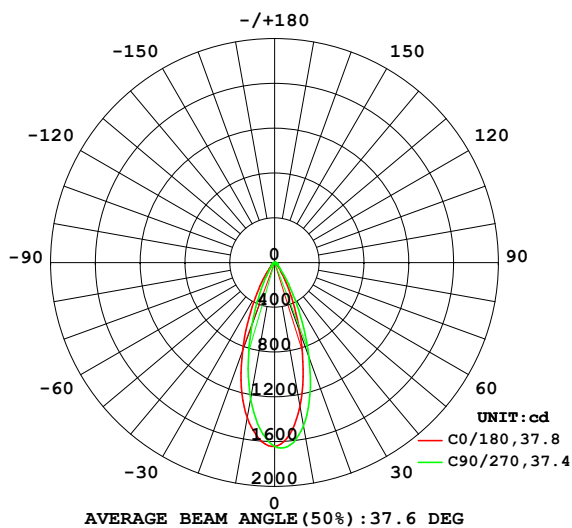


LUMINAIRE PHOTOMETRIC TEST REPORT

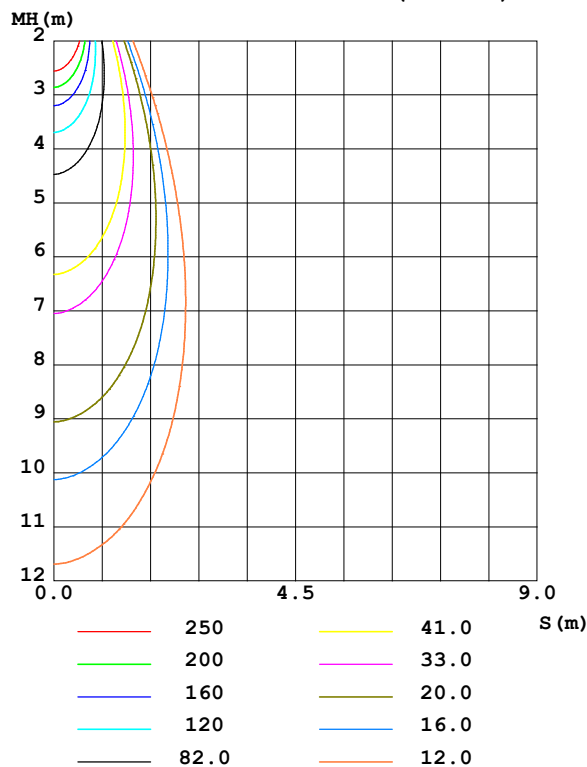
Test:U:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 93.11 lm/W
MODEL	VO-RMD4W9-120-D-5WAY	I _{max} (cd)	1658	S/MH(C0/180)	0.66	
NOMINAL POWER(W)	9	LOR(%)	100.0	S/MH(C90/270)	0.54	
RATED VOLTAGE(V)	120	TOTAL FLUX(lm)	835.57	η UP,DN(C0-180)	0.0,55.3	
NOMINAL FLUX(lm)	835.567	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,44.7	
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℃
Operators:
Test Date:2024-03-31

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:

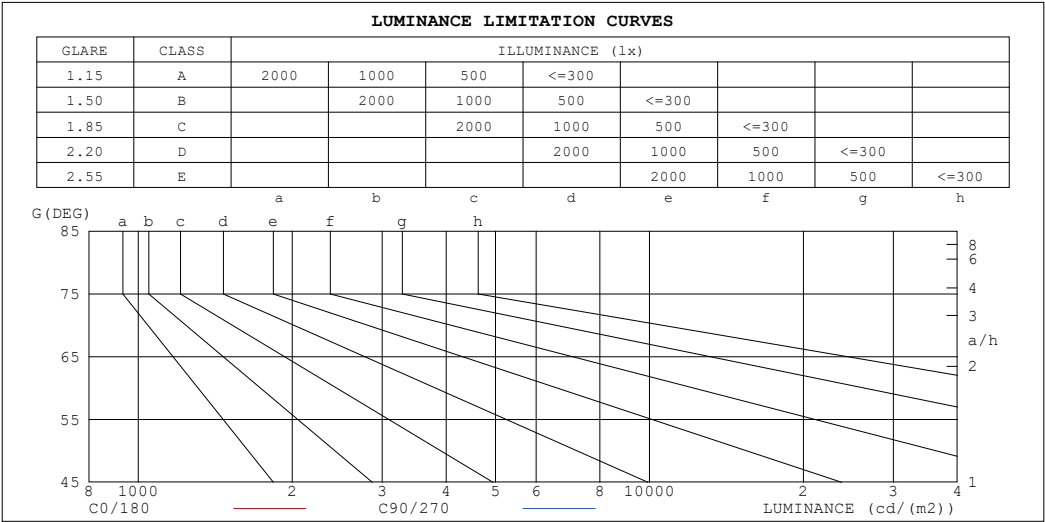
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1305	1418	1482	1482	1409	1293	1237	1241	0- 10	142.7	142.7	17.1,17.1
20	659.4	794.7	899.2	929.8	841.1	678.2	597.1	592.0	10- 20	292.1	434.8	52,52
30	208.2	278.9	336.6	363.4	316.8	212.8	177.3	176.3	20- 30	214.7	649.5	77.7,77.7
40	63.52	79.25	91.26	96.22	83.41	60.10	52.94	54.01	30- 40	88.52	738.0	88.3,88.3
50	32.83	37.17	39.09	39.23	37.91	33.10	30.33	30.45	40- 50	38.05	776.1	92.9,92.9
60	24.14	25.61	26.35	26.95	26.90	24.88	23.35	23.41	50- 60	26.10	802.2	96,96
70	12.65	16.93	17.85	17.99	16.95	15.56	14.71	14.91	60- 70	20.65	822.8	98.5,98.5
80	3.217	4.951	8.674	6.140	4.847	4.669	6.109	3.909	70- 80	10.89	833.7	99.8,99.8
90	0.0733	0.0712	0.0902	0.0833	0.0559	0.0645	0.0717	0.0534	80- 90	1.863	835.6	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:2024-03-31

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:

LUMINANCE LIMITATION CURVES

Test:U:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	15	342
80	166	450
75	248	464
70	332	470
65	426	481
60	434	475
55	430	475
50	459	548
45	553	725

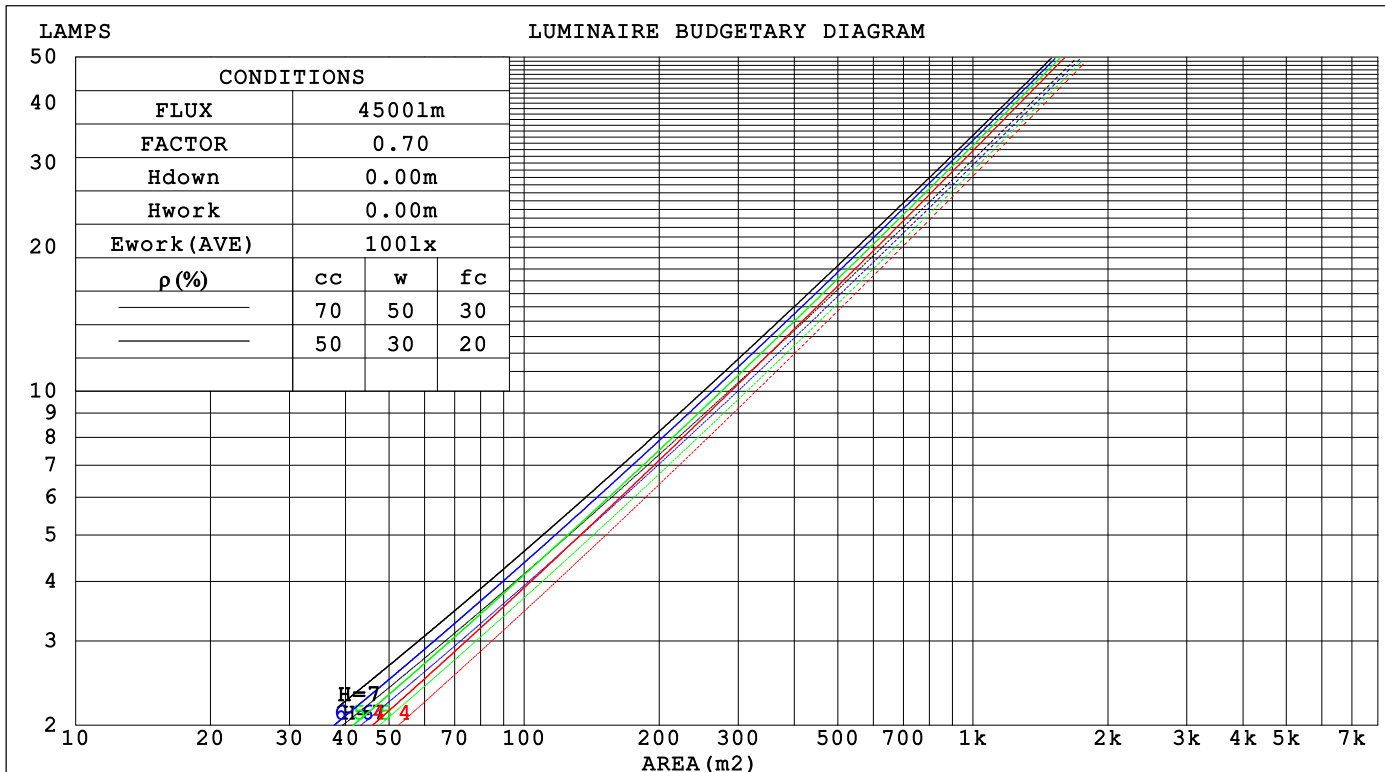
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 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	.94	.98	.95	.92	.95	.93	.90	.92	.90	.89	.87
3.0	.96	.91	.88	.95	.90	.87	.92	.89	.85	.90	.87	.84	.88	.85	.83	.81
4.0	.91	.85	.81	.89	.84	.81	.87	.83	.80	.85	.82	.79	.83	.80	.78	.76
5.0	.85	.80	.76	.85	.79	.75	.83	.78	.75	.81	.77	.74	.80	.76	.73	.72
6.0	.81	.75	.71	.80	.75	.71	.79	.74	.70	.77	.73	.70	.76	.72	.69	.68
7.0	.77	.71	.67	.76	.71	.67	.75	.70	.67	.74	.69	.66	.73	.69	.66	.65
8.0	.73	.68	.64	.73	.67	.64	.72	.67	.63	.71	.66	.63	.70	.66	.63	.61
9.0	.70	.64	.61	.69	.64	.60	.68	.64	.60	.68	.63	.60	.67	.63	.60	.59
10.0	.67	.61	.58	.66	.61	.58	.66	.61	.58	.65	.60	.57	.64	.60	.57	.56



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz			UTHDi:0.00% ITHDi:0.00% KDisp:0			Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY			TYPE:			WEIGHT:		
SPEC.: 4000K 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	.175	.100	.032	.162	.093	.030	.151	.087	.028	.140	.081	.026		
2.0	.171	.094	.029	.166	.091	.028	.155	.086	.027	.145	.082	.026	.136	.077	.024		
3.0	.161	.086	.026	.156	.084	.025	.147	.080	.024	.139	.076	.023	.131	.073	.022		
4.0	.151	.079	.023	.147	.077	.023	.140	.074	.022	.132	.071	.021	.126	.068	.021		
5.0	.143	.073	.021	.139	.071	.021	.132	.069	.020	.126	.067	.020	.120	.064	.019		
6.0	.135	.068	.019	.132	.067	.019	.126	.065	.019	.120	.063	.018	.115	.061	.018		
7.0	.128	.063	.018	.125	.062	.018	.120	.061	.017	.115	.059	.017	.111	.057	.017		
8.0	.122	.059	.017	.119	.059	.017	.115	.057	.016	.110	.056	.016	.106	.055	.016		
9.0	.116	.056	.016	.114	.055	.016	.110	.054	.015	.106	.053	.015	.102	.052	.015		
10.0	.111	.053	.015	.109	.053	.015	.105	.052	.015	.102	.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	.124	.087	.060	.106	.075	.052	.073	.053	.037	.042	.031	.022	.014	.010	.007		
6.0	.116	.078	.050	.099	.067	.044	.069	.047	.031	.040	.028	.018	.013	.009	.006		
7.0	.109	.070	.043	.093	.061	.037	.065	.043	.026	.038	.025	.016	.012	.008	.005		
8.0	.103	.064	.037	.088	.055	.032	.061	.039	.023	.036	.023	.014	.011	.007	.004		
9.0	.097	.058	.032	.084	.051	.028	.058	.036	.020	.034	.021	.012	.011	.007	.004		
10.0	.092	.054	.028	.080	.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:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm											
NAME: VO-RMD4W9-120-D-5WAY						TYPE:			WEIGHT:		
SPEC.: 4000K 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		6.5	7.4	6.7	7.5	7.7	7.5	8.4	7.8	8.6	8.8
3H		7.4	8.3	7.7	8.5	8.7	8.6	9.4	8.9	9.6	9.8
4H		7.7	8.5	7.9	8.7	8.9	9.1	9.9	9.4	10.2	10.4
6H		7.8	8.5	8.1	8.8	9.0	9.6	10.3	9.9	10.6	10.8
8H		7.8	8.5	8.1	8.7	9.0	9.8	10.5	10.1	10.7	11.0
12H		7.7	8.4	8.0	8.7	8.9	9.8	10.5	10.1	10.8	11.1
4H 2H		6.9	7.7	7.2	8.0	8.2	7.8	8.6	8.1	8.9	9.1
3H		8.1	8.8	8.4	9.1	9.4	9.2	9.9	9.5	10.1	10.4
4H		8.4	9.0	8.8	9.3	9.7	9.8	10.5	10.2	10.8	11.1
6H		8.6	9.1	8.9	9.5	9.8	10.4	11.0	10.8	11.3	11.7
8H		8.6	9.1	8.9	9.4	9.8	10.6	11.2	11.0	11.5	11.9
12H		8.5	9.0	8.9	9.4	9.7	10.7	11.2	11.1	11.6	12.0
8H 4H		8.6	9.1	9.0	9.5	9.9	9.9	10.5	10.3	10.8	11.2
6H		8.8	9.3	9.3	9.7	10.1	10.6	11.1	11.0	11.4	11.9
8H		8.8	9.2	9.3	9.6	10.1	10.9	11.3	11.4	11.7	12.1
12H		8.8	9.1	9.2	9.6	10.0	11.0	11.4	11.5	11.8	12.3
12H 4H		8.6	9.1	9.0	9.5	9.9	9.9	10.4	10.3	10.7	11.1
6H		8.9	9.2	9.3	9.7	10.1	10.6	11.0	11.0	11.4	11.8
8H		8.9	9.2	9.3	9.6	10.1	10.9	11.2	11.4	11.7	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		+ 0.8 / - 0.7					+ 1.3 / - 0.5				
2.0H		+ 0.4 / - 0.5					+ 0.5 / - 0.3				

CIE Pub.117, 835.6 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.6)
Area: 0.111111 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

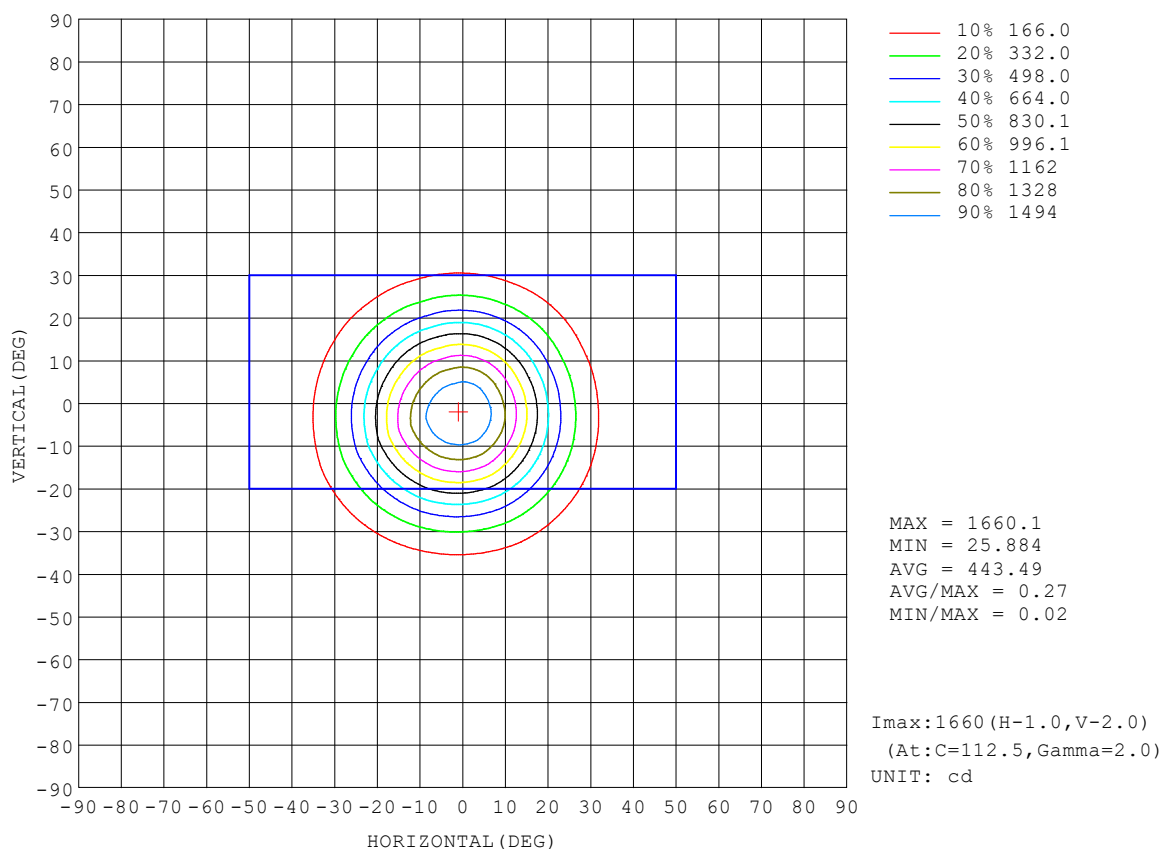
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	84	78	73	84	77	73	83	77	73	69
0.80	92	86	81	91	85	81	90	85	81	77
1.00	97	91	86	96	90	86	94	90	86	81
1.25	101	95	91	100	95	91	98	93	90	86
1.50	104	99	95	103	98	94	100	96	93	88
2.00	107	102	99	106	101	98	103	99	96	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: 2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

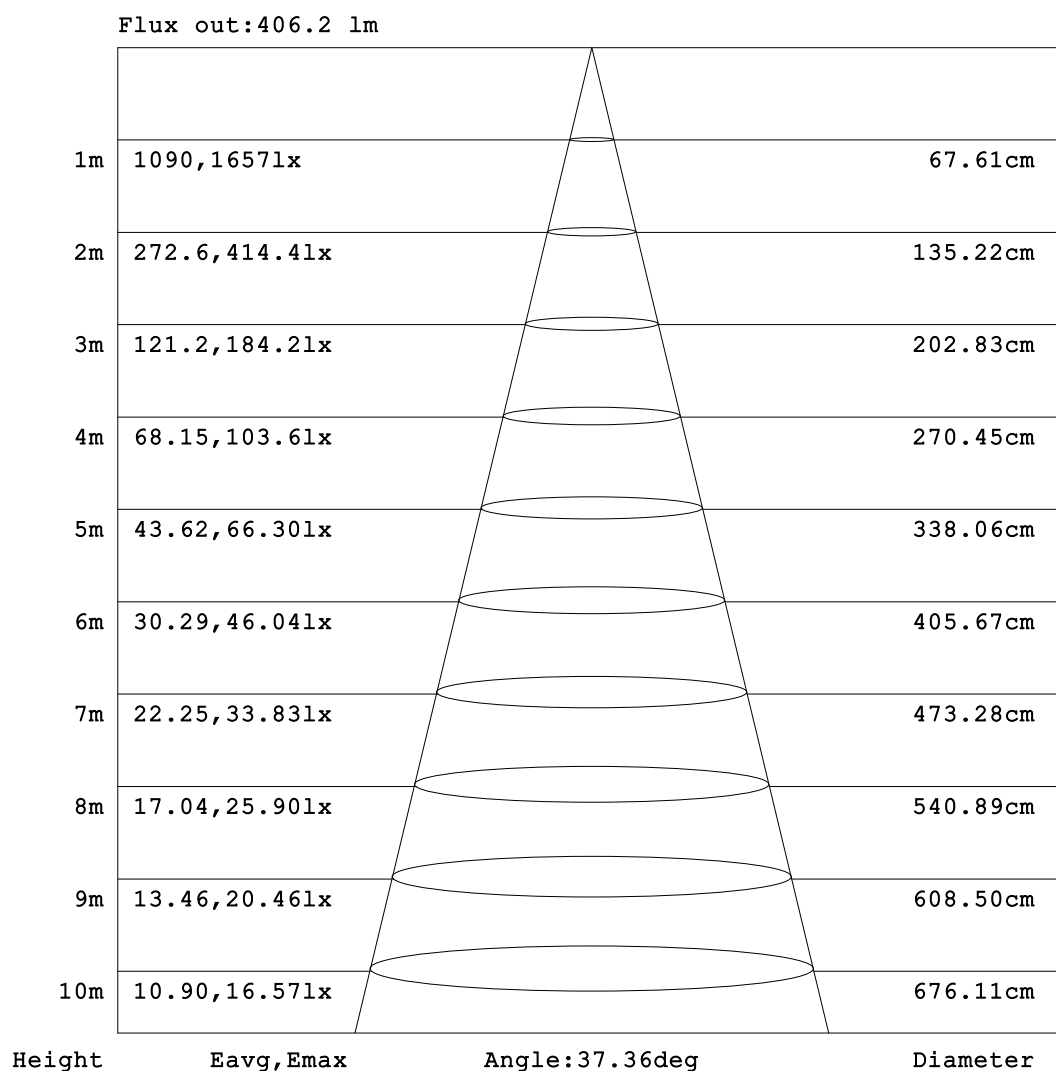


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



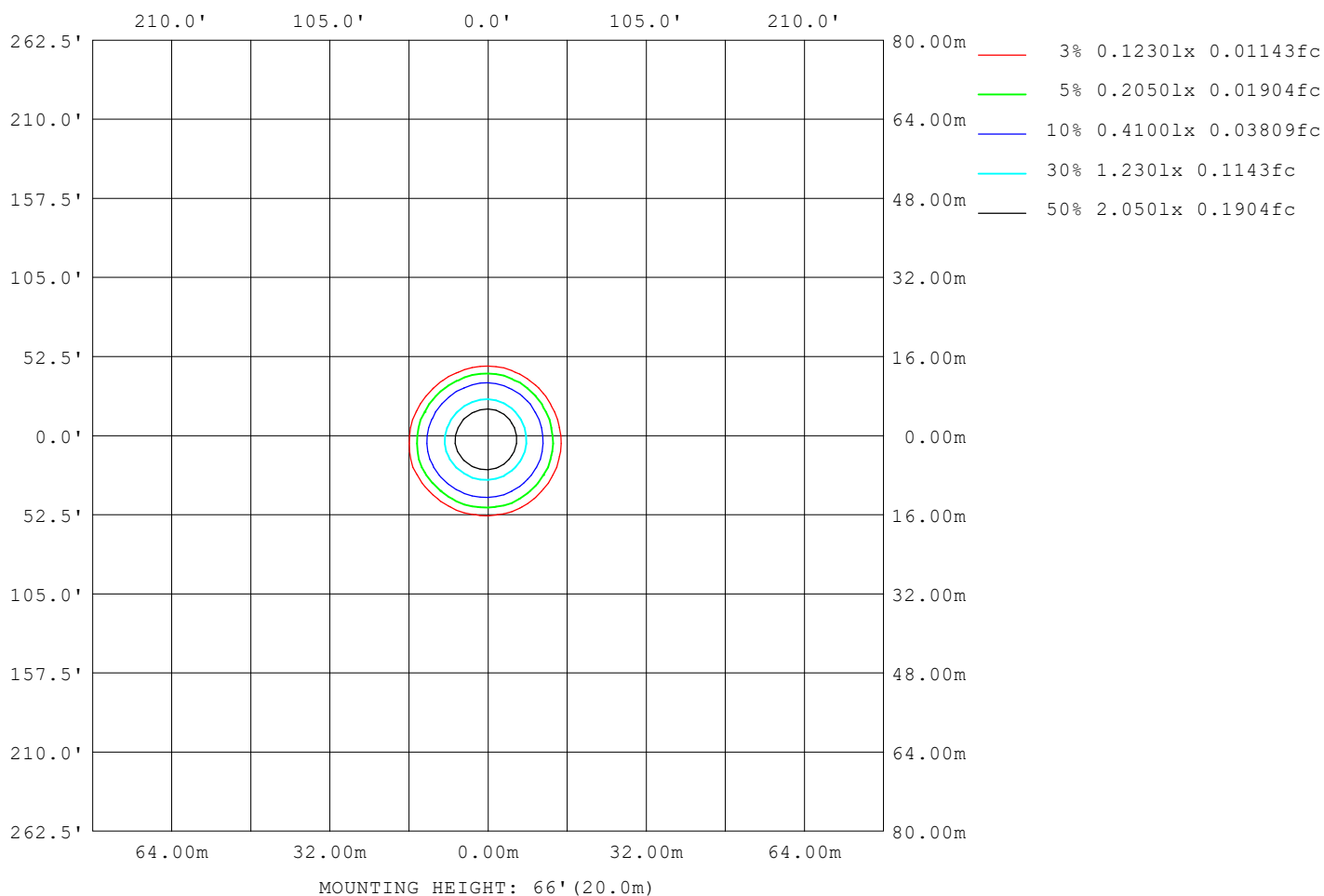
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3°C
Operators:
Test Date:2024-03-31

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:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

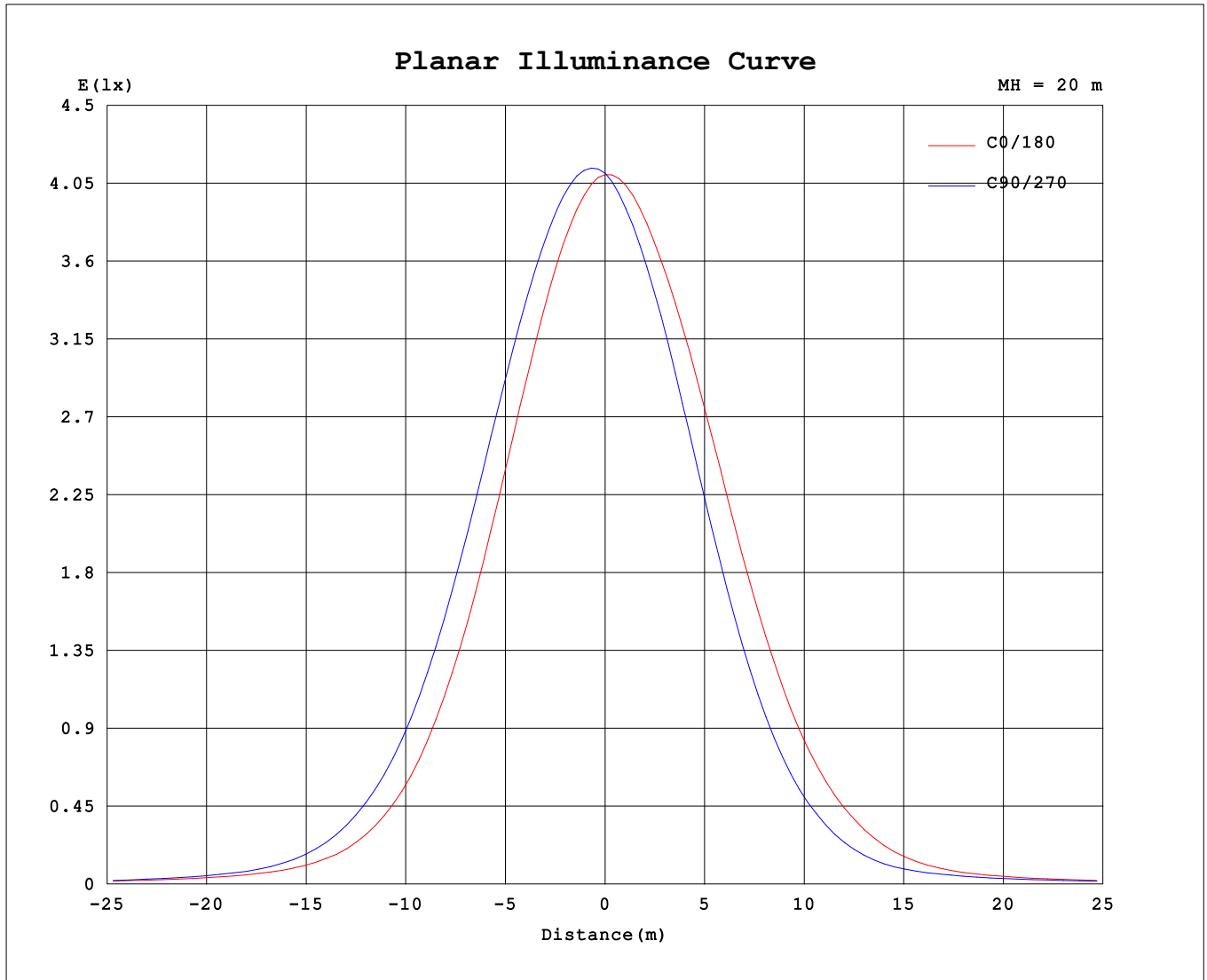
AvgL	cd/m2
L_0~180 (65) av	451
L_0~180 (75) av	285
L_0~180 (85) av	30
L_90~270 (65) av	443
L_90~270 (75) av	410
L_90~270 (85) av	248
L_45 (65) av	447
L_45 (75) av	364
L_45 (85) av	74

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.3℃
Operators:
Test Date:2024-03-31

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: 2024-03-31

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:

Test: U:119.77V I:0.0776A P:8.9739W PF:0.9657 Freq:59.98Hz UTHDi: 0.00% ITHDi: 0.00% KDisp: 0 Lamp Flux: 835.567x1 lm		
NAME: VO-RMD4W9-120-D-5WAY	TYPE:	WEIGHT:
SPEC.: 4000K 90	DIM.:	SERIAL No.:
MFR.: VOTATEC	SUR.:	Shielding Angle:

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:

```