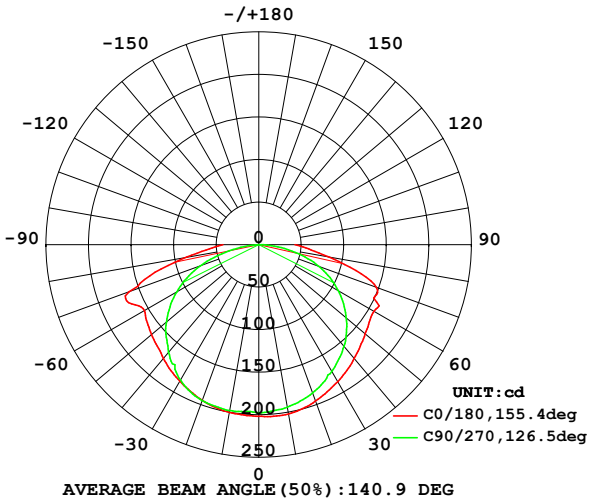
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

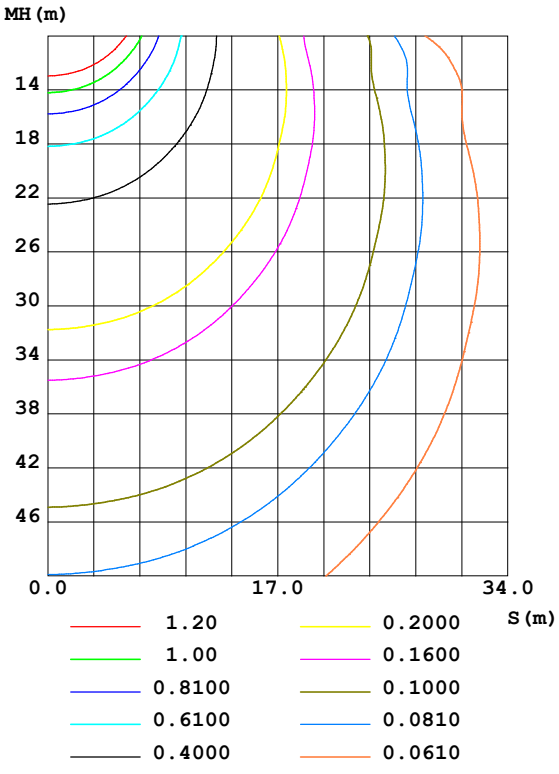
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 81.75 lm/W	
MODEL	3000K	Imax(cd)	202.5	S/MH(C0/180)	1.38
NOMINAL POWER(W)	9.6	LOR(%)	100.0	S/MH(C90/270)	1.37
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	776.67	η UP,DN(C0-180)	0.0,50.5
NOMINAL FLUX(lm)	776.67	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,49.5
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE(V)	219.8	η down(%)	100.0	CIBSE SHR MAX	1.55

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



AVERAGE BEAM ANGLE(50%):140.9 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	200.1	198.0	202.1	194.2					0- 10	19.00	19.00	2.45,2.45
20	194.8	195.1	195.6	185.5					10- 20	55.48	74.48	9.59,9.59
30	185.5	184.0	185.9	172.2					20- 30	86.65	161.1	20.7,20.7
40	174.5	165.1	174.6	156.1					30- 40	109.7	270.8	34.9,34.9
50	164.6	141.4	163.4	134.5					40- 50	123.2	394.1	50.7,50.7
60	155.4	111.4	156.6	107.9					50- 60	127.2	521.3	67.1,67.1
70	162.0	73.05	147.1	75.47					60- 70	124.3	645.5	83.1,83.1
80	86.53	26.17	83.26	35.23					70- 80	91.73	737.3	94.9,94.9
90	42.22	0.4063	42.68	1.275					80- 90	39.41	776.7	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		

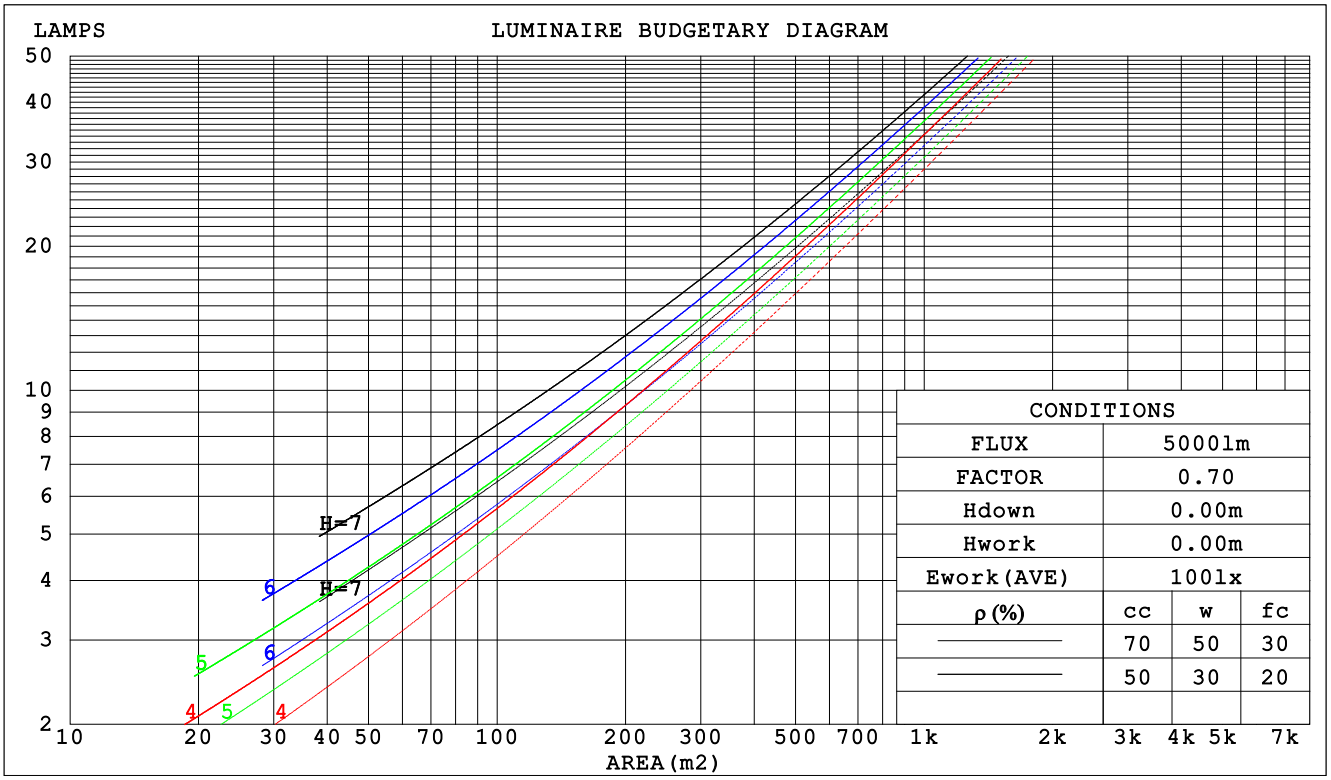
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	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	.00
1.0	1.00	.95	.90	.98	.93	.89	.94	.90	.86	.90	.86	.83	.86	.83	.81	.78
2.0	.85	.77	.71	.83	.76	.70	.80	.73	.68	.76	.71	.66	.73	.69	.65	.62
3.0	.74	.64	.57	.72	.63	.56	.69	.61	.55	.66	.60	.54	.63	.58	.53	.51
4.0	.64	.55	.47	.63	.54	.47	.60	.52	.46	.58	.51	.45	.56	.50	.45	.42
5.0	.57	.47	.40	.56	.47	.40	.54	.45	.39	.52	.44	.39	.50	.43	.38	.36
6.0	.51	.41	.34	.50	.41	.34	.48	.40	.34	.46	.39	.33	.45	.38	.33	.31
7.0	.46	.37	.30	.45	.36	.30	.44	.35	.30	.42	.35	.29	.41	.34	.29	.27
8.0	.42	.33	.26	.41	.32	.26	.40	.32	.26	.38	.31	.26	.37	.31	.26	.24
9.0	.38	.29	.24	.38	.29	.24	.36	.29	.23	.35	.28	.23	.34	.28	.23	.21
10.0	.35	.27	.21	.35	.27	.21	.34	.26	.21	.33	.26	.21	.32	.25	.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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	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	.379	.216	.068	.372	.212	.067	.358	.205	.066	.346	.199	.064	.334	.194	.062	
2.0	.341	.187	.057	.334	.184	.057	.322	.179	.056	.311	.174	.055	.300	.170	.054	
3.0	.306	.163	.049	.301	.161	.048	.290	.157	.048	.280	.153	.047	.271	.150	.046	
4.0	.277	.144	.042	.272	.142	.042	.263	.139	.042	.254	.136	.041	.245	.133	.041	
5.0	.252	.129	.037	.248	.127	.037	.239	.125	.037	.231	.122	.036	.224	.120	.036	
6.0	.231	.116	.033	.227	.115	.033	.220	.113	.033	.213	.111	.032	.206	.108	.032	
7.0	.213	.105	.030	.210	.104	.030	.203	.103	.030	.197	.101	.029	.191	.099	.029	
8.0	.198	.097	.027	.194	.096	.027	.188	.094	.027	.183	.093	.027	.177	.091	.027	
9.0	.184	.089	.025	.181	.088	.025	.176	.087	.025	.171	.086	.024	.166	.084	.024	
10.0	.172	.083	.023	.170	.082	.023	.165	.081	.023	.160	.080	.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	.133	.111	.108	.092	.077	.062	.053	.045	.020	.017	.014	
2.0	.179	.132	.092	.153	.113	.080	.105	.078	.056	.061	.046	.033	.019	.015	.011	
3.0	.172	.115	.069	.147	.099	.060	.101	.069	.042	.058	.040	.025	.019	.013	.008	
4.0	.164	.102	.054	.141	.088	.047	.097	.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	.011	.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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	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	25.7	27.4	26.0	27.6	27.8	24.5	26.2	24.8	26.4	26.6
	3H	29.0	30.6	29.3	30.8	31.0	26.4	28.0	26.7	28.2	28.5
	4H	30.3	31.8	30.7	32.1	32.4	27.1	28.6	27.4	28.9	29.1
	6H	31.3	32.8	31.7	33.0	33.3	27.5	28.9	27.8	29.2	29.5
	8H	31.8	33.1	32.1	33.4	33.7	27.6	28.9	27.9	29.2	29.5
	12H	32.2	33.5	32.6	33.8	34.1	27.6	28.9	27.9	29.2	29.5
4H	2H	26.5	28.0	26.9	28.3	28.5	25.7	27.2	26.0	27.4	27.7
	3H	29.9	31.2	30.2	31.5	31.8	27.8	29.1	28.1	29.4	29.7
	4H	31.3	32.5	31.7	32.9	33.2	28.6	29.8	29.0	30.2	30.5
	6H	32.5	33.6	32.9	33.9	34.3	29.1	30.2	29.5	30.6	30.9
	8H	33.0	34.0	33.4	34.4	34.8	29.2	30.3	29.7	30.6	31.0
	12H	33.5	34.4	33.9	34.8	35.2	29.3	30.2	29.7	30.6	31.0
8H	4H	31.6	32.6	32.0	33.0	33.4	29.3	30.3	29.7	30.7	31.1
	6H	32.9	33.8	33.4	34.2	34.6	30.0	30.9	30.5	31.3	31.7
	8H	33.5	34.3	34.0	34.7	35.2	30.2	31.0	30.7	31.4	31.9
	12H	34.2	34.9	34.7	35.4	35.8	30.3	31.0	30.8	31.5	31.9
12H	4H	31.6	32.5	32.0	32.9	33.3	29.4	30.4	29.9	30.8	31.2
	6H	33.0	33.7	33.4	34.2	34.6	30.2	31.0	30.7	31.4	31.9
	8H	33.6	34.3	34.1	34.8	35.3	30.5	31.2	31.0	31.7	32.1

Variations with the observer position at spacings:		
S = 1.0H	+ 0.0 / - 0.0	+ 0.1 / - 0.1
1.5H	+ 0.2 / - 0.2	+ 0.2 / - 0.3
2.0H	+ 0.1 / - 0.2	+ 0.2 / - 0.5

CIE Pub.117 Corrected 776.7 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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

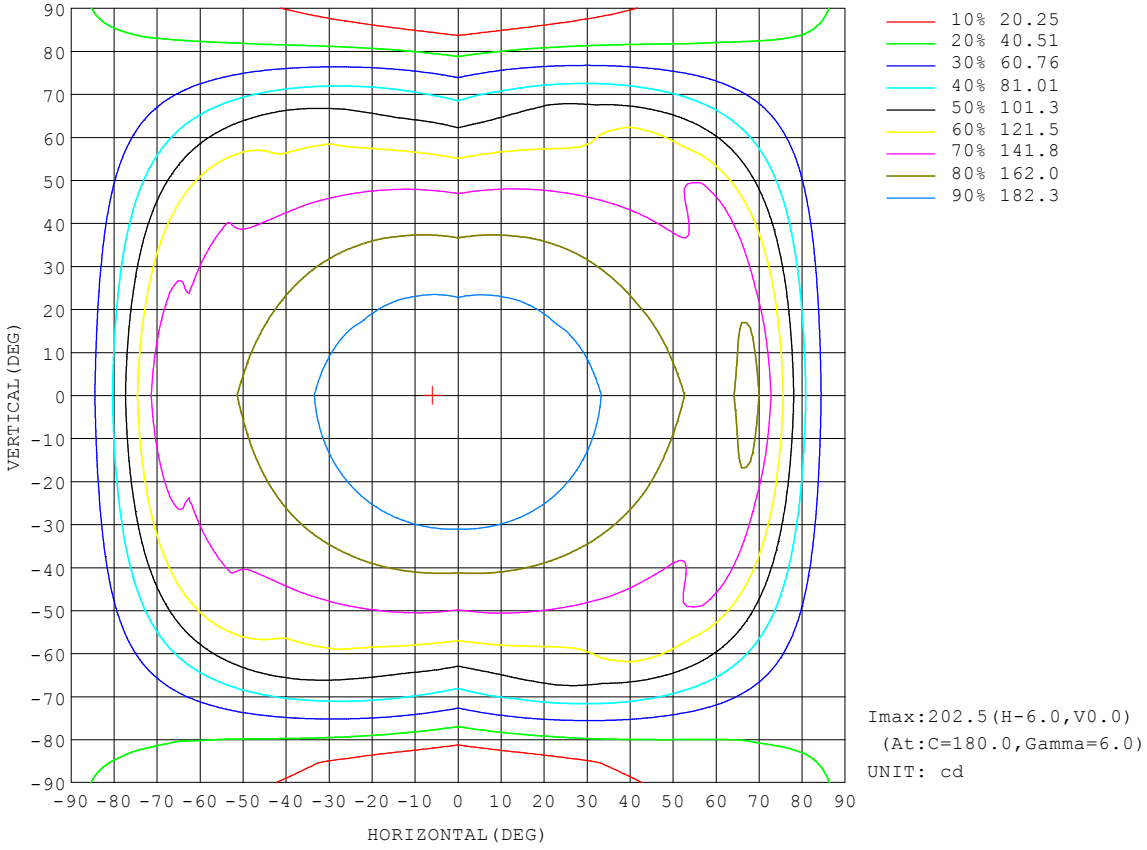
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	52	40	32	52	40	32	50	39	32	25
0.80	62	49	41	61	49	41	59	48	40	33
1.00	70	58	49	69	57	49	66	59	48	41
1.25	77	65	57	76	64	57	73	63	56	48
1.50	83	71	63	81	70	62	77	68	61	53
2.00	90	80	72	88	79	71	84	76	70	61
2.50	95	85	78	92	84	77	88	81	75	66
3.00	98	90	83	96	88	82	92	85	80	71
4.00	103	96	90	101	94	89	96	91	86	77
5.00	106	100	95	103	98	94	99	94	90	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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

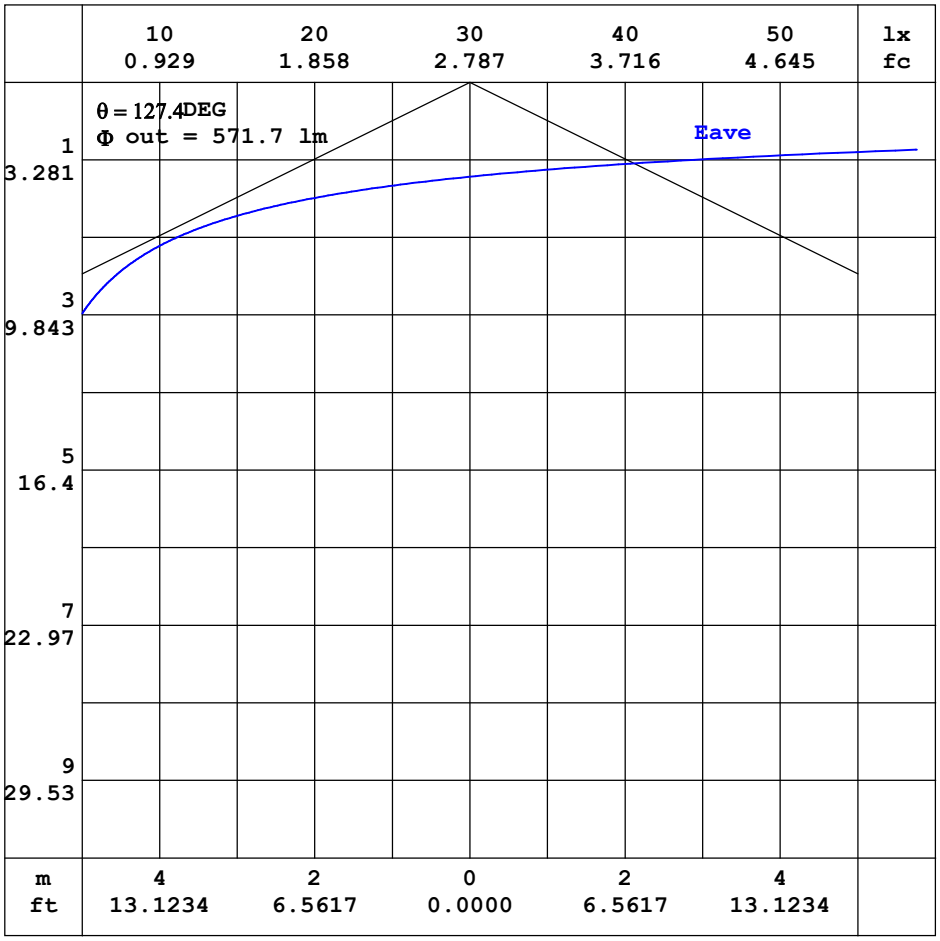


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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 CURVES

Test:U:24.00V I:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



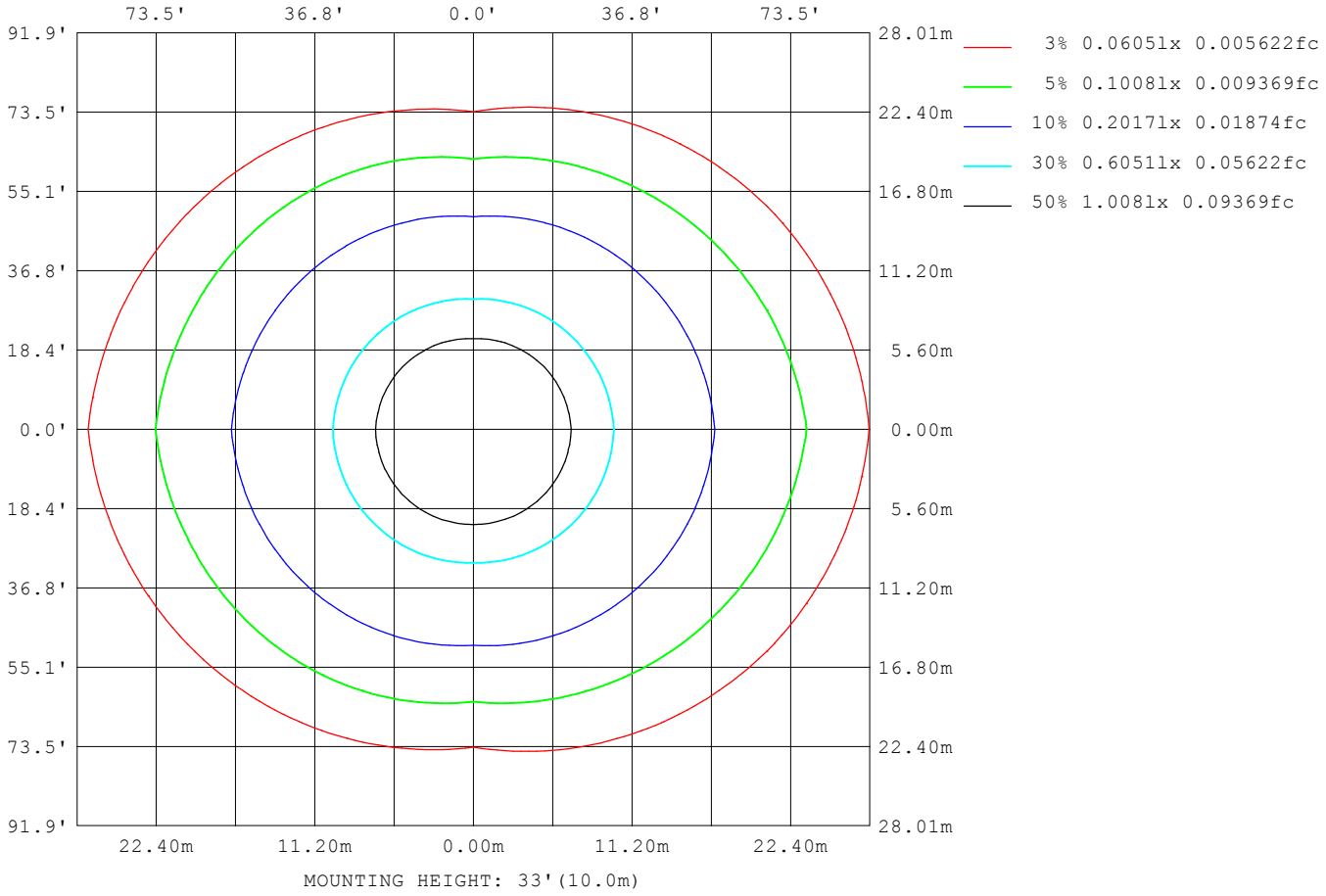
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

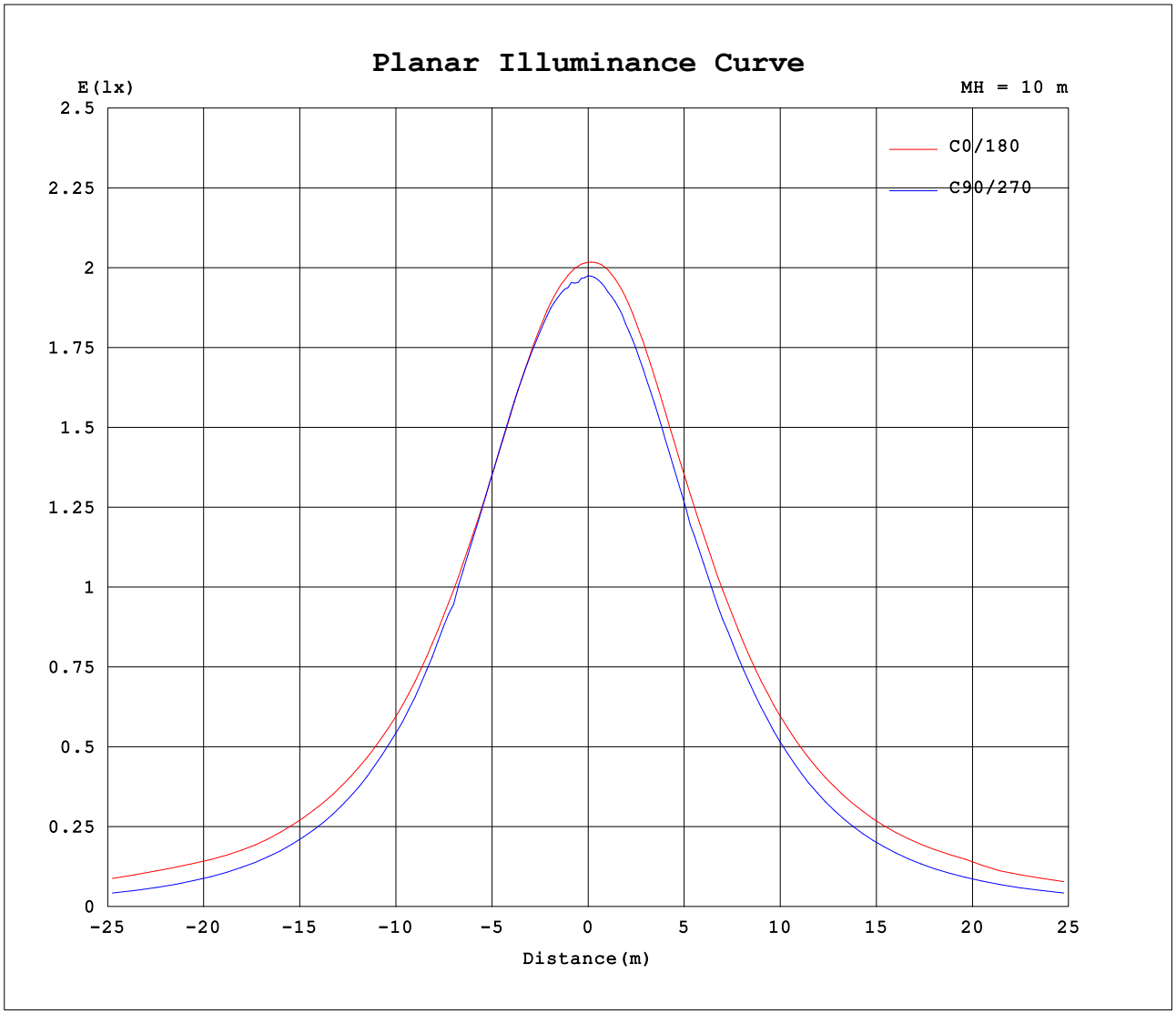
Test:U:24.00V I:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



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:0.3950A P:9.500W PF:1.000 Lamp Flux:776.67x1 lm		
NAME: HCP-3955963	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	202	197	202	197
5	201	198	203	196
10	200	198	202	194
15	198	197	200	190
20	195	195	196	185
25	190	191	191	179
30	186	184	186	172
35	181	172	181	164
40	174	165	175	156
45	169	154	169	146
50	165	141	163	134
55	160	128	159	122
60	155	111	157	108
65	165	93.6	149	92.5
70	162	73.0	147	75.5
75	126	50.0	118	56.1
80	86.5	26.2	83.3	35.2
85	58.2	4.39	59.0	15.0
90	42.2	0.41	42.7	1.28

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: