



GONIOPHOTOMETER TEST REPORT

IES LM79-08 Section 9.3

TÜV SÜD America

Photometric Testing and Evaluation in Accordance with LM79-2008

Report Prepared for:

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Sample Tested: Girasole 5700K Medium 40W
Manufacturer: Beghelli North America

Technical Report Number: JI1302916-21-GONIO
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GONIOPHOTOMETRIC TEST REPORT IES LM79-2008

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June 13, 2013

Summary of Key Test Results

Model# **Girasole 5700K Medium 40W**
Manufacturer **Beghelli North America**
TÜV Sample# **712-6**
Date of Test **June 10, 2013**

Notes:

Tested in intended orientation (Horizontal)



Parameter	Measured Result
Luminous Flux	2306.6 Lumens
Input Power	35.47 Watts
Efficacy	65.03 Lumens/Watt
Beam Angle	23.3°
Stabilization Time	53 minutes
In-Situ Temp Test (ISTMT)**	65.8°C

The above results are recorded / derived from measurements in accordance with LM79-08

**ISTMT in accordance with "Energy Star Program Requirements for Luminaires – Version 1.2".

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Test Results –

The following results were obtained after stabilization of the sample in accordance with the requirements set forth in section 5.0 of IES LM79-2008. Stability is achieved when the variation of 3 readings of light output and electrical power over a period of 30 minutes, taken 15 minutes apart, is less than 0.5%.

Photometric Results	Girasole 5700K Medium 40W
	Goniophotometer
Total Luminous Flux (Lumens)	2306.6
Luminous Efficacy (Lumens/Watt)	65.03

Electrical Results	Girasole 5700K Medium 40W
	Goniophotometer
Input Power (Watts)	35.47
Input Voltage (Volts AC)	120.05
Input Current (Amps)	0.310
Power Factor (120/240V)	0.953/0.893
Input Frequency (Hertz)	60.0
A-THD (Current %) (120/240V)	17.57/18.77

Additional Parameters	Girasole 5700K Medium 40W
	Goniophotometer
Stabilization Time (Light and Power)	53 minutes
Test Geometry Configuration	Type C
Photometer	Gigahertz Optik P9801
Ambient Temperature	24.6°C
ISTMT (In-Situ Temperature Measurement)	65.8°C
Spacing Criteria	0.40 (0° – 180°) / 0.42 (90° – 270°)

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	2253.8	97.7 %
60 - 90	52.8	2.3 %
0 - 90	2306.6	100.0 %
90 - 180	0.0	0.0 %
0 - 180	2306.6	100.0 %

Test Results – Illuminance Plots

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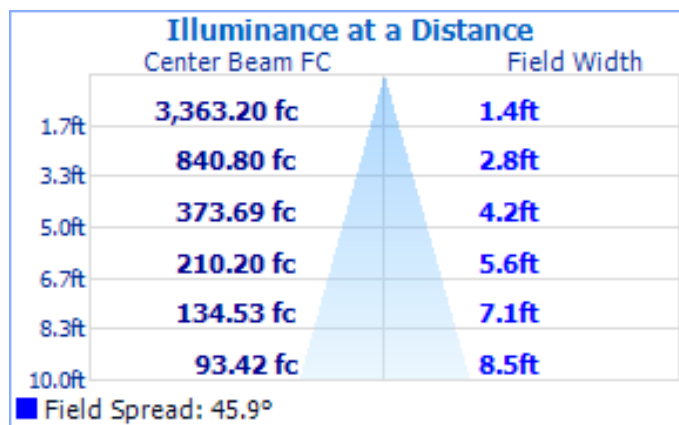
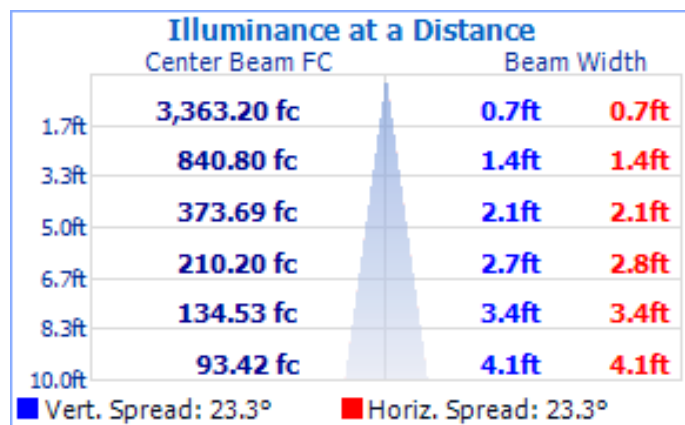


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The following images depict the illuminance characteristics of the luminaire.

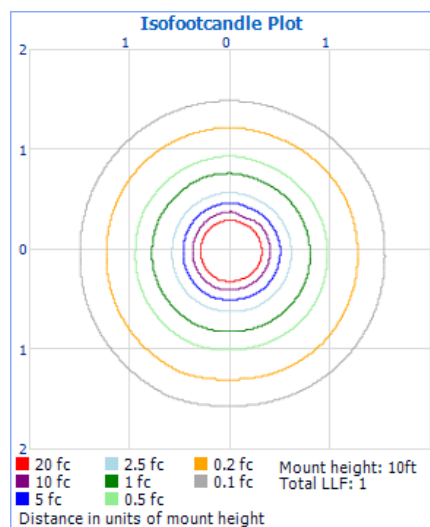


Beam Angle = 23.3°

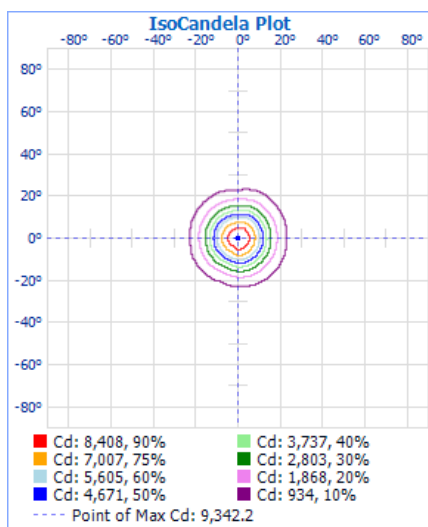
Field Angle = 45.9°

Test Results – Candela Plots

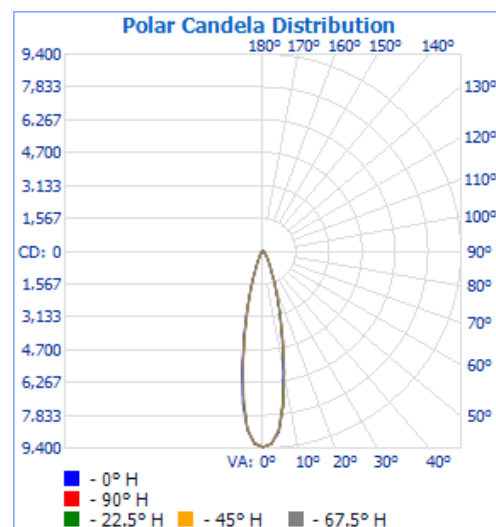
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

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Test Results – Candela Tabulation

The table below displays the tabulated Candela measurements from the IES file:

Horizontal (lateral) angles are shown in **red** across the top of the table, in increments of 22.5°.

Vertical (longitudinal) angles are shown in **blue** down the side of the table, in increments of 2.5°.

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5	360.0
0.0	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342	9342
2.5	9222	9176	9223	9195	9191	9104	9042	8989	9192	9184	9156	9133	9204	9204	9231	9228	9222
5.0	8659	8577	8562	8560	8545	8576	8409	8247	8549	8486	8537	8558	8564	8567	8640	8745	8659
7.5	7386	7220	7352	7389	7305	7146	6976	6769	7326	7175	7045	7074	7157	7314	7490	7688	7386
10.0	5597	5726	5849	5826	5772	5557	5353	5101	5645	5522	5455	5500	5585	5661	5900	6025	5597
12.5	4166	4240	4327	4369	4263	4146	3981	3731	4170	4026	3977	4028	4066	4165	4355	4589	4166
15.0	3057	3091	3173	3201	3100	2940	2810	2612	2982	2896	2805	2839	2866	2970	3168	3310	3057
17.5	2172	2237	2268	2282	2188	2121	1997	1843	2054	2018	1971	2010	2027	2086	2241	2354	2172
20.0	1581	1593	1645	1638	1574	1491	1403	1034	1447	1430	1382	1321	1380	1497	1593	1710	1581
22.5	997	1059	1021	999	989	968	936	888	933	927	928	935	945	960	1045	1145	997
25.0	816	827	850	829	814	748	693	647	707	688	703	696	712	758	801	866	816
27.5	597	618	635	600	592	555	503	473	508	500	519	510	520	555	598	631	597
30.0	456	475	474	464	443	415	385	363	384	385	394	392	400	426	453	474	456
32.5	359	383	372	368	346	324	306	288	307	315	313	315	327	345	365	372	359
35.0	294	307	294	296	273	257	247	233	247	256	252	259	271	282	295	304	294
37.5	241	247	242	239	220	207	197	188	202	207	203	212	217	231	239	250	241
40.0	201	199	200	194	177	170	161	155	166	165	166	173	176	186	196	209	201
42.5	165	164	169	160	148	141	133	128	138	136	136	142	143	154	163	175	165
45.0	141	139	141	133	124	120	113	108	115	113	115	118	120	128	139	147	141
47.5	119	119	121	114	107	103	97	92	98	97	97	100	101	109	118	126	119
50.0	102	103	104	97	92	90	85	80	83	83	85	86	87	93	102	107	102
52.5	86	89	90	85	80	78	73	69	72	73	73	73	74	80	86	93	86
55.0	75	76	76	73	69	68	64	61	62	63	64	64	64	68	74	79	75
57.5	63	65	66	63	60	59	56	53	55	55	55	55	55	59	62	67	63
60.0	53	55	55	54	51	51	49	46	47	47	48	48	47	50	53	56	53
62.5	44	45	46	45	43	43	41	39	41	41	41	40	40	42	45	47	44
65.0	36	37	38	37	36	36	35	33	34	34	35	34	34	35	37	39	36
67.5	29	30	31	31	30	29	29	28	29	28	28	28	28	29	30	31	29
70.0	23	23	24	24	24	24	24	22	24	23	23	23	23	23	24	25	23
72.5	17	18	19	19	19	19	18	17	19	18	18	18	18	18	19	19	17
75.0	13	13	14	14	14	14	14	13	14	14	14	13	13	13	14	14	13
77.5	9	9	10	10	10	10	9	9	11	10	10	9	10	10	10	10	9
80.0	6	6	6	6	6	6	6	6	7	7	6	6	6	6	6	6	6
82.5	3	3	3	3	4	3	3	3	4	4	4	4	3	3	3	4	3
85.0	1	1	1	1	2	1	1	1	2	2	2	2	1	1	1	2	1
87.5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Maximum Candela = **9342.2** at Horizontal: 0.0°, Vertical: 0.0°

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TÜV SÜD Photometric Testing Information

Testing is performed in accordance with the procedures outlined in IESNA LM79-2008. The sample is evaluated for photometric and electrical characteristics using a goniophotometer, located in an accredited, temperature and humidity-controlled, draft free photometric laboratory.

Sample Stabilization

The sample (UUT) is placed on a goniophotometer and powered by a regulated and conditioned alternating or direct current supply. The stabilization times shown on the results pages of this report denote the time of the 3rd measurement (of the 3 consecutive readings) since this is the minimum time that the sample is assumed to have taken to reach stabilization in accordance with section 5.0 of LM79-2008.

Goniophotometer

The Goniophotometer is a Mirror based Type C optical measurement system in accordance with section 9.3.1 of IESNA LM79-2008.

Goniophotometer Calibration

The Goniophotometer is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: General Electric
Part Number: CSB-110
Lamp Number: 112-A
Voltage: 16.52 Volts DC
Wattage: 150.0 Watts
Calibration Current: 4.816 Amperes
Luminous Intensity: 151.5 Candelas
Calibration Date: 02-13-2011 (NIST traceable)

TÜV SÜD Test Equipment List:

TÜV SÜD Mirror Goniophotometer System – contains the following:			
Goniophotometer	M.E. GONC02	GON002	weekly
Spectroradiometer	Gigahertz Optik P9801	GIG002	weekly
Power Analyzer	Yokogawa WT210	ATLE0031	11/16/2013
Power Source	Chroma 61603	AC007	N/A

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