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Report No: L051603202

Date: 5/18/2016



NVLAP LAB CODE 200927-0

Report No: L051603202

Report Prepared For: Colt LED

Model Number: Bicolor GEN2-30W

Test: Electrical and Photometric tests

Standards Used: Appropriate part or all test guidelines were used for test performed:
IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products
ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products
ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is Bicolor GEN2-30W. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/16/16

Date of Tests: 5/16/16 - 5/18/16

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Colt LED
Model Number:	Bicolor GEN2-30W
Driver Model Number:	N/A
Total Lumens:	2331.37
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.25
Input Power (W):	29.33
Input Power Factor:	0.97
Current ATHD @ 120V(%):	17%
Current ATHD @ 277V(%):	N/A
Efficacy:	79
Color Rendering Index (CRI):	90
Correlated Color Temperature (K):	5642
Chromaticity Coordinate x:	0.3292
Chromaticity Coordinate y:	0.3506
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:05
Off State Power(W):	0.00

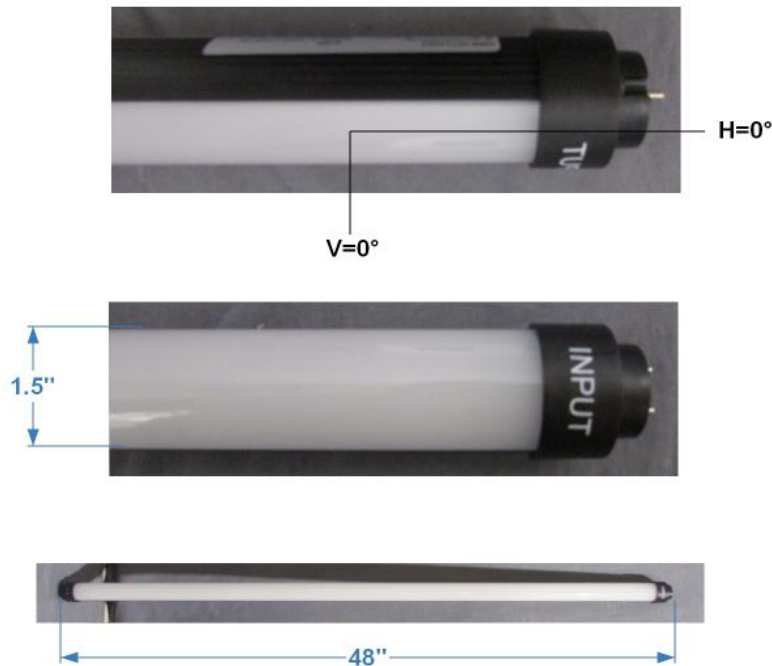
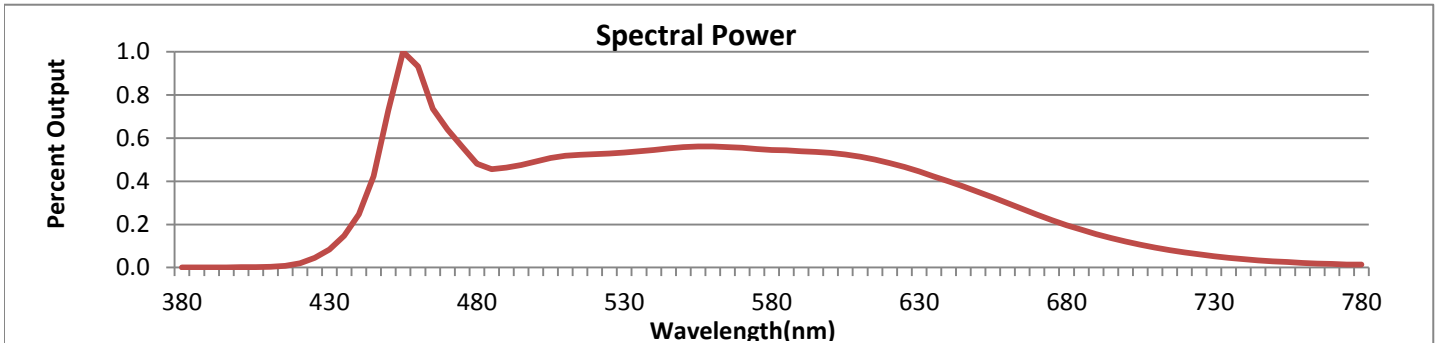


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



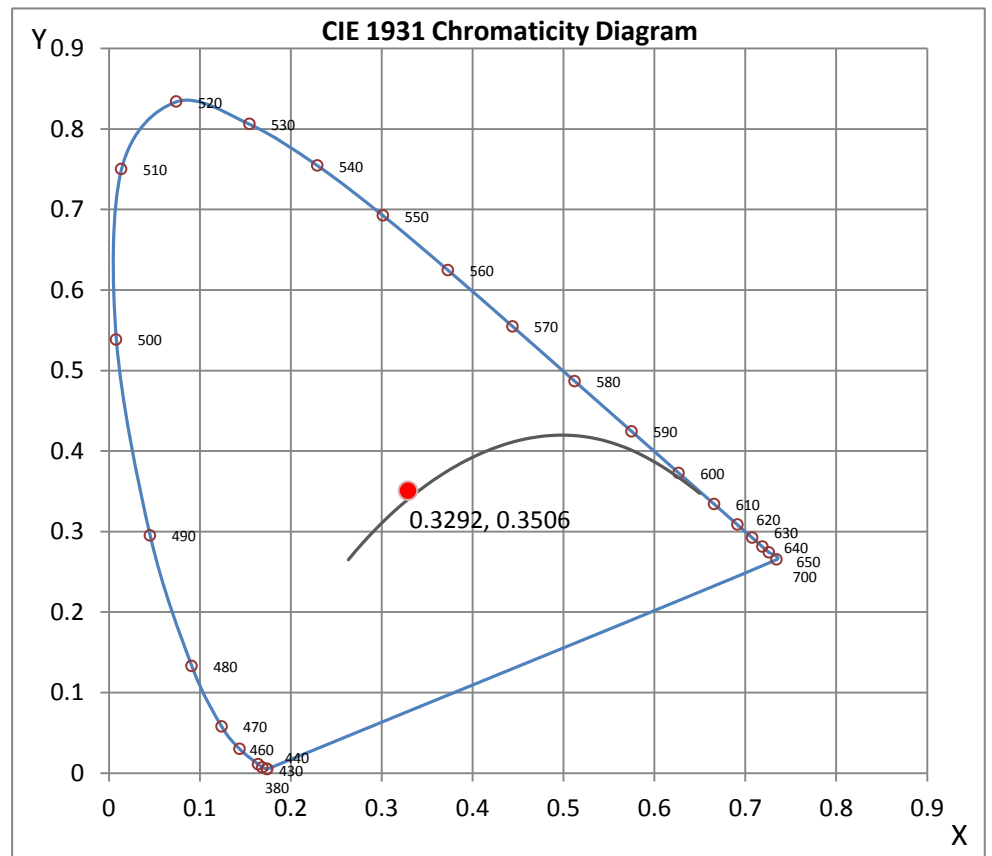
Wavelength	W/m ² nm	440	0.2467	510	0.5189	580	0.5451	650	0.3505	720	0.0700
380	0.0009	450	0.7298	520	0.5261	590	0.5393	660	0.2988	730	0.0524
390	0.0009	460	0.9326	530	0.5331	600	0.5312	670	0.2447	740	0.0391
400	0.0014	470	0.6407	540	0.5457	610	0.5138	680	0.1970	750	0.0293
410	0.0029	480	0.4806	550	0.5586	620	0.4845	690	0.1550	760	0.0220
420	0.0204	490	0.4636	560	0.5615	630	0.4452	700	0.1201	770	0.0164
430	0.0839	500	0.4922	570	0.5549	640	0.4001	710	0.0921	780	0.0141

CRI & CCT

x	0.3292
y	0.3506
u'	0.2011
v'	0.4818
CRI	90.20
CCT	5642
Duv	0.00626

R Values

R1	91.24
R2	98.47
R3	94.62
R4	84.98
R5	89.41
R6	95.07
R7	88.38
R8	79.79
R9	52.30
R10	95.63
R11	86.71
R12	69.33
R13	94.21
R14	97.31



*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

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Test Report Released by:



Jeff Ahn
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Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051603202.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L051603202
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 5/18/2016
 [MANUFAC] COLT LED
 [LUMCAT] Bicolor GEN2-30W
 [LUMINAIRE] LED 4 FOOT LAMP - DAYLIGHT
 [BALLASTCAT] N/A
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 29.33W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2331
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	79
Total Luminaire Watts	29.33
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.40
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.71 ft
Luminous Width (90-270)	0.13 ft
Luminous Height	0.04 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	12784	11300	11443
55	11962	10429	10958
65	10743	9896	10529
75	8610	9569	10793
85	3842	10135	11743

**IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051603202.IES**

CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	651.24	651.24	651.24	651.24	651.24
5	648.07	648.15	648.19	647.94	649.33
10	637.66	638.25	639.26	640.01	641.86
15	620.04	621.89	624.07	626.59	629.53
20	597.31	598.82	603.26	608.42	611.74
25	568.44	571.09	578.22	586.32	590.17
30	533.54	538.24	548.14	559.05	565.84
35	495.62	501.32	514.75	529.64	536.90
40	454.76	460.00	477.49	497.84	506.94
45	409.78	417.04	439.07	464.03	474.56
50	360.95	371.27	398.75	427.49	441.50
55	312.46	324.66	354.57	391.20	405.76
60	262.37	277.05	318.50	353.82	370.77
65	208.33	229.94	278.14	320.09	331.25
70	154.21	184.63	240.09	284.56	302.64
75	103.96	142.68	204.43	251.84	269.16
80	55.96	104.88	171.54	219.41	236.44
85	16.87	78.32	141.59	188.87	207.33
90	0.59	50.38	115.74	161.93	179.39
95	0.00	32.85	92.67	137.31	152.87
100	0.00	21.48	74.93	114.07	129.21
105	0.00	14.18	57.10	93.80	108.15
110	0.00	9.57	43.92	76.35	89.02
115	0.00	6.67	32.93	60.41	71.07
120	0.00	5.20	24.29	46.82	55.96
125	0.00	4.41	17.87	35.53	43.29
130	0.00	3.90	12.96	26.47	32.05
135	0.00	3.52	9.57	19.00	23.33
140	0.00	3.27	7.30	13.47	16.45
145	0.00	3.15	5.66	9.65	11.58
150	0.00	3.06	4.62	7.30	8.22
155	0.00	3.02	3.99	5.54	6.21
160	0.00	0.00	3.57	4.32	4.95
165	0.00	0.00	3.36	3.61	3.86
170	0.00	0.00	3.23	3.27	3.44
175	0.00	0.00	0.00	0.00	3.36
180	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051603202.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	237.77	N.A.	10.20
0-30	504.48	N.A.	21.60
0-40	827.13	N.A.	35.50
0-60	1487.57	N.A.	63.80
0-80	1968.19	N.A.	84.40
0-90	2111.46	N.A.	90.60
10-90	2049.86	N.A.	87.90
20-40	589.36	N.A.	25.30
20-50	929.42	N.A.	39.90
40-70	932.97	N.A.	40.00
60-80	480.63	N.A.	20.60
70-80	208.10	N.A.	8.90
80-90	143.27	N.A.	6.10
90-110	152.35	N.A.	6.50
90-120	186.54	N.A.	8.00
90-130	204.70	N.A.	8.80
90-150	217.38	N.A.	9.30
90-180	219.91	N.A.	9.40
110-180	67.56	N.A.	2.90
0-180	2331.37	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	61.60
10-20	176.17
20-30	266.71
30-40	322.65
40-50	340.06
50-60	320.38
60-70	272.53
70-80	208.10
80-90	143.27
90-100	93.57
100-110	58.78
110-120	34.19
120-130	18.16
130-140	8.73
140-150	3.95
150-160	1.78
160-170	0.65
170-180	0.09

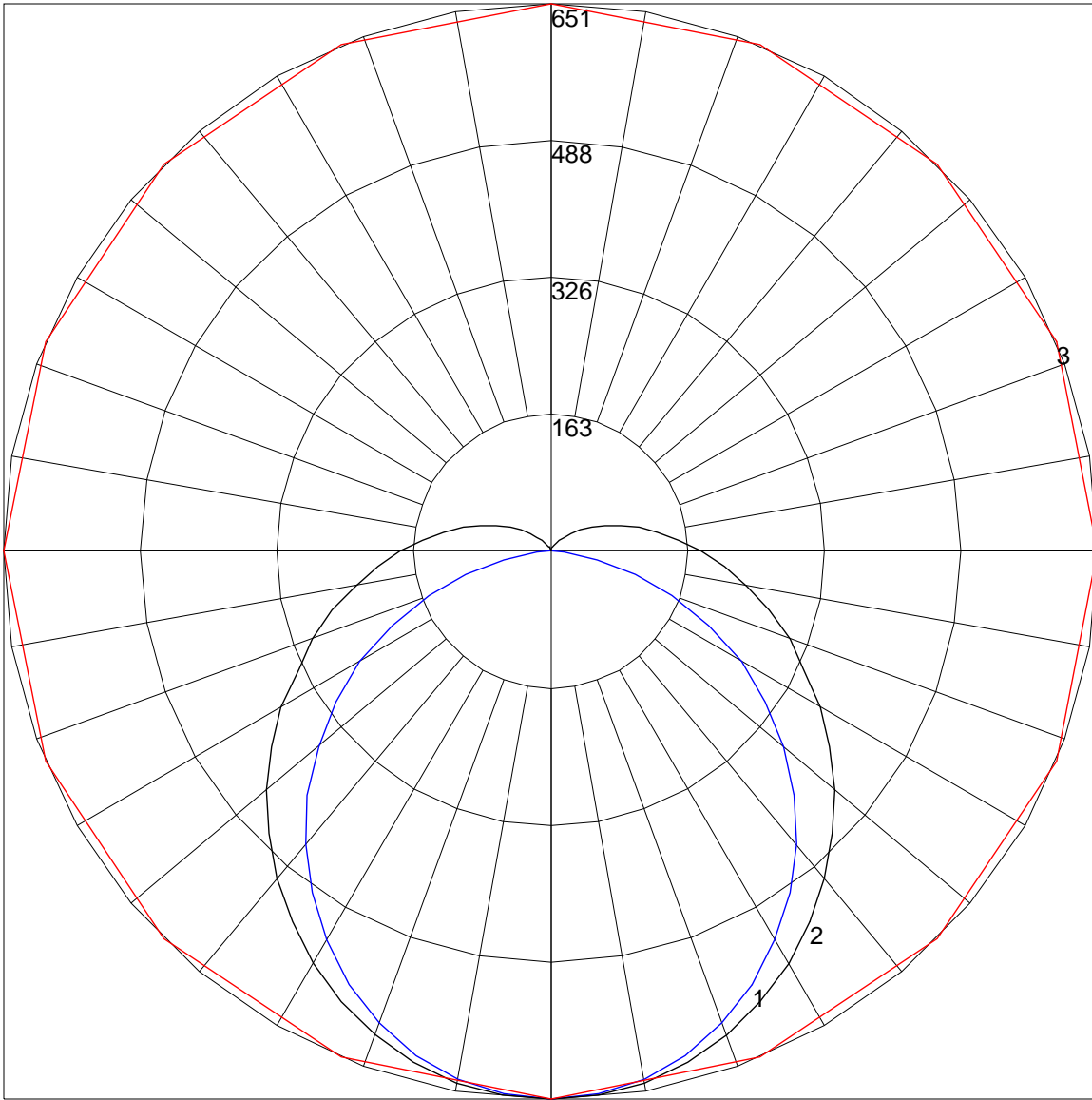
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	117	117	117	117	113	113	113	113	106	106	106	99	99	99	93	93	93	91
1	104	99	94	89	101	95	91	87	89	86	82	84	81	78	79	76	74	71
2	94	85	77	71	91	82	75	69	77	71	66	72	68	63	68	64	61	58
3	85	74	65	58	82	72	64	57	67	61	55	63	58	53	60	55	51	48
4	78	65	56	49	75	63	55	48	60	52	46	56	50	45	53	47	43	40
5	72	58	49	42	69	56	48	41	53	46	40	50	44	39	47	42	37	35
6	66	52	43	36	63	51	42	36	48	40	35	45	39	34	43	37	33	30
7	61	47	38	32	59	46	37	31	44	36	31	41	35	30	39	33	29	27
8	57	43	34	28	55	42	34	28	40	32	27	38	31	26	36	30	26	24
9	53	39	31	25	51	38	31	25	37	29	24	35	28	24	33	27	23	21
10	50	36	28	23	48	35	28	23	34	27	22	32	26	22	31	25	21	19

POLAR GRAPH



Maximum Candela = 651.24 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Vertical Plane Through Horizontal Angles (90 - 270)
3 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)