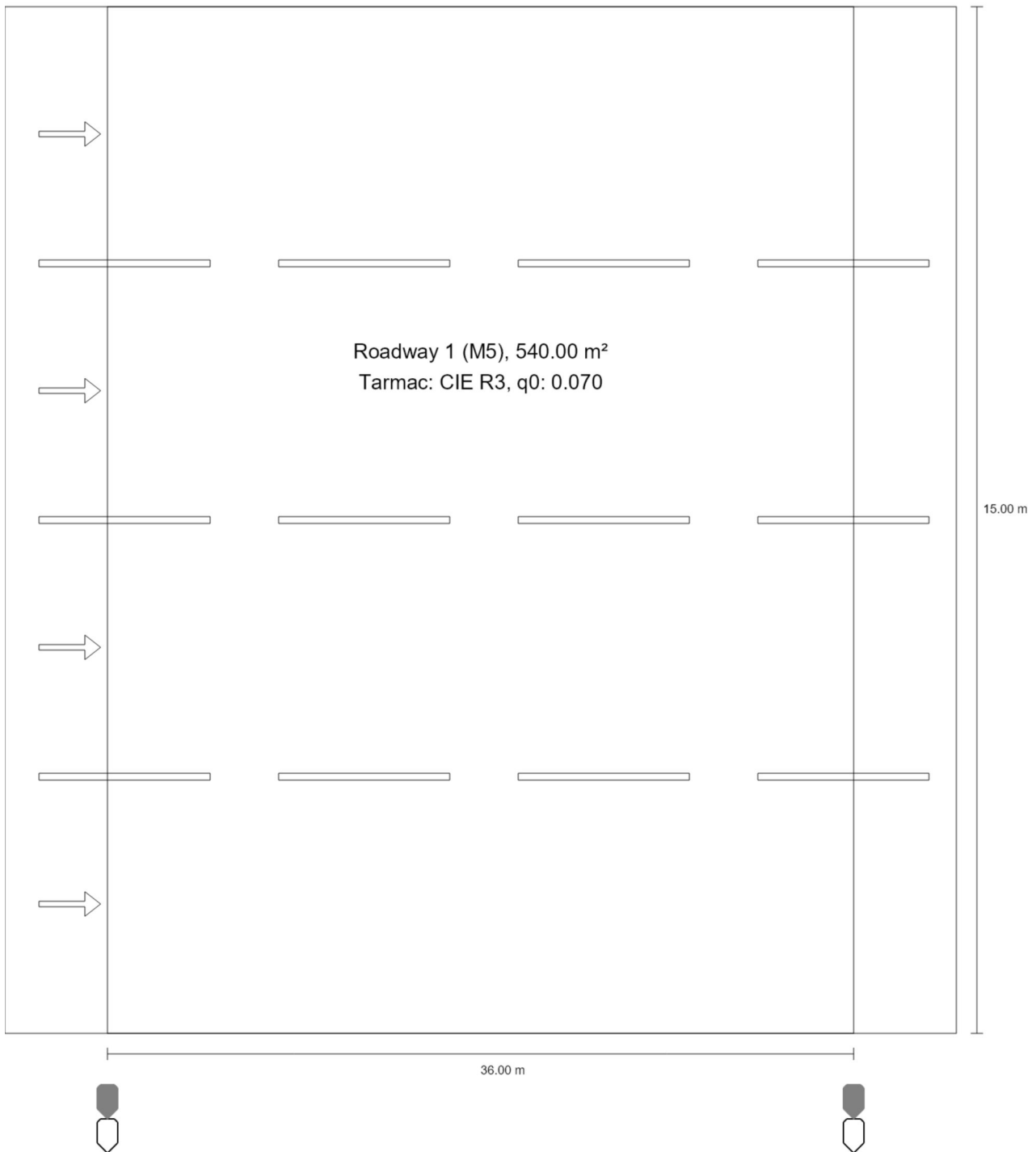


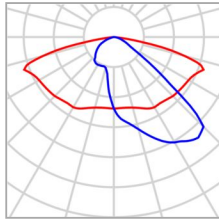
20. Ivan Spirin · Alternative 1

Summary (according to EN 13201:2015)



20. Ivan Spirin · Alternative 1

Summary (according to EN 13201:2015)



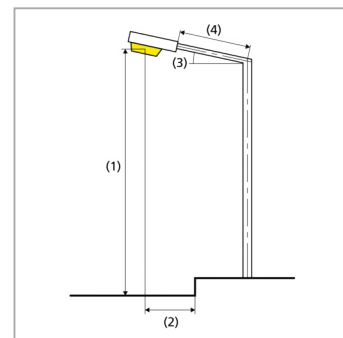
Manufacturer	LUG Light Factory	P	59.5 W
Article No.	130222.7L782.681.00 2	Φ_{Lamp}	9300 lm
Article name	URBINO LED ED D4i 9300lm/740 O92 gray II kl. mod. 002	$\Phi_{\text{Luminaire}}$	9299 lm
Fitting	1x LED	η	99.99 %

20. Ivan Spirin · Alternative 1

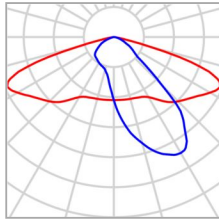
Summary (according to EN 13201:2015)

URBINO LED ED D4i 9300lm/740 O92 gray II kl. mod. 002 (single side bottom)

Pole distance	36.000 m
(1) Light spot height	9.500 m
(2) Light point overhang	-1.000 m
(3) Boom inclination	15.0°
(4) Boom length	0.000 m
Annual operating hours	4000 h: 100.0 %, 59.5 W
Wattage / route	1666.0 W/km
ULR / ULOR	0.00 / 0.00
Max. luminous intensities Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	$\geq 70^\circ$: 516 cd/klm $\geq 80^\circ$: 419 cd/klm $\geq 90^\circ$: 24.6 cd/klm
Luminous intensity class The luminous intensity values in [cd/klm] for calculation of the luminous intensity class refer to the luminaire luminous flux according to EN 13201:2015.	-
Glare index class	D.3
MF	0.85



20. Ivan Spirin · Alternative 1

Summary (according to EN 13201:2015)

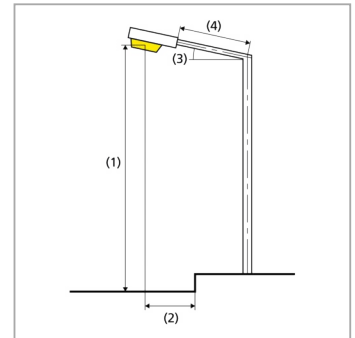
Manufacturer	LUG Light Factory	P	39.5 W
Article No.	130782.7L122.120.00 5	Φ_{Lamp}	5650 lm
Article name	URBINO LED S ED D4i 5650lm/740 O12 gray II kl. mod. 005	$\Phi_{\text{Luminaire}}$	5649 lm
Fitting	1x LED	η	99.98 %

20. Ivan Spirin · Alternative 1

Summary (according to EN 13201:2015)

URBINO LED S ED D4i 5650lm/740 O12 gray II kl. mod. 005 (single side bottom)

Pole distance	36.000 m
(1) Light spot height	9.000 m
(2) Light point overhang	-1.500 m
(3) Boom inclination	15.0°
(4) Boom length	0.000 m
Annual operating hours	4000 h: 100.0 %, 39.5 W
Wattage / route	1106.0 W/km
ULR / ULOR	0.00 / 0.00
Max. luminous intensities Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	$\geq 70^\circ$: 677 cd/klm $\geq 80^\circ$: 393 cd/klm $\geq 90^\circ$: 17.0 cd/klm
Luminous intensity class The luminous intensity values in [cd/klm] for calculation of the luminous intensity class refer to the luminaire luminous flux according to EN 13201:2015.	-
Glare index class	D.5
MF	0.85



20. Ivan Spirin · Alternative 1

Summary (according to EN 13201:2015)

Results for valuation fields

A maintenance factor of 0.85 was used for calculating for the installation.

	Symbol	Calculated	Target	Check
Roadway 1 (M5)	L_{av}	0.86 cd/m ²	≥ 0.50 cd/m ²	✓
	U_o	0.35	≥ 0.35	✓
	U_l	0.82	≥ 0.40	✓
	TI	15 %	≤ 15 %	✓
	R_{EI}	0.45	≥ 0.30	✓

Results for energy efficiency indicators

	Symbol	Calculated	Energy Consumption
20. Ivan Spirin	D_p	0.005 W/lx* m ²	-
URBINO LED ED D4i 9300lm/740 O92 gray II kl. mod. 002 (single side bottom)	D_e	0.4 kWh/m ² yr	238.0 kWh/yr
URBINO LED S ED D4i 5650lm/740 O12 gray II kl. mod. 005 (single side bottom)	D_e	0.3 kWh/m ² yr	158.0 kWh/yr

EN 13201:2015-5 does not include the case for planning with multiple luminaire arrangements. The calculation of the output values is done therefore only for the luminaire arrangement whose pole distance determines the length of the valuation fields.