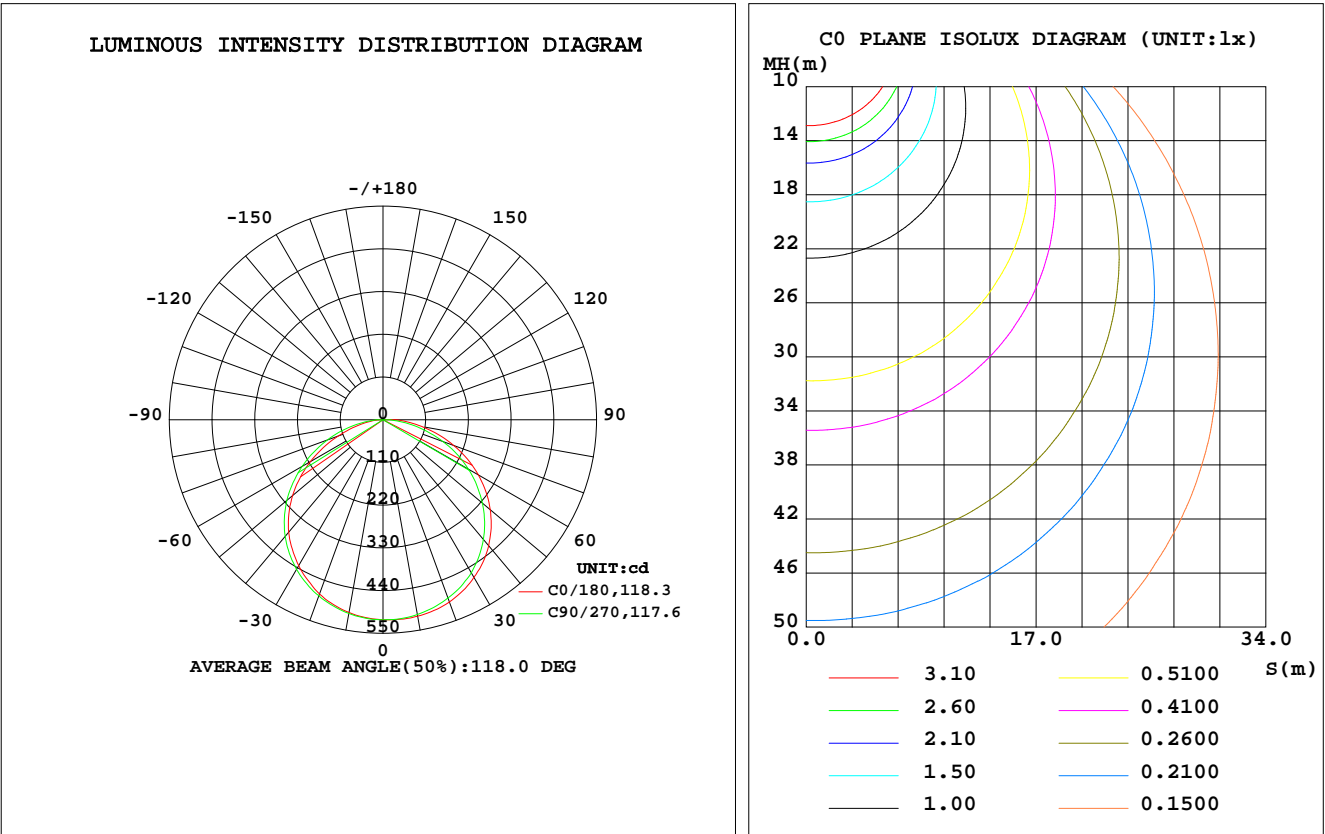


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

DATA OF LAMP		PHOTOMETRIC DATA Eff: 121.72 lm/W			
MODEL	OFF 1M IP20 21015121	I _{max} (cd)	516.4	S/MH(C0/180)	1.25
NOMINAL POWER(W)	13	LOR(%)	100.0	S/MH(C90/270)	1.28
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	1600.4	η UP,DN(C0-180)	0.2,51.1
NOMINAL FLUX(lm)	1600.44	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.2,48.5
LAMPS INSIDE	1	η up(%)	0.4	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	24	η down(%)	99.6	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.9DEG
Operators:Zero huang
Test Date:2023-12-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:60%
Test Distance:26.000m [K=1.5110]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	513.5	513.4	509.4	506.6	504.0	504.3	506.3	509.9	0- 10	48.87	48.87	3.05,3.05
20	499.4	497.4	488.7	480.6	477.5	478.3	482.6	494.2	10- 20	141.3	190.2	11.9,11.9
30	468.6	469.0	455.0	439.1	434.1	438.6	445.0	462.1	20- 30	217.9	408.1	25.5,25.5
40	423.5	421.7	402.3	387.0	378.0	383.2	391.8	410.6	30- 40	268.4	676.5	42.3,42.3
50	360.5	358.4	334.2	317.3	304.0	313.1	323.3	344.5	40- 50	284.7	961.1	60.1,60.1
60	283.3	278.8	253.9	231.0	216.2	225.1	240.3	265.2	50- 60	262.6	1224	76.5,76.5
70	194.0	188.2	164.4	136.7	122.7	130.7	152.5	174.1	60- 70	203.6	1427	89.2,89.2
80	101.9	100.2	75.25	50.96	46.86	53.39	69.11	82.29	70- 80	120.9	1548	96.7,96.7
90	33.20	36.09	13.34	7.268	7.661	11.62	11.54	18.69	80- 90	46.10	1594	99.6,99.6
100	1.012	4.188	0	0.1718	0.0852	0.2616	0.4352	0.2570	90-100	4.455	1599	99.9,99.9
110	0	0.0025	0	0.0859	0.2533	0.1744	1.216	0.0859	100-110	0.4232	1599	99.9,99.9
120	0	0	0.1737	0	0.1704	0.2616	1.477	0.1718	110-120	0.1871	1599	99.9,99.9
130	0	0	0.1737	0	0.3383	0.2616	1.477	0.2577	120-130	0.1889	1600	99.9,99.9
140	0.0836	0.1744	0.1737	0.1691	0.3407	0.3506	1.477	0.3436	130-140	0.2090	1600	100,100
150	0.3407	0.1744	0.3474	0.0859	0.3415	0.5233	1.303	0.5153	140-150	0.2308	1600	100,100
160	0.3407	0.1744	0.4343	0.0859	0.1704	0.5233	1.216	0.5153	150-160	0.1892	1600	100,100
170	0.3407	0.1744	2.083	0.1704	0.1704	0.5233	1.216	0.5153	160-170	0.1443	1600	100,100
180	0.3407	0.3489	2.085	0.1718	0.1704	0.4361	1.388	0.6031	170-180	0.0602	1600	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 819.04 lm

%lum = 51.2%

%lamp = 51.2%

Conical surface Flux(120deg): 1223.7 lm

%lum = 76.5%

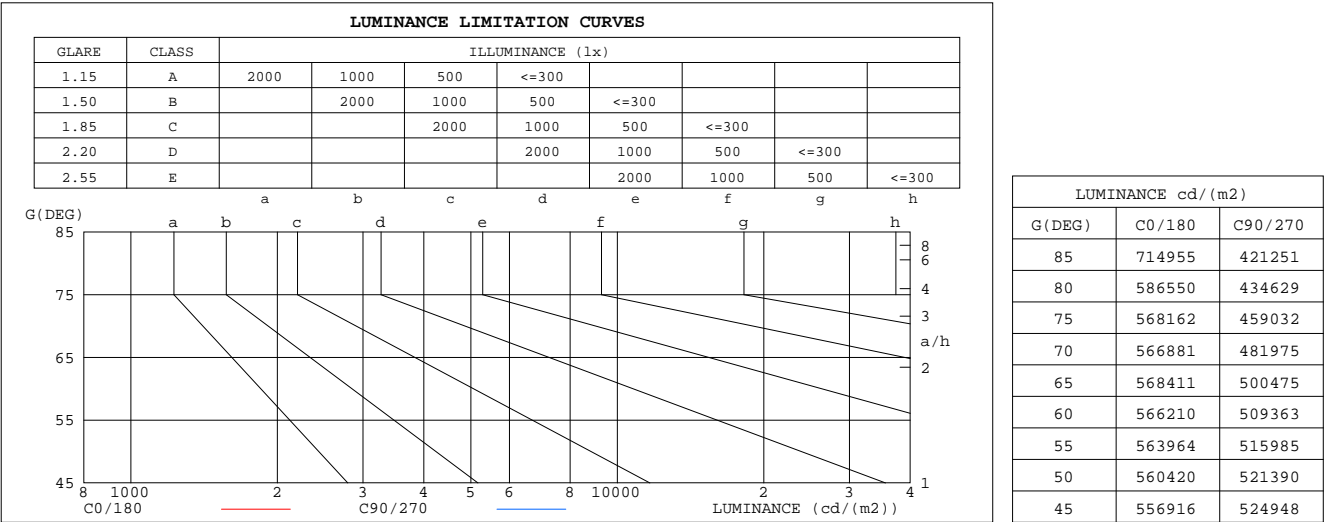
%lamp = 76.5%

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.9DEG
 Operators:Zero huang
 Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:60%
 Test Distance:26.000m [K=1.5110]
 Remarks:

LUMINANCE LIMITATION CURVES

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.9DEG
Operators:Zero huang
Test Date:2023-12-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:60%
Test Distance:26.000m [K=1.5110]
Remarks:

WEC AND CCEC

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm								
NAME:			TYPE:LED			WEIGHT:N/A		
SPEC.:N/A			DIM.:			SERIAL No.:N/A		
MFR.:			SUR.:			Shielding Angle:N/A		

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	.325	.185	.059	.318	.181	.058	.304	.175	.056	.292	.168	.054	.281	.163	.052	
2.0	.302	.165	.051	.295	.163	.050	.283	.158	.049	.272	.153	.048	.262	.148	.047	
3.0	.277	.148	.044	.272	.145	.044	.261	.141	.043	.251	.138	.042	.242	.134	.041	
4.0	.255	.132	.039	.250	.131	.039	.240	.127	.038	.232	.124	.038	.223	.121	.037	
5.0	.235	.120	.035	.230	.118	.034	.222	.116	.034	.214	.113	.034	.207	.111	.033	
6.0	.217	.109	.031	.213	.108	.031	.206	.106	.031	.199	.103	.030	.192	.101	.030	
7.0	.202	.100	.028	.198	.099	.028	.192	.097	.028	.185	.095	.028	.180	.093	.027	
8.0	.188	.092	.026	.185	.091	.026	.179	.089	.026	.174	.088	.025	.168	.086	.025	
9.0	.176	.085	.024	.173	.085	.024	.168	.083	.024	.163	.082	.023	.158	.080	.023	
10.0	.166	.079	.022	.163	.079	.022	.158	.077	.022	.154	.076	.022	.149	.075	.022	

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	.193	.193	.193	.165	.165	.165	.113	.113	.113	.065	.065	.065	.021	.021	.021	
1.0	.184	.159	.136	.158	.136	.117	.108	.094	.081	.062	.054	.047	.020	.017	.015	
2.0	.177	.135	.100	.151	.116	.086	.104	.080	.060	.060	.047	.035	.019	.015	.011	
3.0	.169	.117	.076	.145	.101	.066	.099	.070	.046	.057	.041	.027	.018	.013	.009	
4.0	.161	.104	.060	.138	.090	.053	.095	.063	.037	.055	.037	.022	.018	.012	.007	
5.0	.154	.094	.049	.132	.081	.043	.091	.057	.030	.053	.033	.018	.017	.011	.006	
6.0	.146	.085	.042	.126	.074	.036	.087	.052	.026	.050	.030	.015	.016	.010	.005	
7.0	.140	.079	.036	.120	.068	.031	.083	.048	.022	.048	.028	.013	.016	.009	.004	
8.0	.133	.073	.031	.115	.063	.027	.079	.044	.019	.046	.026	.012	.015	.009	.004	
9.0	.127	.068	.028	.109	.059	.024	.076	.041	.017	.044	.024	.010	.014	.008	.003	
10.0	.121	.064	.025	.104	.055	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.9DEG
 Operators:Zero huang
 Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:60%
 Test Distance:26.000m [K=1.5110]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm											
NAME:					TYPE:LED			WEIGHT:N/A			
SPEC.:N/A					DIM.:			SERIAL No.:N/A			
MFR.:					SUR.:			Shielding Angle:N/A			
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		35.3	36.9	35.6	37.1	37.3	35.0	36.5	35.2	36.7	36.9
	3H	37.1	38.6	37.5	38.8	39.1	36.6	38.1	36.9	38.3	38.5
	4H	37.9	39.3	38.3	39.6	39.8	37.3	38.7	37.6	38.9	39.2
	6H	38.6	39.9	39.0	40.2	40.5	37.8	39.1	38.2	39.4	39.7
	8H	38.9	40.2	39.3	40.5	40.8	38.0	39.2	38.3	39.5	39.8
	12H	39.2	40.4	39.6	40.7	41.0	38.1	39.3	38.5	39.6	39.9
4H	2H	36.0	37.4	36.3	37.6	37.9	35.7	37.1	36.0	37.3	37.6
	3H	38.0	39.2	38.4	39.5	39.8	37.6	38.8	37.9	39.1	39.4
	4H	39.0	40.1	39.3	40.4	40.7	38.4	39.5	38.8	39.8	40.2
	6H	39.8	40.8	40.2	41.2	41.5	39.1	40.1	39.5	40.4	40.8
	8H	40.2	41.1	40.6	41.5	41.9	39.4	40.3	39.8	40.6	41.0
	12H	40.5	41.4	41.0	41.8	42.2	39.6	40.4	40.0	40.8	41.2
8H	4H	39.3	40.2	39.7	40.6	41.0	38.8	39.7	39.2	40.1	40.5
	6H	40.4	41.1	40.8	41.5	42.0	39.7	40.5	40.2	40.9	41.3
	8H	40.9	41.6	41.3	42.0	42.5	40.1	40.8	40.6	41.2	41.7
	12H	41.4	42.0	41.9	42.4	42.9	40.5	41.1	41.0	41.5	42.0
12H	4H	39.3	40.2	39.8	40.6	41.0	38.9	39.7	39.3	40.1	40.5
	6H	40.5	41.2	40.9	41.6	42.0	39.9	40.5	40.3	41.0	41.4
	8H	41.1	41.6	41.5	42.1	42.6	40.4	40.9	40.8	41.4	41.9
Variations with the observer position at spacings:											
S = 1.0H		+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.1 / - 0.4					+ 0.2 / - 0.4				

CIE Pub.117, 1600 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 1.6$)

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.9DEG
 Operators:Zero huang
 Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:60%
 Test Distance:26.000m [K=1.5110]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

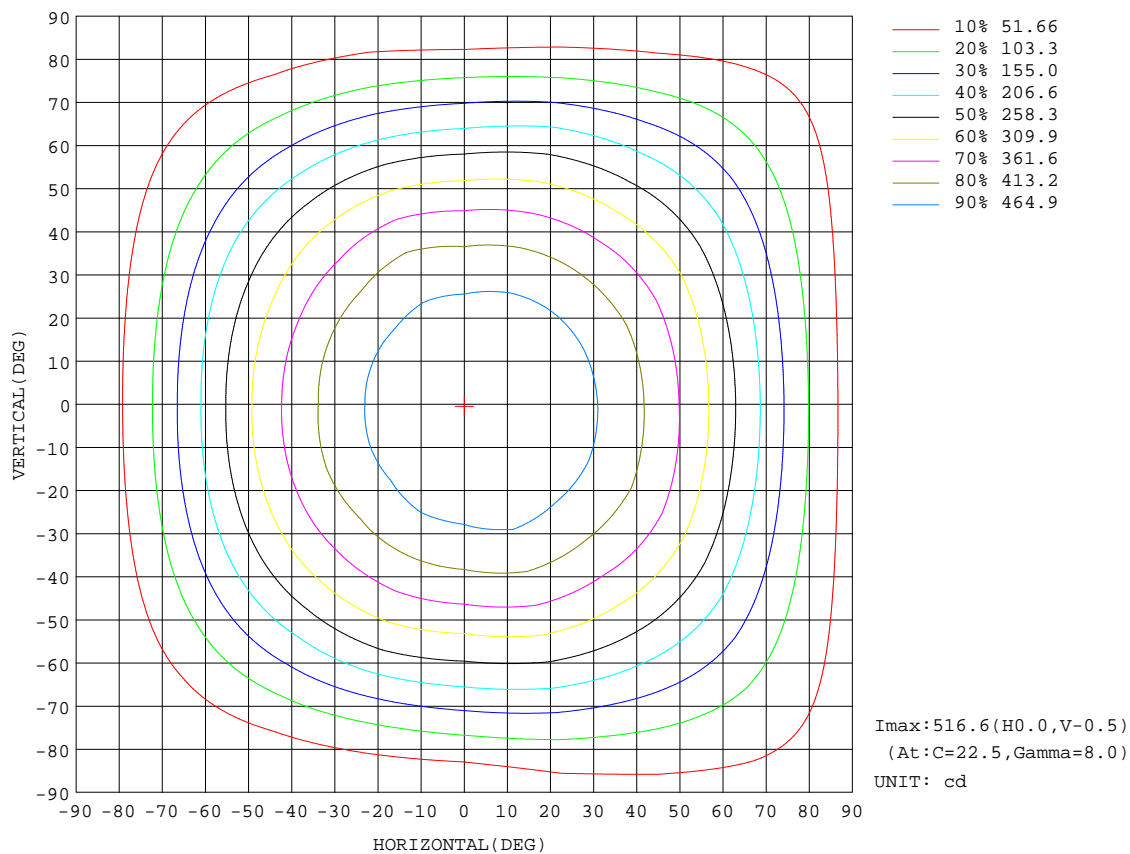
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	56	44	37	55	44	37	54	44	37	30
0.80	66	54	47	65	54	47	63	53	46	39
1.00	75	63	56	73	63	55	71	64	55	47
1.25	82	71	64	80	70	63	77	69	62	55
1.50	87	77	69	85	76	69	82	74	68	60
2.00	94	85	78	92	84	77	88	81	76	68
2.50	98	90	83	96	88	82	92	86	81	72
3.00	101	94	88	99	92	87	95	89	85	76
4.00	105	99	94	103	98	93	99	94	90	81
5.00	108	103	98	105	101	97	101	97	94	84
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:24.9DEG
 Operators:Zero huang
 Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:60%
 Test Distance:26.000m [K=1.5110]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

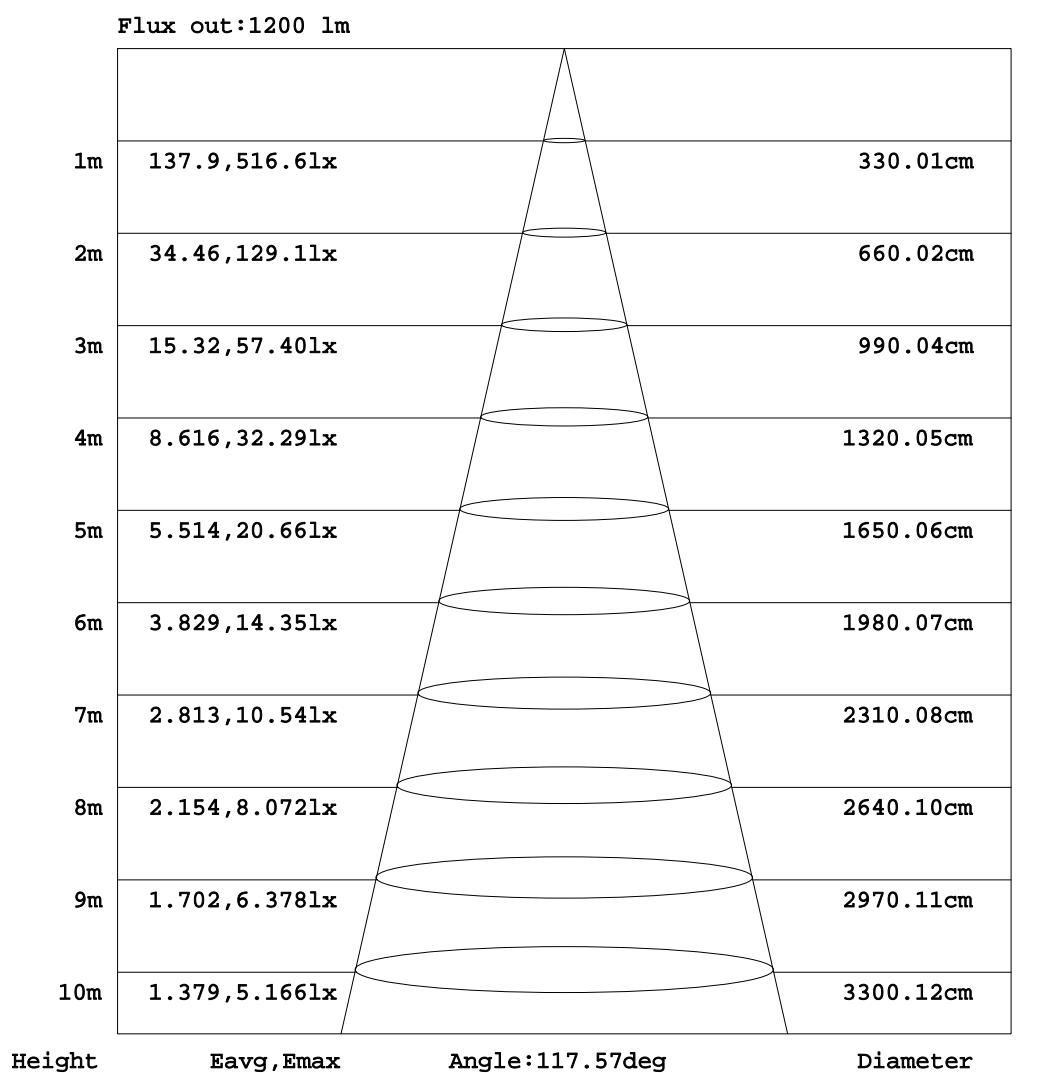


C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.9DEG
Operators:Zero huang
Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:60%
Test Distance:26.000m [K=1.5110]
Remarks:

AAI Figure

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm		
NAME:	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.:	SUR.:	Shielding Angle:N/A

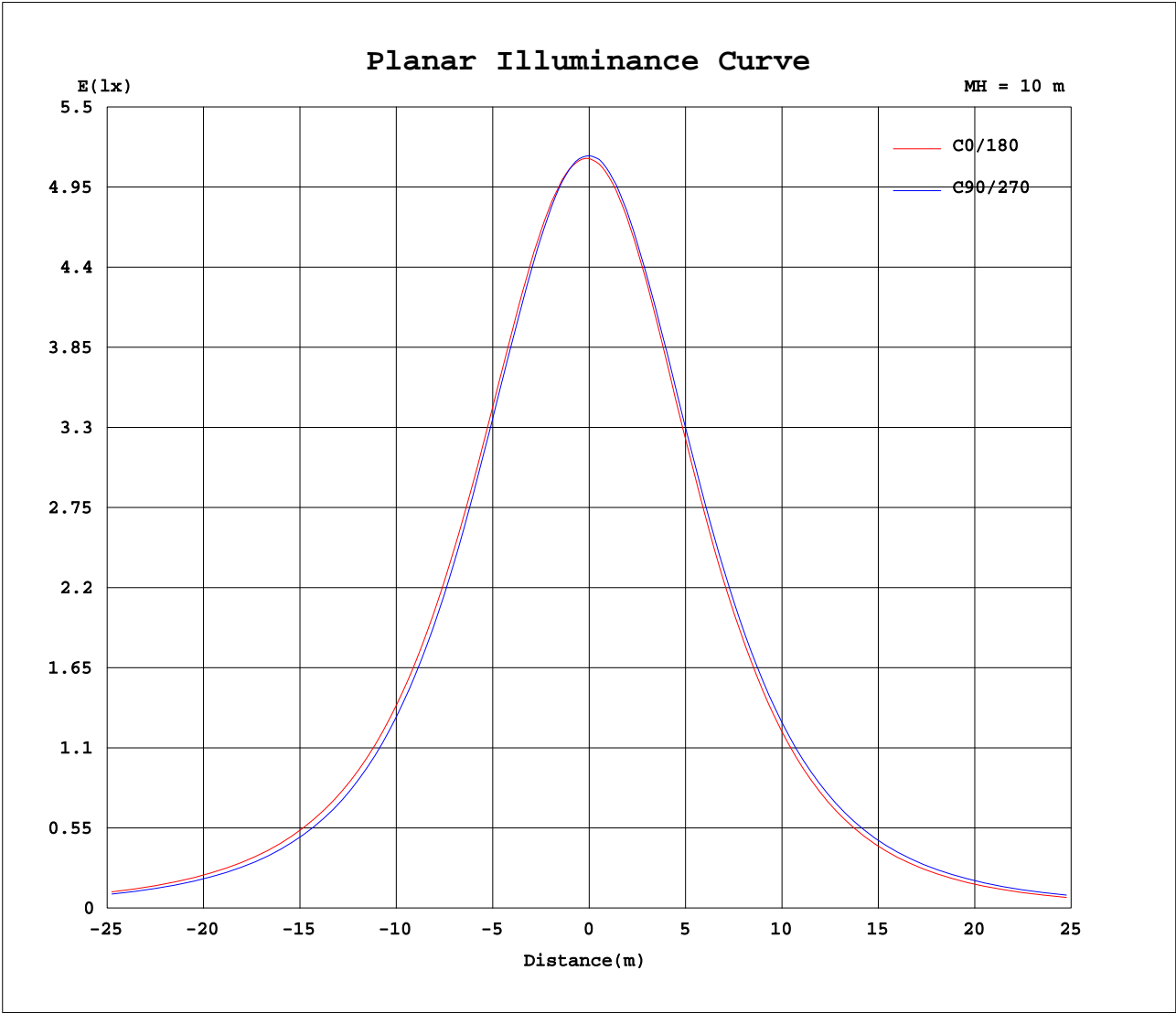


Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:24.9DEG
 Operators:Zero huang
 Test Date:2023-12-19

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
 Humidity:60%
 Test Distance:26.000m [K=1.5110]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG	γ Range: 0 - 180DEG
C Interval: 22.5DEG	γ Interval: 1.0DEG
Test Speed: HIGH	Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Temperature:24.9DEG	Humidity:60%
Operators:Zero huang	Test Distance:26.000m [K=1.5110]
Test Date:2023-12-19	Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.007V I:0.5477A P:13.149W PF:1.0000 Freq:0Hz Lamp Flux:1600.44x1 lm																	
NAME:									TYPE:LED						WEIGHT:N/A		
SPEC.:N/A									DIM.:						SERIAL No.:N/A		
MFR.:									SUR.:						Shielding Angle:N/A		

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515	515			
5	516	516	516	516	514	515	513	511	511	511	510	512	513	513	514	515			
10	514	515	513	514	509	510	507	503	504	503	504	505	506	509	510	512			
15	508	508	507	508	501	502	495	492	493	492	493	496	496	502	504	507			
20	499	500	497	499	489	490	481	477	477	477	478	482	483	491	494	497			
25	486	487	485	488	474	473	463	459	457	458	461	467	465	474	479	483			
30	469	471	469	469	455	451	439	437	434	435	439	448	445	456	462	465			
35	449	450	446	448	430	425	414	412	407	409	414	427	420	432	438	444			
40	423	426	422	420	402	398	387	382	378	377	383	398	392	403	411	419			
45	394	401	391	388	370	366	353	347	343	343	350	363	359	373	376	390			
50	361	369	358	354	334	330	317	309	304	304	313	323	323	338	344	357			
55	324	329	320	315	295	292	277	267	261	263	271	281	283	300	306	320			
60	283	286	279	273	254	249	231	223	216	221	225	236	240	258	265	279			
65	240	243	235	229	211	200	184	176	169	173	179	191	196	215	221	235			
70	194	196	188	183	164	151	137	129	123	124	131	145	153	168	174	187			
75	147	150	143	136	118	105	91.5	84.2	81.1	83.3	88.6	101	109	119	126	139			
80	102	105	100	92.8	75.2	63.0	51.0	46.3	46.9	49.9	53.4	66.2	69.1	76.4	82.3	92.6			
85	62.4	65.8	64.4	57.4	36.6	32.6	22.9	20.2	22.5	25.4	27.7	37.2	33.4	41.5	44.4	52.9			
90	33.2	35.8	36.1	30.6	13.3	13.3	7.27	5.32	7.66	10.2	11.6	17.3	11.5	17.4	18.7	25.5			
95	0.09	0.20	0.75	0.29	0.10	0.09	0.00	0.00	0.00	0.09	0.01	1.00	0.26	0.96	0.04	0.00			
100	1.01	3.64	4.19	3.45	0.00	0.52	0.17	0.00	0.09	0.17	0.26	1.12	0.44	0.00	0.26	0.51			
105	0.43	0.78	0.62	0.27	0.00	0.00	0.09	0.26	0.09	0.17	0.17	0.35	0.70	0.09	0.09	0.09			
110	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.17	0.25	0.17	0.17	0.35	1.22	0.17	0.09	0.09			
115	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.09	0.17	0.17	0.17	0.35	1.39	0.35	0.17	0.09			
120	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.09	0.17	0.17	0.26	0.35	1.48	0.26	0.17	0.09			
125	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.09	0.17	0.17	0.26	0.35	1.48	0.26	0.17	0.17			
130	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.09	0.34	0.17	0.26	0.35	1.48	0.44	0.26	0.17			
135	0.00	0.17	0.00	0.18	0.17	0.00	0.00	0.09	0.26	0.26	0.35	0.35	1.48	0.53	0.26	0.17			
140	0.08	0.09	0.17	0.18	0.17	0.09	0.17	0.09	0.34	0.34	0.35	0.35	1.48	0.61	0.34	0.17			
145	0.26	0.17	0.17	0.18	0.35	0.09	0.09	0.17	0.34	0.51	0.44	0.35	1.48	0.87	0.43	0.17			
150	0.34	0.26	0.17	0.18	0.35	0.09	0.09	0.26	0.34	0.43	0.52	0.35	1.30	1.14	0.52	0.17			
155	0.34	0.34	0.17	0.18	0.43	0.09	0.09	0.26	0.17	0.34	0.52	0.35	1.30	1.14	0.52	0.17			
160	0.34	0.34	0.17	0.18	0.43	0.09	0.09	0.26	0.17	0.34	0.52	0.35	1.22	1.83	0.52	0.17			
165	0.34	0.34	0.17	0.44	1.21	0.17	0.09	0.26	0.17	0.34	0.52	0.35	1.22	2.10	0.52	0.17			
170	0.34	0.34	0.17	0.61	2.08	0.26	0.17	0.26	0.17	0.34	0.52	0.35	1.22	2.10	0.52	0.17			
175	0.34	0.43	0.35	0.97	2.08	0.35	0.17	0.26	0.17	0.34	0.44	0.35	1.22	2.10	0.52	0.17			
180	0.34	0.43	0.35	1.23	2.08	0.44	0.17	0.26	0.17	0.34	0.44	0.35	1.39	2.10	0.60	0.17			

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.9DEG
Operators:Zero huang
Test Date:2023-12-19

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.366
Humidity:60%
Test Distance:26.000m [K=1.5110]
Remarks: