



Report No.: GZE1707031-B-R

## LM-79-08 Test Report

For

# **Beyond LED Technology**

### (Brand Name: Beyond LED Technology)

# **Architectural Flood and Spot Luminaires**

Model name(s): BLTSFLD30WAT1A1 Remark: "aaK" in the model name refers to CCT as below: 40K=4000K,50K=5000K,57K=5700K; This luminaire has three kinds of mounting arm as below: Type A, Type B, Type C

Representative (Tested) Model: BLTSFLD30WAT1A1

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Garman Mo

Engineer: Garman Mo Date: Jul.21,2017 Update: Sep.14,2017

Review By:

Tommy Liang

Manager: Tommy Liang

Note: This report does not imply product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.





**Revision Details** 

Report No.	Pavised Item	Revised	Issue date
Revision		Reason	issue date
GZE1707031-B	Revised Item: Adding 100V Electrical Data	Adding 100V	Jul.21,2017
GZE1707031-B-R		Electrical Data	Sep.14,2017





#### **1.1 Product Information:**

Organization Name						
Brand Name						
Model Number	BLTSFLD30WAT1A1					
SKU (if available)	N/A					
Type of Luminaire (for integral lamps, list base type and lamp type)	Architectural Flood and Spot Luminaires					
Rated Voltage / Frequency	100 -277Vac, 50/60 Hz					
Nominal Power	30W					
Rated Initial Lamp Lumen						
Declared CCT	4000K,5000K,5700K					
LED Manufacturer	PHILIHS LUMILEDS					
LED Model	L130-xxyy003000W21					
Sample Number	GZE1707031-B1(4000k	K),B2(5700K)				
Luminaire Aperture (for downlights)		in.				
Luminaire Length		mm				
Luminaires Width		mm				
Number of Units (modular products)	N/A s					

Photo





#### SNC-FL06-30WAT1A1-40K Type B













#### **1.2 Test Specifications:**

Date of Receipt	Jul.15,2017
Date of Test	Jul.16,2017
	1. Total Luminous Flux
	2. Luminous Distribution Intensity
	3. Luminous Efficacy
Test item	4. Correlated Color Temperature
	5. Color Rendering Index
	6. Chromaticity Coordinate
	7. Electrical Parameters
	1. IES LM-79-2008 Electrical and Photometric Measurements of
	Solid-State Lighting Products
	2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid
	State Lighting Products
Reference Standard	3. CIE 13.3-1995 Method of Measuring and Specifying Colour
Kelefence Standard	Rendering Properties of Light Sources
	4. CIE 15-2004 Technical Report Colorimetry
	5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source
	6. IESNA TM-16-05 Technical Memorandum on Light Emitting
	Diode (LED) Sources and Systems
Reference Work Instruction	QD25

#### **1.3 Test Methods**

#### 1) Photometric and Light Distribution Measurement - Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at  $25^{\circ}$  C  $\pm$  1° 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.

#### 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  $25^{\circ}$  C  $\pm$  1° 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.

#### 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  $25^{\circ}$  C  $\pm$  1° 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.





### 2.1 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

Test date	2017-07-16	Test Ambient:	25.2 ° C
<b>Test Orientation</b>	As intended	Stabilization Time (min)	90
Model Number	BLTSFLD30WAT1A1		

#### **Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	<b>Power Factor</b>	THD %
C7E170702	GZE170703		0.3096	29.33	0.9475	10.73
GZE170703 1-B1	120.0	60	0.2489	28.84	0.9654	10.33
	277.0	60	0.1178	0.1178 28.85		14.70
		>= 0.9(-3%)	<= 20(+5)			

#### **Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result		Special Color Rendering Indices						
Test Voltage (V)	120.0		R1	72	R9	0			
Frequency (Hz)	60		R2	81	R10	53			
CCT (K)	3997		R3	87	R11	66			
Duv	-0.0010		R4	72	R12	41			
Chromaticity (x, y)	x=0.3799 y=0.3744		R5	70	R13	73			
Chromaticity (u', v')	u'=0.2257 v'=0.5005		R6	72	R14	92			
Color Rendering Index (CRI)	74.0		R7	83	R15	67			
R9	0		R8	56					

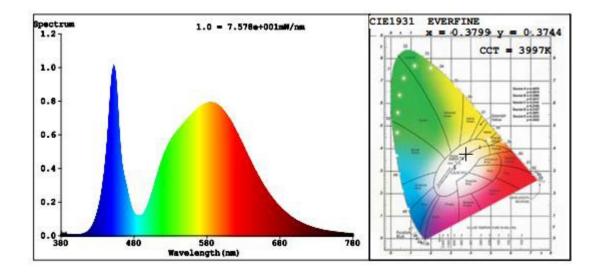
#### Photometric Measurement - Goniophotometer Method:

Parameter	Re	sult	DLC V4.2 Pass Criteria			
Test Voltage (V)	120.0	277.0				
Frequency (Hz)	60	60		-		
Total Luminous (lm)	3736.9	3770.0	>=1000(-10%)			
Luminous Efficacy (lm/W)	129.57	130.68	Standard: >=	Premium: >=		
Most worst Luminous/Highest Watts	129	9.53	90(-3%)	110(-3%)		
Zonal lumens in the 0-90° zone (%)	99.9		>=85(-3)			
Beam Angle (°)	108.3					
Center Beam Candle Power (cd)	1434					





#### Spectral Power Distribution & Chromaticity Diagram



#### **Zonal Lumen Tabulation**

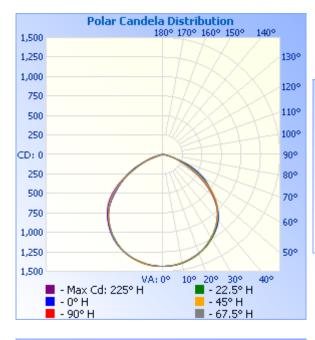
Zonal Lumen Summary						
Zone	Lumens	% Luminaire				
0-30	1,129.8	30.2%				
0-40	1,863.2	49.9%				
0-60	3,243.2	86.8%				
60-90	489.2	13.1%				
70-100	129.5	3.5%				
90-120	0.2	0%				
0-90	3,732.4	99.9%				
90-180	4.1	0.1%				
0-180	3,736.4	100%				

Lumen	Lumens Per Zone									
Zone	Lumens	% Total	Zone	Lumens	% Total					
0-10	136.0	3.6%	90-100	0.0	0%					
10-20	392.2	10.5%	100-110	0.0	0%					
20-30	601.5	16.1%	110-120	0.2	0%					
30-40	733.5	19.6%	120-130	0.6	0%					
40-50	757.1	20.3%	130-140	0.9	0%					
50-60	622.8	16.7%	140-150	0.9	0%					
60-70	359.7	9.6%	150-160	0.7	0%					
70-80	114.1	3.1%	160-170	0.5	0%					
80-90	15.4	0.4%	170-180	0.2	0%					

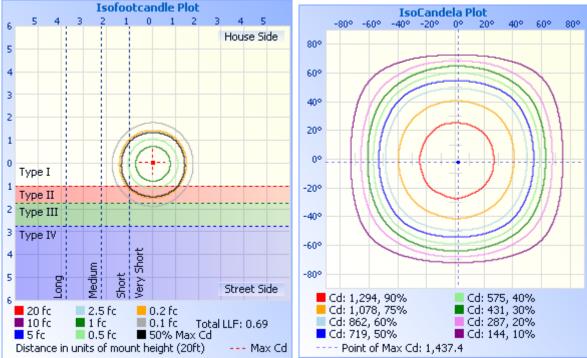




#### **Photometric Data**



Illuminance at a Distance									
	Center Beam fc	Beam Wi	dth						
17.0 <del>R</del>	4.96 fc	47.6 ft	46.4 ft						
34.0ft	1.24 fc	95.2 ft	92.8 ft						
51.0ft	0.55 fc	142.8 ft	139.3 ft						
68.0 <del>R</del>	0.31 fc	190.4 ft	185.7 ft						
85.0R	0.20 fc	238.0 ft	232.1 ft						
102.0 <del>R</del>	0.14 fc	285.5 ft	278.5 ft						
	Vert. Spread: 108.9°								
Horiz. Spread: 107.6°									







v (DEG)   0   23   45   66   90   113   135   158   180   203   225   248   270   293   135   338     0   1434   14	Table1			_							_		_				UNI	T: cd	
y   y	C (DEG)																		Г
5   1431   1429   1428   1429   1426   1426   1429   1428   1431   1432   1436   1436     10   1419   1414   1416   1411   1415   1406   1412   1414   1412   1414   1412   1414   1416   1417   1422   1411     15   1394   1393   1394   1391   1397   1389     20   1358   1355   1357   1366   1285   1249   1250   1301   1307   1307     25   1311   1314   1309   1301   1306   1295   1292   1296   1249   1230   1303   1318   1307   1307   1307     35   1171   1166   1101   1092   1085   1070   1079   1080   1100   1082   1089   1426   1429   1430   1436   1439   1450   1436   1439   1451   1416   143   1430   1436 </td <td>Y (DEG)</td> <td>0</td> <td>23</td> <td>45</td> <td>68</td> <td>90</td> <td>113</td> <td>135</td> <td>158</td> <td>180</td> <td>203</td> <td>225</td> <td>248</td> <td>270</td> <td>293</td> <td>315</td> <td>338</td> <td></td> <td>L</td>	Y (DEG)	0	23	45	68	90	113	135	158	180	203	225	248	270	293	315	338		L
10 1419 1414 1416 1411 1415 1412 1412 1414 1412 1414 <	0	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434	1434		
15 1394 1395 1394 1394 1391 1391 1391 1391 1397 1399   20 1355 1355 1355 1345 1351 1351 1351 1351 1351 1351 1351 1361 1371 136 1269 1264 1269 1269 1264 1269 1269 1264 1269 1269 1269 1269 1269 1269 1269 1	5	1431	1429	1432	1428	1429	1430	1425	1428	1426	1429	1428	1431	1432	1430	1436	1430		
20   1358   1355   1356   1356   1356   1356   1356   1356   1356   1366   1361     25   1311   1314   1309   1305   1301   1306   1292   1292   1296   1294   1305   1307   1314     30   1248   1253   1244   1244   1244   1244   1231   1231   1236   1247   1170   1171   1172   1175     40   1006   1101   1002   1096   1001   1092   1085   1080   1077   1079   1080   1100   1086   1086   1077   1079   1080   100   1086   1086   108   1077   1079   1080   100   1086   1086   1087   850   864   850   850   865   845   837   855   862   850   107   121   107   121   107   121   107   121   121   128   128	10	1419	1414	1418	1416	1411	1415	1406	1412	1412	1414	1412	1414	1418	1417	1422	1411		
25 1311 1314 1309 1305 1306 1295 1296 1294 1205 1303 1305 1307 1307 1314   30 1248 1253 1249 1248 1244 1246 1231 1231 1236 1249 1243 1257 1244 1249 1253   35 1172 1186 1181 1178 1180 1173 164 163 162 174 170 1107 <td>15</td> <td>1394</td> <td>1393</td> <td>1393</td> <td>1394</td> <td>1381</td> <td>1390</td> <td>1383</td> <td>1381</td> <td>1381</td> <td>1384</td> <td>1385</td> <td>1389</td> <td>1394</td> <td>1391</td> <td>1397</td> <td>1389</td> <td></td> <td></td>	15	1394	1393	1393	1394	1381	1390	1383	1381	1381	1384	1385	1389	1394	1391	1397	1389		
30   1248   1253   1249   1248   1249   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1241   1251   1251   1251   1	20	1358	1359	1357	1356	1345	1353	1349	1342	1345	1348	1349	1350	1362	1356	1360	1361		
35 1172 1186 1171 1164 1163 1162 1172 1170 1172 1172 1175 1175   40 1086 1101 1102 1096 1101 1092 1085 1076 1077 1079 1080 1100 1086 1087 1086   45 980 996 1010 993 990 992 987 985 977 973 976 976 985 984 985 987 955 845 857 858 840 344 342 218 218 218 218 218 218 218	25	1311	1314	1309	1305	1301	1306	1295	1292	1296	1294	1305	1303	1318	1307	1307	1314		
40 1086 1101 1102 1096 1101 1092 1085 1077 1079 1080 1100 1086 1087 1086   45 980 996 1010 993 990 992 987 985 977 973 976 976 985 984 985 983 100   55 690 709 736 727 724 722 718 681 666 671 698 688 678 691 707 687 691 70 687 691 70 687 691 70 687 691 70 687 691 70 687 530 502 530 502 510 51 50 51 50 51 50 50 530 520 51 510 51	30	1248	1253	1249	1248	1244	1246	1234	1231	1233	1236	1249	1243	1259	1244	1249	1253		
100   100 <td>35</td> <td>1172</td> <td>1186</td> <td>1181</td> <td>1178</td> <td>1180</td> <td>1173</td> <td>1164</td> <td>1163</td> <td>1162</td> <td>1162</td> <td>1174</td> <td>1170</td> <td>1187</td> <td>1172</td> <td>1172</td> <td>1175</td> <td></td> <td></td>	35	1172	1186	1181	1178	1180	1173	1164	1163	1162	1162	1174	1170	1187	1172	1172	1175		
50   850   869   994   866   856   866   876   848   836   839   855   845   837   852   862   850     55   690   709   736   727   724   722   718   681   666   671   698   688   678   691   707   687     60   517   537   551   581   600   568   530   502   487   489   509   528   538   530   520   510     65   349   364   371   421   450   404   346   330   315   317   320   361   388   364   334   342     70   225   231   228   247   252   236   207   206   197   191   196   199   194   218   18     80   48.1   43.2   45.4   5.0   31.5   11.8   14.7   <	40	1086	1101	1102	1096	1101	1092	1085	1080	1078	1077	1079	1080	1100	1086	1087	1086		
55   690   709   736   727   724   722   718   681   666   671   698   688   678   691   707   667     60   517   537   551   581   600   568   530   502   487   489   509   528   538   530   520   510     65   349   364   371   421   450   404   346   330   315   317   320   361   388   364   334   342     70   225   231   228   247   252   236   207   106   197   191   177   191   196   199   194   218     70   225   231   28.5   16.5   16.3   10.0   10.61   11.7   14.7   14.7   14.7   14.7   14.8   724   7.62   8.5   14.9     90   0.00   0.00   0.00   0.00   0.00<	45	980	996	1010	993	990	992	987	985	977	973	976	976	985	984	985	983		
60   517   537   551   581   600   568   530   502   487   489   509   528   538   530   520   510     65   349   364   371   421   450   404   346   330   315   317   320   361   388   364   334   342     70   225   231   228   247   252   236   207   206   197   191   177   191   196   199   194   218     70   225   231   228   447   252   236   207   206   197   191   177   191   196   199   194   218     80   481   43.2   45.4   45.0   39.6   42.3   40.1   38.5   40.5   33.1   26.4   26.6   29.1   35.5   40.5     85   20.2   15.8   12.6   16.3   15.0   1.0   0.00	50	850	869	894	866	856	866	876	848	836	839	855	845	837	852	862	850		
65   349   364   371   421   450   404   346   330   315   317   320   361   388   364   334   342     70   225   231   228   247   252   236   207   206   197   191   177   191   196   199   194   218     75   136   128   112   105   98.3   100   106   116   115   96.9   77.1   67.3   64.0   72.9   86.8   118     80   48.1   43.2   45.4   45.0   39.6   42.3   40.1   38.5   40.5   33.5   31.1   26.4   26.6   29.1   35.5   40.5     85   20.2   15.8   12.6   16.5   16.3   15.0   11.4   14.7   16.7   11.9   7.44   6.87   5.34   7.21   8.55   14.9     90   0.00   0.00   0.00   0.00   0	55	690	709	736	727	724	722	718	681	666	671	698	688	678	691	707	687		Γ
70   225   231   228   247   252   236   207   206   197   191   177   191   196   199   194   218     75   136   128   112   105   98.3   100   106   116   115   96.9   77.1   67.3   64.0   72.9   86.8   118     80   48.1   43.2   45.4   45.0   39.6   42.3   40.1   38.5   40.5   33.5   31.1   26.4   26.6   29.1   35.5   40.5     85   20.2   15.8   12.6   16.5   16.3   15.0   11.8   14.7   16.7   11.9   7.44   6.87   5.34   7.21   8.55   14.9     90   0.00   0.	60	517	537	551	581	600	568	530	502	487	489	509	528	538	530	520	510		
75   136   128   112   105   98.3   100   106   116   115   96.9   77.1   67.3   64.0   72.9   86.8   118     80   48.1   43.2   45.4   45.0   39.6   42.3   40.1   38.5   40.5   33.5   31.1   26.4   26.6   29.1   35.5   40.5     85   20.2   15.8   12.6   16.5   16.3   15.0   11.8   14.7   16.7   11.9   7.44   6.87   5.34   7.21   8.55   14.9     90   0.00   0.00   0.01   0.01   0.01   0.00   0.0	65	349	364	371	421	450	404	346	330	315	317	320	361	388	364	334	342		
80   48.1   43.2   45.4   45.0   39.6   42.3   40.1   38.5   40.5   33.5   31.1   26.4   26.6   29.1   35.5   40.5     85   20.2   15.8   12.6   16.5   16.3   15.0   11.8   14.7   16.7   11.9   7.44   6.87   5.34   7.21   8.55   14.9     90   0.00   0.00   0.01   0.01   0.01   0.00	70	225	231	228	247	252	236	207	206	197	191	177	191	196	199	194	218		
85   20.2   15.8   12.6   16.5   16.3   15.0   11.8   14.7   16.7   11.9   7.44   6.87   5.34   7.21   8.55   14.9     90   0.00   0.00   0.01   0.01   0.01   0.01   0.01   0.01   0.01   0.00 </td <td>75</td> <td>136</td> <td>128</td> <td>112</td> <td>105</td> <td>98.3</td> <td>100</td> <td>106</td> <td>116</td> <td>115</td> <td>96.9</td> <td>77.1</td> <td>67.3</td> <td>64.0</td> <td>72.9</td> <td>86.8</td> <td>118</td> <td></td> <td>Γ</td>	75	136	128	112	105	98.3	100	106	116	115	96.9	77.1	67.3	64.0	72.9	86.8	118		Γ
90   0.00   0.00   0.01   0.01   0.01   0.01   0.00   0	80	48.1	43.2	45.4	45.0	39.6	42.3	40.1	38.5	40.5	33.5	31.1	26.4	26.6	29.1	35.5	40.5		
95   0.00   0	85	20.2	15.8	12.6	16.5	16.3	15.0	11.8	14.7	16.7	11.9	7.44	6.87	5.34	7.21	8.55	14.9		Γ
100   0.00	90	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Γ
105   0.00	95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Γ
110 0.00 0.00 0.15 0.30 0.05 0.00 0.26 0.57 0.30 0.00 0.00 0.00 1   120 0.10 0.00 0.11 0.87 1.90 0.81 0.30 0.25 0.20 0.15 0.46 0.40 0.20 0.15 1 1 1 1 0.51 0.61 0.50 0.46 0.41 0.71 0.42 0.76 0.40 0.20 0.15   130 0.55 0.56 0.51 1.43 2.11 1.37 0.61 0.96 0.66 0.76 0.77 1.07 1.44 1.22 0.71 0.56   130 0.55 0.56 0.51 1.63 2.06 1.63 1.21 1.16 1.22 <	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Г
115 0.00 0.00 0.71 1.28 0.51 0.00 0.00 0.00 0.26 0.57 0.30 0.00 0.00 1   120 0.10 0.00 0.10 0.87 1.90 0.81 0.30 0.25 0.20 0.15 0.46 0.57 0.46 0.20 0.15 1   125 0.35 0.41 0.51 1.43 0.82 1.17 0.51 0.61 0.50 0.46 0.41 0.71 0.42 0.76 0.40 0.20 1   130 0.55 0.56 0.51 1.43 2.11 1.37 0.61 0.96 0.66 0.77 1.07 1.44 1.22 0.71 0.56   135 0.85 0.76 0.61 1.63 2.16 1.52 0.81 1.21 0.96 0.97 1.02 1.22 1.44 1.52 0.91 0.86 1.61   140 1.06 1.12 0.86 1.63 2.06 1.63 1.16 1.21 1.36 1.22 1.43 1.31	105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Γ
120 0.10 0.00 0.10 0.87 1.90 0.81 0.30 0.25 0.20 0.15 0.46 0.57 0.46 0.20 0.15 1.4   125 0.35 0.41 0.51 1.43 0.82 1.17 0.51 0.61 0.50 0.46 0.41 0.71 0.42 0.76 0.40 0.20 1   130 0.55 0.56 0.51 1.43 2.11 1.37 0.61 0.96 0.66 0.76 0.77 1.07 1.44 1.52 0.91 0.86 1   135 0.85 0.76 0.61 1.63 2.16 1.52 0.81 1.21 0.96 0.97 1.02 1.22 1.44 1.52 0.91 0.86 1   140 1.06 1.12 0.86 1.63 2.06 1.63 1.16 1.21 1.36 1.22 1.43 1.23 1.73 1.11 0.96 1.11   145 1.21 1.12 1.53 1.89 2.06 1.83 1.21 1.36	110	0.00	0.00	0.00	0.15	0.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00		Г
125 0.35 0.41 0.51 1.43 0.82 1.17 0.51 0.61 0.50 0.46 0.41 0.71 0.42 0.76 0.40 0.20   130 0.55 0.56 0.51 1.43 2.11 1.37 0.61 0.96 0.66 0.76 0.77 1.07 1.44 1.22 0.71 0.56   135 0.85 0.76 0.61 1.63 2.16 1.52 0.81 1.21 0.96 0.97 1.02 1.22 1.44 1.52 0.91 0.86   140 1.06 1.12 0.86 1.63 2.06 1.63 1.01 1.21 1.16 1.22 1.43 1.23 1.73 1.11 0.96   145 1.21 1.12 1.16 1.21 1.36 1.22 1.43 1.32 1.32 1.11 0.96   145 1.21 1.12 1.53 1.89 2.06 1.93 1.27 1.37 1.43 1.73 1.90 1.83 1.87 1.22   155 1.31 <td>115</td> <td>0.00</td> <td>0.00</td> <td>0.00</td> <td>0.71</td> <td>1.28</td> <td>0.51</td> <td>0.00</td> <td>0.00</td> <td>0.05</td> <td>0.00</td> <td>0.00</td> <td>0.26</td> <td>0.57</td> <td>0.30</td> <td>0.00</td> <td>0.00</td> <td></td> <td>Γ</td>	115	0.00	0.00	0.00	0.71	1.28	0.51	0.00	0.00	0.05	0.00	0.00	0.26	0.57	0.30	0.00	0.00		Γ
130 0.55 0.56 0.51 1.43 2.11 1.37 0.61 0.96 0.66 0.76 0.77 1.07 1.44 1.22 0.71 0.56   135 0.85 0.76 0.61 1.63 2.16 1.52 0.81 1.21 0.96 0.97 1.02 1.22 1.44 1.52 0.91 0.86   140 1.06 1.12 0.86 1.63 2.06 1.63 1.01 1.21 1.16 1.12 1.22 1.44 1.52 0.91 0.86 1.61   140 1.06 1.12 0.86 1.63 2.06 1.63 1.01 1.21 1.16 1.12 1.22 1.43 1.23 1.73 1.11 0.96   145 1.21 1.12 1.71 1.68 2.00 1.63 1.61 1.21 1.36 1.22 1.38 1.73 1.95 2.03 1.32 1.11 1.55   145 1.21 1.12 1.53 1.89 2.06 1.93 1.52 1.51 1.31 0.01 </td <td>120</td> <td>0.10</td> <td>0.00</td> <td>0.10</td> <td>0.87</td> <td>1.90</td> <td>0.81</td> <td>0.30</td> <td>0.30</td> <td>0.25</td> <td>0.20</td> <td>0.15</td> <td>0.46</td> <td>0.57</td> <td>0.46</td> <td>0.20</td> <td>0.15</td> <td></td> <td>Г</td>	120	0.10	0.00	0.10	0.87	1.90	0.81	0.30	0.30	0.25	0.20	0.15	0.46	0.57	0.46	0.20	0.15		Г
135 0.85 0.76 0.61 1.63 2.16 1.52 0.81 1.21 0.96 0.97 1.02 1.22 1.44 1.52 0.91 0.86 1   140 1.06 1.12 0.86 1.63 2.06 1.63 1.01 1.21 1.16 1.12 1.22 1.44 1.52 0.91 0.86 1   145 1.21 1.12 1.12 1.17 1.68 2.00 1.63 1.16 1.21 1.36 1.22 1.43 1.23 1.73 1.11 0.96 1.11   150 1.21 1.12 1.53 1.89 2.06 1.93 1.27 1.37 1.36 1.22 1.43 1.73 1.90 1.83 1.87 1.22   155 1.31 1.17 1.68 2.04 2.21 1.93 1.52 1.52 1.31 0.01 1.43 1.73 1.90 1.83 1.87 1.22   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31	125	0.35	0.41	0.51	1.43	0.82	1.17	0.51	0.61	0.50	0.46	0.41	0.71	0.42	0.76	0.40	0.20		Γ
140 1.06 1.12 0.86 1.63 2.06 1.63 1.01 1.21 1.16 1.12 1.22 1.43 1.23 1.73 1.11 0.96 1   145 1.21 1.12 1.17 1.68 2.00 1.63 1.16 1.21 1.36 1.22 1.38 1.73 1.95 2.03 1.32 1.11 1   150 1.21 1.12 1.53 1.89 2.06 1.93 1.27 1.37 1.36 1.27 1.43 1.73 1.90 1.83 1.87 1.22   155 1.31 1.17 1.68 2.04 2.21 1.93 1.52 1.52 1.31 0.01 1.43 1.73 1.90 1.83 1.87 1.22   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.42 1.42   160 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42	130	0.55	0.56	0.51	1.43	2.11	1.37	0.61	0.96	0.66	0.76	0.77	1.07	1.44	1.22	0.71	0.56		Γ
145 1.21 1.12 1.17 1.68 2.00 1.63 1.16 1.21 1.36 1.22 1.38 1.73 1.95 2.03 1.32 1.11 1.50   150 1.21 1.12 1.53 1.89 2.06 1.93 1.27 1.37 1.36 1.27 1.43 1.73 1.90 1.83 1.87 1.22 1.55   155 1.31 1.17 1.68 2.04 2.21 1.93 1.52 1.52 1.31 0.01 1.43 1.73 1.90 1.83 1.87 1.22 1.43   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.42 1.42   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.42 1.42   165 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42 </td <td>135</td> <td>0.85</td> <td>0.76</td> <td>0.61</td> <td>1.63</td> <td>2.16</td> <td>1.52</td> <td>0.81</td> <td>1.21</td> <td>0.96</td> <td>0.97</td> <td>1.02</td> <td>1.22</td> <td>1.44</td> <td>1.52</td> <td>0.91</td> <td>0.86</td> <td></td> <td>Г</td>	135	0.85	0.76	0.61	1.63	2.16	1.52	0.81	1.21	0.96	0.97	1.02	1.22	1.44	1.52	0.91	0.86		Г
150 1.21 1.12 1.53 1.89 2.06 1.93 1.27 1.36 1.27 1.43 1.73 1.90 1.83 1.87 1.22 1   155 1.31 1.17 1.68 2.04 2.21 1.93 1.52 1.52 1.31 0.01 1.43 1.73 1.70 1.73 1.97 1.42 1   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.43 1.73 1.70 1.73 1.97 1.42 1   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.58 1.72 1.42   165 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42 1.53 1.94 1.63 1.77 1.77 1.77   170 1.36 1.57 2.35 2.04 2.08 2.01 1.73 1.94 2.65 2.42	140	1.06	1.12	0.86	1.63	2.06	1.63	1.01	1.21	1.16	1.12	1.22	1.43	1.23	1.73	1.11	0.96		Г
155 1.31 1.17 1.68 2.04 2.21 1.93 1.52 1.52 1.31 0.01 1.43 1.73 1.70 1.73 1.97 1.42   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.73 1.70 1.73 1.97 1.42   160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.58 1.72 1.42   165 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42 1.53 1.94 1.65 1.63 1.77 1.77   170 1.36 1.57 2.35 2.04 2.08 2.23 1.92 2.01 1.73 1.94 2.50 2.57 2.44 2.38 2.53   175 1.56 1.88 2.60 2.24 2.72 2.29 2.68 2.07 1.91 1.73 2.42 2.80 </td <td>145</td> <td>1.21</td> <td>1.12</td> <td>1.17</td> <td>1.68</td> <td>2.00</td> <td>1.63</td> <td>1.16</td> <td>1.21</td> <td>1.36</td> <td>1.22</td> <td>1.38</td> <td>1.73</td> <td>1.95</td> <td>2.03</td> <td>1.32</td> <td>1.11</td> <td></td> <td>Γ</td>	145	1.21	1.12	1.17	1.68	2.00	1.63	1.16	1.21	1.36	1.22	1.38	1.73	1.95	2.03	1.32	1.11		Γ
160 1.11 1.22 1.94 1.89 2.06 1.83 1.67 1.62 1.31 1.37 1.43 1.84 1.59 1.58 1.72 1.42   165 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42 1.53 1.94 1.65 1.63 1.77 1.77   170 1.36 1.57 2.35 2.04 2.08 2.23 1.92 2.01 1.73 1.94 2.50 2.57 2.44 2.38 2.53   175 1.56 1.88 2.60 2.24 2.72 2.29 2.68 2.07 1.91 1.73 2.04 2.65 2.42 2.80 2.43 2.78	150	1.21	1.12	1.53	1.89	2.06	1.93	1.27	1.37	1.36	1.27	1.43	1.73	1.90	1.83	1.87	1.22		Г
165 1.16 1.27 2.04 1.84 1.90 1.83 1.72 1.87 1.66 1.42 1.53 1.94 1.65 1.63 1.77 1.77   170 1.36 1.57 2.35 2.04 2.06 2.08 2.23 1.92 2.01 1.73 1.94 2.65 2.44 2.38 2.53   175 1.56 1.88 2.60 2.24 2.72 2.29 2.68 2.07 1.91 1.73 2.04 2.65 2.42 2.80 2.43 2.78	155	1.31	1.17	1.68	2.04	2.21	1.93	1.52	1.52	1.31	0.01	1.43	1.73	1.70	1.73	1.97	1.42		Γ
170 1.36 1.57 2.35 2.04 2.06 2.08 2.23 1.92 2.01 1.73 1.94 2.50 2.57 2.44 2.38 2.53   175 1.56 1.88 2.60 2.24 2.72 2.29 2.68 2.07 1.91 1.73 2.04 2.65 2.42 2.80 2.43 2.78	160	1.11	1.22	1.94	1.89	2.06	1.83	1.67	1.62	1.31	1.37	1.43	1.84	1.59	1.58	1.72	1.42		Γ
175 1.56 1.88 2.60 2.24 2.72 2.29 2.68 2.07 1.91 1.73 2.04 2.65 2.42 2.80 2.43 2.78	165	1.16	1.27	2.04	1.84	1.90	1.83	1.72	1.87	1.66	1.42	1.53	1.94	1.65	1.63	1.77	1.77		Г
	170	1.36	1.57	2.35	2.04	2.06	2.08	2.23	1.92	2.01	1.73	1.94	2.50	2.57	2.44	2.38	2.53		Γ
180 1.56 1.98 2.65 2.24 2.98 2.44 2.63 1.92 1.71 1.57 1.99 2.60 2.26 2.59 2.43 2.58	175	1.56	1.88	2.60	2.24	2.72	2.29	2.68	2.07	1.91	1.73	2.04	2.65	2.42	2.80	2.43	2.78		Г
	180	1.56	1.98	2.65	2.24	2.98	2.44	2.63	1.92	1.71	1.57	1.99	2.60	2.26	2.59	2.43	2.58		t





# BUG Rating: B2-U1-G0

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	564.6	15.1
FM - Front-Medium (30-60)	1066.1	28.5
FH - Front-High (60-80)	251.96	6.7
FVH - Front-Very High(80-90)	9.0654	0.2
Total Forward Light	1893.9	50.7

BL - Back-Low(0-30)	565.17	15.1
BM - Back-Medium(30-60)	1047.8	28.0
BH - Back-High(60-80)	221.78	5.9
BVH - Back-Very High(80-90)	6.3773	0.2
Total Back Light	1843	49.3

UL - Uplight-Low(90-100)	0.00017231	0.0
UH - Uplight-High (100-180)	4.0405	0.1
Total Up Light	4.0407	0.1

BUG(Back, Up, Glare) Rating	B2-U1-G0
bog (back, op, state) Racing	B2-01-00

Zone	Downward	Upward	Total
	Lumens	Lumens	Lumens
House Side	1841.1	1.8786	1843
Street Side	1891.7	2.1621	1893.9





### 2.2 Electrical, Photometric and Chromaticity Measurements

(Refer to Work Instruction QD25)

<b>Test date</b> 2017-07-16		Test Ambient:	25.2 ° C
<b>Test Orientation</b>	As intended	Stabilization Time (min)	90
Model Number	BLTSFLD30WAT1A1		

#### **Electrical Measurement:**

Sample No.	Voltage (Vac)	Frequency (Hz )	Current (A)	Power (W)	<b>Power Factor</b>	THD %
C7E170702	100.0	60	0.3112	29.71	0.9546	10.38
GZE170703 1-B2	120.0	60	0.2461	29.18	0.9879	10.17
1-D2	277.0	60	0.1190	29.20	0.8857	14.56
	DLC Pass Criteria					<= 20(+5)

#### **Chromaticity Measurement - Sphere-Spectroradiometer Method:**

Parameter	Result		Special Color Rendering Indices			ndices
Test Voltage (V)	120.0		R1	73	R9	0
Frequency (Hz)	60		R2	80	R10	49
CCT (K)	5617		R3	82	R11	72
Duv	0.0010		R4	76	R12	43
Chromaticity (x, y)	x=0.3298 y=0.3407		R5	74	R13	75
Chromaticity (u', v')	u'=0.2052 v'=0.4770		R6	71	R14	89
Color Rendering Index (CRI)	75.2		R7	84	R15	70
R9	0		R8	62		

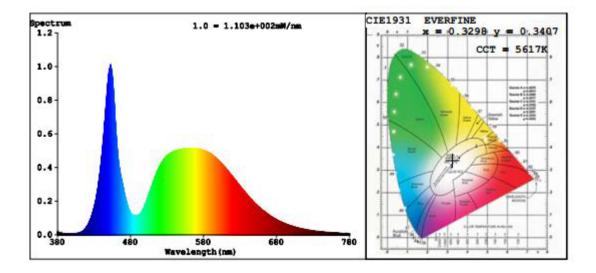
#### **Photometric Measurement – Sphere-Spectroradiometer Method:**

Parameter	Re	sult	DLC V4.2 P	ass Criteria	
Test Voltage (V)	120.0	277.0			
Frequency (Hz)	60	60			
Total Luminous (lm)	3860	3889	>=1000(-10%)		
Luminous Efficacy (lm/W)	132.29	133.20	Standard: >=	Premium: >=	
Most worst Luminous/Highest Watts	132.19		90(-3%)	110(-3%)	





#### Spectral Power Distribution & Chromaticity Diagram







#### 2.3 Performance Assessment:

Model name	CCT(K)	Total Luminous (lm)	Power (W)	Luminous Efficacy (lm/W)
BLTSFLD30WAT1A1	4000K	3736.9	28.84	129.57
BLTSFLD30WAT1A2	5000K	3819 <sup>*1</sup>	29.01 <sup>*2</sup>	131.64 <sup>*3</sup>
BLTSFLD30WAT1A3	5700K	3860	29.18	132.29

- \*1: This value is calculated and the calculation formula is as below: 3819=(3860-3736.9)/3\*2+3736.9
- \*2: This value is calculated and the calculation formula is as below: 29.01 = (28.84 + 29.18)/2
- \*3: This value is calculated and the calculation formula is as below: 131.64= 3819/29.01





### 3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date			
ST-R-331	2 meter Integrating Sphere	2017-07-01	2018-06-30			
ST-R-327	Spectral analysis system HAAS-2000	2017-07-01	2018-06-30			
D204	Standard Lamp	2017-07-12	2018-07-11			
PF2010	Power Meter for Integrating Sphere	2017-07-01	2018-06-30			
GO-R5000	Goniophotometer system	2017-07-01	2018-06-30			
D908S	Standard Lamp	2017-07-12	2018-07-11			
PF210	Power Meter for Goniophotometer 2017-07-07 2018-07-06					
Expand Uncerta	Expand Uncertainty:					
Photometric Measurement (Sphere):2.04%, k=2						
Chromaticity Measurement(Sphere):28.8K, k=2						
Photometric M	Photometric Measurement(Goniophotometer):2.36%, k=2					

## \*\*\*\*\* END OF REPORT \*\*\*\*\*