

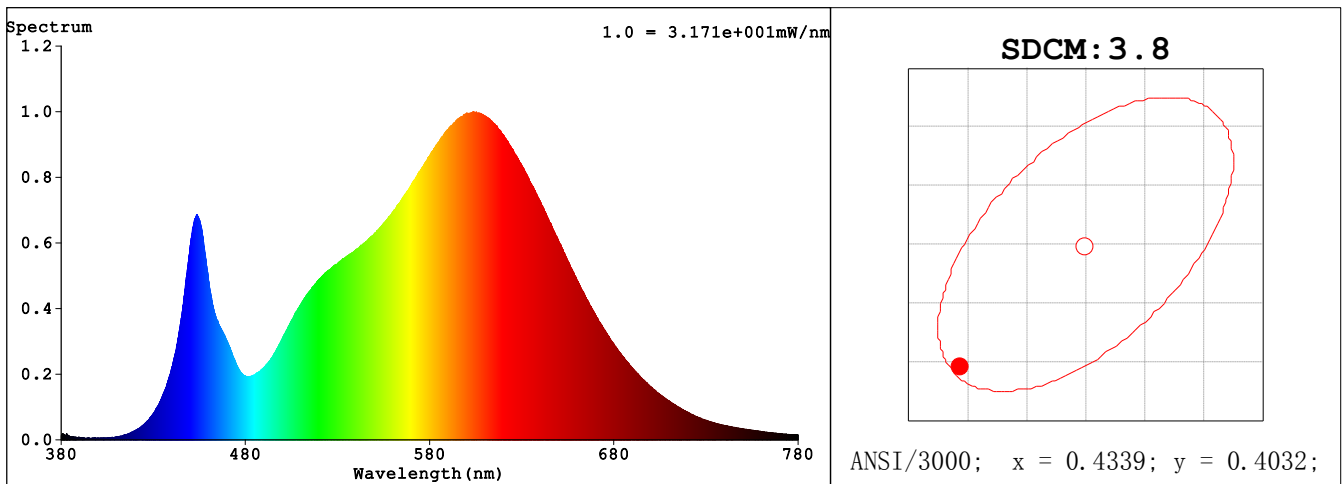
Spectrum Test Report

Sample	:		Date	:	2019-12-04
Specification	:	SM9R20830120W	Sam. Status	:	
Sample No.	:	1	Standard	:	
Manufacturer	:	RAB LIGHTING INC.	Instrument	:	HaasSuite(EVERFINE)
Assessor	:	damin			
Remark	:	---	Test by	:	DAMIN
Device SN	:	9#			

Test Condition

Temperature	:	24.4Deg	RH	:	65.0%
WL Range	:	380nm-780nm	IP	:	53149 (81%)
Test Mode	:	Fast Test	T	:	124 ms
Sensitivity	:	High			

Spectrum



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4271$ $y = 0.3958$ / $u' = 0.2478$ $v' = 0.5166$ ($duv = -1.94e-03$)
 CCT= 3104K Prcp WL: $L_d = 583.1nm$ Purity=47.0%
 Peak WL: $L_p = 604nm$ FWHM: =137.1nm Ratio:R=22.6% G=74.7% B=2.7%
 Render Index: $R_a = 84.1$

EEL: 0.16857 A+

R1 =83 R2 =92 R3 =96 R4 =82 R5 =83 R6 =90 R7 =84
 R8 =63 R9 =15 R10=81 R11=81 R12=70 R13=85 R14=99 R15=77
 LEVEL:OUT WHITE:ANSI_3000K

Photometric & Radiometric Parameters

Flux = 1619.1 lm Eff. : 80.81 lm/W $F_e = 5.0058 W$ Scotpic:2264.3 S/P:1.3984

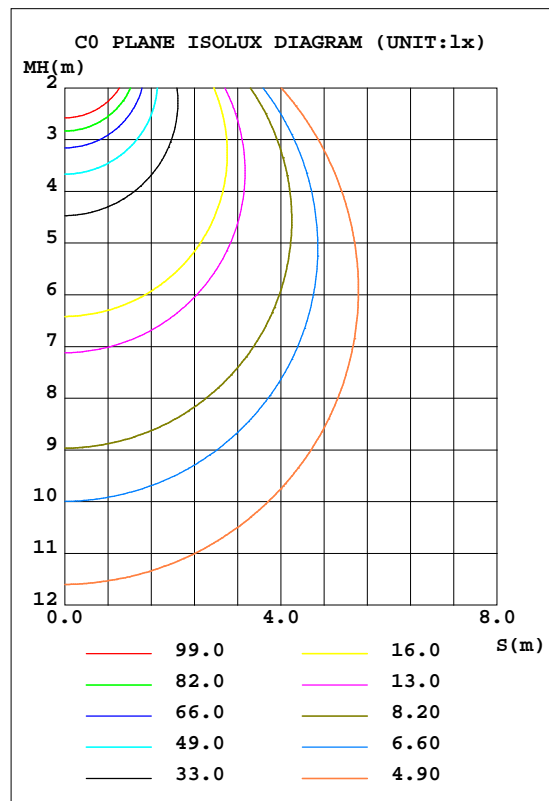
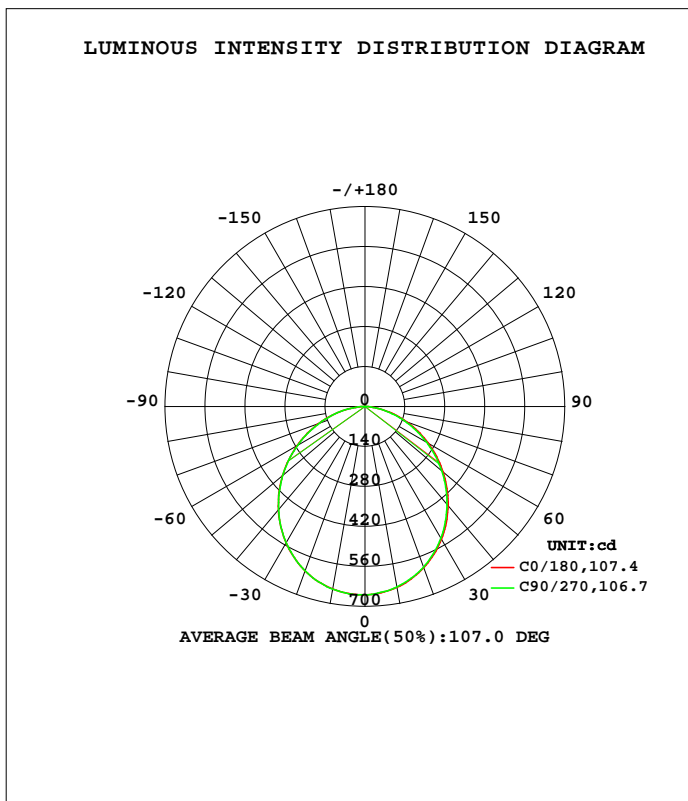
Electrical parameters

V = 119.95 V I = 0.1877 A P = 20.04 W PF = 0.8900 F=59.98 Hz

LUMINAIRE PHOTOMETRIC TEST REPORT

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL		Imax(cd)	659.5	S/MH(C0/180)	1.24
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	1773.7	h UP, DN(C0-180)	0.0,48.5
NOMINAL FLUX(lm)	1773.7	CIE CLASS	DIRECT	h UP, DN(C180-360)	0.0,51.5
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:2019-12-04

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

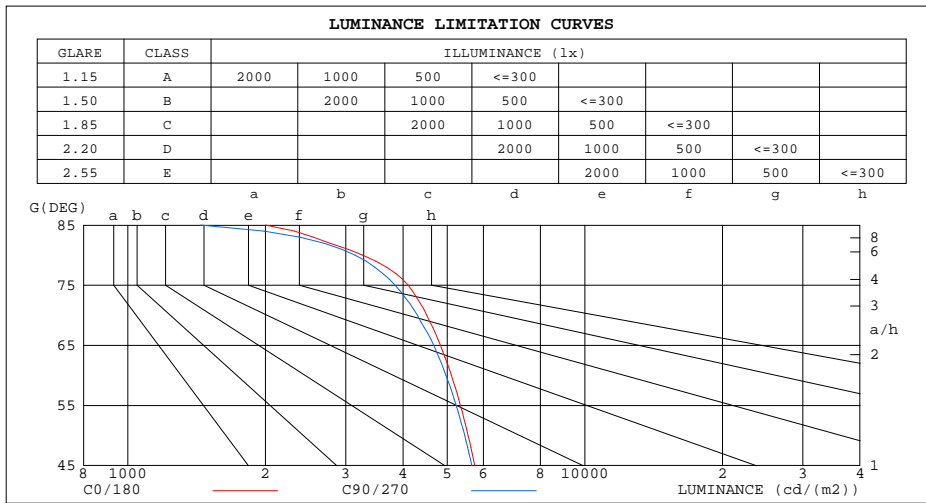
g	C0	C90	C180	C270					g	F zone	F total	%lum,lamp
10	643.6	641.5	649.1	649.6					0- 10	62.29	62.29	3.51,3.51
20	601.3	599.3	613.0	612.6					10- 20	177.5	239.8	13.5,13.5
30	536.1	532.3	552.1	551.8					20- 30	266.0	505.8	28.5,28.5
40	453.1	447.6	471.8	471.2					30- 40	315.2	820.9	46.3,46.3
50	357.0	351.1	377.4	376.3					40- 50	319.5	1140	64.3,64.3
60	255.3	248.4	274.4	272.8					50- 60	281.2	1422	80.2,80.2
70	154.3	147.2	170.7	168.4					60- 70	209.0	1631	91.9,91.9
80	56.71	54.62	71.96	70.55					70- 80	117.6	1748	98.6,98.6
90	0.5673	0.5462	0.1297	0.2278					80- 90	25.54	1774	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		

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-04

g 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:

LUMINANCE LIMITATION CURVES

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-04

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

WEC AND CCEC

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.301	.171	.054	.294	.168	.053	.281	.161	.051	.268	.155	.050	.257	.149	.048	
2.0	.285	.156	.048	.279	.154	.047	.267	.149	.046	.257	.144	.045	.247	.140	.044	
3.0	.265	.141	.042	.260	.139	.042	.249	.135	.041	.240	.131	.040	.231	.128	.040	
4.0	.245	.127	.037	.240	.126	.037	.231	.123	.037	.223	.120	.036	.215	.117	.036	
5.0	.227	.116	.034	.223	.114	.033	.215	.112	.033	.207	.109	.033	.200	.107	.032	
6.0	.211	.106	.030	.207	.105	.030	.200	.102	.030	.193	.100	.030	.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	.164	.084	.025	
9.0	.172	.083	.023	.170	.083	.023	.164	.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	

rcc	80%			70%			50%			30%			10%			0
rw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
rfc	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	.180	.156	.135	.154	.134	.116	.105	.092	.080	.061	.053	.047	.019	.017	.015	
2.0	.171	.132	.099	.147	.114	.085	.101	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.164	.114	.075	.140	.099	.065	.096	.068	.046	.056	.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:2019-12-04

g Range: 0 - 90DEG
 g 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:SM9R20830120W					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	16.5	18.0	16.8	18.2	18.4	16.4	17.9	16.7	18.1	18.3
	3H	17.9	19.3	18.2	19.5	19.8	17.8	19.2	18.1	19.4	19.6
	4H	18.5	19.8	18.8	20.0	20.3	18.3	19.6	18.6	19.9	20.1
	6H	18.8	20.1	19.1	20.3	20.6	18.6	19.9	18.9	20.1	20.4
	8H	18.9	20.1	19.2	20.4	20.6	18.7	19.9	19.0	20.2	20.5
	12H	18.9	20.0	19.2	20.3	20.6	18.7	19.8	19.0	20.1	20.4
4H	2H	17.1	18.4	17.4	18.6	18.9	17.0	18.3	17.3	18.6	18.8
	3H	18.7	19.8	19.0	20.1	20.4	18.5	19.7	18.9	20.0	20.3
	4H	19.3	20.4	19.7	20.7	21.0	19.2	20.2	19.5	20.5	20.9
	6H	19.8	20.7	20.2	21.1	21.4	19.6	20.5	20.0	20.9	21.3
	8H	19.9	20.7	20.3	21.1	21.5	19.7	20.6	20.1	20.9	21.3
	12H	19.9	20.7	20.3	21.1	21.5	19.7	20.5	20.2	20.9	21.3
8H	4H	19.5	20.4	20.0	20.8	21.2	19.4	20.3	19.8	20.6	21.0
	6H	20.1	20.8	20.6	21.2	21.7	20.0	20.7	20.4	21.1	21.5
	8H	20.3	20.9	20.7	21.3	21.8	20.1	20.8	20.6	21.2	21.6
	12H	20.3	20.9	20.8	21.3	21.8	20.2	20.7	20.6	21.2	21.6
12H	4H	19.5	20.3	20.0	20.7	21.1	19.4	20.2	19.8	20.6	21.0
	6H	20.1	20.8	20.6	21.2	21.6	20.0	20.6	20.4	21.0	21.5
	8H	20.3	20.9	20.8	21.3	21.8	20.2	20.7	20.6	21.2	21.6
Variations with the observer position at spacings:											
S = 1.0H		+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 1774 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.0)

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g 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:

UTILIZATION FACTORS TABLE

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

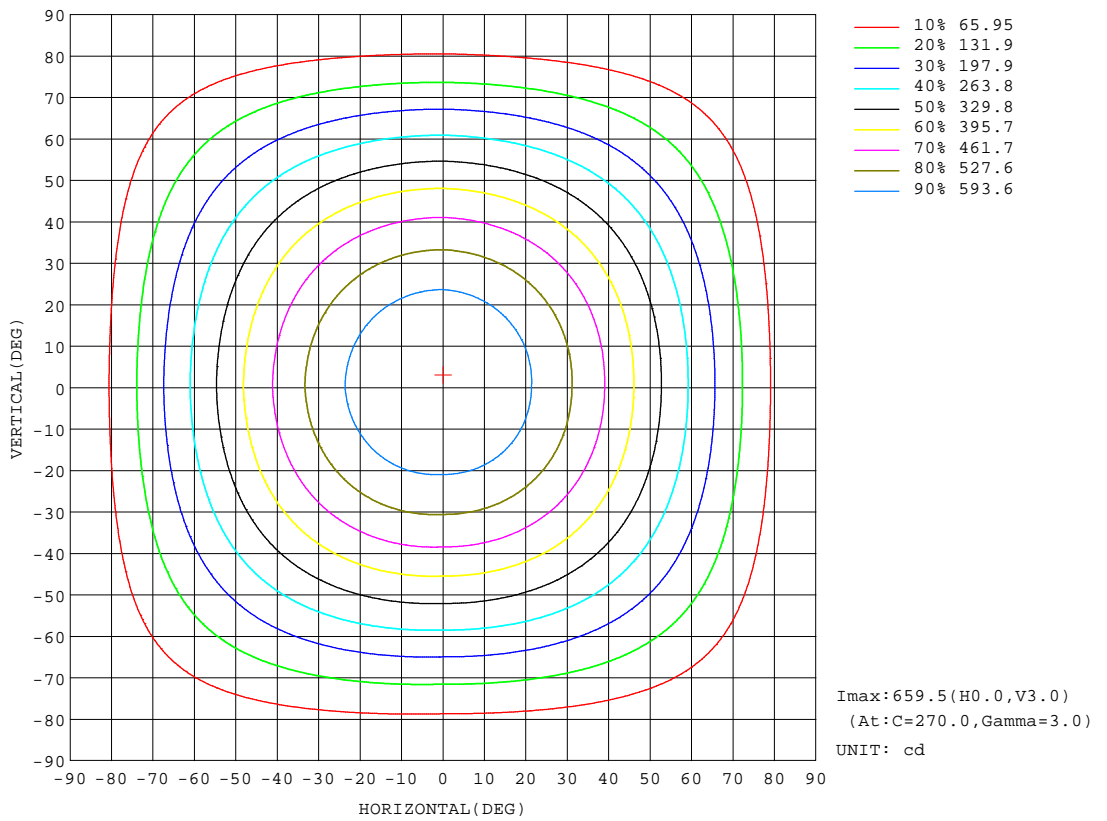
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	58	47	40	58	47	40	57	46	40	34
0.80	69	57	50	67	57	50	66	56	49	42
1.00	77	66	59	76	65	59	73	67	58	51
1.25	84	74	67	82	73	66	80	72	65	58
1.50	89	79	72	87	78	72	84	77	71	63
2.00	96	87	81	94	86	80	90	84	79	71
2.50	99	92	86	97	91	85	94	88	83	75
3.00	103	96	91	101	95	90	97	92	87	79
4.00	107	101	97	104	99	95	100	96	93	84
5.00	109	104	100	107	102	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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 Interval: 1.0DEG
 Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.0.366
 Humidity:65.0%
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 Remarks:

ISOCANDELA DIAGRAM

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

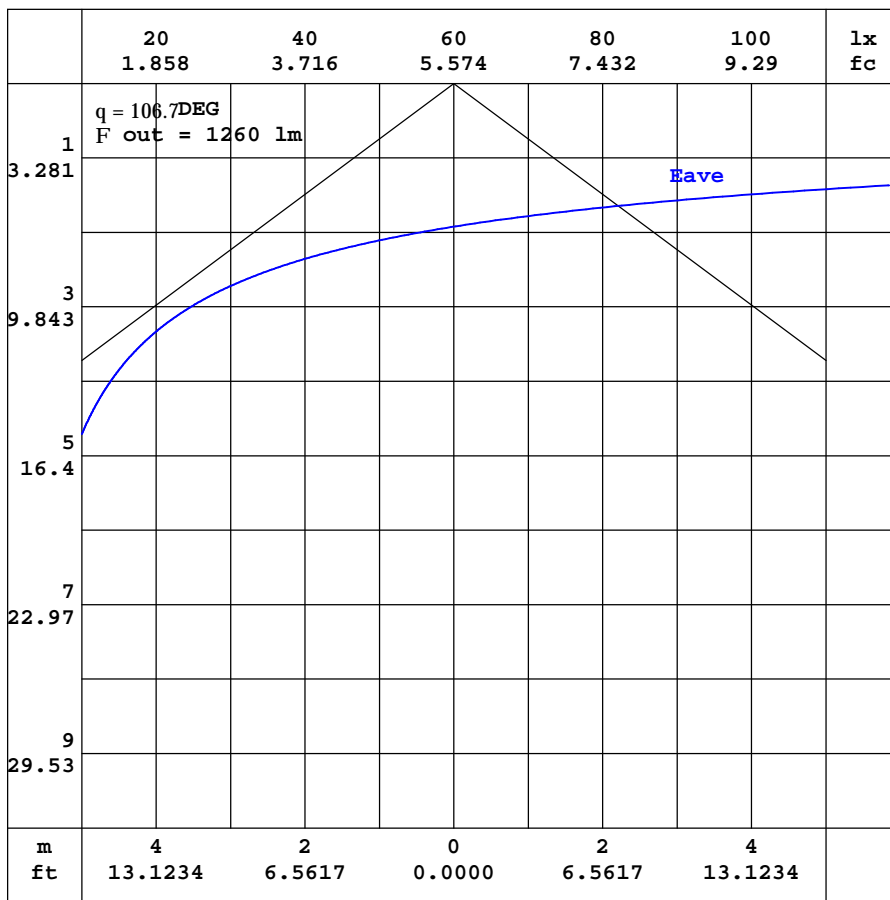


C Range: 0 - 360DEG
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 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-12-04

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:

AAI CURVES

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

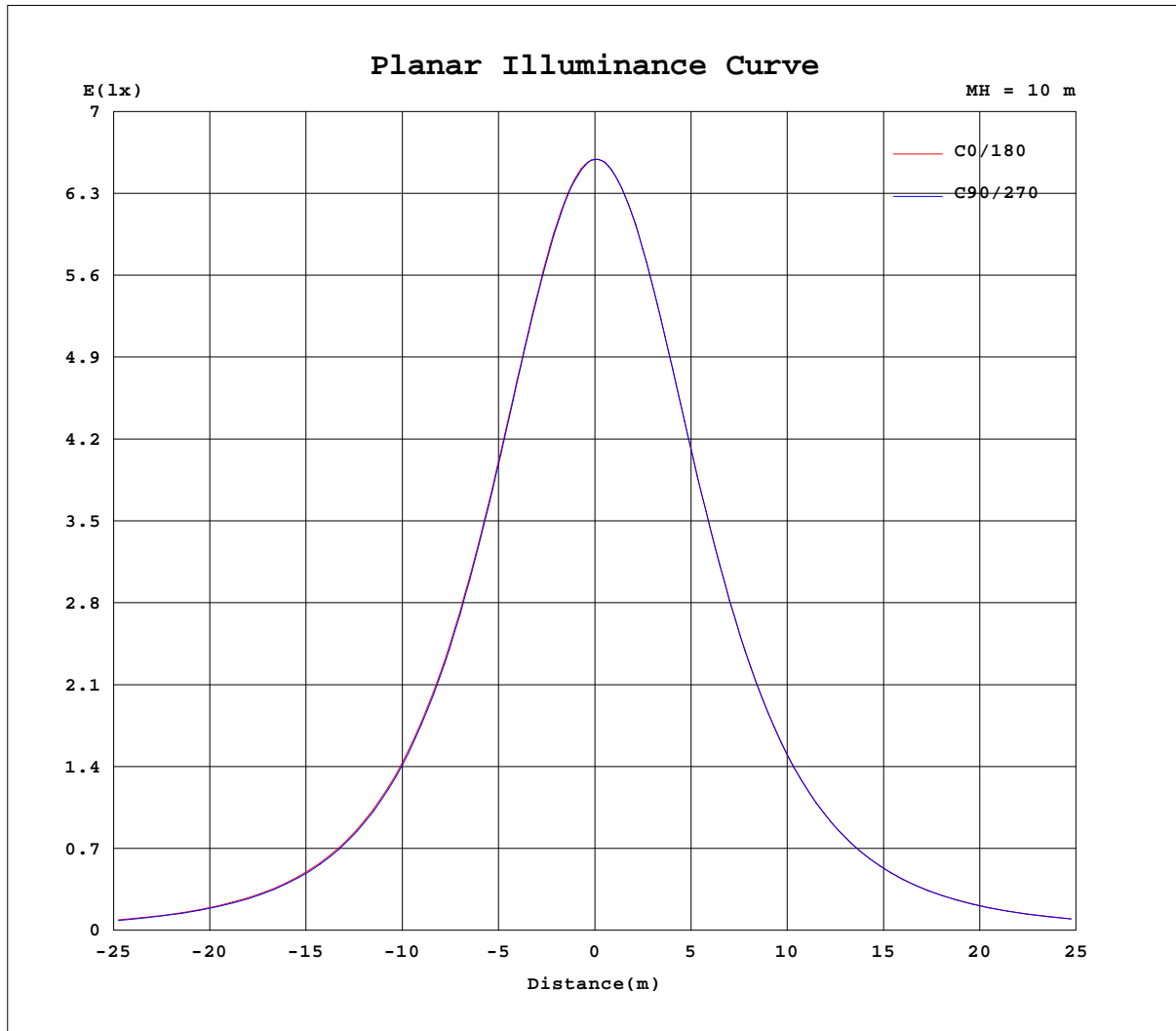


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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Planar Illuminance Curve



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 Humidity: 65.0%
 Test Distance: 3.200m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME:	TYPE:SM9R20830120W	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

Table--1

UNIT: cd

C(DEG) g (DEG)	0	90	180	270															
0	659	659	659	659															
5	654	653	657	658															
10	644	641	649	650															
15	626	623	635	634															
20	601	599	613	613															
25	571	568	585	585															
30	536	532	552	552															
35	496	492	514	514															
40	453	448	472	471															
45	406	400	426	425															
50	357	351	377	376															
55	307	300	326	326															
60	255	248	274	273															
65	204	198	222	220															
70	154	147	171	168															
75	106	99.6	121	118															
80	56.7	54.6	72.0	70.5															
85	17.4	12.6	26.2	23.9															
90	0.57	0.55	0.13	0.23															

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
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g Range: 0 - 90DEG
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