

Low Voltage Track System Module ML26-AL280-13W-930-20



Light Output Ratio:	100.0%	
Luminaire Power:	12.32 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Jason Long  
Test Date: 2020-04-01

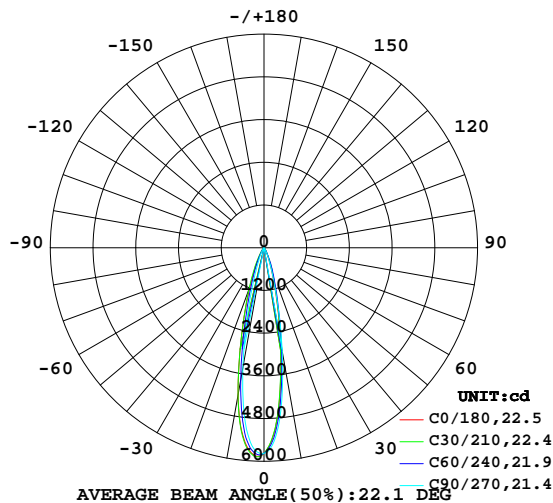
γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 58%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

LUMINAIRE PHOTOMETRIC TEST REPORT

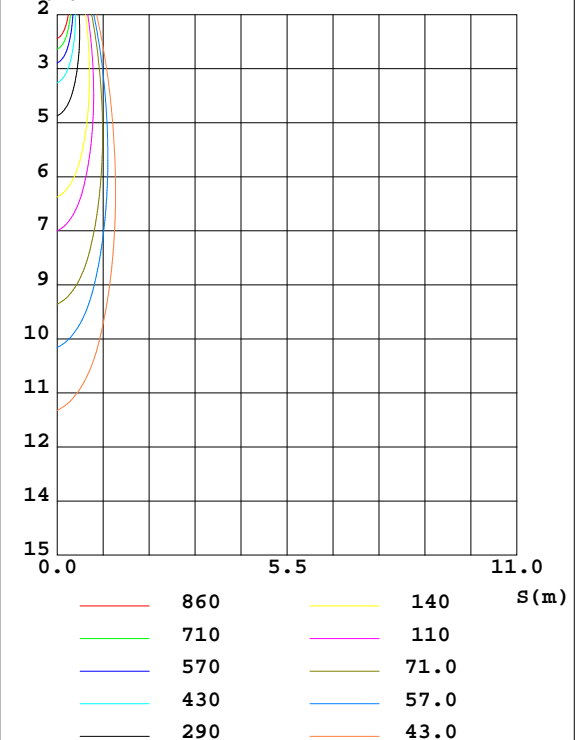
Test:U:48.00V I:0.2566A P:12.32W PF:1.000 Freq:0Hz Lamp Flux:1191.37x1 lm		
NAME: ML26-AL280-13W-930-20	TYPE:Low Voltage Track System Module	
SPEC.:3000K	DIM.: L284mm*W22mm*H43mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 96.73 lm/W			
MODEL	OSRAM-3000K	I <sub>max</sub> (cd)	5877	S/MH(C0/180)	0.45
NOMINAL POWER(W)	13	LOR(%)	100.0	S/MH(C90/270)	0.38
RATED VOLTAGE(V)	48	TOTAL FLUX(lm)	1191.4	η UP,DN(C0-180)	0.0,47.0
NOMINAL FLUX(lm)	1191.37	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,53.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	48	η down(%)	100.0	CIBSE SHR MAX	1.00

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:Jason Long  
 Test Date:2020-04-01

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### ZONAL FLUX DIAGRAM

#### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	2652	2809	2955	3646	4202	3918	3422	2996	0- 10	427.5	427.5	35.9,35.9
20	538.5	751.7	529.2	1040	1147	1120	624.0	782.7	10- 20	477.2	904.7	75.9,75.9
30	128.4	186.6	116.5	297.2	237.8	302.7	137.7	195.5	20- 30	189.3	1094	91.8,91.8
40	42.50	48.57	29.50	67.78	67.73	69.26	36.00	51.49	30- 40	61.61	1156	97,97
50	22.55	20.25	14.11	25.08	27.94	25.55	14.87	21.49	40- 50	24.43	1180	99,99
60	0.1573	0.4267	0.2103	2.523	1.860	10.30	0.2472	0.9572	50- 60	10.94	1191	100,100
70	0.1143	0.0918	0.1471	0.0673	0.0752	0.1115	0.1117	0.0934	60- 70	0.3010	1191	100,100
80	0.0929	0.0853	0.0811	0.0521	0.0508	0.0765	0.0635	0.0608	70- 80	0.0880	1191	100,100
90	0.0840	0.0853	0.0766	0.0521	0.0487	0.0612	0.0569	0.0500	80- 90	0.0709	1191	100,100
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): 1169.9 lm

%lum = 98.2%

%lamp = 98.2%

Conical surface Flux(120deg): 1190.9 lm

%lum = 100.0%

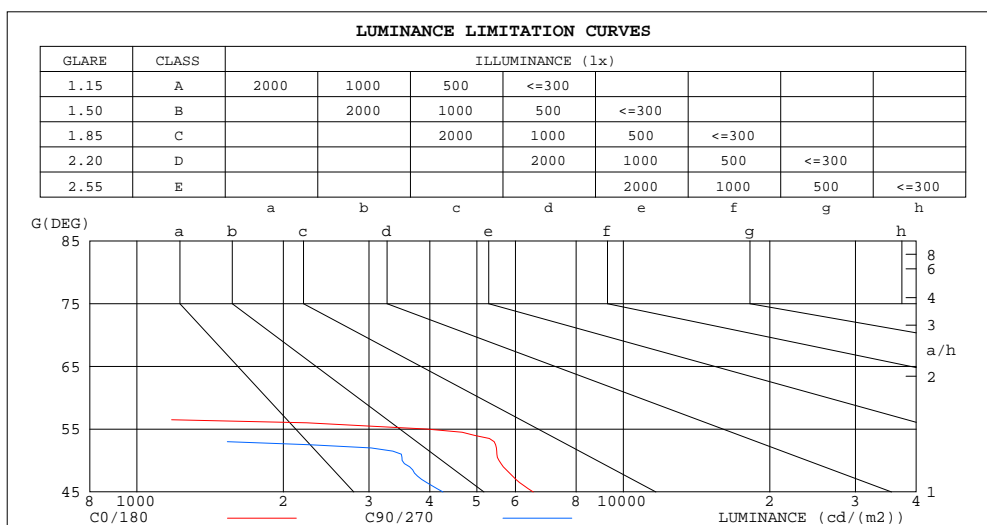
%lamp = 100.0%

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C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-04-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
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Humidity:58%  
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Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:48.00V I:0.2566A P:12.32W PF:1.000 Freq:0Hz Lamp Flux:1191.37x1 lm		
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SPEC.:3000K	DIM.: L284mm*W22mm*H43mm	
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LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	157	141
80	85	75
75	61	73
70	53	69
65	50	61
60	50	67
55	3942	109
50	5550	3509
45	6527	4257

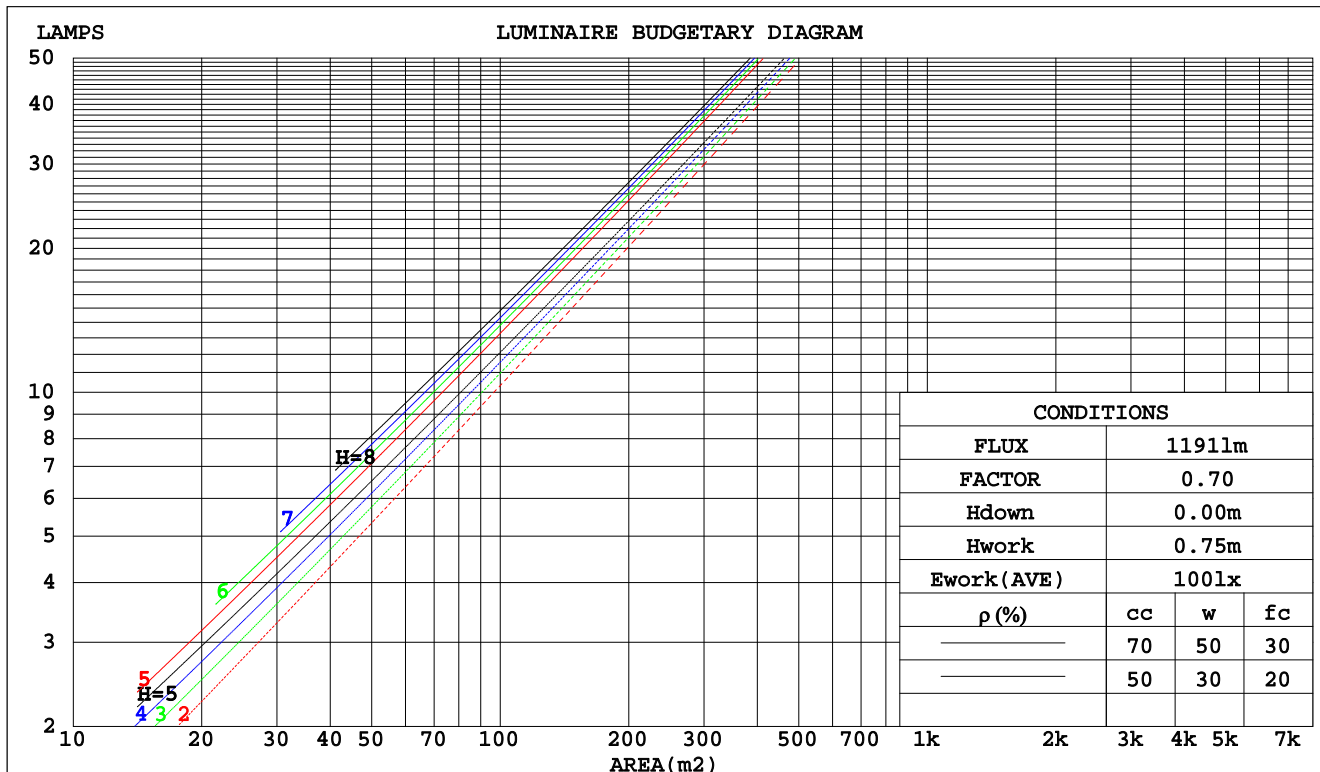
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**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

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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	1.19	1.19	1.19	1.16	1.16	1.16	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.00
1.0	1.13	1.11	1.09	1.11	1.09	1.07	1.07	1.05	1.04	1.03	1.02	1.01	.00	.99	.98	.96
2.0	1.07	1.04	1.02	1.06	1.03	1.01	1.02	1.00	.98	.00	.98	.96	.97	.96	.94	.93
3.0	1.02	.99	.96	1.01	.98	.95	.99	.96	.94	.96	.94	.92	.94	.92	.91	.89
4.0	.98	.94	.91	.97	.93	.91	.95	.92	.90	.93	.91	.89	.92	.89	.88	.86
5.0	.94	.90	.87	.94	.90	.87	.92	.89	.86	.91	.88	.85	.89	.87	.85	.83
6.0	.91	.87	.84	.90	.86	.83	.89	.86	.83	.88	.85	.82	.87	.84	.82	.81
7.0	.88	.84	.81	.87	.83	.81	.86	.83	.80	.85	.82	.80	.84	.82	.79	.78
8.0	.85	.81	.78	.85	.81	.78	.84	.80	.78	.83	.80	.77	.82	.79	.77	.76
9.0	.83	.78	.76	.82	.78	.76	.81	.78	.75	.81	.77	.75	.80	.77	.75	.74
10.0	.80	.76	.73	.80	.76	.73	.79	.76	.73	.79	.75	.73	.78	.75	.73	.72



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## WEC AND CCEC

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MFR.: NEKO LIGHTING AG		

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	.140	.079	.025	.133	.076	.024	.121	.069	.022	.109	.063	.020	.099	.057	.018		
2.0	.130	.071	.022	.125	.069	.021	.115	.064	.020	.105	.059	.018	.096	.054	.017		
3.0	.122	.065	.019	.117	.063	.019	.109	.059	.018	.101	.055	.017	.093	.052	.016		
4.0	.114	.059	.017	.111	.058	.017	.103	.055	.016	.097	.052	.016	.090	.049	.015		
5.0	.108	.055	.016	.105	.054	.016	.098	.051	.015	.093	.049	.015	.087	.047	.014		
6.0	.102	.051	.015	.099	.050	.014	.094	.048	.014	.089	.046	.014	.084	.044	.013		
7.0	.097	.048	.014	.095	.047	.013	.090	.045	.013	.086	.044	.013	.081	.042	.012		
8.0	.092	.045	.013	.090	.044	.013	.086	.043	.012	.082	.042	.012	.079	.040	.012		
9.0	.088	.043	.012	.086	.042	.012	.083	.041	.012	.079	.040	.011	.076	.039	.011		
10.0	.084	.041	.011	.083	.040	.011	.080	.039	.011	.077	.038	.011	.074	.037	.011		

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020		
1.0	.169	.158	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017		
2.0	.151	.133	.118	.129	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014		
3.0	.136	.113	.095	.117	.098	.083	.080	.068	.058	.046	.040	.034	.015	.013	.011		
4.0	.124	.098	.078	.106	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009		
5.0	.113	.086	.065	.097	.074	.057	.067	.052	.040	.039	.030	.024	.013	.010	.008		
6.0	.104	.076	.055	.090	.066	.048	.062	.046	.034	.036	.027	.020	.012	.009	.007		
7.0	.097	.068	.047	.083	.059	.041	.058	.041	.029	.033	.024	.017	.011	.008	.006		
8.0	.090	.061	.041	.078	.053	.035	.054	.037	.025	.031	.022	.015	.010	.007	.005		
9.0	.085	.055	.035	.073	.048	.031	.051	.034	.022	.030	.020	.013	.010	.007	.004		
10.0	.080	.051	.031	.069	.044	.027	.048	.031	.019	.028	.018	.011	.009	.006	.004		

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
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Test Date:2020-04-01

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

## UGR(Unified Glare Rating) Table

Test:U:48.00V I:0.2566A P:12.32W PF:1.000 Freq:0Hz Lamp Flux:1191.37x1 lm										
NAME: ML26-AL280-13W-930-20					TYPE:Low Voltage Track System Module					
SPEC.:3000K					DIM.: L284mm*W22mm*H43mm					
MFR.: NEKO LIGHTING AG										
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	9.6	10.3	9.8	10.5	10.6	6.8	7.5	7.0	7.7	7.8
3H	9.5	10.1	9.7	10.3	10.5	6.7	7.3	6.9	7.5	7.7
4H	9.4	10.0	9.7	10.2	10.4	6.6	7.2	6.9	7.4	7.6
6H	9.3	9.9	9.6	10.1	10.4	6.5	7.1	6.8	7.3	7.6
8H	9.3	9.8	9.6	10.1	10.3	6.5	7.0	6.8	7.3	7.5
12H	9.2	9.8	9.5	10.0	10.3	6.4	7.0	6.7	7.2	7.5
4H 2H	9.4	10.0	9.7	10.2	10.4	6.8	7.4	7.1	7.6	7.8
3H	9.3	9.8	9.6	10.0	10.3	6.6	7.2	7.0	7.4	7.7
4H	9.2	9.6	9.5	9.9	10.2	6.6	7.0	6.9	7.3	7.6
6H	9.1	9.5	9.4	9.8	10.2	6.5	6.9	6.8	7.2	7.5
8H	9.0	9.4	9.4	9.7	10.1	6.4	6.8	6.8	7.1	7.5
12H	9.0	9.3	9.4	9.7	10.1	6.3	6.7	6.8	7.1	7.5
8H 4H	9.0	9.4	9.4	9.7	10.1	6.4	6.8	6.8	7.1	7.5
6H	8.9	9.2	9.3	9.6	10.0	6.3	6.6	6.7	7.0	7.4
8H	8.8	9.1	9.3	9.5	10.0	6.2	6.5	6.7	6.9	7.4
12H	8.8	9.0	9.2	9.5	9.9	6.2	6.4	6.6	6.9	7.3
12H 4H	9.0	9.3	9.4	9.7	10.1	6.3	6.7	6.7	7.1	7.5
6H	8.8	9.1	9.3	9.5	10.0	6.2	6.5	6.7	6.9	7.4
8H	8.8	9.0	9.2	9.5	9.9	6.2	6.4	6.6	6.9	7.3
Variations with the observer position at spacings:										
S = 1.0H	+ 2.4 / - 9.4					+ 2.6 / -19.4				
1.5H	+ 1.4 / - 2.0					+ 2.5 / - 7.7				
2.0H	+ 3.3 / -22.9					+ 4.1 / -18.2				

CIE Pub.117, 1191 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 0.6$ )

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$\gamma$  Range: 0 - 90DEG  
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Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

Test:U:48.00V I:0.2566A P:12.32W PF:1.000 Freq:0Hz Lamp Flux:1191.37x1 lm		
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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	90	84	80	89	84	80	88	83	80	77
0.80	97	91	88	96	91	88	95	90	87	84
1.00	101	96	92	100	95	92	99	95	92	88
1.25	105	100	97	104	99	96	102	98	95	91
1.50	107	103	100	106	102	99	104	101	98	94
2.00	109	106	103	108	105	102	105	103	100	95
2.50	111	107	105	109	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	103	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	115	113	112	113	112	110	109	108	107	100
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

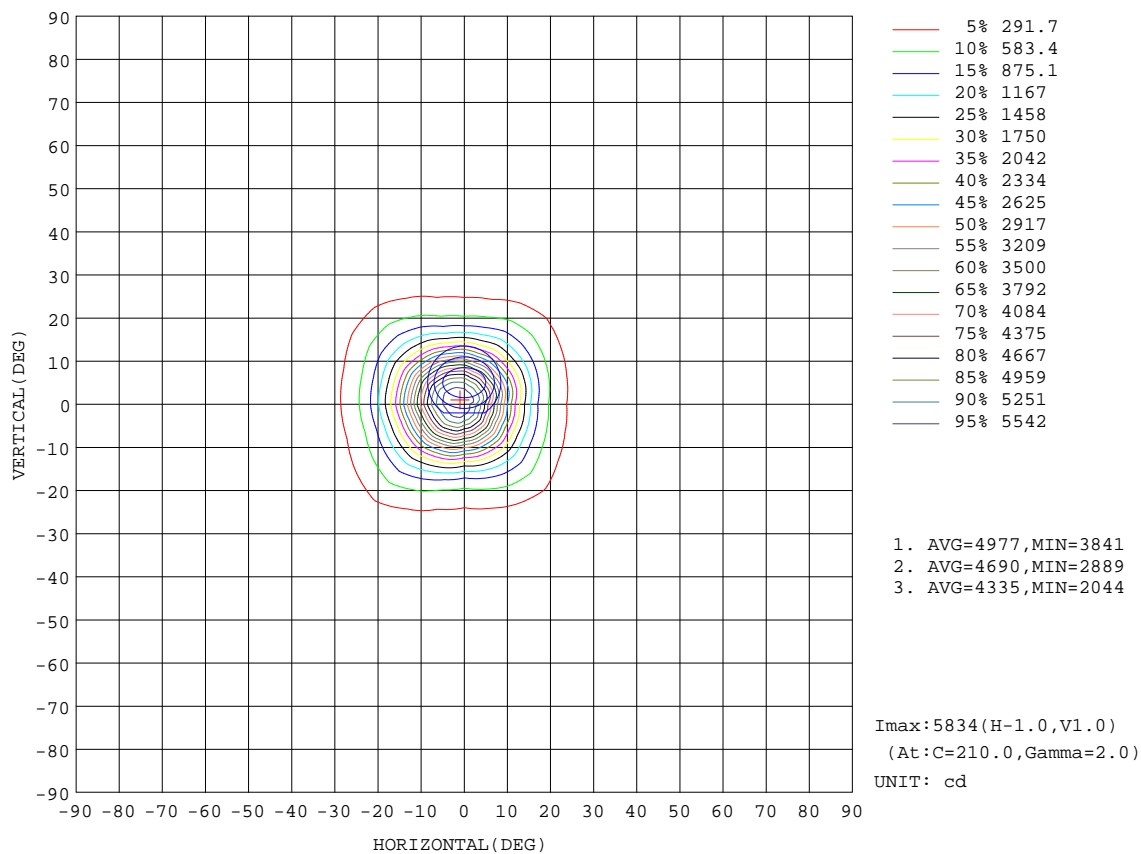
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ISOCANDELA DIAGRAM

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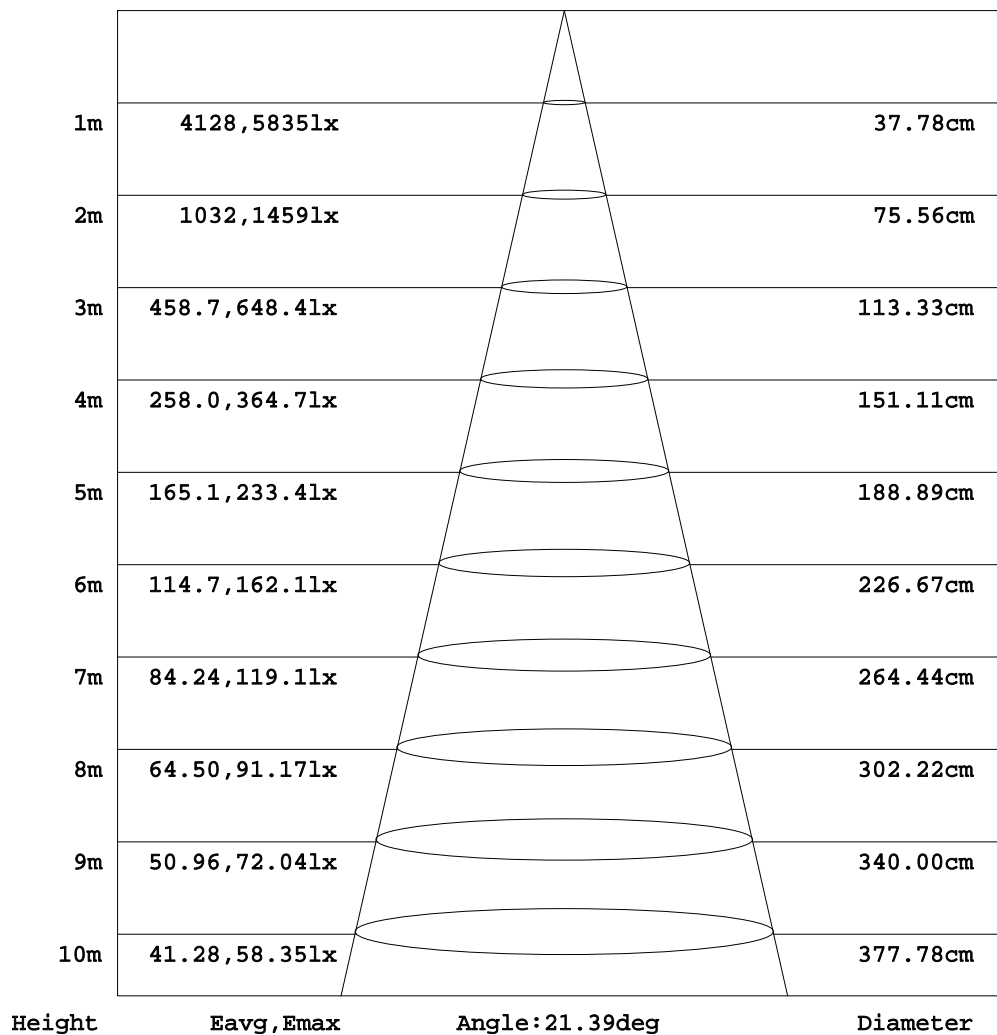
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AAI Figure

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Flux out:490.0 lm



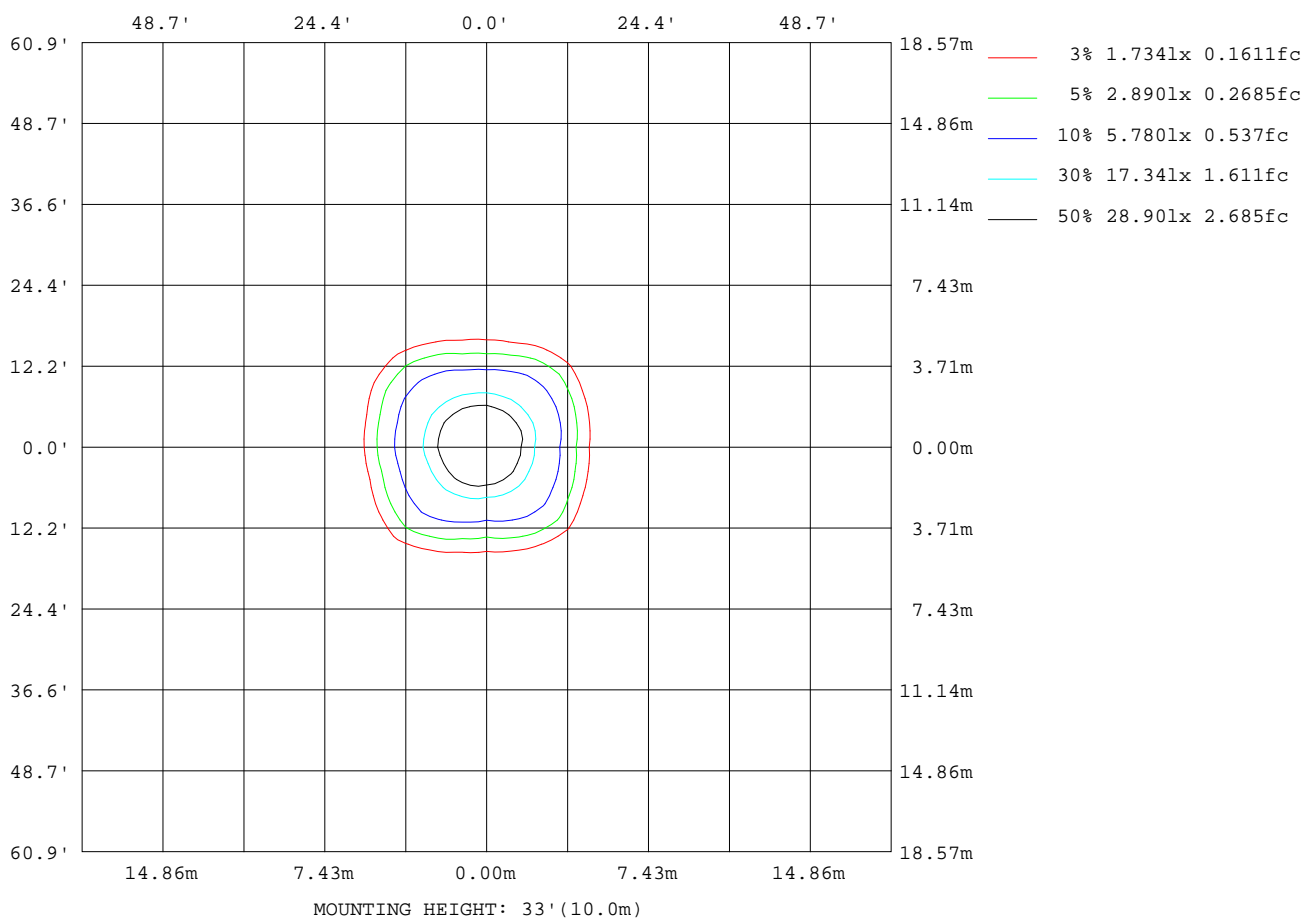
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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### LED Avg.L Report

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SPEC.:3000K	DIM.: L284mm*W22mm*H43mm	
MFR.: NEKO LIGHTING AG		

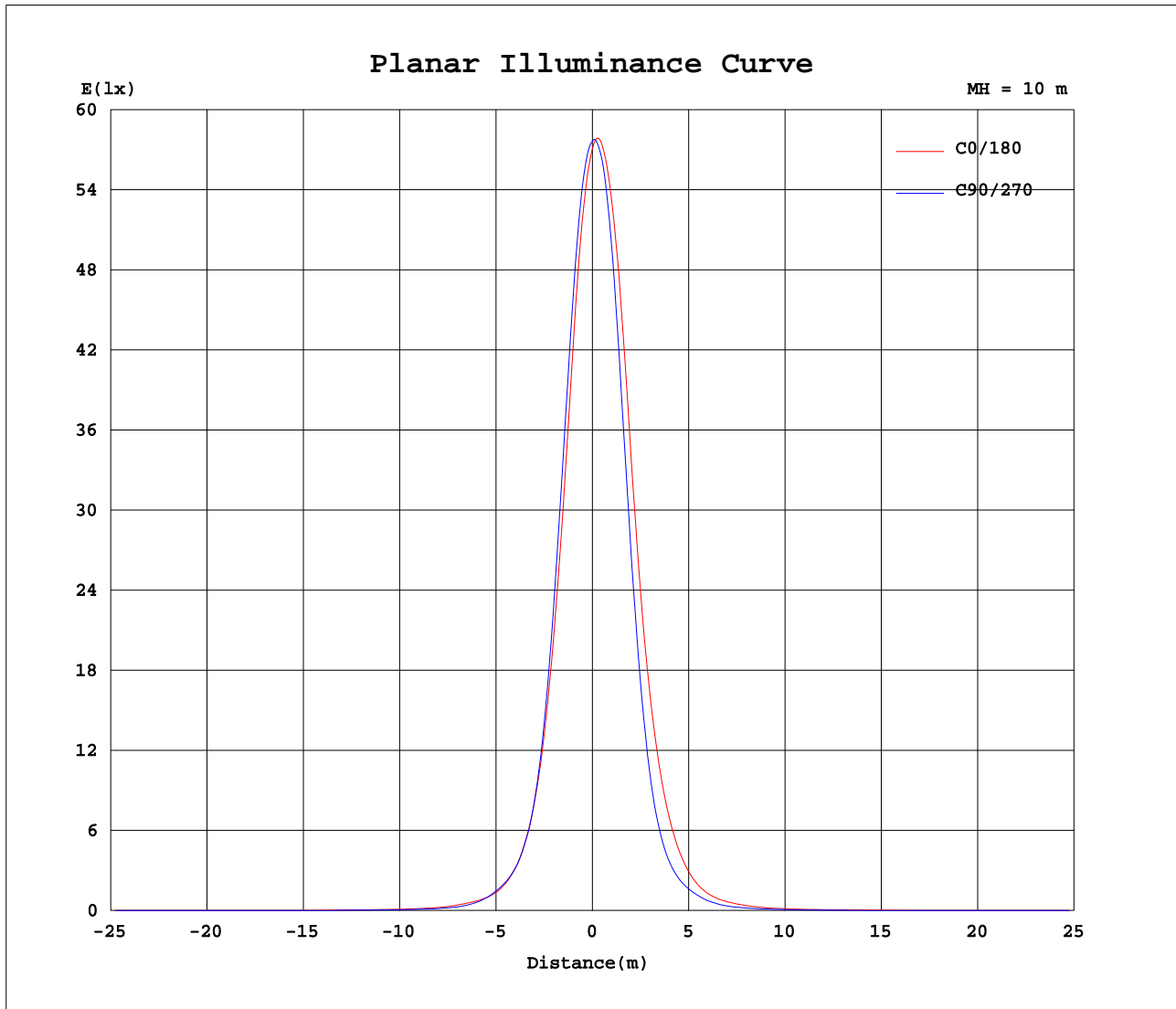
AvgL	cd/m2
L_0~180(65)av	45
L_0~180(75)av	51
L_0~180(85)av	124
L_90~270(65)av	62
L_90~270(75)av	64
L_90~270(85)av	123
L_45(65)av	43
L_45(75)av	48
L_45(85)av	117

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2020-04-01

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity:58%  
Test Distance:5.850m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: Jason Long  
Test Date: 2020-04-01

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.362  
Humidity: 58%  
Test Distance: 5.850m [K=1.0000]  
Remarks:

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:58%
Test Distance:5.850m [K=1.0000]
Remarks:

```

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:58%
Test Distance:5.850m [K=1.0000]
Remarks:

```