

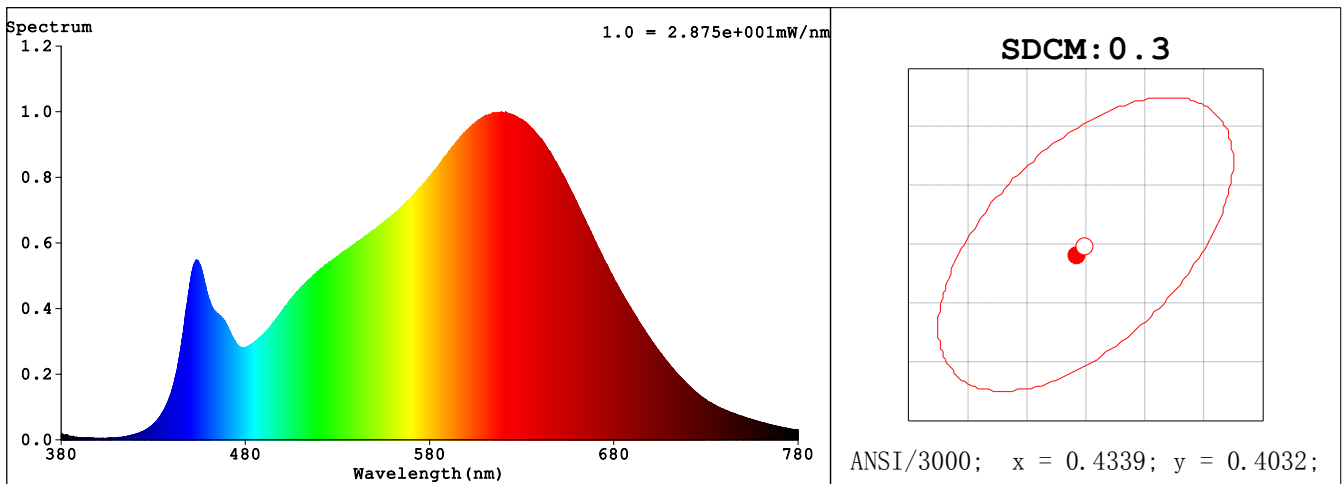
Spectrum Test Report

Sample	:	Date	:	2019-11-30
Specification	:	Sam. Status	:	
Sample No.	:	Standard	:	
Manufacturer	:	Instrument	:	HaasSuite(EVERFINE)
Assessor	:	Test by	:	DAMIN
Remark	:			
Device SN	:			

Test Condition

Temperature	:	24.6Deg	RH	:	65.0%
WL Range	:	380nm-780nm	IP	:	52793 (81%)
Test Mode	:	Fast Test	T	:	134 ms
Sensitivity	:	High			

Spectrum



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4335$ $y = 0.4027$ / $u' = 0.2489$ $v' = 0.5203$ ($duv = -8.25e-05$)
 CCT= 3048K Prcp WL: $L_d = 582.7nm$ Purity=51.0%
 Peak WL: $L_p = 621nm$ FWHM: =162.5nm Ratio:R=24.1% G=72.7% B=3.2%
 Render Index: $R_a = 93.2$

EEl: 0.17187 A

R1 =94 R2 =98 R3 =99 R4 =93 R5 =94 R6 =97 R7 =91
 R8 =82 R9 =60 R10=94 R11=94 R12=81 R13=95 R14=100 R15=89
 LEVEL:OUT WHITE:ANSI_3000K

Photometric & Radiometric Parameters

Flux = 1479.8 lm Eff. : 79.26 lm/W $F_e = 5.0730 W$ Scotpic:2164 S/P:1.4623

Electrical parameters

V = 119.96 V I = 0.1566 A P = 18.67 W PF = 0.9941 F=59.98 Hz

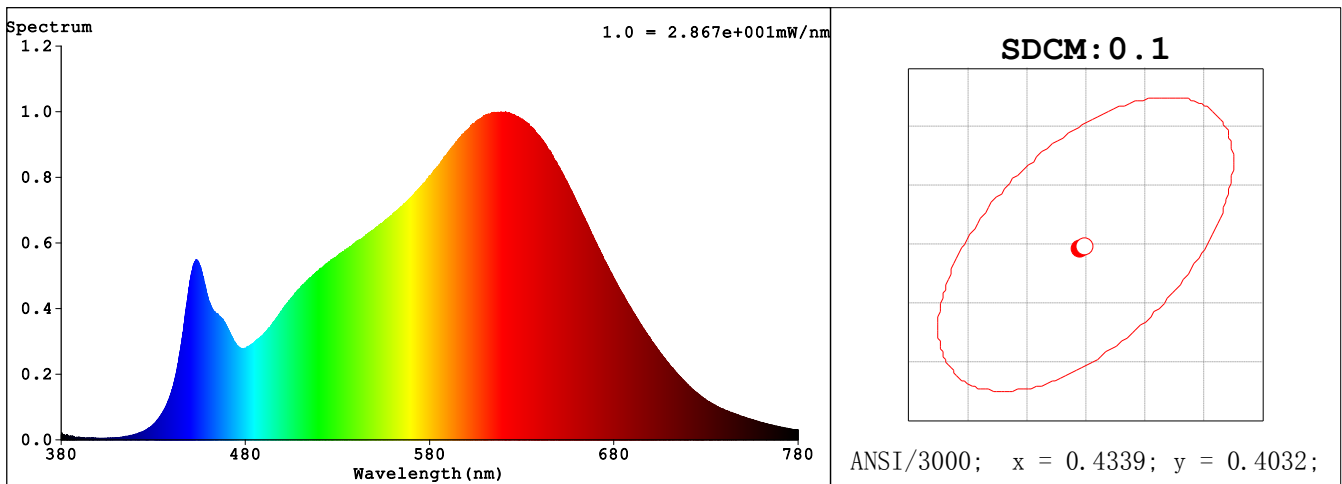
Spectrum Test Report

Sample	:	Date	:	2019-11-30
Specification	:	Sam. Status	:	
Sample No.	:	Standard	:	
Manufacturer	:	Instrument	:	HaasSuite(EVERFINE)
Assessor	:	Test by	:	DAMIN
Remark	:			
Device SN	:			

Test Condition

Temperature	:	24.6Deg	RH	:	65.0%
WL Range	:	380nm-780nm	IP	:	52688 (80%)
Test Mode	:	Fast Test	T	:	134 ms
Sensitivity	:	High			

Spectrum



Colorimetric Parameters

Chromaticity Coordinate: $x = 0.4337$ $y = 0.4031$ / $u' = 0.2489$ $v' = 0.5205$ ($duv=5.55e-05$)
 CCT= 3048K Prcp WL: $L_d=582.6nm$ Purity=51.1%
 Peak WL: $L_p=621nm$ FWHM: =162.9nm Ratio:R=24.0% G=72.8% B=3.2%
 Render Index: $R_a = 93.3$

EEL: 0.16674 A+

R1 =94 R2 =98 R3 =99 R4 =93 R5 =93 R6 =97 R7 =91
 R8 =82 R9 =60 R10=94 R11=94 R12=81 R13=95 R14=100 R15=89
 LEVEL:OUT WHITE:ANSI_3000K

Photometric & Radiometric Parameters

Flux = 1478.1 lm Eff. : 81.70 lm/W $F_e = 5.0647 W$ Scotpic:2159.8 S/P:1.4612

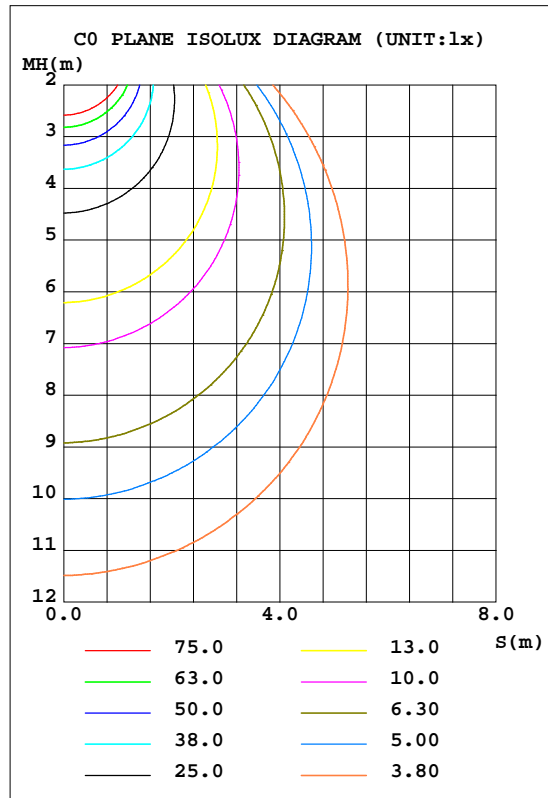
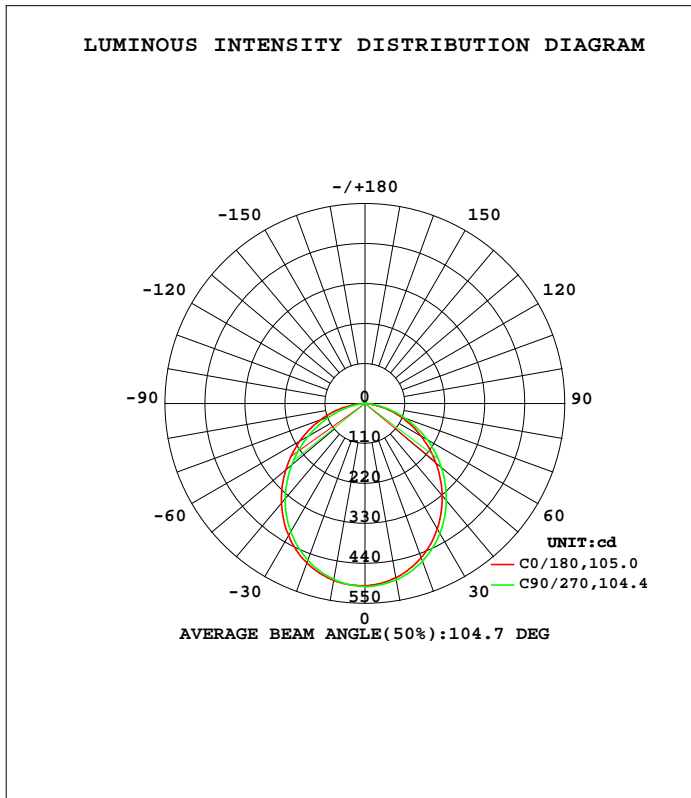
Electrical parameters

V = 277.36 V I = 0.06879 A P = 18.09 W PF = 0.9482 F=0.00 Hz

LUMINAIRE PHOTOMETRIC TEST REPORT

NAME:	TYPE:SM9S20930UNVW	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 90.20 lm/W			
MODEL		I _{max} (cd)	503.5	S/MH(C0/180)	1.25
NOMINAL POWER(W)		LOR(%)	100.0	S/MH(C90/270)	1.21
RATED VOLTAGE(V)	12	TOTAL FLUX(lm)	1304.8	h UP, DN(C0-180)	0.0,49.2
NOMINAL FLUX(lm)	1304.82	CIE CLASS	DIRECT	h UP, DN(C180-360)	0.0,50.8
LAMPS INSIDE	1	h up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	12	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:2019-12-05

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:

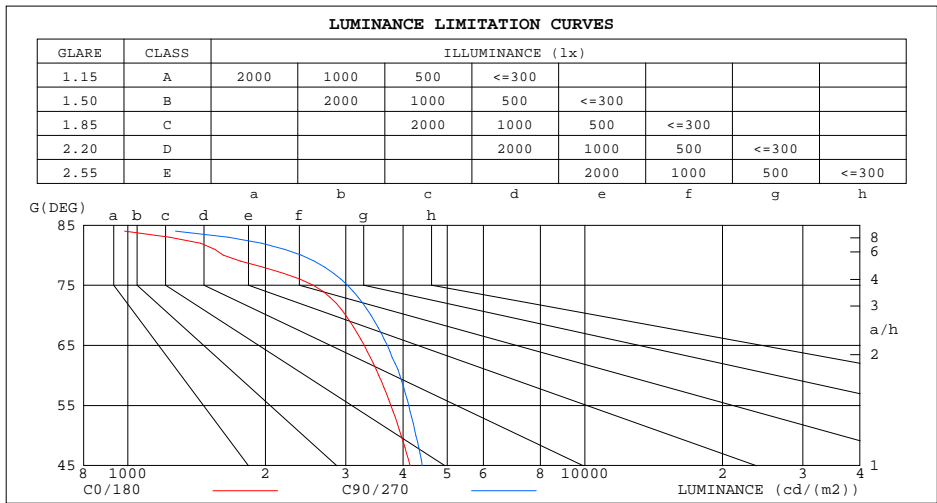
g	C0	C90	C180	C270					g	F zone	F total	%lum,lamp
10	486.6	493.0	494.2	491.4					0- 10	47.42	47.42	3.63,3.63
20	451.7	461.8	467.1	459.3					10- 20	134.8	182.3	14,14
30	398.3	412.7	420.4	408.2					20- 30	201.3	383.5	29.4,29.4
40	330.5	348.0	357.8	342.0					30- 40	236.8	620.3	47.5,47.5
50	254.8	274.4	285.0	263.6					40- 50	237.4	857.7	65.7,65.7
60	177.2	196.9	207.3	181.4					50- 60	205.8	1064	81.5,81.5
70	102.5	116.6	129.0	100.8					60- 70	149.5	1213	93,93
80	28.08	41.63	50.78	27.89					70- 80	78.48	1291	99,99
90	0.4003	0.3721	0.0773	0.6361					80- 90	13.38	1305	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:2019-12-05

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:SM9S20930UNVW	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	638	791
80	1617	2397
75	2546	3025
70	2997	3408
65	3293	3696
60	3544	3939
55	3765	4118
50	3965	4269
45	4147	4412

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-05

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:SM9S20930UNVW	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	.292	.166	.053	.285	.163	.052	.272	.156	.050	.260	.150	.048	.249	.144	.046	
2.0	.279	.153	.047	.273	.150	.046	.261	.145	.045	.251	.141	.044	.241	.136	.043	
3.0	.260	.139	.042	.255	.137	.041	.245	.133	.040	.235	.129	.040	.227	.125	.039	
4.0	.242	.126	.037	.237	.124	.037	.228	.121	.036	.219	.118	.036	.212	.115	.035	
5.0	.224	.114	.033	.220	.113	.033	.212	.110	.033	.205	.108	.032	.198	.106	.032	
6.0	.209	.105	.030	.205	.104	.030	.198	.101	.029	.191	.099	.029	.185	.097	.029	
7.0	.195	.096	.027	.191	.095	.027	.185	.094	.027	.179	.092	.027	.173	.090	.026	
8.0	.182	.089	.025	.179	.088	.025	.173	.087	.025	.168	.085	.025	.163	.084	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.081	.023	.158	.079	.023	.154	.078	.023	
10.0	.161	.077	.021	.159	.077	.021	.154	.075	.021	.150	.074	.021	.145	.073	.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	.179	.156	.136	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.171	.132	.100	.146	.114	.086	.100	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.163	.114	.076	.139	.099	.066	.096	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.059	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.087	.055	.030	.051	.032	.018	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.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	.026	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-05

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:SM9S20930UNVW					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	2H	16.4	17.9	16.6	18.1	18.3	16.7	18.2	17.0	18.4	18.6
	3H	17.7	19.0	18.0	19.3	19.5	18.1	19.5	18.4	19.7	20.0
	4H	18.1	19.4	18.4	19.7	19.9	18.6	19.9	18.9	20.2	20.4
	6H	18.3	19.5	18.6	19.8	20.1	18.9	20.2	19.3	20.4	20.7
	8H	18.3	19.5	18.6	19.8	20.1	19.0	20.2	19.3	20.5	20.7
	12H	18.3	19.4	18.6	19.7	20.0	19.0	20.1	19.3	20.4	20.7
	4H 2H	17.0	18.3	17.3	18.5	18.8	17.3	18.6	17.6	18.8	19.1
	3H	18.4	19.6	18.8	19.9	20.2	18.8	19.9	19.2	20.2	20.5
	4H	19.0	20.0	19.4	20.3	20.7	19.4	20.5	19.8	20.8	21.1
	6H	19.2	20.2	19.6	20.5	20.9	19.8	20.8	20.2	21.1	21.5
	8H	19.3	20.1	19.7	20.5	20.9	19.9	20.8	20.3	21.1	21.5
	12H	19.3	20.1	19.7	20.4	20.8	19.9	20.7	20.4	21.1	21.5
	8H 4H	19.2	20.0	19.6	20.4	20.8	19.6	20.5	20.0	20.8	21.2
	6H	19.5	20.3	20.0	20.7	21.1	20.1	20.8	20.6	21.2	21.6
	8H	19.6	20.3	20.1	20.7	21.1	20.2	20.9	20.7	21.3	21.7
	12H	19.7	20.2	20.1	20.6	21.1	20.3	20.8	20.7	21.2	21.7
	12H 4H	19.2	20.0	19.6	20.4	20.8	19.6	20.4	20.0	20.8	21.2
	6H	19.6	20.2	20.0	20.6	21.1	20.1	20.7	20.6	21.2	21.6
	8H	19.7	20.2	20.2	20.7	21.1	20.3	20.8	20.7	21.2	21.7
Variations with the observer position at spacings:											
S = 1.0H		+ 0.2 / - 0.3					+ 0.2 / - 0.2				
1.5H		+ 0.2 / - 0.4					+ 0.2 / - 0.3				
2.0H		+ 0.3 / - 0.4					+ 0.3 / - 0.3				

CIE Pub.117, 1305 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.9)

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-05

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:SM9S20930UNVW	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

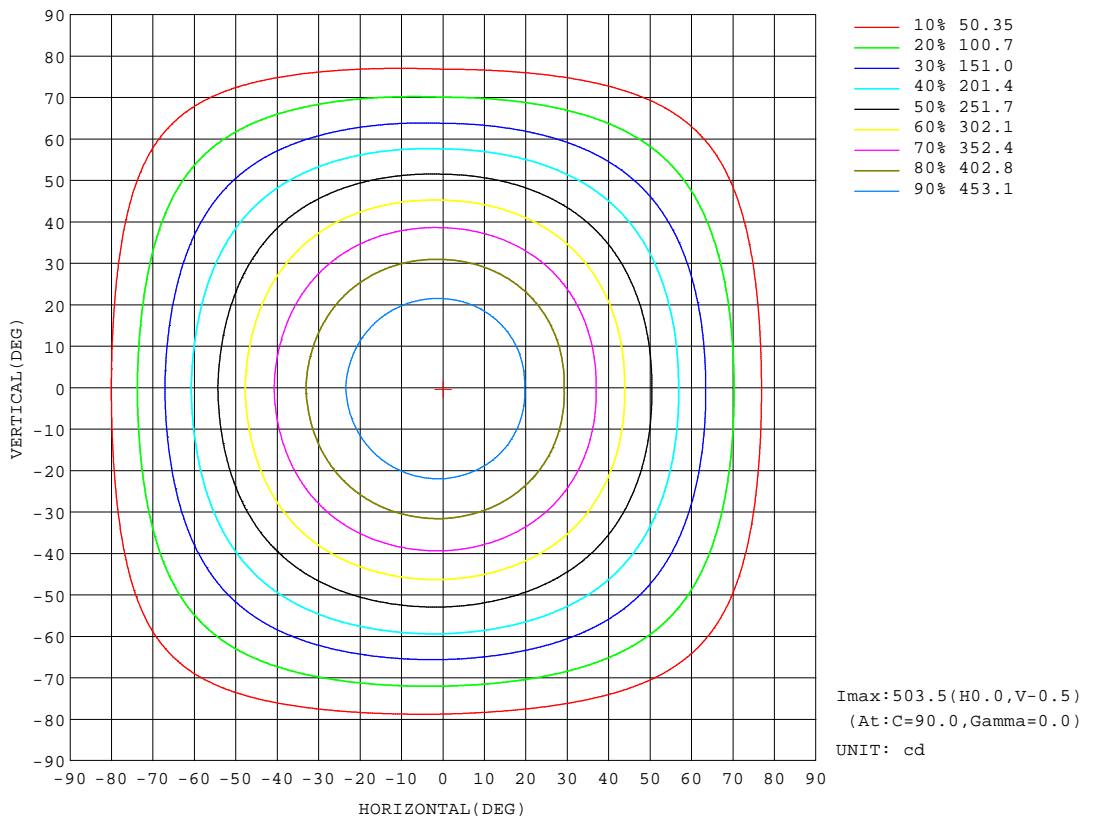
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	59	48	41	58	48	41	57	47	41	34
0.80	69	58	51	68	58	51	66	57	50	44
1.00	78	67	60	76	66	60	74	68	59	52
1.25	85	75	68	83	74	67	81	72	66	59
1.50	90	80	73	88	79	73	85	77	72	65
2.00	96	88	82	94	87	81	91	85	80	72
2.50	100	93	87	98	91	86	94	89	84	76
3.00	103	97	92	101	95	90	97	92	88	80
4.00	107	102	97	105	100	96	101	97	93	85
5.00	109	105	101	107	103	99	103	99	96	87
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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 Operators:DAMIN
 Test Date:2019-12-05

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:

ISOCANDELA DIAGRAM

NAME:	TYPE:SM9S20930UNVW	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

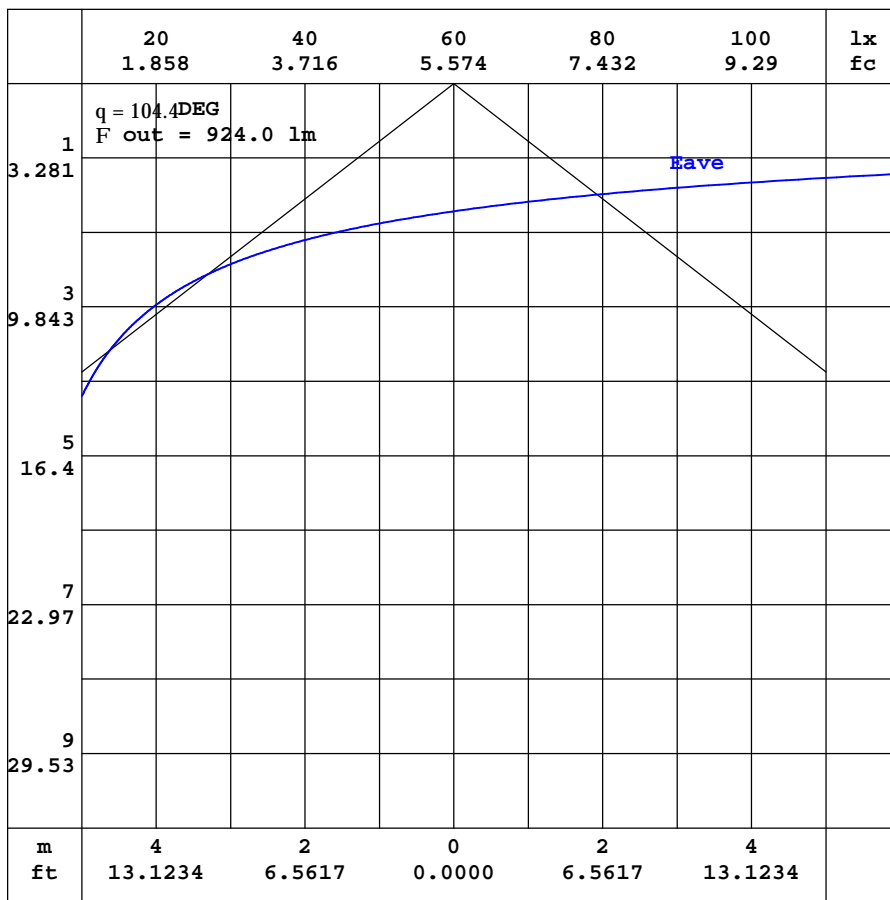


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2019-12-05

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:SM9S20930UNVW	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC.	SUR.:21cm*16cm	Shielding Angle:

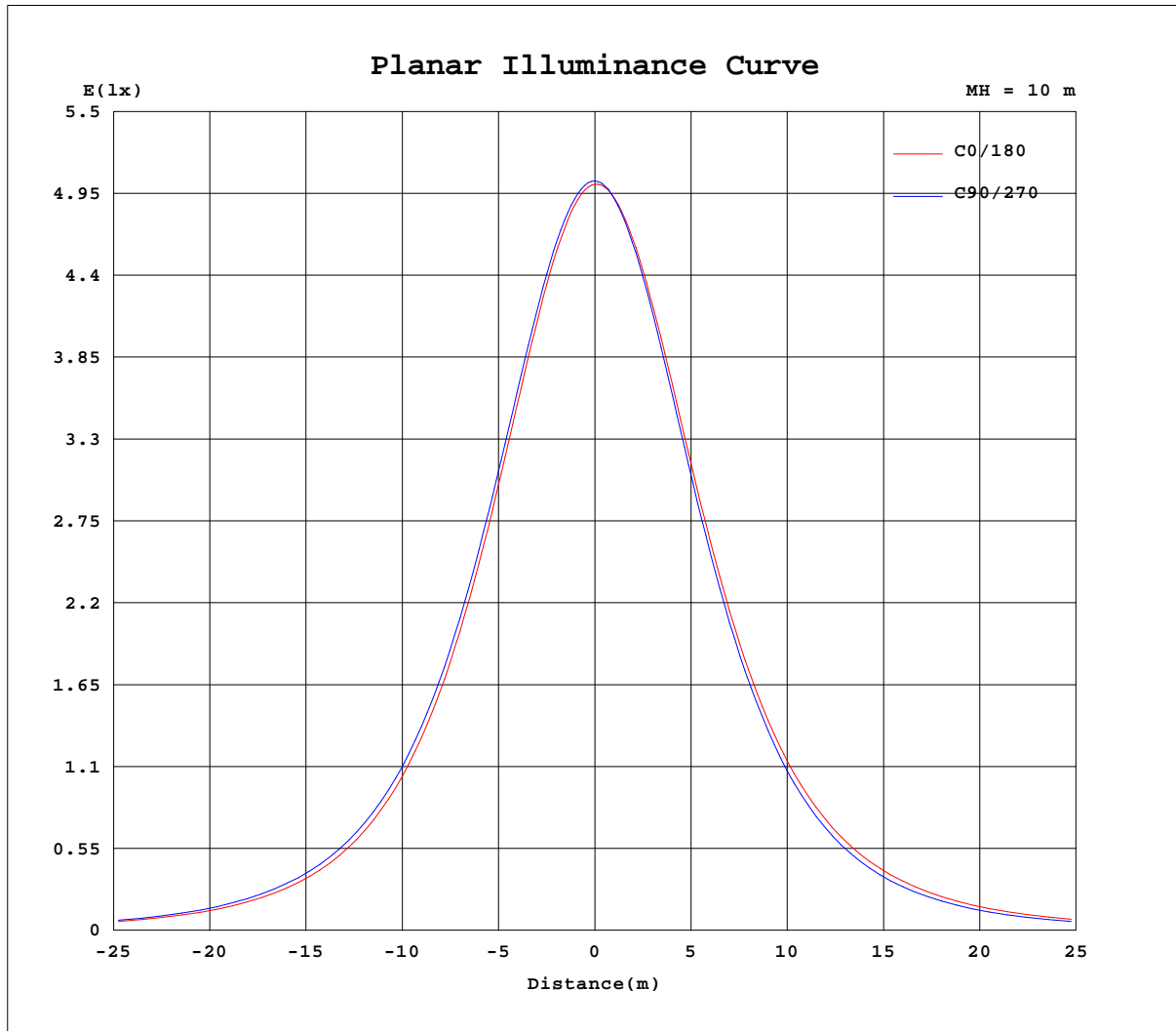


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-05

Range: 0 - 90DEG
 Interval: 1.0DEG
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 Humidity:65.0%
 Test Distance:3.200m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2019-12-05

Page 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:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME:	TYPE:SM9S20930UNVW	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	501	503	501	503													
5	497	501	500	500													
10	487	493	494	491													
15	472	480	483	478													
20	452	462	467	459													
25	427	439	446	436													
30	398	413	420	408													
35	366	382	391	376													
40	331	348	358	342													
45	293	312	322	303													
50	255	274	285	264													
55	216	236	246	223													
60	177	197	207	181													
65	139	156	168	141													
70	103	117	129	101													
75	65.9	78.3	91.0	63.1													
80	28.1	41.6	50.8	27.9													
85	5.56	6.89	20.4	0.18													
90	0.40	0.37	0.08	0.64													

C Range: 0 - 360DEG
 C Interval: 90.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2019-12-05

Range: 0 - 90DEG
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