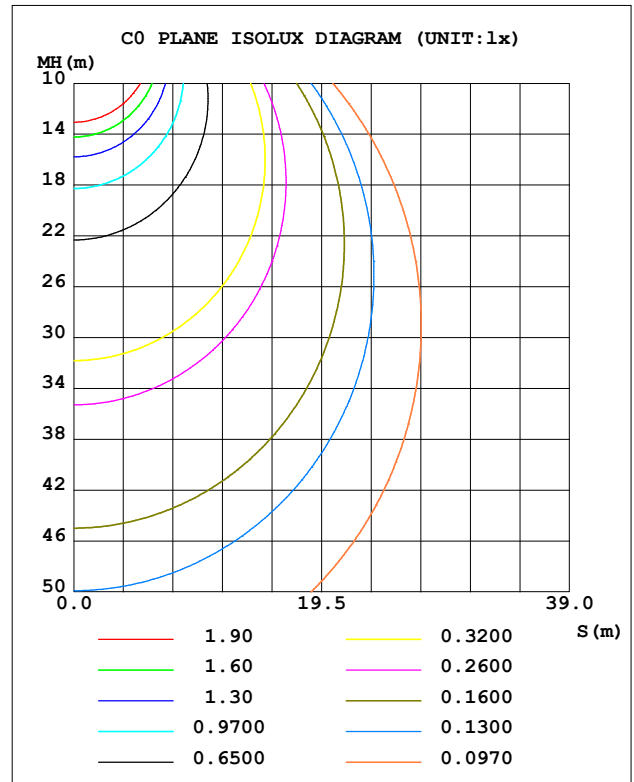
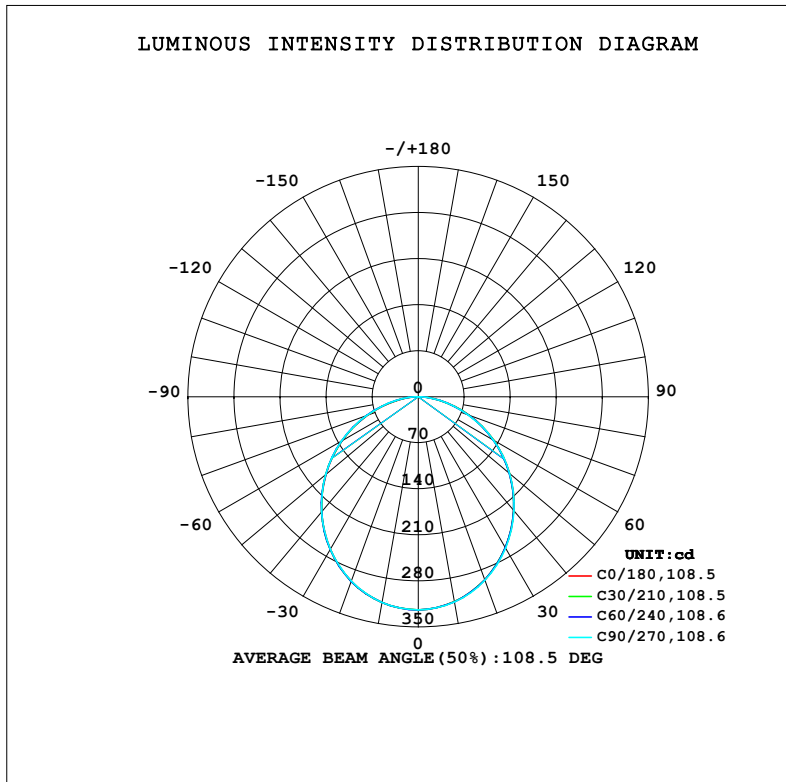


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99LED961CW	Imax(cd)	323.8	S/MH(C0/180)	1.23
NOMINAL POWER(W)	12	LOR(%)	87.0	S/MH(C90/270)	1.23
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	887.75	η UP,DN(C0-180)	0.0,43.3
NOMINAL FLUX(lm)	1020	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,43.8
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down (%)	87.0	CIBSE SHR MAX	1.35



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:10 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	316.4	316.3	316.7	317.2	317.6	317.7	317.4	316.9	0- 10	30.59	30.59	3.45,3
20	296.1	296.0	296.6	297.5	298.3	298.5	298.0	297.1	10- 20	87.05	117.6	13.3,11.5
30	265.1	264.8	265.5	266.7	267.7	268.0	267.5	266.4	20- 30	130.4	248.0	27.9,24.3
40	226.0	225.5	226.2	227.5	228.5	229.0	228.6	227.5	30- 40	155.0	403.0	45.4,39.5
50	181.3	180.7	181.2	182.3	183.4	183.9	183.7	182.8	40- 50	158.5	561.5	63.2,55
60	132.8	132.1	132.3	133.0	134.2	134.7	134.8	134.3	50- 60	141.5	703.0	79.2,68.9
70	82.53	81.55	81.21	81.59	82.50	83.42	83.95	83.66	60- 70	106.9	810.0	91.2,79.4
80	34.60	33.84	33.30	33.26	33.89	34.88	35.50	35.39	70- 80	61.01	871.0	98.1,85.4
90	0.6041	0.4779	0.4792	0.4776	0.4109	0.4234	0.4193	0.5178	80- 90	16.77	887.7	100,87
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): 483.14 lm

%lum = 54.4%

%lamp = 47.4%

Conical surface Flux(130deg): 761.76 lm

%lum = 85.8%

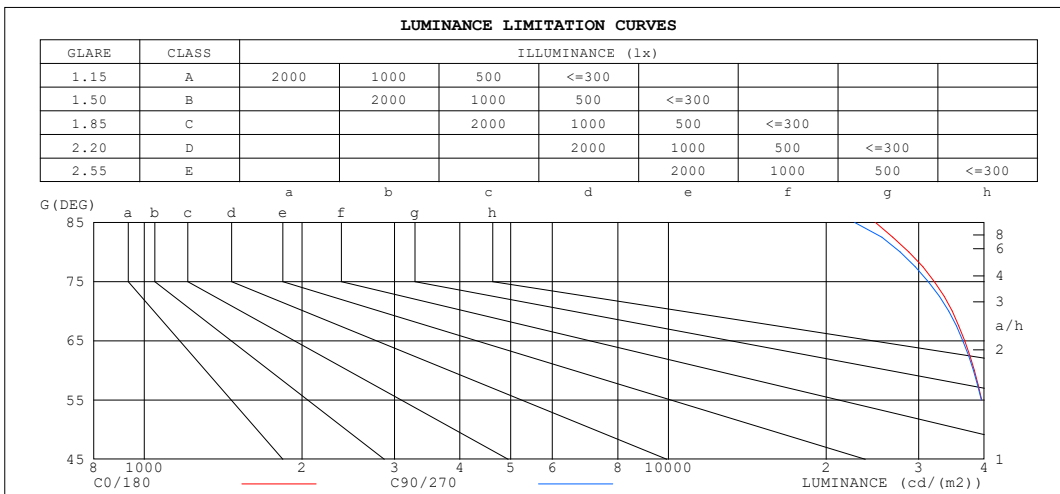
%lamp = 74.7%

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	24811	22643
80	28738	27645
75	32138	31311
70	34799	34226
65	36737	36432
60	38307	38147
55	39588	39532
50	40685	40626
45	41660	41643

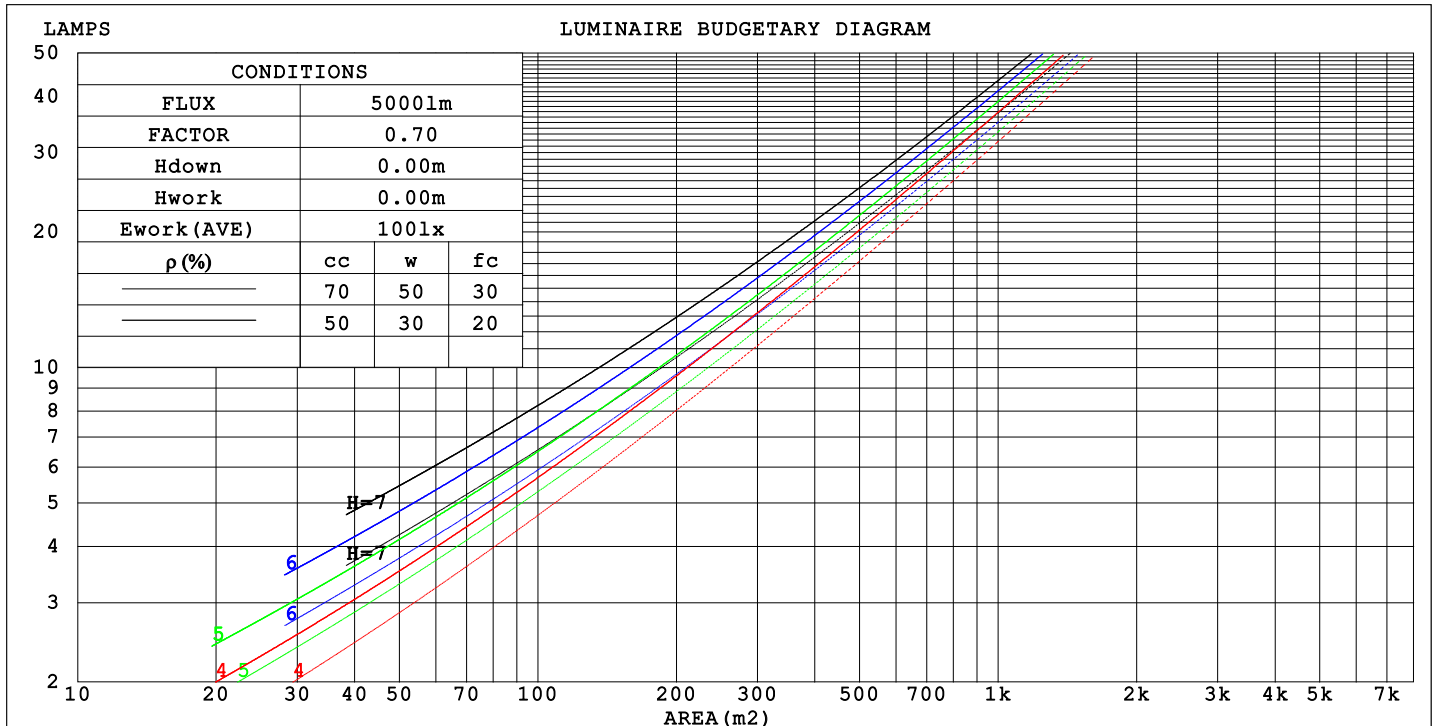
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 10 August 2022

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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	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:10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	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	.268	.152	.048	.262	.149	.047	.250	.144	.046	.240	.138	.044	.230	.133	.043		
2.0	.252	.138	.042	.247	.136	.042	.237	.132	.041	.227	.127	.040	.218	.124	.039		
3.0	.233	.124	.037	.229	.122	.037	.220	.119	.036	.211	.116	.036	.204	.113	.035		
4.0	.216	.112	.033	.211	.111	.033	.203	.108	.032	.196	.105	.032	.189	.103	.031		
5.0	.199	.102	.029	.196	.100	.029	.188	.098	.029	.182	.096	.029	.176	.094	.028		
6.0	.185	.093	.027	.182	.092	.026	.175	.090	.026	.169	.088	.026	.164	.086	.026		
7.0	.172	.085	.024	.169	.084	.024	.164	.083	.024	.158	.081	.024	.153	.080	.023		
8.0	.161	.079	.022	.158	.078	.022	.153	.077	.022	.148	.075	.022	.144	.074	.022		
9.0	.151	.073	.020	.148	.072	.020	.144	.071	.020	.140	.070	.020	.136	.069	.020		
10.0	.142	.068	.019	.140	.067	.019	.136	.066	.019	.132	.065	.019	.128	.064	.018		

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	.166	.166	.166	.142	.142	.142	.097	.097	.097	.056	.056	.056	.018	.018	.018	
1.0	.157	.136	.117	.134	.117	.101	.092	.080	.070	.053	.046	.041	.017	.015	.013	
2.0	.150	.115	.086	.128	.099	.074	.088	.068	.052	.051	.040	.030	.016	.013	.010	
3.0	.143	.099	.065	.122	.086	.056	.084	.060	.039	.049	.035	.023	.016	.011	.008	
4.0	.136	.088	.051	.117	.076	.044	.080	.053	.031	.046	.031	.018	.015	.010	.006	
5.0	.130	.079	.041	.111	.068	.036	.077	.048	.025	.044	.028	.015	.014	.009	.005	
6.0	.123	.071	.034	.106	.062	.030	.073	.043	.021	.042	.025	.013	.014	.008	.004	
7.0	.118	.065	.029	.101	.057	.025	.070	.040	.018	.041	.023	.011	.013	.008	.004	
8.0	.112	.060	.025	.096	.052	.022	.067	.037	.016	.039	.022	.009	.013	.007	.003	
9.0	.107	.056	.022	.092	.049	.019	.064	.034	.014	.037	.020	.008	.012	.007	.003	
10.0	.102	.052	.020	.088	.045	.017	.061	.032	.012	.035	.019	.007	.012	.006	.002	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:10 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: 99LED961CW					TYPE: 99LED961CW			WEIGHT: 1			
SPEC.:					DIM.: F138			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: circular			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	25.5	27.0	25.8	27.2	27.4	25.5	27.0	25.8	27.2	27.4
	3H	27.0	28.4	27.3	28.6	28.9	27.0	28.4	27.3	28.6	28.8
	4H	27.6	28.9	27.9	29.2	29.4	27.5	28.9	27.8	29.1	29.4
	6H	28.0	29.3	28.3	29.5	29.8	27.9	29.2	28.3	29.4	29.7
	8H	28.1	29.4	28.5	29.6	29.9	28.0	29.3	28.4	29.5	29.8
	12H	28.2	29.4	28.6	29.7	30.0	28.1	29.3	28.5	29.6	29.9
4H	2H	26.1	27.4	26.4	27.7	27.9	26.1	27.4	26.4	27.7	27.9
	3H	27.8	28.9	28.1	29.2	29.5	27.7	28.9	28.1	29.2	29.5
	4H	28.5	29.6	28.9	29.9	30.2	28.4	29.5	28.8	29.8	30.1
	6H	29.0	30.0	29.4	30.3	30.7	28.9	29.9	29.3	30.2	30.6
	8H	29.2	30.1	29.6	30.5	30.8	29.1	30.0	29.5	30.4	30.7
	12H	29.3	30.1	29.8	30.5	30.9	29.2	30.0	29.6	30.4	30.8
8H	4H	28.7	29.6	29.2	30.0	30.4	28.7	29.6	29.1	29.9	30.3
	6H	29.4	30.2	29.9	30.6	31.0	29.3	30.1	29.8	30.5	30.9
	8H	29.7	30.3	30.1	30.8	31.2	29.6	30.2	30.1	30.7	31.1
	12H	29.9	30.4	30.4	30.9	31.4	29.8	30.3	30.2	30.8	31.2
12H	4H	28.7	29.6	29.2	29.9	30.3	28.7	29.5	29.1	29.9	30.3
	6H	29.5	30.1	29.9	30.5	31.0	29.4	30.0	29.9	30.5	30.9
	8H	29.8	30.3	30.3	30.8	31.3	29.7	30.2	30.2	30.7	31.2
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H		+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H		+ 0.2 / - 0.2					+ 0.2 / - 0.2				

CIE Pub.117, 1020 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 0.1)
Area: 0.00693626 m2

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:

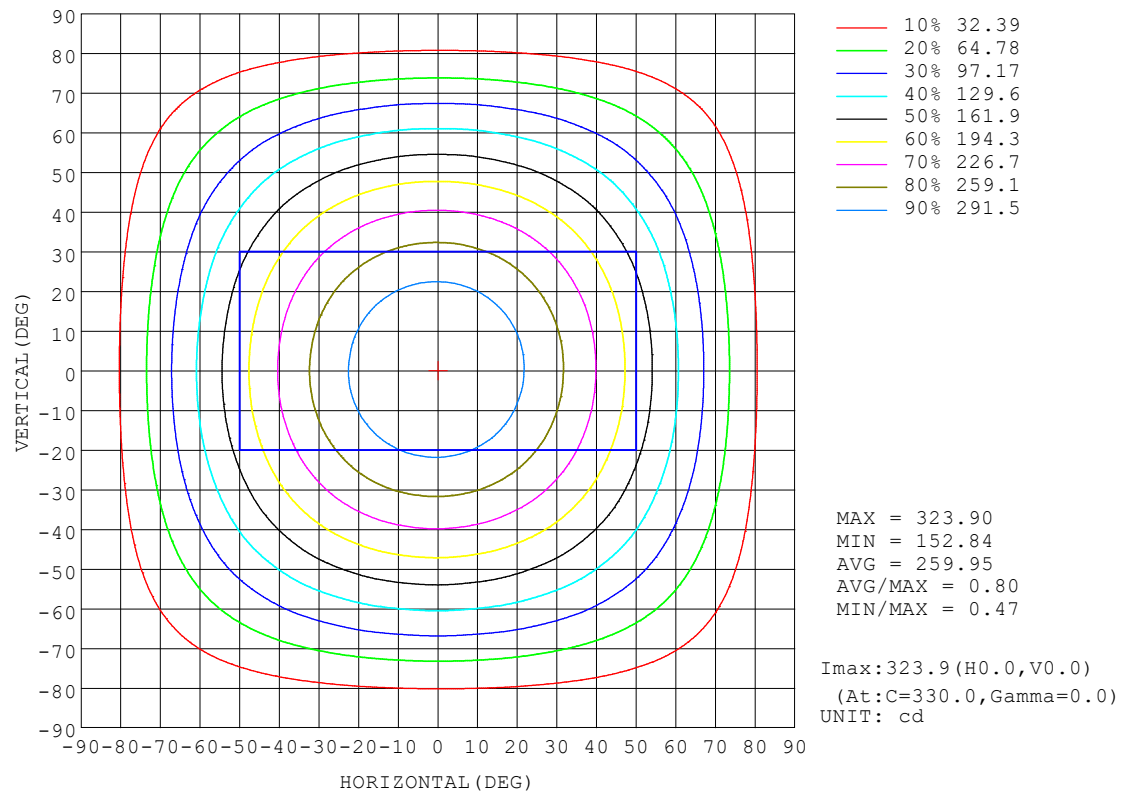
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	50	40	34	50	40	34	49	40	34	29
0.80	59	49	43	58	49	43	57	48	42	36
1.00	66	57	51	65	56	50	63	58	50	44
1.25	73	64	57	71	63	57	69	62	56	50
1.50	77	68	62	75	68	62	73	66	61	54
2.00	83	75	70	81	74	69	78	72	68	61
2.50	86	79	74	84	78	73	81	76	72	65
3.00	89	83	78	87	82	77	84	79	76	68
4.00	93	88	84	90	86	82	87	83	80	72
5.00	95	90	87	93	89	86	89	86	83	75
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: 10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:

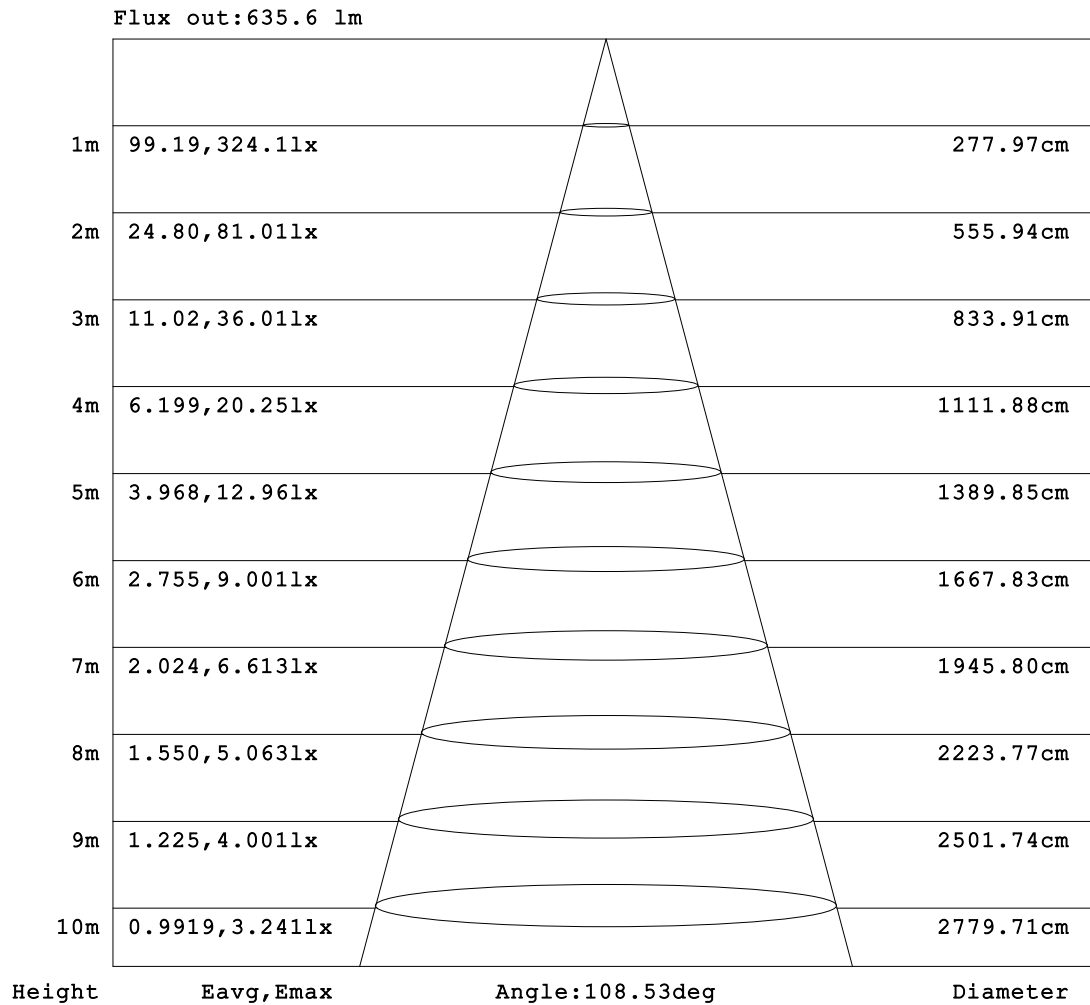


C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature:25.3°C
 Operators:
 Test Date:10 August 2022

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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:



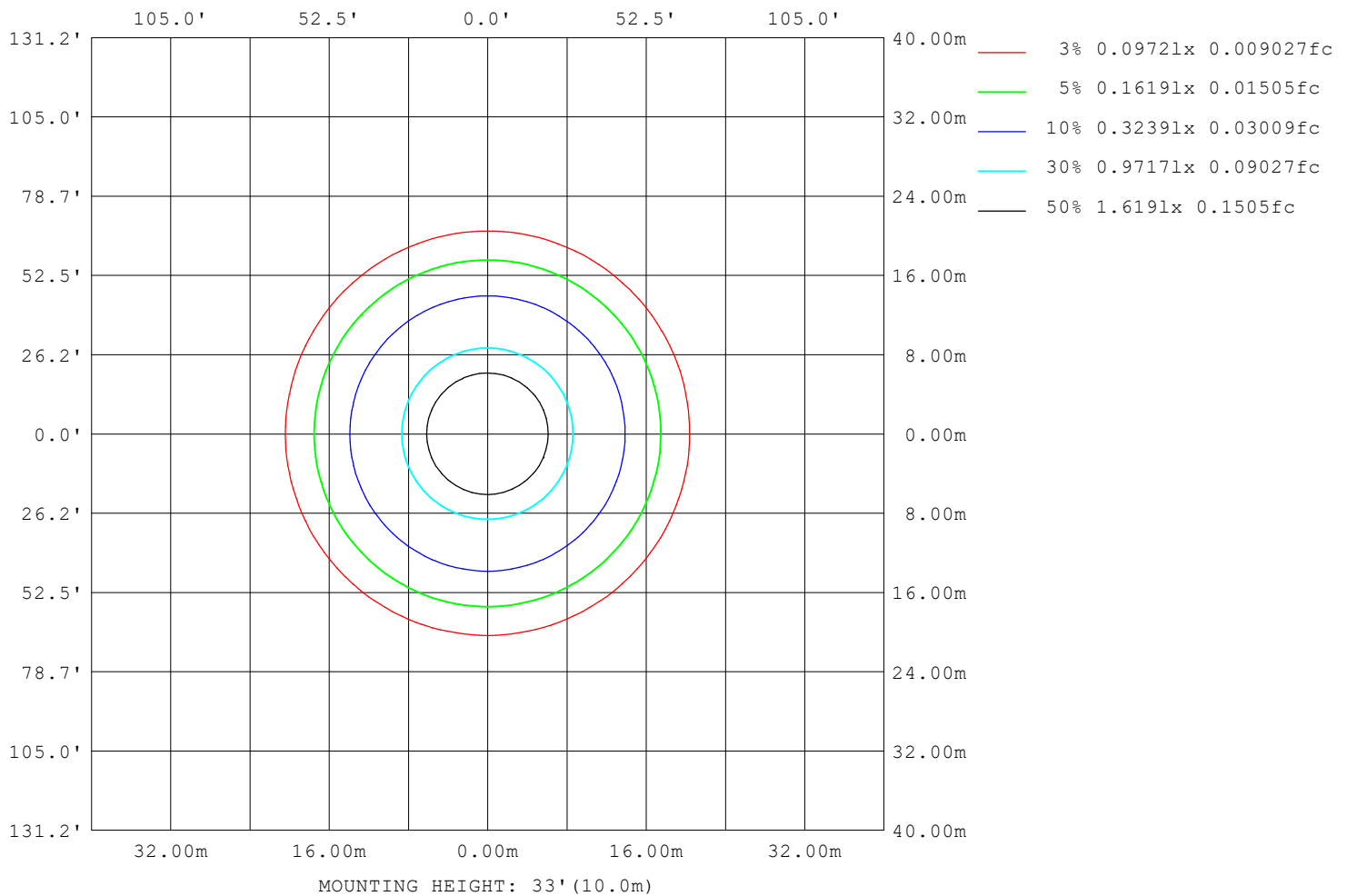
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 10 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: 99LED961CW	TYPE: 99LED961CW	WEIGHT: 1
SPEC.:	DIM.: F138	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: circular	Shielding Angle:

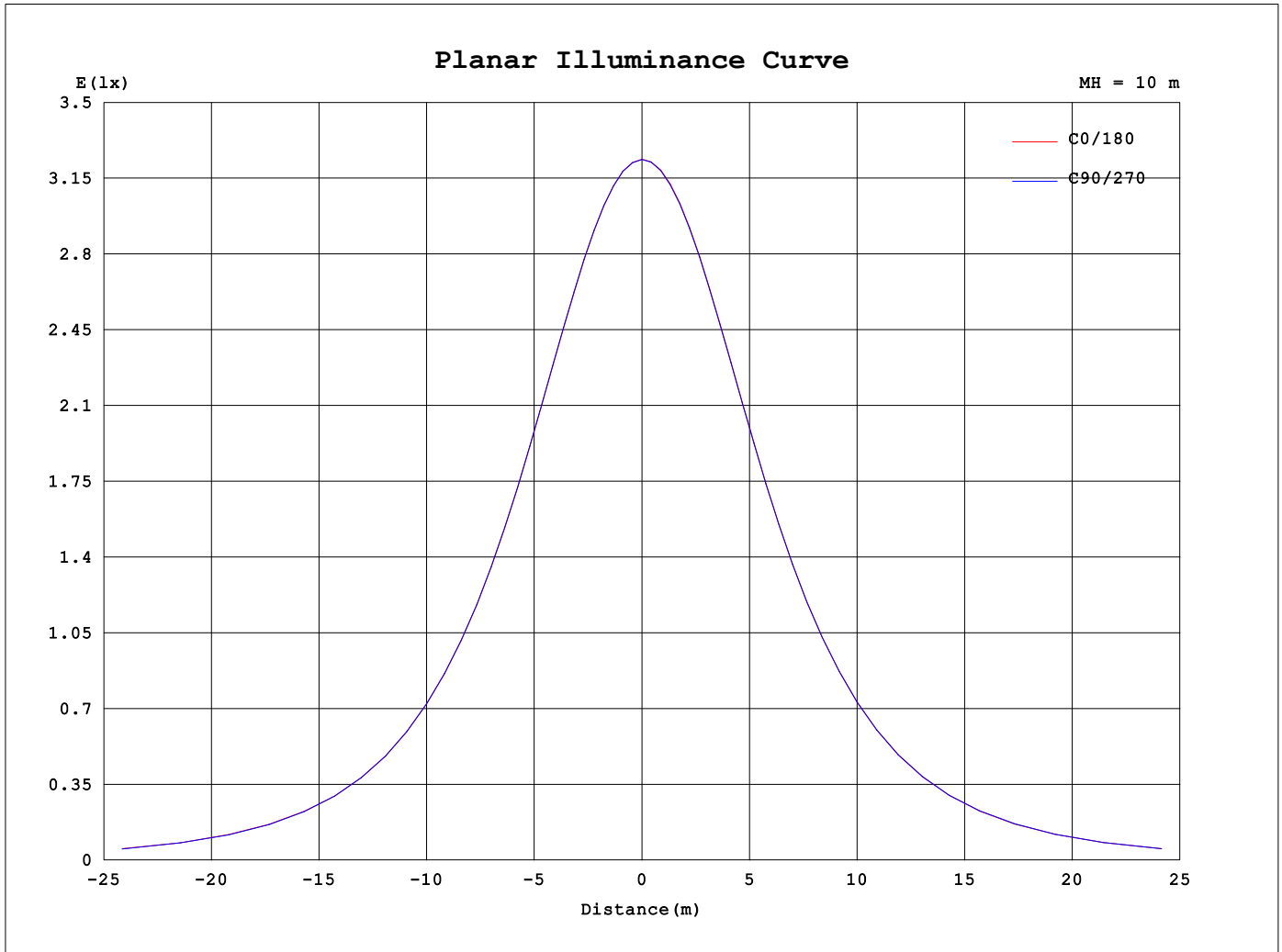
AvgL	cd/m2
L_0~180 (65) av	36859
L_0~180 (75) av	31997
L_0~180 (85) av	24061
L_90~270 (65) av	36864
L_90~270 (75) av	32048
L_90~270 (85) av	24144
L_45 (65) av	36868
L_45 (75) av	32027
L_45 (85) av	24318

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:10 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: 10 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:

```