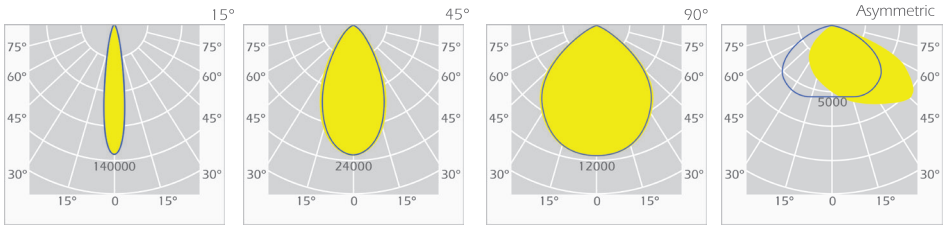
DOZER

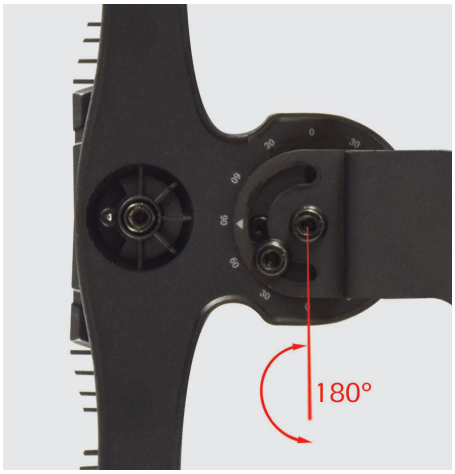
Design is everything to a projector. Dozer projectors are used in lighting applications with their flawless design and high efficiency different optical options. It is a groundbreaking contemporary projector series that will provide tremendous opportunities for lighting designers and great convenience to practitioners. In each piece of the projector, the best and longest-lasting materials are used. The harshest state of natural conditions such as humidity, dust, rain, snow, cold and hot. The tests and measurements were made by taking into account the extraordinarily bad conditions. From deserts to poles with LİTPA DOZER series projectors aims to offer its customers a product that can be used for many years in every part of the world and in every field. Optics of each use separate modules have been developed according to their mechanical and electrical properties, and perfect module combinations that will give the best results have been created. LİTPA DOZER has combined its luminaire production and optical design experience in projectors with the latest technology.

Optical performance is everything for a projector. From LITPA DOZER projectors to designers in order to offer alternatives four different ways to implement optical options. These optical options any combination within the projector can also be used to provide different solutions and separate sections can be directed. This will provide unlimited possibilities for designers and users.



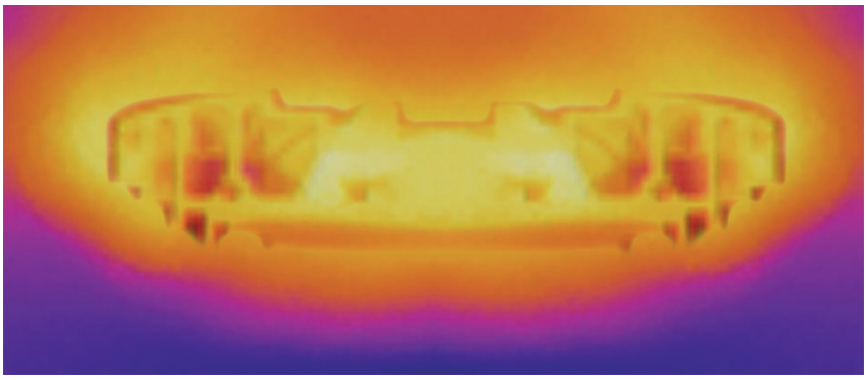
Ease of application is everything for a projector. Dozer is a perfect fit for different mounting conditions. This starts with the luminaire assembly. The mounting arms of DOZER projectors are designed above the light of other projectors in such a way that they do not cut and shadow each other. Mounting arms are made of extremely durable material. Oscillation, vibration that may occur in the environment are natural. These are not to be affecteol by dozer thanks to its durable materials. Dozer is made by taking mechanical and static precautions.

Orientation is everything to a projector. DOZER projectors have different modules. It offers many different alternatives for an application with its combinations. Can a projektor be both narrow, wide and asymetrical ? Litpa says yes to this question. Litpa designed DOZER for. You to say YES. Thanks to the special design of DOZER projectors and its optical structure. Dozers optical structive allows The luminare to be directed at different angles and to different points. DOZER projector has 180 degree angle as a projector. for precise adjustments and orientations after assembly. It offers 5 different orientations. In addition, LITPA's DOZER projectors thanks to the superior structure it has developed a module that has the ability to be oriented 360 degrees and each module can be directed to different points. May be preferred.



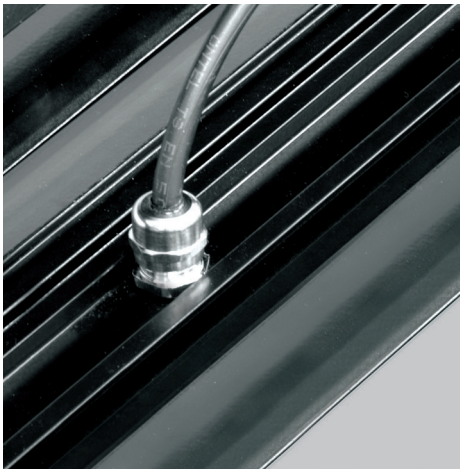
COOLER

Corrosion resistance is everything to a projector. The luminaires are resistant even at high ambient temperatures in the measurements made over the port and led. Dozer body gives an excellent result. It is made of Al6063 material. In this way it has extremely high strength. In moving parts Al141 material is used in the joints. Dozers body increase the resistance to corrosion. Dozers body is washed with solvent-based butoxy-2-propanol , Specially produced for these environments for anti-corrosive purposes. 50 micron thick zinc-based primer paint and 80 micron thick polyester-based paint is implemented.



Thermal management is everything to a projector. DOZER Heat management has been given great importance in projectors. With its special heatsink shape and design. The heating on the Leds is transferred to the 1.6 mm thick alluminium with high termal conductivity PCB and the body. This Heat conduction between PCBs projectors and body increase dozers heat management. Special Alkoxy cure meterial is used to transfer the heat outside the body. Dozer special design of the body, the heat transferred to the body will ensure that it is released to the environment as quickly as possible.

PROTECTİON AGAİNTS WATER AND DUST



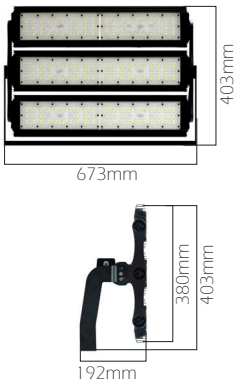
Resistance to ambient conditions is everything to a projector. Luminaires are designed to put up against all kinds of natural conditions. Protection class of optics are IP67. Driver boxes are made to provide IP65 protection. All transitions are made with couplings. There is Optical polycarbonate lens in luminaires and special silicone gasket between body and lens are available.

LIGHT CONTROL APARETUS

Light control is everything to a projector. Thanks to the special light-cutting screen, is important luminaires. It is possible to control and limit the produced light. In some applications. Placementin the areas or in places that may affect the traffic route. Control is of great importance in these kind of roads. Applications made thanks to the adjustable screen It is prevented from creating glare or having an undesirable effect. LITPA DOZER With this screen developed for projectors, the light pollution that may occur after the application is minimized. Based on the usage areas of DOZER projectors , thanks to their optical structures, not only luminaire efficiency and application needs, but also It is aimed to minimize that of light pollution. However, unwanted luminous effects will be easily controlled with these displays. These screens can be added after the applications. Tilting and viewing angles can be adjusted.

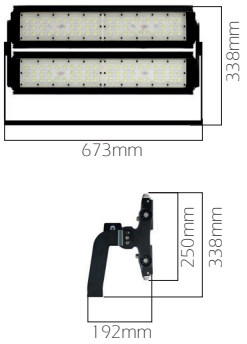
ZPX450 IP67 - IP65

BODY: Aluminum extruded body (Al6063). Active parts (AL141). Mounting bracket 3mm thick HRP It is made of sheet metal. Polyester based paint is used primer on a zinc-based.
LED: Highly efficient power and mid-power
Cooler: Finned aluminum body structure
Optics: High efficiency lenses; 15° - 45° - 90° - Asymmetrical
Protection: Optical part IP67, Housing IP65
Colour: Black



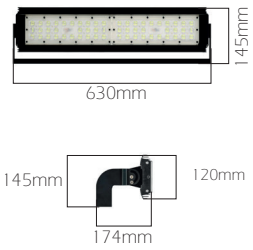
ZPX300 IP67 - IP65

Body: Aluminum extruded body (Al6063) . Active parts (AL141). Mounting foot 3mm thick HRP It is made of sheet metal. Polyester based paint is used primer on a zinc-based.
LED: Highly efficient power and mid-power
Cooler: Finned aluminum body structure
Optics: High efficienty lenses; 15° - 45° - 90° - Asymmetrical
Protection: Optical part IP67, Housing IP65
Colour: Black



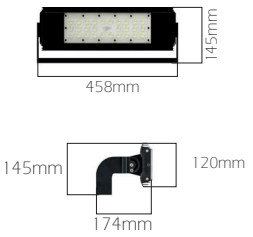
ZPX150 IP67 - IP65

Body: Aluminum extruded body (Al6063) . Active parts (AL141). Mounting foot 3mm thick HRP It is made of sheet metal. Polyester based paint is used primer on a zinc-based.
LED: Highly efficient power and mid-power
Cooler: Finned aluminum body structure
Optics: High efficienty lenses; 15° - 45° - 90° - Asymmetrical
Protection: Optical part IP67, Housing IP65
Colour: Black



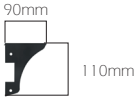
ZPX75 IP67 - IP65

Body: Aluminum extruded body (Al6063) . Active parts (AL141). Mounting foot 3mm thick HRP It is made of sheet metal. Polyester based paint is used primer on a zinc-based.
LED: Highly efficient power and mid-power
Cooler: Finned aluminum body structure
Optics: High efficienty lenses; 15° - 45° - 90° - Asymmetrical
Protection: Optical part IP67, Housing IP65
Colour: Black



ZPX/BC (Light Control Part)

Body: 1mm thick DKP sheet with polyester-based paint



Product Features

Code	Beam Angle	Luminous Flux	System Power	Voltage	Colour Temperature	Weight (Net)
ZPX 450 NB	15°	49.800	450 W	220V-50Hz	3000-4000-5000-6500K	12kg
ZPX 450 MB	45°	55.950	450 W	220V-50Hz	3000-4000-5000-6500K	12kg
ZPX 450 WB	90°	58.500	450 W	220V-50Hz	3000-4000-5000-6500K	12kg
ZPX 450 AS	Asymmetric	56.250	450 W	220V-50Hz	3000-4000-5000-6500K	12kg
ZPX 300 NB	15°	33.200	300 W	220V-50Hz	3000-4000-5000-6500K	7kg
ZPX 300 MB	45°	37.300	300 W	220V-50Hz	3000-4000-5000-6500K	7kg
ZPX 300 WB	90°	39.000	300 W	220V-50Hz	3000-4000-5000-6500K	7kg
ZPX 300 AS	Asymmetric	37.500	300 W	220V-50Hz	3000-4000-5000-6500K	7kg
ZPX 150 NB	15°	16.600	150 W	220V-50Hz	3000-4000-5000-6500K	4.5kg
ZPX 150 MB	45°	18.650	150 W	220V-50Hz	3000-4000-5000-6500K	4.5kg
ZPX 150 WB	90°	19.500	150 W	220V-50Hz	3000-4000-5000-6500K	4.5kg
ZPX 150 AS	Asymmetric	18.750	150 W	220V-50Hz	3000-4000-5000-6500K	4.5kg
ZPX 75 NB	15°	8.300	75 W	220V-50Hz	3000-4000-5000-6500K	2.5kg
ZPX 75 MB	45°	9.320	75 W	220V-50Hz	3000-4000-5000-6500K	2.5kg
ZPX 75 WB	90°	9.750	75 W	220V-50Hz	3000-4000-5000-6500K	2.5kg
ZPX 75 AS	Asymmetric	9.375	75 W	220V-50Hz	3000-4000-5000-6500K	2.5kg
Accesories						
ZPX/BC (Light Control Part)						0.5kg

Boxing Sizes and Weights

Code	Box Dimensions	Gross Weight
ZPX 450	700 x 430 x 200 mm	12.5kg
ZPX 300	700 x 300 x 200 mm	7.5kg
ZPX 150	630 x 200 x 200 mm	5.0kg
ZPX 75	450 x 200 x 200 mm	3.0kg

Special Dozer Application Packages

DOZER TENNIS

Module	Beam Angle	Total Power
ZPX 150W Module	45°	300W
ZPX 150W Module	Asymmetric	

DOZER FOOTBALL

Module	Beam Angle	Total Power
ZPX 150W Module	15°	450W
ZPX 150W Module	45°	
ZPX 150W Module	90°	

DOZER MINI FOOTBALL

Module	Beam Angle	Total Power
ZPX 150W Module	45°	300W
ZPX 150W Module	90°	

DOZER JUNCTION(150m)

Module	Beam Angle	Total Power
ZPX 150W Module	45°	450W
ZPX 150W Module	45°	
ZPX 150W Module	45°	

DOZER JUNCTION(75m)

Module	Beam Angle	Total Power
ZPX 150W Module	45°	300W
ZPX 150W Module	90°	

DOZER APRON I

Module	Beam Angle	Total Power
ZPX 150W Module	15°	450W
ZPX 150W Module	15°	
ZPX 150W Module	15°	

DOZER APRON II

Module	Beam Angle	Total Power
ZPX 150W Module	Asymmetric	450W
ZPX 150W Module	Asymmetric	
ZPX 150W Module	Asymmetric	

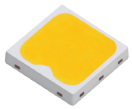
DOZER SEAPORT

Module	Beam Angle	Total Power
ZPX 150W Module	45°	450W
ZPX 150W Module	45°	
ZPX 150W Module	Asymmetric	

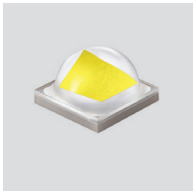
DOZER SECURITY

Module	Beam Angle	Total Power
ZPX 150W Module	Asymmetric	150W

LED



- 30x30 Midpower Led
  (Outdoor led with protection against sulfure)
- High Efficiency
- Long Lasting
- The driving current values of the LEDs and the
- Maximum driving will not exceed 70 percent of
  current values
- 0.9W, 6V mid-power LED
- High reliability EMC
- Ambient / Operating temperature Ta -40 ~ +85
- LED junction temperature T_j 125°C
- Driving current I_f 200mA
- Pulse current I_{fp} 300mA
- Thermal resistance (connection to solder point) °C/W 7.5
- Light Angle 120°

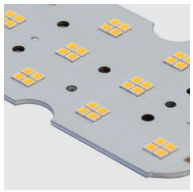


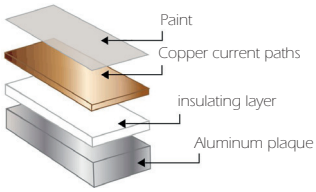
- Power Led
- High Efficiency
- Long Lasting
- 3-step and 5-step options
- RoHS and REACh compliant
- Ceramic Based
- Thermal resistance: 3°C/W
- 6.0 W @ 2.0 A Power LED
- High reliability EMC
- Ambient / Operating temperature Ta -40 ~ +85
- LED junction temperature T_j 150°C
- Driving current I_f 2000mA
- Pulse current I_{fp} 2600mA
- Thermal resistance (connection to solder point)°C/W 3
- Light Angle 120°

Driver

- Wide input voltage range 100~305V AC(Class I)
- Full power output 70~100% Constant power mode
- Metal case with IP67, suitable for outdoor applications
- Surge arrester 6KV/4KV (10KV/6KV optional)
- 3 in 1 dim function
- Life >50,000 hours and 5 years warranty
- PF≥0.95/230VAC
- THD< 10%(@load@50%/115VC,230VAC)
- Yield 92%
- Drivers are compatible with the latest version of I EC61347/ GB7000. 1-2015 and UL8750 international safety regulations.

PCB



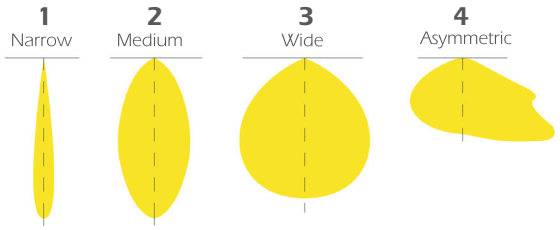


- Excellent heat dissipation
- High heat stress performance
- Excellent reliability
- UL certification
- RoHS compliant
- Halogen free, HI, Pb & Sulfur free

- Thermal conductivity :1.0 W/m*K
- Thermal shock : >120sec
- Thermal impedance : 1.1°C/W
- Insulation Thickness : 110Um
- Withstand voltage : 4.0KV/DC

Optic System

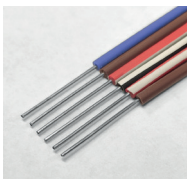
- UV resistant polycarbonate lens
- High efficiency and permeability
- different light angles
- Long life
- non-yellowing material
- High thermal performance



Body

- Aluminum extruded body - Al6063
- Projector module holder - Al141
- Mounting foot 3mm thick HRP sheet
- Excellent thermal design
- Solvent based butoxy-2-propanol 50 micron thick after processing on zinc-based primer paint 80 micron-thick polyester-based paint is implemented.

Cables



- DC side H05SS-F 2 x 0.75mm²
- AC side H05RR-F 3 x 1.5mm²
- Electrolytic tin plated
- Halogen free
- Silicone case
- Operating temperature -60°C…+180°C

Technicial Specifications

General

Color Temperature :	3000K - 4000K - 5000K
Transformer :	Driver
Number of Drivers :	1 - 2
Optical Cover Type :	Polycarbonate
Interface Control :	-
Connection :	5 pole terminal
Protection Class IEC :	1 Class
CE Mark :	CE
Light Source Type :	Midpower 6V Outdoor Led
Eu RoHS compliance :	Yes

Material Information

Body Material :	Al6063
Mounting Material :	3mm thick HRP sheet
Optical Material :	Polycarbonate
Optical Cover/Lens Material :	Polycarbonate
Colour :	Black

Working Characteristics

Input Voltage:	100 - 300 V
Input Frequency:	50 to 60 Hz
Inrush Current:	Cold start 85A
Power Factor (min.)	PF >0.96
Total Harmonic Distortions:	THD<10
Current Ripple:	< %5
Efficiency:	> %90
Control and Dimming :	
Dimmable:	Optional

Approval and Application

Protection Class :	Optical system IP67 - Housing IP65
Mechanical strength code :	IK09
Surge arrester (common/differential) :	6kV / 4kV

Time Dependent Performance (IEC Compliant)

Lumen maintenance in average lifetime:	50,000 h

Application Conditions

Ambient Temperature Range:	-40 to +55 °C
Performance Ambient Temperature:	Tq 25 °C
Maximum Dimming Level:	10% (Opsiyonel)

DOZER 450

Initial Performance (IEC Compliant)

Initial Input Luminous Flux (System Flux) :	49.800 - 58.500lm
Luminous Flux Tolerance:	+/-5%
Luminaire Efficiency at Start:	110 - 130 lm/W
Color Temperature:	3000 - 4000 - 5000 K
CRI:	70
Initial Input Power:	450 W
Power Consumption Tolerance:	+/-10%
Initial CRI Tolerance:	+/-2

DOZER 300

Initial Performance (IEC Compliant)

Initial Input Luminous Flux (System Flux) :	33.200 - 39.000 lm
Luminous Flux Tolerance:	+/-5%
Luminaire Efficiency at Start:	110 - 130 lm/W
Color Temperature:	3000 - 4000 - 5000K
CRI:	70
Initial Input Power:	300 W
Power Consumption Tolerance:	+/-10%
Initial CRI Tolerance:	+/-2

DOZER 150

Initial Performance (IEC Compliant)

Initial Input Luminous Flux (System Flux) :	16.600 - 19.500 lm
Luminous Flux Tolerance:	+/-5%
Luminaire Efficiency at Start:	110 - 130 lm/W
Color Temperature:	3000 - 4000 - 5000 K
CRI:	70
Initial Input Power:	150 W
Power Consumption Tolerance:	+/-10%
Initial CRI Tolerance:	+/-2

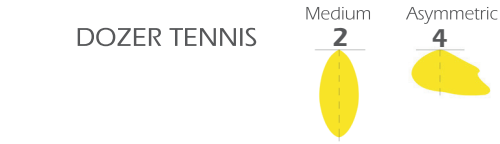
DOZER 75

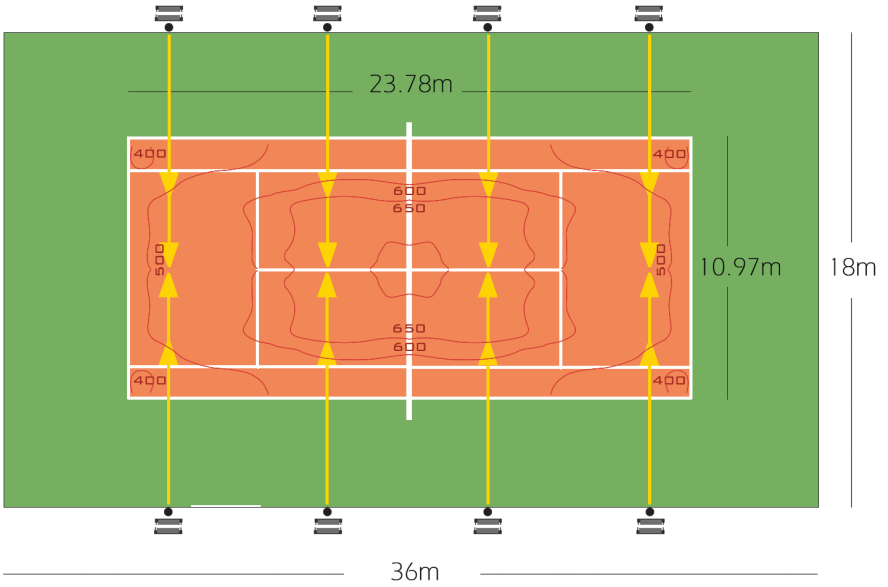
Initial Performance (IEC Compliant)

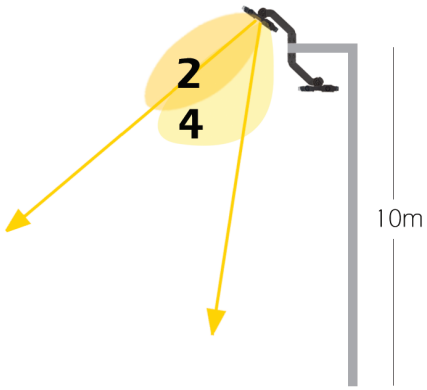
Initial Input Luminous Flux (System Flux) :	8.300 - 9.750 lm
Luminous Flux Tolerance:	+/-5%
Color Temperature:	3000 - 4000 - 5000K
CRI:	70
Initial Input Power:	75 W
Power Consumption Tolerance:	+/-10%
Initial CRI Tolerance:	+/-2

Tennis Court - Class III

DOZER TENNIS



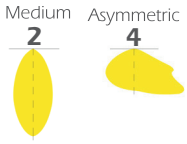


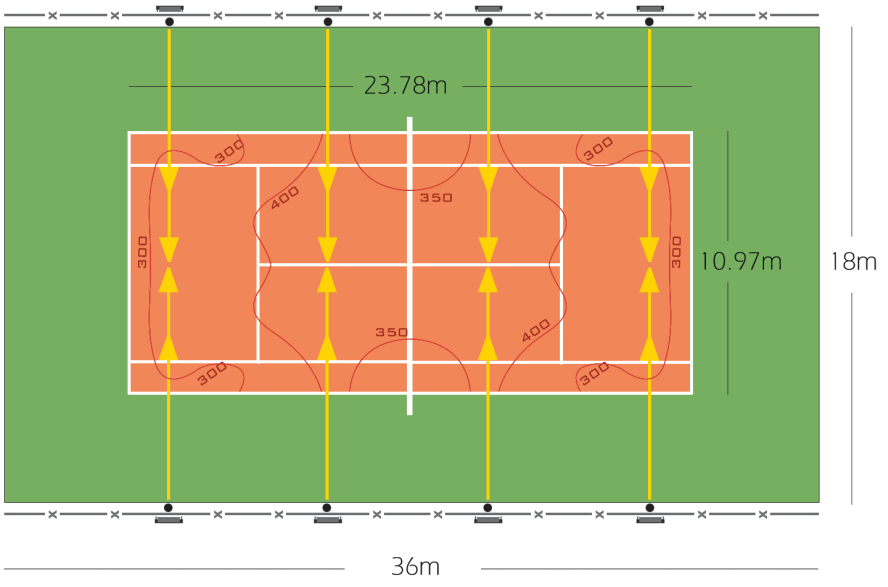


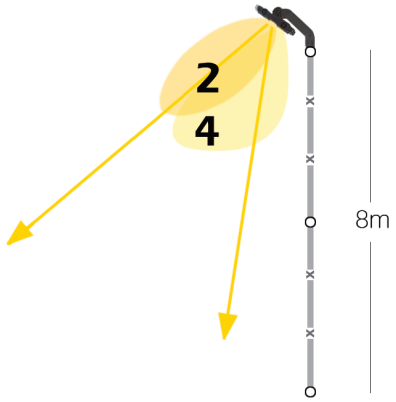
Feautures	Number of fixtures	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Horizontal Plane	16	300W	546lx	340lx	688lx	0.62

Tennis Court - Class IV

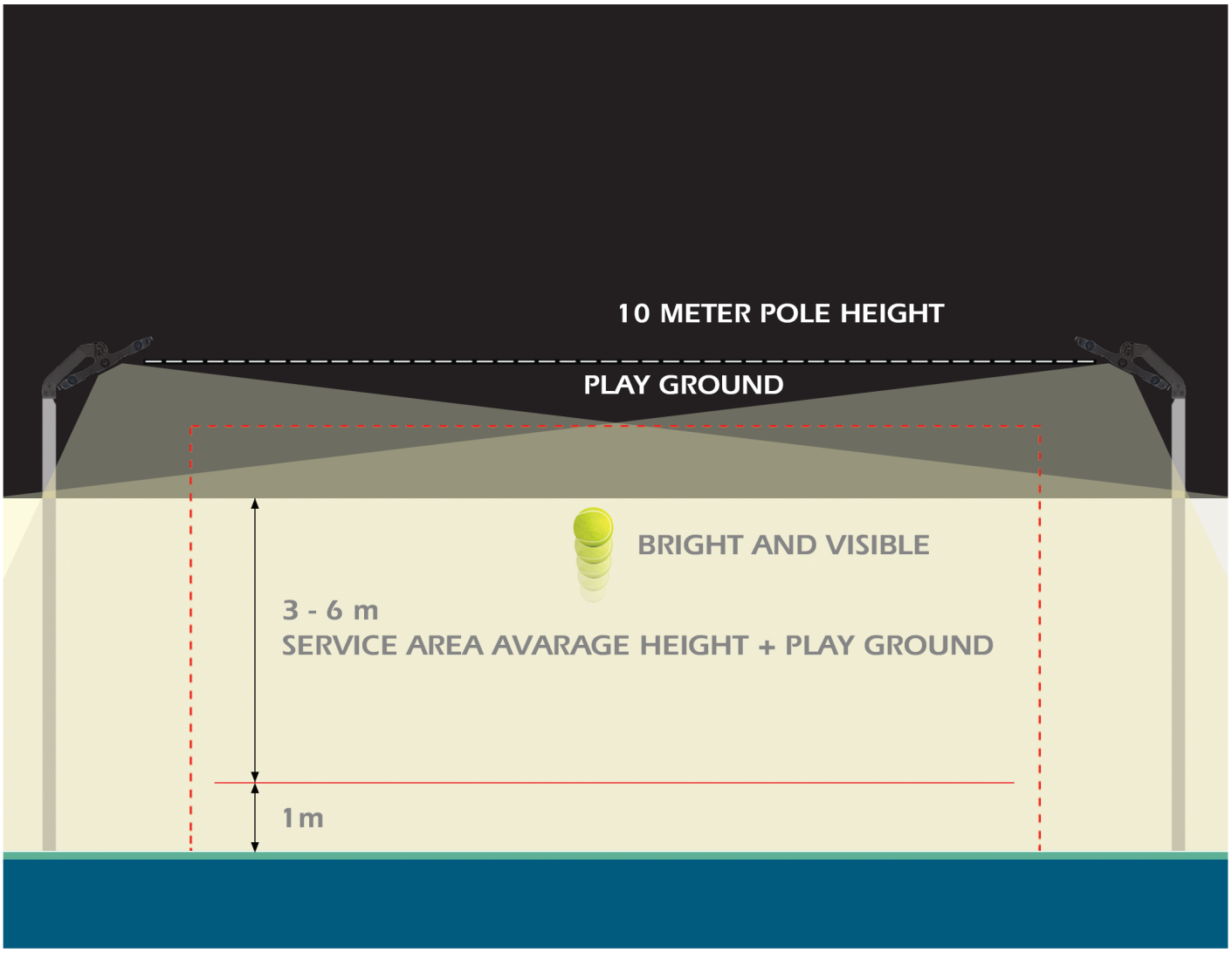
DOZER TENNIS







Feautures	Number of fixtures	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Horizontal Plane	8	300W	360lx	217lx	444lx	0.6

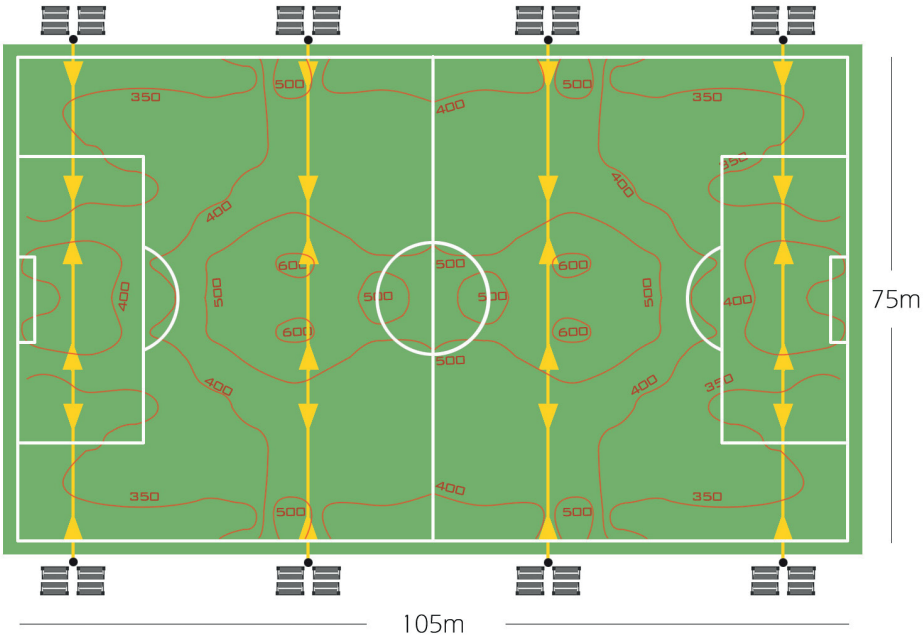


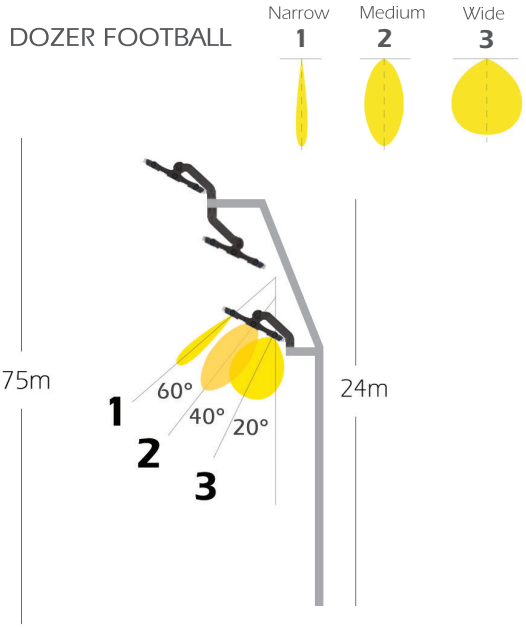
In tennis court lighting, the location of the light sources, the viewing directions and the characteristics of the optical structure used are as important as the horizontal illuminance value and smoothness of the field. Tennis is a game where concentration and motivation are very high, and the game takes place in all directions and planes. For this reason, not only horizontal and vertical lighting, but also the value of these lightings and how they are provided are very important.

At this point, LİTPA meets these needs with DOZER series fixtures. With its superior optical properties, it is possible to easily see the movement of the rising ball without getting lost in the vertical, by providing horizontal and vertical illumination without creating glare, in all trajectories that the eye follows, starting from the service shots, with the great flexibility and high light control that the DOZER system contains.Every component of the application in DOZER luminaires.

There are different optical options available for separately controllable and routable unit. For some regions, a narrow-angle module can be directed, while another direction can be illuminated with an asymmetrical optical structure. Each optical structure can be oriented separately from each other. This will eliminate the strong glare design and routing constraints that a single strong source, oriented in a single direction, will create.

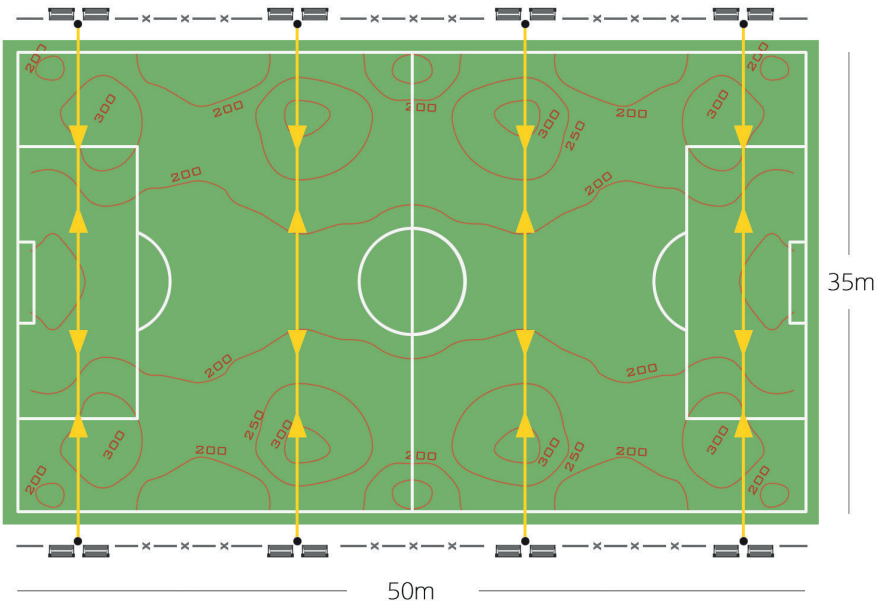
Football Training Ground

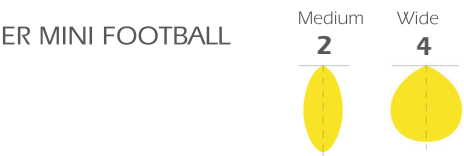


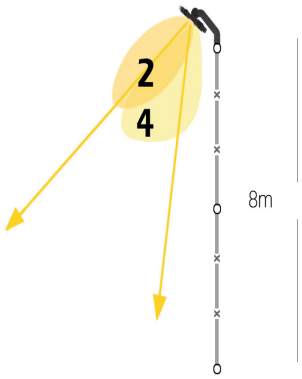


Feautures	Number of fixtures	Number of pole	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Horizontal Plane	96	8	450W	434lx	303lx	750lx	0.7

Mini Football Field

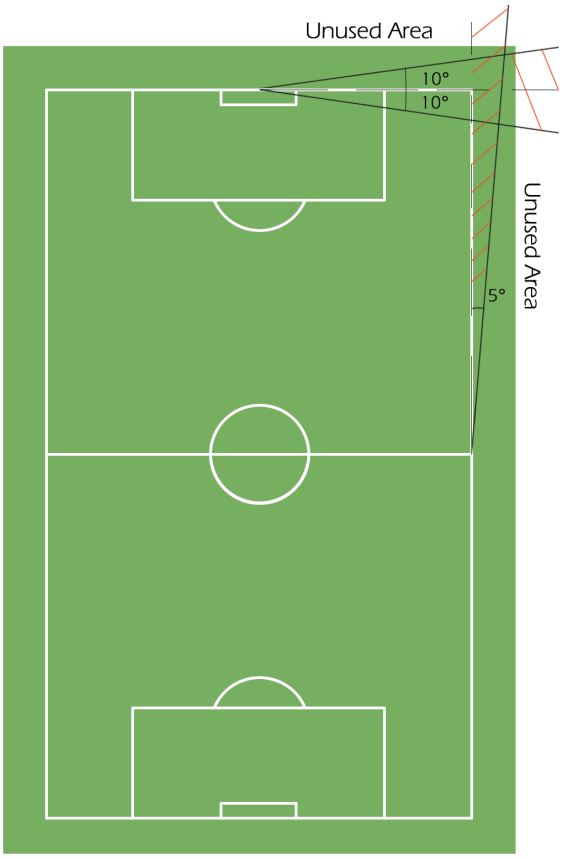






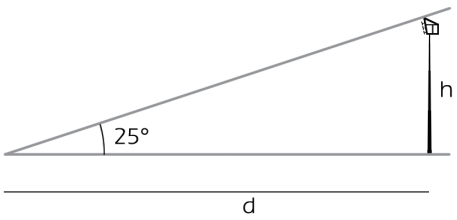
Feautures	Number of fixtures / Pole	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Horizontal Plane	8	300W	106lx	64lx	165lx	0.62
Horizontal Plane	16	300W	211lx	130lx	326lx	0.62

Football Field Lightings



Pole Height Calculation

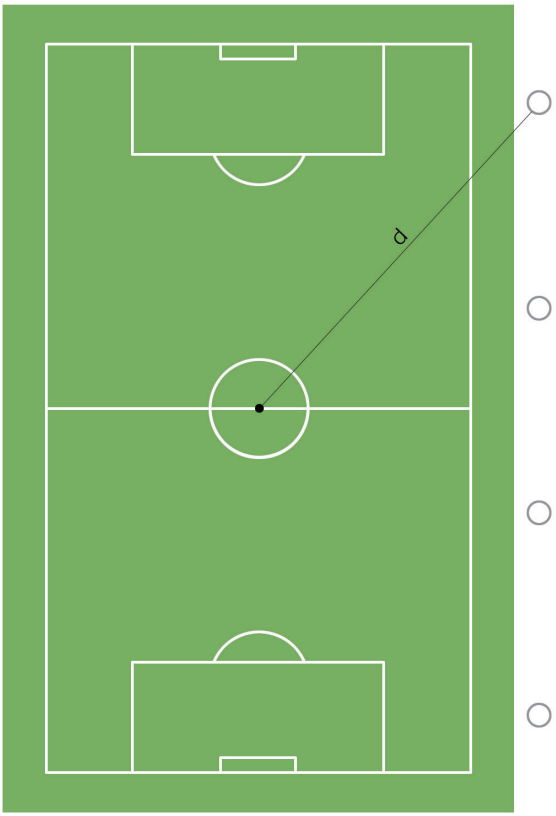
Luminaire heights are as important as luminaire locations. Fixture mounting heights are of great importance in order to minimize glare and not to affect the players in the normal flow of the game. It is of great importance in terms of general glare control that the light source is mounted at an angle of at least 25 degrees from the field center, considering the mounting location. At all heights and fixture viewing directions below this, a great glare will occur in the eyes of the players, and it will not be possible to play the game in a healthy way.



Especially in mini football fields, if the heights are suitable, the upper profiles of the field side fences can be used to prevent the balls to escape. In this case, although it seems correct to spread the luminaires homogeneously on these fences in terms of the smoothness of the lighting, it should not be preferred because it will increase the glare effect on the players. In these cases, grouping the luminaires as long as the lighting quality values allow will give better results in terms of glare.

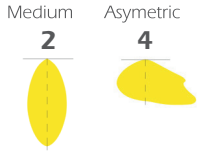
Pole Locations Detection

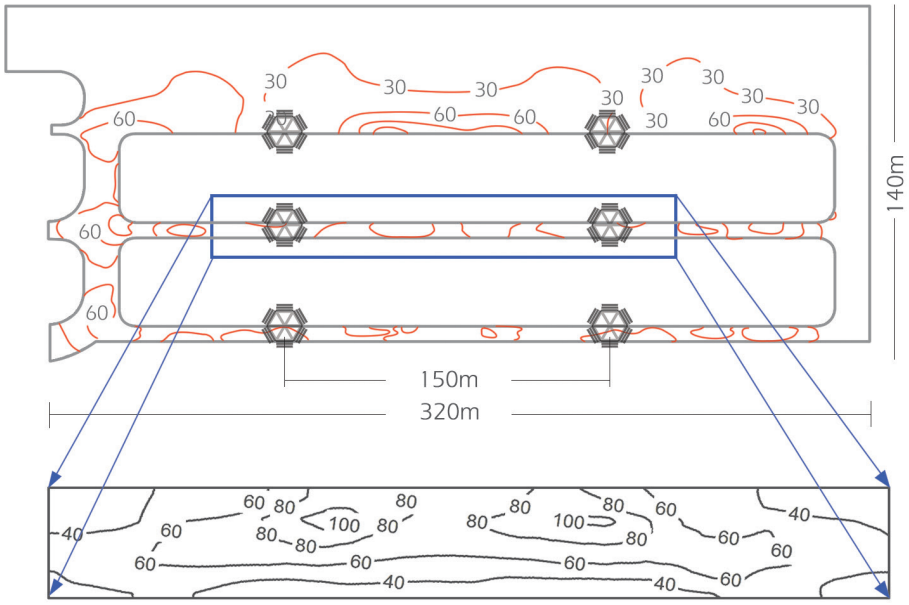
Football is a great passion of those who watch as well as those who play it. Even the simplest game played on any field. It will surely find an audience. All age groups can play together, supporting teamwork and cooperation, personal skills or the importance of group work in team cohesion as well as intelligence. Takes and puts it in a separate place. In football fields not only teams formed by important teams with very large budgets. But also there are places where they play in front of tens of thousands of people. Training fields, such as mini football fields where amateur games take place. Pitches are very common and popular. In particular, such fields It is used continuously. On average, matches are held every 15 days in large stadiums. Matches are held every day and every night in this type of field. This situation should be taken into account when choosing the lighting system, while taking into account energy savings, at the same time, low maintenance and long-lasting products should be preferred due to the long usage period. Glare control, luminaire locations and luminaire gaze directions are of great importance as well as the level and smoothness of the illuminance level a of football field lighting. In this highly mobile and versatile game, a fixture placed in the wrong place not only affects the continuation of the game, but also greatly affects the enjoyment of the players. Football is a team game. A player doesn't just follow the ball. He must also keep track of the location, position, speed and direction of movement of his team's and opposing team's players. Part of the football game is one-on-one combat. During this struggle, the movements of the players in order to surprise or dodge each other must be seen in a healthy way and perceived by other players. This is possible only with good lighting. Poles or fixture locations are of great importance in football fields. In particular, the places where placing luminaires or poles directly affect the game are shown below. These points are places that carry great weight especially in the general flow of the game and these points should not be used without taking special precautions.

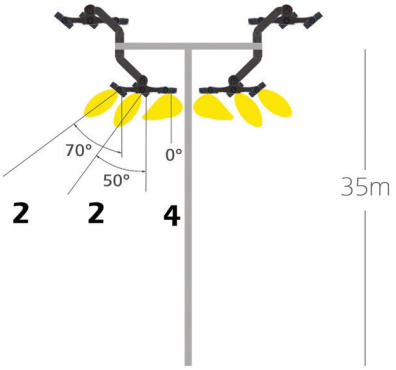


Harbor Lighting

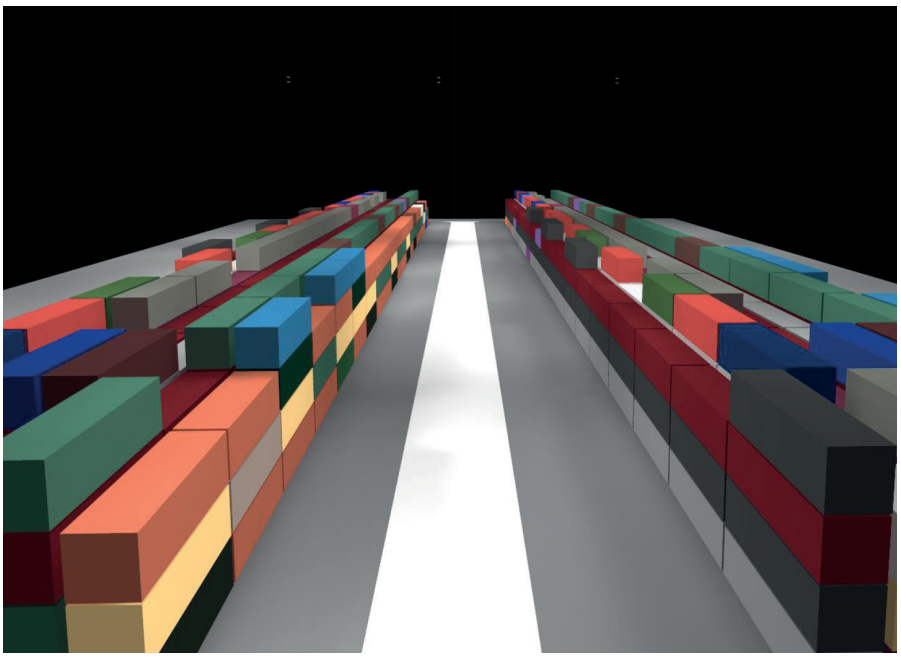
DOZER SEAPORT

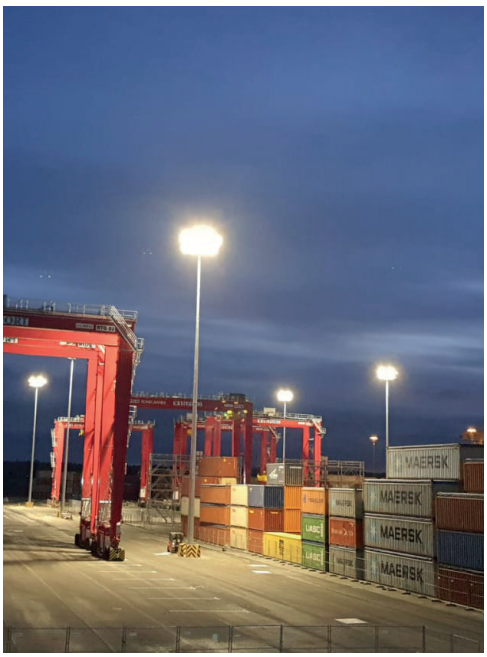






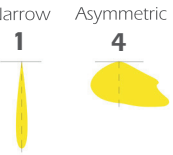
Feautures	Number of fixtures / Pole	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Horizontal Plane	12	450W	56lx	30lx	112lx	0.53

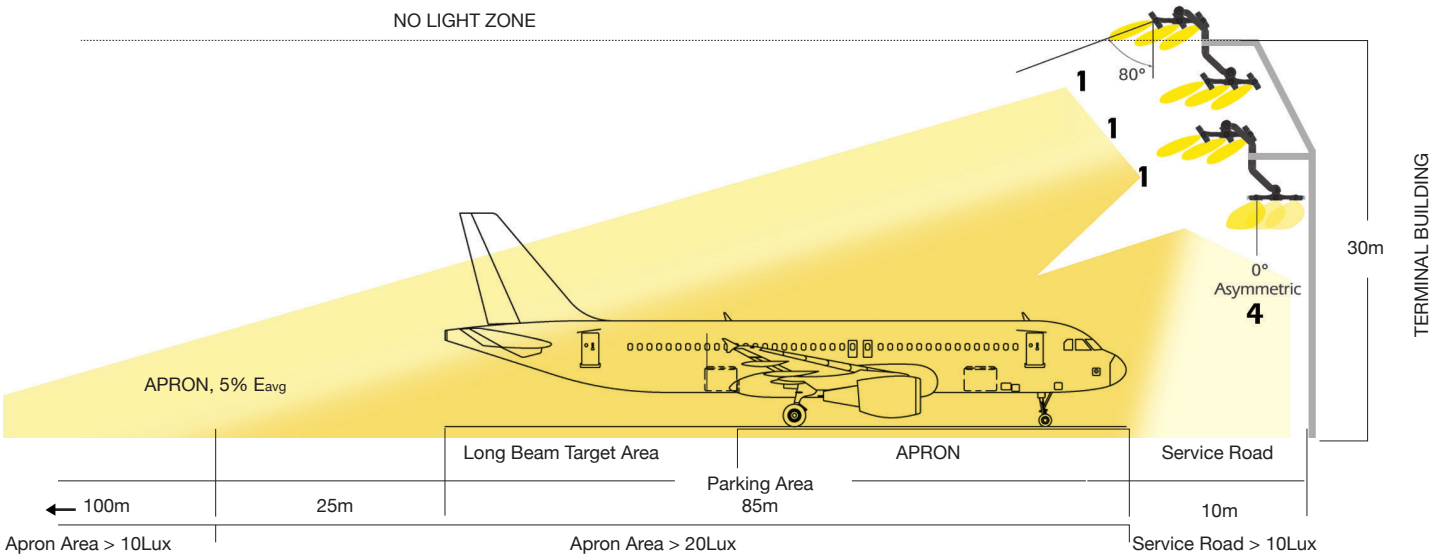




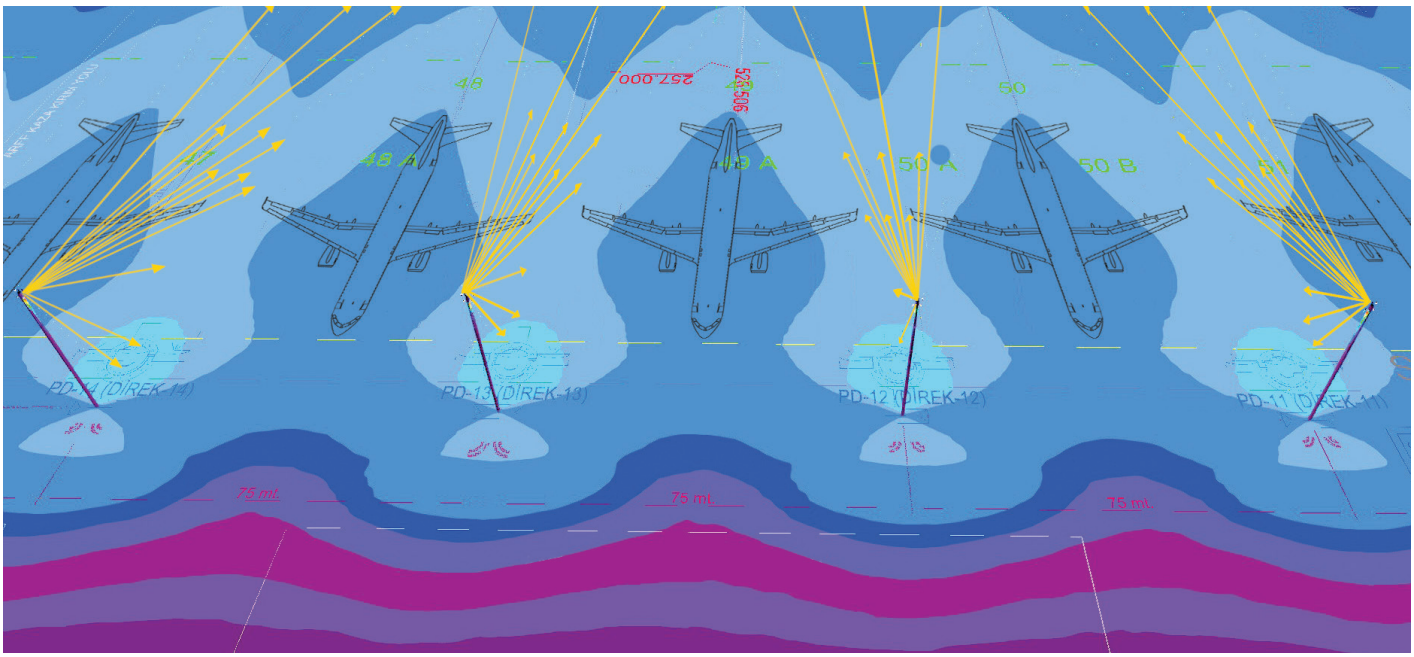
Apron Lighting

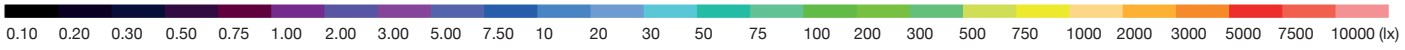
DOZER APRON I
DOZER APRON II



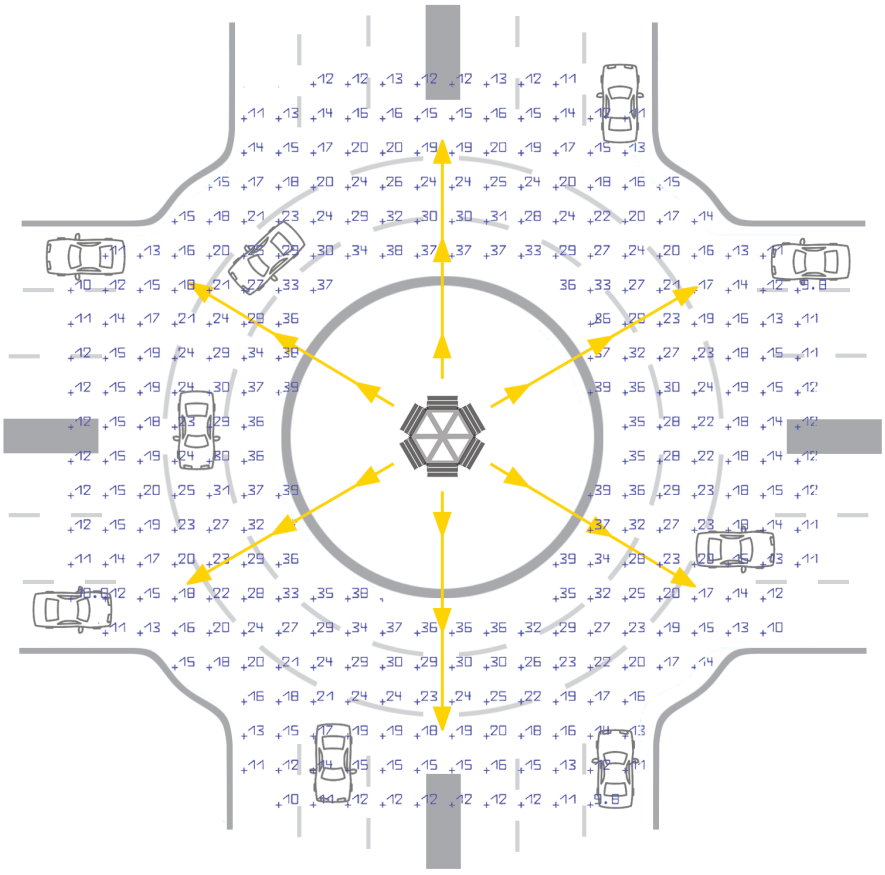


Feautures		Number of fixtures / Pole	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Apron Area	>10 lux	8x Apron 1 2x Apron 2	450W	13.2lx	7.59lx	24.5lx	0.58
Apron Area	>20 lux			21.1lx	10.8lx	31.3lx	0.51
Service Area	>10 lux			21.8lx	12.3lx	38.4lx	0.56

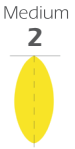


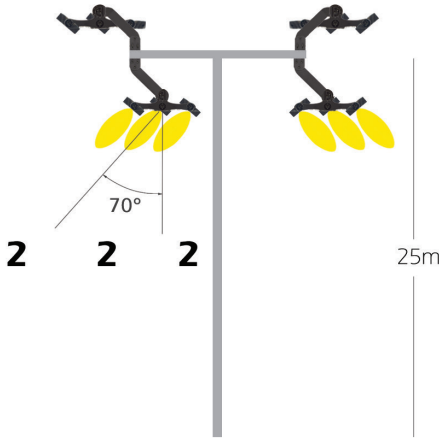


Junction Lighting (150m)



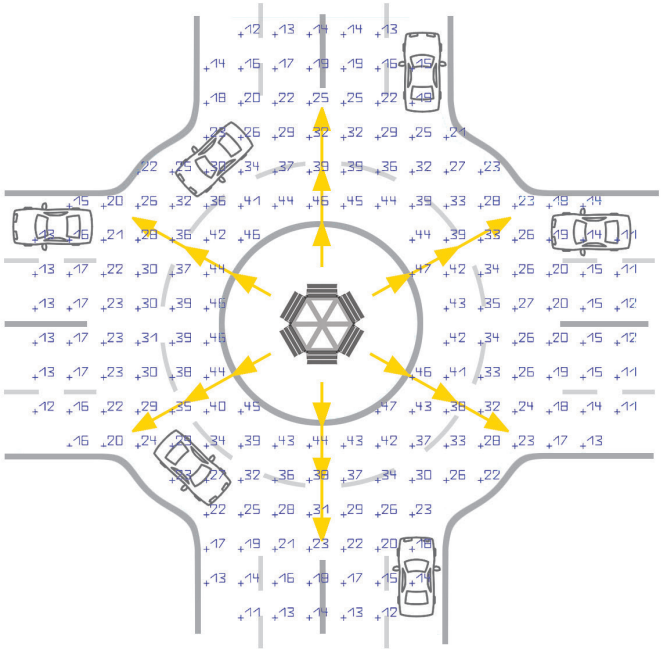
DOZER JUNCTION (150)



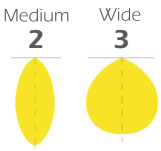


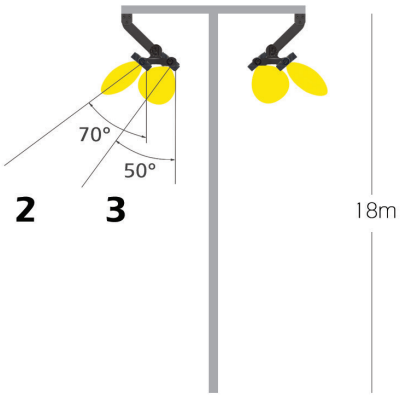
Features	Number Of Fixtures	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Junction Lighting150m	12	450W	21.5lx	8.6lx	40.3lx	0.40

Junction Lighting(75m)



DOZER JUNCTION (75)



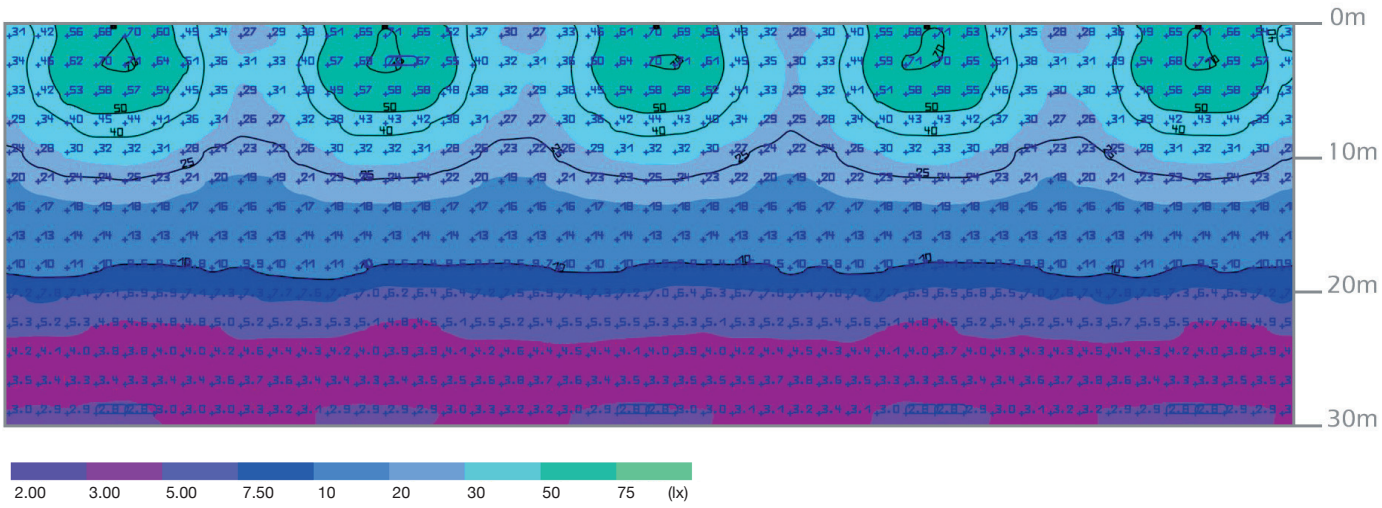


Features	Number Of Fixtures	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
Junction Lighting 75m	6	300W	25.8lx	10.4lx	48.4lx	0.40

Factory Perimeter and Security Lighting

DOZER SECURITY

Asymmetric
4



Area	Fixture Power	E_{av}	E_{min}	E_{max}	U_0
0 - 10m	150W	43lx	22lx	75lx	0.52
0 - 20m		30lx	8lx	75lx	0.27
0 - 30m		21lx	2.7lx	72lx	0.13

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