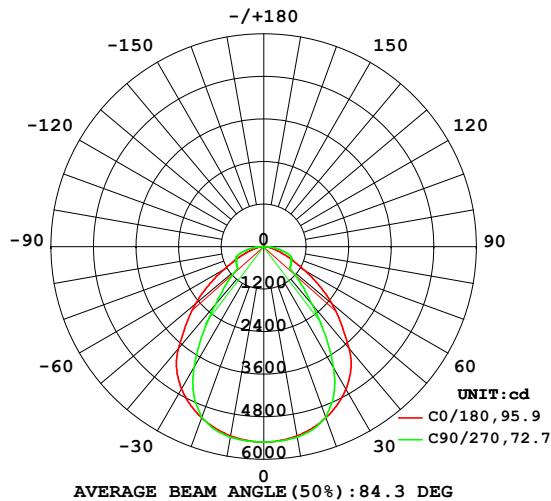


LUMINAIRE PHOTOMETRIC TEST REPORT

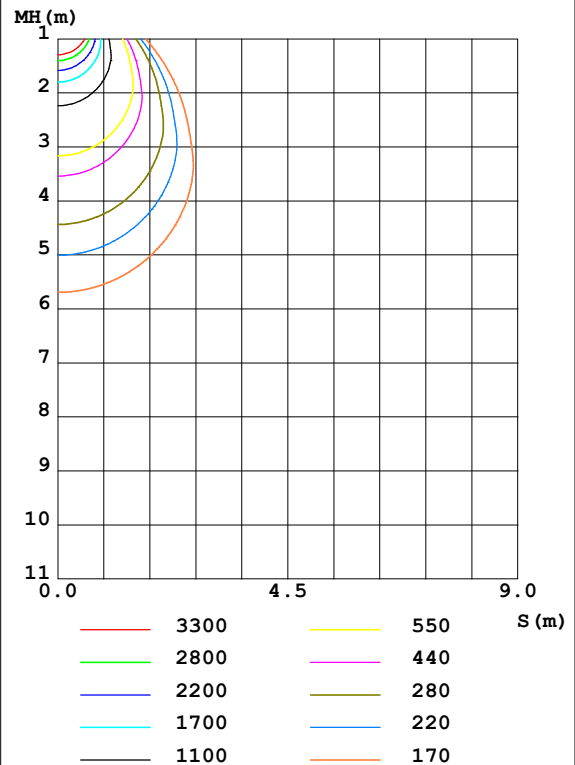
Test:U:230.1V I:0.4233A P:93.91W PF:0.9644 Lamp Flux:10949.6x1 lm		
NAME: LHB03-090	TYPE:90W	WEIGHT:
SPEC.:5000K Ra80 80100DEG L00303	DIM.: 0.336*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.28*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 116.59 lm/W			
MODEL	LHB03-090	Imax(cd)	5512	S/MH(C0/180)	1.25
NOMINAL POWER(W)	90	LOR(%)	100.0	S/MH(C90/270)	1.06
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	10950	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	10949.6	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.30

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:2017-07-01

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	5488	5492	5498	5492	5488	5492	5498	5492	0- 5	131.5	131.5	1.2,1.2
10	5417	5433	5458	5433	5417	5434	5458	5434	5- 10	390.9	522.4	4.77,4.77
15	5300	5332	5339	5332	5300	5333	5339	5333	10- 15	638.4	1161	10.6,10.6
20	5134	5163	5121	5163	5134	5162	5121	5162	15- 20	862.9	2024	18.5,18.5
25	4917	4897	4658	4897	4917	4893	4658	4893	20- 25	1048	3072	28.1,28.1
30	4639	4504	3948	4504	4639	4498	3948	4498	25- 30	1171	4243	38.7,38.7
35	4278	3975	3013	3975	4278	3966	3013	3966	30- 35	1208	5451	49.8,49.8
40	3744	3280	2108	3280	3744	3274	2108	3274	35- 40	1150	6601	60.3,60.3
45	3096	2520	1504	2520	3096	2517	1504	2517	40- 45	1008	7609	69.5,69.5
50	2511	1793	963.1	1793	2511	1788	963.1	1788	45- 50	834.0	8443	77.1,77.1
55	1904	1247	930.5	1247	1904	1236	930.5	1236	50- 55	662.3	9106	83.2,83.2
60	1308	833.2	898.0	833.2	1308	827.3	898.0	827.3	55- 60	531.4	9637	88,88
65	863.9	663.1	865.4	663.1	863.9	659.6	865.4	659.6	60- 65	423.3	10060	91.9,91.9
70	549.0	483.2	832.9	483.2	549.0	482.3	832.9	482.3	65- 70	337.2	10398	95,95
75	335.0	299.4	626.8	299.4	335.0	300.4	626.8	300.4	70- 75	253.8	10652	97.3,97.3
80	175.5	194.1	420.6	194.1	175.5	194.2	420.6	194.2	75- 80	168.9	10820	98.8,98.8
85	39.22	102.1	214.5	102.1	39.22	101.9	214.5	101.9	80- 85	95.79	10916	99.7,99.7
90	2.763	11.86	8.399	11.86	2.763	11.58	8.399	11.58	85- 90	33.34	10950	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:cd									UNIT:lm		

Conical surface Flux(90deg): 7609.5 lm

%lum = 69.5%

%lamp = 69.5%

Conical surface Flux(120deg): 9637.2 lm

%lum = 88.0%

%lamp = 88.0%

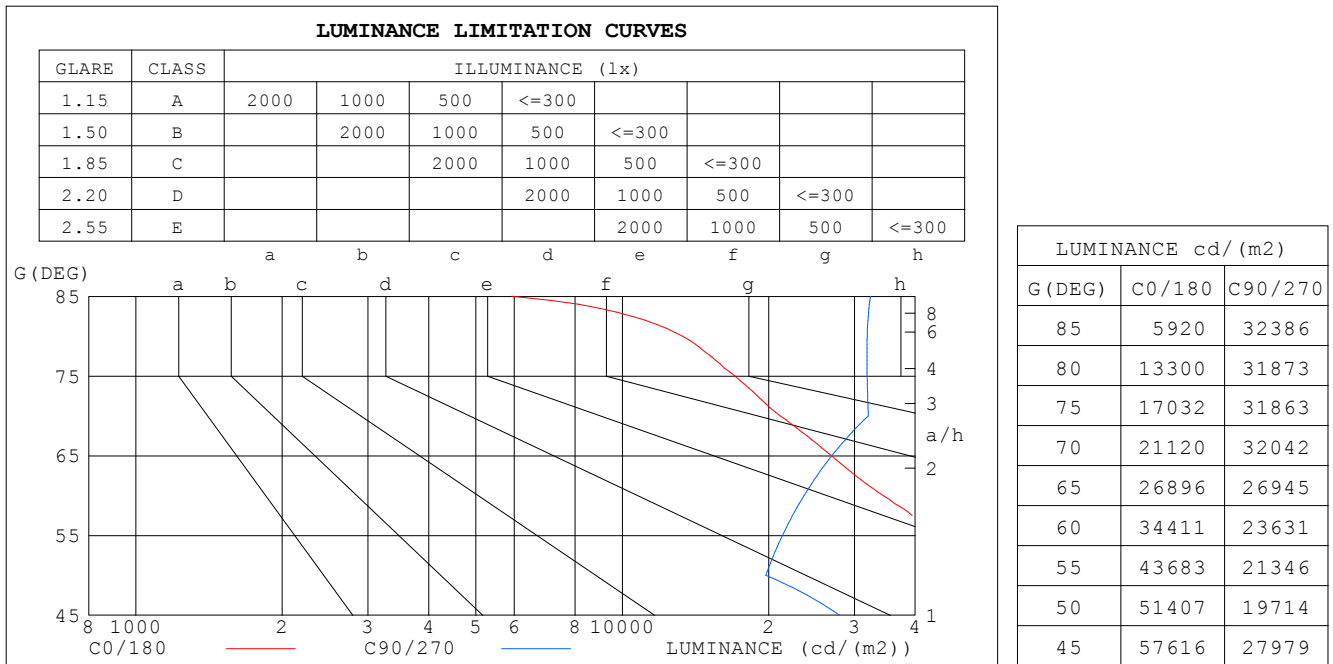
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-01

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: 2017-07-01

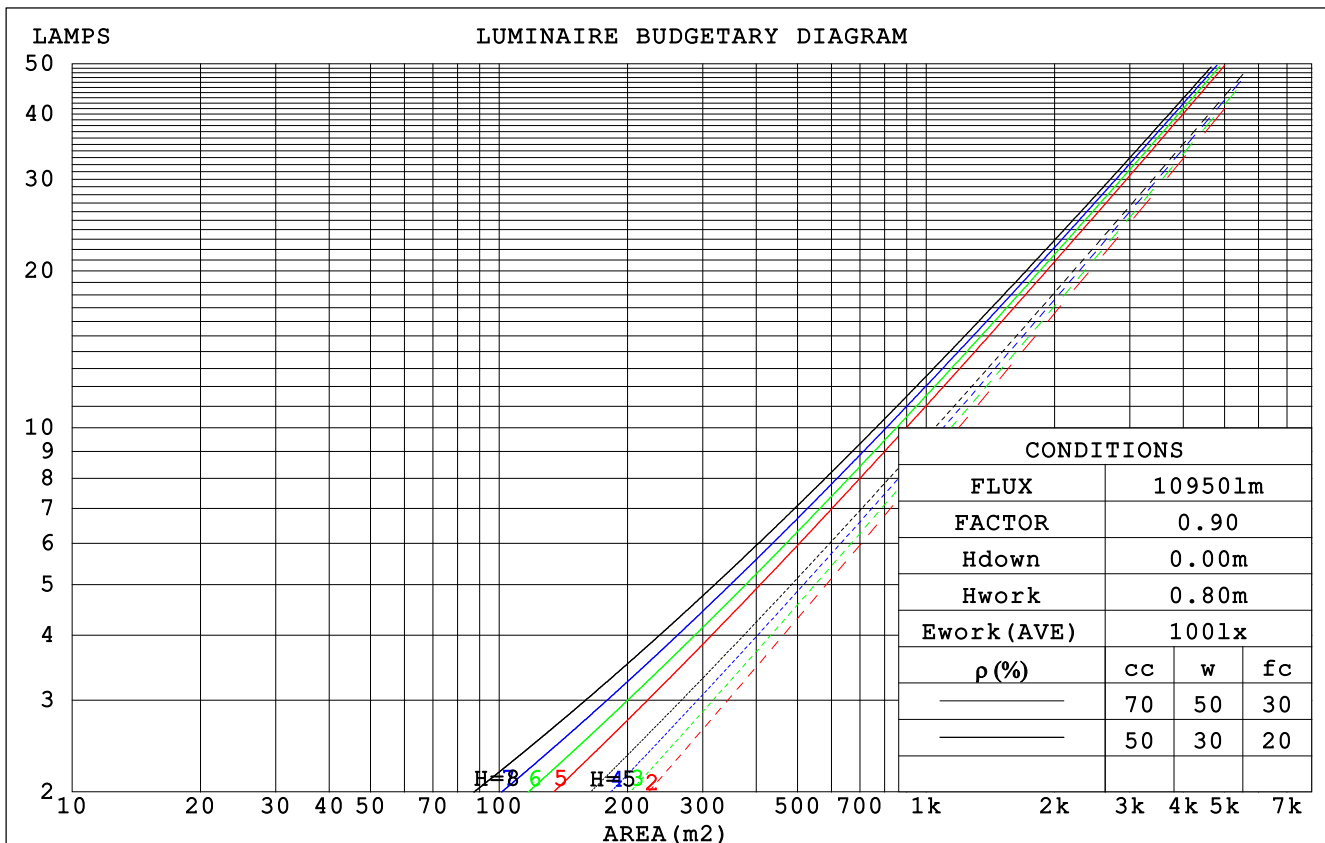
Checker:

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	1.06	1.03	.00	1.04	1.01	.98	.00	.97	.95	.96	.94	.92	.93	.91	.89	.87
2.0	.95	.89	.84	.93	.88	.83	.90	.85	.81	.87	.83	.80	.84	.81	.78	.76
3.0	.85	.78	.72	.84	.77	.72	.81	.75	.71	.78	.73	.69	.76	.72	.68	.66
4.0	.77	.69	.63	.76	.68	.63	.73	.67	.62	.71	.66	.61	.69	.64	.60	.58
5.0	.70	.62	.56	.69	.61	.56	.67	.60	.55	.65	.59	.54	.63	.58	.54	.52
6.0	.64	.56	.50	.63	.55	.50	.61	.54	.49	.59	.53	.49	.58	.53	.48	.46
7.0	.58	.50	.45	.57	.50	.45	.56	.49	.44	.55	.49	.44	.53	.48	.44	.42
8.0	.54	.46	.41	.53	.46	.40	.52	.45	.40	.51	.44	.40	.49	.44	.40	.38
9.0	.50	.42	.37	.49	.42	.37	.48	.41	.37	.47	.41	.37	.46	.40	.36	.35
10.0	.46	.39	.34	.46	.39	.34	.45	.38	.34	.44	.38	.34	.43	.37	.33	.32



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-01

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	.261	.148	.047	.254	.145	.046	.241	.138	.044	.229	.132	.042	.218	.126	.041	
2.0	.248	.136	.042	.242	.133	.041	.231	.128	.040	.221	.124	.039	.211	.119	.038	
3.0	.233	.124	.037	.227	.122	.037	.218	.118	.036	.208	.114	.035	.200	.111	.034	
4.0	.218	.113	.033	.213	.111	.033	.204	.108	.032	.196	.105	.032	.189	.102	.031	
5.0	.203	.104	.030	.199	.102	.030	.192	.100	.029	.185	.097	.029	.178	.095	.029	
6.0	.191	.096	.027	.187	.095	.027	.180	.092	.027	.174	.090	.027	.168	.088	.026	
7.0	.179	.089	.025	.176	.088	.025	.170	.086	.025	.164	.084	.024	.159	.082	.024	
8.0	.169	.082	.023	.166	.082	.023	.160	.080	.023	.155	.079	.023	.150	.077	.022	
9.0	.159	.077	.022	.157	.076	.021	.152	.075	.021	.147	.074	.021	.143	.073	.021	
10.0	.151	.072	.020	.149	.072	.020	.144	.071	.020	.140	.069	.020	.136	.068	.020	

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	.177	.157	.138	.151	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015		
2.0	.166	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.037	.018	.015	.012		
3.0	.157	.114	.080	.135	.098	.069	.093	.068	.048	.053	.040	.029	.017	.013	.009		
4.0	.149	.100	.063	.128	.087	.055	.088	.060	.039	.051	.035	.023	.016	.012	.007		
5.0	.141	.090	.051	.122	.077	.045	.084	.054	.031	.048	.032	.019	.016	.010	.006		
6.0	.134	.081	.042	.116	.070	.037	.080	.049	.026	.046	.029	.016	.015	.009	.005		
7.0	.128	.074	.036	.110	.064	.031	.076	.045	.022	.044	.026	.013	.014	.009	.004		
8.0	.122	.068	.031	.105	.059	.027	.073	.041	.019	.042	.024	.011	.014	.008	.004		
9.0	.116	.063	.027	.100	.055	.023	.069	.038	.017	.040	.023	.010	.013	.007	.003		
10.0	.111	.059	.024	.096	.051	.021	.066	.036	.015	.039	.021	.009	.013	.007	.003		

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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	25.4	26.8	25.7	26.9	27.1	22.5	23.9	22.8	24.1	24.3
3H	26.0	27.2	26.2	27.4	27.6	24.5	25.7	24.8	25.9	26.2
4H	26.1	27.3	26.4	27.5	27.8	25.5	26.7	25.8	26.9	27.2
6H	26.2	27.2	26.5	27.5	27.8	26.3	27.4	26.6	27.7	28.0
8H	26.1	27.2	26.5	27.5	27.7	26.6	27.7	27.0	28.0	28.3
12H	26.1	27.1	26.4	27.4	27.7	26.9	27.9	27.2	28.2	28.5
4H 2H	25.4	26.6	25.7	26.8	27.1	23.0	24.2	23.3	24.4	24.7
3H	26.1	27.2	26.5	27.4	27.7	25.0	26.0	25.4	26.3	26.6
4H	26.4	27.3	26.7	27.6	27.9	26.2	27.1	26.5	27.4	27.7
6H	26.5	27.3	26.9	27.7	28.0	27.2	28.0	27.6	28.3	28.7
8H	26.5	27.3	26.9	27.6	28.0	27.6	28.3	28.0	28.7	29.1
12H	26.5	27.2	26.9	27.6	28.0	27.9	28.6	28.3	29.0	29.4
8H 4H	26.4	27.2	26.8	27.6	27.9	26.2	27.0	26.6	27.4	27.7
6H	26.6	27.3	27.1	27.7	28.1	27.4	28.0	27.8	28.4	28.8
8H	26.7	27.2	27.1	27.7	28.1	27.9	28.4	28.3	28.9	29.3
12H	26.7	27.2	27.2	27.6	28.1	28.4	28.8	28.8	29.3	29.8
12H 4H	26.4	27.1	26.9	27.5	27.9	26.2	26.9	26.6	27.3	27.7
6H	26.7	27.2	27.1	27.7	28.1	27.4	27.9	27.8	28.3	28.8
8H	26.8	27.2	27.2	27.7	28.1	27.9	28.4	28.4	28.8	29.3
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.6					+ 0.4 / - 0.4				
1.5H	+ 0.4 / - 0.8					+ 0.3 / - 0.4				
2.0H	+ 1.4 / - 1.7					+ 0.3 / - 0.3				

CIE Pub.117 Corrected 10950 lm Total Lamp Luminous Flux.(8log(F/F0) = 8.3)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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) $k(RI) \times RCR = 5$									
$k = 0.60$	67	57	51	66	57	51	65	56	51	45
0.80	76	67	60	76	66	60	74	66	60	54
1.00	84	75	69	83	74	68	81	75	68	62
1.25	90	82	76	89	81	75	86	80	75	68
1.50	94	86	81	93	86	80	90	84	79	73
2.00	100	93	88	98	92	87	95	90	86	79
2.50	103	97	92	101	95	91	98	93	89	82
3.00	106	100	96	104	99	95	100	96	92	85
4.00	109	104	101	107	103	99	103	99	96	88
5.00	111	107	104	109	105	102	104	101	99	90
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

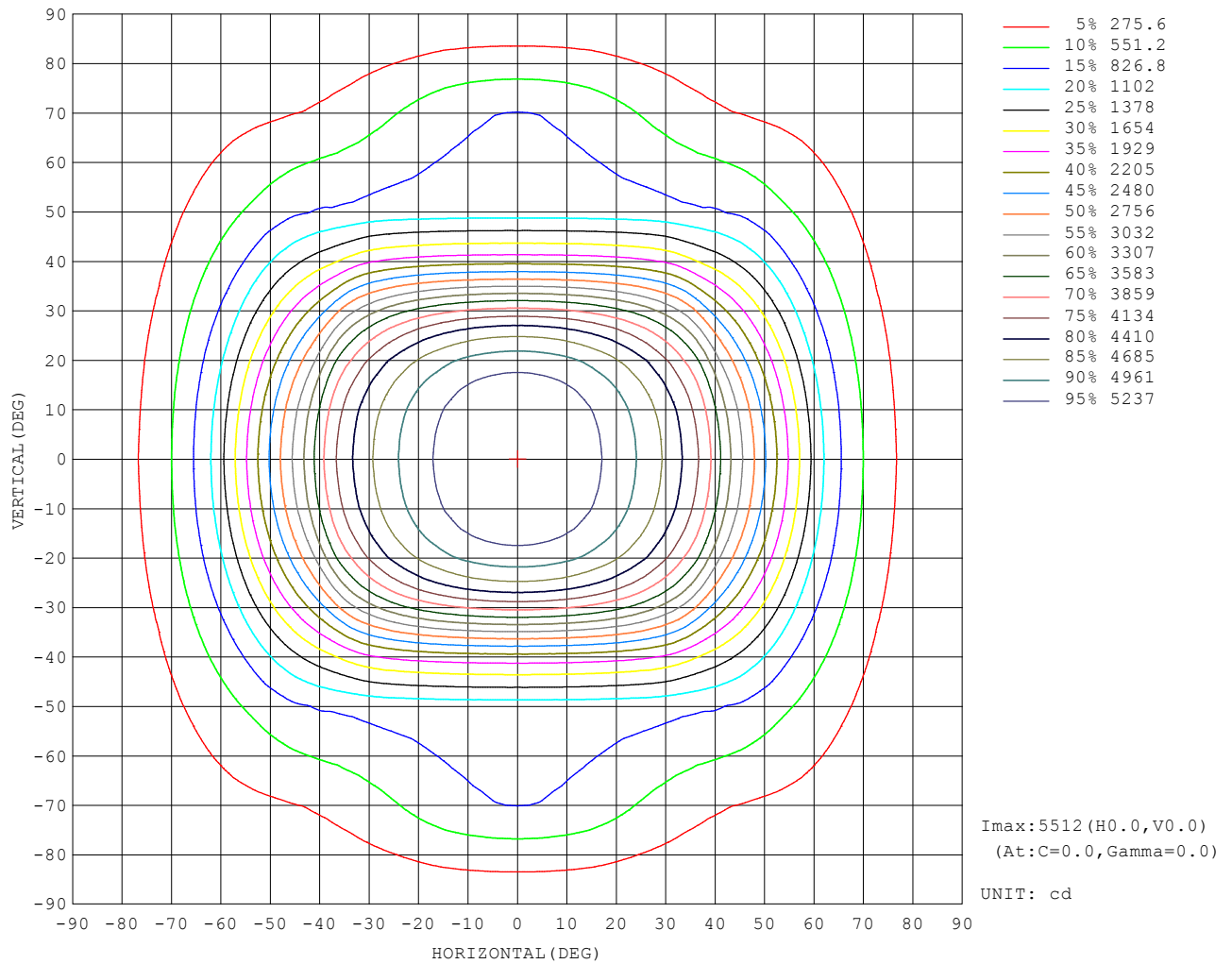
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-01

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



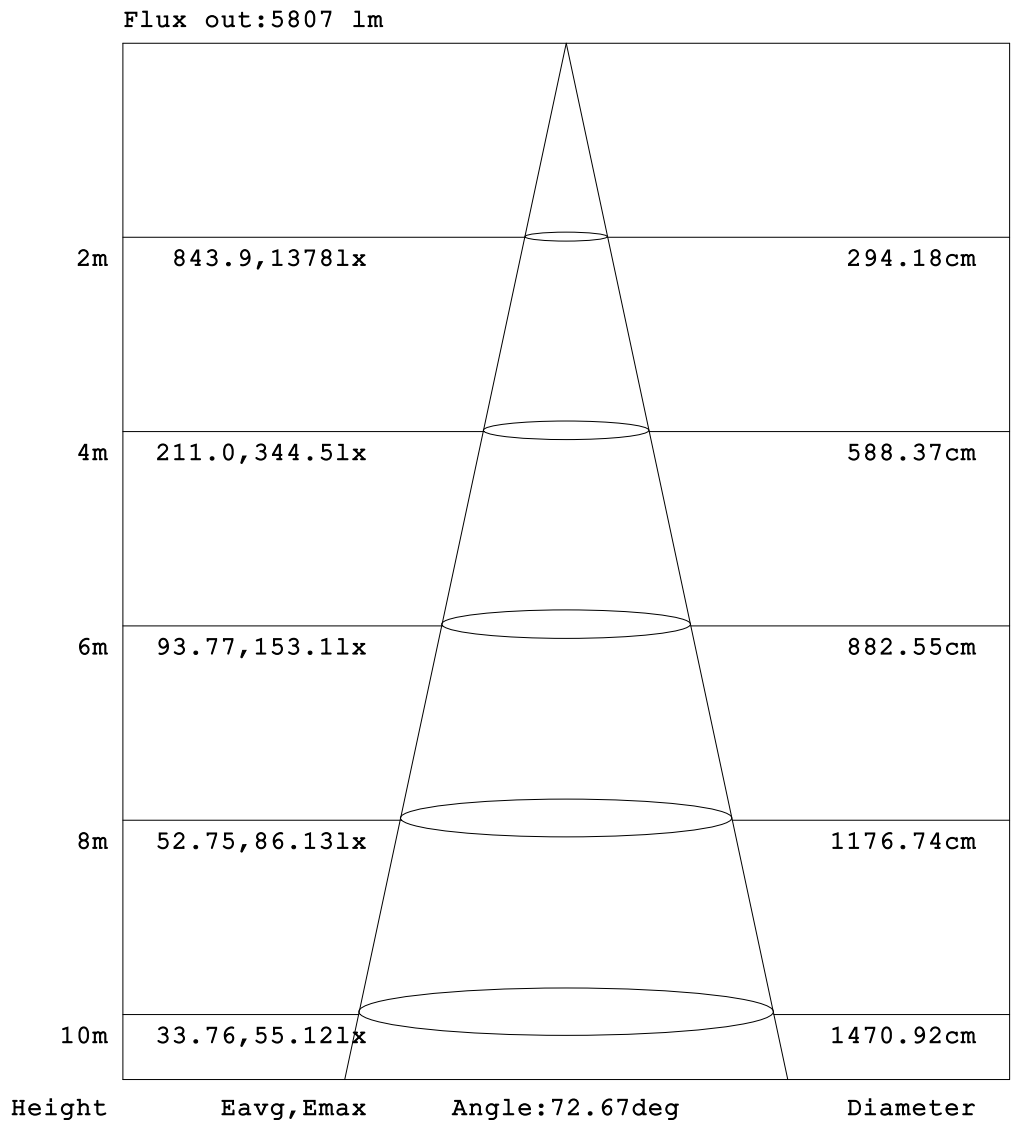
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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.

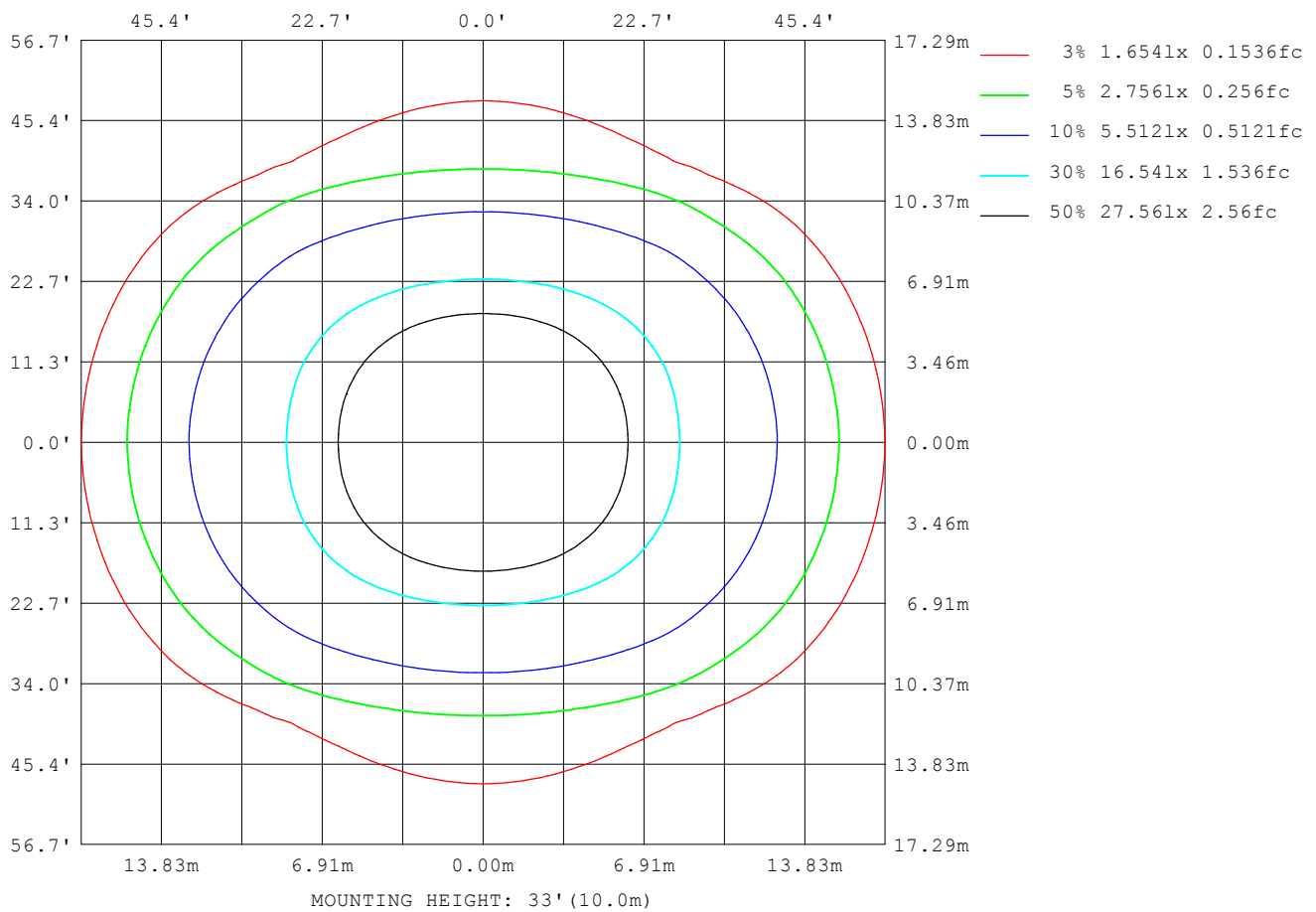
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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



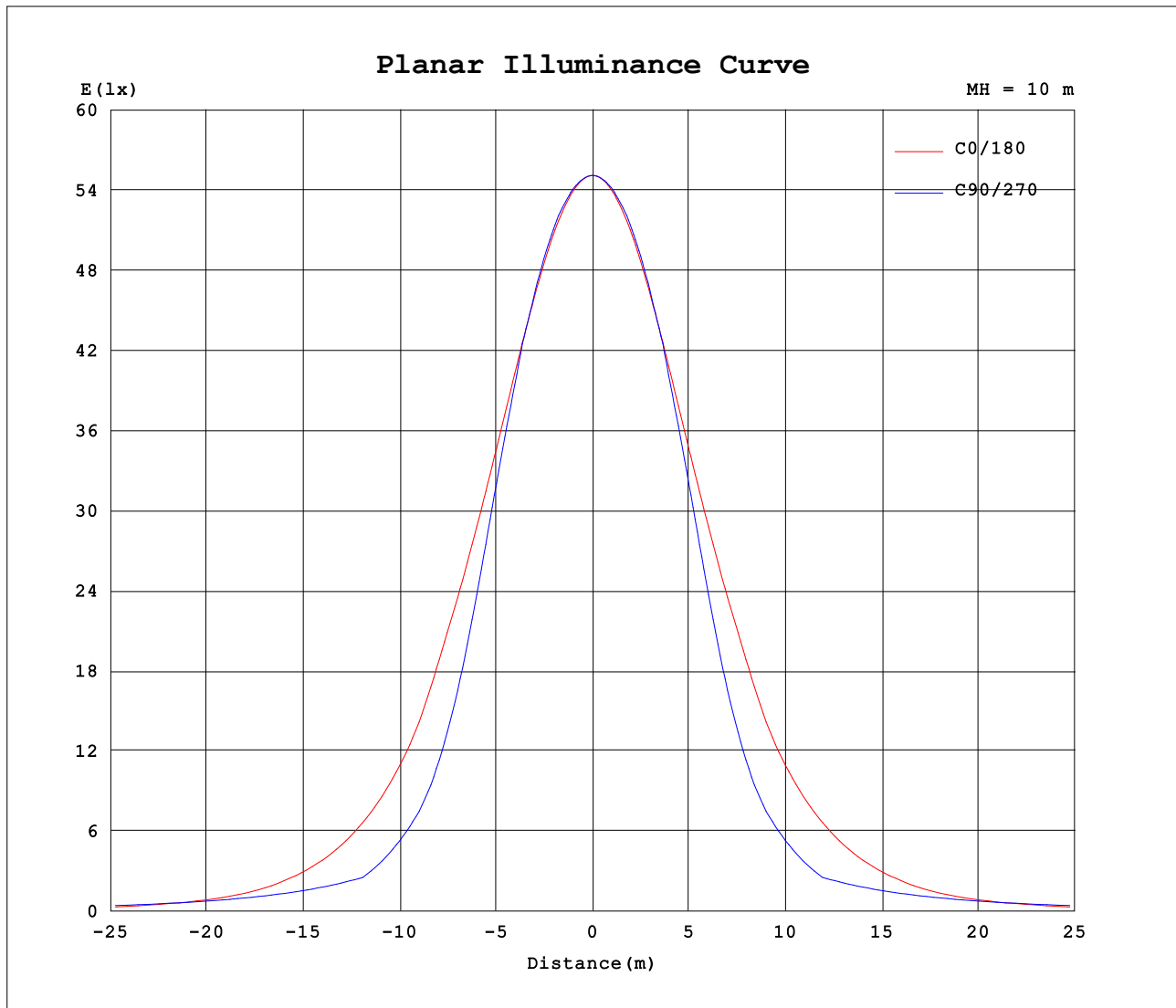
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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:

