

136-513 13W 2700K specific configuration  
Downlight | Ø192mm | white | 5-CCT | 6~15W | EU plug

## Introduction

### Purpose of this Document

This document provides information for 136-513 13W 2700K. During measurement, the product is used in a different mode where output power, colour temperature and/or beam angle are changed from factory standard. These adjustments can be made without altering the product and are designed to be set by the installer. In most cases, the options are set through switches on the product.

### Results

|                               |          |
|-------------------------------|----------|
| Total input power             | 11.8 W   |
| Correlated Colour Temperature | 2732 K   |
| Total lumen output            | 1230 lm  |
| Efficiency                    | 104 lm/W |

## Electrical measurement details

### Input Power

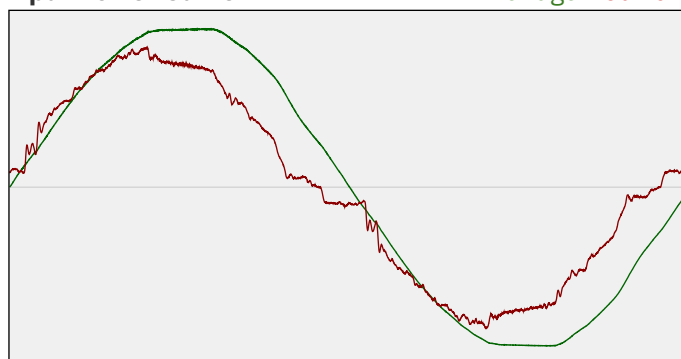
|                                   |         |
|-----------------------------------|---------|
| RMS Input voltage feed. $V_{RMS}$ | 228 V   |
| RMS Input current feed. $I_{RMS}$ | 0.054 A |
| Total input power                 | 11.8 W  |

|                           |       |
|---------------------------|-------|
| Frequency of input power  | 50 Hz |
| Power factor              | 0.95  |
| Displacement power factor | 0.96  |

|                                          |        |
|------------------------------------------|--------|
| Total harmonic distortion of the current | 11.45% |
| Total harmonic distortion of the voltage | 2.35%  |

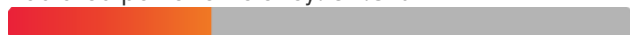
### Input Power Curve

Voltage - Current



### Efficiency

Radiated power efficiency: 32.8%



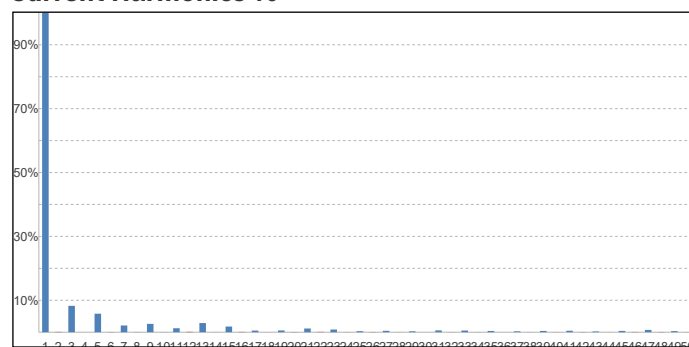
Lumen efficiency: 104 lm/W



### Harmonics

|               |       |
|---------------|-------|
| 3rd Harmonic  | 8.26% |
| 5th Harmonic  | 5.8%  |
| 7th Harmonic  | 2.11% |
| 9th Harmonic  | 2.62% |
| 11th Harmonic | 1.24% |

### Current Harmonics %



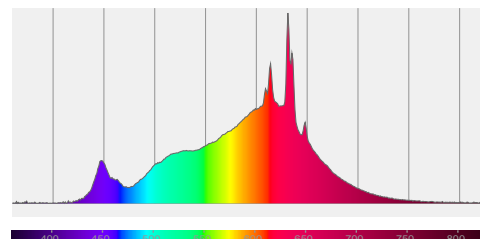
## 136-513 13W 2700K specific configuration

### Colour measurement details

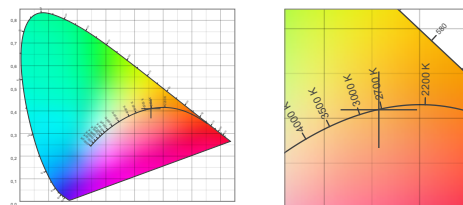
Total lumen output 1230 lm  
 Correlated Colour Temperature 2732 K  
 Colour coordinates CIE 1931 (x;y) = (0.457;0.410)  
 Colour deviation from BBL Duv = -0.0002

TM30-18 Colour Fidelity Index  $R_f$  92.4  
 TM30-18 Colour Gamut Index  $R_g$  99.7  
 Colour Rendering Index (Ra) CRI 93.5  
 Colour Rendering Index. (red component)  $R_9$  = 51.8

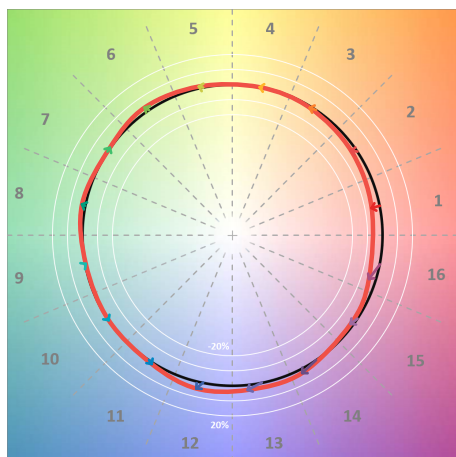
Colour Quality Scale CQS = 91.0  
 Television Lighting Consistency Index TLCI = 83



Relative spectral power distribution



### TM30 details

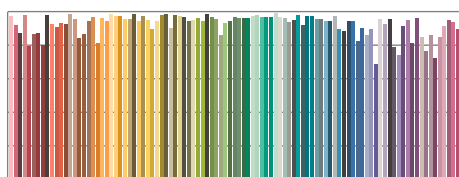


TM30 Colour vectors per hue bin

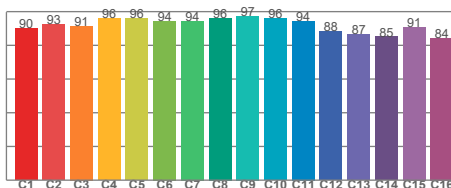


TM30 Colour distortion

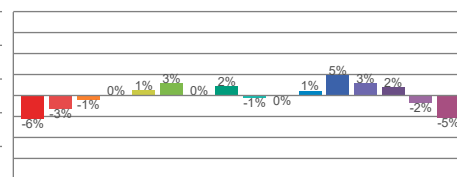
| Hue Bin | $R_f$ | Shifts (%) |      |
|---------|-------|------------|------|
|         |       | Chroma     | Hue  |
| C1      | 90    | -6%        | 0%   |
| C2      | 93    | -3%        | 3%   |
| C3      | 91    | -1%        | 4%   |
| C4      | 96    | 0%         | 1%   |
| C5      | 96    | 1%         | 3%   |
| C6      | 94    | 3%         | 2%   |
| C7      | 94    | 0%         | -3%  |
| C8      | 96    | 2%         | -1%  |
| C9      | 97    | -1%        | 0%   |
| C10     | 96    | 0%         | 1%   |
| C11     | 94    | 1%         | 3%   |
| C12     | 88    | 5%         | -4%  |
| C13     | 87    | 3%         | -10% |
| C14     | 85    | 2%         | -12% |
| C15     | 91    | -2%        | -5%  |
| C16     | 84    | -5%        | -11% |



TM30-18  $R_f$ -values per reference colour

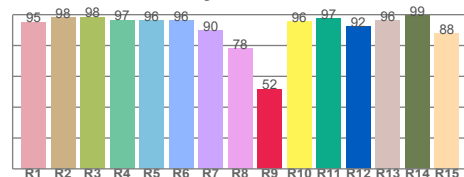


TM30-18  $R_f$ -values per hue bin

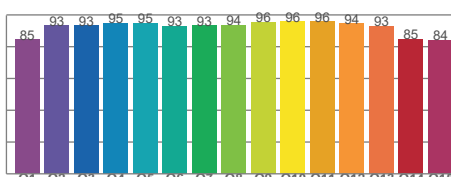


TM30 Chroma shift

### Colour Quality details



Colour Rendering Index



Colour Quality Scale