



IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-ON-CSU-OW-CSD-WM 4000K_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #12326812.05

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 24-FEB-2021

[MANUFAC] WILLIAMS INDOOR

[OTHER] H.E. WILLIAMS INC. - CARTHAGE, MO.

[LUMCAT] 8CRDI-TL-L20-8TWU-L20-8TWD-xxx-DALI-UNV-ON-CSU-OW-CSD-WM 4000k

[LUMINAIRE] White formed aluminum housing, specular reflector, clear glass cover

[MORE]

[LAMP] Two white LEDs

[SEARCH_SOURCETYPE] LED

[SEARCH_APPLICATION] INDOOR, DIRECT, INDIRECT

[SEARCH_MOUNTING] WALL

CHARACTERISTICS

| | |
|---------------------------------|--------------------|
| Lumens Per Lamp | N.A. (absolute) |
| Total Lamp Lumens | N.A. (absolute) |
| Luminaire Lumens | 4468 |
| Total Luminaire Efficiency | N.A. |
| Luminaire Efficacy Rating (LER) | 93 |
| Total Luminaire Watts | 48 |
| Ballast Factor | 1.00 |
| CIE Type | General Diffuse |
| Spacing Criterion (0-180) | N.A. |
| Spacing Criterion (90-270) | N.A. |
| Spacing Criterion (Diagonal) | N.A. |
| Basic Luminous Shape | Circular |
| Luminous Length (0-180) | 0.50 ft (Diameter) |
| Luminous Width (90-270) | 0.50 ft (Diameter) |
| Luminous Height | 0.00 ft |

LUMINANCE DATA (cd/sq.m)

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|---------------------|------------------|-------------------|-------------------|
| 45 | 4007 | 4007 | 4007 |
| 55 | 1396 | 1396 | 1396 |
| 65 | 291 | 291 | 291 |
| 75 | 0 | 0 | 0 |
| 85 | 0 | 0 | 0 |

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CANDELA TABULATION

| | <u>0.0</u> | <u>22.5</u> | <u>45.0</u> | <u>67.5</u> | <u>90.0</u> | <u>112.5</u> | <u>135.0</u> | <u>157.5</u> | <u>180.0</u> | <u>202.5</u> |
|------------|------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| 0 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 |
| 5 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 |
| 10 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 |
| 15 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 |
| 20 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 |
| 25 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 |
| 30 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 |
| 35 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 |
| 40 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 |
| 45 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 |
| 50 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 |
| 55 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 |
| 60 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 |
| 65 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 |
| 70 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 75 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 80 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 85 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 95 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 105 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 110 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 |
| 115 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 |
| 120 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 |
| 125 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 |
| 130 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 |
| 135 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 |
| 140 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 |
| 145 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 |
| 150 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 |
| 155 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 |
| 160 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 |
| 165 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 |
| 170 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 |
| 175 | 9493.251 | 9493.251 | 9493.251 | 9493.251 | 9493.251 | 9493.249 | 9493.249 | 9493.249 | 9493.249 | 9493.249 |
| 180 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 |

Vert. Horizontal Angles

| | <u>225.0</u> | <u>247.5</u> | <u>270.0</u> | <u>292.5</u> | <u>315.0</u> | <u>337.5</u> | <u>360.0</u> |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 0 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 | 1880.203 |
| 5 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 | 1775.622 |
| 10 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 | 1954.421 |
| 15 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 | 1951.047 |
| 20 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 | 2037.636 |
| 25 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 | 2228.805 |
| 30 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 | 2189.446 |
| 35 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 | 679.212 |
| 40 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 | 93.335 |
| 45 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 | 51.728 |
| 50 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 | 30.362 |
| 55 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 | 14.619 |
| 60 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 | 7.872 |

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| | | | | | | | |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 65 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 | 2.249 |
| 70 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 75 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 80 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 85 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 90 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 95 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 105 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 110 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 |
| 115 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 | 0.966 |
| 120 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 | 1.931 |
| 125 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 | 3.863 |
| 130 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 | 7.726 |
| 135 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 | 12.555 |
| 140 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 | 20.281 |
| 145 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 | 233.709 |
| 150 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 | 729.134 |
| 155 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 | 986.021 |
| 160 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 | 1504.624 |
| 165 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 | 1962.385 |
| 170 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 | 3405.202 |
| 175 | 9493.249 | 9493.249 | 9493.251 | 9493.251 | 9493.251 | 9493.251 | 9493.251 |
| 180 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 | 21246.298 |

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| Zone | Lumens | %Lamp | %Fixt |
|---------|---------|-------|--------|
| 0-20 | 737.53 | N.A. | 16.50 |
| 0-30 | 1744.14 | N.A. | 39.00 |
| 0-40 | 2295.46 | N.A. | 51.40 |
| 0-60 | 2353.89 | N.A. | 52.70 |
| 0-80 | 2356.92 | N.A. | 52.80 |
| 0-90 | 2356.92 | N.A. | 52.80 |
| 10-90 | 2179.78 | N.A. | 48.80 |
| 20-40 | 1557.93 | N.A. | 34.90 |
| 20-50 | 1601.38 | N.A. | 35.80 |
| 40-70 | 61.46 | N.A. | 1.40 |
| 60-80 | 3.03 | N.A. | 0.10 |
| 70-80 | 0.00 | N.A. | 0.00 |
| 80-90 | 0.00 | N.A. | 0.00 |
| 90-110 | 0.25 | N.A. | 0.00 |
| 90-120 | 1.45 | N.A. | 0.00 |
| 90-130 | 5.31 | N.A. | 0.10 |
| 90-150 | 199.64 | N.A. | 4.50 |
| 90-180 | 2110.95 | N.A. | 47.20 |
| 110-180 | 2110.7 | N.A. | 47.20 |
| 0-180 | 4467.87 | N.A. | 100.00 |

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

| Zone | Lumens |
|---------|--------|
| 0-10 | 177.14 |
| 10-20 | 560.39 |
| 20-30 | 1006.6 |
| 30-40 | 551.32 |
| 40-50 | 43.45 |
| 50-60 | 14.98 |
| 60-70 | 3.03 |
| 70-80 | 0.00 |
| 80-90 | 0.00 |
| 90-100 | 0.00 |
| 100-110 | 0.25 |
| 110-120 | 1.19 |
| 120-130 | 3.86 |
| 130-140 | 10.18 |
| 140-150 | 184.16 |
| 150-160 | 478.28 |
| 160-170 | 604.13 |
| 170-180 | 828.90 |

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

| RC RW | 80 | | | | 70 | | | | 50 | | | 30 | | | 10 | | | 0 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| 0 | 108 | 108 | 108 | 108 | 100 | 100 | 100 | 100 | 85 | 85 | 85 | 71 | 71 | 71 | 59 | 59 | 59 | 53 |
| 1 | 101 | 97 | 94 | 92 | 93 | 91 | 88 | 86 | 78 | 76 | 75 | 66 | 65 | 64 | 56 | 55 | 54 | 49 |
| 2 | 94 | 88 | 84 | 80 | 87 | 83 | 79 | 75 | 72 | 69 | 66 | 62 | 60 | 58 | 52 | 51 | 50 | 46 |
| 3 | 88 | 81 | 75 | 70 | 82 | 76 | 71 | 67 | 66 | 63 | 60 | 57 | 55 | 53 | 49 | 48 | 46 | 43 |
| 4 | 82 | 74 | 67 | 62 | 77 | 69 | 64 | 60 | 61 | 57 | 54 | 53 | 51 | 48 | 46 | 44 | 43 | 40 |
| 5 | 77 | 67 | 61 | 56 | 72 | 64 | 58 | 54 | 57 | 52 | 49 | 50 | 47 | 44 | 44 | 41 | 40 | 37 |
| 6 | 72 | 62 | 55 | 51 | 67 | 59 | 53 | 49 | 52 | 48 | 45 | 47 | 43 | 41 | 41 | 39 | 37 | 34 |
| 7 | 68 | 57 | 51 | 46 | 63 | 54 | 49 | 44 | 49 | 44 | 41 | 44 | 40 | 38 | 39 | 36 | 34 | 32 |
| 8 | 64 | 53 | 47 | 42 | 60 | 51 | 45 | 41 | 46 | 41 | 38 | 41 | 37 | 35 | 36 | 34 | 32 | 30 |
| 9 | 60 | 49 | 43 | 39 | 56 | 47 | 41 | 37 | 43 | 38 | 35 | 38 | 35 | 32 | 34 | 32 | 30 | 28 |
| 10 | 56 | 46 | 40 | 36 | 53 | 44 | 38 | 35 | 40 | 35 | 32 | 36 | 33 | 30 | 32 | 30 | 28 | 26 |

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UGR TABLE - CORRECTED

Reflectances

| | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|
| Ceiling Cavity | 70 | 70 | 50 | 50 | 30 | 70 | 70 | 50 | 50 | 30 |
| Walls | 50 | 30 | 50 | 30 | 30 | 50 | 30 | 50 | 30 | 30 |
| Floor Cavity | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

Room Size UGR Viewed Crosswise

| X=2H | Y=2H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 3H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 4H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 6H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 8H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 12H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |

UGR Viewed Endwise

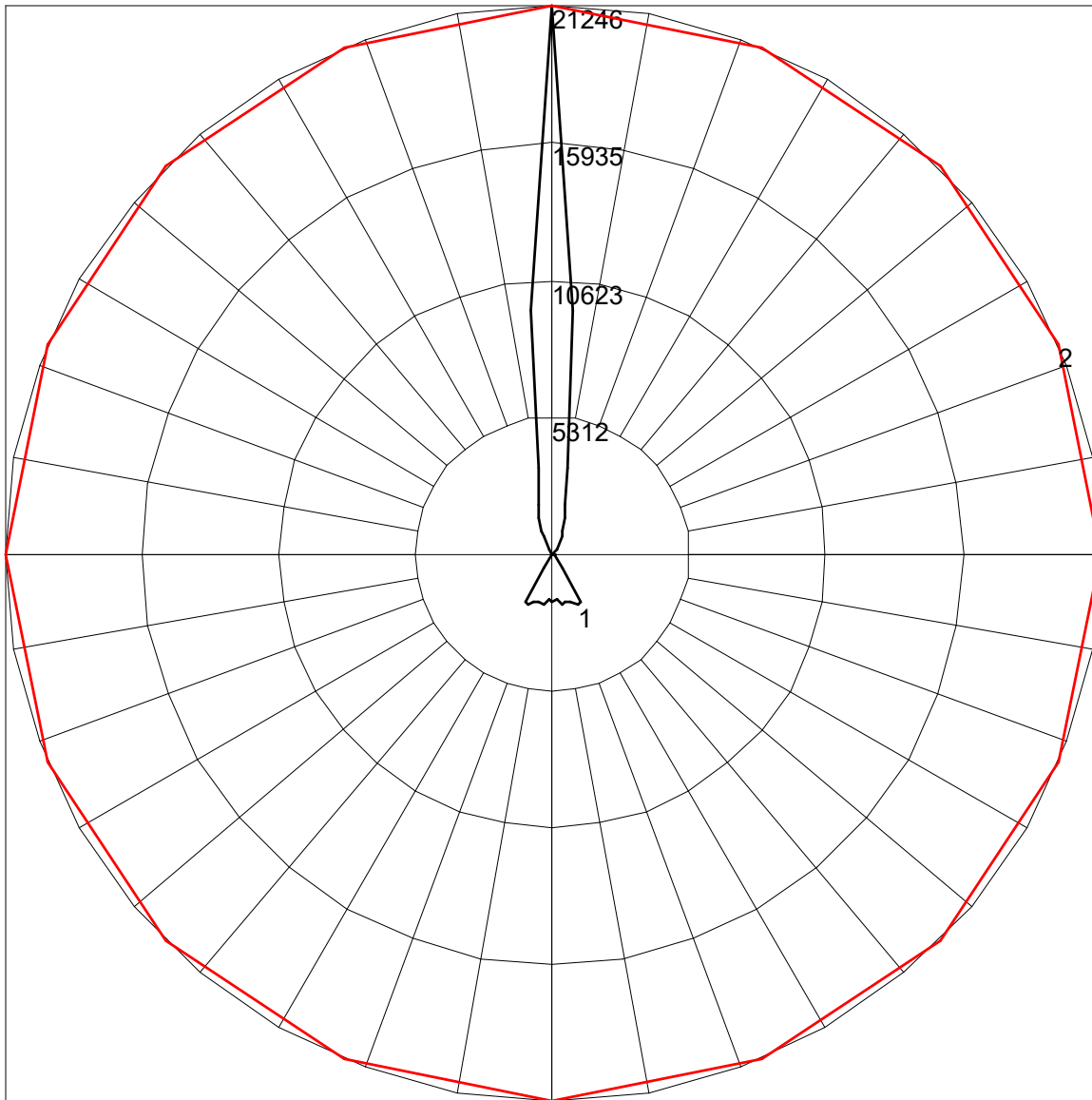
| | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4H | 2H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 3H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 4H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 6H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 8H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 12H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| 8H | 4H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 6H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 8H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 12H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| 12H | 4H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 6H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |
| | 8H | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 | 5.2 |

Maximum UGR = 5.2

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POLAR GRAPH



Maximum Candela = 21246.298 Located At Horizontal Angle = 0, Vertical Angle = 180

1 - Vertical Plane Through Horizontal Angles (90 - 270)

2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)