

REPORT NUMBER: RAB03315

ISSUE DATE: 05/10/17

CATALOG NUMBER: RTLED1X4-19YW/D10

LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS
EACH WITH 40 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER,
ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN FLECO
TXF131A232MV UL E43814 HOUSING.

LAMPS: EIGHTY LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

(SEE PAGE 2 FOR MORE INFORMATION)

PAGE: 1 OF 8

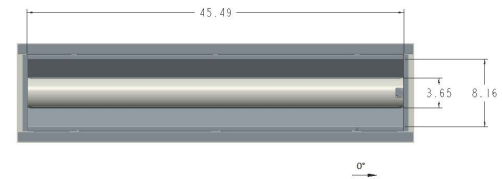
DATE SAMPLE TESTED: 05/10/17

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	809	809	809	809	809
5	794	799	810	813	812
15	762	767	782	788	791
25	697	704	725	737	743
35	606	617	646	665	673
45	496	512	546	566	575
55	382	400	428	452	464
65	262	283	312	348	364
75	144	161	206	233	242
85	43	62	73	70	68
90	3	2	1	1	1

FLUX

77
220
333
401
416
381
311
209
71



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	629	26.0
0- 40	1030	42.6
0- 60	1828	75.6
0- 90	2419	100.0
90-180	0	0.0
0-180	2419	100.0

TOTAL INPUT WATTS = 19.4

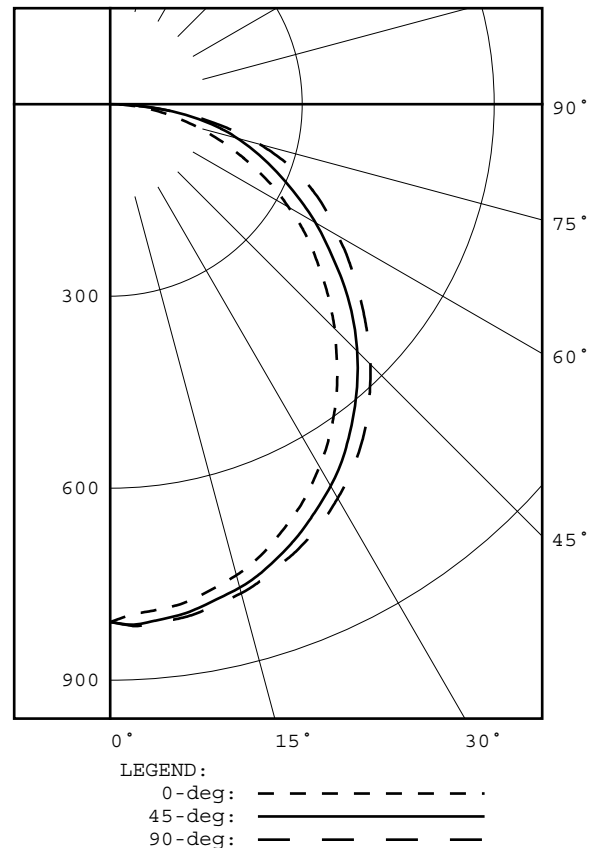
EFFICACY = 124.7 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.2 1.3
PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 45.490 8.160

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	2928.	3223.	3394.
55	2780.	3115.	3377.
65	2588.	3082.	3595.
75	2322.	3322.	3903.
85	2059.	3496.	3257.



Checked P. ALBERS
Approved D. WANG-MUNSON

REPORT NUMBER: RAB03315

ISSUE DATE: 05/10/17

CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 2 OF 8

DATE SAMPLE TESTED: 05/10/17

ADDITIONAL INFORMATION

NOTE: THIS 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.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 19.446 W AT 277.0 VAC.

LED DRIVER: RDF25U7-39

TEST PROCEDURE: IESNA LM-79-08

LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.5

ACCREDITED LABORATORY CODE 201058-0

REPORT NUMBER: RAB03315
ISSUE DATE: 05/10/17
CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 3 OF 8
DATE SAMPLE TESTED: 05/10/17

PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 105.2 X 120.7 DEGREES
FIELD ANGLE (10%) : 162.0 X 168.6 DEGREES

REPORT NUMBER: RAB03315
 ISSUE DATE: 05/10/17
 CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 4 OF 8
 DATE SAMPLE TESTED: 05/10/17

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	809	809	809	809	809
2.5	798	802	814	816	816
5.0	794	799	810	813	812
7.5	790	794	806	811	811
10.0	782	787	799	805	806
12.5	772	777	790	797	798
15.0	762	767	782	788	791
17.5	749	754	771	778	781
20.0	733	739	757	766	768
22.5	715	723	742	752	757
25.0	697	704	725	737	743
27.5	676	684	707	721	728
30.0	654	664	689	704	711
32.5	631	641	669	686	693
35.0	606	617	646	665	673
37.5	580	592	622	643	651
40.0	552	565	598	618	627
42.5	523	538	572	592	601
45.0	496	512	546	566	575
47.5	467	484	518	538	547
50.0	438	456	489	509	519
52.5	409	428	459	480	491
55.0	382	400	428	452	464
57.5	353	374	398	424	438
60.0	322	344	371	397	411
62.5	293	314	341	374	388
65.0	262	283	312	348	364
67.5	231	252	285	322	338
70.0	202	220	258	295	310
72.5	172	190	232	267	277
75.0	144	161	206	233	242
77.5	117	135	178	197	203
80.0	91	111	146	159	162
82.5	67	88	111	117	117
85.0	43	62	73	70	68
87.5	21	32	31	23	22
90.0	3	2	1	1	1

REPORT NUMBER: RAB03315
ISSUE DATE: 05/10/17
CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 5 OF 8
DATE SAMPLE TESTED: 05/10/17

ZONAL LUMEN SUMMARY

0- 5	19.
5- 10	57.
10- 15	93.
15- 20	126.
20- 25	155.
25- 30	178.
30- 35	195.
35- 40	206.
40- 45	210.
45- 50	207.
50- 55	197.
55- 60	184.
60- 65	166.
65- 70	145.
70- 75	119.
75- 80	89.
80- 85	55.
85- 90	16.

REPORT NUMBER: RAB03315
ISSUE DATE: 05/10/17
CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 6 OF 8
DATE SAMPLE TESTED: 05/10/17

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	19
5- 10	57
10- 15	93
15- 20	126
20- 25	155
25- 30	178
30- 35	195
35- 40	206
40- 45	210
45- 50	207
50- 55	197
55- 60	184
60- 65	166
65- 70	145
70- 75	119
75- 80	89
80- 85	55
85- 90	16
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	77
0- 20	296
0- 30	629
0- 40	1030
0- 50	1446
0- 60	1828
0- 70	2139
0- 80	2347
0- 90	2419
0-100	2419
0-110	2419
0-120	2419
0-130	2419
0-140	2419
0-150	2419
0-160	2419
0-170	2419
0-180	2419

REPORT NUMBER: RAB03315
ISSUE DATE: 05/10/17

PAGE: 7 OF 8
DATE SAMPLE TESTED: 05/10/17

CATALOG NUMBER: RTLED1X4-19YW/D10

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	98	94	105	101	96	93	96	93	90	92	89	87	89	86	84	82
2	98	89	82	76	95	87	80	75	84	78	73	80	76	71	77	73	70	68
3	89	78	69	63	86	76	68	62	73	66	61	70	65	60	68	63	59	56
4	81	69	60	53	79	67	59	52	65	57	52	63	56	51	60	55	50	48
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43	41
6	69	55	46	39	67	54	46	39	52	45	39	51	44	39	49	43	38	36
7	64	50	41	35	62	49	41	35	48	40	34	46	39	34	45	39	34	32
8	59	46	37	31	58	45	37	31	44	36	31	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	28	39	32	27	38	32	27	25
10	52	39	31	25	51	38	30	25	37	30	25	36	30	25	35	29	25	23

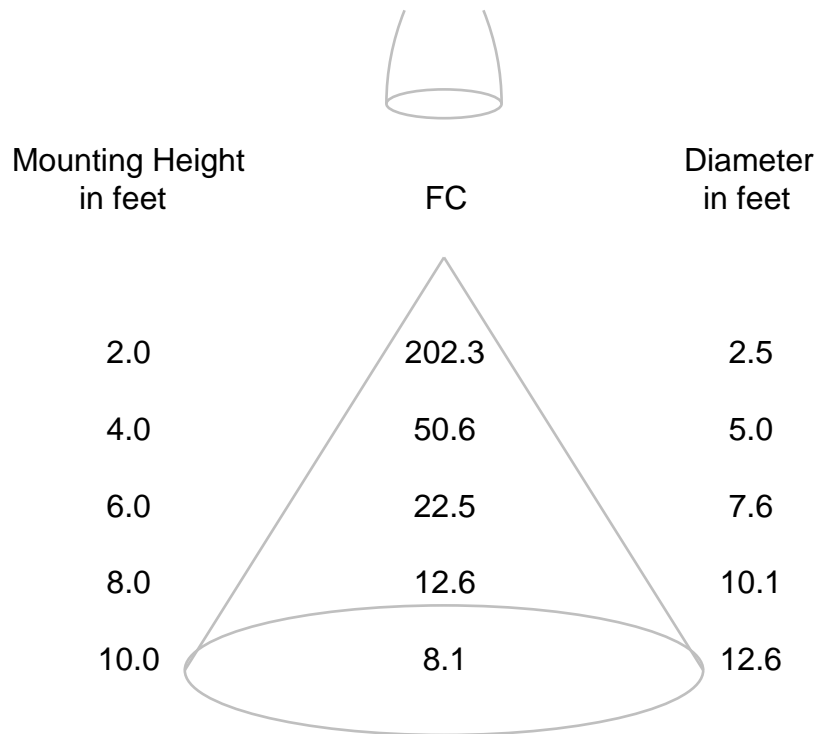
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

REPORT NUMBER: RAB03315
ISSUE DATE: 05/10/17
CATALOG NUMBER: RTLED1X4-19YW/D10

PAGE: 8 OF 8
DATE SAMPLE TESTED: 05/10/17

CONE OF LIGHT DIAGRAM

(diameter shown is where fc value is half the fc at nadir)



Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.

REPORT NUMBER: RAB03316
DATE: 5/12/2017
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: RTLED1X4-19YW/D10

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS EACH WITH 40 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER, ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN FLECO TXF131A232MV UL E43814 HOUSING.

LAMP: EIGHTY LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RDF25U7-39

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 VAC, 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS:	GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100	Calibration Due: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/01/18
	OCEAN OPTICS QE65PRO Spectroradiometer	05/03/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	05/03/18

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, 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. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, 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 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (120.0 VAC). All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

Checked X.CAO

Approved D.WANG-MUNSON
Lighting Engineer

REPORT NUMBER: RAB03316
 DATE: 5/12/2017
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: RTLED1X4-19YW/D10

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	2419 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4324
Chromaticity Ordinate y	0.3993
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2497
Chromaticity Ordinate v'	0.5188
Correlated Color Temp CCT (K)	3039
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	7531 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.079
Input Power (Watts)	19.4
Input Power Factor (%)	89.2
Input Current THD (%)	13.8
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	124.7
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.158
Input Power (Watts)	18.7
Input Power Factor (%)	98.7
Input Current THD (%)	10.8
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	83
R1 Light greyish red	81
R2 Dark greyish yellow	90
R3 Strong yellowish green	96
R4 Moderate yellowish green	81
R5 Light bluish green	81
R6 Light blue	87
R7 Light violet	84
R8 Light reddish purple	63
R9 Strong red	15
R10 Strong yellow	76
R11 Strong green	80
R12 Strong blue	70
R13 Light yellowish pink (skin)	82
R14 Moderate olive green (leaf)	98

*NOTE:

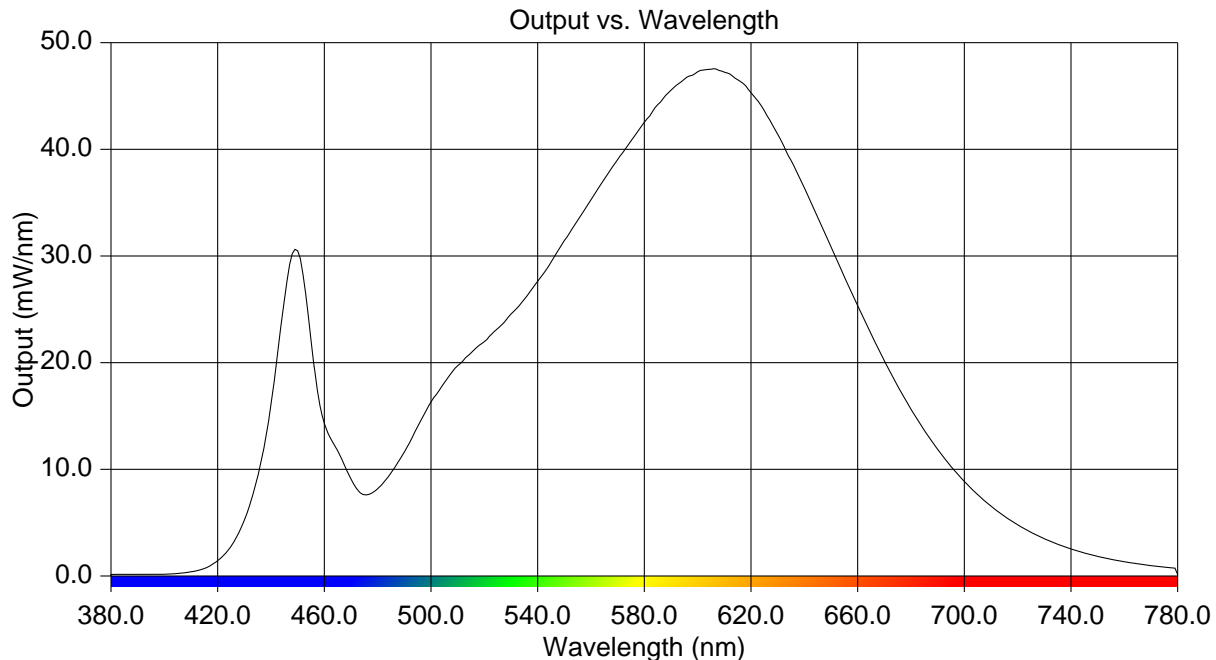
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 CATALOG NUMBER: RTLED1X4-19YW/D10

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.136	515	20.900	650	30.860
385	0.142	520	21.968	655	28.054
390	0.152	525	23.187	660	25.324
395	0.151	530	24.558	665	22.729
400	0.175	535	25.942	670	20.174
405	0.235	540	27.631	675	17.842
410	0.376	545	29.429	680	15.608
415	0.701	550	31.447	685	13.675
420	1.425	555	33.291	690	11.838
425	2.786	560	35.292	695	10.266
430	5.231	565	37.221	700	8.859
435	9.296	570	39.043	705	7.633
440	16.081	575	40.789	710	6.548
445	25.835	580	42.555	715	5.597
450	30.491	585	44.187	720	4.797
455	22.120	590	45.546	725	4.092
460	14.305	595	46.573	730	3.493
465	11.715	600	47.272	735	2.980
470	9.091	605	47.508	740	2.524
475	7.617	610	47.237	745	2.162
480	8.158	615	46.523	750	1.848
485	9.682	620	45.291	755	1.567
490	11.617	625	43.616	760	1.333
495	14.014	630	41.401	765	1.145
500	16.338	635	38.973	770	0.973
505	18.113	640	36.391	775	0.832
510	19.710	645	33.625	780	0.124



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CATALOG NUMBER: RTLED1X4-19YW/D10

Page 4 of 4

CIE Chromaticity Diagram

