

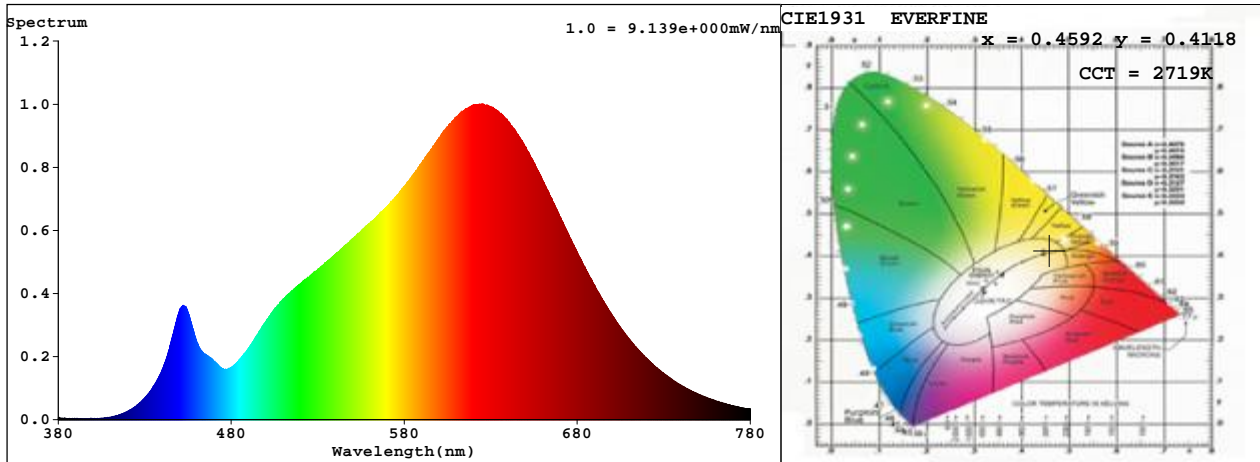
Spectrum Test Report

Sample :	Date :	2019-11-11
Specification : MR16-5-927-35D-DIM-G2	Sam. Status :	
Sample No. :	Instrument :	HaasSuite(EVERFINE)
Manufacturer : RAB LIGHTING INC	Test by :	
	Assessor :	damin

Test Condition

Temperature :	21.4Deg	RH :	65.0%
WL Range :	380nm-780nm	IP :	50667 (77%)
Test Mode :	Fast Test	T :	122 ms
		Sensitivity :	High

Spectrum



Spectral Distribution

CIE1931 Chromaticity Diagram

Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4592$ $y = 0.4118$ / $u' = 0.2615$ $v' = 0.5277$ ($duv=5.05e-04$)

CCT= 2719K Prcp WL: $L_d=583.9nm$ Purity=61.4%

Peak WL: $L_p=625nm$ FWHM: =147.4nm Ratio:R=26.2% G=71.4% B=2.4%

Render Index: $R_a = 92.7$ CRI = 90.0 AvgR = 89.9

R1 =93 R2 =96 R3 =98 R4 =93 R5 =92 R6 =96 R7 =92

R8 =82 R9 =59 R10=90 R11=94 R12=85 R13=93 R14=98 R15=88

WHITE:ANSI_2700K

Photometric & Radiometric Parameters

Flux = 424.61 lm Eff. : 91.30 lm/W Fe = 1.4954 W

Flux of emitted photons(umol/s):7.4893 Flu. and blue light ratio:14.26 Fluorescent eff.:280.6

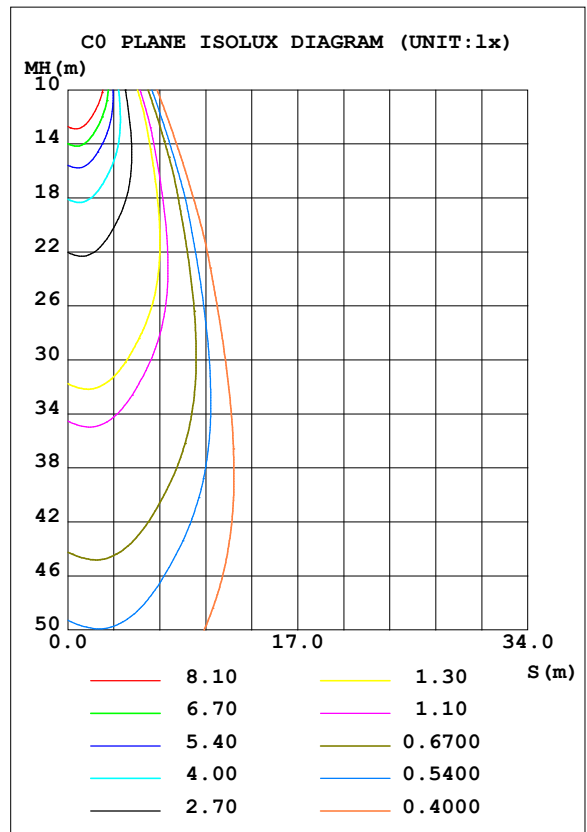
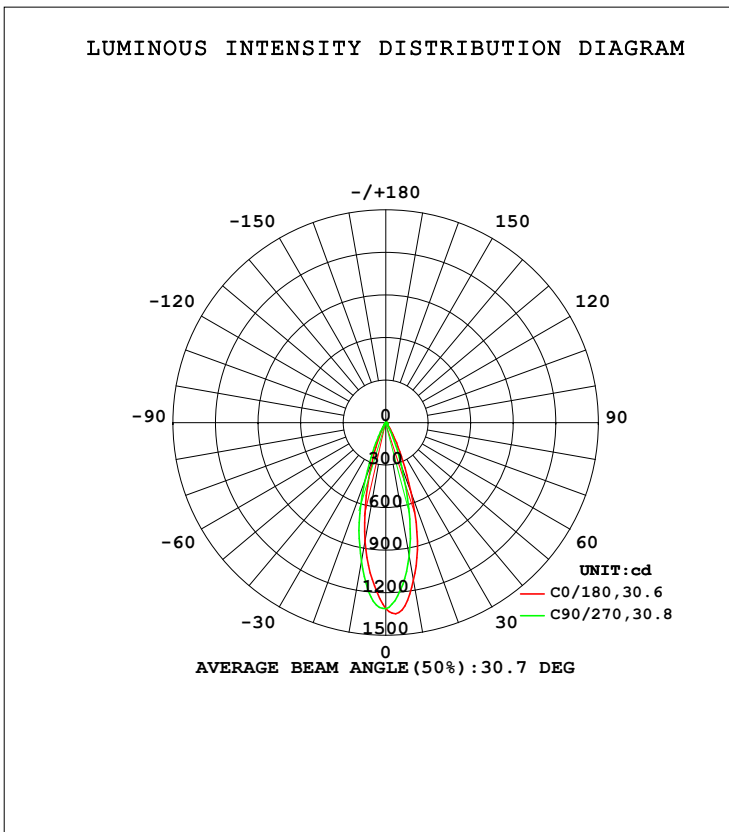
Electrical parameters

V = 11.95 V I = 0.4168 A P = 4.651 W PF = 0.9336 F=59.98 Hz

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:12.09V I:0.4116A P:4.649W PF:0.9340 Freq:59.98Hz Lamp Flux:423.007x1 lm		
NAME: MR16-5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 90.99 lm/W			
MODEL		I _{max} (cd)	1351	S/MH (C0/180)	0.44
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	0.53
RATED VOLTAGE (V)	12	TOTAL FLUX (lm)	423.01	η UP, DN (C0-180)	0.0, 54.5
NOMINAL FLUX (lm)	423.007	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 45.5
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	12	η down (%)	100.0	CIBSE SHR MAX	0.50



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Testing Room
 Test Date: 2019-11-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-3000H_V1 SYSTEM V2.0.361
 Humidity: 65.0%
 Test Distance: 11.160m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270				γ	Φ zone	Φ total	%lum, lamp
10	1127	952.9	846.1	990.3				0- 10	108.3	108.3	25.6,25.6
20	523.5	323.6	264.2	419.3				10- 20	184.8	293.1	69.3,69.3
30	117.2	60.41	45.93	77.33				20- 30	86.00	379.1	89.6,89.6
40	23.10	14.89	13.51	16.60				30- 40	22.88	402.0	95,95
50	9.013	7.651	7.230	8.198				40- 50	8.831	410.8	97.1,97.1
60	5.519	4.788	4.269	5.046				50- 60	5.572	416.4	98.4,98.4
70	3.434	2.776	2.429	3.173				60- 70	3.865	420.2	99.3,99.3
80	1.628	0.9697	0.7809	1.422				70- 80	2.177	422.4	99.9,99.9
90	0.1973	0.0474	0.0552	0.1184				80- 90	0.5897	423.0	100,100
100								90-100			
110								100-110			
120								110-120			
130								120-130			
140								130-140			
150								140-150			
160								150-160			
170								160-170			
180								170-180			
DEG	LUMINOUS INTENSITY:cd								UNIT:lm		

Conical surface Flux(90deg): 407.01 lm

%lum = 96.2%

%lamp = 96.2%

Conical surface Flux(120deg): 416.37 lm

%lum = 98.4%

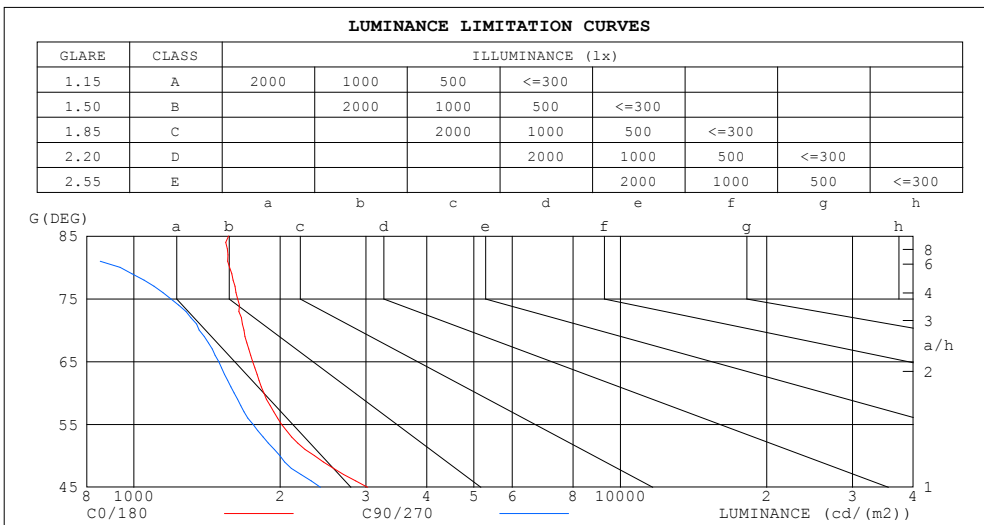
%lamp = 98.4%

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LUMINANCE LIMITATION CURVES

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SPEC.:	DIM.:	SERIAL No.:
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LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	1568	500
80	1573	937
75	1633	1191
70	1685	1362
65	1755	1494
60	1852	1607
55	2012	1758
50	2353	1997
45	3025	2420

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WEC AND CCEC

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SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.155	.088	.028	.148	.085	.027	.136	.078	.025	.124	.072	.023	.114	.066	.021	
2.0	.145	.079	.024	.139	.077	.024	.129	.072	.022	.119	.067	.021	.110	.062	.020	
3.0	.135	.072	.022	.131	.070	.021	.122	.066	.020	.114	.062	.019	.106	.059	.018	
4.0	.127	.066	.019	.123	.064	.019	.116	.061	.018	.109	.058	.018	.102	.056	.017	
5.0	.120	.061	.018	.116	.060	.017	.110	.057	.017	.104	.055	.016	.099	.053	.016	
6.0	.113	.057	.016	.110	.056	.016	.105	.054	.016	.100	.052	.015	.095	.050	.015	
7.0	.108	.053	.015	.105	.052	.015	.100	.051	.015	.096	.049	.014	.092	.048	.014	
8.0	.103	.050	.014	.100	.049	.014	.096	.048	.014	.092	.047	.013	.088	.045	.013	
9.0	.098	.047	.013	.096	.047	.013	.092	.046	.013	.089	.044	.013	.085	.043	.013	
10.0	.094	.045	.013	.092	.045	.012	.089	.044	.012	.086	.043	.012	.083	.042	.012	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.170	.158	.147	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.116	.131	.114	.100	.090	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.139	.113	.093	.119	.098	.081	.082	.068	.057	.047	.040	.033	.015	.013	.011	
4.0	.127	.098	.077	.109	.085	.066	.075	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.117	.086	.064	.100	.075	.055	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.108	.076	.054	.093	.066	.047	.064	.046	.033	.037	.027	.020	.012	.009	.006	
7.0	.101	.068	.046	.087	.059	.040	.060	.042	.028	.035	.025	.017	.011	.008	.006	
8.0	.095	.062	.039	.082	.054	.034	.056	.038	.024	.033	.022	.014	.011	.007	.005	
9.0	.089	.056	.034	.077	.049	.030	.053	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.084	.052	.030	.073	.045	.026	.050	.032	.019	.029	.019	.011	.010	.006	.004	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:Testing Room
 Test Date:2019-11-18

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-3000H_V1 SYSTEM V2.0.361
 Humidity:65.0%
 Test Distance:11.160m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:12.09V I:0.4116A P:4.649W PF:0.9340 Freq:59.98Hz Lamp Flux:423.007x1 lm										
NAME: MR16-5-927-35D-DIM-G2					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: RAB LIGHTING INC					SUR.:			Shielding Angle:		
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions	Viewed crosswise					Viewed endwise				
x = 2H y = 2H	12.8	13.5	13.0	13.7	13.8	11.1	11.9	11.3	12.0	12.2
3H	13.4	14.1	13.6	14.3	14.5	11.9	12.6	12.1	12.8	13.0
4H	13.7	14.4	14.0	14.6	14.8	12.2	12.9	12.5	13.1	13.3
6H	14.0	14.6	14.3	14.9	15.1	12.4	13.0	12.7	13.2	13.5
8H	14.1	14.7	14.4	15.0	15.2	12.4	13.0	12.7	13.3	13.5
12H	14.2	14.8	14.5	15.0	15.3	12.4	13.0	12.7	13.2	13.5
4H 2H	12.9	13.6	13.2	13.8	14.0	11.4	12.1	11.7	12.3	12.5
3H	13.7	14.3	14.0	14.5	14.8	12.4	13.0	12.7	13.3	13.5
4H	14.2	14.7	14.5	15.0	15.3	12.8	13.4	13.2	13.7	14.0
6H	14.6	15.0	14.9	15.4	15.7	13.1	13.6	13.5	13.9	14.3
8H	14.7	15.2	15.1	15.5	15.9	13.2	13.6	13.6	14.0	14.3
12H	14.8	15.2	15.2	15.6	16.0	13.2	13.6	13.6	14.0	14.3
8H 4H	14.2	14.7	14.6	15.0	15.4	13.0	13.5	13.4	13.8	14.2
6H	14.7	15.1	15.2	15.5	15.9	13.4	13.8	13.8	14.2	14.6
8H	15.0	15.3	15.4	15.7	16.2	13.5	13.8	14.0	14.3	14.7
12H	15.2	15.4	15.6	15.9	16.3	13.5	13.8	14.0	14.3	14.7
12H 4H	14.2	14.6	14.6	15.0	15.4	13.0	13.4	13.4	13.8	14.2
6H	14.7	15.1	15.2	15.5	15.9	13.4	13.8	13.9	14.2	14.6
8H	15.0	15.3	15.5	15.7	16.2	13.6	13.9	14.0	14.3	14.8
Variations with the observer position at spacings:										
S = 1.0H	+ 1.1 / - 0.8					+ 0.5 / - 0.6				
1.5H	+ 2.2 / - 0.6					+ 0.8 / - 0.5				
2.0H	+ 0.7 / - 0.4					+ 0.6 / - 0.6				

CIE Pub.117, 423.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -3.0)

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 Test System:EVERFINE GO-3000H_V1 SYSTEM V2.0.361
 Humidity:65.0%
 Test Distance:11.160m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:12.09V I:0.4116A P:4.649W PF:0.9340 Freq:59.98Hz Lamp Flux:423.007x1 lm		
NAME: MR16-5-927-35D-DIM-G2	TYPE:	WEIGHT:
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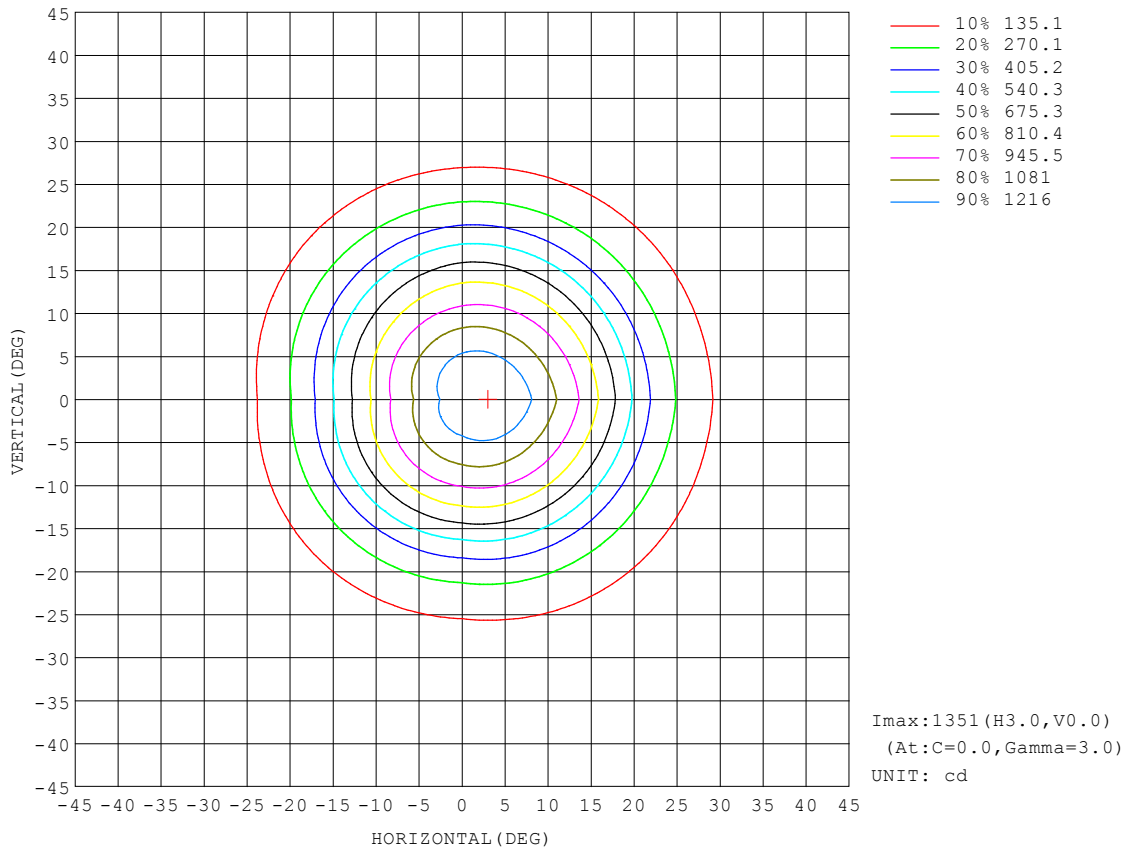
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	89	82	79	88	82	79	87	82	78	75
0.80	96	90	86	95	90	86	94	89	86	82
1.00	100	94	91	99	94	91	97	94	90	86
1.25	104	99	95	103	98	95	101	97	94	90
1.50	106	102	98	105	101	98	103	99	97	92
2.00	109	105	102	107	104	101	105	102	99	94
2.50	110	107	104	109	105	103	106	103	101	95
3.00	112	109	106	110	107	105	107	104	103	96
4.00	114	111	109	112	110	108	108	106	105	98
5.00	115	113	111	113	111	110	109	108	106	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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ISOCANDELA DIAGRAM

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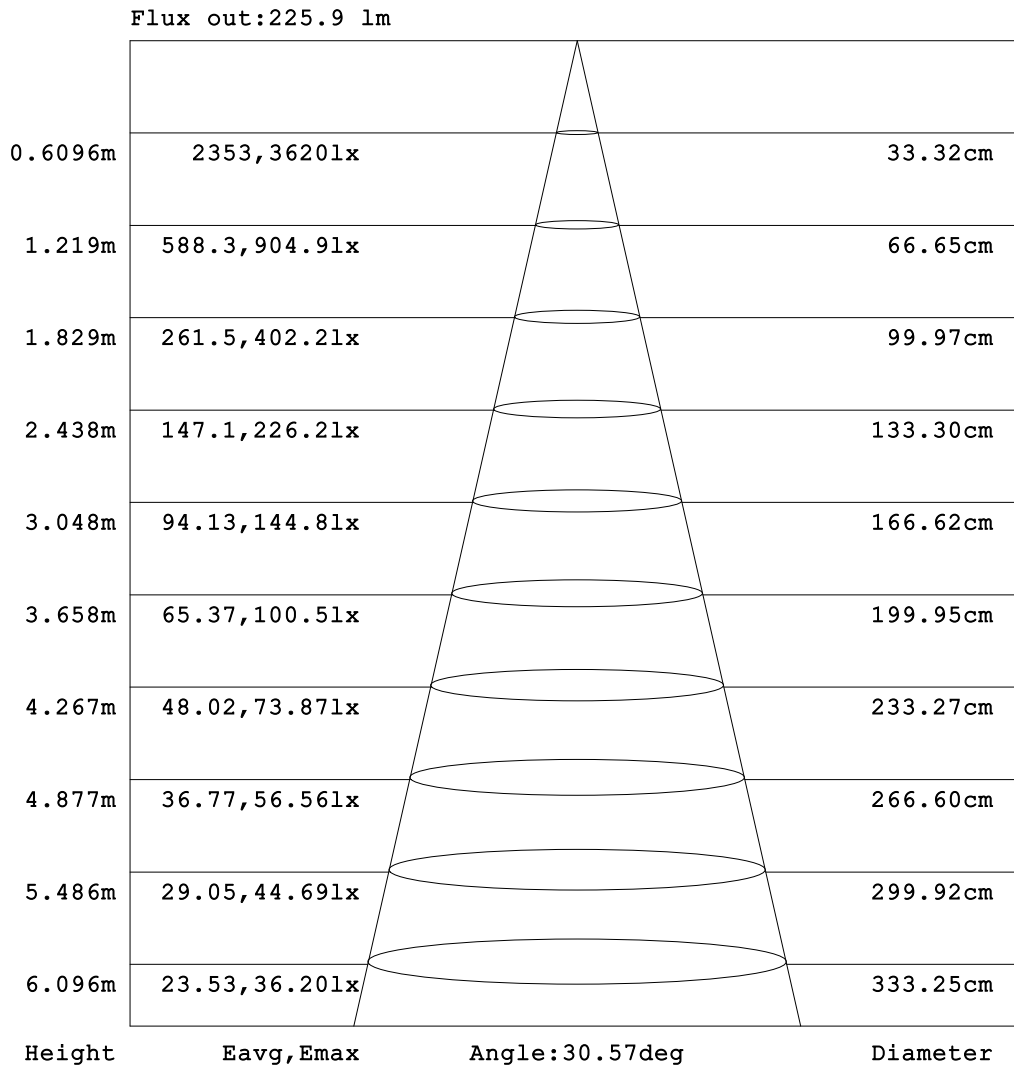


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AAI Figure

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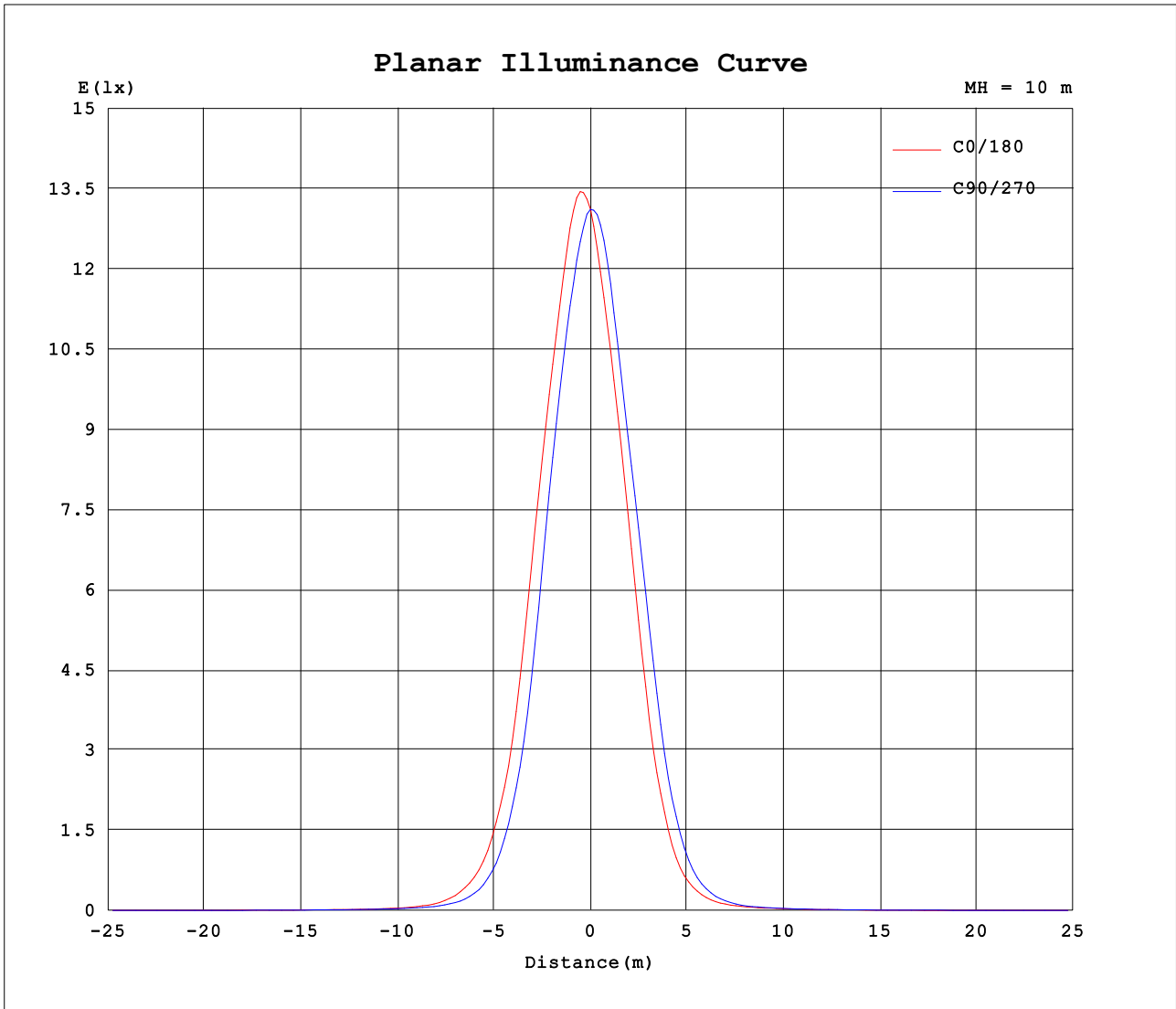


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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Planar Illuminance Curve



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