Shenzhen Belling Efficiency Testing Laboratory Co.,Ltd.
www.bellingtest.com

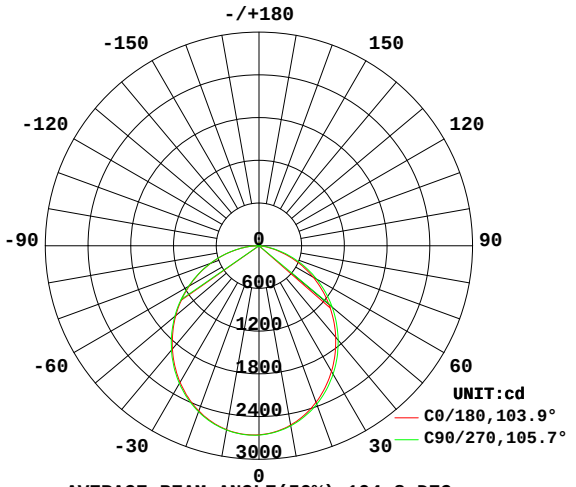
Tel:0755-21038430
Address:1 F,No.1 building,Meibaohe industrial park,Dalang street,Longhua district,Shenzhen,China

LUMINAIRE PHOTOMETRIC TEST REPORT

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

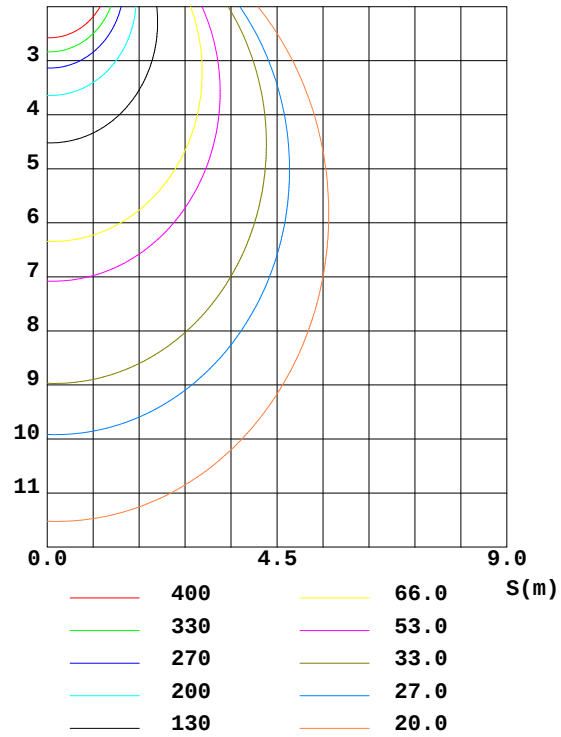
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 98.08 lm/W	
MODEL	HCP-602720 + HCP603720	Imax(cd)	2663	S/MH(C0/180)	1.24
NOMINAL POWER(W)	72	LOR(%)	100.0	S/MH(C90/270)	1.25
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	7056.0	η UP,DN(C0-180)	0.8,53.0
NOMINAL FLUX(lm)	7056	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.8,45.3
LAMPS INSIDE	1	η up(%)	1.6	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	229.8	η down(%)	98.4	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):104.8 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	2624	2632	2628	2620	2557	2561	2569	2578	0- 10	250.8	250.8	3.55,3.55
20	2470	2485	2481	2457	2341	2349	2369	2382	10- 20	710.3	961.0	13.6,13.6
30	2216	2239	2235	2194	2037	2049	2081	2096	20- 30	1054	2016	28.6,28.6
40	1893	1916	1914	1858	1676	1689	1731	1750	30- 40	1238	3253	46.1,46.1
50	1525	1547	1544	1478	1284	1295	1343	1366	40- 50	1247	4500	63.8,63.8
60	1132	1152	1145	1075	875.4	882.6	933.6	959.8	50- 60	1093	5593	79.3,79.3
70	724.7	742.2	731.6	661.7	466.9	472.3	517.9	548.3	60- 70	804.9	6398	90.7,90.7
80	328.1	338.2	329.1	266.9	114.7	119.1	149.5	175.7	70- 80	434.4	6832	96.8,96.8
90	36.09	42.09	34.78	12.35	4.446	4.536	4.389	4.265	80- 90	108.4	6941	98.4,98.4
100	6.659	6.874	7.592	7.897	7.917	8.124	8.045	7.165	90-100	8.173	6949	98.5,98.5
110	11.03	11.21	12.26	12.57	12.16	12.41	12.33	11.23	100-110	10.21	6959	98.6,98.6
120	15.97	15.95	17.15	17.61	16.76	17.14	17.01	15.80	110-120	14.12	6973	98.8,98.8
130	21.01	20.96	22.06	22.62	21.47	21.94	21.88	20.66	120-130	17.12	6991	99.1,99.1
140	25.86	25.73	26.65	27.19	26.19	26.61	26.62	25.63	130-140	18.51	7009	99.3,99.3
150	30.43	30.19	30.75	31.45	30.76	30.85	30.94	30.22	140-150	17.88	7027	99.6,99.6
160	34.42	34.10	34.19	35.20	35.23	34.95	34.72	34.56	150-160	15.08	7042	99.8,99.8
170	38.14	37.35	36.98	38.04	39.53	38.56	37.93	38.33	160-170	10.29	7052	99.9,99.9
180	40.80	39.47	38.75	39.83	40.87	39.51	38.80	39.88	170-180	3.707	7056	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

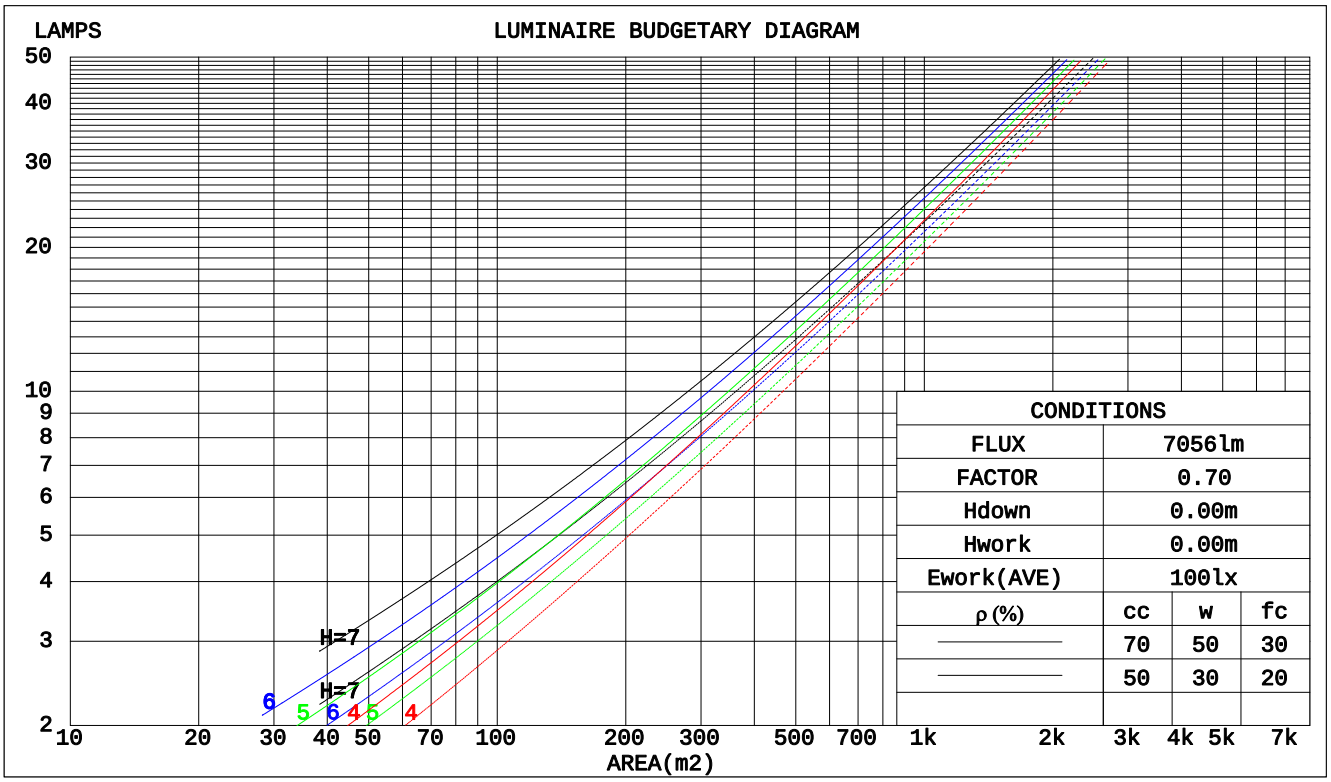
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

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			Coefficients of Utilization(CU)												
0.0	1.19	1.19	1.19	1.16	1.16	1.16	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	.98
1.0	1.04	.00	.96	1.02	.98	.94	.97	.94	.91	.93	.90	.88	.89	.87	.85	.83
2.0	.91	.84	.79	.89	.83	.78	.85	.80	.76	.82	.77	.74	.78	.75	.72	.70
3.0	.80	.72	.66	.78	.71	.65	.75	.69	.64	.72	.67	.62	.70	.65	.61	.59
4.0	.71	.62	.56	.70	.62	.55	.67	.60	.54	.64	.58	.54	.62	.57	.53	.50
5.0	.64	.55	.48	.62	.54	.48	.60	.53	.47	.58	.52	.47	.56	.50	.46	.44
6.0	.57	.49	.42	.56	.48	.42	.54	.47	.41	.53	.46	.41	.51	.45	.41	.38
7.0	.52	.43	.37	.51	.43	.37	.50	.42	.37	.48	.41	.36	.46	.41	.36	.34
8.0	.48	.39	.33	.47	.39	.33	.45	.38	.33	.44	.37	.33	.43	.37	.32	.30
9.0	.44	.36	.30	.43	.35	.30	.42	.35	.30	.41	.34	.30	.39	.34	.29	.27
10.0	.40	.33	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.27	.25



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

WEC AND CCEC

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

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 Coeffcients(WEC)									
0.0																
1.0	.299	.170	.054	.291	.166	.053	.277	.159	.051	.264	.152	.049	.252	.146	.047	
2.0	.283	.155	.048	.276	.152	.047	.264	.147	.046	.252	.141	.044	.241	.137	.043	
3.0	.263	.140	.042	.257	.137	.041	.246	.133	.040	.235	.129	.040	.226	.125	.039	
4.0	.243	.126	.037	.238	.124	.037	.228	.121	.036	.219	.118	.035	.210	.114	.035	
5.0	.225	.115	.033	.221	.113	.033	.212	.110	.032	.204	.108	.032	.196	.105	.031	
6.0	.209	.105	.030	.205	.104	.030	.197	.101	.029	.190	.099	.029	.183	.096	.029	
7.0	.195	.096	.027	.191	.095	.027	.184	.093	.027	.178	.091	.027	.172	.089	.026	
8.0	.183	.089	.025	.179	.088	.025	.173	.086	.025	.167	.085	.024	.161	.083	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.080	.023	.157	.079	.023	.152	.077	.022	
10.0	.161	.077	.021	.158	.077	.021	.153	.075	.021	.148	.074	.021	.144	.072	.021	

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	.203	.203	.203	.173	.173	.173	.118	.118	.118	.068	.068	.068	.022	.022	.022	
1.0	.192	.169	.148	.164	.145	.127	.112	.100	.088	.065	.058	.051	.021	.019	.017	
2.0	.184	.145	.112	.157	.124	.097	.108	.086	.067	.062	.050	.039	.020	.016	.013	
3.0	.176	.127	.088	.151	.109	.076	.103	.076	.054	.060	.044	.032	.019	.014	.010	
4.0	.168	.114	.072	.144	.098	.063	.099	.068	.044	.057	.040	.026	.018	.013	.009	
5.0	.161	.103	.061	.138	.089	.053	.095	.062	.037	.055	.037	.022	.018	.012	.007	
6.0	.154	.095	.053	.132	.082	.046	.091	.057	.032	.053	.034	.019	.017	.011	.006	
7.0	.147	.088	.047	.126	.076	.041	.087	.053	.029	.051	.031	.017	.016	.010	.006	
8.0	.141	.082	.042	.121	.071	.037	.084	.050	.026	.049	.029	.015	.016	.010	.005	
9.0	.135	.077	.038	.116	.067	.034	.080	.047	.024	.047	.028	.014	.015	.009	.005	
10.0	.129	.073	.036	.111	.063	.031	.077	.045	.022	.045	.026	.013	.015	.009	.004	

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

Uncorrected UGR Table

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	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	32.0	33.5	32.3	33.7	33.9	32.0	33.5	32.3	33.7	34.0
3H	33.6	34.9	33.9	35.2	35.4	33.6	35.0	33.9	35.2	35.5
4H	34.2	35.5	34.5	35.8	36.1	34.3	35.5	34.6	35.8	36.1
6H	34.7	35.9	35.1	36.2	36.5	34.7	36.0	35.1	36.3	36.6
8H	34.9	36.0	35.2	36.4	36.7	34.9	36.1	35.3	36.4	36.7
12H	35.0	36.1	35.4	36.4	36.8	35.0	36.2	35.4	36.5	36.8
4H 2H	32.6	33.9	33.0	34.2	34.5	32.7	33.9	33.0	34.2	34.5
3H	34.4	35.5	34.8	35.8	36.2	34.4	35.5	34.8	35.9	36.2
4H	35.2	36.2	35.6	36.5	36.9	35.2	36.2	35.6	36.6	36.9
6H	35.8	36.7	36.2	37.1	37.5	35.8	36.7	36.3	37.1	37.5
8H	36.0	36.9	36.5	37.3	37.7	36.1	36.9	36.5	37.3	37.7
12H	36.2	37.0	36.7	37.4	37.8	36.2	37.0	36.7	37.4	37.9
8H 4H	35.5	36.3	35.9	36.7	37.1	35.5	36.4	35.9	36.8	37.2
6H	36.3	37.0	36.7	37.4	37.9	36.3	37.0	36.8	37.4	37.9
8H	36.6	37.2	37.1	37.7	38.2	36.6	37.2	37.1	37.7	38.2
12H	36.9	37.4	37.4	37.9	38.4	36.9	37.4	37.4	37.9	38.4
12H 4H	35.5	36.3	36.0	36.7	37.1	35.5	36.3	36.0	36.7	37.2
6H	36.3	37.0	36.8	37.4	37.9	36.4	37.0	36.9	37.4	37.9
8H	36.7	37.3	37.2	37.7	38.2	36.7	37.3	37.3	37.8	38.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.2					+ 0.1 / - 0.2				
1.5H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.3					+ 0.1 / - 0.3				

CIE Pub.117 Corrected 7056 lm Total Lamp Luminous Flux.(8log(F/F0) = 6.8)

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

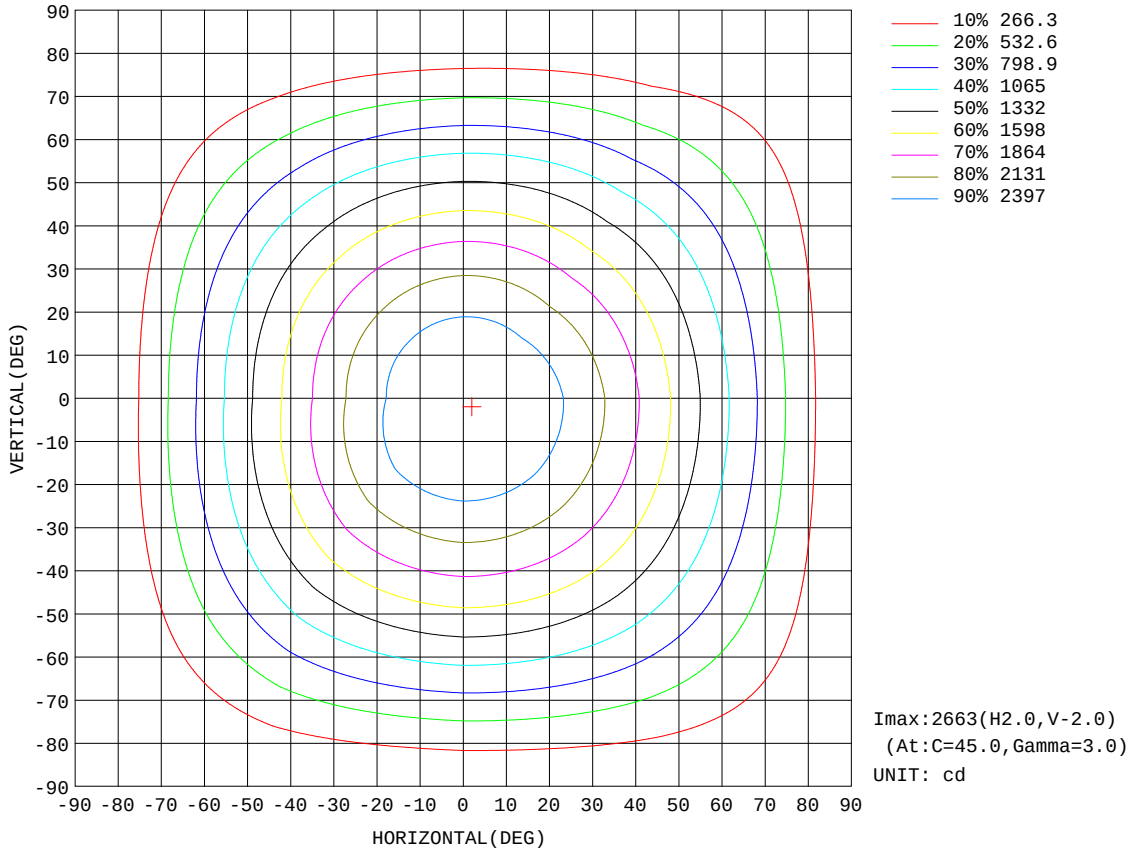
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	58	47	40	58	47	40	56	46	40	33
0.80	68	57	50	67	56	50	65	56	49	42
1.00	77	66	59	75	65	58	73	66	58	51
1.25	84	73	66	82	73	66	79	71	65	58
1.50	89	79	72	87	78	72	84	76	70	63
2.00	95	87	81	93	86	80	90	83	78	70
2.50	99	92	86	97	90	85	93	87	83	74
3.00	102	96	90	100	94	89	96	91	87	78
4.00	106	101	96	104	99	95	99	95	92	83
5.00	109	104	100	106	102	98	101	98	95	85
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: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:



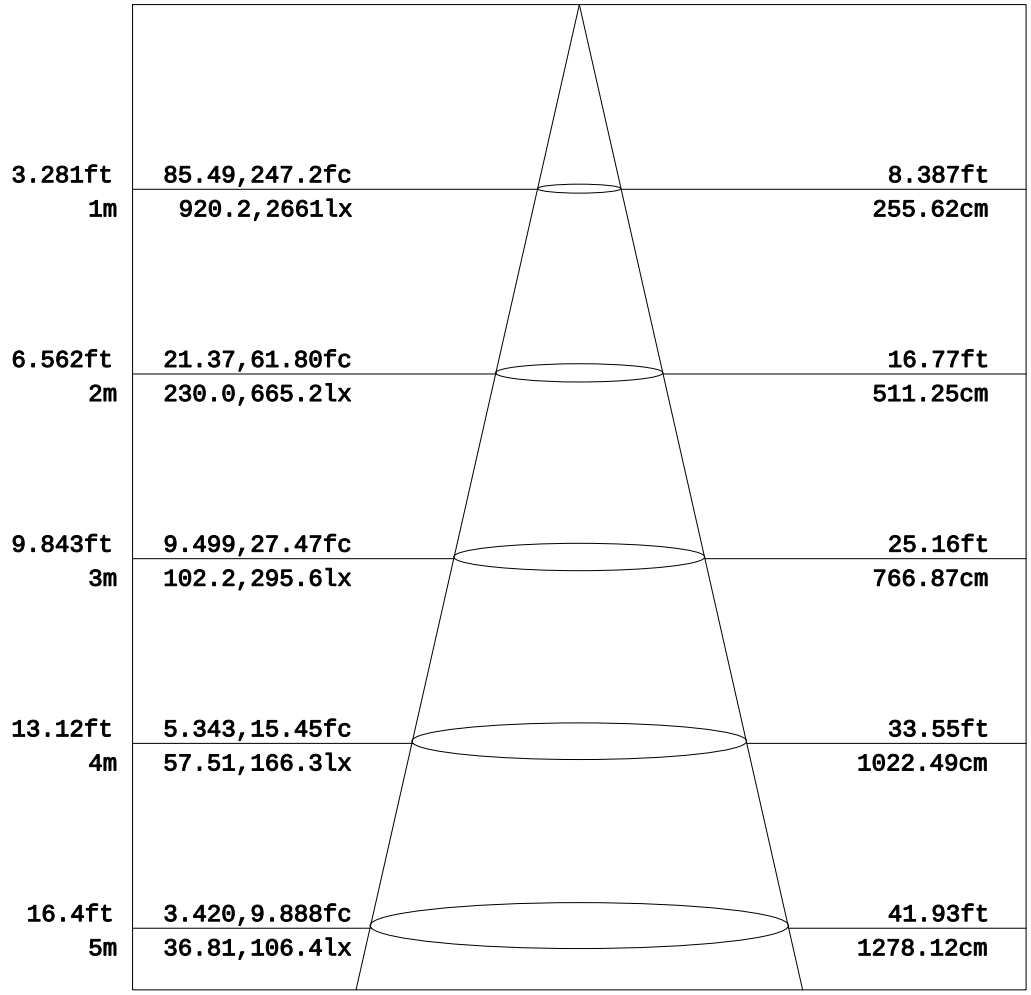
C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

AAI Figure

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

Flux out:4736 lm



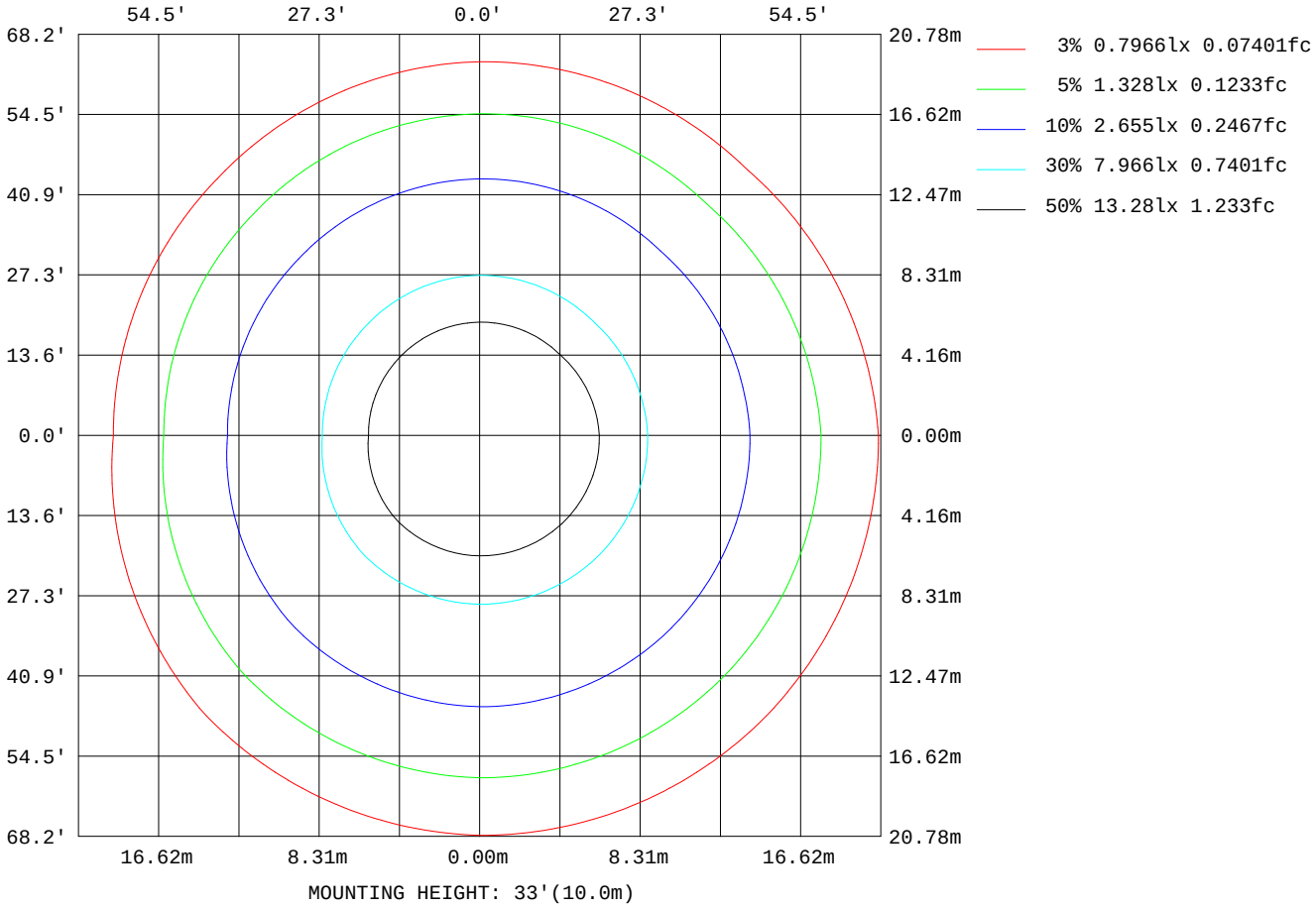
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

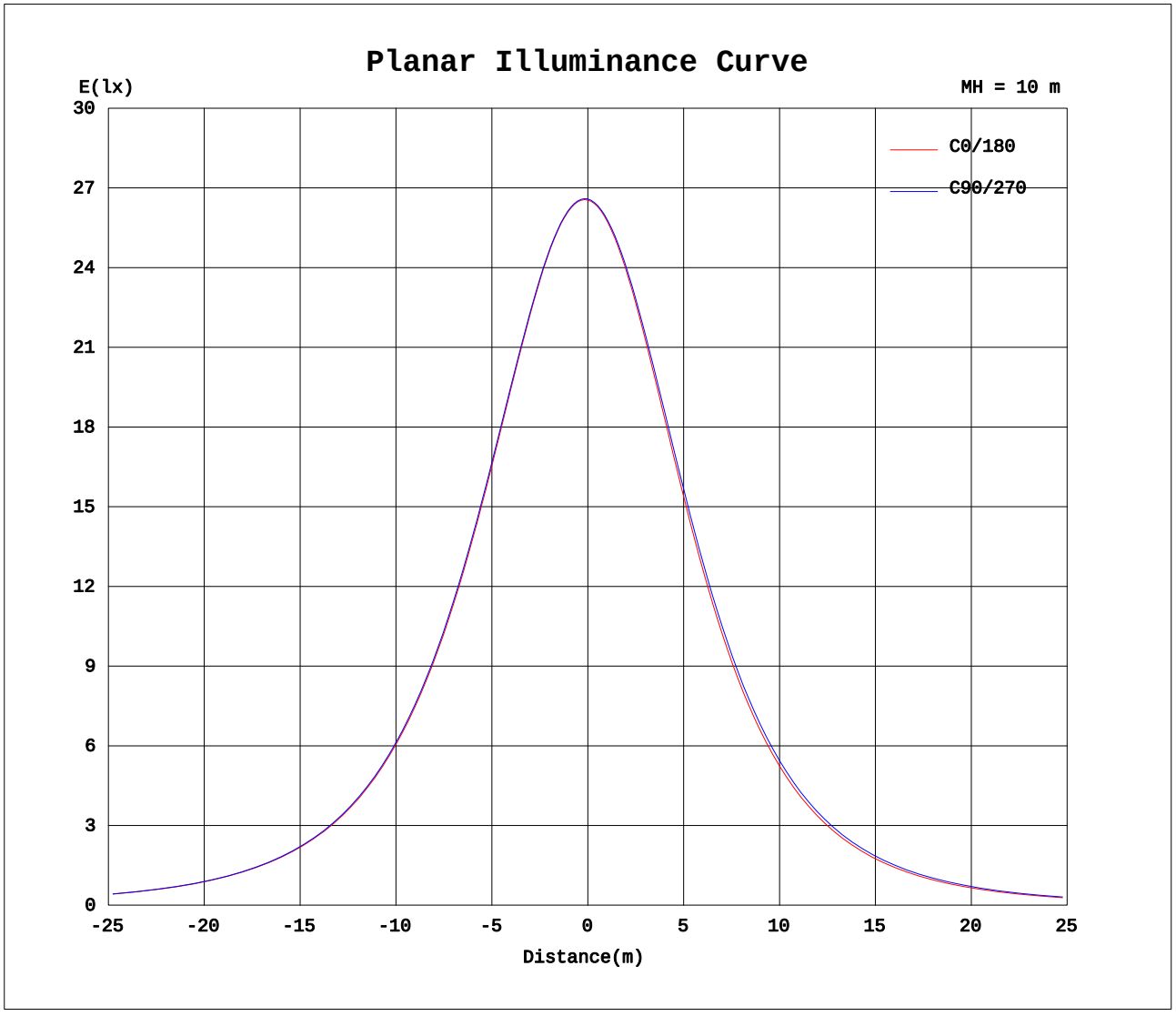
NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME:	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:1.8X0.08X0.08	PROTECTION ANGLE:

Table--1 UNIT: cd

C(DEG) / γ (DEG)	0	45	90	135	180	225	270	315
0	2655	2658	2659	2660	2655	2658	2659	2660
5	2655	2660	2659	2656	2622	2625	2628	2634
10	2624	2632	2628	2620	2557	2561	2569	2578
15	2561	2573	2569	2553	2463	2467	2482	2492
20	2470	2485	2481	2457	2341	2349	2369	2382
25	2353	2373	2369	2336	2198	2208	2234	2248
30	2216	2239	2235	2194	2037	2049	2081	2096
35	2062	2085	2082	2033	1862	1874	1912	1929
40	1893	1916	1914	1858	1676	1689	1731	1750
45	1713	1736	1733	1672	1483	1495	1540	1562
50	1525	1547	1544	1478	1284	1295	1343	1366
55	1330	1352	1347	1278	1080	1090	1139	1165
60	1132	1152	1145	1075	875	883	934	960
65	928	948	939	868	670	676	725	754
70	725	742	732	662	467	472	518	548
75	522	539	526	460	274	282	318	351
80	328	338	329	267	115	119	149	176
85	156	166	155	109	14.0	16.5	33.2	45.6
90	36.1	42.1	34.8	12.4	4.45	4.54	4.39	4.27
95	4.95	5.18	5.49	5.82	6.06	6.20	6.09	5.41
100	6.66	6.87	7.59	7.90	7.92	8.12	8.04	7.16
105	8.75	8.96	9.86	10.2	9.98	10.2	10.1	9.11
110	11.0	11.2	12.3	12.6	12.2	12.4	12.3	11.2
115	13.5	13.5	14.7	15.1	14.4	14.7	14.6	13.5
120	16.0	15.9	17.1	17.6	16.8	17.1	17.0	15.8
125	18.5	18.5	19.6	20.1	19.1	19.5	19.4	18.2
130	21.0	21.0	22.1	22.6	21.5	21.9	21.9	20.7
135	23.5	23.4	24.4	25.0	23.9	24.3	24.3	23.1
140	25.9	25.7	26.6	27.2	26.2	26.6	26.6	25.6
145	28.2	28.0	28.8	29.4	28.6	28.8	28.9	28.0
150	30.4	30.2	30.8	31.5	30.8	30.9	30.9	30.2
155	32.5	32.2	32.5	33.4	32.9	32.9	32.8	32.4
160	34.4	34.1	34.2	35.2	35.2	35.0	34.7	34.6
165	36.4	35.9	35.7	36.8	37.5	36.9	36.5	36.6
170	38.1	37.3	37.0	38.0	39.5	38.6	37.9	38.3
175	39.5	38.5	37.9	39.0	40.7	39.5	38.8	39.5
180	40.8	39.5	38.8	39.8	40.9	39.5	38.8	39.9

C Range: 0 - 360DEG
C Interval: 45.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators: ALLEN
Test Date:2018-07-26

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.266
Humidity:65.0%
Test Distance:9.680m [K=1.0000]
Remarks: