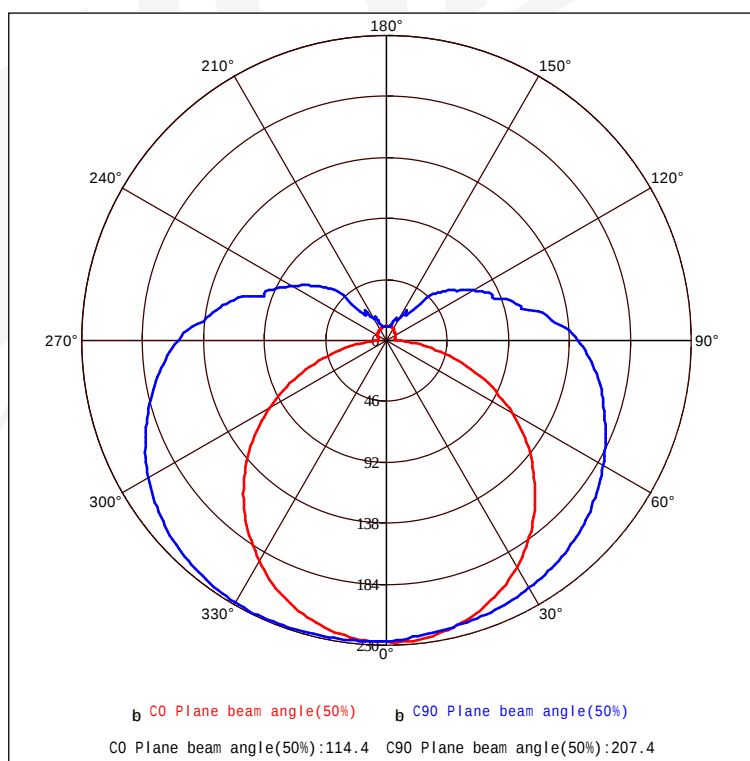


Goniophotometer Test Report

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm						
Lamp Name: LED TUBE			Lamp Type:		Weight(kg):	
Lamp ID: LPTL20DS04			Lamp Spec:		Shape Size:	
Manufactory: LIPER			Sur(m^2):		Protect Angle(Deg):	
Light Source Data			Photometric Data			
Model			Peak Value(cd)	229.1	Efficiency(lm/w)	84.6
Nominal P(w)		1.0	Position	270.0,22.0	UP(C0-C180)	10.2
Rated Volt(v)		220.0	Total Flux(lm)	1371.37	Down(C0-C180)	39.2
Rated Flux(lm)		1.0	Up Flux Rate(%)	20.4	UP(C180-C360)	10.2
Illuminant QTY		1	Dw Flux Rate(%)	79.6	Down(C180-C360)	40.4

Planar Intensity Distribution 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

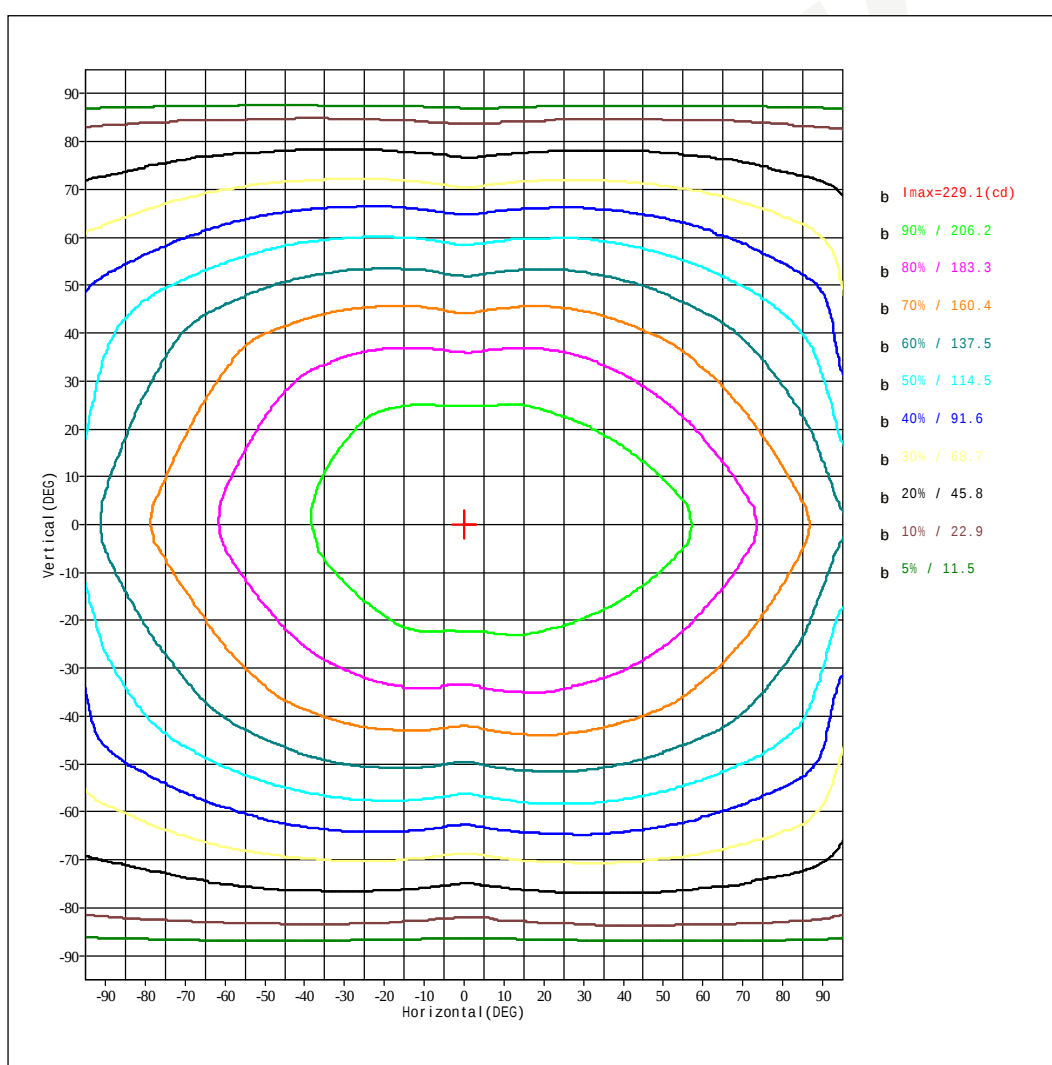
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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

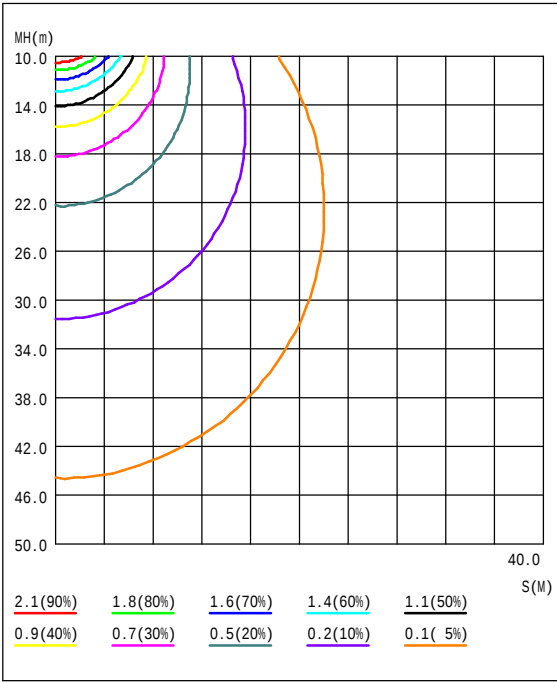
Humidity(%): 60

Date: 2023-10-30

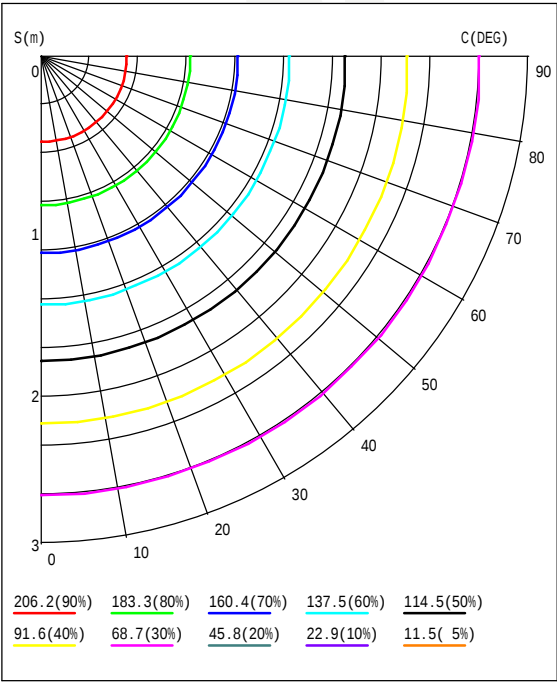
Remark:

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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: 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

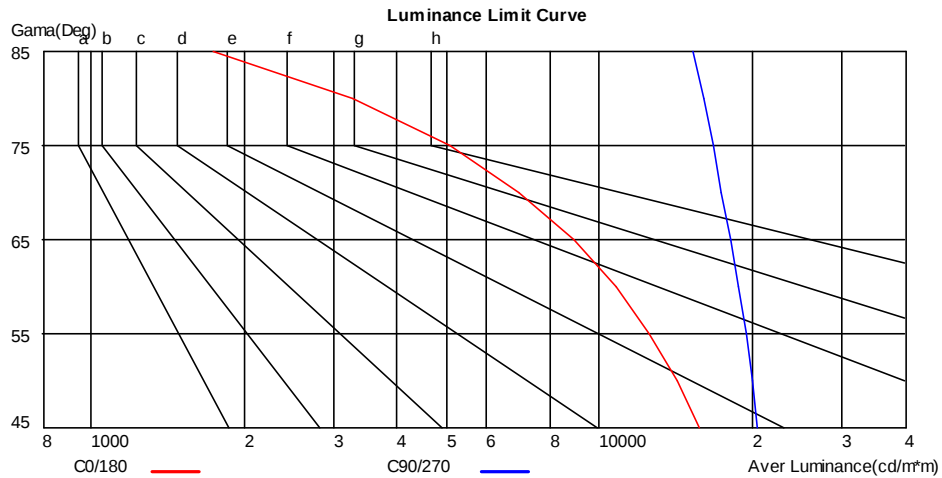
Remark:

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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	15716.3	14238.7	12566.7	10787.2	8913.8	6974.9	5081.0	3282.5	1735.0
C90	20480.3	19994.0	19442.1	18824.3	18162.5	17454.7	16844.9	16120.6	15271.4

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: zxg

Distance(m): 7.070

Test System: ZWL Goniophotometer System V3.0

C Angle Range:0 - 180(Deg)

C interval(Deg): 45

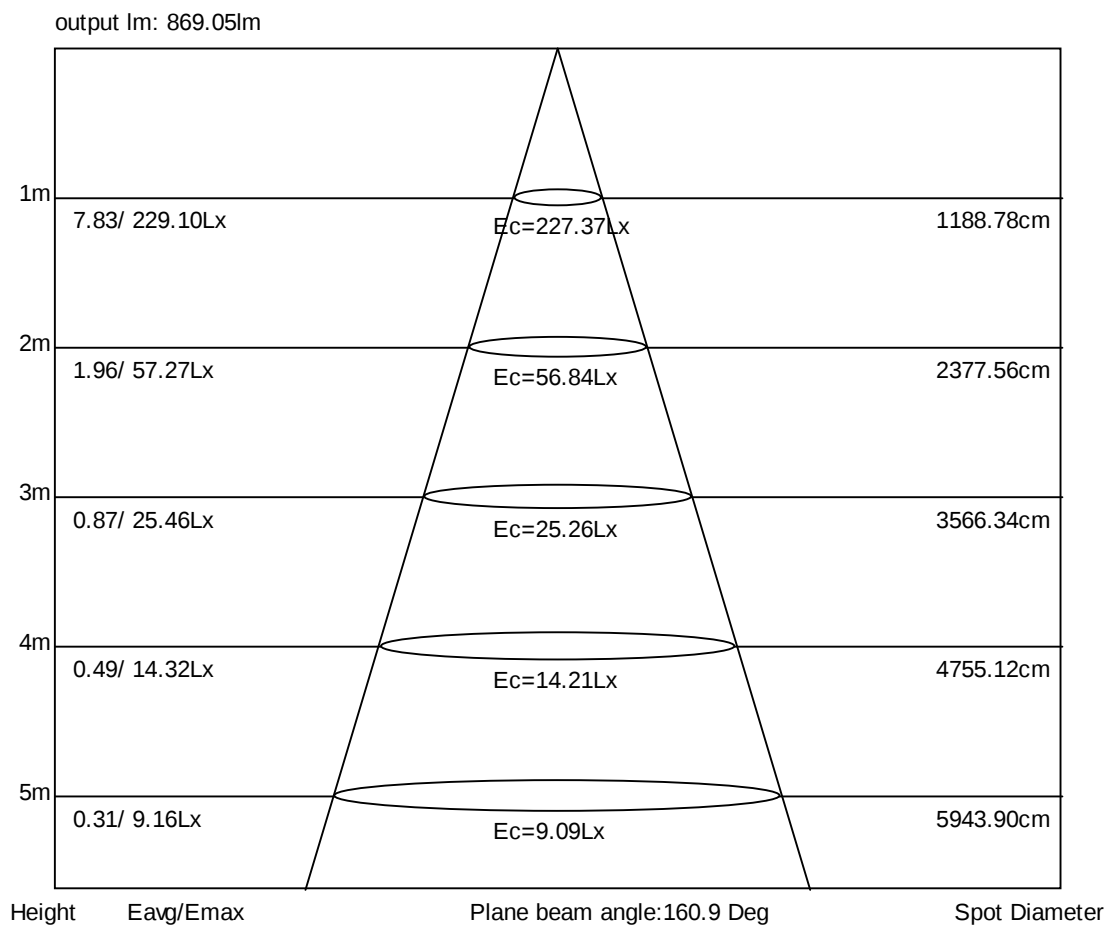
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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

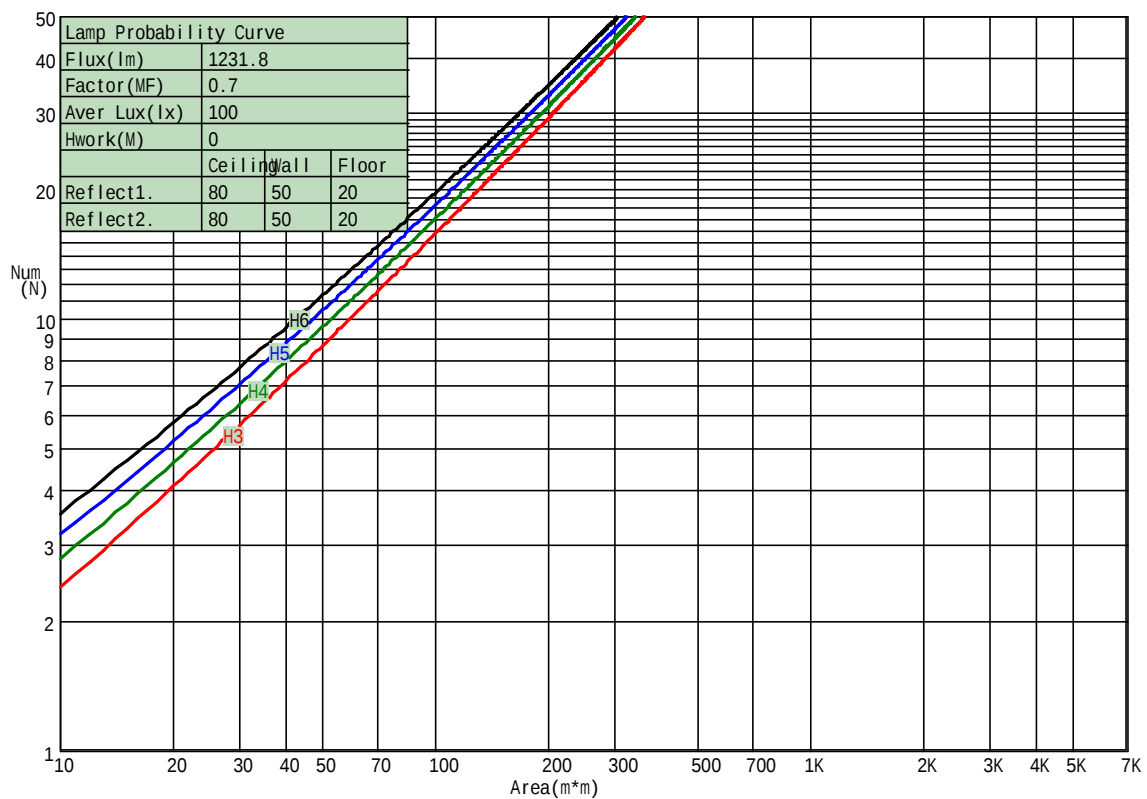
Humidity(%): 60

Date: 2023-10-30

Remark:

Measured Para U: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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: zxc

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: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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	39	22	12	36	21	11	31	17	9
0.80	47	29	17	43	27	16	37	23	13
1.00	52	34	21	48	31	20	40	27	17
1.25	57	39	25	52	36	23	44	30	20
1.50	60	42	28	55	39	26	46	33	22
2.00	65	46	32	59	43	29	49	36	24
2.50	68	49	34	62	45	31	51	37	26
3.00	69	51	36	63	47	33	52	38	27
4.00	71	53	38	65	49	34	53	40	28
5.00	73	55	39	66	50	35	54	40	28

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	1.14	1.14	1.14	1.09	1.09	1.09	1	1	1	0.91	0.91	0.91	0.83	0.83	0.83
1	0.94	0.88	0.83	0.9	0.85	0.8	0.82	0.77	0.74	0.74	0.71	0.68	0.67	0.65	0.62
2	0.8	0.72	0.65	0.76	0.69	0.62	0.69	0.63	0.58	0.63	0.58	0.54	0.57	0.53	0.49
3	0.69	0.6	0.52	0.66	0.57	0.5	0.6	0.53	0.47	0.54	0.48	0.44	0.49	0.44	0.4
4	0.6	0.51	0.43	0.58	0.49	0.42	0.52	0.45	0.39	0.48	0.41	0.36	0.43	0.38	0.34
5	0.53	0.44	0.37	0.51	0.42	0.35	0.47	0.39	0.33	0.42	0.36	0.31	0.38	0.33	0.29
6	0.48	0.38	0.31	0.46	0.37	0.3	0.42	0.34	0.29	0.38	0.32	0.27	0.35	0.29	0.25
7	0.43	0.34	0.27	0.41	0.33	0.27	0.38	0.3	0.25	0.35	0.28	0.23	0.32	0.26	0.22
8	0.39	0.3	0.24	0.37	0.29	0.23	0.34	0.27	0.22	0.32	0.25	0.21	0.29	0.23	0.19
9	0.36	0.27	0.21	0.34	0.26	0.21	0.31	0.25	0.2	0.29	0.23	0.18	0.27	0.21	0.17
10	0.33	0.25	0.19	0.31	0.24	0.19	0.29	0.22	0.18	0.27	0.21	0.17	0.25	0.19	0.16

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: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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	0.41	0.23	0.07	0.39	0.22	0.07	0.37	0.21	0.07	0.34	0.2	0.06	0.32	0.19	0.06
2	0.35	0.19	0.06	0.33	0.18	0.06	0.31	0.17	0.05	0.29	0.16	0.05	0.27	0.15	0.05
3	0.3	0.16	0.05	0.29	0.16	0.05	0.27	0.15	0.04	0.25	0.14	0.04	0.24	0.13	0.04
4	0.27	0.14	0.04	0.26	0.14	0.04	0.24	0.13	0.04	0.23	0.12	0.04	0.21	0.11	0.03
5	0.25	0.13	0.04	0.24	0.12	0.04	0.22	0.11	0.03	0.2	0.11	0.03	0.19	0.1	0.03
6	0.23	0.11	0.03	0.22	0.11	0.03	0.2	0.1	0.03	0.19	0.1	0.03	0.17	0.09	0.03
7	0.21	0.1	0.03	0.2	0.1	0.03	0.19	0.09	0.03	0.17	0.09	0.03	0.16	0.08	0.02
8	0.19	0.09	0.03	0.19	0.09	0.03	0.17	0.09	0.02	0.16	0.08	0.02	0.15	0.08	0.02
9	0.18	0.09	0.02	0.17	0.08	0.02	0.16	0.08	0.02	0.15	0.07	0.02	0.14	0.07	0.02
10	0.17	0.08	0.02	0.16	0.08	0.02	0.15	0.07	0.02	0.14	0.07	0.02	0.13	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	0.35	0.35	0.35	0.3	0.3	0.3	0.2	0.2	0.2	0.12	0.12	0.12	0.04	0.04	0.04
1	0.34	0.31	0.28	0.29	0.27	0.24	0.2	0.18	0.17	0.12	0.11	0.1	0.04	0.03	0.03
2	0.34	0.29	0.25	0.29	0.25	0.22	0.2	0.17	0.15	0.11	0.1	0.09	0.04	0.03	0.03
3	0.33	0.27	0.23	0.28	0.24	0.2	0.19	0.16	0.14	0.11	0.1	0.08	0.04	0.03	0.03
4	0.32	0.26	0.21	0.28	0.23	0.19	0.19	0.16	0.13	0.11	0.09	0.08	0.04	0.03	0.03
5	0.31	0.25	0.2	0.27	0.22	0.18	0.19	0.15	0.13	0.11	0.09	0.07	0.03	0.03	0.02
6	0.31	0.24	0.2	0.26	0.21	0.17	0.18	0.15	0.12	0.11	0.09	0.07	0.03	0.03	0.02
7	0.3	0.24	0.19	0.26	0.21	0.17	0.18	0.14	0.12	0.1	0.08	0.07	0.03	0.03	0.02
8	0.29	0.23	0.19	0.25	0.2	0.16	0.17	0.14	0.12	0.1	0.08	0.07	0.03	0.03	0.02
9	0.29	0.23	0.19	0.25	0.2	0.16	0.17	0.14	0.12	0.1	0.08	0.07	0.03	0.03	0.02
10	0.28	0.22	0.18	0.24	0.19	0.16	0.17	0.14	0.11	0.1	0.08	0.07	0.03	0.03	0.02

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: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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	227	227	225	226	227	227	228	227	0-5	5.43	5.43
10	224	225	223	223	223	224	228	226	5-10	16.1	21.6
15	220	223	221	220	218	221	229	223	10-15	26.5	48.1
20	214	219	220	215	211	218	229	220	15-20	36.3	84.3
25	206	215	218	210	202	214	229	216	20-25	45.3	130
30	196	211	215	205	191	208	228	211	25-30	53.4	183
35	185	205	212	196	179	202	227	204	30-35	60.3	243
40	172	197	209	189	165	195	225	197	35-40	65.9	309
45	157	190	205	181	151	187	222	189	40-45	70.2	379
50	142	182	200	172	135	179	217	181	45-50	73	452
55	126	174	194	163	118	170	212	171	50-55	74.4	527
60	108	165	188	153	100	161	207	162	55-60	74.3	601
65	89.1	155	182	143	81.5	151	200	152	60-65	72.8	674
70	69.7	145	175	133	62.7	142	192	141	65-70	70	744
75	50.8	136	168	123	44.4	132	184	131	70-75	66.2	810
80	32.8	126	161	113	27.7	122	176	120	75-80	61.8	872
85	17.3	116	153	104	13.6	112	166	110	80-85	56.8	929
90	8.1	107	143	94.8	6.63	95.7	156	100	85-90	51.6	980
95	6.24	91.8	130	71.6	5.46	64.1	140	63.4	90-95	44.3	1025
100	6.26	65.4	119	52.6	5.61	61	129	56.9	95-100	36	1061
105	6.55	56.3	103	46.2	5.9	49.8	118	51.7	100-105	30.9	1092
110	6.74	48.9	89.5	41.7	6.48	48.8	98	46.1	105-110	26.9	1118
115	7.2	45.2	83.8	39.8	6.96	45.7	91.1	42.2	110-115	23.7	1142
120	7.54	42.1	74.4	37.2	7.42	41.7	81	36.3	115-120	21	1163
125	7.9	35.8	64.5	34.6	7.84	28.5	71.2	19.8	120-125	17.6	1181
130	8.4	23.9	57.3	20.6	8.2	21.5	61.7	17.4	125-130	13.4	1194
135	8.77	19.3	48.5	20.9	8.44	18	50.6	15.1	130-135	10.4	1205
140	9.13	15.5	24.8	17.5	8.77	15.9	25	13.5	135-140	7.34	1212
145	9.53	14.1	27.8	15.2	9.16	16.3	26.7	13.2	140-145	5.44	1217
150	9.87	14.1	18.4	15.2	9.51	13.2	19	11.7	145-150	4.44	1222
155	10.3	12.4	19.3	12.2	9.86	11	17.4	10.6	150-155	3.38	1225
160	10.6	11.5	14.3	10.7	10.2	10.3	12.5	10.2	155-160	2.55	1228
165	10.7	11	11.3	10.4	10.4	10.4	10.7	10.3	160-165	1.79	1229
170	10.7	11.1	11	10.4	10.6	10.6	10.5	10.4	165-170	1.26	1231
175	10.9	11.1	10.9	10.4	10.7	10.8	10.6	10.5	170-175	0.76	1232
180	10.9	10.9	10.8	10.4	10.8	10.8	10.8	10.6	175-180	0.26	1232

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: 216.3V I: 122.7mA P: 16.21W PF: 0.611 Test LM: 1371.37lm		
Lamp Name: LED TUBE	Lamp Type:	Weight(kg):
Lamp ID: LPTL20DS04	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	227	227	227	226	225	225	225	226	226	227	227	227	227	227	227	227	227	227
10.0	224	225	225	224	223	223	223	223	223	223	224	224	226	227	228	227	226	225
15.0	220	221	222	222	222	221	220	220	219	218	219	221	224	227	227	225	223	221
20.0	214	216	219	220	220	219	217	215	213	211	214	217	221	226	227	223	219	216
25.0	206	210	214	216	217	216	213	209	206	202	207	212	219	226	226	220	215	210
30.0	196	202	209	212	214	213	208	203	197	191	198	206	215	224	224	216	209	202
35.0	185	194	203	207	211	209	202	194	186	179	189	200	210	222	222	212	202	193
40.0	172	183	194	201	206	205	196	186	176	165	178	192	205	218	219	206	195	183
45.0	157	172	186	195	202	200	189	177	164	151	167	183	199	214	214	200	186	171
50.0	142	160	178	188	196	194	181	168	151	135	154	174	192	209	209	193	177	159
55.0	126	147	168	180	190	188	173	158	138	118	141	165	184	203	204	185	166	146
60.0	108	133	158	172	183	181	165	147	123	100	127	154	176	197	197	177	156	131
65.0	89.1	118	148	164	176	173	156	136	108	81.5	112	144	167	190	190	168	145	116
70.0	69.7	103	137	155	168	165	146	125	93.3	62.7	97.2	133	158	181	181	158	133	101
75.0	50.8	88	126	146	161	159	138	114	78.8	44.4	82.7	122	149	173	172	148	122	85.8
80.0	32.8	73.6	116	138	154	151	129	104	65.2	27.7	69	112	140	164	164	139	111	71.2
85.0	17.3	60.7	106	128	145	142	120	94.1	53.1	13.6	56.7	101	130	155	154	129	100	58
90.0	8.1	51.3	96	119	135	133	111	85.2	45.2	6.63	45.6	86	116	143	144	118	90	48.3
95.0	6.24	43.7	82.4	104	121	117	90.6	64.4	34.4	5.46	31.1	57.7	89.1	124	124	88.7	57.2	31.3
100.0	6.26	32.1	58.9	82.9	107	104	74.3	47.5	26.2	5.61	29.8	55	83.4	114	113	80.6	51.3	28.4
105.0	6.55	28.3	50.9	71.5	92.5	90.3	64.7	41.8	23.6	5.9	25.1	45	72.2	103	104	73.5	46.7	26.3
110.0	6.74	25.2	44.3	62.2	80.6	79.1	57.4	37.9	21.9	6.48	25	44.2	65	87.2	86.6	63.1	41.8	23.9
115.0	7.2	23.8	41	57.9	75.4	74.2	54.3	36.2	21.3	6.96	23.9	41.5	60.6	81.2	80.4	58.2	38.4	22.5
120.0	7.54	22.7	38.3	52.7	67.3	66.2	49.4	33.9	20.4	7.42	22.4	38	54.6	72.4	71.3	51	33.1	20.1
125.0	7.9	20.1	32.7	45.2	58.2	58	44.4	31.7	19.5	7.84	16.9	26.3	42.5	61.9	60	36.7	18.5	13.1
130.0	8.4	15.2	22.2	34.9	50	49.3	32.6	19.2	13.6	8.2	14	20	34.7	52.9	52	31.9	16.4	12.3
135.0	8.77	13.4	18.1	28.9	42.1	42.5	30	19.5	13.9	8.44	12.6	17	28.7	43.5	42.8	26.7	14.4	11.5
140.0	9.13	11.9	14.8	18.6	22.8	23.2	19.9	16.6	12.6	8.77	11.9	15.2	18.9	23	22.5	17.3	13	11
145.0	9.53	11.5	13.6	18.6	24.8	25.1	19.3	14.5	11.8	9.16	12.3	15.5	19.7	24.5	23.8	17.6	12.8	11.1
150.0	9.87	11.7	13.7	15.5	17.4	17.7	16.2	14.6	12	9.51	11.1	12.8	15.1	17.7	17.4	14.1	11.5	10.7
155.0	10.3	11.2	12.1	14.6	17.8	17.7	14.5	12	10.9	9.86	10.4	10.9	13.1	16	15.9	12.8	10.5	10.4
160.0	10.6	11	11.4	12.4	13.7	13.5	11.9	10.7	10.4	10.2	10.2	10.3	11	12	12	10.9	10.2	10.4
165.0	10.7	10.9	11	11.1	11.2	11.1	10.7	10.4	10.4	10.4	10.4	10.4	10.5	10.6	10.6	10.4	10.3	10.5
170.0	10.7	10.9	11.1	11.1	11	10.8	10.6	10.4	10.5	10.6	10.6	10.6	10.6	10.5	10.5	10.5	10.5	10.6
175.0	10.9	10.9	11	11	10.9	10.8	10.5	10.4	10.6	10.7	10.7	10.7	10.7	10.7	10.6	10.6	10.6	10.7
180.0	10.9	10.9	10.9	10.8	10.8	10.7	10.5	10.4	10.6	10.8	10.8	10.8	10.8	10.8	10.7	10.7	10.7	10.8

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: