Light system guide
Sport presentation
Definition and development of the lighting system
Create the perfect conditions for competition, TV and spectators in Arena
Introduction

The light setup is one of the key elements of the success of an event. The stakes are high for the competition, for television and for the quality of the show offered to the spectators.

On top of the specific guidelines for sport presentation, this document has been produced to help the organizers design their lighting plan in accordance with the requirements of the United World Wrestling defined in the guidelines.

Each arena/event has its own configuration and must meet its own requirements and constraints.

However, each organizer must be able to carry out his own study on the basis of this document in order to produce:

- light sketch
- “Shoot” with properties of the luminaires, positions, illuminance and uniformity of the different areas
Guidelines extract  (for more information see SPP Guidelines > Operational requirements > section N°3)

The following criteria define the expected requirements for any event involving TV broadcasting. More than the overall perception of the spectators naked eye, the TV cameras are much more sensitive and requires a perfect homogeneity. Each arena/event has its own configuration and must meet its own requirements and constraints.

<table>
<thead>
<tr>
<th>Vertical Illuminance EV (4 main directions camera)</th>
<th>Horizontal Illuminance EH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average (lux)</strong></td>
<td><strong>U¹</strong></td>
</tr>
<tr>
<td>1700</td>
<td>0,7</td>
</tr>
</tbody>
</table>

**U¹ = lowest illuminance / Highest illuminance**

**U² = lowest illuminance / average illuminance**

These values must be calculated on any measuring point (grid point) of the playing area represented by the 12X12m mat.

Note: The measurement of the vertical illuminance is to be considered at 1.5m from the ground. The measurement of the horizontal illuminance is calculated on the ground (on the mat).
Light sketch and shoot for qualifying rounds

General lighting located on the outskirts of the arena to illuminate the entire competition area
Qualifying stage

In most of the arenas, “competition lighting” is usually permanently installed. In this case, it is useful to validate that the device meets the requirement level for the competition (see guidelines). In addition, it should ideally be able to perform a “black out” for entertainment sequences at any time (avoid discharge lamp if possible or using shutter).

In the case where the arena is not equipped, it is necessary to favor LED technology. The entire technical grid can be equipped with LED moving heads but for reasons of cost, our recommendation to cover the entire arena is to favor new generation floodlight dedicated to sports lighting (LED and glare-free lighting).
Our recommendation

Our favors go to Philips with the “ARENAVISION LED”.

Philips possesses many decades of expertise in sports and entertainment lighting, and has contributed to industry standards for premier events and sports federations worldwide. LED lighting has transformed venue performance over the past years, boosting comfort, flexibility, and excitement to new levels.

“ARENAVISION LED” by Philips is:

- Flicker free LED stadium lighting
- Instant on/off switching
- Multiple dimming levels
- Dynamic lighting effects

As mentioned, the use of LED moving heads is obviously an excellent alternative (more expensive) to realize sport lighting. For example, CLAY PAKY B-EYE K20, ROBE BLFL BLADE or ROBE ROBIN SPIIDER are excellent products. We reserve in our recommendation these products for the specific setup of the final mat (see section final stage).
Shoot E. Horizontale Value in lux (with 70 arena Vision)

Position of surface in room:
Marked point: (4.000 m, 4.000 m, 0.000 m)

Grid: 13 x 11 Points

Uniformity control

\[ U^1 = \frac{\text{lowest illuminance}}{\text{highest illuminance}} \]
\[ U^2 = \frac{\text{lowest illuminance}}{\text{average illuminance}} \]
Shoot E. vertical Value in lux (with 70 arena Vision)

Position of surface in room:
Marked point: (2.000 m, 2.000 m, 0.000 m)
Camera Position: (7.774 m, 16.000 m, 1.200 m)

Grid: 13x11 Points

\[
\begin{array}{c}
E_{\text{av}} [\text{lx}] \\
E_{\text{min}} [\text{lx}] \\
E_{\text{max}} [\text{lx}]
\end{array}
\begin{array}{c}
2024 \\
2020 \\
2298
\end{array}
\]

Uniformity control

\[
U_1 = \frac{\text{lowest illuminance}}{\text{highest illuminance}} \quad U_2 = \frac{\text{lowest illuminance}}{\text{average illuminance}}
\]

\[
U_1 = 0.87 \quad U_2 = 0.88
\]
Light sketch and shoot for finals (competition and entertainment)

Specific lighting that guarantees the expected requirements by refocusing the light on the 12x12m playground
Finals

As we said in the introduction, each arena/event has its own configuration and must meet its own requirements and constraints. There are many options to implement a specific lighting plan for the final stage depending on your goals, your budget and level of sport presentation that you are looking for.

In any case, you still need to consider the requirements of the United World Wrestling defined in the guidelines.

So this part of our recommendation is only a “study case” as a option among a thousand! We suggest a good mix between wash / beam / spot equipment’ in addition to architectural solutions.
Our recommendation

- Use a grid Circle of 16m of diameter (at least)

- List of LED moving head:
  - 48 ROBE ROBIN SPIIDER
  - 24 ROBE BMFL BLADE
  - 24 ROBE MEGAPONTE

+ LED citycolor in addition for “wash” effect on stand

See ROBE website for more details: https://www.robe.cz

See STUDIO DUE LIGHT website for more details: http://www.studiodue.com
Layout plan (only with BMFL on circle)
Shoot Final mat - E. Horizontal value (only with BMFL on circle)

Uniformity control

\[ U^1 = \frac{\text{lowest illuminance}}{\text{highest illuminance}} \]

\[ U^2 = \frac{\text{lowest illuminance}}{\text{average illuminance}} \]
Shoot Final mat - E. Vertical value (only with BMFL on circle)

Uniformity control

\[
U_1 = \frac{\text{lowest illuminance}}{\text{highest illuminance}} \quad U_2 = \frac{\text{lowest illuminance}}{\text{average illuminance}}
\]

\[
U_1 = 0.74 \quad U_2 = 0.92
\]
Light system guide

Sport presentation