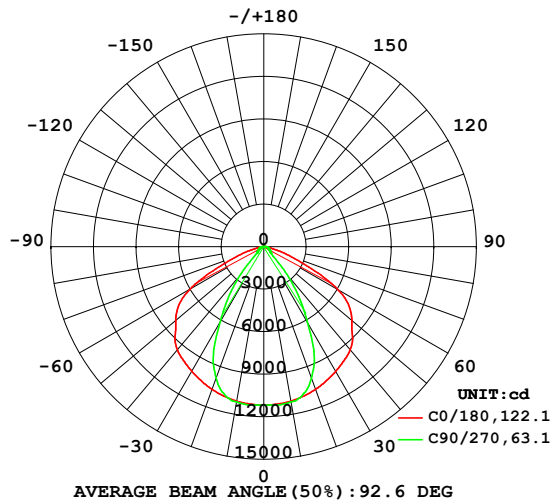


LUMINAIRE PHOTOMETRIC TEST REPORT

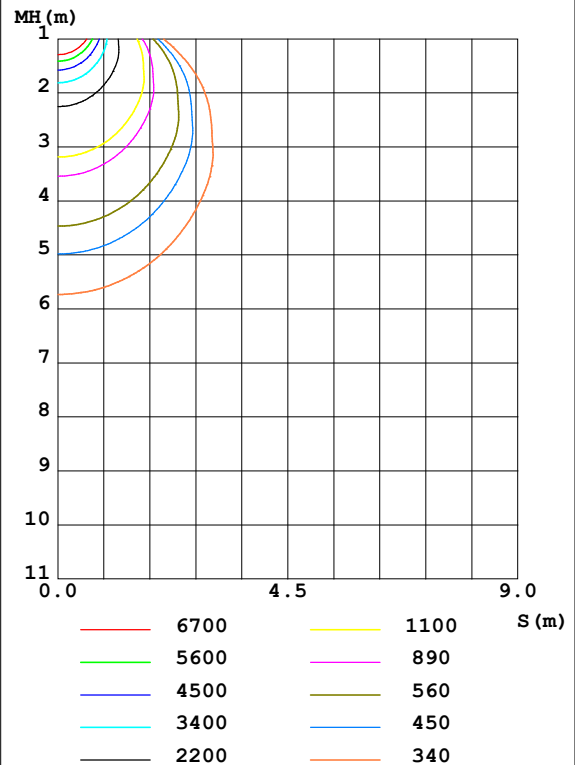
Test:U:230.0V I:0.6650A P:147.3W PF:0.9630 Lamp Flux:19278.3x1 lm		
NAME: LHB03-150	TYPE:150W	WEIGHT:
SPEC.:5000K Ra80 60120DEG L00302	DIM.: 0.621*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.57*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 130.89 lm/W			
MODEL	LHB03-150	Imax(cd)	11205	S/MH(C0/180)	1.36
NOMINAL POWER(W)	150	LOR(%)	100.0	S/MH(C90/270)	0.94
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	19278	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	19278.3	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.05

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-03

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.500m [K=1.0000]
 Remarks:

Checker:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
5	1115	1118	1120	1118	1115	1118	1120	1118	0- 5	267.2	267.2	1.39,1.39
10	1106	1112	1113	1112	1106	1112	1113	1112	5- 10	797.6	1065	5.52,5.52
15	1091	1096	1078	1096	1091	1096	1078	1096	10- 15	1308	2373	12.3,12.3
20	1071	1057	985.6	1057	1071	1057	985.6	1057	15- 20	1762	4134	21.4,21.4
25	1045	978.4	842.0	978.4	1045	978.7	842.0	978.7	20- 25	2106	6240	32.4,32.4
30	1016	851.6	614.3	851.6	1016	853.3	614.3	853.3	25- 30	2283	8523	44.2,44.2
35	984.2	662.3	433.8	662.3	984.2	664.1	433.8	664.1	30- 35	2250	10773	55.9,55.9
40	949.3	444.5	253.4	444.5	949.3	445.9	253.4	445.9	35- 40	2066	12839	66.6,66.6
45	885.0	326.9	89.86	326.9	885.0	326.8	89.86	326.8	40- 45	1746	14585	75.7,75.7
50	811.6	226.3	62.26	226.3	811.6	226.5	62.26	226.5	45- 50	1368	15953	82.8,82.8
55	736.0	143.8	51.64	143.8	736.0	144.1	51.64	144.1	50- 55	1086	17039	88.4,88.4
60	600.6	104.4	41.02	104.4	600.6	104.6	41.02	104.6	55- 60	825.1	17864	92.7,92.7
65	372.9	74.90	36.94	74.90	372.9	74.56	36.94	74.56	60- 65	573.6	18438	95.6,95.6
70	200.4	54.36	32.87	54.36	200.4	53.95	32.87	53.95	65- 70	370.6	18808	97.6,97.6
75	90.67	35.52	28.26	35.52	90.67	35.52	28.26	35.52	70- 75	239.1	19048	98.8,98.8
80	32.01	16.44	19.47	16.44	32.01	16.60	19.47	16.60	75- 80	139.1	19187	99.5,99.5
85	6.203	8.988	10.15	8.988	6.203	9.079	10.15	9.079	80- 85	67.85	19255	99.9,99.9
90	0.6028	1.293	0.8266	1.293	0.6028	1.303	0.8266	1.303	85- 90	23.78	19278	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:×10cd									UNIT:lm		

Conical surface Flux(90deg): 14585 lm

%lum = 75.7%

%lamp = 75.7%

Conical surface Flux(120deg): 17864 lm

%lum = 92.7%

%lamp = 92.7%

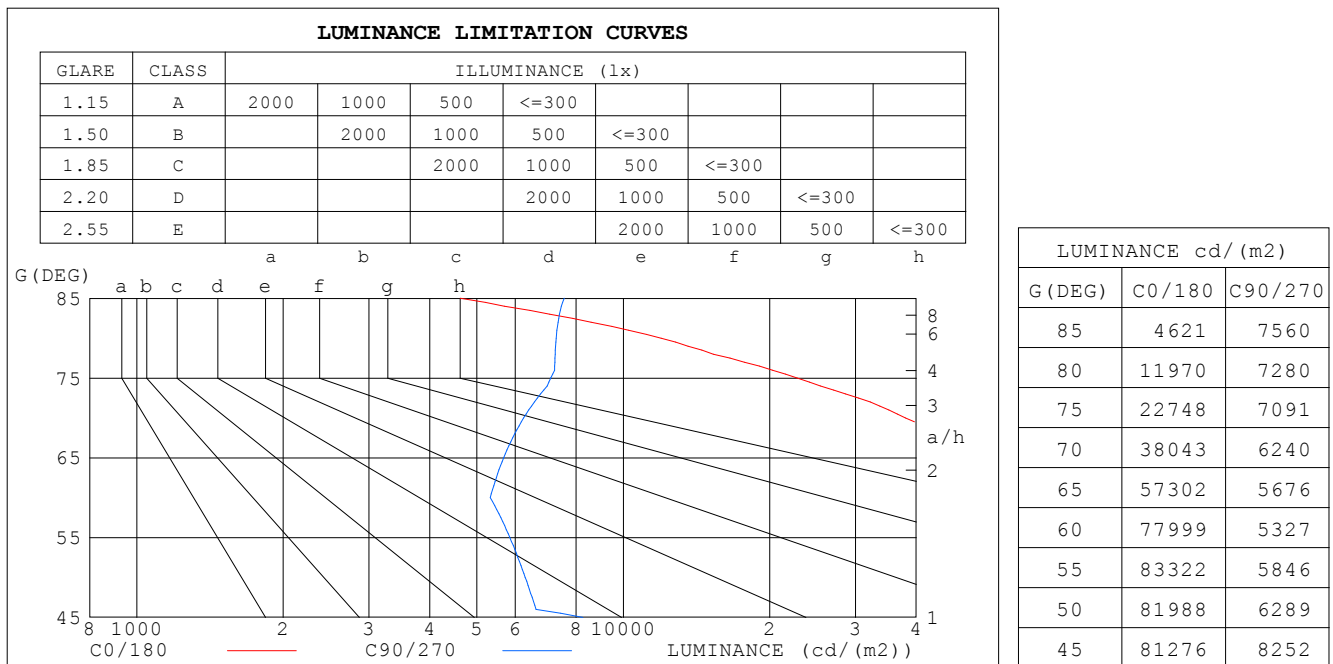
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-03

Checker:

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity:65.0%
 Test Distance:9.500m [K=1.0000]
 Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

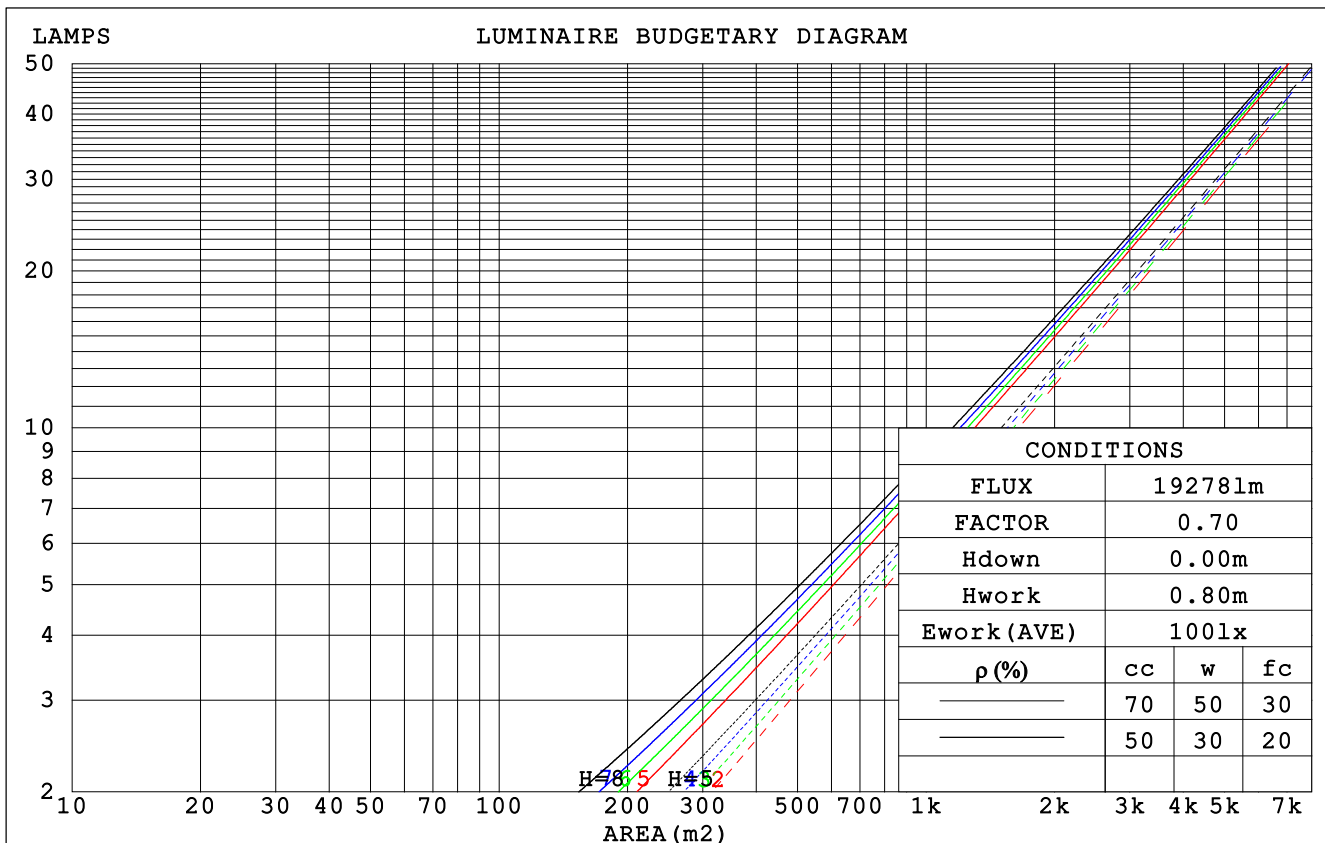
Checker:

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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	1.19	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	1.00
1.0	1.08	1.05	1.02	1.06	1.03	.00	1.01	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.87	.95	.91	.86	.92	.88	.84	.89	.86	.83	.86	.83	.81	.79
3.0	.88	.81	.76	.86	.80	.76	.84	.78	.74	.81	.77	.73	.79	.75	.72	.70
4.0	.80	.73	.67	.79	.72	.67	.76	.70	.66	.74	.69	.65	.72	.68	.64	.62
5.0	.73	.65	.60	.72	.65	.59	.70	.64	.59	.68	.63	.58	.66	.62	.58	.56
6.0	.67	.59	.54	.66	.59	.53	.64	.58	.53	.63	.57	.53	.61	.56	.52	.50
7.0	.61	.54	.49	.61	.54	.48	.59	.53	.48	.58	.52	.48	.57	.51	.48	.46
8.0	.57	.49	.44	.56	.49	.44	.55	.48	.44	.54	.48	.44	.53	.47	.43	.42
9.0	.53	.45	.41	.52	.45	.40	.51	.45	.40	.50	.44	.40	.49	.44	.40	.38
10.0	.49	.42	.37	.49	.42	.37	.48	.41	.37	.47	.41	.37	.46	.41	.37	.35



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-03

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.500m [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	.235	.133	.042	.228	.130	.041	.215	.123	.039	.203	.117	.038	.192	.111	.036	
2.0	.227	.124	.038	.221	.122	.037	.210	.117	.036	.199	.112	.035	.190	.107	.034	
3.0	.215	.114	.034	.210	.112	.034	.200	.109	.033	.191	.105	.032	.183	.101	.031	
4.0	.203	.105	.031	.198	.104	.031	.190	.101	.030	.182	.098	.029	.175	.095	.029	
5.0	.191	.098	.028	.187	.096	.028	.180	.094	.028	.173	.091	.027	.166	.089	.027	
6.0	.180	.090	.026	.177	.089	.026	.170	.087	.025	.164	.085	.025	.158	.083	.025	
7.0	.170	.084	.024	.167	.083	.024	.161	.082	.023	.156	.080	.023	.151	.078	.023	
8.0	.161	.079	.022	.158	.078	.022	.153	.076	.022	.148	.075	.022	.143	.074	.021	
9.0	.153	.074	.021	.150	.073	.021	.146	.072	.020	.141	.071	.020	.137	.069	.020	
10.0	.145	.070	.019	.143	.069	.019	.139	.068	.019	.134	.067	.019	.131	.066	.019	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.175	.157	.140	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.164	.132	.106	.140	.114	.092	.096	.079	.064	.055	.046	.037	.018	.015	.012	
3.0	.154	.114	.082	.132	.098	.071	.091	.068	.050	.052	.040	.029	.017	.013	.010	
4.0	.145	.100	.065	.125	.086	.057	.086	.060	.040	.050	.035	.024	.016	.011	.008	
5.0	.138	.089	.053	.118	.077	.046	.082	.054	.033	.047	.032	.019	.015	.010	.006	
6.0	.131	.080	.044	.113	.070	.038	.078	.049	.027	.045	.029	.016	.015	.009	.005	
7.0	.125	.073	.037	.107	.063	.032	.074	.044	.023	.043	.026	.014	.014	.009	.005	
8.0	.119	.067	.032	.102	.058	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.113	.062	.028	.098	.054	.024	.068	.038	.017	.039	.022	.010	.013	.007	.003	
10.0	.108	.058	.024	.094	.050	.021	.065	.035	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [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	27.1	28.4	27.4	28.6	28.7	17.8	19.1	18.1	19.3	19.5
3H	27.8	28.9	28.0	29.1	29.4	18.2	19.3	18.4	19.5	19.8
4H	27.9	29.0	28.2	29.2	29.4	18.5	19.6	18.8	19.8	20.0
6H	27.9	28.9	28.2	29.1	29.4	18.8	19.8	19.1	20.1	20.4
8H	27.8	28.8	28.2	29.1	29.4	19.0	20.0	19.3	20.2	20.5
12H	27.8	28.7	28.1	29.0	29.3	19.1	20.0	19.4	20.3	20.6
4H 2H	26.9	28.0	27.2	28.2	28.4	18.5	19.6	18.8	19.8	20.0
3H	27.6	28.5	27.9	28.8	29.1	18.9	19.8	19.2	20.1	20.4
4H	27.7	28.5	28.1	28.9	29.2	19.2	20.1	19.6	20.4	20.7
6H	27.7	28.5	28.1	28.8	29.2	19.7	20.4	20.0	20.7	21.1
8H	27.7	28.4	28.1	28.8	29.1	19.9	20.5	20.3	20.9	21.3
12H	27.7	28.3	28.1	28.7	29.1	20.0	20.7	20.4	21.0	21.4
8H 4H	27.6	28.3	28.0	28.6	29.0	19.5	20.2	19.9	20.5	20.9
6H	27.6	28.2	28.1	28.6	29.0	20.0	20.5	20.4	20.9	21.4
8H	27.6	28.1	28.1	28.5	29.0	20.2	20.7	20.7	21.1	21.6
12H	27.6	28.0	28.1	28.5	28.9	20.5	20.9	20.9	21.3	21.8
12H 4H	27.5	28.2	28.0	28.6	29.0	19.5	20.1	19.9	20.5	20.9
6H	27.6	28.1	28.0	28.5	29.0	20.0	20.5	20.5	20.9	21.4
8H	27.6	28.0	28.1	28.5	28.9	20.3	20.7	20.8	21.2	21.6
Variations with the observer position at spacings:										
S = 1.0H	+ 1.4 / - 2.6					+ 1.1 / - 1.5				
1.5H	+ 2.5 / - 4.4					+ 1.4 / - 1.4				
2.0H	+ 3.9 / - 6.9					+ 1.6 / - 1.1				

CIE Pub.117 Corrected 19278 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.3)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [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) $k(RI) \times RCR = 5$									
$k = 0.60$	70	61	55	70	61	55	69	60	55	50
0.80	80	71	65	79	71	65	78	70	65	59
1.00	87	79	73	86	78	73	84	79	73	67
1.25	93	85	80	92	85	80	90	83	79	73
1.50	97	90	85	96	89	84	93	88	83	77
2.00	102	96	91	101	95	91	98	93	89	83
2.50	105	99	95	103	98	94	100	96	92	85
3.00	107	102	98	105	101	97	102	98	95	88
4.00	110	106	103	108	104	101	104	101	99	91
5.00	112	108	106	110	107	104	105	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

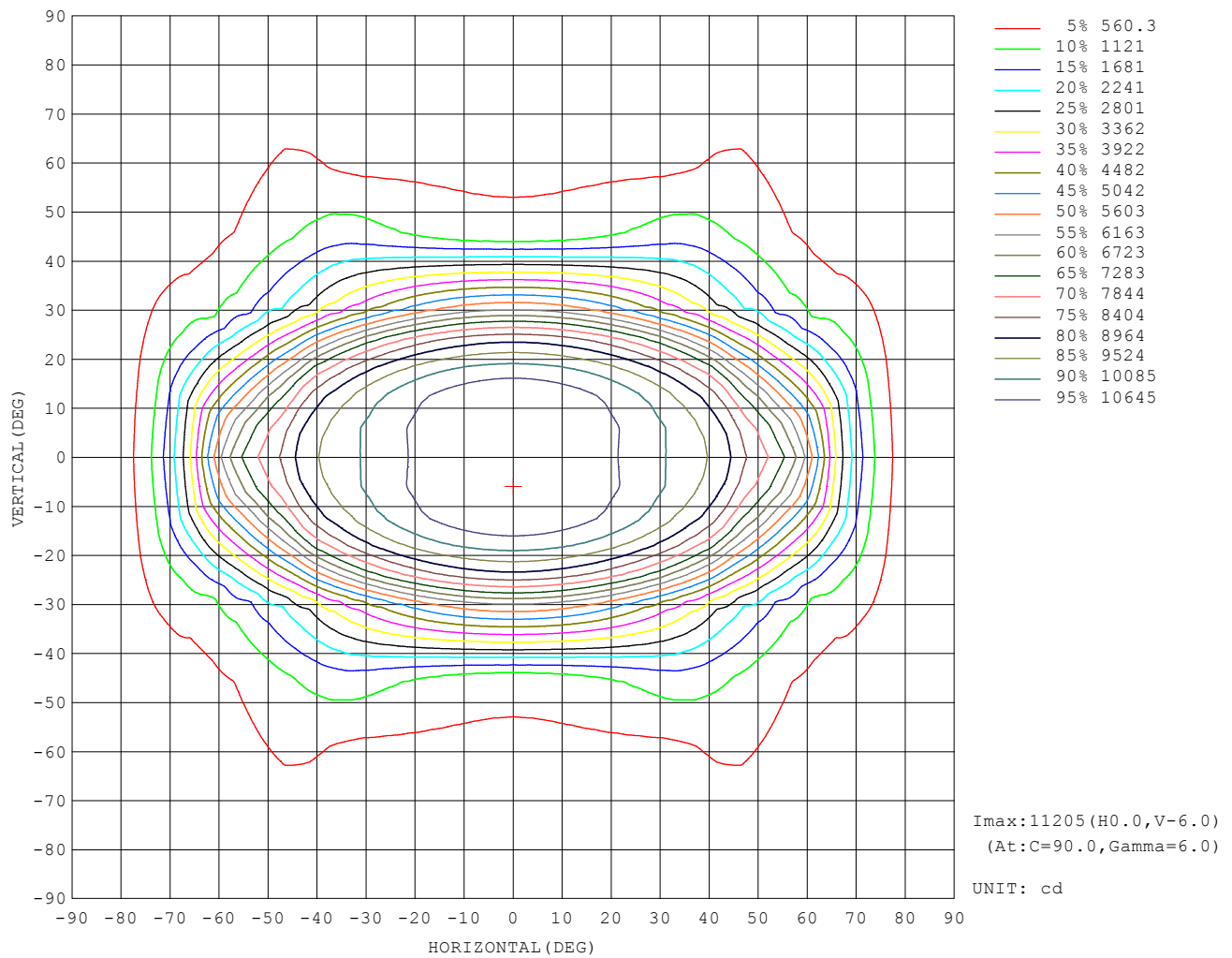
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

Checker:

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Assessor:

ISOCANDELA DIAGRAM



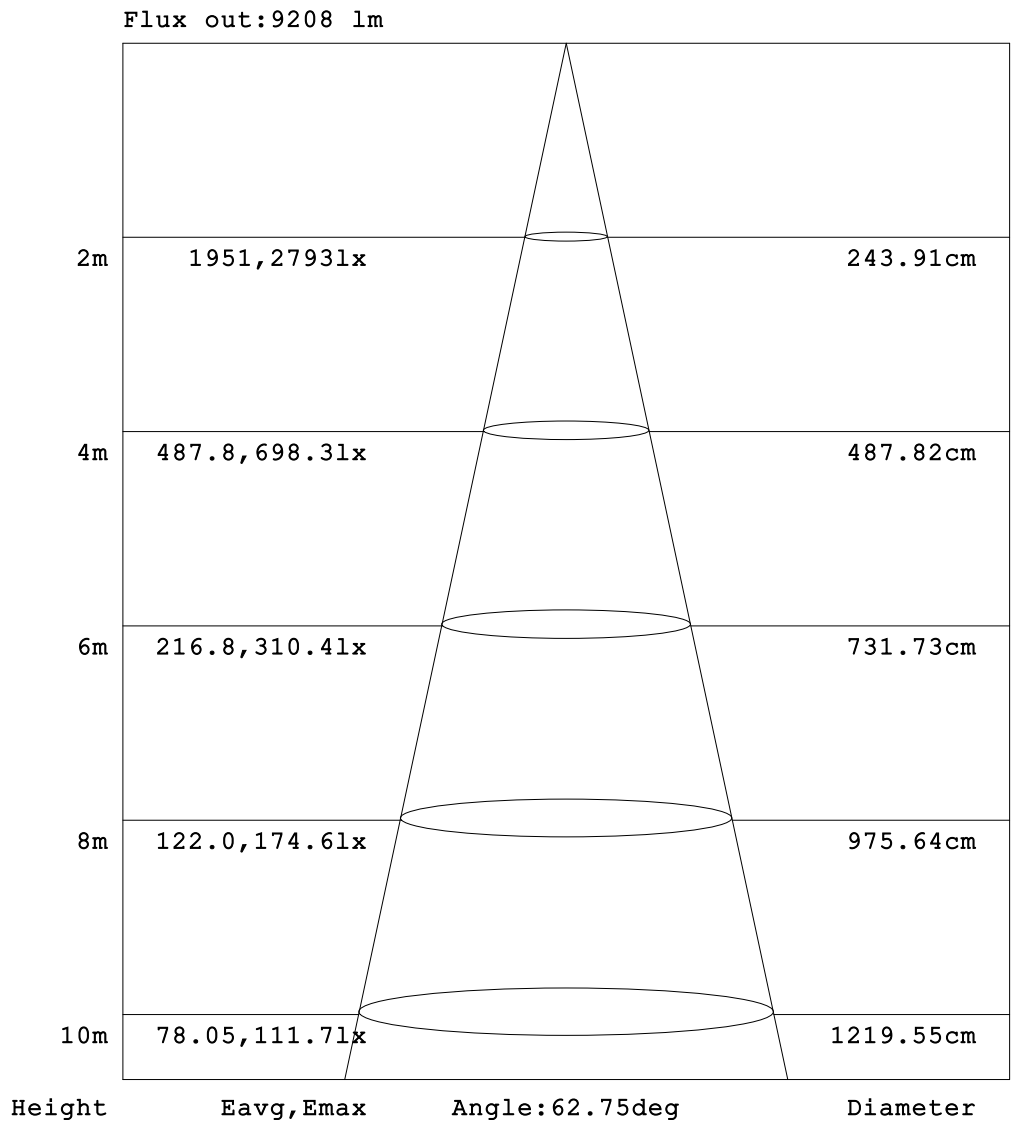
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-03

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.500m [K=1.0000]
Remarks:

Checker:

Assessor:

AAI Figure



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

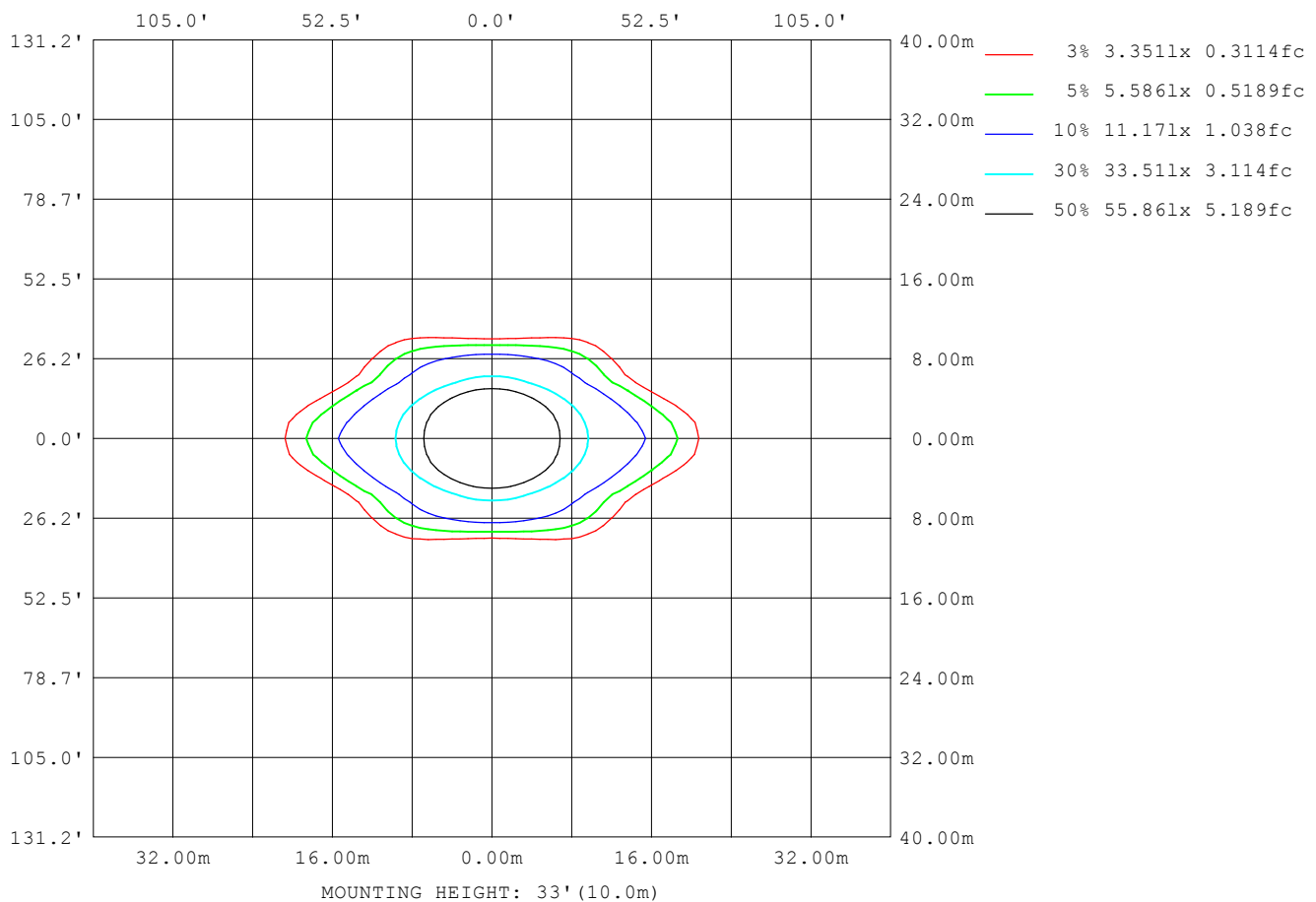
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM



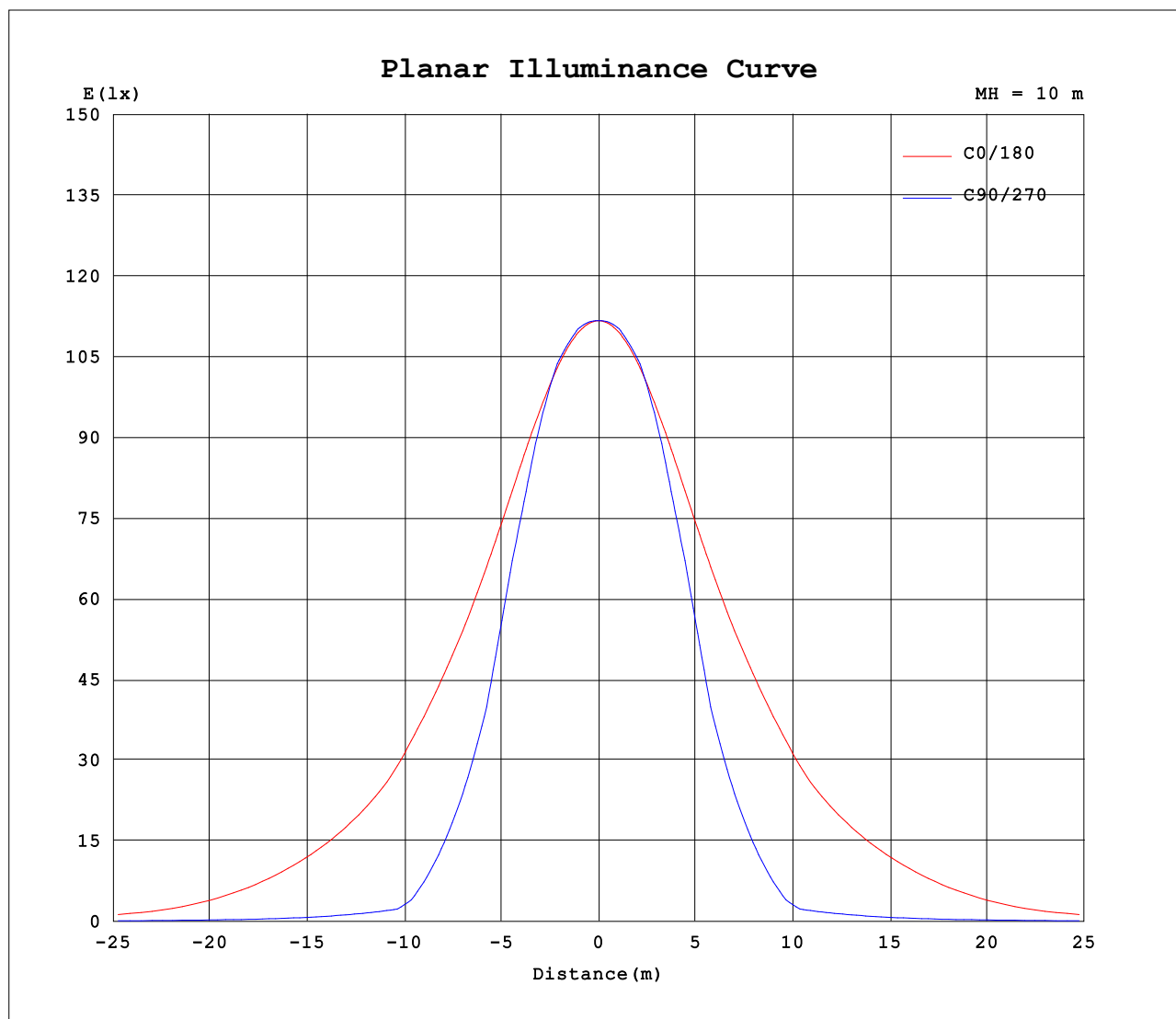
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

Checker:

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-03

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.500m [K=1.0000]
Remarks:

Checker:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor: