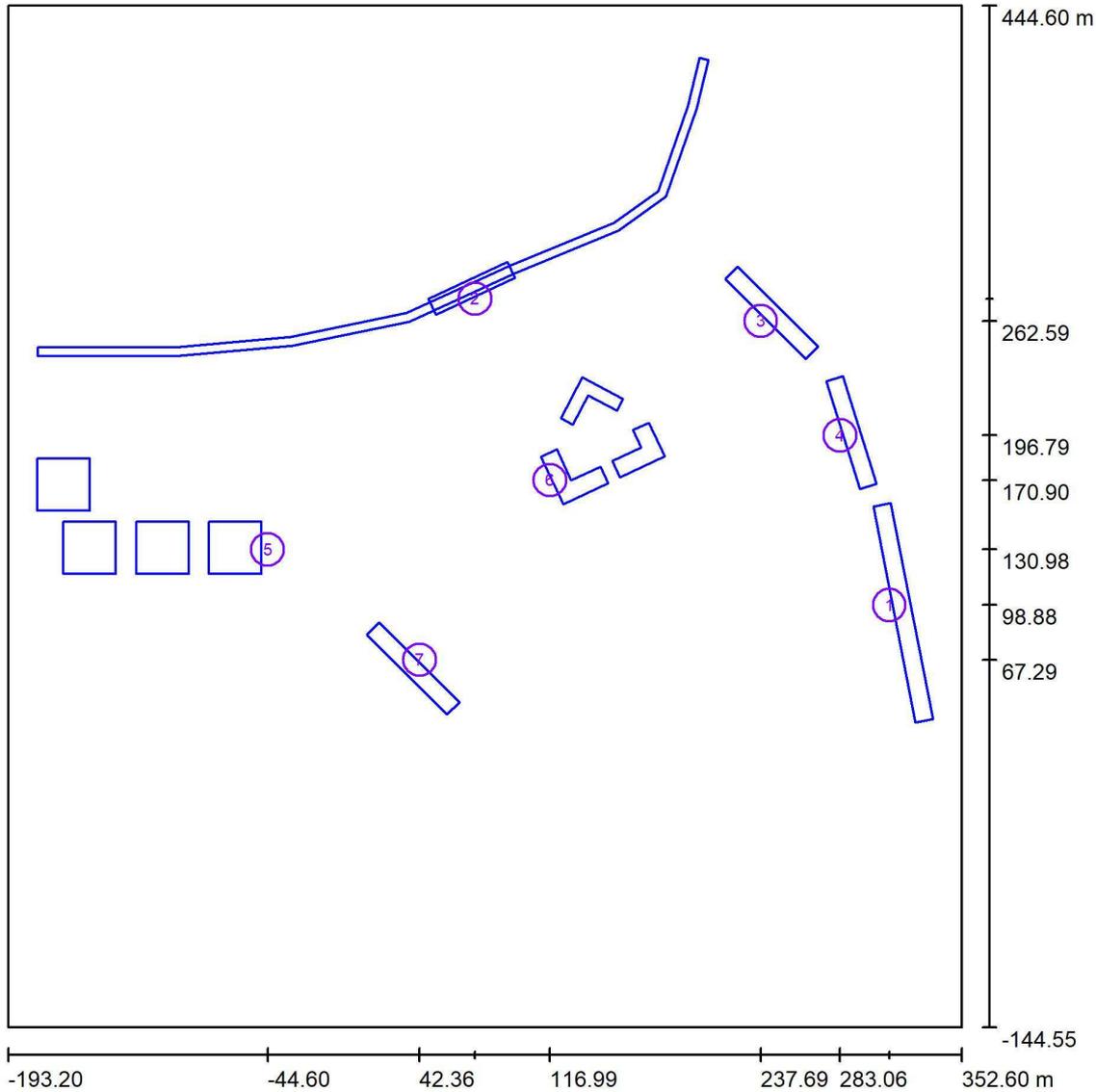
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## Lagoon Show / Luminaire parts list

8 Pieces	<p>Elation Proteus Hybrid (Beam CTO color wheel Zoom Out) Article No.: Luminous flux (Luminaire): 6453 lm Luminous flux (Lamps): 6469 lm Luminaire Wattage: 649.0 W Luminaire classification according to CIE: 97 CIE flux code: 97 99 100 97 100 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	
69 Pieces	<p>Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W Article No.: Luminous flux (Luminaire): 30855 lm Luminous flux (Lamps): 36300 lm Luminaire Wattage: 0.0 W Luminaire classification according to CIE: 100 CIE flux code: 84 99 100 100 85 Fitting: 1 x HAL-TDL-1500W (Correction Factor 1.000).</p>		
8 Pieces	<p>PR Lighting PR-2497 Article No.: Luminous flux (Luminaire): 16774 lm Luminous flux (Lamps): 16816 lm Luminaire Wattage: 574.1 W Luminaire classification according to CIE: 100 CIE flux code: 100 100 100 100 100 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	
16 Pieces	<p>SGM P-10_All on_raw_LM-79 Article No.: Luminous flux (Luminaire): 23739 lm Luminous flux (Lamps): 23739 lm Luminaire Wattage: 1240.0 W Luminaire classification according to CIE: 100 CIE flux code: 97 99 100 100 101 Fitting: 1 x User defined (Correction Factor 1.000).</p>	See our luminaire catalog for an image of the luminaire.	

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### Lagoon Show / Luminous intensity calculation points (coordinates list)



Scale 1 : 3984

#### List of the luminous intensity calculation points

No.	Designation	Position [m]		
		X	Y	Z
1	Source Intensity at Country Villa	311.225	98.882	6.000
2	Source Intensity at Ocean Park MTR	74.088	275.525	6.000
3	Source Intensity at Wong Chuk Hang Road Garden	237.689	262.590	6.000
4	Source Intensity at Building	283.057	196.789	6.000

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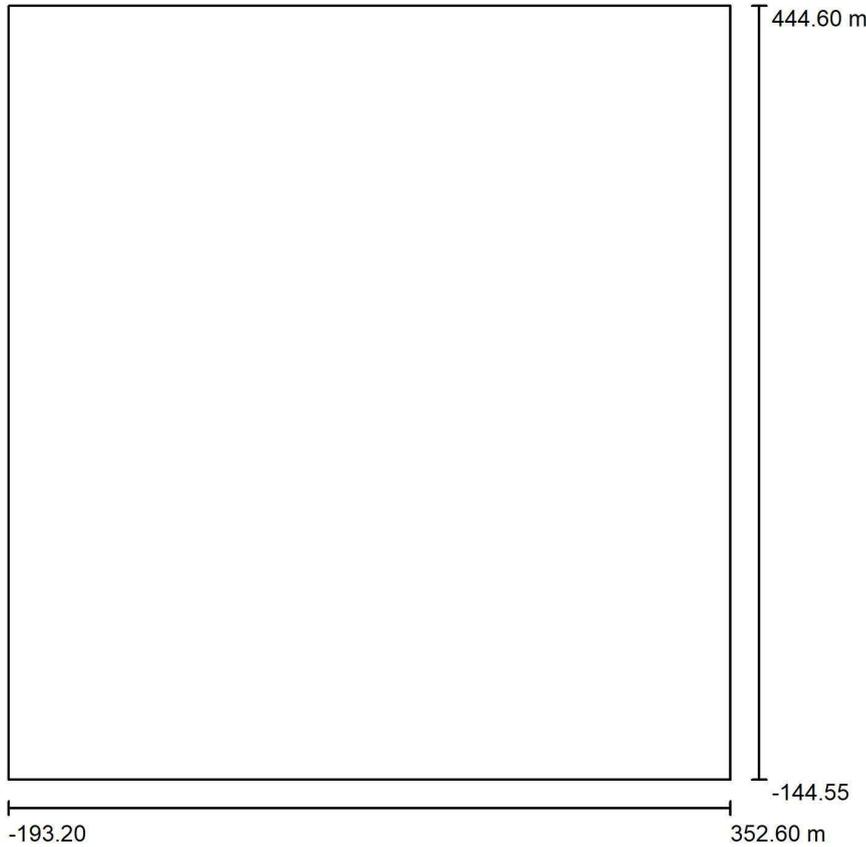
## Lagoon Show / Luminous intensity calculation points (coordinates list)

### List of the luminous intensity calculation points

No.	Designation	Position [m]		
		X	Y	Z
5	Source Intensity at Hong Kong Police College Building	-44.600	130.983	6.000
6	Source Intensity at Marriot Hotel	116.993	170.896	6.000
7	Source Intensity at Aqua Park Building	42.358	67.295	6.000

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### Lagoon Show / Normal / Planning data



Light loss factor: 0.75, ULR (Upward Light Ratio): 7.5%

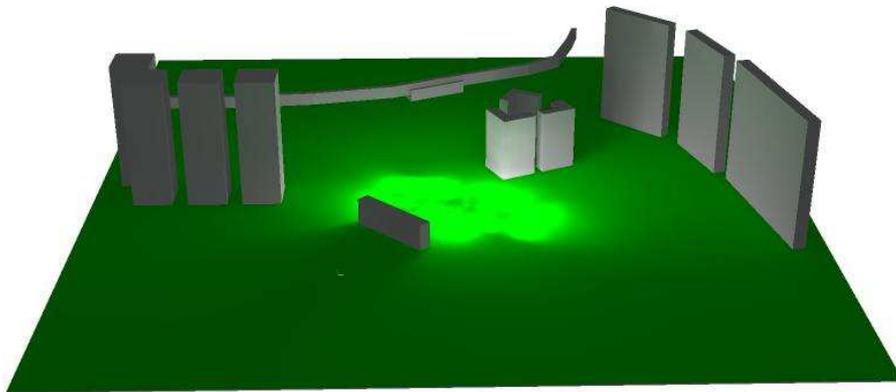
Scale 1:5462

#### Luminaire Parts List

No.	Pieces	Designation (Correction Factor)	Φ (Luminaire) [lm]	Φ (Lamps) [lm]	P [W]
1	8	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out) (1.000)	6453	6469	649.0
2	69	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W (1.000)	30855	36300	0.0
3	8	PR Lighting PR-2497 (1.000)	16774	16816	574.1
4	16	SGM P-10_All on_raw_LM-79 (1.000)	23739	23739	1240.0
Total:			2694631	Total: 3070801	29625.0

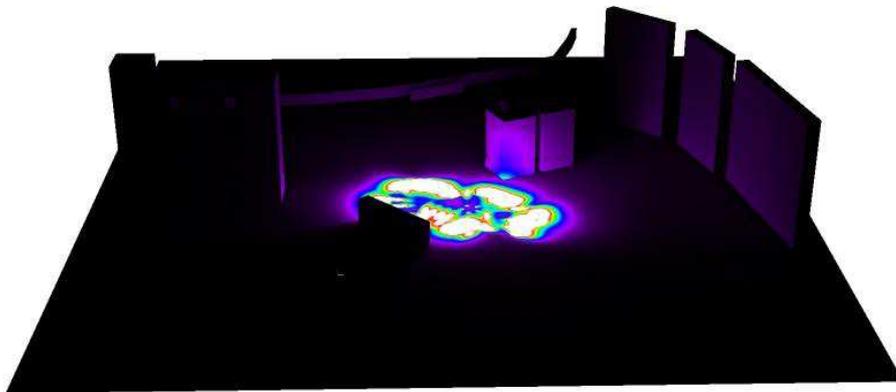
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## Lagoon Show / Normal / 3D Rendering



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### Lagoon Show / Normal / False Color Rendering

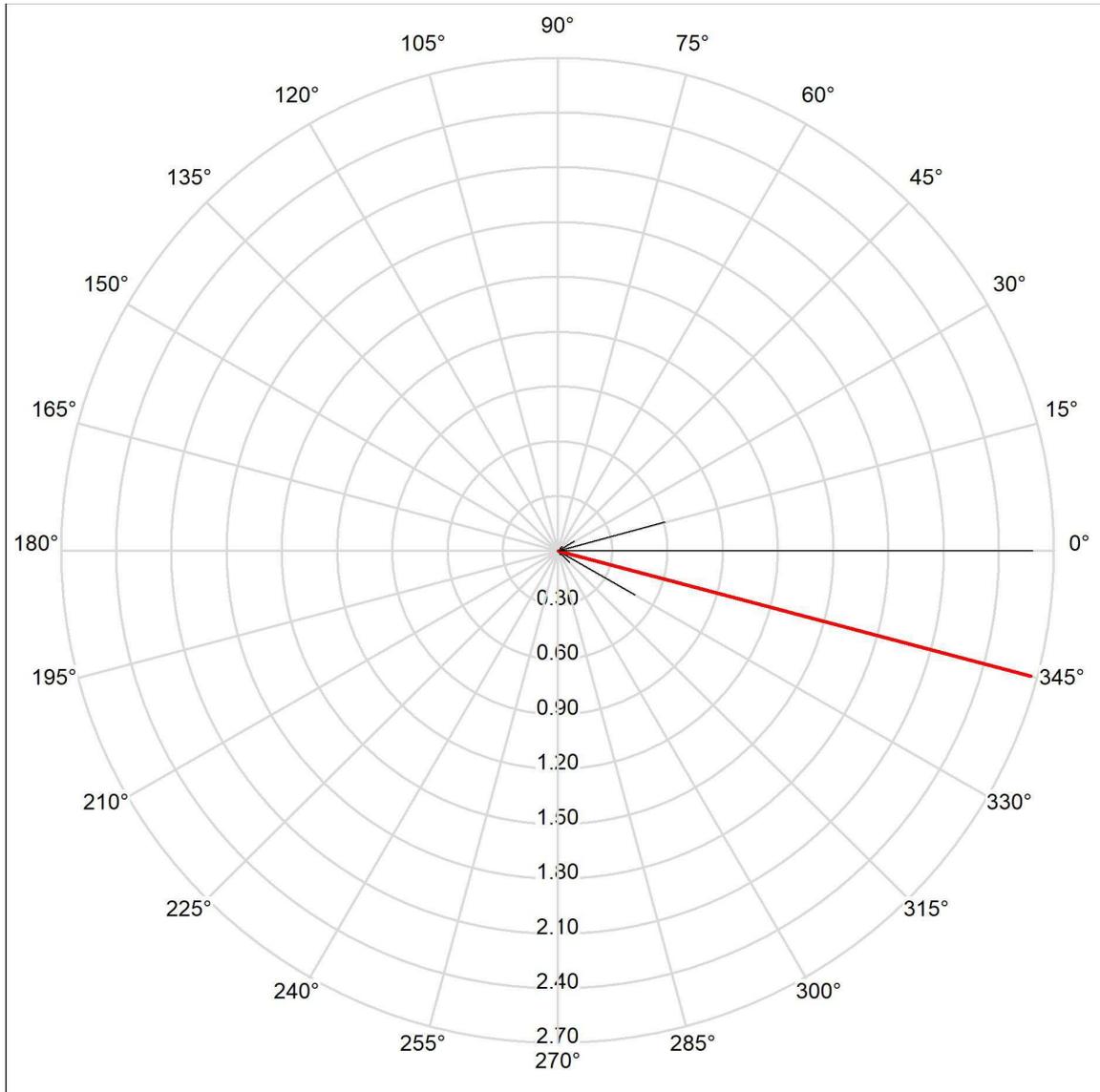


0 12.50 25 37.50 50 62.50 75 87.50 100

lx

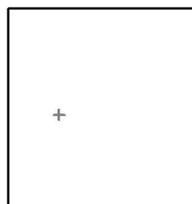
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### Lagoon Show / Normal / GR Observer at Hong Kong Police College Building / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (-44.600 m, 132.249 m, 6.000 m)

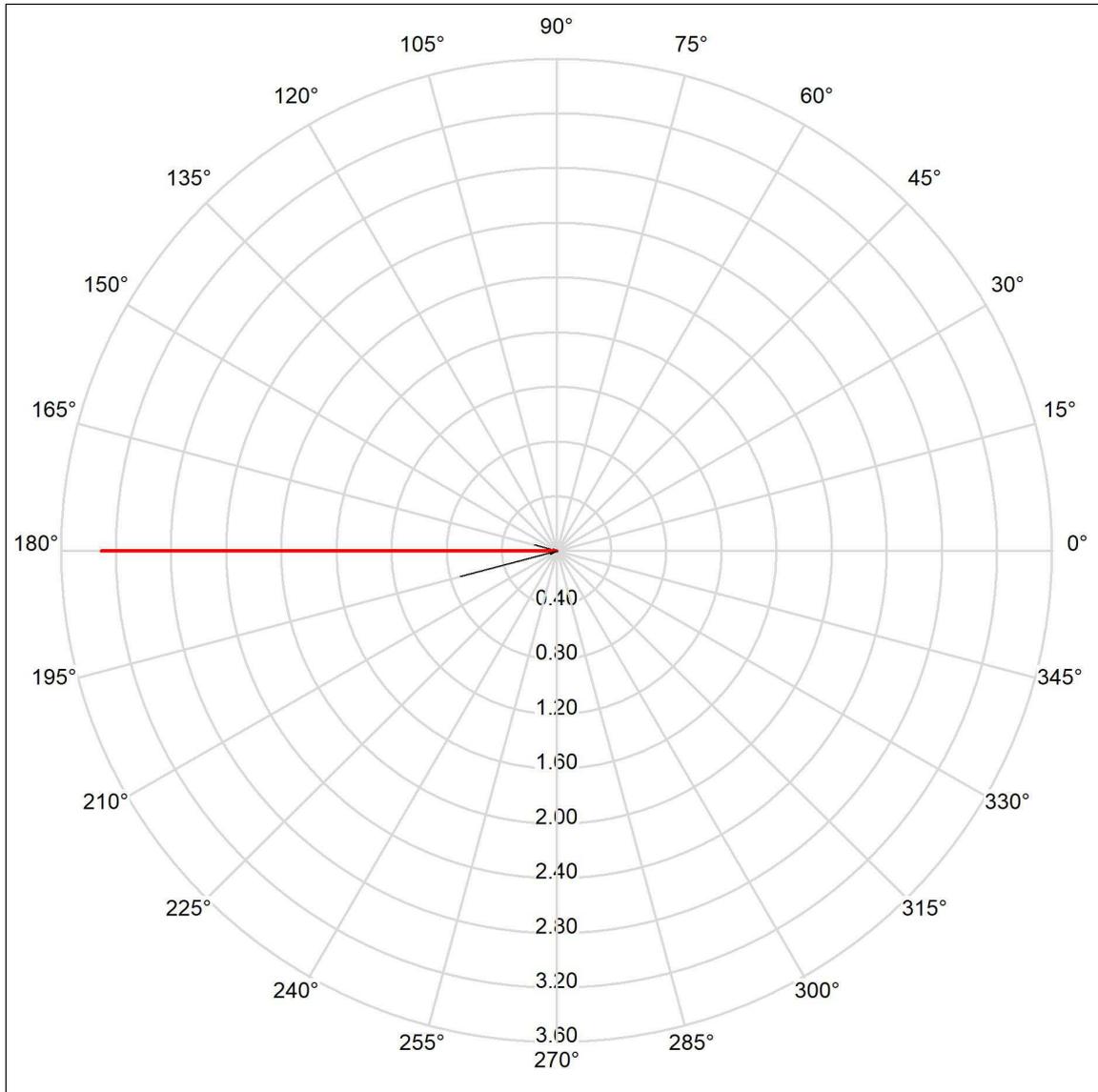
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 2.66 cd/m<sup>2</sup>

The equivalent veil luminance of the environment has been calculated precisely.

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### Lagoon Show / Normal / GR Observer at Coutry Villa / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (311.625 m, 97.111 m, 6.000 m)

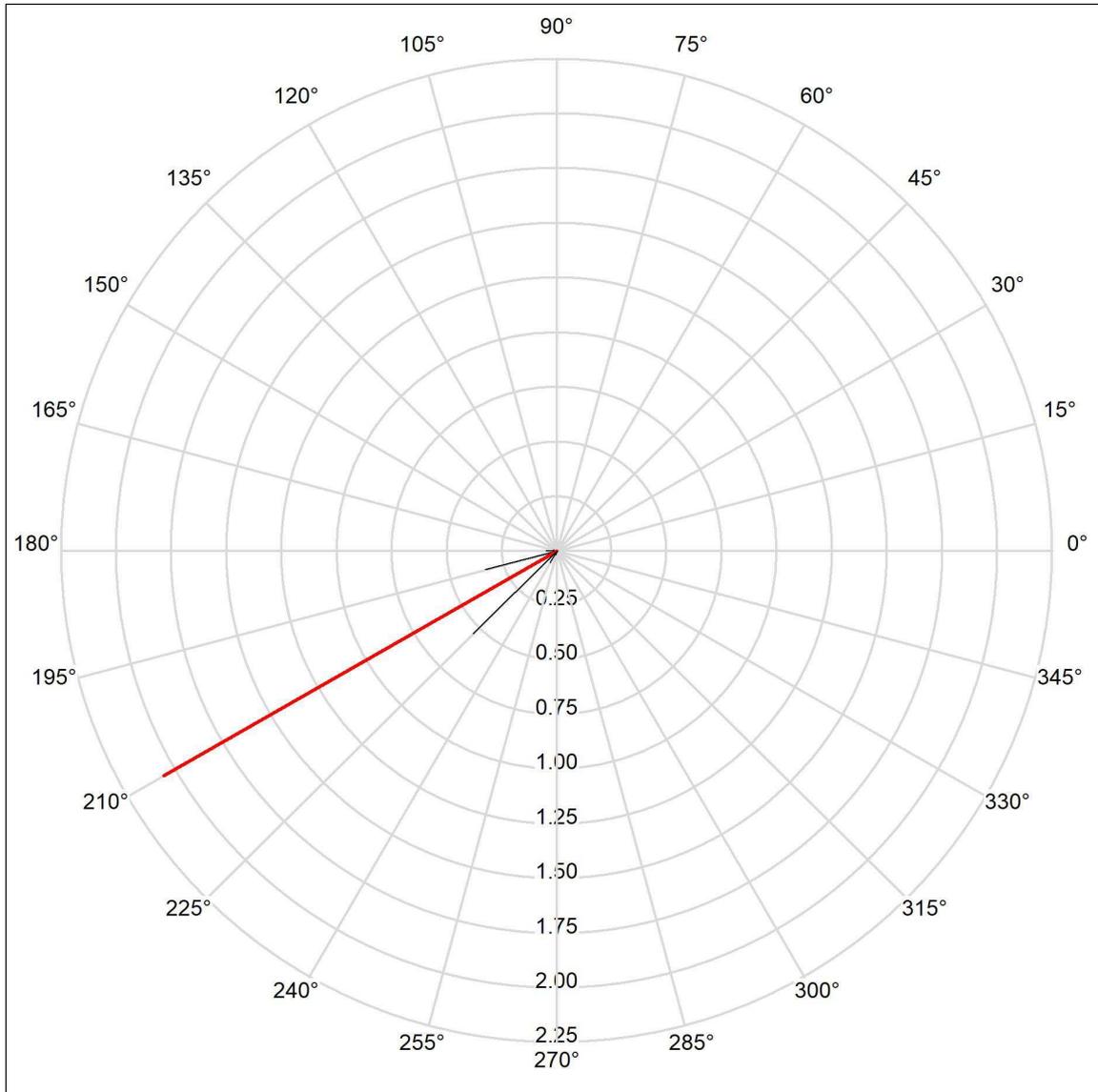
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 3.31 cd/m<sup>2</sup>

The calculated equivalent veil luminance of the environment is based on the assumption of a complete diffuse reflection behavior of the environment (acc. EN 12464-2).

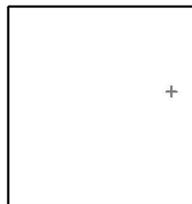
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### Lagoon Show / Normal / GR Observer at Building / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (283.571 m, 195.061 m, 6.000 m)

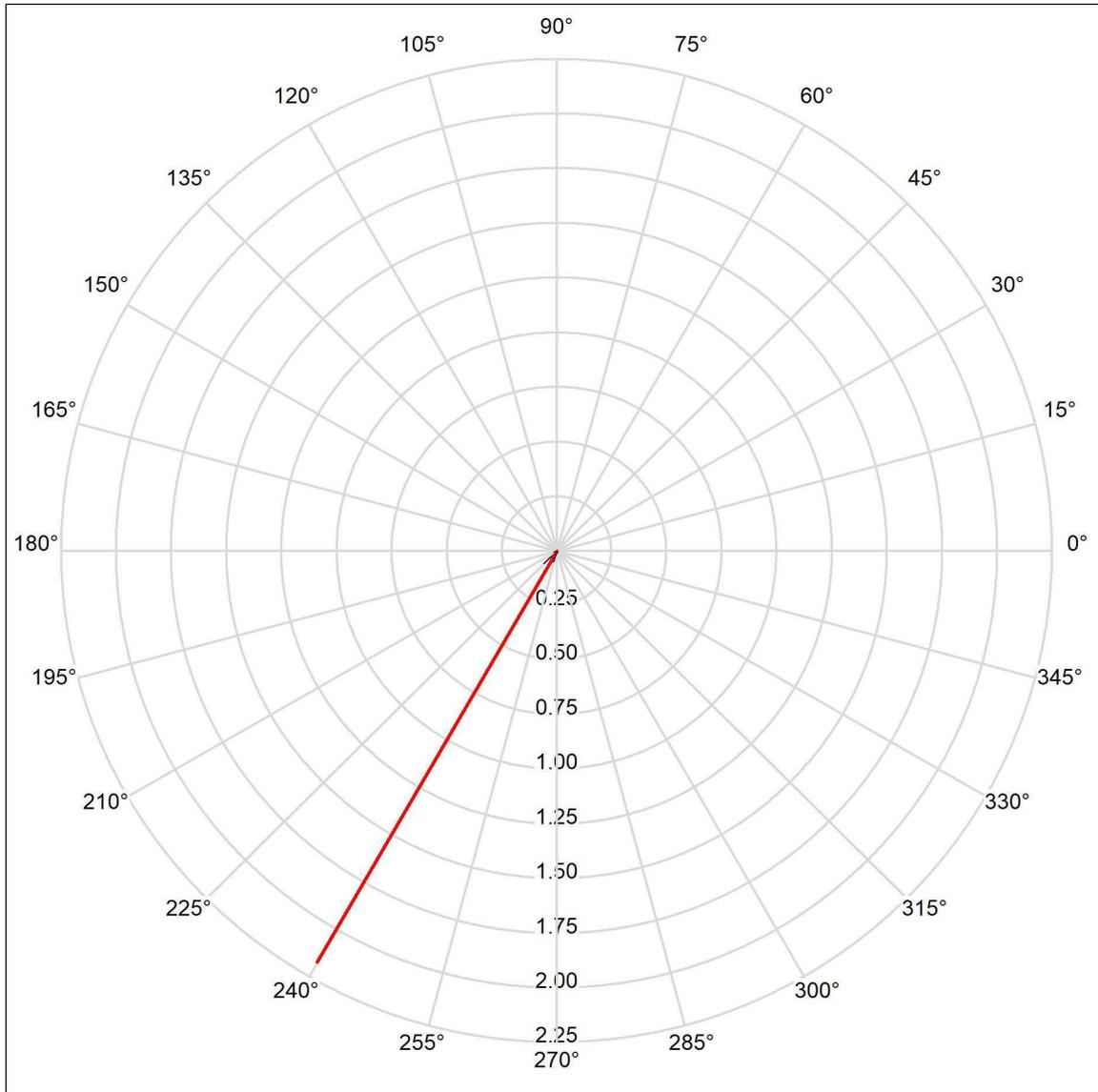
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 2.06 cd/m<sup>2</sup>

The calculated equivalent veil luminance of the environment is based on the assumption of a complete diffuse reflection behavior of the environment (acc. EN 12464-2).

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### Lagoon Show / Normal / GR Observer at Wong Chuk Hang Road Garden / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (239.100 m, 261.224 m, 6.000 m)

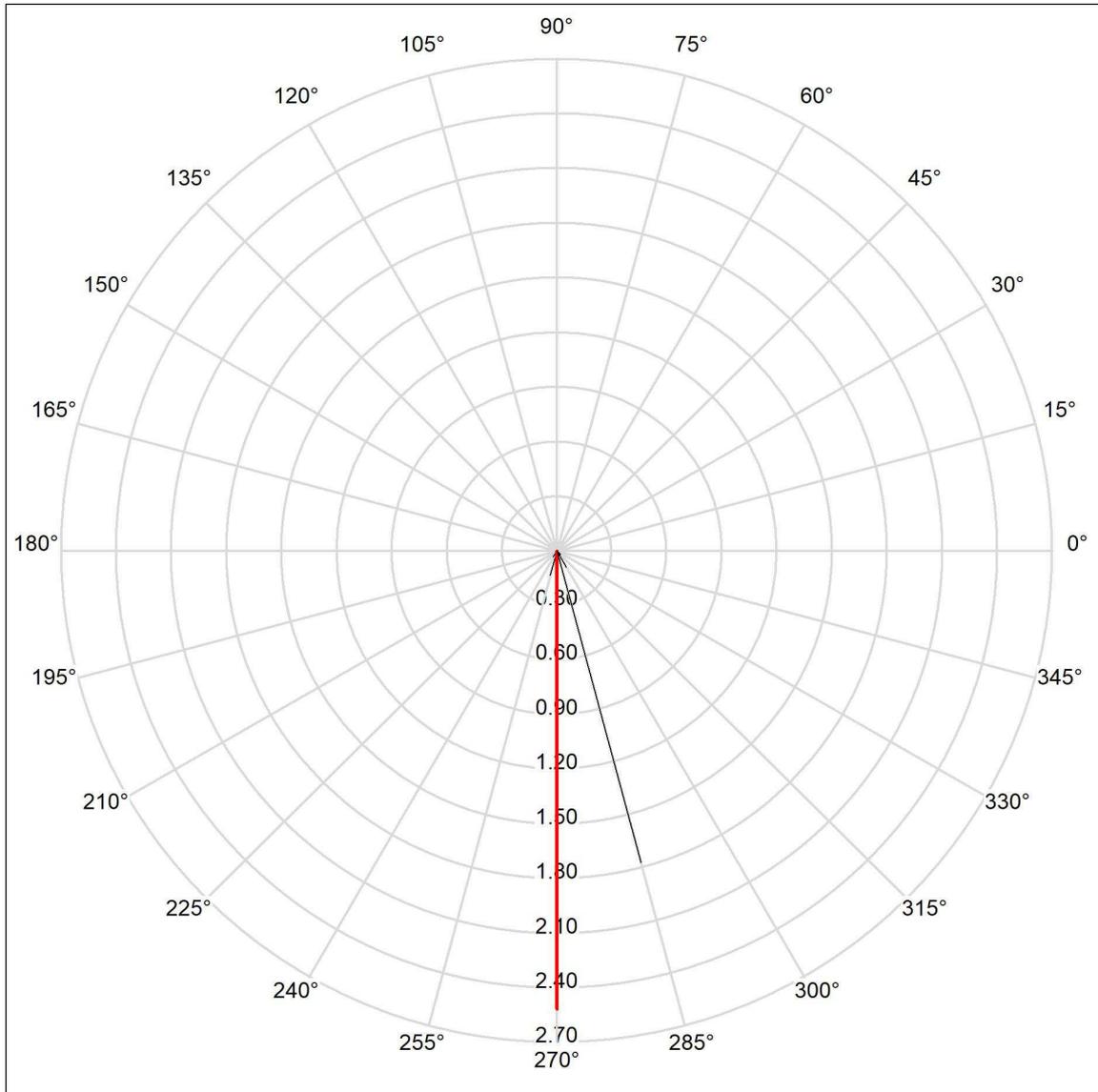
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 2.17 cd/m<sup>2</sup>

The calculated equivalent veil luminance of the environment is based on the assumption of a complete diffuse reflection behavior of the environment (acc. EN 12464-2).

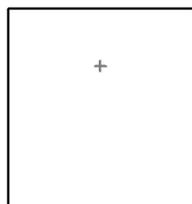
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### Lagoon Show / Normal / GR Observer at Ocean Park MTR / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (75.535 m, 276.099 m, 6.000 m)

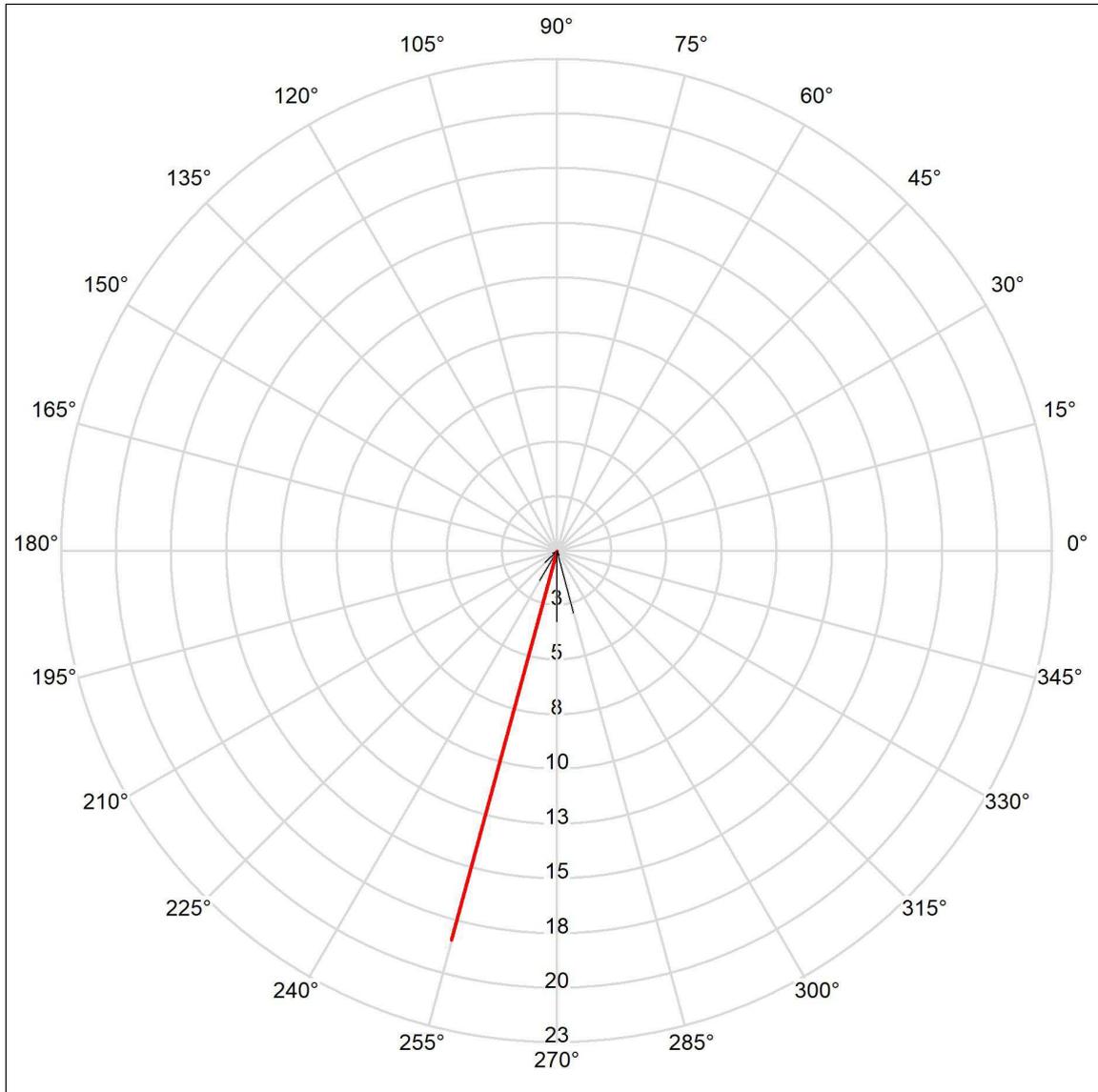
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 2.52 cd/m<sup>2</sup>

The equivalent veil luminance of the environment has been calculated precisely.

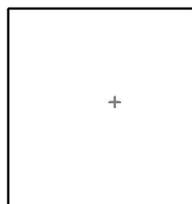
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### Lagoon Show / Normal / GR Observer at Marriott Hotel / Veil Luminances



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (117.494 m, 169.689 m, 6.000 m)

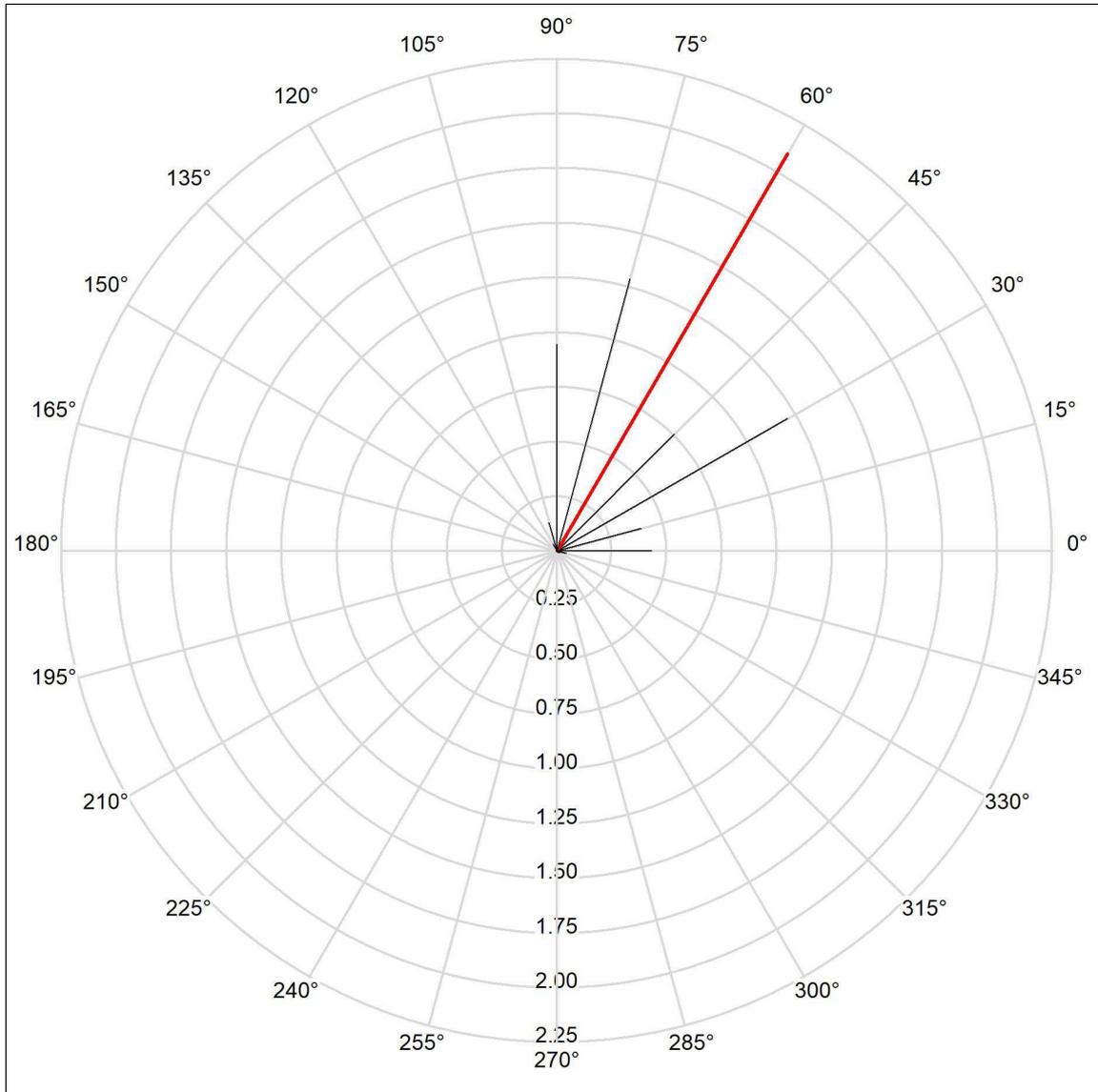
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 18 cd/m<sup>2</sup>

The equivalent veil luminance of the environment has been calculated precisely.

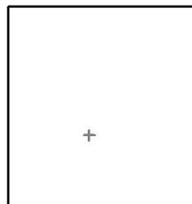
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**Lagoon Show / Normal / GR Observer at Aqua Park Building / Veil Luminances**



Values in Candela/m<sup>2</sup>

Position of observer in external scene:



Position: (43.358 m, 66.328 m, 6.000 m)

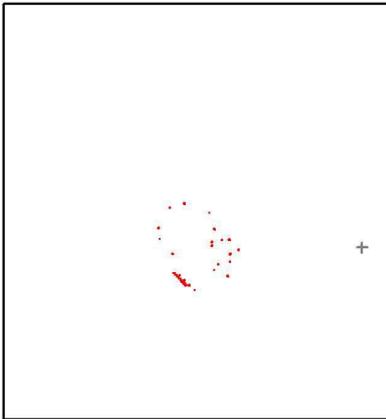
Viewing sector: 0.0 ° - 360.0 °, Increment: 15.0 °, Angle of inclination: -2.0 °

Veil Luminance: Min: 0.00 cd/m<sup>2</sup>, Max: 2.10 cd/m<sup>2</sup>

The equivalent veil luminance of the environment has been calculated precisely.

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## Lagoon Show / Normal / Source Intensity at Country Villa / Summary



Position: (311.225 m, 98.882 m, 6.000 m)

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	212
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	214
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	217
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	7538
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	7531
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	7526
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	19627
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	486
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	490
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	495
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	7491
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	7503
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.229	89.514	6.031	Luminous emittance 1	2001
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.670	89.875	6.031	Luminous emittance 1	2018
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	126.148	90.258	6.029	Luminous emittance 1	2035

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## Lagoon Show / Normal / Source Intensity at Country Villa / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.863	101.802	0.100	Luminous emittance 1	3083
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	2685
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	7972
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	7968
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	7971
21	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	5421
22	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	4365
23	SGM P-10_All on_raw_LM-79	40.765	155.611	6.000	Luminous emittance 1	76
24	SGM P-10_All on_raw_LM-79	96.365	148.899	6.000	Luminous emittance 1	20
25	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	19
26	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	437
27	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	529
28	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	603
29	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	741
30	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	24
31	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	28
32	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	35
33	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	51
34	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	86
35	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	89
36	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	92
37	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	96
38	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	2
39	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	3

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## Lagoon Show / Normal / Source Intensity at Country Villa / Summary

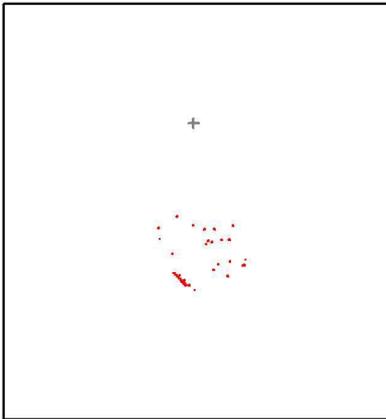
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	4
41	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	4
42	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	7
43	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	7
44	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	7
45	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	8
46	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	162.016	12.000	Luminous emittance 1	233
47	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	162.016	12.000	Luminous emittance 1	591
48	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	160.716	12.000	Luminous emittance 1	169
49	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	160.716	12.000	Luminous emittance 1	423
50	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	2787
51	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.962	89.561	5.000	Luminous emittance 1	901
52	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	105

Only luminaires are listed that exceed the limit value of the interference effect. This limit value is: 1 cd.

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## Lagoon Show / Normal / Source Intensity at Ocean Park MTR / Summary



Position: (74.088 m, 275.525 m, 6.000 m)

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	5107
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	5080
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	5051
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.270	110.756	6.029	Luminous emittance 1	157
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.500	110.200	6.029	Luminous emittance 1	156
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	346
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	4311
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	4272
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	4230
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.220	124.280	6.029	Luminous emittance 1	4954
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.609	124.736	6.029	Luminous emittance 1	4983
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	90.000	125.100	6.031	Luminous emittance 1	5011
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	72.773	130.379	6.029	Luminous emittance 1	7505
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.322	130.511	49.500	Luminous emittance 1	31180
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.854	130.650	6.031	Luminous emittance 1	7510

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## Lagoon Show / Normal / Source Intensity at Ocean Park MTR / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.816	142.706	6.084	Luminous emittance 1	29
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	22
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	22
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	829
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.004	108.324	0.100	Luminous emittance 1	4857
21	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	92.128	104.200	0.100	Luminous emittance 1	9
22	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	125
23	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	127
24	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	126
25	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	28
26	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	18
27	SGM P-10_All on_raw_LM-79	147.005	82.271	6.000	Luminous emittance 1	49
28	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	4252
29	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	789
30	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	675
31	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	570
32	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	480
33	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	231
34	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	197
35	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	148
36	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	111
37	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	62
38	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	60
39	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	58

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## Lagoon Show / Normal / Source Intensity at Ocean Park MTR / Summary

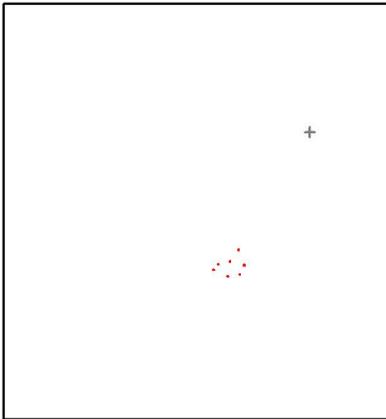
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	57
41	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	34
42	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	22
43	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	16
44	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	10
45	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	5
46	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	4
47	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	4
48	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	4
49	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	129.441	130.466	12.000	Luminous emittance 1	25
50	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.076	129.828	12.000	Luminous emittance 1	5
51	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	2130
52	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	2133
53	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	77
54	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	77
55	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.714	73.905	5.000	Luminous emittance 1	66
56	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	142.934	73.455	5.000	Luminous emittance 1	65
57	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	541
58	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	3659
59	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	883

Only luminaires are listed that exceed the limit value of the interference effect. This limit value is: 1 cd.

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## Lagoon Show / Normal / Source Intensity at Wong Chuk Hang Road Garden / Summary



Position: (237.689 m, 262.590 m, 6.000 m)

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	1084
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	1073
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	1061
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	5860
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	5834
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	5882
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	6498
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	6520
9	SGM P-10_All on_raw_LM-79	139.459	60.750	6.000	Luminous emittance 1	20
10	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	751
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	1508
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	1500
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	48
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	49
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	3544

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## Lagoon Show / Normal / Source Intensity at Wong Chuk Hang Road Garden / Summary

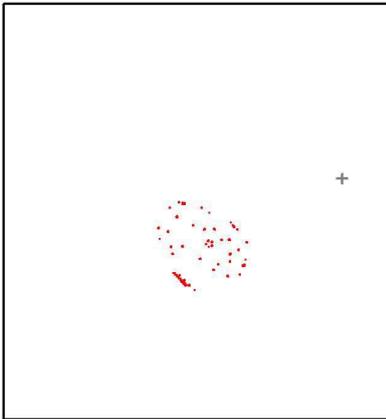
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	1500

Only luminaires are listed that exceed the limit value of the interference effect. This limit value is: 1 cd.

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## Lagoon Show / Normal / Source Intensity at Building / Summary



Position: (283.057 m, 196.789 m, 6.000 m)

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	4863
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	4890
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	4920
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	5660
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	5628
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	5593
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.270	110.756	6.029	Luminous emittance 1	7482
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.500	110.200	6.029	Luminous emittance 1	7491
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	26199
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	0
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	5345
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	5368
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.220	124.280	6.029	Luminous emittance 1	0
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.609	124.736	6.029	Luminous emittance 1	0
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	90.000	125.100	6.031	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	72.773	130.379	6.029	Luminous emittance 1	0
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.322	130.511	49.500	Luminous emittance 1	0
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.854	130.650	6.031	Luminous emittance 1	0
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.802	141.524	6.081	Luminous emittance 1	0
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.806	142.093	6.081	Luminous emittance 1	0
21	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.816	142.706	6.084	Luminous emittance 1	0
22	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.690	120.810	6.081	Luminous emittance 1	0
23	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.680	121.380	6.081	Luminous emittance 1	0
24	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.676	121.992	6.084	Luminous emittance 1	0
25	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.717	100.606	6.084	Luminous emittance 1	0
26	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	82.609	82.886	6.084	Luminous emittance 1	0
27	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.178	82.886	6.084	Luminous emittance 1	0
28	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.791	82.879	6.081	Luminous emittance 1	0
29	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	7493
30	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	7499
31	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	7486
32	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.229	89.514	6.031	Luminous emittance 1	0
33	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.670	89.875	6.031	Luminous emittance 1	0
34	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	126.148	90.258	6.029	Luminous emittance 1	0
35	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.863	101.802	0.100	Luminous emittance 1	337
36	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	5002
37	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.004	108.324	0.100	Luminous emittance 1	0
38	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	92.128	104.200	0.100	Luminous emittance 1	0
39	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.252	100.067	0.100	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	7940
41	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	7928
42	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	7934
43	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.890	99.310	6.081	Luminous emittance 1	0
44	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.880	99.880	6.081	Luminous emittance 1	0
45	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.876	100.492	6.084	Luminous emittance 1	0
46	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	2227
47	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	1042
48	SGM P-10_All on_raw_LM-79	40.765	155.611	6.000	Luminous emittance 1	0
49	SGM P-10_All on_raw_LM-79	53.736	163.323	6.000	Luminous emittance 1	0
50	SGM P-10_All on_raw_LM-79	85.332	155.531	6.000	Luminous emittance 1	0
51	SGM P-10_All on_raw_LM-79	96.365	148.899	6.000	Luminous emittance 1	0
52	SGM P-10_All on_raw_LM-79	126.555	134.616	6.000	Luminous emittance 1	0
53	SGM P-10_All on_raw_LM-79	135.833	124.882	6.000	Luminous emittance 1	0
54	SGM P-10_All on_raw_LM-79	149.344	106.609	6.000	Luminous emittance 1	0
55	SGM P-10_All on_raw_LM-79	147.005	82.271	6.000	Luminous emittance 1	0
56	SGM P-10_All on_raw_LM-79	139.459	60.750	6.000	Luminous emittance 1	0
57	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	0
58	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	2327
59	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	2894
60	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	3329
61	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	4033
62	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	63
63	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	86

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## Lagoon Show / Normal / Source Intensity at Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
64	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	117
65	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	157
66	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	231
67	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	233
68	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	234
69	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	236
70	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	5
71	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	7
72	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	10
73	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	14
74	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	34
75	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	36
76	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	38
77	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	39
78	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	162.016	12.000	Luminous emittance 1	0
79	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	162.016	12.000	Luminous emittance 1	0
80	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	162.016	12.000	Luminous emittance 1	0
81	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	162.016	12.000	Luminous emittance 1	0
82	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	160.716	12.000	Luminous emittance 1	0
83	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	160.716	12.000	Luminous emittance 1	0
84	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	160.716	12.000	Luminous emittance 1	0
85	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	160.716	12.000	Luminous emittance 1	0
86	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	129.441	130.466	12.000	Luminous emittance 1	0
87	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.076	129.828	12.000	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Building / Summary

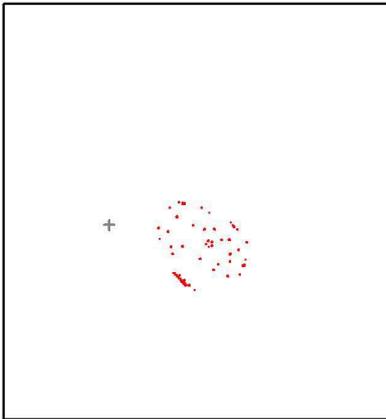
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
88	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.711	129.190	12.000	Luminous emittance 1	0
89	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	131.346	128.553	12.000	Luminous emittance 1	0
90	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	403
91	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	401
92	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.364	72.779	5.000	Luminous emittance 1	0
93	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.584	72.329	5.000	Luminous emittance 1	0
94	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	31
95	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	30
96	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.714	73.905	5.000	Luminous emittance 1	0
97	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	142.934	73.455	5.000	Luminous emittance 1	0
98	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	3620
99	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	291
100	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.962	89.561	5.000	Luminous emittance 1	894
101	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	574

All luminaires placed in the exterior scene are listed.

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### Lagoon Show / Normal / Source Intensity at Hong Kong Police College Building / Summary



Position: (-44.600 m, 130.983 m, 6.000 m)

#### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	0
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	0
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	0
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	0
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	0
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	0
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.270	110.756	6.029	Luminous emittance 1	0
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.500	110.200	6.029	Luminous emittance 1	0
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	0
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	0
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	0
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	0
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.220	124.280	6.029	Luminous emittance 1	4311
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.609	124.736	6.029	Luminous emittance 1	4261
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	90.000	125.100	6.031	Luminous emittance 1	4220

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## Lagoon Show / Normal / Source Intensity at Hong Kong Police College Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	72.773	130.379	6.029	Luminous emittance 1	119
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.322	130.511	49.500	Luminous emittance 1	291
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.854	130.650	6.031	Luminous emittance 1	117
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.802	141.524	6.081	Luminous emittance 1	6840
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.806	142.093	6.081	Luminous emittance 1	6818
21	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.816	142.706	6.084	Luminous emittance 1	6798
22	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.690	120.810	6.081	Luminous emittance 1	7438
23	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.680	121.380	6.081	Luminous emittance 1	7442
24	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.676	121.992	6.084	Luminous emittance 1	7440
25	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.717	100.606	6.084	Luminous emittance 1	0
26	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	82.609	82.886	6.084	Luminous emittance 1	0
27	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.178	82.886	6.084	Luminous emittance 1	0
28	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.791	82.879	6.081	Luminous emittance 1	0
29	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	0
30	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	0
31	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	0
32	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.229	89.514	6.031	Luminous emittance 1	0
33	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.670	89.875	6.031	Luminous emittance 1	0
34	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	126.148	90.258	6.029	Luminous emittance 1	0
35	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.863	101.802	0.100	Luminous emittance 1	0
36	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	0
37	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.004	108.324	0.100	Luminous emittance 1	1673
38	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	92.128	104.200	0.100	Luminous emittance 1	5143
39	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.252	100.067	0.100	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Hong Kong Police College Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	0
41	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	0
42	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	0
43	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.890	99.310	6.081	Luminous emittance 1	7366
44	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.880	99.880	6.081	Luminous emittance 1	7390
45	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.876	100.492	6.084	Luminous emittance 1	7410
46	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	0
47	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	0
48	SGM P-10_All on_raw_LM-79	40.765	155.611	6.000	Luminous emittance 1	0
49	SGM P-10_All on_raw_LM-79	53.736	163.323	6.000	Luminous emittance 1	20
50	SGM P-10_All on_raw_LM-79	85.332	155.531	6.000	Luminous emittance 1	70
51	SGM P-10_All on_raw_LM-79	96.365	148.899	6.000	Luminous emittance 1	22
52	SGM P-10_All on_raw_LM-79	126.555	134.616	6.000	Luminous emittance 1	185
53	SGM P-10_All on_raw_LM-79	135.833	124.882	6.000	Luminous emittance 1	133
54	SGM P-10_All on_raw_LM-79	149.344	106.609	6.000	Luminous emittance 1	0
55	SGM P-10_All on_raw_LM-79	147.005	82.271	6.000	Luminous emittance 1	4426
56	SGM P-10_All on_raw_LM-79	139.459	60.750	6.000	Luminous emittance 1	3128
57	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	0
58	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	0
59	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	0
60	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	0
61	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	0
62	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	0
63	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Hong Kong Police College Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
64	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	0
65	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	0
66	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	0
67	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	0
68	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	0
69	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	0
70	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	0
71	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	0
72	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	0
73	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	0
74	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	0
75	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	0
76	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	0
77	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	0
78	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	162.016	12.000	Luminous emittance 1	1206
79	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	162.016	12.000	Luminous emittance 1	566
80	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	162.016	12.000	Luminous emittance 1	13
81	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	162.016	12.000	Luminous emittance 1	0
82	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	160.716	12.000	Luminous emittance 1	507
83	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	160.716	12.000	Luminous emittance 1	302
84	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	160.716	12.000	Luminous emittance 1	8
85	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	160.716	12.000	Luminous emittance 1	0
86	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	129.441	130.466	12.000	Luminous emittance 1	2764
87	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.076	129.828	12.000	Luminous emittance 1	2801

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## Lagoon Show / Normal / Source Intensity at Hong Kong Police College Building / Summary

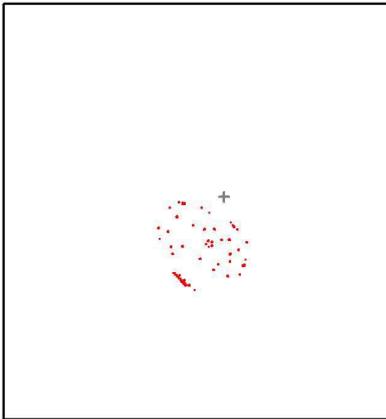
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
88	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.711	129.190	12.000	Luminous emittance 1	1258
89	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	131.346	128.553	12.000	Luminous emittance 1	630
90	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	0
91	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	0
92	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.364	72.779	5.000	Luminous emittance 1	0
93	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.584	72.329	5.000	Luminous emittance 1	2127
94	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	45
95	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	44
96	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.714	73.905	5.000	Luminous emittance 1	69
97	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	142.934	73.455	5.000	Luminous emittance 1	69
98	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	0
99	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	618
100	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.962	89.561	5.000	Luminous emittance 1	0
101	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	0

All luminaires placed in the exterior scene are listed.

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## Lagoon Show / Normal / Source Intensity at Marriot Hotel / Summary



Position: (116.993 m, 170.896 m, 6.000 m)

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	6664
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	6603
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	6528
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	0
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	0
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	0
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.270	110.756	6.029	Luminous emittance 1	1516
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.500	110.200	6.029	Luminous emittance 1	1478
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	1978
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	7500
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	7489
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	7485
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.220	124.280	6.029	Luminous emittance 1	96
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.609	124.736	6.029	Luminous emittance 1	98
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	90.000	125.100	6.031	Luminous emittance 1	101

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## Lagoon Show / Normal / Source Intensity at Marriot Hotel / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	72.773	130.379	6.029	Luminous emittance 1	774
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.322	130.511	49.500	Luminous emittance 1	1219
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.854	130.650	6.031	Luminous emittance 1	822
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.802	141.524	6.081	Luminous emittance 1	0
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.806	142.093	6.081	Luminous emittance 1	0
21	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.816	142.706	6.084	Luminous emittance 1	0
22	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.690	120.810	6.081	Luminous emittance 1	0
23	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.680	121.380	6.081	Luminous emittance 1	0
24	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.676	121.992	6.084	Luminous emittance 1	0
25	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.717	100.606	6.084	Luminous emittance 1	0
26	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	82.609	82.886	6.084	Luminous emittance 1	0
27	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.178	82.886	6.084	Luminous emittance 1	0
28	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.791	82.879	6.081	Luminous emittance 1	0
29	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	228
30	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	224
31	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	231
32	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.229	89.514	6.031	Luminous emittance 1	0
33	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.670	89.875	6.031	Luminous emittance 1	0
34	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	126.148	90.258	6.029	Luminous emittance 1	0
35	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.863	101.802	0.100	Luminous emittance 1	0
36	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	4552
37	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.004	108.324	0.100	Luminous emittance 1	2438
38	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	92.128	104.200	0.100	Luminous emittance 1	0
39	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.252	100.067	0.100	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Marriot Hotel / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	594
41	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	620
42	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	608
43	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.890	99.310	6.081	Luminous emittance 1	0
44	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.880	99.880	6.081	Luminous emittance 1	0
45	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.876	100.492	6.084	Luminous emittance 1	0
46	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	806
47	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	0
48	SGM P-10_All on_raw_LM-79	40.765	155.611	6.000	Luminous emittance 1	20
49	SGM P-10_All on_raw_LM-79	53.736	163.323	6.000	Luminous emittance 1	19
50	SGM P-10_All on_raw_LM-79	85.332	155.531	6.000	Luminous emittance 1	0
51	SGM P-10_All on_raw_LM-79	96.365	148.899	6.000	Luminous emittance 1	0
52	SGM P-10_All on_raw_LM-79	126.555	134.616	6.000	Luminous emittance 1	0
53	SGM P-10_All on_raw_LM-79	135.833	124.882	6.000	Luminous emittance 1	0
54	SGM P-10_All on_raw_LM-79	149.344	106.609	6.000	Luminous emittance 1	29
55	SGM P-10_All on_raw_LM-79	147.005	82.271	6.000	Luminous emittance 1	38
56	SGM P-10_All on_raw_LM-79	139.459	60.750	6.000	Luminous emittance 1	340
57	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	5168
58	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	5341
59	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	3869
60	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	2751
61	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	1966
62	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	237
63	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	244

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## Lagoon Show / Normal / Source Intensity at Marriot Hotel / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
64	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	239
65	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	245
66	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	208
67	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	197
68	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	184
69	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	172
70	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	42
71	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	84
72	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	104
73	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	75
74	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	26
75	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	23
76	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	21
77	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	18
78	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	162.016	12.000	Luminous emittance 1	0
79	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	162.016	12.000	Luminous emittance 1	0
80	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	162.016	12.000	Luminous emittance 1	0
81	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	162.016	12.000	Luminous emittance 1	87
82	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	160.716	12.000	Luminous emittance 1	0
83	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	160.716	12.000	Luminous emittance 1	0
84	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	160.716	12.000	Luminous emittance 1	0
85	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	160.716	12.000	Luminous emittance 1	60
86	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	129.441	130.466	12.000	Luminous emittance 1	53
87	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.076	129.828	12.000	Luminous emittance 1	2

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## Lagoon Show / Normal / Source Intensity at Marriot Hotel / Summary

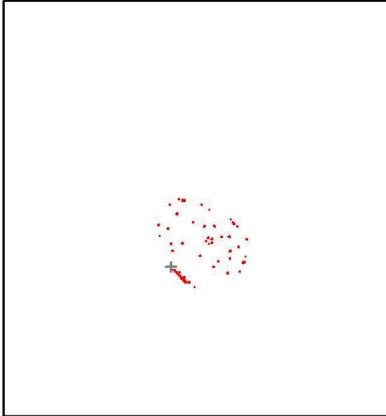
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
88	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.711	129.190	12.000	Luminous emittance 1	0
89	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	131.346	128.553	12.000	Luminous emittance 1	0
90	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	2050
91	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	2059
92	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.364	72.779	5.000	Luminous emittance 1	994
93	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.584	72.329	5.000	Luminous emittance 1	968
94	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	74
95	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	74
96	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.714	73.905	5.000	Luminous emittance 1	49
97	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	142.934	73.455	5.000	Luminous emittance 1	47
98	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	1692
99	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	3394
100	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.962	89.561	5.000	Luminous emittance 1	481
101	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	846

All luminaires placed in the exterior scene are listed.

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### Lagoon Show / Normal / Source Intensity at Aqua Park Building / Summary



Position: (42.358 m, 67.295 m, 6.000 m)

**Possible interference sources**

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
1	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	123.944	110.147	6.022	Luminous emittance 1	0
2	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	124.473	109.937	6.022	Luminous emittance 1	0
3	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.040	109.705	6.024	Luminous emittance 1	0
4	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.229	96.492	6.029	Luminous emittance 1	0
5	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.221	95.923	6.029	Luminous emittance 1	0
6	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	137.205	95.310	6.031	Luminous emittance 1	0
7	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.270	110.756	6.029	Luminous emittance 1	0
8	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.500	110.200	6.029	Luminous emittance 1	0
9	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	113.791	109.714	49.500	Luminous emittance 1	0
10	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.086	125.389	6.012	Luminous emittance 1	0
11	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	103.573	125.094	6.012	Luminous emittance 1	0
12	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	104.094	124.771	6.015	Luminous emittance 1	0
13	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.220	124.280	6.029	Luminous emittance 1	0
14	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	89.609	124.736	6.029	Luminous emittance 1	0
15	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	90.000	125.100	6.031	Luminous emittance 1	0

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## Lagoon Show / Normal / Source Intensity at Aqua Park Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
16	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	72.773	130.379	6.029	Luminous emittance 1	0
17	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.322	130.511	49.500	Luminous emittance 1	0
18	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	73.854	130.650	6.031	Luminous emittance 1	0
19	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.802	141.524	6.081	Luminous emittance 1	0
20	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.806	142.093	6.081	Luminous emittance 1	0
21	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	50.816	142.706	6.084	Luminous emittance 1	0
22	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.690	120.810	6.081	Luminous emittance 1	0
23	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.680	121.380	6.081	Luminous emittance 1	0
24	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	38.676	121.992	6.084	Luminous emittance 1	0
25	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.717	100.606	6.084	Luminous emittance 1	6859
26	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	82.609	82.886	6.084	Luminous emittance 1	336
27	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.178	82.886	6.084	Luminous emittance 1	323
28	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	83.791	82.879	6.081	Luminous emittance 1	310
29	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.492	79.703	6.031	Luminous emittance 1	0
30	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.715	79.116	6.031	Luminous emittance 1	0
31	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.329	80.245	6.029	Luminous emittance 1	0
32	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.229	89.514	6.031	Luminous emittance 1	0
33	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	125.670	89.875	6.031	Luminous emittance 1	0
34	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	126.148	90.258	6.029	Luminous emittance 1	0
35	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.863	101.802	0.100	Luminous emittance 1	0
36	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	99.903	106.773	0.100	Luminous emittance 1	0
37	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.004	108.324	0.100	Luminous emittance 1	0
38	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	92.128	104.200	0.100	Luminous emittance 1	4472
39	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	95.252	100.067	0.100	Luminous emittance 1	2692

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## Lagoon Show / Normal / Source Intensity at Aqua Park Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
40	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.649	57.742	6.029	Luminous emittance 1	0
41	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.000	59.000	6.029	Luminous emittance 1	0
42	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	122.292	58.400	6.029	Luminous emittance 1	0
43	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.890	99.310	6.081	Luminous emittance 1	0
44	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.880	99.880	6.081	Luminous emittance 1	0
45	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	42.876	100.492	6.084	Luminous emittance 1	0
46	SGM P-10_All on_raw_LM-79	26.663	111.255	6.000	Luminous emittance 1	33
47	SGM P-10_All on_raw_LM-79	24.924	126.577	6.000	Luminous emittance 1	73
48	SGM P-10_All on_raw_LM-79	40.765	155.611	6.000	Luminous emittance 1	2163
49	SGM P-10_All on_raw_LM-79	53.736	163.323	6.000	Luminous emittance 1	2471
50	SGM P-10_All on_raw_LM-79	85.332	155.531	6.000	Luminous emittance 1	0
51	SGM P-10_All on_raw_LM-79	96.365	148.899	6.000	Luminous emittance 1	1185
52	SGM P-10_All on_raw_LM-79	126.555	134.616	6.000	Luminous emittance 1	3661
53	SGM P-10_All on_raw_LM-79	135.833	124.882	6.000	Luminous emittance 1	0
54	SGM P-10_All on_raw_LM-79	149.344	106.609	6.000	Luminous emittance 1	4113
55	SGM P-10_All on_raw_LM-79	147.005	82.271	6.000	Luminous emittance 1	0
56	SGM P-10_All on_raw_LM-79	139.459	60.750	6.000	Luminous emittance 1	990
57	SGM P-10_All on_raw_LM-79	108.625	75.470	6.000	Luminous emittance 1	0
58	SGM P-10_All on_raw_LM-79	54.296	59.564	12.000	Luminous emittance 1	16
59	SGM P-10_All on_raw_LM-79	61.439	52.703	12.000	Luminous emittance 1	18
60	SGM P-10_All on_raw_LM-79	68.232	45.593	12.000	Luminous emittance 1	17
61	SGM P-10_All on_raw_LM-79	75.691	38.742	12.000	Luminous emittance 1	18
62	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	48.159	63.046	12.000	Luminous emittance 1	23
63	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	50.629	60.566	12.000	Luminous emittance 1	19

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## Lagoon Show / Normal / Source Intensity at Aqua Park Building / Summary

### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
64	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	53.099	58.086	12.000	Luminous emittance 1	17
65	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	55.569	55.607	12.000	Luminous emittance 1	12
66	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	58.039	53.127	12.000	Luminous emittance 1	10
67	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	60.509	50.647	12.000	Luminous emittance 1	10
68	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	62.979	48.168	12.000	Luminous emittance 1	10
69	Elation Proteus Hybrid (Beam CTO color wheel Zoom Out)	65.449	45.688	12.000	Luminous emittance 1	9
70	PR Lighting PR-2497	45.507	62.874	16.000	Luminous emittance 1	3
71	PR Lighting PR-2497	47.977	60.394	16.000	Luminous emittance 1	2
72	PR Lighting PR-2497	50.447	57.915	16.000	Luminous emittance 1	2
73	PR Lighting PR-2497	52.917	55.435	16.000	Luminous emittance 1	1
74	PR Lighting PR-2497	55.387	52.955	16.000	Luminous emittance 1	0
75	PR Lighting PR-2497	57.857	50.476	16.000	Luminous emittance 1	0
76	PR Lighting PR-2497	60.327	47.996	16.000	Luminous emittance 1	0
77	PR Lighting PR-2497	62.797	45.516	16.000	Luminous emittance 1	0
78	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	162.016	12.000	Luminous emittance 1	3256
79	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	162.016	12.000	Luminous emittance 1	3295
80	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	162.016	12.000	Luminous emittance 1	3151
81	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	162.016	12.000	Luminous emittance 1	2665
82	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	58.875	160.716	12.000	Luminous emittance 1	753
83	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	59.775	160.716	12.000	Luminous emittance 1	714
84	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	60.675	160.716	12.000	Luminous emittance 1	1840
85	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	61.575	160.716	12.000	Luminous emittance 1	1634
86	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	129.441	130.466	12.000	Luminous emittance 1	2884
87	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.076	129.828	12.000	Luminous emittance 1	3059

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## Lagoon Show / Normal / Source Intensity at Aqua Park Building / Summary

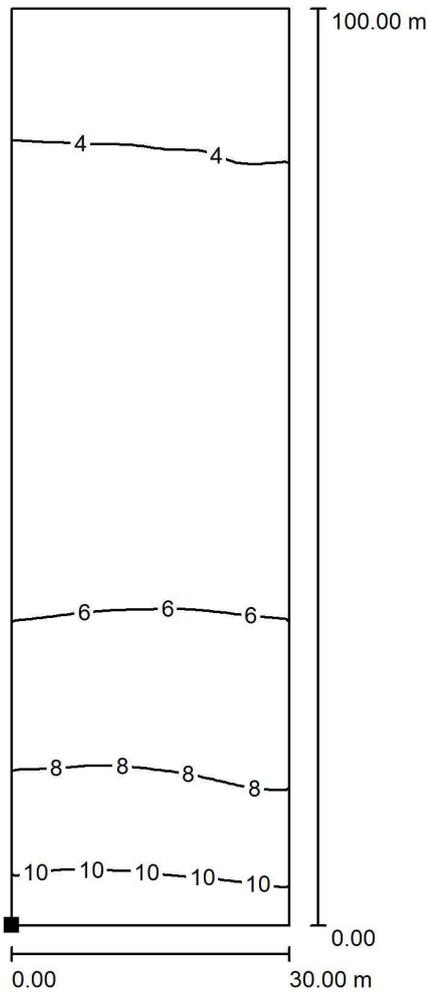
### Possible interference sources

No.	Luminaire	Position [m]			Luminous emittance	Luminous intensity [cd]
		X	Y	Z		
88	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	130.711	129.190	12.000	Luminous emittance 1	3105
89	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	131.346	128.553	12.000	Luminous emittance 1	3058
90	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.923	73.679	5.000	Luminous emittance 1	0
91	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.143	73.229	5.000	Luminous emittance 1	0
92	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.364	72.779	5.000	Luminous emittance 1	1580
93	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.584	72.329	5.000	Luminous emittance 1	1591
94	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	145.273	74.805	5.000	Luminous emittance 1	0
95	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	144.493	74.355	5.000	Luminous emittance 1	0
96	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	143.714	73.905	5.000	Luminous emittance 1	52
97	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	142.934	73.455	5.000	Luminous emittance 1	53
98	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.964	67.251	5.000	Luminous emittance 1	0
99	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	102.064	67.251	5.000	Luminous emittance 1	3
100	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.962	89.561	5.000	Luminous emittance 1	0
101	Philips QVF 415/416/417 QVF417 NB 1xHAL-TDL-1500W	44.326	90.198	5.000	Luminous emittance 1	0

All luminaires placed in the exterior scene are listed.

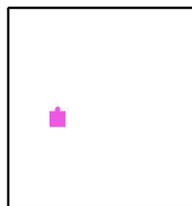
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### Lagoon Show / Normal / Hong Kong Police College Building 1 / face to Ocean Park / Isolines (E)



Values in Lux, Scale 1 : 782

Position of surface in external scene:  
Marked point:  
(-48.184 m, 116.875 m, 0.000 m)

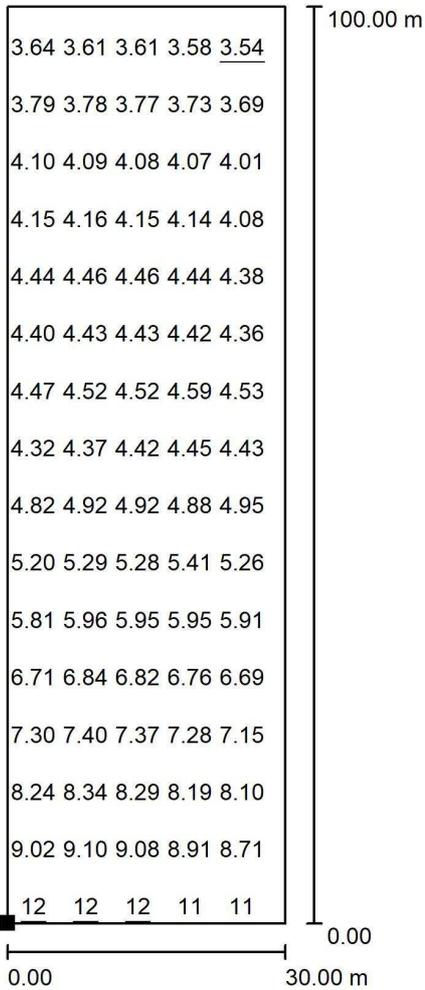


Grid: 16 x 32 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
5.71	3.54	12	0.619	0.300

Operator  
Telephone  
Fax  
e-Mail

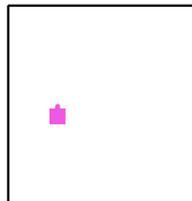
### Lagoon Show / Normal / Hong Kong Police College Building 1 / face to Ocean Park / Value Chart (E)



Values in Lux, Scale 1 : 782

Not all calculated values could be displayed.

Position of surface in external scene:  
Marked point:  
(-48.184 m, 116.875 m, 0.000 m)

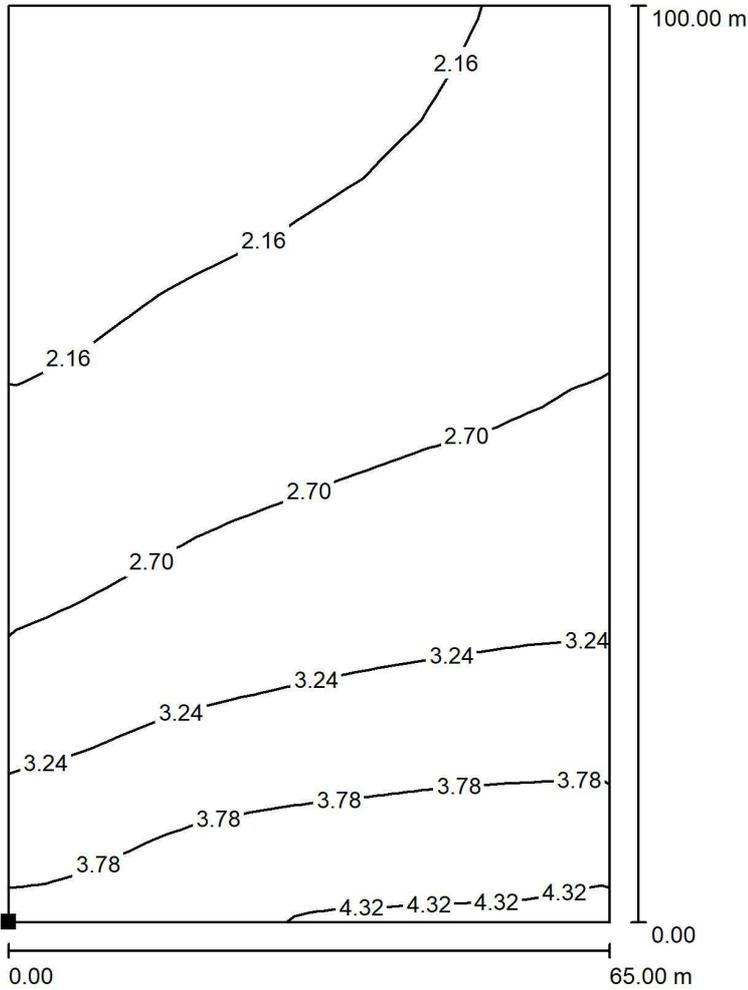


Grid: 16 x 32 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
5.71	3.54	12	0.619	0.300

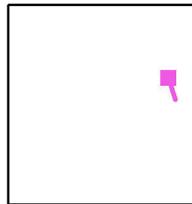
Operator  
Telephone  
Fax  
e-Mail

**Lagoon Show / Normal / Building / face to Ocean Park / Isolines (E)**



Values in Lux, Scale 1 : 782

Position of surface in external scene:  
Marked point:  
(275.182 m, 227.968 m, 0.000 m)

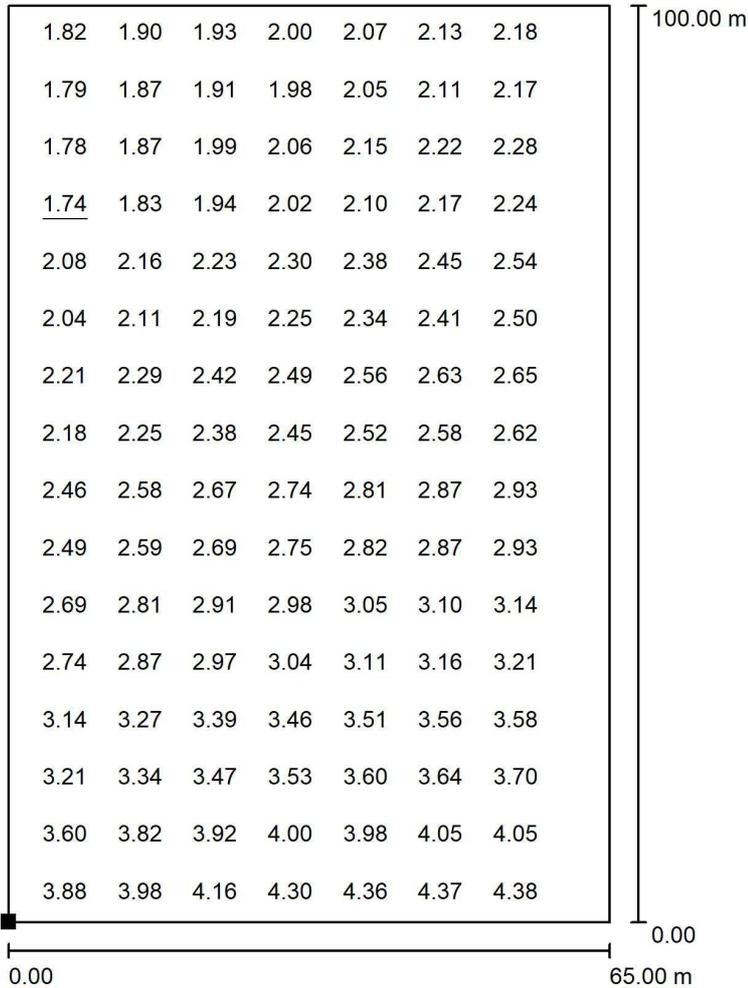


Grid: 16 x 16 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	$u0$	$E_{min} / E_{max}$
2.77	1.74	4.44	0.626	0.391

Operator  
Telephone  
Fax  
e-Mail

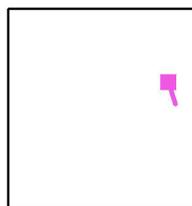
### Lagoon Show / Normal / Building / face to Ocean Park / Value Chart (E)



Values in Lux, Scale 1 : 782

Not all calculated values could be displayed.

Position of surface in external scene:  
Marked point:  
(275.182 m, 227.968 m, 0.000 m)

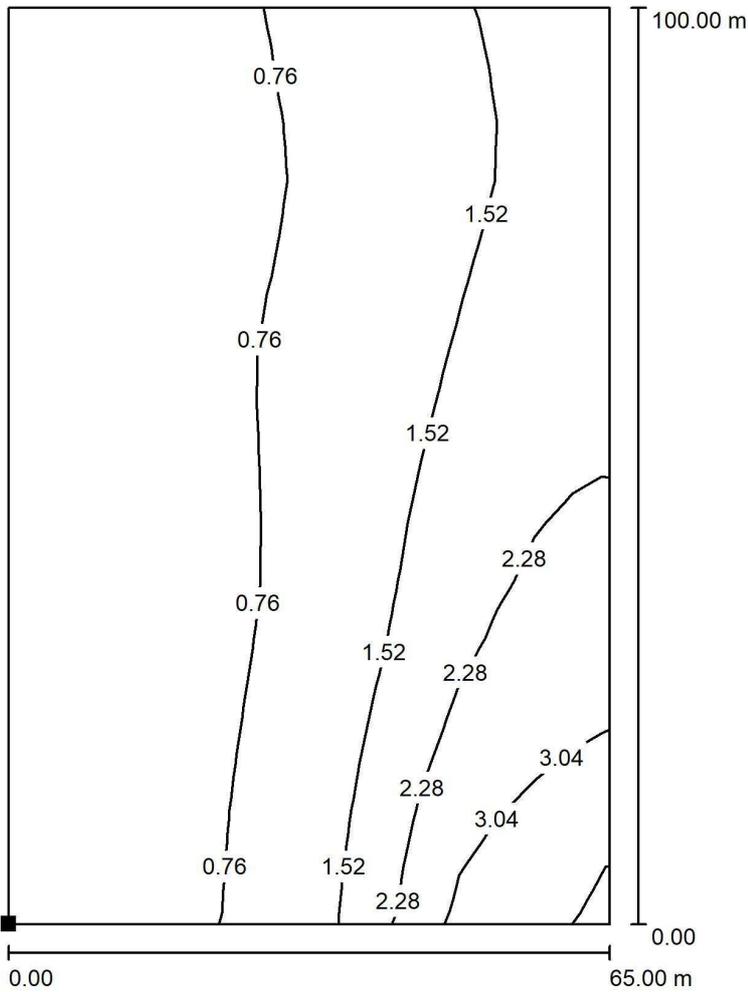


Grid: 16 x 16 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
2.77	1.74	4.44	0.626	0.391

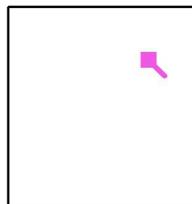
Operator  
Telephone  
Fax  
e-Mail

### Lagoon Show / Normal / Wong Chuk Hang Garden / face to Ocean Park / Isolines (E)



Values in Lux, Scale 1 : 782

Position of surface in external scene:  
Marked point:  
(217.375 m, 286.824 m, 0.000 m)

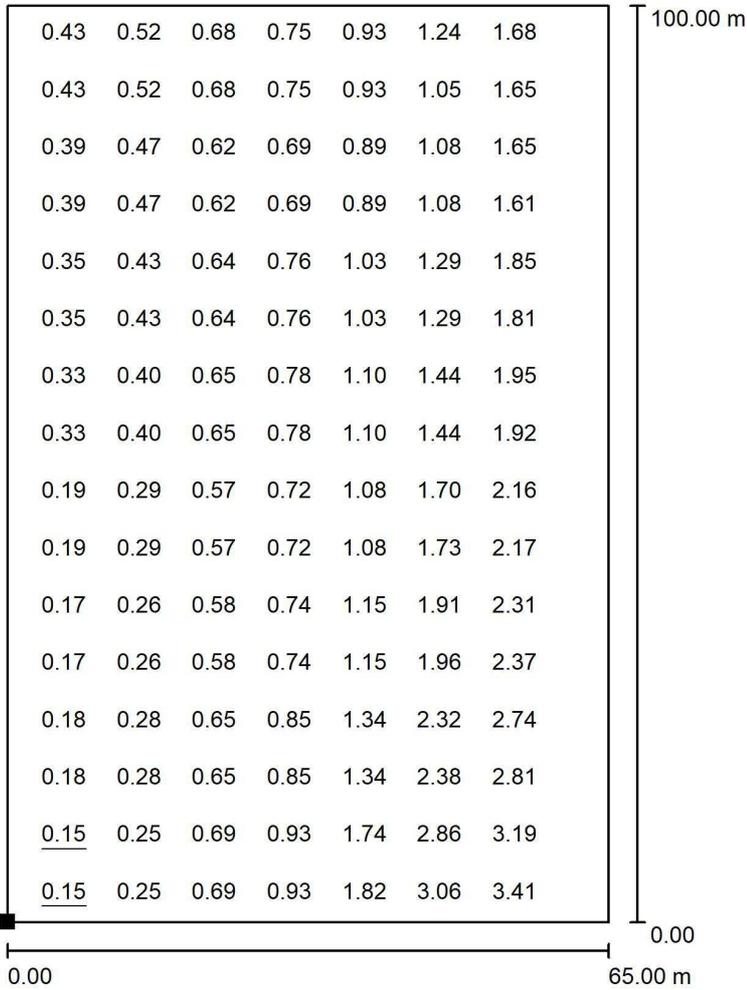


Grid: 16 x 16 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
1.18	0.15	3.96	0.126	0.037

Operator  
Telephone  
Fax  
e-Mail

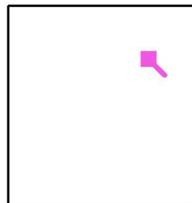
**Lagoon Show / Normal / Wong Chuk Hang Garden / face to Ocean Park / Value Chart (E)**



Values in Lux, Scale 1 : 782

Not all calculated values could be displayed.

Position of surface in external scene:  
Marked point:  
(217.375 m, 286.824 m, 0.000 m)

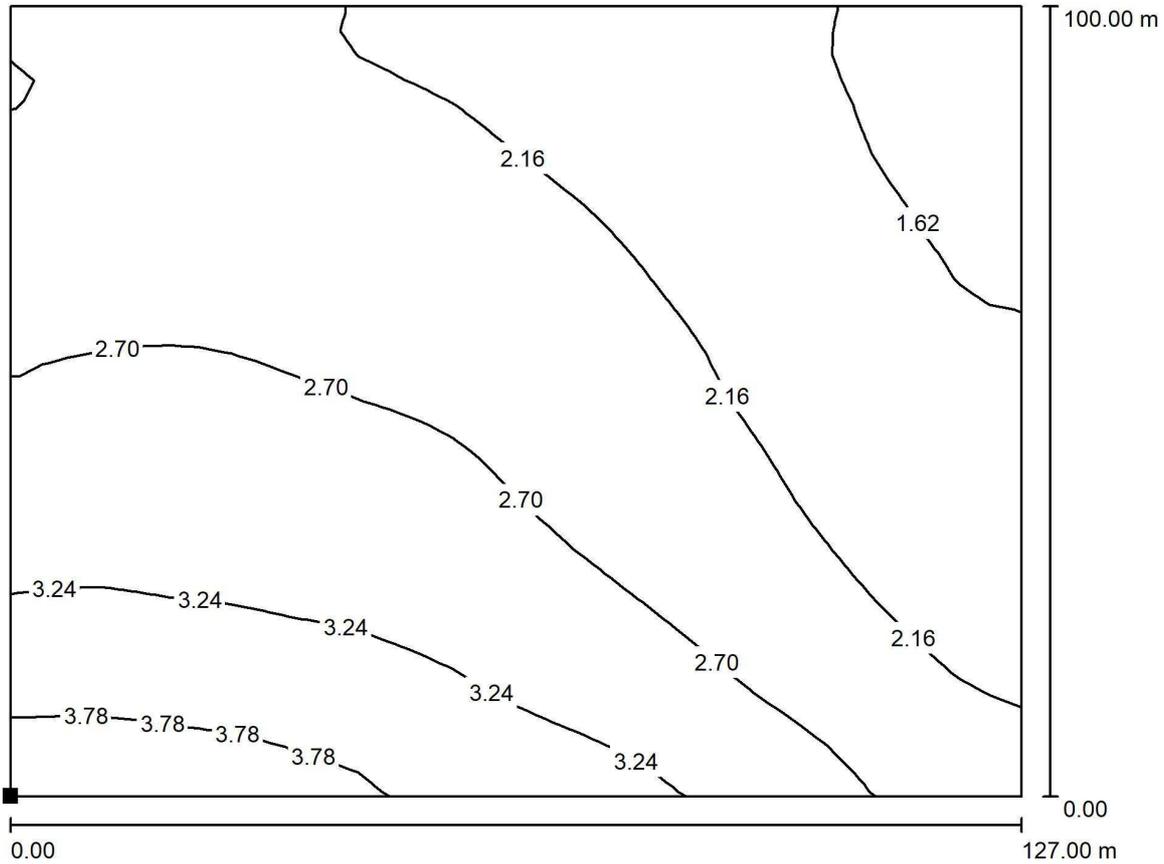


Grid: 16 x 16 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
1.18	0.15	3.96	0.126	0.037

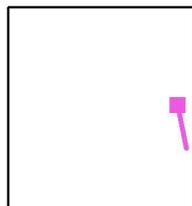
Operator  
Telephone  
Fax  
e-Mail

Lagoon Show / Normal / Country Villa / face to Ocean Park / Isolines (E)



Values in Lux, Scale 1 : 908

Position of surface in external scene:  
Marked point:  
(302.027 m, 155.874 m, 0.000 m)

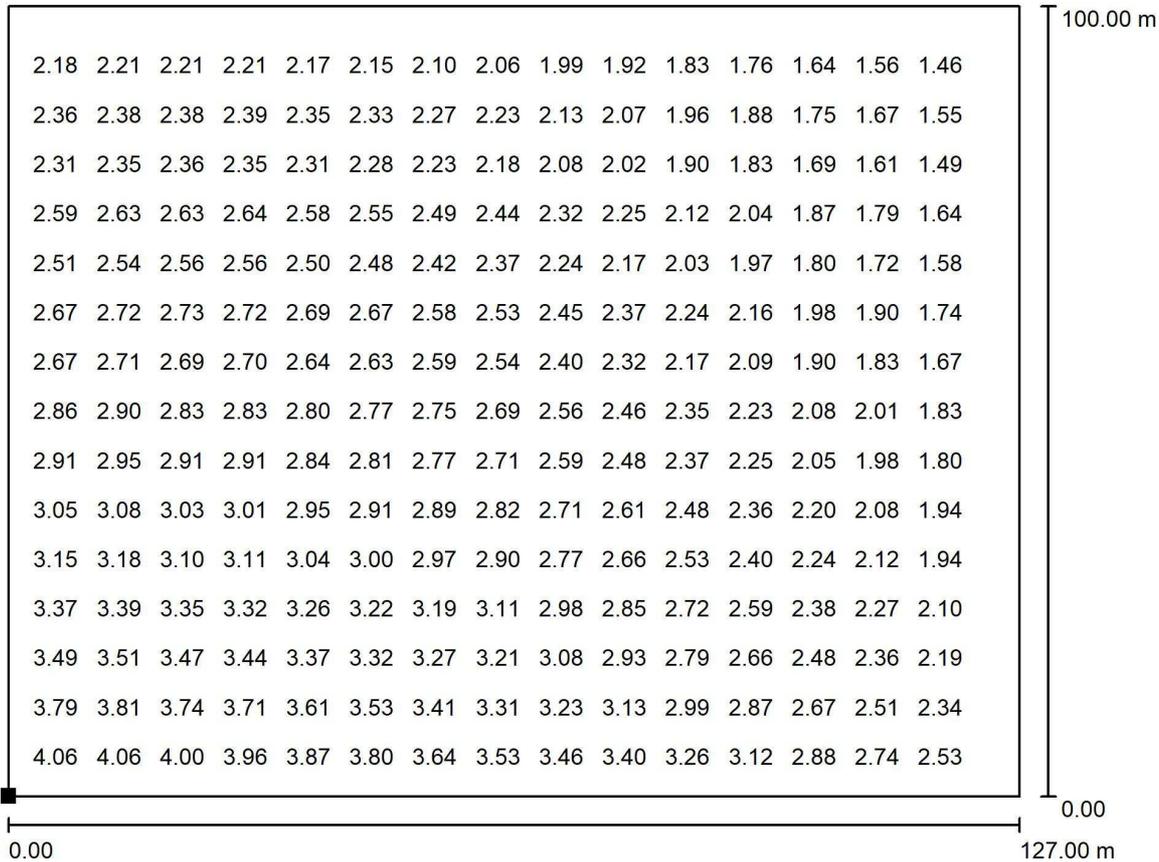


Grid: 32 x 32 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	$u0$	$E_{min} / E_{max}$
2.49	1.40	4.10	0.560	0.341

Operator  
Telephone  
Fax  
e-Mail

Lagoon Show / Normal / Country Villa / face to Ocean Park / Value Chart (E)



Values in Lux, Scale 1 : 908

Not all calculated values could be displayed.

Position of surface in external scene:

Marked point:

(302.027 m, 155.874 m, 0.000 m)



Grid: 32 x 32 Points

$E_{av}$  [lx]  
2.49

$E_{min}$  [lx]  
1.40

$E_{max}$  [lx]  
4.10

$u_0$   
0.560

$E_{min} / E_{max}$   
0.341

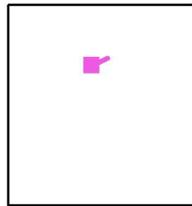
Operator  
Telephone  
Fax  
e-Mail

**Lagoon Show / Normal / Ocean park MTR / face to Ocean Park / Isolines (E)**



Values in Lux, Scale 1 : 358

Position of surface in external scene:  
Marked point:  
(51.539 m, 266.430 m, 25.000 m)

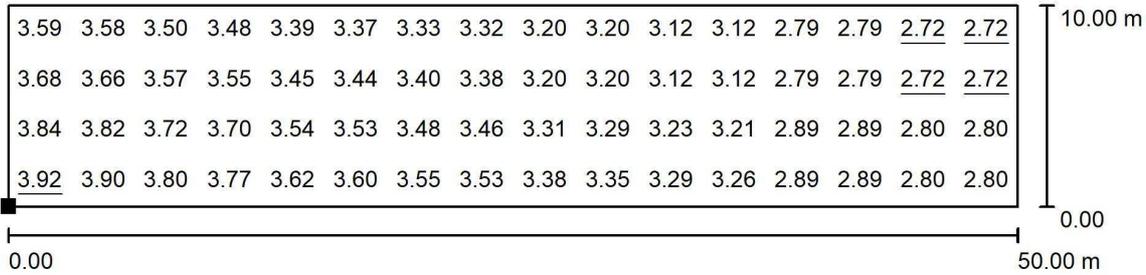


Grid: 16 x 4 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
3.29	2.72	3.92	0.826	0.694

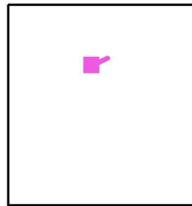
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**Lagoon Show / Normal / Ocean park MTR / face to Ocean Park / Value Chart (E)**



Values in Lux, Scale 1 : 358

Position of surface in external scene:  
Marked point:  
(51.539 m, 266.430 m, 25.000 m)

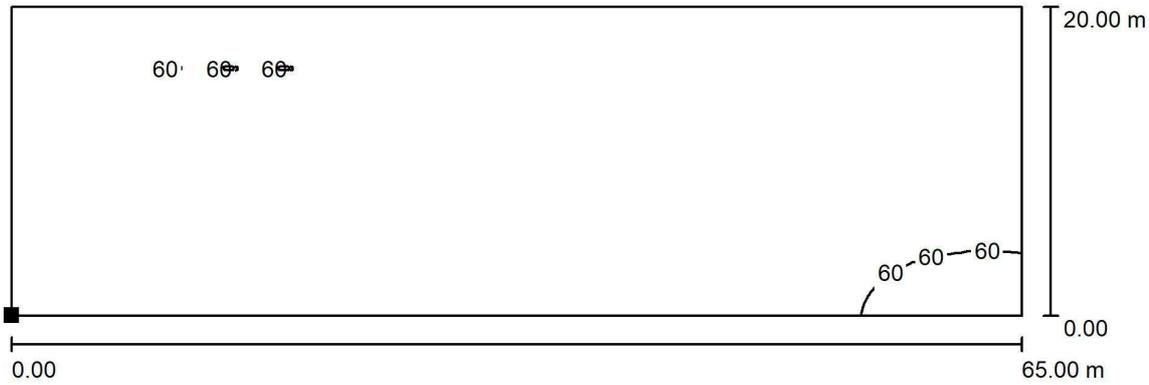


Grid: 16 x 4 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
3.29	2.72	3.92	0.826	0.694

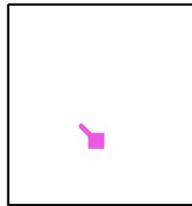
Operator  
Telephone  
Fax  
e-Mail

**Lagoon Show / Normal / Aqua Park Building / face to Ocean Park / Isolines (E)**



Values in Lux, Scale 1 : 465

Position of surface in external scene:  
Marked point:  
(65.026 m, 42.795 m, 0.000 m)



Grid: 128 x 128 Points

$E_{av}$  [lx]  
23

$E_{min}$  [lx]  
14

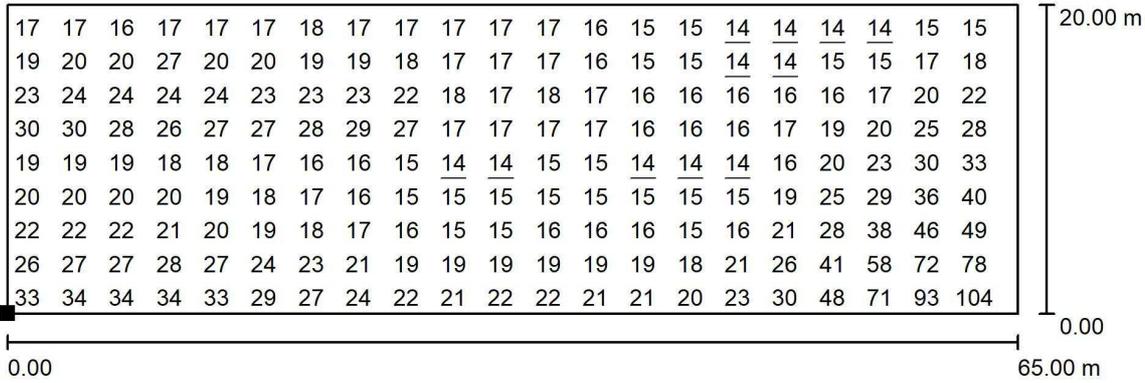
$E_{max}$  [lx]  
285

$u0$   
0.607

$E_{min} / E_{max}$   
0.048

Operator  
Telephone  
Fax  
e-Mail

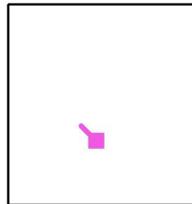
### Lagoon Show / Normal / Aqua Park Building / face to Ocean Park / Value Chart (E)



Values in Lux, Scale 1 : 465

Not all calculated values could be displayed.

Position of surface in external scene:  
Marked point:  
(65.026 m, 42.795 m, 0.000 m)



Grid: 128 x 128 Points

$E_{av}$  [lx]  
23

$E_{min}$  [lx]  
14

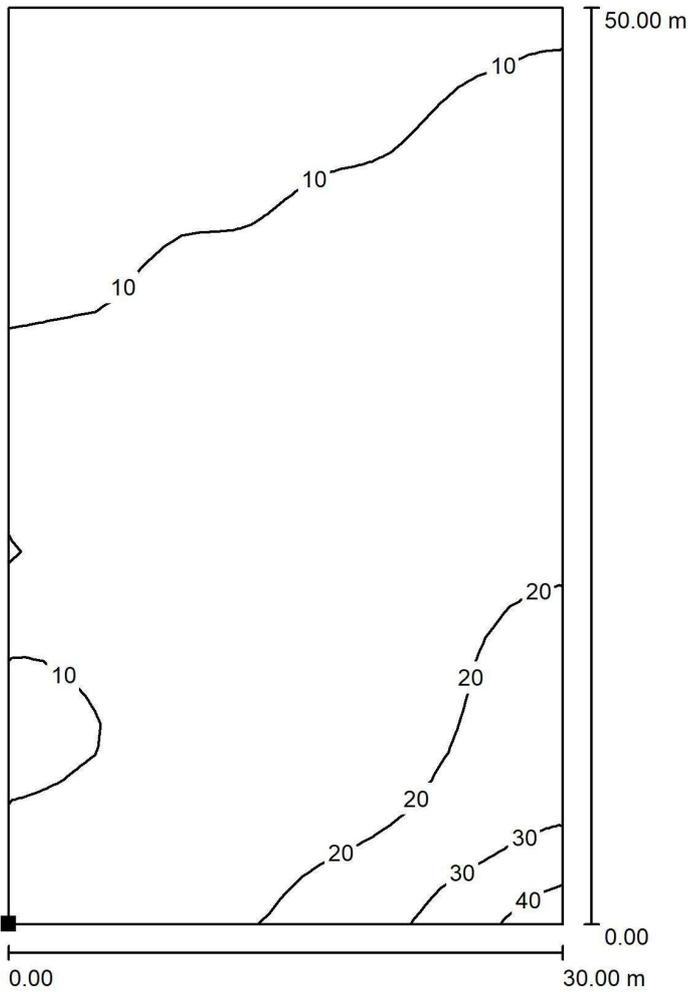
$E_{max}$  [lx]  
285

$u0$   
0.607

$E_{min} / E_{max}$   
0.048

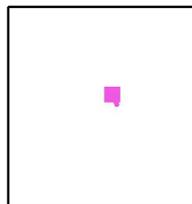
Operator  
Telephone  
Fax  
e-Mail

**Lagoon Show / Normal / Marriot Hotel 1 / face to Ocean Park / Isolines (E)**



Values in Lux, Scale 1 : 391

Position of surface in external scene:  
Marked point:  
(111.730 m, 184.327 m, 0.000 m)



Grid: 32 x 32 Points

$E_{av}$ [lx]	$E_{min}$ [lx]	$E_{max}$ [lx]	u0	$E_{min} / E_{max}$
13	7.42	45	0.555	0.163



## **APPENDIX C      CALCULATION OF MAXIMUM ALLOWABLE VEIL LUMINANCE**

<b>Project:</b>	Ocean Park Glare Impact Assessment	<b>File Ref:</b>	1329/Calc/Veil_Lum
<b>Service :</b>	Electrical	<b>Initial :</b>	TL
<b>Checked By :</b>	BP	<b>Dated :</b>	09/02/2010
		<b>Date :</b>	8/12/2009

**To Calculate the Maximum Allowable Veil Luminance for a Limited Threshold Increment of 15% :**

**1. Parameters and Assumptions:**

Consider a Flat located at the sensitive receivers with interior illuminance level of 200 lux  
 Relative illuminance at wall = 0.5 of work plane  
 Wall Reflectance = 0.5  
 Maintenance factor = 0.8

**2. To calculate the wall luminance:**

Illuminance Level at work plane = 200 Lux  
 Wall Reflectance = 0.5  
 Wall illuminance (Eav) = 0.5 x 200 Lux = 100 Lux

$$\begin{aligned} \text{Wall Luminance} &= \frac{R \times E_{av}}{p} \\ &= \frac{0.5 \times 100}{3.1416} = 15.9 \quad \text{cd/ m}^2 \end{aligned}$$

Where:

R = Reflectance of the wall  
 Eav = Illuminance level in Lux

**3. To calculate the maximum allowable veil luminance for a limited threshold increment of 15%:**

$$\begin{aligned} \text{Threshold Increment (\% T.I.)} = 15 &= \frac{95 \times L_v}{(L/ MF)^{1.05}} \\ 15 &= \frac{95 \times L_v}{(15.9/ 0.8)^{1.05}} \\ L_v &= 3.644 \quad \text{cd/ m}^2 \end{aligned}$$

Where:

Lv = Veil Luminance in cd/m<sup>2</sup>  
 L= Background Luminance (Wall luminance)  
 MF = Maintenance Factor

I.E. The veil luminance shall be limited to 3.644 cd/m<sup>2</sup> for 15% threshold increment with 200 Lux interior lighting arrangement at the sensitive receivers assumed.

## APPENDIX D      IMPLEMENTATION SCHEDULE

Reference of GIA Report	Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Who to implement the measures?	When to implement the measures?
S3.5	EP Condition 2.35	In accordance with the EP Condition 2.35, a specialist with training and practical experience in outdoor sport lighting and illumination had be employed to design, manage and oversee the implementation and maintenance of the illumination requirements and system for the show.	OPC	Operation
S3.5	GIA 2010	Although the assessment results indicate no significant glare impact at the representative sensitive receivers, it is still recommended to undertake at least two times of monitoring during the show test and the performance after commencement by the specialist. During each monitoring, the Lux levels should be measured with a Lux Meter or Light Meter at one of the mostly affected sensitive receivers before and during the show. The increase in the Lux level with the show should be compared with that before the show. The Lux level measured during the show should also be compared with the recommended CIBSE's requirement of 10 Lux.  In case the monitoring results indicate measured Lux level higher than 10 Lux, an investigation on the exceedance is required to be conducted by the specialist. Recommendations should be given on any need to adjust the lighting schedule of the show.	OPC	Operation
S3.6	GIA 2010	The specialist is also required to conduct regular checks, at least once a month, on the lights for the show to ensure all lights are fixed at not more than 70 degree vertical beam angle and all lights being used are under the lighting schedule.	OPC	Operation

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