

Contents of the report:

E. Kirchner, Measuring Light spectra, Illuminance levels and Rendering index with the new Ultra instrument. Full Research report, dated 13.01.2026.

The full report can be ordered by sending an email to eric.kirchner@colorsai.nl

CONTENTS

Summary

| | |
|--|----|
| 1 Introduction | 1 |
| 2 Research question | 2 |
| 3 Experimental | 2 |
| 3.1 Test procedure | 2 |
| 3.2 Light conditions | 3 |
| 3.3 Normalization of irradiance data | 4 |
| 4 Results on numerical output of the Ultra | 5 |
| • Illuminance level E_v | 5 |
| • Chromaticity coordinates (x,y) | 6 |
| • Correlated Color Temperature | 6 |
| • Distance to Planckian locus duv | 6 |
| • Dominant and peak wavelengths | 6 |
| • Color Rendering Index R_a and R_1 up to R_{15} | 7 |
| 5 Results on spectral output of the Ultra | 7 |
| 5.1 Lighting conditions in office | 7 |
| 5.2 Lighting conditions outdoors | 9 |
| 5.3 D65 lighting inside the light booth | 9 |
| 5.4 Four other illuminants tested inside the light booth | 10 |
| 5.5 Display characterization | 11 |
| 5.6 Further quantitative comparison of accuracies | 13 |
| 6 Conclusions | 14 |
| 7 References | 15 |
| 8 Funding and statement of independence | 15 |
| 9 Author Bio | 15 |

Total:

11 Figures (25 figures if including sub figures)

2 Tables