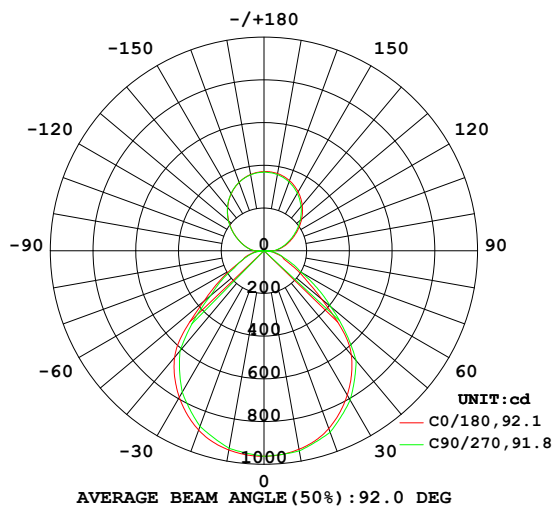


**LUMINAIRE PHOTOMETRIC TEST REPORT**

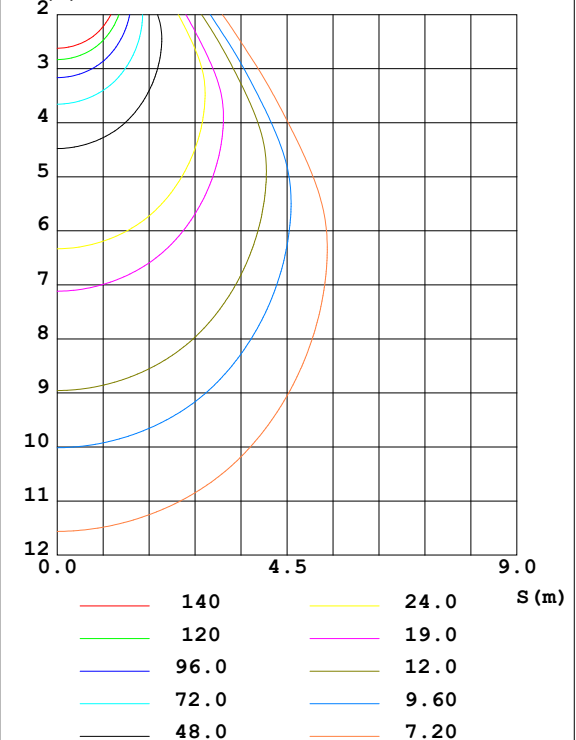
Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 104.61 lm/W			
MODEL	OSRAM-3000K	I <sub>max</sub> (cd)	962.5	S/MH (C0/180)	1.23
NOMINAL POWER (W)	31	LOR (%)	100.0	S/MH (C90/270)	1.19
RATED VOLTAGE (V)	220.0	TOTAL FLUX (lm)	3162.7	$\eta$ UP,DN (C0-180)	18.0,33.1
NOMINAL FLUX (lm)	3162.75	CIE CLASS	SEMI-D.	$\eta$ UP,DN (C180-360)	18.0,30.9
LAMPS INSIDE	1	$\eta$ up (%)	36.0	CIBSE SHR NOM	1.25
TEST VOLTAGE (V)	220.0	$\eta$ down (%)	64.0	CIBSE SHR MAX	1.35

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

### ZONAL FLUX DIAGRAM

ZONAL FLUX DIAGRAM:

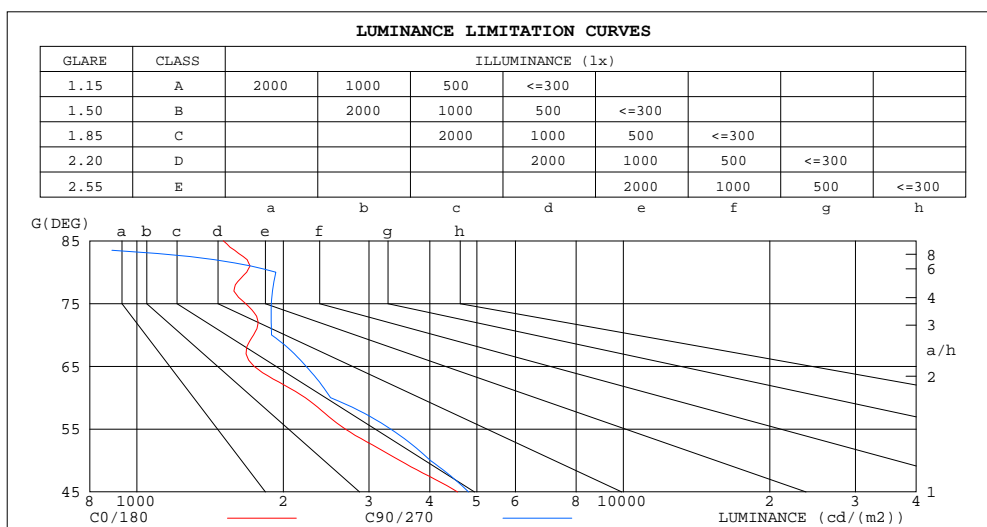
$\gamma$	C0	C45	C90	C135	C180	C225	C270	C315	$\gamma$	$\Phi$ zone	$\Phi$ total	$\%lum, lamp$
10	943.9	946.2	951.8	947.1	947.2	936.9	939.5	938.6	0- 10	90.79	90.79	2.87,2.87
20	886.0	896.8	904.5	892.4	893.9	871.7	875.1	876.8	10- 20	259.4	350.2	11.1,11.1
30	779.9	798.1	807.1	799.0	792.8	768.6	765.5	769.3	20- 30	386.5	736.8	23.3,23.3
40	636.1	658.3	671.4	656.1	651.0	621.0	611.7	605.8	30- 40	446.9	1184	37.4,37.4
50	354.4	422.4	409.5	333.9	367.6	356.1	324.7	275.1	40- 50	384.5	1568	49.6,49.6
60	176.3	170.2	198.7	195.2	183.5	155.6	159.4	169.5	50- 60	227.0	1795	56.8,56.8
70	94.41	111.0	102.8	109.6	97.48	92.27	88.51	98.01	60- 70	130.1	1925	60.9,60.9
80	46.42	52.01	53.26	53.96	50.61	42.24	39.98	43.83	70- 80	76.83	2002	63.3,63.3
90	47.84	32.45	44.96	43.31	43.43	41.93	44.00	46.69	80- 90	20.77	2023	64,64
100	83.75	67.36	78.73	77.45	76.89	76.03	77.24	81.55	90-100	64.20	2087	66,66
110	128.2	117.2	119.6	116.5	116.0	115.1	116.4	122.8	100-110	102.6	2190	69.2,69.2
120	177.6	172.9	169.2	164.3	163.6	162.3	164.9	173.0	110-120	141.2	2331	73.7,73.7
130	230.0	225.4	221.5	216.4	215.4	213.8	217.3	225.5	120-130	174.0	2505	79.2,79.2
140	278.7	273.7	270.2	265.6	264.9	262.9	266.5	274.4	130-140	189.4	2694	85.2,85.2
150	319.6	314.5	311.8	308.0	307.8	305.2	308.9	315.7	140-150	182.2	2877	91,91
160	349.8	344.9	343.3	341.0	341.4	338.2	341.2	346.4	150-160	151.3	3028	95.7,95.7
170	367.1	362.8	362.5	361.8	362.9	359.4	361.5	365.0	160-170	99.98	3128	98.9,98.9
180	370.8	370.8	370.8	370.8	370.8	370.8	370.8	370.8	170-180	34.89	3163	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
 $\gamma$  Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

**LUMINANCE LIMITATION CURVES**

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:



LUMINANCE cd/(m2)		
G(DEG)	C0/180	C90/270
85	1506	0
80	1682	1930
75	1673	1889
70	1737	1891
65	1742	2227
60	2219	2501
55	2681	3324
50	3470	4010
45	4563	4805

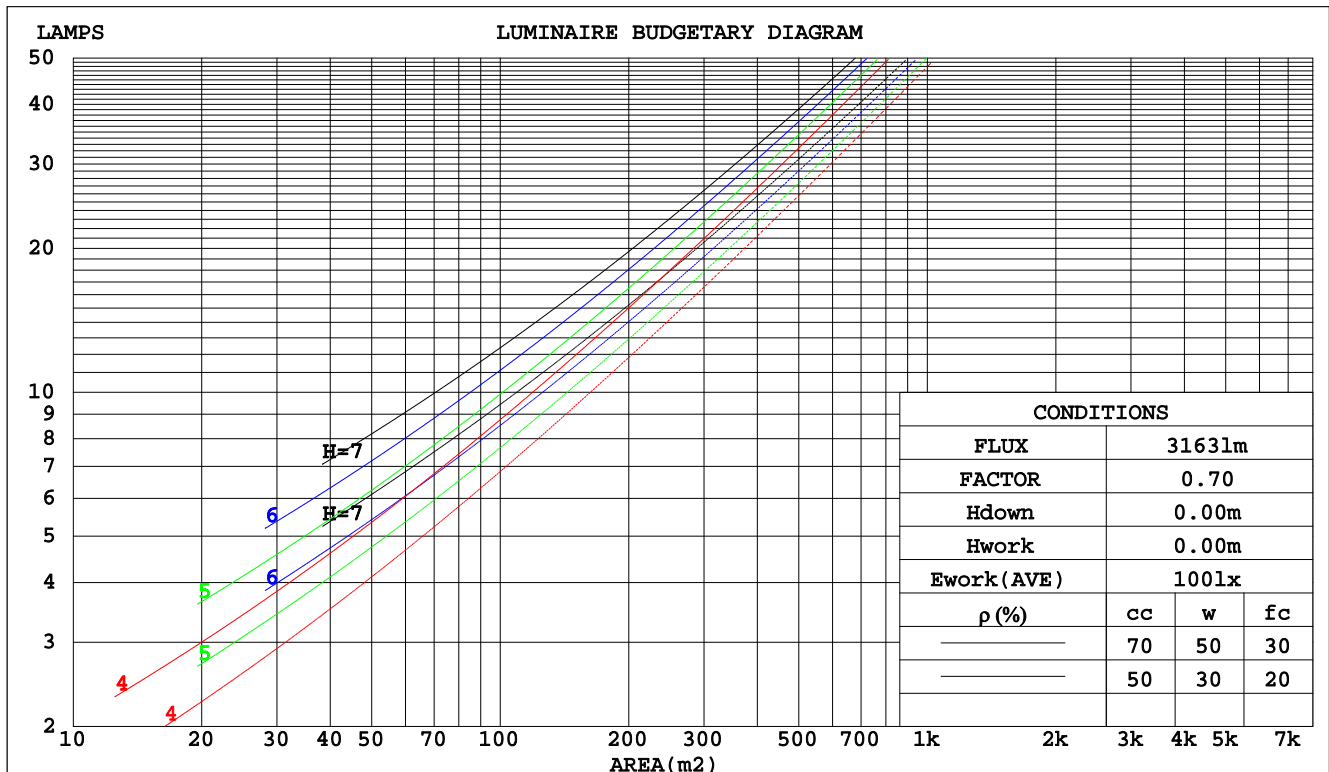
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

**CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM**

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	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	1.10	1.10	1.10	1.04	1.04	1.04	.91	.91	.91	.80	.80	.80	.69	.69	.69	.64
1.0	.98	.94	.91	.92	.89	.86	.81	.79	.77	.72	.70	.68	.62	.61	.60	.56
2.0	.87	.81	.76	.82	.77	.72	.73	.69	.65	.64	.61	.59	.56	.54	.52	.48
3.0	.77	.70	.65	.73	.67	.62	.65	.60	.56	.58	.54	.51	.51	.48	.46	.42
4.0	.69	.61	.56	.65	.59	.53	.58	.53	.49	.52	.48	.44	.46	.43	.40	.37
5.0	.62	.54	.48	.59	.52	.47	.53	.47	.43	.47	.43	.39	.42	.38	.36	.33
6.0	.56	.48	.43	.53	.46	.41	.48	.42	.38	.43	.38	.35	.38	.35	.32	.29
7.0	.51	.43	.38	.49	.41	.36	.44	.38	.34	.39	.35	.31	.35	.32	.29	.26
8.0	.47	.39	.34	.44	.37	.33	.40	.34	.30	.36	.32	.28	.33	.29	.26	.24
9.0	.43	.35	.30	.41	.34	.29	.37	.31	.27	.34	.29	.26	.30	.26	.24	.22
10.0	.39	.32	.28	.38	.31	.27	.34	.29	.25	.31	.27	.23	.28	.24	.22	.20



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

## WEC AND CCEC

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: φ450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.:φ450mm	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						Wall Exitance Coefficients(WEC)										
0.0																	
1.0	.259	.148	.047	.242	.138	.044	.208	.119	.038	.178	.102	.033	.149	.087	.028		
2.0	.244	.134	.041	.228	.126	.039	.198	.110	.034	.170	.096	.030	.145	.082	.026		
3.0	.228	.122	.036	.214	.114	.034	.186	.101	.031	.161	.088	.027	.137	.076	.024		
4.0	.213	.111	.033	.200	.105	.031	.175	.093	.028	.151	.081	.025	.130	.070	.021		
5.0	.199	.101	.029	.187	.096	.028	.164	.085	.025	.142	.075	.022	.122	.065	.020		
6.0	.186	.093	.027	.175	.088	.025	.154	.079	.023	.134	.070	.020	.115	.061	.018		
7.0	.175	.086	.024	.164	.082	.023	.145	.073	.021	.126	.065	.019	.109	.057	.017		
8.0	.164	.080	.023	.155	.076	.022	.137	.068	.019	.120	.061	.017	.103	.053	.015		
9.0	.155	.075	.021	.146	.071	.020	.129	.064	.018	.113	.057	.016	.098	.050	.014		
10.0	.147	.070	.020	.138	.067	.019	.122	.060	.017	.108	.053	.015	.093	.047	.013		

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						Ceiling Cavity Exitance Coefficients(CCEC)										
0.0	.465	.465	.465	.397	.397	.397	.271	.271	.271	.156	.156	.156	.050	.050	.050		
1.0	.454	.433	.415	.388	.372	.357	.266	.256	.247	.153	.148	.144	.049	.048	.046		
2.0	.445	.411	.382	.381	.354	.331	.261	.245	.231	.150	.142	.135	.048	.046	.044		
3.0	.437	.394	.360	.374	.340	.312	.257	.236	.219	.148	.138	.129	.048	.045	.042		
4.0	.429	.382	.345	.368	.330	.300	.253	.230	.211	.147	.135	.125	.047	.044	.041		
5.0	.423	.372	.334	.363	.322	.291	.250	.225	.205	.145	.132	.122	.047	.043	.040		
6.0	.416	.364	.326	.358	.315	.284	.247	.221	.201	.143	.130	.120	.046	.042	.039		
7.0	.410	.357	.320	.353	.310	.279	.244	.217	.198	.142	.128	.118	.046	.042	.039		
8.0	.405	.352	.316	.348	.305	.275	.241	.214	.195	.140	.126	.116	.045	.041	.039		
9.0	.399	.348	.312	.344	.302	.273	.238	.212	.194	.139	.125	.115	.045	.041	.038		
10.0	.395	.344	.310	.340	.298	.270	.236	.210	.192	.138	.124	.115	.045	.041	.038		

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

## UGR(Unified Glare Rating) Table

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm											
NAME: GAME 450-U-29W-830					TYPE:Ceiling light			WEIGHT:0.2			
SPEC.:3000K					DIM.: φ450mm*H78mm			SERIAL No.:			
MFR.: NEKO LIGHTING AG					SUR.:φ450mm			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		10.1	11.1	10.8	11.8	12.6	10.5	11.5	11.2	12.2	13.1
	3H	10.6	11.5	11.3	12.2	13.1	11.2	12.0	11.9	12.8	13.7
	4H	10.9	11.7	11.6	12.5	13.4	11.4	12.2	12.2	13.0	13.9
	6H	11.1	11.9	11.9	12.7	13.6	11.7	12.4	12.4	13.2	14.1
	8H	11.2	12.0	12.0	12.7	13.7	11.7	12.4	12.5	13.2	14.2
	12H	11.2	11.9	12.0	12.7	13.7	11.6	12.3	12.4	13.1	14.1
4H	2H	10.2	11.0	10.9	11.7	12.7	10.6	11.4	11.3	12.1	13.0
	3H	10.9	11.6	11.7	12.3	13.3	11.4	12.1	12.2	12.9	13.8
	4H	11.3	12.0	12.1	12.8	13.8	11.8	12.4	12.6	13.2	14.2
	6H	11.7	12.3	12.6	13.1	14.1	12.3	12.8	13.1	13.6	14.7
	8H	11.9	12.4	12.8	13.3	14.3	12.3	12.8	13.2	13.7	14.7
	12H	12.0	12.4	12.9	13.3	14.4	12.3	12.7	13.1	13.6	14.7
8H	4H	11.4	11.9	12.3	12.8	13.8	11.9	12.4	12.7	13.2	14.3
	6H	12.0	12.4	12.9	13.3	14.3	12.5	12.9	13.3	13.7	14.8
	8H	12.3	12.6	13.2	13.5	14.6	12.6	13.0	13.5	13.9	15.0
	12H	12.4	12.8	13.4	13.7	14.8	12.6	12.9	13.5	13.8	14.9
12H	4H	11.4	11.9	12.3	12.7	13.8	11.8	12.3	12.7	13.1	14.2
	6H	12.0	12.4	12.9	13.2	14.3	12.5	12.8	13.4	13.7	14.8
	8H	12.3	12.6	13.2	13.5	14.7	12.6	12.9	13.6	13.9	15.0
Variations with the observer position at spacings:											
S = 1.0H	+ 0.6 / - 0.7					+ 0.5 / - 0.4					
1.5H	+ 0.3 / - 0.5					+ 0.3 / - 0.4					
2.0H	+ 1.0 / - 1.0					+ 0.9 / - 0.9					

CIE Pub.117, 3163 lm Total Lamp Luminous Flux Correct ( $8\log(F/F_0) = 4.0$ )

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

### UTILIZATION FACTORS TABLE

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:

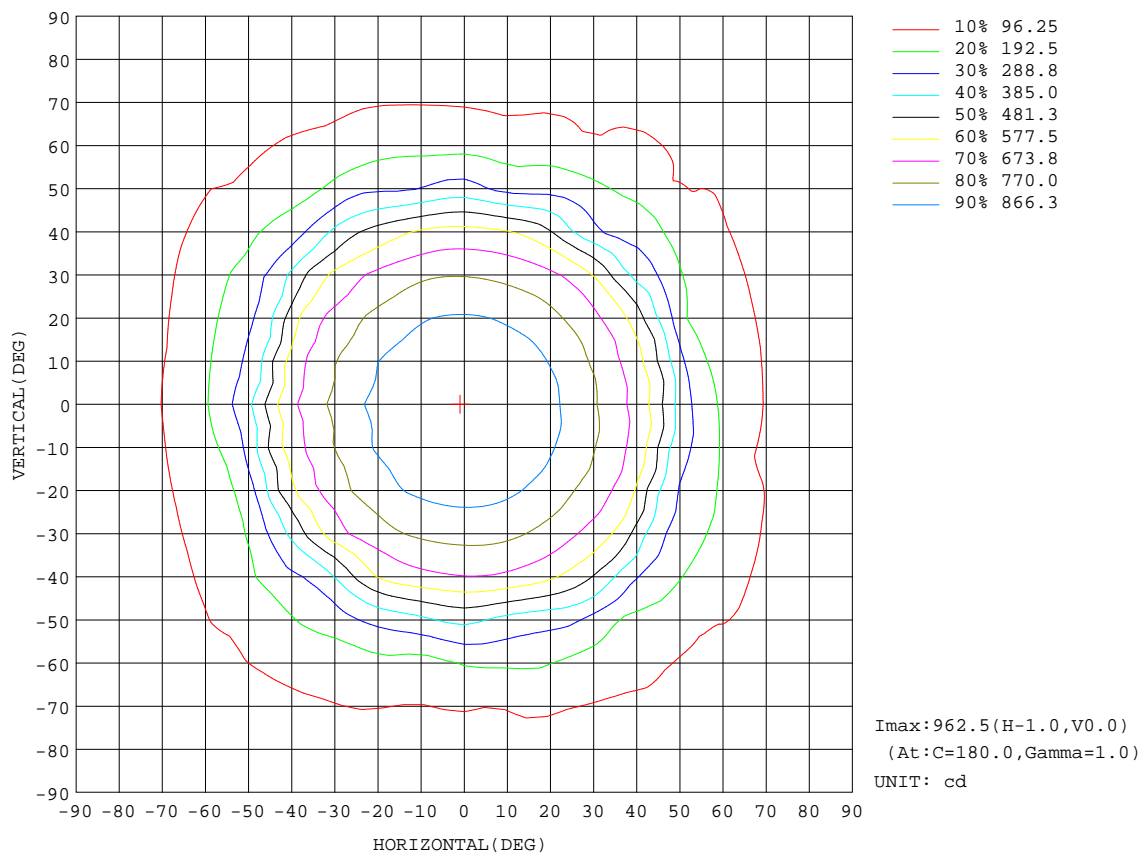
REFLECTANCE										
Ceiling	0.8	0.8	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0
Walls	0.7	0.5	0.3	0.7	0.5	0.3	0.7	0.5	0.3	0
Working plane	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0
ROOM INDEX	UTILIZATION FACTORS(PERCENT) $k(RI) \times RCR = 5$									
$k = 0.60$	53	42	36	51	41	36	47	39	34	28
0.80	62	52	45	60	50	44	55	47	42	34
1.00	70	59	53	67	57	51	61	55	49	39
1.25	76	66	60	73	64	58	66	59	55	43
1.50	81	72	65	77	69	63	70	63	59	46
2.00	87	79	73	83	76	70	75	69	65	50
2.50	91	84	78	86	80	74	77	72	68	52
3.00	94	87	82	89	83	78	79	75	72	54
4.00	98	92	88	92	88	83	82	79	76	56
5.00	100	95	91	94	90	87	84	81	78	58
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: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

**ISOCANDELA DIAGRAM**

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:



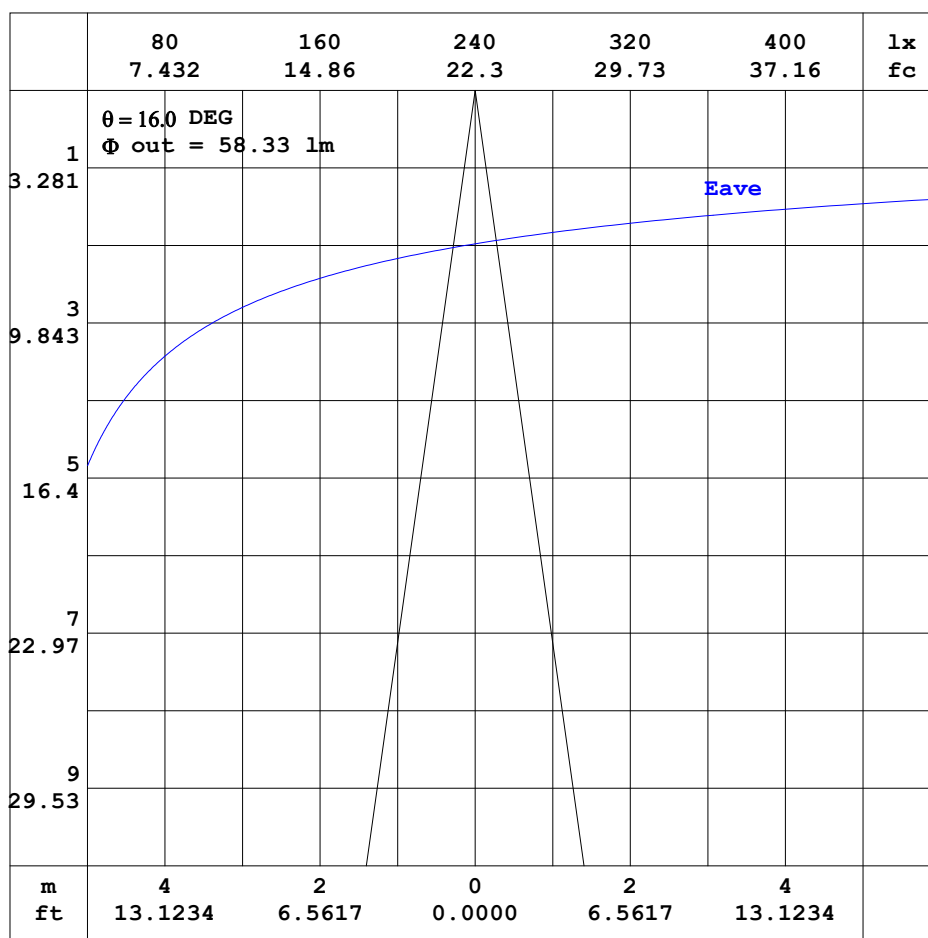
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:



AAI CURVES

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:



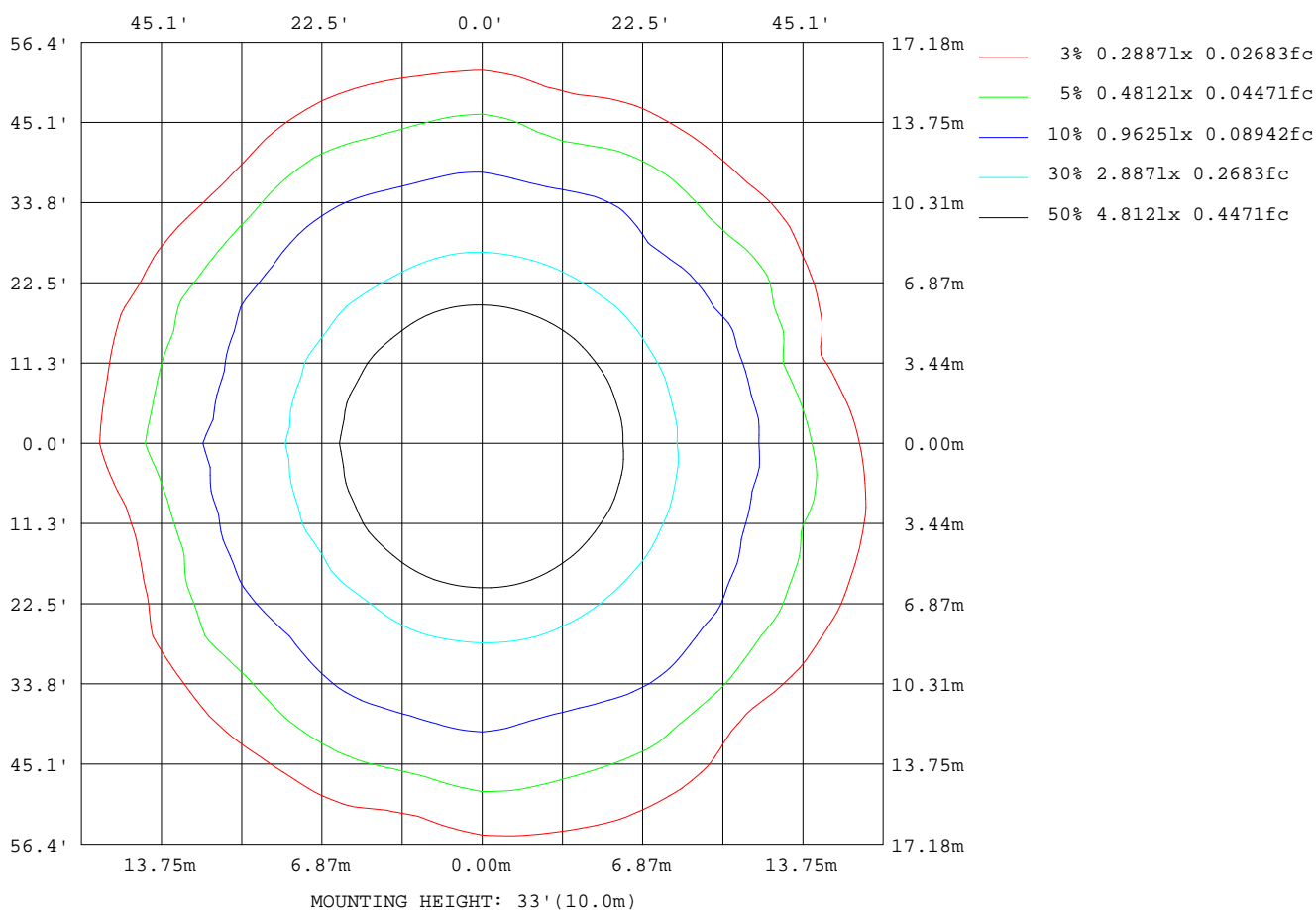
Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

**ISOLUX DIAGRAM**

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

### LED Avg.L Report

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding Angle:

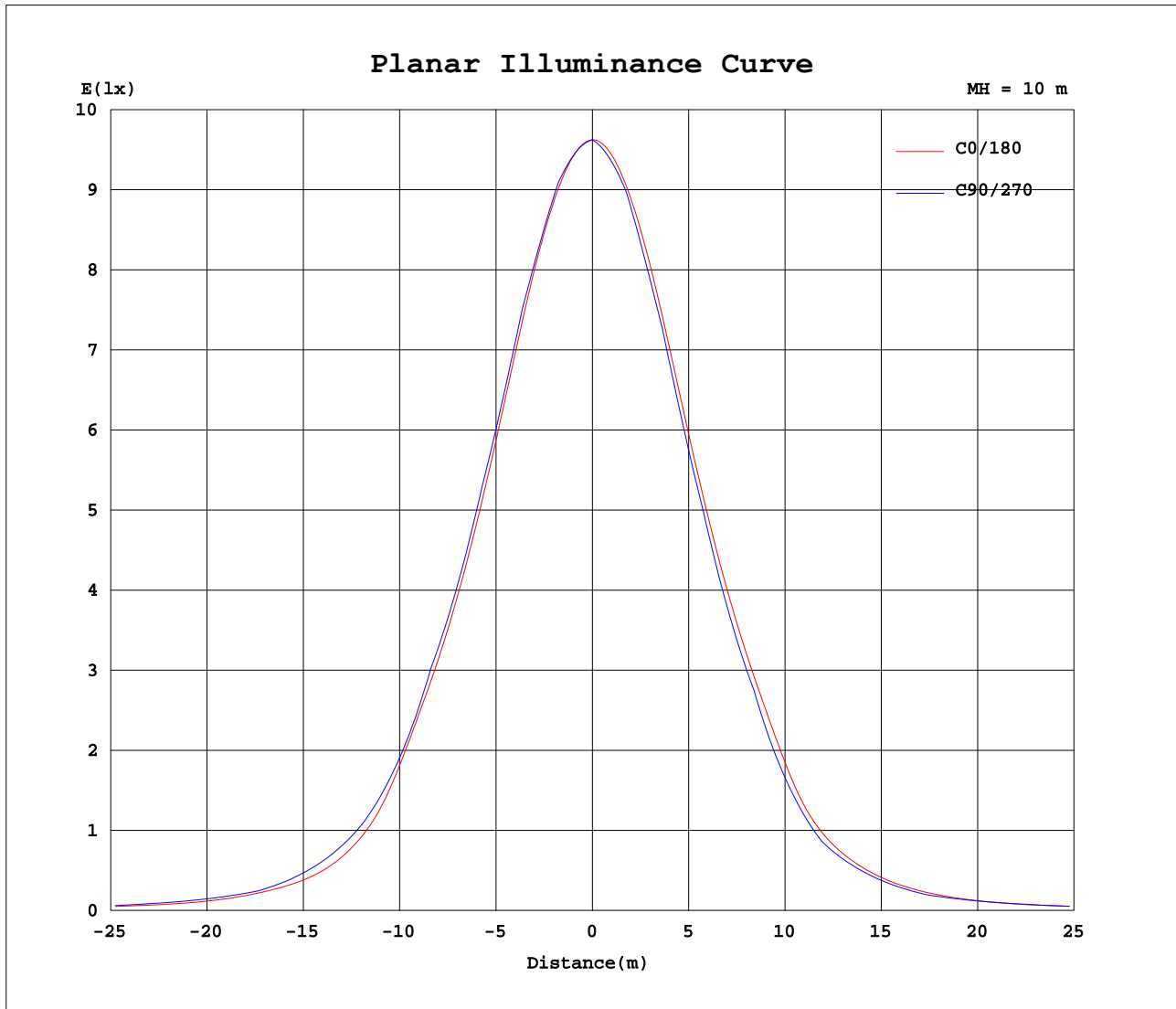
AvgL	cd/m2
L_0~180 (65) av	1774
L_0~180 (75) av	1726
L_0~180 (85) av	1633
L_90~270 (65) av	2038
L_90~270 (75) av	1733
L_90~270 (85) av	0
L_45 (65) av	2023
L_45 (75) av	1757
L_45 (85) av	1008

Standard: GB/T 29293-2012

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

### Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature: 25.3DEG  
Operators: Jason Long  
Test Date: 2019-11-15

$\gamma$  Range: 0 - 180DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity: 65.0%  
Test Distance: 10.000m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: φ450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.:φ450mm	Shielding 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	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962
5	957	957	957	957	956	956	956	956	957	957	957	957	957	957	957	957	957	957	957
10	944	944	944	944	944	945	946	946	946	946	947	947	948	949	950	950	951	951	952
15	921	922	922	924	925	925	925	926	928	928	927	927	927	928	928	928	928	928	928
20	886	888	890	893	893	893	895	895	896	897	897	897	898	899	900	902	903	904	905
25	837	841	847	847	847	848	850	853	852	852	854	855	857	858	858	858	857	856	856
30	780	787	793	792	793	797	797	795	796	798	801	804	805	806	807	808	808	808	807
35	714	724	728	729	734	735	731	732	736	736	737	739	741	743	744	744	743	741	738
40	636	651	650	654	660	656	660	663	659	658	660	664	667	668	670	672	674	674	671
45	513	537	511	535	520	545	558	561	561	564	563	568	566	555	543	535	535	540	540
50	354	362	342	347	350	382	388	420	417	422	437	438	424	401	383	374	378	396	410
55	244	263	263	247	265	268	282	273	275	290	290	290	294	289	286	286	292	302	303
60	176	186	198	208	207	207	203	201	185	170	188	209	218	221	223	217	211	206	199
65	117	113	122	140	144	136	138	135	142	142	141	138	147	162	170	164	155	152	150
70	94.4	94.6	99.5	109	108	99.0	96.1	98.7	101	111	109	108	112	116	119	117	103	98.2	103
75	68.8	76.5	79.8	80.1	79.7	81.3	81.2	75.9	78.0	77.7	75.9	78.9	81.5	84.0	88.5	87.3	77.9	76.5	77.7
80	46.4	49.5	54.5	56.5	54.2	53.0	49.7	51.5	53.1	52.0	52.4	53.9	55.3	57.8	61.9	62.0	57.2	53.9	53.3
85	20.9	21.6	24.8	25.4	30.0	28.7	27.9	23.3	18.2	14.9	12.3	9.77	7.37	5.41	3.74	2.12	0.87	0.20	0.00
90	47.8	40.5	35.1	31.6	30.9	31.4	32.6	32.5	32.5	32.5	32.5	32.9	33.8	35.7	0.00	0.00	42.3	43.8	45.0
95	63.3	58.8	55.2	52.7	51.6	51.1	51.0	50.1	49.3	48.6	47.9	47.6	47.9	49.4	51.5	53.9	56.4	58.8	60.7
100	83.7	79.2	75.5	72.7	71.3	70.5	70.0	69.0	68.2	67.4	66.2	65.6	65.6	67.8	70.6	73.5	75.7	77.5	78.7
105	106	103	99.9	97.6	96.0	94.6	93.5	92.1	90.9	89.9	89.2	89.1	89.7	92.1	94.9	97.5	98.3	98.5	98.3
110	128	126	123	122	120	119	119	118	118	117	116	115	115	117	119	120	120	120	120
115	152	151	150	149	146	144	142	141	140	140	141	143	145	145	145	144	144	144	144
120	178	177	176	176	175	175	175	174	173	173	173	173	173	172	171	170	170	170	169
125	204	203	202	202	202	202	201	201	200	199	199	199	199	198	197	196	196	196	195
130	230	229	228	228	228	228	227	227	226	225	225	225	225	224	223	222	222	222	221
135	255	254	253	253	253	252	252	252	251	250	250	250	250	249	248	247	247	247	246
140	279	278	277	276	276	276	276	275	274	274	274	273	273	273	272	271	271	270	270
145	300	299	298	297	297	297	297	296	296	295	295	295	295	294	293	293	292	292	292
150	320	318	317	316	316	316	316	315	315	314	314	314	314	314	313	312	312	312	312
155	336	334	333	332	332	332	332	332	331	331	331	331	331	330	330	329	329	329	329
160	350	348	347	346	346	346	346	346	345	345	345	345	345	344	344	344	343	343	343
165	360	358	357	356	356	356	356	356	356	356	356	356	356	355	355	355	355	355	355
170	367	365	364	363	363	363	363	363	363	363	363	363	363	363	363	363	363	363	362
175	371	369	367	366	366	366	367	367	367	367	367	367	367	367	367	367	367	367	367
180	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: φ450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.:φ450mm	Shielding 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	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962
5	957	957	957	957	957	957	957	957	957	957	957	957	957	957	958	958	958	959	958
10	952	952	952	951	951	950	949	948	947	946	945	944	943	944	944	945	946	947	945
15	928	928	928	928	928	928	929	930	931	932	929	926	923	921	920	922	924	927	922
20	905	904	903	902	900	898	896	893	892	893	895	899	894	889	884	885	889	894	886
25	855	854	854	854	854	856	858	859	854	849	843	845	848	848	840	835	840	848	838
30	806	805	804	802	800	798	796	797	799	803	796	787	785	791	788	779	782	793	781
35	736	735	734	734	736	738	743	738	731	726	730	733	720	717	726	715	713	728	713
40	668	666	664	663	659	650	640	640	656	654	636	638	655	635	637	640	629	651	624
45	533	528	528	537	547	549	529	498	487	509	529	503	514	528	497	526	485	524	463
50	403	389	381	384	393	391	375	354	334	345	357	366	352	352	334	347	337	368	327
55	287	270	267	274	277	275	270	258	250	256	267	247	235	207	207	213	234	266	253
60	182	163	170	190	193	187	185	193	195	188	177	183	164	159	150	158	172	183	182
65	137	125	131	142	138	127	123	140	146	131	115	119	130	123	124	127	127	121	118
70	101	95.9	98.2	106	109	105	104	108	110	104	98.2	95.9	99.5	94.3	88.3	88.0	92.6	97.5	95.0
75	75.3	72.9	74.1	78.5	83.4	83.5	82.7	76.6	74.4	78.3	78.2	78.4	71.8	72.5	68.3	65.5	67.2	73.1	72.2
80	51.4	51.4	50.7	51.4	57.8	60.5	62.0	55.6	54.0	56.8	55.3	54.7	48.3	46.5	45.8	41.6	43.6	50.6	48.3
85	0.19	0.78	1.72	3.08	5.48	8.41	12.2	14.3	17.5	23.4	25.9	29.3	27.5	24.0	22.6	18.8	15.1	24.4	20.1
90	45.2	45.1	0.00	0.00	44.1	43.7	43.5	43.4	43.3	43.3	43.3	43.4	43.5	43.6	43.7	43.7	43.6	43.4	42.9
95	61.1	60.9	60.4	60.4	60.3	60.2	60.1	59.9	59.8	59.8	59.9	60.0	59.9	59.8	59.7	59.7	59.8	59.7	59.3
100	78.9	78.6	78.1	78.0	77.9	77.8	77.7	77.6	77.4	77.4	77.4	77.3	77.2	77.0	76.9	76.9	77.0	76.9	76.4
105	98.1	97.7	97.3	97.1	96.8	96.7	96.5	96.4	96.3	96.2	96.0	95.9	95.8	95.7	95.6	95.7	95.7	95.6	95.1
110	119	119	118	118	118	117	117	117	116	116	116	116	116	116	116	116	116	116	115
115	143	142	141	141	141	141	140	139	139	139	139	139	139	139	138	138	138	139	138
120	168	168	167	167	167	166	166	165	164	164	164	164	164	164	163	163	163	164	163
125	195	194	193	193	193	192	192	191	190	190	190	190	190	190	189	189	189	190	189
130	221	220	219	219	219	218	218	217	216	216	216	216	216	215	215	215	215	215	214
135	246	245	244	244	244	244	243	242	242	242	242	241	241	241	240	240	241	241	240
140	269	269	268	268	268	267	267	266	266	266	266	266	265	265	264	265	265	265	264
145	291	291	290	290	290	290	289	288	288	288	288	288	287	287	287	287	288	288	286
150	311	311	310	310	310	310	309	308	308	308	308	308	308	307	307	307	308	308	307
155	328	328	327	327	327	327	327	326	326	326	326	326	326	325	325	326	326	326	325
160	343	342	342	342	342	342	342	341	341	341	341	341	341	341	341	341	341	341	340
165	354	354	354	353	353	353	353	353	353	353	353	353	353	353	353	353	354	354	352
170	362	362	362	362	362	362	362	362	362	362	362	362	362	362	362	363	363	363	362
175	367	367	367	367	367	367	367	367	367	367	367	367	368	368	368	368	369	369	367
180	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding 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	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962
5	957	956	955	954	953	953	952	952	951	951	951	951	951	951	951	951	951	951	951
10	942	940	939	937	936	936	937	937	937	938	938	938	939	939	939	939	939	939	939
15	918	915	913	914	915	917	918	916	913	911	909	908	907	907	907	907	907	908	908
20	880	877	879	882	884	879	874	872	871	872	873	874	875	875	875	875	875	874	874
25	831	833	838	835	828	823	825	828	831	829	826	825	823	822	822	821	821	820	820
30	775	782	782	772	769	773	775	769	765	764	766	768	770	770	769	767	765	764	762
35	713	723	709	707	713	705	696	696	701	706	699	693	691	690	691	690	689	688	687
40	634	627	621	640	623	614	621	621	606	596	594	597	603	609	613	614	612	608	604
45	492	456	488	490	493	518	497	486	492	495	490	480	469	463	464	469	470	462	453
50	323	316	328	337	360	345	344	356	364	363	358	341	321	311	315	326	325	304	283
55	248	248	242	257	243	236	231	227	238	245	250	243	235	232	233	240	243	232	212
60	183	183	188	175	176	168	163	156	160	166	172	177	178	174	165	160	159	152	142
65	132	137	127	121	117	120	121	120	118	115	118	127	133	134	129	125	124	119	110
70	96.3	99.2	100	97.6	89.6	89.3	90.2	92.3	91.1	90.1	94.2	98.1	99.0	96.6	93.8	91.6	88.5	83.1	78.8
75	72.8	73.2	73.4	69.6	70.1	66.2	67.3	70.3	67.4	66.5	70.4	72.4	71.8	70.7	70.0	67.4	64.9	61.3	58.4
80	51.6	50.2	50.7	47.9	45.2	42.7	42.3	42.2	42.1	42.7	45.5	47.1	46.2	47.0	46.3	42.5	40.0	37.7	38.2
85	23.9	24.0	21.7	21.5	20.3	17.4	13.9	10.9	9.19	7.57	6.01	4.36	2.76	1.59	0.70	0.16	0.00	0.14	0.58
90	42.4	41.9	41.8	41.8	41.8	41.8	41.9	41.9	41.9	41.9	42.1	42.5	42.9	43.4	43.6	43.8	44.0	44.3	44.6
95	58.8	58.4	58.2	58.2	58.3	58.4	58.6	58.8	58.8	58.8	58.8	59.0	59.2	59.5	59.6	59.7	59.9	60.1	60.4
100	75.9	75.5	75.5	75.6	75.8	75.9	76.0	76.0	76.1	76.2	76.3	76.5	76.6	76.8	76.9	77.1	77.2	77.5	77.9
105	94.6	94.1	94.2	94.3	94.6	94.7	94.7	94.8	94.8	94.9	95.0	95.2	95.4	95.6	95.7	95.8	96.0	96.3	96.8
110	115	114	114	114	115	115	115	115	115	115	115	115	115	116	116	116	116	117	118
115	138	137	136	136	136	137	137	138	137	137	137	138	138	139	139	139	139	140	141
120	162	161	161	161	161	161	162	162	162	162	162	163	164	164	164	165	165	166	167
125	187	186	186	186	187	187	188	188	188	188	188	189	190	190	191	191	191	192	193
130	213	212	212	212	212	213	213	214	214	214	214	215	215	216	217	217	217	218	219
135	238	237	237	237	237	238	238	239	239	239	239	240	241	242	242	242	243	244	245
140	262	261	261	261	261	262	262	263	263	263	263	264	265	266	266	266	267	267	269
145	285	284	283	283	284	284	285	285	285	285	285	286	287	288	288	288	289	290	291
150	305	304	304	304	304	304	305	305	305	306	306	306	307	308	308	308	309	310	311
155	323	322	321	321	322	322	323	323	323	323	323	324	325	325	326	326	326	327	328
160	339	337	337	337	337	337	338	338	338	338	339	339	340	340	341	341	341	342	343
165	351	349	349	349	349	350	350	350	350	351	351	351	352	352	352	353	353	353	354
170	360	359	358	358	359	359	359	359	359	360	360	360	360	361	361	361	361	362	362
175	366	364	364	364	364	365	365	365	365	365	365	366	366	366	366	366	366	367	367
180	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks:

## LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:220.0V I:0.1377A P:30.23W PF:0.9134 Freq:49.90Hz Lamp Flux:3162.75x1 lm		
NAME: GAME 450-U-29W-830	TYPE:Ceiling light	WEIGHT:0.2
SPEC.:3000K	DIM.: $\phi$ 450mm*H78mm	SERIAL No.:
MFR.: NEKO LIGHTING AG	SUR.: $\phi$ 450mm	Shielding 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	962	962	962	962	962	962	962	962	962	962	962	962	962	962	962				
5	951	951	952	952	952	952	953	953	953	954	954	955	955	956	956				
10	939	939	939	939	939	939	939	939	939	940	940	941	941	942	943				
15	909	909	910	911	912	913	915	916	916	916	917	919	919	919	920				
20	873	872	872	872	873	875	877	878	879	880	881	882	885	885	885				
25	821	821	822	823	824	826	827	830	833	832	831	832	835	839	837				
30	762	761	762	764	767	769	769	770	771	775	776	774	776	782	781				
35	686	687	689	693	700	701	703	704	701	703	708	709	706	713	716				
40	601	599	596	593	591	592	606	609	611	612	622	629	628	631	642				
45	453	462	469	455	425	424	448	457	444	466	488	493	514	502	531				
50	284	304	328	336	319	294	275	307	323	323	346	330	329	334	358				
55	204	215	227	232	233	228	224	230	242	248	223	215	181	206	226				
60	148	159	160	159	163	168	170	171	172	156	158	154	147	153	170				
65	113	120	113	100	101	124	135	123	97.2	107	116	122	120	123	125				
70	83.0	88.7	89.9	86.1	86.4	94.5	98.0	94.5	90.9	89.5	94.1	90.6	87.8	87.2	92.5				
75	60.1	62.8	66.2	67.2	67.3	63.0	66.7	71.7	74.0	66.7	65.0	66.7	68.2	67.4	67.6				
80	38.2	38.4	41.8	43.4	46.0	44.2	43.8	47.5	48.1	47.9	44.0	40.7	43.8	44.4	45.0				
85	1.29	2.27	3.84	5.70	8.42	10.4	12.5	15.9	17.9	20.1	20.7	20.3	19.9	21.2	24.1				
90	44.9	45.0	45.2	45.4	45.8	46.2	46.7	47.1	47.6	48.0	48.8	49.5	49.8	49.6	48.9				
95	60.8	61.0	61.2	61.5	62.1	62.7	63.3	63.7	64.1	64.6	65.5	66.2	66.6	66.1	65.0				
100	78.3	78.7	79.1	79.6	80.3	80.9	81.6	82.2	82.8	83.3	84.1	84.7	85.1	85.0	84.5				
105	97.3	97.9	98.5	99.1	99.8	101	101	102	103	103	104	105	105	106	106				
110	118	119	120	120	121	122	123	124	124	125	126	127	127	128	128				
115	142	142	143	144	145	146	147	148	148	149	150	151	152	152	152				
120	168	168	169	170	171	172	173	174	174	175	176	177	178	178	178				
125	194	195	195	196	197	198	199	200	200	201	202	203	204	204	204				
130	220	221	221	222	223	224	225	226	227	227	228	229	230	230	230				
135	246	246	247	247	249	250	251	251	252	252	253	254	255	255	255				
140	270	270	271	271	272	273	274	275	275	276	277	278	278	279	279				
145	292	292	293	293	294	295	296	297	297	298	298	299	300	300	300				
150	312	312	312	313	314	315	316	316	317	317	318	318	319	319	320				
155	329	329	330	330	331	332	332	333	333	334	334	335	336	336	336				
160	343	344	344	345	345	346	346	347	347	348	348	349	349	349	350				
165	355	355	355	356	356	357	357	357	358	358	359	359	360	360	360				
170	363	363	363	364	364	365	365	365	365	365	366	366	367	367	367				
175	367	368	368	368	368	368	369	369	369	369	370	370	370	370	371				
180	371	371	371	371	371	371	371	371	371	371	371	371	371	371	371				

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: MEDIUM  
Temperature:25.3DEG  
Operators:Jason Long  
Test Date:2019-11-15

γ Range: 0 - 180DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000\_V1 SYSTEM V2.0.362  
Humidity:65.0%  
Test Distance:10.000m [K=1.0000]  
Remarks: