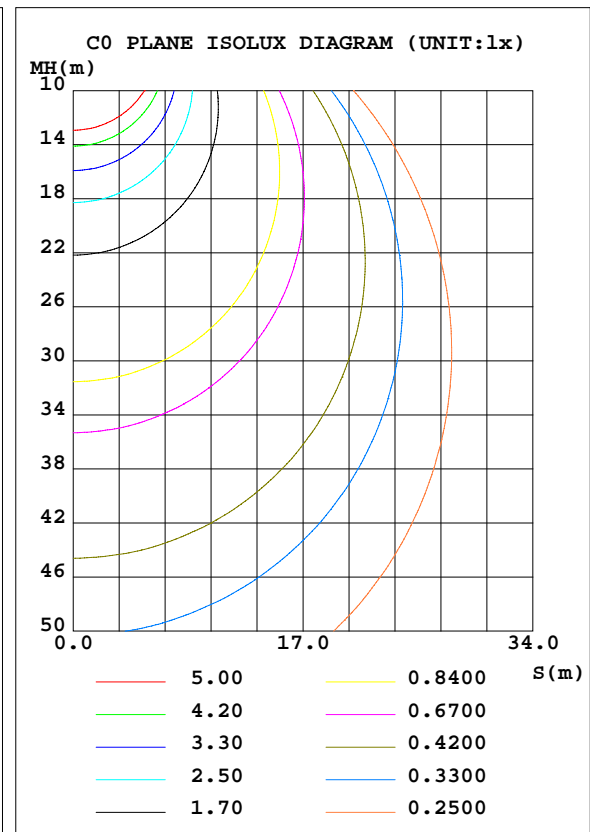
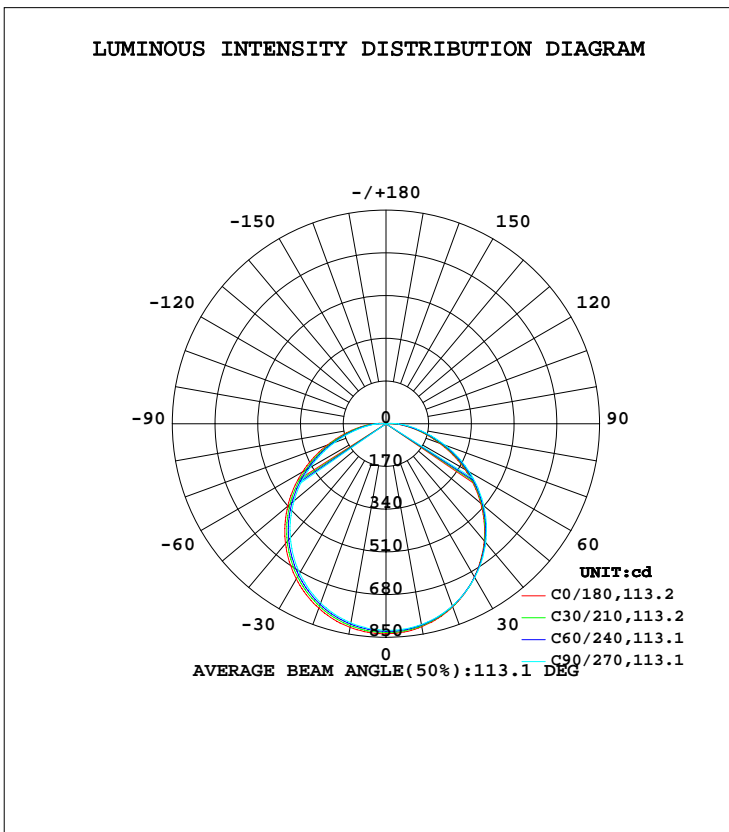


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.01V I:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 104.71 lm/W			
MODEL	QB24	I _{max} (cd)	835.9	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)	2463.9	η UP, DN(C0-180)	0.8,49.9
NOMINAL FLUX(lm)	2463.87	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.7,48.6
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	820.1	814.8	811.3	805.4	822.5	813.3	804.5	801.5	0- 10	78.08	78.08	3.17,3.17
20	775.4	773.4	771.9	765.3	781.1	768.9	759.2	757.2	10- 20	223.8	301.9	12.3,12.3
30	703.9	704.9	706.8	699.3	713.6	699.8	686.9	686.7	20- 30	339.6	641.4	26,26
40	608.2	612.2	617.5	609.7	622.4	606.8	592.3	593.1	30- 40	410.2	1052	42.7,42.7
50	492.7	500.0	507.8	501.0	510.0	493.9	477.6	479.4	40- 50	426.5	1478	60,60
60	362.7	372.9	383.5	377.4	383.2	365.7	348.9	351.5	50- 60	386.6	1865	75.7,75.7
70	227.2	238.6	250.9	246.3	248.6	232.1	215.8	218.8	60- 70	298.1	2163	87.8,87.8
80	109.3	118.4	128.5	127.6	129.6	116.0	101.9	104.2	70- 80	182.6	2345	95.2,95.2
90	34.04	38.46	44.68	46.17	48.39	39.80	31.04	32.14	80- 90	80.92	2426	98.5,98.5
100	3.897	4.951	7.354	8.106	9.021	6.165	3.589	3.822	90-100	20.98	2447	99.3,99.3
110	1.895	1.826	1.765	1.785	1.856	1.871	1.909	1.853	100-110	2.708	2450	99.4,99.4
120	2.547	2.473	2.421	2.439	2.539	2.532	2.533	2.491	110-120	2.147	2452	99.5,99.5
130	3.171	3.106	3.069	3.072	3.182	3.159	3.162	3.093	120-130	2.514	2455	99.6,99.6
140	3.751	3.710	3.670	3.676	3.788	3.760	3.737	3.665	130-140	2.643	2457	99.7,99.7
150	4.307	4.272	4.222	4.231	4.340	4.301	4.262	4.208	140-150	2.501	2460	99.8,99.8
160	4.819	4.760	4.733	4.704	4.860	4.778	4.751	4.681	150-160	2.083	2462	99.9,99.9
170	5.113	5.091	5.023	5.018	5.150	5.100	5.023	5.002	160-170	1.389	2463	100,100
180	5.249	5.235	5.172	5.152	5.285	5.233	5.149	5.149	170-180	0.4891	2464	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 1266.5 lm

%lum = 51.4%
%lamp = 51.4%

Conical surface Flux(120deg): 1864.8 lm

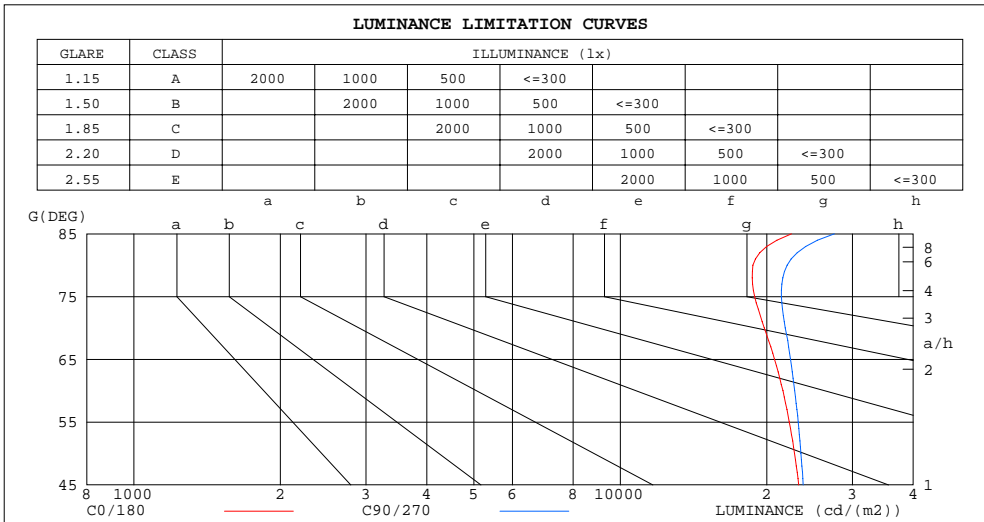
%lum = 75.7%
%lamp = 75.7%

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:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 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	22480	27547
80	18732	22022
75	18889	21440
70	19767	21833
65	20750	22381
60	21589	22826
55	22251	23201
50	22811	23513
45	23265	23764

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:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 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	.326	.186	.059	.319	.182	.058	.305	.175	.056	.292	.168	.054	.280	.162	.052	
2.0	.301	.165	.051	.294	.162	.050	.281	.156	.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	.131	.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	.111	.033	.204	.109	.033	
6.0	.216	.108	.031	.211	.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:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 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	20.4	21.9	20.7	22.2	22.4	20.6	22.1	20.9	22.3	22.6
3H	21.9	23.3	22.3	23.6	23.9	22.2	23.6	22.6	23.9	24.2
4H	22.6	23.9	22.9	24.2	24.5	22.9	24.3	23.3	24.6	24.9
6H	23.1	24.3	23.4	24.6	25.0	23.6	24.8	23.9	25.1	25.4
8H	23.3	24.5	23.7	24.8	25.2	23.8	25.0	24.2	25.4	25.7
12H	23.5	24.7	23.9	25.0	25.3	24.1	25.3	24.5	25.6	25.9
4H 2H	21.1	22.4	21.4	22.7	23.0	21.2	22.5	21.5	22.8	23.1
3H	22.8	23.9	23.1	24.3	24.6	23.0	24.2	23.4	24.5	24.9
4H	23.5	24.6	23.9	25.0	25.3	23.9	24.9	24.3	25.3	25.7
6H	24.2	25.2	24.6	25.5	25.9	24.6	25.6	25.1	26.0	26.4
8H	24.5	25.4	24.9	25.8	26.2	25.0	25.9	25.4	26.3	26.7
12H	24.8	25.6	25.2	26.0	26.4	25.3	26.1	25.8	26.6	27.0
8H 4H	23.9	24.8	24.3	25.2	25.6	24.2	25.0	24.6	25.4	25.9
6H	24.7	25.5	25.2	25.9	26.4	25.1	25.9	25.6	26.3	26.7
8H	25.1	25.8	25.6	26.2	26.7	25.6	26.2	26.1	26.7	27.2
12H	25.5	26.1	26.0	26.6	27.1	26.1	26.6	26.6	27.1	27.6
12H 4H	23.9	24.7	24.4	25.1	25.6	24.2	25.0	24.6	25.4	25.9
6H	24.8	25.5	25.3	25.9	26.4	25.2	25.9	25.7	26.3	26.8
8H	25.3	25.9	25.8	26.4	26.9	25.7	26.3	26.2	26.8	27.3
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, 2464 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:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

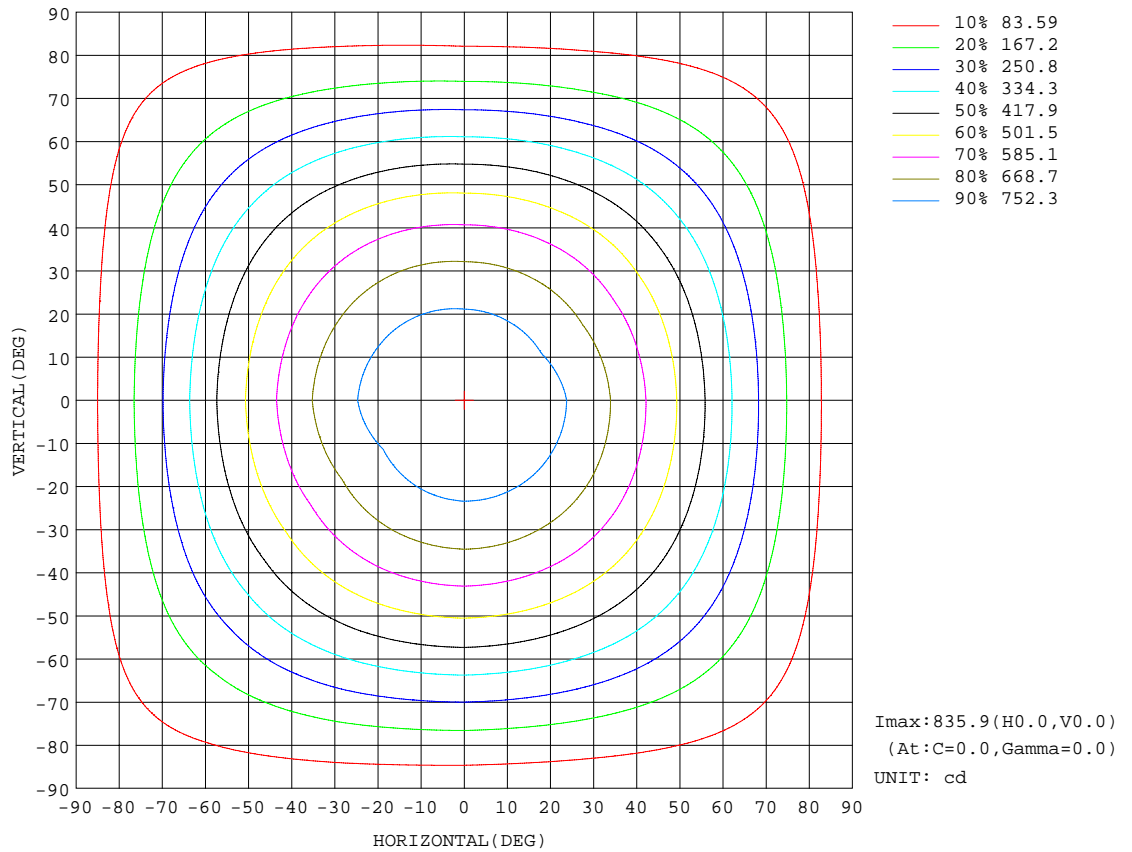
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	45	38	56	44	37	54	44	37	31
0.80	66	54	47	65	54	47	63	53	46	39
1.00	75	63	56	73	63	55	71	64	55	48
1.25	82	71	63	80	70	63	77	69	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

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:230.01V I:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

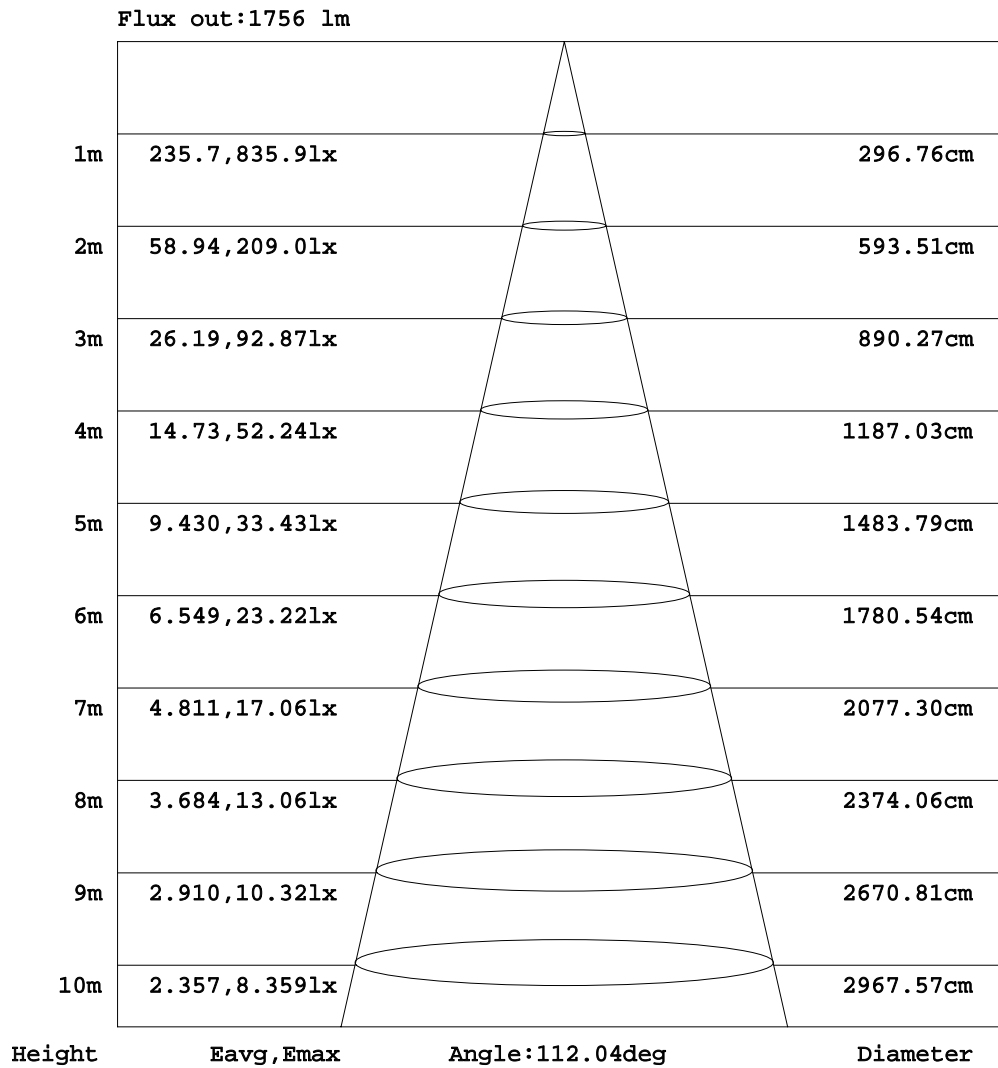


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 15 October 2021

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:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB24	DIM.: 330x330x75	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

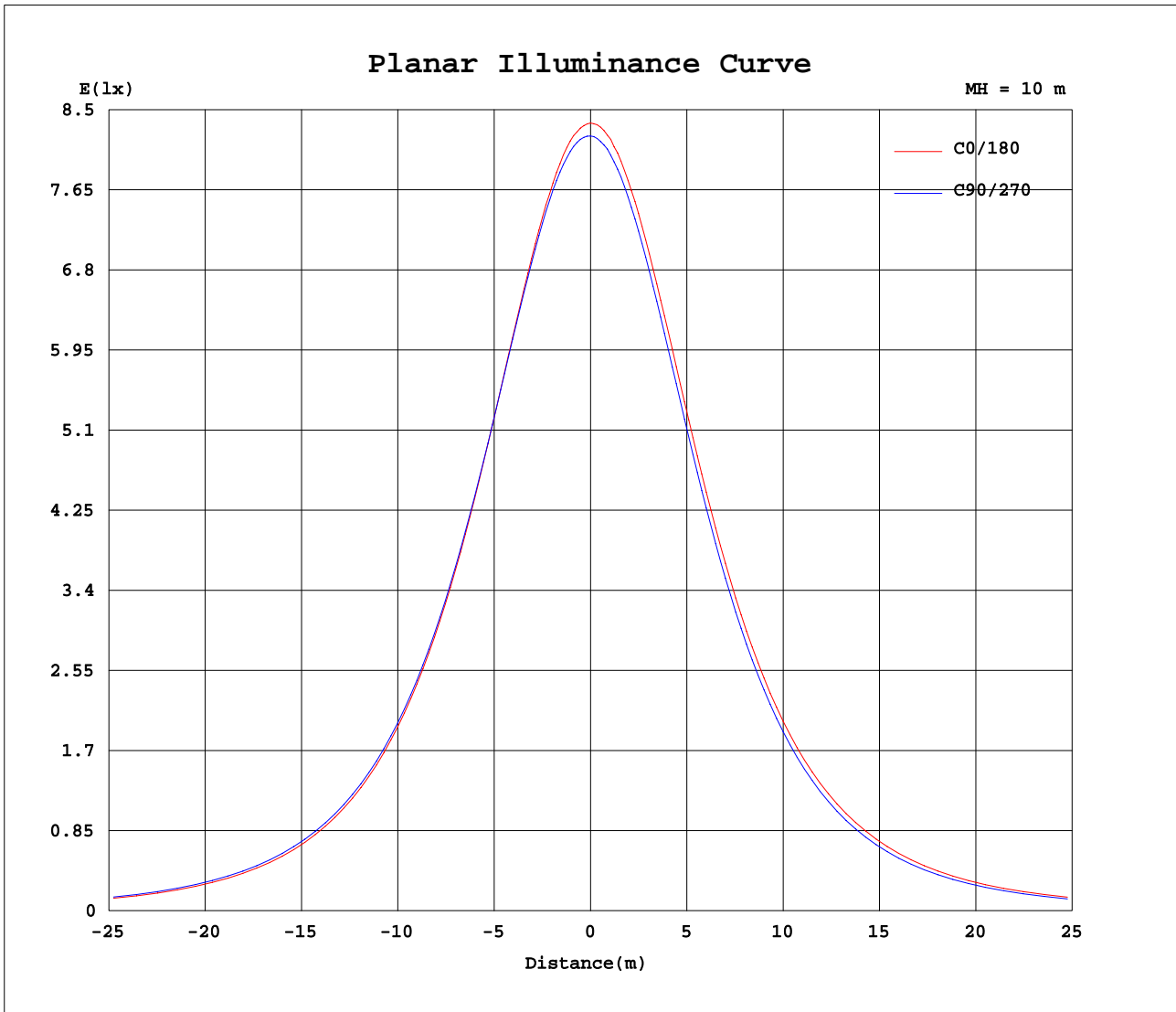


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:230.01V I:0.1057A P:23.531W PF:0.9681 Freq:0Hz Lamp Flux:2463.87x1 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	836	831	826	822	819	816	836	831	826	822	819	816							
5	832	827	823	820	817	813	833	827	821	818	815	812							
10	820	816	813	811	807	803	822	817	810	805	802	801							
15	801	799	796	795	791	786	806	798	792	786	783	782							
20	775	774	773	772	768	763	781	773	765	759	757	757							
25	743	742	742	742	738	733	750	742	734	726	725	726							
30	704	705	705	707	702	696	714	704	696	687	686	687							
35	659	660	662	665	660	654	671	660	652	642	642	643							
40	608	611	614	617	613	607	622	611	602	592	592	594							
45	553	556	560	565	561	555	569	558	548	537	537	540							
50	493	498	502	508	504	498	510	499	489	478	478	481							
55	429	435	440	447	444	438	449	437	426	415	415	418							
60	363	370	376	383	381	374	383	371	360	349	349	353							
65	295	302	310	318	315	309	316	304	294	282	283	287							
70	227	234	243	251	250	243	249	238	226	216	216	221							
75	164	171	178	186	186	181	185	175	164	155	155	160							
80	109	115	122	128	129	126	130	121	111	102	102	106							
85	65.8	70.2	74.7	80.7	82.0	80.9	83.6	76.2	68.3	60.7	60.6	63.8							
90	34.0	36.9	40.0	44.7	46.2	46.2	48.4	42.9	36.7	31.0	31.0	33.3							
95	13.8	15.3	17.4	20.6	21.8	22.1	23.6	20.1	15.9	12.4	12.5	13.7							
100	3.90	4.39	5.52	7.35	8.01	8.20	9.02	7.24	5.09	3.59	3.59	4.05							
105	1.59	1.57	1.70	2.16	2.14	2.14	2.71	1.99	1.74	1.61	1.56	1.52							
110	1.90	1.85	1.80	1.77	1.77	1.80	1.86	1.87	1.87	1.91	1.87	1.83							
115	2.21	2.17	2.14	2.10	2.09	2.13	2.20	2.19	2.21	2.22	2.20	2.15							
120	2.55	2.50	2.45	2.42	2.42	2.46	2.54	2.52	2.54	2.53	2.52	2.47							
125	2.87	2.82	2.77	2.75	2.75	2.78	2.86	2.85	2.85	2.86	2.82	2.76							
130	3.17	3.13	3.09	3.07	3.05	3.09	3.18	3.16	3.16	3.16	3.11	3.07							
135	3.47	3.43	3.39	3.38	3.37	3.39	3.49	3.46	3.47	3.45	3.41	3.36							
140	3.75	3.73	3.69	3.67	3.66	3.69	3.79	3.76	3.76	3.74	3.70	3.63							
145	4.04	4.01	3.98	3.96	3.94	3.97	4.07	4.04	4.03	4.01	3.97	3.90							
150	4.31	4.29	4.25	4.22	4.22	4.24	4.34	4.31	4.29	4.26	4.24	4.18							
155	4.56	4.54	4.52	4.48	4.47	4.50	4.61	4.57	4.55	4.51	4.49	4.43							
160	4.82	4.77	4.75	4.73	4.68	4.72	4.86	4.80	4.76	4.75	4.72	4.64							
165	4.98	4.95	4.93	4.89	4.86	4.91	5.03	4.99	4.93	4.90	4.89	4.81							
170	5.11	5.10	5.08	5.02	5.00	5.04	5.15	5.13	5.07	5.02	5.05	4.95							
175	5.21	5.20	5.17	5.12	5.10	5.12	5.24	5.22	5.17	5.11	5.14	5.07							
180	5.25	5.27	5.20	5.17	5.16	5.14	5.29	5.24	5.23	5.15	5.17	5.13							

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: