

Test Report

Report number: KYR240506036-TRA0

Product name: LED lamp

Size of product: P10039(BR40-21-9CCT-DIM)

Client: Technical Department

Brand name: RAB

Statement

1. To The inspection agencies ensure the impartiality, independence and integrity of the test data responsible for the commission to provide the Confidentiality and protection of ownership test samples
2. The report ownerless inspection, review, approval and other personnel signature, altered or copied, not stamped seal of the agency test is invalid.
3. The commissioning party disagrees with the report, it is timely to our bodie.
4. The agency received the commission to send samples tested, the test report issued by the inspection data and results of sample submission only responsible forthe authenticity and representativeness of the sample by the commission responsible.
5. Pages of this report are an integral part of the test report, the user singled out some of the pages can lead to misunderstandings or used for other purposes and consequences, the agency pays the corresponding legal responsibility.
6. Test report commissioned by the release and disposal of samples: Principal shall after receiving notification of the completion operations after 30 working days, according to the contract completion inspection reports and sample collection. Overdue Principal will abandon this body, this body on behalf of disposal in accordance with the relevant provisions.
7. The report of the test findings do not prove untested items (functional or performance), compliance with the requirements.

Test Report

Sample Name	LED lamp	Test categories	LM-79	
Specifications/level	P10039(BR40-21-9C CT-DIM)	Trademark	RAB	
Entrust unit	Technical Department	Entrust unit address	/	
Entrust the date	2024.05.06	Date received	2024.05.06	
The sample quantity	1	The sample description	Intact appearance	
Detection of address	/	Testing environment	25.1°C, 60%	
Starting test time	2024.05.06	Detection of completion time	2024.05.14	
Detection based on	IESNA LM-79-2019 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products			
	Special requirements :			
Test items	/			
Test Conclusion	The test items are qualified.Please refer to Technical Specifications for results. Special seal for test report. Date of issue 2024.05.14			
Note and subcontract information	/			
Opinions and explain	/			
The principal(unit) Communication data	Address	/	Zip code	/
	Mailbox	/	Telephone	/

Photos of the sample

Type: P10039(BR40-21-9CCT-DIM)



Test Equipment List

Serial number	device name	Number	specifications	Calibration Date	Calibration Due date
1	Spectral analysis system	2030070003-008	HAAS-2000	2024/1/4	2025/1/3
2	Precision digital display DC power supply	2020180039-002	WY305	2023/12/25	2024/12/24
3	Intelligent AC test power supply	2020180074-005	DPS1010	2023/12/26	2024/12/25
4	Temperature and humidity meter	2080190001-002	C0S03	2023/12/25	2024/12/24
5	Integrate Sphere system	2030100001-017	(1.5M)	2024/1/4	2025/1/3
6	Electrical parameter measuring instrument	2020090011-018	PF310A	2023/12/26	2024/12/25
7	Intelligent AC test power supply	2020180103-998	DPS1005	2023/12/25	2024/12/24
8	Precision digital display DC power supply	2020180128-001	WY3010	2023/12/25	2024/12/24
9	Electrical parameter measuring instrument	2020090015-999	PF9811	2023/12/25	2024/12/24
10	Calibration lamp	2030030004-029	D204	2024/4/15	2025/4/14
11	Horizontal distribution photometer	2030060006-001	GO-2000	2024/1/4	2025/1/3

Test Summary

Sample Tested: P10039(BR40-21-9CCT-DIM)

Luminous Efficacy (Lumens /Watt)	Total Luminous Flux (Lumens)	Power (Watts)	Power Factor
104.76	2200	21	0.9
CCT (K)	CRI	Stabilization Time (Min)	
2700/3000/3500/4000/5000	90	85	

Table 1: Executive Data Summary

Note: The above results are recorded/ derived from measurements made using an Integrating Sphere.

Test specifications:

Date of Receipt	: May 6, 2024
Date of Test	: May 6, 2024
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	: IESNA LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products ANSI/IES TM-30-18 IES Method for Evaluating Light Source Color Rendition
Equipment Under Test (EUT)	
Name	: LED Lamp
Model	: P10039(BR40-21-9CCT-DIM)
Electrical Ratings	: 120V, 60Hz, 21.0W
ProductDescription	: E26 base, 2700K/3000K/3500K/4000K/5000K

TEST RESULTS

Test ambient temperature was 25.1°C.

Base orientation was base up. Test was conducted without a dimmer in the circuit.

The stabilization time of the sample was 85 minutes, and the total operating time including stabilization was 120 minutes.

Sphere-Spectroradiometer Method(2700K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	59.98
Test Current (A)	0.1618
Power Factor	0.9811
Test Power (W)	19.06
Luminous Efficacy (lm/W)	124.86
Total Luminous Flux (lm)	2380.2
Color Rendering Index (CRI)	90.8
R9	58
Correlated Color Temperature (CCT) (K)	2789
Chromaticity (Chroma x, Chroma y)	(0.4530, 0.4094)
Chromaticity (Chroma u, Chroma v)	(0.2586, 0.5259)
Duv	0.00018

Special Color Rendering Indices	
R1	93
R2	93
R3	90
R4	92
R5	91
R6	92
R7	92
R8	83
R9	58
R10	80
R11	93
R12	75
R13	92
R14	92
R15	89

(3000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	59.98
Test Current (A)	0.16
Power Factor	0.9808
Test Power (W)	18.85
Luminous Efficacy (lm/W)	131.76
Total Luminous Flux (lm)	2483.7
Color Rendering Index (CRI)	93.5
R9	69
Correlated Color Temperature (CCT) (K)	3055
Chromaticity (Chroma x, Chroma y)	(0.4309, 0.3982)
Chromaticity (Chroma u, Chroma v)	(0.2492, 0.5181)
Duv	-0.00154

Special Color Rendering Indices	
R1	96
R2	95
R3	91
R4	95
R5	95
R6	94
R7	94
R8	88
R9	69
R10	85
R11	94
R12	78
R13	96
R14	93
R15	93

(3500K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	59.98
Test Current (A)	0.1569
Power Factor	0.98
Test Power (W)	18.47
Luminous Efficacy (lm/W)	140.82
Total Luminous Flux (lm)	2600.7
Color Rendering Index (CRI)	95.7
R9	81
Correlated Color Temperature (CCT) (K)	3554
Chromaticity (Chroma x, Chroma y)	(0.4003, 0.3835)
Chromaticity (Chroma u, Chroma v)	(0.2354, 0.5074)
Duv	-0.00209

Special Color Rendering Indices	
R1	99
R2	97
R3	92
R4	97
R5	97
R6	95
R7	96
R8	94
R9	81
R10	89
R11	95
R12	76
R13	98
R14	94
R15	97

(4000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	59.98
Test Current (A)	0.1572
Power Factor	0.98
Test Power (W)	18.5
Luminous Efficacy (lm/W)	139.74
Total Luminous Flux (lm)	2585.4
Color Rendering Index (CRI)	96.4
R9	87
Correlated Color Temperature (CCT) (K)	4129
Chromaticity (Chroma x, Chroma y)	(0.3743, 0.3707)
Chromaticity (Chroma u, Chroma v)	(0.2235, 0.4980)
Duv	-0.00104

Special Color Rendering Indices	
R1	99
R2	97
R3	92
R4	98
R5	97
R6	94
R7	98
R8	96
R9	87
R10	90
R11	96
R12	72
R13	99
R14	94
R15	98

(5000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	59.98
Test Current (A)	0.1605
Power Factor	0.9808
Test Power (W)	18.9
Luminous Efficacy (lm/W)	128.4
Total Luminous Flux (lm)	2426.7
Color Rendering Index (CRI)	95.1
R9	82
Correlated Color Temperature (CCT) (K)	5196
Chromaticity (Chroma x, Chroma y)	(0.3401, 0.3534)
Chromaticity (Chroma u, Chroma v)	(0.2074, 0.4848)
Duv	0.0029

Table 2: Test data per Sphere-Spectroradiometer Method

Note: According to CIE 1976 (u',v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

Special Color Rendering Indices	
R1	97
R2	96
R3	92
R4	96
R5	95
R6	93
R7	97
R8	95
R9	82
R10	87
R11	95
R12	72
R13	96
R14	95
R15	96

Goniophotometer Method

The photometric distance is 9.91m.

Luminous data was taken at 1°vertical intervals and 22.5°horizontal intervals.(**2700K**)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	60
Test Current (A)	0.1635
Power Factor	0.9809
Test Power (W)	19.265
Luminous Efficacy (lm/W)	126.57
Total Luminous Flux (lm)	2438.3
Beam Angle (°)	121.5
Max Beam Candle Power (cd)	650.4
Spacing Criteria	121.5(0°-180°)/ 121.6 (90°-270°)
Zonal Lumens in the 0°-60°Zone	62.6%
Zonal Lumens in the 60°-90°Zone	26.0%
Zonal Lumens in the 90°-180°Zone	11.4%

(3000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	60
Test Current (A)	0.1617
Power Factor	0.980
Test Power (W)	19.04
Luminous Efficacy (lm/W)	134.1

Total Luminous Flux (lm)	2553.6
Beam Angle (°)	121.5
Max Beam Candle Power (cd)	680.3
Spacing Criteria	121.5(0°-180°)/ 121.5 (90°-270°)
Zonal Lumens in the 0°-60°Zone	62.6%
Zonal Lumens in the 60°-90°Zone	26.0%
Zonal Lumens in the 90°-180°Zone	11.4%

(3500K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	60
Test Current (A)	0.1587
Power Factor	0.9798
Test Power (W)	18.679
Luminous Efficacy (lm/W)	143.14
Total Luminous Flux (lm)	2673.6
Beam Angle (°)	121.6
Max Beam Candle Power (cd)	712.9
Spacing Criteria	121.6(0°-180°)/ 121.6 (90°-270°)
Zonal Lumens in the 0°-60°Zone	62.6%
Zonal Lumens in the 60°-90°Zone	26.0%
Zonal Lumens in the 90°-180°Zone	11.4%

(4000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	60
Test Current (A)	0.1593
Power Factor	0.980
Test Power (W)	18.753
Luminous Efficacy (lm/W)	141.83
Total Luminous Flux (lm)	2659.8
Beam Angle (°)	121.7
Max Beam Candle Power (cd)	707.8
Spacing Criteria	121.6(0°-180°)/ 121.8 (90°-270°)
Zonal Lumens in the 0°-60°Zone	62.6%
Zonal Lumens in the 60°-90°Zone	26.0%
Zonal Lumens in the 90°-180°Zone	11.4%

(5000K)

Parameter	Result
Test Voltage (V)	120.1
Voltage frequency (Hz)	60
Test Current (A)	0.1629
Power Factor	0.9808

Test Power (W)	19.192
Luminous Efficacy (lm/W)	130.38
Total Luminous Flux (lm)	2502.1
Beam Angle (°)	121.6
Max Beam Candle Power (cd)	665.5
Spacing Criteria	121.6(0°-180°)/ 121.7 (90°-270°)
Zonal Lumens in the 0°-60°Zone	62.6%
Zonal Lumens in the 60°-90°Zone	26.0%
Zonal Lumens in the 90°-180°Zone	11.4%

Table 3: Test data per Goniophotometer Method

$\gamma(^{\circ})$	Lumens	% Total
0-30	508.1	20.8
0-40	838.9	34.4
0-60	1527	62.6
0-90	2161	88.6
0-120	2358	96.7
0-180	2438	100
60-90	634	26.0
90-120	197	8.1
90-130	229	9.4
90-150	263	10.8
90-180	277	11.4

(3000K)

$\gamma(^{\circ})$	Lumens	% Total
0-30	532.0	20.8
0-40	878.3	34.4
0-60	1599	62.6
0-90	2263	88.6
0-120	2470	96.7
0-180	2554	100
60-90	664	26.0
90-120	207	8.1
90-130	240	9.4
90-150	276	10.8
90-180	291	11.4

(3500K)

$\gamma(^{\circ})$	Lumens	% Total
0-30	556.8	20.8
0-40	919.4	34.4
0-60	1674	62.6
0-90	2370	88.6
0-120	2586	96.7
0-180	2674	100
60-90	696	26.0
90-120	216	8.1
90-130	251	9.4
90-150	288	10.8
90-180	304	11.4

$\gamma(^{\circ})$	Lumens	% Total
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(4000K)

0-30	553.7	20.8
0-40	914.4	34.4
0-60	1665	62.6
0-90	2357	88.6
0-120	2573	96.7
0-180	2660	100
60-90	692	26.1
90-120	216	8.1
90-130	250	9.4
90-150	288	10.8
90-180	303	11.4

(5000K)

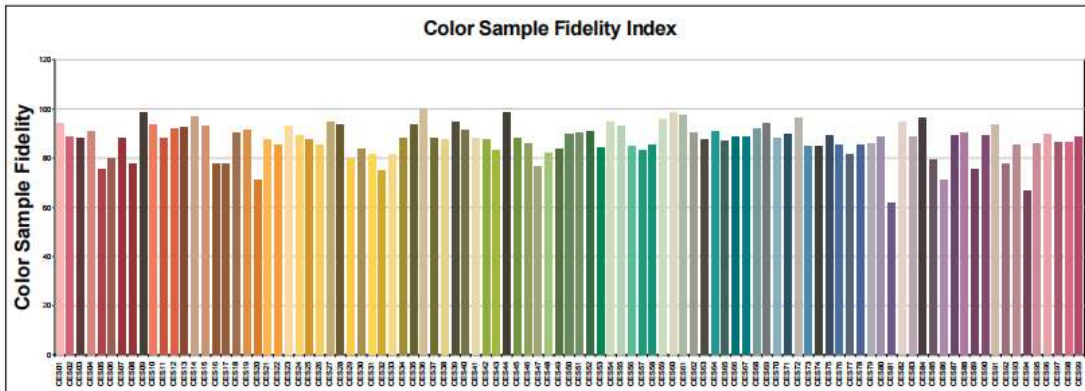
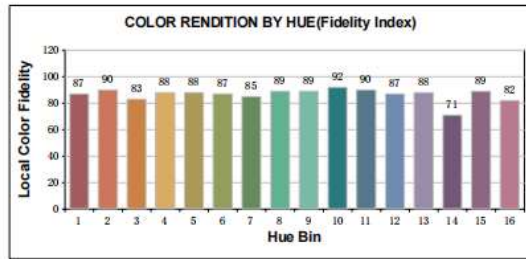
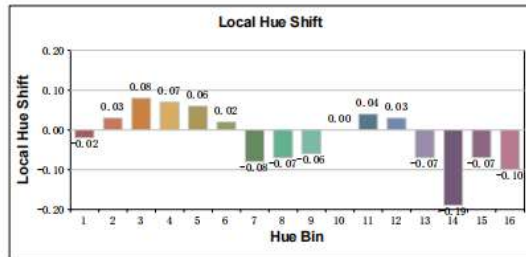
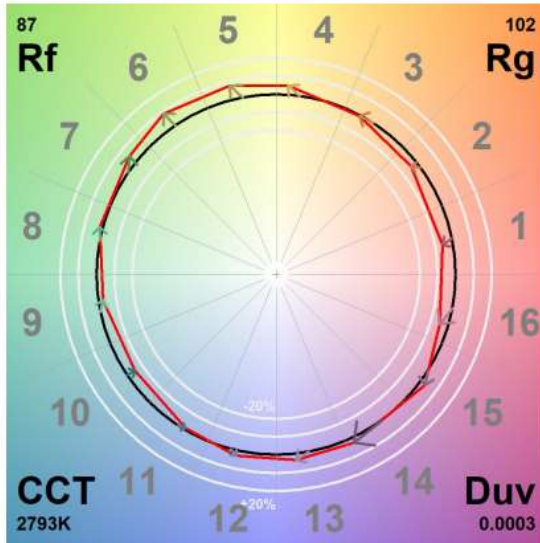
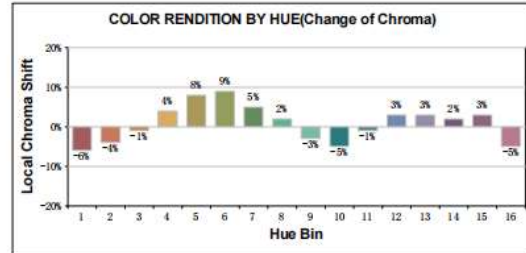
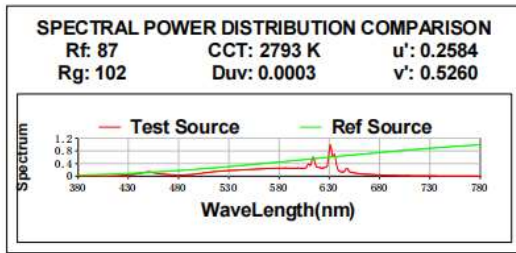
$\gamma(^{\circ})$	Lumens	% Total
0-30	520.7	20.8
0-40	859.9	34.4
0-60	1566	62.6
0-90	2217	88.6
0-120	2420	96.7
0-180	2502	100
60-90	651	26
90-120	203	8.1
90-130	236	9.4
90-150	271	10.8
90-180	285	11.4

Table 4: Zonal Lumen Data

Color Rendition Report-Sphere Spectroradiometer Method(2700K)

TM30

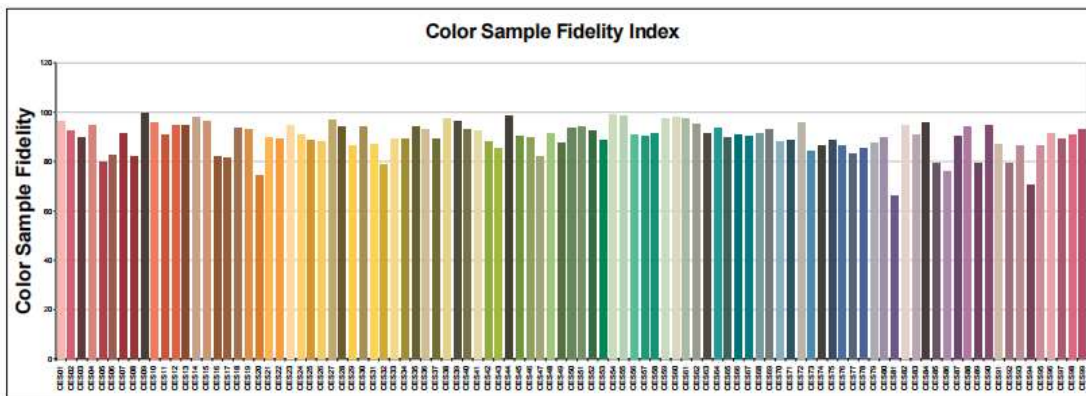
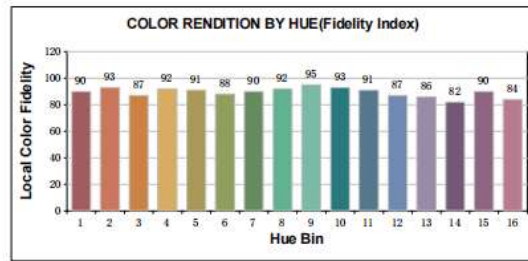
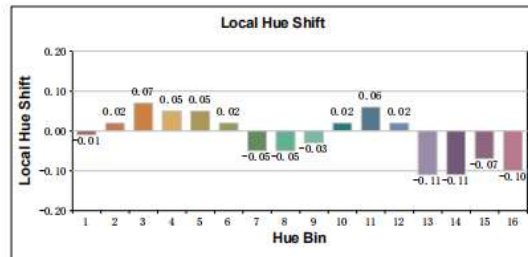
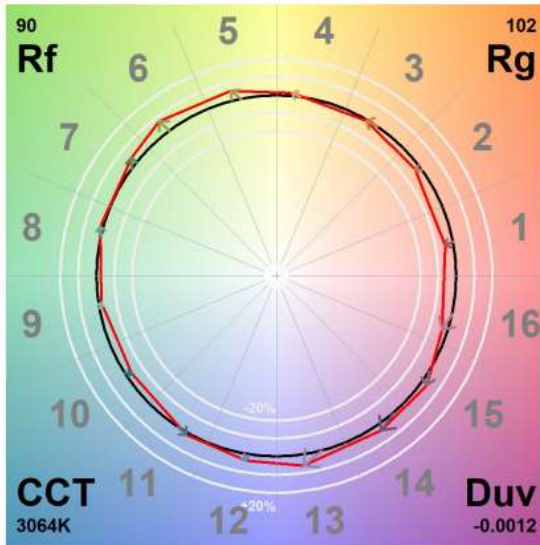
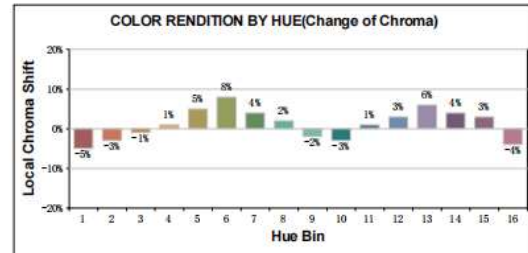
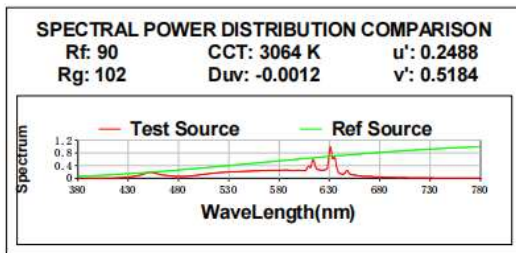
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(3000K)

TM30

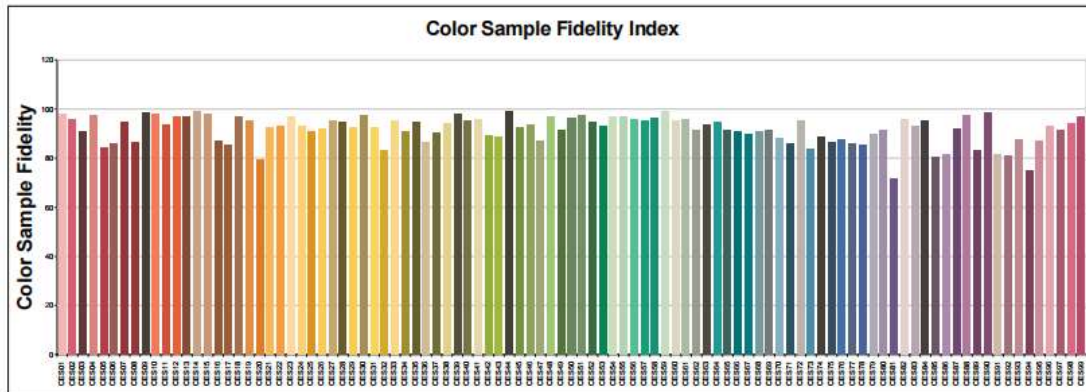
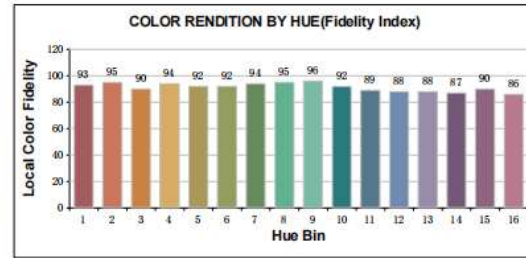
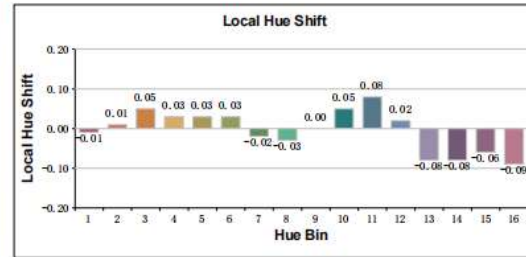
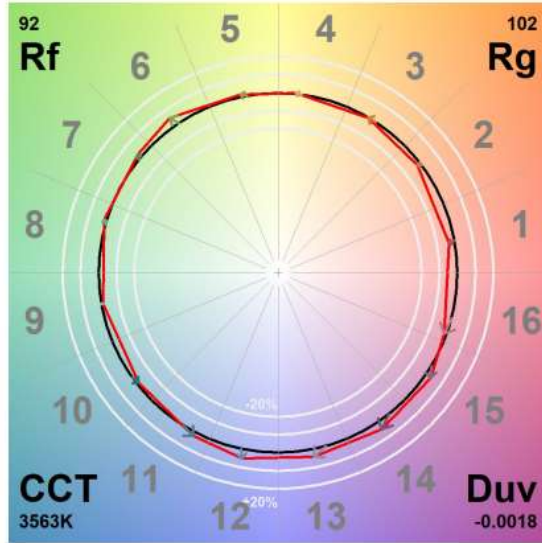
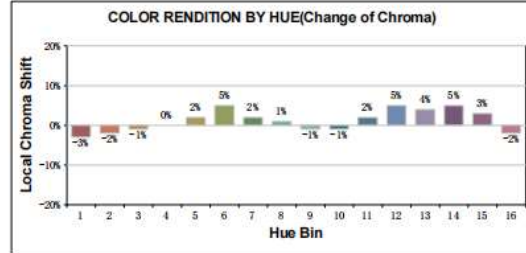
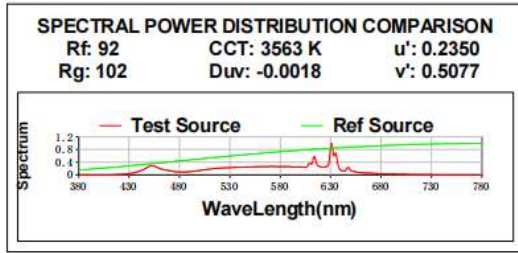
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(3500K)

TM30

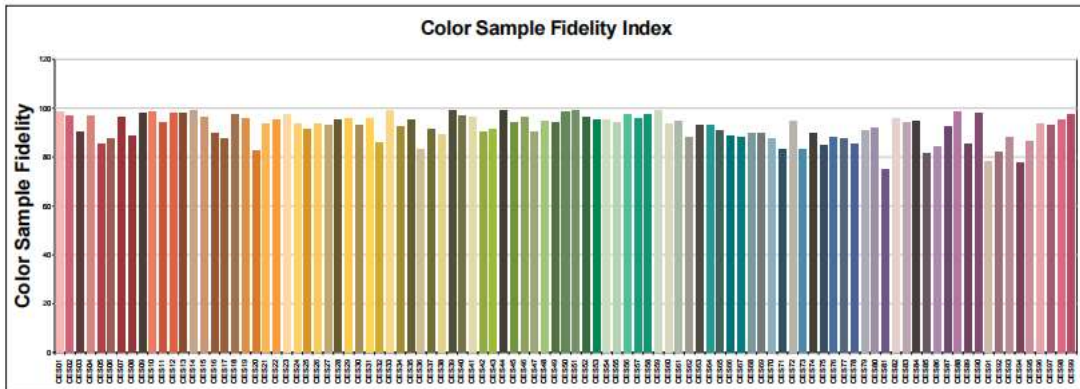
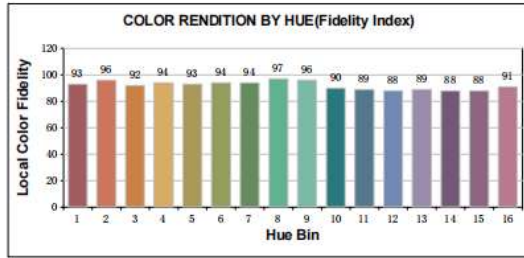
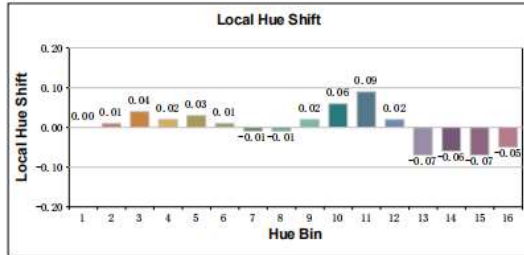
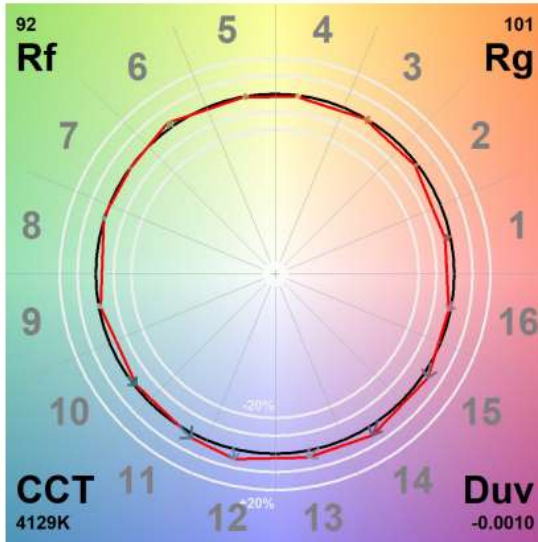
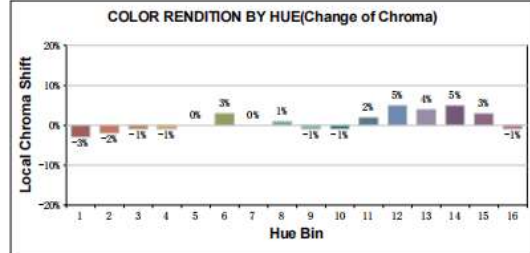
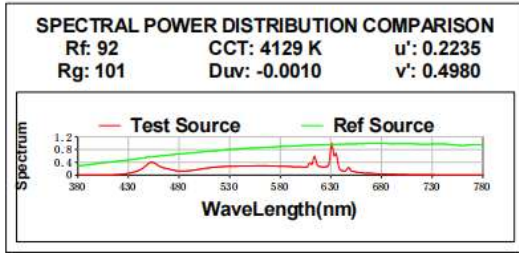
View Angle:2 Deg



(4000K)

TM30

View Angle:2 Deg



(5000K)

TM30

View Angle:2 Deg

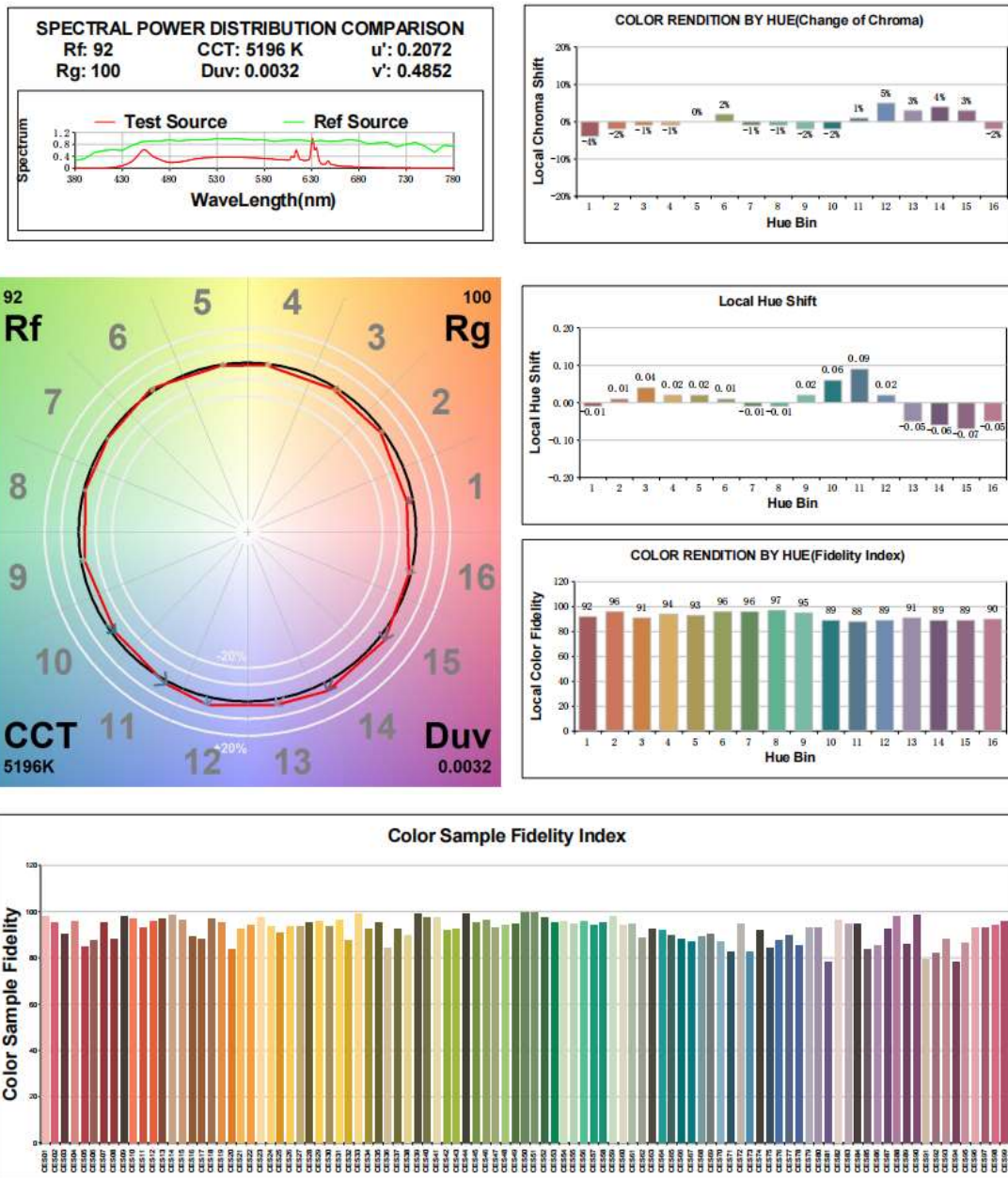
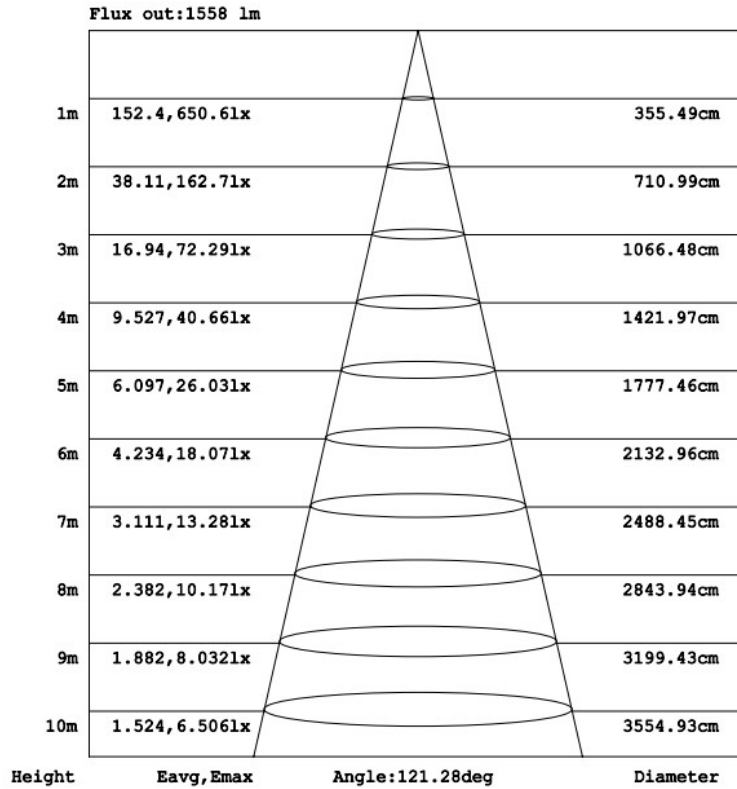
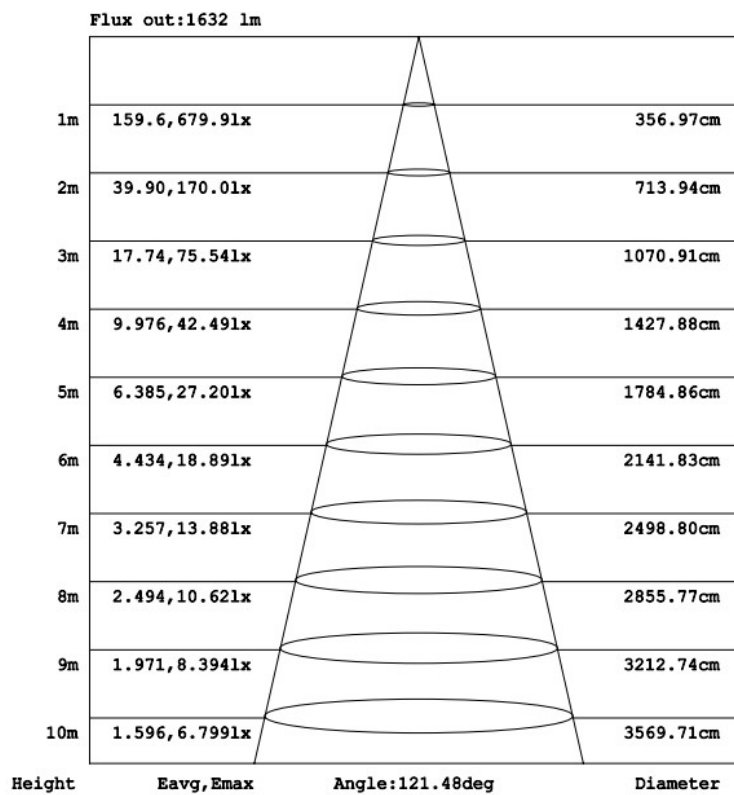


Chart 1: TM30

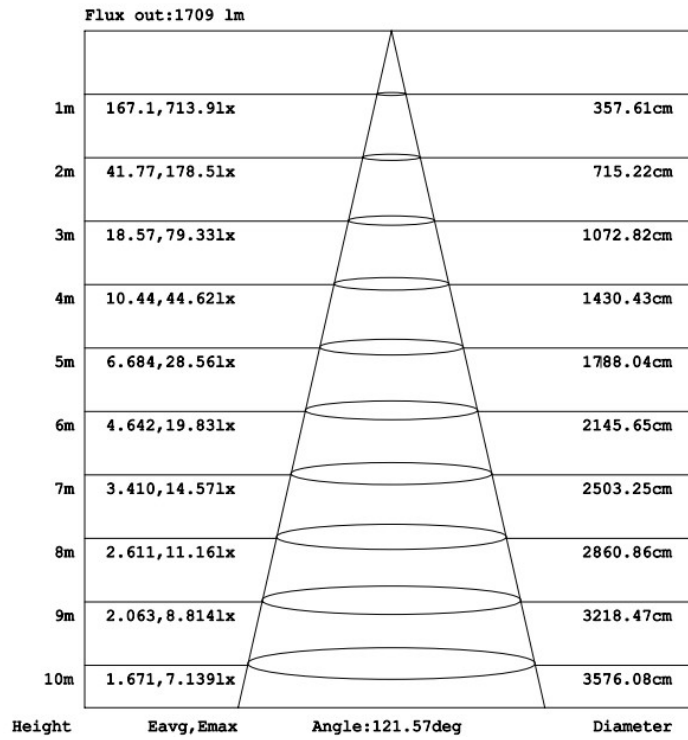
Illuminance Plots- Goniophotometer Method(2700K)



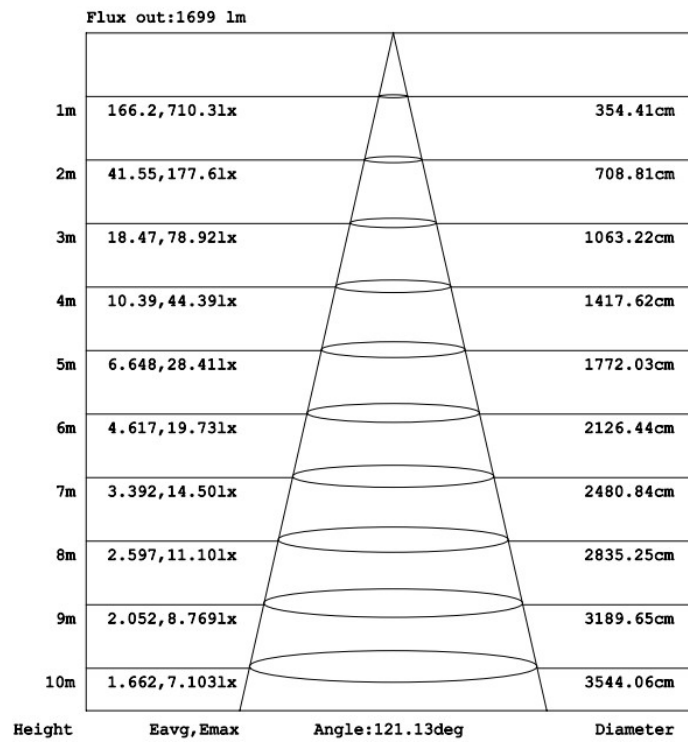
(3000K)



(3500K)



(4000K)



(5000K)

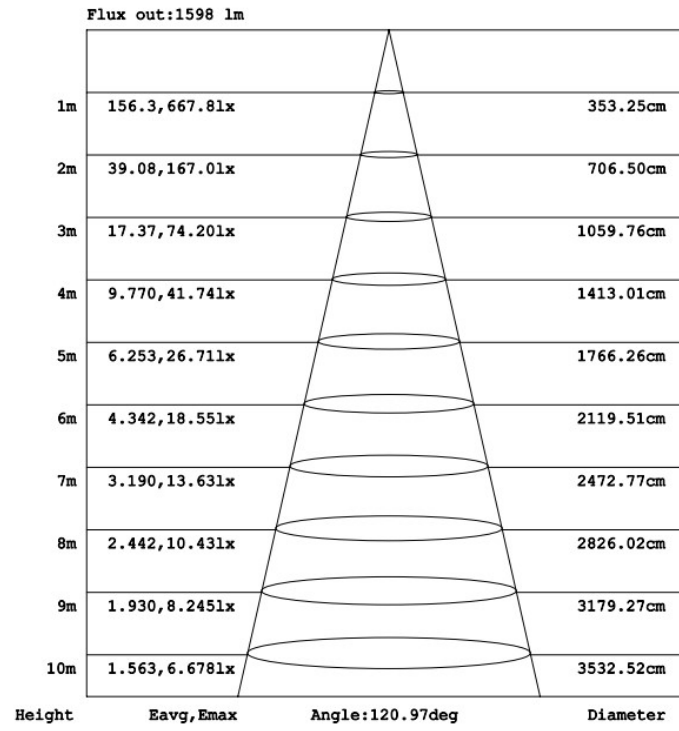
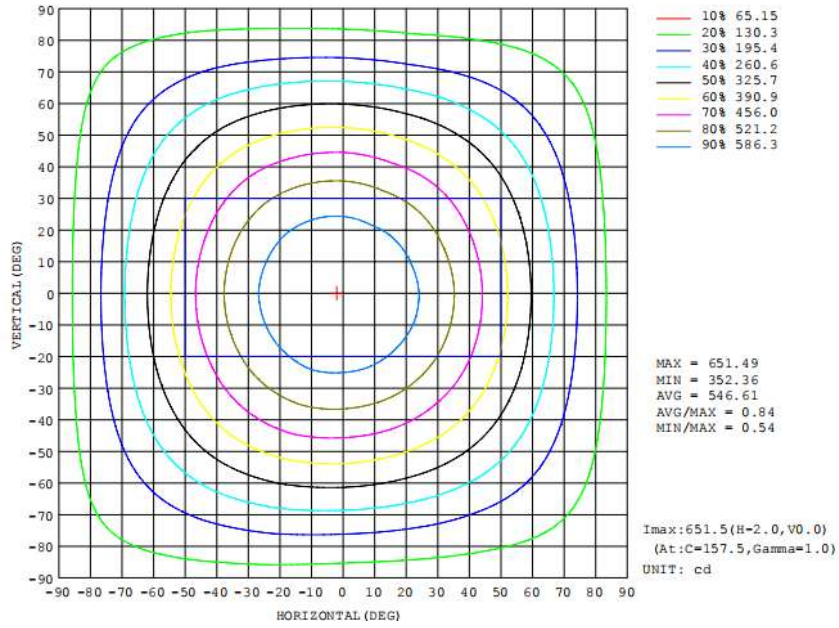
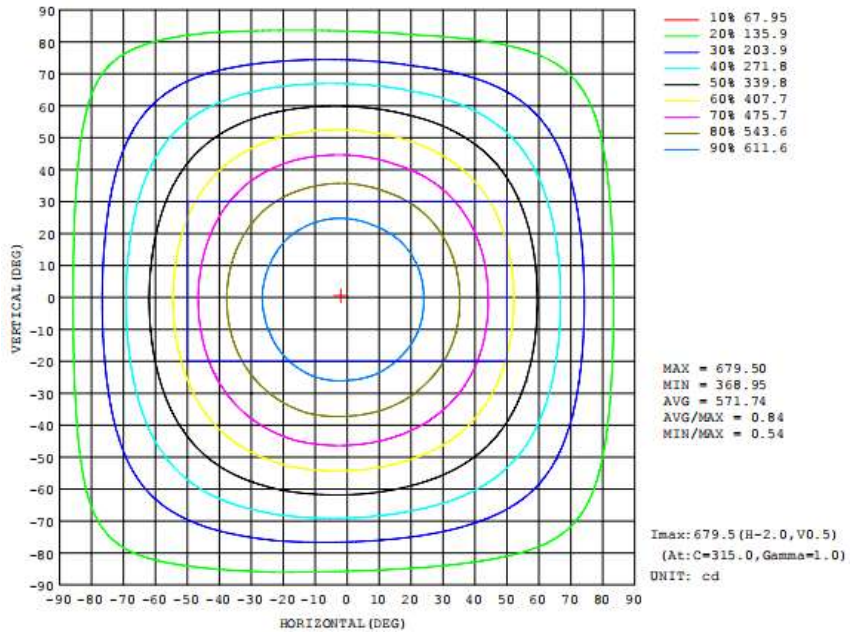


Chart 2: AAI Figure

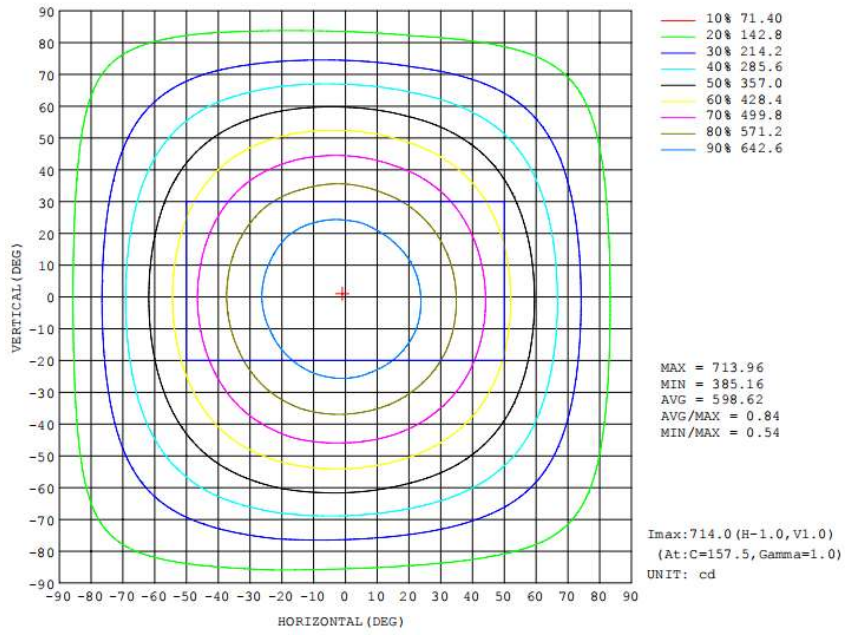
Luminous Intensity Distribution Plots- Goniophotometer Method(2700K)



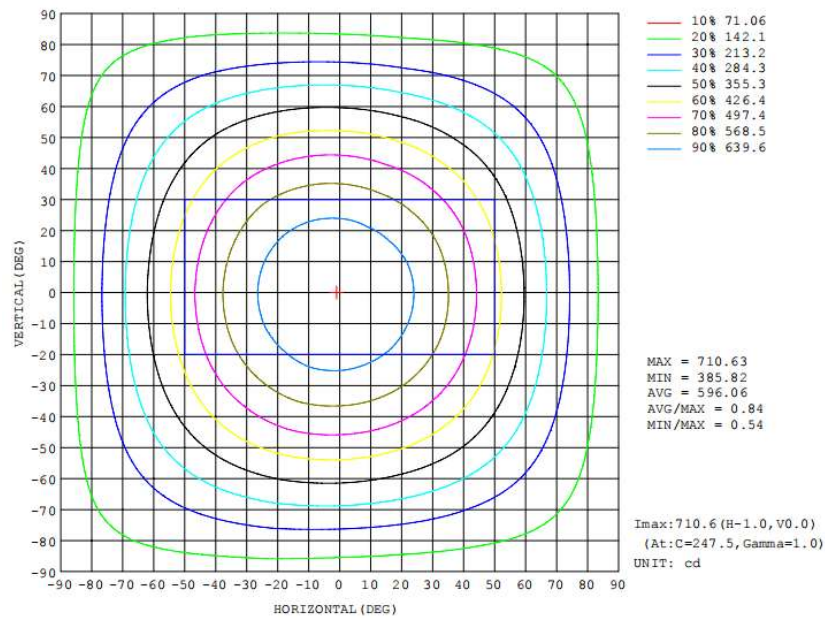
(3000K)



(3500K)



(4000K)



(5000K)

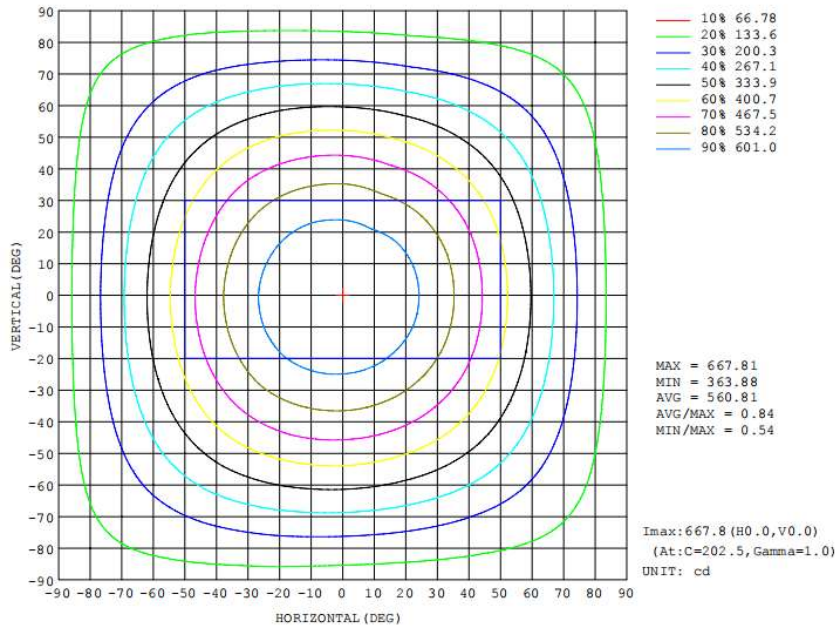
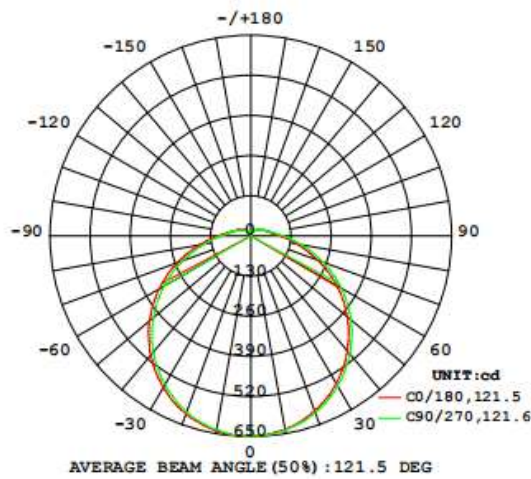


Chart 3: Isocandela Diagram

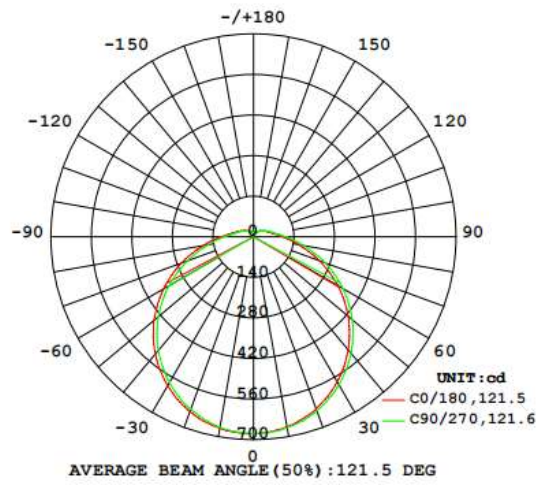
(2700K)

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



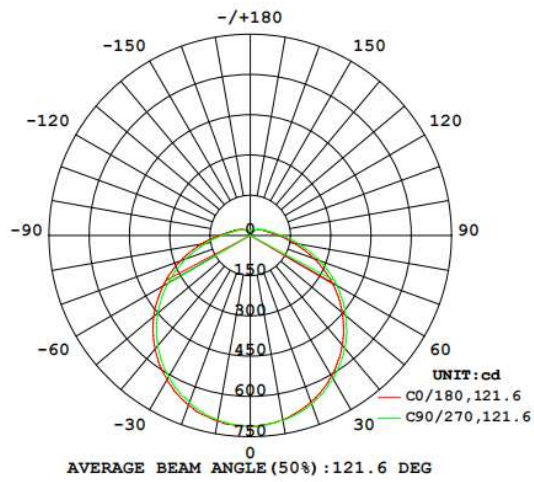
(3000K)

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



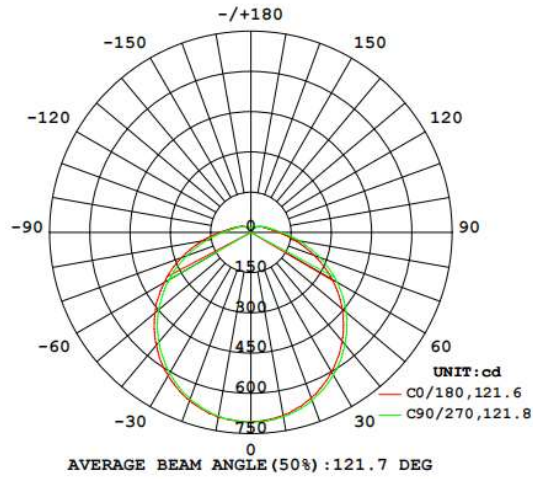
(3500K)

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



(4000K)

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



(5000K)

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

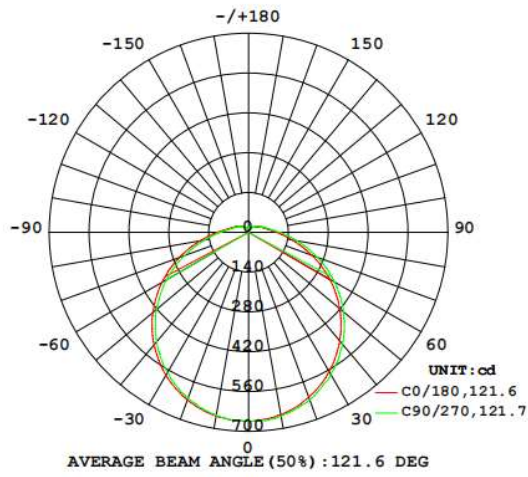


Chart 4: Luminous Intensity Distribution Diagram

Luminous Intensity Data- Goniophotometer Method(2700K)

Table--1 UNIT: cd

γ (DEG)	C (DEG)																		
	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649	649			
5	645	645	644	648	646	647	647	647	647	645	647	646	647	645	645	646			
10	637	635	636	637	639	641	640	641	641	639	639	639	637	636	638	636			
15	622	622	623	624	627	631	630	630	630	628	628	626	625	622	621	621			
20	603	603	604	608	609	613	613	613	613	612	611	609	606	603	602	604			
25	580	580	581	585	587	592	592	592	593	590	590	587	583	580	580	579			
30	552	553	554	558	561	567	567	567	567	564	562	560	556	551	550	552			
35	521	522	523	527	531	538	539	537	537	535	534	529	525	519	519	519			
40	486	488	489	494	498	505	506	504	504	501	500	495	491	483	484	485			
45	447	450	451	457	462	469	469	469	467	465	463	457	453	446	447	446			
50	407	409	412	416	423	431	430	429	428	425	422	417	411	406	404	406			
55	365	366	369	375	381	388	389	387	386	383	380	375	369	361	361	363			
60	321	322	326	331	338	345	346	343	342	340	337	331	325	317	317	319			
65	276	277	281	287	294	301	302	299	298	294	291	286	279	272	271	275			
70	231	233	236	242	249	256	257	255	252	249	246	240	234	226	227	229			
75	189	191	194	200	205	213	212	211	209	205	203	196	191	184	185	187			
80	151	154	156	161	166	173	172	171	169	166	163	158	153	147	148	149			
85	120	122	124	128	132	138	138	137	134	132	130	126	122	117	117	119			
90	95.9	97.7	98.9	102	105	110	109	108	107	104	103	99.4	96.6	92.8	93.3	94.4			
95	77.8	79.1	80.1	82.4	84.6	87.8	87.3	86.8	85.4	83.6	82.4	80.1	78.1	75.5	75.9	76.8			
100	65.3	66.2	67.0	68.6	70.2	72.2	71.8	71.3	70.3	68.9	68.2	66.5	65.2	63.5	63.9	64.6			
105	56.7	57.5	58.0	59.1	60.1	61.5	61.2	60.8	60.2	59.0	58.5	57.3	56.5	55.2	55.6	56.1			
110	49.9	50.5	50.8	51.9	52.9	53.9	53.6	53.4	52.7	51.8	51.3	50.4	49.6	48.6	48.8	49.3			
115	43.9	44.4	44.8	45.7	46.5	47.5	47.3	47.0	46.5	45.6	45.2	44.3	43.7	42.7	42.8	43.3			
120	38.6	39.1	39.4	40.2	40.9	41.8	41.6	41.4	40.9	40.2	39.7	39.0	38.4	37.6	37.6	38.1			
125	33.8	34.3	34.6	35.4	35.9	36.7	36.6	36.4	35.9	35.3	35.0	34.4	33.8	33.0	33.0	33.4			
130	29.8	30.2	30.5	31.1	31.6	32.3	32.2	32.2	31.7	31.1	30.8	30.3	29.8	29.1	29.1	29.3			
135	26.3	26.6	26.8	27.4	27.9	28.5	28.4	28.4	28.0	27.4	27.1	26.7	26.3	25.6	25.6	25.8			
140	23.2	23.4	23.7	24.2	24.6	25.2	25.1	25.0	24.7	24.3	24.0	23.6	23.2	22.7	22.7	22.9			
145	20.6	20.8	20.9	21.4	21.8	22.2	22.2	22.2	21.9	21.5	21.3	21.0	20.7	20.2	20.1	20.3			
150	18.4	18.6	18.7	19.2	19.5	19.8	19.9	19.8	19.6	19.2	19.1	18.8	18.5	18.1	18.0	18.1			
155	16.8	16.9	17.0	17.3	17.6	17.9	18.0	17.9	17.7	17.5	17.4	17.2	16.9	16.6	16.4	16.5			
160	15.6	15.7	15.8	16.0	16.3	16.5	16.5	16.5	16.4	16.2	16.1	16.0	15.8	15.5	15.4	15.4			
165	15.0	15.0	15.0	15.3	15.5	15.6	15.7	15.7	15.6	15.5	15.4	15.4	15.2	15.0	14.9	14.9			
170	14.9	14.8	14.9	15.1	15.2	15.4	15.4	15.5	15.5	15.4	15.4	15.4	15.3	15.2	15.0	14.9			
175	15.4	15.4	15.5	15.6	15.6	15.7	15.7	15.7	15.7	15.7	15.7	15.8	15.7	15.7	15.5	15.4			
180	15.7	15.8	15.9	15.9	15.8	15.5	15.4	15.2	15.8	15.8	15.9	15.9	15.8	15.6	15.5	15.2			

(3000K)

Table--1 UNIT: cd

γ C (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679	679			
5	675	674	675	675	677	676	680	678	677	677	676	675	675	675	675	675			
10	666	665	667	668	669	671	672	671	671	669	669	667	667	665	665	665			
15	651	652	653	655	657	660	661	659	660	656	657	655	653	650	652	651			
20	632	632	634	635	640	642	643	642	642	640	638	636	634	630	633	631			
25	608	608	610	614	617	621	620	620	620	617	616	613	610	604	607	606			
30	578	580	582	585	590	594	596	593	593	590	588	584	580	576	578	577			
35	546	548	549	553	559	564	564	563	562	558	556	551	548	543	545	545			
40	509	511	513	518	525	530	530	528	528	523	521	516	512	506	508	508			
45	469	472	475	480	486	491	493	490	491	485	483	477	472	465	468	468			
50	427	429	433	439	446	451	451	449	449	444	442	435	429	423	423	424			
55	383	385	389	394	402	407	408	405	404	400	396	391	384	378	378	380			
60	335	339	344	349	357	362	363	360	359	354	349	344	338	331	332	333			
65	289	292	297	303	310	316	317	313	311	307	302	296	289	283	284	287			
70	242	245	250	256	264	269	270	266	265	260	256	249	243	237	238	240			
75	198	202	205	211	217	223	223	221	218	213	210	204	198	192	194	195			
80	159	162	166	171	176	181	181	179	177	172	169	164	159	154	155	157			
85	126	129	132	136	141	145	144	143	141	137	134	130	126	122	123	124			
90	100	103	105	108	112	115	115	113	112	108	106	103	99.9	97.1	98.0	98.9			
95	81.6	83.3	84.8	87.2	89.6	92.1	91.7	90.7	89.4	87.1	85.6	83.1	80.8	78.8	79.8	80.5			
100	68.5	69.8	70.7	72.3	74.2	75.6	75.5	74.6	73.7	72.0	70.8	69.2	67.9	66.4	67.0	67.7			
105	59.4	60.4	61.2	62.4	63.4	64.4	64.3	63.6	62.9	61.7	60.8	59.7	58.7	57.7	58.3	58.8			
110	52.3	53.2	53.8	54.7	55.7	56.5	56.3	55.8	55.2	54.1	53.3	52.5	51.7	50.8	51.2	51.7			
115	46.1	46.8	47.3	48.2	49.0	49.7	49.7	49.2	48.6	47.6	47.1	46.1	45.5	44.7	45.0	45.3			
120	40.5	41.1	41.6	42.4	43.1	43.8	43.7	43.4	42.8	41.9	41.5	40.6	40.0	39.2	39.5	39.9			
125	35.5	36.0	36.5	37.3	37.9	38.5	38.5	38.2	37.7	36.9	36.5	35.8	35.3	34.6	34.7	35.0			
130	31.2	31.7	32.1	32.8	33.4	33.9	33.8	33.6	33.2	32.5	32.1	31.5	31.0	30.4	30.6	30.7			
135	27.5	28.0	28.3	28.9	29.4	29.8	29.8	29.7	29.2	28.6	28.3	27.8	27.4	26.8	26.9	27.0			
140	24.4	24.6	24.9	25.5	25.9	26.3	26.4	26.2	25.8	25.3	25.0	24.6	24.2	23.7	23.7	23.9			
145	21.6	21.8	22.1	22.6	23.0	23.3	23.4	23.3	22.9	22.5	22.2	21.9	21.5	21.1	21.1	21.2			
150	19.3	19.5	19.7	20.1	20.5	20.7	20.8	20.8	20.5	20.1	19.9	19.7	19.3	19.0	18.9	19.0			
155	17.6	17.7	17.9	18.2	18.5	18.7	18.8	18.8	18.5	18.2	18.1	17.9	17.6	17.3	17.2	17.3			
160	16.4	16.4	16.6	16.9	17.1	17.2	17.3	17.3	17.1	17.0	16.8	16.7	16.5	16.2	16.1	16.1			
165	15.8	15.8	15.8	16.1	16.2	16.3	16.4	16.5	16.3	16.2	16.1	16.0	15.9	15.7	15.6	15.5			
170	15.6	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.2	16.1	16.1	16.1	16.0	15.8	15.7	15.6			
175	16.1	16.2	16.2	16.3	16.4	16.4	16.5	16.4	16.5	16.5	16.5	16.5	16.5	16.3	16.2	16.0			
180	16.6	16.6	16.7	16.6	16.5	16.2	16.0	15.9	16.5	16.6	16.6	16.6	16.5	16.3	16.2	15.9			

(3500K)

Table--1 UNIT: od

C (DEG) y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711	711			
5	707	706	705	707	708	709	709	710	709	707	708	707	707	707	707	709			
10	699	696	696	699	700	702	702	704	702	702	699	700	698	697	696	698			
15	682	679	683	685	687	689	690	692	691	687	687	685	684	682	680	683			
20	661	662	663	665	668	672	672	674	673	669	670	666	663	659	661	663			
25	635	637	638	640	646	650	650	651	649	645	646	642	638	633	635	637			
30	606	606	607	614	616	621	621	624	621	618	616	613	608	603	604	606			
35	570	571	574	578	585	590	591	591	590	586	583	579	574	568	569	571			
40	532	534	536	541	548	554	554	555	552	548	546	542	537	529	531	533			
45	492	493	496	503	510	515	516	515	513	509	505	501	494	487	488	490			
50	447	450	452	458	465	471	472	472	469	465	463	457	451	441	445	447			
55	401	402	407	412	419	425	428	425	422	420	415	411	403	395	395	399			
60	352	354	358	363	372	379	379	378	376	371	368	362	353	346	348	351			
65	303	305	309	315	323	330	330	329	326	322	318	312	305	298	297	301			
70	253	256	261	266	274	281	282	280	278	273	269	263	255	248	249	251			
75	207	210	214	220	226	233	233	232	229	225	220	215	208	201	202	205			
80	166	169	172	177	183	189	189	188	185	181	177	173	167	161	162	165			
85	132	135	137	141	146	151	151	150	147	144	142	137	133	128	128	131			
90	105	107	109	112	116	120	120	119	117	114	112	109	105	102	103	104			
95	85.6	87.0	88.1	90.6	93.4	96.1	95.9	95.3	93.7	91.5	90.1	87.8	85.2	82.9	83.5	84.4			
100	71.9	72.8	73.6	75.5	77.2	79.2	78.8	78.5	77.1	75.7	74.6	72.7	71.3	69.6	70.2	71.1			
105	62.4	63.0	63.7	65.0	66.2	67.4	67.2	66.9	65.8	64.6	64.1	62.9	61.8	60.6	61.0	62.0			
110	54.8	55.3	56.0	57.1	58.0	59.1	58.9	58.7	57.7	56.9	56.1	55.3	54.4	53.2	53.6	54.4			
115	48.3	48.7	49.2	50.3	51.2	52.1	51.8	51.7	51.0	50.0	49.5	48.6	47.8	46.9	47.0	47.8			
120	42.5	42.9	43.4	44.2	44.9	45.8	45.7	45.6	44.8	44.0	43.6	42.8	42.0	41.2	41.4	41.9			
125	37.3	37.7	38.1	38.9	39.5	40.2	40.1	40.1	39.4	38.7	38.3	37.7	37.0	36.2	36.3	36.9			
130	32.7	33.0	33.4	34.2	34.7	35.4	35.3	35.3	34.7	34.1	33.7	33.1	32.6	31.9	31.9	32.3			
135	28.8	29.1	29.4	30.1	30.7	31.3	31.1	31.2	30.5	30.0	29.7	29.2	28.7	28.1	28.1	28.4			
140	25.4	25.7	26.0	26.6	27.0	27.5	27.5	27.5	27.0	26.5	26.2	25.9	25.4	24.8	24.8	25.1			
145	22.6	22.7	23.0	23.5	23.9	24.3	24.3	24.4	23.9	23.6	23.3	23.0	22.6	22.1	22.0	22.3			
150	20.2	20.3	20.5	21.0	21.3	21.7	21.7	21.8	21.4	21.0	20.9	20.6	20.2	19.8	19.7	20.0			
155	18.4	18.4	18.6	19.0	19.3	19.6	19.6	19.7	19.4	19.1	18.9	18.7	18.5	18.0	17.9	18.2			
160	17.1	17.1	17.3	17.6	17.8	18.0	18.1	18.2	17.9	17.7	17.6	17.5	17.2	16.9	16.8	17.0			
165	16.4	16.4	16.4	16.8	16.9	17.1	17.1	17.2	17.1	17.0	16.8	16.7	16.6	16.4	16.2	16.4			
170	16.2	16.2	16.3	16.5	16.6	16.7	16.8	16.9	16.9	16.8	16.8	16.8	16.7	16.5	16.4	16.4			
175	16.8	16.8	16.9	17.0	17.0	17.1	17.1	17.2	17.2	17.1	17.2	17.3	17.2	17.0	16.9	16.9			
180	17.2	17.2	17.3	17.3	17.2	17.0	16.7	16.6	17.3	17.3	17.3	17.3	17.3	17.0	16.9	16.7			

(4000K)

Table--1 UNIT: cd

C (DEG) Y (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
0	707	707	707	707	707	707	707	707	707	707	707	707	707	707	707	707			
5	701	702	704	703	705	705	705	705	704	702	704	705	703	703	702	704			
10	693	695	692	697	698	699	699	697	701	696	697	696	695	693	694	691			
15	676	677	679	681	684	687	686	686	685	684	684	685	681	678	677	677			
20	657	657	658	662	666	666	668	667	667	666	664	664	661	656	658	657			
25	631	632	635	637	643	646	647	645	644	641	642	639	635	631	631	632			
30	601	602	604	610	614	618	618	616	616	615	614	608	606	600	602	601			
35	566	569	571	576	583	587	586	584	586	582	581	576	571	565	566	567			
40	529	531	535	539	546	552	551	550	549	546	545	539	535	528	528	530			
45	488	491	494	501	506	512	512	509	509	505	503	498	494	486	487	486			
50	444	447	450	456	463	469	469	469	466	463	461	454	448	441	442	442			
55	397	400	404	410	418	423	424	422	420	416	414	408	401	395	394	397			
60	349	352	358	362	371	377	377	373	373	369	366	360	353	346	345	348			
65	300	303	307	313	322	328	329	326	324	321	317	311	303	296	296	299			
70	252	255	259	266	274	279	280	277	275	271	268	262	254	247	250	250			
75	205	209	213	219	226	232	233	230	227	223	220	214	208	201	202	204			
80	165	168	172	177	183	188	188	186	184	180	177	172	166	161	162	164			
85	131	134	136	141	146	151	150	148	147	143	141	137	132	127	128	130			
90	105	107	109	112	116	120	119	118	116	114	112	108	105	101	102	103			
95	84.9	86.5	87.9	90.3	93.2	95.8	95.4	94.3	93.3	91.0	89.9	87.5	85.0	82.6	83.1	84.1			
100	71.3	72.4	73.2	75.1	76.9	78.8	78.5	77.8	76.9	75.5	74.4	72.7	71.1	69.4	69.9	70.7			
105	62.0	63.0	63.4	64.7	65.8	67.2	67.0	66.5	65.8	64.5	63.9	62.7	61.6	60.5	60.8	61.4			
110	54.6	55.2	55.8	56.8	57.8	58.8	58.6	58.1	57.5	56.5	56.0	55.1	54.2	53.3	53.4	54.0			
115	47.9	48.6	49.0	50.0	50.9	51.8	51.6	51.1	50.7	49.8	49.4	48.4	47.7	46.8	46.9	47.5			
120	42.1	42.7	43.2	44.0	44.8	45.6	45.5	45.2	44.6	43.8	43.4	42.7	41.9	41.1	41.2	41.6			
125	37.0	37.5	38.0	38.6	39.4	40.0	40.0	39.6	39.2	38.7	38.3	37.5	36.9	36.1	36.2	36.5			
130	32.5	33.0	33.3	34.1	34.6	35.2	35.2	34.8	34.5	34.0	33.7	33.0	32.5	31.8	31.8	32.0			
135	28.6	29.0	29.3	30.0	30.5	31.1	31.0	30.8	30.4	29.9	29.6	29.1	28.6	27.9	27.9	28.1			
140	25.2	25.5	25.9	26.4	26.9	27.4	27.4	27.2	26.9	26.5	26.2	25.8	25.3	24.7	24.6	24.9			
145	22.4	22.7	22.9	23.4	23.8	24.2	24.3	24.1	23.8	23.5	23.2	22.8	22.5	22.0	21.9	22.0			
150	20.0	20.2	20.5	20.9	21.2	21.5	21.7	21.5	21.2	20.9	20.8	20.5	20.1	19.7	19.6	19.7			
155	18.2	18.3	18.5	18.9	19.2	19.4	19.6	19.4	19.2	19.0	18.8	18.6	18.3	18.0	17.9	17.9			
160	17.0	17.0	17.2	17.4	17.7	17.9	18.1	18.0	17.8	17.6	17.5	17.3	17.1	16.8	16.7	16.7			
165	16.3	16.3	16.4	16.7	16.8	17.0	17.1	17.0	16.9	16.8	16.8	16.7	16.5	16.3	16.1	16.1			
170	16.1	16.1	16.2	16.4	16.5	16.6	16.8	16.7	16.8	16.7	16.7	16.7	16.6	16.4	16.3	16.1			
175	16.6	16.8	16.8	17.0	17.0	17.0	17.2	17.0	17.0	17.1	17.1	17.2	17.1	17.0	16.8	16.6			
180	17.1	17.2	17.2	17.2	17.1	16.8	16.7	16.5	17.1	17.2	17.2	17.2	17.1	16.9	16.7	16.4			

(5000K)

Table--1		UNIT: cd																		
C (DEG)		0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5			
y (DEG)	0	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665	665			
	5	660	662	661	662	664	661	664	662	663	662	662	662	662	662	658	660	661		
10	651	653	652	654	657	654	657	657	655	656	656	655	653	649	651	652				
15	637	638	638	641	643	645	646	645	644	645	643	644	640	635	637	637				
20	617	620	620	623	627	627	629	629	627	627	626	624	621	615	617	618				
25	594	597	597	601	603	606	607	607	606	604	603	602	598	591	593	594				
30	565	568	569	573	577	580	582	581	580	579	578	574	570	563	564	565				
35	533	537	538	542	549	550	552	551	550	547	547	542	539	530	532	533				
40	497	502	502	508	513	517	518	517	516	514	512	507	502	494	495	497				
45	459	463	464	470	475	480	481	480	479	477	474	469	463	455	457	458				
50	418	421	424	428	435	441	442	440	439	436	433	429	421	414	414	417				
55	374	378	380	385	393	397	400	397	395	393	389	385	377	370	370	373				
60	328	333	336	341	349	353	355	353	351	347	344	339	331	324	325	327				
65	282	286	290	295	304	308	310	307	305	302	298	293	285	278	278	281				
70	237	241	244	250	257	262	264	261	259	255	252	246	239	232	232	235				
75	194	198	200	206	212	218	218	216	214	210	207	202	196	189	189	192				
80	156	159	161	166	172	177	177	175	173	170	167	162	157	152	152	154				
85	124	126	128	132	137	141	141	140	138	135	133	129	125	120	121	122				
90	98.6	101	102	105	109	112	112	111	109	107	106	102	99.1	95.8	96.0	97.4				
95	80.1	81.9	82.7	85.1	87.3	89.9	89.7	89.0	87.8	86.0	84.9	82.7	80.2	77.6	78.1	79.3				
100	67.3	68.5	69.0	70.7	72.2	73.7	73.8	73.2	72.3	71.1	70.3	68.7	67.1	65.6	65.7	66.6				
105	58.3	59.3	59.7	60.9	61.8	62.9	63.0	62.5	61.8	61.0	60.3	59.3	58.1	56.8	57.2	57.8				
110	51.3	52.2	52.5	53.5	54.2	55.0	55.1	54.7	54.2	53.5	53.0	52.1	51.1	50.1	50.2	50.8				
115	45.2	45.9	46.2	47.1	47.8	48.5	48.7	48.2	47.7	47.0	46.6	45.8	45.0	43.9	44.2	44.8				
120	39.6	40.3	40.6	41.4	42.1	42.6	42.7	42.5	42.0	41.3	41.0	40.3	39.6	38.6	38.7	39.1				
125	34.8	35.4	35.6	36.4	36.9	37.5	37.6	37.4	37.0	36.3	36.0	35.4	34.8	33.9	34.0	34.3				
130	30.6	31.1	31.3	32.0	32.5	33.0	33.0	32.9	32.5	32.0	31.7	31.2	30.6	29.8	29.9	30.2				
135	26.9	27.4	27.6	28.2	28.6	29.1	29.1	29.0	28.6	28.2	27.9	27.4	26.9	26.4	26.3	26.5				
140	23.8	24.1	24.3	24.8	25.2	25.6	25.7	25.5	25.2	24.9	24.6	24.3	23.8	23.3	23.2	23.4				
145	21.1	21.4	21.5	22.0	22.3	22.7	22.7	22.7	22.4	22.0	21.8	21.5	21.1	20.6	20.5	20.7				
150	18.8	19.0	19.2	19.6	20.0	20.2	20.3	20.2	20.0	19.7	19.5	19.3	18.9	18.5	18.4	18.5				
155	17.1	17.3	17.4	17.7	18.0	18.2	18.3	18.2	18.1	17.8	17.7	17.5	17.2	17.0	16.8	16.8				
160	15.9	16.0	16.1	16.4	16.6	16.7	16.8	16.8	16.7	16.5	16.4	16.3	16.1	15.8	15.7	15.7				
165	15.2	15.4	15.4	15.6	15.8	15.9	15.9	15.9	15.8	15.8	15.7	15.7	15.5	15.3	15.1	15.1				
170	15.1	15.2	15.2	15.4	15.5	15.5	15.6	15.7	15.7	15.7	15.7	15.6	15.6	15.5	15.3	15.1				
175	15.6	15.7	15.8	15.9	15.9	15.9	16.0	15.9	16.0	16.0	16.1	16.1	16.1	16.0	15.8	15.6				
180	16.0	16.2	16.2	16.2	16.0	15.8	15.5	15.4	16.0	16.1	16.2	16.2	16.1	15.9	15.8	15.4				

Table 5: Luminous Intensity Data

---End of Report---