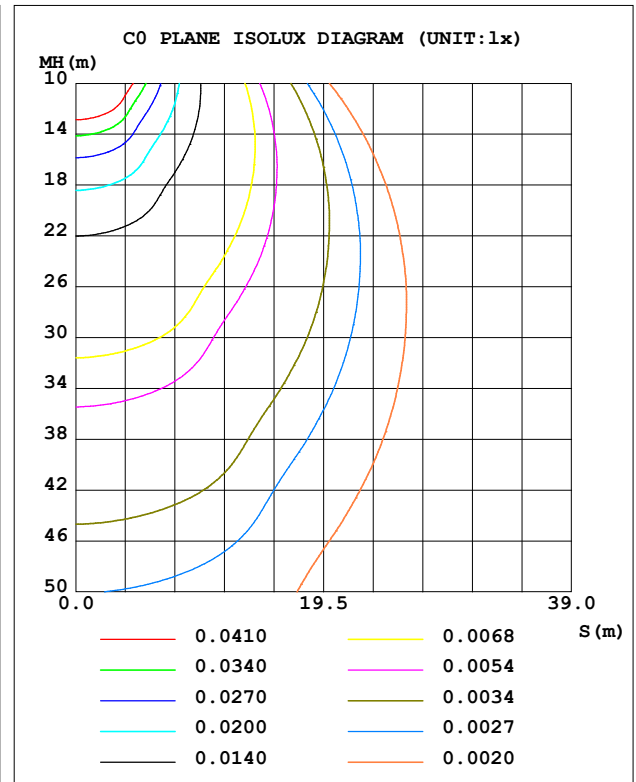
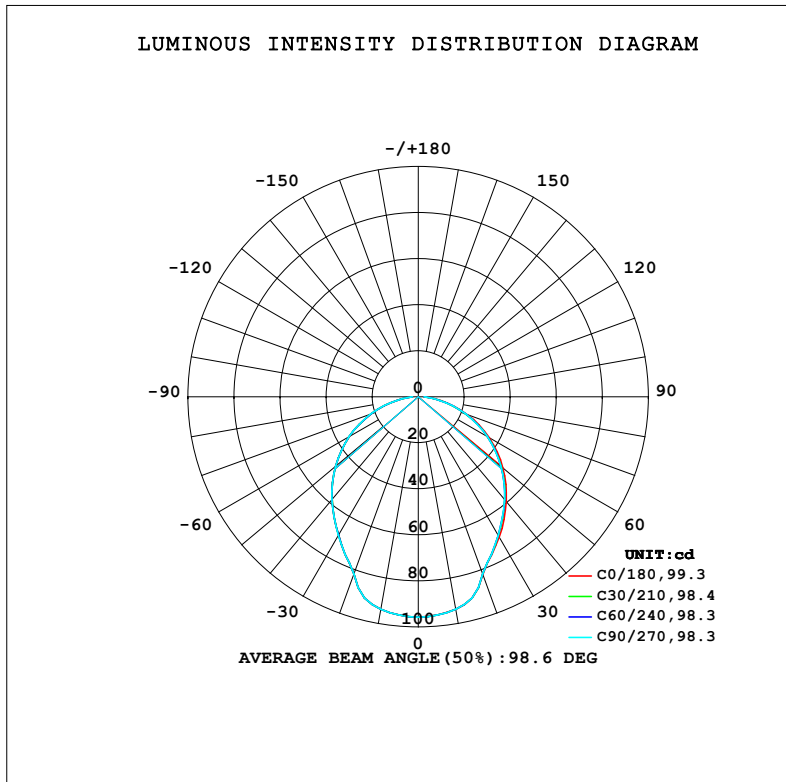


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	98SOL149	I _{max} (cd)	95.72	S/MH (C0/180)	1.10
NOMINAL POWER (W)	2.5	LOR (%)	94.6	S/MH (C90/270)	1.10
RATED VOLTAGE (V)	0	TOTAL FLUX (lm)	236.55	η UP, DN (C0-180)	0.0, 44.9
NOMINAL FLUX (lm)	250	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 49.7
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	0	η down (%)	94.6	CIBSE SHR MAX	1.30



C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators:
Test Date: 27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.340m [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	93.75	93.67	93.66	93.66	93.66	93.66	93.66	93.67	0- 10	9.039	9.039	3.82, 3.62
20	82.12	81.94	81.93	81.92	81.92	81.92	81.93	81.94	10- 20	25.18	34.22	14.5, 13.7
30	70.38	69.51	69.45	69.43	69.42	69.43	69.45	69.51	20- 30	34.75	68.97	29.2, 27.6
40	59.49	58.44	58.37	58.34	58.33	58.34	58.37	58.44	30- 40	39.99	109.0	46.1, 43.6
50	48.02	46.94	46.86	46.84	46.82	46.84	46.86	46.94	40- 50	40.68	149.6	63.3, 59.9
60	35.67	34.74	34.68	34.65	34.64	34.65	34.68	34.74	50- 60	36.52	186.2	78.7, 74.5
70	22.74	21.94	21.89	21.86	21.85	21.86	21.89	21.94	60- 70	28.03	214.2	90.5, 85.7
80	10.04	9.720	9.698	9.690	9.685	9.690	9.698	9.720	70- 80	16.49	230.7	97.5, 92.3
90	2.437	2.598	2.609	2.613	2.616	2.613	2.609	2.598	80- 90	5.871	236.6	100, 94.6
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): 129.53 lm

%lum = 54.8%

%lamp = 51.8%

Conical surface Flux(130deg): 201.48 lm

%lum = 85.2%

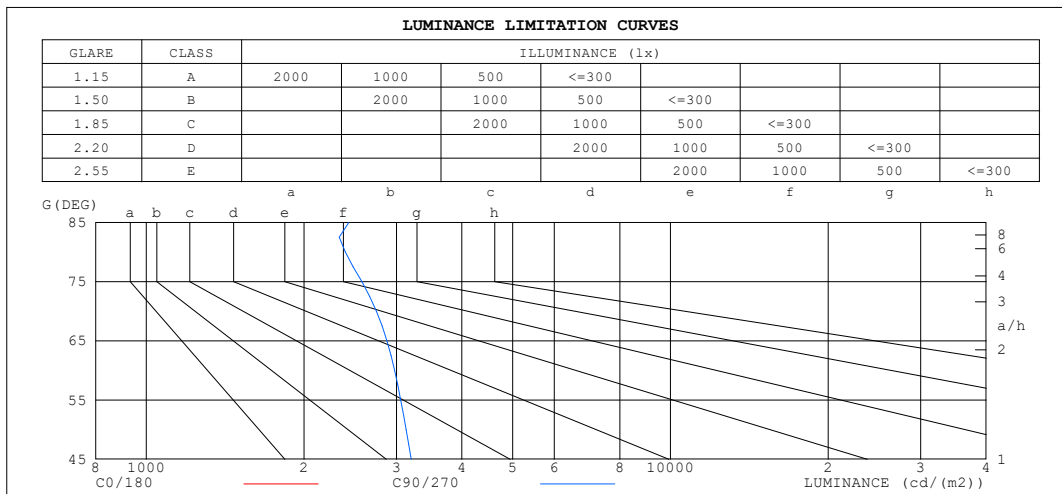
%lamp = 80.6%

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

LUMINANCE LIMITATION CURVES

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:



LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	165	2434
80	176	2397
75	190	2577
70	202	2746
65	210	2878
60	217	2976
55	222	3057
50	227	3129
45	232	3201

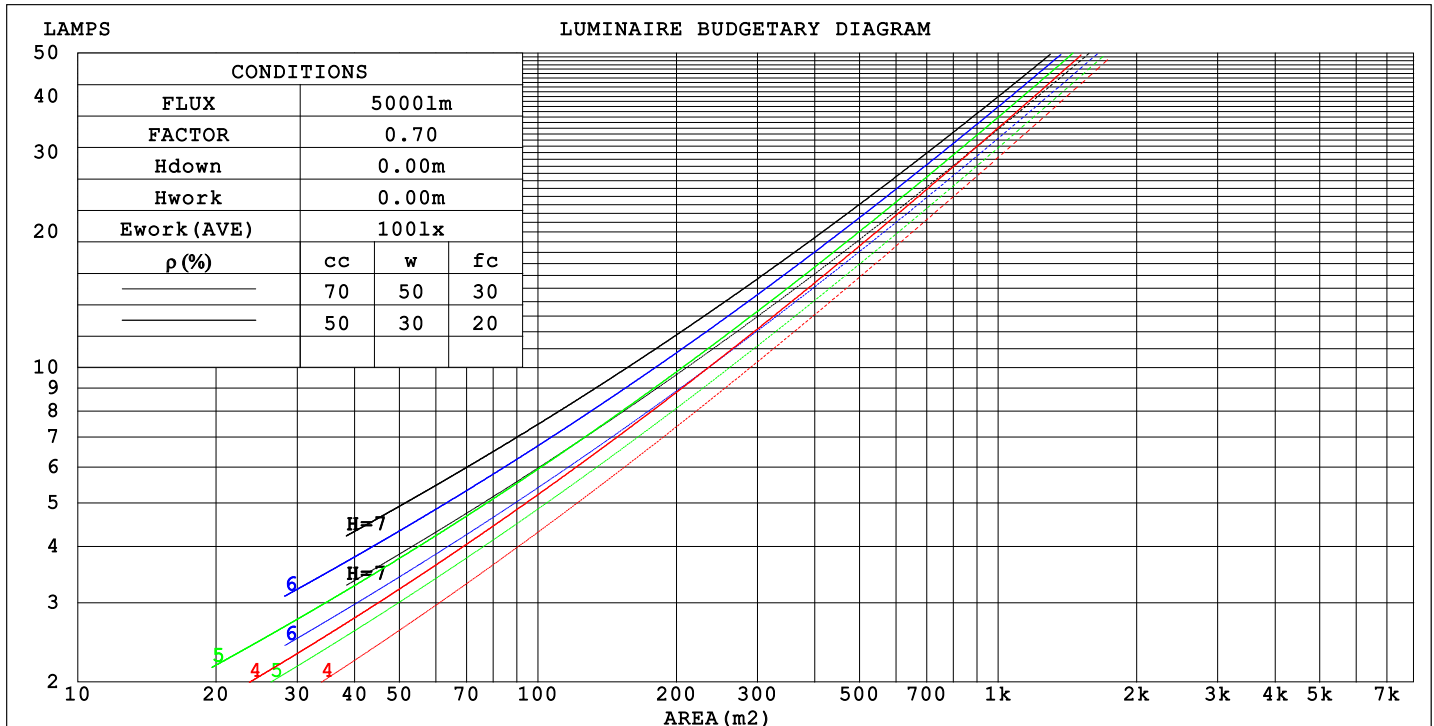
C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators:
Test Date: 27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.340m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	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 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

WEC AND CCEC

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	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	.295	.168	.053	.289	.165	.052	.276	.158	.051	.264	.153	.049	.254	.147	.047	
2.0	.275	.151	.046	.269	.148	.046	.258	.144	.045	.248	.139	.044	.239	.135	.043	
3.0	.254	.135	.040	.248	.133	.040	.239	.129	.039	.230	.126	.039	.221	.122	.038	
4.0	.234	.121	.036	.229	.120	.035	.220	.117	.035	.212	.114	.034	.205	.111	.034	
5.0	.216	.110	.032	.212	.109	.032	.204	.106	.031	.197	.104	.031	.190	.102	.031	
6.0	.200	.100	.029	.196	.099	.029	.189	.097	.028	.183	.095	.028	.177	.093	.028	
7.0	.186	.092	.026	.183	.091	.026	.177	.089	.026	.171	.088	.026	.166	.086	.025	
8.0	.174	.085	.024	.171	.084	.024	.165	.083	.024	.160	.081	.023	.155	.080	.023	
9.0	.163	.079	.022	.160	.078	.022	.155	.077	.022	.151	.076	.022	.146	.074	.021	
10.0	.153	.073	.020	.151	.073	.020	.146	.072	.020	.142	.071	.020	.138	.070	.020	

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	.180	.180	.180	.154	.154	.154	.105	.105	.105	.060	.060	.060	.019	.019	.019	
1.0	.171	.148	.127	.146	.127	.109	.100	.087	.076	.058	.050	.044	.018	.016	.014	
2.0	.163	.125	.093	.139	.107	.080	.096	.074	.056	.055	.043	.033	.018	.014	.011	
3.0	.155	.108	.071	.133	.093	.061	.091	.065	.043	.053	.038	.025	.017	.012	.008	
4.0	.148	.096	.056	.127	.083	.048	.087	.058	.034	.050	.034	.020	.016	.011	.007	
5.0	.141	.086	.045	.121	.074	.039	.083	.052	.028	.048	.030	.016	.016	.010	.005	
6.0	.134	.078	.037	.115	.067	.033	.079	.047	.023	.046	.028	.014	.015	.009	.005	
7.0	.127	.071	.032	.110	.062	.028	.076	.043	.020	.044	.025	.012	.014	.008	.004	
8.0	.121	.066	.027	.104	.057	.024	.072	.040	.017	.042	.024	.010	.014	.008	.003	
9.0	.115	.061	.024	.099	.053	.021	.069	.037	.015	.040	.022	.009	.013	.007	.003	
10.0	.110	.057	.021	.095	.049	.019	.066	.035	.013	.038	.021	.008	.012	.007	.003	

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

UGR(Unified Glare Rating) Table

NAME: 98SOL149						TYPE:			WEIGHT: 1		
SPEC.:						DIM.: F 210 x 380			SERIAL No.: 0		
MFR.: Elmark Industries JSC						SUR.: Circle			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	12.9	14.4	13.2	14.6	14.8	20.0	21.5	20.3	21.7	21.9	
3H	13.6	15.0	13.9	15.2	15.5	21.8	23.2	22.1	23.4	23.7	
4H	13.8	15.1	14.1	15.4	15.6	22.5	23.9	22.9	24.1	24.4	
6H	13.9	15.1	14.2	15.4	15.7	23.1	24.4	23.4	24.6	24.9	
8H	13.9	15.1	14.2	15.4	15.7	23.3	24.5	23.6	24.8	25.1	
12H	13.9	15.0	14.2	15.3	15.6	23.5	24.6	23.8	24.9	25.2	
4H 2H	15.1	16.4	15.4	16.7	16.9	20.1	21.5	20.5	21.7	22.0	
3H	16.1	17.2	16.4	17.5	17.8	22.1	23.3	22.5	23.6	23.9	
4H	16.4	17.5	16.8	17.8	18.1	23.0	24.1	23.4	24.4	24.8	
6H	16.6	17.6	17.0	17.9	18.3	23.8	24.7	24.2	25.1	25.4	
8H	16.6	17.5	17.1	17.9	18.3	24.0	24.9	24.5	25.3	25.7	
12H	16.6	17.5	17.1	17.8	18.2	24.3	25.1	24.7	25.5	25.9	
8H 4H	17.5	18.4	17.9	18.7	19.1	23.1	24.0	23.5	24.3	24.7	
6H	17.9	18.6	18.3	19.0	19.4	23.9	24.7	24.4	25.1	25.5	
8H	18.0	18.7	18.5	19.1	19.5	24.3	25.0	24.8	25.4	25.8	
12H	18.1	18.6	18.5	19.1	19.6	24.6	25.2	25.1	25.7	26.1	
12H 4H	17.6	18.5	18.1	18.8	19.3	23.1	23.9	23.5	24.3	24.7	
6H	18.2	18.8	18.6	19.3	19.7	23.9	24.6	24.4	25.0	25.5	
8H	18.4	18.9	18.8	19.4	19.9	24.3	24.9	24.8	25.4	25.8	
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H	+ 0.3 / - 0.3					+ 0.1 / - 0.1					
1.5H	+ 0.5 / - 0.6					+ 0.3 / - 0.3					
2.0H	+ 0.9 / - 1.2					+ 0.6 / - 0.8					

CIE Pub.117, 250.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -4.8)
Area: 0.0233 m2

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:

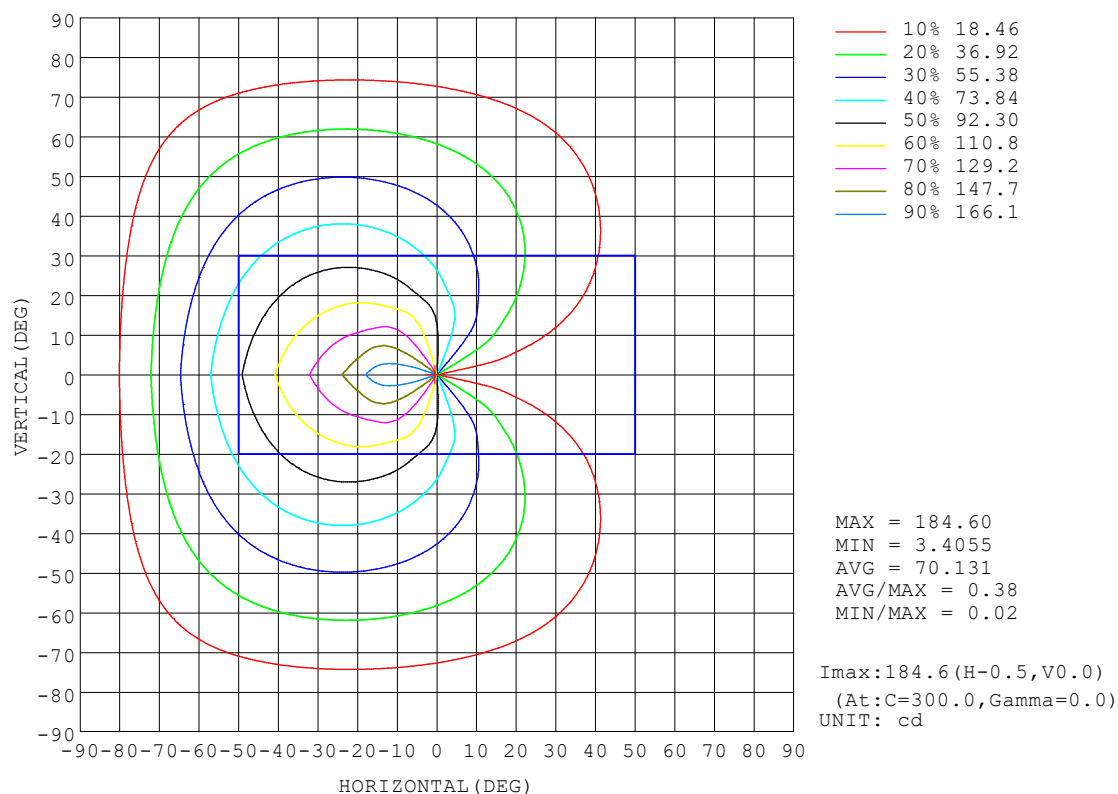
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	55	44	38	55	44	38	54	44	38	32
0.80	65	54	47	64	53	47	62	53	46	40
1.00	72	62	55	71	61	55	69	63	54	48
1.25	79	69	62	78	68	62	75	67	61	54
1.50	84	74	68	82	74	67	79	72	66	59
2.00	90	82	76	88	81	75	85	79	74	66
2.50	94	86	81	92	85	80	88	82	78	70
3.00	97	90	85	95	89	84	91	86	82	74
4.00	100	95	91	98	93	89	94	90	87	78
5.00	103	98	94	100	96	93	96	93	90	81
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators:
Test Date: 27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.340m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:

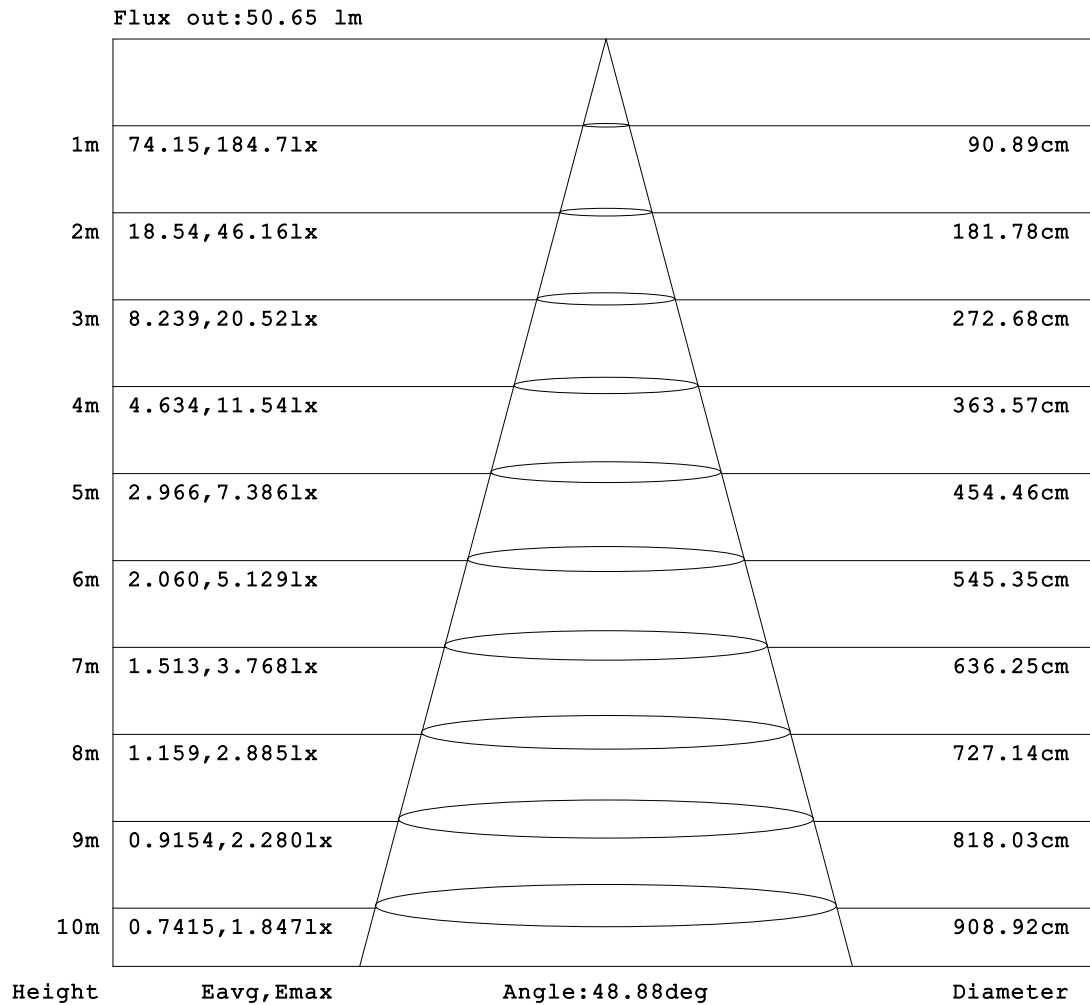


C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

AAI Figure

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:



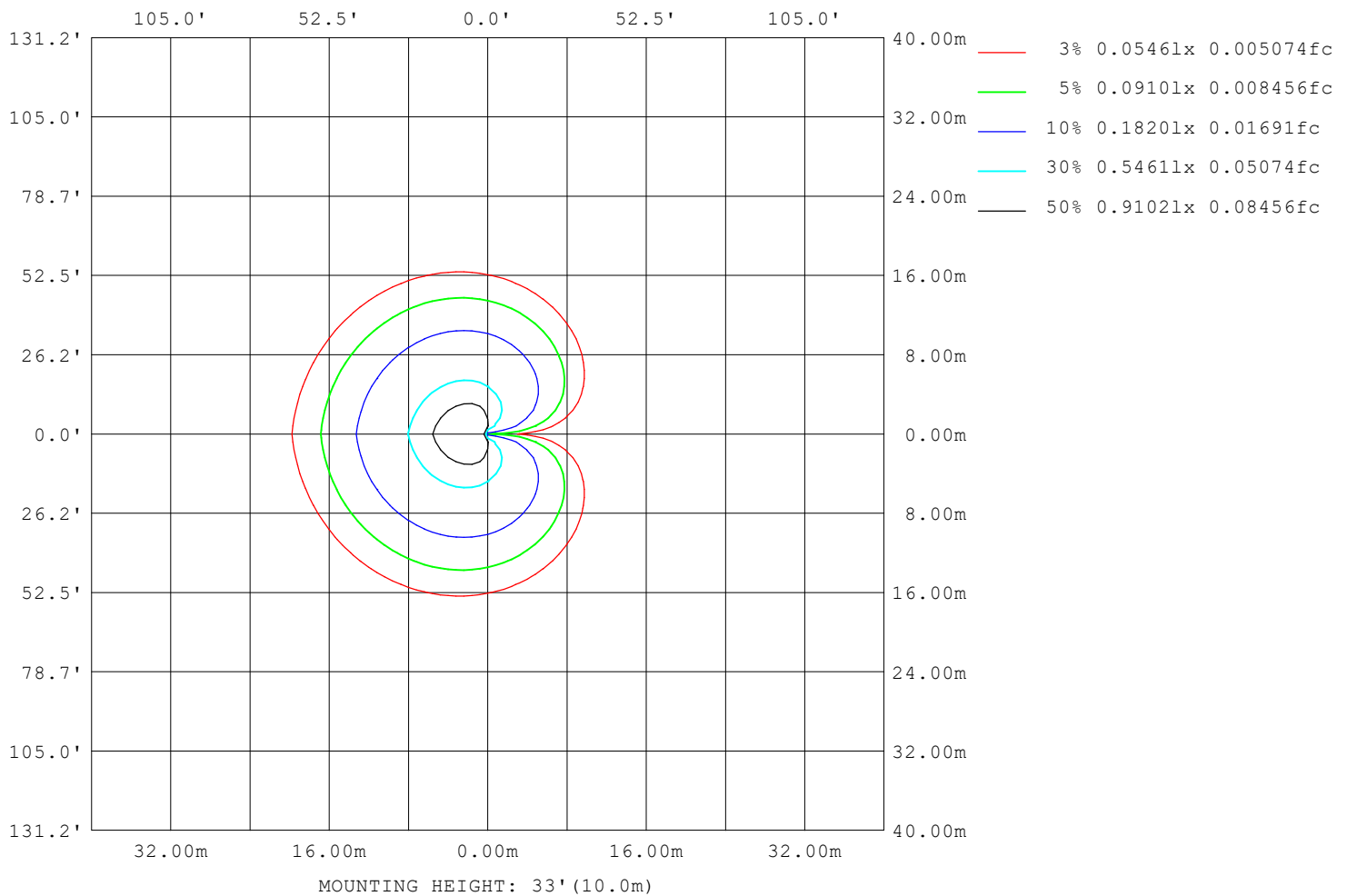
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators:
Test Date: 27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.340m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:



C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3°C
Operators:
Test Date: 27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity: 65.0%
Test Distance: 6.340m [K=1.0000]
Remarks:

LED Avg.L Report

NAME: 98SOL149	TYPE:	WEIGHT: 1
SPEC.:	DIM.: F 210 x 380	SERIAL No.: 0
MFR.: Elmark Industries JSC	SUR.: Circle	Shielding Angle:

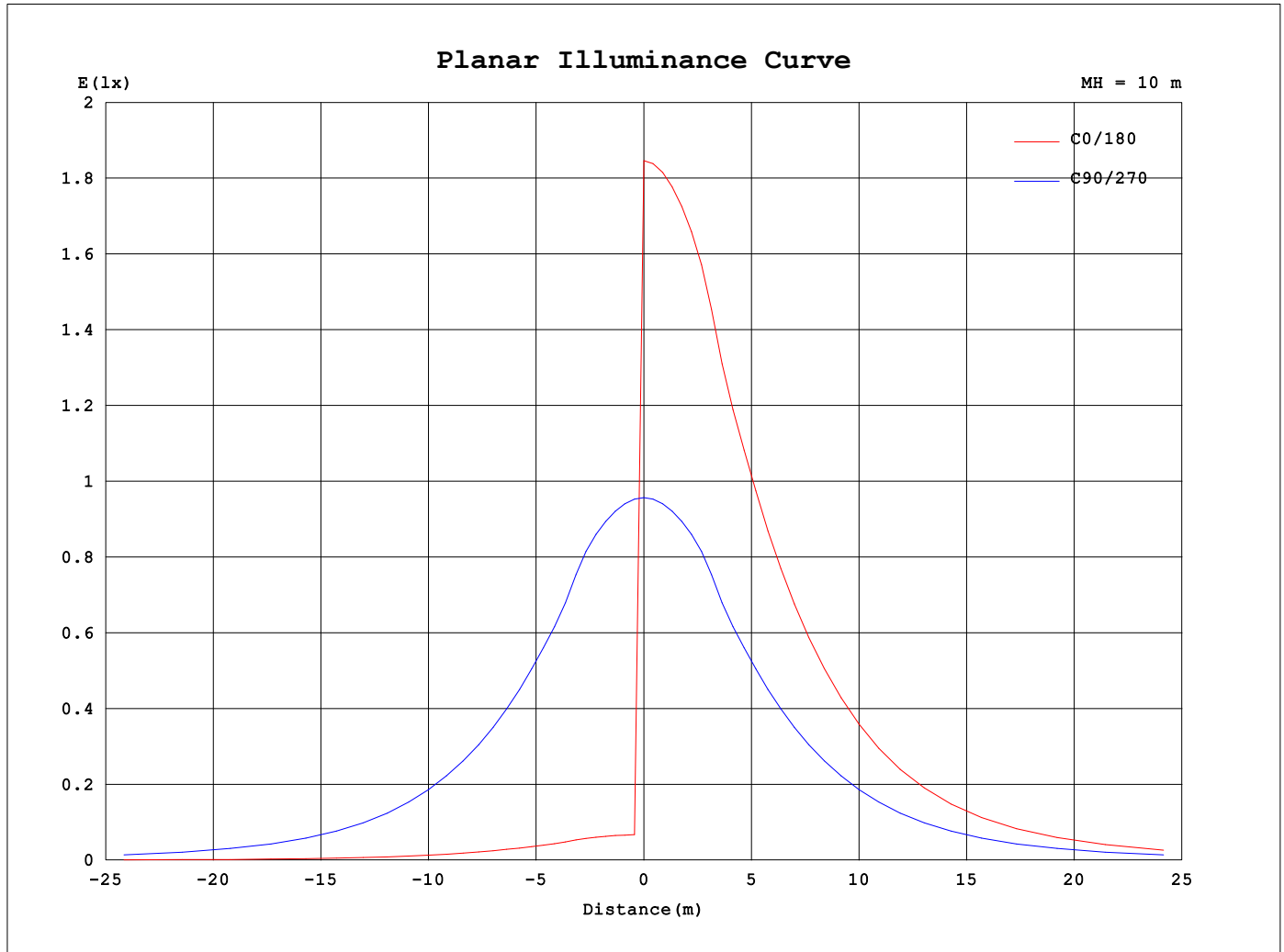
AvgL	cd/m2
L_0~180 (65) av	2921
L_0~180 (75) av	2624
L_0~180 (85) av	2381
L_90~270 (65) av	2878
L_90~270 (75) av	2577
L_90~270 (85) av	2434
L_45 (65) av	2880
L_45 (75) av	2579
L_45 (85) av	2431

Standard: GB/T 29293-2012

C Range: 0 - 180DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3°C
Operators:
Test Date:27 January 2023

γ Range: 0 - 90DEG
γ Interval: 2.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.456
Humidity:65.0%
Test Distance:6.340m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 180DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3°C
 Operators:
 Test Date: 27 January 2023

γ Range: 0 - 90DEG
 γ Interval: 2.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.00.456
 Humidity: 65.0%
 Test Distance: 6.340m [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:6.340m [K=1.0000]
Remarks:

```