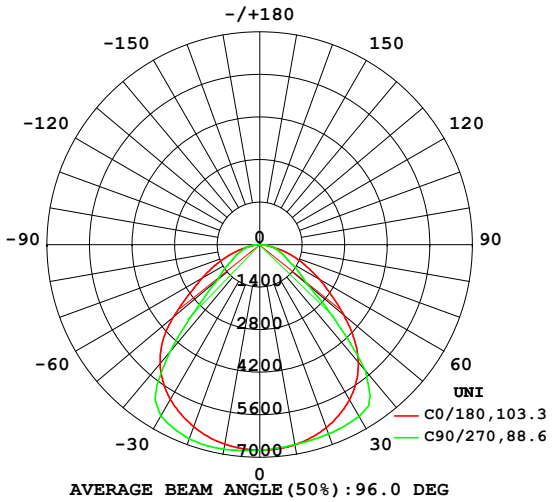
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.0V I:0.5233A P:117.8W PF:0.9785 Freq:49.99Hz Lamp Flux:15929.1x1 lm		
NAME: LHB19-120-5080-L00118	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

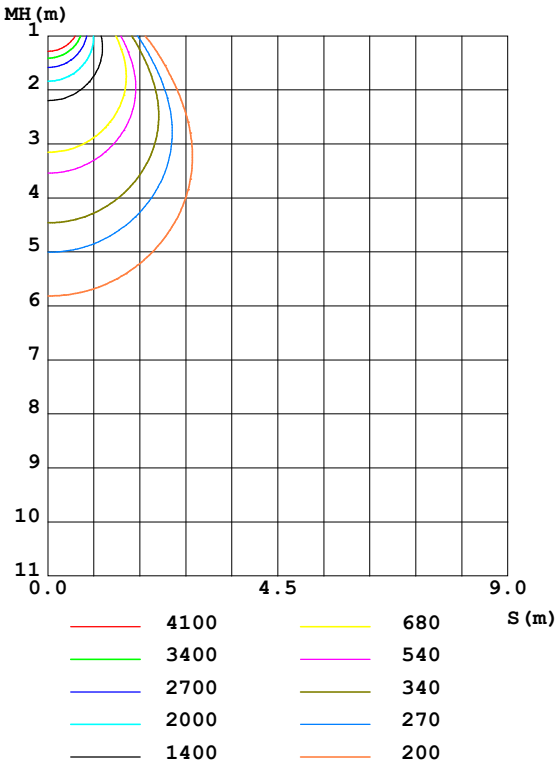
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 135.26 lm/W	
MODEL	SMD283	Imax(cd)	6843	S/MH(C0/180)	1.29
NOMINAL POWER(W)	120	LOR(%)	100.0	S/MH(C90/270)	1.26
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	15929	η UP,DN(C0-180)	0.0,50.6
NOMINAL FLUX(lm)	15929.1	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.4
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):96.0 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	6689	6669	6681	6651	6665	6761	6834	6784	0- 10	643.3	643.3	4.04,4.04
20	6405	6489	6630	6473	6373	6651	6801	6674	10- 20	1882	2526	15.9,15.9
30	5902	6213	6530	6206	5884	6289	6512	6304	20- 30	2964	5490	34.5,34.5
40	5044	5297	5410	5414	5107	5181	4590	5092	30- 40	3642	9132	57.3,57.3
50	3617	3119	2020	3097	3714	2850	1809	2859	40- 50	3079	12212	76.7,76.7
60	2251	1494	1109	1415	2168	1295	1076	1372	50- 60	1901	14113	88.6,88.6
70	1228	676.5	704.9	650.9	1142	606.9	687.9	626.7	60- 70	1106	15219	95.5,95.5
80	332.8	276.0	363.7	269.2	289.7	247.5	346.7	252.5	70- 80	553.6	15772	99,99
90	7.952	16.99	22.48	22.03	7.687	8.552	5.485	8.923	80- 90	156.7	15929	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): 10830 lm

%lum = 68.0%
%lamp = 68.0%

Conical surface Flux(120deg): 14113 lm

%lum = 88.6%
%lamp = 88.6%

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

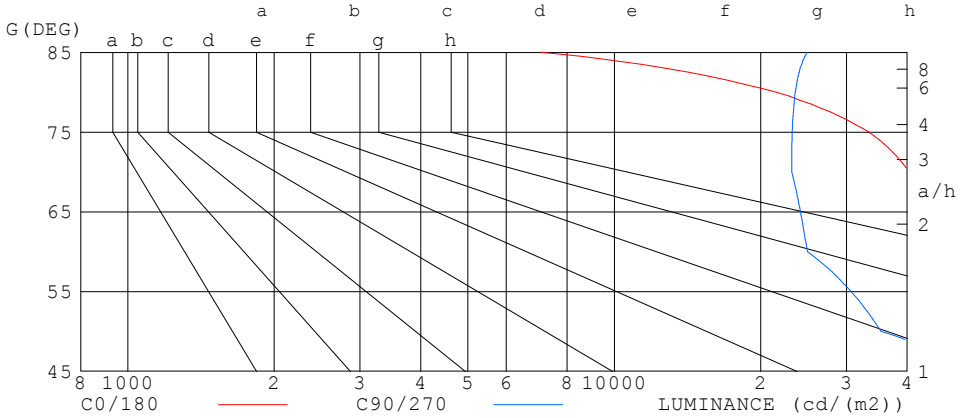
Checker: LI

Assessor:

LUMINANCE LIMITATION CURVES

LUMINANCE LIMITATION CURVES

GLARE	CLASS	ILLUMINANCE (lx)							
1.15	A	2000	1000	500	<=300				
1.50	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.20	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	7063	24913
80	21554	23553
75	33330	23215
70	40386	23177
65	45097	24132
60	50622	24940
55	56149	30676
50	63277	35346
45	69906	56059

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

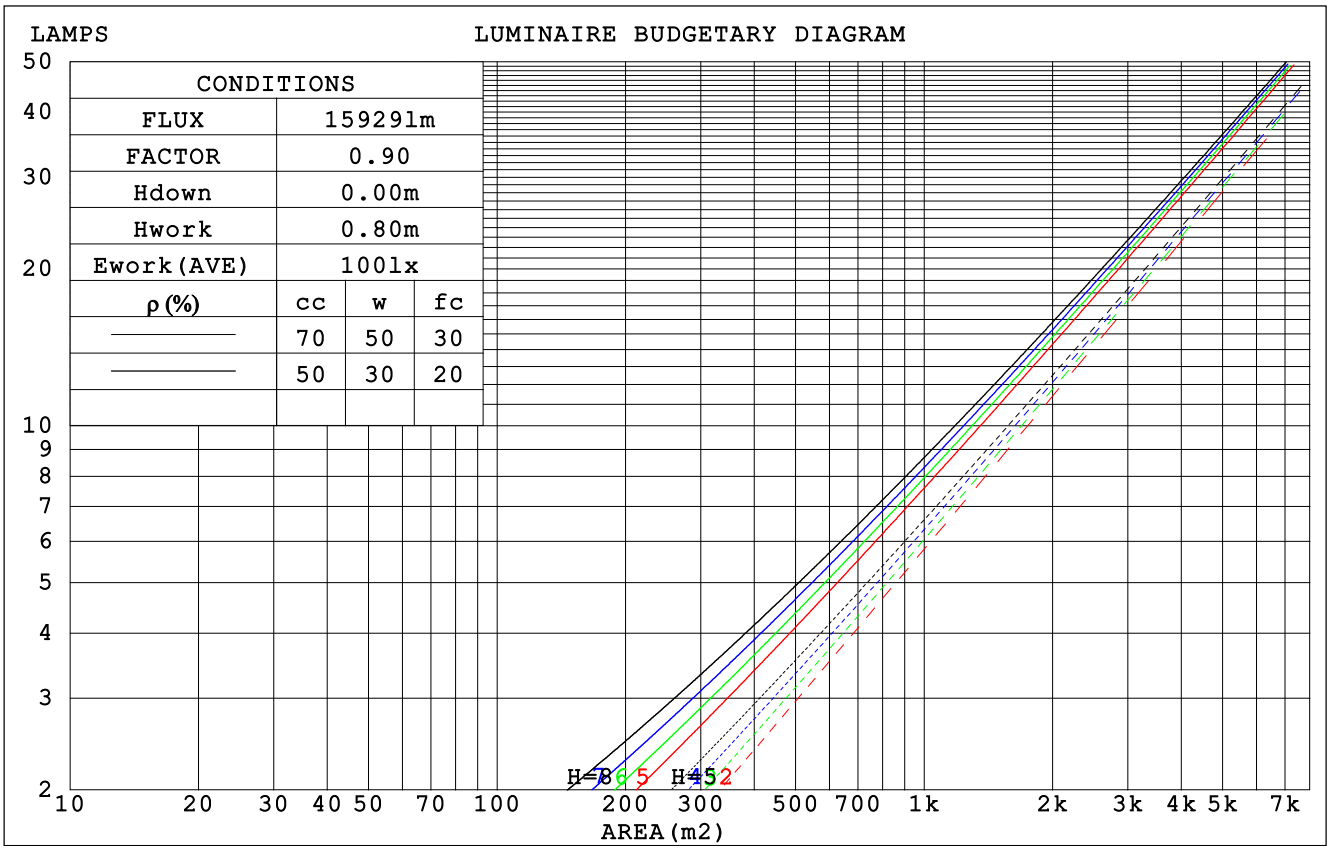
V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	1.06	1.03	.99	1.04	1.01	.98	.00	.97	.95	.96	.94	.92	.93	.91	.89	.87
2.0	.95	.89	.84	.93	.87	.83	.89	.85	.81	.86	.82	.79	.83	.80	.77	.75
3.0	.85	.77	.72	.83	.76	.71	.80	.74	.70	.78	.73	.69	.75	.71	.67	.65
4.0	.76	.68	.62	.75	.67	.62	.72	.66	.61	.70	.65	.60	.68	.63	.59	.57
5.0	.69	.60	.54	.68	.60	.54	.65	.59	.54	.64	.58	.53	.62	.57	.52	.51
6.0	.62	.54	.48	.61	.54	.48	.60	.53	.48	.58	.52	.47	.56	.51	.47	.45
7.0	.57	.49	.43	.56	.48	.43	.55	.48	.43	.53	.47	.42	.52	.46	.42	.40
8.0	.52	.44	.39	.51	.44	.39	.50	.43	.38	.49	.43	.38	.48	.42	.38	.36
9.0	.48	.40	.35	.47	.40	.35	.46	.40	.35	.45	.39	.35	.44	.39	.34	.33
10.0	.44	.37	.32	.44	.37	.32	.43	.36	.32	.42	.36	.32	.41	.35	.31	.30



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

WEC AND CCEC

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coeffcients(WEC)									
0.0																
1.0	.262	.149	.047	.255	.146	.046	.242	.139	.044	.230	.133	.043	.219	.127	.041	
2.0	.251	.138	.042	.245	.135	.042	.234	.130	.040	.223	.125	.039	.214	.121	.038	
3.0	.237	.126	.038	.231	.124	.037	.221	.120	.036	.212	.116	.036	.204	.113	.035	
4.0	.222	.115	.034	.217	.114	.034	.208	.110	.033	.200	.107	.032	.193	.105	.032	
5.0	.208	.106	.031	.204	.105	.030	.196	.102	.030	.189	.100	.030	.182	.097	.029	
6.0	.195	.098	.028	.191	.097	.028	.184	.094	.027	.178	.092	.027	.172	.090	.027	
7.0	.183	.091	.026	.180	.090	.026	.174	.088	.025	.168	.086	.025	.163	.084	.025	
8.0	.173	.084	.024	.170	.084	.024	.164	.082	.023	.159	.081	.023	.154	.079	.023	
9.0	.163	.079	.022	.160	.078	.022	.155	.077	.022	.151	.076	.022	.146	.074	.021	
10.0	.154	.074	.021	.152	.073	.020	.147	.072	.020	.143	.071	.020	.139	.070	.020	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	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	.177	.157	.138	.151	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015	
2.0	.167	.132	.103	.143	.114	.089	.098	.079	.062	.056	.046	.036	.018	.015	.012	
3.0	.158	.114	.079	.135	.098	.069	.093	.068	.048	.054	.040	.028	.017	.013	.009	
4.0	.150	.100	.062	.129	.087	.054	.089	.060	.038	.051	.035	.023	.016	.012	.007	
5.0	.143	.090	.051	.123	.078	.044	.084	.054	.031	.049	.032	.018	.016	.010	.006	
6.0	.136	.081	.042	.117	.070	.036	.081	.049	.026	.047	.029	.015	.015	.009	.005	
7.0	.130	.074	.035	.111	.064	.031	.077	.045	.022	.045	.027	.013	.014	.009	.004	
8.0	.124	.068	.030	.106	.059	.026	.074	.042	.019	.043	.025	.011	.014	.008	.004	
9.0	.118	.063	.026	.102	.055	.023	.070	.039	.016	.041	.023	.010	.013	.007	.003	
10.0	.113	.059	.023	.097	.051	.020	.067	.036	.015	.039	.021	.009	.013	.007	.003	

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [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	25.6	27.0	25.9	27.3	27.6	21.8	23.3	22.2	23.6	23.9
	3H	27.0	28.3	27.4	28.6	29.0	23.3	24.6	23.6	24.9	25.3
	4H	27.5	28.7	27.9	29.0	29.4	23.9	25.1	24.3	25.5	25.9
	6H	27.7	28.8	28.1	29.2	29.6	24.5	25.6	24.9	26.0	26.4
	8H	27.7	28.8	28.2	29.2	29.6	24.7	25.8	25.2	26.2	26.6
	12H	27.7	28.7	28.1	29.1	29.5	24.9	26.0	25.4	26.3	26.8
4H	2H	25.7	26.9	26.1	27.2	27.6	22.4	23.6	22.8	24.0	24.4
	3H	27.2	28.2	27.6	28.6	29.0	24.0	25.0	24.4	25.4	25.8
	4H	27.8	28.7	28.2	29.1	29.6	24.8	25.7	25.2	26.1	26.5
	6H	28.1	28.9	28.6	29.4	29.8	25.5	26.3	26.0	26.7	27.2
	8H	28.2	28.9	28.7	29.4	29.8	25.8	26.6	26.3	27.0	27.5
	12H	28.2	28.9	28.7	29.3	29.8	26.1	26.7	26.6	27.2	27.7
8H	4H	27.8	28.5	28.3	29.0	29.5	25.0	25.7	25.4	26.2	26.6
	6H	28.2	28.8	28.7	29.3	29.8	25.8	26.5	26.3	26.9	27.4
	8H	28.3	28.8	28.8	29.3	29.8	26.2	26.8	26.8	27.3	27.8
	12H	28.3	28.8	28.8	29.3	29.9	26.6	27.1	27.1	27.6	28.2
12H	4H	27.8	28.5	28.3	28.9	29.4	25.0	25.6	25.5	26.1	26.6
	6H	28.2	28.8	28.7	29.2	29.8	25.9	26.4	26.4	26.9	27.4
	8H	28.3	28.8	28.8	29.3	29.9	26.3	26.8	26.8	27.3	27.9
CIE190: 2010											

CIE190: 2010
Area: 0.08892 m2

H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [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) x RCR = 5									
k = 0.60	65	55	48	64	54	48	63	54	48	42
0.80	75	65	58	74	64	58	72	64	58	52
1.00	83	73	67	82	73	67	80	74	66	60
1.25	89	81	75	88	80	74	86	79	73	67
1.50	94	86	80	92	85	79	90	83	78	72
2.00	100	93	87	98	91	86	95	89	85	78
2.50	103	96	91	101	95	90	97	92	89	81
3.00	106	100	95	103	98	94	100	95	92	84
4.00	109	104	100	106	102	99	102	99	96	88
5.00	111	107	103	108	105	102	104	101	99	90
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

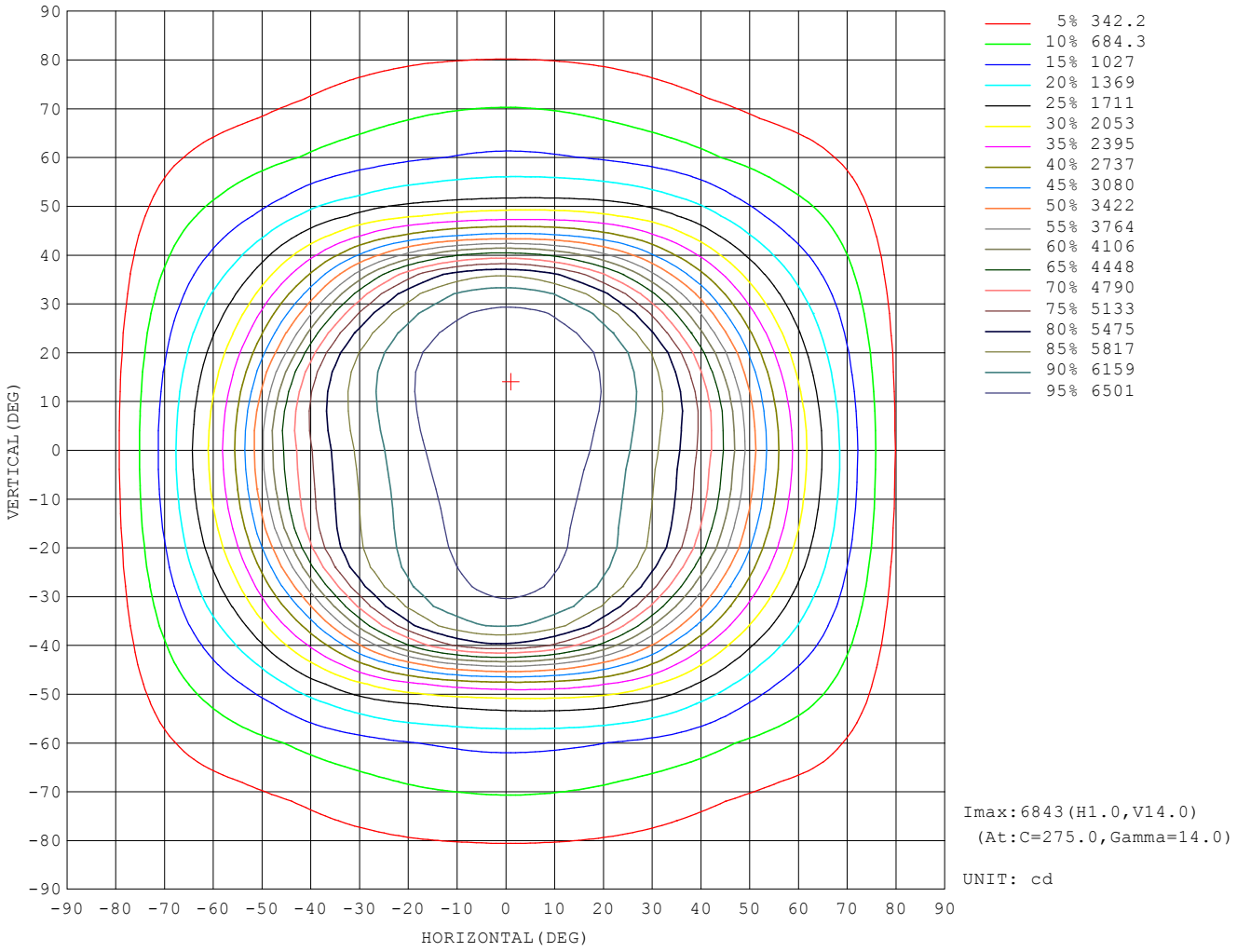
H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

ISOCANDELA DIAGRAM



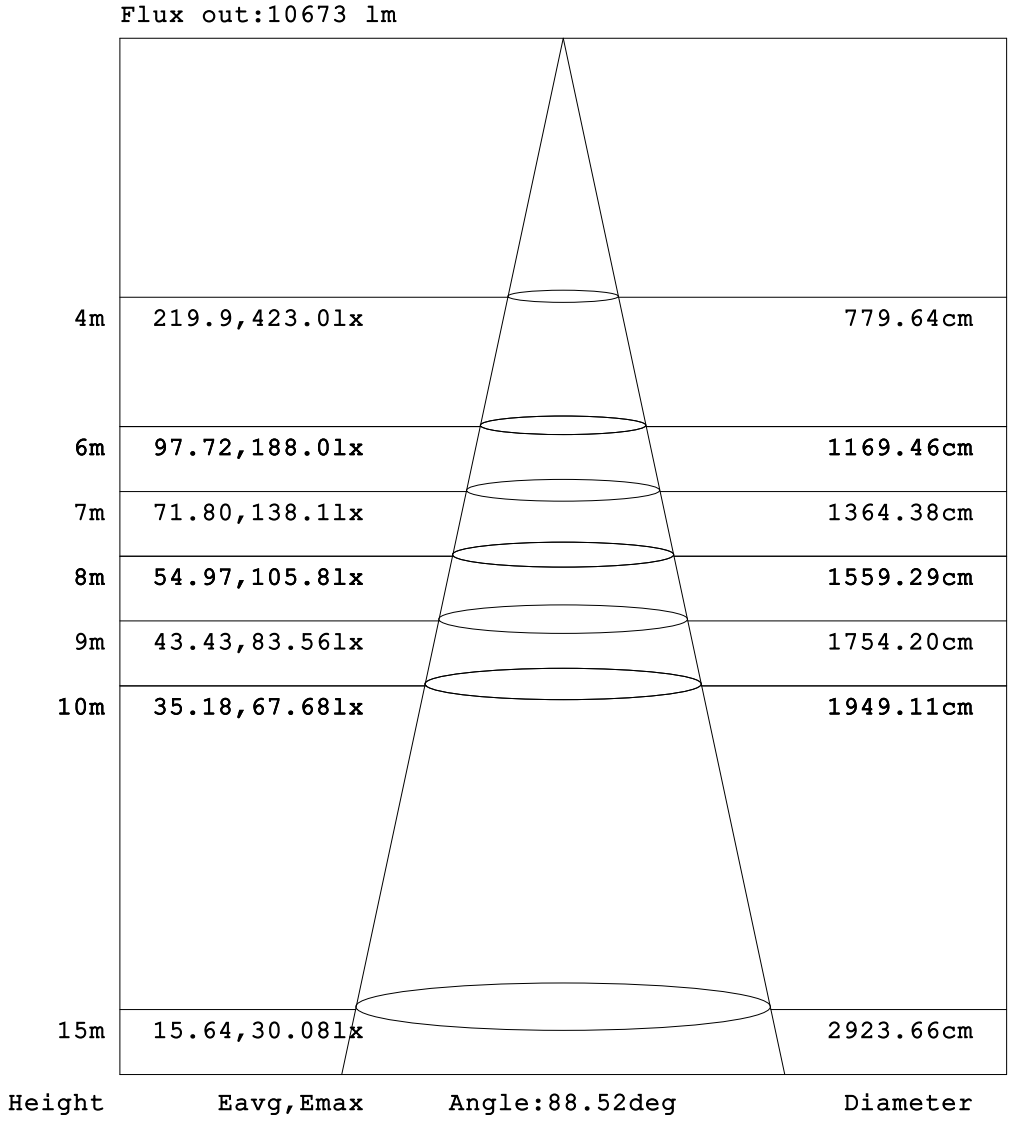
H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

Checker: LI

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor:

AAI Figure



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

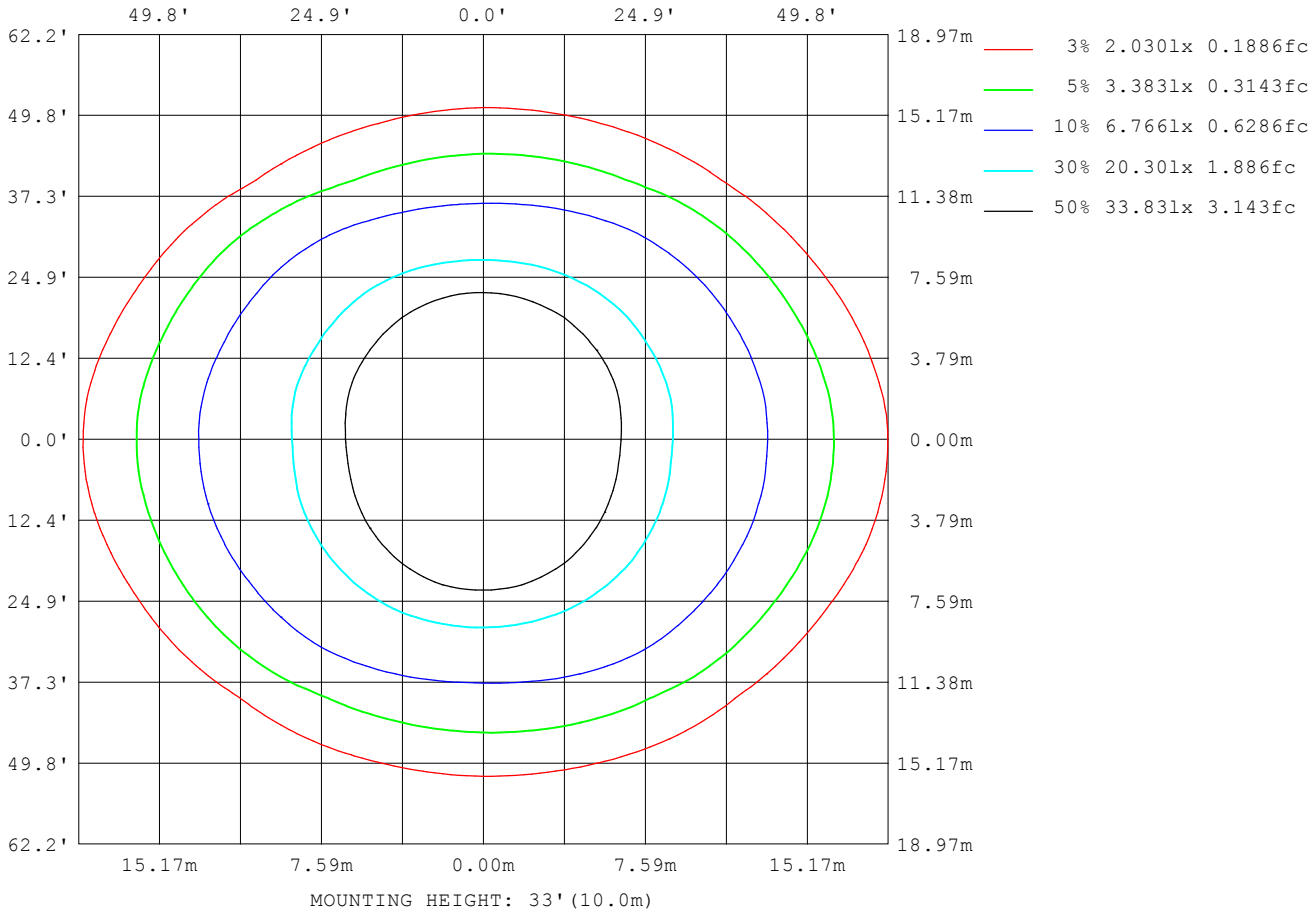
H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

ISOLUX DIAGRAM



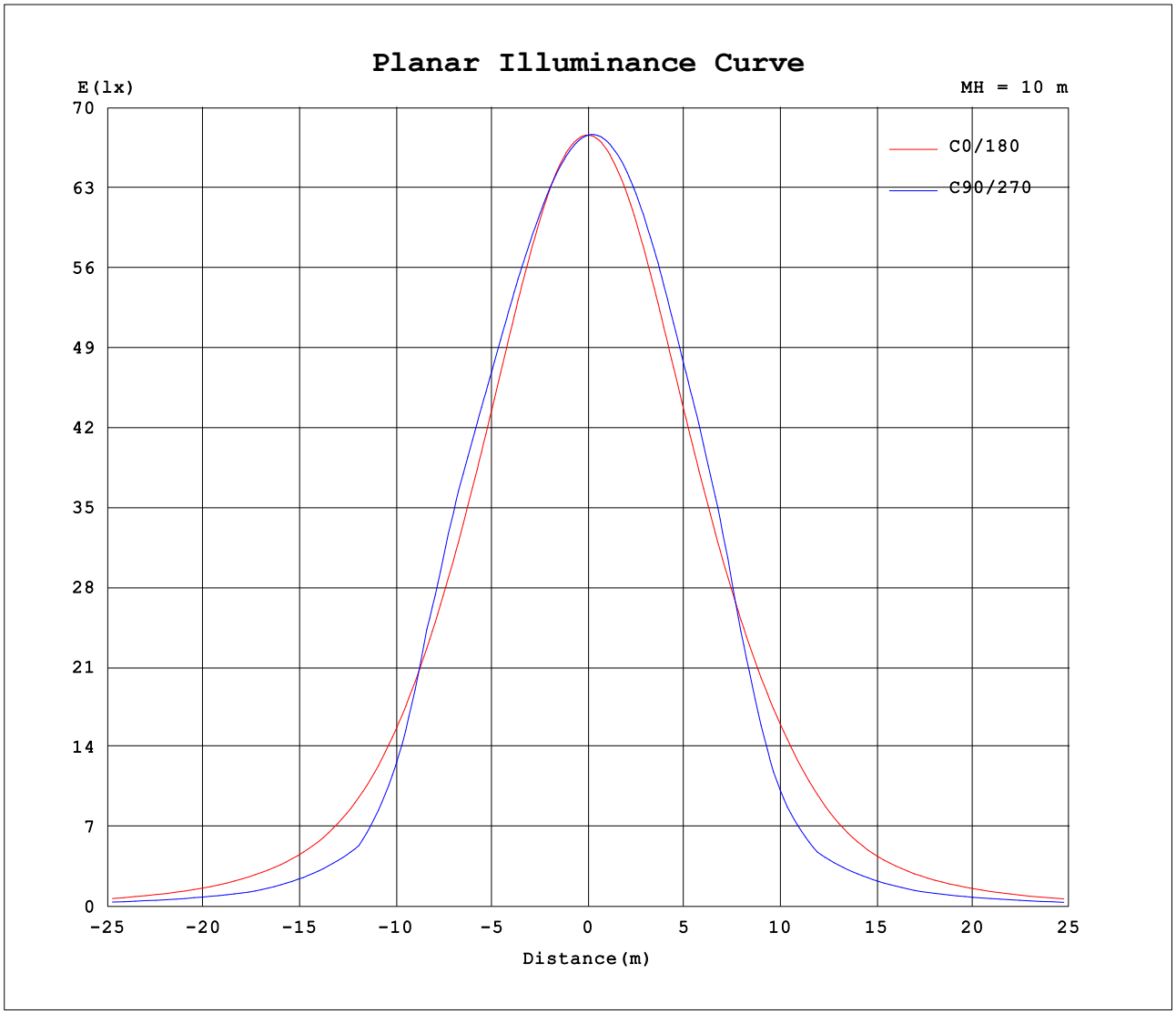
H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor:

Planar Illuminance Curve



H(β) Range:-90 - 90DEG
H(β) Interval: 1.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-08-14

V(B) Range:-90 - 90DEG
V(B) Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Checker: LI

Assessor: