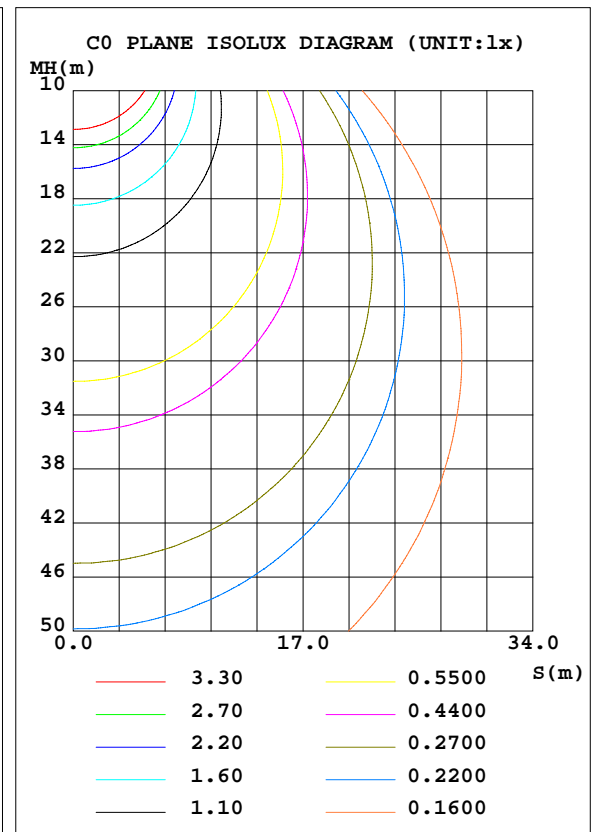
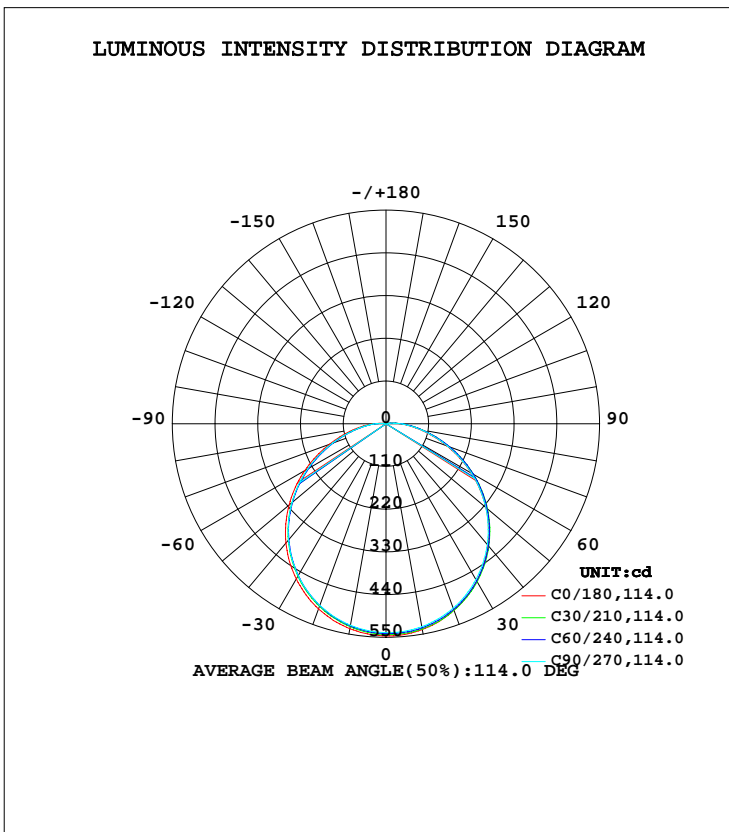


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 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)	546.4	S/MH(C0/180)	1.268
NOMINAL POWER(W)	18	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1645.5	η UP, DN(C0-180)	1.0,50.2
NOMINAL FLUX(lm)	1645.53	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.8,47.9
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	538.2	535.1	530.7	526.4	536.1	529.7	526.7	526.2	0- 10	51.08	51.08	3.1,3.1
20	511.1	510.0	505.4	499.1	507.7	499.6	498.2	499.5	10- 20	146.5	197.6	12,12
30	467.6	468.5	463.3	455.6	461.8	452.4	451.6	455.5	20- 30	222.7	420.3	25.5,25.5
40	408.1	410.9	405.9	396.6	400.6	390.4	390.4	396.5	30- 40	269.6	689.9	41.9,41.9
50	335.9	340.4	335.4	324.8	325.9	314.9	316.0	324.0	40- 50	281.2	971.1	59,59
60	253.2	259.5	254.2	243.1	241.2	230.5	232.8	241.9	50- 60	256.0	1227	74.6,74.6
70	166.8	174.1	169.3	158.4	155.2	145.0	146.9	156.8	60- 70	199.4	1426	86.7,86.7
80	89.96	96.16	92.38	84.46	81.78	73.43	73.97	82.27	70- 80	126.6	1553	94.4,94.4
90	36.17	39.94	37.56	32.97	31.54	26.12	25.91	31.35	80- 90	61.36	1614	98.1,98.1
100	8.467	9.233	8.911	7.097	6.403	4.333	4.308	6.472	90-100	19.41	1634	99.3,99.3
110	1.235	1.185	1.195	1.222	1.272	1.281	1.258	1.210	100-110	2.633	1637	99.5,99.5
120	1.647	1.602	1.611	1.636	1.693	1.690	1.665	1.615	110-120	1.424	1638	99.5,99.5
130	2.058	2.011	2.023	2.043	2.100	2.088	2.058	2.011	120-130	1.652	1640	99.6,99.6
140	2.434	2.405	2.417	2.425	2.485	2.466	2.430	2.394	130-140	1.730	1641	99.7,99.7
150	2.796	2.776	2.774	2.776	2.837	2.810	2.778	2.747	140-150	1.634	1643	99.8,99.8
160	3.131	3.091	3.100	3.084	3.159	3.115	3.090	3.057	150-160	1.359	1644	99.9,99.9
170	3.317	3.312	3.281	3.287	3.340	3.319	3.276	3.269	160-170	0.9062	1645	100,100
180	3.412	3.405	3.367	3.369	3.434	3.403	3.362	3.367	170-180	0.3188	1646	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 831.38 lm

%lum = 50.5%
 %lamp = 50.5%

Conical surface Flux(120deg): 1227.1 lm

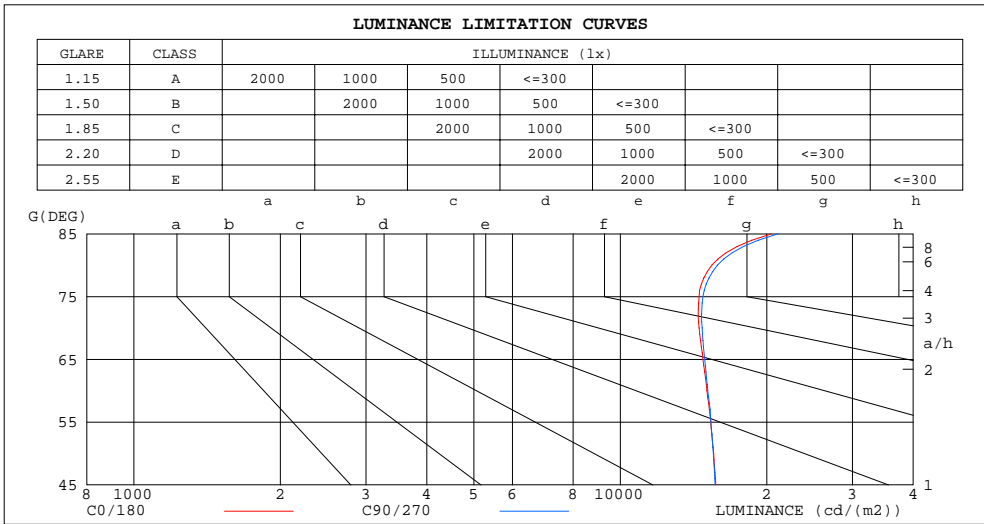
%lum = 74.6%
 %lamp = 74.6%

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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 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	20451	21100
80	15418	15833
75	14514	14785
70	14518	14734
65	14784	14910
60	15069	15129
55	15334	15361
50	15554	15528
45	15714	15661

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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 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	.311	.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	.187	.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	.161	.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	.029	.052	.032	.018	.017	.011	.006	
8.0	.145	.085	.043	.124	.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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 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	20.7	22.2	21.0	22.4	22.7	20.7	22.2	21.0	22.4	22.7
3H	22.3	23.7	22.6	24.0	24.3	22.3	23.8	22.7	24.0	24.3
4H	23.1	24.4	23.4	24.7	25.0	23.1	24.4	23.4	24.7	25.0
6H	23.7	25.0	24.1	25.3	25.6	23.8	25.0	24.1	25.4	25.7
8H	24.0	25.3	24.4	25.6	25.9	24.1	25.3	24.5	25.6	26.0
12H	24.3	25.5	24.7	25.9	26.2	24.4	25.6	24.8	25.9	26.3
4H 2H	21.3	22.7	21.7	23.0	23.3	21.3	22.7	21.7	23.0	23.3
3H	23.2	24.4	23.6	24.7	25.1	23.2	24.4	23.6	24.7	25.1
4H	24.1	25.2	24.5	25.5	25.9	24.1	25.2	24.5	25.6	25.9
6H	24.9	25.9	25.4	26.3	26.7	25.0	25.9	25.4	26.3	26.7
8H	25.3	26.2	25.8	26.6	27.0	25.4	26.3	25.8	26.7	27.1
12H	25.7	26.5	26.2	27.0	27.4	25.8	26.6	26.2	27.0	27.5
8H 4H	24.5	25.4	24.9	25.8	26.2	24.5	25.4	24.9	25.8	26.2
6H	25.5	26.3	26.0	26.7	27.2	25.6	26.3	26.0	26.8	27.2
8H	26.1	26.7	26.6	27.2	27.7	26.1	26.8	26.6	27.2	27.7
12H	26.6	27.2	27.1	27.7	28.2	26.7	27.3	27.2	27.8	28.3
12H 4H	24.5	25.4	25.0	25.8	26.2	24.5	25.4	25.0	25.8	26.2
6H	25.7	26.3	26.1	26.8	27.3	25.7	26.4	26.2	26.8	27.3
8H	26.3	26.9	26.8	27.3	27.9	26.3	26.9	26.8	27.4	27.9
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					+ 0.1 / - 0.3				

CIE Pub.117, 1646 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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

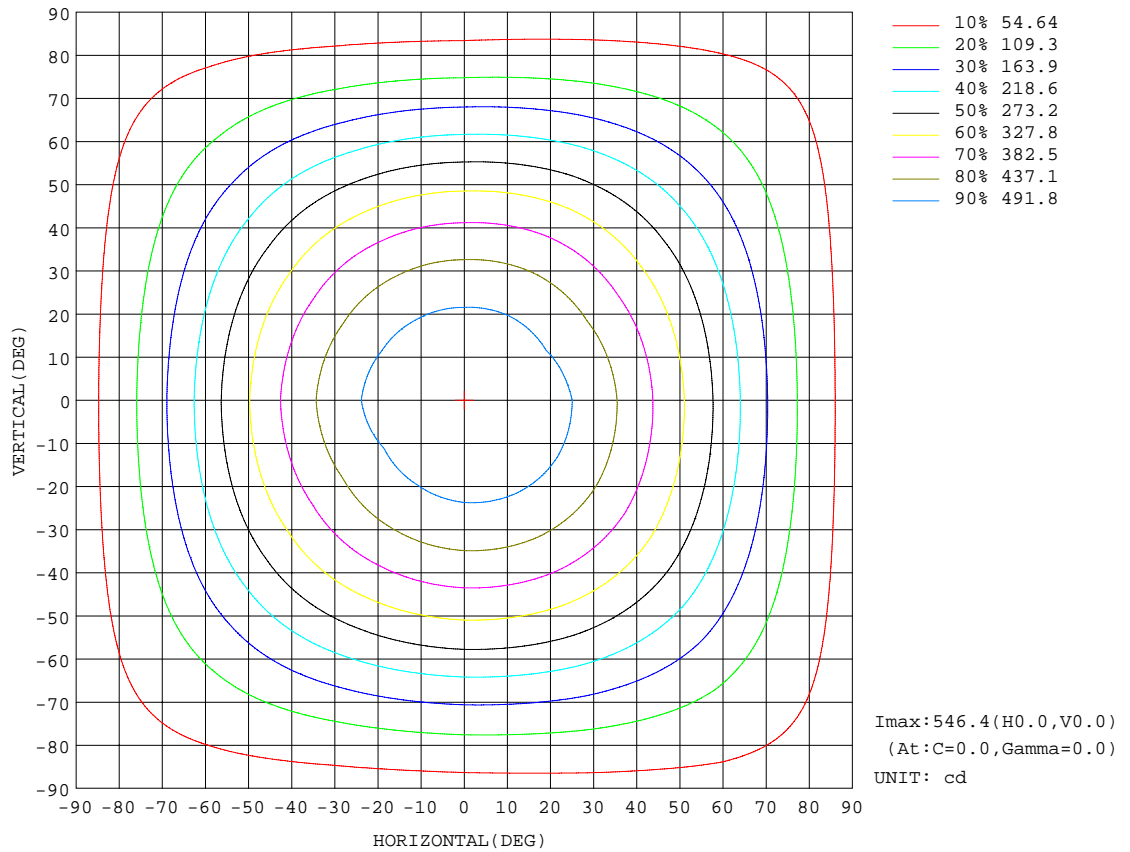
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	44	37	55	44	37	54	43	37	30
0.80	66	54	46	65	53	46	63	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

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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

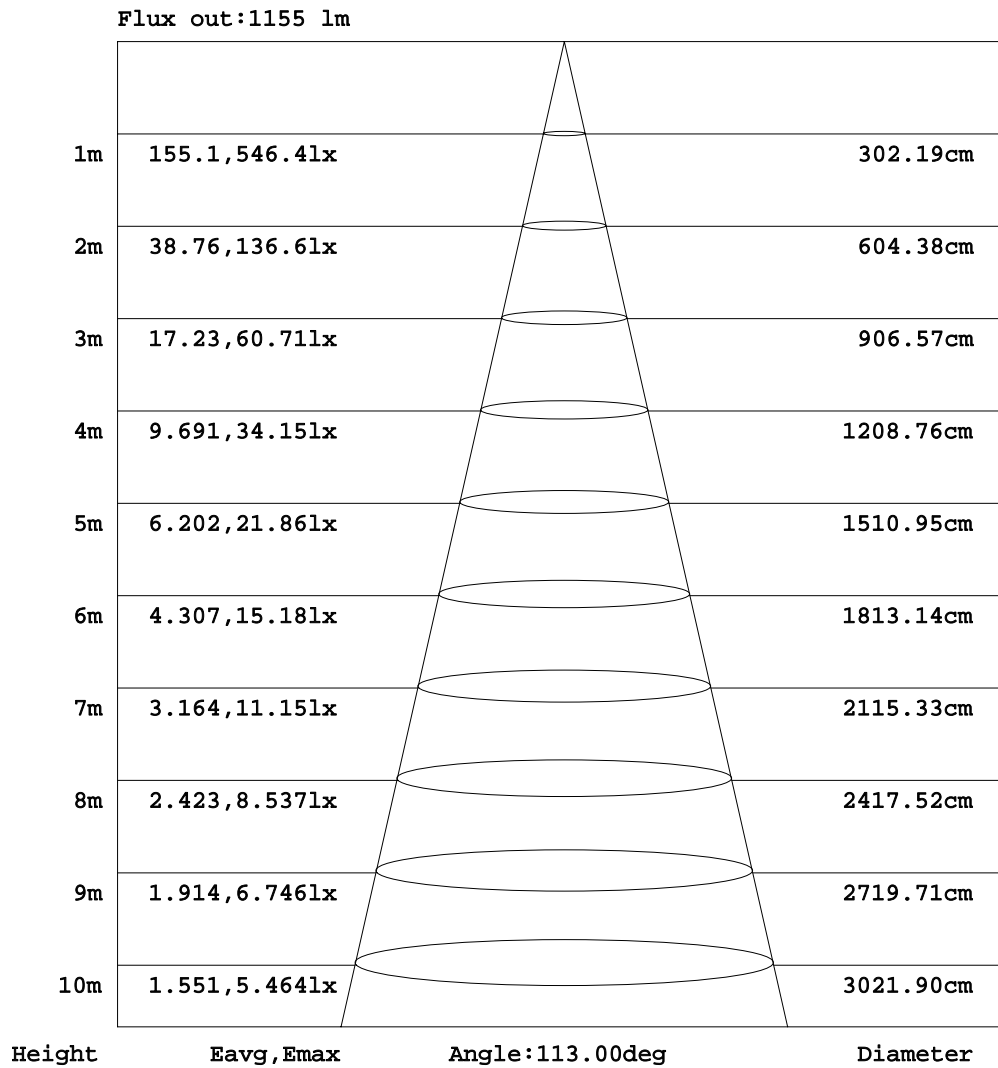


C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 15 October 2021

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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 lm		
NAME: LED Ceiling light	TYPE:	WEIGHT:
SPEC.:QB18	DIM.: 280x280x70	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

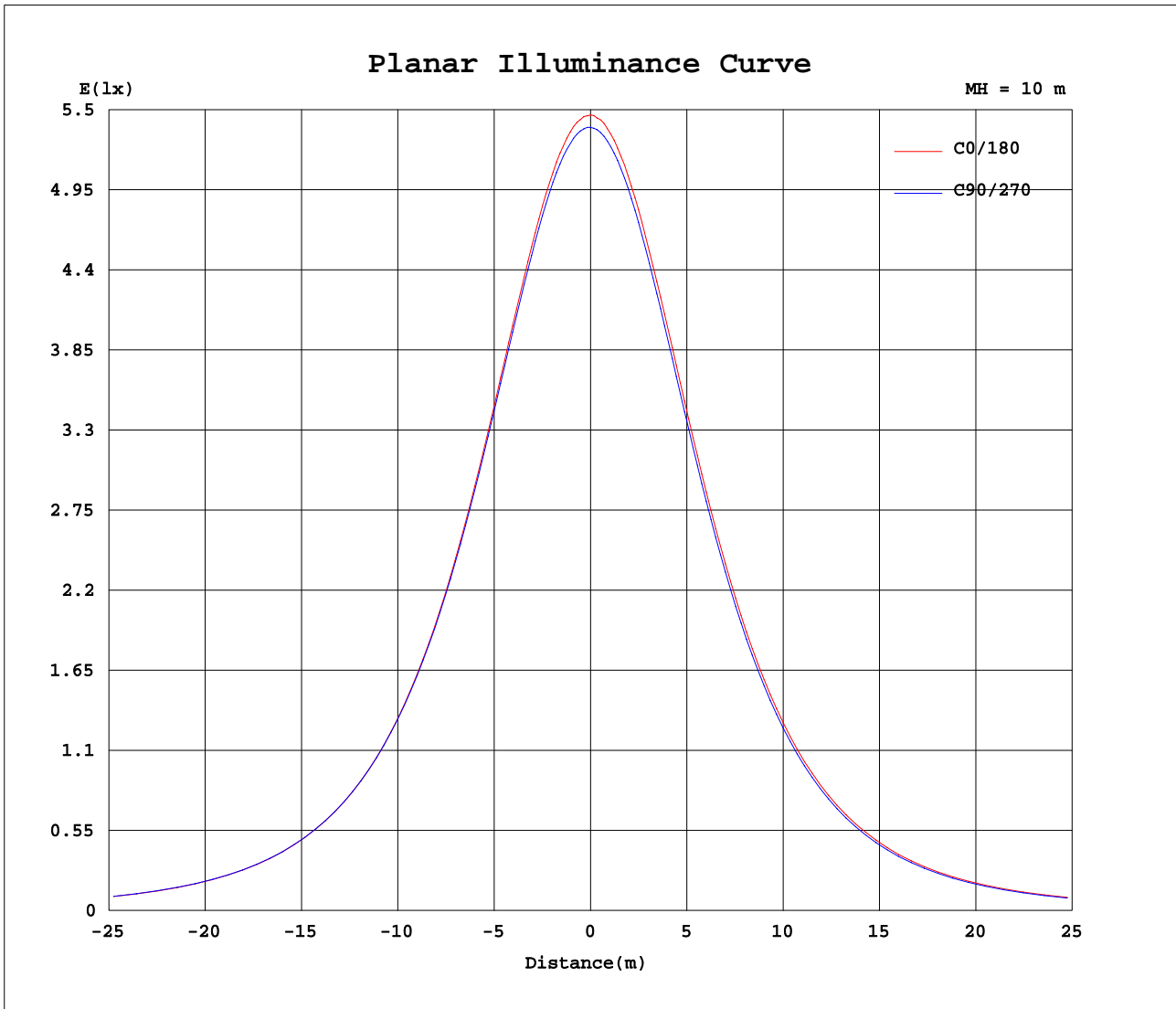


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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:230.02V I:0.0810A P:17.883W PF:0.9594 Freq:49.99Hz Lamp Flux:1645.53x1 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	546	543	540	538	536	535	546	543	540	538	536	535							
5	545	542	539	537	534	533	543	539	537	535	534	533							
10	538	536	534	531	527	525	536	531	529	527	527	526							
15	527	527	523	520	516	514	524	518	516	514	515	515							
20	511	511	509	505	500	498	508	501	499	498	499	500							
25	492	492	490	487	481	478	487	479	477	477	479	480							
30	468	470	467	463	457	454	462	454	451	452	455	456							
35	440	443	441	436	430	426	433	424	422	423	427	428							
40	408	412	410	406	399	394	401	391	389	390	396	397							
45	373	378	377	372	365	360	365	355	353	355	360	363							
50	336	341	340	335	327	322	326	316	314	316	322	326							
55	296	301	301	296	287	283	285	275	273	275	282	286							
60	253	260	259	254	246	240	241	232	230	233	240	244							
65	210	217	217	212	204	198	198	188	186	189	197	201							
70	167	174	174	169	161	156	155	146	144	147	154	159							
75	126	133	133	129	121	117	116	107	106	108	115	119							
80	90.0	96.3	96.0	92.4	86.1	82.8	81.8	74.3	72.5	74.0	80.2	84.3							
85	59.9	65.1	64.7	61.8	56.7	54.3	53.4	47.4	45.5	46.6	51.6	55.4							
90	36.2	40.1	39.8	37.6	33.8	32.1	31.5	27.0	25.3	25.9	29.8	32.9							
95	19.2	21.8	21.5	20.0	17.6	16.5	15.9	12.9	11.6	12.1	14.1	17.1							
100	8.47	9.39	9.08	8.91	7.45	6.74	6.40	4.66	4.01	4.31	5.57	7.37							
105	2.81	0.99	0.98	2.85	1.01	1.70	1.91	1.25	1.17	1.36	1.21	1.00							
110	1.23	1.19	1.18	1.19	1.22	1.23	1.27	1.28	1.28	1.26	1.22	1.20							
115	1.44	1.39	1.39	1.41	1.43	1.43	1.48	1.50	1.48	1.47	1.42	1.41							
120	1.65	1.61	1.60	1.61	1.63	1.64	1.69	1.70	1.68	1.66	1.62	1.61							
125	1.85	1.82	1.80	1.82	1.84	1.84	1.89	1.90	1.89	1.86	1.82	1.81							
130	2.06	2.01	2.01	2.02	2.04	2.04	2.10	2.09	2.08	2.06	2.02	2.00							
135	2.25	2.22	2.21	2.22	2.23	2.24	2.29	2.28	2.28	2.24	2.21	2.20							
140	2.43	2.41	2.40	2.42	2.42	2.43	2.48	2.47	2.46	2.43	2.40	2.38							
145	2.62	2.60	2.59	2.61	2.60	2.61	2.66	2.65	2.63	2.61	2.59	2.57							
150	2.80	2.78	2.77	2.77	2.77	2.78	2.84	2.82	2.80	2.78	2.76	2.73							
155	2.97	2.94	2.94	2.94	2.94	2.95	3.00	2.99	2.96	2.93	2.92	2.90							
160	3.13	3.09	3.09	3.10	3.08	3.09	3.16	3.13	3.10	3.09	3.07	3.04							
165	3.24	3.21	3.22	3.20	3.18	3.21	3.27	3.25	3.21	3.19	3.20	3.15							
170	3.32	3.31	3.31	3.28	3.27	3.30	3.34	3.34	3.29	3.28	3.29	3.24							
175	3.38	3.38	3.38	3.34	3.34	3.35	3.41	3.39	3.36	3.33	3.35	3.32							
180	3.41	3.43	3.38	3.37	3.37	3.37	3.43	3.41	3.40	3.36	3.38	3.35							

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:YOYO
 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: