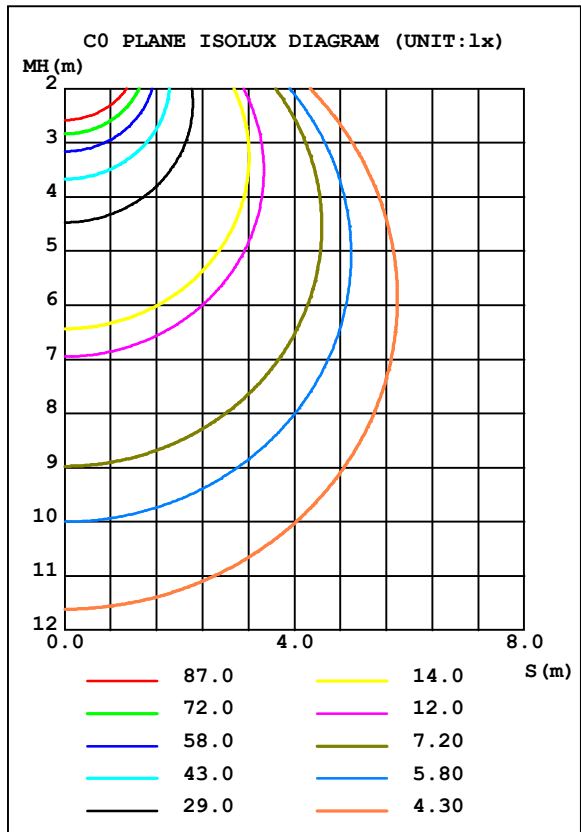
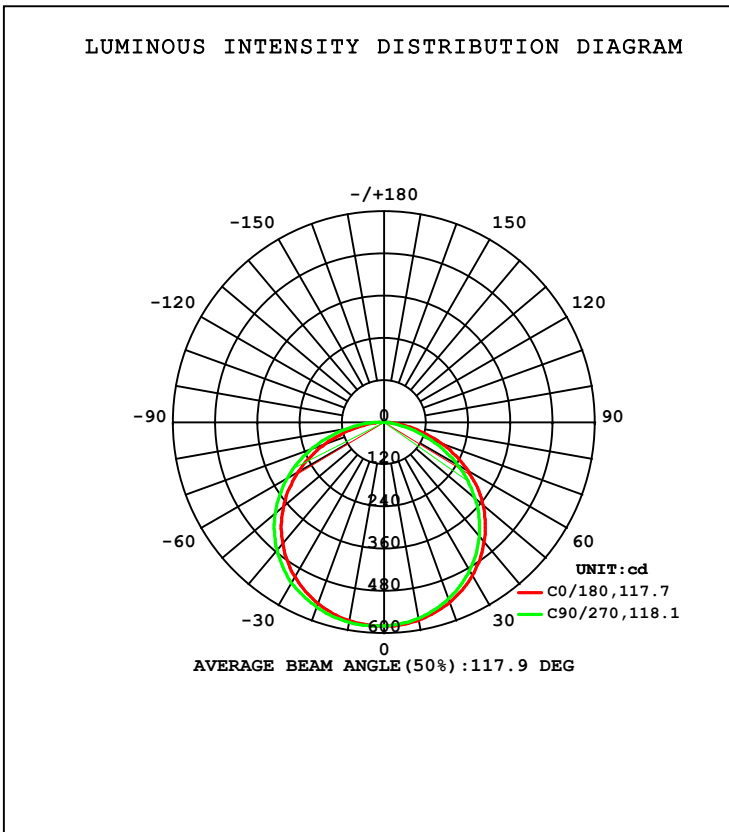


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TFXBD-MP	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 150.94 lm/W			
MODEL		I <sub>max</sub> (cd)	580.2	S/MH (C0/180)	1.30
NOMINAL POWER (W)	12	LOR (%)	100.0	S/MH (C90/270)	1.35
RATED VOLTAGE (V)	24	TOTAL FLUX (lm)	1773.0	η UP, DN (C0-180)	0.5, 46.6
NOMINAL FLUX (lm)	1772.99	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.5, 52.4
LAMPS INSIDE	1	η up (%)	1.0	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	24	η down (%)	99.0	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-14

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: 3200-3400K

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

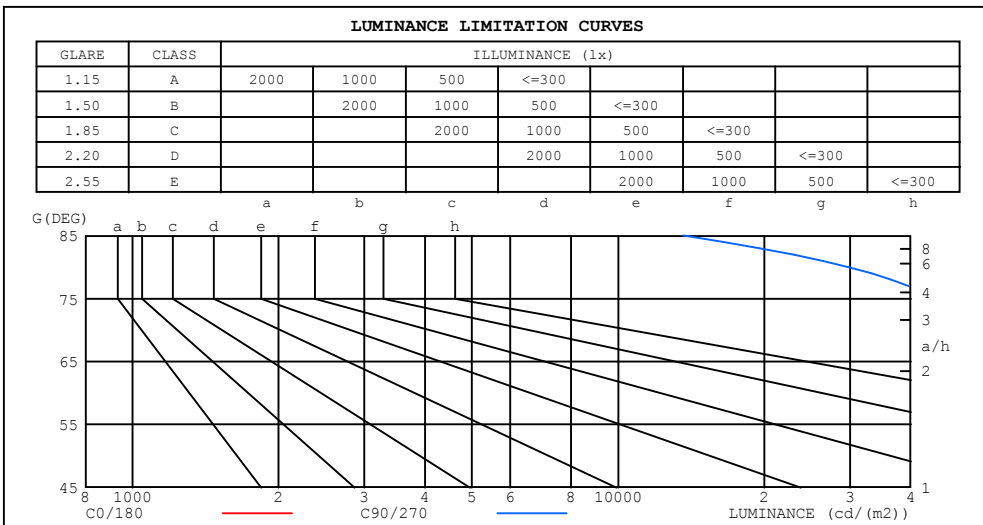
γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	571.2	566.1	572.9	577.4					0- 10	54.96	54.96	3.1,3.1
20	545.7	535.4	548.9	559.4					10- 20	158.7	213.6	12,12
30	503.3	487.2	507.8	527.4					20- 30	243.9	457.5	25.8,25.8
40	443.9	421.7	449.7	474.6					30- 40	299.8	757.3	42.7,42.7
50	368.0	339.3	374.5	405.1					40- 50	317.5	1075	60.6,60.6
60	276.3	241.3	281.5	318.9					50- 60	292.3	1367	77.1,77.1
70	171.2	134.5	176.9	217.7					60- 70	225.8	1593	89.8,89.8
80	64.87	36.36	69.46	107.9					70- 80	127.8	1721	97,97
90	0.8720	1.801	1.746	18.05					80- 90	34.58	1755	99,99
100	1.019	1.593	1.162	1.884					90-100	2.371	1758	99.1,99.1
110	1.641	2.071	1.823	2.360					100-110	1.782	1759	99.2,99.2
120	2.275	2.649	2.457	2.949					110-120	2.255	1762	99.4,99.4
130	2.925	3.258	3.079	3.526					120-130	2.592	1764	99.5,99.5
140	3.464	3.729	3.601	3.981					130-140	2.672	1767	99.7,99.7
150	3.919	4.093	4.015	4.267					140-150	2.444	1769	99.8,99.8
160	4.294	4.436	4.357	4.519					150-160	1.959	1771	99.9,99.9
170	4.581	4.766	4.615	4.732					160-170	1.285	1773	100,100
180	4.721	4.794	4.716	4.850					170-180	0.4520	1773	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

LUMINANCE LIMITATION CURVES

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	38705	13604
80	53364	29912
75	64368	45133
70	71507	56179
65	76103	63732
60	78931	68952
55	80712	72583
50	81792	75398
45	82430	77340

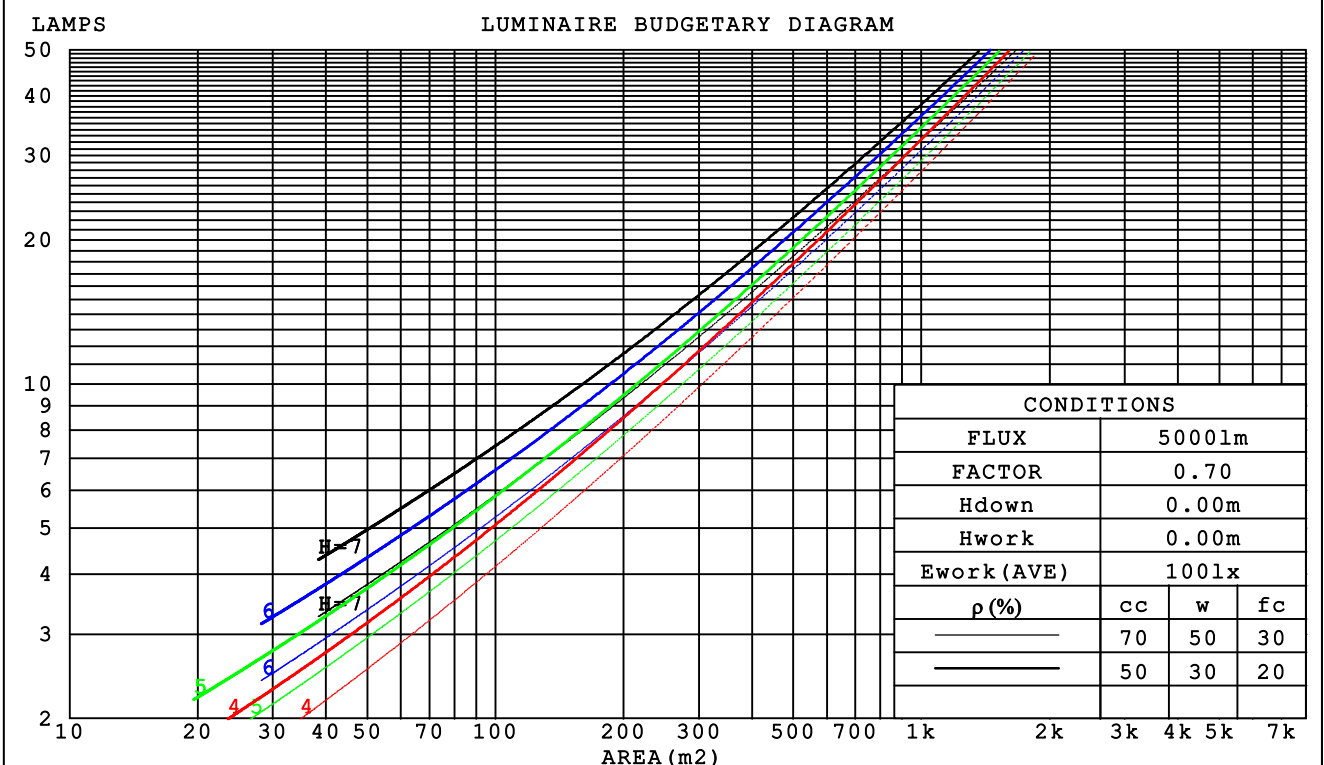
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	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	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.01	1.01	1.01	.99
1.0	1.03	.99	.95	1.01	.97	.93	.97	.93	.90	.92	.90	.87	.89	.87	.85	.82
2.0	.90	.83	.77	.88	.81	.76	.84	.79	.74	.81	.76	.72	.77	.74	.70	.68
3.0	.79	.70	.64	.77	.69	.63	.74	.67	.62	.71	.65	.61	.68	.63	.59	.57
4.0	.69	.61	.54	.68	.60	.53	.65	.58	.52	.63	.57	.52	.61	.55	.51	.49
5.0	.62	.53	.46	.61	.52	.46	.58	.51	.45	.56	.50	.45	.54	.49	.44	.42
6.0	.56	.47	.40	.55	.46	.40	.53	.45	.39	.51	.44	.39	.49	.43	.38	.36
7.0	.50	.41	.35	.49	.41	.35	.48	.40	.35	.46	.39	.34	.45	.39	.34	.32
8.0	.46	.37	.31	.45	.37	.31	.44	.36	.31	.42	.36	.31	.41	.35	.30	.28
9.0	.42	.34	.28	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.27	.26
10.0	.39	.31	.25	.38	.31	.25	.37	.30	.25	.36	.30	.25	.35	.29	.25	.23



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

WEC AND CCEC

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	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	.314	.179	.057	.307	.175	.056	.293	.168	.054	.280	.162	.052	.268	.156	.050	
2.0	.295	.162	.050	.289	.159	.049	.277	.154	.048	.265	.149	.047	.255	.144	.045	
3.0	.273	.145	.044	.267	.143	.043	.256	.139	.042	.246	.135	.041	.237	.131	.041	
4.0	.252	.131	.038	.247	.129	.038	.237	.126	.038	.228	.122	.037	.220	.119	.036	
5.0	.233	.119	.034	.228	.117	.034	.219	.114	.034	.211	.112	.033	.204	.109	.033	
6.0	.216	.108	.031	.212	.107	.031	.204	.104	.030	.197	.102	.030	.190	.100	.030	
7.0	.200	.099	.028	.197	.098	.028	.190	.096	.028	.184	.094	.027	.177	.092	.027	
8.0	.187	.091	.026	.184	.091	.026	.178	.089	.025	.172	.087	.025	.166	.085	.025	
9.0	.175	.085	.024	.172	.084	.024	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.165	.079	.022	.162	.078	.022	.157	.077	.022	.152	.076	.021	.148	.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	.198	.198	.198	.169	.169	.169	.116	.116	.116	.066	.066	.066	.021	.021	.021	
1.0	.188	.164	.142	.161	.141	.122	.110	.097	.084	.063	.056	.049	.020	.018	.016	
2.0	.180	.140	.105	.155	.120	.091	.106	.083	.064	.061	.048	.037	.020	.016	.012	
3.0	.173	.122	.082	.148	.105	.071	.102	.073	.050	.059	.043	.029	.019	.014	.010	
4.0	.165	.109	.066	.142	.094	.057	.098	.066	.040	.056	.038	.024	.018	.013	.008	
5.0	.158	.099	.055	.136	.085	.048	.093	.060	.034	.054	.035	.020	.017	.011	.007	
6.0	.151	.090	.047	.130	.078	.041	.089	.055	.029	.052	.032	.017	.017	.011	.006	
7.0	.144	.083	.041	.124	.072	.036	.086	.051	.025	.050	.030	.015	.016	.010	.005	
8.0	.137	.078	.036	.118	.067	.032	.082	.047	.023	.048	.028	.013	.015	.009	.004	
9.0	.131	.073	.033	.113	.063	.029	.078	.044	.020	.046	.026	.012	.015	.009	.004	
10.0	.126	.068	.030	.108	.059	.026	.075	.042	.019	.044	.025	.011	.014	.008	.004	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

UGR(Unified Glare Rating) Table

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm										
NAME: TF5BD-MP-IP20					TYPE:			WEIGHT:		
SPEC.:					DIM.:			SERIAL No.:		
MFR.:					SUR.:0.01*1M			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	26.0	27.5	26.3	27.7	28.0	25.5	27.1	25.8	27.3	27.5
3H	27.5	28.9	27.8	29.2	29.4	26.8	28.2	27.1	28.5	28.7
4H	28.1	29.4	28.4	29.7	30.0	27.2	28.5	27.5	28.8	29.1
6H	28.4	29.7	28.8	30.0	30.3	27.3	28.6	27.7	28.9	29.2
8H	28.5	29.7	28.9	30.0	30.4	27.3	28.6	27.7	28.9	29.2
12H	28.6	29.7	28.9	30.0	30.4	27.3	28.5	27.7	28.8	29.1
4H 2H	26.5	27.9	26.8	28.1	28.4	26.2	27.5	26.5	27.8	28.0
3H	28.2	29.4	28.6	29.7	30.0	27.6	28.8	28.0	29.1	29.4
4H	28.9	29.9	29.3	30.3	30.6	28.1	29.2	28.5	29.5	29.9
6H	29.3	30.3	29.8	30.7	31.0	28.3	29.3	28.8	29.7	30.0
8H	29.5	30.4	29.9	30.7	31.1	28.4	29.3	28.8	29.6	30.0
12H	29.5	30.3	30.0	30.8	31.2	28.3	29.2	28.8	29.6	30.0
8H 4H	29.0	29.9	29.5	30.3	30.7	28.3	29.2	28.8	29.6	30.0
6H	29.6	30.3	30.1	30.8	31.2	28.7	29.4	29.1	29.8	30.3
8H	29.8	30.4	30.3	30.9	31.4	28.7	29.4	29.2	29.8	30.3
12H	29.9	30.5	30.4	30.9	31.4	28.8	29.3	29.2	29.8	30.3
12H 4H	29.0	29.8	29.5	30.2	30.7	28.3	29.1	28.8	29.5	30.0
6H	29.6	30.3	30.1	30.7	31.2	28.7	29.4	29.2	29.8	30.3
8H	29.8	30.4	30.3	30.8	31.3	28.8	29.4	29.3	29.8	30.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.3				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				

CIE Pub.117, 1773 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 2.0)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

UTILIZATION FACTORS TABLE

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:

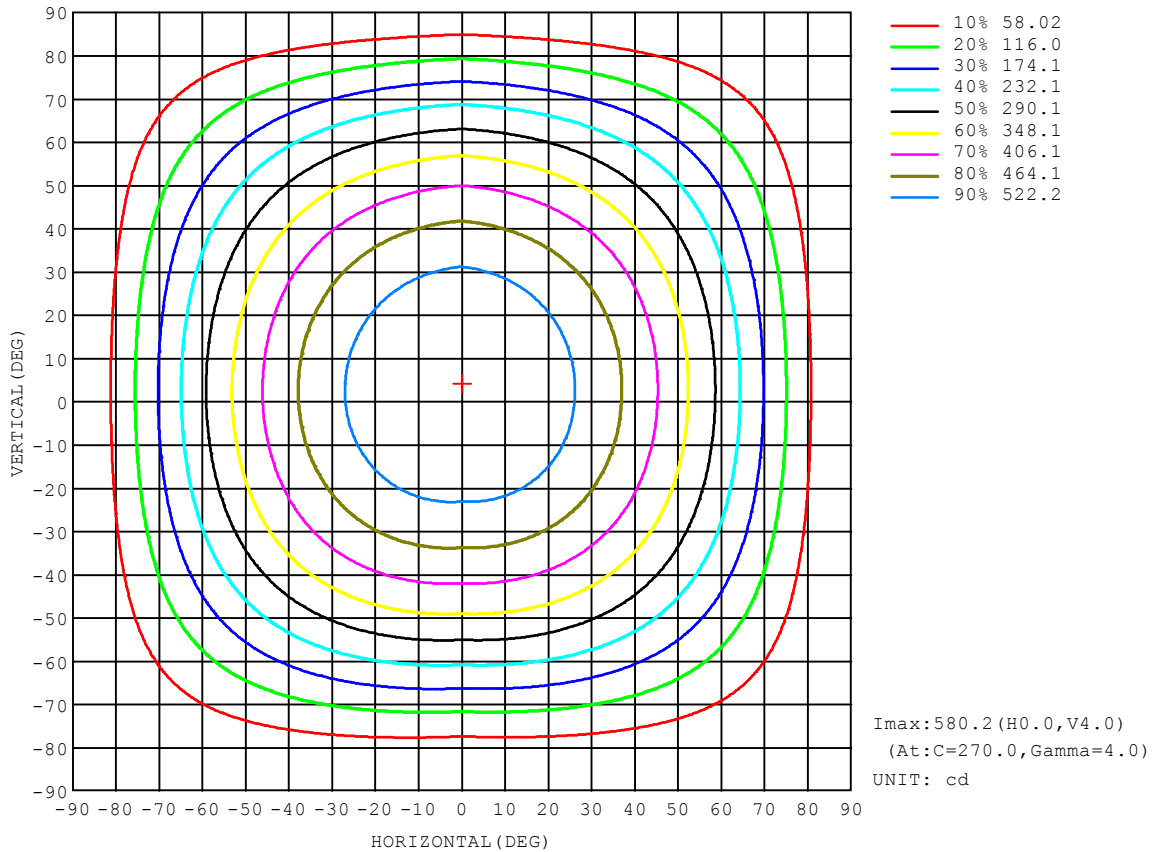
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	45	38	56	44	37	54	44	37	31
0.80	66	55	47	65	54	47	63	53	47	39
1.00	75	64	56	74	63	56	71	64	55	48
1.25	82	71	64	81	71	64	78	69	63	55
1.50	87	77	70	85	76	69	82	74	68	60
2.00	94	85	79	92	84	78	89	82	76	68
2.50	98	90	84	96	89	83	92	86	81	73
3.00	102	95	89	99	93	88	95	90	86	77
4.00	106	100	95	103	98	94	99	94	91	82
5.00	108	103	99	106	101	97	101	97	94	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:2020-05-14

$\gamma$  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: 3200-3400K

ISOCANDELA DIAGRAM

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:



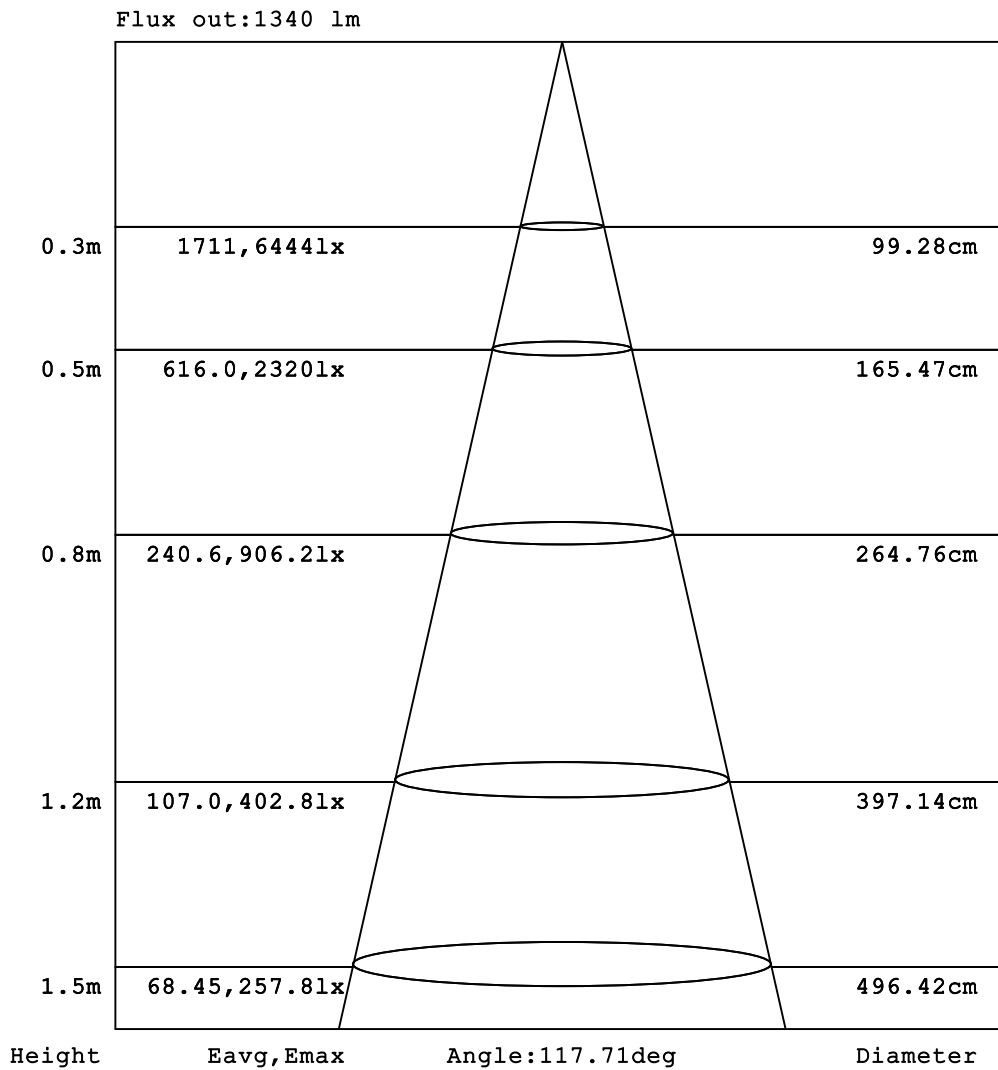
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-14

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: 3200-3400K



AAI Figure

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:



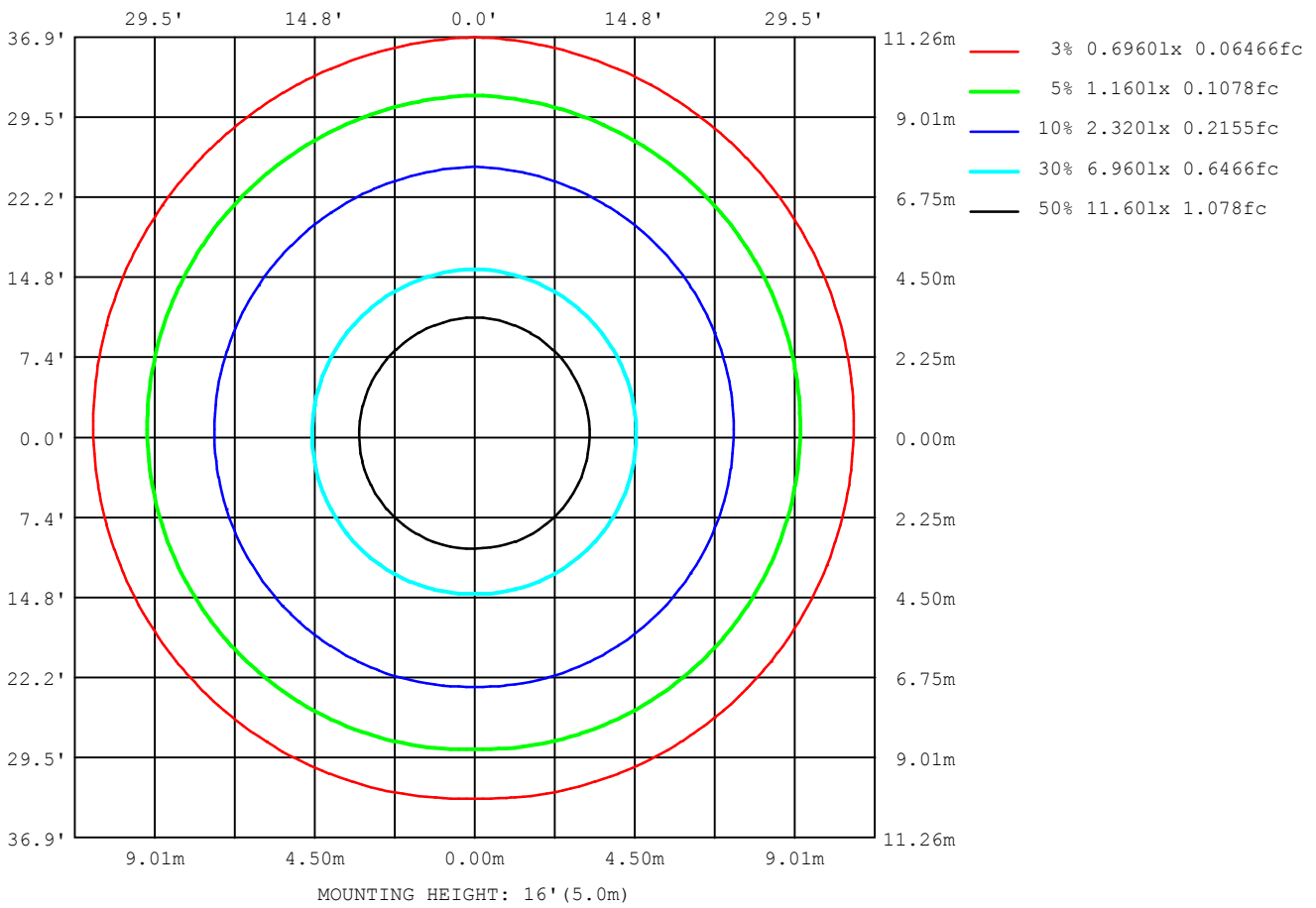
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

ISOLUX DIAGRAM

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

LED Avg.L Report

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:

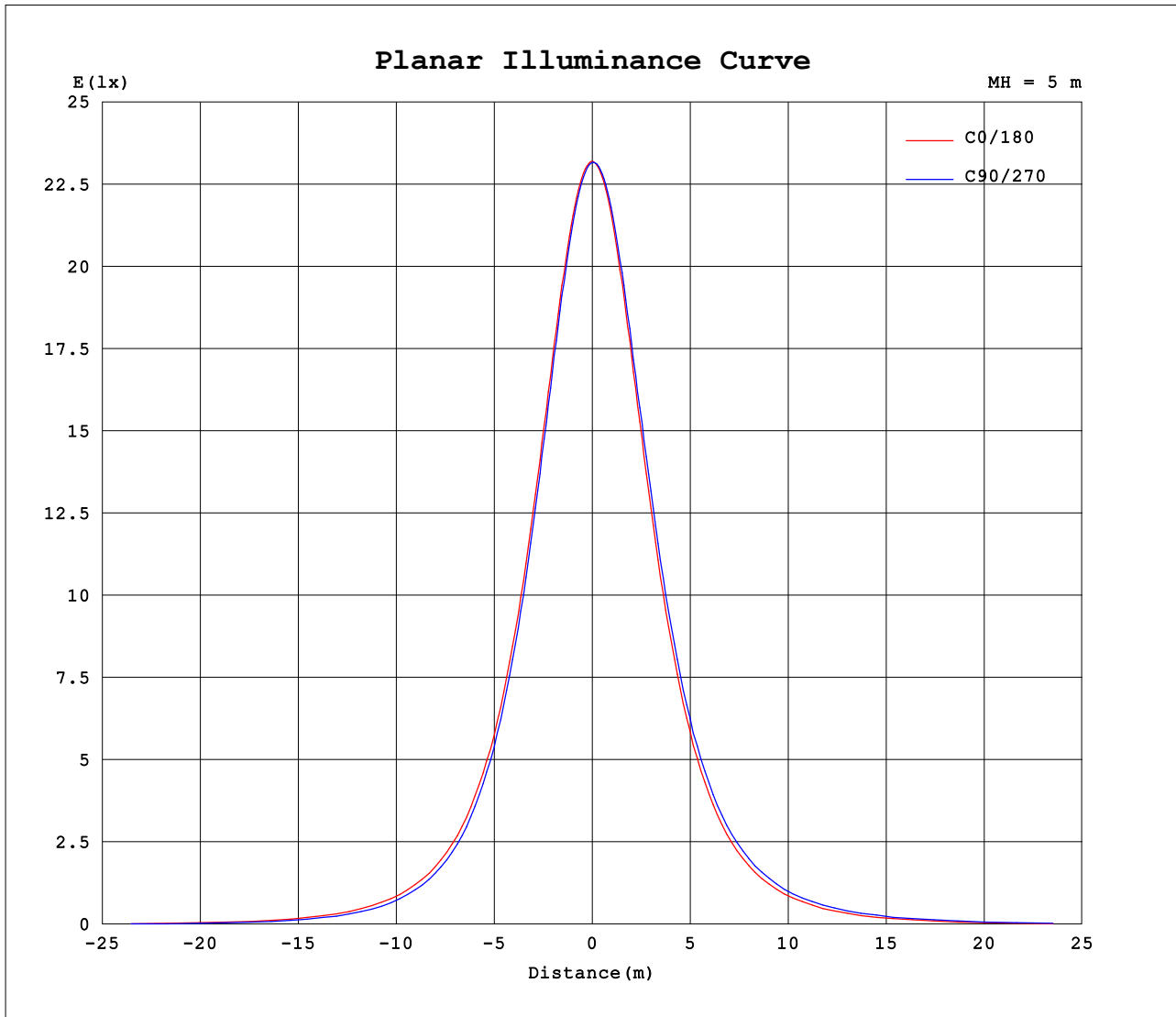
AvgL	cd/m2
L_0~180 (65) av	77033
L_0~180 (75) av	65791
L_0~180 (85) av	40802
L_90~270 (65) av	77488
L_90~270 (75) av	67470
L_90~270 (85) av	53030
L_45 (65) av	77375
L_45 (75) av	66930
L_45 (85) av	48576

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LCG  
 Test Date: 2020-05-14

$\gamma$  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: 3200-3400K

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:23.997V I:0.4895A P:11.747W PF:1.0000 Freq:46.11Hz Lamp Flux:1772.99x1 lm		
NAME: TF5BD-MP-IP20	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:0.01*1M	Shielding Angle:

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	90	180	270															
0	580	579	580	579															
5	578	575	578	580															
10	571	566	573	577															
15	561	553	563	571															
20	546	535	549	559															
25	527	514	531	544															
30	503	487	508	527															
35	476	457	481	503															
40	444	422	450	475															
45	408	383	414	442															
50	368	339	375	405															
55	324	291	330	364															
60	276	241	281	319															
65	225	189	231	270															
70	171	135	177	218															
75	117	81.8	122	163															
80	64.9	36.4	69.5	108															
85	23.6	8.30	26.2	56.4															
90	0.87	1.80	1.75	18.1															
95	0.76	1.59	0.90	2.93															
100	1.02	1.59	1.16	1.88															
105	1.32	1.82	1.51	2.07															
110	1.64	2.07	1.82	2.36															
115	1.94	2.36	2.14	2.66															
120	2.27	2.65	2.46	2.95															
125	2.61	2.96	2.77	3.26															
130	2.92	3.26	3.08	3.53															
135	3.21	3.52	3.35	3.77															
140	3.46	3.73	3.60	3.98															
145	3.71	3.92	3.82	4.18															
150	3.92	4.09	4.01	4.27															
155	4.13	4.28	4.21	4.38															
160	4.29	4.44	4.36	4.52															
165	4.44	4.60	4.50	4.65															
170	4.58	4.77	4.61	4.73															
175	4.66	4.89	4.68	4.81															
180	4.72	4.79	4.72	4.85															

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LCG  
 Test Date:2020-05-14

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: 3200-3400K