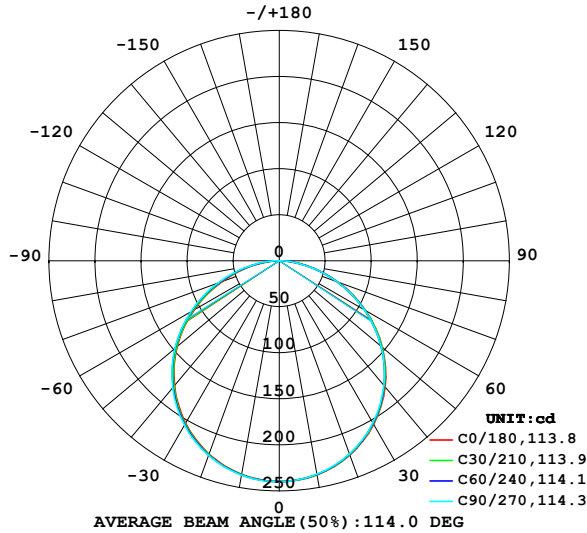


LUMINAIRE PHOTOMETRIC TEST REPORT

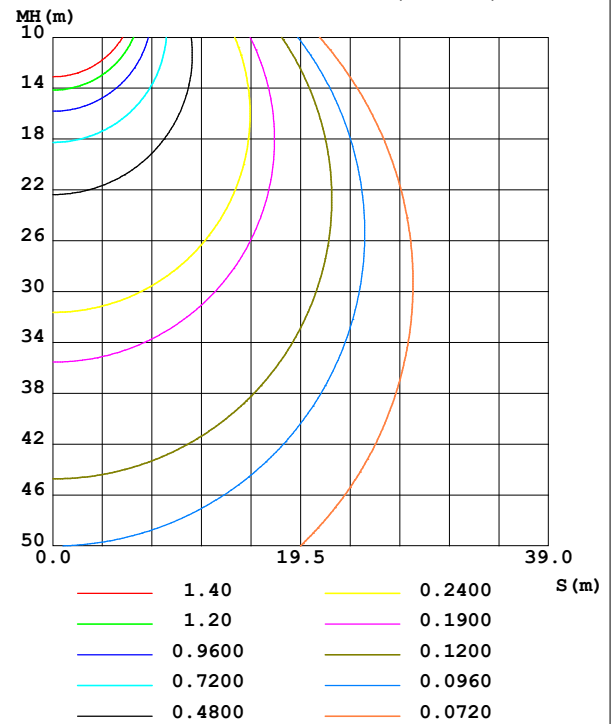
NAME: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99XLED640WW	Imax (cd)	239.9	S/MH (C0/180)	1.26
NOMINAL POWER (W)	12	LOR (%)	72.1	S/MH (C90/270)	1.28
RATED VOLTAGE (V)	230	TOTAL FLUX (lm)	699.32	η UP, DN (C0-180)	0.0, 35.7
NOMINAL FLUX (lm)	970	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 36.4
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	72.1	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: 24 October 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	236.1	235.7	235.4	235.3	235.6	236.0	236.4	236.4	0- 10	22.71	22.71	3.25, 2.34
20	224.4	223.7	223.2	222.9	223.4	224.2	224.9	225.0	10- 20	65.17	87.88	12.6, 9.06
30	205.1	204.1	203.4	203.1	203.7	204.9	206.0	206.0	20- 30	99.17	187.1	26.7, 19.3
40	178.8	177.6	176.8	176.3	177.1	178.7	180.1	180.0	30- 40	120.2	307.3	43.9, 31.7
50	146.2	145.0	144.4	143.7	144.8	146.5	147.9	147.9	40- 50	125.5	432.7	61.9, 44.6
60	108.6	107.3	106.9	106.0	107.0	109.1	110.9	110.5	50- 60	113.9	546.7	78.2, 56.4
70	68.23	67.34	66.77	66.02	66.13	69.10	71.23	70.55	60- 70	87.43	634.1	90.7, 65.4
80	29.06	28.32	28.20	27.19	27.49	29.88	32.04	31.15	70- 80	50.96	685.1	98, 70.6
90	0.3726	0.3756	0.3839	0.3812	0.3263	0.3266	0.3458	0.3336	80- 90	14.26	699.3	100, 72.1
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): 370.37 lm

%lum = 53.0%

%lamp = 38.2%

Conical surface Flux(130deg): 594.46 lm

%lum = 85.0%

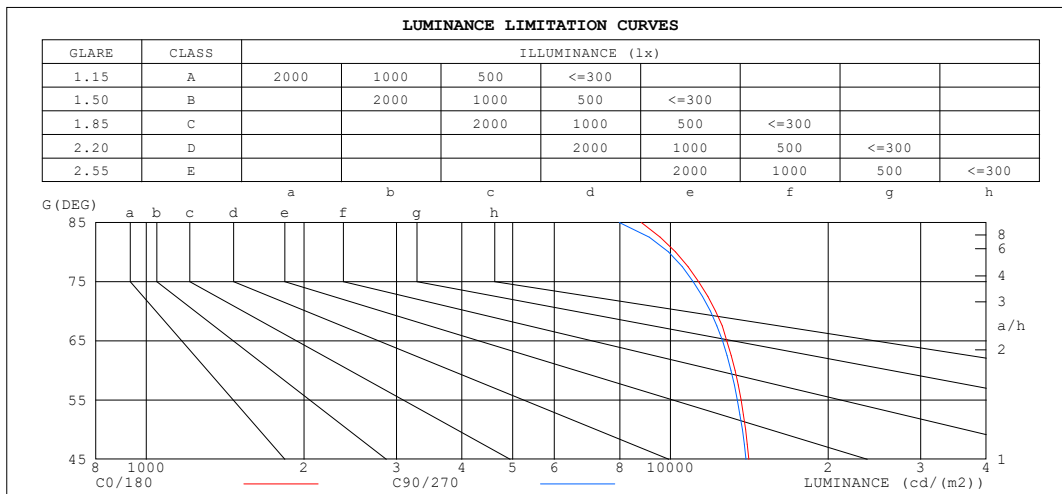
%lamp = 61.3%

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	8792	7978
80	10224	9909
75	11318	11049
70	12187	11912
65	12809	12564
60	13270	13042
55	13631	13417
50	13899	13705
45	14103	13932

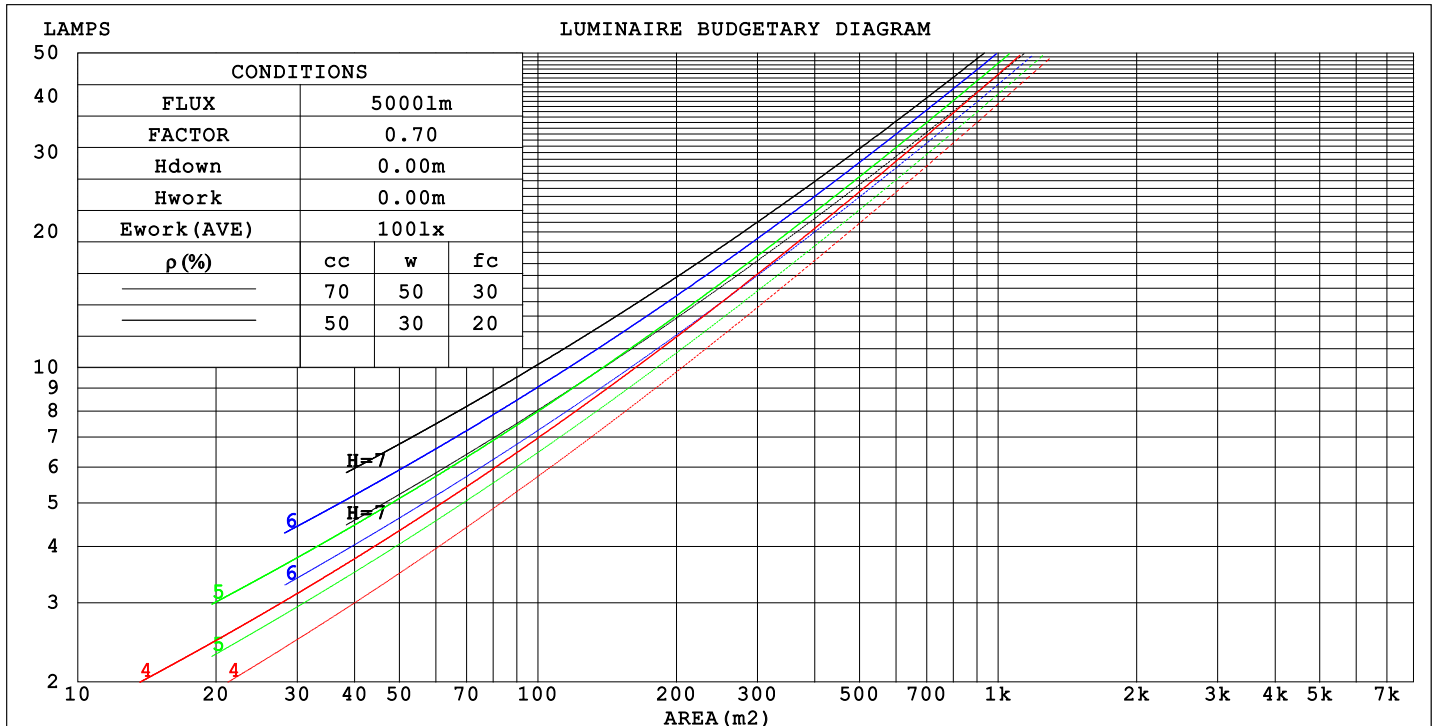
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: MEDIUM
 Temperature: 25.3°C
 Operators:
 Test Date: 24 October 2022

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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	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															
	Coefficients of Utilization(CU)															
0.0	.86	.86	.86	.84	.84	.84	.80	.80	.80	.77	.77	.77	.74	.74	.74	.72
1.0	.75	.72	.69	.73	.70	.68	.70	.68	.65	.67	.65	.63	.65	.63	.62	.60
2.0	.65	.60	.56	.64	.59	.55	.61	.57	.54	.59	.55	.53	.56	.54	.51	.50
3.0	.57	.51	.46	.56	.50	.46	.54	.49	.45	.52	.48	.44	.50	.46	.43	.42
4.0	.50	.44	.39	.49	.43	.39	.48	.42	.38	.46	.41	.38	.44	.40	.37	.36
5.0	.45	.38	.34	.44	.38	.33	.43	.37	.33	.41	.36	.33	.40	.36	.32	.31
6.0	.40	.34	.29	.40	.34	.29	.38	.33	.29	.37	.32	.29	.36	.32	.28	.27
7.0	.37	.30	.26	.36	.30	.26	.35	.29	.25	.34	.29	.25	.33	.28	.25	.24
8.0	.33	.27	.23	.33	.27	.23	.32	.27	.23	.31	.26	.23	.30	.26	.22	.21
9.0	.31	.25	.21	.30	.24	.21	.29	.24	.20	.29	.24	.20	.28	.23	.20	.19
10.0	.28	.23	.19	.28	.22	.19	.27	.22	.19	.26	.22	.18	.26	.22	.18	.17



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	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	.226	.129	.041	.221	.126	.040	.211	.121	.039	.203	.117	.038	.195	.113	.036	
2.0	.212	.116	.036	.208	.114	.035	.199	.111	.034	.192	.107	.034	.184	.104	.033	
3.0	.196	.104	.031	.192	.103	.031	.185	.100	.030	.178	.097	.030	.171	.095	.029	
4.0	.181	.094	.028	.177	.093	.027	.171	.091	.027	.165	.088	.027	.159	.086	.026	
5.0	.167	.085	.025	.164	.084	.025	.158	.082	.024	.153	.081	.024	.147	.079	.024	
6.0	.155	.078	.022	.152	.077	.022	.147	.075	.022	.142	.074	.022	.137	.072	.021	
7.0	.144	.071	.020	.142	.071	.020	.137	.069	.020	.133	.068	.020	.128	.067	.020	
8.0	.134	.066	.018	.132	.065	.018	.128	.064	.018	.124	.063	.018	.120	.062	.018	
9.0	.126	.061	.017	.124	.060	.017	.120	.059	.017	.117	.059	.017	.113	.058	.017	
10.0	.118	.057	.016	.117	.056	.016	.113	.055	.016	.110	.055	.016	.107	.054	.015	

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	.137	.137	.137	.117	.117	.117	.080	.080	.080	.046	.046	.046	.015	.015	.015	
1.0	.130	.113	.097	.111	.097	.083	.076	.066	.058	.044	.038	.033	.014	.012	.011	
2.0	.124	.095	.070	.107	.082	.061	.073	.057	.042	.042	.033	.025	.014	.011	.008	
3.0	.119	.082	.053	.102	.071	.046	.070	.049	.032	.040	.029	.019	.013	.009	.006	
4.0	.113	.073	.042	.097	.063	.036	.067	.044	.026	.039	.026	.015	.012	.008	.005	
5.0	.108	.065	.034	.093	.057	.029	.064	.039	.021	.037	.023	.012	.012	.008	.004	
6.0	.103	.059	.028	.088	.051	.024	.061	.036	.017	.035	.021	.010	.011	.007	.003	
7.0	.098	.054	.024	.084	.047	.021	.058	.033	.015	.034	.019	.009	.011	.006	.003	
8.0	.093	.050	.021	.080	.044	.018	.056	.031	.013	.032	.018	.008	.010	.006	.003	
9.0	.089	.047	.018	.077	.040	.016	.053	.028	.011	.031	.017	.007	.010	.006	.002	
10.0	.085	.044	.016	.073	.038	.014	.051	.027	.010	.030	.016	.006	.010	.005	.002	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:24 October 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: 99XLED640WW					TYPE:			WEIGHT: 1			
SPEC.:					DIM.: 170 x 170			SERIAL No.: 0			
MFR.: Elmark Industries JSC					SUR.: rectangular			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	22.1	23.6	22.3	23.8	24.0	22.0	23.5	22.3	23.7	23.9	
	23.6	25.0	23.9	25.3	25.5	23.5	24.9	23.8	25.2	25.4	
	24.2	25.6	24.5	25.8	26.1	24.1	25.5	24.4	25.7	26.0	
	24.6	25.9	25.0	26.2	26.5	24.5	25.8	24.9	26.1	26.4	
	24.8	26.0	25.1	26.3	26.6	24.7	25.9	25.0	26.2	26.5	
12H	24.9	26.0	25.2	26.3	26.6	24.7	25.9	25.1	26.2	26.5	
4H	2H	22.7	24.0	23.0	24.3	24.5	22.6	24.0	22.9	24.2	24.5
	3H	24.4	25.6	24.7	25.9	26.2	24.3	25.5	24.7	25.8	26.1
	4H	25.1	26.2	25.5	26.5	26.9	25.0	26.1	25.4	26.4	26.8
	6H	25.7	26.6	26.1	27.0	27.4	25.6	26.6	26.0	26.9	27.3
	8H	25.9	26.8	26.3	27.1	27.5	25.8	26.7	26.2	27.0	27.4
12H	26.0	26.8	26.4	27.2	27.6	25.9	26.7	26.3	27.1	27.5	
8H	4H	25.4	26.3	25.8	26.6	27.0	25.3	26.2	25.7	26.6	27.0
	6H	26.1	26.8	26.5	27.2	27.7	26.0	26.8	26.5	27.2	27.6
	8H	26.4	27.0	26.8	27.5	27.9	26.3	26.9	26.7	27.4	27.8
	12H	26.6	27.1	27.0	27.6	28.1	26.5	27.0	26.9	27.5	27.9
12H	4H	25.4	26.2	25.8	26.6	27.0	25.3	26.2	25.8	26.5	26.9
	6H	26.1	26.8	26.6	27.2	27.7	26.1	26.7	26.5	27.2	27.6
	8H	26.5	27.0	26.9	27.5	28.0	26.4	26.9	26.9	27.4	27.9
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2					
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					
2.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3					

CIE Pub.117, 970.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -0.1)
Area: 0.016384 m2

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:

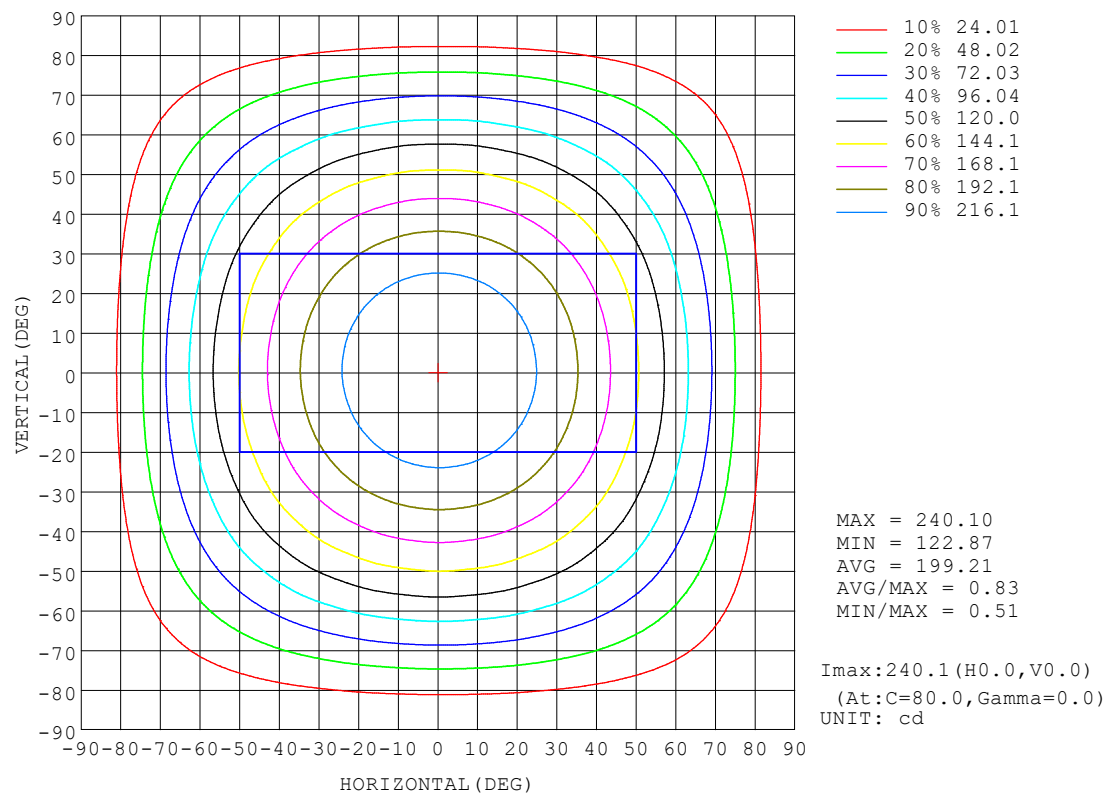
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	41	33	28	41	33	28	40	32	28	23
0.80	48	40	35	48	40	35	46	39	34	29
1.00	55	46	41	54	46	41	52	47	41	35
1.25	60	52	47	59	51	46	57	50	46	41
1.50	63	56	51	62	55	51	60	54	50	44
2.00	68	62	57	67	61	57	64	60	56	50
2.50	71	65	61	70	64	60	67	62	59	53
3.00	74	69	64	72	67	64	69	65	62	56
4.00	76	72	69	75	71	68	72	69	66	60
5.00	78	75	72	76	73	71	73	71	68	62
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: 24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:

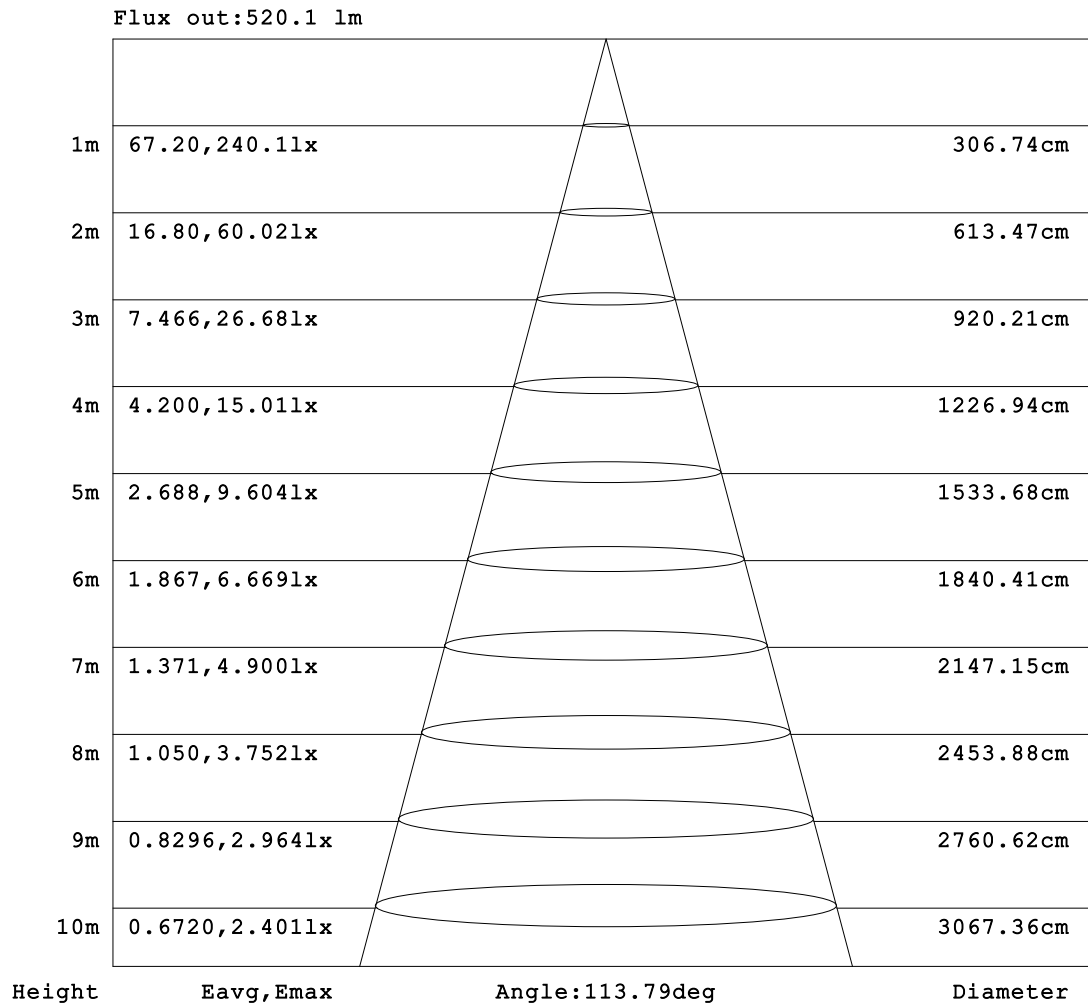


C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 24 October 2022

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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:



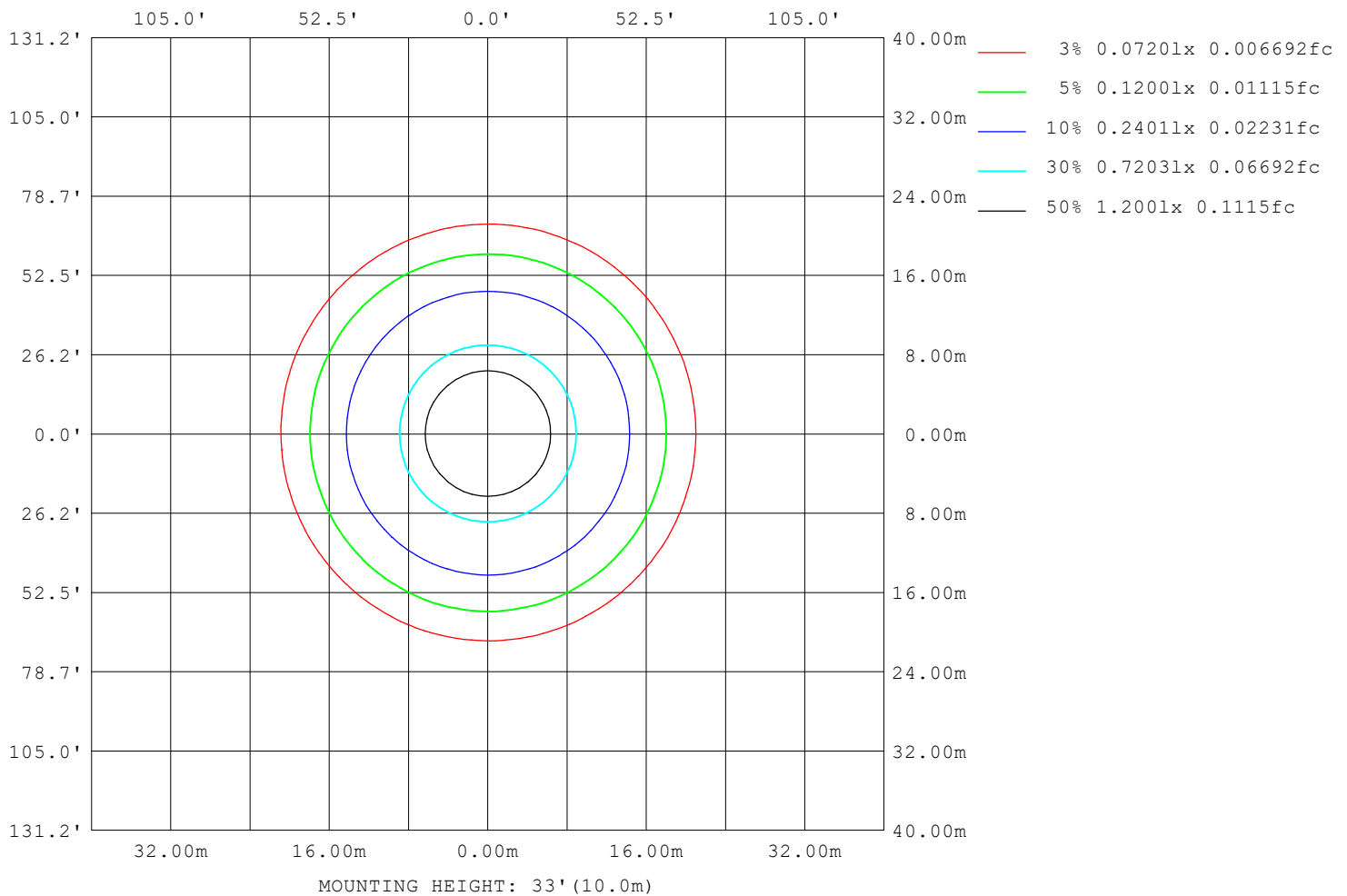
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature: 25.3°C
Operators:
Test Date: 24 October 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: 99XLED640WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: 170 x 170	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: rectangular	Shielding Angle:

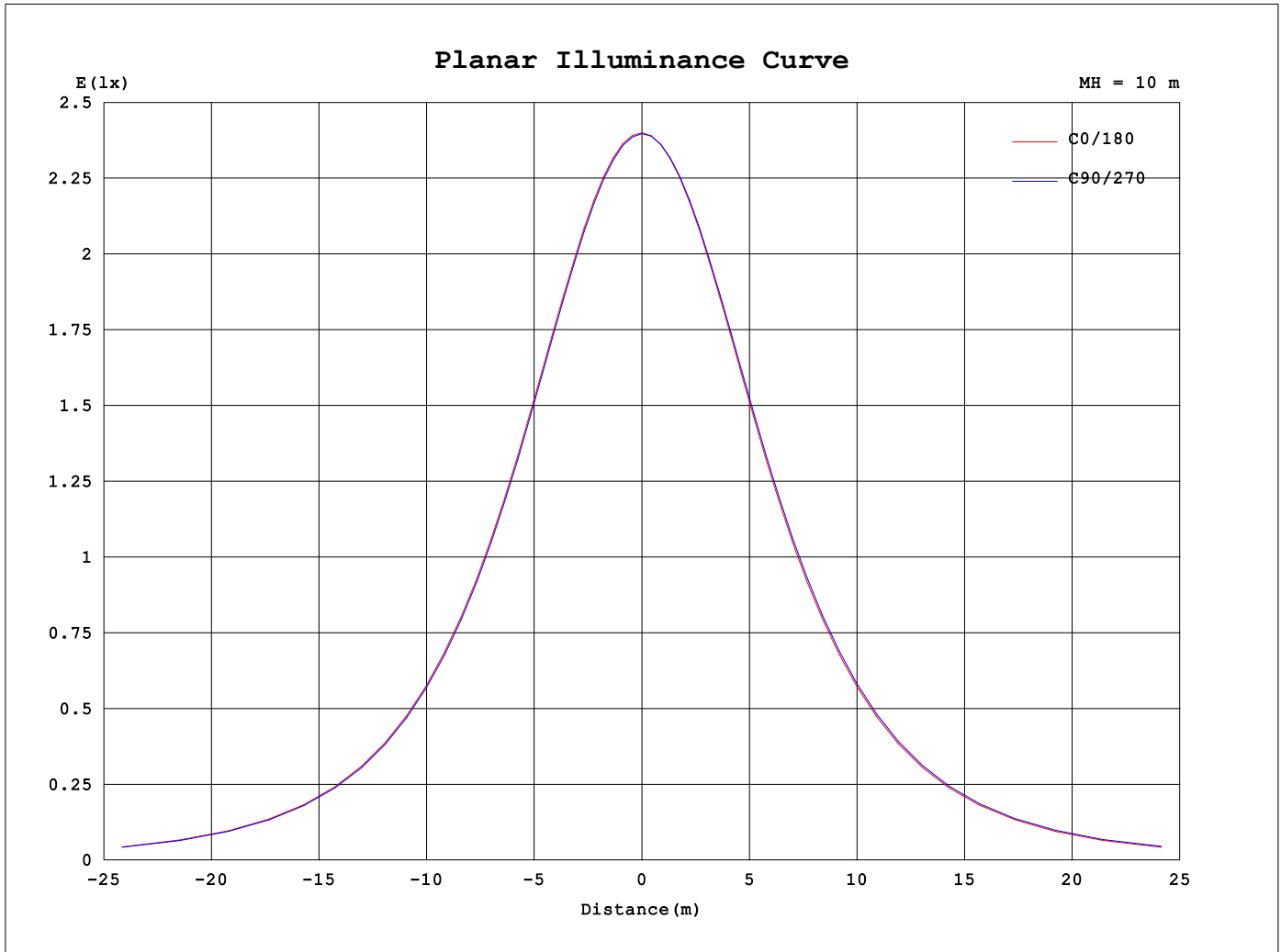
AvgL	cd/m2
L_0~180 (65) av	12666
L_0~180 (75) av	11082
L_0~180 (85) av	8375
L_90~270 (65) av	12863
L_90~270 (75) av	11556
L_90~270 (85) av	9160
L_45 (65) av	12757
L_45 (75) av	11375
L_45 (85) av	8601

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: MEDIUM
Temperature:25.3°C
Operators:
Test Date:24 October 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: 24 October 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:

```