LED chips make colorful light. White light is created by luminescence conversion.

**White light is a mix of red, blue and green.**

**Creation of white LED light through luminescence conversion:**
- LED chip
- Blue light is being emitted.
- Yellow phosphor layer converts incoming light.
- Red, blue, and green light is created.
- Red, blue, and green together make white light.

**SPECTRUM OF A WHITE LED LAMP**

The suppression of the blue peak results in a warmer light.

**WAVELENGTH IN NANOMETERS**

**SPECTRAL INTENSITY**
Since the light bulb, the light output of different types of lamps has been significantly increased. Today, white LEDs are the most efficient ones.
LAMP SPECIFICATIONS

Just a few years ago, you could find out almost everything you needed to know about the light of a domestic lamp just by looking at the number of watts. Nowadays, nearly a dozen criteria have to be considered.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>power (watts)</strong></td>
<td>electrical connected load</td>
</tr>
<tr>
<td><strong>brightness (lumens)</strong></td>
<td>how bright the lamp’s light is</td>
</tr>
<tr>
<td><strong>color temperature (Kelvin)</strong></td>
<td>the higher the color temperature,</td>
</tr>
<tr>
<td></td>
<td>the colder (more blue) the light</td>
</tr>
<tr>
<td><strong>warm-up time</strong></td>
<td>the time it takes for the lamp to fully light up</td>
</tr>
<tr>
<td><strong>dimmability</strong></td>
<td>lamp dimmable or not</td>
</tr>
<tr>
<td><strong>shelf life</strong></td>
<td>usage in hours</td>
</tr>
<tr>
<td><strong>color rendering index</strong></td>
<td>accuracy of color rendering</td>
</tr>
<tr>
<td><strong>energy savings</strong></td>
<td>in comparison to the conventional light bulb</td>
</tr>
<tr>
<td><strong>mercury content</strong></td>
<td>environmentally friendly</td>
</tr>
<tr>
<td></td>
<td>without mercury</td>
</tr>
<tr>
<td><strong>illumination angle</strong></td>
<td>the scope and range of effective light</td>
</tr>
</tbody>
</table>
LED lights can be switched on and off so quickly that it is imperceptible to the human eye. In this way, hundreds of megabytes per second can be transmitted to a mobile optical receiver as an additional function apart from the lighting – completely without electrosmog or additional cables.
Laser shows are an impressive way of demonstrating how fascinating photonics can be.

**BRILLIANT COLORS**
Only lasers can make colors that are completely saturated.

**GREEN ENTERTAINMENT TECHNOLOGY**
The relatively low energy consumption ensures environmentally-friendly entertainment for large crowds.

**ARTIFICIAL FOG**
Fog makes the laser beam visible.
SINGLE BEAMS IN THE SKY
This is only possible with explicit authorization from the aviation safety authorities.

BRIGHT & HIGH CONTRAST
In comparison to a video, a laser image is focused at any distance.

LASER PROJECTOR
Two extremely fast-moving computer-controlled mirrors draw the laser image.

WATER CANVAS
Laser projections can be made on very large areas in any shape or form.

GREEN ENTERTAINMENT TECHNOLOGY
The relatively low energy consumption ensures environmentally-friendly entertainment for large crowds.

LASER SHOWS
Laser shows are an impressive way of demonstrating how fascinating photonics can be.

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