



UL LLC
1075 W Lambert Rd Suite B
Brea, CA 92821

Photometric Test Report

Relevant Standards
IES LM-79-2008, ANSI C82.77-2002, IES LM-35-2002 (Withdrawn)
CIE 13.3-1995, CIE 15-2004, ANSI C78.377-2017
IES TM-30-2018

Prepared For
Soraa Inc

Azim Karimi
6500 KAISER DR
FREMONT, CA 94555-3613
United States

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ALS65-25D-9530-U-WW

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Test Number
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Test Date

2019-03-01 - 2019-03-05

Prepared By

Austin Duff, Technician

Approved By

Eric Gaudreau, Engineering Leader

The results contained in this report pertain only to the tested sample.
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Table of Contents

| | |
|--|--------|
| Summary of Results | Page 3 |
| Integrating Sphere Results | Page 4 |
| Distribution Results | |
| Test Conditions / Summary of Results / Max. Candlepower Plot | Page 5 |
| Candela Tabulation | Page 6 |
| Candela Tabulation - continued | Page 7 |
| Isocandela Diagram | Page 8 |

Laboratory results may not be representative of field performance
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the 4π geometry method.
Absorption correction was employed for Sphere measurement



Luminaire Description: Circular white metal housing
Lamp: One (1) white LED with optic attached
Mounting: Surface – Ceiling
Ballast/Driver: Macron Associate Co. MDR-602-550-16-O8

Luminaire



Luminaire Characteristics

Luminous Diameter: 2.50 in.

Summary of Results

Integrating Sphere

Luminous Flux: 943.5 Lumens
Efficacy: 53.84 lm/w
CCT: 3020 K
CRI (Ra): 94.3

Distribution

Total Luminaire Output: 952.9 Lumens
Luminaire Efficacy: 54.2 lm/w
Maximum Candela: 5318 Candela

Electrical Data at 120 VAC

Test Temperature: 24.5 °C
Voltage: 120.1 VAC
Current: 0.1524 A
Power: 17.52 W
Power Factor: 0.957
Frequency: 60 Hz
Current THD: 15.2 %



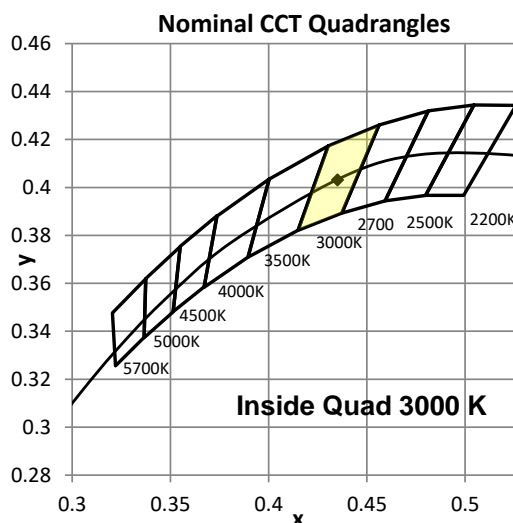
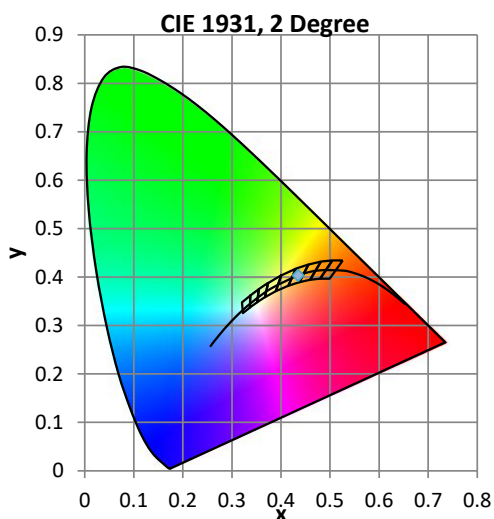
Color Quality - Integrating Sphere

Integrating Sphere Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|----------|---------|--------------|-----------|-------------|
| 24.5 °C | 120.1 VAC | 0.1524 A | 17.52 W | 0.957 | 60 Hz | 15.2 % |

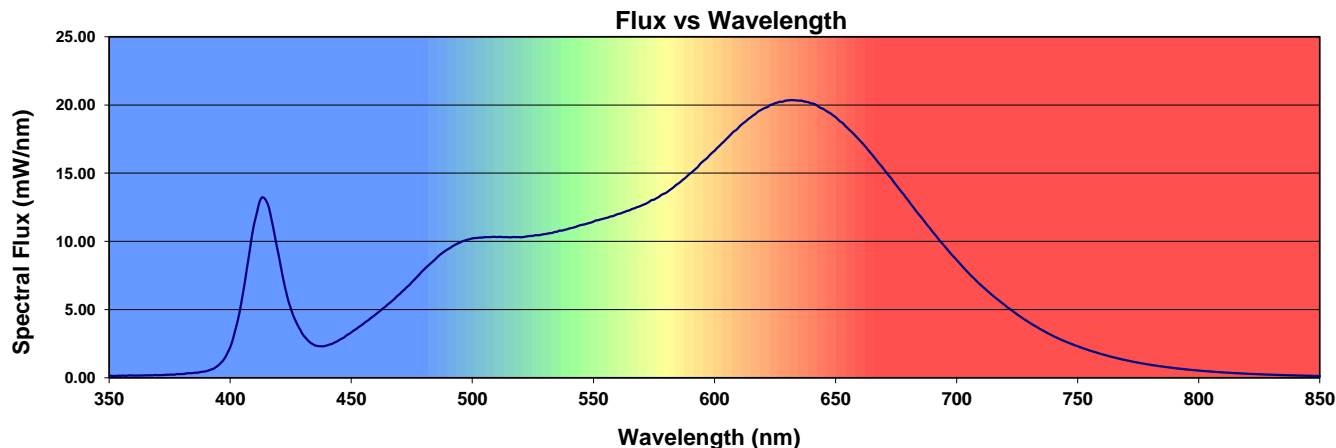
Summary of Results

| | | | |
|----------------------|------------|--------------------|---------|
| Total Output: | 944 Lumens | Chromaticity (x): | 0.4351 |
| Efficacy: | 53.8 lm/w | Chromaticity (y): | 0.4031 |
| CCT: | 3020 K | Chromaticity (u'): | 0.2498 |
| CRI (Ra): | 94.3 | Chromaticity (v'): | 0.5207 |
| CRI (R9): | 98.3 | TM-30 Rf: | 91.8 |
| Peak Wavelength: | 632 nm | TM-30 Rg: | 99.1 |
| Dominant Wavelength: | 583 nm | Duv: | -0.0002 |
| S/P Ratio: | 1.57 | | |



Color Rendering Index Detail

| Ra (CRI) | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 94.3 | 94.1 | 94.8 | 95.5 | 92.9 | 92.3 | 89.1 | 97.0 | 98.6 | 98.3 | 87.6 | 88.4 | 75.4 | 93.7 | 98.0 | 96.9 |





Distribution - Goniophotometer

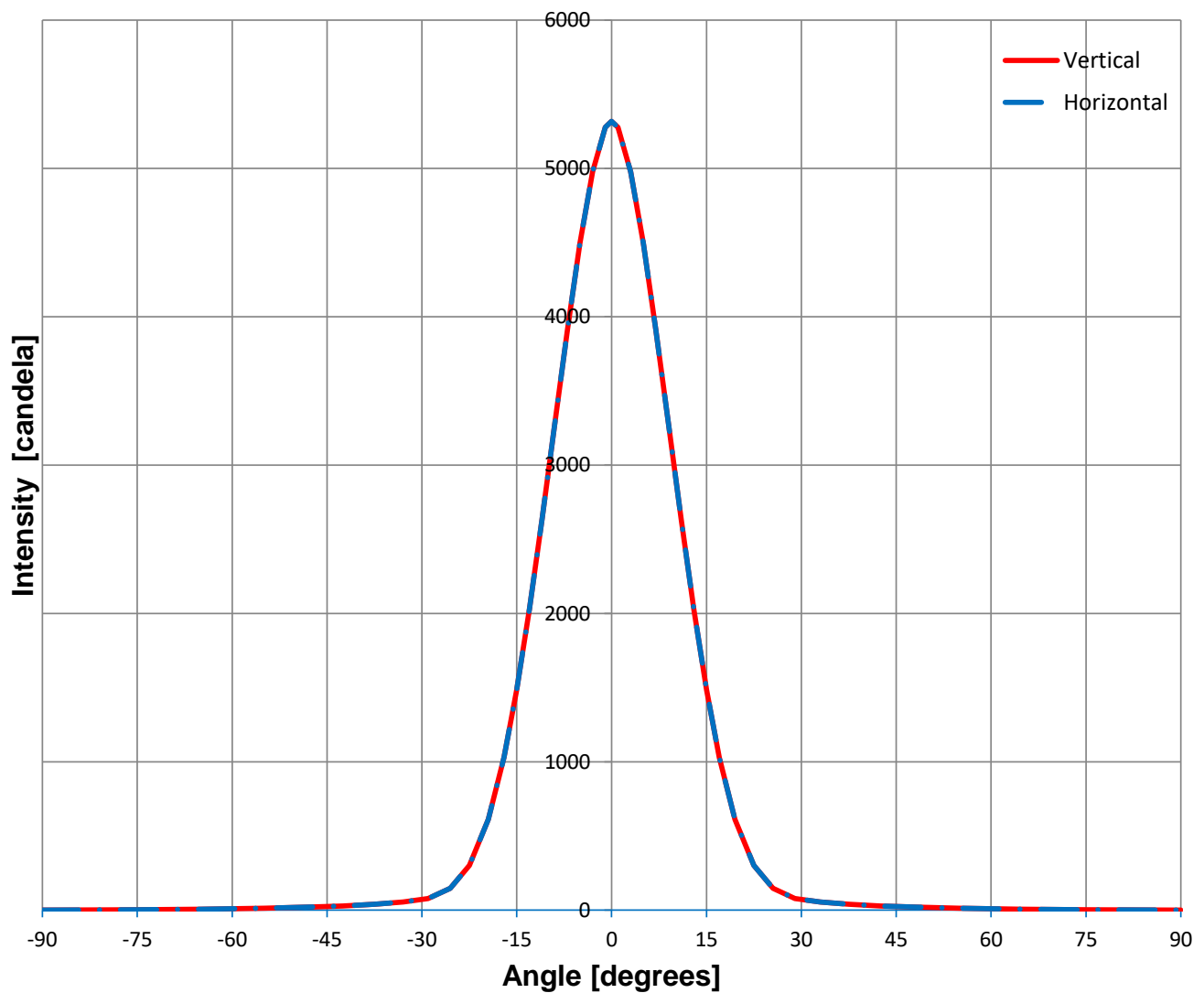
Distribution Test Conditions

| Temperature | Voltage | Current | Power | Power Factor | Frequency | Current THD |
|-------------|-----------|----------|---------|--------------|-----------|-------------|
| 25.1 °C | 120.1 VAC | 0.1524 A | 17.57 W | 0.960 | 60 Hz | 14.3 % |

Summary of Results

| | | | |
|---------------------|------------------|------------------|-----------------|
| Total Lumen Output: | 952.9 Lumens | Maximum Candela: | 5317.7 Candela |
| Luminaire Efficacy: | 54.2 Lumens/Watt | Maximum Angle: | 0 H 0 V |
| Field Lumens: | 797.5 Lumens | Field Angle : | 40.5 H X 40.5 V |
| Beam Lumens: | 411.5 Lumens | Beam Angle : | 21.9 H X 21.9 V |
| Spill Light Lumens: | 155.4 Lumens | IESNA Type: | 3 H X 3 V |

Maximum Candlepower Plot





Candela Tabulation

Lateral Angle (Degrees)

| Vertical Angle (Degrees) | Lateral Angle (Degrees) | | | | | | | | | | |
|--------------------------|-------------------------|------|------|------|------|------|------|------|------|------|------|
| | 0 | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 | 17 | 19.5 |
| 85.0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 75.0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 65.0 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 |
| 55.0 | 13 | 13 | 13 | 13 | 12 | 12 | 12 | 12 | 11 | 11 | 10 |
| 47.5 | 21 | 21 | 21 | 21 | 20 | 20 | 20 | 19 | 19 | 18 | 18 |
| 42.5 | 28 | 28 | 28 | 28 | 27 | 27 | 26 | 26 | 25 | 24 | 23 |
| 37.5 | 40 | 40 | 40 | 39 | 38 | 37 | 36 | 35 | 33 | 31 | 29 |
| 33.0 | 54 | 54 | 53 | 53 | 51 | 50 | 48 | 46 | 44 | 42 | 39 |
| 29.0 | 78 | 78 | 77 | 75 | 72 | 68 | 65 | 61 | 57 | 53 | 49 |
| 25.5 | 147 | 147 | 142 | 133 | 122 | 108 | 96 | 85 | 76 | 68 | 60 |
| 22.5 | 301 | 299 | 286 | 262 | 234 | 200 | 167 | 137 | 111 | 91 | 75 |
| 19.5 | 612 | 609 | 582 | 533 | 469 | 394 | 317 | 247 | 188 | 143 | 102 |
| 17.0 | 1029 | 1024 | 981 | 897 | 785 | 656 | 527 | 405 | 299 | 214 | 143 |
| 15.0 | 1485 | 1477 | 1415 | 1294 | 1132 | 946 | 756 | 578 | 423 | 299 | 188 |
| 13.0 | 2027 | 2016 | 1933 | 1771 | 1554 | 1300 | 1036 | 791 | 578 | 405 | 247 |
| 11.0 | 2636 | 2622 | 2513 | 2304 | 2022 | 1700 | 1362 | 1036 | 756 | 527 | 317 |
| 9.0 | 3278 | 3261 | 3123 | 2865 | 2517 | 2116 | 1700 | 1300 | 946 | 656 | 394 |
| 7.0 | 3912 | 3890 | 3720 | 3408 | 2992 | 2517 | 2022 | 1554 | 1132 | 785 | 469 |
| 5.0 | 4495 | 4467 | 4261 | 3892 | 3408 | 2865 | 2304 | 1771 | 1294 | 897 | 533 |
| 3.0 | 4977 | 4941 | 4690 | 4261 | 3720 | 3123 | 2513 | 1933 | 1415 | 981 | 582 |
| 1.0 | 5277 | 5227 | 4941 | 4467 | 3890 | 3261 | 2622 | 2016 | 1477 | 1024 | 609 |
| 0.0 | 5318 | 5277 | 4977 | 4495 | 3912 | 3278 | 2636 | 2027 | 1485 | 1029 | 612 |
| -1.0 | 5277 | 5227 | 4941 | 4467 | 3890 | 3261 | 2622 | 2016 | 1477 | 1024 | 609 |
| -3.0 | 4977 | 4941 | 4690 | 4261 | 3720 | 3123 | 2513 | 1933 | 1415 | 981 | 582 |
| -5.0 | 4495 | 4467 | 4261 | 3892 | 3408 | 2865 | 2304 | 1771 | 1294 | 897 | 533 |
| -7.0 | 3912 | 3890 | 3720 | 3408 | 2992 | 2517 | 2022 | 1554 | 1132 | 785 | 469 |
| -9.0 | 3278 | 3261 | 3123 | 2865 | 2517 | 2116 | 1700 | 1300 | 946 | 656 | 394 |
| -11.0 | 2636 | 2622 | 2513 | 2304 | 2022 | 1700 | 1362 | 1036 | 756 | 527 | 317 |
| -13.0 | 2027 | 2016 | 1933 | 1771 | 1554 | 1300 | 1036 | 791 | 578 | 405 | 247 |
| -15.0 | 1485 | 1477 | 1415 | 1294 | 1132 | 946 | 756 | 578 | 423 | 299 | 188 |
| -17.0 | 1029 | 1024 | 981 | 897 | 785 | 656 | 527 | 405 | 299 | 214 | 143 |
| -19.5 | 612 | 609 | 582 | 533 | 469 | 394 | 317 | 247 | 188 | 143 | 102 |
| -22.5 | 301 | 299 | 286 | 262 | 234 | 200 | 167 | 137 | 111 | 91 | 75 |
| -25.5 | 147 | 147 | 142 | 133 | 122 | 108 | 96 | 85 | 76 | 68 | 60 |
| -29.0 | 78 | 78 | 77 | 75 | 72 | 68 | 65 | 61 | 57 | 53 | 49 |
| -33.0 | 54 | 54 | 53 | 53 | 51 | 50 | 48 | 46 | 44 | 42 | 39 |
| -37.5 | 40 | 40 | 40 | 39 | 38 | 37 | 36 | 35 | 33 | 31 | 29 |
| -42.5 | 28 | 28 | 28 | 28 | 27 | 27 | 26 | 26 | 25 | 24 | 23 |
| -47.5 | 21 | 21 | 21 | 21 | 20 | 20 | 20 | 19 | 19 | 18 | 18 |
| -55.0 | 13 | 13 | 13 | 13 | 12 | 12 | 12 | 12 | 11 | 11 | 10 |
| -65.0 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 |
| -75.0 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| -85.0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |



Candela Tabulation

Lateral Angle (Degrees)

Vertical Angle (Degrees)

| | 22.5 | 25.5 | 29 | 33 | 37.5 | 42.5 | 47.5 | 55 | 65 | 75 | 85 |
|-------|------|------|----|----|------|------|------|----|----|----|----|
| 85.0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| 75.0 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 0 |
| 65.0 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 3 | 2 | 1 | 0 |
| 55.0 | 10 | 9 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 0 |
| 47.5 | 17 | 15 | 14 | 12 | 10 | 9 | 7 | 5 | 4 | 2 | 1 |
| 42.5 | 22 | 20 | 18 | 16 | 13 | 11 | 9 | 6 | 4 | 2 | 1 |
| 37.5 | 27 | 25 | 23 | 20 | 17 | 13 | 10 | 7 | 4 | 2 | 1 |
| 33.0 | 35 | 31 | 28 | 24 | 20 | 16 | 12 | 8 | 5 | 3 | 1 |
| 29.0 | 44 | 39 | 33 | 28 | 23 | 18 | 14 | 9 | 5 | 3 | 1 |
| 25.5 | 52 | 45 | 39 | 31 | 25 | 20 | 15 | 9 | 5 | 3 | 1 |
| 22.5 | 61 | 52 | 44 | 35 | 27 | 22 | 17 | 10 | 5 | 3 | 1 |
| 19.5 | 75 | 60 | 49 | 39 | 29 | 23 | 18 | 10 | 5 | 3 | 1 |
| 17.0 | 91 | 68 | 53 | 42 | 31 | 24 | 18 | 11 | 5 | 3 | 1 |
| 15.0 | 111 | 76 | 57 | 44 | 33 | 25 | 19 | 11 | 6 | 3 | 1 |
| 13.0 | 137 | 85 | 61 | 46 | 35 | 26 | 19 | 12 | 6 | 3 | 1 |
| 11.0 | 167 | 96 | 65 | 48 | 36 | 26 | 20 | 12 | 6 | 3 | 1 |
| 9.0 | 200 | 108 | 68 | 50 | 37 | 27 | 20 | 12 | 6 | 3 | 1 |
| 7.0 | 234 | 122 | 72 | 51 | 38 | 27 | 20 | 12 | 6 | 3 | 1 |
| 5.0 | 262 | 133 | 75 | 53 | 39 | 28 | 21 | 13 | 6 | 3 | 1 |
| 3.0 | 286 | 142 | 77 | 53 | 40 | 28 | 21 | 13 | 6 | 3 | 1 |
| 1.0 | 299 | 147 | 78 | 54 | 40 | 28 | 21 | 13 | 6 | 3 | 1 |
| 0.0 | 301 | 147 | 78 | 54 | 40 | 28 | 21 | 13 | 6 | 3 | 1 |
| -1.0 | 299 | 147 | 78 | 54 | 40 | 28 | 21 | 13 | 6 | 3 | 1 |
| -3.0 | 286 | 142 | 77 | 53 | 40 | 28 | 21 | 13 | 6 | 3 | 1 |
| -5.0 | 262 | 133 | 75 | 53 | 39 | 28 | 21 | 13 | 6 | 3 | 1 |
| -7.0 | 234 | 122 | 72 | 51 | 38 | 27 | 20 | 12 | 6 | 3 | 1 |
| -9.0 | 200 | 108 | 68 | 50 | 37 | 27 | 20 | 12 | 6 | 3 | 1 |
| -11.0 | 167 | 96 | 65 | 48 | 36 | 26 | 20 | 12 | 6 | 3 | 1 |
| -13.0 | 137 | 85 | 61 | 46 | 35 | 26 | 19 | 12 | 6 | 3 | 1 |
| -15.0 | 111 | 76 | 57 | 44 | 33 | 25 | 19 | 11 | 6 | 3 | 1 |
| -17.0 | 91 | 68 | 53 | 42 | 31 | 24 | 18 | 11 | 5 | 3 | 1 |
| -19.5 | 75 | 60 | 49 | 39 | 29 | 23 | 18 | 10 | 5 | 3 | 1 |
| -22.5 | 61 | 52 | 44 | 35 | 27 | 22 | 17 | 10 | 5 | 3 | 1 |
| -25.5 | 52 | 45 | 39 | 31 | 25 | 20 | 15 | 9 | 5 | 3 | 1 |
| -29.0 | 44 | 39 | 33 | 28 | 23 | 18 | 14 | 9 | 5 | 3 | 1 |
| -33.0 | 35 | 31 | 28 | 24 | 20 | 16 | 12 | 8 | 5 | 3 | 1 |
| -37.5 | 27 | 25 | 23 | 20 | 17 | 13 | 10 | 7 | 4 | 2 | 1 |
| -42.5 | 22 | 20 | 18 | 16 | 13 | 11 | 9 | 6 | 4 | 2 | 1 |
| -47.5 | 17 | 15 | 14 | 12 | 10 | 9 | 7 | 5 | 4 | 2 | 1 |
| -55.0 | 10 | 9 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 0 |
| -65.0 | 5 | 5 | 5 | 5 | 4 | 4 | 4 | 3 | 2 | 1 | 0 |
| -75.0 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 0 |
| -85.0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |



Isocandela Diagram (Percent of Maximum Intensity)

