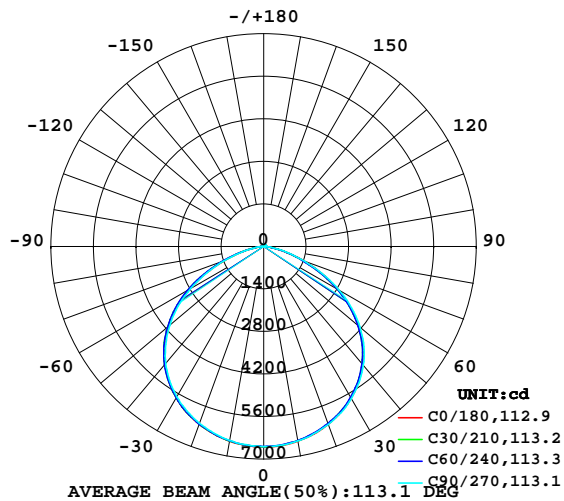
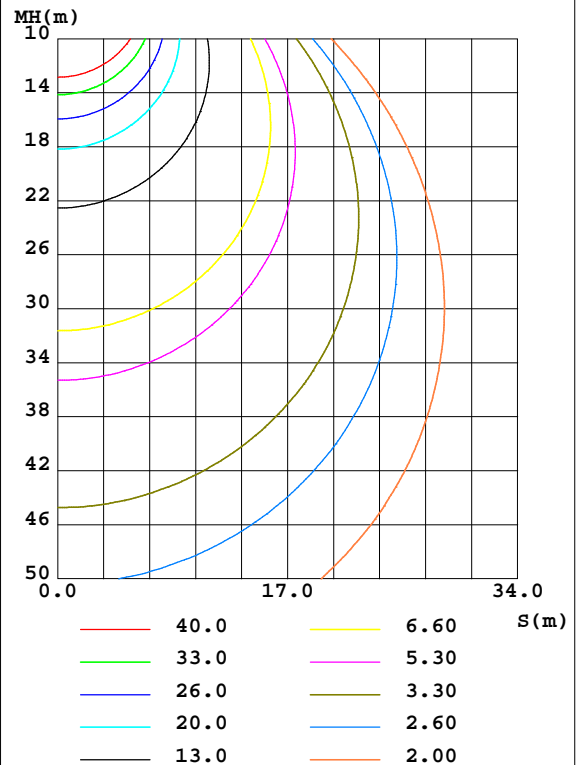


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 145.91 lm/W			
MODEL	HB2200-130W	Imax(cd)	6602	S/MH(C0/180)	1.30
NOMINAL POWER(W)	130	LOR(%)	100.0	S/MH(C90/270)	1.29
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	18633	η UP,DN(C0-180)	0.8,49.2
NOMINAL FLUX(lm)	18633.2	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.7,49.3
LAMPS INSIDE	1	η up(%)	1.5	CIBSE SHR NOM	1.25
TEST VOLTAGE(V)	220	η down(%)	98.5	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

C0 PLANE ISOLUX DIAGRAM (UNIT:lx)


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	6501	6491	6498	6487	6500	6494	6482	6484	0- 10	624.2	624.2	3.35,3.35
20	6226	6204	6230	6211	6220	6213	6189	6202	10- 20	1800	2424	13,13
30	5759	5739	5777	5750	5753	5757	5716	5732	20- 30	2769	5193	27.9,27.9
40	5059	5041	5106	5067	5067	5071	5020	5033	30- 40	3396	8589	46.1,46.1
50	4079	4059	4140	4097	4098	4131	4039	4051	40- 50	3549	12138	65.1,65.1
60	2816	2783	2866	2805	2821	2899	2777	2792	50- 60	3107	15245	81.8,81.8
70	1432	1356	1434	1393	1388	1440	1391	1442	60- 70	2081	17326	93,93
80	353.2	335.0	379.9	348.7	330.6	360.5	323.4	342.6	70- 80	876.2	18202	97.7,97.7
90	33.67	30.57	58.01	34.04	27.23	34.13	40.25	30.22	80- 90	151.8	18354	98.5,98.5
100	31.24	31.26	30.69	30.80	23.57	23.06	23.44	23.18	90-100	29.85	18384	98.7,98.7
110	38.29	39.82	40.51	39.35	30.53	30.69	31.76	30.92	100-110	32.84	18417	98.8,98.8
120	45.94	46.71	48.75	46.39	38.24	38.19	40.46	38.46	110-120	38.83	18456	99,99
130	52.70	53.05	55.55	53.07	45.61	44.81	46.94	44.88	120-130	41.59	18497	99.3,99.3
140	59.47	59.56	59.68	59.64	52.95	51.63	52.46	51.78	130-140	40.72	18538	99.5,99.5
150	65.94	66.21	66.08	66.20	60.26	59.23	59.82	59.18	140-150	37.16	18575	99.7,99.7
160	71.69	72.03	72.02	71.88	67.48	66.90	67.31	66.74	150-160	30.52	18606	99.9,99.9
170	76.06	76.23	76.05	76.18	73.98	73.53	73.47	73.07	160-170	20.43	18626	100,100
180	77.46	77.71	77.29	77.41	77.55	77.67	77.27	77.44	170-180	7.248	18633	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 10380 lm

%lum = 55.7%

%lamp = 55.7%

Conical surface Flux(120deg): 15245 lm

%lum = 81.8%

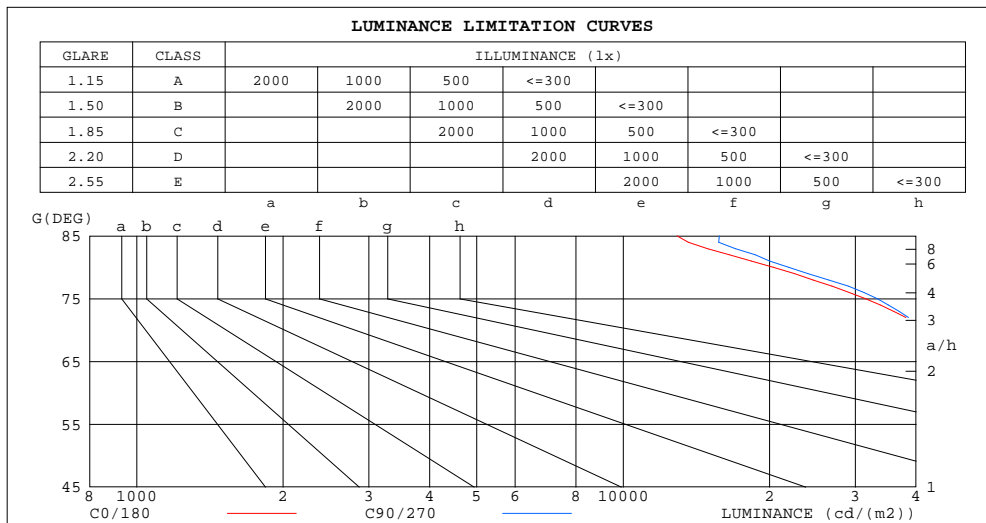
%lamp = 81.8%

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

LUMINANCE LIMITATION CURVES

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:



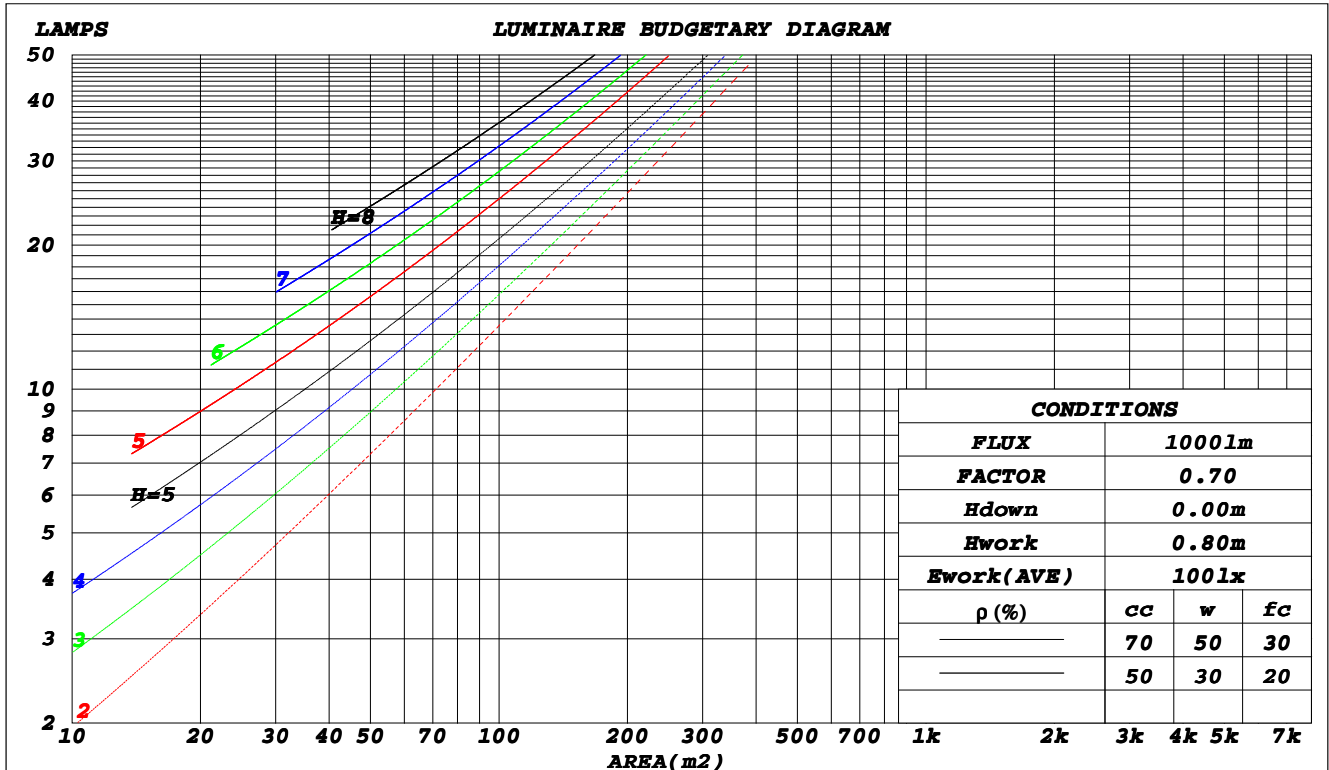
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρ_{fc}	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	1.10	1.10	1.10	1.05	1.05	1.05	1.01	1.01	1.01	.99
1.0	1.05	1.01	.97	1.02	.99	.96	.98	.95	.92	.94	.91	.89	.90	.88	.86	.84
2.0	.92	.85	.80	.90	.84	.79	.86	.81	.77	.83	.78	.75	.79	.76	.73	.71
3.0	.81	.73	.67	.79	.72	.66	.76	.70	.65	.73	.68	.63	.70	.66	.62	.60
4.0	.72	.63	.57	.70	.62	.56	.68	.61	.55	.65	.59	.54	.63	.58	.53	.51
5.0	.64	.55	.49	.63	.55	.48	.61	.53	.48	.58	.52	.47	.57	.51	.47	.44
6.0	.58	.49	.43	.57	.48	.42	.55	.47	.42	.53	.46	.41	.51	.45	.41	.39
7.0	.52	.44	.38	.51	.43	.37	.50	.42	.37	.48	.42	.37	.47	.41	.36	.34
8.0	.48	.39	.33	.47	.39	.33	.45	.38	.33	.44	.38	.33	.43	.37	.32	.31
9.0	.44	.36	.30	.43	.35	.30	.42	.35	.30	.41	.34	.29	.39	.34	.29	.27
10.0	.40	.32	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.27	.25



C Range: 0 - 360DEG
 C Interval: 15.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:AHK
 Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
 Humidity:65.0%
 Test Distance:8.000m [K=1.0000]
 Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

WEC AND CCEC

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

ρ_{cc}	80%			70%			50%			30%			10%			0	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.286	.162	.051	.278	.159	.050	.264	.152	.048	.251	.145	.047	.239	.139	.045		
2.0	.275	.151	.046	.268	.148	.046	.256	.142	.044	.245	.137	.043	.234	.132	.042		
3.0	.258	.137	.041	.252	.135	.041	.241	.131	.040	.231	.127	.039	.222	.123	.038		
4.0	.240	.125	.037	.235	.123	.036	.225	.120	.036	.216	.116	.035	.208	.113	.034		
5.0	.224	.114	.033	.219	.112	.033	.210	.110	.032	.202	.107	.032	.195	.104	.031		
6.0	.209	.105	.030	.204	.103	.030	.197	.101	.029	.189	.098	.029	.183	.096	.029		
7.0	.195	.096	.027	.191	.095	.027	.184	.093	.027	.178	.091	.027	.172	.089	.026		
8.0	.182	.089	.025	.179	.088	.025	.173	.086	.025	.167	.085	.024	.161	.083	.024		
9.0	.171	.083	.023	.168	.082	.023	.163	.080	.023	.157	.079	.023	.152	.077	.022		
10.0	.161	.077	.021	.159	.077	.021	.154	.075	.021	.149	.074	.021	.144	.073	.021		

ρ_{cc}	80%			70%			50%			30%			10%			0	
ρ_w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
ρ_{fc}	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)										
0.0	.202	.202	.202	.173	.173	.173	.118	.118	.118	.068	.068	.068	.022	.022	.022		
1.0	.190	.168	.148	.163	.144	.127	.111	.099	.088	.064	.057	.051	.021	.018	.017		
2.0	.182	.144	.112	.156	.124	.096	.107	.086	.067	.061	.050	.039	.020	.016	.013		
3.0	.174	.126	.088	.149	.109	.076	.102	.075	.053	.059	.044	.031	.019	.014	.010		
4.0	.166	.112	.071	.143	.097	.062	.098	.068	.044	.057	.040	.026	.018	.013	.008		
5.0	.159	.102	.060	.137	.088	.052	.094	.062	.037	.055	.036	.022	.018	.012	.007		
6.0	.152	.094	.052	.131	.081	.045	.090	.057	.032	.052	.033	.019	.017	.011	.006		
7.0	.146	.087	.046	.125	.075	.040	.087	.053	.028	.050	.031	.017	.016	.010	.006		
8.0	.139	.081	.041	.120	.070	.036	.083	.049	.025	.048	.029	.015	.016	.010	.005		
9.0	.134	.076	.037	.115	.066	.033	.080	.046	.023	.046	.027	.014	.015	.009	.005		
10.0	.128	.072	.035	.110	.062	.030	.077	.044	.021	.045	.026	.013	.014	.009	.004		

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

UGR(Unified Glare Rating) Table

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm										
NAME: HB2200-130W					TYPE:LED			WEIGHT:		
SPEC.:G5 360					DIM.:			SERIAL No.:		
MFR.: ICEPIPE					SUR.:			Shielding 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	27.1	28.5	27.3	28.7	29.0	27.1	28.5	27.4	28.8	29.0
3H	28.1	29.5	28.4	29.7	30.0	28.1	29.5	28.4	29.7	30.0
4H	28.4	29.7	28.7	30.0	30.2	28.4	29.7	28.7	30.0	30.2
6H	28.5	29.7	28.8	30.0	30.3	28.5	29.7	28.9	30.0	30.3
8H	28.5	29.6	28.8	29.9	30.3	28.5	29.7	28.9	30.0	30.3
12H	28.4	29.6	28.8	29.9	30.2	28.5	29.6	28.9	29.9	30.2
4H 2H	27.5	28.8	27.9	29.1	29.4	27.5	28.8	27.9	29.1	29.4
3H	28.7	29.8	29.1	30.1	30.5	28.7	29.8	29.1	30.1	30.4
4H	29.1	30.1	29.5	30.4	30.8	29.1	30.1	29.5	30.4	30.8
6H	29.2	30.1	29.6	30.5	30.9	29.2	30.1	29.6	30.5	30.9
8H	29.2	30.1	29.7	30.4	30.9	29.2	30.1	29.7	30.5	30.9
12H	29.2	30.0	29.7	30.4	30.8	29.2	30.0	29.7	30.4	30.8
8H 4H	29.1	30.0	29.6	30.4	30.8	29.1	30.0	29.6	30.4	30.8
6H	29.4	30.0	29.8	30.5	30.9	29.4	30.0	29.8	30.5	30.9
8H	29.4	30.0	29.9	30.4	30.9	29.4	30.0	29.9	30.5	30.9
12H	29.4	29.9	29.9	30.4	30.9	29.4	29.9	29.9	30.4	30.9
12H 4H	29.1	29.9	29.6	30.3	30.7	29.1	29.9	29.6	30.3	30.7
6H	29.3	29.9	29.8	30.4	30.9	29.3	29.9	29.8	30.4	30.9
8H	29.4	29.9	29.9	30.4	30.9	29.4	29.9	29.9	30.4	30.9
Variations with the observer position at spacings:										
S = 1.0H	+ 0.3 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.3 / - 0.5					+ 0.2 / - 0.4				
2.0H	+ 0.4 / - 0.4					+ 0.5 / - 0.4				

CIE Pub.117 Corrected 18633 lm Total Lamp Luminous Flux.(8log(F/F0) = 10.2)

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

UTILIZATION FACTORS TABLE

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

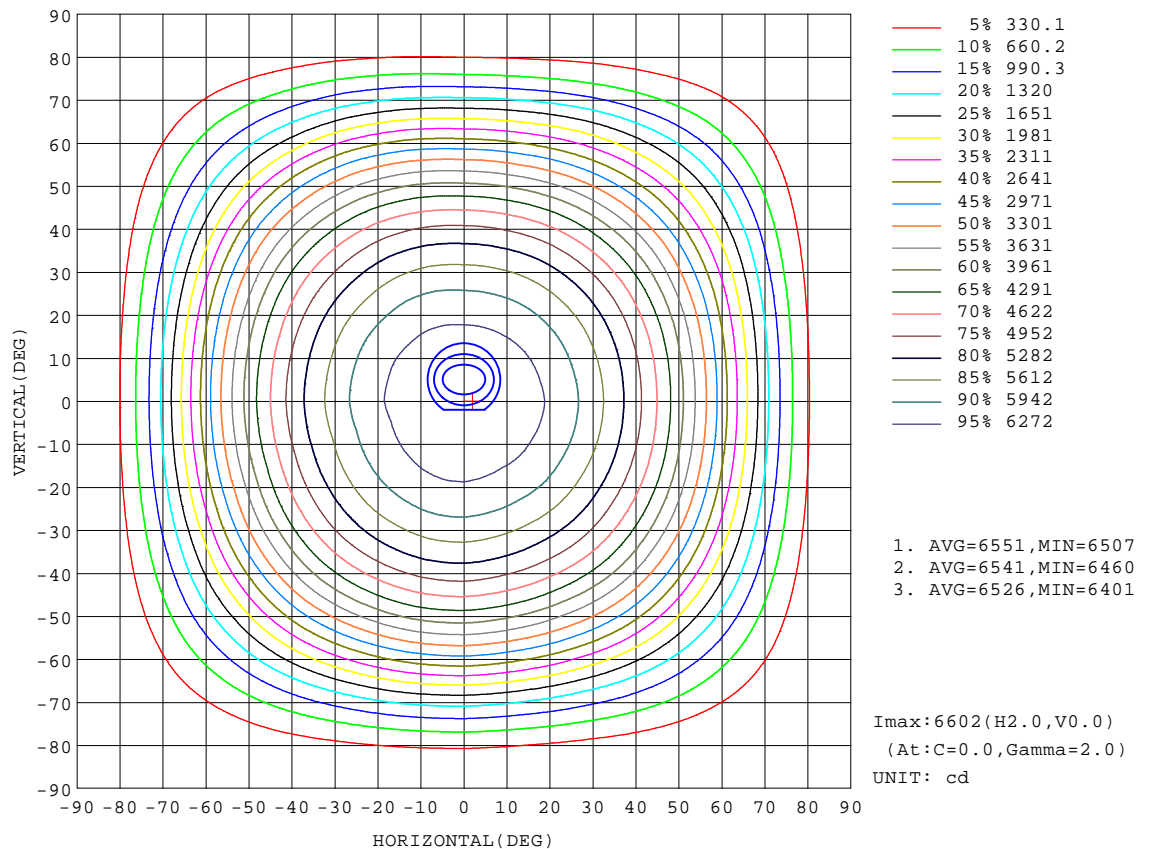
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	58	47	40	57	46	40	56	46	39	33
0.80	68	57	50	67	57	50	65	56	49	42
1.00	77	66	59	76	66	59	73	67	58	51
1.25	84	74	67	83	73	67	80	72	66	59
1.50	89	80	73	88	79	73	84	77	71	64
2.00	96	88	82	94	87	81	91	84	79	71
2.50	100	92	87	98	91	86	94	88	84	75
3.00	103	97	91	101	95	90	97	92	88	79
4.00	107	101	97	104	100	96	100	96	93	84
5.00	109	105	101	107	103	99	102	99	96	86
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

ISOCANDELA DIAGRAM

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

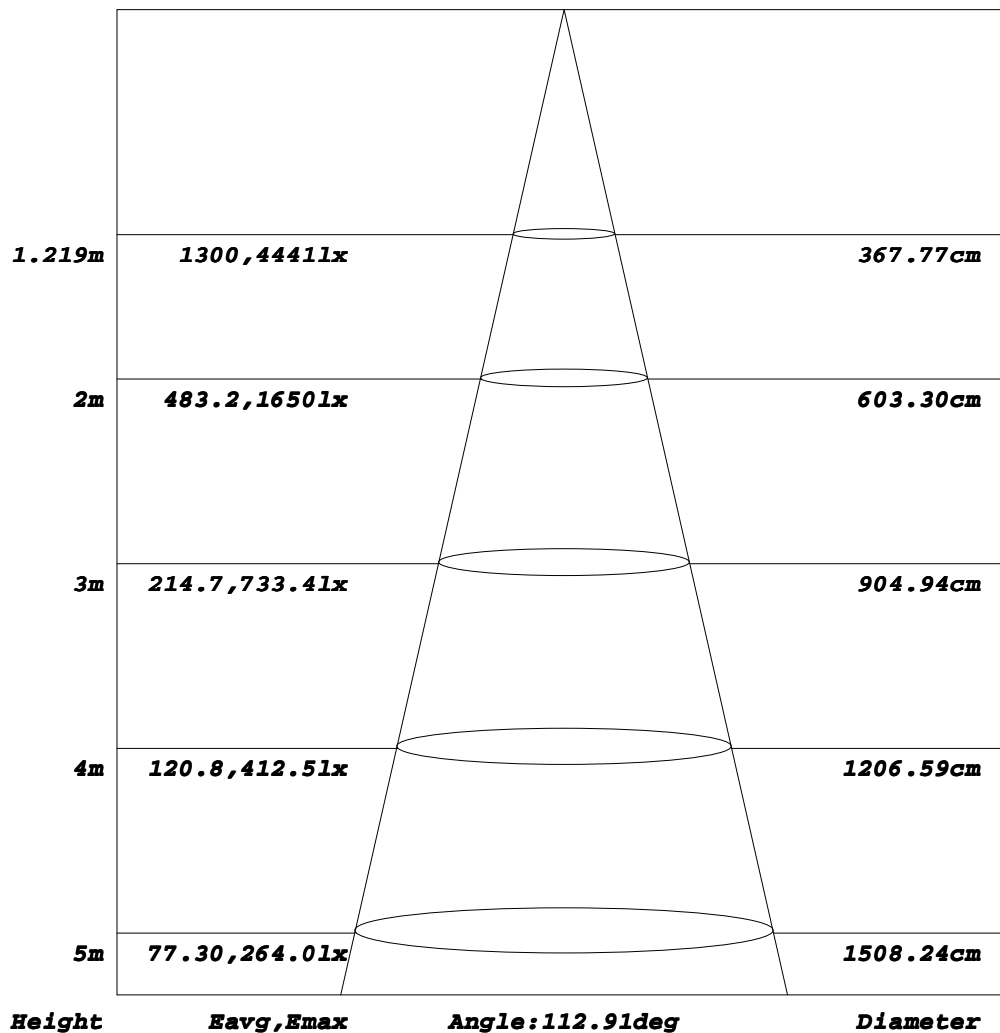


C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

AAI Figure

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

Flux out:14397 lm


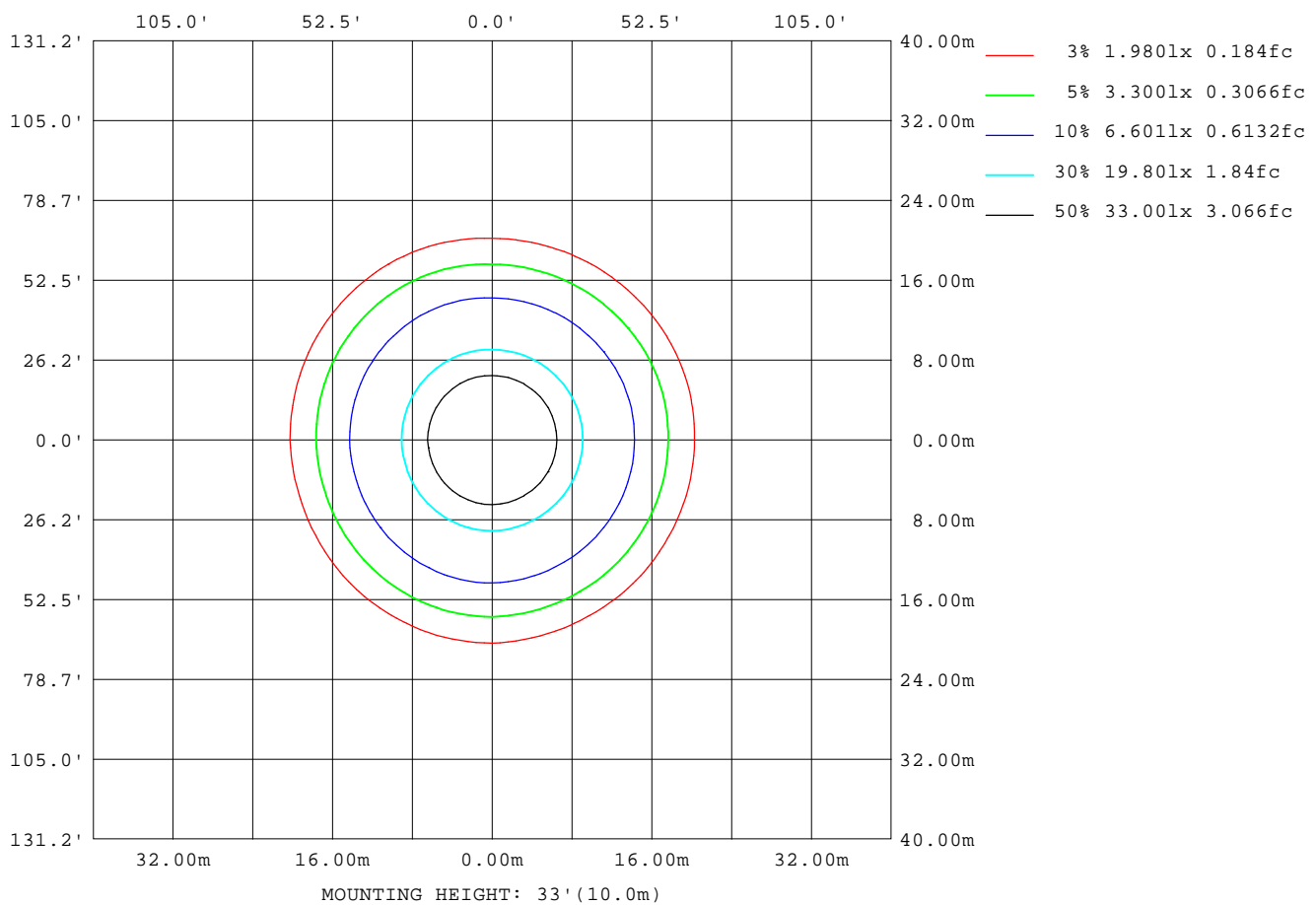
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

ISOLUX DIAGRAM

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

LED Avg.L Report

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

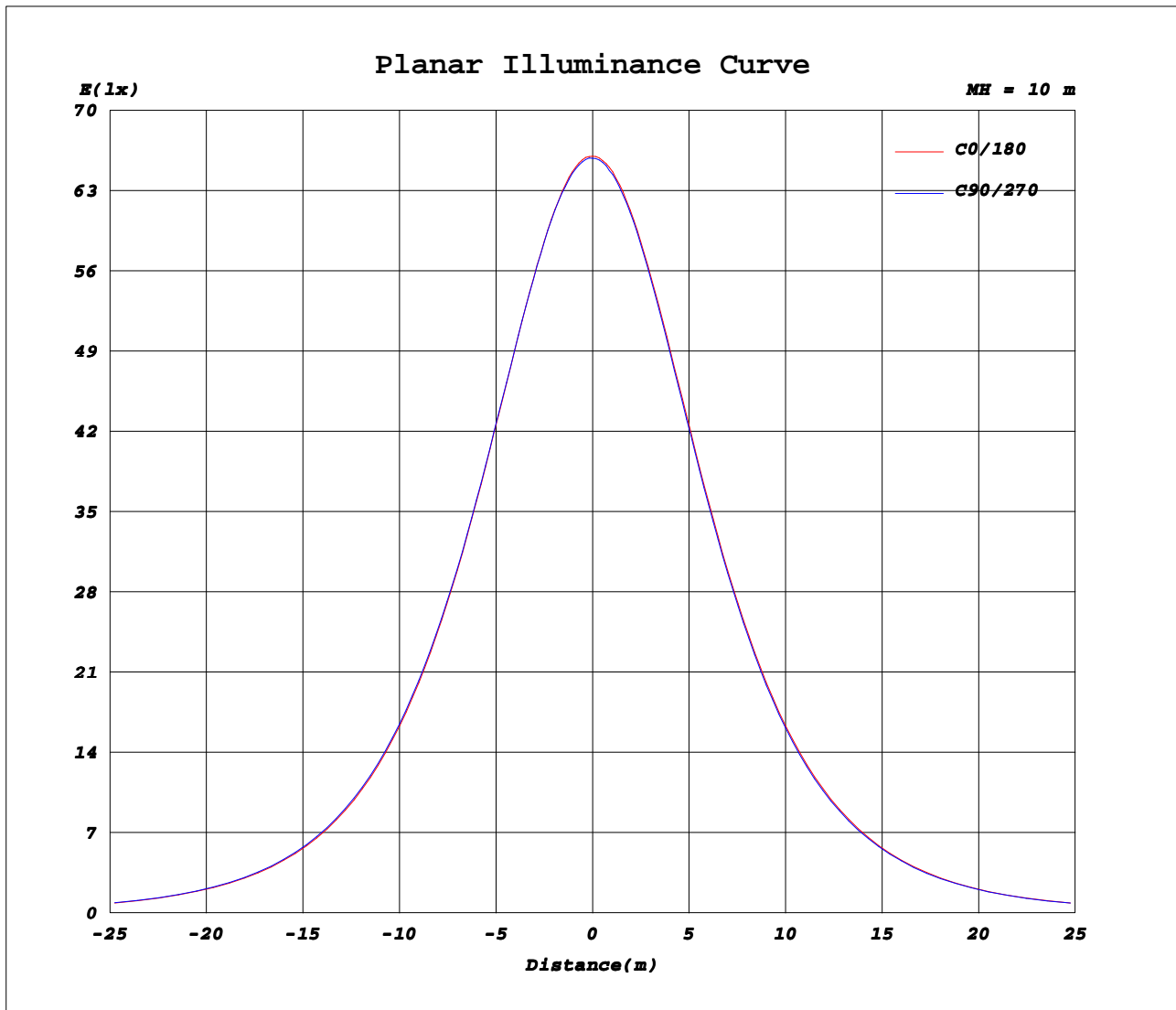
AvgL	cd/m2
L_0~180(65)av	49700
L_0~180(75)av	31261
L_0~180(85)av	12170
L_90~270(65)av	49726
L_90~270(75)av	31269
L_90~270(85)av	13875
L_45(65)av	49684
L_45(75)av	31277
L_45(85)av	12786

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
 γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm																		
NAME: HB2200-130W									TYPE:LED					WEIGHT:				
SPEC.:G5 360									DIM.:					SERIAL No.:				
MFR.: ICEPIPE									SUR.:					Shielding Angle:				

Table--1

UNIT: cd

<div> <div>C(DEG)</div> <div>γ (DEG)</div> </div>	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	6601	6595	6593	6585	6584	6584	6582	6583	6584	6578	6578	6575	6601	6595	6593	6585	6584	6584	6582
5	6581	6574	6565	6565	6558	6562	6566	6565	6566	6561	6551	6549	6577	6573	6572	6570	6561	6561	6550
10	6501	6499	6492	6491	6483	6489	6498	6498	6491	6487	6479	6473	6500	6497	6500	6494	6494	6487	6482
15	6387	6382	6371	6368	6360	6370	6383	6384	6378	6371	6356	6349	6383	6382	6382	6380	6379	6373	6359
20	6226	6214	6205	6204	6196	6206	6230	6227	6218	6211	6193	6184	6220	6212	6217	6213	6218	6209	6189
25	6017	6011	6001	6002	5995	6008	6033	6034	6025	6012	5995	5980	6023	6015	6020	6014	6018	6005	5980
30	5759	5753	5740	5739	5726	5741	5777	5779	5758	5750	5727	5714	5753	5752	5761	5757	5759	5748	5716
35	5444	5430	5418	5420	5415	5431	5470	5472	5451	5437	5411	5399	5438	5437	5449	5440	5448	5431	5396
40	5059	5055	5036	5041	5034	5056	5106	5105	5086	5067	5039	5024	5067	5067	5081	5071	5080	5059	5020
45	4612	4605	4588	4593	4587	4614	4664	4668	4643	4624	4591	4577	4622	4627	4645	4644	4647	4615	4567
50	4079	4070	4058	4059	4051	4085	4140	4148	4118	4097	4058	4043	4098	4110	4130	4131	4134	4098	4039
55	3477	3474	3454	3461	3447	3477	3543	3545	3514	3494	3451	3441	3500	3517	3545	3552	3559	3517	3445
60	2816	2803	2786	2783	2773	2802	2866	2864	2831	2805	2769	2760	2821	2851	2890	2899	2905	2861	2777
65	2110	2085	2053	2048	2034	2065	2134	2136	2103	2080	2038	2034	2091	2115	2155	2165	2182	2143	2069
70	1432	1410	1371	1356	1342	1377	1434	1440	1410	1393	1353	1346	1388	1396	1429	1440	1469	1447	1391
75	814	809	797	801	795	818	861	852	824	805	780	771	804	815	834	839	849	817	758
80	353	346	337	335	331	346	380	376	359	349	327	316	331	339	355	360	367	354	323
85	112	110	109	111	114	121	137	133	125	116	103	96.8	99.7	107	113	108	106	107	105
90	33.7	31.7	29.6	30.6	39.9	51.5	58.0	54.0	42.2	34.0	30.1	30.6	27.2	28.7	31.7	34.1	35.7	41.0	40.2
95	29.3	29.1	28.6	28.2	29.1	31.4	36.0	33.5	28.8	27.8	28.6	29.7	22.1	21.6	20.8	20.2	21.0	22.0	22.2
100	31.2	31.1	31.2	31.3	31.3	31.2	30.7	30.6	30.8	30.8	31.0	31.2	23.6	23.3	23.1	23.1	22.9	23.2	23.4
105	34.5	34.6	35.5	35.7	35.8	35.9	35.2	35.2	34.8	35.2	35.2	35.1	27.0	26.9	27.1	26.7	26.4	26.8	27.3
110	38.3	38.5	38.9	39.8	41.0	41.0	40.5	40.4	40.3	39.4	38.7	38.6	30.5	30.4	30.7	30.7	30.8	31.3	31.8
115	42.1	42.2	42.5	43.7	44.8	45.8	45.4	45.2	44.3	43.3	42.3	42.4	34.4	34.1	34.1	34.6	35.2	35.7	36.2
120	45.9	45.9	45.9	46.7	48.0	48.9	48.8	48.5	47.6	46.4	45.8	46.3	38.2	37.8	37.6	38.2	39.0	39.9	40.5
125	49.3	49.4	49.3	50.1	52.1	53.2	52.8	52.6	52.1	49.8	49.5	49.9	41.9	41.5	41.4	41.6	42.7	43.8	44.0
130	52.7	52.8	52.8	53.1	54.4	55.6	55.6	55.6	54.2	53.1	53.2	53.4	45.6	45.2	44.9	44.8	45.8	46.7	46.9
135	56.2	56.2	56.4	56.3	56.6	57.1	57.4	57.0	56.2	56.2	56.7	57.0	49.2	48.9	48.4	48.1	48.3	49.1	49.6
140	59.5	59.7	59.8	59.6	59.6	59.8	59.7	59.6	59.2	59.6	60.0	60.0	53.0	52.4	52.0	51.6	51.6	52.1	52.5
145	62.8	62.8	62.8	63.1	63.0	62.9	62.7	62.7	62.8	62.9	63.0	63.3	56.5	56.0	55.6	55.4	55.3	55.6	55.9
150	65.9	65.9	65.9	66.2	66.5	66.3	66.1	66.1	66.1	66.2	66.2	66.3	60.3	59.8	59.4	59.2	59.2	59.5	59.8
155	68.8	68.9	68.9	69.2	69.3	69.4	69.2	69.1	69.2	69.0	69.0	69.1	63.8	63.4	63.2	63.0	63.0	63.3	63.6
160	71.7	71.7	71.9	72.0	72.1	72.2	72.0	72.0	71.9	71.9	71.9	72.0	67.5	67.2	67.0	66.9	66.8	67.1	67.3
165	74.3	74.3	74.3	74.5	74.5	74.6	74.4	74.4	74.2	74.3	74.4	74.5	71.2	71.0	70.8	70.5	70.4	70.6	70.8
170	76.1	76.1	76.0	76.2	76.3	76.4	76.1	76.1	76.0	76.2	76.3	76.2	74.0	73.9	73.8	73.5	73.5	73.4	73.5
175	77.0	77.0	77.2	77.5	77.4	77.1	77.0	77.1	77.1	77.3	77.3	77.1	76.2	76.1	76.3	76.2	76.0	75.9	75.8
180	77.5	77.5	77.6	77.7	77.4	77.3	77.3	77.3	77.4	77.4	77.2	77.1	77.5	77.5	77.6	77.7	77.4	77.3	77.3

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.9V I:0.6132A P:127.7W PF:0.9465 Lamp Flux:18633.2x1 lm		
NAME: HB2200-130W	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

Table--2

UNIT: cd

C(DEG) γ (DEG)	285	300	315	330	345														
0	6583	6584	6578	6578	6575														
5	6556	6558	6559	6558	6559														
10	6480	6486	6484	6492	6488														
15	6358	6363	6369	6374	6376														
20	6188	6195	6202	6215	6213														
25	5976	5987	5990	6000	6006														
30	5712	5725	5732	5750	5749														
35	5393	5405	5414	5431	5437														
40	5012	5026	5033	5058	5064														
45	4555	4571	4580	4605	4620														
50	4024	4040	4051	4080	4095														
55	3425	3443	3455	3486	3502														
60	2757	2776	2792	2830	2848														
65	2061	2090	2106	2142	2153														
70	1387	1423	1442	1478	1482														
75	751	773	793	830	845														
80	323	336	343	361	369														
85	106	111	111	116	114														
90	37.5	33.7	30.2	30.4	29.5														
95	21.5	20.4	20.3	21.0	21.9														
100	23.4	23.2	23.2	23.2	23.7														
105	27.1	26.8	26.9	26.9	26.5														
110	31.6	31.1	30.9	30.2	30.0														
115	36.1	35.6	34.7	33.9	33.7														
120	40.2	39.3	38.5	37.4	37.4														
125	43.8	43.0	41.6	40.8	40.9														
130	46.7	45.8	44.9	44.4	44.5														
135	49.3	48.5	48.1	48.1	48.1														
140	52.3	51.8	51.8	51.7	51.6														
145	55.9	55.6	55.4	55.3	55.3														
150	59.7	59.5	59.2	58.8	59.0														
155	63.5	63.3	63.0	62.6	62.6														
160	67.2	66.9	66.7	66.4	66.5														
165	70.7	70.4	70.2	70.0	70.0														
170	73.5	73.3	73.1	72.9	72.9														
175	75.8	75.8	75.6	75.3	75.2														
180	77.3	77.4	77.4	77.3	77.1														

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:AHK
Test Date:6 OCTOBER 2018
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity:65.0%
Test Distance:8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

Photometric Data Table [cd]

G/C	0.0	15.0	30.0	45.0	60.0	75.0	90.0	105.0	120.0	135.0
0.0	6601	6595	6593	6585	6584	6584	6582	6583	6584	6578
3.0	6598	6587	6583	6579	6574	6578	6580	6579	6575	6568
6.0	6569	6560	6557	6553	6546	6550	6556	6559	6551	6548
9.0	6526	6516	6508	6510	6504	6513	6517	6513	6514	6506
12.0	6467	6458	6450	6446	6439	6451	6458	6457	6453	6448
15.0	6387	6382	6371	6368	6360	6370	6383	6384	6378	6371
18.0	6299	6285	6274	6273	6265	6278	6296	6295	6289	6274
21.0	6191	6182	6169	6166	6155	6171	6192	6194	6181	6172
24.0	6064	6053	6042	6042	6039	6052	6072	6077	6065	6051
27.0	5926	5915	5905	5908	5897	5912	5940	5944	5927	5912
30.0	5759	5753	5740	5739	5726	5741	5777	5779	5758	5750
33.0	5579	5568	5552	5548	5542	5565	5598	5604	5578	5569
36.0	5372	5358	5349	5348	5341	5365	5402	5403	5384	5368
39.0	5143	5131	5121	5121	5110	5138	5181	5180	5166	5147
42.0	4893	4884	4870	4870	4863	4890	4941	4940	4917	4901
45.0	4612	4605	4588	4593	4587	4614	4664	4668	4643	4624
48.0	4301	4296	4278	4283	4275	4308	4361	4368	4337	4315
51.0	3965	3959	3943	3949	3935	3971	4028	4036	4003	3984
54.0	3602	3598	3579	3586	3574	3609	3666	3672	3643	3622
57.0	3222	3215	3198	3200	3188	3219	3281	3281	3250	3227
60.0	2816	2803	2786	2783	2773	2802	2866	2864	2831	2805
63.0	2390	2375	2350	2350	2336	2364	2437	2435	2400	2375
66.0	1968	1945	1908	1904	1888	1920	1984	1990	1956	1936
69.0	1565	1539	1497	1486	1472	1504	1565	1571	1542	1523
72.0	1178	1162	1130	1119	1108	1138	1193	1191	1165	1142
75.0	814.3	809.2	797.3	800.6	795.3	818.2	861.0	851.9	823.7	805.4
78.0	510.7	510.2	504.1	501.3	490.1	508.6	550.1	543.5	520.0	505.3
81.0	287.5	284.2	270.8	277.8	270.7	289.2	313.2	310.0	295.7	290.5
84.0	142.3	139.9	141.8	140.3	144.9	148.8	164.3	163.4	152.2	144.1
87.0	69.48	65.20	65.11	66.86	72.62	80.08	89.77	87.46	78.19	69.45
90.0	33.67	31.73	29.56	30.57	39.87	51.55	58.01	53.95	42.17	34.04
93.0	27.96	27.96	27.29	28.05	34.24	40.81	45.11	42.59	33.02	27.58
96.0	29.73	29.49	29.07	28.59	29.38	29.80	30.48	29.68	28.86	28.24
99.0	30.89	30.59	30.56	30.56	30.56	30.54	30.22	30.04	29.96	30.10
102.0	32.37	32.43	32.71	32.86	32.76	32.78	32.39	32.10	32.27	32.44
105.0	34.49	34.64	35.48	35.65	35.81	35.85	35.19	35.16	34.81	35.21
108.0	36.79	37.02	37.54	38.31	38.91	38.98	38.37	38.30	38.16	37.83
111.0	39.06	39.22	39.59	40.54	42.00	42.09	41.64	41.45	41.25	40.11
114.0	41.34	41.43	41.70	42.90	44.05	45.19	44.51	44.50	43.53	42.49
117.0	43.61	43.66	43.71	44.85	46.01	46.99	46.81	46.54	45.77	44.70
120.0	45.94	45.88	45.91	46.71	48.03	48.94	48.75	48.48	47.58	46.39
123.0	47.98	48.07	48.23	48.80	50.50	51.31	50.92	50.85	50.07	48.43
126.0	49.95	50.14	49.94	50.83	52.71	53.89	53.51	53.59	52.88	50.52
129.0	52.02	52.10	52.10	52.48	54.05	55.22	55.09	55.14	53.72	52.39
132.0	54.08	54.17	54.30	54.32	55.04	56.25	56.25	56.18	54.81	54.36
135.0	56.17	56.23	56.45	56.26	56.56	57.14	57.37	57.00	56.21	56.15
138.0	58.12	58.25	58.53	58.24	58.35	58.59	58.48	58.38	58.02	58.27
141.0	60.22	60.33	60.33	60.26	60.23	60.43	60.27	60.20	59.84	60.17
144.0	62.17	62.18	62.24	62.32	62.26	62.24	62.00	61.99	62.03	62.15
147.0	64.08	64.08	64.06	64.35	64.43	64.30	64.07	64.10	64.18	64.28
150.0	65.94	65.92	65.91	66.21	66.46	66.35	66.08	66.10	66.11	66.20
153.0	67.71	67.71	67.70	68.01	68.18	68.23	68.01	67.96	68.02	67.94
156.0	69.40	69.45	69.51	69.73	69.93	69.97	69.75	69.71	69.73	69.58
159.0	71.17	71.17	71.31	71.50	71.59	71.65	71.49	71.43	71.43	71.32
162.0	72.77	72.84	72.87	73.07	73.13	73.13	73.05	72.97	72.91	72.88
165.0	74.31	74.34	74.35	74.47	74.49	74.65	74.45	74.40	74.19	74.34
168.0	75.48	75.54	75.43	75.57	75.72	75.81	75.53	75.45	75.42	75.51
171.0	76.29	76.31	76.24	76.56	76.68	76.49	76.30	76.27	76.34	76.49
174.0	76.83	76.89	76.97	77.28	77.31	77.14	76.91	76.92	77.00	77.08
177.0	77.22	77.32	77.45	77.73	77.66	77.40	77.28	77.23	77.35	77.53
180.0	77.46	77.48	77.57	77.71	77.43	77.30	77.29	77.29	77.39	77.41
G/C	150.0	165.0	180.0	195.0	210.0	225.0	240.0	255.0	270.0	285.0
0.0	6578	6575	6601	6595	6593	6585	6584	6584	6582	6583
3.0	6571	6564	6590	6588	6578	6584	6579	6577	6574	6573
6.0	6543	6539	6569	6563	6562	6555	6554	6558	6546	6546
9.0	6498	6492	6526	6516	6517	6515	6511	6511	6497	6500
12.0	6436	6430	6459	6453	6457	6452	6452	6450	6441	6433
15.0	6356	6349	6383	6382	6382	6380	6379	6373	6359	6358
18.0	6263	6258	6290	6283	6289	6283	6286	6278	6262	6263
21.0	6159	6145	6183	6179	6179	6176	6184	6173	6150	6152
24.0	6038	6026	6060	6056	6063	6056	6059	6047	6025	6024
27.0	5894	5880	5923	5920	5928	5919	5926	5910	5882	5878
30.0	5727	5714	5753	5752	5761	5757	5759	5748	5716	5712

C Range: 0 - 360DEG

C Interval: 15.0DEG

Test Speed: HIGH

Temperature: 25.3DEG

Operators: AHK

Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG

γ Interval: 1.0DEG

Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351

Humidity: 65.0%

Test Distance: 8.000m [K=1.0000]

Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

Photometric Data Table [cd]

33.0	5543	5529	5574	5564	5578	5570	5582	5565	5530	5529
36.0	5345	5328	5366	5367	5377	5369	5377	5363	5326	5320
39.0	5119	5106	5148	5147	5156	5155	5156	5139	5102	5096
42.0	4868	4853	4901	4900	4915	4908	4916	4888	4847	4839
45.0	4591	4577	4622	4627	4645	4644	4647	4615	4567	4555
48.0	4282	4265	4318	4324	4347	4345	4347	4313	4254	4242
51.0	3943	3929	3983	3996	4020	4020	4022	3991	3921	3911
54.0	3579	3568	3625	3640	3670	3673	3680	3639	3571	3551
57.0	3185	3180	3240	3263	3296	3299	3309	3263	3191	3168
60.0	2769	2760	2821	2851	2890	2899	2905	2861	2777	2757
63.0	2336	2328	2389	2419	2454	2465	2474	2432	2350	2339
66.0	1896	1891	1942	1965	2004	2015	2035	2001	1931	1927
69.0	1485	1478	1522	1534	1567	1576	1604	1581	1525	1522
72.0	1113	1103	1137	1145	1168	1188	1209	1184	1124	1121
75.0	779.5	771.1	803.9	814.6	834.4	838.6	848.6	817.0	757.7	750.7
78.0	480.0	469.4	494.8	510.0	534.4	536.4	540.0	518.2	473.5	467.1
81.0	267.1	260.6	273.8	274.3	291.9	287.8	295.7	286.4	267.0	261.7
84.0	134.7	125.2	129.5	142.1	143.6	143.2	137.9	141.4	132.2	136.0
87.0	62.04	59.07	57.39	60.93	66.45	67.24	63.74	69.80	66.51	66.84
90.0	30.08	30.65	27.23	28.66	31.73	34.13	35.73	41.04	40.25	37.49
93.0	27.30	28.52	21.10	20.46	19.68	19.85	23.92	29.98	28.68	26.40
96.0	28.81	29.88	22.36	21.96	21.28	20.73	20.57	21.14	21.38	20.89
99.0	30.32	30.61	23.20	22.93	22.59	22.42	22.30	22.47	22.75	22.70
102.0	33.06	32.92	24.83	24.68	24.43	24.38	24.30	24.55	24.87	24.84
105.0	35.15	35.05	27.01	26.85	27.10	26.71	26.44	26.82	27.34	27.12
108.0	37.25	37.09	29.07	29.01	29.39	29.02	28.90	29.50	29.97	29.84
111.0	39.43	39.37	31.29	31.08	31.26	31.53	31.65	32.22	32.69	32.50
114.0	41.64	41.65	33.61	33.32	33.33	33.83	34.28	34.75	35.34	35.19
117.0	43.58	43.97	35.94	35.57	35.48	36.14	36.86	37.56	38.02	37.95
120.0	45.78	46.27	38.24	37.85	37.58	38.19	38.98	39.92	40.46	40.22
123.0	47.90	48.40	40.50	40.07	39.87	40.30	41.30	42.19	42.63	42.38
126.0	50.22	50.66	42.64	42.28	42.03	42.30	43.43	44.52	44.64	44.44
129.0	52.44	52.75	44.90	44.41	44.11	44.19	45.26	46.21	46.42	46.23
132.0	54.66	54.82	47.03	46.60	46.33	46.02	46.72	47.62	47.96	47.68
135.0	56.70	56.95	49.23	48.88	48.40	48.12	48.27	49.15	49.59	49.27
138.0	58.79	58.94	51.45	51.03	50.73	50.16	50.23	50.72	51.17	50.96
141.0	60.65	60.67	53.69	53.13	52.68	52.39	52.32	52.80	53.15	53.03
144.0	62.46	62.61	55.85	55.30	54.80	54.64	54.56	54.90	55.24	55.09
147.0	64.29	64.53	58.01	57.53	57.11	56.95	56.94	57.15	57.49	57.40
150.0	66.16	66.31	60.26	59.77	59.43	59.23	59.23	59.46	59.82	59.69
153.0	67.87	67.98	62.44	61.96	61.68	61.56	61.47	61.74	62.11	61.98
156.0	69.63	69.63	64.50	64.16	63.88	63.79	63.79	64.04	64.32	64.24
159.0	71.36	71.40	66.74	66.40	66.21	66.10	66.12	66.31	66.60	66.49
162.0	73.07	73.01	69.02	68.73	68.56	68.43	68.32	68.55	68.75	68.66
165.0	74.45	74.52	71.21	71.00	70.78	70.52	70.38	70.60	70.84	70.72
168.0	75.72	75.69	73.02	72.91	72.74	72.44	72.27	72.29	72.38	72.54
171.0	76.60	76.43	74.44	74.41	74.36	74.11	73.97	73.87	73.88	73.98
174.0	77.14	76.94	75.77	75.75	75.88	75.73	75.56	75.46	75.35	75.41
177.0	77.42	77.21	76.92	76.84	77.01	76.90	76.59	76.61	76.53	76.52
180.0	77.20	77.07	77.55	77.45	77.56	77.67	77.41	77.29	77.27	77.26
G/C	300.0	315.0	330.0	345.0						
0.0	6584	6578	6578	6575						
3.0	6572	6575	6571	6569						
6.0	6547	6549	6547	6546						
9.0	6502	6507	6507	6509						
12.0	6442	6442	6450	6446						
15.0	6363	6369	6374	6376						
18.0	6265	6272	6277	6281						
21.0	6158	6167	6173	6175						
24.0	6035	6035	6049	6049						
27.0	5893	5895	5907	5911						
30.0	5725	5732	5750	5749						
33.0	5542	5551	5564	5568						
36.0	5338	5341	5360	5370						
39.0	5109	5113	5138	5144						
42.0	4850	4863	4887	4895						
45.0	4571	4580	4605	4620						
48.0	4261	4269	4296	4313						
51.0	3926	3939	3967	3982						
54.0	3570	3581	3609	3626						
57.0	3185	3201	3235	3247						
60.0	2776	2792	2830	2848						
63.0	2361	2380	2419	2429						
66.0	1957	1971	2010	2017						

C Range: 0 - 360DEG

C Interval: 15.0DEG

Test Speed: HIGH

Temperature: 25.3DEG

Operators: AHK

Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG

γ Interval: 1.0DEG

Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351

Humidity: 65.0%

Test Distance: 8.000m [K=1.0000]

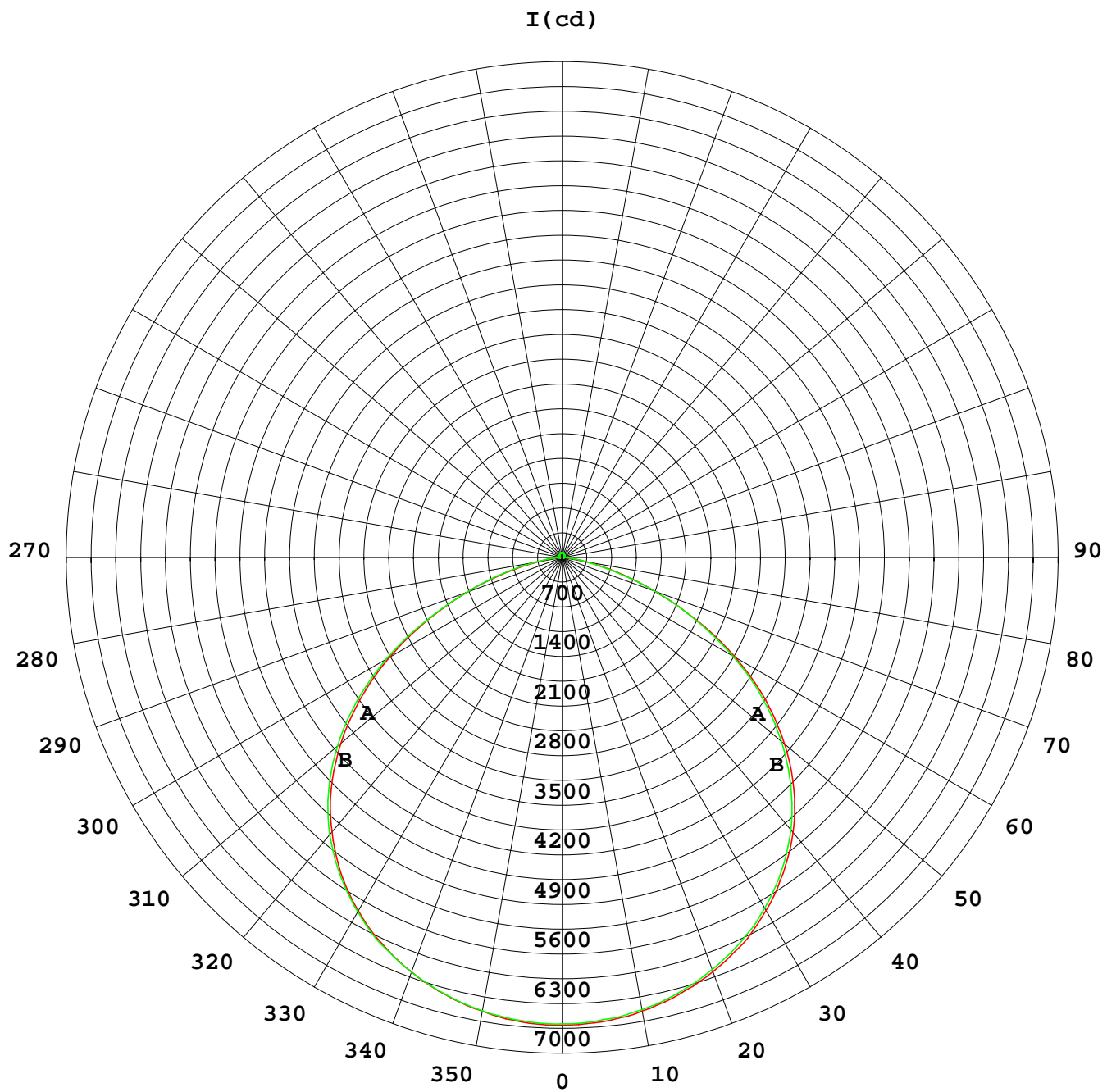
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806

Photometric Data Table [cd]

69.0	1557	1575	1610	1613
72.0	1151	1175	1209	1221
75.0	773.1	793.4	829.7	844.8
78.0	481.7	491.5	517.4	529.1
81.0	278.4	282.1	300.2	301.0
84.0	138.9	140.7	148.6	146.8
87.0	68.74	67.59	68.56	66.84
90.0	33.69	30.22	30.36	29.54
93.0	22.03	19.63	19.66	20.29
96.0	20.72	20.85	21.50	22.34
99.0	22.56	22.52	22.82	23.54
102.0	24.62	24.52	24.37	24.51
105.0	26.80	26.87	26.91	26.48
108.0	29.20	29.26	29.00	28.77
111.0	32.02	31.71	30.86	30.66
114.0	34.70	33.92	33.09	32.98
117.0	37.13	36.26	35.34	35.22
120.0	39.33	38.46	37.39	37.40
123.0	41.66	40.34	39.49	39.57
126.0	43.59	42.24	41.51	41.56
129.0	45.27	44.17	43.69	43.80
132.0	46.75	46.18	45.85	45.85
135.0	48.52	48.15	48.09	48.07
138.0	50.47	50.28	50.26	50.16
141.0	52.50	52.51	52.46	52.44
144.0	54.79	54.70	54.59	54.60
147.0	57.19	56.94	56.64	56.77
150.0	59.49	59.18	58.84	58.97
153.0	61.76	61.49	61.05	61.18
156.0	64.00	63.69	63.35	63.39
159.0	66.23	66.01	65.70	65.68
162.0	68.36	68.09	67.91	67.93
165.0	70.35	70.16	70.02	70.02
168.0	72.22	71.95	71.82	71.82
171.0	73.84	73.59	73.38	73.39
174.0	75.31	75.09	74.83	74.74
177.0	76.55	76.42	76.15	76.08
180.0	77.42	77.44	77.28	77.06

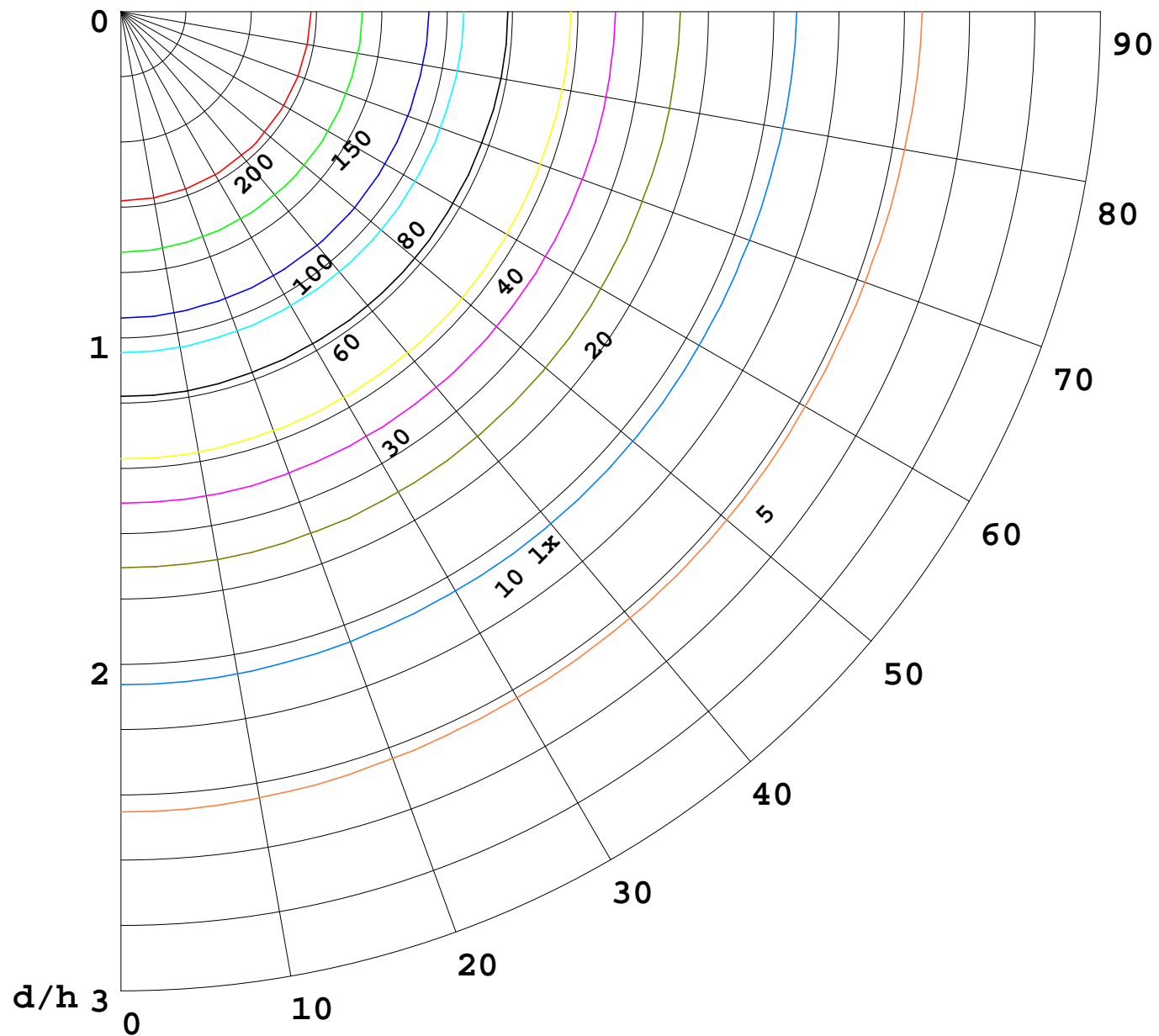
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: AHK
Test Date: 6 OCTOBER 2018

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130W-A100-G5 360Chip_110D_180806



1000 lm

$K = 1$



F = 1000 lm
 K = 0.7
 H_{cc} = 0.8 m
 H_{fc} = 0.0 m
 E_{ave} = 100 lx

	P_{cc}	P_w	P_{fc}
—————	70	50	30
—————	50	30	20

