

Low Voltage Track System Module ML26-AL280-13W-927-20



Light Output Ratio:	100.0%	
Luminaire Power:	12.14 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: Payne Cao
Test Date: 2020-04-29

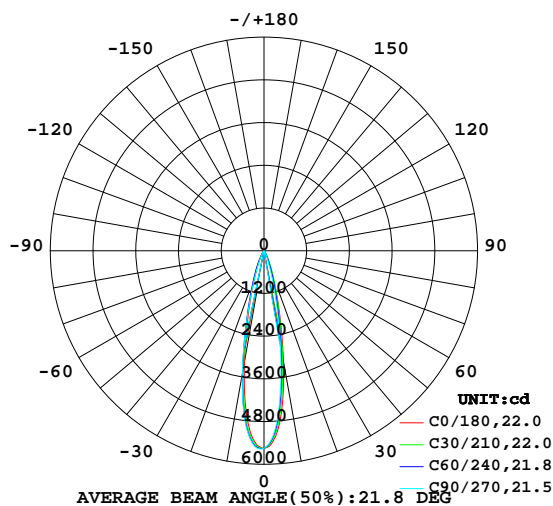
γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity: 58%
Test Distance: 5.850m [K=1.0000]
Remarks:

LUMINAIRE PHOTOMETRIC TEST REPORT

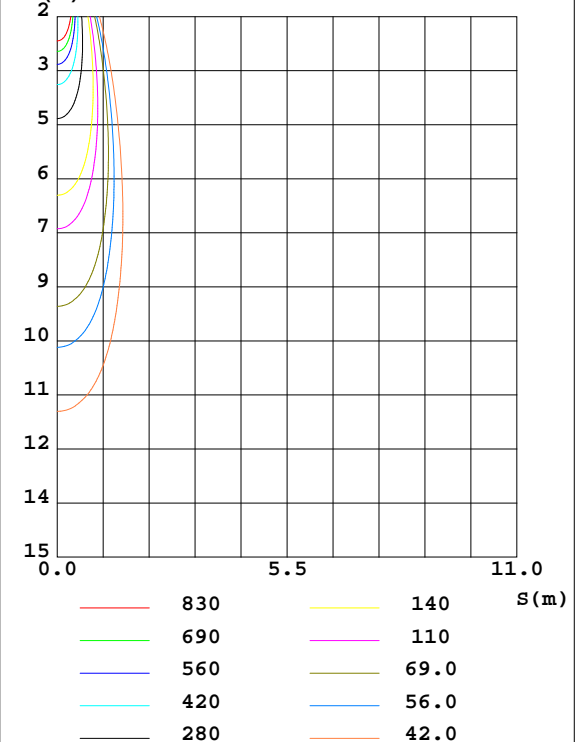
Test:U:48.00V I:0.2530A P:12.14W PF:1.000 Freq:0Hz Lamp Flux:1083.83x1 lm		
NAME: ML26-AL280-13W-927-20	TYPE:Low Voltage Track System Module	
SPEC.:2700K	DIM.: L284mm*W22mm*H43mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 89.25 lm/W			
MODEL	OSRAM-2700K	I _{max} (cd)	5570	S/MH(C0/180)	0.38
NOMINAL POWER(W)	13	LOR(%)	100.0	S/MH(C90/270)	0.39
RATED VOLTAGE(V)	48	TOTAL FLUX(lm)	1083.8	η UP,DN(C0-180)	0.0,45.6
NOMINAL FLUX(lm)	1083.83	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,54.4
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:Payne Cao
Test Date:2020-04-29

γ Range: 0 - 90DEG
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ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3150	2945	2641	2876	3171	3367	3511	3487	0- 10	409.7	409.7	37.8, 37.8
20	696.7	718.3	432.3	699.0	706.7	880.1	690.3	914.6	10- 20	438.5	848.2	78.3, 78.3
30	144.0	158.8	81.43	165.9	143.4	222.9	137.5	234.8	20- 30	162.9	1011	93.3, 93.3
40	39.29	34.56	19.94	34.64	35.00	45.67	26.37	52.41	30- 40	47.71	1059	97.7, 97.7
50	15.88	11.38	7.844	13.20	15.49	16.35	10.45	17.28	40- 50	17.24	1076	99.3, 99.3
60	0.1361	0.3034	0.1729	0.1633	0.1045	0.8049	0.1399	1.409	50- 60	7.562	1084	100, 100
70	0.0656	0.0524	0.0875	0.0567	0.0392	0.0612	0.0568	0.0635	60- 70	0.1057	1084	100, 100
80	0.0481	0.0437	0.0525	0.0437	0.0262	0.0372	0.0284	0.0394	70- 80	0.0512	1084	100, 100
90	0.0393	0.0437	0.0437	0.0437	0.0262	0.0262	0.0284	0.0284	80- 90	0.0409	1084	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): 1068.9 lm

%lum = 98.6%

%lamp = 98.6%

Conical surface Flux(120deg): 1083.6 lm

%lum = 100.0%

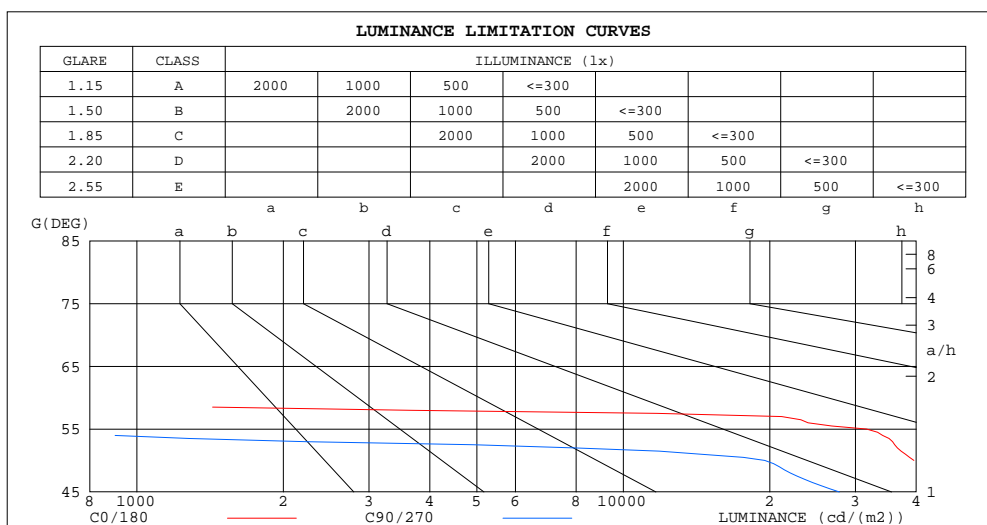
%lamp = 100.0%

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: Payne Cao
Test Date: 2020-04-29

γ Range: 0 - 90DEG
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LUMINANCE LIMITATION CURVES

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LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	843	843
80	443	484
75	338	406
70	307	409
65	298	448
60	436	553
55	31604	715
50	39564	19522
45	52352	27796

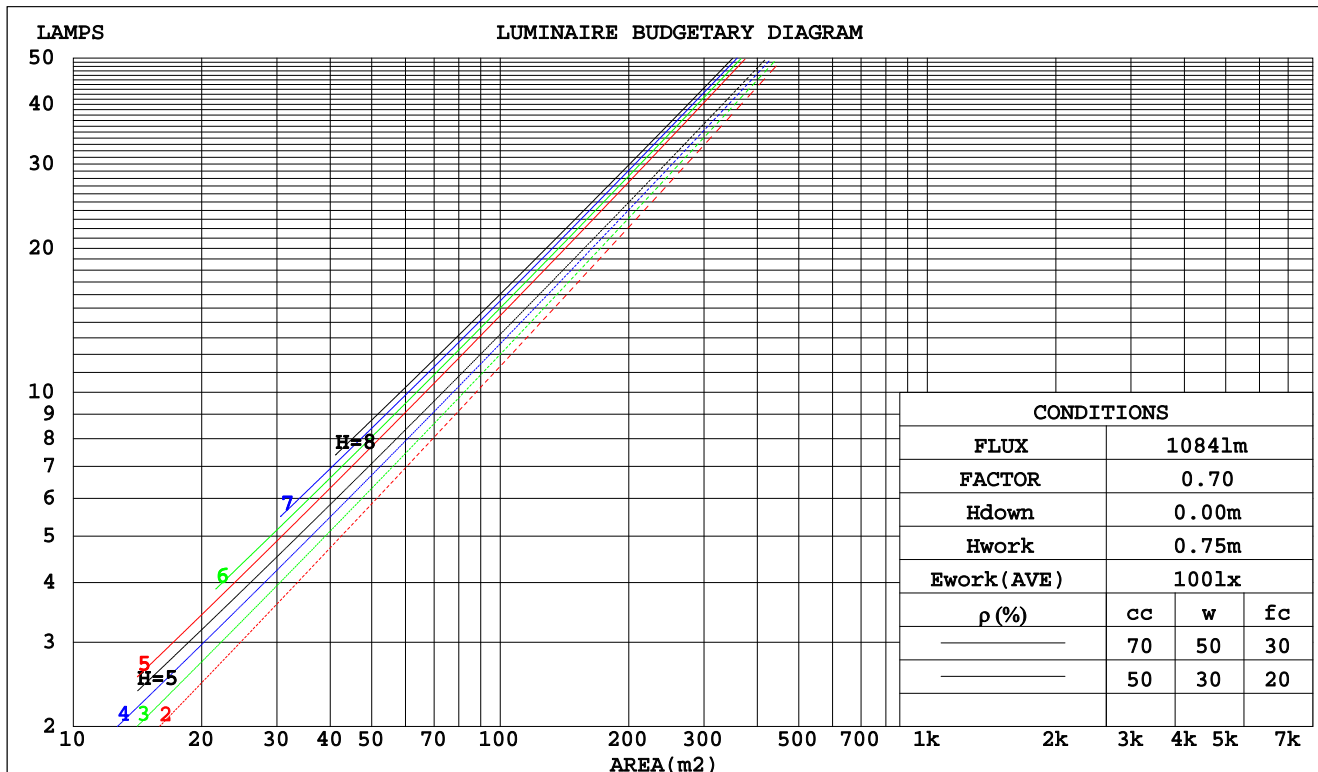
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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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	1.08	1.07	1.05	1.04	1.03	1.02	1.01	.00	.99	.98	.97
2.0	1.08	1.05	1.02	1.06	1.03	1.01	1.03	1.01	.99	.00	.98	.97	.97	.96	.95	.93
3.0	1.03	.99	.96	1.02	.98	.96	.99	.96	.94	.97	.95	.93	.95	.93	.91	.90
4.0	.99	.95	.92	.98	.94	.91	.96	.93	.90	.94	.91	.89	.92	.90	.88	.87
5.0	.95	.91	.88	.94	.91	.88	.93	.90	.87	.91	.89	.86	.90	.88	.86	.84
6.0	.92	.88	.85	.91	.87	.85	.90	.87	.84	.89	.86	.84	.88	.85	.83	.82
7.0	.89	.85	.82	.88	.85	.82	.87	.84	.81	.86	.83	.81	.85	.83	.81	.80
8.0	.86	.82	.79	.86	.82	.79	.85	.81	.79	.84	.81	.79	.83	.80	.78	.77
9.0	.84	.80	.77	.83	.80	.77	.83	.79	.77	.82	.79	.76	.81	.78	.76	.75
10.0	.82	.78	.75	.81	.77	.75	.81	.77	.75	.80	.77	.74	.79	.76	.74	.73



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WEC AND CCEC

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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						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.137	.078	.025	.130	.074	.024	.118	.068	.022	.106	.061	.020	.096	.056	.018		
2.0	.127	.070	.021	.122	.067	.021	.111	.062	.019	.102	.057	.018	.093	.053	.017		
3.0	.119	.063	.019	.114	.061	.018	.106	.057	.017	.098	.054	.016	.090	.050	.015		
4.0	.111	.058	.017	.107	.056	.017	.100	.053	.016	.094	.050	.015	.087	.047	.014		
5.0	.105	.053	.015	.102	.052	.015	.095	.050	.015	.090	.047	.014	.084	.045	.014		
6.0	.099	.050	.014	.096	.049	.014	.091	.047	.014	.086	.045	.013	.082	.043	.013		
7.0	.094	.047	.013	.092	.046	.013	.087	.044	.013	.083	.042	.012	.079	.041	.012		
8.0	.090	.044	.012	.088	.043	.012	.084	.042	.012	.080	.040	.012	.076	.039	.011		
9.0	.086	.041	.012	.084	.041	.011	.080	.040	.011	.077	.039	.011	.074	.037	.011		
10.0	.082	.039	.011	.080	.039	.011	.077	.038	.011	.074	.037	.010	.071	.036	.010		

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	.168	.158	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.150	.133	.118	.129	.114	.102	.088	.079	.071	.051	.046	.042	.016	.015	.014	
3.0	.135	.113	.096	.116	.098	.083	.080	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.123	.098	.079	.105	.085	.069	.072	.059	.048	.042	.035	.029	.013	.011	.009	
5.0	.112	.086	.066	.096	.074	.057	.066	.052	.040	.039	.030	.024	.012	.010	.008	
6.0	.103	.076	.056	.089	.065	.048	.061	.046	.034	.036	.027	.020	.011	.009	.007	
7.0	.096	.067	.047	.082	.058	.041	.057	.041	.029	.033	.024	.017	.011	.008	.006	
8.0	.089	.061	.041	.077	.053	.036	.053	.037	.025	.031	.022	.015	.010	.007	.005	
9.0	.084	.055	.036	.072	.048	.031	.050	.034	.022	.029	.020	.013	.009	.007	.004	
10.0	.079	.050	.031	.068	.044	.027	.047	.031	.019	.027	.018	.012	.009	.006	.004	

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Payne Cao
Test Date:2020-04-29

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:0.2530A P:12.14W PF:1.000 Freq:0Hz Lamp Flux:1083.83x1 lm										
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SPEC.:2700K					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	17.4	18.0	17.6	18.2	18.3	13.0	13.6	13.2	13.8	13.9
3H	17.2	17.9	17.5	18.0	18.2	12.8	13.4	13.0	13.6	13.8
4H	17.2	17.7	17.4	18.0	18.2	12.7	13.3	13.0	13.5	13.7
6H	17.1	17.6	17.4	17.9	18.1	12.6	13.2	12.9	13.4	13.7
8H	17.0	17.6	17.3	17.8	18.1	12.6	13.1	12.9	13.4	13.6
12H	17.0	17.5	17.3	17.8	18.0	12.6	13.1	12.9	13.3	13.6
4H 2H	17.2	17.8	17.4	18.0	18.2	13.0	13.6	13.2	13.8	14.0
3H	17.0	17.5	17.3	17.8	18.0	12.8	13.3	13.1	13.6	13.8
4H	16.9	17.4	17.2	17.7	18.0	12.7	13.2	13.0	13.5	13.8
6H	16.8	17.2	17.2	17.6	17.9	12.6	13.0	13.0	13.3	13.7
8H	16.8	17.1	17.1	17.5	17.8	12.5	12.9	12.9	13.3	13.6
12H	16.7	17.1	17.1	17.4	17.8	12.5	12.8	12.9	13.2	13.6
8H 4H	16.8	17.1	17.1	17.5	17.8	12.5	12.9	12.9	13.3	13.6
6H	16.6	17.0	17.1	17.4	17.8	12.4	12.8	12.9	13.1	13.6
8H	16.6	16.9	17.0	17.3	17.7	12.4	12.7	12.8	13.1	13.5
12H	16.5	16.8	17.0	17.2	17.7	12.3	12.6	12.8	13.0	13.5
12H 4H	16.7	17.1	17.1	17.4	17.8	12.5	12.8	12.9	13.2	13.6
6H	16.6	16.9	17.0	17.3	17.7	12.4	12.7	12.8	13.1	13.5
8H	16.5	16.8	17.0	17.2	17.7	12.3	12.6	12.8	13.0	13.5
Variations with the observer position at spacings:										
S = 1.0H	+ 2.0 / - 5.9					+ 2.7 / -20.3				
1.5H	+ 2.7 / - 3.5					+ 2.9 / - 9.2				
2.0H	+ 3.0 / -25.9					+ 5.4 / -18.4				

CIE Pub.117, 1084 lm Total Lamp Luminous Flux Correct ($8\log(F/F_0) = 0.3$)

C Range: 0 - 360DEG
C Interval: 15.0DEG
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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:

UTILIZATION FACTORS TABLE

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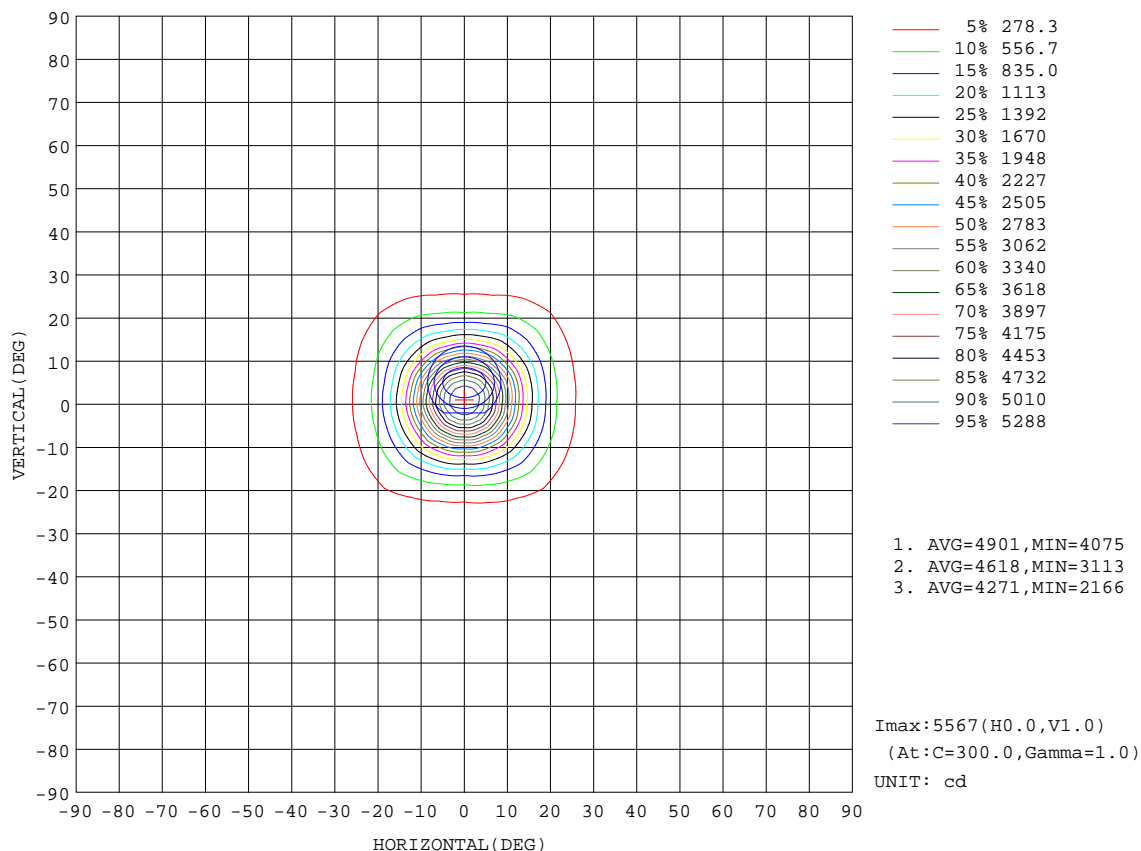
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	90	84	81	90	84	81	89	84	80	77
0.80	97	92	88	97	91	88	95	91	88	85
1.00	101	96	93	100	96	92	99	95	92	88
1.25	105	100	97	104	100	97	102	98	96	92
1.50	107	103	100	106	102	99	104	101	98	94
2.00	110	106	103	108	105	102	106	103	101	96
2.50	111	108	105	110	106	104	106	104	102	96
3.00	112	109	107	111	108	106	107	105	104	97
4.00	114	112	110	112	110	108	109	107	106	99
5.00	116	113	112	113	112	110	110	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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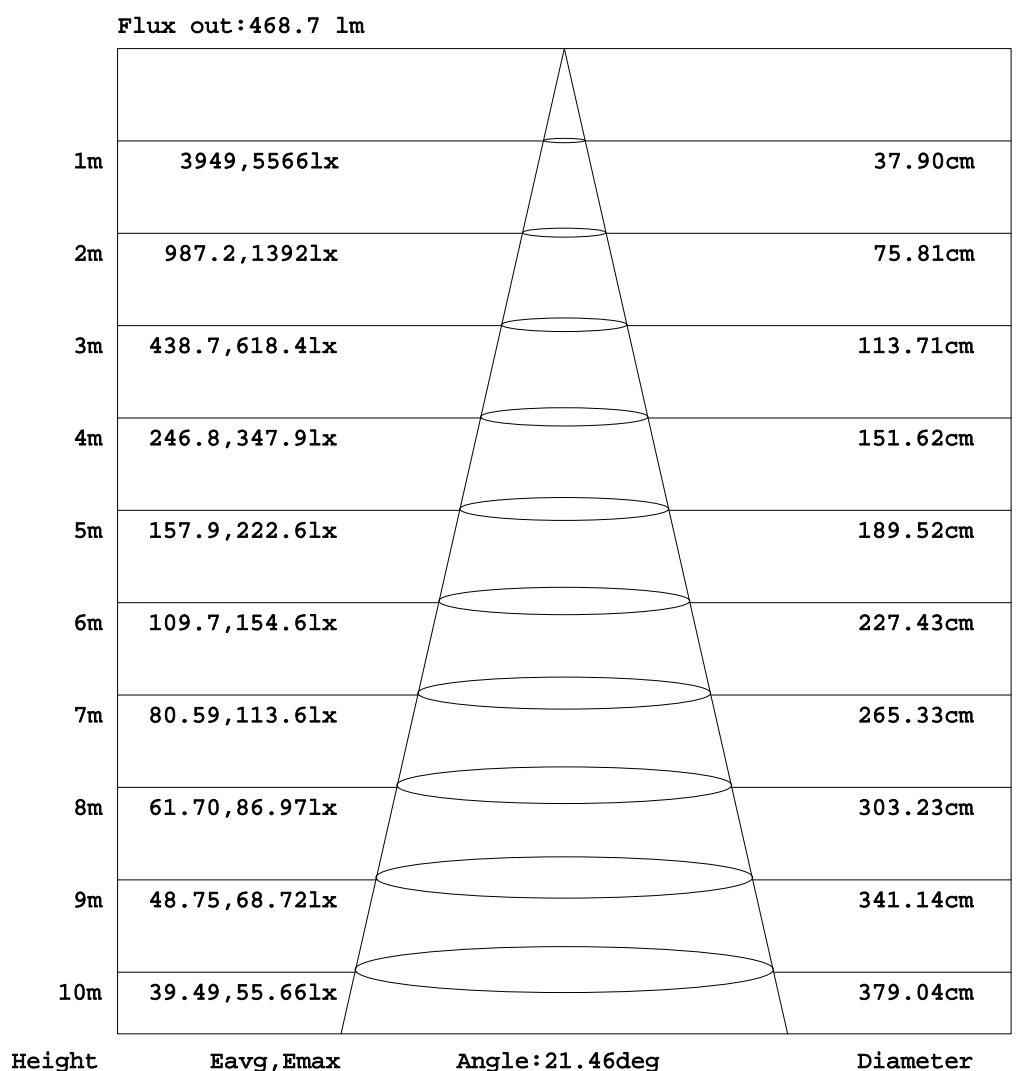


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AAI Figure

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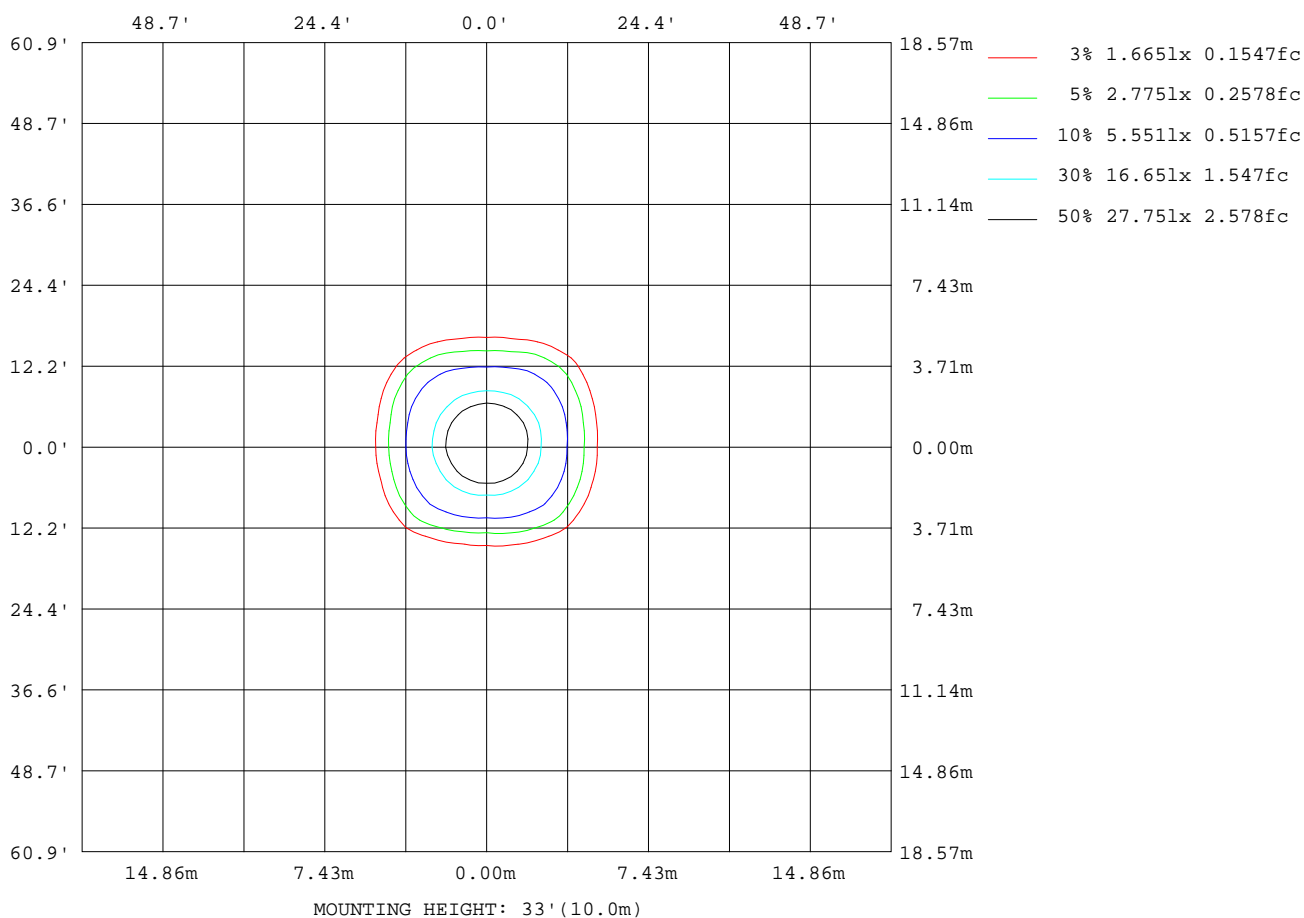
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

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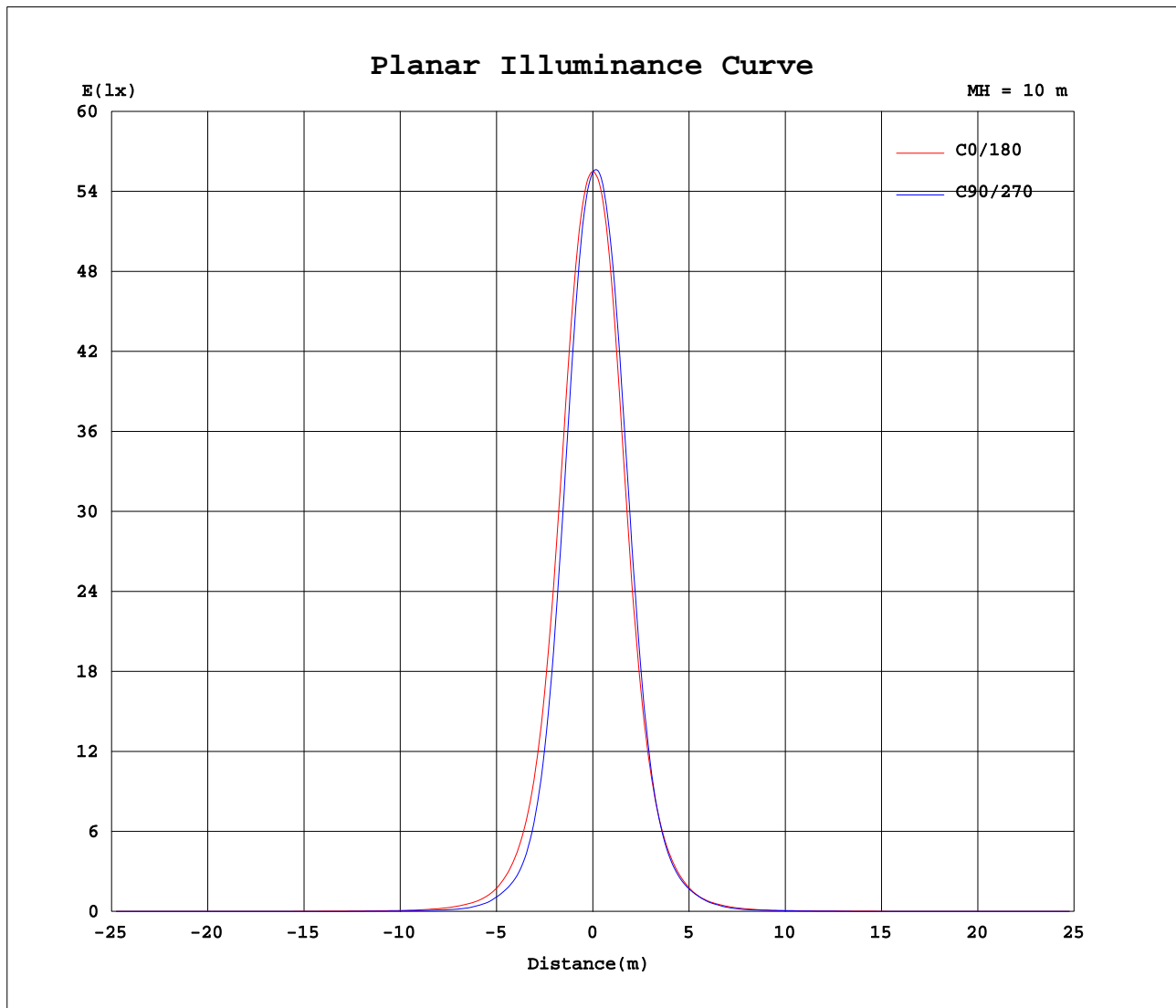
AvgL	cd/m2
L_0~180(65)av	260
L_0~180(75)av	257
L_0~180(85)av	662
L_90~270(65)av	394
L_90~270(75)av	305
L_90~270(85)av	683
L_45(65)av	296
L_45(75)av	287
L_45(85)av	682

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Payne Cao
Test Date:2020-04-29

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: Payne Cao
Test Date: 2020-04-29

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:

```

```

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:

```