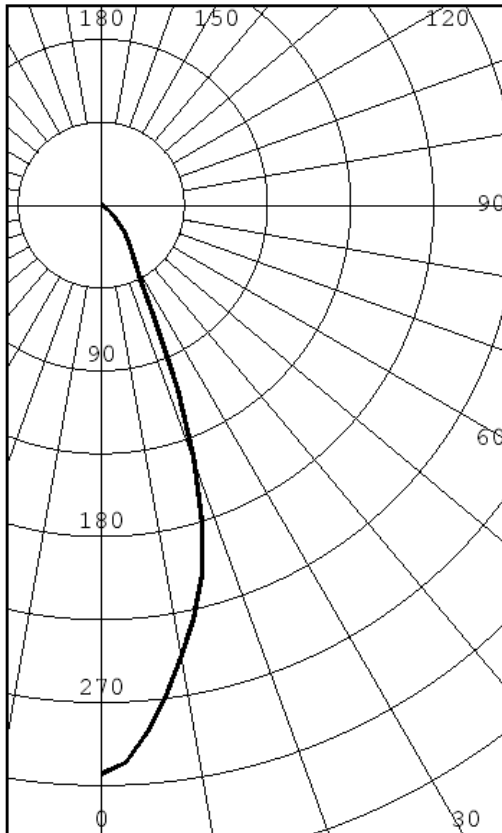




CERTIFIED TEST REPORT No. 25889

DIGITAL LIGHTING INC - LED MR16 LAMP, CAT# QMR16-USF-30G533
WITH INDIVIDUAL PLASTIC FOCUSING LENSES
THREE LEDS. LUMINAIRE OUTPUT = 151 LMS.
LAMP OPERATING AT 12 VAC AND 3.2 WATTS



INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	MEAN CP	LUMENS
0	309	
5	287	26
10	249	
15	209	56
20	146	
25	68	34
30	38	
35	27	17
40	20	
45	13	10
50	8	
55	4	4
60	3	
65	2	2
70	2	
75	1	1
80	1	
85	0	0
90	0	

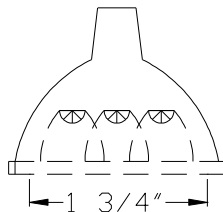
ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	117	77.25
0-40	134	88.47
0-60	148	97.85
0-90	151	100.00
40-90	17	11.53
60-90	3	2.15
90-180	0	0.00
0-180	151	100.00

EFFICACY (LUMENS PER WATT): 47.3

*** THIS IS AN ABSOLUTE TEST ***

LUMINOUS DIAMETER: 1.750 INS



LUMINANCE SUMMARY CD./SQ.M.

ANGLE	MEAN CD/SQ M
45	11460
55	4776
65	3097
75	2165
85	1477

S/MH: 0.6
SC: 0.6

CERTIFIED BY:

Tan Levin

DATE:
AUG 21, 2009

PREPARED FOR:

DIGITAL LIGHTING INC
WILMINGTON, DE

TESTED IN ACCORDANCE WITH IES PROCEDURES.

LIGHTING SCIENCES, INC.
7826 E. EVANS RD.
SCOTTSDALE, AZ, USA 85260

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INTENSITY (CANDLEPOWER) DATA
IN 2.5 DEGREE STEPS

ANGLE	INTENSITY (CANDLEPOWER)	LUMENS
0.0	309	
2.5	303	
5.0	287	26
7.5	268	
10.0	249	
12.5	230	
15.0	209	56
17.5	182	
20.0	146	
22.5	108	
25.0	68	34
27.5	45	
30.0	38	
32.5	32	
35.0	27	17
37.5	23	
40.0	20	
42.5	15	
45.0	13	10
47.5	10	
50.0	8	
52.5	6	
55.0	4	4
57.5	3	
60.0	3	
62.5	2	
65.0	2	2
67.5	2	
70.0	2	
72.5	1	
75.0	1	1
77.5	1	
80.0	1	
82.5	0	
85.0	0	0
87.5	0	
90.0	0	

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AVERAGE LUMINANCE DATA

CD./SQ.M (FOOTLAMBERTS)

ANGLE	LUMINANCE
0	198937 (58062)
30	28061 (8190)
40	16717 (4879)
45	11460 (3344)
50	8351 (2437)
55	4776 (1394)
60	3488 (1018)
65	3097 (903)
70	3011 (878)
75	2165 (632)
80	1957 (571)
85	1477 (431)

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COEFFICIENTS OF UTILIZATION

ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE = .20

CC WALL	90				80				70				50				30				10				0	
	70	50	30	10	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																										
0	1.221	.221	.221	.22	1.191	.191	.191	.19	1.161	.161	.161	.16	1.111	.111	.111	.11	1.061	.061	.06	1.021	.021	.02	1.00			
1	1.161	.131	.111	.09	1.141	.111	.091	.07	1.121	.101	.071	.05	1.051	.041	.02	1.021	.000	.99	0.980	.970	.96	0.95				
2	1.111	.071	.041	.00	1.101	.061	.020	.99	1.081	.041	.010	.98	1.000	.980	.96	0.980	.960	.94	0.950	.930	.92	0.90				
3	1.071	.010	.970	.93	1.051	.000	.960	.93	1.040	.990	.950	.92	0.970	.930	.91	0.940	.920	.89	0.920	.900	.88	0.87				
4	1.030	.970	.920	.89	1.020	.960	.910	.88	1.000	.950	.910	.87	0.930	.890	.86	0.910	.880	.85	0.890	.860	.84	0.83				
5	1.000	.920	.870	.83	0.980	.910	.860	.83	0.960	.900	.860	.83	0.890	.850	.82	0.870	.840	.81	0.860	.830	.81	0.79				
6	0.960	.880	.830	.80	0.950	.880	.830	.79	0.930	.870	.820	.79	0.850	.820	.79	0.840	.810	.78	0.830	.800	.78	0.76				
7	0.920	.840	.790	.76	0.910	.840	.790	.76	0.900	.830	.790	.75	0.820	.780	.75	0.810	.770	.74	0.800	.770	.74	0.73				
8	0.890	.810	.760	.73	0.880	.800	.760	.72	0.870	.790	.750	.72	0.790	.750	.72	0.780	.740	.71	0.770	.740	.71	0.70				
9	0.860	.780	.730	.69	0.850	.770	.720	.69	0.840	.770	.720	.69	0.760	.720	.69	0.750	.710	.68	0.740	.710	.68	0.67				
10	0.830	.740	.700	.66	0.820	.740	.700	.66	0.810	.740	.700	.66	0.730	.690	.66	0.720	.680	.66	0.720	.680	.66	0.65				

THE ABOVE COEFFICIENTS HAVE BEEN CALCULATED BASED ON LUMINAIRE LUMENS
 BECAUSE IN AN ABSOLUTE TEST THE BARE LAMP LUMENS ARE UNKNOWN.
 LIGHTING DESIGN CALCULATIONS MADE USING THESE COEFFICIENTS SHOULD
 THEREFORE USE THE LUMINAIRE LUMENS IN THE CALCULATION FORMULA

LUMINAIRE INPUT WATTS 3.2

LABORATORY RESULTS MAY NOT BE REPRESENTATIVE OF FIELD PERFORMANCE.
 BALLAST AND FIELD FACTORS HAVE NOT BEEN APPLIED.

TEST DISTANCE EXCEEDS FIVE TIMES THE GREATEST
 LUMINOUS OPENING OF LUMINAIRE.

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ELECTRICAL MEASUREMENTS

INPUT VOLTAGE:	12.0	VOLTS AC
INPUT CURRENT:	0.39	AMPS
INPUT POWER:	3.2	WATTS
POWER FACTOR:	68.4	PERCENT
OFF STATE POWER:	0.00	WATTS

LIGHT OUTPUT

LUMENS:	151	Lms
EFFICACY:	47.3	Lms/W

SPECTRAL MEASUREMENTS

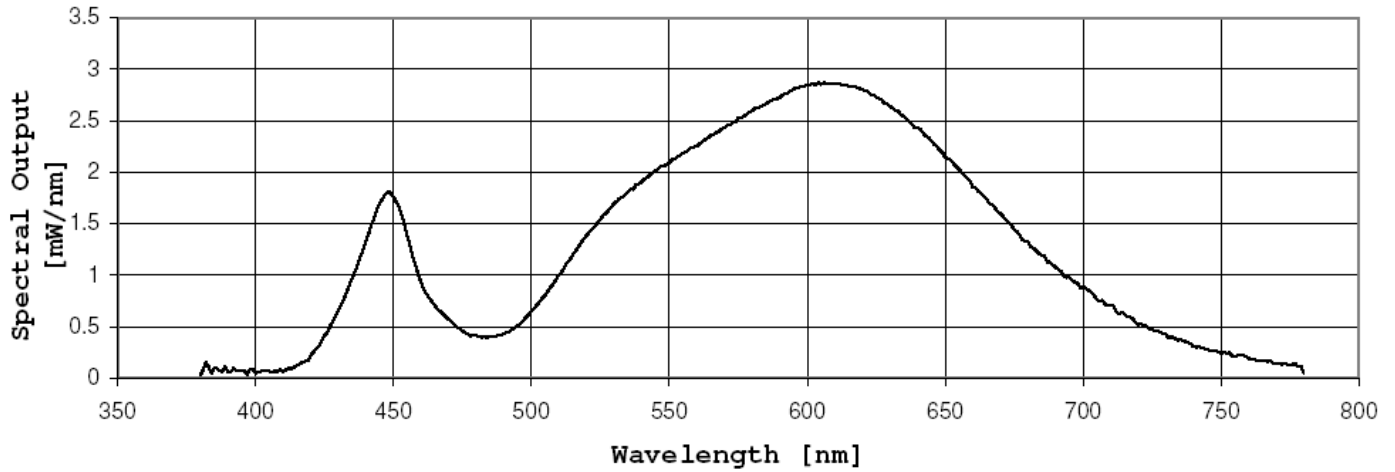
X:	0.4294	
y:	0.3939	
u':	0.2501	
v':	0.5162	
CRI:	81.5	
CCT:	3044	K
RADIANT FLUX:	504	mW

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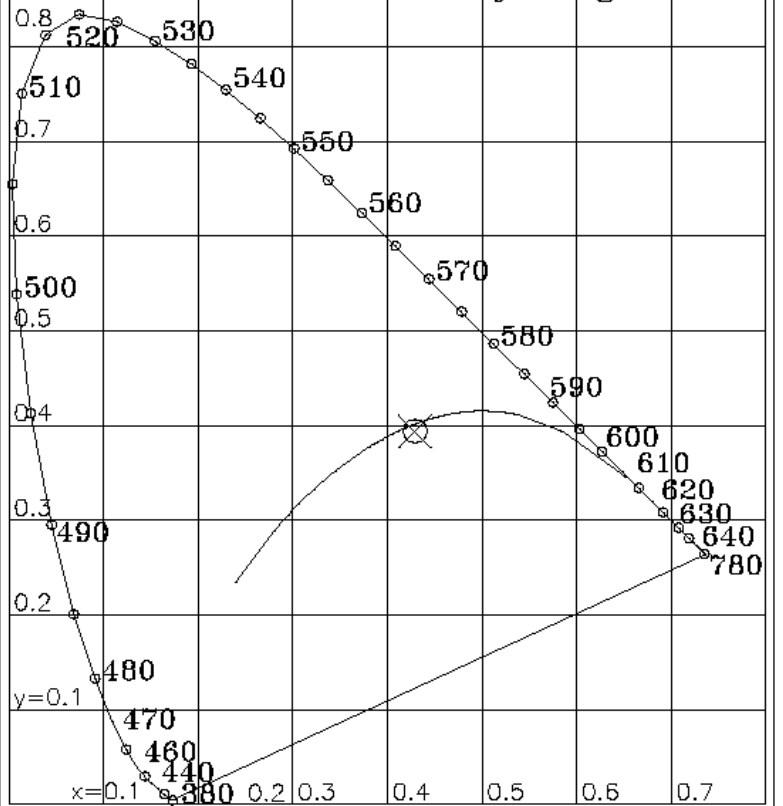
Spectral Power Distribution



Tabulated Spectral Power Distribution

Wavelength [nm]	[mW/nm]	Wavelength [nm]	[mW/nm]
380	0.02704	590	2.72321
390	0.06177	600	2.85017
400	0.04833	610	2.86219
410	0.05785	620	2.80307
420	0.22166	630	2.63580
430	0.65573	640	2.42767
440	1.33309	650	2.14060
450	1.76037	660	1.85020
460	0.92790	670	1.59761
470	0.56877	680	1.32471
480	0.41284	690	1.07818
490	0.42819	700	0.88668
500	0.65021	710	0.70693
510	1.00393	720	0.51934
520	1.38456	730	0.42446
530	1.69587	740	0.30197
540	1.90641	750	0.23915
550	2.09181	760	0.19209
560	2.25307	770	0.14777
570	2.43377	780	0.05043
580	2.59088		

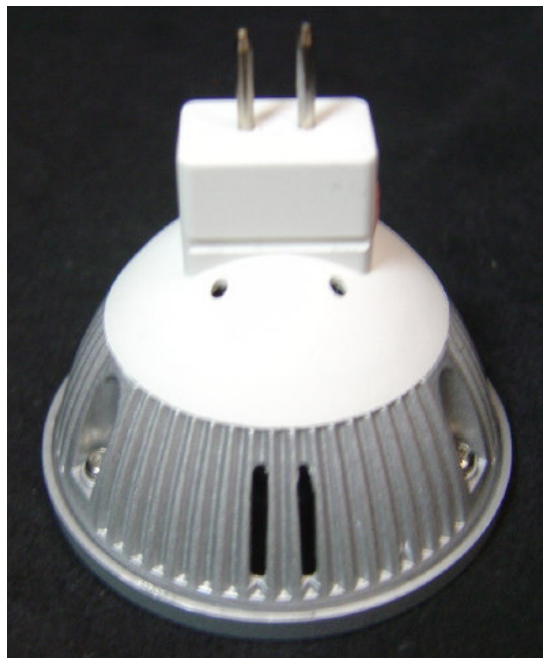
CIE 1931 Chromaticity Diagram



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This photometric test was conducted using a Lighting Sciences series 6000 Moving Mirror Goniophotometer.

The photometric reference standard used was a set of three incandescent luminous intensity standard lamps calibrated traceable to the U.S. National Institute of Standards and Technology. Calibration certificates are on file at the laboratories of Lighting Sciences Inc.

The condition of the item tested was new. Operating time of the product prior to testing exceeded 8 hours. Stabilization time before testing exceeded 30 minutes.

Colorimetric testing was performed using a Lighting Sciences model 4000 integrating sphere of either 1 or 2 meters diameter, having an internal reflectance exceeding 0.80. 4π geometry was used. Correction factors were applied for spectral mismatch and self-absorption. The spectroradiometer employed was a LSC model 500E having a bandwidth .84.

Ambient temperature during testing was $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured using an Omega model DP460. All testing was conducted in accordance with IES LM-79-08.

All photometric quantities provided in this report are presented on an absolute basis. Testing was conducted using the rated input voltage to the driver.