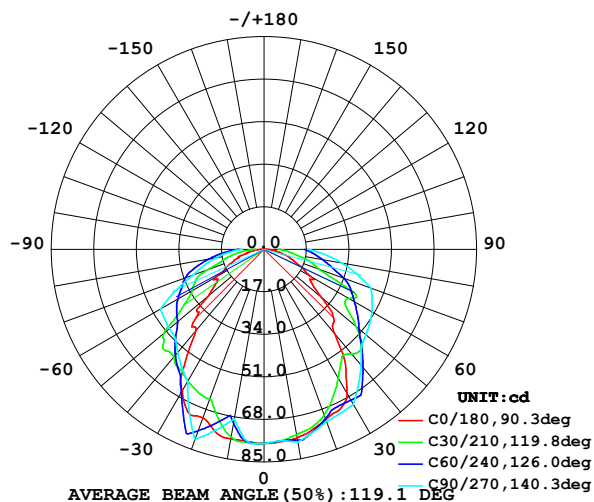


## LUMINAIRE PHOTOMETRIC TEST REPORT

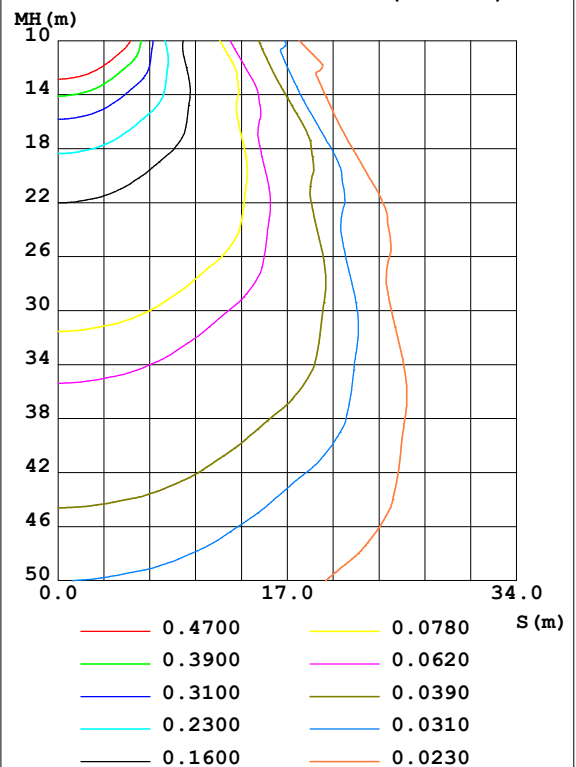
Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION ANGLE:

DATA OF LAMP		PHOTOMETRIC DATA Eff: 50.64 lm/W			
MODEL	NAV-IP65/DA	I <sub>max</sub> (cd)	81.12	S/MH (C0/180)	1.18
NOMINAL POWER (W)		LOR (%)	100.0	S/MH (C90/270)	1.18
RATED VOLTAGE (V)	220	TOTAL FLUX (lm)	241.71	η UP, DN (C0-180)	0.0, 52.0
NOMINAL FLUX (lm)	241.707	CIE CLASS	DIRECT	η UP, DN (C180-360)	0.0, 48.0
LAMPS INSIDE	1	η up (%)	0.0	CIBSE SHR NOM	1.50
TEST VOLTAGE (V)	220	η down (%)	100.0	CIBSE SHR MAX	1.50

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



C0 PLANE ISOLUX DIAGRAM (UNIT:lx)



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: WLM  
Test Date: 2018-08-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System: EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity: 65.0%  
Test Distance: 13.824m [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
5	77.21	76.80	76.83	76.11	77.04	77.54	77.01	77.55	0- 5	1.848	1.848	0.76,0.76
10	76.53	76.31	78.20	75.47	76.92	73.33	68.75	72.97	5- 10	5.427	7.275	3.01,3.01
15	74.62	75.30	75.69	74.71	75.51	67.55	74.83	67.77	10- 15	8.767	16.04	6.64,6.64
20	72.32	70.77	73.18	70.51	71.67	71.10	80.92	70.51	15- 20	11.98	28.02	11.6,11.6
25	70.94	66.30	72.34	65.90	71.91	73.43	70.98	71.57	20- 25	14.82	42.84	17.7,17.7
30	66.33	63.57	71.50	63.21	65.39	68.42	61.04	67.63	25- 30	16.82	59.67	24.7,24.7
35	57.04	63.74	65.93	63.34	54.88	61.81	57.39	61.20	30- 35	18.25	77.92	32.2,32.2
40	43.86	64.50	60.36	64.54	42.51	58.28	53.73	58.18	35- 40	19.12	97.03	40.1,40.1
45	39.49	57.97	55.18	57.55	38.16	54.80	50.37	54.72	40- 45	19.52	116.5	48.2,48.2
50	30.09	50.46	53.17	49.51	29.02	50.95	49.31	51.51	45- 50	19.49	136.0	56.3,56.3
55	23.17	41.43	51.56	39.62	23.24	44.86	48.55	45.07	50- 55	18.60	154.6	64,64
60	21.26	36.60	49.95	36.04	22.35	37.75	47.78	36.87	55- 60	17.81	172.4	71.3,71.3
65	16.22	33.95	47.72	33.59	16.86	29.86	38.92	30.83	60- 65	16.89	189.3	78.3,78.3
70	11.89	29.34	45.50	28.64	12.63	25.48	30.06	26.89	65- 70	15.20	204.5	84.6,84.6
75	8.319	22.92	38.49	22.50	8.612	21.17	24.70	21.25	70- 75	12.99	217.5	90,90
80	5.310	17.38	31.47	17.72	5.562	15.83	19.33	15.75	75- 80	10.52	228.0	94.3,94.3
85	3.078	12.34	24.46	12.78	3.041	10.54	13.96	10.40	80- 85	8.040	236.1	97.7,97.7
90	0.0541	7.557	17.45	8.015	0.0503	5.434	8.596	5.400	85- 90	5.620	241.7	100,100
95									90- 95			
100									95-100			
105									100-105			
110									105-110			
115									110-115			
120									115-120			
125									120-125			
130									125-130			
135									130-135			
140									135-140			
145									140-145			
150									145-150			
155									150-155			
160									155-160			
165									160-165			
170									165-170			
175									170-175			
180									175-180			
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

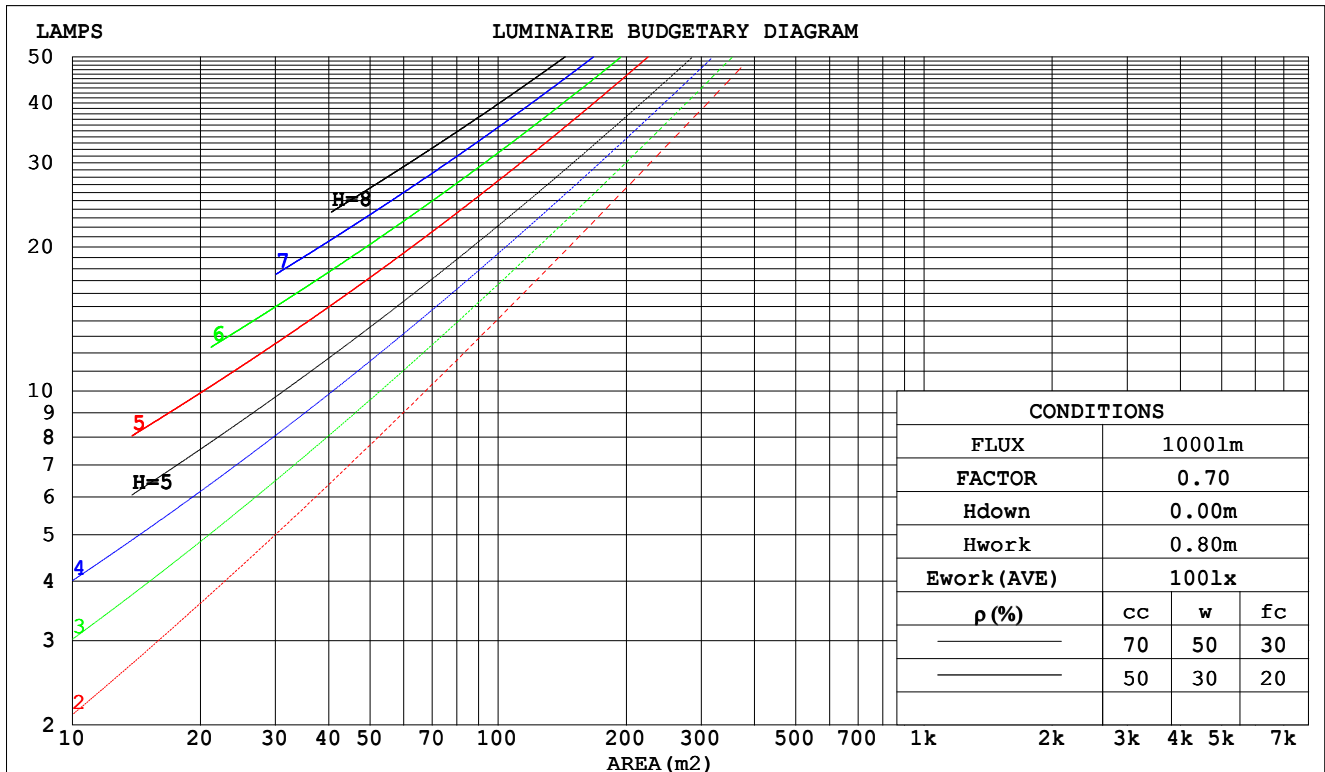
C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WLM  
 Test Date:2018-08-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:13.824m [K=1.0000]  
 Remarks:

## CU AND LUMINAIRE BUDGETARY ESTIMATE DIAGRAM

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION ANGLE:

$\rho_{cc}$	80%			70%			50%			30%			10%			0
$\rho_w$	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0
$\rho_{fc}$	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	1.01	.96	.91	.99	.94	.90	.94	.91	.87	.90	.87	.84	.87	.84	.82	.79
2.0	.87	.79	.73	.85	.78	.72	.81	.75	.70	.78	.73	.69	.75	.71	.67	.65
3.0	.76	.67	.60	.74	.66	.59	.71	.64	.58	.68	.62	.57	.66	.61	.56	.54
4.0	.67	.57	.50	.66	.57	.50	.63	.55	.49	.61	.54	.48	.58	.53	.48	.45
5.0	.60	.50	.43	.58	.50	.43	.56	.48	.42	.54	.47	.42	.52	.46	.41	.39
6.0	.54	.44	.37	.53	.44	.37	.51	.43	.37	.49	.42	.37	.47	.41	.36	.34
7.0	.49	.39	.33	.48	.39	.33	.46	.38	.33	.45	.38	.32	.43	.37	.32	.30
8.0	.44	.35	.29	.44	.35	.29	.42	.35	.29	.41	.34	.29	.40	.33	.29	.27
9.0	.41	.32	.26	.40	.32	.26	.39	.31	.26	.38	.31	.26	.37	.30	.26	.24
10.0	.38	.29	.24	.37	.29	.24	.36	.29	.24	.35	.28	.24	.34	.28	.24	.22



C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WLM  
 Test Date:2018-08-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
 Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:13.824m [K=1.0000]  
 Remarks:

## WEC AND CCEC

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION 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	.365	.207	.066	.357	.204	.065	.344	.197	.063	.331	.191	.061	.320	.185	.060	
2.0	.325	.178	.055	.318	.175	.054	.306	.170	.053	.295	.166	.052	.285	.161	.051	
3.0	.292	.156	.047	.287	.154	.046	.276	.150	.045	.266	.146	.045	.257	.142	.044	
4.0	.265	.138	.041	.260	.136	.040	.251	.133	.040	.242	.130	.039	.234	.127	.039	
5.0	.242	.123	.036	.238	.122	.036	.230	.120	.035	.222	.117	.035	.215	.115	.034	
6.0	.223	.112	.032	.219	.111	.032	.212	.108	.032	.205	.106	.031	.198	.104	.031	
7.0	.206	.102	.029	.203	.101	.029	.196	.099	.029	.190	.097	.028	.184	.096	.028	
8.0	.191	.094	.026	.188	.093	.026	.182	.091	.026	.177	.090	.026	.172	.088	.026	
9.0	.179	.086	.024	.176	.086	.024	.171	.084	.024	.166	.083	.024	.161	.082	.024	
10.0	.168	.080	.022	.165	.080	.022	.160	.079	.022	.156	.077	.022	.152	.076	.022	

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	.190	.190	.190	.163	.163	.163	.111	.111	.111	.064	.064	.064	.020	.020	.020	
1.0	.184	.156	.130	.158	.134	.112	.108	.092	.077	.062	.053	.045	.020	.017	.015	
2.0	.177	.132	.094	.151	.113	.081	.104	.078	.057	.060	.046	.033	.019	.015	.011	
3.0	.169	.114	.071	.145	.099	.062	.099	.069	.043	.057	.040	.025	.018	.013	.008	
4.0	.161	.101	.056	.138	.088	.049	.095	.061	.034	.055	.036	.020	.018	.012	.007	
5.0	.153	.091	.045	.131	.079	.039	.090	.055	.028	.052	.032	.017	.017	.011	.005	
6.0	.145	.083	.038	.125	.072	.033	.086	.050	.023	.050	.030	.014	.016	.010	.005	
7.0	.138	.076	.032	.119	.066	.028	.082	.046	.020	.048	.027	.012	.015	.009	.004	
8.0	.131	.070	.028	.113	.061	.024	.078	.043	.017	.046	.025	.010	.015	.008	.003	
9.0	.125	.065	.025	.108	.056	.021	.075	.040	.015	.043	.023	.009	.014	.008	.003	
10.0	.119	.061	.022	.103	.053	.019	.071	.037	.014	.042	.022	.008	.013	.007	.003	

C Range: 0 - 360DEG  
 C Interval: 5.0DEG  
 Test Speed: HIGH  
 Temperature:25.3DEG  
 Operators:WLM  
 Test Date:2018-08-28

γ Range: 0 - 90DEG  
 γ Interval: 0.5DEG  
 Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
 Humidity:65.0%  
 Test Distance:13.824m [K=1.0000]  
 Remarks:

UGR(Unified Glare Rating) Table

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm											
NAME: NAV-IP65/DA						TYPE:		WEIGHT:			
SPEC.:						DIM.:		SERIAL No.:2018082801			
MFR.: JEWOO						SUR.:0.0350		PROTECTION 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	14.1	15.7	14.4	15.9	16.2	16.7	18.3	17.0	18.5	18.7	
	3H	15.2	16.7	15.5	16.9	17.1	19.8	21.3	20.1	21.5	21.7
	4H	15.5	17.0	15.9	17.2	17.5	21.2	22.7	21.6	22.9	23.2
	6H	15.8	17.1	16.1	17.4	17.7	22.6	23.9	22.9	24.2	24.5
	8H	15.9	17.2	16.2	17.5	17.8	23.2	24.5	23.6	24.8	25.1
	12H	16.0	17.2	16.3	17.5	17.8	23.9	25.2	24.3	25.5	25.8
4H	2H	15.4	16.8	15.7	17.1	17.4	17.2	18.7	17.6	18.9	19.2
	3H	16.9	18.1	17.2	18.4	18.7	20.5	21.7	20.8	22.0	22.3
	4H	17.4	18.6	17.8	18.9	19.3	22.2	23.3	22.6	23.7	24.0
	6H	17.8	18.8	18.2	19.2	19.6	23.8	24.9	24.2	25.2	25.6
	8H	17.9	18.9	18.3	19.3	19.7	24.6	25.6	25.0	26.0	26.4
	12H	18.0	18.9	18.4	19.3	19.7	25.4	26.4	25.9	26.7	27.2
8H	4H	18.5	19.5	18.9	19.8	20.2	22.4	23.3	22.8	23.7	24.1
	6H	19.2	20.0	19.7	20.4	20.9	24.3	25.1	24.7	25.5	26.0
	8H	19.5	20.2	19.9	20.6	21.1	25.3	26.1	25.8	26.5	27.0
	12H	19.7	20.3	20.1	20.8	21.2	26.5	27.1	26.9	27.6	28.0
12H	4H	18.8	19.7	19.3	20.1	20.5	22.4	23.3	22.8	23.7	24.1
	6H	19.7	20.5	20.2	20.9	21.3	24.3	25.1	24.8	25.5	26.0
	8H	20.2	20.8	20.6	21.3	21.7	25.5	26.1	25.9	26.6	27.0
Variations with the observer position at spacings:											
S = 1.0H	+ 0.2 / - 0.2					+ 0.1 / - 0.1					
1.5H	+ 0.3 / - 0.2					+ 0.3 / - 0.3					
2.0H	+ 1.1 / - 0.6					+ 0.2 / - 0.5					

CIE Pub.117 Corrected 241.7 lm Total Lamp Luminous Flux.(8log(F/F0) = -4.9)

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:WLM  
Test Date:2018-08-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity:65.0%  
Test Distance:13.824m [K=1.0000]  
Remarks:

## UTILIZATION FACTORS TABLE

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION 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) x RCR = 5									
k = 0.60	55	43	36	55	43	36	53	43	36	29
0.80	65	53	45	64	52	45	62	51	44	37
1.00	73	61	53	72	60	53	69	62	52	45
1.25	80	68	61	78	68	60	76	66	60	52
1.50	85	74	66	83	73	66	80	71	65	57
2.00	92	82	75	90	81	74	86	79	73	64
2.50	96	87	80	94	86	80	90	83	78	69
3.00	100	92	85	97	90	84	93	87	82	73
4.00	104	97	92	101	95	90	97	92	88	78
5.00	107	101	96	104	99	95	99	95	91	82
ROOM INDEX	UF (total)									Direct
According to DIN EN 13032-2 2004										
Suspended										
SHRNM = 1.25										

C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:WLM  
Test Date:2018-08-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity:65.0%  
Test Distance:13.824m [K=1.0000]  
Remarks:

## ISOCANDELA DIAGRAM

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION ANGLE:

Conical surface Flux(90deg):

116.55 lm

%lum = 48.2%

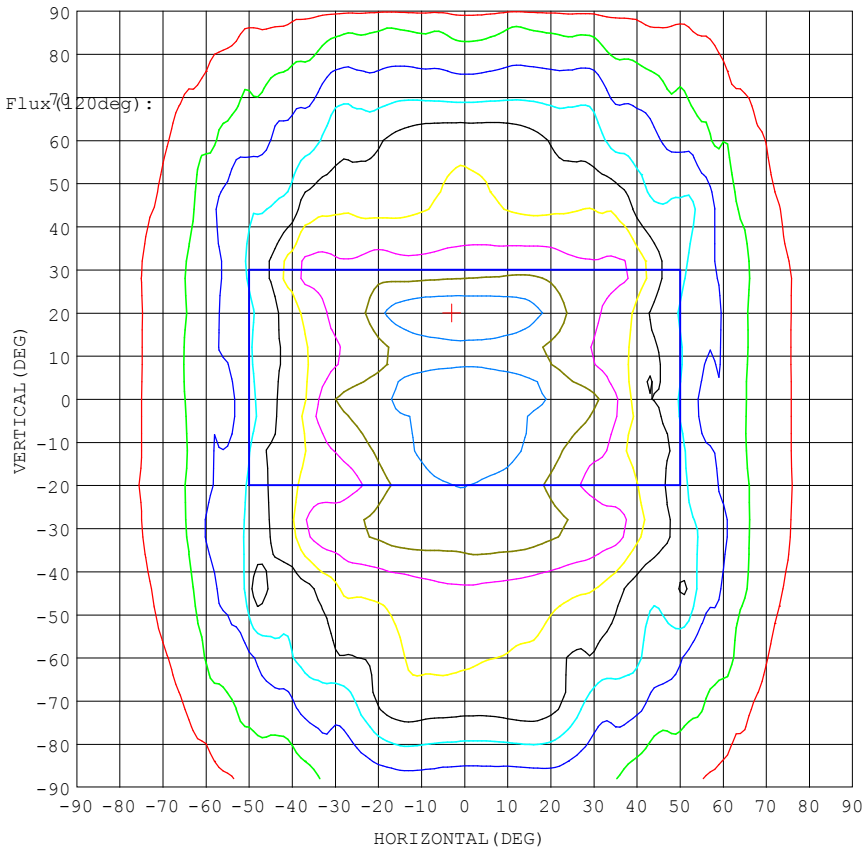
%lamp = 48.2%

Conical surface Flux(20deg):

172.44 lm

%lum = 71.3%

%lamp = 71.3%

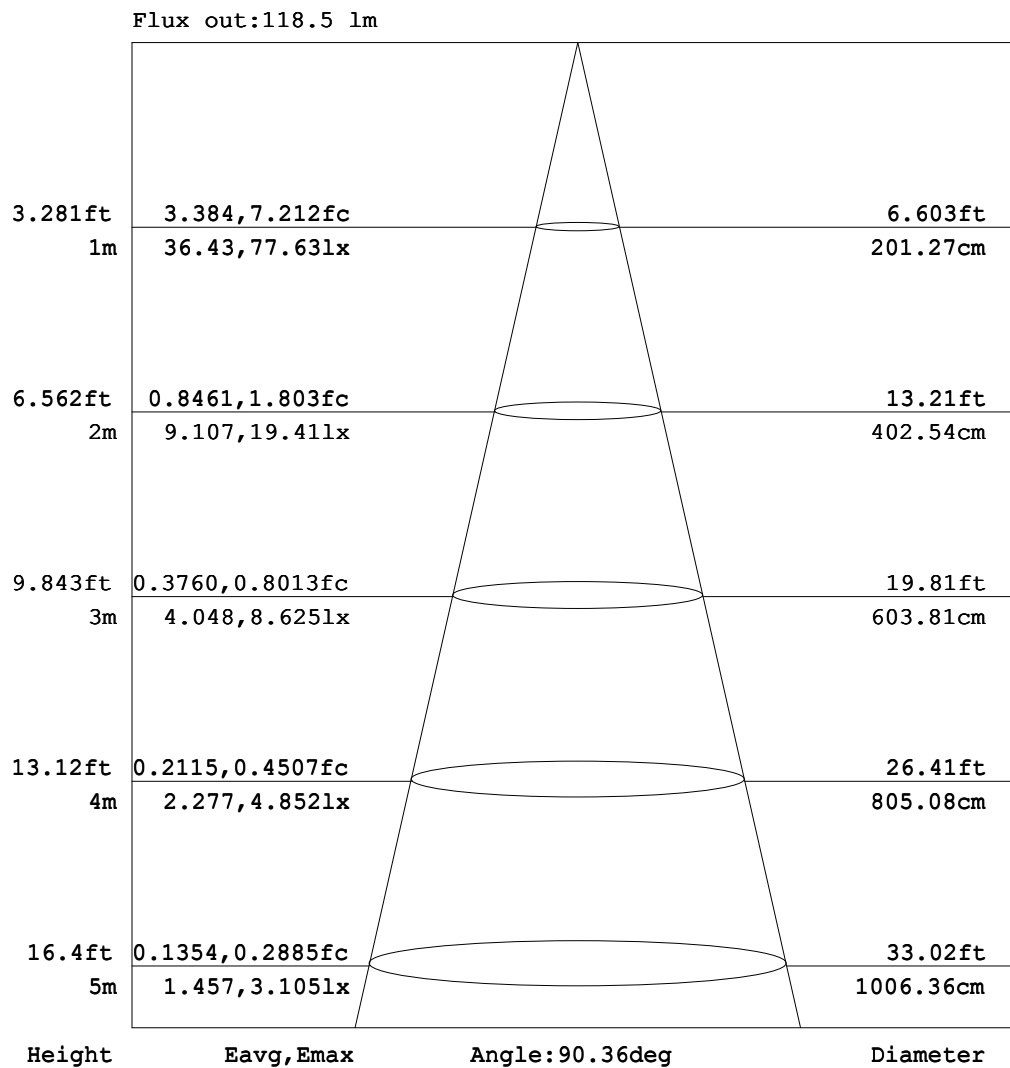


C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:WLM  
Test Date:2018-08-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity:65.0%  
Test Distance:13.824m [K=1.0000]  
Remarks:

### AAI Figure

Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION ANGLE:



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

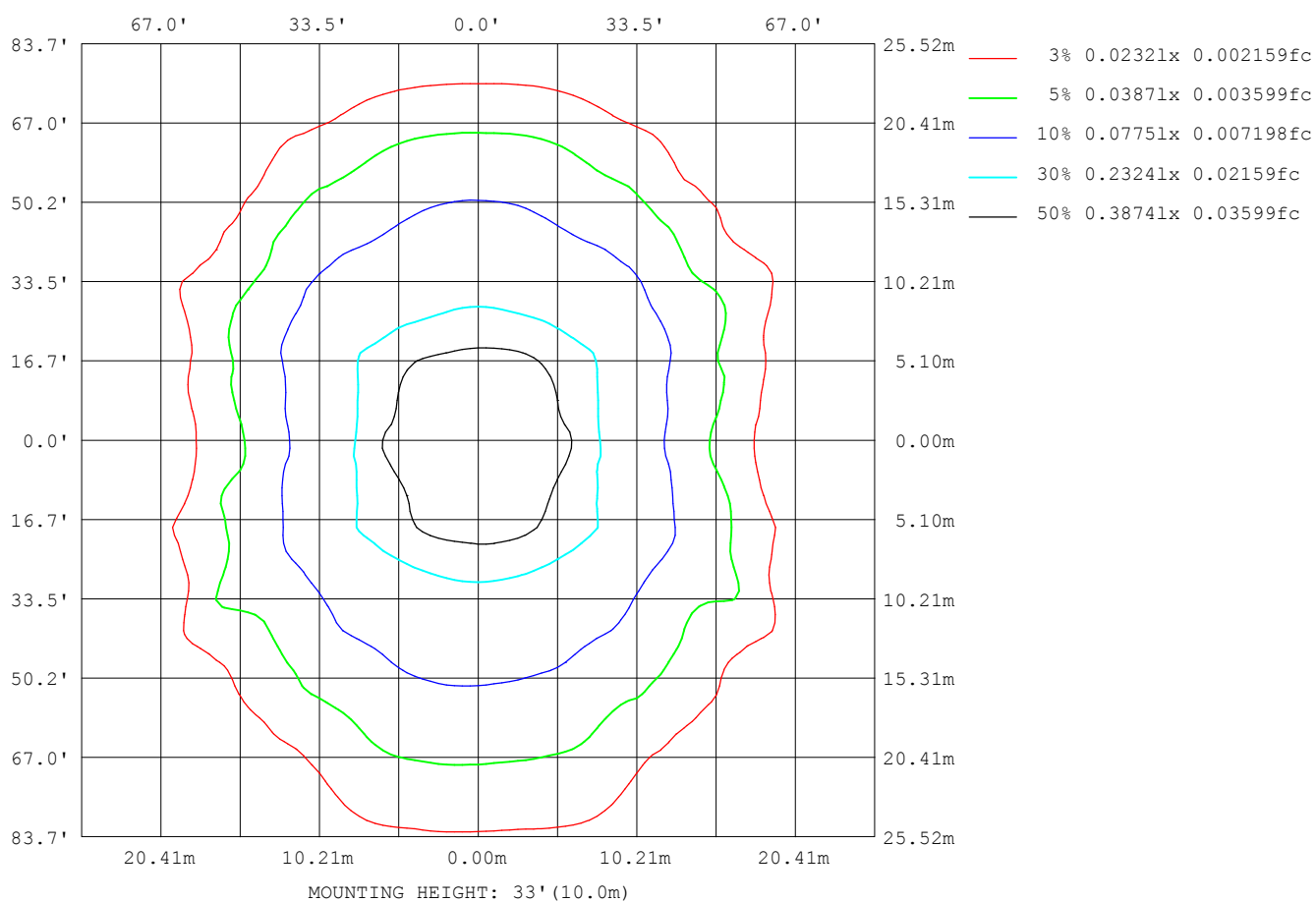
C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: WLM  
Test Date: 2018-08-28

γ Range: 0 - 90DEG  
γ Interval: 0.5DEG  
Test System: EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity: 65.0%  
Test Distance: 13.824m [K=1.0000]  
Remarks:



## ISOLUX DIAGRAM

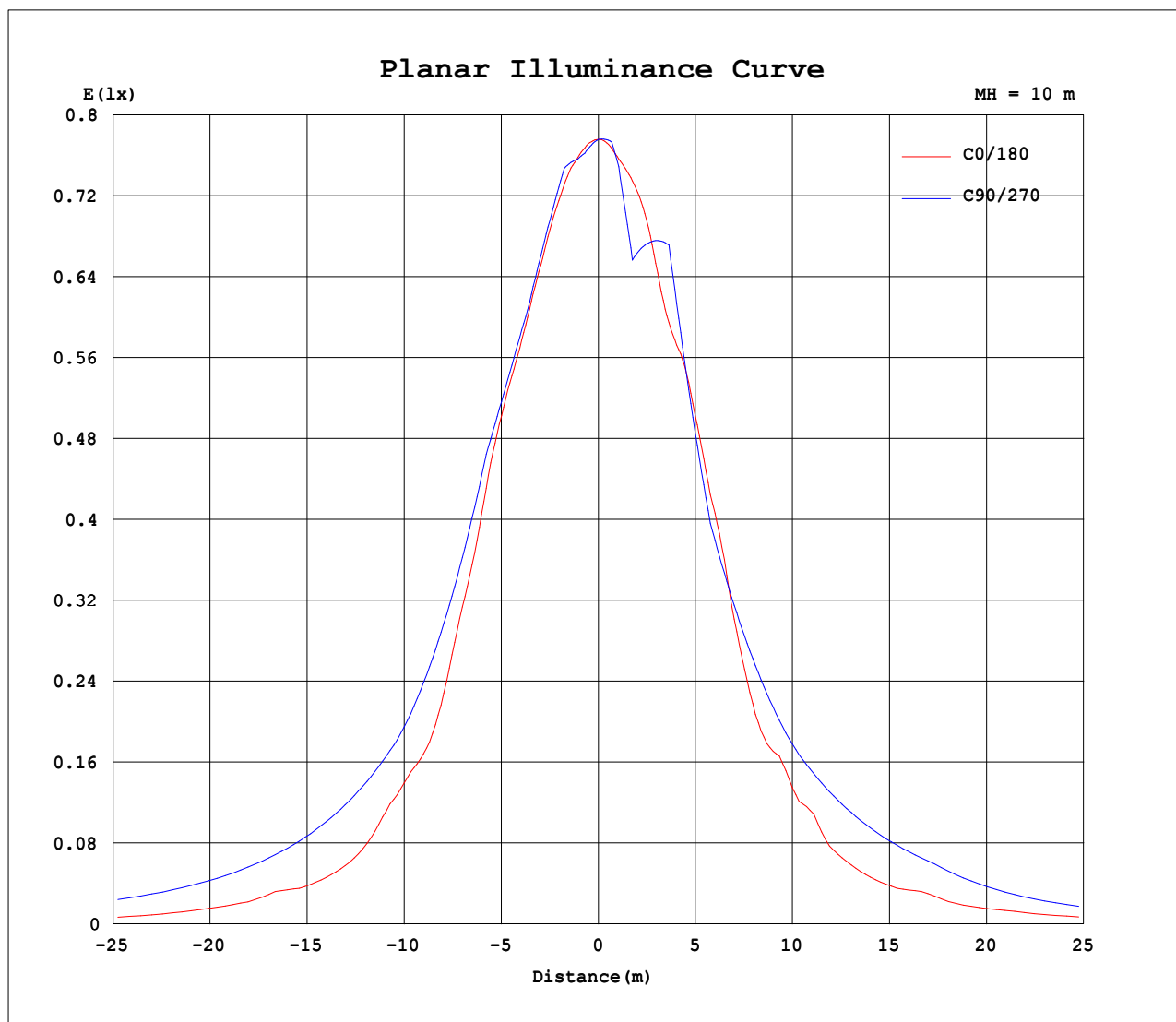
Test:U:220.6V I:0.0469A P:4.773W PF:0.4610 Lamp Flux:241.707x1 lm		
NAME: NAV-IP65/DA	TYPE:	WEIGHT:
SPEC.:	DIM.:	SERIAL No.:2018082801
MFR.: JEWOO	SUR.:0.0350	PROTECTION ANGLE:



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature:25.3DEG  
Operators:WLM  
Test Date:2018-08-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System:EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity:65.0%  
Test Distance:13.824m [K=1.0000]  
Remarks:

## Planar Illuminance Curve



C Range: 0 - 360DEG  
C Interval: 5.0DEG  
Test Speed: HIGH  
Temperature: 25.3DEG  
Operators: WLM  
Test Date: 2018-08-28

$\gamma$  Range: 0 - 90DEG  
 $\gamma$  Interval: 0.5DEG  
Test System: EVERFINE GO-2000H\_V1 SYSTEM V2.0.287  
Humidity: 65.0%  
Test Distance: 13.824m [K=1.0000]  
Remarks:







