

LED Downlight FUSION Series FF6-FS2-17W-940-24D



Light Output Ratio:	100.0%	
Luminaire Power:	19.86 W	
SHR Nominal:	0.00	Calculated using the TM5
SHR Maximum:	1.00	fine grid method.

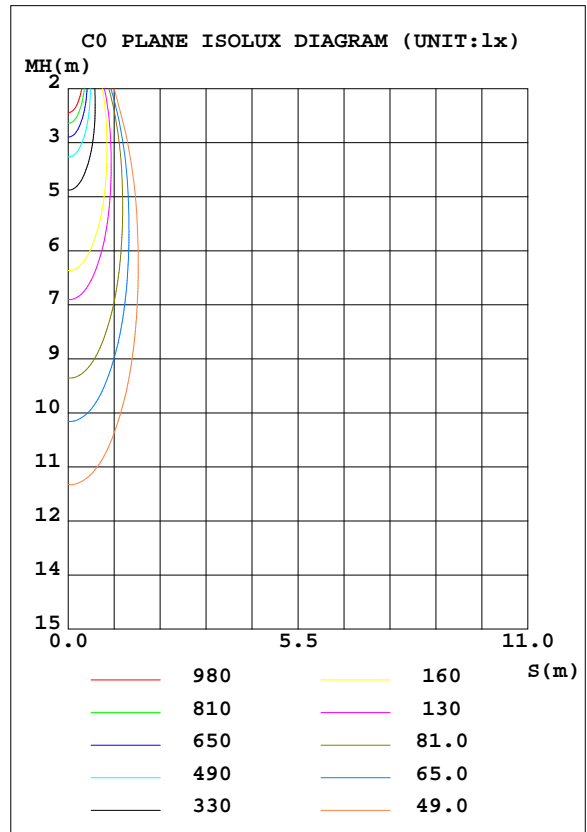
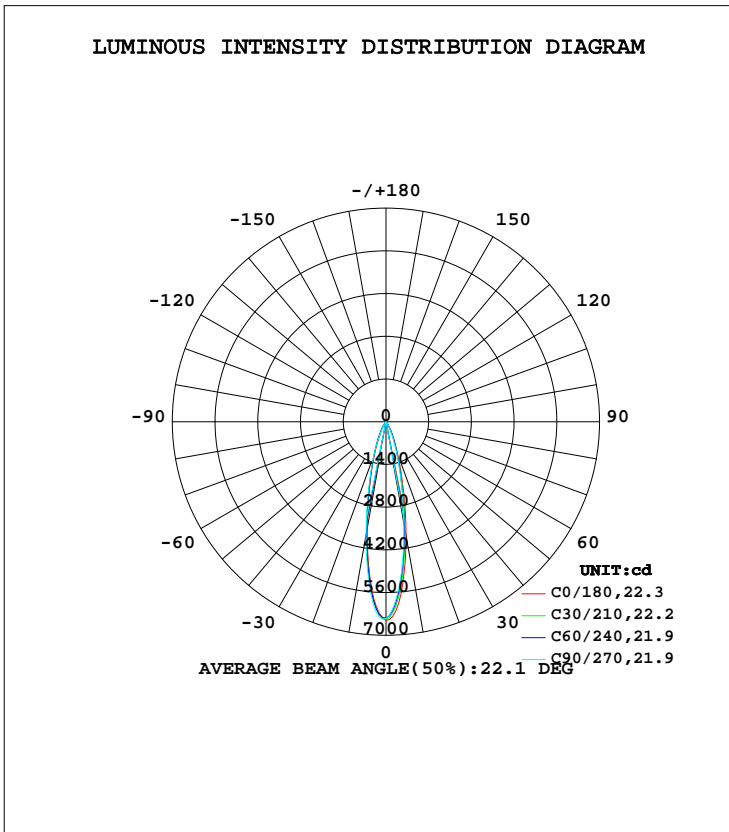
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: Myles
 Test Date: 2018-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity: 56%
 Test Distance: 5.850m [K=1.0000]
 Remarks:

LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.4V I:0.0924A P:19.86W PF:0.9549 Freq:49.90Hz Lamp Flux:1410.78x1 lm		
NAME: FF6-FS2-17W-940-24D	TYPE:Downlight	SERIAL No.:
SPEC.:4000K	DIM.: L290mm*W45mm*H60mm	
MFR.: NEKO LIGHTING AG		

DATA OF LAMP		PHOTOMETRIC DATA Eff: 71.04 lm/W			
MODEL	OSRAM-4000K	I _{max} (cd)	6508	S/MH(C0/180)	0.37
NOMINAL POWER(W)	19	LOR(%)	100.0	S/MH(C90/270)	0.39
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	1410.8	η UP, DN(C0-180)	0.0,48.1
NOMINAL FLUX(lm)	1410.78	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0,51.9
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

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γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	3790	3582	3405	3350	3574	3579	3778	3853	0- 10	462.3	462.3	32.8,32.8
20	1116	1062	959.0	1006	1047	1111	1151	1204	10- 20	567.7	1030	73,73
30	244.7	328.6	237.6	307.1	246.3	341.7	257.4	371.2	20- 30	266.6	1297	91.9,91.9
40	38.24	70.48	31.21	67.67	30.39	66.41	37.30	72.85	30- 40	85.33	1382	98,98
50	13.08	13.16	10.53	12.04	10.92	14.11	12.78	15.67	40- 50	18.24	1400	99.2,99.2
60	5.432	4.818	4.342	4.322	4.613	4.977	5.370	5.412	50- 60	6.954	1407	99.7,99.7
70	1.925	1.458	1.077	1.126	1.276	1.636	2.015	2.042	60- 70	3.145	1410	100,100
80	0.0700	0.0568	0.0700	0.0568	0.0393	0.0591	0.0481	0.0678	70- 80	0.4872	1411	100,100
90	0.0525	0.0568	0.0590	0.0590	0.0394	0.0394	0.0415	0.0415	80- 90	0.0569	1411	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): 1393.7 lm

%lum = 98.8%
%lamp = 98.8%

Conical surface Flux(120deg): 1407.1 lm

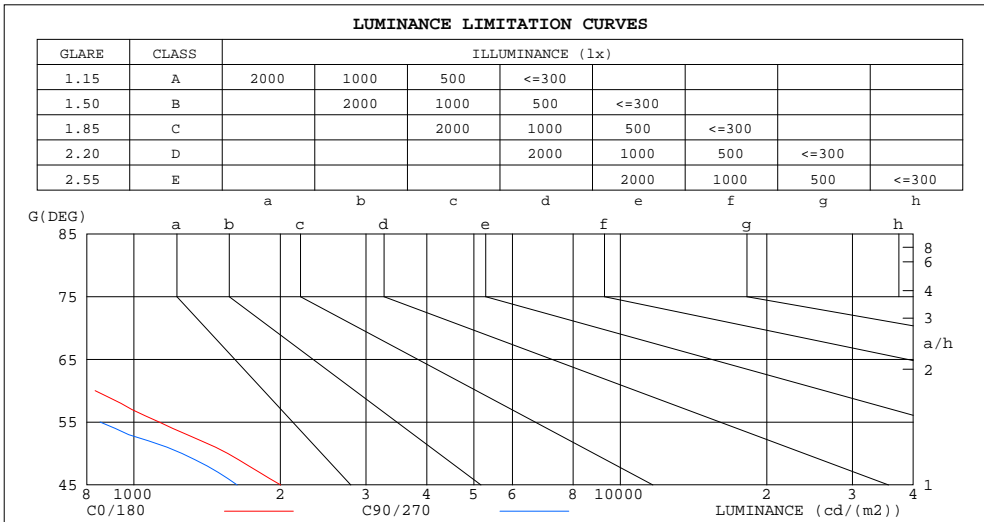
%lum = 99.7%
%lamp = 99.7%

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LUMINANCE LIMITATION CURVES

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LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	50	54
80	31	31
75	122	27
70	431	241
65	652	478
60	832	665
55	1127	852
50	1559	1255
45	2003	1630

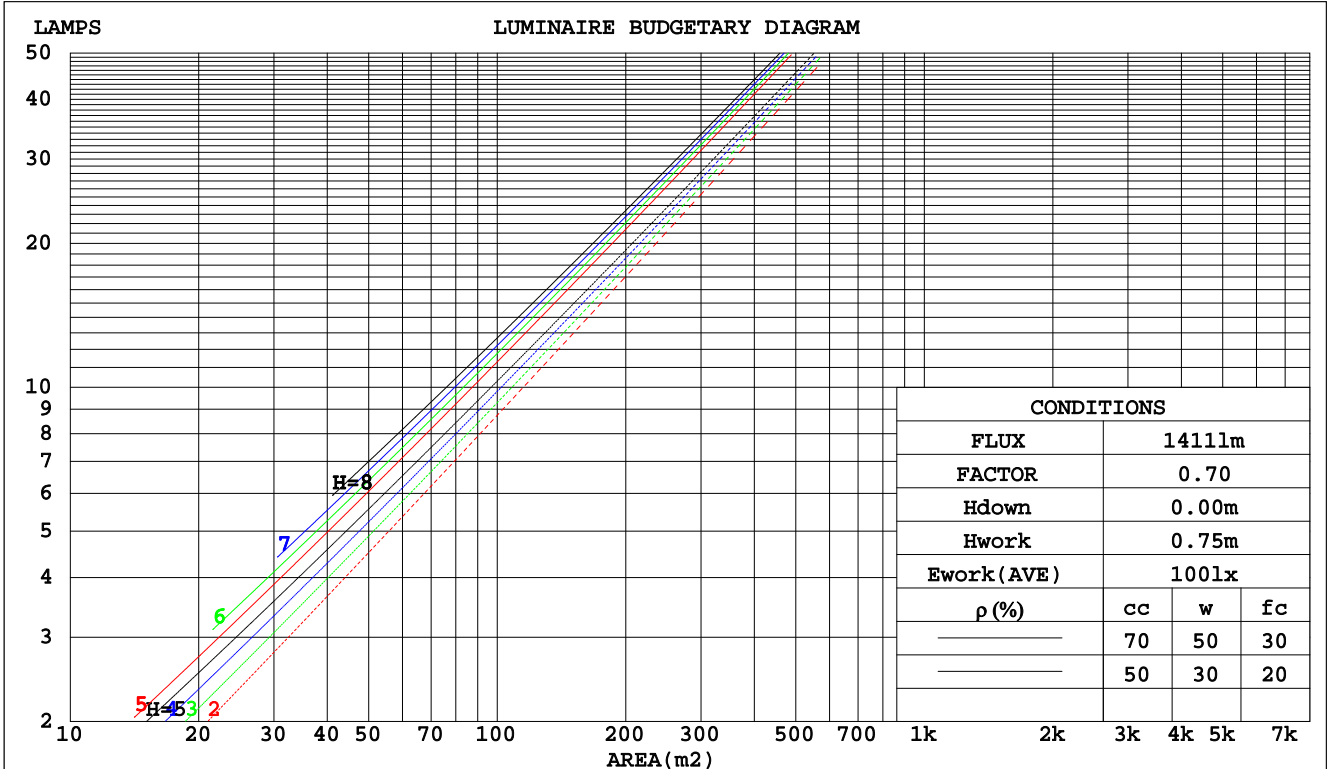
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CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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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																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	1.13	1.11	1.09	1.10	1.09	1.07	1.06	1.05	1.04	1.03	1.02	1.01	.99	.99	.98	.96
2.0	1.07	1.04	1.01	1.05	1.03	1.00	1.02	.99	.98	.99	.98	.96	.97	.95	.94	.92
3.0	1.02	.98	.95	1.01	.97	.95	.98	.95	.93	.96	.94	.92	.94	.92	.90	.89
4.0	.98	.94	.90	.97	.93	.90	.95	.91	.89	.93	.90	.88	.91	.89	.87	.86
5.0	.94	.90	.86	.93	.89	.86	.91	.88	.85	.90	.87	.85	.88	.86	.84	.83
6.0	.90	.86	.83	.90	.85	.83	.88	.85	.82	.87	.84	.81	.86	.83	.81	.80
7.0	.87	.83	.80	.87	.82	.79	.85	.82	.79	.84	.81	.79	.83	.80	.78	.77
8.0	.84	.80	.77	.84	.80	.77	.83	.79	.76	.82	.79	.76	.81	.78	.76	.75
9.0	.81	.77	.74	.81	.77	.74	.80	.77	.74	.79	.76	.74	.79	.76	.74	.73
10.0	.79	.75	.72	.79	.75	.72	.78	.74	.72	.77	.74	.72	.77	.74	.71	.70



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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	.142	.081	.026	.136	.077	.025	.123	.071	.023	.112	.064	.021	.101	.059	.019	
2.0	.133	.073	.022	.127	.070	.022	.117	.065	.020	.108	.060	.019	.099	.056	.018	
3.0	.124	.066	.020	.120	.064	.019	.111	.060	.018	.103	.057	.017	.096	.053	.016	
4.0	.117	.061	.018	.113	.059	.017	.106	.056	.017	.099	.053	.016	.093	.050	.015	
5.0	.110	.056	.016	.107	.055	.016	.101	.052	.015	.095	.050	.015	.090	.048	.014	
6.0	.105	.052	.015	.102	.051	.015	.096	.049	.014	.091	.047	.014	.087	.046	.014	
7.0	.099	.049	.014	.097	.048	.014	.092	.047	.013	.088	.045	.013	.084	.044	.013	
8.0	.095	.046	.013	.093	.046	.013	.089	.044	.013	.085	.043	.012	.081	.042	.012	
9.0	.091	.044	.012	.089	.043	.012	.085	.042	.012	.082	.041	.012	.079	.040	.012	
10.0	.087	.042	.012	.085	.041	.011	.082	.040	.011	.079	.039	.011	.076	.038	.011	

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	.169	.158	.148	.144	.135	.127	.099	.093	.088	.057	.054	.051	.018	.017	.017	
2.0	.151	.133	.117	.129	.114	.101	.089	.079	.071	.051	.046	.041	.016	.015	.014	
3.0	.136	.113	.095	.117	.098	.082	.080	.068	.058	.046	.040	.034	.015	.013	.011	
4.0	.124	.098	.078	.107	.085	.068	.073	.059	.048	.042	.035	.028	.014	.011	.009	
5.0	.114	.086	.065	.098	.074	.057	.067	.052	.040	.039	.030	.024	.013	.010	.008	
6.0	.105	.076	.055	.091	.066	.048	.062	.046	.034	.036	.027	.020	.012	.009	.007	
7.0	.098	.068	.047	.084	.059	.041	.058	.041	.029	.034	.024	.017	.011	.008	.006	
8.0	.092	.061	.040	.079	.053	.035	.055	.037	.025	.032	.022	.015	.010	.007	.005	
9.0	.086	.056	.035	.074	.048	.031	.051	.034	.022	.030	.020	.013	.010	.007	.004	
10.0	.081	.051	.031	.070	.044	.027	.048	.031	.019	.028	.018	.011	.009	.006	.004	

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 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity:56%
 Test Distance:5.850m [K=1.0000]
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.4V I:0.0924A P:19.86W PF:0.9549 Freq:49.90Hz Lamp Flux:1410.78x1 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	6.8	7.5	7.0	7.7	7.8	6.6	7.3	6.8	7.5	7.6
3H	6.8	7.4	7.0	7.6	7.8	6.5	7.2	6.8	7.4	7.5
4H	6.7	7.3	7.0	7.5	7.7	6.4	7.1	6.7	7.3	7.5
6H	6.6	7.2	6.9	7.4	7.7	6.4	6.9	6.6	7.2	7.4
8H	6.6	7.1	6.9	7.4	7.6	6.3	6.9	6.6	7.1	7.4
12H	6.5	7.1	6.8	7.3	7.6	6.3	6.8	6.6	7.1	7.3
4H 2H	6.7	7.3	6.9	7.5	7.7	6.5	7.1	6.7	7.3	7.5
3H	6.6	7.1	6.9	7.4	7.7	6.3	6.9	6.7	7.1	7.4
4H	6.5	7.0	6.8	7.3	7.6	6.3	6.7	6.6	7.0	7.3
6H	6.4	6.8	6.8	7.2	7.5	6.2	6.6	6.5	6.9	7.3
8H	6.4	6.8	6.7	7.1	7.5	6.1	6.5	6.5	6.8	7.2
12H	6.3	6.7	6.7	7.0	7.4	6.0	6.4	6.4	6.8	7.2
8H 4H	6.4	6.8	6.7	7.1	7.5	6.1	6.5	6.5	6.9	7.2
6H	6.2	6.6	6.7	7.0	7.4	6.0	6.3	6.4	6.7	7.1
8H	6.2	6.5	6.6	6.9	7.3	5.9	6.2	6.4	6.6	7.1
12H	6.1	6.4	6.6	6.8	7.3	5.9	6.1	6.3	6.6	7.0
12H 4H	6.3	6.7	6.7	7.0	7.4	6.0	6.4	6.5	6.8	7.2
6H	6.2	6.5	6.6	6.9	7.3	5.9	6.2	6.4	6.6	7.1
8H	6.1	6.4	6.6	6.8	7.3	5.9	6.1	6.3	6.6	7.0
Variations with the observer position at spacings:										
S = 1.0H	+ 2.6 / - 5.1					+ 2.5 / - 6.0				
1.5H	+ 4.6 / - 4.2					+ 4.5 / - 4.4				
2.0H	+ 2.9 / - 2.6					+ 2.7 / - 2.4				

CIE Pub.117, 1411 lm Total Lamp Luminous Flux Correct (8log(F/F0) = 1.2)

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UTILIZATION FACTORS TABLE

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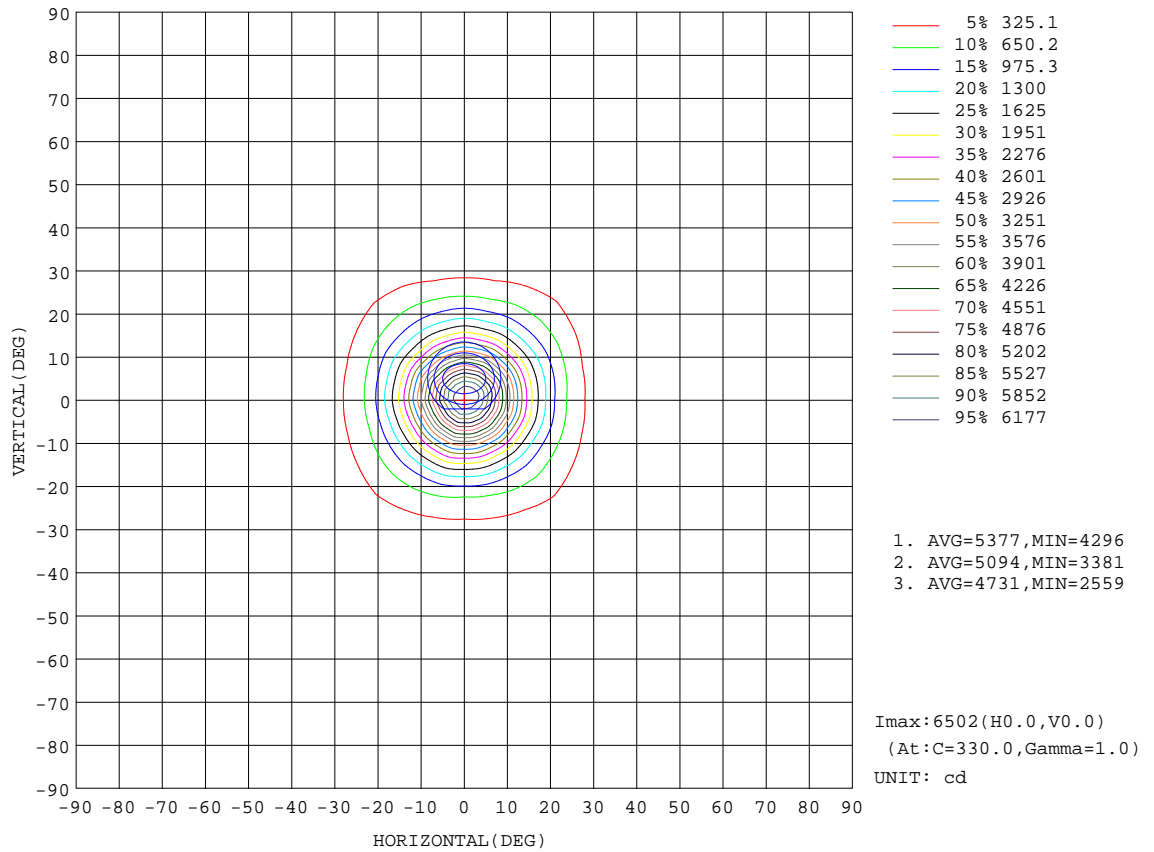
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	90	84	81	90	84	81	89	84	81	77
0.80	97	92	89	97	92	89	96	91	88	85
1.00	101	96	93	100	96	93	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	114	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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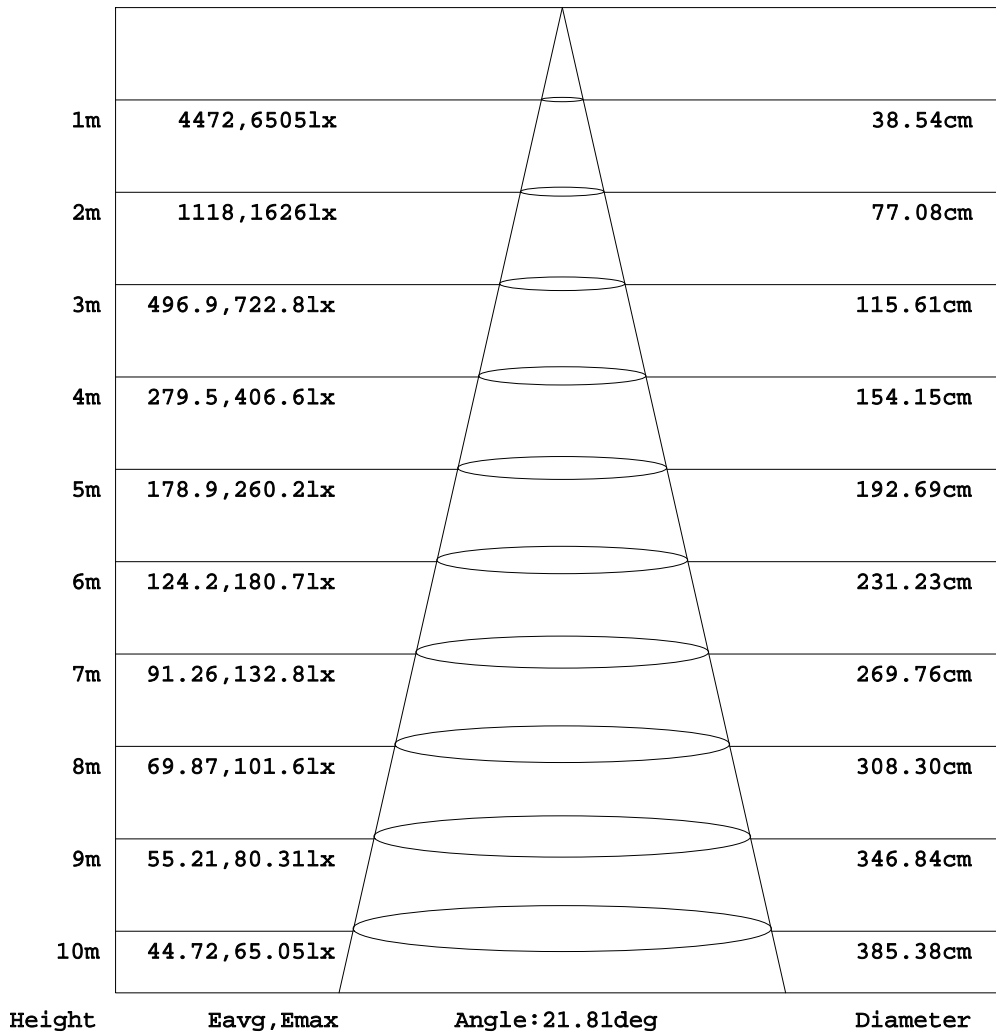
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AAI Figure

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Flux out:530.8 lm



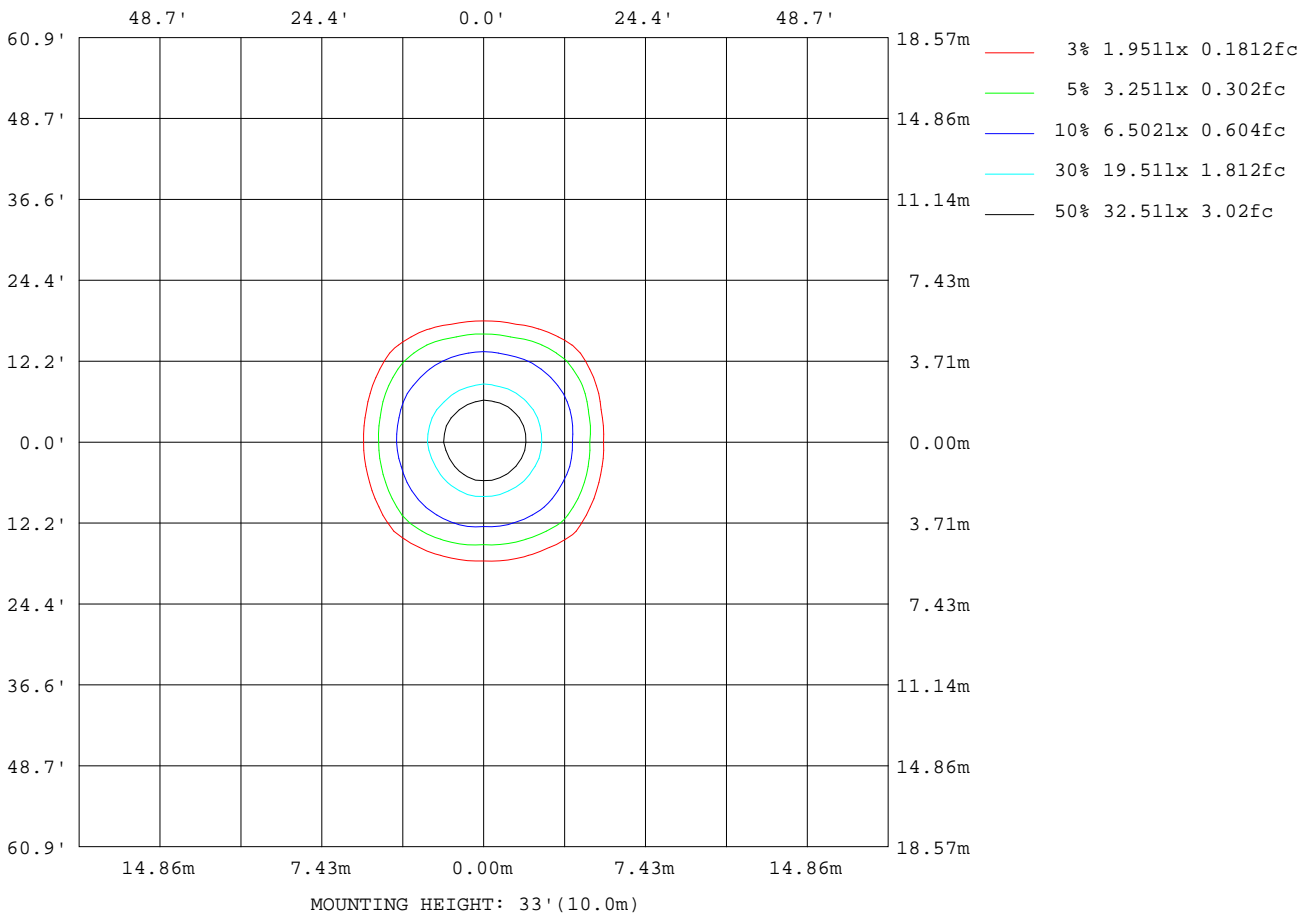
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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ISOLUX DIAGRAM

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LED Avg.L Report

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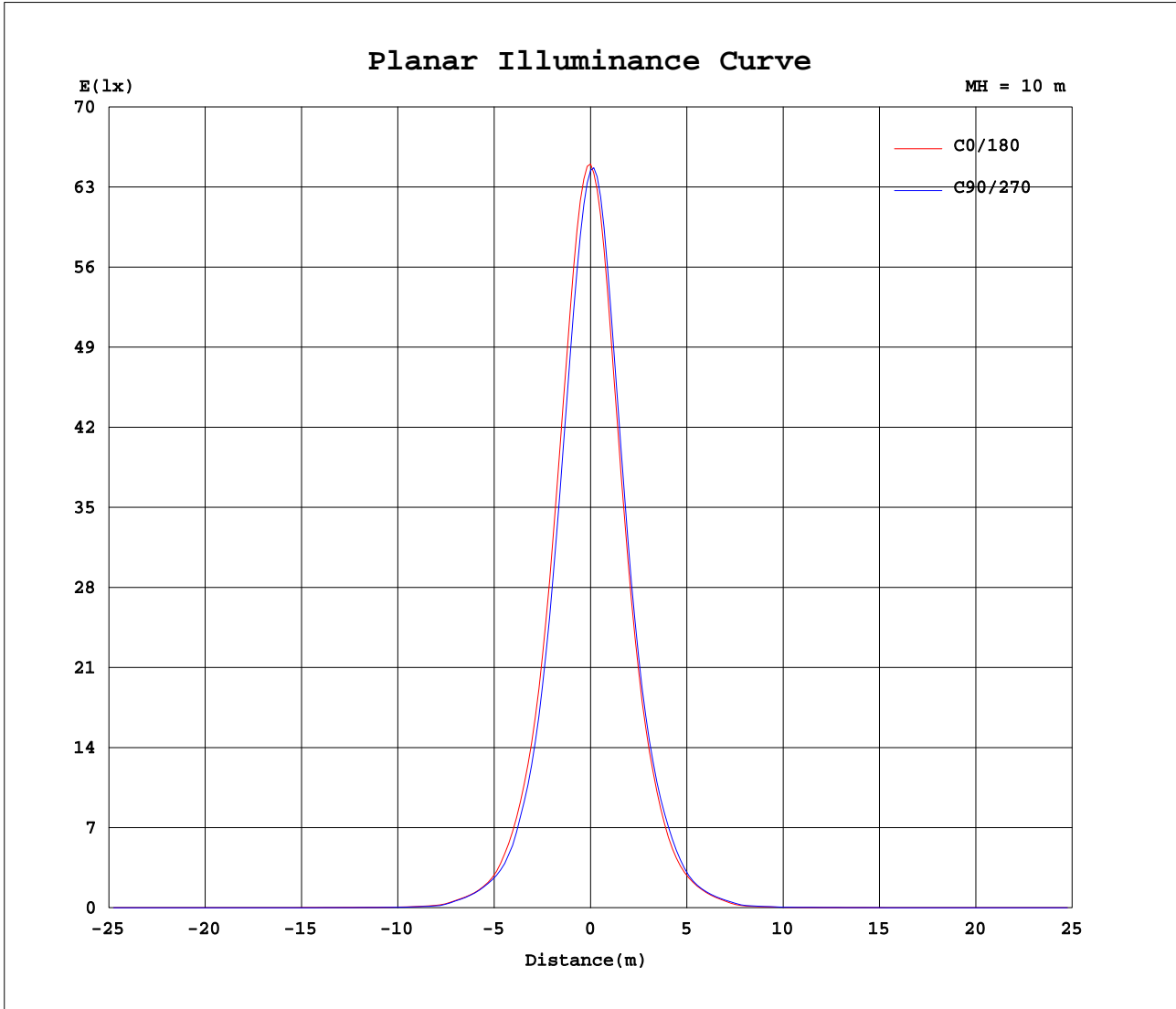
AvgL	cd/m2
L_0~180(65)av	583
L_0~180(75)av	72
L_0~180(85)av	41
L_90~270(65)av	566
L_90~270(75)av	79
L_90~270(85)av	45
L_45(65)av	569
L_45(75)av	64
L_45(85)av	47

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:Myles
Test Date:2018-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.362
Humidity:56%
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: Myles
 Test Date: 2018-09-06

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.362
 Humidity: 56%
 Test Distance: 5.850m [K=1.0000]
 Remarks:

