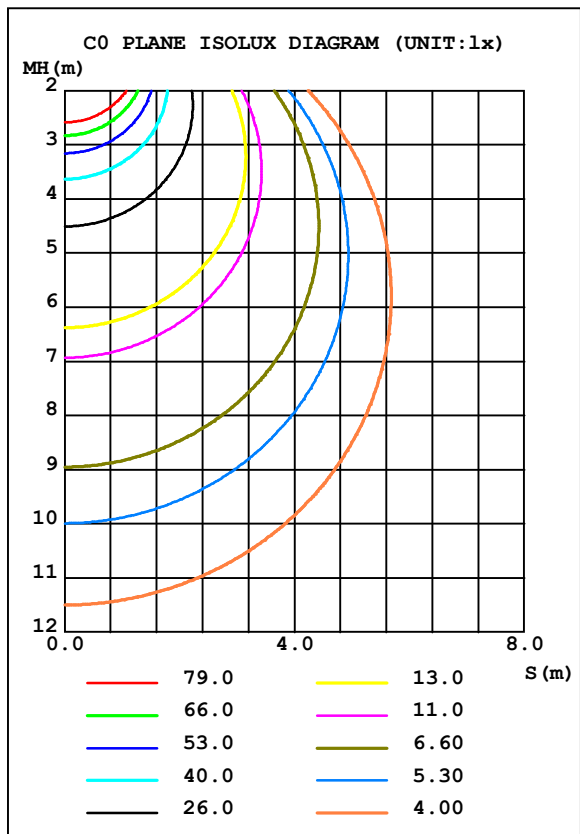
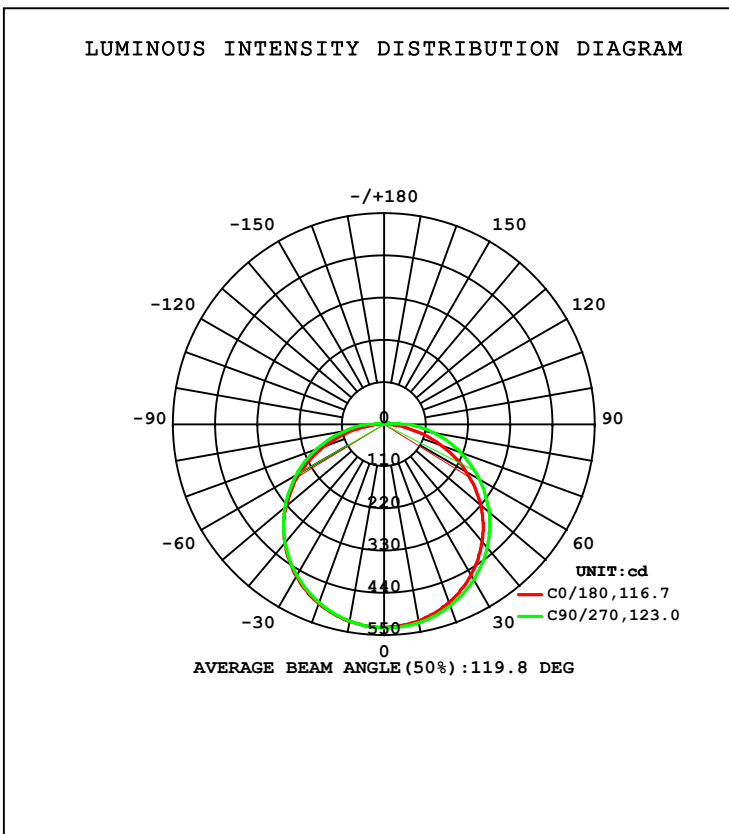


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 132.44 lm/W			
MODEL	TFXBC-MP-IP66	I <sub>max</sub> (cd)	530.7	S/MH (C0/180)	1.29
NOMINAL POWER (W)	12	LOR (%)	103.5	S/MH (C90/270)	1.28
RATED VOLTAGE (V)	24	TOTAL FLUX (lm)	1707.3	η UP, DN (C0-180)	1.3, 51.4
NOMINAL FLUX (lm)	1650.34	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.9, 49.9
LAMPS INSIDE	1	η up (%)	2.2	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	24	η down (%)	101.3	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.150m [K=1.0000]  
 Remarks: 2400-2600K

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

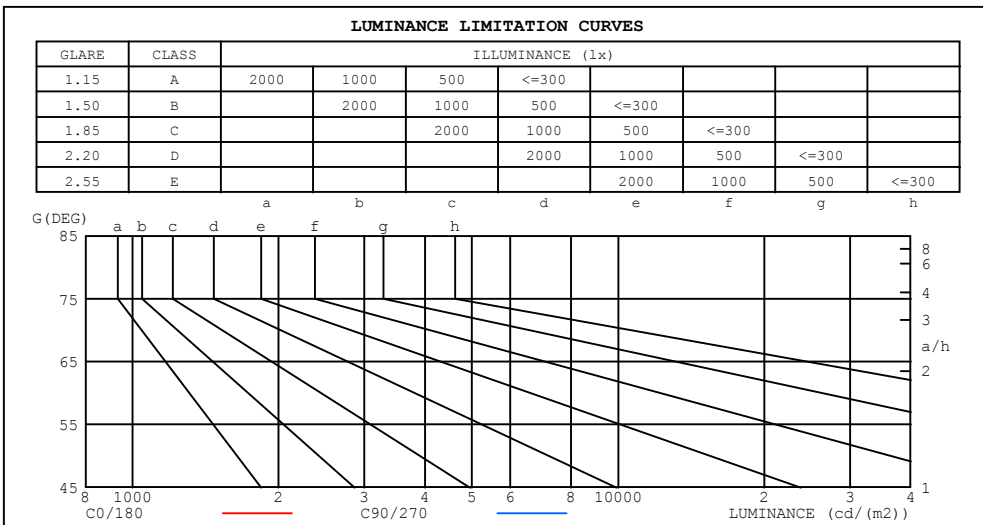
γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	520.0	524.9	521.5	520.5					0- 10	50.19	50.19	2.94,3.04
20	494.7	503.8	497.6	495.1					10- 20	144.5	194.7	11.4,11.8
30	453.8	468.0	457.9	455.2					20- 30	221.4	416.1	24.4,25.2
40	398.2	418.8	403.3	402.5					30- 40	271.5	687.6	40.3,41.7
50	329.4	358.5	333.9	338.4					40- 50	288.9	976.4	57.2,59.2
60	248.0	287.4	252.9	265.2					50- 60	270.5	1247	73,75.6
70	156.3	211.6	162.4	186.3					60- 70	219.6	1467	85.9,88.9
80	64.12	132.5	69.08	106.1					70- 80	143.1	1610	94.3,97.5
90	1.198	59.82	2.619	40.78					80- 90	61.55	1671	97.9,101
100	1.469	13.43	1.189	10.73					90-100	15.84	1687	98.8,102
110	1.860	11.09	1.751	3.414					100-110	5.828	1693	99.2,103
120	2.376	5.831	2.300	2.495					110-120	3.847	1697	99.4,103
130	2.858	3.184	2.838	2.954					120-130	2.691	1699	99.5,103
140	3.268	3.151	3.303	3.375					130-140	2.406	1702	99.7,103
150	3.627	3.566	3.684	3.734					140-150	2.173	1704	99.8,103
160	3.919	3.897	3.987	4.020					150-160	1.760	1706	99.9,103
170	4.177	4.172	4.222	4.250					160-170	1.155	1707	100,103
180	4.317	4.334	4.306	4.340					170-180	0.4062	1707	100,103
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

LUMINANCE LIMITATION CURVES

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	90339	325983
80	111887	231299
75	127883	201585
70	138506	187466
65	145885	179314
60	150322	174178
55	153271	170675
50	155276	169004
45	156621	167086

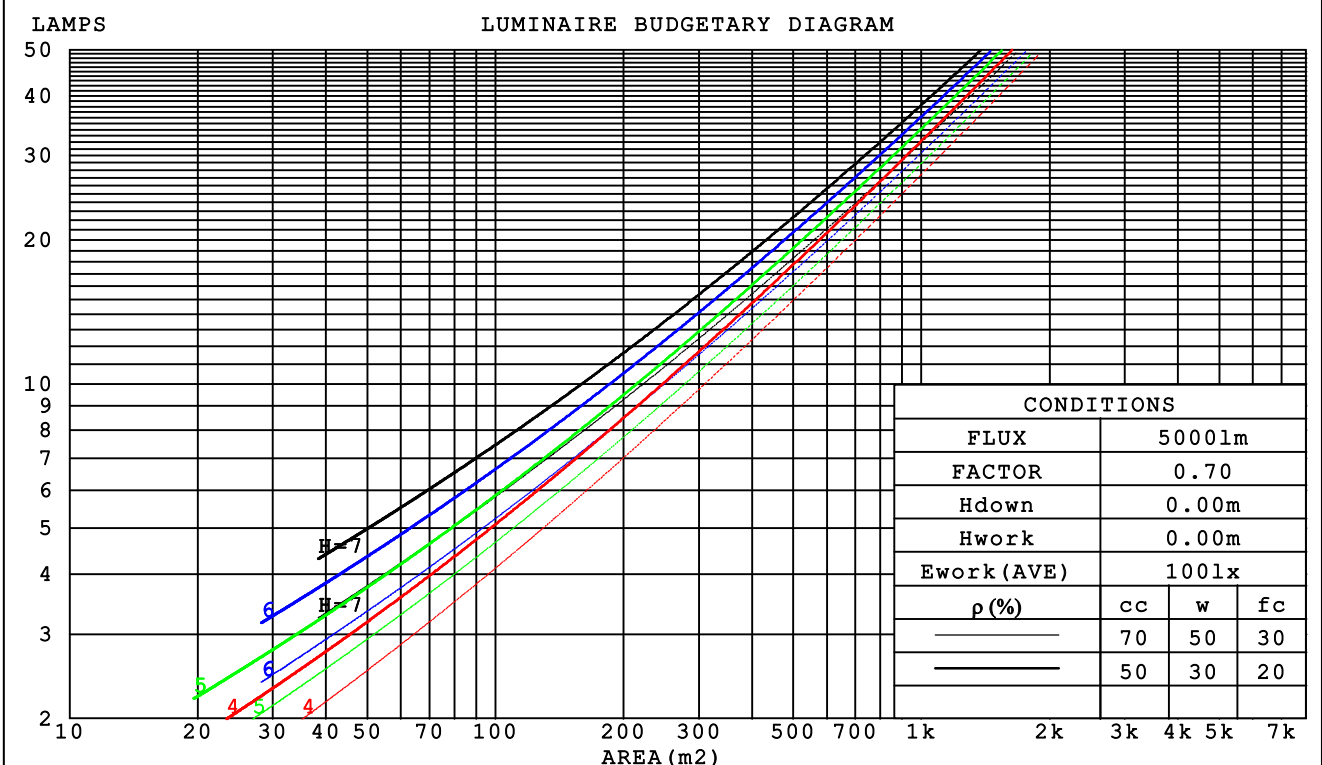
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio															
	Coefficients of Utilization(CU)															
0.0	1.23	1.23	1.23	1.20	1.20	1.20	1.14	1.14	1.14	1.08	1.08	1.08	1.04	1.04	1.04	1.01
1.0	1.05	1.01	.96	1.03	.98	.94	.98	.94	.91	.94	.91	.88	.89	.87	.85	.82
2.0	.91	.84	.77	.89	.82	.76	.85	.79	.74	.81	.76	.72	.78	.74	.70	.68
3.0	.80	.71	.64	.78	.69	.63	.74	.67	.61	.71	.65	.60	.68	.63	.59	.56
4.0	.70	.61	.53	.69	.60	.53	.66	.58	.52	.63	.56	.51	.60	.55	.50	.48
5.0	.63	.53	.46	.61	.52	.45	.59	.51	.45	.56	.49	.44	.54	.48	.43	.41
6.0	.56	.47	.40	.55	.46	.39	.53	.45	.39	.51	.44	.38	.49	.43	.38	.36
7.0	.51	.41	.35	.50	.41	.35	.48	.40	.34	.46	.39	.34	.45	.38	.33	.31
8.0	.46	.37	.31	.45	.37	.31	.44	.36	.31	.42	.35	.30	.41	.35	.30	.28
9.0	.42	.34	.28	.42	.33	.28	.40	.33	.27	.39	.32	.27	.38	.32	.27	.25
10.0	.39	.31	.25	.38	.30	.25	.37	.30	.25	.36	.29	.25	.35	.29	.24	.23



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

WEC AND CCEC

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

ρ <sub>cc</sub>	80%			70%			50%			30%			10%			0
ρ <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ <sub>fc</sub>	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.349	.199	.063	.341	.195	.062	.326	.187	.060	.312	.180	.058	.299	.174	.056	
2.0	.320	.175	.054	.313	.172	.053	.299	.167	.052	.287	.161	.050	.276	.156	.049	
3.0	.292	.155	.047	.286	.153	.046	.274	.148	.045	.263	.144	.044	.253	.140	.043	
4.0	.267	.139	.041	.262	.137	.040	.251	.133	.040	.241	.129	.039	.232	.126	.038	
5.0	.246	.125	.036	.241	.123	.036	.231	.120	.035	.222	.117	.035	.214	.114	.034	
6.0	.227	.114	.033	.222	.112	.032	.214	.110	.032	.206	.107	.031	.198	.104	.031	
7.0	.210	.104	.029	.206	.103	.029	.199	.100	.029	.191	.098	.029	.185	.096	.028	
8.0	.196	.096	.027	.192	.095	.027	.185	.093	.026	.179	.091	.026	.173	.089	.026	
9.0	.183	.089	.025	.180	.088	.025	.174	.086	.024	.168	.084	.024	.162	.082	.024	
10.0	.172	.082	.023	.169	.082	.023	.163	.080	.023	.158	.078	.022	.153	.077	.022	

ρ <sub>cc</sub>	80%			70%			50%			30%			10%			0
ρ <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ <sub>fc</sub>	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.214	.214	.214	.183	.183	.183	.125	.125	.125	.072	.072	.072	.023	.023	.023	
1.0	.205	.178	.154	.176	.153	.132	.120	.105	.091	.069	.061	.053	.022	.020	.017	
2.0	.198	.153	.116	.169	.132	.100	.116	.091	.070	.067	.053	.041	.021	.017	.013	
3.0	.190	.135	.092	.163	.117	.080	.112	.081	.056	.064	.047	.033	.021	.015	.011	
4.0	.182	.122	.076	.156	.105	.066	.107	.073	.046	.062	.043	.028	.020	.014	.009	
5.0	.174	.111	.065	.149	.096	.056	.103	.067	.040	.060	.039	.024	.019	.013	.008	
6.0	.166	.103	.057	.143	.089	.050	.099	.062	.035	.057	.037	.021	.018	.012	.007	
7.0	.159	.095	.051	.137	.083	.044	.095	.058	.031	.055	.034	.019	.018	.011	.006	
8.0	.152	.090	.046	.131	.078	.041	.091	.055	.029	.053	.032	.017	.017	.011	.006	
9.0	.146	.084	.043	.126	.073	.038	.087	.052	.027	.051	.030	.016	.016	.010	.005	
10.0	.140	.080	.040	.120	.069	.035	.084	.049	.025	.049	.029	.015	.016	.009	.005	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

UGR(Unified Glare Rating) Table

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm										
NAME:					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.:					SUR.:0.01			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	28.5	30.1	28.8	30.3	30.6	29.0	30.6	29.3	30.8	31.1
3H	30.1	31.5	30.5	31.8	32.1	31.0	32.5	31.4	32.7	33.0
4H	30.8	32.1	31.1	32.4	32.7	32.0	33.4	32.3	33.6	34.0
6H	31.2	32.5	31.6	32.8	33.1	32.9	34.2	33.3	34.5	34.9
8H	31.3	32.6	31.7	32.9	33.2	33.4	34.6	33.8	35.0	35.3
12H	31.4	32.6	31.8	32.9	33.3	33.9	35.1	34.3	35.4	35.8
4H 2H	29.3	30.6	29.6	30.9	31.2	29.7	31.0	30.0	31.3	31.6
3H	31.1	32.3	31.5	32.6	33.0	31.8	33.0	32.2	33.4	33.7
4H	31.9	32.9	32.3	33.3	33.7	33.0	34.0	33.4	34.4	34.8
6H	32.4	33.4	32.9	33.8	34.2	34.1	35.0	34.5	35.4	35.8
8H	32.6	33.5	33.1	33.9	34.4	34.6	35.5	35.1	35.9	36.4
12H	32.7	33.6	33.2	34.0	34.5	35.2	36.0	35.6	36.5	36.9
8H 4H	32.3	33.2	32.7	33.6	34.1	33.3	34.2	33.7	34.6	35.0
6H	33.1	33.9	33.6	34.3	34.8	34.6	35.3	35.0	35.8	36.2
8H	33.4	34.1	33.9	34.5	35.0	35.2	35.9	35.7	36.4	36.9
12H	33.6	34.2	34.1	34.7	35.2	36.0	36.6	36.5	37.1	37.6
12H 4H	32.4	33.2	32.8	33.6	34.1	33.3	34.1	33.7	34.5	35.0
6H	33.3	33.9	33.8	34.4	34.9	34.6	35.3	35.1	35.8	36.3
8H	33.6	34.2	34.2	34.7	35.2	35.4	36.0	35.9	36.5	37.0
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.2				
2.0H	+ 0.2 / - 0.4					+ 0.1 / - 0.3				

CIE Pub.117, 1650 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.7)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

UTILIZATION FACTORS TABLE

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

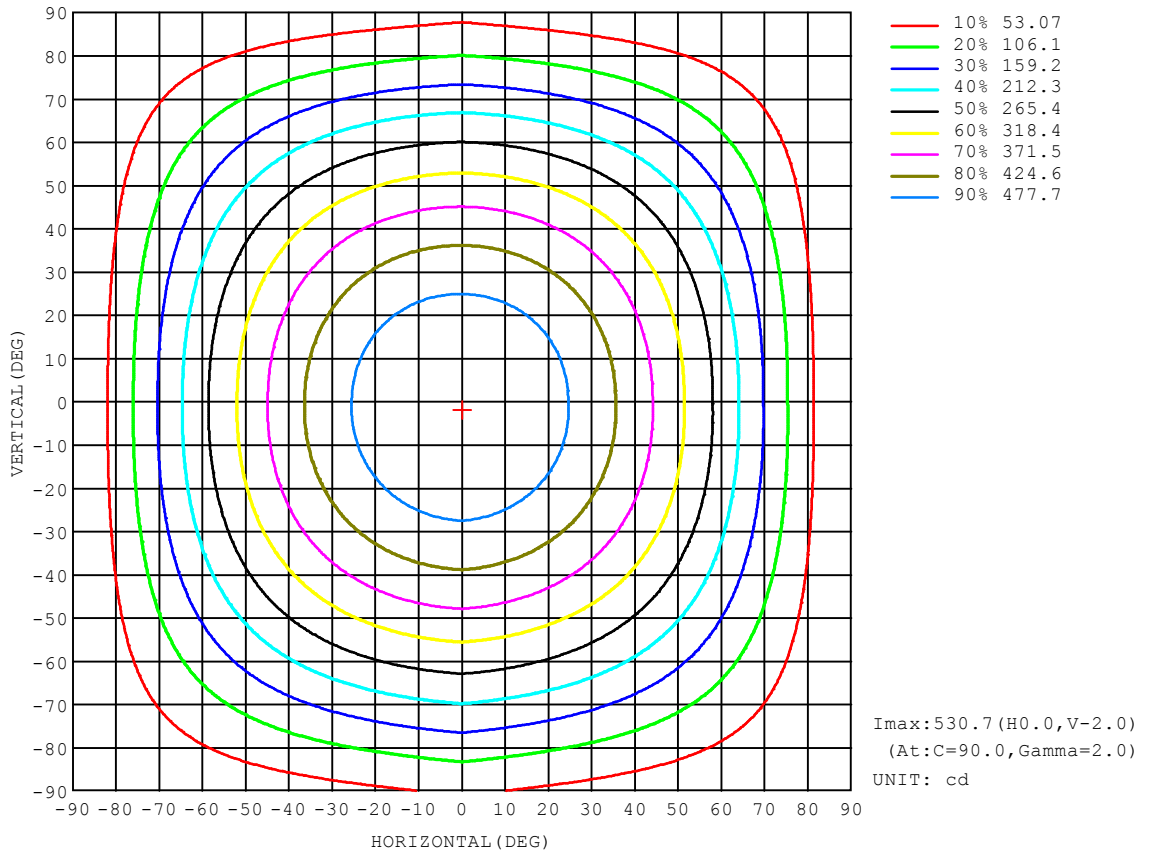
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	37	56	44	37	55	44	37	30
0.80	67	55	47	66	54	46	64	53	46	39
1.00	76	64	56	74	63	55	72	64	55	47
1.25	83	71	64	81	71	63	78	69	62	54
1.50	88	77	70	86	76	69	83	74	68	59
2.00	96	86	79	93	85	78	90	82	76	67
2.50	100	91	84	98	90	83	93	86	81	72
3.00	103	96	89	101	94	88	96	91	86	76
4.00	108	101	96	105	99	94	100	96	91	81
5.00	111	105	100	108	103	98	103	99	95	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

ISOCANDELA DIAGRAM

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:



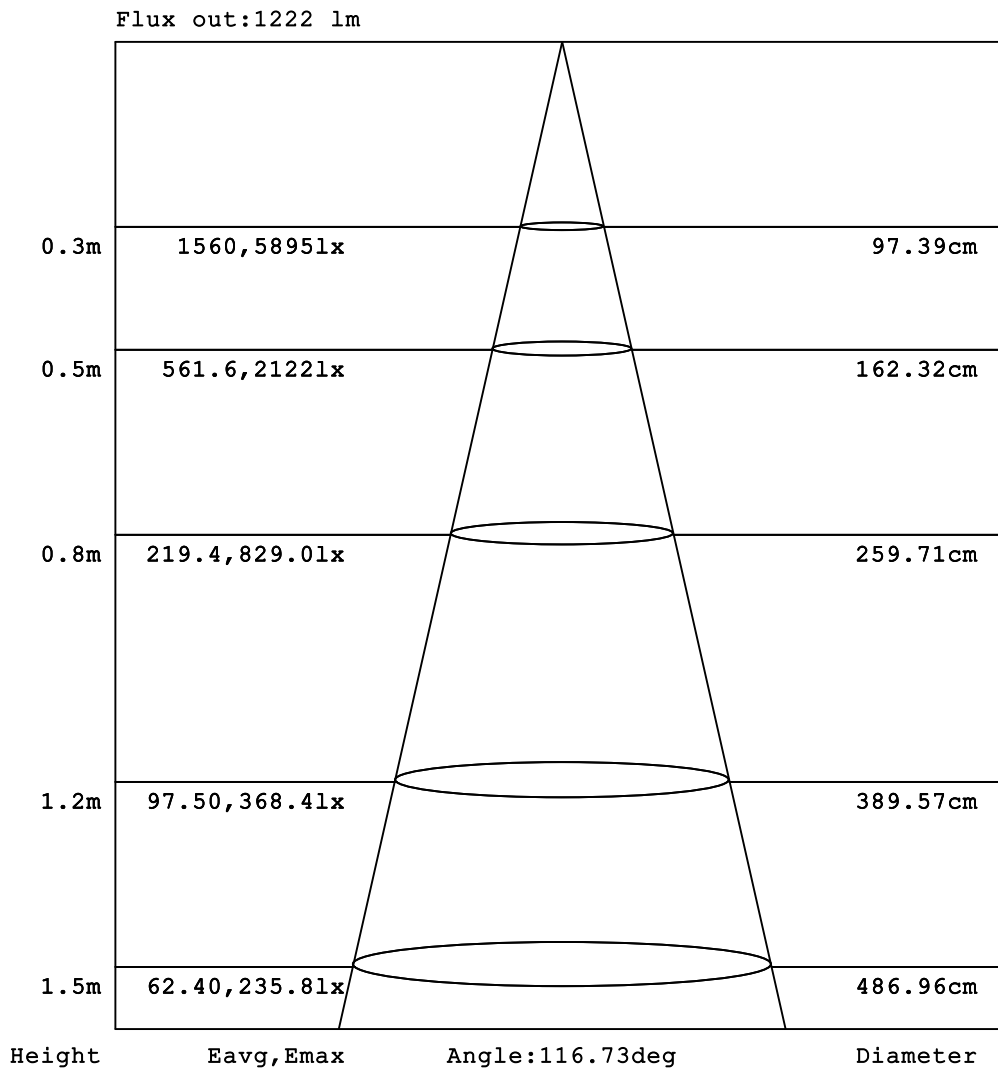
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K



AAI Figure

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:



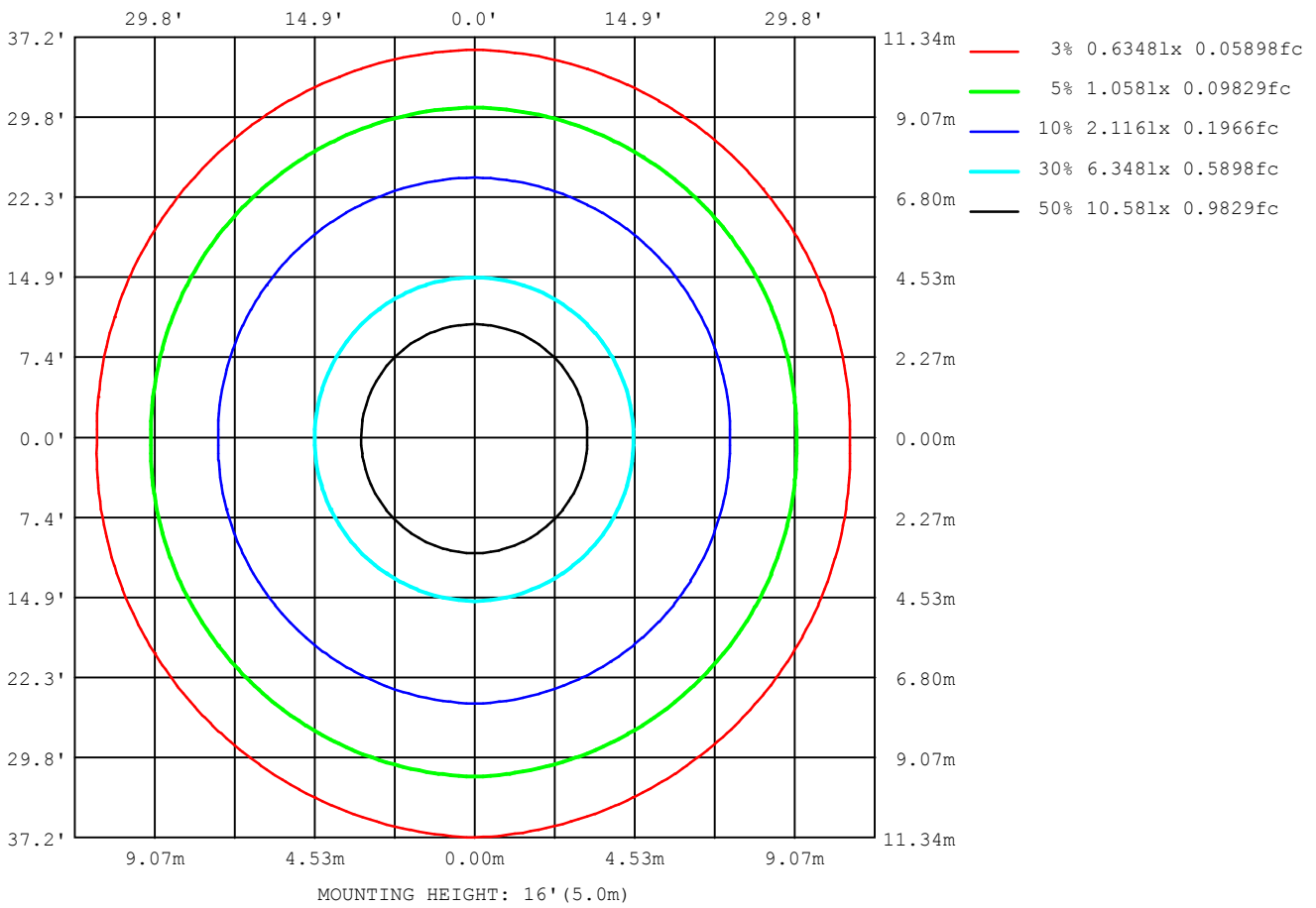
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.150m [K=1.0000]  
 Remarks: 2400-2600K

ISOLUX DIAGRAM

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

LED Avg.L Report

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

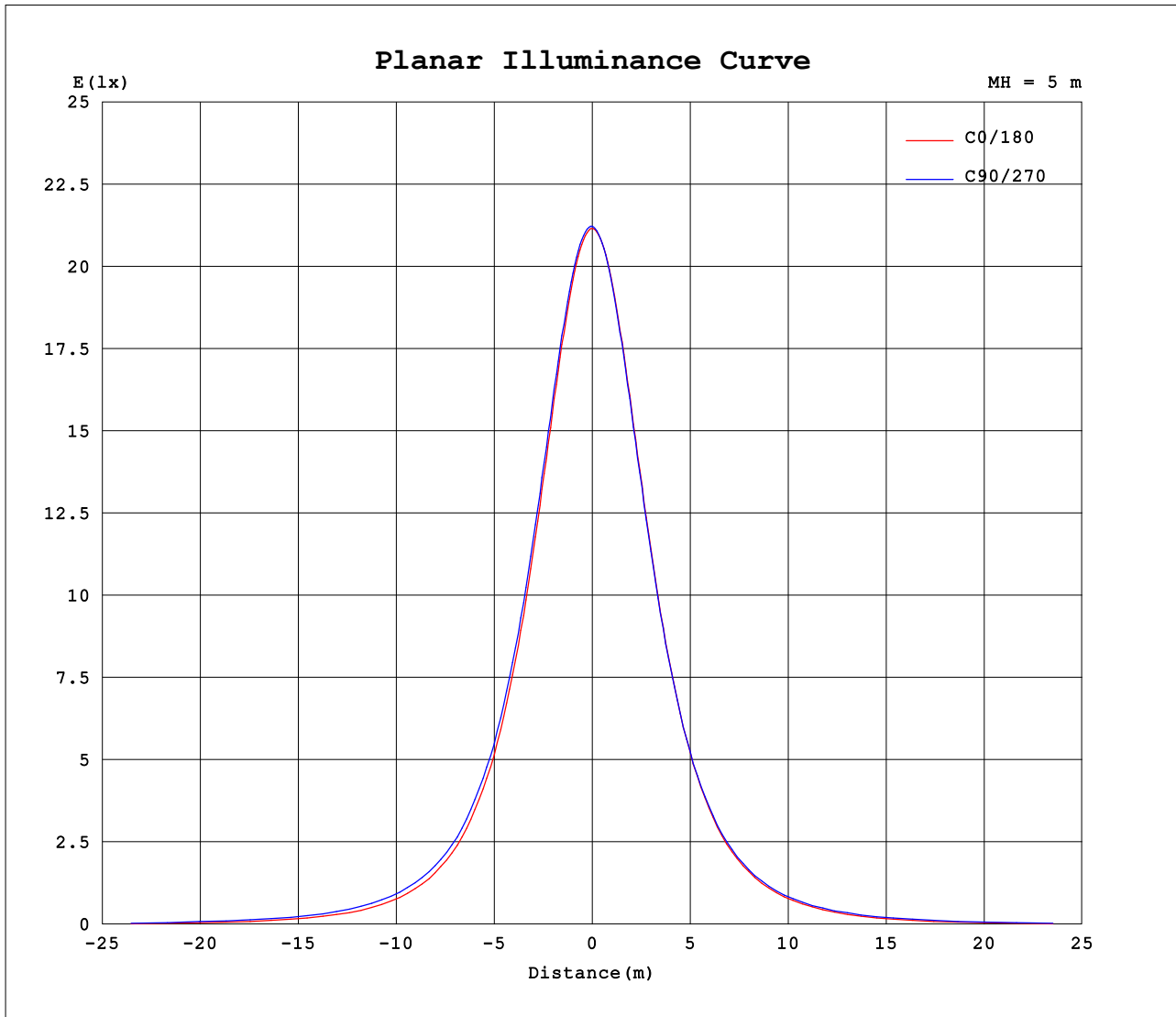
AvgL	cd/m2
L_0~180 (65) av	147767
L_0~180 (75) av	131317
L_0~180 (85) av	97072
L_90~270 (65) av	170766
L_90~270 (75) av	185847
L_90~270 (85) av	284353
L_45 (65) av	162259
L_45 (75) av	165613
L_45 (85) av	214544

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.150m [K=1.0000]  
 Remarks: 2400-2600K

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:23.997V I:0.5372A P:12.891W PF:1.0000 Freq:49.99Hz Lamp Flux:1650.34x1 lm		
NAME:	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01	Shielding Angle:

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	90	180	270															
0	529	531	529	531															
5	527	530	527	527															
10	520	525	522	521															
15	509	516	512	510															
20	495	504	498	495															
25	476	488	480	477															
30	454	468	458	455															
35	428	445	432	430															
40	398	419	403	402															
45	365	390	371	372															
50	329	358	334	338															
55	290	323	295	303															
60	248	287	253	265															
65	203	250	209	226															
70	156	212	162	186															
75	109	172	115	145															
80	64.1	133	69.1	106															
85	26.0	93.8	29.9	69.8															
90	1.20	59.8	2.62	40.8															
95	1.31	32.2	1.00	22.5															
100	1.47	13.4	1.19	10.7															
105	1.58	11.6	1.46	7.23															
110	1.86	11.1	1.75	3.41															
115	2.13	8.90	2.01	2.39															
120	2.38	5.83	2.30	2.49															
125	2.61	3.90	2.57	2.72															
130	2.86	3.18	2.84	2.95															
135	3.08	3.11	3.08	3.17															
140	3.27	3.15	3.30	3.38															
145	3.45	3.35	3.50	3.57															
150	3.63	3.57	3.68	3.73															
155	3.78	3.74	3.84	3.90															
160	3.92	3.90	3.99	4.02															
165	4.07	4.04	4.12	4.14															
170	4.18	4.17	4.22	4.25															
175	4.26	4.28	4.28	4.30															
180	4.32	4.33	4.31	4.34															

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-29

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.150m [K=1.0000]  
 Remarks: 2400-2600K