

LED Downlight FUSION Series FS2-4W-940-15D



Light Output Ratio:	100.0%	
Luminaire Power:	5.376 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

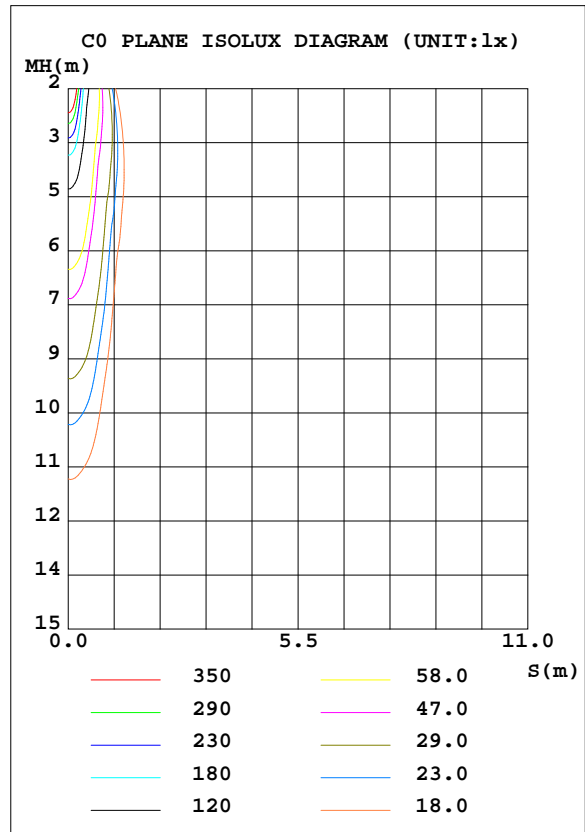
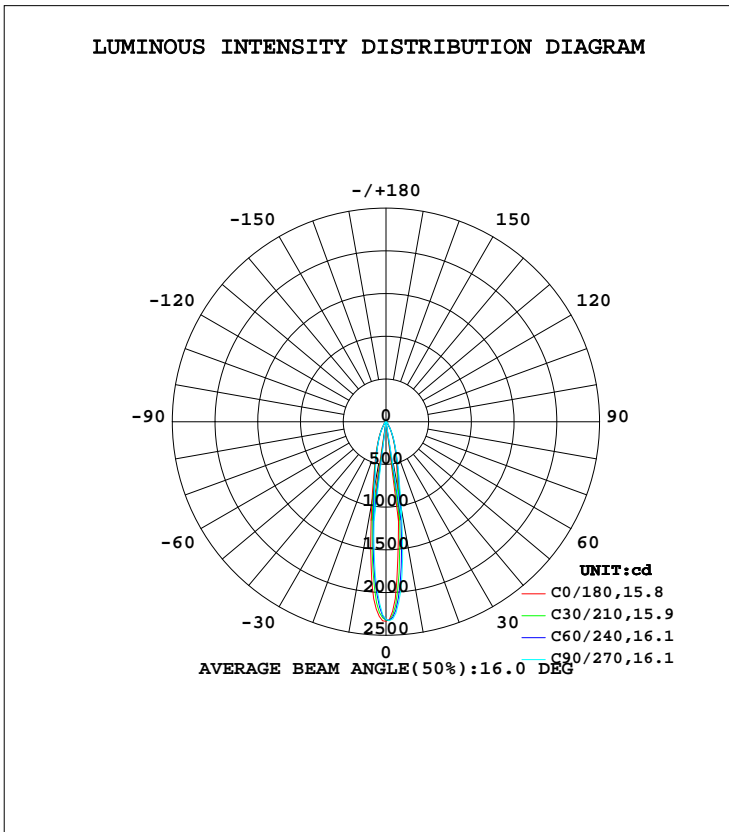
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Meng Yongjian
 Test Date: 2017-06-09

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:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.7V I:0.0314A P:5.376W PF:0.7752 Freq:50.00Hz Lamp Flux:441.959x1 lm		
NAME: FS2-4W-940-15D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L98mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	OSRAM-4000K	Imax(cd)	2334	S/MH(C0/180)	0.30
NOMINAL POWER(W)	6.0	LOR(%)	100.0	S/MH(C90/270)	0.24
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	441.96	η UP, DN(C0-180)	0.0,53.1
NOMINAL FLUX(lm)	441.959	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,46.9
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



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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	783.2	927.1	1043	1037	954.4	824.4	767.9	730.4	0- 10	136.9	136.9	31,31
20	292.4	313.2	319.5	313.1	304.0	278.8	277.8	274.3	10- 20	139.1	276.0	62.4,62.4
30	102.4	109.8	112.3	109.6	109.0	100.1	94.81	92.78	20- 30	83.07	359.0	81.2,81.2
40	30.16	32.79	37.04	38.31	38.14	33.44	31.11	28.99	30- 40	36.13	395.2	89.4,89.4
50	17.17	18.26	20.26	20.93	20.40	18.41	17.57	16.57	40- 50	19.83	415.0	93.9,93.9
60	11.38	11.99	12.60	13.06	13.24	12.00	11.37	10.94	50- 60	13.23	428.2	96.9,96.9
70	5.778	6.478	7.042	7.556	7.534	6.472	5.779	5.482	60- 70	9.247	437.5	99,99
80	1.537	1.717	1.809	1.808	1.729	1.539	1.434	1.408	70- 80	3.717	441.2	99.8,99.8
90	0.0284	0.0656	0.1246	0.0700	0.0284	0.0284	0.0219	0.0241	80- 90	0.7742	442.0	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): 405.97 lm

%lum = 91.9%
%lamp = 91.9%

Conical surface Flux(120deg): 428.22 lm

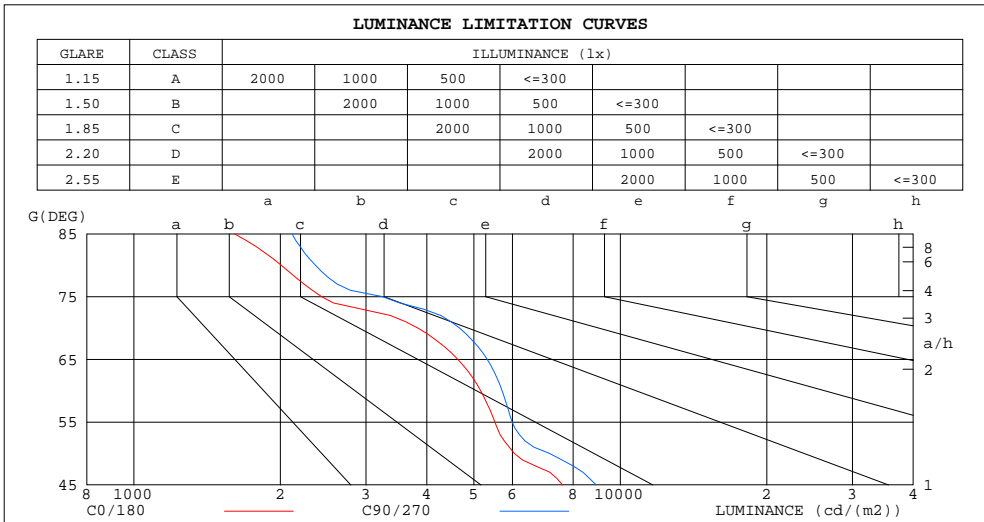
%lum = 96.9%
%lamp = 96.9%

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LUMINANCE LIMITATION CURVES

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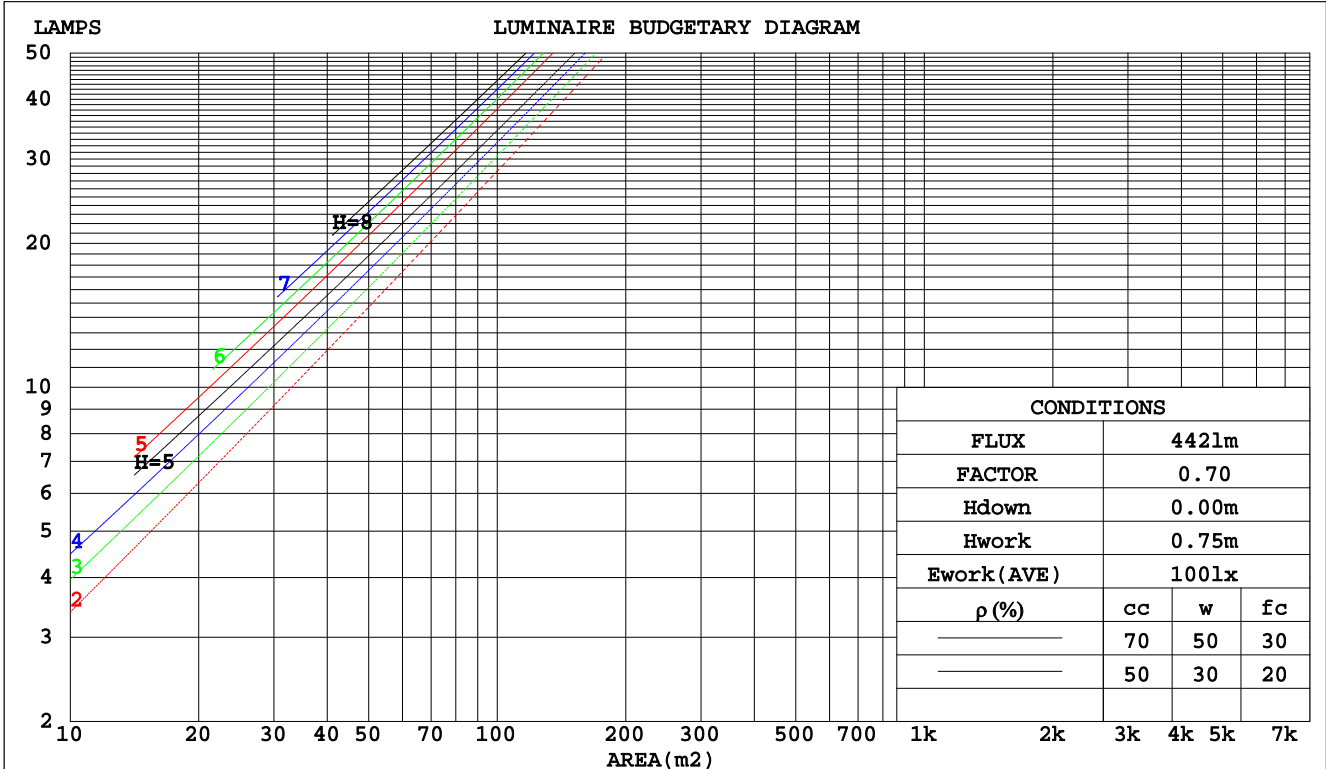
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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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																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	1.11	1.09	1.07	1.09	1.07	1.05	1.05	1.04	1.02	1.02	1.00	.99	.98	.97	.96	.94
2.0	1.05	1.01	.98	1.03	.90	.97	.90	.97	.95	.97	.95	.93	.94	.92	.91	.89
3.0	.99	.94	.91	.97	.93	.90	.95	.92	.89	.93	.90	.87	.90	.88	.86	.85
4.0	.94	.89	.85	.93	.88	.85	.91	.87	.84	.89	.85	.83	.87	.84	.82	.80
5.0	.89	.84	.81	.88	.84	.80	.87	.83	.80	.85	.82	.79	.84	.81	.78	.77
6.0	.85	.80	.77	.85	.80	.76	.83	.79	.76	.82	.78	.75	.81	.77	.75	.74
7.0	.82	.77	.73	.81	.76	.73	.80	.76	.73	.79	.75	.72	.78	.75	.72	.71
8.0	.79	.74	.70	.78	.73	.70	.77	.73	.70	.76	.72	.70	.75	.72	.69	.68
9.0	.76	.71	.68	.75	.71	.68	.75	.70	.67	.74	.70	.67	.73	.70	.67	.66
10.0	.73	.69	.65	.73	.68	.65	.72	.68	.65	.71	.68	.65	.71	.67	.65	.64



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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	.165	.094	.030	.158	.090	.029	.146	.084	.027	.134	.078	.025	.124	.072	.023	
2.0	.155	.085	.026	.150	.082	.025	.139	.077	.024	.130	.073	.023	.121	.068	.022	
3.0	.145	.077	.023	.141	.075	.023	.132	.071	.022	.124	.068	.021	.116	.064	.020	
4.0	.136	.071	.021	.132	.069	.020	.125	.066	.020	.118	.063	.019	.111	.060	.018	
5.0	.128	.065	.019	.124	.064	.019	.118	.061	.018	.112	.059	.018	.106	.057	.017	
6.0	.121	.060	.017	.118	.059	.017	.112	.057	.017	.107	.055	.016	.102	.054	.016	
7.0	.114	.056	.016	.111	.055	.016	.106	.054	.015	.102	.052	.015	.097	.051	.015	
8.0	.108	.053	.015	.106	.052	.015	.101	.051	.014	.097	.049	.014	.093	.048	.014	
9.0	.103	.050	.014	.101	.049	.014	.097	.048	.014	.093	.047	.013	.090	.046	.013	
10.0	.098	.047	.013	.096	.046	.013	.093	.045	.013	.089	.044	.013	.086	.043	.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	.146	.135	.125	.100	.093	.087	.057	.054	.050	.018	.017	.016	
2.0	.154	.133	.115	.132	.114	.099	.090	.079	.069	.052	.046	.040	.017	.015	.013	
3.0	.140	.113	.092	.120	.098	.080	.083	.068	.056	.048	.040	.033	.015	.013	.011	
4.0	.129	.098	.075	.111	.085	.065	.076	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.119	.087	.062	.102	.075	.054	.070	.052	.038	.041	.031	.023	.013	.010	.007	
6.0	.111	.077	.053	.095	.067	.046	.066	.047	.032	.038	.027	.019	.012	.009	.006	
7.0	.103	.069	.045	.089	.060	.039	.061	.042	.028	.036	.025	.016	.012	.008	.005	
8.0	.097	.062	.039	.083	.054	.034	.058	.038	.024	.034	.022	.014	.011	.007	.005	
9.0	.091	.057	.034	.079	.049	.029	.054	.035	.021	.032	.020	.012	.010	.007	.004	
10.0	.086	.052	.030	.074	.045	.026	.052	.032	.018	.030	.019	.011	.010	.006	.004	

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 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

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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	16.8	17.6	17.0	17.7	17.9	17.4	18.2	17.7	18.4	18.6
3H	17.6	18.4	17.9	18.6	18.8	18.4	19.1	18.6	19.3	19.5
4H	17.8	18.5	18.1	18.7	19.0	18.6	19.3	18.9	19.5	19.8
6H	17.9	18.6	18.2	18.8	19.0	18.7	19.4	19.0	19.6	19.8
8H	17.9	18.5	18.2	18.8	19.0	18.7	19.4	19.0	19.6	19.9
12H	17.9	18.5	18.2	18.8	19.0	18.7	19.3	19.0	19.6	19.9
4H 2H	17.2	17.9	17.5	18.1	18.4	17.8	18.5	18.0	18.7	18.9
3H	18.2	18.9	18.5	19.1	19.4	18.9	19.5	19.2	19.8	20.0
4H	18.4	19.0	18.8	19.3	19.6	19.1	19.7	19.5	20.0	20.3
6H	18.6	19.1	18.9	19.4	19.7	19.3	19.8	19.6	20.1	20.5
8H	18.6	19.1	19.0	19.4	19.8	19.3	19.8	19.7	20.1	20.5
12H	18.6	19.0	19.0	19.4	19.8	19.3	19.7	19.7	20.1	20.5
8H 4H	18.5	19.0	18.9	19.3	19.7	19.2	19.6	19.6	20.0	20.4
6H	18.7	19.1	19.1	19.5	19.9	19.3	19.7	19.8	20.1	20.5
8H	18.7	19.1	19.2	19.5	19.9	19.4	19.8	19.9	20.2	20.6
12H	18.8	19.1	19.2	19.5	20.0	19.5	19.7	19.9	20.2	20.7
12H 4H	18.5	18.9	18.9	19.3	19.7	19.1	19.6	19.5	19.9	20.3
6H	18.7	19.0	19.1	19.4	19.9	19.3	19.7	19.8	20.1	20.5
8H	18.7	19.0	19.2	19.5	19.9	19.4	19.7	19.9	20.1	20.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.7					+ 0.5 / - 0.7				
1.5H	+ 0.4 / - 0.5					+ 0.9 / - 0.5				
2.0H	+ 0.8 / - 0.5					+ 1.1 / - 0.6				

CIE Pub.117, 442.0 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -2.8)

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UTILIZATION FACTORS TABLE

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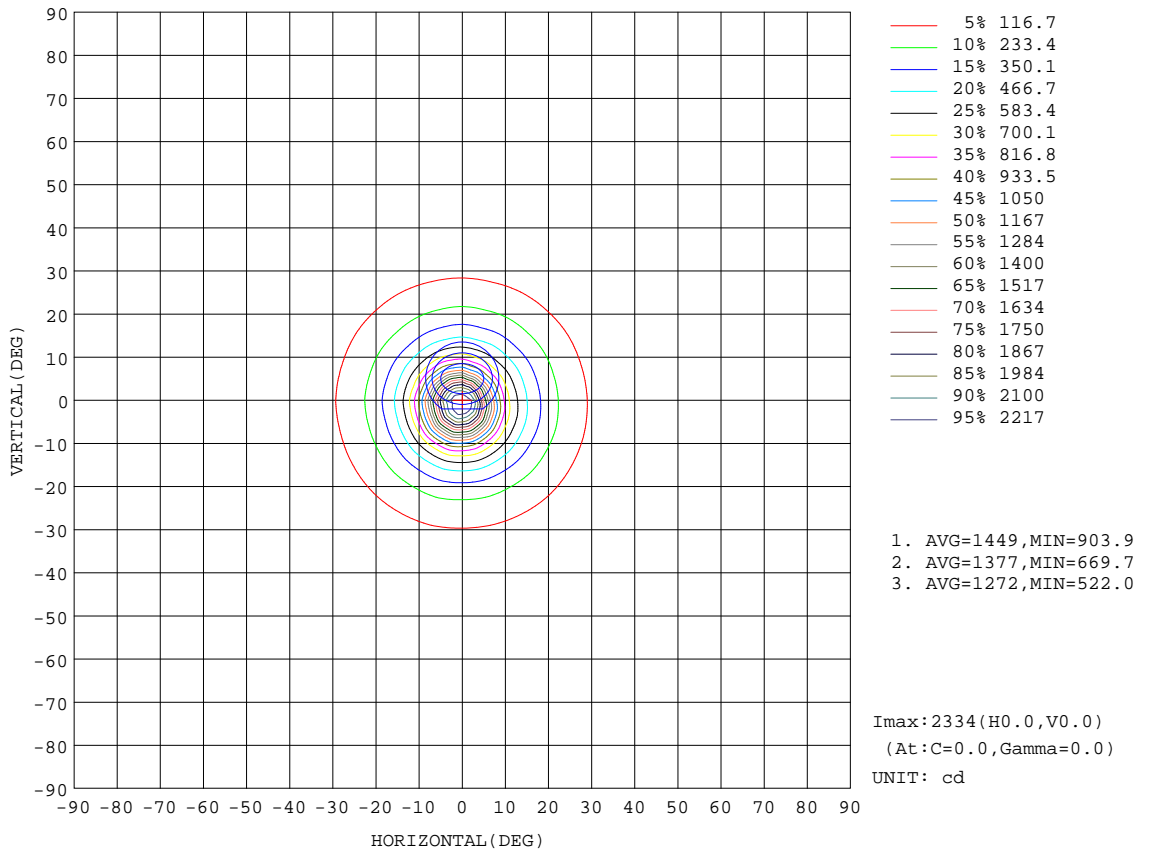
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	85	78	74	84	78	74	84	78	74	70
0.80	93	86	82	92	86	82	91	85	82	78
1.00	97	91	87	96	91	87	95	91	86	82
1.25	101	96	92	100	95	92	98	94	91	86
1.50	104	99	96	103	98	95	101	97	94	89
2.00	107	103	99	106	102	99	103	100	97	92
2.50	109	105	102	108	104	101	104	101	99	93
3.00	111	107	104	109	106	103	106	103	101	95
4.00	113	110	108	111	109	106	107	105	104	96
5.00	115	112	110	112	110	109	108	107	105	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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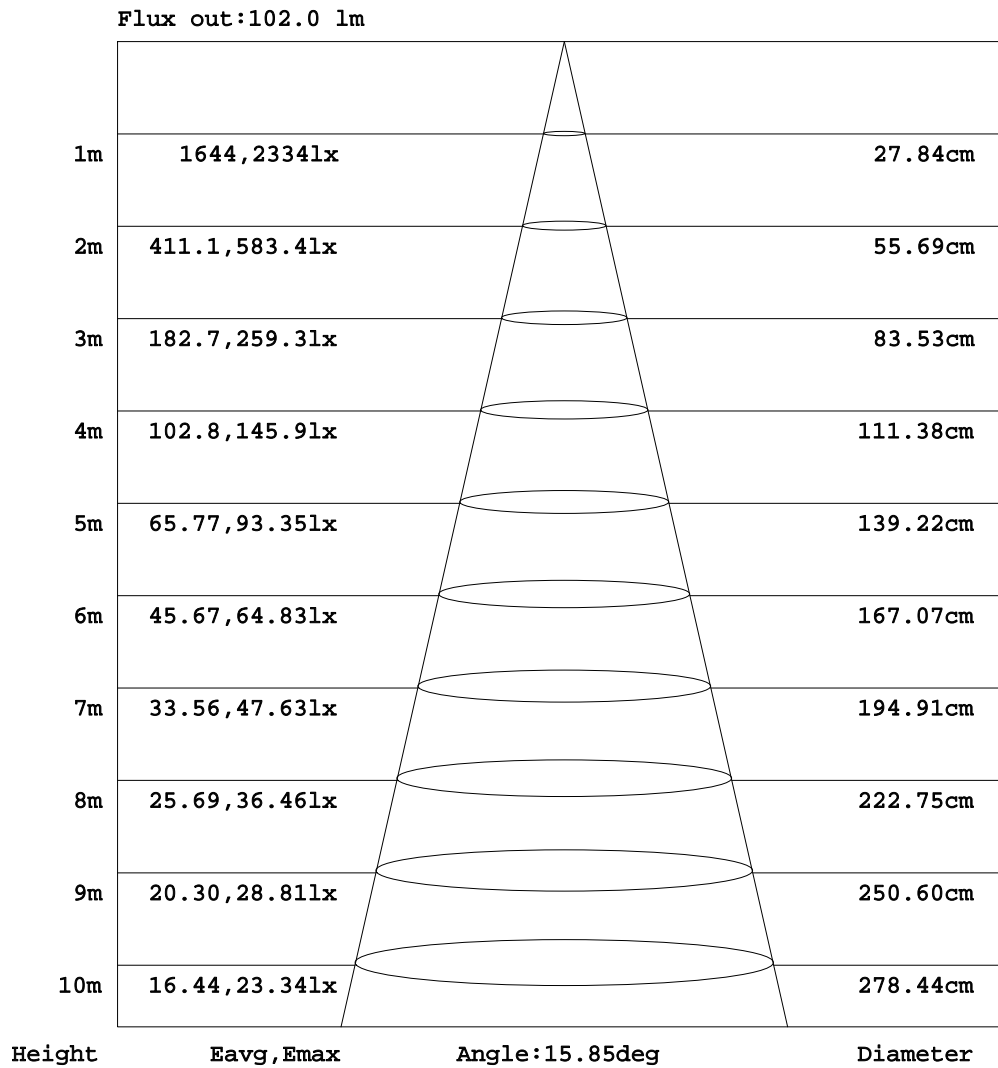


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AAI Figure

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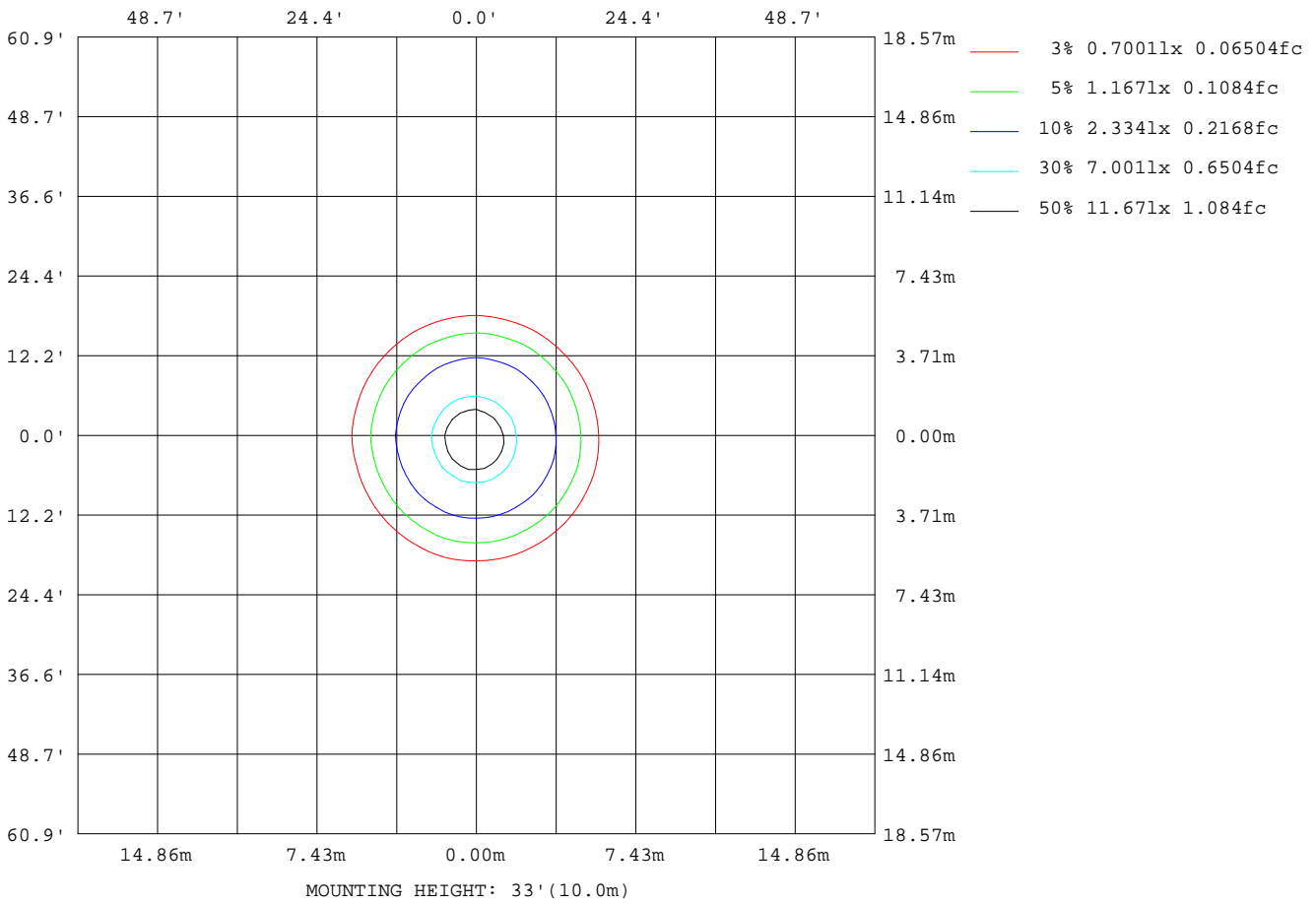
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

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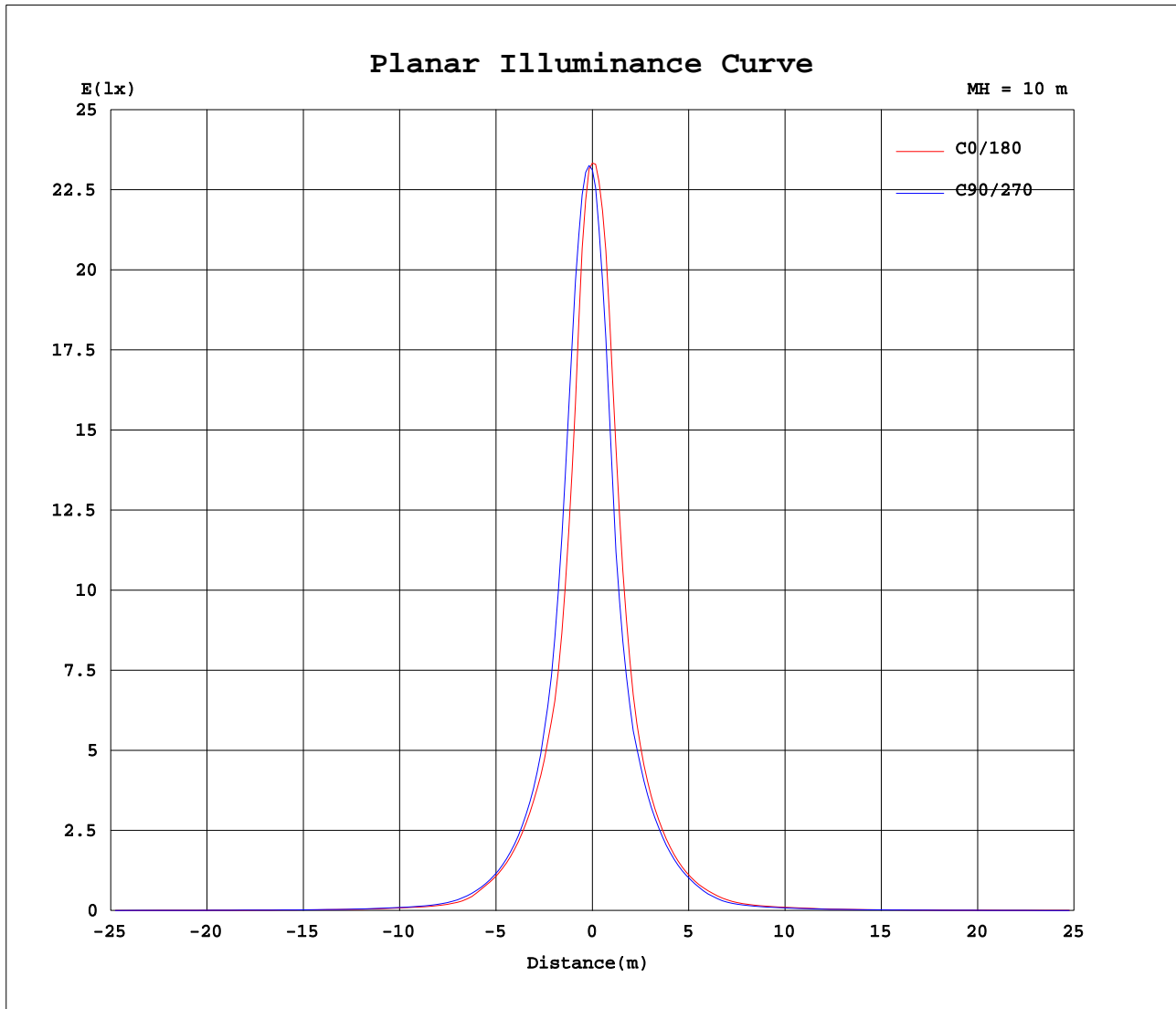
AvgL	cd/m2
L_0~180(65)av	5138
L_0~180(75)av	2642
L_0~180(85)av	1752
L_90~270(65)av	4995
L_90~270(75)av	2813
L_90~270(85)av	1741
L_45(65)av	5017
L_45(75)av	2678
L_45(85)av	1728

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

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:

