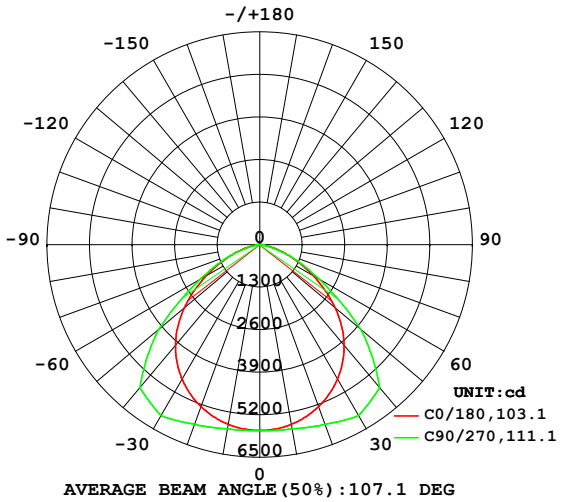
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.1V I:0.5381A P:121.2W PF:0.9789 Freq:49.99Hz Lamp Flux:16577.5x1 lm		
NAME: LHB19-120-5080-L00116	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.:	SUR.:	Shielding Angle:

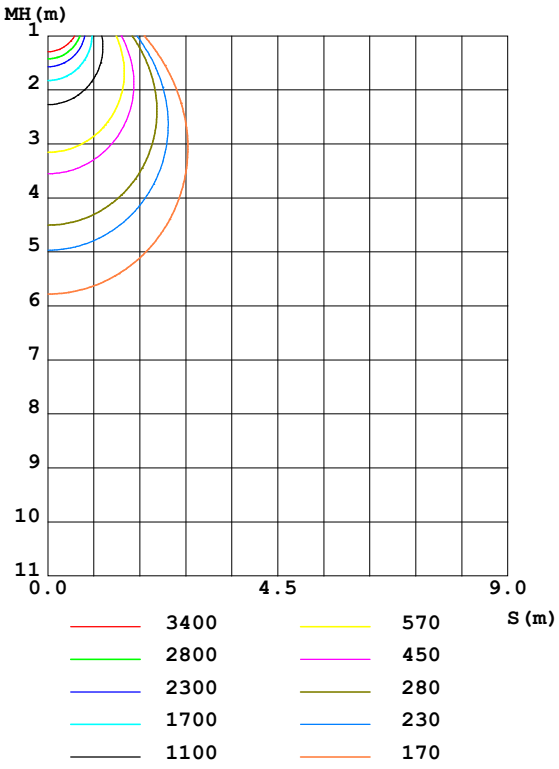
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 136.76 lm/W	
MODEL	2835	Imax(cd)	6037	S/MH(C0/180)	1.24
NOMINAL POWER(W)	120	LOR(%)	100.0	S/MH(C90/270)	1.53
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	16578	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	16577.5	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):107.1 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [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	5576	5652	5713	5652	5576	5652	5713	5652	0- 10	541.0	541.0	3.26,3.26
20	5265	5572	5843	5572	5265	5572	5843	5572	10- 20	1589	2130	12.8,12.8
30	4751	5453	6037	5453	4751	5453	6037	5453	20- 30	2543	4673	28.2,28.2
40	4011	5245	5700	5245	4011	5245	5700	5245	30- 40	3290	7963	48,48
50	3013	4395	4035	4395	3013	4395	4035	4395	40- 50	3489	11453	69.1,69.1
60	1874	2618	2083	2618	1874	2618	2083	2618	50- 60	2787	14239	85.9,85.9
70	890.2	1142	863.7	1142	890.2	1142	863.7	1142	60- 70	1625	15865	95.7,95.7
80	202.4	245.8	138.6	245.8	202.4	245.8	138.6	245.8	70- 80	613.9	16479	99.4,99.4
90	8.504	17.30	19.00	17.30	8.504	17.30	19.00	17.30	80- 90	98.74	16578	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): 9740.2 lm

%lum = 58.8%
%lamp = 58.8%

Conical surface Flux(120deg): 14239 lm

%lum = 85.9%
%lamp = 85.9%

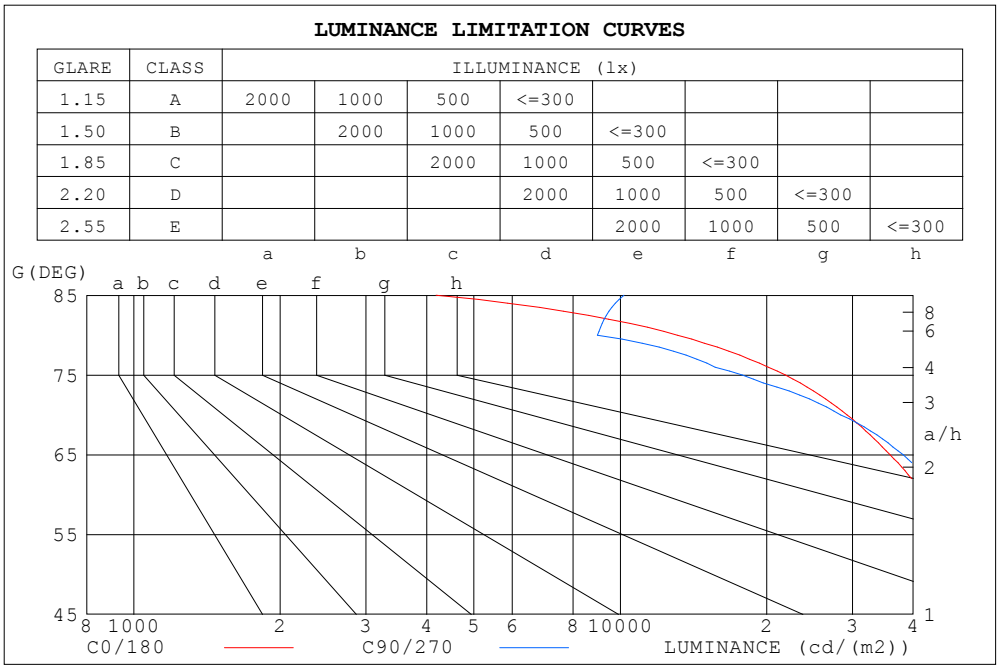
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	4182	10171
80	13108	8979
75	21844	17809
70	29270	28400
65	35829	38108
60	42159	46846
55	47947	57864
50	52723	70598
45	56391	77415

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

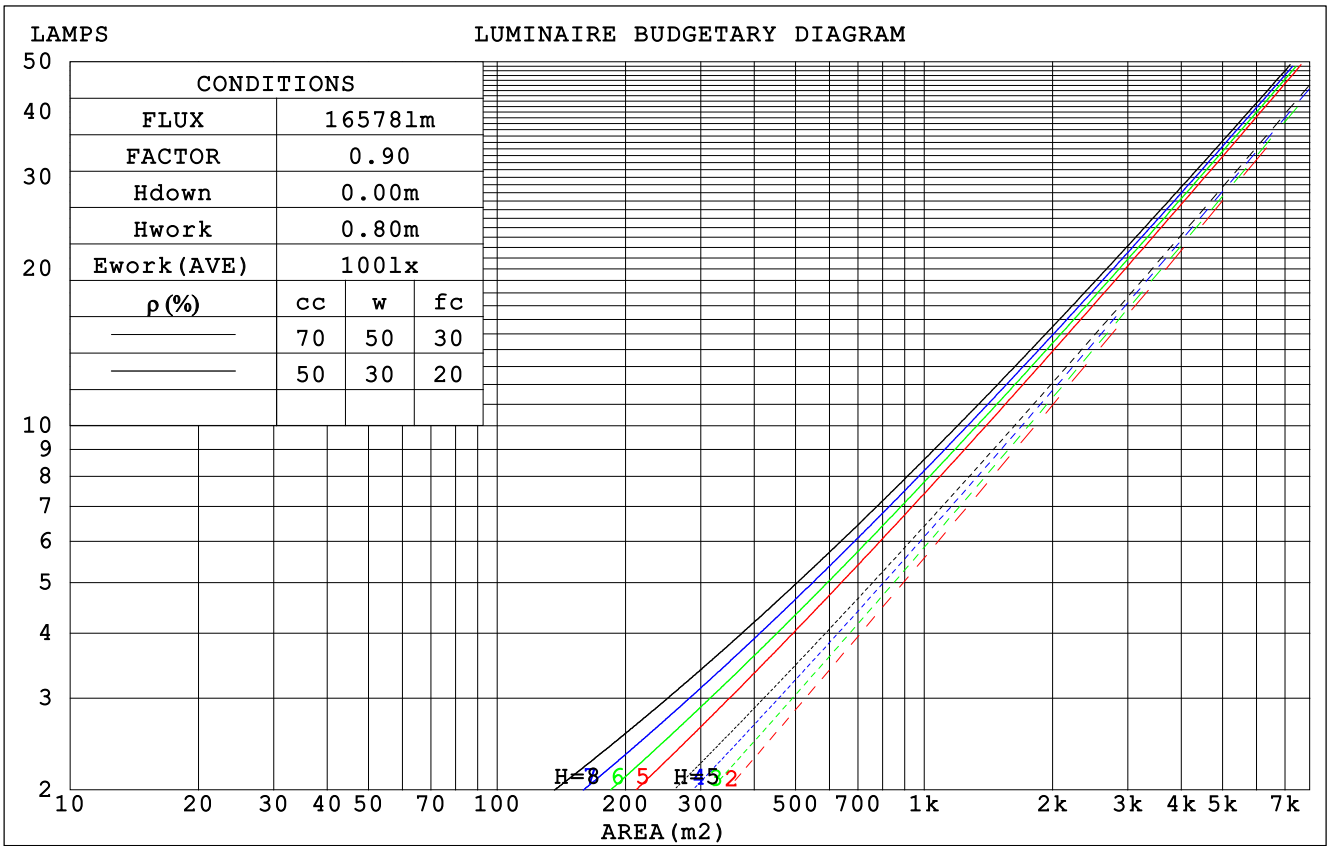
Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

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	1.02	.98	1.03	.00	.97	.99	.96	.94	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.87	.81	.91	.85	.80	.88	.83	.79	.84	.80	.77	.81	.78	.75	.73
3.0	.82	.74	.68	.81	.73	.68	.78	.72	.66	.75	.70	.65	.72	.68	.64	.62
4.0	.73	.65	.58	.72	.64	.58	.69	.62	.57	.67	.61	.56	.65	.60	.55	.53
5.0	.65	.57	.50	.64	.56	.50	.62	.55	.49	.60	.54	.49	.58	.53	.48	.46
6.0	.59	.50	.44	.58	.50	.44	.56	.49	.43	.54	.48	.43	.53	.47	.42	.40
7.0	.53	.45	.39	.52	.44	.38	.51	.43	.38	.49	.43	.38	.48	.42	.38	.36
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.35	.31	.42	.35	.30	.41	.35	.30	.28
10.0	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.27	.37	.32	.27	.26



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

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	.276	.157	.050	.269	.153	.049	.255	.147	.047	.243	.140	.045	.232	.135	.043	
2.0	.267	.147	.045	.261	.144	.044	.250	.139	.043	.239	.134	.042	.229	.130	.041	
3.0	.252	.134	.040	.247	.132	.040	.237	.128	.039	.227	.125	.038	.219	.121	.037	
4.0	.236	.123	.036	.232	.121	.036	.223	.118	.035	.214	.115	.035	.206	.112	.034	
5.0	.221	.113	.033	.217	.111	.032	.209	.109	.032	.201	.106	.032	.194	.104	.031	
6.0	.207	.104	.030	.203	.102	.029	.196	.100	.029	.189	.098	.029	.183	.096	.029	
7.0	.193	.096	.027	.190	.095	.027	.184	.093	.027	.178	.091	.027	.172	.089	.026	
8.0	.182	.089	.025	.179	.088	.025	.173	.086	.025	.167	.085	.024	.162	.083	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.081	.023	.158	.079	.023	.154	.078	.023	
10.0	.161	.077	.021	.159	.077	.021	.154	.075	.021	.150	.074	.021	.146	.073	.021	

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	.178	.156	.137	.152	.134	.118	.104	.092	.082	.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	.098	.067	.095	.068	.047	.055	.040	.028	.018	.013	.009	
4.0	.154	.101	.060	.132	.087	.052	.091	.061	.037	.052	.036	.022	.017	.012	.007	
5.0	.147	.090	.049	.126	.078	.042	.087	.055	.030	.050	.032	.018	.016	.010	.006	
6.0	.140	.082	.040	.120	.071	.035	.083	.050	.025	.048	.029	.015	.016	.010	.005	
7.0	.133	.075	.034	.115	.065	.030	.079	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.127	.069	.029	.110	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.105	.056	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

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	26.1	27.7	26.5	28.0	28.3	25.9	27.5	26.3	27.8	28.1
3H	27.0	28.4	27.4	28.8	29.1	26.7	28.2	27.1	28.5	28.8
4H	27.2	28.6	27.6	28.9	29.3	26.9	28.2	27.3	28.5	28.9
6H	27.3	28.6	27.7	28.9	29.3	26.9	28.1	27.3	28.5	28.9
8H	27.3	28.5	27.7	28.9	29.3	26.9	28.0	27.3	28.4	28.8
12H	27.3	28.4	27.7	28.8	29.2	26.9	28.0	27.3	28.4	28.8
4H 2H	26.6	28.0	27.0	28.3	28.7	26.5	27.8	26.9	28.1	28.5
3H	27.8	28.9	28.2	29.3	29.7	27.5	28.6	27.9	29.0	29.4
4H	28.2	29.1	28.6	29.6	30.0	27.6	28.6	28.1	29.0	29.5
6H	28.3	29.2	28.8	29.6	30.1	27.7	28.5	28.1	29.0	29.4
8H	28.3	29.1	28.8	29.5	30.0	27.7	28.5	28.1	28.9	29.4
12H	28.3	29.0	28.8	29.5	30.0	27.7	28.4	28.2	28.9	29.3
8H 4H	28.3	29.1	28.7	29.5	30.0	27.8	28.6	28.3	29.0	29.5
6H	28.5	29.1	29.0	29.6	30.1	27.9	28.5	28.3	29.0	29.5
8H	28.5	29.1	29.0	29.6	30.1	27.8	28.4	28.4	28.9	29.4
12H	28.5	29.0	29.0	29.5	30.1	27.9	28.4	28.4	28.9	29.4
12H 4H	28.2	29.0	28.7	29.4	29.9	27.8	28.5	28.3	29.0	29.4
6H	28.4	29.0	29.0	29.5	30.0	27.8	28.4	28.4	28.9	29.4
8H	28.5	29.0	29.0	29.5	30.1	27.9	28.4	28.4	28.9	29.4
CIE190: 2010										

CIE190: 2010
Area: 0.08892 m2

C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [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) x RCR = 5									
k = 0.60	59	48	41	58	47	41	57	47	40	34
0.80	70	58	51	69	58	51	67	57	51	44
1.00	79	68	61	77	67	61	75	69	60	54
1.25	86	76	69	84	75	69	82	74	68	61
1.50	91	82	75	89	81	75	86	79	74	66
2.00	97	90	84	96	88	83	92	86	82	74
2.50	101	94	88	99	93	88	95	90	86	78
3.00	104	98	93	102	96	92	98	94	90	82
4.00	108	103	98	105	101	97	101	98	94	86
5.00	110	105	102	107	104	100	103	100	97	88
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

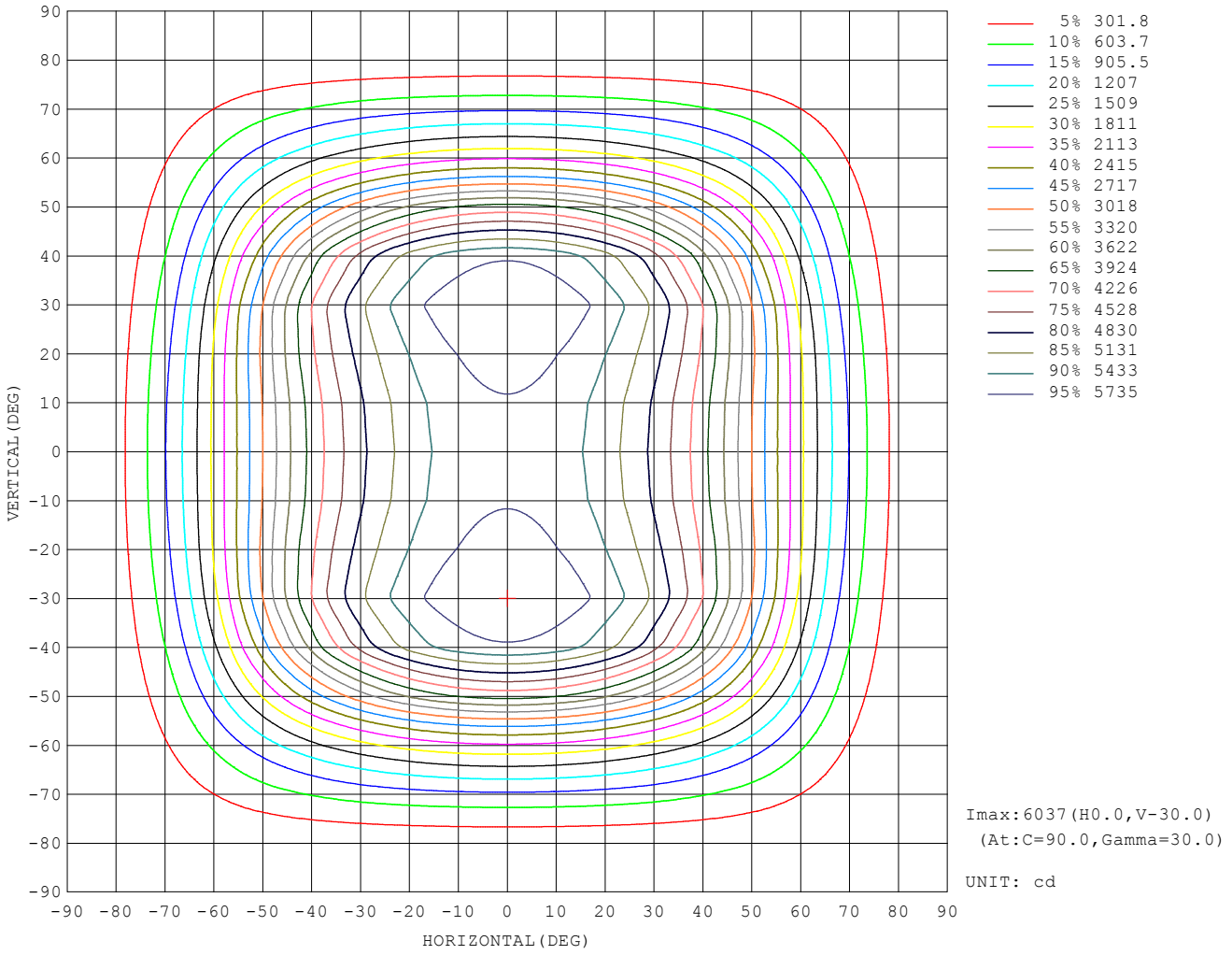
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor:

ISOCANDELA DIAGRAM



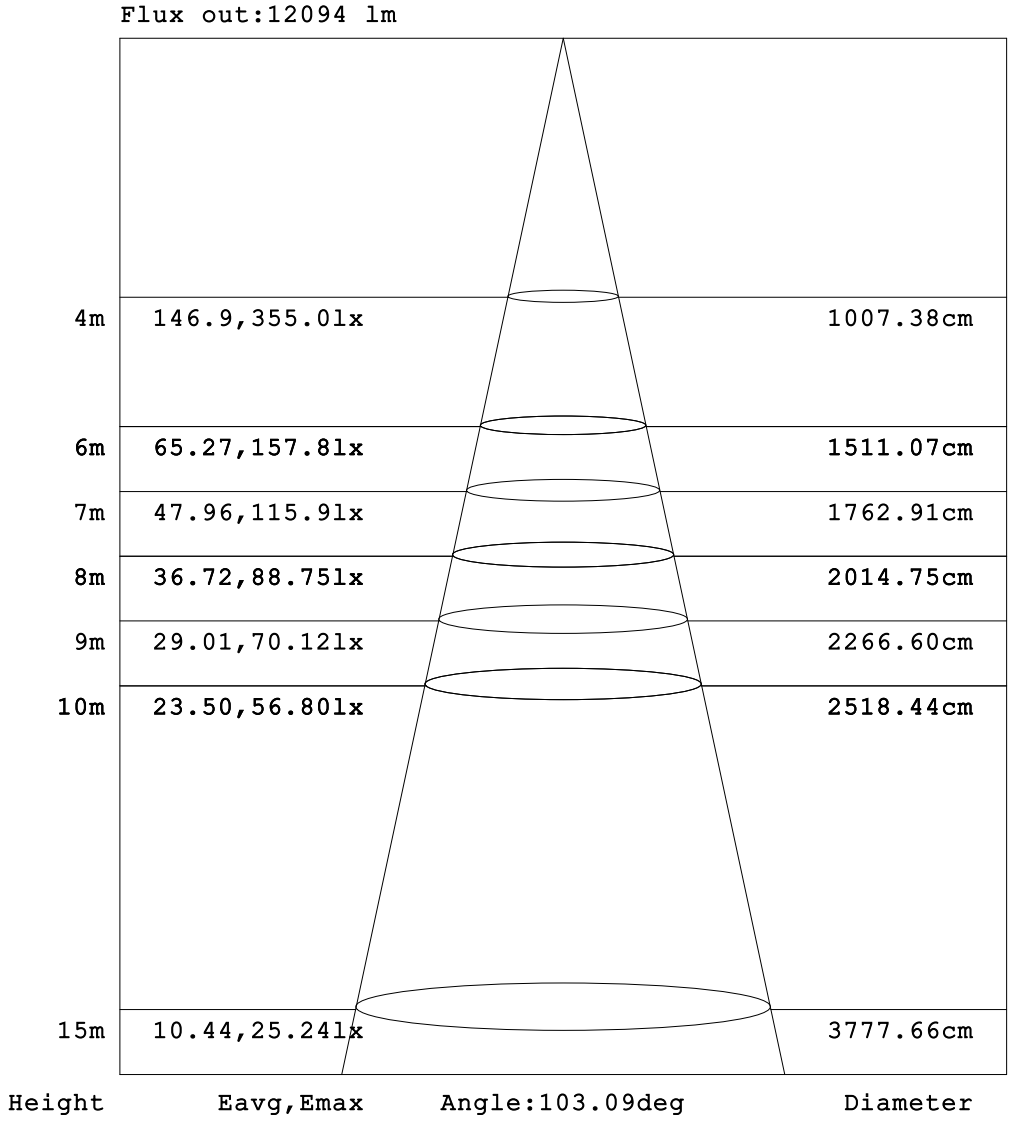
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
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.

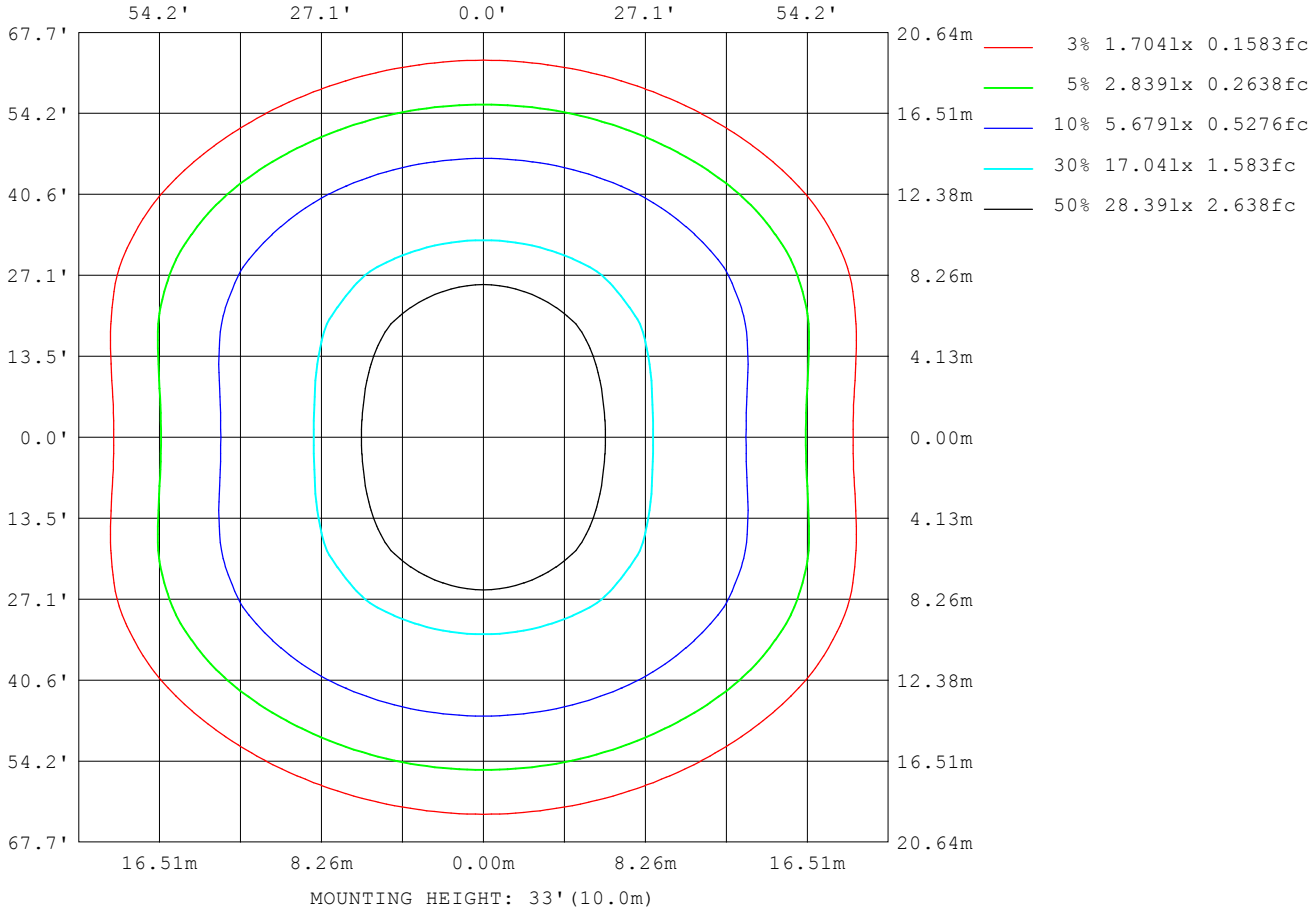
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor:

ISOLUX DIAGRAM



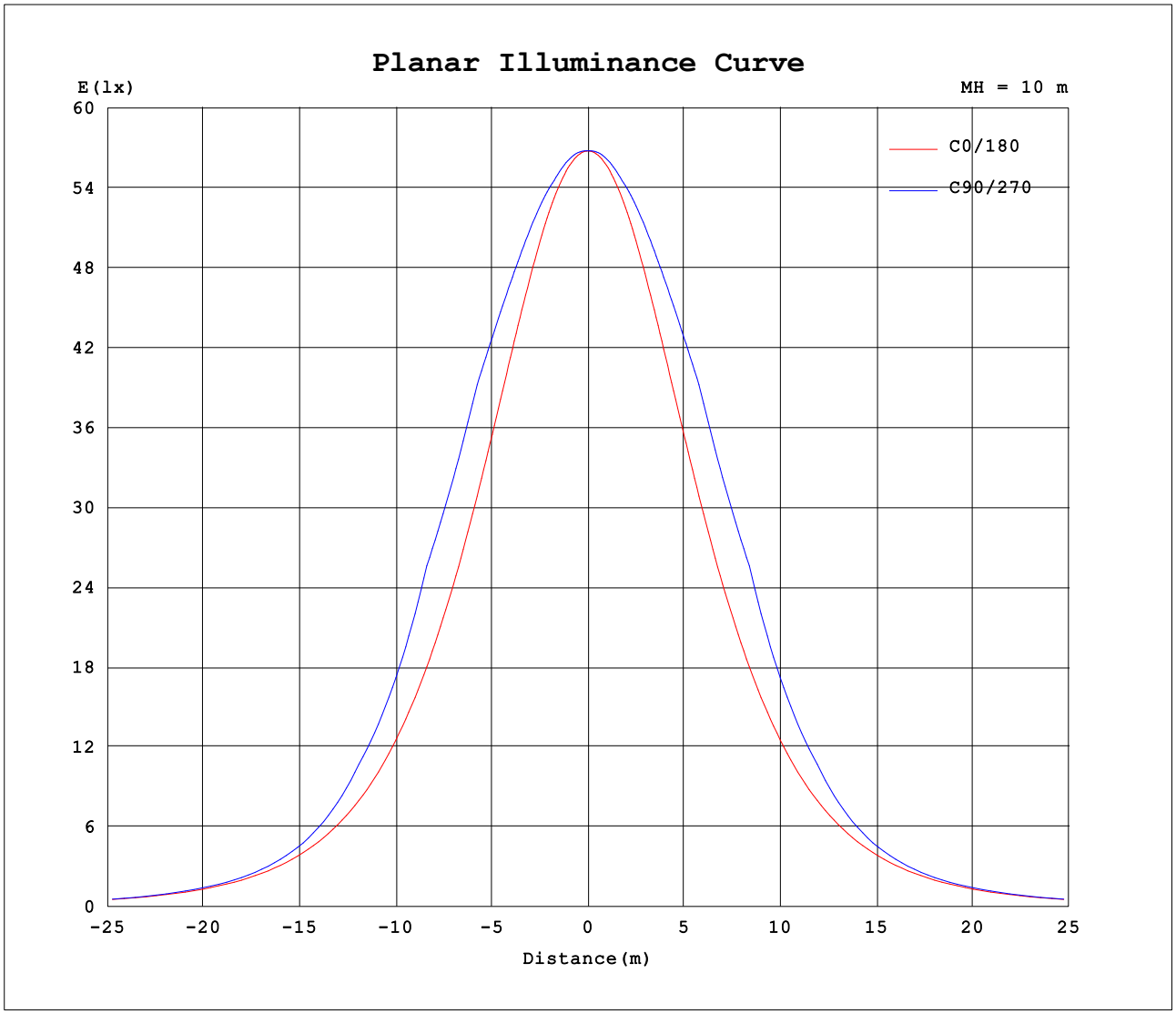
C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 2.5DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:WJH
Test Date:2020-09-12

Checker: LI

γ Range:-90 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.00.426
Humidity:65.0%
Test Distance:9.350m [K=1.0000]
Remarks:

Assessor: