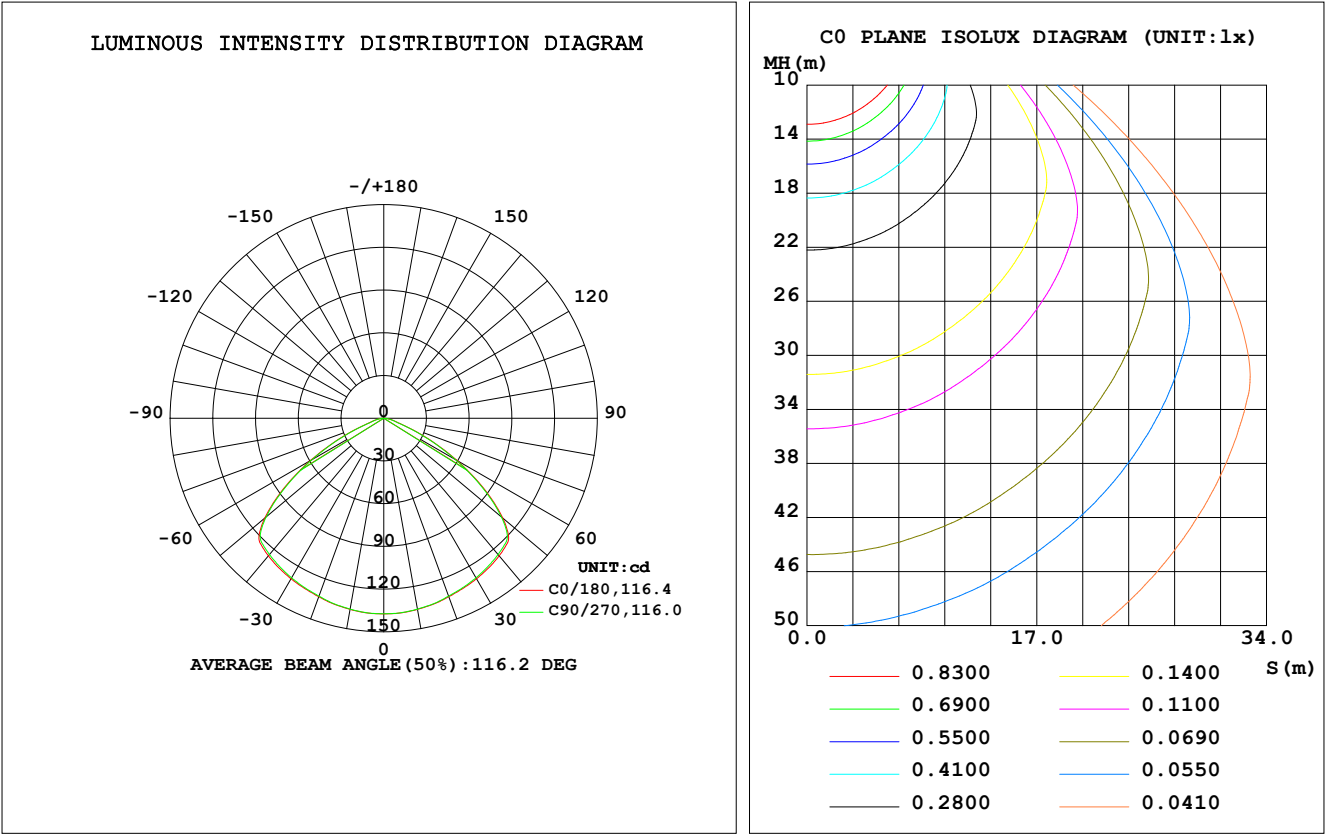


LUMINAIRE PHOTOMETRIC TEST REPORT

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz		
Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA				Eff: 46.41 lm/W
MODEL	Qak Pendant-Natural oak	Imax(cd)	137.4	S/MH(C0/180)	1.44	
NOMINAL POWER(W)	8.5	LOR(%)	100.0	S/MH(C90/270)	1.43	
RATED VOLTAGE(V)	230	TOTAL FLUX(lm)	406.14	η UP,DN(C0-180)	0.0,50.0	
NOMINAL FLUX(lm)	406.142	CIE CLASS	DIRECT	η UP,DN(C180-360)	0.0,50.0	
LAMPS INSIDE	1	η up(%)	0.0	CIBSE SHR NOM	1.50	
TEST VOLTAGE(V)	230	η down(%)	100.0	CIBSE SHR MAX	1.55	



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

Checker: Near Gao

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Assessor: Akin Xu



ROSS GARDAM

ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	136.2	136.2	136.2	136.2	136.2	136.2	136.2	136.2	0- 10	13.06	13.06	3.22,3.22
20	133.4	133.2	133.0	133.2	133.4	133.2	133.0	133.2	10- 20	38.18	51.23	12.6,12.6
30	130.2	129.7	129.4	129.7	130.2	129.7	129.4	129.7	20- 30	60.80	112.0	27.6,27.6
40	126.1	125.3	124.9	125.3	126.1	125.3	124.9	125.3	30- 40	80.14	192.2	47.3,47.3
50	109.0	108.3	107.9	108.3	109.0	108.3	107.9	108.3	40- 50	93.03	285.2	70.2,70.2
60	59.31	58.65	58.25	58.65	59.31	58.65	58.25	58.65	50- 60	75.22	360.4	88.7,88.7
70	16.00	15.59	15.25	15.59	16.00	15.59	15.25	15.59	60- 70	34.88	395.3	97.3,97.3
80	4.529	4.352	4.205	4.352	4.529	4.352	4.205	4.352	70- 80	8.910	404.2	99.5,99.5
90	0.0091	0.0079	0.0077	0.0079	0.0091	0.0079	0.0077	0.0079	80- 90	1.913	406.1	100,100
100									90-100			
110									100-110			
120									110-120			
130									120-130			
140									130-140			
150									140-150			
160									150-160			
170									160-170			
180									170-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

Conical surface Flux(90deg): 238.07 lm

%lum = 58.6%
%lamp = 58.6%

Conical surface Flux(120deg): 360.44 lm

%lum = 88.7%
%lamp = 88.7%

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

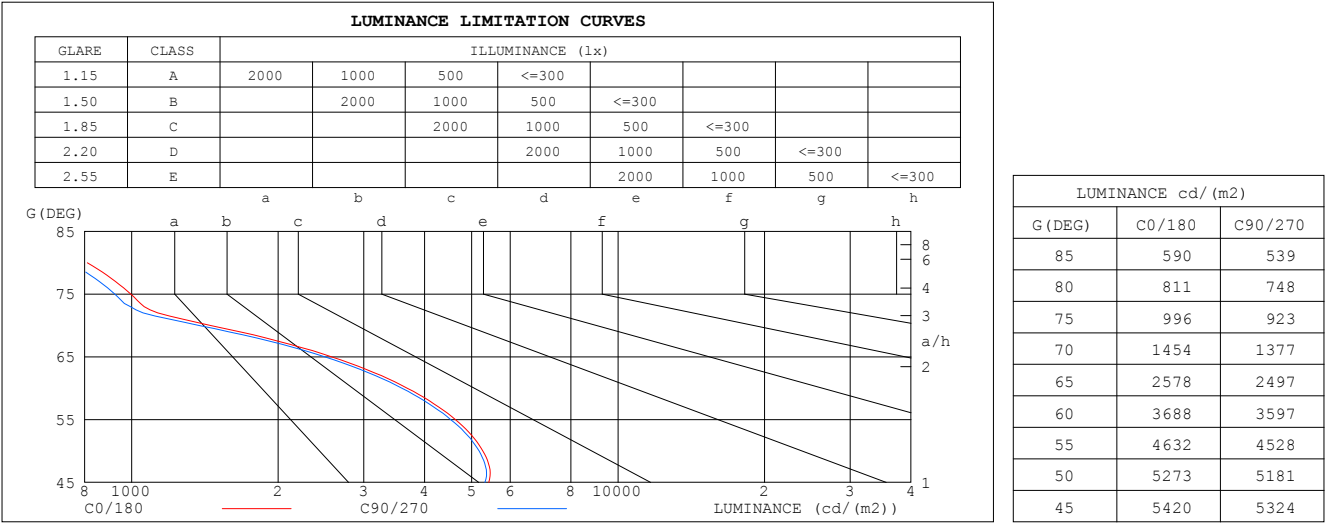
Assessor: Akin Xu



ROSS GARDAM

LUMINANCE LIMITATION CURVES

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

Assessor: Akin Xu

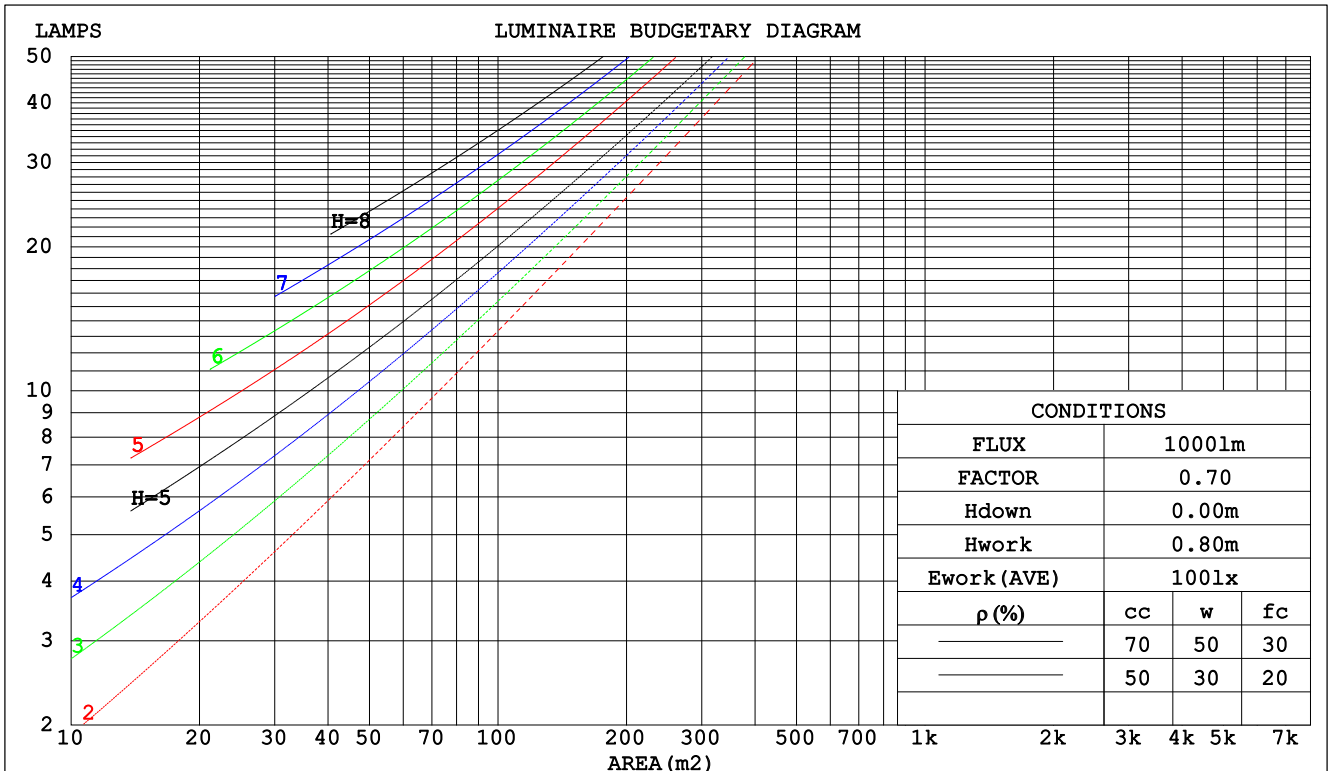


ROSS GARDAM

CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz		
Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
pw	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
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	1.06	1.02	.99	1.04	1.01	.97	.00	.97	.94	.96	.94	.92	.92	.91	.89	.87
2.0	.94	.88	.82	.92	.86	.81	.88	.84	.79	.85	.81	.78	.82	.79	.76	.74
3.0	.83	.75	.69	.81	.74	.69	.78	.72	.67	.76	.71	.66	.73	.69	.65	.63
4.0	.73	.65	.59	.72	.64	.58	.70	.63	.58	.67	.62	.57	.65	.60	.56	.54
5.0	.66	.57	.51	.65	.56	.50	.62	.55	.50	.60	.54	.49	.59	.53	.49	.47
6.0	.59	.50	.44	.58	.50	.44	.56	.49	.44	.55	.48	.43	.53	.47	.43	.41
7.0	.53	.45	.39	.52	.44	.39	.51	.44	.38	.50	.43	.38	.48	.42	.38	.36
8.0	.48	.40	.34	.48	.40	.34	.46	.39	.34	.45	.39	.34	.44	.38	.34	.32
9.0	.44	.36	.31	.44	.36	.31	.43	.35	.31	.42	.35	.30	.41	.35	.30	.28
10.0	.41	.33	.28	.40	.33	.28	.39	.32	.28	.38	.32	.27	.37	.32	.27	.26



C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature: 25.1DEG
 Operators: Wilson
 Test Date: 2022-11-30

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System: EVERFINE GO-R5000_V2 SYSTEM V2.00.444
 Humidity: 60.5%
 Test Distance: 2.617m [K=1.0000]
 Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

Assessor: Akin Xu



ROSS GARDAM

WEC AND CCEC

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:

pcc	80%			70%			50%			30%			10%			0
p _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p _{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Wall Exitance Coefficients(WEC)												
0.0																
1.0	.267	.152	.048	.260	.148	.047	.247	.142	.045	.235	.135	.043	.224	.130	.042	
2.0	.261	.143	.044	.255	.140	.043	.243	.135	.042	.233	.131	.041	.223	.126	.040	
3.0	.248	.132	.040	.243	.130	.039	.233	.126	.038	.223	.122	.038	.215	.119	.037	
4.0	.234	.121	.036	.229	.120	.035	.220	.117	.035	.212	.114	.034	.204	.111	.034	
5.0	.219	.112	.032	.215	.110	.032	.207	.108	.032	.200	.105	.031	.193	.103	.031	
6.0	.206	.103	.030	.202	.102	.029	.195	.100	.029	.188	.098	.029	.182	.096	.028	
7.0	.193	.095	.027	.190	.094	.027	.183	.093	.027	.177	.091	.026	.172	.089	.026	
8.0	.181	.089	.025	.178	.088	.025	.173	.086	.025	.167	.085	.024	.162	.083	.024	
9.0	.171	.083	.023	.168	.082	.023	.163	.081	.023	.158	.079	.023	.154	.078	.023	
10.0	.161	.077	.021	.159	.077	.021	.154	.076	.021	.150	.074	.021	.146	.073	.021	

pcc	80%			70%			50%			30%			10%			0
p _w	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
p _{fc}	20%			20%			20%			20%			20%			0
RCR	RCR:Room Cavity Ratio			Ceiling Cavity Exitance Coefficients(CCEC)												
0.0	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.177	.157	.138	.152	.134	.119	.104	.092	.082	.060	.053	.048	.019	.017	.015	
2.0	.168	.132	.102	.144	.114	.088	.099	.079	.061	.057	.046	.036	.018	.015	.012	
3.0	.160	.114	.077	.137	.098	.067	.094	.068	.047	.054	.040	.028	.018	.013	.009	
4.0	.153	.101	.061	.131	.087	.053	.090	.061	.037	.052	.035	.022	.017	.012	.007	
5.0	.146	.090	.049	.126	.078	.042	.086	.054	.030	.050	.032	.018	.016	.010	.006	
6.0	.140	.082	.040	.120	.071	.035	.083	.050	.025	.048	.029	.015	.015	.010	.005	
7.0	.133	.075	.034	.115	.065	.030	.079	.046	.021	.046	.027	.012	.015	.009	.004	
8.0	.127	.069	.029	.109	.060	.025	.076	.042	.018	.044	.025	.011	.014	.008	.004	
9.0	.121	.064	.026	.105	.056	.022	.072	.039	.016	.042	.023	.009	.014	.008	.003	
10.0	.116	.060	.023	.100	.052	.020	.069	.037	.014	.040	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

Assessor: Akin Xu



ROSS GARDAM

UGR(Unified Glare Rating) Table

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm											
NAME: LED Light					TYPE:			WEIGHT:			
SPEC.:					DIM.:			SERIAL No.:			
MFR.: Ross Gardam					SUR.:			Shielding 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	2H	18.2	19.7	18.5	19.9	20.1	18.2	19.6	18.4	19.8	20.0
	3H	18.5	19.9	18.8	20.1	20.3	18.4	19.8	18.7	20.0	20.2
	4H	18.5	19.8	18.8	20.0	20.3	18.4	19.7	18.7	19.9	20.2
	6H	18.5	19.7	18.8	19.9	20.2	18.4	19.5	18.7	19.8	20.1
	8H	18.5	19.6	18.8	19.9	20.2	18.3	19.5	18.7	19.7	20.0
	12H	18.4	19.5	18.8	19.8	20.1	18.3	19.4	18.6	19.7	20.0
4H	2H	18.5	19.7	18.8	20.0	20.2	18.4	19.6	18.7	19.9	20.1
	3H	18.8	19.9	19.1	20.2	20.5	18.7	19.8	19.0	20.1	20.4
	4H	18.8	19.8	19.2	20.1	20.5	18.7	19.7	19.1	20.0	20.3
	6H	18.8	19.7	19.2	20.0	20.4	18.7	19.6	19.1	19.9	20.3
	8H	18.8	19.6	19.2	20.0	20.4	18.7	19.5	19.1	19.9	20.2
	12H	18.8	19.5	19.2	19.9	20.3	18.7	19.4	19.1	19.8	20.2
8H	4H	18.8	19.6	19.2	19.9	20.3	18.7	19.5	19.1	19.8	20.2
	6H	18.8	19.5	19.2	19.9	20.3	18.7	19.3	19.1	19.7	20.2
	8H	18.8	19.4	19.3	19.8	20.3	18.7	19.3	19.2	19.7	20.1
	12H	18.8	19.3	19.3	19.8	20.2	18.7	19.2	19.2	19.6	20.1
12H	4H	18.7	19.5	19.1	19.8	20.2	18.6	19.3	19.0	19.7	20.1
	6H	18.8	19.4	19.2	19.8	20.2	18.7	19.2	19.1	19.7	20.1
	8H	18.8	19.3	19.3	19.7	20.2	18.7	19.2	19.2	19.6	20.1
Variations with the observer position at spacings(CIE Pub.117):											
S = 1.0H		+ 0.4 / - 0.5					+ 0.4 / - 0.5				
1.5H		+ 0.5 / - 1.2					+ 0.5 / - 1.3				
2.0H		+ 1.2 / - 1.6					+ 1.2 / - 1.6				

CIE Pub.117, 406.1 lm Total Lamp Luminous Flux Corrected (8log(F/F0) = -3.1)
Area: 0.0323491 m2

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

Assessor: Akin Xu



ROSS GARDAM

UTILIZATION FACTORS TABLE

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding 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	58	46	39	57	46	39	56	46	39	33
0.80	69	58	51	68	57	50	66	57	50	43
1.00	79	68	61	77	68	61	75	69	60	54
1.25	86	76	70	85	76	69	82	74	69	62
1.50	91	82	76	90	81	75	87	80	74	67
2.00	98	90	85	96	89	84	93	87	82	75
2.50	101	94	89	99	93	88	96	91	86	79
3.00	104	98	94	102	97	93	99	94	90	82
4.00	108	103	99	106	101	97	102	98	95	86
5.00	110	106	102	108	104	100	103	100	97	89
ROOM INDEX	UF(total)									Direct
According to DIN EN 13032-2 2004			Suspended					SHRNOM = 1.25		

C Range: 0 - 360DEG
 C Interval: 22.5DEG
 Test Speed: HIGH
 Temperature:25.1DEG
 Operators:Wilson
 Test Date:2022-11-30

Checker: Near Gao

γ Range: 0 - 90DEG
 γ Interval: 0.5DEG
 Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
 Humidity:60.5%
 Test Distance:2.617m [K=1.0000]
 Remarks: File No.: WT-F-504-3206-01-A

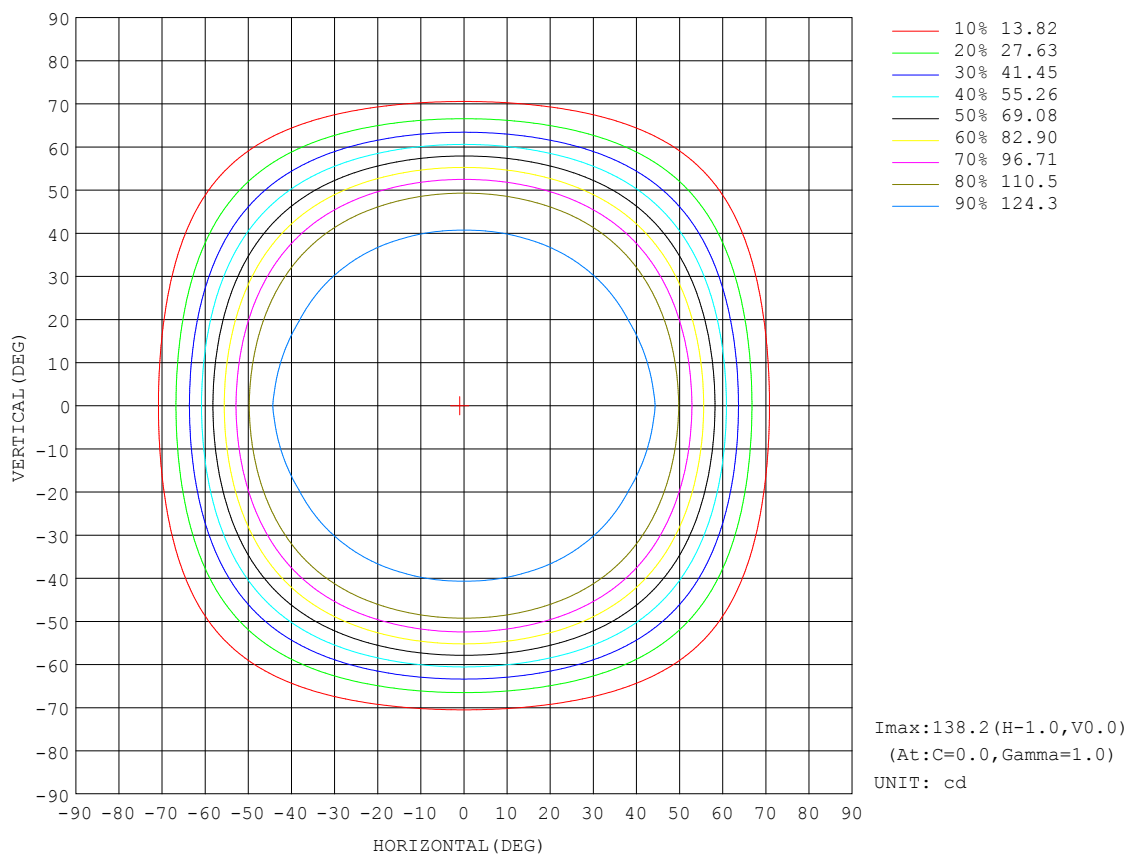
Assessor: Akin Xu



ROSS GARDAM

ISOCANDELA DIAGRAM

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz		
Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

Checker: Near Gao

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

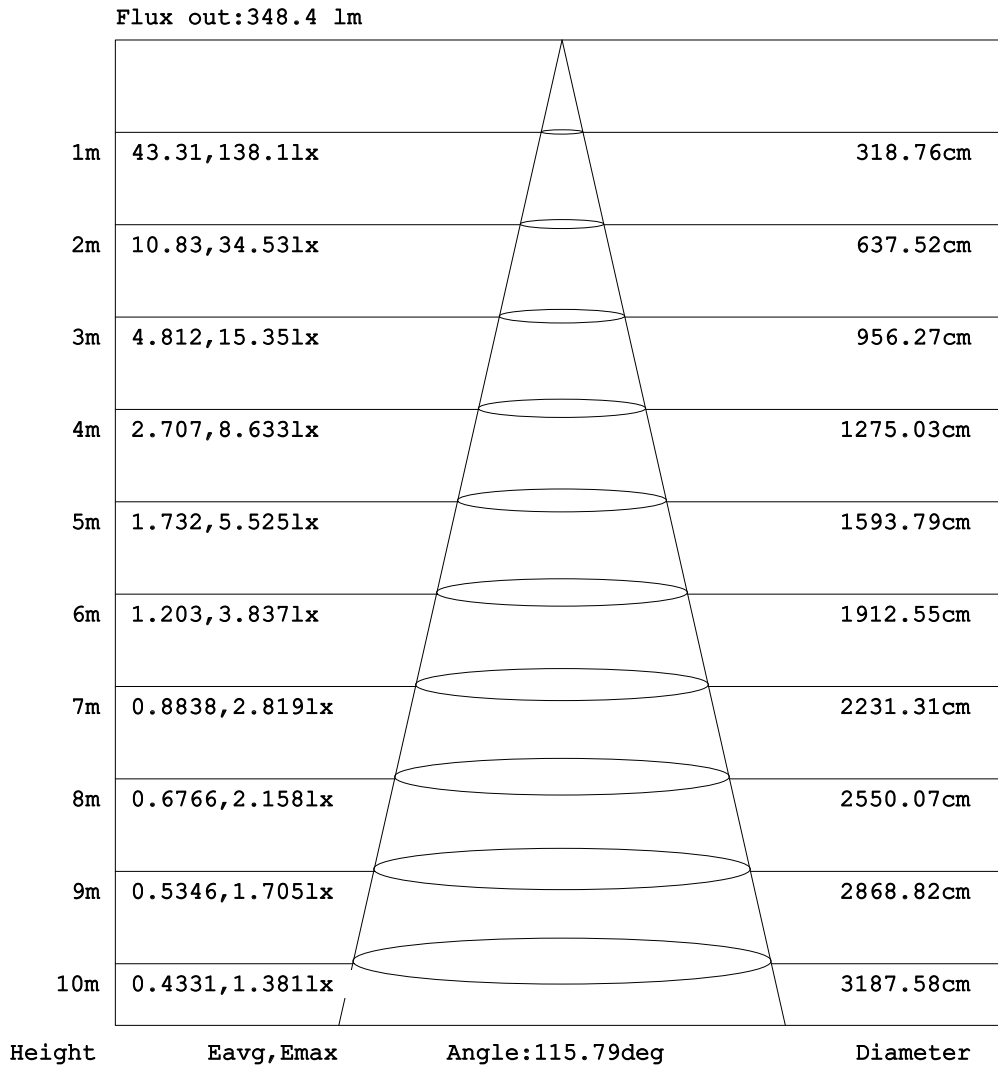
Assessor: Akin Xu



ROSS GARDAM

AAI Figure

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding 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: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

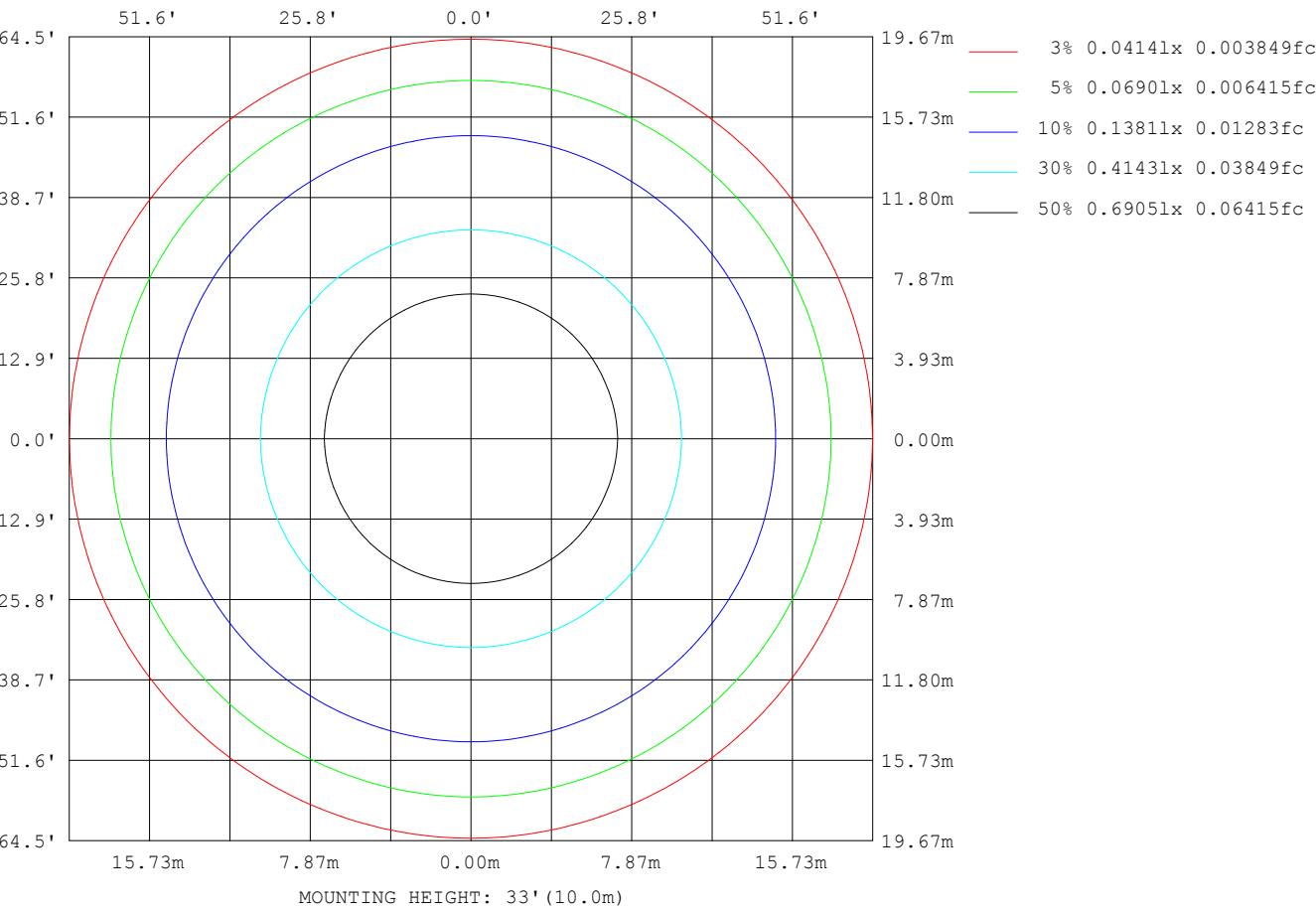
Assessor: Akin Xu



ROSS GARDAM

ISOLUX DIAGRAM

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Checker: Near Gao

Assessor: Akin Xu



ROSS GARDAM

LED Avg.L Report

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:

AvgL	cd/m2
L_0~180 (65) av	2563
L_0~180 (75) av	990
L_0~180 (85) av	587
L_90~270 (65) av	2500
L_90~270 (75) av	925
L_90~270 (85) av	540
L_45 (65) av	2527
L_45 (75) av	952
L_45 (85) av	562

Standard: GB/T 29293-2012

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:25.1DEG
Operators:Wilson
Test Date:2022-11-30

Checker: Near Gao

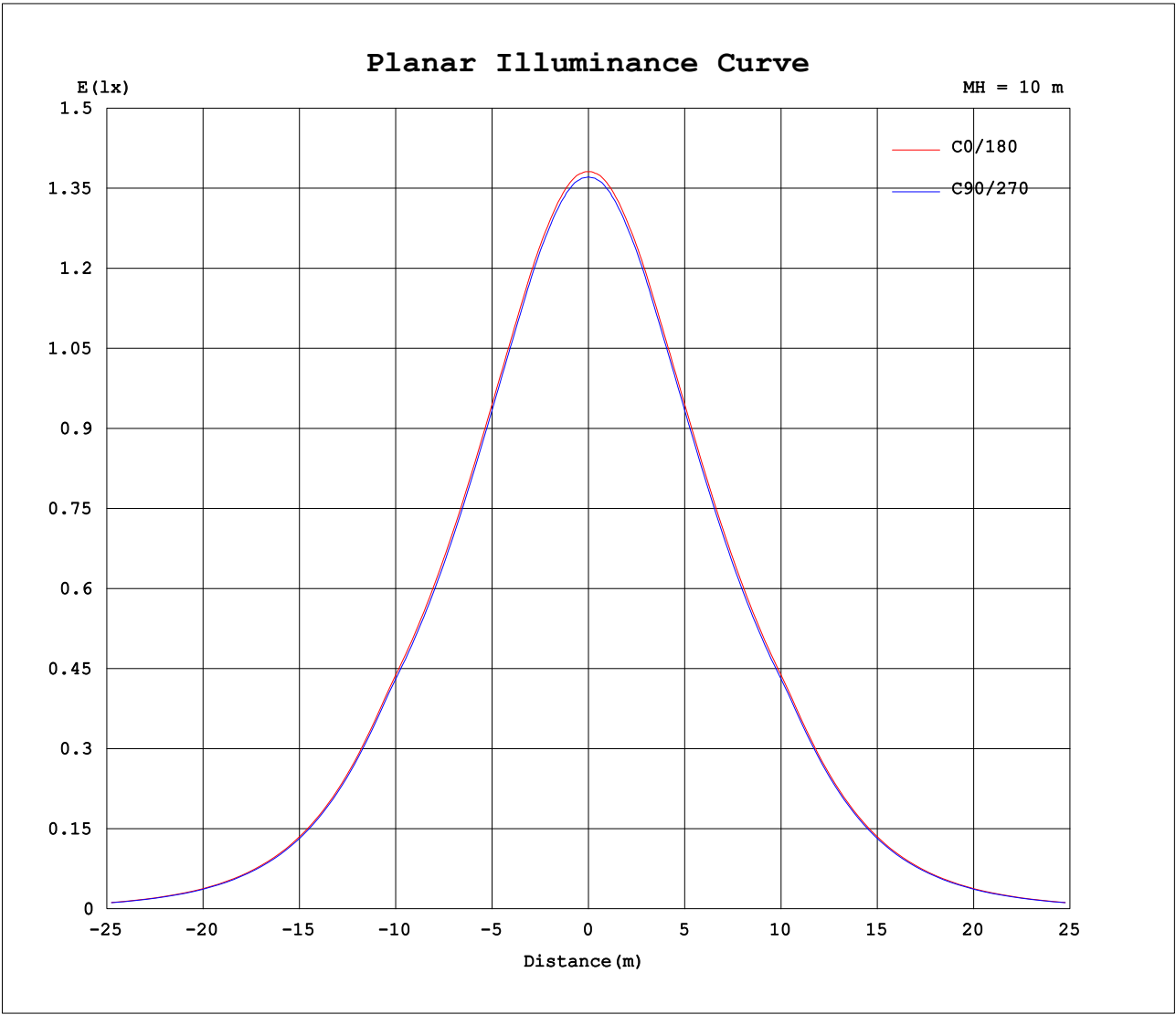
γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

Assessor: Akin Xu



ROSS GARDAM

Planar Illuminance Curve



C Range: 0 - 360DEG	γ Range: 0 - 90DEG
C Interval: 22.5DEG	γ Interval: 0.5DEG
Test Speed: HIGH	Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Temperature:25.1DEG	Humidity:60.5%
Operators:Wilson	Test Distance:2.617m [K=1.0000]
Test Date:2022-11-30	Remarks: File No.: WT-F-504-3206-01-A
Checker: Near Gao	Assessor: Akin Xu



ROSS GARDAM

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:230.08V I:0.0419A P:8.7518W PF:0.9088 Freq:50.00Hz Lamp Flux:406.142x1 lm		
NAME: LED Light	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:
MFR.: Ross Gardam	SUR.:	Shielding Angle:

Table--1

UNIT: cd

[illegible]

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature: 25.1DEG
Operators: Wilson
Test Date: 2022-11-30

```

γ Range: 0 - 90DEG
γ Interval: 0.5DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.00.444
Humidity:60.5%
Test Distance:2.617m [K=1.0000]
Remarks: File No.: WT-F-504-3206-01-A

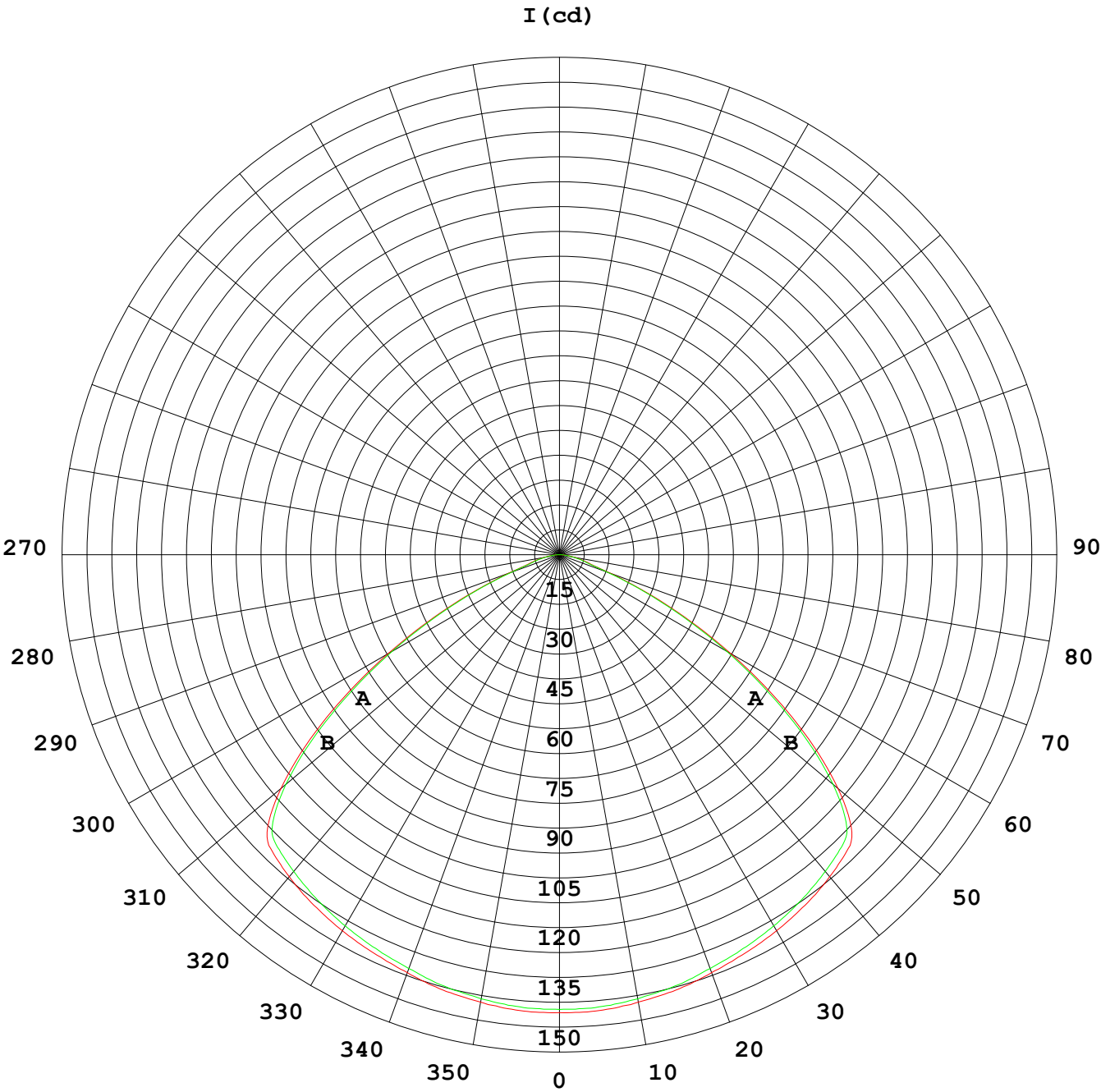
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Checker: Near Gao

Assessor: Akin Xu

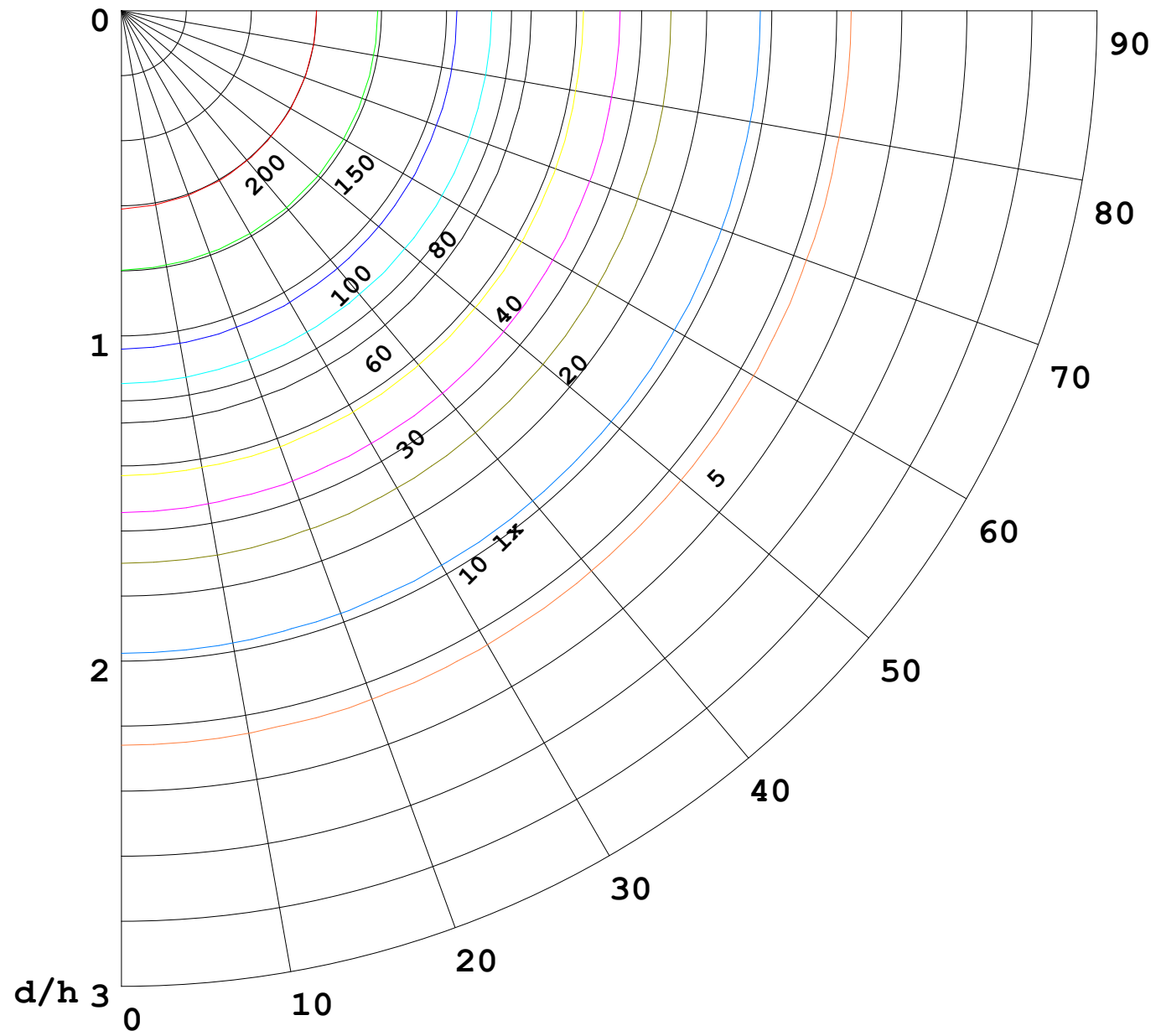


ROSS GARDAM



ROSS GARDAM

1000 1m $K = 1$



ROSS GARDAM

F = 1000 lm
K = 0.7
Hcc = 0.8 m
Hfc = 0.0 m
Eave = 100 lx

	Pcc	Pw	Pfc
————	70	50	30
————	50	30	20

