

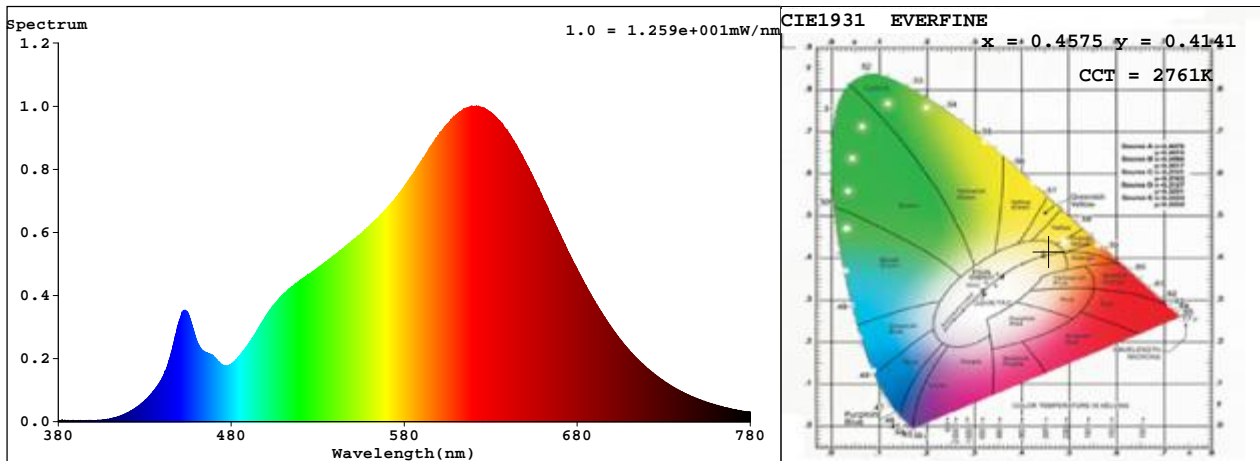
## Spectrum Test Report

Sample :	Date :	2019-11-11
Specification : MR16-7.5-927-35D-DIM-G2	Sam. Status :	
Sample No. :	Instrument :	HaasSuite(EVERFINE)
Manufacturer : RAB LIGHTING INC	Test by :	
	Assessor :	damin

### Test Condition

Temperature : 22.8Deg	RH : 65.0%
WL Range : 380nm-780nm	IP : 54155 (83%)
Test Mode : Fast Test	T : 820 ms
	Sensitivity : Low

### Spectrum



Spectral Distribution

CIE1931 Chromaticity Diagram

### Colorimetric Parameters

Chromaticity Coordinate:  $x = 0.4575$   $y = 0.4141$  /  $u' = 0.2594$   $v' = 0.5283$  ( $duv=1.52e-03$ )

CCT= 2761K Prcp WL:  $L_d=583.4nm$  Purity=61.6%

Peak WL:  $L_p=622nm$  FWHM:  $=144.9nm$  Ratio:R=25.9% G=71.6% B=2.5%

Render Index:  $R_a = 92.7$  CRI = 90.0 AvgR = 89.8

R1 =93 R2 =96 R3 =99 R4 =93 R5 =93 R6 =97 R7 =91

R8 =80 R9 =54 R10=91 R11=95 R12=85 R13=93 R14=99 R15=87

WHITE:ANSI\_2700K

### Photometric & Radiometric Parameters

Flux = 591.12 lm Eff. : 89.76 lm/W Fe = 2.0280 W

Flux of emitted photons(umol/s):10.111 Flu. and blue light ratio:13.91 Fluorescent eff.:267.1

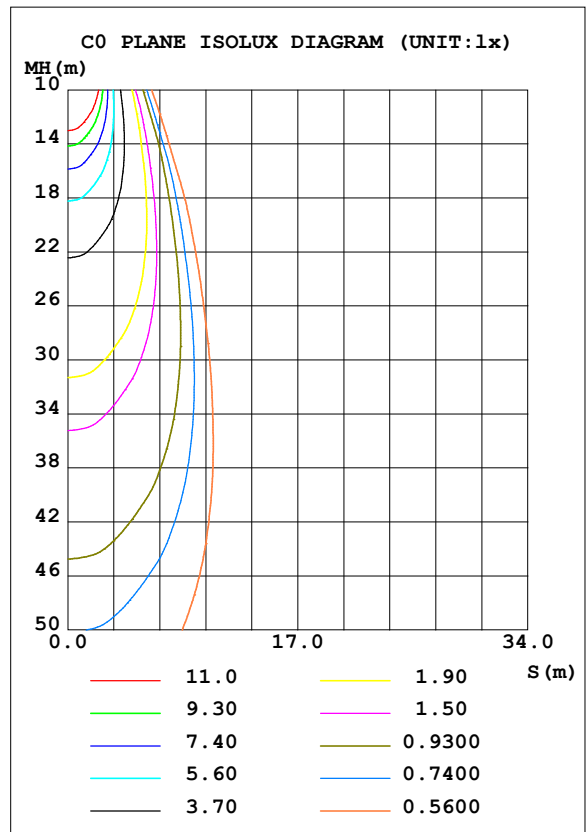
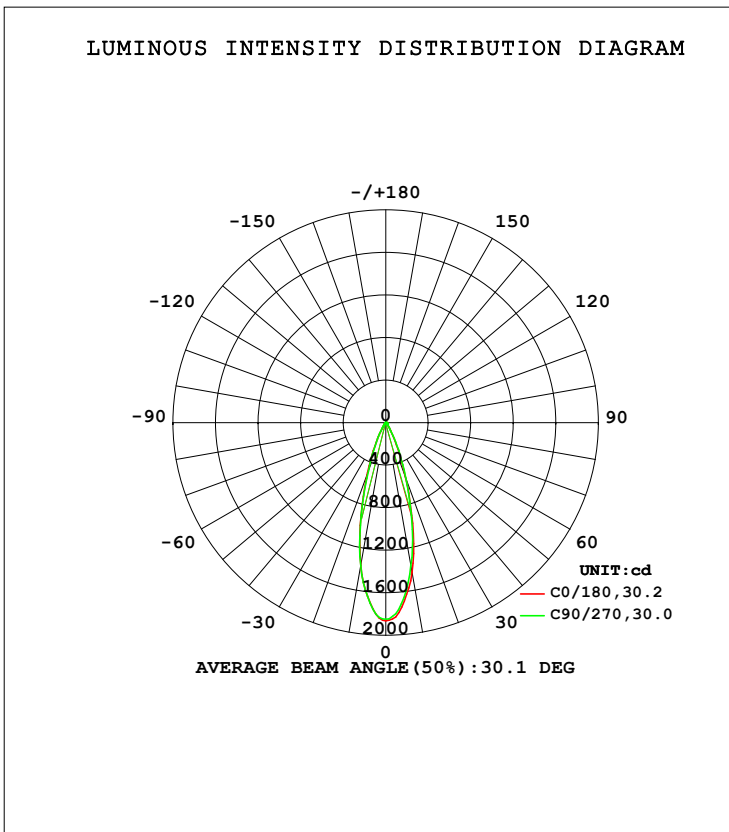
### Electrical parameters

V = 11.90 V I = 0.5952 A P = 6.585 W PF = 0.9296 F=59.98 Hz

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 89.36 lm/W
MODEL	MR16	Imax (cd)	1862	S/MH (C0/180)	0.49	
NOMINAL POWER (W)	7.5	LOR (%)	100.0	S/MH (C90/270)	0.49	
RATED VOLTAGE (V)	12	TOTAL FLUX (lm)	600.11	η UP, DN (C0-180)	0.0, 51.6	
NOMINAL FLUX (lm)	600.115	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 48.4	
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:

$\gamma$	C0	C90	C180	C270				$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1428	1368	1362	1368				0- 10	152.9	152.9	25.5,25.5
20	542.9	549.5	501.9	483.5				10- 20	252.5	405.4	67.6,67.6
30	119.1	123.8	107.4	108.5				20- 30	123.5	528.8	88.1,88.1
40	29.57	27.37	25.24	25.96				30- 40	35.88	564.7	94.1,94.1
50	13.71	12.36	12.68	12.90				40- 50	14.05	578.8	96.4,96.4
60	8.462	8.176	8.198	8.493				50- 60	9.233	588.0	98,98
70	5.392	5.291	5.283	5.305				60- 70	6.739	594.8	99.1,99.1
80	2.506	2.532	2.413	2.386				70- 80	4.086	598.8	99.8,99.8
90	0.1026	0.1184	0.0868	0.1184				80- 90	1.278	600.1	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): 572.7 lm

%lum = 95.4%

%lamp = 95.4%

Conical surface Flux(120deg): 588.01 lm

%lum = 98.0%

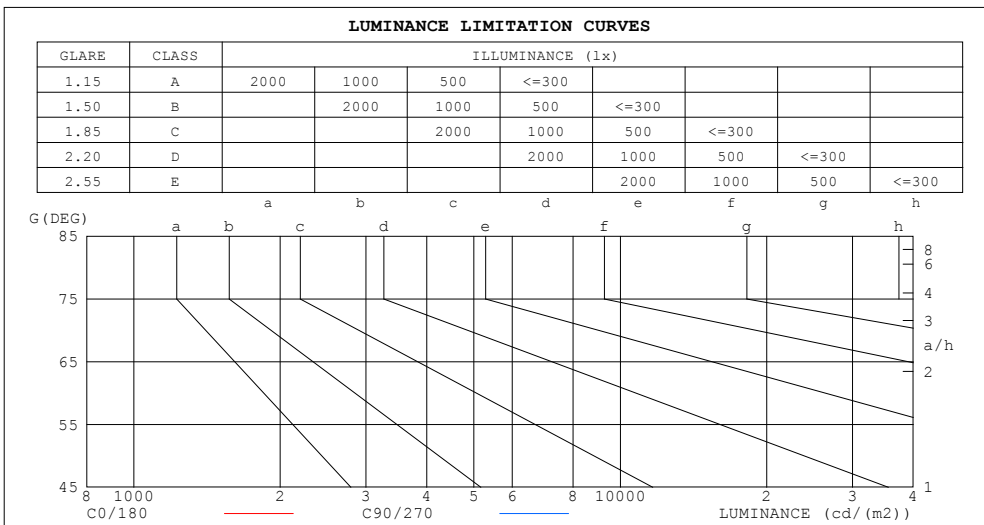
%lamp = 98.0%

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	82	84
80	87	88
75	91	90
70	95	93
65	98	95
60	102	98
55	110	103
50	128	116
45	157	150

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
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	.159	.090	.029	.152	.087	.028	.139	.080	.026	.128	.074	.024	.117	.068	.022	
2.0	.148	.081	.025	.142	.078	.024	.132	.073	.023	.122	.069	.021	.114	.064	.020	
3.0	.138	.074	.022	.134	.072	.022	.125	.068	.021	.117	.064	.020	.109	.060	.019	
4.0	.130	.067	.020	.126	.066	.019	.118	.063	.019	.111	.060	.018	.105	.057	.017	
5.0	.122	.062	.018	.119	.061	.018	.112	.058	.017	.106	.056	.017	.101	.054	.016	
6.0	.116	.058	.017	.113	.057	.016	.107	.055	.016	.102	.053	.016	.097	.051	.015	
7.0	.110	.054	.015	.107	.053	.015	.102	.052	.015	.098	.050	.015	.093	.049	.014	
8.0	.104	.051	.014	.102	.050	.014	.098	.049	.014	.094	.048	.014	.090	.046	.013	
9.0	.100	.048	.013	.098	.048	.013	.094	.046	.013	.090	.045	.013	.087	.044	.013	
10.0	.095	.046	.013	.094	.045	.013	.090	.044	.012	.087	.043	.012	.084	.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	.157	.146	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.115	.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	.076	.109	.085	.066	.075	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.117	.086	.063	.101	.075	.055	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.109	.077	.053	.094	.066	.046	.065	.046	.033	.038	.027	.020	.012	.009	.006	
7.0	.102	.069	.045	.088	.059	.040	.060	.042	.028	.035	.025	.017	.011	.008	.006	
8.0	.095	.062	.039	.082	.054	.034	.057	.038	.024	.033	.022	.014	.011	.007	.005	
9.0	.090	.057	.034	.077	.049	.030	.054	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.085	.052	.030	.073	.045	.026	.051	.032	.018	.030	.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:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm										
NAME: MR16-7.5-927-35D-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	0.9	1.7	1.1	1.8	2.0	0.8	1.5	1.0	1.7	1.8
3H	1.8	2.5	2.0	2.7	2.9	1.6	2.4	1.9	2.6	2.7
4H	2.2	2.9	2.5	3.1	3.3	2.1	2.8	2.4	3.0	3.2
6H	2.6	3.2	2.9	3.4	3.7	2.5	3.1	2.8	3.3	3.6
8H	2.7	3.3	3.0	3.6	3.8	2.6	3.2	2.9	3.5	3.7
12H	2.8	3.4	3.1	3.7	3.9	2.7	3.3	3.0	3.6	3.8
4H 2H	1.2	1.8	1.4	2.1	2.3	1.1	1.7	1.3	1.9	2.2
3H	2.3	2.9	2.6	3.1	3.4	2.2	2.8	2.5	3.0	3.3
4H	2.9	3.4	3.2	3.7	4.0	2.8	3.3	3.1	3.6	3.9
6H	3.4	3.8	3.7	4.2	4.5	3.3	3.8	3.6	4.1	4.4
8H	3.5	4.0	3.9	4.3	4.7	3.5	3.9	3.9	4.3	4.6
12H	3.7	4.1	4.1	4.5	4.8	3.6	4.0	4.0	4.4	4.8
8H 4H	3.0	3.5	3.4	3.8	4.2	3.0	3.4	3.4	3.8	4.1
6H	3.7	4.1	4.1	4.4	4.9	3.6	4.0	4.0	4.4	4.8
8H	4.0	4.3	4.4	4.7	5.1	3.9	4.2	4.3	4.6	5.1
12H	4.2	4.4	4.6	4.9	5.4	4.1	4.4	4.6	4.9	5.3
12H 4H	3.0	3.5	3.5	3.8	4.2	3.0	3.4	3.4	3.7	4.1
6H	3.7	4.1	4.2	4.5	4.9	3.7	4.0	4.1	4.4	4.8
8H	4.0	4.3	4.5	4.8	5.2	4.0	4.3	4.5	4.7	5.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 0.6					+ 0.5 / - 0.5				
1.5H	+ 1.1 / - 0.4					+ 1.0 / - 0.5				
2.0H	+ 0.5 / - 0.3					+ 0.5 / - 0.3				

CIE Pub.117, 600.1 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -1.8)

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:

**UTILIZATION FACTORS TABLE**

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

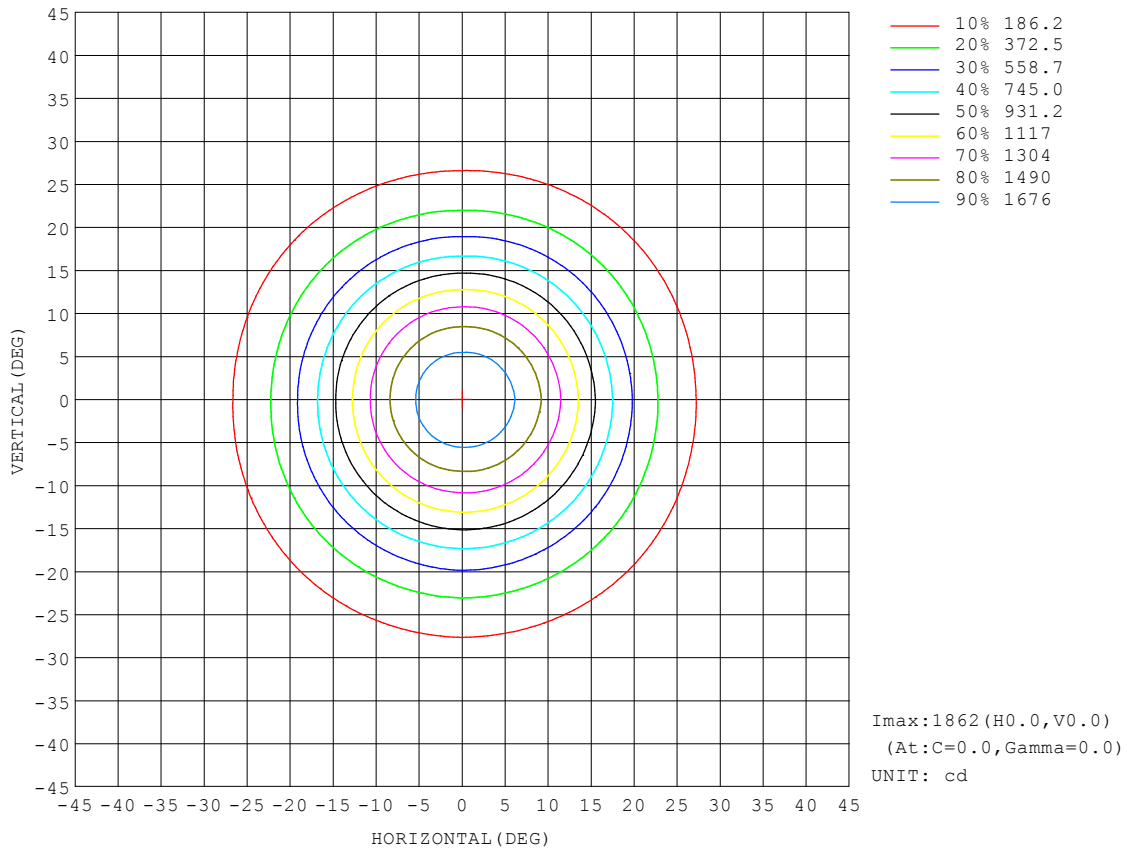
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	88	82	78	87	82	78	87	81	78	74
0.80	95	89	86	95	89	86	93	88	85	82
1.00	99	94	90	99	93	90	97	93	89	86
1.25	103	98	95	102	97	94	100	96	93	89
1.50	106	101	98	105	100	97	102	99	96	92
2.00	108	104	101	107	103	100	104	101	99	94
2.50	110	106	103	109	105	102	105	103	101	95
3.00	112	108	106	110	107	104	107	104	102	96
4.00	114	111	109	112	109	107	108	106	105	98
5.00	115	113	111	113	111	109	109	108	106	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity:65.0%  
 Test Distance:11.160m [K=1.0000]  
 Remarks:

**ISOCANDELA DIAGRAM**

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:



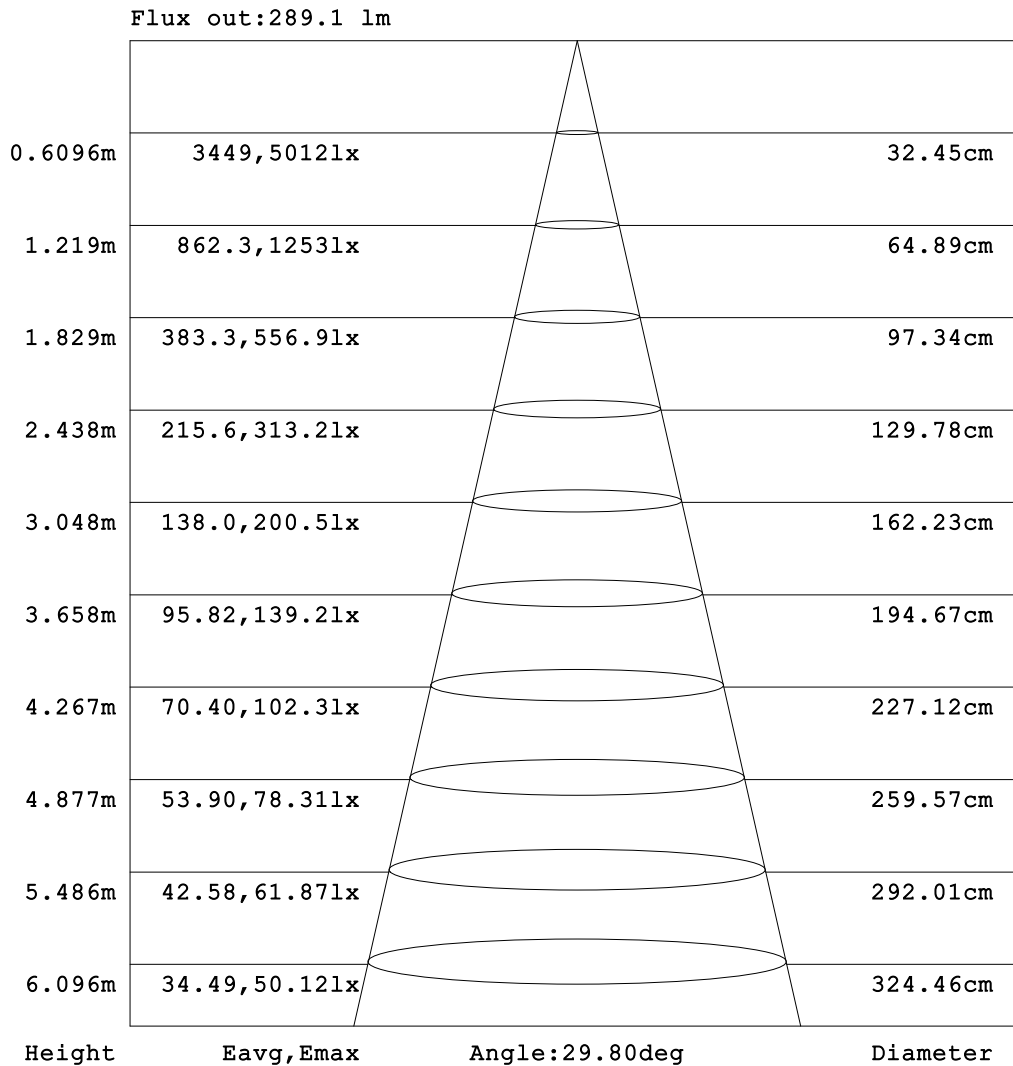
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Testing Room  
 Test Date:2019-11-18

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:



AAI Figure

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

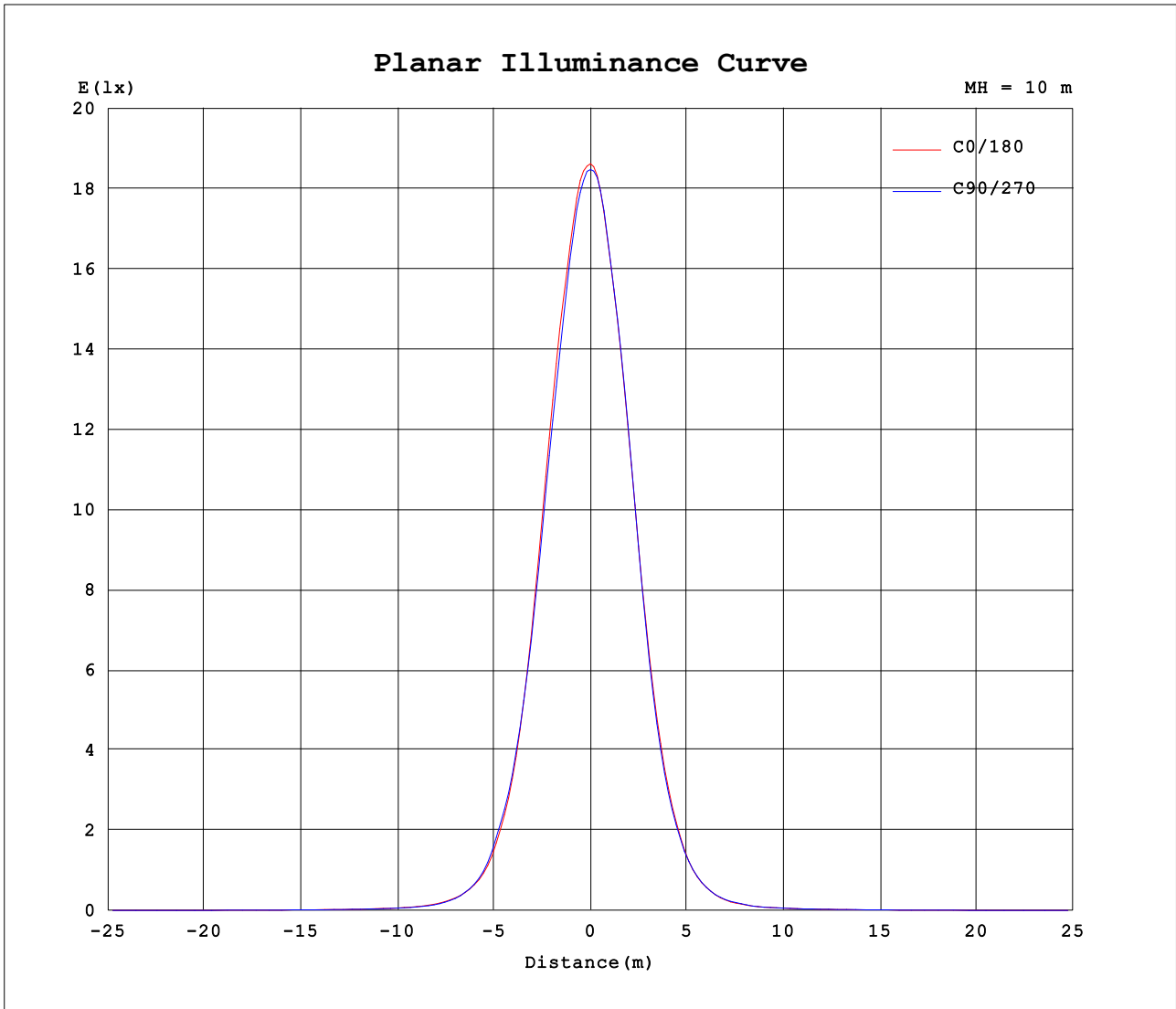


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators: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:

Planar Illuminance Curve



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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-3000H\_V1 SYSTEM V2.0.361  
 Humidity: 65.0%  
 Test Distance: 11.160m [K=1.0000]  
 Remarks:

**LUMINOUS DISTRIBUTION INTENSITY DATA**

Test:U:12.06V I:0.5995A P:6.716W PF:0.9287 Freq:59.98Hz Lamp Flux:600.115x1 lm		
NAME: MR16-7.5-927-35D-DIM-G2	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: RAB LIGHTING INC	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	90	180	270																
0	1862	1848	1862	1848																
5	1740	1708	1699	1704																
10	1428	1368	1362	1368																
15	979	946	904	898																
20	543	550	502	484																
25	272	292	248	241																
30	119	124	107	109																
35	57.3	55.1	48.1	50.4																
40	29.6	27.4	25.2	26.0																
45	18.4	17.6	17.6	17.3																
50	13.7	12.4	12.7	12.9																
55	10.4	9.84	10.0	10.5																
60	8.46	8.18	8.20	8.49																
65	6.88	6.70	6.75	6.89																
70	5.39	5.29	5.28	5.30																
75	3.93	3.89	3.83	3.82																
80	2.51	2.53	2.41	2.39																
85	1.19	1.22	1.05	1.07																
90	0.10	0.12	0.09	0.12																

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: