



Report No.:
BLC2104027E-A-R1-CP2

LM-79-08 Test Report

For

RAB LIGHTING INC.

(Brand Name: RAB LIGHTING)

170 Ludlow Ave. Northvale, NJ, 07647

Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires

Model name(s): WP3XFU50
Remark: N/A

Representative (Tested) Model:
WP3XFU50(Tested at 0% CCT Setting)
WP3XFU50(Tested at 50% CCT Setting)
WP3XFU50(Tested at 100% CCT Setting)

Model Different: N/A

Test & Report By:

Sophie Yang

Engineer: Sophie Yang

Date: 2021-08-29

2021-07-02 update the LM79 report testing for power of DC sensor.

2021-07-16 Update model name suffix g=A

This is multiple listing report, the original report No. is BLC2104027E-A. All construction and performance are the same except wattage adjustable.

Review By:

Jason Luo

Manager: Jason Luo



Certificate#4810.01

Report No.:
BLC2104027E-A-R1-CP2

1.1 Product Information:

Organization Name	RAB LIGHTING INC.	
Brand Name	RAB LIGHTING	
Model Number	WP3XFU50	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area Luminaires	
Rated Voltage / Frequency	120-277Vac, 50/60 Hz	
Nominal Power	50W (wattage adjustable)	
Rated Initial Lamp Lumen	--	
Declared CCT	3000K,4000K,5000K(Color tunable)	
LED Manufacturer	Lumileds Holding B.V.	
LED Model	L128-XX80RA35000P1 L128-XX80RA35002U1	
Sample Number	BLC2104027E-A1	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s
Photo		
		



1.2 Test Specifications:

Date of Receipt	2021-04-19
Date of Test	2021-07-02
Test item	<ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters
Reference Premium	<ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	BL-QP-033

1.3 Test Methods

<p>1) Photometric and Light Distribution Measurement – Goniophotometer Method: Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1 ° vertical intervals and 22.5 ° horizontal intervals.</p>
<p>2) Chromaticity Measurement – Sphere-Spectroradiometer Method: Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.</p>
<p>3) Electrical Measurements: Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.</p>



2.1 Electrical, Photometric and Chromaticity Measurements
(Refer to Work Instruction BL-QP-033)

Test date	2021-07-02	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	WP3XFU50(Tested at 0% CCT Setting)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
BLC210402	120.0	60	0.431	51.41	0.994	7.73
7E-A1	277.0	60	0.190	50.68	0.964	8.68
DLC Pass Criteria					>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	10
Frequency (Hz)	60	R2	92	R10	82
CCT (K)	2948	R3	96	R11	82
Duv	-0.0025	R4	82	R12	75
Chromaticity (x, y)	x=0.4371 y=0.3980	R5	83	R13	85
Chromaticity (u', v')	u(u')=0.2533 v'(v')=0.5190	R6	91	R14	99
Color Rendering Index (CRI)	83	R7	81	R15	75
R9	10	R8	59	--	--
Rf	85	--	--	--	--
Rg	97	--	--	--	--
Rcs,h1 (%)	-11	--	--	--	--

Photometric Measurement – Goniophotometer Method:

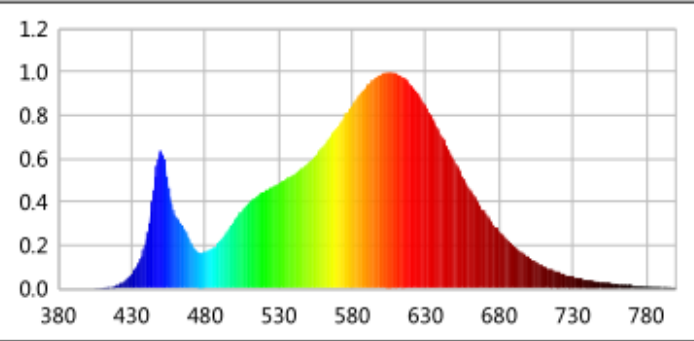
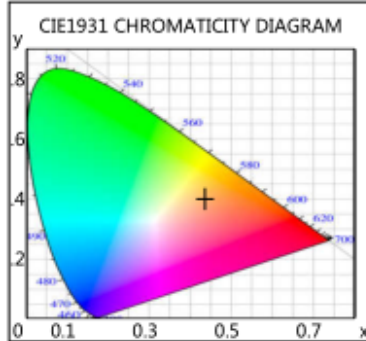
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	7012.2	6915.9	5000-10000(-10%)
0-90 °Total Luminous (lm)	6109.8	6025.9	
Luminous Efficacy (lm/W)	136.40	136.46	Premium: >= 120(-3%)
0-90 °Luminous Efficacy (lm/W)	118.84	118.90	
Most worst Luminous/Highest	117.21		
Zonal lumens in the 80-90 °0-90 °zone (%)	9.72		<=10(+3)
Beam Angle (°)	108.9	--	--
Center Beam Candle Power (cd)	1584	--	--



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Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0000	0.0052	525	0.4678	69.3513	670	0.3507	51.9925
385	0.0002	0.0352	530	0.4841	71.7639	675	0.3046	45.1606
390	0.0004	0.0662	535	0.5036	74.6486	680	0.2639	39.1172
395	0.0004	0.0531	540	0.5258	77.9383	685	0.2280	33.7988
400	0.0005	0.0678	545	0.5492	81.4121	690	0.1967	29.1580
405	0.0015	0.2178	550	0.5785	85.7610	695	0.1684	24.9702
410	0.0032	0.4765	555	0.6137	90.9788	700	0.1428	21.1633
415	0.0072	1.0688	560	0.6554	97.1506	705	0.1216	18.0228
420	0.0163	2.4213	565	0.6988	103.5917	710	0.1046	15.4987
425	0.0336	4.9840	570	0.7461	110.6014	715	0.0889	13.1822
430	0.0658	9.7581	575	0.7988	118.4120	720	0.0762	11.2964
435	0.1223	18.1237	580	0.8488	125.8205	725	0.0646	9.5819
440	0.2321	34.4103	585	0.8946	132.6112	730	0.0539	7.9888
445	0.4622	68.5236	590	0.9371	138.9127	735	0.0455	6.7393
450	0.6360	94.2749	595	0.9692	143.6678	740	0.0383	5.6793
455	0.4703	69.7207	600	0.9912	146.9350	745	0.0332	4.9191
460	0.3296	48.8663	605	0.9972	147.8276	750	0.0278	4.1253
465	0.2869	42.5333	610	0.9937	147.3097	755	0.0243	3.6053
470	0.2127	31.5351	615	0.9751	144.5446	760	0.0210	3.1080
475	0.1665	24.6822	620	0.9402	139.3694	765	0.0167	2.4781
480	0.1697	25.1498	625	0.8952	132.7043	770	0.0158	2.3358
485	0.1866	27.6635	630	0.8409	124.6575	775	0.0116	1.7207
490	0.2181	32.3256	635	0.7813	115.8261	780	0.0102	1.5174
495	0.2658	39.4064	640	0.7159	106.1301	785	0.0078	1.1568
500	0.3154	46.7502	645	0.6488	96.1780	790	0.0089	1.3228
505	0.3595	53.2887	650	0.5820	86.2729	795	0.0061	0.9064
510	0.3977	58.9514	655	0.5170	76.6354	800	0.0053	0.7833
515	0.4253	63.0469	660	0.4583	67.9456			
520	0.4488	66.5369	665	0.4015	59.5249			



TM30

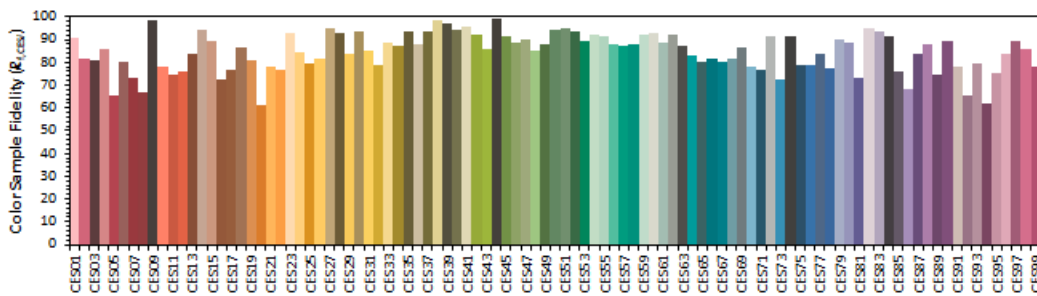
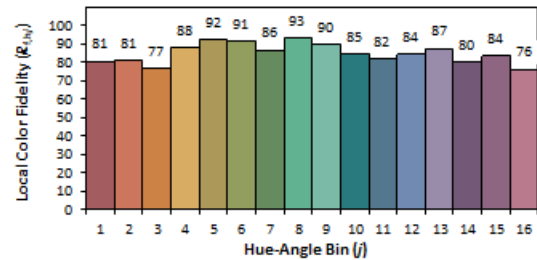
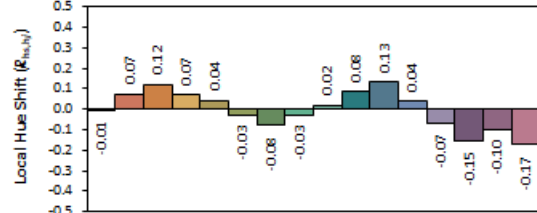
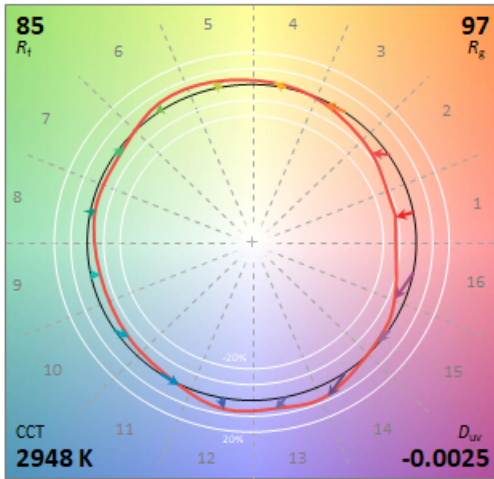
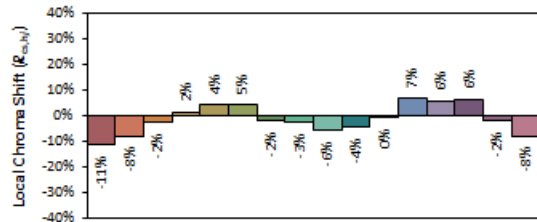
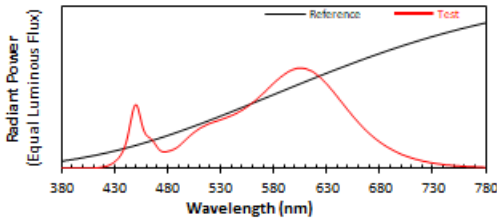
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000P1
L128-XX80RA35002U1

Date: 2021/7/2

Manufacturer: RAB LIGHTING INC.

Model: WP3XFU50 (Tested at 0% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4371
 y 0.3980
 u' 0.2533
 v' 0.5190

CIE 13.3-1995 (CRI)
 R_a 83
 R_g 10



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Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0-30	1,276.6	18.2%	18.2%
0-40	2,102.4	30%	30%
0-60	3,926.1	56%	56%
60-90	2,183.7	31.1%	31.1%
70-100	1,770.0	25.2%	25.2%
90-120	834.3	11.9%	11.9%
0-90	6,109.8	87.1%	87.1%
90-180	902.4	12.9%	12.9%
0-180	7,012.2	100%	100%

Lumens Per Zone

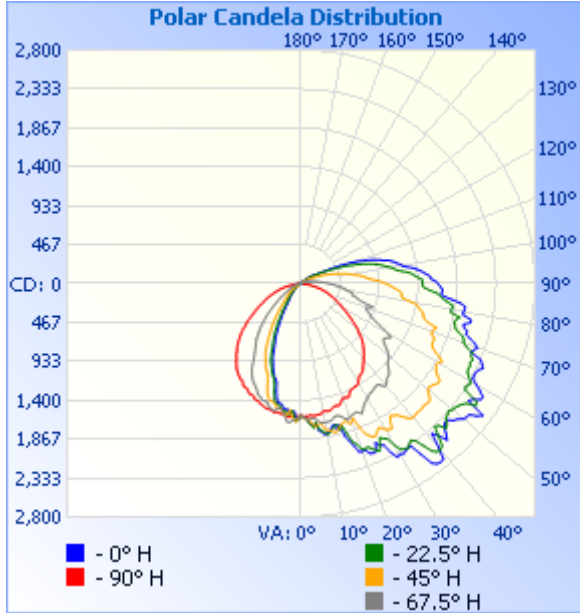
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	155.1	2.2%	90-100	434.9	6.2%
10-20	443.3	6.3%	100-110	274.7	3.9%
20-30	678.1	9.7%	110-120	124.7	1.8%
30-40	825.8	11.8%	120-130	43.7	0.6%
40-50	906.7	12.9%	130-140	15.1	0.2%
50-60	917.0	13.1%	140-150	5.3	0.1%
60-70	848.6	12.1%	150-160	2.2	0%
70-80	741.4	10.6%	160-170	1.3	0%
80-90	593.7	8.5%	170-180	0.4	0%



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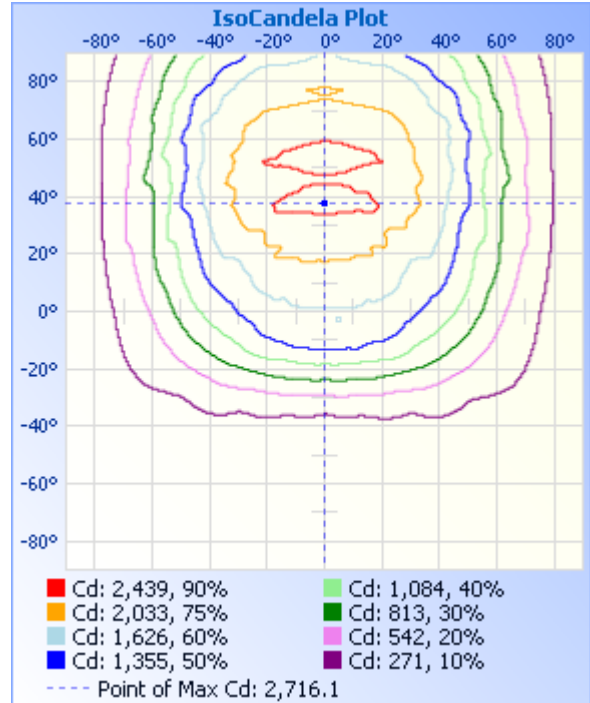
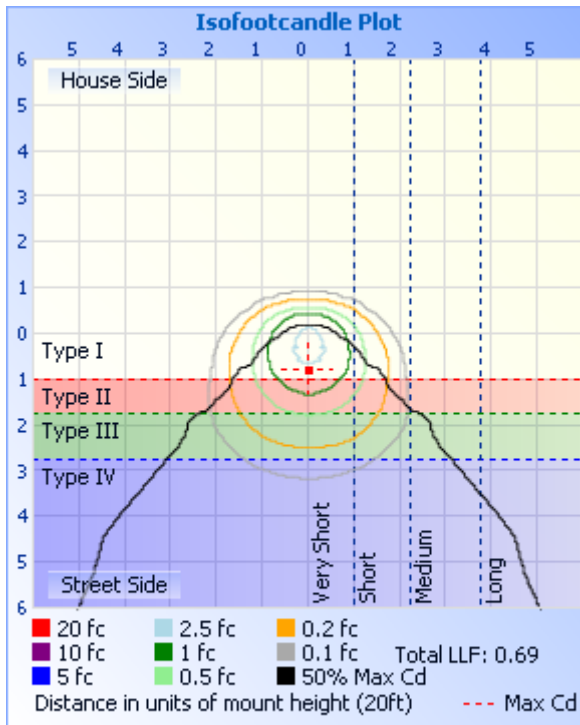
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Photometric Data



	Illuminance at a Distance	
	Center Beam fc	Beam Width
17.0ft	5.48 fc	49.1 ft 40.9 ft
34.0ft	1.37 fc	98.3 ft 81.7 ft
51.0ft	0.61 fc	147.4 ft 122.6 ft
68.0ft	0.34 fc	196.5 ft 163.4 ft
85.0ft	0.22 fc	245.7 ft 204.3 ft
102.0ft	0.15 fc	294.8 ft 245.2 ft

■ Vert. Spread: 110.6°
■ Horiz. Spread: 100.5°



Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01
 Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
 Guangzhou, People's Republic of China engineer@etk-utest.com

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Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584
1	1610	1612	1611	1599	1593	1616	1630	1634	1628	1621	1612	1598	1587	1580	1590	1604	1610
2	1614	1621	1627	1619	1588	1626	1652	1657	1637	1654	1652	1615	1587	1604	1619	1620	1614
3	1657	1657	1624	1632	1592	1643	1635	1580	1537	1589	1644	1639	1593	1627	1617	1639	1657
4	1691	1696	1669	1626	1580	1650	1577	1528	1541	1524	1595	1652	1594	1626	1648	1688	1691
5	1713	1736	1700	1620	1591	1644	1501	1574	1560	1570	1518	1673	1605	1627	1693	1726	1713
6	1685	1673	1723	1634	1593	1631	1544	1562	1519	1565	1569	1660	1605	1632	1710	1673	1685
7	1781	1756	1699	1658	1586	1592	1560	1541	1520	1542	1590	1599	1582	1632	1728	1748	1781
8	1790	1787	1682	1684	1580	1538	1548	1536	1510	1544	1566	1558	1577	1652	1683	1792	1790
9	1832	1806	1752	1690	1576	1504	1523	1488	1469	1503	1523	1521	1577	1675	1728	1798	1832
10	1822	1840	1783	1686	1551	1513	1524	1464	1456	1486	1525	1514	1570	1676	1760	1844	1822
11	1802	1811	1796	1687	1554	1511	1517	1446	1450	1469	1519	1538	1566	1694	1763	1825	1802
12	1762	1794	1808	1684	1562	1530	1470	1450	1402	1467	1486	1555	1576	1708	1774	1804	1762
13	1732	1757	1835	1672	1557	1534	1446	1404	1319	1424	1465	1550	1563	1698	1825	1770	1732
14	1804	1739	1808	1644	1542	1515	1419	1327	1216	1336	1450	1537	1555	1641	1809	1734	1804
15	1750	1818	1782	1641	1523	1492	1427	1221	1179	1234	1449	1512	1552	1632	1785	1803	1750
16	1903	1774	1751	1647	1522	1469	1406	1188	1164	1185	1421	1474	1551	1654	1772	1769	1903
17	1970	1889	1739	1672	1533	1459	1342	1157	1115	1155	1377	1473	1537	1691	1734	1815	1970
18	2046	1994	1727	1702	1516	1463	1267	1126	1081	1126	1315	1474	1530	1699	1704	1982	2046
19	2131	2035	1781	1725	1480	1458	1195	1077	1030	1081	1227	1461	1518	1709	1730	1993	2131
20	2144	2107	1765	1697	1464	1426	1151	1038	991	1043	1171	1438	1499	1719	1790	2070	2144
21	2134	2131	1726	1691	1460	1388	1116	999	952	1008	1136	1430	1494	1696	1727	2111	2134
22	2195	2114	1862	1683	1474	1358	1090	967	881	966	1112	1399	1490	1682	1789	2107	2195
23	2208	2146	1950	1671	1467	1338	1063	903	822	914	1088	1370	1465	1703	1940	2129	2208
24	2202	2187	1991	1694	1429	1338	1026	848	771	854	1047	1348	1455	1716	1965	2184	2202
25	2106	2216	2030	1719	1409	1299	989	793	734	806	1007	1323	1458	1685	1992	2208	2106
26	2161	2150	2030	1686	1403	1266	948	749	681	760	974	1309	1441	1681	2005	2169	2161
27	2171	2074	1999	1650	1395	1246	908	706	628	718	941	1283	1421	1670	2006	2074	2171
28	2301	2106	1965	1623	1394	1212	872	660	571	671	899	1252	1411	1638	1976	2108	2301
29	2381	2129	1977	1603	1387	1168	827	611	526	623	851	1212	1413	1606	1974	2134	2381

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31	2380	2317	2043	1569	1341	1073	724	516	435	522	757	1127	1362	1565	2047	2324	2380
32	2363	2338	2051	1552	1311	1033	684	473	387	480	708	1073	1358	1531	2039	2346	2363
33	2347	2352	1960	1549	1299	988	648	428	346	438	668	1030	1348	1511	1972	2350	2347
34	2351	2315	1911	1537	1296	948	607	388	305	398	632	993	1331	1507	1897	2314	2351
35	2493	2294	1933	1534	1285	924	568	348	276	358	590	956	1317	1532	1902	2292	2493
36	2660	2329	1947	1518	1260	898	534	314	256	319	549	929	1298	1549	1932	2311	2660
37	2705	2436	1994	1516	1233	872	490	284	238	288	511	903	1281	1533	1967	2402	2705
38	2716	2547	2042	1548	1210	841	450	260	226	265	470	875	1257	1548	2022	2531	2716
39	2709	2595	2075	1585	1189	812	414	242	214	247	432	845	1230	1576	2049	2598	2709
40	2558	2598	2093	1586	1162	778	382	227	201	230	403	808	1210	1611	2078	2629	2558
41	2383	2574	2085	1560	1146	744	351	214	188	215	366	773	1179	1604	2064	2620	2383
42	2447	2455	2079	1533	1117	708	323	201	175	202	336	741	1161	1577	2027	2529	2447
43	2565	2346	2079	1523	1097	669	295	188	161	190	309	707	1132	1547	2027	2389	2565
44	2494	2362	2083	1516	1077	635	271	176	151	178	284	668	1106	1526	2060	2363	2494
45	2418	2452	2073	1487	1052	596	251	162	141	163	262	632	1086	1510	2068	2437	2418
46	2396	2429	2078	1452	1024	559	234	151	132	153	244	598	1057	1487	2070	2426	2396
47	2394	2366	2089	1414	1001	523	218	139	121	142	227	566	1030	1454	2081	2360	2394
48	2452	2359	2077	1396	971	490	205	129	112	132	213	526	1004	1428	2090	2351	2452
49	2479	2335	2026	1385	927	454	193	120	104	124	199	491	968	1416	2063	2336	2479
50	2524	2353	1983	1374	900	423	182	112	97	114	188	458	944	1400	2004	2344	2524
51	2547	2367	1973	1342	875	393	172	104	89	106	177	428	920	1368	1971	2353	2547
52	2554	2383	1984	1310	840	365	159	97	81	99	166	398	882	1325	1968	2371	2554
53	2636	2409	2003	1271	800	335	149	89	73	91	155	365	839	1288	1982	2380	2636
54	2692	2442	2029	1235	760	310	139	82	65	84	145	339	811	1249	1992	2410	2692
55	2448	2551	2025	1205	729	286	129	75	59	76	134	314	786	1227	1982	2484	2448
56	2475	2537	1966	1192	694	264	119	67	53	69	125	290	742	1213	1963	2568	2475
57	2555	2343	1927	1195	663	242	110	61	50	63	114	266	710	1210	1907	2414	2555
58	2569	2323	1906	1224	636	222	101	54	48	57	106	245	676	1219	1869	2323	2569
59	2500	2353	1886	1256	604	204	93	49	46	51	97	225	645	1248	1854	2339	2500
60	2422	2344	1894	1210	572	189	85	43	44	46	89	208	615	1228	1841	2333	2422
61	2355	2292	1929	1129	551	175	77	39	40	41	82	193	588	1184	1863	2305	2355

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01

Unit 401, No. 309 Xinxin Seven Road, Zengcheng District,
Guangzhou, People's Republic of China engineer@etk-utest.com

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62	2344	2256	1878	1067	523	163	71	35	37	37	74	178	556	1131	1896	2261	2344
63	2349	2246	1804	1004	499	152	64	31	33	33	68	167	533	1070	1852	2232	2349
64	2361	2251	1752	956	477	143	58	28	29	30	61	157	505	1008	1781	2235	2361
65	2404	2231	1728	921	454	135	52	24	24	26	56	147	480	967	1734	2230	2404
66	2370	2251	1722	898	431	127	47	20	19	23	51	139	458	942	1714	2249	2370
67	2336	2208	1727	875	407	117	42	17	14	19	45	131	436	927	1713	2223	2336
68	2194	2210	1713	849	383	110	38	13	11	15	40	122	413	898	1721	2175	2194
69	2217	2120	1670	827	363	103	33	9	6	11	37	113	389	872	1705	2152	2217
70	2245	2070	1672	836	342	96	30	5	3	7	32	106	366	866	1663	2089	2245
71	2199	2061	1683	879	325	88	26	2	2	3	29	99	344	874	1653	2057	2199
72	2124	2033	1702	903	304	82	22	2	3	3	25	91	326	929	1655	2037	2124
73	2063	1962	1586	796	284	76	19	2	2	3	22	85	301	886	1663	1972	2063
74	2068	1920	1533	732	263	70	16	2	3	4	19	78	282	783	1567	1915	2068
75	2017	1907	1516	707	241	64	14	3	3	3	16	72	262	732	1516	1876	2017
76	2009	1892	1508	674	217	59	13	3	3	3	14	66	243	702	1487	1867	2009
77	2080	1908	1485	638	195	55	12	2	3	3	13	61	222	684	1475	1893	2080
78	2081	1941	1448	627	174	50	12	2	3	3	13	55	200	676	1452	1918	2081
79	1981	1834	1423	634	153	47	11	3	3	4	12	51	180	666	1424	1883	1981
80	1968	1816	1397	614	131	43	10	3	3	3	12	47	159	676	1406	1807	1968
81	1984	1840	1298	579	110	40	10	3	4	3	11	44	138	625	1372	1818	1984
82	1984	1821	1233	553	91	38	9	3	4	3	10	41	115	570	1283	1818	1984
83	1926	1760	1210	529	74	37	9	3	4	4	10	38	95	548	1223	1775	1926
84	1815	1705	1212	508	60	34	9	4	3	4	9	36	80	533	1198	1706	1815
85	1711	1670	1198	482	49	33	8	3	4	3	9	34	66	516	1191	1649	1711
86	1681	1632	1172	454	41	31	7	3	4	4	9	33	55	495	1173	1630	1681
87	1696	1548	1129	423	36	30	8	3	4	4	9	32	46	460	1142	1579	1696
88	1686	1484	1093	397	31	29	8	3	4	4	8	30	40	423	1112	1507	1686
89	1664	1456	1057	369	29	27	7	3	4	4	8	29	34	400	1074	1468	1664
90	1640	1451	1016	342	27	26	7	3	4	4	8	28	30	375	1037	1441	1640
91	1612	1456	979	319	27	25	7	3	4	4	8	27	29	349	1002	1443	1612
92	1563	1448	933	295	27	24	7	4	5	4	8	26	28	323	962	1434	1563
93	1549	1404	876	274	29	23	6	3	4	3	7	24	28	299	915	1410	1549

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01

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94	1521	1367	824	255	30	22	6	4	4	4	6	24	30	278	870	1367	1521
95	1481	1340	792	236	31	21	6	2	4	3	7	22	31	260	824	1345	1481
96	1446	1294	767	215	32	20	6	4	4	4	7	22	33	239	785	1308	1446
97	1402	1222	740	199	33	19	6	4	4	4	7	21	33	221	754	1255	1402
98	1360	1162	713	181	34	19	6	4	5	4	7	20	34	204	725	1179	1360
99	1286	1132	672	166	34	17	6	3	4	4	7	19	35	189	693	1134	1286
100	1232	1102	629	153	34	17	6	4	5	4	6	18	36	175	652	1103	1232
101	1216	1062	599	140	34	16	5	4	4	4	6	17	35	162	614	1065	1216
102	1175	1025	564	128	34	15	6	4	4	4	6	16	35	148	581	1028	1175
103	1153	988	526	118	33	14	5	3	4	4	6	16	35	136	548	991	1153
104	1114	957	494	108	33	14	5	4	5	4	6	15	35	123	516	955	1114
105	1088	906	463	102	32	13	5	3	5	4	5	14	34	113	479	910	1088
106	1019	860	430	95	31	12	5	3	4	4	6	14	33	104	444	869	1019
107	981	817	399	91	31	12	5	3	4	4	6	13	32	97	410	824	981
108	937	761	368	88	30	11	5	3	4	4	5	12	32	93	382	774	937
109	886	707	341	85	30	10	4	4	4	4	6	11	30	88	355	716	886
110	817	649	315	81	29	10	4	3	4	5	5	11	30	84	325	663	817
111	755	604	288	77	28	9	4	3	4	5	5	10	29	80	301	612	755
112	703	550	259	73	27	9	4	4	4	4	5	10	28	76	273	559	703
113	640	499	233	70	26	8	4	4	3	4	4	9	27	73	246	507	640
114	579	454	212	67	25	8	4	3	4	4	5	9	26	70	223	466	579
115	513	407	196	62	24	7	3	3	4	4	4	9	25	66	202	419	513
116	443	365	177	59	23	7	4	3	4	5	4	9	24	64	184	377	443
117	385	328	162	55	21	7	4	3	4	4	4	8	24	60	168	334	385
118	332	293	147	51	20	7	3	2	5	4	4	8	22	57	152	298	332
119	294	264	135	48	19	6	4	3	4	5	4	7	21	52	138	271	294
120	261	241	122	45	18	7	4	3	4	4	4	8	20	49	125	244	261
121	236	221	111	42	16	7	4	4	4	4	5	7	19	45	113	223	236
122	215	199	101	39	15	6	3	4	5	5	4	7	17	42	102	202	215
123	199	182	92	36	14	6	4	4	4	4	3	6	16	39	93	183	199
124	186	167	84	34	14	5	4	4	4	4	5	7	15	36	85	165	186
125	174	151	78	32	13	6	3	4	4	4	4	6	14	34	79	149	174

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126	160	136	71	30	11	6	4	3	4	4	5	6	13	31	72	135	160
127	147	123	66	28	11	5	4	4	4	5	4	7	13	29	66	120	147
128	134	110	59	26	11	4	4	3	4	5	4	6	12	27	60	107	134
129	121	97	54	24	10	5	3	4	4	4	4	6	11	24	55	95	121
130	109	86	50	22	10	5	4	4	4	3	4	6	11	23	51	83	109
131	96	76	46	21	10	5	3	4	4	5	4	5	10	21	47	73	96
132	85	67	42	19	9	4	3	4	4	4	4	6	10	19	43	65	85
133	74	60	39	18	8	4	4	4	5	4	4	6	9	18	40	57	74
134	66	52	36	16	8	4	3	4	4	5	4	6	9	17	36	51	66
135	58	48	33	15	8	5	4	4	4	4	4	5	9	15	33	45	58
136	51	43	30	14	7	5	4	4	4	5	5	5	8	14	30	41	51
137	45	38	27	13	7	5	4	4	5	4	5	6	8	13	28	37	45
138	41	34	24	12	7	4	4	4	4	5	5	5	8	12	25	33	41
139	36	30	22	11	7	4	4	4	5	5	4	5	8	11	23	30	36
140	31	27	19	11	7	5	4	4	5	5	4	5	6	11	20	27	31
141	28	25	18	10	6	4	4	4	4	5	5	5	7	9	18	24	28
142	25	22	16	10	6	3	3	3	5	4	5	5	7	9	16	22	25
143	22	20	15	9	6	4	5	4	5	5	5	5	7	9	15	19	22
144	20	18	13	9	6	3	4	4	5	5	5	5	6	8	13	17	20
145	18	15	12	8	4	3	5	4	5	5	5	4	5	8	12	15	18
146	15	14	10	8	5	4	5	4	5	5	5	4	6	6	11	13	15
147	13	12	9	7	5	4	3	5	5	5	5	4	6	7	10	11	13
148	12	10	8	7	5	4	5	4	5	5	5	4	6	6	9	10	12
149	10	9	7	7	5	4	4	5	5	5	5	5	5	6	7	8	10
150	8	9	7	5	5	4	4	5	5	5	5	5	5	6	7	8	8
151	8	7	6	6	5	4	5	5	5	5	5	5	4	6	6	7	8
152	7	6	5	6	5	4	5	5	5	5	5	5	5	5	5	6	7
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154	6	6	4	4	4	4	5	5	5	5	5	4	4	5	5	5	6
155	6	5	4	5	4	4	5	5	5	5	6	4	4	4	4	3	6
156	5	4	4	4	4	3	6	5	5	5	5	5	4	4	4	5	5
157	4	4	4	5	4	4	5	4	5	4	6	4	4	4	3	4	4

Laboratory: Belling Test Laboratory Co., LTD A2LA Certificate# 4810.01
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158	4	3	4	4	4	4	5	4	5	4	5	4	4	4	4	3	4
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160	3	4	4	5	4	5	5	5	4	5	5	5	3	4	3	2	3
161	3	4	4	5	4	5	5	4	5	5	6	5	3	4	4	3	3
162	4	4	4	5	5	5	5	5	5	5	5	4	4	4	4	3	4
163	3	4	4	5	5	4	5	5	5	5	5	5	4	3	4	3	3
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165	3	4	5	5	4	5	5	5	5	5	5	5	4	4	4	3	3
166	3	3	4	5	5	5	5	5	5	5	5	5	4	4	4	4	3
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173	3	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	3
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179	4	4	3	5	5	4	4	4	4	5	5	4	5	5	4	4	4
180	4	4	5	5	5	5	5	3	4	4	4	5	5	5	4	4	4



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BUG

Lum. Classification System (LCS)

<u>LCS Zone</u>	<u>Lumens</u>	<u>%Lamp</u>	<u>%Lum</u>
FL (0-30)	768.4	11.0	11.0
FM (30-60)	2178.4	31.1	31.1
FH (60-80)	1503.0	21.4	21.4
FVH (80-90)	582.3	8.3	8.3
BL (0-30)	508.2	7.2	7.2
BM (30-60)	471.7	6.7	6.7
BH (60-80)	86.8	1.2	1.2
BVH(80-90)	11.3	0.2	0.2
UL (90-100)	434.8	6.2	6.2
UH (100-180)	467.4	6.7	6.7
Total	7012.3	100.0	100.0
BUG Rating	B2-U3-G4		



Certificate#4810.01

Report No.:
BLC2104027E-A-R1-CP2**2.3 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

Test date	2021-07-02	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	WP3XFU50(Tested at 50% CCT Setting)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %	
BLC210402	120.0	60	0.427	50.85	0.992	7.66	
7E-A1	277.0	60	0.188	50.13	0.963	8.75	
DLC Pass Criteria						>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

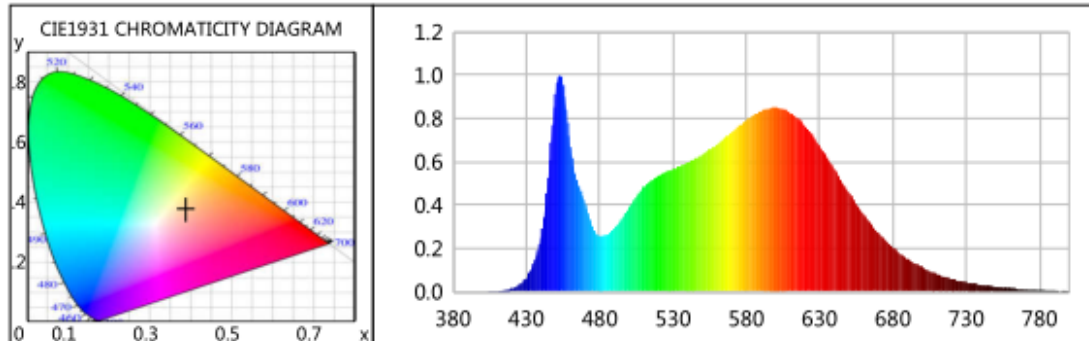
Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	85	R9	20
Frequency (Hz)	60	R2	93	R10	83
CCT (K)	3840	R3	96	R11	84
Duv	-0.0023	R4	84	R12	66
Chromaticity (x, y)	x=0.3859 y=0.3751	R5	85	R13	88
Chromaticity (u', v')	u(u')=0.2294 v'=0.5017	R6	90	R14	99
Color Rendering Index (CRI)	86	R7	85	R15	80
R9	20	R8	67	--	--
Rf	85	--	--	--	--
Rg	96	--	--	--	--
Rcs,h1(%)	-11	--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	7612.0	7526.4	5000-10000(-10%)
Luminous Efficacy (lm/W)	149.70	150.14	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	148.01		



Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0004	0.0574	525	0.5517	88.8324	670	0.2717	43.7453
385	0.0003	0.0514	530	0.5659	91.1171	675	0.2360	37.9992
390	0.0005	0.0789	535	0.5804	93.4551	680	0.2032	32.7219
395	0.0002	0.0247	540	0.5970	96.1248	685	0.1758	28.3011
400	0.0007	0.1077	545	0.6127	98.6580	690	0.1519	24.4525
405	0.0012	0.1984	550	0.6319	101.7426	695	0.1297	20.8866
410	0.0024	0.3848	555	0.6558	105.5932	700	0.1110	17.8703
415	0.0065	1.0388	560	0.6819	109.8027	705	0.0952	15.3247
420	0.0140	2.2558	565	0.7086	114.0913	710	0.0813	13.0838
425	0.0315	5.0765	570	0.7354	118.4067	715	0.0691	11.1317
430	0.0645	10.3899	575	0.7654	123.2426	720	0.0583	9.3835
435	0.1298	20.9037	580	0.7908	127.3282	725	0.0495	7.9625
440	0.2547	41.0177	585	0.8147	131.1790	730	0.0420	6.7580
445	0.5313	85.5477	590	0.8338	134.2577	735	0.0358	5.7712
450	0.9203	148.1811	595	0.8452	136.0816	740	0.0306	4.9210
455	0.9546	153.6971	600	0.8488	136.6630	745	0.0265	4.2656
460	0.6656	107.1674	605	0.8433	135.7845	750	0.0209	3.3648
465	0.5027	80.9371	610	0.8272	133.1937	755	0.0187	3.0087
470	0.4042	65.0849	615	0.8021	129.1541	760	0.0163	2.6195
475	0.2996	48.2398	620	0.7658	123.3024	765	0.0131	2.1167
480	0.2559	41.2047	625	0.7234	116.4799	770	0.0108	1.7384
485	0.2640	42.5137	630	0.6735	108.4374	775	0.0089	1.4266
490	0.2915	46.9371	635	0.6201	99.8487	780	0.0081	1.3059
495	0.3353	53.9855	640	0.5660	91.1304	785	0.0058	0.9288
500	0.3884	62.5450	645	0.5096	82.0588	790	0.0072	1.1657
505	0.4388	70.6517	650	0.4558	73.3957	795	0.0038	0.6092
510	0.4821	77.6186	655	0.4040	65.0425	800	0.0042	0.6773
515	0.5114	82.3413	660	0.3561	57.3399			
520	0.5353	86.1849	665	0.3126	50.3333			



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TM30

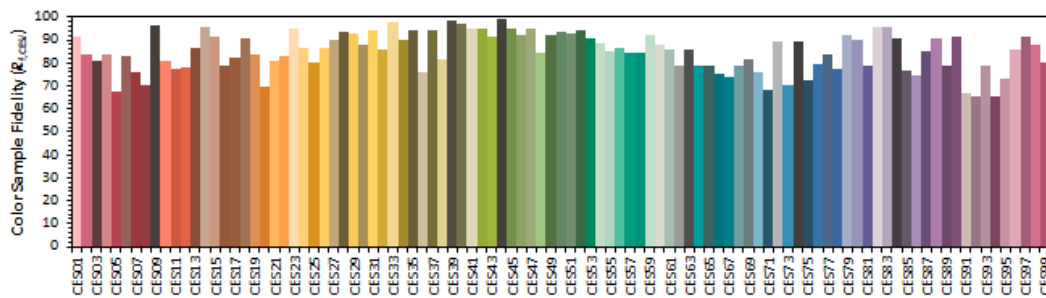
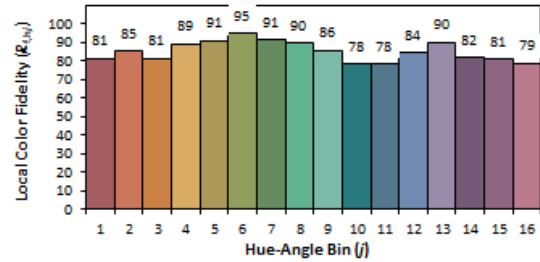
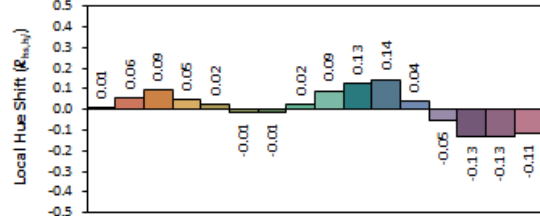
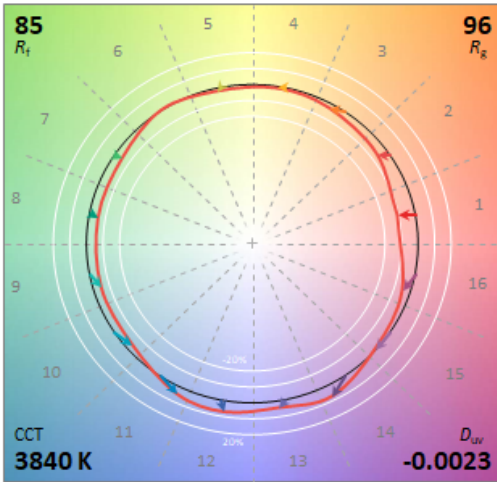
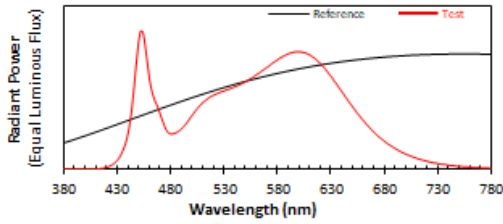
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000P1
L128-XX80RA35002U1

Date: 2021/7/2

Manufacturer: RAB LIGHTING INC.

Model: WP3XFU50 (Tested at 50% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3859
 y 0.3751
 u' 0.2294
 v' 0.5017

CIE 13.3-1995 (CRI)
 R_a 86
 R_g 20



2.3 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction BL-QP-033)

Test date	2021-07-02	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	WP3XFU50(Tested at 100% CCT Setting)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %	
BLC210402	120.0	60	0.439	52.26	0.993	7.73	
7E-A	277.0	60	0.193	51.57	0.963	8.82	
DLC Pass Criteria						>= 0.9(-3%)	<= 20(+5)

Chromaticity Measurement - Sphere-Spectroradiometer Method:

Parameter	Result	Special Color Rendering Indices			
Test Voltage (V)	120.0	R1	82	R9	8
Frequency (Hz)	60	R2	90	R10	75
CCT (K)	5101	R3	94	R11	81
Duv	0.0035	R4	82	R12	59
Chromaticity (x, y)	x=0.3429 y=0.3568	R5	82	R13	84
Chromaticity (u', v')	u(u')=0.2079 v'(v')=0.4868	R6	85	R14	97
Color Rendering Index (CRI)	83	R7	86	R15	76
R9	8	R8	67	--	--
Rf	84	--	--	--	--
Rg	94	--	--	--	--
Rcs,h1(%)	-13	--	--	--	--

Photometric Measurement – Sphere-Spectroradiometer Method:

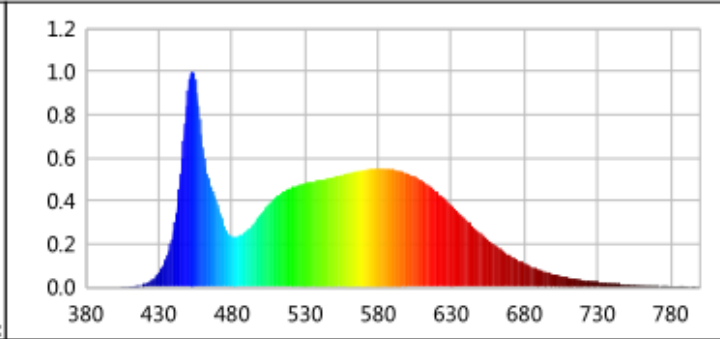
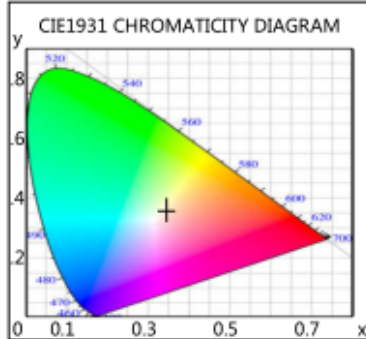
Parameter	Result		DLC V5.1 Pass Criteria
Test Voltage (V)	120.0	277.0	--
Frequency (Hz)	60	60	
Total Luminous (lm)	7698.5	7627.1	5000-10000(-10%)
Luminous Efficacy (lm/W)	147.31	147.90	Premium: >= 120(-3%)
Most worst Luminous/Highest Watts	145.95		



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Spectral Power Distribution & Chromaticity Diagram



WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)	WL(nm)	PL	PE(mW/nm)
380	0.0003	0.0575	525	0.4719	102.9012	670	0.1471	32.0797
385	0.0003	0.0753	530	0.4802	104.7110	675	0.1271	27.7224
390	0.0005	0.1136	535	0.4878	106.3833	680	0.1105	24.1044
395	0.0003	0.0595	540	0.4967	108.3184	685	0.0947	20.6452
400	0.0005	0.1095	545	0.5025	109.5881	690	0.0821	17.8985
405	0.0015	0.3345	550	0.5100	111.2170	695	0.0703	15.3239
410	0.0027	0.5826	555	0.5205	113.5150	700	0.0593	12.9406
415	0.0062	1.3424	560	0.5290	115.3580	705	0.0514	11.2113
420	0.0144	3.1406	565	0.5360	116.8881	710	0.0430	9.3850
425	0.0317	6.9031	570	0.5423	118.2526	715	0.0370	8.0691
430	0.0661	14.4175	575	0.5468	119.2430	720	0.0316	6.8841
435	0.1338	29.1846	580	0.5484	119.5819	725	0.0270	5.8860
440	0.2607	56.8616	585	0.5476	119.4173	730	0.0235	5.1192
445	0.5261	114.7388	590	0.5458	119.0293	735	0.0188	4.1064
450	0.9138	199.2836	595	0.5391	117.5665	740	0.0160	3.4918
455	0.9617	209.7206	600	0.5281	115.1653	745	0.0139	3.0414
460	0.6524	142.2789	605	0.5136	112.0107	750	0.0125	2.7363
465	0.4813	104.9505	610	0.4947	107.8724	755	0.0104	2.2778
470	0.3883	84.6734	615	0.4703	102.5566	760	0.0082	1.7876
475	0.2815	61.3917	620	0.4426	96.5293	765	0.0080	1.7475
480	0.2340	51.0390	625	0.4115	89.7275	770	0.0075	1.6384
485	0.2377	51.8274	630	0.3780	82.4263	775	0.0052	1.1381
490	0.2585	56.3749	635	0.3458	75.4131	780	0.0033	0.7228
495	0.2931	63.9140	640	0.3133	68.3275	785	0.0029	0.6364
500	0.3393	74.0025	645	0.2799	61.0359	790	0.0036	0.7812
505	0.3816	83.2263	650	0.2499	54.4916	795	0.0034	0.7470
510	0.4177	91.0951	655	0.2206	48.1096	800	0.0024	0.5336
515	0.4417	96.3201	660	0.1929	42.0618			
520	0.4603	100.3766	665	0.1695	36.9572			

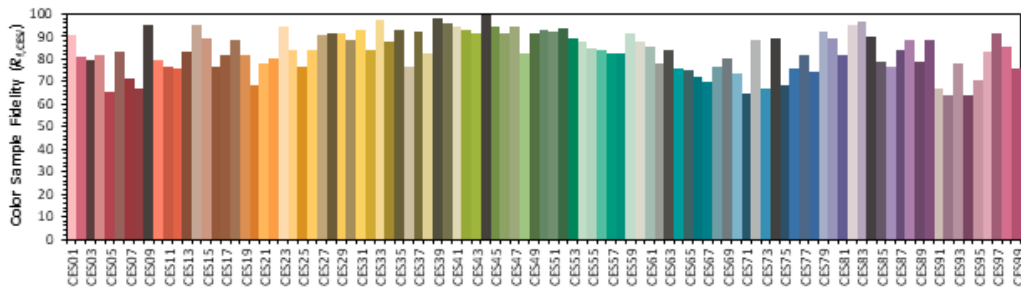
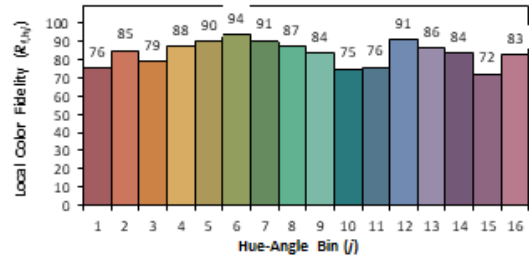
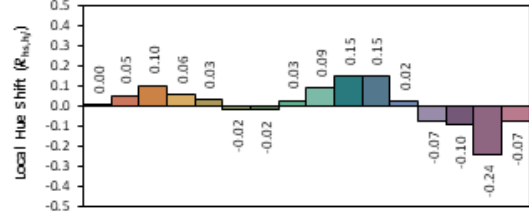
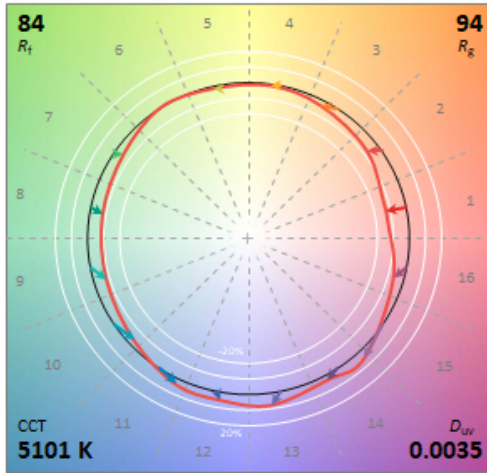
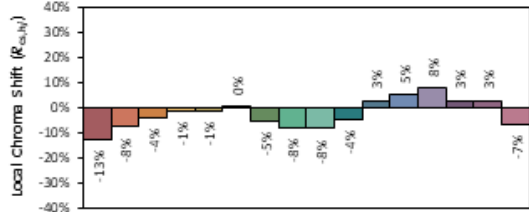
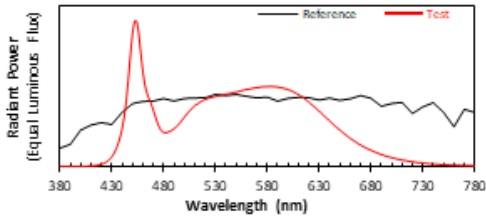


TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000P1
L128-XX80RA35002U1
Date: 2021/7/2

Manufacturer: RAB LIGHTING INC.
Model: WP3XFU50 (Tested at 100% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3429
y 0.3568
u' 0.2079
v' 0.4868

CIE 13.3-1995 (CRI)
R_a 83
R_g 8

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



Certificate#4810.01

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3. Test Equipment

Equipment Name	Model No.	Serial No.	Next Calibration Date
Goniophotometric System	GPM-3000	DYHXF120001	2022-01-18
AC Power Source	CHP-500	DYBWD010159	2022-01-25
Total Luminous Flux Premium Lamp	24V/185W	DYJYR040040	2022-01-24
Digital Power Meter	WT500	DYDWQ20010	2022-01-25
Integral Sphere (2M)	2M	DYJCE120067	2022-01-18
Digital Power Meter	WT500	DYDWQ20006	2022-01-25
Optical Color and Electrical Measurement System	CMS-3000S	DYJCE120067	2022-01-18

Expand Uncertainty:
Photometric Measurement (Sphere): 2.08%, k=2
Chromaticity Measurement(Sphere):25.6K, k=2
Photometric Measurement(Goniophotometer):2.645%, k=2

***** END OF REPORT *****