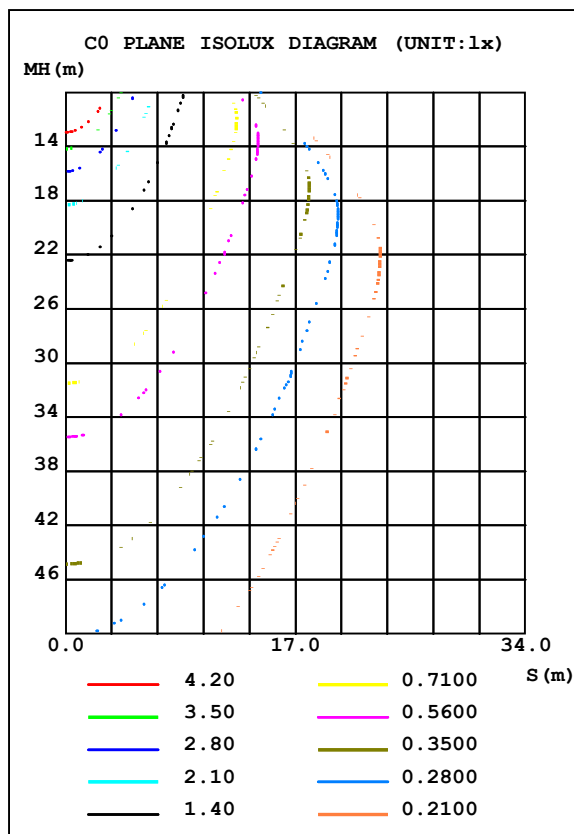
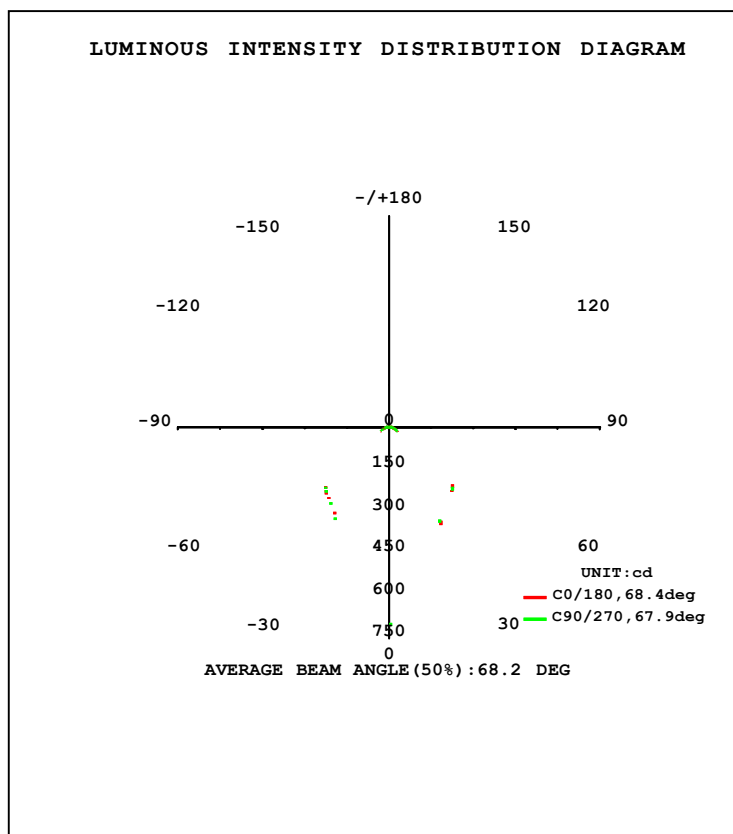


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 62.13 lm/W			
MODEL	SH-DL06LDC-22-760	I _{max} (cd)	701.9	S/MH (C0/180)	0.82
NOMINAL POWER (W)	22	LOR (%)	89.5	S/MH (C90/270)	0.80
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	1059.2	η UP, DN (C0-180)	0.0, 44.7
NOMINAL FLUX (lm)	1182.88	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 44.8
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE (V)	220.4	η down (%)	89.5	CIBSE SHR MAX	0.95



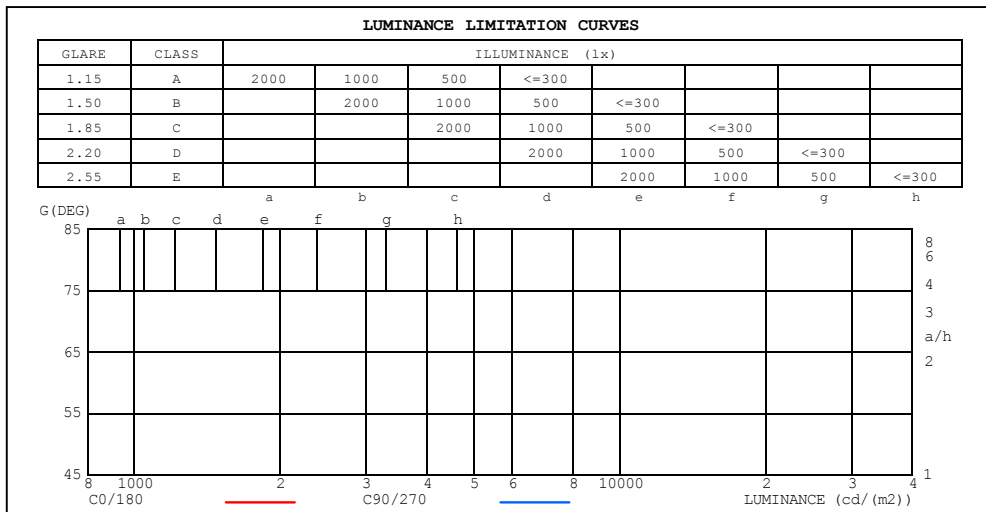
C Range: 0 - 360DEG
 C Interval: 45.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: SHU
 Test Date: 2013-08-06

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

**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	608.4	608.9	609.4	605.6	605.2	606.0	603.9	604.8	0- 10	62.15	62.15	5.87,5.25
20	468.7	465.9	462.7	464.0	471.1	475.2	477.1	472.8	10- 20	149.8	212.0	20,17.9
30	375.8	372.6	368.6	372.8	376.2	378.7	382.1	383.0	20- 30	192.1	404.1	38.2,34.2
40	331.7	327.0	330.4	333.1	332.6	331.7	333.8	334.2	30- 40	219.3	623.4	58.9,52.7
50	274.6	273.4	269.0	268.1	264.4	265.5	266.2	267.3	40- 50	242.0	865.4	81.7,73.2
60	49.14	54.00	49.99	48.76	50.86	52.98	49.74	53.32	50- 60	136.9	1002	94.6,84.7
70	24.01	24.35	24.52	24.22	23.55	23.86	23.87	24.07	60- 70	31.34	1034	97.6,87.4
80	11.64	12.44	13.34	12.10	11.37	12.33	13.51	12.39	70- 80	19.54	1053	99.4,89
90	0	0	0.0094	0	0	0	0	0	80- 90	5.478	1059	100,89.5
100	0	0	0	0	0	0	0	0	90-100	0.0001	1059	100,89.5
110	0	0	0	0	0	0	0	0	100-110	0	1059	100,89.5
120	0	0	0	0	0	0	0	0	110-120	0	1059	100,89.5
130	0	0.0808	0	0.1007	0.0607	0	0.0811	0	120-130	0.0056	1059	100,89.5
140	0.0798	0.2416	0.0804	0.2221	0.2203	0.0602	0.2017	0.0404	130-140	0.0618	1059	100,89.5
150	0.1599	0.3423	0.1609	0.3434	0.3406	0.1408	0.3424	0.1411	140-150	0.1209	1059	100,89.5
160	0.3004	0.4831	0.3221	0.5048	0.4807	0.3019	0.4836	0.3029	150-160	0.1434	1059	100,89.5
170	0.4803	0.6240	0.4632	0.5856	0.5408	0.4628	0.5438	0.4442	160-170	0.1303	1059	100,89.5
180	0.6209	0.6240	0.5841	0.5856	0.5408	0.5435	0.5438	0.5856	170-180	0.0511	1059	100,89.5
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	378	702
80	674	767
75	679	759
70	705	716
65	707	721
60	987	999
55	2747	2670
50	4292	4181
45	4518	4506

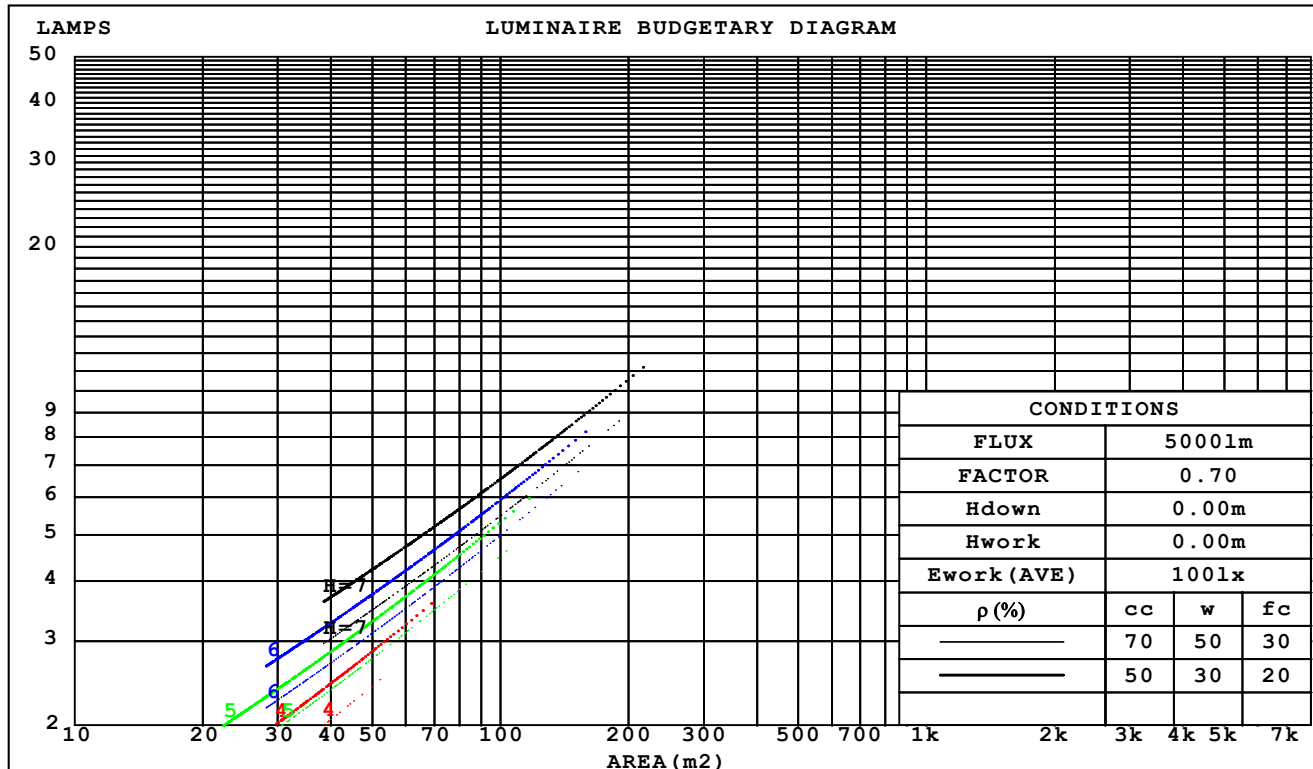
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: SHU
Test Date: 2013-08-06

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

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	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						Coefficients of Utilization(CU)									
0.0	1.07	1.07	1.07	1.04	1.04	1.04	.99	.99	.99	.95	.95	.95	.91	.91	.91	.89
1.0	.96	.93	.91	.94	.92	.89	.91	.88	.86	.87	.85	.84	.84	.83	.81	.80
2.0	.87	.82	.78	.85	.80	.77	.82	.78	.75	.79	.76	.73	.77	.74	.72	.70
3.0	.78	.72	.67	.77	.71	.67	.74	.69	.65	.72	.68	.64	.70	.66	.63	.62
4.0	.70	.64	.59	.69	.63	.58	.67	.62	.58	.65	.61	.57	.63	.59	.56	.54
5.0	.64	.57	.52	.63	.56	.52	.61	.55	.51	.60	.55	.51	.58	.54	.50	.48
6.0	.58	.51	.46	.57	.51	.46	.56	.50	.46	.55	.49	.45	.53	.49	.45	.43
7.0	.53	.46	.42	.53	.46	.41	.51	.45	.41	.50	.45	.41	.49	.44	.41	.39
8.0	.49	.42	.38	.48	.42	.37	.47	.41	.37	.46	.41	.37	.45	.40	.37	.35
9.0	.45	.39	.34	.45	.38	.34	.44	.38	.34	.43	.38	.34	.42	.37	.34	.32
10.0	.42	.36	.31	.42	.35	.31	.41	.35	.31	.40	.35	.31	.39	.34	.31	.29



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:

WEC AND CCEC

NAME: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	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	.214	.121	.038	.207	.118	.038	.196	.112	.036	.185	.107	.034	.175	.102	.033	
2.0	.207	.114	.035	.202	.111	.034	.192	.107	.033	.183	.103	.032	.174	.099	.031	
3.0	.197	.105	.031	.193	.103	.031	.184	.100	.030	.176	.096	.030	.168	.093	.029	
4.0	.187	.097	.029	.183	.096	.028	.175	.093	.028	.168	.090	.027	.161	.088	.027	
5.0	.176	.090	.026	.173	.089	.026	.166	.086	.025	.160	.084	.025	.154	.082	.025	
6.0	.166	.083	.024	.163	.082	.024	.157	.081	.023	.151	.079	.023	.146	.077	.023	
7.0	.157	.078	.022	.154	.077	.022	.149	.075	.022	.144	.074	.021	.139	.072	.021	
8.0	.149	.073	.020	.146	.072	.020	.141	.071	.020	.137	.069	.020	.132	.068	.020	
9.0	.141	.068	.019	.138	.067	.019	.134	.066	.019	.130	.065	.019	.126	.064	.018	
10.0	.133	.064	.018	.131	.063	.018	.127	.062	.018	.124	.061	.017	.120	.060	.017	

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	.171	.171	.171	.146	.146	.146	.100	.100	.100	.057	.057	.057	.018	.018	.018	
1.0	.157	.141	.126	.135	.121	.108	.092	.083	.075	.053	.048	.044	.017	.015	.014	
2.0	.147	.119	.095	.126	.102	.082	.087	.071	.057	.050	.041	.033	.016	.013	.011	
3.0	.139	.102	.073	.119	.088	.063	.082	.061	.044	.047	.036	.026	.015	.012	.009	
4.0	.132	.090	.058	.113	.078	.050	.078	.054	.035	.045	.032	.021	.014	.010	.007	
5.0	.125	.080	.047	.108	.069	.041	.074	.049	.029	.043	.028	.017	.014	.009	.006	
6.0	.119	.073	.039	.103	.063	.034	.071	.044	.024	.041	.026	.014	.013	.008	.005	
7.0	.114	.066	.033	.098	.057	.029	.068	.040	.020	.039	.024	.012	.013	.008	.004	
8.0	.109	.061	.028	.093	.053	.025	.065	.037	.017	.038	.022	.010	.012	.007	.003	
9.0	.104	.057	.025	.089	.049	.022	.062	.034	.015	.036	.020	.009	.012	.007	.003	
10.0	.099	.053	.022	.085	.046	.019	.059	.032	.014	.035	.019	.008	.011	.006	.003	

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: HGseriesCOB DOWNLIGHT					TYPE:HGseriesCOB DOWNLIGHT					WEIGHT:				
SPEC.:6					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					15.8	17.1	16.1	17.3	17.5	15.8	17.1	16.0	17.3	17.4
3H					15.8	17.0	16.1	17.2	17.4	15.7	16.9	16.0	17.2	17.4
4H					15.8	16.9	16.1	17.2	17.4	15.8	16.9	16.1	17.1	17.4
6H					15.8	16.9	16.1	17.1	17.4	15.8	16.9	16.1	17.1	17.4
8H					15.8	16.8	16.1	17.1	17.4	15.8	16.8	16.2	17.1	17.4
12H					15.8	16.8	16.1	17.0	17.3	15.8	16.8	16.2	17.1	17.4
4H 2H					15.7	16.9	16.0	17.1	17.3	15.7	16.8	16.0	17.0	17.3
3H					15.8	16.7	16.1	17.0	17.3	15.7	16.7	16.1	17.0	17.3
4H					15.9	16.7	16.2	17.0	17.4	15.8	16.7	16.2	17.0	17.3
6H					15.9	16.7	16.3	17.1	17.4	16.0	16.7	16.3	17.1	17.4
8H					16.0	16.7	16.4	17.0	17.4	16.0	16.7	16.4	17.1	17.5
12H					16.0	16.6	16.4	17.0	17.4	16.0	16.7	16.5	17.1	17.5
8H 4H					15.8	16.5	16.2	16.9	17.3	15.8	16.5	16.2	16.9	17.2
6H					16.0	16.6	16.4	17.0	17.4	16.0	16.6	16.4	17.0	17.4
8H					16.0	16.6	16.5	17.0	17.4	16.1	16.6	16.6	17.0	17.5
12H					16.0	16.5	16.5	16.9	17.4	16.2	16.6	16.7	17.1	17.5
12H 4H					15.8	16.4	16.2	16.8	17.2	15.8	16.4	16.2	16.8	17.2
6H					16.0	16.5	16.4	16.9	17.4	16.0	16.5	16.4	16.9	17.4
8H					16.0	16.5	16.5	16.9	17.4	16.1	16.6	16.6	17.0	17.5
Variations with the observer position at spacings:														
S = 1.0H					+ 1.0 / - 1.4					+ 1.0 / - 1.3				
1.5H					+ 0.8 / - 1.5					+ 0.8 / - 1.4				
2.0H					+ 2.7 / - 4.9					+ 2.7 / - 4.5				

CIE Pub.117 Corrected 1183 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.6)

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: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

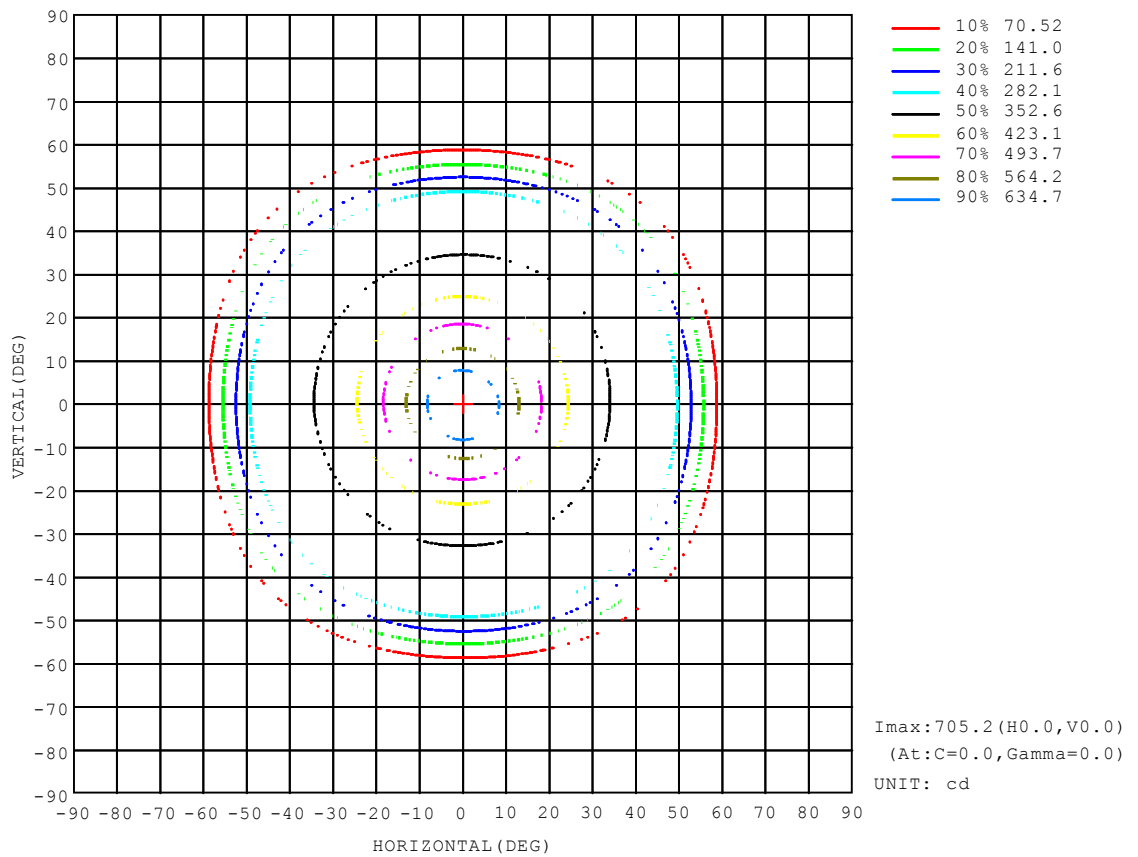
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS (PERCENT) k (RI) x RCR = 5									
k = 0.60	58	49	43	58	49	43	57	48	43	38
0.80	68	59	53	67	59	53	65	58	53	47
1.00	76	67	62	75	67	62	73	68	61	56
1.25	82	74	69	80	74	69	78	72	68	63
1.50	86	79	74	84	78	73	82	76	72	67
2.00	91	85	80	89	84	80	86	82	78	72
2.50	93	88	84	91	87	83	88	84	81	75
3.00	95	91	87	94	89	86	90	87	84	77
4.00	98	94	91	96	92	90	92	90	87	80
5.00	99	96	93	97	94	92	94	91	89	81
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: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	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: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

Flux out:488.5 lm

3.281ft 1m	31.75,65.52fc 341.8,705.2lx	-	4.364ft 133.01cm
6.562ft 2m	7.938,16.38fc 85.45,176.3lx	-	8.728ft 266.02cm
9.843ft 3m	3.528,7.280fc 37.98,78.36lx		13.09ft 399.03cm
13.12ft 4m	1.985,4.095fc 21.36,44.08lx		17.46ft 532.05cm
16.4ft 5m	1.270,2.621fc 13.67,28.21lx		21.82ft 665.06cm
Height	Eavg,Emax	Angle:67.25deg	Diameter

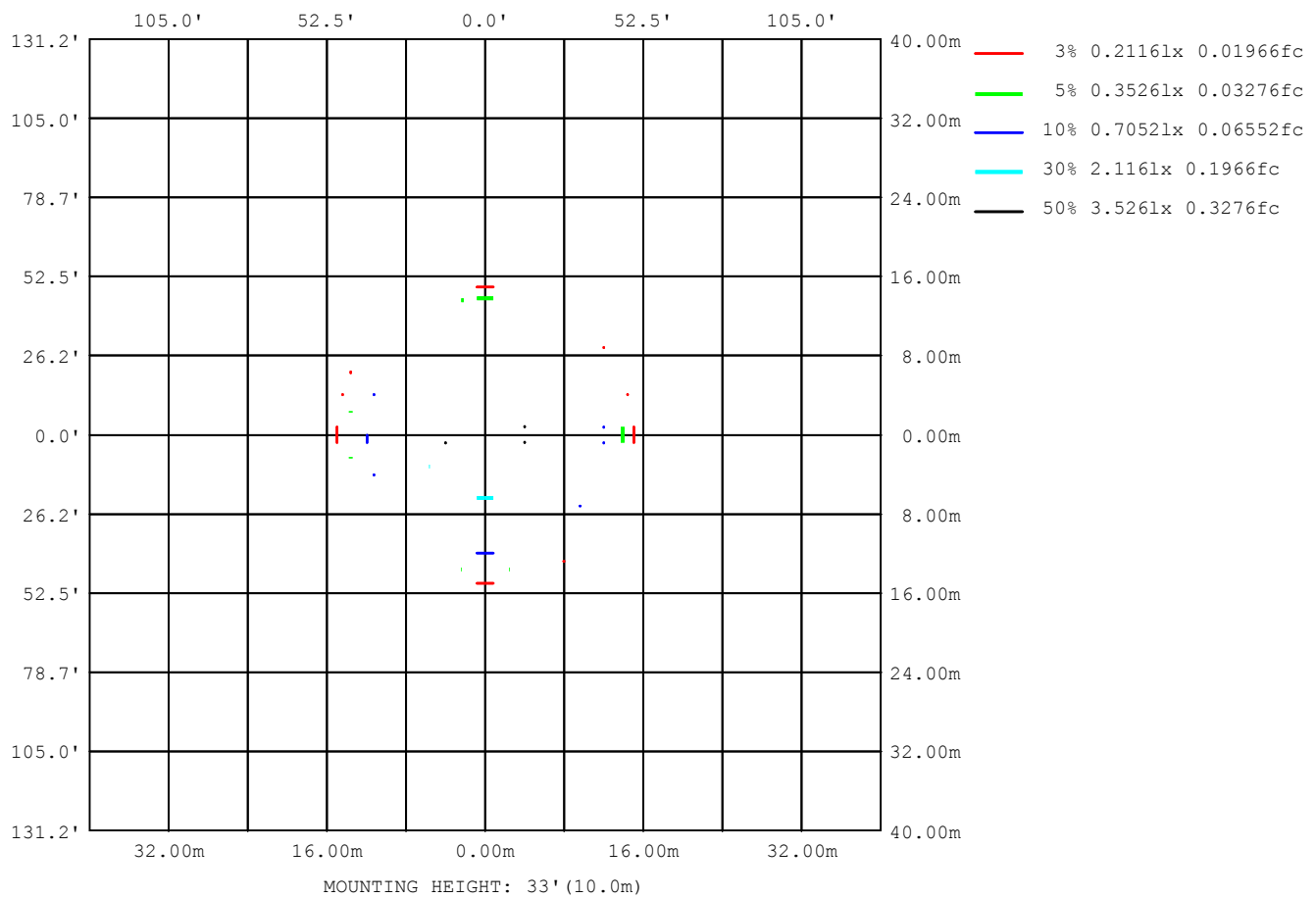
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

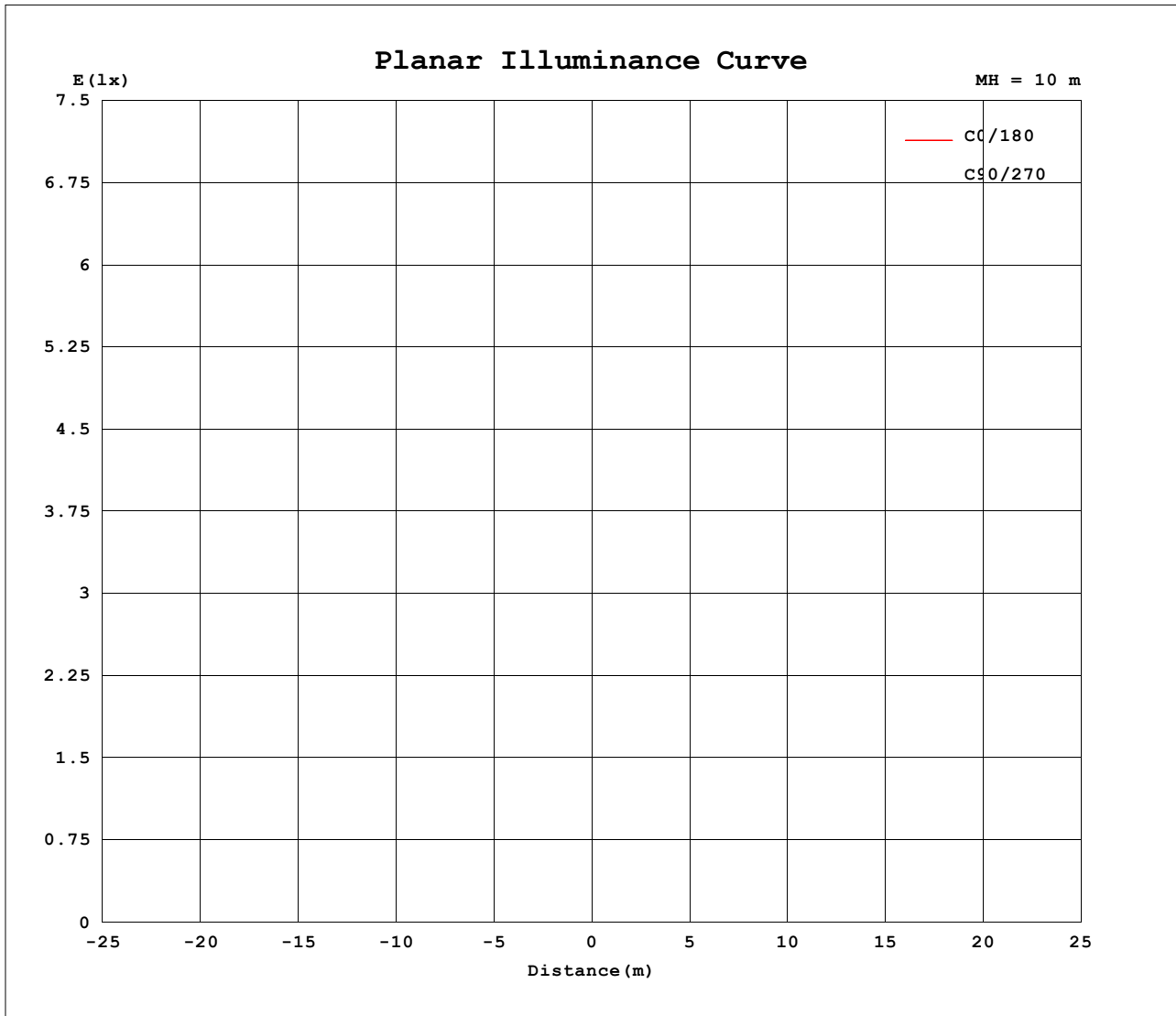
NAME: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:



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:

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: HGseriesCOB DOWNLIGHT	TYPE:HGseriesCOB DOWNLIGHT	WEIGHT:
SPEC.:6	DIM.:	SERIAL No.:1
	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C (DEG)	0	45	90	135	180	225	270	315										
γ (DEG)																		
0	702	702	702	702	702	702	702	702										
5	675	676	678	676	674	673	671	672										
10	608	609	609	606	605	606	604	605										
15	532	536	529	532	538	538	538	539										
20	469	466	463	464	471	475	477	473										
25	415	412	406	411	416	420	422	421										
30	376	373	369	373	376	379	382	383										
35	348	345	343	347	349	348	350	353										
40	332	327	330	333	333	332	334	334										
45	318	318	319	320	317	320	317	318										
50	275	273	269	268	264	266	266	267										
55	157	159	153	151	151	153	150	148										
60	49.1	54.0	50.0	48.8	50.9	53.0	49.7	53.3										
65	29.7	30.5	30.5	30.3	29.7	29.9	29.5	30.8										
70	24.0	24.3	24.5	24.2	23.6	23.9	23.9	24.1										
75	17.5	19.2	19.7	18.5	17.1	19.1	19.6	19.0										
80	11.6	12.4	13.3	12.1	11.4	12.3	13.5	12.4										
85	3.28	4.38	6.13	4.11	3.16	4.19	5.98	4.28										
90	0.00	0.00	0.01	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	0.08	0.00	0.10	0.06	0.00	0.08	0.00										
135	0.00	0.16	0.00	0.14	0.16	0.00	0.14	0.00										
140	0.08	0.24	0.08	0.22	0.22	0.06	0.20	0.04										
145	0.10	0.28	0.12	0.28	0.28	0.10	0.30	0.12										
150	0.16	0.34	0.16	0.34	0.34	0.14	0.34	0.14										
155	0.24	0.44	0.22	0.40	0.40	0.20	0.38	0.18										
160	0.30	0.48	0.32	0.50	0.48	0.30	0.48	0.30										
165	0.40	0.58	0.38	0.59	0.54	0.40	0.54	0.38										
170	0.48	0.62	0.46	0.59	0.54	0.46	0.54	0.44										
175	0.52	0.62	0.56	0.59	0.54	0.48	0.54	0.50										
180	0.62	0.62	0.58	0.59	0.54	0.54	0.54	0.59										

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: