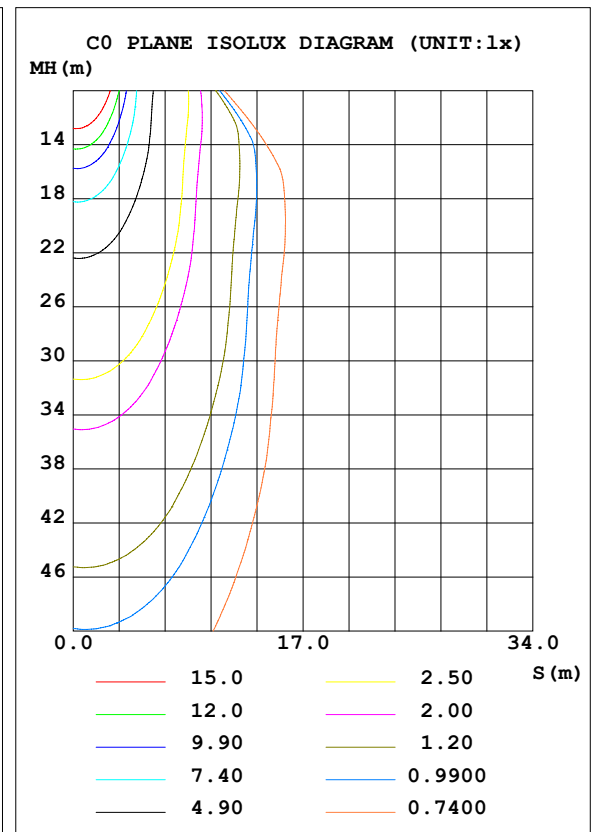
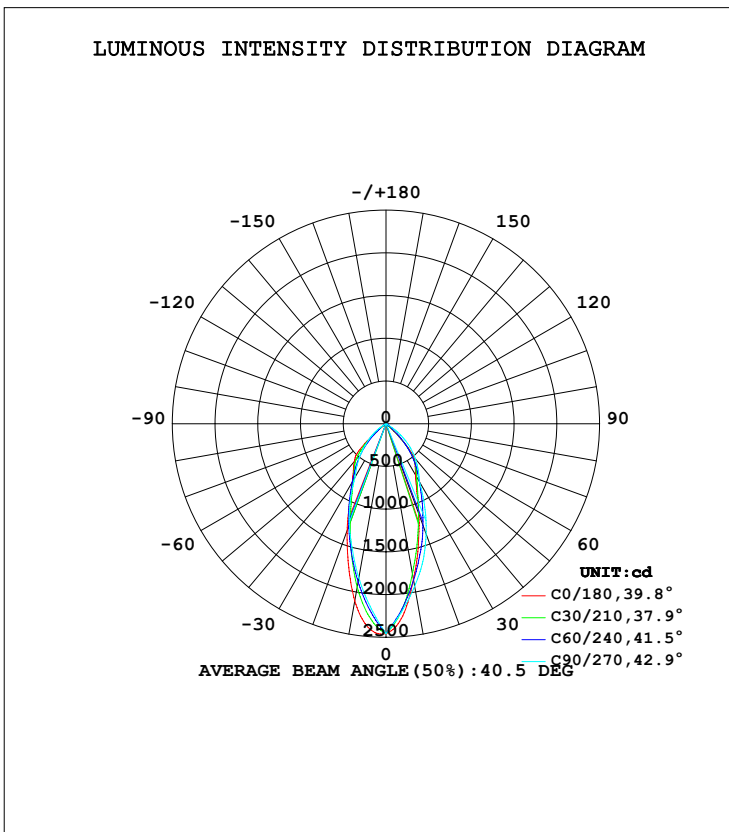


LUMINAIRE PHOTOMETRIC TEST REPORT

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	Libero SU-20W-3000K-40D	Imax (cd)	2464	S/MH (C0/180)	0.67
NOMINAL POWER (W)	20	LOR (%)	100.0	S/MH (C90/270)	0.62
RATED VOLTAGE (V)	228	TOTAL FLUX (lm)	1783.1	η UP, DN (C0-180)	0.0, 48.6
NOMINAL FLUX (lm)	1783.07	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 51.4
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	0.50
TEST VOLTAGE (V)	227.8	η down (%)	100.0	CIBSE SHR MAX	0.70



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
5	2394	2221	2145	2136	2258	2170	2195	2254	0- 5	55.07	55.07	3.09,3.09
10	2107	1905	1833	1756	1851	1815	1933	1962	5- 10	145.5	200.5	11.2,11.2
15	1701	1564	1522	1405	1464	1477	1671	1635	10- 15	201.6	402.2	22.6,22.6
20	1329	1250	1255	1117	1125	1192	1373	1335	15- 20	227.0	629.2	35.3,35.3
25	1005	982.2	989.2	888.2	852.8	938.5	1076	1052	20- 25	228.7	857.9	48.1,48.1
30	789.1	785.2	722.9	722.7	694.6	753.7	778.1	831.1	25- 30	216.1	1074	60.2,60.2
35	667.2	649.6	590.1	614.3	596.4	629.5	656.1	687.3	30- 35	202.2	1276	71.6,71.6
40	574.5	544.7	457.4	516.5	511.6	525.6	534.1	580.1	35- 40	188.7	1465	82.2,82.2
45	455.0	368.4	324.6	321.6	218.5	337.4	412.1	389.3	40- 45	154.5	1619	90.8,90.8
50	141.2	188.9	220.0	127.8	40.52	145.1	278.6	201.5	45- 50	90.94	1710	95.9,95.9
55	31.46	25.88	115.3	13.91	14.62	15.47	145.1	31.37	50- 55	39.74	1750	98.1,98.1
60	13.77	12.48	10.66	11.09	10.40	11.88	11.66	17.41	55- 60	15.98	1766	99,99
65	9.472	9.312	9.542	9.177	8.088	9.063	10.19	10.28	60- 65	5.515	1772	99.4,99.4
70	8.514	7.449	8.428	7.709	7.879	7.067	8.726	7.875	65- 70	4.325	1776	99.6,99.6
75	7.642	6.304	7.313	5.971	5.833	5.192	7.259	6.633	70- 75	3.894	1780	99.8,99.8
80	4.712	4.170	0	3.473	2.337	2.748	0	4.300	75- 80	2.609	1782	100,100
85	1.638	0	0	0	0.3671	0	0	0	80- 85	0.6440	1783	100,100
90	0.0174	0	0	0	0.0749	0	0	0	85- 90	0.0453	1783	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd								UNIT:lm			

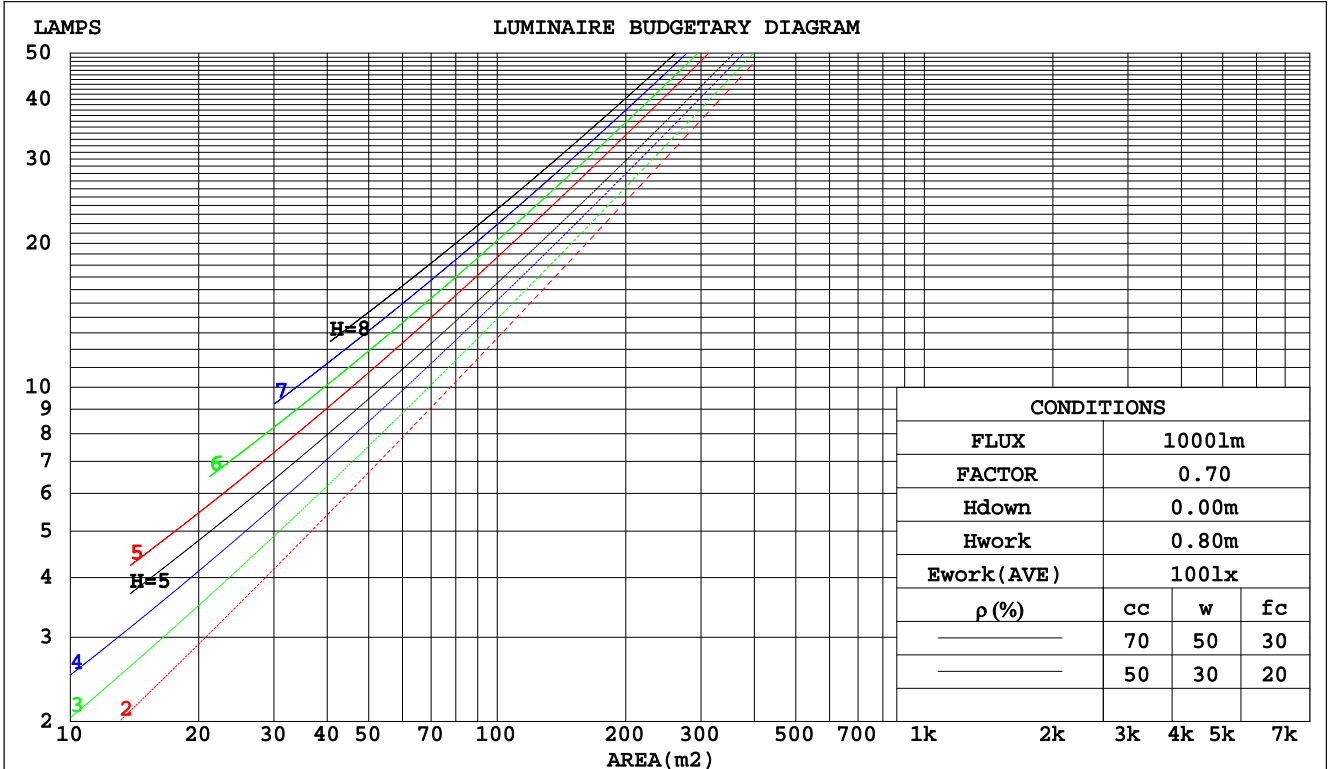
C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

pcc	80%			70%			50%			30%			10%			0
	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
pw																
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	1.02	1.02	1.02	1.00
1.0	1.10	1.07	1.05	1.08	1.06	1.03	1.04	1.02	1.00	1.00	.99	.97	.97	.96	.94	.93
2.0	1.02	.97	.94	.90	.96	.93	.97	.93	.91	.94	.91	.89	.91	.89	.87	.85
3.0	.94	.89	.84	.93	.88	.84	.90	.86	.82	.88	.84	.81	.85	.82	.80	.78
4.0	.87	.81	.77	.86	.81	.76	.84	.79	.75	.82	.78	.75	.80	.77	.74	.72
5.0	.81	.75	.70	.80	.74	.70	.78	.73	.69	.77	.72	.69	.75	.71	.68	.67
6.0	.76	.69	.65	.75	.69	.64	.73	.68	.64	.72	.67	.64	.71	.66	.63	.62
7.0	.71	.64	.60	.70	.64	.60	.69	.63	.59	.68	.63	.59	.66	.62	.59	.57
8.0	.66	.60	.56	.66	.60	.56	.65	.59	.55	.64	.59	.55	.63	.58	.55	.53
9.0	.62	.56	.52	.62	.56	.52	.61	.55	.52	.60	.55	.51	.59	.55	.51	.50
10.0	.59	.53	.49	.58	.53	.49	.58	.52	.48	.57	.52	.48	.56	.51	.48	.47



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

WEC AND CCEC

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Wall Exitance Coefficients(WEC)									
0.0																
1.0	.190	.108	.034	.183	.104	.033	.171	.098	.031	.159	.092	.029	.148	.086	.028	
2.0	.184	.101	.031	.178	.098	.030	.167	.093	.029	.157	.088	.028	.148	.084	.026	
3.0	.176	.093	.028	.171	.091	.028	.161	.087	.027	.153	.084	.026	.145	.080	.025	
4.0	.167	.087	.026	.163	.085	.025	.155	.082	.025	.148	.079	.024	.141	.076	.023	
5.0	.159	.081	.024	.156	.080	.023	.149	.077	.023	.142	.075	.022	.136	.073	.022	
6.0	.152	.076	.022	.149	.075	.022	.142	.073	.021	.137	.071	.021	.131	.069	.021	
7.0	.145	.072	.020	.142	.071	.020	.136	.069	.020	.131	.067	.020	.126	.066	.019	
8.0	.138	.067	.019	.135	.067	.019	.131	.065	.019	.126	.064	.018	.122	.062	.018	
9.0	.132	.064	.018	.130	.063	.018	.125	.062	.018	.121	.061	.017	.117	.059	.017	
10.0	.126	.060	.017	.124	.060	.017	.120	.059	.017	.116	.058	.016	.113	.057	.016	

ρcc	80%			70%			50%			30%			10%			0
ρw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
ρfc	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio						Ceiling Cavity Exitance Coefficients(CCEC)									
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.172	.157	.144	.147	.135	.124	.101	.093	.086	.058	.054	.050	.019	.017	.016	
2.0	.158	.132	.111	.135	.114	.096	.093	.079	.067	.053	.046	.039	.017	.015	.013	
3.0	.146	.114	.088	.125	.098	.076	.086	.068	.053	.050	.040	.031	.016	.013	.010	
4.0	.137	.099	.071	.117	.086	.061	.081	.060	.043	.047	.035	.026	.015	.011	.008	
5.0	.128	.088	.058	.110	.076	.050	.076	.053	.035	.044	.031	.021	.014	.010	.007	
6.0	.121	.079	.048	.104	.068	.042	.072	.048	.030	.042	.028	.018	.013	.009	.006	
7.0	.115	.071	.041	.099	.062	.035	.068	.043	.025	.040	.026	.015	.013	.008	.005	
8.0	.109	.065	.035	.094	.056	.030	.065	.040	.022	.038	.023	.013	.012	.008	.004	
9.0	.104	.060	.030	.090	.052	.026	.062	.037	.019	.036	.022	.011	.012	.007	.004	
10.0	.100	.056	.026	.086	.048	.023	.060	.034	.016	.035	.020	.010	.011	.007	.003	

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature:25.3DEG
 Operators:DOBAC
 Test Date:2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity:65.0%
 Test Distance:6.960m [K=1.0000]
 Remarks:

Uncorrected UGR Table

NAME: Libero SU-20W-3000K-40D					TYPE:					WEIGHT:				
DIM.:					SPEC.:					SERIAL No.:				
MFR.: DOBAC					SUR.:					PROTECTION ANGLE:				
ceiling/cavity	0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3				
walls	0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3				
working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				
Room dimensions	Viewed crosswise					Viewed endwise								
x = 2H y = 2H	23.5	24.6	23.8	24.8	24.9	23.5	24.5	23.7	24.7	24.9				
3H	23.4	24.3	23.7	24.5	24.7	23.3	24.3	23.6	24.5	24.7				
4H	23.3	24.2	23.6	24.4	24.7	23.2	24.1	23.5	24.4	24.6				
6H	23.2	24.1	23.5	24.3	24.6	23.2	24.0	23.5	24.2	24.5				
8H	23.2	24.0	23.5	24.3	24.5	23.1	23.9	23.4	24.2	24.4				
12H	23.2	23.9	23.5	24.2	24.5	23.1	23.8	23.4	24.1	24.4				
4H 2H	23.3	24.2	23.6	24.4	24.6	23.2	24.1	23.5	24.3	24.6				
3H	23.2	23.9	23.5	24.2	24.5	23.1	23.8	23.4	24.1	24.4				
4H	23.1	23.8	23.4	24.1	24.4	23.0	23.7	23.4	24.0	24.3				
6H	23.0	23.6	23.4	24.0	24.3	22.9	23.5	23.3	23.9	24.2				
8H	23.0	23.6	23.4	23.9	24.3	22.9	23.4	23.3	23.8	24.2				
12H	23.0	23.5	23.4	23.8	24.2	22.8	23.3	23.2	23.7	24.1				
8H 4H	23.0	23.5	23.4	23.9	24.3	22.9	23.4	23.3	23.8	24.2				
6H	22.9	23.4	23.3	23.8	24.2	22.8	23.3	23.2	23.7	24.1				
8H	22.9	23.3	23.3	23.7	24.2	22.7	23.2	23.2	23.6	24.0				
12H	22.8	23.2	23.3	23.6	24.1	22.7	23.0	23.2	23.5	24.0				
12H 4H	22.9	23.4	23.3	23.8	24.2	22.8	23.3	23.2	23.7	24.1				
6H	22.9	23.3	23.3	23.7	24.1	22.7	23.2	23.2	23.6	24.0				
8H	22.8	23.2	23.3	23.6	24.1	22.7	23.0	23.2	23.5	24.0				
Variations with the observer position at spacings:														
S = 1.0H	+ 2.8 / - 9.9					+ 2.2 / - 5.1								
1.5H	+ 2.8 / - 9.3					+ 2.1 / - 6.4								
2.0H	+ 7.6 / - 9.1					+ 5.1 / -10.5								

CIE Pub.117 Corrected 1783 lm Total Lamp Luminous Flux.(8log(F/F0) = 2.0)

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

UTILIZATION FACTORS TABLE

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

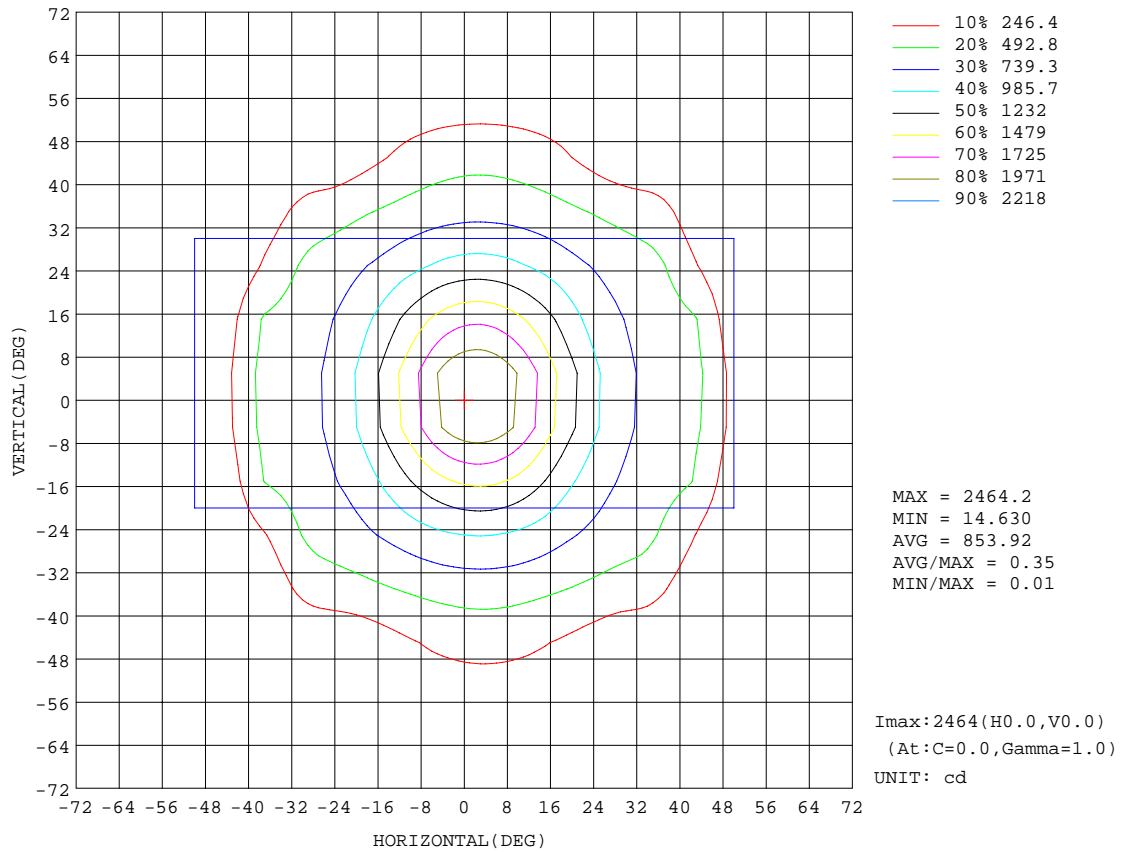
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
k = 0.60	80	73	68	80	72	68	79	72	68	63
0.80	89	82	77	88	81	77	87	81	77	72
1.00	95	88	84	94	88	84	92	88	83	79
1.25	100	94	90	99	93	89	97	92	88	84
1.50	103	97	94	102	97	93	99	95	92	87
2.00	107	102	98	105	101	97	102	99	96	90
2.50	109	104	101	107	103	100	104	100	98	92
3.00	110	106	103	109	105	102	105	102	100	93
4.00	113	109	107	110	108	105	107	105	103	95
5.00	114	111	109	112	109	107	108	106	104	96
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended				SHRNOM = 1.25			

C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

ISOCANDELA DIAGRAM

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

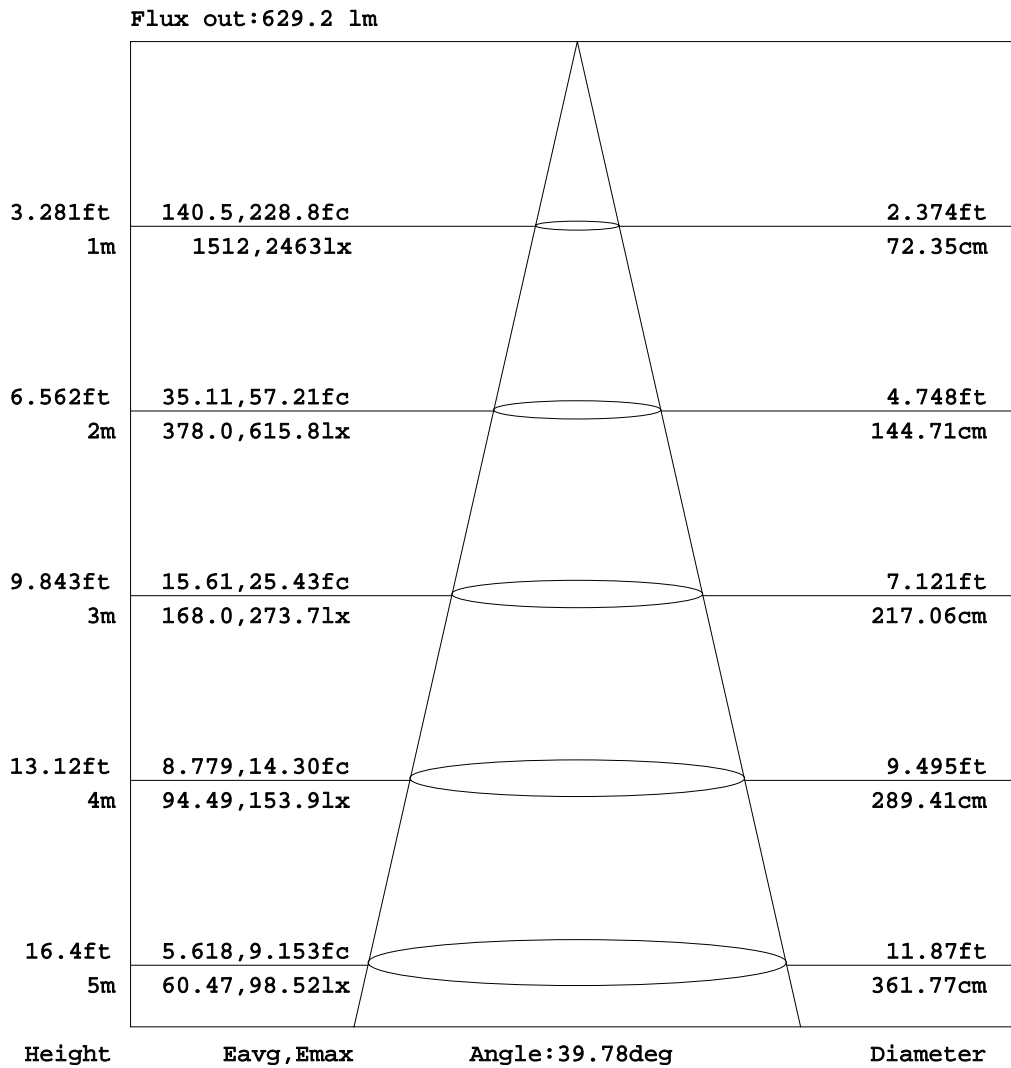


C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

AAI Figure

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:



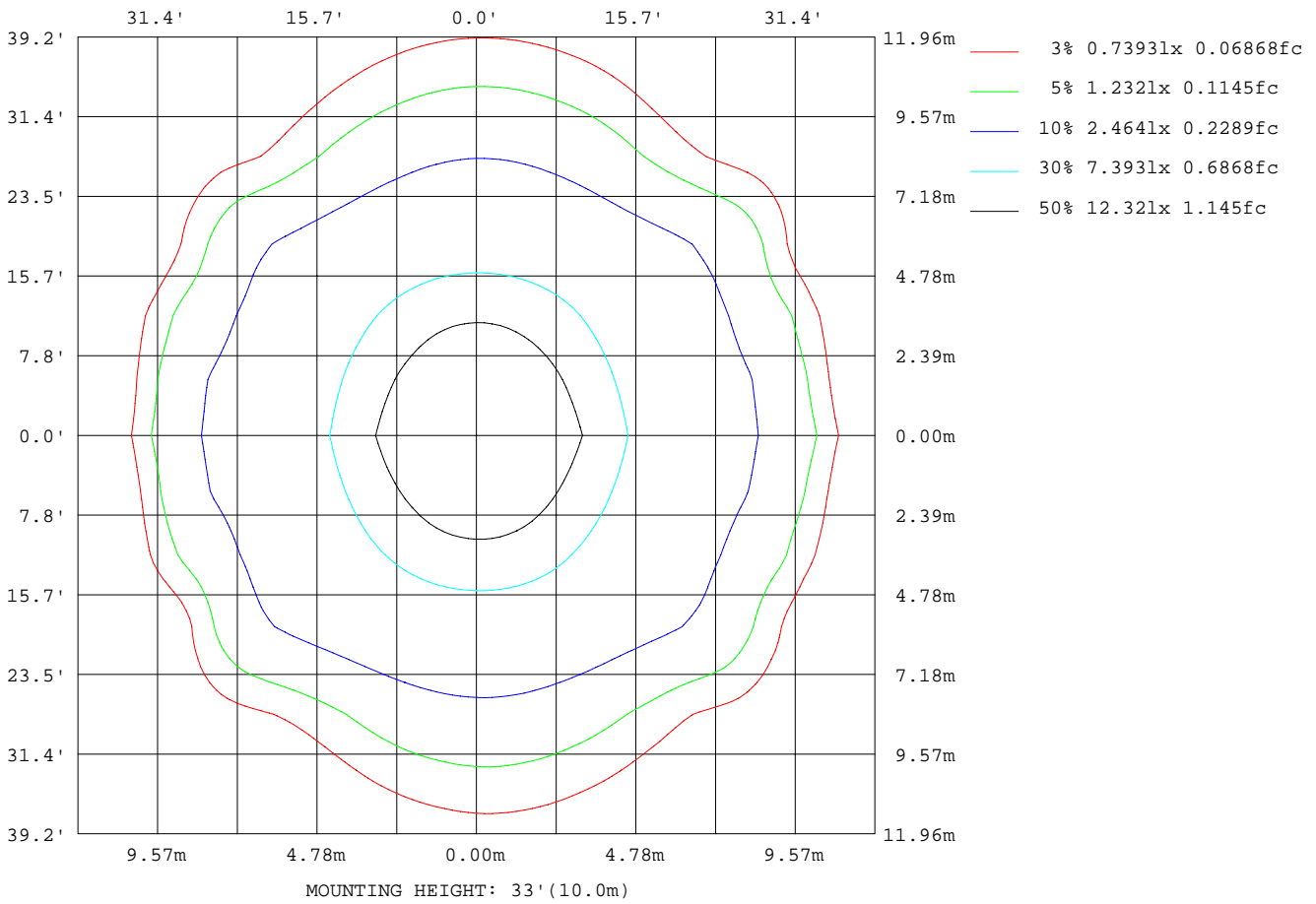
Note: The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature: 25.3DEG
Operators: DOBAC
Test Date: 2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity: 65.0%
Test Distance: 6.960m [K=1.0000]
Remarks:

ISOLUX DIAGRAM

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

Average Luminance Table(CIBSE)

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Parameter description for average Luminance	Symbol	Value	Unit
Luminance in Azimuth Plane	Bc	refer Table 2	cd/sq.m.
Intensity at angle Gamma in given azimuth plane	I	from data	cd/klm
Number of lamps	N	1	
Output of each lamp(initial lumens as specified)	F	1783.07	lm
Multiplying factor	K	1	
Luminous area in horizontal plane used in calculations	A	0.006	sq.m.
Angle to the downward vertical from light centre	Gamma	from data	deg

Table 1. Calculation parameters for determination of CIBSE LG3:1996 Average Luminance

G deg	C plane(deg)																		
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
55	9142	8282	7809	9808	15911	10106	19442	31308	34492	33505	29222	18933	8245	4884	6604	5227	4892	4318	4247
60	4590	4441	4323	5051	4085	6545	9005	10523	6029	3552	5543	6988	5246	3750	3580	3487	3473	3497	3466
65	3735	3681	3745	3575	3806	3726	3449	3653	3741	3763	3723	3537	3217	3399	3621	3224	3339	3260	3190
70	4149	4115	4092	4004	3876	3506	3753	3973	4064	4107	4084	3904	3538	3543	3997	3740	3810	3859	3839
75	4921	4782	4661	4728	4154	4010	4330	4542	4639	4709	4722	4566	4125	3803	3941	4159	3744	3814	3756
80	4522	4330	4447	4366	4368	3139	1834	826	207	0	211	833	1753	2728	3729	3634	3296	2426	2243
85	3133	3034	3172	0	0	0	0	0	0	0	0	0	0	0	0	0	2985	846	702

Table 2. Average Luminance(cd/sq.m.) for defined C plane,Gamma angle

CIBSE Category	Gamma (deg)	Average Luminance		Patch Luminance	
		maximum	specified	maximum	specified
		calculated	maximum	measured	maximum
Category 1	55 to 90	34492	200	---	500
Category 2	65 to 90	4921	200	---	500
Category 3	75 to 90	4921	200	---	500

Table 3. Tabulation of Average and Patch Luminance(cd/sq.m.) for defined CIBSE categories

No match

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

Average Luminance Table(CIBSE)

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Parameter description for average Luminance	Symbol	Value	Unit
Luminance in Azimuth Plane	Bc	refer Table 2	cd/sq.m.
Intensity at angle Gamma in given azimuth plane	I	from data	cd/klm
Number of lamps	N	1	
Output of each lamp(initial lumens as specified)	F	1783.07	lm
Multiplying factor	K	1	
Luminous area in horizontal plane used in calculations	A	0.006	sq.m.
Angle to the downward vertical from light centre	Gamma	from data	deg

Table 1. Calculation parameters for determination of CIBSE LG3:2001 Average Luminance

G deg	C plane(deg)																		
	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
55	9142	8282	7809	9808	15911	10106	19442	31308	34492	33505	29222	18933	8245	4884	6604	5227	4892	4318	4247
60	4590	4441	4323	5051	4085	6545	9005	10523	6029	3552	5543	6988	5246	3750	3580	3487	3473	3497	3466
65	3735	3681	3745	3575	3806	3726	3449	3653	3741	3763	3723	3537	3217	3399	3621	3224	3339	3260	3190
70	4149	4115	4092	4004	3876	3506	3753	3973	4064	4107	4084	3904	3538	3543	3997	3740	3810	3859	3839
75	4921	4782	4661	4728	4154	4010	4330	4542	4639	4709	4722	4566	4125	3803	3941	4159	3744	3814	3756
80	4522	4330	4447	4366	4368	3139	1834	826	207	0	211	833	1753	2728	3729	3634	3296	2426	2243
85	3133	3034	3172	0	0	0	0	0	0	0	0	0	0	0	0	0	2985	846	702

Table 2. Average Luminance(cd/sq.m.) for defined C plane,Gamma angle

range (deg)	Maximum measured	Average Luminance(cd/sq.m)			
		Maximum limit for screen type & software category used			
		Type I,II screen Some neg.s'ware	Type I,II screen Only pos.s'ware	Type III screen Some neg.s'ware	Type III screen Only pos.s'ware
55 to 90	34492	1000	1500	200	500
65 to 90	4921	1000	1500	200	500

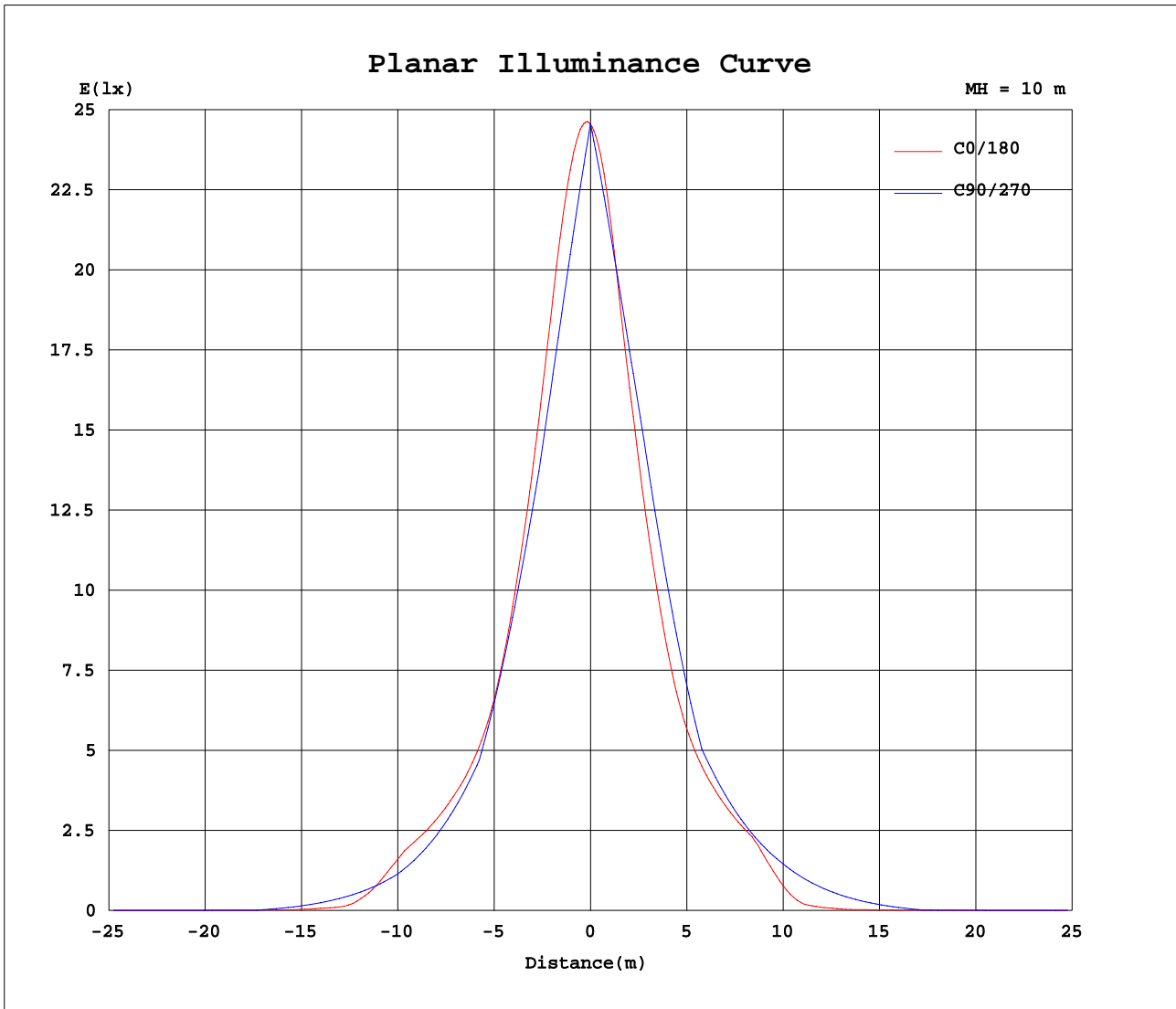
Table 3. Tabulation of average luminance(cd/sq.m.) and luminance limits

No match

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

Planar Illuminance Curve



C Range: 0 - 360DEG
 C Interval: 5.0DEG
 Test Speed: HIGH
 Temperature: 25.3DEG
 Operators: DOBAC
 Test Date: 2017-11-07

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Humidity: 65.0%
 Test Distance: 6.960m [K=1.0000]
 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--1

UNIT: cd

C(DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456
5	2394	2369	2345	2322	2301	2282	2265	2249	2234	2221	2209	2199	2188	2179	2170	2162	2156	2149	2145
10	2107	2067	2033	2003	1979	1959	1941	1927	1915	1905	1895	1887	1881	1873	1865	1858	1850	1842	1833
15	1701	1660	1627	1602	1585	1572	1565	1563	1562	1564	1566	1566	1565	1561	1557	1550	1542	1532	1522
20	1329	1290	1262	1242	1229	1222	1222	1227	1238	1250	1260	1268	1275	1279	1279	1277	1272	1265	1255
25	1005	979	962	952	948	949	953	959	970	982	996	1008	1015	1017	1016	1011	1005	997	989
30	789	773	763	758	757	760	765	772	779	785	791	793	791	783	769	755	740	729	723
35	667	654	647	645	648	649	647	648	649	650	644	633	615	605	600	598	597	595	590
40	575	563	557	557	551	533	543	562	564	545	499	470	457	454	455	460	463	464	457
45	455	416	403	415	393	360	366	413	419	368	317	292	287	294	306	319	328	332	325
50	141	120	114	130	147	129	137	189	207	189	134	98.4	126	165	192	210	221	225	220
55	31.5	27.3	28.5	30.1	26.9	31.0	33.8	54.0	54.8	25.9	34.8	39.6	66.9	91.9	108	115	119	119	115
60	13.8	13.3	13.3	13.0	13.0	13.0	15.2	12.1	12.3	12.5	19.6	21.6	27.0	33.2	31.6	25.3	18.1	12.6	10.7
65	9.47	9.32	9.33	9.19	9.49	9.09	9.07	9.60	9.65	9.31	9.45	8.37	8.75	9.09	9.26	9.42	9.49	9.50	9.54
70	8.51	8.48	8.44	8.33	8.40	8.03	8.22	8.37	7.95	7.45	7.19	7.41	7.70	8.02	8.15	8.30	8.34	8.37	8.43
75	7.64	7.44	7.43	7.49	7.24	7.38	7.34	6.73	6.45	6.30	6.23	6.48	6.72	6.98	7.05	7.17	7.20	7.24	7.31
80	4.71	4.51	4.51	4.46	4.63	4.74	4.55	4.44	4.55	4.17	3.27	2.57	1.91	1.35	0.86	0.49	0.22	0.05	0.00
85	1.64	1.27	1.59	1.84	1.66	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--2

UNIT: cd

C(DEG) γ (DEG)	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185
0	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456
5	2139	2135	2132	2130	2130	2129	2131	2133	2136	2141	2148	2157	2167	2181	2196	2215	2235	2258	2239
10	1824	1816	1808	1799	1790	1782	1771	1763	1756	1750	1747	1747	1751	1760	1775	1794	1820	1851	1826
15	1512	1502	1490	1479	1465	1451	1434	1419	1405	1394	1385	1380	1379	1383	1393	1409	1433	1464	1439
20	1245	1234	1221	1206	1189	1173	1156	1136	1117	1101	1086	1073	1067	1065	1069	1080	1098	1125	1104
25	983	976	968	959	950	938	923	907	888	869	854	842	834	829	827	829	837	853	841
30	723	727	733	739	745	746	743	734	723	713	708	701	694	686	682	681	685	695	688
35	584	577	571	569	574	588	613	616	614	609	603	592	589	591	586	584	588	596	591
40	446	432	417	404	398	405	430	470	517	512	464	431	440	490	496	483	489	512	494
45	307	286	258	230	210	212	242	288	322	297	226	200	227	239	218	194	197	219	206
50	207	188	161	122	78.9	47.6	60.3	108	128	104	57.4	39.9	57.2	43.8	39.3	39.6	38.7	40.5	39.9
55	109	101	86.3	65.2	41.7	28.4	24.5	16.8	13.9	22.7	21.2	18.0	14.5	16.8	14.8	14.9	14.4	14.6	14.3
60	12.4	16.6	20.5	21.0	17.4	15.7	14.3	11.3	11.1	10.7	10.1	10.5	10.5	10.4	10.4	10.5	10.3	10.4	10.2
65	9.50	9.44	9.24	8.97	8.56	8.16	7.97	8.62	9.18	9.18	8.77	8.18	8.53	8.47	8.27	8.27	8.16	8.09	8.03
70	8.41	8.38	8.23	8.01	7.64	7.26	7.14	7.27	7.71	8.20	8.07	7.68	7.65	7.82	7.80	7.92	7.95	7.88	7.78
75	7.32	7.33	7.21	7.09	6.76	6.41	6.21	5.91	5.97	6.12	6.29	6.46	5.90	5.81	5.78	5.92	5.90	5.83	5.86
80	0.05	0.22	0.49	0.87	1.31	1.83	2.42	2.84	3.47	3.88	3.88	3.79	3.74	3.43	3.03	2.53	2.45	2.34	2.35
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	1.56	1.31	0.44	0.39	0.37	0.36
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--3

UNIT: cd

C(DEG) γ (DEG)	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280
0	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456
5	2223	2208	2197	2187	2180	2176	2172	2170	2170	2171	2172	2175	2177	2180	2184	2188	2195	2199	2205
10	1807	1793	1785	1782	1785	1792	1802	1815	1829	1845	1862	1875	1889	1902	1913	1923	1933	1940	1946
15	1422	1413	1410	1414	1424	1438	1456	1477	1500	1528	1556	1583	1608	1629	1646	1660	1671	1679	1684
20	1092	1088	1090	1099	1114	1135	1161	1192	1222	1245	1266	1288	1311	1332	1348	1362	1373	1381	1385
25	836	837	846	860	878	901	919	939	959	980	1001	1016	1031	1045	1057	1067	1076	1083	1088
30	686	689	697	708	719	728	740	754	767	777	783	785	782	780	777	775	778	784	795
35	590	594	603	603	606	613	622	629	634	632	616	611	615	625	637	648	656	659	659
40	493	510	507	466	459	485	526	526	485	459	451	456	469	487	507	523	534	537	534
45	217	252	263	254	251	280	326	337	299	268	270	288	317	348	376	399	412	415	408
50	42.3	43.1	56.2	71.7	52.1	92.6	135	145	121	74.0	97.2	152	196	229	253	269	279	281	277
55	14.4	14.5	17.8	15.1	22.8	26.2	31.9	15.5	26.6	33.5	47.3	81.0	107	124	134	141	145	148	148
60	10.3	10.4	10.5	10.7	11.0	10.9	11.4	11.9	12.9	18.6	20.0	28.6	30.6	26.3	19.4	13.7	11.7	14.4	21.5
65	8.03	8.01	8.29	8.33	8.20	8.90	9.09	9.06	8.62	8.06	8.41	8.71	8.97	9.26	9.55	9.91	10.2	10.4	10.7
70	7.66	7.56	7.55	7.41	7.43	7.66	7.54	7.07	6.92	6.82	7.15	7.47	7.78	7.97	8.20	8.47	8.73	8.97	9.18
75	5.87	5.93	5.66	5.70	6.17	5.60	5.38	5.19	5.46	5.57	5.91	6.27	6.59	6.72	6.86	7.04	7.26	7.50	7.72
80	2.41	2.54	2.69	2.91	2.96	2.75	2.96	2.75	2.58	2.09	1.62	1.20	0.80	0.46	0.21	0.05	0.00	0.06	0.23
85	0.40	0.49	0.40	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C Range: 0 - 360DEG γ Range: 0 - 90DEG
 C Interval: 5.0DEG γ Interval: 0.5DEG
 Test Speed: HIGH Test System: EVERFINE GO-2000B_V1 SYSTEM V1.0.260
 Temperature: 25.3DEG Humidity: 65.0%
 Operators: DOBAC Test Distance: 6.960m [K=1.0000]
 Test Date: 2017-11-07 Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

NAME: Libero SU-20W-3000K-40D	TYPE:	WEIGHT:
DIM.:	SPEC.:	SERIAL No.:
MFR.: DOBAC	SUR.:	PROTECTION ANGLE:

Table--4

UNIT: cd

C(DEG) γ (DEG)	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355				
0	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456	2456				
5	2210	2216	2223	2229	2238	2245	2254	2264	2275	2287	2301	2317	2334	2353	2373				
10	1950	1953	1955	1958	1958	1959	1962	1965	1970	1978	1989	2003	2021	2045	2073				
15	1684	1681	1675	1667	1656	1646	1635	1624	1616	1612	1611	1616	1625	1642	1667				
20	1386	1383	1376	1369	1359	1350	1335	1313	1293	1276	1265	1261	1265	1277	1298				
25	1091	1091	1090	1085	1079	1067	1052	1034	1015	994	979	970	968	972	984				
30	809	823	835	843	846	842	831	819	806	798	790	779	773	773	778				
35	656	652	652	657	672	684	687	685	680	675	674	671	663	659	661				
40	526	516	508	503	510	535	580	594	587	580	571	580	579	571	570				
45	394	376	353	331	325	345	389	446	473	412	389	418	454	424	426				
50	267	248	213	160	121	145	202	242	219	150	142	158	138	117	122				
55	146	139	118	84.3	51.6	37.3	31.4	64.4	59.5	37.1	32.7	31.0	30.6	30.0	28.2				
60	31.0	39.4	41.2	33.7	24.3	21.9	17.4	14.3	14.1	17.0	14.1	13.9	13.7	13.7	13.5				
65	10.6	10.4	10.2	9.82	9.34	10.6	10.3	10.8	10.8	10.0	9.68	9.95	9.57	9.51	9.38				
70	9.20	9.11	8.94	8.63	8.21	7.82	7.88	8.41	9.06	8.79	8.31	8.56	8.46	8.51	8.49				
75	7.81	7.83	7.72	7.50	7.15	6.76	6.63	6.84	7.29	7.76	7.69	7.55	7.75	7.74	7.59				
80	0.53	0.95	1.49	2.12	2.82	3.56	4.30	4.95	4.69	4.84	4.94	4.95	4.83	4.84	4.71				
85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	1.68	1.78	1.82	1.67				
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				

C Range: 0 - 360DEG
C Interval: 5.0DEG
Test Speed: HIGH
Temperature:25.3DEG
Operators:DOBAC
Test Date:2017-11-07

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-2000B_V1 SYSTEM V1.0.260
Humidity:65.0%
Test Distance:6.960m [K=1.0000]
Remarks: