



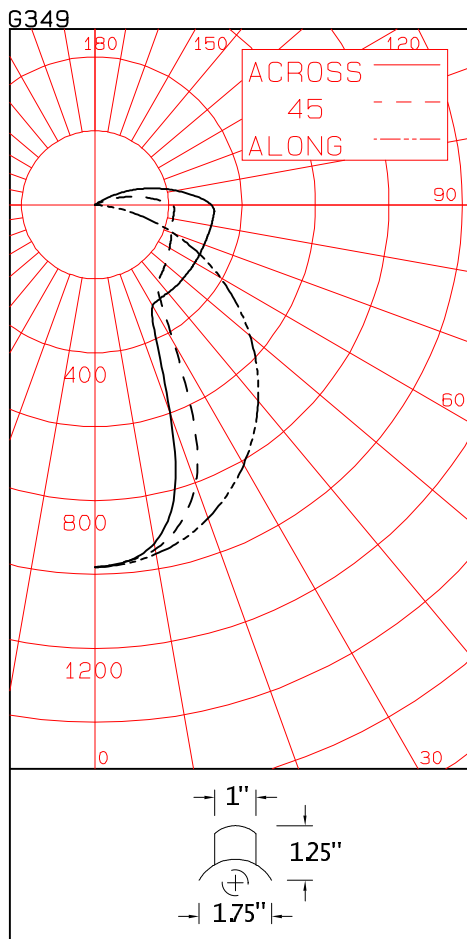
LIGHTING SCIENCES CANADA LTD.

160 Frobisher Drive, Unit 5, Waterloo, Ontario, Canada N2V 2B1
 Tel: (519) 746-3140 Fax: (519) 746-3156 lsc@lightingsciences.ca

CERTIFIED TEST REPORT NO. LSC G349
 COMPUTED BY LSC PROGRAM **TEST-LITE**

KOJIN 4 FT. CONVERSION KIT CAT. NO. T5C120277V
 WITH SPECULAR REFLECTOR
 ONE 28W T5 FLUORESCENT LAMP. LUMEN RATING = 2600 LMS.
 KOJIN 90-277V ELECTRONIC BALLAST

CANDLEPOWER SUMMARY OUTPUT LUMENS



| ANGLE | ALONG | 22.5 | 45 | 67.5 | ACROSS | OUTPUT LUMENS |
|-------|-------|------|-----|------|--------|---------------|
| 0 | 980 | 980 | 980 | 980 | 980 | |
| 5 | 974 | 977 | 969 | 970 | 969 | 93 |
| 15 | 935 | 928 | 893 | 847 | 828 | 245 |
| 25 | 860 | 824 | 629 | 427 | 389 | 288 |
| 35 | 754 | 647 | 308 | 301 | 310 | 280 |
| 45 | 623 | 346 | 258 | 297 | 312 | 265 |
| 55 | 474 | 182 | 244 | 294 | 313 | 250 |
| 65 | 313 | 144 | 228 | 293 | 315 | 242 |
| 75 | 150 | 115 | 217 | 293 | 319 | 228 |
| 85 | 17 | 100 | 216 | 297 | 324 | 214 |
| 90 | 0 | 95 | 210 | 291 | 317 | |
| 95 | 0 | 59 | 168 | 248 | 274 | 167 |
| 105 | 0 | 4 | 82 | 149 | 172 | 86 |
| 115 | 0 | 0 | 12 | 59 | 76 | 29 |
| 125 | 0 | 0 | 0 | 0 | 4 | 2 |
| 135 | 0 | 0 | 0 | 0 | 0 | 0 |
| 145 | 0 | 0 | 0 | 0 | 0 | 0 |
| 155 | 0 | 0 | 0 | 0 | 0 | 0 |
| 165 | 0 | 0 | 0 | 0 | 0 | 0 |
| 175 | 0 | 0 | 0 | 0 | 0 | 0 |
| 180 | 0 | 0 | 0 | 0 | 0 | |

| ZONE | LUMENS | % LAMP | % LUMINAIRE |
|--------|--------|--------|-------------|
| 0-30 | 626 | 24.09 | 26.21 |
| 0-40 | 906 | 34.86 | 37.92 |
| 0-60 | 1421 | 54.69 | 59.49 |
| 0-90 | 2106 | 81.01 | 88.12 |
| 40-90 | 1199 | 46.15 | 50.20 |
| 60-90 | 684 | 26.32 | 28.63 |
| 90-180 | 283 | 10.92 | 11.88 |
| 0-180 | 2390 | 91.93 | 100.00 |

** EFFICIENCY = 91.9% **

LUMINANCE SUMMARY-CD. / SQ. M.

S/MH = .7

SC (ALONG) = 1.2, SC (ACROSS) = .7

| ANGLE | ALONG | 45 | ACROSS |
|-------|-------|-------|--------|
| 45 | 17302 | 5866 | 6575 |
| 55 | 16218 | 6322 | 7358 |
| 65 | 14517 | 7130 | 8691 |
| 75 | 11366 | 8922 | 11024 |
| 85 | 3787 | 13540 | 15683 |

CERTIFIED BY:

Charles Sison

DATE:

JAN 2, 2013

PREPARED FOR:

KOJIN INC.
 MISSISSAUGA, ONTARIO

TESTED ACCORDING TO IES PROCEDURES. TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST LUMINOUS OPENING OF LUMINAIRE.

LIGHTING SCIENCES CANADA LTD.
 160 FROBISHER DRIVE, UNIT 5
 WATERLOO, ONTARIO

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 KOJIN 90-277V ELECTRONIC BALLAST

CANDLEPOWER DATA

| ANGLE | PLANE | | | | | | OUTPUT LUMENS |
|-------|-------|------|-----|------|--------|---------|------------------|
| | ALONG | 22.5 | 45 | 67.5 | ACROSS | AVERAGE | |
| 0 | 980 | 980 | 980 | 980 | 980 | 980 | |
| 5 | 974 | 977 | 969 | 970 | 969 | 972 | 93 |
| 10 | 959 | 957 | 946 | 934 | 930 | 945 | |
| 15 | 935 | 928 | 893 | 847 | 828 | 887 | 245 |
| 20 | 902 | 884 | 802 | 652 | 594 | 772 | |
| 25 | 860 | 824 | 629 | 427 | 389 | 626 | 288 |
| 30 | 810 | 747 | 428 | 317 | 315 | 513 | |
| 35 | 754 | 647 | 308 | 301 | 310 | 447 | 280 |
| 40 | 691 | 500 | 269 | 298 | 310 | 392 | |
| 45 | 623 | 346 | 258 | 297 | 312 | 342 | 265 |
| 50 | 551 | 236 | 250 | 296 | 312 | 303 | |
| 55 | 474 | 182 | 244 | 294 | 313 | 278 | 250 |
| 60 | 394 | 162 | 235 | 293 | 313 | 261 | |
| 65 | 313 | 144 | 228 | 293 | 315 | 245 | 242 |
| 70 | 230 | 129 | 222 | 292 | 316 | 229 | |
| 75 | 150 | 115 | 217 | 293 | 319 | 215 | 228 |
| 80 | 77 | 105 | 216 | 295 | 322 | 204 | |
| 85 | 17 | 100 | 216 | 297 | 324 | 196 | 214 |
| 90 | 0 | 95 | 210 | 291 | 317 | 189 | |
| 95 | 0 | 59 | 168 | 248 | 274 | 153 | 167 |
| 100 | 0 | 28 | 124 | 199 | 223 | 115 | |
| 105 | 0 | 4 | 82 | 149 | 172 | 80 | 86 |
| 110 | 0 | 0 | 43 | 103 | 122 | 52 | |
| 115 | 0 | 0 | 12 | 59 | 76 | 27 | 29 |
| 120 | 0 | 0 | 0 | 21 | 35 | 10 | |
| 125 | 0 | 0 | 0 | 0 | 4 | 0 | 2 |
| 130 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 135 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 140 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 145 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 150 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 160 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 165 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 170 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 175 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 180 | 0 | 0 | 0 | 0 | 0 | 0 | |

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KOJIN 4 FT. CONVERSION KIT CAT. NO. T5C120277V
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ONE 28W T5 FLUORESCENT LAMP. LUMEN RATING = 2600 LMS.
KOJIN 90-277V ELECTRONIC BALLAST

AVERAGE LUMINANCE DATA

| ANGLE | ALONG | CD. / SQ. M. (FOOTLAMBERTS) | | | | ACROSS |
|-------|--------------|-----------------------------|--------------|--------------|--------------|--------|
| | | 22.5 | 45 | 67.5 | | |
| 0 | 19236(5614) | 19236(5614) | 19236(5614) | 19236(5614) | 19236(5614) | |
| 30 | 18364(5360) | 15841(4623) | 8587(2506) | 6144(1793) | 6020(1757) | |
| 40 | 17715(5170) | 11635(3395) | 5791(1690) | 6130(1789) | 6253(1825) | |
| 45 | 17302(5050) | 8556(2497) | 5866(1712) | 6383(1863) | 6575(1919) | |
| 50 | 16811(4906) | 6307(1840) | 6009(1753) | 6699(1955) | 6878(2007) | |
| 55 | 16218(4733) | 5309(1549) | 6322(1845) | 7093(2070) | 7358(2147) | |
| 60 | 15478(4517) | 5247(1531) | 6616(1931) | 7625(2225) | 7902(2306) | |
| 65 | 14517(4237) | 5300(1547) | 7130(2081) | 8327(2430) | 8691(2536) | |
| 70 | 13208(3855) | 5550(1620) | 7868(2296) | 9255(2701) | 9636(2812) | |
| 75 | 11366(3317) | 5997(1750) | 8922(2604) | 10586(3089) | 11024(3217) | |
| 80 | 8748(2553) | 7031(2052) | 10696(3121) | 12452(3634) | 12880(3759) | |
| 85 | 3787(1105) | 9412(2747) | 13540(3952) | 15291(4462) | 15683(4577) | |

DETERMINED IN ACCORDANCE WITH CURRENT IES PUBLISHED PROCEDURES

LIGHTING SCIENCES CANADA LTD.
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KOJIN 4 FT. CONVERSION KIT CAT. NO. T5C120277V
 WITH SPECULAR REFLECTOR
 ONE 28W T5 FLUORESCENT LAMP. LUMEN RATING = 2600 LMS.
 KOJIN 90-277V ELECTRONIC BALLAST

COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

| CC WALL | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | | | | 0 |
|------------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|---|
| | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 1.07 | 1.07 | 1.07 | 1.07 | 1.03 | 1.03 | 1.03 | 1.03 | .96 | .96 | .96 | .90 | .90 | .90 | .84 | .84 | .84 | .81 | | | |
| 1 | .95 | .90 | .86 | .81 | .92 | .87 | .83 | .79 | .81 | .78 | .75 | .76 | .73 | .70 | .71 | .68 | .66 | .64 | | | |
| 2 | .86 | .78 | .71 | .66 | .83 | .75 | .69 | .64 | .70 | .65 | .61 | .66 | .62 | .58 | .61 | .58 | .55 | .52 | | | |
| 3 | .79 | .69 | .61 | .55 | .76 | .67 | .60 | .54 | .63 | .57 | .52 | .58 | .54 | .49 | .55 | .51 | .47 | .45 | | | |
| 4 | .73 | .62 | .53 | .47 | .70 | .60 | .52 | .46 | .56 | .50 | .45 | .53 | .47 | .43 | .49 | .45 | .41 | .39 | | | |
| 5 | .67 | .55 | .47 | .40 | .64 | .53 | .45 | .40 | .50 | .43 | .38 | .47 | .41 | .37 | .44 | .40 | .35 | .33 | | | |
| 6 | .62 | .50 | .42 | .36 | .59 | .48 | .40 | .35 | .45 | .39 | .34 | .43 | .37 | .33 | .40 | .35 | .31 | .29 | | | |
| 7 | .57 | .45 | .37 | .32 | .55 | .44 | .36 | .31 | .41 | .35 | .30 | .39 | .33 | .29 | .37 | .32 | .28 | .26 | | | |
| 8 | .53 | .41 | .33 | .28 | .51 | .40 | .33 | .27 | .38 | .31 | .27 | .36 | .30 | .26 | .34 | .29 | .25 | .23 | | | |
| 9 | .50 | .38 | .30 | .25 | .48 | .36 | .29 | .24 | .34 | .28 | .24 | .33 | .27 | .23 | .31 | .26 | .22 | .20 | | | |
| 10 | .46 | .34 | .27 | .22 | .45 | .33 | .27 | .22 | .32 | .26 | .21 | .30 | .25 | .21 | .29 | .24 | .20 | .18 | | | |

DETERMINED IN ACCORDANCE WITH CURRENT IES PUBLISHED PROCEDURES
 LUMINAIRE INPUT WATTS = 28.0
 LABORATORY RESULT MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.
 BALLAST FACTORS HAVE NOT BEEN APPLIED.