

136-456 20W 4000K specific configuration

Refl downl | black | Ø228mm | 60° | 3-CCT | 18~30W | EU plug

## Introduction

### Purpose of this Document

This document provides information for 136-456 20W 4000K. 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	18.2 W
Correlated Colour Temperature	4125 K
Total lumen output	1992 lm
Efficiency	109 lm/W

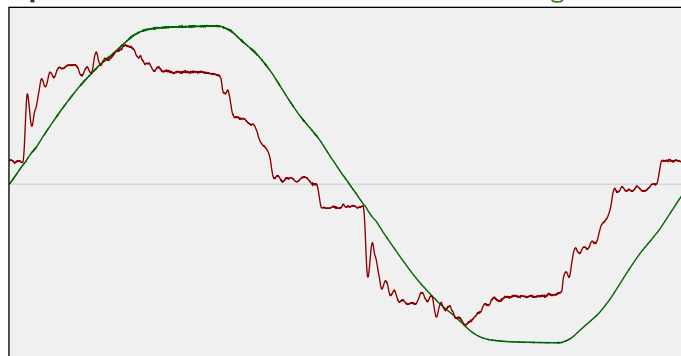
## Electrical measurement details

### Input Power

RMS Input voltage feed. $V_{RMS}$	230 V
RMS Input current feed. $I_{RMS}$	0.088 A
Total input power	18.2 W
Frequency of input power	50 Hz
Power factor	0.9
Displacement power factor	0.91
Total harmonic distortion of the current	14.32%
Total harmonic distortion of the voltage	2.9%

### Input Power Curve

Voltage - Current



### Efficiency

Radiated power efficiency: 34.4%



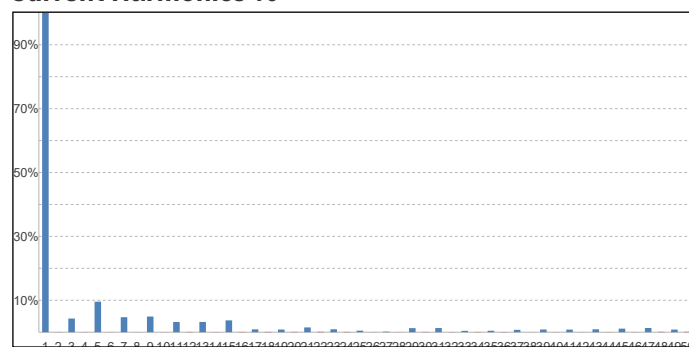
Lumen efficiency: 109 lm/W



### Harmonics

3rd Harmonic	4.28%
5th Harmonic	9.56%
7th Harmonic	4.7%
9th Harmonic	4.9%
11th Harmonic	3.2%

### Current Harmonics %



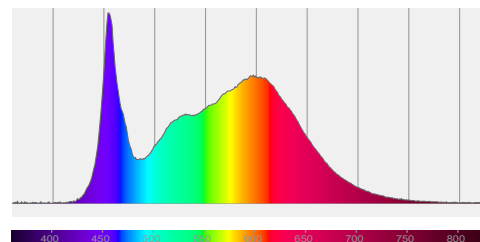
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### Colour measurement details

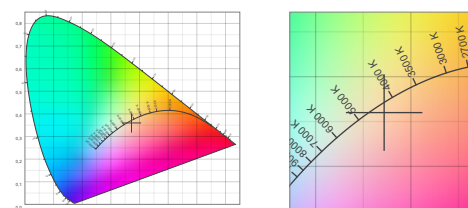
Total lumen output 1992 lm  
 Correlated Colour Temperature 4125 K  
 Colour coordinates CIE 1931 (x;y) = (0.372;0.360)  
 Colour deviation from BBL Duv = -0.0055

TM30-18 Colour Fidelity Index  $R_f$  84.1  
 TM30-18 Colour Gamut Index  $R_g$  95.1  
 Colour Rendering Index (Ra) CRI 86.9  
 Colour Rendering Index. (red component)  $R_9 = 27.7$

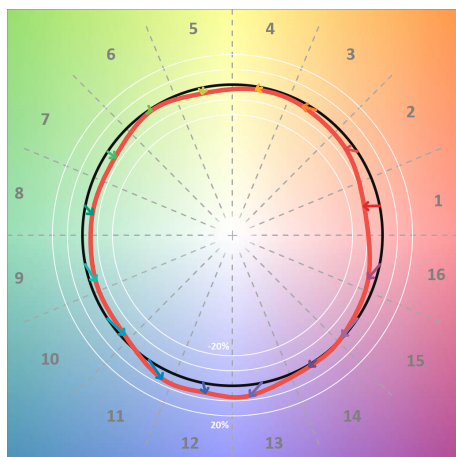
Colour Quality Scale CQS = 83.4  
 Television Lighting Consistency Index TLCI = 75



Relative spectral power distribution



### TM30 details

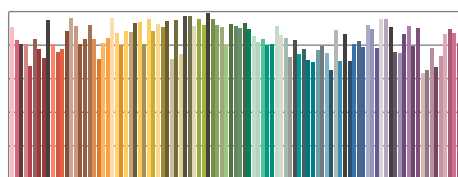


TM30 Colour vectors per hue bin

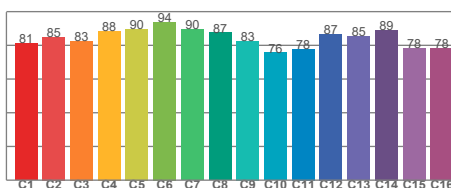


TM30 Colour distortion

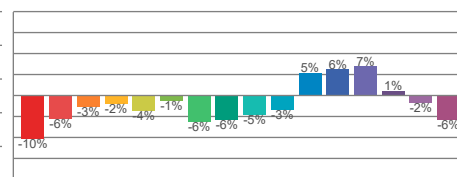
Hue Bin	$R_f$	Shifts (%)	
		Chroma	Hue
C1	81	-10%	2%
C2	85	-6%	6%
C3	83	-3%	8%
C4	88	-2%	3%
C5	90	-4%	1%
C6	94	-1%	-1%
C7	90	-6%	0%
C8	87	-6%	4%
C9	83	-5%	12%
C10	76	-3%	15%
C11	78	5%	14%
C12	87	6%	3%
C13	85	7%	-9%
C14	89	1%	-6%
C15	78	-2%	-15%
C16	78	-6%	-11%



TM30-18  $R_f$ -values per reference colour

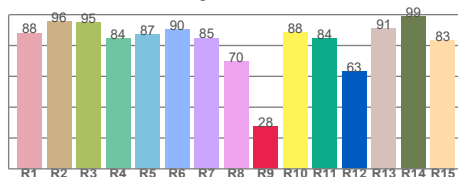


TM30-18  $R_f$ -values per hue bin

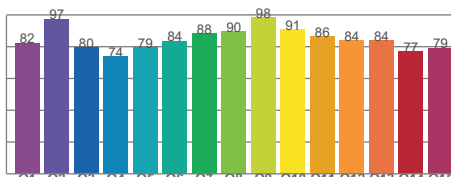


TM30 Chroma shift

### Colour Quality details



Colour Rendering Index



Colour Quality Scale