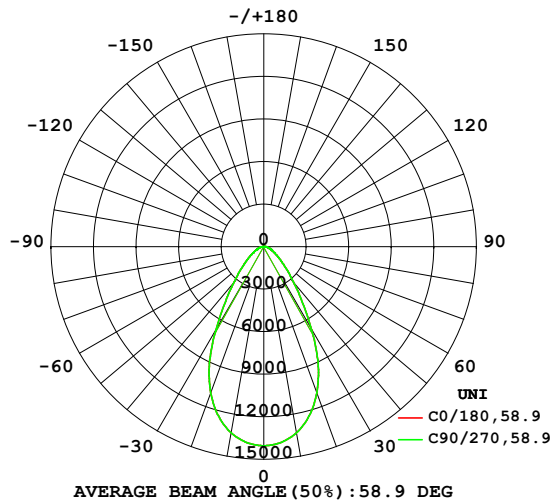


## LUMINAIRE PHOTOMETRIC TEST REPORT

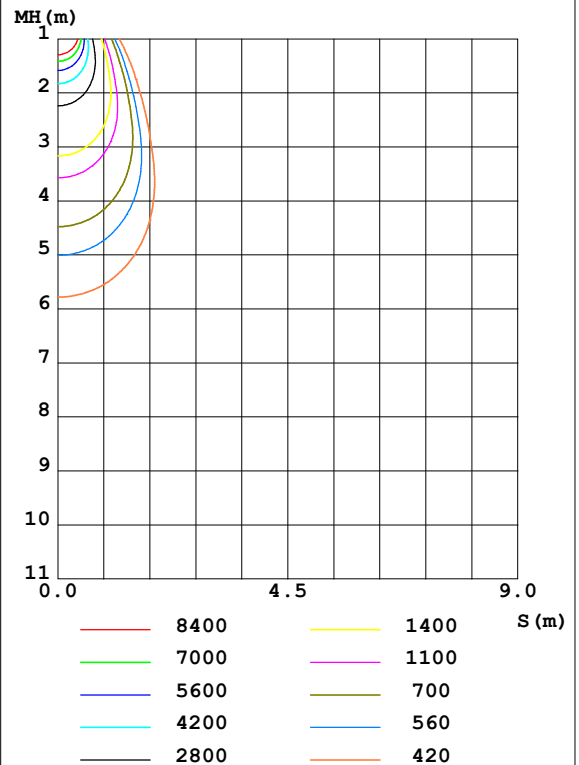
Test:U:230.08V I:0.5242A P:119.10W PF:0.9875 Freq:50.00Hz Lamp Flux:15808.1x1 lm					
NAME: HB38-120-5070-H00126			TYPE:		WEIGHT:
SPEC.:			DIM.:		SERIAL No.:
MFR.:			SUR.:φ0.246		Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 132.73 lm/W
MODEL	RF303	Imax(cd)	14037	S/MH(C0/180)	0.89	
NOMINAL POWER(W)	120	LOR(%)	100.0	S/MH(C90/270)	0.89	
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	15808	η UP,DN(C0-180)	0.0,50.0	
NOMINAL FLUX(lm)	15808.1	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	0.75	
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	0.90	

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-23

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

Checker: LI

Assessor:

## ZONAL FLUX DIAGRAM

### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum, lamp
10	1333	1333	1333	1333	1333	1333	1333	1333	0- 10	1306	1306	8.26,8.26
20	1096	1096	1096	1096	1096	1096	1096	1096	10- 20	3449	4756	30.1,30.1
30	676.4	676.4	676.4	676.4	676.4	676.4	676.4	676.4	20- 30	4105	8861	56.1,56.1
40	327.2	327.2	327.2	327.2	327.2	327.2	327.2	327.2	30- 40	2979	11840	74.9,74.9
50	164.4	164.4	164.4	164.4	164.4	164.4	164.4	164.4	40- 50	1820	13659	86.4,86.4
60	86.04	86.04	86.04	86.04	86.04	86.04	86.04	86.04	50- 60	1085	14744	93.3,93.3
70	48.01	48.01	48.01	48.01	48.01	48.01	48.01	48.01	60- 70	633.1	15377	97.3,97.3
80	17.97	17.97	17.97	17.97	17.97	17.97	17.97	17.97	70- 80	347.7	15725	99.5,99.5
90	0.8109	0.8109	0.8109	0.8109	0.8109	0.8109	0.8109	0.8109	80- 90	83.28	15808	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:×10cd									UNIT:lm		

Conical surface Flux(90deg): 12866 lm

%lum = 81.4%

%lamp = 81.4%

Conical surface Flux(120deg): 14744 lm

%lum = 93.3%

%lamp = 93.3%

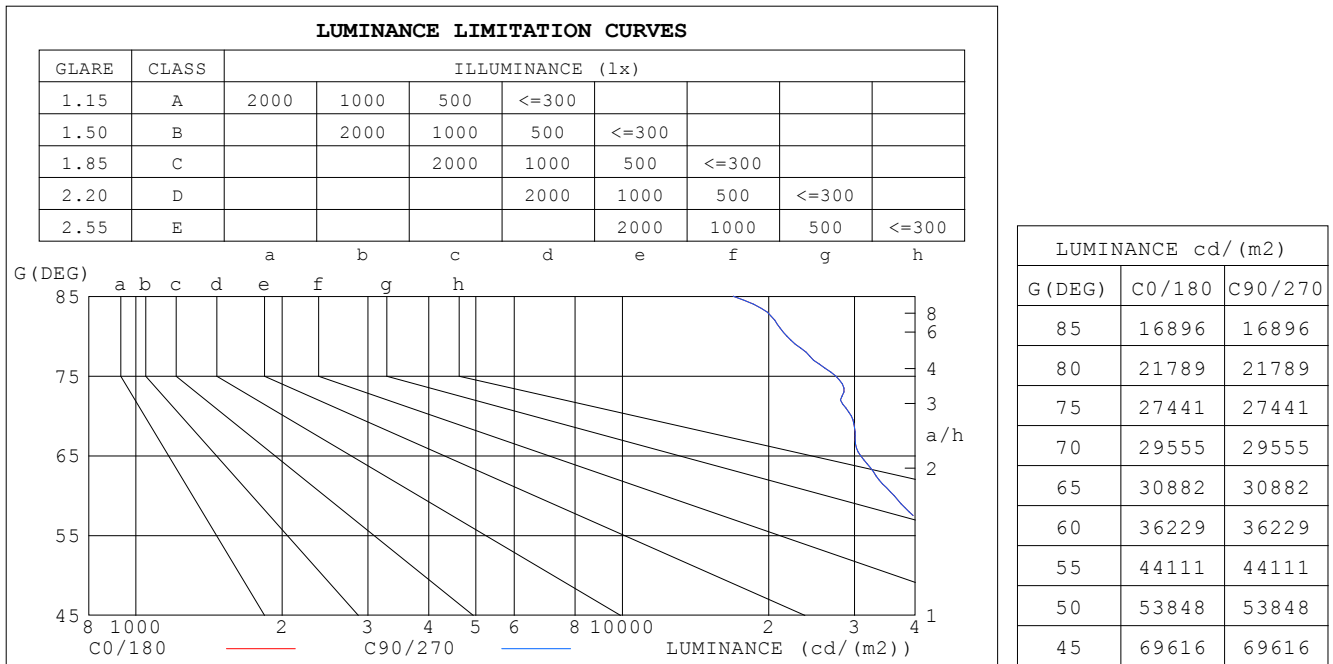
C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LI  
 Test Date:2019-12-23

Checker: LI

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:9.432m [K=1.0000]  
 Remarks:

Assessor:

### LUMINANCE LIMITATION CURVES



C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LI  
 Test Date: 2019-12-23

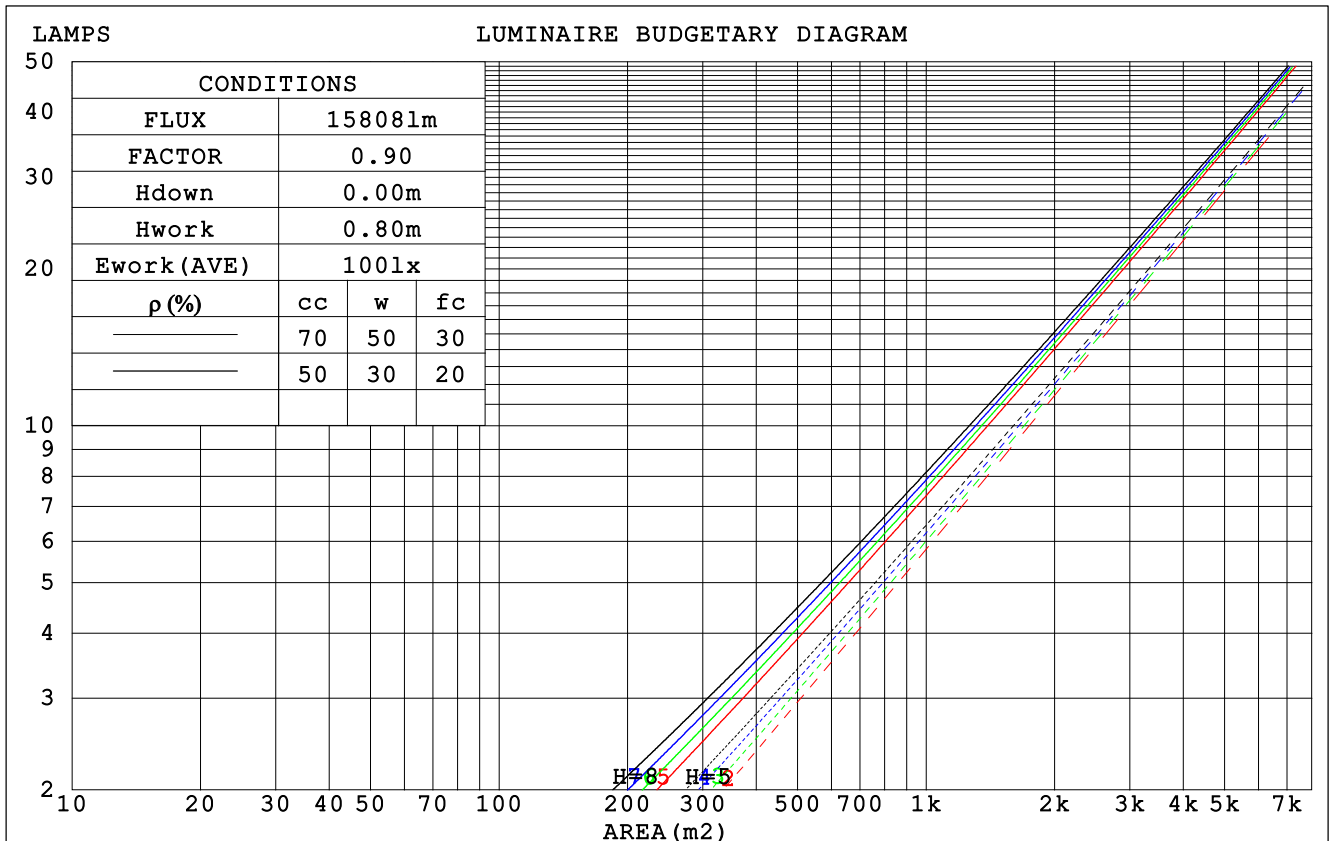
γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity: 65.0%  
 Test Distance: 9.432m [K=1.0000]  
 Remarks:

Checker: LI

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	1.09	1.05	1.03	1.06	1.04	1.01	1.02	.00	.98	.98	.97	.95	.95	.94	.92	.90
2.0	.99	.94	.90	.97	.93	.89	.94	.90	.87	.91	.88	.85	.88	.85	.83	.81
3.0	.91	.84	.80	.89	.83	.79	.86	.82	.78	.84	.80	.76	.81	.78	.75	.73
4.0	.83	.77	.72	.82	.76	.71	.80	.74	.70	.78	.73	.69	.76	.72	.69	.67
5.0	.77	.70	.65	.76	.69	.65	.74	.68	.64	.72	.67	.63	.71	.66	.63	.61
6.0	.71	.64	.59	.70	.64	.59	.69	.63	.59	.67	.62	.58	.66	.61	.58	.56
7.0	.66	.59	.54	.66	.59	.54	.64	.58	.54	.63	.58	.54	.62	.57	.53	.52
8.0	.62	.55	.50	.61	.55	.50	.60	.54	.50	.59	.54	.50	.58	.53	.50	.48
9.0	.58	.51	.47	.58	.51	.47	.57	.51	.47	.56	.50	.46	.55	.50	.46	.45
10.0	.55	.48	.44	.54	.48	.44	.53	.47	.43	.52	.47	.43	.52	.47	.43	.42



C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-23

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

Checker: LI

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	.220	.125	.040	.213	.122	.039	.201	.115	.037	.189	.109	.035	.178	.103	.033	
2.0	.210	.115	.035	.205	.113	.035	.194	.108	.033	.183	.103	.032	.174	.098	.031	
3.0	.198	.106	.032	.193	.104	.031	.184	.100	.030	.175	.096	.029	.167	.092	.029	
4.0	.187	.097	.029	.182	.095	.028	.174	.092	.028	.166	.089	.027	.159	.087	.026	
5.0	.176	.090	.026	.172	.088	.026	.165	.086	.025	.158	.083	.025	.152	.081	.024	
6.0	.166	.083	.024	.163	.082	.024	.156	.080	.023	.150	.078	.023	.145	.076	.023	
7.0	.157	.078	.022	.154	.077	.022	.148	.075	.022	.143	.073	.021	.138	.072	.021	
8.0	.149	.073	.020	.146	.072	.020	.141	.070	.020	.136	.069	.020	.132	.068	.020	
9.0	.141	.068	.019	.139	.068	.019	.134	.066	.019	.130	.065	.019	.126	.064	.018	
10.0	.134	.064	.018	.132	.064	.018	.128	.063	.018	.124	.062	.018	.120	.061	.017	

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	.174	.157	.141	.149	.135	.122	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.161	.132	.108	.138	.114	.093	.095	.079	.065	.055	.046	.038	.018	.015	.012	
3.0	.151	.114	.084	.129	.098	.073	.089	.068	.051	.051	.040	.030	.016	.013	.010	
4.0	.141	.100	.068	.121	.086	.059	.083	.060	.041	.048	.035	.024	.016	.011	.008	
5.0	.133	.088	.055	.115	.077	.048	.079	.053	.034	.046	.031	.020	.015	.010	.007	
6.0	.126	.079	.046	.108	.069	.040	.075	.048	.028	.043	.028	.017	.014	.009	.006	
7.0	.120	.072	.039	.103	.063	.034	.071	.044	.024	.041	.026	.014	.013	.008	.005	
8.0	.114	.066	.033	.098	.057	.029	.068	.040	.021	.039	.024	.012	.013	.008	.004	
9.0	.108	.061	.029	.093	.053	.025	.065	.037	.018	.038	.022	.011	.012	.007	.004	
10.0	.103	.057	.026	.089	.049	.022	.062	.035	.016	.036	.020	.009	.012	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LI  
 Test Date:2019-12-23

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity:65.0%  
 Test Distance:9.432m [K=1.0000]  
 Remarks:

Checker: LI

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	24.2	25.3	24.4	25.5	25.7	24.2	25.3	24.4	25.5	25.7
3H	24.8	25.8	25.1	26.0	26.3	24.8	25.8	25.1	26.0	26.3
4H	25.1	26.1	25.4	26.3	26.6	25.1	26.1	25.4	26.3	26.6
6H	25.3	26.2	25.6	26.5	26.7	25.3	26.2	25.6	26.5	26.7
8H	25.3	26.2	25.7	26.5	26.8	25.3	26.2	25.7	26.5	26.8
12H	25.4	26.2	25.7	26.5	26.8	25.4	26.2	25.7	26.5	26.8
4H 2H	24.3	25.3	24.6	25.6	25.8	24.3	25.3	24.6	25.6	25.8
3H	25.2	26.1	25.5	26.3	26.6	25.2	26.1	25.5	26.3	26.6
4H	25.6	26.4	26.0	26.7	27.0	25.6	26.4	26.0	26.7	27.0
6H	25.9	26.6	26.3	27.0	27.3	25.9	26.6	26.3	27.0	27.3
8H	26.0	26.7	26.4	27.0	27.4	26.0	26.7	26.4	27.0	27.4
12H	26.1	26.6	26.5	27.0	27.4	26.1	26.6	26.5	27.0	27.4
8H 4H	25.8	26.4	26.2	26.8	27.1	25.8	26.4	26.2	26.8	27.1
6H	26.1	26.7	26.6	27.1	27.5	26.1	26.7	26.6	27.1	27.5
8H	26.3	26.8	26.7	27.2	27.6	26.3	26.8	26.7	27.2	27.6
12H	26.4	26.8	26.8	27.2	27.7	26.4	26.8	26.8	27.2	27.7
12H 4H	25.7	26.3	26.2	26.7	27.1	25.7	26.3	26.2	26.7	27.1
6H	26.2	26.6	26.6	27.0	27.5	26.2	26.6	26.6	27.0	27.5
8H	26.3	26.7	26.8	27.2	27.6	26.3	26.7	26.8	27.2	27.6
Variations with the observer position at spacings:										
S = 1.0H	+ 0.6 / - 0.8					+ 0.6 / - 0.8				
1.5H	+ 0.8 / - 0.5					+ 0.8 / - 0.5				
2.0H	+ 1.2 / - 0.8					+ 1.2 / - 0.8				

CIE Pub.117, 15808 lm Total Lamp Luminous Flux Corrected ( $8\log(F/F_0) = 9.6$ )  
Area: 0.0475 m<sup>2</sup>

C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-23

Checker: LI

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

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) $k(RI) \times RCR = 5$									
$k = 0.60$	76	67	62	75	67	62	74	67	62	58
0.80	85	77	71	84	76	71	82	75	71	66
1.00	91	83	78	90	83	78	88	83	77	72
1.25	96	89	84	95	88	84	93	87	83	78
1.50	100	93	88	98	92	88	96	91	87	81
2.00	104	98	94	102	97	93	99	95	92	86
2.50	106	101	97	105	100	96	101	97	94	88
3.00	108	104	100	107	102	99	103	100	97	90
4.00	111	107	104	109	106	103	105	102	100	93
5.00	113	110	107	111	108	105	106	104	102	94
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

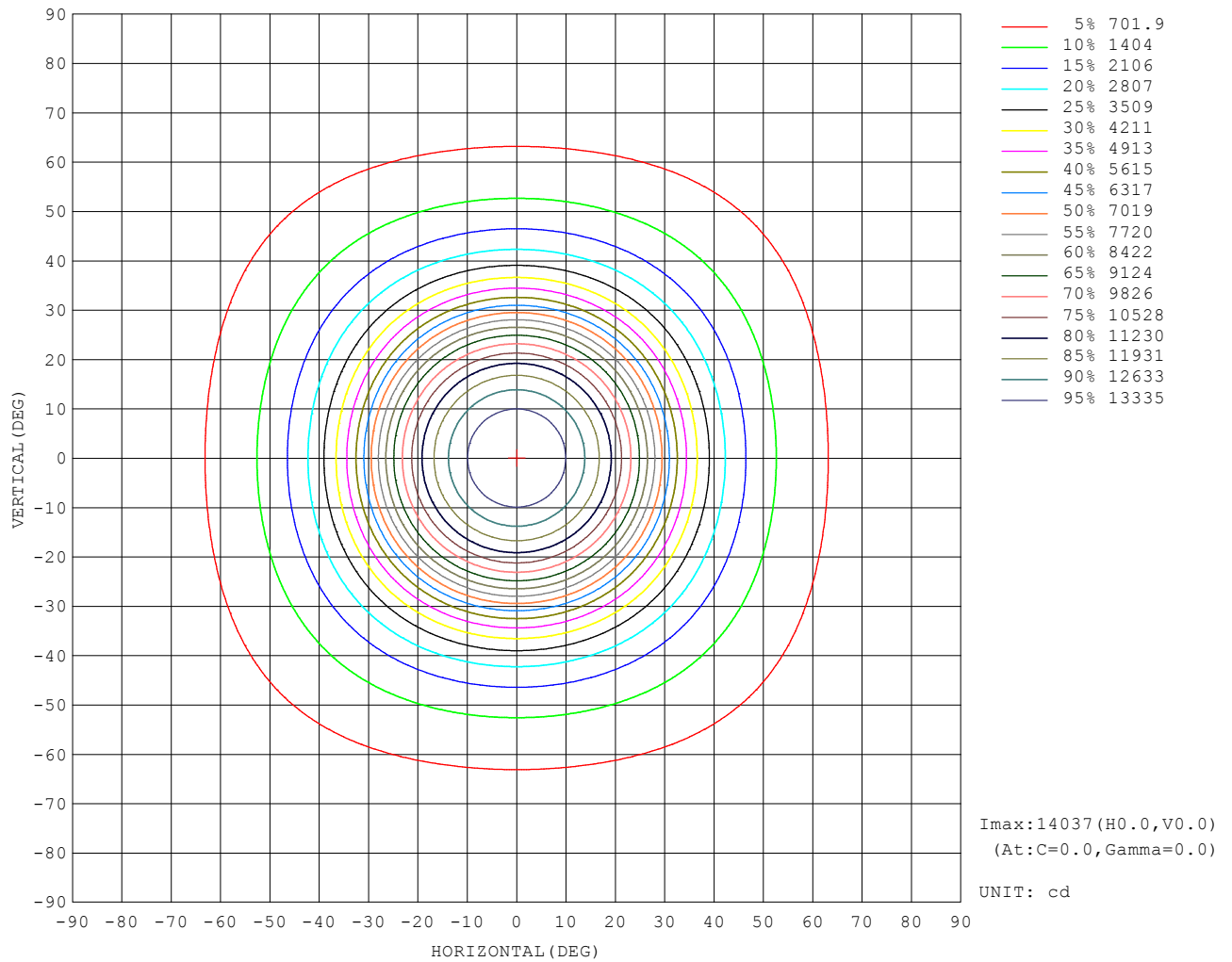
C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LI  
 Test Date: 2019-12-23

Checker: LI

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity: 65.0%  
 Test Distance: 9.432m [K=1.0000]  
 Remarks:

Assessor:

# ISOCANDELA DIAGRAM



C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-23

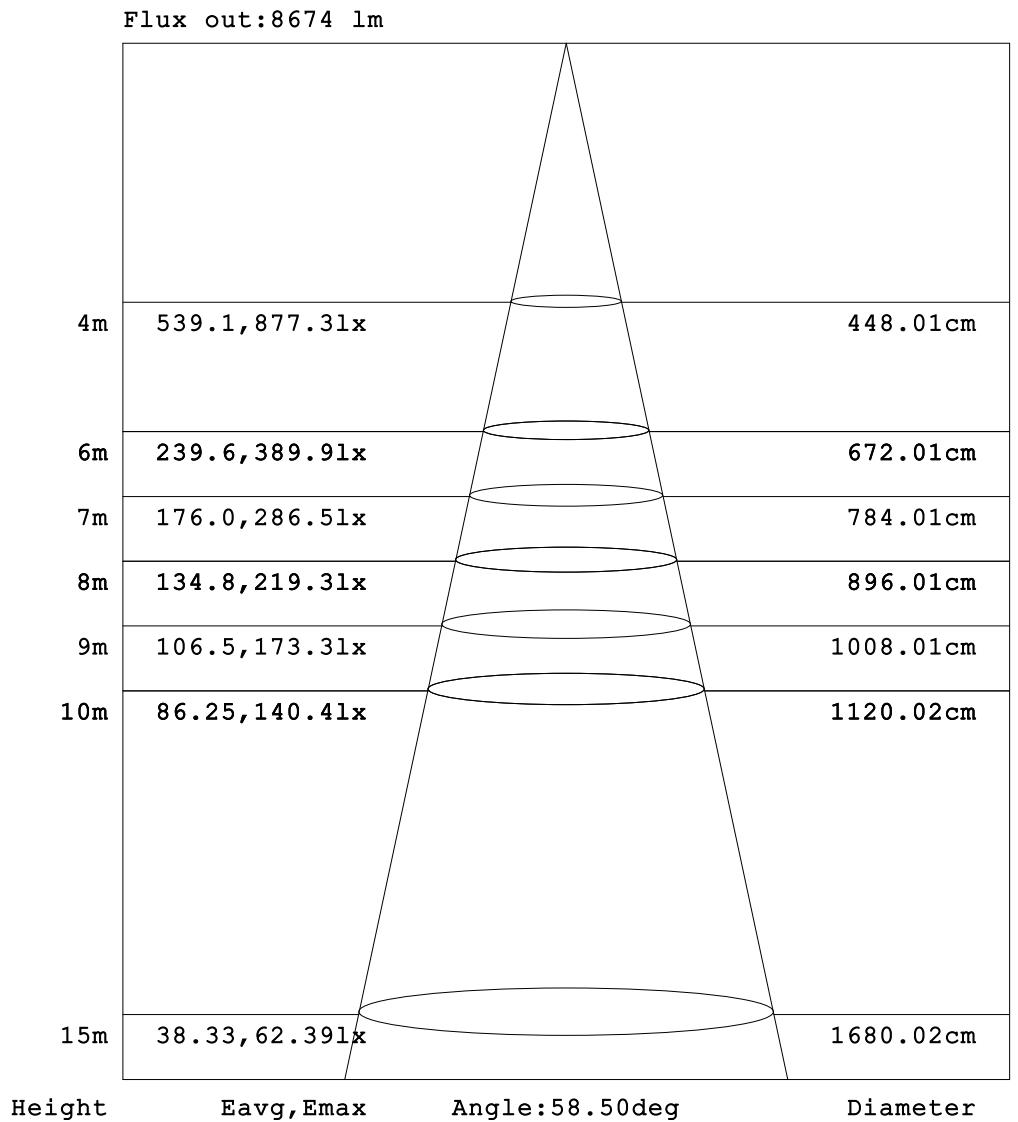
$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

Checker: LI

Assessor:



### AAI Figure



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

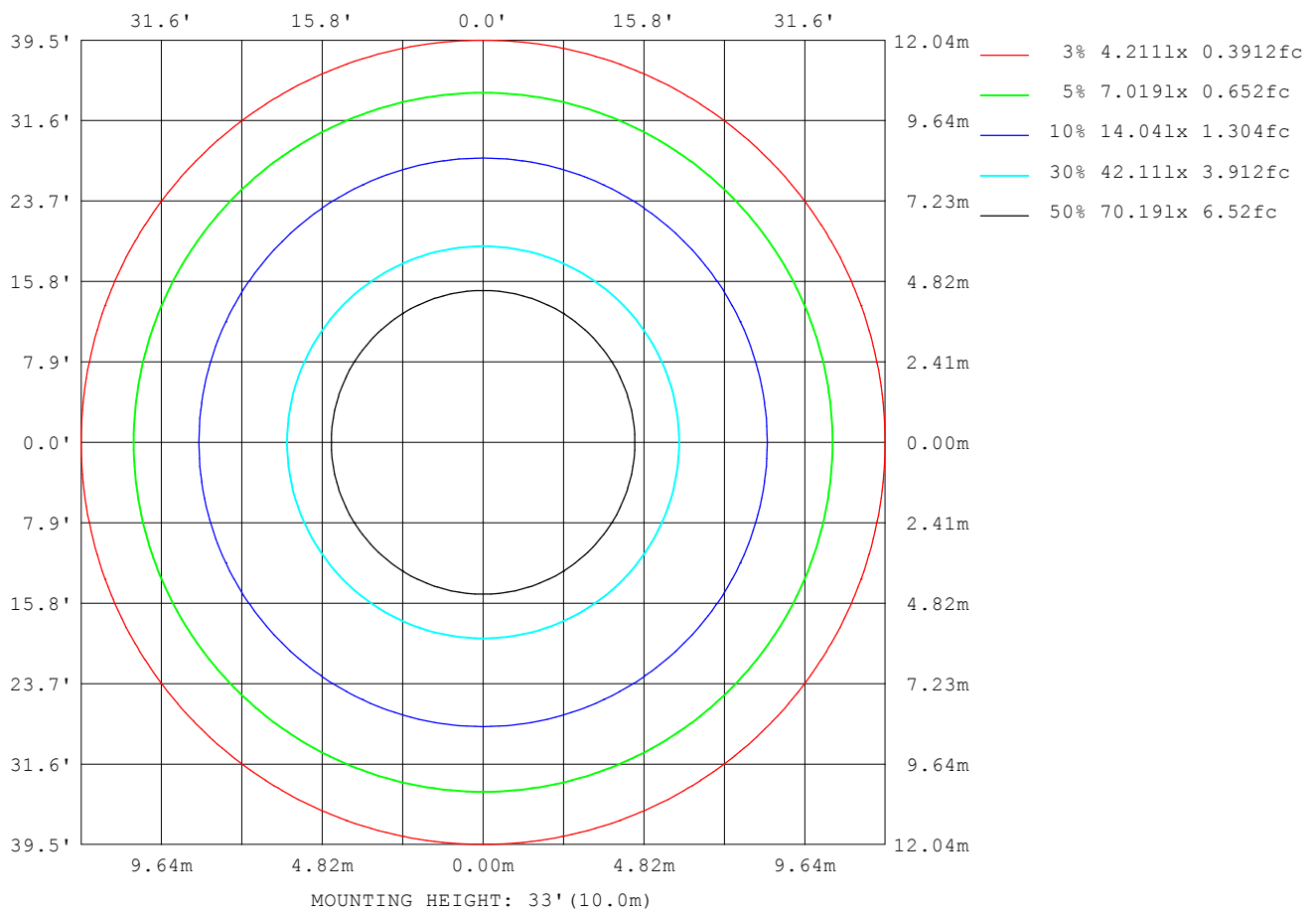
C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: LI  
 Test Date: 2019-12-23

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
 Humidity: 65.0%  
 Test Distance: 9.432m [K=1.0000]  
 Remarks:

Checker: LI

Assessor:

# ISOLUX DIAGRAM



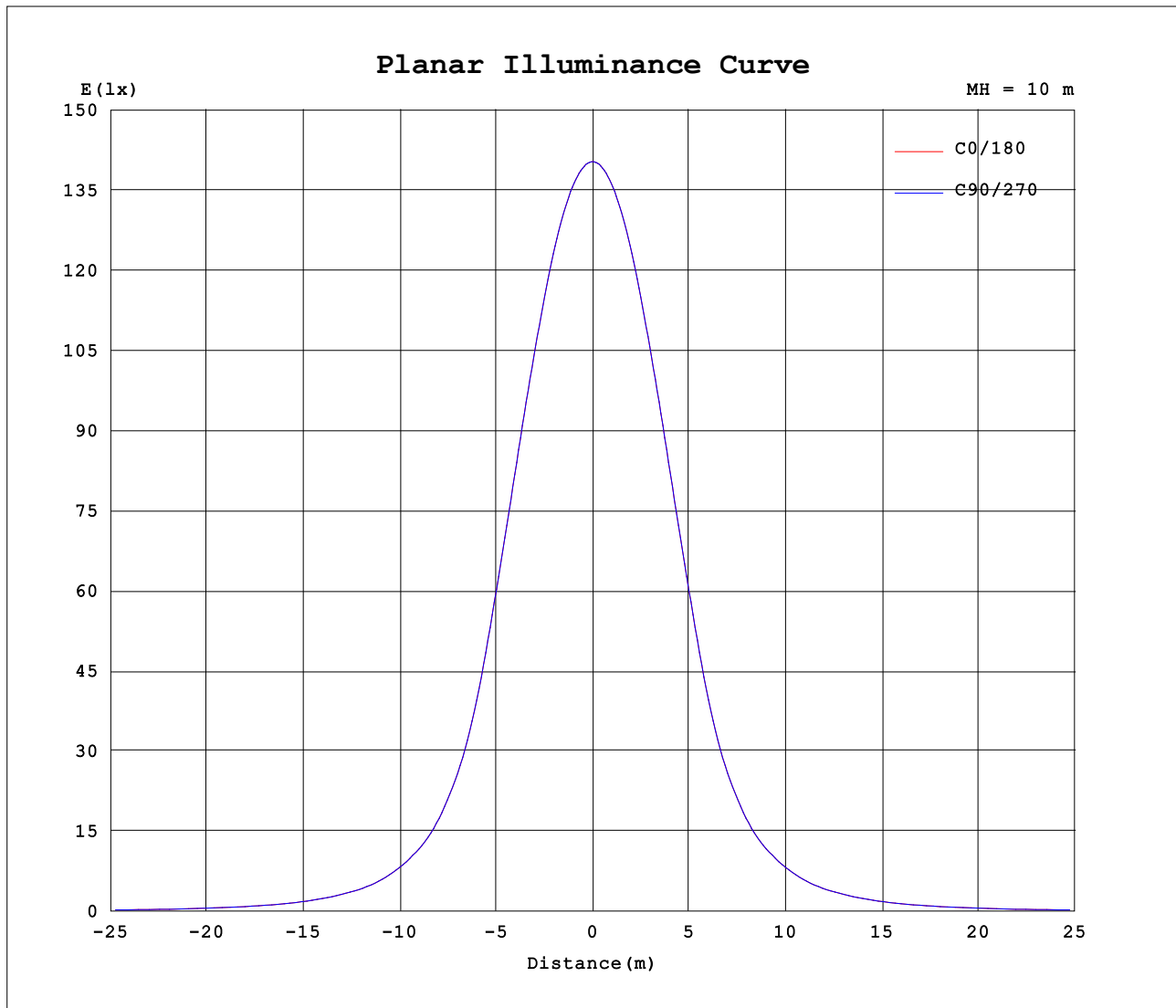
C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: LI  
Test Date: 2019-12-23

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 9.432m [K=1.0000]  
Remarks:

Checker: LI

Assessor:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: LI  
Test Date: 2019-12-23

Checker: LI

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity: 65.0%  
Test Distance: 9.432m [K=1.0000]  
Remarks:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor:

Assessor:



Assessor:

Assessor:

Assessor: