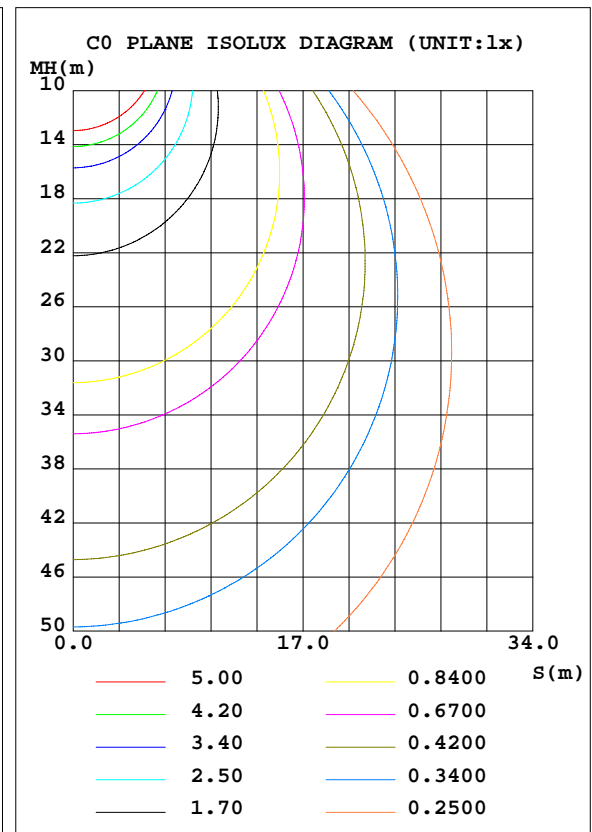
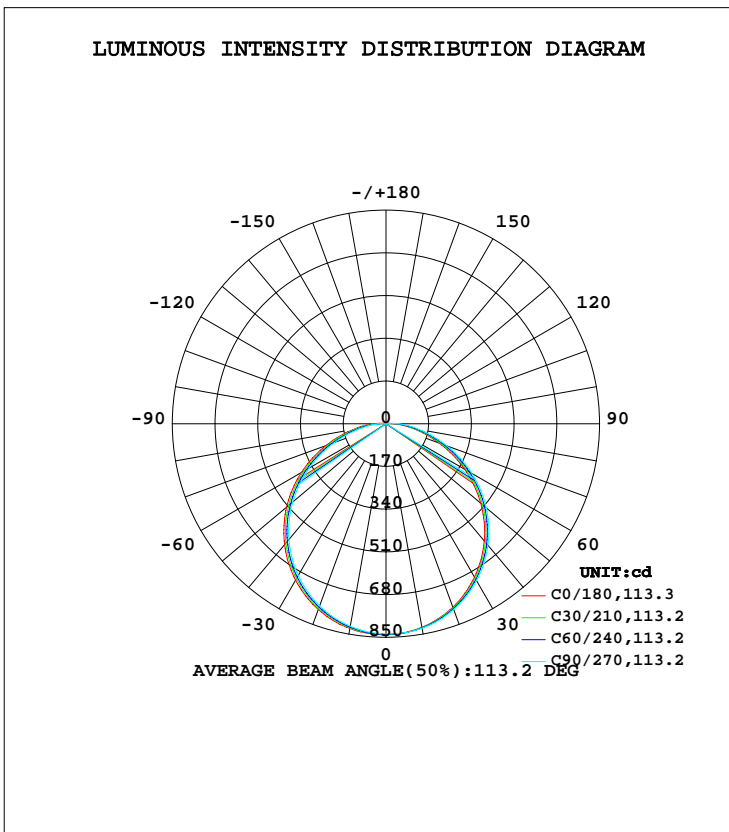


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 110.22 lm/W			
MODEL	QB24	I _{max} (cd)	839.5	S/MH(C0/180)	1.272
NOMINAL POWER(W)	24	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	2504.1	η UP, DN(C0-180)	0.8,50.0
NOMINAL FLUX(lm)	2504.11	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.7,48.4
LAMPS INSIDE	1	η up(%)	1.5	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	98.5	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [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	822.3	824.1	826.1	824.1	827.5	823.3	818.2	818.3	0- 10	79.25	79.25	3.16,3.16
20	777.2	782.0	786.7	783.7	787.2	779.6	771.8	772.0	10- 20	227.1	306.4	12.2,12.2
30	704.4	712.6	720.5	717.6	719.0	708.9	698.3	699.5	20- 30	344.7	651.1	26,26
40	608.3	619.5	630.8	627.3	627.8	615.1	601.2	603.2	30- 40	416.6	1068	42.6,42.6
50	492.3	506.4	520.6	516.6	516.7	500.6	484.2	486.9	40- 50	433.4	1501	59.9,59.9
60	361.0	377.0	394.0	390.7	389.2	371.4	353.2	355.8	50- 60	393.0	1894	75.6,75.6
70	225.9	241.4	258.8	256.9	254.8	236.0	217.0	220.0	60- 70	303.2	2197	87.7,87.7
80	109.5	121.2	134.4	134.7	133.2	116.0	99.39	103.6	70- 80	185.9	2383	95.2,95.2
90	35.08	41.25	48.87	50.10	49.42	37.57	27.56	31.18	80- 90	82.44	2466	98.5,98.5
100	4.885	6.101	8.366	9.247	9.374	5.392	2.527	3.579	90-100	21.55	2487	99.3,99.3
110	1.931	1.857	1.783	1.817	1.860	1.903	1.963	1.930	100-110	2.869	2490	99.4,99.4
120	2.597	2.518	2.453	2.480	2.530	2.570	2.624	2.579	110-120	2.190	2492	99.5,99.5
130	3.230	3.167	3.123	3.138	3.186	3.217	3.253	3.199	120-130	2.565	2495	99.6,99.6
140	3.827	3.785	3.734	3.758	3.788	3.817	3.841	3.788	130-140	2.698	2498	99.7,99.7
150	4.380	4.344	4.304	4.333	4.363	4.374	4.384	4.337	140-150	2.551	2500	99.8,99.8
160	4.882	4.839	4.828	4.819	4.883	4.858	4.873	4.821	150-160	2.126	2502	99.9,99.9
170	5.167	5.174	5.127	5.154	5.181	5.190	5.145	5.140	160-170	1.417	2504	100,100
180	5.312	5.330	5.276	5.294	5.321	5.324	5.272	5.290	170-180	0.4988	2504	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 1285.9 lm

%lum = 51.4%
%lamp = 51.4%

Conical surface Flux(120deg): 1894.1 lm

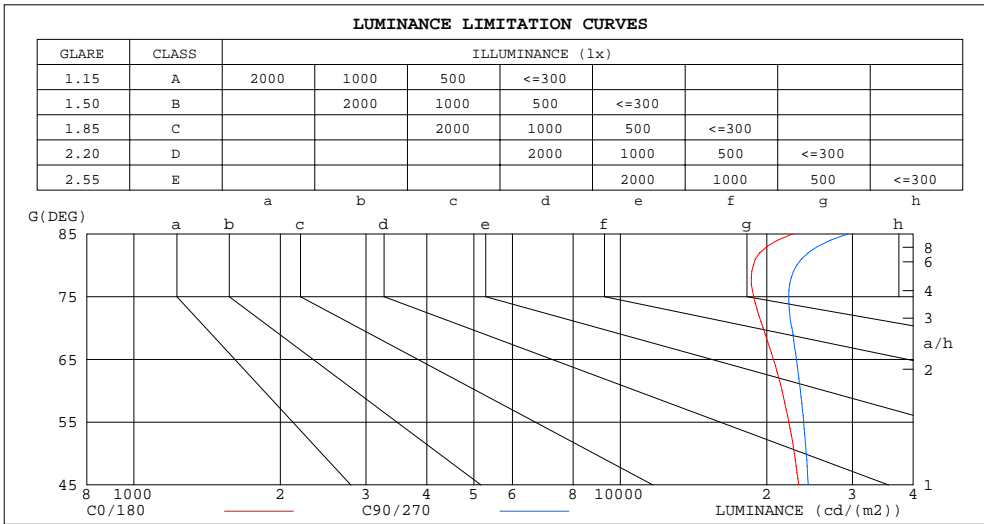
%lum = 75.6%
%lamp = 75.6%

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:15 October 2021

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
Humidity:65.0%
Test Distance:8.791m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	22627	29394
80	18765	23042
75	18799	22192
70	19661	22523
65	20634	23015
60	21490	23451
55	22200	23812
50	22795	24103
45	23271	24338

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [K=1.0000]
 Remarks:

WEC AND CCEC

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	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	.327	.186	.059	.319	.182	.058	.305	.175	.056	.292	.168	.054	.280	.162	.052	
2.0	.301	.165	.051	.294	.162	.050	.281	.157	.049	.270	.151	.047	.259	.147	.046	
3.0	.276	.147	.044	.270	.144	.043	.259	.140	.043	.248	.136	.042	.239	.132	.041	
4.0	.253	.132	.039	.248	.130	.038	.238	.126	.038	.229	.123	.037	.220	.120	.036	
5.0	.233	.119	.034	.228	.117	.034	.220	.114	.034	.211	.112	.033	.204	.109	.033	
6.0	.216	.108	.031	.212	.107	.031	.204	.104	.030	.196	.102	.030	.189	.100	.030	
7.0	.200	.099	.028	.197	.098	.028	.190	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.187	.091	.026	.184	.090	.026	.177	.089	.025	.171	.087	.025	.166	.085	.025	
9.0	.175	.085	.024	.172	.084	.024	.166	.082	.023	.161	.081	.023	.156	.079	.023	
10.0	.164	.079	.022	.162	.078	.022	.156	.077	.022	.152	.075	.021	.147	.074	.021	

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	.202	.202	.202	.173	.173	.173	.118	.118	.118	.068	.068	.068	.022	.022	.022	
1.0	.193	.168	.145	.165	.144	.125	.113	.099	.086	.065	.057	.050	.021	.018	.016	
2.0	.185	.144	.109	.159	.124	.094	.109	.086	.066	.063	.050	.038	.020	.016	.013	
3.0	.178	.126	.085	.152	.109	.074	.104	.076	.052	.060	.044	.031	.019	.014	.010	
4.0	.170	.113	.070	.146	.098	.061	.100	.068	.043	.058	.040	.025	.019	.013	.008	
5.0	.162	.103	.059	.139	.089	.051	.096	.062	.036	.056	.036	.021	.018	.012	.007	
6.0	.155	.094	.051	.133	.082	.044	.092	.057	.031	.053	.034	.019	.017	.011	.006	
7.0	.148	.088	.045	.127	.076	.039	.088	.053	.028	.051	.031	.017	.017	.010	.005	
8.0	.142	.082	.041	.122	.071	.035	.084	.050	.025	.049	.029	.015	.016	.010	.005	
9.0	.135	.077	.037	.117	.067	.032	.081	.047	.023	.047	.028	.014	.015	.009	.005	
10.0	.130	.073	.035	.112	.063	.030	.078	.044	.021	.045	.026	.013	.015	.009	.004	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	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	20.3	21.8	20.6	22.1	22.3	20.6	22.1	20.9	22.4	22.6
3H	21.8	23.2	22.1	23.5	23.8	22.3	23.7	22.6	23.9	24.2
4H	22.5	23.8	22.8	24.1	24.4	23.0	24.3	23.3	24.6	24.9
6H	23.0	24.2	23.3	24.5	24.8	23.6	24.9	24.0	25.2	25.5
8H	23.2	24.4	23.6	24.7	25.0	23.9	25.1	24.3	25.4	25.8
12H	23.4	24.6	23.8	24.9	25.2	24.2	25.4	24.6	25.7	26.0
4H 2H	21.0	22.3	21.3	22.6	22.9	21.2	22.5	21.5	22.8	23.1
3H	22.7	23.8	23.0	24.2	24.5	23.1	24.2	23.4	24.6	24.9
4H	23.4	24.5	23.8	24.9	25.2	23.9	25.0	24.3	25.3	25.7
6H	24.1	25.1	24.5	25.4	25.8	24.7	25.7	25.1	26.0	26.4
8H	24.4	25.3	24.8	25.7	26.1	25.1	26.0	25.5	26.4	26.8
12H	24.7	25.5	25.1	25.9	26.4	25.4	26.3	25.9	26.7	27.1
8H 4H	23.8	24.7	24.2	25.1	25.5	24.2	25.1	24.6	25.5	25.9
6H	24.6	25.4	25.1	25.8	26.3	25.2	25.9	25.6	26.4	26.8
8H	25.0	25.7	25.5	26.2	26.7	25.7	26.3	26.1	26.8	27.3
12H	25.5	26.0	26.0	26.5	27.0	26.2	26.8	26.7	27.2	27.7
12H 4H	23.8	24.6	24.3	25.1	25.5	24.2	25.0	24.7	25.5	25.9
6H	24.7	25.4	25.2	25.9	26.4	25.3	25.9	25.7	26.4	26.9
8H	25.2	25.8	25.7	26.3	26.8	25.8	26.4	26.3	26.9	27.4
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 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117, 2504 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 3.2)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

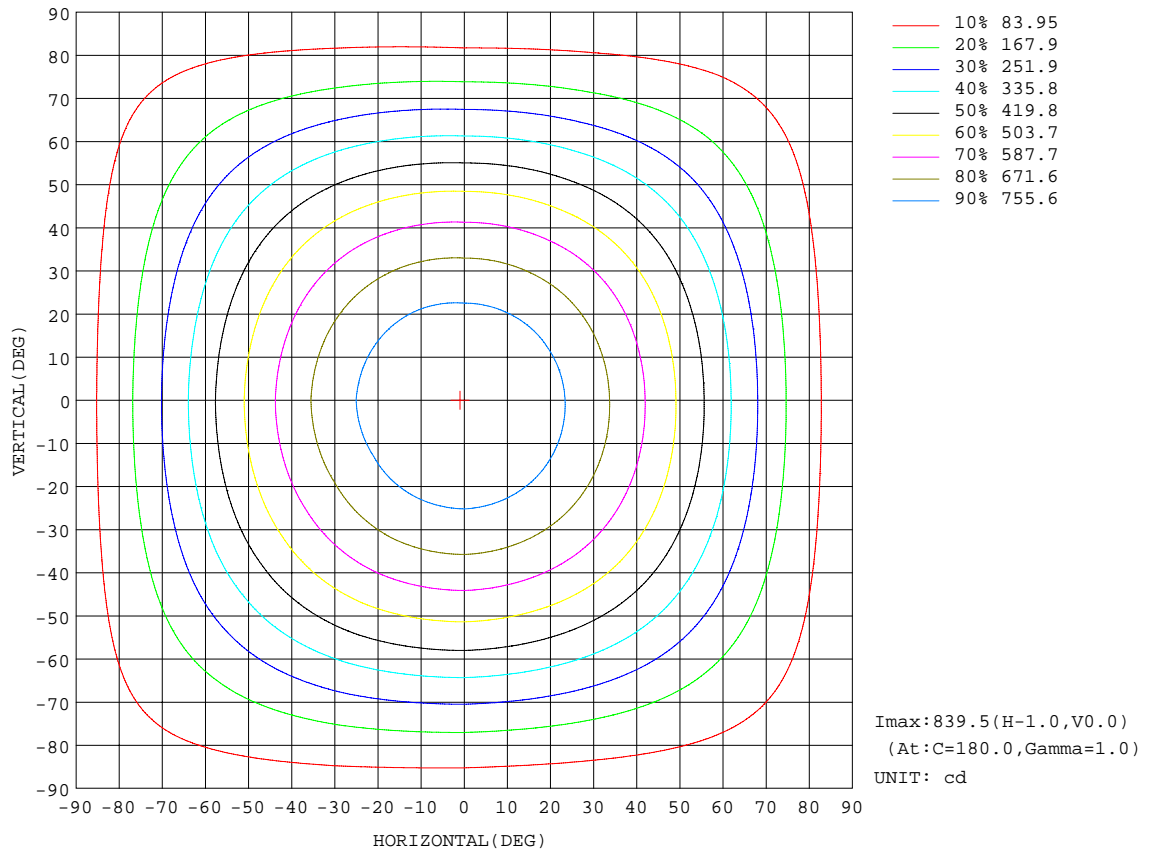
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	45	38	56	44	37	54	44	37	31
0.80	66	54	47	65	54	47	63	53	46	39
1.00	75	63	56	73	63	55	71	64	55	47
1.25	82	71	63	80	70	63	77	68	62	55
1.50	87	76	69	85	75	69	82	74	67	60
2.00	93	85	78	92	83	77	88	81	75	67
2.50	97	89	83	95	88	82	91	85	80	71
3.00	101	94	88	99	92	87	94	89	84	75
4.00	105	99	94	102	97	92	98	93	90	80
5.00	107	102	98	105	100	96	100	96	93	83
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

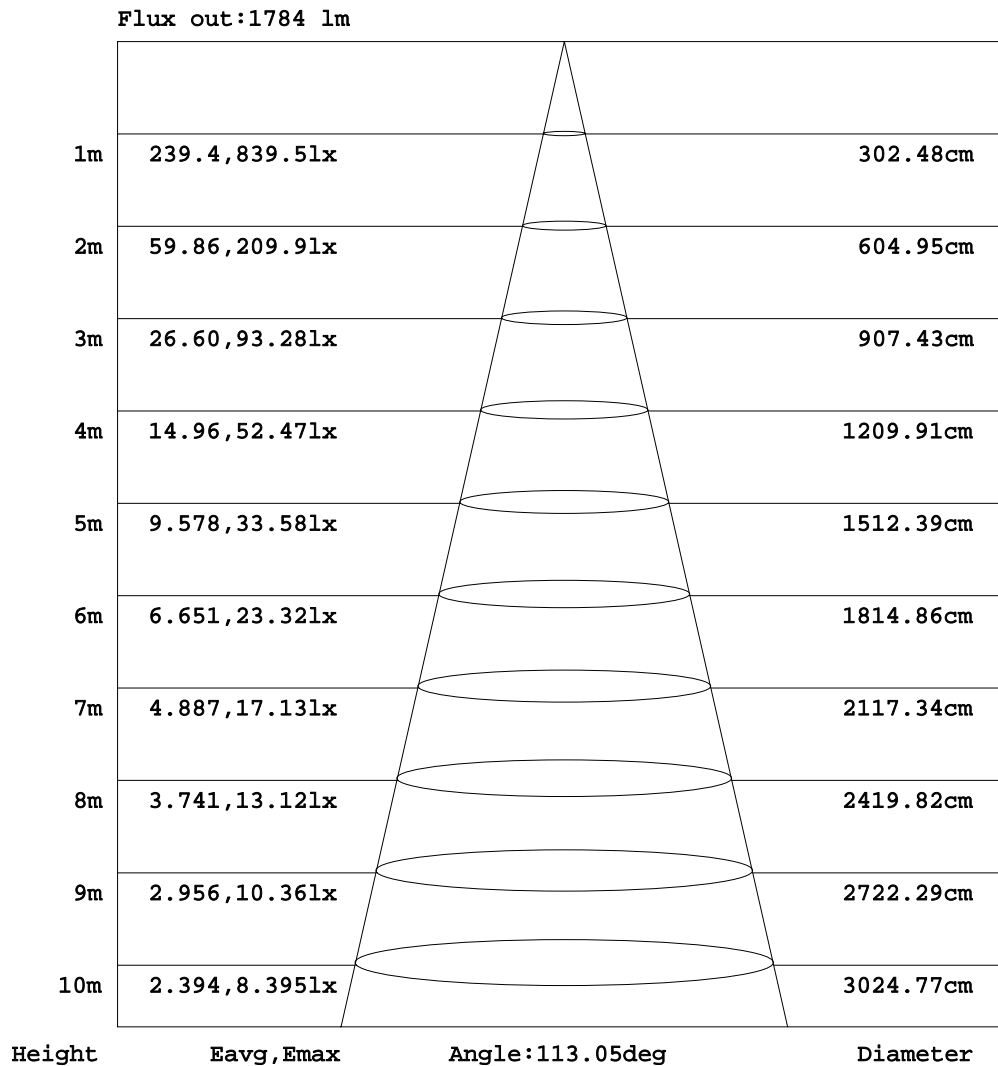


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 8.791m [K=1.0000]
 Remarks:

AAI Figure

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

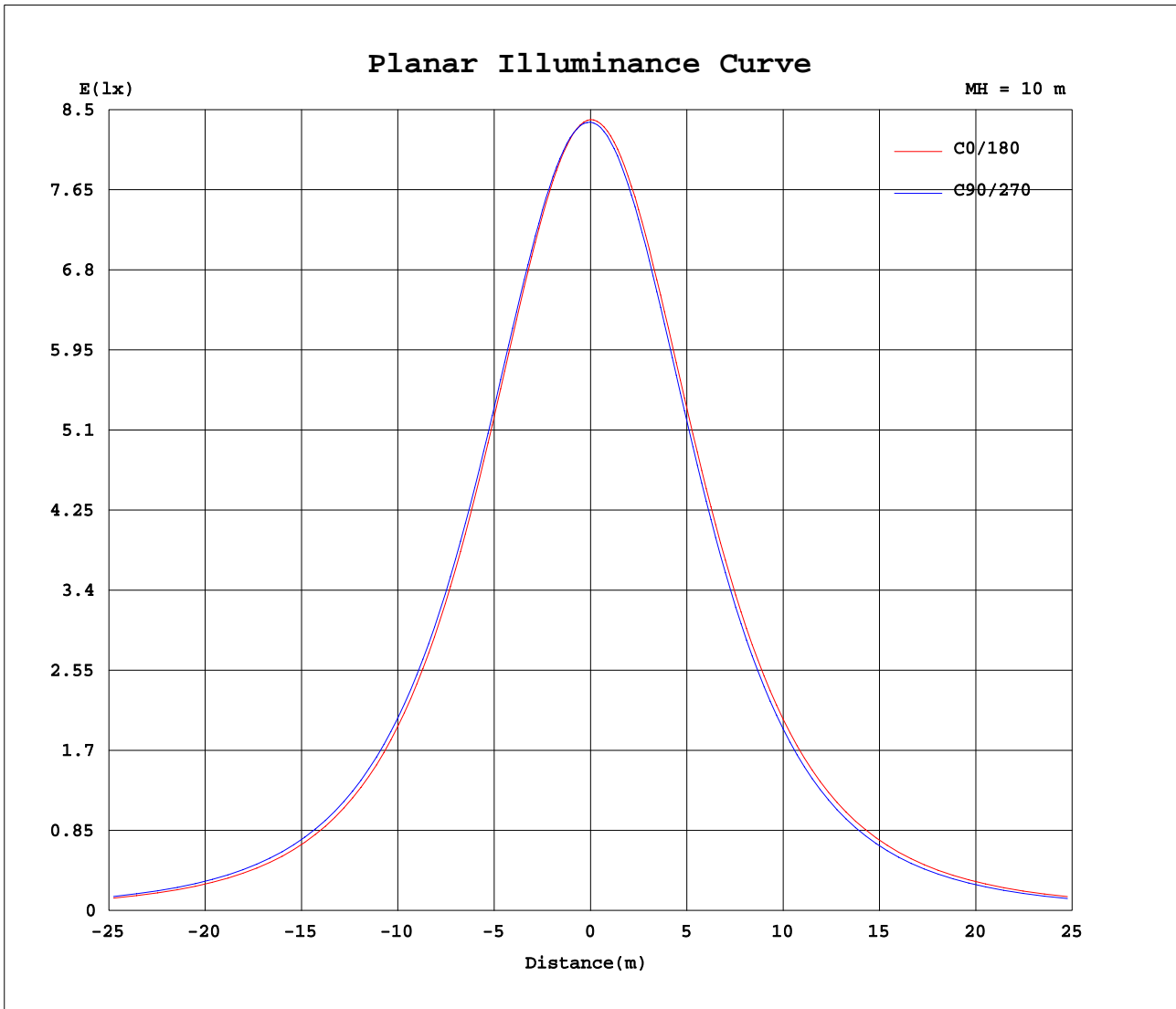


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 8.791m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity: 65.0%
 Test Distance: 8.791m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:229.98V I:0.1022A P:22.720W PF:0.9667 Freq:49.99Hz Lamp Flux:2504.11x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	839	838	838	837	837	836	839	838	838	837	837	836							
5	835	835	835	835	835	833	837	835	834	832	831	831							
10	822	823	825	826	826	823	828	825	822	818	818	818							
15	803	806	808	810	808	806	811	808	803	799	798	799							
20	777	781	783	787	785	782	787	782	777	772	771	773							
25	744	748	753	757	755	753	756	750	745	738	738	740							
30	704	710	716	720	720	716	719	712	706	698	698	701							
35	659	665	672	679	678	673	677	669	661	652	653	656							
40	608	615	624	631	630	625	628	620	611	601	601	605							
45	553	561	570	578	577	572	574	565	555	545	545	550							
50	492	501	511	521	520	514	517	506	495	484	484	489							
55	428	438	449	459	458	453	454	443	432	420	420	425							
60	361	371	383	394	394	388	389	377	365	353	353	359							
65	293	303	315	327	327	321	322	310	298	285	285	290							
70	226	235	247	259	260	254	255	243	229	217	217	223							
75	163	172	183	193	195	190	190	179	165	154	154	161							
80	109	117	126	134	137	133	133	122	110	99.4	101	106							
85	66.3	72.3	78.6	86.1	87.9	86.0	85.7	75.8	65.3	57.2	58.5	64.0							
90	35.1	39.1	43.4	48.9	50.6	49.6	49.4	41.7	33.5	27.6	28.9	33.5							
95	15.1	17.3	19.7	23.2	24.5	24.1	24.1	19.0	13.5	9.87	10.8	14.0							
100	4.88	5.63	6.57	8.37	9.25	9.25	9.37	6.75	4.03	2.53	2.87	4.29							
105	1.72	1.80	1.87	2.35	2.32	2.46	2.98	2.03	1.69	1.64	1.62	1.60							
110	1.93	1.88	1.83	1.78	1.80	1.84	1.86	1.89	1.92	1.96	1.95	1.91							
115	2.26	2.21	2.16	2.12	2.13	2.17	2.20	2.21	2.25	2.30	2.27	2.24							
120	2.60	2.54	2.49	2.45	2.46	2.50	2.53	2.55	2.59	2.62	2.60	2.56							
125	2.92	2.87	2.81	2.79	2.79	2.84	2.86	2.88	2.91	2.95	2.91	2.88							
130	3.23	3.19	3.15	3.12	3.12	3.16	3.19	3.20	3.24	3.25	3.22	3.18							
135	3.53	3.49	3.46	3.44	3.43	3.47	3.50	3.52	3.53	3.55	3.53	3.48							
140	3.83	3.80	3.77	3.73	3.74	3.77	3.79	3.81	3.82	3.84	3.82	3.76							
145	4.10	4.08	4.06	4.02	4.03	4.07	4.08	4.09	4.10	4.12	4.09	4.04							
150	4.38	4.35	4.33	4.30	4.32	4.35	4.36	4.37	4.38	4.38	4.36	4.32							
155	4.64	4.62	4.61	4.58	4.57	4.61	4.64	4.63	4.63	4.64	4.62	4.58							
160	4.88	4.83	4.85	4.83	4.79	4.85	4.88	4.87	4.84	4.87	4.85	4.79							
165	5.04	5.02	5.04	4.99	4.98	5.04	5.05	5.06	5.02	5.03	5.03	4.97							
170	5.17	5.16	5.19	5.13	5.13	5.18	5.18	5.21	5.17	5.14	5.18	5.10							
175	5.26	5.27	5.28	5.22	5.24	5.26	5.26	5.29	5.27	5.24	5.27	5.22							
180	5.31	5.34	5.32	5.28	5.30	5.29	5.32	5.33	5.32	5.27	5.29	5.29							

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:15 October 2021

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.366
 Humidity:65.0%
 Test Distance:8.791m [K=1.0000]
 Remarks: