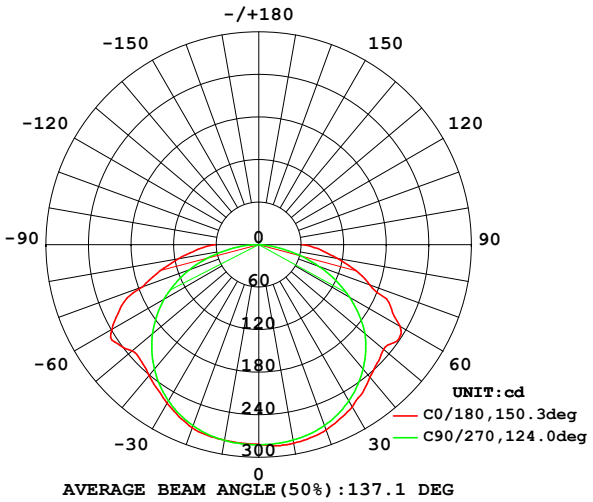
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

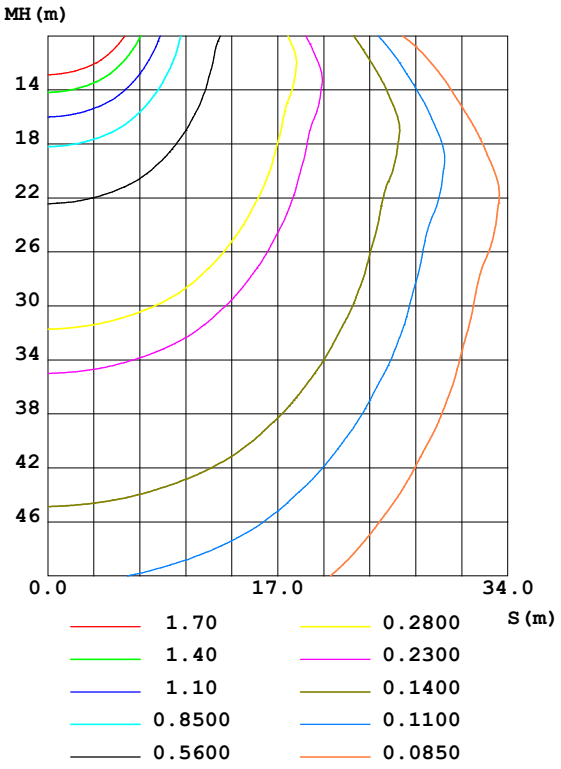
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 75.81 lm/W	
MODEL	4000K	Imax(cd)	285.1	S/MH(C0/180)	1.37
NOMINAL POWER(W)	14.4	LOR(%)	100.0	S/MH(C90/270)	1.34
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	1074.2	η UP,DN(C0-180)	0.0,50.7
NOMINAL FLUX(lm)	1074.2	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.3
LAMPS INSIDE	1	η up(%)	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%):137.1 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	279.9	280.3	284.3	279.9					0- 10	26.91	26.91	2.5,2.5
20	274.6	271.7	278.1	271.3					10- 20	78.77	105.7	9.84,9.84
30	258.5	254.6	264.3	254.4					20- 30	123.1	228.8	21.3,21.3
40	241.3	229.0	243.9	229.1					30- 40	155.0	383.8	35.7,35.7
50	233.2	195.5	229.8	195.5					40- 50	173.5	557.2	51.9,51.9
60	238.7	154.3	229.7	147.6					50- 60	184.6	741.8	69.1,69.1
70	173.9	104.2	166.9	91.12					60- 70	164.8	906.6	84.4,84.4
80	115.3	46.89	113.0	30.68					70- 80	111.4	1018	94.8,94.8
90	61.47	2.857	61.08	0.6814					80- 90	56.21	1074	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		

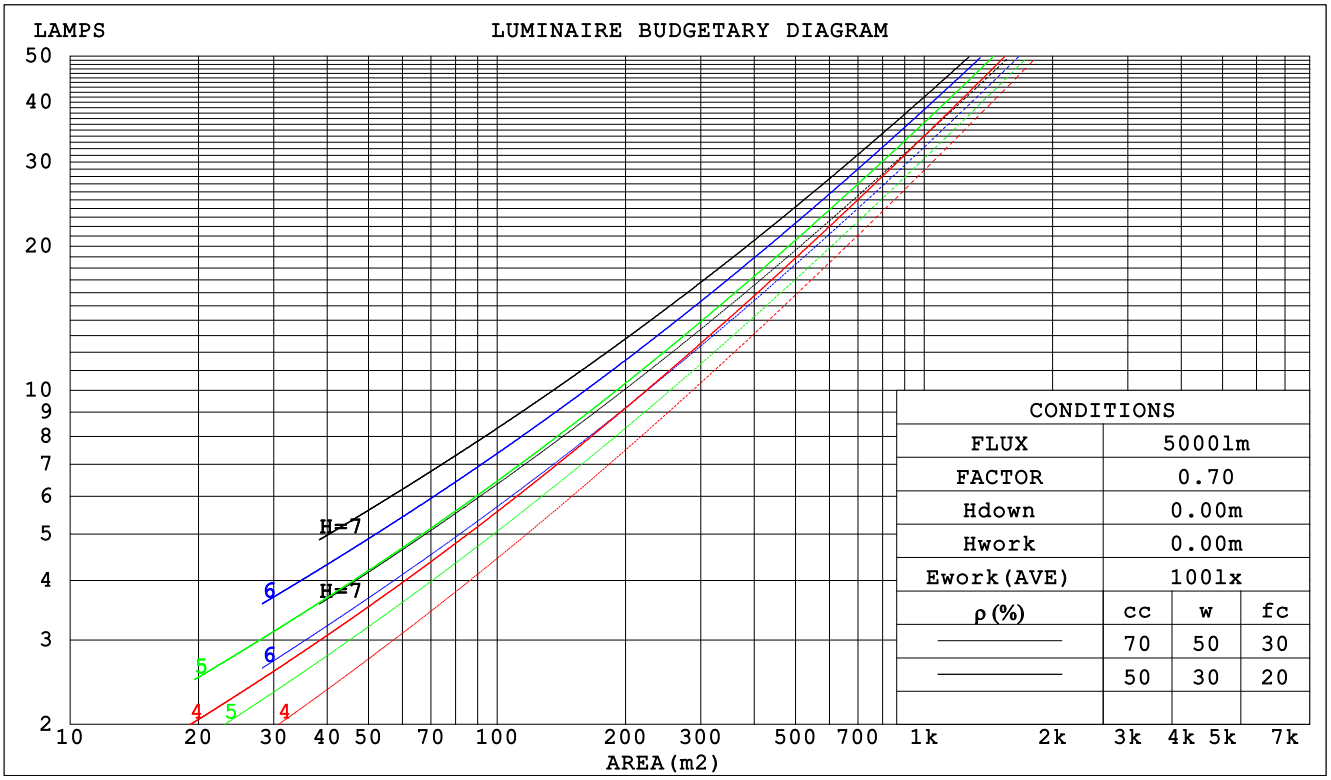
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	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	.71	.80	.74	.69	.77	.72	.67	.74	.69	.66	.63
3.0	.74	.65	.58	.73	.64	.57	.70	.62	.56	.67	.60	.55	.64	.59	.54	.52
4.0	.65	.55	.48	.64	.55	.48	.61	.53	.47	.59	.52	.46	.56	.50	.46	.43
5.0	.58	.48	.41	.57	.47	.40	.54	.46	.40	.52	.45	.39	.50	.44	.39	.37
6.0	.52	.42	.35	.51	.41	.35	.49	.41	.34	.47	.40	.34	.45	.39	.34	.32
7.0	.47	.37	.31	.46	.37	.30	.44	.36	.30	.43	.35	.30	.41	.35	.30	.28
8.0	.42	.33	.27	.42	.33	.27	.40	.32	.27	.39	.32	.26	.38	.31	.26	.24
9.0	.39	.30	.24	.38	.30	.24	.37	.29	.24	.36	.29	.24	.35	.28	.24	.22
10.0	.36	.27	.22	.35	.27	.22	.34	.27	.22	.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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	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	.373	.212	.067	.365	.208	.066	.352	.202	.064	.339	.196	.063	.328	.190	.061	
2.0	.335	.183	.056	.328	.181	.056	.316	.176	.055	.305	.171	.054	.295	.167	.053	
3.0	.302	.161	.048	.296	.159	.048	.286	.155	.047	.276	.151	.046	.266	.148	.046	
4.0	.274	.142	.042	.269	.141	.042	.259	.138	.041	.250	.134	.041	.242	.132	.040	
5.0	.250	.127	.037	.245	.126	.037	.237	.123	.036	.229	.121	.036	.222	.118	.036	
6.0	.229	.115	.033	.225	.114	.033	.218	.112	.032	.211	.110	.032	.204	.108	.032	
7.0	.212	.105	.030	.208	.104	.030	.202	.102	.029	.195	.100	.029	.189	.098	.029	
8.0	.196	.096	.027	.193	.095	.027	.187	.094	.027	.182	.092	.027	.176	.091	.026	
9.0	.183	.089	.025	.180	.088	.025	.175	.086	.025	.170	.085	.024	.165	.084	.024	
10.0	.171	.082	.023	.169	.082	.023	.164	.080	.023	.159	.079	.023	.155	.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	.152	.113	.080	.104	.078	.056	.060	.046	.033	.019	.015	.011	
3.0	.171	.115	.070	.146	.099	.060	.100	.069	.042	.058	.040	.025	.019	.013	.008	
4.0	.163	.102	.055	.140	.088	.047	.096	.061	.033	.056	.036	.020	.018	.012	.007	
5.0	.155	.091	.044	.133	.079	.039	.092	.055	.027	.053	.032	.016	.017	.011	.005	
6.0	.148	.083	.037	.127	.072	.032	.088	.050	.023	.051	.030	.014	.016	.010	.004	
7.0	.140	.076	.031	.121	.066	.027	.083	.046	.019	.048	.027	.012	.016	.009	.004	
8.0	.133	.071	.027	.115	.061	.024	.079	.043	.017	.046	.025	.010	.015	.008	.003	
9.0	.127	.066	.024	.109	.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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	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	27.2	28.9	27.5	29.1	29.3	25.8	27.4	26.0	27.6	27.8
3H	29.6	31.2	30.0	31.4	31.7	27.6	29.1	27.9	29.3	29.6
4H	30.7	32.2	31.0	32.4	32.7	28.3	29.8	28.6	30.0	30.3
6H	31.8	33.2	32.1	33.5	33.7	28.8	30.2	29.2	30.5	30.8
8H	32.3	33.7	32.7	34.0	34.3	29.0	30.3	29.3	30.6	30.9
12H	32.9	34.2	33.3	34.5	34.8	29.1	30.4	29.5	30.7	31.0
4H 2H	27.9	29.4	28.2	29.6	29.9	26.8	28.3	27.2	28.6	28.8
3H	30.4	31.7	30.8	32.0	32.4	28.8	30.1	29.1	30.4	30.7
4H	31.7	32.9	32.0	33.2	33.5	29.6	30.8	30.0	31.2	31.5
6H	32.9	34.0	33.3	34.3	34.7	30.3	31.4	30.7	31.8	32.1
8H	33.6	34.6	34.0	34.9	35.3	30.6	31.6	31.0	32.0	32.3
12H	34.3	35.2	34.7	35.6	36.0	30.7	31.7	31.2	32.1	32.5
8H 4H	32.0	33.0	32.4	33.3	33.7	30.3	31.3	30.7	31.6	32.0
6H	33.4	34.3	33.9	34.7	35.1	31.2	32.0	31.6	32.4	32.9
8H	34.2	35.0	34.7	35.4	35.9	31.6	32.3	32.0	32.7	33.2
12H	35.1	35.8	35.6	36.3	36.7	31.8	32.5	32.3	33.0	33.4
12H 4H	32.0	32.9	32.4	33.3	33.7	30.4	31.3	30.8	31.7	32.1
6H	33.5	34.3	34.0	34.7	35.2	31.4	32.2	31.9	32.6	33.1
8H	34.4	35.1	34.9	35.5	36.0	31.9	32.6	32.4	33.0	33.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.2				
1.5H	+ 0.1 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.3 / - 0.4					+ 0.2 / - 0.5				

CIE Pub.117 Corrected 1074 lm Total Lamp Luminous Flux.(8log(F/F0) = 0.2)

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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

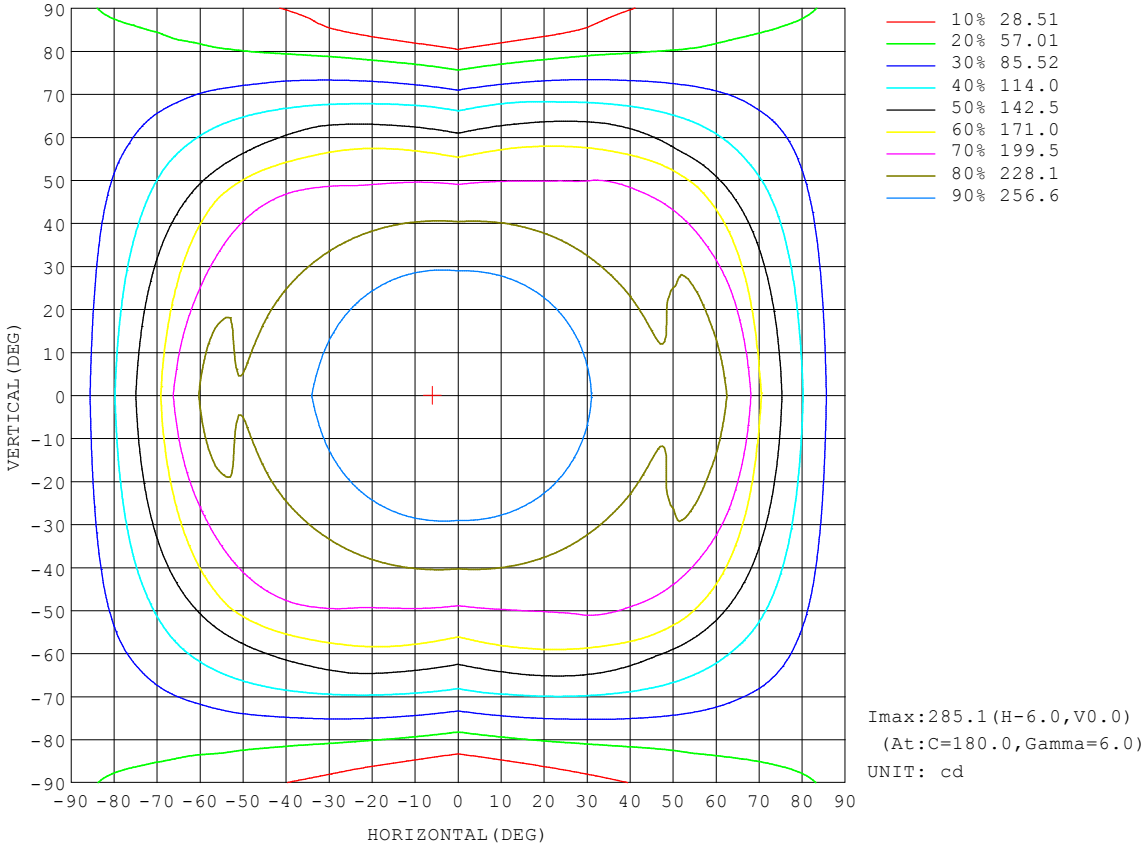
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	53	40	33	52	40	33	51	39	32	26
0.80	62	50	42	61	49	41	59	48	41	33
1.00	71	58	50	69	58	50	67	59	49	41
1.25	78	66	58	76	65	58	73	64	57	49
1.50	83	72	64	81	71	63	78	69	62	54
2.00	91	81	73	89	79	72	85	77	71	62
2.50	95	86	79	93	85	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	100	95	104	98	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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



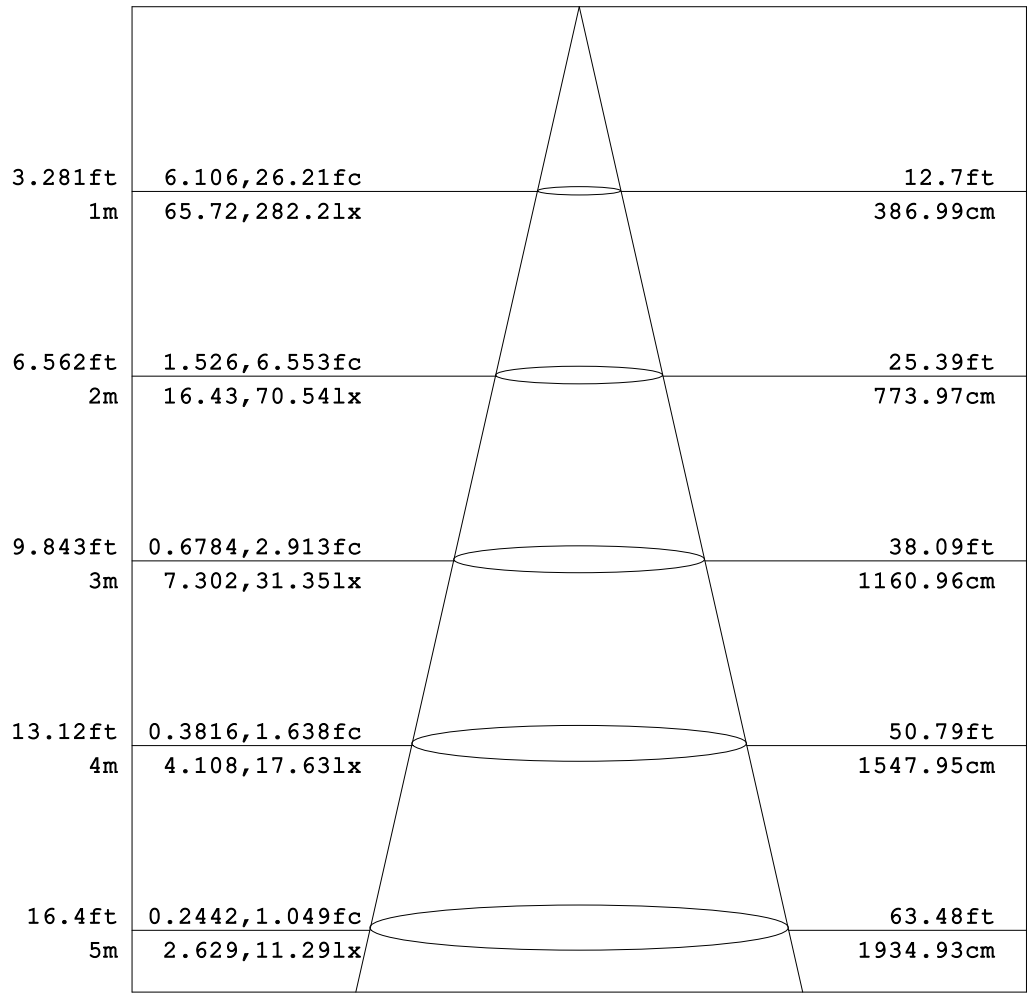
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

Flux out:795.3 lm



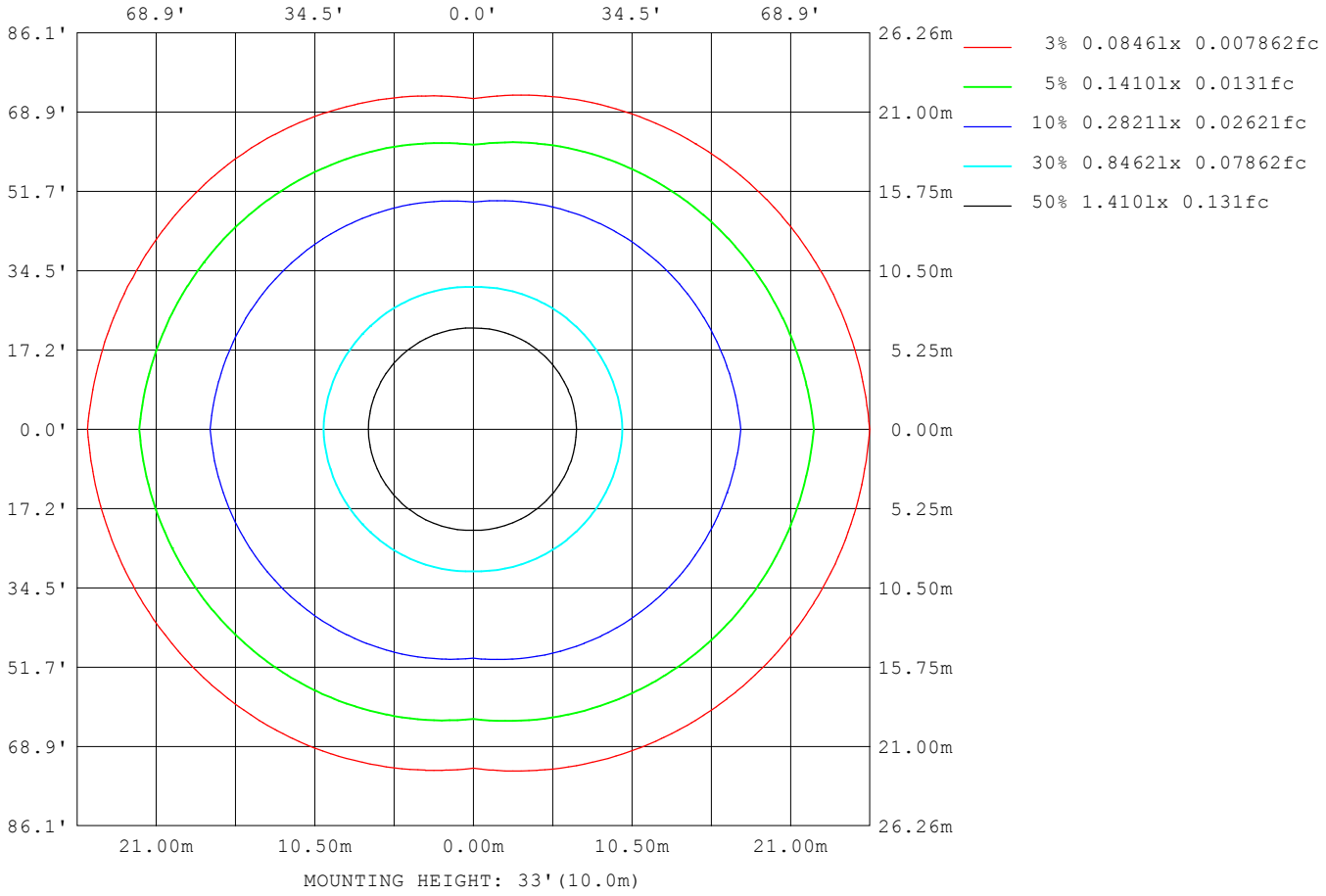
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

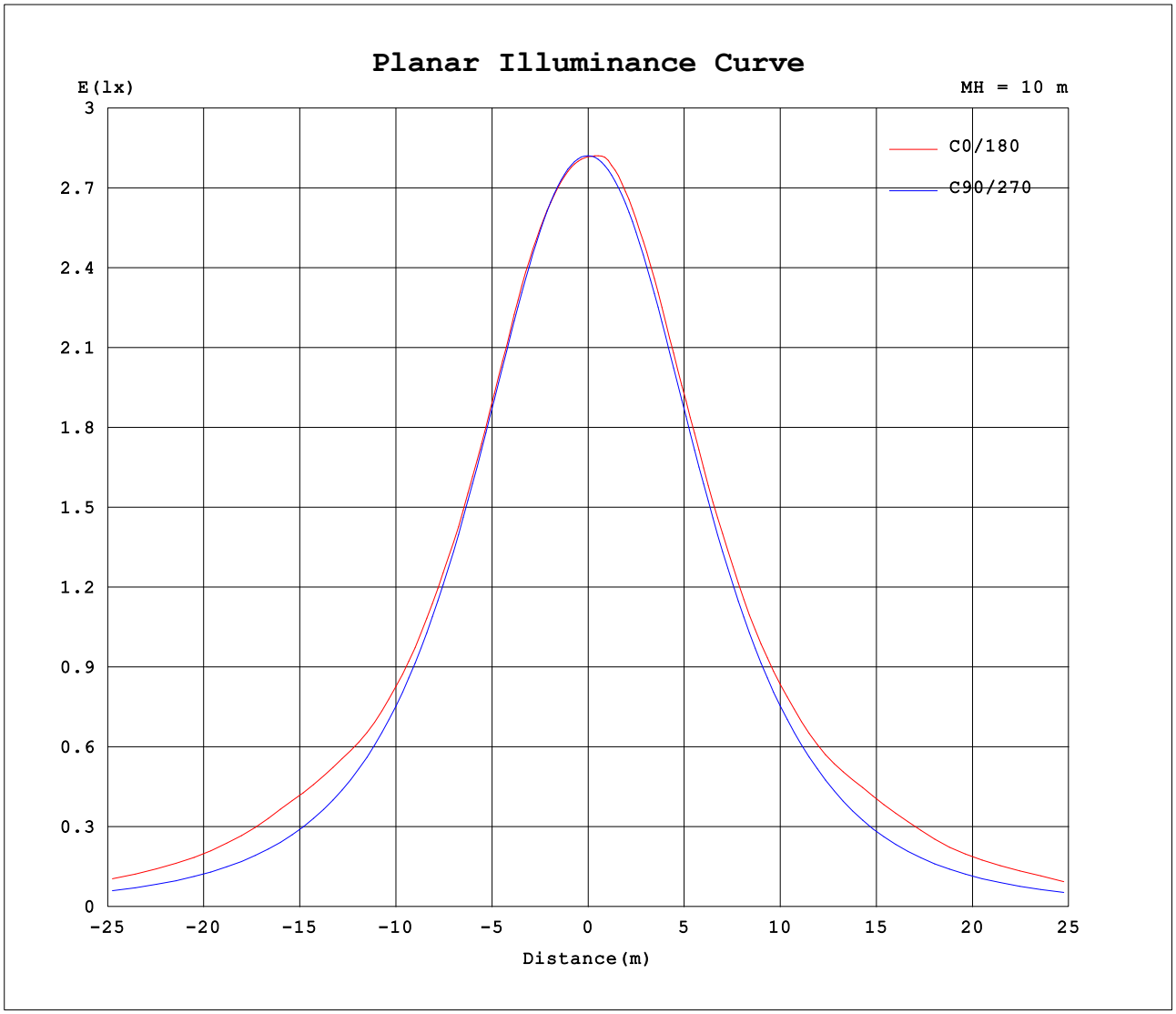
Test:U:24.00V I:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



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:0.5900A P:14.17W PF:1.000 Lamp Flux:1074.2x1 lm		
NAME: HCP-3965144	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	282	282	282	282
5	281	282	285	282
10	280	280	284	280
15	279	277	282	277
20	275	272	278	271
25	267	264	271	264
30	258	255	264	254
35	249	243	255	243
40	241	229	244	229
45	234	213	236	213
50	233	196	230	196
55	243	176	238	173
60	239	154	230	148
65	216	130	205	120
70	174	104	167	91.1
75	145	76.0	142	60.8
80	115	46.9	113	30.7
85	87.9	20.1	87.5	4.44
90	61.5	2.86	61.1	0.68

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: