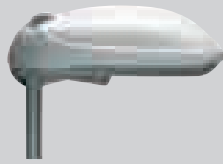


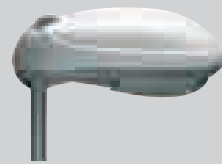
ROADS AND URBAN AREAS

ROAD AND URBAN AREAS

AVENUE



CUT-OFF

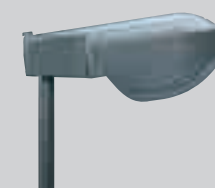


SEMI CUT-OFF

INDY 1

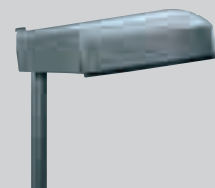


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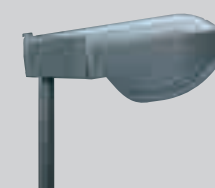


SEMI CUT-OFF

INDY 2



CUT-OFF



SEMI CUT-OFF

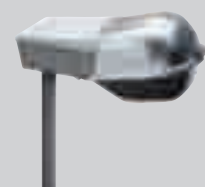
CITY



IP 23



PC BOWL



PMMA BOWL

PLACE



PLACE

GLOB



GLOB

SELECTION GUIDE

DISCHARGE LAMPS									
MERCURY	50		80		125		250		
METAL HALIDES							250	400	
SODIUM	50	70		100		150		250	400
AVENUE	■	■		■	■	■	■	■	
AVENUE	■	■		■	■	■	■	■	
INDY 2						■		■	■
INDY 2						■	■	■	
INDY 1		■		■	■	■	■	■	
INDY 1		■		■	■	■	■	■	
CITY		■		■	■	■			
PLACE		■	■						
GLOB	■	■	■		■				

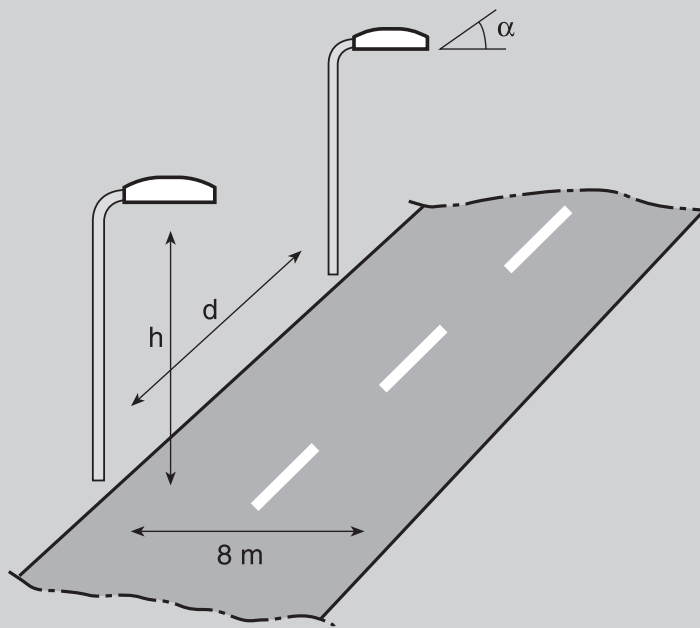
FLUORESCENT SOURCES			
MAINS VOLTAGE	60	85	120
	■	■	■

INCANDESCENT LAMPS		
MAINS VOLTAGE	60	100
	■	■
PLACE	■	■
GLOB	■	■

APPLICATIONS										
TYPE	PARK AREAS	PEDESTRIAN AREAS	EXTERNAL AREAS OF BUILDINGS	CAR PARKS						
APPLICATION TYPE					NEIGHBOURHOOD CITY	LOCAL CITY	INTERNATIONAL LOCAL CITY	FAST CITY	SECONDARY OUT-OF-TOWN	MAJOR OUT-OF-TOWN MOTORWAY
AVENUE					■	■	■	■	■	■
INDY 2							■	■	■	■
INDY 1					■	■	■	■	■	
HORUS 3 * ROAD OPTICS					■	■	■	■		
CITY			■	■	■	■	■			
EXTRO *	■	■	■	■						
PLACE	■	■	■	■						
GLOB	■	■	■	■						

* See the "FLOODLIGHTS" and "OUTDOOR LIGHTING" sections for HORUS 3 and EXTRO, respectively.

NEW EN 13201 - STANDARD PROJECT EXAMPLES



DEFINED PARAMETERS

Road width	8 m
No. lanes:	2
Light pollution:	Rn<1%
Surface	C2

TABLE ON PERFORMANCE REQUIREMENTS FOR ROADS WITH MOTOR VEHICLE TRAFFIC WITH MEDIUM-HIGH SPEED

UNI EN 13201-2-2004: ROAD LIGHTING - PART 2: PERFORMANCE REQUIREMENTS

Lighting class	Average luminance avel. in cd/m^2 (minimum)	Overall uniformity U_0 (minimum)	Longitudinal uniformity U_l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	2.0	0.4	0.7	10	0.5
ME2	1.5	0.4	0.7	10	0.5
ME3a	1.0	0.4	0.7	15	0.5
ME3b	1.0	0.4	0.6	15	0.5
ME3c	1.0	0.4	0.5	15	0.5
ME4a	0.75	0.4	0.6	15	0.5
ME4b	0.75	0.4	0.5	15	0.5
ME5	0.5	0.35	0.4	15	0.5
ME6	0.3	0.35	0.4	15	0.5

The data shown in the following examples is only indicative and cannot be considered exhaustive as far as the specific installation situation is concerned. It is therefore necessary to carry out specific, dedicated calculations for each installation in order to verify the system's compliance with new road lighting regulations.

The following examples do not show information on the lighting of road surroundings as this is not yet incorporated into lighting engineering calculation software programs.

SELECTION GUIDE

AVENUE 250W							
Lighting class	Pole height	Distance between poles	Luminance	Overall uniformity U _o (minimum)	Longitudinal uniformity U _l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	10m	31	2	0.49	0.89	6.27	-
ME2		39	1.7	0.44	0.7	7.03	-
ME3a		39	1.7	0.44	0.7	7.03	-
ME3b		40	1.6	0.41	0.61	7.4	-
ME3c		40	1.6	0.41	0.61	7.4	-
ME4a		-	-	-	-	-	-
ME4b		-	-	-	-	-	-
ME5		-	-	-	-	-	-
ME6		-	-	-	-	-	-

AVENUE 150W - ST							
Lighting class	Pole height	Distance between poles	Luminance	Overall uniformity U _o (minimum)	Longitudinal uniformity U _l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	10m	-	-	-	-	-	-
ME2		25	1.5	0.44	0.8	5,3	-
ME3a		32	1.2	0.4	0.84	6.11	-
ME3b		32	1.2	0.4	0.84	6.11	-
ME3c		32	1.2	0.4	0.84	6.11	-
ME4a		39	1	0.4	0.61	6.79	-
ME4b		39	1	0.4	0.61	6.79	-
ME5		47	0.8	0.37	0.4	7.48	-
ME6		-	-	-	-	-	-

The rows which are not filled in the tables indicate that the solution proposed as far as lamp power and installation height is concerned is not convenient for the specific road reference class.

SELECTION GUIDE

AVENUE RANGE

AVENUE 100W - ST							
Lighting class	Pole height	Distance between poles	Luminance	Overall uniformity U _o (minimum)	Longitudinal uniformity U _l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	9m	-	-	-	-	-	-
ME2		-	-	-	-	-	-
ME3a		28	1	0.4	0.88	6.15	-
ME3b		28	1	0.4	0.88	6.15	-
ME3c		28	1	0.4	0.88	6.15	-
ME4a		35	0.8	0.4	0.63	7.7	-
ME4b		35	0.8	0.4	0.63	7.7	-
ME5		40	0.7	0.38	0.47	8.3	-
ME6		43	0.6	0.36	0.4	8.77	-

AVENUE 70W - ST							
Lighting class	Pole height	Distance between poles	Luminance	Overall uniformity U _o (minimum)	Longitudinal uniformity U _l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	8 m	-	-	-	-	-	-
ME2		-	-	-	-	-	-
ME3a		-	-	-	-	-	-
ME3b		-	-	-	-	-	-
ME3c		-	-	-	-	-	-
ME4a		-	-	-	-	-	-
ME4b		-	-	-	-	-	-
ME5		28	0.56	0.36	0.8	7.55	-
ME6		32	0.51	0.35	0.62	8.33	-

The rows which are not filled in the tables indicate that the solution proposed as far as lamp power and installation height is concerned is not convenient for the specific road reference class.

AVENUE 50W - ST							
Lighting class	Pole height	Distance between poles	Luminance	Overall uniformity U _o (minimum)	Longitudinal uniformity U _l (minimum)	Ti % glare index (maximum)	Lighting of surroundings SR (minimum)
ME1	7m	-	-	-	--	-	-
ME2		-	-	-	-	-	-
ME3a		-	-	-	-	-	-
ME3b		-	-	-	-	-	-
ME3c		-	-	-	-	-	-
ME4a		-	-	-	-	-	-
ME4b		-	-	-	-	-	-
ME5		24	0.56	0.35	0.86	8.8	-
ME6		26	0.52	0.35	0.7	9.2	-

The rows which are not filled in the tables indicate that the solution proposed as far as lamp power and installation height is concerned is not convenient for the specific road reference class.