appendix B

Phillips Optivision Brochure

OptiVision
Tame your floodlighting

Let's make things better.

PHILIPS

Putting people's rights in a new light

People near floodlight installations have a right to peace and tranquillity.

In urban areas, artificial lighting should meet everybody's needs in terms of pleasure, safety and productivity.

However, for players, pedestrians and residents to be able to go about their business without disturbing each other, floodlighting must be specially designed to ensure that **everyone's rights and needs are respected.**

Good artificial lighting should prevent uncontrolled stray light and light spillage beyond, for example, the boundaries of a harbour, a parking area or a sports field, so that it does not affect people who live in the vicinity.

This "obtrusive" light includes light that falls on or enters a property, glare from an installation that affects passing drivers or the upward leakage of light that artificially brightens and obscures the night sky. Growing awareness of the issue of "obtrusive" lighting has prompted a number of countries to draw up guidelines to control it. **Accordingly, the design of environmentally friendly floodlighting** has become a pressing technical challenge.

As the world leader in floodlighting and as a truly green company, Philips has responded to this challenge by designing a completely new asymmetric floodlight – **OptiVision.**

OptiVision is suitable for applications in sports fields, airports, harbours, railway yards, parking areas, etc.

Four exclusive optical features make OptiVision so optimal

Firstly, as **the pioneers of asymmetric lighting,** Philips' optical engineers have gone one step further by designing the OptiVision reflector system. It delivers its highest peak intensity at 60° and an excellent cut-off at 80° in a flat glass (horizontal) position.

Thus, for a given amount of light on the field **OptiVision produces three times less spill-over than other asymmetric floodlights.** And ten times less than conventional floodlights!

Secondly, thanks to minimal internal reflection in the OptiVision's optics, a 20% higher light output ratio (LOR) is achieved than with any other asymmetric floodlight.

You may well find, therefore, that you need fewer floodlights in your installation to achieve the required lighting level over a given area.

Thirdly, by designing very compact optics around a 2kW lamp and oversized fins for more effective cooling, Philips has succeeded in making **OptiVision smaller than any other comparable 2kW floodlight.**

The compactness thus achieved leads to a reduced visual impact and means that less robust columns can be used.

Different beams for total flexibility

1 MHN-LA 2kW MB
2 MHN-LA 2kW WB
3 MHN-LA 2kW NB
4 SON-T-P 600W WB

Lastly, OptiVision offers three different beam characteristics for the MHN-LA 2kW lamp; narrow, medium and wide, as well as specific wide beams for MHN-LA 1kW and SON-T 600W/1000W. The choice of lamps and reflectors allows total flexibility in lighting designs (sports fields and area lighting).

The designers at Philips have drawn on their extensive expertise and experience to create this cutting-edge floodlight system that boasts unequalled lamp performance and optics.

OptiVision projects light downwards, ensuring a total cut-off of light above the level of the luminaire, thus avoiding spill light into nearby properties.

Tilted floodlight

Horizontally positionned Optivision

Designed with ease of operation in mind

Bracket allows positioning above or below the mast

All OptiVision features have **the effect of reducing initial costs and making installation easier,** thus improving installation performance.

Roughly 15% smaller than other asymmetric floodlights, at 16.8 kilos OptiVision is also the **lightest floodlight on the market.** This slim, smooth design produces a projected area of only 0.16m and an extremely low wind-drag factor, thus allowing lighter mast constructions to be used.

In addition, OptiVision can be mounted above or below a crossbar simply by inverting the bracket. **This allows multiple lights to be fitted on each mast.**

Alignment is also easier and quicker thanks to the large 'protractor-scale' angle indicators at either side of the floodlight, whilst a simple aiming device permits aiming on the mast.

OptiVision is supplied with a pre-cabled connection box. The only connection that remains to be made is from the mains cable to the gear. An optional gear box is available for gear up to 1000W.

Optimal gear box for gear up to 1000W

Easily visible protractor scale simplifies aiming

Pre-cabled connection box: just add mains cable

Fine-tuned down to the smallest detail for optimal reliability

Product reliability is the key in floodlighting because of the inaccessibility of the product in high mast installations and because it is used on a daily basis.

OptiVision is corrosion-resistant even in the most adverse weather conditions, thanks to its **high-purity aluminium housing and stainless steel clips.**

Only high-purity aluminium and stainless steel clips are used.

OptiVision ensures precise positioning of the compact double-ended lamp to give excellent beam control. MHN-LA 1000W / 2000W lamps from Philips are widely considered to be the best on the market.

Their average lifetime is 8000 hours, with very little drop-off in output and **extremely stable colour characteristics.**

OptiVision provides optimal working conditions for the lamps because the housing

MHN-LA 2000W/842
MHN-LA 1000W/842

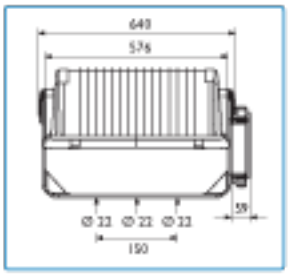
is cooled by means of a unique, large-finned convector system. A built-in safety switch allows the floodlight to be isolated temporarily from the mains, providing the safest possible conditions for installation and maintenance.

Finally OptiVision is more than just a floodlight. Philips is the only manufacturer to supply all the relevant technologies, from lamp and gear to floodlight, to guarantee optimal performance.

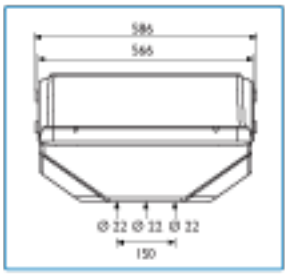
OptiVision's IP65 rating means it is totally impervious to dust and can withstand being cleaned by a high-pressure water jet.

OptiVision MVP 507

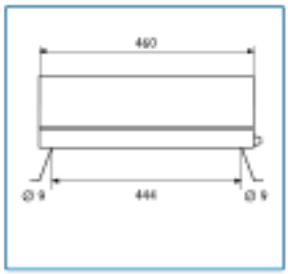
Dimensions in mm



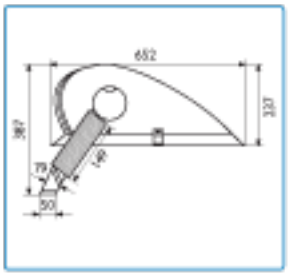
Back view luminaire MVP 507



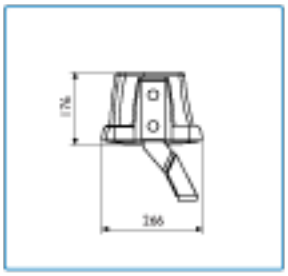
Back view gearbox ZVP 507



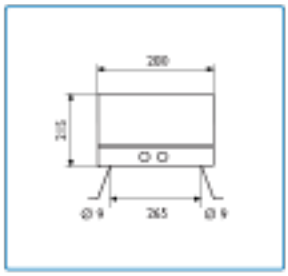
Back view gearbox DK6A



Side view luminaire MVP 507



Side view gearbox ZVP 507



Side view gearbox DK6A

Technical data

Ambient temperature (outdoor)		35°C
Classification (luminaire)		IP65
Insulation class		I
Complies with		IEC 598
Safety switch		built-in*
Windload data		
Projected surface (horiz.position)		0,16m²
Drag factor		0,447
Weight luminaire	MHN SON	17,2 kg 17,3 kg
Weight attached gearbox		9 kg
Weight remote gearbox		8,1 kg

*MHN versions only

Connection box

PG 11 cable gland for entry of the safety switch cable. PG 16 cable gland for incoming earth & lamp cables.
Terminal block with screw terminals inside for cable cores up to 16 mm².

Accessories

Type of gearbox		EOC code
ZVP507 1X MHN-LA 1000W / SON-T 1000W	attachable gearbox*	available mid 2001
ZVP507 1X SON-T-P 600W	attachable gearbox*	available mid 2001
DK6A	remote gearbox	24173900

*Including gear

Ordering data

Luminaire	EOC code
MVP507 1xSON-T-P 600W 230V K WB	15192200
MVP507 1xSON-T 1000W 230V K WB	15193900
MVP507 1xMHN-LA 1000W/842 230V K WB	15195300
MVP507 1xMHN-LA 2000W/842 400V K WB	15196000
MVP507 1xMHN-LA 2000W/842 400V K MB	15197700
MVP507 1xMHN-LA 2000W/842 400V K NB	15198400
MVP507 1xSON-T-P 600W 230V WB	15199100
MVP507 1xSON-T 1000W 230V WB	15200400
MVP507 1xMHN-LA 1000W/842 230V WB	15202800
MVP507 1xMHN-LA 2000W/842 400V WB	15203500
MVP507 1xMHN-LA 2000W/842 400V MB	15204200
MVP507 1xMHN-LA 2000W/842 400V NB	15205900

K = Kombi including lamp
NB = Narrow beam
MB = Medium beam
WB = Wide beam

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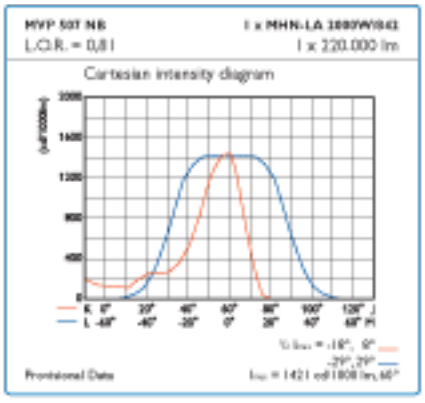
ZVF320/choice sheet geartrays

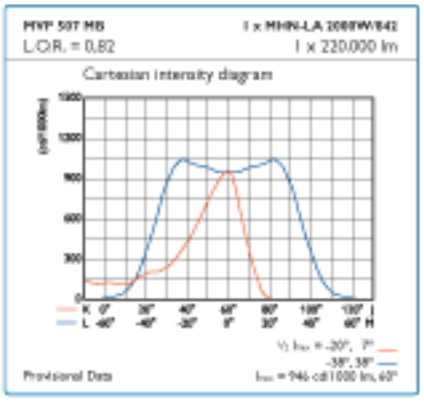
dimensions	lamps	mains	type of ballast	ignitor	capacitance	fuse
❑ wide (264 x 410 mm) ❑ long (148 x 650 mm)	❑ SON-T-P 600W	❑ 220V-60Hz ❑ 230V-50Hz ❑ 240V-50Hz	basic	series		❑ yes ❑ no
		❑ 230V-50Hz ❑ 240V-50Hz	basic	semi-parallel	1 nF	
	❑ SON-T 1000W ❑ MHN-LA 1000W	❑ 220V-60Hz ❑ 230-240V 50Hz	❑ basic	semi-parallel	≤6 nF	
			❑ high protection	semi-parallel	❑ ≤4.5 nF ❑ 4-10 nF	
	❑ MHN-LA 2000W	❑ 380-415V 50Hz	basic	series		
		❑ 380-400V 50Hz	high protection	series		

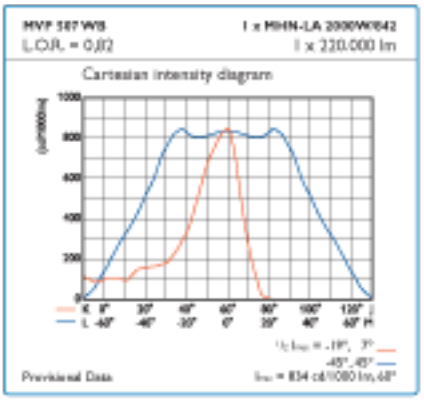
Lamps

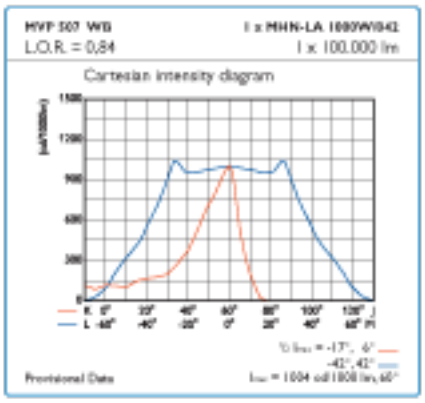
	MHN-LA 1000W/842	MHN-LA 2000W/842	SON-T-P 600W	SON-T 1000W
Luminous flux (Lm)	100.000	220.000	90.000	130.000
Colour temperature (K)	4200	4200	2000	2000
Colour rendering index	80	80	20	25
Life expectancy based on 50 % failures (hrs)	8000	8000	16.000 < 10 % failures	14.000
Average lamp voltage (V)	125	235	115	115
Average lamp watts (W)	1040	2040	600	1000
Max. current during starting (A)	15	15	8.7	14
Run-up time (min)	4	4	10	6
Re-ignition time (min)	max 15	max 15	1	4

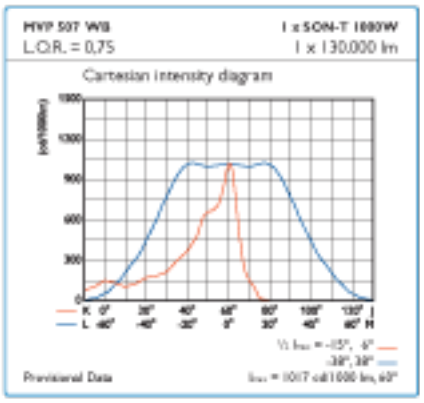
Photometric data

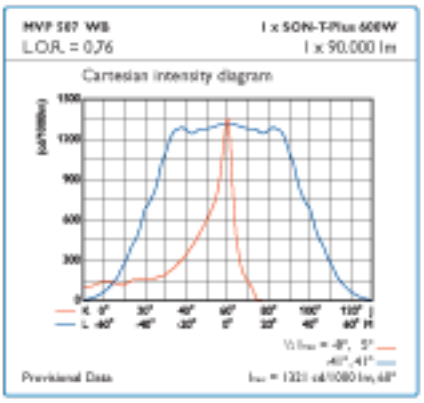












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OptiVision

OptiVision Product Guide CD-Rom

All the technical information regarding OptiVision
are in the Product guide CD-Rom.
Ask for it to your local Philips representative.

http://www.lighting.philips.com - NAC 3222 635 29681 - Printed in France - 03/2001 - Data subject to change.
BU/LE France - Photo credits: Philips Lighting - D. Michaux - G. Fremaux - No Comment - H. van Steenbergen

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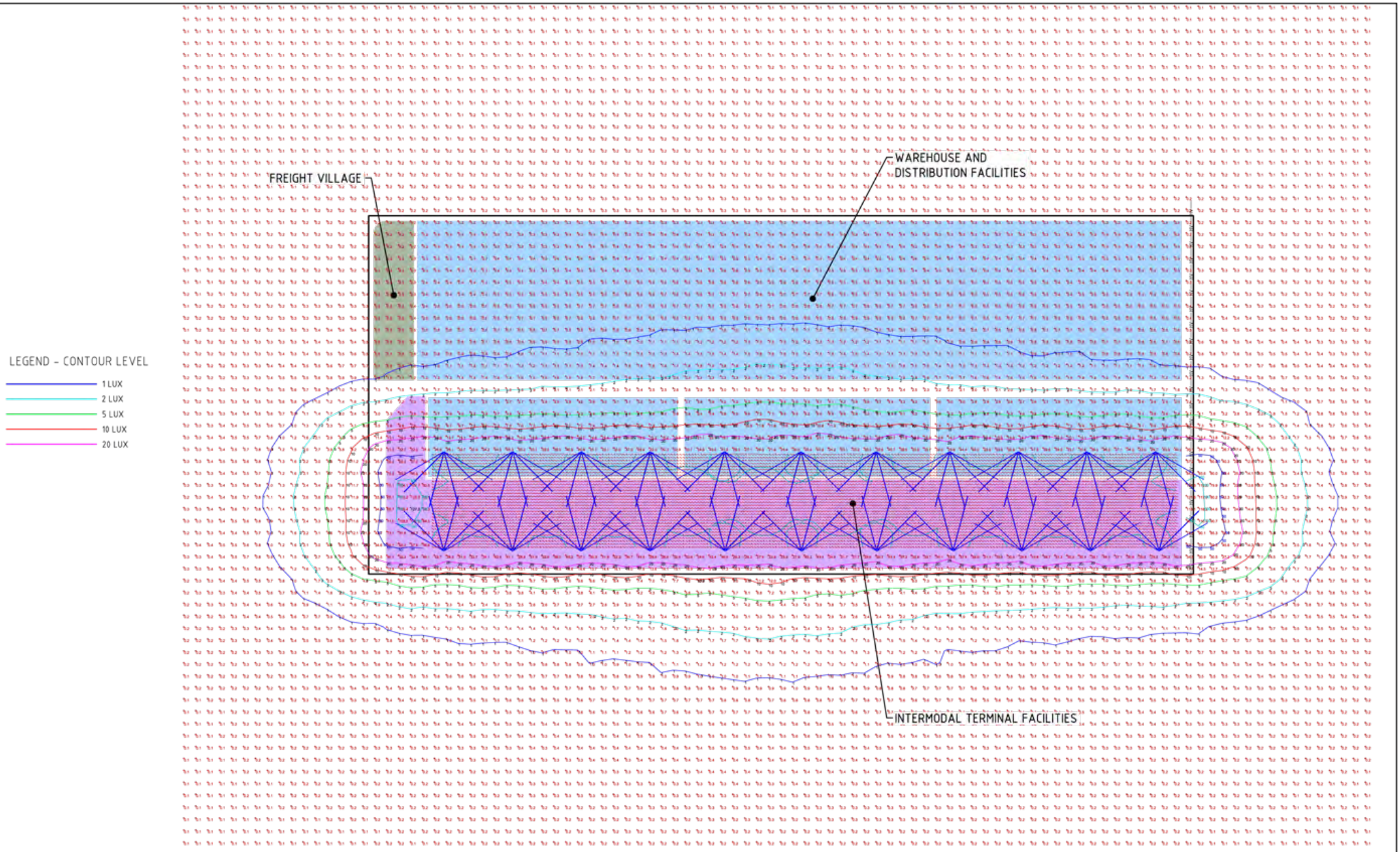
appendix C

SKC041 - Lighting Simulation Results



Issue	Description	Date
01	FOR INFORMATION	xx/xx/10

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1 : 3000

Client: SIMTA

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1 : 3000	Current Issue Signatures	
		Drawn	DGM
Original Size	A1	Designed	DGM
Height Datum	AHD	Checked	DE
Grid	MGA	Approved	GI

Filename:

Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

Title: LIGHTING SIMULATION RESULTS

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www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKC041	AA003210	01

Date Plotted: 21 Jun 2011 - 11:51AM File Name: F:\AA003210\E-CAD\3D-BIS\SKC041-Lighting Calculations.dwg V1

appendix D

Copy of Light Spill Study Report

Hyder Consulting Engineers

Hyder

Light Spill Study Report

SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 3A Concept Plan Application

11 / 08 / 2011

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SIMTA

Moorebank Intermodal Terminal Facility

Light Spill Study

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Approver	Neil McMillan

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CONTENTS

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1 Introduction

The Sydney Intermodal Terminal Alliance (SIMTA) is a joint venture between Stockland, Qube Logistics and QR National. The SIMTA Moorebank Intermodal Terminal Facility (SIMTA proposal) is proposed to be located on the land parcel currently occupied by the Defence National Storage and Distribution Centre (DNSDC) on Moorebank Avenue, Moorebank, south west of Sydney. SIMTA proposes to develop the DNSDC site into an intermodal terminal facility and warehouse/distribution facility, which will offer container storage and warehousing solutions with direct rail access.

The SIMTA site is located in the Liverpool Local Government Area. It is 27 kilometres west of the Sydney CBD, 16 kilometres south of the Parramatta CBD, 5 kilometres east of the M5/M7 Interchange, 2 kilometres from the main north-south rail line and future Southern Sydney Freight Line, and 0.6 kilometres from the M5 motorway.

The SIMTA proposal will be undertaken as a staged development. An annual operating capacity of one million TEU throughput is anticipated in the ultimate stage, when fully developed.

Hyder has prepared this light spill study to examine the potential lighting requirements for the operation of the SIMTA site and investigate through the modelling of a concept lighting design, its compliance with the Australian Standard - *AS 4282- 1997, "Control of Obtrusive Effects of Outdoor Lighting".*

The actual lighting design will be developed and detailed during ongoing design development of the stages of SIMTA. Each stage will require further analysis based upon the actual lumi0263768988naires to be adopted to ensure their compliance with the above standard, and to mitigate any impact on the surrounding environment.

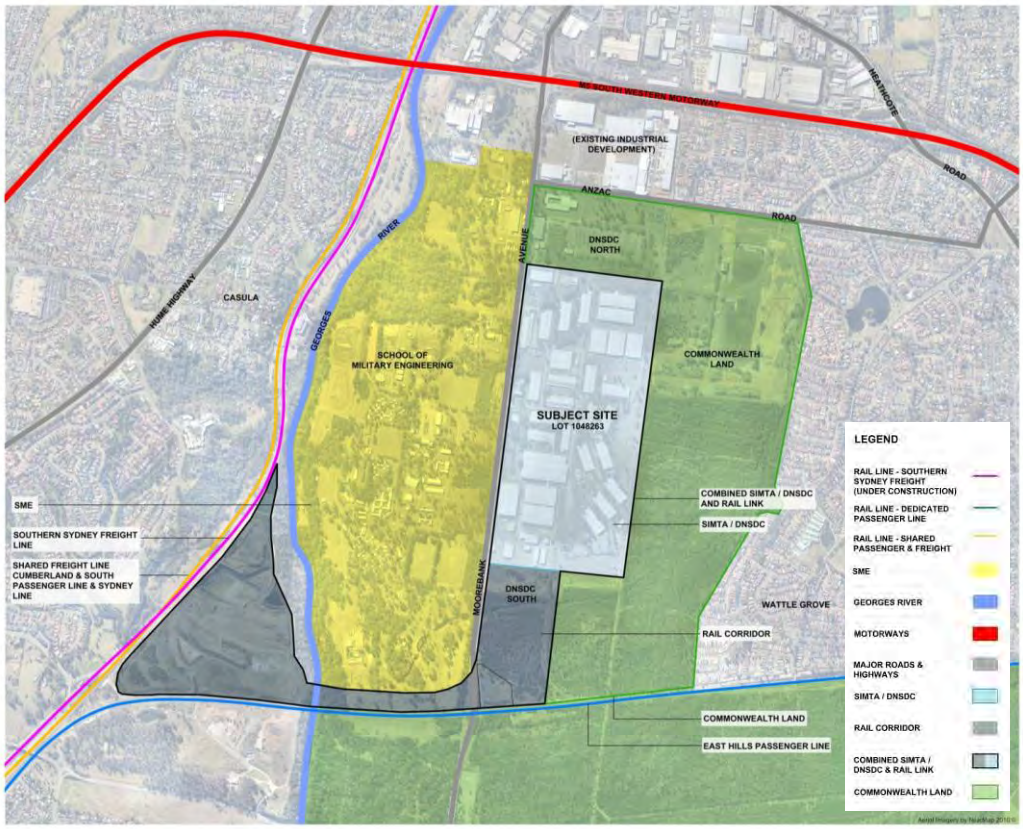


Figure 1: Moorebank Intermodal Terminal site

2 Methodology

The scope of the light spill study is to predict:

- Spill light to residential boundaries in the form of a vertical Illuminance/intensity calculation grid on a vertical plane at a height of 1.5m within the specified area, derived in the specified manner.
- Special criteria operation such as local airfields or astronomical observatories that could be affected from spill light.

The results of the modelling which depicts the alignment of the limiting illuminance, is shown in Figure 4.

Software used for the illuminance modelling/calculation is the visual lighting design software *AGi32: version 2.02* provided by light lab international (www.lsa.com.au) and (www.visuallightingsoftware.com).

The assessment methodology has generally not included the beneficial effect of buildings, trees and bushes and can thus be considered conservative.

The extent or scale of values likely to be affected as a result of the SIMTA proposal are outlined further within this report. The extent or scale refers to areas within the SIMTA site and rail link construction footprint. Design information regarding the location of the rail link within the rail corridor is not available at this time. As a result, potential impacts within the rail corridor may be reviewed once design and siting studies are completed for the project application stages.

4 Design Parameters and Assumptions

Site Description

The SIMTA site is divided into two main usages

- The rail transfer and container loading area, which is located on the western (Moorebank Avenue frontage of the site
- Warehousing area located on the eastern, Wattle Grove side of the site.

It is considered the location with the most potential for light spill is the rail transfer and container loading area.

The rail transfer and container loading area is an open area which will be lit by luminaires on high standards (assumed for the purposes of the modelling only as 40 metres), so as to provide relatively high levels of light in both horizontal/vertical planes. The level of light is intended to safely support operations of the intermodal terminal such as:

- Crane operations and positioning.
- Shared vehicular and pedestrian usage hazard.
- Container movement activities.

The warehousing is located on the eastern boundary and should be similar in operation to any large warehouse complex. The warehouses are expected to have their front of house entries facing the eastern boundary of the site, with loading and unloading of the buildings along the northern and southern building faces.

Operational Lighting Standards

There are no Australian Standards which specifically address minimum standards of lighting for an exterior work area with this type of application. In these instances, the international standard *Commission Internationale De L'eclairage (CIE) 129-1998 Guide for lighting exterior work areas* is generally adopted.

The CIE standard specifies 50 lux for "rough works" which includes continuous handling of large units and raw materials, loading and unloading of freight, lifting and deseeding location for cranes, open loading platforms.

The following design parameters have therefore been adopted for relevant calculations to analyse the effects of obtrusive light from the proposed lighting system;

- Maintained Average Horizontal Illuminance = 50 lux
- Light Loss Factor = 0.70
- Initial lamp output = 220,000 lumens/lamp
- Horizontal Illuminance based at ground level.
- Calculation Grid Size over field = 5m x 5m.

Luminaire Adopted for Modelling

For the purposes of modelling to satisfy AS 4282 – 1997, the following lighting luminaire and standard have been adopted:

- Philips Optivision floodlight luminaires with 2,000 watt double ended short arc metal halide lamp.
- 40 metre high standards, located at approximately 120 metre centres.

The Phillips Optivision luminaire has been specifically chosen for a number of reasons:

- It is commonly available in Australia and commonly adopted in similar uses such as external industrial sites and sports facilities.
- The Optivision luminaire uses an asymmetric reflector of very high efficiency.

Asymmetric reflectors in luminaires are used for down lighting in open industrial or sporting fixtures specifically to control spill-light and limit glare and upward light leakage. Figure 2 shows how a light beam from an asymmetrical luminaire provides a more focussed light beam.

A brochure for the Optivision product is included in Appendix B and a copy of the lighting performance curves used for the modelling is shown in Figure 3.

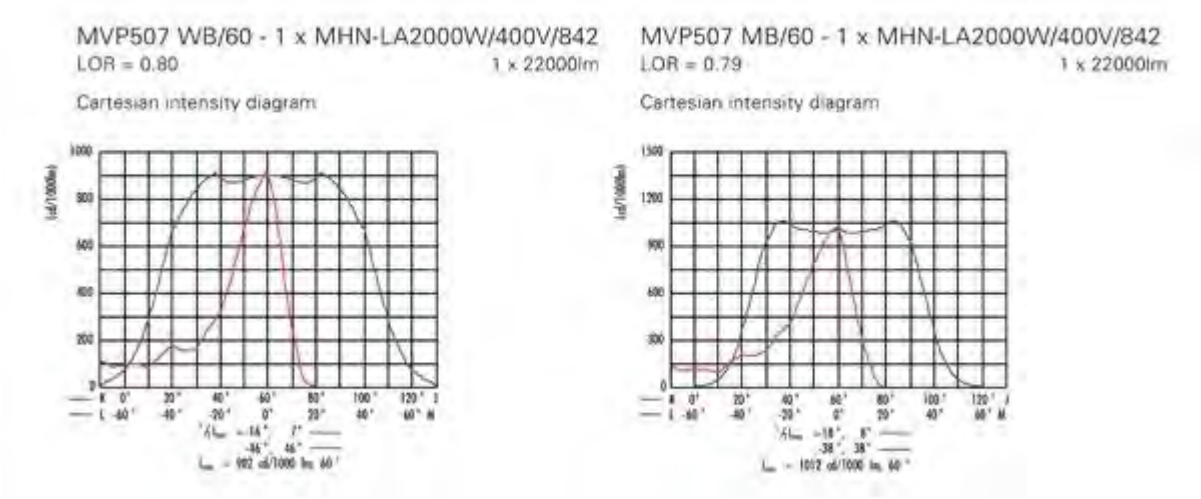
An asymmetric reflector means that the maximum beam intensity is emitted at an angle to the front of the glass so that spill is secured at a peak intensity at 60º and a sharp cut-off of light at 80º. The following photograph demonstrates the beam from an asymmetric reflector on a similar type of luminaire.

Figure 2 – Example of Light Beam from an Asymmetic reflector

Standard luminaires with a symmetrical reflector need to be tilted to angles up to 75^0 to be able to achieve the spread and intensity of a beam over a wide area, whereas an asymmetrical reflector can achieve the same level with only a tilt of just 10^0 thus reducing risk of light spill to adjoining properties.

A combination of wide beam and medium beam reflectors would be used in the fittings to contain the lighting to a specific area without creating significant bright spots on site.

Philips Optivision 2000 watt Light Fitting



Photometric of the Light Fitting

Figure 3 - Lighting Performance Diagram for Philips Optivision 2,000 watt

5 Results and Conclusion

The results of the modelling using Philips Optivision 2,000 watt luminaires mounted on 40 metre standards at approximately 120 metre centres are as follows:

- The most stringent requirement under Table 2.1 of AS4282 1997 of 1 lux in residential dark surrounds during curfew hours, is achieved approximately 150 metres from the light source as shown in Figure 4 following.
- Residential properties are approximately 400 metres from the eastern boundary and so will not be impacted by the light spill from the development.
- Along the eastern boundary where the uses are more consistent with a standard street in a commercial/industrial area, the light level is expected to be equivalent to a standard street level of lighting as per Australian Standard AS1158.3.1 “Lighting for roads and public spaces – Pedestrian area (Category P) lighting – Performance and design requirements”, category P3. Note that the requirements set for P3 is minimum 0.3 lux and hence unlikely to impact on the nearest residences.

The results of the modelling are shown on drawing SKC041 located in Appendix C.

The modelling shows that the luminous intensity from lighting within the SIMTA site can be easily designed to be below the prescribed maximum value of 500 cd (for curfew hours: 11.00 pm to 6.00 am) at the nearest residences.

Therefore the impact of spill light to the residential properties will be well within the required criteria as specified in Australian Standard AS4282-1997 “Control of the Obtrusive Effect of Outdoor Lighting”:

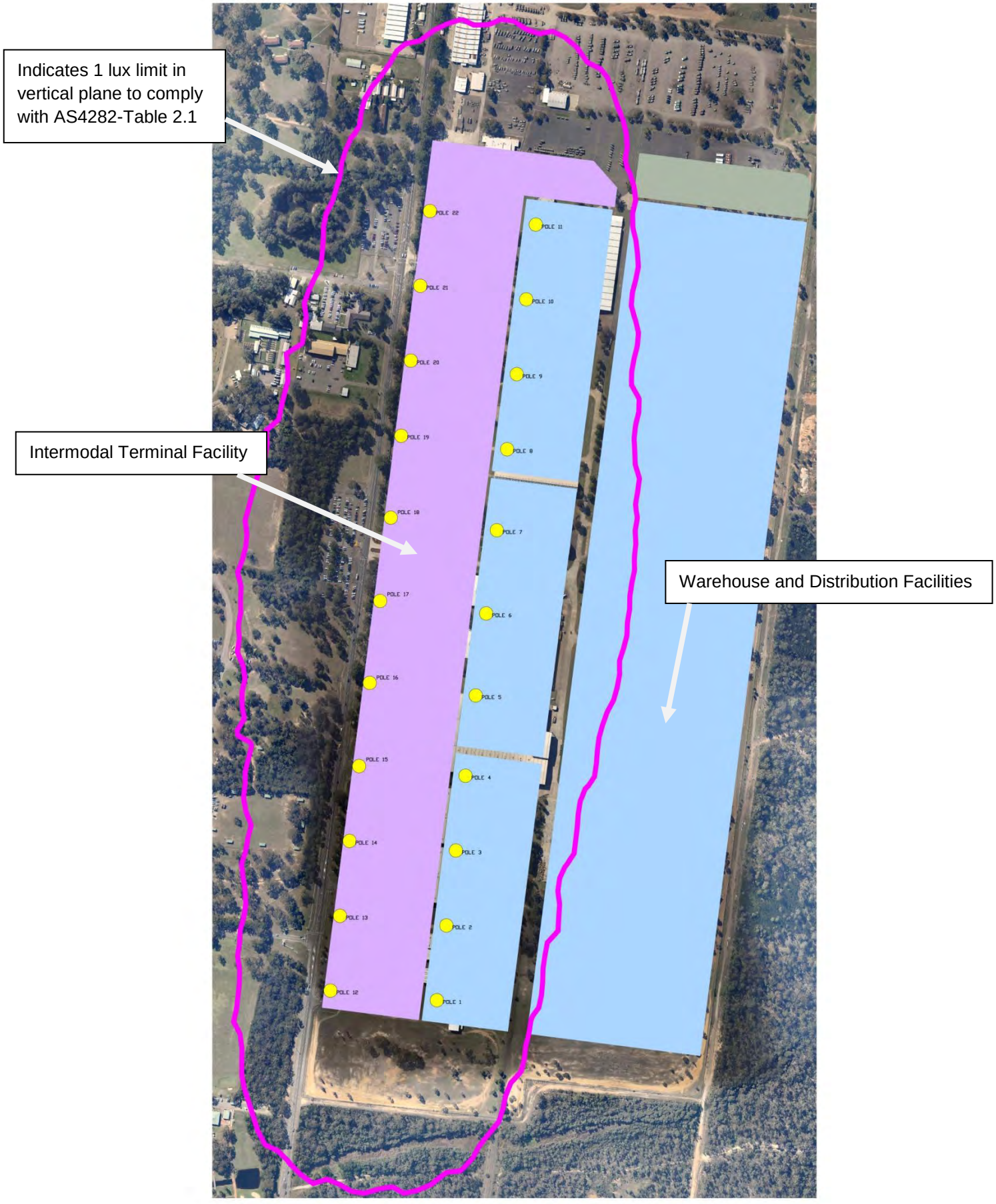


Figure 4- Isolux result (Vertical Illuminance at 1.5 m Above Ground)

Appendix A

Table 2.1 – AS4282 - 1997

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TABLE 2.1

RECOMMENDED MAXIMUM VALUES OF LIGHT TECHNICAL PARAMETERS FOR THE CONTROL OF OBTRUSIVE LIGHT

(See Clause 2.7)

1	2	3	4	5
Light technical parameter	**Application or calculation conditions (see also Figure 2.1 and Section 5)**	**Recommended maximum values**		
		In commercial areas or at boundary of commercial and residential areas*	**Residential areas**	
			Light surrounds†	**Dark surrounds‡**
Illuminance in vertical plane (E_v)	*Pre-curfew:* Limits apply at relevant boundaries of nearby residential properties, in a vertical plane parallel to the relevant boundary, to a height commensurate with the height of the potentially affected dwellings. Values given are for the direct component of illuminance	25 lx	10 lx	10 lx
	Curfewed hours: Limits apply in the plane of the windows of habitable rooms of dwellings on nearby residential properties. In the absence of development (i.e. vacant allotment), the limits apply on the potentially affected property, in a vertical plane parallel to the relevant boundary, at the minimum setback permitted for a dwelling, to a height commensurate with land use zoning provisions. Values given are for the direct component of illuminance	4 lx	2 lx	1 lx
Luminous intensity emitted by luminaires (I)	*Pre-curfew:* Limits apply to each luminaire (irrespective of the number on a head frame) in the principal plane, for all angles at and above the control direction, when aimed in accordance with the installation design	Limits as determined from Table 2.2. Alternatively, the limits and method of assessment associated with curfewed hours may be applied, at the discretion of the designer (see Clauses 2.7.1 and 2.7.2)		
	Curfewed hours: Limits apply in directions where views of bright surfaces of luminaires are likely to be troublesome to residents, from positions where such views are likely to be maintained, i.e. not where momentary or short-term viewing is involved	2 500 cd	1 000 cd	500 cd
Threshold increment (TI)	Limits apply at all times where users of transport systems are subject to a reduction in the ability to see essential information. Values given are for relevant positions and viewing directions in the path of travel	20% based on adaptation luminance ($\bar{L}$) of 10 cd/m^2	20% based on adaptation luminance ($\bar{L}$) of 1 cd/m^2	20% based on adaptation luminance ($\bar{L}$) of 0.1 cd/m^2

* Applies to residential accommodation in commercial areas or at the boundary between commercial and residential areas. The term 'commercial' is used as a generic description for zoning which provides for urban uses other than residential.

† Where the affected property abuts roads that are lit to Category V5 or higher in accordance with AS/NZS 1158.1.1.

‡ Where the affected property abuts roads that are lit to Category B1 or lower in accordance with AS 1158.1, or where there is no lighting.

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Appendix B

Phillips Optivision Brochure

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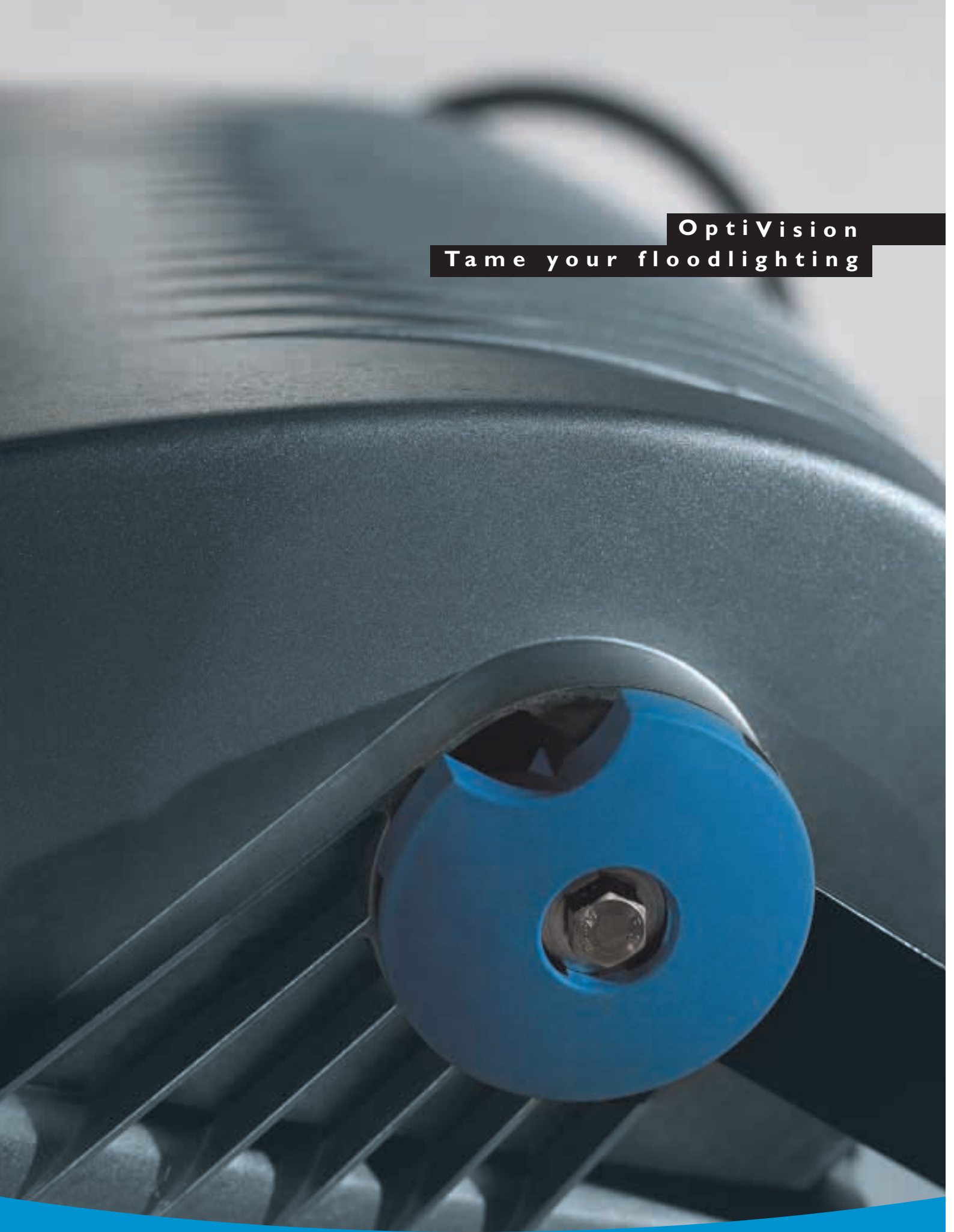


OptiVision

Tame your floodlighting

Let's make things better.

PHILIPS

Putting people's rights in a new light

People near floodlight installations have a right to peace and tranquillity.

In urban areas, artificial lighting should meet everybody's needs in terms of pleasure, safety and productivity.

However, for players, pedestrians and residents to be able to go about their business without disturbing each other, floodlighting must be specially designed to ensure that **everyone's rights and needs are respected.**

Good artificial lighting should prevent uncontrolled stray light and light spillage beyond, for example, the boundaries of a harbour, a parking area or a sports field, so that it does not affect people who live in the vicinity.

This "obtrusive" light includes light that falls on or enters a property, glare from an installation that affects passing drivers or the upward leakage of light that artificially brightens and obscures the night sky. Growing awareness of the issue of "obtrusive" lighting has prompted a number of countries to draw up guidelines to control it. **Accordingly, the design of environmentally friendly floodlighting** has become a pressing technical challenge.

As the world leader in floodlighting and as a truly green company, Philips has responded to this challenge by designing a completely new asymmetric floodlight – **OptiVision.**

OptiVision is suitable for applications in sports fields, airports, harbours, railway yards, parking areas, etc.

Four exclusive optical features make OptiVision so optimal

Firstly, as **the pioneers of asymmetric lighting,** Philips'optical engineers have gone one step further by designing the OptiVision reflector system. It delivers its highest peak intensity at 60° and an excellent cut-off at 80° in a flat glass (horizontal) position.

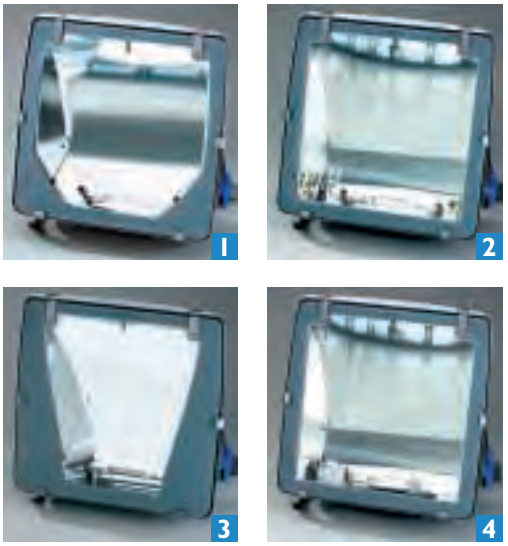
Thus, for a given amount of light on the field, **OptiVision produces three times less spill-over than other asymmetric floodlights.** And ten times less than conventional floodlights!

Secondly, thanks to minimal internal reflection in the OptiVision's optics, a 20% higher light output ratio (LOR) is achieved than with any other asymmetric floodlight.

You may well find, therefore, that you need fewer floodlights in your installation to achieve the required lighting level over a given area.

Thirdly, by designing very compact optics around a 2kW lamp and oversized fins for more effective cooling, Philips has succeeded in making **OptiVision smaller than any other comparable 2kW floodlight.**

The compactness thus achieved leads to a reduced visual impact and means that less robust columns can be used.



Different beams for total flexibility

1 **MHN-LA 2kW MB**
2 **MHN-LA 2kW WB**
3 **MHN-LA 2kW NB**
4 **SON-T-P 600W WB**

Lastly, OptiVision offers three different beam characteristics for the MHN-LA 2kW lamp: narrow, medium and wide, as well as specific wide beams for MHN-LA 1kW and SON-T 600W/1000W. The choice of lamps and reflectors allows total flexibility in lighting designs (sports fields and area lighting).

The designers at Philips have drawn on their extensive expertise and experience to create this cutting-edge floodlight system that boasts unequalled lamp performance and optics.

OptiVision projects light downwards, ensuring a total cut-off of light above the level of the luminaire, thus avoiding spill light into nearby properties.

Tilted floodlight

Horizontally positionned Optivision

Designed with ease of operation in mind

Bracket allows positioning above or below the mast

All OptiVision features have **the effect of reducing initial costs and making installation easier,** thus improving installation performance.

Roughly 15% smaller than other asymmetric floodlights, at 16.8 kilos OptiVision is also the **lightest floodlight on the market.** This slim, smooth design produces a projected area of only 0.16m and an extremely low wind-drag factor, thus allowing lighter mast constructions to be used.

In addition, OptiVision can be mounted above or below a crossbar simply by inverting the bracket. **This allows multiple lights to be fitted on each mast.**

Alignment is also easier and quicker thanks to the large 'protractor-scale' angle indicators at either side of the floodlight, whilst a simple aiming device permits aiming on the mast.

OptiVision is supplied with a pre-cabled connection box. The only connection that remains to be made is from the mains cable to the gear. An optional gear box is available for gear up to 1000W.

Optimal gear box for gear up to 1000W

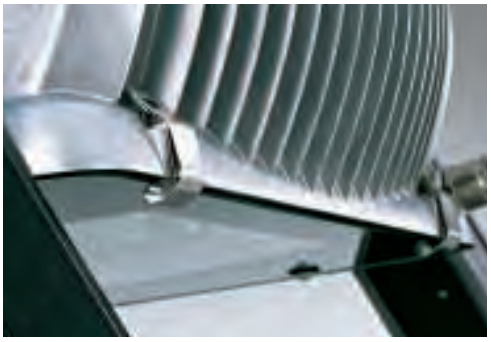
Easily visible protractor scale simplifies aiming

Pre-cabled connection box: just add mains cable

Fine-tuned down to the smallest detail for optimal reliability

Product reliability is the key in floodlighting because of the inaccessibility of the product in high mast installations and because it is used on a daily basis.

OptiVision is corrosion-resistant even in the most adverse weather conditions, thanks to its **high-purity aluminium housing and stainless steel clips.**



Only high-purity aluminium and stainless steel clips are used.

OptiVision ensures precise positioning of the compact double-ended lamp to give excellent beam control. MHN-LA 1000W / 2000W lamps from Philips are widely considered to be the best on the market.

Their average lifetime is 8000 hours, with very little drop-off in output and **extremely stable colour characteristics.**

OptiVision provides optimal working conditions for the lamps because the housing

MHN-LA 2000W/842
MHN-LA 1000W/842

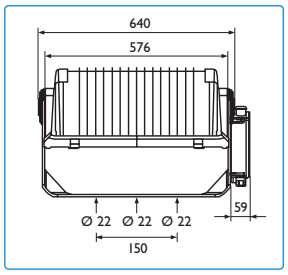
is cooled by means of a unique, large-finned convector system. A built-in safety switch allows the floodlight to be isolated temporarily from the mains, providing the safest possible conditions for installation and maintenance.

Finally OptiVision is more than just a floodlight. Philips is the only manufacturer to supply all the relevant technologies, from lamp and gear to floodlight, to guarantee optimal performance.

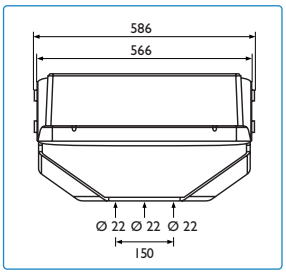
OptiVision's IP65 rating means it is totally impervious to dust and can withstand being cleaned by a high-pressure water jet.

OptiVision MVP 507

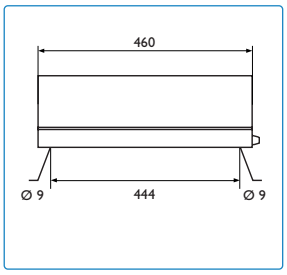
Dimensions in mm



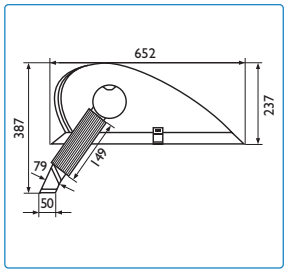
Back view luminaire MVP 507



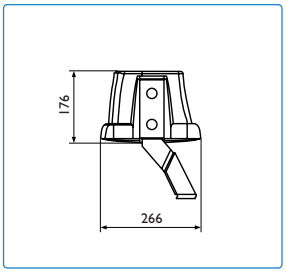
Back view gearbox ZVP 507



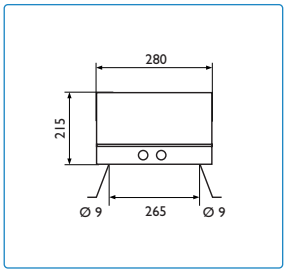
Back view gearbox DK6A



Side view luminaire MVP 507



Side view gearbox ZVP 507



Side view gearbox DK6A

Technical data

Ambient temperature (outdoor)		35°C
Classification (luminaire)		IP65
Insulation class		I
Complies with		IEC 598
Safety switch		built-in*
Windload data		
Projected surface (horz.position)		0,16m²
Drag factor		0,447
Weight luminaire	MHN SON	17,2 kg 17,3 kg
Weight attached gearbox		9 kg
Weight remote gearbox		8,1 kg

**MHN versions only*

Connection box

PG 11 cable gland for entry of the safety switch cable. PG 16 cable gland for incoming earth & lamp cables.
Terminal block with screw terminals inside for cable cores up to 16 mm².

Accessories

Type of gearbox		EOC code
ZVP507 1X MHN-LA 1000W / SON-T 1000W	attachable gearbox*	available mid 2001
ZVP507 1X SON-T-P 600W	attachable gearbox*	available mid 2001
DK6A	remote gearbox	24173900

**including gear*

Ordering data

Luminaire	EOC code
MVP507 1xSON-T-P 600W 230V K WB	15192200
MVP507 1xSON-T 1000W 230V K WB	15193900
MVP507 1xMHN-LA 1000W/842 230V K WB	15195300
MVP507 1xMHN-LA 2000W/842 400V K WB	15196000
MVP507 1xMHN-LA 2000W/842 400V K MB	15197700
MVP507 1xMHN-LA 2000W/842 400V K NB	15198400
MVP507 1xSON-T-P 600W 230V WB	15199100
MVP507 1xSON-T 1000W 230V WB	15200400
MVP507 1xMHN-LA 1000W/842 230V WB	15202800
MVP507 1xMHN-LA 2000W/842 400V WB	15203500
MVP507 1xMHN-LA 2000W/842 400V MB	15204200
MVP507 1xMHN-LA 2000W/842 400V NB	15205900

K = Kombi including lamp
NB = Narrow beam
MB = Medium beam
WB = Wide beam

PHILIPS

ZVF320/choice sheet geartrays

dimensions	lamps	mains	type of ballast	ignitor	capacitance	fuse
❑ wide (264 x 410 mm) ❑ long (148 x 650 mm)	❑ SON-T-P 600W	❑ 220V-60Hz ❑ 230V-50Hz ❑ 240V-50Hz	basic	series		❑ yes ❑ no
		❑ 230V-50Hz ❑ 240V-50Hz	basic	semi-parallel	1 nF	
	❑ SON-T 1000W ❑ MHN-LA 1000W	❑ 220V-60Hz ❑ 230-240V 50Hz	❑ basic	semi-parallel	≤6 nF	
			❑ high protection	semi-parallel	❑ ≤4.5 nF ❑ 4-10 nF	
	❑ MHN-LA 2000W	❑ 380-415V 50Hz	basic	series		
		❑ 380-400V 50Hz	high protection	series		

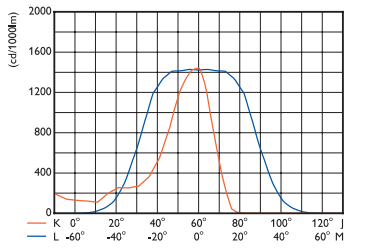
Lamps

	MHN-LA 1000W/842	MHN-LA 2000W/842	SON-T-P 600W	SON-T 1000W
Luminous flux (Lm)	100.000	220.000	90.000	130.000
Colour temperature (K)	4200	4200	2000	2000
Colour rendering index	80	80	20	25
Life expectancy based on 50 % failures (hrs)	8000	8000	16.000 < 10 % failures	14.000
Average lamp voltage (V)	125	235	115	115
Average lamp watts (W)	1040	2040	600	1000
Max. current during starting (A)	15	15	8.7	14
Run-up time (min)	4	4	10	6
Re-ignition time (min)	max 15	max 15	1	4

Photometric data

MVP 507 NB — 1 x MHN-LA 2000W/842
L.O.R. = 0,81 — 1 x 220.000 lm

Cartesian intensity diagram

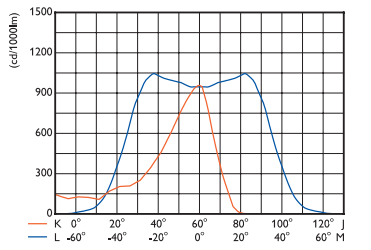


½ Imax = -18°, 8°
-29°, 29°
Imax = 1421 cd/1000 lm, 60°

Provisional Data

MVP 507 MB — 1 x MHN-LA 2000W/842
L.O.R. = 0,82 — 1 x 220.000 lm

Cartesian intensity diagram

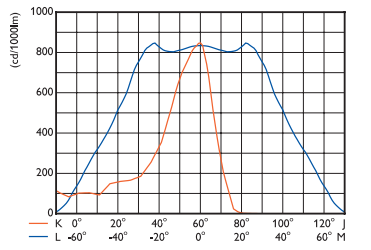


½ Imax = -20°, 7°
-38°, 38°
Imax = 946 cd/1000 lm, 60°

Provisional Data

MVP 507 WB — 1 x MHN-LA 2000W/842
L.O.R. = 0,82 — 1 x 220.000 lm

Cartesian intensity diagram

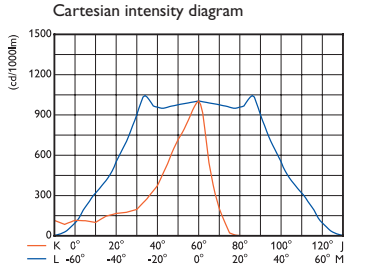


½ Imax = -19°, 7°
-45°, 45°
Imax = 834 cd/1000 lm, 60°

Provisional Data

MVP 507 WB — 1 x MHN-LA 1000W/842
L.O.R. = 0,84 — 1 x 100.000 lm

Cartesian intensity diagram

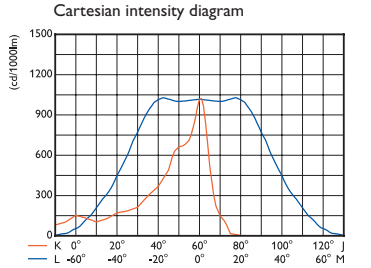


½ Imax = -17°, 6°
-42°, 42°
Imax = 1004 cd/1000 lm, 60°

Provisional Data

MVP 507 WB — 1 x SON-T 1000W
L.O.R. = 0,75 — 1 x 130.000 lm

Cartesian intensity diagram

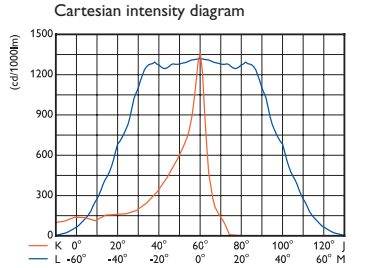


½ Imax = -15°, 6°
-38°, 38°
Imax = 1017 cd/1000 lm, 60°

Provisional Data

MVP 507 WB — 1 x SON-T-Plus 600W
L.O.R. = 0,76 — 1 x 90.000 lm

Cartesian intensity diagram



½ Imax = -8°, 5°
-41°, 41°
Imax = 1321 cd/1000 lm, 60°

Provisional Data

PHILIPS

OptiVision

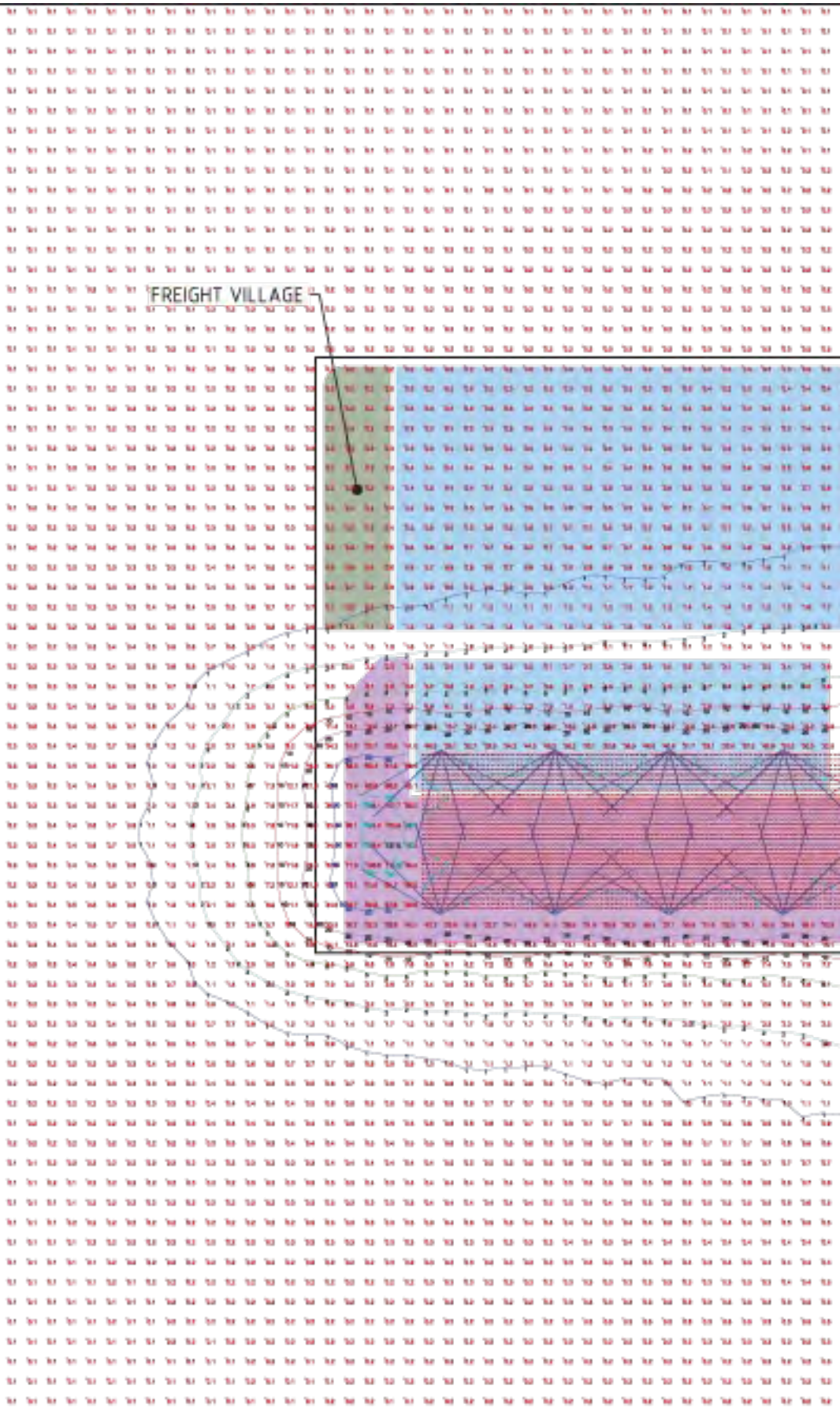
OptiVision Product Guide CD-Rom

All the technical information regarding OptiVision
are in the Product guide CD-Rom.
Ask for it to your local Philips representative.

http://www.lighting.philips.com - NC 3222 635 29681 - Printed in France - 03/2001 - Data subject to change.
BL/LB France - Photo credits: Philips Ligthing - D. Michalet - G. Framinet - No Comment - H. van Stekelenburg

Appendix C

SKC041 – Lighting Simulation Results



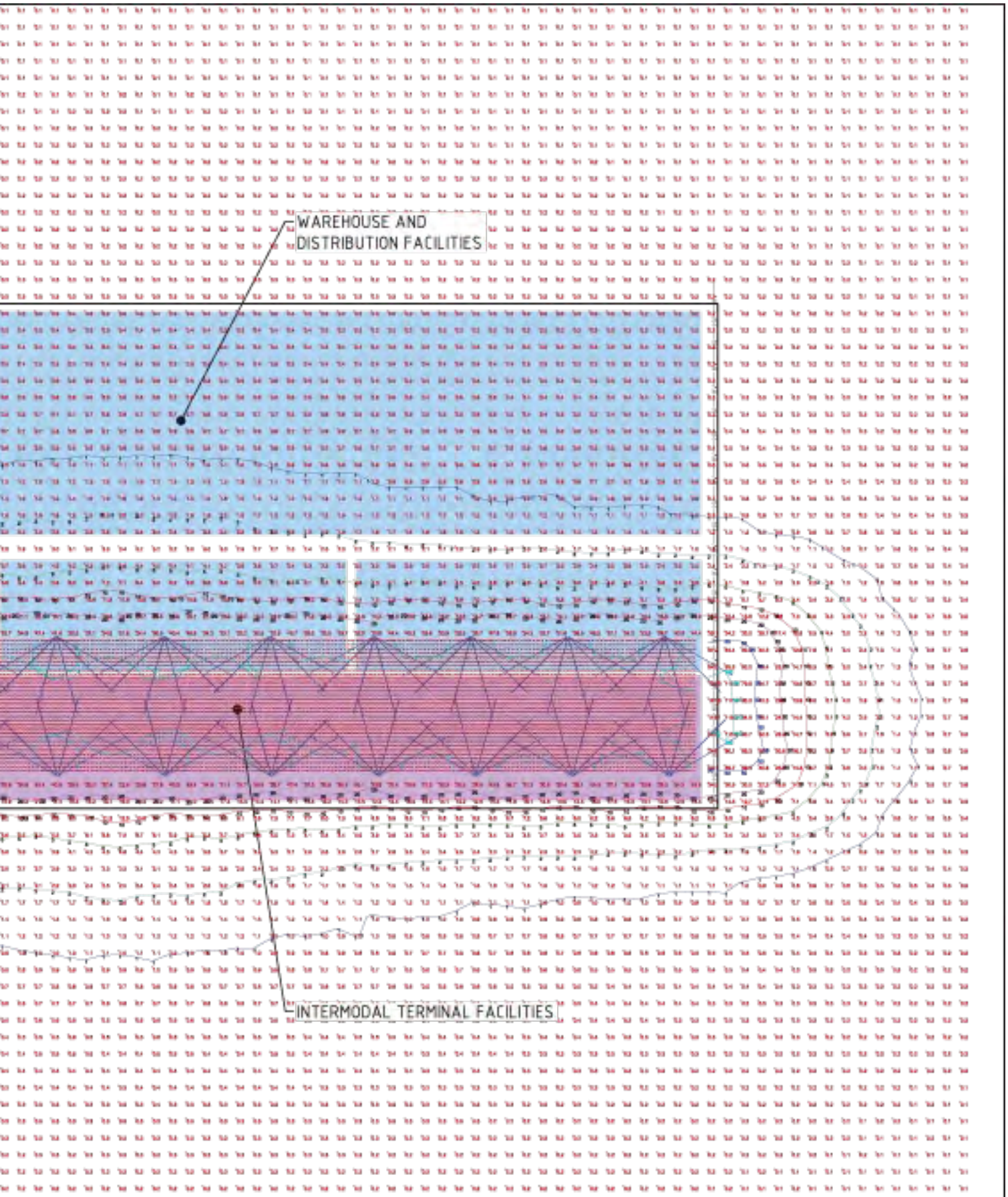
LEGEND – CONTOUR LEVEL

1 LUX
2 LUX
5 LUX
10 LUX
20 LUX

01	FOR INFORMATION	xx/xx/'18
NAME	Description	Date

0 50 100 200 300m

1 : 3000



SIMTA

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1 : 3000	Current Issue Signatures	
		Drawn	BGM
Original Size	A1	Designed	BGM
Height Datum	AHD	Checked	BC
Grid	MGA	Approved	
File Name:			

Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

Title: LIGHTING SIMULATION RESULTS

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Drawing No	Project No	Issue
SKC041	AA003210	01

Date Plotted: 21 Jun 2011 - 11:51AM File Name: T:\AA003210\E-CAD\3-BG\SK041-Lighting Calculations.dwg

REIDCAMPBELL