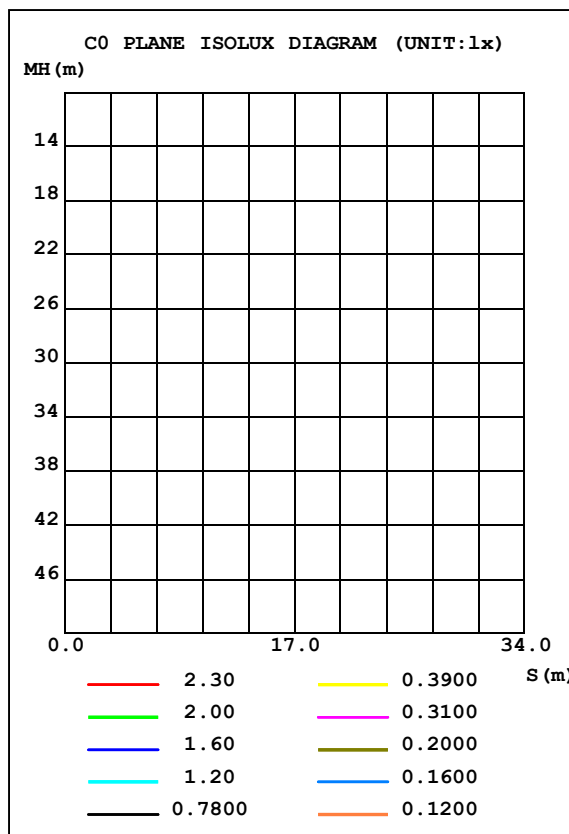
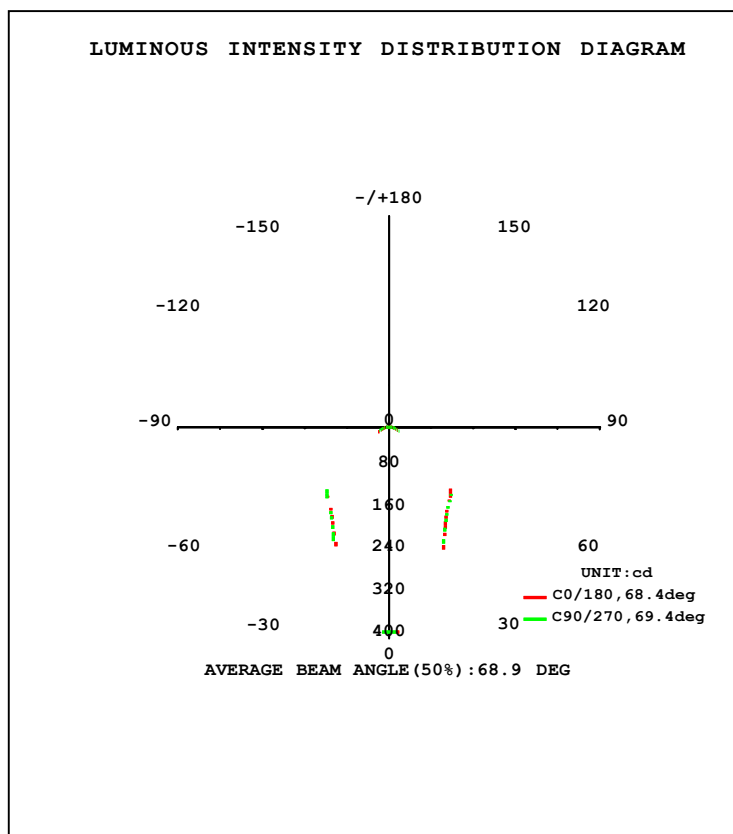


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 58.00 lm/W			
MODEL	SH-DL04LDC-10-760	Imax (cd)	390.5	S/MH (C0/180)	0.89
NOMINAL POWER (W)	10	LOR (%)	56.2	S/MH (C90/270)	0.87
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	595.43	η UP, DN (C0-180)	0.0, 28.0
NOMINAL FLUX (lm)	1059.17	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 28.2
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	220.4	η down (%)	56.2	CIBSE SHR MAX	1.00



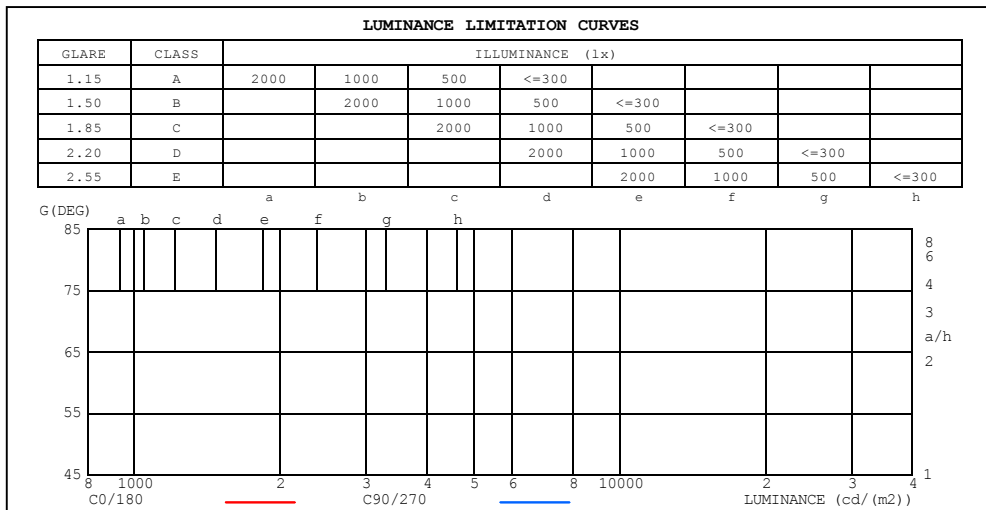
C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM AND LUMINANCE LIMITATION CURVES

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	360.8	358.9	353.8	353.2	354.1	356.9	359.7	361.5	0- 10	35.61	35.61	5.98, 3.36
20	286.2	283.1	280.0	277.1	278.6	279.1	282.9	285.2	10- 20	89.80	125.4	21.1, 11.8
30	214.7	215.3	214.4	213.0	213.9	215.1	214.9	214.6	20- 30	112.7	238.1	40, 22.5
40	178.9	178.8	180.9	180.2	180.8	180.5	181.1	179.8	30- 40	121.7	359.8	60.4, 34
50	128.5	124.8	123.1	122.2	123.2	124.9	129.5	129.0	40- 50	123.2	483.0	81.1, 45.6
60	37.76	38.13	36.53	35.98	35.85	37.48	39.13	40.12	50- 60	70.08	553.1	92.9, 52.2
70	16.34	17.48	17.58	16.78	15.94	17.57	18.30	17.82	60- 70	25.70	578.8	97.2, 54.6
80	6.544	7.855	9.352	7.416	6.396	7.944	9.885	7.894	70- 80	13.59	592.4	99.5, 55.9
90	0	0	0.0037	0	0	0	0	0	80- 90	3.008	595.4	100, 56.2
100	0	0	0	0	0	0	0	0	90-100	0.0000	595.4	100, 56.2
110	0	0	0	0	0	0	0	0	100-110	0	595.4	100, 56.2
120	0	0	0	0	0	0	0	0	110-120	0	595.4	100, 56.2
130	0	0	0	0	0	0	0	0	120-130	0	595.4	100, 56.2
140	0	0	0	0	0	0	0	0	130-140	0	595.4	100, 56.2
150	0	0.0800	0	0.0404	0.0602	0	0.0405	0	140-150	0.0041	595.4	100, 56.2
160	0	0.1204	0	0.1817	0.1404	0	0.0605	0	150-160	0.0192	595.4	100, 56.2
170	0.1003	0.1204	0.1008	0.1616	0.1404	0.0803	0.1210	0.1212	160-170	0.0244	595.4	100, 56.2
180	0.1203	0.1204	0.1210	0.1414	0.1404	0.1003	0.1210	0.1212	170-180	0.0117	595.4	100, 56.2
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	140	433
80	378	537
75	488	523
70	479	513
65	570	601
60	758	729
55	1411	1312
50	2006	1910
45	2348	2310

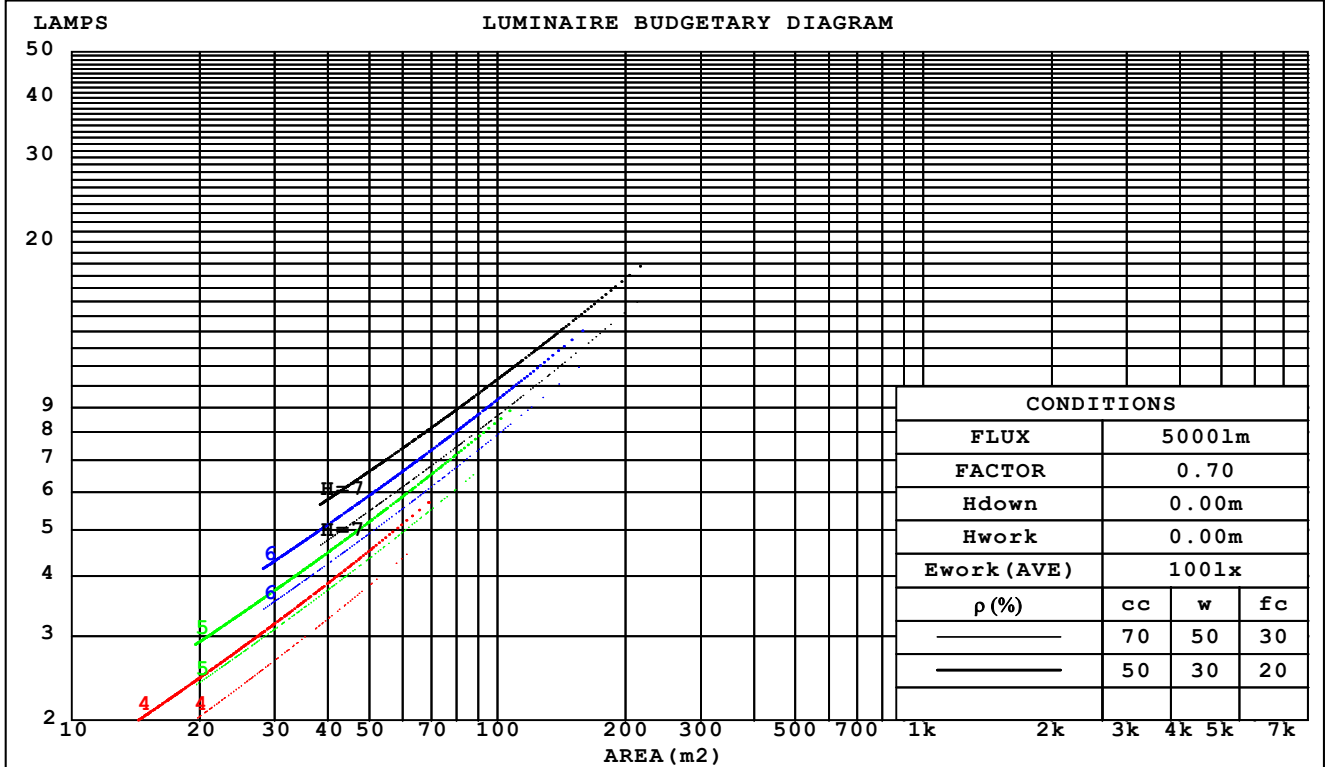
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: SHU
Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.281
Humidity: 65.0%
Test Distance: 18.226m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

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															



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_v1 SYSTEM V2.0.281
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

WEC AND CCEC

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

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						Wall Exitance Coefficients (WEC)									
0.0																
1.0	.135	.077	.024	.131	.075	.024	.124	.071	.023	.117	.068	.022	.111	.064	.021	
2.0	.131	.072	.022	.128	.070	.022	.121	.067	.021	.115	.065	.020	.110	.062	.020	
3.0	.124	.066	.020	.121	.065	.020	.116	.063	.019	.111	.061	.019	.106	.059	.018	
4.0	.117	.061	.018	.115	.060	.018	.110	.058	.017	.105	.057	.017	.101	.055	.017	
5.0	.110	.056	.016	.108	.055	.016	.104	.054	.016	.100	.053	.016	.096	.051	.015	
6.0	.104	.052	.015	.102	.052	.015	.098	.050	.015	.095	.049	.014	.091	.048	.014	
7.0	.098	.048	.014	.096	.048	.014	.093	.047	.014	.090	.046	.013	.087	.045	.013	
8.0	.093	.045	.013	.091	.045	.013	.088	.044	.013	.085	.043	.012	.082	.042	.012	
9.0	.088	.042	.012	.086	.042	.012	.084	.041	.012	.081	.041	.012	.079	.040	.012	
10.0	.083	.040	.011	.082	.040	.011	.079	.039	.011	.077	.038	.011	.075	.038	.011	

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						Ceiling Cavity Exitance Coefficients (CCEC)									
0.0	.107	.107	.107	.092	.092	.092	.062	.062	.062	.036	.036	.036	.011	.011	.011	
1.0	.099	.088	.079	.084	.076	.068	.058	.052	.047	.033	.030	.027	.011	.010	.009	
2.0	.092	.074	.059	.079	.064	.051	.054	.044	.036	.031	.026	.021	.010	.008	.007	
3.0	.087	.064	.046	.075	.055	.040	.051	.038	.028	.030	.022	.016	.010	.007	.005	
4.0	.083	.056	.036	.071	.049	.031	.049	.034	.022	.028	.020	.013	.009	.006	.004	
5.0	.078	.050	.029	.067	.043	.026	.046	.030	.018	.027	.018	.011	.009	.006	.004	
6.0	.075	.045	.024	.064	.039	.021	.044	.027	.015	.026	.016	.009	.008	.005	.003	
7.0	.071	.041	.021	.061	.036	.018	.042	.025	.013	.025	.015	.008	.008	.005	.003	
8.0	.068	.038	.018	.058	.033	.015	.040	.023	.011	.023	.014	.007	.008	.004	.002	
9.0	.065	.035	.015	.056	.031	.013	.039	.022	.010	.022	.013	.006	.007	.004	.002	
10.0	.062	.033	.014	.053	.029	.012	.037	.020	.008	.022	.012	.005	.007	.004	.002	

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:SHU
 Test Date:2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity:65.0%
 Test Distance:18.226m [K=1.0000]
 Remarks:

Uncorrected UGR Table

NAME: LDseriesCOB DOWNLIGHT						TYPE:LDseriesCOB DOWNLIGHT					WEIGHT:				
SPEC.:4						DIM.:					SERIAL No.:1				
						SUR.:					PROTECTION ANGLE:				
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		13.3	14.6	13.5	14.8	14.9	13.1	14.4	13.4	14.6	14.8				
	3H	13.4	14.6	13.7	14.8	15.0	13.3	14.5	13.6	14.7	15.0				
	4H	13.5	14.6	13.8	14.9	15.1	13.4	14.6	13.7	14.8	15.0				
	6H	13.6	14.6	13.9	14.9	15.1	13.6	14.6	13.9	14.9	15.1				
	8H	13.5	14.6	13.9	14.8	15.1	13.6	14.6	13.9	14.9	15.2				
	12H	13.5	14.5	13.9	14.8	15.1	13.6	14.6	14.0	14.9	15.2				
4H	2H	13.3	14.4	13.6	14.6	14.9	13.2	14.3	13.5	14.5	14.8				
	3H	13.5	14.5	13.9	14.8	15.1	13.5	14.4	13.8	14.7	15.0				
	4H	13.7	14.6	14.1	14.9	15.2	13.7	14.6	14.0	14.9	15.2				
	6H	13.9	14.6	14.3	15.0	15.3	13.9	14.7	14.3	15.0	15.4				
	8H	13.9	14.6	14.3	15.0	15.3	14.0	14.7	14.4	15.1	15.5				
	12H	13.9	14.5	14.3	14.9	15.3	14.1	14.7	14.5	15.1	15.5				
8H	4H	13.7	14.5	14.2	14.8	15.2	13.7	14.4	14.1	14.8	15.2				
	6H	14.0	14.6	14.4	15.0	15.4	14.1	14.6	14.5	15.0	15.5				
	8H	14.0	14.5	14.5	15.0	15.4	14.2	14.7	14.6	15.1	15.6				
	12H	14.0	14.5	14.5	14.9	15.4	14.3	14.7	14.7	15.1	15.6				
12H	4H	13.7	14.4	14.1	14.8	15.2	13.7	14.3	14.1	14.7	15.1				
	6H	14.0	14.5	14.4	14.9	15.4	14.1	14.6	14.5	15.0	15.4				
	8H	14.0	14.5	14.5	14.9	15.4	14.2	14.6	14.7	15.1	15.6				
Variations with the observer position at spacings:															
S = 1.0H		+ 1.0 / - 1.1					+ 0.9 / - 1.1								
1.5H		+ 0.7 / - 0.8					+ 0.6 / - 0.7								
2.0H		+ 2.4 / - 2.7					+ 2.3 / - 2.4								

CIE Pub.117 Corrected 1059 lm Total Lamp Luminous Flux. (8log(F/F0) = 0.2)

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

UTILIZATION FACTORS TABLE

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

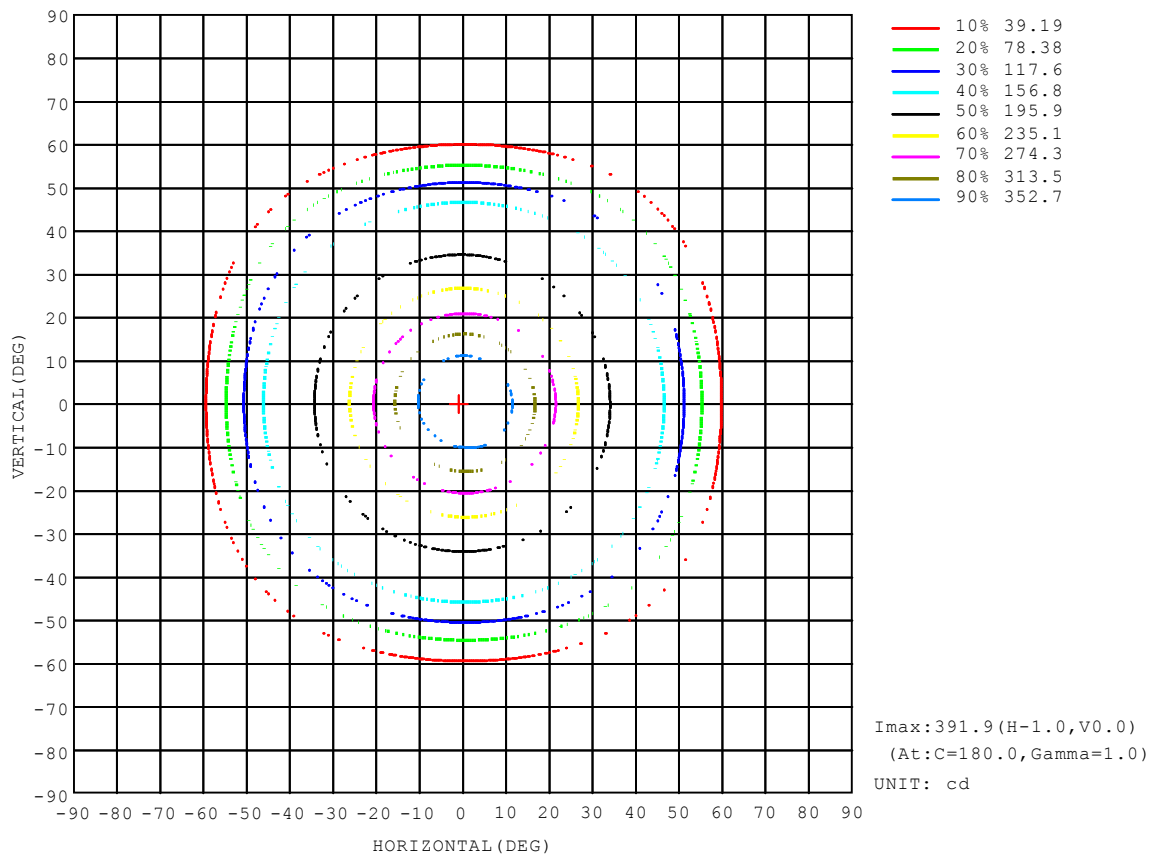
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) k (RI) x RCR = 5									
k = 0.60	37	32	28	37	31	28	36	31	28	25
0.80	43	38	34	43	37	34	42	37	34	31
1.00	48	43	39	47	42	39	46	43	39	35
1.25	51	47	43	51	46	43	49	46	43	39
1.50	54	49	46	53	49	46	51	48	45	42
2.00	57	53	50	56	53	50	54	51	49	45
2.50	58	55	52	57	54	52	55	53	51	47
3.00	60	57	55	59	56	54	57	55	53	48
4.00	62	59	57	60	58	56	58	56	55	50
5.00	63	60	59	61	59	58	59	57	56	51
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004					Suspended			SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

AAI Figure

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

Flux out:297.8 lm

3.281ft	17.96,36.39fc	4.458ft
1m	193.3,391.7lx	135.89cm
6.562ft	4.490,9.098fc	8.916ft
2m	48.33,97.93lx	271.77cm
9.843ft	1.995,4.043fc	13.37ft
3m	21.48,43.52lx	407.66cm
13.12ft	1.122,2.274fc	17.83ft
4m	12.08,24.48lx	543.54cm
16.4ft	0.7184,1.456fc	22.29ft
5m	7.732,15.67lx	679.43cm
Height	Eavg,Emax	Angle:68.39deg
		Diameter

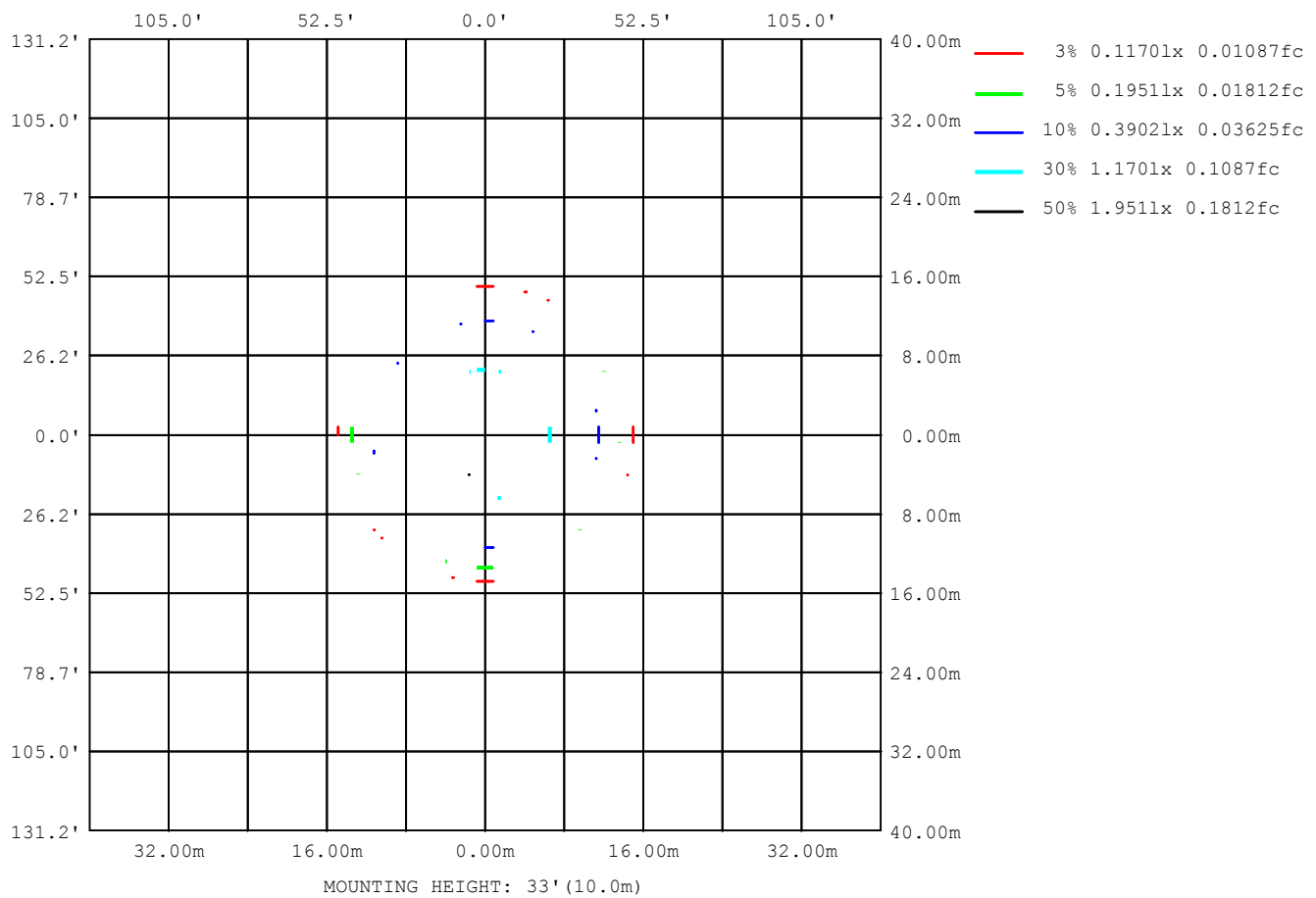
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:SHU
Test Date:2013-08-06

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Humidity:65.0%
Test Distance:18.226m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

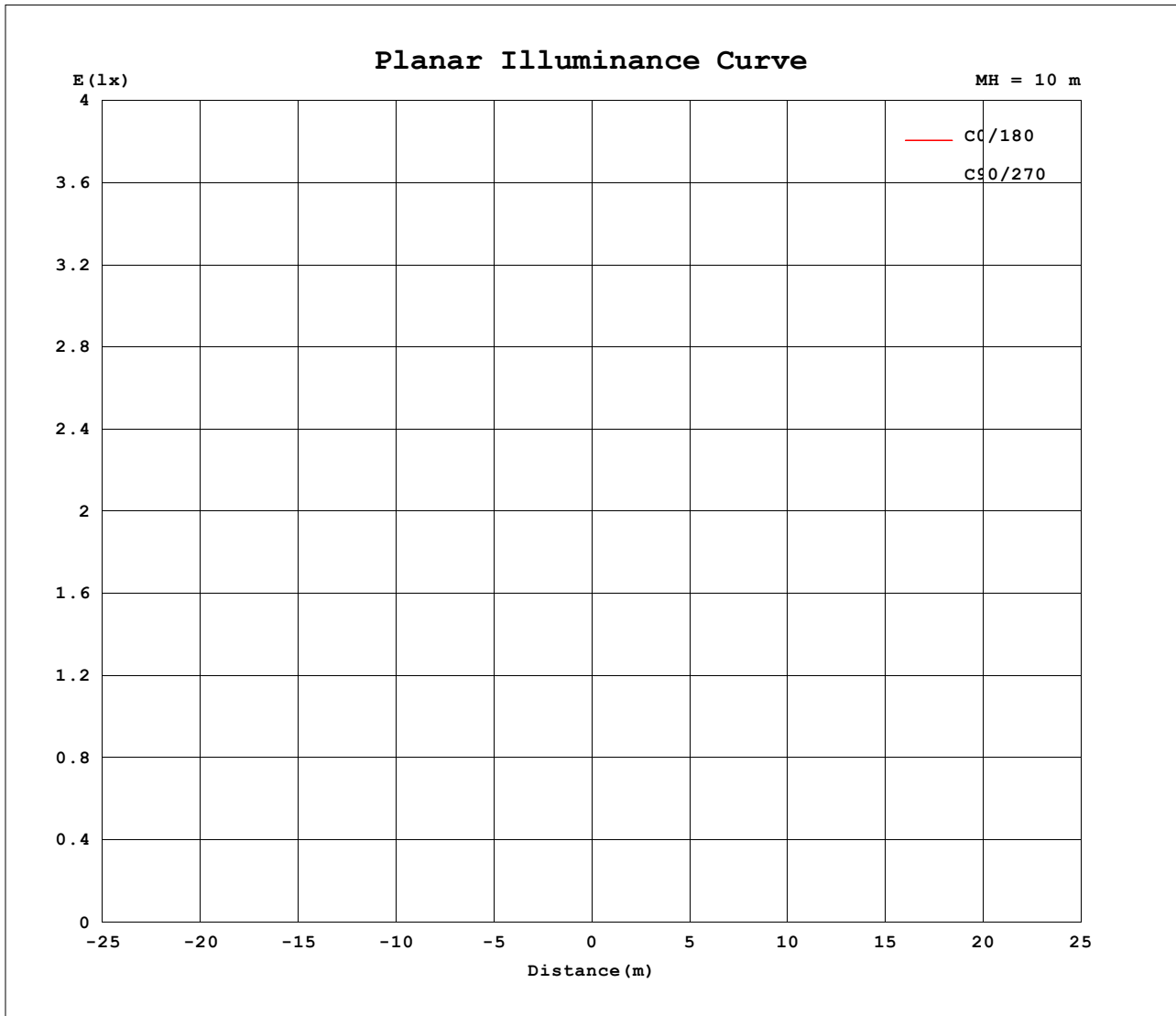
NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
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 Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity: 65.0%
 Test Distance: 18.226m [K=1.0000]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: SHU
Test Date: 2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Humidity: 65.0%
Test Distance: 18.226m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: LDseriesCOB DOWNLIGHT	TYPE:LDseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:4	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	45	90	135	180	225	270	315										
0	389	389	389	389	389	389	389	389										
5	384	381	378	380	380	380	381	383										
10	361	359	354	353	354	357	360	362										
15	328	323	320	317	319	319	324	325										
20	286	283	280	277	279	279	283	285										
25	247	244	244	239	240	244	247	247										
30	215	215	214	213	214	215	215	215										
35	192	192	193	192	193	193	194	192										
40	179	179	181	180	181	181	181	180										
45	165	163	164	162	164	164	166	166										
50	128	125	123	122	123	125	130	129										
55	80.7	79.0	75.4	73.7	75.5	78.7	80.3	81.6										
60	37.8	38.1	36.5	36.0	35.8	37.5	39.1	40.1										
65	24.0	26.2	25.4	24.9	22.9	26.2	27.0	27.2										
70	16.3	17.5	17.6	16.8	15.9	17.6	18.3	17.8										
75	12.6	13.1	13.6	12.6	12.2	13.1	14.0	13.3										
80	6.54	7.86	9.35	7.42	6.40	7.94	9.88	7.89										
85	1.22	1.91	3.78	1.57	1.00	2.04	3.86	1.94										
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
145	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00										
150	0.00	0.08	0.00	0.04	0.06	0.00	0.04	0.00										
155	0.00	0.12	0.00	0.04	0.10	0.00	0.06	0.00										
160	0.00	0.12	0.00	0.18	0.14	0.00	0.06	0.00										
165	0.04	0.12	0.04	0.16	0.14	0.06	0.12	0.04										
170	0.10	0.12	0.10	0.16	0.14	0.08	0.12	0.12										
175	0.12	0.12	0.12	0.14	0.14	0.10	0.12	0.12										
180	0.12	0.12	0.12	0.14	0.14	0.10	0.12	0.12										

C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:SHU
 Test Date:2013-08-06

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Humidity:65.0%
 Test Distance:18.226m [K=1.0000]
 Remarks: