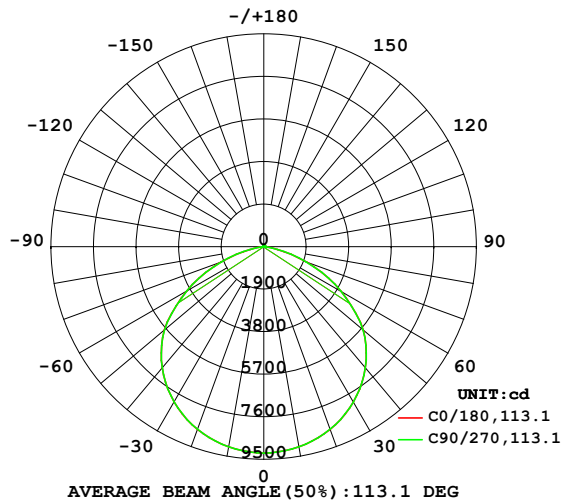


LUMINAIRE PHOTOMETRIC TEST REPORT

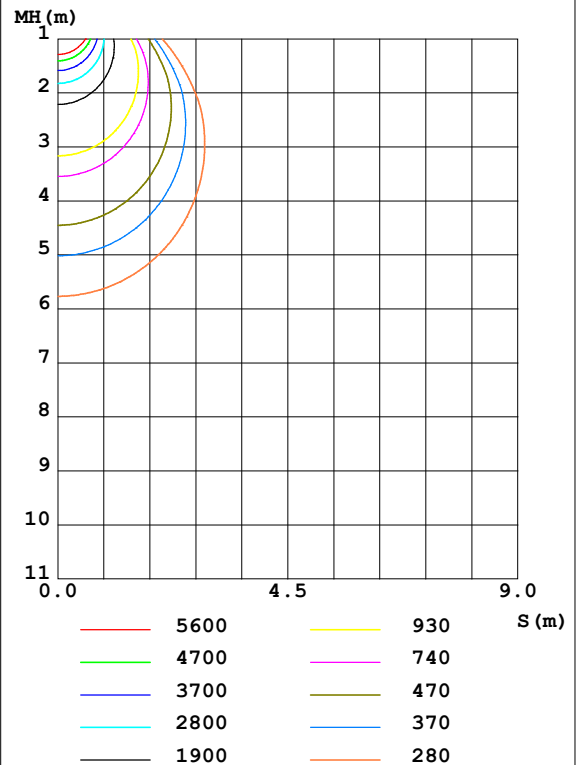
Test:U:230.0V I:0.9000A P:198.4W PF:0.9589 Lamp Flux:25848.8x1 lm		
NAME: HB08-200	TYPE:200	WEIGHT:
SPEC.:5000K Ra70 120DEG H00A02	DIM.: 0.39*0.39*0.12	SERIAL No.:
MFR.:	SUR.:0.23*0.23	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 130.26 lm/W			
MODEL	HB08-200	I _{max} (cd)	9217	S/MH (C0/180)	1.29
NOMINAL POWER(W)	200	LOR(%)	100.0	S/MH (C90/270)	1.29
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	25849	η UP,DN(C0-180)	0.4,49.8
NOMINAL FLUX(lm)	25848.8	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.4,49.4
LAMPS INSIDE	1	η up (%)	0.8	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	230	η down (%)	99.2	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-06-22

γ Range: 0 - 180DEG
γ Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	9077	9078	9077	9078	9077	9077	9077	9077	0- 10	872.9	872.9	3.38, 3.38
20	8682	8681	8680	8681	8682	8680	8680	8680	10- 20	2517	3390	13.1, 13.1
30	8012	8011	8010	8011	8012	8011	8010	8011	20- 30	3864	7254	28.1, 28.1
40	7061	7062	7062	7062	7061	7062	7062	7062	30- 40	4737	11991	46.4, 46.4
50	5801	5800	5799	5800	5801	5800	5799	5800	40- 50	4987	16978	65.7, 65.7
60	3981	3981	3982	3981	3981	3981	3982	3981	50- 60	4381	21360	82.6, 82.6
70	2037	2035	2030	2035	2037	2029	2030	2029	60- 70	2990	24349	94.2, 94.2
80	379.5	377.0	363.8	377.0	379.5	375.9	363.8	375.9	70- 80	1205	25555	98.9, 98.9
90	6.971	6.970	6.957	6.970	6.971	6.939	6.957	6.939	80- 90	86.07	25641	99.2, 99.2
100	13.30	13.28	13.25	13.28	13.30	13.23	13.25	13.23	90-100	10.79	25652	99.2, 99.2
110	21.69	21.67	21.63	21.67	21.69	21.60	21.63	21.60	100-110	18.32	25670	99.3, 99.3
120	30.79	30.78	30.73	30.78	30.79	30.69	30.73	30.69	110-120	25.91	25696	99.4, 99.4
130	40.33	40.32	40.26	40.32	40.33	40.23	40.26	40.23	120-130	31.75	25728	99.5, 99.5
140	49.46	49.44	49.38	49.44	49.46	49.35	49.38	49.35	130-140	34.70	25762	99.7, 99.7
150	57.31	57.28	57.23	57.28	57.31	57.22	57.23	57.22	140-150	33.48	25796	99.8, 99.8
160	63.60	63.57	63.53	63.57	63.60	63.52	63.53	63.52	150-160	27.94	25824	99.9, 99.9
170	68.12	68.09	68.05	68.09	68.12	68.04	68.05	68.04	160-170	18.63	25842	100, 100
180	69.94	69.88	69.83	69.88	69.94	69.83	69.83	69.83	170-180	6.578	25849	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 14999 lm

%lum = 58.0%

%lamp = 58.0%

Conical surface Flux(120deg): 21360 lm

%lum = 82.6%

%lamp = 82.6%

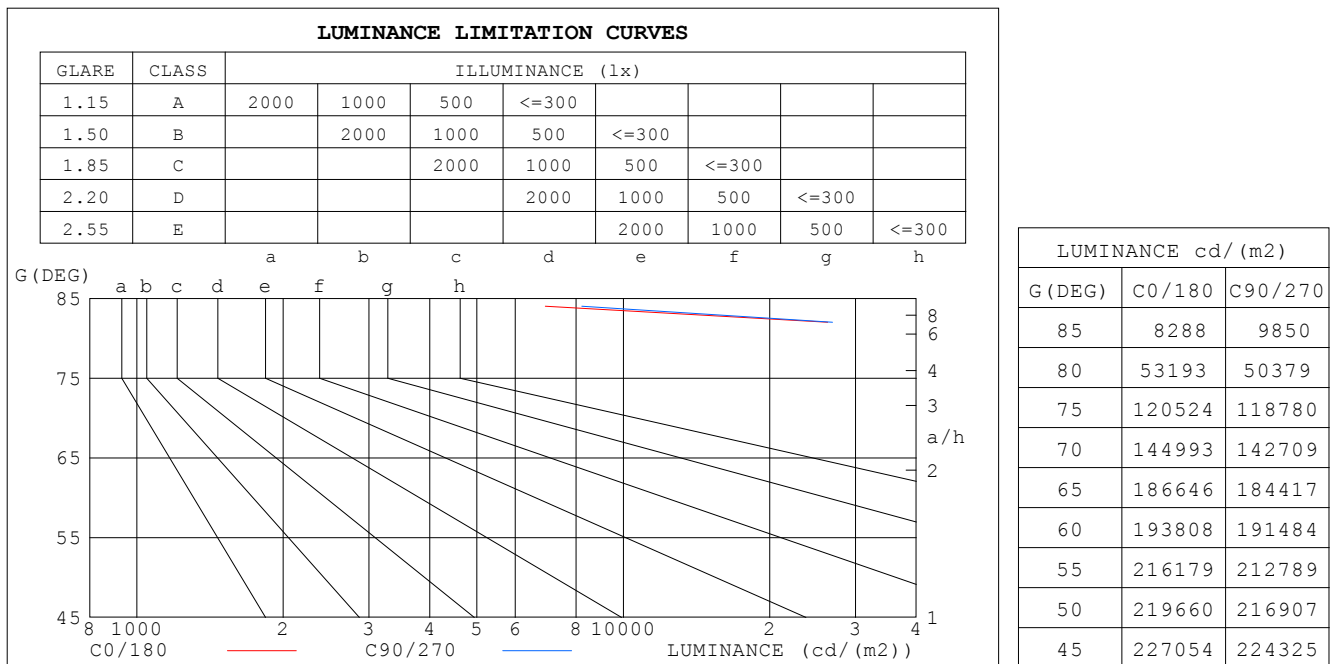
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-06-22

Checker:

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Assessor:

LUMINANCE LIMITATION CURVES



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-06-22

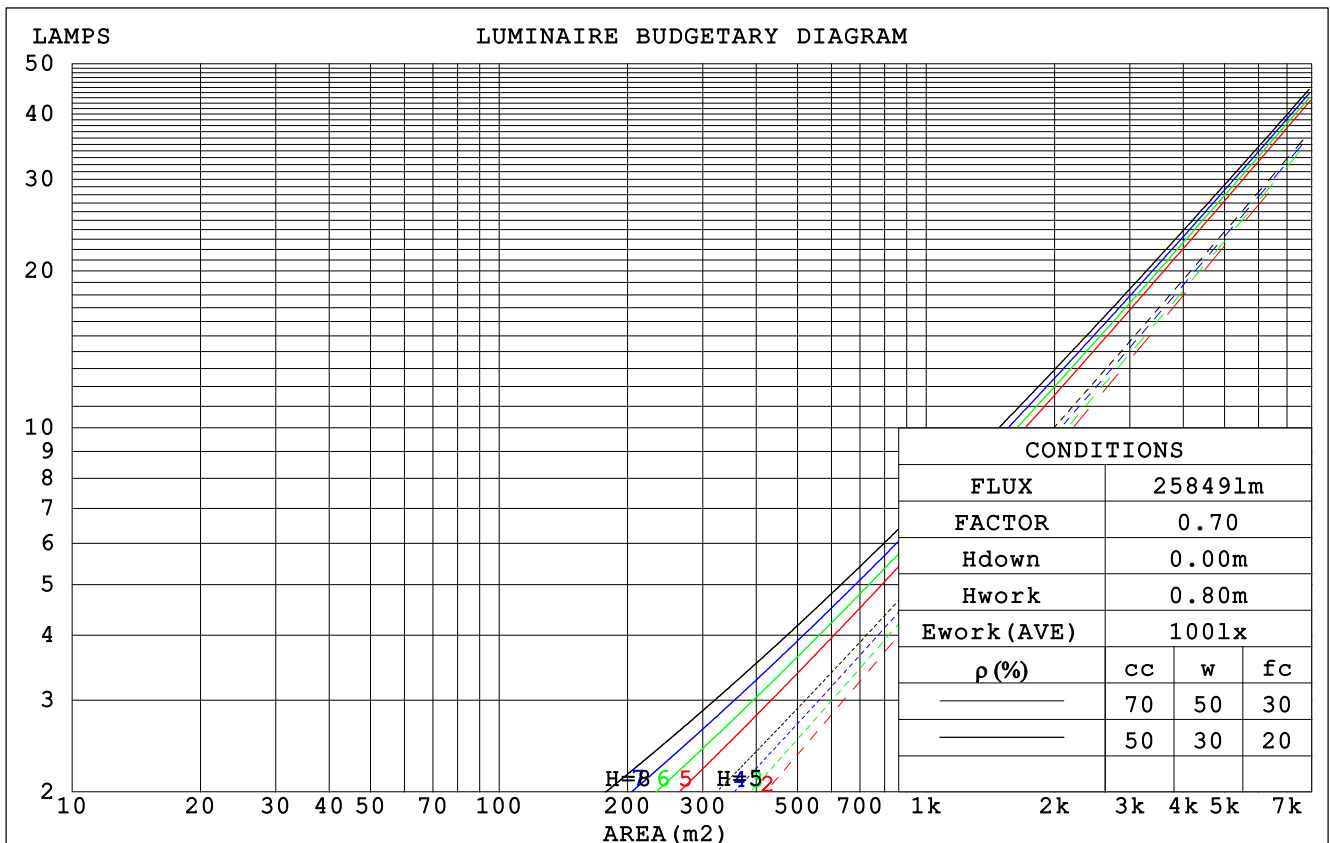
Checker:

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pfc	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	1.01	1.01	1.01	.99
1.0	1.05	1.01	.98	1.03	.99	.96	.98	.96	.93	.94	.92	.90	.91	.89	.87	.85
2.0	.92	.86	.80	.90	.84	.79	.87	.82	.77	.83	.79	.75	.80	.77	.74	.72
3.0	.81	.73	.67	.80	.72	.66	.76	.70	.65	.74	.68	.64	.71	.67	.63	.61
4.0	.72	.63	.57	.71	.63	.56	.68	.61	.56	.66	.60	.55	.63	.58	.54	.52
5.0	.64	.55	.49	.63	.55	.49	.61	.54	.48	.59	.53	.48	.57	.51	.47	.45
6.0	.58	.49	.43	.57	.49	.43	.55	.48	.42	.53	.47	.42	.52	.46	.41	.39
7.0	.52	.44	.38	.52	.43	.38	.50	.43	.37	.48	.42	.37	.47	.41	.37	.35
8.0	.48	.39	.34	.47	.39	.33	.46	.38	.33	.44	.38	.33	.43	.37	.33	.31
9.0	.44	.36	.30	.43	.35	.30	.42	.35	.30	.41	.34	.30	.40	.34	.29	.28
10.0	.40	.33	.27	.40	.32	.27	.39	.32	.27	.38	.31	.27	.37	.31	.27	.25



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-06-22

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Checker:

Assessor:

WEC AND CCEC

pcc	80%			70%			50%			30%			10%			0	
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
pfc	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients (WEC)										
0.0																	
1.0	.281	.160	.051	.274	.156	.050	.261	.149	.048	.248	.143	.046	.237	.137	.044		
2.0	.273	.150	.046	.267	.147	.045	.255	.142	.044	.244	.137	.043	.234	.132	.042		
3.0	.257	.137	.041	.252	.135	.041	.241	.131	.040	.231	.127	.039	.222	.123	.038		
4.0	.240	.125	.037	.235	.123	.036	.226	.120	.036	.217	.116	.035	.209	.113	.035		
5.0	.224	.114	.033	.219	.113	.033	.211	.110	.032	.203	.107	.032	.196	.105	.031		
6.0	.209	.105	.030	.205	.103	.030	.197	.101	.029	.190	.099	.029	.184	.097	.029		
7.0	.195	.096	.027	.191	.095	.027	.185	.093	.027	.178	.091	.027	.172	.090	.026		
8.0	.183	.089	.025	.179	.088	.025	.173	.087	.025	.168	.085	.025	.162	.083	.024		
9.0	.172	.083	.023	.169	.082	.023	.163	.081	.023	.158	.079	.023	.153	.078	.023		
10.0	.162	.077	.022	.159	.077	.021	.154	.076	.021	.149	.074	.021	.145	.073	.021		

pcc	80%			70%			50%			30%			10%			0	
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0	
pfc	20%			20%			20%			20%			20%			0	
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)										
0.0	.197	.197	.197	.168	.168	.168	.115	.115	.115	.066	.066	.066	.021	.021	.021		
1.0	.185	.163	.143	.158	.140	.123	.108	.096	.085	.062	.056	.049	.020	.018	.016		
2.0	.176	.138	.106	.151	.119	.092	.103	.082	.064	.060	.048	.038	.019	.015	.012		
3.0	.168	.120	.082	.144	.104	.071	.099	.072	.050	.057	.042	.030	.018	.014	.010		
4.0	.161	.107	.066	.138	.093	.057	.095	.064	.040	.055	.038	.024	.018	.012	.008		
5.0	.154	.097	.054	.132	.084	.047	.091	.058	.033	.053	.034	.020	.017	.011	.007		
6.0	.147	.088	.046	.126	.076	.040	.087	.054	.028	.051	.031	.017	.016	.010	.006		
7.0	.140	.081	.040	.121	.071	.035	.083	.049	.025	.048	.029	.015	.016	.010	.005		
8.0	.134	.076	.035	.115	.066	.031	.080	.046	.022	.046	.027	.013	.015	.009	.004		
9.0	.128	.071	.032	.110	.061	.028	.076	.043	.020	.045	.025	.012	.014	.008	.004		
10.0	.123	.066	.029	.106	.058	.025	.073	.041	.018	.043	.024	.011	.014	.008	.004		

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-06-22

γ Range: 0 - 180DEG
γ Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UGR(Unified Glare Rating) Table

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	31.5	33.0	31.8	33.2	33.4	31.4	32.9	31.7	33.1	33.3
3H	32.6	33.9	32.9	34.2	34.4	32.5	33.9	32.8	34.1	34.4
4H	32.9	34.1	33.2	34.4	34.7	32.8	34.1	33.1	34.3	34.6
6H	32.9	34.1	33.2	34.4	34.7	32.8	34.0	33.2	34.3	34.6
8H	32.8	34.0	33.2	34.3	34.6	32.8	33.9	33.1	34.2	34.5
12H	32.8	33.9	33.1	34.2	34.5	32.7	33.8	33.1	34.1	34.5
4H 2H	32.0	33.3	32.3	33.5	33.8	31.9	33.2	32.3	33.5	33.8
3H	33.2	34.3	33.6	34.6	35.0	33.2	34.3	33.5	34.6	34.9
4H	33.5	34.6	33.9	34.9	35.2	33.5	34.5	33.9	34.8	35.2
6H	33.6	34.5	34.0	34.9	35.3	33.6	34.5	34.0	34.8	35.2
8H	33.6	34.4	34.0	34.8	35.2	33.5	34.4	33.9	34.7	35.1
12H	33.5	34.3	34.0	34.7	35.1	33.5	34.2	33.9	34.6	35.1
8H 4H	33.6	34.4	34.0	34.8	35.2	33.6	34.4	34.0	34.8	35.2
6H	33.7	34.4	34.2	34.8	35.3	33.7	34.4	34.1	34.8	35.2
8H	33.7	34.3	34.2	34.7	35.2	33.6	34.2	34.1	34.7	35.1
12H	33.7	34.2	34.1	34.6	35.1	33.6	34.1	34.1	34.6	35.1
12H 4H	33.6	34.3	34.0	34.7	35.2	33.5	34.3	34.0	34.7	35.1
6H	33.7	34.3	34.2	34.7	35.2	33.6	34.2	34.1	34.7	35.1
8H	33.7	34.2	34.2	34.6	35.1	33.6	34.1	34.1	34.6	35.1
Variations with the observer position at spacings:										
S = 1.0H	+ 0.2 / - 0.3					+ 0.2 / - 0.3				
1.5H	+ 0.2 / - 0.5					+ 0.3 / - 0.5				
2.0H	+ 0.5 / - 0.5					+ 0.5 / - 0.4				

CIE Pub.117 Corrected 25849 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.3)

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-06-22

γ Range: 0 - 180DEG
γ Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

UTILIZATION FACTORS TABLE

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	40	33
0.80	69	57	50	68	57	50	66	56	49	43
1.00	77	67	60	76	66	59	74	67	59	52
1.25	85	75	68	83	74	67	80	72	66	59
1.50	90	80	74	88	79	73	85	77	72	64
2.00	96	88	82	95	87	81	91	85	80	72
2.50	100	93	87	98	91	86	94	89	84	76
3.00	103	97	92	101	95	91	97	92	89	80
4.00	107	102	98	105	100	96	101	97	93	85
5.00	109	105	101	107	103	100	102	99	97	87
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

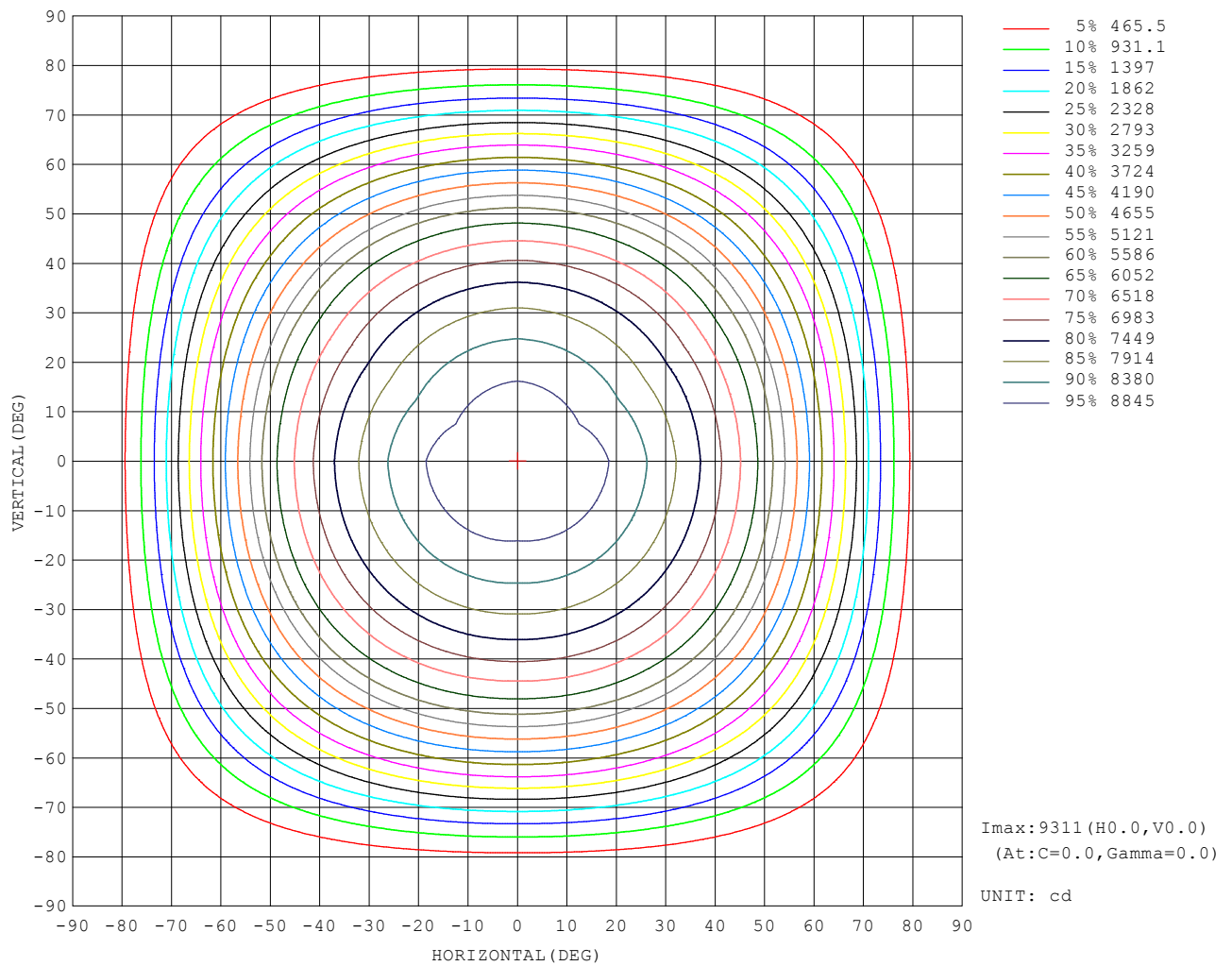
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2016-06-22

Checker:

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
 Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
 Humidity: 65.0%
 Test Distance: 9.470m [K=1.0000]
 Remarks:

Assessor:

ISOCANDELA DIAGRAM



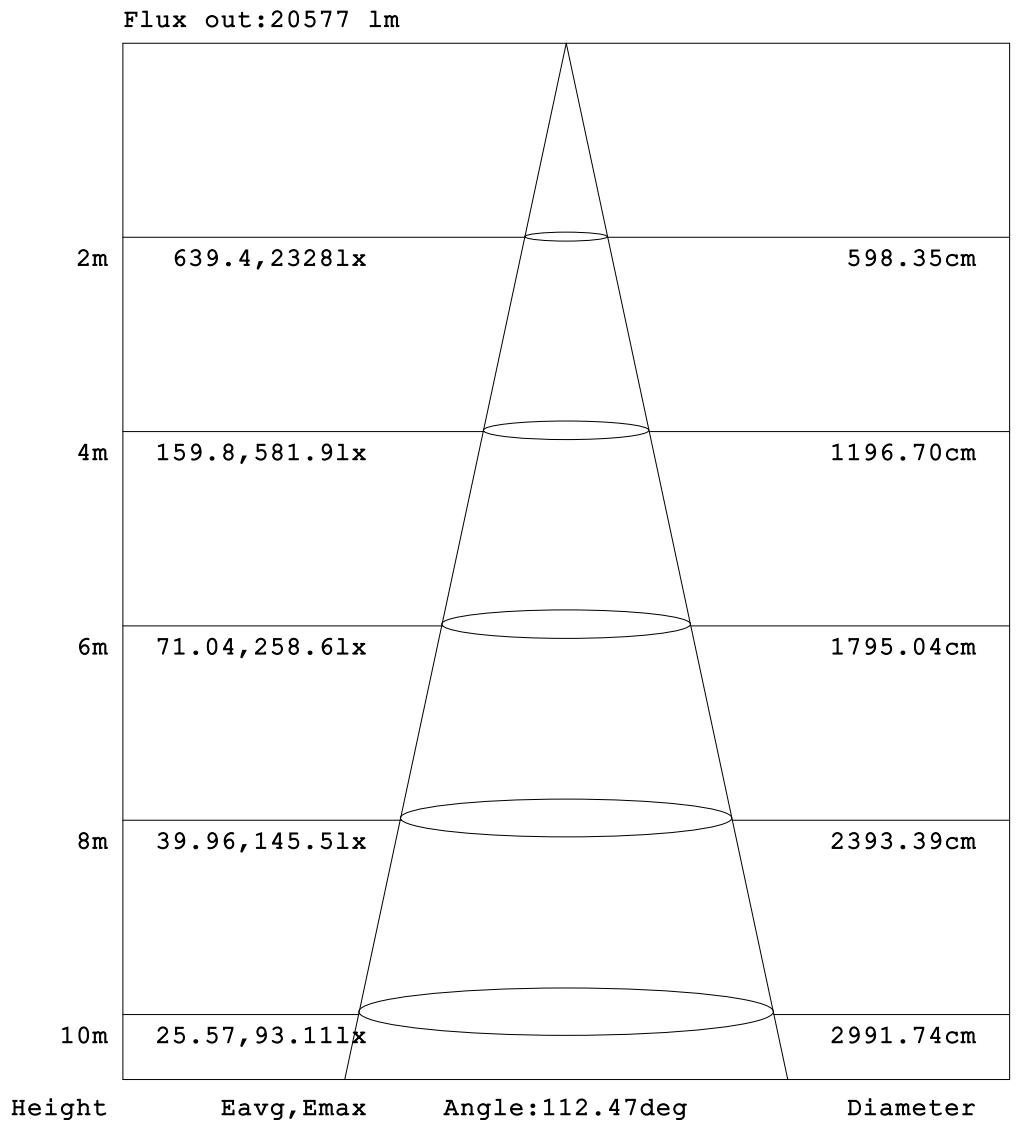
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-06-22

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

AAI Figure



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

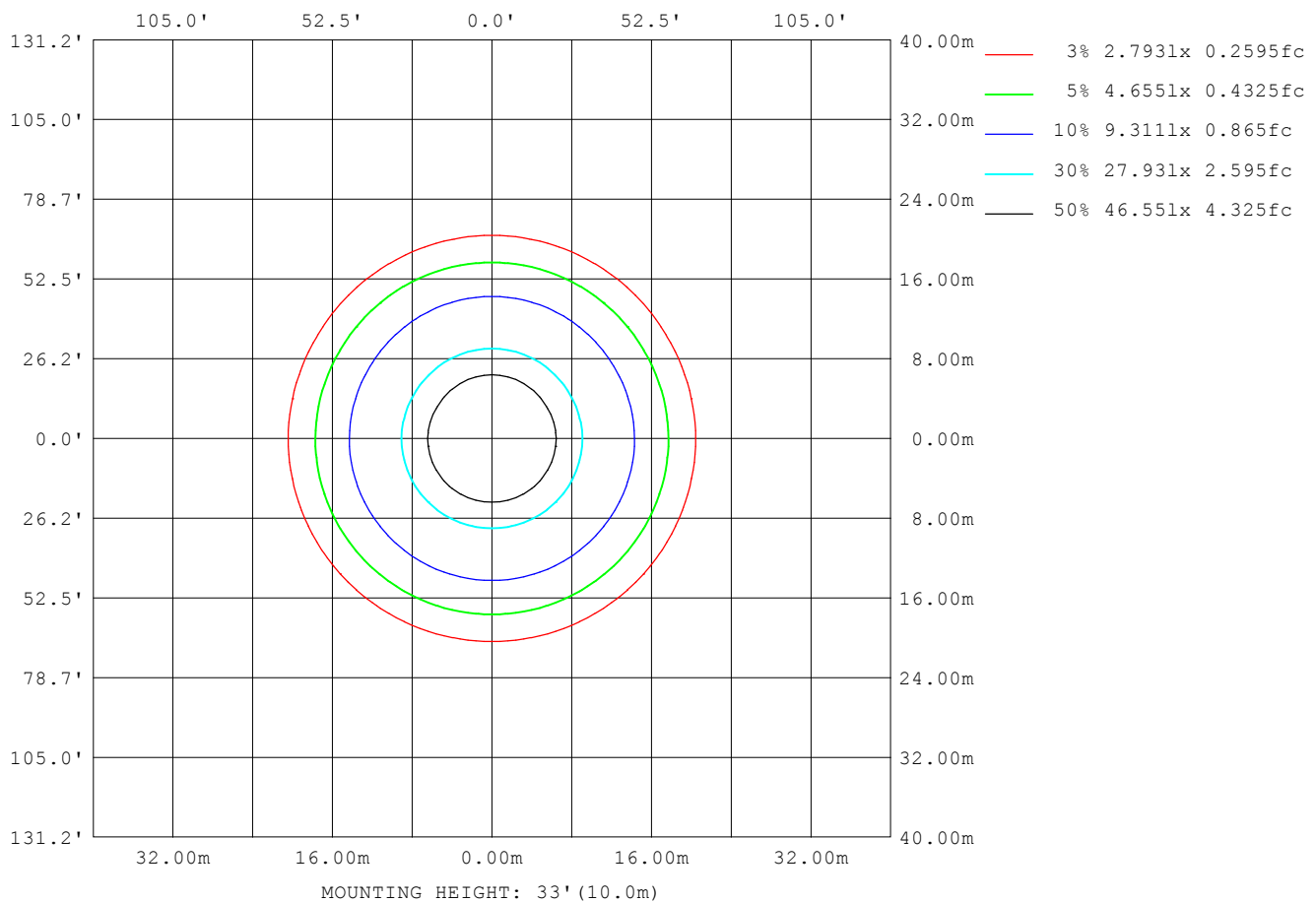
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-06-22

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

ISOLUX DIAGRAM



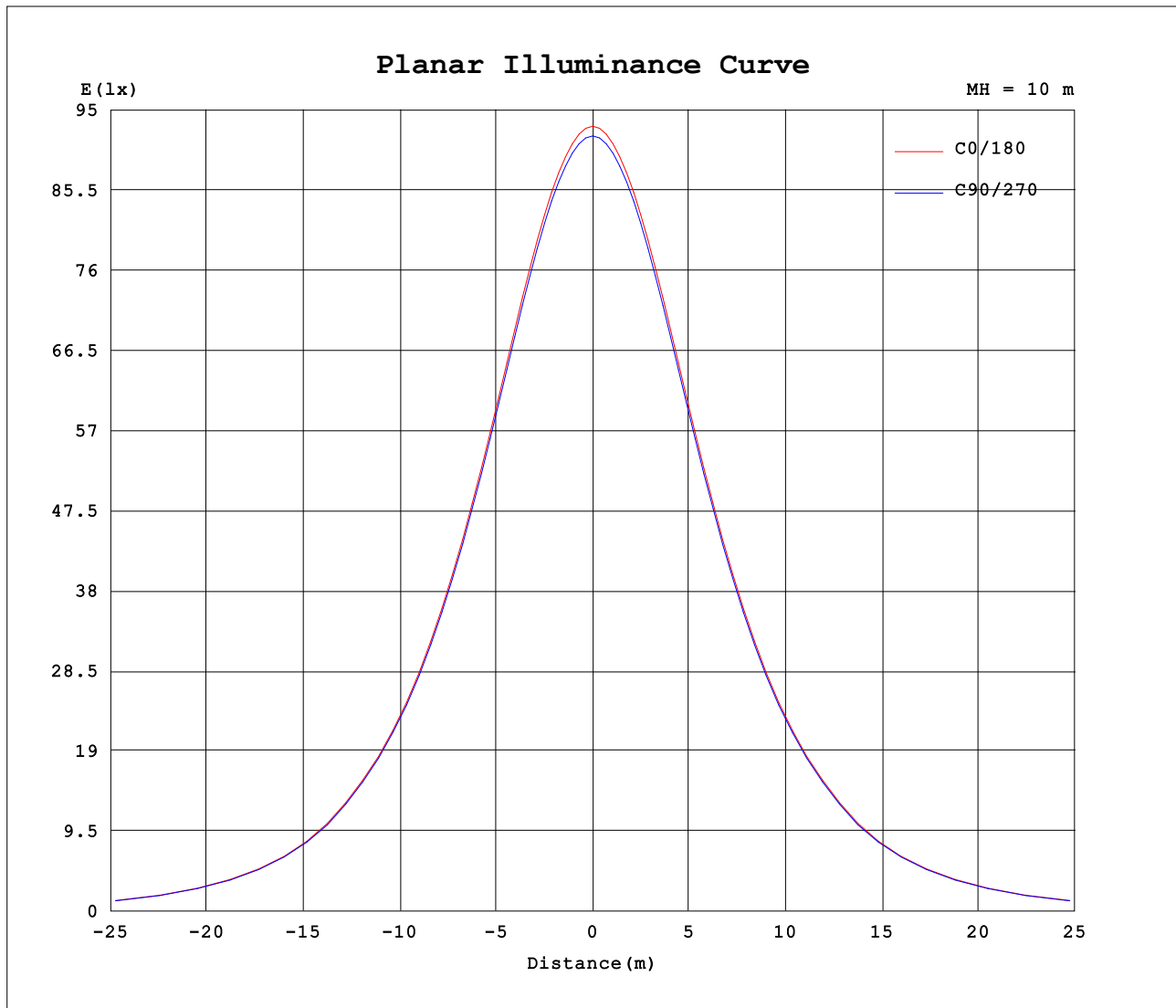
C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-06-22

Checker:

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Assessor:

Planar Illuminance Curve



C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators:
Test Date: 2016-06-22

γ Range: 0 - 180DEG
 γ Interval: 2.0DEG
Test System: EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity: 65.0%
Test Distance: 9.470m [K=1.0000]
Remarks:

Checker:

Assessor:

LUMINOUS DISTRIBUTION INTENSITY DATA

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	30	60	90	120	150	180	210	240	270	300	330						
0	9217	9217	9217	9217	9217	9217	9217	9217	9217	9217	9217	9217						
5	9192	9192	9191	9191	9191	9192	9192	9191	9191	9191	9191	9191						
10	9077	9078	9078	9077	9078	9078	9077	9077	9077	9077	9077	9077						
15	8951	8952	8951	8951	8951	8952	8951	8950	8950	8951	8950	8950						
20	8682	8682	8681	8680	8681	8682	8682	8680	8681	8680	8681	8680						
25	8445	8446	8445	8444	8445	8446	8445	8445	8445	8444	8445	8445						
30	8012	8011	8011	8010	8011	8011	8012	8011	8011	8010	8011	8011						
35	7666	7665	7665	7666	7665	7665	7666	7666	7666	7666	7666	7666						
40	7061	7062	7061	7062	7061	7062	7061	7062	7062	7062	7062	7062						
45	6596	6597	6597	6597	6597	6597	6596	6598	6598	6597	6598	6598						
50	5801	5801	5800	5799	5800	5801	5801	5801	5800	5799	5800	5801						
55	5094	5095	5090	5076	5090	5095	5094	5085	5076	5076	5076	5085						
60	3981	3981	3981	3982	3981	3981	3981	3979	3982	3982	3982	3979						
65	3241	3241	3239	3242	3239	3241	3241	3240	3239	3242	3239	3240						
70	2037	2037	2033	2030	2033	2037	2037	2031	2028	2030	2028	2031						
75	1282	1289	1294	1279	1294	1289	1282	1278	1279	1279	1279	1278						
80	379	368	386	364	386	368	379	372	380	364	380	372						
85	29.7	33.7	35.1	35.7	35.1	33.7	29.7	29.0	31.5	35.7	31.5	29.0						
90	6.97	6.98	6.96	6.96	6.96	6.98	6.97	6.94	6.94	6.96	6.94	6.94						
95	9.17	9.18	9.16	9.15	9.16	9.18	9.17	9.13	9.13	9.15	9.13	9.13						
100	13.3	13.3	13.3	13.2	13.3	13.3	13.3	13.2	13.2	13.2	13.2	13.2						
105	16.5	16.5	16.5	16.4	16.5	16.5	16.5	16.4	16.4	16.4	16.4	16.4						
110	21.7	21.7	21.7	21.6	21.7	21.7	21.7	21.6	21.6	21.6	21.6	21.6						
115	25.3	25.3	25.3	25.2	25.3	25.3	25.3	25.2	25.2	25.2	25.2	25.2						
120	30.8	30.8	30.8	30.7	30.8	30.8	30.8	30.7	30.7	30.7	30.7	30.7						
125	34.6	34.6	34.5	34.5	34.5	34.6	34.6	34.5	34.5	34.5	34.5	34.5						
130	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.2	40.2	40.3	40.2	40.2						
135	44.1	44.1	44.1	44.0	44.1	44.1	44.1	44.0	44.0	44.0	44.0	44.0						
140	49.5	49.5	49.4	49.4	49.4	49.5	49.5	49.4	49.3	49.4	49.3	49.4						
145	52.8	52.8	52.7	52.7	52.7	52.8	52.8	52.7	52.7	52.7	52.7	52.7						
150	57.3	57.3	57.3	57.2	57.3	57.3	57.3	57.2	57.2	57.2	57.2	57.2						
155	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	59.9	60.0	59.9	60.0						
160	63.6	63.6	63.6	63.5	63.6	63.6	63.6	63.5	63.5	63.5	63.5	63.5						
165	65.6	65.6	65.6	65.5	65.6	65.6	65.6	65.5	65.5	65.5	65.5	65.5						
170	68.1	68.1	68.1	68.0	68.1	68.1	68.1	68.0	68.0	68.0	68.0	68.0						
175	69.2	69.2	69.1	69.1	69.1	69.2	69.2	69.1	69.1	69.1	69.1	69.1						
180	69.9	69.9	69.9	69.8	69.9	69.9	69.9	69.8	69.8	69.8	69.8	69.8						

C Range: 0 - 360DEG
C Interval: 30.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:
Test Date:2016-06-22

γ Range: 0 - 180DEG
γ Interval: 2.0DEG
Test System:EVERFINE GO-2000A_V1 SYSTEM V2.0.295
Humidity:65.0%
Test Distance:9.470m [K=1.0000]
Remarks:

Checker:

Assessor: