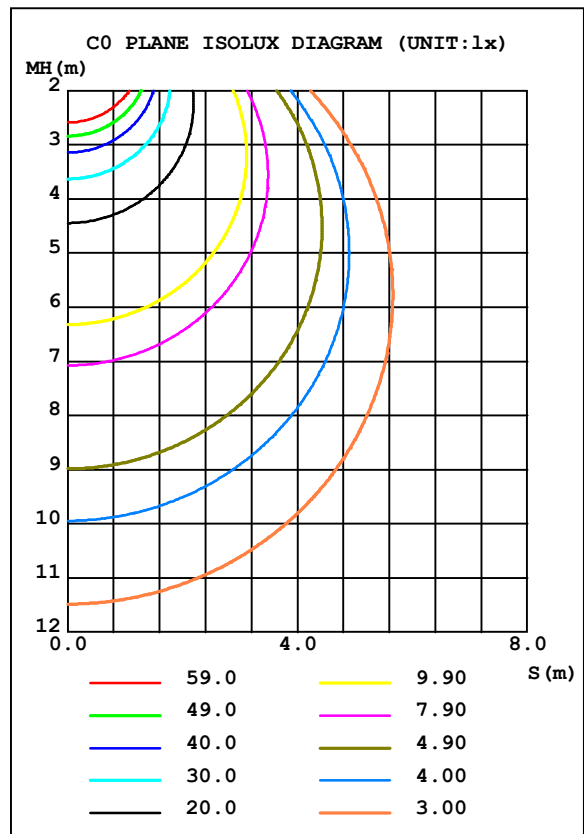
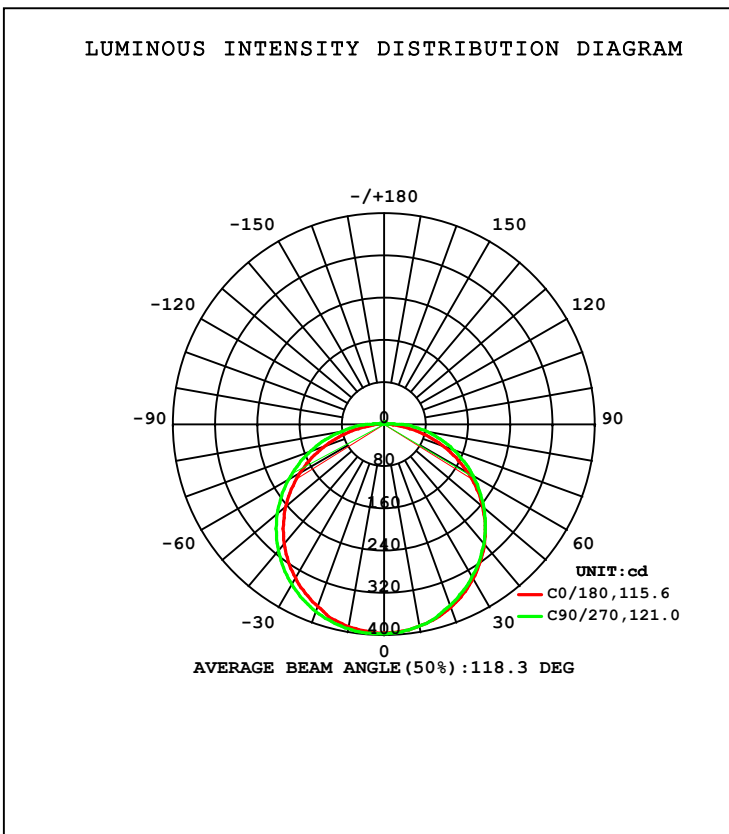


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 110.98 lm/W			
MODEL	TF5-MP-2300K-IP66	I <sub>max</sub> (cd)	397.6	S/MH (C0/180)	1.27
NOMINAL POWER (W)	12	LOR (%)	100.0	S/MH (C90/270)	1.31
RATED VOLTAGE (V)	24	TOTAL FLUX (lm)	1260.6	η UP, DN (C0-180)	1.2, 48.2
NOMINAL FLUX (lm)	1260.59	CIE CLASS	DIRECT	η UP, DN (C180-360)	1.2, 49.4
LAMPS INSIDE	1	η up (%)	2.4	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	24	η down (%)	97.6	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

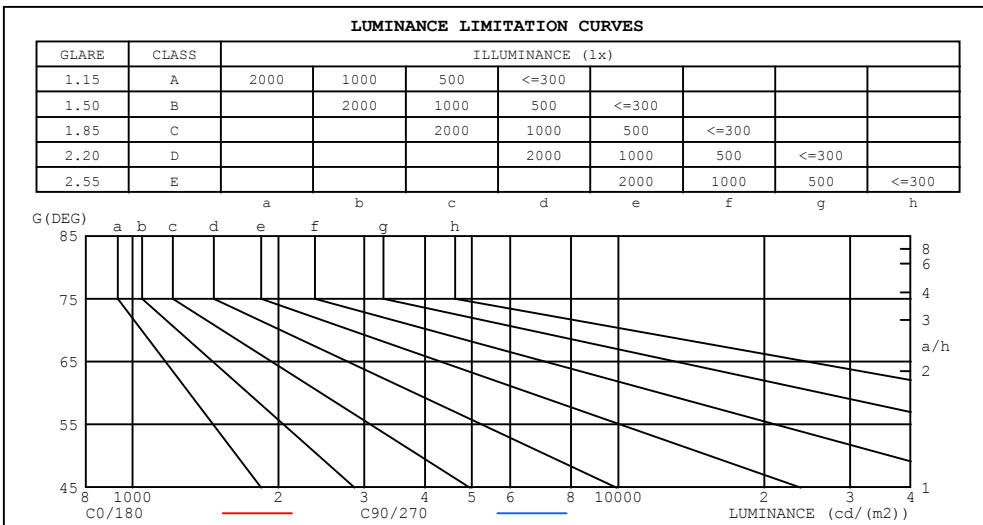
γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	388.7	388.5	389.3	393.7					0- 10	37.54	37.54	2.98,2.98
20	369.3	365.6	367.8	378.1					10- 20	107.8	145.4	11.5,11.5
30	338.3	334.5	336.9	350.5					20- 30	164.3	309.7	24.6,24.6
40	296.4	294.6	295.1	312.3					30- 40	200.9	510.6	40.5,40.5
50	244.9	247.3	243.8	264.8					40- 50	212.9	723.4	57.4,57.4
60	183.6	194.9	184.1	209.7					50- 60	198.9	922.3	73.2,73.2
70	117.5	139.3	117.5	148.0					60- 70	160.4	1083	85.9,85.9
80	50.25	83.08	49.68	84.77					70- 80	104.0	1187	94.1,94.1
90	2.466	33.30	1.576	31.77					80- 90	43.33	1230	97.6,97.6
100	1.793	7.295	1.509	10.21					90-100	10.99	1241	98.5,98.5
110	2.456	5.249	1.931	6.681					100-110	4.999	1246	98.8,98.8
120	3.668	3.238	2.391	2.961					110-120	3.497	1250	99.1,99.1
130	3.456	3.065	2.927	2.883					120-130	2.678	1252	99.3,99.3
140	3.661	3.494	3.420	3.332					130-140	2.539	1255	99.5,99.5
150	3.935	3.898	3.811	3.767					140-150	2.301	1257	99.7,99.7
160	4.241	4.241	4.185	4.128					150-160	1.861	1259	99.9,99.9
170	4.453	4.478	4.428	4.415					160-170	1.223	1260	100,100
180	4.577	4.590	4.559	4.602					170-180	0.4295	1261	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

LUMINANCE LIMITATION CURVES

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	57380	143003
80	64309	106324
75	71340	95294
70	76313	90482
65	79477	87976
60	81582	86621
55	83642	85888
50	84665	85496
45	85415	85402

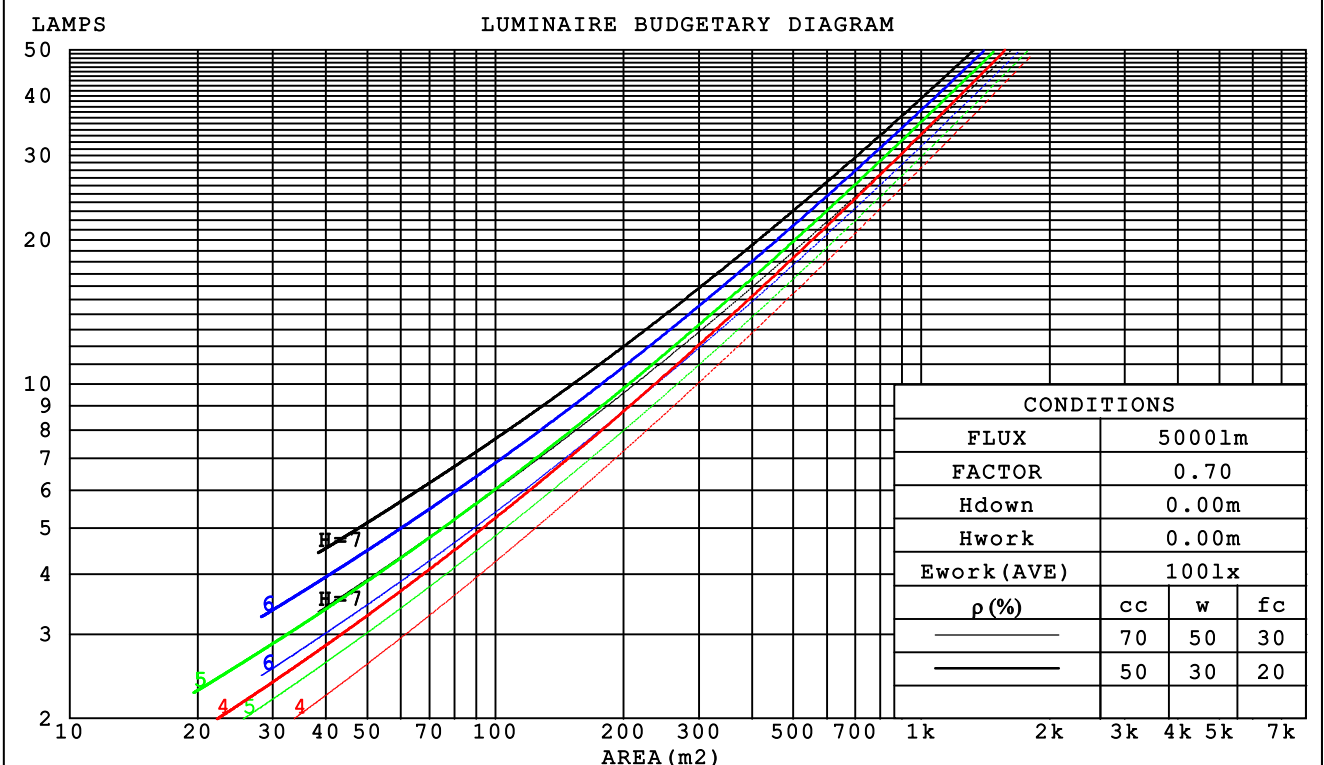
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	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	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.05	1.05	1.05	.00	.00	.00	.98
1.0	1.02	.97	.93	.99	.95	.91	.95	.91	.88	.90	.88	.85	.86	.84	.82	.80
2.0	.88	.81	.75	.86	.79	.74	.82	.77	.72	.78	.74	.70	.75	.71	.68	.65
3.0	.77	.69	.62	.75	.67	.61	.72	.65	.60	.69	.63	.58	.66	.61	.57	.55
4.0	.68	.59	.52	.66	.58	.51	.64	.56	.50	.61	.55	.49	.59	.53	.49	.46
5.0	.61	.51	.44	.59	.51	.44	.57	.49	.43	.55	.48	.43	.52	.47	.42	.40
6.0	.54	.45	.39	.53	.45	.38	.51	.44	.38	.49	.42	.37	.47	.41	.37	.35
7.0	.49	.40	.34	.48	.40	.34	.47	.39	.33	.45	.38	.33	.43	.37	.32	.30
8.0	.45	.36	.30	.44	.36	.30	.43	.35	.30	.41	.34	.29	.40	.34	.29	.27
9.0	.41	.33	.27	.40	.32	.27	.39	.32	.27	.38	.31	.26	.37	.31	.26	.24
10.0	.38	.30	.25	.37	.30	.24	.36	.29	.24	.35	.29	.24	.34	.28	.24	.22



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K

WEC AND CCEC

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	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	.335	.190	.060	.327	.187	.059	.312	.179	.057	.299	.172	.055	.286	.166	.053	
2.0	.307	.168	.052	.300	.165	.051	.287	.160	.050	.275	.154	.048	.264	.149	.047	
3.0	.281	.150	.045	.275	.147	.044	.263	.143	.043	.252	.138	.042	.242	.134	.042	
4.0	.257	.134	.039	.252	.132	.039	.241	.128	.038	.232	.124	.038	.223	.121	.037	
5.0	.236	.120	.035	.231	.119	.035	.222	.116	.034	.214	.113	.034	.205	.110	.033	
6.0	.218	.109	.031	.214	.108	.031	.206	.105	.031	.198	.103	.030	.191	.100	.030	
7.0	.203	.100	.028	.199	.099	.028	.191	.097	.028	.184	.094	.027	.178	.092	.027	
8.0	.189	.092	.026	.185	.091	.026	.178	.089	.025	.172	.087	.025	.166	.085	.025	
9.0	.176	.085	.024	.173	.084	.024	.167	.083	.023	.161	.081	.023	.156	.079	.023	
10.0	.166	.079	.022	.163	.079	.022	.157	.077	.022	.152	.075	.021	.147	.074	.021	

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	.209	.209	.209	.179	.179	.179	.122	.122	.122	.070	.070	.070	.022	.022	.022	
1.0	.201	.175	.151	.172	.150	.130	.117	.103	.090	.068	.060	.052	.022	.019	.017	
2.0	.193	.151	.115	.165	.130	.099	.113	.090	.069	.065	.052	.041	.021	.017	.013	
3.0	.185	.133	.092	.159	.115	.079	.109	.080	.056	.063	.047	.033	.020	.015	.011	
4.0	.178	.120	.076	.153	.104	.066	.105	.072	.047	.061	.042	.028	.020	.014	.009	
5.0	.170	.110	.065	.146	.095	.057	.101	.066	.040	.058	.039	.024	.019	.013	.008	
6.0	.163	.102	.057	.140	.088	.050	.097	.062	.035	.056	.036	.021	.018	.012	.007	
7.0	.156	.095	.052	.134	.082	.045	.093	.058	.032	.054	.034	.019	.017	.011	.006	
8.0	.149	.089	.047	.129	.077	.041	.089	.054	.029	.052	.032	.017	.017	.010	.006	
9.0	.143	.084	.044	.123	.073	.038	.085	.051	.027	.050	.030	.016	.016	.010	.005	
10.0	.137	.080	.041	.118	.069	.036	.082	.049	.026	.048	.029	.015	.016	.009	.005	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

UGR(Unified Glare Rating) Table

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm										
NAME: TF5-MP-2300K-IP66					TYPE:			WEIGHT:		
SPEC.:					DIM.:			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	27.2	28.8	27.5	29.0	29.3	27.4	28.9	27.7	29.2	29.4
3H	28.9	30.3	29.2	30.5	30.8	29.3	30.7	29.6	31.0	31.3
4H	29.5	30.9	29.9	31.2	31.5	30.2	31.5	30.5	31.8	32.1
6H	30.0	31.3	30.3	31.6	31.9	31.0	32.3	31.4	32.6	32.9
8H	30.1	31.4	30.5	31.7	32.0	31.4	32.6	31.8	33.0	33.3
12H	30.2	31.4	30.6	31.8	32.1	31.8	33.0	32.2	33.3	33.7
4H 2H	27.9	29.3	28.3	29.6	29.9	28.1	29.4	28.4	29.7	30.0
3H	29.7	30.9	30.1	31.3	31.6	30.1	31.3	30.5	31.6	32.0
4H	30.5	31.6	31.0	32.0	32.4	31.2	32.2	31.6	32.6	33.0
6H	31.2	32.1	31.6	32.5	32.9	32.1	33.1	32.6	33.5	33.9
8H	31.4	32.3	31.8	32.7	33.1	32.6	33.5	33.1	33.9	34.4
12H	31.5	32.4	32.0	32.8	33.2	33.1	34.0	33.6	34.4	34.8
8H 4H	30.9	31.8	31.4	32.2	32.7	31.5	32.4	31.9	32.8	33.2
6H	31.7	32.5	32.2	32.9	33.4	32.7	33.4	33.1	33.9	34.3
8H	32.1	32.7	32.6	33.2	33.7	33.3	33.9	33.8	34.4	34.9
12H	32.3	32.9	32.9	33.4	33.9	33.9	34.5	34.4	35.0	35.5
12H 4H	31.0	31.8	31.5	32.3	32.7	31.5	32.3	32.0	32.7	33.2
6H	31.9	32.6	32.4	33.0	33.5	32.7	33.4	33.2	33.9	34.4
8H	32.3	32.9	32.8	33.4	33.9	33.4	34.0	33.9	34.5	35.0
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 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117, 1261 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.8)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

UTILIZATION FACTORS TABLE

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

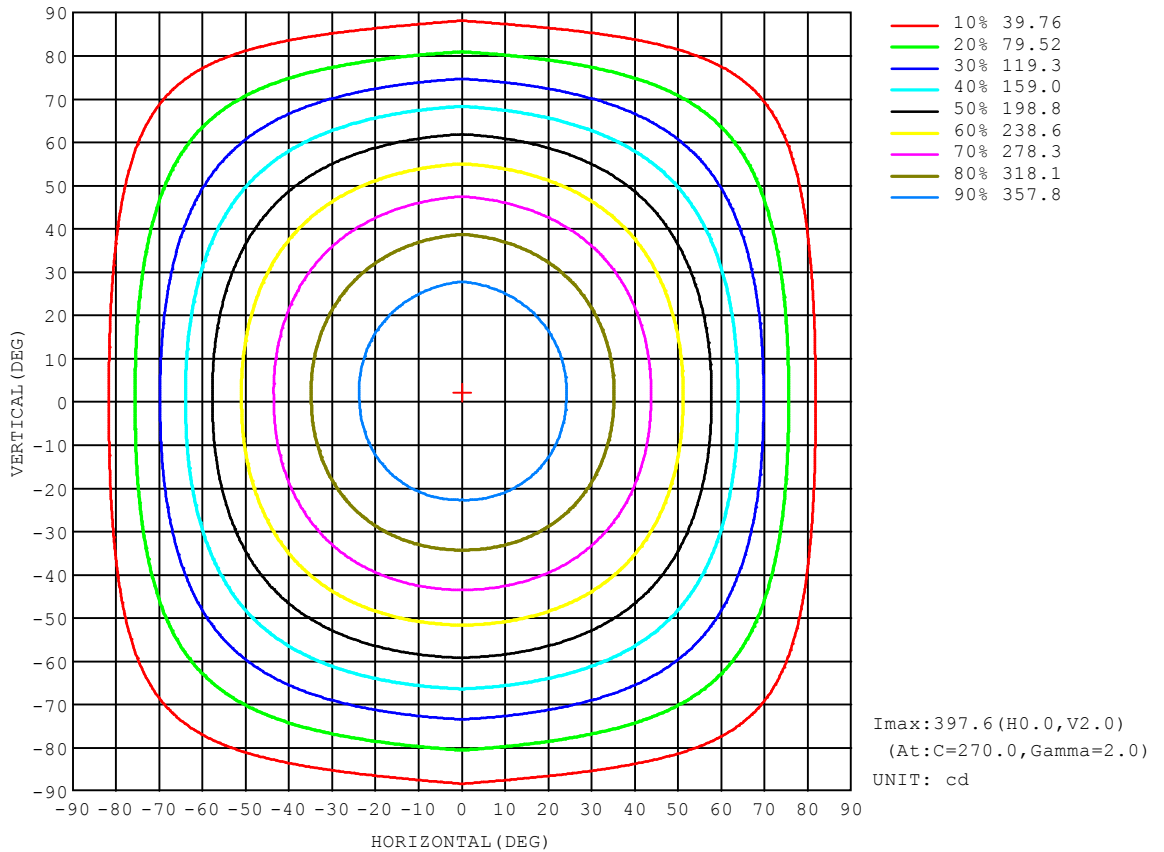
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) k(RI) x RCR = 5									
k = 0.60	55	43	36	54	43	36	53	42	36	29
0.80	65	53	45	64	52	45	62	52	45	37
1.00	73	62	54	72	61	54	69	62	53	46
1.25	80	69	62	79	68	61	76	67	60	53
1.50	85	75	67	84	74	67	80	72	66	58
2.00	92	83	76	90	82	75	87	79	74	65
2.50	97	88	82	94	87	81	90	84	79	69
3.00	100	93	87	98	91	85	93	88	83	74
4.00	104	98	93	102	96	91	97	92	88	79
5.00	107	102	97	104	99	95	99	95	92	82
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:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

ISOCANDELA DIAGRAM

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



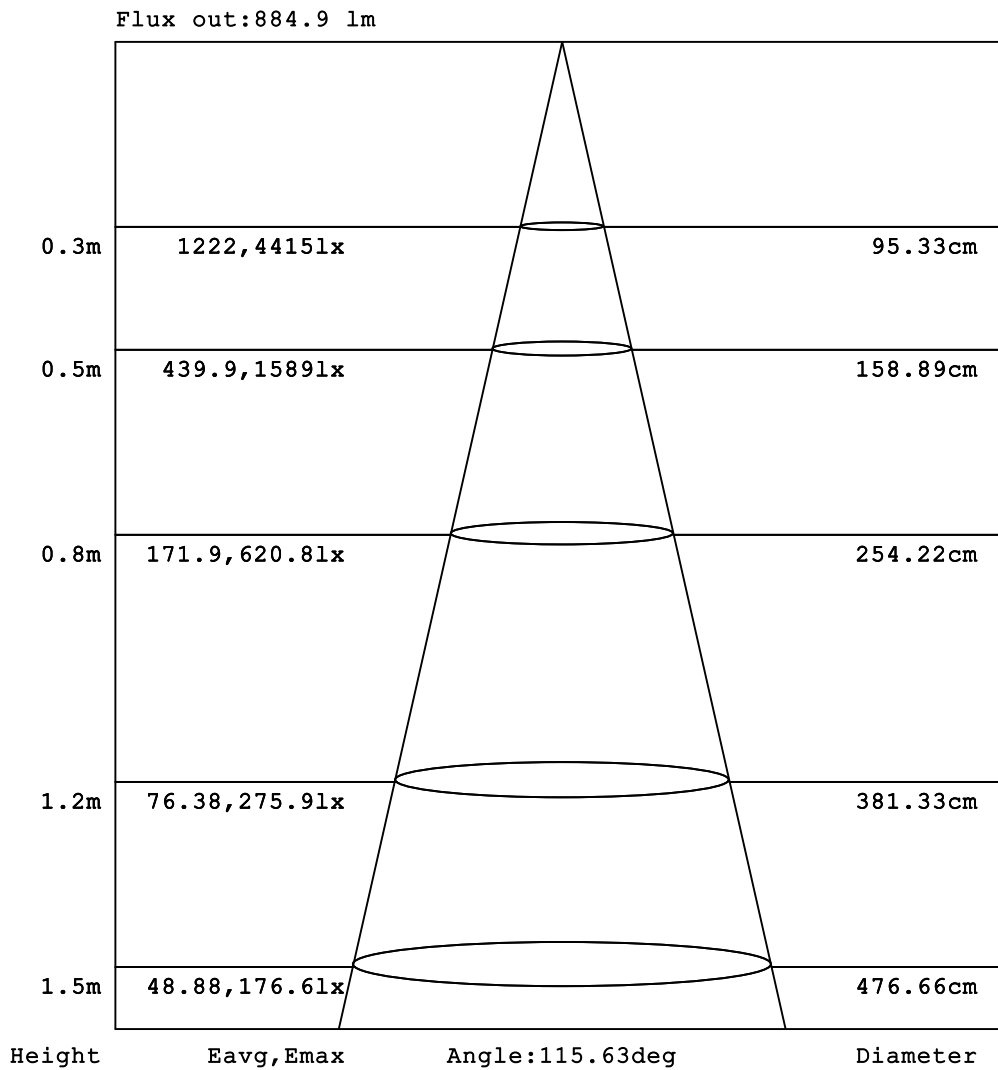
C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K



AAI Figure

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



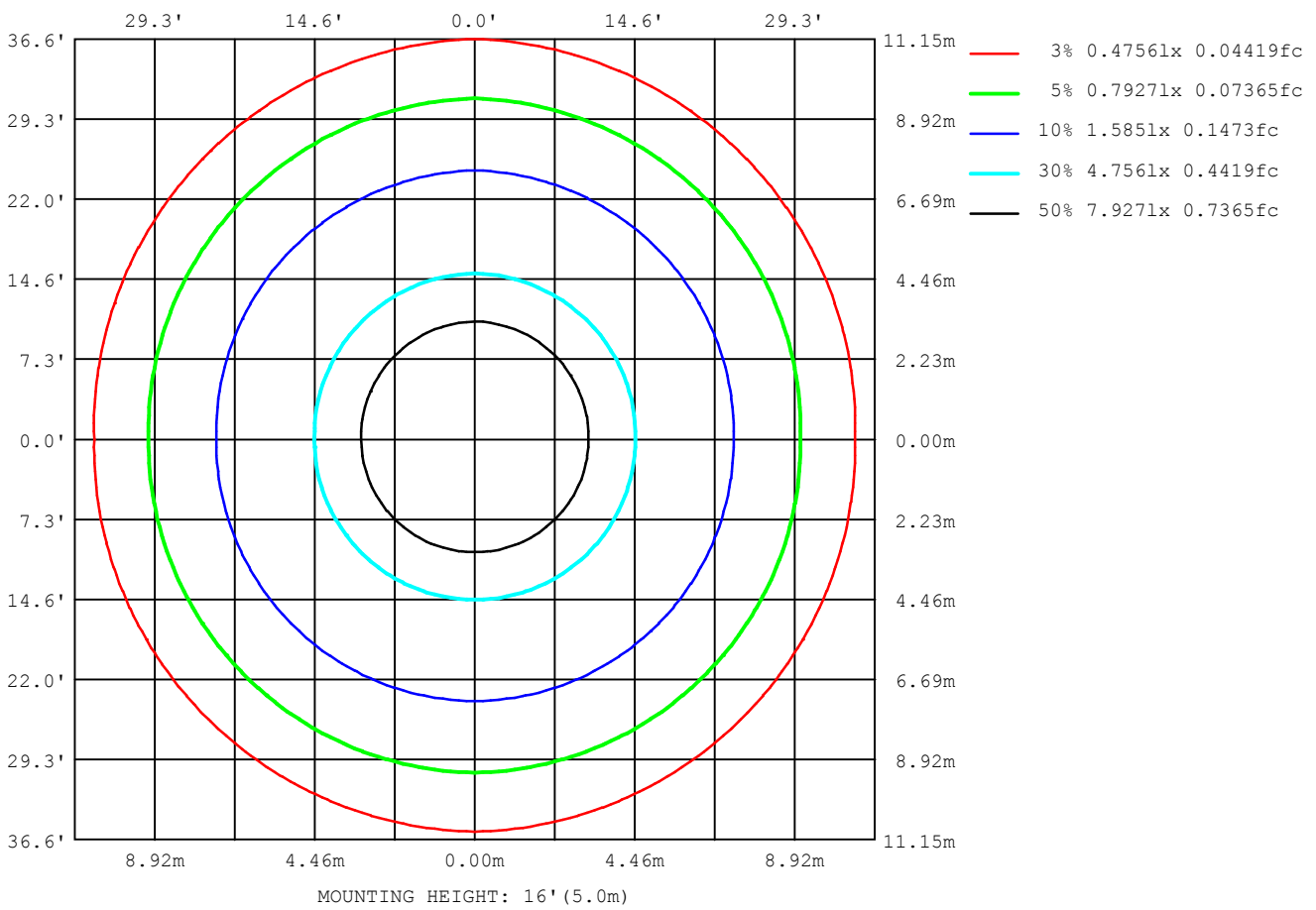
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K

ISOLUX DIAGRAM

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

LED Avg.L Report

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

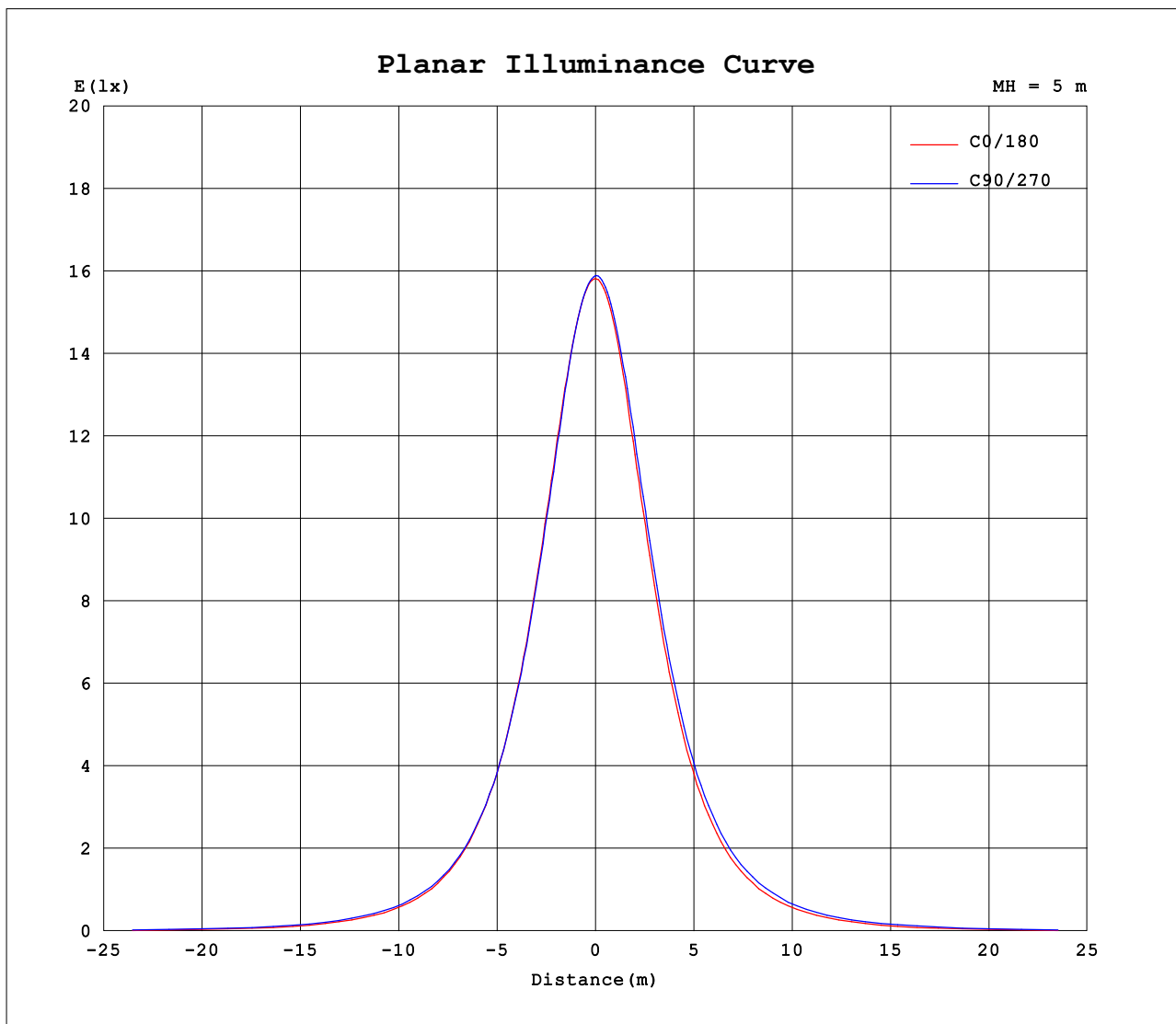
AvgL	cd/m2
L_0~180 (65) av	79566
L_0~180 (75) av	71313
L_0~180 (85) av	55346
L_90~270 (65) av	90946
L_90~270 (75) av	97736
L_90~270 (85) av	141418
L_45 (65) av	86684
L_45 (75) av	87826
L_45 (85) av	109014

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ZXH  
 Test Date: 2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 65.0%  
 Test Distance: 9.643m [K=1.0000]  
 Remarks: 1800-2000K

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:23.998V I:0.4733A P:11.358W PF:1.0000 Freq:49.99Hz Lamp Flux:1260.59x1 lm		
NAME: TF5-MP-2300K-IP66	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

Table--1

UNIT: cd

C (DEG) \ γ (DEG)	0	90	180	270															
0	396	397	396	397															
5	394	394	394	397															
10	389	388	389	394															
15	381	380	382	387															
20	369	366	368	378															
25	355	351	354	366															
30	338	334	337	351															
35	319	316	317	333															
40	296	295	295	312															
45	272	272	271	290															
50	245	247	244	265															
55	216	222	215	238															
60	184	195	184	210															
65	151	167	151	179															
70	117	139	117	148															
75	83.1	111	83.0	117															
80	50.3	83.1	49.7	84.8															
85	22.5	56.1	20.9	54.8															
90	2.47	33.3	1.58	31.8															
95	1.68	17.4	1.25	19.5															
100	1.79	7.29	1.51	10.2															
105	2.07	6.05	1.88	9.05															
110	2.46	5.25	1.93	6.68															
115	3.28	4.20	2.14	4.34															
120	3.67	3.24	2.39	2.96															
125	3.43	2.95	2.66	2.72															
130	3.46	3.06	2.93	2.88															
135	3.58	3.26	3.18	3.12															
140	3.66	3.49	3.42	3.33															
145	3.80	3.71	3.63	3.57															
150	3.94	3.90	3.81	3.77															
155	4.09	4.08	4.00	3.96															
160	4.24	4.24	4.18	4.13															
165	4.35	4.37	4.32	4.28															
170	4.45	4.48	4.43	4.41															
175	4.51	4.55	4.51	4.51															
180	4.58	4.59	4.56	4.60															

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ZXH  
 Test Date:2021-03-17

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:65.0%  
 Test Distance:9.643m [K=1.0000]  
 Remarks: 1800-2000K