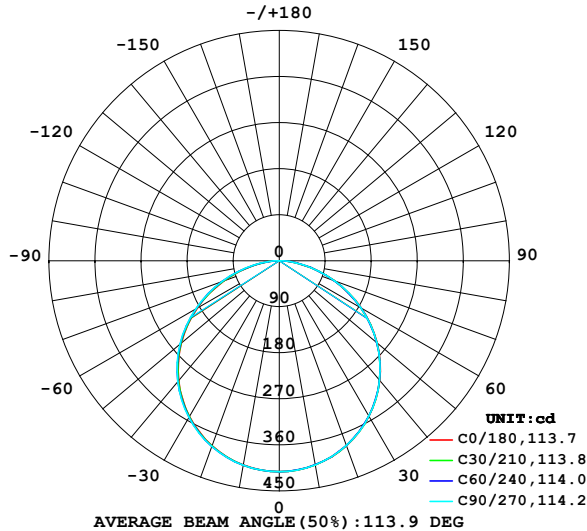


## LUMINAIRE PHOTOMETRIC TEST REPORT

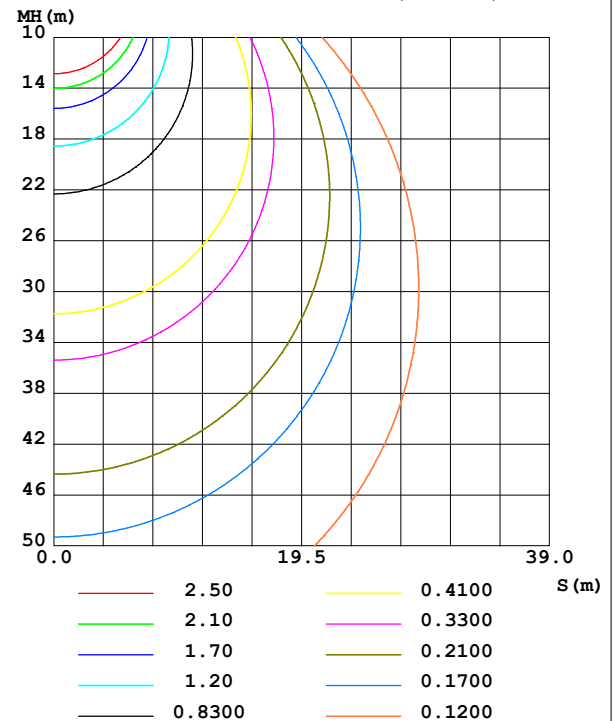
NAME: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	99XLED641WW	Imax(cd)	412.3	S/MH(C0/180)	1.27
NOMINAL POWER(W)	18	LOR(%)	74.9	S/MH(C90/270)	1.27
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	1198.7	$\eta$ UP,DN(C0-180)	0.0,37.2
NOMINAL FLUX(lm)	1600	CIE CLASS	DIRECT	$\eta$ UP,DN(C180-360)	0.0,37.7
LAMPS INSIDE	1	$\eta$ up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	$\eta$ down (%)	74.9	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:26 October 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:

### ZONAL FLUX DIAGRAM

#### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
10	405.3	405.0	404.9	405.1	405.4	405.8	406.0	405.8	0- 10	39.03	39.03	3.26,2.44
20	384.7	384.2	384.2	384.3	384.8	385.7	386.2	385.7	10- 20	112.0	151.0	12.6,9.44
30	351.1	350.5	350.6	350.7	351.3	352.7	353.5	352.6	20- 30	170.5	321.5	26.8,20.1
40	305.7	305.0	305.2	305.2	306.0	307.6	308.7	307.6	30- 40	206.7	528.2	44.1,33
50	249.7	248.9	249.3	249.1	249.9	251.9	253.3	251.8	40- 50	215.6	743.8	62,46.5
60	184.9	184.1	184.6	184.2	185.0	187.1	188.8	187.2	50- 60	195.7	939.5	78.4,58.7
70	114.5	114.3	115.3	114.4	114.5	117.2	119.2	117.4	60- 70	149.5	1089	90.8,68.1
80	46.93	47.23	48.47	47.50	46.71	49.62	51.95	49.96	70- 80	85.94	1175	98,73.4
90	0.6655	0.6721	0.6807	0.6715	0.5759	0.5851	0.6099	0.5898	80- 90	23.82	1199	100,74.9
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): 636.69 lm

%lum = 53.1%  
%lamp = 39.8%

Conical surface Flux(130deg): 1021.4 lm

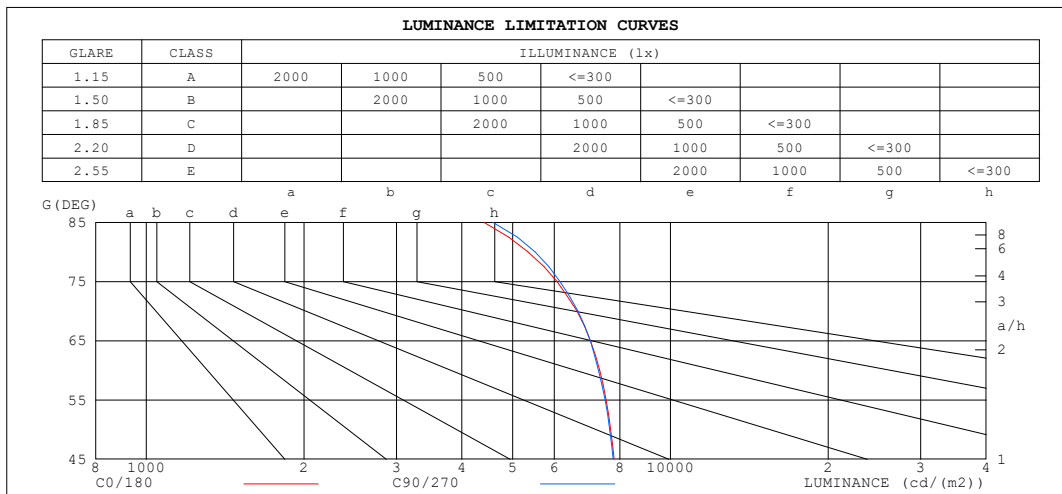
%lum = 85.2%  
%lamp = 63.8%

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:26 October 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	4412	4589
80	5349	5512
75	6081	6155
70	6626	6655
65	7033	7030
60	7322	7289
55	7536	7500
50	7689	7657
45	7808	7775

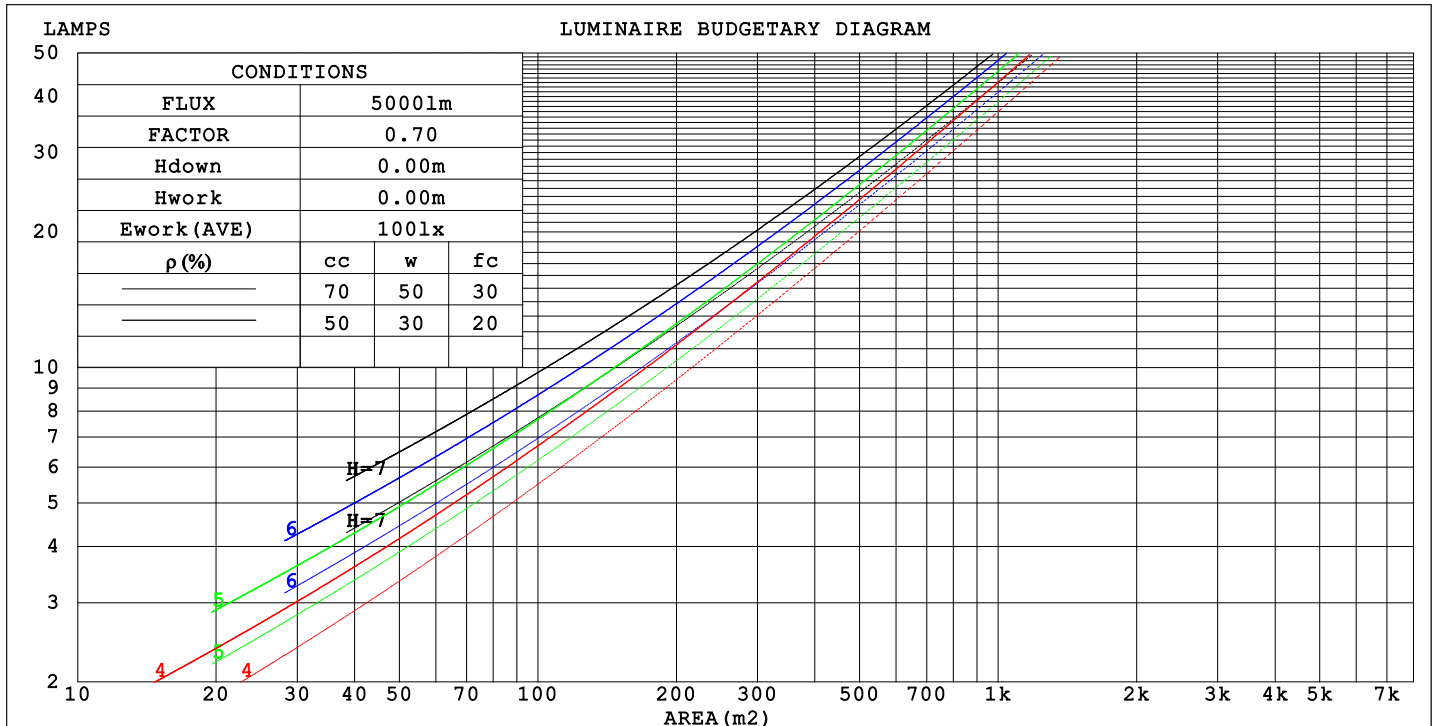
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 26 October 2022

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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	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															Coefficients of Utilization(CU)														
0.0	.89	.89	.89	.87	.87	.87	.83	.83	.83	.80	.80	.80	.76	.76	.76	.75														
1.0	.78	.74	.72	.76	.73	.70	.73	.70	.68	.70	.68	.66	.67	.66	.64	.62														
2.0	.68	.62	.58	.66	.61	.57	.64	.59	.56	.61	.58	.55	.59	.56	.54	.52														
3.0	.59	.53	.48	.58	.52	.48	.56	.51	.47	.54	.50	.46	.52	.48	.45	.44														
4.0	.52	.46	.41	.51	.45	.40	.50	.44	.40	.48	.43	.39	.46	.42	.39	.37														
5.0	.47	.40	.35	.46	.40	.35	.44	.39	.34	.43	.38	.34	.41	.37	.34	.32														
6.0	.42	.35	.30	.41	.35	.30	.40	.34	.30	.39	.34	.30	.38	.33	.29	.28														
7.0	.38	.31	.27	.38	.31	.27	.36	.31	.27	.35	.30	.26	.34	.30	.26	.25														
8.0	.35	.28	.24	.34	.28	.24	.33	.28	.24	.32	.27	.24	.31	.27	.23	.22														
9.0	.32	.26	.21	.31	.25	.21	.31	.25	.21	.30	.25	.21	.29	.24	.21	.20														
10.0	.29	.23	.19	.29	.23	.19	.28	.23	.19	.28	.23	.19	.27	.22	.19	.18														



C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 26 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	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	.234	.133	.042	.229	.130	.041	.219	.126	.040	.210	.121	.039	.201	.117	.038	
2.0	.220	.121	.037	.215	.119	.037	.207	.115	.036	.199	.111	.035	.191	.108	.034	
3.0	.204	.108	.032	.199	.107	.032	.192	.104	.032	.184	.101	.031	.178	.098	.030	
4.0	.188	.098	.029	.184	.096	.028	.177	.094	.028	.171	.092	.028	.165	.090	.027	
5.0	.173	.088	.026	.170	.087	.025	.164	.085	.025	.158	.084	.025	.153	.082	.025	
6.0	.161	.081	.023	.158	.080	.023	.152	.078	.023	.147	.077	.023	.143	.075	.022	
7.0	.150	.074	.021	.147	.073	.021	.142	.072	.021	.138	.071	.021	.133	.069	.020	
8.0	.140	.068	.019	.137	.068	.019	.133	.066	.019	.129	.065	.019	.125	.064	.019	
9.0	.131	.063	.018	.129	.063	.018	.125	.062	.018	.121	.061	.017	.118	.060	.017	
10.0	.123	.059	.016	.121	.059	.016	.118	.058	.016	.114	.057	.016	.111	.056	.016	

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	.143	.143	.143	.122	.122	.122	.083	.083	.083	.048	.048	.048	.015	.015	.015	
1.0	.135	.117	.101	.116	.100	.087	.079	.069	.060	.046	.040	.035	.015	.013	.011	
2.0	.129	.099	.073	.111	.085	.063	.076	.059	.044	.044	.034	.026	.014	.011	.008	
3.0	.123	.086	.055	.106	.074	.048	.073	.051	.034	.042	.030	.020	.013	.010	.007	
4.0	.118	.076	.044	.101	.065	.038	.069	.046	.027	.040	.027	.016	.013	.009	.005	
5.0	.112	.068	.035	.096	.059	.031	.066	.041	.022	.038	.024	.013	.012	.008	.004	
6.0	.107	.062	.029	.092	.053	.025	.063	.037	.018	.037	.022	.011	.012	.007	.004	
7.0	.102	.056	.025	.087	.049	.022	.060	.034	.015	.035	.020	.009	.011	.007	.003	
8.0	.097	.052	.021	.083	.045	.019	.058	.032	.013	.034	.019	.008	.011	.006	.003	
9.0	.092	.048	.019	.079	.042	.016	.055	.030	.012	.032	.017	.007	.010	.006	.002	
10.0	.088	.045	.017	.076	.039	.015	.053	.028	.010	.031	.016	.006	.010	.005	.002	

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:26 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: 99XLED641WW					TYPE:			WEIGHT: 1		
SPEC.:					DIM.: square 225 x 225			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	18.3	19.8	18.5	20.0	20.2	18.2	19.8	18.5	20.0	20.2
3H	19.8	21.2	20.1	21.4	21.7	19.8	21.2	20.1	21.4	21.6
4H	20.3	21.7	20.7	21.9	22.2	20.4	21.7	20.7	22.0	22.2
6H	20.8	22.0	21.1	22.3	22.6	20.8	22.1	21.1	22.3	22.6
8H	20.9	22.1	21.2	22.4	22.7	20.9	22.1	21.3	22.4	22.7
12H	20.9	22.1	21.3	22.4	22.7	21.0	22.2	21.3	22.5	22.8
4H 2H	18.9	20.2	19.2	20.5	20.7	18.9	20.2	19.2	20.4	20.7
3H	20.5	21.7	20.9	22.0	22.3	20.6	21.7	20.9	22.0	22.3
4H	21.3	22.3	21.6	22.7	23.0	21.3	22.4	21.6	22.7	23.0
6H	21.8	22.7	22.2	23.1	23.5	21.8	22.8	22.2	23.1	23.5
8H	21.9	22.8	22.4	23.2	23.6	22.0	22.9	22.4	23.3	23.6
12H	22.0	22.9	22.5	23.2	23.7	22.1	22.9	22.5	23.3	23.7
8H 4H	21.5	22.4	21.9	22.8	23.2	21.5	22.4	21.9	22.8	23.2
6H	22.2	22.9	22.6	23.3	23.7	22.2	23.0	22.7	23.4	23.8
8H	22.4	23.1	22.9	23.5	24.0	22.5	23.1	22.9	23.6	24.0
12H	22.6	23.2	23.1	23.6	24.1	22.7	23.2	23.1	23.7	24.2
12H 4H	21.5	22.3	22.0	22.7	23.1	21.5	22.4	22.0	22.7	23.1
6H	22.2	22.9	22.7	23.3	23.8	22.3	22.9	22.7	23.4	23.8
8H	22.5	23.1	23.0	23.5	24.0	22.6	23.1	23.0	23.6	24.1
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, 1600 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.6)  
Area: 0.050625 m2

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:26 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:

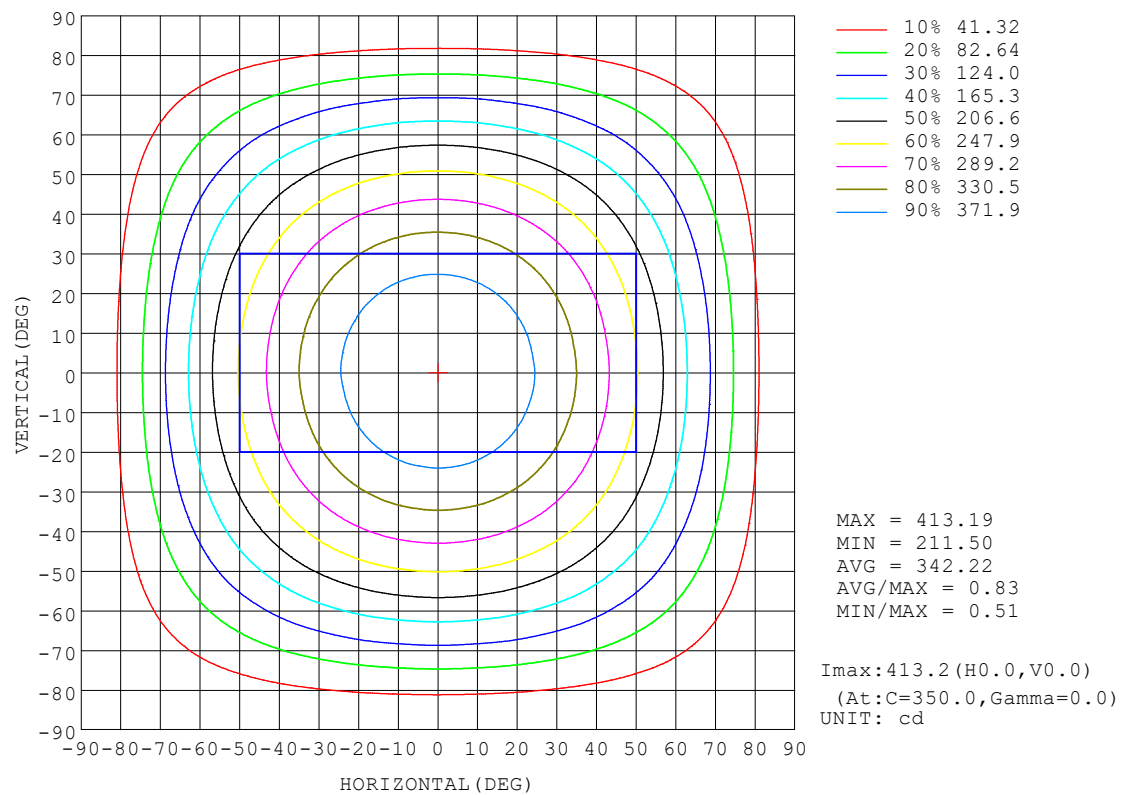
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	43	34	29	42	34	29	41	34	29	24
0.80	50	42	36	50	41	36	48	41	36	30
1.00	57	48	43	56	48	43	54	49	42	37
1.25	62	54	49	61	54	48	59	52	48	42
1.50	66	58	53	65	58	53	62	56	52	46
2.00	71	65	60	70	64	59	67	62	58	52
2.50	74	68	63	72	67	63	70	65	61	55
3.00	76	71	67	75	70	66	72	68	65	58
4.00	79	75	72	78	74	71	75	71	69	62
5.00	81	78	75	79	76	73	76	73	71	64
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: 26 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:



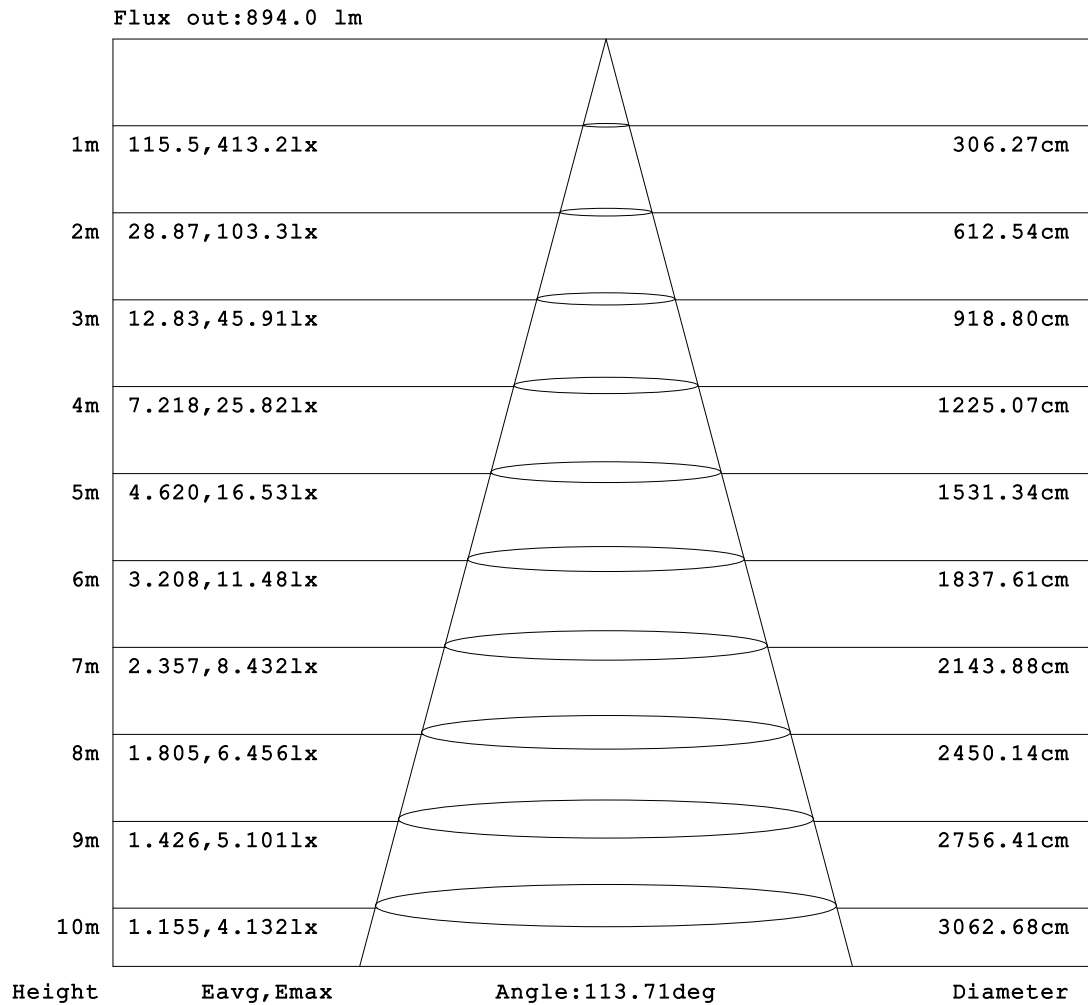
C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3°C  
Operators:  
Test Date: 26 October 2022

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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:



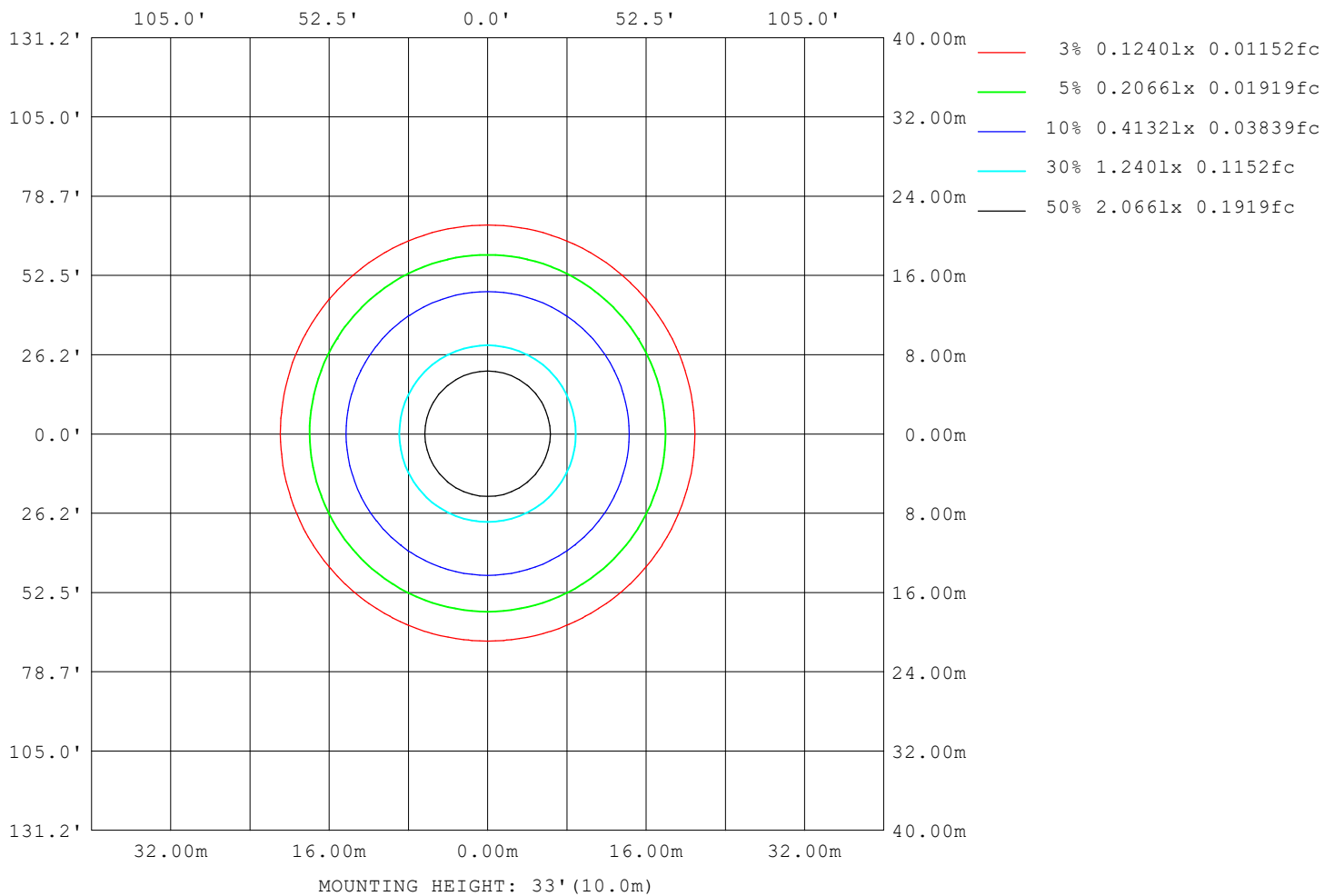
**Note:** The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
 C Interval: 10.0DEG  
 Test Speed: MEDIUM  
 Temperature: 25.3°C  
 Operators:  
 Test Date: 26 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	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: 26 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: 99XLED641WW	TYPE:	WEIGHT: 1
SPEC.:	DIM.: square 225 x 225	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: square	Shielding Angle:

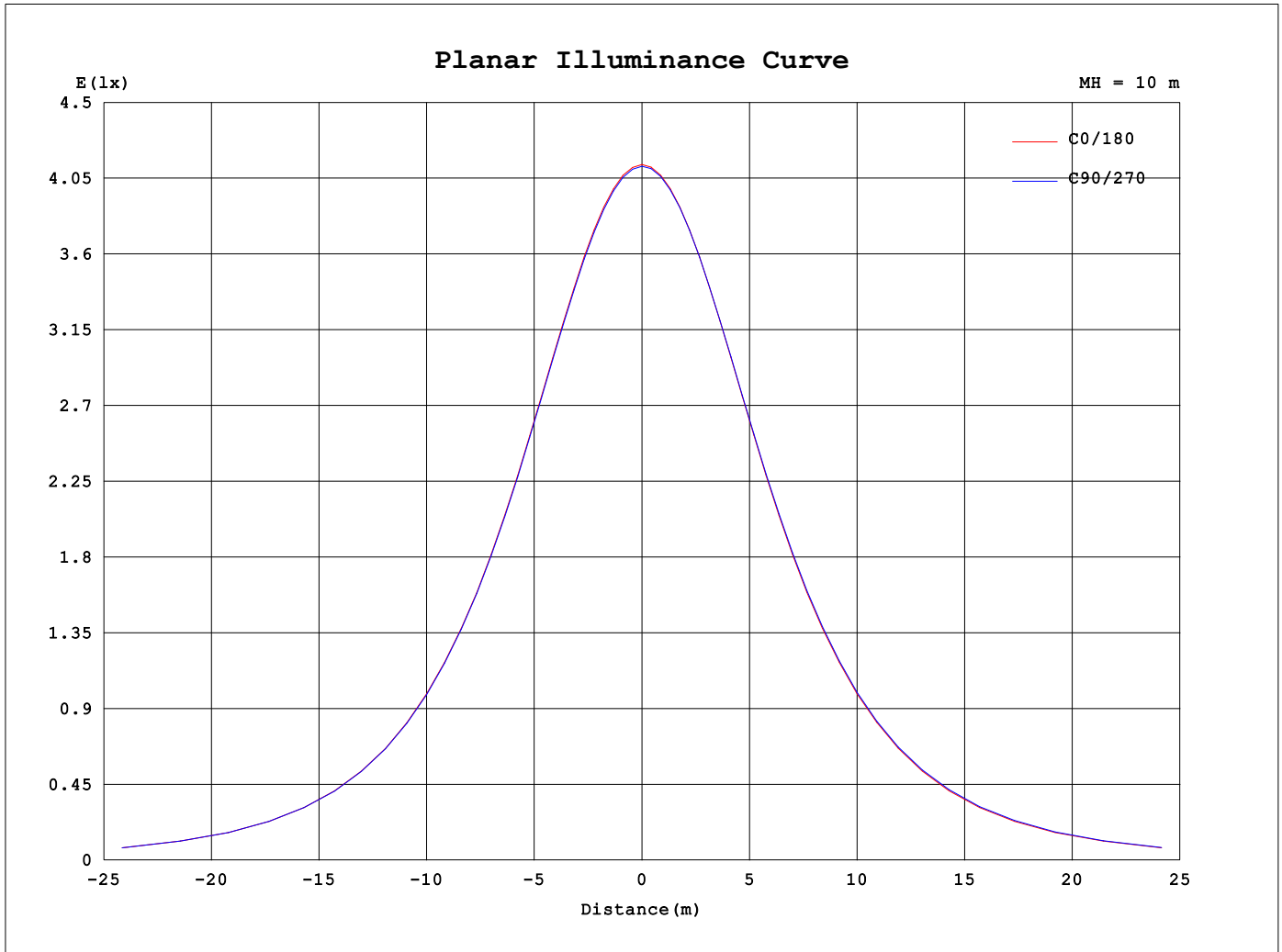
AvgL	cd/m2
L_0~180 (65) av	7024
L_0~180 (75) av	6053
L_0~180 (85) av	4433
L_90~270 (65) av	7123
L_90~270 (75) av	6309
L_90~270 (85) av	4911
L_45 (65) av	7064
L_45 (75) av	6202
L_45 (85) av	4624

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 10.0DEG  
Test Speed: MEDIUM  
Temperature:25.3°C  
Operators:  
Test Date:26 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: 26 October 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:

```

