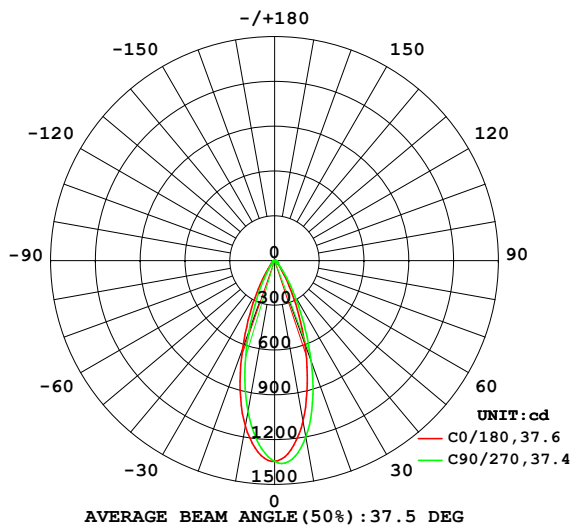


## LUMINAIRE PHOTOMETRIC TEST REPORT

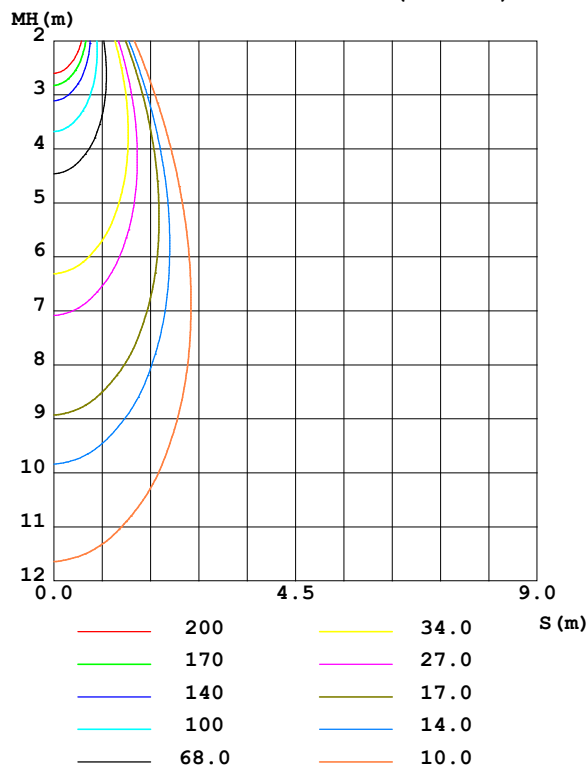
Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 74.26 lm/W
MODEL	VO-RMD4W9-120-D-5WAY	I <sub>max</sub> (cd)	1359	S/MH(C0/180)	0.63	
NOMINAL POWER(W)	9	LOR(%)	100.0	S/MH(C90/270)	0.55	
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	678.46	η UP,DN(C0-180)	0.0,55.0	
NOMINAL FLUX(lm)	678.456	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,45.0	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50	
TEST VOLTAGE(V)	120	η down (%)	100.0	CIBSE SHR MAX	0.65	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 24.3 °C  
Operators:  
Test Date: 2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity: 65.0%  
Test Distance: 3.080m [K=1.0000]  
Remarks:

## ZONAL FLUX DIAGRAM

## ZONAL FLUX DIAGRAM:

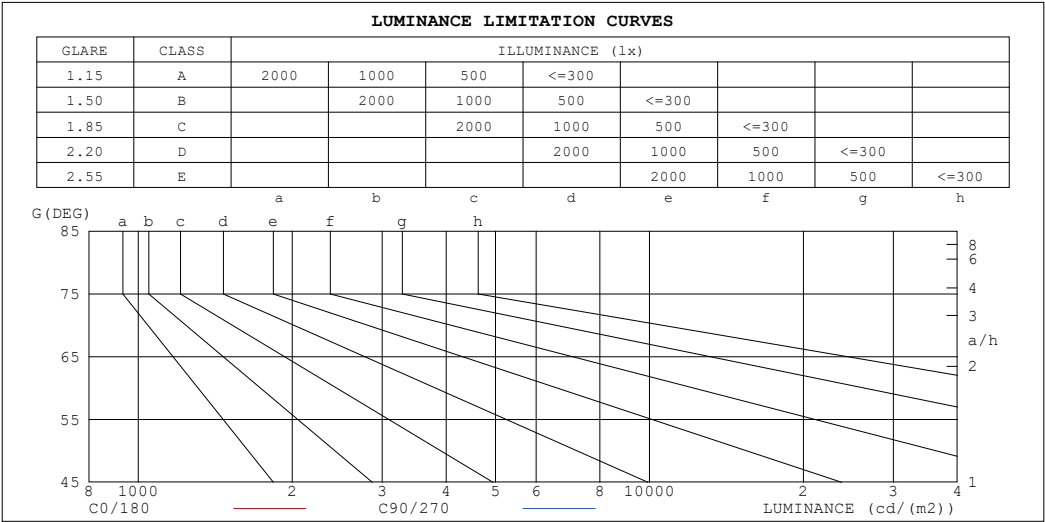
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1096	1166	1202	1191	1128	1055	1028	1044	0- 10	116.9	116.9	17.2,17.2
20	589.0	678.6	716.6	702.4	629.5	534.3	505.2	530.3	10- 20	239.2	356.1	52.5,52.5
30	196.4	236.9	268.3	257.7	220.4	169.3	144.9	161.4	20- 30	174.1	530.2	78.1,78.1
40	54.78	64.18	72.64	69.16	59.79	47.49	43.18	46.34	30- 40	70.15	600.3	88.5,88.5
50	27.31	29.84	31.11	30.04	29.00	26.24	24.51	25.23	40- 50	30.22	630.5	92.9,92.9
60	20.18	20.84	21.16	21.17	20.76	19.81	18.81	19.34	50- 60	20.96	651.5	96,96
70	11.31	13.79	14.37	14.32	13.48	12.45	11.87	12.15	60- 70	16.63	668.1	98.5,98.5
80	2.885	4.120	7.021	4.847	3.726	3.623	4.967	3.406	70- 80	8.821	677.0	99.8,99.8
90	0.0602	0.0595	0.0748	0.0633	0.0477	0.0443	0.0633	0.0448	80- 90	1.505	678.5	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: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	12	273
80	151	363
75	211	372
70	300	377
65	356	387
60	366	380
55	362	380
50	385	435
45	469	573

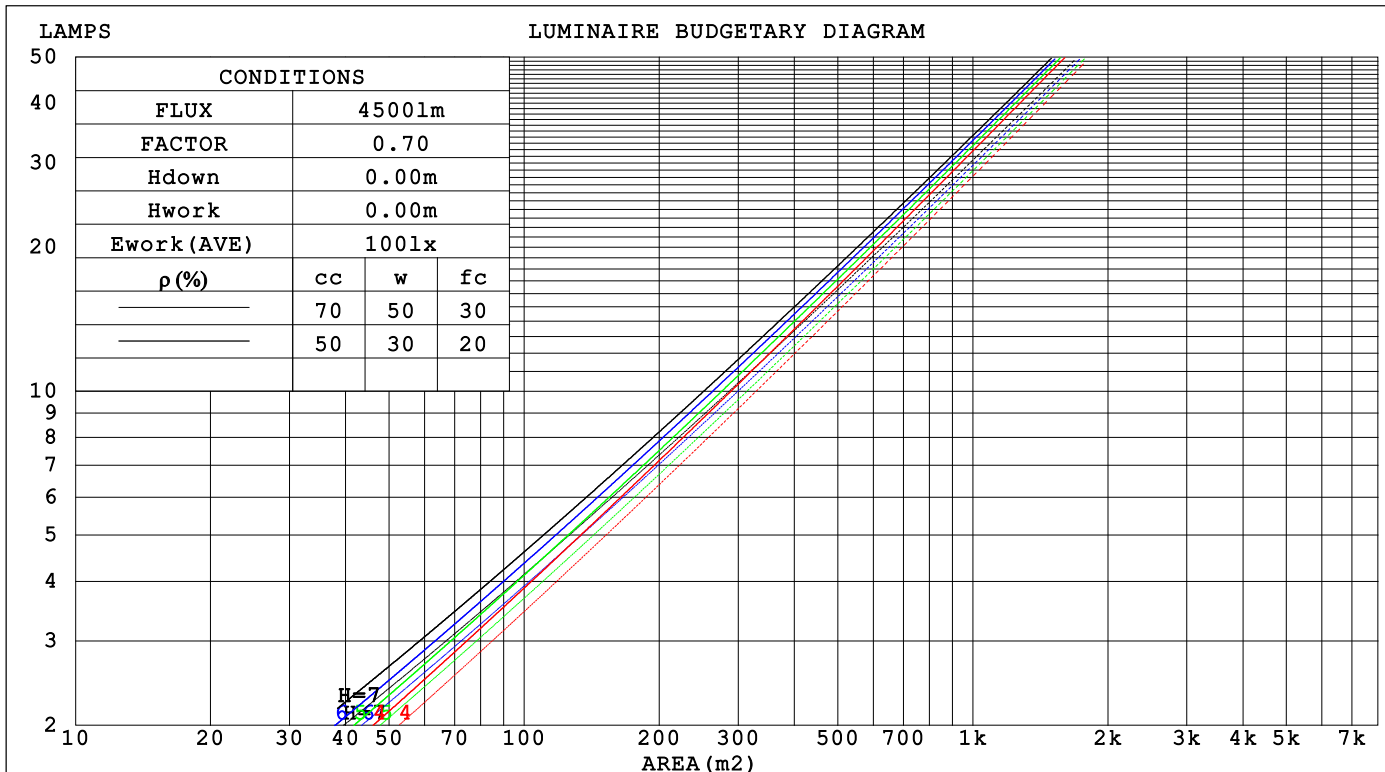
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio                      Coefficients of Utilization(CU)															
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.11	1.08	1.06	1.08	1.06	1.04	1.04	1.03	1.01	1.01	.99	.98	.97	.96	.95	.93
2.0	1.03	.99	.96	1.01	.98	.95	.98	.95	.92	.95	.93	.90	.92	.90	.89	.87
3.0	.96	.92	.88	.95	.91	.87	.92	.89	.86	.90	.87	.84	.88	.85	.83	.81
4.0	.91	.85	.81	.90	.85	.81	.87	.83	.80	.85	.82	.79	.84	.81	.78	.77
5.0	.86	.80	.76	.85	.79	.76	.83	.78	.75	.81	.77	.74	.80	.76	.74	.72
6.0	.81	.75	.71	.80	.75	.71	.79	.74	.71	.77	.73	.70	.76	.73	.70	.68
7.0	.77	.71	.67	.76	.71	.67	.75	.70	.67	.74	.70	.67	.73	.69	.66	.65
8.0	.73	.68	.64	.73	.67	.64	.72	.67	.64	.71	.66	.63	.70	.66	.63	.62
9.0	.70	.65	.61	.70	.64	.61	.69	.64	.61	.68	.63	.60	.67	.63	.60	.59
10.0	.67	.62	.58	.67	.61	.58	.66	.61	.58	.65	.61	.58	.64	.60	.57	.56



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

### WEC AND CCEC

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz			UTHDi:0.00% ITHDi:0.00% KDisp:0			Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY			TYPE:			WEIGHT:		
SPEC.: 2700K 90			DIM.:			SERIAL No.:		
MFR.: VOTATEC			SUR.:			Shielding Angle:		

pcc	80%			70%			50%			30%			10%			0	
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
pfc	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.181	.103	.033	.174	.099	.032	.162	.093	.030	.150	.087	.028	.139	.081	.026		
2.0	.171	.094	.029	.165	.091	.028	.155	.086	.027	.145	.081	.025	.136	.077	.024		
3.0	.160	.085	.026	.156	.083	.025	.147	.079	.024	.138	.076	.023	.131	.072	.022		
4.0	.151	.078	.023	.147	.077	.023	.139	.074	.022	.132	.071	.021	.125	.068	.021		
5.0	.142	.072	.021	.139	.071	.021	.132	.069	.020	.126	.066	.020	.120	.064	.019		
6.0	.134	.067	.019	.131	.066	.019	.125	.064	.019	.120	.062	.018	.115	.060	.018		
7.0	.127	.063	.018	.125	.062	.018	.120	.060	.017	.115	.059	.017	.110	.057	.017		
8.0	.121	.059	.017	.119	.058	.017	.114	.057	.016	.110	.056	.016	.106	.054	.016		
9.0	.116	.056	.016	.113	.055	.016	.109	.054	.015	.105	.053	.015	.102	.052	.015		
10.0	.110	.053	.015	.108	.052	.015	.105	.051	.014	.101	.050	.014	.098	.049	.014		

pcc	80%			70%			50%			30%			10%			0	
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
pfc	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	.171	.157	.145	.147	.135	.124	.100	.093	.086	.058	.054	.050	.018	.017	.016		
2.0	.156	.132	.113	.134	.114	.097	.092	.079	.068	.053	.046	.040	.017	.015	.013		
3.0	.143	.114	.090	.123	.098	.078	.084	.068	.055	.049	.040	.032	.016	.013	.011		
4.0	.133	.099	.073	.114	.085	.063	.078	.059	.045	.045	.035	.026	.015	.011	.009		
5.0	.123	.087	.060	.106	.075	.052	.073	.053	.037	.042	.031	.022	.014	.010	.007		
6.0	.115	.078	.051	.099	.067	.044	.068	.047	.031	.040	.028	.019	.013	.009	.006		
7.0	.108	.070	.043	.093	.061	.037	.064	.043	.027	.037	.025	.016	.012	.008	.005		
8.0	.102	.064	.037	.088	.055	.032	.061	.039	.023	.035	.023	.014	.011	.007	.005		
9.0	.097	.058	.032	.084	.051	.028	.058	.036	.020	.034	.021	.012	.011	.007	.004		
10.0	.092	.054	.028	.079	.047	.025	.055	.033	.017	.032	.019	.010	.010	.006	.003		

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

### UGR(Unified Glare Rating) Table

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm										
NAME: VO-RMD4W9-120-D-5WAY					TYPE:			WEIGHT:		
SPEC.: 2700K 90					DIM.:			SERIAL No.:		
MFR.: VOTATEC					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	6.7	7.7	7.0	7.8	8.0	7.5	8.4	7.7	8.5	8.7
3H	7.7	8.6	8.0	8.8	9.0	8.5	9.4	8.8	9.6	9.8
4H	8.0	8.8	8.2	9.0	9.2	9.1	9.9	9.4	10.1	10.3
6H	8.1	8.8	8.4	9.1	9.3	9.5	10.3	9.8	10.5	10.8
8H	8.1	8.8	8.4	9.0	9.3	9.7	10.4	10.0	10.7	10.9
12H	8.0	8.7	8.3	9.0	9.3	9.8	10.5	10.1	10.7	11.0
4H 2H	7.2	8.0	7.5	8.2	8.4	7.8	8.6	8.1	8.8	9.0
3H	8.4	9.1	8.7	9.3	9.6	9.1	9.8	9.4	10.1	10.4
4H	8.7	9.3	9.0	9.6	9.9	9.8	10.4	10.1	10.7	11.0
6H	8.8	9.4	9.2	9.7	10.1	10.4	10.9	10.8	11.3	11.6
8H	8.8	9.4	9.2	9.7	10.1	10.6	11.1	11.0	11.5	11.8
12H	8.8	9.3	9.2	9.6	10.0	10.7	11.2	11.1	11.5	11.9
8H 4H	8.9	9.4	9.2	9.7	10.1	9.9	10.4	10.3	10.8	11.1
6H	9.1	9.5	9.5	9.9	10.3	10.6	11.0	11.0	11.4	11.8
8H	9.1	9.5	9.6	9.9	10.3	10.9	11.3	11.3	11.7	12.1
12H	9.1	9.4	9.5	9.8	10.3	11.0	11.3	11.5	11.8	12.2
12H 4H	8.9	9.3	9.3	9.7	10.1	9.9	10.3	10.3	10.7	11.1
6H	9.1	9.5	9.6	9.9	10.4	10.6	10.9	11.0	11.4	11.8
8H	9.1	9.5	9.6	9.9	10.4	10.9	11.2	11.3	11.6	12.1
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 0.5 / - 0.6					+ 0.6 / - 0.6				
1.5H	+ 0.9 / - 0.7					+ 1.2 / - 0.5				
2.0H	+ 0.4 / - 0.5					+ 0.5 / - 0.3				

CIE Pub.117, 678.5 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -1.3)  
Area: 0.111111 m2

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

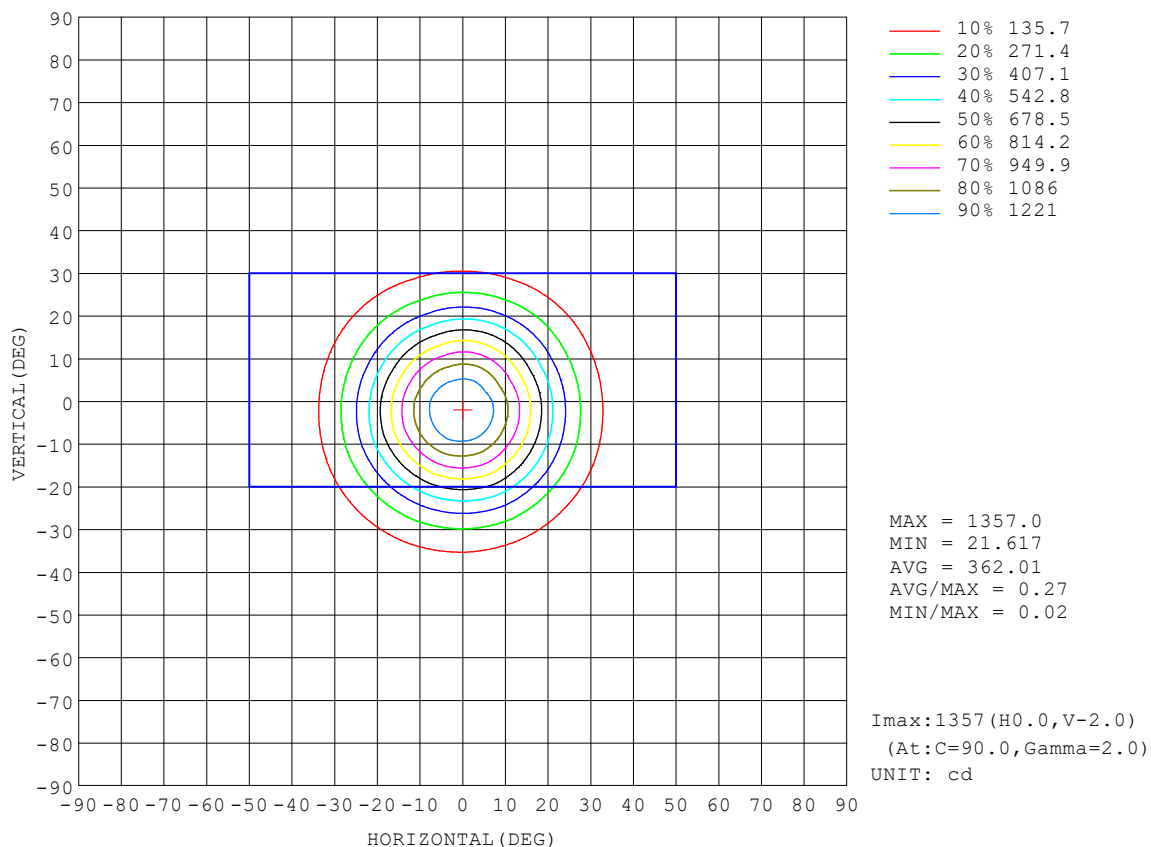
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	85	78	74	84	77	73	83	77	73	69
0.80	92	86	82	91	85	81	90	85	81	77
1.00	97	91	87	96	90	86	94	90	86	82
1.25	101	95	91	100	95	91	98	93	90	86
1.50	104	99	95	103	98	94	100	96	93	89
2.00	107	102	99	106	101	98	103	99	97	91
2.50	109	105	101	107	103	100	104	101	99	92
3.00	111	107	104	109	105	103	105	103	101	94
4.00	113	110	107	111	108	106	107	105	103	96
5.00	114	112	110	112	110	108	108	107	105	97
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature: 24.3 °C  
Operators:  
Test Date: 2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System: EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity: 65.0%  
Test Distance: 3.080m [K=1.0000]  
Remarks:

## ISOCANDELA DIAGRAM

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



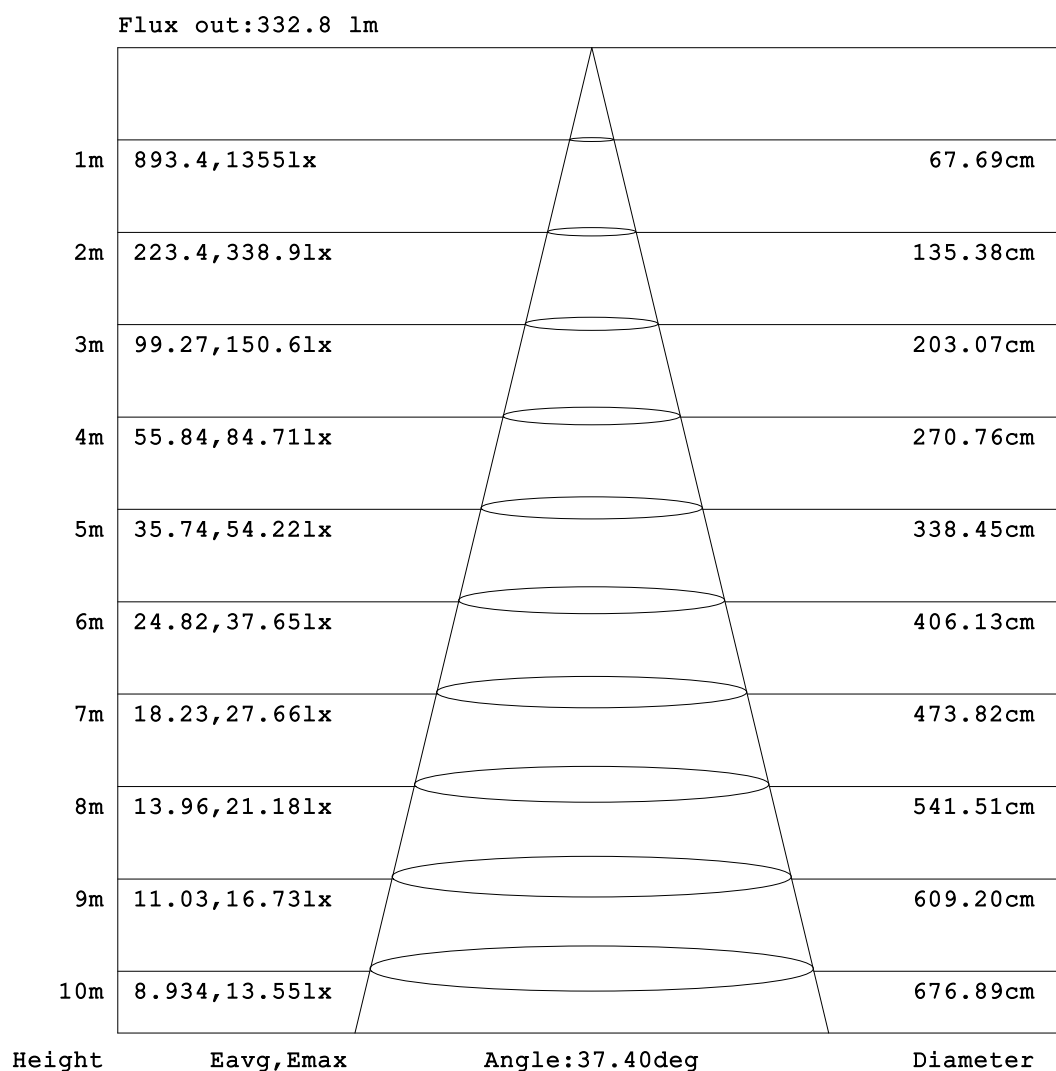
C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:



### AAI Figure

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



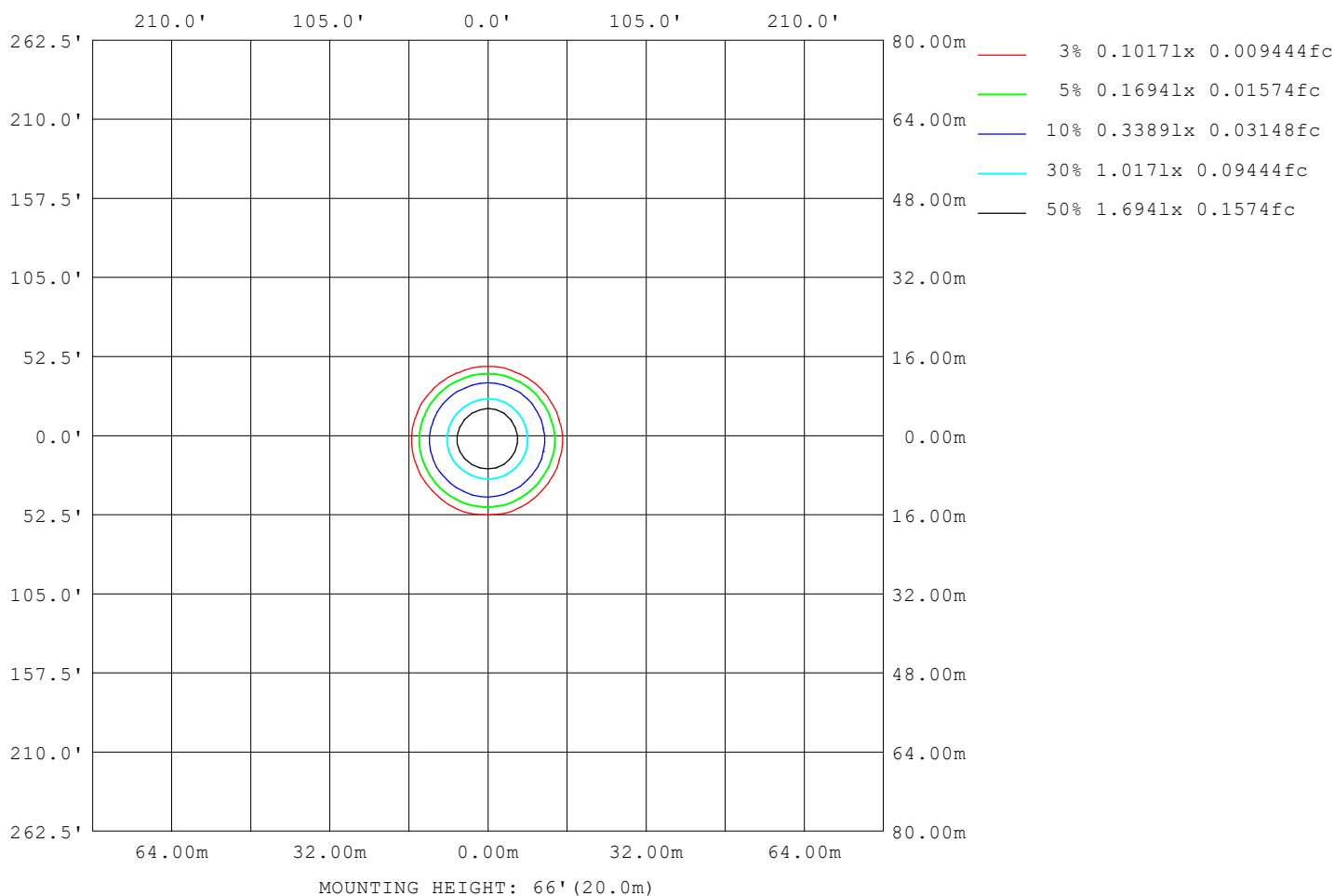
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

ISOLUX DIAGRAM

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 2700K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

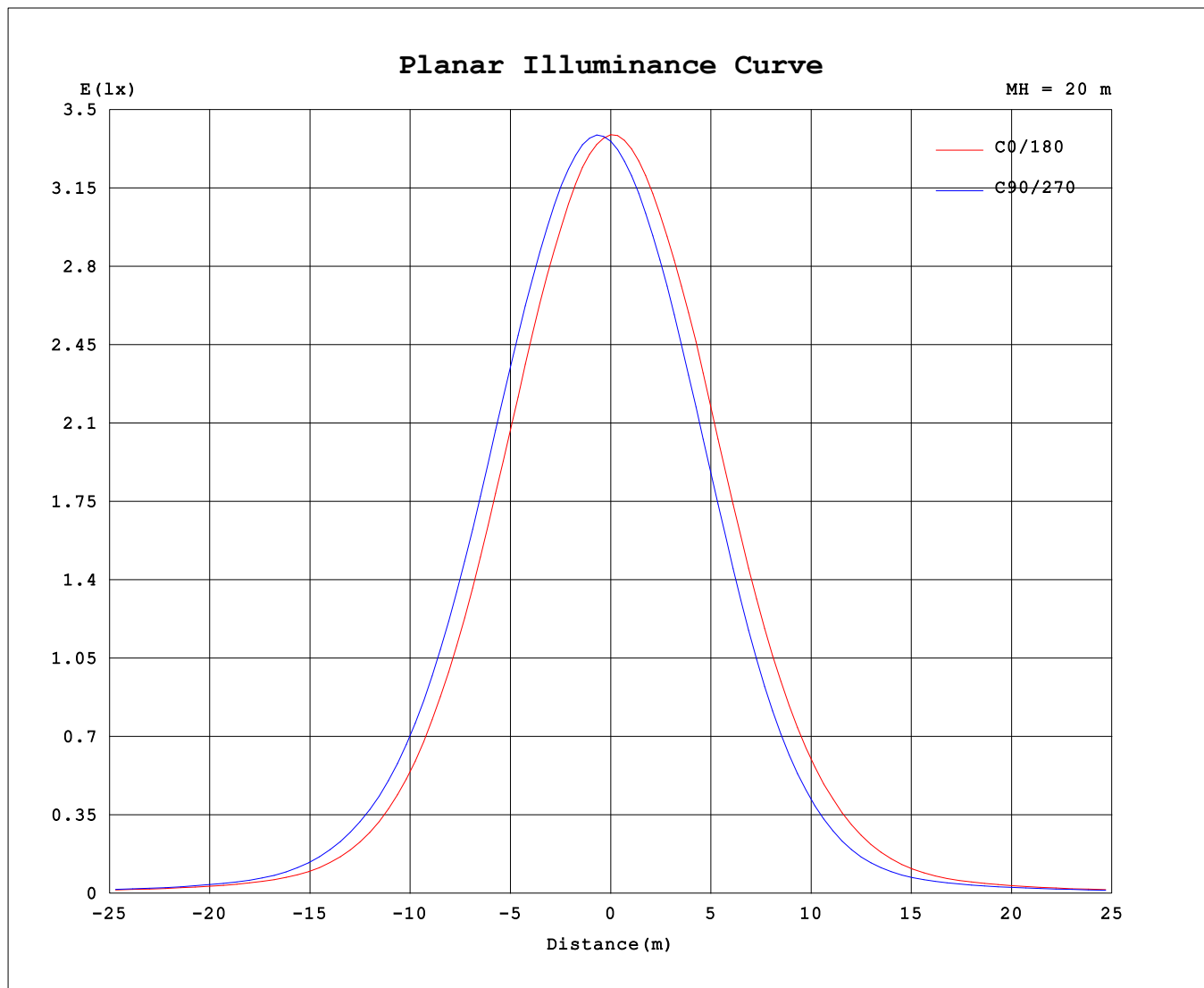
AvgL	cd/m2
L_0~180 (65) av	361
L_0~180 (75) av	231
L_0~180 (85) av	23
L_90~270 (65) av	357
L_90~270 (75) av	330
L_90~270 (85) av	203
L_45 (65) av	360
L_45 (75) av	296
L_45 (85) av	58

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 22.5DEG  
Test Speed: HIGH  
Temperature:24.3℃  
Operators:  
Test Date:2024-03-30

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
Humidity:65.0%  
Test Distance:3.080m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 22.5DEG  
 Test Speed: HIGH  
 Temperature: 24.3 °C  
 Operators:  
 Test Date: 2024-03-30

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-SPEX500\_V1 SYSTEM V2.00.460  
 Humidity: 65.0%  
 Test Distance: 3.080m [K=1.0000]  
 Remarks:

<b>Test:U:119.84V I:0.0790A P:9.1365W PF:0.9654 Freq:59.98Hz</b> <b>UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:678.456x1 lm</b>		
<b>NAME:</b> VO-RMD4W9-120-D-5WAY	<b>TYPE:</b>	<b>WEIGHT:</b>
<b>SPEC.:</b> 2700K 90	<b>DIM.:</b>	<b>SERIAL No.:</b>
<b>MFR.:</b> VOTATEC	<b>SUR.:</b>	<b>Shielding Angle:</b>

UNIT: cd

[illegible]

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-SPEX500_V1 SYSTEM V2.00.460
Humidity:65.0%
Test Distance:3.080m [K=1.0000]
Remarks:

```