



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 4100K Wide 40W
Manufacturer: Beghelli North America

Technical Report Number: JI1302916-19-GONIO
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GONIOPHOTOMETRIC TEST REPORT IES LM79-2008

Report# JI1302916-19-GONIO

June 12, 2013

Summary of Key Test Results

Model# **Girasole 4100K Wide 40W**
Manufacturer **Beghelli North America**
TÜV Sample# **712-5**
Date of Test **June 7, 2013**

Notes:

Tested in intended orientation (Horizontal)



Parameter	Measured Result
Luminous Flux	1871.7 Lumens
Input Power	35.65 Watts
Efficacy	52.50 Lumens/Watt
Beam Angle	31.7°
Stabilization Time	60 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 4100K Wide 40W
	Goniophotometer
Total Luminous Flux (Lumens)	1871.7
Luminous Efficacy (Lumens/Watt)	52.50

Electrical Results	Girasole 4100K Wide 40W
	Goniophotometer
Input Power (Watts)	35.65
Input Voltage (Volts AC)	120.06
Input Current (Amps)	0.310
Power Factor (120/240V)	0.958/0.886
Input Frequency (Hertz)	60.0
A-THD (Current %) (120/240V)	19.08/19.98

Additional Parameters	Girasole 4100K Wide 40W
	Goniophotometer
Stabilization Time (Light and Power)	55 minutes
Test Geometry Configuration	Type C
Photometer	Gigahertz Optik P9801
Ambient Temperature	25.5°C
ISTMT (In-Situ Temperature Measurement)	65.8°C
Spacing Criteria	0.54 (0° – 180°) / 0.58 (90° – 270°)

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	1837.4	98.2 %
60 - 90	34.3	1.8 %
0 - 90	1871.7	100.0 %
90 - 180	0.0	0.0 %
0 - 180	1871.7	100.0 %

Test Results – Illuminance Plots

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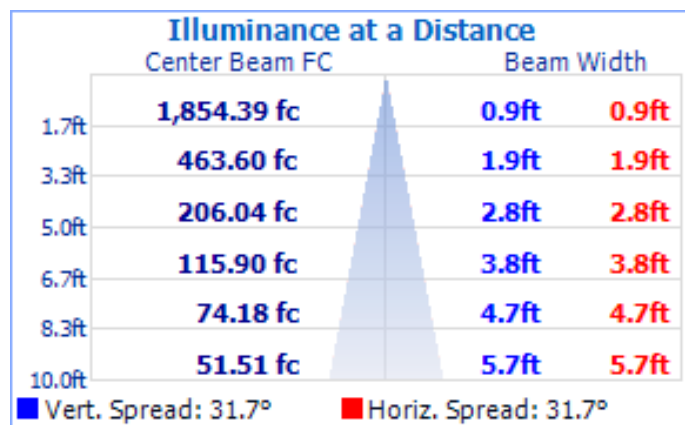


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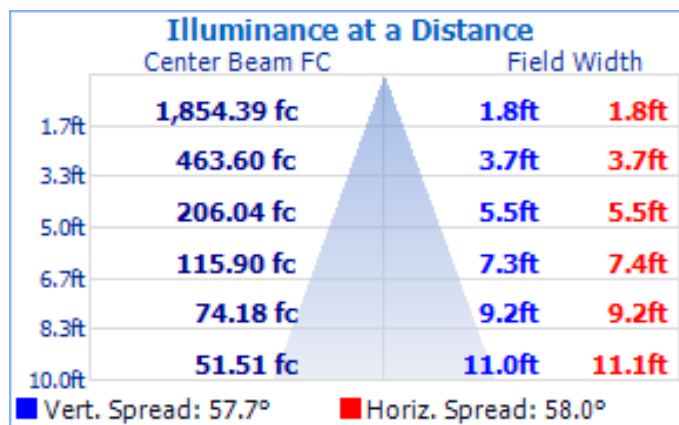
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The following images depict the illuminance characteristics of the luminaire.



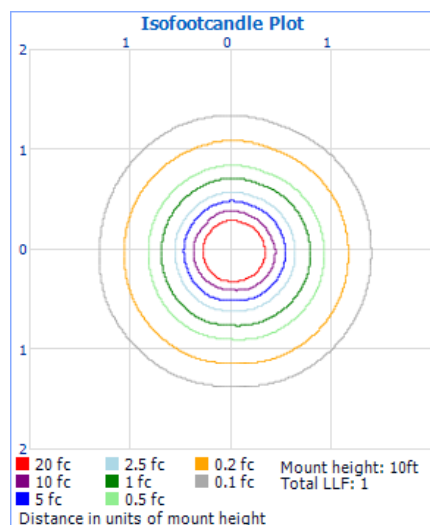
Beam Angle = 31.7°



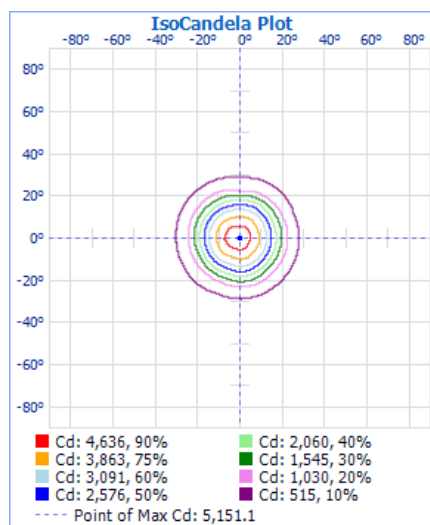
Field Angle = 57.7°

Test Results – Candela Plots

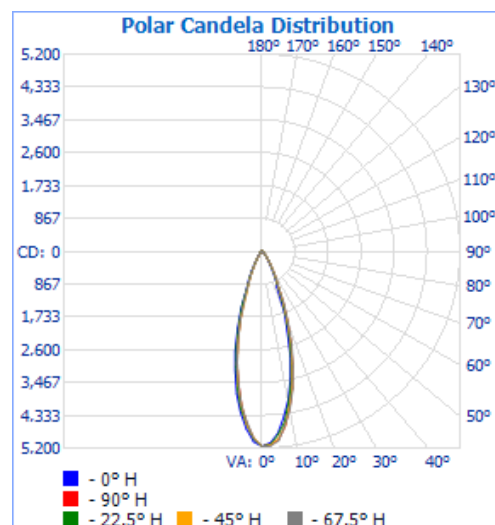
The following images depict the luminous intensity distribution characteristics of the luminaire:



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	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151	5151
2.5	5058	5106	5118	5144	5121	5133	5008	4978	5037	4971	4927	4953	4954	5012	5019	5095	5058
5.0	4814	4854	4969	5020	4986	4868	4795	4643	4705	4603	4597	4532	4567	4646	4703	4818	4814
7.5	4401	4547	4641	4636	4658	4539	4370	4226	4298	4210	4124	4115	4124	4145	4315	4437	4401
10.0	3974	4036	4160	4221	4185	4090	3919	3731	3833	3699	3604	3555	3560	3670	3788	4004	3974
12.5	3447	3531	3668	3724	3680	3526	3388	3145	3249	3130	3038	3012	3046	3110	3248	3416	3447
15.0	2871	2969	3068	3148	3074	2979	2808	2601	2718	2591	2421	2433	2450	2512	2688	2882	2871
17.5	2193	2376	2500	2583	2518	2353	2252	1997	2132	2020	1887	1865	1910	1966	2094	2288	2193
20.0	1717	1854	1923	1996	1943	1804	1700	1501	1613	1526	1185	1308	1395	1477	1620	1755	1717
22.5	1028	1317	1427	1520	1457	1163	1029	968	1022	973	930	930	950	954	1001	1036	1028
25.0	878	946	963	982	965	923	879	771	813	763	691	705	725	741	843	901	878
27.5	639	730	769	800	772	703	648	546	581	543	479	491	504	514	604	669	639
30.0	463	532	555	577	559	497	452	387	403	371	336	345	352	367	434	476	463
32.5	338	383	398	418	396	356	320	277	286	265	243	247	246	265	309	341	338
35.0	245	280	294	307	289	261	232	199	206	190	179	176	181	196	224	249	245
37.5	182	208	219	226	212	196	174	148	154	141	133	133	135	146	168	186	182
40.0	142	161	168	173	160	147	134	115	119	112	107	104	106	114	129	141	142
42.5	110	127	131	134	124	117	105	93	96	90	87	85	86	92	103	112	110
45.0	90	102	106	108	99	94	86	76	78	75	72	70	73	77	84	90	90
47.5	74	83	86	86	81	77	71	65	67	63	62	61	60	65	70	74	74
50.0	63	68	72	71	67	65	61	56	58	56	54	52	53	56	58	64	63
52.5	52	57	59	58	56	55	52	49	50	49	48	46	45	50	51	53	52
55.0	45	49	50	49	47	47	46	42	44	45	43	41	40	43	45	46	45
57.5	38	41	41	41	40	40	40	37	39	39	38	35	35	38	39	38	38
60.0	32	34	35	34	34	35	34	32	34	34	33	31	30	32	33	33	32
62.5	26	29	29	28	28	30	29	27	28	29	28	26	26	27	28	27	26
65.0	22	23	24	23	23	25	24	23	24	24	23	22	22	22	23	23	22
67.5	17	19	19	19	19	20	20	18	20	20	19	18	18	18	19	19	17
70.0	14	15	15	15	15	16	16	15	16	16	15	15	14	15	15	15	14
72.5	11	11	12	12	12	12	12	12	13	13	12	11	11	11	11	12	11
75.0	8	8	9	9	9	9	9	9	10	9	9	9	9	8	8	9	8
77.5	5	6	6	6	7	7	6	6	7	7	6	6	6	6	6	6	5
80.0	3	4	4	4	4	4	4	4	5	5	4	4	4	4	4	4	3
82.5	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2
85.0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
87.5	0	0	0	0	0	0	0	0	0	0	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 = **5151.1** 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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