



ATC MIDDLE EAST FZCO



 rafeed<sup>®</sup>  
LED  
E series

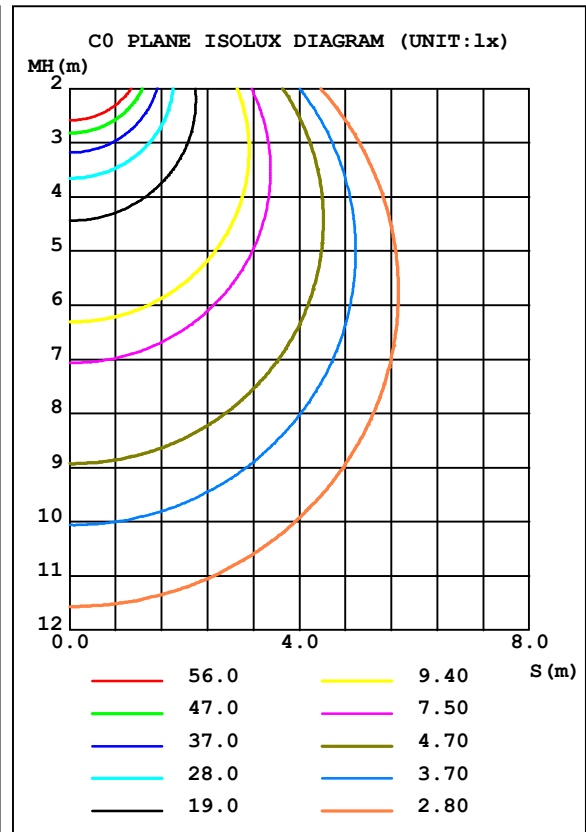
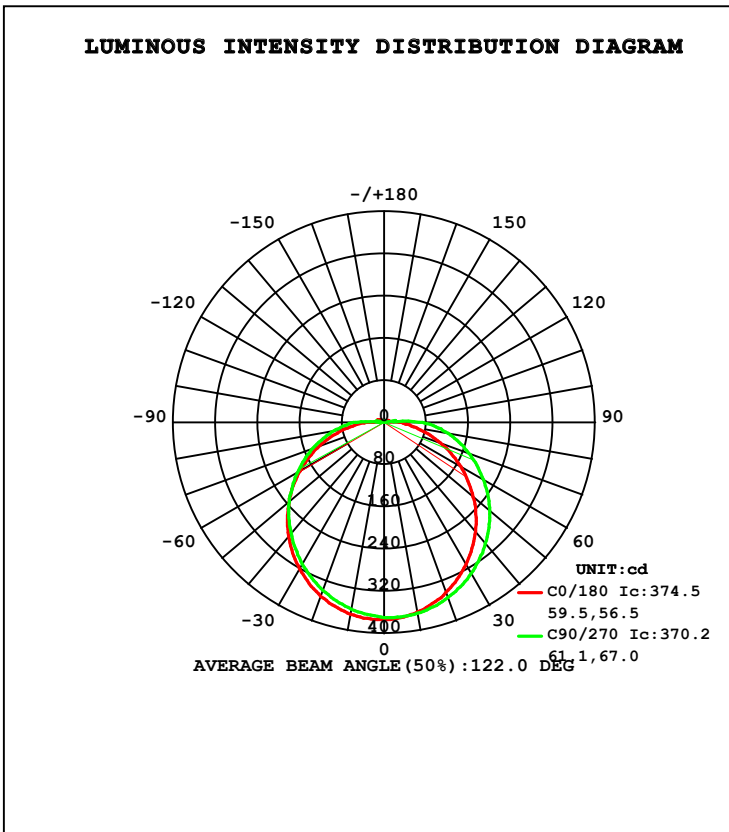
2022

OUR BEAUTIFUL WORLD WITH  
**LIGHTS.**

### LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.18V I:0.0665A P:15.003W PF:0.9803 Freq:49.99Hz Lamp Flux:1281.7x1 lm		
NAME: Rectangular Bulkhead 15W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ATC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 85.43 lm/W			
MODEL	Rectangular Bulkhead 15W	I <sub>max</sub> (cd)	374.5	S/MH (C0/180)	1.24
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	1.33
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	1281.7	η UP, DN (C0-180)	1.9, 47.2
NOMINAL FLUX (lm)	1281.7	CIE CLASS	DIRECT	η UP, DN (C180-360)	2.1, 48.7
LAMPS INSIDE	1	η up (%)	4.1	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	230	η down (%)	95.9	CIBSE SHR MAX	1.50



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

## ZONAL FLUX DIAGRAM

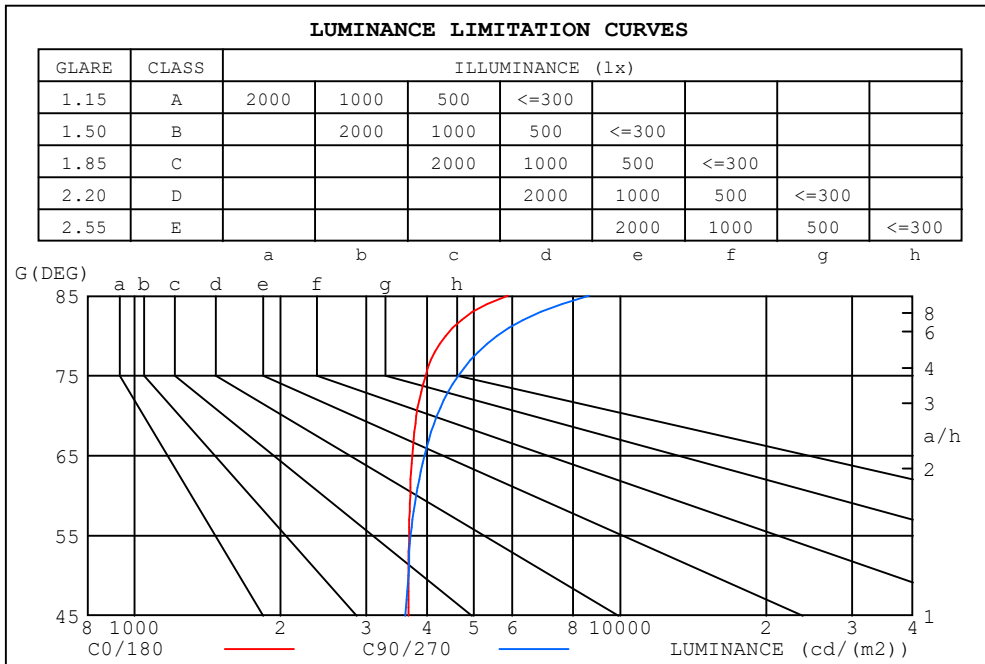
**ZONAL FLUX DIAGRAM:**

θ	C0	C90	C180	C270					γ	Φ zone	Φ total	lum ,lamp
10	369.3	359.5	365.6	367.7					0- 10	35.19	35.19	2.75,2.75
20	351.2	339.4	343.4	354.3					10- 20	101.0	136.2	10.6,10.6
30	320.9	310.5	311.0	331.1					20- 30	153.9	290.1	22.6,22.6
40	281.8	275.0	270.0	299.7					30- 40	188.4	478.5	37.3,37.3
50	235.6	235.6	221.1	261.8					40- 50	201.4	679.9	53,53
60	184.7	190.0	168.3	218.0					50- 60	192.0	871.9	68,68
70	130.1	143.5	113.8	171.2					60- 70	163.5	1035	80.8,80.8
80	75.84	96.88	61.79	123.4					70- 80	120.8	1156	90.2,90.2
90	30.63	55.67	30.78	73.17					80- 90	73.49	1230	95.9,95.9
100	3.587	16.25	13.52	22.47					90-100	27.09	1257	98,98
110	13.31	2.610	6.170	2.138					100-110	7.614	1264	98.6,98.6
120	10.34	2.757	6.816	2.479					110-120	6.256	1271	99.1,99.1
130	5.411	2.961	3.211	2.795					120-130	4.118	1275	99.5,99.5
140	2.951	3.123	2.805	2.909					130-140	2.462	1277	99.6,99.6
150	3.176	3.223	2.904	2.902					140-150	1.839	1279	99.8,99.8
160	3.350	3.280	3.180	3.146					150-160	1.456	1280	99.9,99.9
170	3.370	3.438	3.349	3.280					160-170	0.9283	1281	100,100
180	3.392	3.357	3.423	3.334					170-180	0.3220	1282	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 18.3 %									UNIT:lm		

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

## LUMINANCE LIMITATION CURVES



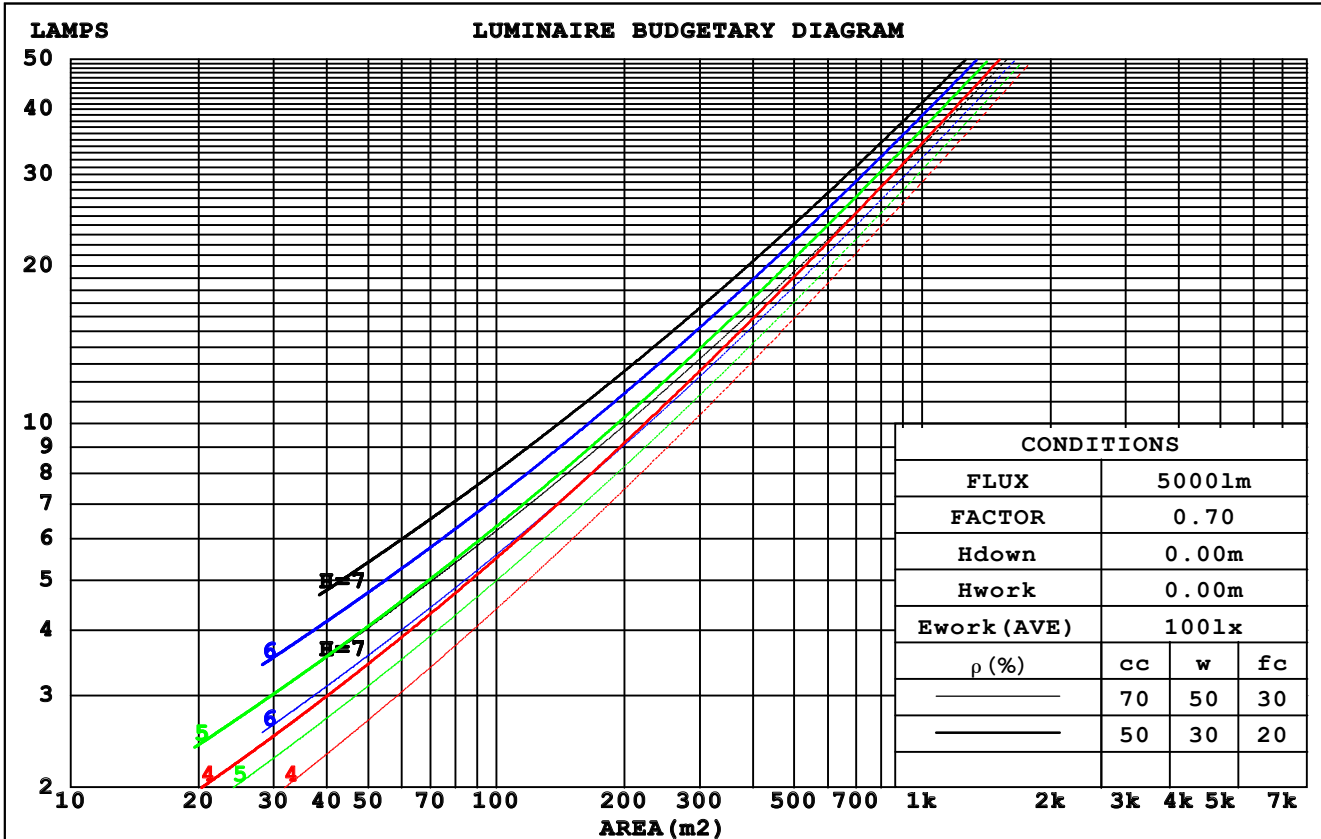
LUMINANCE cd/ (m <sup>2</sup> )		
G (DEG)	C0/180	C90/270
85	5864	8633
80	4367	5579
75	3973	4639
70	3804	4194
65	3727	3954
60	3694	3799
55	3674	3698
50	3665	3665
45	3671	3614

**C Range:** 0 - 360DEG  
**C Interval:** 90.0DEG  
**Test Speed:** HIGH  
**Temperature:** 25.3DEG  
**Operators:** ATC

**γ Range:** 0 - 180DEG  
**γ Interval:** 1.0DEG  
**Test System:** EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
**Humidity:** 60%  
**Test Distance:** 7.630m [K=1.0000]  
**Remarks:**

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	1.09	1.09	1.09	1.03	1.03	1.03	.98	.98	.98	.96
1.0	1.00	.95	.90	.97	.93	.88	.92	.88	.85	.88	.84	.82	.83	.81	.78	.76
2.0	.86	.78	.72	.84	.77	.71	.79	.74	.68	.75	.71	.66	.72	.68	.64	.62
3.0	.75	.66	.59	.73	.65	.58	.69	.62	.57	.66	.60	.55	.63	.58	.53	.51
4.0	.66	.57	.49	.64	.56	.49	.61	.54	.48	.58	.52	.47	.56	.50	.45	.43
5.0	.59	.49	.42	.57	.48	.42	.55	.47	.41	.52	.45	.40	.50	.44	.39	.37
6.0	.53	.43	.37	.51	.43	.36	.49	.41	.36	.47	.40	.35	.45	.39	.34	.32
7.0	.48	.39	.32	.47	.38	.32	.45	.37	.31	.43	.36	.31	.41	.35	.30	.28
8.0	.43	.35	.29	.43	.34	.28	.41	.33	.28	.39	.32	.27	.38	.32	.27	.25
9.0	.40	.31	.26	.39	.31	.25	.38	.30	.25	.36	.29	.25	.35	.29	.24	.22
10.0	.37	.29	.23	.36	.28	.23	.35	.28	.23	.33	.27	.22	.32	.26	.22	.20



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### WEC AND CCEC

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.365	.208	.066	.357	.203	.065	.341	.196	.062	.326	.188	.060	.313	.181	.058	
2.0	.325	.178	.055	.317	.175	.054	.303	.169	.052	.290	.163	.051	.278	.157	.050	
3.0	.292	.156	.047	.286	.153	.046	.273	.148	.045	.261	.143	.044	.250	.139	.043	
4.0	.265	.138	.040	.259	.136	.040	.248	.131	.039	.237	.127	.038	.228	.124	.038	
5.0	.242	.123	.036	.237	.122	.035	.227	.118	.035	.217	.115	.034	.209	.111	.033	
6.0	.223	.112	.032	.218	.110	.032	.209	.107	.031	.200	.104	.031	.192	.101	.030	
7.0	.206	.102	.029	.202	.100	.029	.193	.098	.028	.186	.095	.028	.179	.093	.027	
8.0	.191	.093	.026	.187	.092	.026	.180	.090	.026	.173	.088	.025	.167	.086	.025	
9.0	.179	.086	.024	.175	.085	.024	.168	.083	.024	.162	.081	.023	.156	.079	.023	
10.0	.167	.080	.022	.164	.079	.022	.158	.077	.022	.152	.076	.022	.147	.074	.021	

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.221	.221	.221	.189	.189	.189	.129	.129	.129	.074	.074	.074	.024	.024	.024	
1.0	.215	.187	.161	.184	.160	.139	.126	.110	.096	.073	.064	.056	.023	.021	.018	
2.0	.208	.163	.125	.178	.140	.108	.122	.097	.076	.070	.057	.044	.023	.018	.014	
3.0	.200	.146	.103	.172	.126	.089	.118	.088	.062	.068	.051	.037	.022	.017	.012	
4.0	.193	.133	.088	.165	.115	.076	.114	.080	.054	.066	.047	.032	.021	.015	.010	
5.0	.185	.123	.077	.159	.106	.067	.109	.074	.047	.063	.044	.028	.020	.014	.009	
6.0	.177	.115	.070	.152	.099	.061	.105	.070	.043	.061	.041	.026	.020	.013	.008	
7.0	.170	.108	.064	.146	.093	.056	.101	.066	.040	.059	.039	.024	.019	.013	.008	
8.0	.163	.102	.060	.141	.089	.052	.097	.062	.037	.057	.037	.022	.018	.012	.007	
9.0	.157	.097	.057	.135	.084	.050	.094	.059	.035	.055	.035	.021	.018	.011	.007	
10.0	.151	.093	.054	.130	.081	.047	.090	.057	.034	.053	.034	.020	.017	.011	.007	

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: SEE

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

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				
<b>x = 2H y = 2H</b>	17.1	18.6	17.4	18.9	19.2	17.1	18.7	17.5	19.0	19.2
3H	18.9	20.4	19.3	20.7	21.0	19.2	20.6	19.5	20.9	21.3
4H	19.8	21.2	20.2	21.5	21.9	20.2	21.6	20.6	21.9	22.3
6H	20.6	21.9	21.0	22.3	22.7	21.3	22.6	21.7	22.9	23.3
8H	21.0	22.3	21.4	22.6	23.0	21.8	23.1	22.2	23.4	23.8
12H	21.4	22.6	21.8	23.0	23.4	22.4	23.6	22.8	24.0	24.4
<b>4H 2H</b>	17.8	19.1	18.2	19.5	19.8	17.8	19.2	18.2	19.5	19.9
3H	19.9	21.1	20.3	21.5	21.9	20.1	21.3	20.5	21.7	22.1
4H	20.9	22.0	21.4	22.4	22.9	21.3	22.4	21.7	22.8	23.2
6H	21.9	22.9	22.4	23.3	23.8	22.5	23.5	23.0	23.9	24.4
8H	22.4	23.3	22.9	23.8	24.2	23.2	24.1	23.6	24.5	25.0
12H	22.9	23.7	23.4	24.2	24.7	23.9	24.7	24.4	25.2	25.7
<b>8H 4H</b>	21.4	22.3	21.9	22.8	23.2	21.7	22.6	22.2	23.1	23.6
6H	22.6	23.4	23.1	23.9	24.4	23.2	24.0	23.7	24.4	25.0
8H	23.3	24.0	23.8	24.5	25.0	24.0	24.7	24.5	25.2	25.7
12H	23.9	24.5	24.5	25.1	25.6	24.9	25.5	25.4	26.0	26.6
<b>12H 4H</b>	21.5	22.3	22.0	22.8	23.3	21.8	22.6	22.3	23.1	23.6
6H	22.8	23.5	23.3	24.0	24.6	23.3	24.0	23.8	24.5	25.1
8H	23.5	24.2	24.1	24.7	25.3	24.2	24.8	24.8	25.3	25.9
<b>Variations with the observer position at spacings:</b>										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				

CIE Pub.117, 1282 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 0.9)

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### UTILIZATION FACTORS TABLE

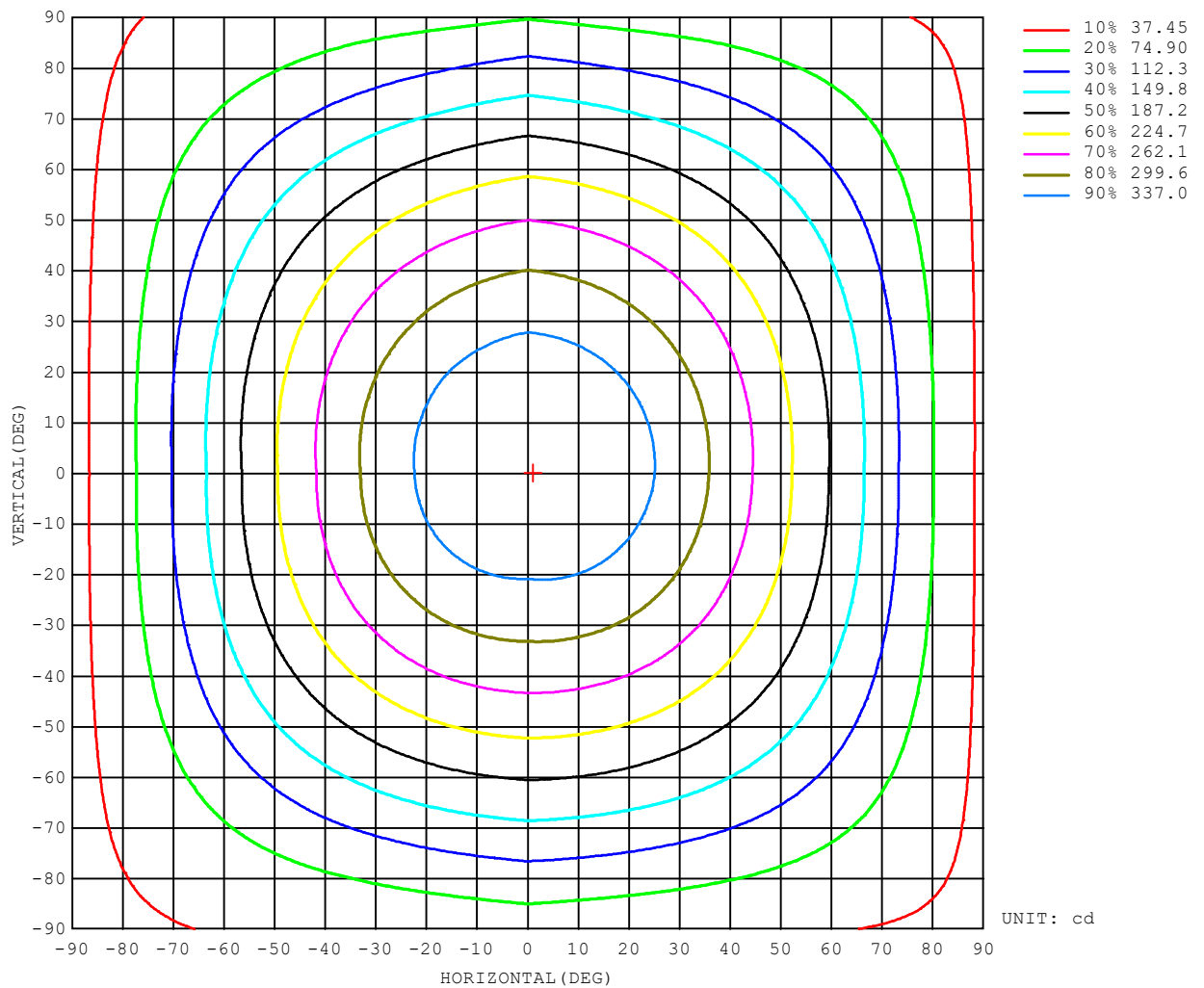
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	53	41	34	53	41	34	51	40	34	27
0.80	63	51	43	62	50	42	60	49	42	35
1.00	71	59	51	70	58	51	67	60	50	42
1.25	78	66	58	76	65	58	73	64	57	49
1.50	83	72	64	81	71	63	78	69	62	54
2.00	90	80	73	88	79	72	84	76	70	61
2.50	94	85	78	92	84	77	88	81	75	65
3.00	98	90	83	95	88	82	91	85	79	70
4.00	102	95	90	100	93	88	95	89	85	75
5.00	105	99	94	102	97	92	97	93	89	78
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SERNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:



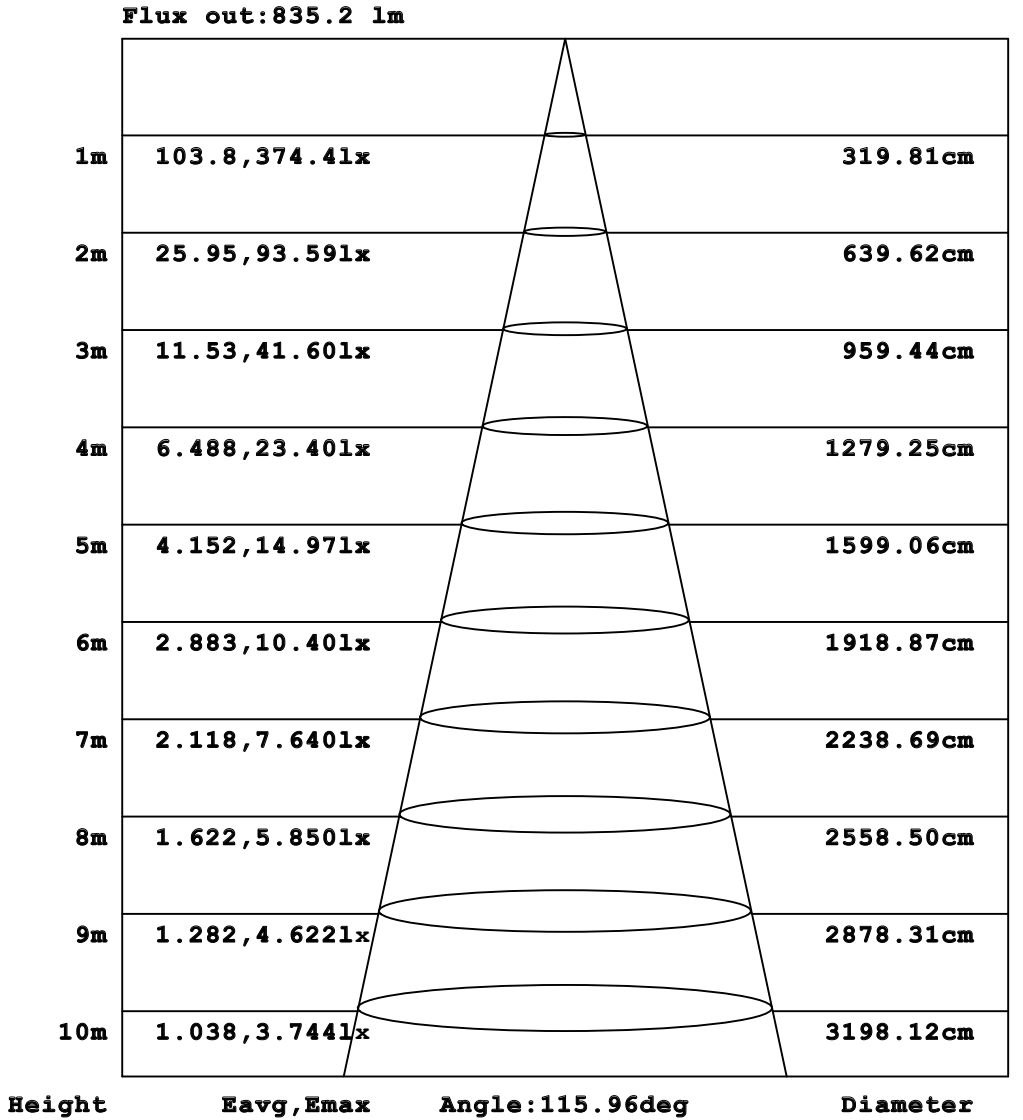
### ISOCANDELA DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

**AAI Figure**

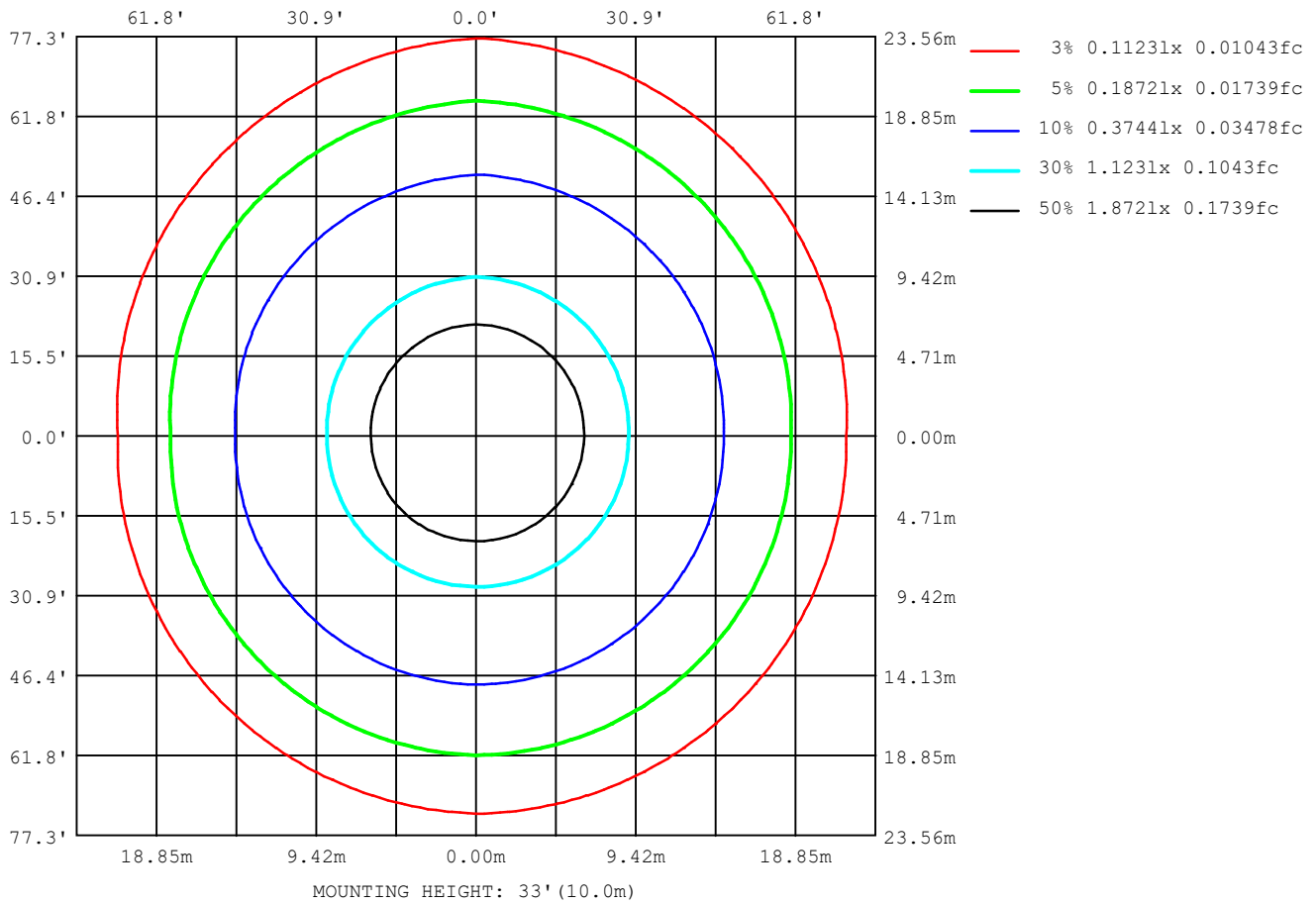


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### ISOLUX DIAGRAM



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:

### LED Avg.L Report

Test:U:230.18V I:0.0665A P:15.003W PF:0.9803 Freq:49.99Hz Lamp Flux:1281.7x1 lm		
NAME: MPL10 15W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

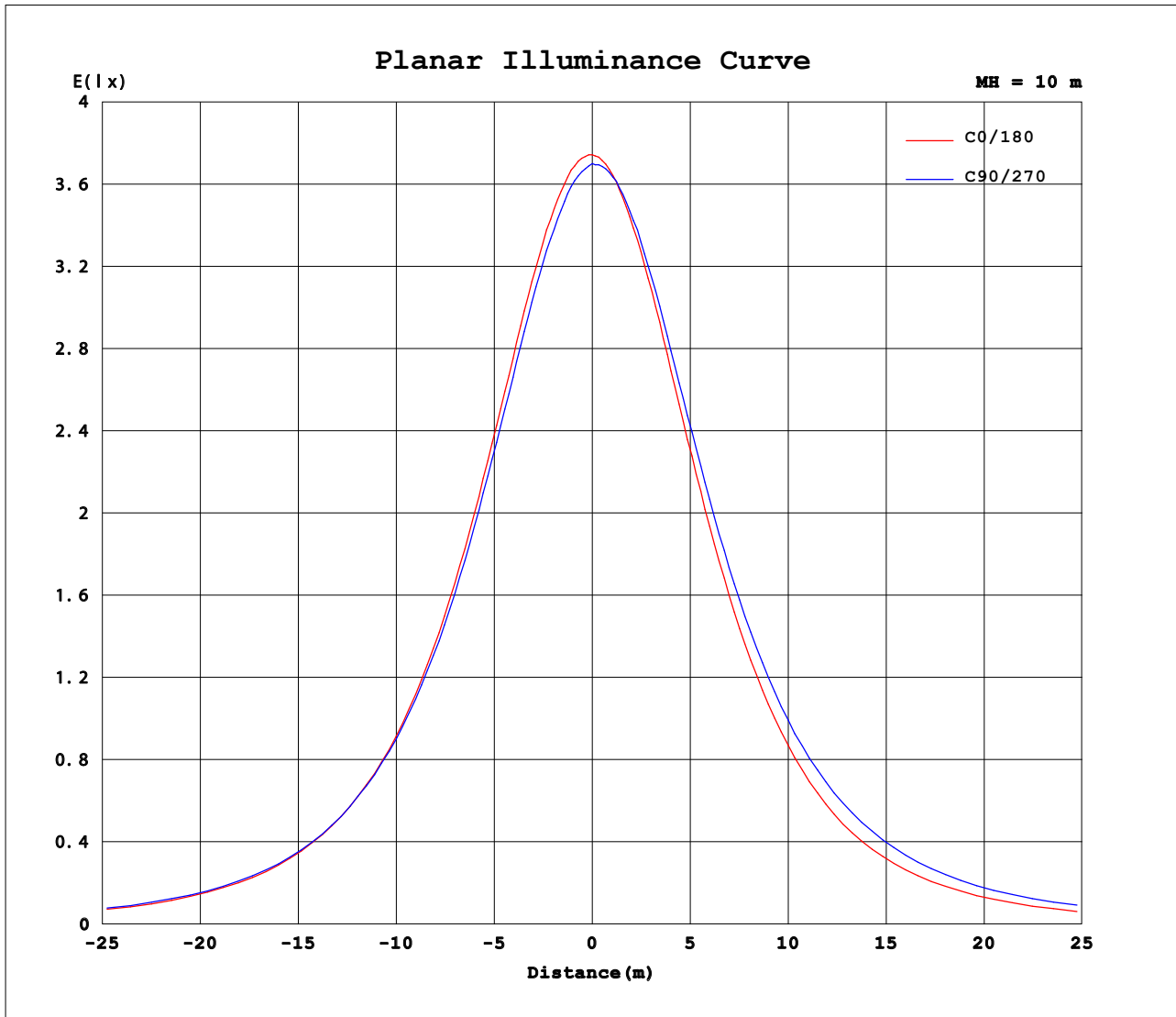
AvgL	cd/m2
L_0~180 (65) av	3535
L_0~180 (75) av	3661
L_0~180 (85) av	5343
L_90~270 (65) av	4278
L_90~270 (75) av	5172
L_90~270 (85) av	10035
L_45 (65) av	3988
L_45 (75) av	4586
L_45 (85) av	8243

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:ATC

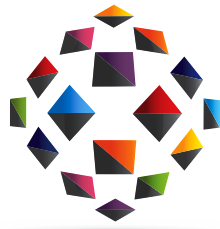
γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity:60%  
 Test Distance:7.630m [K=1.0000]  
 Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 90.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: ATC

γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
 Test Distance: 7.630m [K=1.0000]  
 Remarks:



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## ATC MIDDLE EAST FZCO

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