

LED Downlight FUSION Series FS1-2W-940-15D



Light Output Ratio:	100.0%	
Luminaire Power:	3.01 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

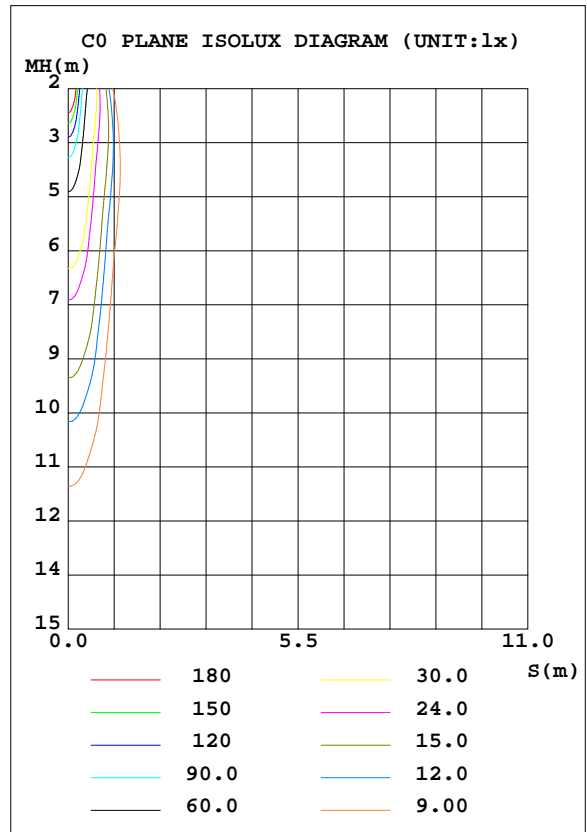
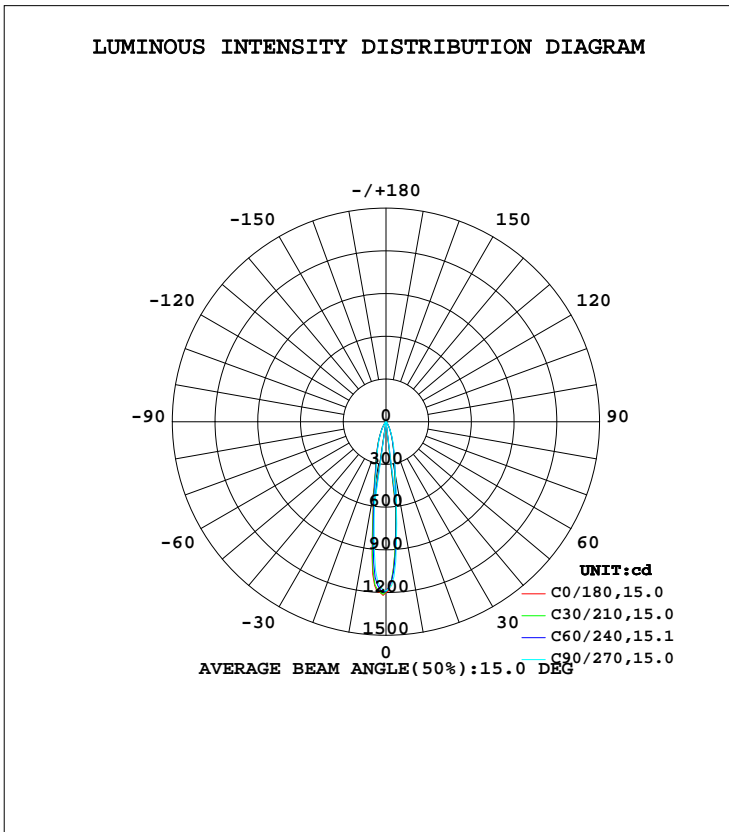
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Meng Yongjian
 Test Date: 2017-06-09

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:0.0194A P:3.010W PF:0.7020 Freq:50.00Hz Lamp Flux:212.649x1 lm		
NAME: FS1-2W-940-15D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L70mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 70.64 lm/W
MODEL	OSRAM-4000K	I _{max} (cd)	1220	S/MH(C0/180)	0.30	
NOMINAL POWER(W)	3.0	LOR(%)	100.0	S/MH(C90/270)	0.27	
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	212.65	η UP, DN(C0-180)	0.0,47.9	
NOMINAL FLUX(lm)	212.649	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,52.1	
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	



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Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	358.9	367.9	385.6	434.4	487.7	469.2	435.0	386.8	0- 10	68.16	68.16	32.1,32.1
20	124.7	123.7	136.0	148.7	167.4	160.5	153.0	133.9	10- 20	66.33	134.5	63.2,63.2
30	42.03	43.05	45.84	52.37	56.08	54.63	51.42	46.15	20- 30	39.55	174.0	81.8,81.8
40	15.46	14.91	15.34	15.47	16.39	16.39	16.14	15.72	30- 40	16.89	190.9	89.8,89.8
50	8.398	8.237	8.191	8.533	9.370	9.209	8.988	8.511	40- 50	9.343	200.3	94.2,94.2
60	5.453	5.385	5.276	5.446	5.579	5.582	5.616	5.540	50- 60	6.061	206.3	97,97
70	2.896	2.807	2.749	2.934	3.097	3.083	3.143	3.013	60- 70	4.203	210.5	99,99
80	0.7050	0.6923	0.7379	0.7907	0.8777	0.8733	0.8166	0.7595	70- 80	1.740	212.3	99.8,99.8
90	0.0131	0.0109	0.0109	0.0109	0.0350	0.0350	0.0109	0.0087	80- 90	0.3758	212.6	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): 195.99 lm

%lum = 92.2%

%lamp = 92.2%

Conical surface Flux(120deg): 206.33 lm

%lum = 97.0%

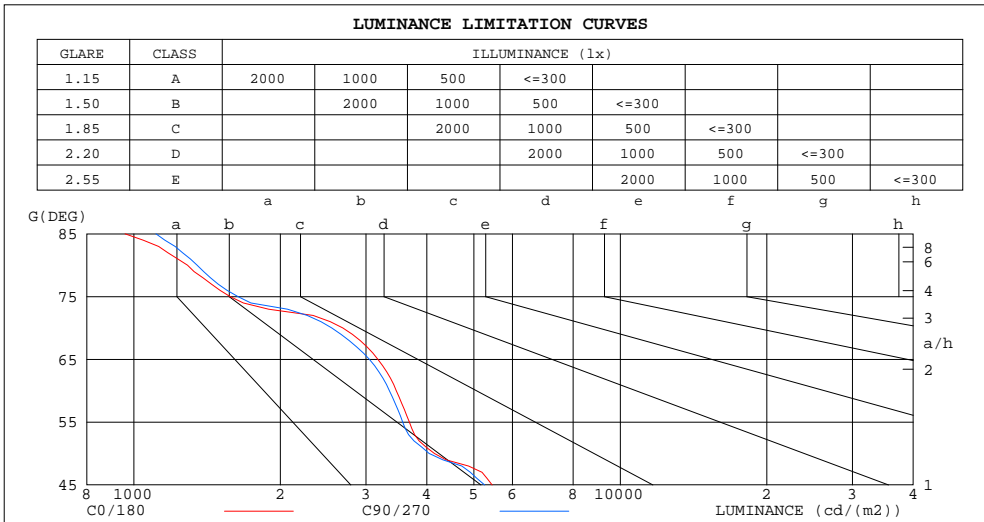
%lamp = 97.0%

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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

Test:U:220.7V I:0.0194A P:3.010W PF:0.7020 Freq:50.00Hz Lamp Flux:212.649x1 lm		
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LUMINANCE cd/(m2)		
G (DEG)	C0/180	C90/270
85	959	1110
80	1289	1349
75	1577	1636
70	2688	2552
65	3174	3047
60	3462	3350
55	3684	3569
50	4147	4045
45	5453	5262

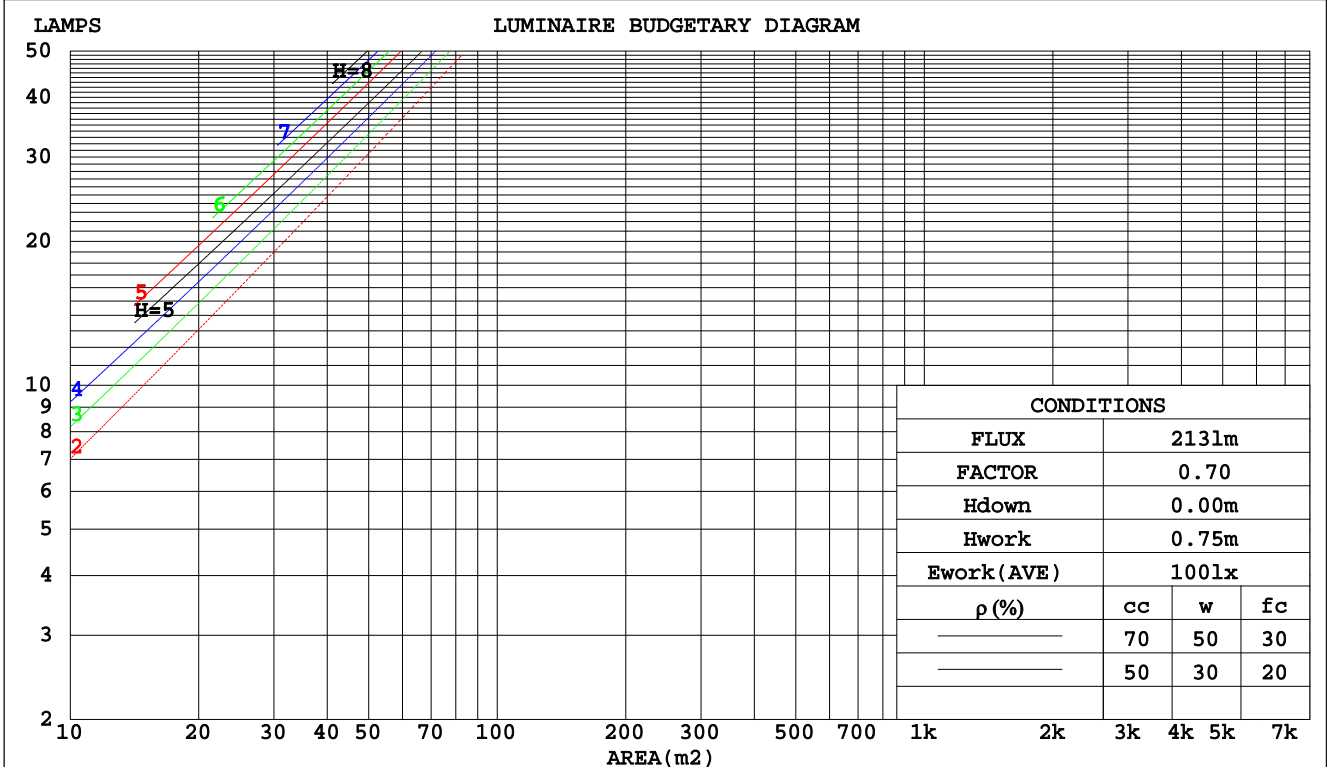
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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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	1.09	1.07	1.09	1.07	1.05	1.05	1.04	1.02	1.02	1.00	.99	.98	.97	.96	.95
2.0	1.05	1.01	.98	1.03	.90	.97	.90	.97	.95	.97	.95	.93	.94	.93	.91	.89
3.0	.99	.95	.91	.98	.94	.90	.95	.92	.89	.93	.90	.88	.91	.88	.86	.85
4.0	.94	.89	.86	.93	.89	.85	.91	.87	.84	.89	.86	.83	.87	.85	.82	.81
5.0	.90	.85	.81	.89	.84	.81	.87	.83	.80	.86	.82	.79	.84	.81	.79	.77
6.0	.86	.81	.77	.85	.80	.77	.84	.80	.76	.82	.79	.76	.81	.78	.75	.74
7.0	.82	.77	.74	.82	.77	.74	.81	.76	.73	.79	.76	.73	.78	.75	.73	.71
8.0	.79	.74	.71	.79	.74	.71	.78	.74	.71	.77	.73	.70	.76	.73	.70	.69
9.0	.76	.72	.68	.76	.71	.68	.75	.71	.68	.74	.71	.68	.74	.70	.68	.67
10.0	.74	.69	.66	.74	.69	.66	.73	.69	.66	.72	.68	.66	.71	.68	.66	.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	.163	.093	.029	.157	.089	.028	.144	.083	.026	.133	.077	.025	.122	.071	.023	
2.0	.153	.084	.026	.148	.081	.025	.137	.076	.024	.128	.072	.022	.119	.067	.021	
3.0	.144	.076	.023	.139	.074	.022	.130	.070	.021	.122	.067	.020	.114	.063	.020	
4.0	.134	.070	.021	.130	.068	.020	.123	.065	.019	.116	.062	.019	.109	.059	.018	
5.0	.126	.064	.019	.123	.063	.018	.116	.061	.018	.110	.058	.017	.105	.056	.017	
6.0	.119	.060	.017	.116	.059	.017	.110	.057	.016	.105	.055	.016	.100	.053	.016	
7.0	.113	.056	.016	.110	.055	.016	.105	.053	.015	.100	.052	.015	.096	.050	.015	
8.0	.107	.052	.015	.105	.051	.015	.100	.050	.014	.096	.049	.014	.092	.047	.014	
9.0	.102	.049	.014	.100	.049	.014	.096	.047	.013	.092	.046	.013	.089	.045	.013	
10.0	.097	.046	.013	.095	.046	.013	.092	.045	.013	.088	.044	.012	.085	.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	.126	.100	.093	.087	.057	.054	.051	.018	.017	.016	
2.0	.154	.133	.115	.132	.114	.099	.090	.079	.069	.052	.046	.041	.017	.015	.013	
3.0	.140	.113	.092	.120	.098	.080	.082	.068	.056	.048	.040	.033	.015	.013	.011	
4.0	.129	.098	.075	.110	.085	.066	.076	.059	.046	.044	.035	.027	.014	.011	.009	
5.0	.119	.086	.063	.102	.075	.054	.070	.052	.038	.041	.031	.023	.013	.010	.008	
6.0	.110	.077	.053	.095	.066	.046	.065	.047	.033	.038	.027	.019	.012	.009	.006	
7.0	.103	.069	.045	.088	.060	.039	.061	.042	.028	.036	.025	.017	.011	.008	.005	
8.0	.096	.062	.039	.083	.054	.034	.057	.038	.024	.033	.022	.014	.011	.007	.005	
9.0	.091	.057	.034	.078	.049	.029	.054	.035	.021	.032	.020	.012	.010	.007	.004	
10.0	.086	.052	.030	.074	.045	.026	.051	.032	.018	.030	.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

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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	17.8	18.6	18.0	18.7	18.9	17.7	18.5	17.9	18.6	18.8
3H	18.7	19.4	18.9	19.6	19.8	18.6	19.3	18.8	19.5	19.7
4H	18.8	19.5	19.1	19.8	20.0	18.7	19.4	19.0	19.7	19.9
6H	18.9	19.6	19.2	19.8	20.0	18.8	19.5	19.1	19.7	19.9
8H	18.9	19.5	19.2	19.8	20.0	18.8	19.5	19.1	19.7	20.0
12H	18.9	19.5	19.2	19.8	20.0	18.8	19.4	19.1	19.7	20.0
4H 2H	18.1	18.9	18.4	19.1	19.3	18.1	18.8	18.4	19.0	19.2
3H	19.2	19.8	19.5	20.1	20.4	19.1	19.7	19.4	20.0	20.2
4H	19.4	19.9	19.7	20.2	20.5	19.3	19.8	19.6	20.1	20.4
6H	19.5	20.0	19.8	20.3	20.6	19.4	19.9	19.8	20.2	20.6
8H	19.5	19.9	19.9	20.3	20.7	19.4	19.9	19.8	20.2	20.6
12H	19.5	19.9	19.9	20.3	20.7	19.4	19.8	19.8	20.2	20.6
8H 4H	19.4	19.9	19.8	20.2	20.6	19.3	19.8	19.7	20.1	20.5
6H	19.5	19.9	19.9	20.3	20.7	19.5	19.8	19.9	20.2	20.7
8H	19.6	19.9	20.0	20.3	20.8	19.5	19.9	20.0	20.3	20.7
12H	19.6	19.9	20.0	20.3	20.8	19.5	19.8	20.0	20.3	20.7
12H 4H	19.3	19.8	19.8	20.1	20.5	19.3	19.7	19.7	20.1	20.5
6H	19.5	19.8	19.9	20.3	20.7	19.4	19.8	19.9	20.2	20.6
8H	19.5	19.8	20.0	20.3	20.8	19.5	19.8	20.0	20.2	20.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.7					+ 0.5 / - 0.7				
1.5H	+ 0.6 / - 0.7					+ 0.6 / - 0.6				
2.0H	+ 1.2 / - 0.7					+ 1.0 / - 0.5				

CIE Pub.117, 212.6 lm Total Lamp Luminous Flux Correct (8log(F/F0) = -5.4)

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γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
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 Humidity:52%
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UTILIZATION FACTORS TABLE

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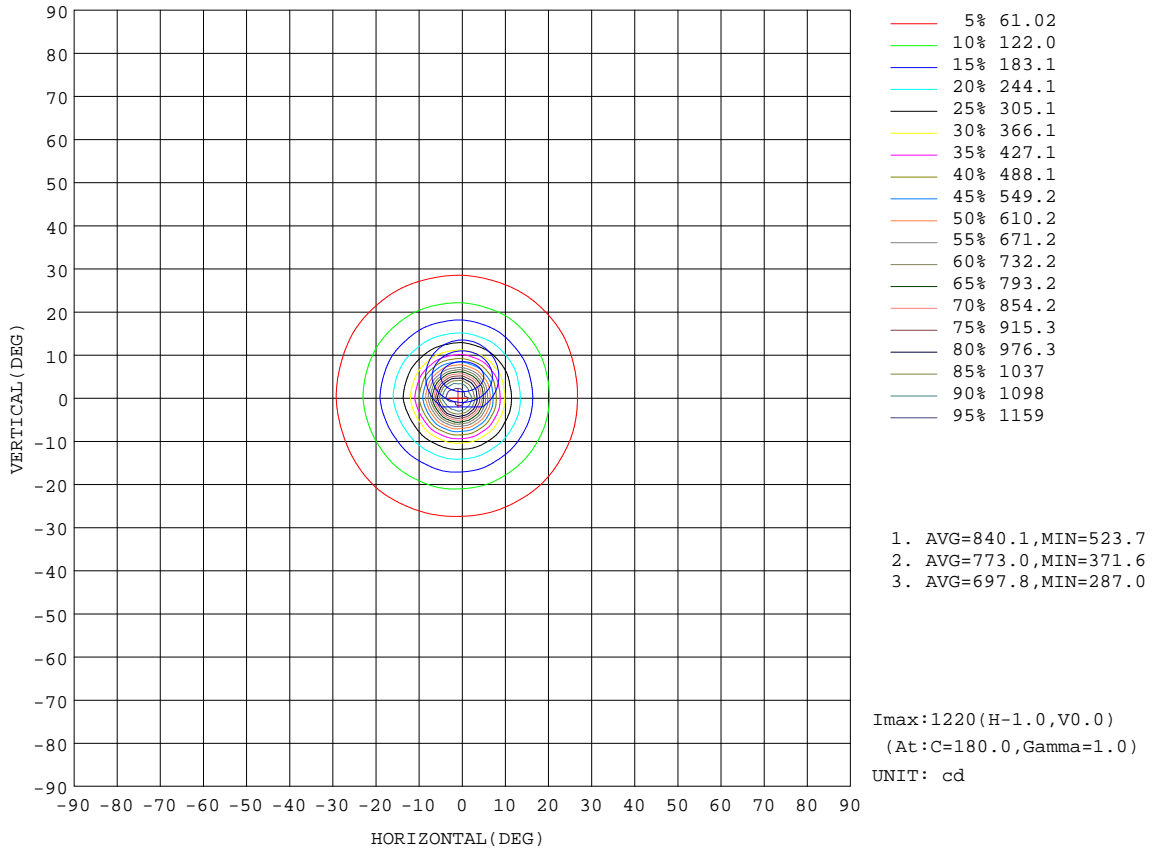
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	85	78	74	85	78	74	84	78	74	71
0.80	93	87	83	92	86	82	91	86	82	78
1.00	97	91	88	97	91	87	95	91	87	83
1.25	102	96	92	101	95	92	99	94	91	87
1.50	105	99	96	103	99	95	101	97	94	89
2.00	107	103	100	106	102	99	103	100	97	92
2.50	109	105	102	108	104	101	105	102	99	93
3.00	111	107	104	109	106	103	106	103	101	95
4.00	113	110	108	111	109	106	108	105	104	97
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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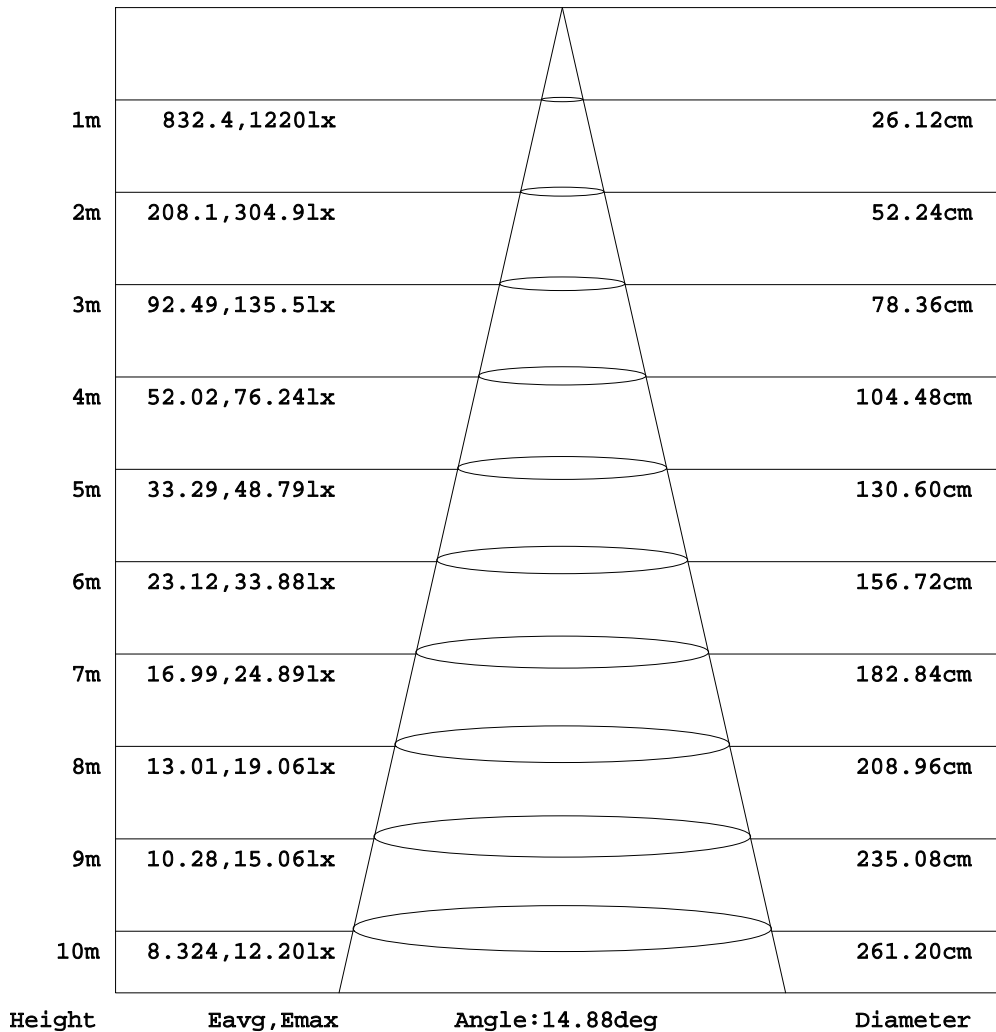
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AAI Figure

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Flux out:51.65 lm



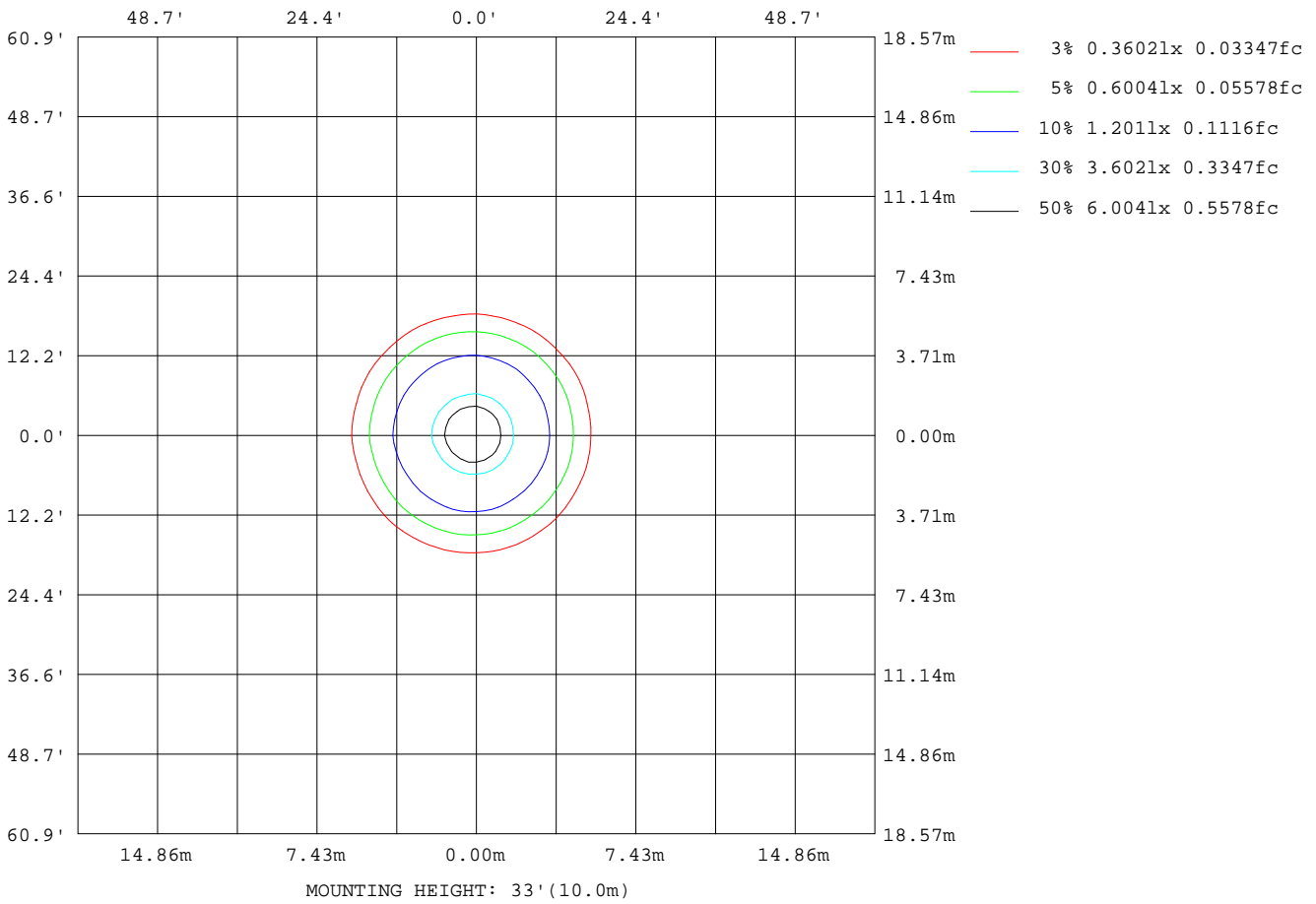
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

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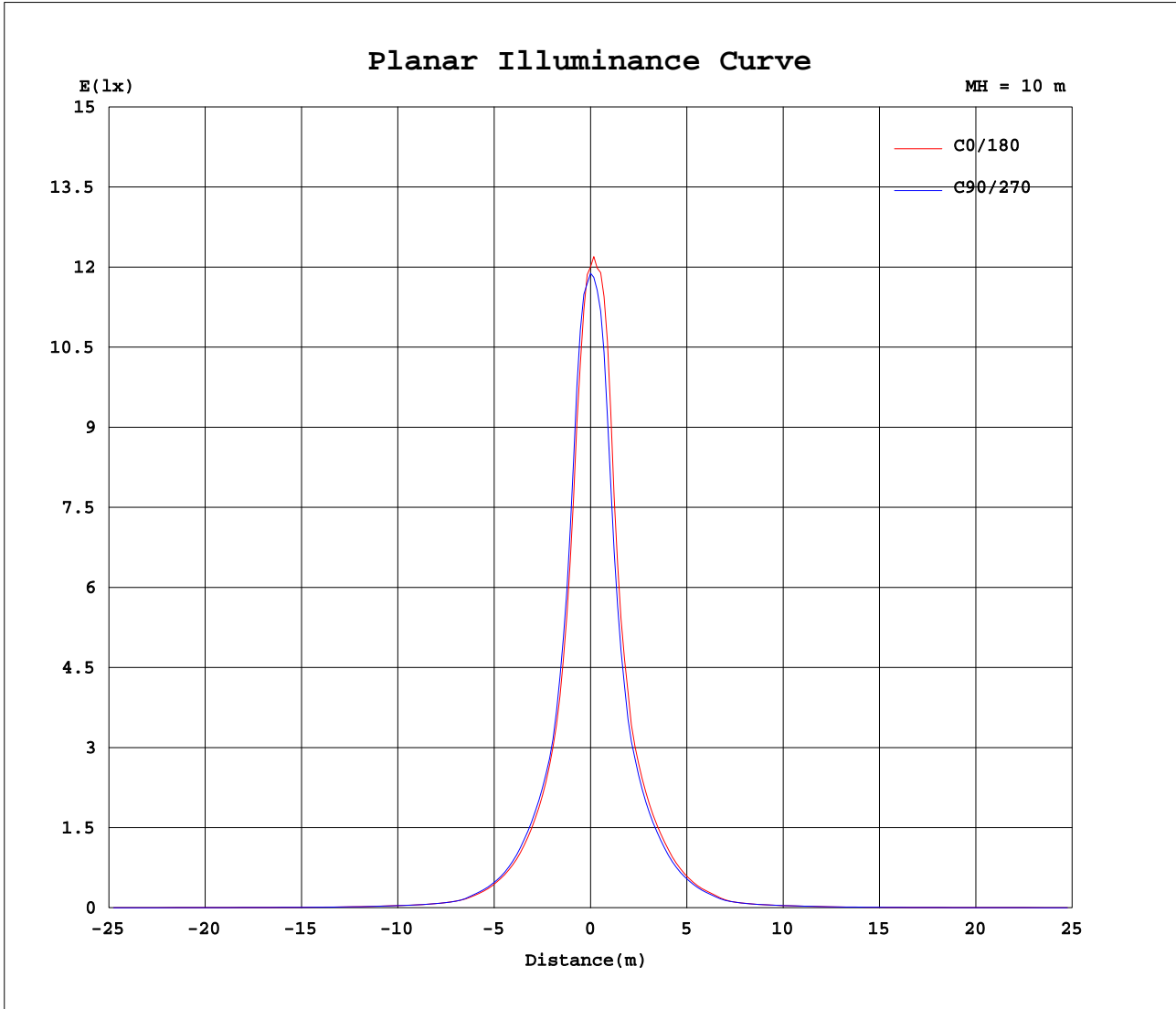
AvgL	cd/m2
L_0~180(65)av	3234
L_0~180(75)av	1863
L_0~180(85)av	1210
L_90~270(65)av	3189
L_90~270(75)av	1758
L_90~270(85)av	1190
L_45(65)av	3205
L_45(75)av	1764
L_45(85)av	1187

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:

