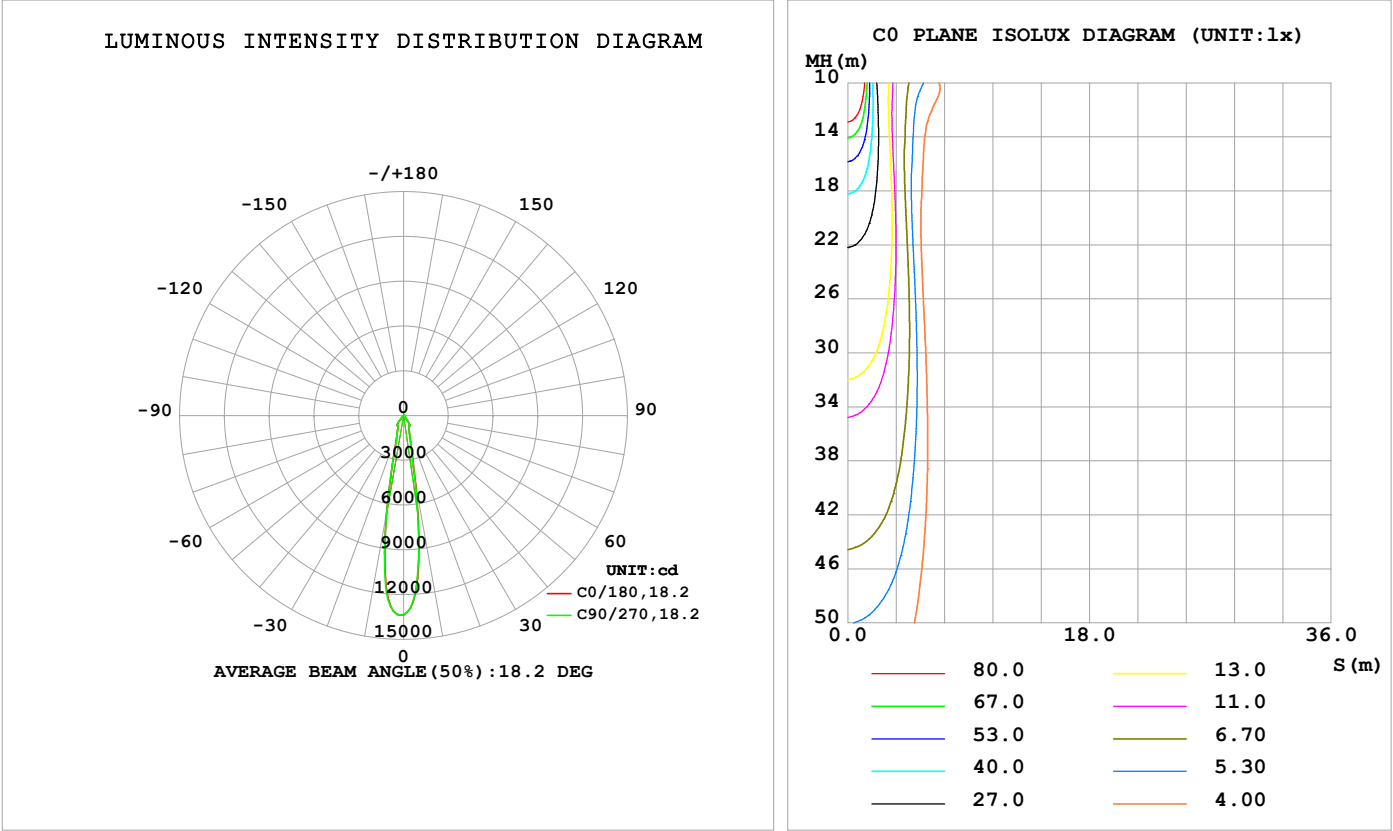


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 151.19 lm/W
MODEL	CREE CMU2239-500mA	Imax (cd)	13391	S/MH (C0/180)	0.32	
NOMINAL POWER (W)	20	LOR (%)	90.6	S/MH (C90/270)	0.32	
RATED VOLTAGE (V)	36	TOTAL FLUX (lm)	2453.7	η UP,DN (C0-180)	0.0,41.6	
NOMINAL FLUX (lm)	2709.39	CIE CLASS	DIRECT	η UP,DN (C180-360)	0.0,49.0	
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.00	
TEST VOLTAGE (V)	32.4	η down (%)	90.6	CIBSE SHR MAX	0.30	



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25 °C
Operators: LI
Test Date: 2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity: 65.0%
Test Distance: 8.300m [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	472.7	444.3	465.1	519.5	655.9	687.9	662.6	586.9	0- 10	900.0	900.0	36.7,33.2
20	115.8	113.9	115.4	120.1	130.9	133.4	130.9	125.2	10- 20	653.2	1553	63.3,57.3
30	79.72	79.05	79.08	79.96	81.72	82.39	81.91	81.01	20- 30	432.1	1985	80.9,73.3
40	28.37	26.95	28.34	32.59	40.38	42.06	40.17	36.09	30- 40	403.6	2389	97.4,88.2
50	0.2512	0.2423	0.1880	0.2402	0.2526	0.2285	0.1938	0.2126	40- 50	63.08	2452	99.9,90.5
60	0.0511	0.0369	0.0421	0.0400	0.0520	0.0500	0.0410	0.0463	50- 60	1.075	2453	100,90.5
70	0.0224	0.0130	0.0182	0.0140	0.0177	0.0203	0.0135	0.0192	60- 70	0.2813	2453	100,90.6
80	0.0133	0.0114	0.0115	0.0094	0.0157	0.0128	0.0099	0.0110	70- 80	0.1447	2454	100,90.6
90	0.0333	0.0229	0.0104	0.0109	0.0214	0.0151	0.0099	0.0156	80- 90	0.1442	2454	100,90.6
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:X10cd									UNIT:lm		

Conical surface Flux(90deg): 2449.6 lm

%lum = 99.8%

%lamp = 90.4%

Conical surface Flux(130deg): 2453.3 lm

%lum = 100.0%

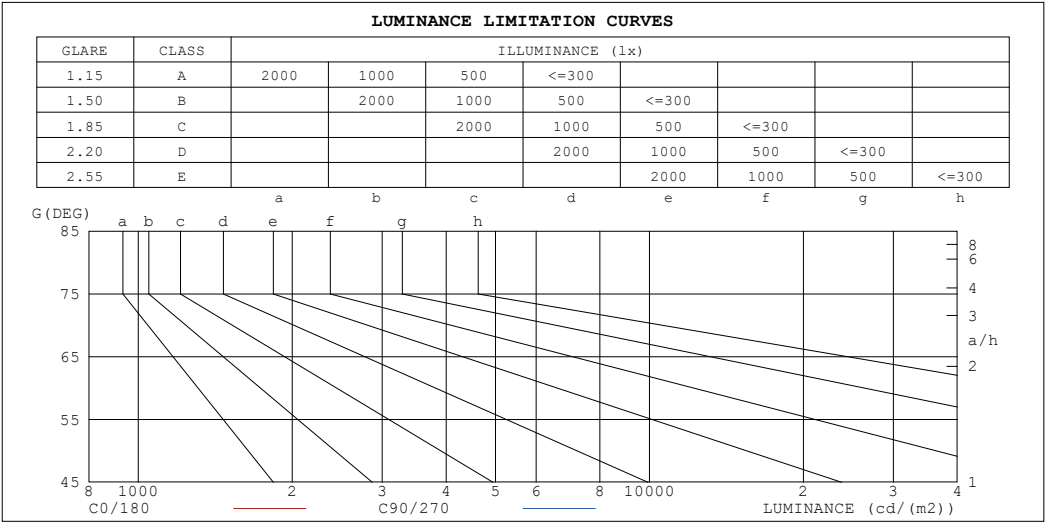
%lamp = 90.5%

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25℃
Operators:LI
Test Date:2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	44	27
80	17	15
75	14	12
70	15	12
65	17	14
60	23	19
55	33	27
50	87	65
45	163	178

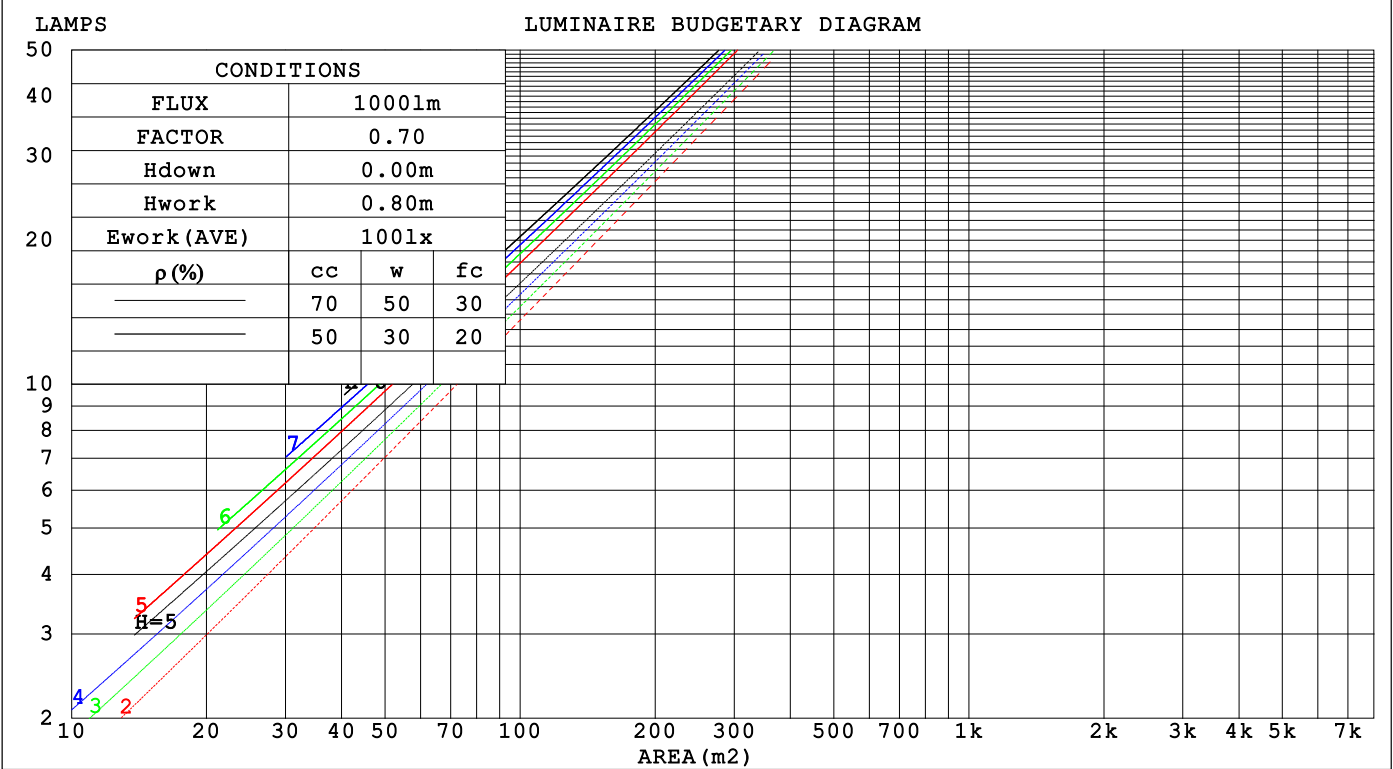
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25℃
Operators:LI
Test Date:2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0		
Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		

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	1.08	1.08	1.08	1.05	1.05	1.05	1.01	1.01	1.01	.96	.96	.96	.92	.92	.92	.91
1.0	1.02	.00	.98	.00	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87
2.0	.96	.93	.91	.95	.92	.90	.92	.90	.88	.89	.88	.86	.87	.86	.84	.83
3.0	.92	.88	.85	.90	.87	.84	.88	.85	.83	.86	.84	.82	.84	.82	.81	.79
4.0	.87	.83	.80	.86	.83	.80	.85	.81	.79	.83	.80	.78	.81	.79	.77	.76
5.0	.84	.79	.76	.83	.79	.76	.81	.78	.75	.80	.77	.75	.79	.76	.74	.73
6.0	.80	.76	.73	.79	.75	.73	.78	.75	.72	.77	.74	.72	.76	.73	.71	.70
7.0	.77	.73	.70	.76	.72	.70	.75	.72	.69	.74	.71	.69	.74	.71	.69	.68
8.0	.74	.70	.67	.74	.70	.67	.73	.69	.67	.72	.69	.66	.71	.68	.66	.65
9.0	.72	.67	.65	.71	.67	.65	.70	.67	.64	.70	.67	.64	.69	.66	.64	.63
10.0	.69	.65	.63	.69	.65	.62	.68	.65	.62	.68	.64	.62	.67	.64	.62	.61



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25℃
Operators:LI
Test Date:2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		

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	.133	.076	.024	.127	.073	.023	.116	.067	.021	.106	.061	.020	.096	.056	.018															
2.0	.125	.069	.021	.120	.066	.020	.111	.062	.019	.103	.058	.018	.095	.053	.017															
3.0	.118	.063	.019	.114	.061	.018	.106	.058	.017	.099	.054	.017	.092	.051	.016															
4.0	.112	.058	.017	.108	.057	.017	.101	.054	.016	.095	.051	.015	.089	.049	.015															
5.0	.106	.054	.016	.103	.053	.015	.097	.050	.015	.092	.048	.014	.087	.046	.014															
6.0	.100	.050	.014	.098	.049	.014	.093	.047	.014	.088	.046	.013	.084	.044	.013															
7.0	.095	.047	.013	.093	.046	.013	.089	.045	.013	.085	.043	.013	.081	.042	.012															
8.0	.091	.044	.012	.089	.044	.012	.085	.043	.012	.082	.041	.012	.078	.040	.012															
9.0	.087	.042	.012	.085	.041	.012	.082	.040	.011	.079	.039	.011	.076	.038	.011															
10.0	.083	.040	.011	.082	.039	.011	.079	.038	.011	.076	.038	.011	.073	.037	.011															

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	.172	.172	.172	.147	.147	.147	.101	.101	.101	.058	.058	.058	.018	.018	.018	
1.0	.153	.143	.133	.131	.122	.115	.090	.084	.079	.052	.049	.046	.017	.016	.015	
2.0	.137	.120	.106	.118	.103	.091	.081	.072	.064	.047	.042	.037	.015	.013	.012	
3.0	.125	.103	.085	.107	.089	.074	.073	.062	.052	.042	.036	.031	.014	.012	.010	
4.0	.114	.089	.070	.098	.077	.061	.067	.054	.043	.039	.031	.025	.013	.010	.008	
5.0	.105	.078	.058	.090	.067	.050	.062	.047	.036	.036	.028	.021	.012	.009	.007	
6.0	.097	.069	.049	.084	.060	.043	.058	.042	.030	.033	.025	.018	.011	.008	.006	
7.0	.091	.062	.042	.078	.054	.036	.054	.038	.026	.031	.022	.015	.010	.007	.005	
8.0	.085	.056	.036	.073	.048	.031	.051	.034	.022	.029	.020	.013	.010	.007	.004	
9.0	.080	.051	.031	.069	.044	.027	.048	.031	.019	.028	.018	.012	.009	.006	.004	
10.0	.076	.047	.027	.065	.040	.024	.045	.028	.017	.026	.017	.010	.009	.006	.003	

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25°C
Operators:LI
Test Date:2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm										
NAME: 4-2756-A-1										
SPEC.: DC-36V/500mA										
MFR.: NATA										
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	17.2	18.0	17.4	18.1	18.3	17.2	17.9	17.4	18.1	18.2
3H	17.1	17.8	17.3	17.9	18.1	17.0	17.7	17.3	17.9	18.1
4H	17.0	17.6	17.3	17.8	18.1	17.0	17.6	17.2	17.8	18.0
6H	16.9	17.5	17.2	17.7	18.0	16.9	17.5	17.2	17.7	18.0
8H	16.9	17.4	17.2	17.7	17.9	16.8	17.4	17.1	17.7	17.9
12H	16.8	17.4	17.1	17.6	17.9	16.8	17.4	17.1	17.6	17.9
4H 2H	17.0	17.6	17.3	17.8	18.1	17.0	17.6	17.2	17.8	18.0
3H	16.8	17.4	17.1	17.6	17.9	16.8	17.4	17.1	17.6	17.9
4H	16.7	17.2	17.1	17.5	17.8	16.7	17.2	17.0	17.5	17.8
6H	16.6	17.1	17.0	17.4	17.7	16.6	17.0	17.0	17.4	17.7
8H	16.6	17.0	17.0	17.3	17.7	16.5	17.0	16.9	17.3	17.7
12H	16.5	16.9	16.9	17.3	17.7	16.5	16.9	16.9	17.2	17.6
8H 4H	16.6	17.0	17.0	17.3	17.7	16.5	17.0	16.9	17.3	17.7
6H	16.5	16.8	16.9	17.2	17.6	16.4	16.8	16.9	17.2	17.6
8H	16.4	16.7	16.8	17.1	17.6	16.4	16.7	16.8	17.1	17.5
12H	16.3	16.6	16.8	17.0	17.5	16.3	16.6	16.8	17.0	17.5
12H 4H	16.5	16.9	16.9	17.3	17.7	16.5	16.9	16.9	17.2	17.6
6H	16.4	16.7	16.8	17.1	17.6	16.4	16.7	16.8	17.1	17.5
8H	16.3	16.6	16.8	17.0	17.5	16.3	16.6	16.8	17.0	17.5
Variations with the observer position at spacings(CIE Pub.117):										
S = 1.0H	+ 4.1 / -30.7					+ 4.1 / -31.7				
1.5H	+ 6.9 / -29.9					+ 6.9 / -30.5				
2.0H	+ 5.4 / - 4.6					+ 6.6 / - 4.8				

CIE Pub.117, 2709 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 3.5$)
 Area: 0.045 m²

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25℃
 Operators:LI
 Test Date:2025-05-07

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
 Humidity:65.0%
 Test Distance:8.300m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		

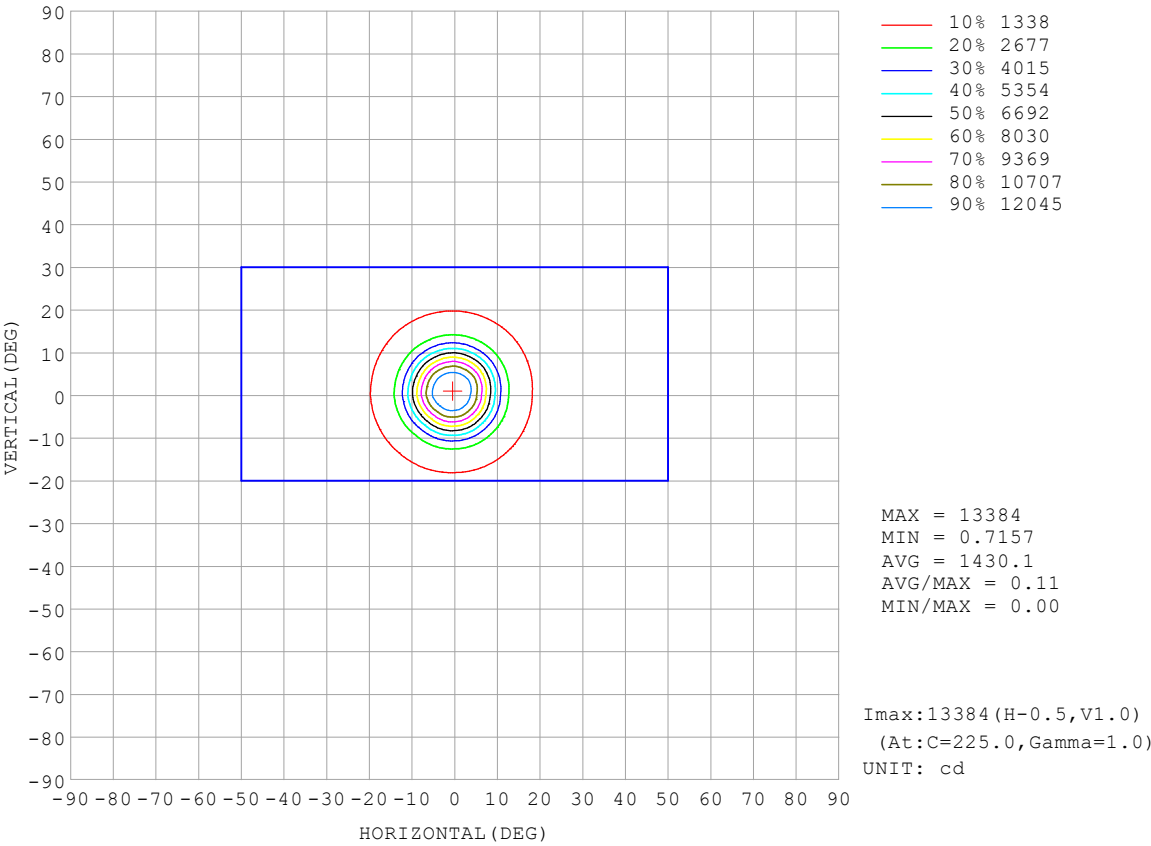
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	81	76	73	81	76	73	80	76	73	70
0.80	88	83	80	87	83	80	86	82	79	76
1.00	92	87	84	91	86	84	89	86	83	80
1.25	95	91	88	94	90	87	92	89	87	83
1.50	97	93	90	96	93	90	94	91	89	85
2.00	99	96	93	98	95	92	96	93	91	86
2.50	101	97	95	99	96	94	96	94	92	87
3.00	102	99	97	100	98	96	97	95	94	88
4.00	104	101	99	102	100	98	99	97	96	89
5.00	105	103	101	103	101	100	99	98	97	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25°C
 Operators: LI
 Test Date: 2025-05-07

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.00.485
 Humidity: 65.0%
 Test Distance: 8.300m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

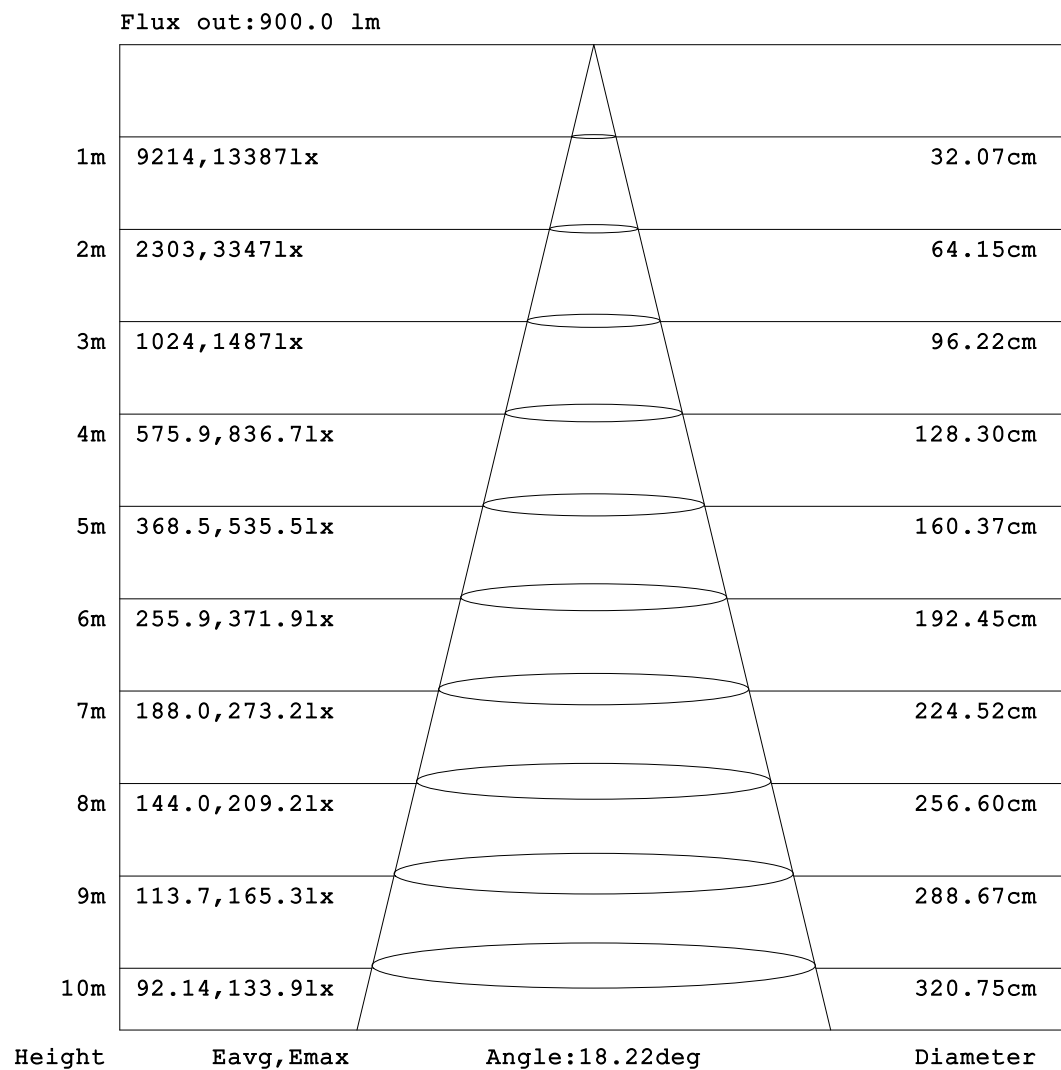
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UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		



C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 45.0DEG	γ Interval: 1.0DEG
Test Speed: HIGH	Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Temperature:25℃	Humidity:65.0%
Operators:LI	Test Distance:8.300m [K=1.0000]
Test Date:2025-05-07	Remarks:

AAI Figure

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		



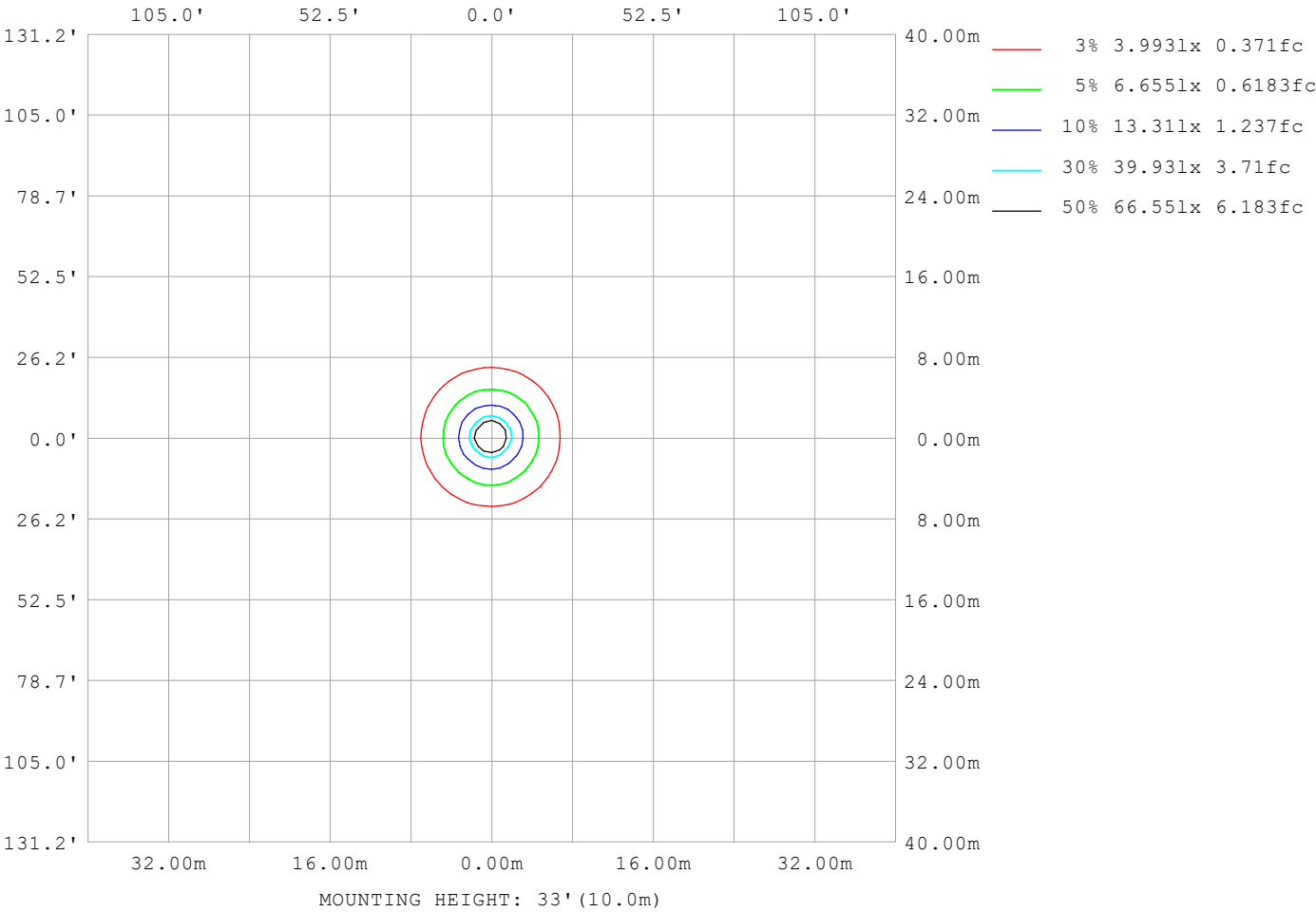
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25℃
 Operators:LI
 Test Date:2025-05-07

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
 Humidity:65.0%
 Test Distance:8.300m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		



C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 45.0DEG	γ Interval: 1.0DEG
Test Speed: HIGH	Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Temperature:25℃	Humidity:65.0%
Operators:LI	Test Distance:8.300m [K=1.0000]
Test Date:2025-05-07	Remarks:

LED Avg.L Report

Test:U:32.49V I:0.500A P:16.2W PF:1.000 Freq:0Hz		
UTHDi:0.00% ITHDi:0.00% KDisp:0 Lamp Flux:2709.39x1 lm		
NAME: 4-2756-A-1		
SPEC.: DC-36V/500mA		
MFR.: NATA		

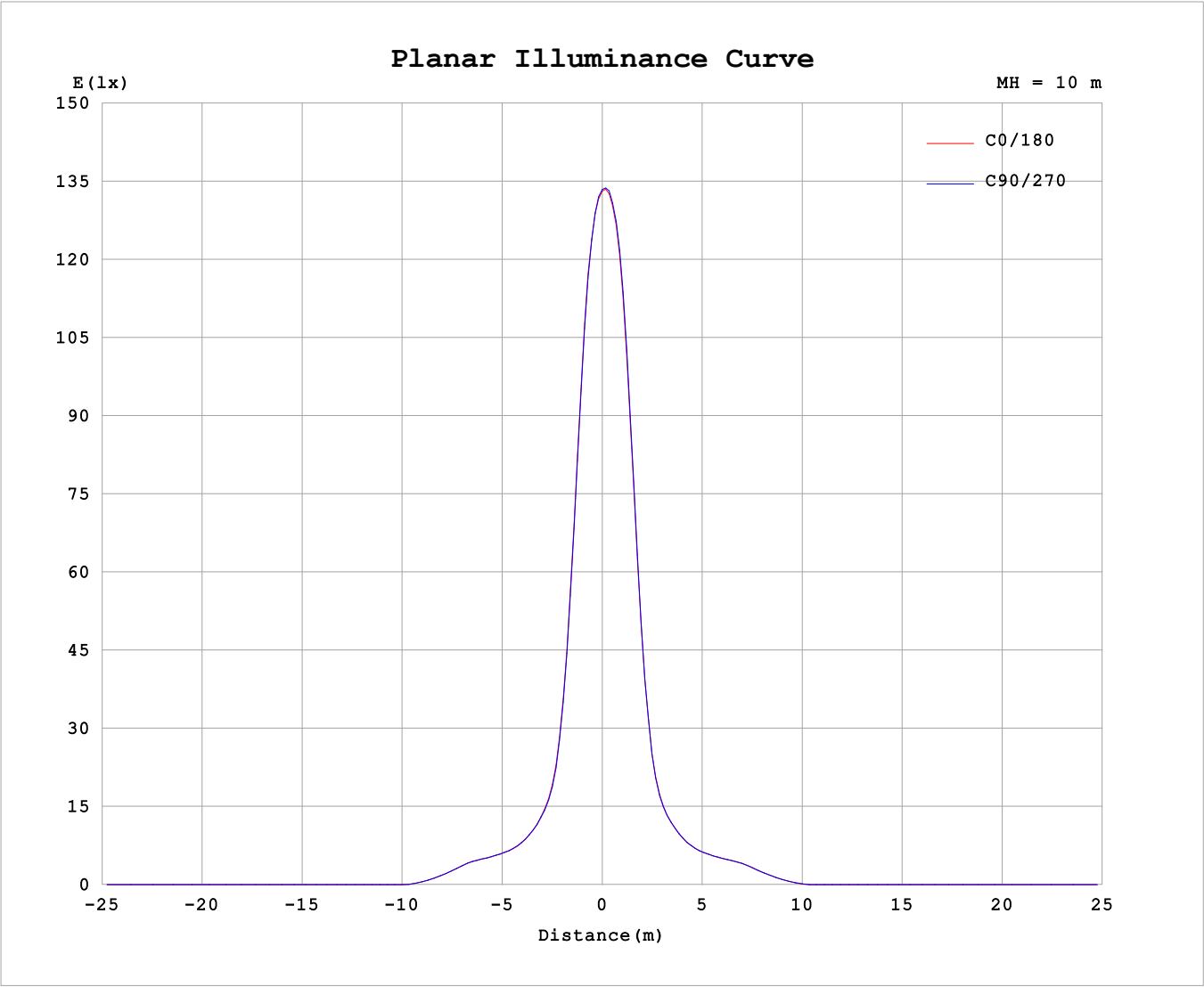
AvgL	cd/m2
L_0~180 (65) av	16
L_0~180 (75) av	14
L_0~180 (85) av	44
L_90~270 (65) av	13
L_90~270 (75) av	10
L_90~270 (85) av	26
L_45 (65) av	14
L_45 (75) av	11
L_45 (85) av	29

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25℃
Operators:LI
Test Date:2025-05-07

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 45.0DEG	γ Interval: 1.0DEG
Test Speed: HIGH	Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Temperature:25℃	Humidity:65.0%
Operators:LI	Test Distance:8.300m [K=1.0000]
Test Date:2025-05-07	Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.00.485
Humidity:65.0%
Test Distance:8.300m [K=1.0000]
Remarks:

```