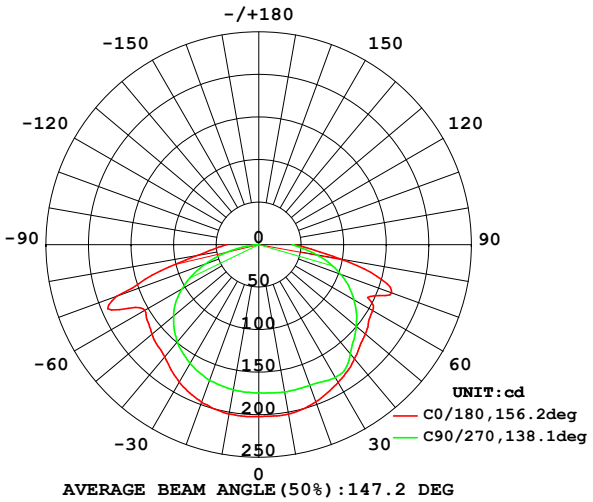
LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:24.00V I:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

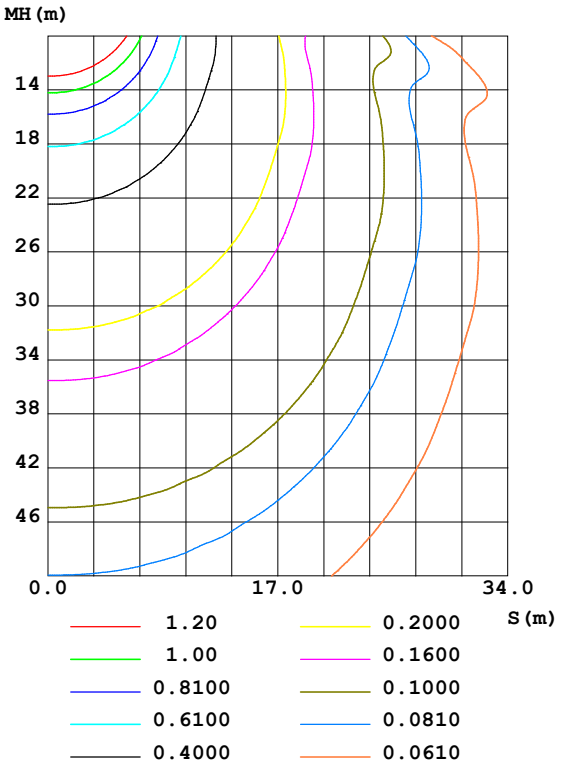
DATA OF LAMP		PHOTOMETRIC DATA		Eff: 82.67 lm/W	
MODEL	4000K	Imax(cd)	202.5	S/MH(C0/180)	1.38
NOMINAL POWER(W)	9.6	LOR(%)	100.0	S/MH(C90/270)	1.38
RATED VOLTAGE(V)	24	TOTAL FLUX(lm)	798.63	η UP,DN(C0-180)	0.0,47.0
NOMINAL FLUX(lm)	798.635	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,53.0
LAMPS INSIDE	1	η up(%)	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%):147.2 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	202.0	173.2	202.2	175.7					0- 10	17.98	17.98	2.25,2.25
20	196.9	169.7	196.6	176.0					10- 20	52.89	70.87	8.87,8.87
30	186.7	161.2	186.8	180.2					20- 30	84.11	155.0	19.4,19.4
40	172.3	149.1	175.2	167.5					30- 40	108.7	263.6	33,33
50	163.8	130.9	163.6	149.7					40- 50	122.9	386.5	48.4,48.4
60	154.7	104.3	154.8	129.2					50- 60	129.1	515.6	64.6,64.6
70	177.9	67.17	166.1	102.6					60- 70	131.8	647.4	81.1,81.1
80	72.78	22.74	97.57	69.46					70- 80	103.2	750.7	94,94
90	37.44	0.6943	41.61	39.30					80- 90	47.96	798.6	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		

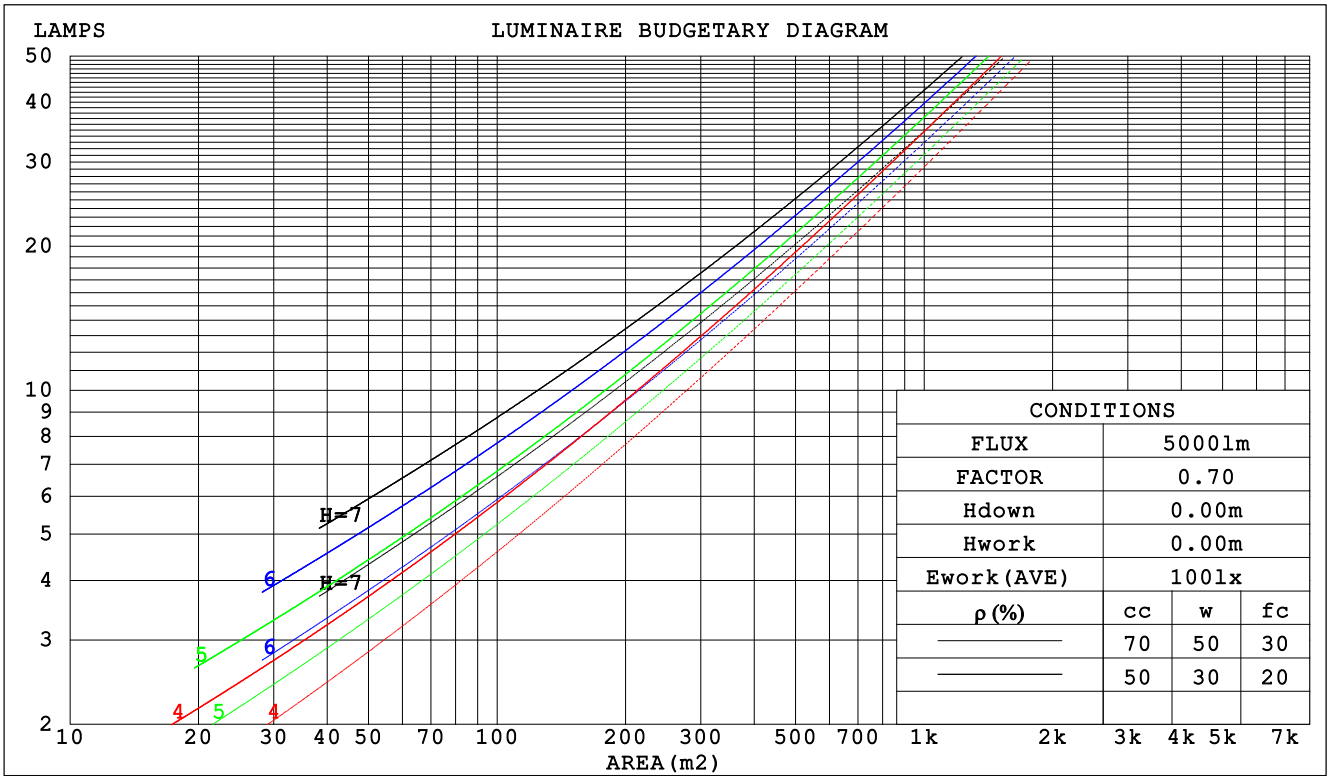
C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	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	.99	.94	.89	.97	.92	.87	.93	.88	.85	.89	.85	.82	.85	.82	.79	.77
2.0	.84	.76	.69	.82	.75	.68	.78	.72	.66	.75	.70	.65	.72	.67	.63	.61
3.0	.72	.63	.55	.71	.62	.55	.68	.60	.54	.65	.58	.53	.62	.56	.52	.49
4.0	.63	.53	.45	.62	.52	.45	.59	.51	.44	.57	.50	.44	.54	.48	.43	.41
5.0	.56	.46	.38	.55	.45	.38	.52	.44	.38	.50	.43	.37	.48	.42	.37	.34
6.0	.50	.40	.33	.49	.39	.33	.47	.39	.32	.45	.38	.32	.43	.37	.32	.29
7.0	.45	.35	.29	.44	.35	.28	.42	.34	.28	.41	.33	.28	.39	.33	.28	.26
8.0	.41	.32	.25	.40	.31	.25	.39	.31	.25	.37	.30	.25	.36	.29	.25	.22
9.0	.37	.28	.22	.37	.28	.22	.35	.28	.22	.34	.27	.22	.33	.27	.22	.20
10.0	.34	.26	.20	.34	.26	.20	.33	.25	.20	.32	.25	.20	.31	.24	.20	.18



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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	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	.396	.225	.071	.389	.222	.070	.375	.215	.069	.362	.209	.067	.351	.203	.066	
2.0	.352	.193	.059	.345	.190	.059	.333	.185	.058	.322	.180	.056	.311	.176	.056	
3.0	.315	.167	.050	.309	.165	.050	.298	.161	.049	.288	.158	.048	.278	.154	.048	
4.0	.283	.147	.043	.278	.146	.043	.268	.142	.043	.259	.139	.042	.251	.136	.042	
5.0	.257	.131	.038	.252	.130	.038	.244	.127	.037	.236	.124	.037	.228	.122	.037	
6.0	.235	.118	.034	.231	.117	.034	.223	.114	.033	.216	.112	.033	.210	.110	.033	
7.0	.216	.107	.030	.213	.106	.030	.206	.104	.030	.199	.102	.030	.193	.101	.030	
8.0	.200	.098	.027	.197	.097	.027	.191	.095	.027	.185	.094	.027	.180	.092	.027	
9.0	.186	.090	.025	.183	.089	.025	.178	.088	.025	.173	.087	.025	.168	.085	.025	
10.0	.174	.083	.023	.171	.083	.023	.166	.082	.023	.162	.080	.023	.157	.079	.023	

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	.186	.155	.128	.159	.133	.110	.109	.092	.076	.063	.053	.044	.020	.017	.014	
2.0	.180	.132	.091	.154	.113	.078	.106	.078	.055	.061	.046	.032	.020	.015	.010	
3.0	.173	.115	.068	.148	.099	.059	.102	.069	.041	.059	.040	.024	.019	.013	.008	
4.0	.165	.102	.053	.142	.088	.046	.098	.061	.033	.056	.036	.019	.018	.012	.006	
5.0	.157	.092	.043	.135	.079	.038	.093	.055	.027	.054	.033	.016	.017	.011	.005	
6.0	.149	.083	.036	.128	.072	.031	.089	.051	.022	.051	.030	.013	.017	.010	.004	
7.0	.142	.077	.031	.122	.066	.027	.084	.047	.019	.049	.027	.011	.016	.009	.004	
8.0	.135	.071	.027	.116	.061	.023	.080	.043	.017	.047	.025	.010	.015	.008	.003	
9.0	.128	.066	.024	.110	.057	.021	.077	.040	.015	.045	.024	.009	.014	.008	.003	
10.0	.122	.062	.021	.105	.053	.019	.073	.038	.013	.043	.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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	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	25.6	27.3	25.8	27.5	27.7	24.0	25.7	24.3	26.0	26.2
3H	29.3	30.9	29.6	31.1	31.4	26.0	27.6	26.3	27.8	28.1
4H	30.4	31.9	30.7	32.2	32.5	26.6	28.2	27.0	28.4	28.7
6H	31.1	32.6	31.5	32.9	33.1	27.0	28.4	27.3	28.7	29.0
8H	31.4	32.8	31.8	33.1	33.4	27.0	28.4	27.4	28.7	29.0
12H	31.8	33.1	32.1	33.4	33.7	27.0	28.3	27.3	28.6	29.0
4H 2H	26.4	28.0	26.8	28.2	28.5	25.4	26.9	25.7	27.2	27.4
3H	30.1	31.5	30.5	31.8	32.1	27.5	28.9	27.9	29.2	29.5
4H	31.3	32.6	31.7	32.9	33.2	28.2	29.5	28.6	29.8	30.2
6H	32.2	33.3	32.6	33.6	34.0	28.6	29.8	29.1	30.1	30.5
8H	32.5	33.6	33.0	34.0	34.4	28.7	29.8	29.2	30.2	30.6
12H	33.0	33.9	33.4	34.3	34.7	28.7	29.7	29.2	30.1	30.5
8H 4H	31.5	32.6	31.9	32.9	33.3	28.9	30.0	29.3	30.3	30.7
6H	32.5	33.4	33.0	33.8	34.2	29.5	30.4	29.9	30.8	31.2
8H	33.0	33.8	33.5	34.2	34.7	29.6	30.5	30.1	30.9	31.3
12H	33.6	34.3	34.1	34.7	35.2	29.7	30.4	30.2	30.9	31.3
12H 4H	31.5	32.5	31.9	32.9	33.3	29.0	30.0	29.4	30.4	30.8
6H	32.5	33.3	33.0	33.8	34.2	29.6	30.5	30.1	30.9	31.3
8H	33.1	33.8	33.6	34.2	34.7	29.9	30.6	30.4	31.0	31.5
Variations with the observer position at spacings:										
S = 1.0H	+ 0.1 / - 0.1					+ 0.1 / - 0.1				
1.5H	+ 0.3 / - 0.2					+ 0.2 / - 0.3				
2.0H	+ 0.1 / - 0.1					+ 0.3 / - 0.5				

CIE Pub.117 Corrected 798.6 lm Total Lamp Luminous Flux.(8log(F/F0) = -0.8)

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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

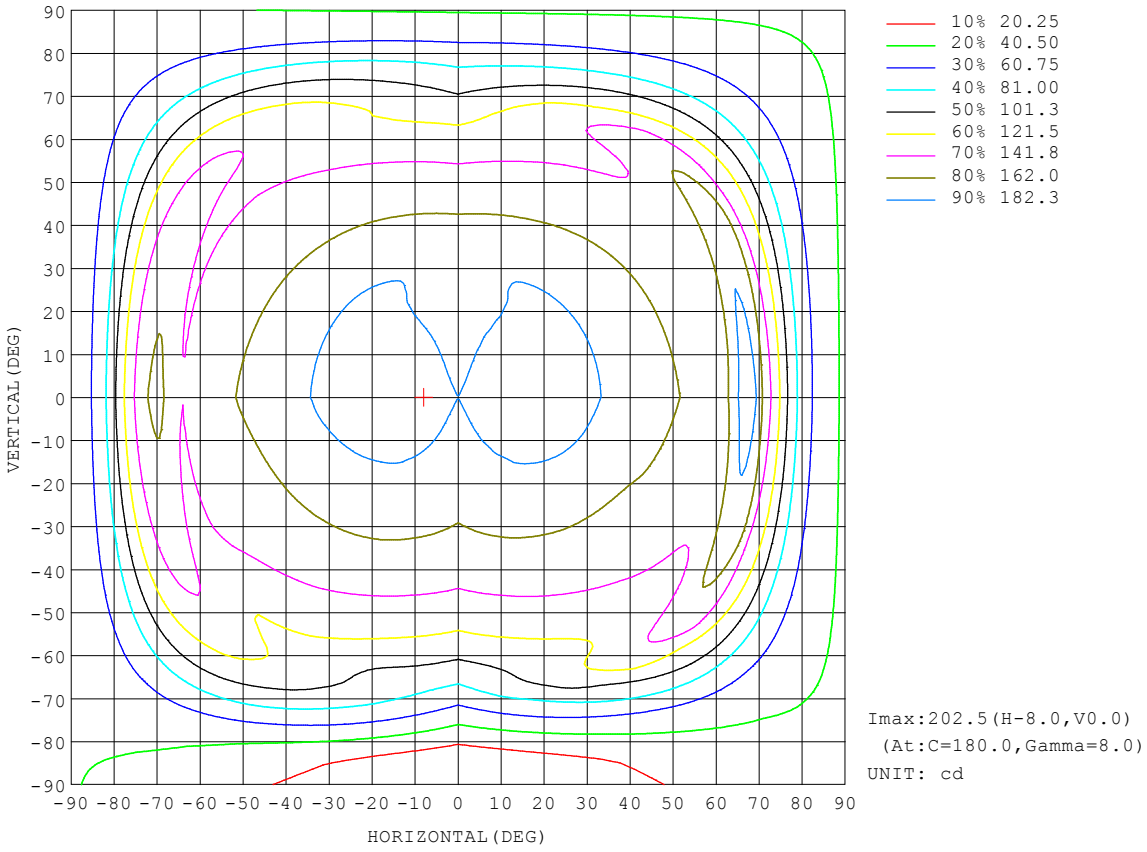
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) k(RI) x RCR = 5									
k = 0.60	52	39	31	51	39	31	49	38	31	24
0.80	61	48	40	60	47	39	58	47	39	31
1.00	69	56	48	68	55	47	65	57	47	39
1.25	76	64	55	74	63	55	72	61	54	46
1.50	81	70	61	80	69	61	76	67	60	51
2.00	89	78	71	87	77	70	83	75	68	59
2.50	94	84	77	91	83	76	87	80	74	64
3.00	97	89	82	95	87	81	91	84	79	69
4.00	102	95	89	100	93	88	95	90	85	75
5.00	105	99	94	103	97	92	98	93	89	79
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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:

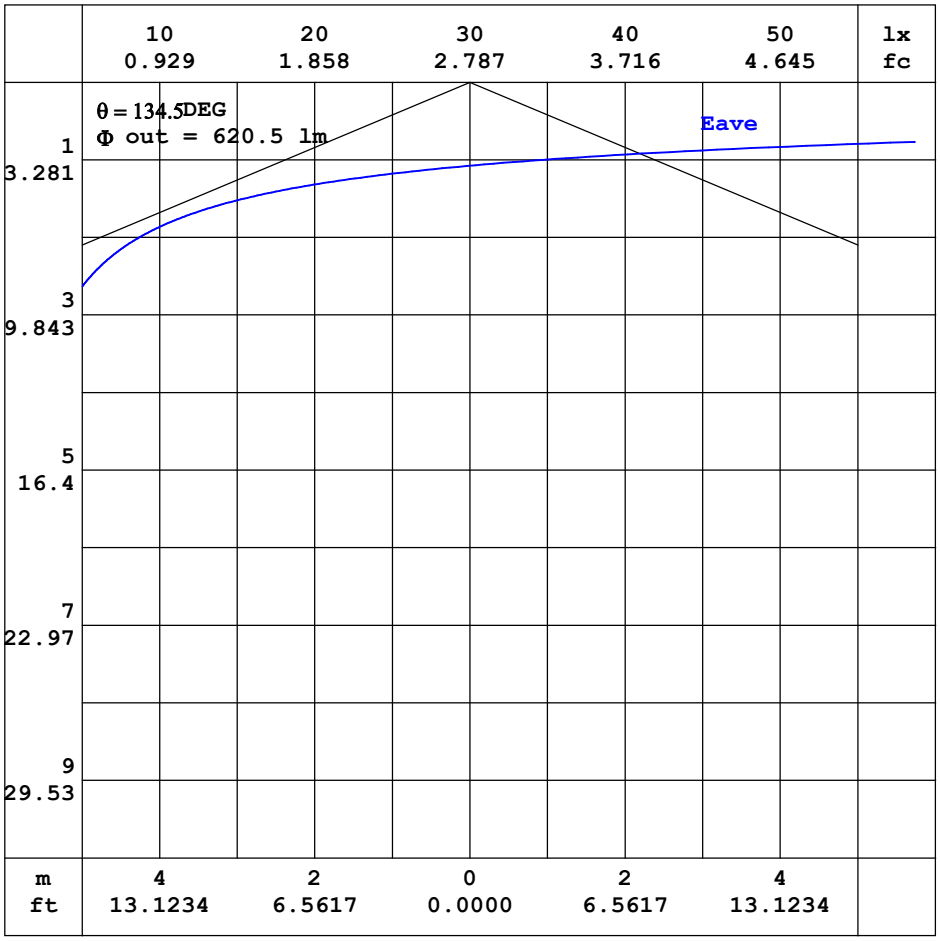


C Range: 0 - 360DEG
C Interval: 90.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:QUAN
Test Date:2022-12-29

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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



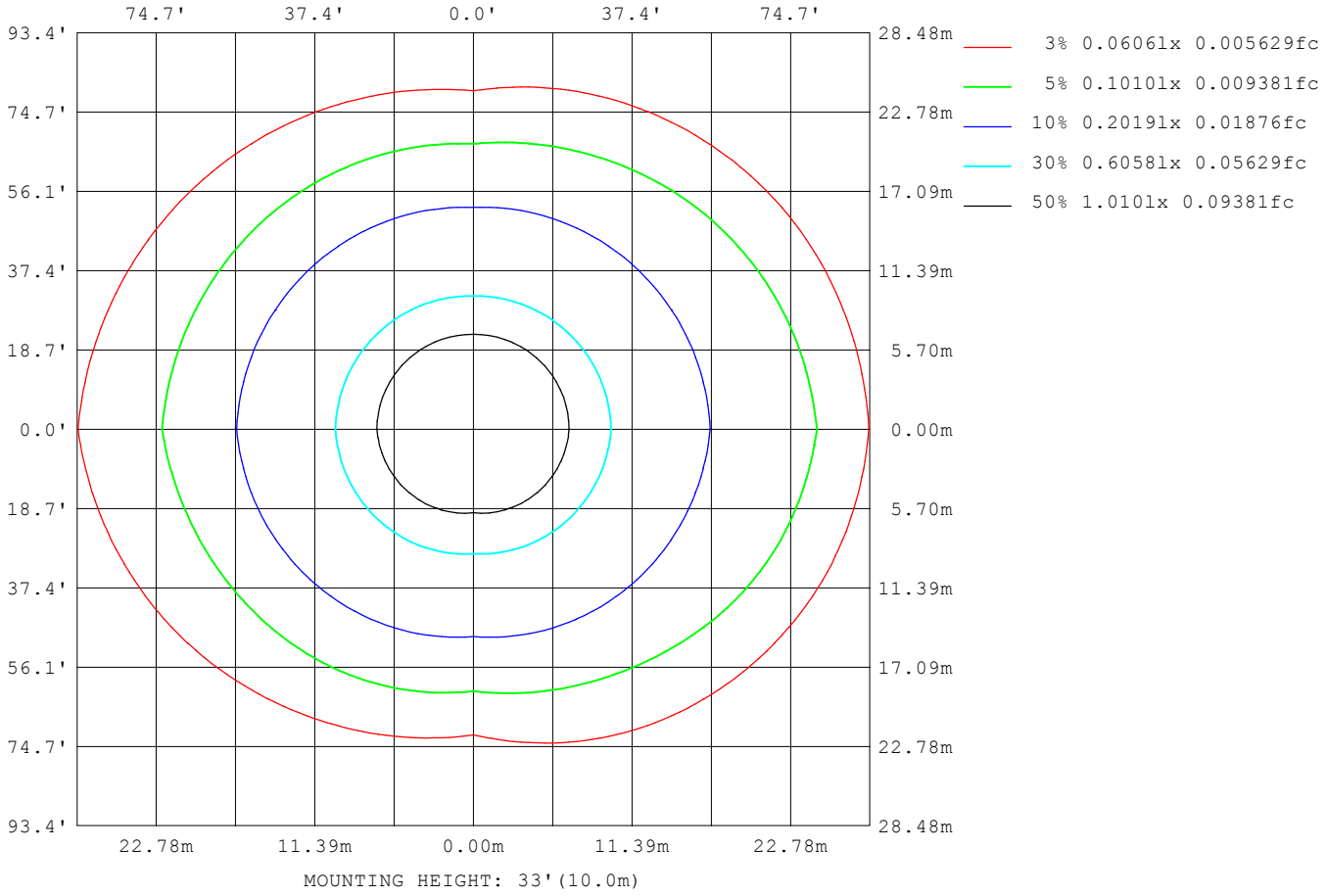
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

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

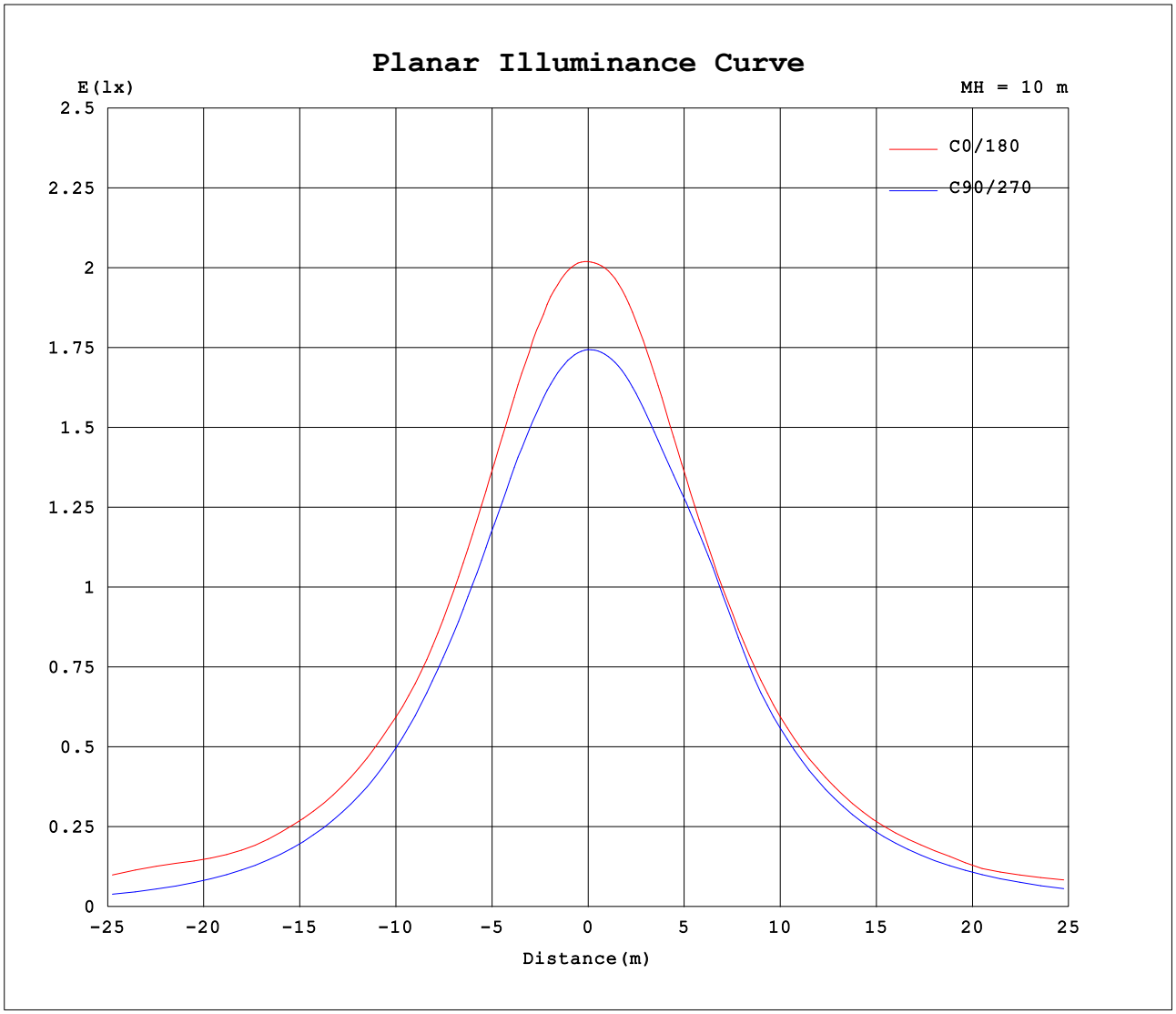
Test:U:24.00V I:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:1
MFR.: HAVIT COMMERCIAL	SUR.:0.008	PROTECTION ANGLE:



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:0.4020A P:9.660W PF:1.000 Lamp Flux:798.635x1 lm		
NAME: HCP-3955964	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	174	202	174
5	202	174	202	175
10	202	173	202	176
15	200	172	200	176
20	197	170	197	176
25	192	166	192	178
30	187	161	187	180
35	180	156	182	178
40	172	149	175	167
45	168	141	168	158
50	164	131	164	150
55	159	120	158	140
60	155	104	155	129
65	181	86.9	144	117
70	178	67.2	166	103
75	120	45.3	144	86.7
80	72.8	22.7	97.6	69.5
85	50.3	2.83	62.1	52.1
90	37.4	0.69	41.6	39.3

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%
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Remarks: