

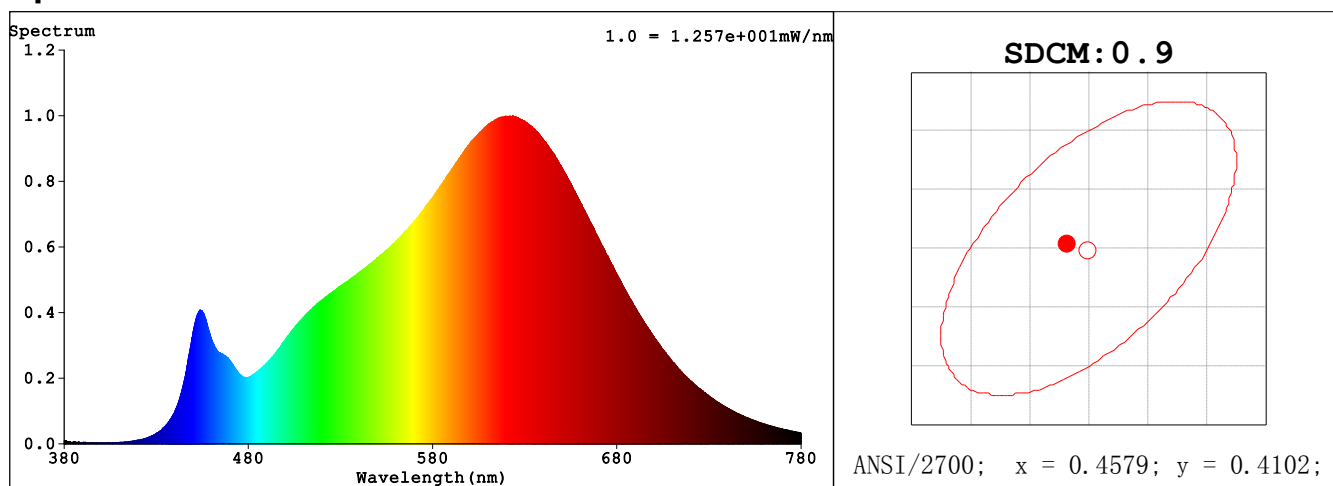
Spectrum Test Report

Sample	:		Date	:	2019-12-06
Specification	:	WFR4R9927120WS	Sam. Status	:	
Sample No.	:	1	Standard	:	
Manufacturer	:	RAB LIGHTING INC.	Instrument	:	HaasSuite(EVERFINE)
Assessor	:	damin			
Remark	:	---	Test by	:	DAMIN
Device SN	:	30#			

Test Condition

Temperature	:	24.0Deg	RH	:	65.0%
WL Range	:	380nm-780nm	IP	:	53570 (82%)
Test Mode	:	Fast Test	T	:	257 ms
Sensitivity	:	High			

Spectrum



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4567$ $y = 0.4106$ / $u' = 0.2605$ $v' = 0.5269$ ($duv=2.80e-04$)

CCT= 2745K Prcp WL: Ld=583.9nm Purity=60.3%

Peak WL: Lp=624nm FWHM: =147.0nm Ratio:R=26.1% G=71.3% B=2.6%

Render Index: Ra = 92.7

EEL: 0.17836 A

R1 =93 R2 =97 R3 =99 R4 =92 R5 =93 R6 =97 R7 =90
R8 =80 R9 =56 R10=93 R11=94 R12=83 R13=94 R14=100 R15=88
LEVEL:OUT WHITE:ANSI_2700K

Photometric & Radiometric Parameters

Flux = 590.94 lm Eff. : 65.81 lm/W Fe = 2.0706 W Scotopic:775.89 S/P:1.313

Flux of emitted photons($\mu\text{mol/s}$):10.353 Fluo. and blue light ratio:13.26 Fluorescent eff.:208.3

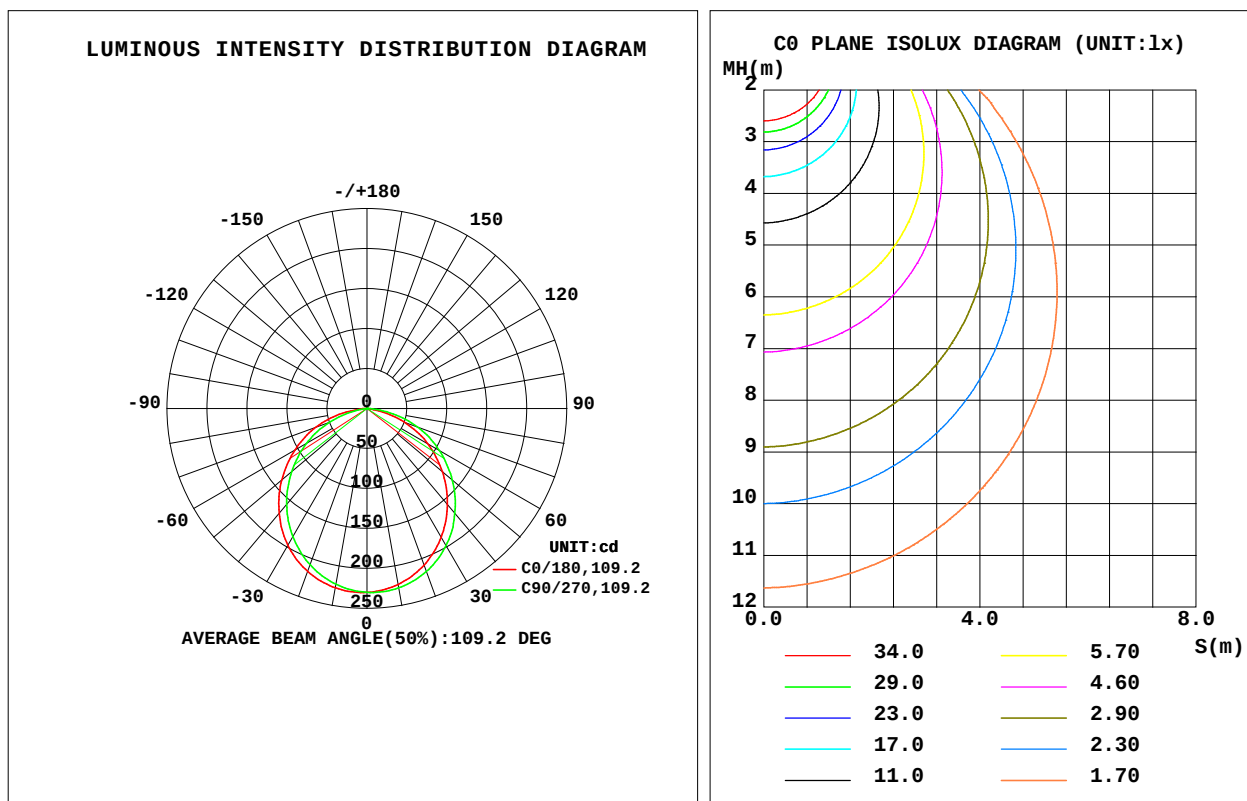
Electrical parameters

V = 120.02 V I = 0.07704 A P = 8.980 W PF = 0.9713 F=59.98 Hz

LUMINAIRE PHOTOMETRIC TEST REPORT

NAME:	TYPE:WFR4R9927120WS	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 68.95 lm/W
MODEL		I _{max} (cd)	230.2	S/MH(C0/180)	1.28	
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.21	
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	626.24	h UP, DN(C0-180)	0.0,50.0	
NOMINAL FLUX(lm)	626.235	CIE CLASS	DIRECT	h UP, DN(C180-360)	0.0,50.0	
LAMPS INSIDE	1	h up(%)	0.0	CIBSE SHR NOM	1.25	
TEST VOLTAGE(V)	120	h down(%)	100.0	CIBSE SHR MAX	1.35	



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2019-12-06

Range: 0 - 90DEG
Interval: 1.0DEG
Test System:EVERFINE G0-SPEX500_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:3.200m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

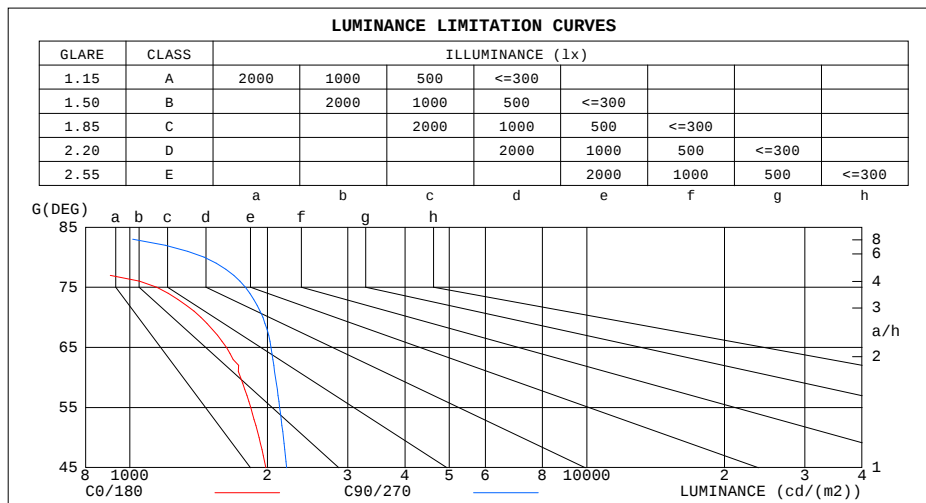
g	C0	C90	C180	C270					g	F zone	F total	%lum, lamp
10	223.5	227.8	227.7	223.3					0- 10	21.74	21.74	3.47, 3.47
20	208.6	217.0	216.9	208.1					10- 20	62.11	83.85	13.4, 13.4
30	185.9	198.0	197.8	185.4					20- 30	93.58	177.4	28.3, 28.3
40	156.8	171.1	170.9	156.4					30- 40	111.7	289.1	46.2, 46.2
50	123.3	139.4	139.3	123.1					40- 50	114.1	403.2	64.4, 64.4
60	87.33	104.2	104.2	87.52					50- 60	101.7	504.9	80.6, 80.6
70	48.96	66.87	67.38	48.84					60- 70	76.45	581.4	92.8, 92.8
80	6.282	25.24	26.69	8.215					70- 80	39.63	621.0	99.2, 99.2
90	0.1692	0.1368	0.0844	0.0296					80- 90	5.240	626.2	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		

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Range: 0 - 90DEG
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Humidity:65.0%
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Remarks:

LUMINANCE LIMITATION CURVES

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LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	98	507
80	362	1453
75	1145	1790
70	1431	1955
65	1627	2037
60	1747	2085
55	1839	2128
50	1918	2168
45	1986	2203

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Range: 0 - 90DEG
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Test System: EVERFINE G0-SPEX500_V1 SYSTEM V2.0.366
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Remarks:

WEC AND CCEC

NAME:	TYPE:WFR4R9927120WS	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

RC	80%			70%			50%			30%			10%			0
W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
fC	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio Wall Exitance Coefficients(WEC)															
0.0																
1.0	.295	.168	.053	.288	.164	.052	.274	.157	.050	.262	.151	.049	.251	.146	.047	
2.0	.282	.155	.047	.276	.152	.047	.265	.147	.046	.254	.142	.045	.244	.138	.044	
3.0	.264	.140	.042	.258	.138	.042	.248	.134	.041	.238	.131	.040	.230	.127	.039	
4.0	.244	.127	.037	.240	.125	.037	.231	.122	.037	.222	.119	.036	.214	.116	.035	
5.0	.227	.116	.033	.223	.114	.033	.214	.112	.033	.207	.109	.032	.200	.107	.032	
6.0	.211	.106	.030	.207	.105	.030	.200	.102	.030	.193	.100	.029	.187	.098	.029	
7.0	.197	.097	.028	.193	.096	.027	.187	.094	.027	.181	.093	.027	.175	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.175	.087	.025	.170	.086	.025	.165	.084	.025	
9.0	.172	.083	.023	.170	.083	.023	.165	.081	.023	.160	.080	.023	.155	.079	.023	
10.0	.162	.078	.022	.160	.077	.022	.155	.076	.021	.151	.075	.021	.147	.074	.021	

RC	80%			70%			50%			30%			10%			0
W	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
fC	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	.179	.156	.136	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.171	.132	.099	.146	.114	.086	.100	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.163	.114	.075	.140	.099	.065	.096	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.156	.101	.059	.134	.087	.051	.092	.061	.036	.053	.036	.021	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.041	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.034	.116	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.117	.060	.023	.100	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-06

Range: 0 - 90DEG
 Interval: 1.0DEG
 Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:3.200m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

NAME:					TYPE:WFR4R9927120WS			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.: RAB LIGHTING INC.					SUR.:21cm*16cm			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	16.6	18.1	16.9	18.3	18.5	17.2	18.7	17.5	18.9	19.1
3H	17.9	19.3	18.2	19.5	19.7	18.8	20.2	19.1	20.4	20.7
4H	18.3	19.6	18.6	19.8	20.1	19.4	20.7	19.7	21.0	21.2
6H	18.3	19.6	18.7	19.8	20.1	19.8	21.0	20.1	21.3	21.6
8H	18.3	19.5	18.6	19.8	20.1	19.9	21.1	20.2	21.4	21.6
12H	18.2	19.4	18.6	19.7	20.0	19.9	21.0	20.2	21.3	21.6
4H 2H	17.3	18.6	17.6	18.8	19.1	17.7	19.1	18.0	19.3	19.6
3H	18.7	19.9	19.1	20.2	20.5	19.5	20.7	19.9	20.9	21.2
4H	19.2	20.3	19.6	20.6	20.9	20.2	21.3	20.6	21.6	21.9
6H	19.3	20.3	19.7	20.6	21.0	20.7	21.6	21.1	22.0	22.3
8H	19.3	20.2	19.7	20.5	20.9	20.8	21.7	21.2	22.0	22.4
12H	19.3	20.1	19.7	20.5	20.9	20.8	21.6	21.2	22.0	22.4
8H 4H	19.5	20.3	19.9	20.7	21.1	20.4	21.2	20.8	21.6	22.0
6H	19.6	20.4	20.1	20.8	21.2	20.9	21.7	21.4	22.1	22.5
8H	19.7	20.3	20.1	20.7	21.2	21.1	21.7	21.6	22.1	22.6
12H	19.6	20.2	20.1	20.6	21.1	21.1	21.7	21.6	22.1	22.6
12H 4H	19.5	20.2	19.9	20.6	21.0	20.4	21.1	20.8	21.5	21.9
6H	19.7	20.3	20.1	20.7	21.2	20.9	21.6	21.4	22.0	22.4
8H	19.7	20.2	20.2	20.7	21.2	21.1	21.6	21.6	22.1	22.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.3					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.4					+ 0.1 / - 0.3				
2.0H	+ 0.2 / - 0.5					+ 0.2 / - 0.3				

CIE Pub.117, 626.2 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -1.6)

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 Remarks:

UTILIZATION FACTORS TABLE

NAME:	TYPE:WFR4R9927120WS	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
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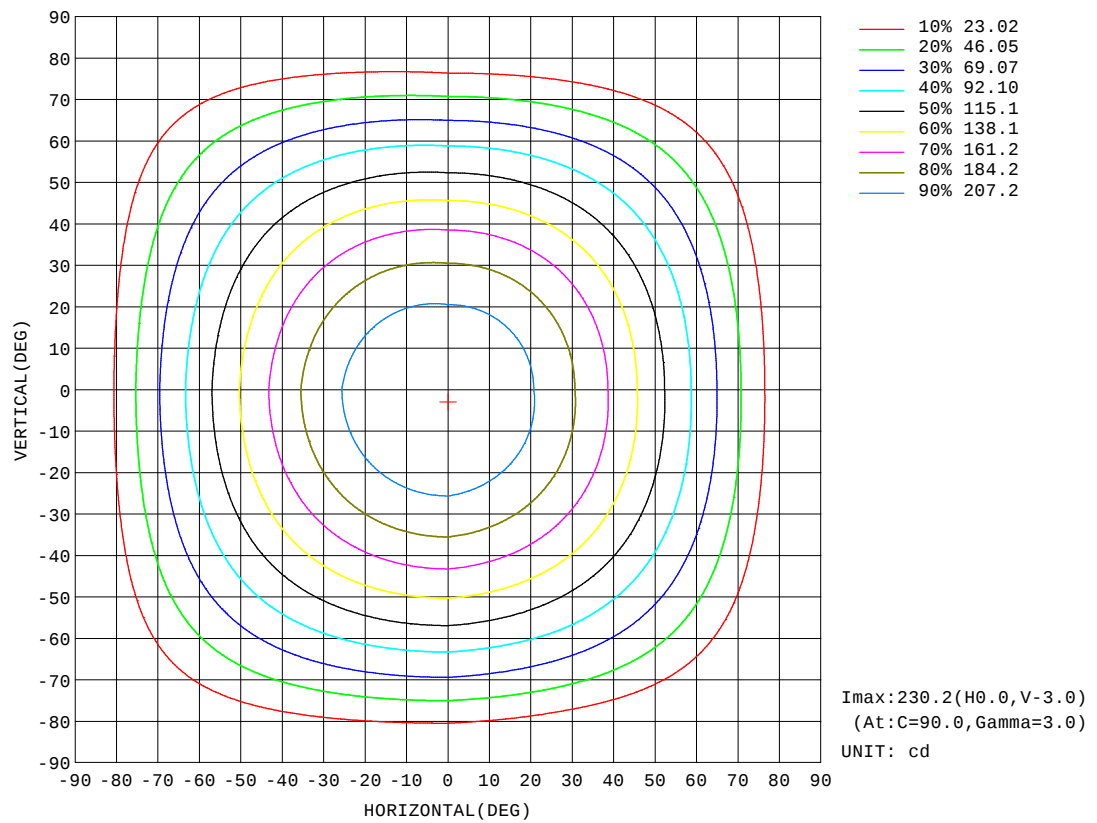
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	58	47	40	58	47	40	56	46	40	33
0.80	68	57	50	67	57	50	66	56	49	42
1.00	77	66	59	76	65	59	74	67	58	51
1.25	84	74	67	83	73	66	80	72	66	58
1.50	89	79	73	87	79	72	84	77	71	64
2.00	96	88	81	94	86	81	91	84	79	71
2.50	100	92	86	98	91	85	94	88	84	75
3.00	103	96	91	101	95	90	97	92	88	80
4.00	107	101	97	105	100	96	100	96	93	84
5.00	109	105	101	107	103	99	102	99	96	87
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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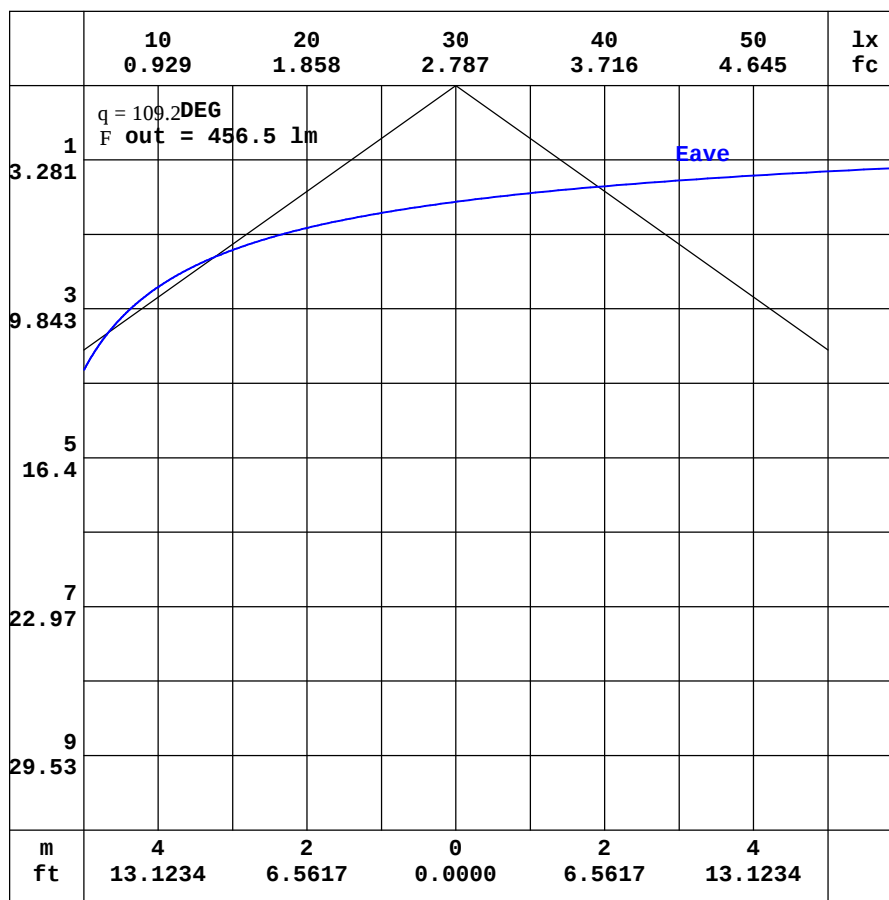


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AAI CURVES

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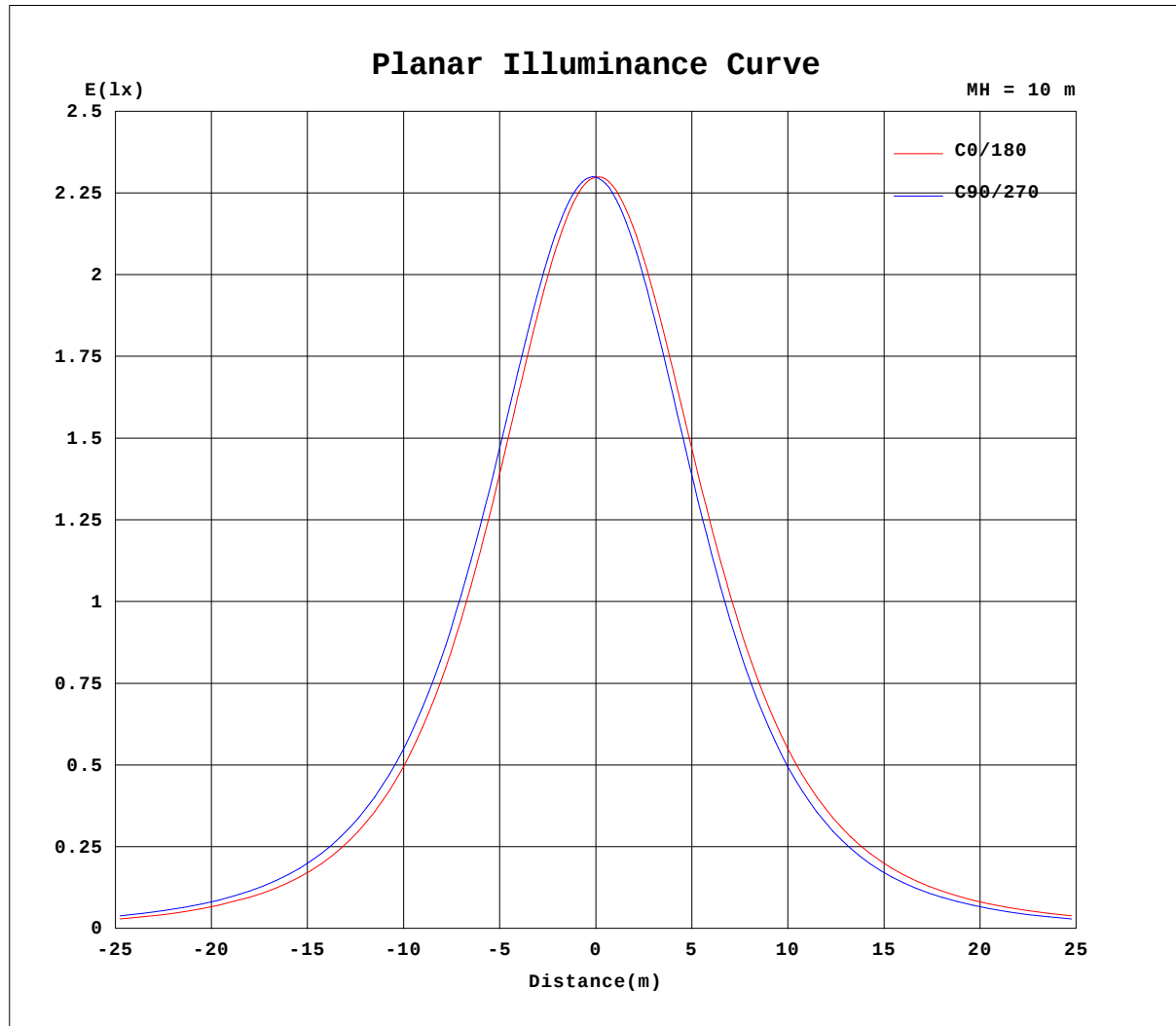


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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Planar Illuminance Curve



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