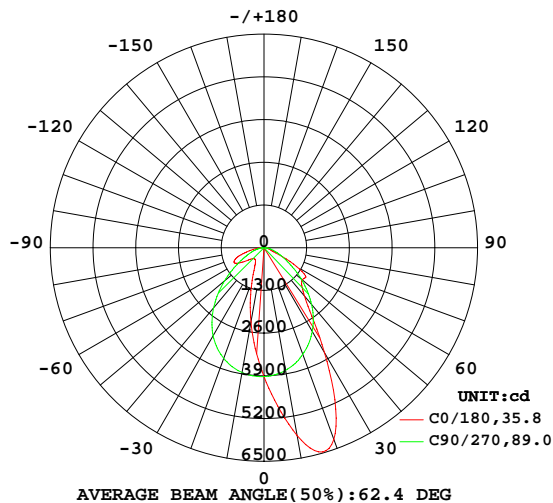


LUMINAIRE PHOTOMETRIC TEST REPORT

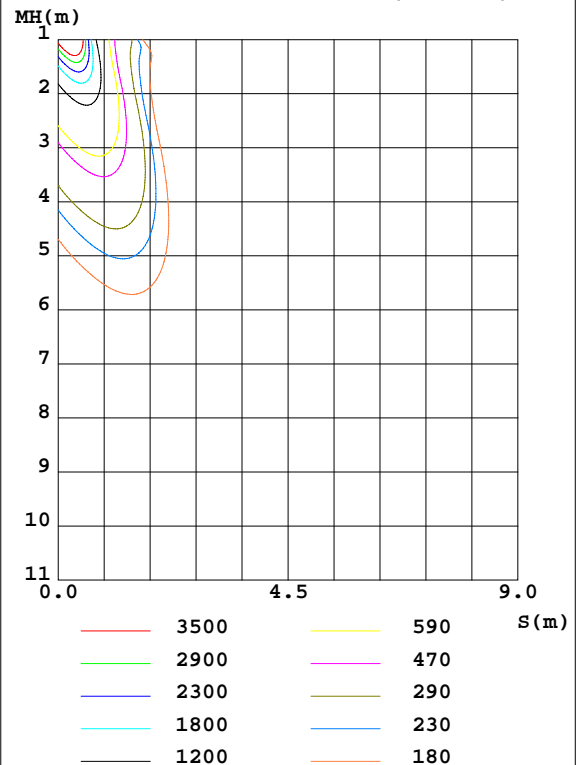
Test:U:220.1V I:0.3013A P:64.35W PF:0.9702 Lamp Flux:7815.09x1 lm		
NAME: LHB04-65	TYPE:65W	WEIGHT:
SPEC.:5000K Ra70 Single Asymmetric L00305	DIM.: 1.447*0.06*0.05	SERIAL No.:
MFR.:	SUR.:1.425*0.05	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 121.45 lm/W			
MODEL	LHB04-65	I _{max} (cd)	6472	S/MH(C0/180)	0.41
NOMINAL POWER(W)	65	LOR(%)	100.0	S/MH(C90/270)	1.18
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	7815.1	η UP,DN(C0-180)	0.0,50.6
NOMINAL FLUX(lm)	7815.09	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.4
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	0.85

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-07-11

Checker:

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	5799	5144	3787	2696	2296	2728	3855	5194	0- 10	375.1	375.1	4.8,4.8
20	6211	6021	3449	1566	1054	1612	3584	6133	10- 20	1094	1469	18.8,18.8
30	3688	5342	2941	792.1	527.5	822.4	3097	5444	20- 30	1516	2985	38.2,38.2
40	1919	3437	2256	496.6	445.6	505.4	2386	3427	30- 40	1450	4435	56.8,56.8
50	1524	1944	1476	415.7	552.4	416.9	1569	1906	40- 50	1189	5624	72,72
60	1151	1307	804.9	403.1	946.3	397.9	853.7	1310	50- 60	974.5	6599	84.4,84.4
70	245.7	611.1	403.9	408.2	883.0	395.0	417.2	601.3	60- 70	705.0	7304	93.5,93.5
80	107.5	162.1	168.0	263.9	373.4	253.5	170.3	156.6	70- 80	378.7	7682	98.3,98.3
90	26.15	21.26	3.302	13.45	14.14	11.54	4.197	21.32	80- 90	132.7	7815	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): 5062.9 lm

%lum = 64.8%

%lamp = 64.8%

Conical surface Flux(120deg): 6598.7 lm

%lum = 84.4%

%lamp = 84.4%

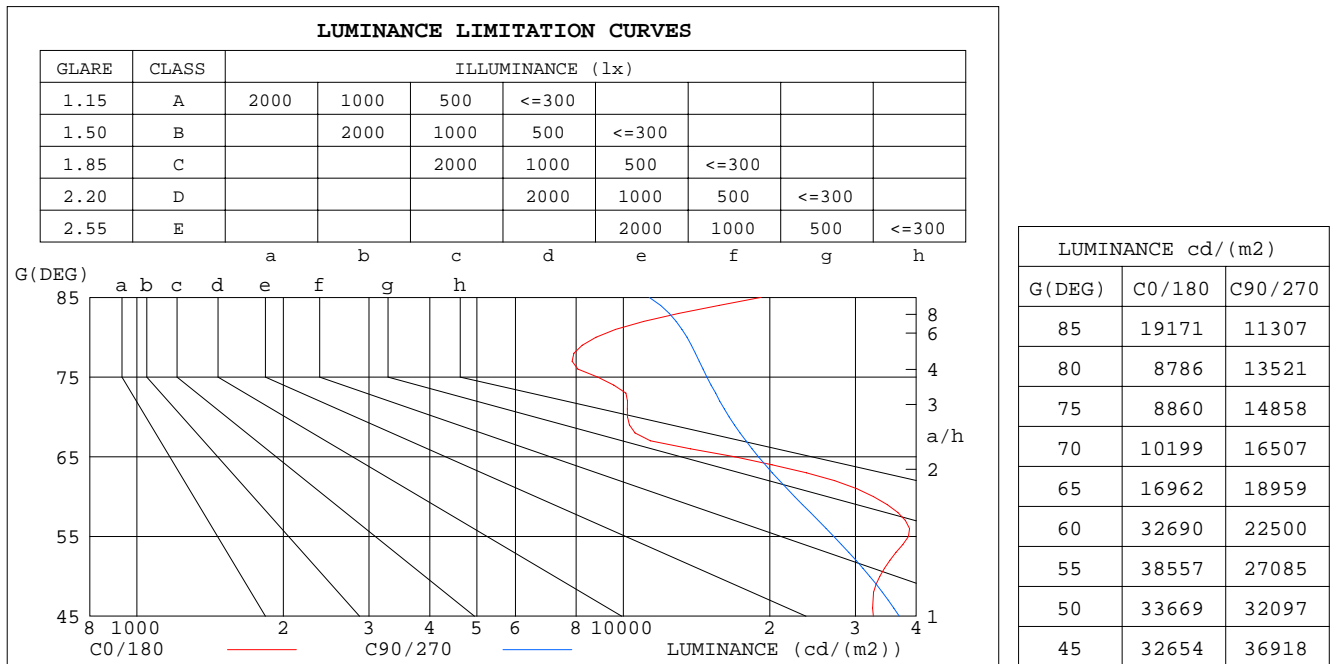
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2016-07-11

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.470m [K=1.0000]
 Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



C Range: 0 - 360°
C Interval: 10.0°
Test Speed: HIGH
Temperature: 25.3°
Operators:
Test Date: 2016-07-11

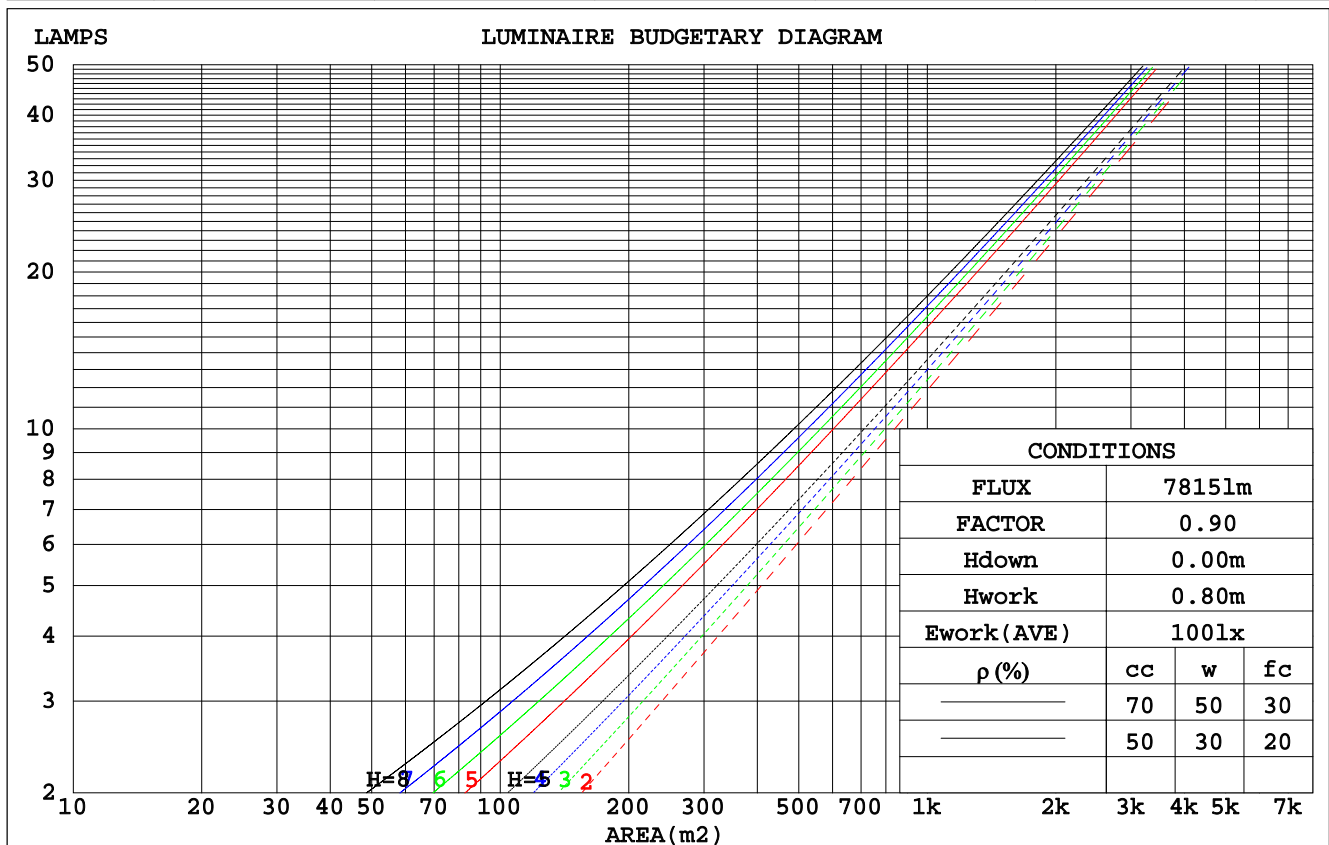
Checker:

γ Range: 0 - 90°
γ Interval: 1.0°
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

pcc	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	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	.00
1.0	1.06	1.02	.98	1.03	.00	.97	.99	.96	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.94	.87	.82	.92	.86	.81	.88	.84	.79	.85	.81	.78	.82	.79	.76	.74
3.0	.84	.76	.70	.82	.75	.70	.79	.73	.68	.76	.72	.67	.74	.70	.66	.64
4.0	.75	.67	.61	.74	.66	.61	.71	.65	.60	.69	.64	.59	.67	.62	.58	.56
5.0	.68	.60	.54	.67	.59	.54	.65	.58	.53	.63	.57	.52	.61	.56	.52	.50
6.0	.62	.54	.48	.61	.53	.48	.59	.52	.47	.58	.52	.47	.56	.51	.47	.45
7.0	.57	.49	.43	.56	.48	.43	.55	.48	.43	.53	.47	.42	.52	.46	.42	.40
8.0	.52	.45	.39	.52	.44	.39	.50	.44	.39	.49	.43	.39	.48	.43	.38	.37
9.0	.49	.41	.36	.48	.41	.36	.47	.40	.35	.46	.40	.35	.45	.39	.35	.33
10.0	.45	.38	.33	.45	.37	.33	.44	.37	.33	.43	.37	.32	.42	.36	.32	.31



C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-07-11

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Checker:

Assessor:

WEC AND CCEC

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	.277	.158	.050	.270	.154	.049	.257	.148	.047	.245	.141	.045	.234	.136	.044	
2.0	.261	.143	.044	.255	.140	.043	.243	.135	.042	.233	.131	.041	.223	.126	.040	
3.0	.243	.129	.039	.237	.127	.038	.227	.123	.037	.218	.120	.037	.210	.116	.036	
4.0	.225	.117	.034	.221	.116	.034	.212	.112	.034	.204	.109	.033	.196	.107	.032	
5.0	.210	.107	.031	.206	.106	.031	.198	.103	.030	.190	.100	.030	.184	.098	.029	
6.0	.196	.098	.028	.192	.097	.028	.185	.095	.028	.179	.093	.027	.172	.091	.027	
7.0	.183	.091	.026	.180	.090	.026	.174	.088	.025	.168	.086	.025	.162	.084	.025	
8.0	.172	.084	.024	.169	.083	.024	.163	.082	.023	.158	.080	.023	.153	.079	.023	
9.0	.162	.078	.022	.159	.078	.022	.154	.076	.022	.150	.075	.021	.145	.074	.021	
10.0	.153	.073	.020	.150	.073	.020	.146	.071	.020	.142	.070	.020	.138	.069	.020	

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	.178	.156	.137	.152	.134	.118	.104	.092	.082	.060	.053	.047	.019	.017	.015	
2.0	.168	.132	.102	.144	.114	.088	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.159	.114	.078	.137	.098	.068	.094	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.151	.100	.062	.130	.087	.054	.089	.060	.038	.052	.035	.022	.017	.012	.007	
5.0	.143	.090	.050	.123	.078	.044	.085	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.136	.081	.042	.117	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.129	.074	.035	.111	.064	.031	.077	.045	.022	.045	.027	.013	.014	.009	.004	
8.0	.123	.068	.030	.106	.059	.027	.073	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.117	.063	.027	.101	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
10.0	.112	.059	.024	.097	.051	.021	.067	.036	.015	.039	.021	.009	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-07-11

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UGR(Unified Glare Rating) Table

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	25.4	26.8	25.7	27.0	27.2	26.8	28.2	27.1	28.4	28.6
3H	25.6	26.9	25.9	27.1	27.3	27.3	28.6	27.6	28.8	29.0
4H	25.6	26.8	25.9	27.1	27.3	27.5	28.7	27.8	28.9	29.2
6H	25.6	26.7	25.9	27.0	27.3	27.6	28.7	27.9	29.0	29.2
8H	25.6	26.7	25.9	27.0	27.3	27.6	28.7	27.9	29.0	29.2
12H	25.7	26.8	26.0	27.0	27.3	27.6	28.6	27.9	28.9	29.2
4H 2H	26.1	27.3	26.4	27.6	27.8	27.2	28.4	27.5	28.6	28.9
3H	26.3	27.4	26.7	27.7	28.0	28.0	29.1	28.3	29.3	29.6
4H	26.4	27.4	26.8	27.7	28.0	28.3	29.3	28.7	29.6	29.9
6H	26.4	27.3	26.8	27.6	28.0	28.5	29.4	28.9	29.7	30.1
8H	26.5	27.3	26.9	27.6	28.0	28.6	29.4	29.0	29.8	30.1
12H	26.6	27.4	27.0	27.7	28.1	28.6	29.4	29.1	29.7	30.1
8H 4H	26.6	27.4	27.0	27.7	28.1	28.3	29.1	28.7	29.5	29.9
6H	26.7	27.3	27.1	27.7	28.1	28.7	29.3	29.1	29.7	30.2
8H	26.8	27.4	27.2	27.8	28.2	28.8	29.4	29.3	29.8	30.3
12H	27.0	27.5	27.5	28.0	28.4	28.9	29.4	29.4	29.9	30.3
12H 4H	26.6	27.3	27.0	27.7	28.1	28.3	29.0	28.7	29.4	29.8
6H	26.7	27.3	27.2	27.7	28.2	28.7	29.2	29.1	29.7	30.1
8H	26.8	27.3	27.3	27.8	28.3	28.8	29.3	29.3	29.8	30.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.4					+ 0.9 / - 0.8				
1.5H	+ 0.5 / - 0.8					+ 0.5 / - 1.2				
2.0H	+ 0.9 / - 1.3					+ 1.2 / - 2.4				

CIE Pub.117 Corrected 7815 lm Total Lamp Luminous Flux.(8log(F/F0) = 7.1)

C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-07-11

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UTILIZATION FACTORS TABLE

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	65	55	48	64	54	48	63	54	48	42
0.80	74	64	58	73	64	58	72	63	57	51
1.00	82	72	66	81	72	66	79	73	65	59
1.25	88	79	73	87	78	72	84	77	72	65
1.50	93	84	78	91	83	78	88	82	76	70
2.00	98	91	85	97	90	85	93	88	83	76
2.50	102	95	90	100	94	89	96	91	87	79
3.00	105	99	94	103	97	93	99	94	91	83
4.00	108	103	99	106	101	98	102	98	95	87
5.00	110	106	103	108	104	101	103	101	98	89
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended				SHRNOM = 1.25		

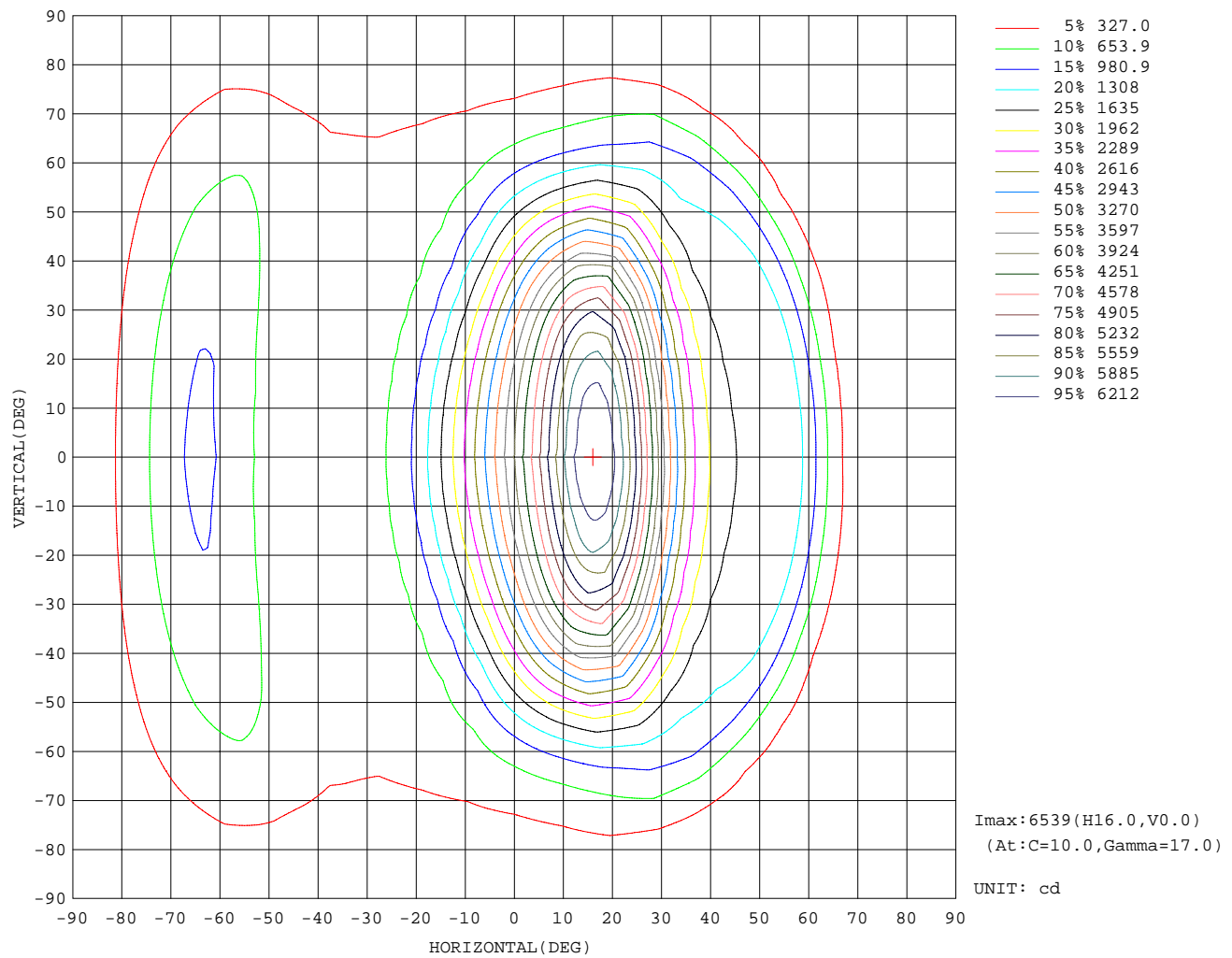
C Range: 0 - 360DEG
 C Interval: 10.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-07-11

Checker:

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Assessor:

ISOCANDELA DIAGRAM



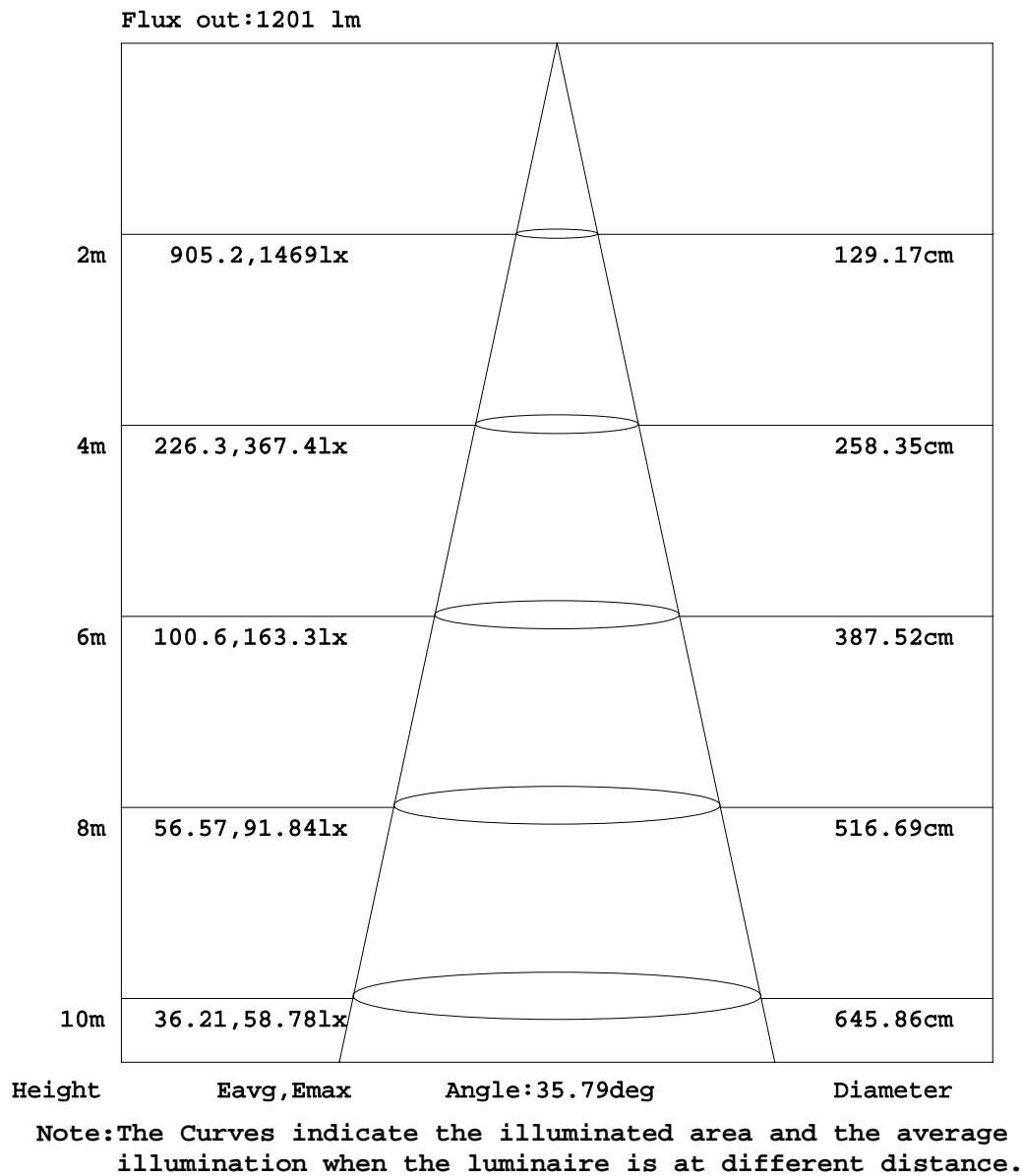
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-11

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

AAI Figure



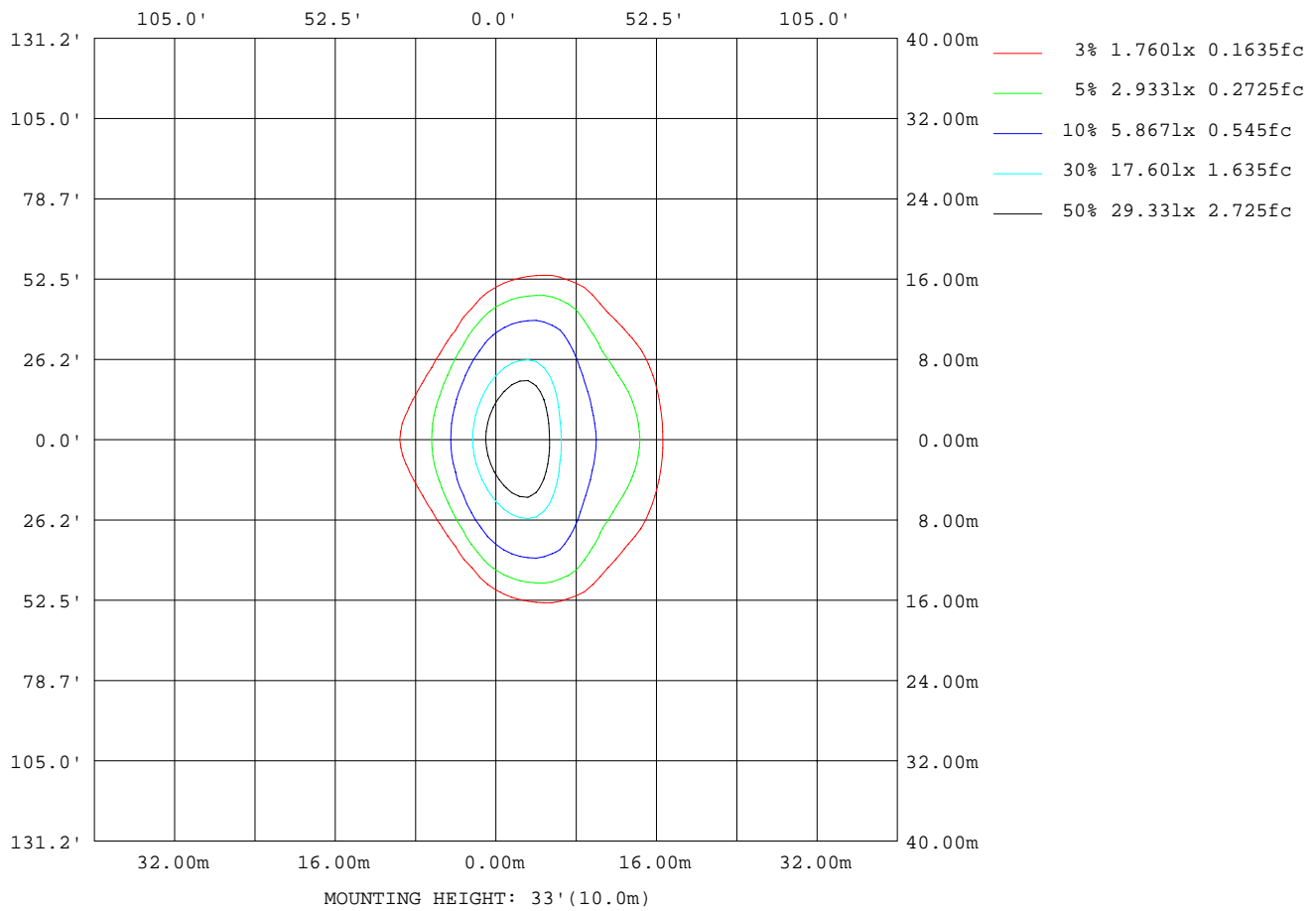
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-11

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM



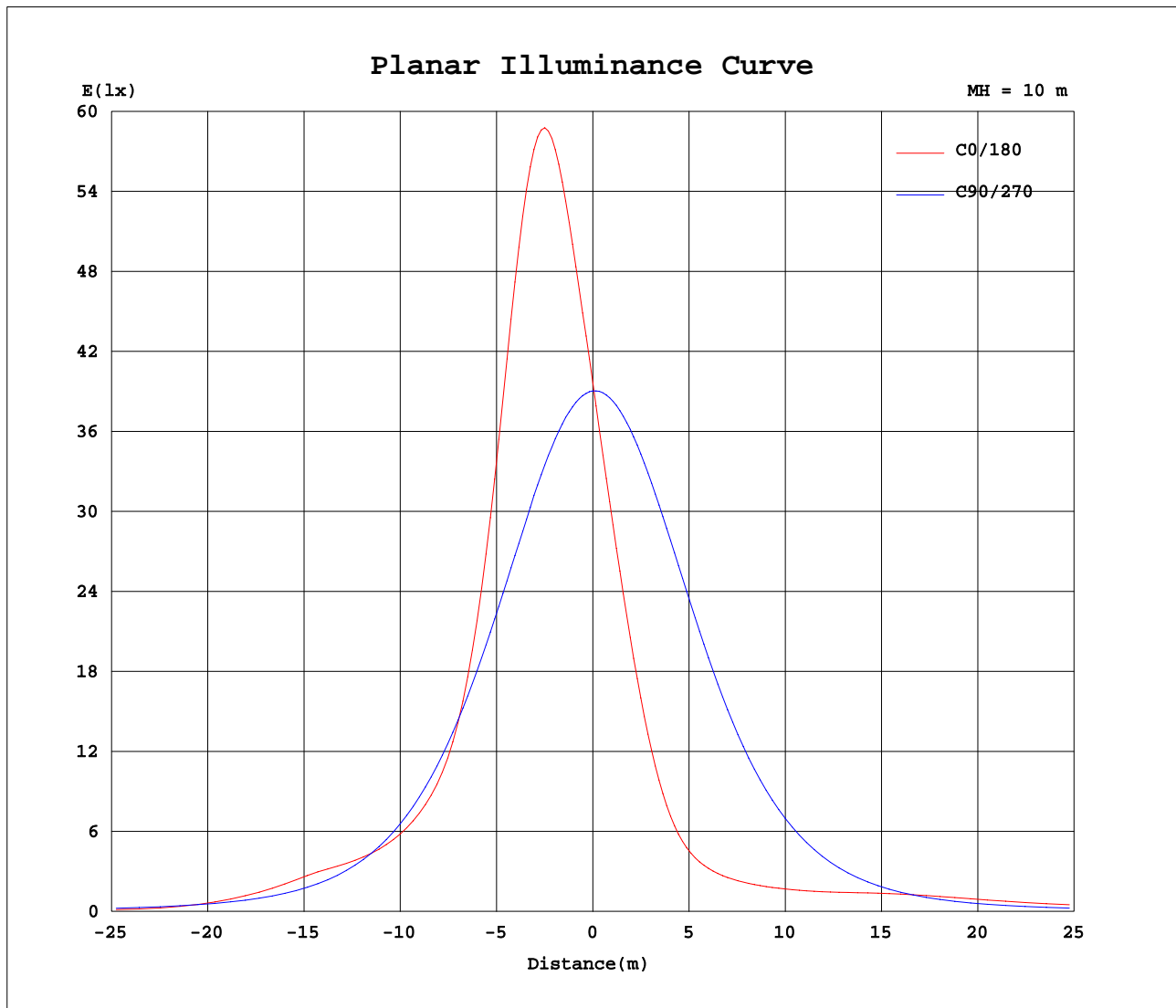
C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-11

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 10.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-07-11

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

Assessor:

Assessor: