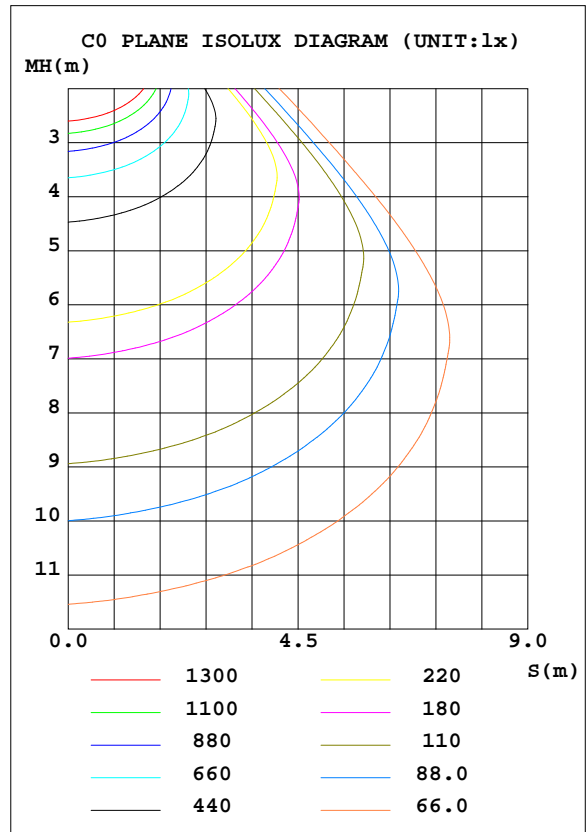
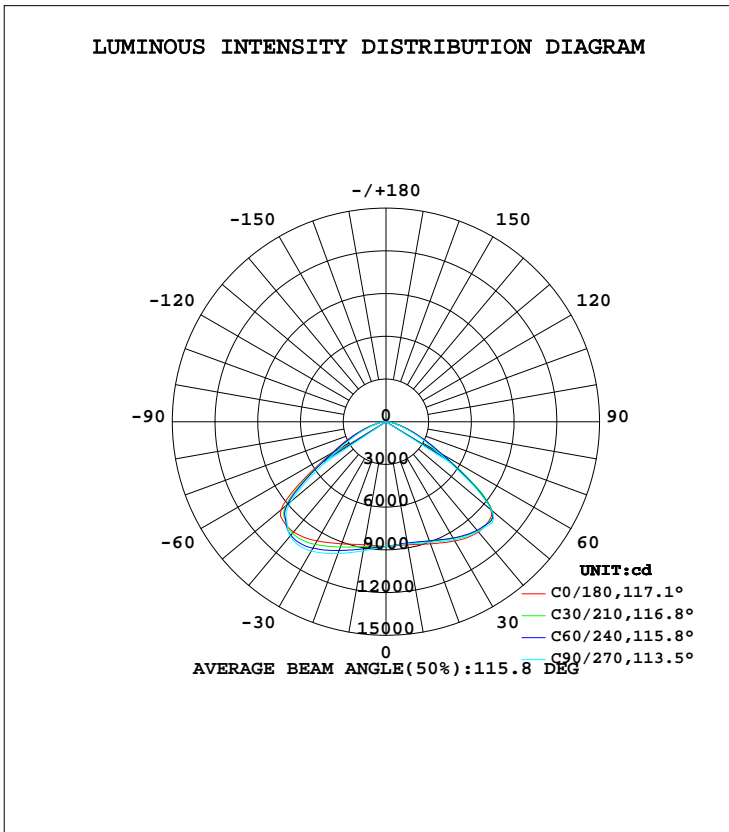


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 159.41 lm/W			
MODEL	HB09-200W-120D-160LM	Imax(cd)	10629	S/MH(C0/180)	1.73
NOMINAL POWER(W)	202	LOR(%)	100.0	S/MH(C90/270)	1.73
RATED VOLTAGE(V)	222	TOTAL FLUX(lm)	32090	η UP, DN(C0-180)	0.0, 50.0
NOMINAL FLUX(lm)	32090.1	CIE CLASS	DIRECT	η UP, DN(C180-360)	0.0, 50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.75
TEST VOLTAGE(V)	222.0	η down(%)	100.0	CIBSE SHR MAX	1.75



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
10	877.3	866.3	870.8	866.3	877.3	897.8	920.4	897.8	0- 10	838.4	838.4	2.61,2.61
20	912.1	892.2	901.9	892.2	912.1	948.9	984.2	948.9	10- 20	2560	3399	10.6,10.6
30	966.4	945.3	958.4	945.3	966.4	1010	1048	1010	20- 30	4408	7807	24.3,24.3
40	1011	997.0	1006	997.0	1011	1031	1048	1031	30- 40	6302	14109	44,44
50	961.1	971.7	967.4	971.7	961.1	911.9	869.6	911.9	40- 50	7720	21828	68,68
60	441.0	449.6	408.8	449.6	441.0	424.5	369.9	424.5	50- 60	6116	27944	87.1,87.1
70	187.3	174.8	161.2	174.8	187.3	170.7	153.5	170.7	60- 70	2831	30775	95.9,95.9
80	54.19	50.84	46.41	50.84	54.19	49.13	44.89	49.13	70- 80	1080	31854	99.3,99.3
90	2.620	2.570	2.547	2.570	2.620	3.624	3.681	3.624	80- 90	235.6	32090	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:×10cd									UNIT:lm		

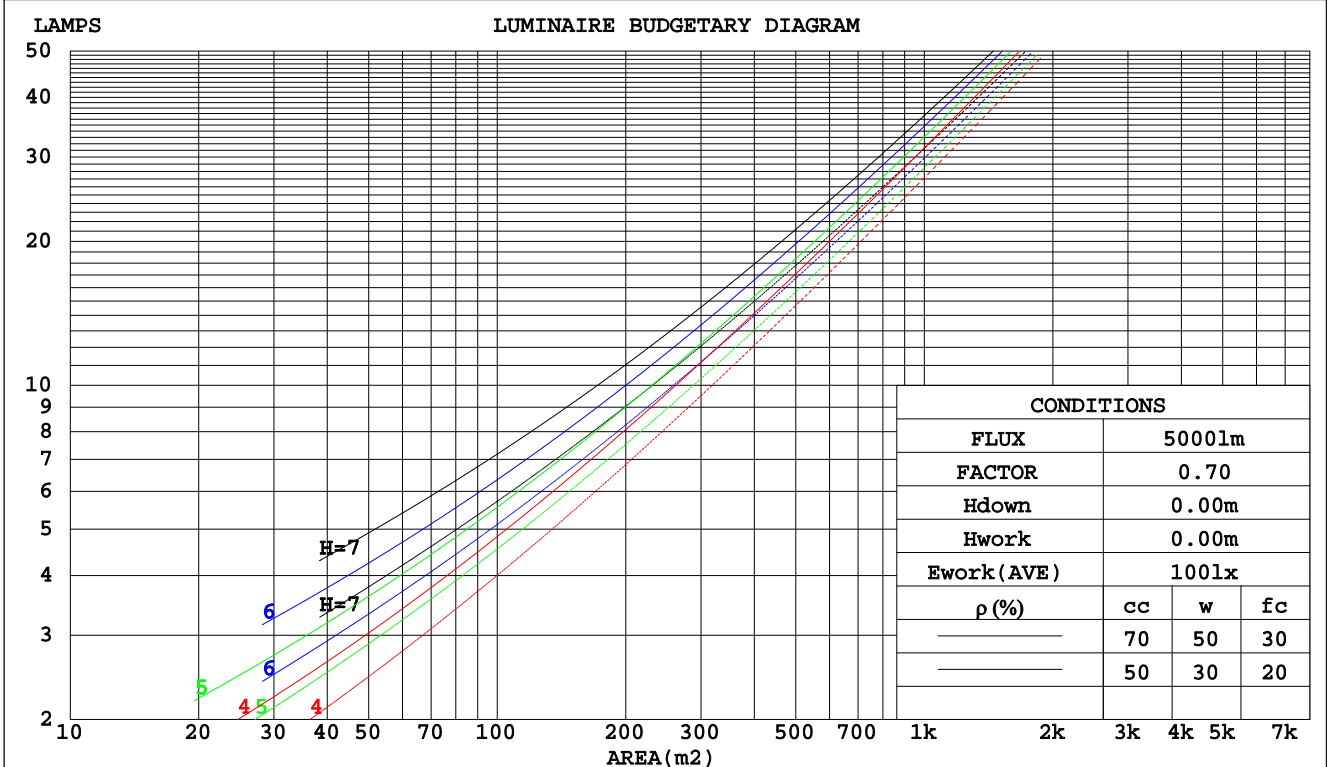
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																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	.00
1.0	1.05	1.02	.98	1.03	.90	.96	.99	.96	.93	.95	.93	.91	.92	.90	.88	.86
2.0	.93	.86	.81	.91	.85	.80	.87	.82	.78	.84	.80	.76	.81	.78	.75	.72
3.0	.81	.74	.67	.80	.73	.67	.77	.71	.66	.74	.69	.64	.72	.67	.63	.61
4.0	.72	.63	.57	.71	.63	.57	.68	.61	.56	.66	.60	.55	.64	.59	.54	.52
5.0	.64	.55	.49	.63	.55	.48	.61	.53	.48	.59	.52	.47	.57	.51	.47	.45
6.0	.57	.48	.42	.56	.48	.42	.55	.47	.41	.53	.46	.41	.51	.45	.41	.39
7.0	.52	.43	.37	.51	.42	.37	.49	.42	.36	.48	.41	.36	.46	.40	.36	.34
8.0	.47	.38	.32	.46	.38	.32	.45	.37	.32	.43	.37	.32	.42	.36	.32	.30
9.0	.43	.34	.29	.42	.34	.29	.41	.34	.29	.40	.33	.28	.39	.33	.28	.26
10.0	.39	.31	.26	.39	.31	.26	.38	.30	.26	.37	.30	.25	.36	.30	.25	.24



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 6.520m [K=1.0000]  
 Remarks:

WEC AND CCEC

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:

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 Coefficients(WEC)									
0.0																
1.0	.279	.159	.050	.272	.155	.049	.259	.149	.047	.247	.142	.046	.236	.137	.044	
2.0	.271	.149	.046	.265	.146	.045	.254	.141	.044	.243	.136	.043	.233	.132	.042	
3.0	.257	.137	.041	.251	.135	.041	.241	.131	.040	.232	.127	.039	.223	.123	.038	
4.0	.241	.125	.037	.236	.124	.037	.227	.120	.036	.219	.117	.035	.211	.115	.035	
5.0	.225	.115	.033	.221	.114	.033	.213	.111	.033	.206	.108	.032	.199	.106	.032	
6.0	.211	.106	.030	.207	.105	.030	.200	.102	.030	.193	.100	.030	.187	.098	.029	
7.0	.198	.098	.028	.194	.097	.028	.188	.095	.027	.182	.093	.027	.176	.091	.027	
8.0	.185	.091	.025	.182	.090	.025	.177	.088	.025	.171	.087	.025	.166	.085	.025	
9.0	.174	.084	.024	.172	.084	.023	.167	.082	.023	.162	.081	.023	.157	.080	.023	
10.0	.165	.079	.022	.162	.078	.022	.157	.077	.022	.153	.076	.022	.149	.075	.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	.081	.060	.053	.047	.019	.017	.015	
2.0	.170	.132	.100	.145	.114	.087	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.162	.114	.076	.139	.099	.066	.095	.068	.046	.055	.040	.027	.018	.013	.009	
4.0	.155	.101	.060	.133	.087	.052	.091	.061	.036	.053	.036	.022	.017	.012	.007	
5.0	.148	.090	.048	.127	.078	.042	.088	.055	.029	.051	.032	.017	.016	.010	.006	
6.0	.141	.082	.040	.121	.071	.034	.084	.050	.024	.049	.029	.014	.016	.010	.005	
7.0	.135	.075	.033	.116	.065	.029	.080	.046	.021	.047	.027	.012	.015	.009	.004	
8.0	.129	.070	.029	.111	.060	.025	.077	.042	.018	.045	.025	.011	.014	.008	.004	
9.0	.123	.065	.025	.106	.056	.022	.073	.039	.016	.043	.023	.009	.014	.008	.003	
10.0	.118	.060	.022	.101	.052	.019	.070	.037	.014	.041	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

Uncorrected UGR Table

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm										
NAME: HB09-200W-120D-160LM					TYPE:			WEIGHT:		
DIM.:					SPEC.:			SERIAL No.:		
MFR.:					SUR.:0.226*0.226			PROTECTION ANGLE:		
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	27.7	29.2	28.0	29.4	29.6	27.6	29.1	27.9	29.3	29.5
3H	28.2	29.5	28.5	29.8	30.0	28.0	29.3	28.3	29.6	29.8
4H	28.3	29.6	28.6	29.8	30.1	28.0	29.3	28.3	29.6	29.8
6H	28.3	29.5	28.6	29.8	30.1	28.0	29.3	28.4	29.5	29.8
8H	28.3	29.5	28.6	29.7	30.0	28.0	29.2	28.4	29.5	29.8
12H	28.3	29.4	28.6	29.7	30.0	28.0	29.1	28.3	29.4	29.7
4H 2H	27.9	29.2	28.2	29.5	29.7	27.8	29.1	28.1	29.4	29.6
3H	28.5	29.6	28.8	29.9	30.2	28.3	29.4	28.7	29.7	30.0
4H	28.6	29.7	29.0	30.0	30.3	28.5	29.5	28.8	29.8	30.1
6H	28.7	29.6	29.1	30.0	30.3	28.5	29.4	28.9	29.8	30.1
8H	28.8	29.6	29.2	29.9	30.3	28.5	29.4	28.9	29.7	30.1
12H	28.8	29.5	29.2	29.9	30.3	28.5	29.3	28.9	29.7	30.1
8H 4H	28.6	29.5	29.1	29.8	30.2	28.5	29.3	28.9	29.7	30.0
6H	28.8	29.5	29.2	29.9	30.3	28.6	29.3	29.0	29.7	30.1
8H	28.8	29.4	29.3	29.9	30.3	28.6	29.2	29.1	29.7	30.1
12H	28.9	29.4	29.4	29.8	30.3	28.6	29.2	29.1	29.6	30.1
12H 4H	28.6	29.4	29.0	29.8	30.2	28.4	29.2	28.9	29.6	30.0
6H	28.8	29.4	29.2	29.8	30.3	28.6	29.2	29.0	29.6	30.1
8H	28.8	29.4	29.3	29.8	30.3	28.6	29.1	29.1	29.6	30.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.4					+ 0.3 / - 0.5				
1.5H	+ 0.7 / - 1.4					+ 0.7 / - 1.5				
2.0H	+ 1.5 / - 1.8					+ 1.6 / - 1.7				

CIE Pub.117 Corrected 32090 lm Total Lamp Luminous Flux.(8log(F/F0) = 12.1)

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

UTILIZATION FACTORS TABLE

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:

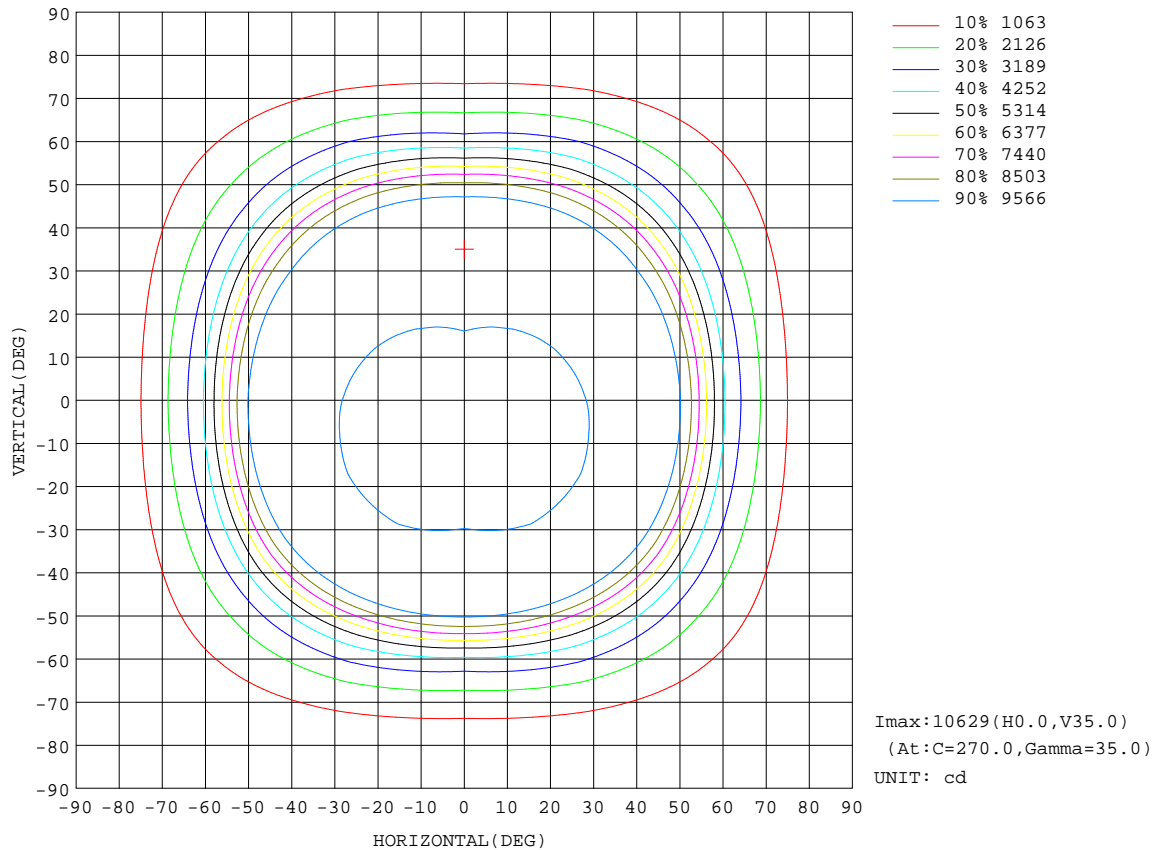
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	56	44	37	55	44	37	54	43	37	30
0.80	67	56	48	66	55	48	64	54	48	41
1.00	77	66	59	76	66	59	74	67	58	51
1.25	85	75	68	83	74	67	81	72	67	59
1.50	90	80	74	88	80	73	85	78	72	65
2.00	97	89	83	95	88	82	92	86	81	73
2.50	100	93	88	98	92	87	95	89	85	77
3.00	104	97	92	102	96	91	98	93	89	81
4.00	107	102	98	105	100	96	101	97	94	85
5.00	109	105	101	107	103	99	102	99	96	87
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

ISOCANDELA DIAGRAM

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:

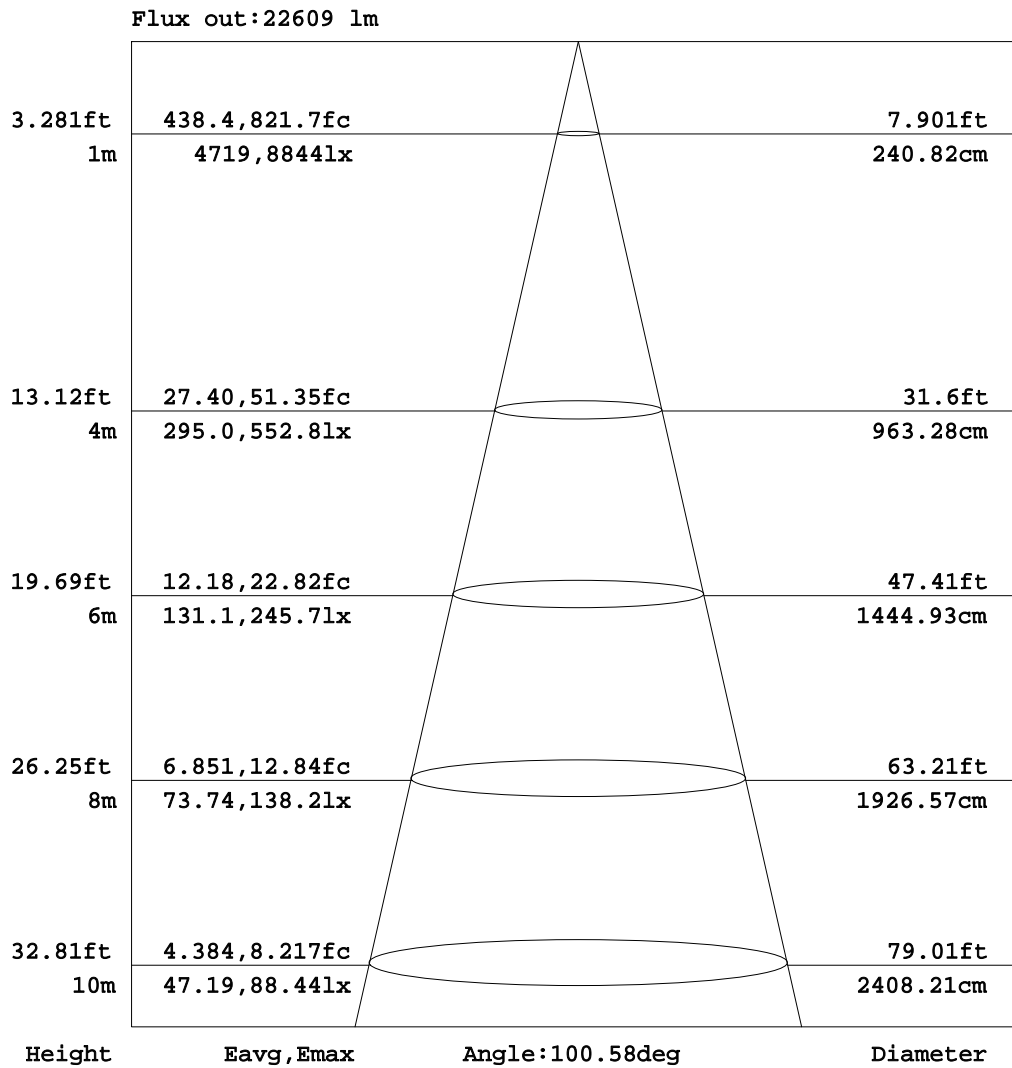


C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 6.520m [K=1.0000]  
 Remarks:

**AAI Figure**

Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1x1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:



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

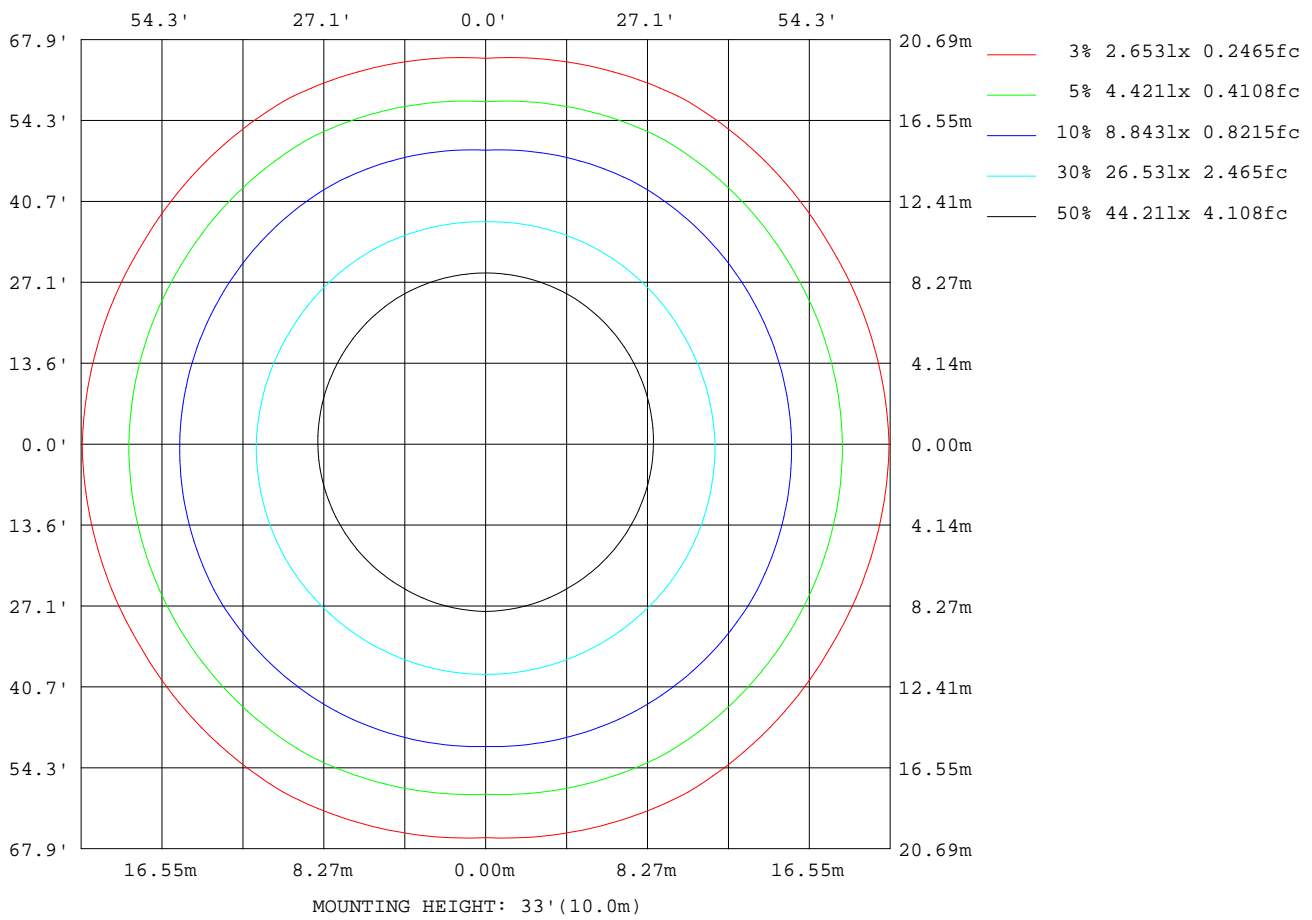
C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 6.520m [K=1.0000]  
 Remarks:



**ISOLUX DIAGRAM**

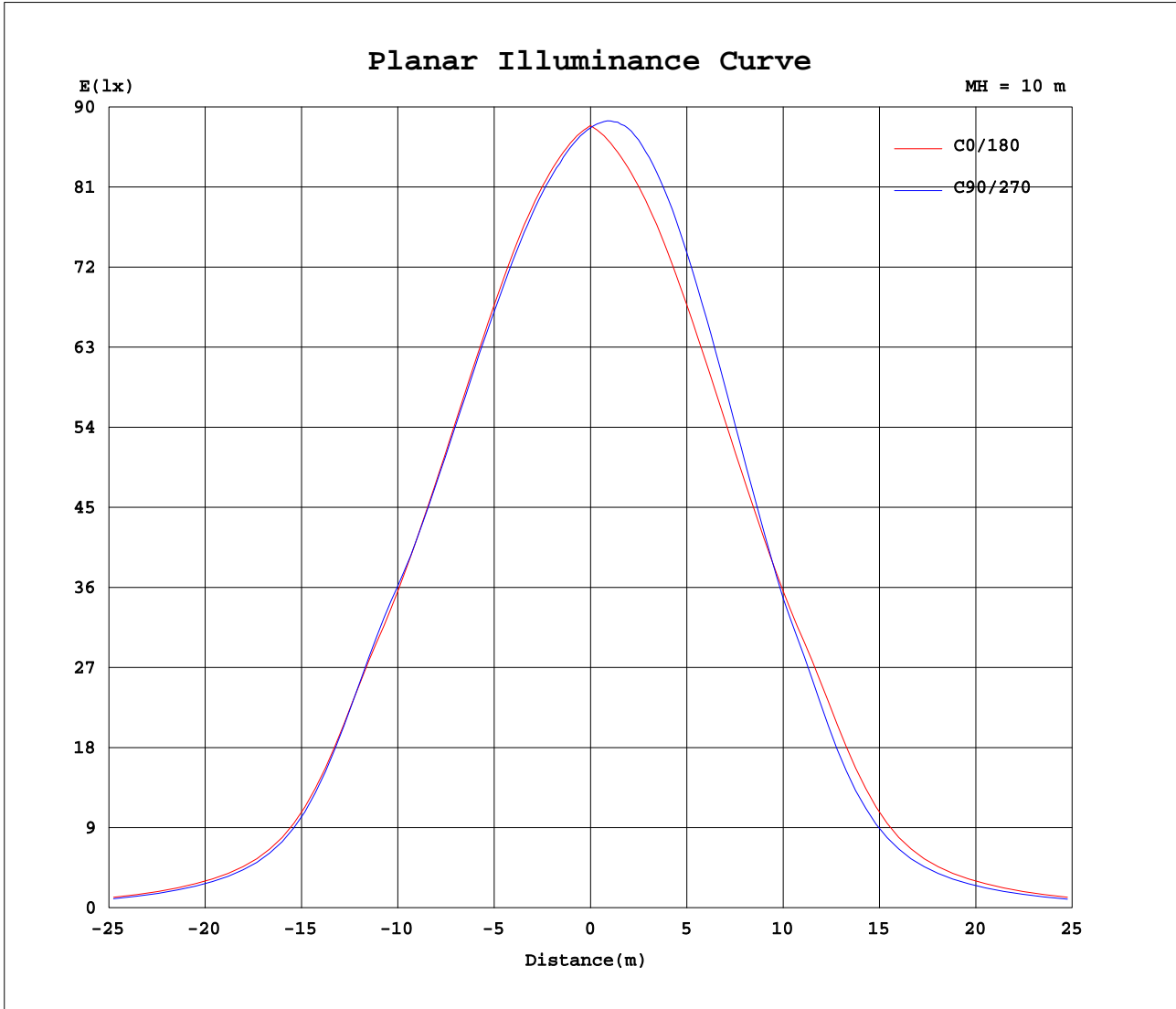
Test:U:222.0V I:0.9118A P:201.3W PF:0.9946 Lamp Flux:32090.1lx1 lm		
NAME: HB09-200W-120D-160LM	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.:	SUR.:0.226*0.226	PROTECTION ANGLE:



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:DAMIN  
 Test Date:2022-05-05

γ Range: 0 - 90DEG  
 γ Interval: 1.0DEG  
 Test System:EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity:65.0%  
 Test Distance:6.520m [K=1.0000]  
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG  
 C Interval: 30.0DEG  
 Test Speed: HIGH  
 Temperature: 25.3DEG  
 Operators: DAMIN  
 Test Date: 2022-05-05

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 1.0DEG  
 Test System: EVERFINE GO-2000B\_V1 SYSTEM V2.0.267  
 Humidity: 65.0%  
 Test Distance: 6.520m [K=1.0000]  
 Remarks:

