SPORT | TENNIS | PADEL

PERFORMANCE iN LIGHTING

PERFORMANCE iN LIGHTING is specialised in professional lighting for indoor and outdoor, in several countries around the world. Thanks to decades of experience in the field, obtained through dedicated luminaires for both new sports centres and renovation work on existing centres.

PERFORMANCE iN LIGHTING provides right attention to overall design systems, to comply with regulations for all sports, and to assure total glare control in both indoor and outdoor settings.

Constant improvement in applications linked with competitive and professional sports environments, with the use of more efficient technical solutions, allow PERFORMANCE iN LIGHTING to offer solutions with high energy savings, resulting in significant reductions in running costs, for safe, comfortable and efficient facilities, available to athletes and spectators alike.

The purpose of this monograph is to provide examples of lighting calculations that involve only horizontal lighting values that usually represents about ninety per cent of all lighting engineering design work.

Therefore, we will not provide examples here of lighting verification that requires vertical values or vertical values in the direction of TV cameras. For this kind of professional applications, please consult the pre-sales support of PERFORMANCE iN LIGHTING.

PRE-AFTER SALES SERVICES

The PERFORMANCE iN LIGHTING sales service includes direct and personal project management consultancy at 360 degrees, from the study of the lighting concept and technical feasibility to the evaluation of the financial return of investments to the support on-site during the installation phase through the sampling service.

ON-SITE TECHNICAL OVERWATCHES AND LIGHTING RELIEFS

PERFORMANCE iN LIGHTING provides a team of qualified specialists during all phases of the project: from the design stage, trough on-site technical overwatch and lighting reliefs, verification and lighting calculation. Our professional support team is available for essential projects to ensure not to lose even detail in compliance with current regulations providing certainty to all those who choose PERFORMANCE iN LIGHTING as a technical partner.

DESIGN AND LIGHTING PLANNING AIDS

The culture of light and lighting planning is being diffused more and more worldwide, and the sensibility of both public administrations and private users is growing to enhance urban areas, artistic and architectural assets, sports and recreational areas, in respect of the place and the environment. PERFORMANCE iN LIGHTING offers accurate advice and assist with lighting verification to grant the best solution possible through the analysis of all our solutions for every peculiar design. PERFORMANCE iN LIGHTING provides lighting solutions for "the space for people", worldwide, and not only as a necessary instrument for life but also as a powerful expressive means for the quality of the environment.

INSTALLATION AIMING AND SETTING SERVICES

PERFORMANCE iN LIGHTING provides a team of qualified specialists to design and elaborate the calculations on-site during the installation phase. The team joints the installation phase for the product aiming, light level testing and settings for big plants, arenas, industries, airports, and large infrastructures to ensure compliance with the current regulations. Choosing these paid services, all actors will have an extra certainty of having chosen PERFORMANCE iN LIGHTING as the right technical partner.

AFTER-SALES SERVICES

The warranty extension proposed by PERFORMANCE iN LIGHTING comes into practice thanks to continuous investments aimed at customer satisfaction. A team of specialised post-sales technicians is always present for an immediate solution to any problem. They are available for issues related to spare parts and after-sales assistance, where there were the conditions dictated by the group policy, to honour the promise made at the time of purchase and set in to solve the problem immediately. Our customers know that whenever they need a replacement part or service, both come directly from PERFORMANCE iN LIGHTING —ensuring compatibility, performance, timeliness, and the highest level of expertise.

BESPOKEN LIGHTING SOLUTIONS

One of the significant values that PERFORMANCE iN LIGHTING provides to customers is the ability to design and develop tailor-made products and lighting solutions, based on the needs of a specific project. Products variants such as un-standard painting colour finishes, different LED light colour temperature, un-catalogued electrical options, custom-made accessories for a peculiar installation are some typical examples. To suit the specific needs of professionals, PERFORMANCE iN LIGHTING can develop product solutions "Ex-Novo" (from scratch in Latin) not included in the standard portfolio. This capability allows PERFORMANCE iN LIGHTING luminaires to achieve a total integration of light in the context of use.

PROJECT LEASING

Sometimes, the initial investment cost for a lighting system frightens off, but, several sports facilities and large municipalities pay substantial electricity fees monthly. The habit that these amounts are being paid nevertheless does not spur people to analyse the subject correctly. The LED technology is an outstanding investment that allows in the short-to-medium time to amortise the initial investment, to save significantly on electric energy and to improve the usability of the installations. Furthermore, outstanding agreements are underway with credit institutions specialised in financial operations to support essential investments of big lighting plants in the most important countries of the European Union. In some countries, PERFORMANCE iN LIGHTING provides the option of an Operating Rental Service (subject to the approval of the Lending Body).


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TENNIS

PADEL

TENNIS

The sport of Tennis may originate from Greco-Roman games or even from a game played by the Lombards between the 2nd and 6th centuries AD which consisted of hitting a ball with the palm covered with a glove ("pallacorda").

In the 16th century, players began using a racket as the natural extension of the arm to hit the ball and the elegant words Tennis, but also "Tenetz", "Teneys" and even "Tenes", were introduced, all English corruptions of the French word "Tenez!", (Receive! alternatively, Take!), a call made by the server to his opponent. In 1875 Englishman Walter Clopton Wingfield established the first rules, calling the game "Sphairistrike".

In 1913 the ITF (International Tennis Federation) was founded in Paris, a body whose membership now consists of more than two-hundred national tennis associations.

Millions of amateur and professional tennis players all over the world require optimum lighting during matches while over time, spectators courtside or at home have also begun to have specific lighting needs. For this reason, it is essential to light courts professionally and meticulously at night, taking into account the visual requirements of players and spectators.

For every category and level of competition, the regulations establish and indicate exact lighting classes and levels.

PERFORMANCE iN LIGHTING has been the official supplier of the Italian Tennis Federation's FIT, including CENTRI ESTIVI (Summer Camps) since 2018 and PADEL since 2019.


RIGOTECNICA
AMICA chips
LODA
Valentino
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TENNIS in the world

IOC - The International Olympic Committee, also known as CIO (from the initials of the original French name: Comite International Olympique), is a Swiss non-governmental organization created by Pierre de Coubertin in 1894 to revive the Olympic Games of ancient Greece through a four-year sporting event where athletes from all countries could compete against each other. It's the highest world sports organism comprises three main constituents: the IOC itself is the supreme authority of the Movement; the International Federations (IFs) and the National Olympic Committees (NOCs). The first two are international non-governmental organisations administering one or several sports at world level and encompassing organisations regulating such sports on a national level. Their mission is to develop, promote and protect the Olympic Movement in their respective countries.

GAISF - Global Association of International Sports Federations includes all sixty-nine CIO recognized federations (twenty-eight from ASOIF, seven from AIOWF and thirty-four from ARISF).

ITF - International Tennis Federation, established in 1913, is the leading body of the tennis world, which includes 203 national tennis associations and responsible for Grand Slam, Australian Open, French Open / Roland Garros, Wimbledon and US Open.

TENNIS in Europe

Tennis Europe (formerly known as the European Tennis Association) was formed in Rome, Italy on 31 May 1975 by a group of seventeen European national tennis federations as a regional governing body for the sport of tennis and under the auspices of the International Tennis Federation. It is the world's largest territorial association of the sport's governing body, the International Tennis Federation, with fifty-member states in 2015. Based in Basel, Switzerland, the organisation takes an active role in all aspects of the European game, executing tasks delegated by the ITF, and also by organising many competitions and events independently from the ITF, such as European Tennis Championships.

CEN - The European Committee for Standardization (Comite European de Normalisation in French), better known by the acronym CEN, is a regulatory body that aims to harmonise and produce technical standards (EN) in Europe in collaboration with national and supranational regulatory agencies such as ISO.

The CEN seeks to facilitate the exchange of goods and services between member countries, harmonising the respective national standards and cooperating with European political, economic and scientific organisations interested in standardisation.

The European standards produced by CEN are usually harmonized and adapted by the individual countries that receive them, such as the UNI in Italy.

EUROPEAN LIGHTING STANDARDS

Thanks to this widespread popularity, the need to correctly light the numerous sports facilities at night time and to guarantee optimum lighting for tennis players and spectators was immediately perceived.

At the international level, the lighting guidelines or the principal regulations are laid down by the ITF (International Tennis Federation) and the ECS (European Committee for Standardisation). The guidelines mainly provide indications on how to lit tennis competitions organised by the ITF on world or international basis.

The indications are fundamental, and lighting parameters must always be defined and established with the customer in advance.

Consistent with the goals stated at the start of this monograph, the lighting examples that follow are all compliant with the EN 12193:2018 standard. The examples are provided solely for the evaluation of horizontal lighting elements and are divided into INDOOR and OUTDOOR solutions in order to highlight the differences between the two types of tennis lighting systems.

In force by CEN members national standards bodies of Austria, Belgium, Bulgaria,Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary,Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway,Poland,Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

The Lighting Class describes the lighting parameters for the best possible illumination of a playing area. The following table establishes the level of competition and technical parameters.

EN 12193:2018 (indoor - outdoor)

Competition level	Lighting class		
	I	II	III
Local Competition and Training			✓
Regional Competition		✓	
International an National Competition	✓		

EN 12193:2018 (indoor) single court

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	III	300 lux	0,50	≥ 75% PA		40	60
	II	500 lux	0,70	≥ 75% PA		40	60
	I	750 lux	0,70	≥ 75% PA		35	80

EN 12193:2018 (outdoor) single court

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	III	200 lux	0,60	≥ 75% PA		55	60
	II	300 lux	0,70	≥ 75% PA		50	60
	I	500 lux	0,70	≥ 75% PA		50	70

EN 12193:2018 (indoor) double court

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	III	300 lux	0,50	≥ 75% PA		40	60
	II	500 lux	0,70	≥ 75% PA		40	60
	I	750 lux	0,70	≥ 75% PA		35	80

EN 12193:2018 (outdoor) double court - 4 masts / 6 masts

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	III	200 lux	0,60	≥ 75% PA		55	60
	II	300 lux	0,70	≥ 75% PA		50	60
	I	500 lux	0,70	≥ 75% PA		50	70

The regulations for both indoor and outdoor tennis involve the assessment of lighting elements with relative uniformity, over a playing area (PA) of 30x15 m, as well as over a total area (TA) of 36x18 m, with values to achieve that equate to at least 75% of the values achieved in the playing area (PA). All of the present examples refer to operating temperatures on the basis of the EN60598-1 standard and must therefore always be contextualised in the real installation environment, also eventually making reference to point 13 of the 5-year PERFORMANCE iN LIGHTING warranty.

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 14					
		p. 14					
			p. 15				

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
	p. 16						
		p. 16					
		p. 17					

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 18					
		p. 18					
			p. 19				

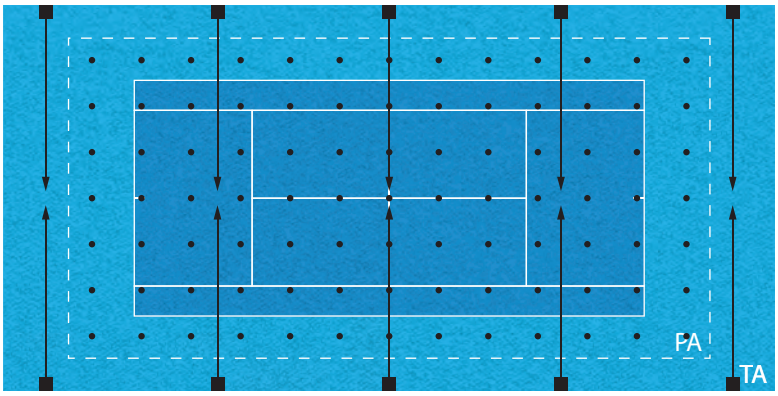
GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 20 (4 masts) p 22 (6 masts)					
			p. 22 (6 masts)	p. 20 (4 masts)			
				p. 21 (4 masts) p 23 (6 masts)			

EN 12193 | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,50
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

2,31 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

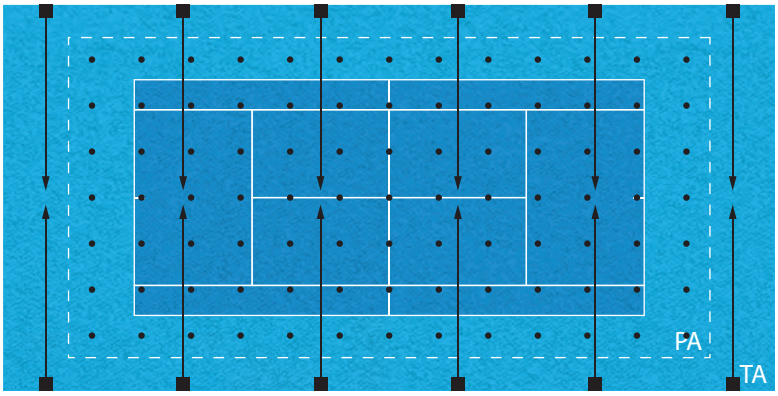
Eave (PA)	366 lux
Eave (TA)	366 lux
Uniformity Emin/Eave (PA)	0,80
Uniformity Emin/Eave (TA)	0,73
Glare Rating (Rg)	34

EN 12193 | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

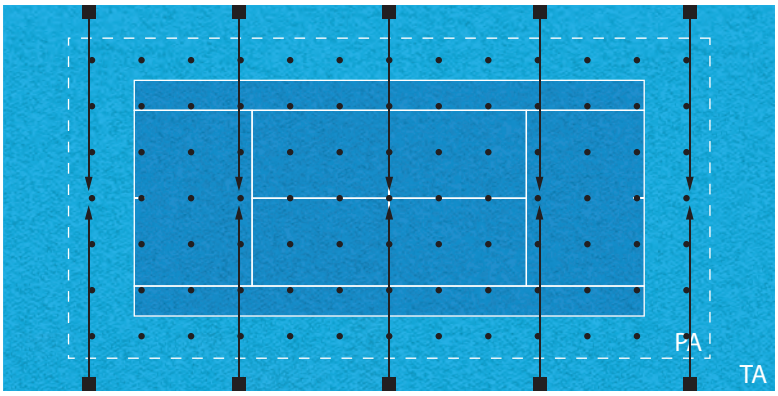
Eave (PA)	589 lux
Eave (TA)	579 lux
Uniformity Emin/Eave (PA)	0,78
Uniformity Emin/Eave (TA)	0,69
Glare Rating (Rg)	33

EN 12193 | 750 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	80	Glare Rating (Rg)	35



SPD 10 kV

GUELL 4

4,48 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

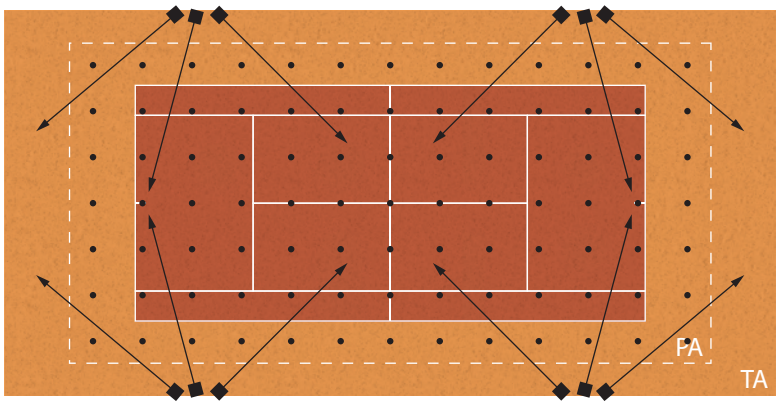
Eave (PA)	766 lux
Eave (TA)	728 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,62
Glare Rating (Rg)	34

EN 12193 | 200 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	200 lux	Emin/Eave (PA)	0,60
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	55



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 2.5

1,87 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306204	A50/W	4000	156 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

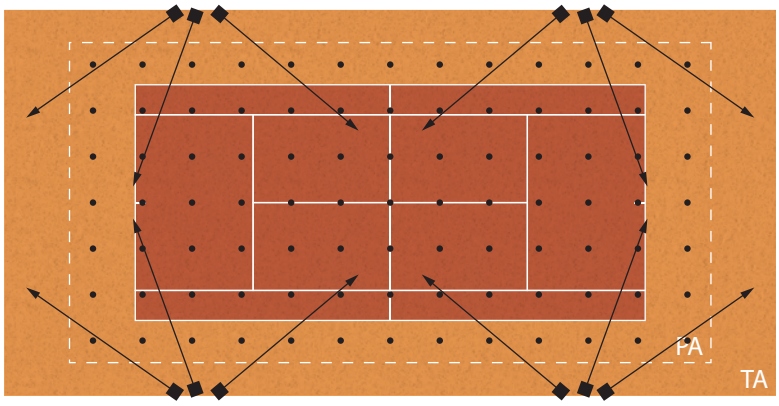
Eave (PA)	220 lux
Eave (TA)	202 lux
Uniformity Emin/Eave (PA)	0,71
Uniformity Emin/Eave (TA)	0,54
Glare Rating (Rg)	33

EN 12193 | 300 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

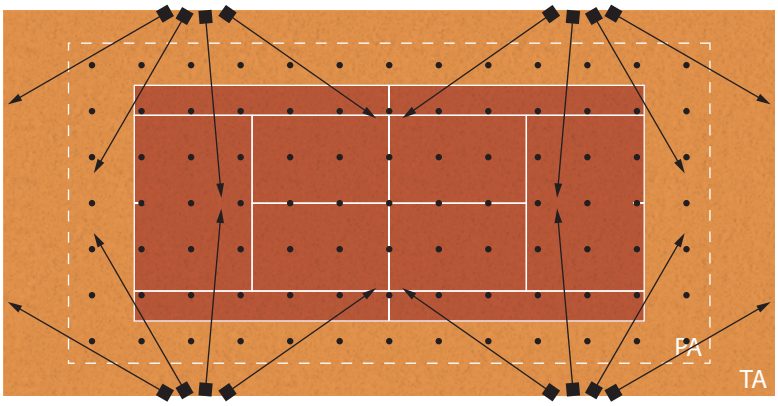
Eave (PA)	321 lux
Eave (TA)	295 lux
Uniformity Emin/Eave (PA)	0,72
Uniformity Emin/Eave (TA)	0,58
Glare Rating (Rg)	33

EN 12193 | 500 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	30x15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	70	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

4,48 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	16

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

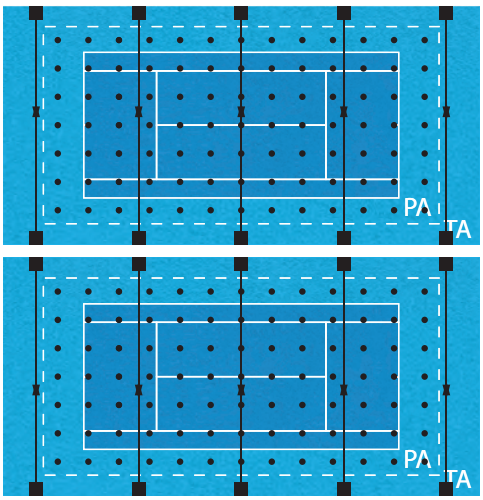
Eave (PA)	564 lux
Eave (TA)	521 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,60
Glare Rating (Rg)	34

EN 12193 | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,50
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

4,62 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	20

INSTALLATION SUMMARY:

Poles / Lines	3
Installation height	5 ÷ 9 m
Maintenance factor	0,90

RESULTS OVERVIEW:

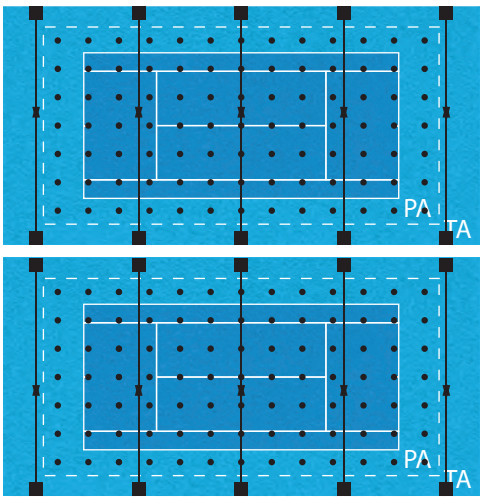
Eave (PA)	386 lux
Eave (TA)	375 lux
Uniformity Emin/Eave (PA)	0,82
Uniformity Emin/Eave (TA)	0,74
Glare Rating (Rg)	32

EN 12193 | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

6,10 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	20

INSTALLATION SUMMARY:

Poles / Lines	3
Installation height	5 ÷ 9 m
Maintenance factor	0,90

RESULTS OVERVIEW:

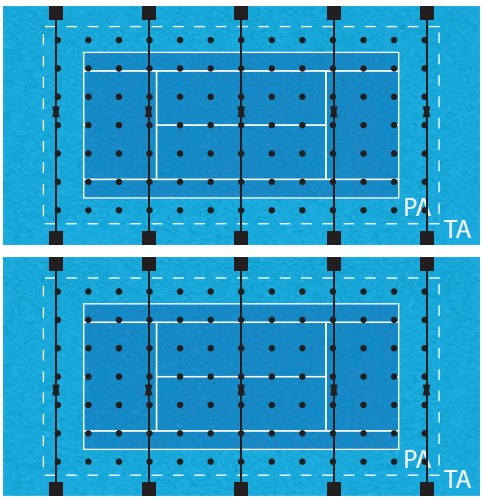
Eave (PA)	561 lux
Eave (TA)	546 lux
Uniformity Emin/Eave (PA)	0,83
Uniformity Emin/Eave (TA)	0,77
Glare Rating (Rg)	26

EN 12193 | 750 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	80	Glare Rating (Rg)	35



SPD 10 kV

GUELL 4

8,96 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	20

INSTALLATION SUMMARY:

Poles / Lines	3
Installation height	5 ÷ 9 m
Maintenance factor	0,90

RESULTS OVERVIEW:

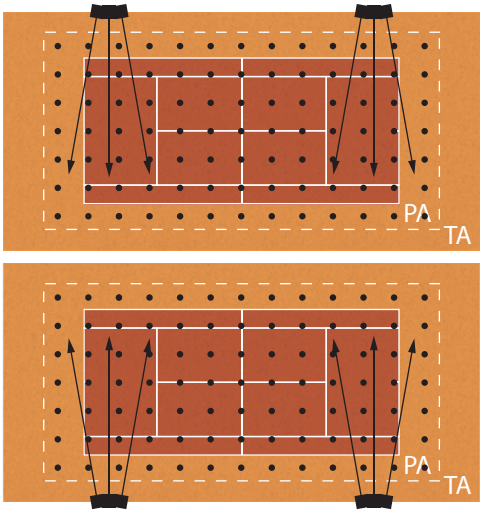
Eave (PA)	777 lux
Eave (TA)	735 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,68
Glare Rating (Rg)	33

EN 12193 | 200 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	200 lux	Emin/Eave (PA)	0,60
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	55



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

ACCESSORY PART NUMBER	DESCRIPTION	Q.TY
3102585	Louvre	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

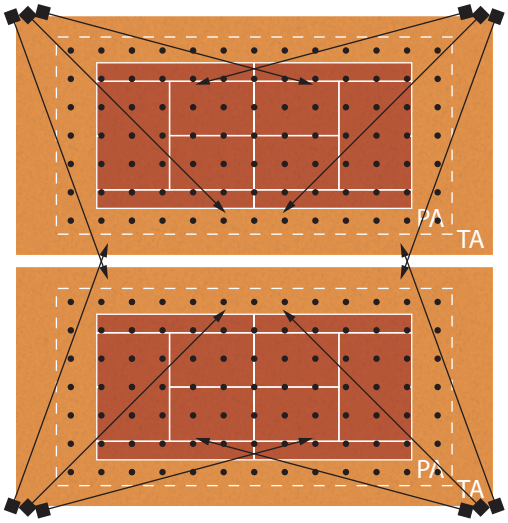
Eave (PA)	200 lux
Eave (TA)	174 lux
Uniformity Emin/Eave (PA)	0,61
Uniformity Emin/Eave (TA)	0,48
Glare Rating (Rg)	38

EN 12193 | 300 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

SQUARE PRO

6,60 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
06270494	A65/I	4000	550 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

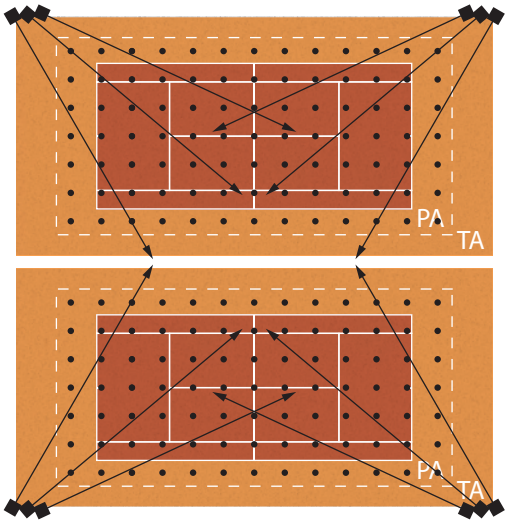
Eave (PA)	311 lux
Eave (TA)	294 lux
Uniformity Emin/Eave (PA)	0,82
Uniformity Emin/Eave (TA)	0,73
Glare Rating (Rg)	46

EN 12193 | 500 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	70	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

SQUARE PRO

9,72 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
06271694	A65/I	4000	810 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

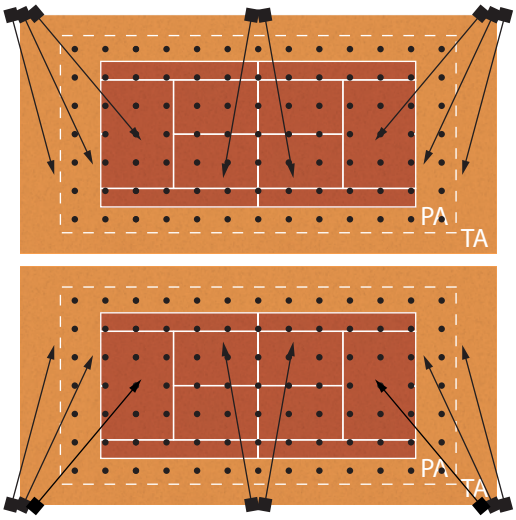
Eave (PA)	506 lux
Eave (TA)	465 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	48

EN 12193 | 200 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	200 lux	Emin/Eave (PA)	0,60
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	55



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

4,88 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	16

ACCESSORY PART NUMBER	DESCRIPTION	Q.TY
3102585	Louvre	16

INSTALLATION SUMMARY:

Poles / Lines	6
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

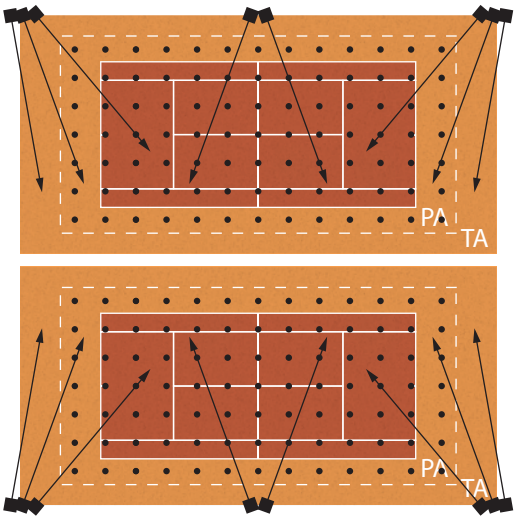
Eave (PA)	214 lux
Eave (TA)	205 lux
Uniformity Emin/Eave (PA)	0,68
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	36

EN 12193 | 300 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 4

7,17 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	16

ACCESSORY PART NUMBER	DESCRIPTION	Q.TY
3102585	Louvre	16

INSTALLATION SUMMARY:

Poles / Lines	6
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

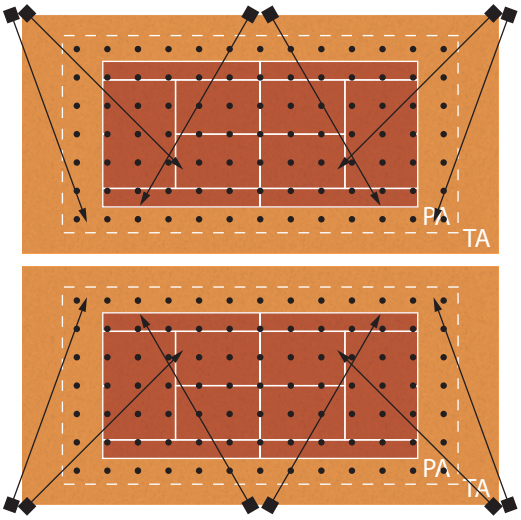
Eave (PA)	323 lux
Eave (TA)	313 lux
Uniformity Emin/Eave (PA)	0,72
Uniformity Emin/Eave (TA)	0,60
Glare Rating (Rg)	38

EN 12193 | 500 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	30 x 15 m	Grid Points (PA)	13 x 7
TOTAL AREA (TA)	36 x 18 m	Grid Points (TA)	15 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	≥ 75% PA	Emin/Eave (TA)	≥ 75% PA
Colour Rendering Index (CRI)	70	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

SQUARE PRO

12,96 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
06271694	A65/I	4000	810 W	16

INSTALLATION SUMMARY:

Poles / Lines	6
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

Eave (PA)	528 lux
Eave (TA)	488 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,64
Glare Rating (Rg)	48

TENNIS in Italy

CONI - issue of the International Olympic Committee (IOC), is the authority for regulating and managing territorial sports activities. The Italian National Olympic Committee, a public body responsible for organizing and strengthening national sport, promotes the maximum diffusion of sporting practice.

CONI - emanazione del Comitato Olimpico Internazionale (CIO), è autorità di disciplina regolazione e gestione delle attività sportive nazionali. Il Comitato Olimpico Nazionale Italiano, Ente pubblico cui è demandata l'organizzazione e il potenziamento dello sport nazionale, promuove la massima diffusione della pratica sportiva.

FIT - Italian Tennis Federation (FIT) is constituted May 18, 1910, and has for its purpose the regulation, development and propaganda of tennis in Italy. FIT, like all recognized national sports federations, adheres to CONI, the Italian National Olympic Committee, and ITF, the International Federation. FIT organizes tournaments in Italy and appoints a team of players for international competitions and the Olympics. The FIT is represented in the regional headquarters by the Committees, one for each Italian region.

FIT - Federazione Italiana Tennis (FIT) si costituisce il 18 maggio 1910, ed ha per scopo la regolamentazione, lo sviluppo e la propaganda del tennis in Italia. FIT, come tutte le Federazioni sportive nazionali riconosciute, aderisce al Coni, il Comitato Olimpico Nazionale Italiano, e, insieme con le altre Federazioni Tennis alla ITF, la Federazione Internazionale. Spetta alla FIT l'organizzazione di tutte le manifestazioni internazionali in Italia e la composizione delle squadre per le manifestazioni internazionali, coppe ed Olimpiadi. FIT è rappresentata in sede regionale dai Comitati, uno per ogni regione italiana.

To promote and increase the diffusion of tennis in Italy, FIT and the Institute for Sports Credit have signed a Memorandum of Understanding to develop access to credit for the companies and associations affiliated with the federation.

Allo scopo di promuovere e far crescere la diffusione del Tennis in Italia la Federazione Italiana Tennis e l'Istituto per il Credito Sportivo hanno sottoscritto un Protocollo d'Intesa per favorire l'accesso al credito delle società e associazioni affiliate FIT.

PERFORMANCE iN LIGHTING

OFFICIAL SPONSOR

PERFORMANCE iN LIGHTING has been the official supplier of the Italian Tennis Federation's FIT, including CENTRI ESTIVI (Summer Camps) since 2018 and PADEL since 2019.

PERFORMANCE iN LIGHTING è fornitore ufficiale della federzione Italiana Tennis FIT comprensivi di CENTRI ESTIVI dal 2018 e PADEL dal 2019.

Watch the video!

The Lighting Class describes the lighting parameters for the best possible illumination of a playing area. The following table establishes the level of competition and technical parameters.

Le classi di illuminamento descrivono i parametri illuminotecnici per la migliore illuminazione possibile dell'area da gioco. Le seguenti tavole stabiliscono i parametri tecnici richiesti per i vari livelli di competizione.

CONI:2008 (indoor - outdoor)

Competition level	Lighting class		
	I	II	III
Local Competition and Training	✓		
Regional Competition		✓	
International an National Competition			✓

FIT GUIDELINES

When a competition is played with artificial light, the lighting must be uniformly distributed in the field with a minimum intensity, resulting from an average of 18 equally distributed measurements in the field of:
- 1000 lux for installations where international games with television recordings
- 400 lux for facilities on which top-level competitive match take place (First-class tournaments and Affiliate Championship - national A1-series divisions, men's and women's)
- 300 lux for any other type of facility.

These standards are followed-up both for projects of outdoor and indoor tennis courts.

LINEE GUIDA FIT

Quando una competizione si gioca con la luce artificiale, l'illuminazione deve essere uniformemente distribuita sul campo con un'intensità minima, risultante come media di 18 misurazioni equamente distribuite sul campo di:
- *1000 lux per impianti su cui si svolge attività internazionale con riprese televisive*
- *400 lux per impianti su cui si svolge attività agonistica di vertice (Tornei di prima categoria e Campionato degli affiliati – divisioni nazionali di serie A1, maschile e femminile)*
- *300 lux per ogni altro tipo di impianto.*

Queste direttive vengono seguite sia per progetti di campi da Tennis outdoor che indoor.

FIT (indoor - outdoor)

Competition level	Lighting class		
	I	II	III
Ogni altro tipo di impianto			✓
Attività agonistica di Vertice Tornei di prima categoria e Campionato degli affiliati – divisioni nazionali di serie A1, maschile e femminile		✓	
Attività Internazionale con riprese Televisive	✓		

CONI:2008 (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	I	300 lux	0,50	(≥ 75% PA)		(40)	(60)
	II	500 lux	0,70	(≥ 75% PA)		(40)	(60)
	III	750 lux	0,70	(≥ 75% PA)		(35)	(80)

CONI:2008 (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 30x15 m TA 36x18 m	I	200 lux	0,60	(≥ 75% PA)		(55)	(60)
	II	300 lux	0,70	(≥ 75% PA)		(50)	(60)
	III	500 lux	0,70	(≥ 75% PA)		(50)	(70)

FIT (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	III	300 lux	(0,50)	(≥ 75% PA)		(40)	(60)
	II	400 lux	(0,70)	(≥ 75% PA)		(40)	(60)
	I	1000 lux	-	-		-	-

FIT (outdoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	III	300 lux	(0,70)	(≥ 75% PA)		(50)	(60)
	II	400 lux	(0,70)	(≥ 75% PA)		(50)	(70)
	I	1000 lux	-	-		-	-

The regulations for both indoor and outdoor tennis involve the assessment of lighting elements with relative uniformity, over a playing area (PA) of 30x15 m, as well as over a total area (TA) of 36x18 m, with values to achieve that equate to at least 75% of the values achieved in the playing area (PA).

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 28					
		p. 28					
			p. 29				

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
	p. 30						
		p. 30					
		p. 31					

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 32					
		p. 32					
							✓

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 34 (6 masts) p 35 (4 masts)					
		p. 34 (6 masts) p 35 (4 masts)					
							✓

The lighting values in brackets are taken by PERFORMANCE iN LIGHTING as a reference from other regulations in case the rule in question does not expressly declare them.

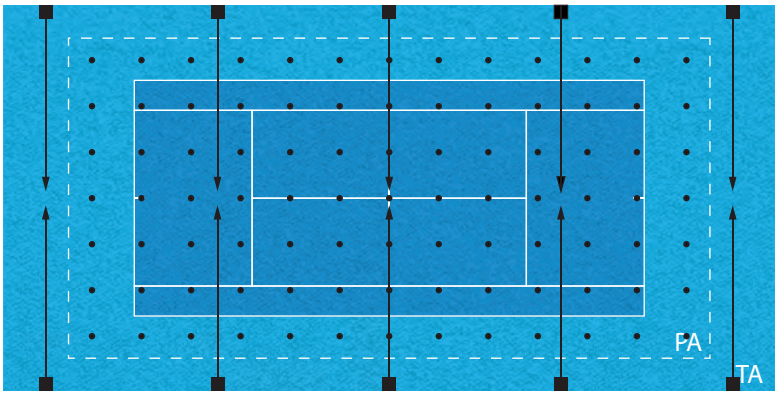
PERFORMANCE iN LIGHTING prende come riferimento da altre normative i valori illuminotecnici espressi tra parentesi qualora non espressamente dichiarati dalla normativa in esame.

CONI | 300 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,50
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

2,31 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

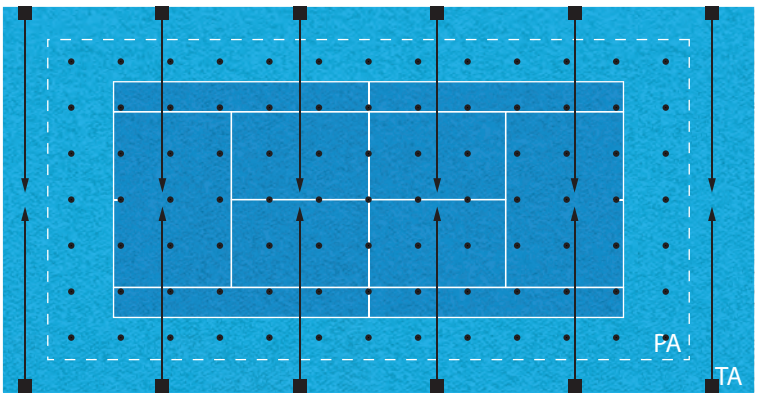
Eave (PA)	366 lux
Eave (TA)	366 lux
Uniformity Emin/Eave (PA)	0,80
Uniformity Emin/Eave (TA)	0,73
Glare Rating (Rg)	34

CONI | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

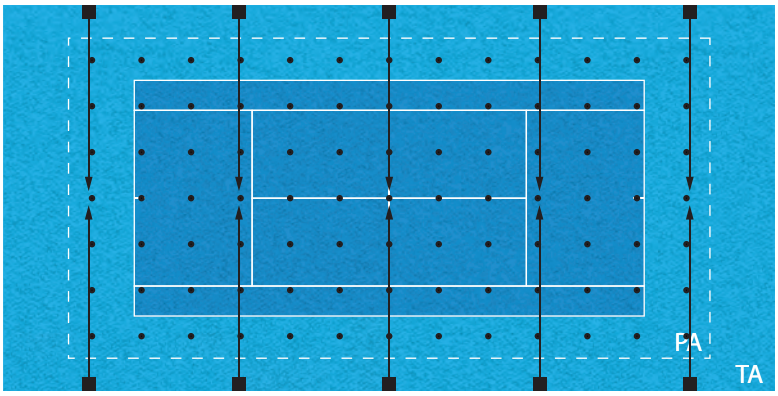
Eave (PA)	589 lux
Eave (TA)	579 lux
Uniformity Emin/Eave (PA)	0,78
Uniformity Emin/Eave (TA)	0,69
Glare Rating (Rg)	33

CONI | 750 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(80)	Glare Rating (Rg)	(35)



SPD 10 kV

GUELL 4

4,48 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

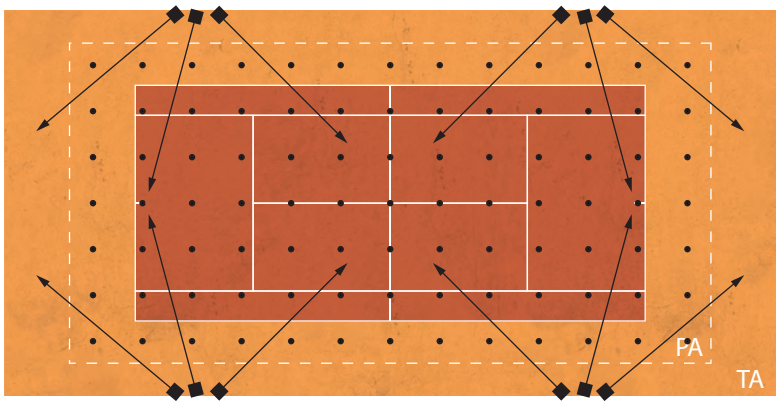
Eave (PA)	766 lux
Eave (TA)	728 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,62
Glare Rating (Rg)	34

CONI | 200 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	200 lux	Emin/Eave (PA)	0,60
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(55)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 2.5

1,87 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306204	A50/W	4000	156 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

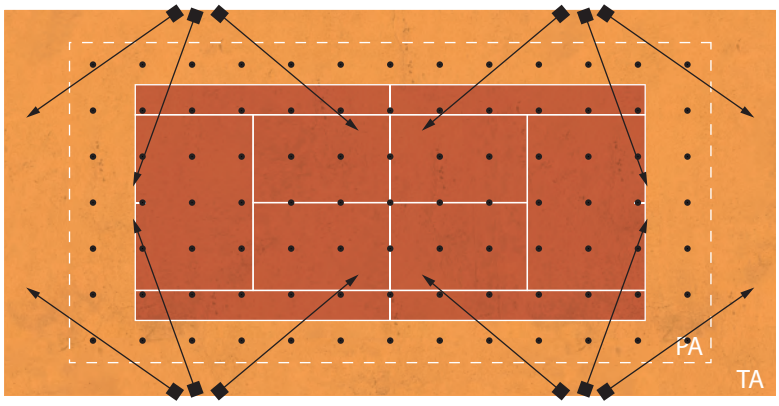
Eave (PA)	220 lux
Eave (TA)	202 lux
Uniformity Emin/Eave (PA)	0,71
Uniformity Emin/Eave (TA)	0,54
Glare Rating (Rg)	33

CONI | 300 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

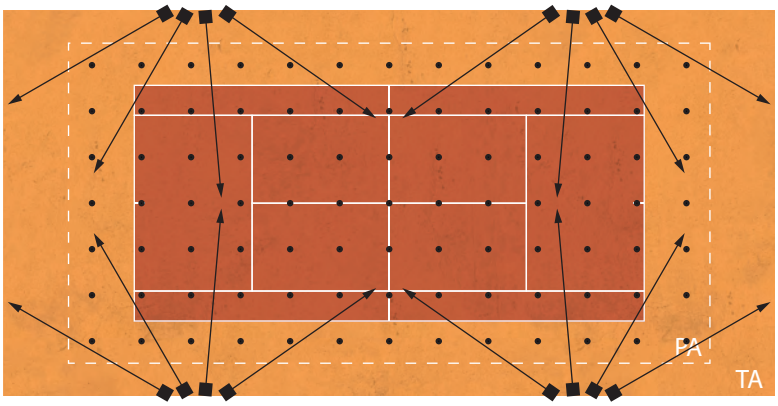
Eave (PA)	321 lux
Eave (TA)	295 lux
Uniformity Emin/Eave (PA)	0,72
Uniformity Emin/Eave (TA)	0,58
Glare Rating (Rg)	33

CONI | 500 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	(30 x 15) m	Grid Points (PA)	(13 x 7)
TOTAL AREA (TA)	(36 x 18) m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

4,88 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	16

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

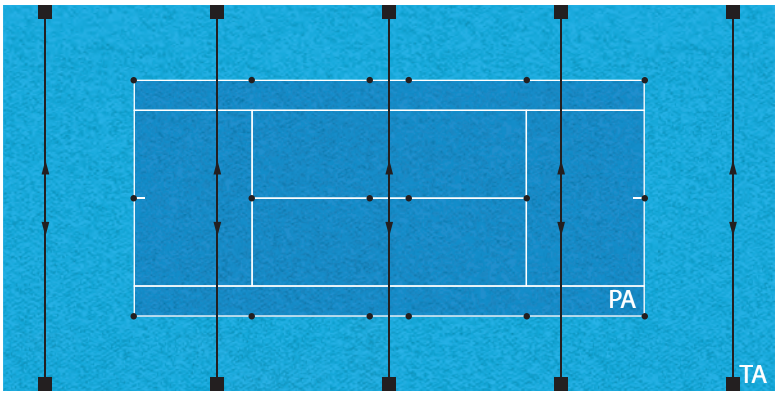
Eave (PA)	564 lux
Eave (TA)	521 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,60
Glare Rating (Rg)	34

FIT | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	(0,50)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

2,31 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

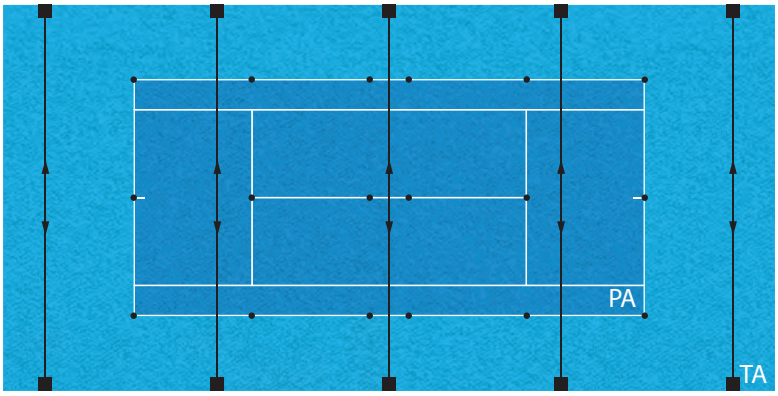
Eave (PA)	377 lux
Eave (TA)	358 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,81
Glare Rating (Rg)	33

FIT | 400 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	400 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

3,05 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

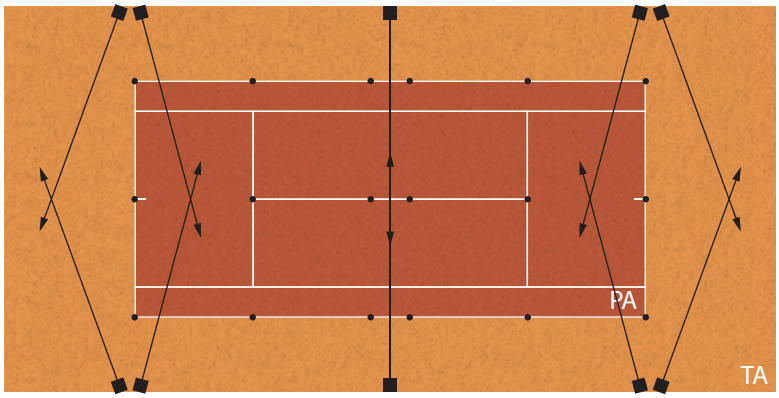
Eave (PA)	491 lux
Eave (TA)	466 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,81
Glare Rating (Rg)	33

FIT | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

3,05 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	10

INSTALLATION SUMMARY:

Poles / Lines	6
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

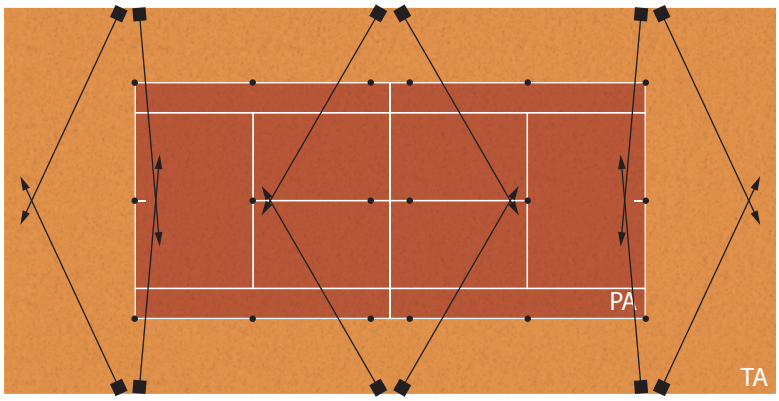
Eave (PA)	366 lux
Eave (TA)	332 lux
Uniformity Emin/Eave (PA)	0,83
Uniformity Emin/Eave (TA)	0,69
Glare Rating (Rg)	30

FIT | 400 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	400 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	6
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

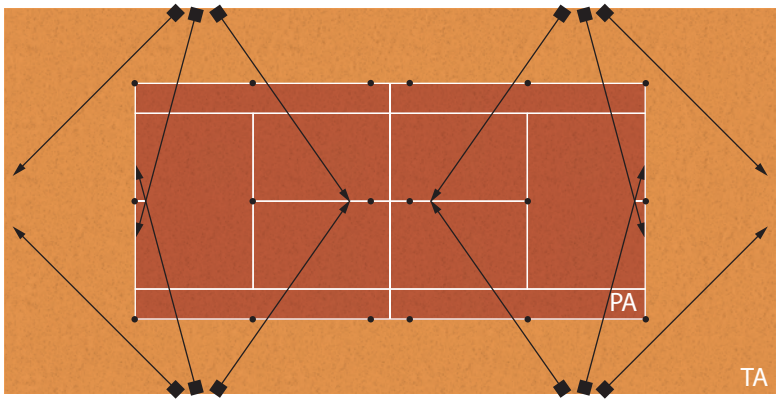
Eave (PA)	442 lux
Eave (TA)	390 lux
Uniformity Emin/Eave (PA)	0,87
Uniformity Emin/Eave (TA)	0,72
Glare Rating (Rg)	29

FIT | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

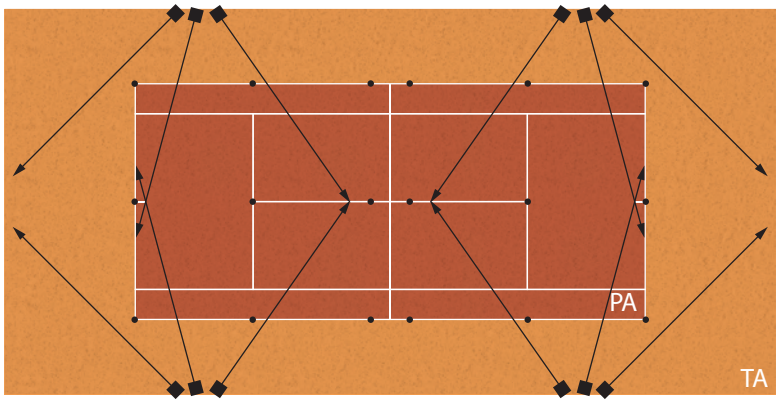
Eave (PA)	328 lux
Eave (TA)	291 lux
Uniformity Emin/Eave (PA)	0,79
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	30

FIT | 400 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	400 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	10 m
Maintenance factor	0,90

RESULTS OVERVIEW:

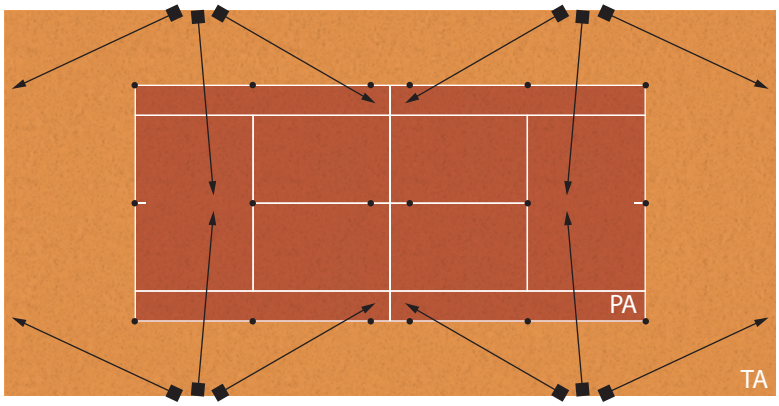
Eave (PA)	427 lux
Eave (TA)	380 lux
Uniformity Emin/Eave (PA)	0,79
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	31

FIT | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

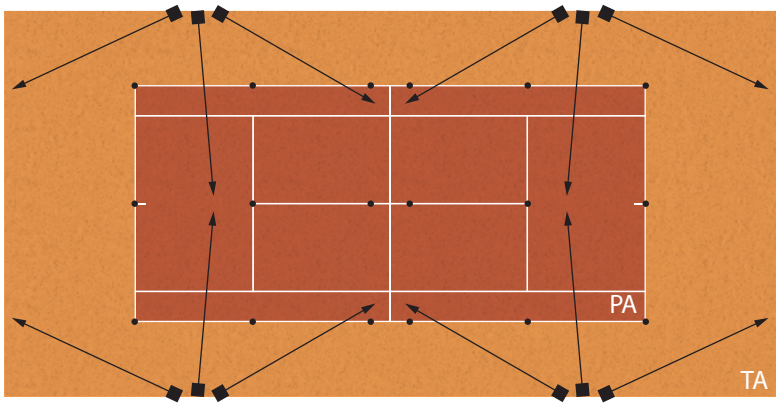
Eave (PA)	318 lux
Eave (TA)	298 lux
Uniformity Emin/Eave (PA)	0,72
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	33

FIT | 400 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	18
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	400 lux	Emin/Eave (PA)	(0,70)
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

Eave (PA)	415 lux
Eave (TA)	388 lux
Uniformity Emin/Eave (PA)	0,72
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	33


IWBank
IWBank
IWBank
ROSE&SAPORI
RESTAURANT - DESENZANO DEL GARDA
AMICA chips
FRIGOTECNIC

TENNIS in Belgium

RBTF - The Royal Belgian Tennis Federation is an organisation set up in 1902 that formally takes charge of tennis in Belgium. From 1979 on all tennis administration is being carried out by the leagues of the Royal Belgian Tennis Federation.

KBTB - De Koninklijke Belgische Tennisbond is een in 1902 opgerichte organisatie die formeel de leiding neemt over tennis in België. Vanaf 1979 wordt alle Tennisadministratie uitgevoerd door de competities van de Koninklijke Belgische Tennisfederatie.

RBTF - La Fédération Royale Belge de Tennis est une organisation créée en 1902 qui prend officiellement en charge le tennis en Belgique. Depuis 1979, toutes les administrations de tennis sont administrées par les ligues de la Fédération royale belge de tennis.

TENNIS VLAANDEREN - is the umbrella federation of more than four hundred fifty Flemish tennis clubs, which together account for almost a hundred fifty thousand members. Progressively and professionally, Tennis Vlaanderen wants to perpetuate the prominent place that tennis sports play in Flanders.

TENNIS VLAANDEREN - is de koepelfederatie van meer dan vierhonderdvijftig Vlaamse tennisclubs, samen goed voor bijna honderdvijftigduizend leden. Tennis Vlaanderen wil op een vooruitstrevende en bedrijfsmatige manier, de prominente plaats die de tennissport in Vlaanderen inneemt bestendigen.

TENNIS VLAANDEREN - est la fédération de plus de quatre cent cinquante clubs de tennis flamands regroupant près de cent cinquante mille membres. De manière progressive et professionnelle, Tennis Vlaanderen veut perpétuer la place prépondérante que le sport du tennis occupe en Flandre.

AFT - (Association Francophone de Tennis) formed on July 12, 1979, is part of the French Community and aims to encourage and govern tennis in the French-speaking part of the country.

AFT - (Association Francophone de Tennis) werd opgericht op 12 juli 1979 en maakt deel uit van de Franse Gemeenschap; de vereniging heeft als doel tennis in het Franstalige deel van het land aan te moedigen en te beheren.

AFT - (Association Francophone de Tennis) a été constituée le 12 juillet 1979, relève de la Communauté Française et a pour objet d'encourager et de régir le tennis dans la partie francophone du pays.

INFRASPORTS - Since 1 January 1994, the SPW (Service Public Wallonie) has seen its competences expand by transferring the responsibility for the subsidized sports infrastructure that has operated from the French Community to the Walloon and Brussels Regions.

INFRASPORTS - Sinds 1 januari 1994 heeft de SPW (Service Public de Wallonie) haar competenties zien groeien door de verantwoordelijkheid voor de gesubsidieerde sportinfrastructuur beheerd vanuit de Franse Gemeenschap over te dragen naar het Waalse en het Brusselse Gewest.

INFRASPORTS - Depuis le 1er janvier 1994, le SPW (Service Pubblic Wallonie) a vu ses compétences s'élargir par le transfert de la responsabilité des infrastructures sportives subsidiées qui s'est opéré de la Communauté française aux Régions wallonne et bruxelloise.

The Lighting Class describes the lighting parameters for the best possible illumination of a playing area. The following table establishes the level of competition and technical parameters.

De verlichtingsparameters voor de best mogelijke verlichting van een speelruimte worden beschreven door de verlichtingsklasse. Elk niveau van competitie (regionaal, provinciaal) wordt door een passende verlichtingsklasse en specifieke na te komen verlichtingswaarden beheerd overeenkomend met de volgende tabel.

Les paramètres d'éclairage qui permettent d'obtenir le meilleur éclairage possible d'une zone de jeu sont décrits par la Classe Éclairage. Chaque niveau de compétition (régional, provincial) est géré par une classe d'éclairage et des valeurs d'éclairage spécifiques à respecter selon le tableau suivant.

TENNIS VLAANDEREN (indoor)

Competition level	Lighting class		
	I	II	III
CLUB ET LOISIR			✓
INTERCLUB NATIONAL DIV 1		✓	
GROUP MONDIAL ER ATP/WTA FED + DAVISCUP	✓		

TENNIS VLAANDEREN (outdoor)

Competition level	Lighting class		
	I	II	III
CLUB ET LOISIR			✓
ITF PRO CIRCUIT		✓	
GROUP MONDIAL ER ATP/WTA	✓		

INFRASPORTS (indoor - outdoor)

Competition level	Lighting class			
	I	II	III	IV
CLUB ET LOISIR				✓
INTERNATIONAL CHAMPIONAT PREMIERE SERIE - IFT Pro Circuits			✓	
INTERNATIONAL CHAMPIONAT PREMIERE SERIE - ATP Challenger		✓		
GROUP MONDIAL ET ATP/WTA Tour	✓			

TENNIS VLAANDEREN (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	III	300 lux	0,70	(≥ 75% PA)		(40)	(60)
	II	500 lux	0,70	(≥ 75% PA)		(40)	(60)
	I	1000 lux	0,70	-		-	-

TENNIS VLAANDEREN (outdoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	III	300 lux	0,70	(≥ 75% PA)		(50)	(60)
	II	500 lux	0,70	(≥ 75% PA)		(50)	(70)
	I	1000 lux	0,70	-		-	-

INFRASPORTS (indoor) Provincial

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	IV	300 lux	0,70	(≥ 75% PA)		(40)	(60)
	III	500 lux	0,70	(≥ 75% PA)		(40)	(60)
	II	750 lux	0,70	(≥ 75% PA)		(35)	(80)
	I	1076 lux	0,70	-		-	-

INFRASPORTS (indoor) National

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 23,77x10,97 m TA 34,77x17,07 m	IV	300 lux	0,70	(≥ 75% PA)		(50)	(60)
	III	500 lux	0,70	(≥ 75% PA)		(50)	(70)
	II	750 lux	0,70	(≥ 75% PA)		(50)	(70)
	I	1076 lux	0,70	-		-	-

The regulations for both indoor and outdoor tennis involve the assessment of lighting elements with relative uniformity, over a playing area (PA) of 30x15 m, as well as over a total area (TA) of 36x18 m, with values to achieve that equate to at least 75% of the values achieved in the playing area (PA).

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 42					
		p. 42					
							✓

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 43					
		p. 43					
							✓

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 44					
		p. 44					
			p. 45				
							✓

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 46					
		p. 46					
			p. 47				
							✓

The lighting values in brackets are taken by PERFORMANCE iN LIGHTING as a reference from other regulations in case the rule in question does not expressly declare them.

De verlichtingswaarden tussen haakjes zijn waarden die PERFORMANCE iN LIGHTINìG als referenties overneemt van andere reglementen in het geval zij niet uitdrukkelijk aangehaald worden door het reglement in kwestie.

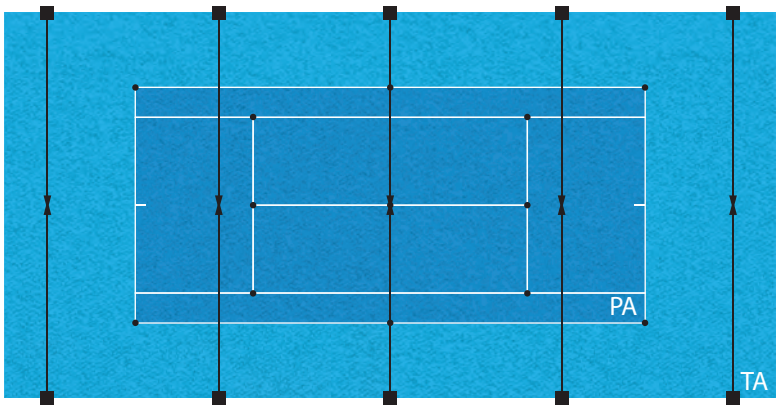
Les valeurs d'éclairage entre parenthèses sont prises par PERFORMANCE iN LGHTING comme référence à partir d'autres règlements au cas où elles nétaient pas expressément déclarées par le règlement en question.

KBTB | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	13
TOTAL AREA (TA)	34,77x17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

2,31 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

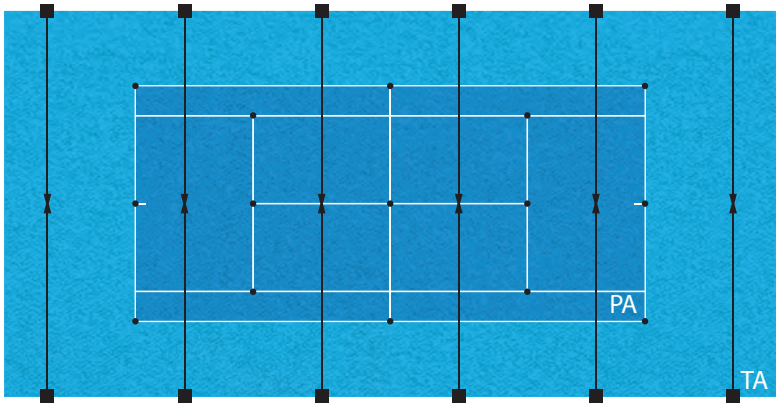
Eave (PA)	369 lux
Eave (TA)	366 lux
Uniformity Emin/Eave (PA)	0,87
Uniformity Emin/Eave (TA)	0,73
Glare Rating (Rg)	34

KBTB | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57x18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

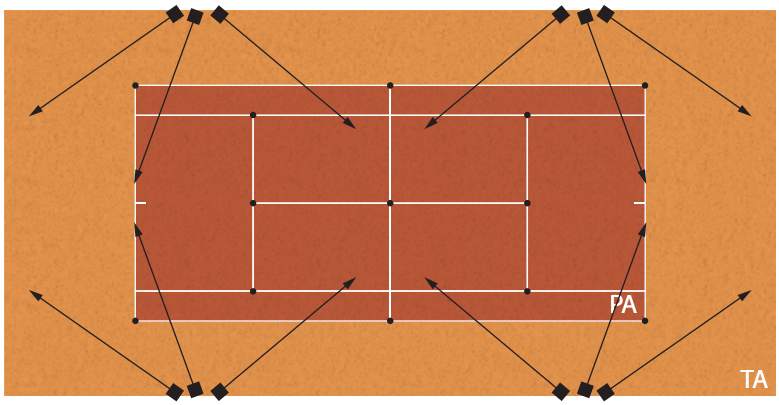
Eave (PA)	578 lux
Eave (TA)	579 lux
Uniformity Emin/Eave (PA)	0,84
Uniformity Emin/Eave (TA)	0,69
Glare Rating (Rg)	33

KBTB | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	13
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

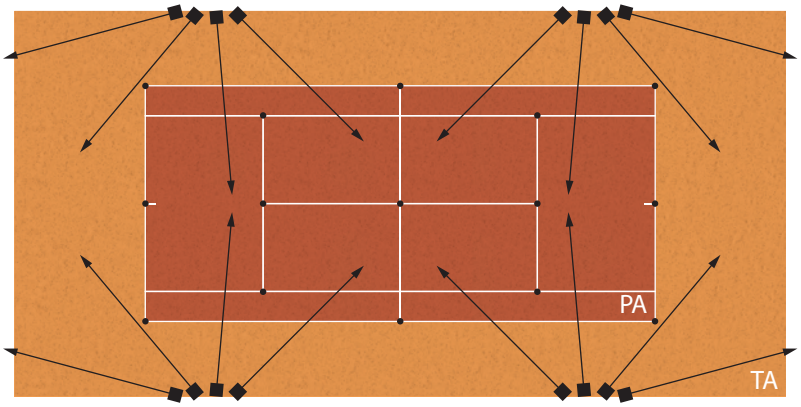
Eave (PA)	321 lux
Eave (TA)	295 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,58
Glare Rating (Rg)	33

KBTB | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57 x 18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

4,88 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	16

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

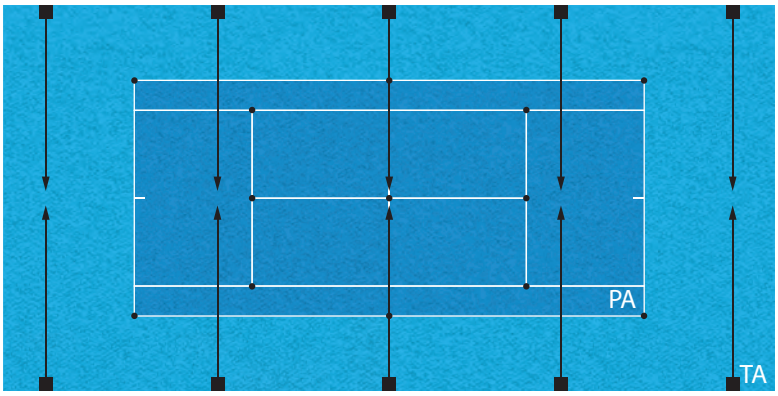
Eave (PA)	552 lux
Eave (TA)	505 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,66
Glare Rating (Rg)	34

INFRASPORTS | 300 lux

CLASS IV

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	13
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

2,31 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

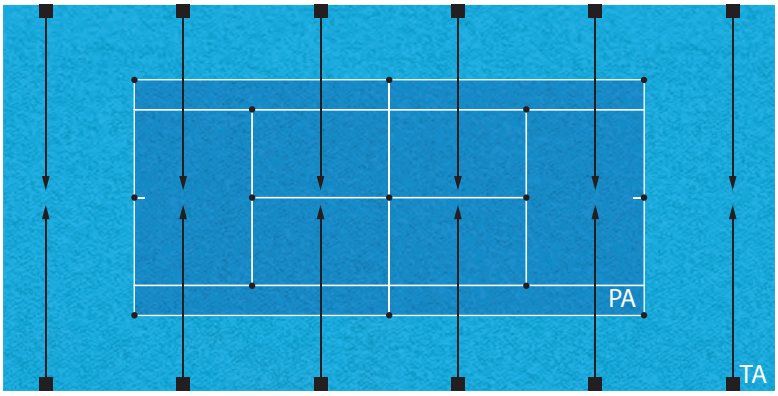
Eave (PA)	369 lux
Eave (TA)	366 lux
Uniformity Emin/Eave (PA)	0,87
Uniformity Emin/Eave (TA)	0,73
Glare Rating (Rg)	34

INFRASPORTS | 500 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57 x 18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

3,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	12

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

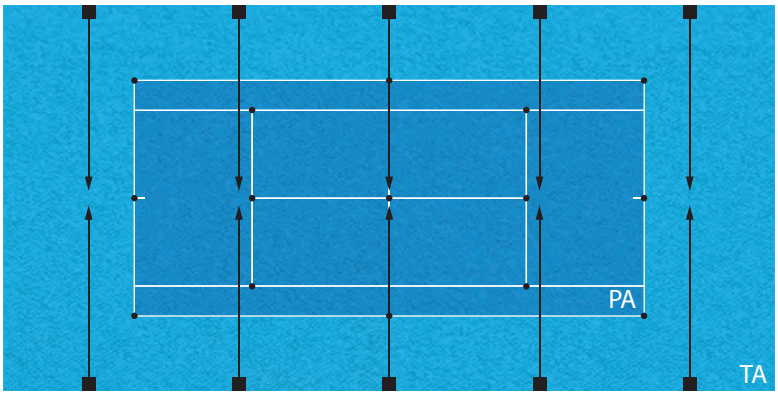
Eave (PA)	578 lux
Eave (TA)	579 lux
Uniformity Emin/Eave (PA)	0,84
Uniformity Emin/Eave (TA)	0,69
Glare Rating (Rg)	33

INFRASPORTS | 750 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57 x 18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(80)	Glare Rating (Rg)	(35)



SPD 10 kV

GUELL 4

4,48 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	10

INSTALLATION SUMMARY:

Poles / Lines	2
Installation height	5 m
Maintenance factor	0,90

RESULTS OVERVIEW:

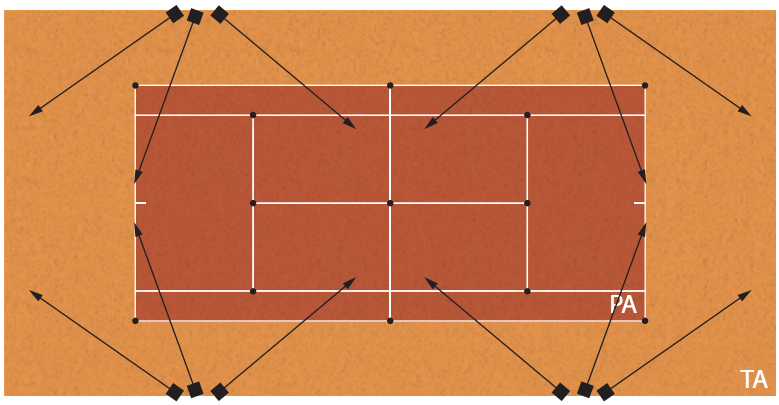
Eave (PA)	766 lux
Eave (TA)	728 lux
Uniformity Emin/Eave (PA)	0,80
Uniformity Emin/Eave (TA)	0,62
Glare Rating (Rg)	34

INFRASPORTS | 300 lux

CLASS IV

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	13
TOTAL AREA (TA)	34,77 x 17,07 m	Grid Points (TA)	(15 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

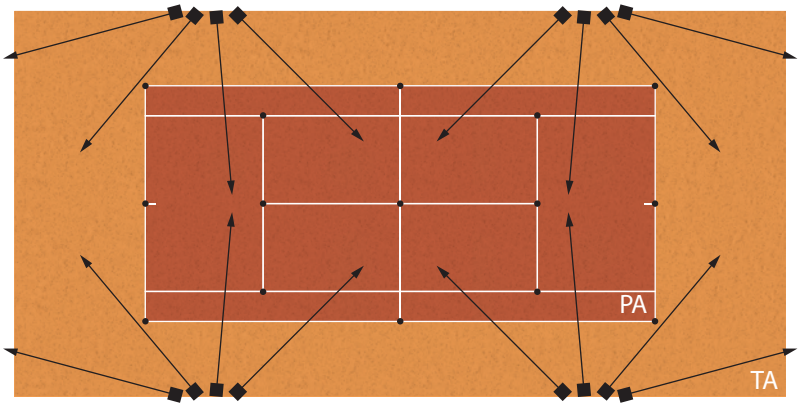
Eave (PA)	321 lux
Eave (TA)	295 lux
Uniformity Emin/Eave (PA)	0,73
Uniformity Emin/Eave (TA)	0,58
Glare Rating (Rg)	33

INFRASPORTS | 500 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57 x 18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

4,88 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	16

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

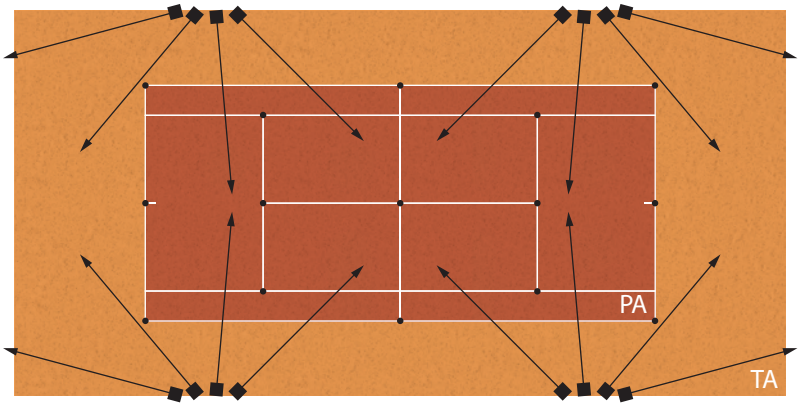
Eave (PA)	552 lux
Eave (TA)	505 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,66
Glare Rating (Rg)	34

INFRASPORTS | 750 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	23,77 x 10,97 m	Grid Points (PA)	15
TOTAL AREA (TA)	36,57 x 18,29 m	Grid Points (TA)	(15 x 7)
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	(≥ 75% PA)	Emin/Eave (TA)	(≥ 75% PA)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 4

7,17 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306128	A50/W	4000	448 W	16

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

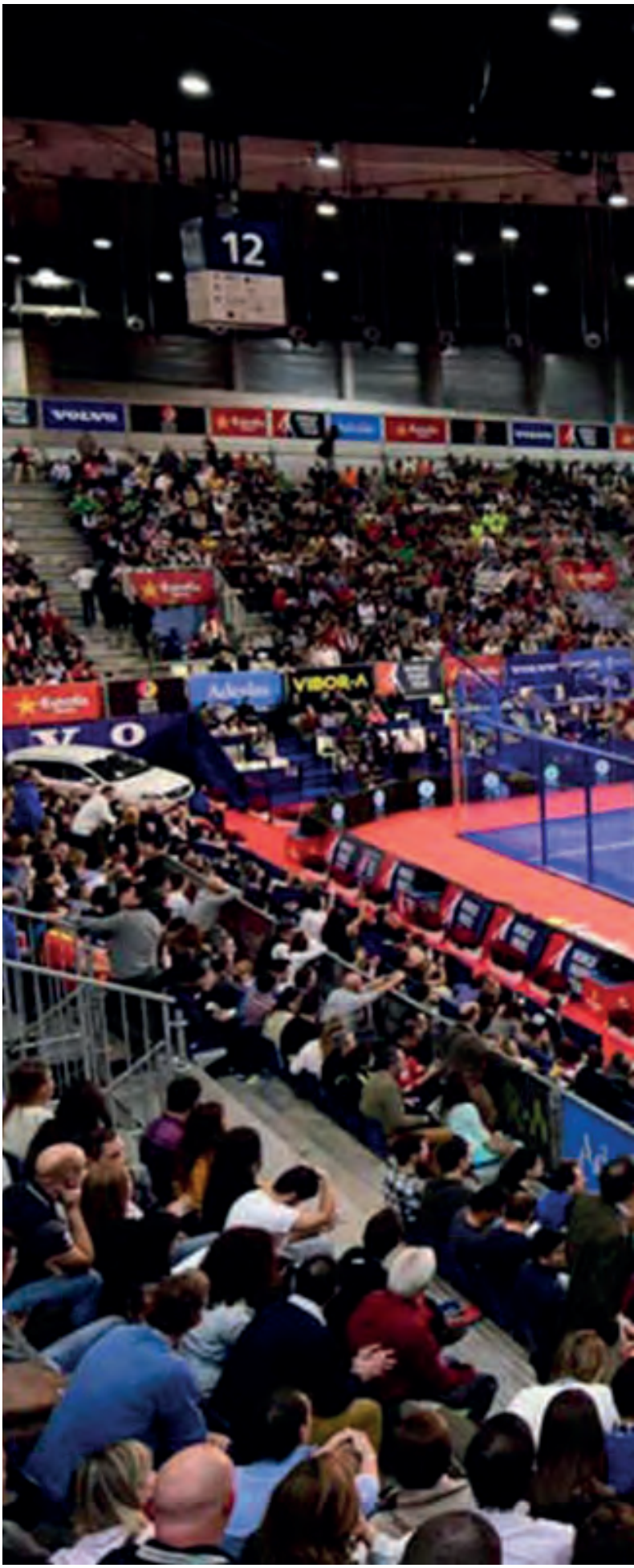
RESULTS OVERVIEW:

Eave (PA)	810 lux
Eave (TA)	739 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,66
Glare Rating (Rg)	34

PADEL

Originally from Mexico, the Padel was introduced into Europe by the prince of Madrid Alfonso of Hohenlohe-Langenburg. From early seventies, where it remained an elite game, up to the eighties, when it really began to spread, thanks to the introduction in Argentina of the "crystal palace" (typical crystal walls to replace the masonry ones), until, in 1997 in Barcelona, the rules of the game and the technical specifications of the fields were standardized. The game officially called Padel represented, promoted and organised formally by the FIP (Federacion Internacional de Padel).

PERFORMANCE iN LIGHTING has been the official supplier of the Italian Tennis Federation's FIT, including CENTRI ESTIVI (Summer Camps) since 2018 and PADEL since 2019.




WORLD
PADEL
TOUR
WORLD
PADEL

PADEL in the world

IOC - The International Olympic Committee, also known as CIO (from the initials of the original French name: Comite International Olympique), is a Swiss non-governmental organization created by Pierre de Coubertin in 1894 to revive the Olympic Games of ancient Greece through a four-year sporting event where athletes from all countries could compete against each other. It's the highest world sports organism comprises three main constituents: the IOC itself is the supreme authority of the Movement; the International Federations (IFs) and the National Olympic Committees (NOCs). The first two are international non-governmental organisations administering one or several sports at world level and encompassing organisations regulating such sports on a national level. Their mission is to develop, promote and protect the Olympic Movement in their respective countries.

GAISF - Global Association of International Sports Federations includes all sixty-nine CIO recognized federations (twenty-eight from ASOIF, seven from AIOWF and thirty-four from ARISF).

IPF - The International Padel Federation is the world governing body for the sport Padel, founded in 1991 in Madrid by the Argentinian, the Spanish and the Uruguayan Federation legal representatives. It is a non-profit making organisation whose goal is to promote all forms of Padel around the world.

PADEL in Europe

CEN - The European Committee for Standardization (Comite European de Normalisation in French), better known by the acronym CEN, is a regulatory body that aims to harmonise and produce technical standards (EN) in Europe in collaboration with national and supranational regulatory agencies such as ISO.

The CEN seeks to facilitate the exchange of goods and services between member countries, harmonising the respective national standards and cooperating with European political, economic and scientific organisations interested in standardisation.

The European standards produced by CEN are usually harmonized and adapted by the individual countries that receive them, such as the UNI in Italy.

EUROPEAN LIGHTING STANDARDS

Consistent with the goals stated at the start of this monograph, the lighting examples that follow are all compliant with the EN 12193:2018 standard. The examples are provided solely for the evaluation of horizontal lighting elements and are divided into INDOOR and OUTDOOR solutions in order to highlight the differences between the two types of tennis lighting systems.

In force by CEN members national standards bodies of Austria, Belgium, Bulgaria,Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary,Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway,Poland,Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

The Lighting Class describes the lighting parameters for the best possible illumination of a playing area. The following table establishes the level of competition and technical parameters.

EN 12193:2018 (indoor - outdoor)

Competition level	Lighting class		
	I	II	III
Local Competition and Training			✓
Regional Competition		✓	
International an National Competition	✓		

EN 12193:2018 (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 20x10 m	III	300 lux	0,50	-		40	60
	OLD R.	400 lux	(0,70)	-		(40)	(60)
	II	500 lux	0,70	-		40	60
	I	750 lux	0,70	-		35	80

EN 12193:2018 (outdoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 20x10 m	III	200 lux	0,60	-		55	60
	II	300 lux	0,70	-		50	60
	I	500 lux	0,70	-		50	70

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
		p. 54					
		p. 54					
		p. 55					

GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
							
	p. 56						
	p. 56						
		p. 57					

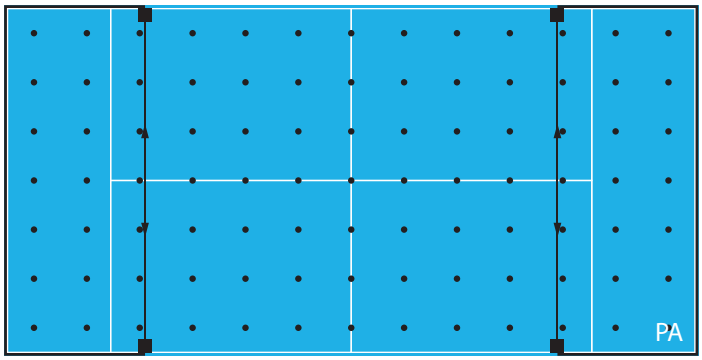
The lighting values in brackets are taken by PERFORMANCE iN LIGHTING as a reference from other regulations in case the rule in question does not expressly declare them.

EN 12193 | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,50
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

0,92 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	4

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

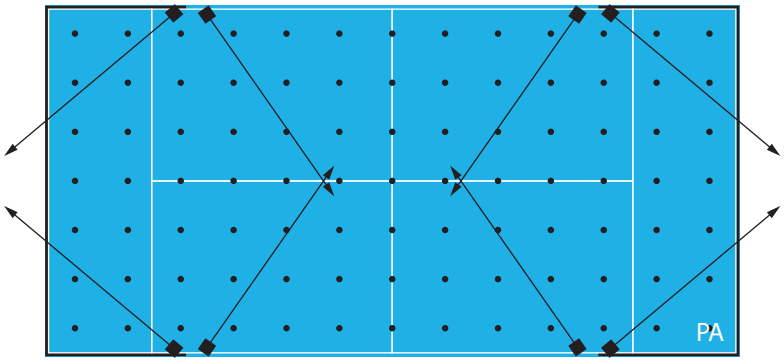
Eave (PA)	328 lux
Uniformity Emin/Eave (PA)	0,62
Glare Rating (Rg)	29

EN 12193 | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	40



SPD 10 kV

GUELL 3

1,85 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	8

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

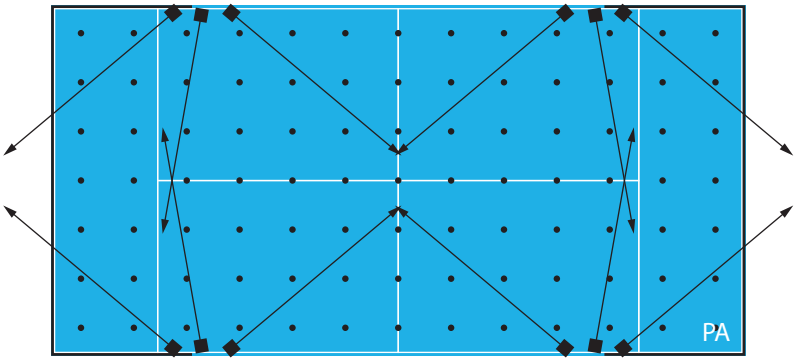
Eave (PA)	532 lux
Uniformity Emin/Eave (PA)	0,71
Glare Rating (Rg)	30

EN 12193 | 750 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Colour Rendering Index (CRI)	80	Glare Rating (Rg)	35



SPD 10 kV

GUELL 3

2,77 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

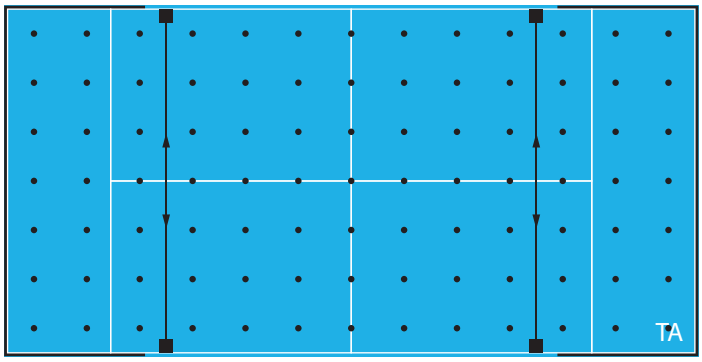
Eave (PA)	818 lux
Uniformity Emin/Eave (PA)	0,72
Glare Rating (Rg)	30

EN 12193 | 400 lux

OLD REQUIREMENT

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	400 lux	Emin/Eave (PA)	-0,70
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

1,22 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	4

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

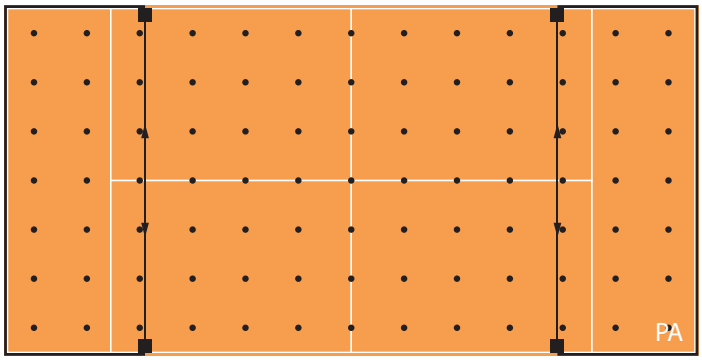
Eave (PA)	437 lux
Uniformity Emin/Eave (PA)	0,70
Glare Rating (Rg)	29

EN 12193 | 200 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	200 lux	Emin/Eave (PA)	0,60
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	55



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 2.5

0,62 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306204	A50/W	4000	156 W	4

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

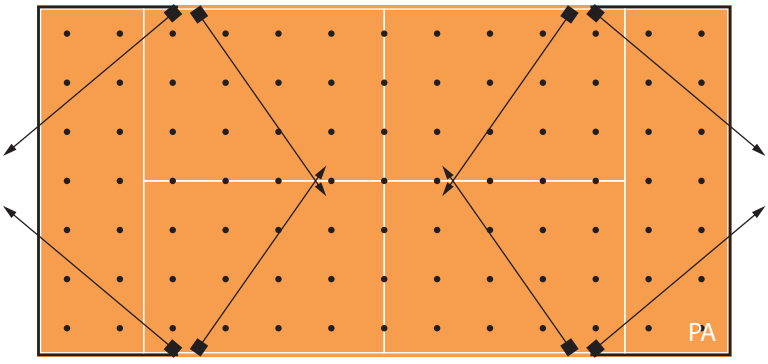
Eave (PA)	213 lux
Uniformity Emin/Eave (PA)	0,64
Glare Rating (Rg)	29

EN 12193 | 300 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	300 lux	Emin/Eave (PA)	0,70
Colour Rendering Index (CRI)	60	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 2.5

1,25 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306204	A50/W	4000	156 W	8

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

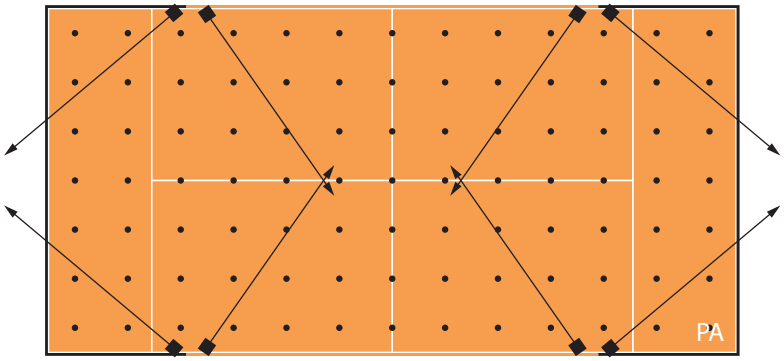
Eave (PA)	355 lux
Uniformity Emin/Eave (PA)	0,72
Glare Rating (Rg)	29

EN 12193 | 500 lux

CLASS I

REQUIREMENTS:

PLAY AREA (PA)	20 x 10 m	Grid Points (PA)	13 x 7
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Colour Rendering Index (CRI)	70	Glare Rating (Rg)	50



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

1,85 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306116	A50/W	4000	231 W	8

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	6 m
Maintenance factor	0,90

RESULTS OVERVIEW:

Eave (PA)	532 lux
Uniformity Emin/Eave (PA)	0,71
Glare Rating (Rg)	30

PADEL in Italy

FIGP - In Italy, the Italian Padel Game Federation (FIGP) was founded in February 1991 to promote a sport that combines the qualities of Tennis with greater ease of learning of play with less waste of space and facilities. In April 2008 the Padel was finally and definitively recognized by CONI (Comitato Olimpico Nazionale Italiano) through the insertion of the Padel Sector within the Italian Tennis Federation.

FIGP - In Italia la Federazione Italiana Gioco Padel (FIGP) nasce nel Febbraio del 1991 con lo scopo di promuovere uno sport che unisce le qualità del Tennis ad una maggiore facilità di apprendimento di gioco con un minore dispendio di spazio e strutture. Nel Aprile del 2008 il Padel viene finalmente e definitivamente riconosciuto dal CONI attraverso l'inserimento del Settore Padel nell'ambito della Federazione Italiana Tennis.

FIT - Italian Tennis Federation (FIT) is constituted May 18, 1910, and has for its purpose the regulation, development and propaganda of tennis in Italy. FIT, like all recognized national sports federations, adheres to CONI, the Italian National Olympic Committee, and ITF, the International Federation. FIT organizes tournaments in Italy and appoints a team of players for international competitions and the Olympics. The FIT is represented in the regional headquarters by the Committees, one for each Italian region.

FIT - Federazione Italiana Tennis (FIT) si costituisce il 18 maggio 1910, ed ha per scopo la regolamentazione, lo sviluppo e la propaganda del tennis in Italia. FIT, come tutte le Federazioni sportive nazionali riconosciute, aderisce al Coni, il Comitato Olimpico Nazionale Italiano, e, insieme con le altre Federazioni Tennis alla ITF, la Federazione Internazionale. Spetta alla FIT l'organizzazione di tutte le manifestazioni internazionali in Italia e la composizione delle squadre per le manifestazioni internazionali, coppe ed Olimpiadi. FIT è rappresentata in sede regionale dai Comitati, uno per ogni regione italiana.

To promote and increase the diffusion of tennis in Italy, FIT and the Institute for Sports Credit have signed a Memorandum of Understanding to develop access to credit for the companies and associations affiliated with the federation.

Allo scopo di promuovere e far crescere la diffusione del Tennis in Italia la Federazione Italiana Tennis e l'Istituto per il Credito Sportivo hanno sottoscritto un Protocollo d'Intesa per favorire l'accesso al credito delle società e associazioni affiliate FIT.

PERFORMANCE iN LIGHTING

OFFICIAL SPONSOR

PERFORMANCE iN LIGHTING has been the official supplier of the Italian Tennis Federation's FIT, including CENTRI ESTIVI (Summer Camps) since 2018 and PADEL since 2019.

PERFORMANCE iN LIGHTING è fornitore ufficiale della federzione Italiana Tennis FIT comprensivi di CENTRI ESTIVI dal 2018 e PADEL dal 2019.

Watch the video!

The Lighting Class describes the lighting parameters for the best possible illumination of a playing area. The following table establishes the level of competition and technical parameters.

Le classi di illuminamento descrivono i parametri illuminotecnici per la migliore illuminazione possibile dell'area da gioco. Le seguenti tavole stabiliscono i parametri tecnici richiesti per i vari livelli di competizione.

PADEL FIT (indoor - outdoor)

Competition level	Lighting class		
	I	II	III
Ogni altro tipo di impianto			✓
Attività agonistica di Vertice Tornei di prima categoria e Campionato degli affiliati – divisioni nazionali di serie A1, maschile e femminile		✓	
Attività Internazionale con riprese Televisive	✓		

PADEL FIT (indoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 14 x 10 m TA 20 x 10 m	III	300 lux	0,50	(300 lux)	(0,50)	(40)	(60)
	II	750 lux	0,70	(750 lux)	(0,70)	(35)	(80)
	I	1000 lux	-	-	-	-	-

PADEL FIT (outdoor)

Reference Area	Class	Lighting Horizontal PA		Lighting Horizontal TA		Gr	Colour Rendering
		Eave	Uniformity Emin/Eave	Eave	Uniformity Emin/Eave		CRI
PA 14 x 10 m TA 20 x 10 m	III	200 lux	0,50	(200 lux)	(0,50)	(55)	(60)
	II	500 lux	0,70	(500 lux)	(0,70)	(50)	(70)
	I	1000 lux	-	-	-	-	-

	GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
								
			p. 62					
			p. 62					
								✓

	GUELL 2	GUELL 2.5	GUELL 3	GUELL 4	SQUARE PRO	LAMA+ MINI	LAMA+	consult factory
								
			p. 63					
			p. 63					
								✓

The lighting values in brackets are taken by PERFORMANCE iN LIGHTING as a reference from other regulations in case the rule in question does not expressly declare them.

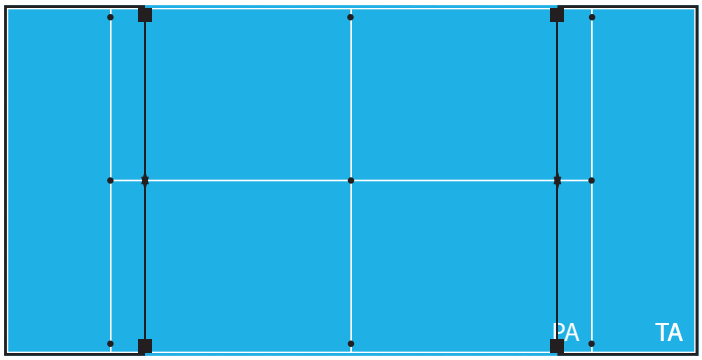
PERFORMANCE iN LIGHTING prende come riferimento da altre normative i valori illuminotecnici espressi tra parentesi qualora non espressamente dichiarati dalla normativa in esame.

PADEL FIT | 300 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	14 x 10 m	Grid Points (PA)	9
TOTAL AREA (TA)	20 x 10 m	Grid Points (TA)	(13 x 7)
Eave (PA)	300 lux	Emin/Eave (PA)	0,50
Eave (TA)	(300 lux)	Emin/Eave (TA)	(0,50)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(40)



SPD 10 kV

GUELL 3

1,27 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
06171094	A40/W	4000	317 W	4

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

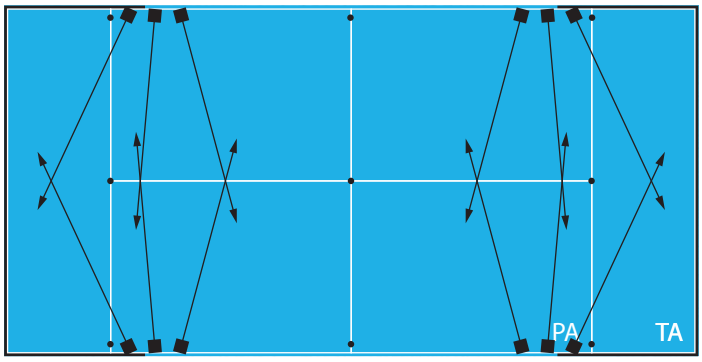
Eave (PA)	351 lux
Eave (TA)	368 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,71
Glare Rating (Rg)	22

PADEL FIT | 750 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	14 x 10 m	Grid Points (PA)	9
TOTAL AREA (TA)	20 x 10 m	Grid Points (TA)	(13 x 7)
Eave (PA)	750 lux	Emin/Eave (PA)	0,70
Eave (TA)	(750 lux)	Emin/Eave (TA)	(0,70)
Colour Rendering Index (CRI)	(80)	Glare Rating (Rg)	(35)



SPD 10 kV

GUELL 3

2,86 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
06172294	A40/W	4000	238 W	12

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

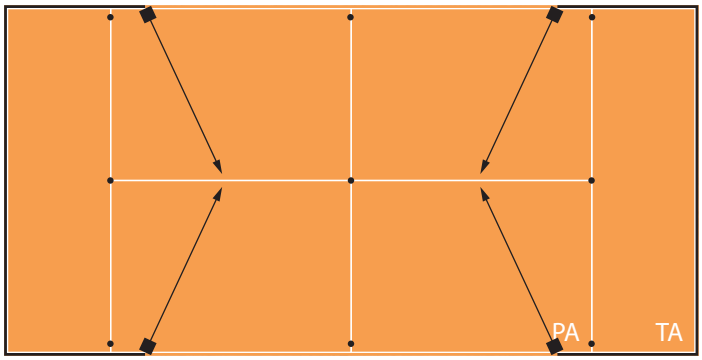
Eave (PA)	755 lux
Eave (TA)	810 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,71
Glare Rating (Rg)	24

PADEL FIT | 200 lux

CLASS III

REQUIREMENTS:

PLAY AREA (PA)	14 x 10 m	Grid Points (PA)	9
TOTAL AREA (TA)	20 x 10 m	Grid Points (TA)	(13 x 7)
Eave (PA)	200 lux	Emin/Eave (PA)	0,50
Eave (TA)	(200 lux)	Emin/Eave (TA)	(0,50)
Colour Rendering Index (CRI)	(60)	Glare Rating (Rg)	(55)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 2.5

0,66 kW total power consumption

PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306200	A40/W	4000	166 W	4

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

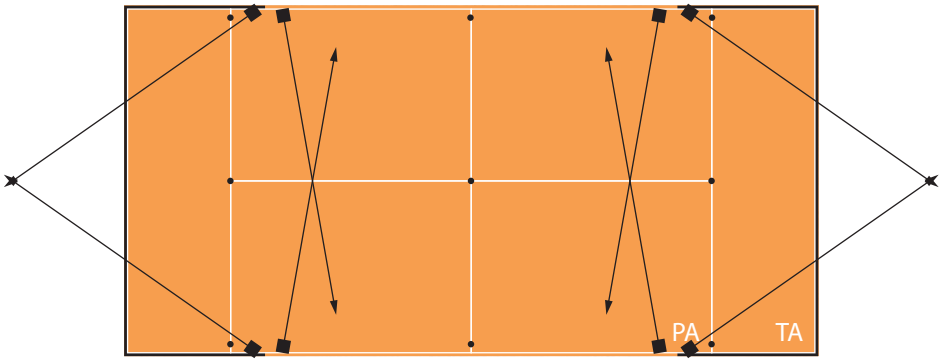
Eave (PA)	203 lux
Eave (TA)	218 lux
Uniformity Emin/Eave (PA)	0,83
Uniformity Emin/Eave (TA)	0,61
Glare Rating (Rg)	21

PADEL FIT | 500 lux

CLASS II

REQUIREMENTS:

PLAY AREA (PA)	14 x 10 m	Grid Points (PA)	9
TOTAL AREA (TA)	20 x 10 m	Grid Points (TA)	(13 x 7)
Eave (PA)	500 lux	Emin/Eave (PA)	0,70
Eave (TA)	(500 lux)	Emin/Eave (TA)	(0,70)
Colour Rendering Index (CRI)	(70)	Glare Rating (Rg)	(50)



Lighting calculation at zero light pollution.

SPD 10 kV

GUELL 3

2,44 kW total power consumption

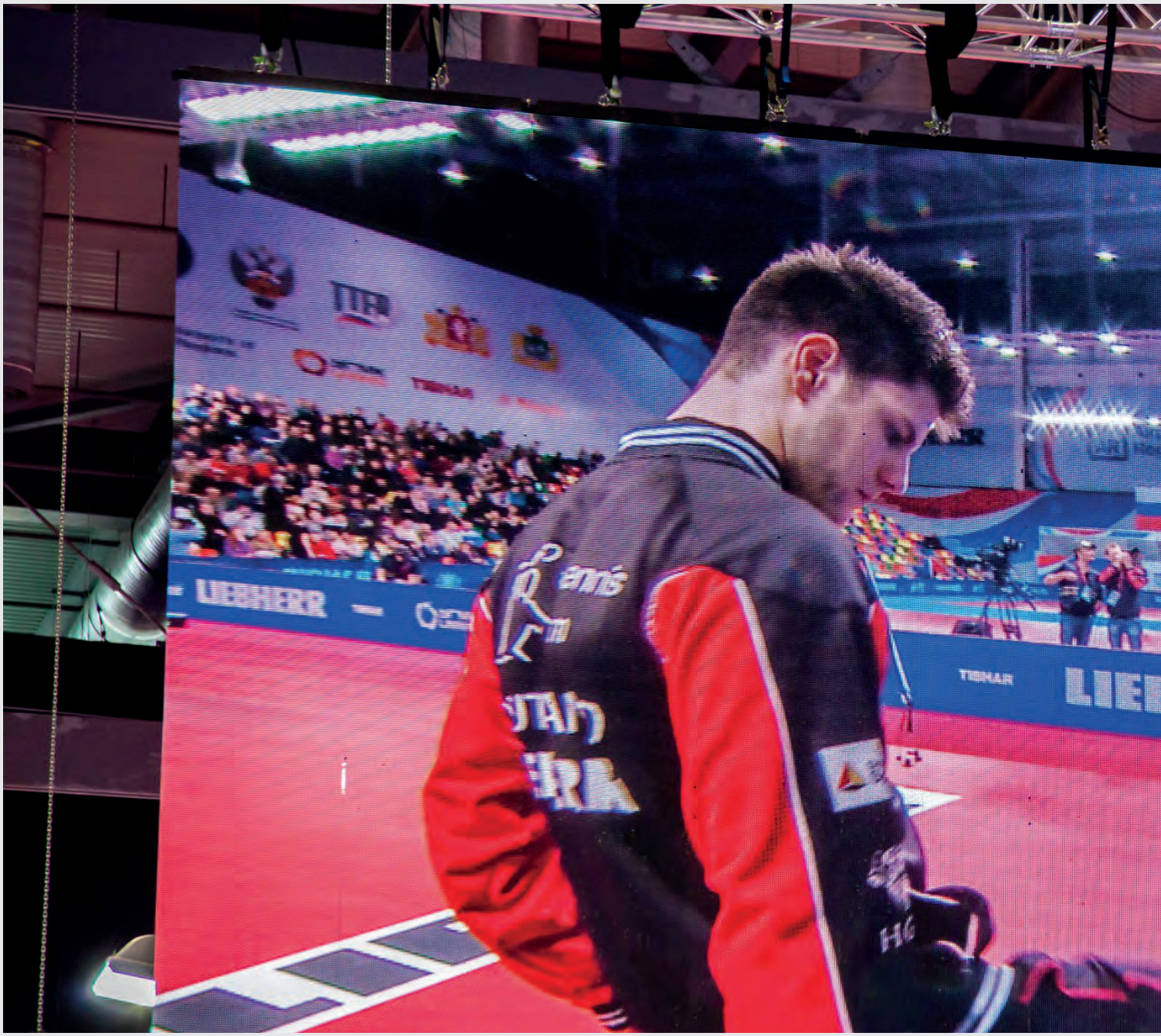
PART NUMBER	OPTIC	KELVIN	WATTAGE	Q.TY
306114	A50/W	4000	305 W	8

INSTALLATION SUMMARY:

Poles / Lines	4
Installation height	8 m
Maintenance factor	0,90

RESULTS OVERVIEW:

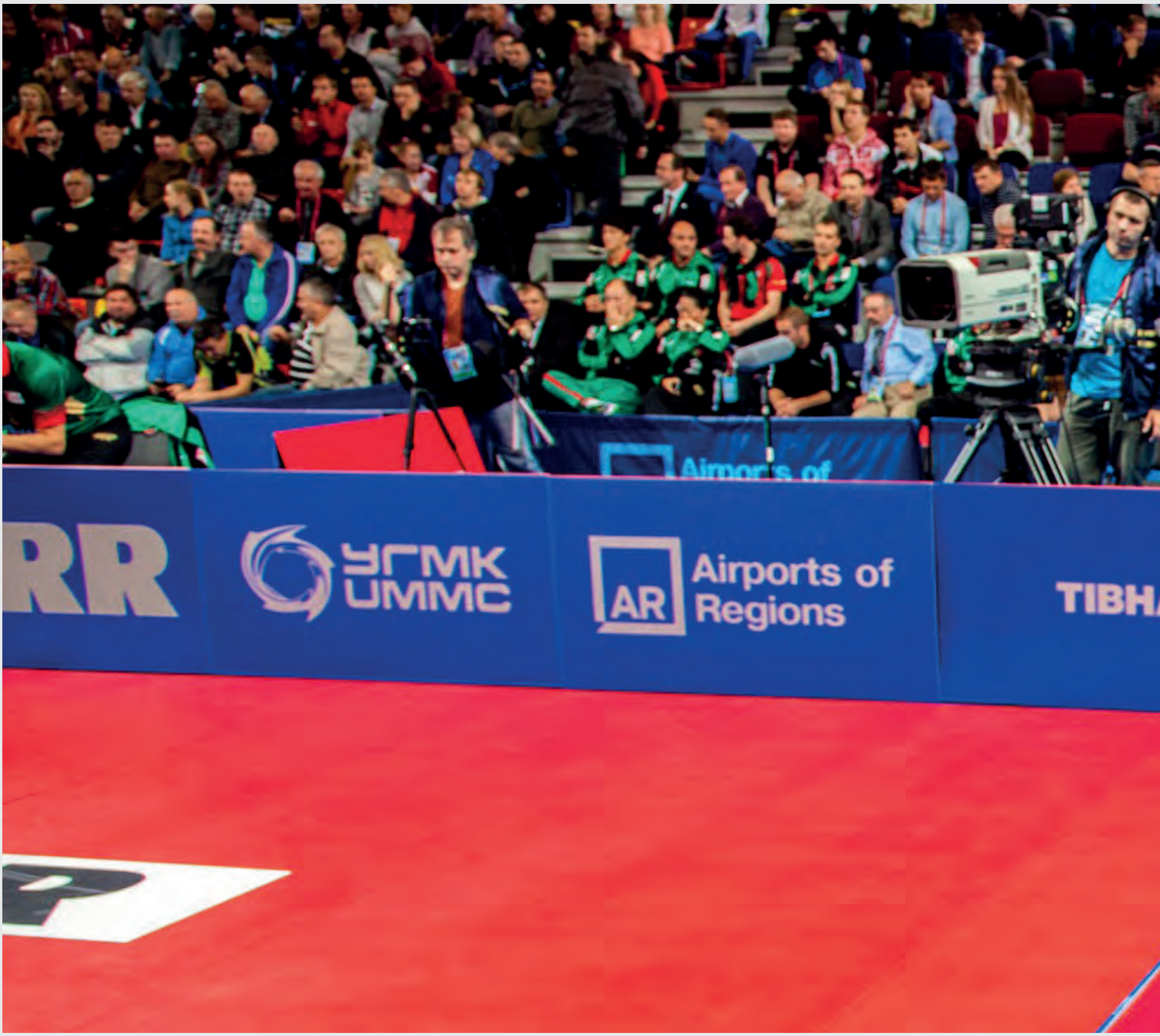
Eave (PA)	510 lux
Eave (TA)	544 lux
Uniformity Emin/Eave (PA)	0,76
Uniformity Emin/Eave (TA)	0,75
Glare Rating (Rg)	27



TLCI - TLMF

For many years the Color Rendering Index (also called CRI, colour rendering index, or Ra, average rendering) has been used to describe the ability of a light source to faithfully return the colours of an object concerning a reference source. Several measurement systems are available today, under definition or already approved internationally: Color Render Index (CRI), Color Quality Scale (CQS), Gamut Area Index (GAI), TM-30, American method of IES (Illuminating Engineering Society), CIE 224: 2017 Color Fidelity Index. All these metric systems speak about the human

perceptive system directly and no through a television camera. The Television Lighting Consistency Index (TLCI) tries to solve these problems by providing a specific colour rendering metric for video cameras like how the CRI or TM-30 works with human vision. Alongside the positive aspects of long life and energy savings, LED light sources, due to their spectral emission, can produce a different representation of the colours for the reality of the cameras, thus forcing the television producers to devote a lot of time and money in post-production. In 2012 EBU (European Broadcasting Union) released TLCI-2012 protocol which, although not yet an international standard, has already been adopted and used by all the primary video camera and display manufacturers and by the significant producers of film and television content in the world. The TLCI is a useful tool for lighting equipment manufacturers who want to design luminaires compatible with television demands. The Television Luminaire Matching Factor (TLMF) is instead a valid tool for professionals who wish to understand how different sources mate and mix before they even carry out lighting designs when it would be too late to remedy any problems. The EBU guidelines define, in the TLMF-2013 protocol, a single scale of evaluation of the chromatic quality of cinematographic images, to which a different weight is attributed depending on whether it is material intended for a television production. Consult PERFORMANCE iN LIGHTING pre-sales service for specific information on your project.



FLICKER FACTOR (FF)

The circumstances that produce the "flicker" phenomenon vary according to the modulations of the light source and derivatives, the frequency of alternating voltage and the frame rate of the camera. The flicker distracts and damages the viewer's experience. Therefore, it needs to be eliminated where possible. Many institutions try to understand and synthesise this concept. Today in the definition of the TEMPORAL LIGHTING ARTIFACTS (TLA) in which they are defined, through CIE TN (Technical Note) IEC / TR 61547-1 he concept of

flicker, stroboscopic and "phantom array". Accordingly, the flicker effect is a visible optical stimulus in the absence of eye movement in a static environment. The Flicker Factor (FF) refers specifically to the number of light modulations expressed as a percentage deriving as a ratio multiplied by 100 per cent between the maximum illumination (Emax) subtracted from the minimum illuminance (Emin) and the sum between the same Emax and Emin. Therefore, FF is a percentage number derived from a real measurement on the lighting system. UEFA 2016 standards define FF in three levels of competition to be verified at a standardised height and degrees plan. When testing professional illumination for stadiums and arenas, it is necessary to establish the type of operating lighting system. Especially LED lighting devices, where FF depends on the type of LED power supply used, not intrinsically produce FF but reproduce faithfully the shape of the wave that arrives from the supply compartment which in this case derives from the type of current driving. A Light Flicker Meter, available on the market, is necessary to measure this parameter after luminaires installation and aiming.

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