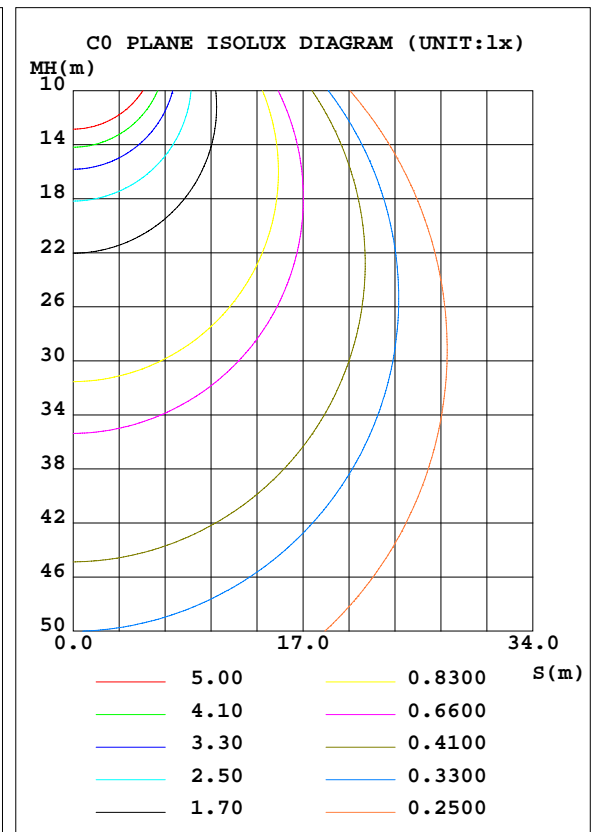
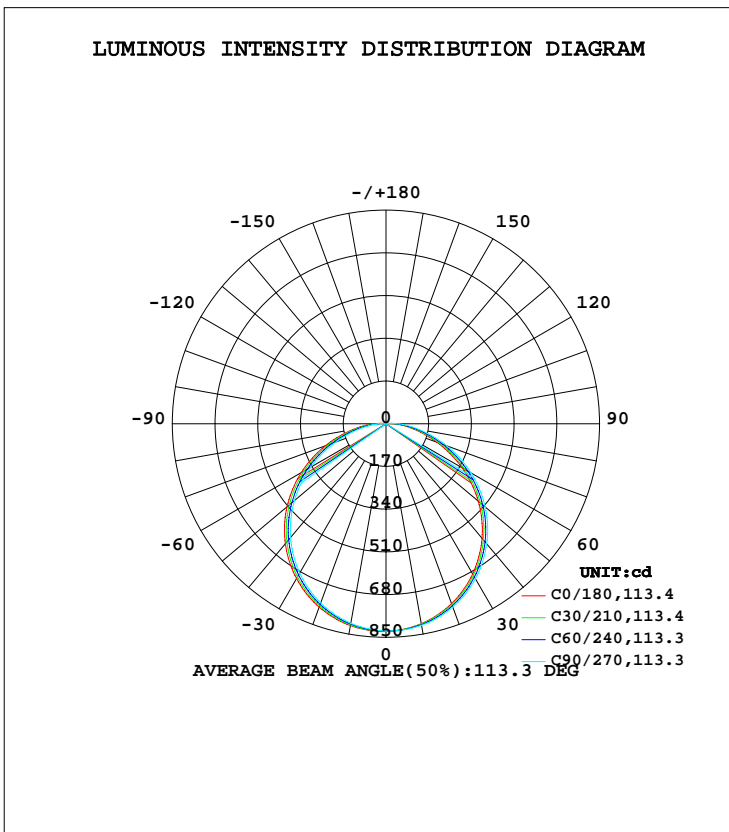


**LUMINAIRE PHOTOMETRIC TEST REPORT**

Test:U:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 106.60 lm/W			
MODEL	QB24	I <sub>max</sub> (cd)	826.2	S/MH(C0/180)	1.284
NOMINAL POWER(W)	24	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	2467.4	η UP, DN(C0-180)	0.8,50.1
NOMINAL FLUX(lm)	2467.36	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	808.1	810.7	814.4	813.5	815.4	811.0	806.3	805.5	0- 10	78.05	78.05	3.16,3.16
20	761.9	768.6	776.4	775.5	776.8	768.6	759.2	758.8	10- 20	223.7	301.8	12.2,12.2
30	690.2	700.2	711.7	711.0	711.6	699.9	686.5	686.1	20- 30	339.6	641.4	26,26
40	594.5	608.1	623.6	623.2	623.3	608.0	591.0	590.9	30- 40	410.5	1052	42.6,42.6
50	479.5	496.6	515.3	514.8	514.0	496.0	475.5	475.4	40- 50	427.3	1479	60,60
60	349.5	368.8	390.6	390.9	389.5	369.0	346.1	345.3	50- 60	387.5	1867	75.7,75.7
70	215.9	235.3	257.7	259.1	257.1	235.7	212.4	211.4	60- 70	299.0	2166	87.8,87.8
80	103.4	118.0	134.2	135.3	134.1	116.6	97.30	98.55	70- 80	183.3	2349	95.2,95.2
90	32.91	40.38	48.49	48.52	48.25	37.62	27.51	29.29	80- 90	80.93	2430	98.5,98.5
100	4.231	6.252	8.457	8.550	8.122	4.896	2.677	3.076	90-100	20.79	2451	99.3,99.3
110	1.936	1.853	1.761	1.765	1.797	1.871	1.959	1.932	100-110	2.732	2453	99.4,99.4
120	2.588	2.507	2.417	2.423	2.471	2.530	2.610	2.575	110-120	2.165	2456	99.5,99.5
130	3.221	3.143	3.073	3.075	3.109	3.163	3.235	3.199	120-130	2.536	2458	99.6,99.6
140	3.787	3.749	3.702	3.683	3.720	3.763	3.810	3.774	130-140	2.667	2461	99.7,99.7
150	4.343	4.308	4.245	4.258	4.290	4.312	4.339	4.312	140-150	2.523	2463	99.8,99.8
160	4.837	4.787	4.761	4.749	4.810	4.794	4.832	4.781	150-160	2.101	2465	99.9,99.9
170	5.109	5.120	5.068	5.088	5.105	5.122	5.099	5.100	160-170	1.401	2467	100,100
180	5.249	5.263	5.217	5.235	5.254	5.265	5.213	5.238	170-180	0.4932	2467	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 1267.1 lm

%lum = 51.4%  
%lamp = 51.4%

Conical surface Flux(120deg): 1866.7 lm

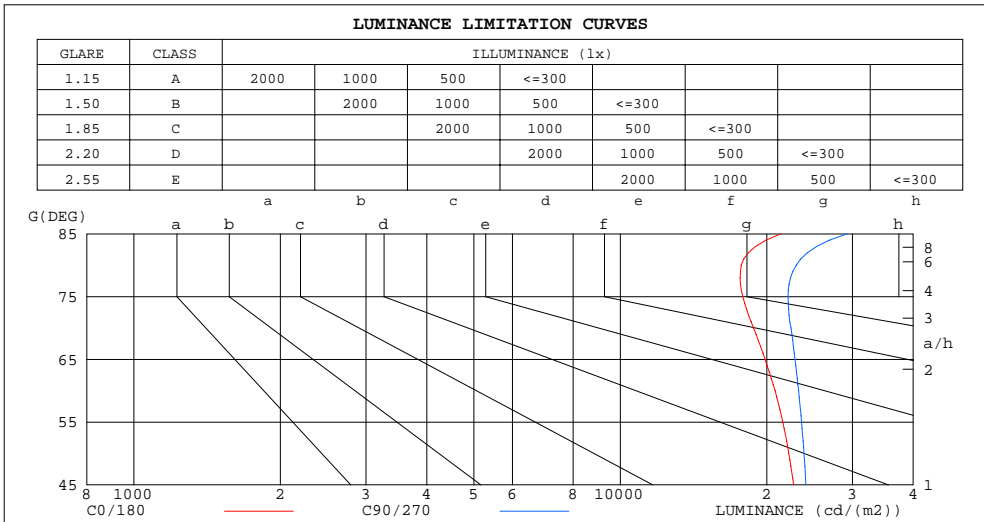
%lum = 75.7%  
%lamp = 75.7%

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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 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	21364	29235
80	17716	22993
75	17852	22120
70	18784	22422
65	19835	22861
60	20801	23252
55	21576	23582
50	22200	23858
45	22698	24074

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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 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	.177	.126	.085	.152	.109	.074	.104	.076	.052	.060	.044	.031	.019	.014	.010	
4.0	.170	.113	.070	.146	.098	.060	.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	.087	.045	.127	.076	.039	.088	.053	.028	.051	.031	.017	.017	.010	.005	
8.0	.141	.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	.072	.034	.112	.063	.030	.077	.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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 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	20.2	21.8	20.5	22.0	22.2	20.6	22.2	20.9	22.4	22.6
3H	21.7	23.1	22.0	23.4	23.7	22.3	23.7	22.6	24.0	24.2
4H	22.3	23.7	22.7	23.9	24.2	23.0	24.4	23.4	24.6	24.9
6H	22.8	24.1	23.2	24.4	24.7	23.7	24.9	24.0	25.2	25.5
8H	23.0	24.3	23.4	24.6	24.9	24.0	25.2	24.3	25.5	25.8
12H	23.2	24.4	23.6	24.7	25.1	24.2	25.4	24.6	25.7	26.1
4H 2H	20.9	22.2	21.2	22.5	22.8	21.2	22.5	21.5	22.8	23.1
3H	22.6	23.7	22.9	24.1	24.4	23.1	24.2	23.4	24.6	24.9
4H	23.3	24.4	23.7	24.7	25.1	23.9	25.0	24.3	25.3	25.7
6H	24.0	24.9	24.4	25.3	25.7	24.7	25.7	25.1	26.1	26.5
8H	24.2	25.1	24.7	25.5	25.9	25.1	26.0	25.5	26.4	26.8
12H	24.5	25.3	25.0	25.7	26.2	25.5	26.3	25.9	26.7	27.1
8H 4H	23.7	24.5	24.1	24.9	25.4	24.2	25.1	24.6	25.5	25.9
6H	24.5	25.2	25.0	25.7	26.1	25.2	25.9	25.6	26.4	26.8
8H	24.9	25.6	25.4	26.0	26.5	25.7	26.3	26.2	26.8	27.3
12H	25.3	25.9	25.8	26.4	26.9	26.2	26.8	26.7	27.2	27.8
12H 4H	23.7	24.5	24.1	24.9	25.4	24.2	25.0	24.7	25.5	25.9
6H	24.6	25.3	25.1	25.7	26.2	25.3	25.9	25.7	26.4	26.9
8H	25.1	25.7	25.6	26.1	26.6	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, 2467 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 3.1)

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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

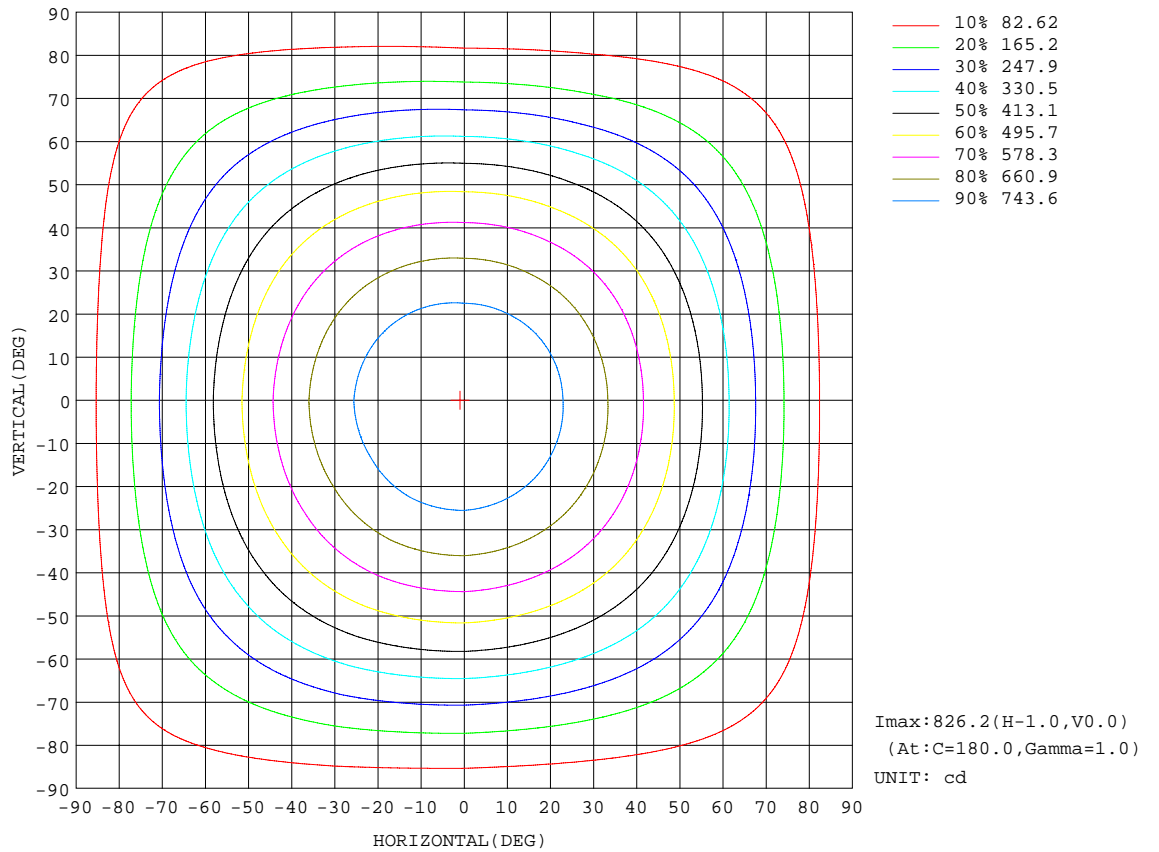
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	45	38	56	44	37	54	44	37	31
0.80	66	54	47	65	54	47	63	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	94	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

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

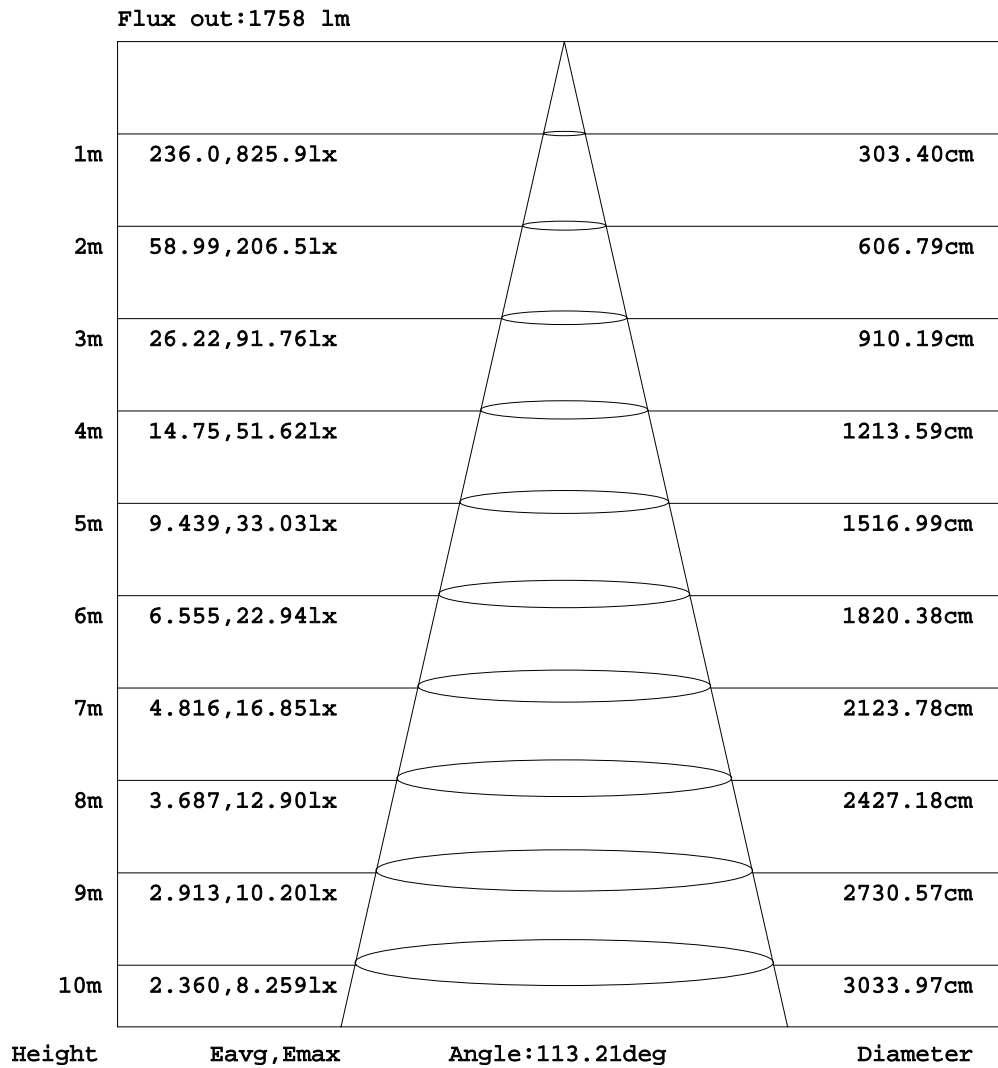


C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 15 October 2021

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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



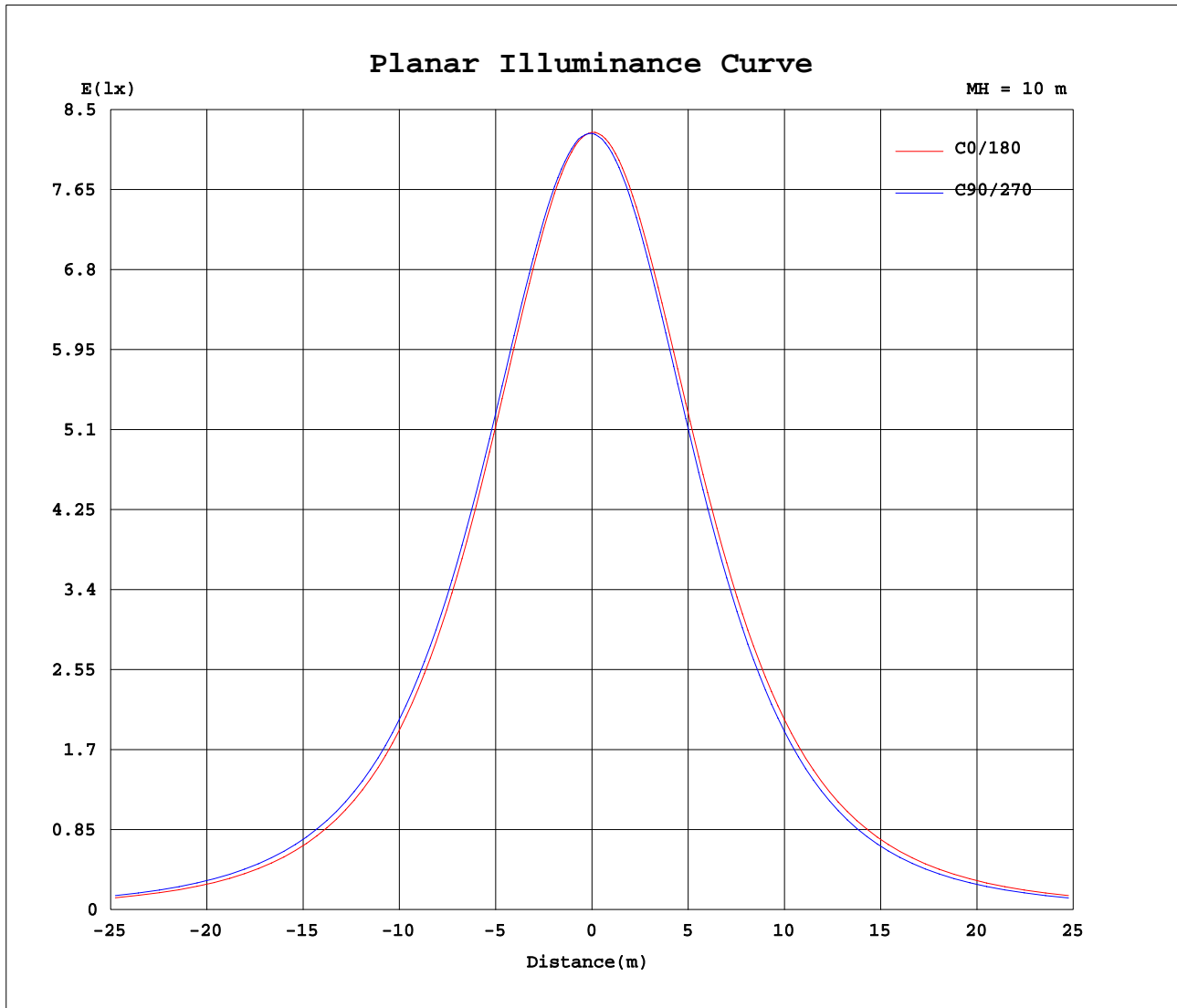
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  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:230.01V I:0.1039A P:23.146W PF:0.9685 Freq:49.99Hz Lamp Flux:2467.36x1 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	826	825	825	825	824	823	826	825	825	825	824	823							
5	821	821	822	823	822	822	824	823	821	819	819	818							
10	808	809	812	814	814	813	815	813	809	806	805	806							
15	788	791	795	799	799	797	799	795	791	786	785	786							
20	762	766	771	776	777	774	777	772	766	759	758	759							
25	729	735	741	747	748	745	747	741	734	726	725	727							
30	690	696	704	712	712	710	712	704	696	686	685	687							
35	645	653	661	670	672	668	670	662	652	641	640	642							
40	595	603	614	624	625	621	623	614	602	591	589	593							
45	539	549	561	572	573	569	571	560	548	535	534	537							
50	479	490	503	515	517	513	514	503	489	476	473	477							
55	416	428	441	454	456	452	453	441	427	412	410	414							
60	349	361	376	391	393	389	390	376	362	346	343	347							
65	282	295	310	325	328	323	324	310	295	279	276	280							
70	216	228	243	258	261	257	257	244	228	212	209	214							
75	155	166	179	192	196	192	192	180	165	151	148	153							
80	103	113	123	134	137	134	134	123	110	97.3	96.2	101							
85	62.6	69.7	77.4	85.6	87.2	85.0	85.5	76.3	65.7	56.2	55.9	60.3							
90	32.9	37.8	43.0	48.5	49.3	47.7	48.3	41.5	33.8	27.5	27.5	31.1							
95	13.8	16.9	19.8	23.0	23.5	22.5	22.6	18.2	13.6	10.3	10.3	12.5							
100	4.23	5.58	6.92	8.46	8.80	8.30	8.12	5.87	3.92	2.68	2.65	3.50							
105	1.65	1.82	2.07	2.55	2.37	2.11	2.47	1.79	1.60	1.63	1.63	1.60							
110	1.94	1.88	1.82	1.76	1.75	1.77	1.80	1.85	1.90	1.96	1.95	1.92							
115	2.26	2.20	2.15	2.09	2.07	2.11	2.13	2.18	2.23	2.29	2.28	2.23							
120	2.59	2.53	2.48	2.42	2.40	2.45	2.47	2.50	2.56	2.61	2.59	2.56							
125	2.91	2.86	2.80	2.76	2.74	2.77	2.80	2.83	2.87	2.93	2.91	2.87							
130	3.22	3.17	3.12	3.07	3.06	3.09	3.11	3.14	3.18	3.23	3.22	3.18							
135	3.52	3.48	3.43	3.39	3.37	3.40	3.42	3.45	3.49	3.52	3.51	3.47							
140	3.79	3.77	3.73	3.70	3.67	3.70	3.72	3.74	3.78	3.81	3.79	3.76							
145	4.09	4.04	4.02	3.98	3.97	4.00	4.01	4.04	4.05	4.07	4.07	4.03							
150	4.34	4.32	4.29	4.24	4.25	4.27	4.29	4.30	4.32	4.34	4.33	4.29							
155	4.59	4.57	4.56	4.52	4.51	4.54	4.55	4.57	4.58	4.60	4.58	4.54							
160	4.84	4.78	4.79	4.76	4.72	4.77	4.81	4.80	4.79	4.83	4.81	4.76							
165	4.99	4.96	4.99	4.93	4.91	4.96	4.98	5.00	4.96	4.98	4.99	4.92							
170	5.11	5.11	5.13	5.07	5.06	5.11	5.10	5.14	5.10	5.10	5.13	5.07							
175	5.20	5.21	5.22	5.17	5.18	5.20	5.19	5.24	5.21	5.18	5.21	5.17							
180	5.25	5.27	5.26	5.22	5.24	5.23	5.25	5.27	5.26	5.21	5.24	5.24							

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: