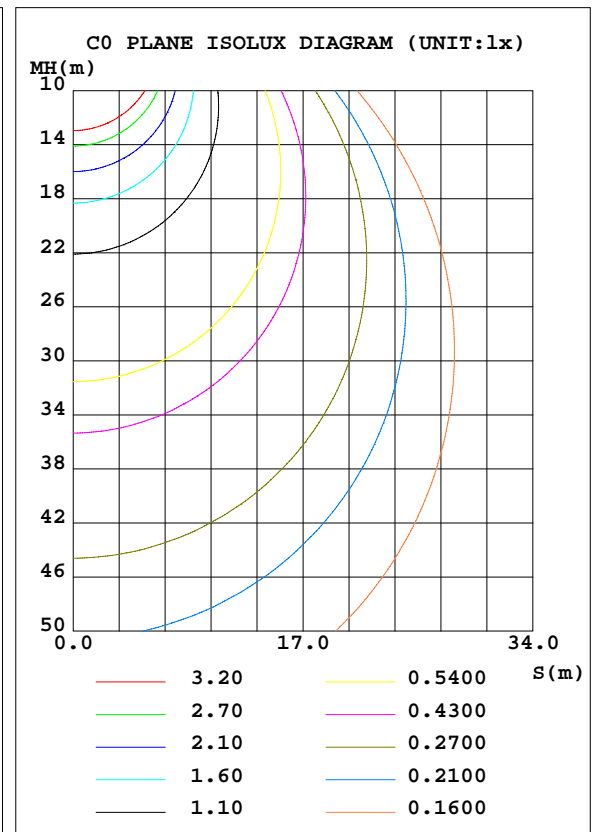
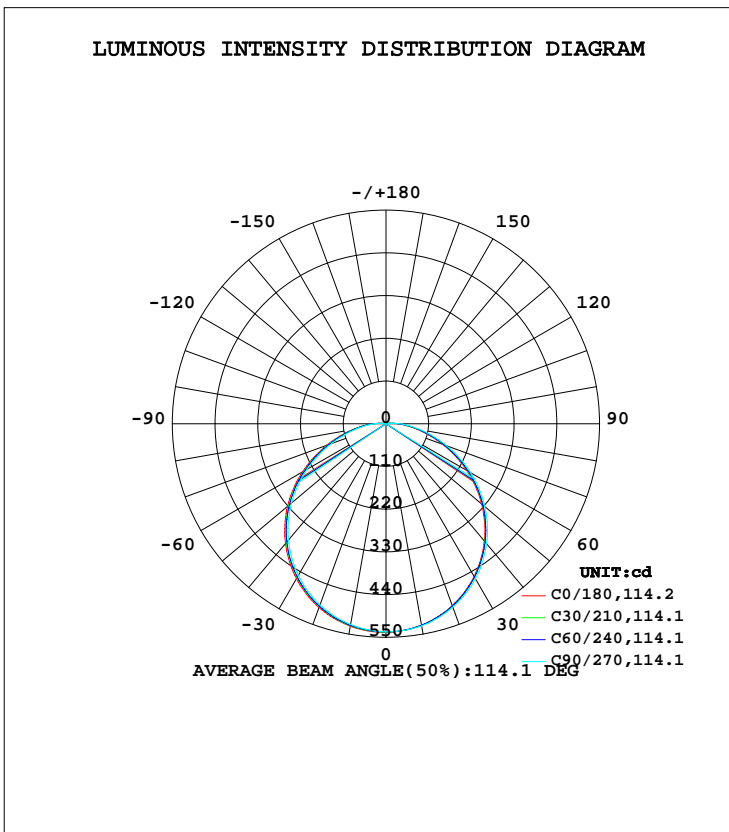


**LUMINAIRE PHOTOMETRIC TEST REPORT**

Test:U:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	QB18	Imax(cd)	537.2	S/MH(C0/180)	1.271
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1636.1	η UP, DN(C0-180)	1.0,49.7
NOMINAL FLUX(lm)	1636.14	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.9,48.4
LAMPS INSIDE	1	η up(%)	1.9	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	98.1	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	526.7	526.6	528.4	528.1	529.3	527.5	525.0	523.7	0- 10	50.71	50.71	3.1,3.1
20	498.7	499.7	502.6	503.4	503.6	500.7	496.3	494.6	10- 20	145.5	196.2	12,12
30	453.9	455.7	460.6	461.7	460.9	457.0	451.5	449.1	20- 30	221.2	417.4	25.5,25.5
40	394.0	396.8	402.8	404.7	402.6	398.1	391.1	388.5	30- 40	268.0	685.5	41.9,41.9
50	321.6	325.2	332.2	334.0	330.6	325.6	317.5	315.2	40- 50	279.7	965.1	59,59
60	239.9	243.8	251.2	253.1	247.8	242.7	234.7	232.7	50- 60	254.8	1220	74.6,74.6
70	155.0	159.2	166.5	167.9	162.4	157.3	149.8	148.2	60- 70	198.5	1418	86.7,86.7
80	80.65	84.26	90.22	91.12	87.00	82.96	76.97	75.83	70- 80	126.0	1544	94.4,94.4
90	30.29	32.43	35.97	36.59	34.14	31.95	28.27	27.46	80- 90	60.70	1605	98.1,98.1
100	6.350	6.921	8.238	8.500	7.619	6.744	5.364	5.187	90-100	19.08	1624	99.3,99.3
110	1.294	1.260	1.199	1.158	1.262	1.204	1.271	1.296	100-110	2.844	1627	99.4,99.4
120	1.714	1.685	1.625	1.570	1.589	1.615	1.683	1.711	110-120	1.429	1629	99.5,99.5
130	2.126	2.095	2.037	1.975	1.996	2.014	2.086	2.111	120-130	1.658	1630	99.6,99.6
140	2.502	2.484	2.426	2.369	2.390	2.401	2.466	2.489	130-140	1.737	1632	99.7,99.7
150	2.846	2.837	2.783	2.740	2.747	2.767	2.810	2.837	140-150	1.641	1634	99.8,99.8
160	3.158	3.140	3.118	3.066	3.077	3.084	3.131	3.136	150-160	1.365	1635	99.9,99.9
170	3.326	3.337	3.299	3.287	3.285	3.301	3.299	3.328	160-170	0.9097	1636	100,100
180	3.389	3.414	3.389	3.401	3.394	3.412	3.394	3.396	170-180	0.3200	1636	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 826.16 lm

%lum = 50.5%  
 %lamp = 50.5%

Conical surface Flux(120deg): 1220 lm

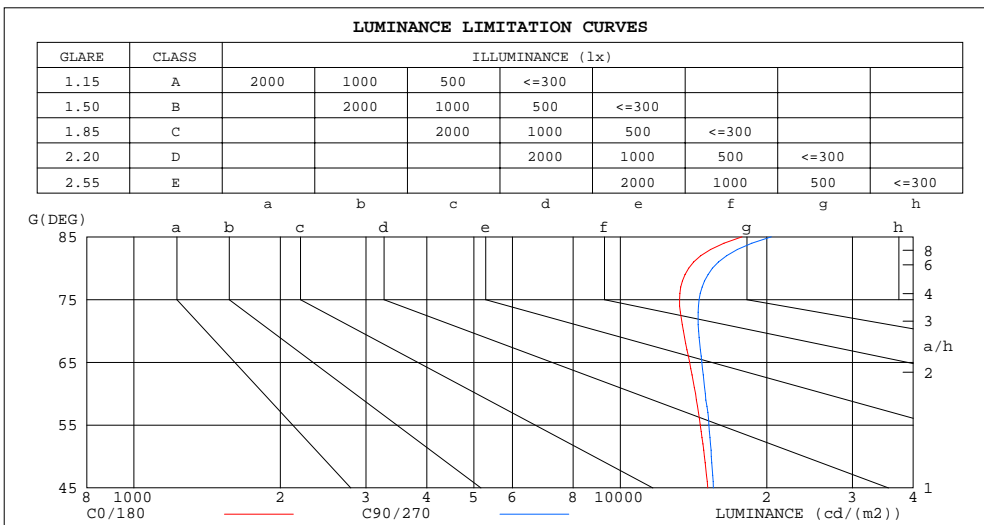
%lum = 74.6%  
 %lamp = 74.6%

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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	17792	20434
80	13822	15463
75	13235	14519
70	13484	14490
65	13882	14712
60	14277	14952
55	14594	15204
50	14889	15382
45	15124	15532

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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	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	.333	.189	.060	.325	.185	.059	.310	.178	.057	.297	.171	.055	.285	.165	.053	
2.0	.304	.167	.051	.298	.164	.050	.285	.158	.049	.273	.153	.048	.262	.148	.047	
3.0	.278	.148	.044	.272	.146	.044	.261	.141	.043	.250	.137	.042	.240	.133	.041	
4.0	.255	.132	.039	.249	.131	.039	.239	.127	.038	.230	.123	.037	.221	.120	.037	
5.0	.234	.119	.035	.230	.118	.034	.221	.115	.034	.212	.112	.033	.204	.109	.033	
6.0	.217	.109	.031	.212	.107	.031	.204	.105	.030	.197	.102	.030	.190	.100	.030	
7.0	.201	.099	.028	.197	.098	.028	.190	.096	.028	.183	.094	.027	.177	.092	.027	
8.0	.188	.092	.026	.184	.091	.026	.178	.089	.025	.171	.087	.025	.166	.085	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.161	.081	.023	.156	.079	.023	
10.0	.165	.079	.022	.162	.078	.022	.157	.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	.205	.205	.205	.175	.175	.175	.120	.120	.120	.069	.069	.069	.022	.022	.022	
1.0	.196	.170	.147	.168	.146	.127	.115	.101	.088	.066	.058	.051	.021	.019	.016	
2.0	.189	.146	.111	.162	.126	.096	.111	.087	.067	.064	.051	.039	.020	.016	.013	
3.0	.181	.129	.088	.155	.111	.076	.106	.077	.053	.061	.045	.031	.020	.015	.010	
4.0	.173	.116	.072	.148	.100	.063	.102	.070	.044	.059	.041	.026	.019	.013	.009	
5.0	.165	.106	.061	.142	.091	.053	.098	.064	.038	.057	.037	.022	.018	.012	.007	
6.0	.158	.097	.054	.136	.084	.047	.094	.059	.033	.054	.035	.020	.018	.011	.006	
7.0	.151	.090	.048	.130	.078	.042	.090	.055	.030	.052	.032	.018	.017	.011	.006	
8.0	.145	.085	.043	.125	.073	.038	.086	.052	.027	.050	.030	.016	.016	.010	.005	
9.0	.138	.080	.040	.119	.069	.035	.083	.049	.025	.048	.029	.015	.016	.009	.005	
10.0	.133	.075	.037	.114	.065	.033	.079	.046	.023	.046	.027	.014	.015	.009	.005	

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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	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	20.5	22.0	20.8	22.2	22.5
3H	21.9	23.3	22.2	23.6	23.9	22.1	23.5	22.5	23.8	24.1
4H	22.6	24.0	23.0	24.2	24.5	22.9	24.2	23.2	24.5	24.8
6H	23.2	24.5	23.6	24.8	25.1	23.6	24.8	23.9	25.1	25.5
8H	23.5	24.7	23.9	25.0	25.4	23.9	25.1	24.2	25.4	25.8
12H	23.8	25.0	24.2	25.3	25.6	24.2	25.4	24.6	25.7	26.1
4H 2H	21.0	22.3	21.3	22.6	22.9	21.1	22.4	21.4	22.7	23.0
3H	22.8	23.9	23.1	24.3	24.6	22.9	24.1	23.3	24.4	24.8
4H	23.6	24.7	24.0	25.0	25.4	23.8	24.9	24.2	25.3	25.6
6H	24.4	25.3	24.8	25.7	26.1	24.7	25.6	25.1	26.0	26.4
8H	24.7	25.6	25.2	26.0	26.5	25.1	26.0	25.5	26.4	26.8
12H	25.1	25.9	25.5	26.3	26.8	25.5	26.3	25.9	26.7	27.2
8H 4H	23.9	24.8	24.4	25.2	25.7	24.1	25.0	24.6	25.4	25.9
6H	24.9	25.7	25.4	26.1	26.6	25.2	25.9	25.6	26.4	26.8
8H	25.4	26.1	25.9	26.5	27.0	25.7	26.4	26.2	26.8	27.3
12H	25.9	26.5	26.4	27.0	27.5	26.3	26.9	26.8	27.3	27.9
12H 4H	24.0	24.8	24.4	25.2	25.7	24.2	25.0	24.6	25.4	25.9
6H	25.0	25.7	25.5	26.2	26.7	25.3	25.9	25.8	26.4	26.9
8H	25.6	26.2	26.1	26.7	27.2	25.9	26.5	26.4	26.9	27.5
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, 1636 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.7)

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:

UTILIZATION FACTORS TABLE

Test:U:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

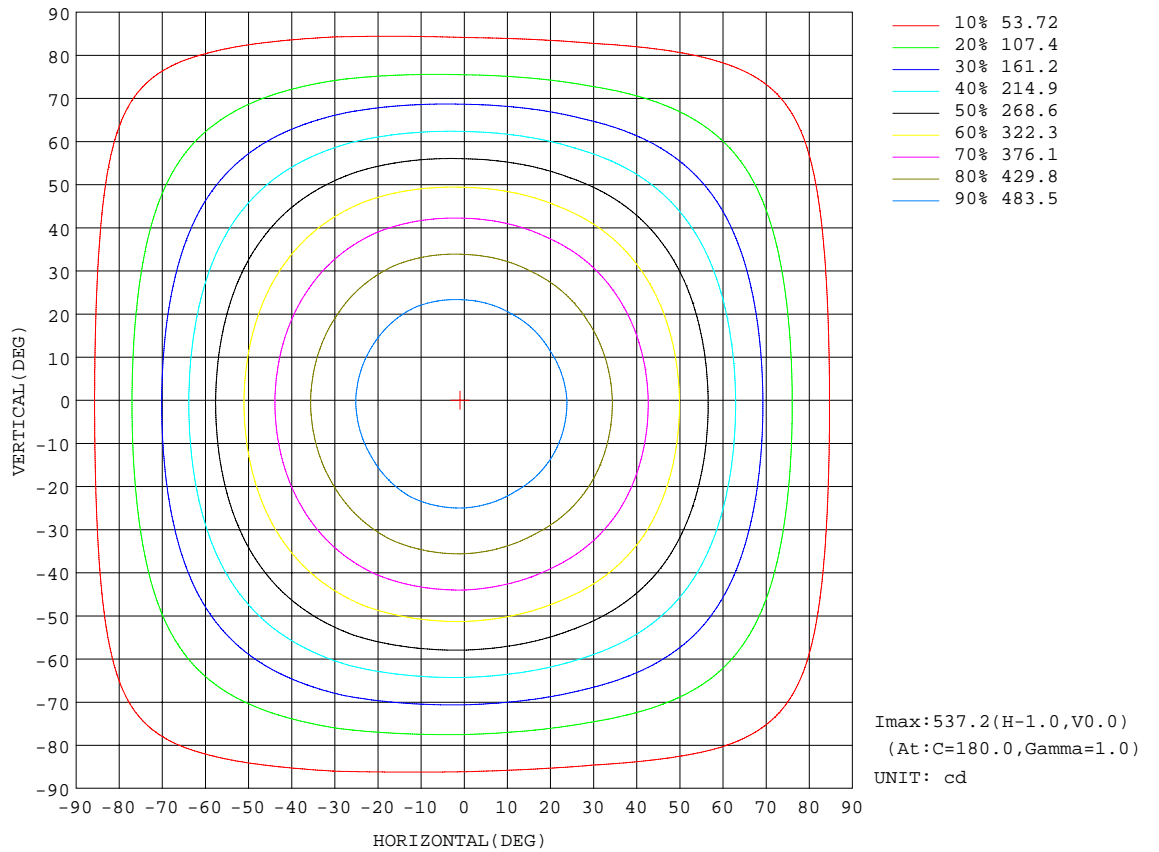
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	44	37	55	44	37	54	43	37	30
0.80	66	54	46	65	53	46	63	53	46	39
1.00	74	63	55	73	62	55	70	63	54	47
1.25	81	70	63	80	69	62	77	68	61	54
1.50	86	76	68	84	75	68	81	73	67	59
2.00	93	84	77	91	83	76	87	80	75	66
2.50	97	89	82	95	87	81	91	84	79	70
3.00	100	93	87	98	91	86	94	88	84	74
4.00	105	98	93	102	96	92	97	93	89	79
5.00	107	102	97	104	100	96	100	96	92	82
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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

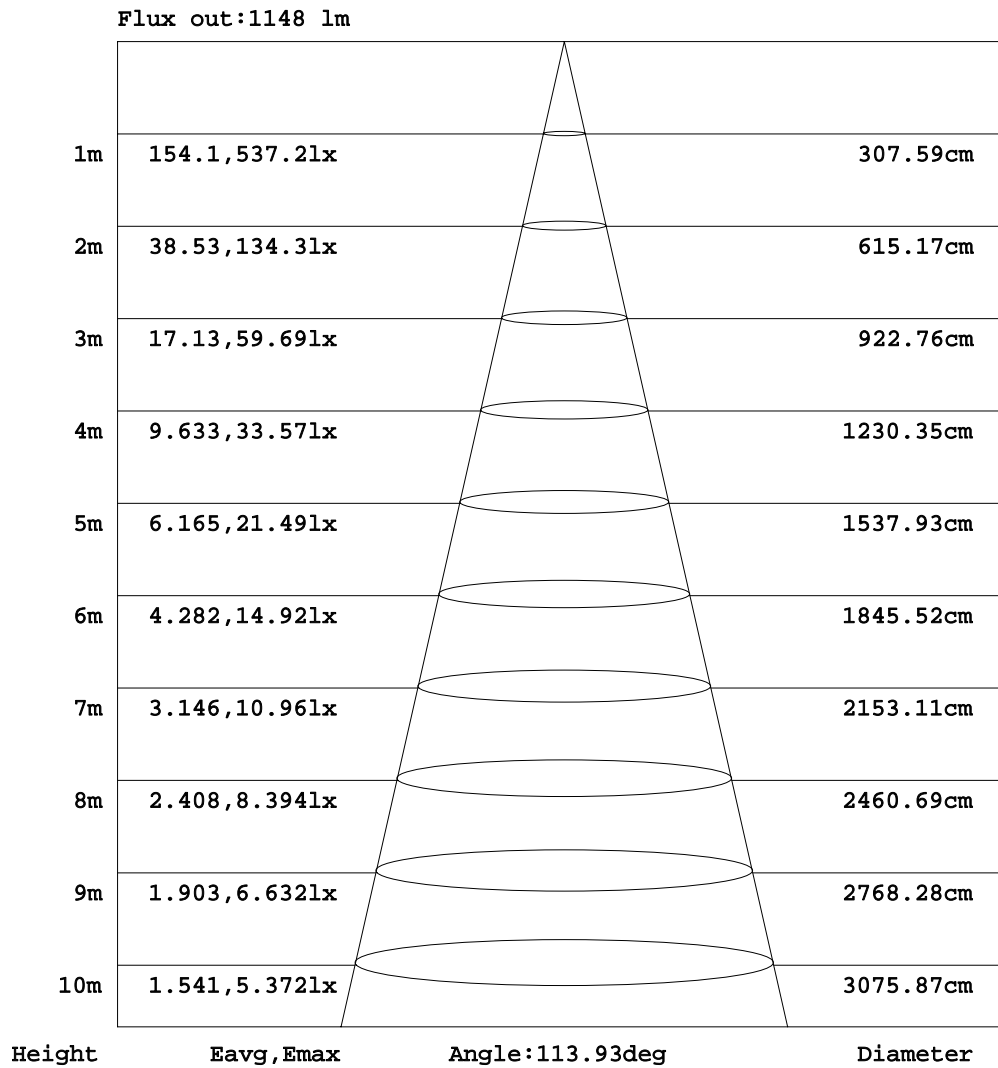


C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators:  
 Test Date: 15 October 2021

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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



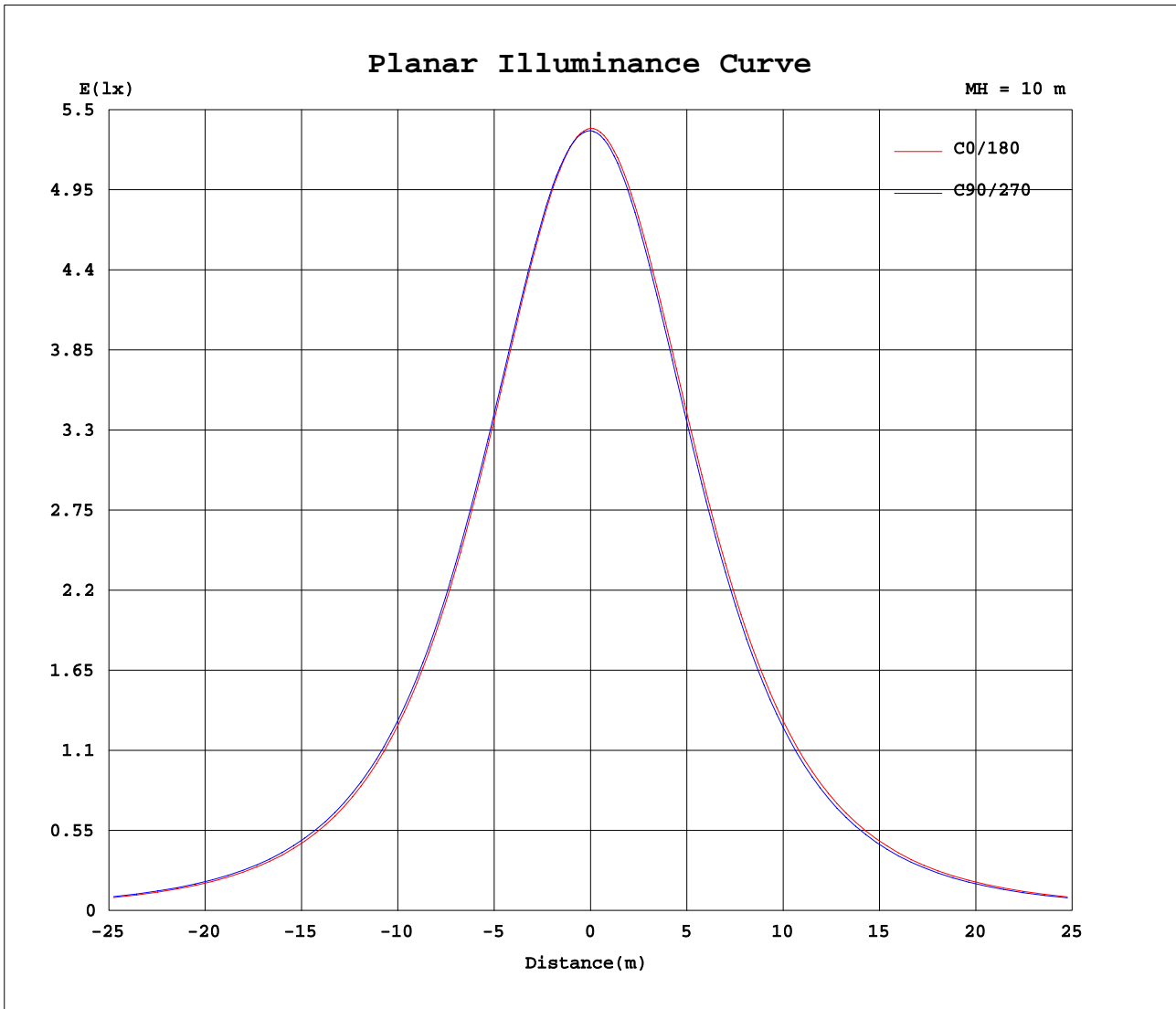
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:230.04V I:0.0800A P:17.640W PF:0.9590 Freq:49.99Hz Lamp Flux:1636.14x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	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	537	537	536	536	535	535	537	537	536	536	535	535						
5	534	534	534	534	534	533	535	534	534	533	532	531						
10	527	527	526	528	529	528	529	528	527	525	524	524						
15	515	515	515	517	519	517	519	517	516	513	511	512						
20	499	500	500	503	504	503	504	501	500	496	494	495						
25	478	479	480	483	486	484	484	482	480	476	473	474						
30	454	456	456	461	463	461	461	458	456	451	448	450						
35	426	427	428	433	436	434	434	430	429	423	420	422						
40	394	397	397	403	406	403	403	399	397	391	388	389						
45	359	362	363	369	372	369	368	364	362	356	352	355						
50	322	325	326	332	336	332	331	327	325	317	314	317						
55	281	285	286	293	297	293	291	286	284	277	274	277						
60	240	243	245	251	255	251	248	244	242	235	231	235						
65	197	201	202	209	213	208	205	201	199	192	188	192						
70	155	158	160	167	170	166	162	158	156	150	146	150						
75	115	119	120	126	130	125	122	118	117	111	108	111						
80	80.6	83.7	84.8	90.2	92.9	89.3	87.0	83.5	82.4	77.0	74.6	77.1						
85	52.1	54.6	55.4	59.8	62.0	59.2	57.3	54.6	53.8	49.3	47.2	49.3						
90	30.3	32.2	32.7	36.0	37.6	35.5	34.1	32.3	31.6	28.3	26.7	28.2						
95	15.3	16.4	16.8	18.9	20.0	18.7	17.7	16.5	16.1	13.8	12.8	13.8						
100	6.35	6.80	7.04	8.24	8.87	8.13	7.62	6.90	6.59	5.36	4.84	5.54						
105	2.18	1.06	1.80	2.86	1.27	2.46	2.68	2.16	1.73	1.71	1.34	1.08						
110	1.29	1.27	1.25	1.20	1.16	1.16	1.26	1.20	1.21	1.27	1.30	1.29						
115	1.51	1.48	1.47	1.41	1.37	1.36	1.39	1.40	1.42	1.48	1.50	1.50						
120	1.71	1.69	1.68	1.62	1.57	1.57	1.59	1.61	1.62	1.68	1.72	1.71						
125	1.92	1.90	1.88	1.83	1.78	1.77	1.79	1.81	1.83	1.89	1.92	1.91						
130	2.13	2.10	2.09	2.04	1.98	1.97	2.00	2.00	2.02	2.09	2.11	2.11						
135	2.31	2.30	2.28	2.23	2.18	2.17	2.20	2.20	2.22	2.28	2.31	2.30						
140	2.50	2.49	2.47	2.43	2.37	2.37	2.39	2.39	2.41	2.47	2.49	2.48						
145	2.68	2.67	2.66	2.61	2.56	2.55	2.56	2.58	2.60	2.64	2.68	2.66						
150	2.85	2.84	2.84	2.78	2.74	2.74	2.75	2.76	2.77	2.81	2.85	2.83						
155	3.00	3.00	3.00	2.96	2.91	2.91	2.92	2.93	2.94	2.98	3.01	2.99						
160	3.16	3.14	3.14	3.12	3.06	3.07	3.08	3.09	3.08	3.13	3.15	3.13						
165	3.25	3.24	3.26	3.22	3.18	3.20	3.20	3.22	3.20	3.23	3.27	3.23						
170	3.33	3.33	3.35	3.30	3.28	3.29	3.29	3.31	3.29	3.30	3.35	3.31						
175	3.37	3.38	3.39	3.36	3.36	3.36	3.36	3.38	3.37	3.37	3.39	3.36						
180	3.39	3.42	3.41	3.39	3.40	3.40	3.39	3.42	3.41	3.39	3.41	3.38						

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: