



Cat# 71404
LED High Bay



Model :		71404
OVERALL LAMP PARAMETERS	Input Voltage	100-277VAC 50/60HZ
	Input Current	4A Max
	Input Power	211 W
	Power Factor	PF≥0.95
	Luminance	25045 LM
	Luminous Efficiency	118 LM/W
	CRI	82
	Beam Angle	120°
	Main Structure	Aluminium + Tempered Glass
LED DRIVER	Output Voltage	48 VDC
	Output Current	5A
	Driver Efficiency	93%
LED	LED Manufacturer	COB
	LED Type	CREE 2530
	LED Quantity	5 PCS
	LED Efficacy	120 LM/W
	Color Temperature	WW/NW/CW (4986K)
Photocell	-	Sold Separately
LIFESPAN & ENVIRONMENT	Lifespan	50000 Hrs.
	Warranty	5 Years
	IP Rating	IP65 Wet Locations
	Operating Temperature	-40F to 131F
	Storage Temperature.Humidity	-40°C—+80°C , 10—90% RH
SAFETY&EMC	Safety Norms	UL1598,UL8750, EN60598, EN61347-2-13, EN62031, EN62471
	Withstand Voltage	I/P-FG: 2121VDC
	Grounding Resistance	≤0.5Ω,OK
	Electromagnetic Compatibility	EN55015, EN61000-2-3, EN61000-3-3, EN61547
OTHERS	Dimension	Pls refer to attached dimension drawing
	Net Weight	KG
	Gross Weight	KG
	Packing Size	master carton: L495*W495*H250
	Q'ty / Carton纸箱	1PCS
	Volume	Cbm/carton

ounting Options:



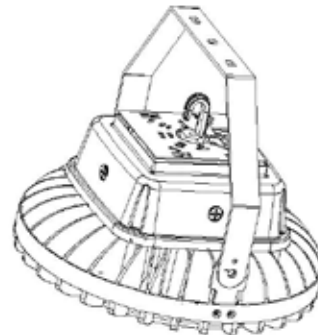
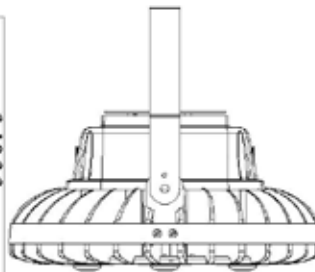
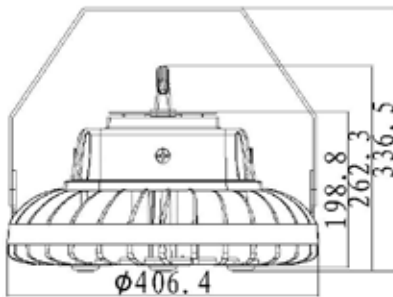
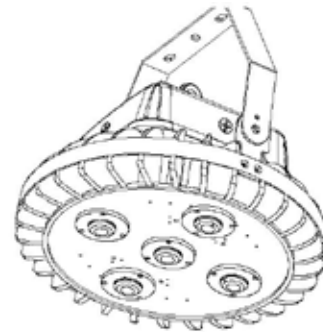
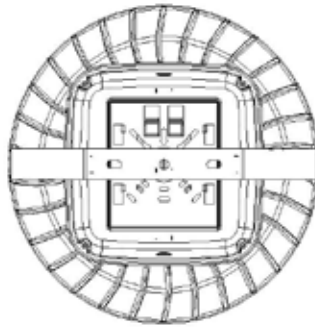
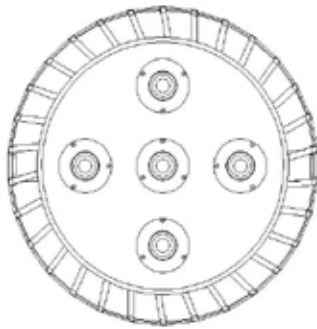
Cat# 71407
Ceiling Mount
5-1/2" X 6-1/4"
Plate, Brackets & Hinges



Cat# 71409
Pendant Mount
3/4" X 8" (6" Exposed)



Cat# 71410
Bracket Mount
9-1/2" X 17"
Hardware Included





NVLAP LAB CODE 201011-0

Report No.: GZE140709-R

LM-79-08 Test Report

For

Morris Products Inc.
53 Carey Rd.
Queensbury, NY 12804

High-Bay Luminaires for Commercial and Industrial buildings

Model name(s): 71404

Representative (Tested) Model: 71404

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

Test & Report By:

Sean Zhuo

Engineer: Sean Zhuo

Date: Oct.28,2014

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.

Laboratory: Standard-Tech Co. Ltd Testing Center

NVLAP CODE: 201011-0

Report Format Number STD/QR4909-A/2

Address: 8th floor, Block B, No. 11 Caipin Road, Guangzhou Science City, Tianhe, Guangzhou 510663, China

Tel: 8620-3229 0320

Fax: 8620-32290422

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U.S. Department of Energy

Lighting Facts™ Uniform LM-79 Reporting Template

Laboratory Information:

Name of Test Laboratory	Standard-Tech Co. Ltd
Date of Test Report	Oct.28,2014
Test Report No.	GZE140709-R
Laboratory Contact Name	Tommy Liang

Product Information:

Organization Name	Morris Products Inc.	
Brand Name	MORRIS	
Model Number	71404	
SKU (if available)	N/A	
Type of Luminaire (for integral lamps, list base type and lamp type)	High-Bay Luminaires for Commercial and Industrial buildings	
Luminaire Aperture (for downlights)	--	in.
Luminaire Length	--	mm
Luminaires Width	--	mm
Number of Units (modular products)	N/A	s

Integrating Sphere

Goniophotometer

Electrical Measurements:

Output

Output

Input Wattage	211.0	--	W
Input Current	1.767	--	A
Input Voltage (ac)	120.0	--	V
Power Factor	0.9951	--	
Off-State Power	0	--	W

Photometric Characteristics

Total Initial Lumen Output	25045	--	lm
Initial Lumen Efficacy	118.70	--	lm/w
Correlated color temperature / CCT	4986	--	K
Color rendering index / CRI	82.5	--	
R9 Value	15	--	
Duv	0.0019	--	
Luminous Intensity Distribution			
Center beam candlepower (if applicable)	-----	--	
Beam angle (if applicable)		--	
Zonal lumens in the 0 °-60 °zone		--	
Zonal lumens in the 60 °-90 °zone		--	
Zonal lumens in the 90 °-120 °zone		--	
Zonal lumens in the 120 °-180 °zone		--	

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Test Specifications:	
Date of Receipt	: Oct.26,2014
Date of Test	: Oct.27,2014
Test item	: Total Luminous Flux, Luminous Distribution Intensity, Luminous Efficacy, Correlated Color Temperature, Color Rendering Index, Chromaticity Coordinate, Electrical parameters
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry IESNA LM-16-93 Practical Guide to Colorimetry of Light Source IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems
Reference Work Instruction	QD25

Test Methods

1. Photometric and Electrical measurements – Light Distribution Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, 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 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. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$. 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 Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at least 5 nm intervals over the range of 380 to 780 nm.

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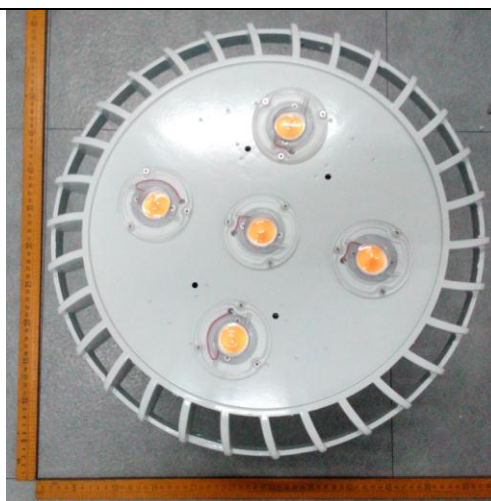
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1. Product Information:

Brand Name	MORRIS
Model Number	71404
Luminaire Type	High-Bay Luminaires for Commercial and Industrial buildings
Rated Voltage / Frequency	120 ~ 277 Vac, 50/60 Hz
Nominal Power	210W
Rated Initial Lamp Lumen	--
Declared CCT	5000K
LED Manufacturer	CREE
LED Model	CXA2530
Sample Receipt Date	Oct.26,2014
Sample Number	(5000K)

Photo



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2.1 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2014-10-27	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	TL-HBB2101-02 (3000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
140709-43	120.1	60	1.764	210.6	0.9941	7.99
	277.0	60	0.7986	203.4	0.9193	13.66

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Color Rendering Index (CRI)	83.7
R9	16
CCT (K)	3009
Chromaticity (x, y)	x=0.4336 y=0.3983
Chromaticity (u', v')	u'=0.2509 v'=0.5186
Duv	-0.0019

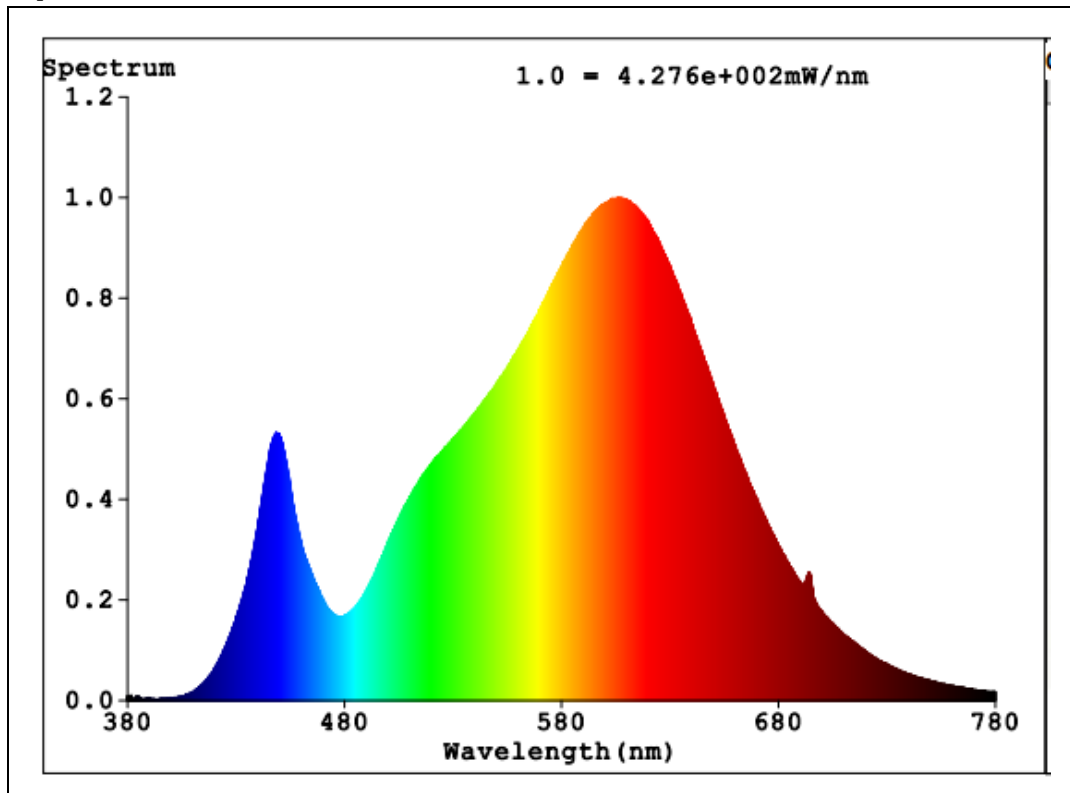
Special Color Rendering Indices			
R1	83	R9	16
R2	90	R10	78
R3	96	R11	82
R4	82	R12	74
R5	82	R13	84
R6	88	R14	98
R7	84	R15	76
R8	63	--	--

Goniophotometer Method:

Parameter	Result
Test Voltage (V)	120.0
Frequency (Hz)	60
Total Luminous (lm)	20366
Luminous Efficacy (lm/W)	96.72
Beam Angle °	89.1
Center Beam Candle Power (cd)	10763
S/MH(C0/180)	1.28
S/MH(C90/270)	1.27

Spectral Power Distribution

Spectral Power Distribution:



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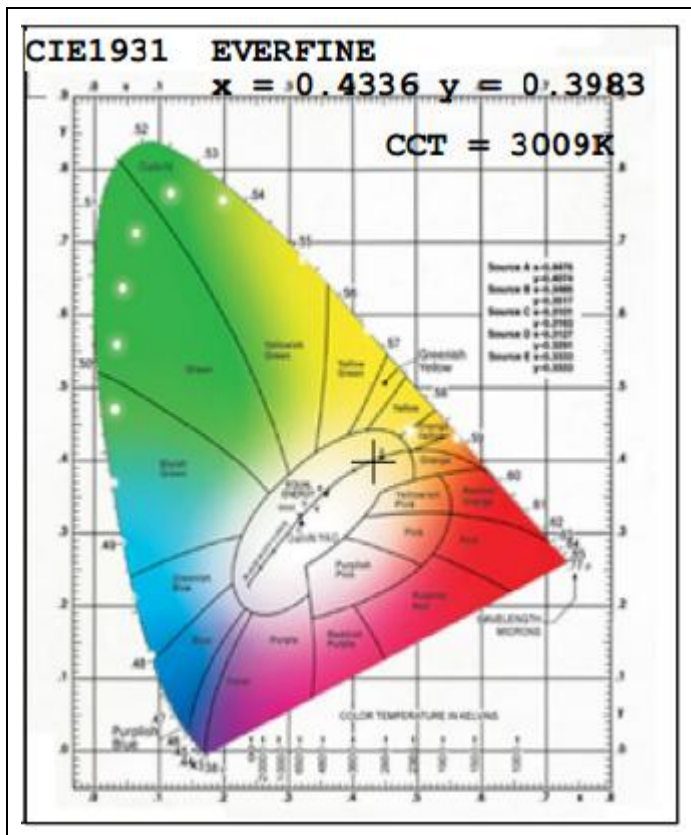
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Chromaticity Diagram



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Zonal Lumen Tabulation

Zonal Lumen Summary			
Zone	Lumens	% Lamp	% Luminaire
0-30	8,418.6	41.3%	41.3%
0-40	13,703.1	67.3%	67.3%
0-60	18,671.2	91.7%	91.7%
60-90	1,655.7	8.1%	8.1%
70-100	666.2	3.3%	3.3%
90-120	6.0	0%	0%
0-90	20,326.9	99.8%	99.8%
90-180	35.8	0.2%	0.2%
0-180	20,362.7	100%	100%

Lumens Per Zone					
Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	1,017.5	5.0%	90-100	3.2	0%
10-20	2,928.7	14.4%	100-110	1.2	0%
20-30	4,472.5	22.0%	110-120	1.5	0%
30-40	5,284.5	26.0%	120-130	2.8	0%
40-50	3,706.4	18.2%	130-140	5.4	0%
50-60	1,261.6	6.2%	140-150	7.5	0%
60-70	992.7	4.9%	150-160	7.2	0%
70-80	477.0	2.3%	160-170	5.0	0%
80-90	186.0	0.9%	170-180	1.9	0%

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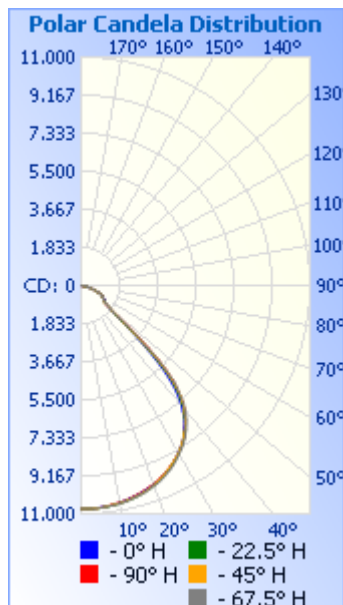
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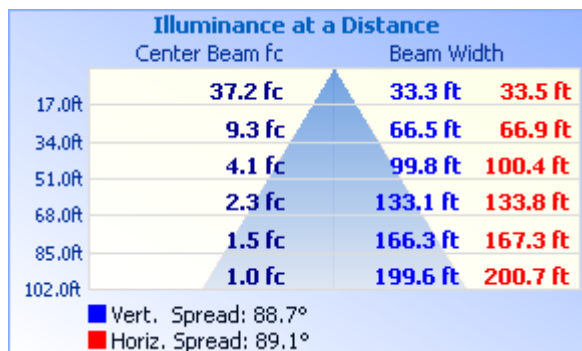
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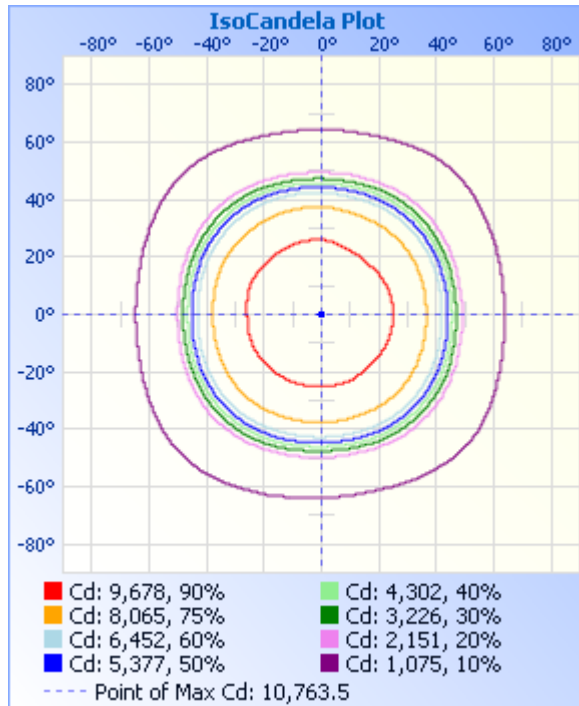
Photometric Data



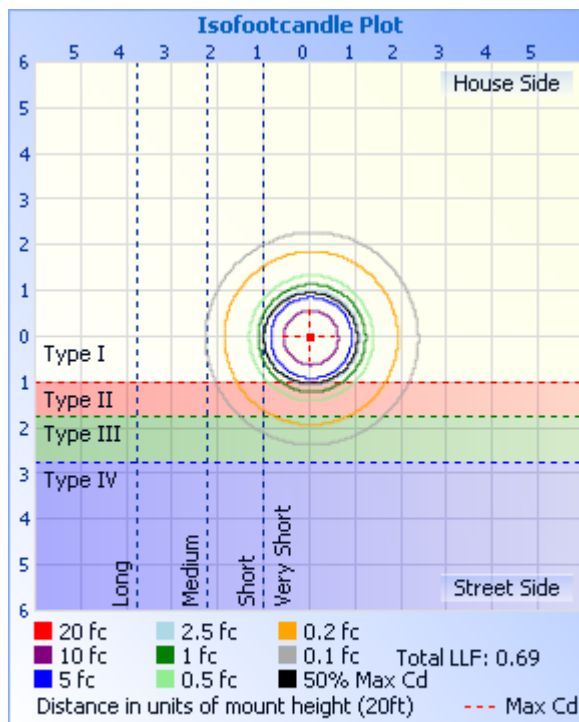
Illuminance Plots



ISOCANDELA DIAGRAM



ISOLUX DIAGRAM



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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	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754	10754
1	10750	10754	10752	10758	10751	10746	10754	10745	10748	10745	10752	10751	10763	10761	10753	10751	10750
2	10746	10750	10748	10762	10747	10740	10751	10728	10734	10733	10745	10738	10758	10758	10747	10751	10746
3	10735	10750	10748	10762	10742	10736	10742	10714	10722	10715	10721	10714	10741	10747	10727	10743	10735
4	10726	10749	10746	10758	10737	10727	10736	10704	10713	10703	10698	10687	10720	10732	10706	10723	10726
5	10716	10740	10735	10743	10723	10708	10725	10686	10698	10683	10677	10661	10700	10709	10686	10706	10716
6	10702	10726	10712	10725	10706	10686	10710	10662	10674	10658	10658	10637	10671	10681	10658	10675	10702
7	10691	10708	10686	10710	10683	10662	10693	10629	10645	10622	10634	10609	10640	10655	10628	10643	10691
8	10676	10690	10663	10695	10654	10632	10665	10592	10607	10586	10609	10579	10609	10626	10596	10614	10676
9	10654	10673	10649	10680	10624	10597	10638	10553	10573	10557	10578	10549	10580	10598	10561	10587	10654
10	10621	10648	10633	10659	10598	10562	10608	10515	10534	10524	10538	10515	10547	10572	10519	10554	10621
11	10585	10621	10609	10635	10568	10530	10580	10473	10497	10485	10496	10477	10508	10537	10479	10514	10585
12	10551	10591	10580	10608	10532	10501	10547	10434	10457	10444	10453	10435	10466	10492	10437	10471	10551
13	10518	10561	10541	10571	10493	10474	10511	10389	10415	10398	10405	10389	10421	10445	10392	10432	10518
14	10482	10531	10503	10534	10452	10437	10463	10346	10371	10349	10354	10344	10383	10398	10344	10388	10482
15	10442	10490	10463	10497	10411	10390	10425	10305	10326	10298	10292	10298	10347	10349	10294	10336	10442
16	10397	10442	10428	10461	10371	10343	10378	10255	10273	10242	10228	10250	10305	10287	10234	10275	10397
17	10351	10394	10383	10419	10321	10296	10324	10201	10220	10188	10155	10190	10249	10225	10169	10216	10351
18	10300	10343	10331	10370	10268	10246	10269	10153	10161	10133	10083	10127	10195	10159	10105	10154	10300
19	10249	10295	10271	10315	10218	10189	10202	10095	10098	10076	10017	10060	10135	10096	10038	10097	10249
20	10196	10235	10206	10260	10164	10129	10131	10041	10030	10014	9944	10002	10063	10032	9972	10036	10196
21	10138	10165	10133	10206	10098	10064	10054	9983	9957	9942	9871	9938	9985	9959	9896	9963	10138
22	10073	10090	10060	10141	10027	10006	9972	9921	9887	9875	9791	9861	9913	9882	9815	9881	10073
23	9992	10008	9984	10065	9955	9946	9886	9853	9808	9804	9709	9783	9835	9812	9740	9801	9992
24	9917	9922	9904	9984	9878	9881	9805	9781	9729	9733	9620	9704	9749	9731	9656	9718	9917
25	9834	9836	9815	9900	9794	9804	9723	9703	9651	9655	9534	9622	9654	9642	9571	9632	9834
26	9751	9743	9723	9813	9703	9718	9634	9620	9573	9568	9446	9527	9557	9539	9481	9544	9751
27	9656	9656	9626	9722	9619	9628	9534	9537	9484	9474	9353	9428	9449	9438	9378	9444	9656
28	9547	9566	9528	9619	9528	9534	9430	9447	9387	9370	9260	9323	9334	9327	9272	9348	9547
29	9438	9461	9427	9504	9433	9434	9331	9348	9285	9259	9161	9215	9212	9219	9170	9249	9438

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30	9320	9344	9327	9383	9335	9324	9233	9236	9188	9143	9054	9106	9087	9110	9063	9132	9320
31	9206	9222	9207	9270	9216	9217	9124	9131	9081	9024	8940	8991	8955	8989	8942	9008	9206
32	9069	9109	9073	9159	9097	9099	8999	9014	8955	8897	8821	8842	8806	8851	8810	8893	9069
33	8928	8983	8933	9034	8973	8965	8873	8874	8820	8744	8686	8685	8650	8701	8664	8758	8928
34	8796	8827	8782	8886	8834	8826	8735	8728	8677	8576	8544	8530	8486	8526	8528	8597	8796
35	8615	8655	8640	8734	8692	8671	8595	8562	8521	8387	8394	8353	8301	8352	8371	8412	8615
36	8411	8507	8482	8579	8527	8481	8455	8358	8321	8227	8219	8156	8119	8165	8214	8233	8411
37	8242	8331	8293	8396	8328	8289	8287	8166	8115	8007	8017	7948	7917	7940	8011	8023	8242
38	8049	8080	8116	8217	8148	8097	8108	7933	7923	7762	7788	7679	7661	7716	7767	7779	8049
39	7753	7883	7888	7996	7946	7858	7873	7672	7648	7525	7552	7449	7371	7474	7560	7544	7753
40	7489	7626	7686	7728	7681	7649	7642	7430	7347	7193	7277	7118	7042	7151	7300	7243	7489
41	7147	7306	7401	7507	7444	7353	7408	7074	6950	6856	6918	6770	6688	6816	6949	6877	7147
42	6791	6996	7122	7100	7057	7013	7095	6686	6620	6481	6471	6377	6294	6393	6522	6546	6791
43	6339	6595	6710	6776	6728	6709	6595	6323	6123	6017	5894	5900	5781	5899	5995	6104	6339
44	5820	6161	6239	6434	6353	6264	6083	5787	5524	5414	5260	5237	5085	5207	5279	5534	5820
45	5161	5535	5686	5816	5792	5738	5453	5145	4848	4656	4388	4504	4330	4407	4561	4897	5161
46	4500	4795	4991	5246	5176	5055	4631	4452	4115	3917	3703	3793	3519	3552	3733	4093	4500
47	3708	3964	4122	4400	4417	4262	3921	3755	3382	3178	3018	3082	2789	2847	3050	3352	3708
48	3045	3212	3355	3577	3721	3469	3211	3059	2655	2447	2339	2377	2281	2334	2501	2739	3045
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50	2116	2177	2245	2349	2330	2200	2077	1981	1867	1778	1713	1707	1750	1772	1783	1936	2116
51	1817	1852	1895	1963	1953	1849	1759	1708	1636	1588	1541	1530	1586	1592	1623	1769	1817
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53	1562	1549	1553	1592	1488	1454	1457	1459	1426	1381	1361	1373	1368	1347	1387	1438	1562
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56	1383	1327	1302	1330	1338	1306	1322	1326	1347	1263	1261	1295	1310	1270	1291	1329	1383
57	1350	1298	1286	1308	1332	1276	1293	1301	1315	1231	1229	1272	1285	1247	1267	1296	1350
58	1315	1264	1262	1269	1297	1249	1263	1263	1266	1207	1204	1247	1258	1227	1247	1273	1315
59	1289	1240	1248	1248	1268	1230	1238	1238	1227	1191	1177	1220	1228	1200	1228	1242	1289
60	1254	1219	1226	1220	1239	1209	1210	1207	1188	1169	1149	1200	1197	1174	1203	1208	1254
61	1220	1189	1201	1191	1206	1189	1177	1172	1156	1134	1119	1175	1164	1145	1178	1177	1220

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62	1184	1159	1167	1157	1174	1164	1147	1142	1127	1096	1091	1135	1134	1108	1151	1147	1184
63	1154	1132	1134	1123	1147	1132	1118	1114	1099	1054	1064	1094	1098	1069	1109	1114	1154
64	1123	1096	1097	1094	1118	1094	1085	1080	1064	1003	1027	1050	1051	1028	1063	1076	1123
65	1078	1053	1058	1059	1083	1046	1046	1028	1018	948	981	1001	999	984	1014	1036	1078
66	1026	1005	1011	1019	1036	994	1002	976	960	898	926	936	937	932	964	992	1026
67	964	957	957	976	976	940	954	929	894	844	861	866	873	874	908	936	964
68	903	902	902	926	910	881	895	871	822	783	790	798	802	804	843	877	903
69	837	833	844	872	848	823	826	804	753	718	721	730	733	731	774	814	837
70	766	756	780	806	782	763	756	739	687	650	649	662	658	665	708	742	766
71	693	690	712	737	716	695	687	667	624	583	582	593	582	594	642	663	693
72	618	623	647	665	653	627	622	602	561	522	521	532	514	528	573	595	618
73	550	558	581	598	588	563	559	543	502	466	466	474	458	471	509	534	550
74	490	501	520	537	524	502	499	487	447	418	419	426	409	423	454	481	490
75	440	453	468	484	467	449	450	437	400	380	380	384	368	383	408	433	440
76	397	410	420	438	418	403	405	394	360	348	347	352	333	347	369	393	397
77	363	373	380	398	375	368	368	361	328	322	321	324	306	321	335	362	363
78	335	344	344	364	342	340	336	334	303	302	297	305	286	300	308	336	335
79	311	321	316	335	314	317	312	312	281	286	280	291	268	284	288	313	311
80	292	304	294	315	293	298	292	295	261	272	266	277	252	270	274	296	292
81	270	288	278	298	277	283	275	279	240	256	253	264	236	256	259	279	270
82	249	272	265	284	261	270	261	265	218	240	236	251	204	242	245	264	249
83	218	258	251	272	246	256	246	252	173	223	219	237	165	228	227	249	218
84	165	239	238	257	212	241	229	233	142	201	194	217	144	212	203	226	165
85	139	216	219	243	166	226	206	206	121	179	144	195	118	192	154	204	139
86	111	194	187	225	144	207	158	180	94	145	120	171	100	169	119	167	111
87	87	161	138	203	121	185	123	145	73	120	86	137	80	135	83	137	87
88	61	133	105	181	102	161	89	112	38	61	42	70	26	71	46	89	61
89	21	71	78	140	79	119	50	42	15	21	11	13	6	15	13	28	21
90	8	28	21	44	21	33	13	34	4	2	9	2	1	1	1	3	8
91	1	2	5	9	5	29	2	26	1	2	7	2	1	1	1	1	1
92	1	1	1	1	1	25	2	18	1	2	5	2	1	1	1	1	1
93	0	1	1	1	1	21	2	10	1	2	3	2	0	1	1	1	0

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94	0	1	1	1	1	17	2	1	1	2	1	2	0	1	1	0	0
95	0	1	1	1	1	13	2	1	1	2	1	2	0	1	1	0	0
96	0	1	1	1	1	9	2	1	1	2	1	2	0	1	1	0	0
97	0	1	1	1	1	8	2	1	1	2	1	2	0	1	1	0	0
98	0	1	1	1	1	7	2	1	1	2	1	2	0	1	1	0	0
99	0	1	1	1	1	7	2	1	1	1	1	2	0	1	1	0	0
100	0	1	1	1	1	6	2	1	1	1	1	2	0	1	1	0	0
101	0	1	1	1	1	5	2	1	1	1	1	2	0	1	1	0	0
102	0	1	1	1	1	4	2	1	1	1	2	2	0	1	1	0	0
103	0	1	1	1	1	3	2	1	1	1	2	2	0	1	1	0	0
104	0	1	1	1	1	3	2	1	1	1	2	2	0	1	1	0	0
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106	0	1	1	1	1	2	2	2	2	1	2	2	1	1	1	1	0
107	0	1	1	1	2	2	2	2	2	1	2	2	1	1	1	1	0
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110	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1
111	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1
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120	2	2	1	1	2	2	2	2	2	2	3	3	2	2	1	1	2

2.2 Electrical, Photometric and Chromaticity Measurements (Refer to Work Instruction QD25)	IES LM-79 2008
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Test date	2014-10-27	Test Ambient:	25.2 °C
Test Orientation	As intended	Stabilization Time (min)	90
Model Number	TL-HBB2101-02 (5000K)		

Electrical Measurement:

Sample No.	Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor	THD %
140709-44	120.0	60	1.767	211.0	0.9951	8.12
	277.0	60	0.8246	212.5	0.9303	13.47

Sphere-Spectroradiometer Method:

Parameter	Result
Test Voltage (V)	277.0
Frequency (Hz)	60
Color Rendering Index (CRI)	82.5
R9	15
CCT (K)	4986
Chromaticity (x, y)	x=0.3458 y=0.3560
Chromaticity (u', v')	u'=0.2102 v'=0.4869
Duv	0.0019
Total Luminous (lm)	25045
Luminous Efficacy (lm/W)	118.7

Special Color Rendering Indices			
R1	81	R9	15
R2	86	R10	66
R3	89	R11	82
R4	83	R12	59
R5	81	R13	82
R6	80	R14	94
R7	88	R15	77
R8	71	--	--

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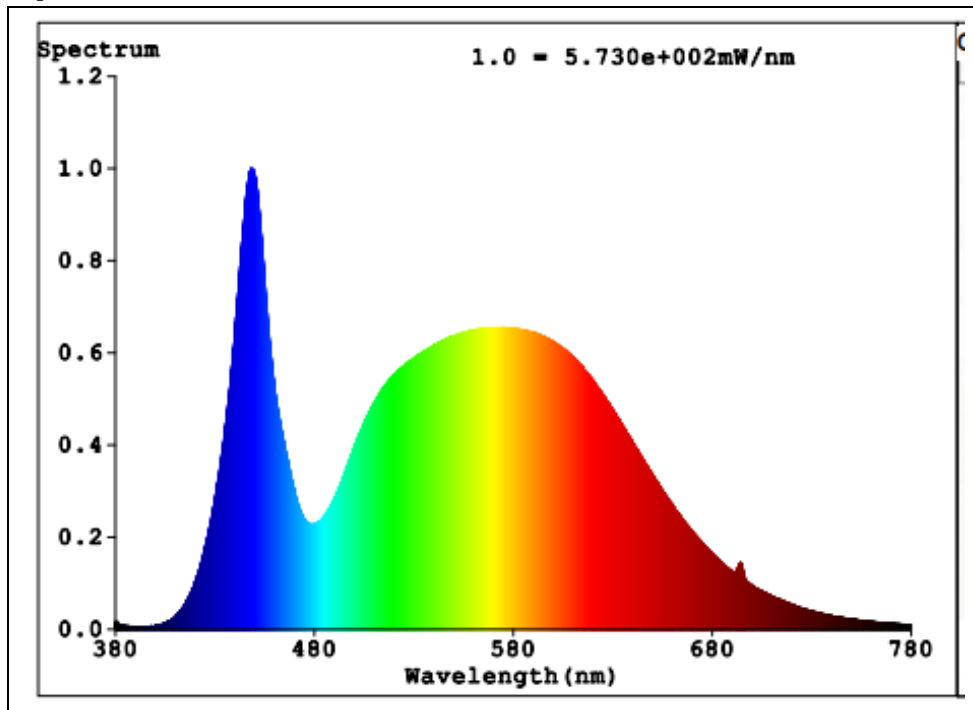
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Spectral Power Distribution

Spectral Power Distribution:



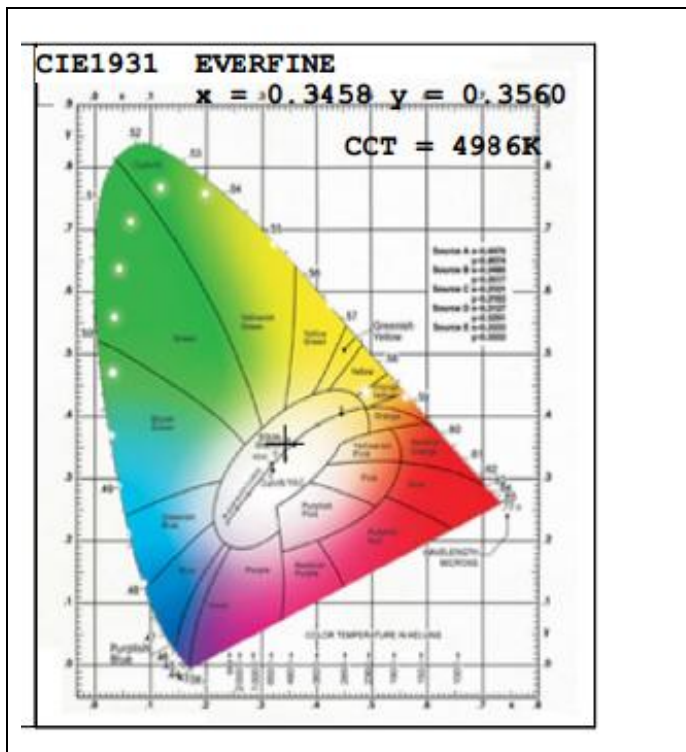
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Chromaticity Diagram



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3. Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Next Calibration Date
ST-R-336	2 meter Integrating Sphere	2014-07-01	2015-06-30
ST-R-331	Spectral analysis system HAAS-2000	2014-07-01	2015-06-30
D204	Standard Lamp	2014-07-01	2015-06-30
PF2010	Power Meter for Integrating Sphere	2014-07-01	2015-06-30
EE-09	Goniophotometer system	2014-07-01	2015-06-30
D908S	Standard Lamp	2014-07-01	2015-06-30
PF210	Power Meter for Goniophotometer	2014-07-01	2015-06-30
ST-R-181A	Temperature Tester	2014-07-01	2015-06-30

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