

# TEST REPORT

## 1. Applicant

Client Name : FEELUX Co. Ltd.

Address : 235-48 Gwangjeok-ro Gwangjeok-myeon Yangju-si Gyeonggi-do 482-844 Korea

Date of Receipt : 2015-04-17

## 2. Purpose of Report : Sample test

## 3. Test Standard / Item : LED / NDV 7W 40K -1

## 4. Test Period : 2015-04-17 ~ 2015-04-17

## 5. Test Environment

Ambient Temp. : ( 23.7 +- 3 ) °C

Relative Humidity : ( 18.13 +- 10 ) % RH

## 6. Test Result : Refer to the attachment

### Test Item

Name of Product :

Model / Rating :

Model :

Rating :

|              |         |                                    |
|--------------|---------|------------------------------------|
| Confirmation | Test by | Technical manager<br>Soobeom, Park |
|--------------|---------|------------------------------------|

\*\*\*\*\*

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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This report is for reference only. It cannot replace the report by standard organization(s).

## TEST RESULT

| Report Number | Sample Name | Sample Number | Test Standard |
|---------------|-------------|---------------|---------------|
| 20150416-0002 |             |               | LED           |

| Test Item                    | Unit | Result         | Memo |
|------------------------------|------|----------------|------|
| Beam Distribution Test       | -    | See attachment |      |
| ATHD                         | %    | 0.0            |      |
| CIE 1931 Cxy                 |      | 0.3787, 0.3725 |      |
| Correlated Color Temperature | K    | 4026           |      |
| Ra                           | -    | 84.98          |      |
| Power Factor                 | %    | 1.000          |      |
| Input Voltage                | V    | 23.970         |      |
| Input Current                | A    | 0.314          |      |
| Input Watt                   | W    | 7.52           |      |
| Lamp Flux                    | lm   | 591.2          |      |
| Efficient                    | lm/W | 78.55          |      |
| Illuminance                  | lx   | 238            | 1 m  |
|                              |      | 59             | 2 m  |
|                              |      | 26             | 3 m  |

\* This test result is for the sample provided by the client.

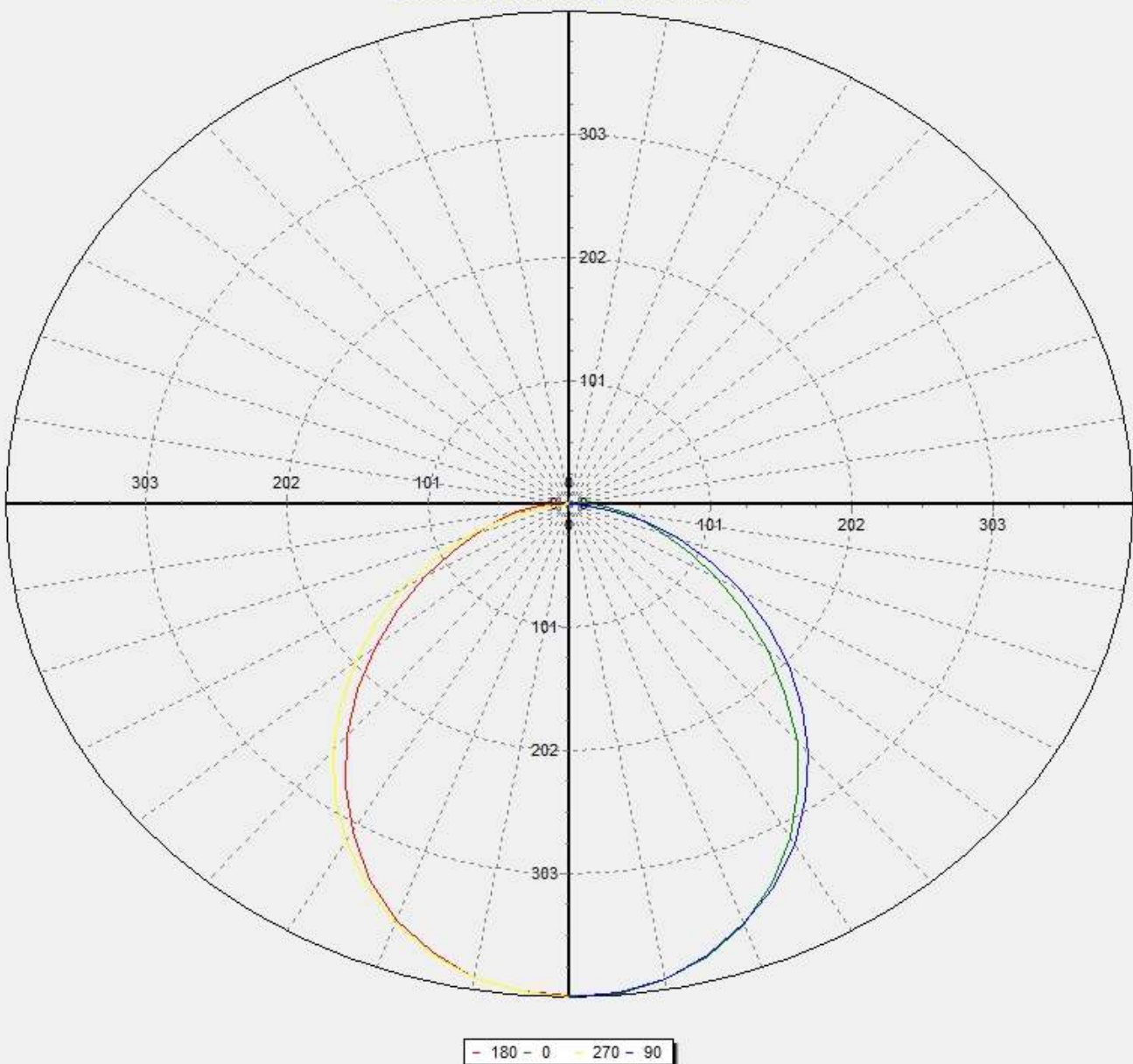
Sample photo

Click to load image

Luminaire

|                 |     |          |                                                                        |                       |
|-----------------|-----|----------|------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                        | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\NDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                            | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                           | 1                     |
|                 |     |          |                                                                        | 2015-04-17 오후 7:44:30 |

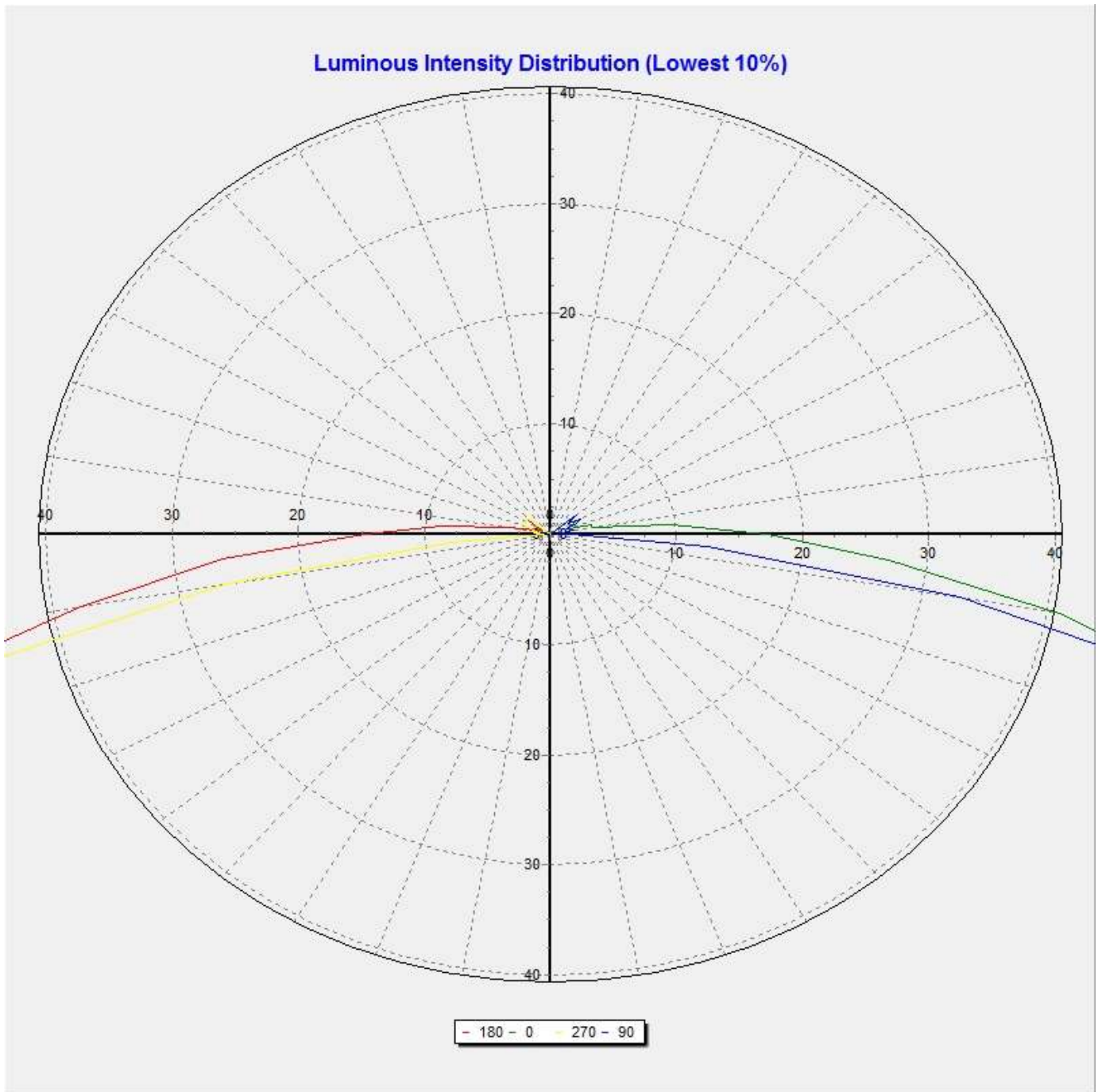
### Luminous Intensity Distribution



All luminous intensity values are in Cd/KLm unit.

Luminaire

|                 |     |          |                                                                        |                       |
|-----------------|-----|----------|------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                        | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\NDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                            | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                           | 1                     |
|                 |     |          |                                                                        | 2015-04-17 오후 7:44:30 |



All luminous intensity values are in Cd/KLm unit.

Luminaire

|                 |     |          |                                                                          |       |  |  |  |  |  |  |  |  |                       |
|-----------------|-----|----------|--------------------------------------------------------------------------|-------|--|--|--|--|--|--|--|--|-----------------------|
| Lamp            |     | Report   | 20150416-0002                                                            |       |  |  |  |  |  |  |  |  |                       |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\W\NDV 7W 40K -1.jdt |       |  |  |  |  |  |  |  |  |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                              | 0.314 |  |  |  |  |  |  |  |  |                       |
| Total flux (lm) | 591 | Date     | Power Factor                                                             | 1     |  |  |  |  |  |  |  |  |                       |
|                 |     |          |                                                                          |       |  |  |  |  |  |  |  |  | 2015-04-17 오후 7:44:30 |

**Luminous Intensity Data**

| GWC | 0      | 10     | 20     | 30     | 40     | 50     | 60     | 70     | 80     | 90     | 100    | 110    | 120    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0   | 237.96 | 238.28 | 239.97 | 238.54 | 238.72 | 239.23 | 238.12 | 237.81 | 238.75 | 238.55 | 239.12 | 239.17 | 238.15 |
| 5   | 237.73 | 237.85 | 237.73 | 237.58 | 238.02 | 237.40 | 237.90 | 237.53 | 237.74 | 237.35 | 237.12 | 238.09 | 236.80 |
| 10  | 233.65 | 233.42 | 234.33 | 233.34 | 233.70 | 233.64 | 234.05 | 232.80 | 233.60 | 233.32 | 233.01 | 233.31 | 232.85 |
| 15  | 226.28 | 226.47 | 226.32 | 226.79 | 226.83 | 226.40 | 226.68 | 226.26 | 226.53 | 225.51 | 226.42 | 225.79 | 226.95 |
| 20  | 216.53 | 216.19 | 215.29 | 216.04 | 216.99 | 216.78 | 217.50 | 217.16 | 217.90 | 216.23 | 217.23 | 216.47 | 217.14 |
| 25  | 202.46 | 201.88 | 202.98 | 202.98 | 203.81 | 203.68 | 204.45 | 205.08 | 205.48 | 204.27 | 205.25 | 204.70 | 205.31 |
| 30  | 186.53 | 185.81 | 187.01 | 187.52 | 190.21 | 189.49 | 189.67 | 190.48 | 191.95 | 190.63 | 190.50 | 190.62 | 191.03 |
| 35  | 169.06 | 168.21 | 169.07 | 168.31 | 171.68 | 171.66 | 173.98 | 175.20 | 176.21 | 174.23 | 175.55 | 174.90 | 174.84 |
| 40  | 150.06 | 148.85 | 150.33 | 150.53 | 152.97 | 154.14 | 156.70 | 156.43 | 159.02 | 157.84 | 157.70 | 157.40 | 158.46 |
| 45  | 128.94 | 129.27 | 130.81 | 131.04 | 134.28 | 134.27 | 137.77 | 138.38 | 140.49 | 139.37 | 140.15 | 139.41 | 139.18 |
| 50  | 109.37 | 109.06 | 111.20 | 111.37 | 115.59 | 115.84 | 118.47 | 120.10 | 120.94 | 121.54 | 121.47 | 119.93 | 120.08 |
| 55  | 90.31  | 90.23  | 91.72  | 93.95  | 96.68  | 97.42  | 100.34 | 100.84 | 102.68 | 102.28 | 102.97 | 101.90 | 101.66 |
| 60  | 71.78  | 71.71  | 74.04  | 75.09  | 78.12  | 79.95  | 81.83  | 82.66  | 84.76  | 84.60  | 85.09  | 84.33  | 83.41  |
| 65  | 56.73  | 55.81  | 57.91  | 58.56  | 61.87  | 63.38  | 64.80  | 66.05  | 67.23  | 66.87  | 67.42  | 66.62  | 66.71  |
| 70  | 42.38  | 42.84  | 44.44  | 45.01  | 46.06  | 48.13  | 49.03  | 49.32  | 50.27  | 49.73  | 50.67  | 50.58  | 50.87  |
| 75  | 32.21  | 31.59  | 32.28  | 33.05  | 34.72  | 34.64  | 34.86  | 34.88  | 34.97  | 34.17  | 34.97  | 35.53  | 36.33  |
| 80  | 24.23  | 23.00  | 23.60  | 22.87  | 23.91  | 22.61  | 22.64  | 21.13  | 20.44  | 19.49  | 20.95  | 21.60  | 23.43  |
| 85  | 15.94  | 15.94  | 16.09  | 15.13  | 14.92  | 14.26  | 13.29  | 10.38  | 8.13   | 7.41   | 8.57   | 10.95  | 13.06  |
| 90  | 10.15  | 10.15  | 9.94   | 9.34   | 8.00   | 7.20   | 5.54   | 2.90   | 2.47   | 0.98   | 1.43   | 4.11   | 5.55   |
| 95  | 5.67   | 5.17   | 5.61   | 4.24   | 3.51   | 2.70   | 1.89   | 0.81   | 0.59   | 0.31   | 0.83   | 1.27   | 1.57   |
| 100 | 2.05   | 2.55   | 1.40   | 1.76   | 1.03   | 0.73   | 0.34   | 0.99   | 0.15   | 1.07   | 0.12   | 1.44   | 0.47   |
| 105 | 1.99   | 0.62   | 0.77   | 0.98   | 0.49   | 1.54   | 1.19   | 0.55   | 1.03   | 0.94   | 0.70   | 1.58   | 0.71   |
| 110 | 0.94   | 1.23   | 0.39   | 0.46   | 0.85   | 1.33   | 1.26   | 1.08   | 0.54   | 0.82   | 1.08   | 0.57   | 1.60   |
| 115 | 0.95   | 0.73   | 1.01   | 1.09   | 1.05   | 0.85   | 1.26   | 1.43   | 0.60   | 1.36   | 0.85   | 1.59   | 0.92   |
| 120 | 1.31   | 1.55   | 1.86   | 2.15   | 1.72   | 1.59   | 1.10   | 1.82   | 1.26   | 1.61   | 1.31   | 1.55   | 1.52   |
| 125 | 1.17   | 1.67   | 1.91   | 1.59   | 0.60   | 1.21   | 1.19   | 1.21   | 1.59   | 1.03   | 0.72   | 1.88   | 1.55   |
| 130 | 1.44   | 1.55   | 1.84   | 1.60   | 1.46   | 1.60   | 1.49   | 1.83   | 0.87   | 1.57   | 1.64   | 2.47   | 1.56   |

Luminaire

|                 |     |          |                                                                          |       |  |  |  |  |  |  |  |  |                       |
|-----------------|-----|----------|--------------------------------------------------------------------------|-------|--|--|--|--|--|--|--|--|-----------------------|
| Lamp            |     | Report   | 20150416-0002                                                            |       |  |  |  |  |  |  |  |  |                       |
| No. of lamps    | 1   | Filename | C:\Program Files\WJNCTECH\GoniLED\StartUp\Data\150416\WNDV 7W 40K -1.jdt |       |  |  |  |  |  |  |  |  |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                              | 0.314 |  |  |  |  |  |  |  |  |                       |
| Total flux (lm) | 591 | Date     | Power Factor                                                             | 1     |  |  |  |  |  |  |  |  |                       |
|                 |     |          |                                                                          |       |  |  |  |  |  |  |  |  | 2015-04-17 오후 7:44:30 |

**Luminous Intensity Data (Continued)**

| GWC | 130    | 140    | 150    | 160    | 170    | 180    | 190    | 200    | 210    | 220    | 230    | 240    | 250    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0   | 238.21 | 238.34 | 238.24 | 239.00 | 238.55 | 237.96 | 238.28 | 239.97 | 238.54 | 238.72 | 239.23 | 238.12 | 237.81 |
| 5   | 237.18 | 237.73 | 237.91 | 237.68 | 237.73 | 236.77 | 237.06 | 237.15 | 236.47 | 237.21 | 237.39 | 235.58 | 237.55 |
| 10  | 233.93 | 234.35 | 233.87 | 234.71 | 234.24 | 232.84 | 232.38 | 232.94 | 232.69 | 232.08 | 234.08 | 232.29 | 232.75 |
| 15  | 227.08 | 227.51 | 227.52 | 229.10 | 227.77 | 224.07 | 226.22 | 225.74 | 225.93 | 225.72 | 226.65 | 225.32 | 225.10 |
| 20  | 217.30 | 218.33 | 218.30 | 218.55 | 218.60 | 214.18 | 214.67 | 214.13 | 216.66 | 216.11 | 215.64 | 216.04 | 215.57 |
| 25  | 205.74 | 206.15 | 205.66 | 205.78 | 205.70 | 200.46 | 201.33 | 200.87 | 202.21 | 203.81 | 204.10 | 203.61 | 203.17 |
| 30  | 190.90 | 191.14 | 190.21 | 189.89 | 190.62 | 182.81 | 184.60 | 185.77 | 186.39 | 187.23 | 188.88 | 189.17 | 188.86 |
| 35  | 173.92 | 174.99 | 173.36 | 173.18 | 172.03 | 165.59 | 167.16 | 167.02 | 168.73 | 170.11 | 171.57 | 172.55 | 172.87 |
| 40  | 156.01 | 155.29 | 154.15 | 154.81 | 152.67 | 146.54 | 147.56 | 148.23 | 150.72 | 150.90 | 153.58 | 153.53 | 155.90 |
| 45  | 137.52 | 137.19 | 134.86 | 134.88 | 133.82 | 126.49 | 128.14 | 129.02 | 130.07 | 132.20 | 133.86 | 134.17 | 136.58 |
| 50  | 118.30 | 117.70 | 116.08 | 115.77 | 114.45 | 107.46 | 108.81 | 109.84 | 111.42 | 112.65 | 114.20 | 115.62 | 117.11 |
| 55  | 100.29 | 99.43  | 97.62  | 97.30  | 95.93  | 88.26  | 90.42  | 89.85  | 92.90  | 93.63  | 95.89  | 96.41  | 98.35  |
| 60  | 82.09  | 81.72  | 79.79  | 79.01  | 76.99  | 70.52  | 71.88  | 72.67  | 75.16  | 76.46  | 78.15  | 78.53  | 80.33  |
| 65  | 66.04  | 65.08  | 63.05  | 61.71  | 60.74  | 54.58  | 55.83  | 56.11  | 58.26  | 59.71  | 61.08  | 62.31  | 63.04  |
| 70  | 49.71  | 49.37  | 48.59  | 47.13  | 46.66  | 42.02  | 42.23  | 43.40  | 44.53  | 44.97  | 46.00  | 46.06  | 47.40  |
| 75  | 35.81  | 36.49  | 35.02  | 35.16  | 34.66  | 31.38  | 31.62  | 31.46  | 32.27  | 31.17  | 33.67  | 31.70  | 31.35  |
| 80  | 24.20  | 24.78  | 24.77  | 25.24  | 24.63  | 22.36  | 22.82  | 22.39  | 22.81  | 21.70  | 21.42  | 18.55  | 17.95  |
| 85  | 14.81  | 16.07  | 16.53  | 17.44  | 17.47  | 15.42  | 14.87  | 15.13  | 14.24  | 13.42  | 13.08  | 10.49  | 8.26   |
| 90  | 7.64   | 9.08   | 9.93   | 10.97  | 11.59  | 8.70   | 9.46   | 9.43   | 8.98   | 6.63   | 6.23   | 3.42   | 1.69   |
| 95  | 3.36   | 5.08   | 5.27   | 6.37   | 6.73   | 5.14   | 6.04   | 4.64   | 3.71   | 3.24   | 2.13   | 1.14   | 0.25   |
| 100 | 1.44   | 1.28   | 2.45   | 3.76   | 2.97   | 2.02   | 2.10   | 2.64   | 1.74   | 1.12   | 0.80   | 0.64   | 0.81   |
| 105 | 0.61   | 1.05   | 1.03   | 1.09   | 1.03   | 0.75   | 1.48   | 1.30   | 0.29   | 0.44   | 0.94   | 0.36   | 0.47   |
| 110 | 1.06   | 1.01   | 0.71   | 1.25   | 1.14   | 0.54   | 0.69   | 1.28   | 0.56   | 1.27   | 1.63   | 1.14   | 0.91   |
| 115 | 1.41   | 1.15   | 1.38   | 1.43   | 0.74   | 0.49   | 1.15   | 1.53   | 1.30   | 1.54   | 1.47   | 1.29   | 0.56   |
| 120 | 1.47   | 1.62   | 0.70   | 0.52   | 1.44   | 0.84   | 1.13   | 0.52   | 1.52   | 1.46   | 1.95   | 1.56   | 0.25   |
| 125 | 1.67   | 0.93   | 1.35   | 1.22   | 1.88   | 1.36   | 1.54   | 1.46   | 1.29   | 1.13   | 1.23   | 1.44   | 0.82   |
| 130 | 1.86   | 1.93   | 1.54   | 1.78   | 1.15   | 1.28   | 1.37   | 0.93   | 1.42   | 0.98   | 0.93   | 1.83   | 1.66   |

Luminaire

|                 |     |          |                                                                            |                       |
|-----------------|-----|----------|----------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                            | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNC\TECH\WGoniLED\Startup\Data\W150416\WNDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                                | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                               | 1                     |
|                 |     |          |                                                                            | 2015-04-17 오후 7:44:30 |

Luminous Intensity Data (Continued)

| GWC | 260    | 270    | 280    | 290    | 300    | 310    | 320    | 330    | 340    | 350    | 360    |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0   | 238.75 | 238.55 | 239.12 | 239.17 | 238.15 | 238.21 | 238.34 | 238.24 | 239.00 | 238.55 | 237.96 |
| 5   | 236.74 | 236.91 | 236.66 | 236.35 | 236.59 | 236.83 | 237.18 | 236.73 | 236.94 | 236.52 | 237.73 |
| 10  | 232.30 | 232.70 | 232.35 | 232.73 | 232.31 | 233.43 | 232.37 | 231.88 | 233.61 | 231.52 | 233.65 |
| 15  | 224.85 | 225.42 | 225.67 | 225.37 | 224.90 | 225.26 | 223.24 | 224.59 | 223.68 | 223.14 | 226.28 |
| 20  | 215.35 | 215.59 | 215.33 | 215.41 | 215.49 | 214.89 | 213.94 | 213.80 | 211.69 | 212.19 | 216.53 |
| 25  | 203.56 | 203.40 | 203.05 | 202.45 | 201.77 | 202.00 | 200.42 | 199.16 | 198.58 | 197.05 | 202.46 |
| 30  | 189.03 | 188.70 | 188.50 | 187.88 | 186.24 | 185.70 | 183.71 | 183.50 | 180.92 | 181.83 | 186.53 |
| 35  | 171.93 | 172.86 | 172.03 | 172.07 | 169.94 | 168.79 | 166.57 | 165.10 | 162.85 | 161.66 | 169.06 |
| 40  | 154.78 | 154.94 | 154.81 | 154.19 | 151.36 | 149.50 | 147.64 | 146.31 | 143.76 | 142.01 | 150.06 |
| 45  | 135.61 | 136.75 | 136.44 | 135.40 | 133.26 | 130.16 | 127.87 | 126.72 | 123.50 | 123.41 | 128.94 |
| 50  | 117.40 | 117.99 | 116.90 | 115.87 | 113.83 | 112.13 | 108.44 | 107.19 | 104.45 | 104.45 | 109.37 |
| 55  | 98.95  | 99.33  | 98.06  | 97.34  | 95.00  | 93.35  | 90.95  | 87.79  | 84.97  | 84.82  | 90.31  |
| 60  | 80.44  | 81.28  | 79.76  | 79.67  | 77.18  | 76.01  | 73.18  | 70.78  | 68.55  | 66.60  | 71.78  |
| 65  | 62.26  | 62.88  | 61.87  | 61.81  | 59.52  | 59.80  | 56.51  | 54.16  | 52.23  | 52.23  | 56.73  |
| 70  | 46.01  | 46.50  | 45.20  | 45.65  | 45.20  | 43.71  | 42.05  | 41.14  | 40.20  | 39.23  | 42.38  |
| 75  | 30.05  | 30.15  | 30.06  | 30.50  | 30.00  | 30.89  | 30.08  | 29.77  | 29.47  | 28.49  | 32.21  |
| 80  | 15.45  | 15.33  | 16.26  | 18.34  | 18.96  | 20.30  | 20.61  | 20.95  | 20.59  | 20.56  | 24.23  |
| 85  | 5.37   | 4.69   | 5.75   | 7.92   | 9.19   | 11.76  | 12.74  | 13.24  | 13.21  | 13.97  | 15.94  |
| 90  | 0.64   | 0.29   | 0.04   | 2.18   | 3.92   | 5.40   | 6.65   | 7.87   | 7.65   | 8.25   | 10.15  |
| 95  | 0.39   | 0.69   | 0.62   | 0.46   | 1.04   | 1.40   | 2.76   | 3.19   | 3.87   | 3.93   | 5.67   |
| 100 | 0.32   | 0.90   | 0.61   | 0.50   | 0.21   | 0.78   | 1.19   | 1.67   | 1.73   | 1.46   | 2.05   |
| 105 | 0.76   | 0.65   | -0.01  | 0.84   | 1.08   | 0.78   | 1.00   | 0.58   | 1.30   | 0.83   | 1.99   |
| 110 | 0.92   | 1.27   | 0.83   | 1.09   | 0.57   | 0.96   | 0.37   | 0.69   | 0.90   | 0.43   | 0.94   |
| 115 | 0.66   | 1.46   | 1.76   | 0.62   | 1.93   | 0.57   | 0.48   | 1.29   | 1.09   | 0.63   | 0.95   |
| 120 | 1.29   | 1.36   | 0.96   | 0.73   | 1.08   | 0.65   | 1.01   | 1.19   | 1.25   | 1.08   | 1.31   |
| 125 | 1.68   | 1.38   | 1.81   | 1.81   | 1.07   | 1.17   | 1.53   | 0.93   | 1.09   | 1.97   | 1.17   |
| 130 | 1.38   | 1.27   | 1.80   | 1.55   | 1.47   | 1.09   | 1.38   | 1.50   | 1.73   | 1.67   | 1.44   |

Luminaire

|                 |     |          |                                                                          |                       |
|-----------------|-----|----------|--------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                          | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\Startup\Data\150416\W\NDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                              | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                             | 1                     |
|                 |     |          |                                                                          | 2015-04-17 오후 7:44:30 |

**Luminous Flux Table**

Total Lamp Lumens: 591

Luminaire Efficiency (lm/W): 591.18

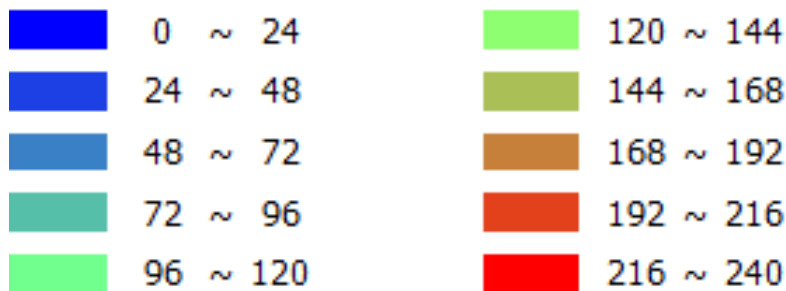
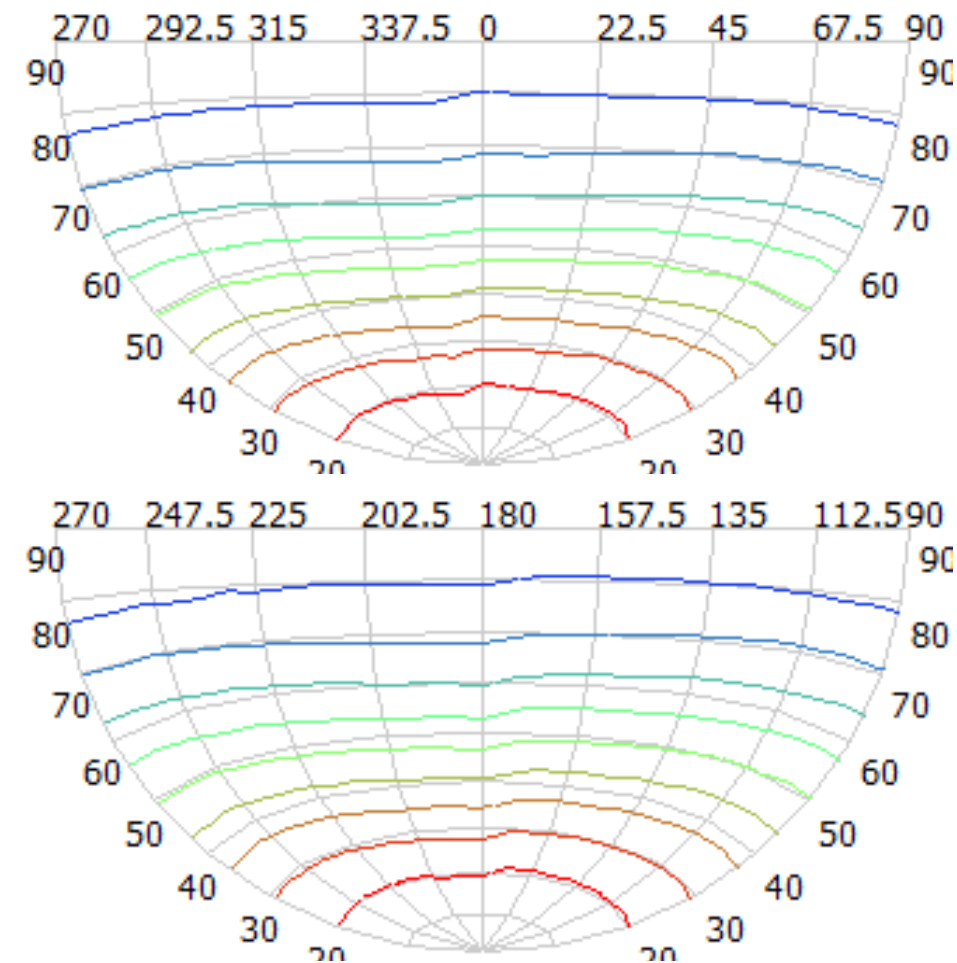
CIE Classification: Direct

| Elevation | Lumens | Cumulative | Lamp % | Luminaire % |
|-----------|--------|------------|--------|-------------|
| 0         | 1.43   | 1.43       | 0.24   | 0.24        |
| 5         | 11.33  | 12.76      | 2.16   | 2.16        |
| 10        | 22.19  | 34.95      | 5.91   | 5.91        |
| 15        | 32.05  | 67.00      | 11.33  | 11.33       |
| 20        | 40.49  | 107.49     | 18.18  | 18.18       |
| 25        | 47.05  | 154.55     | 26.14  | 26.14       |
| 30        | 51.49  | 206.04     | 34.85  | 34.85       |
| 35        | 53.71  | 259.75     | 43.94  | 43.94       |
| 40        | 53.73  | 313.48     | 53.02  | 53.03       |
| 45        | 51.69  | 365.17     | 61.77  | 61.77       |
| 50        | 47.97  | 413.14     | 69.88  | 69.88       |
| 55        | 42.90  | 456.04     | 77.14  | 77.14       |
| 60        | 36.84  | 492.89     | 83.37  | 83.37       |
| 65        | 30.23  | 523.12     | 88.48  | 88.49       |
| 70        | 23.64  | 546.76     | 92.48  | 92.49       |
| 75        | 17.29  | 564.05     | 95.41  | 95.41       |
| 80        | 11.56  | 575.61     | 97.36  | 97.37       |
| 85        | 6.81   | 582.42     | 98.51  | 98.52       |
| 90        | 3.42   | 585.84     | 99.09  | 99.10       |
| 95        | 1.60   | 587.44     | 99.36  | 99.37       |
| 100       | 0.71   | 588.15     | 99.48  | 99.49       |
| 105       | 0.47   | 588.61     | 99.56  | 99.57       |
| 110       | 0.48   | 589.09     | 99.64  | 99.65       |
| 115       | 0.55   | 589.64     | 99.74  | 99.74       |
| 120       | 0.61   | 590.24     | 99.84  | 99.84       |
| 125       | 0.61   | 590.86     | 99.94  | 99.95       |
| 130       | 0.32   | 591.18     | 100.00 | 100.00      |

Luminaire

|                 |     |          |                                                                        |                       |
|-----------------|-----|----------|------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                        | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\NDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                            | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                           | 1                     |
|                 |     |          |                                                                        | 2015-04-17 오후 7:44:30 |

**IsoCandela (Type C)**

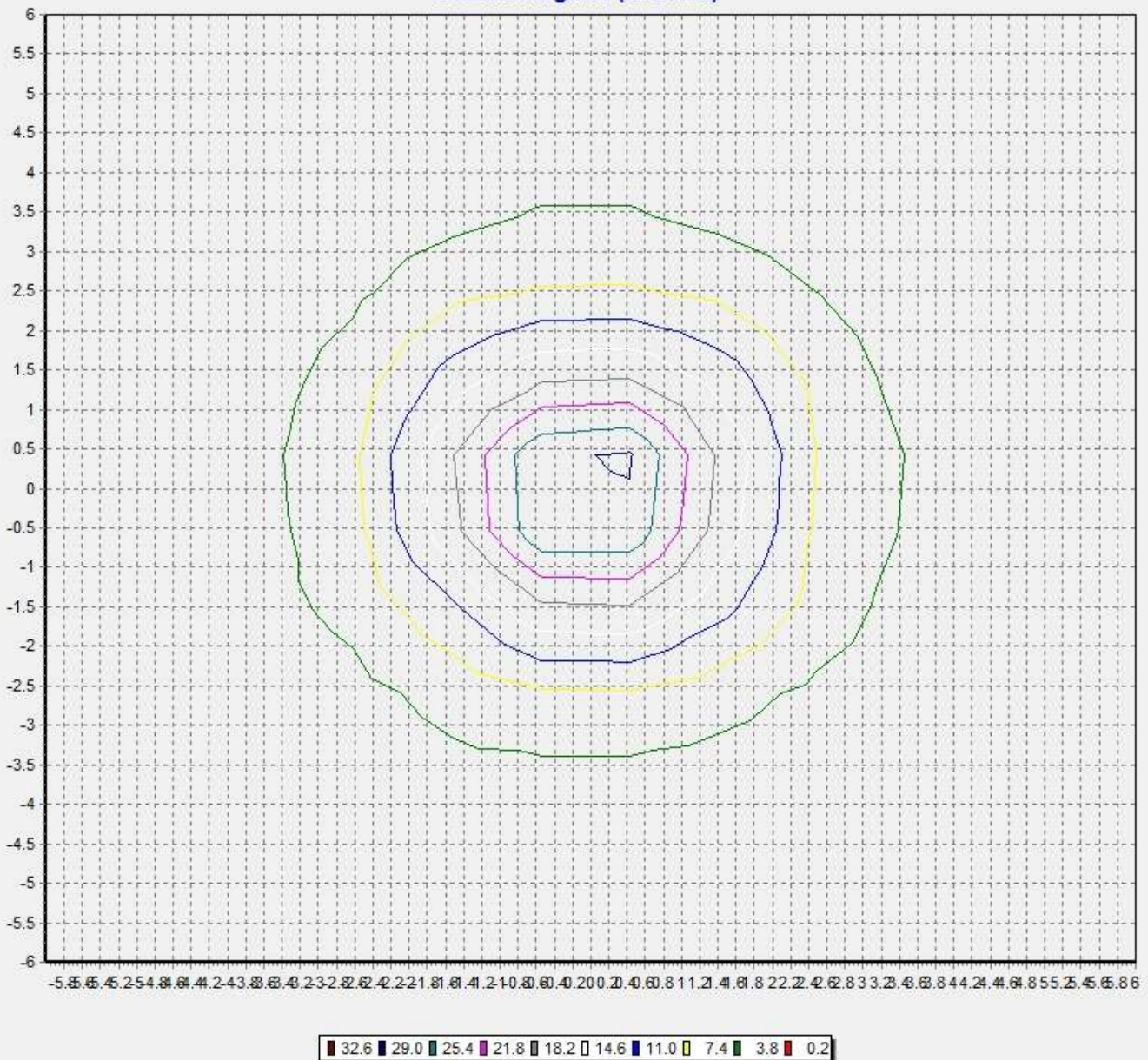


Luminaire

|                 |     |          |                                                                         |
|-----------------|-----|----------|-------------------------------------------------------------------------|
| Lamp            |     | Report   | 20150416-0002                                                           |
| No. of lamps    | 1   | Filename | C:\Program Files\JNC\TECH\GoniLED\Startup\Data\150416\NDV 7W 40K -1.jdt |
| Lamp flux (lm)  | 591 | Operator | Current (A) 0.314                                                       |
| Total flux (lm) | 591 | Date     | Power Factor 1                                                          |

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IsoLux Diagram (Ground)



Pole Height (m): 2.7

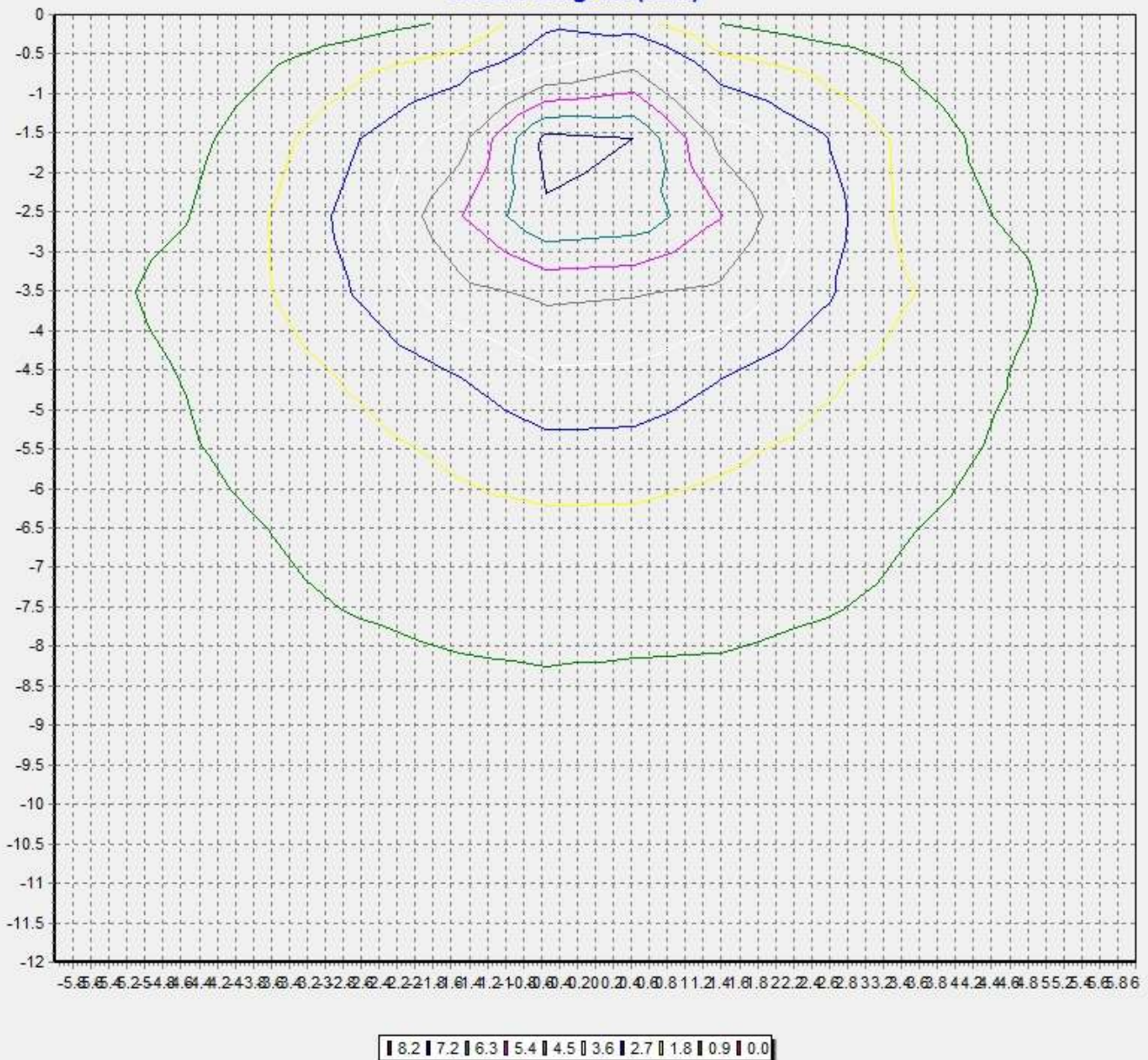
Area Width (m): 12

Luminaire

|                 |     |          |                                                                        |
|-----------------|-----|----------|------------------------------------------------------------------------|
| Lamp            |     | Report   | 20150416-0002                                                          |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\NDV 7W 40K -1.jdt |
| Lamp flux (lm)  | 591 | Operator | Current (A) 0.314                                                      |
| Total flux (lm) | 591 | Date     | Power Factor 1                                                         |

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**IsoLux Diagram (Wall)**



Pole Height (m): 2.7      Wall Distance (m): 2.7  
Aiming Plane: 0      Wall Height (m): 12

Luminaire

Lamp

|                 |     |              |       |
|-----------------|-----|--------------|-------|
| No. of lamps    | 1   | Voltage (V)  | 23.97 |
| Lamp flux (lm)  | 591 | Current (A)  | 0.314 |
| Total flux (lm) | 591 | Power Factor | 1     |

Report

20150416-0002

Filename C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\WINDV 7W 40K -1.jdt

Operator

Date

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**Illuminance Levels (Ground)**

|       |       |       |       |       |       |       |       |       |       |      |      |      |      |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| 6.00  | 0.22  | 0.30  | 0.31  | 0.41  | 0.65  | 0.74  | 0.78  | 0.73  | 0.63  | 0.39 | 0.30 | 0.28 | 0.20 |
| 5.00  | 0.30  | 0.33  | 0.61  | 0.85  | 0.90  | 1.33  | 1.42  | 1.33  | 0.88  | 0.83 | 0.57 | 0.30 | 0.28 |
| 4.00  | 0.30  | 0.60  | 0.75  | 1.39  | 1.66  | 2.59  | 2.83  | 2.57  | 1.60  | 1.34 | 0.68 | 0.57 | 0.27 |
| 3.00  | 0.39  | 0.81  | 1.39  | 1.95  | 3.20  | 4.58  | 5.28  | 4.53  | 3.13  | 1.82 | 1.32 | 0.75 | 0.36 |
| 2.00  | 0.61  | 0.83  | 1.61  | 3.10  | 6.87  | 9.98  | 13.21 | 9.80  | 6.62  | 2.94 | 1.49 | 0.76 | 0.56 |
| 1.00  | 0.69  | 1.24  | 2.44  | 4.43  | 9.80  | 18.86 | 25.44 | 18.66 | 9.51  | 4.24 | 2.31 | 1.16 | 0.63 |
| 0.00  | 0.65  | 1.21  | 2.49  | 4.72  | 12.64 | 25.27 | 32.64 | 25.52 | 12.90 | 4.81 | 2.54 | 1.24 | 0.66 |
| -1.00 | 0.63  | 1.14  | 2.28  | 4.19  | 9.48  | 18.54 | 25.43 | 18.45 | 9.31  | 4.08 | 2.20 | 1.09 | 0.60 |
| -2.00 | 0.55  | 0.76  | 1.48  | 2.90  | 6.57  | 9.71  | 13.09 | 9.63  | 6.57  | 2.83 | 1.44 | 0.72 | 0.53 |
| -3.00 | 0.35  | 0.74  | 1.29  | 1.79  | 3.05  | 4.42  | 5.15  | 4.43  | 3.05  | 1.81 | 1.28 | 0.72 | 0.34 |
| -4.00 | 0.27  | 0.56  | 0.67  | 1.30  | 1.56  | 2.50  | 2.75  | 2.50  | 1.55  | 1.30 | 0.67 | 0.55 | 0.25 |
| -5.00 | 0.27  | 0.29  | 0.56  | 0.79  | 0.85  | 1.28  | 1.38  | 1.29  | 0.84  | 0.80 | 0.56 | 0.29 | 0.27 |
| -6.00 | 0.20  | 0.27  | 0.28  | 0.37  | 0.60  | 0.70  | 0.74  | 0.70  | 0.61  | 0.36 | 0.28 | 0.27 | 0.20 |
| -6.00 | -5.00 | -4.00 | -3.00 | -2.00 | -1.00 | 0.00  | 1.00  | 2.00  | 3.00  | 4.00 | 5.00 | 6.00 |      |

Illum. (Max.): 32.6

All illuminance level values are in lux.

Illum. (Min.): 0.20

Illum. Avg.: 3.32

Total Optical Solution Provider

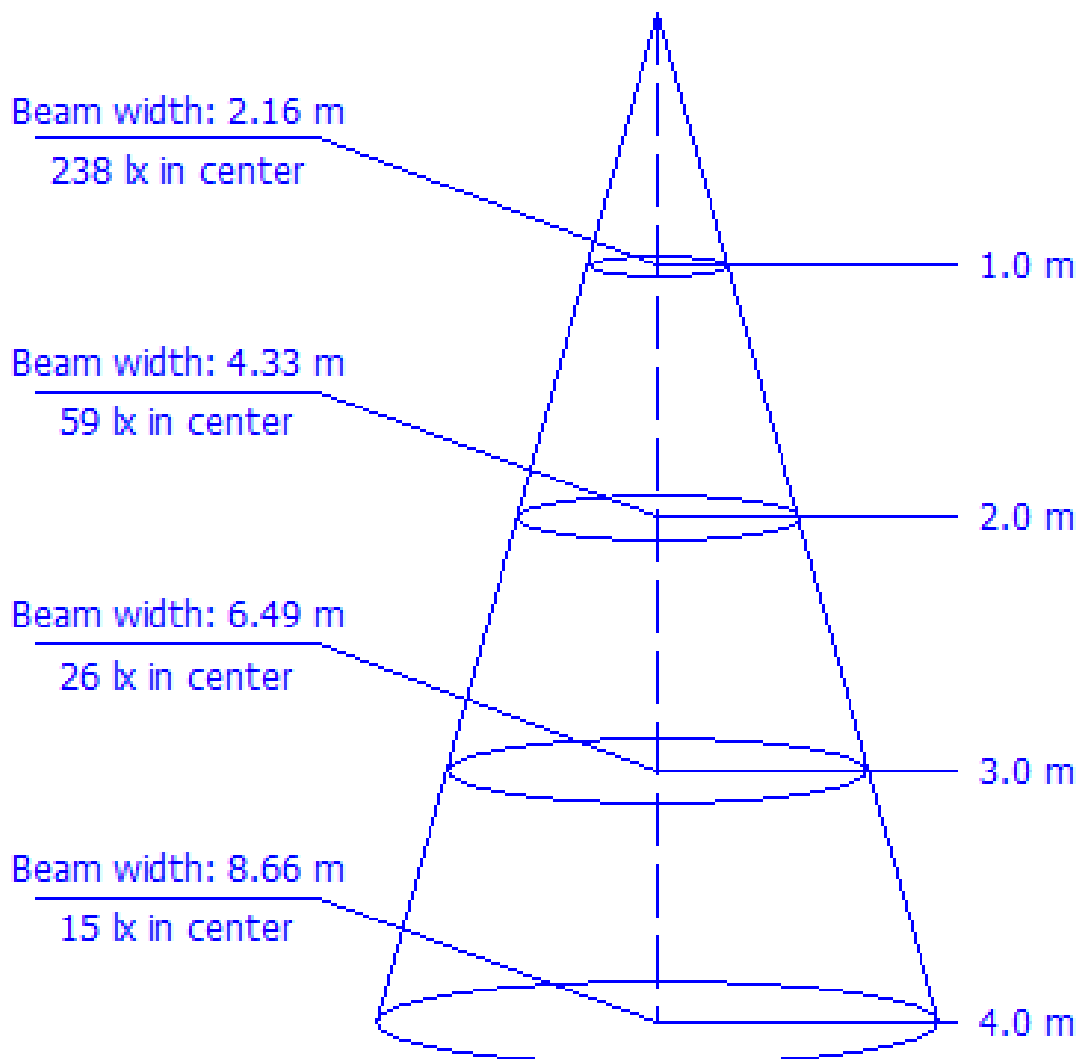


<http://www.jnctech.co.kr>  
J & C Technology Co., Ltd.

Luminaire

|                 |     |          |                                                                        |                       |
|-----------------|-----|----------|------------------------------------------------------------------------|-----------------------|
| Lamp            |     | Report   |                                                                        | 20150416-0002         |
| No. of lamps    | 1   | Filename | C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\NDV 7W 40K -1.jdt |                       |
| Lamp flux (lm)  | 591 | Operator | Current (A)                                                            | 0.314                 |
| Total flux (lm) | 591 | Date     | Power Factor                                                           | 1                     |
|                 |     |          |                                                                        | 2015-04-17 오후 7:44:30 |

**Illuminance Cone Diagram**



Beam Angle = 95 deg.

Based on 50% of maximum illuminance.

Luminaire

Lamp

|                 |     |              |       |
|-----------------|-----|--------------|-------|
| No. of lamps    | 1   | Voltage (V)  | 23.97 |
| Lamp flux (lm)  | 591 | Current (A)  | 0.314 |
| Total flux (lm) | 591 | Power Factor | 1     |

Report

20150416-0002

Filename C:\Program Files\JNCTECH\GoniLED\StartUp\Data\150416\WNV 7W 40K -1.jdt

Operator

Date

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Coefficient of Utilization

|                         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Refl. Ceiling (%)       | 80%  | 80%  | 80%  | 70%  | 70%  | 70%  | 50%  | 50%  | 50%  | 30%  | 30%  | 30%  | 10%  | 10%  | 10%  | 0%   |
| Refl. Wall (%)          | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 50%  | 30%  | 10%  | 0%   |
| Eff. Floor Cavity Refl. | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  | 20%  |
| Room CR 0               | 1.18 | 1.18 | 1.18 | 1.15 | 1.15 | 1.15 | 1.10 | 1.10 | 1.10 | 1.05 | 1.05 | 1.05 | 1.00 | 1.00 | 1.00 | 0.98 |
| Room CR 1               | 1.03 | 0.99 | 0.96 | 1.01 | 0.97 | 0.94 | 0.97 | 0.94 | 0.91 | 0.93 | 0.90 | 0.88 | 0.89 | 0.87 | 0.85 | 0.83 |
| Room CR 2               | 0.91 | 0.84 | 0.79 | 0.89 | 0.83 | 0.78 | 0.85 | 0.80 | 0.76 | 0.82 | 0.78 | 0.74 | 0.79 | 0.75 | 0.72 | 0.70 |
| Room CR 3               | 0.80 | 0.72 | 0.66 | 0.79 | 0.71 | 0.66 | 0.76 | 0.69 | 0.64 | 0.73 | 0.67 | 0.63 | 0.70 | 0.66 | 0.62 | 0.60 |
| Room CR 4               | 0.72 | 0.63 | 0.57 | 0.70 | 0.62 | 0.56 | 0.68 | 0.61 | 0.55 | 0.65 | 0.59 | 0.54 | 0.63 | 0.58 | 0.54 | 0.51 |
| Room CR 5               | 0.64 | 0.56 | 0.49 | 0.63 | 0.55 | 0.49 | 0.61 | 0.54 | 0.48 | 0.59 | 0.53 | 0.48 | 0.57 | 0.51 | 0.47 | 0.45 |
| Room CR 6               | 0.58 | 0.50 | 0.43 | 0.57 | 0.49 | 0.43 | 0.55 | 0.48 | 0.43 | 0.53 | 0.47 | 0.42 | 0.52 | 0.46 | 0.42 | 0.40 |
| Room CR 7               | 0.53 | 0.44 | 0.39 | 0.52 | 0.44 | 0.38 | 0.50 | 0.43 | 0.38 | 0.49 | 0.42 | 0.38 | 0.47 | 0.42 | 0.37 | 0.35 |
| Room CR 8               | 0.48 | 0.40 | 0.35 | 0.48 | 0.40 | 0.34 | 0.46 | 0.39 | 0.34 | 0.45 | 0.39 | 0.34 | 0.44 | 0.38 | 0.34 | 0.32 |
| Room CR 9               | 0.45 | 0.37 | 0.31 | 0.44 | 0.36 | 0.31 | 0.43 | 0.36 | 0.31 | 0.42 | 0.35 | 0.31 | 0.41 | 0.35 | 0.30 | 0.29 |
| Room CR 10              | 0.41 | 0.34 | 0.28 | 0.41 | 0.33 | 0.28 | 0.40 | 0.33 | 0.28 | 0.39 | 0.32 | 0.28 | 0.38 | 0.32 | 0.28 | 0.26 |