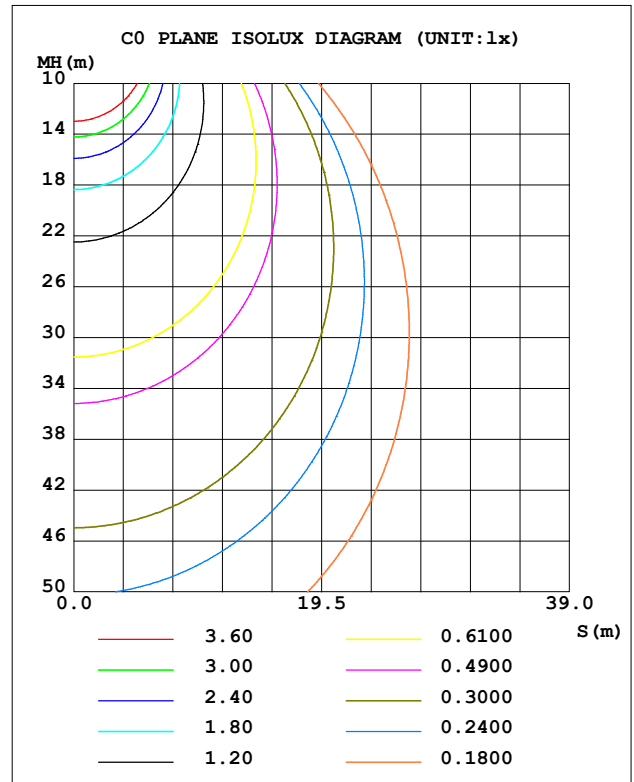
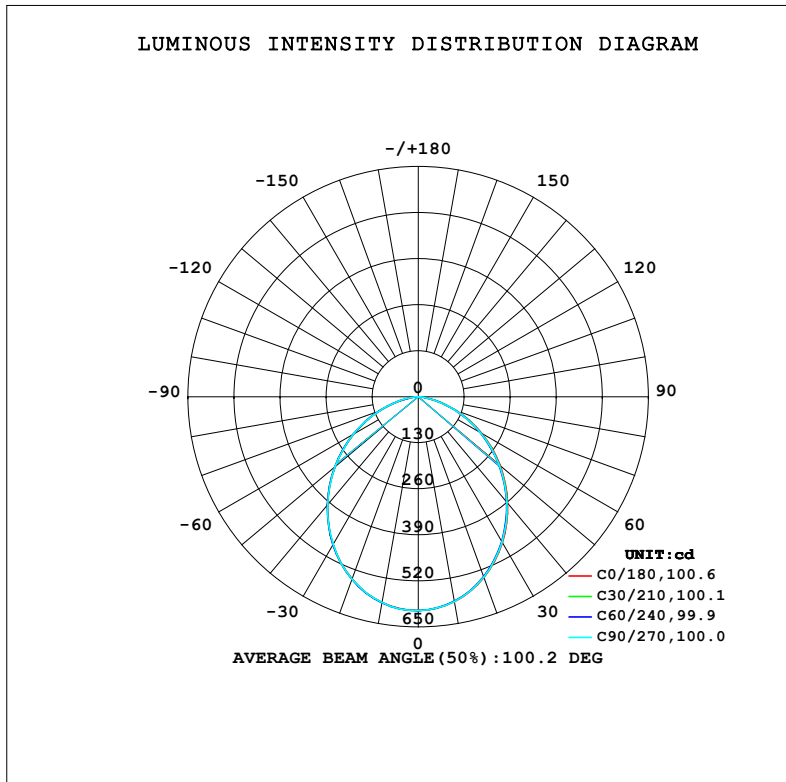


## LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99LED640	I <sub>max</sub> (cd)	603.8	S/MH (C0/180)	1.19
NOMINAL POWER (W)	18	LOR (%)	102.3	S/MH (C90/270)	1.19
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	1473.8	η UP, DN (C0-180)	0.0, 50.7
NOMINAL FLUX (lm)	1440	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 51.7
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	102.3	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	587.5	586.4	586.7	588.3	590.0	590.5	590.3	589.2	0- 10	56.91	56.91	3.86,3.95
20	543.1	540.6	541.5	544.7	547.5	548.1	547.8	546.4	10- 20	160.6	217.5	14.8,15.1
30	475.8	472.2	473.2	478.1	481.6	481.9	481.4	480.2	20- 30	236.6	454.1	30.8,31.5
40	393.0	388.5	389.6	395.5	399.2	399.0	398.5	398.0	30- 40	273.9	727.9	49.4,50.6
50	301.7	296.9	297.7	303.8	307.4	306.9	306.6	306.8	40- 50	269.9	997.9	67.7,69.3
60	207.0	202.7	202.9	207.6	211.2	211.3	211.2	211.4	50- 60	228.8	1227	83.2,85.2
70	113.3	110.7	110.2	112.1	115.2	117.0	117.1	116.7	60- 70	159.0	1386	94.9,96.2
80	32.67	31.74	31.24	31.62	33.72	35.73	36.15	34.78	70- 80	75.43	1461	99.1,101
90	1.089	0.8877	1.111	0.9340	1.021	0.7110	0.7355	0.6736	80- 90	12.67	1474	100,102
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): 865.87 lm

%lum = 58.8%  
%lamp = 60.1%

Conical surface Flux(130deg): 1316.2 lm

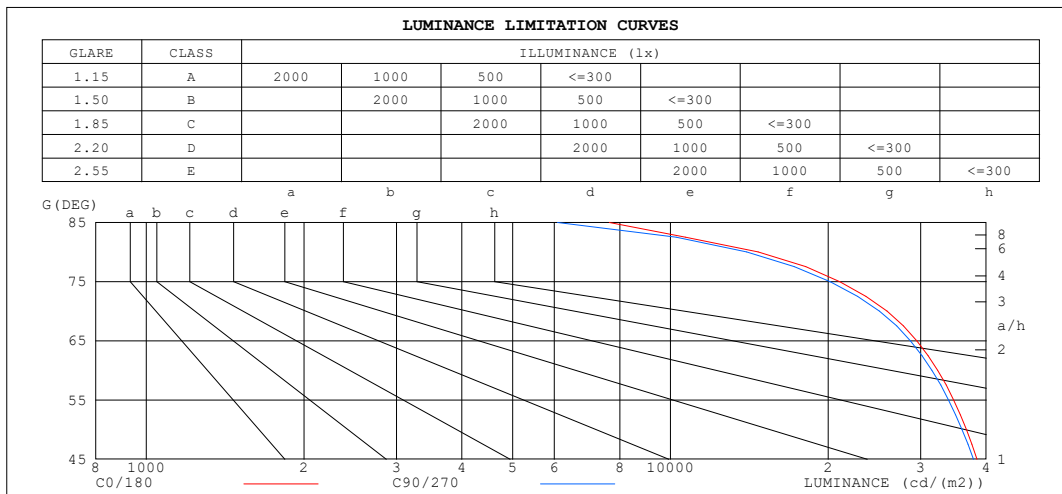
%lum = 89.3%  
%lamp = 91.4%

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	7643	6084
80	14696	13975
75	21040	20167
70	25874	25028
65	29504	28685
60	32335	31524
55	34679	33919
50	36670	35983
45	38456	37837

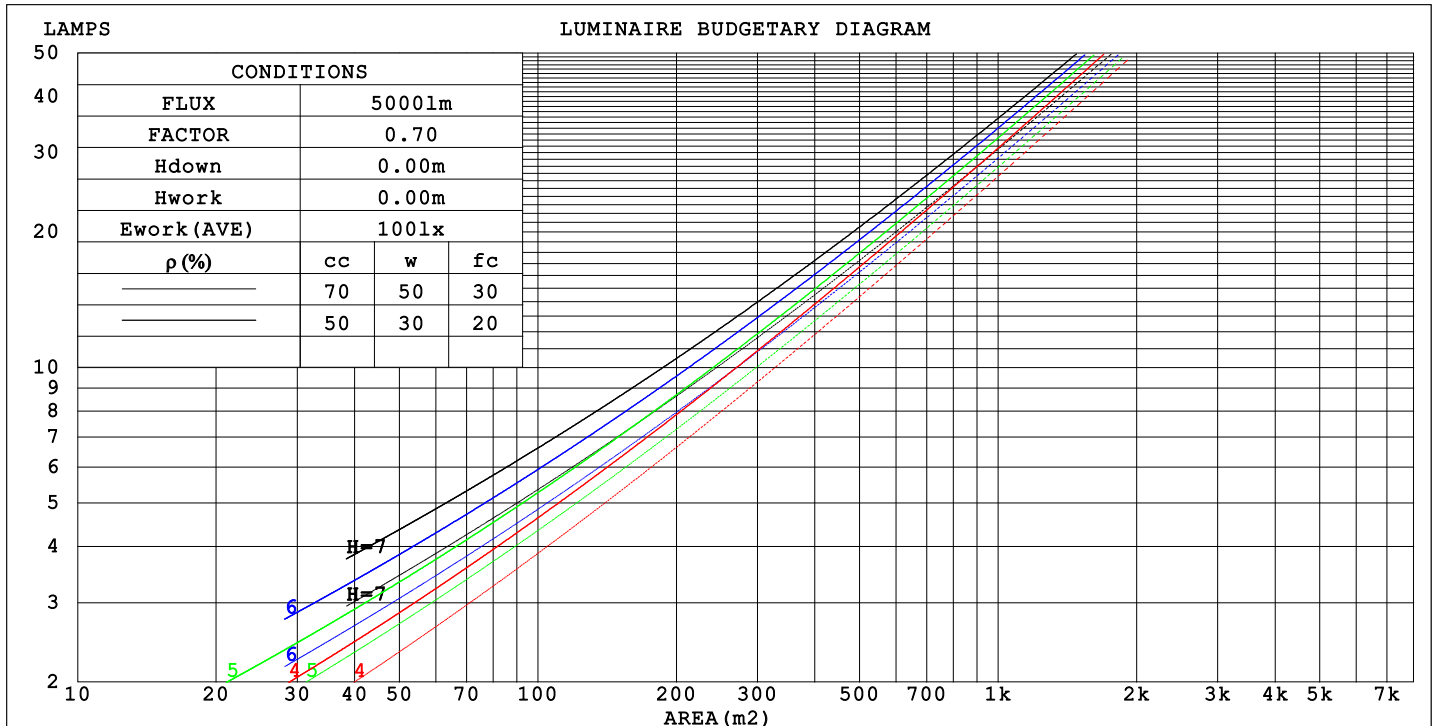
C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 16 August 2022

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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	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: HIGH  
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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	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 Coeffcients(WEC)									
0.0																
1.0	.290	.165	.052	.283	.161	.051	.269	.154	.049	.257	.148	.048	.246	.142	.046	
2.0	.278	.152	.047	.272	.150	.046	.260	.145	.045	.249	.140	.044	.239	.135	.043	
3.0	.261	.139	.042	.255	.137	.041	.245	.133	.040	.235	.129	.039	.226	.125	.039	
4.0	.243	.126	.037	.238	.124	.037	.228	.121	.036	.220	.118	.036	.212	.115	.035	
5.0	.226	.115	.033	.221	.114	.033	.213	.111	.033	.206	.108	.032	.198	.106	.032	
6.0	.210	.105	.030	.206	.104	.030	.199	.102	.030	.192	.100	.029	.186	.098	.029	
7.0	.197	.097	.028	.193	.096	.027	.187	.094	.027	.181	.093	.027	.175	.091	.027	
8.0	.184	.090	.025	.181	.089	.025	.175	.088	.025	.170	.086	.025	.165	.085	.025	
9.0	.173	.084	.023	.170	.083	.023	.165	.082	.023	.160	.080	.023	.156	.079	.023	
10.0	.163	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.074	.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	.195	.195	.195	.167	.167	.167	.114	.114	.114	.065	.065	.065	.021	.021	.021	
1.0	.183	.160	.140	.156	.137	.120	.107	.094	.083	.062	.055	.048	.020	.018	.016	
2.0	.174	.135	.103	.149	.116	.089	.102	.080	.062	.059	.047	.036	.019	.015	.012	
3.0	.165	.117	.078	.142	.101	.068	.097	.070	.048	.056	.041	.028	.018	.013	.009	
4.0	.157	.103	.062	.135	.089	.053	.093	.062	.038	.054	.036	.022	.017	.012	.007	
5.0	.150	.092	.050	.129	.080	.043	.089	.056	.031	.051	.033	.018	.017	.011	.006	
6.0	.143	.084	.041	.123	.072	.036	.085	.051	.025	.049	.030	.015	.016	.010	.005	
7.0	.136	.077	.035	.117	.066	.030	.081	.047	.022	.047	.027	.013	.015	.009	.004	
8.0	.130	.071	.030	.112	.061	.026	.077	.043	.019	.045	.025	.011	.015	.008	.004	
9.0	.124	.066	.026	.106	.057	.023	.074	.040	.016	.043	.024	.010	.014	.008	.003	
10.0	.118	.061	.023	.102	.053	.020	.071	.037	.015	.041	.022	.009	.013	.007	.003	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 99LED640					TYPE: 99LED640			WEIGHT: 1		
SPEC.:					DIM.: F199			SERIAL No.: 0		
MFR.: Elmark Industries JSC					SUR.: Round			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	23.7	25.2	24.0	25.4	25.6	23.6	25.1	23.9	25.2	25.5
3H	24.9	26.2	25.2	26.5	26.7	24.7	26.1	25.0	26.3	26.6
4H	25.3	26.5	25.6	26.8	27.0	25.1	26.4	25.4	26.6	26.9
6H	25.4	26.6	25.7	26.9	27.2	25.2	26.4	25.6	26.7	27.0
8H	25.4	26.6	25.8	26.9	27.1	25.2	26.4	25.6	26.7	27.0
12H	25.4	26.5	25.7	26.8	27.1	25.2	26.3	25.6	26.6	26.9
4H 2H	24.2	25.5	24.5	25.7	26.0	24.1	25.4	24.4	25.6	25.9
3H	25.5	26.6	25.9	26.9	27.2	25.4	26.5	25.8	26.8	27.1
4H	26.0	27.0	26.4	27.3	27.6	25.9	26.9	26.2	27.2	27.5
6H	26.2	27.1	26.6	27.5	27.8	26.1	27.0	26.5	27.3	27.7
8H	26.3	27.1	26.7	27.4	27.8	26.1	26.9	26.5	27.3	27.7
12H	26.2	27.0	26.7	27.4	27.8	26.1	26.8	26.5	27.2	27.6
8H 4H	26.1	26.9	26.5	27.3	27.7	26.0	26.8	26.4	27.2	27.6
6H	26.4	27.1	26.9	27.5	27.9	26.3	27.0	26.7	27.4	27.8
8H	26.5	27.1	26.9	27.5	28.0	26.3	26.9	26.8	27.4	27.8
12H	26.5	27.0	27.0	27.5	27.9	26.3	26.8	26.8	27.3	27.8
12H 4H	26.1	26.9	26.5	27.2	27.6	26.0	26.7	26.4	27.1	27.5
6H	26.4	27.0	26.9	27.4	27.9	26.3	26.9	26.7	27.3	27.8
8H	26.5	27.0	27.0	27.5	27.9	26.3	26.9	26.8	27.3	27.8
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 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.4 / - 0.4					+ 0.4 / - 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: HIGH  
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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:

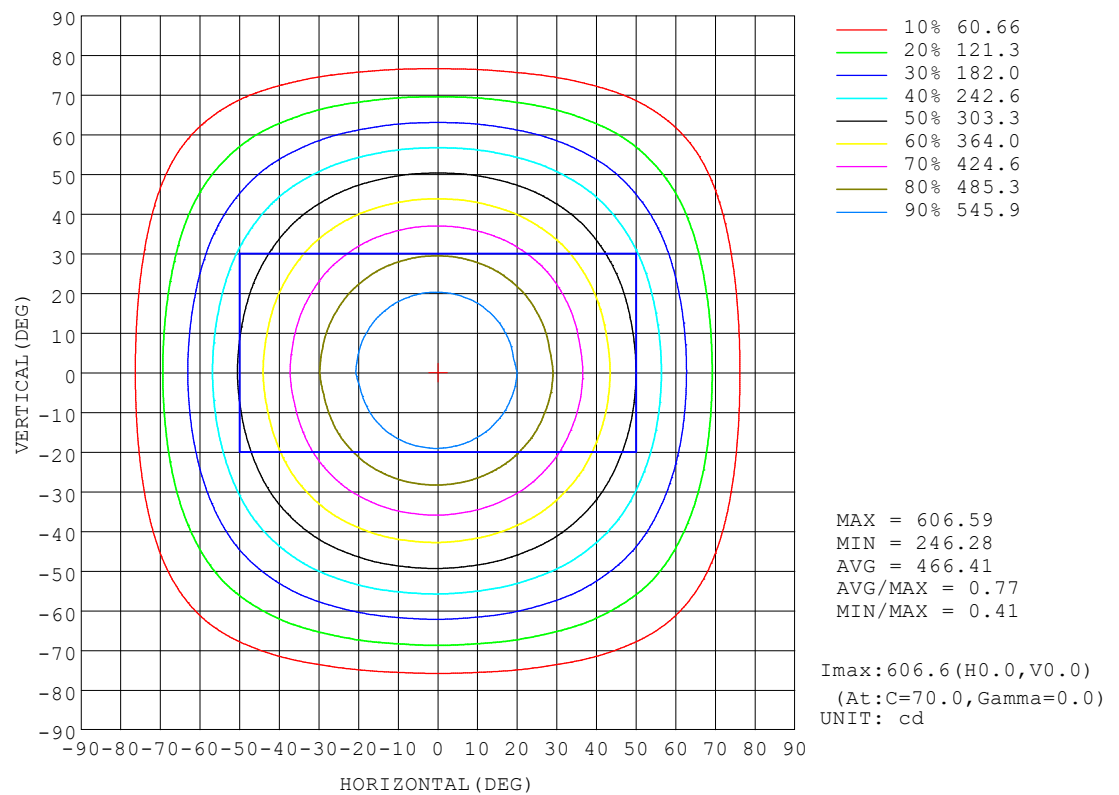
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	62	50	43	61	50	43	60	49	43	37
0.80	72	61	53	71	60	53	69	59	53	46
1.00	81	70	63	79	69	62	77	70	62	55
1.25	88	78	71	86	77	70	84	75	70	62
1.50	93	83	77	91	82	76	88	80	75	68
2.00	99	91	85	97	90	84	94	88	83	75
2.50	103	96	90	101	94	89	97	92	87	79
3.00	106	100	95	104	98	93	100	95	91	83
4.00	110	105	100	108	103	99	103	100	96	87
5.00	112	108	104	110	106	102	105	102	99	90
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: HIGH  
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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:



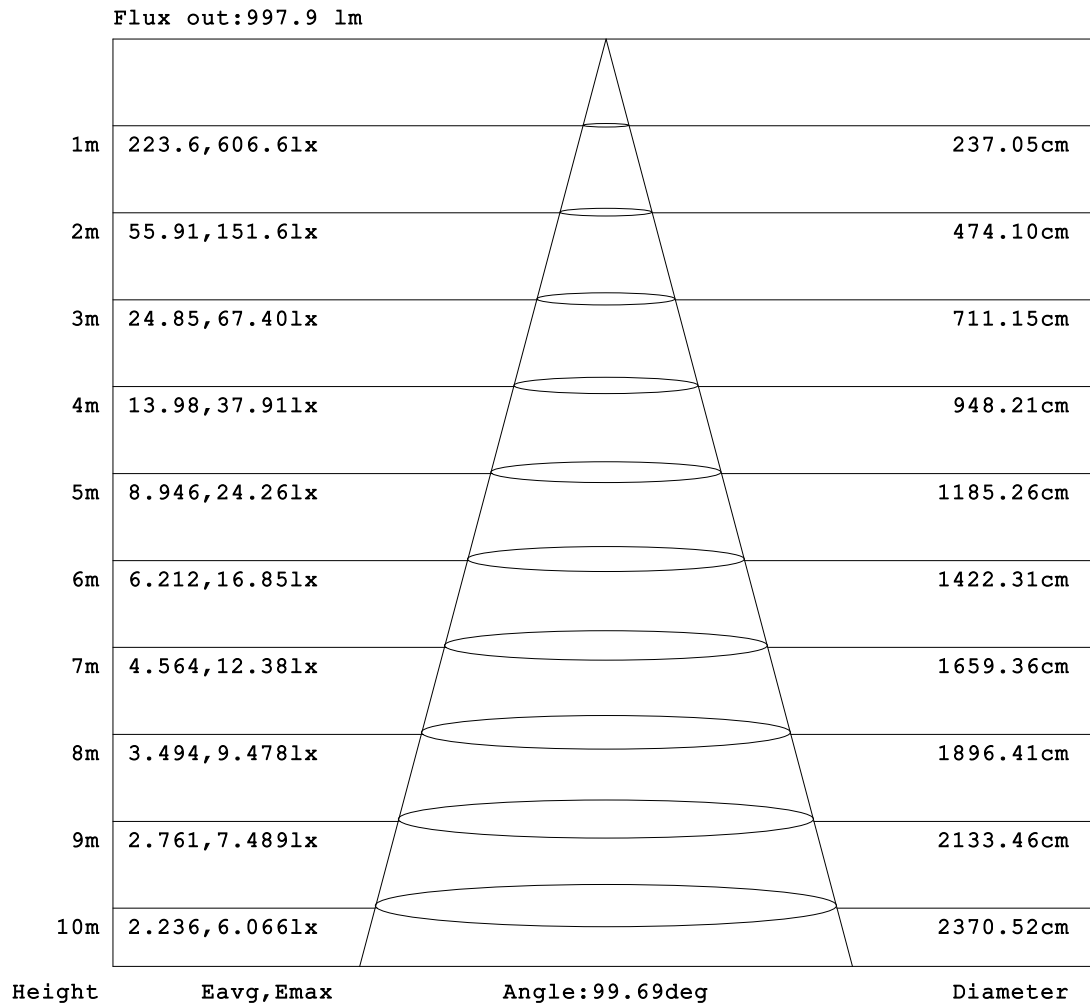
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
Temperature: 25.3°C  
Operators:  
Test Date: 16 August 2022

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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:



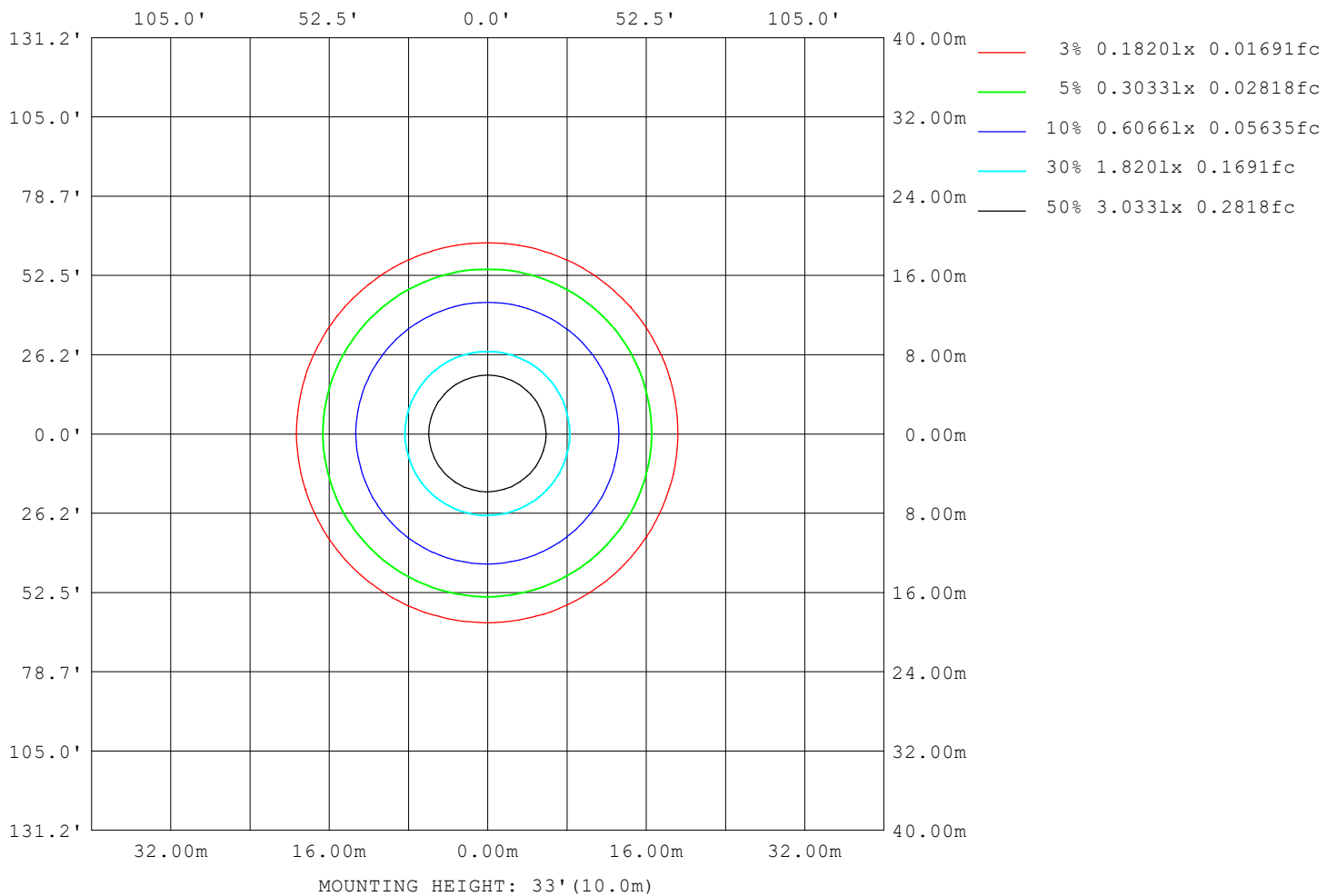
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: HIGH  
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: 99LED640	TYPE: 99LED640	WEIGHT: 1
SPEC.:	DIM.: F199	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Round	Shielding Angle:

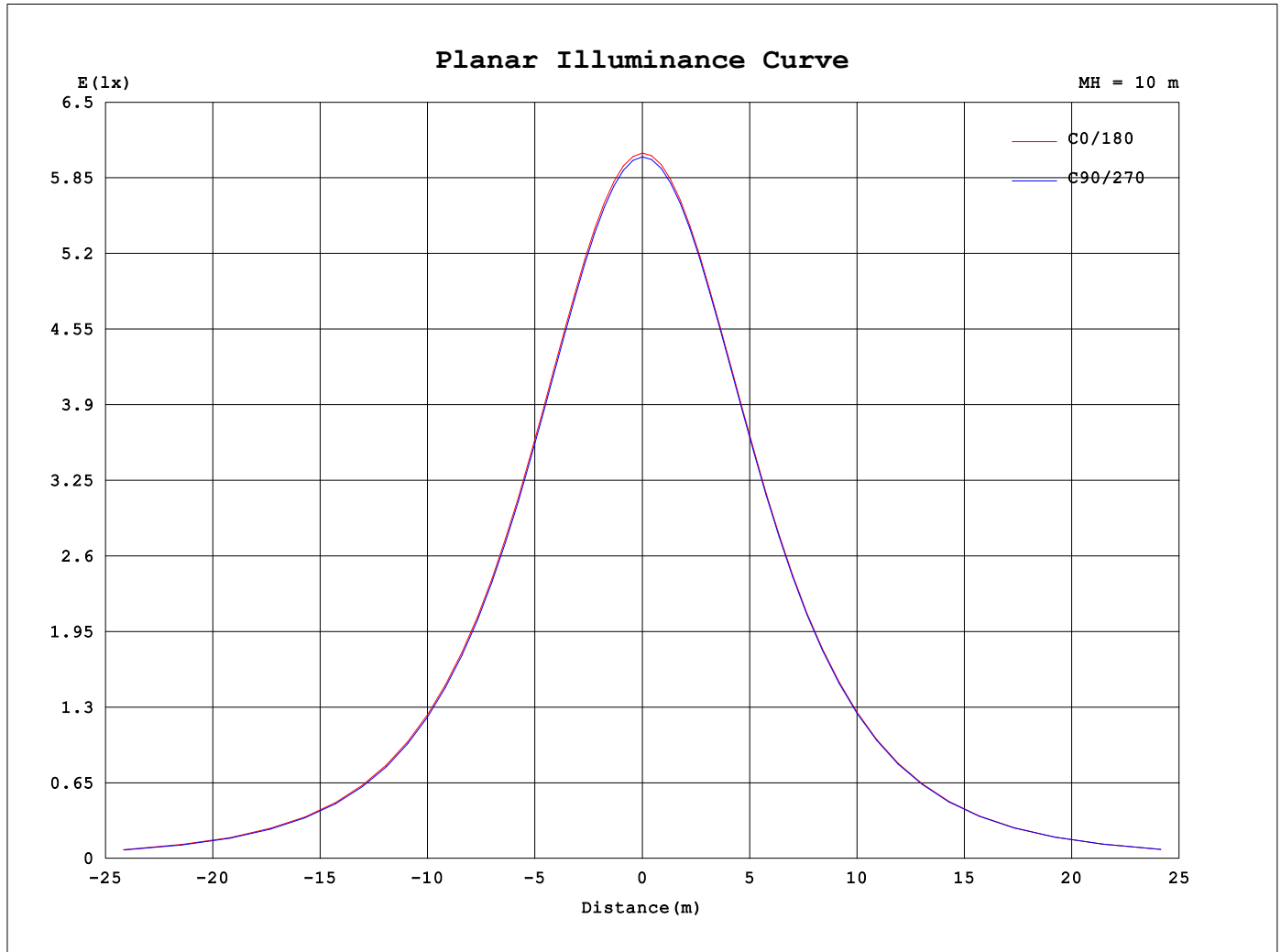
AvgL	cd/m2
L_0~180 (65) av	29670
L_0~180 (75) av	21123
L_0~180 (85) av	7642
L_90~270 (65) av	29419
L_90~270 (75) av	21145
L_90~270 (85) av	7266
L_45 (65) av	29578
L_45 (75) av	21151
L_45 (85) av	7798

Standard: GB/T 29293-2012

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

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  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:

```

```

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:

```