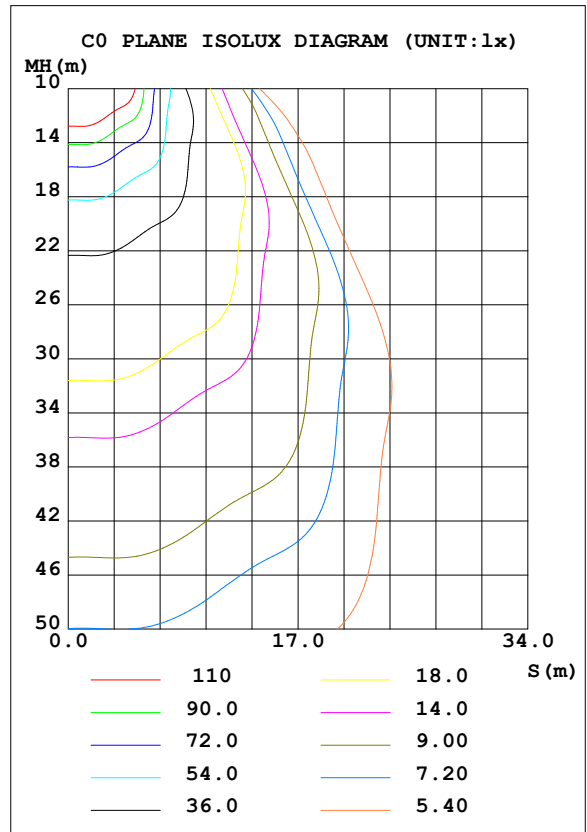
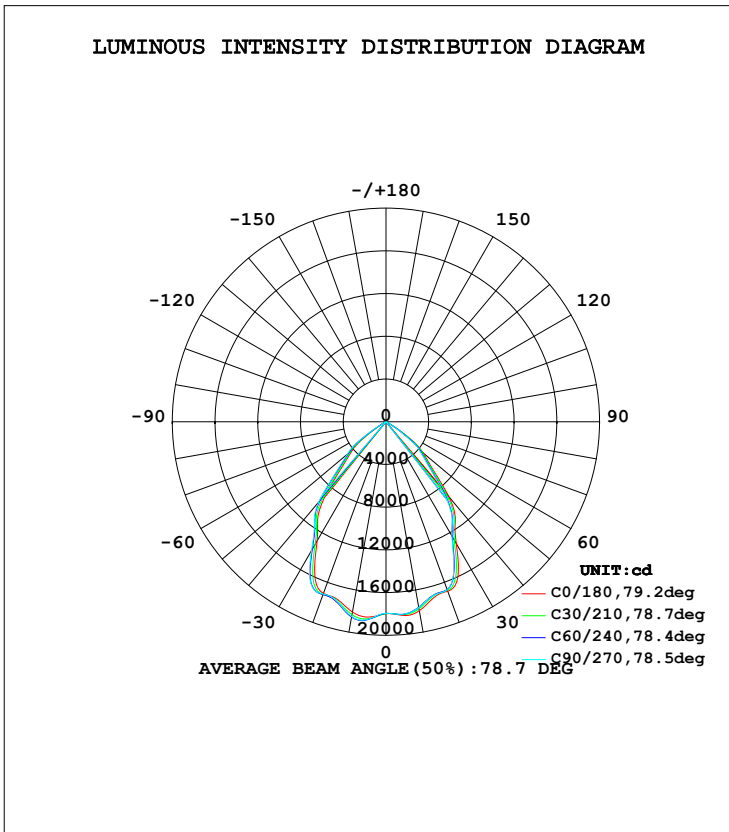


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.2V I:0.8758A P:197.8W PF:0.9862 Lamp Flux:27794.4x1 lm		
NAME: HB720-5	TYPE:	WEIGHT:5.8KG
SPEC.:	DIM.: φ360*190MM	SERIAL No.:1
MFR.: HUGO LIGHTING	SUR.:φ288MM	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 140.49 lm/W			
MODEL	HB720-5	I _{max} (cd)	18758	S/MH (C0/180)	1.11
NOMINAL POWER (W)	200	LOR (%)	100.0	S/MH (C90/270)	1.16
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	27794	η UP, DN (C0-180)	0.0, 48.3
NOMINAL FLUX (lm)	27794.4	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 51.7
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.00
TEST VOLTAGE (V)	230	η down (%)	100.0	CIBSE SHR MAX	1.15



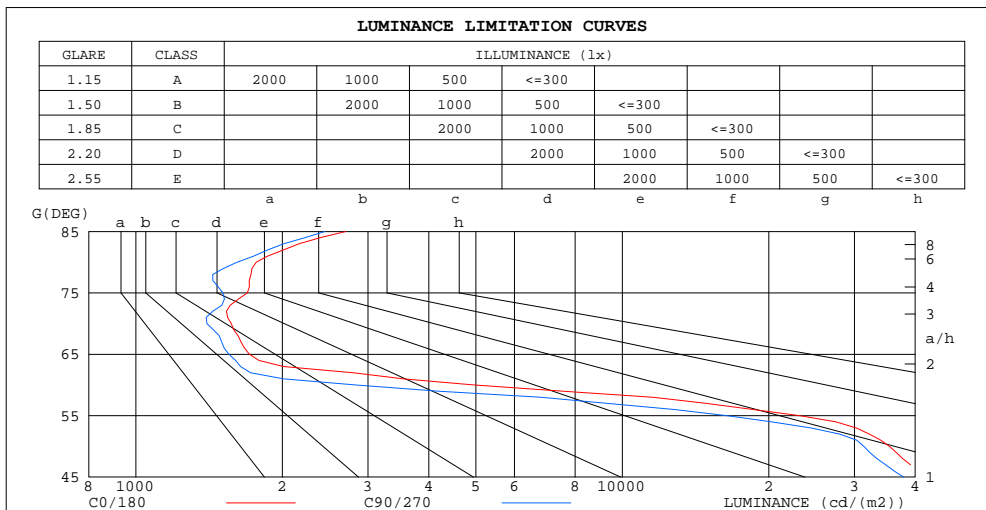
C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

**ZONAL FLUX DIAGRAM
AND LUMINANCE LIMITATION CURVES**

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	$\%lum, lamp$
10	1797	1771	1765	1781	1809	1846	1853	1829	0- 10	1740	1740	6.26,6.26
20	1689	1676	1673	1684	1711	1722	1717	1704	10- 20	4894	6634	23.9,23.9
30	1318	1261	1236	1249	1291	1356	1396	1369	20- 30	7136	13770	49.5,49.5
40	912.8	841.1	793.0	804.1	851.1	934.9	979.3	964.0	30- 40	6945	20716	74.5,74.5
50	455.5	427.8	403.3	394.7	409.8	447.4	474.6	469.9	40- 50	4705	25421	91.5,91.5
60	49.49	37.71	28.28	30.34	31.80	47.59	56.94	61.29	50- 60	2094	27515	99,99
70	10.74	10.08	9.573	9.577	8.462	9.077	9.514	9.574	60- 70	163.4	27678	99.6,99.6
80	6.139	5.827	5.609	5.620	4.063	4.224	4.556	4.639	70- 80	77.36	27755	99.9,99.9
90	2.932	2.790	2.775	2.776	1.212	1.254	1.396	1.389	80- 90	39.09	27794	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: $\times 10cd$									UNIT: lm		



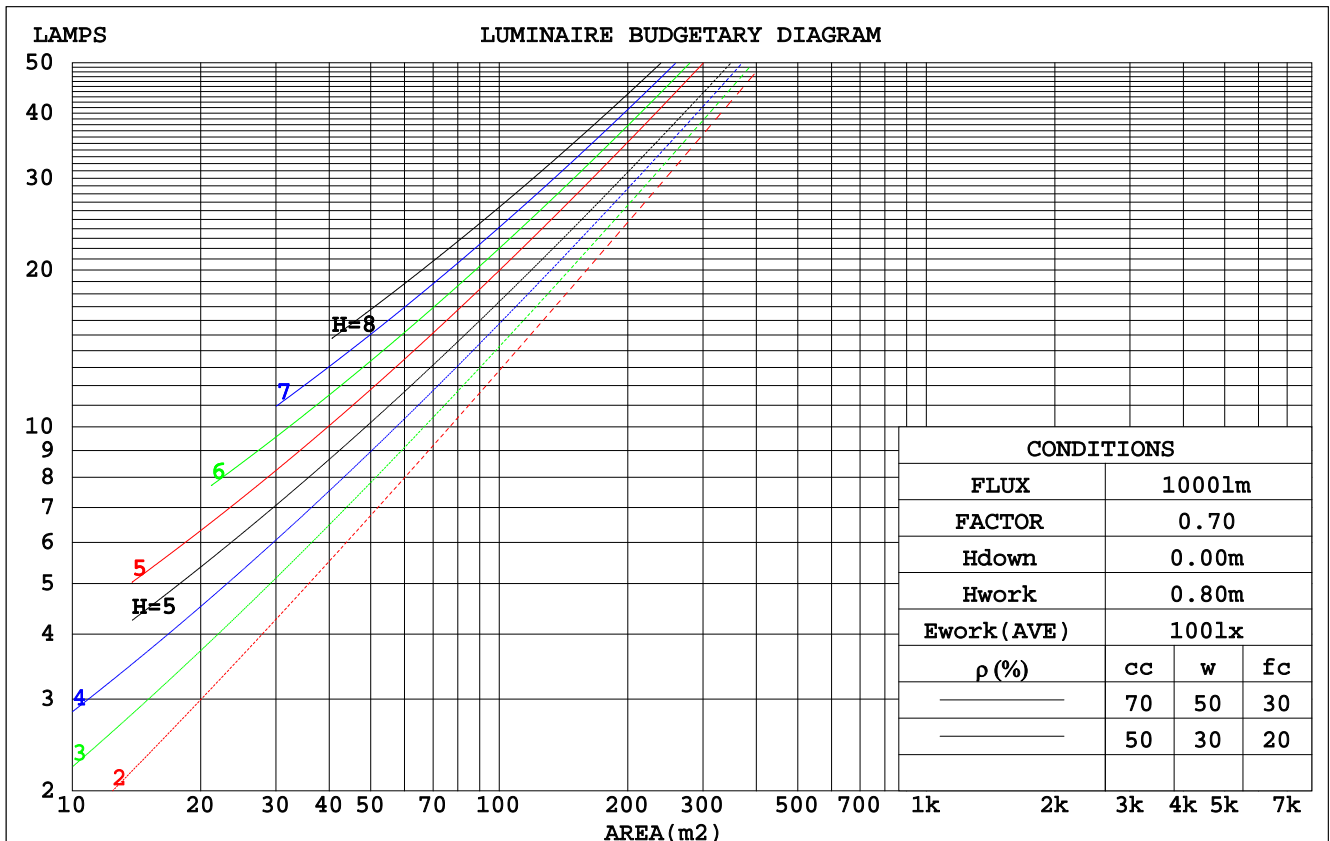
LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	2703	2446
80	1768	1615
75	1695	1511
70	1570	1399
65	1712	1553
60	4949	2828
55	23148	16403
50	35428	31375
45	42663	37871

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

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	1.11	1.11	1.11	1.06	1.06	1.06	1.02	1.02	1.02	1.00
1.0	1.09	1.06	1.04	1.07	1.04	1.02	1.03	1.01	.99	.99	.98	.96	.96	.94	.93	.91
2.0	.00	.95	.91	.98	.94	.90	.95	.91	.88	.92	.89	.86	.89	.86	.84	.82
3.0	.91	.85	.81	.90	.84	.80	.87	.82	.79	.84	.81	.77	.82	.79	.76	.74
4.0	.84	.77	.72	.82	.76	.71	.80	.75	.71	.78	.73	.70	.76	.72	.69	.67
5.0	.77	.70	.65	.76	.69	.64	.74	.68	.64	.72	.67	.63	.70	.66	.62	.61
6.0	.71	.64	.58	.70	.63	.58	.68	.62	.58	.67	.61	.57	.65	.61	.57	.55
7.0	.65	.58	.53	.64	.58	.53	.63	.57	.53	.62	.56	.52	.61	.56	.52	.50
8.0	.60	.53	.49	.60	.53	.48	.59	.53	.48	.57	.52	.48	.56	.51	.48	.46
9.0	.56	.49	.45	.56	.49	.45	.55	.49	.44	.54	.48	.44	.53	.48	.44	.42
10.0	.52	.46	.41	.52	.45	.41	.51	.45	.41	.50	.45	.41	.49	.44	.41	.39



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

WEC AND CCEC

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	.207	.118	.037	.201	.114	.036	.188	.108	.034	.176	.102	.033	.165	.096	.031	
2.0	.202	.111	.034	.196	.108	.033	.185	.103	.032	.175	.098	.031	.166	.094	.030	
3.0	.194	.103	.031	.189	.101	.030	.180	.097	.030	.171	.094	.029	.163	.090	.028	
4.0	.185	.096	.028	.181	.095	.028	.173	.092	.027	.165	.089	.027	.158	.086	.026	
5.0	.177	.090	.026	.173	.089	.026	.165	.086	.025	.159	.084	.025	.152	.081	.024	
6.0	.168	.084	.024	.165	.083	.024	.158	.081	.024	.152	.079	.023	.147	.077	.023	
7.0	.160	.079	.022	.157	.078	.022	.151	.076	.022	.146	.075	.022	.141	.073	.021	
8.0	.152	.074	.021	.150	.074	.021	.145	.072	.021	.140	.071	.020	.135	.069	.020	
9.0	.145	.070	.020	.143	.070	.020	.138	.068	.019	.134	.067	.019	.130	.066	.019	
10.0	.139	.066	.018	.136	.066	.018	.132	.065	.018	.128	.064	.018	.124	.063	.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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.173	.157	.142	.148	.135	.123	.101	.093	.085	.058	.054	.049	.019	.017	.016	
2.0	.160	.132	.109	.137	.114	.094	.094	.079	.066	.054	.046	.038	.017	.015	.013	
3.0	.150	.114	.085	.128	.098	.074	.088	.068	.052	.051	.040	.030	.016	.013	.010	
4.0	.141	.100	.068	.121	.086	.059	.083	.060	.041	.048	.035	.025	.016	.011	.008	
5.0	.134	.088	.055	.115	.077	.048	.079	.053	.034	.046	.031	.020	.015	.010	.007	
6.0	.127	.080	.046	.109	.069	.040	.075	.048	.028	.044	.028	.017	.014	.009	.006	
7.0	.121	.072	.038	.104	.063	.034	.072	.044	.024	.042	.026	.014	.013	.008	.005	
8.0	.115	.066	.033	.099	.058	.029	.069	.040	.020	.040	.024	.012	.013	.008	.004	
9.0	.110	.061	.029	.095	.053	.025	.066	.037	.018	.038	.022	.011	.012	.007	.003	
10.0	.105	.057	.025	.091	.050	.022	.063	.035	.016	.037	.021	.009	.012	.007	.003	

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

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	22.5	23.7	22.8	23.9	24.0	21.9	23.0	22.1	23.2	23.4
3H	22.3	23.4	22.6	23.6	23.8	21.7	22.8	22.0	23.0	23.2
4H	22.3	23.2	22.5	23.5	23.7	21.6	22.6	21.9	22.8	23.1
6H	22.2	23.1	22.5	23.3	23.6	21.5	22.5	21.8	22.7	23.0
8H	22.1	23.0	22.4	23.3	23.6	21.5	22.4	21.8	22.6	22.9
12H	22.1	22.9	22.4	23.2	23.5	21.4	22.3	21.8	22.6	22.9
4H 2H	22.3	23.3	22.6	23.5	23.8	21.7	22.7	22.0	22.9	23.2
3H	22.1	23.0	22.5	23.3	23.5	21.5	22.4	21.9	22.7	22.9
4H	22.0	22.8	22.4	23.1	23.4	21.4	22.2	21.8	22.5	22.8
6H	22.0	22.6	22.4	23.0	23.3	21.4	22.0	21.7	22.4	22.7
8H	21.9	22.6	22.3	22.9	23.3	21.3	21.9	21.7	22.3	22.7
12H	21.9	22.5	22.3	22.8	23.2	21.3	21.9	21.7	22.2	22.6
8H 4H	21.9	22.5	22.3	22.9	23.3	21.3	21.9	21.7	22.3	22.7
6H	21.8	22.3	22.3	22.7	23.2	21.2	21.7	21.7	22.1	22.6
8H	21.8	22.3	22.3	22.7	23.1	21.2	21.7	21.7	22.1	22.5
12H	21.8	22.2	22.3	22.6	23.1	21.2	21.6	21.6	22.0	22.5
12H 4H	21.9	22.4	22.3	22.8	23.2	21.3	21.8	21.7	22.2	22.6
6H	21.8	22.2	22.2	22.7	23.1	21.2	21.6	21.6	22.1	22.5
8H	21.8	22.1	22.2	22.6	23.1	21.2	21.5	21.6	22.0	22.5
Variations with the observer position at spacings:										
S = 1.0H	+ 2.1 / - 5.0					+ 2.3 / - 6.7				
1.5H	+ 1.7 / - 3.0					+ 1.7 / - 3.5				
2.0H	+ 3.7 / -12.3					+ 3.9 / -11.9				

CIE Pub.117 Corrected 27794 lm Total Lamp Luminous Flux.(8log(F/F0) = 11.6)

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.600m [K=1.0216]
 Remarks:

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	75	66	61	74	66	61	73	66	61	56
0.80	84	76	71	84	76	71	82	75	71	66
1.00	92	84	79	91	84	79	89	84	79	74
1.25	97	90	86	96	90	85	94	89	85	80
1.50	101	95	90	99	94	90	97	92	89	83
2.00	105	100	96	104	99	95	101	97	94	88
2.50	107	102	99	106	101	98	102	99	96	89
3.00	109	105	102	107	104	101	104	101	98	91
4.00	112	108	105	110	106	104	106	103	101	94
5.00	113	110	107	111	108	106	107	105	103	95
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: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

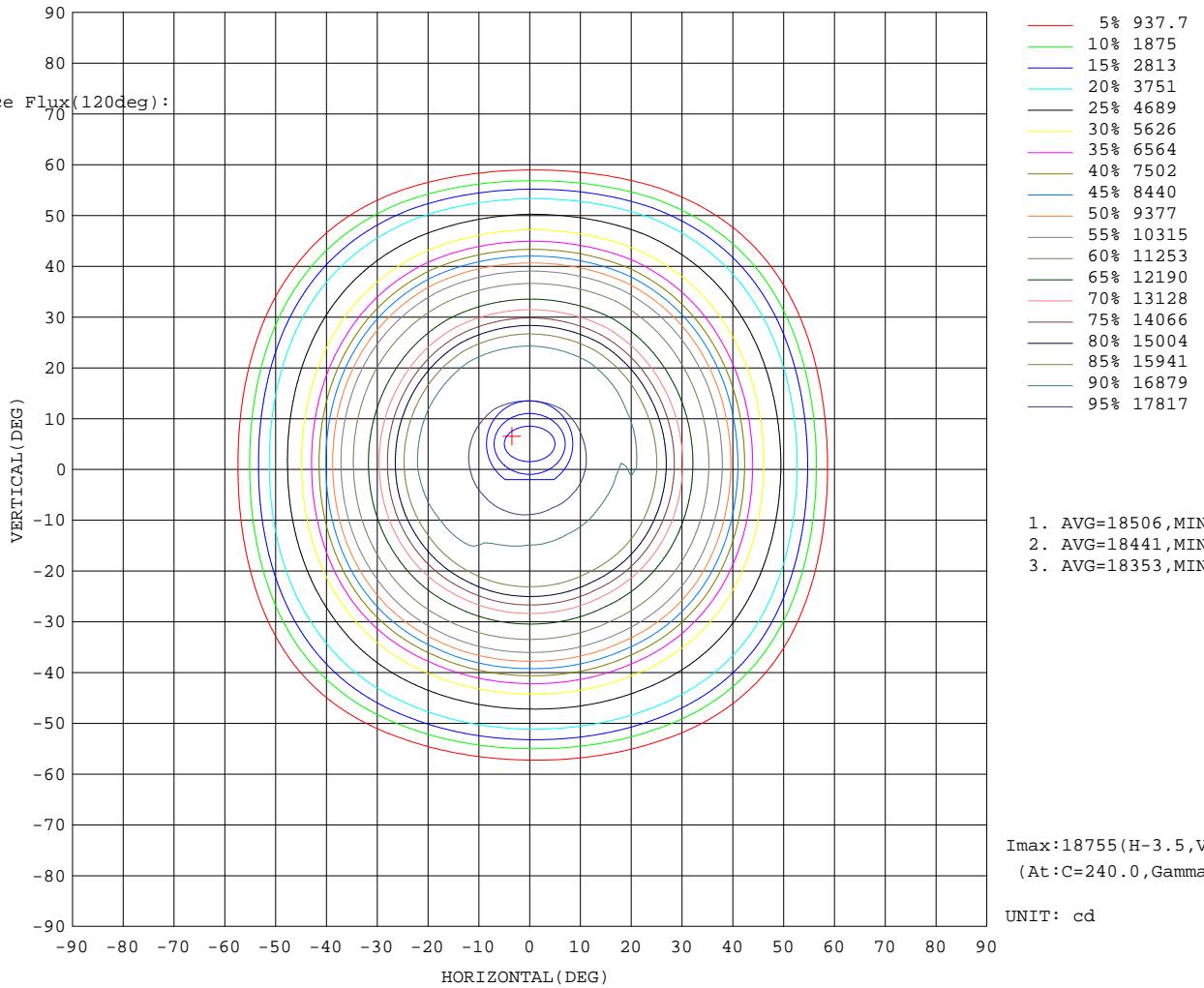
ISOCANDELA DIAGRAM

Conical surface Flux(90deg):

23390 lm
 %lum = 84.2%
 %lamp = 84.2%

Conical surface Flux(120deg):

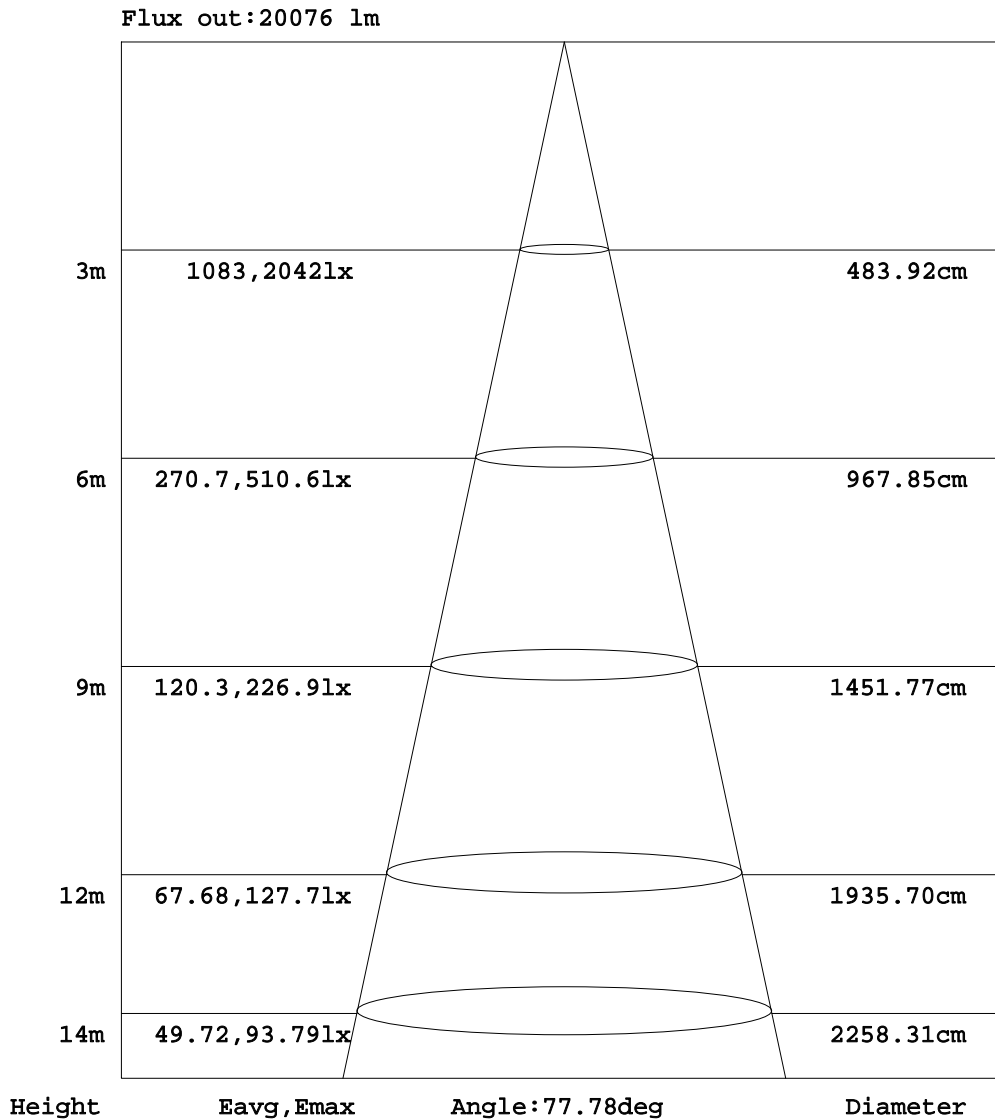
27515 lm
 %lum = 99.0%
 %lamp = 99.0%



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.600m [K=1.0216]
 Remarks:

AAI Figure

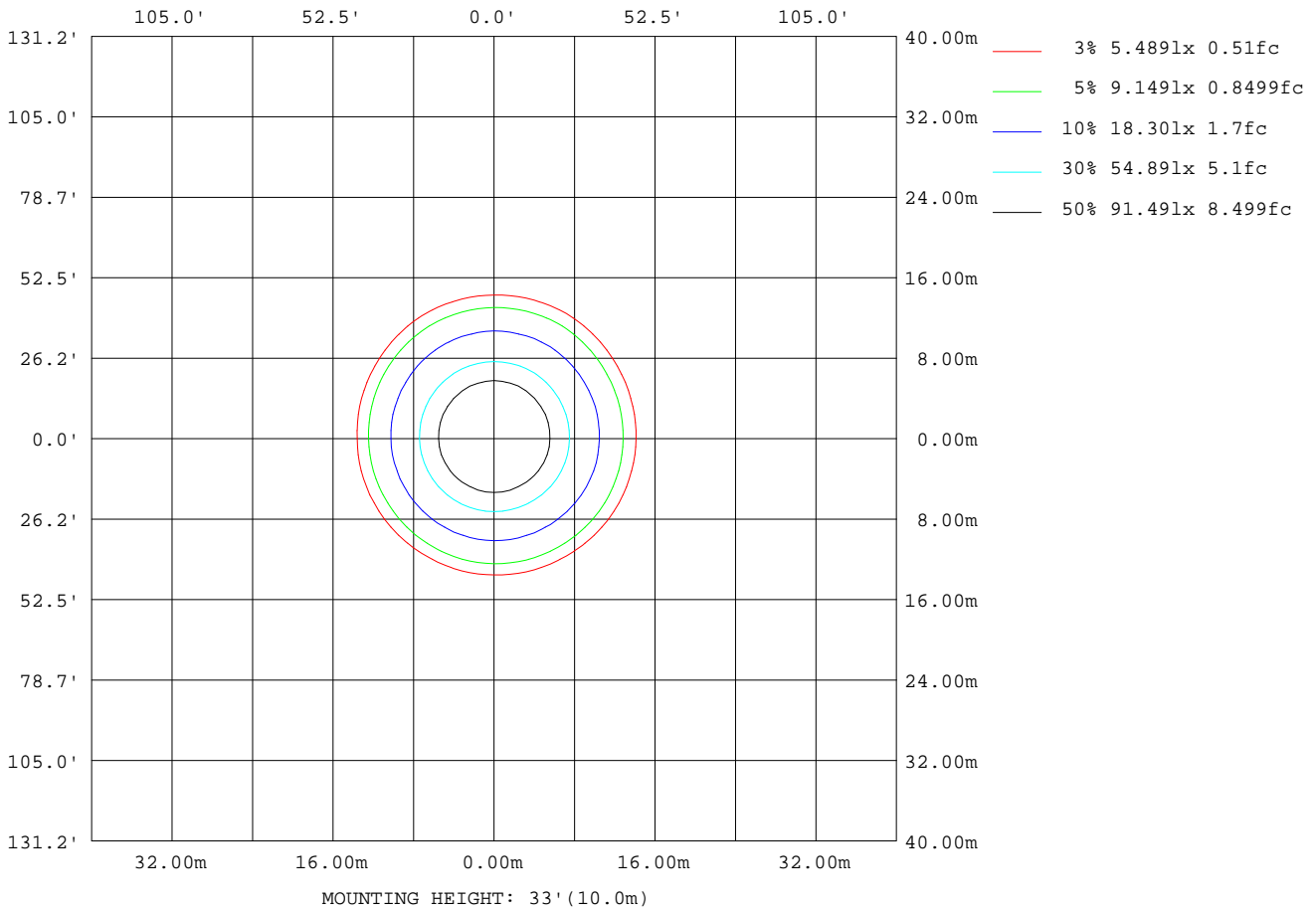


Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

ISOLUX DIAGRAM



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

LED Avg.L Report

Test:U:230.2V I:0.8758A P:197.8W PF:0.9862 Lamp Flux:27794.4x1 lm		
NAME: HB720-5	TYPE:	WEIGHT:5.8KG
SPEC.:	DIM.: φ360*190MM	SERIAL No.:1
MFR.:	SUR.:φ288MM	PROTECTION ANGLE:

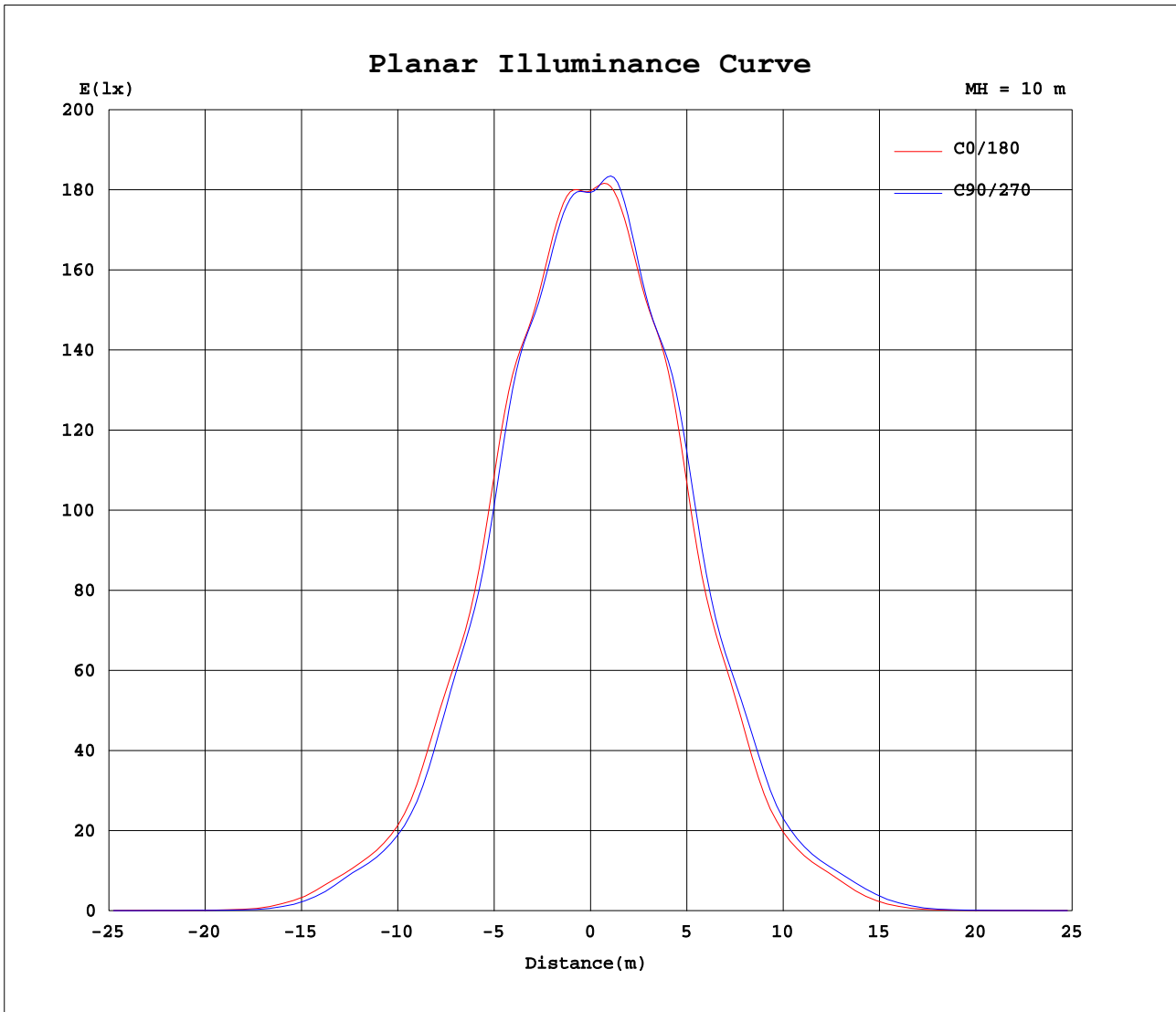
AvgL	cd/m2
L_0~180 (65) av	1579
L_0~180 (75) av	1481
L_0~180 (85) av	2130
L_90~270 (65) av	1576
L_90~270 (75) av	1447
L_90~270 (85) av	2095
L_45 (65) av	1580
L_45 (75) av	1458
L_45 (85) av	2094

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:
 Test Date:2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity:65.0%
 Test Distance:11.600m [K=1.0216]
 Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 30.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators:
 Test Date: 2019-9-6

γ Range: 0 - 90DEG
 γ Interval: 1.0DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V2.0.290
 Humidity: 65.0%
 Test Distance: 11.600m [K=1.0216]
 Remarks:

