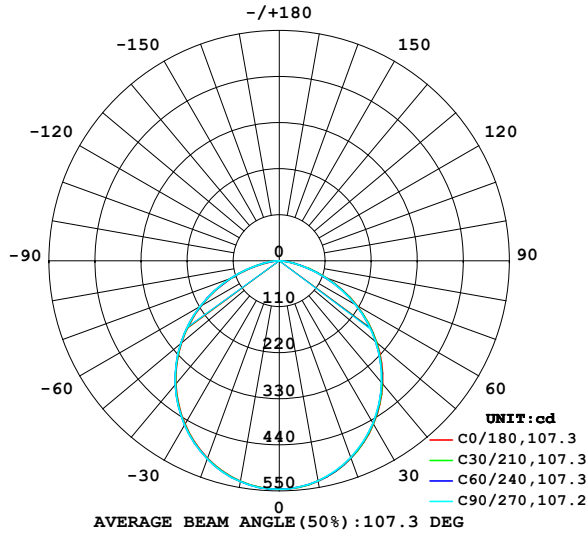


LUMINAIRE PHOTOMETRIC TEST REPORT

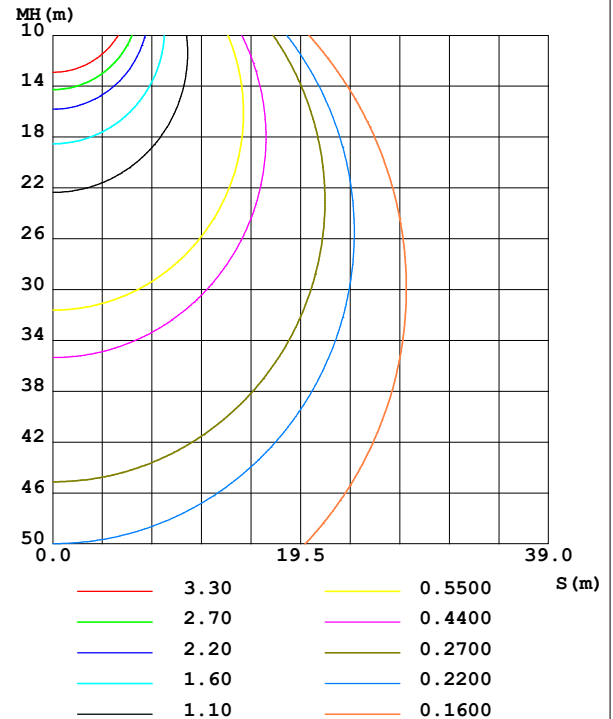
NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99LED645	I _{max} (cd)	546.0	S/MH (C0/180)	1.23
NOMINAL POWER (W)	18	LOR (%)	100.1	S/MH (C90/270)	1.24
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	1441.1	η UP, DN (C0-180)	0.0, 49.6
NOMINAL FLUX (lm)	1440	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 50.5
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	100.1	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 16 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity: 65.0%
 Test Distance: 6.265m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	534.9	534.1	533.8	534.1	534.7	535.5	535.8	535.6	0- 10	51.58	51.58	3.58,3.58
20	502.2	500.9	500.0	500.7	502.0	503.4	503.8	503.5	10- 20	146.9	198.5	13.8,13.8
30	450.7	448.9	447.7	448.5	450.5	452.4	453.0	452.7	20- 30	220.4	418.9	29.1,29.1
40	384.1	381.7	380.2	381.3	383.9	386.0	386.7	386.4	30- 40	261.9	680.9	47.2,47.3
50	304.6	302.0	300.4	301.7	304.7	307.2	308.0	307.3	40- 50	266.4	947.3	65.7,65.8
60	214.9	212.1	210.4	211.9	215.1	217.9	218.8	218.0	50- 60	232.9	1180	81.9,82
70	119.9	117.4	115.8	117.3	120.5	123.2	123.8	123.2	60- 70	165.8	1346	93.4,93.5
80	35.49	34.44	32.75	34.43	35.62	38.74	38.78	38.61	70- 80	80.23	1426	99,99
90	2.071	1.709	1.406	1.828	1.619	1.970	1.704	2.004	80- 90	14.92	1441	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 815.92 lm

%lum = 56.6%

%lamp = 56.7%

Conical surface Flux(130deg): 1273.2 lm

%lum = 88.3%

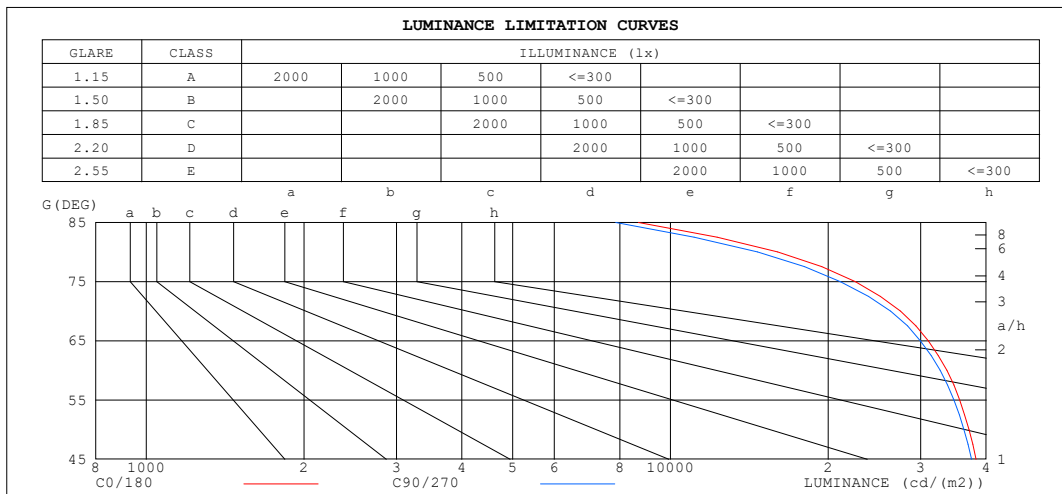
%lamp = 88.4%

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:16 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	8686	7862
80	16001	14643
75	22522	21095
70	27456	26283
65	31024	29968
60	33650	32680
55	35612	34731
50	37099	36286
45	38285	37523

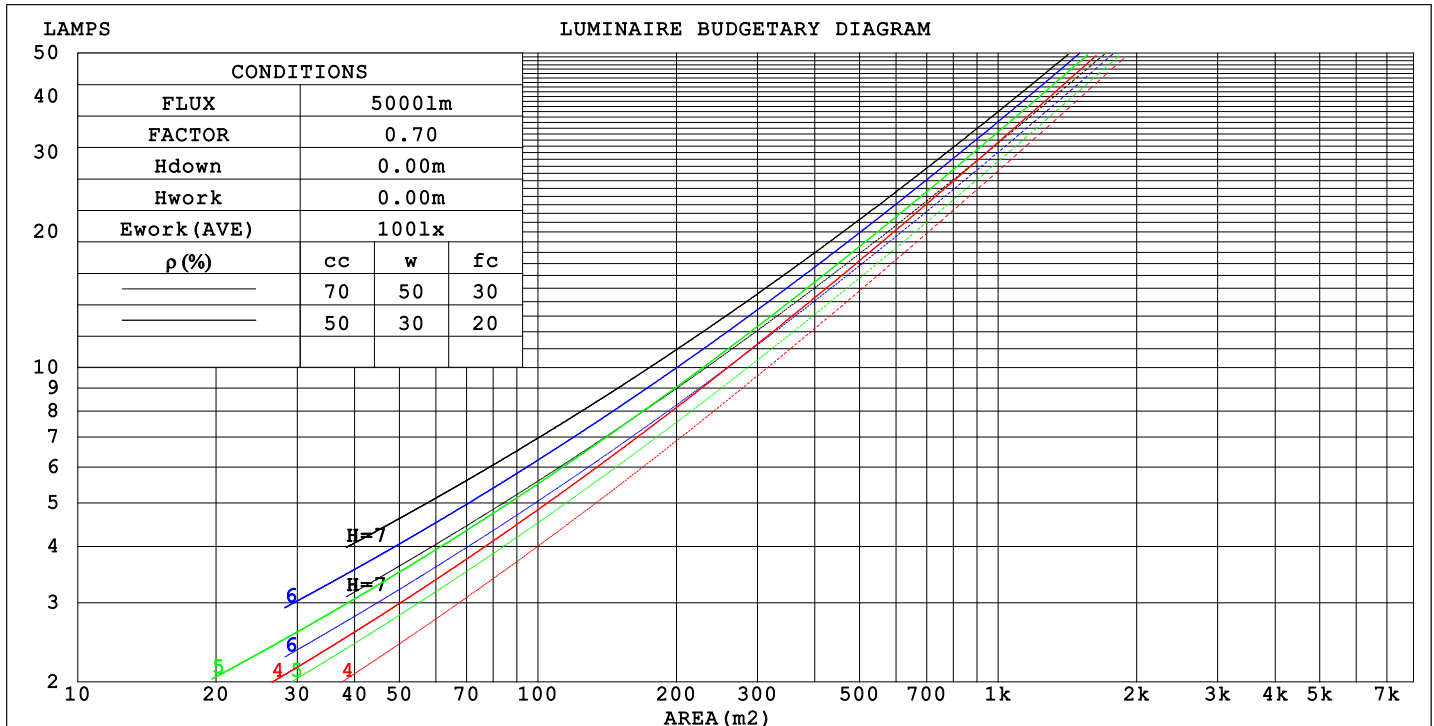
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	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															



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

WEC AND CCEC

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	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						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.291	.166	.052	.284	.162	.051	.271	.155	.050	.259	.149	.048	.248	.144	.046	
2.0	.279	.153	.047	.272	.150	.046	.261	.145	.045	.250	.140	.044	.240	.136	.043	
3.0	.260	.139	.041	.255	.136	.041	.245	.133	.040	.235	.129	.040	.226	.125	.039	
4.0	.242	.126	.037	.237	.124	.037	.228	.121	.036	.219	.118	.036	.212	.115	.035	
5.0	.225	.114	.033	.220	.113	.033	.212	.111	.033	.205	.108	.032	.198	.106	.032	
6.0	.209	.105	.030	.205	.104	.030	.198	.102	.030	.191	.099	.029	.185	.097	.029	
7.0	.195	.096	.027	.192	.096	.027	.185	.094	.027	.179	.092	.027	.174	.090	.027	
8.0	.183	.089	.025	.180	.088	.025	.174	.087	.025	.168	.085	.025	.163	.084	.024	
9.0	.171	.083	.023	.169	.082	.023	.164	.081	.023	.159	.080	.023	.154	.078	.023	
10.0	.161	.077	.021	.159	.077	.021	.154	.076	.021	.150	.074	.021	.146	.073	.021	

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						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.191	.191	.191	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.179	.156	.136	.153	.134	.117	.105	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.171	.132	.100	.146	.114	.086	.100	.079	.060	.058	.046	.035	.019	.015	.011	
3.0	.163	.114	.076	.139	.099	.066	.096	.069	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.059	.133	.087	.052	.092	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.087	.055	.030	.051	.032	.018	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.026	.105	.056	.022	.073	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

NAME: 99LED645					TYPE: 99LED645			WEIGHT: 1			
SPEC.:					DIM.: 199 x 199			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: Square			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	24.0	25.4	24.2	25.6	25.8	23.8	25.3	24.1	25.5	25.7
	3H	25.2	26.6	25.5	26.8	27.0	25.0	26.4	25.3	26.6	26.9
	4H	25.6	26.9	25.9	27.2	27.4	25.4	26.7	25.7	27.0	27.2
	6H	25.8	27.0	26.1	27.3	27.5	25.6	26.8	25.9	27.1	27.3
	8H	25.8	27.0	26.1	27.2	27.5	25.6	26.7	25.9	27.0	27.3
	12H	25.8	26.9	26.1	27.2	27.5	25.5	26.7	25.9	27.0	27.3
4H	2H	24.5	25.8	24.8	26.0	26.3	24.4	25.7	24.7	25.9	26.2
	3H	25.9	27.0	26.2	27.3	27.6	25.7	26.9	26.1	27.2	27.5
	4H	26.4	27.4	26.7	27.7	28.1	26.2	27.2	26.6	27.5	27.9
	6H	26.6	27.5	27.0	27.9	28.2	26.4	27.3	26.8	27.7	28.0
	8H	26.7	27.5	27.1	27.9	28.3	26.4	27.3	26.9	27.7	28.0
	12H	26.6	27.4	27.1	27.8	28.2	26.4	27.2	26.9	27.6	28.0
8H	4H	26.5	27.4	26.9	27.7	28.1	26.3	27.2	26.8	27.6	27.9
	6H	26.8	27.5	27.3	27.9	28.4	26.6	27.3	27.1	27.8	28.2
	8H	26.9	27.5	27.4	28.0	28.4	26.7	27.3	27.2	27.7	28.2
	12H	26.9	27.5	27.4	27.9	28.4	26.7	27.2	27.2	27.7	28.2
12H	4H	26.5	27.3	26.9	27.6	28.0	26.3	27.1	26.8	27.5	27.9
	6H	26.8	27.5	27.3	27.9	28.3	26.6	27.3	27.1	27.7	28.1
	8H	26.9	27.4	27.4	27.9	28.4	26.7	27.2	27.2	27.7	28.2
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
1.5H		+ 0.2 / - 0.4					+ 0.2 / - 0.4				
2.0H		+ 0.4 / - 0.3					+ 0.3 / - 0.4				

CIE Pub.117, 1440 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.3)
Area: 0.0128614 m2

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:

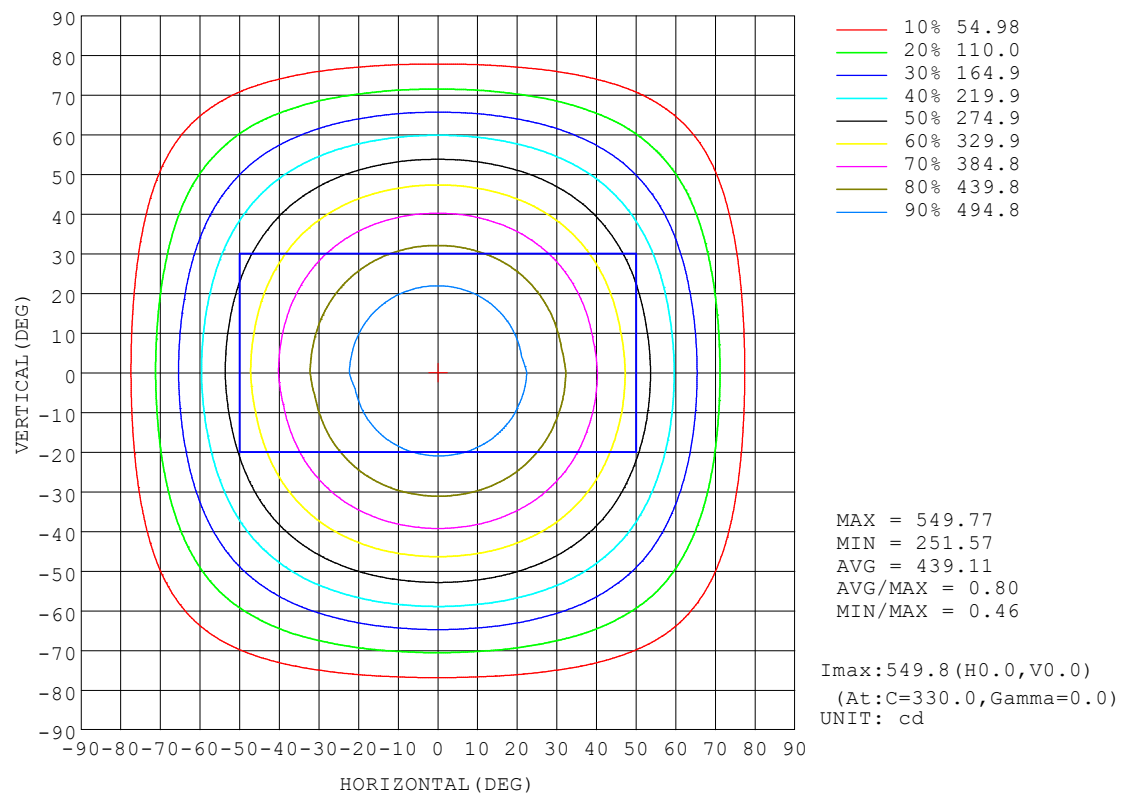
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	59	48	41	58	47	41	57	47	40	34
0.80	69	58	51	68	57	50	66	57	50	43
1.00	78	67	60	76	66	60	74	68	59	52
1.25	85	75	68	83	74	67	81	72	67	59
1.50	90	80	73	88	79	73	85	78	72	65
2.00	96	88	82	95	87	81	91	85	80	72
2.50	100	93	87	98	91	86	94	89	84	76
3.00	103	97	92	101	95	91	97	92	88	80
4.00	107	102	97	105	100	96	101	97	93	85
5.00	109	105	101	107	103	100	103	99	96	88
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 16 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:

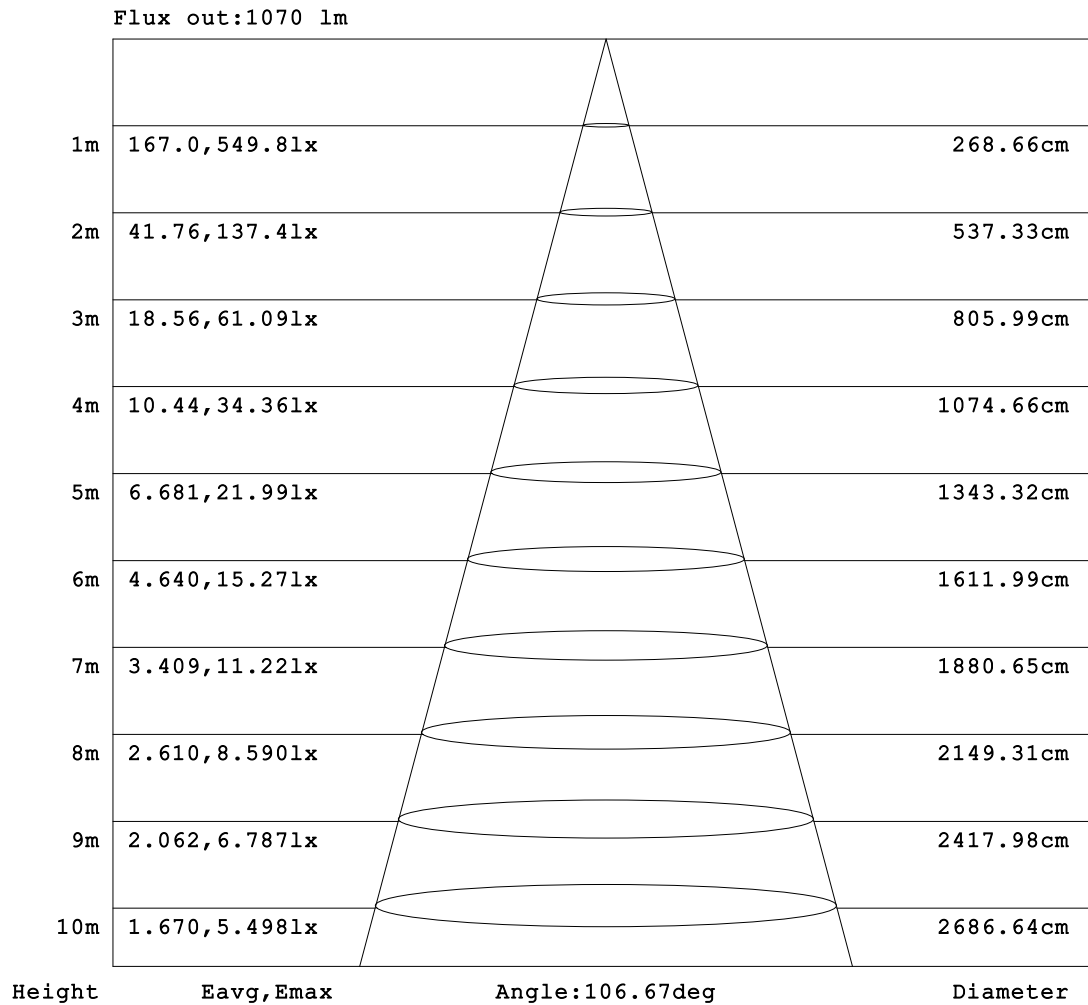


C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

AAI Figure

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:



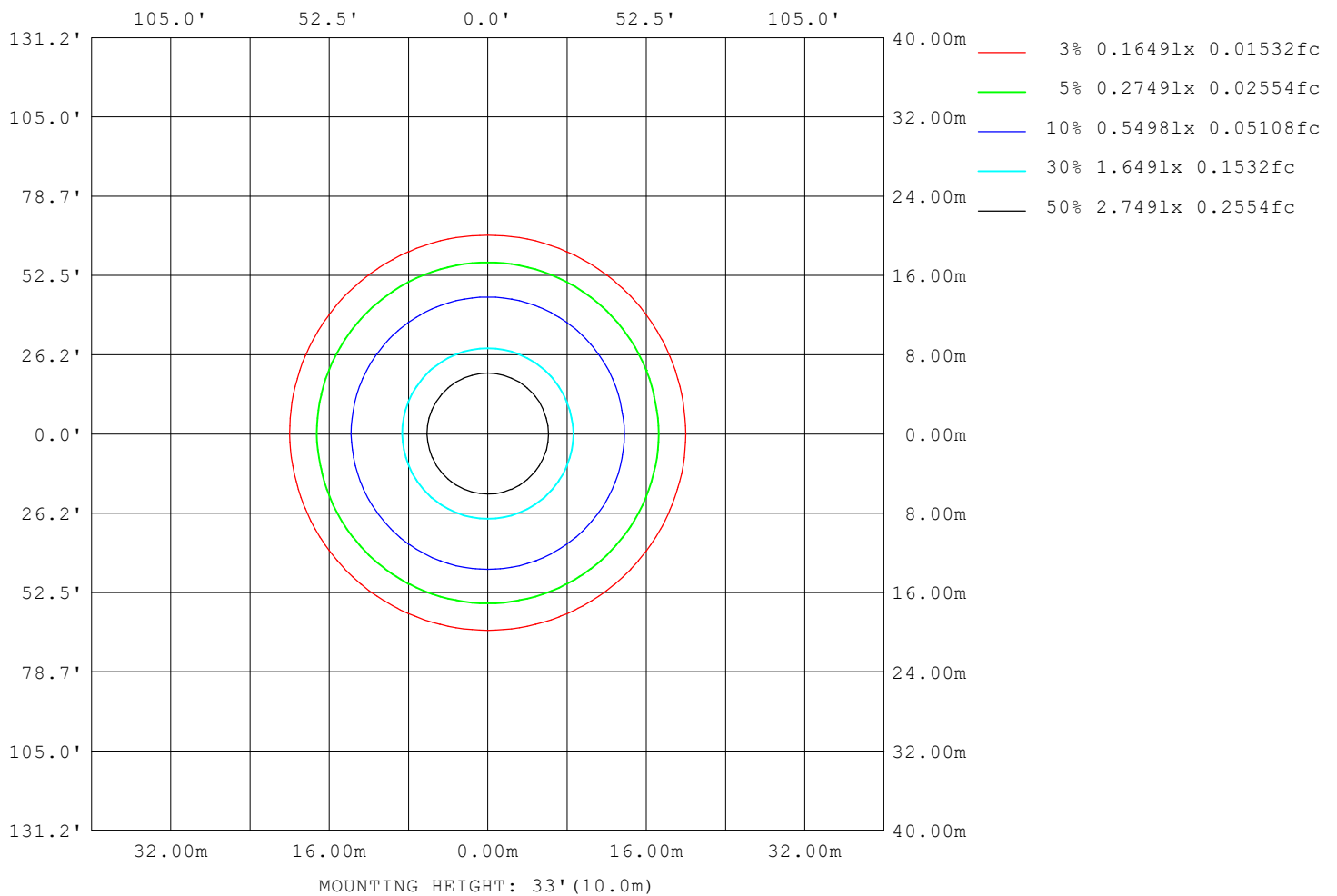
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature:25.3°C
 Operators:
 Test Date:16 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity:65.0%
 Test Distance:6.265m [K=1.0000]
 Remarks:

ISOLUX DIAGRAM

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.265m [K=1.0000]
Remarks:

LED Avg.L Report

NAME: 99LED645	TYPE: 99LED645	WEIGHT: 1
SPEC.:	DIM.: 199 x 199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Square	Shielding Angle:

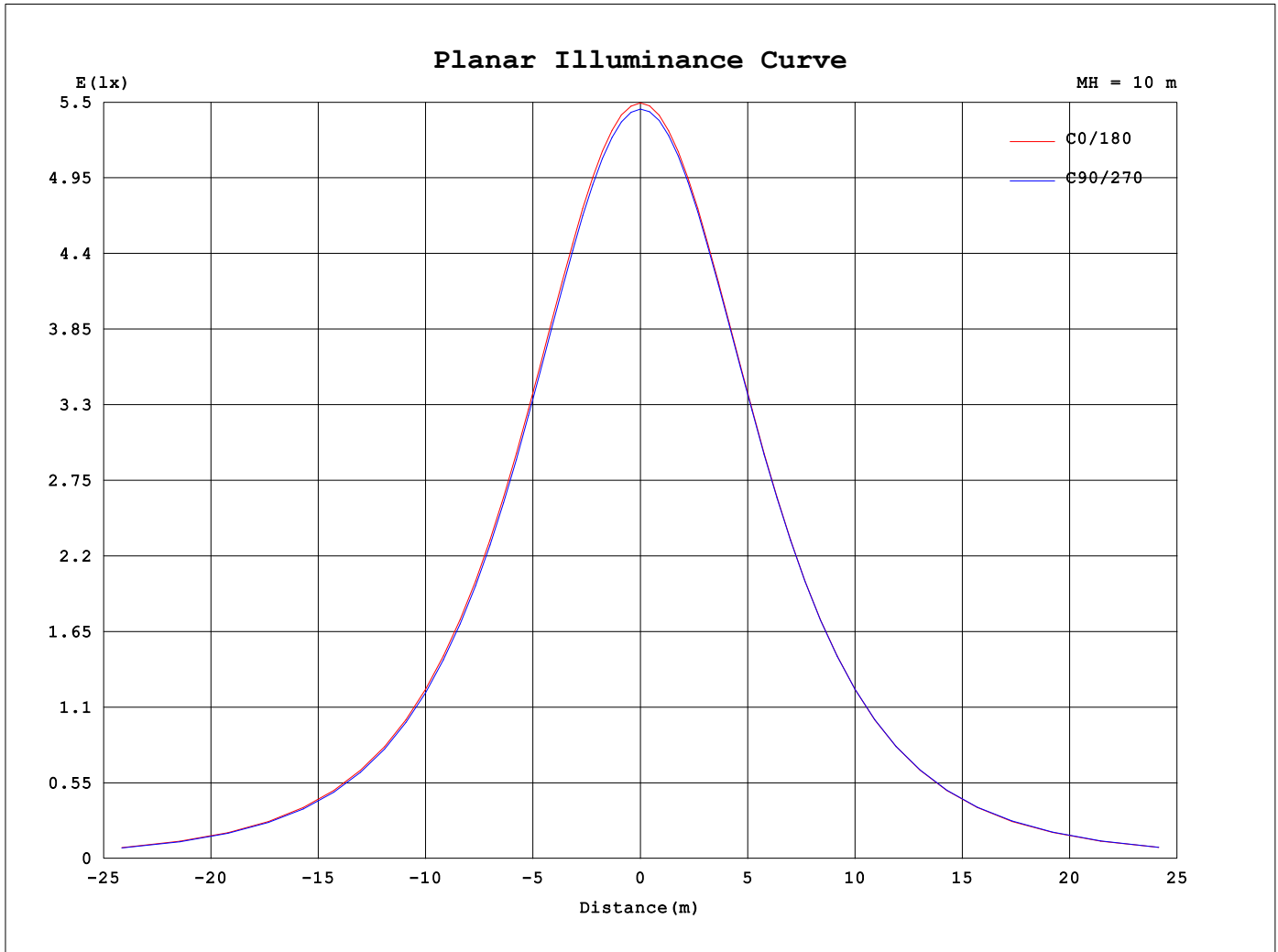
AvgL	cd/m2
L_0~180 (65) av	30843
L_0~180 (75) av	22415
L_0~180 (85) av	8639
L_90~270 (65) av	30775
L_90~270 (75) av	22418
L_90~270 (85) av	9221
L_45 (65) av	30836
L_45 (75) av	22683
L_45 (85) av	9498

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:16 August 2022

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 16 August 2022

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity: 65.0%
 Test Distance: 6.265m [K=1.0000]
 Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

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γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.265m [K=1.0000]
Remarks:

```