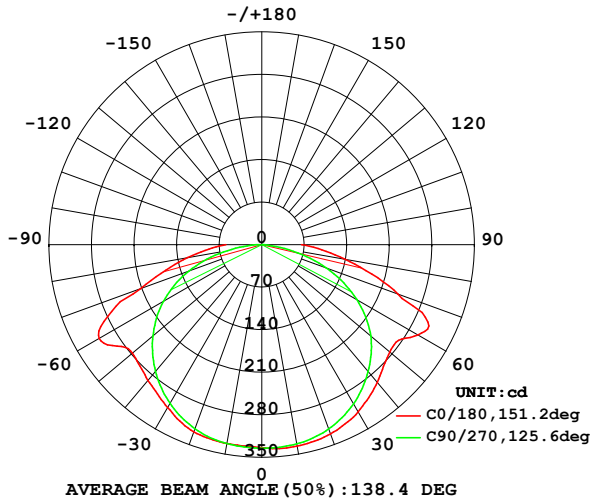
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

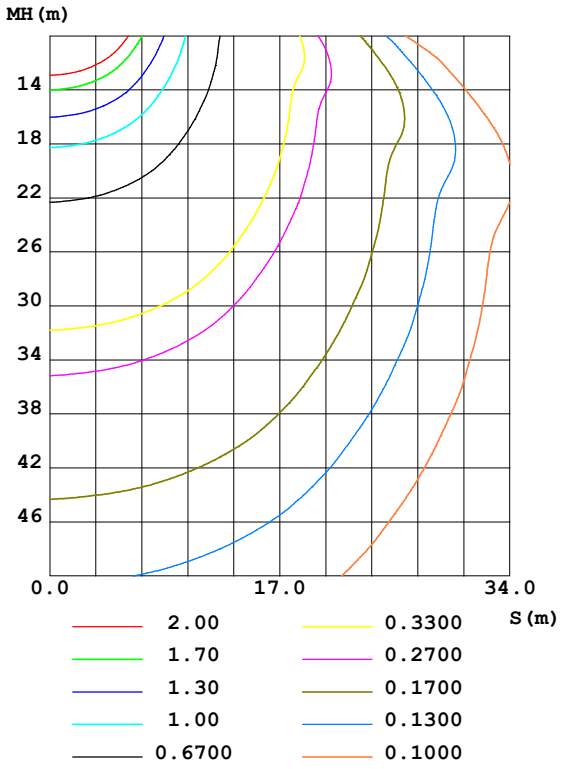
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 72.15 lm/W	
MODEL	4000K	Imax(cd)	337.1	S/MH(C0/180)	1.39
NOMINAL POWER(W)	19.2	LOR(%)	100.0	S/MH(C90/270)	1.34
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	1303.1	η UP,DN(C0-180)	0.0,50.0
NOMINAL FLUX(lm)	1303.09	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	24	η down(%)	100.0	CIBSE SHR MAX	1.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):138.4 DEG

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C90	C180	C270					γ	Φ zone	Φ total	%lum,lamp
10	332.2	332.4	336.6	332.8					0- 10	31.90	31.90	2.45,2.45
20	327.8	322.2	331.1	322.6					10- 20	93.54	125.4	9.63,9.63
30	309.7	301.7	317.7	302.3					20- 30	146.8	272.2	20.9,20.9
40	291.7	272.1	295.7	272.6					30- 40	185.4	457.7	35.1,35.1
50	277.7	233.9	275.0	234.6					40- 50	208.0	665.7	51.1,51.1
60	309.0	186.9	297.0	180.7					50- 60	222.3	888.0	68.1,68.1
70	211.7	127.8	238.8	113.3					60- 70	215.3	1103	84.7,84.7
80	123.6	57.64	138.9	38.74					70- 80	137.8	1241	95.3,95.3
90	58.99	3.582	65.79	0.8640					80- 90	61.89	1303	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		

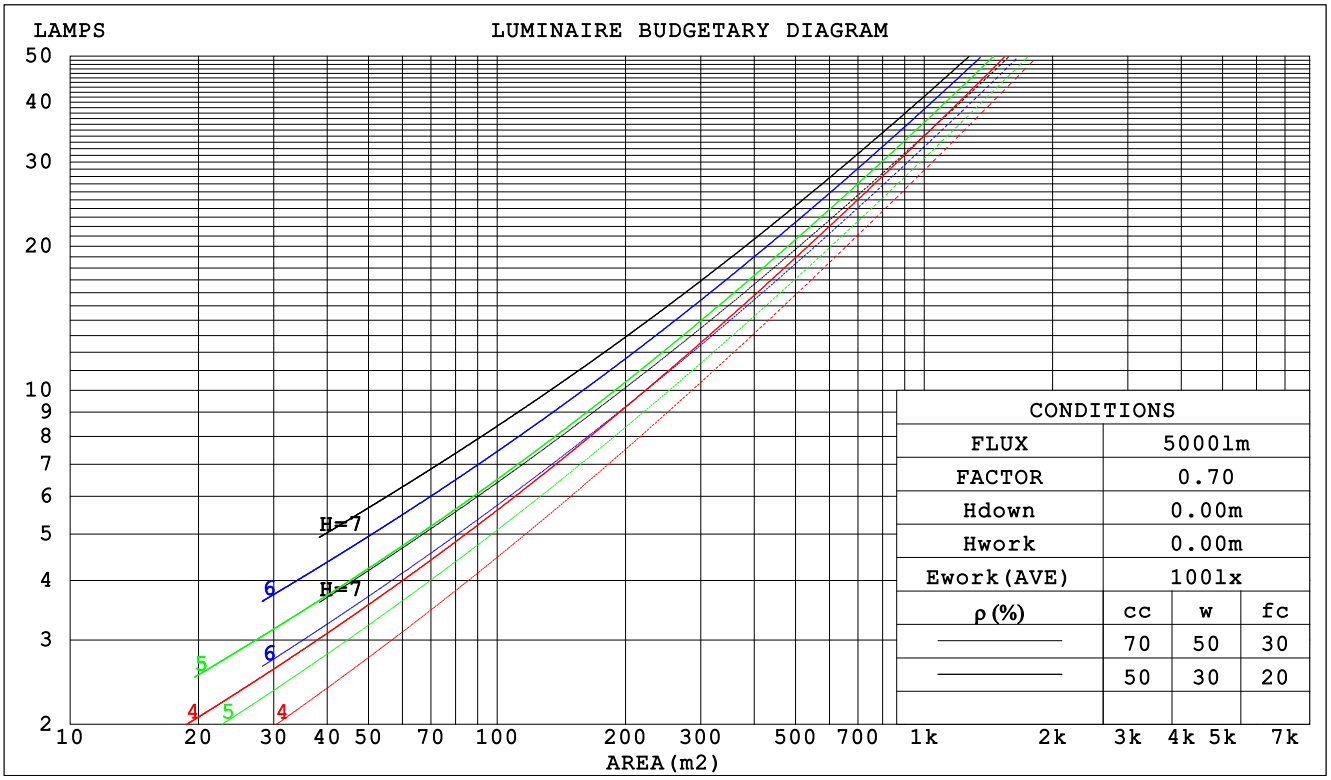
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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			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	1.01	.95	.91	.98	.94	.89	.94	.90	.86	.90	.87	.84	.86	.84	.81	.79
2.0	.86	.78	.71	.84	.77	.70	.80	.74	.69	.77	.72	.67	.74	.69	.66	.63
3.0	.74	.65	.58	.72	.64	.57	.69	.62	.56	.66	.60	.55	.64	.58	.54	.51
4.0	.65	.55	.48	.63	.54	.47	.61	.53	.47	.58	.51	.46	.56	.50	.45	.43
5.0	.57	.47	.40	.56	.47	.40	.54	.46	.39	.52	.45	.39	.50	.44	.39	.36
6.0	.51	.42	.35	.50	.41	.34	.48	.40	.34	.47	.39	.34	.45	.38	.33	.31
7.0	.46	.37	.30	.45	.36	.30	.44	.36	.30	.42	.35	.29	.41	.34	.29	.27
8.0	.42	.33	.27	.41	.33	.27	.40	.32	.26	.39	.31	.26	.37	.31	.26	.24
9.0	.38	.30	.24	.38	.29	.24	.37	.29	.24	.35	.28	.23	.34	.28	.23	.21
10.0	.35	.27	.21	.35	.27	.21	.34	.26	.21	.33	.26	.21	.32	.26	.21	.19



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

WEC AND CCEC

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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 Coeffcients(WEC)									
0.0																
1.0	.371	.211	.067	.364	.208	.066	.351	.201	.064	.338	.195	.063	.327	.189	.061	
2.0	.336	.184	.056	.329	.181	.056	.317	.176	.055	.306	.172	.054	.296	.167	.053	
3.0	.303	.162	.048	.298	.159	.048	.287	.156	.047	.277	.152	.047	.268	.148	.046	
4.0	.275	.143	.042	.270	.141	.042	.261	.138	.041	.252	.135	.041	.244	.132	.040	
5.0	.251	.128	.037	.247	.127	.037	.238	.124	.037	.230	.122	.036	.223	.119	.036	
6.0	.230	.116	.033	.226	.114	.033	.219	.112	.033	.212	.110	.032	.205	.108	.032	
7.0	.213	.105	.030	.209	.104	.030	.202	.102	.029	.196	.101	.029	.190	.099	.029	
8.0	.197	.096	.027	.194	.096	.027	.188	.094	.027	.182	.092	.027	.177	.091	.026	
9.0	.184	.089	.025	.181	.088	.025	.176	.087	.025	.170	.085	.024	.166	.084	.024	
10.0	.172	.082	.023	.169	.082	.023	.164	.081	.023	.160	.079	.023	.156	.078	.022	

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	.185	.156	.129	.158	.134	.111	.108	.092	.077	.062	.053	.045	.020	.017	.014	
2.0	.178	.132	.093	.153	.113	.080	.105	.078	.056	.060	.046	.033	.019	.015	.011	
3.0	.171	.115	.070	.147	.099	.060	.101	.069	.042	.058	.040	.025	.019	.013	.008	
4.0	.163	.102	.054	.140	.088	.047	.096	.061	.033	.056	.036	.020	.018	.012	.006	
5.0	.156	.091	.044	.134	.079	.038	.092	.055	.027	.053	.032	.016	.017	.011	.005	
6.0	.148	.083	.037	.127	.072	.032	.088	.050	.023	.051	.030	.013	.016	.010	.004	
7.0	.141	.076	.031	.121	.066	.027	.084	.046	.019	.049	.027	.012	.016	.009	.004	
8.0	.134	.071	.027	.115	.061	.024	.080	.043	.017	.046	.025	.010	.015	.008	.003	
9.0	.127	.066	.024	.110	.057	.021	.076	.040	.015	.044	.024	.009	.014	.008	.003	
10.0	.121	.061	.022	.104	.053	.019	.072	.037	.013	.042	.022	.008	.014	.007	.003	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Uncorrected UGR Table

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	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	28.1	29.8	28.4	30.0	30.2	26.5	28.1	26.7	28.3	28.5
3H	30.5	32.1	30.8	32.3	32.6	28.3	29.8	28.6	30.1	30.3
4H	31.4	32.9	31.8	33.2	33.4	29.0	30.5	29.3	30.7	31.0
6H	32.3	33.7	32.6	34.0	34.3	29.5	30.9	29.9	31.2	31.5
8H	32.7	34.1	33.1	34.4	34.7	29.7	31.0	30.0	31.3	31.6
12H	33.2	34.5	33.5	34.8	35.1	29.8	31.1	30.2	31.4	31.7
4H 2H	28.8	30.3	29.1	30.5	30.8	27.6	29.1	27.9	29.3	29.6
3H	31.3	32.6	31.6	32.9	33.2	29.5	30.8	29.9	31.1	31.5
4H	32.3	33.5	32.7	33.9	34.2	30.4	31.6	30.7	31.9	32.2
6H	33.4	34.5	33.8	34.8	35.2	31.0	32.1	31.4	32.5	32.8
8H	33.9	34.9	34.3	35.3	35.7	31.2	32.3	31.7	32.6	33.0
12H	34.4	35.4	34.9	35.8	36.2	31.4	32.3	31.8	32.7	33.1
8H 4H	32.6	33.6	33.0	34.0	34.4	30.9	31.9	31.3	32.3	32.7
6H	33.8	34.7	34.3	35.1	35.5	31.8	32.6	32.2	33.0	33.5
8H	34.5	35.3	35.0	35.7	36.2	32.1	32.9	32.6	33.3	33.8
12H	35.2	35.9	35.7	36.4	36.8	32.4	33.1	32.9	33.5	34.0
12H 4H	32.6	33.5	33.0	33.9	34.3	31.0	31.9	31.4	32.3	32.7
6H	33.9	34.7	34.4	35.1	35.6	32.0	32.7	32.4	33.2	33.6
8H	34.6	35.3	35.1	35.8	36.2	32.4	33.1	32.9	33.5	34.0

Variations with the observer position at spacings:		
S = 1.0H	+ 0.1 / - 0.1	+ 0.1 / - 0.2
1.5H	+ 0.1 / - 0.1	+ 0.2 / - 0.3
2.0H	+ 0.4 / - 0.4	+ 0.3 / - 0.5

CIE Pub.117 Corrected 1303 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.9)

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

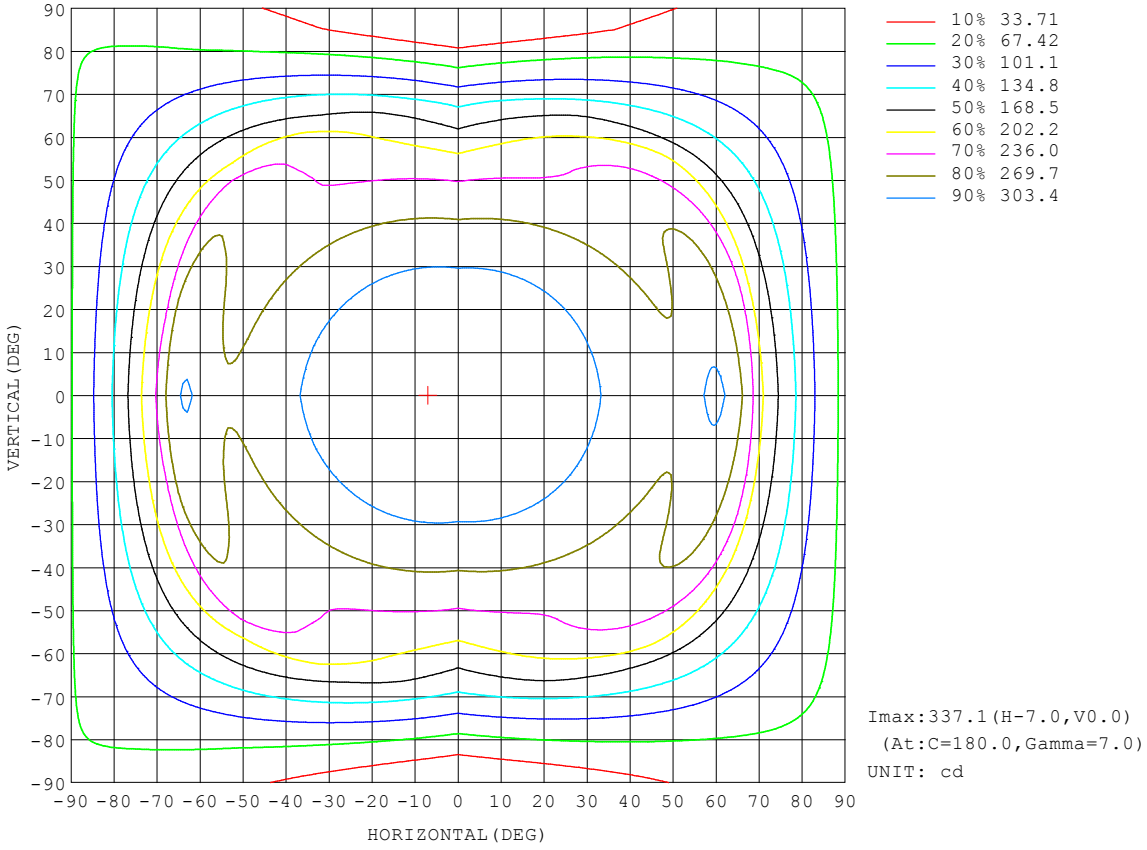
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	52	40	32	52	40	32	50	39	32	25
0.80	62	49	41	61	49	41	59	48	41	33
1.00	70	58	50	69	57	49	67	59	49	41
1.25	78	66	57	76	65	57	73	63	56	48
1.50	83	71	63	81	71	63	78	69	62	53
2.00	90	80	73	88	79	72	85	77	71	62
2.50	95	86	79	93	84	78	89	82	76	67
3.00	99	91	84	96	89	83	92	86	81	72
4.00	103	97	91	101	95	90	96	91	87	77
5.00	106	101	96	104	99	94	99	95	91	81
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004				Suspended					SHRNOM = 1.25	

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOCANDELA DIAGRAM

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

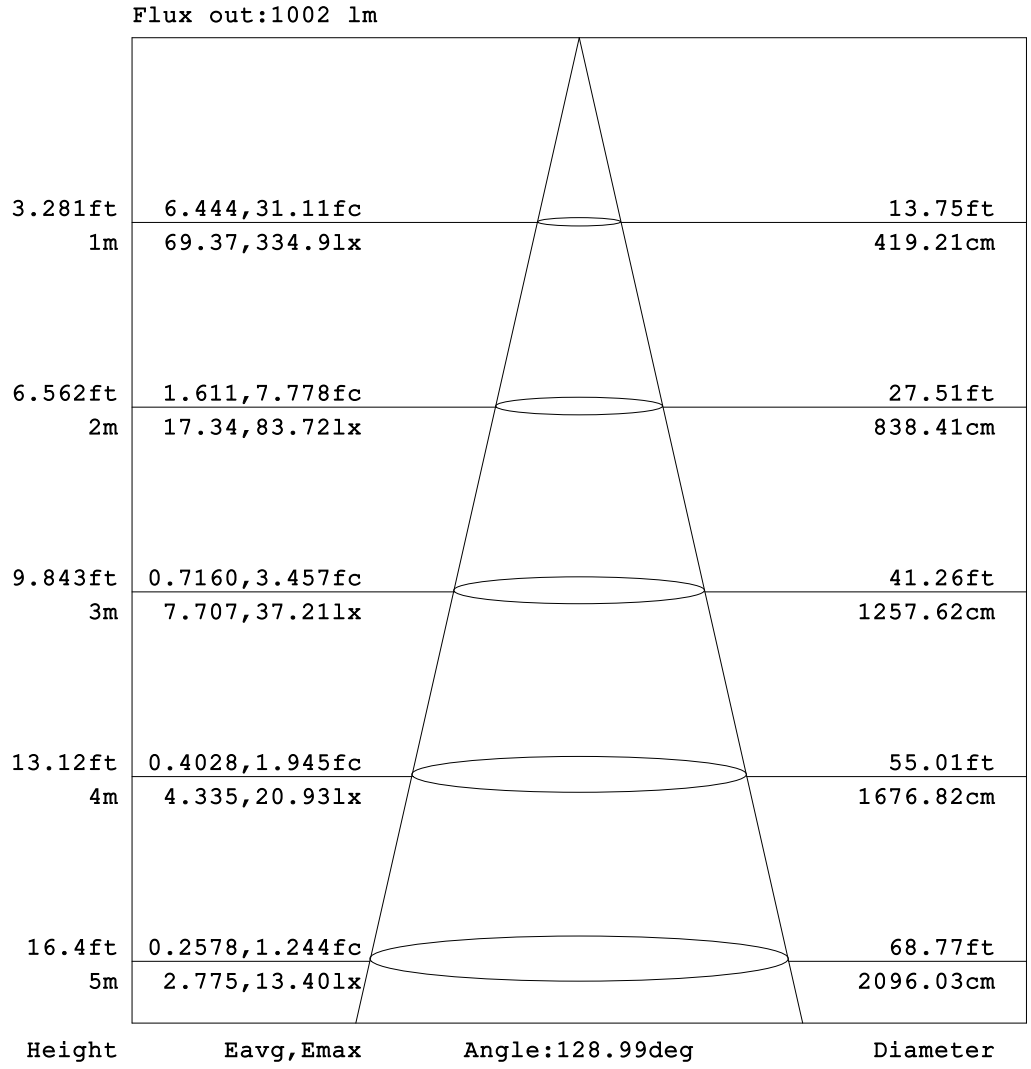


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

AAI Figure

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



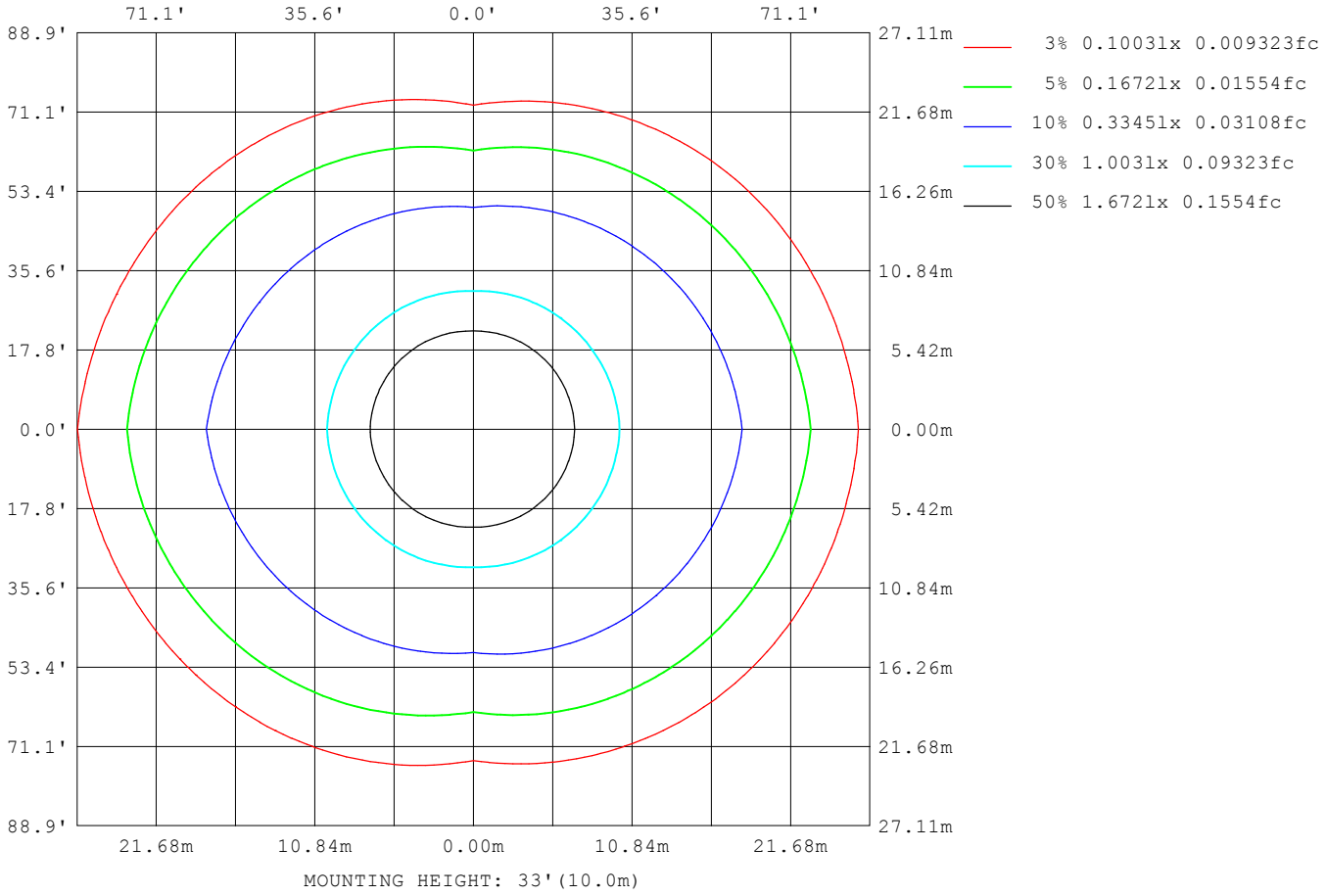
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

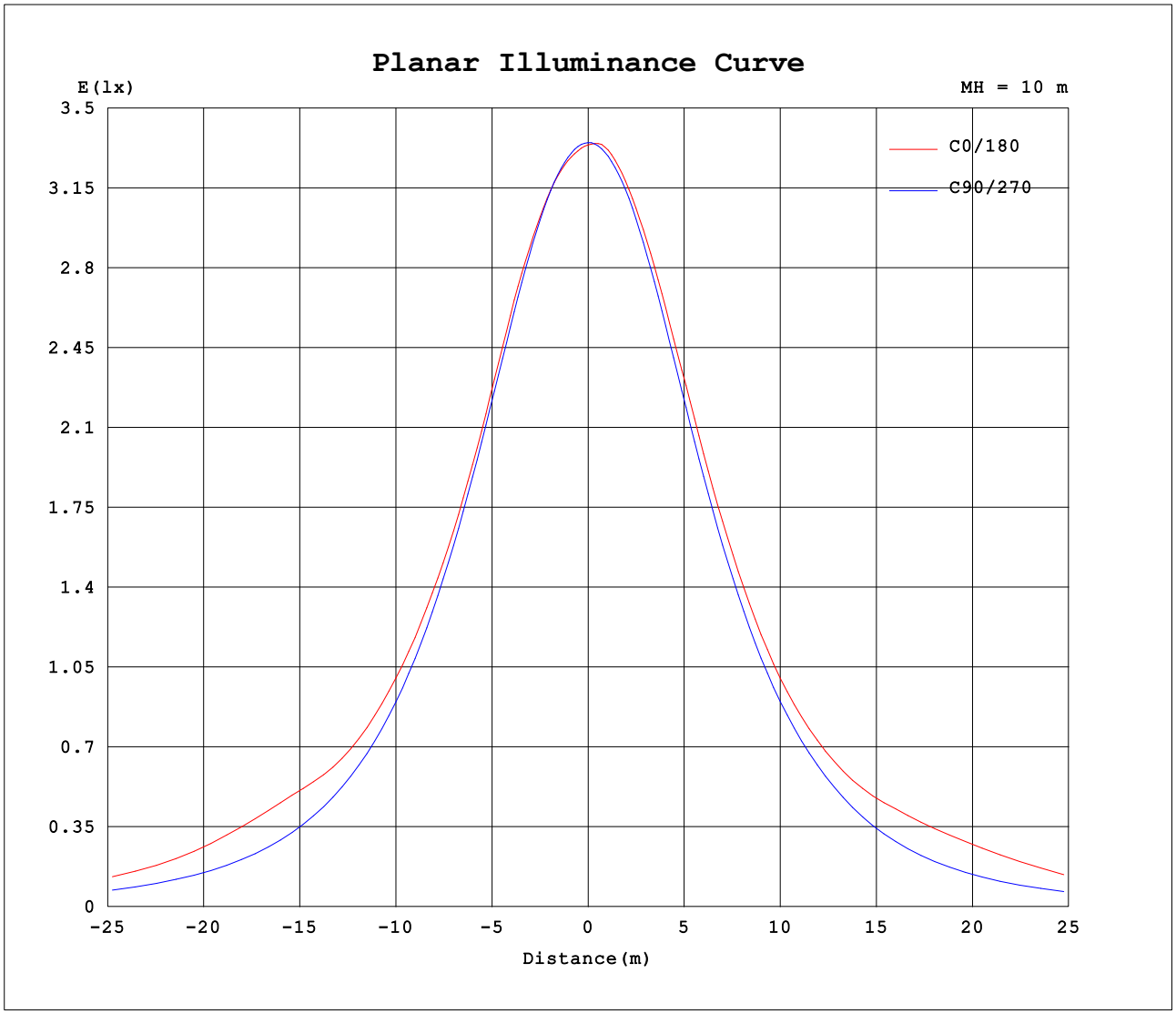
Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:24.00V I:0.7520A P:18.06W PF:1.000 Lamp Flux:1303.09x1 lm		
NAME: HCP-3965194	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

Table--1 UNIT: cd

γ (DEG) \ C(DEG)	0	90	180	270
0	334	335	334	335
5	332	334	337	335
10	332	332	337	333
15	331	329	335	329
20	328	322	331	323
25	320	313	325	314
30	310	302	318	302
35	300	288	307	289
40	292	272	296	273
45	284	254	283	255
50	278	234	275	235
55	291	212	275	209
60	309	187	297	181
65	280	159	301	149
70	212	128	239	113
75	164	93.4	187	76.0
80	124	57.6	139	38.7
85	87.4	24.6	99.2	5.71
90	59.0	3.58	65.8	0.86

C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

γ Range: 0 - 90DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.270
Humidity:65.0%
Test Distance:8.140m [K=1.0000]
Remarks: