



ATC MIDDLE EAST FZCO



 rafeed[®] LED
E series

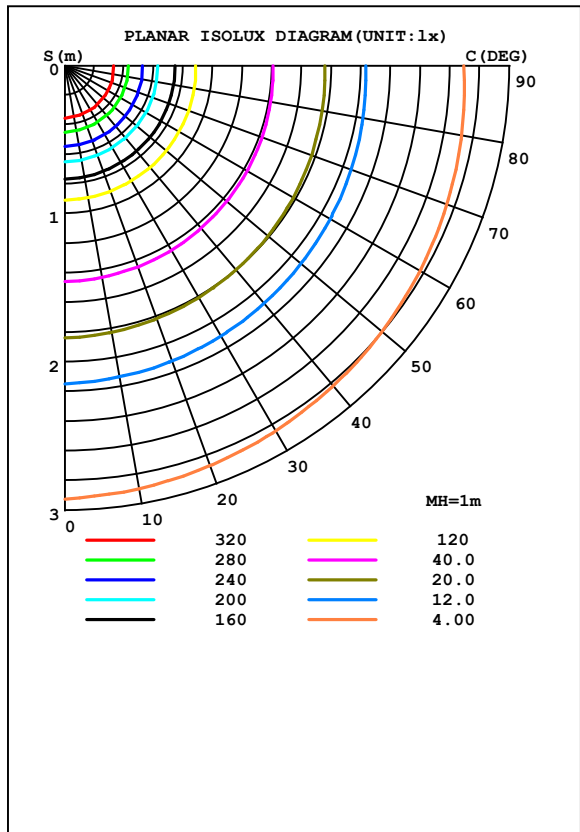
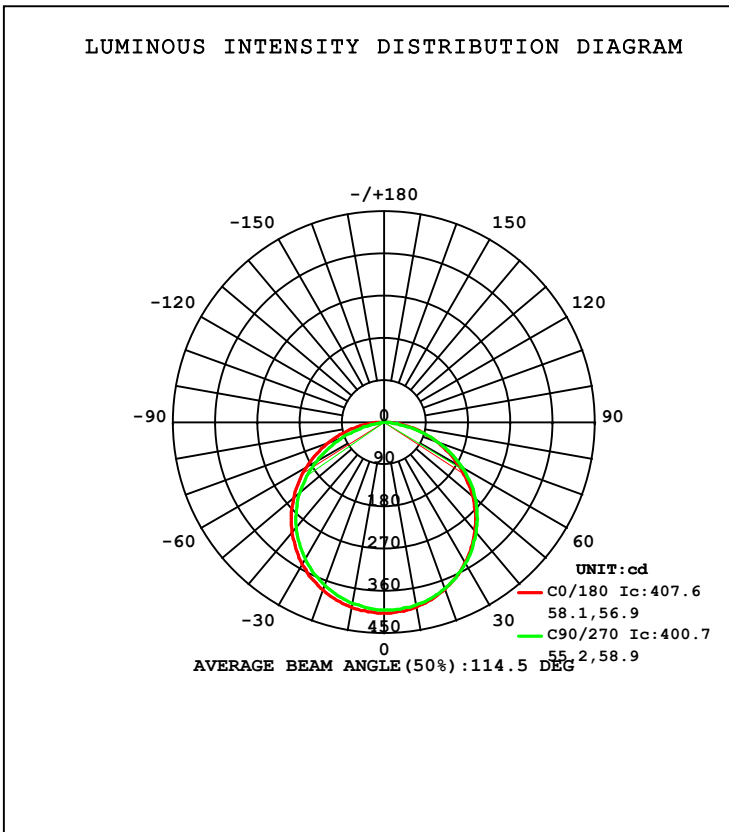
2022

OUR BEAUTIFUL WORLD WITH
LIGHTS.

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.18V I:0.0670A P:14.850W PF:0.9635 Freq:49.99Hz Lamp Flux:1184.89x1 lm		
NAME: Panel Down light 15W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 79.79 lm/W			
MODEL	Panel Down light 15W	I _{max} (cd)	407.6	S/MH (C0/180)	1.26
NOMINAL POWER (W)	15	LOR (%)	100.0	S/MH (C90/270)	1.29
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	1184.9	η UP, DN (C0-180)	0.6, 48.5
NOMINAL FLUX (lm)	1184.89	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.5, 50.4
LAMPS INSIDE	1	η up (%)	1.1	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	98.9	CIBSE SHR MAX	1.35



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

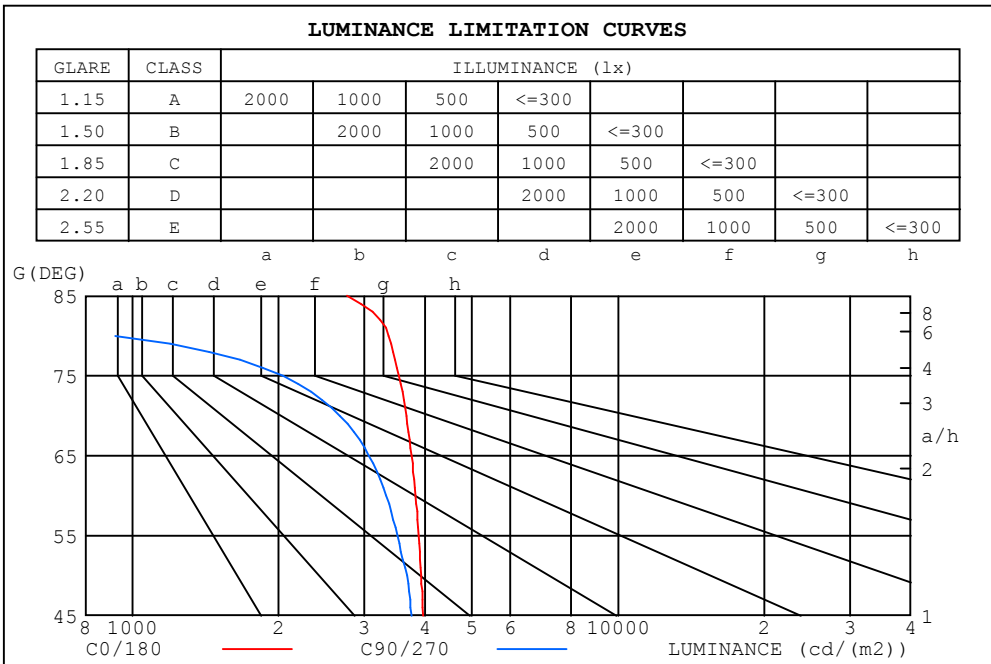
ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	401.0	392.0	400.4	395.9					0- 10	38.22	38.22	3.23,3.23
20	381.2	370.3	379.5	378.5					10- 20	109.8	148.0	12.5,12.5
30	349.7	336.8	346.0	347.9					20- 30	167.2	315.2	26.6,26.6
40	306.4	292.4	302.0	306.3					30- 40	203.1	518.3	43.7,43.7
50	252.4	236.0	247.6	254.9					40- 50	212.7	731.0	61.7,61.7
60	191.3	166.4	184.2	193.0					50- 60	193.4	924.4	78,78
70	125.2	91.51	118.0	120.3					60- 70	147.6	1072	90.5,90.5
80	58.52	16.00	52.00	42.92					70- 80	81.86	1154	97.4,97.4
90	0.7052	0.9935	0.5234	1.354					80- 90	18.29	1172	98.9,98.9
100	1.135	1.167	0.7908	0.9923					90-100	1.208	1173	99,99
110	1.685	1.691	1.291	1.220					100-110	1.285	1175	99.1,99.1
120	2.206	2.211	1.745	1.635					110-120	1.694	1176	99.3,99.3
130	2.653	2.665	2.211	2.125					120-130	1.952	1178	99.4,99.4
140	2.976	3.000	2.638	2.463					130-140	2.013	1180	99.6,99.6
150	3.218	3.235	3.000	2.814					140-150	1.836	1182	99.8,99.8
160	3.442	3.473	3.292	3.161					150-160	1.481	1184	99.9,99.9
170	3.615	3.631	3.561	3.453					160-170	0.9789	1185	100,100
180	3.677	3.650	3.719	3.604					170-180	0.3442	1185	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 13.7 %									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



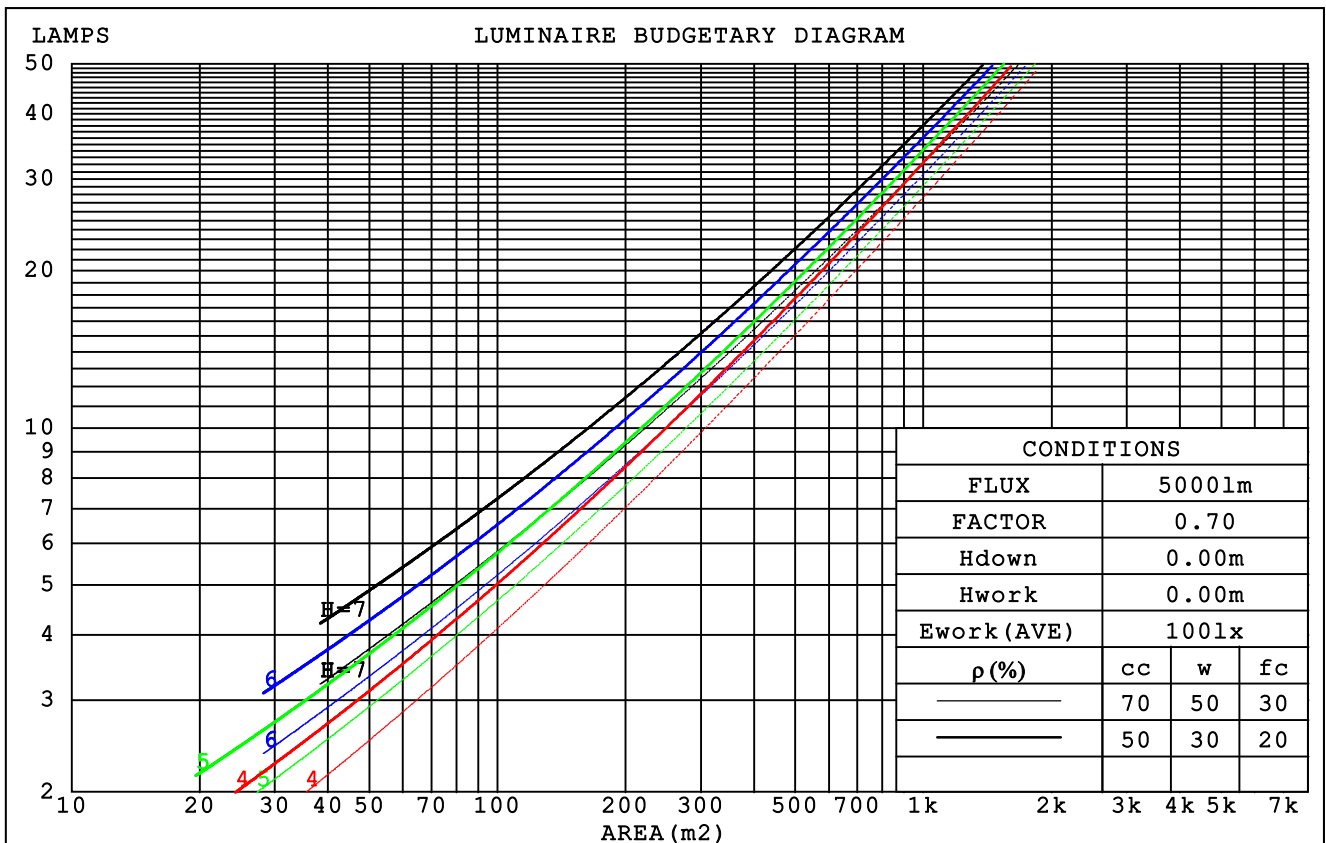
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	2762	150
80	3370	921
75	3534	2041
70	3662	2676
65	3757	3068
60	3826	3328
55	3882	3515
50	3927	3671
45	3964	3756

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 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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						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	1.04	.99	.96	1.01	.97	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.83	.78	.88	.82	.77	.85	.79	.75	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.71	.64	.77	.70	.64	.74	.68	.62	.71	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.54	.69	.60	.54	.66	.59	.53	.63	.57	.52	.61	.56	.51	.49
5.0	.62	.53	.47	.61	.53	.46	.59	.52	.46	.57	.50	.45	.55	.49	.45	.42
6.0	.56	.47	.41	.55	.47	.40	.53	.46	.40	.51	.45	.40	.50	.44	.39	.37
7.0	.51	.42	.36	.50	.42	.36	.48	.41	.35	.47	.40	.35	.45	.39	.35	.33
8.0	.46	.38	.32	.46	.37	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.33	.28	.40	.33	.28	.38	.32	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.36	.30	.25	.24



WEC AND CCEC

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.307	.175	.055	.300	.171	.054	.286	.164	.052	.273	.157	.051	.261	.151	.049	
2.0	.291	.159	.049	.284	.156	.048	.272	.151	.047	.261	.146	.046	.250	.141	.045	
3.0	.270	.143	.043	.264	.141	.043	.253	.137	.042	.243	.133	.041	.233	.129	.040	
4.0	.249	.129	.038	.244	.128	.038	.234	.124	.037	.225	.121	.036	.217	.118	.036	
5.0	.230	.117	.034	.226	.116	.034	.217	.113	.033	.209	.110	.033	.202	.108	.032	
6.0	.214	.107	.031	.210	.106	.030	.202	.104	.030	.195	.101	.030	.188	.099	.029	
7.0	.199	.098	.028	.195	.097	.028	.188	.095	.027	.182	.093	.027	.176	.091	.027	
8.0	.186	.091	.026	.183	.090	.025	.176	.088	.025	.171	.086	.025	.165	.085	.025	
9.0	.174	.084	.024	.171	.083	.023	.166	.082	.023	.160	.080	.023	.155	.079	.023	
10.0	.164	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.074	.021	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.199	.199	.199	.170	.170	.170	.116	.116	.116	.067	.067	.067	.021	.021	.021	
1.0	.188	.164	.143	.161	.141	.123	.110	.097	.085	.063	.056	.049	.020	.018	.016	
2.0	.180	.140	.106	.155	.121	.092	.106	.084	.064	.061	.049	.038	.020	.016	.012	
3.0	.173	.123	.083	.148	.106	.072	.102	.074	.050	.059	.043	.030	.019	.014	.010	
4.0	.165	.109	.067	.142	.095	.058	.098	.066	.041	.056	.039	.024	.018	.013	.008	
5.0	.158	.099	.056	.136	.086	.048	.093	.060	.034	.054	.035	.020	.017	.011	.007	
6.0	.151	.091	.048	.130	.079	.041	.089	.055	.029	.052	.032	.017	.017	.011	.006	
7.0	.144	.084	.042	.124	.073	.036	.086	.051	.026	.050	.030	.015	.016	.010	.005	
8.0	.138	.078	.037	.118	.068	.032	.082	.048	.023	.048	.028	.014	.015	.009	.005	
9.0	.131	.073	.034	.113	.063	.029	.078	.045	.021	.046	.026	.012	.015	.009	.004	
10.0	.126	.069	.031	.108	.060	.027	.075	.042	.019	.044	.025	.011	.014	.008	.004	

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:

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				
x = 2H y = 2H	17.6	19.1	17.8	19.3	19.5	17.1	18.6	17.4	18.8	19.1
3H	19.2	20.6	19.5	20.8	21.1	18.4	19.8	18.7	20.0	20.3
4H	19.9	21.2	20.2	21.5	21.8	18.7	20.1	19.1	20.3	20.6
6H	20.4	21.7	20.8	22.0	22.3	18.8	20.1	19.2	20.4	20.7
8H	20.6	21.8	21.0	22.1	22.4	18.8	20.0	19.1	20.3	20.6
12H	20.7	21.9	21.1	22.2	22.5	18.7	19.9	19.1	20.2	20.5
4H 2H	18.1	19.4	18.4	19.7	20.0	17.8	19.1	18.1	19.3	19.6
3H	19.9	21.1	20.3	21.4	21.7	19.2	20.4	19.6	20.7	21.0
4H	20.7	21.8	21.1	22.1	22.5	19.7	20.7	20.1	21.1	21.4
6H	21.4	22.3	21.8	22.7	23.1	19.8	20.8	20.3	21.1	21.5
8H	21.6	22.5	22.0	22.8	23.3	19.8	20.7	20.2	21.1	21.5
12H	21.7	22.5	22.2	22.9	23.4	19.8	20.6	20.2	21.0	21.4
8H 4H	20.9	21.7	21.3	22.1	22.5	19.9	20.8	20.4	21.2	21.6
6H	21.6	22.4	22.1	22.8	23.2	20.2	20.9	20.7	21.3	21.8
8H	21.9	22.6	22.4	23.0	23.5	20.2	20.8	20.7	21.3	21.8
12H	22.2	22.7	22.7	23.2	23.7	20.2	20.7	20.7	21.2	21.7
12H 4H	20.9	21.7	21.3	22.1	22.5	20.0	20.8	20.4	21.2	21.6
6H	21.6	22.3	22.1	22.7	23.2	20.2	20.9	20.7	21.3	21.8
8H	22.0	22.5	22.5	23.0	23.5	20.3	20.8	20.8	21.3	21.8
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 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, 1185 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 0.6)

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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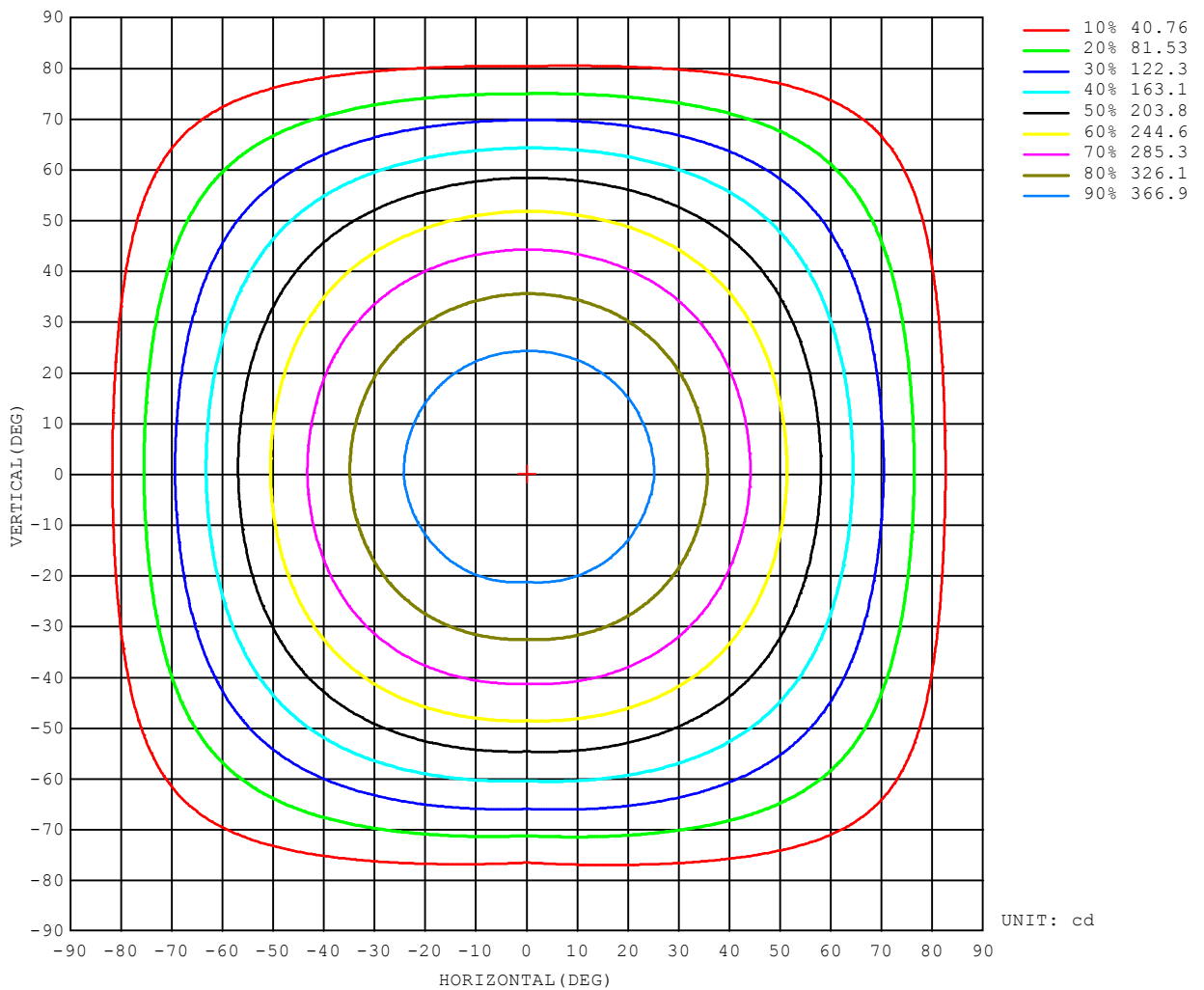
UTILIZATION FACTORS TABLE

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	57	45	38	56	45	38	55	44	38	31
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	64	78	70	64	56
1.50	88	78	71	86	77	70	83	75	69	61
2.00	95	86	80	93	85	79	89	82	77	69
2.50	99	91	85	96	89	84	92	87	82	73
3.00	102	95	90	100	93	88	96	90	86	77
4.00	106	100	96	104	98	94	99	95	91	82
5.00	108	104	100	106	102	98	101	98	95	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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 Operators: ATC

γ Range: 0 - 180DEG
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 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.366
 Humidity: 60%
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 Remarks:

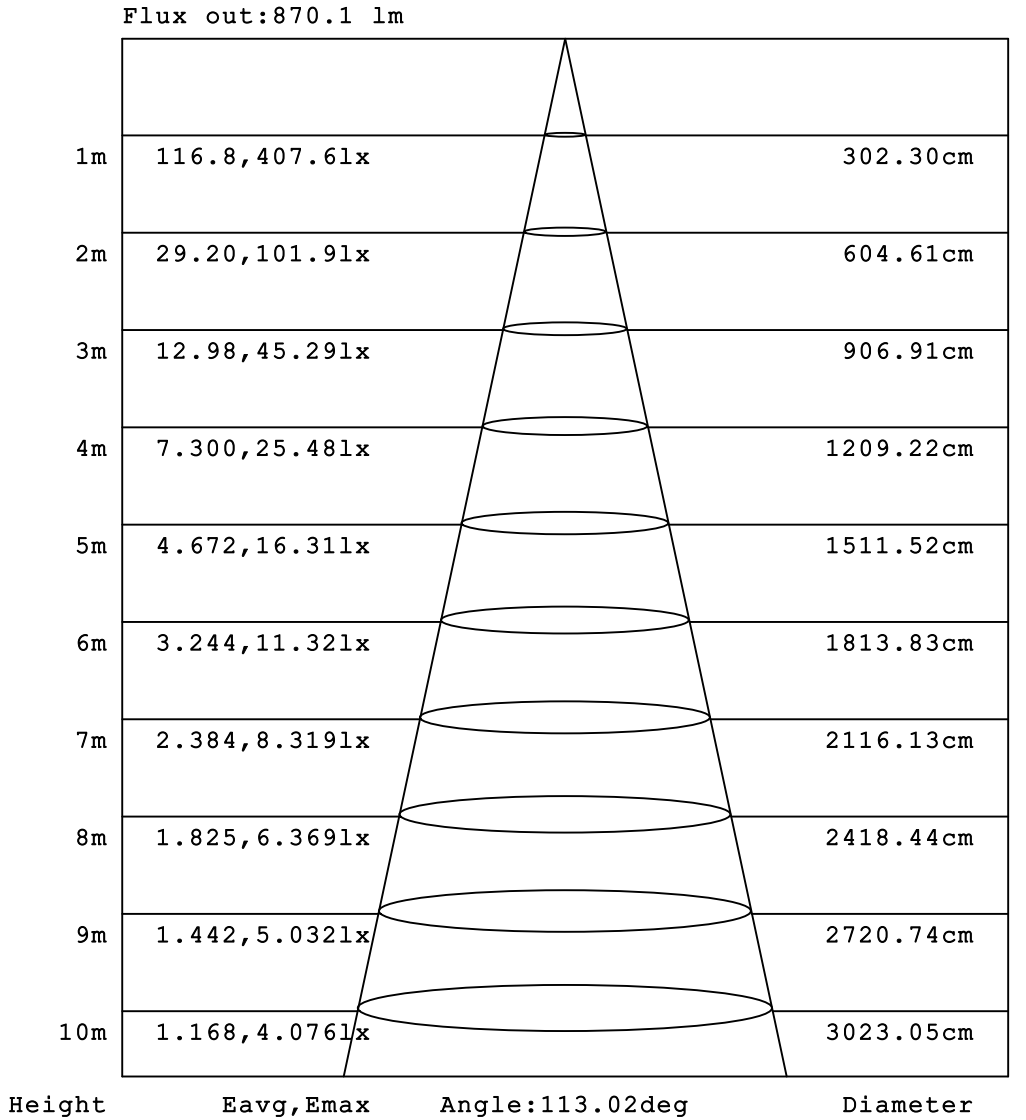
ISOCANDELA DIAGRAM



C Range: 0 - 360DEG
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 Test Speed: HIGH
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 Operators: ATC

γ Range: 0 - 180DEG
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AAI Figure

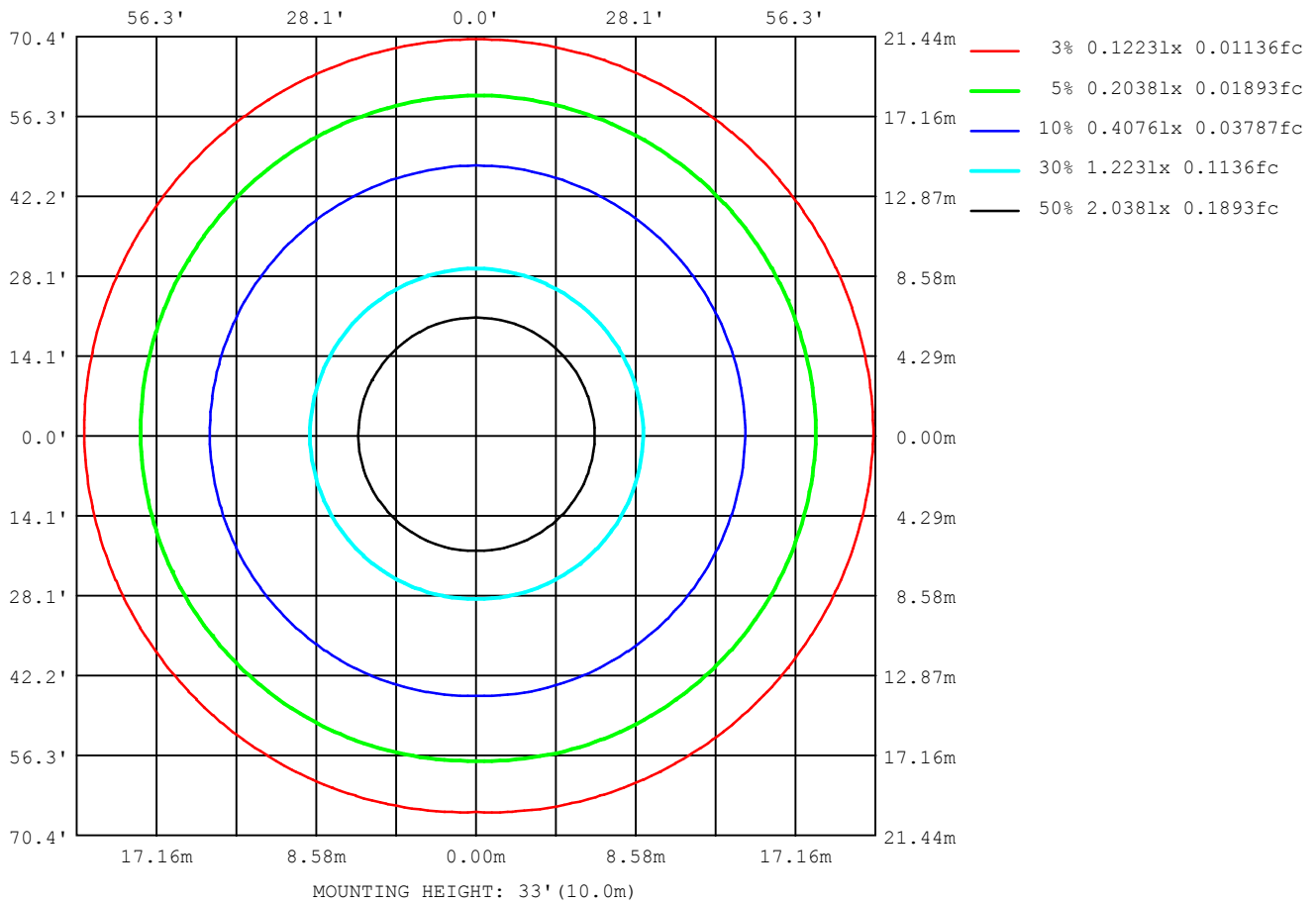


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM



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 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:0.0670A P:14.850W PF:0.9635 Freq:49.99Hz Lamp Flux:1184.89x1 lm		
NAME: DL6G 15W 6000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

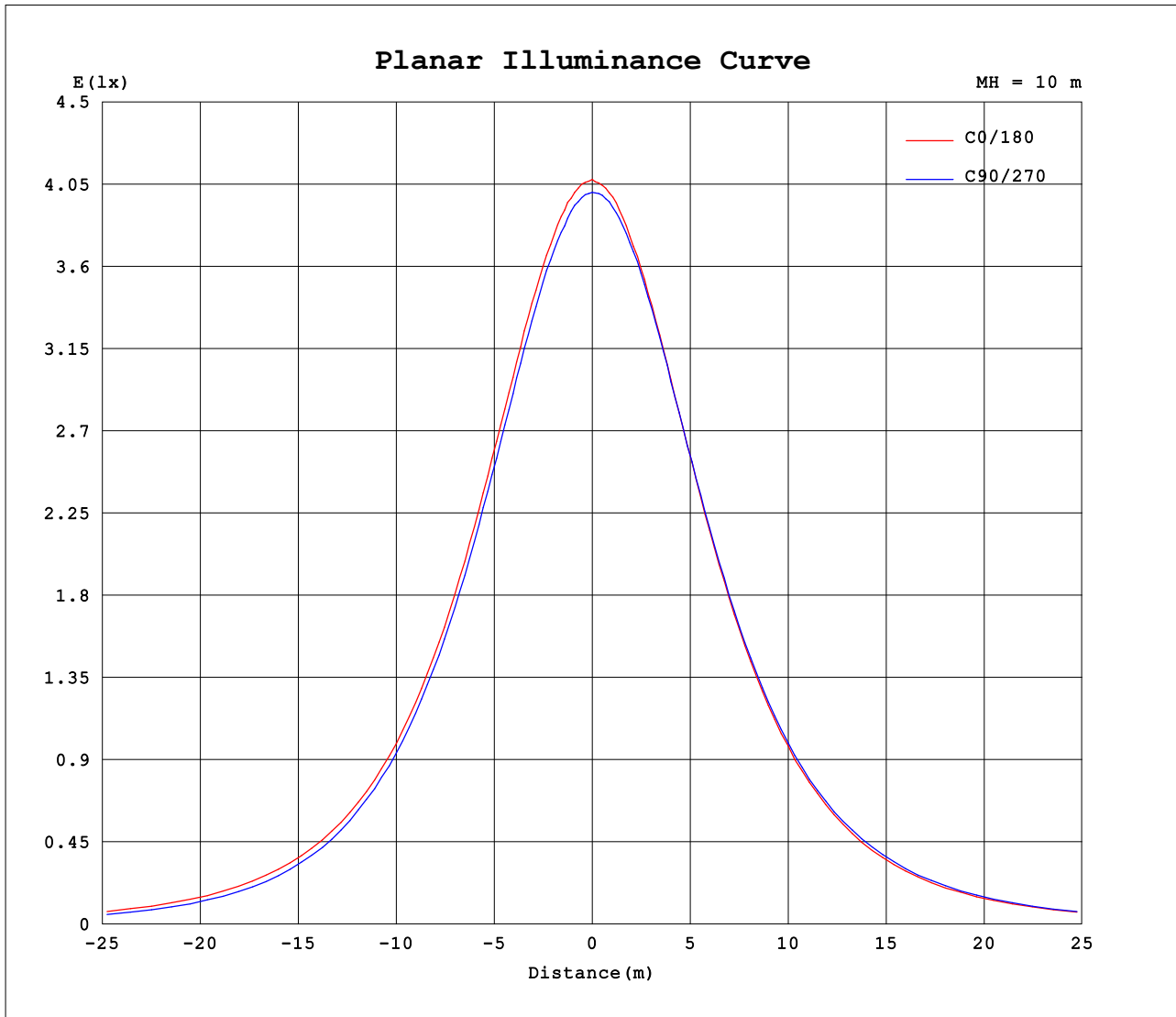
AvgL	cd/m2
L_0~180 (65) av	3672
L_0~180 (75) av	3404
L_0~180 (85) av	2549
L_90~270 (65) av	3403
L_90~270 (75) av	2581
L_90~270 (85) av	799
L_45 (65) av	3498
L_45 (75) av	2881
L_45 (85) av	1442

Standard: GB/T 29293-2012

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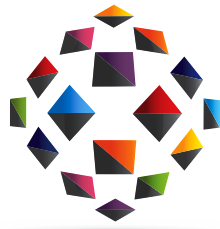
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Planar Illuminance Curve



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ATC MIDDLE EAST FZCO

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