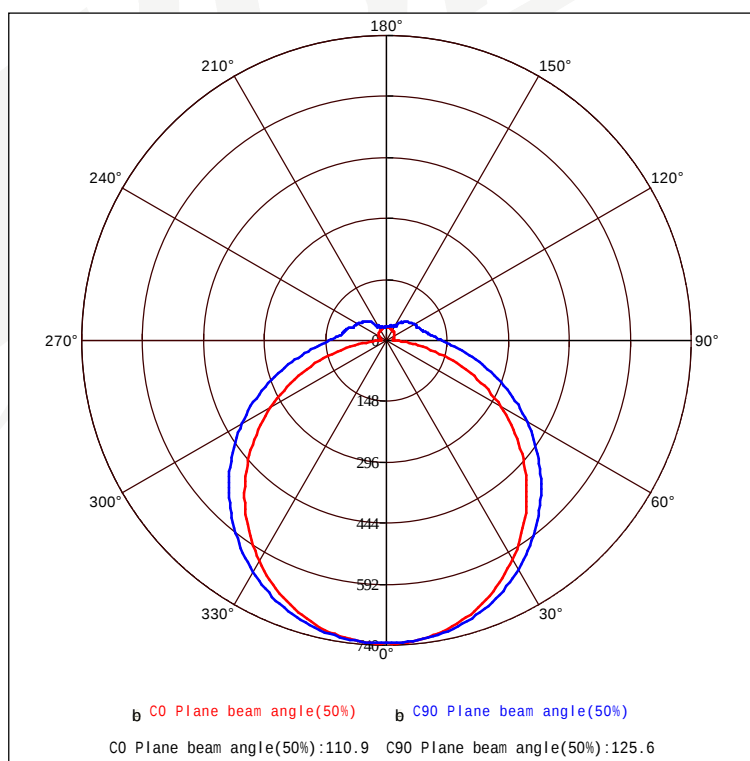


Goniophotometer Test Report

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm						
Lamp Name: LED TUBE			Lamp Type:		Weight(kg):	
Lamp ID: LPTL20D04-2			Lamp Spec:		Shape Size:	
Manufactory: LIPER			Sur(m^2):		Protect Angle(Deg):	
Light Source Data			Photometric Data			
Model	LPTL20D04-2		Peak Value(cd)	736.7	Efficiency(lm/w)	84.4
Nominal P(w)		1.0	Position	180.0,1.0	UP(C0-C180)	5.9
Rated Volt(v)		220.0	Total Flux(lm)	2642.899	Down(C0-C180)	45.4
Rated Flux(lm)		1.0	Up Flux Rate(%)	11.6	UP(C180-C360)	5.7
Illuminant QTY		1	Dw Flux Rate(%)	88.4	Down(C180-C360)	42.9

Planar Intensity Distribution Curve



Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

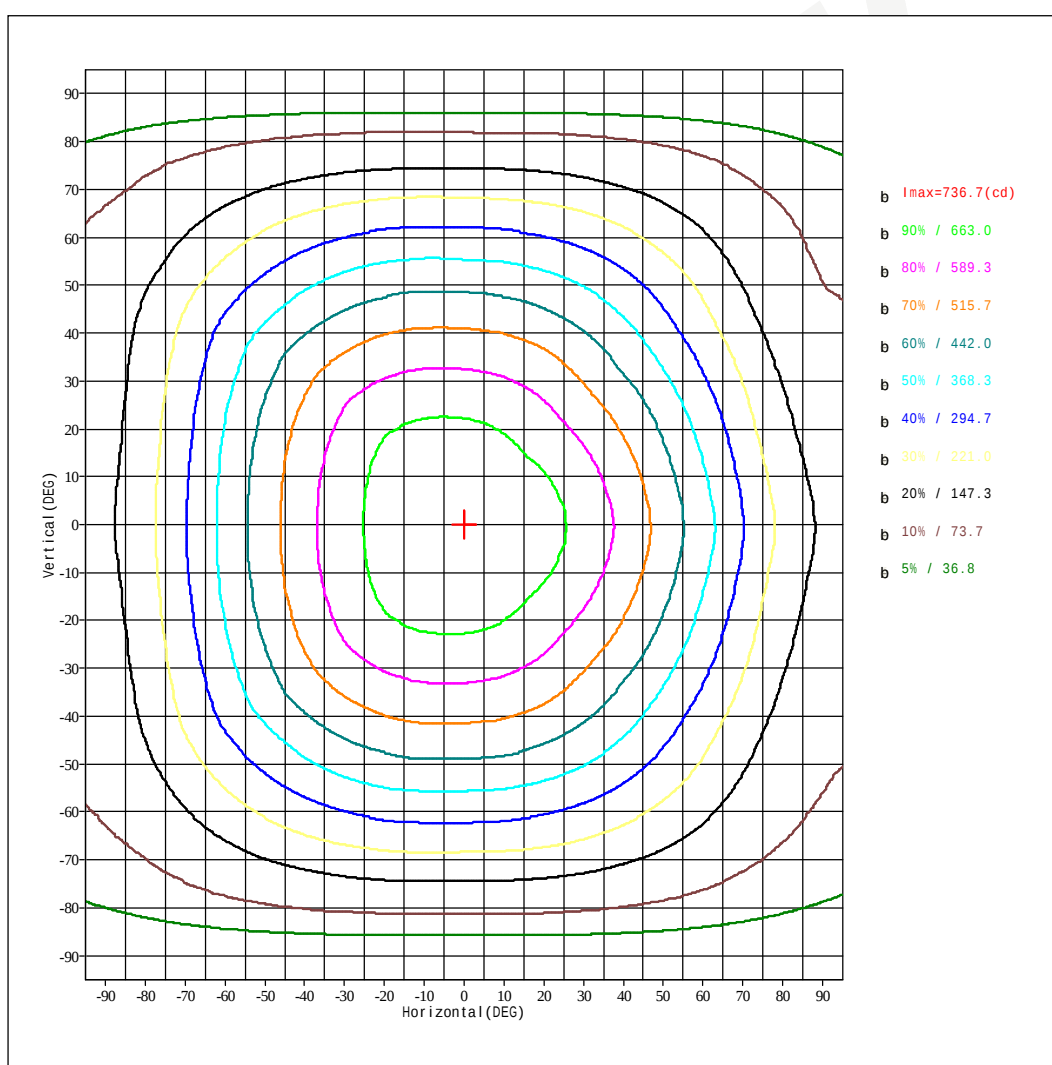
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Planar IsoCandela Curve



Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

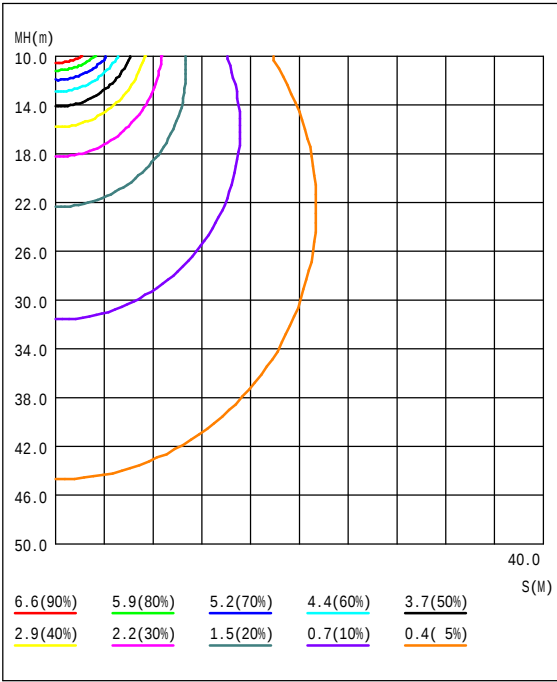
Humidity(%): 60

Date: 2023-10-30

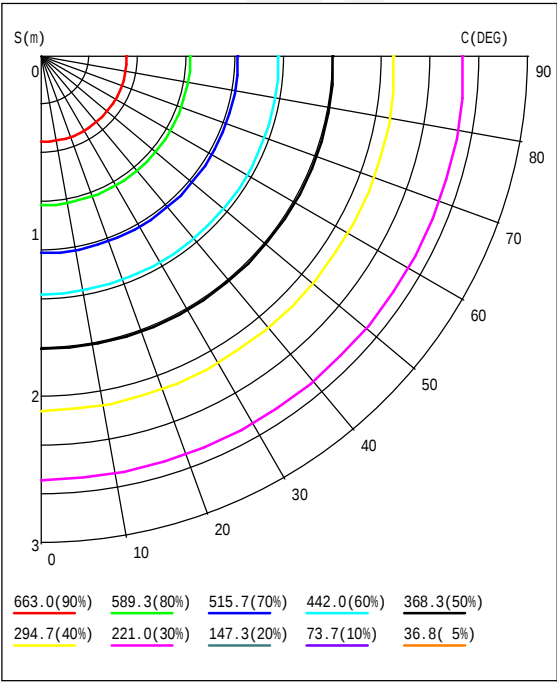
Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Spacial ISOLUX Curve



Planar ISOLUX Curve



Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

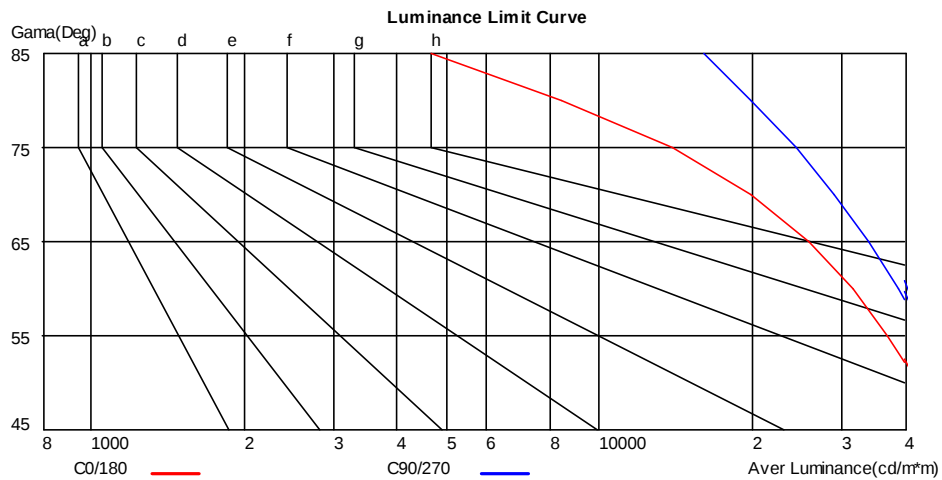
Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Luminance Limit Curve

Aver Luminance(cd/m²m)									
Gm(Deg)	45	50	55	60	65	70	75	80	85
C0	47487.2	42399.2	37119.3	31556.5	25827.7	19858.5	13958.3	8397.0	4675.1
C90	52543.1	48203.9	43735.3	39015.2	34080.2	29023.7	24483.1	19911.0	16093.6

Glare									
Glare	Class	Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h



Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

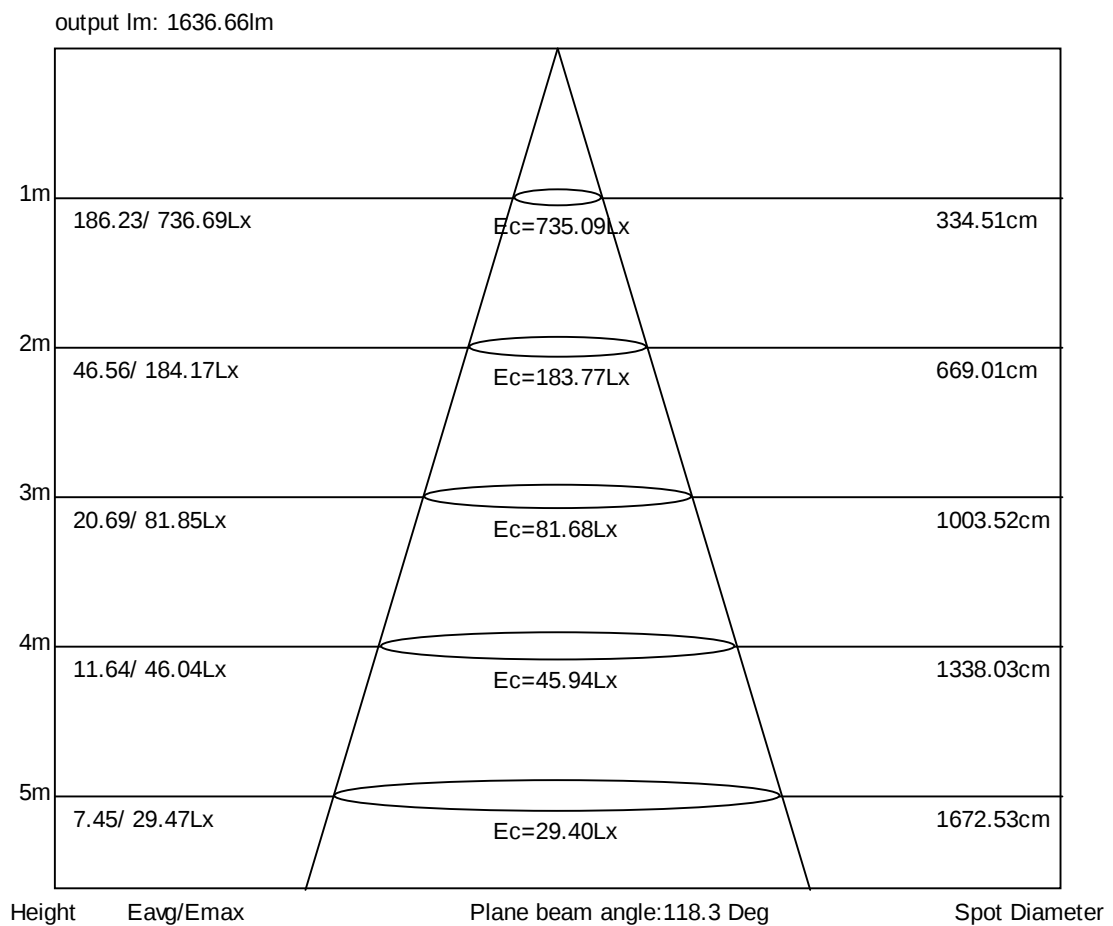
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Average Illumination



Gama Angle Range: -180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range: 0 - 180(Deg)

C interval(Deg): 45

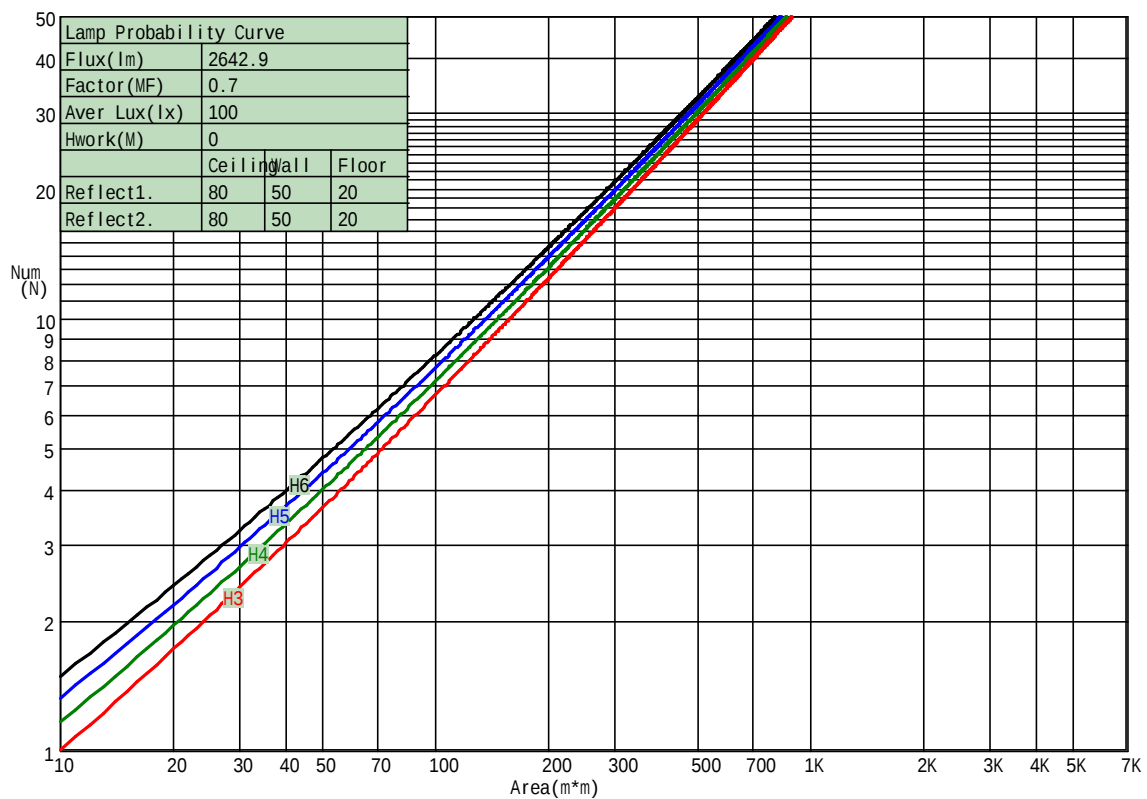
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Lamp Probability Curve



Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m ²):	Protect Angle(Deg):

UF Table

Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5
Wall	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3
Floor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
0.60	38	20	10	35	19	9	31	17	8
0.80	46	28	15	43	26	14	37	23	13
1.00	51	33	20	48	31	18	41	27	16
1.25	56	37	23	52	35	22	45	30	19
1.50	60	41	26	56	38	24	48	33	21
2.00	64	45	29	59	42	27	50	36	23
2.50	67	47	31	62	44	29	52	37	25
3.00	68	49	32	63	45	30	53	38	25
4.00	70	51	34	65	47	31	54	39	26
5.00	71	52	35	66	48	32	55	40	26

CoEfficients Utilization

Ceiling(%)		0			0			0			0			0	
Wall(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floor (%)		0			0			0			0			0	
0	1.16	1.16	1.16	1.12	1.12	1.12	1.05	1.05	1.05	0.98	0.98	0.98	0.91	0.91	0.91
1	0.99	0.94	0.9	0.96	0.91	0.88	0.89	0.86	0.83	0.83	0.81	0.78	0.78	0.76	0.74
2	0.86	0.78	0.72	0.83	0.76	0.7	0.77	0.72	0.67	0.72	0.68	0.64	0.68	0.64	0.61
3	0.75	0.66	0.59	0.72	0.64	0.58	0.68	0.61	0.56	0.63	0.58	0.53	0.59	0.55	0.51
4	0.66	0.57	0.5	0.64	0.55	0.49	0.6	0.53	0.47	0.56	0.5	0.45	0.53	0.48	0.43
5	0.59	0.5	0.43	0.57	0.48	0.42	0.53	0.46	0.4	0.5	0.44	0.39	0.47	0.42	0.37
6	0.53	0.44	0.37	0.51	0.43	0.36	0.48	0.41	0.35	0.45	0.39	0.34	0.43	0.37	0.33
7	0.48	0.39	0.33	0.46	0.38	0.32	0.44	0.36	0.31	0.41	0.35	0.3	0.39	0.33	0.29
8	0.43	0.35	0.29	0.42	0.34	0.28	0.4	0.33	0.28	0.38	0.31	0.27	0.36	0.3	0.26
9	0.4	0.31	0.26	0.39	0.31	0.26	0.37	0.3	0.25	0.35	0.29	0.24	0.33	0.27	0.23
10	0.37	0.29	0.23	0.36	0.28	0.23	0.34	0.27	0.22	0.32	0.26	0.22	0.31	0.25	0.21

Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Wall Exitance CoEfficients

Ceiling(%)		0			0			0			0			0	
Wall(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floor (%)		0			0			0			0			0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.35	0.2	0.06	0.33	0.19	0.06	0.31	0.18	0.06	0.3	0.17	0.05	0.28	0.16	0.05
2	0.31	0.17	0.05	0.3	0.17	0.05	0.28	0.16	0.05	0.27	0.15	0.05	0.25	0.14	0.04
3	0.28	0.15	0.04	0.27	0.15	0.04	0.26	0.14	0.04	0.24	0.13	0.04	0.23	0.13	0.04
4	0.26	0.13	0.04	0.25	0.13	0.04	0.23	0.12	0.04	0.22	0.12	0.04	0.21	0.11	0.03
5	0.23	0.12	0.03	0.23	0.12	0.03	0.21	0.11	0.03	0.2	0.11	0.03	0.19	0.1	0.03
6	0.22	0.11	0.03	0.21	0.11	0.03	0.2	0.1	0.03	0.19	0.1	0.03	0.18	0.09	0.03
7	0.2	0.1	0.03	0.19	0.1	0.03	0.18	0.09	0.03	0.17	0.09	0.03	0.16	0.09	0.03
8	0.19	0.09	0.03	0.18	0.09	0.03	0.17	0.09	0.02	0.16	0.08	0.02	0.15	0.08	0.02
9	0.17	0.08	0.02	0.17	0.08	0.02	0.16	0.08	0.02	0.15	0.08	0.02	0.14	0.07	0.02
10	0.16	0.08	0.02	0.16	0.08	0.02	0.15	0.07	0.02	0.14	0.07	0.02	0.14	0.07	0.02

Ceiling Cavity Exitance CoEfficients

Ceiling(%)		0			0			0			0			0	
Wall(%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Floor (%)		0			0			0			0			0	
0	0.28	0.28	0.28	0.24	0.24	0.24	0.16	0.16	0.16	0.09	0.09	0.09	0.03	0.03	0.03
1	0.27	0.25	0.22	0.23	0.21	0.19	0.16	0.14	0.13	0.09	0.08	0.08	0.03	0.03	0.02
2	0.26	0.22	0.19	0.23	0.19	0.16	0.16	0.13	0.11	0.09	0.08	0.07	0.03	0.02	0.02
3	0.26	0.2	0.16	0.22	0.18	0.14	0.15	0.12	0.1	0.09	0.07	0.06	0.03	0.02	0.02
4	0.25	0.19	0.15	0.21	0.17	0.13	0.15	0.12	0.09	0.09	0.07	0.05	0.03	0.02	0.02
5	0.24	0.18	0.14	0.21	0.16	0.12	0.14	0.11	0.08	0.08	0.06	0.05	0.03	0.02	0.02
6	0.23	0.17	0.13	0.2	0.15	0.11	0.14	0.11	0.08	0.08	0.06	0.05	0.03	0.02	0.02
7	0.23	0.17	0.12	0.2	0.14	0.11	0.14	0.1	0.08	0.08	0.06	0.05	0.03	0.02	0.02
8	0.22	0.16	0.12	0.19	0.14	0.1	0.13	0.1	0.07	0.08	0.06	0.04	0.02	0.02	0.01
9	0.22	0.16	0.12	0.19	0.14	0.1	0.13	0.1	0.07	0.07	0.06	0.04	0.02	0.02	0.01
10	0.21	0.15	0.11	0.18	0.13	0.1	0.13	0.09	0.07	0.07	0.06	0.04	0.02	0.02	0.01

Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

Ring-shaped Flux Data Table

Gm\C(Deg)	0	45	90	135	180	225	270	315	Range	Ring	T(lm)
5	732	735	732	734	734	730	733	726	0-5	17.5	17.5
10	721	729	724	728	723	718	727	714	5-10	52.1	69.6
15	702	717	711	717	705	700	715	695	10-15	84.9	154
20	677	700	692	699	681	676	697	671	15-20	115	269
25	646	676	667	676	650	647	673	641	20-25	141	411
30	609	647	638	646	615	612	645	606	25-30	163	573
35	568	614	603	612	574	574	613	567	30-35	179	753
40	523	575	566	573	529	532	576	525	35-40	190	943
45	475	534	525	531	480	487	536	479	40-45	195	1139
50	424	489	482	486	429	440	493	432	45-50	195	1334
55	371	442	437	438	375	390	448	383	50-55	189	1522
60	316	393	390	388	318	338	400	330	55-60	178	1700
65	258	342	341	336	260	285	351	278	60-65	162	1862
70	199	289	290	283	201	232	301	226	65-70	141	2003
75	140	236	245	229	140	180	251	171	70-75	118	2121
80	84	184	199	176	83.3	135	205	126	75-80	92.9	2214
85	46.8	139	161	129	37.1	104	165	94.4	80-85	69.7	2283
90	19.5	105	133	96.3	13.7	85.3	137	77.7	85-90	52.2	2336
95	16.3	85.9	114	77.9	12.7	63.8	117	55.2	90-95	40.9	2377
100	17.7	64.3	101	55.5	13.5	60.4	106	52.3	95-100	34.2	2411
105	18.5	57.4	90.3	50.7	14.9	54.1	101	49.3	100-105	30	2441
110	19.4	51.8	85.8	47.7	16.2	53.1	87.5	49.2	105-110	27.8	2469
115	20.3	52.4	80.2	47.8	17.8	52.9	84.7	47	110-115	25.7	2494
120	21.5	51.5	77.4	48.1	19.5	52	79.8	44.6	115-120	24.3	2518
125	22.8	48.1	73	47.4	21.1	50.7	74.9	42.3	120-125	22.4	2541
130	24	45.2	68.6	46.6	22.8	46	70.1	31.4	125-130	20.1	2561
135	25.3	39.8	64.1	36.8	24.7	34.9	65.2	31.2	130-135	17.1	2578
140	26.5	33.6	58	34.1	26.1	37.7	57.4	32.7	135-140	14.4	2593
145	27.7	34.6	40.1	35.6	27.4	34.1	38.6	31.8	140-145	12.2	2605
150	28.7	32.9	40.5	33.3	28.7	34.6	40.7	32.9	145-150	9.85	2615
155	29.6	35.3	36.5	36.2	29.7	34.7	35.7	32.6	150-155	8.62	2623
160	30.6	34.4	36.4	35	30.7	33.4	37	32.1	155-160	7.04	2630
165	31.3	33.2	36.4	33.4	31.5	32.1	33.3	31.9	160-165	5.53	2636
170	32.1	32.2	33.4	32.3	32.2	32.2	32.3	32	165-170	3.87	2640
175	32.5	32.2	32.4	32.2	32.6	32.3	32.5	32.3	170-175	2.31	2642
180	32.8	32.3	32.5	32.5	32.8	32.3	32.6	32.2	175-180	0.78	2643

Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zxcg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 215.6V I: 284.0mA P: 31.30W PF: 0.511 Test LM: 2642.90lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20D04-2	Lamp Spec:	Shape Size:
Manufactory: LIPER	Sur(m^2):	Protect Angle(Deg):

CD Table

Gm\C(Deg)	0	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300	320	340
5.0	732	734	735	734	733	732	733	734	734	734	732	730	731	732	731	728	727	730
10.0	721	725	729	728	725	725	727	728	725	723	721	719	721	725	724	718	715	718
15.0	702	709	716	715	713	712	715	715	710	705	703	701	705	712	711	702	696	699
20.0	677	687	697	697	694	693	697	697	689	681	679	677	683	692	691	679	671	674
25.0	646	659	673	673	669	669	673	673	661	650	649	647	656	668	666	651	641	644
30.0	609	626	643	644	640	640	643	643	628	615	614	613	623	638	637	619	606	608
35.0	568	588	609	610	606	605	609	608	590	574	574	574	587	604	603	582	568	568
40.0	523	546	569	572	568	568	571	568	548	529	530	532	547	566	565	541	525	524
45.0	475	501	527	531	527	527	529	525	502	480	483	486	503	525	523	498	479	477
50.0	424	453	482	487	484	483	485	480	454	429	434	439	457	481	479	452	431	427
55.0	371	402	434	440	438	437	438	431	402	375	381	388	409	435	433	404	381	376
60.0	316	349	384	392	391	390	388	380	348	318	327	336	359	387	385	353	329	322
65.0	258	295	332	341	341	340	337	327	293	260	271	282	307	337	335	302	275	267
70.0	199	238	279	290	290	289	285	274	237	201	215	229	255	286	284	250	223	210
75.0	140	182	226	239	243	241	235	220	179	140	157	175	203	235	234	197	168	153
80.0	84	128	173	189	196	194	183	166	124	83.3	106	129	158	190	188	152	121	102
85.0	46.8	87	129	146	156	154	140	119	77.5	37.1	66.2	96.4	124	152	150	118	89.2	67.6
90.0	19.5	57.1	96	114	127	125	108	87.3	49.9	13.7	45	77.5	102	126	124	97.1	71.3	45
95.0	16.3	46.7	78.3	95	108	106	89.7	70.8	41.2	12.7	35.1	58.2	81.3	105	104	75.5	51	33.3
100.0	17.7	38.1	59.2	76.2	92.6	90.7	70.3	50.9	31.9	13.5	34	55.3	75.3	95.9	94.1	69.9	48.6	32.9
105.0	18.5	35.5	53.1	68.2	83.1	81.6	63.7	46.8	30.5	14.9	32	49.8	69.4	90.4	89.4	66.1	45.9	32
110.0	19.4	33.6	48.3	63	78.4	77.5	60.2	44.3	30	16.2	32.3	49	64.4	80	79.1	61.7	45.9	32.4
115.0	20.3	34.4	48.9	61.5	74.1	73.1	58.4	44.5	30.9	17.8	33.2	49.1	63.4	77.8	76.4	59.3	44	32
120.0	21.5	34.6	48.2	60	71.7	71	57.7	44.9	32	19.5	33.7	48.4	61.1	73.7	72.1	56.2	42.1	31.6
125.0	22.8	33.9	45.4	56.3	67.6	67.4	55.8	44.6	32.6	21.1	34.1	47.5	58.7	69.6	67.8	53	40.2	31.3
130.0	24	33.3	42.9	52.9	63.5	63.7	53.8	44	33.2	22.8	32.9	43.5	53.9	64.8	61.6	44.1	30.6	27.2
135.0	25.3	31.6	38.2	47.7	58.8	58.1	45.7	35.5	30	24.7	29.2	33.8	44.8	58.6	57.8	42.4	30.6	27.9
140.0	26.5	29.6	32.8	41.6	52.7	52.8	41.9	33.2	29.6	26.1	31.2	36.5	44.2	53.1	52	40.8	32	29.2
145.0	27.7	30.7	33.9	36.4	38.9	39.1	37.1	34.7	31	27.4	30.3	33.4	35.6	37.6	37.1	34	31.3	29.5
150.0	28.7	30.6	32.5	35.4	38.8	38.9	35.7	32.8	30.7	28.7	31.3	33.9	36.6	39.4	39	35.5	32.5	30.6
155.0	29.6	32.1	34.7	35.7	36.2	36.4	36.3	35.5	32.6	29.7	31.9	34.2	35	35.5	35	33.6	32.3	30.9
160.0	30.6	32.3	34	35.1	36	36.1	35.5	34.5	32.6	30.7	31.9	33.1	34.6	36.2	35.9	33.7	31.9	31.2
165.0	31.3	32.2	33	34.3	35.7	35.8	34.4	33.2	32.4	31.5	31.8	32	32.5	33	33	32.3	31.8	31.6
170.0	32.1	32.1	32.2	32.6	33.2	33.2	32.7	32.3	32.2	32.2	32.2	32.2	32.2	32.3	32.2	32.1	32	32
175.0	32.5	32.4	32.2	32.3	32.4	32.4	32.3	32.2	32.4	32.6	32.5	32.4	32.4	32.4	32.4	32.4	32.3	32.4
180.0	32.8	32.6	32.4	32.4	32.5	32.5	32.5	32.6	32.7	32.8	32.6	32.4	32.4	32.5	32.5	32.3	32.3	32.6

Gama Angle Range:-180 - 180(Deg)

Gama interval(Deg): 1

Temperature(Deg): 30

Tester: zyg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

Humidity(%): 60

Date: 2023-10-30

Remark: