



ATC MIDDLE EAST FZCO



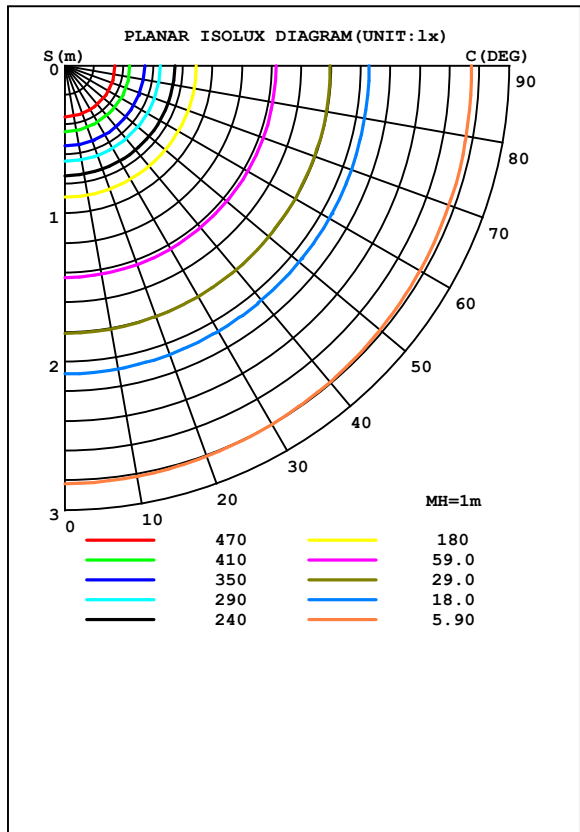
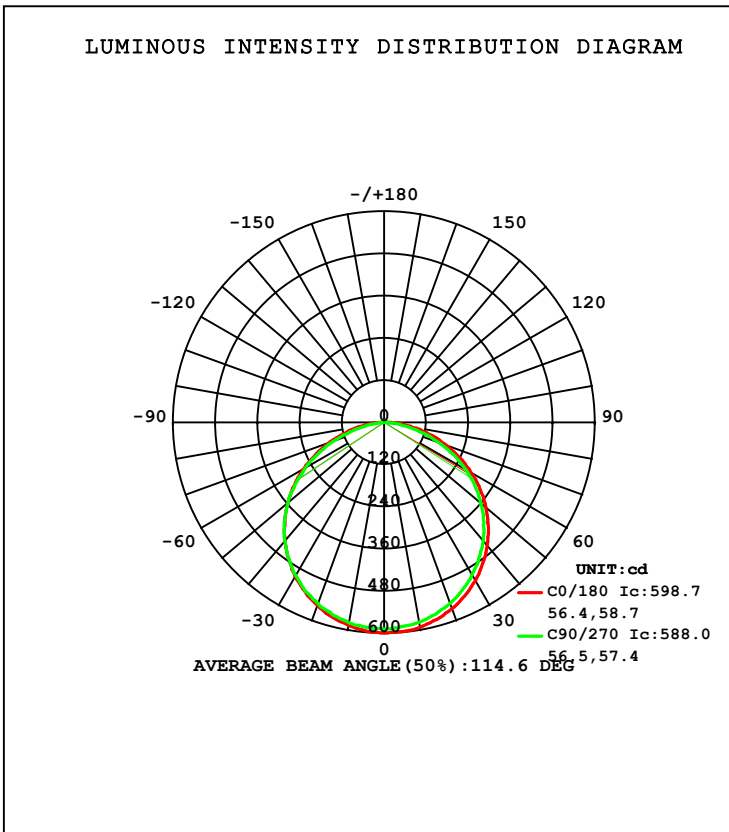
 rafeed<sup>®</sup>  
LED  
E series  
2022

OUR BEAUTIFUL WORLD WITH  
**LIGHTS.**

## LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.20V I:0.1090A P:23.795W PF:0.9487 Freq:49.99Hz Lamp Flux:1735.3x1 lm		
NAME: Panel Down light 24W	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: ATC	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA <span style="float: right;">Eff: 72.93 lm/W</span>			
MODEL	Panel Down light 24W	I <sub>max</sub> (cd)	598.7	S/MH (C0/180)	1.29
NOMINAL POWER (W)	24	LOR (%)	100.0	S/MH (C90/270)	1.27
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	1735.3	η UP, DN (C0-180)	0.6, 48.3
NOMINAL FLUX (lm)	1735.3	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.5, 50.6
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

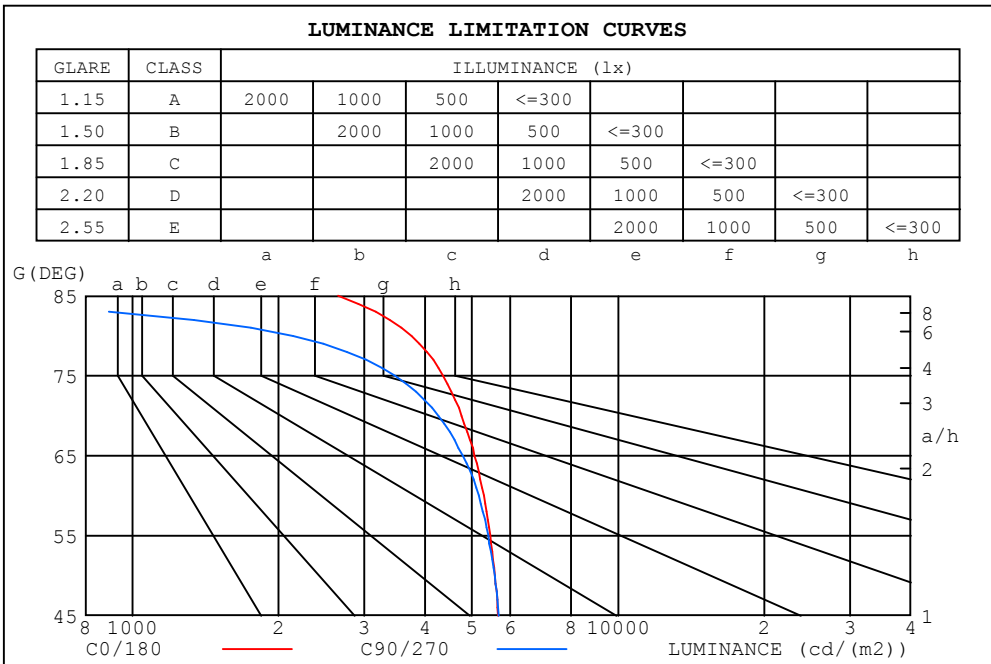
ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum, lamp
10	586.6	578.8	592.1	577.8					0- 10	56.15	56.15	3.24,3.24
20	554.8	549.2	564.2	548.7					10- 20	161.2	217.4	12.5,12.5
30	506.9	503.1	520.4	501.7					20- 30	245.8	463.2	26.7,26.7
40	439.4	439.8	457.0	438.7					30- 40	298.9	762.1	43.9,43.9
50	358.3	358.0	378.6	360.6					40- 50	312.9	1075	61.9,61.9
60	264.3	258.4	287.3	269.5					50- 60	284.2	1359	78.3,78.3
70	162.9	145.7	184.8	162.2					60- 70	215.1	1574	90.7,90.7
80	65.25	37.14	84.78	54.92					70- 80	117.4	1692	97.5,97.5
90	1.036	1.317	0.6353	1.661					80- 90	24.95	1717	98.9,98.9
100	1.774	1.738	1.114	2.650					90-100	1.578	1718	99,99
110	2.626	2.338	1.758	1.739					100-110	1.925	1720	99.1,99.1
120	3.380	3.108	2.458	2.528					110-120	2.480	1723	99.3,99.3
130	3.981	3.801	3.155	3.340					120-130	2.896	1725	99.4,99.4
140	4.462	4.332	3.798	3.660					130-140	2.959	1728	99.6,99.6
150	4.838	4.717	4.367	4.299					140-150	2.701	1731	99.8,99.8
160	5.113	5.060	4.829	4.708					150-160	2.190	1733	99.9,99.9
170	5.340	5.332	5.229	5.148					160-170	1.445	1735	100,100
180	5.425	5.394	5.502	5.336					170-180	0.5085	1735	100,100
DEG	LUMINOUS INTENSITY:cd Less than 35% Percent = 13.0 %									UNIT:lm		

C Range: 0 - 360DEG  
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 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



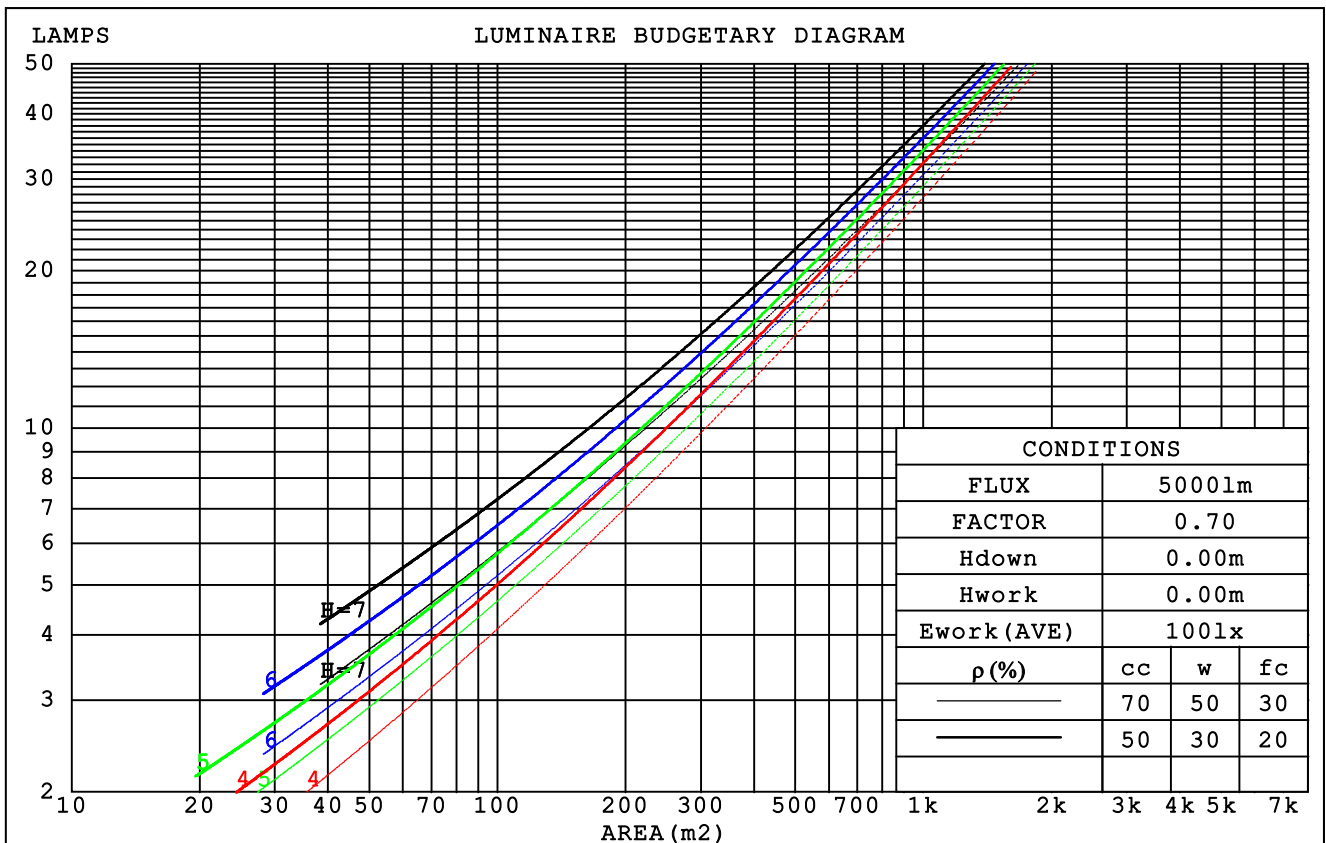
LUMINANCE cd/ (m <sup>2</sup> )		
G (DEG)	C0/180	C90/270
85	2646	197
80	3758	2139
75	4360	3468
70	4762	4260
65	5062	4782
60	5286	5167
55	5450	5401
50	5575	5570
45	5663	5680

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 Remarks:

### CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

<b>ρcc</b>	80%			70%			50%			30%			10%			0
<b>ρw</b>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
<b>ρfc</b>	20%			20%			20%			20%			20%			0
<b>RCR</b>	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	.90	.96	1.01	.98	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.90	.84	.78	.88	.82	.77	.85	.79	.75	.81	.77	.73	.78	.74	.71	.69
3.0	.79	.71	.65	.78	.70	.64	.74	.68	.63	.72	.66	.61	.69	.64	.60	.58
4.0	.70	.61	.55	.69	.61	.54	.66	.59	.53	.64	.57	.52	.61	.56	.52	.49
5.0	.63	.54	.47	.61	.53	.47	.59	.52	.46	.57	.51	.45	.55	.49	.45	.43
6.0	.56	.47	.41	.55	.47	.41	.53	.46	.40	.52	.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	.38	.32	.44	.37	.32	.43	.36	.31	.42	.36	.31	.29
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.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



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 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	.305	.174	.055	.298	.170	.054	.284	.163	.052	.271	.156	.050	.259	.150	.048	
2.0	.289	.159	.049	.283	.156	.048	.271	.150	.047	.259	.145	.046	.249	.141	.044	
3.0	.269	.143	.043	.263	.141	.042	.252	.137	.042	.242	.133	.041	.233	.129	.040	
4.0	.248	.129	.038	.243	.127	.038	.234	.124	.037	.225	.121	.036	.216	.118	.036	
5.0	.230	.117	.034	.225	.116	.034	.217	.113	.033	.209	.110	.033	.201	.108	.032	
6.0	.213	.107	.031	.209	.106	.030	.202	.103	.030	.194	.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	.025	.182	.090	.025	.176	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.174	.084	.023	.171	.083	.023	.165	.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	

$\rho_{cc}$	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	.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	.107	.154	.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	.097	.066	.041	.056	.039	.024	.018	.013	.008	
5.0	.158	.099	.056	.135	.086	.048	.093	.060	.034	.054	.035	.020	.017	.011	.007	
6.0	.151	.091	.048	.129	.079	.041	.089	.055	.029	.052	.032	.017	.017	.011	.006	
7.0	.144	.084	.042	.124	.073	.036	.085	.051	.026	.050	.030	.015	.016	.010	.005	
8.0	.137	.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

$\gamma$  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				
x = 2H y = 2H	18.7	20.2	19.0	20.4	20.6	18.6	20.1	18.9	20.4	20.6
3H	20.2	21.6	20.5	21.8	22.1	19.9	21.3	20.3	21.6	21.9
4H	20.7	22.1	21.1	22.3	22.6	20.4	21.7	20.7	22.0	22.2
6H	21.1	22.4	21.5	22.6	23.0	20.5	21.8	20.9	22.1	22.4
8H	21.2	22.4	21.6	22.7	23.0	20.5	21.7	20.9	22.0	22.3
12H	21.2	22.4	21.6	22.7	23.0	20.5	21.6	20.8	21.9	22.3
4H 2H	19.3	20.6	19.6	20.9	21.1	19.2	20.5	19.5	20.8	21.1
3H	20.9	22.1	21.3	22.4	22.7	20.7	21.9	21.1	22.2	22.5
4H	21.6	22.6	22.0	23.0	23.3	21.2	22.3	21.6	22.6	23.0
6H	22.1	23.0	22.5	23.4	23.8	21.5	22.4	21.9	22.8	23.2
8H	22.2	23.1	22.6	23.5	23.9	21.5	22.4	21.9	22.7	23.2
12H	22.3	23.1	22.7	23.5	23.9	21.4	22.2	21.9	22.7	23.1
8H 4H	21.8	22.6	22.2	23.0	23.4	21.4	22.3	21.9	22.7	23.1
6H	22.3	23.1	22.8	23.5	23.9	21.8	22.5	22.3	22.9	23.4
8H	22.5	23.2	23.0	23.6	24.1	21.8	22.5	22.3	22.9	23.4
12H	22.7	23.2	23.1	23.7	24.2	21.8	22.4	22.3	22.8	23.3
12H 4H	21.7	22.5	22.2	22.9	23.4	21.4	22.2	21.9	22.6	23.1
6H	22.4	23.0	22.8	23.4	23.9	21.8	22.5	22.3	22.9	23.4
8H	22.6	23.1	23.1	23.6	24.1	21.9	22.4	22.4	22.9	23.4
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.4				
2.0H	+ 0.2 / - 0.3					+ 0.3 / - 0.3				

CIE Pub.117, 1735 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 1.9)

C Range: 0 - 360DEG  
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γ Range: 0 - 180DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
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 Remarks:

### UTILIZATION FACTORS TABLE

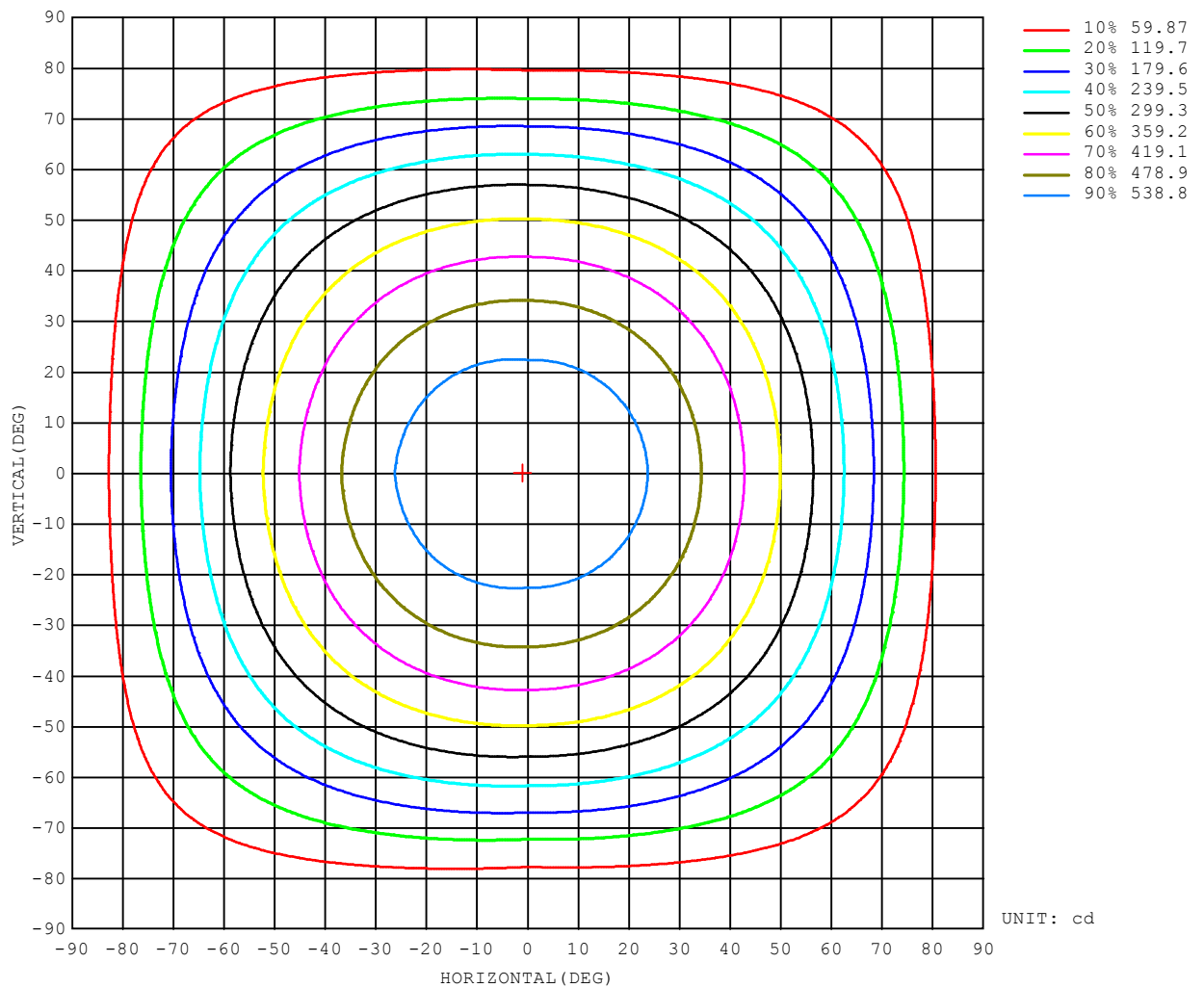
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	57	45	38	56	45	38	55	45	38	32
0.80	67	55	48	66	55	48	64	54	47	40
1.00	76	64	57	74	64	57	72	65	56	49
1.25	83	72	65	81	71	65	78	70	64	56
1.50	88	78	71	86	77	70	83	75	69	62
2.00	95	86	80	93	85	79	89	83	77	69
2.50	99	91	85	97	89	84	93	87	82	73
3.00	102	95	90	100	94	89	96	91	86	78
4.00	106	100	96	104	99	94	99	95	92	82
5.00	109	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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 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.366  
 Humidity: 60%  
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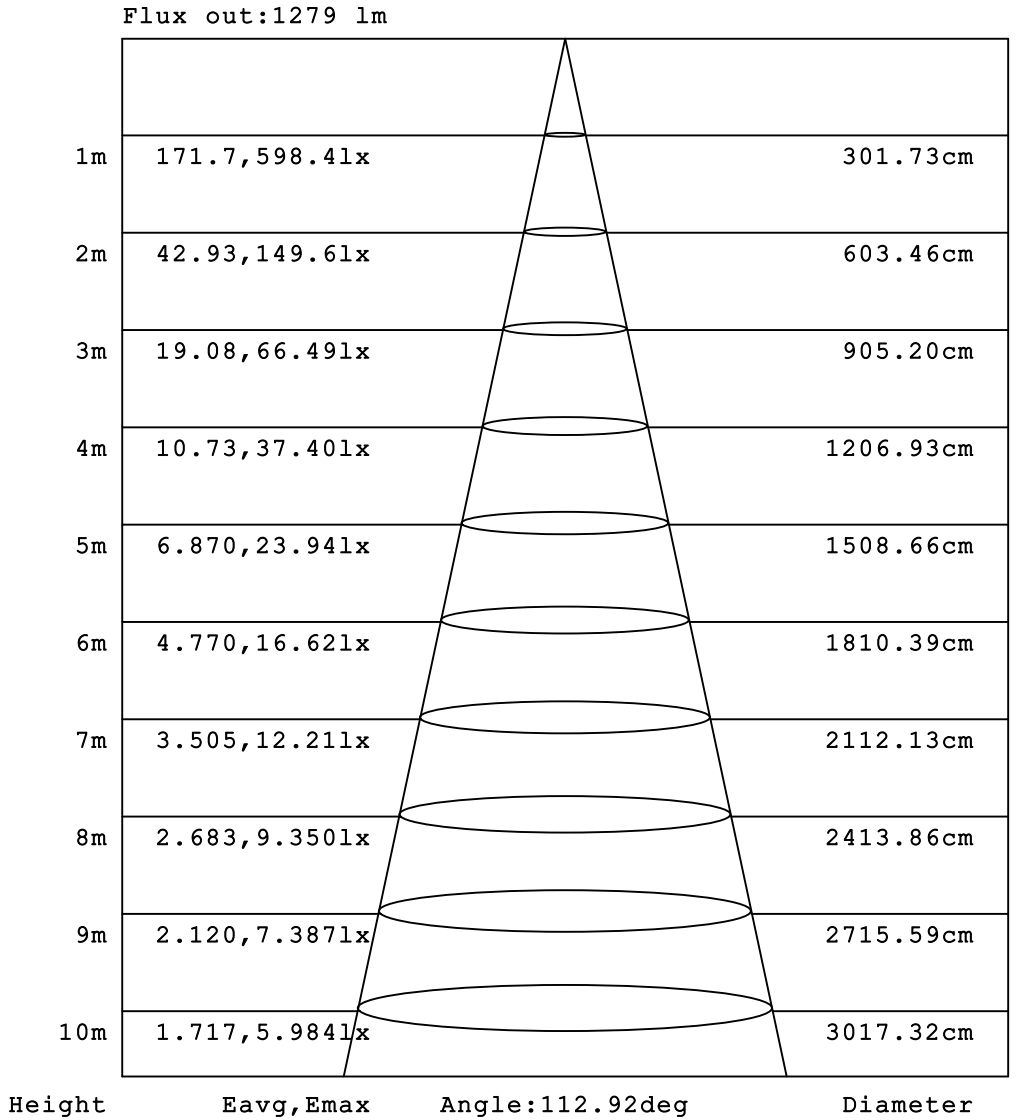
### ISOCANDELA DIAGRAM



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:

AAI Figure

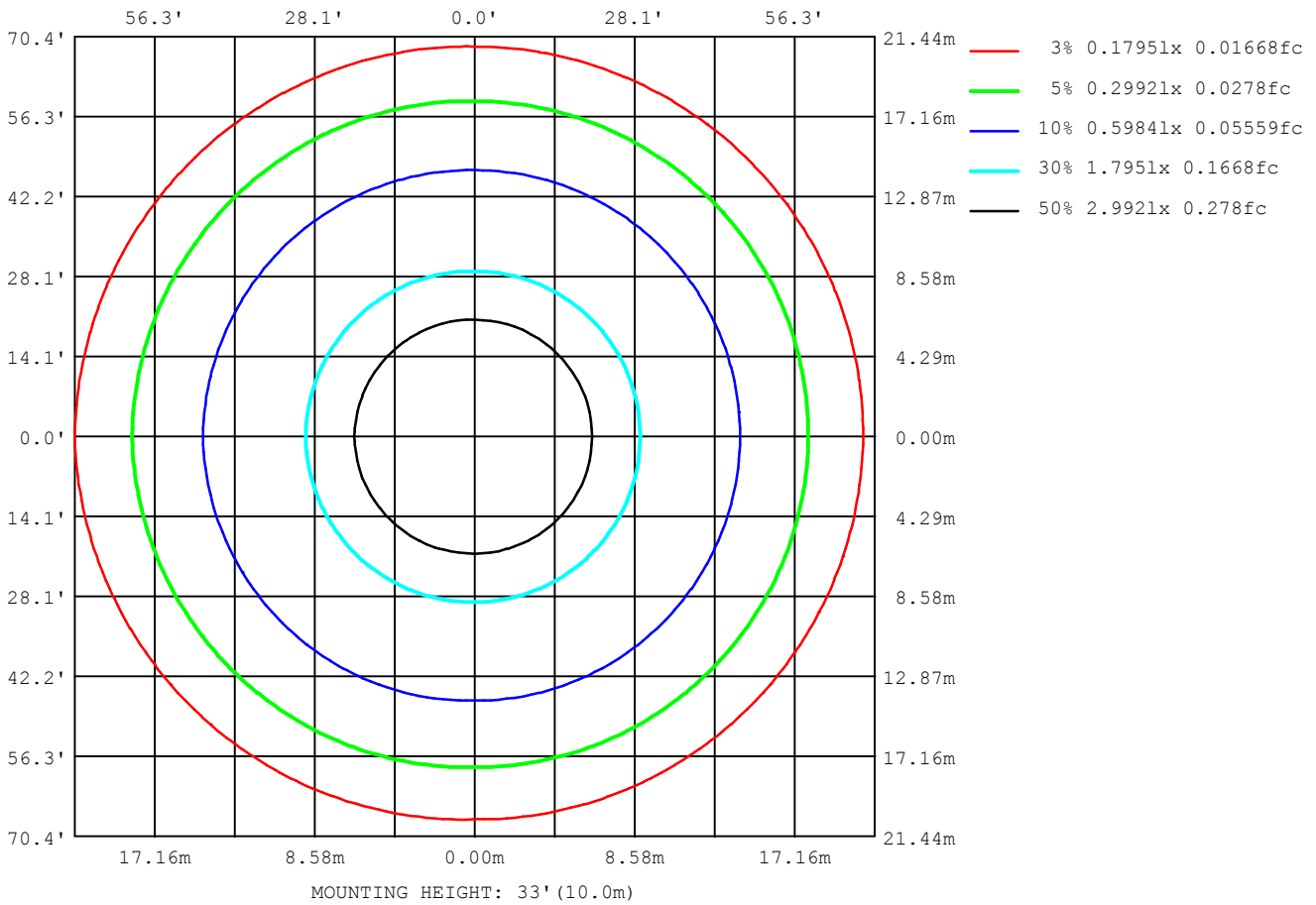


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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### ISOLUX DIAGRAM



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 Remarks:

### LED Avg.L Report

Test:U:230.20V I:0.1090A P:23.795W PF:0.9487 Freq:49.99Hz Lamp Flux:1735.3x1 lm		
NAME: DL8G 24W 6000K	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: SEE	SUR.:	Shielding Angle:

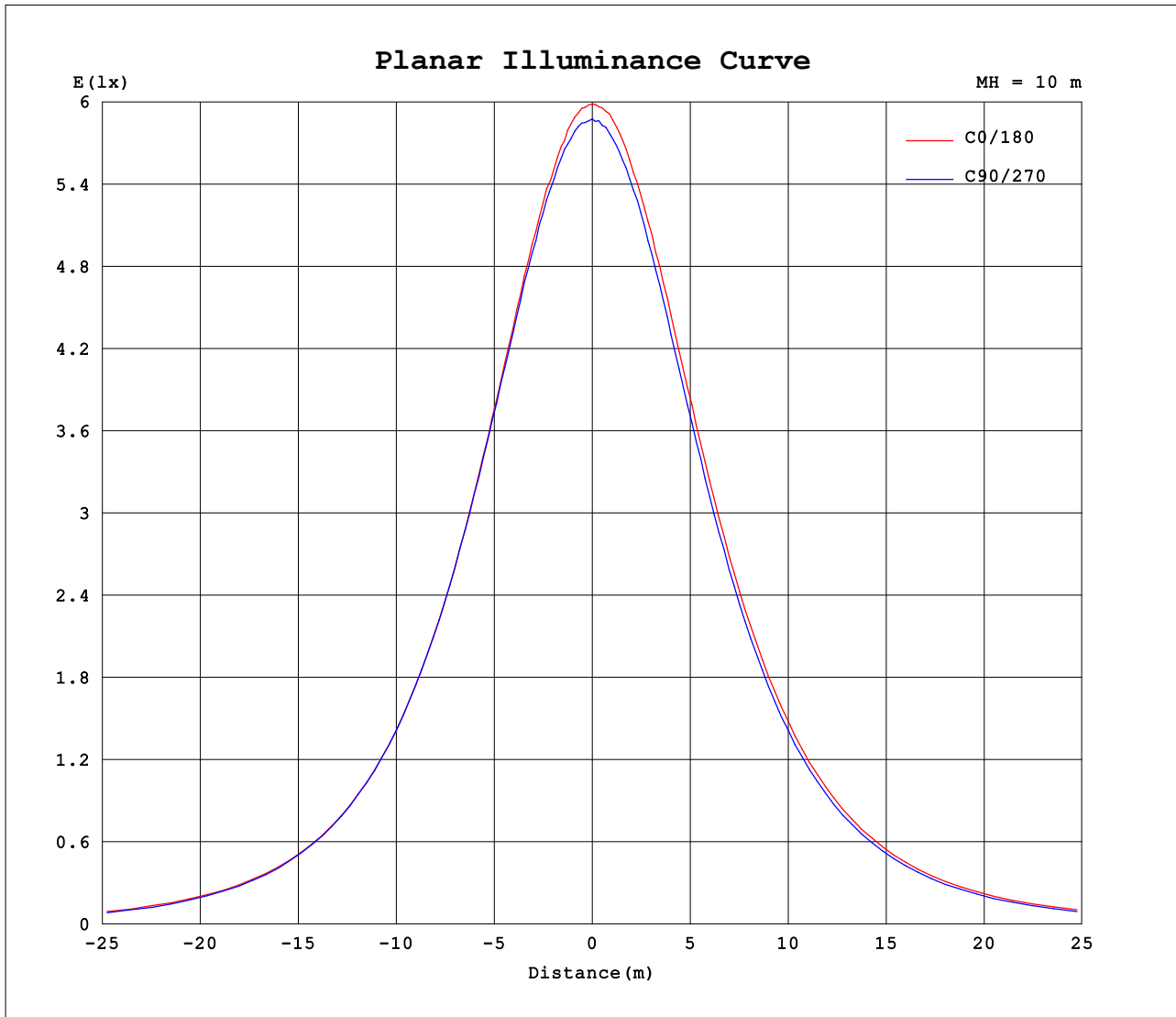
AvgL	cd/m2
L_0~180 (65) av	5339
L_0~180 (75) av	4768
L_0~180 (85) av	3606
L_90~270 (65) av	4961
L_90~270 (75) av	3806
L_90~270 (85) av	646
L_45 (65) av	5120
L_45 (75) av	4192
L_45 (85) av	1816

Standard: GB/T 29293-2012

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### Planar Illuminance Curve



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 Remarks:



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## ATC MIDDLE EAST FZCO

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