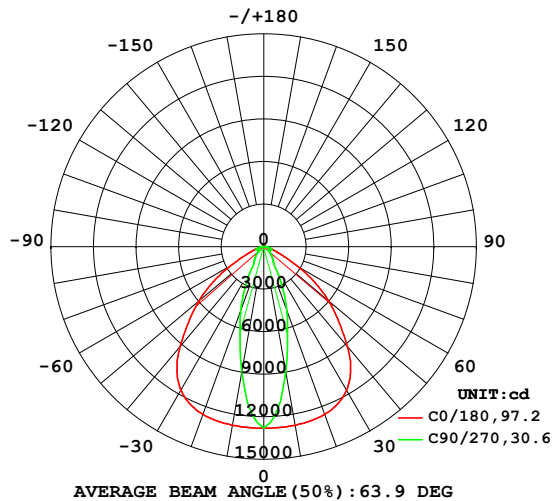


LUMINAIRE PHOTOMETRIC TEST REPORT

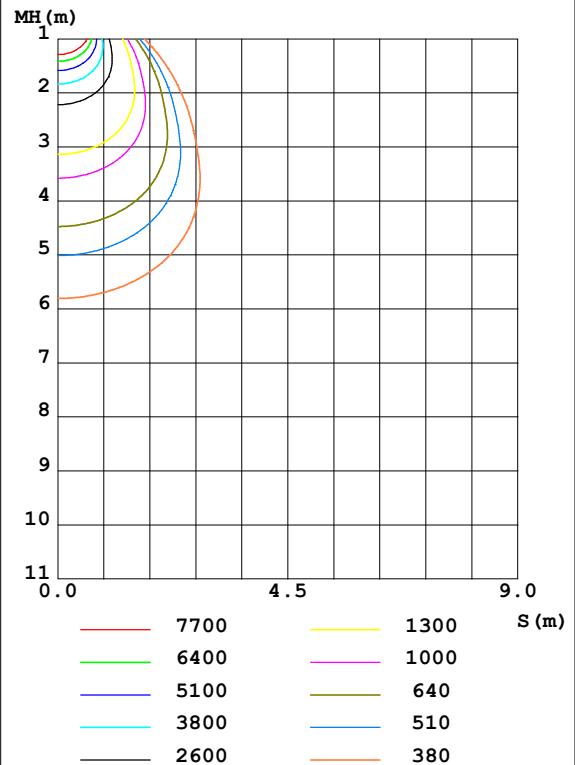
Test:U:230.0V I:0.4241A P:94.11W PF:0.9646 Lamp Flux:12457.1x1 lm		
NAME: LHB03-090	TYPE:90W	WEIGHT:
SPEC.:5000K Ra80 30100DEG L00301	DIM.: 0.336*0.307*0.061	SERIAL No.:
MFR.:	SUR.:0.28*0.27	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 132.37 lm/W			
MODEL	LHB03-090	Imax(cd)	12810	S/MH(C0/180)	1.32
NOMINAL POWER(W)	90	LOR(%)	100.0	S/MH(C90/270)	0.49
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	12457	η UP,DN(C0-180)	0.0,50.1
NOMINAL FLUX(lm)	12457.1	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	0.65

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

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:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
5	1280	1199	1146	1199	1280	1199	1146	1199	0- 5	295.4	295.4	2.37,2.37
10	1278	1038	894.3	1038	1278	1038	894.3	1038	5- 10	806.4	1102	8.84,8.84
15	1273	842.1	652.3	842.1	1273	842.6	652.3	842.6	10- 15	1152	2254	18.1,18.1
20	1258	656.0	476.3	656.0	1258	656.4	476.3	656.4	15- 20	1346	3600	28.9,28.9
25	1227	510.1	308.9	510.1	1227	510.3	308.9	510.3	20- 25	1422	5022	40.3,40.3
30	1168	373.1	141.6	373.1	1168	372.9	141.6	372.9	25- 30	1374	6396	51.3,51.3
35	1069	233.8	115.5	233.8	1069	233.1	115.5	233.1	30- 35	1242	7638	61.3,61.3
40	916.2	110.6	89.53	110.6	916.2	109.8	89.53	109.8	35- 40	1108	8745	70.2,70.2
45	749.3	87.39	63.50	87.39	749.3	86.61	63.50	86.61	40- 45	938.2	9684	77.7,77.7
50	598.0	64.37	37.48	64.37	598.0	63.51	37.48	63.51	45- 50	757.3	10441	83.8,83.8
55	439.3	40.95	42.55	40.95	439.3	40.77	42.55	40.77	50- 55	583.0	11024	88.5,88.5
60	268.8	21.42	47.61	21.42	268.8	21.58	47.61	21.58	55- 60	441.6	11465	92,92
65	140.1	19.27	52.67	19.27	140.1	19.46	52.67	19.46	60- 65	336.9	11802	94.7,94.7
70	76.13	16.70	57.74	16.70	76.13	16.90	57.74	16.90	65- 70	259.1	12061	96.8,96.8
75	34.80	13.86	43.77	13.86	34.80	14.10	43.77	14.10	70- 75	187.8	12249	98.3,98.3
80	12.70	9.434	29.80	9.434	12.70	9.560	29.80	9.560	75- 80	118.3	12368	99.3,99.3
85	3.100	5.261	15.83	5.261	3.100	5.311	15.83	5.311	80- 85	64.84	12432	99.8,99.8
90	0.3343	1.313	1.862	1.313	0.3343	1.323	1.862	1.323	85- 90	24.72	12457	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): 9683.6 lm

%lum = 77.7%

%lamp = 77.7%

Conical surface Flux(120deg): 11465 lm

%lum = 92.0%

%lamp = 92.0%

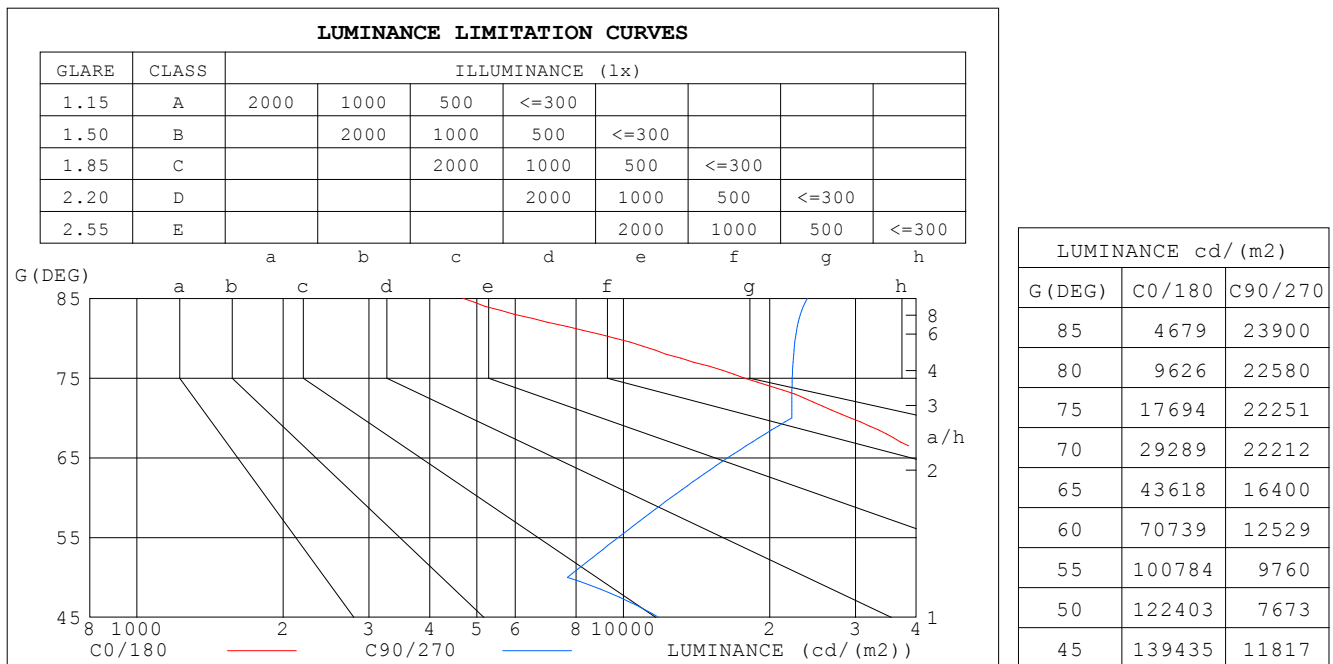
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2017-07-01

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

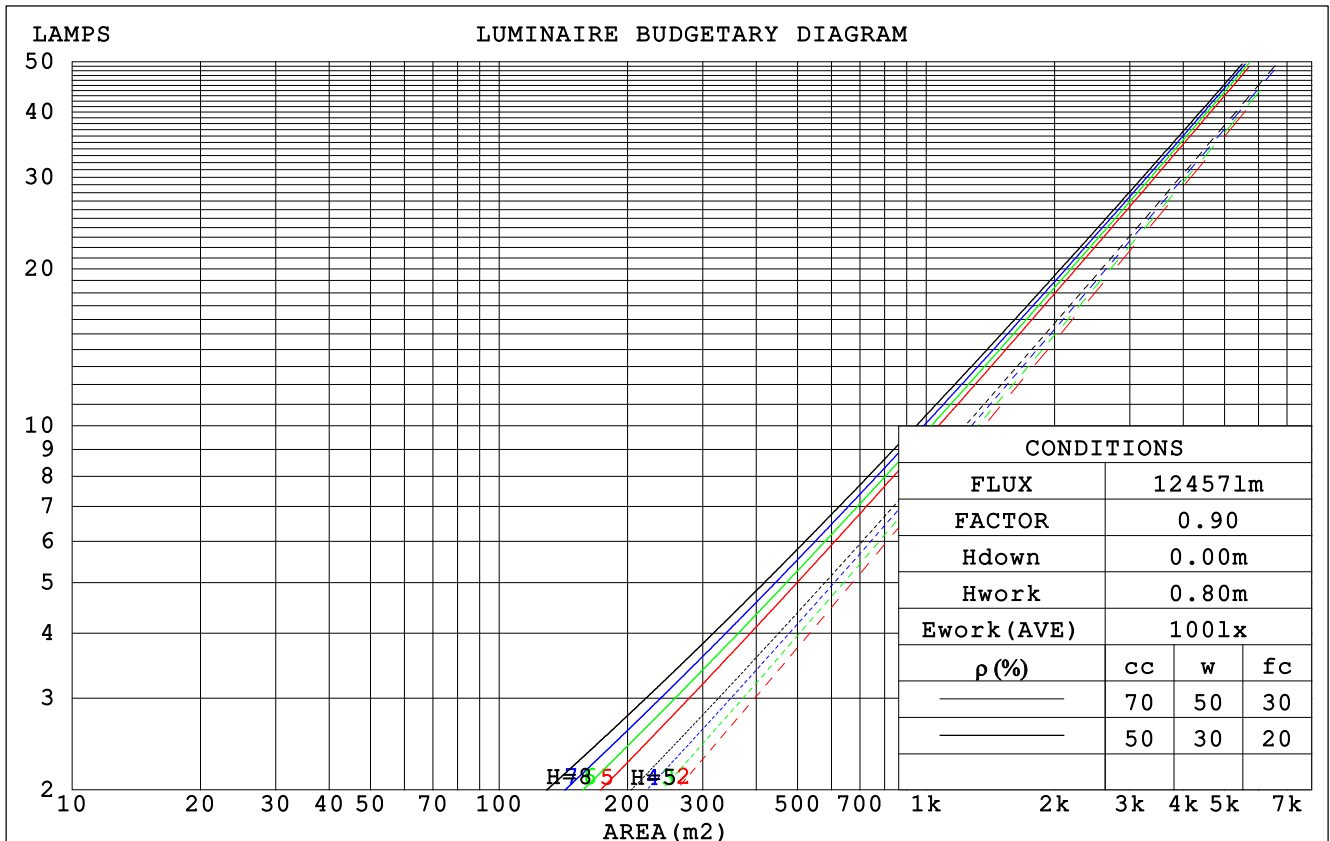
Checker:

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	.00
1.0	1.08	1.05	1.02	1.06	1.03	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.92	.90
2.0	.98	.93	.89	.96	.92	.88	.93	.89	.86	.90	.87	.84	.87	.84	.82	.80
3.0	.89	.83	.78	.88	.82	.77	.85	.80	.76	.83	.78	.75	.80	.77	.74	.72
4.0	.82	.75	.70	.81	.74	.69	.78	.73	.68	.76	.71	.68	.74	.70	.67	.65
5.0	.75	.68	.63	.74	.68	.63	.72	.66	.62	.71	.65	.61	.69	.64	.61	.59
6.0	.70	.62	.57	.69	.62	.57	.67	.61	.57	.66	.60	.56	.64	.59	.56	.54
7.0	.65	.57	.52	.64	.57	.52	.63	.56	.52	.61	.56	.52	.60	.55	.51	.50
8.0	.60	.53	.48	.60	.53	.48	.58	.52	.48	.57	.52	.48	.56	.51	.48	.46
9.0	.56	.50	.45	.56	.49	.45	.55	.49	.45	.54	.48	.44	.53	.48	.44	.43
10.0	.53	.46	.42	.53	.46	.42	.52	.46	.42	.51	.45	.42	.50	.45	.41	.40



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	.230	.131	.041	.223	.127	.040	.210	.120	.038	.198	.114	.037	.187	.108	.035		
2.0	.219	.120	.037	.213	.117	.036	.202	.112	.035	.192	.108	.034	.182	.103	.033		
3.0	.206	.110	.033	.201	.108	.032	.191	.104	.032	.183	.100	.031	.174	.097	.030		
4.0	.194	.101	.030	.189	.099	.029	.181	.096	.029	.173	.093	.028	.166	.090	.027		
5.0	.182	.093	.027	.178	.091	.027	.171	.089	.026	.164	.086	.026	.157	.084	.025		
6.0	.171	.086	.025	.168	.085	.024	.161	.083	.024	.155	.081	.024	.150	.079	.023		
7.0	.162	.080	.023	.159	.079	.023	.153	.077	.022	.147	.076	.022	.142	.074	.022		
8.0	.153	.075	.021	.150	.074	.021	.145	.072	.021	.140	.071	.020	.135	.070	.020		
9.0	.145	.070	.020	.142	.069	.019	.138	.068	.019	.133	.067	.019	.129	.066	.019		
10.0	.137	.066	.018	.135	.065	.018	.131	.064	.018	.127	.063	.018	.123	.062	.018		

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	.141	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016		
2.0	.163	.132	.107	.139	.114	.092	.095	.079	.064	.055	.046	.038	.018	.015	.012		
3.0	.152	.114	.083	.130	.098	.072	.090	.068	.051	.052	.040	.030	.017	.013	.010		
4.0	.143	.100	.067	.123	.086	.058	.084	.060	.041	.049	.035	.024	.016	.011	.008		
5.0	.135	.089	.054	.116	.077	.047	.080	.054	.033	.046	.031	.020	.015	.010	.007		
6.0	.128	.080	.045	.110	.069	.039	.076	.048	.028	.044	.028	.017	.014	.009	.005		
7.0	.121	.073	.038	.104	.063	.033	.072	.044	.024	.042	.026	.014	.014	.009	.005		
8.0	.115	.066	.033	.099	.058	.029	.069	.040	.020	.040	.024	.012	.013	.008	.004		
9.0	.110	.061	.029	.095	.053	.025	.066	.037	.018	.038	.022	.011	.012	.007	.004		
10.0	.105	.057	.025	.090	.050	.022	.063	.035	.016	.037	.021	.009	.012	.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	28.1	29.3	28.3	29.4	29.6	16.2	17.4	16.5	17.6	17.8
3H	28.7	29.7	28.9	30.0	30.2	19.9	21.0	20.2	21.2	21.4
4H	28.7	29.8	29.0	30.0	30.3	21.5	22.5	21.8	22.8	23.0
6H	28.7	29.7	29.0	29.9	30.2	22.6	23.6	23.0	23.9	24.1
8H	28.7	29.6	29.0	29.9	30.1	23.1	24.0	23.4	24.3	24.5
12H	28.6	29.5	29.0	29.8	30.1	23.4	24.3	23.7	24.6	24.9
4H 2H	27.8	28.8	28.1	29.1	29.3	16.6	17.6	16.9	17.9	18.1
3H	28.4	29.3	28.7	29.6	29.9	20.4	21.3	20.7	21.6	21.9
4H	28.5	29.3	28.9	29.6	30.0	22.2	23.0	22.5	23.3	23.6
6H	28.5	29.2	28.9	29.6	29.9	23.6	24.3	23.9	24.6	25.0
8H	28.5	29.2	28.9	29.5	29.9	24.1	24.8	24.5	25.1	25.5
12H	28.4	29.1	28.9	29.4	29.8	24.5	25.2	25.0	25.5	25.9
8H 4H	28.4	29.1	28.8	29.4	29.8	22.2	22.9	22.6	23.2	23.6
6H	28.4	29.0	28.8	29.4	29.8	23.7	24.3	24.2	24.7	25.1
8H	28.4	28.9	28.8	29.3	29.8	24.4	24.9	24.9	25.3	25.8
12H	28.4	28.8	28.8	29.2	29.7	25.0	25.5	25.5	25.9	26.4
12H 4H	28.4	29.0	28.8	29.3	29.7	22.2	22.8	22.6	23.2	23.6
6H	28.4	28.9	28.8	29.3	29.7	23.7	24.2	24.2	24.6	25.1
8H	28.4	28.8	28.8	29.2	29.7	24.4	24.9	24.9	25.3	25.8
Variations with the observer position at spacings:										
S = 1.0H	+ 1.7 / - 1.8					+ 0.2 / - 0.3				
1.5H	+ 2.8 / - 4.1					+ 0.1 / - 0.2				
2.0H	+ 4.4 / - 6.3					+ 0.3 / - 0.3				

CIE Pub.117 Corrected 12457 lm Total Lamp Luminous Flux.(8log(F/F0) = 8.8)

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) $k(RI) \times RCR = 5$									
$k = 0.60$	73	64	59	72	64	59	71	63	58	53
0.80	82	73	68	81	73	68	80	72	67	62
1.00	89	81	75	88	80	75	86	81	74	69
1.25	94	87	82	93	86	81	91	85	80	75
1.50	98	91	86	97	90	86	94	89	85	79
2.00	103	97	92	101	96	91	98	94	90	84
2.50	105	100	96	104	99	95	100	96	93	86
3.00	108	103	99	106	101	98	102	99	96	88
4.00	111	106	103	108	105	102	104	102	99	91
5.00	112	109	106	110	107	104	106	103	101	93
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

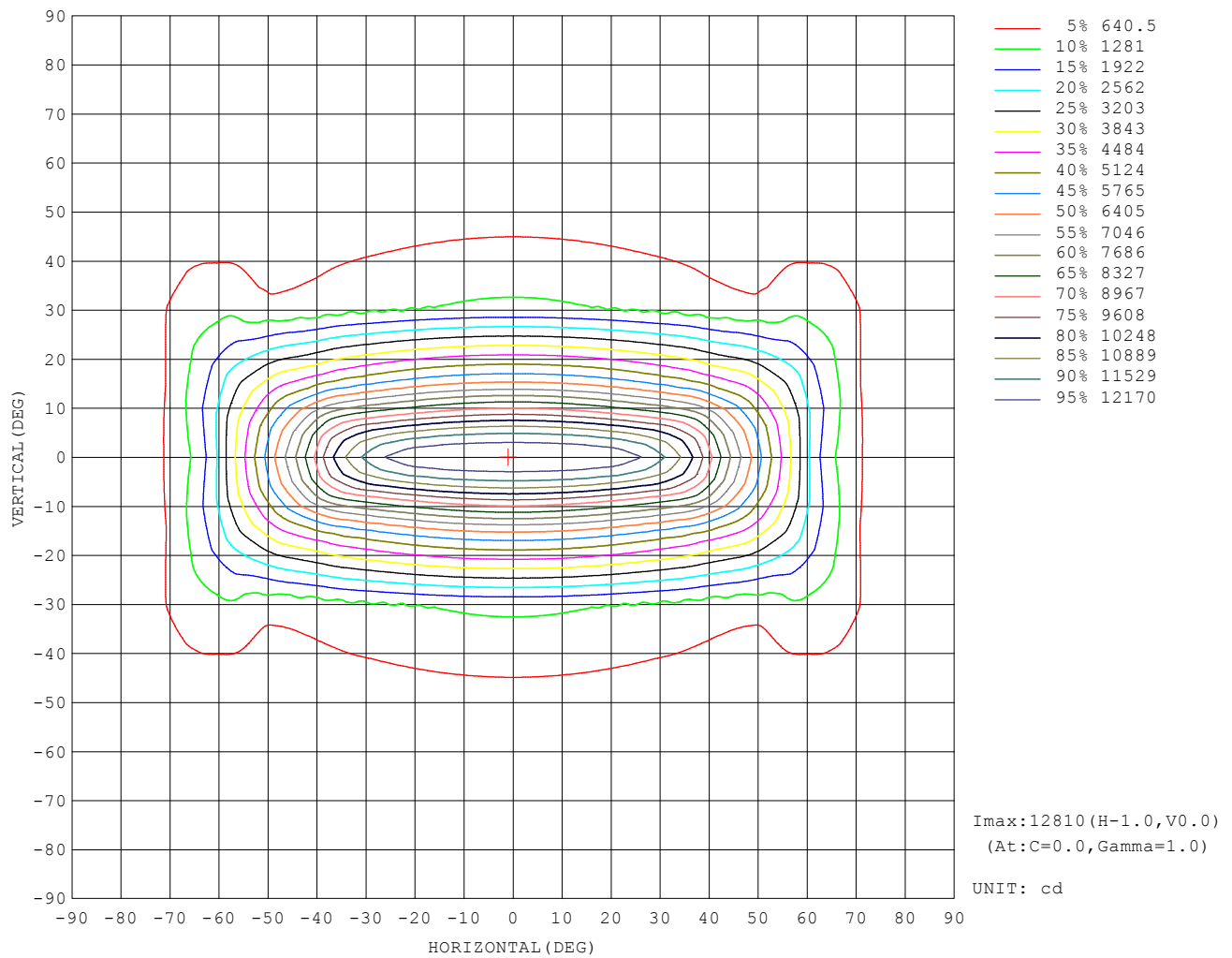
C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2017-07-01

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



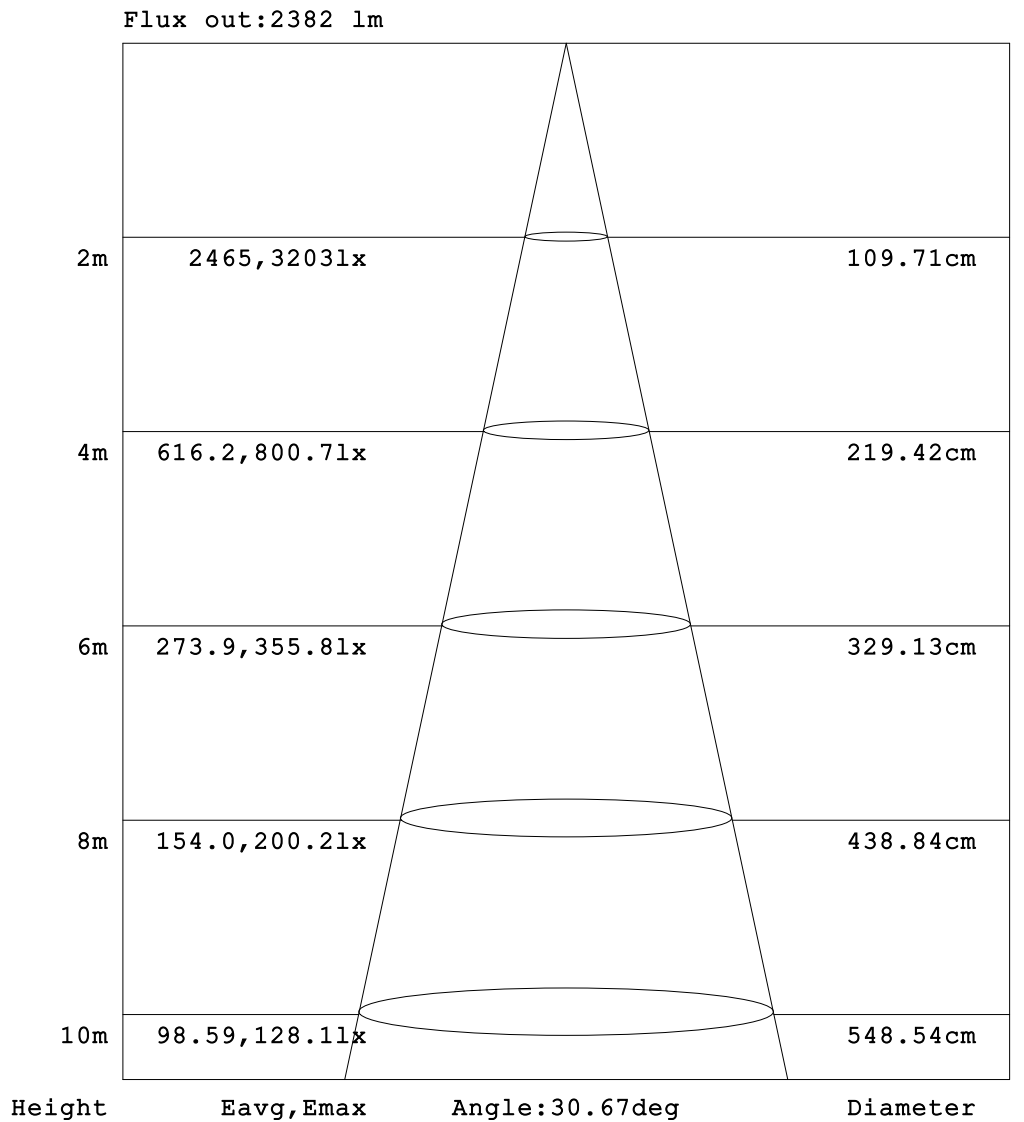
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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.

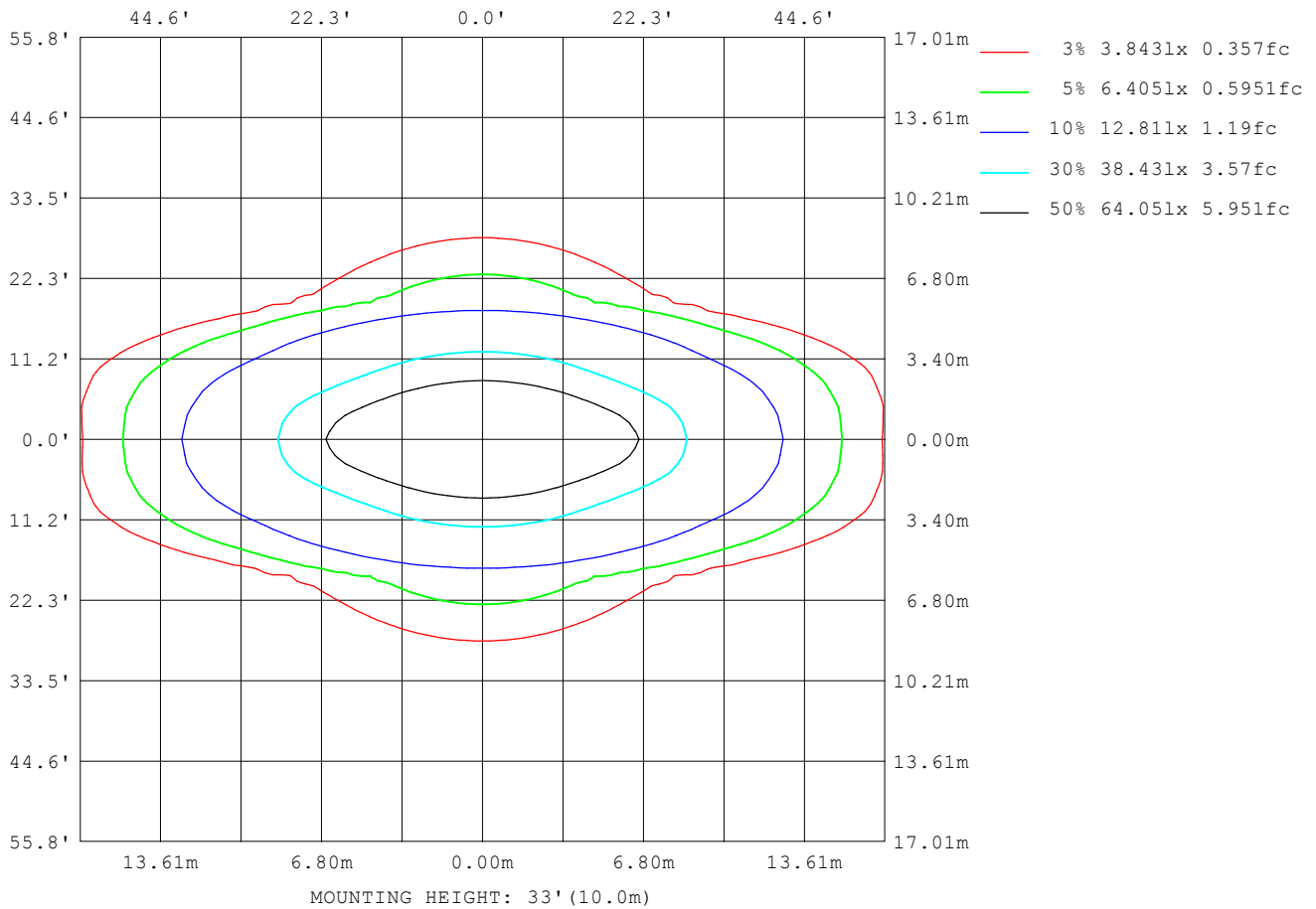
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2017-07-01

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



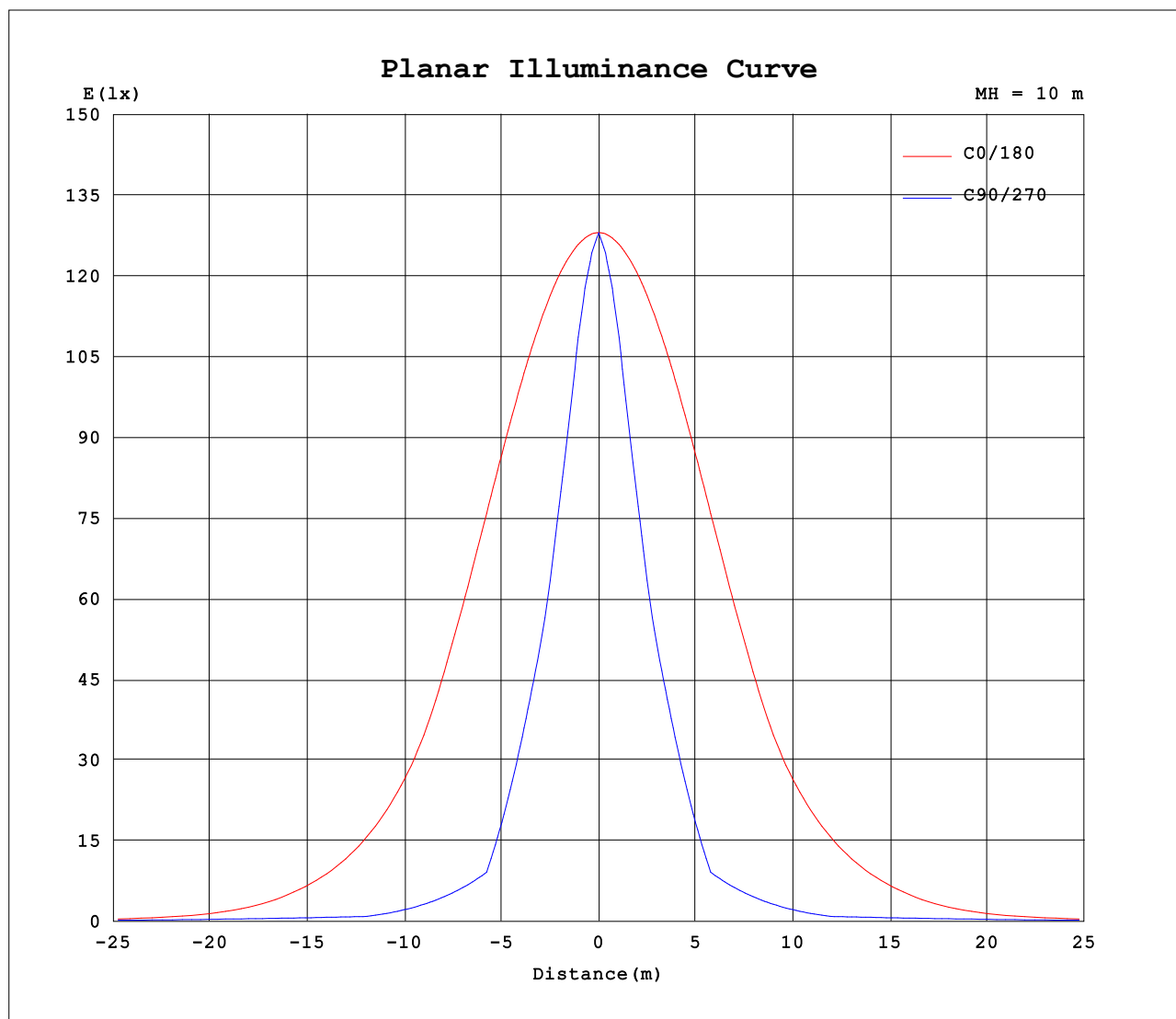
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2017-07-01

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:

```

Range: 0 - 90DEG
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:

Assessor:

UNIT: $\times 10 \text{cd}$

Assessor: