

itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

NVLAP
NVLAP LAB CODE: 200925-0

INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL78020
DATE: 07/16/13
PREPARED FOR: CREE, INC.
CATALOG NUMBER: VGA-**-5MA40K-UL

Page 1 of 3

ADDRESS: 9201 WASHINGTON AVE
RACINE, WI 53406

LUMINAIRE: CAST GRAY PAINTED METAL UPPER AND LOWER HOUSING, ONE WHITE CIRCUIT BOARD WITH 30 LEDS, FROSTED PLASTIC INTERIOR LENS WITH ONE CLEAR CONICAL OPTIC PER LED, EACH OPTIC WITH RECESSED SEMI-HEMISPHERICAL BOTTOM CENTER AND CONCAVE TOP, WHITE PAINTED FLAT METAL LOWER REFLECTOR, MOLDED WHITE PLASTIC UPPER REFLECTOR AND CENTER COLUMN, CLEAR LINEAR PRISMATIC PLASTIC EXTERIOR LENS. INTERIOR LENS FROSTED SIDE IN. EXTERIOR LENS PRISMS IN AND VERTICAL.

LAMP: THIRTY WHITE LIGHT EMITTING DIODES (LEDS) EACH WITH CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-DOWN POSITION.

DRIVER: ADVANCE XI050C150V038CNH1 (NO INPUT TO DIMMING LEADS FOR THIS TEST), THOMAS RESEARCH PRODUCTS BSP3-277 SURGE PROTECTOR, CREE LE056X01R0 SURGE PROTECTOR

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120.0 AND 277.0 VAC, 60Hz) TO THE LED DRIVER AND SURGE PROTECTOR. CREE SURGE PROTECTOR INFORMATION PROVIDED BY CLIENT. CLIENT STATES LEDS HAVE BEEN SEASONED FOR A MINIMUM OF 100 HOURS.

INSTRUMENTS:	Associated Power Technologies APT5040 AC Power Source	Calibration Due: N/A
	Yokogawa WT210 Digital Power Meter #6	09/24/13
	Ocean Optics QE65000 Spectroradiometer	03/16/14
	ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry	03/16/14

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI_a, 1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, Scotopic / Photopic Lumen Ratio, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage.

PROCEDURE: The test sample was provided by the customer and had an unknown number of operating hours. The test sample was mounted inside the integrating sphere and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 120.0 VAC input. Electrical data was also recorded at maximum nominal rated input voltage (277.0 VAC). All testing performed in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology.

*NOTE: The total lumen output shown on this report was obtained from photometric test ITL78019

RESULTS: (continued subsequent pages)

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.

Checked	<i>Peter J. Gorman</i>
Approved	<i>Logan Seaton</i> Lighting Engineer



INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

Page 2 of 3

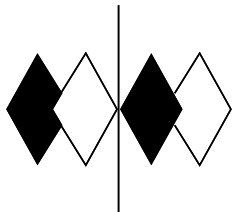
REPORT NUMBER: ITL78020
DATE: 07/16/13
PREPARED FOR: CREE, INC.
CATALOG NUMBER: VGA-**-5MA40K-UL

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	3776 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3756
Chromaticity Ordinate y	0.3760
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2222
Chromaticity Ordinate v'	0.5006
Correlated Color Temp CCT (K)	4129
ANSI C78.377-2008 Duv	0.001
Scotopic / Photopic Lumen Ratio	1.563
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.405
Input Power (Watts)	48.5
Input Power Factor (%)	99.8
Input Current THD (%)	5.3
Input Voltage THD (%)	0.1
EFFICACY (Lumens/Watt)	
	77.9
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.184
Input Power (Watts)	48.0
Input Power Factor (%)	94.2
Input Current THD (%)	10.0
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	73
R1 Light greyish red	71
R2 Dark greyish yellow	77
R3 Strong yellowish green	80
R4 Moderate yellowish green	73
R5 Light bluish green	70
R6 Light blue	68
R7 Light violet	81
R8 Light reddish purple	60
R9 Strong red	-13
R10 Strong yellow	44
R11 Strong green	69
R12 Strong blue	44
R13 Light yellowish pink (skin)	71
R14 Moderate olive green (leaf)	88

*NOTE: The total lumen output shown on this report was obtained from photometric test ITL78019



itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

Page 3 of 3

REPORT NUMBER: ITL78020
DATE: 07/16/13
PREPARED FOR: CREE, INC.
CATALOG NUMBER: VGA-**-5MA40K-UL

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.338	515	36.089	650	31.716
385	0.374	520	41.722	655	28.739
390	0.460	525	46.574	660	25.914
395	0.592	530	50.597	665	23.290
400	0.835	535	53.771	670	20.904
405	1.358	540	56.310	675	18.710
410	2.602	545	58.301	680	16.729
415	5.726	550	59.936	685	14.884
420	12.319	555	61.118	690	13.219
425	22.831	560	62.140	695	11.719
430	35.581	565	62.843	700	10.372
435	49.422	570	63.417	705	9.166
440	64.533	575	63.735	710	8.073
445	71.464	580	63.724	715	7.116
450	58.834	585	63.433	720	6.255
455	38.556	590	62.738	725	5.485
460	25.459	595	61.634	730	4.836
465	18.197	600	60.182	735	4.272
470	13.405	605	58.243	740	3.764
475	10.676	610	55.975	745	3.336
480	9.535	615	53.333	750	2.952
485	9.475	620	50.403	755	2.616
490	10.734	625	47.412	760	2.306
495	13.643	630	44.296	765	2.037
500	18.098	635	41.141	770	1.805
505	23.743	640	37.894	775	1.587
510	29.914	645	34.772	780	1.402

