

LED Downlight FUSION Series FS2-4W-930-30D



Light Output Ratio:	100.0%	
Luminaire Power:	5.562 W	
SHR Nominal:	0.50	Calculated using the TM5
SHR Maximum:	0.50	fine grid method.

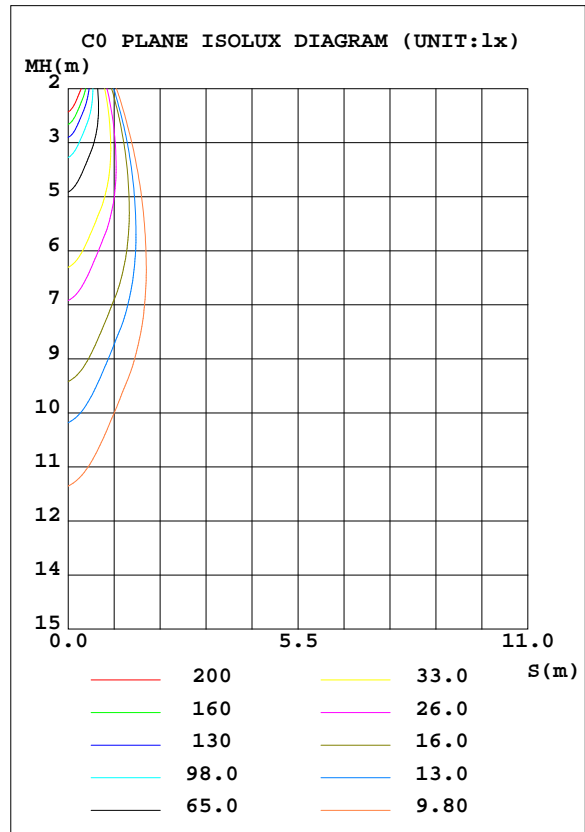
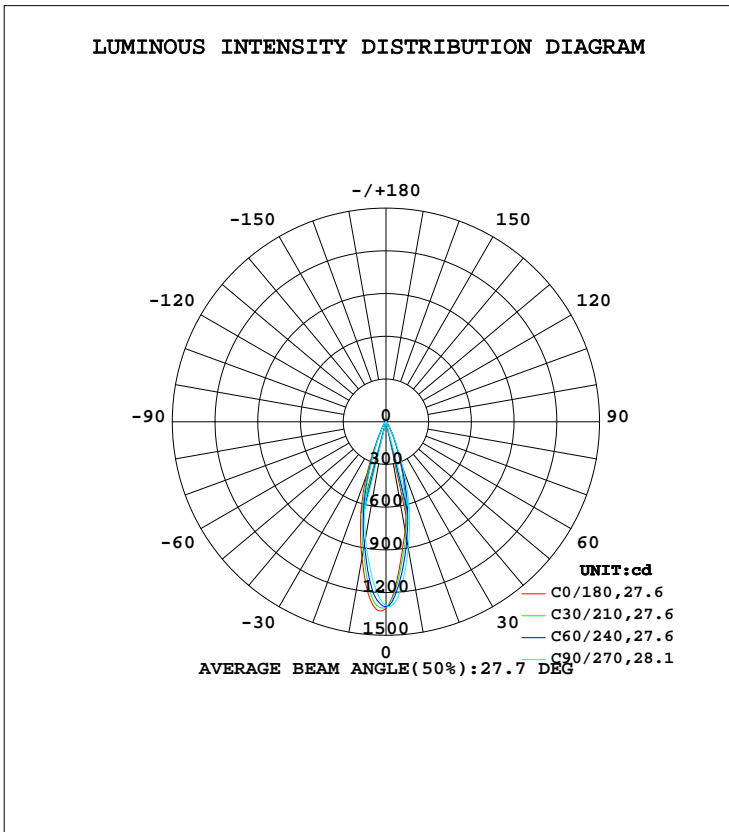
C Range: 0 - 360DEG  
 C Interval: 15.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: Meng Yongjian  
 Test Date: 2017-06-09

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity: 52%  
 Test Distance: 5.850m [K=1.0000]  
 Remarks:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.7V I:0.0323A P:5.562W PF:0.7796 Freq:50.00Hz Lamp Flux:372.85x1 lm		
NAME: FS2-4W-930-30D	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: L98mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 67.03 lm/W			
MODEL	OSRAM-3000K	I <sub>max</sub> (cd)	1330	S/MH(C0/180)	0.52
NOMINAL POWER(W)	6.0	LOR(%)	100.0	S/MH(C90/270)	0.45
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	372.85	η UP, DN(C0-180)	0.0,51.9
NOMINAL FLUX(lm)	372.85	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,48.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	0.50



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γ Range: 0 - 90DEG  
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Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
10	776.1	826.1	899.2	960.3	971.9	893.6	831.0	739.2	0- 10	99.46	99.46	26.7,26.7
20	287.0	313.8	359.9	387.3	397.5	316.0	287.5	257.0	10- 20	158.5	258.0	69.2,69.2
30	60.63	69.61	71.85	67.27	71.06	61.03	56.87	52.81	20- 30	71.09	329.1	88.3,88.3
40	15.55	17.00	20.55	22.92	24.72	20.79	17.59	15.06	30- 40	21.25	350.3	94,94
50	8.810	9.486	10.52	11.69	11.84	10.77	9.141	8.528	40- 50	10.96	361.3	96.9,96.9
60	4.509	4.639	4.861	5.280	5.581	5.055	4.536	4.355	50- 60	6.075	367.4	98.5,98.5
70	2.224	2.344	2.554	2.817	2.885	2.610	2.331	2.105	60- 70	3.565	370.9	99.5,99.5
80	0.7006	0.7404	0.8210	0.8454	0.8494	0.7792	0.6790	0.6479	70- 80	1.531	372.5	99.9,99.9
90	0.0197	0.0241	0.0481	0.0437	0.0437	0.0262	0.0131	0.0153	80- 90	0.3727	372.9	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): 356.42 lm

%lum = 95.6%

%lamp = 95.6%

Conical surface Flux(120deg): 367.38 lm

%lum = 98.5%

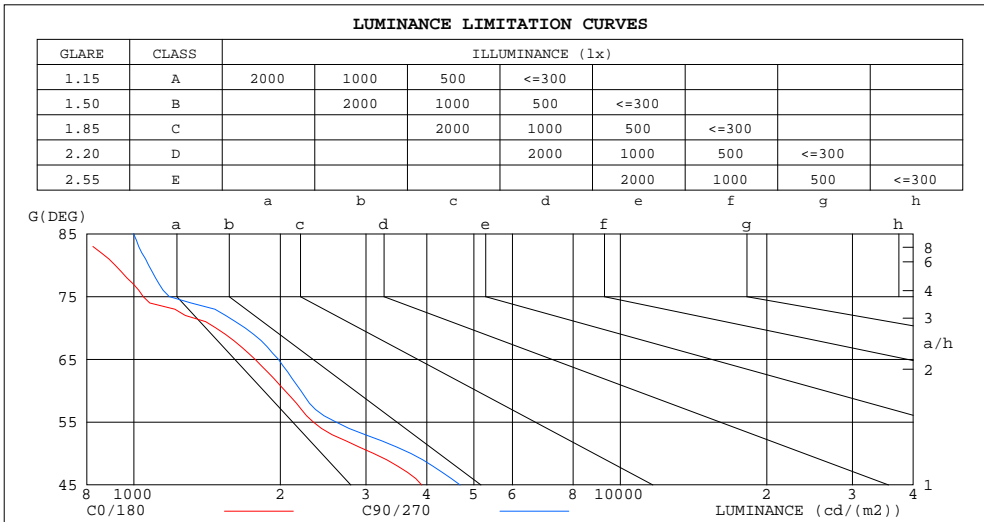
%lamp = 98.5%

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$\gamma$  Range: 0 - 90DEG  
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Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
Test Distance:5.850m [K=1.0000]  
Remarks:

**LUMINANCE LIMITATION CURVES**

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LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	731	998
80	915	1072
75	1045	1183
70	1474	1693
65	1774	1982
60	2045	2204
55	2339	2604
50	3108	3710
45	3904	4685

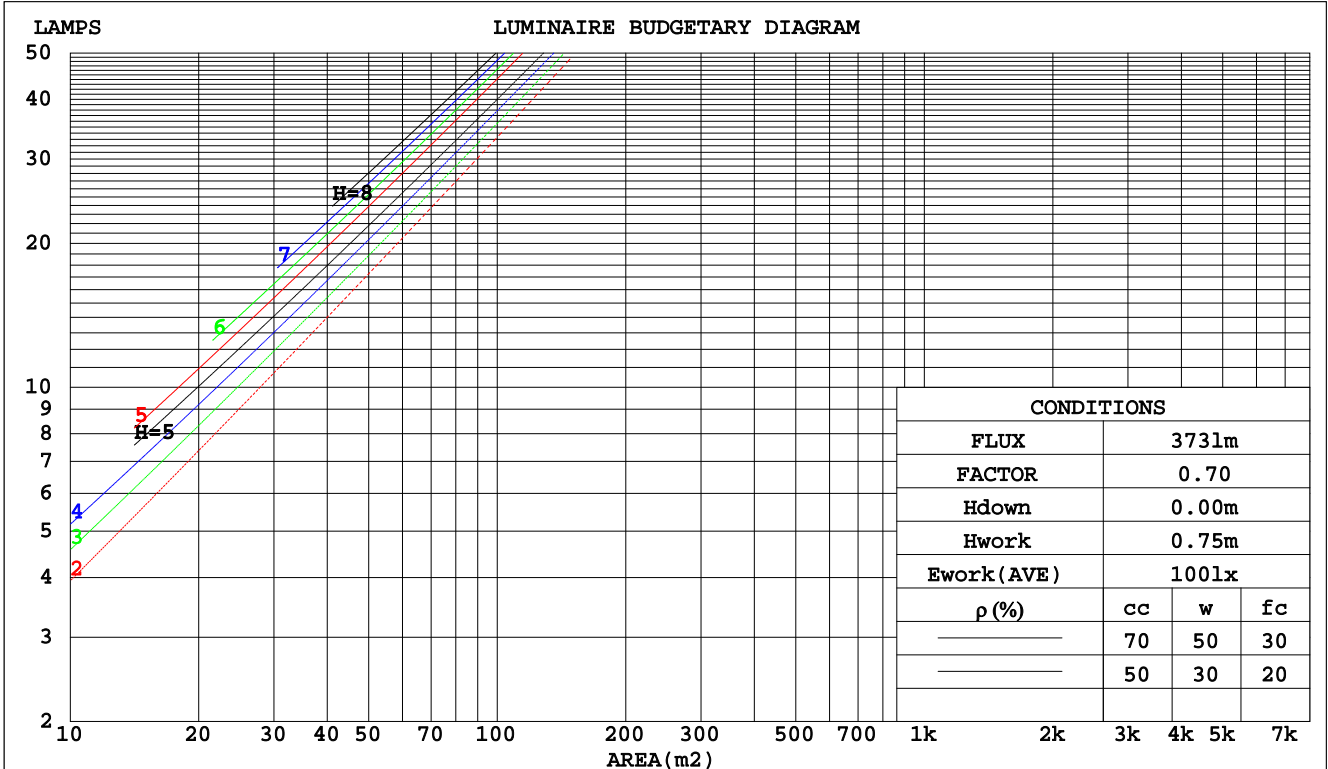
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**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

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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	1.00
1.0	1.12	1.10	1.08	1.10	1.08	1.06	1.06	1.04	1.03	1.02	1.01	.00	.99	.98	.97	.95
2.0	1.06	1.02	.99	1.04	1.01	.98	1.01	.98	.96	.98	.96	.94	.95	.94	.92	.91
3.0	1.00	.96	.93	.99	.95	.92	.96	.93	.91	.94	.92	.89	.92	.90	.88	.87
4.0	.96	.91	.88	.94	.90	.87	.92	.89	.86	.91	.88	.85	.89	.86	.84	.83
5.0	.91	.87	.83	.90	.86	.83	.89	.85	.82	.87	.84	.81	.86	.83	.81	.79
6.0	.87	.83	.79	.87	.82	.79	.85	.81	.78	.84	.81	.78	.83	.80	.77	.76
7.0	.84	.79	.76	.83	.79	.76	.82	.78	.75	.81	.78	.75	.80	.77	.75	.73
8.0	.81	.76	.73	.80	.76	.73	.79	.75	.72	.78	.75	.72	.78	.74	.72	.71
9.0	.78	.73	.70	.78	.73	.70	.77	.73	.70	.76	.72	.70	.75	.72	.69	.68
10.0	.75	.71	.68	.75	.71	.68	.74	.70	.67	.74	.70	.67	.73	.70	.67	.66



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WEC AND CCEC

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ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.155	.088	.028	.148	.084	.027	.136	.078	.025	.124	.072	.023	.114	.066	.021	
2.0	.145	.079	.024	.139	.077	.024	.129	.072	.022	.119	.067	.021	.111	.063	.020	
3.0	.136	.072	.022	.131	.070	.021	.122	.066	.020	.114	.063	.019	.107	.059	.018	
4.0	.127	.066	.019	.124	.065	.019	.116	.062	.018	.109	.059	.018	.103	.056	.017	
5.0	.120	.061	.018	.117	.060	.017	.110	.058	.017	.105	.055	.016	.099	.053	.016	
6.0	.114	.057	.016	.111	.056	.016	.105	.054	.016	.100	.052	.015	.095	.050	.015	
7.0	.108	.053	.015	.106	.053	.015	.101	.051	.015	.096	.049	.014	.092	.048	.014	
8.0	.103	.050	.014	.101	.050	.014	.096	.048	.014	.092	.047	.014	.089	.046	.013	
9.0	.098	.048	.013	.096	.047	.013	.093	.046	.013	.089	.045	.013	.086	.043	.013	
10.0	.094	.045	.013	.092	.045	.012	.089	.044	.012	.086	.043	.012	.083	.042	.012	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.170	.158	.147	.145	.135	.126	.099	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.153	.133	.116	.131	.114	.100	.090	.079	.070	.052	.046	.041	.017	.015	.013	
3.0	.139	.113	.093	.119	.098	.081	.082	.068	.057	.047	.040	.033	.015	.013	.011	
4.0	.127	.098	.076	.109	.085	.066	.075	.059	.047	.043	.035	.028	.014	.011	.009	
5.0	.117	.086	.064	.100	.075	.055	.069	.052	.039	.040	.031	.023	.013	.010	.008	
6.0	.108	.076	.054	.093	.066	.047	.064	.046	.033	.037	.027	.020	.012	.009	.006	
7.0	.101	.068	.046	.087	.059	.040	.060	.042	.028	.035	.025	.017	.011	.008	.006	
8.0	.095	.062	.039	.082	.054	.034	.056	.038	.024	.033	.022	.014	.011	.007	.005	
9.0	.089	.056	.034	.077	.049	.030	.053	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.084	.052	.030	.073	.045	.026	.050	.032	.019	.029	.019	.011	.010	.006	.004	

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γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity:52%  
 Test Distance:5.850m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.7V I:0.0323A P:5.562W PF:0.7796 Freq:50.00Hz Lamp Flux:372.85x1 lm		
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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	12.7	13.5	13.0	13.7	13.8	13.6	14.3	13.8	14.5	14.6
3H	13.3	14.0	13.5	14.2	14.4	14.1	14.8	14.3	15.0	15.2
4H	13.4	14.1	13.7	14.3	14.5	14.2	14.9	14.5	15.1	15.3
6H	13.5	14.1	13.8	14.3	14.6	14.3	14.9	14.6	15.1	15.4
8H	13.5	14.1	13.8	14.3	14.6	14.3	14.9	14.6	15.1	15.4
12H	13.5	14.1	13.8	14.3	14.6	14.3	14.9	14.6	15.1	15.4
4H 2H	13.0	13.6	13.2	13.8	14.1	13.7	14.3	13.9	14.6	14.8
3H	13.6	14.2	13.9	14.5	14.7	14.3	14.9	14.6	15.2	15.4
4H	13.8	14.3	14.2	14.6	14.9	14.5	15.0	14.8	15.3	15.6
6H	13.9	14.4	14.3	14.7	15.1	14.6	15.1	15.0	15.4	15.8
8H	14.0	14.4	14.4	14.8	15.1	14.7	15.1	15.1	15.5	15.8
12H	14.0	14.4	14.4	14.7	15.1	14.7	15.1	15.1	15.5	15.9
8H 4H	13.8	14.3	14.2	14.6	15.0	14.5	14.9	14.9	15.3	15.7
6H	14.0	14.4	14.4	14.8	15.2	14.7	15.0	15.1	15.4	15.8
8H	14.1	14.4	14.5	14.8	15.3	14.8	15.1	15.2	15.5	15.9
12H	14.1	14.4	14.6	14.8	15.3	14.8	15.1	15.3	15.5	16.0
12H 4H	13.8	14.2	14.2	14.6	15.0	14.5	14.9	14.9	15.2	15.6
6H	14.0	14.3	14.4	14.7	15.2	14.7	15.0	15.1	15.4	15.8
8H	14.1	14.4	14.5	14.8	15.3	14.7	15.0	15.2	15.5	15.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.7 / - 1.0					+ 1.1 / - 1.2				
1.5H	+ 0.6 / - 0.7					+ 1.6 / - 1.1				
2.0H	+ 1.6 / - 0.9					+ 1.9 / - 1.1				

CIE Pub.117, 372.9 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -3.4)

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γ Range: 0 - 90DEG  
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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	88	82	78	87	81	78	87	81	78	74
0.80	95	89	86	94	89	86	93	88	85	82
1.00	99	94	90	99	93	90	97	93	89	86
1.25	103	98	95	102	98	94	100	96	94	89
1.50	106	101	98	105	101	97	103	99	96	92
2.00	109	104	101	107	103	100	104	101	99	94
2.50	110	106	104	109	105	103	106	103	101	95
3.00	112	108	106	110	107	105	107	104	102	96
4.00	114	111	109	112	109	108	108	106	105	98
5.00	115	113	111	113	111	109	109	108	106	99
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

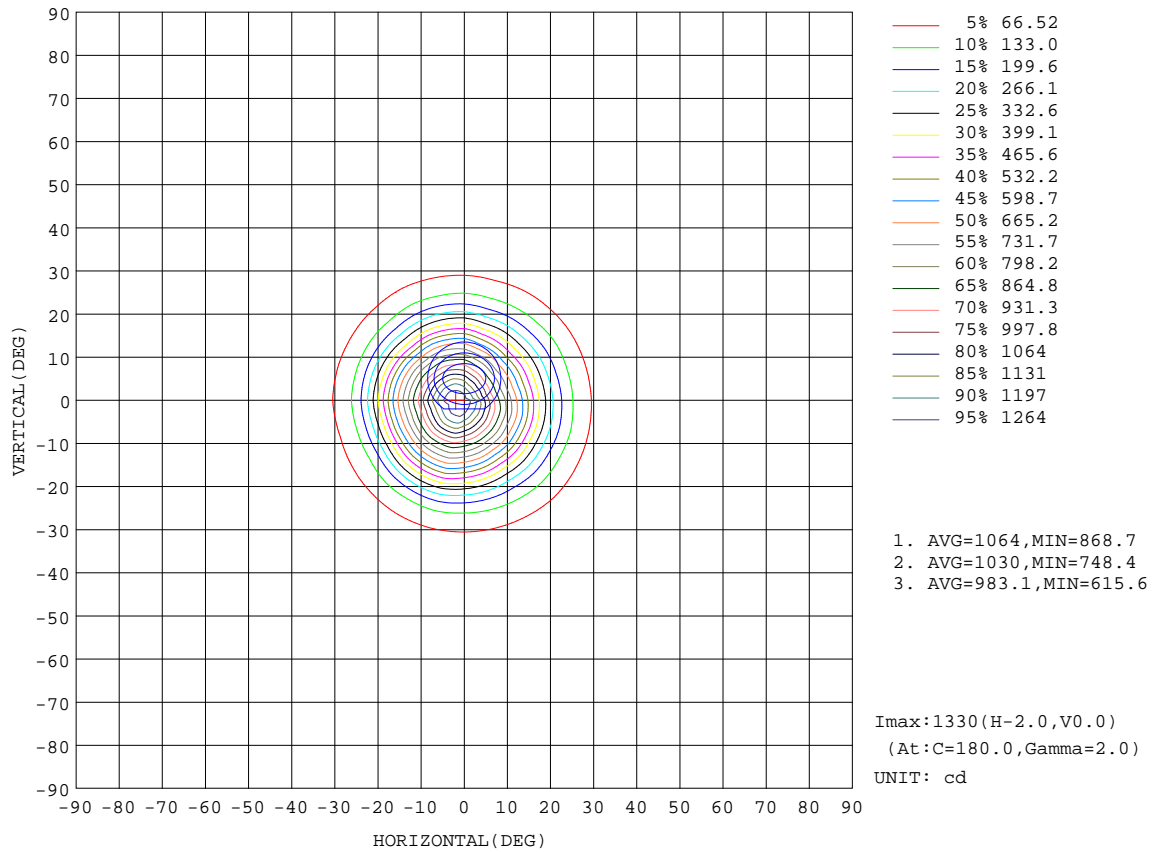
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ISOCANDELA DIAGRAM

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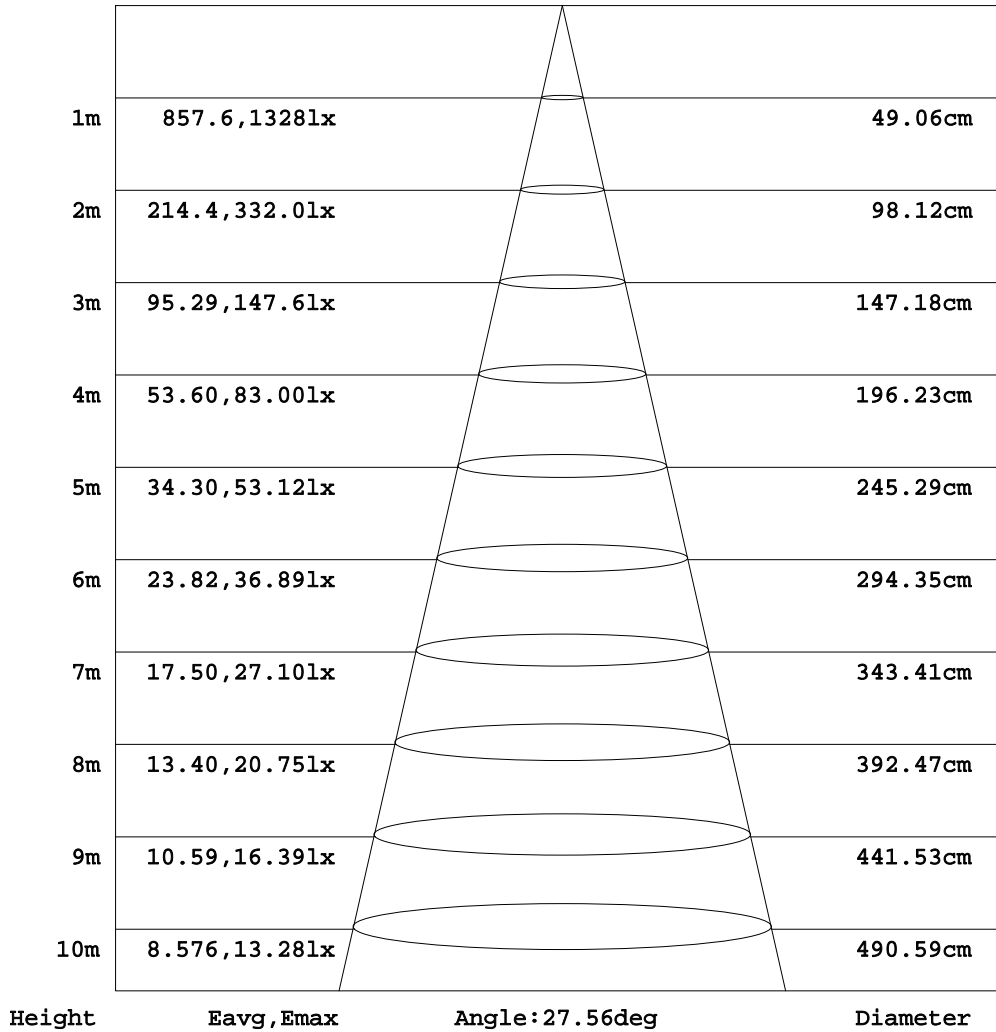
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**AAI Figure**

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Flux out:167.5 lm



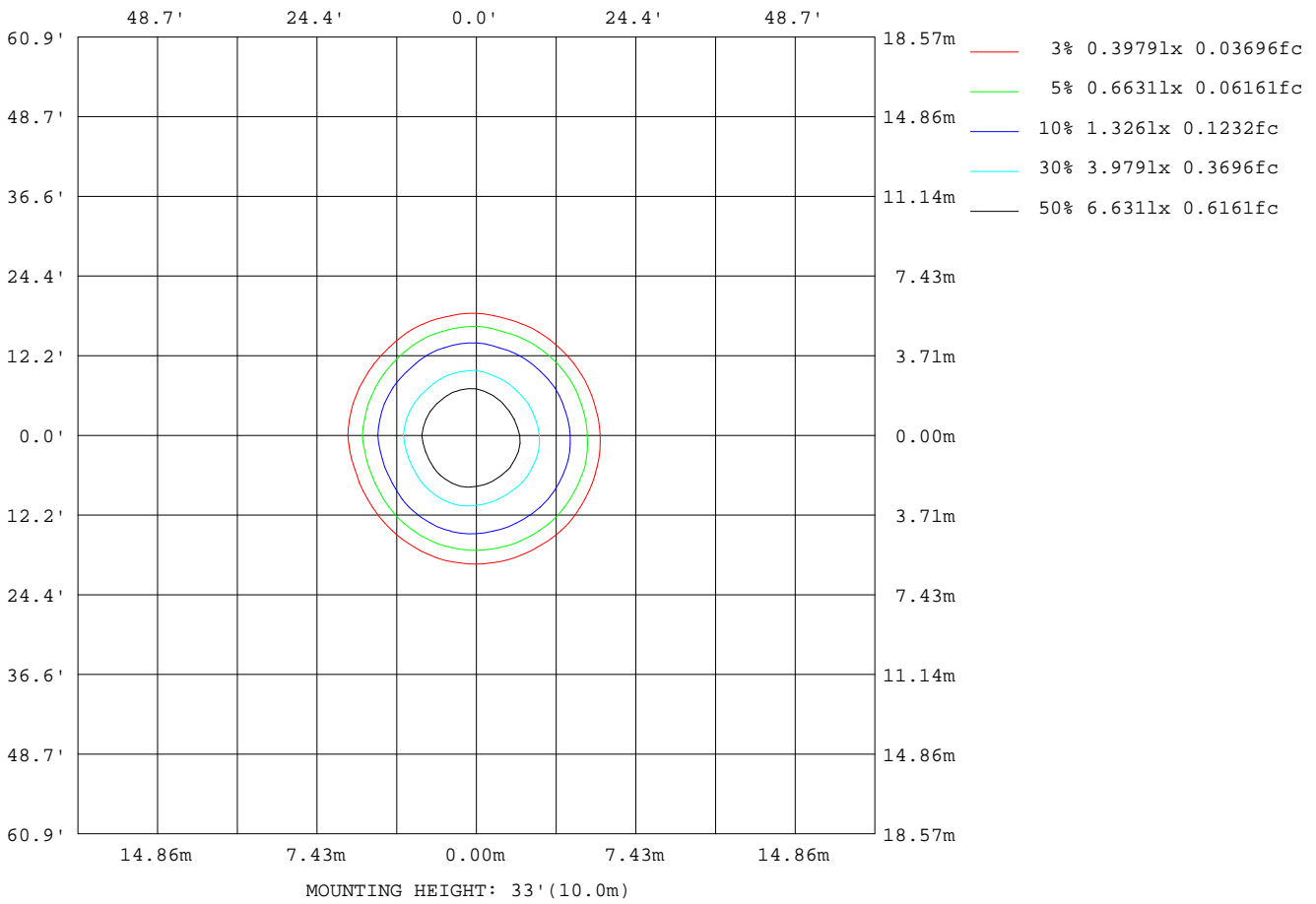
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

Test:U:220.7V I:0.0323A P:5.562W PF:0.7796 Freq:50.00Hz Lamp Flux:372.85x1 lm		
NAME: FS2-4W-930-30D	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: L98mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

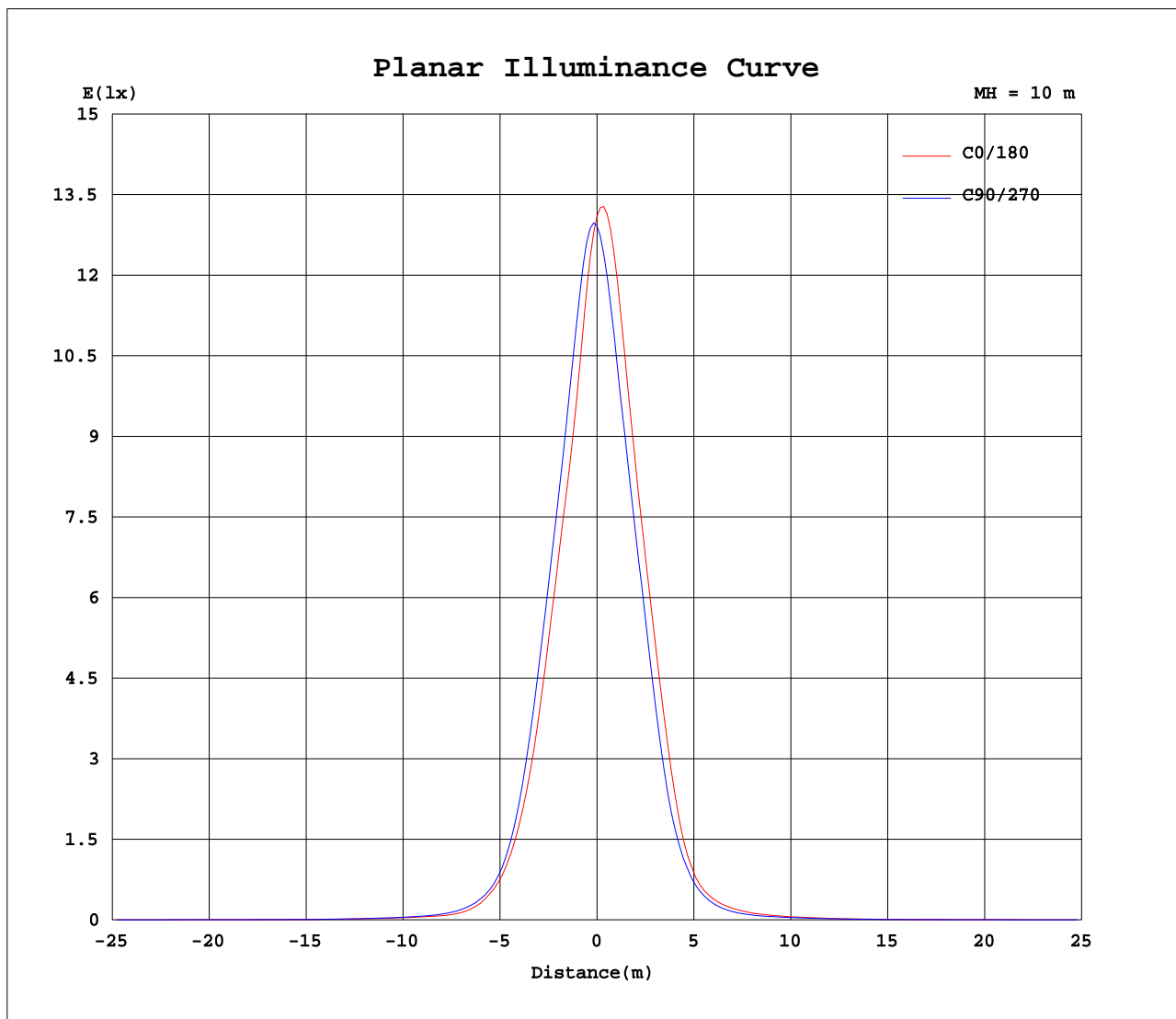
AvgL	cd/m2
L_0~180(65)av	1998
L_0~180(75)av	1245
L_0~180(85)av	873
L_90~270(65)av	1902
L_90~270(75)av	1106
L_90~270(85)av	831
L_45(65)av	1913
L_45(75)av	1163
L_45(85)av	840

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 15.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:Meng Yongjian  
Test Date:2017-06-09

γ Range: 0 - 90DEG  
γ Interval: 1.0DEG  
Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
Humidity:52%  
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: Meng Yongjian  
 Test Date: 2017-06-09

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.288  
 Humidity: 52%  
 Test Distance: 5.850m [K=1.0000]  
 Remarks:



