

LED Downlight FUSION Series FS1-2W-930-15D



Light Output Ratio:	100.0%	
Luminaire Power:	3.039 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

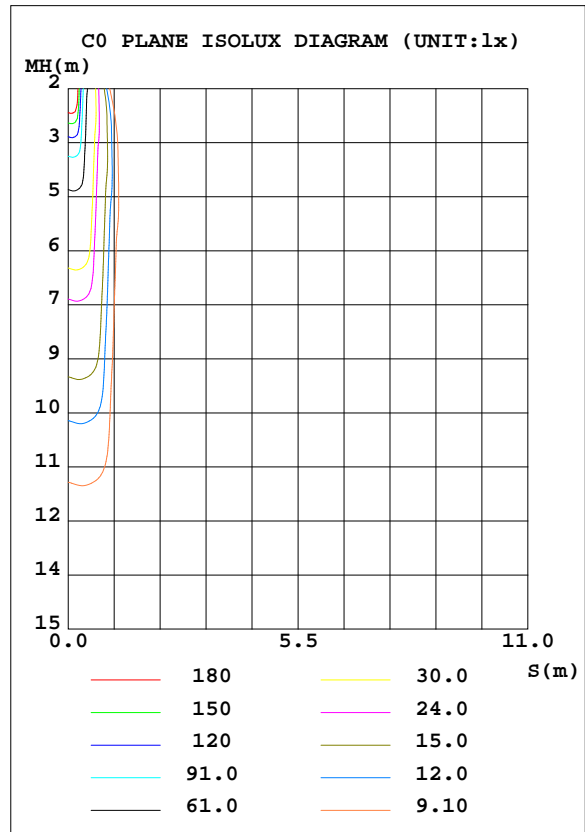
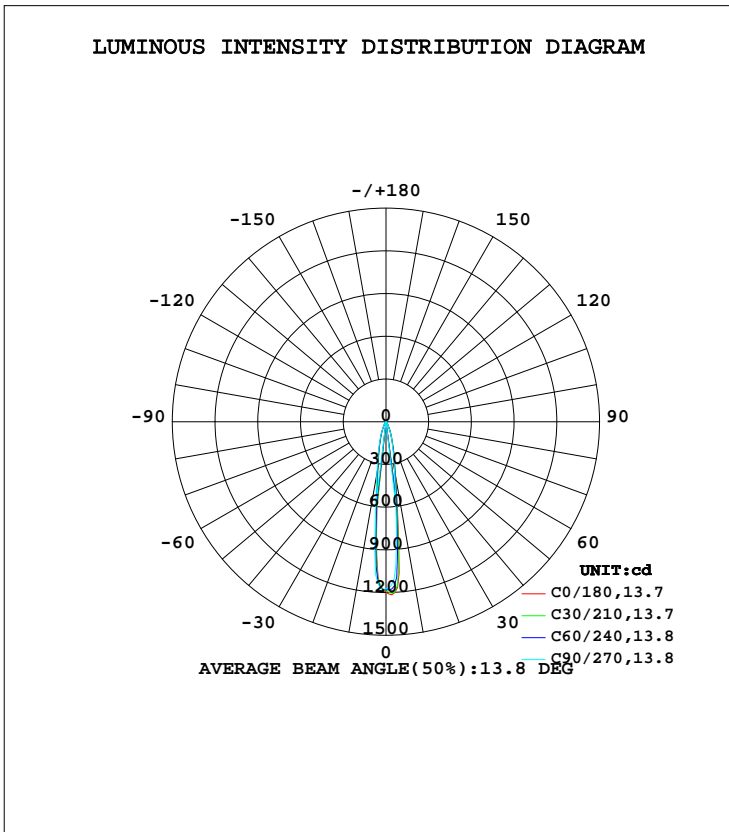
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Meng Yongjian
 Test Date: 2017-05-17

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:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.8V I:0.0196A P:3.039W PF:0.7039 Freq:50.00Hz Lamp Flux:173.726x1 lm		
NAME: FS1-2W-930-15D	TYPE:Downlight	SERIAL No.:
SPEC.:3000K	DIM.: L70mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	OSRAM-3000K	Imax(cd)	1216	S/MH(C0/180)	0.22
NOMINAL POWER(W)	3.0	LOR(%)	100.0	S/MH(C90/270)	0.25
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	173.73	η UP, DN(C0-180)	0.0,49.9
NOMINAL FLUX(lm)	173.726	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,50.1
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.00
TEST VOLTAGE(V)	220	η down(%)	100.0	CIBSE SHR MAX	1.00



C Range: 0 - 360DEG
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γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
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 Humidity:52%
 Test Distance:5.850m [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	392.2	385.6	343.4	330.4	325.4	332.8	369.9	400.9	0- 10	64.49	64.49	37.1,37.1
20	116.0	111.1	105.6	100.3	102.5	100.4	110.7	110.9	10- 20	54.32	118.8	68.4,68.4
30	31.06	30.18	28.21	27.03	27.97	27.66	30.33	30.96	20- 30	27.09	145.9	84,84
40	12.77	12.79	12.14	11.49	11.51	11.12	11.88	12.28	30- 40	11.15	157.0	90.4,90.4
50	7.128	7.038	6.631	6.354	6.411	6.260	6.471	6.737	40- 50	7.241	164.3	94.6,94.6
60	4.443	4.417	4.279	4.150	4.174	4.140	4.231	4.425	50- 60	4.738	169.0	97.3,97.3
70	2.386	2.357	2.198	2.034	2.053	2.018	2.142	2.352	60- 70	3.222	172.3	99.2,99.2
80	0.5671	0.5416	0.5299	0.4957	0.5087	0.5209	0.5240	0.5625	70- 80	1.224	173.5	99.9,99.9
90	0.0109	0.0066	0.0066	0.0066	0.0066	0.0066	0.0044	0.0087	80- 90	0.2513	173.7	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): 160.98 lm

%lum = 92.7%

%lamp = 92.7%

Conical surface Flux(120deg): 169.03 lm

%lum = 97.3%

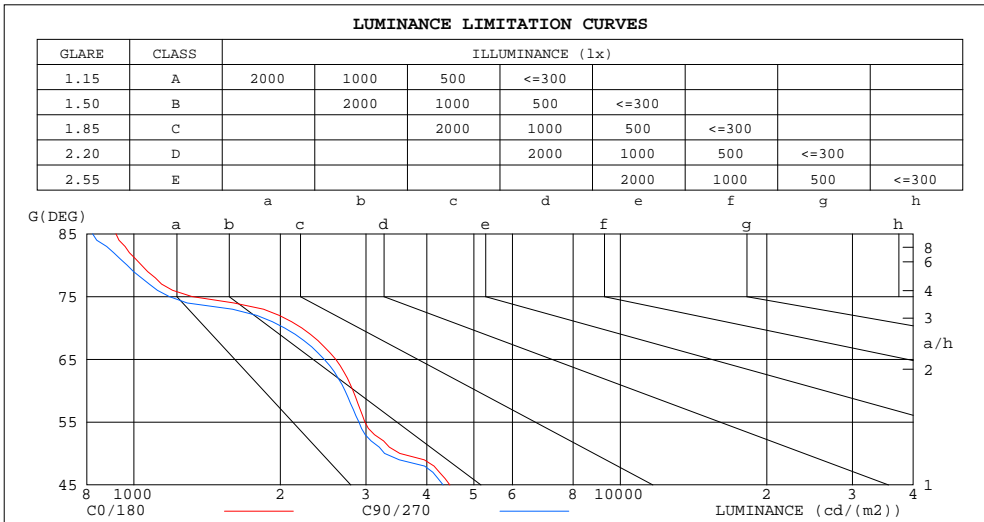
%lamp = 97.3%

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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:

LUMINANCE LIMITATION CURVES

Test:U:220.8V I:0.0196A P:3.039W PF:0.7039 Freq:50.00Hz Lamp Flux:173.726x1 lm		
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SPEC.:3000K	DIM.: L70mm*W45mm*H60mm	
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LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	918	823
80	1037	969
75	1316	1182
70	2214	2040
65	2600	2462
60	2821	2717
55	2983	2902
50	3520	3275
45	4464	4323

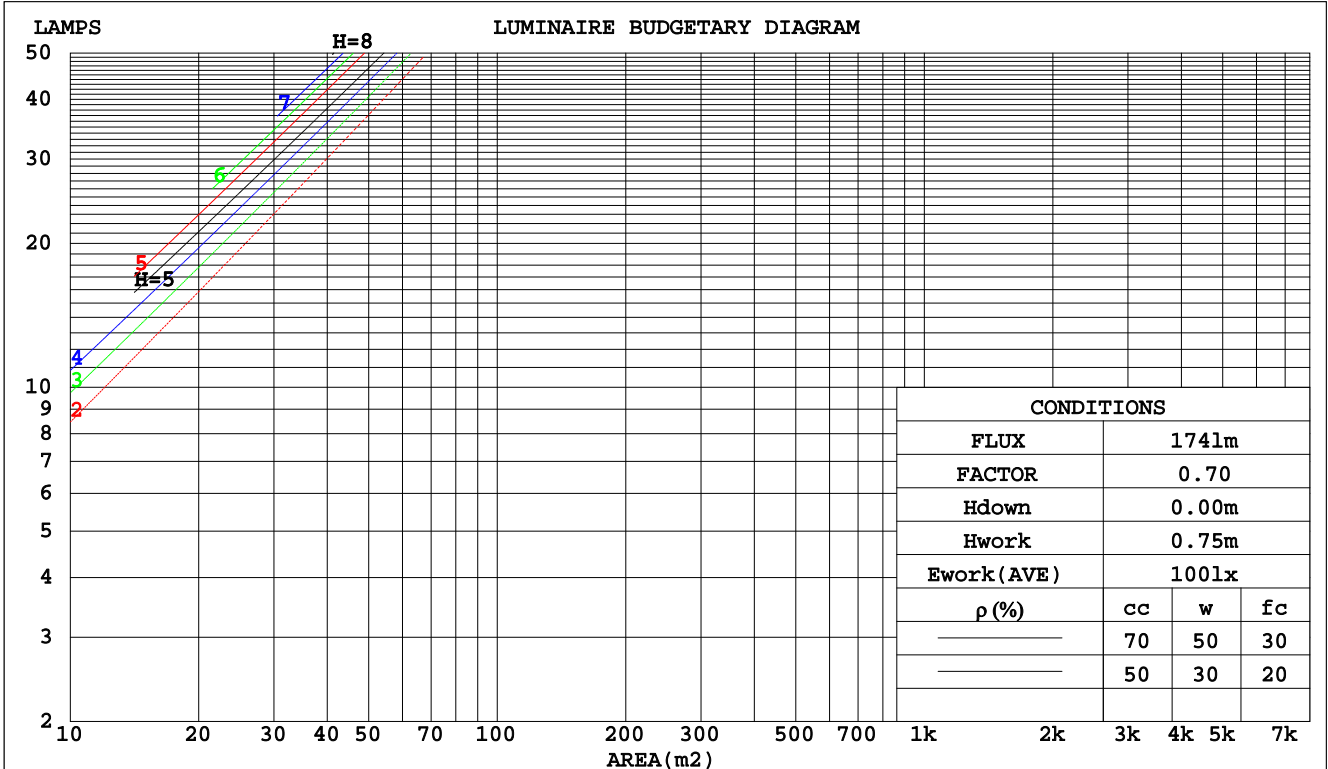
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																
pfc																
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	.93	.92	.90
3.0	1.00	.96	.93	.99	.95	.92	.96	.93	.90	.94	.91	.89	.92	.90	.88	.86
4.0	.95	.91	.87	.94	.90	.87	.92	.89	.86	.90	.87	.85	.89	.86	.84	.83
5.0	.91	.87	.83	.90	.86	.83	.89	.85	.82	.87	.84	.81	.86	.83	.81	.80
6.0	.88	.83	.80	.87	.83	.79	.86	.82	.79	.84	.81	.78	.83	.80	.78	.77
7.0	.85	.80	.77	.84	.79	.76	.83	.79	.76	.82	.78	.76	.81	.78	.75	.74
8.0	.82	.77	.74	.81	.77	.74	.80	.76	.73	.79	.76	.73	.78	.75	.73	.72
9.0	.79	.75	.71	.79	.74	.71	.78	.74	.71	.77	.73	.71	.76	.73	.71	.70
10.0	.77	.72	.69	.76	.72	.69	.76	.72	.69	.75	.71	.69	.74	.71	.69	.68



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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	.157	.089	.028	.150	.086	.027	.138	.079	.025	.126	.073	.023	.115	.067	.022	
2.0	.147	.080	.025	.141	.078	.024	.131	.073	.023	.121	.068	.021	.112	.064	.020	
3.0	.137	.073	.022	.132	.071	.021	.123	.067	.020	.115	.063	.019	.108	.060	.018	
4.0	.128	.066	.020	.124	.065	.019	.117	.062	.018	.110	.059	.018	.103	.056	.017	
5.0	.120	.061	.018	.117	.060	.017	.110	.057	.017	.104	.055	.016	.099	.053	.016	
6.0	.113	.057	.016	.110	.056	.016	.104	.054	.016	.099	.052	.015	.094	.050	.015	
7.0	.107	.053	.015	.104	.052	.015	.099	.050	.014	.095	.049	.014	.090	.047	.014	
8.0	.101	.049	.014	.099	.049	.014	.094	.047	.013	.091	.046	.013	.087	.045	.013	
9.0	.096	.046	.013	.094	.046	.013	.090	.045	.013	.087	.043	.012	.083	.042	.012	
10.0	.091	.044	.012	.090	.043	.012	.086	.042	.012	.083	.041	.012	.080	.040	.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	.157	.146	.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	.024	.017	.011	.008	.006	
8.0	.094	.062	.040	.081	.054	.034	.056	.038	.024	.033	.022	.015	.011	.007	.005	
9.0	.088	.056	.034	.076	.049	.030	.053	.034	.021	.031	.020	.013	.010	.007	.004	
10.0	.083	.051	.030	.072	.045	.026	.050	.031	.019	.029	.019	.011	.009	.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:220.8V I:0.0196A P:3.039W PF:0.7039 Freq:50.00Hz Lamp Flux:173.726x1 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	17.9	18.7	18.1	18.8	19.0	17.7	18.4	17.9	18.6	18.7
3H	18.8	19.5	19.1	19.7	19.9	18.5	19.2	18.8	19.4	19.6
4H	19.0	19.7	19.3	19.9	20.1	18.7	19.4	19.0	19.6	19.8
6H	19.1	19.7	19.4	20.0	20.2	18.7	19.4	19.0	19.6	19.8
8H	19.1	19.7	19.4	19.9	20.2	18.7	19.4	19.0	19.6	19.9
12H	19.1	19.7	19.4	19.9	20.2	18.7	19.3	19.0	19.6	19.8
4H 2H	18.3	19.0	18.6	19.2	19.4	18.1	18.8	18.4	19.0	19.2
3H	19.4	20.0	19.7	20.2	20.5	19.1	19.7	19.4	20.0	20.2
4H	19.6	20.1	19.9	20.4	20.7	19.3	19.8	19.6	20.1	20.4
6H	19.7	20.2	20.0	20.5	20.8	19.4	19.8	19.7	20.2	20.5
8H	19.7	20.1	20.1	20.5	20.9	19.4	19.8	19.8	20.2	20.5
12H	19.7	20.1	20.1	20.5	20.9	19.4	19.8	19.8	20.1	20.5
8H 4H	19.6	20.1	20.0	20.4	20.8	19.3	19.8	19.7	20.1	20.5
6H	19.7	20.1	20.2	20.5	20.9	19.4	19.8	19.9	20.2	20.6
8H	19.8	20.1	20.2	20.5	20.9	19.5	19.8	19.9	20.2	20.6
12H	19.8	20.1	20.3	20.5	21.0	19.5	19.8	19.9	20.2	20.7
12H 4H	19.6	20.0	20.0	20.4	20.7	19.3	19.7	19.7	20.1	20.4
6H	19.7	20.0	20.1	20.4	20.9	19.4	19.7	19.8	20.1	20.6
8H	19.7	20.0	20.2	20.5	20.9	19.4	19.7	19.9	20.2	20.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.7					+ 0.6 / - 0.8				
1.5H	+ 0.4 / - 0.5					+ 0.4 / - 0.6				
2.0H	+ 1.1 / - 0.7					+ 1.2 / - 0.6				

CIE Pub.117, 173.7 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -6.1)

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 Remarks:

UTILIZATION FACTORS TABLE

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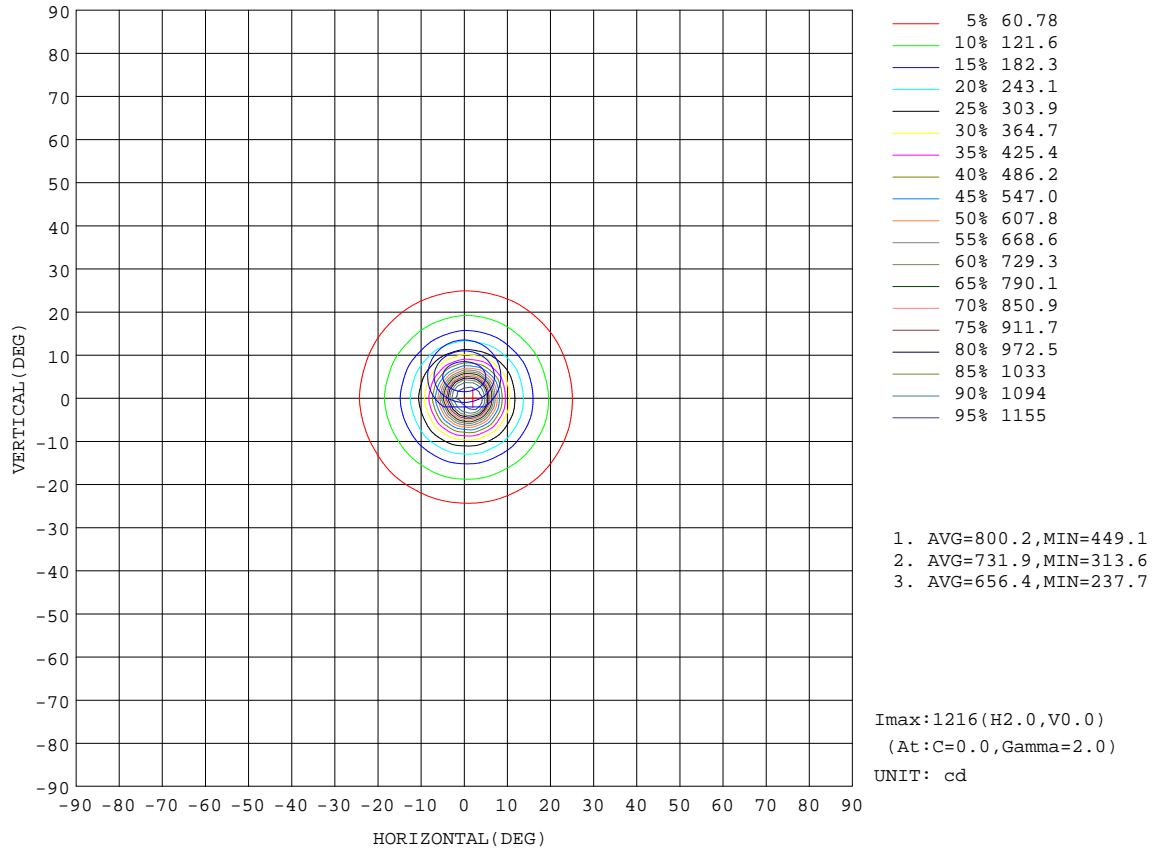
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	86	79	75	85	79	75	84	78	75	71
0.80	93	87	83	92	87	83	91	86	82	79
1.00	98	92	88	97	91	88	95	91	87	83
1.25	102	96	93	101	96	92	99	95	91	87
1.50	105	100	96	103	99	96	101	97	95	90
2.00	108	103	100	106	102	99	103	100	98	92
2.50	110	105	102	108	104	101	105	102	99	93
3.00	111	108	105	109	106	104	106	103	101	95
4.00	113	110	108	111	109	107	108	106	104	97
5.00	115	112	110	113	110	109	109	107	106	98
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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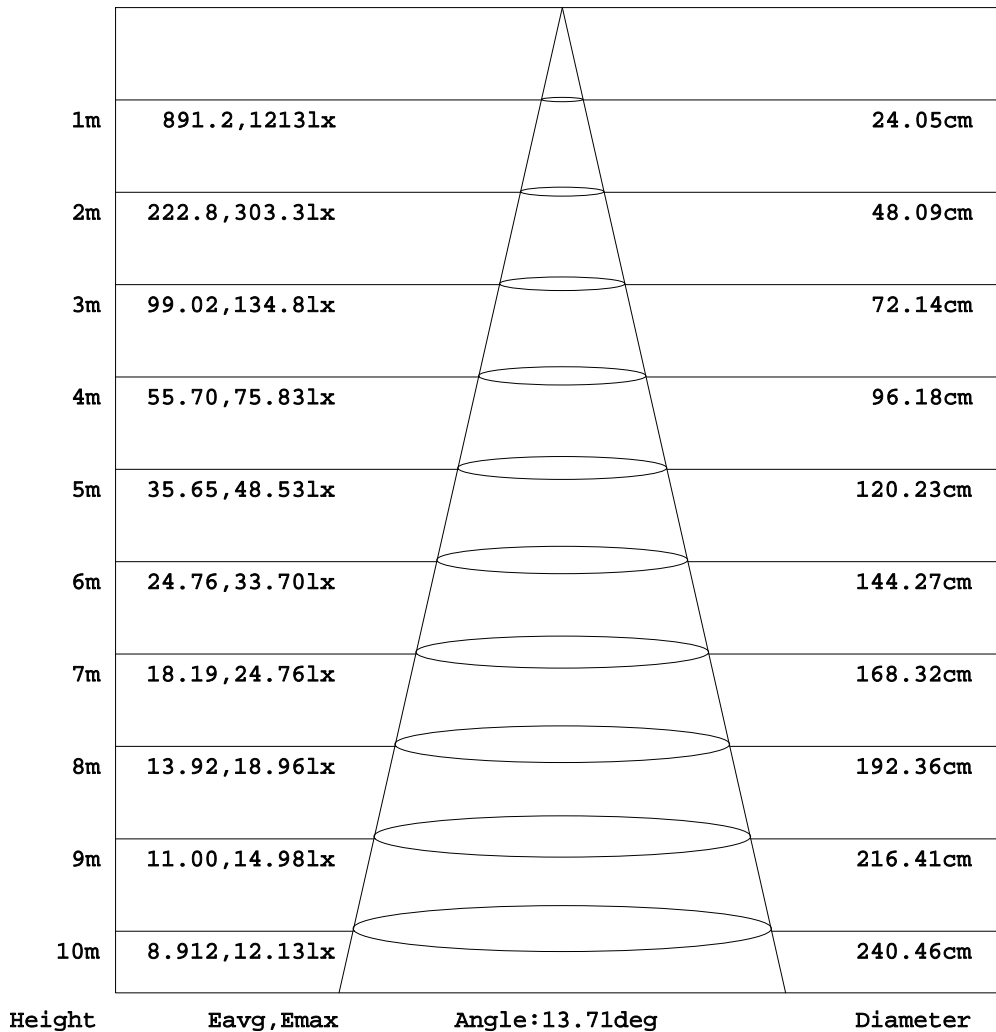
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AAI Figure

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Flux out:42.21 lm



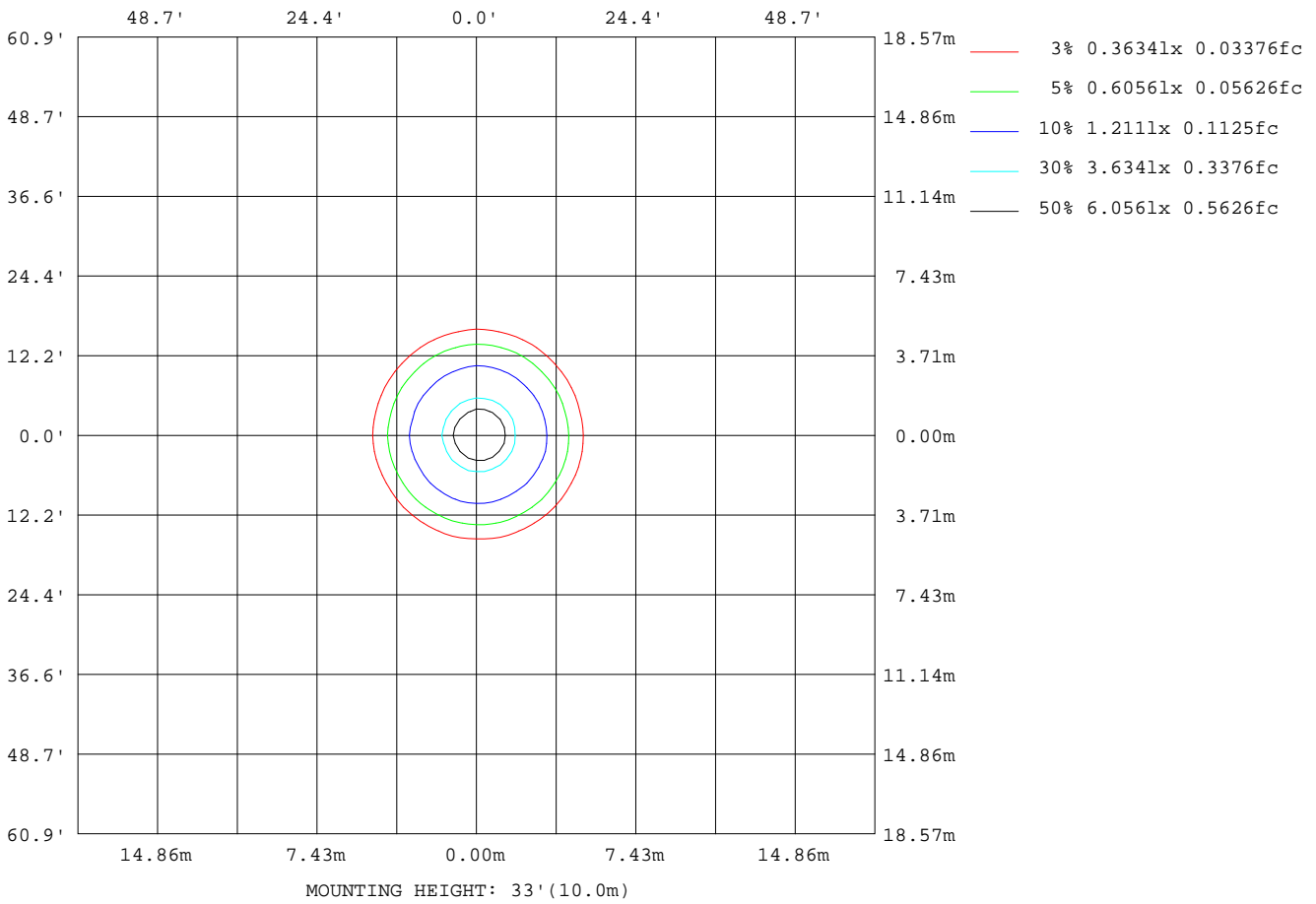
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

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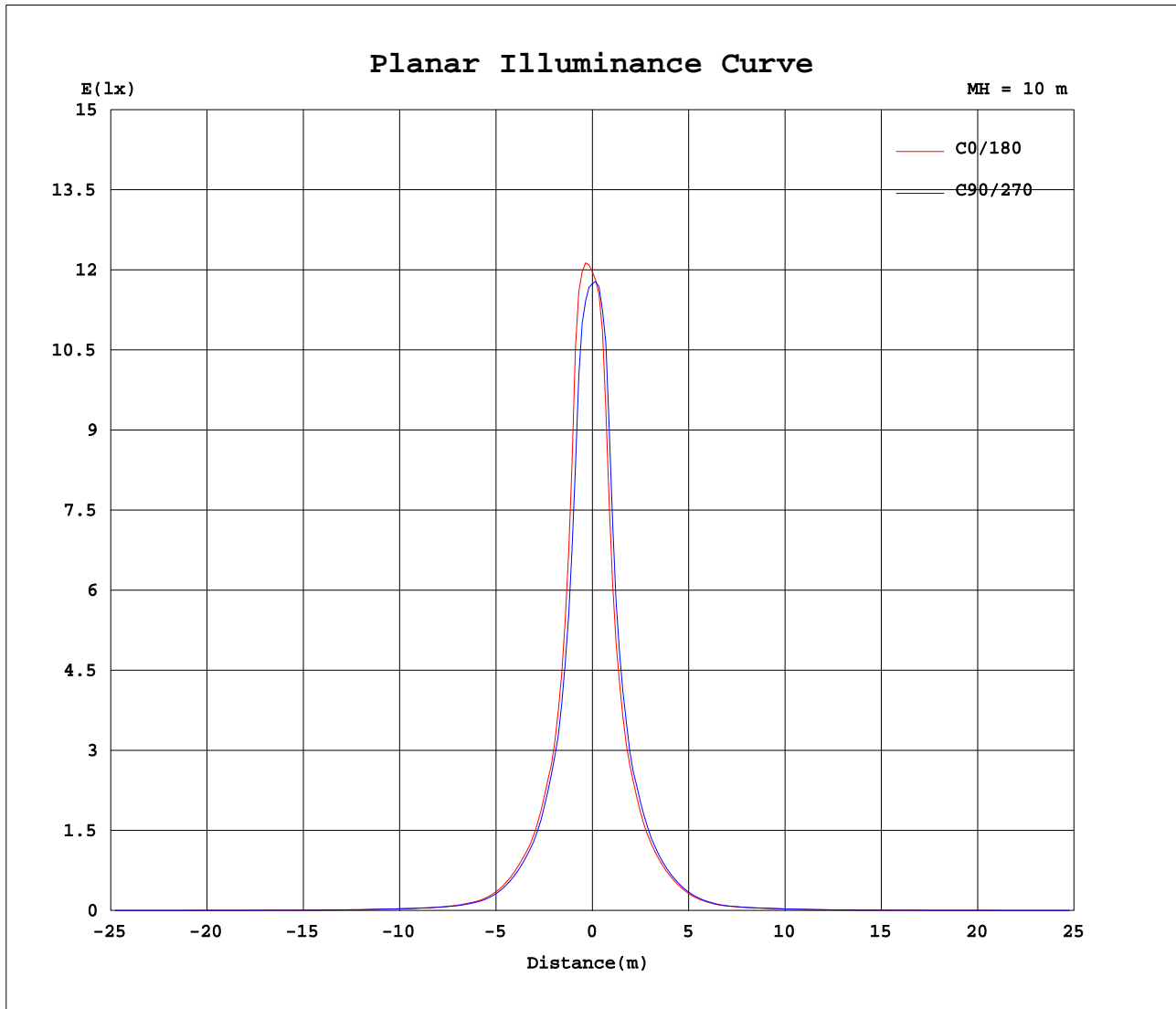
AvgL	cd/m2
L_0~180(65)av	2478
L_0~180(75)av	1235
L_0~180(85)av	808
L_90~270(65)av	2442
L_90~270(75)av	1188
L_90~270(85)av	792
L_45(65)av	2459
L_45(75)av	1210
L_45(85)av	790

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Meng Yongjian
Test Date:2017-05-17

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: 2017-05-17

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:

