

**IES INDOOR REPORT**

**PHOTOMETRIC FILENAME : 11675584\_\_IES INDOOR PHOTOMETRIC REPORT\_TRMUNV220AC840A.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] 11675584.01  
 [TESTLAB] UL Verification Services Inc.  
 [ISSUEDATE] 3/28/2017  
 [MANUFAC] Fulham Co Inc  
 [LUMCAT] TRMUNV220AC840A  
 [LUMINAIRE] Retrofit kit installed in DLC reference housing Lithonia TX PA22C.  
 [MORE]Circular silver aluminum heat sink and linear prismatic lens  
 [LAMP] 320 white LEDS  
 [BALLAST] FULHAM T1M1UNV140P-200L  
 [OTHER] 25 C, 120.049 V, 1.72728 A, 206.613 W, 0.996408 PF, 59.9981 Hz  
 [OTHER] This test was performed using the calibrated photodetector met  
 [MORE] hod of absolute photometry.

**CHARACTERISTICS**

|                                 |                    |
|---------------------------------|--------------------|
| Lumens Per Lamp                 | N.A. (absolute)    |
| Total Lamp Lumens               | N.A. (absolute)    |
| Luminaire Lumens                | 21875              |
| Total Luminaire Efficiency      | N.A.               |
| Luminaire Efficacy Rating (LER) | 106                |
| Total Luminaire Watts           | 206.613            |
| Ballast Factor                  | 1.00               |
| CIE Type                        | Direct             |
| Spacing Criterion (0-180)       | 1.42               |
| Spacing Criterion (90-270)      | 1.42               |
| Spacing Criterion (Diagonal)    | 1.30               |
| Basic Luminous Shape            | Circular w/ Sides  |
| Luminous Length (0-180)         | 1.83 ft (Diameter) |
| Luminous Width (90-270)         | 1.83 ft (Diameter) |
| Luminous Height                 | 1.33 ft            |



**LUMINANCE DATA (cd/sq.m)**

| Angle In Degrees | Average 0-Deg | Average 45-Deg | Average 90-Deg |
|------------------|---------------|----------------|----------------|
| 45               | 12787         | 12787          | 12787          |
| 55               | 5072          | 5072           | 5072           |
| 65               | 2002          | 2002           | 2002           |
| 75               | 1141          | 1141           | 1141           |
| 85               | 840           | 840            | 840            |

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CANDELA TABULATION

|      | <u>0</u> |
|------|----------|
| 0.0  | 8836     |
| 0.5  | 8841     |
| 1.0  | 8838     |
| 1.5  | 8839     |
| 2.0  | 8846     |
| 2.5  | 8858     |
| 3.0  | 8867     |
| 3.5  | 8880     |
| 4.0  | 8905     |
| 4.5  | 8930     |
| 5.0  | 8953     |
| 5.5  | 8974     |
| 6.0  | 8990     |
| 6.5  | 9008     |
| 7.0  | 9024     |
| 7.5  | 9047     |
| 8.0  | 9060     |
| 8.5  | 9083     |
| 9.0  | 9112     |
| 9.5  | 9152     |
| 10.0 | 9189     |
| 10.5 | 9231     |
| 11.0 | 9284     |
| 11.5 | 9345     |
| 12.0 | 9411     |
| 12.5 | 9489     |
| 13.0 | 9563     |
| 13.5 | 9640     |
| 14.0 | 9711     |
| 14.5 | 9792     |
| 15.0 | 9876     |
| 15.5 | 9963     |
| 16.0 | 10060    |
| 16.5 | 10130    |
| 17.0 | 10200    |
| 17.5 | 10260    |
| 18.0 | 10310    |
| 18.5 | 10360    |
| 19.0 | 10390    |
| 19.5 | 10430    |
| 20.0 | 10470    |
| 20.5 | 10500    |
| 21.0 | 10520    |
| 21.5 | 10540    |
| 22.0 | 10550    |
| 22.5 | 10550    |
| 23.0 | 10540    |
| 23.5 | 10540    |
| 24.0 | 10520    |
| 24.5 | 10490    |
| 25.0 | 10470    |
| 25.5 | 10440    |
| 26.0 | 10410    |
| 26.5 | 10370    |

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**CANDELA TABULATION - (Cont.)**

|             |       |
|-------------|-------|
| <b>27.0</b> | 10320 |
| <b>27.5</b> | 10250 |
| <b>28.0</b> | 10180 |
| <b>28.5</b> | 10100 |
| <b>29.0</b> | 10010 |
| <b>29.5</b> | 9920  |
| <b>30.0</b> | 9822  |
| <b>30.5</b> | 9714  |
| <b>31.0</b> | 9602  |
| <b>31.5</b> | 9474  |
| <b>32.0</b> | 9330  |
| <b>32.5</b> | 9175  |
| <b>33.0</b> | 9009  |
| <b>33.5</b> | 8822  |
| <b>34.0</b> | 8630  |
| <b>34.5</b> | 8441  |
| <b>35.0</b> | 8256  |
| <b>35.5</b> | 8072  |
| <b>36.0</b> | 7892  |
| <b>36.5</b> | 7716  |
| <b>37.0</b> | 7528  |
| <b>37.5</b> | 7344  |
| <b>38.0</b> | 7166  |
| <b>38.5</b> | 6976  |
| <b>39.0</b> | 6785  |
| <b>39.5</b> | 6589  |
| <b>40.0</b> | 6380  |
| <b>40.5</b> | 6174  |
| <b>41.0</b> | 5960  |
| <b>41.5</b> | 5742  |
| <b>42.0</b> | 5523  |
| <b>42.5</b> | 5300  |
| <b>43.0</b> | 5086  |
| <b>43.5</b> | 4873  |
| <b>44.0</b> | 4665  |
| <b>44.5</b> | 4465  |
| <b>45.0</b> | 4273  |
| <b>45.5</b> | 4096  |
| <b>46.0</b> | 3924  |
| <b>46.5</b> | 3770  |
| <b>47.0</b> | 3622  |
| <b>47.5</b> | 3478  |
| <b>48.0</b> | 3335  |
| <b>48.5</b> | 3193  |
| <b>49.0</b> | 3052  |
| <b>49.5</b> | 2912  |
| <b>50.0</b> | 2776  |
| <b>50.5</b> | 2645  |
| <b>51.0</b> | 2519  |
| <b>51.5</b> | 2397  |
| <b>52.0</b> | 2281  |
| <b>52.5</b> | 2167  |
| <b>53.0</b> | 2055  |
| <b>53.5</b> | 1948  |
| <b>54.0</b> | 1846  |
| <b>54.5</b> | 1749  |

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**CANDELA TABULATION - (Cont.)**

|             |      |
|-------------|------|
| <b>55.0</b> | 1658 |
| <b>55.5</b> | 1568 |
| <b>56.0</b> | 1485 |
| <b>56.5</b> | 1406 |
| <b>57.0</b> | 1331 |
| <b>57.5</b> | 1260 |
| <b>58.0</b> | 1193 |
| <b>58.5</b> | 1132 |
| <b>59.0</b> | 1076 |
| <b>59.5</b> | 1024 |
| <b>60.0</b> | 974  |
| <b>60.5</b> | 928  |
| <b>61.0</b> | 884  |
| <b>61.5</b> | 844  |
| <b>62.0</b> | 805  |
| <b>62.5</b> | 768  |
| <b>63.0</b> | 734  |
| <b>63.5</b> | 702  |
| <b>64.0</b> | 673  |
| <b>64.5</b> | 646  |
| <b>65.0</b> | 620  |
| <b>65.5</b> | 597  |
| <b>66.0</b> | 576  |
| <b>66.5</b> | 557  |
| <b>67.0</b> | 539  |
| <b>67.5</b> | 523  |
| <b>68.0</b> | 508  |
| <b>68.5</b> | 492  |
| <b>69.0</b> | 477  |
| <b>69.5</b> | 462  |
| <b>70.0</b> | 447  |
| <b>70.5</b> | 433  |
| <b>71.0</b> | 418  |
| <b>71.5</b> | 404  |
| <b>72.0</b> | 390  |
| <b>72.5</b> | 378  |
| <b>73.0</b> | 366  |
| <b>73.5</b> | 354  |
| <b>74.0</b> | 343  |
| <b>74.5</b> | 333  |
| <b>75.0</b> | 323  |
| <b>75.5</b> | 314  |
| <b>76.0</b> | 305  |
| <b>76.5</b> | 297  |
| <b>77.0</b> | 289  |
| <b>77.5</b> | 281  |
| <b>78.0</b> | 273  |
| <b>78.5</b> | 265  |
| <b>79.0</b> | 258  |
| <b>79.5</b> | 251  |
| <b>80.0</b> | 246  |
| <b>80.5</b> | 240  |
| <b>81.0</b> | 235  |
| <b>81.5</b> | 231  |
| <b>82.0</b> | 226  |
| <b>82.5</b> | 222  |

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**CANDELA TABULATION - (Cont.)**

|              |     |
|--------------|-----|
| <b>83.0</b>  | 219 |
| <b>83.5</b>  | 216 |
| <b>84.0</b>  | 213 |
| <b>84.5</b>  | 210 |
| <b>85.0</b>  | 208 |
| <b>85.5</b>  | 205 |
| <b>86.0</b>  | 203 |
| <b>86.5</b>  | 201 |
| <b>87.0</b>  | 198 |
| <b>87.5</b>  | 195 |
| <b>88.0</b>  | 192 |
| <b>88.5</b>  | 188 |
| <b>89.0</b>  | 186 |
| <b>89.5</b>  | 185 |
| <b>90.0</b>  | 187 |
| <b>90.5</b>  | 190 |
| <b>91.0</b>  | 194 |
| <b>91.5</b>  | 199 |
| <b>92.0</b>  | 206 |
| <b>92.5</b>  | 213 |
| <b>93.0</b>  | 220 |
| <b>93.5</b>  | 225 |
| <b>94.0</b>  | 230 |
| <b>94.5</b>  | 233 |
| <b>95.0</b>  | 235 |
| <b>95.5</b>  | 236 |
| <b>96.0</b>  | 237 |
| <b>96.5</b>  | 238 |
| <b>97.0</b>  | 240 |
| <b>97.5</b>  | 246 |
| <b>98.0</b>  | 253 |
| <b>98.5</b>  | 260 |
| <b>99.0</b>  | 265 |
| <b>99.5</b>  | 270 |
| <b>100.0</b> | 275 |
| <b>100.5</b> | 280 |
| <b>101.0</b> | 284 |
| <b>101.5</b> | 289 |
| <b>102.0</b> | 293 |
| <b>102.5</b> | 297 |
| <b>103.0</b> | 301 |
| <b>103.5</b> | 305 |
| <b>104.0</b> | 309 |
| <b>104.5</b> | 312 |
| <b>105.0</b> | 315 |
| <b>105.5</b> | 319 |
| <b>106.0</b> | 321 |
| <b>106.5</b> | 324 |
| <b>107.0</b> | 326 |
| <b>107.5</b> | 328 |
| <b>108.0</b> | 330 |
| <b>108.5</b> | 332 |
| <b>109.0</b> | 333 |
| <b>109.5</b> | 334 |
| <b>110.0</b> | 335 |
| <b>110.5</b> | 336 |

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**CANDELA TABULATION - (Cont.)**

|              |     |
|--------------|-----|
| <b>111.0</b> | 336 |
| <b>111.5</b> | 335 |
| <b>112.0</b> | 335 |
| <b>112.5</b> | 335 |
| <b>113.0</b> | 335 |
| <b>113.5</b> | 335 |
| <b>114.0</b> | 334 |
| <b>114.5</b> | 334 |
| <b>115.0</b> | 334 |
| <b>115.5</b> | 334 |
| <b>116.0</b> | 334 |
| <b>116.5</b> | 335 |
| <b>117.0</b> | 335 |
| <b>117.5</b> | 336 |
| <b>118.0</b> | 337 |
| <b>118.5</b> | 338 |
| <b>119.0</b> | 340 |
| <b>119.5</b> | 341 |
| <b>120.0</b> | 343 |
| <b>120.5</b> | 344 |
| <b>121.0</b> | 345 |
| <b>121.5</b> | 347 |
| <b>122.0</b> | 348 |
| <b>122.5</b> | 349 |
| <b>123.0</b> | 350 |
| <b>123.5</b> | 351 |
| <b>124.0</b> | 351 |
| <b>124.5</b> | 352 |
| <b>125.0</b> | 352 |
| <b>125.5</b> | 353 |
| <b>126.0</b> | 353 |
| <b>126.5</b> | 353 |
| <b>127.0</b> | 353 |
| <b>127.5</b> | 354 |
| <b>128.0</b> | 354 |
| <b>128.5</b> | 354 |
| <b>129.0</b> | 355 |
| <b>129.5</b> | 356 |
| <b>130.0</b> | 357 |
| <b>130.5</b> | 358 |
| <b>131.0</b> | 360 |
| <b>131.5</b> | 361 |
| <b>132.0</b> | 362 |
| <b>132.5</b> | 363 |
| <b>133.0</b> | 364 |
| <b>133.5</b> | 365 |
| <b>134.0</b> | 365 |
| <b>134.5</b> | 366 |
| <b>135.0</b> | 368 |
| <b>135.5</b> | 369 |
| <b>136.0</b> | 370 |
| <b>136.5</b> | 371 |
| <b>137.0</b> | 373 |
| <b>137.5</b> | 374 |
| <b>138.0</b> | 376 |
| <b>138.5</b> | 377 |

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**CANDELA TABULATION - (Cont.)**

|              |     |
|--------------|-----|
| <b>139.0</b> | 379 |
| <b>139.5</b> | 380 |
| <b>140.0</b> | 382 |
| <b>140.5</b> | 383 |
| <b>141.0</b> | 384 |
| <b>141.5</b> | 385 |
| <b>142.0</b> | 386 |
| <b>142.5</b> | 387 |
| <b>143.0</b> | 388 |
| <b>143.5</b> | 390 |
| <b>144.0</b> | 392 |
| <b>144.5</b> | 394 |
| <b>145.0</b> | 396 |
| <b>145.5</b> | 399 |
| <b>146.0</b> | 402 |
| <b>146.5</b> | 405 |
| <b>147.0</b> | 407 |
| <b>147.5</b> | 411 |
| <b>148.0</b> | 414 |
| <b>148.5</b> | 418 |
| <b>149.0</b> | 422 |
| <b>149.5</b> | 426 |
| <b>150.0</b> | 430 |
| <b>150.5</b> | 434 |
| <b>151.0</b> | 438 |
| <b>151.5</b> | 442 |
| <b>152.0</b> | 446 |
| <b>152.5</b> | 449 |
| <b>153.0</b> | 452 |
| <b>153.5</b> | 455 |
| <b>154.0</b> | 457 |
| <b>154.5</b> | 460 |
| <b>155.0</b> | 461 |
| <b>155.5</b> | 462 |
| <b>156.0</b> | 464 |
| <b>156.5</b> | 464 |
| <b>157.0</b> | 465 |
| <b>157.5</b> | 466 |
| <b>158.0</b> | 467 |
| <b>158.5</b> | 467 |
| <b>159.0</b> | 467 |
| <b>159.5</b> | 468 |
| <b>160.0</b> | 468 |
| <b>160.5</b> | 468 |
| <b>161.0</b> | 468 |
| <b>161.5</b> | 468 |
| <b>162.0</b> | 467 |
| <b>162.5</b> | 467 |
| <b>163.0</b> | 467 |
| <b>163.5</b> | 467 |
| <b>164.0</b> | 467 |
| <b>164.5</b> | 466 |
| <b>165.0</b> | 465 |
| <b>165.5</b> | 465 |
| <b>166.0</b> | 464 |
| <b>166.5</b> | 463 |

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**CANDELA TABULATION - (Cont.)**

|              |     |
|--------------|-----|
| <b>167.0</b> | 462 |
| <b>167.5</b> | 462 |
| <b>168.0</b> | 461 |
| <b>168.5</b> | 460 |
| <b>169.0</b> | 459 |
| <b>169.5</b> | 458 |
| <b>170.0</b> | 458 |
| <b>170.5</b> | 458 |
| <b>171.0</b> | 459 |
| <b>171.5</b> | 462 |
| <b>172.0</b> | 467 |
| <b>172.5</b> | 474 |
| <b>173.0</b> | 482 |
| <b>173.5</b> | 492 |
| <b>174.0</b> | 503 |
| <b>174.5</b> | 513 |
| <b>175.0</b> | 523 |
| <b>175.5</b> | 532 |
| <b>176.0</b> | 541 |
| <b>176.5</b> | 548 |
| <b>177.0</b> | 555 |
| <b>177.5</b> | 561 |
| <b>178.0</b> | 567 |
| <b>178.5</b> | 573 |
| <b>179.0</b> | 577 |
| <b>179.5</b> | 579 |
| <b>180.0</b> | 579 |



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**ZONAL LUMEN SUMMARY**

| Zone    | Lumens   | %Lamp | %Fixt  |
|---------|----------|-------|--------|
| 0-20    | 3678.74  | N.A.  | 16.80  |
| 0-30    | 8468.89  | N.A.  | 38.70  |
| 0-40    | 13593.58 | N.A.  | 62.10  |
| 0-60    | 18497.25 | N.A.  | 84.60  |
| 0-80    | 19490.69 | N.A.  | 89.10  |
| 0-90    | 19719.15 | N.A.  | 90.10  |
| 10-90   | 18858.14 | N.A.  | 86.20  |
| 20-40   | 9914.83  | N.A.  | 45.30  |
| 20-50   | 13282.27 | N.A.  | 60.70  |
| 40-70   | 5547.69  | N.A.  | 25.40  |
| 60-80   | 993.44   | N.A.  | 4.50   |
| 70-80   | 349.42   | N.A.  | 1.60   |
| 80-90   | 228.47   | N.A.  | 1.00   |
| 90-110  | 581.64   | N.A.  | 2.70   |
| 90-120  | 915.03   | N.A.  | 4.20   |
| 90-130  | 1230.01  | N.A.  | 5.60   |
| 90-150  | 1765.64  | N.A.  | 8.10   |
| 90-180  | 2155.48  | N.A.  | 9.90   |
| 110-180 | 1573.84  | N.A.  | 7.20   |
| 0-180   | 21874.63 | N.A.  | 100.00 |

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

| Zone    | Lumens  |
|---------|---------|
| 0-10    | 861.01  |
| 10-20   | 2817.73 |
| 20-30   | 4790.14 |
| 30-40   | 5124.69 |
| 40-50   | 3367.44 |
| 50-60   | 1536.23 |
| 60-70   | 644.02  |
| 70-80   | 349.42  |
| 80-90   | 228.47  |
| 90-100  | 251.98  |
| 100-110 | 329.66  |
| 110-120 | 333.39  |
| 120-130 | 314.98  |
| 130-140 | 285.14  |
| 140-150 | 250.50  |
| 150-160 | 210.85  |
| 160-170 | 131.80  |
| 170-180 | 47.19   |

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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

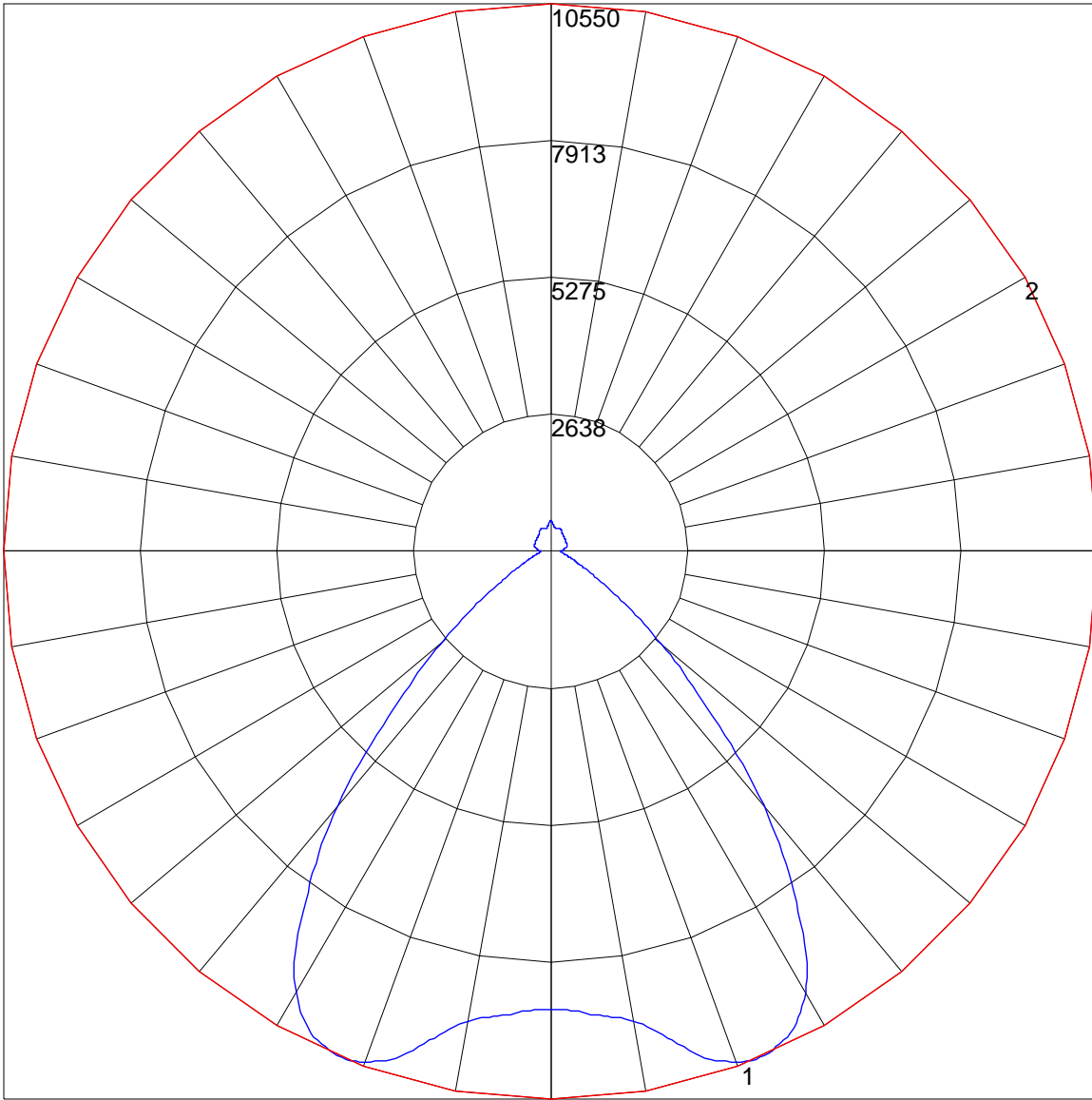
Effective Floor Cavity Reflectance 0.20

| RC | 80  |     |     |     | 70  |     |     |     | 50  |     |     | 30  |    |    | 10 |    |    | 0  |    |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
|    | RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 50  | 30  | 10  | 50 | 30 | 10 | 50 | 30 | 10 | 0  |
| 0  | 117 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 106 | 106 | 106 | 99 | 99 | 99 | 93 | 93 | 93 | 90 |
| 1  | 109 | 105 | 102 | 99  |     | 105 | 102 | 99  | 96  | 96  | 94  | 92  | 91 | 89 | 87 | 86 | 84 | 83 | 80 |
| 2  | 101 | 95  | 89  | 85  |     | 98  | 92  | 87  | 83  | 87  | 83  | 80  | 83 | 79 | 77 | 78 | 76 | 74 | 71 |
| 3  | 94  | 86  | 79  | 74  |     | 91  | 83  | 77  | 73  | 79  | 74  | 70  | 75 | 71 | 68 | 72 | 68 | 66 | 63 |
| 4  | 87  | 78  | 70  | 65  |     | 85  | 76  | 69  | 64  | 72  | 67  | 62  | 69 | 64 | 60 | 66 | 62 | 59 | 56 |
| 5  | 81  | 71  | 63  | 58  |     | 79  | 69  | 62  | 57  | 66  | 60  | 56  | 63 | 58 | 54 | 60 | 56 | 53 | 51 |
| 6  | 76  | 65  | 57  | 52  |     | 73  | 63  | 56  | 51  | 61  | 54  | 50  | 58 | 53 | 49 | 56 | 51 | 48 | 46 |
| 7  | 71  | 59  | 52  | 46  |     | 69  | 58  | 51  | 46  | 56  | 49  | 45  | 54 | 48 | 44 | 51 | 47 | 43 | 41 |
| 8  | 66  | 54  | 47  | 42  |     | 64  | 53  | 46  | 42  | 51  | 45  | 41  | 49 | 44 | 40 | 48 | 43 | 39 | 37 |
| 9  | 62  | 50  | 43  | 38  |     | 60  | 49  | 43  | 38  | 48  | 41  | 37  | 46 | 40 | 37 | 44 | 39 | 36 | 34 |
| 10 | 58  | 47  | 40  | 35  |     | 57  | 46  | 39  | 35  | 44  | 38  | 34  | 43 | 37 | 33 | 41 | 36 | 33 | 31 |

IES INDOOR REPORT

PHOTOMETRIC FILENAME : 11675584\_\_IES INDOOR PHOTOMETRIC REPORT\_TRMUNV220AC840A.IES

POLAR GRAPH



Maximum Candela = 10550 Located At Horizontal Angle = 0, Vertical Angle = 22  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (22) (Through Max. Cd.)