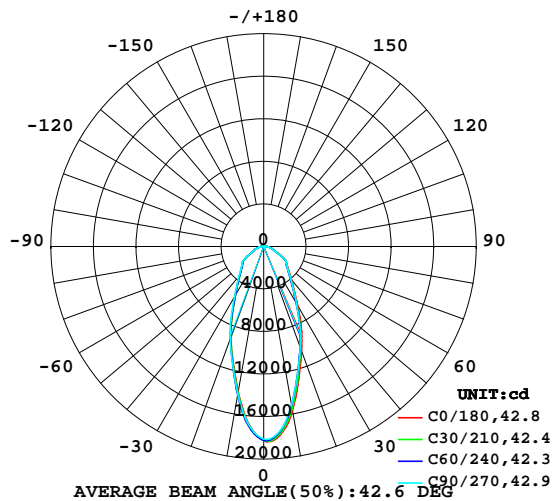


LUMINAIRE PHOTOMETRIC TEST REPORT

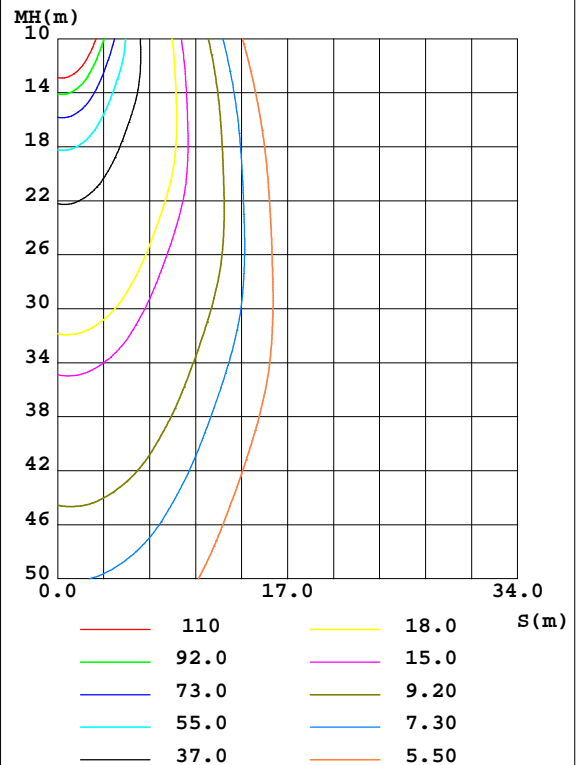
Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 133.94 lm/W			
HB2200-130G-G5 360EA-45D_180927#1		Imax(cd)	18353	S/MH(C0/180)	0.60
NOMINAL POWER(W)	130	LOR(%)	100.0	S/MH(C90/270)	0.62
RATED VOLTAGE(V)	220	TOTAL FLUX(lm)	18585	η UP,DN(C0-180)	0.9,50.4
NOMINAL FLUX(lm)	18584.6	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.8,47.9
LAMPS INSIDE	1	η up(%)	1.7	CIBSE SHR NOM	0.75
TEST VOLTAGE(V)	220	η down(%)	98.3	CIBSE SHR MAX	0.80

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:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1566	1535	1512	1422	1387	1405	1410	1498	0- 10	1556	1556	8.37,8.37
20	1042	1011	1007	940.3	907.7	907.6	922.9	995.9	10- 20	3326	4882	26.3,26.3
30	641.8	610.3	613.9	564.5	538.8	529.8	548.8	603.6	20- 30	3487	8370	45,45
40	408.4	389.2	395.6	370.2	354.9	343.9	360.3	390.6	30- 40	2913	11282	60.7,60.7
50	292.0	280.3	286.8	272.3	265.3	257.9	267.4	280.4	40- 50	2468	13750	74,74
60	216.7	209.4	205.4	175.3	157.9	159.9	166.6	195.6	50- 60	2155	15905	85.6,85.6
70	104.0	101.4	101.0	91.88	86.58	86.41	89.03	98.04	60- 70	1285	17190	92.5,92.5
80	57.23	56.07	54.58	45.53	40.85	41.29	42.72	51.02	70- 80	749.1	17939	96.5,96.5
90	14.33	12.38	14.46	9.067	7.848	7.940	8.516	10.46	80- 90	325.4	18264	98.3,98.3
100	2.571	2.514	2.977	2.680	2.061	1.985	2.138	1.859	90-100	44.69	18309	98.5,98.5
110	3.284	3.396	3.499	3.583	2.851	2.752	2.798	2.605	100-110	28.09	18337	98.7,98.7
120	4.357	4.486	4.794	4.763	3.964	3.950	4.088	3.714	110-120	36.07	18373	98.9,98.9
130	5.664	5.758	6.153	6.051	5.428	5.340	5.637	5.003	120-130	44.19	18417	99.1,99.1
140	7.070	7.118	7.179	7.345	6.919	6.805	6.804	6.507	130-140	48.74	18466	99.4,99.4
150	8.178	8.203	8.206	8.356	8.081	7.990	7.911	7.710	140-150	47.26	18513	99.6,99.6
160	8.659	8.697	8.754	8.752	8.553	8.515	8.476	8.352	150-160	38.67	18552	99.8,99.8
170	8.772	8.776	8.772	8.791	8.701	8.654	8.550	8.542	160-170	24.57	18576	100,100
180	8.805	8.848	8.740	8.807	8.807	8.849	8.741	8.808	170-180	8.316	18585	100,100
DEG	LUMINOUS INTENSITY:±10cd									UNIT: lm		

Conical surface Flux(90deg): 12559 lm

%lum = 67.6%

%lamp = 67.6%

Conical surface Flux(120deg): 15905 lm

%lum = 85.6%

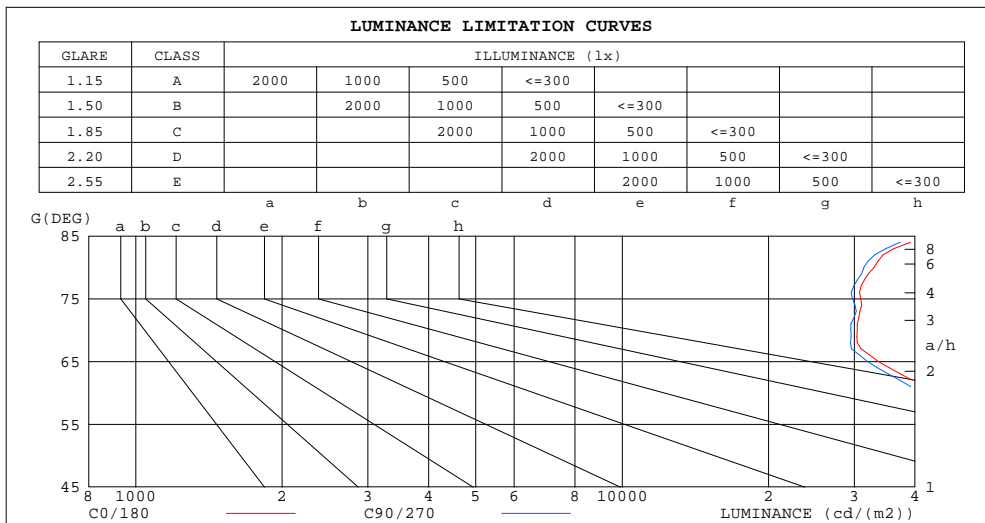
%lamp = 85.6%

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

LUMINANCE LIMITATION CURVES

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	43376	41452
80	32957	31433
75	30940	29746
70	30421	29526
65	33587	31872
60	43342	41087
55	45641	45344
50	45429	44626
45	48136	46857

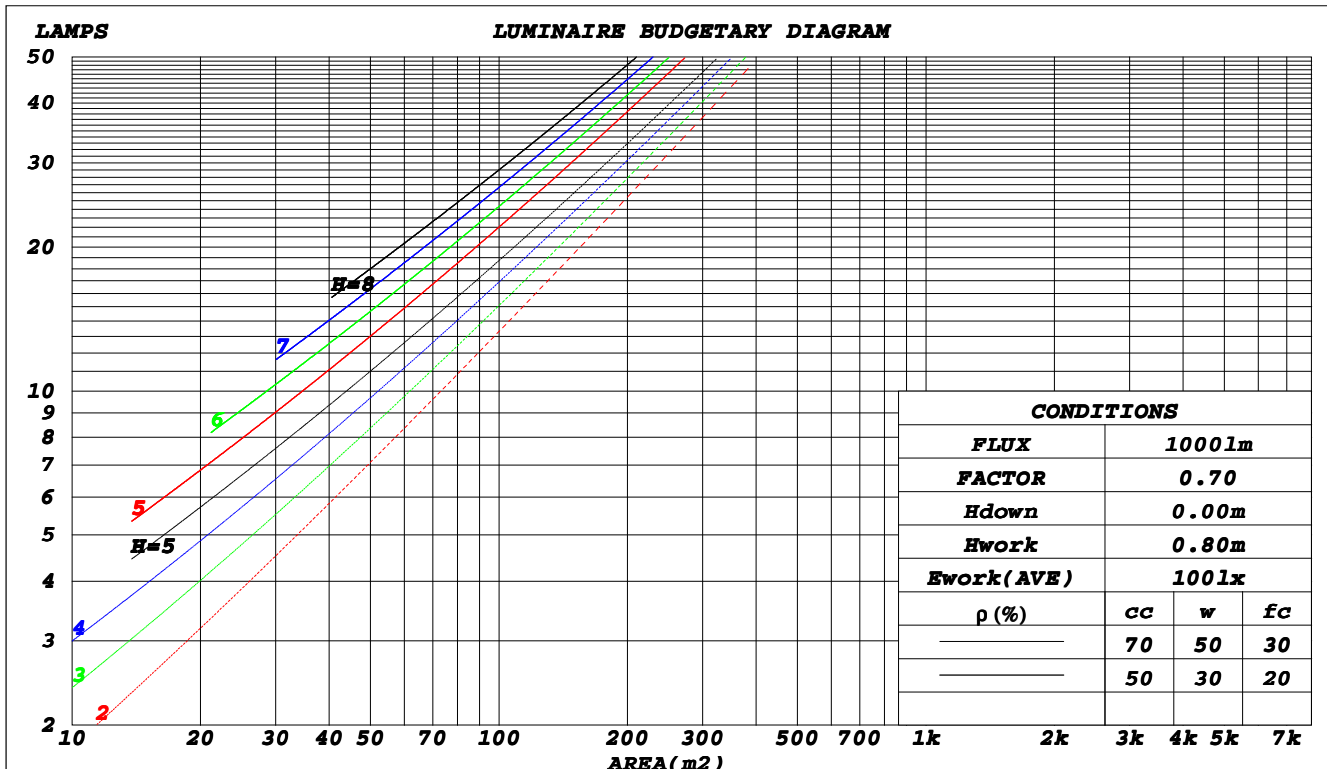
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 2018

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: HB2200-130G-G5 360EA-45D_180927#1

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	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	1.00	1.00	1.00	.98
1.0	1.06	1.02	.99	1.04	1.00	.97	.99	.96	.94	.95	.93	.91	.91	.89	.88	.86
2.0	.95	.89	.84	.93	.88	.83	.89	.85	.81	.86	.82	.79	.83	.80	.77	.75
3.0	.86	.79	.73	.84	.78	.73	.81	.76	.71	.78	.74	.70	.75	.72	.68	.66
4.0	.78	.70	.65	.77	.70	.64	.74	.68	.63	.72	.66	.62	.69	.65	.61	.59
5.0	.71	.64	.58	.70	.63	.57	.68	.62	.57	.66	.60	.56	.64	.59	.55	.53
6.0	.66	.58	.52	.65	.57	.52	.63	.56	.51	.61	.55	.51	.59	.54	.50	.49
7.0	.61	.53	.48	.60	.53	.48	.58	.52	.47	.57	.51	.47	.55	.50	.46	.45
8.0	.56	.49	.44	.56	.49	.44	.54	.48	.43	.53	.47	.43	.52	.47	.43	.41
9.0	.53	.45	.41	.52	.45	.40	.51	.45	.40	.50	.44	.40	.49	.44	.40	.38
10.0	.49	.42	.38	.49	.42	.38	.48	.42	.37	.47	.41	.37	.46	.41	.37	.36



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

WEC AND CCEC

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	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	.261	.148	.047	.253	.144	.046	.239	.137	.044	.226	.131	.042	.214	.124	.040		
2.0	.244	.134	.041	.237	.131	.040	.225	.125	.039	.214	.120	.038	.204	.115	.036		
3.0	.227	.121	.036	.221	.118	.036	.210	.114	.035	.200	.110	.034	.191	.106	.033		
4.0	.210	.109	.032	.205	.108	.032	.196	.104	.031	.187	.101	.030	.179	.097	.030		
5.0	.196	.100	.029	.192	.098	.029	.183	.095	.028	.175	.093	.028	.168	.090	.027		
6.0	.183	.092	.026	.179	.090	.026	.172	.088	.026	.165	.086	.025	.158	.083	.025		
7.0	.171	.085	.024	.168	.084	.024	.161	.082	.023	.155	.080	.023	.149	.078	.023		
8.0	.161	.079	.022	.158	.078	.022	.152	.076	.022	.146	.074	.021	.141	.072	.021		
9.0	.152	.073	.021	.149	.073	.020	.144	.071	.020	.139	.070	.020	.134	.068	.020		
10.0	.144	.069	.019	.141	.068	.019	.136	.067	.019	.132	.065	.019	.127	.064	.018		

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	.204	.204	.204	.174	.174	.174	.119	.119	.119	.068	.068	.068	.022	.022	.022	
1.0	.190	.170	.152	.163	.146	.130	.111	.100	.090	.064	.058	.052	.021	.019	.017	
2.0	.179	.145	.117	.153	.125	.101	.105	.087	.071	.061	.050	.041	.019	.016	.013	
3.0	.170	.127	.094	.145	.110	.081	.100	.076	.057	.058	.045	.034	.019	.014	.011	
4.0	.161	.114	.078	.138	.098	.067	.095	.068	.047	.055	.040	.028	.018	.013	.009	
5.0	.153	.103	.066	.131	.089	.057	.090	.062	.040	.052	.036	.024	.017	.012	.008	
6.0	.145	.094	.057	.125	.081	.050	.086	.057	.035	.050	.034	.021	.016	.011	.007	
7.0	.139	.087	.051	.119	.075	.044	.082	.053	.031	.048	.031	.019	.015	.010	.006	
8.0	.132	.081	.045	.114	.070	.040	.079	.049	.028	.046	.029	.017	.015	.010	.006	
9.0	.127	.076	.041	.109	.066	.036	.076	.046	.026	.044	.027	.015	.014	.009	.005	
10.0	.121	.071	.038	.105	.062	.033	.073	.044	.024	.042	.026	.014	.014	.008	.005	

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

UGR(Unified Glare Rating) Table

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	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	25.1	26.4	25.4	26.6	26.8	24.9	26.2	25.2	26.4	26.6
3H	26.1	27.2	26.4	27.5	27.7	25.8	27.0	26.1	27.2	27.5
4H	26.5	27.6	26.9	27.9	28.2	26.3	27.4	26.6	27.7	28.0
6H	27.0	28.1	27.4	28.3	28.6	26.8	27.8	27.1	28.1	28.4
8H	27.2	28.2	27.6	28.5	28.9	27.0	28.0	27.3	28.3	28.6
12H	27.5	28.4	27.8	28.7	29.1	27.2	28.2	27.6	28.5	28.8
4H 2H	25.5	26.6	25.9	26.9	27.2	25.3	26.4	25.7	26.7	27.0
3H	26.6	27.6	27.0	27.9	28.3	26.5	27.4	26.8	27.7	28.1
4H	27.3	28.2	27.7	28.5	28.9	27.1	28.0	27.5	28.3	28.7
6H	27.9	28.7	28.3	29.1	29.5	27.7	28.5	28.1	28.9	29.3
8H	28.2	29.0	28.7	29.4	29.8	28.0	28.7	28.4	29.1	29.5
12H	28.6	29.2	29.0	29.6	30.1	28.3	29.0	28.8	29.4	29.8
8H 4H	27.5	28.2	27.9	28.6	29.0	27.3	28.1	27.8	28.4	28.9
6H	28.3	28.9	28.8	29.4	29.8	28.1	28.7	28.6	29.2	29.6
8H	28.8	29.3	29.3	29.8	30.2	28.6	29.1	29.0	29.5	30.0
12H	29.2	29.7	29.7	30.2	30.7	29.0	29.5	29.5	30.0	30.5
12H 4H	27.5	28.2	28.0	28.6	29.0	27.4	28.0	27.8	28.4	28.9
6H	28.4	29.0	28.9	29.4	29.9	28.2	28.8	28.7	29.2	29.7
8H	28.9	29.4	29.4	29.8	30.4	28.7	29.2	29.2	29.6	30.2
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.2					+ 0.2 / - 0.2				
1.5H	+ 0.4 / - 0.3					+ 0.4 / - 0.3				
2.0H	+ 0.3 / - 0.3					+ 0.3 / - 0.4				

CIE Pub.117 Corrected 18585 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:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

UTILIZATION FACTORS TABLE

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

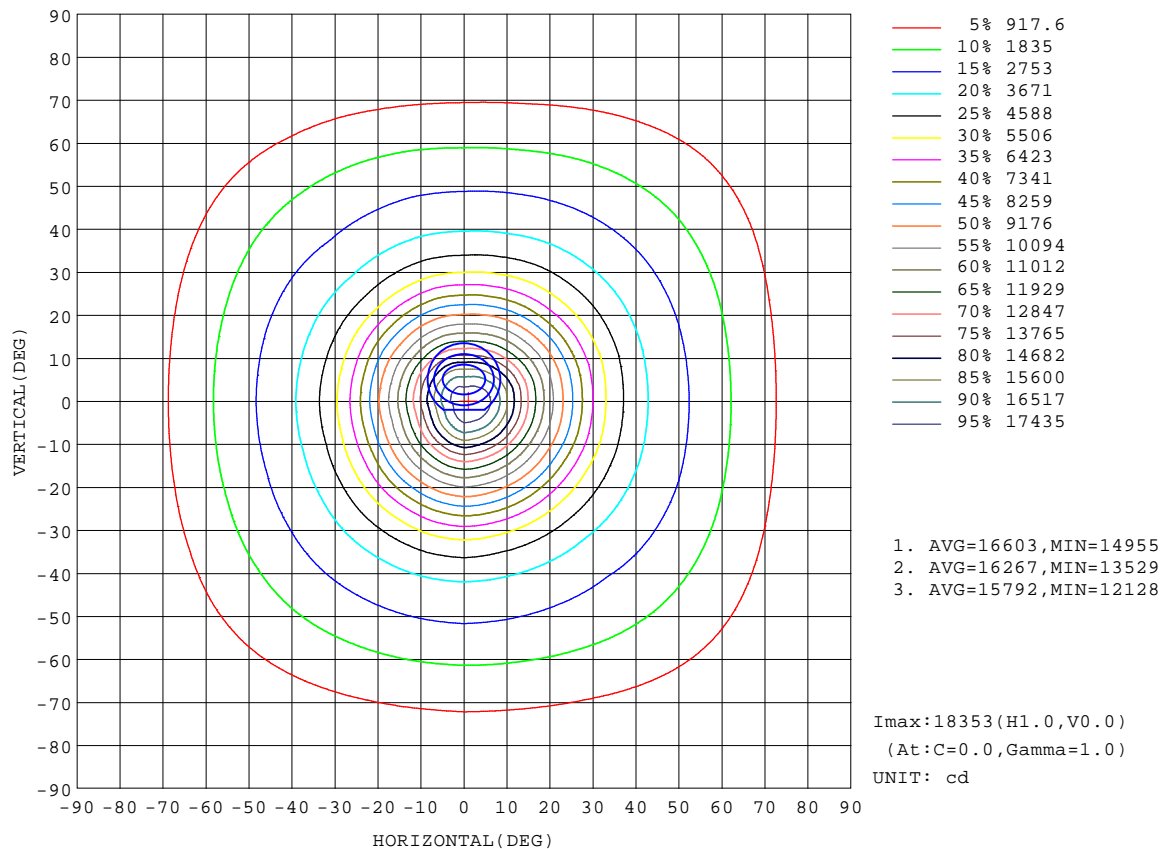
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	67	57	51	66	57	51	65	56	51	46
0.80	76	67	61	75	66	60	74	65	60	54
1.00	84	74	68	82	74	68	80	75	67	61
1.25	90	81	75	88	80	75	86	79	74	67
1.50	94	86	80	92	85	80	89	83	78	72
2.00	99	92	87	97	91	86	94	89	84	77
2.50	102	96	91	100	94	90	96	92	88	80
3.00	105	99	95	103	98	94	99	95	91	83
4.00	108	104	100	106	102	98	102	98	95	86
5.00	110	106	103	108	104	101	103	100	98	89
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNM = 1.25		

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

ISOCANDELA DIAGRAM

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:



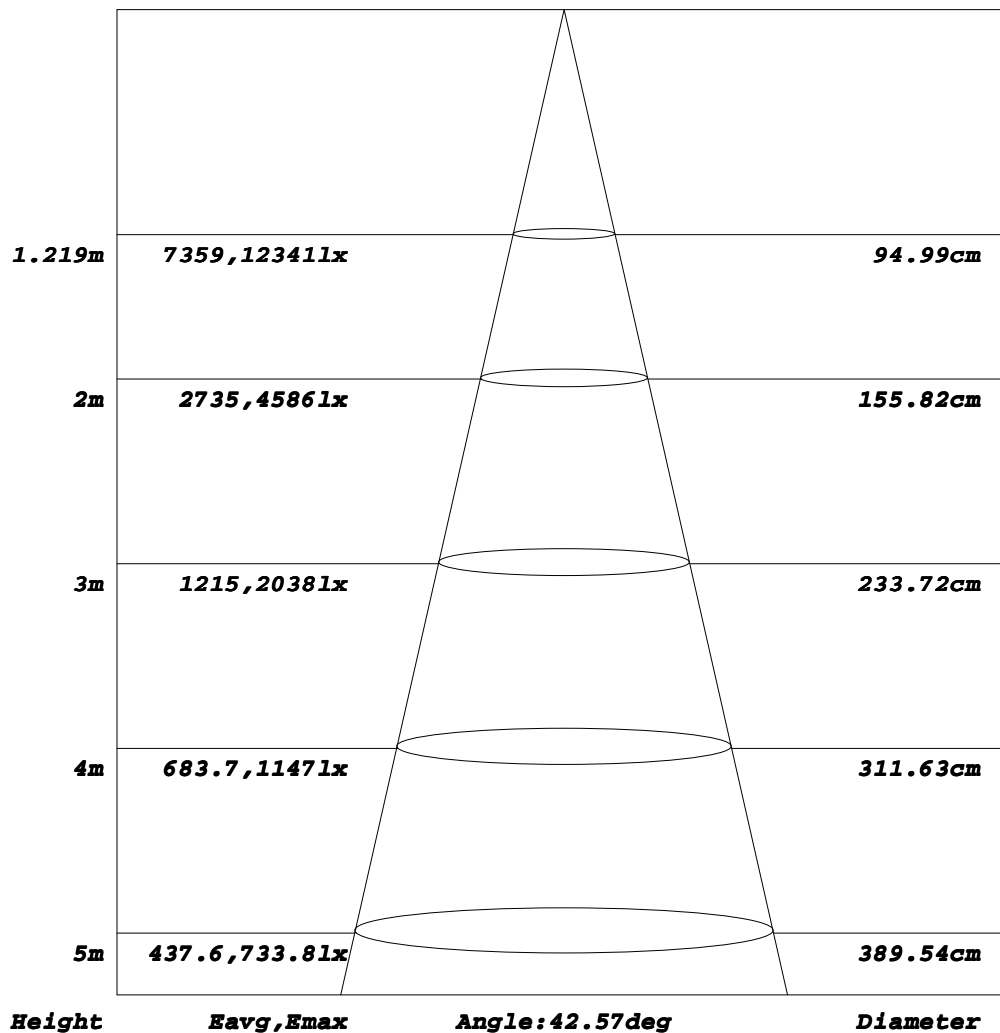
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 2018

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: HB2200-130G-G5 360EA-45D_180927#1

AAI Figure

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

Flux out:5610 lm



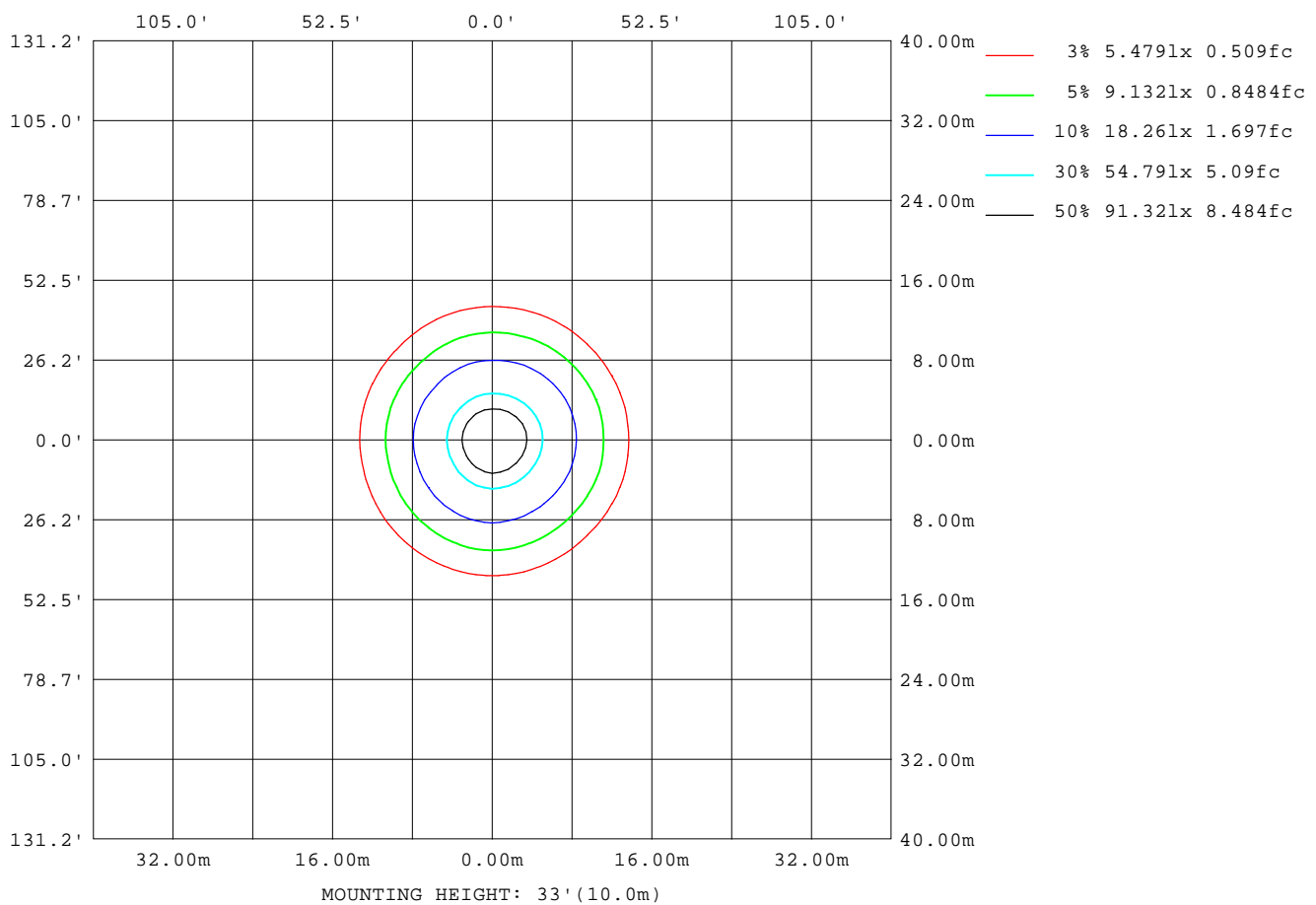
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LUC
Test Date: 03 January 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: HB2200-130G-G5 360EA-45D_180927#1

ISOLUX DIAGRAM

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	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: LUC
Test Date: 03 January 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: HB2200-130G-G5 360EA-45D_180927#1

LED Avg.L Report

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

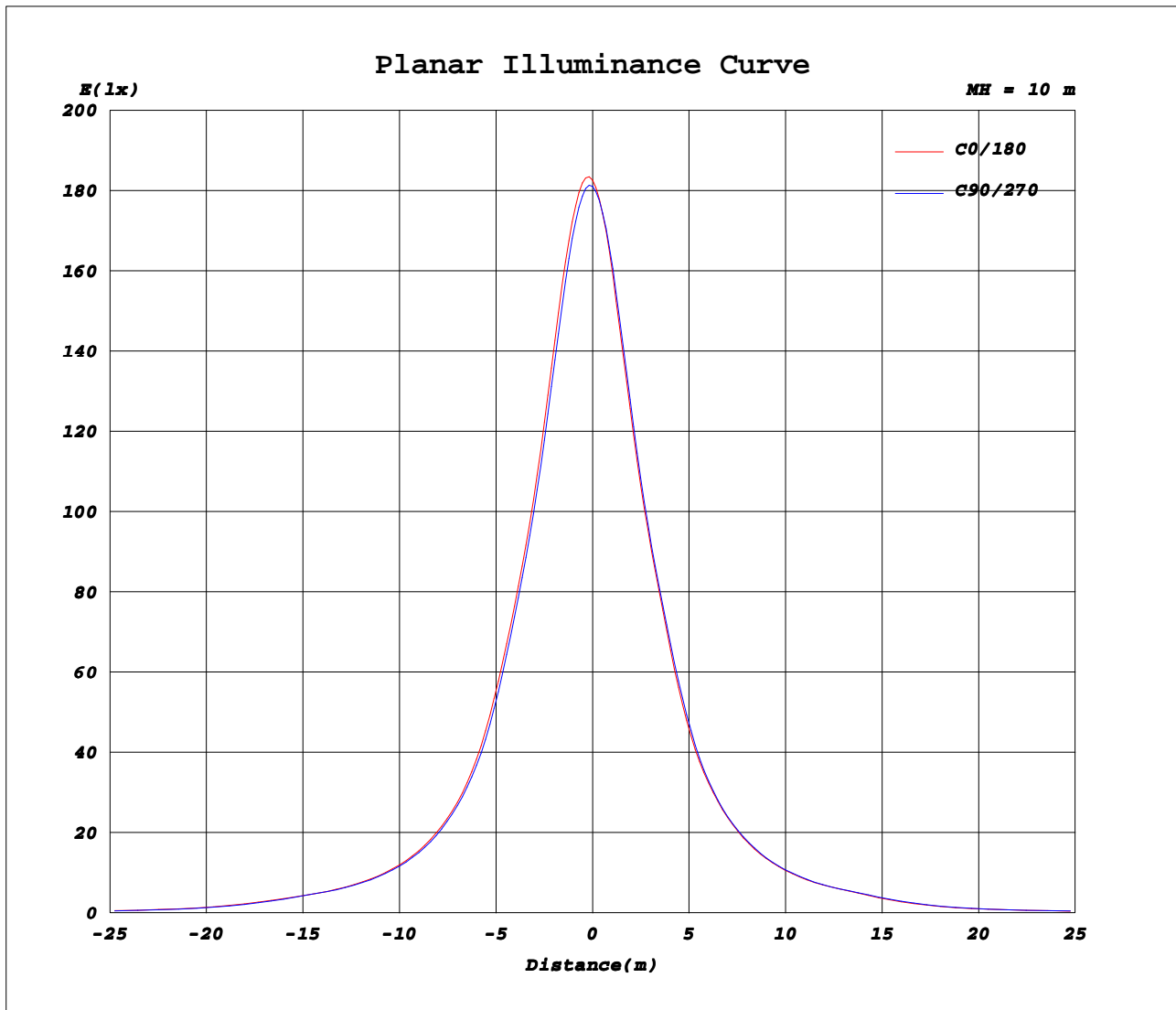
AvgL	cd/m2
L_0~180(65)av	29699
L_0~180(75)av	27347
L_0~180(85)av	34406
L_90~270(65)av	29230
L_90~270(75)av	27240
L_90~270(85)av	35570
L_45(65)av	29053
L_45(75)av	27060
L_45(85)av	35808

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LUC
Test Date: 03 January 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: HB2200-130G-G5 360EA-45D_180927#1

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

Table--1

UNIT: #10cd

C(DEG) γ (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1826	1825	1825	1824	1823	1819	1811	1807	1807	1807	1807	1809	1826	1825	1825	1824	1823	1819	1811
5	1782	1779	1770	1762	1751	1744	1744	1727	1702	1683	1660	1649	1668	1669	1677	1682	1690	1691	1678
10	1566	1561	1546	1535	1517	1507	1512	1487	1451	1422	1388	1371	1387	1387	1399	1405	1419	1423	1410
15	1281	1277	1262	1249	1235	1231	1236	1214	1181	1154	1127	1110	1120	1119	1125	1127	1139	1144	1138
20	1042	1034	1019	1011	1004	1002	1007	990	962	940	914	900	908	905	910	908	918	925	923
25	838	834	814	805	798	798	802	784	758	737	708	695	699	695	702	699	707	720	720
30	642	638	620	610	608	608	614	602	580	565	548	536	539	534	534	530	538	548	549
35	502	500	490	481	479	479	487	479	464	452	437	428	433	427	424	420	429	438	438
40	408	407	399	389	389	391	396	391	380	370	358	352	355	352	349	344	351	359	360
45	340	340	333	324	326	329	331	327	318	312	303	299	301	299	297	291	298	303	305
50	292	292	287	280	282	285	287	283	277	272	267	264	265	264	262	258	262	266	267
55	262	262	258	254	256	258	260	258	252	246	236	230	233	232	233	232	237	241	240
60	217	218	214	209	206	205	205	198	186	175	164	157	158	158	159	160	166	169	167
65	142	144	140	138	135	134	135	129	122	116	112	109	109	108	108	108	111	113	112
70	104	103	102	101	101	100	101	98.7	95.1	91.9	88.8	86.0	86.6	86.2	86.6	86.4	87.9	88.6	89.0
75	80.1	80.1	79.4	78.5	77.2	76.1	77.0	73.3	69.7	67.0	64.5	62.2	61.5	61.4	61.9	61.7	63.4	64.5	64.0
80	57.2	57.6	57.0	56.1	54.9	54.3	54.6	52.2	48.4	45.5	43.2	41.4	40.8	40.4	40.9	41.3	42.1	42.8	42.7
85	37.8	37.3	37.1	36.2	36.4	36.5	36.1	35.1	33.6	29.2	25.3	22.3	22.2	21.5	23.0	23.7	22.2	25.1	25.9
90	14.3	14.5	13.7	12.4	11.8	12.5	14.5	12.4	10.3	9.07	8.92	8.45	7.85	7.88	8.13	7.94	7.56	7.74	8.52
95	2.41	2.40	2.34	2.70	4.03	5.14	5.87	5.28	3.48	2.67	2.52	2.83	2.66	2.68	2.45	2.17	2.71	3.64	3.70
100	2.57	2.51	2.50	2.51	2.66	2.85	2.98	2.97	2.82	2.68	2.66	2.72	2.06	2.03	1.99	1.98	1.99	2.10	2.14
105	2.86	2.87	2.93	2.97	2.88	2.96	3.00	2.98	2.97	3.03	3.17	3.15	2.40	2.38	2.35	2.34	2.30	2.31	2.32
110	3.28	3.27	3.33	3.40	3.47	3.55	3.50	3.46	3.48	3.58	3.67	3.66	2.85	2.84	2.84	2.75	2.73	2.74	2.80
115	3.79	3.77	3.80	3.99	4.11	4.13	4.09	4.08	4.12	4.17	4.15	4.17	3.33	3.32	3.32	3.29	3.25	3.29	3.39
120	4.36	4.35	4.32	4.49	4.68	4.83	4.79	4.85	4.82	4.76	4.71	4.81	3.96	3.92	3.86	3.95	3.96	4.00	4.09
125	5.00	4.96	4.95	5.07	5.32	5.45	5.48	5.53	5.49	5.41	5.38	5.49	4.65	4.63	4.53	4.59	4.80	4.87	4.95
130	5.66	5.68	5.65	5.76	5.97	6.10	6.15	6.18	6.15	6.05	6.09	6.22	5.43	5.40	5.29	5.34	5.51	5.55	5.64
135	6.40	6.42	6.44	6.45	6.51	6.65	6.70	6.73	6.71	6.71	6.83	6.92	6.23	6.18	6.10	6.07	6.12	6.20	6.26
140	7.07	7.09	7.13	7.12	7.13	7.17	7.18	7.22	7.27	7.34	7.47	7.51	6.92	6.91	6.86	6.80	6.75	6.78	6.80
145	7.68	7.69	7.70	7.71	7.72	7.72	7.71	7.75	7.82	7.90	8.01	8.04	7.55	7.53	7.50	7.42	7.39	7.39	7.40
150	8.18	8.15	8.15	8.20	8.23	8.21	8.21	8.23	8.29	8.36	8.39	8.43	8.08	8.02	7.98	7.99	7.94	7.91	7.91
155	8.49	8.48	8.48	8.49	8.56	8.55	8.55	8.56	8.60	8.61	8.63	8.66	8.39	8.35	8.31	8.31	8.30	8.27	8.27
160	8.66	8.67	8.68	8.70	8.72	8.75	8.75	8.77	8.77	8.75	8.77	8.79	8.55	8.54	8.52	8.52	8.52	8.50	8.48
165	8.77	8.78	8.78	8.79	8.79	8.82	8.81	8.82	8.80	8.81	8.84	8.83	8.69	8.67	8.66	8.62	8.59	8.59	8.56
170	8.77	8.77	8.76	8.78	8.80	8.81	8.77	8.77	8.77	8.79	8.81	8.80	8.70	8.71	8.70	8.65	8.61	8.59	8.55
175	8.74	8.75	8.77	8.81	8.83	8.77	8.75	8.75	8.75	8.79	8.79	8.74	8.73	8.73	8.76	8.75	8.69	8.65	8.61
180	8.81	8.81	8.82	8.85	8.81	8.75	8.74	8.74	8.77	8.81	8.77	8.74	8.81	8.81	8.82	8.85	8.81	8.75	8.74

C Range: 0 - 360DEG

C Interval: 15.0DEG

Test Speed: HIGH

Temperature:25.3DEG

Operators:LUC

Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:219.9V I:0.6473A P:138.8W PF:0.9745 Lamp Flux:18584.6x1 lm		
NAME: HB2200-130G-G5 360EA-45D_180927#1	TYPE:LED	WEIGHT:
SPEC.:G5 360	DIM.:	SERIAL No.:
MFR.: ICEPIPE	SUR.:	Shielding Angle:

Table--2

UNIT: #10cd

C(DEG) γ (DEG)	285	300	315	330	345														
0	1807	1807	1807	1807	1809														
5	1690	1713	1733	1758	1775														
10	1430	1465	1498	1537	1564														
15	1158	1192	1222	1259	1283														
20	941	972	996	1026	1044														
25	736	764	791	823	841														
30	563	585	604	629	646														
35	449	467	480	496	508														
40	367	380	391	403	410														
45	309	318	325	334	340														
50	271	275	280	287	291														
55	245	250	254	257	260														
60	173	185	196	207	215														
65	116	122	129	137	143														
70	90.9	94.8	98.0	102	104														
75	65.9	69.8	72.9	76.4	79.5														
80	45.1	48.1	51.0	55.1	57.4														
85	27.6	32.5	35.6	36.8	37.9														
90	9.12	9.56	10.5	13.4	14.9														
95	3.72	2.81	1.77	1.71	1.75														
100	2.00	1.90	1.86	1.92	1.96														
105	2.27	2.20	2.19	2.13	2.11														
110	2.73	2.61	2.61	2.57	2.49														
115	3.30	3.14	3.10	2.96	2.89														
120	4.00	3.87	3.71	3.50	3.46														
125	4.80	4.63	4.32	4.11	4.08														
130	5.49	5.28	5.00	4.83	4.77														
135	6.12	5.92	5.77	5.66	5.59														
140	6.72	6.57	6.51	6.44	6.36														
145	7.32	7.23	7.16	7.10	7.05														
150	7.86	7.78	7.71	7.63	7.64														
155	8.22	8.17	8.10	8.04	8.06														
160	8.44	8.41	8.35	8.32	8.32														
165	8.54	8.50	8.49	8.48	8.49														
170	8.57	8.56	8.54	8.54	8.56														
175	8.62	8.66	8.64	8.60	8.61														
180	8.74	8.77	8.81	8.77	8.74														

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:LUC
Test Date:03 January 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: HB2200-130G-G5 360EA-45D_180927#1

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	18263	18255	18255	18239	18231	18193	18108	18075	18069	18065
3.0	18271	18245	18182	18120	18039	17979	17940	17816	17649	17520
6.0	17507	17473	17367	17287	17157	17085	17091	16899	16611	16382
9.0	16217	16168	16020	15910	15729	15635	15668	15422	15057	14767
12.0	14517	14475	14310	14207	14026	13960	14020	13775	13390	13089
15.0	12815	12772	12620	12487	12345	12306	12364	12140	11807	11542
18.0	11298	11232	11082	10986	10898	10874	10929	10735	10446	10217
21.0	10008	9937	9787	9697	9627	9614	9660	9496	9226	9003
24.0	8802	8754	8565	8474	8405	8400	8452	8262	7989	7768
27.0	7554	7506	7313	7215	7177	7171	7208	7050	6805	6601
30.0	6418	6377	6197	6103	6079	6076	6139	6023	5797	5645
33.0	5511	5480	5343	5260	5238	5246	5328	5233	5050	4922
36.0	4803	4786	4690	4600	4585	4588	4667	4595	4453	4334
39.0	4247	4230	4150	4052	4051	4062	4117	4067	3947	3844
42.0	3785	3770	3696	3605	3613	3637	3672	3625	3526	3445
45.0	3404	3399	3325	3244	3257	3288	3313	3270	3185	3117
48.0	3093	3094	3028	2961	2972	3007	3022	2992	2917	2861
51.0	2846	2850	2800	2739	2752	2776	2800	2763	2708	2665
54.0	2657	2658	2616	2578	2588	2617	2636	2609	2577	2539
57.0	2529	2529	2489	2452	2442	2452	2461	2406	2300	2210
60.0	2167	2177	2139	2094	2059	2047	2054	1977	1859	1753
63.0	1697	1716	1682	1645	1610	1598	1603	1534	1432	1351
66.0	1315	1315	1300	1266	1254	1242	1252	1201	1140	1101
69.0	1089	1080	1069	1057	1054	1055	1060	1039	992.5	963.2
72.0	947.1	941.8	933.4	923.8	914.3	921.0	926.9	901.3	860.6	824.1
75.0	800.8	800.7	794.4	784.7	771.7	760.8	769.9	732.8	697.1	670.1
78.0	653.8	657.7	650.2	643.4	637.1	628.4	632.6	610.1	578.2	543.8
81.0	525.4	527.2	521.2	513.3	503.3	497.8	500.9	477.1	445.9	423.9
84.0	408.8	403.1	400.1	393.7	391.5	388.3	389.5	376.2	361.9	343.1
87.0	325.8	321.0	310.0	306.5	291.7	285.1	289.8	261.8	213.9	179.9
90.0	143.3	144.7	136.5	123.8	118.2	125.5	144.6	124.2	102.9	90.67
93.0	26.87	23.68	21.76	29.42	50.45	72.65	82.83	76.15	51.14	35.11
96.0	24.81	24.61	24.55	25.75	35.05	43.03	51.05	45.88	32.25	25.86
99.0	25.35	24.81	24.77	24.84	26.84	28.88	30.24	29.80	27.90	26.40
102.0	26.42	26.10	26.17	26.32	27.03	28.02	29.72	29.71	28.21	27.76
105.0	28.59	28.69	29.30	29.69	28.83	29.60	30.02	29.83	29.73	30.27
108.0	31.15	30.96	31.98	31.96	32.38	33.05	32.79	32.25	32.50	33.37
111.0	33.71	33.66	34.21	35.17	35.85	36.63	36.14	35.97	36.02	37.11
114.0	36.78	36.68	36.90	38.76	39.81	40.16	39.65	39.58	39.80	40.62
117.0	40.12	39.96	40.24	42.07	43.64	43.92	43.44	43.47	44.08	44.06
120.0	43.57	43.53	43.18	44.86	46.79	48.28	47.94	48.53	48.21	47.63
123.0	47.57	47.21	47.01	48.13	50.37	51.89	52.10	52.57	52.00	51.23
126.0	51.19	50.95	50.87	51.95	54.59	55.84	56.31	56.64	56.35	55.22
129.0	55.19	55.30	54.97	56.04	58.64	59.87	60.40	60.56	60.39	59.43
132.0	59.58	59.61	59.59	60.19	61.94	63.19	63.76	63.90	63.73	63.13
135.0	64.03	64.18	64.38	64.48	65.14	66.50	67.05	67.27	67.05	67.14
138.0	68.16	68.36	68.54	68.62	68.77	69.47	70.34	70.42	70.25	70.98
141.0	71.90	72.25	72.49	72.49	72.48	72.90	73.31	73.31	73.82	74.54
144.0	75.74	75.87	76.02	75.81	76.07	76.20	76.10	76.58	76.97	77.82
147.0	78.81	78.77	78.95	79.18	79.40	79.35	79.00	79.53	80.22	81.00
150.0	81.78	81.47	81.48	82.03	82.28	82.08	82.06	82.30	82.93	83.56
153.0	83.85	83.70	83.55	83.95	84.33	84.43	84.32	84.48	84.76	85.19
156.0	85.34	85.32	85.28	85.32	86.00	86.00	85.92	86.09	86.49	86.55
159.0	86.29	86.38	86.43	86.66	87.09	87.26	87.31	87.43	87.41	87.29
162.0	87.08	87.23	87.32	87.46	87.65	87.84	87.98	88.10	87.82	87.88
165.0	87.75	87.85	87.85	87.88	87.91	88.16	88.12	88.17	87.96	88.10
168.0	87.92	87.93	87.86	87.84	88.07	88.23	87.95	87.99	87.87	88.00
171.0	87.59	87.54	87.55	87.75	88.08	87.92	87.60	87.61	87.74	87.94
174.0	87.32	87.40	87.64	87.97	88.21	87.82	87.51	87.56	87.62	87.84
177.0	87.60	87.72	87.91	88.35	88.42	87.70	87.52	87.50	87.61	87.97
180.0	88.05	88.07	88.18	88.48	88.06	87.51	87.40	87.40	87.74	88.07
G/C	150.0	165.0	180.0	195.0	210.0	225.0	240.0	255.0	270.0	285.0
0.0	18071	18088	18263	18255	18255	18239	18231	18193	18108	18075
3.0	17380	17315	17489	17493	17548	17570	17629	17617	17514	17574
6.0	16103	15967	16164	16185	16280	16337	16441	16457	16329	16471
9.0	14446	14273	14440	14452	14565	14633	14772	14801	14671	14861
12.0	12755	12589	12720	12733	12825	12863	13013	13068	12946	13164
15.0	11268	11098	11200	11194	11248	11265	11386	11443	11381	11579
18.0	9958	9815	9904	9863	9907	9908	10005	10061	10040	10230
21.0	8737	8586	8657	8643	8698	8667	8765	8844	8828	9015
24.0	7476	7334	7380	7354	7422	7395	7482	7596	7589	7773
27.0	6356	6229	6251	6217	6261	6224	6306	6437	6442	6594
30.0	5477	5357	5388	5339	5341	5298	5376	5476	5488	5630

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LUC
Test Date: 03 January 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: HB2200-130G-G5 360EA-45D_180927#1

Photometric Data Table [cd]

33.0	4769	4667	4713	4659	4629	4589	4681	4771	4772	4898
36.0	4188	4107	4154	4099	4069	4027	4118	4199	4200	4302
39.0	3717	3654	3687	3650	3620	3571	3650	3729	3736	3816
42.0	3338	3286	3307	3282	3252	3203	3268	3342	3356	3416
45.0	3035	2994	3011	2991	2967	2914	2976	3035	3049	3093
48.0	2796	2761	2774	2765	2735	2696	2744	2798	2805	2845
51.0	2628	2601	2607	2602	2579	2542	2579	2618	2625	2645
54.0	2464	2417	2444	2439	2429	2409	2452	2487	2497	2529
57.0	2087	2011	2039	2031	2043	2045	2106	2148	2129	2190
60.0	1639	1568	1579	1576	1592	1599	1657	1688	1666	1730
63.0	1280	1225	1225	1220	1231	1237	1276	1307	1285	1344
66.0	1069	1045	1044	1038	1042	1039	1061	1077	1077	1103
69.0	932.4	905.2	907.9	906.1	905.6	903.5	922.8	930.9	935.4	955.5
72.0	779.1	753.4	755.9	752.5	756.2	767.6	781.3	793.0	789.0	817.4
75.0	644.8	621.6	614.8	613.8	619.4	617.2	634.1	644.7	640.1	659.4
78.0	511.8	485.2	482.9	481.1	487.6	489.3	500.3	512.4	507.0	535.2
81.0	399.6	383.2	376.2	373.0	376.7	376.7	386.4	391.9	392.9	417.3
84.0	302.7	275.3	274.7	269.0	277.5	286.9	274.8	301.5	310.2	326.9
87.0	153.6	133.9	127.9	133.4	132.9	137.0	126.4	145.9	154.5	176.1
90.0	89.19	84.46	78.48	78.76	81.30	79.40	75.56	77.40	85.16	91.25
93.0	37.47	43.86	44.39	45.05	45.29	45.08	47.25	49.05	52.30	48.36
96.0	24.55	27.10	22.55	22.85	21.03	19.22	22.63	27.55	29.22	27.95
99.0	25.82	26.63	20.23	19.79	19.35	19.22	20.16	22.21	22.62	21.10
102.0	28.20	28.59	21.71	21.49	21.25	21.24	20.93	20.98	21.02	20.60
105.0	31.66	31.52	24.03	23.80	23.48	23.35	23.02	23.08	23.15	22.68
108.0	35.12	34.82	26.75	26.61	26.55	25.74	25.46	25.57	25.87	25.16
111.0	37.61	37.63	29.36	29.29	29.35	28.47	28.25	28.34	29.07	28.41
114.0	40.59	40.65	32.27	32.14	32.17	31.65	31.30	31.64	32.62	31.80
117.0	43.65	44.12	35.68	35.38	35.18	35.65	35.29	35.63	36.48	35.54
120.0	47.10	48.06	39.64	39.18	38.56	39.50	39.64	40.02	40.88	40.04
123.0	51.01	52.14	43.66	43.37	42.43	43.23	44.79	45.11	45.77	44.74
126.0	55.16	56.41	47.94	47.75	46.82	47.56	49.61	50.35	51.09	49.70
129.0	59.46	60.70	52.68	52.41	51.30	51.76	53.75	54.31	55.18	53.70
132.0	63.97	65.13	57.49	57.28	56.15	56.19	57.52	58.23	58.91	57.40
135.0	68.33	69.21	62.26	61.78	61.01	60.70	61.24	62.02	62.59	61.18
138.0	72.24	72.83	66.58	66.26	65.67	65.15	64.91	65.72	66.24	64.80
141.0	75.88	76.27	70.42	70.37	70.03	69.23	68.88	69.07	69.26	68.45
144.0	79.06	79.40	74.13	74.19	73.87	72.91	72.64	72.80	72.92	72.15
147.0	81.73	82.15	77.99	77.41	77.09	76.87	76.32	76.01	76.09	75.48
150.0	83.94	84.25	80.81	80.17	79.80	79.90	79.37	79.08	79.11	78.56
153.0	85.50	85.89	82.91	82.40	82.04	81.99	81.80	81.54	81.43	80.92
156.0	86.57	86.80	84.25	83.95	83.55	83.58	83.57	83.26	83.20	82.71
159.0	87.50	87.66	85.19	85.02	84.80	84.78	84.86	84.59	84.47	84.05
162.0	88.09	88.12	86.18	85.99	85.86	85.67	85.62	85.54	85.24	84.96
165.0	88.39	88.30	86.85	86.72	86.62	86.23	85.91	85.88	85.64	85.42
168.0	88.36	88.27	87.08	87.09	86.99	86.46	85.95	85.86	85.54	85.61
171.0	87.98	87.78	86.97	87.05	87.03	86.67	86.19	85.91	85.49	85.70
174.0	87.90	87.44	87.13	87.14	87.36	87.22	86.71	86.34	85.88	86.14
177.0	88.08	87.68	87.97	87.88	88.09	88.02	87.31	86.97	86.67	86.70
180.0	87.75	87.37	88.07	88.07	88.17	88.49	88.08	87.50	87.41	87.39
G/C	300.0	315.0	330.0	345.0						
0.0	18069	18065	18071	18088						
3.0	17726	17858	18029	18152						
6.0	16743	16978	17256	17441						
9.0	15213	15534	15932	16181						
12.0	13532	13859	14255	14520						
15.0	11917	12222	12587	12834						
18.0	10537	10796	11123	11331						
21.0	9312	9556	9851	10024						
24.0	8066	8335	8647	8820						
27.0	6857	7093	7391	7587						
30.0	5852	6036	6289	6460						
33.0	5094	5234	5431	5571						
36.0	4477	4599	4752	4855						
39.0	3954	4064	4194	4276						
42.0	3528	3619	3728	3795						
45.0	3181	3249	3344	3403						
48.0	2905	2961	3043	3087						
51.0	2686	2731	2789	2836						
54.0	2561	2582	2614	2647						
57.0	2289	2370	2457	2504						
60.0	1853	1956	2068	2150						
63.0	1434	1515	1625	1694						
66.0	1145	1193	1266	1322						

C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LUC
Test Date: 03 January 2018

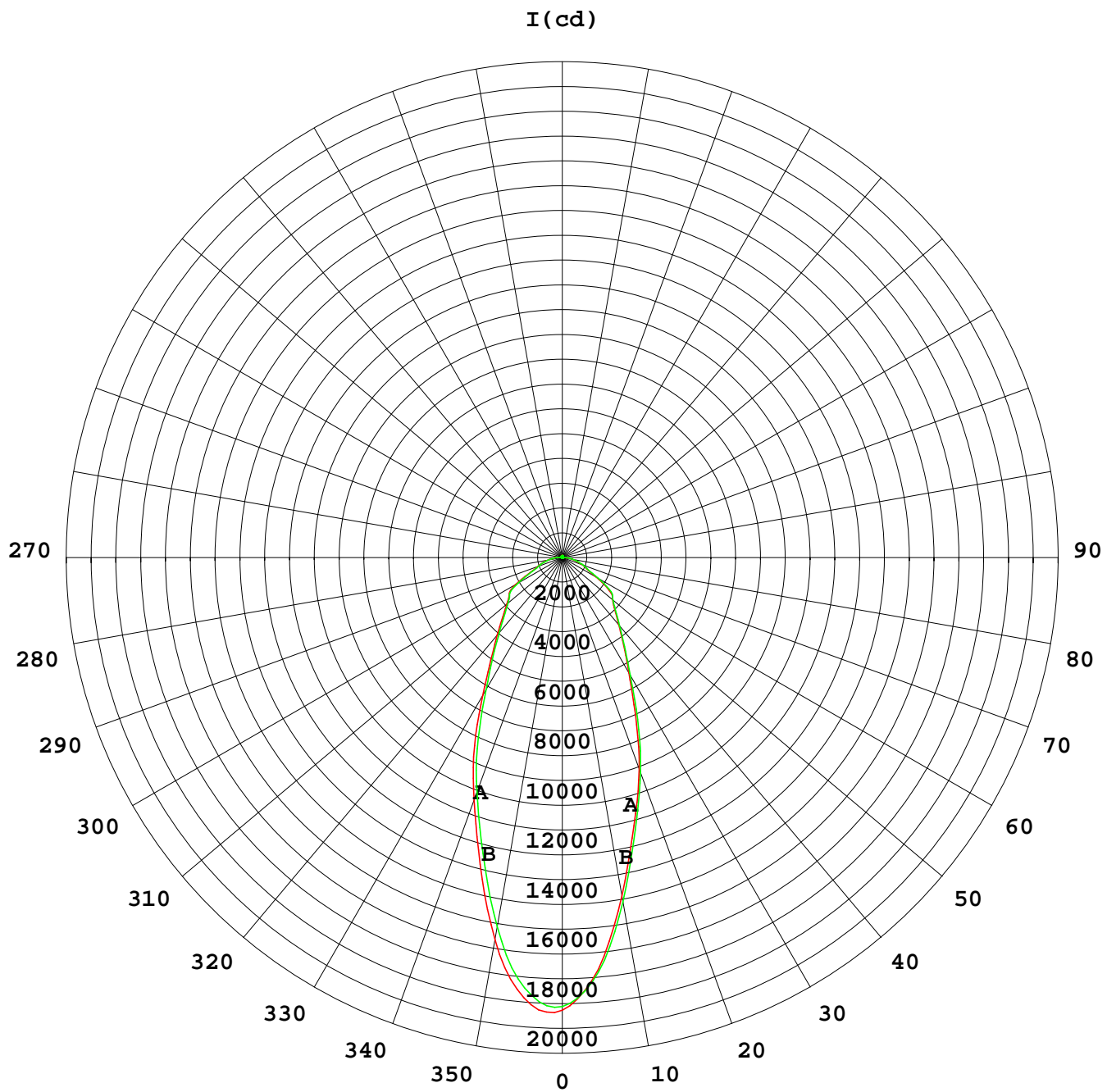
γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.351
Humidity: 65.0%
Test Distance: 8.000m [K=1.0000]
Remarks: HB2200-130G-G5 360EA-45D_180927#1

Photometric Data Table [cd]

69.0	992.3	1033	1067	1092
72.0	859.5	886.1	919.5	943.4
75.0	698.4	729.5	763.7	795.3
78.0	574.3	600.8	634.6	653.9
81.0	444.2	465.8	502.4	527.6
84.0	360.8	378.4	395.0	409.4
87.0	208.0	256.4	284.9	319.6
90.0	95.59	104.6	133.5	149.2
93.0	36.85	22.42	24.69	28.05
96.0	24.47	17.54	17.61	18.27
99.0	18.93	18.20	18.84	19.28
102.0	20.04	19.68	19.47	19.54
105.0	22.05	21.86	21.33	21.09
108.0	24.29	24.58	24.26	23.48
111.0	27.03	26.79	26.52	25.59
114.0	30.25	29.77	28.67	28.00
117.0	34.12	33.38	31.74	31.00
120.0	38.71	37.14	35.03	34.55
123.0	43.30	40.87	38.44	38.30
126.0	47.74	44.56	42.41	42.11
129.0	51.56	48.70	46.65	46.17
132.0	55.31	53.03	51.57	50.95
135.0	59.22	57.71	56.59	55.89
138.0	62.98	62.14	61.33	60.61
141.0	67.07	66.48	65.76	65.13
144.0	70.91	70.53	69.89	69.25
147.0	74.66	73.94	73.45	72.96
150.0	77.83	77.10	76.32	76.36
153.0	80.30	79.69	79.05	79.12
156.0	82.28	81.59	81.02	81.26
159.0	83.75	83.13	82.69	82.75
162.0	84.55	84.12	83.97	84.03
165.0	85.00	84.86	84.83	84.95
168.0	85.38	85.22	85.28	85.44
171.0	85.75	85.50	85.37	85.57
174.0	86.26	86.08	85.77	85.81
177.0	87.14	87.15	86.72	86.68
180.0	87.72	88.08	87.72	87.40

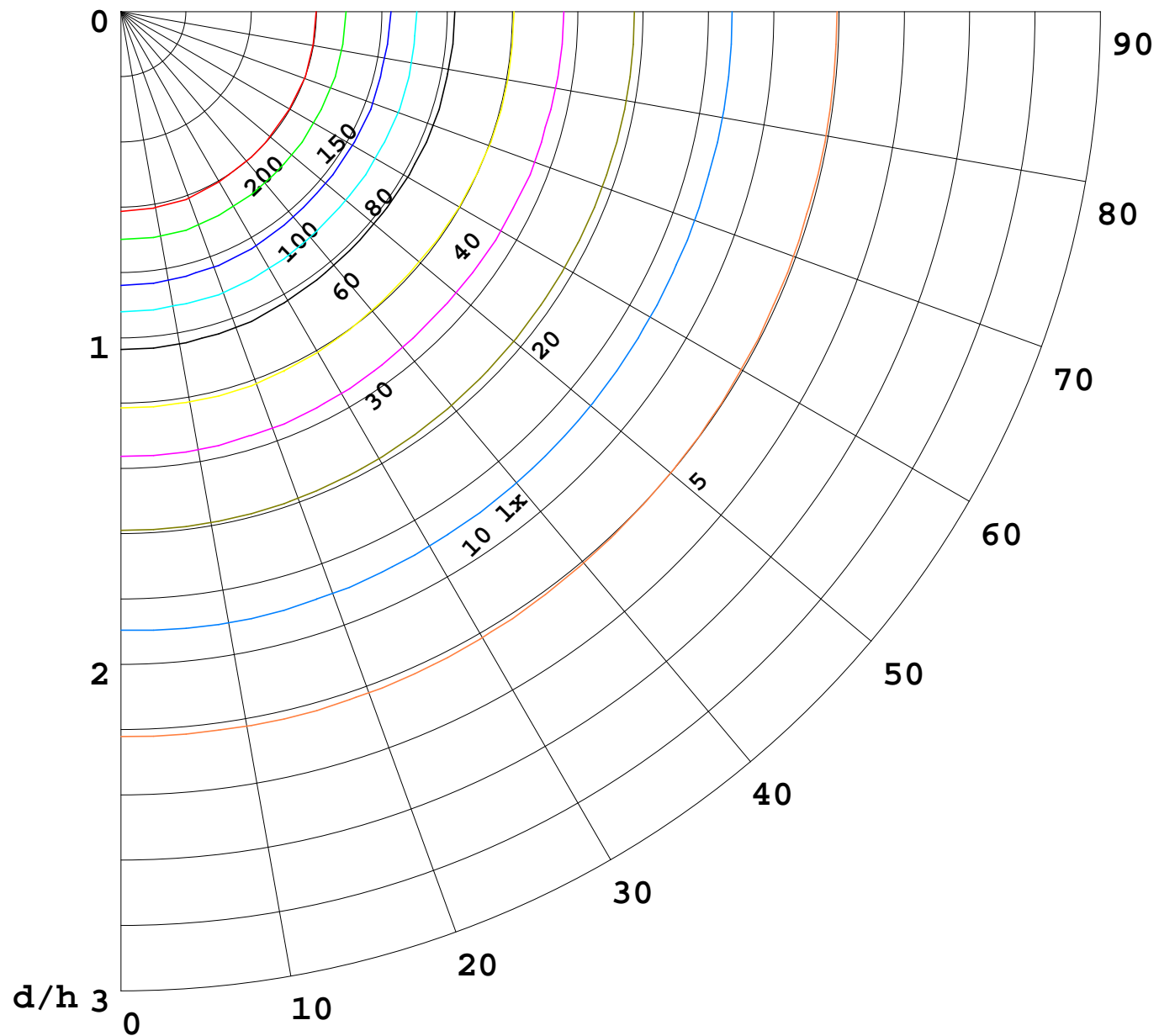
C Range: 0 - 360DEG
C Interval: 15.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: LUC
Test Date: 03 January 2018

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: HB2200-130G-G5 360EA-45D_180927#1



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

