

## PHOTOMETRIC RESULTS

|                   |                                 |                      |                  |
|-------------------|---------------------------------|----------------------|------------------|
| <b>Name:</b>      | <b>TTP 100 L0940 TUP 840 LO</b> |                      |                  |
| <b>Number:</b>    | 90481L090                       | <b>Diameter:</b>     | 0 mm             |
| <b>Report:</b>    | 10-01-2020                      | <b>Length:</b>       | 940 mm           |
| <b>Meas.-no.:</b> | 01                              | <b>Width:</b>        | 105 mm           |
| <b>Lamp type:</b> | LED 840 - 01                    | <b>Height:</b>       | 105 mm           |
| <b>Number:</b>    | 1                               | <b>Power:</b>        | 34,1 W           |
| <b>Lamp flux:</b> | 5700,00 lm                      | <b>Operator:</b>     | INDEL AGUE GROUP |
| <b>Date:</b>      | 10-01-2020 12:17:53             | <b>Output ratio:</b> | 92,1 %           |

## Protocol

**LiTG-class:** A42  
**UTE-class:** 0,90 E + 0,02 T  
**IES-class:** 47 - 80 - 96 - 98 - 92  
**TM5-class:** BZ4

## Divergences in the plane through maximum intensity:

|                               | Horizontal | Vertical |
|-------------------------------|------------|----------|
| One half peak divergence      | 109,6°     | 118,0°   |
| Half peak side angle (left)   | -54,8°     | -59,0°   |
| Half peak side angle (right)  | 54,8°      | 59,0°    |
| One tenth peak divergence     | 151,8°     | 159,1°   |
| Tenth peak side angle (left)  | -75,9°     | -79,5°   |
| Tenth peak side angle (right) | 75,9°      | 79,5°    |

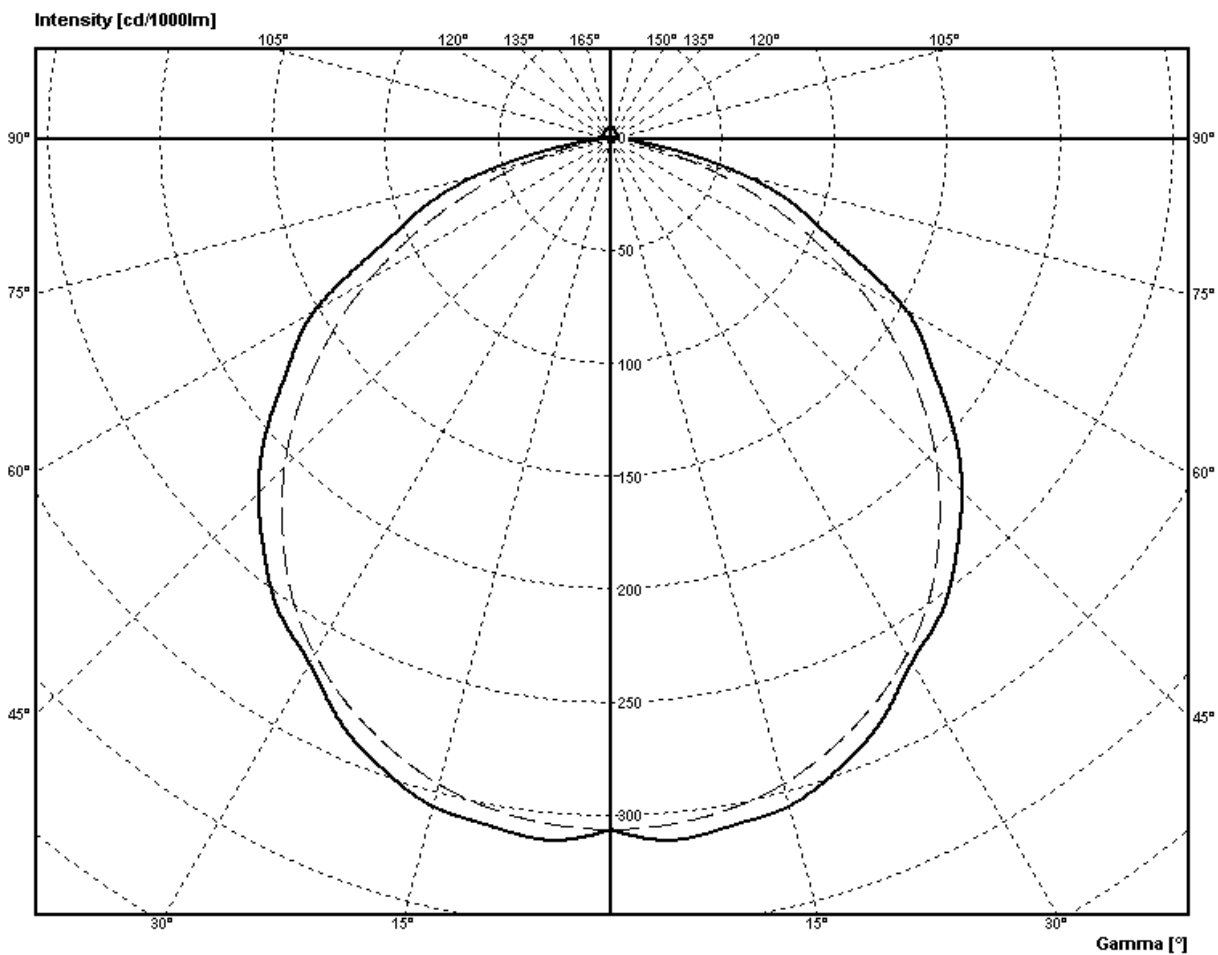
|                  |        |        |        |        |        |        |        |        |        |        |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>C-planes:</b> | 0,0°   | 15,0°  | 30,0°  | 45,0°  | 60,0°  | 75,0°  | 90,0°  | 105,0° | 120,0° | 135,0° |
|                  | 150,0° | 165,0° | 180,0° | 195,0° | 210,0° | 225,0° | 240,0° | 255,0° | 270,0° | 285,0° |
|                  | 300,0° | 315,0° | 330,0° | 345,0° |        |        |        |        |        |        |

|               |        |        |        |        |        |        |        |        |        |        |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Gamma:</b> | 0,0°   | 5,0°   | 10,0°  | 15,0°  | 20,0°  | 25,0°  | 30,0°  | 35,0°  | 40,0°  | 45,0°  |
|               | 50,0°  | 55,0°  | 60,0°  | 65,0°  | 70,0°  | 75,0°  | 80,0°  | 85,0°  | 90,0°  | 95,0°  |
|               | 100,0° | 105,0° | 110,0° | 115,0° | 120,0° | 125,0° | 130,0° | 135,0° | 140,0° | 145,0° |
|               | 150,0° | 155,0° | 160,0° | 165,0° | 170,0° | 175,0° | 180,0° |        |        |        |

## PHOTOMETRIC RESULTS

|            |                          |               |                 |
|------------|--------------------------|---------------|-----------------|
| Name:      | TTP 100 L0940 TUP 840 LO |               |                 |
| Number:    | 90481L090                | Diameter:     | 0 mm            |
| Report:    | 10-01-2020               | Length:       | 940 mm          |
| Meas.-no.: | 01                       | Width:        | 105 mm          |
| Lamp type: | LED 840 - 01             | Height:       | 105 mm          |
| Number:    | 1                        | Power:        | 34,1 W          |
| Lamp flux: | 5700,00 lm               | Operator:     | INDELAGUE GROUP |
| Date:      | 10-01-2020 12:17:53      | Output ratio: | 92,1 %          |

Polar diagram TTP 100 L0940 TUP 840 LO / Total in 15° C / 5° G



## PHOTOMETRIC RESULTS

|                   |                                 |                      |                  |
|-------------------|---------------------------------|----------------------|------------------|
| <b>Name:</b>      | <b>TTP 100 L0940 TUP 840 LO</b> |                      |                  |
| <b>Number:</b>    | 90481L090                       | <b>Diameter:</b>     | 0 mm             |
| <b>Report:</b>    | 10-01-2020                      | <b>Length:</b>       | 940 mm           |
| <b>Meas.-no.:</b> | 01                              | <b>Width:</b>        | 105 mm           |
| <b>Lamp type:</b> | LED 840 - 01                    | <b>Height:</b>       | 105 mm           |
| <b>Number:</b>    | 1                               | <b>Power:</b>        | 34,1 W           |
| <b>Lamp flux:</b> | 5700,00 lm                      | <b>Operator:</b>     | INDEL AGUE GROUP |
| <b>Date:</b>      | 10-01-2020 12:17:53             | <b>Output ratio:</b> | 92,1 %           |

## UGR Unified Glare Ratios

|                                 |            |                  |            |            |            |            |                |            |            |            |            |
|---------------------------------|------------|------------------|------------|------------|------------|------------|----------------|------------|------------|------------|------------|
| <b>Ceiling reflectance</b>      |            | <b>0,7</b>       | <b>0,7</b> | <b>0,5</b> | <b>0,5</b> | <b>0,3</b> | <b>0,7</b>     | <b>0,7</b> | <b>0,5</b> | <b>0,5</b> | <b>0,3</b> |
| <b>Wall reflectance</b>         |            | <b>0,5</b>       | <b>0,3</b> | <b>0,5</b> | <b>0,3</b> | <b>0,3</b> | <b>0,5</b>     | <b>0,3</b> | <b>0,5</b> | <b>0,3</b> | <b>0,3</b> |
| <b>Floor cavity reflectance</b> |            | <b>0,2</b>       | <b>0,2</b> | <b>0,2</b> | <b>0,2</b> | <b>0,2</b> | <b>0,2</b>     | <b>0,2</b> | <b>0,2</b> | <b>0,2</b> | <b>0,2</b> |
| <b>Room dimension</b>           |            | Viewed crosswise |            |            |            |            | Viewed endwise |            |            |            |            |
| <b>2H</b>                       | <b>2H</b>  | 19,5             | 21,1       | 19,9       | 21,4       | 21,8       | 20,4           | 22,0       | 20,8       | 22,4       | 22,7       |
| <b>2H</b>                       | <b>3H</b>  | 20,6             | 22,0       | 21,0       | 22,4       | 22,8       | 21,5           | 22,9       | 21,9       | 23,3       | 23,7       |
| <b>2H</b>                       | <b>4H</b>  | 20,9             | 22,3       | 21,4       | 22,7       | 23,1       | 21,8           | 23,2       | 22,3       | 23,6       | 24,0       |
| <b>2H</b>                       | <b>6H</b>  | 21,1             | 22,4       | 21,5       | 22,8       | 23,2       | 22,0           | 23,2       | 22,4       | 23,6       | 24,1       |
| <b>2H</b>                       | <b>8H</b>  | 21,1             | 22,3       | 21,5       | 22,7       | 23,2       | 22,0           | 23,2       | 22,4       | 23,6       | 24,0       |
| <b>2H</b>                       | <b>12H</b> | 21,0             | 22,2       | 21,5       | 22,6       | 23,1       | 21,9           | 23,1       | 22,4       | 23,5       | 24,0       |
| <b>4H</b>                       | <b>2H</b>  | 20,2             | 21,5       | 20,6       | 21,9       | 22,3       | 20,9           | 22,2       | 21,3       | 22,6       | 23,0       |
| <b>4H</b>                       | <b>3H</b>  | 21,4             | 22,5       | 21,8       | 23,0       | 23,4       | 22,1           | 23,3       | 22,6       | 23,7       | 24,2       |
| <b>4H</b>                       | <b>4H</b>  | 21,8             | 22,9       | 22,3       | 23,3       | 23,8       | 22,6           | 23,6       | 23,1       | 24,1       | 24,6       |
| <b>4H</b>                       | <b>6H</b>  | 22,0             | 22,9       | 22,5       | 23,4       | 23,9       | 22,8           | 23,7       | 23,3       | 24,2       | 24,7       |
| <b>4H</b>                       | <b>8H</b>  | 22,1             | 22,9       | 22,6       | 23,4       | 23,9       | 22,8           | 23,7       | 23,3       | 24,2       | 24,7       |
| <b>4H</b>                       | <b>12H</b> | 22,1             | 22,8       | 22,6       | 23,3       | 23,9       | 22,8           | 23,6       | 23,3       | 24,1       | 24,7       |
| <b>8H</b>                       | <b>4H</b>  | 22,0             | 22,9       | 22,5       | 23,3       | 23,9       | 22,7           | 23,5       | 23,2       | 24,0       | 24,5       |
| <b>8H</b>                       | <b>6H</b>  | 22,2             | 23,0       | 22,8       | 23,5       | 24,0       | 22,9           | 23,7       | 23,5       | 24,2       | 24,7       |
| <b>8H</b>                       | <b>8H</b>  | 22,4             | 23,0       | 22,9       | 23,5       | 24,1       | 23,1           | 23,7       | 23,6       | 24,2       | 24,8       |
| <b>8H</b>                       | <b>12H</b> | 22,4             | 22,9       | 22,9       | 23,4       | 24,0       | 23,1           | 23,6       | 23,6       | 24,2       | 24,7       |
| <b>12H</b>                      | <b>4H</b>  | 22,0             | 22,8       | 22,5       | 23,3       | 23,8       | 22,7           | 23,5       | 23,2       | 24,0       | 24,5       |
| <b>12H</b>                      | <b>6H</b>  | 22,3             | 22,9       | 22,9       | 23,5       | 24,0       | 23,0           | 23,6       | 23,6       | 24,2       | 24,7       |
| <b>12H</b>                      | <b>8H</b>  | 22,4             | 22,9       | 22,9       | 23,5       | 24,0       | 23,1           | 23,6       | 23,6       | 24,2       | 24,7       |

UGR values are corrected for lamp flux of 5700 lm by 6,0

## PHOTOMETRIC RESULTS

|                   |                                 |                      |                  |
|-------------------|---------------------------------|----------------------|------------------|
| <b>Name:</b>      | <b>TTP 100 L0940 TUP 840 LO</b> |                      |                  |
| <b>Number:</b>    | 90481L090                       | <b>Diameter:</b>     | 0 mm             |
| <b>Report:</b>    | 10-01-2020                      | <b>Length:</b>       | 940 mm           |
| <b>Meas.-no.:</b> | 01                              | <b>Width:</b>        | 105 mm           |
| <b>Lamp type:</b> | LED 840 - 01                    | <b>Height:</b>       | 105 mm           |
| <b>Number:</b>    | 1                               | <b>Power:</b>        | 34,1 W           |
| <b>Lamp flux:</b> | 5700,00 lm                      | <b>Operator:</b>     | INDEL AGUE GROUP |
| <b>Date:</b>      | 10-01-2020 12:17:53             | <b>Output ratio:</b> | 92,1 %           |

Luminance [cd/m<sup>2</sup>] TTP 100 L0940 TUP 840 LO / Total in 15° C / 5° G

| G/C [cd/ | 0,00    | 15,00   | 30,00   | 45,00   | 60,00   | 75,00   | 90,00   | 105,00  | 120,00  |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 45,00    | 9501,17 | 9263,01 | 9771,40 | 10210,8 | 11597,3 | 13390,7 | 15765,0 | 13390,7 | 11597,3 |
| 50,00    | 8580,75 | 8504,75 | 8850,55 | 9455,34 | 10319,2 | 12170,9 | 14920,1 | 12170,9 | 10319,2 |
| 55,00    | 7596,22 | 7504,08 | 7820,98 | 8586,08 | 9227,77 | 11235,9 | 13799,9 | 11235,9 | 9227,77 |
| 60,00    | 6743,75 | 6368,93 | 6824,16 | 7437,73 | 8281,36 | 9870,62 | 12424,2 | 9870,62 | 8281,36 |
| 65,00    | 5180,15 | 5515,04 | 5747,67 | 6328,55 | 6867,36 | 7990,27 | 10576,0 | 7990,27 | 6867,36 |
| 70,00    | 4193,35 | 4116,95 | 4483,17 | 4625,55 | 5728,85 | 6167,13 | 8340,69 | 6167,13 | 5728,85 |
| 75,00    | 3001,39 | 2968,94 | 3231,02 | 3378,87 | 4114,65 | 4771,48 | 5583,21 | 4771,48 | 4114,65 |
| 80,00    | 1478,39 | 1632,51 | 1843,51 | 2091,91 | 2325,92 | 2918,15 | 2894,02 | 2918,15 | 2325,92 |
| 85,00    | 452,42  | 602,07  | 745,09  | 884,38  | 1149,57 | 1387,67 | 1041,80 | 1387,67 | 1149,57 |

| G/C [cd/ | 135,00  | 150,00  | 165,00  | 180,00  | 195,00  | 210,00  | 225,00  | 240,00  | 255,00  |
|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 45,00    | 10210,8 | 9771,40 | 9263,01 | 9501,17 | 9263,01 | 9771,40 | 10210,8 | 11597,3 | 13390,7 |
| 50,00    | 9455,34 | 8850,55 | 8504,75 | 8580,75 | 8504,75 | 8850,55 | 9455,34 | 10319,2 | 12170,9 |
| 55,00    | 8586,08 | 7820,98 | 7504,08 | 7596,22 | 7504,08 | 7820,98 | 8586,08 | 9227,77 | 11235,9 |
| 60,00    | 7437,73 | 6824,16 | 6368,93 | 6743,75 | 6368,93 | 6824,16 | 7437,73 | 8281,36 | 9870,62 |
| 65,00    | 6328,55 | 5747,67 | 5515,04 | 5180,15 | 5515,04 | 5747,67 | 6328,55 | 6867,36 | 7990,27 |
| 70,00    | 4625,55 | 4483,17 | 4116,95 | 4193,35 | 4116,95 | 4483,17 | 4625,55 | 5728,85 | 6167,13 |
| 75,00    | 3378,87 | 3231,02 | 2968,94 | 3001,39 | 2968,94 | 3231,02 | 3378,87 | 4114,65 | 4771,48 |
| 80,00    | 2091,91 | 1843,51 | 1632,51 | 1478,39 | 1632,51 | 1843,51 | 2091,91 | 2325,92 | 2918,15 |
| 85,00    | 884,38  | 745,09  | 602,07  | 452,42  | 602,07  | 745,09  | 884,38  | 1149,57 | 1387,67 |

| G/C [cd/ | 270,00  | 285,00  | 300,00  | 315,00  | 330,00  | 345,00  |
|----------|---------|---------|---------|---------|---------|---------|
| 45,00    | 15765,0 | 13390,7 | 11597,3 | 10210,8 | 9771,40 | 9263,01 |
| 50,00    | 14920,1 | 12170,9 | 10319,2 | 9455,34 | 8850,55 | 8504,75 |
| 55,00    | 13799,9 | 11235,9 | 9227,77 | 8586,08 | 7820,98 | 7504,08 |
| 60,00    | 12424,2 | 9870,62 | 8281,36 | 7437,73 | 6824,16 | 6368,93 |
| 65,00    | 10576,0 | 7990,27 | 6867,36 | 6328,55 | 5747,67 | 5515,04 |
| 70,00    | 8340,69 | 6167,13 | 5728,85 | 4625,55 | 4483,17 | 4116,95 |
| 75,00    | 5583,21 | 4771,48 | 4114,65 | 3378,87 | 3231,02 | 2968,94 |
| 80,00    | 2894,02 | 2918,15 | 2325,92 | 2091,91 | 1843,51 | 1632,51 |
| 85,00    | 1041,80 | 1387,67 | 1149,57 | 884,38  | 745,09  | 602,07  |

## HEADQUARTERS

INDÚSTRIA ELÉTRICA DE ÁGUEDA S.A.

Rua da Mina 465 | Covão | Zona industrial EN1 Norte

3750-792 Trofa ÁGUEDA | PORTUGAL

www.indelague.com | www.roxolighting.com

indelague@indelague.pt | roxo.london@roxolighting.com

Tel. (+351) 234 612 310

Fax (+351) 234 624 058