Major Roads_Lighting class_ ME3b

Installation : Streetlight 10 Midi Plus 5000 K

Project number : Sample projection
Customer : 
Processed by : Siteco Light Consulting
Date : 05/2014

Project description:
Lighting class ME3b according to DIN EN 13201:2005

Luminaire:
Streetlight 10 Midi Plus 5000K
5XA5823A1B08
Maintenance factor: 0,94

Width of Road = 7,5m
Mounting height = 8m
Kerb distance = 0m
Luminaire spacing = 36 m

The determination of the lighting results is performed on a sales support basis, with great thoroughness, using the documents at our disposal and with the aid of calculating procedures customary in the market (e.g. Relux, Dialux).
A guarantee / warranty / liability for this free calculation is not provided by SITECO. In this respect, we refer to the services of the light planning and engineering office.

The following values are based on exact calculations on calibrated lamps, luminaires and their arrangement. In practice, gradual divergences can occur.

Guarantee claims for luminaire data are excluded.

Relux and the luminaire manufacturers accept no liability for consequential damage and damage which is occasioned to the user or to third parties.
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2.3.2 Table, Straße (L)
1 Luminaire data

1.2 Siteco, Streetlight 10 midi LED (5XA5823A1B08)

1.2.1 Data sheet

Manufacturer: Siteco

5XA5823A1B08 mast luminaire-pylon top Streetlight 10 midi LED
Streetlight 10 midi LED, mast luminaire, primary light control with road optic, of plastic, aluminium vapourised, primary optical cover: cover, of PMMA, transparent, light emission: direct distribution, primary light characteristic: asymmetric, installation type: side-entry, post-top, LED module light colour: cool white, colour temperature: 5000K, control gear: ECG Plus, control: flexible luminous flux parameterisation, overheat protection, power reduction, digital communication interface between ECG and LED module, constant luminous flux control, time-dependent luminous flux control, electronic power reduction, with terminal, 5-pole, max. 2.5mm², mains connection: 220..240V, AC, 50/60Hz, start of lifetime: 83 W, end of lifetime: 107 W, reduction: 39 W, luminaire housing, of diecast aluminium, powder-coated, Siteco® metallic grey (DB 702S), length: 800 mm, width: 387 mm, height: 168mm, spigot size: 60/76mm (post-top) and 42/60mm (side-entry), mast flange for spigot size: 42mm: 5XA58100XM4, 60mm: 5XA58100XM2, 76mm: 5XA58100XM1, protection rating (complete): IP66, insulation class (complete): insulation class II (safety insulation), certification: CE, ENEC 10, VDE, standard-compliant lighting for roads and squares, packaging unit: 1 piece.

factory setting: luminousflux part=100% (dimming level=254)

<table>
<thead>
<tr>
<th>Luminaire data</th>
<th>Equipped with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminaire efficiency</td>
<td>Quantity</td>
</tr>
<tr>
<td>Luminaire efficacy</td>
<td>2</td>
</tr>
<tr>
<td>Classification</td>
<td>Designation</td>
</tr>
<tr>
<td>CIE Flux Codes</td>
<td>LED 5000K /</td>
</tr>
<tr>
<td>UGR 4H 8H (20%, 50%, 70%)</td>
<td>CRI &gt;= 70</td>
</tr>
<tr>
<td>C0 / C90</td>
<td>Power</td>
</tr>
<tr>
<td>Control gear</td>
<td>41W</td>
</tr>
<tr>
<td>System power</td>
<td>Colour</td>
</tr>
<tr>
<td>Length</td>
<td>Luminous flux</td>
</tr>
<tr>
<td>Width</td>
<td>4225 lm</td>
</tr>
<tr>
<td>Height</td>
<td></td>
</tr>
</tbody>
</table>

Luminaire data:
- 100% efficiency
- 101.81 lm/W efficacy
- Classification: A30 ↓100.0%, ↑0.0%
- CIE Flux Codes: 32 71 96 100 100
- UGR 4H 8H (20%, 50%, 70%)
- C0 / C90: 36.2 / 13.3
- Control gear: ECG Plus
- System power: 83 W
- Length: 800 mm
- Width: 386 mm
- Height: 168 mm

Equipped with:
- Quantity: 2
- Designation: LED 5000K /
- CRI >= 70
- Power: 41W
- Colour:
- Luminous flux: 4225 lm
2 Major Roads_ME3b

2.1 Description, Major Roads_ME3b

2.1.1 Floor plan

<table>
<thead>
<tr>
<th>Straße</th>
<th>Type of mast</th>
</tr>
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<tbody>
<tr>
<td>Road layout</td>
<td>Streetlight 10 midi LED (5XA5823A1B08)</td>
</tr>
<tr>
<td>Width of roadway</td>
<td>7.50 m</td>
</tr>
<tr>
<td>No. of lanes</td>
<td>2</td>
</tr>
<tr>
<td>Road surface category</td>
<td>R3</td>
</tr>
<tr>
<td>q0</td>
<td>0.08</td>
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</tbody>
</table>

Luminaire arrangement for:
Streetlight 10 midi LED (5XA5823A1B08) Position

<table>
<thead>
<tr>
<th>x[m]</th>
<th>y[m]</th>
<th>z[m]</th>
<th>Z[°]</th>
<th>C0[°]</th>
<th>C90[°]</th>
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</thead>
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<tr>
<td>0.04</td>
<td>0.54</td>
<td>8.00</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>
2.1  **Description, Major Roads_ME3b**

2.1.2  **3D view, View from the left**
2 Major Roads_ME3b

2.2 Summary, Major Roads_ME3b

2.2.1 Result overview, Straße

Luminaire data
Manufacturer : Streetlight 10 Midi Plus 5000 K
Order No. : Streetlight 10 Midi Plus 5000 K
Luminaire name : Streetlight 10 Midi Plus 5000 K
Equipment : Streetlight 10 Midi Plus 5000 K

Road layout : without central reservation
Width of roadway (b) : 7.50 m
No. of lanes : 2
Road surface category : R3
q0 : 0.08
Right hand drivers

Photometric centre height. (h) : 8.00 m
Distance between masts (a) : 36.00 m
Kerb distance (u) : 0.50 m
Inclination (δ) : 0.00°
Maintenance factor : 0.94

Observer location 1 : x=-60.00m, y=1.88m, z=1.50m
Average : 1.08 cd/m² (ME3b min. 1)
Uo (min/average) : 0.6 (ME3b min. 0.4)

Observer location 2 : x=-60.00m, y=5.63m, z=1.50m
Average : 1.17 cd/m² (ME3b min. 1)
Uo (min/average) : 0.6 (ME3b min. 0.4)

Longitudinal uniformity
UI (B1: x = -60.00, y = 1.88, z = 1.50) : 0.61 (ME3b min. 0.6)
UI (B2: x = -60.00, y = 5.63, z = 1.50) : 0.62 (ME3b min. 0.6)

Glare/ surrounding brightness
TI (B2: y=5.63m) : 8 % (ME3b max. 15)
SR : 0.55 (ME3b min. 0.5)
2 Major Roads_ME3b

2.3 Calculation results, Major Roads_ME3b

2.3.1 Table, Straße (L)

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<tr>
<th>[m]</th>
<th>0.74</th>
<th>0.8</th>
<th>0.75</th>
<th>0.67</th>
<th>(0.65)</th>
<th>0.71</th>
<th>0.78</th>
<th>0.84</th>
<th>0.88</th>
<th>0.9</th>
<th>0.88</th>
<th>0.75</th>
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<td>T</td>
<td>T</td>
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<td>T</td>
<td>T</td>
<td>T</td>
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<tr>
<td>5.63</td>
<td>0.84</td>
<td>0.84</td>
<td>0.76</td>
<td>0.69</td>
<td>0.79</td>
<td>0.88</td>
<td>0.98</td>
<td>1.11</td>
<td>1.14</td>
<td>1.1</td>
<td>1.11</td>
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<td>4.38</td>
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<td>0.97</td>
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<td>0.75</td>
<td>0.82</td>
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<td>1.16</td>
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<tr>
<td>3.13</td>
<td>1.03</td>
<td>0.98</td>
<td>0.93</td>
<td>0.93</td>
<td>0.92</td>
<td>1.19</td>
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<td>1.13</td>
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<td>1.13</td>
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<td>1.64</td>
<td>1.58</td>
<td>1.38</td>
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<tr>
<td>0.63</td>
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<td>1.13</td>
<td>1.13</td>
<td>1.09</td>
<td>1.23</td>
<td>1.84</td>
<td>(1.82)</td>
<td>1.66</td>
<td>1.36</td>
<td>1.18</td>
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Luminance [cd/m²]

Observer location 1: x = -60, y = 1.88, z = 1.5
Average luminance: \( L_{av} = 1.08 \text{ cd/m}^2 \)
Minimum luminance: \( L_{min} = 0.65 \text{ cd/m}^2 \)
Overall uniformity: \( U_o = 0.6 \)
Threshold increment: \( TI = 8\% \)
Longitudinal uniformity: \( U_l = 0.61 \)
## 2.3 Calculation results, Major Roads_ME3b

### 2.3.2 Table, Straße (L)

<table>
<thead>
<tr>
<th>[m]</th>
<th>0.77</th>
<th>0.82</th>
<th>0.79</th>
<th>0.71</th>
<th>0.77</th>
<th>0.84</th>
<th>0.9</th>
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<th>0.95</th>
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<tbody>
<tr>
<td>6.88</td>
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<td>T</td>
<td>T</td>
<td>T</td>
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<tr>
<td>5.63</td>
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<td>1</td>
<td>0.91</td>
<td>0.84</td>
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<td>0.88</td>
<td>0.84</td>
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<td>4.38</td>
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<td>1.1</td>
<td>1.03</td>
<td>0.99</td>
<td>0.88</td>
<td>0.96</td>
<td>1.17</td>
<td>1.35</td>
<td>1.55</td>
<td>1.47</td>
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<td>1.26</td>
<td>1.27</td>
<td>1.28</td>
<td>1.25</td>
<td>1.36</td>
<td>1.69</td>
<td>1.81</td>
<td>1.74</td>
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<tr>
<td>0.63</td>
<td>0.99</td>
<td>0.95</td>
<td>0.95</td>
<td>0.98</td>
<td>0.98</td>
<td>1.04</td>
<td>1.2</td>
<td>1.62</td>
<td>1.8</td>
<td>1.84</td>
<td>1.32</td>
</tr>
</tbody>
</table>

- **Observer location 2**: x = -60, y = 5.63, z = 1.5
- **Average luminance** (Lav): 1.17 cd/m²
- **Minimum luminance** (Lmin): 0.7 cd/m²
- **Overall uniformity Uo**: Lmin/Lm = 0.6
- **Threshold increment** (TI): 8 %
- **Longitudinal uniformity UI**: Llmin/Llmax = 0.62