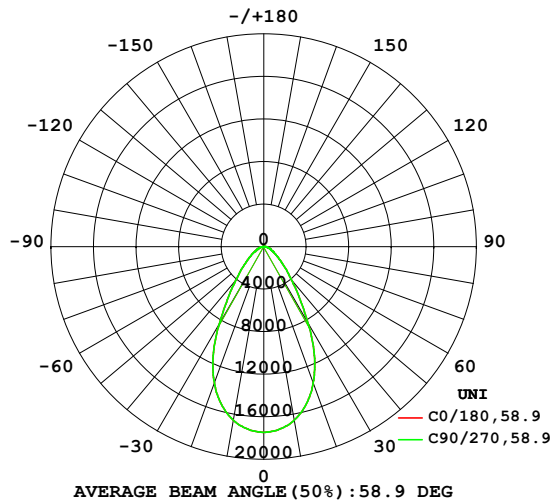


LUMINAIRE PHOTOMETRIC TEST REPORT

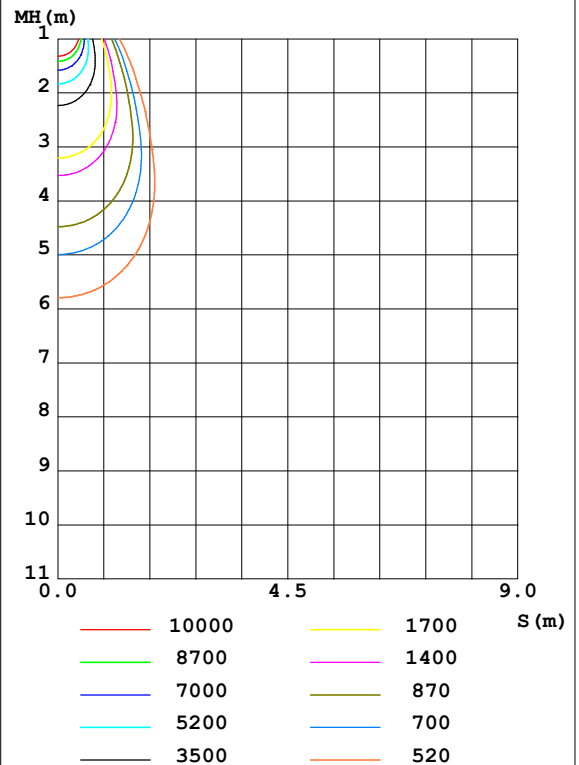
Test:U:230.08V I:0.6576A P:148.50W PF:0.9815 Freq:50.00Hz Lamp Flux:19652.5x1 lm					
NAME: HB38-150-5070-H00126		TYPE:		WEIGHT:	
SPEC.:		DIM.:		SERIAL No.:	
MFR.:		SUR.:φ0.246		Shielding Angle:	

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 132.34 lm/W
MODEL	RF303	I _{max} (cd)	17451	S/MH (C0/180)	0.89	
NOMINAL POWER(W)	150	LOR(%)	100.0	S/MH (C90/270)	0.89	
RATED VOLTAGE(V)	230	TOTAL FLUX (lm)	19653	η UP,DN (C0-180)	0.0,50.0	
NOMINAL FLUX(lm)	19652.5	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

Checker: LI

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:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1657	1657	1657	1657	1657	1657	1657	1657	0- 10	1624	1624	8.26, 8.26
20	1363	1363	1363	1363	1363	1363	1363	1363	10- 20	4288	5912	30.1, 30.1
30	840.9	840.9	840.9	840.9	840.9	840.9	840.9	840.9	20- 30	5104	11016	56.1, 56.1
40	406.7	406.7	406.7	406.7	406.7	406.7	406.7	406.7	30- 40	3703	14719	74.9, 74.9
50	204.4	204.4	204.4	204.4	204.4	204.4	204.4	204.4	40- 50	2262	16981	86.4, 86.4
60	107.0	107.0	107.0	107.0	107.0	107.0	107.0	107.0	50- 60	1348	18330	93.3, 93.3
70	59.69	59.69	59.69	59.69	59.69	59.69	59.69	59.69	60- 70	787.1	19117	97.3, 97.3
80	22.34	22.34	22.34	22.34	22.34	22.34	22.34	22.34	70- 80	432.2	19549	99.5, 99.5
90	1.008	1.008	1.008	1.008	1.008	1.008	1.008	1.008	80- 90	103.5	19653	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: $\times 10\text{cd}$									UNIT: lm		

Conical surface Flux(90deg): 15995 lm

%lum = 81.4%

%lamp = 81.4%

Conical surface Flux(120deg): 18330 lm

%lum = 93.3%

%lamp = 93.3%

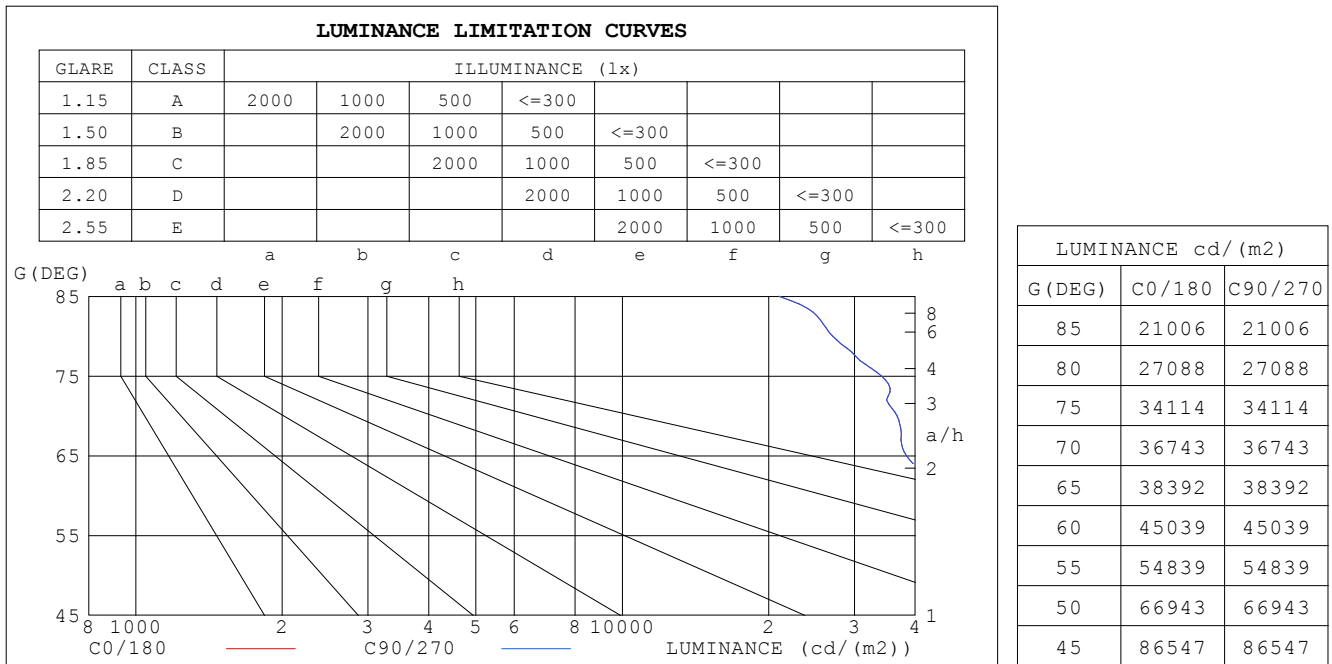
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-23

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:

LUMINANCE LIMITATION CURVES



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

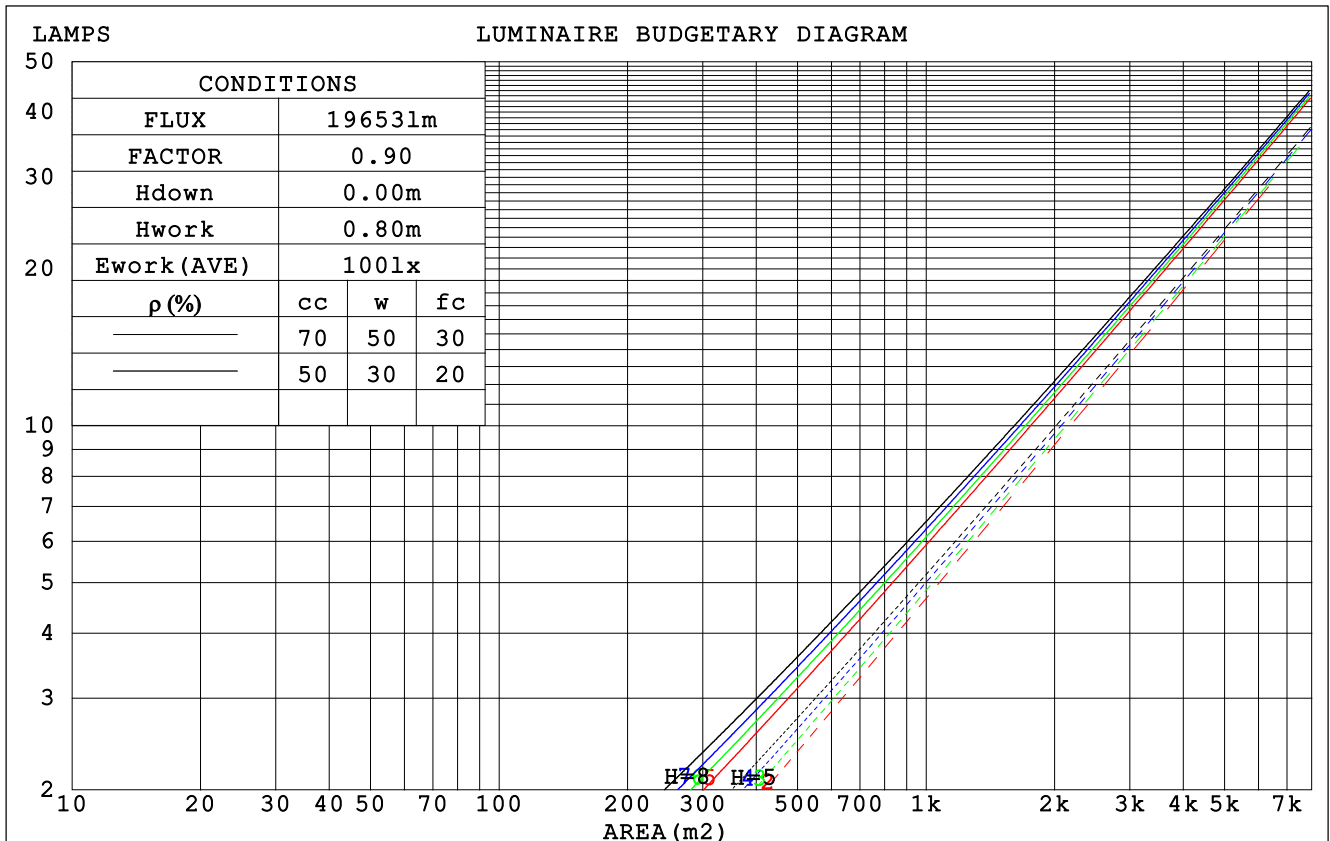
Checker: LI

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:

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	24.9	26.1	25.1	26.2	26.4	24.9	26.1	25.1	26.2	26.4
3H	25.5	26.6	25.8	26.8	27.0	25.5	26.6	25.8	26.8	27.0
4H	25.9	26.9	26.1	27.1	27.3	25.9	26.9	26.1	27.1	27.3
6H	26.0	27.0	26.4	27.2	27.5	26.0	27.0	26.4	27.2	27.5
8H	26.1	27.0	26.4	27.3	27.5	26.1	27.0	26.4	27.3	27.5
12H	26.1	27.0	26.4	27.3	27.5	26.1	27.0	26.4	27.3	27.5
4H 2H	25.1	26.1	25.4	26.3	26.6	25.1	26.1	25.4	26.3	26.6
3H	25.9	26.8	26.3	27.1	27.4	25.9	26.8	26.3	27.1	27.4
4H	26.4	27.2	26.7	27.5	27.8	26.4	27.2	26.7	27.5	27.8
6H	26.7	27.4	27.1	27.7	28.1	26.7	27.4	27.1	27.7	28.1
8H	26.8	27.4	27.2	27.8	28.1	26.8	27.4	27.2	27.8	28.1
12H	26.8	27.4	27.2	27.8	28.2	26.8	27.4	27.2	27.8	28.2
8H 4H	26.5	27.2	26.9	27.5	27.9	26.5	27.2	26.9	27.5	27.9
6H	26.9	27.4	27.3	27.8	28.2	26.9	27.4	27.3	27.8	28.2
8H	27.0	27.5	27.5	27.9	28.4	27.0	27.5	27.5	27.9	28.4
12H	27.1	27.5	27.6	28.0	28.4	27.1	27.5	27.6	28.0	28.4
12H 4H	26.5	27.1	26.9	27.5	27.9	26.5	27.1	26.9	27.5	27.9
6H	26.9	27.4	27.4	27.8	28.2	26.9	27.4	27.4	27.8	28.2
8H	27.1	27.5	27.5	27.9	28.4	27.1	27.5	27.5	27.9	28.4
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, 19653 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 10.3$)
Area: 0.0475 m²

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:

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		

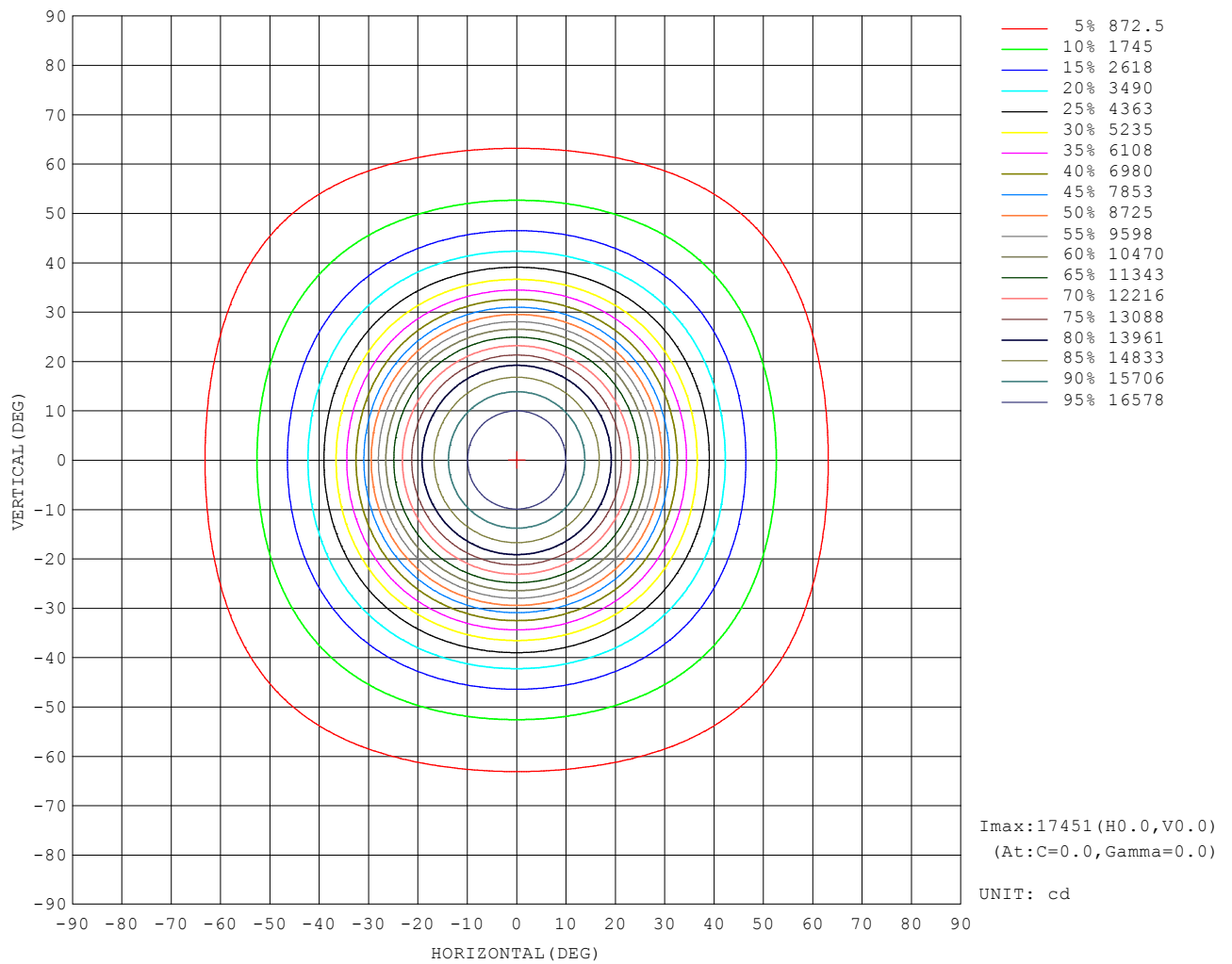
C Range: 0 - 360DEG
 C Interval: 2.5DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-23

Checker: LI

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:

Assessor:

ISOCANDELA DIAGRAM



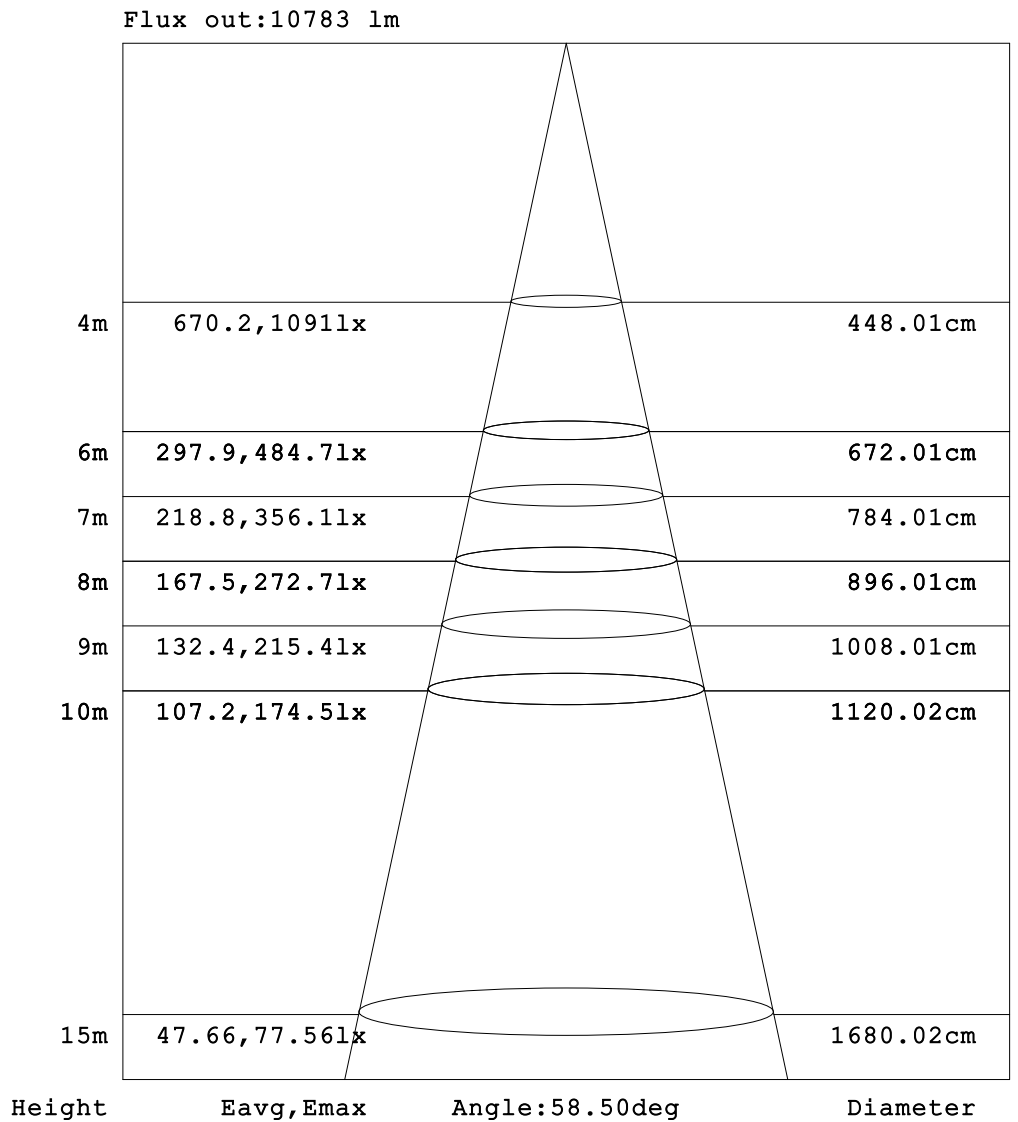
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-23

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:

AAI Figure



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

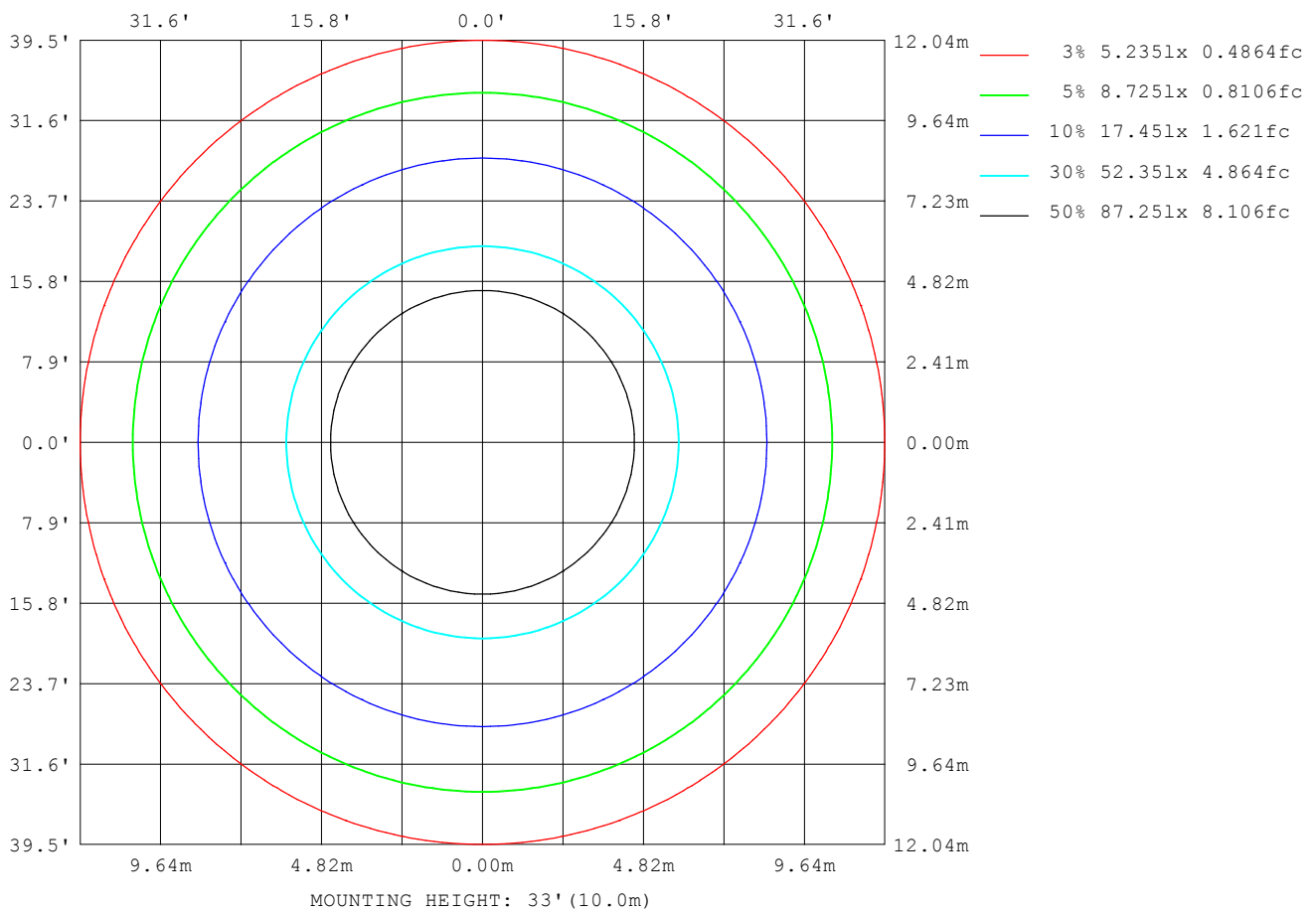
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-23

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



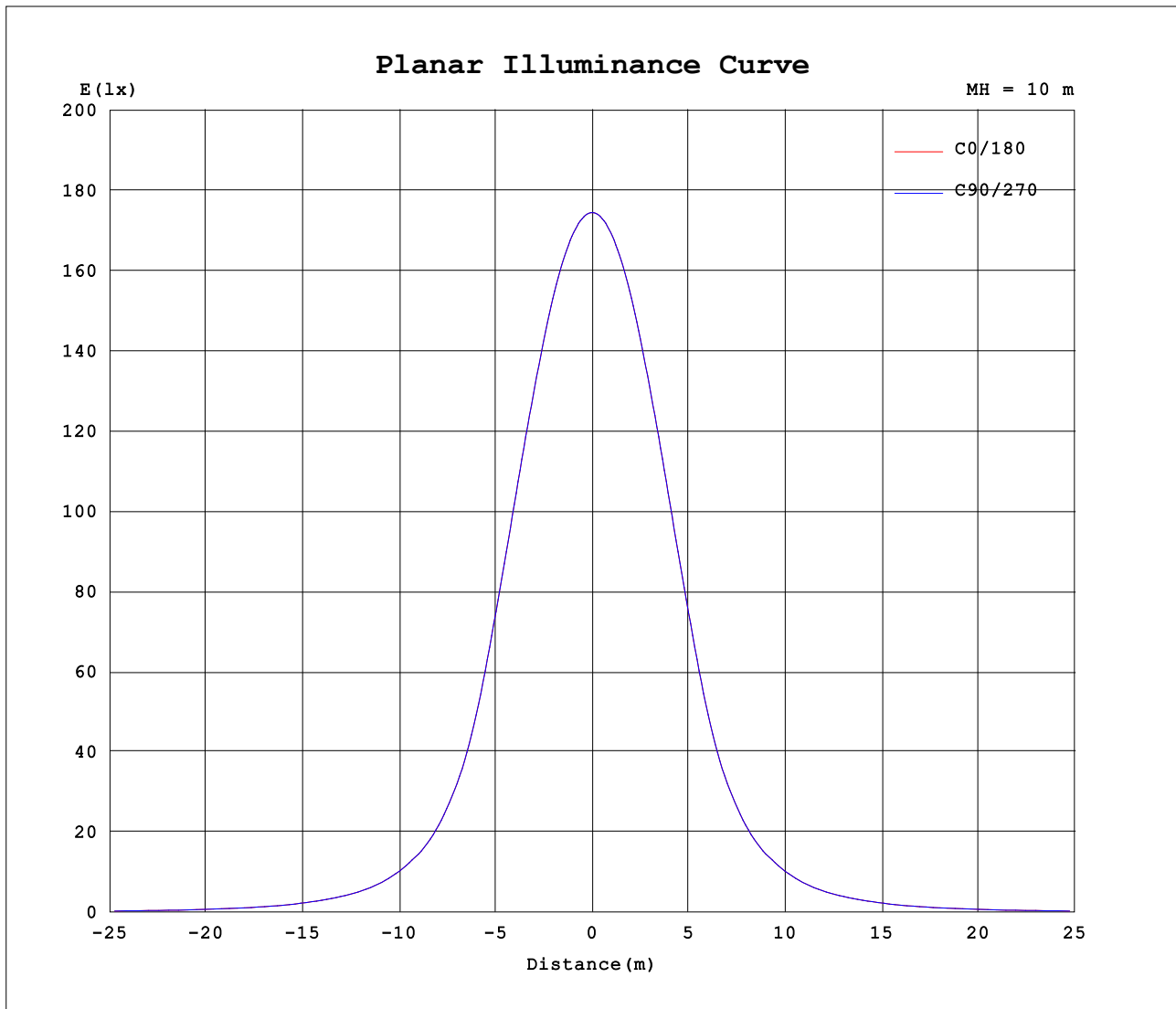
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LI
Test Date: 2019-12-23

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
 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:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: $\times 10 \text{cd}$ [illegible]

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

Checker: LI

```

Range: 0 - 90DEG
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:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--7

UNIT: $\times 10 \text{cd}$ [illegible]

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

Checker: LI

```

Range: 0 - 90DEG
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:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--8

UNIT: $\times 10 \text{cd}$ [illegible]

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

Checker: LI

```

Range: 0 - 90DEG
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: