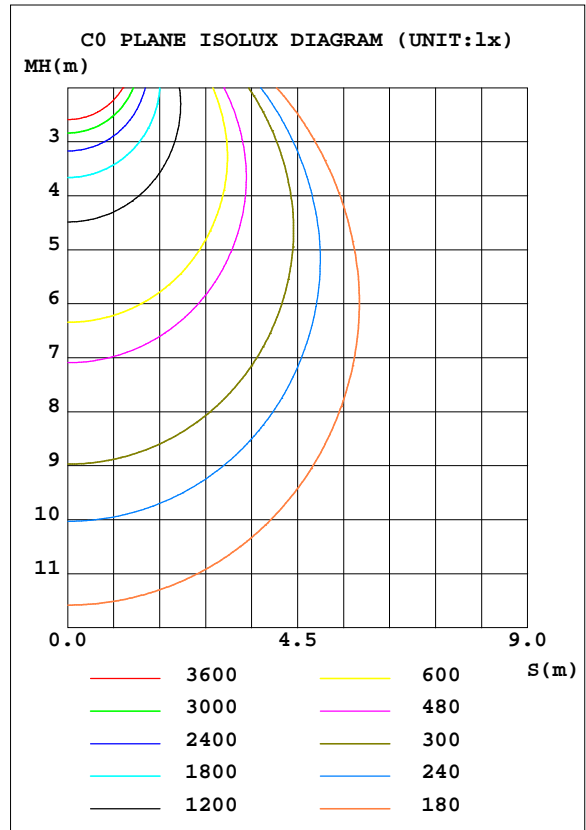
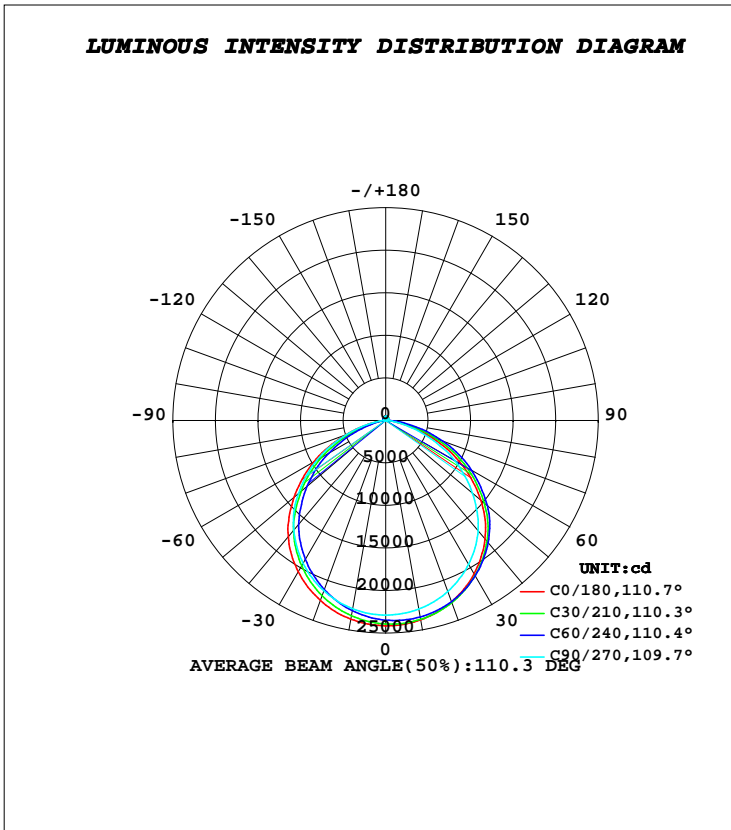


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

DATA OF LAMP		PHOTOMETRIC DATA Eff: 131.92 lm/W			
MODEL	HL-HB500W	I _{max} (cd)	24136	S/MH(C0/180)	1.28
NOMINAL POWER(W)	500	LOR(%)	100.0	S/MH(C90/270)	1.27
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	65921	η UP, DN(C0-180)	1.3,46.0
NOMINAL FLUX(lm)	65921.2	CIE CLASS	DIRECT	η UP, DN(C180-360)	1.4,51.2
LAMPS INSIDE	1	η up(%)	2.8	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	222.5	η down(%)	97.2	CIBSE SHR MAX	1.35



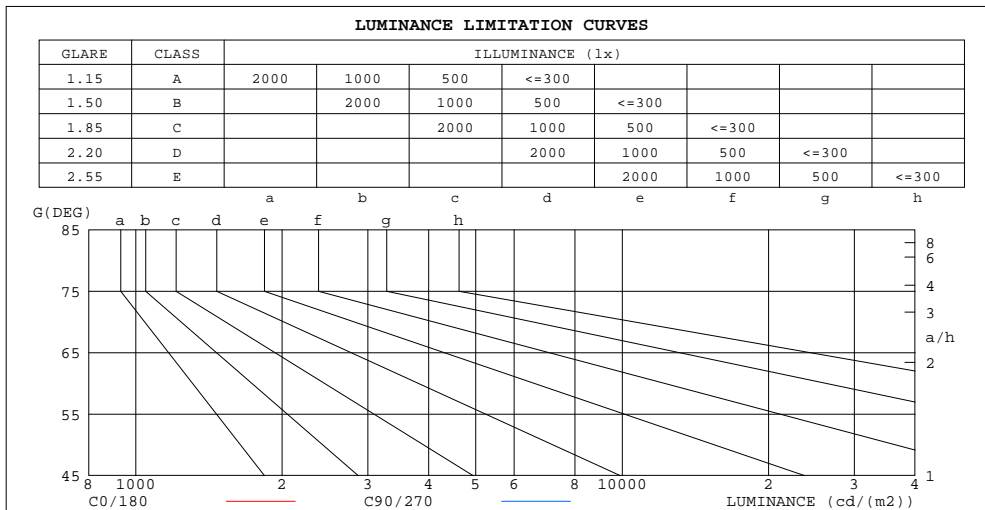
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-04-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7500]
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	2379	2359	2250	2161	2371	2299	2246	2305	0- 10	2206	2206	3.35,3.35
20	2269	2271	2138	1978	2251	2152	2129	2262	10- 20	6332	8538	13,13
30	2081	2105	1951	1722	2055	1931	1941	2146	20- 30	9635	18172	27.6,27.6
40	1818	1864	1691	1371	1782	1641	1682	1955	30- 40	11646	29819	45.2,45.2
50	1460	1537	1334	971.9	1410	1254	1338	1693	40- 50	11980	41799	63.4,63.4
60	1031	1131	935.6	524.9	980.4	824.0	934.9	1338	50- 60	10451	52250	79.3,79.3
70	557.8	675.7	484.5	151.4	506.7	375.8	497.3	921.8	60- 70	7322	59572	90.4,90.4
80	152.6	247.2	123.8	13.59	121.9	66.90	134.7	473.2	70- 80	3564	63136	95.8,95.8
90	11.30	22.35	11.16	15.14	15.64	16.43	14.84	121.1	80- 90	963.1	64099	97.2,97.2
100	15.85	13.98	15.27	20.25	19.88	20.80	18.39	15.28	90-100	231.9	64331	97.6,97.6
110	21.44	19.10	20.28	25.61	25.06	25.85	22.79	18.51	100-110	209.5	64540	97.9,97.9
120	27.22	24.63	25.47	30.43	30.46	30.99	27.59	23.16	110-120	246.6	64787	98.3,98.3
130	32.61	29.97	30.20	34.53	35.14	35.20	31.71	27.94	120-130	267.1	65054	98.7,98.7
140	37.03	34.55	34.23	37.73	38.97	38.66	35.10	32.12	130-140	263.3	65317	99.1,99.1
150	41.33	38.95	38.15	41.06	42.54	41.93	38.38	35.97	140-150	237.1	65555	99.4,99.4
160	45.79	43.41	42.22	44.58	46.43	45.36	41.88	40.14	150-160	192.1	65747	99.7,99.7
170	50.14	47.73	46.21	47.62	50.29	48.67	45.49	44.52	160-170	128.5	65875	99.9,99.9
180	51.85	49.77	47.74	47.45	52.36	49.94	46.89	47.51	170-180	46.05	65921	100,100
DEG	LUMINOUS INTENSITY:×10cd								UNIT:lm			



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	85596	60996
80	146482	118790
75	216703	181647
70	271795	236118
65	314827	277474
60	343727	311869
55	363952	330566
50	378479	345829
45	389917	358619

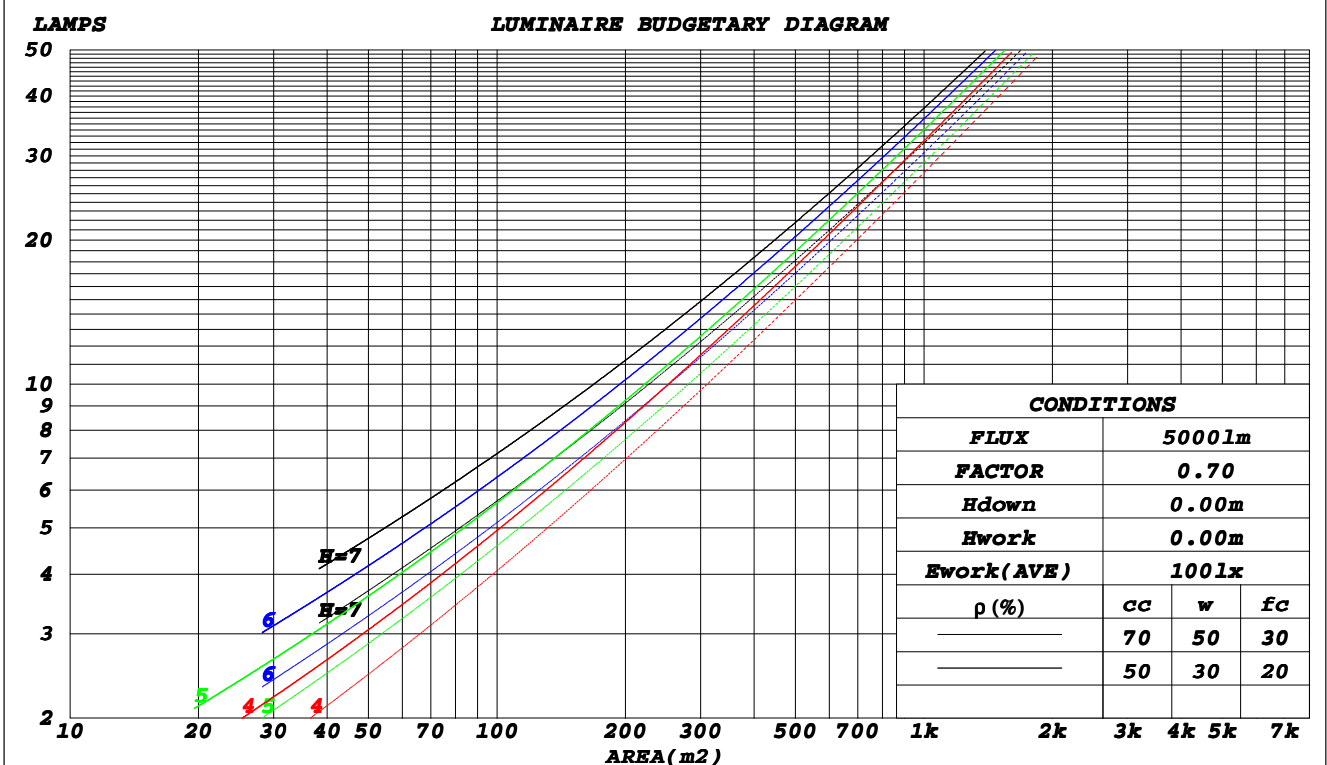
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7500]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Coefficients of Utilization(CU)									
0.0	1.18	1.18	1.18	1.15	1.15	1.15	1.10	1.10	1.10	1.04	1.04	1.04	.00	.00	.00	.97
1.0	1.04	.00	.96	1.01	.98	.94	.97	.94	.91	.92	.90	.88	.88	.86	.85	.82
2.0	.91	.84	.79	.89	.83	.78	.85	.80	.75	.81	.77	.73	.78	.74	.71	.69
3.0	.80	.72	.66	.78	.71	.65	.75	.69	.64	.72	.67	.62	.69	.65	.61	.58
4.0	.71	.62	.56	.70	.62	.55	.67	.60	.54	.64	.58	.53	.62	.56	.52	.50
5.0	.64	.55	.48	.62	.54	.48	.60	.53	.47	.58	.51	.46	.55	.50	.45	.43
6.0	.57	.48	.42	.56	.48	.42	.54	.47	.41	.52	.46	.41	.50	.45	.40	.38
7.0	.52	.43	.37	.51	.43	.37	.49	.42	.36	.47	.41	.36	.46	.40	.36	.34
8.0	.47	.39	.33	.46	.38	.33	.45	.38	.33	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.35	.30	.43	.35	.30	.41	.34	.29	.40	.34	.29	.39	.33	.29	.27
10.0	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.26	.36	.30	.26	.24



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7500]
 Remarks:

WEC AND CCEC

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.295	.168	.053	.287	.164	.052	.273	.156	.050	.259	.149	.048	.246	.143	.046	
2.0	.280	.154	.047	.273	.151	.046	.260	.145	.045	.248	.139	.044	.237	.134	.042	
3.0	.261	.139	.042	.255	.137	.041	.243	.132	.040	.233	.127	.039	.223	.123	.038	
4.0	.242	.126	.037	.237	.124	.037	.226	.120	.036	.217	.116	.035	.208	.113	.034	
5.0	.225	.115	.033	.220	.113	.033	.211	.110	.032	.202	.107	.032	.194	.104	.031	
6.0	.209	.105	.030	.205	.103	.030	.196	.101	.029	.189	.098	.029	.181	.096	.028	
7.0	.195	.096	.027	.191	.095	.027	.184	.093	.027	.177	.091	.026	.170	.088	.026	
8.0	.183	.089	.025	.179	.088	.025	.172	.086	.025	.166	.084	.024	.160	.082	.024	
9.0	.171	.083	.023	.168	.082	.023	.162	.080	.023	.156	.078	.022	.151	.077	.022	
10.0	.161	.077	.021	.158	.077	.021	.153	.075	.021	.148	.073	.021	.143	.072	.021	

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0																
1.0	.212	.212	.212	.181	.181	.181	.123	.123	.123	.071	.071	.071	.023	.023	.023	
2.0	.192	.153	.121	.165	.132	.104	.113	.091	.073	.065	.053	.043	.021	.017	.014	
3.0	.184	.136	.097	.158	.117	.084	.108	.081	.059	.063	.048	.035	.020	.015	.011	
4.0	.177	.122	.081	.152	.106	.070	.104	.074	.050	.060	.043	.029	.019	.014	.010	
5.0	.169	.112	.070	.146	.097	.061	.100	.068	.043	.058	.040	.025	.019	.013	.008	
6.0	.162	.104	.062	.140	.090	.054	.096	.063	.038	.056	.037	.023	.018	.012	.007	
7.0	.156	.097	.055	.134	.084	.048	.093	.059	.034	.054	.035	.020	.017	.011	.007	
8.0	.149	.091	.051	.129	.079	.044	.089	.055	.031	.052	.033	.019	.017	.011	.006	
9.0	.144	.086	.047	.124	.075	.041	.086	.053	.029	.050	.031	.017	.016	.010	.006	
10.0	.138	.082	.045	.119	.071	.039	.083	.050	.028	.048	.030	.016	.016	.010	.005	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7500]
 Remarks:

Uncorrected UGR Table

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

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	33.6	35.1	33.9	35.3	35.6	33.6	35.0	33.9	35.3	35.5
3H	34.9	36.2	35.2	36.5	36.8	34.7	36.1	35.1	36.4	36.6
4H	35.2	36.5	35.6	36.8	37.1	35.1	36.3	35.4	36.6	37.0
6H	35.4	36.6	35.8	36.9	37.2	35.2	36.4	35.6	36.7	37.1
8H	35.4	36.5	35.8	36.9	37.2	35.2	36.4	35.6	36.7	37.0
12H	35.4	36.5	35.8	36.8	37.2	35.2	36.3	35.6	36.6	37.0
4H 2H	34.3	35.6	34.6	35.9	36.2	34.2	35.5	34.6	35.8	36.1
3H	35.7	36.8	36.1	37.1	37.5	35.7	36.8	36.1	37.2	37.5
4H	36.2	37.2	36.6	37.5	37.9	36.2	37.2	36.6	37.6	38.0
6H	36.4	37.3	36.8	37.7	38.1	36.5	37.4	36.9	37.8	38.2
8H	36.4	37.3	36.9	37.7	38.1	36.5	37.3	37.0	37.7	38.2
12H	36.4	37.2	36.9	37.6	38.1	36.5	37.3	37.0	37.7	38.1
8H 4H	36.4	37.3	36.9	37.7	38.1	36.5	37.3	36.9	37.7	38.2
6H	36.8	37.5	37.3	37.9	38.4	36.9	37.6	37.4	38.1	38.5
8H	36.9	37.5	37.4	37.9	38.4	37.0	37.6	37.5	38.1	38.6
12H	36.9	37.4	37.4	37.9	38.4	37.1	37.6	37.6	38.1	38.6
12H 4H	36.4	37.2	36.9	37.6	38.1	36.5	37.2	36.9	37.7	38.1
6H	36.8	37.4	37.3	37.9	38.4	37.0	37.6	37.5	38.0	38.5
8H	36.9	37.5	37.5	38.0	38.5	37.1	37.6	37.6	38.1	38.7
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.2 / - 0.5					+ 0.4 / - 0.6				
2.0H	+ 0.2 / - 0.4					+ 0.3 / - 0.7				

CIE Pub.117 Corrected 65921 lm Total Lamp Luminous Flux.(8log(F/F0) = 14.6)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DAMIN
 Test Date:2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity:65.0%
 Test Distance:8.000m [K=0.7500]
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

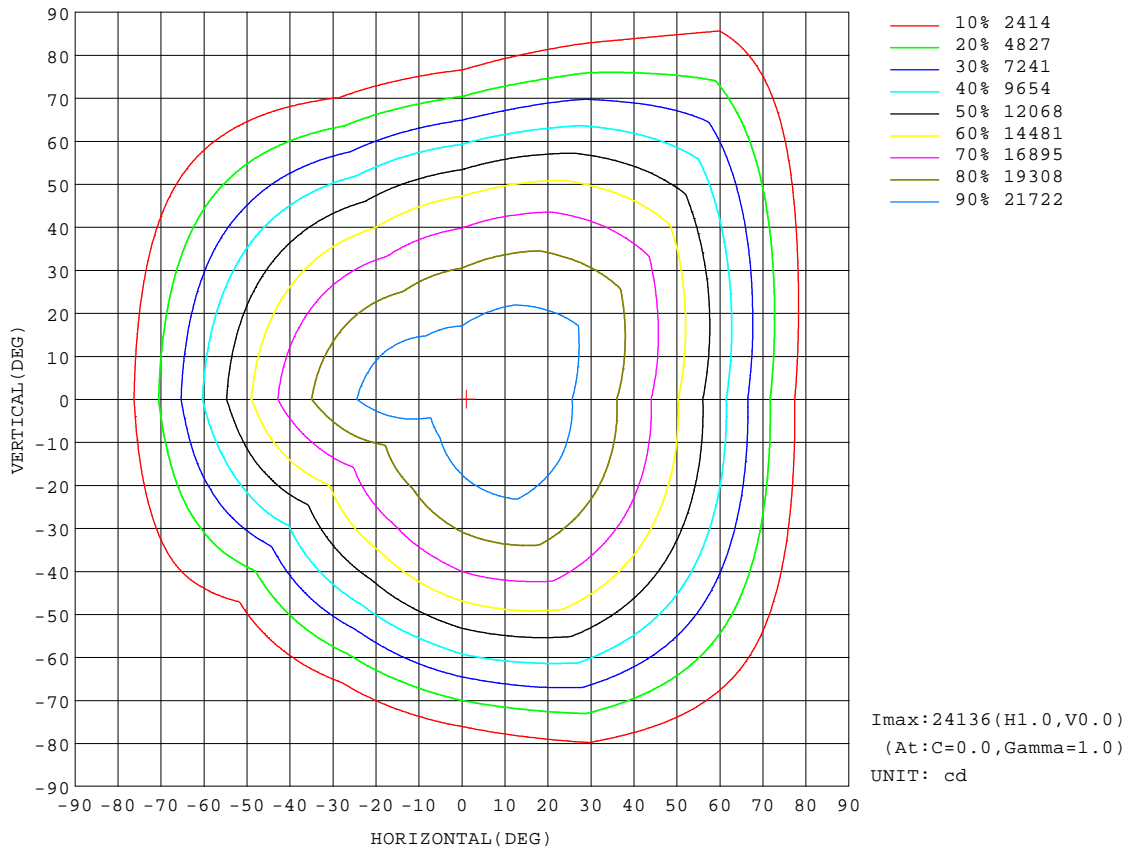
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	58	46	39	57	46	39	55	45	39	33
0.80	68	56	49	67	56	49	65	55	48	41
1.00	76	65	58	75	65	58	73	66	57	50
1.25	83	73	66	82	72	66	79	71	65	57
1.50	88	79	72	87	78	71	83	76	70	62
2.00	95	87	81	93	85	80	89	83	78	70
2.50	99	91	85	97	90	84	93	87	82	73
3.00	102	96	90	100	94	89	95	90	86	77
4.00	106	101	96	103	99	94	99	95	91	82
5.00	108	104	100	106	102	98	101	97	94	85
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7500]
Remarks:

ISOCANDELA DIAGRAM

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	



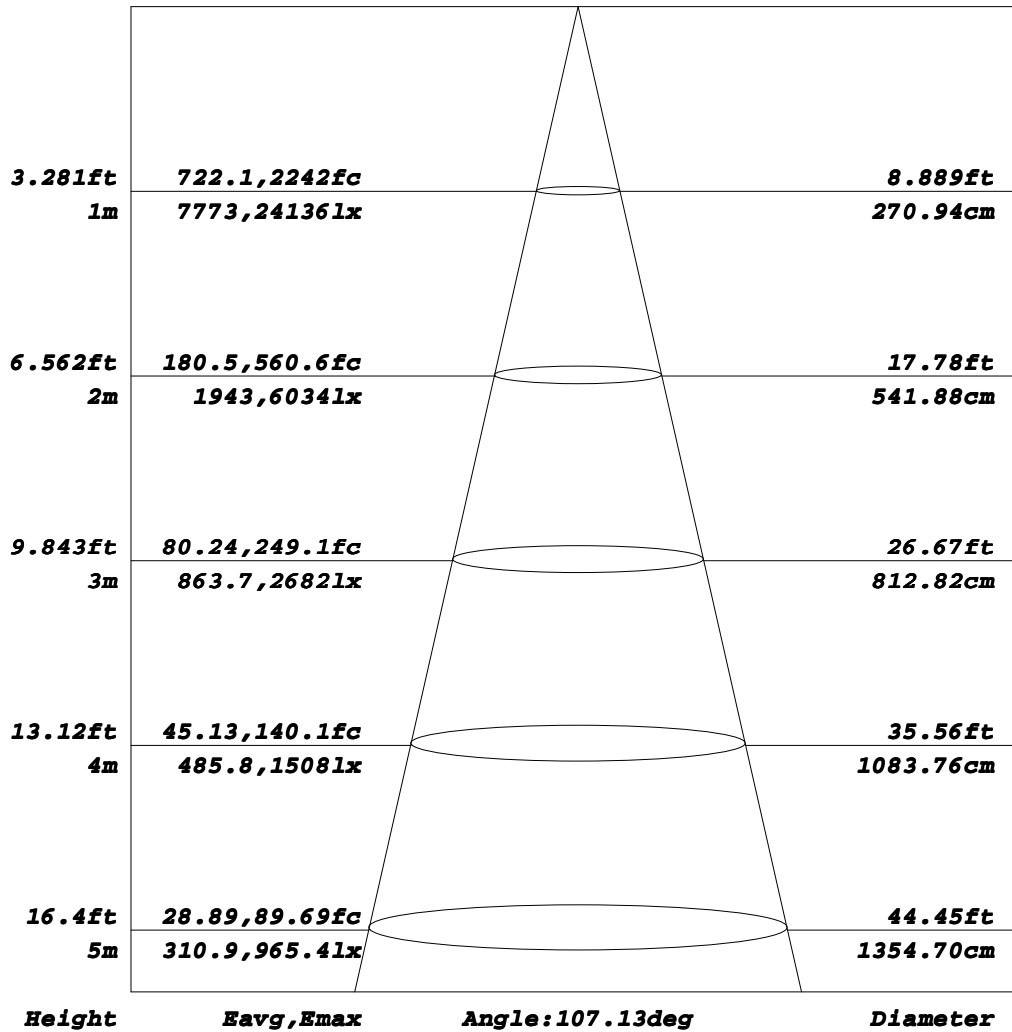
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-04-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7500]
Remarks:

AAI Figure

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

Flux out:46262 lm



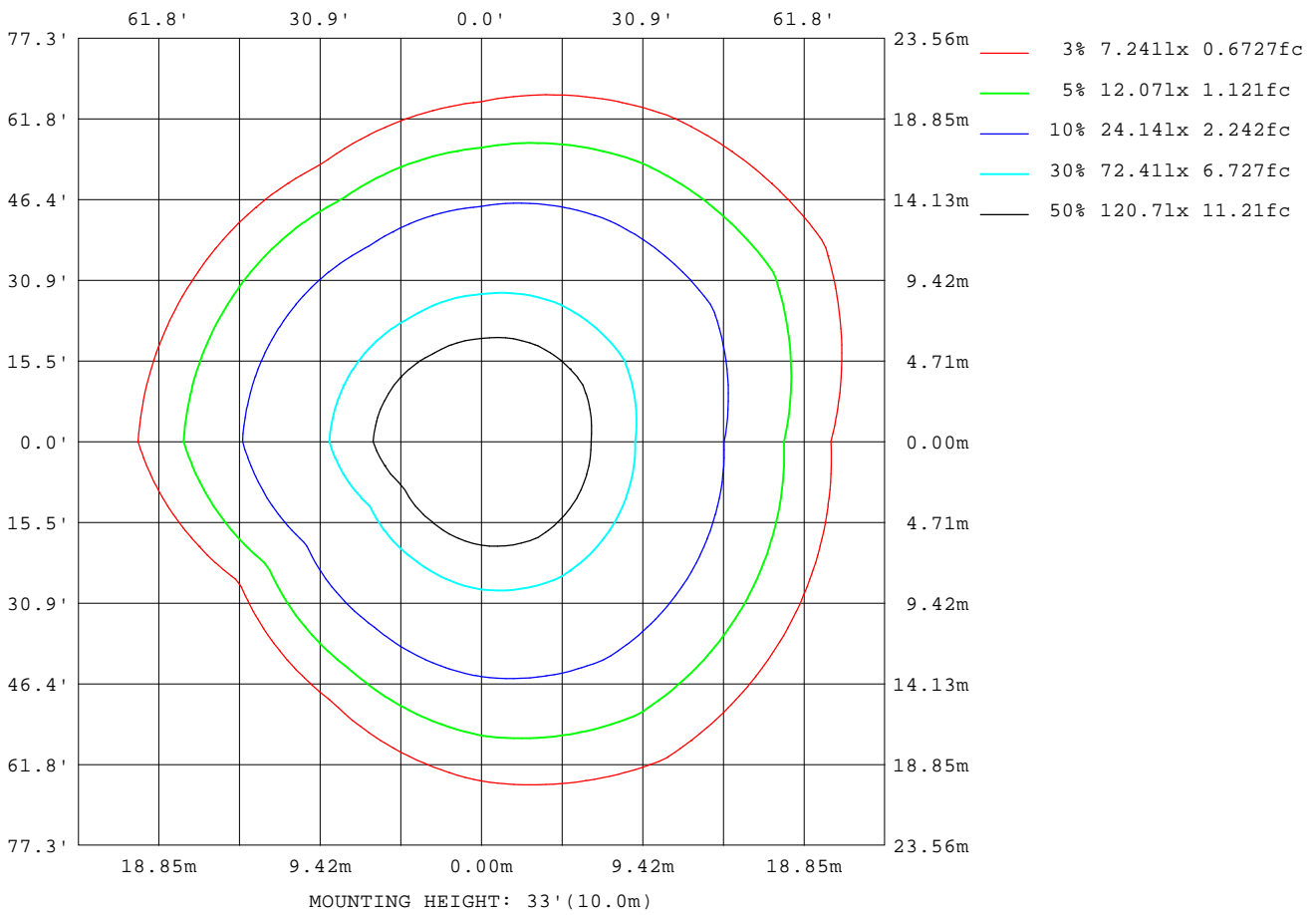
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DAMIN
 Test Date: 2017-04-12

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
 Humidity: 65.0%
 Test Distance: 8.000m [K=0.7500]
 Remarks:

ISOLUX DIAGRAM

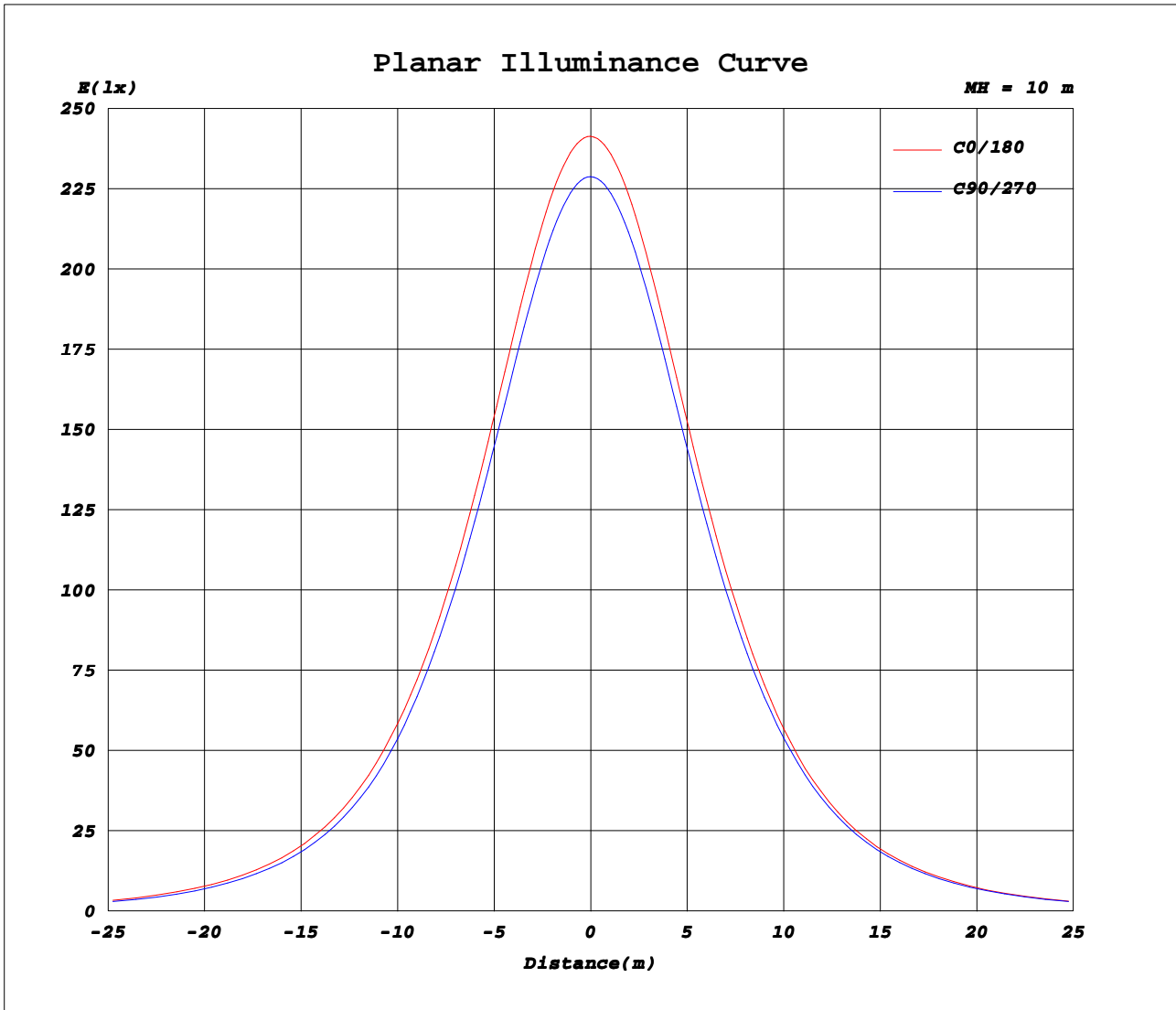
Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-04-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7500]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DAMIN
Test Date: 2017-04-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity: 65.0%
Test Distance: 8.000m [K=0.7500]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.2V I:2.309A P:499.7W PF:0.9830 Lamp Flux:65921.2x1 lm		
NAME: HL-HB500W	TYPE:LED	
MFR.:	SUR.:250*250mm	

Table--1

UNIT: x10cd

C (DEG) \ γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330							
0	2414	2392	2346	2288	2270	2274	2414	2392	2346	2288	2270	2274							
5	2405	2393	2355	2278	2232	2219	2401	2370	2318	2277	2289	2309							
10	2379	2374	2344	2250	2175	2146	2371	2329	2269	2246	2287	2323							
15	2334	2336	2315	2203	2101	2055	2321	2269	2202	2196	2267	2319							
20	2269	2277	2265	2138	2009	1946	2251	2190	2115	2129	2228	2296							
25	2185	2199	2195	2053	1898	1820	2162	2093	2009	2045	2171	2256							
30	2081	2103	2107	1951	1770	1674	2055	1975	1887	1941	2096	2197							
35	1959	1988	2000	1830	1621	1495	1929	1840	1750	1820	2002	2118							
40	1818	1854	1875	1691	1439	1303	1782	1688	1593	1682	1890	2019							
45	1654	1701	1731	1521	1247	1103	1610	1502	1403	1526	1763	1903							
50	1460	1514	1561	1334	1046	897	1410	1300	1209	1338	1618	1768							
55	1253	1312	1364	1138	834	665	1195	1094	1001	1140	1440	1616							
60	1031	1099	1162	936	604	446	980	871	777	935	1240	1435							
65	798	876	952	704	391	244	739	636	552	717	1036	1227							
70	558	635	716	485	205	98.2	507	414	338	497	825	1019							
75	337	409	493	282	74.4	22.9	287	218	164	297	597	797							
80	153	211	284	124	15.5	11.7	122	79.5	54.3	135	387	560							
85	44.8	72.1	121	31.9	11.9	13.8	31.9	19.7	15.6	41.9	201	345							
90	11.3	14.5	30.2	11.2	14.0	16.3	15.6	16.2	16.6	14.8	74.0	168							
95	13.4	12.4	11.2	13.0	16.4	18.9	17.6	18.3	18.7	16.5	18.6	53.3							
100	15.9	14.7	13.2	15.3	18.9	21.6	19.9	20.6	21.0	18.4	15.6	15.0							
105	18.6	17.4	15.6	17.7	21.6	24.3	22.4	23.1	23.4	20.5	17.3	15.8							
110	21.4	20.1	18.1	20.3	24.2	27.0	25.1	25.7	26.0	22.8	19.3	17.7							
115	24.3	23.0	20.7	22.9	26.7	29.5	27.8	28.4	28.6	25.2	21.6	19.9							
120	27.2	25.8	23.4	25.5	29.1	31.8	30.5	31.0	31.0	27.6	24.0	22.3							
125	30.0	28.6	26.1	27.9	31.3	33.9	32.9	33.3	33.2	29.8	26.4	24.8							
130	32.6	31.2	28.7	30.2	33.3	35.8	35.1	35.3	35.1	31.7	28.6	27.3							
135	34.9	33.6	31.0	32.3	35.0	37.4	37.1	37.2	36.8	33.5	30.6	29.5							
140	37.0	35.9	33.1	34.2	36.5	39.0	39.0	38.9	38.4	35.1	32.6	31.7							
145	39.2	38.2	35.3	36.1	38.2	40.5	40.7	40.6	40.0	36.7	34.4	33.6							
150	41.3	40.4	37.5	38.1	39.9	42.2	42.5	42.3	41.6	38.4	36.3	35.7							
155	43.5	42.6	39.6	40.1	41.7	43.9	44.5	44.0	43.3	40.2	38.2	37.7							
160	45.8	44.9	41.9	42.2	43.5	45.6	46.4	45.8	44.9	41.9	40.3	39.9							
165	48.1	47.1	44.1	44.2	45.2	47.0	48.4	47.5	46.6	43.7	42.3	42.3							
170	50.1	49.2	46.2	46.2	46.8	48.4	50.3	49.1	48.2	45.5	44.4	44.6							
175	51.5	50.5	47.7	47.3	47.2	48.5	51.8	50.2	49.1	46.6	46.2	46.7							
180	51.8	51.1	48.5	47.7	47.0	47.9	52.4	50.6	49.3	46.9	47.1	47.9							

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DAMIN
Test Date:2017-04-12

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.267
Humidity:65.0%
Test Distance:8.000m [K=0.7500]
Remarks: