MAKING LA LIGA SUSTAINABLE

Eindhoven, June 2023

LED sports lighting Cost Reduction Carbon Footprint Reduction Waste reduction



SMART. FLEXIBLE. LED.



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1 AAA-LUX

1.1 An Energy Neutral World

Please read page 3 in Attachment A: The story about the beautiful village of Andenes, well within the Arctic Circle in the northern reaches of Norway. Just off the coast, whales and orcas play under the tranquil Northern lights. It is a place where untamed nature shows its true beauty. Andenes symbolizes the nature we all willingly want to protect.

That the community – which depends on the preservation of its surroundings – chose AAA-LUX to light their outdoor sports accommodations, makes us proud. It fits our "mission statement", being present and connected to an energy neutral world.

With LED sports field lighting as our main business, we play our part in reducing the ecological footprint of modern society. Together we can make an impact, if we manage to make our technology as accessible as possible. With a clever design, a simple installation process, and minimum waste production.

1.2 AAA-LUX

In 2010 AAA-LUX was the first manufacturer, being able to retrofit 2.000w conventional sport field luminaires to LED, while re-using the existing infrastructure. This will be one of the key aspects of this presentation. Since the beginning in 2010, over 5.000 projects in 57 countries have been installed.





Currently AAA-LUX employes around 60 FTE in three self-owned locations. The head office and main production location is in Eindhoven (The Netherlands). In Dubai (United Arab Emirates) a sales office is located, and in Brisbane (Australia) a sales and assembly location.

Our 30+ international partners take care of sales, installation, and service. Together with them, we currently supply approximately 600 projects per year.

1.3 AAA-LUX Spain

For 5 years we have a partnership with LumSport, under the name AAA-LUX Spain. LumSport is based near Barcelona. With an extensive network of certified installation companies, they cover entire Spain.

Within LumSport 7 FTEs are working on the AAA-LUX business, with sales, light design, project management and service, along with several certified installation companies to do the work on site. It is important for us to have a good local support team with knowledge, experience, and the required skill set.

1.4 ISO14001

AAA-LUX is officially ISO14001 certified. ISO14001 specifies the requirements for an environmental management system that an organization can use to enhance its environmental performance. It is intended for use by an organization seeking to manage its environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability.

While being in the high-power LED business, the potential for reducing the carbon footprint is enormous. Over 90% of the energy savings in and around our product is in the increased anergy efficiency. A small part is the production process and transport to and from our production facilities.

Additionally, we have an impact on the waste cycle of lighting poles (masts) and electric cabling, by what we like to call "extending the lifetime of the infrastructure".

2 Sustainability & Cost

2.1 Summary

When you can <u>combine sustainability with a good Return on Investment</u>, the speed of transition will be increased.

Although AAA-LUX has equipped many stadiums with LED, this presentation is focused on training facilities. Investments in LED inside stadiums can lead to a more sustainable situation, but almost never lead to cost savings. This is different for LED investments in training facilities. Thanks to the higher number of burning hours, the carbon footprint of the whole accommodation can be reduced, while reducing cost at the same time. On top of that, the influence of lighting poles and cabling cost can play a major role in the equation, not only for sustainable reasons, but also for a substantial reduction of hardware and installation cost.

It means for us, for the purpose of this "Making LaLiga Sustainable" presentation, the training facilities are our focus.

The next paragraphs will explain how we deal with these 3 main items:

- 2.2 Carbon footprint reduction: What is expected from LED.
- 2.3 Sustainable reconstruction and cost reduction: What is unknow to most people.
- 2.4 Waste reduction: What to do at the end of the lifecycle.

2.2 Carbon Footprint

The first part of the carbon footprint reduction is the part that most people expect from LED. We would like to explain this in three steps.

A) Energy reduction: LED vs. conventional luminaires

Especially because the luminaires are so big, there is a substantial reduction of energy usage for sport field luminaires. As an example, the LED retrofit of one 400 lux training field is an equivalent of the LED retrofit of 25km of street lighting. It means a lot of power is reduced in one field.





The LED luminaire in the picture uses approx. 30% less energy and has approx. 10% more light output, which makes the difference around 40% when at full capacity. This can be increased to 70% by using dynamic controls.

B) Dynamic Controls

The AAA-LUX InControl System is based on the principle of having "Light when, where and at the level needed, and not more". Meaning dimming down overcapacity, training at a lower level compared to a match, only illuminate the part of the field that you are using and turning the light it off between sessions. Switching and dimming can be automized.



Dynamic controls increase the reduction of energy from 40% potentially 70%. Training facilities generally have a high number of burning hours, which increases the impact on the return on investment substantially.

C) Monitoring & Remote Service

Dynamic controls make it possible for AAA-LUX to remotely monitor the health of the luminaires and offer remote service. For example, part of the maintenance can be done from the office. Also, changes to the settings can be made by remote. Or the first check, when there is a failure reported, can be done by remote.

Altogether, not having to go onsite with service vehicles reduces the carbon footprint of the service and maintenance teams substantially.



2.3 Sustainable Reconstruction & Cost

What distinguishes AAA-LUX most from others, is the sustainable reconstruction. The core of that topic is the re-use of the infrastructure, meaning the mast structures and cabling. It is the single most misunderstood part of LED outdoor sports lighting business, and the costliest one.

A) Stress limits of poles

LED luminaires have a higher weight and are larger in size compared to the conventional luminaires they are replacing. The reason is the heatsink of LED luminaires. Compared to conventional luminaires the temperature must be controlled much more precisely, to prevent overheating. Because of the high power, cooling must take place by forming a much larger surface and as a result, a larger luminaire weight.



The mast structures (poles) that have been used are design for the stress limits caused by conventional luminaires. Not only are all LED luminaires bigger and heavier, the differences between the available LED brands and types are quite substantial. This could lead either to severe safety hazards, when people are unaware of this issue, or higher cost, when the poles are being replaced by new ones with a higher stress capacity.

AAA-LUX developed a luminaire (design concept since 2009) with a weight and wind surface, to allows the re-use of most poles. It cuts the cost of an LED transformation almost in half (!). This way, AAA-LUX has won dozens of training accommodations at internationally renowned clubs.

Schalke04 and AZ Alkmaar were the first clubs where we used this strategy. In a competition against Siteco, Signify and Schréder, AAA-LUX was the only brand that could re-use the existing infrastructure.





B) Cabling

AAA-LUX luminaires have no inrush current, which is basically the start-up peak that many power supplies create in the power grid. Protection against this inrush peak is 1) bigger circuit breakers in combination with 2) thicker cabling to be able to handle a 20 to 30A current.

Thanks to a slow-start driver, the absence of an inrush current maximizes the current around 4A, which would allow thinner cabling, meaning less copper. Of course, this only goes when new cabling is needed. But even with the original cabling, the standard charges for connection to the power grid – that are based on the combined inrush peak – can be substantially lower. Which means yearly savings on standing charges.

Besides, there is no cabling required for AAA-LUX' standard control system. Communication goes wireless via radio frequency. So no additional cabling, no copper. Even LED show lighting is possible with wireless controls, as you can see in attached DEMO video, of a small UEFA Level D stadium, but has been used in bigger stadiums too, up to UEFA Level A:

CLICK HERE >>> FOR DEMONSTRATION SHOWTIME RF

C) Light pollution

Sustainability does not only concern energy emissions, but also light emissions. Light pollution is getting more important in recent years, especially because the LED market opens new challenges in this field, due to a new technology combined with some manufacturers not taking the subject too seriously. The CIE150 European obtrusive light directive is getting stricter and more used in more European countries every year. You can see a comparison below, between 2003 and 2017.





For obvious reasons, the previous 2003 directive (picture on the left side) can lead to complaints from houses in proximity to sports lighting installations. The latest 2017 directive (picture on the right side, taken from the same house) clearly prevents that from happening.

Secondly, light that is going in the direction of the houses, is not going towards the sports field it is intended to illuminate. Gen7 LS sends more light to the field, leading to a lower amount of energy and luminaires needed, leading to lower cost.

2.4 Waste reduction

Looking back at paragraph 2.2, paragraph 2.3, and Attachment B, this is an overview of the waste reduction contribution:

- 1. 70% reduction of energy footprint.
- 2. Re-use of infrastructure, extend lifetime of masts and cabling.
- 3. Predictive and preventive maintenance (monitoring), extend lifetime of luminaires.
- 4. Reduction of transport and service kilometers
- 5. Reduction of light pollution.
- 6. Re-use and refurbishing of luminaires.
- 7. Recycling of 99.6% of the product.

AAA-LUX armatuur, met light shields

Attachment A
AAA-LUX Brochure

LED lighting for

Professional & Recreational



FERMAG

SMART. FLEXIBLE. LED.



Football in Norway

Second tier + Training pitch Class II Features active dimming to reduce carbon footprint and energy consumption





AAA-LUX® TRIPLE A LIGHTING

Mission

The beautiful village of Andenes, well within the Arctic Circle in the northern reaches of Norway, is a place where untamed nature shows its true beauty. Just off the coast, whales and orcas play under the tranquil Northern lights. Andenes symbolises the natural beauty we all want to protect. Fittingly, they local football club picked AAA-LUX to supply their LED pitch lighting.

We want to play our part in reducing the ecological footprint of modern society. Together we can make a real impact and that's why we've made our technology as accessible as possible. Making use of a clever design and keeping the installation process as simple as can be. We also strive to have existing masts reused and recommend using smart control systems with our high-output luminaires, using as few fixtures as possible.

Besides, high-quality light makes people happy, and neighbours love our measures against light pollution. On top of that, the general public is seeing more and more of us, because we specialise in professional sports, stadiums and TV broadcasts. You've probably seen us more often than you think.

facilities.

Together, we can make a sustainable impact.

Erik Swennen Founder

> Making sustainable high-power illumination accessible for all people

This brochure will take you on a tour of our products, projects, and specialties, as well as giving tips and advice on purchasing and using LED lighting for sports





The ultimate stadium experience

AAA-LUX has supplied its systems to clubs in major international competitions since 2010, ensuring that stadiums meet all the lighting requirements set by FIFA, UEFA, IAAF, Davis Cup, FIH, World Rugby and other international bodies. The crowd gets a clear picture of what is going on on the pitch and the cameras record it all in (HD)TV quality.

Get the most out of your stadium:

- Make sure your stadium meets the lighting requirements for TV broadcasts
- Increase visibility for players and crowd with maximum uniformity
- Boost entertainment value with dynamic show lighting
- Cut your energy consumption and lower your carbon footprint
- Low investment thanks to high light output per fixture

Sports are entertainment

With AAA-LUX fixtures, you can also use your field lighting system for entertainment purposes. Treat everyone in attendance to a wonderful show thanks to support for internationally used communication protocols such as DMX and DALI. With the wireless version, even smaller stadiums and recreational fields can serve up high-value entertainment.

Low stress load

With AAA-LUX, you typically need a low number of fixtures, which helps to keep the costs down. Besides, they put a very low stress load on stadium masts and the stadium roof, the importance of which should not be underestimated.

AAA-LUX®



Swiss Tennis

Live TV broadcast Arena located at the Roger Federer Allee, at the Swiss Tennis Headquarters and the Tennis Academy



Football & Athletics Headquarters & Elite Sports Facilities of the Czech Football Association and Czech Athletics Association







AAA-LUX®

LED lighting for sports

Charleroi Belgium

20 20 14 40

Live TV broadcasting Domestic basketball, international basketball and Davis Cup Tennis (Belgian National Team)

Danish Football

UEFA Level C Eh 1,200lx, Ev 750lx from 4 sides. 4 x 35 m masts

France Top Rugby

Sec.

Live TV Broadcasting Eh 1,800lx, Ev 1,400lx from 4 sides



Masts and installation costs play a key role

How can you get the best overall price?

People often focus on getting their fixtures for the lowest possible price, which sometimes comes at the expense of what really matters: the best overall price.

Not all brands support the reuse of masts and cabling. Lower light output, greater weight or more windage mean you will need more fixtures and/or might even cause you to exceed mast limits. In that case, you'll need new masts and cabling, which can easily lead to a twofold increase in overall project costs.

AAA-LUX fixtures are full retrofits. The fixtures are compact and low-weight, so you can keep your old masts and cables, provided they're still mechanically sound. You'll never need more fixtures than you would with traditional lighting. In fact, AAA-LUX lighting systems often need fewer fixtures than any other traditional or LED-based solution, even with light pollution measures!

The RF communication, the need for extra infrastructure, wires and installation work, cutting costs; all these elements can have a massive influence on the overall project price.

	Reusing an exi
-Q-	Higher light output
KG	Low weight and windage
^-	No start-up (peak) voltage
	RS (Reduced Spill) Technology
	RF controls
	Driver in top

	New
-Ö-	Higher light output
KG	Low weight and windage
<u></u>	No start-up (peak) voltage
	RS (Reduced Spill) Technology
	RF controls
F	Driver in top

sting system with LOWER costs, thanks to:

- Fewer fixtures needed
- Reusing masts & cables
- More light from existing power supply
- Fewer fixtures needed, even with anti pollution light shields
- Easy to install, online monitoring
- No additional cabinets, cabling and installation work required

system, LOWER COSTS thanks to:

- Fewer fixtures needed
- Requires slimmer masts and foundation
- Smaller fuse, thinner cables, smaller connection
- Fewer fixtures needed, even with light pollution shields
- Easy to install, online monitoring
- No other cabinets, cabling and installation work required



Ease of installation See the story on the right >





All-round convenience AAA-LUX

Tennis club

Patrick van Gool, a member of tennis club Ace, relates how the entire club has been shining brightly since making the switch to LED lights. "The players are happy, that's for sure. The quality of the lighting system couldn't be higher. The board is also happy, because they were able to reuse the existing masts, which meant they didn't have to invest in new ones. This was a great surprise, because we thought that if we switched to a new LED supplier, they would also install new masts."

"You can clearly tell that they took a solution-oriented approach. AAA-LUX even advised on challenges we might encounter in the future.

"We thought that if we switched to a new LED supplier, they'd also install new masts"

They told us that light pollution standards had been tightened up considerably and gave us some tips on preventing issues with the neighbours in the future. Now, we're ready for whatever might come our way!"

Users are "at ease" with

Installer

other suppliers."

"AAA-LUX sets me apart from the competition"

Installer Frank Janssen loves working with

LED lighting from AAA-LUX. "Let me start

easy to install. The fixtures can easily be

same cable. Besides, properly aligning the

lights with the pitch isn't super sensitive, as

well as being a lot quicker to do than with

off by saying that the fixtures are very

swapped individually, using exactly the

"We can use the basic framework provided by the current system and reuse the masts. AAA-LUX generates more light with the same amount of power, which means you'll need fewer fixtures. Simply put: AAA-LUX lets me achieve the same effect as other suppliers, but with lower total cost. And since Gen7 was launched, it's been easier than ever to implement measures to combat light pollution retrospectively. Overall, AAA-LUX simply sets me apart from the competition."

Field hockey Australia

Hawthorn Hockey Club, Melbourne Class I 500lx. Facilities located in the beautiful "Patterson Reserve"

TRAN DE NEXTON E MODE



Cycling track, athletics track and grass field, with high uniformity

AAA-LUX®

LED lighting for sports

Dubai Golf

Emirates Golf Club (Faldo Course)

Recreational golf, European PGA Tour, Omega Dubai Desert Classic and Ladies Masters

Ski slope Austria

Saalbach Hinterglemm 150 fixtures along a 2km track, operated from the valley



Cricket Darwin Australia Marrara Cricket Ground

128 fixtures, WS-series and WS-STAD-series, on 6 masts

Equipping a conventional lit sports field with high-power LED lighting is equivalent to LED-ifying between 10 and 20 km of street lighting. Per field! Updating sports fields is a

tremendously effective way to achieve carbon objectives.

Compensate 10-20 km of street lights

and sustainable V SMART. FLEXIBLE. LED.

Make huge progress with carbon reduction

Carbon reduction

Double carbon gains with dynamic controls

Light when and where it is needed, and with the right intensity!

In contrast to conventional lights, LED fixtures can be controlled separately, allowing for dynamic controls that can almost double energy and carbons gains. AAA-LUX®

Compensation of a small city

Every LED fixture that leaves AAA-LUX's factories will, on average, offset the carbon footprint associated with the annual electricity consumption of a single-person household. Overall, this means AAA-LUX offsets the energy consumption of a small city every year.

What is quality?

What do you need to know when buying LED lighting for recreational sports fields?



Optimal use

Extending lifespan with maintenance

Ensuring sustainable use of the light, together with club members

www.aaa-lux-lighting.com/purchase-support

Need some help?





Reduced Spill Marco van Basten Second & Third-thier football and Second-tier Tennis Beautiful light on the pitch, while the homes across the street stay nice and dark

Maximum lighting quality, minimum pollution Cherish the light, Respect the darkness

As urbanisation continues to ramp up, the number of homes near outdoor sports facilities is only set to increase, which means that limiting light pollution will also become increasingly important. This can be challenging, as we'll have to work to create better lighting for sports facilities whilst also reducing light pollution for neighbouring homes.

That's why AAA-LUX introduced RS Technology for maximum lighting quality and minimal obtrusive light.

- Optimal uniformity, within the designated lighting area;
- usually within E2 at 50 metres;
- Light shields only have a minor effect on the light output on the pitch;
- Additional options with InControl, page 21.





- Reduce light pollution to an absolute minimum for the immediate surroundings,

How the neighbours of the sports park experience RS technology

The top photo shows how traditional floodlights can cause significant light pollution.

The photo below showcases the impact of taking the correct anti-pollution measures.

AAA-LUX, products, tools and services

AAA-LUX is proud to offer a comprehensive solution. Top-tier lighting with the right tools and services for a tremendous experience from installation to use and maintenance.



InControl

InControl is AAA-LUX's wireless control system. You can opt for local controls with physical buttons, an app, or a touchscreen, or for automatic controls with sensors, timed switches and/or an API software link.

Dashboard

You can control your lighting system with an online Dashboard, which also provides access to relevant information such as energy consumption and the technical status of your system. The dashboard can also run automatic diagnostics, allowing for accurate service and maintenance forecasting. That's what AAA-LUX means with being "connected".

Security

Online access works well when it can be done securely. That's why AAA-LUX has used a secure LEDxLINK protocol with an RF (Radio Frequency) connection since 2009. All users and installers are given their own access codes and user rights.



Wired controls: DMX and DALI

For stadiums, we can also supply DMX or DALI fixtures, which can be wired to a DMX or DALI controller to offer crowds exciting entertainment.



AAA-LUX®











AAA-LUX Quality & Service program

AAA-LUX Quality & Service

Quality and service are both paramount when it comes to flawless systems. We go beyond product design to protect our products. The environment, the infrastructure and usage, all play a crucial role. AAA-Service is a collection of services that serve to protect your system, prevent problems and, should an issue arise, to offer a quick, effective solution. Offering convenience and valuable advice in the purchase phase is part of this.

AAA-Service consists of the following:

- C Warranty packages
- C Repair & Service
- C Logistics
- C Remote monitoring (diagnostics)
- C Advice

Sustainability

Servicing a system can lead to increased traffic of people and parts. AAA-LUX aims to minimise this impact on the environment with a two-pronged approach. First, we rely on remote diagnostics powered by an IoT application. If repairs turn out to be necessary, we typically have a CRC (Certified Repair Centre) near you. Both solutions have allowed us to significantly reduce our carbon footprint.

AAA-LUX®



Together, we can make a sustainable impact



SMART. FLEXIBLE. LED.

www.aaa-lux-lighting.com

Attachment B
ISO14001 certificate



An Energy Neutral World

Eindhoven, 2023



ISO14001

AAA-LUX' mission is to contribute to an energy neutral world. Mainly this is done by applying LED technology, smart controls, and the use of data to optimize energy usage and lifetime. With this, 97% of the energy reduction potential as achieved. Only 3% is in the production process, and the transport of parts to the factories and transport of finished products to the end-customer.

For the longer-term sustainability, the product is made suitable for re-use of products, re-furbishing of parts and recycling of materials. This is part of AAA-LUX' environment management system and the ISO14001 goals and processes. AAA-LUX is officially ISO14001 certified.

LED Technology

The development challenge for AAA-LUX is a combination of minimizing energy usage and optimizing lifetime, in order to reduce the burden in the environment as much as possible.

Subject	Contribution
LED technology	The first and major leap.
Optics	High-tech optics to control the light output for energy efficiency.
Smart controls	Light ONLY at the location, at the time and at the level needed.
Lightspill control (RS technology)	Prevent light emissions to houses, nature and the sky.
Monitoring & data analysis	Optimizing lifetime, see "predictive maintenance".

The Waste Hierarchy

The Waste Hierarchy is an internationally used method for the development of products, to reduce "disposal" as much as possible and thus minimize the burden to the environment. AAA-LUX contributes as follows:

Waste Hierarchy – Types of waste	AAA-LUX examples			
Prevention	<u>Predictive Maintenance</u> : By analyzing luminaire data from the field, potential hazards can be recognized. This enables preventive maintenance. AAA-LUX is doing research for this.			
Re-using	<u>Re-use:</u> Thanks to standardized luminaires and flexible programmable controls, superfluous luminaires can be re-used in other applications, for example lower-level training fields.			
	<u>Refurbishing</u> : Luminaire parts can be stripped and made suitable for re-use. For example, aluminum housings are being re-used as spare parts for repairs.			

Recycling	 <u>Cradle to Cradle</u>: At the end of its lifetime, almost the full weight of a luminaire (99.6%) is suitable for the recycling process. The concerns metal, glass, circuit boards, and cabling, that are used in the production of base materials. Less than half a percent is being burned. The official statement of our recycling partner (Waterschoot Recycling) shows the following: Re-use of materials: 97.5% Energy Recovery: 2.1% Deposit: 0.4%
Disposal	AAA-LUX products do not contain hazardous materials (= RoHS and REACH compliant) and are designed for easy separation of rest materials.

AAA-LUX

Production location & Transport

AAA-LUX' main production location is in Eindhoven. In means that 80 – 90% of all products are near to the main European markets. For Australia, New Zealand and Asia, assembly takes place in Brisbane Australia, to shorten distance and lead times for the region as well.

For transport to project locations from Eindhoven, AAA-LUX has a cooperation with DHL GoGreen Services and the Green Logistics Program of DSV.

More info <u>DHL GoGreen Service</u> More info <u>Green Logistics Program DVS</u> Attachment C Reference List Professional Sports

Reference List Stadium & Training Centers

Eindhoven, maart 2023

UEFA & FIFA Stadiums Olympic Games Professional Training Centers Football TV Basketball TV Tennis TV Golf TV



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PROJECT SELECTION (OUT OF 127)	Year	Stadium	Training	Level / Remarks	Location	
FOOTBALL STADIUMS & TRAINING GROUNDS						
Czech Football Association	2016		1	UEFA Level C	Czech Republic	
Everton FC Finch Farm	2018		3	Premier League	England	
Aston Villa FC	2018		3	Premier League	England	
Huddersfield Town	2017		2	Premiership	England	
Stadio Paolo Mazza Ferrara (SPAL)	2016	1		UEFA Level (Elite) A	Italy	
Heracles Almelo Erve Asito	2021	1	3	UEFA Level B / Eredivisie	Netherlands	
SK Sturm Graz Training Centre	2019		3	Bundesliga	Austria	
Telstar SC Stadium	2021	1		UEFA Level D	Netherlands	
Helsingor Stadium	2018	1		UEFA Level C	Denmark	
Thisted Stadium	2020	1		UEFA Level C	Denmark	
Skive Stadium	2019	1		UEFA Level C	Denmark	
Almere City Stadium	2018	1		UEFA Level D	Netherlands	
RKC Waalwijk Stadium	2018	1		UEFA Level D	Netherlands	
Astoria Walldorf Stadium (DMX)	2020	1	4	1.000 TV broadcasting	Germany	
FIFA World Cup 2022 Training Grounds	2018		4	FIFA 500lx	Qatar	
Schalke04 Berger Feld	2018	1	9	Bundesliga	Germany	
TSG 1899 Hoffenheim	2014		5	Training Bundesliga	Germany	
TSG 1899 Hoffenheim Dietmar-Hopp-Stadion	2021	1		DfB	Germany	
Sankt Pauli Hamburg	2021		2	Training 2nd Bundesliga	Germany	
FC Utrecht Training Centre (TV)	2019	1		UEFA Level D	Netherlands	
AZ Alkmaar Training Centre (TV)	2016	1	2	UEFA Level D	Netherlands	
Banska Bystrica Stadium	2021	1		UEFA Level B	Slovakia	



PROJECT SELECTION	Year	Stadium	Training	Level / Remarks	Location
La Bombonerita	2021	1		Ecam 1.000lx	Venezuela
Agotnes Stadium	2020	1		UEFA Level C	Norway
Stadion Kleinfeld Kriens	2018	1		UEFA Level D / TV	Switzerland
Sparta Rotterdam – Het Kasteel	2021	1		UEFA Level C / Eredivisie	Netherlands
vv Hoogstraten	2014	1	3	2nd League	Belgium
Swiss Tennis Arena (Roger Federer)	2017	1		HD TV	Switzerland
Astroballe Basketball Stadium Lyon	2017	1		HDTV 2.000lx	France
Kadrioru Stadium	2015	1	2	UEFA Level B / DMX	Estonia
PEC Zwolle Max3Park Stadion	2022	1		KNVB Ecam 800 lux	Netherlands
RFS Riga Football School	2023	1		UEFA Level D	Latvia
ATHLETICS & MISCELLANIOUS					
National Athletics Stadium Slovakia (Banska)	2020	1		UEFA Level B / IAAF TV	Slovakia
Czech Athletics Association Prague	2016	1		IAAF (TV broadcasting)	Czech Republic
Palmer Stadium Reading	2017	1		500lx	England
Kadrioru Athletics Stadium	2023	1		IAAF Ev 1.000 lux	Estonia
Hockey World League Brasschaat	2015	1		HOCKEY HDTV 1.000lx	Belgium
Paris 2024 Olympic Games	2022	2	9	HDTV (Hockey & Rugby)	France
Marrava Cricket Oval Darwin	2020	1		Cricket Australian League	Australia
Stade Ladoumègue Massy	2019	1		Rugby HDTV 1.800lx	France
Stade Jean Arlic Aurillac	2019	1		Rugby HDTV 1.800lx	France
Horse Racing Tracks NEF 1km	2022	2		Online TV Concept	Norway
Tehvandi / European Championship IUC	2020	2	2	Eurosport Broadcasting	Estonia
Estadio Universitario Caracas	2022	1		Baseball Ev 1.000 lux	Venezuela
Emirates Golf Dubai – Night Golf	2018		1	GOLF Professional Tour	UAE





UEFA Elite Level A (SPAL Serie A Italy)



UEFA Level D (RKC Waalwijk Netherlands)



UEFA Level B (Heracles Almelo The Netherlands)



UEFA Level C (Helsingor Denmark)



UEFA Level B + IAAF (Banska Bystryca Slovakia)





Estadio Baseball Universitario – Caracas



Everton England – Finch Farm



Schalke04 Germany – Berger Felt



AZ Alkmaar The Netherlands – AFAS



Aston Villa England – Bodymore Training Grounds





Olympic Games 2024 – Stade Yves de Manoir (large accommodation with 2 stadiums and 9 training grounds)



Roger Federer Arena – Suisse Tennis (Biel)



Stade Jean Alric Rugby France



Emirates Golf Dubai UAE





WWW.AAA-LUX-LIGHTING.COM