

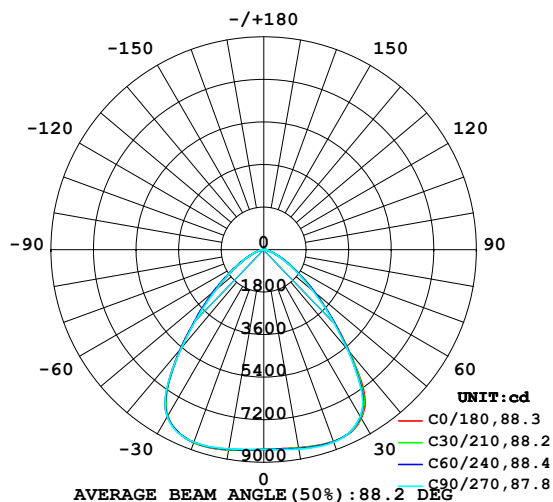
# GONIOPHOTOMETERS SYSTEM TEST REPORT

## LUMINAIRE PHOTOMETRIC TEST REPORT

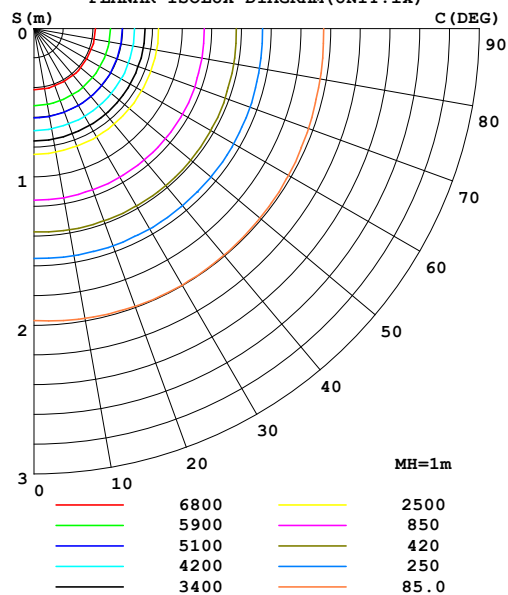
Test:U:230.05V I:0.5461A P:123.59W PF:0.9837 Freq:50.00Hz Lamp Flux:17385.6x1 lm		
NAME: HB39-120-5080-H00125	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:#0.24	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 140.67 lm/W			
MODEL	SE303	I <sub>max</sub> (cd)	8713	S/MH(C0/180)	1.25
NOMINAL POWER(W)	120	LOR(%)	100.0	S/MH(C90/270)	1.24
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	17386	η UP,DN(C0-180)	0.0,50.1
NOMINAL FLUX(lm)	17385.6	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.9
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



PLANAR ISOLUX DIAGRAM(UNIT:lx)



C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LI  
 Test Date:2019-12-17

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:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## ZONAL FLUX DIAGRAM

### ZONAL FLUX DIAGRAM:

$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	%lum,lamp
10	8506	8529	8566	8616	8601	8586	8554	8530	0- 10	812.5	812.5	4.67,4.67
20	8633	8642	8667	8689	8690	8674	8668	8660	10- 20	2449	3261	18.8,18.8
30	8246	8184	8151	8000	8157	8133	8168	8140	20- 30	3925	7186	41.3,41.3
40	5637	5573	5505	5203	5489	5449	5422	5350	30- 40	4358	11545	66.4,66.4
50	2781	2857	2707	2705	2680	2799	2655	2755	40- 50	3058	14603	84,84
60	1192	1264	1175	1248	1137	1247	1165	1248	50- 60	1686	16289	93.7,93.7
70	437.5	467.8	436.3	471.5	423.2	462.1	434.2	463.4	60- 70	778.0	17067	98.2,98.2
80	111.7	116.6	111.0	119.9	103.6	109.1	106.9	118.7	70- 80	277.3	17344	99.8,99.8
90	5.169	5.257	5.200	5.183	5.473	5.489	5.360	5.377	80- 90	41.20	17386	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): 13264 lm

%lum = 76.3%

%lamp = 76.3%

Conical surface Flux(120deg): 16289 lm

%lum = 93.7%

%lamp = 93.7%

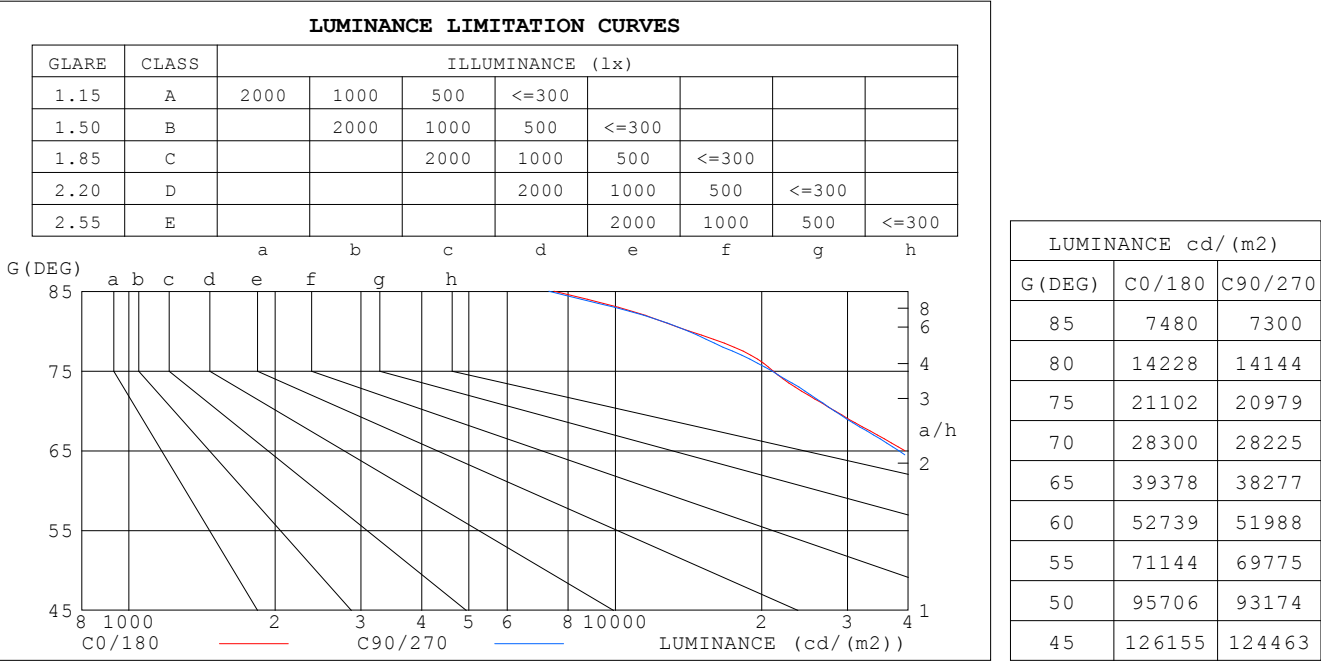
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Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-17

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



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Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-17

Checker: LI

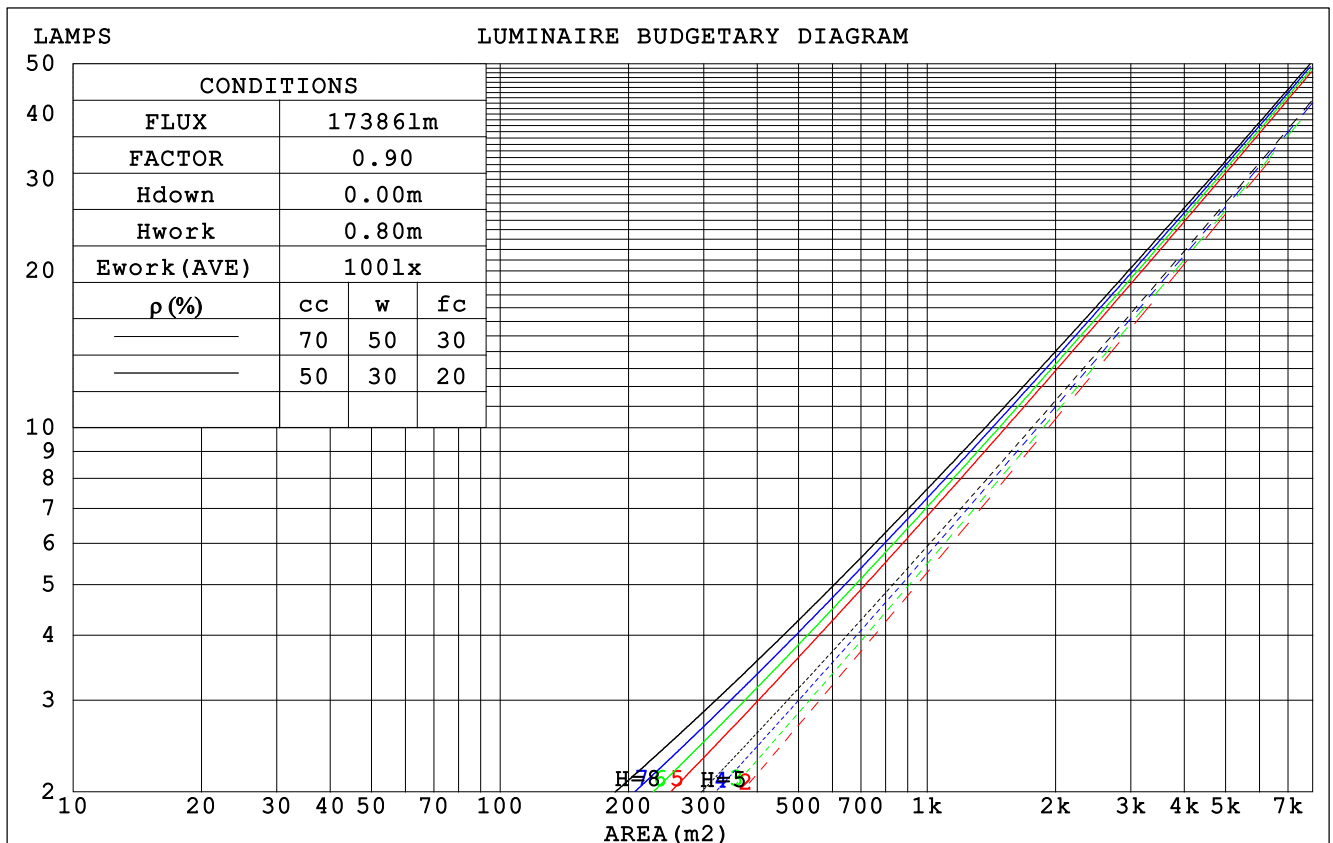
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Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

Assessor:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

pcc	80%			70%			50%			30%			10%			0
p <sub>w</sub>	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p <sub>fc</sub>	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	1.00	1.02	.99	.97	.98	.96	.94	.94	.93	.91	.89
2.0	.97	.92	.87	.95	.91	.86	.92	.88	.85	.89	.86	.83	.86	.83	.81	.79
3.0	.88	.81	.76	.86	.80	.75	.84	.78	.74	.81	.77	.73	.79	.75	.72	.70
4.0	.80	.72	.67	.78	.72	.66	.76	.70	.66	.74	.69	.65	.72	.68	.64	.62
5.0	.72	.65	.59	.71	.64	.59	.69	.63	.58	.68	.62	.58	.66	.61	.57	.55
6.0	.66	.59	.53	.65	.58	.53	.64	.57	.52	.62	.56	.52	.61	.56	.52	.50
7.0	.61	.53	.48	.60	.53	.48	.59	.52	.47	.57	.51	.47	.56	.51	.47	.45
8.0	.56	.48	.43	.55	.48	.43	.54	.48	.43	.53	.47	.43	.52	.46	.42	.41
9.0	.52	.44	.39	.51	.44	.39	.50	.44	.39	.49	.43	.39	.48	.43	.39	.37
10.0	.48	.41	.36	.47	.41	.36	.47	.40	.36	.46	.40	.36	.45	.39	.36	.34



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Test System:EVERFINE GO-2000A\_V1 SYSTEM V2.0.295  
Humidity:65.0%  
Test Distance:9.432m [K=1.0000]  
Remarks:

Checker: LI

Assessor:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## 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	.232	.132	.042	.225	.129	.041	.213	.122	.039	.201	.116	.037	.190	.110	.035		
2.0	.226	.124	.038	.220	.121	.037	.209	.116	.036	.199	.112	.035	.189	.107	.034		
3.0	.216	.115	.034	.210	.113	.034	.201	.109	.033	.192	.105	.032	.183	.102	.031		
4.0	.204	.106	.031	.200	.104	.031	.191	.101	.030	.183	.098	.030	.176	.096	.029		
5.0	.193	.098	.028	.189	.097	.028	.181	.094	.028	.174	.092	.027	.168	.090	.027		
6.0	.182	.091	.026	.179	.090	.026	.172	.088	.026	.166	.086	.025	.160	.084	.025		
7.0	.172	.085	.024	.169	.084	.024	.163	.083	.024	.158	.081	.024	.152	.079	.023		
8.0	.163	.080	.022	.161	.079	.022	.155	.078	.022	.150	.076	.022	.145	.075	.022		
9.0	.155	.075	.021	.152	.074	.021	.148	.073	.021	.143	.072	.021	.139	.070	.020		
10.0	.147	.071	.020	.145	.070	.020	.141	.069	.019	.136	.068	.019	.132	.067	.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	.141	.150	.135	.121	.102	.093	.084	.059	.054	.049	.019	.017	.016	
2.0	.163	.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	.146	.100	.065	.125	.086	.056	.086	.060	.040	.050	.035	.024	.016	.011	.008	
5.0	.138	.089	.053	.119	.077	.046	.082	.054	.032	.047	.032	.019	.015	.010	.006	
6.0	.132	.080	.044	.113	.070	.038	.078	.049	.027	.045	.029	.016	.015	.009	.005	
7.0	.125	.073	.037	.108	.064	.032	.075	.045	.023	.043	.026	.014	.014	.009	.004	
8.0	.120	.067	.032	.103	.059	.028	.071	.041	.020	.041	.024	.012	.013	.008	.004	
9.0	.114	.063	.027	.099	.054	.024	.068	.038	.017	.040	.023	.010	.013	.007	.003	
10.0	.109	.058	.024	.094	.051	.021	.065	.036	.015	.038	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 2.5DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:LI  
 Test Date:2019-12-17

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:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## 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	27.2	28.5	27.5	28.7	28.8	27.1	28.3	27.3	28.5	28.7
3H	27.4	28.6	27.7	28.8	29.0	27.2	28.4	27.5	28.6	28.8
4H	27.4	28.5	27.7	28.8	29.0	27.3	28.4	27.6	28.6	28.8
6H	27.4	28.4	27.7	28.7	28.9	27.2	28.3	27.6	28.5	28.8
8H	27.4	28.3	27.7	28.6	28.9	27.2	28.2	27.5	28.5	28.7
12H	27.3	28.3	27.7	28.5	28.8	27.2	28.1	27.5	28.4	28.7
4H 2H	27.3	28.4	27.6	28.6	28.8	27.1	28.2	27.4	28.5	28.7
3H	27.6	28.5	27.9	28.8	29.1	27.4	28.4	27.8	28.6	28.9
4H	27.6	28.5	28.0	28.8	29.1	27.5	28.3	27.8	28.7	29.0
6H	27.6	28.4	28.0	28.7	29.1	27.5	28.2	27.9	28.6	28.9
8H	27.6	28.3	28.0	28.7	29.0	27.5	28.2	27.9	28.5	28.9
12H	27.6	28.2	28.0	28.6	29.0	27.4	28.1	27.9	28.5	28.8
8H 4H	27.6	28.3	28.0	28.6	29.0	27.4	28.1	27.8	28.5	28.9
6H	27.6	28.2	28.1	28.6	29.0	27.5	28.1	27.9	28.5	28.9
8H	27.6	28.1	28.1	28.5	29.0	27.5	28.0	27.9	28.4	28.8
12H	27.6	28.0	28.1	28.5	28.9	27.5	27.9	27.9	28.3	28.8
12H 4H	27.6	28.2	28.0	28.6	29.0	27.4	28.0	27.8	28.4	28.8
6H	27.6	28.1	28.0	28.5	29.0	27.5	28.0	27.9	28.4	28.8
8H	27.6	28.0	28.1	28.5	28.9	27.5	27.9	27.9	28.3	28.8
Variations with the observer position at spacings:										
S = 1.0H	+ 1.1 / - 1.7					+ 1.1 / - 1.7				
1.5H	+ 1.1 / - 1.0					+ 1.1 / - 1.0				
2.0H	+ 2.2 / - 1.9					+ 2.3 / - 2.0				

CIE Pub.117, 17386 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = 9.9)  
Area: 0.0452 m2

C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-17

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:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## 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	86	80	92	85	80	90	84	79	74
1.50	97	90	85	96	90	85	93	88	84	78
2.00	103	96	92	101	95	91	98	93	90	83
2.50	105	100	95	103	98	94	100	96	92	86
3.00	108	103	99	106	101	98	102	98	95	88
4.00	110	106	103	108	105	102	104	101	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		

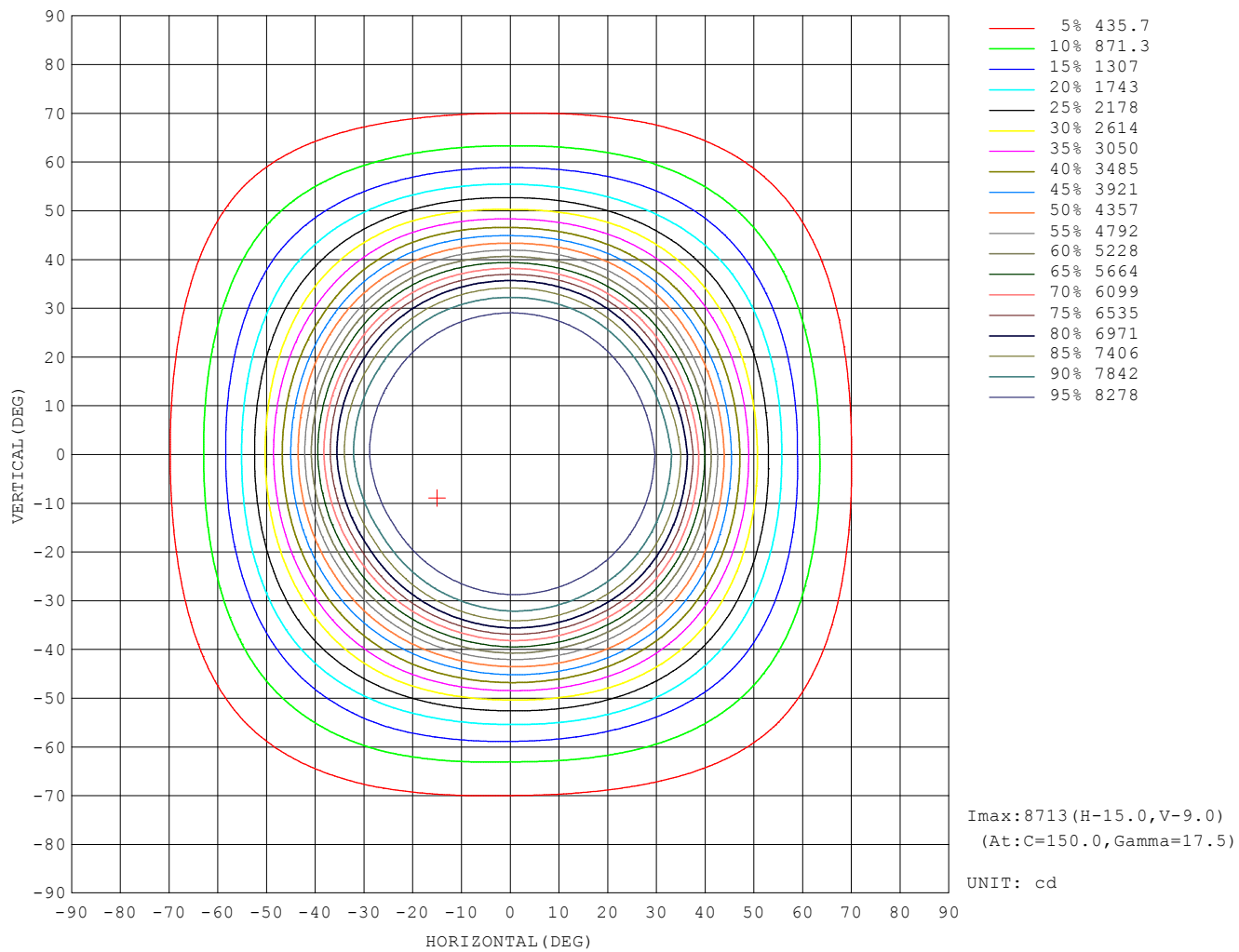
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$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
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Assessor:

ISOCANDELA DIAGRAM



C Range: 0 - 360DEG  
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Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: LI  
Test Date: 2019-12-17

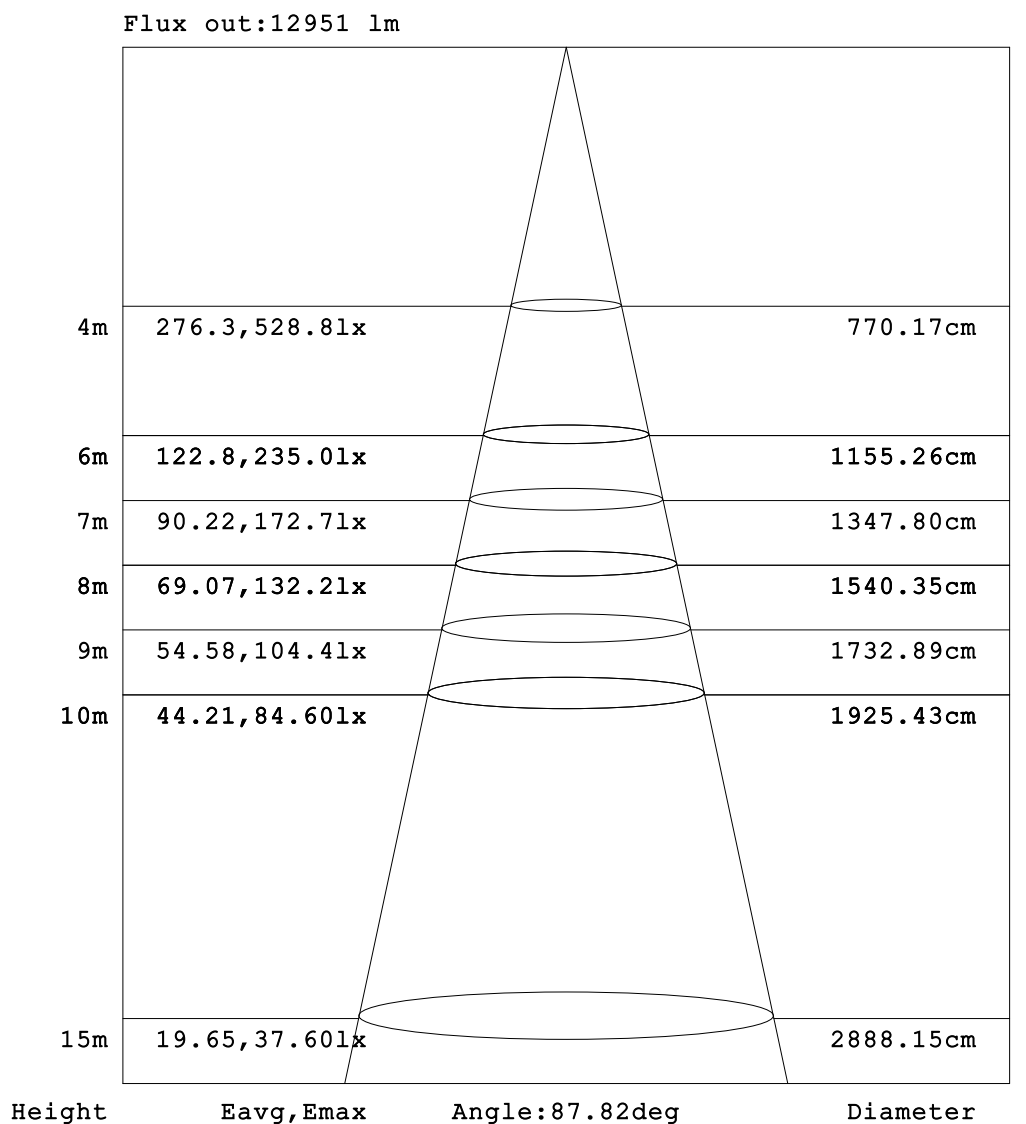
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Test Distance: 9.432m [K=1.0000]  
Remarks:

Checker: LI

Assessor:



## AAI Figure



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

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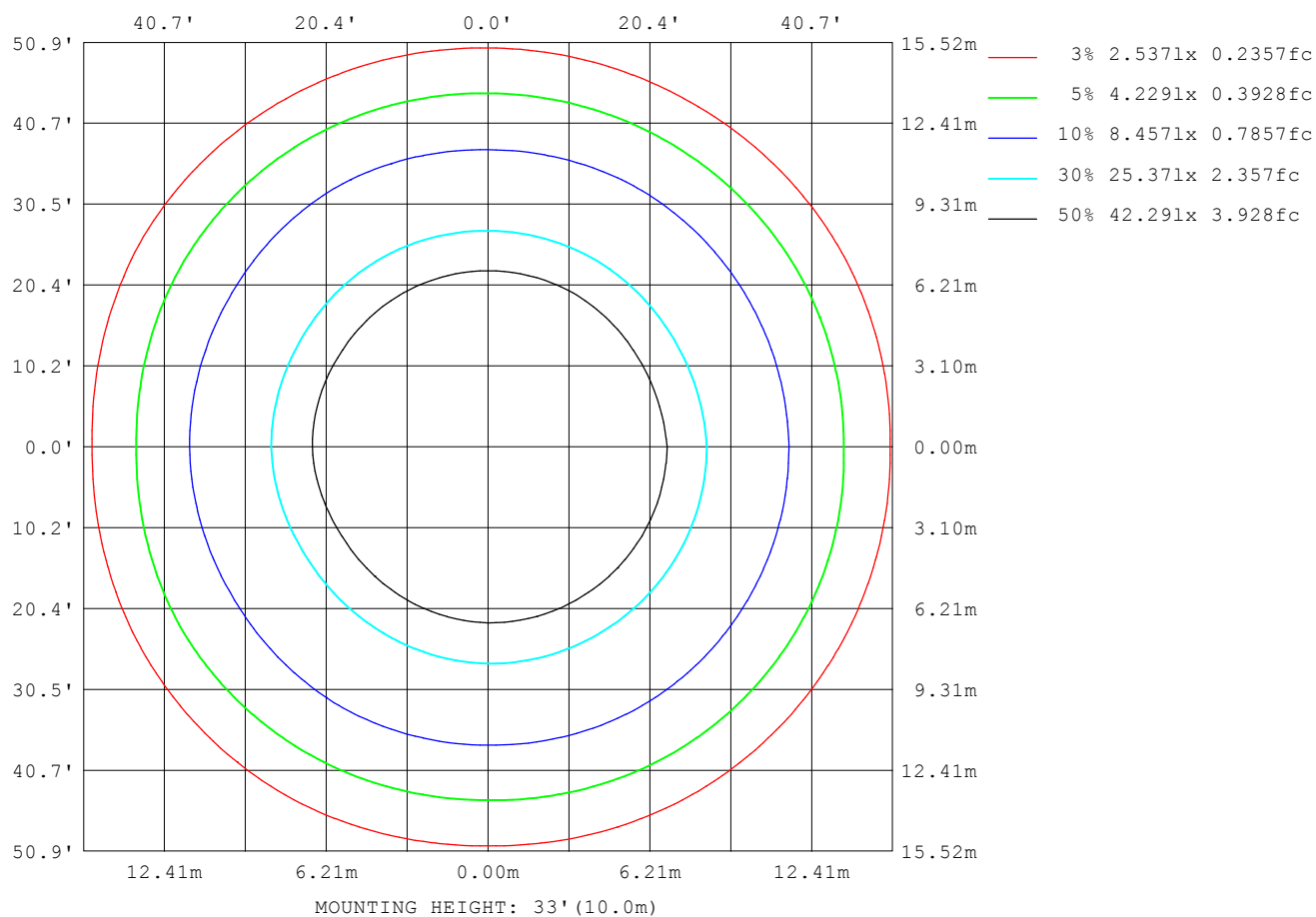
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Humidity: 65.0%  
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Remarks:

Checker: LI

Assessor:

# GONIOPHOTOMETERS SYSTEM TEST REPORT

## ISOLUX DIAGRAM



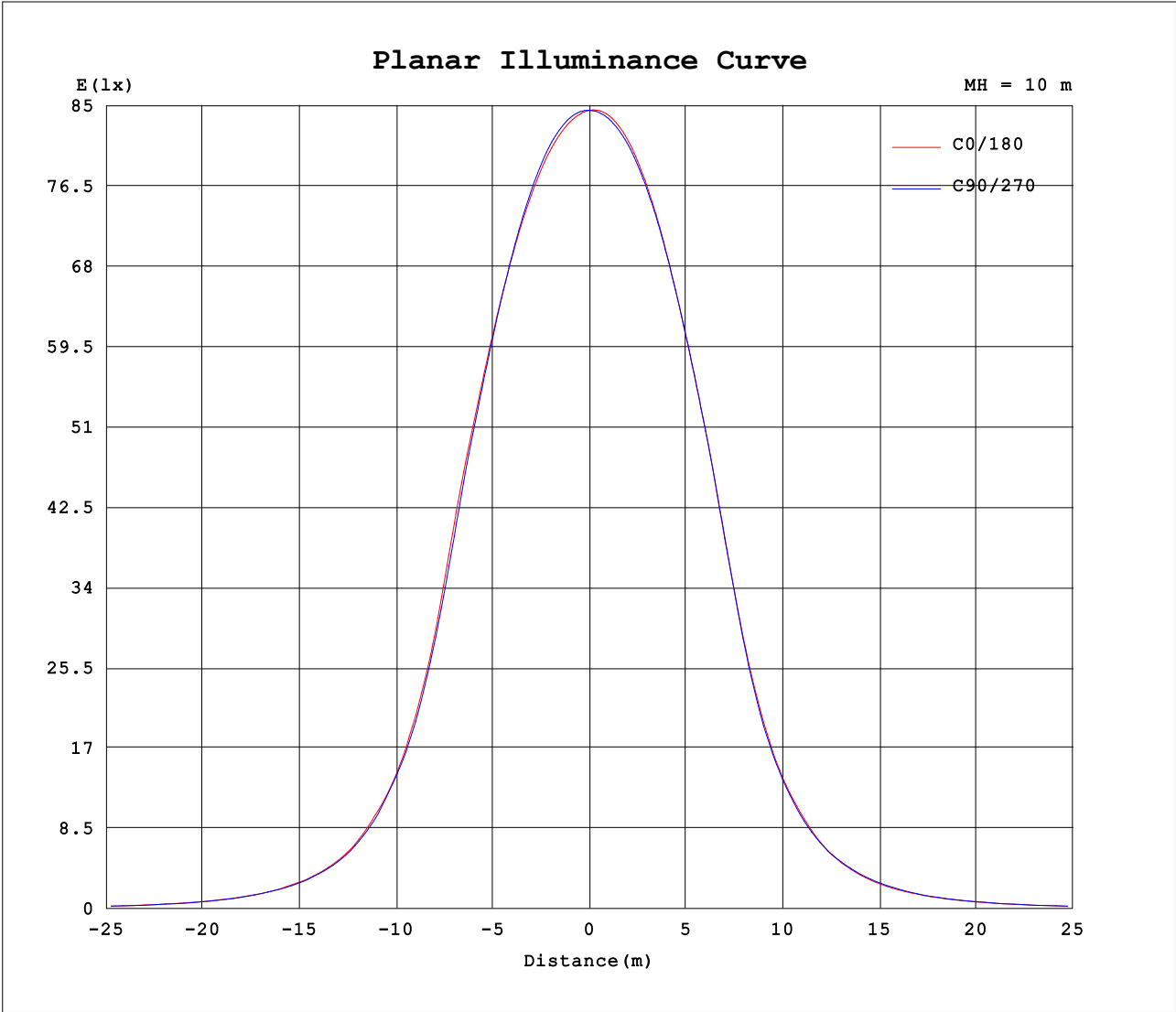
C Range: 0 - 360DEG  
C Interval: 2.5DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: LI  
Test Date: 2019-12-17

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:

Planar Illuminance Curve



C Range: 0 - 360DEG  
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Test Speed: HIGH  
Temperature:25.3DEG  
Operators:LI  
Test Date:2019-12-17

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: