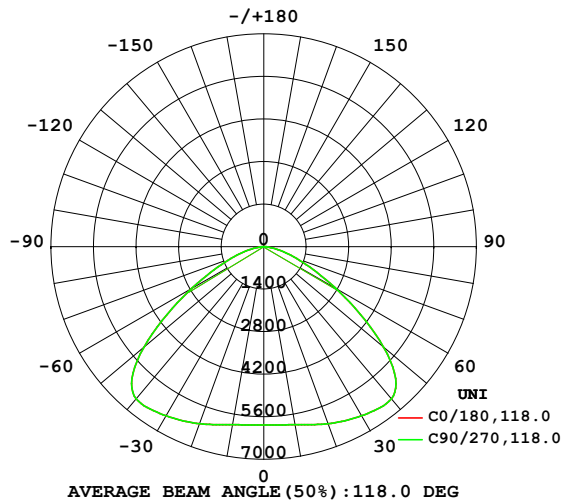


LUMINAIRE PHOTOMETRIC TEST REPORT

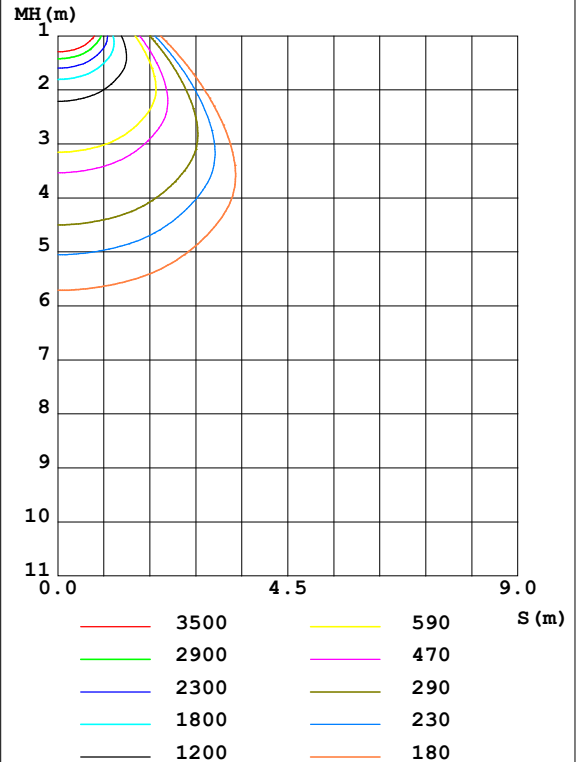
Test:U:229.90V I:0.6619A P:149.50W PF:0.9825 Freq:50.00Hz Lamp Flux:20151.1x1 lm		
NAME: HB38-150-5070-H00124	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:φ0.246	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 134.79 lm/W			
MODEL	RF303	Imax(cd)	6558	S/MH(C0/180)	1.65
NOMINAL POWER(W)	150	LOR(%)	100.0	S/MH(C90/270)	1.65
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	20151	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	20151.1	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-10

Checker: LI

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
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	5951	5951	5951	5951	5951	5951	5951	5951	0- 10	564.1	564.1	2.8,2.8
20	6199	6199	6199	6199	6199	6199	6199	6199	10- 20	1724	2288	11.4,11.4
30	6429	6429	6429	6429	6429	6429	6429	6429	20- 30	2928	5216	25.9,25.9
40	6537	6537	6537	6537	6537	6537	6537	6537	30- 40	4093	9309	46.2,46.2
50	5152	5152	5152	5152	5152	5152	5152	5152	40- 50	4659	13967	69.3,69.3
60	2713	2713	2713	2713	2713	2713	2713	2713	50- 60	3482	17449	86.6,86.6
70	1156	1156	1156	1156	1156	1156	1156	1156	60- 70	1824	19273	95.6,95.6
80	336.8	336.8	336.8	336.8	336.8	336.8	336.8	336.8	70- 80	743.6	20017	99.3,99.3
90	20.21	20.21	20.21	20.21	20.21	20.21	20.21	20.21	80- 90	134.4	20151	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): 11672 lm

%lum = 57.9%

%lamp = 57.9%

Conical surface Flux(120deg): 17449 lm

%lum = 86.6%

%lamp = 86.6%

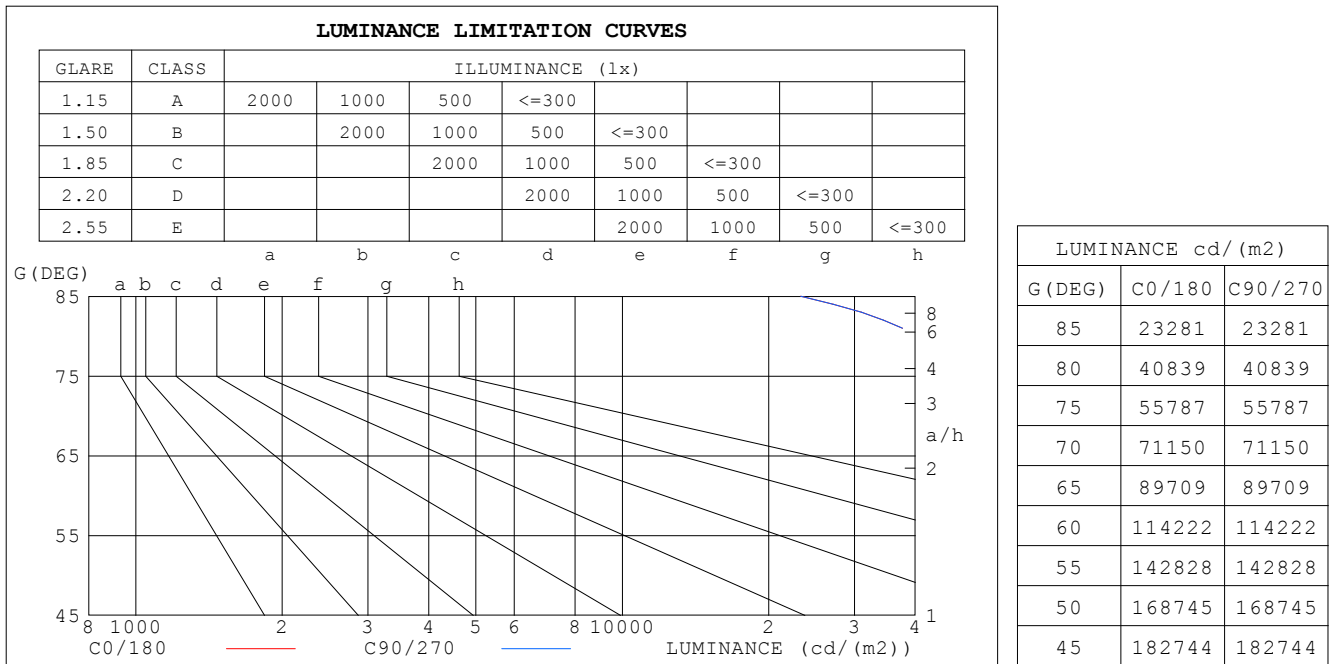
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:LI
 Test Date:2019-12-10

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 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: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-10

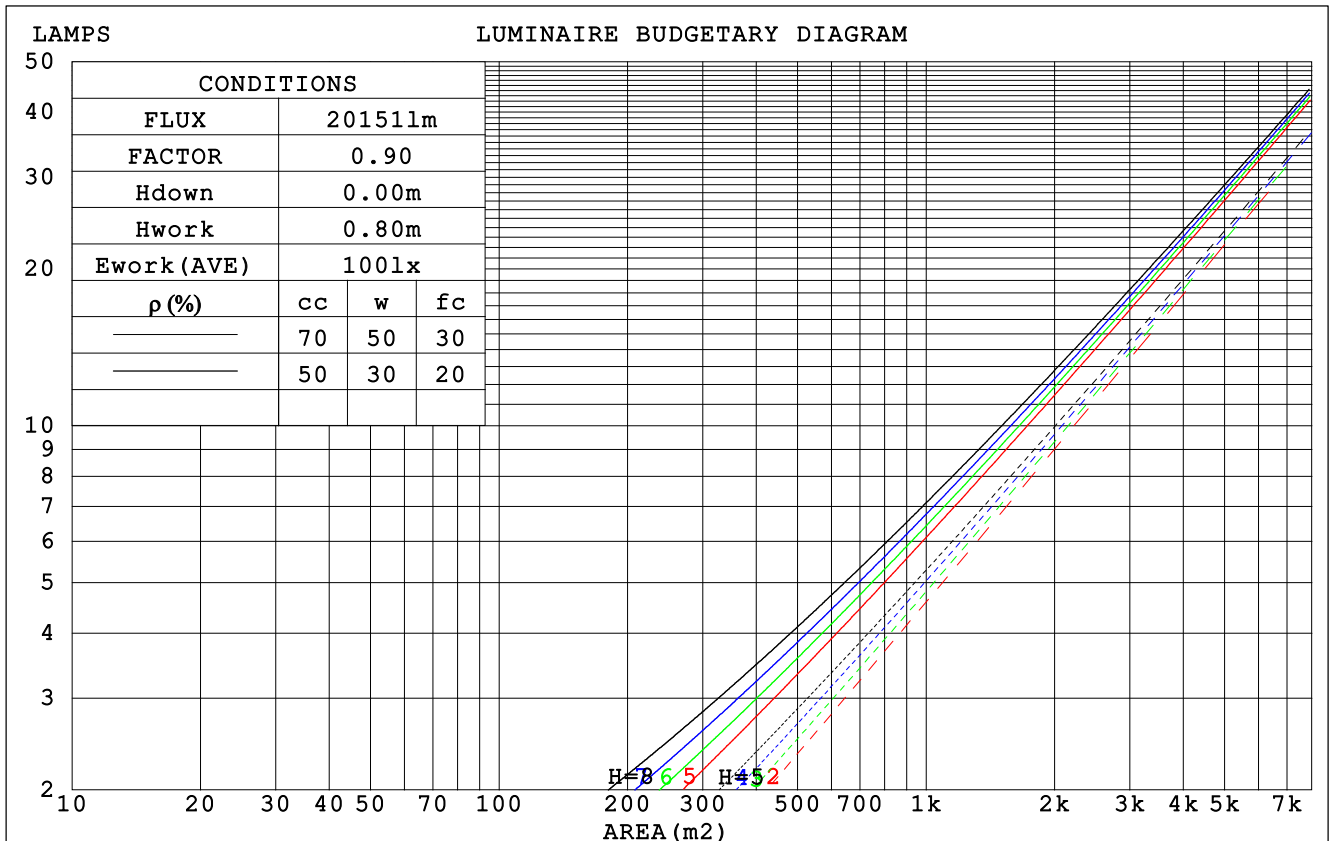
γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.432m [K=1.0000]
 Remarks:

Checker: LI

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

pcc	80%			70%			50%			30%			10%			0
p _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p _{fc}	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	1.06	1.02	.98	1.03	.90	.97	.99	.96	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.86	.81	.91	.85	.80	.87	.83	.78	.84	.80	.77	.81	.78	.75	.73
3.0	.82	.74	.68	.80	.73	.67	.77	.71	.66	.75	.69	.65	.72	.68	.64	.62
4.0	.72	.64	.58	.71	.63	.57	.69	.62	.56	.66	.60	.56	.64	.59	.55	.53
5.0	.65	.56	.49	.64	.55	.49	.61	.54	.49	.59	.53	.48	.58	.52	.48	.45
6.0	.58	.49	.43	.57	.49	.43	.55	.48	.42	.54	.47	.42	.52	.46	.42	.40
7.0	.52	.44	.38	.52	.43	.37	.50	.43	.37	.49	.42	.37	.47	.41	.37	.35
8.0	.48	.39	.33	.47	.39	.33	.46	.38	.33	.44	.38	.33	.43	.37	.33	.31
9.0	.43	.35	.30	.43	.35	.30	.42	.34	.29	.41	.34	.29	.40	.34	.29	.27
10.0	.40	.32	.27	.39	.32	.27	.38	.31	.26	.37	.31	.26	.37	.31	.26	.25



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-10

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
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	.277	.158	.050	.270	.154	.049	.257	.148	.047	.245	.142	.045	.234	.136	.044		
2.0	.269	.148	.045	.263	.145	.045	.252	.140	.043	.241	.135	.042	.231	.131	.041		
3.0	.254	.135	.041	.249	.133	.040	.239	.129	.039	.229	.126	.039	.221	.122	.038		
4.0	.238	.124	.036	.234	.122	.036	.225	.119	.036	.216	.116	.035	.208	.113	.035		
5.0	.223	.114	.033	.219	.112	.033	.211	.110	.032	.203	.107	.032	.196	.105	.032		
6.0	.209	.105	.030	.205	.104	.030	.198	.101	.029	.191	.099	.029	.185	.097	.029		
7.0	.196	.097	.027	.192	.096	.027	.186	.094	.027	.180	.092	.027	.174	.090	.027		
8.0	.184	.090	.025	.181	.089	.025	.175	.087	.025	.169	.086	.025	.164	.084	.025		
9.0	.173	.084	.023	.170	.083	.023	.165	.082	.023	.160	.080	.023	.155	.079	.023		
10.0	.163	.078	.022	.161	.078	.022	.156	.076	.022	.151	.075	.021	.147	.074	.021		

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	.178	.156	.137	.152	.134	.118	.104	.092	.081	.060	.053	.047	.019	.017	.015	
2.0	.169	.132	.101	.145	.114	.087	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.161	.114	.077	.138	.099	.066	.095	.068	.047	.055	.040	.027	.018	.013	.009	
4.0	.154	.101	.060	.132	.087	.052	.091	.061	.037	.053	.036	.022	.017	.012	.007	
5.0	.147	.090	.048	.126	.078	.042	.087	.055	.030	.050	.032	.018	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.134	.075	.034	.115	.065	.029	.080	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.128	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.122	.064	.025	.105	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.117	.060	.022	.101	.052	.020	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-10

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
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	30.2	31.6	30.4	31.8	32.0	30.2	31.6	30.4	31.8	32.0
3H	30.7	32.1	31.0	32.3	32.5	30.7	32.1	31.0	32.3	32.5
4H	30.9	32.1	31.2	32.4	32.6	30.9	32.1	31.2	32.4	32.6
6H	30.9	32.1	31.2	32.4	32.7	30.9	32.1	31.2	32.4	32.7
8H	30.9	32.1	31.2	32.3	32.6	30.9	32.1	31.2	32.3	32.6
12H	30.9	32.0	31.2	32.3	32.6	30.9	32.0	31.2	32.3	32.6
4H 2H	30.4	31.7	30.7	31.9	32.2	30.4	31.7	30.7	31.9	32.2
3H	31.1	32.2	31.5	32.5	32.8	31.1	32.2	31.5	32.5	32.8
4H	31.3	32.3	31.7	32.7	33.0	31.3	32.3	31.7	32.7	33.0
6H	31.5	32.4	31.9	32.7	33.1	31.5	32.4	31.9	32.7	33.1
8H	31.5	32.3	31.9	32.7	33.0	31.5	32.3	31.9	32.7	33.0
12H	31.5	32.2	31.9	32.6	33.0	31.5	32.2	31.9	32.6	33.0
8H 4H	31.4	32.2	31.8	32.6	32.9	31.4	32.2	31.8	32.6	32.9
6H	31.6	32.2	32.0	32.6	33.1	31.6	32.2	32.0	32.6	33.1
8H	31.6	32.2	32.1	32.6	33.1	31.6	32.2	32.1	32.6	33.1
12H	31.6	32.1	32.1	32.6	33.1	31.6	32.1	32.1	32.6	33.1
12H 4H	31.3	32.1	31.8	32.5	32.9	31.3	32.1	31.8	32.5	32.9
6H	31.6	32.2	32.0	32.6	33.0	31.6	32.2	32.0	32.6	33.0
8H	31.6	32.1	32.1	32.6	33.0	31.6	32.1	32.1	32.6	33.0
Variations with the observer position at spacings:										
S = 1.0H	+ 0.5 / - 0.5					+ 0.5 / - 0.5				
1.5H	+ 0.3 / - 0.8					+ 0.3 / - 0.8				
2.0H	+ 1.0 / - 1.2					+ 1.0 / - 1.2				

CIE Pub.117, 20151 lm Total Lamp Luminous Flux Corrected ($8\log(F/F_0) = 10.4$)
Area: 0.0475 m²

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LI
Test Date:2019-12-10

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
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) $k(RI) \times RCR = 5$									
$k = 0.60$	58	46	39	57	46	39	56	45	39	32
0.80	69	57	50	68	57	50	66	56	49	43
1.00	78	67	60	77	67	60	75	68	59	53
1.25	85	75	69	84	75	68	81	73	67	61
1.50	90	81	75	89	80	74	86	79	73	66
2.00	97	89	83	95	88	83	92	86	81	74
2.50	101	94	88	99	92	87	95	90	85	77
3.00	104	98	93	102	96	92	98	93	89	81
4.00	107	102	98	105	101	97	101	97	94	85
5.00	110	105	101	107	103	100	103	100	97	88
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

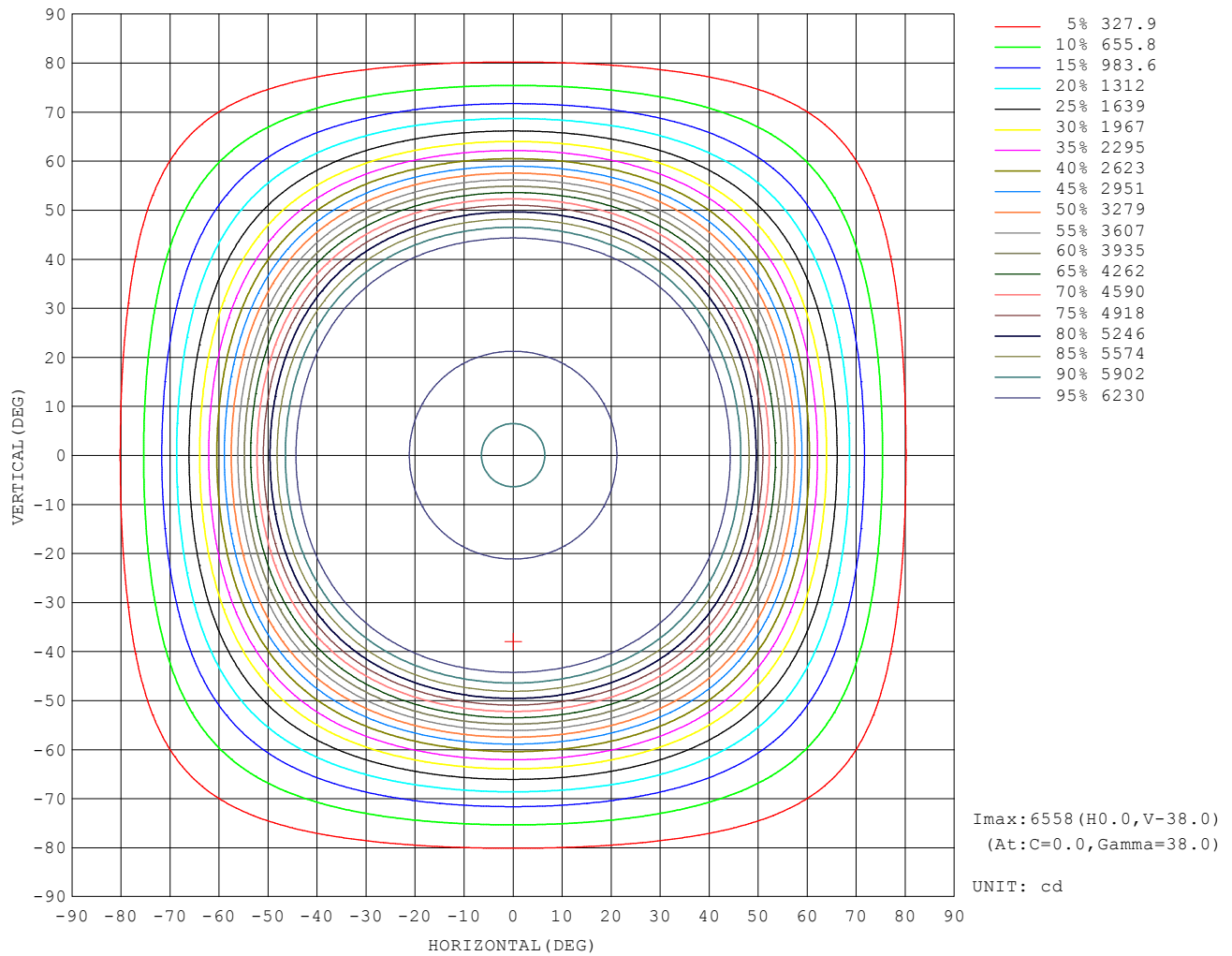
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-10

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.432m [K=1.0000]
 Remarks:

Assessor:

ISOCANDELA DIAGRAM



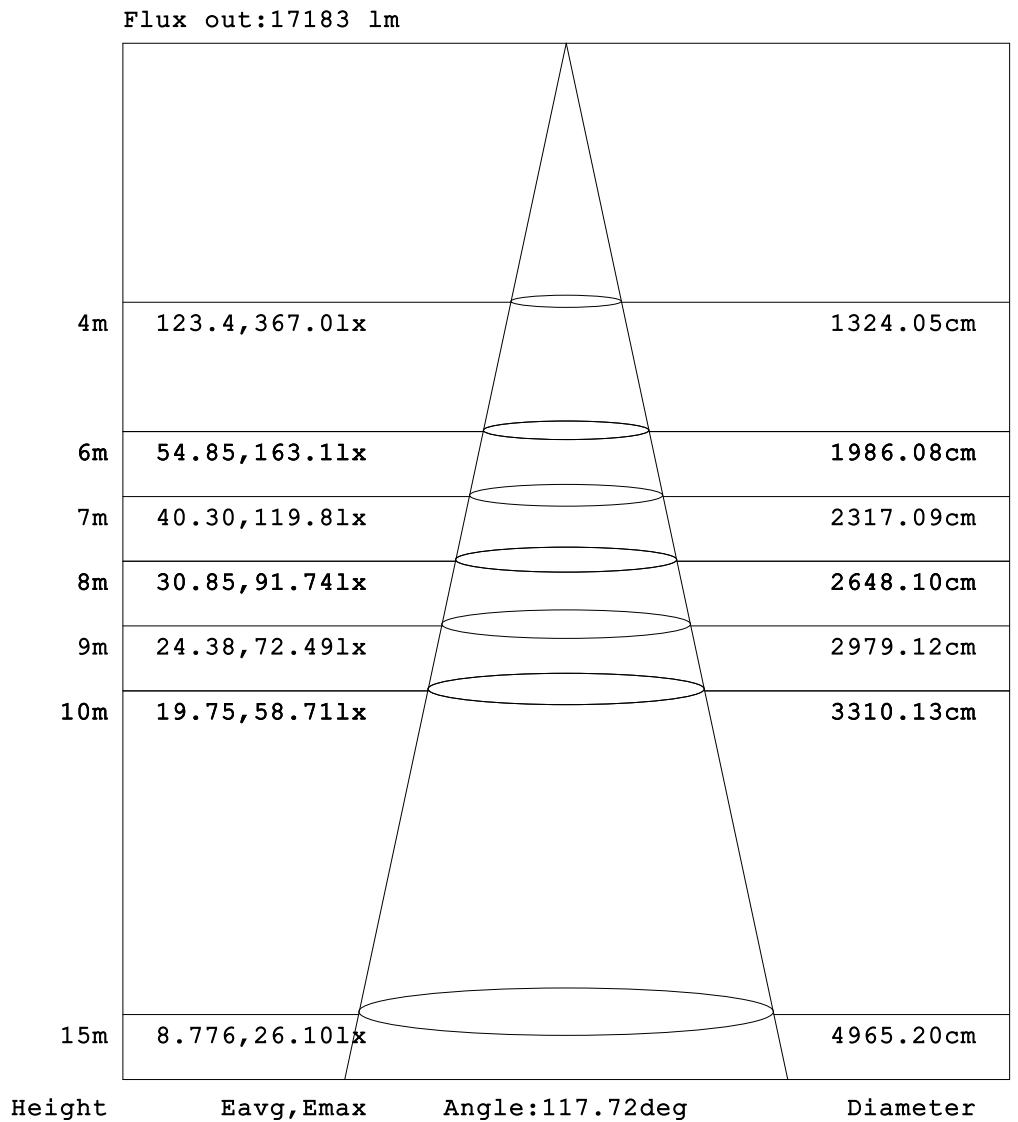
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LI
Test Date: 2019-12-10

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
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.

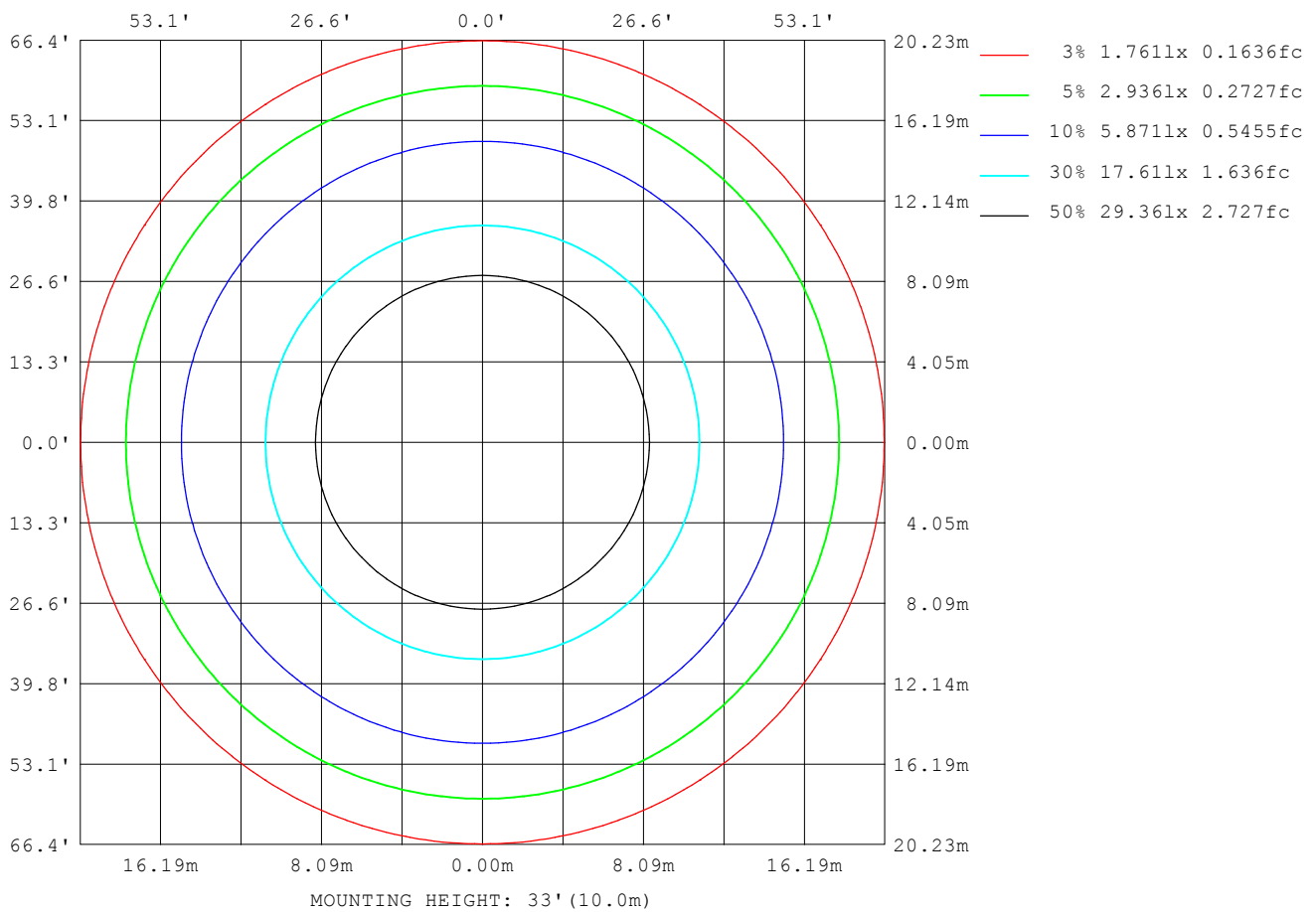
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LI
Test Date: 2019-12-10

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
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



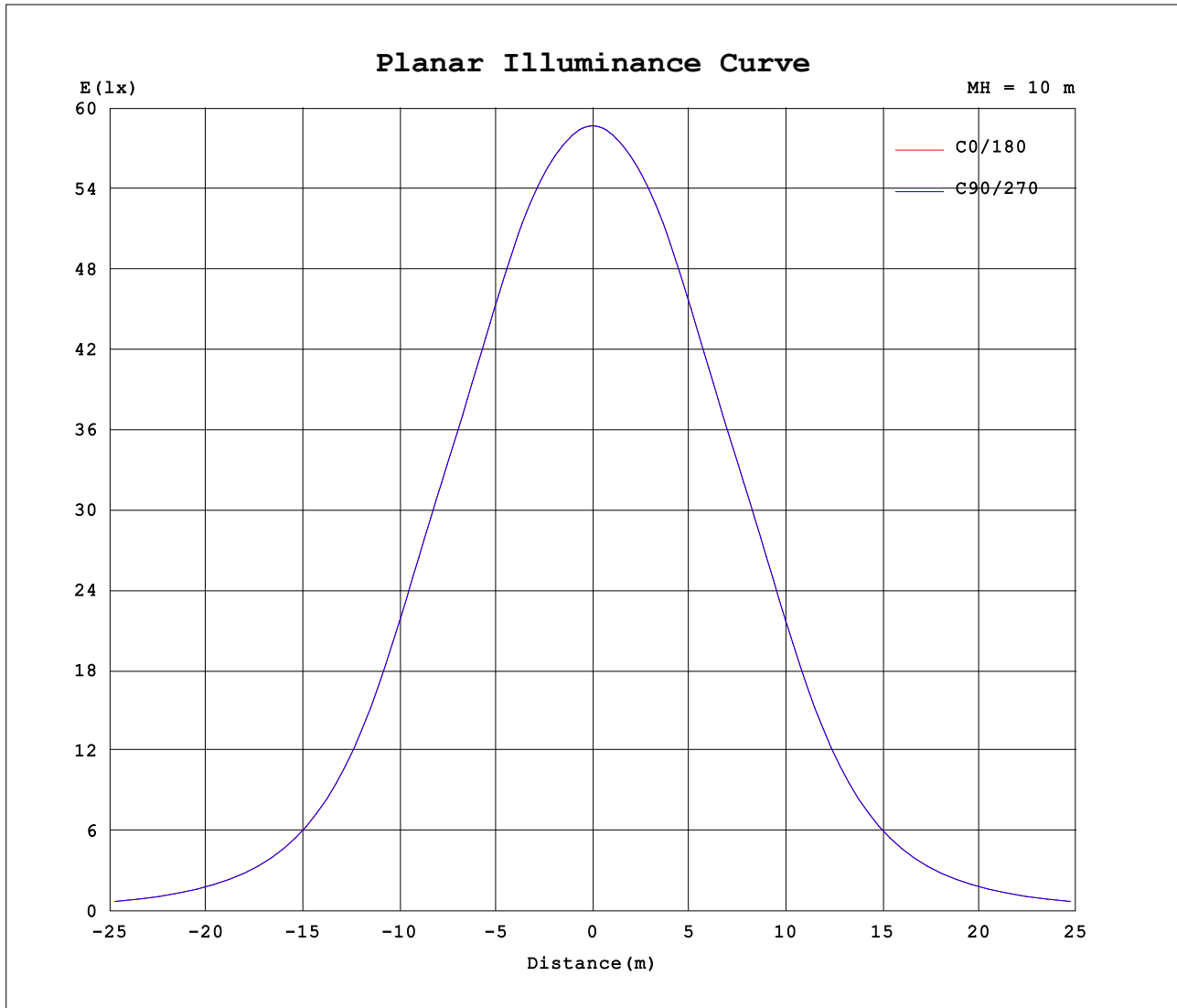
C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-10

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 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: 15.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: LI
 Test Date: 2019-12-10

Checker: LI

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.432m [K=1.0000]
 Remarks:

Assessor:

Assessor:

Assessor: