



ATC MIDDLE EAST FZCO



 rafeed[®] LED
E series

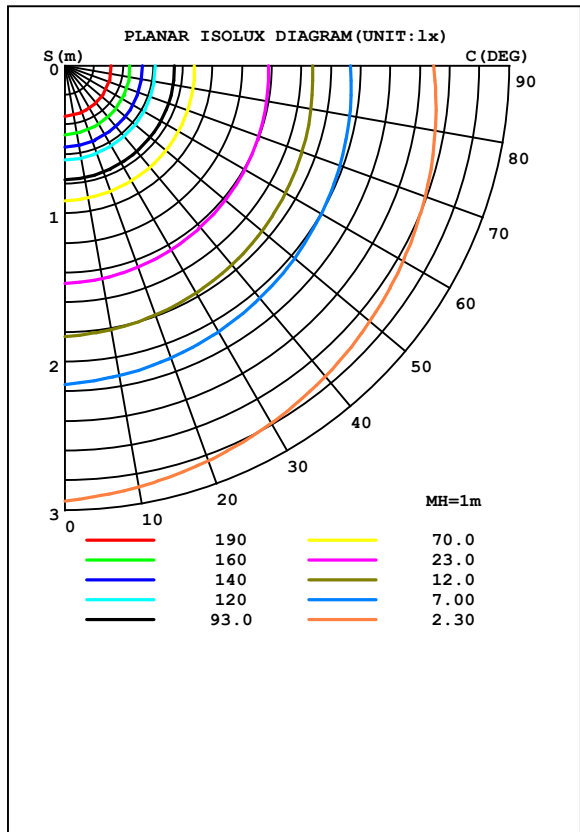
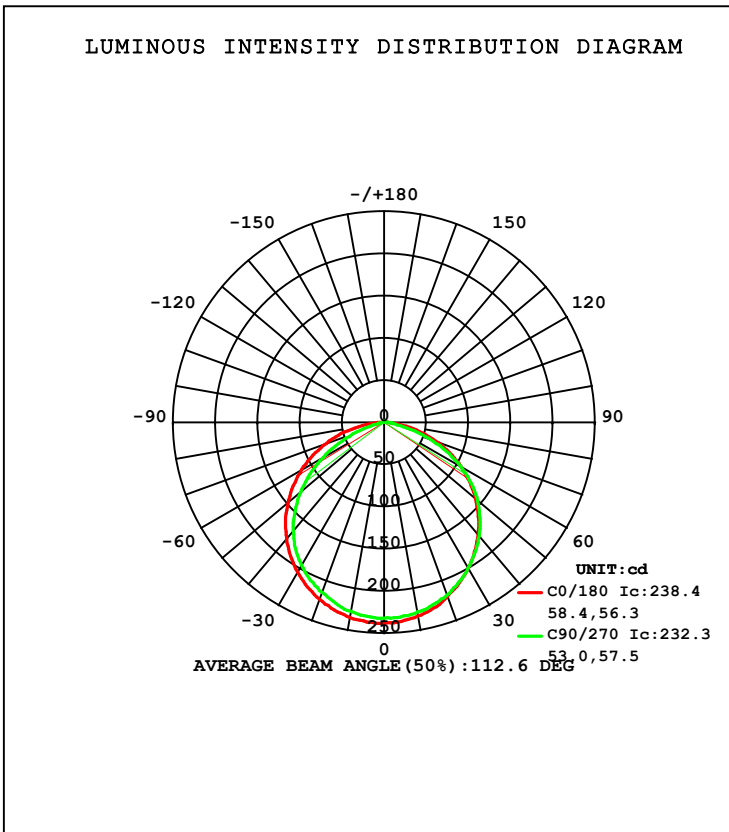
2022

OUR BEAUTIFUL WORLD WITH
LIGHTS.

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.21V I:0.0384A P:8.3893W PF:0.9497 Freq:49.99Hz Lamp Flux:664.474x1 lm		
NAME: Panel Down light 8W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ATC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 79.21 lm/W			
MODEL	Panel Down light 8W	I _{max} (cd)	238.4	S/MH (C0/180)	1.25
NOMINAL POWER (W)	8	LOR (%)	100.0	S/MH (C90/270)	1.28
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	664.47	η UP, DN (C0-180)	0.6, 48.7
NOMINAL FLUX (lm)	664.474	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.6, 50.2
LAMPS INSIDE	1	η up (%)	1.2	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	98.8	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

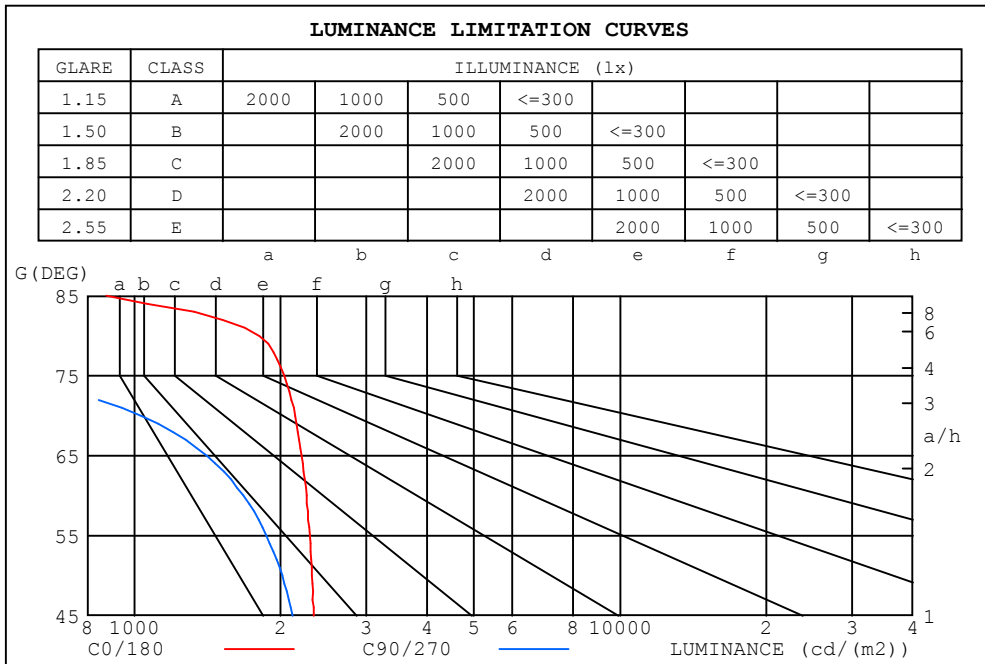
ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	234.7	227.6	233.1	228.4					0- 10	22.25	22.25	3.35,3.35
20	223.3	214.8	219.5	217.7					10- 20	63.82	86.07	13,13
30	205.2	195.8	199.7	199.7					20- 30	97.01	183.1	27.6,27.6
40	179.9	167.9	174.0	175.6					30- 40	117.7	300.8	45.3,45.3
50	148.9	129.4	141.5	144.9					40- 50	122.3	423.0	63.7,63.7
60	113.0	83.86	105.3	105.3					50- 60	109.1	532.2	80.1,80.1
70	73.29	35.38	65.13	57.01					60- 70	79.01	611.2	92,92
80	31.43	1.382	23.30	12.95					70- 80	38.27	649.5	97.7,97.7
90	0.3777	0.7180	0.2504	1.339					80- 90	7.357	656.8	98.8,98.8
100	0.5848	0.6092	0.4585	0.3271					90-100	0.6740	657.5	98.9,98.9
110	0.9499	0.9937	0.7592	0.9343					100-110	0.9262	658.4	99.1,99.1
120	1.273	1.256	1.048	1.020					110-120	1.003	659.4	99.2,99.2
130	1.536	1.518	1.340	1.381					120-130	1.157	660.6	99.4,99.4
140	1.721	1.725	1.575	1.471					130-140	1.203	661.8	99.6,99.6
150	1.856	1.867	1.771	1.613					140-150	1.064	662.8	99.8,99.8
160	2.009	2.018	1.937	1.844					150-160	0.8570	663.7	99.9,99.9
170	2.106	2.088	2.110	1.983					160-170	0.5722	664.3	100,100
180	2.148	2.118	2.191	2.091					170-180	0.2001	664.5	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 12.4 %									UNIT:lm		

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 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



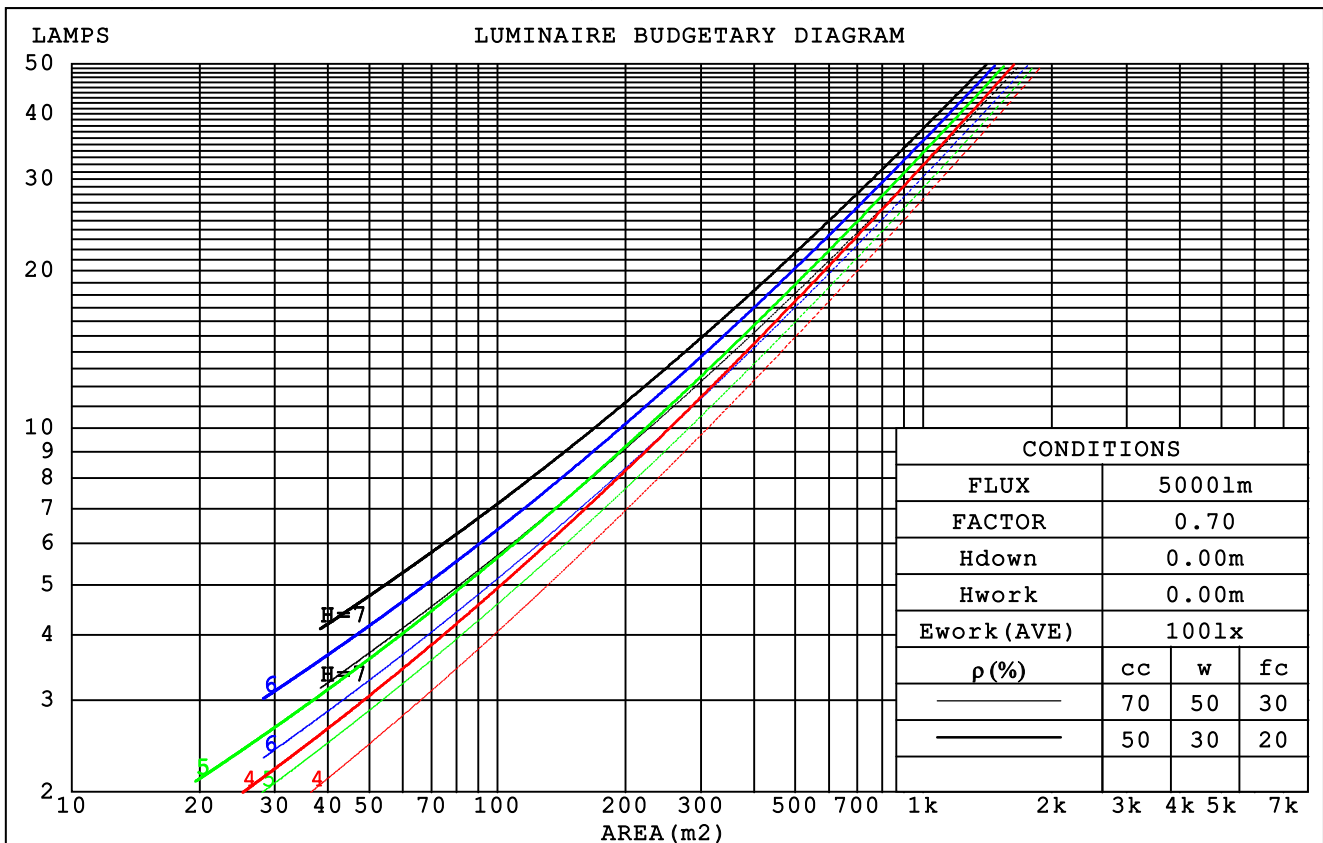
LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	875	139
80	1810	80
75	2032	517
70	2143	1034
65	2205	1408
60	2260	1677
55	2298	1871
50	2317	2014
45	2339	2118

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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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						Coefficients of Utilization(CU)									
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.10	1.10	1.10	1.06	1.06	1.06	1.01	1.01	1.01	.99
1.0	1.04	1.00	.97	1.02	.98	.95	.98	.94	.92	.93	.91	.89	.90	.88	.86	.84
2.0	.91	.85	.79	.89	.83	.78	.85	.80	.76	.82	.78	.74	.79	.75	.72	.70
3.0	.80	.72	.66	.78	.71	.65	.75	.69	.64	.72	.67	.63	.70	.65	.61	.59
4.0	.71	.62	.56	.70	.62	.55	.67	.60	.54	.65	.58	.54	.62	.57	.53	.50
5.0	.63	.55	.48	.62	.54	.48	.60	.53	.47	.58	.51	.46	.56	.50	.46	.44
6.0	.57	.48	.42	.56	.48	.42	.54	.47	.41	.52	.46	.41	.51	.45	.40	.38
7.0	.52	.43	.37	.51	.43	.37	.49	.42	.36	.48	.41	.36	.46	.40	.36	.34
8.0	.47	.39	.33	.46	.38	.33	.45	.38	.32	.44	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.30	.43	.35	.29	.41	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.36	.30	.26	.24



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 Remarks:

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	.295	.168	.053	.288	.164	.052	.274	.157	.050	.261	.151	.048	.249	.145	.047	
2.0	.282	.155	.047	.275	.152	.047	.263	.146	.045	.252	.141	.044	.242	.137	.043	
3.0	.263	.140	.042	.257	.138	.041	.247	.134	.041	.237	.130	.040	.227	.126	.039	
4.0	.244	.127	.037	.239	.125	.037	.229	.122	.036	.221	.118	.036	.212	.115	.035	
5.0	.227	.115	.033	.222	.114	.033	.213	.111	.033	.205	.108	.032	.198	.106	.032	
6.0	.211	.106	.030	.207	.104	.030	.199	.102	.030	.192	.100	.029	.185	.097	.029	
7.0	.197	.097	.028	.193	.096	.027	.186	.094	.027	.180	.092	.027	.174	.090	.027	
8.0	.184	.090	.025	.181	.089	.025	.174	.087	.025	.169	.085	.025	.163	.084	.024	
9.0	.172	.083	.023	.170	.083	.023	.164	.081	.023	.159	.080	.023	.154	.078	.023	
10.0	.162	.078	.022	.160	.077	.022	.155	.076	.021	.150	.074	.021	.145	.073	.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	.165	.144	.161	.142	.124	.110	.097	.086	.063	.056	.050	.020	.018	.016	
2.0	.180	.141	.108	.154	.121	.093	.106	.084	.065	.061	.049	.038	.020	.016	.012	
3.0	.172	.123	.084	.148	.106	.073	.101	.074	.051	.059	.043	.030	.019	.014	.010	
4.0	.165	.110	.068	.141	.095	.059	.097	.066	.042	.056	.039	.025	.018	.013	.008	
5.0	.157	.099	.057	.135	.086	.049	.093	.060	.035	.054	.035	.021	.017	.012	.007	
6.0	.150	.091	.049	.129	.079	.042	.089	.055	.030	.052	.032	.018	.017	.011	.006	
7.0	.144	.084	.043	.124	.073	.037	.085	.051	.026	.050	.030	.016	.016	.010	.005	
8.0	.137	.078	.038	.118	.068	.033	.082	.048	.024	.048	.028	.014	.015	.009	.005	
9.0	.131	.074	.034	.113	.064	.030	.078	.045	.021	.046	.026	.013	.015	.009	.004	
10.0	.126	.069	.032	.108	.060	.028	.075	.042	.020	.044	.025	.012	.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	15.8	17.3	16.1	17.5	17.7	14.8	16.3	15.1	16.5	16.8
3H	17.4	18.7	17.7	19.0	19.2	15.7	17.1	16.0	17.3	17.6
4H	18.0	19.3	18.3	19.6	19.9	15.8	17.1	16.1	17.4	17.6
6H	18.5	19.7	18.8	20.0	20.3	15.7	16.9	16.1	17.2	17.5
8H	18.6	19.8	19.0	20.1	20.4	15.7	16.8	16.0	17.1	17.5
12H	18.6	19.8	19.0	20.1	20.4	15.6	16.7	16.0	17.1	17.4
4H 2H	16.2	17.5	16.5	17.8	18.1	15.5	16.8	15.8	17.0	17.3
3H	18.0	19.1	18.3	19.4	19.7	16.5	17.6	16.9	17.9	18.3
4H	18.7	19.7	19.1	20.1	20.4	16.7	17.7	17.1	18.0	18.4
6H	19.3	20.2	19.7	20.6	21.0	16.6	17.6	17.1	17.9	18.3
8H	19.5	20.3	19.9	20.7	21.1	16.6	17.5	17.0	17.8	18.3
12H	19.5	20.3	19.9	20.7	21.1	16.6	17.3	17.0	17.8	18.2
8H 4H	18.8	19.6	19.2	20.0	20.4	16.9	17.8	17.3	18.1	18.6
6H	19.5	20.2	19.9	20.6	21.0	17.0	17.7	17.4	18.1	18.5
8H	19.7	20.3	20.2	20.7	21.2	17.0	17.6	17.4	18.0	18.5
12H	19.7	20.3	20.2	20.7	21.2	16.9	17.5	17.4	17.9	18.4
12H 4H	18.7	19.5	19.2	19.9	20.4	16.9	17.7	17.4	18.1	18.5
6H	19.5	20.1	19.9	20.5	21.0	17.0	17.6	17.5	18.1	18.5
8H	19.7	20.2	20.2	20.7	21.2	17.0	17.5	17.5	18.0	18.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.3 / - 0.4				
1.5H	+ 0.1 / - 0.2					+ 0.3 / - 0.6				
2.0H	+ 0.3 / - 0.4					+ 0.4 / - 0.7				

CIE Pub.117, 664.5 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = -1.4$)

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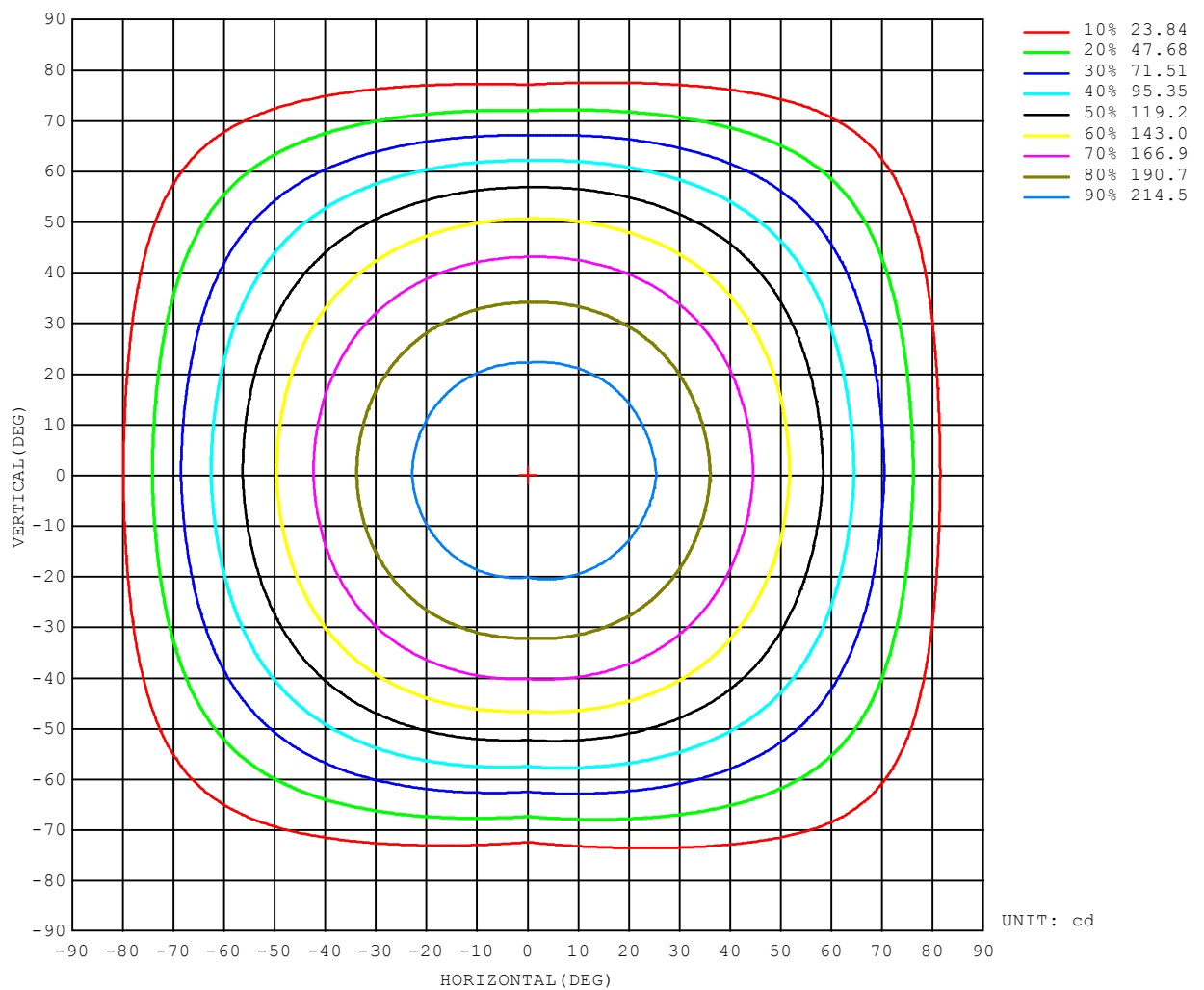
UTILIZATION FACTORS TABLE

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	58	46	39	57	46	39	56	45	39	33
0.80	68	56	49	67	56	49	65	55	48	42
1.00	76	66	58	75	65	58	73	66	57	50
1.25	84	73	66	82	73	66	79	71	65	58
1.50	89	79	72	87	78	72	84	76	70	63
2.00	95	87	81	94	86	80	90	84	78	71
2.50	99	92	86	97	90	85	93	88	83	75
3.00	103	96	91	100	94	89	96	91	87	79
4.00	107	101	97	104	99	95	100	96	92	83
5.00	109	104	100	106	102	99	102	98	95	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

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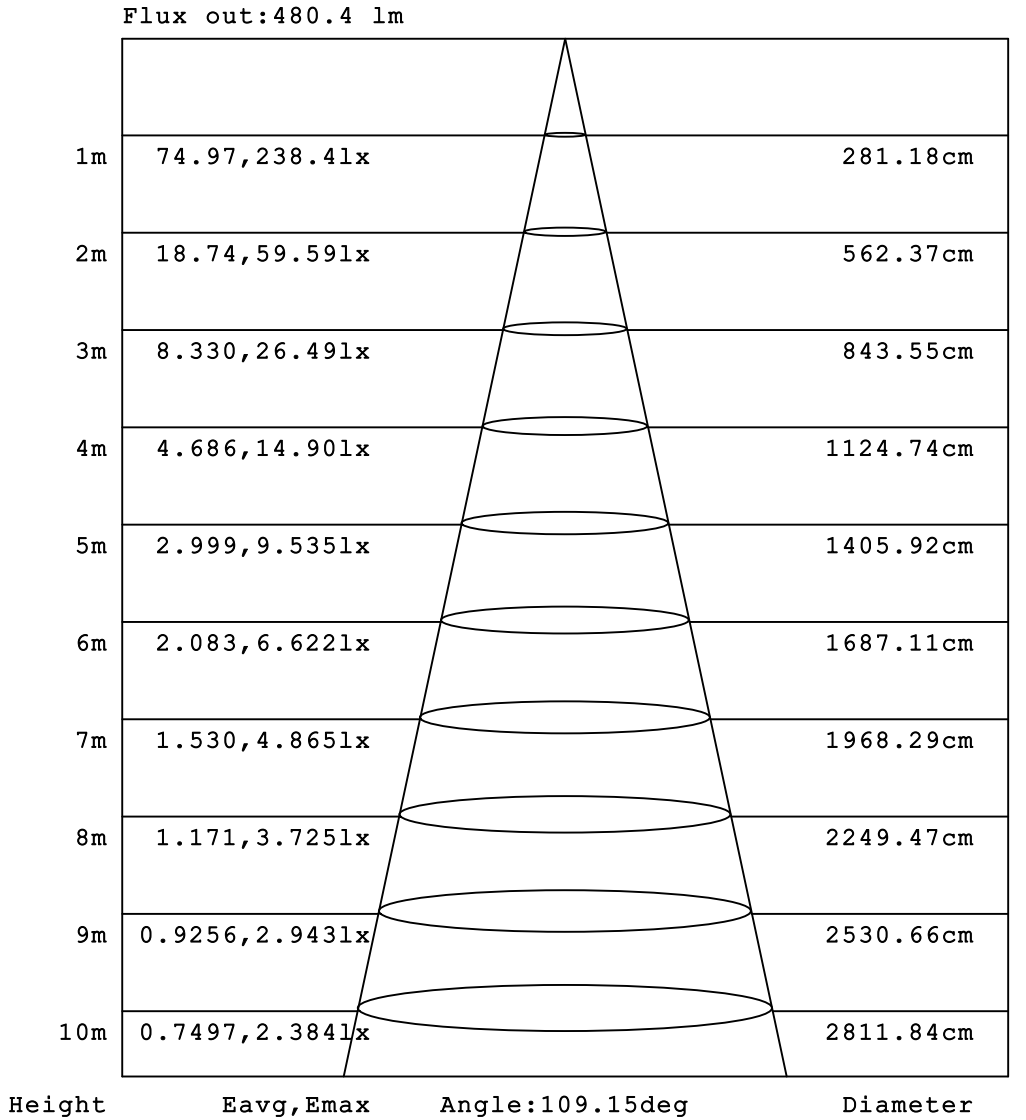
ISOCANDELA DIAGRAM



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AAI Figure

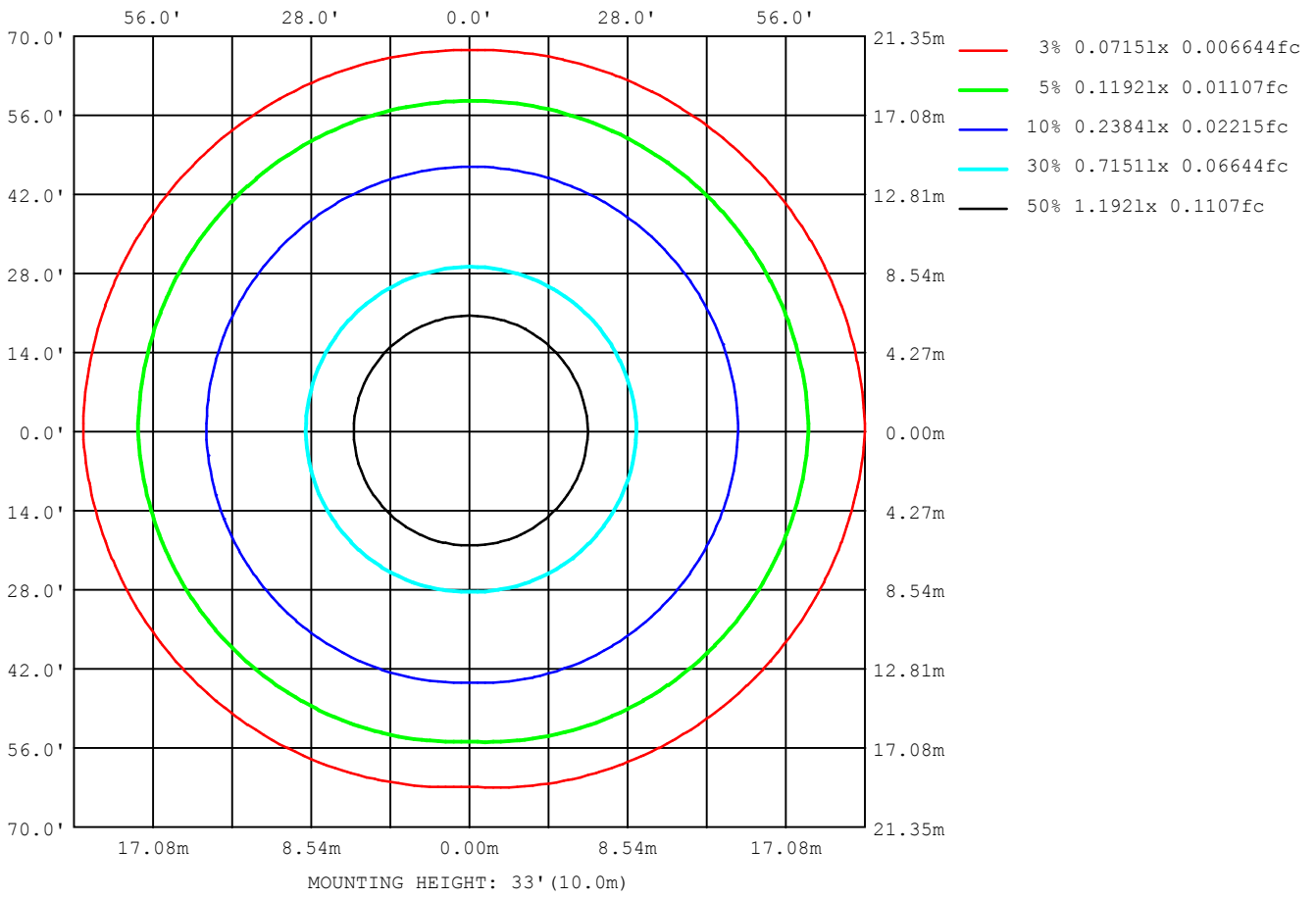


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM



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 Remarks:

LED Avg.L Report

Test:U:230.21V I:0.0384A P:8.3893W PF:0.9497 Freq:49.99Hz Lamp Flux:664.474x1 lm		
NAME: DL4G 8W 6000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ATC	SUR.:	Shielding Angle:

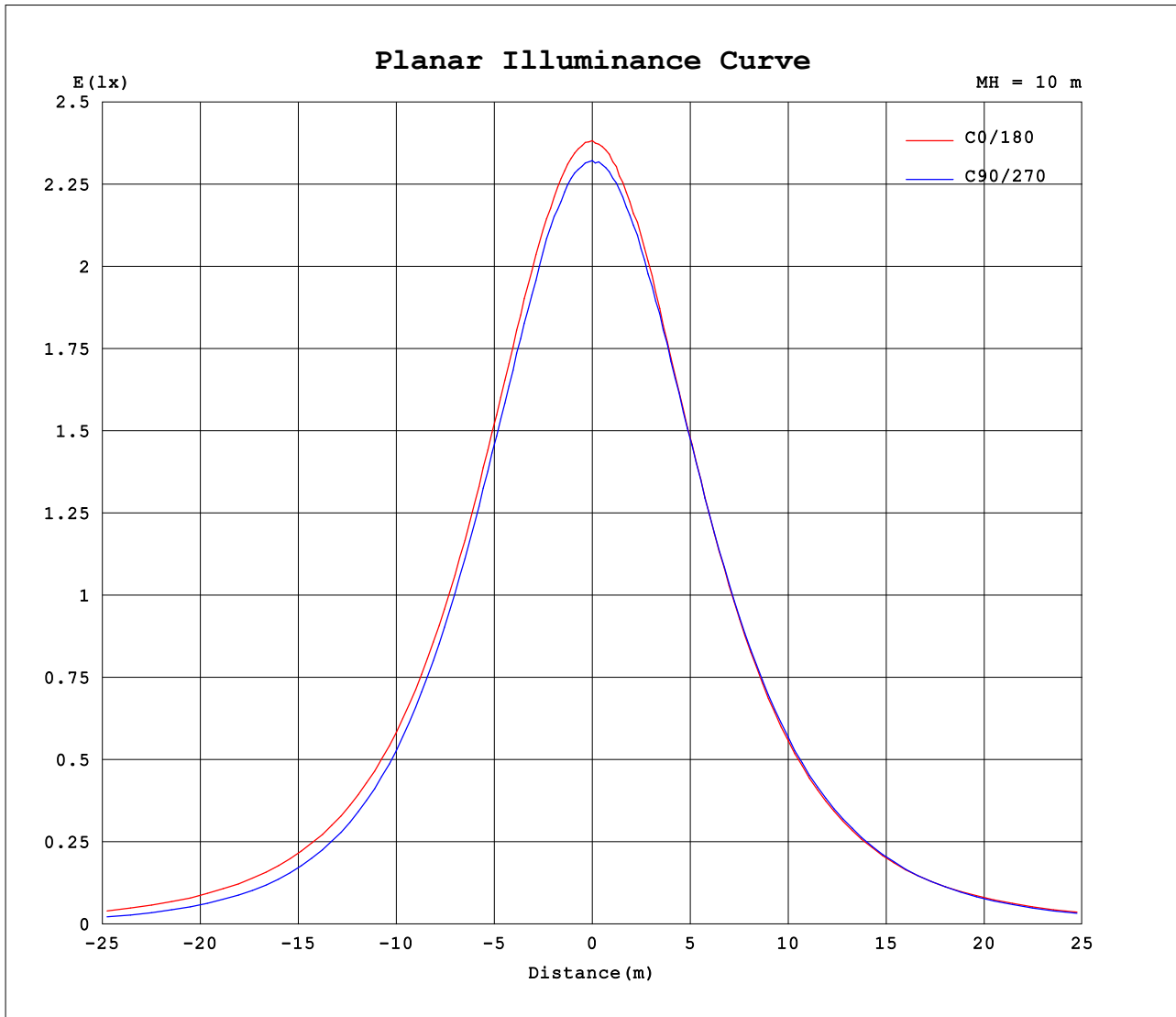
AvgL	cd/m2
L_0~180 (65) av	2117
L_0~180 (75) av	1870
L_0~180 (85) av	745
L_90~270 (65) av	1667
L_90~270 (75) av	891
L_90~270 (85) av	615
L_45 (65) av	1830
L_45 (75) av	1248
L_45 (85) av	656

Standard: GB/T 29293-2012

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Planar Illuminance Curve



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ATC MIDDLE EAST FZCO

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