

Evaluation Summary for Lighting Compliance - Maui County

Overview

The lighting fixture in review, identified as `SL_085_02°_5032K`, was evaluated for compliance with the Maui County outdoor lighting ordinance. Key metrics assessed include shielding and downward direction requirements, as well as the spectral emissions in the 400-500 nm range relative to the total visible spectrum (400-700 nm), with a threshold ratio of 0.02.

Key Findings

- **Spectral Ratio (400-500 nm to 400-700 nm)**:
 - Calculated spectral integral from 400 to 500 nm: 0.031
 - Calculated spectral integral from 400 to 700 nm: 1.20
 - Ratio: 0.02583

Compliance: The spectral ratio of 0.02583 exceeds the maximum threshold of 0.02, indicating non-compliance for blue light emission according to Maui County's ordinance.

- **Color Temperature (CCT)**:
 - Measured at 5032K, which is higher than typical allowances for areas with strict dark sky regulations. Generally, lower CCT values (e.g., 3000K) are preferred to reduce blue light emission.

- **Shielding & Downward Direction**:
 - The data provided does not explicitly include information on physical shielding or the direction of light emission (i.e., downward directionality).
 - Without explicit data, compliance for these aspects cannot be assessed based on this report alone. Both elements require direct physical/light fixture assessments or supplemental data not included in this report.

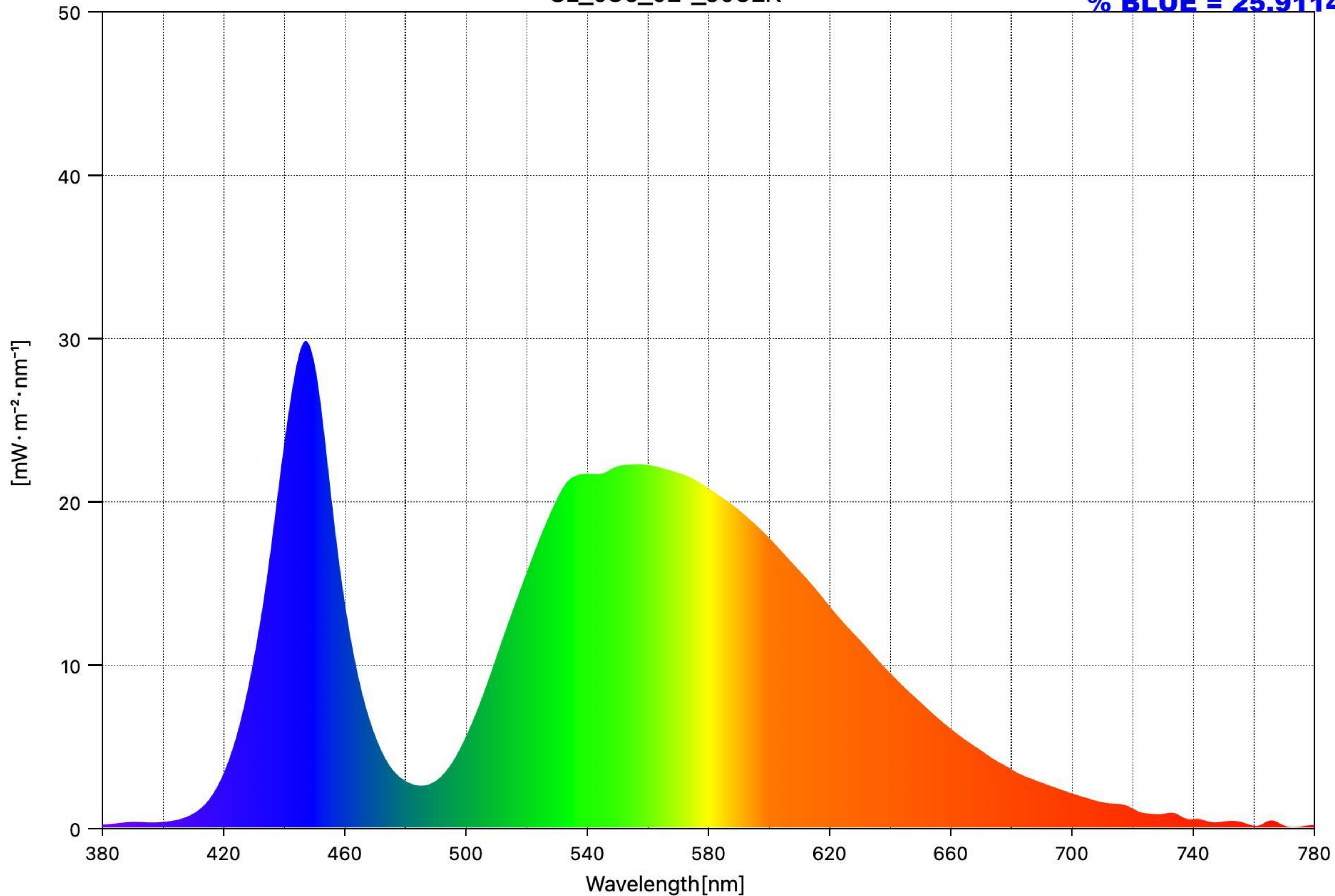
Compliance Recommendations

1. **Adjust Spectral Emissions**: Reduce the blue light emissions to meet the required spectral ratio of 0.02 or lower. This can be achieved by adjusting the lighting technology to emit less intensity in the 400-500 nm range.
2. **Re-evaluate Color Temperature**: Consider using lighting with a CCT closer to 3000K. This adjustment would inherently reduce blue light emission and align better with dark sky regulations.
3. **Verify Physical Compliance**: To ensure full compliance, assess the fixture's physical setup focusing on proper shielding and confirmation of downward light emission. Documentation or physical inspection data should be included in future reports.
4. **Additional Testing or Documentation**: Include detailed information on shielding and emission direction in future analyses to definitively ascertain compliance in all required areas.

This evaluation highlights the need for modification or replacement of the current fixture for improved compliance with Maui County's outdoor lighting standards, focusing on reducing blue light emissions to protect the natural night environment.

SL_085_02°_5032K

% BLUE = 25.9114



Measuring Mode = Ambient

CCT = 5032K

Peak Wavelength = 447nm

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Title	SL_085_02°_5032K
% BLUE	25.9114
Viewing Angle [°]	2
CCT [K]	5032
■uv	0.0072
Illuminance [lx]	1280
Peak Wavelength [nm]	447
Tristimulus Value X	1208.7427
Tristimulus Value Y	1282.7562
Tristimulus Value Z	1006.5739
CIE1931 x	0.3455
CIE1931 y	0.3667
CIE1931 z	0.2878
CIE1976 u'	0.2060
CIE1976 v'	0.4919
Dominant Wavelength [nm]	567
Purity [%]	13.7
PPFD [$\mu\text{mol m}^{-2}\text{s}^{-1}$]	16.6
CRI Ra	66.7
CRI R1	63.6
CRI R2	71.0
CRI R3	75.7
CRI R4	67.7
CRI R5	64.2
CRI R6	60.1
CRI R7	78.0
CRI R8	53.2
CRI R9	-43.9
CRI R10	30.5
CRI R11	62.7
CRI R12	33.0
CRI R13	63.9
CRI R14	86.0
CRI R15	56.9